



**HARVEY**  
**RADIO CO. INC.**

60 Crossways Park West  
Woodbury, L. I., N. Y. 11797  
(516) WALnut 1-8700

103 West 43rd Street  
New York, N.Y., 10036  
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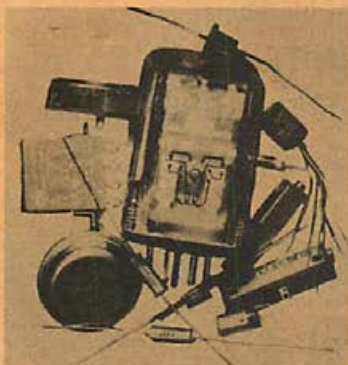
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SEMICONDUCTORS

TUBES

CONTROLS

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SWITCHES & RELAYS

FUSES & LAMPS

BATTERIES, HARDWARE

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# YOU CAN DEPEND ON HARVEY

## INDUSTRIAL

ADC	DAVEN	SANGAMO
AMELCO	DELCO RADIO	SIGMA
AMPHENOL	DICKSON	SPRAGUE
BOURNS	GE	SWITCHCRAFT
CENTRALAB	GRAYHILL	SYLVANIA
CINCH MFG.	IRC	TRANSITRON
CONTROL SWITCH	MALLORY	TRIAD
CORNELL-DUBILIER	OHMITE	UTC
CORNING	POTTER & BRUMFIELD	
CUTLER HAMMER	RCA	

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ALLTRONICS-HOWARD	EICO	PETERSEN
BARKER & WILLIAMSON	GONSET	SUPEREX
CESCO	HALLICRAFTERS	SWAN
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COLLINS	E. F. JOHNSON	
DOW-KEY	MICROWAVE DEVICES	
R. L. DRAKE	NATIONAL	

**O.E.M. PRICES** — We can supply most items in this catalog at factory prices to quantity users. Include us on your bid lists!

**NEW STOCK ITEMS** — We invite your inquiries about items you may not find listed due to space limitations and new additions.

**PRICES** — All prices in this catalog were correct at press time, but are subject to change without notice. Orders will be filled at the prices prevailing on date of shipment.

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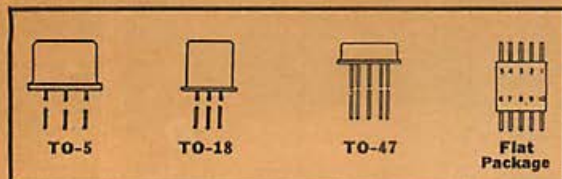
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# Amelco Integrated Circuits



## DIRECT COUPLED TRANSISTOR LOGIC (DCTL)

**Power Supply:** +3.0 volts, **Part No. Designation:** B, buffer; C, counter adapter; E, dual three input gate expander; F, R-S flip-flop; G, two input gate; H, half adder; I, quad inverter; J, four input gate; K, three input gate; L, dual two input gate; M or N, dual three input gate; O, one shot multivibrator; P, full shift register (J-K flip-flop, two-phase); Q, quad two input gate; R, full shift register (J-K flip-flop, one-phase); S, half shift register; T, full shift register (J-K master slave); U, full shift register (J-K single rank). Case type indicated by first digit: 1 for TO-5; 2 for TO-47 (available); 4 for flat package (e.g. B11-001).

### PREMIUM GRADE, -55° C TO +125° C

Type No.	Fan In	Fan Out	tpd, nsec	Pwr. Diss. mW	Net Each, Lots of		
					1-24	25-99	100-999
B11-001	1	60	15	35	\$20.90	\$18.40	\$14.00
B41-001	1	60	15	35	25.90	22.40	17.00
B11-501*					23.00	20.15	15.40
B41-501*					28.00	24.15	18.40
C11-001	1-1-1	10	35	50	40.90	35.95	27.40
C41-001	1-1-1	10	35	50	45.90	39.95	30.40
F11-001	1-1	10	18	20	21.80	19.10	14.60
F41-001	1-1	10	18	20	26.80	23.10	17.60
G11-001	5	10	15	10	21.60	19.00	14.50
G41-001	5	10	15	10	26.60	23.00	17.50
H11-001	2-2	10	22	42	31.45	27.60	21.10
H41-001	2-2	10	22	42	36.45	31.60	24.10
I11-001					21.60	19.00	14.50
I41-001					26.60	23.00	17.50
J11-001	4	10	15	10	21.60	19.00	14.50
J41-001	4	10	15	10	26.60	23.00	17.50
K11-001	3	10	15	10	17.00	15.00	11.40
K41-001	3	10	15	10	23.00	19.00	14.40
L11-001	2-2	10	15	20	23.50	20.65	15.70
L41-001	2-2	10	15	20	28.50	24.65	18.70
M11-001	3-3	10	15	20	27.20	23.90	18.20
M41-001	3-3	10	15	20	32.20	27.90	21.20
N11-001					27.20	23.90	18.20
N41-001					32.20	27.90	21.20
O11-001		10	20	24.50	21.60	16.40	
P11-001	{J-K-C}	10	30	84	37.50	33.00	25.00
P41-001	{C-S-R}	10	30	84	42.50	37.00	28.00
Q11-001					27.20	23.90	18.20
Q41-001					32.20	27.90	21.20
R11-001	{J-K-C}	10	45	84	34.00	30.00	22.80
R41-001	{S-R}	10	45	84	39.00	34.00	25.80
S11-001	R-S-C	10	32	50	32.50	28.60	21.80
S41-001	R-S-C	10	32	50	37.50	32.60	24.80
T11-001					34.00	30.00	22.80
T41-001					39.00	34.00	25.80

### STANDARD GRADE, -55° C TO +125° C

Type No.	Fan In	Fan Out	tpd, nsec	Pwr. Diss. mW	Net Each, Lots of		
					1-24	25-99	100-999
B11-008	1	30	15	35	\$18.45	\$16.20	\$12.40
B41-008	1	30	15	35	23.45	20.20	15.40
B11-508*					20.15	17.80	13.70
B41-508*					25.15	21.80	16.70
C11-008	1-1-1	5	35	50	36.10	31.70	24.15
C41-008	1-1-1	5	35	50	41.10	35.70	27.15
E11-008	3-3		15		16.00	14.10	10.70
E41-008	3-3		15		21.00	18.10	13.70
F11-008	1-1	5	18	20	19.20	16.90	12.85
F41-008	1-1	5	18	20	24.20	20.90	15.85
G11-008	5	5	15	10	21.10	18.60	14.10
G41-008	5	5	15	10	26.10	22.60	17.10
H11-008	2-2	5	22	42	27.75	24.40	18.60
H41-008	2-2	5	22	42	32.75	28.40	21.60
I11-008					21.10	18.60	14.10
I41-008					26.10	22.60	17.10
J11-008	4	5	15	10	21.10	18.60	14.10
J41-008	4	5	15	10	26.10	22.60	17.10
K11-008	3	5	15	10	15.30	13.50	10.30
K41-008	3	5	15	10	20.30	17.50	13.30
L11-008	2-2	5	15	20	21.10	18.60	14.10
L41-008	2-2	5	15	20	26.10	22.60	17.10
M11-008	3-3	5	15	20	24.50	21.50	16.40
M41-008	3-3	5	15	20	29.50	25.50	19.40
N11-008					24.50	21.50	16.40
N41-008					29.50	25.50	19.40
O11-008	1	5	↑	20	22.10	19.40	14.80
P11-008	{J-K-C}	5	30	84	33.80	29.70	22.50
P41-008	{C-S-R}	5	30	84	38.80	33.70	25.50
Q11-008					24.50	21.50	16.40
Q41-008					29.50	25.50	19.40
R11-008	{J-K-C}	5	45	84	30.50	26.50	21.70
R41-008	{S-R}	5	45	84	35.50	32.50	24.70
S11-008	R-S-C	5	32	50	29.15	25.80	19.65
S41-008	R-S-C	5	32	50	34.15	29.80	22.65
T11-008					30.00	26.40	20.00
T41-008					35.00	30.40	23.00
U11-008					28.00	24.50	18.75
U41-008					33.00	28.50	21.75

\*High current type. †Variable pulse width.

## DCTL (CONTINUED)

### INDUSTRIAL GRADE, 0° C TO +70° C

Type No.	Fan In	Fan Out	tpd, nsec	Pwr. Diss. mW	Net Each, Lots of		
					1-24	25-99	100-999
B11-004	1	32	15	35	\$ 8.40	\$ 8.40	\$ 7.20
B11-504*					9.25	9.25	7.85
C11-004	1-1-1	5	35	50	12.00	12.00	10.20
E11-004	3-3	5	15	20	6.50	6.50	5.50
F11-004	1-1	5	18	20	7.80	7.80	6.70
G11-004	5	5	15	10	7.50	7.50	6.40
H11-004	2-2	5	22	42	10.00	10.00	8.50
I11-004					7.50	7.50	6.40
J11-004	4	5	15	10	7.50	7.50	6.40
K11-004	3	5	15	10	6.75	6.75	5.80
L11-004	2-2	5	15	20	7.50	7.50	6.40
M11-004	3-3	5	15	20	10.00	10.00	8.50
N11-004					10.00	10.00	8.50
O11-004	1	5	↑	20	8.50	8.50	7.50
P11-004	↑	5	30	84	18.15	18.15	15.40
Q11-004					10.00	10.00	8.50
R11-004	§	5	45	84	16.50	16.50	14.00
S11-004	R-S-C	5	32	50	11.00	11.00	9.35
T11-004					12.50	12.50	10.60
U11-004					12.50	12.50	10.60

## DIODE TRANSISTOR LOGIC (DTL)

### -55° C TO +125° C

**Power Supply:** +4.0 volts, **Part No. Designation:** See DCTL listing unless otherwise noted.

Type No.	Fan In	Fan Out	tpd, nsec	Pwr. Diss. mW	Net Each	25-99	100-999
R12-001	3	20	80	4.0	\$24.50	\$21.60	\$19.60
B42-001	3	20	80	4.0	29.50	25.60	22.10
E12-001	6				12.50	11.00	10.00
E42-001	6				17.50	15.00	13.00
G12-002	{4	5	100	1.0	24.50	21.60	19.60
G42-002	{(four input)				29.50	25.60	22.10
G12-003	{3/2	5	100	1.0	24.50	21.60	19.60
G42-003	{(3-input/2-input)				29.50	25.60	22.10
O12-001	2	5	↑	3.5	24.50	21.60	19.60
O42-001	2	5	↑	3.5	29.50	25.60	22.60
R12-001	{J-K-C}	4	4.0†	3.5	32.00	28.10	25.60
R42-001	{S-R}		(single rank)		37.00	32.10	28.60
R12-002	{J-K-C}	4	4.0†	9.0	35.00	30.80	28.00
R42-002	{C-S-R}		(master slave)		40.00	34.80	31.00

\*High current type. †Variable pulse width. ‡J-K-C, C-S-R. §J-K-C, S-R. †Mc, clock rate.

## MULTIPLE INTEGRATED CIRCUIT ASSEMBLIES

Type No.	Description	Net Each, Lots of		
		1-24	25-99	100-249
E16-501	Analogue gate	\$29.50	\$26.00	\$19.75
E16-511	Wideband amplifier	27.50	24.20	18.40
T15-002	One-shot multivibrator	27.50	24.20	18.40
T15-021	Binary element	36.00	31.70	24.10
T35-001	3-stage counter	75.00	66.00	50.25

## LINEAR INTEGRATED CIRCUITS,

### -55° C TO +125° C\*

Case type indicated by 1st digit: 1, TO-5; 4, flat package.

Type No.	Amplifier Type	BW -3 db	Pwr. mW	Voltage Gain	Net Ea., Lots of	
					1-99	100-249
A13-251	Operational	100 kc	120	20 kV	\$ 44.50	\$ 35.50
D13-000	2-stage	400 kc	100	2 kV	125.00	100.00
D43-000	differential				140.00	115.00
D13-001	2-stage	400 kc	100	2 kV	35.00	28.00
D43-001	differential				40.00	32.00
D13-002	2-stage	400 kc	100	1.5 kV	27.50	22.00
D43-002	differential				32.50	26.00
D13-011	Differential	300 kc	200	150 V	45.00	36.00
D43-011	amplifier				60.00	51.00
E13-401	VHF Amplifier	40 mc		15 db	45.00	36.00

\*-25° C to +85° C for D13-002, D43-002.

## SPECIAL ASSEMBLIES

Multiple silicon transistors in a single package.

### FIELD EFFECT DIFFERENTIAL AMPLIFIERS

BVDG0: 50 V min. gm1/gm2: 1.0 max. Case: TO-18 (flat package available). SU2000 is cascode connected.

Type No.	gm μmhos Min.	gm2 Min.	IDSS mA Min.-Max.	VGS(-) mV Max.	Iq nA Max.	Net Each, Lots of	
						1-49	50-249
SU2000	1500		8-4.0		.5	\$30.00	\$20.00
SU2020	150	.95	2-2.0	5.0	.1	87.00	60.90
SU2021	150	.90	2-2.0	10	.1	82.00	57.40
SU2022	150	.90	2-2.0	20	.1	77.00	53.90
SU2023	150	.80	2-2.0	40	.1	72.00	50.40
SU2024	1500	.95	8-4.0	5.0	.25	94.00	65.80
SU2025	1500	.90	8-4.0	10	.25	89.00	62.30
SU2026	1500	.90	8-4.0	20	.25	84.00	58.80
SU2027	1500	.80	8-4.0	40	.25	79.00	55.30
SU2028	300	.95	2.5-1.3	5	.1	32.00	21.50
SU2029	400	.95	8-3.0	5	.1	32.00	21.50
SU2030	300	.95	2.5-1.3	5	.1	24.00	16.00
SU2031	400	.95	8-3.0	5	.1	24.00	16.00
SU2032	1500	.95	1.0-1.0	5	.25	30.00	20.00
SU2033	2500	.95	5.0-2.0	5	.25	50.00	33.50
SU2034	1500	.95	1.0-1.0	5	.25	22.00	14.50
SU2035	2500	.95	5.0-2.0	5	.25	40.00	26.50





# Amelco Transistors

## SPECIAL ASSEMBLIES (CONT'D)

### SILICON TRANSISTORS

All numbers listed are differential amplifiers unless noted otherwise.

Type No.	Pkg. TO	V <sub>CEO</sub> V Min.	hFE Min.	hFE1 hFE2 Min.-Max.	VBE(1-2) mV Max.	Net Ea., Lots	
						1-99	100-999
2N998*	18	60	1600		1.2 V†	\$14.65	\$ 9.80
2N2060	5	60	40	9-1.0	5	36.00	24.00
2N2060†	5	60	40	9-1.0	5	45.00	30.00
2N2060A	5	60	40	9-1.0	3	52.90	34.85
2N2223	5	60	25	8-1.0	15	15.00	10.00
2N2223A	5	60	25	9-1.0	5	24.00	16.00
2N2453	5	30	150	9-1.0	3	24.00	16.00
2N2453A	5	50	150	9-1.0	3	32.50	21.60
2N2639	5	45	65	9-1.0	5	23.90	15.90
2N2640	5	45	65	8-1.0	10	20.50	13.60
2N2641†	5	45	65		1.0 V‡	10.60	7.10
2N2642	5	45	130	9-1.0	5	26.25	17.50
2N2643	5	45	130	8-1.0	10	25.00	16.70
2N2644†	5	45	130		1.0 V‡	15.65	10.40
2N2720	5	60	35	9-1.0	5	28.10	18.70
2N2721	5	60	35	8-1.0	10	24.40	16.30
2N2722	5	45	100	9-1.0	5	40.50	27.00
2N2903	5	30	125	8-1.0	10	15.50	10.30
2N2903A	5	30	125	9-1.0	5	25.00	16.70
2N2913†	5	45	150		0.35 V‡	10.50	7.00
2N2914†	5	45	300		0.35 V‡	12.50	8.30
2N2915	5	45	150	9-1.0	3	30.75	20.50
2N2916	5	45	300	9-1.0	3	31.25	20.80
2N2917	5	45	150	8-1.0	5	23.15	15.40
2N2918	5	45	300	8-1.0	5	24.75	16.50
2N2919	5	60	150	9-1.0	3	31.25	20.80
2N2920	5	60	300	9-1.0	3	42.50	28.30
2N2972†	18	45	150		0.35 V‡	12.50	8.30
2N2973†	18	45	300		0.35 V‡	14.50	9.70
2N2974	18	45	150	9-1.0	3	36.50	24.30
2N2975	18	45	300	9-1.0	3	37.75	25.25
2N2976	18	45	150	8-1.0	5	24.25	16.10
2N2977	18	45	300	8-1.0	5	25.35	16.75
2N2978	18	60	150	9-1.0	3	39.25	26.20
2N2979	18	60	300	9-1.0	3	50.25	33.50
SA2253	5	30	25	7-1.0	20	5.00	3.35
SA2254	5	30	45	8-1.0	10	15.00	11.00
SA2255	5	30	125	8-1.0	10	17.00	14.00
ASA-2	5	28	30	9-1.0	30	15.75	11.95

\*Darlington. †Dual. ‡VCE(sat). §Flat pkg. available. †USN type.

### P-CHANNEL FIELD EFFECT TRANSISTORS

Silicon planar devices in TO-18 package.

Type No.	BV <sub>DGO</sub>	IG <sub>SS</sub>	g <sub>m</sub> μmhos	CD <sub>G</sub>	C <sub>SG</sub>	Net Ea., Lots	
						1-99	100-999
P1003	50 V min.	3.0 nA max.	1000-3500	6.0 pF max.	6.0 pF max.	\$13.20	\$ 8.80
P1004			2500-6000			14.10	9.40
P1005			3500-7000			16.80	11.20

### NPN SILICON PASSIVATED PLANAR DIFFUSED TRANSISTORS

#### GENERAL PURPOSE

Type No.	Pkg. TO	V <sub>CEO</sub> V Min.	V <sub>EB0</sub> V Min.	hFE† Min.-Max.	IC <sub>BO</sub> nA Max.	fr Mc Min.	Net Ea., Lots	
							1-99	100-999
2N718	18	60	5	40-120	1.0K	50	\$1.30	\$0.86
2N718A	18	75	7	40-120	10	70	1.52	1.01
2N718A*	18	75	7	40-120	10	70	3.30	2.20
2N719A	18	120	7	20-60	10	40	2.50	1.67
2N720	18	120	5	40-120	2.0K	50	1.83	1.22
2N720A	18	120	7	40-120	10	50	2.48	1.65
2N870	18	100	7	40-120	10	50	5.25	3.50
2N871	18	100	7	100-300	10	60	5.33	3.56
2N856	18	75	7	100-300	10	70	2.17	1.44
2N1613	5	75	7	40-120	10	60	1.11	.74
2N1613*	5	75	7	40-120	10	60	1.80	1.20
2N1711	5	75	7	100-300	10	70	1.20	.80
2N1889	5	100	7	40-120	10	50	5.25	3.50
2N1890	5	100	7	100-300	10	60	5.30	3.55
2N1893	5	120	7	40-120	10	50	1.38	.92
2N1886	5	40	5	60-240	5K	40	3.60	2.40
2N1987	5	40	5	20-80	5K	40	4.00	3.00
2N1990	5	100	3	20 min.			3.55	2.35
A1109	18	45	5	70 min.	100	40	1.50	1.00
A1341	5	75	5	50 min.	10	40	1.80	1.20

#### SMALL SIGNAL AMPLIFIERS

##### HIGH VOLTAGE

Type No.	Pkg. TO	V <sub>CEO</sub> V Min.	V <sub>EB0</sub> V Min.	hFE Min.-Max.	IC <sub>BO</sub> nA Max.	fr Mc Min.	Net Ea., Lots
2N740	18	125	5	80-200	1	60	\$12.40 \$8.30
2N760A	18	60	8	76-333	100	50	1.83 1.22
2N910	18	100	7	80-200	25	60	2.37 1.58
2N911	18	100	7	40-100	25	50	4.80 3.50
2N912	18	100	7	20-50	25	40	5.20 3.90
2N1973	5	100	7	80-200	25	60	2.37 1.58
2N1974	5	100	7	40-100	25	50	6.60 4.90
2N1975	5	100	7	20-50	25	40	5.20 3.90

##### MEDIUM VOLTAGE

Type No.	Pkg. TO	V <sub>CEO</sub> V Min.	V <sub>EB0</sub> V Min.	hFE Min.-Max.	IC <sub>BO</sub> nA Max.	fr Mc Min.	Net Ea., Lots
2N760	18	45	8	76-333	200	50	\$1.80 \$1.20
2N1983	5	50	5	80-240	5K	40	2.50 1.67
2N1984	5	50	5	40-120	5K	40	2.33 1.56
2N1985	5	50	5	20-80	5K	40	3.80 2.45
2N1988	5	100	5	20-100	5K	40	4.10 3.15
2N1989	5	100	5	10 min.	5K	40	4.20 3.15

### N-CHANNEL SILICON DIFFUSED FIELD EFFECT

### PASSIVATED PLANAR DIFFUSED TRANSISTORS

Package: TO-18 except U1287 (TO-5); flat package available.

#### GENERAL PURPOSE

Type No.	BV <sub>DGO</sub> V Min.	IG <sub>SS</sub> nA Max.	g <sub>m</sub> μmhos Min.-Max.	CD <sub>G</sub> pF Max.	C <sub>SG</sub> pF Max.	Net Ea., Lots	
						1-99	100-999
2N3066	50	1	400-1000	1.5	3	\$ 9.50	\$ 6.30
2N3067	50	1	300-1000	1.5	3	11.50	7.70
2N3068	50	1	200-1000	1.5	3	13.50	9.00
2N3069	50	1	1000-2500	2.5	5	9.25	6.20
2N3070	50	1	750-2500	2.5	5	11.50	7.40
2N3071	50	1	500-2500	2.5	5	12.50	8.30
2N3365	40	5	400-2000	2	3	4.50	3.00
2N3366	40	5	250-1000	2	3	5.75	3.80
2N3367	40	5	100-1000	2	3	6.85	4.60
2N3368	40	5	1000-4000	3.5	6	4.50	3.00
2N3369	40	5	600-2500	3.5	6	5.65	3.75
2N3370	40	5	300-2500	3.5	6	6.45	4.30
U3000	30	100	300 min.	2	4	15.00	12.00
U3001	30	100	250 min.	2	4	20.00	16.00
U3002	30	100	200 min.	2	4	30.00	24.00
U3010	30	100	750 min.	3	6	15.00	12.00
U3011	30	100	600 min.	3	6	20.00	16.00
U3012	30	100	500 min.	3	6	30.00	24.00

#### LOW CAPACITANCE

Type No.	BV <sub>DGO</sub> V Min.	IG <sub>SS</sub> nA Max.	g <sub>m</sub> μmhos Min.-Max.	CD <sub>G</sub> pF Max.	C <sub>SG</sub> pF Max.	Net Ea., Lots
2N3452	50	1	200-1200	1.2	1.8	\$ 9.50 \$ 6.30
2N3453	50	1	150-900	1.2	1.8	11.25 7.50
2N3454	50	1	100-600	1.2	1.8	13.00 8.70
2N3455	50	.04	400-1200	1.0	1.5	12.50 8.30
2N3456	50	.04	300-900	1.0	1.5	14.25 9.50
2N3457	50	.04	150-600	1.0	1.5	16.00 10.70
U1277	50	1	450*, 1.5 mA	1.2	1.8	7.00 4.70
U1278	50	1	350*, 0.5 mA	1.2	1.8	7.00 4.70
U1279	50	1	250*, 0.2 mA	1.2	1.8	9.00 6.00
U1280	50	1	250 min.	1.2	1.8	4.50 3.00
U1285	30	5	200-1200	2	3	3.00 2.00
U1321†				1.3	1.5	12.75 8.50
U1322†				1.3	1.5	12.45 8.30
U1323†				1.3	1.5	14.00 9.60
U1324†				1.3	1.5	16.50 11.00
U1325†				1.3	1.5	18.30 12.20

#### HIGH GAIN

Type No.	BV <sub>DGO</sub> V Min.	IG <sub>SS</sub> nA Max.	g <sub>m</sub> μmhos	CD <sub>G</sub> pF Max.	C <sub>SG</sub> pF Max.	Net Ea., Lots
2N3436	50	.5	2500-10000	5	5	\$10.75 \$ 7.20
2N3437	50	.5	1500-6000	5	5	12.50 8.30
2N3438	50	.5	800-4500	5	5	14.25 9.50
2N3458	50	.25	2500-10000	5	5	13.75 9.20
2N3459	50	.25	1500-8000	5	5	15.50 10.30
2N3460	50	.25	800-4500	5	5	17.25 11.50
U1281	50	.5	3000*, 8.0 mA	5	5	9.00 6.00
U1282	50	.5	2500*, 4.0 mA	5	5	9.50 6.35
U1283	50	.5	1500*, 1.0 mA	5	5	8.50 5.65
U1284	50	.5	1000 min.	5	5	5.25 3.50
U1286	30	10	1000-10000	8	8	3.50 2.35
U1287	30	2	Ro = 50Ω	20	20	20.00 13.50

\*Minimum. †Epitaxial.

#### LOW NOISE—LOW LEVEL

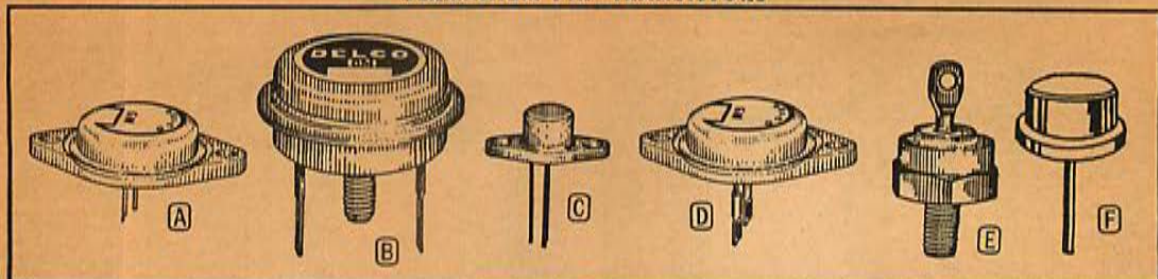
PA types are PNP double diffused. PA-1000 for complementary use with 2N2509, 2N2510 and 2N2511.

Type No.	Pkg. TO	V <sub>CEO</sub> V Min.	V <sub>EB0</sub> V Min.	hFE Min.-Max.	IC <sub>BO</sub> nA Max.	fr Mc Min.	NF db Max.	Net Ea., Lots
2N780	18	45	5	20 min.	10	60	7	\$7.50 \$5.00
2N929	18	....	5	40-120	....	30	4	3.67 2.44
2N929†	18	....	5	40-120	....	30	4	5.70 3.80
2N930	18	....	5	100-300	....	30	4	4.00 2.67
2N930†	18	....	5	100-300	....	30	4	6.15 4.10
2N2049	5	75	7	20 min.	10	50	3	9.45 6.30
2N2483	18	60	6	40-120	10	60	4	4.50 3.00
2N2484	18	60	6	100-500	10	60	3	6.45 4.30
2N2509	18	125	7	25 min.	5	45	7	5.00 3.35
2N2510	18	100	7	75 min.	5	45	4	6.00 4.00
2N2511	18	80	7	120 min.	5	45	4	8.00 5.35



# Delco Radio Semiconductors

## GERMANIUM PNP TRANSISTORS



**NU-BASE:** Types using Delco Radio's process for high speed, high voltage transistors, **H.K.:** Delco's hydrokinetic alloy process for peak power reserve, **SPAC:** Delco's high reliability surface stabilization process.

### 3 TO 7 AMPERE MEDIUM AND HIGH POWER (FIG. A, TO-3)

Delco Number	Max. IC Amps	V <sub>CEO</sub> at I <sub>C</sub>		V <sub>CEO</sub> at I <sub>CEO</sub>		Gain		V <sub>BE0</sub> at I <sub>BE0</sub>		V <sub>CE(sat)</sub> at I <sub>C</sub>		V <sub>BE</sub> Volts	f <sub>α</sub> Kc	Therm. Resis. °C/Watt	Net Ea., Lots	
		Volts	At Amps	Volts	At Ma	h <sub>FE</sub>	At IC Amps	Volts	At Ma	Volts	At Amps				1-99	100-999
2N176	7	30*	.330	30	3	25/90	.500	10	2	1.0	3.0	4	0.8	\$1.20	\$0.87	
2N255A	5	15*	.220	15	5	25†	.450	15	5	1.0	1.0	100*	0.8	.90	.67	
2N256	3	30†	.003‡	30	3*	15	.500	30	8	1.0	1.0	100*	2.0	.95	.70	
2N256A	5	25†	.200	25	5	25†	.450	15	5	1.0	1.0	100*	0.8	1.05	.78	
2N297A	4	40	.300	60	3	40/100	.500	40	3	1.0	2.0	1.5	5	2.0	1.60	1.17
2N297A USA	4	40	.300	60	3	40/100	.500	40	3	1.0	2.0	1.5	5	2.0	2.40	1.78
2N301	3	32	.300	40	6	62.5	.700	10	2	1.0	1.0	1.5	5	0.8	1.15	.84
2N301A	3	32	.300	60	6	62.5	.700	10	2	1.0	1.0	1.5	5	0.8	2.82	2.10
2N307	3	35†	.015‡	35	5*	20	.200	10	2	1.0	1.0	1.5	5	0.8	.93	.69
2N379	7	40	.100*	80‡	8	20/90	2.0	20	8	1.0	2.00	3	0.4	1.90	1.39	
2N380	7	30	.100*	60‡	8	20/90	2.0	20	8	1.0	2.0	1.3	3	0.8	1.70	1.26
2N392	5	45	.300	60	8	60/150	3.0	40	8	0.5	3.0	7*	6	0.8	1.88	1.39
2N456A	7	20	.200	40	2	30/90	5.0	20	2	0.5	5.0	1.5	10*	0.8	1.74	1.29
2N456A USA	7	20	.200	40	2	30/90	5.0	20	2	0.5	5.0	1.5	10*	0.5	3.06	2.27
2N456B	7	30	.500	40	2	30/90	5.0	30	2	0.5	5.0	1.5	200†	0.8	2.20	1.63
2N457A	7	30	.200	60	2	30/90	5.0	20	2	0.5	5.0	1.5	10*	0.8	2.55	1.89
2N457A USA	7	30	.200	60	2	30/90	5.0	20	2	0.5	5.0	1.5	200†	0.5	3.48	2.58
2N457B	7	40	.500	60	2	30/90	5.0	30	2	0.5	5.0	1.5	200†	0.8	2.70	1.98
2N458A	7	40	.200	80	3	30/90	5.0	20	2	0.5	5.0	1.5	10*	0.8	2.70	2.00
2N458B	7	45	.500	80	3	30/90	5.0	30	2	0.5	5.0	1.5	200†	0.8	3.30	2.42
2N553	4	40	.300	60	4	40/80	.500	40	2	0.9	3.0	1.5	20	2.0	3.00	2.23
2N554	5	30	.300	15	10	30	1.0	20	8	1.0	3.0	1.5	15	0.8	.90	.67
2N663	4	25	.300	50	12‡	25/75	.500	20	4	1.0	3.0	1.5	20	2.0	1.15	.84
2N665	5	40	.300	80	10	40/80	.500	40	4	0.9	3.0	1.5	20	2.0	4.05	2.97
2N665 USA	5	40	.300	80	10	40/80	.500	40	4	0.9	3.0	1.5	20	2.0	5.25	3.89
2N669	3	30*	.300	30‡	20†	25*	.500	10	2	1.5	3.0	1.0	3	0.8	1.35	.95
2N1011	5	40	.300	80	15	30/75	3.0	40	3	1.5	3.0	2.0	5	0.8	1.95	1.45
2N1011 USA	5	40	.300	80	15	30/75	3.0	40	3	1.5	3.0	2.0	5	0.8	2.65	1.94
2N1021	7	50	.200	100	2	30/90	5.0	20	2	0.5	5.0	1.5	10*	0.8	3.60	2.65
2N1021A	7	50	.500	100	2	30/90	5.0	30	2	0.5	5.0	1.5	200†	0.8	3.70	2.72
2N1022	7	50	.200	120	2	30/90	5.0	20	2	0.5	5.0	1.5	10*	0.8	4.15	3.05
2N1022A	7	55	.500	120	2	30/90	5.0	30	2	0.5	5.0	1.5	200†	0.8	4.20	3.09
2N1159	5	60	1.0	80	8	30/75	3.0	20	8	1.0	3.0	1.5	10*	0.8	2.15	1.59
2N1160	7	60	1.0	80	8	20/50	5.0	20	8	1.0	5.0	1.5	10*	0.8	2.50	1.84
2N1168	5	30	.300	50	8	60*	3.0	20	8	1.0	3.0	0.7*	10*	0.8	1.30	.80
2N1534	5	20	.500	40	20	35/70	3.0	12	.5	1.2	3.0	1.5	8.5*	0.8	1.45	1.05
2N1535	5	30	.500	60	20	35/70	3.0	12	.5	1.2	3.0	1.5	8.5*	0.8	1.55	1.14
2N1536	5	40	.500	80	20	35/75	3.0	12	.5	1.2	3.0	1.5	8.5*	0.8	1.70	1.25
2N1539	5	20	.500	25	2	50/100	3.0	12	.500	0.3	.300	1.0	2	0.8	1.50	1.12
2N1540	5	30	.500	40	2	50/100	3.0	12	.500	0.3	.300	1.0	2	0.8	1.65	1.23
2N1541	5	40	.500	55	2	50/100	3.0	12	.500	0.3	.300	1.0	2	0.8	2.70	2.00
2N1542	5	50	.500	65	2	50/100	3.0	12	.500	0.3	.300	1.0	2	0.8	3.75	2.78
2N1543	5	60	.500	80	2	50/100	3.0	12	.500	0.3	.300	1.0	2	0.8	9.40	6.95
2N1544	5	20	.500	25	2	75/150	3.0	12	.500	0.2	.300	0.8	2	0.8	1.95	1.44
2N1545	5	30	.500	40	2	75/150	3.0	12	.500	0.2	.300	0.8	2	0.8	2.35	1.75
2N1546	5	40	.500	55	2	75/150	3.0	12	.500	0.2	.300	0.8	2	0.8	3.60	2.65
2N1547	5	50	.500	65	2	75/150	3.0	12	.500	0.2	.300	0.8	2	0.8	5.15	3.80
2N1971	4	40	.300	60	2	25/60	.500	40	2	0.9	3.0	1.5	15	2.0	2.90	2.14

### 15 AMPERE HIGH POWER (SPAC) (FIG. B, TO-36)

2N173	15	45	1.0	60	4	35/70	5.0	40	4	1.0	12.0	0.9	10*	0.5	\$3.40	\$2.50
2N174	15	55	1.0	80	4	25/50	5.0	60	4	0.9	12.0	0.9	10*	0.5	3.60	2.67
2N174A	15	40	0.3	80	8	40/80	1.2	60	8	0.7	12.0	0.9	100*	0.5	3.80	2.79
JAN 2N174	15	40	0.3	80	8	40/80	1.2	60	8	0.7	12.0	0.9	100*	0.5	4.30	3.18
2N277	15	25	1.0	40	8	35/70	5.0	20	8	0.3*	12.0	.65*	10*	0.5	2.25	1.66
2N278	15	30	1.0	50	4	35/70	5.0	30	4	1.0	12.0	.65*	10*	0.5	2.80	2.07
2N441	15	25	1.0	40	8	20/40	5.0	20	8	0.3*	12.0	.65*	10*	0.5	1.15	.84
2N442	15	30	1.0	50	4	20/40	5.0	30	4	0.3*	12.0	.65*	10*	0.5	1.50	1.11
2N443	15	45	1.0	60	4	20/40	5.0	40	4	1.0	12.0	0.9	10*	0.5	1.90	1.39
2N1099	15	55	1.0	80	4	35/70	5.0	40	4	0.7	12.0	0.9	10*	0.5	3.90	2.87
2N1100	15	65	1.0	100	4	25/50	5.0	80	4	0.7	12.0	0.9	10*	0.5	4.50	3.34
2N1358	15	40	0.3	80	4	40/80	1.2	60	4	0.7	12.0	0.9	100*	0.5	4.15	3.06
2N1358A	15	60	1.0	100	4	25/50	5.0	60	4	0.7	12.0	0.9	5	0.5	6.00	4.45
JAN 2N1358M	15	40	0.3	80	4	25/50	5.0	40	4	0.7	12.0	0.9	5	0.5	4.50	3.34
2N1412	15	65	1.0	100	4	25/50	5.0	60	4	0.7	12.0	0.8	10*	0.5	4.50	3.34
2N1412 USN	15	60	1.0	100	4	25/50	5.0	60	4	0.7	12.0	0.9	5	0.5	5.25	3.89
2N1970	15	50	1.0	100	4	17/40	5.0	40	4	1.0	12.0	0.9	10*	0.5	2.35	1.73
2N2075	15	65	1.0	80	4	20/40	5.0	40	4	0.7	12.0	0.9	5	0.5	5.20	3.84
2N2076	15	55	1.0	70	4	20/40	5.0	35	4	0.7	12.0	0.9	5	0.5	3.60	2.67
2N2077	15	45	1.0	50	4	20/40	5.0	25	4	0.9	12.0	0.9	5	0.5	2.85	2.12
2N2078	15	25	1.0	40	4	20/40	5.0	20	4	0.9	12.0	0.9	5	0.5	1.90	1.39
2N2079	15	65	1.0	80	4	35/70	5.0	40	4	0.7	12.0	0.9	5	0.5	7.20	5.34
2N2080	15	55	1.0	70	4	35/70	5.0	35	4	0.7	12.0	0.9	5	0.5	5.10	3.78
2N2081	15	45	1.0	50	4	35/70	5.0	25	4	0.9	12.0	0.9	5	0.5	3.15	2.32
2N2082	15	25	1.0	40	4	35/70	5.0	20	4	0.9	12.0	0.9	5	0.5	2.40	1.78
2N2210 USA	15	65	1.0	100	4	25/50	5.0	60	10	0.8	12.0	0.8	10*	1.0	6.92	5.13
2N2490	15	50	1.0	70	3	20/40	5.0	40	3	0.7	12.0	1.5	5	0.5	1.88	1.39
2N2491	15	40	1.0	60	3	35/70	5.0	30	3	0.7	12.0	1.5	5	0.5	2.83	1.95
2N2492	15	65	1.0	80	3	25/50	5.0	60	3	0.5	12.0	1.5	5	0.5	3.38	2.50
2N2493	15	75	1.0	100	3	25/50	5.0	80	3	0.5	12.0	1.5	5	0.5	6.00	4.45

\*V<sub>CE(s)</sub>, †V<sub>CE(s)</sub>, ‡Power gain, db. §At 85° C. #I<sub>CEO</sub>, \*I<sub>CEO</sub>, †Typical. ‡h<sub>FE</sub>, †V<sub>CE(s)</sub>, ‡I<sub>F</sub> typical, †At 90° C and 100 ohms R<sub>EB</sub>, \*\*Max. value.



# Delco Radio Semiconductors

## GERMANIUM PNP TRANSISTORS (CONT'D) 25, 35 AND 50 AMPERE HIGH POWER (SPAC) (FIG. B, TO-36)

Delco Number	Max. IC Amps	V <sub>CEO</sub> at IC		V <sub>CEO</sub> at ICBO		Gain		V <sub>EB0</sub> at IEBO		V <sub>CE(sat)</sub> at IC		V <sub>BE</sub> Volts	f <sub>ac</sub> kc	Therm. Resis. °C/Watt	Net Ea., Lots	
		Volts	At Amps	Volts	At mA	hFE	At IC Amps	Volts	At mA	Volts	At Amps				1-99	100-999
2N1518	25	40	1.0	50	4	15/60	15	30	8	0.7	25	1.5	4*	0.5	\$4.05	\$3.00
2N1519	25	60	1.0	80	4	15/60	15	30	8	0.7	25	1.5	4*	0.5	4.75	3.50
2N1520	35	40	1.0	50	4	17/68	15	30	8	0.6	35	1.5	4*	0.5	5.40	4.00
2N1521	35	60	1.0	80	4	17/68	15	30	8	0.6	35	1.5	4*	0.5	5.80	4.28
2N1522	50	40	1.0	50	4	25/100	15	30	8	0.5	50	1.5	4*	0.5	8.40	6.23
2N1523	50	60	1.0	80	4	25/100	15	30	8	0.5	50	1.5	4*	0.5	9.25	6.84

## 5 AMPERE MEDIUM POWER NU-BASE (FIG. C, TO-37)

Delco Number	Max. IC Amps	V <sub>CEO</sub> at IC	V <sub>CEO</sub> at ICBO	Gain	V <sub>EB0</sub> at IEBO	V <sub>CE(sat)</sub> at IC	V <sub>BE</sub> Volts	f <sub>ac</sub> kc	Therm. Resis. °C/Watt	Net Ea., Lots						
2N3212	5	80	.02	100*	1.0	30/90	3.0	2	7	0.5	5.0	1.0	600†	7.0	\$4.10	\$3.04
2N3213	5	60	.02	80*	1.0	30/90	3.0	2	7	0.5	5.0	1.0	600†	7.0	3.42	2.54
2N3214	5	40	.02	60*	1.0	30/90	3.0	2	7	0.5	5.0	1.0	600†	7.0	2.94	2.18
2N3215	5	30	.02	40*	1.0	25/100	3.0	2	7	0.5	5.0	1.0	600†	7.0	1.65	1.23

## 10 AMPERE HIGH POWER H.K. NU-BASE (FIG. D, TO-41)

Delco Number	Max. IC Amps	V <sub>CEO</sub> at IC	V <sub>CEO</sub> at ICBO	Gain	V <sub>EB0</sub> at IEBO	V <sub>CE(sat)</sub> at IC	V <sub>BE</sub> Volts	f <sub>ac</sub> kc	Therm. Resis. °C/Watt	Net Ea., Lots						
2N1073	10	40†	.05	40	10	20/60	5.0	.75	50	0.6	5.0	1.0	30*	0.8	\$2.40	\$1.78
2N1073A	10	80†	.05	80	10	20/60	5.0	.75	50	0.6	5.0	1.0	30*	0.8	3.60	2.67
2N1073B	10	120†	.05	120	10	20/60	5.0	.75	50	0.6	5.0	1.0	30*	0.8	4.50	3.30

## 15 AND 25 AMPERE HIGH POWER H.K. NU-BASE (FIG. A, TO-3)

Delco Number	Max. IC Amps	V <sub>CEO</sub> at IC	V <sub>CEO</sub> at ICBO	Gain	V <sub>EB0</sub> at IEBO	V <sub>CE(sat)</sub> at IC	V <sub>BE</sub> Volts	f <sub>ac</sub> kc	Therm. Resis. °C/Watt	Net Ea., Lots						
DTG-1000	15	100#	8	100†	10	20	8.0	1.0	200	0.5	12	1.0	250†	0.8	\$3.03	\$2.25
DTG-1200	15	120#	8	120†	10	20	8.0	1.0	200	0.5	12	1.0	250†	0.8	3.12	2.32
DTG-1010	15	110#	5	325‡	10	100*	8.0	1.0	200	0.5	12	1.0	250†	0.8	5.84	4.33
DTG-1011	15	80#	1	200‡	15	100*	8.0	1.0	200	0.5	12	1.0	250†	0.8	2.94	2.18
DTG-2000	25	30#	8	60‡	10	25	8.0	1.0	200	0.9	25	1.0	250†	0.8	3.06	2.27
DTG-2100	25	60#	8	80‡	10	25	8.0	1.0	200	0.9	25	1.0	250†	0.8	3.29	2.44
DTG-2200	25	80#	8	100‡	10	25	8.0	1.0	200	0.9	25	1.0	250†	0.8	3.39	2.52
DTG-2300	25	100#	8	120‡	10	25	8.0	1.0	200	0.9	25	1.0	250†	0.8	3.47	2.57
DTG-2400	25	120#	8	140‡	10	25	8.0	1.0	200	0.9	25	1.0	250†	0.8	3.56	2.64

\*Typical. †Ft, typical. ‡V<sub>CE</sub>. §V<sub>CEX</sub> at -0.2 V V<sub>EB</sub>. #V<sub>CE</sub> sustaining.

## 25-WATT POWER PHOTOCELL

Delco Type LDR-25—Rated 25 watts at 30° C. Max. DC current, 500 mA. Max. voltage, 200 VDC or AC. Resistance: 15 ohms at 1000 fc max.; dark resistance, 500K ohms min. Similar to Fig. A, TO-3 pkg.; terminal connections at mounting holes. Net Each, Lots 1-99.....\$1.50 Lots 100-999.....\$1.12

## SILICON POWER TRANSISTORS 1 AND 2.5 AMPERE HIGH VOLTAGE (FIG. A, TO-3)

Delco Number	Max. IC Amps	V <sub>CE</sub> (Sus) at IC		V <sub>CEO</sub> or V <sub>CE0</sub> at ICBO		Gain		V <sub>EB0</sub> at IEBO		V <sub>CE</sub> (sat) at IC		V <sub>BE</sub> Volts	Typ. f <sub>ac</sub> kc	Therm. Resis. °C/Watt	Net Each, Lots	
		Volts	At mA	Volts	At mA	hFE	At Amps	Volts	At mA	Volts	At Amps				1-99	100-999
DTS-413	1.0	325	50	400†	.25	20/80	0.5	5.0	5	0.8	0.5	1.5	115	0.8	\$ 9.75	\$7.23
DTS-423	2.5	325	50	400†	.25	30/90	1.0	5.0	5	0.8	1.0	1.5	110	0.8	10.75	7.96

## 5 AND 10 AMPERE HIGH VOLTAGE (FIG. B, TO-36)

Delco Number	Max. IC Amps	V <sub>CEO</sub> at IC	V <sub>CEO</sub> at ICBO	Gain	V <sub>EB0</sub> at IEBO	V <sub>CE(sat)</sub> at IC	V <sub>BE</sub> Volts	f <sub>ac</sub> kc	Therm. Resis. °C/Watt	Net Each, Lots						
2N2580	5	325	.100	400	5	10/40	5	5.0	50	0.7	5.0	1.5	50	0.7	\$ 98.00	\$ 72.50
2N2581	10	325	.100	400	5	25/65*	5	5.0	50	1.0	10.0	1.7	50	0.7	135.00	100.00
2N2582	5	325	.100	500	5	10/40	5	5.0	50	0.7	5.0	1.5	50	0.7	135.00	100.00
2N2583	10	325	.100	500	5	25/65*	5	5.0	50	1.0	10.0	1.7	50	0.7	175.00	130.00
2N3079	10	200	.100	200	5	10/50	5	5.0	50	.14†	5.0	1.5	50	0.8	45.00	33.33
2N3080	10	300	.100	300	5	10/50	5	5.0	50	.14†	5.0	1.5	50	0.8	70.00	52.00

\*10 min. hFE at 10 amps IC. †Ohms, RSAT. ‡V<sub>CEO</sub>; V<sub>CE0</sub>=400 at .5 mA IC, 125° C.

## SILICON RECTIFIERS 15 AMPERE STUD MOUNT (FIG. E)

Delco Number*	Max. Avg. Current, Amps*	PRV Volts	Rms Volts	Reverse Cur., mA†	Fwd. Drop Volts‡	Max. Cont. DC Blocking	Thermal Resistance	Net Ea., Lots
1N3208	15	50	35	10	1.5	50 volts	2.0° C/watt	\$0.89 \$0.66
1N3209	15	100	70	10	1.5	100 volts	2.0° C/watt	1.02 .78
1N3210	15	200	140	10	1.5	200 volts	2.0° C/watt	1.43 1.06

## 18 AMPERE PRESS FIT (FIG. F)

Delco Number	Max. Avg. Current, Amps	PRV Volts	Rms Volts	Reverse Cur., mA†	Fwd. Drop Volts‡	Max. Cont. DC Blocking	Thermal Resistance	Net Ea., Lots
1N3491	18	50	35	10	0.7	50 volts	1.0° C/watt	\$0.44 \$0.33
1N3492	18	100	70	10	0.7	100 volts	1.0° C/watt	.50 .37
1N3493	18	200	140	8	0.7	200 volts	1.0° C/watt	.78 .58

## 22 AND 40 AMPERE STUD MOUNT (FIG. E, DO-5)

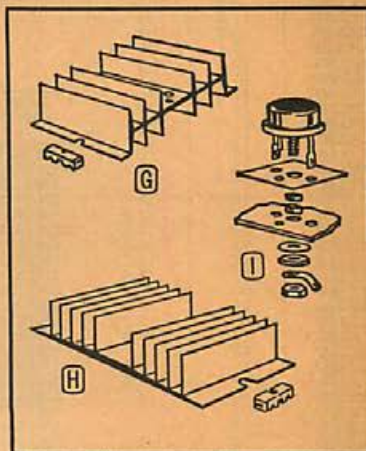
Delco Number	Max. Avg. Current, Amps	PRV Volts	Rms Volts	Reverse Cur., mA†	Fwd. Drop Volts‡	Max. Cont. DC Blocking	Thermal Resistance	Net Ea., Lots
1N1183A	40	50	35	5‡	1.1#	50 volts	0.9° C/watt	\$2.30 \$1.70
1N1184A	40	100	70	5‡	1.1#	100 volts	0.9° C/watt	2.90 2.14
1N1185A	40	150	105	5‡	1.1#	150 volts	0.9° C/watt	3.50 2.59
1N1186A	40	200	140	5‡	1.1#	200 volts	0.9° C/watt	4.00 2.96
1N1191A	22	50	35	5‡	1.2*	50 volts	1.6° C/watt	1.65 1.19
1N1192A	22	100	70	5‡	1.2*	100 volts	1.6° C/watt	2.05 1.49
1N1193A	22	150	105	5‡	1.2*	150 volts	1.6° C/watt	2.60 1.89
1N1194A	22	200	140	5‡	1.2*	200 volts	1.6° C/watt	3.00 2.20

\*At 150° C, case. †Max. drop at 15 amps full cycle average at 25° C. ‡Full load, full cycle at 150° C, case. §At 175° C case at cont. max. rev. voltage. #At 100 amps, I and 25° C, case. \*At 60 amps, I and 25° C, case. †All types available in rev. polarity (anode connected to base); add suffix R to order (i.e., 1N3208R); same price.

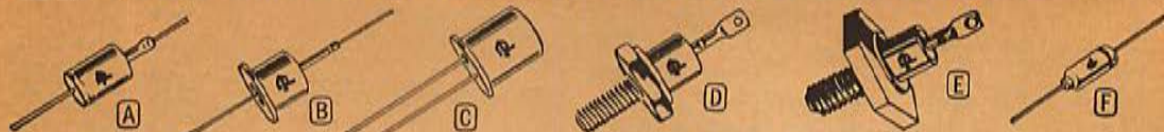
## DELCO HEAT SINKS AND MOUNTING HARDWARE

Delco Number	Fig.	Description	Max. Size, in.			Net Each	Delco No.	Fig.	Description	Max. Size, in.			Net Each
			W.	D.	L.					W.	D.	L.	
7269634	G	Insul. spacer	.....	.....	.....	\$0.05	7281360	...	Unpunched	1.625	1.330	2.930	\$0.65
7274633	I	TO-36 mtg. kit	.....	.....	.....	.11	7281361	...	Dbl. punched mt.*	3.125	1.080	6.135	1.50
7274775	I	TO-3 mtg. kit	.....	.....	.....	.11	7281364	...	Unpunched	3.125	1.080	6.135	1.30
7276383	I	TO-37 mtg. kit	.....	.....	.....	.22	7281366	G	Dbl. punched mt.*	3.125	2.500	4.850	1.75
7276396	I	DO-5 mtg. kit	.....	.....	.....	.22	7281369	G	Unpunched	3.125	2.500	4.850	1.50
7270725	G	Universal mount	3.125	1.370	4.690	.90	7281352	H	Dbl. punched mt.*	3.125	1.330	4.850	1.75
7270606	G	Unpunched	3.125	1.370	4.690	1.00	7281353	H	Unpunched	3.125	1.330	4.850	1.50
7281352	G	Dbl. punched*	3.125	1.370	4.690	1.00	7276040	H	TO-36 punched mt.	1.531	1.330	4.850	.90
7281351	...	Lo-profile dbl.*	3.125	.750	6.775	1.50	7277151	H	Diamond base	1.531	1.330	4.850	.90
7281354	...	Unpunched lo-pro.	3.125	.750	6.775	1.30	7278482	H	Unpunched	1.531	1.330	4.850	.75
7281357	...	Punched TO-3 base	1.625	1.330	2.930	.90							

\*Universal, punched for large diamond (TO-3) or round (TO-36) transistors.







3/4-WATT (FIG. A)

Dickson Number	Nom. Zener Volts*	I <sub>st</sub> Ma
1Z6.8D	6.8	37
1Z7.5D	7.5	34
1Z8.2D	8.2	31
1Z9.1D	9.1	28
1Z10D	10	25
1Z11D	11	23
1Z12D	12	21
1Z13D	13	19
1Z14D	14	18
1Z15D	15	17
1Z16D	16	15.5
1Z17D	17	14.5
1Z18D	18	14
1Z19D	19	13
1Z20D	20	12.5
1Z22D	22	11.5
1Z24D	24	10.5
1Z25D	25	10
1Z27D	27	9.5
1Z30D	30	8.5
1Z33D	33	7.5
1Z36D	36	7
1Z39D	39	6.5
1Z43D	43	6
1Z45D	45	5.5
1Z47D	47	5.5
1Z50D	50	5
1Z51D	51	5
1Z52D	52	5
1Z56D	56	4.5
1Z62D	62	4
1Z68D	68	3.7
1Z75D	75	3.3
1Z82D	82	3
1Z91D	91	2.8
1Z100D	100	2.5
1Z105D	105	2.5
1Z110D	110	2.3
1Z120D	120	2
1Z130D	130	1.9
1Z140D	140	1.8
1Z150D	150	1.7
1Z160D	160	1.6
1Z175D	175	1.4
1Z180D	180	1.4
1Z200D	200	1.2

1-WATT (FIG. B)

1Z6.8D	6.8	37
1Z7.5D	7.5	34
1Z8.2D	8.2	31
1Z9.1D	9.1	28
1Z10D	10	25
1Z11D	11	23
1Z12D	12	21
1Z13D	13	19
1Z14D	14	18
1Z15D	15	17
1Z16D	16	15.5
1Z17D	17	14.5
1Z18D	18	14
1Z19D	19	13
1Z20D	20	12.5
1Z22D	22	11.5
1Z24D	24	10.5
1Z25D	25	10
1Z27D	27	9.5
1Z30D	30	8.5
1Z33D	33	7.5
1Z36D	36	7
1Z39D	39	6.5
1Z43D	43	6
1Z45D	45	5.5
1Z47D	47	5.5
1Z50D	50	5
1Z51D	51	5
1Z52D	52	5
1Z56D	56	4.5
1Z62D	62	4
1Z68D	68	3.7
1Z75D	75	3.3
1Z82D	82	3
1Z91D	91	2.8
1Z100D	100	2.5
1Z105D	105	2.5
1Z110D	110	2.3
1Z120D	120	2
1Z130D	130	1.9
1Z140D	140	1.8
1Z150D	150	1.7
1Z160D	160	1.6
1Z175D	175	1.4
1Z180D	180	1.4
1Z200D	200	1.2

## SILICON ZENER DIODES

Zener diodes cover a range of 6.8 to 200 volts with voltage drop essentially independent of current over a wide range. Effective in regulating DC voltages, low impedance DC level changing, biasless clamping, clipping, limiting and surge protection. All units contain single p-n junctions formed by controlled diffusion at 1300° C of phosphorus into boron-doped silicon. All units hermetically sealed. Junctions are biased in reverse direction in normal usage, cathode positive and anode negative. **Polarity:** Standard polarity, cathode connected to case; 10-watt and 50-watt types have anode connected to stud for negative ground use, and are available with reverse polarity (cathode to stud) by adding suffix R to part number. **Tolerance:** Dickson units available in 5, 10 and 20% tolerance. See footnotes for ordering information. **Temperature Range:** -65° C to +175° C, junction and storage.

1-WATT (FIG. A)

JEDEC Number	Nom. Zener Volts*	I <sub>st</sub> Ma
1N1767	6.8	100
1N1768	7.5	100
1N1769	8.2	100
1N1770	9.1	50
1N1771	10	50
1N1772	11	50
1N1773	12	50
1N1774	13	50
1N1775	15	50
1N1776	16	50
1N1777	18	50
1N1778	20	50
1N1779	22	15
1N1780	24	15
1N1781	27	15
1N1782	30	15
1N1783	33	15
1N1784	36	15
1N1785	39	15
1N1786	43	15
1N1787	47	15
1N1788	51	15
1N1789	56	15
1N1790	62	5
1N1791	68	5
1N1792	75	5
1N1793	82	5
1N1794	91	5
1N1795	100	5
1N1796	110	5
1N1797	120	5
1N1798	130	5
1N1799	150	5
1N1800	160	5
1N1801	180	5
1N1802	200	5

1.5-WATT (FIG. C)

Dickson Number	Nom. Zener Volts*	I <sub>st</sub> Ma
1.5Z6.8D	6.8	55
1.5Z7.5D	7.5	50
1.5Z8.2D	8.2	46
1.5Z9.1D	9.1	41
1.5Z10D	10	37
1.5Z11D	11	34
1.5Z12D	12	31
1.5Z13D	13	29
1.5Z14D	14	26
1.5Z15D	15	25
1.5Z16D	16	23
1.5Z17D	17	22
1.5Z18D	18	21
1.5Z19D	19	20
1.5Z20D	20	19
1.5Z22D	22	17
1.5Z24D	24	16
1.5Z25D	25	15
1.5Z27D	27	14
1.5Z30D	30	12
1.5Z33D	33	11
1.5Z36D	36	10
1.5Z39D	39	10
1.5Z43D	43	9
1.5Z45D	45	8.5
1.5Z47D	47	8
1.5Z50D	50	7.5
1.5Z51D	51	7.3
1.5Z52D	52	7.2
1.5Z56D	56	6.7
1.5Z62D	62	6
1.5Z68D	68	5.5
1.5Z75D	75	5
1.5Z82D	82	4.5
1.5Z91D	91	4.1
1.5Z100D	100	3.7
1.5Z105D	105	3.5
1.5Z110D	110	3.4
1.5Z120D	120	3.1
1.5Z130D	130	2.9
1.5Z140D	140	2.7
1.5Z150D	150	2.5
1.5Z160D	160	2.5
1.5Z175D	175	2.1
1.5Z180D	180	2.1
1.5Z200D	200	1.9

10-WATT (FIG. D)

JEDEC Number	Nom. Zener Volts*	I <sub>st</sub> Ma	
1N1602	6.8	300	
1N1603	8.2	250	
1N1604	10	200	
1N1605	12	170	
1N1606	15	140	
1N1607	18	110	
1N1608	22	90	
1N1609	27	70	
1N1610	30	6.8	1000
1N1611	33	7.5	1000
1N1612	36	8.2	1000
1N1613	39	9.1	500
1N1614	43	10	500
1N1615	47	11	500
1N1616	51	12	500
1N1617	56	13	500
1N1618	62	15	500
1N1619	68	16	500
1N1620	75	18	150
1N1621	82	20	150
1N1622	91	22	150
1N1623	100	24	150
1N1624	110	27	150
1N1625	120	30	150
1N1626	130	33	150
1N1627	140	36	150
1N1628	150	39	150
1N1629	160	43	150
1N1630	175	47	150
1N1631	180	51	150
1N1632	200	56	150
1N1633	62	50	50
1N1634	68	50	50
1N1635	75	50	50
1N1636	82	50	50
1N1637	91	50	50
1N1638	100	50	50
1N1639	110	50	50
1N1640	120	50	50
1N1641	130	50	50
1N1642	140	50	50
1N1643	150	50	50
1N1644	160	50	50
1N1645	175	50	50
1N1646	180	50	50
1N1647	200	50	50
1N1648	6.2	8	1.0
1N1649	7.5	10	1.0
1N1650	9	12	.5
1N1651	11	14.5	.5
1N1652	13.5	18	.5
1N1653	17	21	.5
1N1654	20	27	.15

1-WATT (FIG. A)

JEDEC Number	Nom. Zener Volts*	I <sub>st</sub> Ma
1N3016	6.8	37
1N3017	7.5	34
1N3018	8.2	31
1N3019	9.1	28
1N3020	10	25
1N3021	11	23
1N3022	12	21
1N3023	13	19
1N3024	15	17
1N3025	16	15.5
1N3026	18	14
1N3027	20	12.5
1N3028	22	11.5
1N3029	24	10.5
1N3030	27	9.5
1N3031	30	8.5
1N3032	33	7.5
1N3033	36	7
1N3034	39	6.5
1N3035	43	6
1N3036	47	5.5
1N3037	51	5
1N3038	56	4.5
1N3039	62	4
1N3040	68	3.7
1N3041	75	3.3
1N3042	82	3
1N3043	91	2.8
1N3044	100	2.5
1N3045	110	2.3
1N3046	120	2
1N3047	130	1.9
1N3048	150	1.7
1N3049	160	1.6
1N3050	180	1.4
1N3051	200	1.2

3.5-WATT (FIG. D)

JEDEC Number	Nom. Zener Volts*	I <sub>st</sub> Ma
1N1591	6.8	100
1N1592	8.2	80
1N1593	10	70
1N1594	12	50
1N1595	15	40
1N1596	18	35
1N1597	22	30
1N1598	27	25

10-WATT (FIG. D)

JEDEC Number	Zener Volts E <sub>s</sub> (at I <sub>st</sub> )		I <sub>st</sub> Amps
	Min.	Max.	
1N2043	6.2	8	1.0
1N2044	7.5	10	1.0
1N2045	9	12	.5
1N2046	11	14.5	.5
1N2047	13.5	18	.5
1N2048	17	21	.5
1N2049	20	27	.15

\*Zener voltage at test current (I<sub>st</sub>) shown. †No suffix indicates 20% tolerance. For 10% tolerance add suffix A to number shown (example: 1N2970A); for 5% tolerance, add suffix B to number. ‡Number as shown indicates 20% tolerance. For 10% tolerance, add suffix 10 to number (example: 1Z19D10); for 5% tolerance, add suffix 5 to number. §No suffix denotes 10% tolerance, suffix A denotes 5% tolerance.

SEE FOLLOWING PAGE FOR COMPLETE PRICING INFORMATION





## SILICON ZENER DIODES (CONTINUED)

### NET PRICES

10-WATT (FIG. D)			
JEDEC Number	Dickson Number 10Z-1	Nom. Zener Volts*	I <sub>z</sub> Ma
1N2970	6.8D	6.8	370
1N2971	7.5D	7.5	335
1N2972	8.2D	8.2	305
1N2973	9.1D	9.1	275
1N2974	10D	10	250
1N2975	11D	11	230
1N2976	12D	12	210
1N2977	13D	13	190
1N2978	14D	14	180
1N2979	15D	15	170
1N2980	16D	16	155
1N2981	17D	17	145
1N2982	18D	18	140
1N2983	19D	19	130
1N2984	20D	20	125
1N2985	22D	22	115
1N2986	24D	24	105
1N2987	25D	25	100
1N2988	27D	27	95
1N2989	30D	30	85
1N2990	33D	33	75
1N2991	36D	36	70
1N2992	39D	39	65
1N2993	43D	43	60
1N2994	45D	45	55
1N2995	47D	47	55
1N2996	50D	50	50
1N2997	51D	51	50
1N2998	52D	52	50
1N2999	56D	56	45
1N3000	62D	62	40
1N3001	68D	68	37
1N3002	75D	75	35
1N3003	82D	82	30
1N3004	91D	91	28
1N3005	100D	100	25
1N3006	105D	105	25
1N3007	110D	110	23
1N3008	120D	120	20
1N3009	130D	130	19
1N3010	140D	140	18
1N3011	150D	150	17
1N3012	160D	160	16
1N3013	175D	175	14
1N3014	180D	180	14
1N3015	200D	200	12

50-WATT (FIG. E)			
JEDEC Number	Dickson Number 50SZ-1	Nom. Zener Volts*	I <sub>z</sub> Ma
1N3305	6.8D	6.8	1850
1N3306	7.5D	7.5	1700
1N3307	8.2D	8.2	1600
1N3308	9.1D	9.1	1370
1N3309	10D	10	1200
1N3310	11D	11	1100
1N3311	12D	12	1000
1N3312	13D	13	900
1N3313	14D	14	890
1N3314	15D	15	830
1N3315	16D	16	780
1N3316	17D	17	740
1N3317	18D	18	700
1N3318	19D	19	660
1N3319	20D	20	630
1N3320	22D	22	570
1N3321	24D	24	520
1N3322	25D	25	500
1N3323	27D	27	460
1N3324	30D	30	420
1N3325	33D	33	380
1N3326	36D	36	360
1N3327	39D	39	320
1N3328	43D	43	290
1N3329	45D	45	280
1N3330	47D	47	270
1N3331	50D	50	260
1N3332	51D	51	245
1N3333	52D	52	240
1N3334	56D	56	220
1N3335	62D	62	200
1N3336	68D	68	180
1N3337	75D	75	170
1N3338	82D	82	160
1N3339	91D	91	140
1N3340	100D	100	120
1N3341	105D	105	120
1N3342	110D	110	110
1N3343	120D	120	100
1N3344	130D	130	95
1N3345	140D	140	90
1N3346	150D	150	85
1N3347	160D	160	80
1N3348	175D	175	70
1N3349	180D	180	68
1N3350	200D	200	65

JEDEC or Dickson Number	Net Each, Lots of		
	1-24	25-99	100-999
1N1351 thru 1N1375	\$4.95	\$4.70	\$3.85
1N1351A thru 1N1375A	5.95	4.95	4.15
1N1591 thru 1N1598	4.50	3.50	2.85
1N1591A thru 1N1598A	4.20	4.20	3.65
1N1602 thru 1N1609	6.15	6.15	4.90
1N1602A thru 1N1609A	7.70	7.70	6.40
1N1767 thru 1N1781	2.65	2.65	2.10
1N1767A thru 1N1781A	3.00	3.00	2.35
1N1782 thru 1N1799	3.00	3.00	2.30
1N1782A thru 1N1799A	3.95	3.95	2.95
1N1800 thru 1N1802	4.85	4.85	3.85
1N1800A thru 1N1802A	7.15	7.15	5.85
1N1805 thru 1N1812	5.10	4.85	3.90
1N1805A thru 1N1812A	6.05	5.60	4.20
1N1813 thru 1N1815	7.45	6.85	5.15
1N1813A thru 1N1815A	12.20	11.90	10.05
1N1816 thru 1N1816	5.60	5.10	4.50
1N1816A thru 1N1836A	7.05	6.90	5.65
1N2008 thru 1N2012	5.05	4.70	3.90
1N2008A thru 1N2012A	5.65	5.10	4.25
1N2043 thru 1N2049	5.20	5.20	4.40
1N2043A thru 1N2049A	7.15	6.55	5.70
1N2498 thru 1N2500	5.10	5.10	3.90
1N2498A thru 1N2500A	6.10	6.10	4.25
1N2970 thru 1N3011	5.15	4.70	4.10
1N2970A thru 1N3011A	5.70	5.05	4.40
1N2970B thru 1N3011B	7.10	6.30	5.50
1N3012 thru 1N3015	5.65	5.15	4.50
1N3012A thru 1N3015A	8.45	7.75	6.75
1N3012B thru 1N3015B	13.00	11.90	10.35
1N3016 thru 1N3044	2.60	2.45	2.15
1N3016B thru 1N3044B	3.00	2.75	2.40
1N3045 thru 1N3051	3.55	3.20	2.80
1N3045A thru 1N3051A	2.75	2.55	2.20
1N3045B thru 1N3051B	3.25	2.80	2.45
1N3055 thru 1N3331	4.35	4.05	3.60
1N3332 thru 1N3340	6.75	5.25	4.55
1N3332A thru 1N3340A	5.40	5.25	4.55
1N3332B thru 1N3340B	7.10	6.90	6.00
1N3341 thru 1N3350	10.15	9.95	8.65
1N3341A thru 1N3350A	6.05	5.85	5.10
1N3341B thru 1N3350B	9.50	9.25	8.50
1N3341C thru 1N3350C	15.00	14.50	13.50
1/2 Z6.8D thru 150D	2.60	2.45	2.15
1/2 Z6.8D10 thru 150D10	3.00	2.75	2.40
1/2 Z6.8D5 thru 150D5	3.55	3.20	2.80
1/2 Z160D thru 200D	2.75	2.55	2.20
1/2 Z160D10 thru 200D10	3.25	2.80	2.45
1/2 Z160D5 thru 200D5	4.35	4.05	3.50
1/2 Z6.8D thru 33D	2.90	2.65	2.30
1/2 Z6.8D10 thru 33D10	3.00	2.80	2.45
1/2 Z6.8D5 thru 33D5	3.70	3.40	2.95
1/2 Z16D thru 150D	3.25	3.00	2.60
1/2 Z16D10 thru 150D10	3.55	3.25	2.80
1/2 Z16D5 thru 150D5	5.25	4.85	4.20
1/2 Z160D thru 200D	4.25	3.90	3.40
1/2 Z160D10 thru 200D10	5.55	5.10	4.45
1/2 Z160D5 thru 200D5	8.20	7.55	6.55
1/2 Z6.8D10 thru 150D10	3.50	3.20	2.80
1/2 Z6.8D5 thru 150D5	5.00	4.60	4.00
1/2 Z160D thru 200D	6.55	6.00	5.25
1/2 Z160D10 thru 200D10	4.45	4.10	3.55
1/2 Z160D5 thru 200D5	6.65	6.10	5.30
1/2 Z6.8D thru 150D	5.25	7.60	6.60
1/2 Z6.8D10 thru 150D10	8.15	4.70	4.10
1/2 Z6.8D5 thru 150D5	5.70	5.05	4.40
1/2 Z160D thru 200D	7.10	6.30	5.50
1/2 Z160D10 thru 200D10	5.65	5.15	4.50
1/2 Z160D5 thru 200D5	8.45	7.75	6.75
1/2 Z160D5 thru 200D5	13.00	11.90	10.35
1/2 Z6.8D thru 50D	5.75	5.25	4.55
1/2 Z6.8D10 thru 50D10	7.10	6.90	6.00
1/2 Z6.8D5 thru 50D5	10.15	9.95	8.65
1/2 Z525D thru 100D	5.40	5.25	4.55
1/2 Z525D10 thru 100D10	7.10	6.90	6.00
1/2 Z525D5 thru 100D5	10.15	9.95	8.65
1/2 Z525D10 thru 100D10	6.05	5.85	5.10
1/2 Z525D5 thru 100D5	9.50	9.25	8.50
1/2 Z525D105 thru 200D5	15.00	14.50	13.50

\*At I<sub>z</sub> shown. †No suffix indicates 20% tolerance. Add suffix A for 10% tolerance; suffix B for 5% tol. ‡No suffix indicates 20% tolerance. Add suffix 10 for 10% tolerance; 5 for 5% tolerance.

## TEMPERATURE-COMPENSATED ZENER REFERENCE DIODES

Diffused junction, temperature compensated Zener diodes intended for industrial and military applications. Hermetically sealed and designed to meet or exceed military requirements mechanically and environmentally. External surfaces are corrosion resistant.

**9.0-VOLT (FIG. F)**  
Rated 9.0 volts ±5% at 7.5 ma. Max. impedance, 20 ohms.

JEDEC Number*	Volt./Temp. Coefficient %/°C	Net Each, Lots of		
		1-24	25-99	100-999
1N935	.01	\$ 3.45	\$ 3.00	\$ 2.60
1N935A	.01	3.80	3.35	2.90
1N935B	.01	4.40	3.90	3.35
1N936	.005	3.80	3.40	3.00
1N936A	.005	4.45	4.20	3.65
1N936B	.005	5.25	4.85	4.20
1N937	.002	6.55	6.05	5.25
1N937A	.002	7.20	6.55	5.70
1N937B	.002	8.00	7.35	6.40
1N938	.001	7.60	7.00	6.10
1N938A	.001	8.60	7.90	6.85
1N938B	.001	11.60	10.65	9.25
1N939	.0005	17.60	16.20	14.10
1N939A	.0005	24.25	22.30	19.40
1N939B	.0005	27.00	24.85	21.60

**9.3-VOLT (FIG. A)**  
Rated 9.3 volts ±5% at 10 ma. Max. impedance, 15 ohms.

JEDEC Number*	Volt./Temp. Coefficient %/°C	Net Each, Lots of		
		1-24	25-99	100-999
1N2620	.01	\$ 3.80	\$ 3.55	\$ 3.05
1N2620A	.01	4.95	3.75	3.25
1N2620B	.01	4.55	4.20	3.65
1N2621	.005	4.30	3.95	3.45
1N2621A	.005	5.20	4.80	4.15
1N2621B	.005	6.30	5.85	5.05
1N2622	.002	7.15	6.55	5.70
1N2622A	.002	7.85	7.05	6.10
1N2622B	.002	8.75	8.05	7.00
1N2623	.001	8.40	7.60	6.60
1N2623A	.001	9.45	8.70	7.55
1N2623B	.001	12.70	11.65	10.15
1N2624	.0005	20.70	19.00	16.55
1N2624A	.0005	27.95	24.90	21.65
1N2624B	.0005	36.20	33.30	28.95

**11.7-VOLT (FIG. F)**  
Rated 11.7 volts ±5% at 7.5 ma. Max. impedance, 30 ohms.

JEDEC Number*	Volt./Temp. Coefficient %/°C	Net Each, Lots of		
		1-24	25-99	100-999
1N941	.01	\$ 4.55	\$ 4.20	\$ 3.65
1N941A	.01	4.95	4.55	3.95
1N941B	.01	5.65	5.20	4.55
1N942	.005	5.00	4.60	4.00
1N942A	.005	5.95	5.50	4.75
1N942B	.005	6.90	6.35	5.50
1N943	.002	8.55	7.85	6.85
1N943A	.002	9.30	8.55	7.45
1N943B	.002	10.45	9.60	8.35
1N944	.001	9.90	9.10	7.90
1N944A	.001	11.25	10.35	9.00
1N944B	.001	14.95	13.75	11.95
1N945	.0005	23.00	21.15	18.40
1N945A	.0005	31.35	28.85	25.10
1N945B	.0005	35.20	32.45	28.20

**11.7-VOLT (FIG. A)**  
Rated 11.7 volts ±5% at 7.5 ma. Max. impedance, 25 ohms.

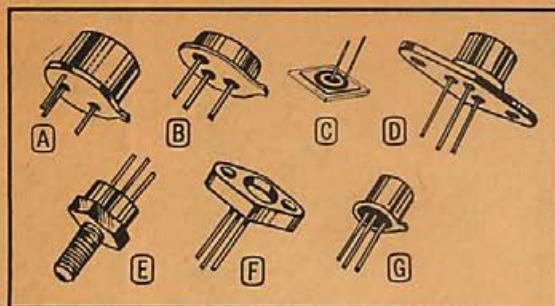
JEDEC Number*	Dickson Number	V./T. Coef. %/°C	Net Each, Lots of		
			1-24	25-99	100-999
1N3580	100A11.7	.01	\$4.60	\$4.20	\$3.65
1N3580A	100B11.7	.01	4.90	4.50	3.90
1N3580B	100C11.7	.01	5.65	5.20	4.50
1N3581	50A11.7	.005	5.20	4.80	4.15
1N3581A	50B11.7	.005	6.10	5.60	4.85
1N3581B	50C11.7	.005	7.30	6.70	5.80
1N3582	20A11.7	.002	8.45	7.75	6.70
1N3582A	20B11.7	.002	9.20	8.45</	





GENERAL ELECTRIC

# NPN Silicon Transistors



Microminiature package versions of discrete transistors and diodes, including TO-46, TO-50, network packages, ceramic tabs (Fig. I) and kovar tabs (Fig. C), are available in most popular types. For microminiature device types not listed, write for publication number 450.40.

## NPN SILICON PLANAR EPITAXIAL SWITCHES AND AMPLIFIERS

Typical  $f_t$ , 130 Mc. Typical Power Dissipation in Free Air at 25° C (Pr at case temperature at 25° C in parentheses) Watts: TO-5, 0.8 except 2N2195, A, 0.6 (2.8); TO-5\*, 1.15 (3.1); TO-5†, 1.5 (5.0); TO-46, 0.4 (5.0), 2N2353, -A, 3.0; TO-46†, 1.0 (5.0); TO-50, 0.3 (1.0).

TO-5 Fig. A	TO-46 Fig. B	TO-50 Fig. J	hFE	Min. V <sub>CEO</sub> Volts	Max. I <sub>CEO</sub> at V <sub>CB</sub> Volts
2N2192	2N2350	11C702	100-300	40	15 30
2N2192A	2N2350A	11C702	100-300	40	15 30
2N2193	2N2351	11C704	40-120	50	25 60
2N2193A	2N2351A	11C704	40-120	50	25 60
2N2194	2N2352	11C704	20-60	40	25 30
2N2194A	2N2352A	11C704	20-60	40	25 30
2N2195	2N2353	11C704	20 min.	25	50 30
2N2195A	2N2353A	11C704	20 min.	25	50 30
2N2243	2N2364	11C710	40-120	80†	15 60
2N2243A	2N2364A	11C710	40-120	80†	15 60
2N2868	2N2909	11C710	40-120	40	15 30

Power Types			hFE	Min. V <sub>CEO</sub> Volts	Max. I <sub>CEO</sub> at V <sub>CB</sub> Volts
TO-5† Fig. D	TO-5* Fig. E	TO-46† Fig. F		Volts	μA
11C181	11C1F1	11C201B20	100-300	40	15 30
11C381	11C3F1	11C203B20	40-120	50	8 25
11C581	11C5F1	11C205B20	20-60	40	25 30
11C781	11C7F1	11C207B20	20 min.	25	50 30
11C1081	11C10F1	11C210B20	40-120	80†	15 60
11C1181	11C11F1	11C211B20	40-120	40†	15 30

\*Stud heatsink. †Diamond heatsink. ‡V<sub>CB</sub>.

## 10 MC HIGH SPEED SWITCHES TO-18 (FIG. G)

G.E. Type	Min. Volts		Maximum			hFE	Max. C <sub>ob</sub> , pF at V <sub>CB</sub> Volts
	V <sub>CE</sub>	V <sub>EB</sub>	V <sub>BE</sub> (SAT)	V <sub>CE</sub> (SAT)	I <sub>CEO</sub> 150° C μA		
2N706*	20	3	0.9	0.6	30	20 min.	6 at 10
2N706A	20	5	0.9	0.6	30	20-60	5 at 5
2N708	20	5	0.8	0.4	15	30-120	6 at 10
2N733	20	5	0.9	0.6	30	40-120	5 at 5
2N834	30	5	0.9	0.25	30	25 min.	4 at 10
2N914	20	5	0.8	0.25	15	30-120	6 at 10
2N2368	40	4.5	0.85	0.25	30	20-60	4 at 5
2N2369	40	4.5	0.85	0.25	30	40-120	4 at 5
2N3052	20	5	0.9	0.25	25	25-130	8 at 5

## NPN SILICON PLANAR PASSIVATED SWITCHES

Storage temperature, -65° to +300° C. T<sub>J</sub>, -65° C to +200° C.

### TO-18 (FIG. G)

G.E. Type	Min. Volts V <sub>CE</sub>	Min. Volts V <sub>EB</sub>	Maximum			hFE	Max. C <sub>ob</sub> , pF at V <sub>CB</sub> Volts
			V <sub>BE</sub> (SAT)	V <sub>CE</sub> (SAT)	I <sub>CEO</sub> 150° C μA		
2N717	40	5	1.3	1.5	100	20-60	.....
2N718	40	5	1.3	1.5	100	40-120	.....
2N718A	50	7	1.3	1.5	10	40-120	30-100*
2N719	80	7	1.3	5.0	200	40-120	35-100*
2N719A	80	5	1.3	5.0	15	20-60	15 min.*
2N720	80	5	1.3	5.0	200	40-120	35-100*
2N720A	100	7	1.3	5.0	15	40-120	30-100*
2N956	50	7	1.3	1.5	10	100-300	50-200*

\*h<sub>FE</sub>, I = 1 kc. \*MIL type available.

## NPN SILICON PLANAR PASSIVATED SWITCHES (CONT'D)

### TO-5 (FIG. A)

G.E. Type	Power Diss. 25° C, Watts	Max. Volts			Min. V <sub>CE</sub> Volts	Max. I <sub>CEO</sub> μA	hFE	h <sub>FE</sub>
		V <sub>CE</sub> (SAT)	V <sub>BE</sub> (SAT)	V <sub>EB</sub>				
2N696*	0.6	1.5	1.3	5	40	100	20-60	.....
2N697*	0.6	1.5	1.3	5	40	100	40-120	.....
2N698	0.8	5.0	1.3	7	80	15	20-60	15 min.
2N699	0.6	5.0	1.3	5	80	200	40-120	35-100
2N1613*	0.8	1.5	1.3	7	50	10	40-120	30-100
2N1711*	0.8	1.5	1.3	7	50	10	100-300	50-200
2N1893	0.8	5.0	1.3	7	100	15	40-120	30-100
16X1*	0.2	1.0	0.9	4	.....	0.5	20 min.	.....
16X2*	0.2	1.0	0.9	4	.....	0.5	20 min.	.....

\*Fig. K. \*MIL type available.

## NPN SILICON PLANAR PASSIVATED AMPLIFIERS

### TO-5 (FIG. A)

T<sub>STG</sub>: -65° C to +300° C; T<sub>J</sub>: -65° C to +200° C.

G.E. Type	Power Diss. 25° C, Watts	Max. Volts			Min. V <sub>CE</sub> Volts	Max. I <sub>CEO</sub> μA	hFE	h <sub>FE</sub>
		V <sub>CE</sub> (SAT)	V <sub>BE</sub> (SAT)	V <sub>EB</sub>				
2N1889*	0.8	5.0	1.3	7	80	15	40-120	30-100
2N1890*	0.8	5.0	1.3	7	80	.....	100-300	50-200
2N1973	0.8	1.2	0.9	7	80	15	75 min.	76-200
2N1983	0.6	0.25	.....	5	30	200	.....	70-210
2N1984	0.6	0.25	.....	5	30	200	.....	35-100
2N2049	0.8	0.4	0.8	7	50	10	.....	75 min.

\*MIL type available.

### TO-18 (FIG. G)

G.E. Type	Min. Volts V <sub>CE</sub>	Max. Volts V <sub>EB</sub>	Maximum		I <sub>CEO</sub> 150° C nA	hFE	Max. C <sub>ob</sub> pF	at V <sub>CB</sub> Volts
			V <sub>BE</sub> (SAT) Volts	V <sub>CE</sub> (SAT) Volts				
2N759	45	8	.....	1.0	200	36-90	8	5
2N760, A	45	8	.....	1.0	200	76-333	8	5
2N915	50	5	0.9	1.0	30	40-160	3.5	10
2N916	25	5	0.9	0.5	10	50-200	6	5
2N917*	15	3	.....	.....	1	20 min.	1.7	10
2N918*	15	3	.....	.....	10	20 min.	1.7	10
2N929	45	5	0.6-1	1.0	10	40-120	5†	.....
2N930	45	5	0.6-1	1.0	10	100-300	5†	.....
2N2387	45	5	0.6-1	1.0	10	4-120	5†	.....
2N2388	45	5	0.6-1	1.0	10	100-300	5†	.....
2N2483	60	6	.....	0.35	10	40-120	5†	.....
2N2484	60	6	.....	0.35	10	100-500	5†	.....

\*TO-18 outline but with four leads. †Typical.

## NPN SILICON GROWN DIFFUSED PASSIVATED

### TO-5 (FIG. A)

G.E. Type	Max. Diss. mW	Max. I <sub>CEO</sub> μA	Min. V <sub>BE</sub> Volts	Typ. C <sub>ob</sub> pF	Typ. hFE	h <sub>FE</sub>
4C29*	150	2.0	40	4	30	18-40
4C30*	150	2.0	40	4	55	37-80
4C31*	150	2.0	40	4	115	76-300
4D20*	150	1.0	40	2	15-50†	.....
4D21*	150	1.0	40	2	40-135†	.....
4D24*	125	1.0	15†	2	15-50†	.....
4D25*	125	1.0	15†	2	40-135†	.....
4D26*	125	1.0	15†	2	120-250†	.....
2N332	150	1.0	45	4	14	9-22
2N332A	500	0.5	45	4	14	9-22
2N333*	150	1.0	45	4	27	18-44
2N333A	500	0.5	45	4	27	18-44
2N334	150	1.0	45	4	36	18-90
2N334A	500	0.5	45	4	36	18-90
2N335*	150	1.0	45	4	45	37-80
2N335A	500	0.5	45	4	45	37-80
2N335B	500	0.5	60	4	45	37-80
2N336*	150	1.0	45	4	75	76-333
2N336A	500	0.5	45	4	75	76-333
2N337*	125	1.0	45	2	20-55	55†
2N337A	500	0.5	45	2	20-55	55†
2N338*	125	1.0	45	2	45-150	99†
2N338A	500	0.5	45	2	45-150	99†
2N478	200	0.5	15	2	.....	40-100
2N479, A	200	0.5	30	2	.....	40-100
2N480, A	200	0.5	45	2	.....	40-100
2N541	200	0.5	15	2	.....	80-200
2N542, A	200	0.5	30	2	.....	80-200
2N543, A	200	0.5	45	2	.....	80-200
2N1248	30	0.01	6	.....	15 min.	.....
2N1276	150	1.0	40	2	10	9-22
2N1277	150	1.0	40	2	20	18-44
2N1278	150	1.0	40	2	33	37-90
2N1279	150	1.0	40	2	80	76-333
2N1417	150	1.0	15	2	.....	30-200
2N1418	150	10	30	2	.....	30-200
2N2349	150	1.0	40	2	.....	120-250†

\*TO-5 outline with fixed-bed construction. †V<sub>BE</sub>. ‡Pulsed measurements. §Typical. \*MIL type available.





GENERAL  
ELECTRIC

# Silicon Transistors

## SILICON ECONOMY NPN

### PLANAR TRANSISTORS (FIG. K)

PT=200 mW; COB=7 pF typ. at VCE=10 V except as otherwise noted.

#### SMALL SIGNAL AMPLIFIERS—AUDIO TO 30 Mc

G.E. Type	Applications and Features	hFE Min.-Max.	BVCE0f: (typ.) Vols	IC: (typ.) Mc
2N2711	RF converter, IF, audio driver and output for AM, CB radio	30-90	18	120
2N2712		75-225	18	120
2N2923	VCO=25 volts	90-180*	25	120
2N2924	hFE=155 typical	150-300*	25	120
2N2925	hFE=215 typical	150-470*	25	120
2N2926	Spread type, 5 beta groups†	35-470*	18	120
2N3390	Ultra high beta	400-800	25	120
2N3391	High beta, low noise; 1.9 db†	250-500	25	120
2N3391A	2N3391 controlled low noise	250-500	25	120
2N3392	hFE=150 min.	150-300	25	120
2N3393	VCO=25 volts	90-180	25	120
2N3394	Extra low price	55-110	25	120
2N3395	Spread type, 2 beta groups†	150-500	25	120
2N3396	Spread type, 3 beta groups†	90-500	25	120
2N3397	Spread type, 4 beta groups†	55-500	25	120
2N3398	Spread type, 5 beta groups†	55-800	25	120
2N3721	Low cost spread type†	60-660*	18	120

#### HIGH FREQUENCY AMPLIFIERS—10 Mc TO 250 Mc

16K1	COB 1.35 pF typical at VCE=10 V	60 typ.	30	560
16K2	10 V. Forward AGC; VHF IF and IF amplifiers (TV, FM)	80 typ.	30	560
16K3		60 typ.	30	560

#### HIGH FREQUENCY AMPLIFIERS AND OSCILLATORS

##### 10 Mc to 950 Mc EPITAXIAL

2N3662	COB=1.3 pF typical; TV and FM tuner, IF, UHF oscill.	20 min.	12	1200
2N3663		20 min.	12	1200

##### 262.5 kc TO 100 Mc EPITAXIAL

2N3843A	COB=2.5 pF typical at VCE=10 V. Very low 2 Mc noise for AM RF stages	20-40	30	135
2N3844A		35-70	30	135
2N3845A		60-120	30	135
2N3854	COB=2.5 pF typical at VCE=10 V. General purpose types for FM and TV	35-70	18	250
2N3855		60-120	18	300
2N3856		100-200	18	350
2N3854A	COB=2.5 pF typical at VCE=10 V. High frequency applications in FM and TV	35-70	30	250
2N3855A		60-120	30	300
2N3856A		100-200	30	350
2N3858	COB=2.5 pF typical at VCE=10 V. Low 2 Mc noise for AM converter stages	60-120	30	135
2N3859		100-200	30	135
2N3860		150-300	30	135

#### LARGE SIGNAL AMPLIFIERS AND

##### MEDIUM SPEED SWITCH—EPITAXIAL

2N2713	Medium power and voltage, low VSAT, hFE holding up to 200 mA	30-90	18	120
2N2714		75-225	18	120
2N3402	PT 900 mW; COB 8.0 pF typ. at VCE 10 V; hFE holding up to 800 mA	75-225	25	120
2N3403		180-540	25	120
2N3404	Same as 2N3402, -3 except high power and voltage	75-225	50	120
2N3405		180-540	50	120
2N3414	PT 360 mW; COB 8.0 pF typ. Med. power, voltage, hFE hold to 500 mA	75-225	25	120
2N3415		180-540	25	120
2N3416	Same as 2N3414, -5 except high voltage, hFE holding up to 800 mA	75-225	50	120
2N3417		180-540	50	120

#### HIGH SPEED SWITCHES—EPITAXIAL—GOLD DOPED

2N3605	COB 4 pF typical; Low storage time, possible substitute for 2N914, 2N706, 2N708, 2N753 and 2N834	30 min.	14	350
2N3606		30 min.	14	350
2N3607		30 min.	14	350

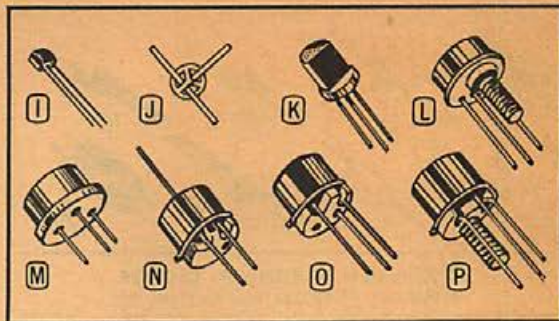
\*hFE, †Each type is supplied in narrow spread beta groups color coded. ‡Typical noise figure.

#### SILICON NPN POWER TRANSISTORS

##### TRIPLE-DIFFUSED PASSIVATED (NOT ILLUS.)

G.E. Type	Min. VCE0 Vols	Min. ICES at 150°C mA at V	Max. IC Amps	Max. Pwr. Diss., Watts at PT 25°C; 100°C*	Max. VCE (SAT) Vols*	hFE at VCE=15 V
2N1616	60	10 at 80*	5	3	60	15 min.
2N1617	80	10 at 80*	5	3	60	15-75
2N1618	100	10 at 80*	5	3	60	2
2N1724	80	2 at 60	5	3	50	1
2N1724A	120	2 at 100	5	3	50	.6
2N1725	80	2 at 60	5	3	50	1
2N2150	80	.1 at 120	2	2	30	1.25†
2N2151	80	.1 at 120	2	2	30	1.25†
2N3220	80	.1 at 100	2	2	30	1.25†
2N3221	80	.1 at 100	2	2	30	1.25†
2N3222	60	.1 at 80	2	2	30	1.25†
2N3223	60	.1 at 80	2	2	30	1.25†

\*ICBO, †IC=1 amp, ‡VCE=5 V. †Free air. \*Case temp. \*At IC=2 amps.



#### SILICON NPN POWER TRANSISTORS PASSIVATED MESA

Typical f<sub>t</sub> for all types, 15 Mc.

G.E. Type	Fig.	Min. VCE0 IC=250 μA Vols	VCEX IC=250 mA Vols	ICBO VCB=30 V μA	Maximum Pwr. Free Air at 25°C Watts	Dissip. TC at 100°C Watts	VCE (SAT) Vols	hFE* VCE=10 V IC=200 mA
2N497*	A	60	83	250	0.8	41	5	12-36
2N497A	A	60	83	250	1.0	51	2	12-36
2N498*	A	100	83	250	0.8	41	5	12-36
2N498A	A	100	83	250	1.0	51	2	12-36
2N655*	A	60	83	250	0.8	41	5	30-90
2N656*	A	60	83	250	1.0	51	2	30-90
2N657*	A	100	83	250	0.8	41	5	30-90
2N657A	A	100	83	250	1.0	51	2	30-90
2N1047	L	80	63	15	1.0	40†	7.5	12-36
2N1047A	L	80	63	350	1.0	40†	7.5	12-36
2N1047B	L	80	63	200	1.0	40†	2.0	12-36
2N1048	L	120	63	15	1.0	40†	7.5	12-36
2N1048A	L	120	63	350	1.0	40†	7.5	12-36
2N1048B	L	120	63	200	1.0	40†	2.0	12-36
2N1049	L	80	63	15	1.0	40†	7.5	30-90
2N1049A	L	80	63	350	1.0	40†	7.5	30-90
2N1049B	L	80	63	200	1.0	40†	2.0	30-90
2N1050	L	120	63	15	1.0	40†	7.5	30-90
2N1050A	L	120	63	350	1.0	40†	7.5	30-90
2N1050B	L	120	63	200	1.0	40†	2.0	30-90
2N1067	M	60	12*	1000	.....	50†	.....	15-75
2N2017	A	60	83	250	1.0	51	2	50-200
2N2106	A	60	83	200	1.0	51	2	12-36
2N2107	A	60	83	200	1.0	51	2	30-90
2N2108	A	60	83	200	1.0	51	2	75-200
2N2196	D	60	80	250	2.0	10	2	30-90
2N2197	D	60	80	250	2.0	10	2	75-200
2N2201	D	100	120	200	2.0	10	1.7	30-90
2N2202	N	100	120	200	1.0	10	1.7	30-90
2N2203	O	100	120	200	1.0	10	1.7	30-90
2N2204	P	100	120	200	1.0	10	1.7	30-90
2N2239	D	50*	83	250	1.0	10	3	30-200
2N2611	D	100	120	200	2.0	10	1.7	12-36
2N2726	A	200†	108	100	1.0	5	2.0	30-90
2N2727	A	200†	108	100	1.0	5	2.0	75-150
2N2955	E	100	120	200	1.5	10	1.7	30-90
2N3589	D	200†	200†	100†	2.0	10	2	30-90
2N3590	D	200†	200†	100†	2.0	10	2	75-150
2N3591	O	200†	200†	100†	1.0	10	2	30-90
2N3592	O	200†	200†	100†	1.0	10	2	75-150
2N3593	E	200†	200†	100†	1.0	4	2	30-90
2N3594	E	200†	200†	100†	1.0	4	2	75-150
2N3595	E	200†	200†	100†	1.5	10	2	30-90
2N3596	E	200†	200†	100†	1.5	10	2	75-150
7A30	A	40	83	10	1.0	5	1.0*	12-36
7A31	A	30	83	10	1.0	5	1.0*	30-90
7A32	A	30	83	10	1.0	5	1.0*	75-200
7B1	D	60	80	200	2.0	10	1.7	30-90
7B2	D	60	80	200	2.0	10	1.7	30-90
7B13	D	60	80	250	2.0	10	2.0	75-200
7C1	N	60	80	200	1.0	10	1.7	12-36
7C2	N	60	80	200	1.0	10	1.7	30-90
7C3	N	100	120	200	1.0	10	1.7	12-36
7C13	N	60	80	250	1.0	10	2.0	75-200
7D1	O	60	80	200	1.0	10	1.7	12-36
7D2	O	60	80	200	1.0	10	1.7	30-90
7D3	O	100	120	200	1.0	10	1.7	12-36
7D13	O	60	80	250	1.0	10	2.0	75-200
7E1	P	60	80	200	1.0	10	1.7	12-36
7E2	P	60	80	200	1.0	10	1.7	30-90
7E3	P	100	120	200	1.0	10	1.7	12-36
7E13	P	60	80	250	1.0	10	2.0	75-200
7F1	E	60	80	200	1.0	4.0	1.7	12-36
7F2	E	60	80	200	1.0	4.0	1.7	30-90
7F3	E	100	120	200	1.0	4.0	1.7	12-36
7F4	E	100	120	200	1.0	4.0	1.7	30-90
7F13	E	60	80	250	1.0	4.0	2.0	75-200
7G1	E	60	80	200	1.5	10	1.7	12-36
7G2	E	60	80	200	1.5	10	1.7	30-90
7G3	E	100	120	200	1.5	10	1.7	12-36
7G13	E	60	80	250	1.5	10	2	75-200

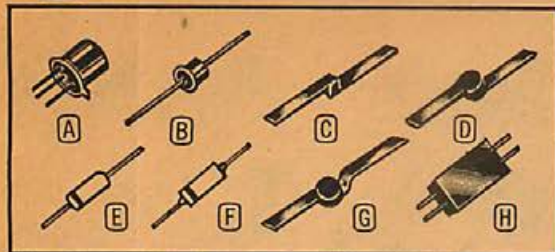
\*Pulsed measurement: 300 μsec pulse width, 2% duty cycle. †VCE at IC=50 mA, R=5 Kohms. ‡25°C. †VCE at IC=16 mA, R=1 kohm. ‡VBE at IE=250 μA; \*VCE=4 V, IC=750 mA. †Typical. ‡VCE, R=5 Kohms. †VCE at IC=100 μA, IE=0. †VCE=100 V. \*MIL type available.





GENERAL  
ELECTRIC

# SILICON AND GERMANIUM DIODES



## GERMANIUM TUNNEL DIODES GENERAL PURPOSE TO-18 (FIG. A)

Nominal series inductance, 4 nH. Typical peak voltage, 65 mV; "A" types 65 mV  $\pm 10$  except 1N2939A, 60 mV  $\pm 10$ .

G.E. Type	Peak Point		Maximum				Typical Resis. Cutoff Freq., Gc
	mA	I <sub>p</sub> %	Valley Point mA	Cap. pF	Series Resis. Ohms	*	
1N2939	1.0	10	0.14	15	4.0	6.6	2.2
1N2939A	1.0	2.5	0.14	10	4.0	6.6	2.6
1N2940	1.0	10	0.22	10	4.0	6.6	2.2
1N2940A	1.0	2.5	0.22	7	4.0	6.6	2.6
1N2941	4.7	10	1.04	50	2.0	30	2.6
1N2941A	4.7	2.5	1.04	30	2.0	30	3.9
1N2969	2.2	10	0.48	25	3.0	16	2.5
1N2969A	2.2	2.5	0.48	15	3.0	16	3.3
1N3149	10.0	10	2.2	90	1.5	60	2.6
1N3149A	10.0	2.5	2.2	50	1.5	60	3.1
1N3150	22.0	10	4.8	150	1.0	100	2.2

## MINIATURE AXIAL PACKAGE (FIG. B)

Series inductance, 0.5 nH. Typical peak voltage, 65 mV except TD-9, 60 typical; "A" types, 65 mV  $\pm 7$ .

G.E. Type	Peak Point mA	I <sub>p</sub> %	Valley Point mA	Cap. pF	Series Resis. Ohms	*	Typical Resis. Cutoff Freq., Gc
1N3712 (TD-1)	1.0	10	0.18	10	4.0	8	2.3
1N3713 (TD-1A)	1.0	2.5	0.14	5	4.0	8.5 $\pm 1$	3.2
1N3714 (TD-2)	2.2	10	0.48	25	3.0	18	2.2
1N3715 (TD-2A)	2.2	2.5	0.31	10	3.0	19 $\pm 3$	3.0
1N3716 (TD-3)	4.7	10	1.04	50	2.0	40	1.8
1N3717 (TD-3A)	4.7	2.5	0.60	25	2.0	41 $\pm 5$	3.4
1N3718 (TD-4)	10.0	10	2.20	90	1.5	80	1.6
1N3719 (TD-4A)	10.0	2.5	1.40	50	1.5	85 $\pm 10$	2.8
1N3720 (TD-5)	22.0	10	4.80	150	1.0	180	1.6
1N3721 (TD-5A)	22.0	2.5	3.10	100	1.0	190 $\pm 30$	2.6
TD-9†	0.5	10	0.10	5	6.0	4.0	1.3

\*Typ. negative conductance -G mhos x 10<sup>-1</sup>; \*MIL type available.

## ULTRA-HIGH SPEED SWITCHING DO-18 (FIG. C)

Subminiature epoxy package with series conductance of 1.5 nH.

G.E. Type	Peak Point mA	Maximum		Voltage, mV		Typical	
		Valley Point mA	Cap. pF	Peak Point Typ.	Fwd I <sub>p</sub> = I <sub>p</sub>	Series Resis. Ohms	Rise Time psec
TD-251	2.2	0.31	3.0	70	500-650	5.0	430
TD-251A	2.2	0.31	1.0	110*	500-650	7.0	160
TD-252	4.7	0.60	4.0	80	500-650	3.5	320
TD-252A	4.7	0.60	1.0	120*	500-650	4.0	74
TD-253	10.0	1.40	9.0	75	500-650	1.7	350
TD-253A	10.0	1.40	5.0	80	520-650	2.0	190
TD-253B	10.0	1.40	2.0	120*	550-650	2.5	168
TD-254	22.0	3.80	18.0	90	600 typ.	1.8	185
TD-254A	22.0	3.80	4.0	120*	550-650	2.0	64
TD-255	50.0	8.50	25.0	110	625 typ.	1.4	100
TD-255A	50.0	8.50	5.0	130	640 typ.	1.5	35
TD-256	100	17.50	35.0	150	650 typ.	1.1	57
TD-256A	100	17.50	6.0	180	660 typ.	1.2	22

\*Maximum.

## MICROWAVE (FIG. D)

High performance microwave pill package with series inductance of 0.15 nH. Package capacitance, 0.25 pF. Typical peak point current, 1.85 mA. Negative resistance, 60-80 ohms.

G.E. Type	Maximum		Min. Resis. Cutoff	G.E. Type	Maximum		Min. Resis. Cutoff
	C <sub>J</sub> pF	R <sub>s</sub> Ohms			C <sub>J</sub> pF	R <sub>s</sub> Ohms	
TD-401	3.5	3	5 Gc	TD-405	.60	6	25 Gc
TD-402	1.8	4	10 Gc	TD-406	.48	6	30 Gc
TD-403	1.0	5	15 Gc	TD-407	.37	6	35 Gc
TD-404	.75	5	20 Gc	TD-408	.30	6	40 Gc

## GERMANIUM BACK DIODES

### GENERAL PURPOSE TYPES (FIG. B)

G.E. Type	Maximum		Minimum		I <sub>F11</sub> mA	Typ. V <sub>F25</sub> mV
	I <sub>p</sub> mA	Total C, pF	V <sub>R1</sub> mV	V <sub>R2</sub> mV		
BD-1	1.0	20	440	440	10.0	120
BD-2	0.5	10	420	465	5.0	130
BD-3	0.2	10	400	465	2.0	170
BD-4	0.1	10	380	465	1.0	170
BD-5	0.05	10	350	465	0.5	160
BD-6	0.02	10	330	465	0.2	160
BD-7	0.01	10	300	465	0.1	160

### LOW NOISE MIXER DO-18 (FIG. C)

G.E. Type	I <sub>p</sub> mA	V <sub>R1</sub> mV	V <sub>R2</sub> mV	I <sub>F1</sub> mA	I <sub>F2</sub> mA	
1N4090	0.2	1.5	430	500	2.0†	170

\*I<sub>R</sub> = I<sub>p</sub> max. †I<sub>R</sub> = 1 mA. ‡V<sub>F1</sub> = 90 mV  $\pm 10$ . §I<sub>F2</sub> = 3 I<sub>F1</sub>. ¶V<sub>F1</sub> = 100 mV  $\pm 20$ .

## SILICON SIGNAL DIODES (PEP) STANDARD DO-7 (FIG. E)

G.E. Type	Min. SAT Volts	Max. Rev. Cur., $\mu$ A at V (at 25° C)	Max. Fwd. Cur., mA at Volts	Total Cap. pF at Volts	Rev. Recovery, Nanosec	
1N251*	40	0.2 at -10	5 at 1.0	.....	150	
1N252	30	0.1 at -5	10 at 1.0	.....	300	
1N625	30	1 at -20	4 at 1.0	.....	1000	
1N626	50	1 at -35	4 at 1.0	.....	1000	
1N659	50	5 at -50	6 at 1.0	2.7 at -10	300	
1N659A	75	0.025 at -50	10 at 1.0	2.7 at -10	300	
1N811	30	1.0 at -10	1 at 1.0	.....	250	
1N812	40	0.1 at -10	2 at 1.0	.....	250	
1N813	20	0.5 at -20	5 at 1.0	.....	250	
1N814	50	0.1 at -20	3 at 1.0	.....	250	
1N815	20	0.5 at -5	100 at 0.5	.....	250	
1N891	60	0.1 at -50	50 at 1.0	.....	300	
1N903	40	0.1 at -40	10 at 1.0	1.0 at -6	4	
1N903A	40	0.1 at -40	20 at 1.0	1.0 at -6	4	
1N904	30	0.1 at -30	10 at 1.0	1.0 at -6	4	
1N904A	30	0.1 at -30	20 at 1.0	1.0 at -6	4	
1N905	20	0.1 at -20	10 at 1.1	1.0 at -6	4	
1N905A	20	0.1 at -20	20 at 1.0	1.0 at -6	4	
1N906	20	0.1 at -20	10 at 1.0	2.5 at -6	4	
1N906A	20	0.1 at -20	20 at 1.0	2.5 at -6	4	
1N907	30	0.1 at -30	10 at 1.0	2.5 at -6	4	
1N907A	30	0.1 at -30	20 at 1.0	2.5 at -6	4	
1N908	40	0.1 at -40	10 at 1.0	2.5 at -6	4	
1N908A	40	0.1 at -40	20 at 1.0	2.5 at -6	4	
1N914**	100	0.025 at -20	10 at 1.0	4.0 at 0	4	
1N914A*	100	0.025 at -20	100 at 1.0	4.0 at 0	4	
1N914B*	100	0.025 at -20	100 at 1.0	4.0 at 0	4	
1N916*	100	0.025 at -20	10 at 1.0	2.0 at 0	4	
1N916A*	100	0.025 at -20	20 at 1.0	2.0 at 0	4	
1N916B*	100	0.025 at -20	30 at 1.0	2.0 at 0	4	
1N917	50	0.05 at -10	10 at 1.0	2.5 at 0	3	
1N997	40	0.025 at -12	10 at 1.0	.....	150	
1N3062	75†	0.1 at -50	20 at 1.0	1.0 at 0	2	
1N3063*	75†	0.1 at -50	10 at 0.85†	2.0 at 0	2	
1N3064**	75†	0.1 at -50	10 at 1.0†	2.0 at 0	4	
1N3065	75†	0.1 at -50	20 at 1.0†	1.5 at 0	2	
1N3066	75†	0.1 at -50	10 at 1.0	1.0 at 0	2	
1N3067	30‡	0.1 at -20	5 at 1.0	4.0 at 0	2	
1N3068	30‡	0.1 at -20	5 at 1.0	6.0 at 0	50	
1N3124	40	0.1 at -40	20 at 1.0	2.0 at -6	4	
1N3600*	50	0.1 at -50	200 at 1.0†	2.5 at 0	6	
1N3604*	75‡	0.05 at -50	50 at 1.0	2.0 at 0	2	
1N3605*	40‡	0.05 at -30	20 at .88*	2.0 at 0	2	
1N3606*	75‡	0.05 at -50	20 at .88*	2.0 at 0	2	
1N3873	3873/HR	50	0.1 at -50	20 at .85†	4.0 at 0	4
1N4009*	35‡	0.1 at -25	30 at 1.0	4.0 at 0	2	
1N4726*	30‡	0.1 at -20	10 at .85	4.0 at 0	2	

\*V<sub>m</sub>  $\pm$  Controlled conductance. †I<sub>F</sub> at 5  $\mu$ A. \*\*MIL type available. ‡Available in heatsink (Fig. F) diodes DHD (Double), FHD (Flattened), MHD (Mini); or MSD (Micro Silicon Diode, Fig. G).

	DO-7	1N914	1N914A	1N914B	1N916	1N916A	1N916B	1N3063
DHD	1N4148	1N4446	1N4448	1N4149	1N4447	1N4449	1N4305	
MHD	1N4531							
DO-7	1N3064	1N3600	1N3604	1N3605	1N3606	1N4009	1N4726	
DHD	1N4454	1N4150	1N4151	1N4152	1N4153	1N4154	1N4727	
MHD	1N4532			1N4533	1N4534	1N4536		
MSD						1N4043		
FHD						1N4548		

## DHD (FIG. F)

G.E. Type	Min. V <sub>F</sub> Volts†	Max. Rev. Cur., $\mu$ A at Volts*	Max. V <sub>F</sub> at I <sub>F</sub> ‡ V at mA	Total Cap., pF at Volts	Rev. Recovery nanosec
1N4442	40	0.001 at 30	1.0 at 100	3 at 0	1000
1N4443	70	0.002 at 50	1.0 at 100	3 at 0	600
1N4444	70	0.05 at 50	1.0 at 100	2 at 0	7
1N4445	125‡	0.05 at 80	1.0 at 100	1 at 0	4
1N4450	40	0.05 at 30	1.0 at 200	4 at 0	4
1N4451	40	0.05 at 30	1.0 at 300	6 at 0	10
1N4452	40	0.05 at 30	1.20 at 1 A	15 at 10	20
1N4606	85‡	0.1 at 50	1.1 at 250	2.5 at 0	4
1N4607	85‡	0.1 at 50	1.1 at 400	4 at 0	10
1N4608	85‡	0.1 at 50	1.1 at 500	4 at 0	10
1N4861	40	4.0 at 30†	1.2 at 100	3.5 at 0	1000
1N4862	70	4.0 at 30†	1.1 at 100	3.3 at 0	1000
1N4863	70	50 at 50‡	1.2 at 100	2 at 0	7
1N4864	125‡	100 at 80‡	1.1 at 100	1.3 at 0	9

## MSD (FIG. G)

G.E. Type	I <sub>p</sub> mA	V <sub>R1</sub> mV	V <sub>R2</sub> mV	I <sub>F1</sub> mA	I <sub>F2</sub> mA
1N3607	75	0.05 at 50	1.0 at 50	2.0 at 0	2
1N3608	40	0.05 at 30	0.88* at 20	2.0 at 0	2
1N3609	75	0.05 at 50	0.88* at 20	2.0 at 0	2

## DHD STABILIZERS (FIG. F)

G.E. Type	I <sub>p</sub> mA	V <sub>R1</sub> mV	V <sub>R2</sub> mV	I <sub>F1</sub> mA	I <sub>F2</sub> mA	Power mW
1N4156	30	0.05 at -20	1.84* at 100	25 at 0	400 mW	
1N4157	30	0.05 at -20	2.66* at 100	20 at 0	400 mW	
1N4453	30	0.05 at -20	.920* at 100	30 at 0	400 mW	
1N4828	30‡	0.1 at -20	1.10* at 100	35 at 0	400 mW	
1N4829	30‡	0.1 at -20	1.87* at 100	25 at 0	400 mW	
1N4830	30‡	0.1 at -20	2.69* at 100	20 at 0	400 mW	

Max. V<sub>F</sub> difference between diodes is 10 mV at I<sub>F</sub> = 0.1 to 10 mA at T<sub>A</sub> of -55° C to +125° C.

G.E. Type	I <sub>p</sub> mA	V <sub>R1</sub> mV	V <sub>R2</sub> mV	I <sub>F1</sub> mA	I <sub>F2</sub> mA	Power mW
1N4306‡	75	.05 at 50	1.0 at 100	115 mA $\ddagger$	.....	.....
MP-21	40	.10 at 30	1.0 at 10	115 mA $\ddagger$	.....	.....
1N4307	75	.05 at 50	1.0 at 100	115 mA $\ddagger$	.....	.....
MQ-2	40	.10 at 30	1.0 at 10	115 mA $\ddagger$	.....	.....

\*At 25° C. †At I<sub>R</sub> = 5  $\mu$ A except; ‡100 mA. †Controlled conductance. ‡At 150° C. \*mV. †Pd at 25° C. ‡Max. I<sub>F</sub> steady state DC. †Match





# GENERAL ELECTRIC SPECIAL SILICON PRODUCTS

## SILICON UNIUNCTION TRANSISTORS

Consist of an "N" type silicon bar mounted between two ohmic base contacts with a "P" type emitter near base two. Three-terminal package.

G.E. Types Bar Structure		RBB V <sub>BB</sub> =3V I <sub>E</sub> =0 Kohms	Intrin. Stand-off Ratio*	I <sub>V</sub> Min. mA	I <sub>P</sub> Max. Emitter μA	I <sub>EO</sub> Max. T <sub>J</sub> =25° C at V <sub>BE</sub> V				
TO-18	TO-5									
2N2417	2N489*	4.7-6.8	.51-.62	8	12	2	60			
2N2417A	2N489A				12	2	60			
2N2417B	2N489B				6	0.2	30			
2N2418	2N490*	6.2-9.1	.51-.62	8	12	2	60			
2N2418A	2N490A				12	2	60			
2N2418B	2N490B				6	0.2	30			
2N2419	2N491*	4.7-6.8	.56-.68	8	12	2	60			
2N2419A	2N491A				12	2	60			
2N2419B	2N491B				6	0.2	30			
2N2420	2N492*	6.2-9.1	.56-.68	8	12	2	60			
2N2420A	2N492A				12	2	60			
2N2420B	2N492B				6	0.2	30			
2N2421	2N493*	4.6-6.8	.62-.75	8	12	2	60			
2N2421A	2N493A				12	2	60			
2N2421B	2N493B				6	0.2	30			
2N2422	2N494*	6.2-9.1	.62-.75	8	12	2	60			
2N2422A	2N494A				12	2	60			
2N2422B	2N494B				6	0.2	30			
.....	2N494C				2	.02	30			
5G514	2N1671	4.7-9.1	.47-.62	8	25	12	30			
5G515	2N1671A				25	12	30			
5G516	2N1671B				6	0.2	30			
.....	2N1670	4.0-12.0	.47-.80	8	25	12	30			
2N2646*	.....				4.7-9.1	.56-.75	4	5	12	30
2N2647*	.....				4.7-9.1	.68-.82	8	2	0.2	30
2N2840*	.....	4.7-9.1†	1.3-1.5†	†	10†	1*	.....			
5E35*	.....	4.7-9.1	.62-.82	360-440‡	12	30	30			
5E36*	.....	4.7-9.1	.62-.82	380-420‡	1.0	30	30			

\*Cube structure. †V<sub>BB</sub>=1.5 V. ‡V<sub>BB</sub>=10 V. †I<sub>V</sub> at V<sub>BB</sub>=1.5 V. ‡Frequency. †I<sub>V</sub> at V<sub>BB</sub>=1.5 V, 0.2-7 mA. \*V<sub>BE</sub>=30 V, I<sub>B</sub>=0. †MIL type available.

## SILICON ACTIVE FUNCTIONAL DEVICES

For complete information, ask for publication number 450.40.

### NPN DIFFERENTIAL AMPLIFIERS

Six-terminal packages containing two isolated pellets.

G.E. Type				V <sub>CE0</sub> Min. Volts	h <sub>FE</sub> at 100 μA Minimum
TO-5	TO-18	Flat Pack	Network		
12A8	.....	.....	.....	30	30
12E109	.....	.....	.....	30	80*
2N2060	12A104	12A304	12A904	60*	30
2N2223	.....	.....	.....	60	25
2N2453	.....	2N3519	2N3520	30	80*
2N2480	.....	.....	.....	40	20
2N2480A	2N3513	2N3514	2N3515	40	35
2N2652	.....	.....	.....	60	35
2N2652A	2N3516	2N3517	2N3518	25	70
2N2910	.....	.....	.....	45	100
2N2913	.....	.....	.....	45	225
2N2914	.....	.....	.....	45	100
2N2915	.....	.....	.....	45	225
2N2916	.....	.....	.....	45	100
2N2918	.....	.....	.....	45	225
2N2919	.....	.....	.....	60	100
2N2920	.....	.....	.....	60	225
2N3521	2N3522	2N3523	2N3524	45	100-300*

\*At I<sub>C</sub>=10 μA.

### NPN CHOPPERS

Five-terminal packages containing two matched pellets.

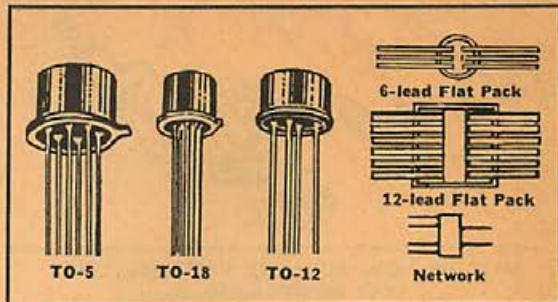
G.E. Type	JEDEC Outline	Maximum		Min. V <sub>EE0</sub> Volts	Max. r <sub>s</sub> † Ohms	Max. I <sub>CB0</sub> or I <sub>CB02</sub> ‡ nA
		V <sub>O</sub> * μV	at °C			
2N2356	TO-5	300	-55 to +125	20	40	10
2N2356A	TO-5	50	-55 to +125	20	40	10
2N3082	TO-18	350‡	-55 to +125	20	40	10
2N3083	TO-18	75‡	-50 to +125	20	40	10

\*I<sub>B1</sub>=I<sub>B2</sub>=1 mA, I<sub>E1</sub>=I<sub>E2</sub>=0, †I<sub>EE2</sub>=1 mA, I<sub>B1</sub>=I<sub>B2</sub>, †I<sub>B1</sub>=1 mA, I<sub>EE</sub>=0.1 mA, ‡V<sub>CB1</sub> or V<sub>CB2</sub>=25 V. †I<sub>B1</sub>=I<sub>B2</sub>=0.25 mA. ‡4JD12X013—Dual (4-transistor) version of 2N2356 in TO-5 pkg. ‡4JD12X070—Dual (4-transistor) version of 2N2356A in TO-5 pkg.

### NPN DARLINGTONS

Four-terminal TO-18 package with two pellets connected in Darlington configuration.

G.E. Type	Minimum			h <sub>FE</sub> at I <sub>C</sub> of			Maximum	
	V <sub>CE0</sub> Volts	At I <sub>C</sub> mA	100 mA Min.-Max.	10 mA Min.-Max.	1 mA Min.	I <sub>CB0</sub> nA	At V <sub>CB</sub> Volts	
2N997	40	30	7000-70k	4000 min.	.....	10	60	
2N998	60	20	2000 min.	1600-8000	800	10	90	
2N999	60	30	7000-70k	4000 min.	.....	10	60	
2N2785	40	20	2000-20k	1200 min.	600	50	30	



## SILICON ACTIVE FUNCTIONAL CIRCUITS

Frequently referred to as hybrid circuits, consist of thin film resistors, capacitors, diode and transistor elements within a single hermetically sealed package. Three-terminal package.

G.E. Type	JEDEC Outline	Description
12X009	TO-5	Three stage low level amplifier
12X010	TO-5	Two stage amplifier
12X011	TO-5	Darlington output three stage amplifier
12X012	TO-5	Dual Darlington differential amplifier
12X014	TO-5	Darlington input three stage amplifier
12X015	TO-5	Cascaded low level DC amplifier
12X037	TO-5	Darlington amplifier
12X101	TO-5	DTL NAND/NOR gate
12X205	TO-18	Three 2N930 type transistors
12X207	TO-5	AC pulse amplifier
12X218	Flat*	High input impedance amplifier
12X235	TO-18	Very closely matched high speed diode quad
12X239	Flat†	Very closely matched high speed diode quad
12X248	TO-5	Multivibrator
12X257	TO-5	High frequency amplifier
12X264	TO-5	High frequency linear amplifier

\*12 leads. †Six leads.

## SILICON FUNCTIONAL COMPONENTS

Complete circuits fabricated with diffusion techniques and including resistors, transistors, diodes and capacitors. Three-terminal package.

4JPA108	TO-5	Video amplifier
4JPA112	TO-5	Video amplifier
4JPA114	TO-5	Audio frequency amplifier
4JPA115	TO-5	Summing amplifier
4JPA128	TO-5	Audio frequency amplifier
4JPA335	TO-5	Dual transistor, resistor TEG
4JPA345/358	Network	Low level switch
4JPA350	TO-5	Multiple emitter transistor, resistor, diode TEG
4JPA351	TO-5	Transistor and resistor TEG circuit
4JPA380	TO-5	Digital to analog switch
4JPA908	TO-5	Shunt diode quad
4JPA909	TO-5	Series diode quad
4JPA912	TO-5	Analog switch—common collector circuit
4JPA913	TO-5	Analog switch—common emitter configura.

## SILICON CONTROLLED SWITCHES

### GROWN DIFFUSED TO-12

Four-terminal package. 3N58, characterization G<sub>A</sub> is electrically open, corresponds to the conventional SCR configuration. 3N59, characterization G<sub>C</sub> is connected to C, corresponds to the complementary SCR configuration. 3N60, characterization is for SCR, complementary SCR and Bimistor circuit configurations. Meets all specs for the 3N58 and 3N59. Dissipation, 150 mW. Peak gate current, 50 mA.

G.E. Type	Anode Bk. V	Max. Anode Ratings			Max. Gate Ratings				
		I <sub>B</sub> μA	I <sub>E</sub> μA	V <sub>F</sub> V	I <sub>GC</sub> μA	I <sub>GA</sub> μA	I <sub>GFC</sub> μA		
3N58	40	20	20	1.5	1.5	20	.....	1.0	.....
3N59	40	20	20	1.5	1.5	.....	20*	.....	1.5
3N60	40	20	20	1.5	1.5	20	0.2†	1.0	1.5

\*At 150° C. †At 25° C.

### PLANAR TO-18

Four-terminal package.

G.E. Type	Anode Bk. V	Cont. DC I <sub>F</sub> mA	Peak Recur. I <sub>F</sub> A*	Peak Cath. Gate Cur. mA	Dissipation mW	Maximum			
						at V <sub>AC</sub> V	I <sub>B</sub> R <sub>GC</sub> =10K μA	I <sub>GC</sub> =20 μA	I <sub>GA</sub> =1 μA
3N81	65	200	1.0	500	400	65	20	5	65
3N82	100	200	1.0	500	400	100	20	5	100
3N83	70	50	0.1	50	200	70	20†	5	70
3N84	40	175	0.5	100	320	40	20†	5	40
3N85	100	175	0.5	100	320	100	20†	5	100
3N86	65	200	1.0	500	400	65	20	5	65

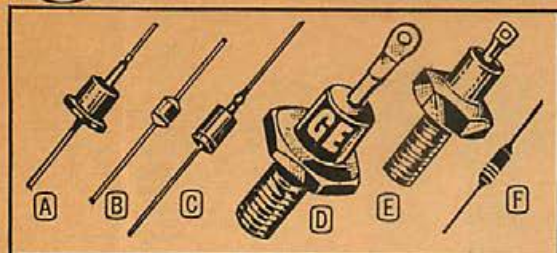
\*At 100 μsec. †Measured at 125° C; all others at 150° C.





**GENERAL  
ELECTRIC**

# SILICON AND GERMANIUM RECTIFIER CELLS, SEMICONDUCTOR MANUALS



## SILICON LOW CURRENT RECTIFIER CELLS LEAD MOUNTED (FIG. A)

Max. peak 1-cycle surge, 10 amps, 1N599-1N606A: 20 amps, 1N1692-1N1697; 30 amps, A13 Series; 45 Amps, A10 Series; 15 amps, all others.

JEDEC or G.E. Type	PRV Volts	Max. IDC		Max. IR*		Max. Full Load Drop		Max. Oper. Temp. °C
		mA	°C	Cur.	At °C	V	At °C	
1N440	100	300	50	.3 mA	25	1.5	25	150
1N440B	100	750	50	.3 mA	25	1.5	25	165
1N441	200	300	50	.75 mA	25	1.5	25	150
1N441B	200	750	50	.75 mA	25	1.5	25	165
1N442	300	300	50	1.0 mA	25	1.5	25	150
1N442B	300	750	50	1.0 mA	25	1.5	25	165
1N443	400	300	50	1.5 mA	25	1.5	25	150
1N443B	400	750	50	1.5 mA	25	1.5	25	165
1N444	500	300	50	1.75 mA	25	1.5	25	150
1N444B	500	650	50	1.75 mA	25	1.5	25	165
1N445	600	300	50	2.0 mA	25	1.5	25	150
1N445B	600	650	50	2.0 mA	25	1.5	25	165
1N536	50	750	50	.4 mA	150	0.5	150	165
1N537	100	750	50	.4 mA	150	0.5	150	165
1N538*	200	750	50	.3 mA	150	0.5	150	165
1N539	300	750	50	.3 mA	150	0.5	150	165
1N540*	400	750	50	.3 mA	150	0.5	150	165
1N547*	600	750	50	.3 mA	150	0.5	150	165
1N550	800	600	30	.3 mA	150	0.5	150	150
1N551	1000	600	30	.3 mA	150	0.5	150	150
1N599, A*	50	600	25	1.0 mA	25	1.5	200	150
1N600, A*	100	600	25	1.0 mA	25	1.5	200	150
1N601, A*	150	600	25	1.0 mA	25	1.5	200	150
1N602, A*	200	600	25	1.0 mA	25	1.5	200	150
1N603, A*	300	600	25	1.0 mA	25	1.5	200	150
1N604, A*	400	600	25	1.5 mA	25	1.5	200	150
1N605, A*	500	600	25	2.0 mA	25	1.5	200	150
1N606, A*	600	600	25	2.5 mA	25	1.5	200	150
1N1095	500	675	50	.3 mA	150	0.5	150	150
1N1096	600	640	50	.3 mA	150	0.5	150	150
1N1100	100	750	50	.3 mA	150	1.5	25	165
1N1101	200	750	50	.3 mA	150	1.5	25	165
1N1102	300	750	50	.3 mA	150	1.5	25	165
1N1103	400	750	50	.3 mA	150	1.5	25	165
1N1487	100	750	25	.4 mA	125	0.55	125	140
1N1488	200	750	25	.4 mA	125	0.55	125	140
1N1489	300	750	25	.4 mA	125	0.55	125	140
1N1490	400	750	25	.4 mA	125	0.55	125	140
1N1491	500	750	25	.4 mA	125	0.55	125	125
1N1492	600	750	25	.4 mA	125	0.55	125	120
1N1692	100	600	50	.5 mA	100	0.6	100	115
1N1693	200	600	50	.5 mA	100	0.6	100	115
1N1694	300	600	50	.5 mA	100	0.6	100	115
1N1695	400	600	50	.5 mA	100	0.6	100	115
1N1696	500	600	50	.5 mA	100	0.6	100	115
1N1697	600	600	50	.5 mA	100	0.6	100	115
A10A	100	1.5 A	25	.4 mA	150	0.5	150	165
A10B	200	1.5 A	25	.4 mA	150	0.5	150	165
A10C	300	1.5 A	25	.4 mA	150	0.5	150	165
A10D	400	1.5 A	25	.4 mA	150	0.5	150	165
A10E	500	1.5 A	25	.4 mA	150	0.5	150	165
A10M	600	1.5 A	25	.4 mA	150	0.5	150	165
A10N	800	1.5 A	25	.4 mA	150	0.5	150	165
A10P	1000	1.5 A	25	.4 mA	150	0.5	150	165

## LEAD MOUNTED (FIG. B)

A13A2	100	1.0 A	50	10 μA	25	1.0	25*	175
A13B2	200	1.0 A	50	10 μA	25	1.0	25*	175
A13C2	300	1.0 A	50	10 μA	25	1.0	25*	175
A13D2	400	1.0 A	50	10 μA	25	1.0	25*	175
A13E2	500	1.0 A	50	10 μA	25	1.0	25*	175
A13F2	50	1.0 A	50	10 μA	25	1.0	25*	175
A13M2	600	1.0 A	50	10 μA	25	1.0	25*	175

## FLANGELESS (FIG. C)

Max. peak 1-cycle surge, 30 A (40 A, 1N3600 Series).

JEDEC Type	Fig.	PRV Volts	Max. IDC at 55° C	Max. Rev. Cur., mA	Max. Full Load Voltage Drop	Max. Oper. Temp.		
1N2610†	100	850	25	.3 mA	150	0.5	150	175
1N2611†	200	850	25	.3 mA	150	0.5	150	175
1N2612†	300	850	25	.3 mA	150	0.5	150	175
1N2613†	400	850	25	.3 mA	150	0.5	150	175
1N2614†	500	850	25	.3 mA	150	0.5	150	175
1N2615†	600	850	25	.3 mA	150	0.5	150	175
1N3189*	200	1.0 A	100	.5 mA	25	1.0†	25	175
1N3190*	400	1.0 A	100	.5 mA	25	1.0†	25	175
1N3191*	600	1.0 A	100	.5 mA	25	1.0†	25	175
1N3639†	200	750	25	10 μA	25	0.6	25	100
1N3640†	400	750	25	10 μA	25	0.6	25	100
1N3641†	600	750	25	10 μA	25	0.6	25	100
1N3642†	800	500	25	10 μA	25	0.6	25	100

\*Full cycle average. †Add suffix S for plastic sleeve. ‡Diffused. §At rated PRV. †At 750 mA. \*And 500 mA. \*A types for magnetic amplifier service. \*MIL type available.

## SILICON LOW CURRENT RECTIFIERS (Cont'd)

### STUD-MOUNTED (FIG. D)

JEDEC Type	PRV	Max. IDC Cur. mA	Case Temp. °C	1-cycle Surge	Max. Ir† mA	Max. Ir‡ At °C	Max. Full Load Drop V	Max. Full Load Drop at mA
1N253**	95	1 A*	135	15 amps	.1	135	.75	135° C
1N254**	190	800	135	15 amps	.1	25	.70	135° C
1N255**	380	800	135	15 amps	.15	25	.70	135° C
1N256**	570	600	135	15 amps	.25	25	.69	135° C
1N332*	400	400	150	15 amps	.2	150	2	800†
1N333*	400	200	150	10 amps	.2	150	2	400†
1N334*	300	400	150	15 amps	.2	150	2	800†
1N335*	300	200	150	10 amps	.2	150	2	400†
1N336*	200	400	150	15 amps	.1	150	2	800†
1N337*	200	200	150	10 amps	.1	150	2	400†
1N339*	100	400	150	15 amps	.1	150	2	800†
1N340*	100	200	150	10 amps	.1	150	2	400†
1N341*	400	400	150	15 amps	.5	150	2	800†
1N342*	400	200	150	10 amps	.5	150	2	400†
1N343*	300	400	150	15 amps	.5	150	2	800†
1N344*	300	200	150	10 amps	.5	150	2	400†
1N345*	200	400	150	15 amps	.5	150	2	800†
1N346*	200	200	150	10 amps	.5	150	2	400†
1N348*	100	400	150	15 amps	.5	150	2	800†
1N349*	100	200	150	10 amps	.1	150	2	400†
1N550	100	500	100†	4 A, 3 ms	.5	25	1.5	25° C
1N551	200	500	100†	4 A, 3 ms	1.0	25	1.5	25° C
1N552	300	500	100†	4 A, 3 ms	1.5	25	1.5	25° C
1N553	400	500	100†	4 A, 3 ms	2.5	25	1.5	25° C
1N554	500	500	100†	4 A, 3 ms	3.5	25	1.5	25° C
1N555	600	500	100†	4 A, 3 ms	5.0	25	1.5	25° C
1N562	800	400	100†	1.5 amps	.3	150	.65	150° C
1N563	1000	400	100†	1.5 amps	.3	150	.65	150° C
1N607, A	50	1 A	100†	2 A, 1 sec	.025*	25	1.5	200†
1N608, A	100	1 A	100†	2 A, 1 sec	.025*	25	1.5	200†
1N609, A	150	1 A	100†	2 A, 1 sec	.025*	25	1.5	200†
1N610, A	200	1 A	100†	2 A, 1 sec	.025*	25	1.5	200†
1N611, A	300	1 A	100†	2 A, 1 sec	.025*	25	1.5	200†
1N612, A	400	1 A	100†	2 A, 1 sec	.025*	25	1.5	200†
1N613, A	500	1 A	100†	2 A, 1 sec	.025*	25	1.5	200†
1N614, A	600	1 A	100†	2 A, 1 sec	.025†	25	1.5	200†
1N1115*	100	1.5 A	85	15 amps	.4	150	.65	150° C
1N1116*	200	1.5 A	85	15 amps	.3	150	.65	150° C
1N1117*	300	1.5 A	85	15 amps	.3	150	.65	150° C
1N1118*	400	1.5 A	85	15 amps	.3	150	.65	150° C
1N1119†	500	1.3 A	85	15 amps	.3	150	.65	150° C
1N1120†	600	1.3 A	85	15 amps	.3	150	.65	150° C

### STUD MOUNTED (FIG. E)

1N1124	200	3.0 A	50†	25 amps	.3	150	1.1	1 A‡
1N124A*	200	3.0 A	50†	25 amps	.3	150	1.1	1 A‡
1N1125	300	3.0 A	50†	25 amps	.3	150	1.1	1 A‡
1N1126	400	3.0 A	50†	25 amps	.3	150	1.1	1 A‡
1N1126A*	400	3.0 A	50†	25 amps	.3	150	1.1	1 A‡
1N1127	500	3.0 A	50†	25 amps	.3	150	1.1	1 A‡
1N1128	600	3.0 A	50†	25 amps	.3	150	1.1	1 A‡
1N1128A*	600	3.0 A	50†	25 amps	.3	150	1.1	1 A‡

Max. operating temperature, 150° C except: \*170° C; †155° C. ‡Ambient. §At 25° C. †Full cycle average. ‡IFM average. A Type: \*001; \*0015; †002; 1.0025. \*MIL type available.

## SILICON SUBMINIATURE GLASS RECTIFIER CELLS (FIG. F)

Max. full load voltage drop, 1 V at 25° C. Max. oper. temp., 175° C for 1N600 Series, 200° C for 1N3500 Series.

JEDEC Type	Repet. PRV Volts	Max. IDC at 25° C mA	JEDEC Type	Repet. PRV Volts	Max. IDC at 25° C mA
1N645*	225	400	1N683	400	200
1N645A	225	400	1N684	400	400
1N646	300	400	1N685	500	200
1N647*	400	400	1N686	500	400
1N648	500	400	1N687	600	200
1N649*	600	400	1N689	600	400
1N676	100	200	1N3544	100	600
1N677	100	400	1N3545	200	600
1N678	200	200	1N3546	300	600
1N679	200	400	1N3547	400	600
1N681	300	200	1N3548	500	600
1N682	300	400	1N3549	600	600

## GERMANIUM LOW CURRENT RECTIFIER CELLS

Max. peak 1-cycle surge, 25 amps.

JEDEC Type	Fig.	PRV Volts	Max. IDC at 55° C	Max. Rev. Cur., mA	Max. Full Load Voltage Drop
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GENERAL  
ELECTRIC

# SILICON RECTIFIER CELLS, LIGHT ACTIVATED AND CONTROLLED SWITCHES

## SILICON MEDIUM CURRENT RECTIFIER CELLS

Mount directly to a chassis or fin; insulation kit supplied. All units except 1N3569, 1N3670A-73A and 1N3765-1N3768 are also available with negative polarity (stud is anode). Series 1N248, A, B thru 1N250, A, B, JAN, USA and Series 1N1191-1N1200 also available; complete specs on request.

JEDEC or G.E. Type	Fig.	Maximum		JEDEC or G.E. Type	Fig.	Maximum	
		PRV V*	Peak 1 Cy. Surge Idc† A			PRV V*	Peak 1 Cy. Surge Idc† A
1N248C	J	55	20	1N2157	J	300	25
1N249C	J	110	20	1N2158	J	400	25
1N250C	J	220	20	1N2159	J	500	25
1N1183	K	50	35	1N2160	J	600	25
1N1184	K	100	35	1N3208	H	50	15
1N1185	K	150	35	1N3209	H	100	15
1N1186	K	200	35	1N3210	H	200	15
1N1187	K	300	35	1N3211	H	300	15
1N1188	K	400	35	1N3212	H	400	15
1N1189	K	500	35	1N3213	H	500	15
1N1190	K	600	35	1N3214	H	600	15
1N1195A	J	300	20	1N3569	D	100	3.5†
1N1196A	J	400	20	1N3570	D	200	3.5†
1N1197A	J	500	20	1N3571	D	300	3.5†
1N1198A	J	600	20	1N3572	D	400	3.5†
1N1199A	D	50	12	1N3573	D	500	3.5†
1N1200A	D	100	12	1N3574	D	600	3.5†
1N1201A	D	150	12	1N3670A	G	700	12
1N1202A	D	200	12	1N3671A	G	800	12
1N1203A	D	300	12	1N3672A	G	900	12
1N1204A	D	400	12	1N3673A	G	1000	12
1N1205A	D	500	12	1N3765	K	700	35
1N1206A	D	600	12	1N3766	K	800	35
1N1341A	D	50	6	1N3767	K	900	35
1N1342A	D	100	6	1N3768	K	1000	35
1N1343A	D	150	6	A40A†	H	100	20
1N1344A	D	200	6	A40B†	H	200	20
1N1345A	D	300	6	A40C†	H	300	20
1N1346A	D	400	6	A40D†	H	400	20
1N1347A	D	500	6	A40E†	H	500	20
1N1348A	D	600	6	A40F†	H	50	20
1N1612	D	50	5	A40M†	H	600	20
1N1613	D	100	5	A44A†	I	100	20
1N1614*	D	200	5	A44B†	I	200	20
1N1615*	D	400	5	A44C†	I	300	20
1N1616*	D	600	5	A44D†	I	400	20
1N2154	J	50	25	A44E†	I	500	20
1N2155	J	100	25	A44F†	I	50	20
1N2156	J	200	25	A44M†	I	600	20

## FAST RECOVERY TYPES

Max. recovery time, 200 nsec except A28 Series, 100 nsec.

1N3879	D	50	6	75 A	1N3902	J	300	20	225 A
1N3880	D	100	6	75 A	1N3903	J	400	20	225 A
1N3881	D	200	6	75 A	1N3909	J	50	30	300 A
1N3882	D	300	6	75 A	1N3910	J	100	30	300 A
1N3883	D	400	6	75 A	1N3911	J	200	30	300 A
1N3889	D	50	12	150 A	1N3912	J	300	30	300 A
1N3890	D	100	12	150 A	1N3913	J	400	30	300 A
1N3891	D	200	12	150 A	A28A	D	100	12	240 A
1N3892	D	300	12	150 A	A28B	D	200	12	240 A
1N3893	D	400	12	150 A	A28C	D	300	12	240 A
1N3899	J	50	20	225 A	A28D	D	400	12	240 A
1N3900	J	100	20	225 A	A28F	D	50	12	240 A
1N3901	J	200	20	225 A					

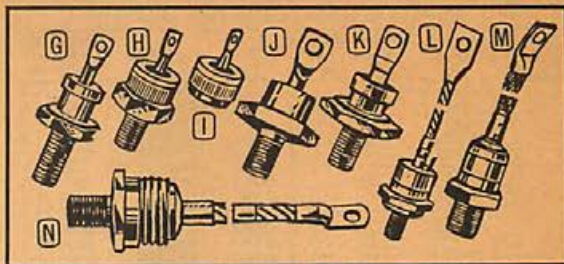
\*Repetitive. †Stud single phase at 100° C except: †85° C; †110° C; †135° C; †140° C; †145° C; †150° C; †150° C. †150° C. For reverse polarity, change to: †A41; †A45. \*MIL type available.

## SILICON HIGH CURRENT RECTIFIER CELLS

Large area junction rectifiers for applications requiring DC output up to 500 amps per rectifying element at rms input voltages up to 700 V. Max. full load fwd. voltage drop, single phase, 0.4 V at 130° C. To exceed A70 Series, 0.6 V. Max. operating Tj = 200° C. All A70 and A90 rectifiers are also available in forward or reverse polarity. Use A71, A91 or add suffix R to JEDEC no. A291 and A295 available reverse polarity only.

G.E. Type	JEDEC No.	Fig.	PRV Volts		Max. Cur., Amps			1-phase Ir†
			Repetitive	Transient	IDC 1-phase	1 Cycle Surge*	1-phase Ir†	
A70B	1N3289*	L	200	300	100	1600	9.0	
A70C	1N3290	L	300	400	100	1600	9.0	
A70D	1N3291*	L	400	525	100	1600	9.0	
A70E	1N3292	L	500	650	100	1600	8.0	
A70M	1N3293*	L	500	800	100	1600	6.5	
A70N	1N3294*	L	800	1050	100	1600	5.5	
A70P	1N3295*	L	1000	1300	100	1600	4.5	
A70PA		L	1100	1400	100	1600	4.0	
A70PB	1N3296	L	1200	1500	100	1600	4.0	
A70S		L	700	900	100	1600	6.0	
A70T		L	900	1100	100	1600	5.0	
A90B	1N3736	M	200	300	250	4500	16	
A90C	1N3737	M	300	400	250	4500	16	
A90D	1N3738	M	400	525	250	4500	16	
A90E	1N3739	M	500	650	250	4500	15	
A90M	1N3740	M	600	800	250	4500	12.5	
A90N	1N3741	M	800	1050	250	4500	10	
A90P	1N3742	M	1000	1300	250	4500	8	
A90PA		M	1100	1400	250	4500	8	
A90PB		M	1200	1500	250	4500	8	
A90S		M	700	900	250	4500	11	
A90T		M	900	1100	250	4500	9	
A291PC		N	1300	1500	250	4500	8	
A291PD		N	1400	1600	250	4500	8	
A291PE		N	1500	1700	250	4500	8	

\*At 130° C Tc. †Max. mA; Tj = 200° C. \*MIL type available.



## SILICON HIGH CURRENT CELLS (CONT'D)

G.E. Type	JEDEC No.	Fig.	PRV Volts		Max. Cur., Amps	1-phase Ir†
			Repetitive	Transient		
A291PM		N	1600	1800	250	4500
A291PN		N	1800	2000	250	4500
A291PS		N	1700	1900	250	4500
A295B		N	200	400	500	7000
A295C		N	300	500	500	7000
A295D		N	400	600	500	7000
A295E		N	500	700	500	7000
A295M		N	600	800	500	7000
A295S		N	800	1000	500	7000
A295T		N	1000	1300	500	7000
A295U		N	700	900	500	7000
A295V		N	900	1200	500	7000

\*At 130° C Tc. †Max. mA; Tj = 200° C.

Max. Idc single phase, 160 amps, Fig. L.

JEDEC No.	Repetitive PRV, V	JEDEC No.	Repetitive PRV, V	JEDEC No.	Repetitive PRV, V
1N3260	50	1N3265	300	1N3270	700
1N3261	100	1N3266	350	1N3271	800
1N3262	150	1N3267	400	1N3272	900
1N3263	200	1N3268	500	1N3273	1000
1N3264	250	1N3269	600		

Max. Idc single phase, 250 amps, Fig. M.

JEDEC No.	Repetitive PRV, V	JEDEC No.	Repetitive PRV, V	JEDEC No.	Repetitive PRV, V
1N4044	50	1N4049	300	1N4054	800
1N4045	100	1N4050	400	1N4055	900
1N4046	150	1N4051	500	1N4056	1000
1N4047	200	1N4052	600		
1N4048	250	1N4053	700		

## LIGHT ACTIVATED SILICON SCR'S

Photo-operated switch can be triggered by incident light and/or an electrical gate current. Max. temp. range, 100° C oper.; 150° C storage. Effective irradiance (mW/cm²) to trigger at 25° C Tj, 6 VDC, 0.68-10.0 (L9 and L91 Series, 0.68-4.2). Effective irradiance to trigger decreases with increasing anode voltage and increasing gate to cathode resistance. L8, L9, TO-5 outline; others same except soldered to a diamond base heatsink.

PRV/VBO	(Max. Idc = .44 A, 25° C)		(Max. Idc = .77 A, 25° C)	
	Type	Type	Type	Type
25	L8U	L9U	L811U	L911U
50	L8F	L9F	L811F	L911F
100	L8A	L9A	L811A	L911A
150	L8G	L9G	L811G	L911G
200	L8B	L9B	L811B	L911B

## SILICON GATE TURN-OFF SWITCHES

G5 and G6 Series: TO-5 outline, three-terminal PNP switch can be turned "off" as well as "on" from gate input terminal. Ideally suited for low power, high speed DC switching applications. Min. turn-off gain at Ip = 5. G511 and G611 Series: Identical to G5 and G6 Series but are soldered to a diamond shaped mounting base for increased dissipation capability. When ordering, change 5 or 6 in type number listed to 511 or 611 respectively, e.g., G511U, G611U, etc.

VBO	PRV	Type	Ip	Ih, Max.	Type	Ip	Ih, Max.
25	25	G5U		40 mA	G6U	5 amps	60 mA
50	25	G5F	1 amp	40 mA	G6F	at Ip =	60 mA
100	25	G5A	at Ip =	40 mA	G6A	.5-2 A	60 mA
200	25	G5B	2-1 A	40 mA	G6B		60 mA
300	25	G5C		40 mA	G6C		60 mA
400	25	G5D		40 mA	G6D		60 mA

## SILICON GATE-CONTROLLED AC SWITCHES

### BI-DIRECTIONAL TRIODES—TRIAC

For gate control of AC power.

G.E. Type	Brkover V at 100°C Tj	Pk Gate Pd	Rms Current	Typical Triggering Requirements	Oper. Temp. Tj	
						Fig. H
SC40B	SC41B	=200 V	5.0	6 A	Ig = +50 mA	-40° C
SC40D	SC41D	=400 V	W	6 A	Vg = +3 V	to 100° C
SC45B	SC46B	=200 V	5.0	10 A	Tj = 25° C	
SC45D	SC46D	=400 V	W	10 A		

\*Similar, has two terminals.

### BI-DIRECTIONAL TRIGGER DIODE—DIAC (FIG. B)

For gate trigger of TRIAC's or silicon controlled rectifiers. G.E. Type ST2—Breakover Voltage: =28 V min., =36 V max. Breakover Current: =200 µA, max. Pulse Output: =3 V, peak min., across 20-ohm load resistor when discharging 0.1 µF capacitor, TA = 50° C. Peak Current: =2 amps max., 10 µsec duration, 120 eps repetition rate, TA = 50° C.









GENERAL  
ELECTRIC

# OEM Semiconductor Pricing

G.E. Type		Net Each, Lots		G.E. Type		Net Each, Lots		G.E. Type		Net Each, Lots	
		1-99	100-999			1-99	100-999			1-9	10-29
1N34		\$0.35	\$0.21	1N553		\$ 1.73	\$1.15	1N1126, A		\$ 3.87	\$2.58
1N34A		.35	.23	1N554		1.80	1.20	USN 1N1126A		5.25	3.50
1N35		1.82	1.21	1N555		2.40	1.60	1N1127, A		4.98	3.32
1N38		.57	.38	1N560		1.80	1.20	1N1128, A		5.90	3.92
1N38A, B		.57	.38	1N561		3.53	2.35	USN 1N1128A		7.50	5.00
1N48		.30	.20	1N562		5.36	3.57	1N1183*		1.95	1.30
1N51		.30	.20	1N563		10.73	7.15	1N1184*		2.40	1.60
1N52		.38	.25	1N599		.47	.31	1N1185*		2.93	1.95
1N52A		.38	.25	1N599A		.54	.36	1N1186*		3.45	2.30
1N54, A		.48	.32	1N600		.53	.35	1N1187*		5.13	3.42
1N56A		.38	.25	1N600A		.63	.42	1N1188		5.85	3.90
1N58, A		.62	.41	1N601		.54	.36	1N1189		6.45	4.30
1N60		.35	.23	1N601A		.65	.43	1N1190		6.90	4.60
1N60A		.38	.25	1N602		.63	.42	1N1191*		1.65	1.10
1N60C		.42	.28	1N602A, 1N603		.66	.44	1N1192*		1.73	1.15
1N63		.42	.28	1N603A		.79	.53	1N1193*		2.10	1.40
1N64		.35	.23	1N604		.81	.54	1N1194*		2.48	1.65
1N65		.53	.35	1N604A		1.28	.85	1N1195, A*		4.02	2.68
1N67, A		.32	.21	1N605		.90	.60	1N1196, A*		4.95	3.30
1N68A		.72	.48	1N605A		1.43	.95	1N1197, A*		6.15	4.10
1N69		.35	.23	1N606		1.19	.79	1N1198, A*		7.50	5.00
1N69A		.35	.23	1N606A		2.03	1.35	1N1199, A*		1.25	.83
1N70, A		.57	.38	1N607, A		1.01	.67	1N1200, A*		1.41	.94
1N75		.77	.51	1N608, A		1.05	.70	1N1201, A*		1.82	1.21
1N81		.54	.36	1N609, A		1.05	.70	1N1202, A*		2.63	1.75
1N87A		.24	.16	1N610, A		1.12	.75	JAN 1N1202*		3.96	2.64
1N90		.33	.22	1N611, A		1.43	.95	1N1203, A*		3.60	2.40
1N91		1.85	1.25	1N612, A		1.73	1.15	1N1204, A*		4.58	3.05
1N92		1.95	1.30	1N613, A		1.80	1.20	JAN 1N1204*		5.55	3.70
1N93		2.70	1.80	1N614, A		2.40	1.60	1N1205, A*		5.33	3.55
USN 1N93A		3.45	2.30	1N616		.39	.26	1N1206, A*		6.38	4.25
1N96A		.39	.26	1N625		.43	.29	1N1217, A, B		.38	.25
1N97A		.50	.33	1N626		.43	.30	1N1218, A, B		.42	.28
1N98A		.36	.24	1N636		.39	.26	1N1219, A, B		.43	.29
1N99A		.59	.39	1N645		1.40	.93	1N1220, A, B		.45	.30
1N116		.54	.36	JAN 1N645		2.40	1.60	1N1221, A, B		.58	.39
1N117A		.57	.38	USAF 1N645		1.50	1.00	1N1222, A, B		.74	.49
1N118A		.30	.20	1N645A, 1N646		1.65	1.10	1N1223, A, B		.85	.57
1N126, A		.36	.24	1N647		1.80	1.20	1N1224, A, B		1.02	.68
1N127, A		.57	.38	JAN 1N647		4.05	2.70	1N1225, A, B		1.07	1.11
1N128		.38	.25	USAF 1N647		1.95	1.30	1N1226, A, B		1.83	1.22
1N191		.42	.28	1N648		1.95	1.30	1N1227, A, B		1.17	.78
1N192		.39	.26	1N649		2.50	1.65	1N1227A, B		1.50	1.00
1N198, A, B, C*		1.65	1.10	JAN 1N649		3.25	3.50	1N1228, B		1.25	.83
1N249, A, B*		1.73	1.15	USAF 1N649		2.63	1.75	1N1228A, B		1.65	1.10
JAN 1N249B*		3.00	2.00	1N659		.58	.39	1N1229		1.46	.97
USA 1N249B*		3.30	2.20	1N659A		1.18	.79	1N1229A, B		1.97	1.31
1N249C*		2.03	1.35	1N676		.93	.62	1N1230		1.58	1.05
1N250, A, B*		2.48	1.65	1N677		1.05	.70	1N1230A, B		2.03	1.35
JAN 1N250B*		3.66	2.45	1N678		1.23	.82	1N1231		1.94	1.29
USA 1N250B*		4.55	3.03	1N679		1.35	.90	1N1231A, B		2.52	1.68
1N250C*		2.78	1.85	1N681		1.53	1.02	1N1232		2.19	1.46
1N251, 1N252		.65	.43	1N682		1.65	1.10	1N1232A, B		2.94	1.98
JAN 1N251		.72	.48	1N683		1.80	1.20	1N1233		2.64	1.76
1N253		1.05	.70	1N684		1.88	1.25	1N1233A, B		3.60	2.40
JAN 1N253		1.57	1.05	1N685		2.10	1.40	1N1234		3.14	2.09
1N254		1.25	.83	1N686		2.25	1.50	1N1234A, B		4.04	2.69
JAN 1N254		1.63	1.09	1N687		2.40	1.60	1N1235, B		5.10	3.40
1N255		1.80	1.20	1N688		2.50	1.65	1N1235A, B		6.53	4.35
JAN 1N255		2.35	1.57	1N776		.38	.25	1N1236		6.38	4.25
1N256		2.55	1.70	1N776		.82	.54	1N1236A, B		8.25	5.50
JAN 1N256		3.24	2.16	1N811		1.18	.79	1N1341, A*		1.13	.75
1N273		.41	.27	1N812		1.05	.70	1N1342, A*		1.28	.85
1N279		.33	.22	1N813		1.18	.79	1N1343, A*		1.64	1.09
1N281		.36	.24	1N814		.80	.53	1N1344, A*		2.22	1.48
1N292		.50	.33	1N815		1.32	.88	1N1345, A*		3.17	2.11
1N295, A		.41	.27	1N891		1.02	.68	1N1346, A*		4.11	2.74
1N298A		.45	.30	1N903A		1.17	.78	1N1347, A*		4.97	3.31
1N309		.44	.29	1N904		.99	.66	1N1348, A*		5.93	3.95
1N315		3.00	2.00	1N904A		1.14	.76	1N1443		4.43	2.95
1N332, 1N333		1.73	1.15	1N905		1.14	.76	1N1443A, B		5.70	3.80
1N334, 1N335		1.43	.95	1N905A		1.55	1.09	1N1444		10.20	6.80
1N336, 1N337		1.12	.75	1N906		.90	.60	1N1444A, B		13.13	8.75
1N339, 1N340		1.05	.70	1N906A		1.13	.75	1N1487		.53	.35
1N341, 1N342		1.73	1.15	1N907		.89	.59	1N1488		.63	.42
1N343, 1N344		1.43	.95	1N907A		1.52	1.01	1N1489		.66	.44
1N345, 1N346		1.12	.75	1N908		.87	.58	1N1490		.81	.54
1N348, 1N349		1.05	.70	1N908A		1.02	.68	1N1491		.90	.60
1N368		2.55	1.70	1N914 (1N4148)		.45	.30	1N1492		1.19	.79
1N440, B		.66	.44	1N914A (1N4446)		.50	.33	1N1581		1.13	.75
1N441, B		.69	.46	1N914B (1N4448)		1.35	.90	1N1582		1.28	.85
1N442, B		.79	.53	JAN 1N914		.45	.30	1N1583		2.22	1.48
1N443, B		.98	.65	USN 1N914		.45	.30	1N1584		3.17	2.11
1N444, B		1.05	.70	1N916 (1N4149)		.67	.44	1N1585		4.11	2.74
1N445, B		1.43	.95	1N916A (1N4447)		.75	.50	1N1586		4.97	3.31
1N449		.42	.28	1N916B (1N4449)		.92	.61	1N1587		5.93	3.95
1N497		.45	.30	1N917		2.05	1.37	1N1588		1.08	.72
1N536		.45	.30	1N917A		.77	.51	1N1612*		1.25	.83
1N537		.50	.33	1N918		.96	.64	1N1613*		1.91	1.27
1N538		.53	.35	1N919		.53	.35	1N1614*		3.03	2.02
JAN 1N538		.75	.50	1N1100		.63	.42	USA 1N1614*		3.03	2.02
1N539		.60	.40	1N1101		.63	.42	1N1615*		3.75	2.50
1N540		.68	.45	1N1102		.66	.44	JAN 1N1615*		5.25	3.50
JAN 1N540		.99	.66	1N1103		.81	.54	USA 1N1615*		5.25	3.50
1N541		.30	.20	1N1115		1.05	.70	1N1616*		5.55	3.70
1N542		.62	.41	1N1116		1.12	.75	JAN 1N1616*		7.16	4.77
1N547		.96	.64	1N1117		1.43	.95	USA 1N1616*		7.16	4.77
JAN 1N547		1.28	.85	1N1118		1.73	1.15	1N1692		.45	.30
1N550		1.05	.70	1N1119		1.80	1.20	1N1893		.48	.32
1N551		1.12	.75	1N1120		2.40	1.60	1N1894		.56	.37
1N552		1.43	.95	1N1121, A		2.10	1.40	1N1895		.66	.44
				USN 1N1124A		3.38	2.25	1N1896		.72	.48
				1N1125, A		2.55	1.70	1N1697		.93	.62

\*Available in reverse polarity at same price; to order, add suffix R, e.g., 1N248R, 1N248RA, 1N248RB, etc. \$Price includes mounting hardware. For insulating hardware, add 5c per unit, any quantity. Continued, following pages.

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G.E. Type		Net Each, Lots		G.E. Type		Net Each, Lots		G.E. Type		Net Each, Lots		G.E. Type		Net Each, Lots	
		1-99	100-499			1-99	100-999			1-99	100-999			1-99	100-999
IN3289* (A70B, A71B)		\$12.95	\$10.15	IN3879*		\$10.00	\$ 6.67	IN4861		\$ 0.75	\$0.50	2N508		\$ 0.69	\$ 0.46
JAN IN3289*		14.90	12.10	IN3880*		12.51	8.34	IN4862		1.05	.61	2N508A		.73	.49
USA IN3289		14.90	12.10	IN3881*		15.00	10.00	IN4863		.48	.32	2N524, 2N525		1.10	.73
IN3290* (A70C, A71C)				IN3882*		17.61	11.74	IN4864		.58	.39	2N526		1.11	.74
IN3291* (A70D, A71D)		14.15	10.80	IN3883*		20.01	13.34	2N43, A		4.15	2.75	JAN 2N526		1.18	.79
JAN IN3291*		15.40	11.90	IN3889*		12.51	8.34	2N43A		5.00	3.33	USN 2N526		1.18	.79
USA IN3291*		17.35	13.85	IN3890*		14.51	9.67	2N44		2.95	1.95	2N527		1.35	.90
IN3292* (A70E, A71E)		17.10	13.20	IN3891*		37.70	11.80	JAN 2N44A		4.67	3.11	2N541		6.00	4.00
IN3293* (A70M, A71M)		20.10	15.50	IN3892*		20.10	13.40	2N48		2.50	1.65	2N542		6.20	4.10
JAN IN3293*		22.05	17.45	IN3893*		22.20	14.80	2N78A		2.70	1.80	2N542A		9.85	6.55
USA IN3293		22.05	17.45	IN3900*		27.60	18.40	USAF 2N78A		3.10	2.10	2N543		7.95	5.30
IN3294* (A70N, A71N)		25.40	19.50	IN3901*		34.65	23.10	2N323		4.50	3.00	2N543A		12.65	8.45
JAN IN3294*		29.30	23.40	IN3902*		39.00	26.00	USAF 2N123		5.10	3.40	JAN 2N543		2.03	1.35
USA IN3294		29.30	23.40	IN3903*		44.40	29.60	2N167, A		5.65	3.78	2N544		2.40	1.40
IN3295* (A70P, A71P)		30.20	23.20	IN3909*		36.00	24.00	USAF 2N167A		5.65	3.78	JAN 2N544		2.40	1.40
JAN IN3295*		34.10	27.10	IN3910*		48.60	31.20	2N169		5.65	3.78	2N556A		2.20	1.47
USA IN3295		34.10	27.10	IN3911*		57.30	38.20	2N169A		1.57	1.05	2N557		2.28	1.52
IN3298* (A70PB, A71PB)		34.50	26.40	IN3912*		47.52	43.20	2N187A		2.40	1.60	2N657A		2.92	1.94
				IN3913*		72.00	48.00	2N188A		1.64	1.09	2N681 (C35U)		8.55	5.70
				IN3958		1.49	.99	2N189		.70	.47	JAN 2N681		9.70	6.45
				IN3959		1.80	1.20	2N190		.75	.50	USN 2N681		9.70	6.45
				IN3960		2.33	1.55	2N191		.83	.55	2N682 (C35F)		9.40	6.25
				IN3961		2.85	1.90	2N192		1.57	1.05	JAN 2N682		10.45	6.95
				IN3962		4.78	2.88	2N241A		.92	.61	USN 2N682		10.45	6.95
				IN3963		6.15	4.10	2N292		.75	.50	2N683 (C35A)		10.20	6.80
				IN3967		8.38	5.59	2N293		.85	.55	JAN 2N683		11.55	7.70
				IN3988		10.20	6.80	2N319		.44	.29	USN 2N683		11.55	7.70
				IN3989		12.35	8.23	2N320		.59	.39	2N684 (C35G)		12.70	8.45
				IN3990		14.94	9.96	2N321		.65	.43	JAN 2N684		13.80	9.20
				IN4009 (IN4154)		.42	.28	2N322		.42	.28	USN 2N684		13.80	9.20
				IN4043		2.50	1.65	2N323		.59	.39	2N685 (C35B)		14.25	9.50
								2N324		.63	.42	JAN 2N685		16.05	10.70
								2N332, 3, 4		4.65	3.10	2N686 (C35H)		18.00	12.00
								2N332A, 3A, 4A		4.95	3.30	JAN 2N686		19.05	12.70
								JAN 2N333		4.95	3.30	USN 2N686		19.05	12.70
								USN 2N333		4.95	3.30	2N687 (C35C)		21.00	14.00
								2N335		4.95	3.30	JAN 2N687		22.05	14.70
								JAN 2N335		5.25	3.50	USN 2N687		22.05	14.70
								USN 2N335		5.25	3.50	2N688 (C35D)		25.50	17.00
								2N335A		5.25	3.50	JAN 2N688		27.30	18.20
								2N335B		8.00	5.95	USN 2N688		27.30	18.20
								2N336		6.00	4.00	2N689 (C35E)		31.90	21.25
								JAN 2N336		6.30	4.20	JAN 2N689		32.90	21.95
								2N336A		6.30	4.20	2N690 (C35M)		37.50	25.00
								2N337		4.85	3.20	2N691 (C35S)		42.75	28.50
								JAN 2N337		5.15	3.40	2N692 (C35N)		48.00	32.00
								USN 2N337		5.15	3.40	2N696, 2N697		.93	.62
								2N337A		5.15	3.40	JAN 2N696		.93	.62
								2N338		5.50	3.65	JAN 2N697		.93	.62
								JAN 2N338		5.80	3.85	2N698		2.50	1.67
								USN 2N338		5.80	3.85	2N699		1.68	1.12
								2N338A		5.80	3.85	2N706		.90	.60
								2N394, A, 2N395		.50	.33	JAN 2N706		1.03	.69
								2N396		.62	.41	2N706A		.97	.64
								2N396A		.62	.41	2N706B		1.49	.99
								JAN 2N396A		.65	.43	2N708		1.08	.72
								USN 2N396A		.65	.43	2N717		.99	.66
								2N397		1.11	.74	2N718		1.30	.86
								2N404		.47	.31	2N718A		1.52	1.01
								2N404A		.66	.44	2N719		2.35	1.56
								2N413, 2N414		.42	.29	2N719A		2.40	1.67
								2N450		2.10	1.40	2N720		1.83	1.22
								2N461		1.52	1.01	2N720A		2.48	1.65
								USAF 2N461		1.92	1.28	2N743		6.20	4.15
								2N478		3.60	2.40	2N743A		6.65	4.45
								2N479		6.95	4.60	2N744		2.90	1.95
								2N479A		7.15	4.80	2N744A		3.40	2.25
								2N480		9.30	6.20	2N753		5.17	3.44
								2N480A		9.60	6.40	2N759		1.75	1.17
								2N489		7.10	4.75	2N760		1.80	1.20
								USAF 2N489		7.80	5.20	2N760A		1.83	1.22
								2N489A		7.65	5.10	2N834		2.58	1.72
								2N489B		9.15	6.10	2N870		5.25	3.50
								2N490		7.80	5.20	2N871		5.33	3.56
								USAF 2N490		8.35	5.70	2N877		7.55	5.05
								2N490A		9.85	6.55	2N878		8.85	5.90
								2N490B		11.85	7.90	2N879		11.10	7.40
								2N491		8.40	5.60	2N880		15.00	10.00
								USAF 2N491		9.15	6.10	2N881		19.15	12.75
								2N491A		8.90	5.95	2N885		9.00	6.00
								2N491B		10.40	6.95	2N886		11.00	7.30
								2N492		9.90	6.60	2N887		13.35	8.90
								USAF 2N492		10.55	7.05	2N888		19.15	12.75
								2N492A		10.40	6.95	2N889		22.50	15.00
								2N492B		11.90	7.95	2N910		2.37	1.58
								2N492C		13.90	9.28	2N914		1.40	.93
								USAF 2N493		10.75	7.20	2N915		5.08	3.39
								2N493A		11.40	7.60	2N916		4.90	3.25
								2N493B		11.20	7.50	2N917, 2N918		8.67	5.78
								2N494		12.75	8.50	2N925		3.67	2.44
								USAF 2N494		10.90	7.30	2N930		4.00	2.67





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G.E. Type	Net Each, Lots		G.E. Type	Net Each, Lots		G.E. Type	Net Each, Lots		G.E. Type	Net Each, Lots	
	1-99	100-999		1-99	100-999		1-99	100-999		1-99	100-999
2N1050B	\$46.90	\$31.20	2N1874A	\$16.15	\$10.75	2N2324A	\$ 6.60	\$ 4.40	2N3404	\$ 0.80	\$ 0.53
2N1057	5.25	3.50	2N1848 (C36C)	16.90	11.25	2N2325 (C5G)	7.95	5.30	2N3405	.86	.58
2N1067	19.85	13.20	2N1848A	18.75	12.50	2N2325A	10.60	6.40	2N3411	.58	.38
2N1068	20.75	13.80	2N1849 (C36D)	21.30	14.20	2N2326 (C5B)	10.35	6.90	2N3415	.65	.43
2N1086	1.07	.71	2N1849A	23.65	15.75	2N2326A	12.40	8.25	2N3416	.65	.43
2N1086A	1.57	1.05	2N1850 (C36E)	24.40	16.25	2N2327 (C5H)	12.95	8.65	2N3417	.69	.46
2N1097	1.82	1.21	2N1850A	27.00	18.00	2N2327A	15.75	10.50	2N3513	19.65	13.10
2N1098	.47	.31	2N1889	5.25	3.50	2N2328 (C5C)	16.00	10.65	2N3514	22.15	14.80
2N1098A	.42	.28	2N1890	5.30	3.55	2N2328A	19.35	12.90	2N3515	33.85	22.55
2N1121	1.57	1.05	USN 2N1890	8.65	5.80	2N2329 (C5D)	21.20	14.15	2N3516	24.15	16.10
2N1144	.68	.45	2N1893	2.10	1.60	2N2344 (C7U)	7.95	5.30	2N3517	26.65	17.80
2N1145	.60	.40				2N2345 (C7F)	9.90	6.60	2N3518	38.35	25.55
2N1175	.87	.58				2N2346 (C7A)	13.95	9.30	2N3519	20.15	13.45
2N1175A	1.33	.89				2N2347 (C7A)	16.20	10.80	2N3520	31.85	21.20
2N1217	2.85	1.90				2N2348 (C7B)	19.50	13.00	2N3521	32.60	21.70
2N1247, 2N1248	13.50	9.00				2N2349 (4D22)	2.32	1.54	2N3522	35.10	23.40
2N1276	2.33	1.56				2N2350	4.80	3.20	2N3523	37.60	25.05
2N1277	2.17	1.44				2N2350A	5.05	3.35	2N3524	49.35	32.85
2N1278	2.33	1.56				2N2351	3.55	2.35	2N3529	2.78	1.85
2N1279	2.67	1.78				2N2351A	3.75	2.50	2N3590	4.62	3.25
2N1303	.49	.33				2N2352	2.95	1.87	2N3591	8.10	5.40
JAN 2N1303	.51	.34				2N2352A	3.20	2.13	2N3592	9.35	6.25
USN 2N1303	.51	.34				2N2353	1.98	1.32	2N3593	7.50	5.00
2N1305	.52	.35				2N2353A	2.13	1.42	2N3594	8.03	5.35
JAN 2N1305	.54	.37				2N2356	20.00	13.40	2N3595	10.80	7.20
USN 2N1305	.54	.37				2N2356A	23.00	15.30	2N3596	11.17	7.45
2N1307	.66	.44				2N2364	5.40	3.60	2N3605 (16J1)	.86	.58
JAN 2N1307	.71	.47				2N2364A	5.70	3.80	2N3606 (16J2)	.69	.46
USN 2N1307	.71	.47				2N2368	4.45	2.90	2N3607 (16J3)	.65	.43
2N1413	.73	.49				2N2369	4.80	3.20	2N3650 (C140A)	10.75	7.15
2N1414	.78	.52				2N2387	11.55	7.70	2N3651 (C140B)	15.30	10.20
2N1415	.92	.61				2N2388	14.40	9.65	2N3652 (C140C)	23.10	15.40
2N1417	.83	.56				2N2417	7.10	4.75	2N3653 (C140D)	28.00	18.70
2N1418	.92	.61				2N2417A	7.65	5.10	2N3654 (C141F)	10.35	6.90
2N1420	1.67	1.11				2N2417B	9.15	6.10	2N3655 (C141A)	11.25	7.50
2N1510	2.40	1.60				2N2418	7.80	5.20	2N3656 (C141B)	16.10	10.70
2N1595	3.00	2.00				2N2418A	8.35	5.55	2N3657 (C141C)	24.20	16.10
2N1596	4.60	3.05				2N2418B	9.85	6.55	2N3658 (C141D)	29.25	19.50
2N1597	9.35	6.25				2N2419	8.40	5.60	2N3662	.94	.62
2N1598	14.50	9.65				2N2419A	8.90	5.95	2N3663	.98	.66
2N1599	19.35	12.90				2N2419B	10.40	6.95	2N3721	.41	.27
2N1613	1.50	1.00				2N2420	9.80	6.55	2N3843	.53	.35
USN 2N1613	2.25	1.50				2N2420A	10.40	6.95	2N3843A	.58	.38
2N1614	2.50	1.65				2N2420B	11.90	7.95	2N3844	.55	.37
2N1616	26.00	17.50				2N2421	10.75	7.20	2N3844A	.62	.42
2N1617	30.00	20.00				2N2421A	11.20	7.50	2N3845	.62	.42
2N1618	35.00	23.50				2N2421B	12.75	8.50	2N3845A	.67	.45
2N1671	2.95	1.97				2N2422	10.90	7.30	2N3854 (16L43)	.48	.32
2N1671A	3.20	2.13				2N2422A	11.40	7.60	2N3855A (16L63)	.53	.35
2N1671B	3.55	2.36				2N2422B	12.90	8.60	2N3855 (16L44)	.50	.34
2N1671C	8.25	5.50				2N2423	30.00	20.00	2N3855A (16L64)	.55	.37
2N1694	.99	.66				2N2451	50.00	33.50	2N3856 (16L45)	.55	.37
2N1711	1.75	1.17				2N2451A	14.30	9.50	2N3856A (16L65)	.62	.42
USN 2N1711	3.83	2.56				2N2480	17.30	11.50	2N3858	.48	.32
2N1724	55.50	37.00				2N2480A	7.50	5.00	2N3859	.50	.34
2N1724A	63.20	42.10				2N2483	10.00	6.70	2N3860	.56	.37
2N1725	57.00	38.00				2N2484	6.90	4.60	2N3877 (16X2)	1.05	.70
2N1725A	5.55	3.70				2N2611	30.00	20.00	2N3877A (16X1)	1.18	.78
2N1770 (C11U)	6.15	4.10				2N2646	1.08	.72	2N3900	.67	.45
2N1770A (G10U)	6.00	4.00				2N2647	3.00	2.00	2N3900A	.75	.50
2N1771 (C11F)	7.00	4.65				2N2652	18.80	12.50	3N58	3.40	2.25
2N1771A (C10F)	9.38	6.25				2N2652A	21.70	14.50	3N59	3.75	2.50
2N1772 (C11A)	7.50	5.00				2N2711 (16A1)	.60	.40	3N60	4.15	2.75
2N1772A (C10A)	9.00	6.00				2N2712 (16A2)	.65	.43	3N81	3.00	2.25
USN 2N1772A	11.76	7.84				2N2713 (16B1)	.72	.48	3N82	4.95	3.30
2N1773 (C11G)	9.75	6.50				2N2714 (16B2)	.77	.51	3N83	2.13	1.42
2N1773A (G10G)	11.80	7.40				2N2726	2.10	1.40	3N84	1.98	1.32
2N1774 (C11B)	12.00	8.00				2N2727	4.27	2.85	3N85	3.30	2.20
2N1774A (C10B)	13.50	9.00				2N2785	13.35	8.90	3N86	6.00	4.00
USN 2N1774A	17.04	11.36				2N2840	6.35	4.25	4C28, 4C29	1.22	.81
2N1775 (C11H)	14.25	9.50				2N2868	1.68	1.12	4C30	1.25	.83
2N1775A (G10H)	15.75	10.50				2N2909	2.28	1.52	4C31	1.27	.84
2N1776 (C11C)	16.50	11.00				2N2910	12.75	9.35	4C43	1.25	.83
2N1776A (C10C)	18.40	12.25				2N2913	18.00	12.00	4D20	2.05	1.37
USN 2N1776A	22.00	14.67				2N2914	22.50	15.00	4D21	1.25	.83
2N1777 (C11D)	21.00	14.00				2N2915	45.00	30.00	4D22 (See 2N2349)	.67	.44
2N1777A (C10D)	23.65	15.75				2N2916	47.00	32.00	4D24, 4D25	1.83	1.22
USN 2N1777A	27.36	18.24				2N2917	35.00	23.00	4JD11C702	31.60	21.20
2N1778 (C11E)	25.90	17.25				2N2918	44.00	29.00	4JD11C704	30.60	20.50
						2N2919	54.00	36.00	4JD11C710	35.60	23.90
						2N2921	.43	.29	4JD12X101	27.75	18.50
						2N2924	.53	.35			
						2N2925	.65	.43			
						2N2926	.43	.29			
						2N2995	10.50	7.00			
						2N3052	41.25	27.50			
						2N3082	27.50	18.00			
						2N3083	30.50	20.30			
						2N3220	20.00	13.35			
						2N3221	22.00	14.65			
						2N3222	18.00	12.00			
						2N3223	19.85	13.25			
						2N3391	.72	.48			
						2N3391A	.80	.53			
						2N3392	.53	.35			
						2N3393	.43	.29			
						2N3394	.41	.27			
						2N3395	.58	.38			
						2N3396	.53	.35			
						2N3397	.42	.28			
						2N3398	.58	.38			
						2N3402	.75	.50			
						2N3403	.80	.53			

\*Also C62 Series, #25 pieces minimum. Continued, following pages.

GE Semiconductors Stocked in Depth at New York City











## DIFFUSED JUNCTION SILICON RECTIFIERS

### MEDIUM CURRENT TYPES 25° C (NOMINAL RATING)

Mallory No.	Type †	PRV Volts	Max. DC Amps	1-Cy. Surge Amps	Max. Oper. Temp.	Net Each, Lots	
						1-99	100-999
1N1115	S	100	1.5	15	170° C	\$1.08	\$0.72
1N1116	S	200	1.5	15	170° C	1.20	.80
1N1117	S	300	1.5	15	170° C	1.20	.80
1N1118	S	400	1.5	15	170° C	1.20	.80
1N1119	S	500	1.5	15	155° C	1.54	1.06
1N1120	S	600	1.5	15	155° C	2.76	1.84
1N1124	S	200	3	25	150° C	2.43	1.62
1N1124A	S	200	3.3	25	150° C	2.43	1.62
1N1125	S	300	3	25	150° C	2.84	1.88
1N1125A	S	300	3.3	25	150° C	2.84	1.88
1N1126	S	400	3	25	150° C	4.64	3.09
1N1126A	S	400	3.3	25	150° C	4.64	3.09
1N1127	S	500	3	25	150° C	6.75	5.55
1N1128	S	600	3	25	150° C	6.75	5.55
1N1128A	S	600	3.3	25	150° C	8.31	6.79
1N1537	S	50	1.6	16	175° C	1.74	1.08
1N1538	S	100	1.6	16	175° C	2.31	1.48
1N1539	S	150	1.6	16	175° C	2.31	1.48
1N1540	S	200	1.6	16	175° C	2.64	1.68
1N1541	S	300	1.6	16	175° C	3.09	1.94
1N1542	S	400	1.6	16	175° C	3.09	1.94
1N1543	S	500	1.6	16	175° C	3.44	2.14
1N1544	S	600	1.6	16	175° C	6.29	4.19
1N3569	S	100	3.5	35	165° C	1.48	.98
1N3570	S	200	3.5	35	165° C	1.79	1.19
1N3571	S	300	3.5	35	165° C	2.31	1.54
1N3572	S	400	3.5	35	165° C	2.84	1.89
1N3573	S	500	3.5	35	165° C	4.24	2.84
1N3574	S	600	3.5	35	165° C	6.14	4.09

### 100° C (NOMINAL RATING)

Mallory No.	Type †	PRV Volts	Max. DC Amps	1-Cy. Surge Amps	Max. Oper. Temp.	Net Each, Lots	
1N607	S	50	.8	3	150° C	\$1.11	\$0.74
1N607A	S	50	.8	3	150° C	1.23	.82
1N608	S	100	.8	3	150° C	1.18	.78
1N608A	S	100	.8	3	150° C	1.28	.85
1N609	S	150	.8	3	150° C	1.20	.80
1N609A	S	150	.8	3	150° C	1.32	.88
1N610	S	200	.8	3	150° C	1.23	.82
1N610A	S	200	.8	3	150° C	1.35	.90
1N611	S	300	.8	3	150° C	1.71	1.14
1N611A	S	300	.8	3	150° C	1.55	1.03
1N612	S	400	.8	3	150° C	1.84	1.24
1N612A	S	400	.8	3	150° C	2.13	1.42
1N613	S	500	.8	3	150° C	1.94	1.29
1N613A	S	500	.8	3	150° C	2.13	1.42
1N614	S	600	.8	3	150° C	2.79	1.86
1N614A	S	600	.8	3	150° C	3.06	2.04

### 150° C (NOMINAL RATING)

Mallory No.	Type †	PRV Volts	Max. DC Amps	1-Cy. Surge Amps	Max. Oper. Temp.	Net Each, Lots	
1N253	S	95	1.0	20	175° C	\$1.04	\$0.69
1N254	S	190	.4	10	175° C	1.23	.82
1N255	S	380	.4	10	175° C	1.95	1.31
1N256	S	570	.2	5	175° C	2.69	1.79
1N332	S	400	.4	10	175° C	1.94	1.29
1N333	S	400	.2	5	175° C	1.94	1.29
1N334	S	300	.4	10	175° C	1.56	1.04
1N335	S	300	.2	5	175° C	1.56	1.04
1N336	S	200	.4	10	175° C	1.23	.82
1N337	S	200	.2	5	175° C	1.23	.82
1N339	S	100	.4	10	175° C	1.17	.78
1N340	S	100	.2	5	175° C	1.17	.78
1N341	S	400	.4	10	175° C	1.94	1.29
1N342	S	400	.2	5	175° C	1.94	1.29
1N343	S	300	.4	10	175° C	1.56	1.04
1N344	S	300	.2	5	175° C	1.56	1.04
1N345	S	200	.2	5	175° C	1.23	.82
1N346	S	200	.4	10	175° C	1.23	.82
1N348	S	100	.4	10	175° C	1.17	.78
1N349	S	100	.2	5	175° C	1.17	.78

### HIGH CURRENT TYPES—150° C (NOMINAL RATING)

Mallory No.	Type †	PRV Volts	Max. DC Amps	1-Cy. Surge Amps	Max. Oper. Temp.	Net Each, Lots	
1N3208	VS	50	15	250	175° C	\$1.15	\$0.78
1N3209	VS	100	15	250	175° C	1.30	.89
1N3210	VS	200	15	250	175° C	1.75	1.19
1N3211	VS	300	15	250	175° C	2.40	1.60
1N3212	VS	400	15	250	175° C	3.00	2.00
1N3213	VS	500	15	250	175° C	3.53	2.35
1N3214	VS	600	15	250	175° C	4.20	2.80
1N3491	V	50	18	300	175° C	.63	.47
1N3492	V	100	18	300	175° C	.68	.51
1N3493	V	200	18	300	175° C	1.03	.76
1N3494	V	300	18	300	175° C	1.31	.98
1N3495	V	400	18	300	175° C	1.65	1.23
V500	V	500	18	300	175° C	1.88	1.41
V600	V	600	18	300	175° C	1.98	1.49
1N3659	V	50	25	400	175° C	1.26	.94
1N3660	V	100	25	400	175° C	1.36	1.02
1N3661	V	200	25	400	175° C	2.06	1.52
1N3662	V	300	25	400	175° C	2.62	1.96
1N3663	V	400	25	400	175° C	3.30	2.46
1N3664	V	500	25	400	175° C	3.76	2.82
1N3665	V	600	25	400	175° C	3.96	2.98

\*Add suffix R for reverse polarity. †S and VS furnished with mounting hardware.

### SEMICONDUCTOR HARDWARE KITS

Mallory No.	Description	Net Each
HD04	Fits all EIA DO4 rectifiers	13c
HD05	Fits all EIA DO5 rectifiers	23c

### LOW CURRENT TYPES 25° C (NOMINAL RATING)

Mallory No.	Type	PRV Volts	Max. DC Amps	1-Cy. Surge Amps	Max. Oper. Temp.	Net Each, Lots	
1N2090	T	50	.75	15	100° C	\$0.46	\$0.36
1N2091	T	100	.75	15	100° C	.48	.38
1N2092	T	200	.75	15	100° C	.52	.40
1N2093	T	300	.75	15	100° C	.57	.45
1N2094	T	400	.75	15	100° C	.59	.47
1N2095	T	500	.75	15	100° C	.65	.51
1N2096	T	600	.75	15	100° C	.69	.54
A50	A	50	.75	15	100° C	.54	.42
A100	A	100	.75	15	100° C	.56	.44
1N2069	A	200	.75	15	100° C	.59	.47
A300	A	300	.75	15	100° C	.65	.51
1N2070	A	400	.75	15	100° C	.67	.53
A500	A	500	.75	15	100° C	.74	.58
1N2071	A	600	.75	15	100° C	.77	.61
1N3193	D	200	.75	40	100° C	.89	.64
1N3194	D	400	.75	40	100° C	.80	.63
1N3195	D	600	.75	40	100° C	.93	.73
1N1487	H	100	.75	15	140° C	.52	.34
1N1488	H	200	.75	15	140° C	.62	.41
1N1489	H	300	.75	15	140° C	.65	.43
1N1490	H	400	.75	15	140° C	.80	.53
1N1491	H	500	.75	15	140° C	.89	.59
1N1492	H	600	.75	15	140° C	1.18	.78
1N1763	H	400	.75	.....	150° C	.58	.39
1N1764	H	500	.75	.....	150° C	.69	.46

### 50° C (NOMINAL RATING)

Mallory No.	Type	PRV Volts	Max. DC Amps	1-Cy. Surge Amps	Max. Oper. Temp.	Net Each, Lots	
1N1100	H	100	.75	15	165° C	\$0.52	\$0.34
1N1101	H	200	.75	15	165° C	.62	.41
1N1102	H	300	.75	15	165° C	.65	.43
1N1103	H	400	.75	15	165° C	.80	.53
1N1104	H	500	.75	15	165° C	2.46	1.64
1N1105	H	600	.75	15	165° C	2.91	1.94
1N1692	H	100	.6	20	115° C	.50	.33
1N1693	H	200	.6	20	115° C	.58	.38
1N1694	H	300	.6	20	115° C	.62	.41
1N1695	H	400	.6	20	115° C	.77	.51
1N1696	H	500	.6	20	115° C	.88	.58
1N1697	H	600	.6	20	115° C	1.15	.76

### 100° C (NOMINAL RATING)

Mallory No.	Type	PRV Volts	Max. DC Amps	1-Cy. Surge Amps	Max. Oper. Temp.	Net Each, Lots	
1N440	H	100	.3	15	150° C	\$0.71	\$0.47
1N441	H	200	.3	15	150° C	.76	.50
1N442	H	300	.3	15	150° C	.86	.57
1N443	H	400	.3	15	150° C	1.09	.72
1N444	H	500	.3	15	150° C	1.11	.74
1N445	H	600	.3	15	150° C	1.60	1.06
1N440B	H	100	.5	15	165° C	.71	.47
1N441B	H	200	.5	15	165° C	.76	.50
1N442B	H	300	.5	15	165° C	.86	.57
1N443B	H	400	.5	15	165° C	1.09	.72
1N444B	H	500	.5	15	165° C	1.11	.74
1N445B	H	600	.5	15	165° C	1.60	1.06
1N599	H	50	.4	10	150° C	.46	.30
1N600	H	100	.4	10	150° C	.52	.34
1N601	H	150	.4	10	150° C	.53	.35
1N602	H	200	.4	10	150° C	.62	.41
1N603	H	300	.4	10	150° C	.65	.43
1N604	H	400	.4	10	150° C	.80	.53
1N605	H	500	.4	10	150° C	.89	.59
1N606	H	600	.4	10	150° C	1.18	.78
1N595A	H	50	.4	10	150° C	.92	.61
1N600A	H	100	.4	10	150° C	1.04	.69
1N601A	H	150	.4	10	150° C	1.25	.83
1N602A	H	200	.4	10	150° C	1.31	.87
1N604A	H	400	.4	10	150° C	1.61	1.07
1N605A	H	500	.4	10	150° C	1.76	1.17
1N606A	H	600	.4	10	150° C	2.36	1.57
1N2858	H	50	.5	40	125° C	.40	.30
1N2859	H	100	.5	40	125° C	.45	.32
1N2860	H	200	.5	40	125° C	.48	.32
1N2861	H	300	.5	40	125° C	.56	.37
1N2862	H	400	.5	40	125° C	.66	.44
1N2863	H	500	.5	40</			



# MALLORY Semiconductors

## SILICON ZENER DIODES



Diffused silicon junction zener diodes in two power ratings (1 and 10 watts) and three standard case styles. Offer low thermal resistance and excellent forward characteristics. Exceed military requirements. Rugged cell construction for exceptional surge handling capability. **Tolerance:** No suffix (1N3016),  $\pm 20\%$ ; suffix A (1N3016A),  $\pm 10\%$ ; suffix B (1N3016B),  $\pm 5\%$ .

### TYPE ZA

High temperature regulator meets commercial, industrial, computer and home instrument requirements. Transfer molded for moisture-resistant, high strength package. Non-conductive, eliminating need for insulating sleeves. Low forward voltage drop and high temperature operation. **Power Dissipation:** 1 watt. **Size:** .220" dia. x .375" l., max.; leads 1 1/4" lg., minimum.

### TYPE ZD

EIA standard DO-13, flangeless hermetically-sealed package. **Power Dissipation:** 1 watt. **Temperature Range:**  $-65^{\circ}\text{C}$  to  $+175^{\circ}\text{C}$ , operating and storage. **Size:** .235" dia. x .357" l., max.; leads 1.4" lg., minimum.

### TYPE ZS

Series 1N2970 thru 1N3015 EIA standard DO-4, all-welded package for heavy-duty stud mounting. Very low thermal resistance characteristics. **Power Dissipation:** 10 watts. **Temperature Range:**  $-65^{\circ}\text{C}$  to  $+175^{\circ}\text{C}$ . **Polarity:** Cathode to stud as listed. Anode to stud available on special order, add suffix R (example: 1N2970R, 1N2970RA, etc.); same price. **Size:** 1/2" hex x 3/4" h. from base; #10-32 NF threaded stud 1/4" lg. HDO-4 hardware kit supplied.

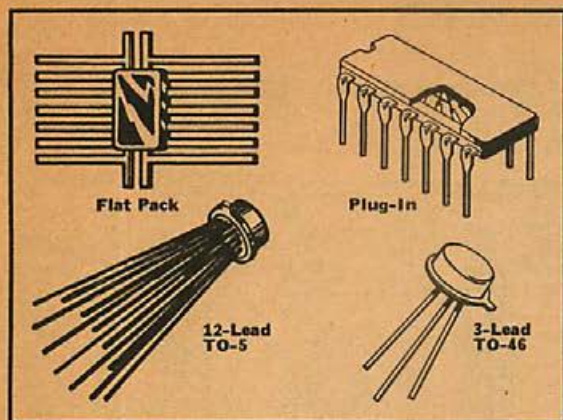
Nom. Zener (Vz) Volts	Type ZA Cold Case				Type ZD DO-13 Case				Type ZS DO-4 Case			
	Mail. No.	IzT Ma	Net Ea.*		Mail. No.	IzT Ma	Net Ea.*		Mail. No.	IzT Ma	Net Ea.*	
6.8	ZA6.8	37	\$0.99	1N3016	37	\$1.95	1N2970	370	\$3.71			
	ZA6.8A	37	1.12	1N3016A	37	2.25	1N2970A	370	4.58			
	ZA6.8B	37	1.60	1N3016B	37	3.23	1N2970B	370	5.93			
7.5	ZA7.5	34	.99	1N3017	34	1.95	1N2971	335	3.71			
	ZA7.5A	34	1.12	1N3017A	34	2.25	1N2971A	335	4.58			
	ZA7.5B	34	1.60	1N3017B	34	3.23	1N2971B	335	5.93			
8.2	ZA8.2	31	.99	1N3018	31	1.95	1N2972	305	3.71			
	ZA8.2A	31	1.12	1N3018A	31	2.25	1N2972A	305	4.58			
	ZA8.2B	31	1.60	1N3018B	31	3.23	1N2972B	305	5.93			
9.1	ZA9.1	28	.99	1N3019	28	1.95	1N2973	275	3.71			
	ZA9.1A	28	1.12	1N3019A	28	2.25	1N2973A	275	4.58			
	ZA9.1B	28	1.60	1N3019B	28	3.23	1N2973B	275	5.93			
10	ZA10	25	.99	1N3020	25	1.95	1N2974	250	3.71			
	ZA10A	25	1.12	1N3020A	25	2.25	1N2974A	250	4.58			
	ZA10B	25	1.60	1N3020B	25	3.23	1N2974B	250	5.93			
11	ZA11	23	.99	1N3021	23	1.95	1N2975	230	3.71			
	ZA11A	23	1.12	1N3021A	23	2.25	1N2975A	230	4.58			
	ZA11B	23	1.60	1N3021B	23	3.23	1N2975B	230	5.93			
12	ZA12	21	.99	1N3022	21	1.95	1N2976	210	3.71			
	ZA12A	21	1.12	1N3022A	21	2.25	1N2976A	210	4.58			
	ZA12B	21	1.60	1N3022B	21	3.23	1N2976B	210	5.93			
13	ZA13	19	.99	1N3023	19	1.95	1N2977	190	3.71			
	ZA13A	19	1.12	1N3023A	19	2.25	1N2977A	190	4.58			
	ZA13B	19	1.60	1N3023B	19	3.23	1N2977B	190	5.93			
15	ZA15	17	.99	1N3024	17	1.95	1N2979	170	3.71			
	ZA15A	17	1.12	1N3024A	17	2.25	1N2979A	170	4.58			
	ZA15B	17	1.60	1N3024B	17	3.23	1N2979B	170	5.93			
16	ZA16	15.5	.99	1N3025	15.5	1.95	1N2980	155	3.71			
	ZA16A	15.5	1.12	1N3025A	15.5	2.25	1N2980A	155	4.58			
	ZA16B	15.5	1.60	1N3025B	15.5	3.23	1N2980B	155	5.93			
18	ZA18	14	.99	1N3026	14	1.95	1N2982	140	3.71			
	ZA18A	14	1.12	1N3026A	14	2.25	1N2982A	140	4.58			
	ZA18B	14	1.60	1N3026B	14	3.23	1N2982B	140	5.93			
20	ZA20	12.5	.99	1N3027	12.5	1.95	1N2984	125	3.71			
	ZA20A	12.5	1.12	1N3027A	12.5	2.25	1N2984A	125	4.58			
	ZA20B	12.5	1.60	1N3027B	12.5	3.23	1N2984B	125	5.93			
22	ZA22	11.5	.99	1N3028	11.5	1.95	1N2985	115	3.71			
	ZA22A	11.5	1.12	1N3028A	11.5	2.25	1N2985A	115	4.58			
	ZA22B	11.5	1.60	1N3028B	11.5	3.23	1N2985B	115	5.93			
24	ZA24	10.5	.99	1N3029	10.5	1.95	1N2986	105	3.71			
	ZA24A	10.5	1.12	1N3029A	10.5	2.25	1N2986A	105	4.58			
	ZA24B	10.5	1.60	1N3029B	10.5	3.23	1N2986B	105	5.93			
27	ZA27	9.5	.99	1N3030	9.5	1.95	1N2988	95	3.71			
	ZA27A	9.5	1.12	1N3030A	9.5	2.25	1N2988A	95	4.58			
	ZA27B	9.5	1.60	1N3030B	9.5	3.23	1N2988B	95	5.93			
30	ZA30	8.5	1.10	1N3031	8.5	2.21	1N2989	85	3.71			
	ZA30A	8.5	1.52	1N3031A	8.5	3.11	1N2989A	85	4.58			
	ZA30B	8.5	2.03	1N3031B	8.5	4.09	1N2989B	85	5.93			
33	ZA33	7.5	1.10	1N3032	7.5	2.21	1N2990	75	3.71			
	ZA33A	7.5	1.52	1N3032A	7.5	3.11	1N2990A	75	4.58			
	ZA33B	7.5	2.03	1N3032B	7.5	4.09	1N2990B	75	5.93			
36	ZA36	7.0	1.10	1N3033	7.0	2.21	1N2991	70	3.71			
	ZA36A	7.0	1.52	1N3033A	7.0	3.11	1N2991A	70	4.58			
	ZA36B	7.0	2.03	1N3033B	7.0	4.09	1N2991B	70	5.93			
39	ZA39	6.5	1.10	1N3034	6.5	2.21	1N2992	65	3.71			
	ZA39A	6.5	1.52	1N3034A	6.5	3.11	1N2992A	65	4.58			
	ZA39B	6.5	2.03	1N3034B	6.5	4.09	1N2992B	65	5.93			

Nom. Zener (Vz) Volts	Type ZA Cold Case			Type ZD DO-13 Case			Type ZS DO-4 Case		
	Mail. No.	IzT Ma	Net Ea.*	Mail. No.	IzT Ma	Net Ea.*	Mail. No.	IzT Ma	Net Ea.*
43	ZA43	6.0	\$1.10	1N3035	6.0	\$2.21	1N2993	60	\$3.71
	ZA43A	6.0	1.52	1N3035A	6.0	3.11	1N2993A	60	4.58
	ZA43B	6.0	2.03	1N3035B	6.0	4.09	1N2993B	60	5.93
47	ZA47	5.5	1.10	1N3036	5.5	2.21	1N2995	55	3.71
	ZA47A	5.5	1.52	1N3036A	5.5	3.11	1N2995A	55	4.58
	ZA47B	5.5	2.03	1N3036B	5.5	4.09	1N2995B	55	5.93
51	ZA51	5.0	1.10	1N3037	5.0	2.21	1N2997	50	3.71
	ZA51A	5.0	1.52	1N3037A	5.0	3.11	1N2997A	50	4.58
	ZA51B	5.0	2.03	1N3037B	5.0	4.09	1N2997B	50	5.93
56	ZA56	4.5	1.10	1N3038	4.5	2.21	1N2999	45	3.71
	ZA56A	4.5	1.52	1N3038A	4.5	3.11	1N2999A	45	4.58
	ZA56B	4.5	2.03	1N3038B	4.5	4.09	1N2999B	45	5.93
62	ZA62	4.0	1.10	1N3039	4.0	2.21	1N3000	40	3.71
	ZA62A	4.0	1.52	1N3039A	4.0	3.11	1N3000A	40	4.58
	ZA62B	4.0	2.03	1N3039B	4.0	4.09	1N3000B	40	5.93
68	ZA68	3.7	1.10	1N3040	3.7	2.21	1N3001	37	3.71
	ZA68A	3.7	1.52	1N3040A	3.7	3.11	1N3001A	37	4.58
	ZA68B	3.7	2.03	1N3040B	3.7	4.09	1N3001B	37	5.93
75	ZA75	3.3	1.10	1N3041	3.3	2.21	1N3002	33	3.71
	ZA75A	3.3	1.52	1N3041A	3.3	3.11	1N3002A	33	4.58
	ZA75B	3.3	2.03	1N3041B	3.3	4.09	1N3002B	33	5.93
82	ZA82	3.0	1.10	1N3042	3.0	2.21	1N3003	30	3.71
	ZA82A	3.0	1.52	1N3042A	3.0	3.11	1N3003A	30	4.58
	ZA82B	3.0	2.03	1N3042B	3.0	4.09	1N3003B	30	5.93
91	ZA91	2.8	1.10	1N3043	2.8	2.21	1N3004	28	3.71
	ZA91A	2.8	1.52	1N3043A	2.8	3.11	1N3004A	28	4.58
	ZA91B	2.8	2.03	1N3043B	2.8	4.09	1N3004B	28	5.93
100	ZA100	2.5	1.10	1N3044	2.5	2.21	1N3005	25	3.71
	ZA100A	2.5	1.52	1N3044A	2.5	3.11	1N3005A	25	4.58
	ZA100B	2.5	2.03	1N3044B	2.5	4.09	1N3005B	25	5.93
110	ZA110	2.3	1.22	1N3045	2.3	2.40	1N3007	23	4.13
	ZA110A	2.3	1.79	1N3045A	2.3	3.56	1N3007A	23	4.58
	ZA110B	2.3	2.74	1N3045B	2.3	5.36	1N3007B	23	5.93
120	ZA120	2.0	1.22	1N3046	2.0	2.40	1N3008	20	4.13
	ZA120A	2.0	1.79	1N3046A	2.0	3.56	1N3008A	20	4.58
	ZA120B	2.0	2.74	1N3046B	2.0	5.36	1N3008B	20	5.93
130	ZA130	1.9	1.22	1N3047	1.9	2.40	1N3009	19	4.13
	ZA130A	1.9	1.79	1N3047A	1.9	3.56	1N3009A	19	4.58
	ZA130B	1.9	2.74	1N3047B	1.9	5.36	1N3009B	19	5.93
150	ZA150	1.7	1.22	1N3048	1.7	2.40	1N3011	17	4.13
	ZA150A	1.7	1.79	1N3048A	1.7	3.56	1N3011A	17	4.58
	ZA150B	1.7	2.74	1N3048B	1.7	5.36	1N3011B	17	5.93
160	ZA160	1.6	1.22	1N3049	1.6	2.			



# SYLVANIA Integrated Circuits

Subsidiary of GENERAL TELEPHONE & ELECTRONICS



## SUHL I

In standard flat package.

Sylvania Type	Application	Function	Net Each, Lots of	
			1-24	25-99
SG40	MP	Dual 4-Input NAND/NOR Gate	\$29.35	\$23.40
SG41	MS		19.55	15.60
SG42	IP		17.60	14.05
SG43	IS		9.30	7.40
SG50	MP	Expandable Quad 2-Input OR Gate	36.70	29.25
SG51	MS		24.45	19.50
SG52	IP		22.00	17.55
SG53	IS		12.25	9.75
SG60	MP	Single 8-Input NAND/NOR Gate	29.35	23.40
SG61	MS		19.55	15.60
SG62	IP		17.60	14.05
SG63	IS		9.30	7.40
SG90	MP	Exclusive OR with Complement	36.70	29.25
SG91	MS		24.45	19.50
SG92	IP		22.00	17.55
SG93	IS		12.25	9.75
SG100	MP	Expandable Triple 3-Input OR Gate	36.70	29.25
SG101	MS		24.45	19.50
SG102	IP		22.00	17.55
SG103	IS		12.25	9.75
SG110	MP	Expandable Dual 4-Input OR Gate	33.00	26.35
SG111	MS		21.50	17.15
SG112	IP		19.80	15.80
SG113	IS		10.25	8.20
SG120	MP	Expandable Single 8-Input NAND/NOR Gate	33.00	26.35
SG121	MS		21.50	17.15
SG122	IP		19.80	15.80
SG123	IS		10.25	8.20
SG130	MP	Line Driver	40.35	32.20
SG131	MS		26.90	21.45
SG132	IP		24.20	19.30
SG133	IS		13.45	10.75
SG140	MP	Quad 2-Input NAND/NOR Gate	36.70	29.25
SG141	MS		24.45	19.50
SG142	IP		22.00	17.55
SG143	IS		12.25	9.75
SG150	MP	Quad 2-Input OR Expander	19.55	15.60
SG151	MS		19.55	15.60
SG152	IP		9.30	7.40
SG153	IS		9.30	7.40
SG170	MP	Dual 4-Input OR Expander	9.80	7.80
SG171	MS		9.80	7.80
SG172	IP		5.95	4.75
SG173	IS		5.95	4.75
SG180	MP	Dual 4-Input AND Expander	9.80	7.80
SG181	MS		9.80	7.80
SG182	IP		5.95	4.75
SG183	IS		5.95	4.75
SG190	MP	Triple 3-Input NAND/NOR Gate	36.70	29.25
SG191	MS		24.45	19.50
SG192	IP		22.00	17.55
SG193	IS		12.25	9.75
SF10	MP	Set-Reset Flip-Flop	33.00	26.35
SF11	MS		21.50	17.15
SF12	IP		19.80	17.40
SF13	IS		10.25	9.00
SF20	MP	Two-Phase SR Clocked Flip-Flop	36.70	29.25
SF21	MS		24.45	19.50
SF22	IP		22.00	17.55
SF23	IS		12.25	9.75
SF30	MP	Single Phase SR Triggered Flip-Flop	40.35	32.20
SF31	MS		26.90	21.45
SF32	IP		24.20	19.30
SF33	IS		13.45	10.75
SF50	MP	J-K Flip-Flop (AND)	55.00	43.90
SF51	MS		36.70	29.25
SF52	IP		33.00	26.35
SF53	IS		18.35	14.65
SF60	MP	J-K Flip-Flop (OR)	55.00	43.90
SF61	MS		36.70	29.25
SF62	IP		33.00	26.35
SF63	IS		18.35	14.65

## SUHL II

Specify package: Flat, suffix -02; plug-in, suffix -03.

Sylvania Type	Application	Function	Net Each, Lots of	
			1-24	25-99
SG210	MP	Expandable Dual 4-Input OR Gate	\$33.00	\$26.35
SG211	MS		21.50	17.15
SG212	IP		19.80	15.80
SG213	IS		10.25	8.20
SG220	MP	Quad 2-Input NAND/NOR Gate	36.70	29.25
SG221	MS		24.45	19.50
SG222	IP		22.00	17.55
SG223	IS		12.25	9.75
SG230	MP	Quad 2-Input OR Expander	19.55	15.60
SG231	MS		19.55	15.60
SG232	IP		9.30	7.40
SG233	IS		9.30	7.40
SG240	MP	Dual 4-Input NAND/NOR Gate	29.35	23.40
SG241	MS		19.55	15.60
SG242	IP		17.60	14.05
SG243	IS		9.30	7.40
SG250	MP	Expandable Quad 2-Input OR Gate	36.70	29.25
SG251	MS		24.45	19.50
SG252	IP		22.00	17.55
SG253	IS		12.25	9.75
SG260	MP	Single 8-Input NAND/NOR Gate	29.35	23.40
SG261	MS		19.55	15.60
SG262	IP		17.60	14.05
SG263	IS		9.30	7.40
SG270	MP	Dual 4-Input OR Expander	9.80	7.80
SG271	MS		9.80	7.80
SG272	IP		5.95	4.75
SG273	IS		5.95	4.75
SF250	MP	J-K Flip-Flop AND Inputs	64.50	51.00
SF251	MS		43.00	34.00
SF252	IP		38.50	30.50
SF253	IS		21.50	17.00
SF260	MP	J-K Flip-Flop OR Inputs	64.50	51.00
SF261	MS		43.00	34.00
SF262	IP		38.50	30.50
SF263	IS		21.50	17.00

## TO-5 OUTLINE

TO-5 outline with 12 pins; 0.75" min. lead length.

Sylvania Type	Application	Function	Net Each, Lots of	
			1-24	25-99
SG4001	MP	Dual 4-Input NAND/NOR Gate	\$26.45	\$21.10
SG4101	MS		17.60	14.05
SG4201	IP		15.85	12.65
SG4301	IS		8.40	6.70
SG5001	MP	Quad 2-Input OR Gate	33.00	26.35
SG5101	MS		22.00	17.55
SG5201	IP		19.85	15.80
SG5301	IS		11.05	8.80
SG6001	MP	Single 8-Input NAND/NOR Gate	26.40	21.10
SG6101	MS		17.60	14.05
SG6201	IP		15.85	12.65
SG6301	IS		8.40	6.70
SG9001	MP	Exclusive OR with Complement	33.05	26.35
SG9101	MS		22.00	17.55
SG9201	IP		19.85	15.80
SG9301	IS		11.05	8.80
SG10001	MP	Expandable Triple 2-Input OR Gate	33.05	26.35
SG10101	MS		22.00	17.55
SG10201	IP		19.85	15.80
SG10301	IS		11.05	8.80
SG11001	MP	Expandable Dual 3-Input OR Gate	29.75	23.70
SG11101	MS		19.40	15.45
SG11201	IP		17.85	14.25
SG11301	IS		9.25	7.40
SG12001	MP	Expandable Single 6-Input NAND/NOR Gate	29.75	23.70
SG12101	MS		19.40	15.45
SG12201	IP		17.85	14.25
SG12301	IS		9.25	7.40
SG13001	MP	Line Driver	36.35	29.00
SG13101	MS		24.25	19.30
SG13201	IP		21.80	17.40
SG13301	IS		12.10	9.70
SG14001	MP	Triple 2-Input NAND/NOR Gate	33.00	26.35
SG14101	MS		22.00	17.55
SG14201	IP		19.85	15.80
SG14301	IS		11.05	8.80
SG15001	MP	Quad 2-Input OR Expander	17.60	14.05
SG15101	MS		17.60	14.05
SG15201	IP		8.40	6.70
SG15301	IS		8.40	6.70
SG17001	MP	Dual 3-Input OR Expander	8.80	7.05
SG17101	MS		5.35	4.30
SG18001	MP	Dual 3-Input AND Expander	8.80	7.05
SG18101	MS		5.35	4.30
SF1001	MP	Set-Reset Flip-Flop	29.75	23.70
SF1101	MS		19.40	15.45
SF1201	IP		17.85	14.25
SF1301	IS		9.25	7.40
SF2001	MP	Two-Phase SR Clocked Flip-Flop	33.05	26.35
SF2101	MS		22.00	17.55
SF2201	IP		19.85	15.80
SF2301	IS		11.05	8.80
SF3001	MP	Single-Phase SRT Flip-Flop	36.35	29.00
SF3101	MS		24.25	19.30
SF3201	IP		21.80	17.40
SF3301	IS		12.10	9.70
SF5001	MP	J-K Flip-Flop (AND Input)	46.55	38.50
SF5101	MS		33.05	26.35
SF5201	IP		29.75	23.70
SF5301	IS		16.55	13.20

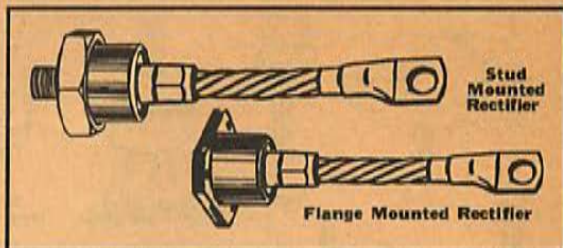


### MULTIPLE DIODES

Silicon planar epitaxial high speed diodes. Hermetically sealed. Two, three, four or eight diodes in single chip for excellent matching over temperature -65° C to +175° C. Surge current per diode, 500 mA, 1 μsec. Max. power dissipation, 300 mW each diode, 400 mW package.

Sylvania Type	JEDEC	No. of Diodes	PIV V	1.0 V I <sub>FWD</sub> mA	Recov. trr nsec	Cap. pF
M0001/SID2A-1	TO-46*	2	40	100	3.0	4.5
M0002/SID3A-2	TO-46†	3	40	100	3.0	4.5
M0003/SID2A-2	TO-46†	3	75	75	3.0	3.5
M0004/SID3A-2	TO-46†	3	75	75	3.0	3.5
M0005/SID2A-3	TO-46‡	3	100	50	3.0	2.5
M0006/SID3A-3	TO-46‡	3	100	50	3.0	2.5
M0007/SID2A-4	TO-46§	4	40	20	4.0	4.5
M0008/SID3A-4	TO-46§	4	40	20	4.0	4.5
M0009/SID4A-1	TO-46‡	4	40	20	4.0	4.5
M0010/SID4A-2	TO-46‡	4	40	100	3.0	4.5
M0011/SID4A-3	TO-46‡	4	75	75	3.0	3.5
M0012/SID4A-4	TO-46‡	4	100	50	3.0	2.5
M0027/SID2E-1	TO-46†	2	20	5	...	...
M0045/SID2A-6	TO-46*	100	100	3.0	2.5	
M0046/SID3A-6	TO-46†	100	100	3.0	2.5	
M0047/SID4A-8	TO-46‡	100	100	3.0	2.5	
M0053/SID4E-2	TO-46‡	100	...	4.0	2.0	
M0059/SID4A-9	TO-46‡	4	40	50	6.0	4.0
M0060/SID4A-7	TO-46‡	4	40	200	6.0	6.0
M0061/SID4C-1	TO-46‡	4	15	175	4.0	4.0
M0063/SID4E-3	TO-46‡	4	15	40	4.0	4.0
M0083/SID4A-10	TO-46‡	4	30	500	4.0	...
M0090/SID4E-7	TO-46†	4	30	10	4.0	4.0
M0092/SID4A-5	TO-46‡	4	12	20	...	...
M0110/SID8A-1	TO-5‡	8	40	30	4.0	4.5
M0127/SID2E-2	TO-46*	2	45	50	3	4.5
M0128/SID4E-4	TO-46‡	4	45	40	4	4.5
M0129/SID5E-2	TO-46‡	5	45	50	4	4.5
M0130/SID5E-3	TO-46‡	5	45	50	4	4.5

Common Cathode



### MULTIPLE DIODES (CONT'D)

Sylvania Type	JEDEC	No. of Diodes	PIV V	1.0 V I <sub>FWD</sub> mA	Recov. trr nsec	Cap. pF
M0062/SID4B-4	TO-46‡	4	40	200	6.0	6.0
M0082/SID4B-8	TO-46‡	4	30	500	4.0	...
M0101/SID2B-1	TO-46*	2	40	20	4.0	5.0
M0102/SID3B-1	TO-46†	3	40	20	4.0	5.0
M0103/SID4B-2	TO-46‡	4	40	20	4.0	5.0
M0104/SID2B-2	TO-46*	2	75	75	3.0	4.5
M0105/SID3B-2	TO-46†	3	75	75	3.0	4.5
M0106/SID4B-3	TO-46‡	4	75	75	3.0	4.5
M0107/SID2B-3	TO-46*	2	40	100	3.0	5.0
M0108/SID3B-3	TO-46†	3	40	100	3.0	5.0
M0109/SID4B-5	TO-46‡	4	40	100	3.0	5.0
M0111/SID8B-1	TO-5‡	8	40	30	4.0	5.0

### INTEGRATED STEERING DIODES

Silicon planar epitaxial, high conductance, signal chip diodes.

*M0112/SID4A-6	TO-46†	4	60	300*	10.0
*M0113/SID5A-1	TO-5‡	5	60	300*	10.0
*M0114/SID4B-6	TO-46‡	4	60	300*	12.0
*M0115/SID5B-1	TO-5‡	5	60	300*	12.0

\*Three leads. †Four leads. ‡Five leads. §Ten leads. ‡At zero volts, 1 Mc.

\*Three leads. †Four leads. ‡Five leads. §Ten leads. ‡At zero volts, 1 Mc. †Common cathode. ‡Common anode. ‡At 1.1 volts

### SILICON POWER RECTIFIERS

Ratings from 3 to 450 amperes. Stud-mounted unless otherwise noted. Choice of positive (cathode connected to hex or flange) or negative (anode to hex or flange) polarity; types listed are positive—for negative, add suffix R (e.g., 1N1581R) when ordering. Complete with mounting hardware.

EIA/Syl. Type	Rtd. Amps	Max. V Rms	Max. V PRV	EIA/Syl. Type	Rtd. Amps	Max. V Rms	Max. V PRV	EIA/Syl. Type	Rtd. Amps	Max. V Rms	Max. V PRV	EIA/Syl. Type	Rtd. Amps	Max. V Rms	Max. V PRV
1N1581	3	35	50	PR9018*	25	420	600	PR9104*	175	35	50	PR9156*	275	420	600
1N1582	3	70	100	PR9019*	25	460	700	PR9105*	175	75	100	PR9157*	275	490	700
1N1583	3	140	200	PR9020*	25	560	800	PR9106*	175	140	200	PR9158*	275	560	800
1N1584	3	210	300	PR9021*	25	630	900	PR9107*	175	210	300	PR9159*	275	630	900
1N1585	3	280	400	PR9022*	25	700	1000	PR9108*	175	280	400	PR9160*	275	700	1000
1N1586	3	350	500	1N1181	35	35	50	PR9109*	175	350	500	1N3585	400	35	50
1N1587	3	420	600	1N1182	35	70	100	PR9110*	175	420	600	1N3586	400	75	100
PR9000	3	490	700	1N1183	35	105	150	PR9111*	175	490	700	1N3587	400	140	200
PR9001	3	560	800	1N1184	35	140	200	PR9112*	175	560	800	1N3588	400	210	300
PR9002	3	630	900	1N1185	35	210	300	PR9113*	175	630	900	1N3589	400	280	400
PR9003	3	700	1000	1N1186	35	280	400	PR9114*	175	700	1000	1N3590	400	350	500
1N1341	6	35	50	1N1187	35	350	500	PR9115	240	35	50	1N3591	400	420	600
1N1342	6	70	100	1N1188	35	420	600	PR9116	240	75	100	PR9161	400	490	700
1N1343	6	105	150	1N1189	35	490	700	PR9117	240	140	200	PR9162	400	560	800
1N1344	6	140	200	PR9023	35	560	800	PR9118	240	210	300	PR9163	400	630	900
1N1345	6	210	300	PR9024	35	630	900	PR9119	240	280	400	PR9164	400	700	1000
1N1346	6	280	400	PR9025	35	700	1000	PR9120	240	350	500	PR9165	400	840	1200
1N1347	6	350	500	PR9026	35	700	1000	PR9121	240	420	600	PR9166*	400	35	50
1N1348	6	420	600	PR9027*	35	35	50	PR9122	240	490	700	1N4778*	400	75	100
PR9004	6	490	700	1N4553*	35	70	100	PR9123	240	560	800	1N4779*	400	140	200
PR9005	6	560	800	1N4554*	35	140	200	PR9124	240	630	900	1N4800*	400	210	300
PR9006	6	630	900	1N4555*	35	210	300	PR9125	240	700	1000	1N4801*	400	280	400
PR9007	6	700	1000	1N4556*	35	280	400	PR9126	240	840	1200	1N4802*	400	350	500
1N1199	12	35	50	PR9028*	35	350	500	PR9127*	240	35	50	PR9168*	400	420	600
1N1200	12	70	100	PR9029*	35	420	600	PR9128*	240	75	100	PR9169*	400	490	700
1N1201	12	105	150	PR9030*	35	490	700	PR9129*	240	140	200	PR9170*	400	560	800
1N1202	12	140	200	PR9031*	35	560	800	PR9130*	240	210	300	PR9171*	400	630	900
1N1203	12	210	300	PR9032*	35	630	900	PR9131*	240	280	400	PR9172*	400	700	1000
1N1204	12	280	400	PR9033*	35	700	1000	PR9132*	240	350	500	PR9173*	450	35	50
1N1205	12	350	500	PR9034	50	35	50	PR9133*	240	420	600	PR9174	450	75	100
1N1206	12	420	600	PR9035	50	70	100	PR9134*	240	490	700	PR9175	450	140	200
PR9008	12	490	700	PR9036	50	140	200	PR9135*	240	560	800	PR9176	450	210	300
PR9009	12	560	800	PR9037	50	210	300	PR9136*	240	630	900	PR9177	450	280	400
PR9010	12	630	900	PR9038	50	280	400	PR9137*	240	700	1000	PR9178	450	350	500
PR9011	12	700	1000	PR9039	50	350	500	PR9138*	240	840	1200	PR9179	450	420	600
1N2154	25	35	50	PR9040	50	420	600	PR9139	275	35	50	PR9180	450	490	700
1N2155	25	70	100	PR9041	50	490	700	PR9140	275	75	100	PR9181	450	560	800
1N2156	25	140	200	PR9042	50	560	800	PR9141	275	140	200	PR9182	450	630	900
1N2157	25	210	300	PR9043	50	630	900	PR9142	275	210	300	PR9183	450	700	1000
1N2158	25	280	400	PR9044	50	700	1000	PR9143	275	280	400	PR9184	450	840	1200
1N2159	25	350	500	PR9045	75	35	50	PR9144	275	350	500	PR9185*	450	35	50
1N2160	25	420	600	PR9046	75	70	100	PR9145	275	420	600	PR9186*	450	75	100
PR9012	25	490	700	PR9047	75	140	200	PR9146	275	490	700	PR9187*	450	140	200
PR9013	25	560	800	PR9048	75	210	300	PR9147	275	560	800	PR9188*	450	210	300
PR9014	25	630	900	PR9049	75	280	400	PR9148	275	630	900	PR9189*	450	280	400
PR9015	25	700	1000	PR9050	75	350	500	PR9149	275	700	1000	PR9190*	450	350	500
PR9016*	25	35	50	PR9051	75	420	600	PR9150*	275	840	1200	PR9191*	450	420	600
1N1454*	25	70	100	PR9052*	75	35	50	PR9151*	275	35	50	PR9192*	450	490	700
1N1455*	25	140	200	PR9053*	75	70	100	PR9152*	275	75	100	PR9193*	450	560	800
1N1456*	25	210	300	PR9054*	75	140	200	PR9153*	275	140	200	PR9194*	450	630	900
1N1457*	25	280	400	PR9055*	75	210	300	PR9154*	275	210	300	PR9195*	450	700	1000
PR9017*	25	350	500	PR9056*	75	280	400	PR9155*	275	280	400				

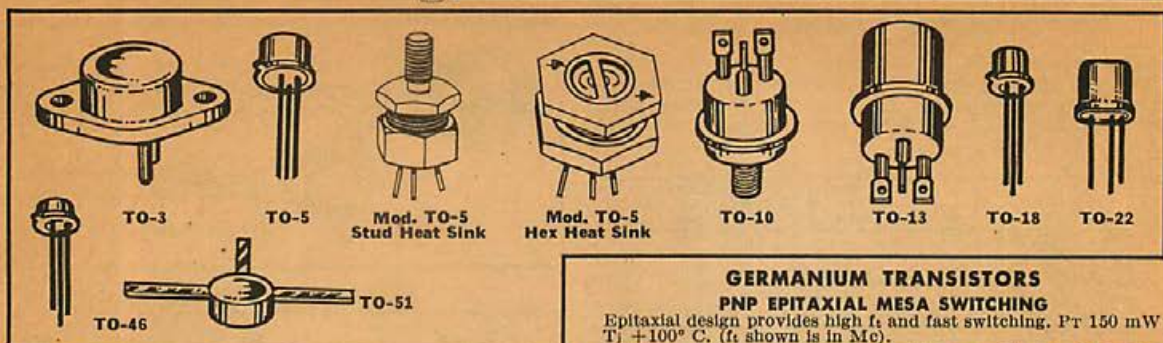
\*Flange mounted.

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# SYLVANIA Semiconductors

Subsidiary of GENERAL TELEPHONE & ELECTRONICS



## SILICON EPITAXIAL PLANAR TRANSISTORS

### NPN MICRO POWER

VCB: 15 V. 2N2784 Series—World's fastest silicon transistor switch, "purple plague" free, passivated planar;  $T_j +200^\circ\text{C}$ ;  $P_T$  300 mW.

Sylv. Type	JEDEC	f <sub>c</sub> Mc	ton+t <sub>off</sub> nsec	Sylv. Type	JEDEC	f <sub>c</sub> Mc	ton+t <sub>off</sub> nsec
2N709	TO-18	800	30	2N2475/46	TO-46	800	35
2N709/46	TO-46	800	30	2N2475/51	TO-51	800	35
2N709/51	TO-51	800	30	2N2784	TO-18	1200	18
2N709A	TO-18	900	30	2N2784/46	TO-46	1200	18
2N709A/46	TO-46	900	30	2N2784/51	TO-51	1200	18
2N709A/51	TO-51	900	30	SYL4052	TO-18	600	.....
2N2475	TO-18	800	35				

### NPN SMALL SIGNAL AMPLIFIERS

For VHF and UHF oscillator and amplifier applications.

Sylv. Type	JEDEC	hFE Min.-Max.	VCB V	Sylv. Type	JEDEC	hFE Min.-Max.	VCB V
2N706A	TO-18	76-333	60	2N918/			
2N917	TO-18	20 min.	30	51	TO-51	20 min.	30
2N917/51	TO-51	20 min.	30	2N930	TO-18	100-300	45
2N918	TO-18	20 min.	30	2N2857	TO-18	.....	.....

### NPN SMALL SIGNAL

Extremely fast switching transistor. "Purple plague" free, passivated construction.  $P_T$ : TO-18 300 mW; TO-46 400 mW; TO-51 300 mW.  $T_j +200^\circ\text{C}$ .

Sylv. Type	JEDEC	VCB V	f <sub>c</sub> Mc	Sylv. Type	JEDEC	VCB V	f <sub>c</sub> Mc
2N703	TO-18	25 V	.....	2N753	TO-18	25 V	320
2N706	TO-18	25 V	320	2N753/46	TO-46	25 V	320
2N706/46	TO-46	25 V	320	2N753/51	TO-51	25 V	320
2N706/51	TO-51	25 V	320	2N784	TO-18	30 V	350
JAN2N706	MIL-S-19500	120B		2N784A	TO-18	40 V	350
2N706A	TO-18	25 V	320	2N834	TO-18	40 V	450
2N706A/46	TO-46	25 V	320	2N834/46	TO-46	40 V	450
2N706A/51	TO-51	25 V	320	2N834/51	TO-51	40 V	450
2N706B	TO-18	25 V	320	2N835	TO-18	25 V	425
2N706B/46	TO-46	25 V	320	2N835/46	TO-46	25 V	425
2N706B/51	TO-51	25 V	320	2N835/51	TO-51	25 V	425
2N708	TO-18	40 V	400	2N914	TO-18	40 V	450
2N708/46	TO-46	40 V	400	2N1962	TO-46	40 V	350
2N708/51	TO-51	40 V	400	2N1963	TO-46	30 V	350
2N743	TO-18	20 V	350	2N2205	TO-18	25 V	375
2N743/46	TO-46	20 V	350	2N2397	TO-51	35 V	350
2N743/51	TO-51	20 V	350	2N2651	TO-18	.....	.....
2N744	TO-18	20 V	350	2N2719	TO-18	25 V	.....
2N744/46	TO-46	20 V	350	2N2831	TO-18	40 V	250

### NPN LARGE SIGNAL

"Purple plague" free, passivated construction. Fast switching combined with high power dissipation.  $T_j +200^\circ\text{C}$ .

Sylv. Type	JEDEC	VCB V	f <sub>c</sub> Mc	Sylv. Type	JEDEC	VCB V	f <sub>c</sub> Mc
2N697	TO-5	60	160	2N2220	TO-18	60	250
2N1958	TO-5	60	140	2N2221	TO-18	60	250
2N1958A	TO-5	60	150	2N2222	TO-18	60	250
2N1959	TO-5	60	140	2N2297	TO-5	80	120
2N1959A	TO-5	60	150	2N2410	TO-5	60	230
2N1959A/51	TO-51	60	150	2N2537	TO-5	60	250
2N1964	TO-46	60	150	2N2538	TO-5	60	250
2N1965	TO-46	60	150	2N2539	TO-18	60	250
2N1990	TO-5	100	100	2N2540	TO-18	60	250
2N2217	TO-5	60	250	2N2618	TO-5	60	230
2N2218	TO-5	60	250	2N2618/46	TO-46	60	230
2N2219	TO-5	60	250	SYL2860	TO-5	40	.....

### PNP LARGE SIGNAL

"Purple plague" free, passivated construction with channelling guard.  $T_j +200^\circ\text{C}$ .

Sylv. Type	JEDEC	VCB V	f <sub>c</sub> Mc	Sylv. Type	JEDEC	VCB V	f <sub>c</sub> Mc
2N1131	TO-5	50	100	2N2303	TO-5	50	60
2N1131A	TO-5	60	120	2N2800	TO-5	50	120
2N1132	TO-5	50	120	2N2801	TO-5	50	120
2N1132/18	TO-18	50	120	2N2906	TO-18	60	200
2N1132A	TO-5	60	120	2N2907	TO-18	60	200
2N1132B	TO-5	70	120	2N3081	TO-51	70	150

## GERMANIUM TRANSISTORS

### PNP EPITAXIAL MESA SWITCHING

Epitaxial design provides high  $f_t$  and fast switching.  $P_T$  150 mW;  $T_j +100^\circ\text{C}$ . (f shown in Mc).

Type	JEDEC	VCB V	f <sub>c</sub> Mc	Type	JEDEC	VCB V	f <sub>c</sub> Mc
2N501/18	TO-18	-15 V	250	2N963	TO-18	-12 V	350
2N705	TO-18	-15 V	290	2N964	TO-18	-15 V	420
USN2N705	MIL-S-19500/86A			USN2N964	MIL-S-19500/258		
JAN2N705	MIL-S-19500/86A			2N965	TO-18	-12 V	420
2N705A	TO-18	-15 V	300	2N966	TO-18	-12 V	420
2N710	TO-18	-12 V	300	2N967	TO-18	-12 V	350
2N711	TO-18	-15 V	300	2N968	TO-18	-12 V	350
2N711A	TO-18	-18 V	300	2N969	TO-18	-15 V	360
2N711B	TO-18	-12 V	400	2N1546	TO-18	-18 V	320
2N782	TO-18	-15 V	380	2N1553/18	TO-18	-18 V	320
2N960	TO-18	-15 V	400	2N2455	TO-18	-15 V	800
2N961	TO-18	-12 V	400	2N2630	TO-18	-18 V	420
2N962	TO-18	-12 V	400	2N2635	TO-18	-30 V	250
USN2N962	MIL-S-19500/258			2N2860	TO-18	.....	.....

### PNP EPITAXIAL MESA AMPLIFIERS

Epitaxial design provides excellent service in VHF and UHF applications.  $T_j +100^\circ\text{C}$ .

Sylv. Type	JEDEC	VCB V	f <sub>c</sub> Mc	Sylv. Type	JEDEC	VCB V	f <sub>c</sub> Mc
2N700/18	TO-18*	-25	500	USN2N-			
2N741	TO-18	-15	360	1142			
2N741A	TO-18	-20	360	2N1143 A	MIL-S-19500/87		
2N1141 A	TO-5	-35	1200	2N1395	TO-5	-25	800
2N1142	TO-5	-30	1000	2N2455	TO-18	-15	800
2N1142A	TO-5	-30	1000	2N2456	TO-18	-15	1200

\*With four leads.

### PNP MEDIUM POWER AND AUDIO

Available in modified TO-5 case; also stud heat sink and hex heat sink versions. IC 3 amps;  $P_T$  20 watts. (VCB shown in volts.)

Type	VCB	hFE	Type	VCB	hFE
2N1038	-40	33-200 at 50 mA	2N2557	-60	33-200 at 50 mA
2N1039	-60	33-200 at 50 mA	2N2558	-80	33-200 at 50 mA
2N1040	-80	33-200 at 50 mA	2N2559	-100	33-200 at 50 mA
2N1041	-100	33-200 at 50 mA	2N2560	-40	20-60 at 3 amps
2N1042-2	-40	20-60 at 3 amps	2N2561	-60	20-60 at 3 amps
2N1043-2	-60	20-60 at 3 amps	2N2562	-80	20-60 at 3 amps
2N1044-2	-80	20-60 at 3 amps	2N2563	-100	20-60 at 3 amps
2N1045-2	-100	20-60 at 3 amps	2N2564	-40	20-60 at 3 amps
2N2552	-40	33-200 at 50 mA	2N2565	-60	20-60 at 3 amps
2N2553	-60	33-200 at 50 mA	2N2566	-80	20-60 at 3 amps
2N2554	-80	33-200 at 50 mA	2N2567	-100	20-60 at 3 amps
2N2555	-100	33-200 at 50 mA	SYL4258	-30	30 min. at 1 amp
2N2556	-40	33-200 at 50 mA			

### NPN AUDIO POWER

Offer high power, high current capabilities.

Sylv. Type	JEDEC	VCB V	PT W	hFE at 500mA	Sylv. Type	JEDEC	VCB V	PT W	hFE at 500mA
2N1022/13	TO-13	30	4	10	2N1294	TO-3	60	25	30
2N144/13	TO-13	60	4	10	2N1296	TO-3	80	25	30
2N326	TO-3	35	7	30-60	2N1321	TO-10	35	25	30
2N1318	TO-3	45	6	.....	2N1323	TO-10	60	25	30
2N1292	TO-3	35	25	.....	2N1325	TO-10	80	25	30

### NPN AUDIO AND GENERAL PURPOSE

Feature rugged construction in space saving JEDEC TO-22 case.  $P_T$  180 mW; IC 100 mA;  $T_j +85^\circ\text{C}$ .

Sylv. Type	Application	VCB V	VCE V	Sylv. Type	Application	VCB V	VCE V
2N35	Hi-gain amp.	40	25	2N647/22	Audio output	25	25
2N213	Driver	40	25	2N649/22	Audio output	18	18
2N213A	Hi-grain drl.	40	25	2N1059	Output amp.	20	15
2N214	Audio output	40	25	2N1101	Output amp.	20	15
2N228	Output amp.	40	15	2N1102	Output amp.	40	25
2N229	Gen. purpose	12	10	2N1251	Hi-gain amp.	20	15
2N306	Gen. purpose	20	15	2N2354	Output amp.	20	15

### NPN IF AND RF

Used primarily in AM radio as RF and IF amplifiers, oscillators, mixers and converters. Rugged construction; space saving JEDEC TO-22 case.  $P_T$  150 mW; IC 100 mA;  $T_j +85^\circ\text{C}$ .

Sylv. Type	Application	VCB V	VCE V	Sylv. Type	Application	VCB V	VCE V
2N94	IF amplifier	25	20	2N216	IF amplifier	18	18
2N94A	IF amplifier	25	20	2N233	Gen. purp.	12	10
2N193	Oscillator	18	18	2N233A	Gen. purp.	20	18
2N194	Mixer/conv.	18	18	2N515	IF amplifier	18	18
2N194A	Mixer/conv.	25	20	2N516	IF amplifier	18	18
2N211	Osc./mixer	18	18	2N517	IF amplifier	18	18
2N212	Mixer/conv.	20	18	2N1058	Mixer/conv.	18	18

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# SYLVANIA Semiconductors

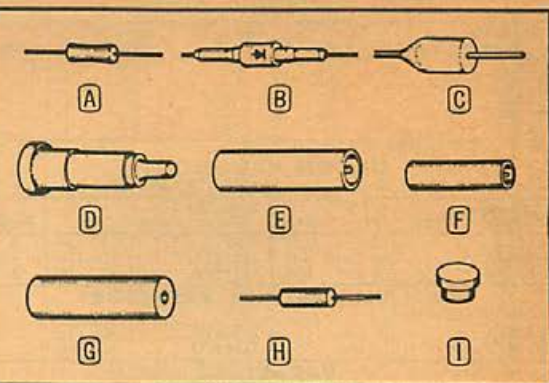
Subsidiary of GENERAL TELEPHONE & ELECTRONICS

## GERMANIUM POINT CONTACT DIODES

For use in communication equipment, computers and all types of control equipment, also in the audio, IF, RF and VHF ranges.

Sylv. Type	Fig.	PRV V	I <sub>FWD</sub> mA	I <sub>R</sub> μA	Sylv. Type	Fig.	PRV V	I <sub>FWD</sub> mA	I <sub>R</sub> μA
1N34A	B*	75	50	480	1N90	A	75	30	500
1N35	B†	75	22.5	10	1N115	B	75	25	500
1N38A	B*	120	50	500	1N116	A	75	45	100
1N38B†	B*	125	50	500	1N119	B	70	25	125
1N39B	B	220	50	600	1N120	B	70	25	200
1N40	B	75	22.5	35	1N126A	A	75	30	800
1N52A	B	85	50	100	1N127A	A	125	30	300
1N54A	B*	75	50	100	1N128†	A	50	30	10
1N55A†	B*	170	50	500	1N191	A	90	30	125
1N56A	B	50	60	300	1N192	A	70	45	100
1N58A	B*	120	50	600	1N198	A	100	30	50
1N60	B*	30	50	...	1N198A	A	100	30	50
1N63	B*	125	50	50	1N198B	A	100	30	50
1N65	B*	85	50	200	1N294	A	70	50	800
1N67A	A	100	30	50	1N295	A	50	30	180
1N68A	A	125	40	625	1N297	A	100	35	100
1N69A†	B	75	40	500	1N298	A	85	50	250
1N70A†	B	125	30	300	1N632	A	90	16	20
1N71	B	50	60	300	1N636	A	75	30	20
1N81A†	B	55	30	10	1N805	A	50	35	100
1N82†	B	5	25†	3000	1N933	A	100	30	80
1N82A†	B	5	25†	3000	D1820	A	30	50	25

\*Fig. A type also available. †Matched pair. ‡Available to applicable military specifications. §Silicon point contact diode. ¶Recurrent peak. \*Average.



## SILICON JUNCTION DIODES (FIG. A)

Designed for AF switching, rectifying, clipping and clamping, etc. Absolute maximum ratings at 25° C unless otherwise noted.

Sylv. Type	V <sub>R</sub> V	I <sub>FWD</sub> Avg. mA	I <sub>R</sub> μA	Sylv. Type	V <sub>R</sub> V	I <sub>FWD</sub> Avg. mA	I <sub>R</sub> μA
1N456	25	90	.025	1N484	130	100	.25
1N456A	25	200	.025	1N484A, B	130	200	.25
1N457*	60	75	.025	1N485	180	100	.25
1N457*	60	200	.025	1N485A, B	180	200	.025
1N458*	125	55	.025	1N485A, B	225	200	.05
1N458A	125	200	.025	1N487	300	100	.25
1N459*	175	40	.025	1N487A	300	200	.1
1N459A	175	200	.025	1N488	380	100	.25
1N461	25	60	.5	1N488A	380	200	.1
1N461A	25	200	.5	1N625	30	200	1.0
1N462	60	50	.5	1N626	50	20	1.0
1N462A	60	200	.5	1N627	100	20	1.0
1N463	175	30	.5	1N628	150	20	1.0
1N463A	175	200	.5	1N629	200	20	1.0
1N464	125	40	.5	1N643A	175	40	1.0
1N464A	125	200	.5	1N658	100	200	.05
1N482	36	100	.25	1N659	50	100	.05
1N482A, B	36	200	.025	1N662*	50	40	1.0
1N483	70	100	.25	1N663*	75	60	5.0
1N483A, B	70	200	.025	1N816*	500	150	.1

\*MIL type also available.

## HIGH SPEED SILICON EPITAXIAL PLANAR DIODES (FIG. A)

Sylv. Type	Recov. μsec	PRV V	I <sub>FWD</sub> mA	Sylv. Type	Recov. μsec	PRV V	I <sub>FWD</sub> mA
1N251*	150*	40	40	1N908	4	40	50
1N252	150*	40	40	1N908A	4	40	50
1N903	4	40	50	1N914*	4	100	75
1N903A	4	40	50	1N914A	4	100	75
1N904	4	30	50	1N914B	4	100	75
1N904A	4	30	50	1N916	4	100	75
1N905	4	20	50	1N916A	4	100	75
1N905A	4	20	50	1N916B	4	100	75
1N906	4	20	50	1N3064*	4*	75	75
1N906A	4	20	50	1N3604	4*	75	75
1N907	4	30	50	1N3605	4*	40	50
1N907A	4	30	75	1N3731	3*	100	200

\*Nsec. †Average. \*MIL type also available.

## SILICON BULLET RECTIFIERS (FIG. C)

Sylv. Type	Volts		Max. mADC	Sylv. Type	Volts		Max. mADC
	Rms	PIV			Rms	PIV	
1N2069, A	140	200	750	SR200B	210	300	500
1N2070	280	400	750	SR500B	280	400	500
1N2071, A	420	600	750	SR1692	70	100	600*
1N2482	140	200	750	SR1693	140	200	600*
1N2483	280	400	750	SR1694	210	300	600*
1N2484	420	600	750	SR1695	250	400	600*

\*At 50° C; all others at 25° C.

## GERMANIUM SOLID STRUCTURE DIODES

Sylvania Type No.		I <sub>p</sub> mA	I <sub>p</sub> %20%	Min. F <sub>ro</sub> GHz
D5360	D5560	1.2	1.8	5.0
D5360A	D5560A	1.2	1.2	25
	D5560B	1.2	1.2	20
D5361	D5561	1.8	1.8	5.0
	D5561A	1.8	1.4	25
	D5561B	1.8	1.8	15
D5362	D5562	2.7	2.7	5.0
D5362A	D5562A	2.7	2.7	25
	D5562B	2.7	2.7	12
D5363	D5563	3.9	3.9	5.0
D5363A	D5563A	3.9	3.9	25
	D5563B	3.9	3.9	10
D5364	D5564	5.6	5.6	5.0
D5364A	D5564A	5.6	5.6	25
	D5564B	5.6	5.6	7.5
D5365	D5565	8.2	8.2	5.0
D5365A	D5565A	8.2	8.2	25
	D5565B	8.2	8.2	5.5

## SILICON MIXER AND DETECTOR DIODES

Encompasses standard point contact devices from UHF to millimeters. Packages for stripline, coaxial or waveguide structures plus special products such as power monitors, high-burnout units and hermetically sealed devices for a broad selection. Custom engineering available on request.

### MIXER DIODES

Sylvania Type No.				Sylvania Type No.				
Standard Type	Reversible	NF db	Fig.	Standard Type	Reversible	NF db	Fig.	
<b>Frequency Band L</b>				<b>Frequency Band X (Cont'd)</b>				
1N25, R	D4084	12.6	D*	1N23E, ER	1N415E	7.5	D	
1N25A, AR	D4084A	10.3	D*		1N23WE	7.5	D	
1N25B, BR	D4084B	8.3	...		1N832A	7.5	I	
					1N3747	7.5	...	
					D4181E, ER	7.5	...	
					D4160, R	7.5	...	
					1N23F, FR	1N415F	7.0	D
					1N23G	1N415G	6.5	...
<b>Frequency Band S</b>				<b>Frequency Band Ku</b>				
1N21C, CR	1N416C	8.3	D		1N918	12.0	...	
	D521C	8.3	...		D4082, BR	12.0	...	
D4186C, CR	D4188C	8.3	...		1N782, R	8.8	E	
D4180C, CR	1N3655	8.3	D		D4082B, BR	8.8	...	
	1N831	8.3	H		1N3205, R	8.5	E	
1N21D, DR	1N416D	7.3	D		1N78C, CR	8.3	E	
	D521E	7.0	...		D4081, R	7.8	...	
	D5091	7.0	...		1N78D, DR	7.5	E	
1N21E, ER	1N416E	7.0	D		D4081A, R	7.3	...	
	1N21WE	7.0	D					
	1N831A	7.0	H					
D4180E, ER	1N3655A	7.0	D					
	1N3655B	6.5	D					
1N21F, FR	1N416F	6.0	D					
D4186F, FR	D4188F	6.0	...					
1N21G	1N416G	5.5	...					
<b>Frequency Band S-X</b>				<b>Frequency Band X-K</b>				
1N1132, R	...	9.5	G	1N286	...	13.1	...	
				1N286A	...	11.3	...	
<b>Frequency Band X</b>				<b>Frequency Band K</b>				
	D5223C	9.5	...	1N26, R	...	13.1	E	
	D5092	9.5	...	1N26A, AR	...	11.3	E	
1N23C, CR	1N415C	9.5	D	1N26B, BR	...	10.0	E	
D4181C, CR	1N3745	9.5	...	1N26C, CR	...	9.5	E	
1N2510, R	...	9.5	E	D4089, R	...	9.3	...	
D4187C, CR	D4189C	9.5	...					
	1N832	9.5	I					
D4181D, DR	1N3746	8.5	...					
1N149, R	...	8.3	...					
1N23D, DR	1N415D	7.8	D					
D4187D, DR	D4189D	7.8	...					
<b>Frequency Band Ka</b>				<b>Frequency Band Ka</b>				
				1N53, R	...	13.1	F	
				D4136, R	...	13.1	F	
				1N53A, AR	...	11.1	F	
				1N53B, BR	...	10.0	F	
				1N53C, CR	...	9.0	F	
				1N53D, DR	...	9.0	F	

### DETECTOR DIODES

Sylv. Type	Freq. Band	Tas* -dbm	FM Min.	Sylv. Type	Freq. Band	Tas* -dbm	FM Min.
1N830†	100 Mc	...	...	1N833†	X	40	15
1N830A†	100 Mc	...	...	D5233†	X	40	15
D5095†	100 Mc	...	...	D5093†	X	40	15
1N359, R	L-X	40	15	1N833A†	X	45	...
1N630, R	L-X	40	15	D5093A†	X	45	...
1N358A, AR	L-X	45	30	1N3143	X	...	...
1N369A, AR	L-X	40	15	1N3778†	X	...	...
1N32, R	S	49	85	1N2926, R	X-K	40	15
1N2102†	S	49	85	1N2926A, AR	X-K	45	30
1N4379†	S	50	100	D4194	Ku	48	100
1N369, R	S-X	40	15	D4194A	Ku	51	200
1N1610, R	S-X	40	15	D4195	K	48	100
1N1611, R	X	51	130	D4195A	K	51	200
D4072†	X	51	130	D4196	Ka	45	50
1N1611A, AR	X	53	220	D4196A	Ka	48	100
D4072A†	X	53	220	1N446, R	Ka	40	15
1N1511B, BA	X	53	220	D4074	Q-W	40	25
1N31	X	47	55	D4074A	Q-W	40	50

\*Bandwidth=10 Mc. †Reversible type. ‡Power monitor.

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BINGHAMTON, N. Y.



## PIN SWITCHING DIODES

Sylvania Type	Fig.	Min. V <sub>B</sub> Volts	Max. C <sub>j</sub> , pF	Max. R <sub>s</sub> , Ohms	P <sub>T</sub> , Watts
D5020	.....	200	0.4	3.0	1.0
D5030	.....	500	0.4	3.0	1.0
D5151	.....	50	0.20*	3.75†	.....
D5151A	.....	80	0.10*	3.0†	.....
D5167	.....	75	0.4*	3.0†	.....

\*Cr. †Z<sub>F</sub>, dynamic forward impedance.

## SILICON VARACTORS

For parametric amplifier applications. Breakdown, 5.5 volts.

Sylvania Type	Fig.	-3 V F <sub>co</sub>	Beta	Sylvania Type	Fig.	-3 V F <sub>co</sub>	Beta
D5046	.....	150 Gc	3.0	D5146	.....	75 Gc	8
D5046A	.....	200 Gc	3.0	D5146A	.....	100 Gc	8
D5046B	.....	250 Gc	3.0	D5146B	.....	125 Gc	8

## GALLIUM ARSENIDE VARACTORS

Breakdown, 6 volts.

Sylvania Type	Fig.	200 Gc	250 Gc	D5047C	Fig.	300 Gc	350 Gc
D5047A	.....	200 Gc	.....	D5047C	.....	300 Gc	.....
D5047B	.....	250 Gc	.....	D5047D	.....	350 Gc	.....

## VARACTORS

At -6 Volts				At -6 Volts					
Sylvania Type	Fig.	V <sub>B</sub> V	C <sub>j</sub> , pF	F <sub>co</sub> , Gc	Sylvania Type	Fig.	V <sub>B</sub> V	C <sub>j</sub> , pF	F <sub>co</sub> , Gc
D4601H	.....	6	0.4-1.0	100	D4813D	.....	15	2-4	60
D4612F	.....	15	1-2	80	D4821E	.....	24	0.4-1.0	70
D4651D	.....	60	0.4-1.0	60	D4841F	.....	45	0.4-1.0	80
D4801G	.....	6	0.4-1.0	90	D4853	.....	60	2-4	20
D4801H	.....	6	0.4-1.0	100	D4873-2	.....	120	2-4	10

## GERMANIUM TUNNEL DIODES (FIG. 1)

Sylvania Type	±10% I <sub>p</sub> , mA	Min. F <sub>co</sub> , Gc	Sylvania Type	±10% I <sub>p</sub> , mA	Min. F <sub>co</sub> , Gc
D4960	1.5	5.5	D5060	1.5	5.5
D4960A	1.5	10	D5060A	1.5	10
D4960B	1.5	16	D5060B	1.5	16
D4960C	1.5	26	D5060C	1.5	26
D4961	2.0	9	D5061	2.0	9
D4961A	2.0	14	D5061A	2.0	14
D4961B	2.0	24	D5061B	2.0	24
D4961C	2.0	24	D5061C	2.0	24
D4962	5.0	4	D5062	5.0	4
D4962A	5.0	7.5	D5062A	5.0	7.5
D4962B	5.0	12	D5062B	5.0	12
D4962C	5.0	20	D5062C	5.0	20
D4970	1.5	5.5	D5070	1.5	5.5
D4970A	1.5	10	D5070A	1.5	10
D4970B	1.5	16	D5070B	1.5	16
D4970C	1.5	26	D5070C	1.5	26
D4971	2.0	5	D5071	2.0	5
D4971A	2.0	9	D5071A	2.0	9
D4971B	2.0	14	D5071B	2.0	14
D4971C	2.0	24	D5071C	2.0	24
D4972	5.0	4	D5072	5.0	4
D4972A	5.0	7.5	D5072A	5.0	7.5
D4972B	5.0	12	D5072B	5.0	12
D4972C	5.0	20	D5072C	5.0	20

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Net Each		Net Each		Net Each		Net Each		
Sylvania Type	1-99	100-999	Sylvania Type	1-99	100-999	Sylvania Type	1-99	100-999
1N1183, R	\$ 2.00	\$ 1.59	PR9004, R	\$ 8.46	\$ 5.99	PR9069, R	\$ 6.85	\$ 5.50
1N1184, R	2.99	2.02	PR9005, R	10.30	6.80	PR9070, R	10.05	8.04
1N1185, R	3.58	2.49	PR9006, R	12.47	8.23	PR9071, R	13.20	10.55
1N1186, R	3.99	2.78	PR9007, R	15.09	9.96	PR9072, R	17.20	13.75
1N1187, R	4.99	3.44	PR9008, R	9.40	6.20	PR9073, R	22.30	17.85
1N1188, R	5.53	3.79	PR9009, R	11.42	7.55	PR9074, R	28.90	23.10
1N1189, R	6.05	4.14	PR9010, R	13.82	9.13	PR9075, R	7.15	5.75
1N1190, R	6.33	4.34	PR9011, R	16.73	11.06	PR9076, R	8.10	6.50
1N1193, R	1.13	.78	PR9012, R	11.00	8.80	PR9077, R	13.10	10.50
1N1200, R	1.28	.89	PR9013, R	15.80	11.15	PR9078, R	16.65	13.30
1N1201, R	1.60	1.20	PR9014, R	18.15	12.70	PR9079, R	21.10	16.90
1N1202, R	2.19	1.71	PR9015, R	21.80	15.20	PR9080, R	26.80	21.90
1N1203, R	2.53	2.28	PR9016, R	2.43	1.62	PR9081, R	34.10	28.50
1N1204, R	3.06	2.60	PR9017, R	8.97	5.92	PR9082, R	44.30	35.44
1N1205, R	3.88	3.46	PR9018, R	10.90	7.20	PR9083, R	54.90	43.92
1N1206, R	4.88	4.19	PR9019, R	13.15	9.18	PR9084, R	72.00	57.60
1N1341, R	1.05	.70	PR9020, R	15.80	11.25	PR9085, R	88.40	70.72
1N1342, R	1.15	.80	PR9021, R	18.15	12.70	PR9086, R	6.65	5.35
1N1343, R	1.45	1.00	PR9022, R	21.80	15.20	PR9087, R	24.80	19.85
1N1344, R	1.95	1.54	PR9023, R	12.00	9.60	PR9088, R	32.10	25.70
1N1345, R	2.20	2.00	PR9024, R	17.58	12.40	PR9089, R	42.30	33.84
1N1346, R	2.70	2.40	PR9025, R	20.15	14.11	PR9090, R	52.90	42.32
1N1347, R	3.40	3.05	PR9026, R	24.18	16.93	PR9091, R	70.00	56.00
1N1348, R	4.30	3.85	PR9027, R	2.56	1.71	PR9092, R	86.40	69.12
1N1454, R	3.08	2.04	PR9028, R	10.07	6.64	PR9093, R	7.87	6.33
1N1455, R	4.56	2.98	PR9029, R	12.21	8.06	PR9094, R	8.91	7.15
1N1456, R	6.13	3.95	PR9030, R	14.65	10.24	PR9095, R	14.41	11.55
1N1457, R	6.95	4.45	PR9031, R	17.58	12.40	PR9096, R	18.32	14.63
1N1458, R	3.22	2.15	PR9032, R	20.15	14.11	PR9097, R	23.21	18.59
1N1459, R	4.70	3.14	PR9033, R	24.18	16.93	PR9098, R	29.48	23.65
1N1460, R	6.88	4.42	PR9034, R	2.10	1.80	PR9099, R	37.51	31.79
1N1461, R	8.32	5.50	PR9035, R	3.20	2.75	PR9100, R	48.73	38.98
1N1466, R	7.60	6.10	PR9036, R	4.05	3.45	PR9101, R	60.39	48.34
1N1467, R	11.10	8.88	PR9037, R	5.00	4.30	PR9102, R	79.20	63.36
1N1468, R	14.65	11.70	PR9038, R	6.40	5.40	PR9103, R	97.24	77.79
1N1469, R	19.10	15.30	PR9039, R	8.35	7.10	PR9104, R	7.32	5.89
1N1478, R	15.10	12.10	PR9040, R	11.25	9.45	PR9105, R	8.36	6.71
1N1479, R	19.95	15.95	PR9041, R	14.30	12.10	PR9106, R	12.21	9.77
1N1480, R	26.20	20.95	PR9042, R	17.90	15.25	PR9107, R	16.12	12.87
1N1481, R	34.00	27.20	PR9043, R	29.75	20.82	PR9108, R	21.01	16.83
1N1581, R	.95	.69	PR9044, R	30.75	21.52	PR9109, R	27.28	21.84
1N1582, R	1.10	.77	PR9045, R	5.00	4.45	PR9110, R	35.31	28.27
1N1583, R	1.95	1.38	PR9046, R	6.00	5.30	PR9111, R	46.53	37.22
1N1584, R	2.25	1.95	PR9047, R	8.10	7.10	PR9112, R	58.19	46.55
1N1585, R	2.65	2.40	PR9048, R	9.60	8.36	PR9113, R	77.00	61.60
1N1586, R	3.40	3.00	PR9049, R	11.50	9.70	PR9114, R	95.04	76.03
1N1587, R	4.25	3.35	PR9050, R	12.80	10.15	PR9115, R	10.60	8.48
1N2154, R	1.68	1.15	PR9051, R	15.90	12.05	PR9116, R	12.05	9.65
1N2155, R	2.14	1.47	PR9052, R	5.00	4.25	PR9117, R	15.30	12.25
1N2156, R	3.03	2.09	PR9053, R	5.40	5.10	PR9118, R	19.45	15.55
1N2157, R	3.95	3.30	PR9054, R	9.00	7.20	PR9119, R	24.70	19.75
1N2158, R	4.96	3.74	PR9055, R	10.75	8.60	PR9120, R	31.40	25.10
1N2159, R	5.44	3.98	PR9056, R	12.85	11.50	PR9121, R	40.00	32.00
1N2160, R	5.78	4.02	PR9057, R	15.25	12.25	PR9122, R	52.30	41.84
1N3585, R	15.90	12.70	PR9058, R	18.25	14.65	PR9123, R	63.50	51.00
1N3586, R	18.10	14.50	PR9059, R	5.30	4.70	PR9124, R	70.00	56.00
1N3587, R	22.95	18.40	PR9060, R	6.35	5.60	PR9125, R	76.50	61.25
1N3588, R	29.20	23.30	PR9061, R	9.00	7.90	PR9126, R	92.60	74.00
1N3589, R	37.00	29.60	PR9062, R	10.65	9.40	PR9127, R	8.60	6.88
1N3590, R	47.10	37.60	PR9063, R	12.75	10.75	PR9128, R	10.05	8.05
1N3591, R	60.00	48.00	PR9064, R	14.20	11.30	PR9129, R	13.30	10.65
PR9000, R	7.40	5.18	PR9065, R	16.55	13.40	PR9130, R	17.45	13.95
PR9001, R	9.42	6.39	PR9066, R	18.00	14.50	PR9131, R	22.70	18.20
PR9002, R	11.82	8.27	PR9067, R	20.90	18.20	PR9132, R	29.40	23.50
PR9003, R	14.73	10.31	PR9068, R	6.00	4.80	PR9133, R	38.00	30.40

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Net Each, Lots of				Net Each, Lots of				Net Each, Lots of				Net Each, Lots of			
Sylvania Type	1-9	10-99	100-999*	Sylvania Type	1-9	10-99	100-999*	Sylvania Type	1-9	10-99	100-999*	Sylvania Type	1-9	10-99	100-999*
IN21C	\$ 1.02	\$ 0.88	\$ 0.81	IN149R	\$ 4.60	\$ 3.95	\$ 3.62	USN-				D4181E	\$25.00	\$21.40	\$19.70
IN21CR	1.41	1.22	1.12	IN191	.35	.35	.28	IN830A	\$ 3.85	\$ 3.30	\$ 3.00	D4182ER	37.50	32.20	29.50
IN21D	2.25	2.10	1.93	IN192	.34	.36	.26	IN831	6.89	5.87	5.40	D4186C	1.27	1.01	.93
IN21DR	3.68	3.16	2.90	IN198	.35	.35	.28	IN831A	12.55	10.75	9.80	D4186D	3.92	3.42	3.10
IN21E	4.20	3.60	3.30	IN198A	.35	.35	.28	IN832	8.60	7.38	6.75	D4186E	5.15	4.42	4.00
IN21ER	6.30	5.40	4.95	IN198B	1.03	1.03	.78	IN832A	10.90	9.35	8.60	D4186F	13.69	11.75	10.75
IN21F	8.10	6.90	6.35	IN251	.65	.65	.43	IN833	4.65	4.00	3.65	D4187C	1.25	1.01	.92
IN21FR	12.15	10.35	9.50	JAN1N251	.72	.72	.48	IN833A	13.95	11.95	10.95	D4187D	3.90	3.36	3.10
IN21G	12.60	10.80	9.90	IN252	.65	.65	.43	IN903	1.02	1.02	.68	D4187E	5.10	4.38	4.00
IN21WE	5.25	4.50	4.15	IN286	41.05	35.20	32.70	IN903A	1.02	1.02	.68	D4187F	13.70	11.80	10.75
JAN-				IN286A	55.25	47.25	43.25	IN904	.99	.99	.66	D4188C	1.35	1.16	1.06
IN21WE	5.25	4.50	4.15	IN294	.34	.34	.26	IN904A	1.14	1.14	.76	D4188D	4.33	3.71	3.44
IN23C	1.02	.88	.81	IN295	.35	.35	.27	IN905	1.14	1.14	.76	D4188E	6.50	5.55	5.10
IN23CR	1.41	1.22	1.12	IN297	.34	.34	.26	IN905A	1.55	1.55	1.09	D4188F	20.50	17.60	16.10
IN23D	2.45	2.10	1.93	IN298	.45	.45	.30	IN906	.90	.90	.60	D4189C	1.30	1.12	1.02
IN23DR	3.68	3.16	2.90	IN358	17.85	15.30	14.00	IN906A	1.13	1.13	.75	D4189D	4.37	3.75	3.44
IN23E	4.20	3.60	3.30	IN358A	19.25	16.50	15.35	IN907	.89	.89	.59	D4189E	6.50	5.60	5.10
IN23ER	6.30	5.40	4.95	IN358AR	25.90	24.80	22.70	IN908	.87	.87	.58	D4189F	16.90	14.50	13.28
IN23F	8.10	6.90	6.35	IN358B	26.80	23.90	21.30	IN908A	1.02	1.02	.68	D4194	38.00	33.00	30.00
IN23FR	12.15	10.35	9.50	IN365	27.55	23.50	21.50	IN914	.45	.45	.30	D4194A	45.00	39.00	35.00
IN23G	12.60	10.80	9.90	IN369A	31.85	27.30	25.48	JAN1N914	.45	.45	.30	D4195	98.00	84.00	77.00
IN23WE	5.25	4.50	4.15	IN369AR	47.80	41.00	38.22	IN914A	.50	.50	.33	D4195A	98.00	84.00	77.00
JAN-				IN369R	41.00	35.25	32.25	IN914B	1.35	1.35	.90	D4196	100.00	86.00	79.00
IN23WE	5.25	4.50	4.15	IN415C	1.02	.88	.81	IN916	.75	.75	.50	D4196A	280.00	240.00	220.00
IN25	3.53	3.03	2.74	IN415D	2.45	2.10	1.93	IN916A	.75	.75	.50	D4196B	35.00	30.00	28.00
JAN1N25	3.53	3.03	2.74	IN415E	4.20	3.60	3.30	IN916B	.92	.92	.61	D4196C	56.00	48.00	44.00
IN25A	8.48	7.28	6.75	IN415F	8.20	6.90	6.35	IN918	17.65	15.15	13.85	D4196E	106.00	91.00	83.00
IN25AR	12.70	10.90	9.95	IN415G	12.60	10.80	9.90	IN933	1.12	1.12	.85	D4196G	148.00	127.00	116.00
IN25B	11.75	10.10	9.20	IN416C	1.02	.88	.81	IN1132	33.50	29.00	26.50	D4196I	25.00	21.40	19.65
IN25BR	17.65	15.15	13.80	IN416D	2.45	2.10	1.93	IN1132R	55.00	47.00	44.50	D4196J	40.00	34.20	31.50
IN25R	5.30	4.62	4.25	IN416E	4.20	3.60	3.30	IN1610	32.90	28.30	25.90	D4196K	75.00	64.00	59.00
IN26	6.50	5.60	5.10	IN416F	8.10	6.90	6.35	IN1610R	49.40	42.30	38.80	D4196L	110.00	94.00	86.50
JAN1N26	6.50	5.60	5.10	IN416G	12.60	10.80	9.90	IN1611	4.30	3.68	3.40	D4196T	20.00	17.15	15.70
IN26A	7.75	6.60	6.05	IN446	36.00	31.40	28.75	IN1611A	9.15	7.85	7.35	D4196Z	30.00	25.30	23.60
IN26AR	11.65	10.99	9.15	IN446R	55.00	47.10	43.30	IN1611AR	12.80	11.00	10.50	D4196ZB	50.00	43.00	39.20
IN26B	27.25	23.70	21.75	IN456	.36	.36	.28	IN1612	18.00	15.45	14.15	D4196ZC	85.00	73.00	67.00
USA1N26B	27.25	23.70	21.75	IN456A	.36	.36	.28	IN2069	6.45	5.55	5.15	D4197A	* * *	* * *	* * *
IN26BR	40.85	35.70	32.65	IN457	.36	.36	.30	IN2069A	.50	.50	.33	D4197B	* * *	* * *	* * *
IN26C	31.15	27.80	25.50	JAN1N457	.36	.36	.30	IN2070	.63	.53	.36	D4197C	* * *	* * *	* * *
IN26CR	48.20	41.70	38.22	IN457A	.36	.36	.30	IN2070A	.68	.68	.38	D4197D	25.00	21.40	19.65
IN26R	9.90	8.50	7.80	IN458	.48	.48	.32	IN2070B	.72	.72	.45	D4197E	40.00	34.20	31.50
IN31	7.05	6.05	5.53	JAN1N458	.48	.48	.32	IN2071	.87	.87	.48	D4197F	75.00	64.00	59.00
JAN1N31	7.05	6.05	5.53	IN458A	.48	.48	.32	IN2071A	.92	.92	.50	D4197G	110.00	94.00	86.50
IN32	11.61	9.95	9.15	IN459	.51	.51	.34	IN2102	13.35	11.45	10.40	D4197H	20.00	17.15	15.70
JAN1N32	11.61	9.95	9.15	JAN1N459	.51	.51	.34	IN2482	.50	.50	.30	D4197I	30.00	25.30	23.60
IN32R	16.50	14.25	12.95	IN459A	.51	.51	.34	IN2483	.55	.55	.38	D4197J	50.00	43.00	39.20
IN34A	.30	.30	.23	IN461	.35	.35	.28	IN2484	.68	.68	.45	D4197K	85.00	73.00	67.00
IN35	1.58	1.58	1.21	IN461A	.35	.35	.28	IN2510	18.20	15.60	14.30	D5020	35.00	30.00	27.50
IN38A	.49	.49	.38	IN462	.38	.38	.28	IN2510R	21.50	18.45	16.90	D5020A	35.00	30.00	27.50
IN38B	.49	.49	.38	IN462A	.38	.38	.28	IN2526	17.15	14.75	13.50	D5020B	35.00	30.00	27.50
IN53	23.20	19.80	18.25	IN463	.46	.46	.36	IN2926A	23.30	20.00	18.30	D5030	35.00	30.00	27.50
JAN1N53	23.20	19.80	18.25	IN463A	.46	.46	.36	IN306A	.67	.67	.44	D5030A	17.00	12.50	8.75
IN53A	25.70	22.05	20.65	IN463B	.46	.46	.35	USA1N306A	.67	.67	.44	D5030B	17.00	12.50	8.75
IN53AR	39.95	33.40	30.60	IN464A	.45	.45	.35	IN3105	5.60	4.70	4.40	D5060	42.00	36.00	33.00
IN53B	29.65	25.40	23.30	IN482	.58	.58	.44	IN3245	51.45	44.10	40.40	D5060A	67.00	58.00	53.00
IN53BR	49.30	42.25	38.70	IN482A	.59	.59	.46	IN3205R	77.20	66.20	60.60	D5060B	128.00	110.00	100.00
IN53C	46.79	40.25	37.45	IN482B	.59	.59	.46	IN3604	.80	.80	.56	D5060C	178.00	152.00	140.00
IN53CR	70.20	60.75	55.60	IN483	.61	.61	.47	IN3605	.72	.72	.48	D5061	30.00	26.00	23.60
IN53D	73.50	63.00	57.80	IN483A	.61	.61	.47	IN3655	8.00	6.85	6.33	D5061A	48.00	41.00	38.00
IN53DR	107.80	93.00	85.25	IN483B	.61	.61	.47	IN3655A	19.10	16.40	15.00	D5061B	90.00	77.00	71.00
IN53R	36.30	31.10	28.50	IN484	.61	.61	.47	IN3655B	25.00	21.50	19.60	D5061C	130.00	111.00	102.00
IN54A	.42	.42	.32	IN484A	.61	.61	.47	IN3731	.85	.85	.68	D5062	24.00	20.60	18.85
IN55A	.40	.40	.31	IN484B	.61	.61	.47	IN3745	6.60	5.65	5.20	D5062A	36.00	31.00	28.00
IN58A	.55	.55	.41	IN485	.77	.77	.60	IN3746	13.80	11.85	10.85	D5062B	60.00	52.00	47.00
IN60	.30	.30	.23	IN485A	.77	.77	.60	IN3747	19.75	16.95	15.50	D5062C	100.00	86.00	79.00
IN63	.36	.36	.28	IN485B	.77	.77	.60	USAF-				D5070	* * *	* * *	* * *
IN65	.48	.48	.35	IN486	.85	.85	.60	IN3747	19.75	16.95	15.50	D5070A	* * *	* * *	* * *
IN67A	.28	.28	.21	IN486A	.85	.85	.60	IN3778	6.70	5.75	5.25	D5070B	* * *	* * *	* * *
IN68A	.28	.28	.21	IN486B	.85	.85	.60	D4072	8.25	7.08	6.50	D5070C	* * *	* * *	* * *
IN69A	.30	.30	.23	IN487	.90	.90	.70	D4072A	18.50	15.80	14.60	D5071	48.00	41.00	38.00
IN70A	.48	.48	.38	IN487A	1.20	1.20	.94	D4074	196.00	168.00	154.00	D5071A	30.00	26.00	23.60
IN75B	10.00	8.60	7.85	IN488	1.05	1.05	.78	D4074A	325.00	275.00	255.00	D5071B	90.00	77.00	71.00
JAN1N75B	10.00	8.60	7.85	IN488A	1.54	1.54	1.19	D4081	25.70	22.00	20.55	D5071C	130.00	111.00	102.00
IN78ER	15.00	12.90	11.80	IN625	.43	.43	.29	D4081A	49.00	42.30	39.20	D5072	24.00	20.60	18.85
IN78C	33.00	28.30	25.90	IN626	.43	.43	.30	D4081AR	74.00	64.10	59.20	D5072A	36.00	31.00	28.00
JAN1N78C	33.00	28.30	25.90	IN627	.60	.60	.39	D4081R	39.65	33.80	31.70	D5072B	60.00	52.00	47.00
IN78CR	49.50	42.50	38.95	IN628	.72	.72	.47	D4082	5.50	4.72	4.32	D5072C	100.00	86.00	79.00



# SYLVANIA Semiconductor Prices

Subsidiary of GENERAL TELEPHONE & ELECTRONICS

## O.E.M. PRICING FOR SYLVANIA SEMICONDUCTORS (CONTINUED)

### MULTIPLE DIODES

Sylvania Type	Net Each, Lots of		Sylvania Type	Net Each, Lots of		Sylvania Type	Net Each, Lots of	
	1-9	10-99		1-9	10-99		1-9	10-99
M0101/SID2B-1	\$ 2.84	\$ 2.50	M0120/SID4C-3	\$12.00	\$ 7.50	M0062/SID4B-4	\$ 6.80	\$6.00
M0102/SID3B-1	4.25	3.75	M0127/SID2E-2	3.40	3.00	M0063/SID4E-3	6.25	5.50
M0103/SID4B-2	5.70	5.00	M0128/SID4E-4	6.80	6.00	M0082/SID4B-8	5.10	4.50
M0104/SID2B-2	4.25	3.75	M0129/SID5E-2	8.50	7.50	M0083/SID4A-10	4.95	4.35
M0105/SID3B-2	6.30	5.60	M0130/SID5E-3	8.50	7.50	M0090/SID4E-7	10.50	9.40
M0106/SID4B-3	8.50	7.50	M0010/SID4A-2	6.80	6.00	M0092/SID4A-5	7.80	4.50
M0107/SID2B-3	3.40	3.00	M0011/SID4A-3	8.50	7.50	M0094/SID4D-1	7.50	7.00
M0108/SID3B-3	5.10	4.50	M0012/SID4A-4	9.10	8.00	M0001/SID2A-1	3.40	3.00
M0109/SID4B-5	6.80	6.00	M0027/SID2E-1	4.50	3.60	M0002/SID3A-1	5.00	4.50
M0110/SID8A-1	12.50	11.00	M0045/SID2A-6	9.10	8.00	M0003/SID2A-2	4.25	3.75
M0111/SID8B-1	12.50	11.00	M0046/SID3A-6	9.40	8.25	M0004/SID3A-2	6.30	5.60
M0112/SID4A-6	10.20	9.10	M0047/SID4A-8	12.50	11.00	M0005/SID2A-3	4.55	4.00
M0113/SID5A-1	12.70	11.40	M0058/SID4E-2	9.30	7.60	M0006/SID3A-3	6.80	6.00
M0114/SID4B-6	10.20	9.10	M0059/SID4A-7	6.25	5.50	M0007/SID2A-4	2.84	2.50
M0115/SID5B-1	12.70	11.40	M0060/SID4A-9	10.20	9.10	M0008/SID3A-4	4.25	3.75
M0119/SID4C-2	11.00	6.90	M0061/SID4C-1	10.00	8.00	M0009/SID4A-1	5.70	5.00

### VARACTORS

Sylv. Type	Net Each, Lots of			Sylv. Type	Net Each, Lots of			Sylv. Type	Net Each, Lots of		
	1-9	10-99	100-999		1-9	10-99	100-999		1-9	10-99	100-999
D5046	\$ 90.00	\$ 77.00	\$ 71.00	D5047	\$ 90.00	\$ 77.00	\$ 71.00	D5047C	\$290.00	\$245.00	\$228.00
D5046A	150.00	129.00	118.00	D5047A	150.00	129.00	118.00	D5047D	380.00	326.00	290.00
D5046B	240.00	206.00	189.00	D5047B	210.00	180.00	165.00	D5146	150.00	129.00	118.00
								D5146A	\$210.00	\$180.00	\$165.00
								D5146B	285.00	245.00	224.00

### TRANSISTORS

Sylvania Type	Net Each, Lots of		Sylvania Type	Net Each, Lots of		Sylvania Type	Net Each, Lots of		Sylvania Type	Net Each, Lots of	
	1-99	100-999		1-99	100-999		1-99	100-999		1-99	100-999
2N35	\$ 0.91	\$ 0.61	2N741	\$ 2.15	\$ 1.45	2N1044-2	\$ 8.55	\$ 5.70	2N2368	\$ 2.31	\$ 1.54
2N94	1.08	.72	2N741A	3.30	2.20	2N1045	11.45	7.65	2N2369	2.40	1.60
2N94A	1.41	.94	2N743	6.20	4.15	2N1045-1	11.40	7.60	2N2410	9.00	6.00
2N102/13	9.00	6.00	2N743/46	7.35	4.90	2N1045-2	11.25	7.50	2N2453	30.00	20.00
2N144/13	20.25	13.50	2N744	2.90	1.95	2N1058	1.75	1.17	2N2455	3.75	2.50
2N193	.99	.67	2N744/46	6.00	4.00	2N1059	1.00	.67	2N2475	5.25	3.50
2N194	.99	.67	2N753	1.47	.98	2N1059-3	1.09	.72	2N2481	3.90	2.60
2N194A	1.17	.78	2N753/46	1.56	1.04	2N1101	.58	.39	2N2552	3.00	2.00
2N212	1.50	1.00	2N760A	2.70	1.80	2N1101-1	.66	.44	2N2553	3.90	2.60
2N213	.91	.61	2N782	2.40	1.60	2N1102	.64	.43	2N2554	5.85	3.90
2N213A	1.59	1.05	2N784A	9.00	6.00	2N1102-1	.73	.49	2N2555	7.65	5.10
2N214	1.15	.77	2N834	4.50	3.00	2N1131	5.04	3.36	2N2556	3.05	2.00
2N214-1, -2	1.24	.83	2N834/46	5.25	3.50	2N1131A	7.80	5.20	2N2557	3.95	2.65
2N216	1.75	1.17	2N835	1.50	1.00	2N1132	5.60	3.75	2N2558	5.90	3.95
2N228	1.59	1.05	2N835/46	5.70	3.80	2N1132A	6.00	4.00	2N2559	7.75	5.15
2N229	.50	.33	2N814	2.48	1.65	2N1132B	9.00	6.00	2N2560	4.45	2.95
2N233	1.13	.76	2N814/51	7.25	4.85	2N1132B/51	21.00	14.00	2N2561	5.80	3.85
2N233A	1.13	.76	2N817	6.00	4.00	2N1141	4.83	3.22	2N2562	8.70	5.80
2N305	.67	.45	2N918	5.25	3.50	2N1142	4.20	2.80	2N2563	11.40	7.60
2N326	25.50	17.00	2N918/51	31.50	21.00	USN2N1142	4.61	3.08	2N2564	4.30	2.85
2N501/18	3.52	2.35	2N929	4.20	2.80	2N1143	3.50	2.33	2N2565	5.65	3.75
2N507	1.50	1.10	2N930	4.65	3.10	2N1218	9.75	6.50	2N2566	8.55	5.70
2N515	1.42	.94	2N960	.96	.64	2N1251	.75	.50	2N2567	11.25	7.50
2N516	1.50	1.00	2N961	.91	.61	2N1292	10.05	6.70	2N2630	3.25	2.15
2N517	1.67	1.11	2N962	.85	.57	2N1294	19.50	13.00	2N2635	.94	.63
2N647/22	1.16	.77	USN2N962	.93	.62	2N1296	35.25	23.50	2N2719	1.80	1.20
2N649/22	.86	.57	2N963	.83	.55	2N1321	10.10	6.75	2N2784	4.15	3.60
2N700/18	7.35	4.90	2N964	.99	.66	2N1323	19.50	13.00	2N2784/46	6.25	4.15
2N703	6.75	4.50	USN2N964	1.65	1.10	2N1325	35.25	23.50	2N2784/51	8.50	7.20
2N705	1.04	.69	2N964A	5.25	3.50	2N1431	1.25	.83	2N2800	6.75	4.50
JAN2N705	1.14	.76	2N965	.94	.63	2N1613	2.89	1.93	2N2801	7.10	4.75
USN2N705	1.14	.76	2N966	.89	.59	2N1646	6.00	4.00	2N2831	2.10	1.40
2N705A	2.62	1.75	2N967	.87	.58	2N1853/18	1.32	.88	2N2860	6.25	1.50
2N706	.81	.54	2N968	.90	.60	2N1958	3.95	2.65	2N2906	2.48	4.32
JAN2N706	1.50	.99	2N1038	2.83	1.89	2N1958A	6.00	4.00	2N2907	7.83	5.22
2N706/46	1.50	.99	2N1038-2	2.80	1.90	2N1959	4.45	2.95	2N2927	12.40	8.25
2N706A	3.30	2.20	2N1039-1	3.00	2.00	2N1959A	6.60	4.40	2N3081	22.50	15.00
2N706A/46	.85	.57	2N1039-2	3.05	2.05	2N1959A/51	20.00	12.50	2N3133	4.95	3.30
2N706A/51	1.80	1.20	2N1039	3.75	2.50	2N1962	9.00	6.00	2N3135	4.95	3.30
2N706B	3.60	2.50	2N1039-1	3.90	2.60	2N1963	10.00	6.70	2N3136	5.85	3.90
2N706B/46	1.32	.88	2N1039-2	3.95	2.65	2N1964	6.37	4.25	2N3633	11.00	7.25
2N706B/51	1.65	1.10	2N1040	5.70	3.80	2N1965	10.00	6.65	SYL792	3.25	2.50
2N708	10.05	6.70	2N1040-1	5.85	3.90	2N1990	2.25	1.50	SYL832	2.48	1.65
2N708/46	.97	.65	2N1040-2	5.90	3.95	2N2205	1.24	.83	SYL1265	1.25	.83
2N708/51	1.87	1.25	2N1041	7.50	5.00	2N2217	3.37	2.25	SYL1279	1.34	.89
2N709	4.50	3.00	JAN2N1041	8.25	5.50	2N2218	3.97	2.65	SYL1279-1	1.42	.94
2N709/46	2.48	1.65	2N1041-1	7.65	5.10	USA2N2218	7.50	5.00	SYL1458	1.67	1.11
2N709/51	2.95	1.95	2N1041-2	7.75	5.15	2N2219	3.55	2.37	SYL1583	9.00	5.33
2N709A	7.50	5.00	2N1042	4.50	3.00	USA2N2219	9.00	6.00	SYL1951	30.00	17.75
2N709A/46	4.87	3.25	2N1042-1	4.45	2.95	2N2229/51	38.00	20.00	SYL2516	1.09	.72
2N710	5.85	3.90	2N1042-2	4.30	2.85	2N2221	9.00	6.00	SYL2853	1.15	.90
2N711	1.34	.89	2N1043	5.85	3.90	2N2221	3.60	2.40	SYL2860	1.65	1.10
2N711A	.89	.59	2N1043-1	5.80	3.85	USA2N2221	7.50	5.00	SYL4323	1.65	1.10
2N711B	.89	.59	2N1043-2	5.65	3.75	2N2297	13.25	9.50			
2N712	.94	.63	2N1044	8.80	5.85	2N2303	6.60	4.40			
2N722	5.60	3.75	2N1044-1	8.70	5.80	2N2354	.92	.61			

### GERMANIUM SOLID STRUCTURE DIODES

Sylvania Type	Net Each, Lots of			Sylvania Type	Net Each, Lots of			Sylvania Type	Net Each, Lots of			Sylvania Type	Net Each, Lots of		
	1-9	10-99	100-999		1-9	10-99	100-999		1-9	10-99	100-999		1-9	10-99	100-999
D5360	\$10.50	\$ 9.00	\$ 8.25	D5560	\$10.50	\$ 9.00	\$ 8.25	D5564	\$ 9.00	\$ 7.70	\$ 7.10	D5572	\$ 9.75	\$ 8.35	\$ 7.65
D5360A	40.00	34.25	31.50	D5560A	40.00	34.25	31.50	D5564A	30.00	25.75	23.60	D5572A	35.00	30.00	27.50
D5361	10.50	9.00	8.25	D5560B	85.00	73.00	67.00	D5564B	60.00	51.50	47.00	D5572B	75.00	64.30	59.00
D5361A	40.00	34.25	31.50	D5561	10.50	9.00	8.25	D5565	9.00	7.70	7.10	D5573	9.75	8.35	7.65
D5362	9.75	8.35	7.65	D5561A	40.00	34.25	31.50	D5565A	30.00	25.75	23.60	D5573A	35.00	30.00	27.50
D5362A	35.00	30.00	27.50	D5561B	85.00	73.00	67.00	D5565B	60.00	51.50	47.00	D5573B	75.00	64.30	59.00
D5363	9.75	8.35	7												

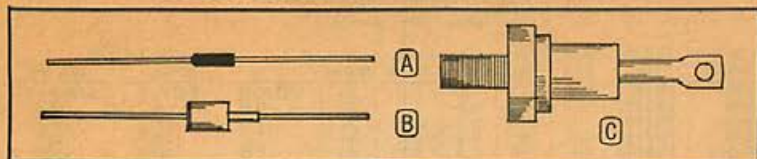




**SARKES  
TARZIAN**

# SILICON REGULATORS, SUPPRESSORS

## SILICON ZENER VOLTAGE REGULATORS



One series covers many JEDEC types. Meet or exceed all JEDEC requirements. Tolerance  $\pm 5\%$ ; available in  $\pm 10\%$  and  $\pm 20\%$ . To order, add voltage and tolerance letter to S-T No. (i.e.: 25T5.6A).

S-T Series	Fig.	Tol. $\pm 5\%$	W.	Net Each, Lots of
				1-24 25-99 100 Up
.25T	F	A	.25	\$2.25 \$1.93 \$1.80
.4T	F	A, B	.4	2.50 2.15 2.00
1TA	G	A, B	1	1.95 1.67 1.56
10T	G	A, B	10	5.33 4.58 4.26

### JEDEC NUMBERS AND VOLTAGES AVAILABLE

.25T (250 Mw)		.4T (400 Mw)		1TA Series (1 Watt)				10T Series (10 Watt)					
JEDEC No.	Zener Volts	JEDEC No.	Zener Volts	JEDEC No.	Zener Volts	JEDEC No.	Zener Volts	JEDEC No.	Zener Volts	JEDEC No.	Zener Volts	JEDEC No.	Zener Volts
1N708A	5.6	1N769A	23.5	1N3016B	6.8	1N1774A	13	1N1351A	10	1N1823A	27	1N2993B	43
1N709A	6.2	1N752A	5.6	1N3017B	7.5	1N1775A	15	1N1352A	11	1N1824A	30	1N2994B	45
1N710A	6.8	1N753A	6.2	1N3018B	8.2	1N1776A	16	1N1353A	12	1N1825A	33	1N2995B	47
1N711A	7.5	1N754A	6.8	1N3019B	9.1	1N1777A	20	1N1354A	13	1N1826A	36	1N2996B	50
1N712A	8.2	1N755A	7.5	1N3020B	10	1N1779A	22	1N1355A	15	1N1827A	39	1N2997B	51
1N713A	9.1	1N756A	8.2	1N3021B	11	1N1780A	24	1N1356A	16	1N1828A	43	1N2998B	52
1N714A	10	1N757A	9.1	1N3022B	12	1N1781A	27	1N1357A	18	1N1829A	47	1N2999B	56
1N715A	11	1N758A	10	1N3023B	13	1N1782A	30	1N1358A	20	1N1830A	51	1N3000B	62
1N716A	12	1N759A	12	1N3024B	15	1N1783A	33	1N1359A	22	1N1831A	56	1N3001B	68
1N717A	13	1N957B	6.8	1N3025B	16	1N1784A	36	1N1360A	24	1N1832A	62	1N3002B	75
1N718A	15	1N958B	7.5	1N3026B	18	1N1785A	39	1N1361A	27	1N1833A	68	1N3003B	82
1N719A	16	1N959B	8.2	1N3027B	20	1N1786A	43	1N1362A	30	1N1834A	75	1N3004B	91
1N720A	18	1N960B	9.1	1N3028B	22	1N1787A	47	1N1363A	33	1N1835A	82	1N3005B	100
1N721A	20	1N961B	10	1N3029B	24	1N1788A	51	1N1364A	36	1N1836A	91	1N3006B	105
1N722A	22	1N962B	11	1N3030B	27	1N1789A	56	1N1365A	39	1N2008A	100	1N3007B	110
1N723A	24	1N963B	12	1N3031B	30	1N1790A	62	1N1366A	43	1N2009A	110	1N3008B	120
1N724A	27	1N964B	13	1N3032B	33	1N1791A	68	1N1367A	47	1N2010A	120	1N3009B	130
1N725A	30	1N965B	15	1N3033B	36	1N1792A	75	1N1368A	51	1N2011A	130	1N3010B	140
1N726A	33	1N966B	16	1N3034B	39	1N1793A	82	1N1369A	56	1N2012A	150	1N3011B	150
1N727A	36	1N967B	18	1N3035B	43	1N1794A	91	1N1370A	62	1N2498A	10	1N3012B	160
1N728A	39	1N968B	20	1N3036B	47	1N1795A	100	1N1371A	68	1N2499A	11	1N3013B	175
1N729A	43	1N969B	22	1N3037B	51	1N1796A	110	1N1372A	75	1N2500A	12	1N3014B	180
1N730A	47	1N970B	24	1N3038B	56	1N1797A	120	1N1373A	82	1N2970B	6.8	1N3015B	200
1N731A	51	1N971B	27	1N3039B	62	1N1798A	130	1N1374A	91	1N2971B	7.5		
1N732A	56	1N972B	30	1N3040B	68	1N1798A	130	1N1375A	91	1N2972B	8.2		
1N733A	62	1N973B	33	1N3041B	75	1N1799A	150	1N1803A	5.6	1N2973B	9.1		
1N734A	68	1N974B	36	1N3042B	82	1N1800A	160	1N1804A	6.2	1N2974B	10		
1N735A	75	1N975B	39	1N3043B	91	1N1801A	180	1N1805A	6.8	1N2975B	11		
1N736A	82	1N976B	43	1N3044B	100	1N1802A	200	1N1806A	7.5	1N2976B	12		
1N737A	91	1N977B	47	1N3045B	110			1N1807A	8.2	1N2977B	13		
1N738A	100	1N978B	51	1N3046B	120			1N1808A	9.1	1N2978B	14		
1N739A	110	1N979B	56	1N3047B	130			1N1809A	110	1N2979B	15		
1N740A	120	1N980B	62	1N3048B	150			1N1810A	120	1N2980B	16		
1N741A	130	1N981B	68	1N3049B	160			1N1811A	130	1N2981B	17		
1N742A	150	1N982B	75	1N3050B	180			1N1812A	150	1N2982B	18		
1N743A	160	1N983B	82	1N3051B	200			1N1813A	160	1N2983B	19		
1N744A	180	1N984B	91	1N1765A	5.6			1N1814A	180	1N2984B	20		
1N745A	200	1N985B	100	1N1766A	6.2			1N1815A	200	1N2985B	22		
1N762A	5.8	1N986B	110	1N1767A	6.8			1N1816A	13	1N2986B	24		
1N763A	7.1	1N987B	120	1N1768A	7.5			1N1817A	15	1N2987B	25		
1N764A	8.8	1N988B	130	1N1769A	8.2			1N1818A	16	1N2988B	27		
1N765A	10.5	1N989B	150	1N1770A	9.1			1N1819A	18	1N2989B	30		
1N766A	12.8	1N990B	160	1N1771A	10			1N1820A	20	1N2990B	33		
1N767A	15.8	1N991B	180	1N1772A	11			1N1821A	22	1N2991B	36		
1N768A	19	1N992B	200	1N1773A	12			1N1822A	24	1N2992B	39		

### VR SERIES ECONOMY ZENER REGULATORS

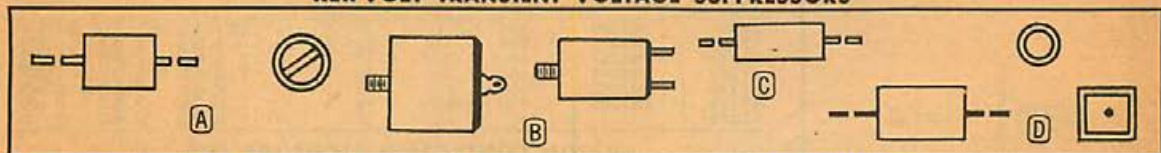
One watt zener regulators in rugged plastic case, recommended for use in all  $\frac{1}{4}$ , 0.4,  $\frac{1}{2}$  and 1 watt applications. Add suffix A for  $\pm 5\%$  tolerance, B for  $\pm 20\%$  ( $\pm 10\%$  standard).

S-T No.	Zener Volts*	S-T No.	Zener Volts*	S-T No.	Zener Volts*	S-T No.	Zener Volts*	S-T No.	Zener Volts*
VR6	6	VR14	14	VR33	33	VR80	80	VR130	130
VR7	7	VR18	18	VR39	39	VR90	90	VR150	150
VR8.5	8.5	VR20	20	VR47	47	VR105	105	VR160	160
VR10	10	VR24	24	VR56	56	VR110	110	VR180	180
VR12	12	VR28	28	VR67	67	VR120	120	VR200	200

\*Avalanche volts.

Pre-fix	Tol.	Suf-fix	Net Each, Lots of
			1-24 25-99 100 Up
VR	$\pm 5\%$	A	\$1.00 \$0.86 \$0.80
	$\pm 10\%$	B	.95 .80 .75
	$\pm 20\%$	B	.85 .73 .68

### KLIPVOLT TRANSIENT VOLTAGE SUPPRESSORS



Can handle transient peak voltages at least double steady state rating. Non-polarized, AC or DC; polarized, DC only. Higher voltage and 3-ph. models available. Figs. C and D are sealed types.

**NON-POLARIZED TYPE**  
A—Max. rms Volts, B—Max. Discharge Current (Amps), C—Min. DC Volts, D—Figure.

S-T No.	A	B	C	D	Net Each, Lots of		
					1-9	10-99	100 Up
S-249	52	.200	27	A	\$0.42	\$0.38	\$0.34
S-249C	52	.200	27	C	.87	.78	.70
S-250	52	.700	27	B	.55	.50	.44
S-250C	52	.700	27	D	1.60	1.44	1.28
S-251	78	.200	53	A	.48	.43	.38
S-251C	78	.200	53	C	.93	.84	.74
S-252	78	.700	53	B	.65	.59	.53
S-252C	78	.700	53	D	1.70	1.53	1.36
S-253	104	.200	79	A	.54	.49	.43
S-253C	104	.200	79	C	.99	.89	.79

### POLARIZED TYPE

A—Max. DC Blocking Volts, B—Max. Discharge Current (Amps), C—Min. DC Volts, D—Figure.

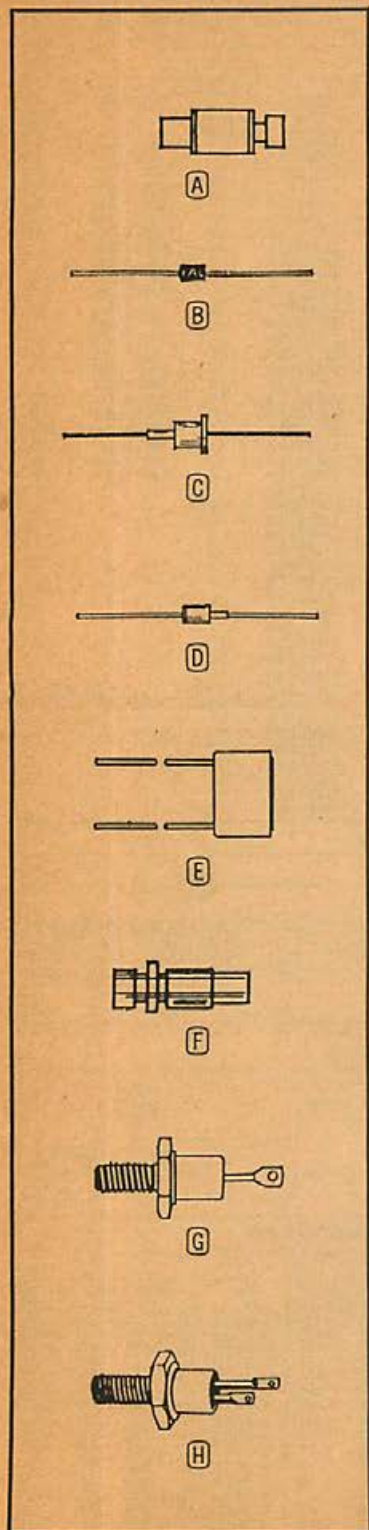
A	B	C	S-T No.	D	Net Each, Lots of			S-T No.	D	Net Each, Lots of		
					1-9	10-99	100 Up			1-9	10-99	100 Up
22	.250	15	S-235	A	\$0.36	\$0.33	\$0.29	S-235C	C	\$0.81	\$0.73	\$0.65
22	.850	15	S-236	B	.55	.50	.44	S-236C	C	1.60	1.44	1.28
44	.250	23	S-237	A	.36	.33	.29	S-237C	C	.81	.73	.65
44	.850	23	S-238	B	.55	.50	.44	S-238C	C	1.60	1.44	1.28
66	.250	45	S-239	A	.39	.35	.31	S-239C	C	.84	.76	.67
66	.850	45	S-240	B	.50	.45	.40	S-240C	C	1.55	1.40	1.24
88	.250	67	S-241	A	.42	.38	.34	S-241C	C	.87	.78	.70
88	.850	67	S-242	B	.55	.50	.44	S-242C	C	1.60	1.44	1.28
110	.250	89	S-243	A	.45	.41	.36	S-243C	C	.90	.81	.72
110	.850	89	S-244	B	.60	.55	.48	S-244C	C	1.65	1.49	1.32
132	.250	111	S-245	A	.48	.43	.38	S-245C	C	.93	.84	.74
132	.850	111	S-246	B	.65	.59	.52	S-246C	C	1.70	1.53	1.36
154	.250	133	S-247	A	.51	.46	.41	S-247C	C	.96	.86	.77
154	.850	133	S-248	B	.70	.63	.56	S-248C	C	1.75	1.58	1.40





# SARKES TARZIAN SILICON AVALANCHE RECTIFIERS

All Sarkes Tarzian silicon rectifiers are now designed so avalanche current flows through junction and not across surface when high voltage is applied. Cycles in and out of avalanche region to full limit of thermal capacity for dissipation of heat losses. Transient voltage failures are virtually eliminated for high reliability. Available from 0.5 amp through 350 amps.



## LOW CURRENT RECTIFIERS M SERIES 0.5 AMP (FIG. A)

S-T No.	JEDEC No.	Max. PIV	Max. RMS Volts	Max. Cur., Amps at 100° C*			Net Each, Lots of		
				DC Load	Recur. Peak	4MS Surge	1-24	25-99	100 Up
10M	1N1081	100	70	0.5	5.0	30	\$0.60	\$0.55	\$0.51
20M	1N1082	200	140	0.5	5.0	30	.65	.57	.53
30M	1N1083	300	210	0.5	5.0	30	.70	.61	.57
40M	1N1084	400	280	0.5	5.0	30	.75	.63	.59
M-500	1N1084	400	280	0.5	5.0	30	.75	.63	.59
50M	.....	500	350	0.5	5.0	30	.80	.69	.64
60M	.....	600	420	0.5	5.0	30	.85	.70	.66

## F SERIES 0.75 AMP (FIG. B)

F-2	1N2482	200	140	0.75	5.0	75	\$0.35	\$0.32	\$0.29
F-4	1N2483	400	280	0.75	5.0	75	.40	.36	.33
F-6	1N2484	600	420	0.75	5.0	75	.45	.40	.37
F-8	.....	800	560	0.75	5.0	75	.60	.49	.46

## H SERIES 0.75 AMP (FIG. C)

10H	.....	100	70	0.75	5.0	75	\$0.35	\$0.33	\$0.31
20H	1N2485	200	140	0.75	5.0	75	.40	.36	.33
30H	1N2486	300	210	0.75	5.0	75	.44	.39	.36
40H	1N2487	400	280	0.75	5.0	75	.45	.40	.37
50H	1N2488	500	350	0.75	5.0	75	.50	.43	.40
60H	1N2489	600	420	0.75	5.0	75	.55	.45	.42
80H	.....	800	560	0.75	5.0	75	.95	.80	.75

## C SERIES 0.75 AMP (FIG. D)

10C	1N2610	100	70	0.75	.....	.....	\$0.35	\$0.33	\$0.31
20C	1N2611	200	140	0.75	.....	.....	.40	.36	.33
30C	1N2612	300	210	0.75	.....	.....	.44	.39	.36
40C	1N2613	400	280	0.75	.....	.....	.45	.40	.37
50C	1N2614	500	350	0.75	.....	.....	.50	.43	.40
60C	1N2615	600	420	0.75	.....	.....	.55	.45	.42
80C	1N2616	800	560	0.75	.....	.....	.95	.80	.75

## ST1 SERIES 0.625 AMP (FIG. E)

ST12	.....	200	140	0.625	5	75	\$0.35	\$0.32	\$0.29
ST14	.....	400	280	0.625	5	75	.40	.36	.33
ST16	.....	600	420	0.625	5	75	.45	.40	.37
ST18	.....	800	560	0.625	.....	.....	.60	.49	.46

\*In most cases based on proper heat sink to limit case temperature rise to 60° C.

## MEDIUM CURRENT RECTIFIERS

### B SERIES 1.6 AMPS (FIG. C)

S-T No.	JEDEC No.	Max. PIV	Max. RMS Volts	DC Load, Amps	Recur. Peak, Amps	Net Each, Lots of		
						1-24	25-99	100 Up
20B	.....	200	140	1.6	9.6	\$1.05	\$0.89	\$0.83
40B	.....	400	280	1.6	9.6	1.25	1.07	1.00
60B	.....	600	420	1.6	9.6	1.50	1.27	1.19
80B	.....	800	560	1.6	9.6	1.80	1.55	1.44

### LA SERIES 2 AMPS (FIG. F)

10LA	1N1085A	100	70	2.0	30	\$3.34	\$2.86	\$2.66
20LA	1N1086A	200	140	2.0	30	4.00	3.43	3.20
30LA	1N1087A	300	210	2.0	30	4.67	4.00	3.73
40LA	1N1088A	400	280	2.0	30	5.35	4.67	4.27
50LA	.....	500	350	2.0	30	5.87	5.03	4.70
60LA	.....	600	420	2.0	30	6.45	5.52	5.15

### H3 SERIES 6 AMPS (FIG. G)

Add suffix N for negative or P for positive base. Add R to JEDEC type for negative base.

10H3	1N1342	100	70	6	35	\$1.20	\$1.03	\$0.96
20H3	1N1344	200	140	6	35	1.25	1.07	1.00
30H3	1N1345	300	210	6	35	1.55	1.33	1.24
40H3	1N1346	400	280	6	35	1.95	1.67	1.56
50H3	1N1347	500	350	6	35	2.35	2.10	1.88
60H3	1N1348	600	420	6	35	2.70	2.32	2.16
80H3	.....	800	560	6	35	3.20	2.76	2.58

### ST2 SERIES 12 AMP (FIG. G)

Add suffix N for negative base or P for positive base.

ST210	1N1200	100	70	12	70	\$1.45	\$1.26	\$1.17
ST220	1N1202	200	140	12	70	1.55	1.32	1.23
ST230	1N1203	300	210	12	70	1.85	1.59	1.48
ST240	1N1204	400	280	12	70	2.35	2.00	1.87
ST250	1N1205	500	350	12	70	2.60	2.20	2.06
ST260	.....	600	420	12	70	3.30	2.80	2.64
ST280	.....	800	560	12	70	3.95	3.40	3.18

## SILICON CONTROLLED RECTIFIERS (FIG. H)

Four-layer, three-junction devices for switching and power control. Size, 1/4" overall I. Series 3TCR, 3 amps DC; Series 5TCR, 5 amps DC.

S-T No.	Max. PIV	Net Each, Lots of			S-T No.	Max. PIV	Net Each, Lots of		
		1-24	25-99	100 Up			1-24	25-99	100 Up
3TCRA	25	\$2.80	\$2.38	\$2.22	5TCRA	25	\$4.00	\$3.43	\$3.20
3TCRB	50	2.90	2.46	2.30	5TCRB	50	4.70	4.05	3.77
3TCRC	100	3.00	2.55	2.39	5TCRC	100	4.85	4.15	3.86
3TCRD	150	3.05	2.62	2.44	5TCRD	150	4.95	4.23	3.94
3TCRE	200	3.25	2.80	2.60	5TCRE	200	5.10	4.38	4.08
3TCRF	250	4.05	3.50	3.25	5TCRF	250	5.95	5.10	4.24
3TCRG	300	4.20	3.58	3.33	5TCRG	300	6.05	5.16	4.21
3TCRH	400	4.65	3.98	3.70	5TCRH	400	6.50	5.57	5.18
3TCRI	500	6.95	5.97	5.55	5TCRI	500	8.80	7.55	7.03

### GATE TURNOFF TYPE

Class X and Y prices available on request.

3GCRZ	100	\$ 7.35	\$ 6.27	\$ 5.86	3GCRFZ	250	\$17.90	\$15.36	14.35
3GCRDZ	150	10.10	8.63	8.07	3GCRGZ	300	24.60	21.10	19.69
3GCREZ	200	13.75	11.79	11.00	3GCRHZ	400	31.50	27.00	25.20





**SARKES  
TARZIAN**

# SILICON RECTIFIERS

## HIGH VOLTAGE, AXIAL LEAD SILICON CARTRIDGE RECTIFIERS (FIG. A)

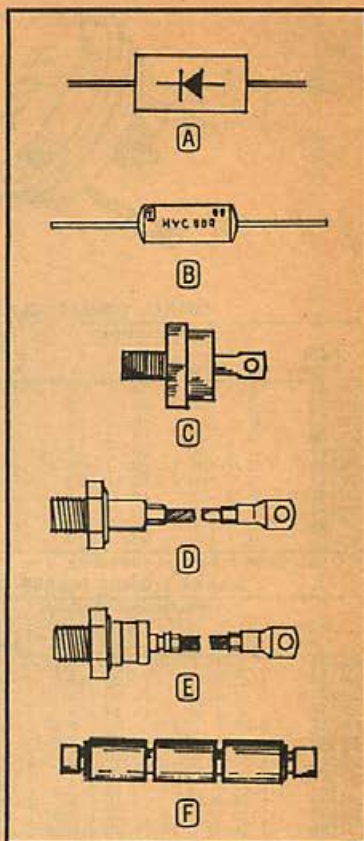
JEDEC No.	S-T No.	PIV	Max. RMS Volts*	Max. Avg. Rect. Current, Ma at		Size, In. Lgth. x Dia.	Lead Lgth., In.	Net Each, Lots of		
				25° C	100° C			1-24	25-99	100 Up
1N1730	S-5518	1000	700	200	100	.5 x .375	2 1/2	\$2.10	\$1.79	\$1.67
1N1731	S-5519	1500	1050	200	100	.5 x .375	2 1/2	2.10	1.79	1.67
1N1732	S-5520	2000	1400	200	100	1 x .375	2 1/2	2.90	2.50	2.33
1N1733	S-5521	3000	2100	150	75	1 x .375	2 1/2	4.15	3.57	3.34
1N1734	S-5522	5000	3500	100	50	1 x .375	2 1/2	5.00	4.29	4.00
1N2373	S-5523	600	420	250	100	.5 x .375	2 1/2	1.25	1.07	1.00
1N2374	S-5524	1000	700	250	100	.5 x .375	2 1/2	2.10	1.79	1.67
1N2375	S-5525	1500	1050	200	100	.5 x .375	2 1/2	2.10	1.79	1.67
1N2376	S-5526	2000	1400	200	100	.9 x .375	2 1/2	2.90	2.50	2.33
1N2377	S-5527	2400	1680	150	75	.9 x .375	2 1/2	3.35	2.86	2.66
1N2378	S-5528	3000	2100	150	75	1 x .375	2 1/2	4.20	3.58	3.34
1N2379	S-5529	4000	2800	100	50	1.25 x .375	2 1/2	5.00	4.30	4.00
1N2380	S-5530	6000	4200	100	50	2.5 x .375	2 1/2	7.40	6.08	5.66
1N2381	S-5531	10000	7000	75	25	2.5 x .375	2 1/2	11.40	9.65	9.00
1N2382	S-5532	4000	2800	150	75	1 x .375	2 1/2	5.00	4.29	4.00
1N2383	S-5533	6000	4200	100	50	1.5 x .375	2 1/2	7.10	6.08	5.66
1N2384	S-5534	8000	5600	70	35	1.5 x .375	2 1/2	7.50	6.43	6.00
1N2385	S-5535	10000	7000	70	35	2 x .375	2 1/2	9.15	7.86	6.00

\*Derate 50% for capacitive load in half-wave circuits. †Ferrule mounting.

## HVC SERIES HIGH VOLTAGE, AXIAL LEAD SILICON CARTRIDGE RECTIFIERS (FIG. B)

Epoxy-sealed phenolic tube construction with 2" lg. (min.) axial leads.

S-T No.	Max. PIV	Max. Avg. Rect. Cur. (55° C), mA	Max. Fwd. V Drop at Rtd. Cur.	Body Size, In. Dia. x Lgth.	Net Each, Lots of		
					1-24	25-99	100 Up
HVC180	1800	250	4 VDC	.375 x 1 1/4	\$ 3.35	\$ 2.86	\$ 2.66
HVC240	2400	250	5 VDC	.375 x 1 1/4	3.60	3.08	2.87
HVC300	3000	200	6 VDC	.375 x 1 1/4	3.85	3.28	3.07
HVC400	4000	200	8 VDC	.375 x 1 1/4	4.00	3.44	3.20
HVC500	5000	200	10 VDC	.375 x 1 1/4	4.15	3.67	3.34
HVC600	6000	150	12 VDC	.375 x 1 1/4	4.55	3.92	3.66
HVC650	6500	150	13 VDC	.375 x 1 1/4	5.00	4.29	4.00
HVC750	7500	150	15 VDC	.375 x 1 1/4	5.40	4.64	4.34
HVC840	8400	100	18 VDC	.375 x 1 1/4	5.85	5.00	4.66
HVC960	9600	100	20 VDC	.375 x 1 1/4	6.65	5.72	5.34
HVC1000	10000	100	22 VDC	.375 x 1 1/4	7.10	6.07	5.66
HVC1200	12000	75	25 VDC	.375 x 1 1/4	8.35	7.15	6.66
HVC1500	15000	75	25 VDC	.375 x 2 1/8	10.40	8.94	8.34
HVC1800	18000	75	30 VDC	.375 x 2 1/8	12.50	10.70	10.00
HVC2100	21000	50	35 VDC	.375 x 3	14.60	12.50	11.67
HVC2500	25000	50	40 VDC	.375 x 3 1/4	17.50	15.00	14.00
HVC3000	30000	50	50 VDC	.375 x 4 1/4	20.80	17.90	16.70



## HIGH CURRENT, HERMETICALLY SEALED RECTIFIERS

Stud base, hermetically sealed rectifiers. Add suffix **N** for negative base (anode) or suffix **P** for positive base (cathode).

### ST3 SERIES 25 AMP (FIG. C)

S-T No.	JEDEC No.	Max. PIV	Max. RMS Volts	DC Amps	Net Each, Lots of		
					1-24	25-99	100 Up
ST3A10	.....	100	70	25	\$2.20	\$1.90	\$1.73
ST3A20	.....	200	140	25	2.45	2.10	1.96
ST3A30	.....	300	210	25	2.85	2.44	2.28
ST3A40	.....	400	280	25	3.15	2.70	2.52
ST3A50	.....	500	350	25	3.50	2.98	2.78
ST3A60	.....	600	420	25	3.80	3.28	3.06
ST3A80	.....	800	560	25	4.55	3.90	3.62

### ST4 SERIES 35 AMP (FIG. C)

ST410	1N1184	100	70	35	\$2.60	\$2.22	\$2.06
ST420	1N1186	200	140	35	3.10	2.66	2.48
ST430	1N1187	300	210	35	3.55	3.04	2.84
ST440	1N1188	400	280	35	4.45	3.82	3.56
ST450	1N1189	500	350	35	5.35	4.59	4.27
ST460	1N1190	600	420	35	6.40	5.50	5.14
ST480	.....	800	560	35	8.65	7.40	6.90

### ST5 SERIES 50 AMP (FIG. D)

ST510	.....	100	70	50	\$ 9.00	\$ 7.71	\$ 7.20
ST520	.....	200	140	50	9.95	8.54	7.97
ST530	.....	300	210	50	13.35	11.42	10.68
ST540	.....	400	280	50	15.80	13.50	12.60
ST550	.....	500	350	50	18.30	15.70	14.65
ST560	.....	600	420	50	20.20	17.31	16.19
ST580	.....	800	560	50	23.60	20.20	18.82

### ST6 SERIES 100 AMP (FIG. D)

ST610	.....	100	70	100	\$11.20	\$ 9.60	\$ 8.96
ST620	.....	200	140	100	12.20	10.45	9.79
ST630	.....	300	210	100	13.40	11.76	10.95
ST640	.....	400	280	100	18.80	16.07	15.00
ST650	.....	500	350	100	24.25	20.78	19.40
ST660	.....	600	420	100	28.50	24.40	22.80
ST680	.....	800	560	100	34.00	29.10	27.20

### ST7 SERIES 160 AMP (FIG. E)

S-T No.	JEDEC No.	Max. PIV	Max. RMS Volts	DC Amps	Net Each, Lots of		
					1-24	25-99	100 Up
ST710	1N3261	100	70	160	\$12.90	\$11.09	\$10.32
ST720	1N3263	200	140	160	14.50	12.40	11.58
ST730	1N3265	300	210	160	15.80	13.50	12.60
ST740	1N3267	400	280	160	20.20	17.80	16.60
ST750	1N3268	500	350	160	28.45	24.38	22.75
ST760	1N3269	600	420	160	34.60	29.60	27.65
ST770	1N3270	700	490	160	38.00	32.50	29.00
ST780	1N3271	800	560	160	41.50	35.50	33.05

### ST9 SERIES 250 AMP (FIG. E)

ST910	1N3162	100	70	250	\$14.20	\$12.19	\$11.36
ST920	1N3164	200	140	250	15.80	13.50	12.60
ST930	1N3166	300	210	250	17.10	15.00	14.00
ST940	1N3168	400	280	250	24.40	20.95	19.52
ST950	1N3169	500	350	250	32.60	27.95	26.10
ST960	1N3170	600	420	250	42.40	36.20	33.80
ST970	1N3171A	700	490	250	50.80	43.50	40.51
ST980	1N3172A	800	560	250	61.90	53.00	49.40

### ST20 SERIES 350 AMP (FIG. E)

ST2010	.....	100	70	350	\$33.40	\$28.60	\$26.65
ST2020	.....	200	140	350	47.35	40.50	37.80
ST2030	.....	300	210	350	56.70	48.60	45.40
ST2040	.....	400	280	350	68.20	58.50	54.50
ST2050	.....	500	350	350	81.50	69.90	65.20
ST2060	.....	600	420	350	98.00	84.00	78.40
ST2070	.....	700	490	350	111.25	95.50	89.00
ST2080	.....	800	560	350	134.00	114.80	107.00

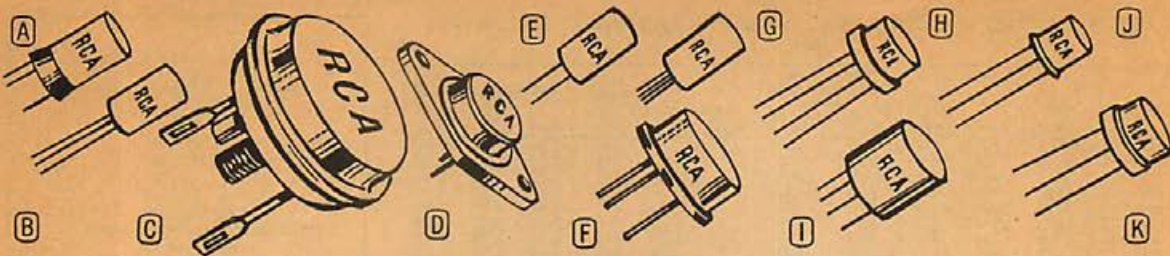
## HIGH VOLTAGE SM SERIES (FIG. F)

S-T No.	JEDEC No.	Max. PIV	Max. RMS Volts	DC Load Amps	Recur. Peak Amps	Net Each, Lots of		
						1-24	25-99	100 Up
80SM	1N1108	800	560	.45	4.5	\$3.15	\$2.71	\$2.54
120SM	1N1109	1200	840	.425	4.25	4.00	3.43	3.20
160SM	1N1110	1600	1120	.4	4.0	4.75	4.15	3.86
200SM	1N1111	2000	1400	.375	3.75	5.65	4.86	4.53
240SM	1N1112	2400	1680	.35	3.5	6.50	5.57	5.20
280SM	1N1113	2800	1960	.325	3.25	7.35	6.30	5.87





# RCA Semiconductor Products



## GERMANIUM PNP TRANSISTORS

### SMALL SIGNAL (CLASS A)

RCA Type	Fig.	Maximum			Typ. $h_{FE}$ at IC		Max. ICBO $\mu A$	Typ. $f_{Tb}$ Mc
		Pt mW	V <sub>CB</sub> V	IC A	$h_{FE}$	A		
2N104	A	150	30	50	44	1	10	0.7
2N175	A	20	10	2	65	0.5	12	0.85
2N215	B	150	30	50	44	1	10	0.7
2N220*	B	20	10	2	65	0.5	12	0.85
2N405	A	150	20	35	35	1	14	0.65
2N406	B	150	20	35	35	1	14	0.65
2N591	B	50	32	20	70	2.0	7	0.7
2N1010*	B	20	10	2	35	0.3	10	2.0
2N2613	B	100	30	50	200	0.5	5	10
2N2614	B	100	40	50	160	1	5	10
40263	B	120	20	50	160	1	10	10

\*NPN. \*MIL type also available.

### LARGE SIGNAL (CLASS A AND B)

RCA Type	Fig.	Maximum Ratings			Typ. $h_{FE}$ at IC		Max. ICBO $\mu A$	Typ. $f_{Tb}$ Mc
		Pt mW	V <sub>CB</sub> V	IC A	$h_{FE}$	A		
2N109	A	0.165	35	0.15	75	0.05	14	1.0†
2N173	C	150	60	15	25	12	100*	.....
2N174*	A	150	80	15	20	12	100*	.....
2N176	D	10	40	3	63	0.5	3 mA	.....
2N217	B	0.165	35	0.15	75	0.05	14	1.0†
2N270	#	0.25	25	0.075	70	0.15	16	1
2N277	†	150	40	15	25	12	100*	.....
2N278	†	150	50	15	25	12	100*	.....
2N351	D	10	40	3	65	0.7	3 mA	.....
2N376	D	10	40	3	78	0.7	3 mA	.....
2N407	A	0.15	20	0.07	65	0.05	14	.....
2N408	B	0.15	20	0.07	65	0.05	14	.....
2N441	A	150	40	15	20	12	100*	.....
2N442	A	150	50	15	20	12	100*	.....
2N443	C	150	60	15	20	12	100*	.....
2N647†	B	0.1	25	0.05	70	0.050	.....	.....
2N649†	B	0.1	20	0.05	65	0.050	.....	.....
2N1099	B	150	80	15	25	12	100*	.....
2N1100	C	150	100	15	20	12	100*	.....
2N1183*	F	7.5	45	3	40	0.4	30	0.5‡
2N1183A*	F	7.5	60	3	40	0.4	30	0.5‡
2N1183B*	F	7.5	80	3	40	0.4	30	0.5‡
2N1184*	F	7.5	45	3	80	0.4	30	0.5‡
2N1184A*	F	7.5	60	3	80	0.4	30	0.5‡
2N1184B*	F	7.5	80	3	80	0.4	30	0.5‡
2N1358	C	150	80	15	55	1.2	200	.....
2N1412*	C	150	100	15	20	12	100*	.....
2N1905	D	50	60	10	90	1	500	7.5
2N1906	D	50	100	10	125	5	500	7.5
2N2147	D	12.5	75	5	150	1	1 mA	4.0
2N2148	D	12.5	60	5	80	1	100	3.0
2N2869/ 2N301	D	30	60	10	90	1	500	0.45
2N2870/ 2N301A	D	30	80	10	90	.....	500	0.45
2N2953	B	0.30	30	0.15	350	0.01	5	1
40022	D	12.5	32	5	50	1	500	0.3
40050	D	12.5	40	5	90	1	500	0.5
40051	D	12.5	50	5	90	1	1 mA	0.5
40253	B	0.65	25	0.50	75	0.4	14	1
40254	D	12.5	32	5	70	1	3 mA	0.3
40329	B	0.25	.....	0.10	90	0.025	14	1.5

\*Typical. †Typical  $f_{Tb}$ . ‡NPN. §Minimum  $f_{Tb}$ . #Similar to Fig. E. \*MIL type also available.

### UHF-VHF SMALL SIGNAL

RCA Type	Fig.	Typ. $G_p$ at Operating Frequency		Typical			Max. V <sub>CB</sub> V
		Mc	db	$f_{Tb}$ Mc	$h_{FE}$ at IC		
2N384*	G	50	21	100	60	1.5	40
2N1023	G	50	24	120	60	1.5	40
2N1066	H	50	24	30	60	1.5	40
2N1177	I	100	14	140	100	1	30
2N1178	I	120	†	140	48	1	30
2N1179	I	100	17	140	80	1	30
2N1225*	H	50	21	100	60	1.5	40
2N1396	H	50	21	100	90	1.5	40
2N1397	H	50	24	120	90	1.5	40
2N2273*	J	100	12	450†	20‡	1	25
2N2482*	J	100	12	300†‡	25‡	2	20
40005	G	50	21	100	90	1.5	40
40006	G	50	24	120	90	1.5	40
40268	J	100	12	.....	20‡	1	25

\*NPN. †Local oscillator service. ‡fr. §Min. \*MIL type available.

### IF, RF AND VIDEO AMPLIFIER

RCA Type	Fig.	Typ. $G_p$ at Operating Frequency		Typical			Max. V <sub>CB</sub> V
		Mc	db	$f_{Tb}$ Mc	$h_{FE}$ at IC		
2N139	A	0.455	37	4.7	48	1	16
2N218	B	0.455	37	4.7	48	1	16
2N274*	G	12.5	27	30	60	1.5	40
2N370	E	20	17	30	100	1	24
2N409	A	0.455	37.8	6.7	48	1	13
2N410	B	0.455	37.8	6.7	48	1	13
2N1180	I	10.7	36	100	80	1.5	30
2N1224*	H	12.5	27	30	60	1.5	40
2N1226	H	12.5	22	30	60	1.5	60
2N1395	H	12.5	27	30	90	1.5	40
2N1524	B	0.455	54.4	33	60	1	24
2N1525	A	0.455	54.4	33	60	1	24
2N1631	B	1.5	47.7	45	80	1	34
2N1632	B	1.5	47.7	45	80	1	34
2N1637	B	1.5	47.7	45	80	1	34
2N1638	B	0.262	61.5	40	75	1	34
40004	G	12.5	27	30	90	1.5	40
40262	B	0.455	56	30	150	1	50

\*MIL type also available.

### CONVERTER, OSCILLATOR AND MIXER

RCA Type	Fig.	Typ. $G_p$ at Operating Frequency		Typical			Max. V <sub>CB</sub> V
		Mc	db	$f_{Tb}$ Mc	$h_{FE}$ at IC		
2N140	A	1	32	10	75	0.6	16
2N219	B	1	32	10	75	0.6	16
2N371	E	23	*	30	80	1	24
2N372	A	1	26.2	10	80	1	24
2N411	A	1	32	10	75	0.6	13
2N412	B	1	32	10	75	0.6	13
2N1178	I	120	*	140	40	1	30
2N1179	I	100	17	140	80	1	30
2N1526	B	1.5	48.9	33	130	1	24
2N1527	A	1.5	48.9	33	130	1	24
2N1639	B	1.5	37	45	75	1	34
40261	B	1.5	53	40	80	1	50

\*Local oscillator service.

### HIGH-VOLTAGE COMPUTER SWITCHING

RCA Type	Fig.	Minimum			Maximum		
		$f_{Tb}$ Mc	$h_{FE}$ at IC	$C_{ob}$ pF	Pt mW	V <sub>CB</sub> V	
2N398*	K	.....	20	5	.....	50	105
2N398A	K	.....	20	5	.....	150	105
2N398B	K	1	20	5	.....	250	105
2N586	E	.....	30	250	.....	250	45

### MEDIUM-SPEED COMPUTER SWITCHING

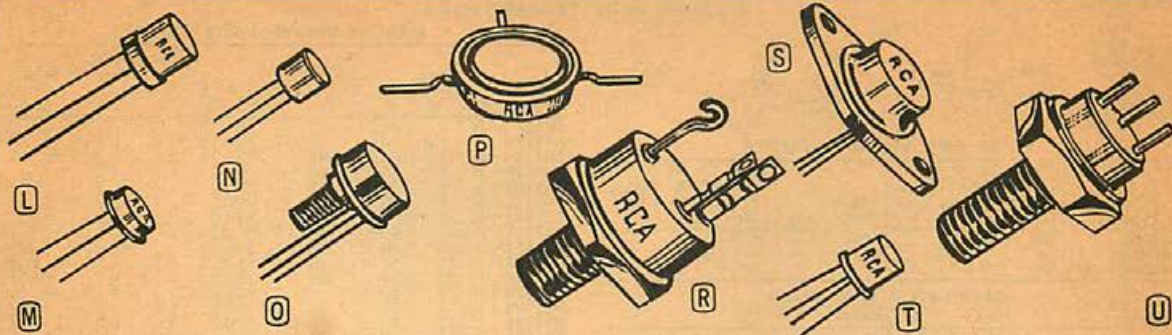
2N388**	K	5	30	200	20	150	25
2N388A*	K	5	30	200	20	150	40
2N395	K	3	20	10	20	150	30
2N396	K	5	30	10	20	150	30
2N396A	K	5	30	10	20	200	30
2N397	K	10	40	10	20	150	30
2N404*	K	4	24	24	20	150	25
2N404A	K	4	24	24	20	150	40
2N414	K	8†	80	1	11	150	30
2N581	K	4	20	20	20	150	18
2N582	K	14	40	24	20	150	25
2N585*	K	3	20	20	25	120	25
2N1090*	K	5	30	20	25	120	25
2N1091*	K	10	40	20	25	120	25
2N1300	K	25‡	30	10	12	150	13
2N1301	K	35‡	30	10	12	150	13
2N1302**	K	3	20	10	20	150	25
2N1303*	K	3	20	10	20	150	30
2N1304**	K	5	40	10	20	150	25
2N1305*	K	5	40	10	20	150	30
2N1306**	K	10	60	10	20	120	25
2N1307*	K	10	60	10	20	150	30
2N1308**	K	15	80	10	20	150	25
2N1309*	K	15	80	10	20	150	30
2N1384	L	20†	20	200	.....	240	30
2N1605*	K	4	24	24	20	150	25
2N1605A*	K	4	24	24	20	200	40
2N1683	K	50†	50	10	12	150	13
2N1853*	K	.....	30	6	.....	150	18
2N1854*	K	40†	40	20	12	150	18
40269	K	4	50	12	.....	150	25

\*NPN. †Typical. ‡Minimum fr. \*MIL type also available.





# RCA Semiconductor Products



## GERMANIUM PNP TRANSISTORS HIGH-SPEED COMPUTER SWITCHING

RCA Type	Fig.	Typ. ft Mc	Min. hFE at IC		Maximum		
			hFE	mA	Cob pF	PT mW	VCB V
2N705	K	300	25	10	5	150	15
2N710	J	300	25	10	5	150	15
2N711	J	200	20	10	5	150	12
2N955*	J	1000	30	30	6	150	12
2N955A*	J	1000	30	30	6	150	12

\*NPN.

## MEDIUM-POWER SWITCHING

PT at 25° C.

RCA Type	Fig.	Max. PT W	Minimum			Maximum VCE (sat.) at IC		Min. f <sub>hfe</sub> Mc
			VCB V	hFE at IC	A	V	A	
2N1183*	F	7.5	45	20	0.4	0.5	0.4	0.5
2N1183A*	F	7.5	60	20	0.4	0.5	0.4	0.5
2N1183B*	F	7.5	80	20	0.4	0.5	0.4	0.5
2N1184*	F	7.5	45	40	0.4	0.5	0.4	0.5
2N1184A*	F	7.5	60	40	0.4	0.5	0.4	0.5
2N1184B*	F	7.5	80	40	0.4	0.5	0.4	0.5
2N1905	D	50	40*	50	1	1	1	7.5†
2N1906	D	50	40*	75	5	1	5	7.5†
2N2869	D	30	50	50	1	0.75	10	0.45†
2N2870	D	30	50	50	1	0.75	10	0.45†

\*BVCEO. †Typical ft, Mc. \*MIL type also available.

## HIGH-POWER SWITCHING

PT at 25° C.

RCA Type	Fig.	Max. PT W	Minimum			Maximum VCE (sat.) at IC		Typ. f <sub>hfe</sub> kc
			VCB V	hFE at IC	A	V	A	
2N173	C	150	60	35	5	0.7	12	10
2N174*	C	150	60	25	5	0.7	12	10
2N277	C	150	40	35	5	0.7	12	10
2N278	C	150	50	35	5	0.7	12	10
2N441	C	150	40	20	5	0.7	12	10
2N442	C	150	50	20	5	0.7	12	10
2N443	C	150	60	20	5	0.7	12	10
2N1099	C	150	80	35	5	0.3	12	10
2N1100	C	150	100	25	5	0.3	12	10
2N1358	C	150	80	25	0.5	0.7	12	100
2N1412*	C	150	100	25	0.5	0.7	12	10

\*MIL type also available.

## GERMANIUM COMPENSATING DIODE

RCA Type 1N2326—VR=1.0 volt maximum, IF=100 mA maximum, EFWD=135 mV at 25° C.

## SILICON NPN TRANSISTORS SMALL SIGNAL (CLASS A)

PT at 25° C.

RCA Type	Fig.	Maximum			Min. h <sub>fe</sub> at IC		Max. ICBO μA	Min. Ft Mc
		PT W	VCB V	IC A	h <sub>fe</sub>	A		
2N718A	J	1.8	75	.....	35	5	0.01	100*
2N720A	J	1.8	120	.....	30	1.0	0.01	100*
2N2102	K	5.0	120	1	40	1	0.002	100
2N2270	K	5.0	60	1	30	5	0.1	100
2N2405	K	5.0	120	1	30	1	0.01	120
2N2895	J	1.8	120	1	50	5	0.002	120
2N2896	J	1.8	140	1	50	5	0.01	120
2N2897	J	1.8	60	1	50	5	0.05	100
2N2898	M	1.8	120	1	50	5	0.002	120
2N2899	M	1.8	140	1	50	5	0.01	120
2N2900	M	1.8	60	1	50	5	0.05	100
2N3053	K	5.0	60	0.7	5	50	0.25	100
2N3241	N	500†	30	100	150*	10	0.1	60*
2N3242	N	500†	30	200	150*	10	0.01	60*
40084	J	1.8	60	1	5	50	0.25	100*
40231	N	500†	18	100	80*	2	0.5	60*
40232	N	500†	18	100	175*	2	0.5	60*
40233	N	500†	18	100	175*	2	0.25	60*
40234	N	500†	18	100	80*	2	0.25	60*

\*Typical. †mW.

## LARGE SIGNAL (CLASS A AND B)

RCA Type	Fig.	Maximum			Minimum hFE at IC		Max. ICBO μA	Typ. Ft Mc
		PT W	VCB V	IC A	hFE	A		
2N699	K	2	120	.....	40	0.15	2	50
2N1479*	K	5	60	1.5	20	0.2	10	.....
2N1480*	K	5	100	1.5	20	0.2	10	.....
2N1481*	K	5	60	1.5	35	0.2	10	.....
2N1482*	K	5	100	1.5	35	0.2	10	.....
2N1483*	F	25	60	3	20	0.75	15	.....
2N1484*	F	25	100	3	20	0.75	15	.....
2N1485*	F	25	60	3	35	0.75	15	.....
2N1486*	F	25	100	3	35	0.75	15	.....
2N1487*	D	75	40	6	15	1.5	25	.....
2N1488*	D	75	55	6	15	1.5	25	.....
2N1489*	D	75	40	6	25	1.5	25	.....
2N1490*	C	75	55	6	25	1.5	25	.....
2N1511*	C	75	40	6	15	1.5	25	.....
2N1512*	C	75	55	6	15	1.5	25	.....
2N1513*	C	75	40	6.0	25	1.5	25	.....
2N1514*	C	75	55	6.0	25	1.5	25	.....
2N1700	K	5	60	1	20	0.1	75	.....
2N1701	F	25	60	2.5	20	0.3	100	.....
2N1702	D	75	40	5	15	0.8	200	.....
2N1703	C	75	40	5	15	0.8	200	.....
2N1711	K	3	75	1.0	100	0.15	0.01	70†
2N1768	O	40	40	3.5	35	0.75	15	.....
2N1769	O	40	55	3.5	35	0.7	15	.....
2N2015*	C	150	50	10	15	5	50	.....
2N2016*	C	150	65	10	15	5	50	.....
2N2338	C	150	40	7.5	15	3	200	.....
2N2339	O	40	40	2.5	20	0.3	100	.....
2N3054	D	25	90	4	25	0.5	1.0	.....
2N3055	D	115	60	15	20	4	4	20†
2N3263	P	75	90	25	25	15	4	20†
2N3264	P	75	60	25	20	15	10	20†
2N3265	R	125	90	25	25	15	4	20†
2N3266	R	125	60	25	20	15	10	20†
2N3442	D	117	140	10	.....	.....	5	5 mA
2N3583	D	15	250	2	40	0.1	10	10†
2N3584	D	7.5	375	2	40	0.1	5	10†
2N3585	D	5	500	2	40	0.1	5	10†
40084	J	1.8	60	1.0	50	0.15	0.25	100†
40250	D	29	40†	4	25	1.5	1	1
40251	D	29	40†	15	15	8	5	5 mA
40264	S	4	300	0.05	60§	0.1	100	25
40309	K	5	18†	0.7	70	0.05	0.25	100
40310	D	29	35†	4	20	1.0	10	0.75
40311	K	5	30†	0.7	70	0.05	0.25	100
40312	D	29	60	4	20	1.0	10	0.75
40313	D	35	300	2	40	0.1	5	25
40314	K	5	40†	0.7	35	0.01	0.25	100
40315	K	5	35†	0.7	70	0.05	0.25	100
40316	D	29	40	4	20	1.0	10	0.75
40317	K	5	40†	0.7	40	0.01	0.25	100
40318	D	35	300	2	50	0.5	.....	.....
40319*	K	5	40	0.7	35	0.2	0.25	0.75
40320	K	5	40†	0.7	40	0.01	0.25	.....
40321	K	5	300†	1	25	0.02	100	.....
40322	D	35	300	2	75	0.5	.....	.....
40323	K	5	18†	0.7	70	0.05	0.25	100
40324	D	29	35	4	20	1.0	10	0.75
40325	D	117	35	15	12	8	5	5 mA
40326	K	5	40†	0.7	40	0.01	0.25	.....
40327	K	5	300†	1	40	0.01	5	.....
40328	D	35	300	2	20	0.2	.....	.....

\*PNP. †Minimum. ‡VCEO (sus.). §Typical. \*MIL type available.

## UHF-VHF SMALL SIGNAL

RCA Type	Fig.	Typ. G <sub>s</sub> at Operating Frequency			Min. Ft Mc	Typical h <sub>fe</sub> at IC		Max. VCB V	
		Mc	db	NF		h <sub>fe</sub>	mA		
2N917	T	200	11.5	.....	500	.....	.....	30	
2N918	T	200	18	.....	600	.....	.....	30	
2N2708*	T	200	12.5*	7.5†	700	30*	2	35	
2N2857	T	450	12.5*	4	1000	50*	2	30	
2N3478	N	470	12	5	900†	9.0	2	30	
2N3600	T	200	17*	4.5†	850	40*	2	30	
40242	T	100	38.5	2.5	For FM RF stages			35	
40294	.....	Like 2N2857 but controlled and tested for use in critical aerospace and MIL applications							.....
40296	.....	.....							.....
40295	.....	Like 2N2708 for above applications							.....

\*Minimum. †Typical. ‡Maximum. \*MIL type also available.





# RCA Semiconductor Products

## SILICON NPN TRANSISTORS

### MEDIUM-POWER SWITCHING

RCA Type	Fig.	Max. P <sub>T</sub> W	Minimum			Maximum		Min. f <sub>T</sub> Mc		
			V <sub>CE</sub> V	V <sub>CE(sat.)</sub> V	h <sub>FE</sub> at I <sub>C</sub> A	V <sub>CE</sub> at I <sub>C</sub> V	A			
2N697	K	2	40†	.....	40	0.15	1.5	0.15	100†	
2N715A	J	1.8	50†	.....	40	0.15	1.2	0.05	60	
2N720A	J	1.8	100†	.....	80	0.15	1.5	0.15	50	
2N1479*	K	5	60	.....	40	20.0	1.4	0.2	1.5†	
2N1480*	K	5	100	.....	55	35.0	1.4	0.2	1.5†	
2N1481*	K	5	60	.....	40	35.0	1.4	0.2	1.5†	
2N1482*	K	5	100	.....	55	35.0	1.4	0.2	1.5†	
2N1483*	F	25	60	.....	40	20.0	2.0	0.75	1.25†	
2N1484*	F	25	100	.....	55	20.0	2.0	0.75	1.25†	
2N1485*	F	25	60	.....	40	35.0	0.75	0.75	1.25†	
2N1486*	F	25	100	.....	55	35.0	0.75	0.75	1.25†	
2N1613	K	3	50	.....	35	0.01	1.5	0.15	60	
2N1700	K	5	60	.....	40	20.0	1.0	0.1	.....	
2N1701	F	25	60	.....	40	20.0	1.5	0.3	.....	
2N1768	O	40	60	.....	40	35.0	0.75	0.75	1.25†	
2N1769	O	40	100	.....	55	35.0	0.75	0.75	1.25†	
2N1893	K	3	80‡	.....	80	40.0	1.2	0.05	50	
2N2102	K	5	80	.....	65	35.0	0.1	0.5	1.15	
2N2270	K	5	60	.....	45	35.0	0.01	0.9	1.15	
2N2339	O	40	60	.....	40	20.0	3	1.5	3	
2N2405	K	5	90‡	.....	90	60.0	1.2	0.05	120	
2N3053	K	5	60	.....	40	50.0	1.4	0.15	100	
40054	D	25	90	.....	55	20.0	1.0	0.5	1.2	
2N3119	K	4	100	.....	80	40.0	0.5	0.1	250	
2N3230	X	25	80	.....	60	2000.2	2	2	40	
2N3231	X	20	100	.....	80	2000.2	2	2	40	
2N3262	H*	8.75	100	.....	80	40.0	0.5	0.6	1	
2N3439	K	5	.....	.....	250	40.0	0.2	0.5	0.02	20
2N3440	K	5	.....	.....	350	40.0	0.2	0.5	0.02	20
2N3441	D	25	160	.....	140	20.0	1	0.5	.....	
2N3583	D	35	.....	.....	175	10	1	.....	10	
2N3584	D	35	.....	.....	250	25	1	0.75	1	10
2N3585	D	35	.....	.....	300	25	1	0.75	1	10
40052	H*	5	60	.....	.....	.....	.....	.....	.....	
40250	D	29	50	.....	40	25.1	1.5	1.5	.....	
40255	W	10	.....	.....	350	40.0	0.2	0.5	0.05	20
40256	W	10	.....	.....	250	40.0	0.2	0.5	0.05	20

### IF, RF AND VIDEO AMPLIFIER

RCA Type	Fig.	Typ. G <sub>p</sub> at Operating Frequency		Max. V <sub>CB</sub> V	RCA Type	Fig.	Typ. G <sub>p</sub> at Operating Frequency		Max. V <sub>CB</sub> V
		Mc	db				Mc	db	
40080	H†	27	0.1*	.....	40245	N	10.7	33.2	35
40081	H†	27	0.4*	.....	40246	N	10.7	33.2	35
40082	H†	27	3.0*	.....	.....	.....	.....	.....	.....

### OSCILLATOR AND MIXER

RCA Type	Fig.	Min. P <sub>o</sub> at Operating Frequency	Typ. f <sub>r</sub> Mc	Maximum V <sub>CB</sub> V	P <sub>T</sub> W	
40243	N	100	37.6	35	120	35
40244	N	120	.....	.....	.....	.....

\*Po minimum watts. †Local oscillator service. ‡Three leads.

### UHF-VHF LARGE SIGNAL

RCA Type	Fig.	Min. P <sub>o</sub> at Operating Frequency		Typ. f <sub>r</sub> Mc	Maximum	
		Mc	W		V <sub>CB</sub> V	P <sub>T</sub> W
2N699	K	.....	.....	50*	120	2
2N1491	H†	70	0.01†	180*	30	3
2N1492	H†	70	0.1†	180*	60	3
2N1493*	H†	70	0.5†	180*	100	3
2N2631	H†	50	7.5	200	80	8.75
2N2876	U	50	10	200	80	17.5
2N3118	K	50	1	250	.....	4
2N3229	U	50	15	200	105	17.5
2N3375	U	400	3	500	65	11.6
2N3553	H†	260	2.5†	500	65	7
2N3632	U	200	10†	400	65	23
2N3733	U	400	3	400	65	23
40279	U	400	3	500	65	11.6
40280	H†	175	1	550	36	7
40281	U	175	4	400	36	11.6
40282	U	175	12	350	36	23.2
40290	H†	135	2	500	.....	7
40291	U	135	2	500	.....	11.6
40292	U	135	6	300	.....	23.2
40305	.....	High reliability version of 2N3553				
40306	.....	High reliability version of 2N3375				
40307	.....	High reliability version of 2N3632				
40330	H†	136	3	.....	.....	.....
40331	U	136	3	.....	.....	.....
40332	U	136	8	.....	.....	.....

\*Minimum. †Typical. ‡Three leads. \*MIL type also available.

### HIGH-SPEED COMPUTER SWITCHING

RCA Type	Fig.	Minimum			Maximum		
		f <sub>r</sub> Mc	h <sub>FE</sub> at I <sub>C</sub> hFE	mA	C <sub>ob</sub> pF	P <sub>T</sub> mW	V <sub>CB</sub> V
2N706	J	200	20	10	6	300	25
2N706A	J	200	20	10	.....	300	25
2N708	J	.....	30	10	6	360	40
2N709	J	600	15	30	3	300	15
2N834	J	350	25	10	4	300	30*
2N914	J	300	30	10	6	360	40
2N1708	M	200	20	10	6	300	25
2N2205	J	200	40	10	6	300	25
2N2205	M	200	40	10	6	300	25
2N2475	J	600	20	50	3	300	15
2N2476	K	250	20	150	10	600	60
2N2477	K	250	40	150	10	600	60
2N2938	V	600	25	10	4	300	25
2N3261	V	600	40	10	3.5	1000	40
2N3512	K	375	10	500	10	800	60
40217	V	Electrically similar to 2N706					
40218	V	Electrically similar to 2N706A					
40219	V	Electrically similar to 2N708					
40220	V	Electrically similar to 2N834					
40221	V	Electrically similar to 2N914					
40222	V	Electrically similar to 2N2205					
40283	M	375	10	500	10	400	60

\*V<sub>CB</sub>.

### DIFFERENTIAL AND OPERATIONAL AMPLIFIER

RCA Type	Fig.	Max. P <sub>T</sub> W	Minimum			Maximum		Min. f <sub>T</sub> Mc		
			V <sub>CE</sub> V	V <sub>CE(sat.)</sub> V	h <sub>FE</sub> at I <sub>C</sub> hFE	V <sub>CE</sub> at I <sub>C</sub> V	A			
2N1613	K	3	50	.....	35	0.01	1.5	0.15	60	
2N2102	K	5	80	.....	65	0.01	0.5	0.15	60	
2N2270	K	5	60	.....	45	0.001	0.9	0.15	60	
2N3439	K	5	.....	.....	350	40	0.02	0.5	0.02	20
2N3440	K	5	.....	.....	250	40	0.02	0.5	0.02	20
40255	W	10	.....	.....	35	40	0.02	0.5	0.02	20
40256	W	10	.....	.....	250	40	0.02	0.5	0.02	20

### SILICON FIELD-EFFECT TRANSISTORS

Insulated-gate, N-channel depletion types. Ratings at 85° C max.

RCA Type	Fig.	Maximum			Typical			Maximum		
		V <sub>DS</sub> V	I <sub>D</sub> mA	P <sub>T</sub> mW	R <sub>ias</sub> Ohms	g <sub>fs</sub> μmhos	I <sub>DS</sub> off pA	C <sub>rss</sub> pF	C <sub>iss</sub> pF	
3N98	T	32	15	150	10 <sup>12</sup>	1500	50	0.5	7.0	
3N99	T	32	15	150	10 <sup>12</sup>	2000	50	0.5	7.0	

### HIGH-POWER SWITCHING

RCA Type	Fig.	Max. P <sub>T</sub> W	V <sub>CE</sub> V	Minimum		Min. f <sub>T</sub> Mc			
				I <sub>C</sub> A	V <sub>CE(sat.)</sub> V				
2N1487*	D	75	60	40	15	1.5	3	1.5	1†
2N1488*	D	75	100	55	15	1.5	3	1.5	1†
2N1489*	D	75	60	40	25	1.5	3	1.5	1†
2N1490*	D	75	100	55	25	1.5	1	1.5	1†
2N1511*	C	75	60	40	15	1.5	3	1.5	1†
2N1512*	C	75	100	55	15	1.5	3	1.5	1†
2N1513*	C	75	60	40	25	1.5	1	1.5	1†
2N1514*	C	75	100	55	25	1.5	1	1.5	1†
2N1702	D	75	60	40	15	0.8	3.2	0.8	.....
2N1703	C	75	60	40	15	0.8	3.2	0.8	.....
2N2015*	C	150	100	50	15	5.0	1.25	5	25†
2N2016*	C	150	130	65	15	5.0	1.25	5	25†
2N2338	C	150	60	40	15	3.0	1.5	3	.....
2N3055	D	115	100	60	20	4.0	1.1	4	0.7
2N3263	P	84	80	60	25	15	0.75	15	20
2N3264	P	84	120	60	20	15	1.2	15	20
2N3265	R	125	150	90	25	15	0.75	15	20
2N3266	R	125	120	60	20	15	1.2	15	20
2N3442	D	117	160	140	15	.....	1.0	0.3	0.8†
40251	D	117	50	40	15	8.0	1.5	8	0.5†

\*At 25° C. †Typical. ‡Typical h<sub>FE</sub>. §V<sub>CE</sub>. \*V<sub>CE</sub>. \*Three leads. \*Two transistors and a diode internally connected to form a Darlington circuit. †h<sub>FE</sub>, kc. \*MIL type also available.

### TUNNEL DIODES (FIG. Y)

For switching and microwave applications. Germanium epitaxial except as otherwise noted.

RCA Type	I <sub>P</sub> % Tol.	Min. I <sub>P</sub> /I <sub>V</sub>	Max. C pF	RCA Type	I <sub>P</sub> % Tol.	Min. I <sub>P</sub> /I <sub>V</sub>	Max. C pF	
								A
1N3128	0.005	5	15	1N3858	0.01	5	8-1	8
1N3129	0.02	5	8-1	1N3859	0.02	5	8-1	10
1N3130	0.05	5	8-1	1N3860	0.05	5	8-1	12
1N3247	0.005	10	6-1	40058*	0.05	5	12-1	20
1N3848	0.01	10	6-1	40059*	0.05	10	10-1	40
1N3849	0.02	10	6-1	40060*	0.02	5	11-1	15
1N3850	0.05	10	6-1	40061*	0.02	10	9-1	30
1N3851	0.1	10	6-1	40062*	0.01	5	10-1	10
1N3852	0.005	5	8-1	40063*	0.01	10	9-1	25
1N3853	0.01	5	8-1	40064*	0.005	5	10-1	8
1N3854	0.02	5	8-1	40065*	0.005	10	8-1	20
1N3855	0.05	5	8-1	40076*	0.2	10	15-1	25
1N3856	0.1	5	8-1	40077	0.001	10	6-1	5
1N3857	0.005	5	8-1	40078	0.001	10	5-1	10

\*Gallium-arsenide alloy.

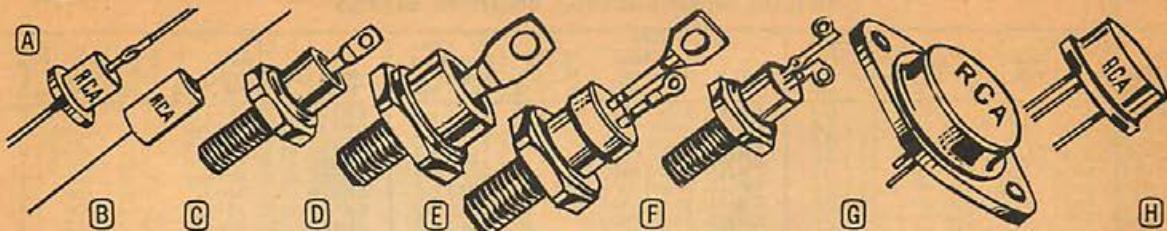
### TUNNEL RECTIFIERS (FIG. Y)

RCA Type	Maximum I <sub>P</sub> mA</
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# RCA Semiconductor Products



## SILICON DIFFUSED-JUNCTION RECTIFIERS

All ratings given are maximum. Ir average rating given is with resistive or inductive load.

### CONSUMER-PRODUCT AND INDUSTRIAL

RCA Type	Fig.	PRV V	If Avg. at TFA		If Peak		EFWD V	Dyn. Ir mA
			A	°C	Rep. A	Surge A		
1N2858A	A	50	0.75*	75	.....	40	1.2	0.4
1N2859A	A	100	0.75*	75	.....	40	1.2	0.4
1N2860A	A	200	0.75*	75	.....	40	1.2	0.4
1N2861A	A	300	0.75*	75	.....	40	1.2	0.3
1N2862A	A	400	0.75*	75	.....	40	1.2	0.3
1N2863A	A	500	0.75*	75	.....	40	1.2	0.3
1N2864A	A	600	0.75*	75	.....	40	1.2	0.3
1N3193	B	200	0.75*	75	6½	35½	1.2	0.2
1N3194	B	400	0.75*	75	6½	35½	1.2	0.2
1N3195	B	600	0.75*	75	6½	35½	1.2	0.2
1N3196	B	800	0.5†	75	5½	35½	1.2	0.2
1N3253	Insulated version of 1N3193							
1N3254	Insulated version of 1N3194							
1N3255	Insulated version of 1N3195							
1N3256	Insulated version of 1N3196							
1N3563	B	1000	0.4†	75	4†	35½	1.2	0.2
1N3754†	B*	100	0.125	65	1.3	30	1	0.3
1N3755†	B*	200	0.125	65	1.3	30	1	0.3
1N3756†	B*	400	0.125	65	1.3	30	1	0.3
40265†	B*	400	0.125	65	1.3	30	1	-0.4

### TV AND RADIO RECEIVER

RCA Type	Fig.	PRV V	If Avg. at TFA	If Peak	EFWD V	Dyn. Ir mA		
1N1763A	A	400	0.75	75	5	35	3	0.1*
1N1764A	A	500	0.75	75	5	35	3	0.1*
40266	A	100	2½	105	10	35	3	-10
40267	A	200	2½	105	10	35	3	-10

### MIL AND INDUSTRIAL

RCA Type	Fig.	PRV V	If Avg. at TFA	If Peak	EFWD V	Dyn. Ir mA		
1N440B	A	100	0.75	50	3.5	15	1.5	0.3 μA*
1N441B	A	200	0.75	50	3.5	15	1.5	0.75 μA*
1N442B	A	300	0.75	50	3.5	15	1.5	1 μA*
1N443B	A	400	0.75	50	3.5	15	1.5	1.5 μA*
1N444B	A	500	0.65	50	3.5	15	1.5	1.75 μA*
1N445B	A	600	0.65	50	3.5	15	1.5	2 μA*
1N536	A	50	0.75	50	.....	15	1.1	5 μA*
1N537	A	100	0.75	50	.....	15	1.1	5 μA*
1N538*	A	200	0.75	50	.....	15	1.1	5 μA*
1N539	A	300	0.75	50	.....	15	1.1	5 μA*
1N540*	A	400	0.75	50	.....	15	1.1	5 μA*
1N547*	A	600	0.75	50	.....	15	1.2	5 μA*
1N1095	A	500	0.75	50	.....	15	1.2	5 μA*

With capacitive load: \*0.5 A; †0.4 A; ‡0.3 A. §With capacitive load. †Consumer-product application only. \*Static characteristic. ‡Single ended. \*MIL type also available.

### MIL AND INDUSTRIAL STUD MOUNT (FIG. C)

If and PRV maximum ratings with resistive or inductive load. USAF1N199 thru USAF1N1206 (no suffix A) also available.

RCA Type	PRV V	If Avg. at TC		If Peak		EFWD V	Dyn. Ir mA
		A	°C	Rep. A	Surge A		
1N1199A, RA	50	12	150	50	240	0.55	3
1N1200A, RA	100	12	150	50	240	0.55	2.5
1N1201A, RA	200	12	150	50	240	0.55	2
1N1202A, RA	300	12	150	50	240	0.55	1.75
1N1204A, RA	400	12	150	50	240	0.55	1.5
1N1205A, RA	500	12	150	50	240	0.55	1.25
1N1206A, RA	600	12	150	50	240	0.55	1
1N1341B, RB	50	6	150	25	160	0.65	0.45
1N1342B, RB	100	6	150	25	160	0.65	0.45
1N1344B, RB	200	6	150	25	160	0.65	0.45
1N1345B, RB	300	6	150	25	160	0.65	0.45
1N1346B, RB	400	6	150	25	160	0.65	0.45
1N1347B, RB	500	6	150	25	160	0.65	0.45
1N1348B, RB	600	6	150	25	160	0.65	0.45
1N1612, R	50	5	135	15	.....	1.5	1
1N1613, R	100	5	135	15	.....	1.5	1
1N1614, R	200	5	135	15	.....	1.5	1
1N1615, R	400	5	135	15	.....	1.5	1
1N1616, R	600	5	135	15	.....	1.5	1
40108, R	50	10	150	40	140	0.60	2.0
40109, R	100	10	150	40	140	0.60	2.0
40110, R	200	10	150	40	140	0.60	1.5
40111, R	300	10	150	40	140	0.60	1.5
40112, R	400	10	150	40	140	0.60	1.0
40113, R	500	10	150	40	140	0.60	0.85
40114, R	600	10	150	40	140	0.60	0.75
40115, R	800	10	150	40	140	0.60	0.65
40116, R	1000	10	150	40	140	0.60	0.50

### MIL AND INDUSTRIAL STUD MOUNT (FIG. D)

If and PRV maximum ratings with resistive or inductive load. USAF1N249B, USAF1N250B and USAF1N1183 thru USAF1N1190 (no suffix A) also available.

RCA Type	PRV V	If Avg. at TC		If Peak		EFWD V	Dyn. Ir mA
		A	°C	Rep. A	Surge A		
1N249C, RC	55	20	150	90	350	0.6	3.8
1N249C, RC	110	20	150	90	350	0.6	3.6
1N250C, RC	220	20	150	90	350	0.6	3.4
1N1183A, RA	50	40	150	195	800	0.65	2.5
1N1184A, RA	100	40	150	195	800	0.65	2.6
1N1185A, RA	200	40	150	195	800	0.65	2.5
1N1187A, RA	300	40	150	195	800	0.65	2.5
1N1188A, RA	400	40	150	195	800	0.65	2.2
1N1189A, RA	500	40	150	195	800	0.65	2
1N1190A, RA	600	40	150	195	800	0.65	1.8
1N1195A, RA	300	20	150	90	350	0.6	3.2
1N1196A, RA	400	20	150	90	350	0.6	2.5
1N1197A, RA	500	20	150	90	350	0.6	2.2
1N1198A, RA	600	20	150	90	350	0.6	1.5
40208, R	50	18	150	72	250	0.65	3.0
40209, R	100	18	150	72	250	0.65	3.0
40210, R	200	18	150	72	250	0.65	2.5
40211, R	300	18	150	72	250	0.65	2.5
40212, R	400	18	150	72	250	0.65	2.0
40213, R	500	18	150	72	250	0.65	1.75
40214, R	600	18	150	72	250	0.65	1.5

### SILICON CONTROLLED RECTIFIERS

For military and industrial applications. All ratings given are max.

RCA Type	Fig.	IFRMS at TC		VRM		VFBO Rep. V	IFM Surge A	VGT V	IGT DC mA
		A	°C	Non-rep. V	Rep. V				
2N681	E	25	65	35	25	25	150	3	25
2N682	E	25	65	75	50	50	150	3	25
2N683	E	25	65	150	100	100	150	3	25
2N684	E	25	65	225	150	150	150	3	25
2N685	E	25	65	300	200	200	150	3	25
2N686	E	25	65	350	250	250	150	3	25
2N687	E	25	65	400	300	300	150	3	25
2N688	E	25	65	500	400	400	150	3	25
2N689	E	25	65	600	500	500	150	3	25
2N690	E	25	65	720	600	600	150	3	25
2N1770	F	7.4	60	35	25	600	60	2	15
2N1771	F	7.4	60	75	50	600	60	2	15
2N1772	F	7.4	60	150	100	600	60	2	15
2N1773	F	7.4	60	225	150	600	60	2	15
2N1774	F	7.4	60	300	200	600	60	2	15
2N1775	F	7.4	60	350	250	600	60	2	15
2N1776	F	7.4	60	400	300	600	60	2	15
2N1777	F	7.4	60	500	400	600	60	2	15
2N1778	F	7.4	60	600	500	600	60	2	15
2N1842A	E	16	80	35	25	25	125	3.5	45
2N1843A	E	16	80	75	50	50	125	3.5	45
2N1844A	E	16	80	150	100	100	125	3.5	45
2N1845A	E	16	80	225	150	150	125	3.5	45
2N1846A	E	16	80	300	200	200	125	3.5	45
2N1847A	E	16	80	350	250	250	125	3.5	45
2N1848A	E	16	80	400	300	300	125	3.5	45
2N1849A	E	16	80	500	400	400	125	3.5	45
2N1850A	E	16	80	600	500	500	125	3.5	45
2N3228	G	5	75	330	200	600	60	2	15
2N3525	G	5	75	660	400	600	60	2	15
2N3528	H	2	25*	330	200	600	60	2	15
2N3529	H	2	25*	660	400	600	60	2	15
2N3668	G	12.5	80	150	100	600	200	2	40
2N3669	G	12.5	80	330	200	600	200	2	40
2N3670	G	12.5	80	660	400	600	200	2	40
40216	E	900†	65	720	600	.....	.....	.....	.....

\*At TFA. †Pulsed.

### RECTIFIER BRIDGES

RCA Type	Average DC Output		Rms Supply V	RCA Type	Average DC Output		Rms Supply V
	A	V			A	V	
CR401	18	200	222	CR409	70	800	888
CR402	18	400	444	CR501	24	300	222
CR403	18	800	888	CR502	24	600	444
CR404	34	200	222	CR503	46	300	222
CR405	34	400	444	CR504	46	600	444
CR406	34	800	888	CR505	92	300	222
CR407	70	200	222	CR506	92	600	444
CR408	70	400	444				





# RCA Semiconductors, Pricing

## SILICON HIGH-VOLTAGE RECTIFIER STACKS

RCA Type	PRV				Max. Dyn. Ir. mA	RCA Type	PRV				Max. Dyn. Ir. mA	RCA Type	PRV				Max. Dyn. Ir. mA			
	Rep. V	Non-rep. V	IF Avg. at TFA				Rep. V	Non-rep. V	IF Avg. at TFA				Rep. V	Non-rep. V	IF Avg. at TFA					
			A	°C					A	°C					A	°C				
CR101	1200	1440	0.85	60	15	0.3	CR301	2400	2880	5	50	250	1.5	CR324	6000	7200	12	50	400	1.5
CR102	2000	2400	0.825	60	15	0.3	CR302	3600	4320	5	50	250	1.5	CR325	7200	8640	12	50	400	1.5
CR103	3000	3600	0.725	60	15	0.3	CR303	4800	5760	5	50	250	1.5	CR331	2400	2880	17	50	400	1.5
CR104	4000	4800	0.625	60	15	0.3	CR304	6000	7200	5	50	250	1.5	CR332	3600	4320	17	50	400	1.5
CR105	5000	6000	0.625	60	15	0.3	CR305	7200	8640	5	50	250	1.5	CR333	4800	5760	17	50	400	1.5
CR106	6000	7200	0.575	60	15	0.3	CR306	8400	10080	5	50	250	1.5	CR334	6000	7200	17	50	400	1.5
CR107	7000	8400	0.550	60	15	0.3	CR307	9600	11520	5	50	250	1.5	CR335	7200	8640	17	50	400	1.5
CR108	8000	9600	0.550	60	15	0.3	CR311	2400	2880	9	50	250	1.5	CR341	2400	2880	23	50	850	1.5
CR109	9000	10800	0.550	60	15	0.3	CR312	3600	4320	9	50	250	1.5	CR342	3600	4320	23	50	850	1.5
CR110	10000	12000	0.550	60	15	0.3	CR313	4800	5760	9	50	250	1.5	CR343	4800	5760	23	50	850	1.5
CR201	1500	1800	0.3	60	9	0.1	CR314	6000	7200	9	50	250	1.5	CR344	6000	7200	23	50	850	1.5
CR202	3000	3600	0.3	60	9	0.1	CR315	7200	8640	9	50	250	1.5	CR351	2400	2880	35	50	850	1.5
CR204	4500	5400	0.3	60	9	0.1	CR316	8400	10080	9	50	250	1.5	CR352	3600	4320	35	50	850	1.5
CR206	6000	7200	0.3	60	9	0.1	CR317	9600	11520	9	50	250	1.5	CR353	4800	5760	35	50	850	1.5
CR208	8000	9600	0.3	60	9	0.1	CR321	2400	2880	12	50	400	1.5	CR354	6000	7200	35	50	850	1.5
CR210	10000	12000	0.3	60	9	0.1	CR322	3600	4320	12	50	400	1.5							
CR212	12000	14400	0.3	60	9	0.1	CR323	4800	5760	12	50	400	1.5							

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	1-99	100-999		1-99	100-999		1-99	100-999		1-99	100-999
1N248C, RC	\$ 1.65	\$1.14	1N1763A	\$ 0.42	\$0.29	2N371	\$ 0.80	\$0.55	2N955A	\$ 4.82	\$3.33
1N249B, RC	2.89	2.00	1N1764A	.58	.40	2N372	.80	.55	2N1010	2.89	2.00
1N249C, RC	2.06	1.43	1N1765A	6.11	4.22	2N373	1.88	1.30	2N1023	2.72	1.88
1N250B, RC	3.55	2.45	1N2326	.50	.35	2N384	1.65	1.14	2N1066	1.98	1.37
1N250C, RC	2.72	1.88	1N2858A	.37	.25	JAN2N384	3.30	2.28	2N1090	1.11	.77
1N440B	.66	.46	1N2859A	.38	.27	2N388	.60	.41	2N1091	1.41	.97
1N441B	.70	.48	1N2860A	.40	.28	JAN2N388	.61	.42	2N1092	10.75	7.40
1N442B	.80	.55	1N2861A	.43	.30	2N388A	1.04	.72	2N1099	4.31	2.98
1N443B	.98	.68	1N2862A	.61	.43	2N395	.50	.35	2N1100	5.02	3.47
1N444B	1.06	.73	1N2863A	.66	.46	2N396	.61	.43	2N1177	.83	.57
1N445B	1.42	.98	1N2864A	.83	.57	2N396A	.61	.43	2N1178	.81	.56
1N536	.45	.31	1N3128	6.35	4.39	2N397	1.11	.77	2N1179	.81	.56
1N537	.50	.35	1N3129	7.59	5.24	2N398	1.13	.78	2N1180	1.68	1.17
1N538	.53	.37	1N3130	8.17	5.64	USN2N398	1.27	.88	2N1183	1.82	1.25
JAN1N538	.38	.27	1N3193	.35	.24	2N398A	1.24	.86	USA2N1183	2.64	1.82
1N539	.60	.41	1N3194	.38	.27	2N398B	1.44	1.00	USA2N1183A	2.31	1.60
1N540	.68	.47	1N3195	.66	.46	2N404	.47	.32	USA2N1183A	3.30	2.28
JAN1N540	1.23	.85	1N3196	.91	.63	JAN2N404	.50	.35	2N1183B	2.89	2.00
1N547	.96	.67	1N3253	.40	.28	2N404A	.75	.52	USA2N1183B	3.88	2.68
JAN1N547	.73	.51	1N3254	.45	.31	3907/2N404	1.08	.75	2N1184	2.48	1.71
1N1095	.88	.61	1N3255	.70	.48	2N405	.37	.25	USA2N1184	3.71	2.57
USA2N1183	3.30	2.28	1N3256	.94	.65	2N406	.33	.23	2N1184A, R	2.81	1.94
1N1183A, RA	2.15	1.48	1N3563	1.65	1.14	2N407	.42	.29	USA2N1184A	4.04	2.79
USA2N1184	3.75	2.59	1N3754	.32	.22	2N408	.38	.27	2N1184B	4.13	2.85
1N1184A, RA	2.48	1.71	1N3755	.32	.22	2N409	.43	.30	USA2N1184B	5.36	3.71
USA2N1185	4.79	3.31	1N3756	.35	.24	2N410	.40	.28	2N1224	1.24	.86
USA2N1186	5.20	3.59	1N3847	4.95	3.42	2N411	.47	.32	USA2N1224	1.41	.97
1N1186A, RA	3.55	2.45	1N3848	4.95	3.42	2N412	.43	.30	2N1225	1.57	1.09
USA2N1187	6.60	4.56	1N3849	4.95	3.42	2N413	.42	.29	USA2N1225	1.67	1.09
1N1187A, RA	4.95	3.42	1N3850	4.95	3.42	2N414	.42	.29	2N1226	1.49	1.03
USA2N1188	7.84	5.42	1N3851	4.95	3.42	2N442	2.31	1.60	2N1285	1.72	1.19
1N1188A, RA	6.19	4.28	1N3852	6.35	4.39	2N443	2.39	1.65	2N1300	.91	.63
USA2N1189	9.50	6.55	1N3853	5.94	4.10	2N581	.50	.35	2N1301	1.04	.72
1N1189A, RA	7.43	5.13	1N3854	7.59	5.24	2N582	.91	.63	2N1302	.50	.35
USA2N1190	11.55	8.00	1N3855	8.17	5.64	2N585	.99	.69	JAN2N1302	.52	.36
1N1190A, RA	8.65	6.00	1N3856	8.17	5.64	2N586	1.73	1.20	USN2N1302	.52	.36
1N1195A, RA	3.88	2.68	1N3857	8.58	5.95	2N591	.48	.34	2N1303	.50	.35
1N1196A, RA	4.95	3.42	1N3858	6.52	4.50	2N645	2.64	1.82	JAN2N1303	.52	.36
1N1197A, RA	5.94	4.10	1N3859	8.17	5.64	2N646	1.82	1.25	USN2N1303	.52	.36
1N1198A, RA	7.01	4.85	1N3860	10.73	7.40	2N647	1.08	.75	2N1304	.60	.42
USA2N1199	1.90	1.31	1N3861	6.19	4.28	2N649	.86	.60	JAN2N1304	.65	.45
1N1199A, RA	1.24	.86	1N3862	7.67	5.30	2N681	3.30	2.28	USN2N1304	.65	.45
1N1200A, RA	1.41	.97	1N3863	9.41	6.50	2N682	4.13	2.85	2N1305	.60	.42
USA2N1200	2.15	1.48	1N4785	1.65	1.14	2N683	6.19	3.75	JAN2N1305	.65	.45
1N1201A, RA	2.64	1.82	2N1094	1.65	1.14	2N684	6.35	4.39	USN2N1305	.65	.45
1N1202A, RA	2.48	1.71	2N1099	1.60	.40	2N685	6.60	4.56	2N1306	.80	.55
USA2N1202	3.14	2.17	2N139	.16	.81	2N686	7.01	4.85	JAN2N1306	.86	.60
1N1203A, RA	3.47	2.39	2N140	1.24	.86	2N687	7.43	5.13	USN2N1306	.86	.60
USA2N1203	4.29	2.96	2N173	3.75	2.59	2N688	8.65	6.00	2N1307	.80	.55
1N1204A, RA	4.46	3.08	2N174	4.01	2.77	2N689	10.30	7.15	JAN2N1307	.86	.60
USA2N1204	5.28	3.65	JAN2N174	4.77	3.29	2N690	11.95	8.25	USN2N1307	.86	.60
1N1205A, RA	5.36	3.71	2N175	1.64	1.13	2N697	.81	.56	2N1308	1.08	.75
USA2N1205	6.19	4.28	2N176	1.31	.79	2N699	1.57	1.09	JAN2N1308	1.16	.80
1N1206A, RA	6.19	4.28	2N175	1.73	1.20	2N705	1.98	1.37	USN2N1308	1.16	.80
USA2N1206	7.01	4.85	2N217	.52	.36	2N706	.99	.69	2N1309	1.08	.75
1N1341B, RB	1.16	.80	2N218	1.16	.80	2N706A	1.19	.82	JAN2N1309	1.16	.80
1N1342B, RB	1.32	.92	2N219	1.24	.86	2N708	1.32	.92	USN2N1309	1.16	.80
1N1344B, RB	2.15	1.48	2N220	1.52	1.05	2N709	1.65	1.14	2N1358	4.59	3.17
1N1345B, RB	3.05	2.11	JAN2N220	2.06	1.43	2N710	1.73	1.20	USN2N1358	2.08	1.43
1N1346B, RB	3.96	2.74	2N270	.83	.57	2N711	1.16	.80	2N1395	1.49	1.03
1N1347B, RB	4.79	3.31	2N274	1.24	.86	2N718A	1.08	.75	2N1396	1.65	1.14
1N1348B, RB	5.78	3.99	USA2N274	1.48	1.05	2N720A	1.32	.92	2N1397	2.15	1.48
1N1612, R	1.07	.75	2N277	2.72	1.88	2N834	3.05	2.11	2N1412	5.76	3.98
1N1613, R	1.24	.86	2N278	3.10	2.14	2N914	1.57	1.09	USN2N1412	6.52	4.50
1N1614, R	1.90	1.31	2N307	1.49	1.03	2N917	6.19	4.28	2N1479	2.15	1.48
1N1615, R	3.71	2.57	2N351	1.73	1.20	2N918	7.01	4.85	USA2N1479	2.56	1.77
1N1616, R	5.36	3.71	2N370	.81	.56	2N955	4.31	2.98	2N1480	2.31	1.60

RCA SEMICONDUCTOR PRICING CONTINUED ON FOLLOWING PAGE





# RCA Semiconductor Pricing

## DIODES, TRANSISTORS AND RECTIFIERS PRICING (CONT'D)

RCA Type	Net Ea., Lots of		RCA Type	Net Ea., Lots of		RCA Type	Net Ea., Lots of		RCA Type	Net Ea., Lots of	
	1-99	100-999		1-99	100-999		1-99	100-999		1-99	100-999
USA2N1480	\$ 2.72	\$ 1.88	2N2631	\$21.46	\$14.80	40113, R	\$ 6.60	\$ 4.56	40295	\$ 14.85	\$ 10.25
2N1481	2.48	1.71	2N2708	5.78	3.99	40116, R	9.50	6.55	40296	48.70	33.65
USA2N1481	2.89	2.00	USA2N2708	7.01	4.85	40208	.99	.69	40299	5.78	3.99
2N1482	3.30	2.28	2N2857	24.75	17.10	40208R	1.19	.83	40305*	24.75	17.10
USA2N1482	3.71	2.57	2N2869/2N301	1.52	1.05	40209, R	1.32	.92	40306*	49.50	34.20
2N1483	2.89	2.00	2N2870/2N301A	3.15	2.18	40210, R	1.78	1.23	40307*	66.00	45.60
USA2N1483	3.71	2.57	2N2876	29.70	20.50	40211, R	2.19	1.65	40309	.70	.48
2N1484	3.63	2.51	2N2895	1.41	.97	40212, R	2.79	2.00	40310	1.21	.84
USA2N1484	4.46	3.08	2N2896	2.06	1.43	40213, R	3.63	2.51	40311	.73	.51
2N1485	4.46	3.08	2N2897	1.16	.80	40214, R	4.21	2.91	40312	1.26	.87
USA2N1485	5.28	3.65	2N2898	2.48	1.71	40216	48.00	33.35	40313	2.23	1.54
2N1486	6.77	4.67	2N2899	1.30	2.28	40217	.99	.69	40314	.78	.54
USA2N1486	7.59	5.24	2N2900	1.90	1.31	40218	1.19	.82	40315	.75	.52
2N1487	4.54	3.14	2N2938	2.15	1.48	40219	1.32	.92	40316	1.21	.84
USA2N1487	5.36	3.71	2N2953	.50	.35	40220	3.05	2.11	40317	.78	.54
2N1488	4.95	3.42	2N3053/40053	.99	.69	40221	1.57	1.09	40318	2.10	1.45
USA2N1488	5.78	3.99	2N3054	2.06	1.43	40222	1.24	.86	40319	1.32	.92
2N1489	7.43	5.13	2N3055	2.89	2.00	40231	.53	.37	40320	.78	.54
USA2N1489	8.25	5.70	2N3118	4.95	3.42	40232	.60	.41	40321	1.24	.86
2N1490	8.25	5.70	2N3119	5.36	3.71	40233	.66	.46	40322	2.15	1.48
USA2N1490	9.08	6.25	2N3228	1.62	1.12	40234	.47	.32	40323	.70	.48
2N1491	4.13	2.85	2N3229	46.20	31.90	40235	.98	.68	40324	1.21	.84
2N1492	6.60	4.56	2N3230	66.00	45.60	40236	.90	.62	40325	2.48	1.71
2N1493	9.90	6.85	2N3231	99.00	68.40	40237	.83	.57	40326	.78	.54
USA2N1493	7.43	5.13	2N3232	.73	.51	40238	.83	.57	40327	1.24	.86
2N1511	4.25	2.90	2N3242	.96	.67	40239	.81	.56	40328	2.19	1.52
USA2N1511	10.31	7.15	2N3261	3.30	2.28	40240	.80	.55	40329	.38	.27
2N1512	9.90	6.85	2N3262	9.90	6.85	40242	.93	.64	40330	16.50	11.40
USA2N1512	11.96	8.25	2N3263	99.00	68.40	40243	.86	.60	40331	33.00	22.80
2N1513	12.40	8.55	2N3264	66.00	45.60	40244	.83	.57	40332	49.50	34.20
USA2N1513	14.44	10.00	2N3265	99.00	68.40	40245	.81	.56	40333	6.60	4.56
2N1514	16.50	11.40	2N3266	66.00	45.60	40246	.80	.55	40334	6.60	4.56
USA2N1514	18.56	12.85	2N3375	23.10	15.95	40250	1.57	1.09	40336	1.82	1.25
2N1524	.40	.28	2N3435	7.43	5.13	40251	2.89	2.00	40337	8.00	5.53
2N1525	.43	.30	2N3439	4.13	2.85	40253	.53	.37	40338	11.55	8.00
2N1526	.42	.29	2N3440	2.06	1.43	40254	.78	.54	40339	14.05	9.70
2N1527	.47	.32	2N3441	2.89	2.00	40255	4.79	3.33	40340	33.00	22.80
2N1605	.99	.69	2N3442	4.95	3.42	40256	2.72	1.88	40341	33.00	22.80
2N1606A	1.26	.87	2N3478	1.90	1.31	40258	.78	.54	40342*	135.00	90.00
2N1613	1.08	.74	2N3512	3.71	2.57	40259	14.10	9.75	40343*	145.00	96.00
2N1631	.53	.37	2N3525	2.04	1.43	40261	.43	.30	40344	.48	.34
2N1632	.50	.35	2N3526	1.63	1.12	40262	.40	.28	40345	.52	.36
2N1637	.52	.38	2N3529	2.64	1.82	40263	.42	.29	40346	1.14	.79
2N1638	.45	.31	2N3553	8.09	5.59	40264	1.21	.84	40347	.80	.55
2N1639	.48	.34	2N3558	3.30	2.28	40265	.35	.24	40348	1.06	.73
2N1683	1.65	1.14	2N3584	6.60	4.56	40266	.29	.20	40349	1.56	1.08
2N1700	1.90	1.31	2N3585	13.20	9.10	40267	.33	.23	40350	.98	.68
2N1701	2.31	1.60	2N3600	6.60	4.56	40268	5.36	3.71	40351	.83	.57
2N1702	4.54	3.14	2N3632	33.00	22.80	40269	.40	.28	40352	.81	.56
2N1703	5.78	3.99	2N3668	2.89	2.00	40273	.42	.29	40360	1.03	.71
2N1708	3.30	2.28	2N3669	3.27	2.26	40278	181.50	125.40	40361	1.04	.72
2N1711	1.16	.80	2N3670	4.92	3.40	40279*	125.00	85.00	40362	1.46	1.01
2N1768	8.25	5.70	2N3730	1.65	1.14	40280	8.09	5.59	40363	2.48	1.71
2N1769	10.73	7.40	2N3731	2.48	1.71	40281	23.10	15.95	40364	4.46	3.08
2N1770	5.36	3.71	2N3732	1.65	1.14	40282	33.00	22.80	40365	2.31	1.60
2N1771	5.78	3.99	2N3733	49.50	34.20	40283	3.71	2.57	40377	.70	.48
2N1772	7.43	5.13	2N3771	5.78	3.99	40285	42.90	29.65	40378	1.62	1.12
2N1773	9.49	6.55	2N3772	5.78	3.99	40287	24.75	17.10	40379	2.64	1.82
2N1774	13.96	8.25	2N3773	7.43	5.13	40290	9.10	6.25	40380	1.49	1.03
2N1775	14.03	9.70	2N3866	4.95	3.42	40291	25.95	16.55	40381	1.21	.84
2N1776	16.09	11.10	2N3870	4.70	3.25	40292	29.70	20.50			
2N1777	20.65	14.25	2N3871	5.12	3.53	40294	33.40	23.10			
2N1778	24.75	17.10	2N3872	7.18	4.96						
2N1842A	2.89	2.00	2N3873	10.50	7.25						
2N1843A	3.71	2.57	2N3878	4.54	3.14						
2N1844A	5.78	3.99	2N3879	5.36	3.71						
2N1845A	5.94	4.10	2N3896	4.95	3.42						
2N1846A	6.19	4.28	2N3897	5.36	3.71						
2N1847A	6.60	4.56	2N3898	7.43	5.13						
2N1848A	7.01	4.85	2N3899	10.75	7.40						
2N1849A	8.25	5.70	2N3912	2.06	1.43						
2N1850A	9.90	6.85	2N3933	2.31	1.60						
2N1851	1.32	.92	3N98	27.00	18.65						
USN2N1851	1.32	.92	3N99	27.00	18.65						
2N1854	1.65	1.14	40004	1.65	1.14						
USN2N1854	1.65	1.14	40005	1.82	1.25						
2N1893	1.32	.92	40006	3.30	2.28						
2N1905	4.13	2.85	40022	.83	.57						
2N1906	6.60	4.56	40050	1.08	.75						
2N2015	9.08	6.25	40051	1.29	.89						
USA2N2015	9.90	6.85	40054	14.00	9.70						
2N2016	9.90	6.85	40055	16.00	11.05						
USA2N2016	10.73	7.40	40056	18.00	12.45						
2N2102	1.41	.97	40057	20.00	13.70						
S2N2102	18.94	13.10	40058	9.90	6.85						
2N2147	2.06	1.43	40059	8.66	6.00						
2N2148	1.24	.86	40060	9.90	6.85						
2N2205	1.24	.86	40061	8.66	6.00						
2N2206	3.71	2.57	40062	9.90	6.85						
2N2208	1.54	1.06	40063	8.66	6.00						
2N2210	10.13	7.00	40064	9.90	6.85						
2N2270	1.16	.80	40065	8.66	6.00						
2N2271	3.05	2.11	40077	100.00	69.10						
USA2N2273	3.05	2.11	40077	24.75	17.10						
2N2304	4.29	2.96	40078	7.00	4.85						
2N2305	6.44	4.45	40080	1.08	.75						
2N2338	6.60	4.56	40081	1.65	1.14						
2N2339	4.95	3.42	40082	9.82	6.80						
2N2405	2.06	1.43	40084	.99	.69						
2N2475	2.56	1.77	40105, R	.99	.69						
2N2476	2.89	2.00	40109, R	1.16	.80						
2N2477	3.30	2.28	40110, R	1.57	1.09						
2N2482	6.19	4.28	40111, R	2.15	1.48						
2N2594	1.98	1.37	40112, R	2.48	1.71						
2N2613	.55	.38	40113, R	3.14	2.17						
2N2614	.50	.35	40114, R	3.71	2.57						

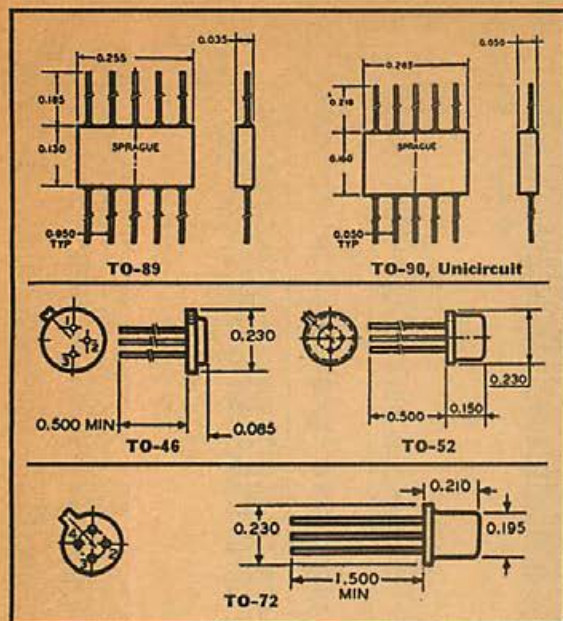
\*Shipped direct to the end user due to technical specifications of the unit.

### SILICON RECTIFIER ASSEMBLIES

RCA Type	Net Ea., Lots of		RCA Type	Net Ea., Lots of	
	1-29	30 Up		1-29	30 Up
CR101	\$ 5.75	\$ 5.47	CR332	\$52.00	\$49.40
CR102	7.20	6.85	CR333	65.00	61.75
CR103	8.15	7.75	CR334	79.00	75.05
CR104	9.60	9.10	CR335	93.00	88.35
CR105	10.55	10.05	CR341	44.00	41.80
CR106	12.00	11.40	CR342	58.00	55.35
CR107	12.95	12.30	CR343	73.00	71.10
CR108	13.90	13.20	CR344	94.00	89.30
CR109	15.35	14.60	CR351	46.00	43.70
CR110	16.30	15.50	CR352	64.00	60.80
CR201	3.10	2.96	CR353	82.00	72.90
CR203	4.80	4.58	CR354		



# SPRAGUE Semiconductors



## UNICIRCUIT® MONOLITHIC NETWORKS

Size: .265" w. x .050" d. x .160" h.; pin, .218". Other sizes available.

Sprague Type	Function	Pwr. Diss., mW VCC=3V/VCC=6V	Fan Out	Net Ea., 1-24
US-0100B	RS flip-flop/counter/shift register	2/7	4	\$29.95
US-0101B	8 input Nor/Nand gate	2/7	5	29.95
US-0102B	Dual 3 input Nor/Nand gate	2/7	5/5	29.95
US-0104B	Exclusive Or ckt.	3/11	4/5	29.95
US-0105B	Dual 2 input Nor/Nand gate	2/7	25/5	29.95
US-0107B	Clock driver ckt.	3/12	20	37.05
US-0108B	Single shot multivibrator	4/45	5	39.45
US-0109B	Pulse exclusive Or	5.5/22	5	33.25
US-0110B	RS flip-flop with dual resets	2/7	4	36.70
US-0111B	Triple 2 input Nor/Nand gate	3/12	4/20	38.00
US-0112B		2/7	5/5/5	32.20
US-0113B		stage	stage	34.85

\*Per stage, gate "on". †Output clamped, 5 mW. ‡Output clamped, 25 mW. §To AC loads only. ¶Low input, 15 mW. \*Internal pulse width: 1-3  $\mu$ sec, VCC=3 V; 8-2.8  $\mu$ sec, VCC=6 V. †Output clamped, 6 mW. \*Output clamped, 24 mW. ‡5/5/5/5.

## PNP SILICON DUAL EMITTER CHOPPER—DUET

Case: TO-90. P<sub>a</sub>: 200 mW max. at 25° C. T<sub>v</sub>: 200° C. V<sub>CEO</sub>: 50 V. I<sub>BE1E2</sub>: 1 nA. ( $\Delta$ VO)<sub>IB</sub>: 25  $\mu$ V. T<sub>IC12</sub>: 100 ohms. C<sub>cb</sub>: 3 pF.

Sprague Type	V <sub>BE1</sub> V	V <sub>BE2</sub> V	V <sub>CEO</sub> V	(VO) <sub>A,B</sub> ( $\mu$ V)	( $\Delta$ VO) <sub>A,B</sub> ( $\mu$ V)	T <sub>A</sub> ( $\mu$ V)	C <sub>cb</sub> pF	Net Ea., 1-99	100-999
3N112	30	30	50	20	75	8	8	\$63.00	\$42.00
3N113	50	50	50	20	75	8	8	92.00	68.00
UD-1000	20	20	100	100	125	8	8	33.00	22.00
UD-1001	30	30	100	100	125	10	10	52.50	35.00
UD-2000*	50	30	9	.....	5	10	10	40.50	27.00

\*P<sub>a</sub>, 50 mW max. at 25° C; T<sub>v</sub>, 50° C; C<sub>cb</sub>, 40 pF.

## PNP SILICON DIFFERENTIAL AMPLIFIERS

Similar to 2N2904. Ratings at I<sub>C</sub>=100  $\mu$ A except as noted.

Type	Case	V <sub>CEO</sub> V	hFE	hFE1/hFE2	V <sub>BE1-V<sub>BE2</sub></sub> mV	Net Ea., 1-99	100-999
2N2802	TO-5	25	20/120	.9	5	\$49.50	\$33.00
2N2803	TO-5	25	20/120	.8	10	28.50	19.00
2N2804	TO-5	25	20/120	.....	.....	25.50	17.00
2N2805	TO-5	25	40/120	.9	5	60.00	40.00
2N2806	TO-5	25	40/120	.8	10	42.00	28.00
2N2807	TO-5	25	40/120	.....	.....	27.00	18.00
2N3049	TO-89	25	30/120	.9	5	57.00	38.00
2N3050	TO-89	25	30/120	.8	10	49.50	33.00
2N3051	TO-89	25	40/120	.....	.....	39.00	26.00
2N3347	TO-5	60	40/300†	.9	5†	39.00	26.00
2N3348	TO-5	60	40/300†	.8	10†	27.00	18.00
2N3349	TO-5	60	40/300†	.6	20†	18.00	12.00
2N3350	TO-5	60	100/300†	.9	5†	54.00	36.00
2N3351	TO-5	60	100/300†	.8	10†	42.00	28.00
2N3352	TO-5	60	100/300†	.6	20†	30.00	20.00

\*At 10  $\mu$ A.

## NPN SILICON DIFFERENTIAL AMPLIFIERS

Similar to 2N2218 or 2N2930. Ratings at I<sub>C</sub>=100  $\mu$ A except noted.

Sprague Type	Case	V <sub>CEO</sub> V	hFE	hFE1/hFE2	V <sub>BE1-V<sub>BE2</sub></sub> mV	Net Ea., 1-99	100-999
2N2453	TO-5	60	150/600*	.9*	3†	\$40.50	\$27.00
2N2480	TO-5	75	20	.8	10	13.50	9.00
2N2639	TO-5	45	55	.9†	5†	31.50	21.00
2N2640	TO-5	45	55	.8†	10†	22.50	15.00
2N2641	TO-5	45	55	.....	.....	10.50	7.00
2N2642	TO-5	45	110	.9†	5†	40.50	27.00
2N2643	TO-5	45	110	.8†	10†	37.50	25.00
2N2644	TO-5	45	110	.....	.....	18.00	12.00
2N2720	TO-5	80	30/120	.9	5	27.00	18.00
2N2721	TO-5	80	30/120	.9	10	24.00	16.00
2N2722	TO-5	45	50/250	.8	5	54.00	36.00
2N2903	TO-5	60	60†	.8	10†	22.50	15.00
2N2903A	TO-5	60	60†	.9	5†	31.50	21.00
2N2910	TO-5	45	70	.8	10	13.50	9.00
2N2913	TO-5	45	100	.....	.....	18.00	12.00
2N2914	TO-5	45	225	.....	.....	22.50	15.00
2N2915	TO-5	45	100	.9	3	45.00	30.00
2N2916	TO-5	45	225	.9	3	48.00	32.00
2N2917	TO-5	45	100	.8	5	27.00	18.00
2N2918	TO-5	45	225	.8	5	33.00	22.00
2N2919	TO-5	60	100	.9	3	48.00	32.00
2N2920	TO-5	60	225	.9	3	54.00	36.00
2N2936	TO-5	60	110	.9	5	54.00	36.00
2N2937	TO-5	60	110	.....	.....	21.00	14.00
2N2972	TO-18	45	100	.....	.....	19.50	13.00
2N2973	TO-18	45	225	.....	.....	24.00	16.00
2N2974	TO-18	45	100	.9	3	51.00	34.00
2N2975	TO-18	45	225	.9	3	60.00	40.00
2N2976	TO-18	45	100	.8	5	28.50	19.00
2N2977	TO-18	45	225	.8	5	33.00	22.00
2N2978	TO-18	60	100	.9	3	57.00	38.00
2N2979	TO-18	60	225	.9	3	69.00	46.00
2N3043	TO-89	45	100/300†	.9†	5†	58.50	39.00
2N3044	TO-89	45	100/300†	.8†	10†	51.00	34.00
2N3045	TO-89	45	100/300†	.....	.....	33.00	22.00
2N3046	TO-89	45	50/200†	.9†	5†	55.50	37.00
2N3047	TO-89	45	50/200†	.8†	10†	42.00	28.00
2N3048	TO-89	45	50/200†	.....	.....	25.50	17.00
2N3052	TO-89	35	12/120*	.85*	10*	39.00	26.00
2N3409	TO-5	60	30	.8	10	18.00	12.00
2N3410	TO-5	60	30	.9	10	24.00	16.00
2N3411	TO-5	60	30	.9	5	36.00	24.00
2N3520	TO-89	60	80†	.9*	3†	45.00	30.00
2N3521	TO-89	60	80†	.8*	5†	37.50	25.00
2N3522	TO-18	70	100/300†	.8*	5†	37.50	25.00
2N3587	TO-5	60	80/600*	.8*	20*	12.00	8.00

\*At 1 mA. †At 10  $\mu$ A. ‡6 leads. §Low-silhouette, 6-lead pkg., 0.180" h. from base. ¶mV.

## SEPT® PNP SILICON TRANSISTORS

HIGH SPEED MEDIUM CURRENT TYPES

Min. fr. 200 Mc.

Sprague Type	Case	V <sub>CEO</sub> V	P <sub>d</sub> (25°C) mW	I <sub>CB</sub> nA	I <sub>C</sub> 1mA	I <sub>C</sub> 150mA	C <sub>cb</sub> pF	hFE at	Net Each
2N2904	5	60	600	20	25	40-120	8	5	7.50
2N2904A	5	60	600	10	40	40-120	8	5	10.50
2N2905	5	60	600	20	50	100-300	8	9	9.00
2N2905A	5	60	600	10	100	100-300	8	12	12.00
2N2906	18	60	400	20	25	40-120	8	7	7.20
2N2906A	18	60	400	10	40	40-120	8	10	10.50
2N2907	18	60	400	20	50	100-300	8	8	8.70
2N2907A	18	60	400	10	100	100-300	8	11	11.55
2N3133	5	50	600	50	25	40-120	10	4	4.95
2N3134	5	50	600	50	50	100-300	10	5	5.85
2N3135	18	50	400	50	25	40-120	10	4	4.95
2N3136	18	50	400	50	50	100-300	10	5	5.85

Max. Ratings: P<sub>d</sub>, 400 mW at 25° C except noted; T<sub>v</sub>, 200° C; I<sub>C</sub>, 100 mA. Case, TO-46 except noted.

## SWITCHES, AMPLIFIERS AND CHOPPERS

Sprague Type	V <sub>CB</sub> V	Max. I <sub>C</sub> mA	hFE	Max. C <sub>cb</sub> pF	Max. V <sub>off</sub> mV	Max. r <sub>s</sub> Ohms	Min. fr Mc	Net Ea., 1-99	100-999
2N2944	15	-1	80-450	10†	6†	20	10	5	5.75
2N2945	25	-2	40-250	10†	1.0†	35	5	5.00	3.85
2N2946	40	-.5	30-150	10†	2.0†	45	3	5.75	3.35
2N3217	15	1.0	.....	14†	1.0†	20	1	3.30	2.20
2N3218	25	1.0	.....	14†	2.0†	35	1	3.00	2.00
2N3219	40	1.0	.....	14†	3.0†	45	1	3.30	2.20
2N3840	50	-.5	50 min.	9†	2.0†	20	6	9.60	6.40
2N3841*	100	2	20 min.	9†	2.0†	25	1.5	8.70	5.80
2N3842*	120	20	10 min.	9†	3.0†	40	1	15.30	10.20

\*P<sub>d</sub>, 300 mW; case, TO-18. †C<sub>cb</sub> approx. 1/2 less. ‡I<sub>B</sub>, 1 mA.

## ULTRA LOW-LEVEL AMPLIFIERS

Sprague Type	V <sub>CB</sub> V	Max. I <sub>C</sub> mA	hFE	Max. C <sub>cb</sub> pF	Max. V <sub>off</sub> mV	Max. r <sub>s</sub> Ohms	Min. fr Mc	Net Ea., 1-99	100-999
2N3058	6	-.1	40-120	10	.....	.....	.....	\$18.00	12.00
2N3059	10	-.1	100-300	10	.....	.....	.....	14.25	9.50

## GENERAL-PURPOSE AMPLIFIERS

Sprague Type	V <sub>CB</sub> V	Max. I <sub>C</sub> mA	hFE	Max. C <sub>cb</sub> pF	Max. V <sub>off</sub> mV	Max. r <sub>s</sub> Ohms	Min. fr Mc	Net Ea., 1-99	100-999
2N3060	70	5	30-90†	10*	.....	.....	.....	\$ 3.45	\$2.30
2N3061	70	5	60-180†	10*	.....	.....	.....	4.95	3.30
2N3062	90	5	20-80†	10*	.....	.....	.....	3.90	2.60
2N3063	90	5	50-150†	10*	.....	.....	.....	5.70	3.80
2N3064	110	5	15-45†	10*	.....	.....	.....	3.45	2.30
2N3065	110	5	30-90†	10*	.....	.....	.....	5.10	3.45

†I<sub>B</sub>, 0.2 mA. ‡h<sub>FE</sub> max. is approx. 1/2 higher than hFE max. \*Typ.



# SPRAGUE Silicon Transistors

## SEPT® NPN SILICON PLANAR EPITAXIAL

### HIGH SPEED

Cob. 8 pF except 2N2476 and 2N2477, 10 pF.

Sprague Type	Case TO-	Max. Ratings			hFE at IC =		Min. f <sub>T</sub> Mc	Net Ea., Lots	100-999	
		V <sub>CB0</sub> V	P <sub>d</sub> * mW	I <sub>C</sub> mA	150 mA	10 mA				
2N2217	5	60	8	8	10	20-60	17	250	\$3.35	\$2.25
2N2218	5	60	8	8	10	40-120	35	250	3.35	2.50
2N2218A	5	75	8	8	10	40-120	35	250	3.75	2.25
2N2219	5	60	8	8	10	100-300	75	250	3.95	2.65
2N2219A	5	75	8	8	10	100-300	75	300	4.35	2.90
2N2220	18	60	5	8	10	20-60	17	250	3.35	2.25
2N2221	18	60	5	8	10	40-120	35	250	3.35	2.25
2N2221A	18	75	5	8	10	40-120	35	250	3.75	2.50
2N2222	18	60	5	8	10	100-300	75	250	3.95	2.65
2N2222A	18	75	5	8	10	100-300	75	300	4.35	2.90
2N2476	5	60	6	8	200	20	...	250	2.85	1.90
2N2477	5	60	6	8	200	40	...	250	3.30	2.20
2N2537	5	60	8	8	250	50-150	30	250	4.95	3.30
2N2538	5	60	8	8	250	100-300	50	250	5.85	3.90
2N2539	18	60	6	8	250	50-150	30	250	4.95	3.30
2N2540	18	60	6	8	250	100-300	50	250	5.85	3.90
2N2787	5	75	8	8	10	20-60	17	250	5.80	4.30
2N2788	5	75	8	8	10	40-120	35	250	5.80	4.30
2N2789	5	75	8	8	10	100-300	75	250	6.65	4.35
2N2790	18	75	6	8	10	20-60	17	250	5.80	4.30
2N2791	18	75	6	8	10	40-120	35	250	5.80	4.30
2N2792	18	75	6	8	10	100-300	75	250	6.65	4.35
2N2845	18	60	36	8	200	30-120	...	250	4.95	3.30
2N2846	5	60	8	8	200	30-120	...	250	4.95	3.30
2N2847	18	60	36	8	200	40-140	...	250	5.85	3.90
2N2848	5	60	8	8	200	40-140	...	250	5.85	3.90
2N2958	5	60	6	6	25	40-120	...	250	1.80	1.20
2N2959	5	60	6	6	25	100-300	...	250	1.45	.95
2N3015	5	60	8	8	200	30-120	...	250	1.80	1.20
2N3115	18	60	4	6	25	40-120	...	250	1.80	1.20
2N3116	18	60	4	6	25	100-300	...	250	1.45	.95
TN-53	5	75	8	8	10	50	40	100	.95	.63
TN-54	18	75	8	8	10	50	40	100	.95	.63
TN-55	5	40	8	8	20	100	...	100	.75	.50
TN-60	18	40	8	8	20	100	...	100	.75	.50
TN-61	5	40	8	8	20	50	40	100	.75	.50
TN-62	18	40	8	8	20	50	40	100	.75	.50
TN-63	5	20	8	8	100	25	25	20	.60	.40
TN-64	18	20	8	8	100	25	25	20	.60	.40

\*At 25° C. †At 50 V. ‡USA type available. §Min. hFE.

### HIGH SPEED LOW LEVEL

Sprague Type	Case TO-	Max. Ratings			hFE at IC =		Min. f <sub>T</sub> Mc	Cob pF	Net Ea., Lots	100-999
		V <sub>CB0</sub> V	P <sub>d</sub> * mW	I <sub>C</sub> mA	10 mA	1 mA				
2N706	18	25	300	.5	20	min.	200	5	\$1.57	\$1.05
2N834	18	40	300	.5	20	min.	350	4	4.10	2.75
2N835	18	25	300	.5	20	min.	350	4	3.45	2.30
2N914	18	40	360	.25	30	min.	300	6	3.45	2.30
2N2368	18	40	360	.4	20-60	500	4	4.35	2.90	
2N2369	18	40	360	.4	40-120	500	4	4.65	3.10	
2N2369A	18	40	360	.4	40-120	500	4	4.65	3.10	
2N2501	18	40	360	.25	50	min.	350	4	4.80	3.20
2N3009	52	40	360	.5	30-120	350	5	8.40	5.60	
2N3011	18	30	360	.4	30-120	400	4	1.95	1.30	
2N3013	52	40	360	.3	30-120	350	5	8.85	5.90	
2N3014	52	40	360	.3	25	min.	350	5	5.40	3.60
2N3227	18	40	360	.2	100-300	500	4	4.65	3.25	

\*At 25° C. †At 20 V. ‡IC = 10 mA.

### CHOPPERS AND POWER AMPLIFIERS

Sprague Type	Case TO-	Max. Ratings			hFE at IC =		Min. f <sub>T</sub> Mc	Cob pF	Net Ea., Lots	100-999
		V <sub>CB0</sub> V	P <sub>d</sub> (25° C) mW	I <sub>C</sub> mA	10 mA	1 mA				
2N2330*	5	30	800	1	50	100	100	10	\$4.35	\$2.90
2N2331*	18	30	800	1	50	100	100	10	4.35	2.90
2N2951	5	60	800	100	20†	200	8‡	3.75	2.50	
2N2952†	18	60	800	100	20†	200	8‡	3.75	2.50	

\*Chopper—V<sub>OFF</sub>, .75 mV max. at I<sub>B</sub> = 200 μA. †Power Amplifier—Output, 600 mW min. at 50 Mc. ‡At IC = 150 mA. §C<sub>cb</sub>, 20 pF. †Maximum.

### SILICON PNP DUAL EMITTER CHOPPERS—DUET

Pd, 300 mW max. at 25° C. T<sub>J</sub>, 200° C max. Cob, 3 pF. Cob, 10 pF. Case, TO-72: Emitter, Base, Emitter, Collector except 3N108-3N111, Emitter, Base, Collector, Emitter.

Type	Max. Ratings, Volts			I <sub>E1</sub> E <sub>2</sub> 0 nA	V <sub>O</sub> * μV	F <sub>1e2</sub> Ohms	f <sub>T</sub> Mc	Net Ea., Lots	100-999
	V <sub>E1</sub> E <sub>2</sub> 0	V <sub>BE</sub> 0	V <sub>CB</sub> 0						
3N90	30	30	50	1	50	100	6	\$19.50	\$13.00
3N91	30	30	50	1	100	100	6	16.50	11.00
3N92	30	30	50	1	200	100	6	13.50	9.00
3N93	50	50	50	1	50	75	6	34.50	23.00
3N94	50	50	50	1	100	75	6	28.50	19.00
3N95	50	50	50	1	200	100	6	22.50	15.00
3N108	50	50	50	0.1	30	50	12	40.50	27.00
3N109	50	50	50	0.1	150	50	12	28.50	19.00
3N110	30	30	50	0.5	30	50	12	24.00	16.00
3N111	30	30	50	0.5	150	50	12	15.00	10.00
3N114	12	12	30	1	50	50	20	13.50	9.00
3N115	12	12	30	1	100	50	20	10.50	7.00
3N116	12	12	30	1	200	50	20	7.50	5.00
3N117	20	20	50	1	50	50	20	15.00	10.00
3N118	20	20	50	1	100	50	20	12.00	8.00
3N119	20	20	50	1	200	50	20	9.00	6.00

\*TA(1) = -25° C, TA(2) = +100° C, I<sub>B</sub> = 1 mA.

### LOW NOISE

Sprague Type	Case TO-	Max. Ratings			hFE at IC =	Max. nF db	Cob pF	Net Ea., Lots	1-99	100-999
		V <sub>CB0</sub> V	P <sub>d</sub> * mW	I <sub>C</sub> mA						
2N2929	18	45	300	10	40-120	4	8	\$4.50	\$3.00	
2N2930	18	45	300	10	100-300	3	8	6.00	4.00	
TN-55	5	40	800	10	100	2‡	8	1.35	.90	
TN-56	18	40	800	10	100	2‡	8	1.35	.90	

\*At 25° C. †Broadband, IC = 10 μA, V<sub>CE</sub> = 5 V. ‡Typical.

### PNP SILICON PLANAR TRANSISTORS FOR ALLOY TRANSISTOR REPLACEMENT

Sprague Type	Case TO-	Max. Ratings			Max. I <sub>CB0</sub> μA	h <sub>FE</sub> or *hFE Min.-Max.	Typ. Cob pF	Net Each	1-99	100-999
		T <sub>J</sub> °C	V <sub>CB</sub> V	P <sub>d</sub> at -IC mW/μA						
2N327A	5	160	50	385	100	1	9*-22*	7	\$2.25	\$1.50
2N327B	5	200	50	385	100	.001	9*-22*	7	2.60	1.75
2N328A	5	160	50	385	100	.1	18*-44*	7	4.50	3.00
2N328B	5	200	50	385	100	.001	18*-44*	7	4.85	3.25
2N329A	5	160	50	385	100	.1	36*-88*	7	6.50	4.35
2N329B	5	200	50	385	100	.001	36*-88*	7	6.90	4.60
2N330A	5	160	50	385	100	.1	25 typ.	7	4.80	3.20
2N923	18	200	40	250	100	.025	12-30	7	4.95	3.30
2N924	18	200	40	250	100	.025	24-70	7	7.10	4.75
2N925	18	200	50	250	100	.025	10-24	7	6.15	4.10
2N926	18	200	50	250	100	.025	20-55	7	8.75	5.85
2N927	18	200	70	250	100	.025	8-22	6	6.45	4.30
2N928	18	200	70	250	100	.025	18-50	6	8.85	5.90
2N935	18	160	50	250	100	.1	9*-22*	7	2.25	1.50
2N936	18	160	50	250	100	.1	18*-44*	7	4.50	3.00
2N937	18	160	50	250	100	.1	36*-88*	7	6.50	4.35
2N938	18	175	40	250	100	.025	9-22	7	3.35	2.25
2N939	18	175	40	250	100	.025	18-44	7	5.00	3.35
2N940	18	175	40	250	100	.025	36-88	7	8.70	5.80
2N1024	5	175	18	250	100	.025	9 min.	7	2.70	1.80
2N1025†	5	175	40	250	100	.025	9-22	7	3.35	2.25
2N1026†	5	175	40	250	100	.025	18-44	7	5.00	3.35
2N1027	5	175	18	250	100	.025	18 min.	7	3.00	2.00
2N1028	5	250	12	250	100	.025	9 min.	7	2.90	1.95
2N1034	5	160	50	250	50	1.0	9-22	7	2.70	1.80
2N1035	5	160	50	250	50	1.0	18-42	7	4.05	2.70
2N1036	5	160	50	250	50	1.0	34-88	7	5.10	3.40
2N1037	5	160	50	250	50	1.0	9-42	7	4.50	3.00
2N1219	5	175	30	250	100	.01†	18* min.	7	5.25	3.50
2N1220	5	175	30	250	100	.1	9* min.	7	3.15	2.10
2N1221	5	175	30	250	100	.1	18 min.	7	5.00	3.35
2N1222	5	175	30	250	100	.1	9 min.	7	2.75	1.85
2N1223	5	175	40	250	100	.1	6 min.	7	3.05	2.05
2N1275	5	160	100	250	50	1.0	9*-25*	6	4.80	3.20
2N1469†	5	175	40	250	100	.025	36-88	7	8.70	5.80
2N1474	5	175	60	250	100	.05	12-44			



# SPRAGUE Transistors

## SILICON TRANSISTORS

### SPAT†-PNP CHOPPERS

Max. Ratings: Junction temp. 140° C. P<sub>d</sub>, 150 mW at 25° C and -50 mA I<sub>c</sub>. TO-18 index tab omitted.

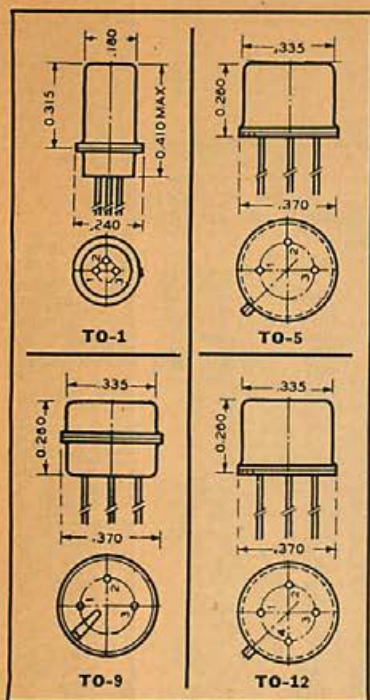
Sprague Type	Case	Max. V <sub>CB</sub> V*	Max. I <sub>CB</sub> μA	Cut-Off A <sub>V</sub> VCB†	Max. V <sub>off</sub> mV	Max. r <sub>e</sub> Ω	Max. C <sub>ob</sub> pF	Max. C <sub>ib</sub> pF	Min. f <sub>T</sub> Mc	Net Ea.	100-999	100-999
2N2162	TO-5	30	.011	10	2.0	20	10	10	14	\$ 8.00	\$ 5.95	
2N2163	TO-5	15	.017	4.5	2.0	20	10	10	14	6.65	4.95	
2N2164	TO-5	12	.02	4.5	1.5	20	10	10	24	7.40	5.50	
2N2165	TO-5	30	.02	10	3.0	20	10	10	10	5.70	4.25	
2N2166	TO-5	15	.02	4.5	3.0	30	10	10	10	4.35	3.25	
2N2167	TO-5	12	.02	4.5	2.5	20	10	10	16	5.05	3.75	
2N1676†	TO-5	4.5	.01	4.5	1.0*	.....	14	.....	16	11.70	8.60	
2N1677†	TO-5	4.5	.01	4.5	3.0*	.....	14	.....	16	8.85	6.50	
2N2185	TO-18	30	.001†	10	2.0	20	9	7	6.5	15.00	11.00	
2N2274	TO-18	25	.003†	10	3.25	17	9	6	6	9.00	6.60	
2N2276	TO-18	15**	.003†	10	2.25	17	9	6	6	6.00	4.40	
2N2278	TO-18	15	.001†	10	1.75	18	9	6	7.6	12.00	8.80	
2N2280	TO-18	10*	.003	6	1.5	18	10	8	16	4.50	3.30	
2N3317†	TO-18	30	.001†	10	2.25	20	9	7	6.4	12.75	9.45	
2N3318†	TO-18	15	.001†	6	2.0	18	9	7	7.6	7.40	5.50	
2N3319†	TO-18	10*	.003	10	1.75	18	10	8	12	3.75	2.80	
2N2186	Matched pair 2N2185's with	Δ V <sub>off</sub> = 50 μV at I <sub>B</sub> = -1 mA								30.60*	22.45*	
2N2187	Matched pair 2N2185's with	Δ V <sub>off</sub> = 50 μV at I <sub>B</sub> = -1 mA								31.50*	23.10*	
2N2275	Matched pair 2N2274's with	Δ V <sub>off</sub> = 100 μV at I <sub>B</sub> = -1.5 mA								19.50*	14.30*	
2N2277	Matched pair 2N2276's with	Δ V <sub>off</sub> = 100 μV at I <sub>B</sub> = -1.5 mA								13.20*	9.65*	
2N2279	Matched pair 2N2278's with	Δ V <sub>off</sub> = 50 μV at I <sub>B</sub> = -1 mA								25.80*	18.90*	
2N2281	Matched pair 2N2280's with	Δ V <sub>off</sub> = 100 μV at I <sub>B</sub> = -1 mA								10.05*	7.35*	

\*Also -V<sub>EB</sub> and -V<sub>EC</sub> except as otherwise noted. †Also I<sub>EB</sub> at V<sub>EB</sub>. ‡Also I<sub>EC</sub> at V<sub>EC</sub>. §Also I<sub>EO</sub> but at 6 V<sub>CE</sub>. ¶Max. V<sub>ECO</sub>, -8 V. \*Max. V<sub>ECO</sub>, -6 V. \*At 0.25 mA I<sub>B</sub>; all others at 1.0 mA. †Ambient temp. 25° C-85° C. ‡Ambient temp. 25° C-85° C. †I<sub>B</sub>, 250 nsec. †P<sub>d</sub>, 100 mW. \*\*Max. V<sub>ECO</sub>, -10 V. \*Net per Pair.

### SPAT-PNP SYMMETRICALS

Max. Ratings: Junction temp. 140° C. V<sub>CB</sub>, 30 volts. P<sub>d</sub>, 150 mW at 25° C. I<sub>c</sub>, 50 mA. Cut-off current, 0.01 μA I<sub>CB</sub> at 15 V<sub>CB</sub>.

Sprague Type	Case	Max. V <sub>CEO</sub> Volts	Min. h <sub>FE</sub> , h <sub>FC</sub>	Max. V <sub>CE</sub> (SAT) mV	Max. V <sub>off</sub> mV	Max. r <sub>e</sub> Ohms	Min. f <sub>T</sub> Mc	Net Ea.	100-999	100-999
2N2968	TO-5	10	15	60	3	30	10	\$39.80	\$29.50	
2N2969	TO-18	10	15	60	3	30	10	39.80	29.50	
2N2970	TO-5	20	10	80	4	40	8	26.50	19.75	
2N2971	TO-18	20	10	80	4	40	8	26.50	19.75	



### NPN SILICON DARLINGTON AMPLIFIERS

Sprague Type	Case	V <sub>CB</sub> V	I <sub>CB</sub> nA	h <sub>FE</sub> , Min.	Min. I <sub>C</sub> μA	Min. I <sub>B</sub> mA	C <sub>ob</sub> pF	Net Ea.	100-999	100-999
2N997	TO-18	75	10	1000	4000	20	\$13.50	\$ 9.00		
2N2723	TO-72	80	10	.....	2000	10	19.50	13.00		
2N2724	TO-72	80	10	.....	7000	10	21.00	14.00		
2N2725	TO-72	45	2	2000	.....	10	28.50	19.00		
2N2785	TO-72	60	50	.....	1200	30	12.00	8.00		

### GERMANIUM TRANSISTORS

#### MADT†-PNP FOR UHF APPLICATIONS

Max. Ratings: Junction temp. 125° C. V<sub>CB</sub>, 20 V. P<sub>d</sub>, 60 mW. I<sub>c</sub>, 50 mA. I<sub>CB</sub>, 10 μA. Typical h<sub>FE</sub>, 33.

Sprague Type	Case	Min. f <sub>max</sub> Mc	PG at f		Max. NF db	Net Ea.	100-999	100-999
			Min. db	At Mc				
2N1742	TO-9	980	14-19*	200	5.5	\$2.93	\$2.15	
2N1743	TO-9	.....	14†	200-44	12	2.87	2.11	
2N1744	TO-9	.....	1.5†	257	.....	2.25	1.65	
2N2360	TO-12	980	14-19*	200	5.5	2.40	1.80	
2N2361	TO-12	.....	14†	200-44	12	2.25	1.65	
2N2362	TO-12	.....	1.5†	257	.....	2.10	1.55	
2N2398	TO-12	1200	16-22*	200	4.5	3.45	2.50	
2N2399	TO-12	.....	16†	200-44	9	3.35	2.45	

\*Min.-Max. †Conversion gain. ‡Power output, mW.

### SBT†-PNP SWITCHES (TO-24)

Junction temp. 85° C. Cut-off current, 3 μA I<sub>CB</sub> at 5 V<sub>CB</sub> (3 V, 2N128). C<sub>ob</sub>, 6 pF (5 pF, 2N128). h<sub>FE</sub>, 0.5 mA I<sub>C</sub> at 3 V<sub>CE</sub>.

Sprague Type	Case	Maximum		Max. P <sub>d</sub> at 25° C mW	h <sub>FE</sub> Min.-Max.	Net Ea.	100-999	100-999
		V <sub>CB</sub> Volts	V <sub>CE</sub> Volts					
JAN2128	TO-18	10	4.5	25	5	19	\$6.30	\$4.60
JAN2128	TO-18	10	4.5	25	5	19	6.65	4.90
2N231	TO-9	4.5	4.5	9	3	19	1.15	.85
2N240	TO-9	6	6	30	15	16	5.60	4.10
JAN2N240	TO-9	6	6	30	15	16	5.90	4.35
2N344	TO-9	5	5	20	5	11-33	3.45	2.50
2N345	TO-9	5	5	20	5	25-110	4.35	3.15
2N346	TO-9	5	5	20	5	10	5.85	4.25

### ECDC®-PNP HIGH POWER VHF AMPLIFIERS

Max. Ratings: Junction temp. 100° C. I<sub>c</sub>, 300 mA. I<sub>CB</sub>, 15 μA. Min. P.O., 500 mW at 1.60 Mc.

Sprague Type	Case	Max. V <sub>CE</sub> Volts	25° C P <sub>T</sub> mW	PG at f		Net Ea.	100-999	100-999
				Min. db	At Mc			
2N2095	TO-31	30	1000	6	160	\$12.15	\$ 8.90	
2N2098	TO-9	30	1000	6	160	10.55	7.80	
2N2962	S-31	40	3000	6	160	19.70	14.45	
2N2963	S-31	40	3000	5	160	16.80	12.30	
2N2964	S-31	30	3000	6	160	16.80	12.30	
2N2965	S-31	30	3000	5	160	13.15	10.20	

### SPAT-PNP SWITCH AND AMPLIFIERS

Max. Ratings: Junction temp. 140° C. P<sub>d</sub>, 150 mW at 25° C and -50 mA I<sub>c</sub>. Cut-off current, -0.1 μA I<sub>CB</sub> at 10 V<sub>CB</sub> except as otherwise noted. C<sub>ob</sub>, 9 pF except as otherwise noted. All Types 2N1118, 2N1119 and 2N1429, case TO-5; all others, TO-18.

Sprague Type	V <sub>CB</sub> V	V <sub>CE</sub> V	h <sub>is</sub> at -6 V <sub>CB</sub> *		h <sub>FE</sub> at -5 V <sub>CB</sub> †		Max. Sat. V <sub>CE</sub> at mA		Net Ea.	100-999	100-999
			Min.	Max.	Min.	Max.	V	I <sub>C</sub> I <sub>B</sub>			
2N495/1815*	-25	15	.....	.....	15*	.....	.....	.....	\$11.15	\$8.25	
2N496/1815*	-10	15	.....	.....	15*	.....	.....	.....	11.15	8.25	
2N1118;§	-25	15	.....	.....	.....	.....	.....	.....	11.15	8.25	
USA2N1118;§	-25	15	.....	.....	.....	.....	.....	.....	11.45	8.50	
JAN2N1118;§	-25	15	.....	.....	.....	.....	.....	.....	12.80	9.50	
2N1118A;§	-25	15	.....	.....	35	.....	.....	.....	15.60	11.55	
2N1119;§	-10	15	.....	.....	15*	.....	.....	.....	11.15	8.25	
USA2N1119;§	-10	15	.....	.....	15*	.....	.....	.....	11.45	8.50	
JAN2N1119;§	-10	15	.....	.....	15*	.....	.....	.....	12.80	9.50	
2N1429;¶	-6	25	.....	.....	12	.....	.....	.....	8.75	6.45	
2N858	-40	15	75	10	60	15	5	5	8.70	6.45	
2N859	-40	30	120	25	100	15	5	5	9.35	6.95	
2N860	-25	15	45	10	40	15	5	5	8.40	6.20	
2N861	-25	30	100	25	75	15	5	5	6.00	4.40	
2N862	-15	20	60	12	48	15	5	5	6.65	4.95	
2N863	-15	40	120	25	100	15	5	5	4.50	3.30	
2N864*	-6	25	125	20	100	10	5	5	5.70	4.25	
2N865	-10	100	350	45	125	10	5	5	8.25	6.05	
2N2377;§	-25	15	120	10	100	.....	.....	.....	11.15	8.25	
2N2378;§	-10	15	.....	.....	15*	.....	.....	.....	11.15	8.25	
USA2N2377;§	-25	15	120	10	100	.....	.....	.....	11.45	8.50	
USA2N2378;§	-10	15	.....	.....	15*	.....	.....	.....	11.45	8.50	

\*At -1 mA I<sub>E</sub>. †At -5 mA I<sub>C</sub>. ‡Max. cut-off -1.0 mA I<sub>CB</sub> at 25 V<sub>CB</sub>. §Max. C<sub>ob</sub>, 12 pF. ¶Max. C<sub>ob</sub>, 14 pF. \*Max. cut-off -0.1 μA I<sub>CB</sub> at 6 V<sub>CB</sub>. \*At -15 mA I<sub>C</sub>. \*Drop suffix /18 for smaller TO-18 case (electrically interchangeable). Net Ea. Each, 100-999, \$11.60; 100-999, \$8.50. †V<sub>CE</sub> only; 6 V<sub>CE</sub>.

### MAT†-PNP SWITCHES

Max. Ratings: Junction temp. 100° C (2N1411, 85° C). P<sub>d</sub>, 25 mW at 45° C. I<sub>c</sub>, 50 mA. Cut-off current, 5 μA I<sub>CB</sub> at 6 V<sub>CB</sub>. C<sub>ob</sub>, 6 pF. In TO-24 case.

Sprague Type	Max. V <sub>CB</sub> Volts	Max. V <sub>CE</sub> Volts	Current Ampl.		Max. Sat.*		Net Ea.	100-999	100-999
			Min. h <sub>FE</sub>	I <sub>C</sub> mA	V <sub>CE</sub> V	V <sub>BE</sub> Volts			
2N393	-6	-6	40†	.5	3.0	.07	.5	\$4.35	\$3.15
USA2N393	-6	-6	40	.5	3.0	.07	.5	4.70	3.45
JAN2N393	-6	-6	40	.5	3.0	.07	.5	4.70	3.45
2N1122	-12	-11	25†	10	.25	.10	.5	6.45	4.00
2N1122A	-15	-14	25†	10	.25	.10	.5	5.70	4.00
2N1411	5	5	20	50	1.0	.....	.....	3.40	2.70
USA2N1411	5	5	20	50	1.0	.....	.....	4.50	2.95
2N1427	6	6	25	10	.25	.10†	.5†	4.55	3.35
2N2451	-6	-6	25	10	.25	.10†	.5†	4.85	3.65

\*At 8 mA I<sub>C</sub> and 1 mA I<sub>B</sub>. †Also 20 h<sub>FE</sub> at 50 mA I<sub>C</sub> and 0.5 V<sub>CE</sub>. ‡At 10 mA I<sub>C</sub> and 1 mA I<sub>B</sub>. §At 50 mA I<sub>C</sub> and 5 mA I<sub>B</sub>.

®Sprague trademarks. †Phileo trademarks.



# SPRAGUE Germanium Transistors

## ECDC®—PNP CORE DRIVERS

Max. Ratings: Junction temp. 100° C, IC, 500 mA. Cut-off current, 12  $\mu$ A ICBO at 12 VCB (15 VCB types 2N2097 and 2N2100). Typical FT, 400 Mc.

Sprague Type	Case	Max. Volts		Max. Pd at 25° C mW	Min. hFE	Sat. Volts*		Switch Speed nanoseconds		Net Ea., Lots		
		VCBO	VCE(s)			VCE	VBE	tr	tf	1-99	100-999	
2N2096	TO-31	-25	-20	750	15	-0.6	-0.9	35	70	60	\$7.65	\$5.60
2N2097	TO-31	-40	-35	750	30	-0.5	-0.8	20	60	40	9.90	7.25
2N2099	TO-9	-25	-20	250	15	-0.6	-0.9	35	70	60	5.70	4.15
2N2100	TO-9	-40	-35	250	30	-0.5	-0.8	20	60	40	8.55	6.25

\*At 200 mA IC and 10 mA Ib. †Rating curve on request.

## MADT®—PNP COMMUNICATIONS TYPES

Sprague Type	Case	Max. Rating		Max. ICBO $\mu$ A	Min. hFE	Max. Cob pF	Max. rb/c $\mu$ sec	Min. fmax Mc	FG at f		Net Each		
		VCB Volts	PT IC mA						At Mc	At Mc	1-99	100-999	
2N499*	TO-1	30	30	50	5	2.5	250	240	7.5	100	\$3.95	\$2.90	
USA2N499	TO-1	30	30	50	5	2.5	250	240	7.5	100	4.35	3.15	
2N499A	TO-1	30	60	50	5	2.5	250	240	7.5	100	4.85	3.55	
USA2N499A	TO-1	30	60	50	5	2.5	250	240	7.5	100	5.25	3.80	
2N502*	TO-9	20	60	100	5	6.65	120	500	8	200	2.90	2.15	
2N502A	TO-9	30	75	100	5	6.65	1.8	50	620	10†	200	1.45	2.50
USA2N502A	TO-9	30	75	100	5	6.65	1.8	50	620	10†	200	3.75	2.75
2N502B	TO-9	30	75	100	5	20-80*	1.6	50	620	10†	200	3.75	2.80
USA2N502B	TO-9	30	75	100	5	20-80*	1.6	50	620	10†	200	4.20	3.05
2N503*	TO-9	20	25	50	10	4.2†	2.0	120	100	11	200	2.25	1.65
2N504*	TO-1	35	30	50	10	10†	2.5	50	46	4.65	3.45	2.55	
2N588*	TO-1	15	30	50	15	.....	.....	50	14†	50	1.45	1.05	
2N1726	TO-9	20	60	50	10	40	2.5	100	100	35†	1.15	.85	
2N1727	TO-9	20	60	50	10	15	2.5	100	35†	1.6-45†	1.00	.75	
2N1728	TO-9	20	60	50	10	25	2.5	100	40†	4.55	1.10	.80	
2N1745	TO-9	20	60	50	10	33†	.....	500	21	45	1.80	1.32	
2N1746	TO-9	20	60	50	10	10	3	100	30†	4.5	1.00	.75	
2N1747	TO-9	20	60	50	10	10	3	180	25-31*	10.7	1.00	.75	
2N1748	TO-9	25	60	50	10	30-150*	2.5	50	.....	.....	1.05	.80	
2N1748A	TO-9	25	60	50	10	70†	2.5	100	.....	.....	1.15	.85	
2N1749	TO-9	40	75	10	10	10-150*	2.5	50	.....	.....	1.45	1.05	
2N1752	TO-9	12	60	10	10	50-300*	3.0	50	.....	.....	.95	.70	
2N1755*	TO-9	10	45	50	10	40	3	100	50	35†	1.00	.75	
2N1756*	TO-9	10	45	50	10	15	3	100	50	35†	1.6-45†	.95	.70
2N1787*	TO-9	15	45	50	10	20	3	100	50	40†	1.00	.75	
2N1788	TO-9	35	60	50	5	40	2.5	100	100	35†	1.35	.95	
2N1789	TO-9	35	60	50	7	15	2.5	100	100	35†	1.6-45†	1.15	.85
2N1790	TO-9	35	60	50	7	25	2.5	100	100	40†	1.20	.90	
2N1864	TO-9	20	60	50	10	20	3	100	50	30†	1.10	.80	
2N1865	TO-9	20	60	50	10	60†	.....	180	25-31*	10.7	1.10	.80	
2N1866	TO-9	35	60	50	10	40	.....	180	25-31*	10.7	1.20	.90	
2N1867	TO-9	35	60	50	10	50†	.....	180	25-31*	10.7	1.15	.85	
2N1868	TO-9	20	60	50	10	33†	.....	400	21-28*	45	1.88	1.38	

\*Min.-max. hFE. †Typical hFE. ‡7 db max. NF. §Typical. ¶Conversion gain. \*Min.-max. \*FT. \*Max. junction temp. 85° C; all others, 100° C. †15 db max. noise figure.

## ECDC AND MADT—PNP HIGH SPEED SWITCHES

Max. IC, -100 mA except 2N501 thru JAN2N501A and 2N1500, -50 mA. Max. junction temp. 100° C.

Sprague Type	Case	Max. Volts		Max. Pd at 25° C mW	Max. ICBO $\mu$ A	Current Amplification		Max. Sat. Volts*	Switch Speed nanoseconds		Net Each, Lots				
		VCE(s)	VCEO			Min. hFE	IC mA		At VCE, V	VCE	VBE	tr	tf	K <sup>2</sup>	1-99
2N501	TO-1	-15	.....	60	5	20	-10	-5	-2	-50	18	10	\$6.35	\$4.65	
2N501A	TO-1	-15	.....	60	5	30	-10	-5	-2	-45	18	10	7.05	5.15	
USA2N501A	TO-1	-15	.....	60	5	30	-10	-5	-2	-45	18	10	7.35	5.35	
JAN2N501A	TO-1	-15	.....	60	5	30	-10	-5	-2	-45	18	10	7.35	5.35	
2N768	TO-18	-10	.....	35	3	25	-2	-2	-13	-28†	.....	.....	5.85	4.25	
2N769	TO-18	-12	.....	35	3	25	-20	-5	-24	-45	30	.....	6.75	4.95	
2N779A	TO-18	-15	.....	60	3	50	-10	-5	-125†	-36†	18	18	3.50	2.55	
2N794	TO-18	-13	.....	150	3	30	-10	-3	-35	-40†	.....	.....	1.25	.95	
2N795	TO-18	-13	.....	150	3	30	-10	-3	.....	.....	.....	.....	1.75	1.30	
2N796	TO-18	-13	.....	150	3	50	-10	-3	.....	.....	.....	.....	2.55	1.90	
2N846A	TO-18	-15	.....	60	3	25	-10	-5	-14	-40	18	18	5.40	3.95	
2N976	TO-18	-15	-10	100	3	30	-20	-5	-17*	-46*	10	18	4.35	3.20	
2N979	TO-18	-20	-15	60	3	30	-10	-3	-2	-40	60	120	1.40	1.05	
2N980	TO-18	-20	-12	60	3	30	-10	-3	-2	-40	60	120	1.20	.90	
2N982	TO-18	-20	-15	60	3	40	-10	-5	-125†	-36†	18	18	5.60	4.10	
2N983	TO-18	-20	-15	60	3	40	-10	-5	-15†	-36†	18	18	5.00	3.65	
2N984	TO-18	-15	-10	60	5	20	-10	-5	-18	-45	20	60	2.35	1.75	
2N1300	TO-5	-13	.....	150	3	30	-10	-3	.....	.....	.....	.....	1.00	.75	
2N1301	TO-5	-13	.....	150	3	30	-10	-3	.....	.....	.....	.....	1.25	.95	
2N1499A	TO-9	-20	.....	60	3	30	-10	-3	-2	-40	60	120	1.50	1.10	
USA2N1499A	TO-9	-20	.....	60	3	30	-10	-3	-2	-40	60	120	1.40	1.05	
2N1499B	TO-9	-30	-20	75	3	40	-10	-3	-15	-40	30	120	1.55	1.15	
2N1500	TO-9	-15	.....	60	5	20	-10	-5	-2	-45	18	10	6.95	5.10	
USA2N1500	TO-9	-15	.....	60	5	20	-10	-5	-2	-45	18	10	7.35	5.35	
2N1633	TO-5	-13	.....	150	3	50	-10	-3	.....	.....	.....	.....	1.85	1.35	
2N1734	TO-9	-13	.....	50	5	20	-10	-25	-2	-40	60	120	1.35	.95	
2N2048	TO-9	-20	-15	150	5	50	-10	-5	-14†	-35†	60	60	1.80	1.32	
2N2048A	TO-9	-30	-20	150	3	40	-60	-5	-20†	-35†	20	25	2.05	1.50	
2N2158	TO-9	-20	-15	60	3	50	-10	-5	-125†	-36†	18	18	5.00	4.10	
2N2159	TO-9	-15	-10	60	3	40	-10	-5	-15†	-36†	18	18	4.15	3.05	
2N2170	TO-9	-12	-10	60	3	20	-10	-5	-15†	-36†	18	18	2.35	1.75	
2N2400	TO-18	-15	.....	150	3	30	-10	-5	-22†	-36†	.....	.....	1.25	.95	
2N2401	TO-18	-15	-10	150	1.5	50	-10	-5	-2†	-36†	.....	.....	1.45	1.05	
2N2402	TO-18	-15	-12	150	1.5	60	-10	-5	-2†	-36†	.....	.....	2.25	1.65	
2N2487	TO-18	-15	-10	60	3	20	-10	-5	.....	.....	.....	.....	60	4.85	3.60
2N2488	TO-18	-15	-10	60	3	20	-60	-5	.....	.....	.....	.....	60	2.95	2.15
2N2489	TO-18	-20	-15	60	2.5	20	-10	-5	-18	-45	60	60	3.65	2.70	
2N2795	TO-18	-25	-15	75	3	50	-10	-3	-125†	-36†	12	25	4.15	3.05	
2N2796	TO-18	-20	-12	75	3	30	-10	-3	-15†	-40†	15	25	2.35	1.75	
2N2797	TO-9	-40	-20	75	2	50	-10	-3	-15†	-40†	20	25	1.60	1.20	
2N2798	TO-9	-60	-25	75	3	30	-10	-3	-21	-40†	25	30	1.85	1.40	
2N2799	TO-9	-30	-15	75	3	30	-10	-3	-21	-40†	25	30	1.35	1.00	
2N2942	TO-9	-50	-25	160	4	50	-10	-3	-15†	-35†	20	25	2.00	1.50	
2N2943	TO-9	-30	-15	160	3	50	-10	-3	-20†	-40†	25	30	1.50	1.10	
2N3321	TO-18	-12	-7	75	5	50	-20	-5	-15*	-46*	10	15	3.50	2.60	
2N3322	TO-18	-12	-7	75	5	100	-10	-3	-14*	-46*	10	15	2.25	1.65	
ED-322	TO-18	-12	-7	75	5	30	-10	-3	-25*	-50*	10	15	1.50	1.10	

\*At 10 mA IC and 1 mA Ib. †Typical. ‡At 10 mA IC and .5 mA Ib. §At 10 mA IC and .33 mA Ib. ¶At 10 mA IC and .4 mA Ib. \*At 20 mA IC



# Transitron Semiconductors

NPN and PNP silicon planar transistors which are available from Transitron to JEDEC types can be supplied in the following microminiature packages: "Micro-T" (Fig. L), "Nano" (Fig. M), "Pico" and Kovar tab. Complete specifications, availability and prices on request.

## SILICON PNP PLANAR TRANSISTORS MEDIUM POWER

Transitron Type	Fig.	Max. P <sub>d</sub> , Watts	Max. V <sub>cb</sub> , Volts	Min. DC Com. Emitt. Cur. Gain, β	Typ. Coll. Sat. V. at I <sub>c</sub> Ma	Net Ea., Lots	
						1-99	100-999
2N2303	G	1.0	50	75 at 150ma	1.0 at 150	\$6.60	\$4.40
2N1132	G	1.0	50	30 at 150ma	1.0 at 150	5.60	3.75
2N1131	G	1.0	50	30 at 150ma	1.0 at 150	5.10	4.40
2N722	H	0.75	50	30 at 150ma	1.0 at 150	6.00	4.00
2N721	H	0.75	50	20 at 150ma	1.0 at 150	4.50	3.00
2N1991	G	1.0	30	15 at 150ma	1.0 at 150	3.15	2.10
2N978	H	0.75	30	15 at 150ma	1.0 at 150	3.15	2.10
2N2904	G	0.61	60	20 at 500ma	1.4 at 500	6.75	4.50
2N2905	G	0.61	60	30 at 500ma	1.4 at 500	8.10	5.40
2N2906	H	0.41	60	20 at 500ma	1.4 at 500	6.50	4.30
2N2907	H	0.41	60	30 at 500ma	1.4 at 500	7.80	5.10

## HIGH CURRENT MEDIUM POWER

Transitron Type	Fig.	Max. P <sub>d</sub> , Watts	Max. V <sub>cb</sub> , Volts	Min. DC Com. Emitt. Cur. Gain, β	Typ. Coll. Sat. V. at I <sub>c</sub> Ma	Net Ea., Lots
ST8509	G	5.0	80	15 at 1.5a	1.1 at 500	\$30.00 \$20.00
ST8065	G	5.0	60	30 at 1.5a	1.1 at 500	17.25 11.50
2N1084	G	5.0	60	15 at 1.5a	1.1 at 500	17.25 11.50
ST8500	G	5.0	40	15 at 500ma	1.3 at 500	6.75 4.50

## INTERMEDIATE POWER

Transitron Type	Fig.	Max. P <sub>d</sub> , Watts	Max. V <sub>cb</sub> , Volts	Min. DC Com. Emitt. Cur. Gain, β	Typ. Coll. Sat. V. at I <sub>c</sub> Ma	Net Ea., Lots
2N2875	C	20	60	15 at 1.5a	1.1 at 500	\$43.50 \$29.00

## MILITARY TYPES

USN2N1131	Fig.	Max. P <sub>d</sub> , Watts	Max. V <sub>cb</sub> , Volts	Min. DC Com. Emitt. Cur. Gain, β	Typ. Coll. Sat. V. at I <sub>c</sub> Ma	Net Ea., Lots
USN2N1131	G	1	50	20 at 150ma	1.0 at 150	\$6.00 \$4.00
USN2N1132	G	1	50	30 at 150ma	1.0 at 150	8.25 5.50

## SILICON NPN PLANAR TRANSISTORS MEDIUM POWER EPITAXIAL

Transitron Type	Fig.	Max. P <sub>d</sub> , Watts	Max. V <sub>cb</sub> , Volts	Min. DC Com. Emitt. Cur. Gain, β	Typ. Coll. Sat. V. at I <sub>c</sub> Ma	Net Ea., Lots
2N696	G	1.0	60	20 at 150ma	0.7 at 150	\$1.50 \$1.00
2N697	G	1.0	60	40 at 150ma	0.7 at 150	1.50 1.00
2N698	G	1.0	120	20 at 150ma	2.0 at 150	1.57 1.05
2N699	G	1.0	120	40 at 150ma	2.0 at 150	1.57 1.05
2N718A	H	1.0	75	40 at 150ma	1.0 at 150	2.15 1.43
2N720A	H	1.0	120	40 at 150ma	2.0 at 150	2.48 1.65
2N1613	G	1.7	75	40 at 150ma	1.0 at 150	1.73 1.16
2N1711	G	1.7	75	100 at 150ma	1.0 at 150	1.89 1.26
2N1893	G	1.7	120	40 at 150ma	2.0 at 150	2.10 1.60
2N2217	G	0.81	60	20 at 150ma	0.3 at 150	3.35 2.25
2N2218	G	0.81	60	40 at 150ma	0.3 at 150	3.35 2.25
2N2219	G	0.81	60	100 at 150ma	0.3 at 150	3.95 2.65
2N2220	H	0.51	60	20 at 150ma	0.3 at 150	3.35 2.25
2N2221	H	0.51	60	40 at 150ma	0.3 at 150	3.35 2.25
2N2222	H	0.51	60	100 at 150ma	0.3 at 150	3.95 2.65

\*At 100° C case, †At 25° C ambient.

## LOGIC SWITCHING EPITAXIAL (FIG. H)

Transitron Type	Max. DC Com. Emitt. Current Gain, β	Max. Coll. V <sub>cb</sub> , Volts	Typ. Cut-Off, Mc	Max. Coll. Cut-Off At 25° C, μs	Max. t <sub>r</sub> , nsec.	Net Ea., Lots	
						1-99	100-999
2N706	20	25	400	0.5	60	\$0.99	\$0.66
2N706A	20	25	400	0.5	60	1.35	.90
2N708	30	40	450	0.025	25	1.32	.88
2N753	40	25	250	0.5	35	1.97	1.31
2N914	30	40	400	0.025	20	1.57	1.05
2N2885*	120	40	450	0.025	25	8.50	5.90

\*Fig. L.

## HIGH-SPEED SWITCHING EPITAXIAL (FIG. H)

Transitron Type	Max. Volts		Max. ICBO, μA	hFE	Max. C <sub>cb</sub> , pF	Net Ea., Lots
	V <sub>CE0</sub>	V <sub>CB0</sub>				
2N709	6	15	4	5.0	20-120	\$11.50 \$7.75
2N709A	6	15	4	5.0	30-90	2.30 1.55
2N834	30	40	5	.50	25 min.	4.0 10.0
2N835	20	25	3	.50	20 min.	4.0 10.0
2N2784	6	15	4	0.005	40-120	3.0 5.0

## HIGH FREQUENCY SIGNAL AMPLIFIERS

Transitron Type	Fig.	Min. DC Com. Emitt. Current Gain, β	Max. Coll. V <sub>cb</sub> , Volts	Typ. Cut-Off, Mc	Max. Coll. Cut-Off At 25° C, μs	Net Ea., Lots	
						1-99	100-999
2N735	H	40*	80	100	10	\$ 8.95	\$5.95
2N736	H	80*	80	100	10	8.95	5.95
2N738	H	20*	125	100	10	12.50	8.30
2N740	H	80*	125	100	10	12.50	8.30
2N758A	H	18*	60	75	1	11.60	7.60
2N759A	H	36*	60	70	1	2.55	1.70
2N760A	H	76*	60	85	1	3.60	2.45
2N840	H	30	45	85	1	4.65	3.10
2N843	H	45	45	85	1	9.30	6.20
2N1566	G	80*	60	70	10	13.50	9.00
2N1574	G	80*	100	85	10	5.00	3.35
2N2509	H	40	125	60	0.005	6.00	4.00
2N2510	H	150	100	60	0.005	8.00	5.35
2N2511	H	240	80	60	0.005	8.00	5.35

\*AC current gain.

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## NPN SILICON TRANSISTORS (CONT'D) LOW LEVEL INPUT, LOW NOISE SIGNAL AMPLIFIERS

Transitron Type	Fig.	Min. DC Com. Emitt. Current Gain, β	Max. Coll. V <sub>cb</sub> , Volts	Typ. Cut-Off, Mc	Max. Coll. Cut-Off At 25° C, μs	Net Ea., Lots	
						1-99	100-999
2N2493	H	10 at 10μa	60	15*	0.010	45	\$ 4.50 \$3.00
2N1247	G	15 at 5μa	20	5	0.005	3	13.25 8.75
2N1248	G	15 at 20μa	6	5	0.01	3	13.25 8.75
2N2427	H	20 at 10μa	40	80	0.01	20	10.50 7.00
2N2484	H	20 at 10μa	60	10*	0.010	45	6.45 4.30
2N929	H	40 at 10μa	45	40	0.01	45	3.30 2.20
2N930	H	100 at 10μa	45	40	0.01	45	4.00 2.67

## LOW LEVEL AMPLIFIERS

Transitron Type	Fig.	Max. P <sub>d</sub> , Watts	Max. V <sub>cb</sub> , Volts	Min. DC Com. Emitt. Cur. Gain, β	Typ. Coll. Sat. V. at I <sub>c</sub> Ma	Net Ea., Lots
2N3077	H	20 at 10μa	80	10*0.35 V <sub>I</sub>	.....	\$9.60 \$6.40
2N3078	H	10 at 10μa	80	15*0.35 V <sub>I</sub>	.....	6.60 4.40

\*Max. db, noise figure. †V<sub>CE</sub> (sat) at I<sub>C</sub> = 1 ma.

## MILITARY TYPES

Transitron Type	Net Ea., Lots of		Transitron Type	Net Ea., Lots of	
	1-99	100-999		1-99	100-999
JAN2N929	\$5.70	\$3.80	USA2N930	\$6.15	\$4.10
JAN2N930	6.15	4.10			

## HIGH POWER

Transitron Type	Fig.	Max. P <sub>d</sub> At 100° C, Watts	Max. Coll. V <sub>cb</sub> , Volts	Min. DC Com. Emitt. Current Gain, β	Typ. Coll. Sat. Ohms at A.	Net Ea., Lots of	
						1-99	100-999
2N389	B	45	60	12 at 1a.	2.5 at 1	\$15.00	\$10.00
2N424	B	45	80	12 at 1a.	4.0 at 1	16.50	11.00
2N1208	A	45	60	15 at 2a.	1.5 at 2	19.50	13.00
2N1210	B	30	60	15 at 2a.	0.7 at 1	24.00	16.00
2N1211	B	30	80	15 at 2a.	0.7 at 1	27.00	18.00
2N1212	A	45	60	12 at 1a.	2.5 at 1	15.00	10.00
2N1250	B	45	60	15 at 2a.	1.5 at 1	43.50	29.00
2N1616	A	30	60	15 at 2a.	0.7 at 2	26.00	17.50
2N1617	A	30	80	15 at 2a.	0.7 at 2	30.00	20.00
2N1618	A	30	100	15 at 2a.	0.7 at 2	35.00	23.50
2N1620	B	30	100	15 at 2a.	0.7 at 1	40.00	26.00
2N1722	B	50	120	20 at 2a.	0.3 at 2	43.50	29.00
2N1722A	B	50	180	30 at 2a.	0.3 at 2	60.00	40.00
2N1723	B	50	120	20 at 2a.	0.5 at 2	48.00	36.00
2N1724	A	50	120	20 at 2a.	0.3 at 2	43.50	29.00
2N1724A	A	50	180	30 at 2a.	0.3 at 2	63.00	42.00
2N1725	A	50	120	50 at 2a.	0.5 at 2	43.50	29.00

## 1/4" HEX BASE STUD-MOUNTED

## INTERMEDIATE POWER

Transitron Type	Fig.	Max. P <sub>d</sub> , Watts	Max. V <sub>cb</sub> , Volts	Min. DC Com. Emitt. Cur. Gain, β	Typ. Coll. Sat. V. at I <sub>c</sub> Ma	Net Ea., Lots
2N1647	D	20	80	15 at 500ma	1.8 at 1	\$17.00 \$12.70
2N1648	D	20	120	15 at 500ma	1.8 at 1	21.00 14.30
2N1649	D	20	80	30 at 500ma	1.8 at 1	20.00 13.70
2N1650	D	20	120	30 at 500ma	1.8 at 1	25.00 17.00
2N2150	C	30	125	20 at 500ma	1.25 at 1	22.50 15.00
2N2151	C	30	125	40 at 500ma	1.25 at 1	24.75 16.50
2N2866	C	20	120	20 at 500ma	.75 at 1	23.50 16.25
2N2867	C	20	120	40 at 500ma	.75 at 1	26.50 18.25

## HIGH VOLTAGE

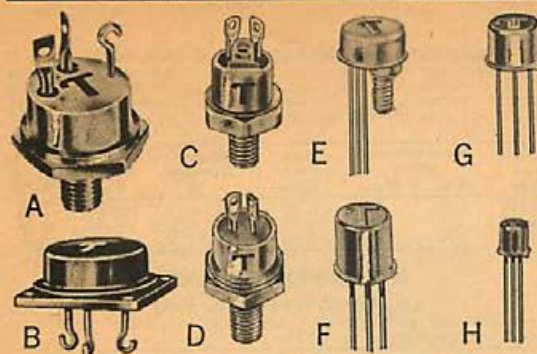
Transitron Type	Fig.	Max. P <sub>d</sub> , Watts	Max. V <sub>cb</sub> , Volts	Min. DC Com. Emitt. Cur. Gain, β	Typ. Coll. Sat. V. at I <sub>c</sub> Ma	Net Ea., Lots
2N2018	D	20	150	20 at 500ma	3.5 at 1	\$30.00 \$22.50
2N2019	D	20	200	20 at 500ma	3.5 at 1	37.50 28.00
2N2020	D	20	150	40 at 500ma	3.5 at 1	36.00 26.50
2N2021	D	20	200	40 at 500ma	3.5 at 1	55.00 36.00

## SINGLE-ENDED

Transitron Type	Fig.	Max. P <sub>d</sub> , Watts	Max. V <sub>cb</sub> , Volts	Min. DC Com. Emitt. Cur. Gain, β	Typ. Coll. Sat. V. at I <sub>c</sub> Ma	Net Ea., Lots
2N1047B	E	20	80	12 at 500ma	4 at 500ma	\$26.00 \$17.30
2N1048B	E	20	120	12 at 500ma	4 at 500ma	38.30 25.50



# Transitron Semiconductors



## SILICON PLANAR TRANSISTORS NPN REPLACEMENTS FOR GROWN JUNCTION TYPES

Transitron Type	Fig.	Min. DC Com. Emit. Current Gain, $\beta$	Max. Coll. V <sub>cb</sub> Volts	Typ. Cut-Off, Mc	Max. Coll. Cut-Off Current, $\mu$ a	Net Each, Lots of
						1-99 100-999
2N243	K	60 ma†	60	30½	1	\$13.75 \$9.15
2N244	K	60 ma†	60	30½	1	16.50 11.00
2N332	G	9	45	10	0.5	4.65 3.10
2N333	G	18	45	11	0.5	4.65 3.10
2N334	G	18	45	12	0.5	4.65 3.10
2N335	G	37	45	13	0.5	4.90 3.30
2N336	G	78	45	15	0.5	4.90 3.30
2N339	F	9*	55	30½	1	10.15 6.75
2N340	F	9*	85	30½	1	10.80 7.20
2N341	F	9*	125	30½	1	17.50 11.65
2N342	F	9*	60	30½	1	14.55 9.65
2N343	F	29*	60	30½	1	18.40 12.25
2N475	G	20*	45	10	0.5	7.80 5.20
2N480	G	40*	45	11	0.5	9.30 6.20
2N543	G	80*	45	15	0.5	7.95 5.30
2N1150	K	18*	45	9	50	8.65 5.75
2N1154	K	60 ma†	50	30½	5	12.60 8.40
2N1155	K	50 ma†	80	30½	6	13.10 8.75
2N1156	K	40 ma†	120	30½	8	17.50 11.70

\*AC current gain. †At 25° C and V<sub>ce</sub> max. ‡Max. collector current. §Min. db power gain.

## NPN MILITARY

Transitron Type	Fig.	Net Ea., Lots of	Transitron Type	Fig.	Net Ea., Lots of
		1-99 100-999			1-99 100-999
JAN2N335	G	\$5.25 \$3.30	USN2N341	F	\$17.50 \$11.65
JAN2N337	G	\$5.15 3.40	JAN2N342	F	14.55 9.65
JAN2N338	G	5.80 3.85	JAN2N343	F	19.40 13.25

## COMMERCIAL AND INDUSTRIAL SILICON PLANAR TRANSISTOR DEVICES LIGHT DRIVERS

Transitron Type	Fig.	Max. V <sub>CE</sub> Volts	Min. DC Com. Emit. Cur. Gain, $\beta$	Max. Coll. Cut-Off Cur., $\mu$ a*	Net Ea., Lots of
					1-99 100-999
2N1990	G	75	20 at 30 ma	10 at 75 v.	\$3.60 \$2.40
ST4341	G	80	15 at 3 ma	80 at 80 v.	1.90 1.35

\*At 25° C.

## HI-FI, RADIO AND TV TYPE

Transitron Type	Fig.	Max. P <sub>i</sub> at 25° C,† Watts	Max. V <sub>cb</sub> Volts	Min. DC Com. Emit. Current Gain, $\beta$	Typical Collector Saturation, Volts	Net Each, Lots of
						1-99 100-999
ST4388	G	5	100	25	2 at 200 ma	\$2.20 \$1.65

## NPN LOW POWER SWITCHING

Passivated epitaxial planar transistor for switching and amplifier circuits. Ultrasonically aluminum bonded to eliminate purple plague at the chip.

2N3633	H	0.3†	15	25 at 30 ma	0.21 at 3 ma	*\$11.00 \$7.25
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NPN LOW LEVEL INPUT, SMALL SIGNAL & MEDIUM POWER  
Medium power type unless otherwise noted.

Transitron Type	Fig.	Max. P <sub>i</sub> at 25° C,† Watts	Max. V <sub>cb</sub> Volts	Min. DC Com. Emit. Current Gain, $\beta$	Typical Collector Saturation, Volts	Net Each, Lots of
						1-99 100-999
2N1249*	G	30†	6	10 at 30 $\mu$ a	1.5 at 5 ma	\$4.50 \$3.00
2N1417†	G	250†	15	30 at 1 ma§	1.5 at 5 ma	1.45 .95
2N1418†	G	250†	30	30 at 1 ma§	1.5 at 5 ma	1.70 1.13
2N2038	G	3	45	12 at 200 ma‡	at 200 ma	1.74 1.16
2N2039	G	3	75	12 at 200 ma‡	at 200 ma	2.98 1.98
2N2040	G	3	45	30 at 200 ma‡	at 200 ma	2.04 1.36
2N2041	G	3	75	30 at 200 ma‡	at 200 ma	3.24 2.16

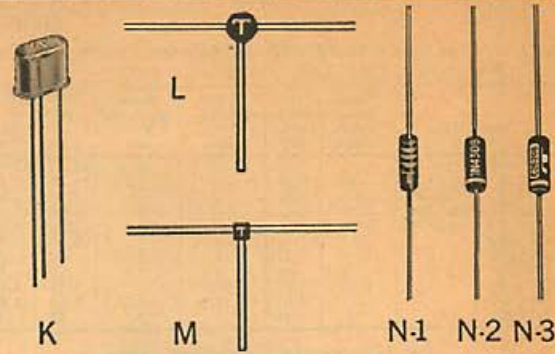
## PNP MEDIUM POWER

Transitron Type	Fig.	Max. P <sub>i</sub> at 25° C,† Watts	Max. V <sub>cb</sub> Volts	Min. DC Com. Emit. Current Gain, $\beta$	Typical Collector Saturation, Volts	Net Each, Lots of
						1-99 100-999
2N978	H	1	30	15 at 150 ma	1.1 at 150 ma	\$3.15 \$2.10
2N1991	G	1	30	15 at 150 ma	1.1 at 150 ma	3.15 2.10
ST8500	G	5	40	15 at 150 ma	1.3 at 150 ma	6.75 4.50

## NPN INTERMEDIATE POWER

2N1886	D	20	60	20 at 500 ma	3 at 1 amp	\$11.50 \$7.65
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\*Low level input. †Small signal type. ‡At 25° C ambient. §AC current gain. ‡Case temperature. \*Collector-emitter saturation voltage.



## SILICON MICRODIODES (FIG. R) FAST SWITCHING TYPE

Max. recovery 0.3  $\mu$ sec.

Transitron Type	Max. Inv. Operating Volts	Max. Avg. Fwd. Cur., Ma at 25° C	Max. Inv. Cur. at 25° C $\mu$ a at Volts	Net Ea., Lots of
				1-99 100-999
TMD24	50	50	.....	\$2.50 \$1.90
TMD25	100	50	.....	3.15 2.35
TMD27	200	50	.....	3.40 2.70

## HIGH CONDUCTANCE TYPE

Transitron Type	Max. Inv. Operating Volts	Max. Avg. Fwd. Cur., Ma at 25° C	Max. Inv. Cur. at 25° C $\mu$ a at Volts	Net Ea., Lots of
				1-99 100-999
TMD41	50	75	0.25 at 50	\$2.25 \$1.55
TMD42	100	75	0.25 at 100	2.50 2.05
TMD45	200	75	0.25 at 200	2.75 2.30

## MICROMINIATURE STABISTORS

Max. dynamic resistance, 60 ohms at 1 ma and 1 kc.

Transitron Type	Max. Inv. Operating Volts	Max. Avg. Fwd. Cur., Ma at 25° C	Max. Inv. Cur. at 25° C $\mu$ a at Volts	Net Ea., Lots of
				1-99 100-999
TMD20	0.64†	0.85 v.†	0.5 at -2 DC	\$1.55 \$1.20
TMD40	0.55†	0.85 v.†	0.5 at -2 DC	1.85 1.40

## SILICON MICRO-ZENER DIODES

Specifications at 25° C. Test current, 5 ma. Max. dynamic resistance, 15 ohms except as noted. Max. inverse current shown is at -1 volt.

Transitron Type	Max. Inv. Operating Volts	Max. Avg. Fwd. Cur., Ma at 25° C	Max. Inv. Cur. at 25° C $\mu$ a at Volts	Net Ea., Lots of
				1-99 100-999
TMD-01	5.1‡	0.75 v.*	1.0 at -1	\$6.00 \$4.50
TMD-02	5.6‡	0.75 v.*	1.0 at -1	6.00 4.50
TMD-03	6.2‡	0.75 v.*	1.0 at -1	6.00 4.50
TMD-04	6.8‡	0.75 v.*	1.0 at -1	6.00 4.50
TMD-05	7.5‡	0.75 v.*	1.0 at -1	6.00 4.50
TMD-06	8.2‡	0.75 v.*	1.0 at -1	6.00 4.50
TMD-07	9.1‡	0.75 v.*	1.0 at -1	6.00 4.50
TMD-08	10.0‡	0.75 v.*	1.0 at -1	6.00 4.50
TMD-09§	11.0‡	0.75 v.*	1.0 at -1	6.00 4.50
TMD-10§	12.0‡	0.75 v.*	1.0 at -1	6.00 4.50

\*Typical, at 5.0 ma. †Forward volts at 1 ma DC, =10%. ‡At 20 ma DC, maximum. §Max. dynamic resistance, 20 ohms.

§Nominal voltage, tolerance =10%. For \*5% tolerance and suffix A (TMD-01A). Net Each, Lots of: 1-99. \$7.75; 100-999. \$5.75

## SILICON AND GERMANIUM STABISTORS

Semiconductor diodes specially designed and tested for use as low level voltage regulating devices. Meet tight tolerance limits in the forward, or conducting, direction with a minimum requirement in the reverse direction. All types are silicon except 1N3257 which is germanium. EVR series are epoxy encapsulated. All units are capable of passing Method 106A, MIL-STD-202B, moisture resistance testing.

Transitron Type	Fig.	Forward Voltage Drop At 1 Ma At 100Ma	Max. Dyn. Resis. at 1 Ma, Ohms	Max. Inv. Oper. Volts	Net Each, Lots of
					1-99 100-999
1N4362	N-1	.60-.70	80-90	40	.01 v.* \$2.45 \$1.96
1N816	N-1	.64*	.1	50	6 .45 .35
EVR1	O	.06†	0.75†	10*	5 .45 .30
EVR1A	O	.06†	0.75†	10*	5 .55 .33
EVR1B	O	.06†	0.75†	10*	5 .90 .49
SM72	P	.....	§	§	6 1.50 1.00
1N3287	N-1	.26†	1 max.	60	6 .60 .42
SG22	N-1	.64*	1 max.	60	6 .45 .35

\*=10%. †=15%. ‡=5%. §2 v. forward at 2000 ma DC; max. dynamic resistance, 1.5 ohms at 100 ma, 1 kc. ‡=20%. \*Max. leakage current at 25° C,  $\mu$ a. †At 10 ma, 1 kc.

## MIL TYPES

Transitron Type	Net Ea., Lots of	Transitron Type	Net Ea., Lots of
	1-99 100-999		1-99 100-999
USN1N816W	\$0.45 \$0.35	USN1N3287W	\$0.90 \$0.68

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# Transitron Semiconductors

## SILICON DIODES

### PLANAR EPITAXIAL DIODES (FIG. N-2)

Specifications at 25° C. Fwd. current at 1 volt.

Transitron Type	Max. Inv. Oper. Volts	Min. Fwd. Cur., Ma	Max. Recov. Time, nsec.	Max. Cap. at 0 Volts, pF	Net Each, Lots of	
					1-99	100-999
1N4308 (SG5000)	100	200	2	2	\$2.75	\$2.10
1N4309 (SG5100)	50	400	2	4	2.25	1.60
1N4310 (SG5200)	75	400	2	4	2.50	1.85
1N4311 (SG5300)	100	300	2	2	3.00	2.30
1N4312 (SG5400)	150	200	4	2	3.25	1.95
1N914B	100	100	4	4	1.35	.90
1N916B	100	100	4	2	.92	.61
1N3064	75	10	4	2	.67	.48
1N3070	200	100	50	5	5.25	3.50
1N3600	50	200	4	2.5	3.65	2.50
1N4009	35	30	2	2	.42	.28

### RADIATION-RESISTANT DIODES (FIG. N-2)

Max. cap., 6  $\mu$ f at 0 volts, VR and 1 mc. Reverse recovery, 4 nsec. at 10 ma, IR; 6 v., VR; 1 ma, IR and 100 ohms, RL. Radiation tolerance  $10^{14}$  neutrons/cm<sup>2</sup> for 0.1 Mev. Breakdown shown is at 5  $\mu$ a, IR; forward voltage, at 100 ma, IR; reverse current at 25° C. ambient.

Transitron Type	Breakdown Volts		Max. Fwd. Volts	Reverse Current, $\mu$ a at V.	Net Each, Lots of	
	Min.	Max.			1-99	100-999
SG5250	50	75	0.90	.025 at 20	\$3.25	\$2.50
SG5260	75	100	0.90	.025 at 20	3.50	2.75
SG5270	100	125	0.90	.10 at 75	3.75	3.00

## GERMANIUM DIODES

### COMPUTER TYPES (FIG. N-4)

1N994 (S570G) and 1N995 (S555G) are very fast switching types. Forward current at +25° C.

Transitron Type	Max. Inv. Operating Volts	Max. Avg. Fwd. Cur., Ma	Max. Recovery Time, $\mu$ sec.	Net Each, Lots of	
				1-99	100-999
1N994	8	20	.002	\$1.75	\$1.25
1N995	15	30	.006	.60	.45
1N276	100	70	.3	.31	.24
1N695	25	100	.3	.30	.24
1N996	25	50	.3	1.15	.87
T15G	125	80	.3	1.70	1.25

### COMMERCIAL TYPES (FIG. N-4)

Specifications at 25° C.

Transitron Type	Min. Fwd. Cur. at +1 v., Ma	Max. Inv. Current, $\mu$ a at Volts	Max. Oper. Volts	Net Each, Lots of	
				1-99	100-999
T1G	20	1500 at -50	40	\$0.27	\$0.20
T2G	40	300 at -50	60	.40	.30
T3G	20	50 at -50	60	.69	.52
T12G	20	500 at -50	60	.41	.32
		30 at -10			
1N90	5	500 at -50	60	.33	.22
1N97	10	100 at -50	80	.69	.52
		8 at -5			
1N279	100	200 at -20	30	.29	.22

### VIDEO DETECTOR, POINT CONTACT TYPES (FIG. N-5)

Minimum rectification efficiency 65%. Specifications at 25° C.

Transitron Type	Min. Fwd. Cur. at +1 v., Ma	Max. Inv. Current, $\mu$ a at Volts	Max. Oper. Volts	Net Each, Lots of	
				1-99	100-999
1N60	5	67 at -10	30	\$0.30	\$0.23
1N60A	5	60 at -10	40	.40	.29
1N67A	1*	30 at -1.5	30	.35	.26
1N295	5	200 at -10	50	.35	.27

\*At 0.25 volt.

## MULTI-PURPOSE GOLD-BONDED TYPES

Specifications at 25° C.

### MILITARY TYPES (FIG. N-5)

Transitron Type	Fwd. Cur. Ma*	Max. Inv. Current, $\mu$ a at Volts	Max. Oper. Volts	Net Each, Lots of	
				1-99	100-999
JAN1N198M	4	10 at -10 50 at -50	100	\$0.70	\$0.54
JAN1N270	200	75 at -10† 100 at -50	80	.32	.25
JAN1N277M	5†	10 at -10 50 at -50 400 at -100	100	.85	.65
JAN1N81A‡	3	10 at -10	40	.48	.36
USN1N3287W§	100	15 at -2	6	.90	.68

### SWITCHING MILITARY TYPES (FIG. N-5)

Max. Recovery: 0.006  $\mu$ sec., USN1N995M; 0.3  $\mu$ sec., others.

Transitron Type	Fwd. Cur. Ma*	Max. Inv. Current, $\mu$ a at Volts	Max. Oper. Volts	Net Each, Lots of	
				1-99	100-999
JAN1N276	40	20 at -10 100 at -50 800 at -100	50	\$0.31	\$0.24
USN1N995M	10†	10 at -6	15	1.20	.95
USN1N3666M	200	10 at -20	80	.75	.58

\*Minimum at +1 volt. †Max. at 0.5 volt. ‡Point contact; Fig. Q. §Dynamic resistance 60-R max. at 1 ma, 0.1 ma rms IAC and 60 cps. †At 75° C.

### HIGH TEMPERATURE TYPES (FIG. N-4)

Transitron Type	Min. Fwd. Cur. at +1 v., Ma	Max. Inv. Current, $\mu$ a at Volts	Max. Oper. Volts	Net Each, Lots of	
				1-99	100-999
1N278	20	125 at -50*	50	\$0.88	\$0.65
T20G	20	500 at -50*	50	1.25	.90
T22G	40	30 at -10* 20 at -10*	15	1.25	.90

### HIGH RESISTANCE TYPES (FIG. N-4)

Transitron Type	Min. Fwd. Cur. at +1 v., Ma	Max. Inv. Current, $\mu$ a at Volts	Max. Oper. Volts	Net Each, Lots of	
				1-99	100-999
T5G	40	100 at -100	100	\$0.84	\$0.63
T9G	100	20 at -50	60	1.55	1.15
T13G	40	2 at -10	20	1.05	.78
1N67A	5	50 at -50†	80	.28	.21

### HIGH CONDUCTANCE TYPES (FIG. N-4)

Transitron Type	Min. Fwd. Cur. at +1 v., Ma	Max. Inv. Current, $\mu$ a at Volts	Max. Oper. Volts	Net Each, Lots of	
				1-99	100-999
1N283	200	20 at -10	20	\$0.51	\$0.40
1N273	100	20 at -20	30	.66	.50
1N98A	40	100 at -50†	80	.31	.24

\*At 75° C. †And 5 at -5. ‡And 8 at -5.

### MULTI-PURPOSE COMPUTER TYPES

Transitron Type	Fig.	Max. Inv. Oper. Volts	Max. Avg. Fwd. Cur. at 25° C, Ma	Max. Recovery Time, $\mu$ sec	Net Each, Lots of	
					1-99	100-999
1N643	N-5	180	40	0.3	\$1.45	\$1.00
1N658	N-5	100	200	0.3	1.76	1.20
1N659	N-1	50	100	0.3	.58	.39
1N660	N-1	100	100	0.3	.69	.46
1N661	N-1	200	100	0.3	1.75	1.30
1N662	N-5	90	40	0.5	.66	.44
1N663	N-5	90	60	0.5	1.20	.80
1N691	N-1	70	200	0.8*	3.38	2.25
1N693	N-1	180	200	0.8*	6.00	4.05
1N252	N-1	20	40	0.15	1.25	.90
1N993†	N-1	8	20	0.004	4.80	3.40
1N625	N-1	25	30	1.0	.43	.29
1N629	N-1	180	30	1.0	.86	.55

\*Switching from 500 ma to 40 v. †S266G.

### SUBMINIATURE RECTIFIERS

Transitron Type	Fig.	Max. Inv. Oper. Volts	Max. Average Current		Net Each, Lots of	
			Forward at 150° C	Inverse at Rated Voltage $\mu$ a	1-99	100-999
1N689	N-1	600	150	200 at 150° C	\$2.50	\$1.65
1N645	N-5	225	150	15 at 100° C	1.40	.93
1N646	N-5	300	150	15 at 100° C	1.65	1.10
1N647	N-5	400	150	20 at 100° C	1.80	1.20
1N648	N-5	500	150	20 at 100° C	1.95	1.30
1N649	N-5	600	150	20 at 100° C	2.50	1.65

### HIGH CONDUCTANCE TYPES

Transitron Type	Fig.	Max. Inv. Oper. Volts	Max. Current at 150° C		Net Each, Lots of	
			Average Fwd., Ma	Inverse, $\mu$ a at V.	1-99	100-999
1N482	N-1	36	25	30 at 30	\$0.59	\$0.46
1N482A	N-1	36	50	15 at 30	.59	.46
1N482B	N-1	36	50	5 at 30	.59	.46
1N483	N-1	70	25	30 at 60	.61	.47
1N483A	N-1	70	50	15 at 30	.61	.47
1N483B	N-1	70	50	5 at 60	.61	.47
1N484	N-1	130	25	30 at 125	.61	.47
1N484A	N-1	130	50	15 at 125	.61	.47
1N484B	N-1	130	50	5 at 125	.61	.47
1N485	N-1	180	25	30 at 175	.77	.55
1N485A	N-1	180	50	15 at 175	.77	.55
1N485B	N-1	180	50	5 at 175	.77	.55
1N486A	N-1	225	50	25 at 225	.85	.65
1N486B	N-1	225	50	10 at 225	.85	.65
1N487	N-1	300	25	50 at 300	.90	.70
1N487A	N-1	300	50	25 at 300	1.20	.94
1N488	N-1	380	25	50 at 380	1.05	.78
1N488A	N-1	380	50	25 at 380	1.54	1.19
1N456*	N-1	25	25	5 at 25	.37	.29
1N457*	N-5	60	25	5 at 60	.36	.30
1N458*	N-5	125	25	5 at 125	.48	.32
1N459*	N-5	175	25	5 at 175	.51	.34
1N461*	N-1	25	25	30 at 25	.35	.28
1N462*	N-1	60	25	30 at 60	.38	.30
1N463*	N-1	175	15	30 at 175	.46	.36
1N464*	N-1	125	20	30 at 125	.45	.35

\*Available with suffix A (1N456A) at same price. Same voltage ratings but 50 mA average forward current.

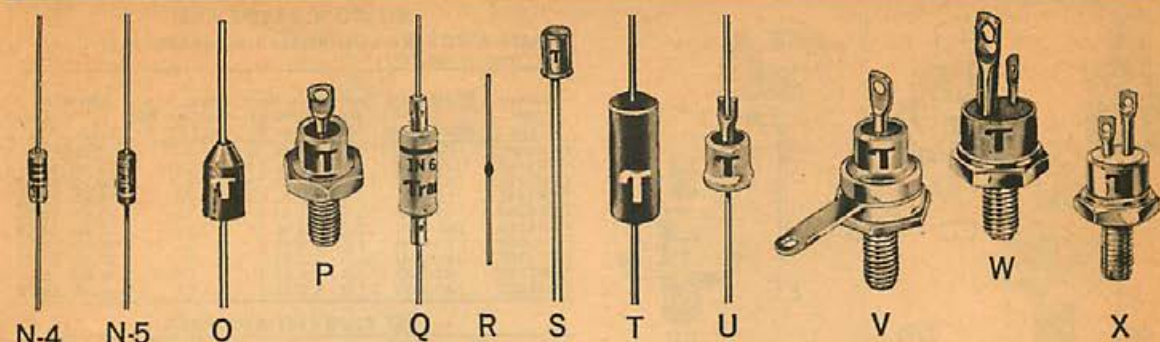
### MILITARY TYPES

Transitron Type	Net Ea., Lots of		Transitron Type	Net Ea., Lots of	
	1-99	100-999		1-99	100-999
JAN1N251	\$2.00	\$1.50	USA1N643	\$1.45	\$1.00
JAN1N457	.36	.30	USA1N658	1.76	1.20
JAN1N458	.48	.32	USA1N662	.90	.60
JAN1N459	.51	.34	USA1N663	1.20	.80
JAN1N483B	.61	.47	USN1N914	.45	.30
JAN1N485B	.77	.55	USN1N3064	.67	.44
JAN1N486B	.85	.65	USN1N3600	3.65	2.50

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## SILICON REGULATORS

Dynamic resistance given is measured by imposing a small AC current upon the test DC current.

### MILITARY TYPES (FIG. U)

Transitron Type	Nom. Volts ±5%	Dyn. Resis.	Test Cur., Ma	Inv. Current		Net Each	
				V <sub>RT</sub>	I <sub>R</sub> μa	1-99	100-999
USN 1N3016B	6.8	3.5	37	5.2	150	\$3.75	\$3.00
USN 1N3017B	7.5	4.0	34	5.7	100	3.75	3.00
USN 1N3018B	8.2	4.5	31	6.2	50	3.75	3.00
USN 1N3019B	9.1	5.0	28	6.9	25	3.75	3.00
USN 1N3020B	10	7	25	7.6	25	3.75	3.00
USN 1N3021B	11	8	23	8.4	10	3.75	3.00
USN 1N3022B	12	9	21	9.1	10	3.75	3.00
USN 1N3023B	13	10	19	9.9	10	3.75	3.00
USN 1N3024B	15	14	17	11.4	10	3.75	3.00
USN 1N3025B	16	16	15.5	12.2	10	3.75	3.00
USN 1N3026B	18	20	14	13.7	10	3.75	3.00
USN 1N3027B	20	22	12.5	15.2	10	3.75	3.00
USN 1N3028B	22	23	11.5	16.7	10	3.75	3.00
USN 1N3029B	24	25	10.5	18.2	10	3.75	3.00
USN 1N3030B	27	35	9.5	20.6	10	3.75	3.00
USN 1N3031B	30	40	8.5	22.8	10	3.75	3.00
USN 1N3032B	33	45	7.5	25.1	10	3.75	3.00

### 750-MILLIWATT TYPES (FIG. U)

Transitron Type	Volts	Test Cur., Ma	Dyn. Resis.	Other Tolerances Available	Net Each	
					1-99	100-999
1N2032	4.3-5.4	10	55	±5%	\$2.65	\$2.00
1N2035	7.5-10.0	10	15	±5%	2.65	2.00
1N2038	13.5-18.00	5	120	±5%	2.65	2.00
1N2040	20.0-27.0	5	300	±5%	2.65	2.00

### 1-WATT TYPES (FIG. U)

Voltage tolerance ±20%, 1N3016-1N3051; all others ±10%.

Transitron Type	Volts	Test Cur., Ma	Dyn. Resis.	Other Tolerances Available	1-99	100-999
1N3016	6.8	37	3.5	±10, ±5	\$2.50	\$1.95
1N3033	33.0	7.5	45	±10, ±5	2.50	1.95
1N3043	91.0	2.8	250	±10, ±5	2.50	1.95
1N3051	200	1.2	1500	±10, ±5	2.50	1.95
1N1765	5.6	100	1.2	±5	2.40	1.60
1N1769	8.2	100	2.4	±5	2.80	1.95
1N1770	9.1	50	3.0	±5	2.80	1.95
1N1777	18	50	11.0	±5	2.80	1.95
1N1778	20	15	13.0	±5	2.80	1.95
1N1785	56	15	88	±5	3.20	2.35
1N1790	62	5	105	±5	3.30	2.45
1N1795	100	5	260	±5	3.30	2.45

### 1-WATT EPOXY TYPES (FIG. O)

Voltage tolerance ±20%.

Transitron Type	Volts	Test Cur., Ma	Dyn. Resis.	Other Tolerances Available	1-99	100-999
EVR4	5.6	45	9	±10, ±5	\$0.75	\$0.50
EVR12	12	21	17	±10, ±5	.75	.50
EVR24	24	11	34	±10, ±5	.75	.50
EVR30	30	9	50	±10, ±5	.75	.50
EVR40	40	7	80	±10, ±5	.75	.50
EVR56	56	4.5	130	±10, ±5	.75	.50
EVR68	68	3	200	±10, ±5	.75	.50
EVR75	75	3	225	±10, ±5	.75	.50
EVR100	100	2.5	400	±10, ±5	.75	.50
EVR110	110	2.5	450	±10, ±5	.75	.50

### 10-WATT TYPES (FIG. P)

Standard polarity cathode to case. Reverse polarity (suffix R) also available. Voltage tolerance ±20%, 1N2970-1N3015.

Transitron Type	Volts	Test Cur., Ma	Dyn. Resis.	Other Tolerances Available	1-99	100-999
1N2041	4.3-5.4	1000	1.0	±2, ±5	\$5.00	\$3.75
1N2046	11.0-14.5	500	2.0	±2, ±5	5.00	3.75
1N2049	20.0-27.0	150	8.0	±2, ±5	5.00	3.75
1N2970	6.8	370	1.2	±10, ±5	5.10	3.85
1N2988	27	95	7*	±10, ±5	5.10	3.85
1N2997	51	50	15*	±10, ±5	5.10	3.85
1N3005	100	25	40*	±10, ±5	5.10	3.85
1N3015	200	12	300*	±10, ±5	5.10	3.85

\*Dynamic resistance measured by imposing an AC signal equal to 10% of test current upon the DC current.

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### 250-MILLIWATT TYPES (FIG. N-1)

Specifications are at 25° C. Max. temp. range -65° C to +150° C.

Transitron Type	Volts	Test Cur., Ma	Dyn. Resis. Ohms	Nominal Tolerance	Net Each	
					1-99	100-999
1N761	4.3-5.4	10	40	±5%	\$1.55	\$1.30
1N761-1	4.5	10	40	±5%	1.80	1.55
1N761-2	5.0	10	40	±5%	1.80	1.55
1N762	5.2-6.4	10	18	±5%	1.55	1.30
1N762-1	5.5	10	18	±5%	1.80	1.55
1N762-2	6.0	10	18	±5%	1.80	1.55
1N763	6.2-8.0	10	7	±5%	1.55	1.30
1N763-1	6.5	10	7	±5%	1.80	1.55
1N763-2	7.0	10	7	±5%	1.80	1.55
1N763-3	7.5	10	7	±5%	1.80	1.55
1N764	7.5-10.0	10	12	±5%	1.55	1.30
1N764-1	8.0	10	12	±5%	1.80	1.55
1N764-2	8.5	10	12	±5%	1.80	1.55
1N764-3	9.0	10	12	±5%	1.80	1.55
1N764-4	9.5	10	12	±5%	1.80	1.55
1N765	9.0-12.0	5	45	±5%	1.55	1.30
1N765-1	10	5	45	±5%	1.80	1.55
1N765-2	11	5	45	±5%	1.80	1.55
1N766	11.0-14.5	5	55	±5%	1.55	1.30
1N766-1	12	5	55	±5%	1.80	1.55
1N766-2	13	5	55	±5%	1.80	1.55
1N766-3	14	5	55	±5%	1.80	1.55
1N767	13.5-18.0	5	70	±5%	1.55	1.30
1N767-1	15	5	70	±5%	1.80	1.55
1N767-2	16	5	70	±5%	1.80	1.55
1N767-3	17	5	70	±5%	1.80	1.55
1N768	17.0-21.0	5	100	±5%	1.55	1.30
1N768-1	18	5	100	±5%	1.80	1.55
1N768-2	19	5	100	±5%	1.80	1.55
1N768-3	20	5	100	±5%	1.80	1.55
1N769	20.0-27.0	5	150	±5%	1.55	1.30
1N769-1	22	5	150	±5%	1.80	1.55
1N769-2	24	5	150	±5%	1.80	1.55
1N769-3	26	5	150	±5%	1.80	1.55
1N769-4	28	5	150	±5%	1.80	1.55

### LOW VOLTAGE 250-MILLIWATT TYPES (FIG. N-1)

Specifications at 25° C. Max. temp. range -65° C to +175° C.

Transitron Type	Volts	Test Cur., Ma	Dyn. Resis. Ohms	Nominal Tolerance†	Net Each	
					1-99	100-999
1N702	2.0-3.2	5	60*	±10%	\$1.50	\$1.25
1N703	3.0-3.9	5	55*	±10%	1.50	1.25
1N704	3.7-4.5	5	45*	±10%	1.50	1.25
1N705	4.3-5.4	5	35*	±10%	1.50	1.25
1N706	5.2-6.4	5	20*	±10%	1.50	1.25
1N707	6.2-8.0	5	10*	±10%	1.50	1.25
1N708	5.6	25	2.6	±10%	1.50	1.25
1N709	6.2	25	4.1	±10%	1.50	1.25
1N710	6.8	25	4.7	±10%	1.50	1.25
1N711	7.5	25	5.3	±10%	1.50	1.25
1N712	8.2	25	6.0	±10%	1.50	1.25
1N713	9.1	12	7.0	±10%	1.50	1.25
1N714	10	12	8.0	±10%	1.50	1.25
1N715	11	12	9.0	±10%	1.50	1.25
1N716	12	12	10	±10%	1.50	1.25

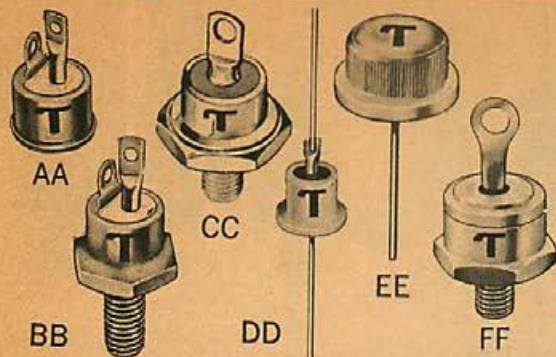
### 400-MILLIWATT TYPES (FIG. N-1)

Transitron Type	Volts	Test Cur., Ma	Dyn. Resis. Ohms	Nominal Tolerance	Net Each	
					1-99	100-999
1N746†	3.3	20.0	28	±10%	\$1.50	\$1.25
1N747†	3.6	20.0	24	±10%	1.50	1.25
1N748†	3.9	20.0	23	±10%	1.50	1.25
1N749†	4.3	20.0	22	±10%	1.50	1.25
1N740†	4.7	20.0	19	±10%	1.50	1.25
1N751†	5.1	20.0	17	±10%	1.50	1.25
1N752†	5.6	20.0	11	±10%	1.50	1.25
1N753†	6.2	20.0	7	±10%	1.50	1.25
1N754†	6.8	20.0	5	±10%	1.50	1.25
1N755†	7.5	20.0	6	±10%	1.50	1.25
1N756†	8.2	20.0	8	±10%	1.50	1.25
1N757†	9.1	20.0	10	±10%	1.50	1.25
1N758†	10.0	20.0	17	±10%	1.50	1.25
1N759†	12.0	20.0	30	±10%	1.50	1.25

\*At 10 ma test current. †For ±5% tolerance add suffix A (i.e., 1N702A, 1N746A); specify nom. voltage on 1N702-1N707 types. ‡Also available in MIL type USN1N746-USN1N759, Fig. N-5. Net Each, Lots of: 1-99, \$2.90; 100-999, \$2.20.



# Transitron Semiconductors



## SILICON REFERENCES

### CERTIFIED VOLTAGE REFERENCES (FIG. N-3)

Voltage stability observed over 1000 hours. Max. change in voltage at 7.5 ma over temp. range of -50° C to +100° C.

Transitron Type	Cert. Voltage Stability	Voltage At 7.5 Ma, Volts	Temp. Stab., Mv	Max. Dyn. Resis., Ohms*	Net Each
					1-99 100-999
1N3501	±.01%	6.2-6.5	±6	12	\$30.00 \$24.00
1N3502	±.01%	6.2-6.5	±3	12	35.00 28.00
1N3503	±.005%	6.2-6.5	±6	12	48.00 36.00
1N3503A	±.005%	6.2-6.5	±3	12	50.00 40.00
1N3504	±.002%	6.2-6.5	±6	12	60.00 48.00
1N3504A	±.002%	6.2-6.5	±3	12	70.00 56.00

\*At 7.5 ma Iz.

## PACKAGED REFERENCE ASSEMBLIES

### CLOSE VOLTAGE TOLERANCE (FIG. T)

Voltage tolerance ±5%, SV3140, SV3145; ±2% all others.

Transitron Type	Volts	Other Tolerances Available	Test Cur., Ma	Max. Dyn. Resis., Ohms	Net Each
					1-99 100-999
SV3140	1.15	±2%	10.0	20	\$ 2.80 \$1.70
SV3145	3	±2%	10.0	20	5.40 3.40
SV4010	10	±1%	1.0	90 at 10 ma	6.00 4.80
SV4100	100	±1%	0.5	600 at 5 ma	10.00 8.00

## LOW TEMPERATURE COEFFICIENT (FIG. T)

Transitron Type	Temp. Coef.* %/° C	Voltage* At 25° C Min.-Max.	Max. Dyn. Resis.25°C* Ohms	Net Each
				1-99 100-999
SV3176	±.001	8.0-8.8	15	\$18.80 \$14.50
SV3175	±.002	8.0-8.8	15	9.30 7.10
SV3174	±.003	8.0-8.8	15	7.70 6.15
SV3173	±.005	8.0-8.8	15	6.50 5.20
SV3171	±.01	6.7-7.4	10	5.00 3.90
SV3170	±.02	6.7-7.4	10	4.50 3.60
SV3207†	±.001	16.0-17.6	30	21.60 16.60
SV3206†	±.002	16.0-17.6	30	14.90 11.50
SV8227*	±.001†	12.0-13.2†	30†	17.30 12.80
SV8237*	±.001†	18.0-19.8†	45†	25.10 18.70
SV8247*	±.001†	24.0-26.4†	60†	33.00 24.55

## INDUSTRIAL TYPES (FIG. N-1)

Transitron Type	Cert. Voltage Stability	Voltage At 7.5 Ma, Volts	Temp. Stab., Mv	Max. Dyn. Resis., Ohms*	Net Each
					1-99 100-999
1N3496	±.0005‡	5.9-6.5	15	5	\$ 3.75 \$ 2.50
1N3497	±.001‡	5.9-6.5	15	5.75	4.50
1N3498	±.002‡	5.9-6.5	15	9.00	7.00
1N3499	±.005‡	5.9-6.5	15	19.00	15.50
1N3500	±.01‡	5.9-6.5	15	3.00	2.05

## 6.2-VOLT SUBMINIATURE (FIG. N-1)

Transitron Type	Cert. Voltage Stability	Voltage At 7.5 Ma, Volts	Temp. Stab., Mv	Max. Dyn. Resis., Ohms*	Net Each
					1-99 100-999
1N829	±.0005‡	5.9-6.5†	15†	5	\$23.50 \$19.00
1N827A*	±.001‡	5.9-6.5†	10†	14.25	12.25
1N825	±.002‡	5.9-6.5†	15†	5.60	4.50
1N824*	±.005‡	5.9-6.5†	15†	9.60	8.00
1N823A*	±.005‡	5.9-6.5†	10†	5.25	4.50
1N822*	±.01‡	5.9-6.5†	15†	7.35	5.90
1N821A*	±.01‡	5.9-6.5†	10†	3.85	3.10

## 8.4-VOLT SUBMINIATURE (FIG. N-1)

Sum X A, -55° C to +150° C range; others -55° C to +100° C.

Transitron Type	Cert. Voltage Stability	Voltage At 7.5 Ma, Volts	Temp. Stab., Mv	Max. Dyn. Resis., Ohms*	Net Each
					1-99 100-999
1N3154	±.01	8.0-8.8	15	5	\$ 3.05 \$ 2.40
1N3154A	±.01	8.0-8.8	15	3.70	3.15
1N3155	±.005	8.0-8.8	15	3.60	2.90
1N3155A	±.005	8.0-8.8	15	5.00	4.30
1N3156	±.002	8.0-8.8	15	8.75	6.50
1N3156A	±.002	8.0-8.8	15	10.25	7.75
1N3157	±.001	8.0-8.8	15	21.75	18.00
1N3157A	±.001	8.0-8.8	15	24.00	20.00

\*At 10 ma Iz, †At 7.5 ma Iz. ‡Matched set of two low voltage assemblies. Measured by referencing voltage at 25° C to voltages at: †0° C and +75° C; ‡-60° C and +100° C at 7.5 ma Iz. \*Double anode type. \*Fig. N-5. \*Tolerance ±5%; ±1% and ±2% also available.

## MIL TYPES

Transitron Type	Net Each, Lots of	Transitron Type	Net Each, Lots of
	1-99 100-999		1-99 100-999
USAF1N429	\$ 7.25 \$ 5.50	USN1N829	\$36.00 \$27.50
USN1N821	5.05 3.50	USN1N3154	4.20 3.50
USN1N823	6.20 4.70	USN1N3155	5.30 4.40
USN1N825	9.00 7.70	USN1N3156	12.50 9.85
USN1N827	18.50 15.90	USN1N3157	27.15 22.50

## SILICON RECTIFIERS

### FAST RECOVERY CONTROLLED AVALANCHE (FIG. P)

Max. reverse recovery, 0.10 μsec.

Transitron Type	Avalanche Volts		Max. Fwd. Voltage V. at A.	Max. Avg. Inv. Cur., Ma at 150° C	Net Each	
	Min.-Max.	At Ma			1-99	100-999
TFR1205Z	60-300	5	1.2 at 12	4.0	\$19.80 \$12.35	
TFR1210Z	120-400	5	1.2 at 12	4.0	23.25 14.85	
TFR1220Z	240-500	5	1.2 at 12	4.0	26.75 17.30	
TFR1240Z	480-800	5	1.2 at 12	4.0	35.50 23.10	
TFR605Z	60-300	2.5	1.2 at 6	3.0	16.95 10.75	
TFR620Z	240-500	2.5	1.2 at 6	3.0	23.25 14.60	
TFR305Z	60-300	1.5	1.2 at 3	2.0	13.50 8.75	
TFR320Z	240-500	1.5	1.2 at 3	2.0	18.75 13.00	
TFR105Z	60-300	1.0	1.2 at 1	1.0	10.00 6.50	
TFR120Z	240-500	1.0	1.2 at 1	1.0	16.50 10.75	

## FAST RECOVERY RECTIFIERS

Transitron Type	Fig.	Piv Volts	Max. Fwd. At 25° C V. at A.	Max. Inv. Cur. at 100° C	Max. Rev. Recov., μsec.	Net Each
						1-99 100-999
1N3874	V	50	1.4 at 6	1	.200	\$11.25 \$ 8.50
1N3875	V	100	1.4 at 6	1	.200	16.50 10.75
1N3882	P	300	1.4 at 6	1	.200	21.00 13.85
1N3883	P	400	1.4 at 6	1	.200	25.50 17.00
1N3889	P	50	1.4 at 12	3	.200	15.50 10.25
1N3891	P	200	1.4 at 12	3	.200	22.00 14.50
1N3887	V	300	1.4 at 12	3	.200	25.00 17.75
1N3888	V	400	1.4 at 12	3	.200	27.00 19.00
1N3899	CC	50	1.4 at 20	6	.200	20.00 13.20
1N3900	CC	100	1.4 at 20	6	.200	27.00 17.80
1N3909	CC*	50	1.4 at 30	10	.200	49.50 37.00

\*With ceramic base.

## FAST RECOVERY RECTIFIERS

Ratings at 150° C, except as otherwise noted.

Transitron Type	Fig.	Max. Fwd. Cur. Amps	Max. Avg. Recur. Piv Volts	Max. Inv. Current Ma	Net Each
					1-99 100-999
1N538*	DD	0.25	200	0.3	\$0.53 \$0.34
1N540*	DD	0.25	400	0.3	.68 .43
1N547*	DD	0.25	600	0.3	.96 .60
1N561†	DD	0.50	1000	0.3	2.40 1.80
1N1487†	DD	0.75	100	0.4	1.50 .28
1N1490†	DD	0.75	400	0.3	.68 .42
1N1492†	DD	0.75	600	0.3	.95 .59
1N1693†	DD	0.60	200	0.5	.47 .28
1N1695†	DD	0.60	400	0.5	.65 .42
1N1697†	DD	0.60	600	0.5	.92 .61
1N2506	DD	0.10	1000	0.2	3.50 2.35
1N2508	DD	0.10	1500	0.2	9.00 6.00
ER11†	O	0.60	1.0	0.025	.45 .25
1N2069†	O	0.75	200	0.01	.45 .27
1N2070†	O	0.75	400	0.01	.50 .30
1N2071†	O	0.75	600	0.01	.70 .38
1N3075	U	0.2	200	0.5	.58 .35
1N3079	U	0.2	400	0.5	.70 .40
1N3081	U	0.2	600	0.5	1.10 .70
1N3082 (TK21)	U	0.5	200	0.3	1.00 .75
1N3083 (TK41)	U	0.5	400	0.3	3.00 2.20
1N3084 (TK61)	U	0.5	600	0.3	4.25 2.90
TK20	U	0.25	200	0.2	.55 .33
TK40	U	0.25	400	0.2	.65 .42
1N253	P	1.0	95	0.1	1.05 .70
1N254	P	0.4	190	0.1	1.12 .75
1N255	P	0.4	380	0.15	1.72 1.15
1N256	P	0.2	570	0.25	2.40 1.60
1N1585	P	3.0	400	0.5	3.30 2.25
1N1587	P	3.0	600	0.5	4.25 2.90
1N1130†	P	0.3	1500	0.05	10.50 7.40
TM124	P	1.0	1200	0.5	16.00 12.00
TM155	P	0.4	1500	0.5	13.90 10.40
1N2493	P	6.0	200	2.0	2.00 1.35
1N2495	P	6.0	400	2.0	3.50 2.40
1N2497	P	6.0	600	2.0	4.40 3.00
1N1202	P	12.0	200	3.0	2.20 1.50
1N1204	P	12.0	400	3.0	3.75 2.55
1N1206	P	12.0	600	3.0	4.80 3.25
1N3210, R	FF	15.0	200	10.0	2.90 2.00
1N3212, R	FF	15.0	400	10.0	3.60 2.50
1N3214, R	FF	15.0	600	10.0	5.75 3.85
1N3659, R	EE	25.0	50	5.0	.75 .50
1N3661, R	EE	25.0	200	4.0	1.15 .75
1N3663, R	EE	25.0	400	3.0	1.50 1.00
1N3665, R	EE	25.0	600	2.0	2.75 1.80
1N249A	CC	20.0	100	5.0	1.75 1.15
1N250A	CC	20.0	200	5.0	2.45 1.65
TR402	CC	20.0	400	5.0	5.40 3.75
1N1184	CC	35.0	100	6.0	2.40 1.60
1N1186	CC	35.0	200	6.0	3.45 2.30
1N1188	CC	35.0	400	6.0	5.85 3.90
1N1190	CC	35.0	600	6.0	6.90 4.60

\*MIL type also available. †Ratings at 25° C, ambient.

## CERAMIC BASE REGULATORS (FIG. V)

Silicon stud mounted regulators with electrically insulated mounting bases available from Transitron. Feature high-alumina ceramic disc of low thermal resistance; high electrical insulation properties; elimination of hardware and simplification of series assemblies. Complete information on request.

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# Transitron Semiconductors

## SILICON PLANAR CONTROLLED RECTIFIERS

### POWER TYPES (FIG. W)

Transitron Type	Min. Pk. Rev. V.*	Max. Avg. Fwd. Cur., Amps at		Net Each, Lots of	
		25° C Case	100° C	1-99	100-999
TCR1020	100	20	10	\$10.50	\$ 7.00
TCR2020	200	20	10	15.00	10.00
TCR3020	300	20	10	21.00	14.00
TCR4020	400	20	10	26.25	17.50
2N681	25	16	8	8.50	5.65
2N682	50	16	8	9.35	6.20
2N683	100	16	8	10.15	6.75
2N684	150	16	8	12.65	8.40
2N685	200	16	8	14.20	9.45
2N686	250	16	8	17.95	11.95
2N687	300	16	8	20.95	13.95
2N688	400	16	8	25.45	16.95
2N689	500	16	8	31.85	21.20
TCR510	50	10	5	8.50	5.65
TCR1010	100	10	5	9.45	6.30
TCR1510	150	10	5	11.50	7.65
TCR2010	200	10	5	13.50	9.00
TCR2510	250	10	5	16.15	10.75
TCR3010	300	10	5	18.75	12.50
TCR3510	350	10	5	21.40	14.25
TCR4010	400	10	5	23.65	15.75
2N1842	25	10	4†	6.75	4.50
2N1843	50	10	4†	7.50	5.00
2N1844	100	10	4†	8.25	5.50
2N1845	150	10	4†	10.10	6.75
2N1846	200	10	4†	12.00	8.00
2N1847	250	10	4†	14.25	9.50
2N1848	300	10	4†	16.85	11.25
2N1849	400	10	4†	21.30	14.20
2N1850	500	10	4†	24.35	16.25

### POWER TYPES (FIG. X)

Transitron Type	Min. Pk. Rev. V.*	Leakage $\mu$ A	Max. Fwd. V.†	Net Each	
				1-99	100-999
TCR1005	100	5	3	\$ 7.00	\$ 4.75
TCR2005	200	5	3	11.50	7.75
TCR3005	300	5	3	16.00	10.65
TCR4005	400	5	3	20.00	13.60
2N1770A	25	4.7	3	6.10	4.05
2N1771A	50	4.7	3	6.95	4.60
2N1772A	100	4.7	3	8.55	5.70
2N1773A	150	4.7	3	11.05	7.35
2N1774A	200	4.7	3	12.90	8.50
2N1775A	250	4.7	3	15.70	10.45
2N1776A	300	4.7	3	18.35	12.20
2N1777A	400	4.7	3	22.50	15.00
2N1770	25	4.7	3	5.45	3.65
2N1771	50	4.7	3	5.95	3.95
2N1772	100	4.7	3	7.20	4.80
2N1773	150	4.7	3	9.70	6.45
2N1774	200	4.7	3	10.40	7.60
2N1775	250	4.7	3	14.20	9.45
2N1776	300	4.7	3	16.45	10.95
2N1777	400	4.7	3	19.90	13.25
2N1600	50	3	3†	5.70	3.80
2N1601	100	3	3†	6.00	4.40
2N1602	200	3	3†	10.50	7.00
2N1603	300	3	3†	15.00	10.00
2N1604	400	3	3†	20.00	13.60

### INDUSTRIAL TYPES (FIG. X)

Transitron Type	Min. Pk. Rev. V.*	Leakage $\mu$ A	Max. Fwd. V.†	Net Each
TCR3	501	.....	3†	\$1.95 \$1.30
TCR13	1001	.....	3†	2.25 1.50
TCR23	2001	.....	3†	2.55 1.70
TCR33	3001	.....	3†	3.75 2.50
TCR43	4001	.....	3†	5.50 3.35

\*And min. forward breakover voltage. †At 80° C case. ‡At 100° C. §At 75° C case.

### LOW LEAKAGE TYPES (FIG. X)

Transitron Type	Min. PRV. V.*	Leakage $\mu$ A	Max. Fwd. V.†	Net Each	
				1-99	100-999
TCR50	50	1.0	1.3	\$ 7.00	\$ 4.65
TCR51	100	1.0	1.3	9.00	6.00
TCR52	150	1.0	1.3	11.10	7.40
TCR53	200	1.0	1.3	13.50	9.40
TCR54	250	1.0	1.3	15.75	10.50
TCR55	300	1.0	1.3	18.40	12.25
TCR56	400	1.0	1.3	23.65	15.75

\*And min. fwd. breakdown. †Max. forward and max. reverse leakage current at 25° C. ‡At 3 amps.

### LOW CURRENT TYPES (FIG. G)

Transitron Type	Min. PRV. V.*	Max. Fwd. Ma†	Max. Gate; Ma	Net Each	
				1-99	100-999
2N1595	50	250	10§	\$ 3.00	\$ 2.00
2N1596	100	250	10§	4.90	3.25
2N1597	200	250	10§	9.40	6.25
2N1598	300	250	10§	14.40	9.60
2N1599	400	250	10§	19.30	12.85
2N2009	25	250	.2	3.75	2.50
2N2010	50	250	.2	4.15	2.75
2N2011	100	250	.2	6.60	4.40
2N2012	200	250	.2	12.50	8.25
2N2013	300	250	.2	24.00	16.00
2N2014	400	250	.2	34.15	22.75
2N1881	30	250	.2	3.75	2.50
2N1882	60	250	.2	4.15	2.75
2N1883	100	250	.2	6.60	4.40
2N1884	150	250	.2	9.50	6.35
2N1885	200	250	.2	12.40	8.25
2N1869	15	250	.2	5.10	3.40
2N1870	30	250	.2	11.10	7.40
2N1871	60	250	.2	12.50	8.40
2N1872	100	250	.2	15.00	10.30
2N1873	150	250	.2	18.00	12.00
2N1874	200	250	.2	20.50	13.50
2N1875	15	250	.02	12.80	8.55
2N1876	30	250	.02	12.95	8.90
2N1877	60	250	.02	26.90	19.20
2N1878	100	250	.02	29.90	22.15
2N1879	150	250	.02	36.20	24.15
2N1880	200	250	.02	38.80	27.45
2N1875A	15	250	.02	14.10	9.40
2N1876A	30	250	.02	14.80	9.80
2N1877A	60	250	.02	27.20	20.15
2N1878A	100	250	.02	30.80	22.85
2N1879A	150	250	.02	37.00	24.65
2N1880A	200	250	.02	39.30	27.75
2N1870A	30	250	.2	12.00	8.00
2N1871A	60	250	.2	13.50	9.00
2N1872A	100	250	.2	16.50	11.00
2N1874A	200	250	.2	22.50	15.00
2N2322	25	1.6A*	.2†	3.05	2.00
2N2323	50	1.6A*	.2†	3.35	2.20
2N2324	100	1.6A*	.2†	5.50	3.50
2N2325	150	1.6A*	.2†	7.95	5.25
2N2326	200	1.6A*	.2†	10.20	6.85
2N2327	250	1.6A*	.2†	12.95	8.65
2N2328	300	1.6A*	.2†	16.05	10.65
2N2329	400	1.6A*	.2†	21.35	14.15

### LOW CURRENT TYPES (FIG. H)

Transitron Type	Min. PRV. V.*	Max. Fwd. Ma†	Max. Gate; Ma	Net Each
2N948	30	280*	.02	\$ 8.45 \$ 5.90
2N949	60	280*	.02	11.00 7.70
2N950	100	280*	.02	16.20 11.35
2N951	200	280*	.02	27.00 18.90
2N884	15	280*	.02	7.20 5.05
2N885	30	280*	.02	8.65 6.30
2N886	60	280*	.02	9.75 7.30
2N887	100	280*	.02	11.85 8.90
2N888	150	280*	.02	16.95 12.75
2N889	200	280*	.02	20.00 15.00
2N876	15	280*	.2	5.55 4.05
2N877	30	280*	.2	6.75 5.05
2N878	60	280*	.2	7.50 5.90
2N879	100	280*	.2	9.85 7.40
2N880	150	280*	.2	14.75 10.00
2N881	200	280*	.2	16.95 12.75
2N2679	30	350*	.02	12.65 8.85
2N2680	60	350*	.02	16.95 11.90
2N2681	100	350*	.02	25.25 17.85
2N2682	200	350*	.02	40.50 28.85
2N2683	30	280*	.02	8.45 5.90
2N2684	60	280*	.02	11.25 7.90
2N2685	100	280*	.02	16.90 11.85
2N2686	200	280*	.02	27.00 18.90
2N2687	30	280*	.2	4.50 3.15
2N2688	60	280*	.2	7.05 4.95
2N2689	100	280*	.2	11.25 7.90
2N2690	200	280*	.2	18.00 12.60
2N3001	30†	350*	.02†	15.00 10.00
2N3002	60†	350*	.02†	19.80 13.20
2N3003	100†	350*	.02†	29.32 19.55
2N3004	200†	350*	.02†	42.60 28.40
2N3005	30†	350*	.21	10.50 7.00
2N3006	60†	350*	.21	13.20 8.80
2N3007	100†	350*	.21	17.75 11.85
2N3008	200†	350*	.21	28.35 18.90

\*And min. forward breakover volts. †DC at 100° C, amb. ‡Cur. to fire at +25° C. †With 1K ohm bias. †100 ohms, RL. \*Amps at 85° C case max. †At 25° C, amb. †At 55° C, amb. †12 ohms, RL. †Bias to K, 1K ohm for forward blocking only.

### MIL LOW CURRENT TYPES

Transitron Type	Net Each, Lots of	
	1-99	100-999
USN2N1878A	\$14.00	\$ 9.00
USN2N1879A	16.50	10.00
USN2N1872A	18.50	12.00
USN2N1874A	24.50	16.50

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### COMMERCIAL TYPES (FIG. G)

Transitron Type	Min. Fwd. Bkdn. Volts	Max. Fwd. DC. Amps†	Max. Gate Cur. Ma‡	Net Each, Lots of	
				1-99	100-999
TCR35C	30*	1.0	3.0	\$1.40	\$0.95
TCR65C	60*	1.0	3.0	1.50	1.00
TCR105C	100*	1.0	3.0	1.70	1.15
TCR205C	200*	1.0	3.0	1.90	1.30

\*At +125° C; negative gate bias 0.5 v. †At +80° C amb. ‡To fire at +25° C.

### COMMERCIAL TYPES (FIG. H)

Transitron Type	Min. Fwd. Bkdn. Volts	Max. Fwd. Cur. Ma	Max. Gate Cur. $\mu$ A	Net Each, Lots of	
				1-99	100-999
TSW30C	30†	200†	400	\$2.00	\$1.40
TSW60C	60†	200†	400	2.25	1.55
TSW100C	100†	200†	400	2.30	1.70
TSW200C	200†	200†	400	3.10	2.30

\*To fire at +25° C. †Also min. PRV. ‡Avg. at +75° C amb.

Transitron's wide variety of Planar SCR's in TO-18 package now available optionally in the compact TO-46 package—with identical power ratings!

### SWITCHES

#### MEDIUM POWER BISWITCHES (FIG. AA)

Stud mounted (suffix S) units Fig. BB.

Transitron Type	Fwd., Rev. Brkover V., Min.-Max.	Rev. Cur., Amps*	Net Each	
			1-99	100-999
TBS20A	200-400	5	\$5.00	\$3.30
TBS20B	200-400	3	4.30	2.80
TBS30A	400-600	5	6.25	4.00
TBS30B	400-600	3	5.30	3.50
TBS30C	400-600	1	4.40	3.00
TBS20AS	200-400	5	5.20	3.50
TBS20BS	200-400	3	4.50	3.00
TBS30AS	400-600	5	6.45	4.20
TBS30BS	400-600	3	5.50	3.70
TBS30CS	400-600	1	4.60	3.20

\*At 100° C.

#### HIGH POWER BISWITCHES (FIG. CC)



## SERIES 200 FEATHERWEIGHT COOLERS

Delta-T fin design excels for either natural or forced air convection conditions for all milliwatt transistors. Spring action automatically provides rigid contact of large areas; assures repeatable thermal performance. Three basic sizes fit the complete tolerance range of all major JEDEC milliwatt styles to provide maximum economy. Black ebonal "C" finish.

Wakefield Model 160 Installation Tool—For NF-201, 203, 204, 205, 207, 209, 222 and 224. Net Each. . . . . \$1.00

Wakefield Model 161 Installation Tool—For NF-211, 213 and 215. Net Each. . . . . 1.00

Wakefield Number	Fig.	Fits Case Dia., In.	Temp. Rise C/1 w.†	Size, Inches		Net Each, Lots of				
				O.D.	H.	1-49	50-499	500-999	1000-4999	
NF201	A	.161/.240*	66	0.64	3/8	0.15	\$0.27	\$0.21	\$0.16	\$0.11
NF203	B	.161/.240*	56	.64	3/8	.15	.29	.22	.17	.12
NF204	A	.275/.370†	71	.55	3/8	.26	.25	.20	.15	.10
NF205	A	.275/.370†	61	.72	3/8	.26	.27	.21	.16	.11
NF207	B	.275/.370†	48	.72	3/8	.26	.29	.22	.17	.12
NF209	C	.275/.370†	34	1.28	3/8	.26	.34	.29	.23	.18
NF211	A	.440/.544‡	53	.83	3/4	.42	.27	.21	.16	.11
NF213	B	.440/.544‡	46	.83	3/4	.42	.29	.22	.17	.12
NF215	C	.440/.544‡	31	1.40	3/4	.42	.34	.29	.23	.18
NF222‡	A	.165/.240*	56	.64	3/8	.15	.38	.30	.24	.19
NF224‡	A	.275/.370*†	45	.72	3/4	.26	.38	.30	.24	.19

\*Takes JEDEC TO-18, -24, -28, -40 and -44. †Takes TO-8, -9, -11, -12, -16, -26, -29, -33, -39, -42, -43 or -45 JEDEC types. ‡Takes TO-8, -38 or -48 types. §Natural convection. ¶Mounts two transistors. \*Fits TO-18, -24, -28 JEDEC types. \*Takes TO-5, -9, -11, -12, -16, -29, -33, -39, -42, -43 and -45 types.

## SERIES 300 SEMICONDUCTOR COOLERS (FIG. D)

Radial fin coolers for rectifier or stud-mounting transistor applications. Adapt to stack arrangements. Standard Teflon insulating washers. Accommodates press-fit and stud-mounted (up to 1 1/2" hex) semiconductors. Temperature Rise: (At 23 watts) Type 301, 100° C, 302, 72° C; 303, 52° C (full curves upon request). Black anodized finish, except mounting surface and one mounting foot are unanodized. Size: 2" sq. x—Type 301, 3/4" h.; 302, 1 1/2" h.; 303, 3" h. †Reg. DuPont TM.

Wakefield Number*	Net Each, Lots of				Wakefield Number*	Net Each, Lots of			
	1-49	50-99	100-249	250-499		1-49	50-99	100-249	250-499
NC301K	\$1.25	\$1.05	\$0.85	\$0.70	NC302NN	\$1.95	\$1.65	\$1.35	\$1.20
NC301L	1.55	1.30	1.05	.90	NC302R	1.65	1.40	1.15	1.00
NC301M	1.55	1.30	1.05	.90	NC302RR	1.95	1.65	1.35	1.20
NC301N	1.55	1.30	1.05	.90	NC303K	1.60	1.35	1.10	.95
NC301R	1.55	1.30	1.05	.90	NC303L	1.90	1.60	1.30	1.15
NC301RR	1.85	1.55	1.25	1.10	NC303M	1.90	1.60	1.30	1.15
NC302K	1.35	1.15	.95	.80	NC303MM	2.20	1.85	1.50	1.35
NC302L	1.65	1.40	1.15	1.00	NC303N	1.90	1.60	1.30	1.15
NC302M	1.65	1.40	1.15	1.00	NC303NN	2.20	1.85	1.50	1.35
NC302MM	1.95	1.65	1.35	1.20	NC303R	1.90	1.60	1.30	1.15
NC302N	1.65	1.40	1.15	1.00	NC303RR	2.20	1.85	1.50	1.35

## SERIES 400 NATURAL CONVECTION COOLERS

Optimum fin design in five models for safe, reliable operation for a wide range of semiconductor applications. Standard mounting with Teflon insulating washers available for all models. NC441 (Fig. F): Offers exceptional cooling with thermal resistance 0.54° C at 100 watts; cooling area, approx. 400 sq. in. Mounting area for semiconductor, 1.56" wide. All Others (Fig. E): Efficient design has 1.335" wide semiconductor mounting area. Black anodized finish. Size: (WxDxH) Type NC401, 4.75" x 1 1/4" x 1 1/2"; NC403, 4.75" x 1 1/4" x 3"; NC413, 4.75" x 1.88" x 3"; NC421, 4.75" x 2.63" x 3"; NC423, 4.75" x 2.63" x 5.50"; NC441, 4.75" x 4.50" x 5.50".

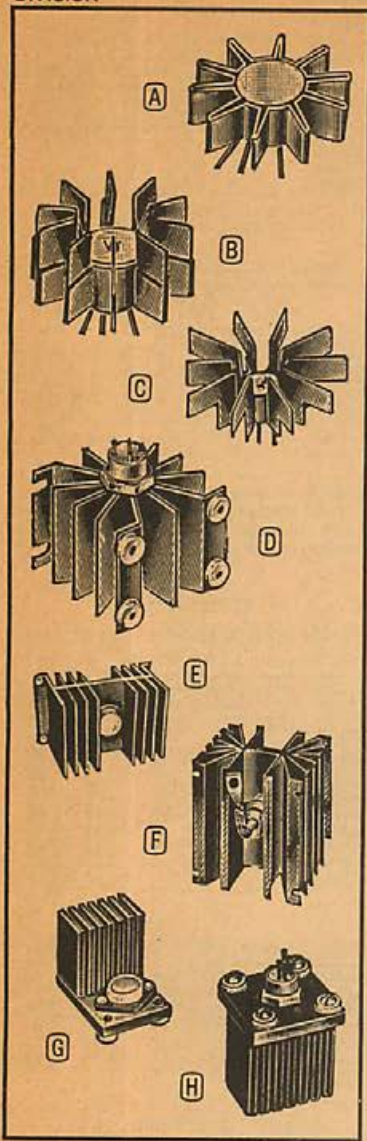
NC401A	\$1.90	\$1.55	\$1.30	\$1.10	NC421A	\$3.05	\$2.75	\$2.30	\$2.10
NC401B	1.90	1.55	1.30	1.10	NC421B	3.05	2.75	2.30	2.10
NC401E	1.90	1.55	1.30	1.10	NC421C	3.05	2.75	2.30	2.10
NC401K	1.60	1.30	1.10	.90	NC421K	2.75	2.50	2.10	1.90
NC403A	2.10	1.70	1.35	1.15	NC423A	4.15	3.55	3.00	2.80
NC403B	2.10	1.70	1.35	1.15	NC423B	4.15	3.55	3.00	2.80
NC403C	2.10	1.70	1.35	1.15	NC423K	3.85	3.30	2.80	2.60
NC403K	1.80	1.45	1.15	.95	NC441J	5.75	4.95	4.25	3.95
NC413A	2.60	2.20	1.85	1.65	NC441K	5.45	4.70	4.05	3.75
NC413B	2.60	2.20	1.85	1.65	NC441W	5.75	4.95	4.25	3.95
NC413K	2.30	1.95	1.65	1.45					

## SERIES 500 COPPERCOOL FORCED CONVECTION COOLERS

For critical designs requiring maximum performance under medium air pressure. Take semiconductors of any mounting style. Air duct adapters, top covers, Teflon washers available. FC501 (Fig. G): Thermal resistance 0.5° C/watt at 32 CFM\*; 2 1/4" w. x 1 1/4" d. x 1 1/4" h. FC502: Similar to (Fig. G), but set of vanes on each side of semiconductor. Thermal resistance 0.3° C/watt at 26 CFM\*; 3 1/2" w. x 1 1/4" d. x 1 1/4" h. FC503: Larger version of FC502. Thermal resistance 0.3° C/watt at 15 CFM\*; 3 1/2" w. x 3 1/4" d. x 1 1/4" h. FC504 (Fig. H): Thermal resistance 0.3° C/watt at 40 CFM\*; 1 1/2" w. x 1 1/2" d. x 1 1/2" h. FC505: Same as FC504, but vanes extend full width of mtg. surface, and larger. Thermal resistance 0.3° C/watt at 21 CFM\*; 2" w. x 1 1/4" d. x 1 1/4" h. Black ebonal "C" finish. \*Full curves on request.

Wakefield Number*	Net Each, Lots of			Wakefield Number*	Net Each, Lots of		
	1-49	50-99	100-249		1-49	50-99	100-249
FC501A	\$5.10	\$4.55	\$4.25	FC503A	\$14.10	\$12.65	\$11.90
FC501B	4.95	4.40	4.10	FC503B	13.95	12.50	11.75
FC501K	4.60	4.10	3.85	FC503K	13.60	12.20	11.50
FC502A	7.30	6.55	6.15	FC504K	4.20	3.80	3.50
FC502B	7.15	6.40	6.00	FC505K	6.10	5.35	5.00
FC502K	6.80	6.10	5.75				

\*Suffix Indicates Semiconductor Mounting Type: A, (i.e., NC401A), for TO-3. B, for TO-6 or TO-36. C, for 2N1015 etc. E, 0.20" dia. hole. J, 0.52" dia. hole (unanodized 1 1/4" dia. both sides). K, blank. L, 8-32 hole 1/4" deep. M, 10-32 hole 3/8" deep. N, 1/4-28 hole 3/8" deep. R, 0.4975" dia. reamed hole. W, 0.765" dia. hole (unanodized 1.312" dia. both sides).



### THERMAL COMPOUND

Used between semiconductor and heat-sink; or for thermoelectric modules. Thermal conductivity four times that of silicon grease.

No. 122—2-oz. can. Net Each. . . \$ 1.95  
No. 128—8-oz. can. Net Each. . . 5.10  
No. 1280—5-lb. can. Net Each. . . 30.00

### VERTICAL MOUNTING ADAPTERS

Meet MIL-STD-202, Cond. B for vibration. Two required per sink.

No. 111—For NC401 or NC403.  
Net Each, 1-99. . . 15c. 100-499. . . 12c  
No. 113—For NC413, 421 or 423.  
Net Each, 1-99. . . 18c. 100-499. . . 15c

### TEFLON INSULATORS

No.	For Heatsink No.	No. Req'd	Bkdn. Kv	Net Each
101	501, 502, 503, 504, 505	3 pr.	1	7c
103	301, 302, 303, 401, 403, 413, 421, 423, 621, 623, 624	4 pr.	1.5	5c
105	441, 1244, 1245, 1541, 2131	4	5	20c
107	Same as for 103	4	3.5	20c





## SERIES 600 CIRCUIT BOARD COOLERS

Low profile, flat surface coolers for printed circuit and externally mounted uses. Available for TO-8 and other transistor case styles and sizes to 1 1/2" O.D. **NC601** (Fig. I): For TO-8 transistors; temp. rise 89° C at 10 watts\*; 1.25" w. x 2.00" d. x 0.56" h. **NC603** (Fig. J): Same, but temp. rise 83° C at 12 watts\*; 2.00" w. x 2.00" d. x 0.56" h. **NC621** (Fig. J): For semis to 1.335" O.D.; temp. rise, 84° C at 18 watts\*; 1.50" w. x 4.75" d. x 0.48" h. **NC623** (Fig. J): Same, but temp. rise, 72° C at 23 watts\*; 3.00" w. x 4.75" d. x 0.46" h. **NC641** (Fig. I): For semis to 1.335" O.D.; temp. rise, 50° C at 23 watts\*; 3" w. x 4 1/2" d. x 1" h. Black anodize finish.

Wakefield Number*	Net Each, Lots of				Wakefield Number*	Net Each, Lots of			
	1-49	50-99	100-249	250-499		1-49	50-99	100-249	250-499
<b>NC601K</b>	\$1.10	\$0.90	\$0.70	\$0.55	<b>NC623A</b>	\$1.80	\$1.50	\$1.20	\$1.05
<b>NC603K</b>	1.20	.95	.75	.60	<b>NC623B</b>	1.80	1.50	1.20	1.05
<b>NC603T</b>	1.50	1.20	.95	.80	<b>NC623K</b>	1.50	1.25	1.00	.85
<b>NC621A</b>	1.65	1.35	1.10	.95	<b>NC641A</b>	1.95	1.60	1.30	1.10
<b>NC621B</b>	1.65	1.35	1.10	.95	<b>NC641B</b>	1.95	1.60	1.30	1.10
<b>NC621K</b>	1.35	1.10	.90	.75	<b>NC641K</b>	1.65	1.35	1.10	.90

## SERIES 680 CIRCUIT BOARD HEAT SINKS (FIG. K)

Optimum natural convection cooling per unit volume above the circuit board. Free circulation of air from any direction. High thermal conductivity aluminum alloy, black anodized. Accepts all popular transistors. **Temp. Rise:** **NC680-5**, 90° C at 10 watts\*; **NC680-75**, 90° C at 13 watts\*; **NC680-1.0**, 90° C at 15 watts\*; **NC680-1.25**, 100° C at 21 watts\*. **Size:** Base 1.81" sq. with mtg. centers 1.50", all units. Transistor mtg. area 1.31" dia., min. all units. Height, .50", **NC680-5**; .75", **NC680-75**; 1", **NC680-1.0**; 1.25", **NC680-1.25**.

Wakefield Number*	Net Each, Lots of				Wakefield Number*	Net Each, Lots of			
	1-24	25-49	50-99	100-499		1-24	25-49	50-99	100-499
<b>NC680-5A</b>	\$0.91	\$0.85	\$0.80	\$0.75	<b>NC680-1.0A</b>	\$0.91	\$0.85	\$0.80	\$0.75
<b>NC680-5B</b>	.91	.85	.80	.75	<b>NC680-1.0B</b>	.91	.85	.80	.75
<b>NC680-5K</b>	.91	.85	.80	.75	<b>NC680-1.0K</b>	.91	.85	.80	.75
<b>NC680-75A</b>	.91	.85	.80	.75	<b>NC680-1.25A</b>	.91	.85	.80	.75
<b>NC680-75B</b>	.91	.85	.80	.75	<b>NC680-1.25B</b>	.91	.85	.80	.75
<b>NC680-75K</b>	.91	.85	.80	.75	<b>NC680-1.25K</b>	.91	.85	.80	.75

## SERIES GN KING-SIZE HEAT SINKS (FIG. L)

End-mounted design for 1 1/2" and 1 3/4" hex size high power rectifiers and SCR's. Replace forced-convection, flat-plate types, eliminating fans; improves reliability. Black anodize aluminum with mounting area unanodized, two bare aluminum surfaces and 4 tapped holes for bolting directly to bus bar. Holes in other end bolt to aux terminals, plastic support bars, etc. **GN1157:** Temp. rise 100° C at 160 watts\*; 1.07" space for mounting semiconductor; 4.125" sq. x 5.0" h. **GN1251:** Temp. rise, 90° C at 200 watts\*; 1.532" space for semi mounting; 5.00" sq. x 5.50" h.

Wakefield Number*	Net Each, Lots of				Wakefield Number*	Net Each, Lots of			
	1-24	25-49	50-99	100-199		1-24	25-49	50-99	100-199
<b>GN1157-5H</b>	\$5.55	\$4.75	\$4.20	\$3.75	<b>GN1251-5.5W</b>	\$7.00	\$6.00	\$5.30	\$4.75
<b>GN1157-5J</b>	5.55	4.75	4.20	3.75	<b>GN1251-5.5K</b>	6.65	5.70	5.00	4.55
<b>GN1157-5K</b>	5.20	4.45	3.95	3.55					

## SERIES WN KING-SIZE HEAT SINKS (FIG. M)

Similar to GN Series, except foot-mounted for 1 1/2", 1 3/4" and 1 3/8" hex size high power rectifiers and SCR's. Aluminum alloy with black anodize finish. Insulators available (see previous page). **WN1244:** Temp. rise 94° C at 150 watts\*; mtg. area for semi 1" wide; 4.0" w. x 5.0" h. x 4.0" d. **WN1245:** Temp. rise 88° C at 200 watts\*; mtg. area 1 1/4" for semi; 5.0" w. x 5.0" h. x 5.0" d. **WN1541-6:** Temp. rise, 86° C at 250 watts\*; mtg. area for semi, 1.75"; 6.250" w. x 6.0" h. x 6.250" d. **WN1541-9:** Temp. rise 97° C at 350 watts\*; mtg. area 1.75" for semi; 6.250" w. x 9.0" h. x 6.250" d.

Wakefield Number*	Net Each, Lots of				Wakefield Number*	Net Each, Lots of			
	1-9	10-24	25-49	50-99		1-9	10-24	25-49	50-99
<b>WN1244-5H</b>	\$4.85	\$4.15	\$3.70	\$3.30	<b>WN1541-6Z</b>	\$ 9.55	\$ 8.20	\$ 7.25	\$ 6.50
<b>WN1244-5J</b>	4.85	4.15	3.70	3.30	<b>WN1541-6Y</b>	9.55	8.20	7.25	6.50
<b>WN1244-5K</b>	4.50	3.85	3.40	3.10	<b>WN1541-6K</b>	9.00	7.75	6.85	6.15
					<b>WN1541-9Z</b>	13.40	11.50	10.20	9.20
<b>WN1245-6W</b>	6.15	5.25	4.65	4.15	<b>WN1541-9Y</b>	13.40	11.50	10.20	9.20
<b>WN1245-6K</b>	5.80	4.95	4.40	3.95	<b>WN1541-9K</b>	13.10	11.25	9.90	8.90

## SERIES MN KING-SIZE HEAT SINKS AND INSERTS (FIG. N)

Natural convection sinks for multi-cell high power rectifiers up to 3 1/2" sq. 650-amp types. Temp. rise only 110° C at 600 watts dissipation. Aluminum with black anodize except at semi mounting surface for stud connection and high current busswork. Four mounting lugs on each end with std. 3/8" dia. bolts, nuts and washers; or, use type 109 mounting brackets (glass fiber reinforced plastic angles) for wall mounting or insulating (two required per sink), not supplied. **MN2131:** 3 1/2" semi mtg. area; 6.75" w. x 9.250" d. x 3.5" h., **MN2131-3.5**, 6.0" h., **MN2131-6.0**, 12.0" h., **MN2131-12.0**. **MN2159:** Insert size, 3.375" w. x 3.437" d. x 3.5" h., **MN2159-3.5**, 6.0" h., **MN2159-6.0**, 12.0" h., **MN2159-12.0**.

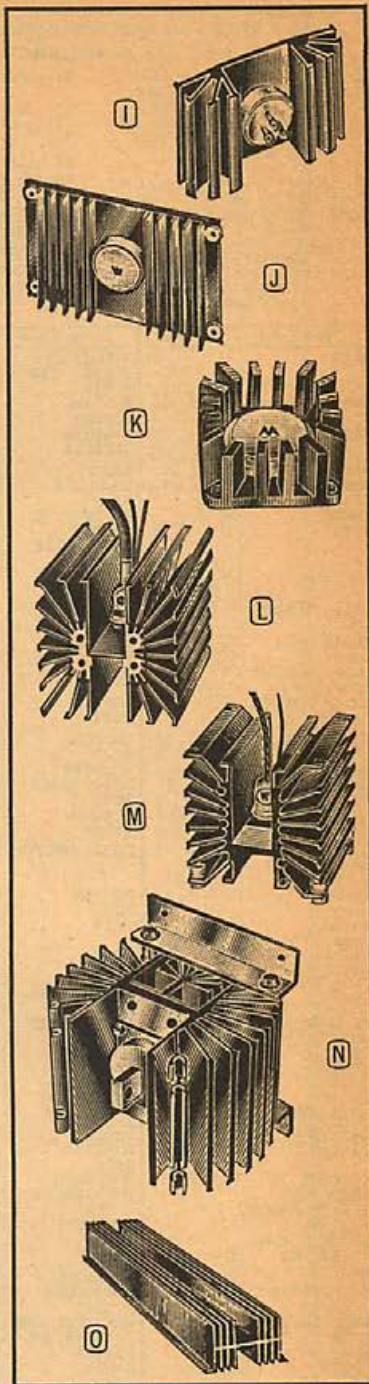
Wakefield Number*	Net Each, Lots of				Wakefield Number*	Net Each, Lots of			
	1-9	10-24	25-49	50-99		1-9	10-24	25-49	50-99
<b>MN2131-3.5K</b>	\$ 7.70	\$ 6.60	\$ 5.85	\$ 5.25	<b>MN2159-3.5K</b>	\$1.95	\$1.70	\$1.50	\$1.35
<b>MN2131-6K</b>	11.95	10.30	9.10	8.25	<b>MN2159-6K</b>	3.15	2.70	2.40	2.15
<b>MN2131-12K</b>	21.80	18.70	16.50	14.85	<b>MN2159-12K</b>	5.50	4.75	4.20	3.75

**Wakefield No. 109 Mounting Bracket**—Used with MN2131 series heat sinks. Insulation strength, 5000 volts. Size, 7.50" w. x 1.5" d. x 1.5" h. Mtg. centers spaced 6". Net Ea. .95¢

## 3-FOOT LONG EXTRUSIONS

Wakefield No.	Fig.	Like Cooler Series	Size, Inches W. x D.	Net Each, Lots of		
				1-4	5-9	10-25
300	D	NC301, 303	2.00 x 2.00	\$ 6.00	\$ 5.00	\$ 4.50
400	E	NC401, 403	4.81 x 1.25	7.75	6.50	5.75
410	E	NC413	4.81 x 1.87	10.50	9.25	8.00
420	E, O†	NC421, 423	4.81 x 2.63	12.75	11.00	9.50
440	F	NC441	4.75 x 4.50	20.50	17.50	15.50
600	I	NC801, 603	2.24 x 0.56	3.25	2.75	2.50
620	J	NC621, 623	4.81 x 0.46	5.75	5.00	4.25
640	I	NC641	4.12 x 1.00	7.50	6.50	5.75
1157	L	GN1157-5	4.12 x 4.12	25.50	22.00	19.25
1251	L	GN1251-5.5	5.00 x 5.00	32.25	27.75	24.50
1244	M	WN1244-5	4.00 x 4.00	25.50	22.00	19.25
1245	M	WN1245-6	5.00 x 5.00	32.50	28.00	24.50
1541	M	WN1541-6, -9	6.25 x 6.25	51.00	43.75	38.50
2131	N	MN2131-3.5, -6, -9	9.25 x 6.75	63.00	54.00	47.50
2159	N	MN2159 (Insert)	3.375 x 3.437	12.75	11.00	9.50

\*Full curves on request. †Actual appearance; others show configuration only. ‡For MN2131-12 (without insert): full curves for all types available on request. \*Suffix indicates Semi Mounting Type: A (i.e., NC621A), for TO-3, E, for TO-6 or TO-36, H, 0.390" dia. hole (unanodized 1 1/2" dia. both sides), J, 0.52" dia. hole (unanodized 1 1/2" dia. both sides), K, blank, T, for TO-8, W, 0.765" dia. hole (unanodized 1.312" dia. both sides), Y, 1.030" dia. hole (unanodized 1.812" dia. both sides), Z, 0.765" dia. hole (unanodized 1.812" dia. both sides).



## SERIES 300 HARDWARE STACKING KIT

Prototype designer kit permits user to build press-fit rectifier stacks from series 300 heat sinks in unlimited configurations. Pre-finished, ready-to-assemble hardware includes 102 pieces of 9 items: Bus bars, rectifier lugs, insulating supports, insulating spools, grommet insulators, rectifier driving blocks, and single and double mounting feet.

**Wakefield No. 300—Net Each. \$19.95**







# INDUSTRIAL TUBE CROSS REFERENCE

Tube Type	* Mfrs.	Tube Type	* Mfrs.	Tube Type	* Mfrs.	Tube Type	* Mfrs.
12A7WA	B17	V70D	B18	FW211	R9	5S501	X15
12AY7	B6,14,15,17,21	R71AV	B18	211D	B2	501N	B1
12J5WGT	B14	KU72Z	M9	211W	B7,18	501R	B1
12SW7	G13	757H, 75TL	B4	FW212	R9	502A	M6,13-15,21
12SY7	F13	CE75V	S2	212E	B9,14	502N	B1
KU15	M9	76NB3	P1	213A	O2	Z502S	X1
16B, F	O5	X80	O18	217C	A7,18	504R	B1
C16H, J	M5	80N, NB3	P1	FK218	X15	505N	B1
C16J/5665	M13,15	KU81	M9	220/72	O2	CK506AX	B1
FG17	Q7	81A	M6,21	SK220A-G, Z	K15	506N, 507N	B1
HV18	B7,18	83	O6,13,17	F-220C, CA	B9	CK510AX	C14
XD18R, W	A3	CE84R	S2	SK221A-H, K	K15	CK512AX	D14
G19	.14	85NB3	P1	ML222A	B14	GM514, C	X15
FV20	B18	CE86C	S2	SK222A-G, Z	K15	ML518	D14
GI-21	T11	90C1	O18	FW223, -227	R9	MLS-522B	V14
KY21A	M2,4,10,14	90NB3, 4	P1	FW235	R9	CK526AX	D14
		90NS	P1	FW241	R9	CK527AX	D14
RX21A	O2,4,10,14,15	KU91	A9	241B	B14	PL527A/185	O12
XD22R, W	A3	CE92	S2	242C	B7,18	QK531, 532	D14
KU23	B7,18	92	B1	249C	O2	CK533AX	D14
CE23C	S2	E92CC	B1	VC250/32	X1	CK534AX	C14
CE25C, 25D	S2	95V	.14	250R	A4,7,12	541	A18
CE25VC	S2	FG97	M6,14	250TH	B4,7,15	543	O7,18
CEB25A/B, C	.2	FG98A	M6	250TL	B4,7	545/3BAP7	O7,14,18
KU25	M9	KU99	M9	253	A4	CK547DX	D14
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		VC100/32	X1	AX260	M1	554, 558	O7,18
25T	B4,15	100C, CB, HB	P1	265	B7,18	561	O3,7,18
25Z6WGT	O17	100IG	B4	279A	B14,15	572A	B7,18
26A6	D13	100LB, NB	P1	FG280	A6	575A	O1,2,6,7,9,10,13-15,17,18,21
26A7GT	I13	100TH	B4,7,15	X282	X9	576A	A3,7,17,18
CE26C	S2	100TL	B4,7	QKK288 to QKK295	K14	577	O3,7,17,18
26C6	G13	NUP102	X11	ML298A	B14	577W, 578	O7,18
26D6	F13	102A	A14,15,21	HF300	B1,7,17	579B	A13,15,21
26E6WG	D17	105	M13,21	T300	B2,14	582	O7,18
26Z5W	A17	FG105	M1,6,10,14	300PC	.1	583	A7,14,17,18
KU27	M9	M105 Series	N19	Z303C	X1	RO585	O21
FG27A	M6	WL-106, -107	K21	304TH, 304TL	B4,15	589	A7,18
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28D7	D6,15	110G	N19	310PC	.1	604, /7014	O10,13-15
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28D7W	D15	F110X	B9	323B	M2,7,10,14,17	606, L	O10,14
CE29R, -30C, -30D	S2	SK113 to 115	K15	F328A	B9	610, /7723	O10,14,21
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CE30VC	S2	FT118	X15	338A	M17	615, /7018	O10,13-15
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		120	X7,11	ML342A, AA	B14	616L, 617	O10,14
A33	.6	120C, N, NB	P1	F343A, AA	B9	619	M21
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35T	B4,7,18	122 to 124	.21	ML354	B14	623	O10,14
35TG	B4	F124A, R	B9	ML356, /5771	B1,14	QKK623	K14
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IP37	S2	WL-126	.21	X368	X9	625	A10,14
E38, E39	M9	M128 Series	N19	X370	X9	627	M10,13-15,17,21
IP39	S2	F129B, R	B9	371B	O2,3,7,17,18	628	M15,21
IP40	S2	NU131	B11	QKK381	B14	629	M13,15,21
T40	B2,14	F134	B9	X388 to X393	G9	F631	B9
TZ40	B2,14	ML141, ML142	.14	393A	M2,6,7,10,14,17	632B	M1,10,13-15,17,21
IP41	S2	150AVP, CVP	S1	X394	X9	635, /7019	O10,13-15
M42 Series	N19	150B2/6354	O1	394A	X9	635L, /7020	O10,13-15
CE43V, 44V	.2	150N, 150NB	P1	X395	X9	635P, /6930	O10,14
M45 Series	N19	150UVP	S1	395A	M17	642	X15
KU47, 48	M9	152AVP	S1	X396 to 399	G9	KX642	X21
XD-47, 49R, W	A3	152TH, 152TL	B4	X400, FP400	G6,9	643	O10,14
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VC50/32	X1	153C	P1	400PC	.1	653/5835	O10,14
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R51AV	.14	FG154	M6	QK404/7158	K14	660, 661, /7786, P	O10,14
51UVP, 52AVP	S1	NU154	B11	404A	D17	664L, P	O10,14
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EA53	A1	161G, 171G	P1	407A	B6,13,15,17	672A	M6,13,15,21
53AVP, 53UVP	S1	172	M6,13,21	408A	D6,13,15	673	O1,2,6,7,9,10,13-15,17,18,21
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KU54	M9	WL-177	D21	GL411	O6	678	M6,15,17,21
54AVP	B1	PL177A	D12	QKK411A	R14	QK685/7571	X15
T55	B19	WL177WA	D12	QKK412	K14	S636	.14
VX55	S1	WL187, WL193	.21	5413	X15	A701, E701	X2,14
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56UVP	S1	T200	B2,14	421A	D17	705	X2,14
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VR57	N19	200C, CB, HB, L.B, N, NB	P1	450TH	B4,21	710/6011	M10,13,14
57AVP	S1	201	.5	QK456, /332	A14,21	NL710A, AL	M10,14
58AVP	S1	201A	O2	QK463, A	K14	NL710L, /7518	M10,14
58UVP	S1	HF201A	B17	QK464A/6835	.14	714, /7021	M10,13,14
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5920	B1, 8	6136, /6AU6WA	D6, 13, 15,	6350	B6, 13-15,	OB2WA	N14
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5931	A15	6137	X6	6354	O1, 8	F6558	X9
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7271	I 13							8159	B 9	8322/4CX350F	C 4		
7289,								8160/	B 9	CK8327	B 14		
/3CX100A5	B 4, 6, 14, 15							8161/	B 9	KU8329	M 9		
7290	V 21							8162/	D 6				
								3X2500A3	B 4, 15				
7292	J 1, 8							8167/	C 4, 14, 15				
7293	V 6, 21							4CX300A					
7293A, 7295B	V 13												
7296	B 6												
WL7297	M 21												
WL7306A/													
5684/C3JA	M 21												
WL7307A/													
6031/710	M 21												
7308	B 1, 14												
7310	O 7, 18												
7315	R 3, 13												
7316	B 1												
WL7317	X 21												
WL7321/													
G6J/L	M 21												
7322	M 9												
7323	M 17												
7325	V 6, 15, 21												
7326	B 13												
GB7327	B 15												
WL7328A	B 21												
F7328	B 9												
F7338, -7340	X 9												
ML7351, A	V 14												
WL7353	I 21												
7360	I 13												
7363	M 2, 21												
7370	B 6, 17												
7377, 7378	C 1, 8												
WL7383	J 21												
7389B	V 13												
7390	M 9												
7391, 7399	B 6												
7400, 7401	M 17												
7402	O 3, 7, 18												
7403	I 17												
7404	X 13												
7410	M 2, 17												
7412	B 13												
WL7413	B 21												
F7423	R 9												
7423	R 3												
7427	B 6												
WL7429	X 21												
7448	R 3												
7454, 7455	M 17												

SEE FIRST CROSS REFERENCE PAGE FOR KEY TO MANUFACTURERS AND TUBES



## PREFERRED ENTERTAINMENT TYPES

- FOR HIGH FIDELITY
- AM-FM RADIO
- TELEVISION
- INDUSTRY
- FOREIGN REPLACEMENT

Mullard electron tubes, universally recognized for advanced designs and reliability, offer a comprehensive range of tubes for high fidelity, AM-FM, television, and industrial applications. The vast manufacturing resources of the Mullard organization, including the world's most modern research laboratories, is your assurance of guaranteed tube design for maximum performance.

Mullard Type	EIA Type	List Price	Net Each	Mullard Type	EIA Type	List Price	Net Each
DAF96	1AH5	\$3.15	\$1.58	PCC88	7DJ8	\$4.65	\$2.33
DK96	1AB6	3.40	1.70	PCF80	9A8	2.55	1.27
DM70	1M3	2.05	1.03	PCF86	8HG8	2.90	1.45
DM71	1N3	2.15	1.08	PCF801	8GJ7	3.05	1.55
DY87	182A	2.75	1.38	PCL82	16A8	4.10	2.05
EABC80	6AK8	3.55	1.78	PCL84	15DQ8	4.10	2.05
EB91	6AL5	1.85	.88	PCL85	18GV8	2.80	1.40
EBC90	6AT6	1.90	.90	PCL86	14GV8	3.25	1.63
EBC91	6AV6	1.65	.80	PL36	25E5	6.10	3.05
EFC90	6B8	3.10	1.55	PL81	21A6	4.55	2.23
EFC99	6DC8	3.20	1.53	PL84	15CW5	2.80	1.33
EC80	6C4	9.80	4.90	PL500	27GB5	3.90	1.85
EC81	6R4	8.80	4.40	PY81	17Z3	3.45	1.73
EC86	6CM4	5.70	2.85	PY88	30AE3	2.80	1.46
EC88	6DL4	5.55	2.78	UBF80	17C8	3.50	1.75
EC90	6C4	1.85	.88	UCL82	50B8M8	3.00	1.50
EC92	6AB4	2.30	1.10	UL84	45B5	2.85	1.43
EC95	6ER5	3.80	1.78	UY85	38A3	1.65	.83
EC97	6FY5	2.80	1.38	XC95	2ER5	3.50	1.65
EC900	6HA5	4.05	1.93	XC900	2HA5	2.50	1.93
ECC33	.....	5.90	2.95	XC980	4BL8	2.55	1.20
ECC81	12AT7	3.05	1.43	XL84	8BQ5	2.90	1.38
ECC82	12AU7	2.45	1.18	XY88	16AQ3	2.80	1.35
ECC83	12AX7	2.55	1.20	1AB6	.....	3.40	1.70
ECC85	6AQ8	3.15	1.50	1AH5	.....	3.15	1.58
ECC86	6GM8	4.55	2.28	1M3	.....	2.05	1.03
ECC88	6DJ8	4.95	2.48	1N3	.....	2.15	1.08
ECC91	6J8	2.85	1.38	1A3	.....	2.75	1.38
ECL89	6AS8	3.50	1.75	2E5	.....	1.65	.85
ECL90	6BL8	3.95	1.88	2K5	.....	4.05	1.93
ECL92	6U8	3.30	1.55	3K5	.....	4.05	1.93
ECL96	6HG8	4.35	2.05	3HA5	.....	4.05	2.03
ECH81	6GJ7	3.60	1.70	4BL8	.....	2.55	1.20
ECH84	6AJ8	2.95	1.48	4EH7	.....	3.80	1.78
ECL80	6JX8	2.80	1.40	4EJ7	.....	3.80	1.78
ECL82	6AB8	3.40	1.70	4HA5	.....	4.05	1.93
ECL84	6BM8	3.05	1.45	5AQ4	.....	4.70	2.35
ECL86	6DX8	3.10	1.45	5AR4	.....	4.50	2.13
ECL90	6GV8	3.30	1.55	5GJ7	.....	3.05	1.53
ECL96	6GW8	3.20	1.53	5Z4GT	.....	5.30	2.65
EF80	6BX6	3.20	1.60	6AB4	.....	2.30	1.10
EF85	6BY7	3.25	1.63	6AB8	.....	3.40	1.70
EF86	6Z6	2.70	1.35	6AF4A	.....	4.00	1.88
EF89	6DA6	3.05	1.60	6AJ8	.....	2.95	1.48
EF91	6AM6	3.20	1.60	6AK5	.....	4.40	2.25
EF92	6CQ6	3.70	1.85	6AK8	.....	3.55	1.78
EF93	6BA6	2.90	1.45	6AL3	.....	2.95	1.48
EF94	6AV6	2.10	.98	6AL5	.....	1.85	.88
EF95	6AT6	4.40	2.25	6AM5	.....	3.30	1.65
EF183	6EH7	4.05	1.93	6AM6	.....	3.20	1.60
EF184	6EJ7	3.80	1.78	6AQ5	.....	2.15	1.00
EK90	6BE6	2.20	1.05	6AQ8	.....	3.15	1.50
EL34	6CA7	5.10	2.55	6AT6	.....	1.90	.90
EL37	.....	6.65	3.33	6AU6	.....	2.10	.98
EL41	6CK5	3.25	1.63	6AV6	.....	1.65	.80
EL81	6CJ6	4.35	2.18	6BA6	.....	2.00	.95
EL84	6BQ5	2.40	1.15	6BE6	.....	2.20	1.05
EL85	6BN5	5.80	2.90	6BL8	.....	3.95	1.88
EL86	6CW5	3.60	1.70	6BM8	.....	3.05	1.45
EL90	6AQ5	2.15	1.00	6BN5	.....	5.80	2.90
EL91	6AM5	3.30	1.65	6BQ5	.....	2.40	1.15
EL95	6DL5	3.20	1.60	6BX6	.....	3.20	1.60
EL500	6GB5	3.90	1.85	6BY7	.....	3.25	1.63
EM34	6CD7	3.95	1.98	6BZ6	.....	2.25	1.05
EM81	6DA5	2.75	1.38	6CA	.....	1.95	.88
EM84	6EAG	3.00	1.50	6CA7	.....	2.10	.98
EM88	6HCG	3.25	1.63	6CA7	.....	5.10	2.55
EY81	8R3	2.70	1.45	6CB6	.....	2.25	1.05
EY88	8AL3	2.95	1.38	6CD7	.....	3.95	1.98
EZ80	6V4	1.60	.80	6CJ6	.....	4.35	2.18
EZ81	6CA4	2.10	.98	6CM4	.....	5.70	2.85
EZ90	6X4	1.65	.80	6CW5	.....	3.60	1.70
GZ30	5Z4GT	5.30	2.65	6DA5	.....	2.75	1.38
GZ32	5AQ4	4.70	2.35	6DA6	.....	3.20	1.60
GZ34	5AR4	4.50	2.13	6DC8	.....	3.20	1.53
HBC91	12AV6	1.65	.80	6DJ8	.....	4.95	2.48
HCC85	17EW8	2.80	1.30	6DL4	.....	5.55	2.78
HFC93	12BA6	1.65	.80	6DL5	.....	3.20	1.60
HK90	12BE6	1.75	.83	6DR8	.....	3.60	1.80
HL92	50C5	2.15	1.08	6HX8	.....	3.10	1.45
HY90	35W4	1.10	.53	6EJ7	.....	4.05	1.93
KT66	.....	7.35	3.68	6EJ7	.....	3.80	1.78
KT77	.....	8.55	4.28	6EM5	.....	2.40	1.30
KT88	.....	11.20	5.60	6ER5	.....	3.80	1.78
LC900	3HA5	4.05	2.03	6ES8	.....	5.80	2.73
LCF801	5GJ7	3.05	1.53	6EU7	.....	2.70	1.28
LF183	4EH7	3.80	1.78	6FG6	.....	3.00	1.50
LF184	4EJ7	3.80	1.78	6FY5	.....	2.80	1.38
PC900	4HA5	4.05	1.93	6GB5	.....	3.90	1.85
PCC85	9AQ8	3.00	1.50	6GK5	.....	4.05	1.93

Mullard Type	EIA Type	List Price	Net Each	Mullard Type	EIA Type	List Price	Net Each
6CJ7	.....	\$3.60	\$1.70	12AV6	.....	\$1.65	\$0.80
6GM8	.....	4.55	2.28	12AX7	.....	2.55	1.20
6GV8	.....	3.30	1.55	12BA6	.....	1.65	.80
6GW8	.....	3.20	1.53	12BE6	.....	1.75	.83
6HA5	.....	4.05	1.93	14GW8	.....	3.25	1.63
6HG8	.....	4.35	2.05	15CW5	.....	2.80	1.33
6HU6	.....	3.25	1.63	15DQ8	.....	4.10	2.05
6J6	.....	2.80	1.33	16A8	.....	4.10	2.05
6JX8	.....	2.80	1.40	16AQ3	.....	2.80	1.35
6N8	.....	3.10	1.55	17C8	.....	3.50	1.75
6Q4	.....	9.80	4.90	17EW8	.....	2.80	1.30
6R3	.....	2.70	1.35	17Z3	.....	3.45	1.73
6R4	.....	8.80	4.40	18GV8	.....	2.80	1.40
6T8A	.....	3.40	1.60	21A6	.....	4.45	2.23
6U8	.....	3.30	1.55	25E5	.....	6.10	3.05
6V4	.....	1.60	.80	27GB5	.....	3.90	1.85
6W4GT	.....	2.40	1.15	30AE3	.....	2.80	1.40
6W6GT	.....	2.85	1.35	35W4	.....	1.10	.53
6X4	.....	1.65	.80	38A3	.....	1.65	.83
7D8	.....	4.65	2.33	45B5	.....	2.85	1.43
8BQ5	.....	2.90	1.38	50B8M8	.....	3.00	1.50
8GJ7	.....	3.05	1.55	50C5	.....	2.15	1.00
8HG8	.....	2.90	1.45	6267	.....	2.70	1.35
9A8	.....	2.55	1.27	7025	.....	2.90	1.40
9AQ8	.....	3.00	1.50	7189	.....	2.85	1.35
12AT7	.....	3.05	1.43	7247	.....	3.05	1.45
12AU7	.....	2.45	1.18	.....	.....	.....	.....

## LABORATORY-BALANCED, MATCHED PAIRS

- FOR OPTIMUM PERFORMANCE WHEN USED IN HIGH FIDELITY EQUIPMENT



- TWO TUBES (ONE MATCHED PAIR) IN EACH BOX

Mullard Type	EIA Type	Net Per Pair	Mullard Type	EIA Type	Net Per Pair
ECL82MP	6BM8	\$3.30	EL95MP	6DL5	\$ 3.83
ECL86MP	6GW8	3.43	KT66MP	.....	8.00
EL34MP	6CA7	5.83	KT77MP	.....	9.25
EL37MP	.....	6.95	KT88MP	.....	11.95
EL84MP	6BQ5	2.47	UCL82MP	50B8M8	3.48
EL86MP	6CW5	4.22	UL84MP	45B5	2.96
EL90MP	6AQ5	2.48	7189MP	.....	3.21

## MULLARD MASTER 10M SERIES



- TUBE-TO-TUBE UNIFORMITY
- SECTION-TO-SECTION UNIFORMITY
- LONG LIFE
- GUARANTEED PERFORMANCE
- FOR THE BALANCE ORIGINALLY DESIGNED INTO THE CIRCUIT

A selected series of individually laboratory-tested tubes, ideal for today's technically-advanced and exacting electronic equipment... meets more stringent requirements. Each Master 10M tube guaranteed for 10,000 hours of effective performance within two years from date of purchase. Recommended for all electronic equipment.

Mullard Type	Net Each	Mullard Type	Net Each	Mullard Type	Net Each
6AB8	\$2.75	6FY5	\$2.35	ECC82/12AU7	\$2.20
6AJ8	2.65	6GK5	2.40	ECC83/12AX7	2.20
6AK5	3.25	6HG8	3.00	ECC85/6A8	2.40
6AK8	2.60	6J6	2.55	ECC88/6DJ8	3.10
6AL5	1.90	6J6A	2.55	ECC91/6J6	2.55
6AQ5	2.15	6T8A	2.80	ECC189/6E58	3.50
6AQ5A	2.15	8HG8	2.65	ECC80/6BL8	3.05
6AR8	2.40	9A8	3.25	EFC86/6HG8	3.10
6AT6	2.00	12AT7	2.55	ECH81/6AJ8	2.65
6AU6	2.05	12AU7	2.20	ECL80/6AB8	2.75
6AU6A	2.05	12AU7A	2.20	ECL84/6DX8	2.85
6AV6	1.95	12AV6	1.95	EF86/6267	2.50
6BA6	1.95	12AX7	2.20	EF89/6DA6	2.55
6BE6	2.10	12AX7A	2.20	EF93/6BA6	2.00
6BL8	3.05	12D W7	2.55	EF94/6AV6	2.05
6BQ5	2.15	15CW5	2.50	EF95/6AK5	3.25
6BZ6	2.15	6267	2.50	EF183/6EJ7	2.60
6CA	2.85	7025	2.35	EF184/6EJ7	2.60
6DA6	2.55	7247	2.55	EK90/6BE6	2.10
6DC8	2.65	EABC80/6AK8	2.80	EL84/6BQ5	2.15
6DJ8	3.00	EB91/6AL5	1.90	EL90/6AQ5	2.15
6DL5	2.55	EBC90/6AT6	2.00	EL95/6DL5	2.55
6DX8	2.85	EBC91/6AV6	1.95	HBC91/12AV6	1.95
6EJ7	2.60	EBC99/6C4	2.65	PCF80/9A8	3.25
6ER5	2.40	EC95/6ER5	2.40	PCF86/8HG8	2.65
6ES8	3.45	EC97/6FY5	2.35	PL84/15CW5	2.50
6EU7	2.35	ECC81/12AT7	2.55	.....	.....



# Amperex® Electron Tubes

Amperex Type	Net Each	Amperex Type	Net Each	Amperex Type	Net Each	Amperex Type	Net Each	Amperex Type	Net Each
0A2	1.26	53CG, 58CG	6.75	5920*	3.20	7899	\$760.00	EC20/6Q4	\$ 4.90
0B2	1.35	58CV	8.50	5921	165.00	7900	250.00	EC81/6R4	3.95
0E3	2.50	75C1	2.40	5924A	275.00	7983	6.30	EC86/6CM4	2.60
OG3	2.30	85A1/OE3	2.50	6007	1.72	7986/5866A	23.30	EC88/6DL4	1.78
1M3/DM70	1.13	85A2/OG3	2.30	6008	2.50	8008AX	10.65	EC95/6ER5	1.38
1N3/DM71	1.18	90AG, 90AV	5.90	6075	250.00	8020AX	24.00	EC97/6FY5	1.38
1S2A/DY87	1.45	90C1	2.25	6076	305.00	8032	5.25	EC157/8108	150.00
2D21	1.29	90CG	3.80	6077	1800.00	8042	9.00	EC158/8436	335.00
2ER5/XC95	1.65	90CV	1.95	6079	70.00	8078	69.30	EC900/6HA5	1.93
2FY5/XC97	1.28	100E1	11.75	6083	14.25	8108/EC157	150.00	EC1000/8254*	15.50
2GK5	1.93	150A1	3.30	6084*, 6085*	3.30	8116	48.00	EC81/12A7†	1.43
3B28	6.50	150B2/6354	2.55	6155	36.00	8107	29.00	ECC82/12A7†	1.15
3EH7/XF183	1.78	150C1	3.20	6156	46.50	8118	38.50	ECC83/12A7†	1.20
3EJ7/XF184	1.78	356	675.00	6159	4.80	8163	34.00	EC85/6AQ8	1.50
3ER5	1.65	367	4.80	6189/12AU7WA*	3.70	8177	1250.00	ECC86/6GM8	2.18
3GK5	1.93	501R	283.00	6201*	2.95	8179	132.00	ECC88/6DJ8	2.13
3NP4/MW6-2	22.50	504R	270.00	6211*	3.20	8223/E288CC	5.20	EC91/6J6	1.33
4-65A	27.00	575A	22.15	6218*	8.65	8228*	2.90	ECC189/6E58	2.73
4-125A	36.00	632B	36.00	6227*	3.05	8233*	13.25	EC2000	4.90
4-250A	46.50	673	22.15	6252	25.00	8254*	17.00	ECP80/6BL8	1.88
4-400A	48.00	805	20.10	6252 USN	28.00	8258*	4.95	ECP86/6HC8	2.05
4B32	13.50	807	3.15	6267/EF86	1.30	8268*	150.00	ECF801/6GJ7	1.70
4CX250B	35.65	810	28.60	6268	32.50	8269	190.00	ECH81/6AJ8	1.35
4CX250F	38.00	811A, 812A	7.15	6279	45.00	8270	66.25	ECH84/6JX8	1.28
4CX250R	45.00	813	24.30	6339	33.75	8300	31.25	ECL82/6BM8	1.45
4EH7, 4EJ7	1.78	828	32.95	6354	2.55	8348	9.10	ECL84/6DX8	1.45
4ES8	2.18	829B	19.90	6360 COMM	4.95	8408	15.00	ECL85/6GV8	1.55
4GK5	1.95	832A	16.75	6360 MIL	5.70	8416	4.90	ECL86/6GW8	1.53
4X150A	23.15	833A	58.45	6360A	4.95	8436/EC158	335.00	EF80/6BX6	1.53
4X150D	27.90	834	19.30	6370	16.50	8457	5.15	EF86/6267	1.30
4X250B	33.50	838	20.00	6375	8.40	8458	7.15	EF89/6DA6	1.40
4X250F	35.65	845	25.80	6463*	3.50	8463	4.50	EF93/6BA6	.95
4X500A	128.50	849, 849A	231.00	6508	80.00	8482	66.25	EF94/6AU6	.98
5AR4/GZ34	2.13	857B	218.50	6617	470.00	8483/55850N	185.00	EF183/6EH7	1.93
5R4GYB	1.90	866AX	2.65	6618	670.00	8505	14.50	EF184/6EJ7	1.93
6AJ8/ECH81	1.35	869B, 869BL	138.00	6686*	4.10	8509	27.50	EPF60	10.00
6AK5W*	2.45	872AX	9.90	6687*	2.75	8569	48.00	EK90/6BE6	1.05
6AL3/EY88	1.38	881R	630.00	6688†, 6688A	6.80	8577	12.00	EL34/6CA7†	2.60
6AL5/EA91	1.88	891R	430.00	6688 JAN	6.86	8579	22.70	EL34/6CA7†	5.45
6AL5W*	1.55	892R	342.00	6689	3.85	8580	20.00	EL37†	3.35
6AQ8/ECC85	1.50	892R	535.00	6693	25.00	8621	44.25	EL37†	6.90
6AT6/EB30	.90	1119	3.60	6700/ET51	68.00	8624	29.50	EL84/6BQ5	1.13
6AU6/EF94	.98	1164	7.40	6756	600.00	8639	38.20	EL84/6BQ5†	2.53
6AV6/EB30	.80	1561	2.40	6759	315.00	8643	30.25	EL86/6CW5	1.70
6BA6/EF93	.95	1749A	50.00	6786	200.00	13201AE	4.20	EL360	4.75
6BE6/EK90	1.05	1805	1.80	6800A	400.00	18042	4.25	EL500/6BG5	1.85
6BL8/ECC80	1.88	1838	56.00	6801	550.00	18045	5.90	EM34/6CD7	1.95
6BM8/ECL82	1.45	1849	50.00	6816	60.00	55850AM	90.00	EM80/6BR5	1.50
6BQ5/EL84	1.13	1875	5.70	6883	4.45	55850N/8483	185.00	EM81/6DA5	1.40
6BQ5/EL84†	2.53	1908	1.60	6884	60.00	55950S	275.00	EM84/6FG6	1.50
6BR5/EM80	1.50	1910	2.40	6907	25.00	AX105/FG105	53.33	EM87/6HU6	1.60
6BX6/EF80	1.53	1913	2.20	6907 JAN	28.00	AX260	150.00	ET51/6700	68.00
6CA4/EZ81	.98	1941A	2.50	6922†	4.87	AX5842	8.70	EY81/6R3	1.25
6CA7/EL34	2.60	2050	2.37	6922 USN	4.93	C3M	6.45	EY88/6AL3	1.38
6CA7/EL34†	5.45	3533A	9.60	6922M	5.25	D3A/7721	12.80	EZ80/6V4	.75
6CD7/EM34	1.95	3538	10.00	6923	11.00	DCJ0/6375	8.40	EZ81/6CA4	.98
6CM4/EC86	2.60	3545	4.20	6939	12.00	DCG1/250	6.00	EZ90/6X4	1.80
6CW5/EL86	1.70	3546PW	6.90	6960	162.50	DCG4/1000G	9.92	GZ34/SAR4	2.13
6DA5/EM81	1.40	3554	7.20	6961	210.00	DCG5/5000EG	9.27	HC685/17EW8	1.30
6DA6/EF89	1.40	4065	15.00	6977*	2.50	DM7-5, -6	18.10	HF200	49.50
6DC8/EBF89	1.53	4152	4.10	6979	42.50	DM70/1M3	1.13	HF300	40.50
6DJ8/ECC88	2.13	4654	4.20	7025	1.40	DM71/1M3	1.18	K81A	10.67
6DL4/EC98	2.60	4699	5.10	7062*	2.25	DY87/152A	1.45	PB2/500	145.00
6DX8/ECL84	1.45	5544	32.50	7090	225.00	ELT/6370	16.50	PC88	2.80
6EH7/EF183	1.93	5545	29.30	7091	425.00	E55L/8233*	13.25	PCC85/9AQ8	1.43
6EJ7/EF184	1.93	5551A	65.00	7092	125.00	E80CC/6085*	3.30	PCF80/9A8	1.88
6ER5/EC95	1.78	5552A	99.00	7119*	2.95	E80CF/7643*	4.95	PCF86/7HG8	1.40
6ES8/ECC189	2.73	5553B	245.00	7136	25.00	E80F/6084*	3.30	PE06/40E	5.95
6FG6/EM84	1.50	5555	316.00	7189	1.35	E80L/6227*	3.05	PE06/40N	5.95
6FY5/EC97	1.38	5557/FG17	9.50	7237	200.00	E80T/6218*	8.65	PE06/40P	5.95
6GB5/EL500	1.85	5559	23.00	7292	425.00	E81CC/6201*	2.95	PL84/15CW5	1.33
6GJ7/ECF801	1.70	5560/FG95	33.00	7308*	5.20	E81L/6686*	4.10	PL150	88.00
6GK5	1.93	5586	417.00	7308 USN	5.26	E83F/6689	3.85	PL500/27GB5	1.83
6GM8/ECC86	2.18	5604	570.00	7316	1.40	E84L/7320	3.25	PL1607	16.00
6GV8/ECL85	1.55	5632/C3J	15.50	7320/E84L	3.25	E86C*	3.90	PL6574	9.10
6GW8/ECL86	2.60	5651	1.78	7377	19.60	E88C/8255*	4.95	PL6755	41.00
6HA5/EC900	1.93	5654/6AK5W*	2.45	7378	45.00	E88CC/6922*	4.87	QE04/10	8.00
6HG8/ECF86	2.05	5658	595.00	7459	230.00	E90CC/5920*	3.20	SD50	12.25
6HU6/EM87	1.60	5666	280.00	7527	48.00	E90F/7693*	3.75	SD540	29.75
6J6/EC91	1.33	5667	370.00	7534*	13.85	E91AA/5726*	1.90	TBL2/400	250.00
6JX8/ECH84	1.28	5678	4.10	7580	40.75	E91H/6687*	2.75	TBL2/500	270.00
6QA4/EC80	4.90	5684/C3JA	19.80	7580W/4CX250R	45.00	E91N/5727	2.50	UCC82/50BM8	1.43
6R3/EY81	1.25	5685/C6JA	27.80	7609†	29.35	E92CC*	2.00	UL84/45B5	1.28
6R4/EY81	3.95	5718	4.80	7609 JAN	29.35	E95F/5654*	2.85	UY89	1.90
6U8	1.55	5726/6AL5W*	1.55	7643*	4.95	E99F/7694*	3.75	VC25/20	22.00
6V4/EZ80	.75	5727	2.50	7645	12.00	E130L/7534*	13.85	VC25/32	25.25
6X4/EZ90	.80	5771	675.00	7650	290.00	E180CC/7062*	2.25	VC50/20	26.25
7HG8/PCF86	1.40	5822A	116.00	7693*, 7694*	3.75	E180F/6688†	6.80	VC50/32	29.50
8BQ5/XL84	1.38	5842	7.35	7699	13.50	E182CC/7119*	2.95	VC100/20	32.00
8NR6	34.50	5842 JAN	7.35	7721/D3A	12.80	E182F/5847*	9.65	VC100/32	35.00
8MG6, 8MY6	34.50	5842 JAN	9.55	7722/E280F	6.80	E186F/7737	7.20	VC250/32	75.00
9A3/PCF80	1.88	5847 JAN	9.55	7737, 7737M	7.20	E280C/7722	6.80	XC95/2ER5	1.65
9AQ8/PC85	1.43	5861/EC55	26.50	7737 USN	7.26	E288CC	7.15	XC97/2FY5	1.28
12A7/ECC81	1.43	5866	21.40	7753	140.00	E288CC/8223	5.20	XC189/6E58	2.18
12AU7/ECC82	1.15	5867	30.00	7788	9.75	EA52/6923	11.00	XF183/3EH7	1.78
12AU7WA/6189*	3.70	5867A	32.45	7788 USN*	9.81	EA53	12.00	XF184/3EJ7	1.78
12AX7/ECC83	1.20	5868	55.00	7800	760.00	EA76	4.70	XL84/8BQ5	1.38
15CW5/PL84	1.33	5869	25.00	7804	345.00	EAA91/6AL5	.88	XY88/16AQ3	1.35
16AQ3/XY88	1.35	5870	100.00	7805	320.00	EAC91	3.77	ZB3200	475.00
17E8/HCC85	1.30	5894 COMM	25.00	7806	710.00	EBC90/6AT6	.90	ZZ1000/8228	2.90
27GB5/PL500	1.83	5894 MIL	28.00	7807	550.00	EBC91/6AV6	.80		
45B5/UL84	1.28	5894A	25.50	7843, 7844	**	EBF89/6DC8	1.53		
50BM8/UL82	1.43	5895	13.70	7854	28.80	EC55/5861	26.50		

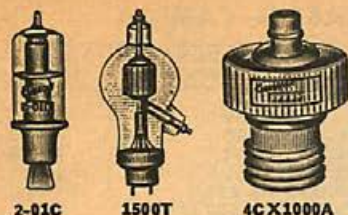
\*"Premium Quality". †Matched pair. ‡Available government inspected at 6¢ each additional. \*\*Price on request.

SPECIAL INDUSTRIAL TUBES, CRT'S, GEIGER MULLER COUNTERS, PROPORTIONAL COUNTERS, PHOTOMULTIPLIERS, PHOTSENSITIVE DEVICES AND ELECTRON TUBE ACCESSORIES ALSO AVAILABLE. WRITE OR CALL FOR SPECIFICATIONS AND PRICES ON THESE AMPEREX PRODUCTS.





# TRANSMITTING AND SPECIAL PURPOSE TUBES, TUBE SOCKETS, AND TUBE CHIMNEYS



Eimac Tube Type	Required Socket/Chimney*	Net Each Tube
2-01C		
2-25A	EFJ #122-224	18.00
2-50A	EFJ #122-224	24.00
2-150D	EFJ #123-211	27.00
2-240A	EFJ #123-211	44.50
2-450A	EFJ #124-214	50.00
2-2000A	EFJ #124-214	138.00
2C39A	Jet, #76-020	250.00
2C39WA	Jet, #76-020	20.75
2X1000A	EFJ #122-224	29.00
2X3000F		144.00
3C24	EFJ #122-224	168.00
3CPN10A5/7815	Jet, #76-020	16.00
3CPX100A5/7815R	Jet, #76-020	30.75
3CV30,000A3	SK-1310	710.00
3CW20,000A1	SK-1300	560.00
3CW20,000A3	SK-1300	455.00
3CW20,000A7	SK-1300	510.00
3CW25,000A3	SK-1300	480.00
3CX100A5/7289	Jet, #76-020	26.50
3CX100F5/8250	Jet, #76-020	34.00
3CX1000A7/8283	SK-860,-870/ SK-816	250.00
3CX2500A3		200.00
3CX2500F3		205.00
3CX10,000A1/8158	SK-1300/ SK-1306	490.00
3CX10,000A3/8159	SK-1300/ SK-1306	490.00
3CX10,000A7/8160	SK-1300/ SK-1306	530.00
3CX15,000A3	SK-1300/-1306	510.00
3W5000A1/8240		280.00
3W5000A3/8242		245.00
3W5000F1/8241		260.00
3W5000F3/8243		250.00
3X3000A1/8238		210.00
3X3000A7		255.00
3X3000F1/8239		220.00
3X3000F7/8162		260.00
3-400Z/8163	SK-410/SK-416	34.00
3-1000Z/8164	SK-510/SK-516	78.00
4-65A/8165	EFJ #122-101	27.00
4-125A	SK-400,-410/ SK-406	36.00
4-250A	SK-400,-410/ SK-406	46.50
4-400A/8438	SK-400,-410/ SK-406	48.00
4-1000A/8166	SK-500,-510/ SK-506	131.50
4CN15A	SK-700/SK-606 (SK-740/...)	58.50
4CPX250K		68.50
4CS250H		69.50
4CV8000A	SK-1490	470.00
4CV20,000A	SK-310	590.00
4CV35,000A	SK-310	825.00
4CV100,000C/8351	SK-1510	2,350.00
4CW2000A/8244	SK-800B,-810B, SK-890	220.00
4CW10,000A	SK-300A	610.00
4CW50,000C/8350	SK-1500	2,100.00
4CX125C	SK-700/SK-606 (SK-740/...)	61.50
4CX125F	SK-710,-740	123.50

Eimac Tube Type	Required Socket/Chimney*	Net Each Tube
4CX250B/7203	SK-600†	\$ 35.60
4CX250F/7204	SK-600†	38.00
4CX250K/8245		64.00
4CX250M/8246		119.00
4CX250R/7580W	SK-600†	44.50
4CX300A/8167	SK-710/SK-606 (SK-760, -770/...)	54.00
4CX300Y/8561	SK-711A/SK-606 (SK-760, -770/...)	105.00
4CX350A/8321	SK-600†	48.50
4CX350F/8322	SK-600†	51.50
4CX600A		319.00
4CX1000A/8168	SK-800B,-810B, -890/SK-806	181.00
4CX1000K/8352	SK-820,-830/ SK-806	205.00
4CX3000A/8169	SK-1400A/-1406, SK-1470A	420.00
4CX5000A/8170	SK-300,-306, SK-316	495.00
4CX5000R/8170W	SK-300A/-306, SK-316	705.00
4CX10,000D/8171	SK-300A/-306, SK-316	550.00
4CX15,000A/8281	SK-300A/-306, SK-316, 1306	695.00
4CX35,000C/8349	SK-1500	1,765.00
4E27A/5-125B	EFJ #122-237	45.00
4PR60B/8252	EFJ #122-234	107.00
4PR65A/8187	EFJ #122-101	43.00
4PR125A/8247	SK-400,-410/ SK-406	57.00
4PR250C/8248	SK-400,-410/ SK-406	188.00
4PR400A/8188	SK-400,-410/ SK-406	64.00
4PR1000A/8189	SK-500,-510/ SK-506	156.00
4PR1000B		162.50
4W300B/8249	SK-600†	57.00
4W20,000A/8173		2,030.00
4X150A/7034	SK-600†	23.15
4X150D/7035	SK-600†	35.70
4X150G/8172		58.00
4X150R/8296	SK-600†	45.50
4X150S/8297	SK-600†	48.50
4X250B	SK-600†	35.60
4X250F	SK-600†	35.60
4X500A	SK-900/SK-906	127.50
25T	EFJ #122-224	28.50
35T	EFJ #122-224	33.00
35TG	EFJ #122-224	36.00
75TH	EFJ #122-224	43.00
75TL	EFJ #122-224	43.00
100TH	EFJ #122-224	23.50
100TL	EFJ #122-224	23.50
152TH	EFJ #124-213	93.00
152TL	EFJ #124-213	125.00
250R	EFJ #123-211	36.00
250TH	EFJ #123-211	38.50
250TL	EFJ #123-211	38.50
253	EFJ #123-211	37.00
304TH	EFJ #124-213	80.00
304TL	EFJ #124-213	80.00
322	Jet, #76-020	26.00
450TH	EFJ #123-211	85.00
450TL	EFJ #123-211	85.00
575A		20.15
592/3-200A3		46.00
673		20.15
750YL	EFJ #124-214	169.00
898B		138.00
898B/L		138.00
1000T	EFJ #123-211	169.00
1500T	EFJ #124-214	320.00
2000T	EFJ #124-214	425.00
5867A	SK-410/SK-416	30.60
6696A		1,105.00
6697A		1,330.00
7034	See 4X150A	
7035	See 4X150D	
7203	See 4CX250B	
7204	See 4CX250F	
7211	Jet, #76-020	88.50
7289	See 3CX100A5	
7480		1,590.00
7580W	See 4CX250R	
7698	Jet, #76-020	88.50
7815	See 3CPN10A5	
7815R	See 3CPX100A5	

Eimac Tube Type	Required Socket/Chimney*	Net Each Tube
7843		
8020 (100R)	EFJ #122-224	560.00
8158	See 3CX10,000A1	
8159	See 3CX10,000A3	
8160	See 3CX10,000A7	
8162	See 3X3000F7	
8163	See 3-400Z	
8164	See 3-1000Z	
8165	See 4-65A	
8166	See 4-1000A	
8167	See 4CX300A	
8168	See 4CX1000A	
8169	See 4CX3000A	
8170	See 4CX5000A	
8170W	See 4CX5000R	
8171	See 4CX10,000D	
8172	See 4X150G	
8173	See 4W20,000A	
8187	See 4PR65A	
8188	See 4PR400A	
8189	See 4PR1000A	
8238	See 3X3000A1	
8239	See 3X3000F1	
8240	See 3W5000A1	
8241	See 3W5000F1	
8242	See 3W5000A3	
8243	See 3W5000F3	
8244	See 4CW2000A	
8245	See 4CX250K	
8246	See 4CX250M	
8247	See 4PR125A	
8248	See 4PR250C	
8249	See 4W300B	
8250	See 3CX100F5	
8252	See 4PR60B	
8281	See 4CX15,000A	
8283	See 3CX1000A7	
8296	See 4X150R	
8297	See 4X150S	
8321	See 4CX350A	
8322	See 4CX350F	
8349	See 4CX35,000C	
8350	See 4CW50,000C	
8351	See 4CV100,000C	
8352	See 4CX1000K	
8438	See 4-400A	
8561	See 4CX300Y	
KY21A	EFJ #122-225	26.75
RX21A	EFJ #122-225	25.75

\*Special socket and/or chimney required; all Eimac numbers except: EFJ—Johnson; Jet.—Jettron.

## STANDARD SOCKETS

Socket	Net Ea.	Socket	Net Ea.
SK-300	\$103.00	SK-700	\$ 36.40
SK-300A	103.00	SK-710	36.40
SK-310	114.00	SK-711A	25.70
SK-400	17.50	SK-712A	25.70
SK-410	6.50	SK-740	10.70
SK-500	24.30	SK-760	10.70
SK-510	6.50	SK-761	20.40
SK-600†	11.25	SK-770	10.70
SK-600A†	11.25	SK-800B	54.00
SK-602	11.25	SK-810B	56.00
SK-602A	11.75	SK-820	140.00
SK-610†	11.25	SK-830	178.00
SK-610A†	11.25	SK-860	38.00
SK-611†	6.10	SK-870	40.00
SK-612†	15.70	SK-890	69.00
SK-620†	12.00	SK-900	68.50
SK-620A†	15.00	SK-1300	78.50
SK-630†	11.85	SK-1310	93.00
SK-630A†	15.00	SK-1400A	107.00
SK-640†	6.90	SK-1470A	107.00
SK-650	8.50	SK-1450	88.50
SK-655†	7.00	SK-1500	220.00
SK-660	6.10	SK-1510	285.00

†Requires SK-606 chimney; see below.  
‡Requires SK-626 or SK-636 chimney; see below.

## CHIMNEYS

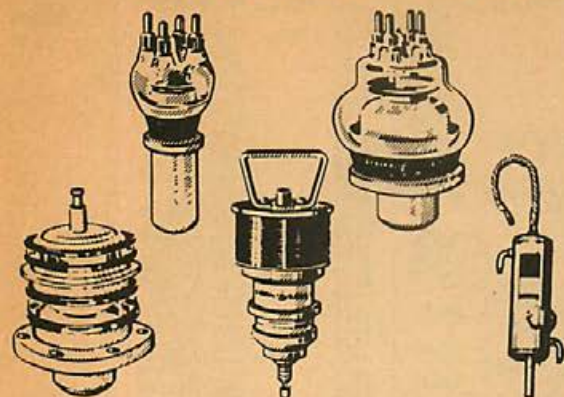
Chimney	Net Ea.	Chimney	Net Ea.
SK-306	\$ 6.50	SK-636B	\$11.00
SK-316	9.65	SK-806	8.50
SK-406	6.50	SK-816	7.00
SK-416	6.50	SK-906	15.00
SK-506	12.00	SK-1306	6.50
SK-516	12.00	SK-1406	6.50
SK-606	.75	SK-1511	37.00
SK-626	.75		





# ELECTRONICS Industrial Tubes

POWER • INDUSTRIAL RECEIVING • BROADCAST • CAMERA



GENERAL ELECTRIC TYPE	NET EACH	GENERAL ELECTRIC TYPE	NET EACH
FG-104 (USE GL-5561)		5558	\$ 17.50
FG-105	\$ 59.00	5559	23.00
FG-154	108.00	5560	33.00
FG-172	122.00	5561	59.00
FG-280	105.00	5563A	51.25
393A*	13.25	GL-5564	850.00
407A†	5.90	GL-5575/100/616	250.00
408A†	4.95	GL-5593	340.00
GL-411	478.75	5610†	1.05
GL-414	280.00	GL-5623	30.00
GL-415 (USE GL-5550)		GL-5627	80.00
502A†	2.30	GL-5628	60.00
GL-506 (USE GL-6228)		GL-5630	1900.00
575A	21.50	5632/C3J	13.80
672A	42.50	5636†**	6.10
673	21.50	5642	3.85
678	50.75	5651†	1.78
740 (USE GL-6856/740)		5654/6AK5W†**	2.45
760 (USE GL-6858/760)		5662†	1.45
760P (USE GL-6859/760P)		5663†	2.10
805†	22.10	5665/C16J	56.90
807†*	2.95	5670†**	2.45
809†	7.95	GL-5674	225.00
810	26.95	5675	16.75
811A†, 812A†	6.90	5681	2060.00
813	24.10	5686†**	3.40
815†	29.35	5687†**	4.00
816	3.10	5687WA†*	5.70
828†	32.95	5691†	8.75
829B	20.00	5692†	8.25
830B†	17.35	5693†	6.60
832A	16.70	5696A†*	2.05
833A	56.00	5702WA†*	6.50
836†	11.10	5702WB†**	9.55
GL-838	20.00	5703WA†*	7.10
GL-857B*	218.50	5703WB†**	8.80
862A	1775.00	5718†**	3.65
866A	2.80	5719†**	3.15
868/PJ-23†	4.50	GL-5720/FG-33	34.75
GL-869B*	138.00	5725/6A56W†**	3.15
GL-870A*	1990.00	5726/6AL5W†**	1.55
872A/872	9.90	5727/2D21W†**	2.90
GL-880	650.00	GL-5728	74.00
884†	2.30	5736	213.00
889A	250.00	5744WA†*	7.10
892	345.00	5744WB†**	9.00
892R	440.00	5749/6BA6W†**	2.20
GL-893AR†	1260.00	5750/6BE6W†**	3.45
923†	3.40	5751†**	2.55
927	4.25	5762/7C24	255.00
929†	2.35	5763†	2.55
930	3.80	GL-5779	200.00
931A	12.25	GL-5788	520.00
1612†	5.80	5814A†**	2.35
1614†	4.95	5814WB†**	6.25
1620†	7.55	GL-5820A†	1100.00
2050†	2.40	5820A/R†	1180.00
2050A	2.25	GL-5822A	116.00
GL-5513	620.00	5823†	1.75
GL-5518	1400.00	5824†	3.60
GL-5544	32.50	GL-5830	540.00
GL-5549	653.50	5844†**	2.30
GL-5550	49.00	5855	85.00
GL-5551A	65.00	5879†	1.85
GL-5551A/P	65.00	5881†	3.50
GL-5552A	99.00	5886†	5.00
GL-5552A/P	99.00	5894	26.10
GL-5553B	245.00	5896†**	3.75
GL-5553B/P	245.00	5899†**	5.50
GL-5554	215.00	5902†**	4.80
GL-5555	316.00	5963†*	1.50
GL-5556	47.50	5964†	1.55
5557	9.50	5965A†*	1.90
		GL-5973	495.00
		5998A†	12.20
		6005/6AQ5W†**	3.95

GENERAL ELECTRIC TYPE	NET EACH	GENERAL ELECTRIC TYPE	NET EACH
OA2†	\$ 1.50	6AK6†	\$ 1.40
OA3†	1.55	6AL5W (USE 5726/6AL5W)	
OA4G†	1.90	6AN5†	4.20
OB2†	1.45	6AS6†	3.45
OB3†	2.35	6AS6W (USE 5725/6AS6W)	
OC3†	1.50	6AS7GA†	4.95
OD3†	1.45	6AU6WB (USE 6136/6AU6WB)	
1AD4†	2.80	6BA6W (USE 5749/6BA6W)	
1D21/SN4	7.80	6BE6W (USE 5750/6BE6W)	
C1K (USE GL-6014/C1K)		6C4WA†*	3.15
GL-1L21	25.00	6D4†	2.85
GL-1L36	18.50	6DJ8†	2.40
1P39	2.80	6J4†	4.20
1P40	3.85	6SK7WA†*	2.85
2B22*	31.00	6X4W†	1.60
GL-2B23	77.00	6X4WA (USE 6202/6X4WA)	
2C†	6.90	GL-7C29	189.50
2C39A	20.75	GL-7D21	790.00
2C39B	32.15	PJ-8 (USE GL-5556)	
2C39WA	32.15	12A6†	3.10
2C40	28.00	12AT7WB (6201/12AT7WB)	
2C40A*	34.00	12AY7†*	2.45
2C42*	27.10	FA-13 (USE GL-5628)	
2C43*	27.20	C16J (USE GL-5665/C16J)	
2C46*	29.50	FG-17 (USE GL-5557)	
2D21†	1.30	PJ-23 (USE GL-868)	
2D21W (USE 5727/2D21W)		FG-27A	52.00
2DF4	11.65	28D7†	4.95
2E26†	3.95	FG-32 (USE GL-5558)	
GL-2H21	340.00	FG-33 (USE GL-5720)	
2X2A†	3.30	FG-41 (USE GL-5830)	
3B24W	11.25	B-47 (USE GL-5623)	
3B28	6.30	FG-57 (USE GL-5559)	
3C23*	11.98	FG-67 (USE GL-5728)	
3CK100A5	32.00	FG-81A	32.50
KC-4 (USE GL-5575/100/616)		83†	1.75
4-65A†	28.50	FG-93 (USE GL-5560/FG-93)	
4-250A/5D22†	46.50	FG-97	62.00
4-400A	51.00	FG-98A	77.00
4-1000A	143.00		
4D21/4-125A	37.80		
4X150A	26.25		
4X500A†	125.60		
5AUP24†	160.00		
5R4GYA†	2.05		
5R4GYB†	2.05		
5Y3WGTB (USE 6087/5Y3WGTB)			
FA-6 (USE GL-5627)			
6AC7WA†*	5.70		
6AK5W (USE 5654/6AK5W)			
6AK5WB†*	5.45		

\*Five-Star type. †Industrial Receiver type. ‡Discontinued type; available only to limits of present inventory. §Image orthicon. \*Available to MIL specifications. /P—Indicates plastic coated.





# ELECTRONICS Industrial Tubes

POWER • INDUSTRIAL RECEIVING • BROADCAST • CAMERA

GENERAL ELECTRIC TYPE	NET EACH	GENERAL ELECTRIC TYPE	NET EACH	GENERAL ELECTRIC TYPE	NET EACH	GENERAL ELECTRIC TYPE	NET EACH
6011/710	\$ 13.00	6485†	\$ 2.05	7289*	\$ 32.15	7815, 7815R	\$ 39.25
6012†	7.65	GL-6512	295.00	7293;	1300.00	7841	35.44
GL-6014/C1K	12.90	GL-6513	400.00	7293A/R;	1380.00	7861†*	3.50
6019	751.75	GL-6514	550.00	7295;	1440.00	7910	82.69
6021+**	3.50	GL-6515	1060.00	7296	49.61	7913	122.85
GL-6039	1890.00	6550†	4.30	7325*	185.00	GL-7964	85.00
6046†	1.55	GL-6621‡	10.35	7370	10.80	7984	5.35
6072A†**	3.90	6660†	1.10	7391	67.00	GL-7985	1920.00
6080†*	5.35	6661†	1.40	GL-7399	520.00	GL-7998	155.00
6087/		6662†	1.35	7427†	2.65	8005†	17.85
5Y3WGTB†*	5.75	6663†	1.00	7462, 7486	39.05	8008	9.90
6100†	2.50	6664†, 6669†	1.15	7518/710L	17.00	GL-8020	24.00
6111†**	3.70	6676†	1.20	7588	101.59	8068	3.60
6112†**	4.10	6677†	1.90	7625	39.05	8081	40.16
6134†*	5.70	6678†	1.70	GL-7629A;	1800.00	8082	40.16
6135†**	2.40	6679†	1.55	7629A/R;	1800.00	8083	40.16
6136/		6680†, 6681†	1.30	7644	65.00	GL-8092A;	1975.00
6AU6WB†**	2.70	6688†*	8.75	GL-7669	65.00	8092A/R;	1975.00
6137/65K7WA†*	2.85	6771	71.90	GL-7669/P	65.00	GL-8093;	1350.00
6146A†	4.35	6807	32.25	GL-7670	77.20	8095/R†	1400.00
6146B/		6808	32.90	GL-7671	99.00	8102†	1.45
8298A†	5.15	6809	35.50	GL-7671/P	99.00	8106†	1.55
6161	132.00	6814†**	5.05	GL-7672	116.00	8113*	6.45
6166A (USE 7007/6166A)	.....	6829†**	6.10	GL-7673	245.00	8156	4.10
GL-6183 (USE GL-6942)	.....	GL-6848	1840.00	GL-7673/P	245.00	GL-8205	825.00
6189/		6856/740	20.80	GL-7681	155.00	GL-8360	77.20
12AU7WA†*	3.65	6858/760	28.10	7697*	185.00	GL-8465	500.00
6197†	2.65	6859/760P	29.80	7701†	3.00*	GL-8466	535.00
6198A*	185.00	GL-6878	3060.00	GL-7703	190.00	8507*	250.00
6201/		6883†	4.55	7716†	1.75	8511*	315.00
12AT7WB†**	2.55	6894	25.50	7717/6CY5†	1.40	8513	2200.00
6202/6X4WA**	2.85	6897*	32.15	7720	39.05	8541*	310.00
6203**	4.10	6907	27.00	7724/14GT8†	1.50	9001†	5.40
6205**	5.35	6919†*	1.35	7725	13.50	9003†	5.40
6206**	7.25	6942	960.00	7726	16.30		
6211A†*	2.35	7007/6166A*	1050.00	7735A*	185.00	<b>McLEOD GAGES</b>	
6216**	3.47	7034/4X150A	25.00	GL-7736	850.00	N-24900 AAG1	\$320.00
6222†*	7.35	7036†*	1.50	7768	111.04	N-24900 AAG2	325.00
GL-6228/		GL-7038*	185.00	7784	65.00	N-24900 AEG1	98.00
GL-506	3695.25	7044	3.20			N-24900 AEG2	103.00
GL-6251	2790.00	7054†	1.55				
6265†*	4.10	7056†	1.20				
GL-6283	500.00	7057†	1.95				
6299*	56.00	7058†	1.30				
6336A†	19.40	7059†	1.75				
GL-6346	70.00	7061†	1.30				
6350†	2.35	7077	39.05				
6360†	4.95	GL-7151	750.00				
6386†**	7.40	7167†	2.00*				
6397†	8.30	GL-7171	81.50				
6414†**	3.65	7226*	315.00				
6427	895.00	7233†	2.40				
6442*	39.25	7239†*	6.25				
6463†	1.90	7262A*	250.00				
		7263A*	430.00				
		7266*	35.44				

### REED SWITCHES

G.E. Type	Net Each, Lots of		G.E. Type	Net Each, Lots of	
	1-49	50 Up		1-49	50 Up
DR100	\$1.27	\$0.98	DR113	\$1.47	\$1.13
DR101	.91	.70			

### THERMOSTAT KITS FOR IGNITRONS

Kit No.	Net Each	Kit No.	Net Each
N-15272AA	\$7.30	N-15286AA	\$9.30
N-15273AA	5.15	N-15287AA	8.00

\*Five-Star type. †Industrial receiving type. ‡Discontinued type; available only to limits of present inventory. §Image orthicon.  
 \*List Price. †Available to MIL specs. ‡Vidicon type. /P—Indicates plastic coated.

## NEW G.E. INDUSTRIAL TUBE CATALOGS



**PUB. ETI-719D INTERCHANGEABILITY LIST**

Alphabetical-numerical listing of G.E. replacements for nearly 3000 types of industrial tubes.

ETI-719D—**25¢**  
Only.....



**PUB. ETI-2387A INDUSTRIAL RECEIVING AND COMMUNICATION TUBES**

Gives complete specifications of G.E. industrial receiving, communications, 5-star and ceramic receiving tubes.

ETI-2387A—**25¢**  
Only.....



**PUB. ETI-2388A IGNITRON AND THYATRON TUBES**

Specifications and data on 80 types of G.E. ignitrons and thyatrons. With operating guide.

ETI-2388A—**25¢**  
Only.....



**PUB. ETI-2389 BROADCAST, INDUSTRIAL AND SPECIAL PURPOSE POWER TUBES**

Lists 125 special purpose and broadcast power tubes and rectifiers. Complete with installation information.

ETI-2389—**25¢**  
Only.....



**PUB. ETR-15L ESSENTIAL CHARACTERISTICS**

Lists all receiving, TV picture, 5-star and small special purpose tubes. Also includes G.E. capacitors.

ETR-15L—**\$150**  
Only.....

Stocked in Depth at Harvey Radio Co., Inc., New York City





# RCA Industrial Tubes

FOR INDUSTRY • COMMERCE  
• AMATEUR SERVICE • MILITARY



### CW APPLICATION

#### BEAM POWER

RCA Type	Net Each
2E24	\$ 5.85
2E26	3.75
4-125A/4D21	36.00
4-250A/5D22	46.50
4E27A/5-125B	45.00
4X500A	128.50
807	3.15
813	2.40
814	3.15
827R*	43.00
828	32.95
829	7.50
825	5.15
4604	8.40
6076	305.00
6146A	4.35
6146B/8298A	5.20
6146W/7212	6.75
6155	36.00
6156	42.60
6159	4.80
6159B	5.60
6159W/7357	6.75
6166	73.50
6166A/7007	100.50
6816	52.90
6883	4.30
6883/8032A/8552	6.40
6884	60.40
6893	4.50
7034/4X150A	25.00
7035/4X150D	32.70
7094	33.70
7203/4CX250B	35.75
7204/4CX250F	39.35
7213	46.50
7271	27.70
7457	65.25
7580W/4CX250R	45.05
7609	27.90
7650	290.00
7801	120.00
7842	66.25
7843	66.25
7844	66.25
7870	120.00
8032	4.95
8072	18.75
8121	25.90
8122	31.60
8165/4-65A	27.00
8166/4-1000A	132.00
8168/4CX1000A	181.00
8170/4CX5000A	499.50
8171/4CX10,000D	550.00
8226	83.00
8281/4CX15,000A	695.00

#### BEAM POWER (CONT'D)

RCA Type	Net Each
8438/4-400A	\$ 48.00
8462	29.50
8501	1045.00
8596	106.00

#### TWIN BEAM POWER

RCA Type	Net Each
815	\$33.70
829B	19.90
832A	16.75
6524	20.75
6850	19.30

#### PENTODE

RCA Type	Net Each
802*	\$16.45
803	49.20
837	12.65

#### TETRODE

RCA Type	Net Each
806	**

#### TRIODE

RCA Type	Net Each
2C39A, -V1	\$ 20.75
2C39WA	29.00
2C40	29.30
2C40A	34.00
2C43	26.95
9C21*	1775.00
9C25	1690.00
207*	370.00
801A	14.25
805	22.10
809	8.95
810	28.60
811A, 812A	2.15
830B*	2.45
833A	58.20
845	25.80
880*	715.00
889A*	260.00
889A*	435.00
891R	490.00
892*	342.00
892R	440.00
5556	52.45
5592	2500.00
5671	1860.00
5713	385.00
5762/7C24	240.00
5770	1440.00
5771	700.00
5786	240.00
6161	125.00
6897	32.15
8000	24.40
8005	17.85
8239/3X3000F1	215.00

### THYRATRONS

RCA Type	Net Each
3D22A	\$32.30

### GAS AND MERCURY

RCA Type	Net Each
3C23	\$11.98
710/6011	12.00
714/7021	10.00
716/6855	12.50
766/6858	28.10

### MERCURY-VAPOR

RCA Type	Net Each
105	\$ 59.00
172	129.00
627	31.50
632B	33.00
672A	39.85
676	63.80
677	63.80
5557	9.50
5559	23.00
5560	33.00
5563A	50.00

### XENON

RCA Type	Net Each
C1K/6014	\$11.80
C3J/5632	12.70
C3JA/5684	13.10
C3JL	14.20
C6J/5C21	28.10
C6JA/5685	29.00
C16J/5665	52.50

### HYDROGEN

RCA Type	Net Each
6130/3C45	\$16.80

### IGNITRONS

RCA Type	Net Each	RCA Type	Net Each
5550	\$49.00	5552A	\$ 99.00
5551A	65.00	5553B	245.00

### PHOTOSENSITIVE TUBES AND DEVICES

#### PHOTOCELLS

RCA Type	Net Each
5L2205	\$10.30
5L2206	14.30
5Q2501	2.85
5Q2502	1.90
5Q2503	1.35
5Q2508	1.90
5Q2509	1.00
5Q2513	1.05
5Q2516	12.50
5Q2519	1.65
5Q2520, 5Q2521	1.80
5Q2523, 5Q2524	2.10
5Q2525-5Q2527	1.80
5Q2528	1.70
5Q2529	1.65
5Q2531	1.25
5Q2531V1-V6	1.25
5Q2532	1.25
5Q2532V1-V4	1.25
5Q2533	1.25
5Q2533V1-V7	1.25
4402	1.70
4403, 4404	1.35
4413	2.35
4423, 4425	1.65
4448	1.35
4450, 4451	1.40
4453, 7163	1.35
7412	2.10

#### PHOTOTUBES (CONT'D)

RCA Type	Net Each
4409	\$5.35
5581	3.65
5582	6.50
5583	6.25
5652	6.25
5653	7.80
6405/1640	7.85
6570	9.50
6953	4.85
7043	5.60

#### MULTIPLIER PHOTOTUBES

RCA Type	Net Each
1P21	\$ 54.50
1P22	15.80
1P28	21.60
931A	12.40
931VA	13.00
2020	15.85
2067	15.85
4438	105.00
4441	155.00
4441A	32.00
4459	450.00
4460	205.00
4461	360.00
4463	310.00
4464	340.00
4465	420.00
4471	17.30
4472	23.00
4473	97.40
5819	64.25
6199	47.30
6217	72.00
6342A	57.20
6472	14.75
6655A	54.35
6810A	195.00
6903	370.00
7046	570.00
7102	110.00
7117	12.65
7200	205.00
7264	265.00
7265	410.00
7326	200.00
7766	125.00
7767	120.00
7850	240.00
8053	107.25
8054	125.00
8055	170.00
8571	310.00

Prices shown do not include State or local sales and similar taxes. All prices subject to change or withdrawal without notice.

### REGULATOR POWER

RCA Type	Net Each
3E29	\$21.60
3E29A	28.45
6293	5.95

### MODULATOR POWER

RCA Type	Net Each
3C33	\$ 30.75
4600A	330.00
4614	310.00

### RF PULSE POWER

RCA Type	Net Each
2C40A	\$ 34.00
4621	130.00
5946	125.00
7214	490.00
7649	70.00
7651	305.00
8227	90.10

### PHOTOTUBES

RCA Type	Net Each
1P29	\$ 6.35
1P37	5.20
1P39	2.50
1P40	3.75
1P41	4.45
1P42	17.40
868	4.80
917	7.75
918	6.10
919	8.25
920	7.45
921	4.00
922	3.45
923	3.80
925	4.45
926	4.35
927	2.70
928	7.10
929	2.60
930	3.80
934	4.35
935	13.00
2022	4.45

### PENCIL

RCA Type	Net Each
4028A	\$31.50
4037A	25.60
4055	33.70
5675	8.95
5876, 5876A	8.60
5893	20.75
6173	13.35
6263A	1.05
6264A	13.85
6562/5794A	6.35
7533	6.50
7552	47.70
7553	57.10
7554	40.00

### MICROWAVE

#### KLYSTRON

RCA Type	Net Each
2K26	\$65.00

#### TRAVELING-WAVE

RCA Type	Net Each
6861	\$ 955.00
7642	1265.00

#### MAGNETRON

RCA Type	Net Each
6521	\$690.00

#### VACUUM GAUGES

RCA Type	Net Each
1946	\$13.65
1947	18.30
1949	15.20

\*Recommended for replacement purposes only. \*\*Price on request.



# Picture and Industrial Tubes

## RCA TELEVISION PICTURE TUBES

All tubes listed below are fully warranted for one year.

### RCA SILVERAMA® PREMIUM PICTURE TUBES

All materials and parts used are new except for the envelope which, prior to reuse, was carefully inspected to meet the standards of the original new envelope.

RCA Type	Shape	Envelope	Face Plate	Focus	Deflec. Angle	Net Each
5TP4	●	G	Cl.	E	50°	\$55.93
7JP4	○	G	Cl.	E	22.47	22.47
8DP4	□	G	Tint	E	90°	24.13
9QP4	○	G	Tint	E	70°	28.87
10BP4	○	G	Tint	M	50°	27.67
10FP4	○	G	Tint	M	50°	29.47
12KP4	●	G	Tint	M	54°	28.87
12BNP4	●	G	Tint	M	54°	28.27
14ATP4	■	G	Tint	E	90°	27.20
14CP4	■	G	Tint	M	70°	27.13
14WP4	■	G	Tint	E	90°	30.27
16ANP4	○	G	Tint	E	114°	34.40
16AP4	○	M	Tint	M	53°	26.60
16AYP4	■	G	Tint	E	114°	29.47
16BGP4	○	G	Tint	E	114°	31.93
16DP4	○	G	Tint	M	60°	18.47
16GP4B	○	M	T.F.	M	70°	26.13
16LP4	○	G	Tint	M	52°	20.93
16RP4B	○	G	Tint	M	70°	20.47
16TP4	○	G	Tint	M	70°	28.27
16WP4A	○	G	Tint	M	70°	30.73
17BJP4	■	G	Tint	E	90°	23.27
17BP4D	■	G	Tint	M	70°	21.80
17CP4	■	M	T.F.	M	70°	25.80
17CDP4	■	G	Tint	E	110°	35.47
17CFP4	■	G	Tint	E	90°	24.60
17CSP4	■	G	Tint	E	110°	28.53
17CYP4	■	G	Tint	E	90°	31.47
17DAP4	■	G	Tint	E	110°	33.87
17DKP4	■	G	Tint	E	110°	28.53
17DQP4	■	G	Tint	E	110°	27.93
17DRP4	■	G	Tint	E	110°	33.47
17DSP4	■	G	Tint	E	110°	27.67
17DXP4	■	G	Tint	E	110°	27.93
17FFP4	■	M	T.F.	E	70°	28.27
17GP4	■	M	T.F.	E	70°	28.27
17HP4C	■	G	Tint	E	70°	21.80
17LP4B	■	G	Tint	E	70°	23.47
17QP4B	■	G	Tint	M	70°	23.47
17TP4	■	M	T.F.	E	70°	20.33
19ABP4	■	G	Tint	E	114°	35.33
19AHP4	■	G	Tint	E	114°	31.67
19AJP4	■	G	Tint	E	114°	31.67
19AP4B	○	M	T.F.	M	66°	35.93
19AUP4	■	G	T.F.	E	114°	38.07
19AVP4	■	G	Tint	E	114°	31.67
19AYP4	■	G	Tint	E	114°	31.67
19BDP4	■	G	Tint	E	92°	32.33
19BTP4	■	G	Tint	E	114°	31.67
19CHP4	■	G	Tint	E	114°	31.67
19CMP4	■	G	Tint	E	114°	31.67
19CXP4	■	G	Tint	E	114°	31.67
19DAP4	■	G	Tint	E	114°	36.87
19DQP4	■	G	Tint	E	114°	34.40
19DRP4	■	G	Tint	E	114°	34.40
19DSP4	■	G	Tint	E	114°	34.40
20DP4D	■	G	Tint	M	70°	33.13
20HP4E	■	G	Tint	E	70°	33.13
21AMP4B	■	G	Tint	M	90°	22.47
21AP4	■	M	T.F.	M	70°	42.27
21AVP4C	■	G	Tint	E	72°	26.13
21AWP4A	■	G	Tint	M	72°	26.13
21CBP4A	■	G	Tint	E	90°	22.47
21CQP4	■	G	Tint	E	110°	33.40
21DEP4A	■	G	Tint	E	110°	32.80
21DFP4	■	G	Tint	E	110°	32.80
21DHP4	■	G	Tint	E	110°	32.47
21DLP4	■	G	Tint	E	90°	27.27
21DSP4	■	G	Tint	E	90°	27.13
21EP4C	■	G	Tint	M	70°	27.40
21EQP4	■	G	Tint	E	110°	33.40
21FVP4	■	G	Tint	E	110°	41.33
21FAP4	■	G	Tint	E	110°	32.80
21FDP4	■	G	Tint	E	110°	41.33
21FP4D	■	G	Tint	E	70°	27.40
21FVP4	■	G	Tint	E	70°	41.07
21MP4	■	M	T.F.	E	70°	44.13
21WP4B	■	G	Tint	M	70°	30.40
21XP4B	■	G	Tint	E	70°	30.40
21YP4B	■	G	Tint	E	70°	21.13
21ZP4C	■	G	Tint	M	70°	21.13
23AHP4	■	G	Tint	E	92°	39.87
23ARP4	■	G	Tint	E	110°	40.60
23ASP4	■	G	Tint	E	92°	39.87
23BGP4	■	G	Tint	E	110°	45.60
23BJP4	■	G	Tint	E	92°	39.87
23BLP4	■	G	T.F.	E	92°	46.80
23BQP4	■	G	Tint	E	110°	45.60
23CBP4	■	G	T.F.	E	110°	46.80
23CP4	■	G	Tint	E	110°	45.60
23CGP4	■	G	Tint	E	92°	39.87
23CQP4	■	G	Tint	E	114°	39.87
23DAP4	■	G	Tint	E	94°	42.27
23DBP4	■	G	Tint	E	110°	39.27
23ENP4	■	G	Tint	E	92°	41.93
23EP4	■	G	Tint	E	110°	45.60

RCA Type	Shape	Envelope	Face Plate	Focus	Deflec. Angle	Net Each
23EQP4	■	G	Tint	E	114°	\$41.80
23ETP4	■	G	Tint	E	110°	41.93
23FBP4	■	G	Tint	E	92°	44.40
23FP4A	■	G	Tint	E	114°	39.87
23JP4	■	G	Tint	E	110°	45.60
23NP4	■	G	Tint	E	114°	39.87
23YP4	■	G	Tint	E	92°	45.60
24AEP4	■	G	Tint	E	90°	34.60
24AHP4	■	G	Tint	E	110°	46.73
24ATP4	■	G	Tint	E	90°	49.47
24AUP4	■	G	Tint	E	90°	38.27
24BAP4	■	G	Tint	E	110°	59.00
24BEP4	■	G	Tint	E	110°	55.13
24CP4B	■	G	Tint	M	90°	34.60
27MP4	■	M	T.F.	M	90°	73.47
27RP4A	■	G	Tint	M	90°	71.60

### NEW RCA HI-LITE COLOR PICTURE TUBES

Hi-Lite picture tubes contain all new parts and materials.

RCA Type	Net Each	RCA Type	Net Each
21FBP22A	\$124.87	25AP22A	\$178.00
21FJP22A	136.40		

### RCA COLORAMA PREMIUM COLOR PICTURE TUBES

Colorama picture tubes contain used materials which, prior to reuse, are carefully inspected to meet our high quality standards.

RCA Type	Shape	Envelope	Face Plate	Focus	Deflec. Angle	Net Each
15GP22	○	G	Cl.	E	45°	\$127.93
21AXP22A	○	M	Tint	E	70°	106.00
21CYP22A	○	G	Tint	E	70°	106.80
21FBP22	○	G	Tint	E	70°	112.67
21FJP22	○	G	T.F.	E	70°	123.00

### RCA TV TEST TUBES

RCA Type	Shape	Envelope	Face Plate	Deflection Angle	Net Each
5AXP4	○	G	Cl.	53°	\$27.87
8XP4	□	G	Tint	90°	30.80
8YP4	□	G	Tint	110°	33.73

**EXPLANATION OF SYMBOLS:** ○, round. □, rectangular. ●, round aluminized. ■, rectangular aluminized. G, glass tube. M, (in "Envelope" column) metal tube. Cl., Clear face plate. Tint, gray or tinted face plate. T.F., tinted and frosted face plate. E, electrostatic focus type. M, (in "Focus" column) magnetic focus type.

## MULLARD INDUSTRIAL TUBES

- SUBMINIATURE
- SPECIAL PURPOSE
- TRANSMITTING
- MICROWAVE
- CATHODE RAY
- ... ETC.

Extensive range of over 700 dependable special purpose tubes for virtually every industrial application. Each tube reflects the traditional Mullard quality.



Mullard Type	EIA Type	Net Each	Mullard Type	EIA Type	Net Each
E55L	8233	\$ 13.25	OCP71	.....	\$ 5.50
E80CC	6085	3.00	ORP10	.....	88.00
E80F	6084	3.05	QQV03-10	6360	5.15
E80L	6227	3.05	QY5-3000A	6076	305.00
E81L	6686	3.65	TD03-10	5861	33.75
E83F	6689	3.60	TD03-10E	.....	39.50
E88CC	6922	4.75	Z803U	6770	8.50
E180CC	7062	2.10	615V	.....	22.00
E180F	6688	6.80	75C1	.....	5.70
E182CC	7119	2.95	85A2	OG3	2.30
EAT6	6489	5.40	90AV	.....	15.00
EL360	.....	7.95	90C1	.....	3.50
EN32	6574	8.00	90C2	.....	6.50
EN91	21D21	1.30	108C1	OB2	1.32
JP9/2.5	7028	135.00	150B2	6364	2.55
M8081	6101	5.35	150B3	.....	5.45
M8162	12AT7WA	3.25	150C3	.....	1.85
ME1400	.....	6.70	150C4	OA2	1.26
ME1403	5886	21.50			





## RECEIVING TUBES

### TUBES MAY BE ASSORTED TO OBTAIN QUANTITY PRICES

The receiving tubes listed below and on the following pages represent practically all types generally in demand. Many pre-war types have not been included in this list in order that we catalog a complete listing of new types now available. If you require a particular type which is not listed it is due to space limitations rather than our inability to supply. We invite your inquiries and orders for all types whether listed or not as we can supply many pre-war types from stock and as new types are released by the manufacturer we will have them immediately available. While we try to maintain complete stocks at all times, the listing and pricing of a particular tube does not necessarily mean it is immediately available. Average shipping weight per tube, 4 oz.; per 100 tubes, 25 lbs.

**PHONE—WRITE—WIRE FOR PRICES & QUOTATIONS ON TUBES NOT LISTED.**

TUBE TYPE	List Price	Net Each		TUBE TYPE	List Price	Net Each		TUBE TYPE	List Price	Net Each	
		1-49	50 Up			1-49	50 Up			1-49	50 Up
0Z4G	\$2.45	\$1.23	\$1.10	4AV6	\$2.05	\$1.03	\$0.92	5V6GT	\$2.30	\$1.10	\$1.04
1A3	6.15	3.08	2.77	4BC5	2.20	1.10	.99	5X8	3.40	1.70	1.53
1A7GT	5.40	2.70	2.43	4BC8	3.85	1.93	1.73	5Y3GT	1.60	.80	.72
1AD2 Compactron	2.85	1.43	1.28	4BL8/XCF80	2.40	1.20	1.08	5Y4GA	2.45	1.23	1.10
1AX2	2.90	1.45	1.31	4BN6	3.60	1.80	1.62	5Z3	3.55	1.78	1.60
1B3GT/1G3GT	2.75	1.38	1.24	4BQ7A	3.75	1.88	1.69	5Z4	7.85	3.93	3.53
1DN5	3.45	1.73	1.55	4BS8	3.85	1.93	1.73	6A7	8.00	4.00	3.60
1K3/1J3	2.75	1.38	1.24	4BU8	3.30	1.65	1.48	6AB4	2.20	1.10	.99
1L6	6.45	3.23	2.90	4BZ6	2.10	1.05	.95	6AF3	2.75	1.38	1.24
1N5GT	4.90	2.45	2.21	4BZ7	3.85	1.93	1.73	6AF4	3.75	1.88	1.69
1R5	2.90	1.45	1.31	4CB6	2.20	1.10	.99	6AF4A	3.75	1.88	1.69
1S2A	2.95	1.48	1.33	4CE5/4BC5	2.20	1.10	.99	6AF6G	6.30	3.15	2.84
1U4	2.75	1.38	1.24	4CS6	2.40	1.20	1.08	6AF11 Compactron	4.75	2.38	2.14
1U5	2.45	1.23	1.10	4DE6	2.50	1.25	1.13	6AG5	2.60	1.30	1.17
1V2	2.20	1.10	.99	4DK6	2.30	1.15	1.04	6AG11 Compactron	3.70	1.85	1.67
1X2A	2.90	1.45	1.31	4DT6A	2.10	1.05	.95	6AH4GT	3.25	1.63	1.46
1X2B	2.90	1.45	1.31	4EH7/YF183	3.55	1.78	1.60	6AH6	4.40	2.20	1.98
2A3	9.90	4.95	4.46	4EJ7	3.55	1.78	1.60	6AK5	4.50	2.25	2.03
2AM2 Compactron	3.00	1.50	1.35	4EW6	2.45	1.23	1.10	6AL3	2.75	1.38	1.24
2AS2 Compactron	3.00	1.50	1.35	4GK5	3.90	1.95	1.76	6AL5	1.75	.88	.79
2BN4A	2.55	1.28	1.15	4GM6	2.20	1.10	.99	6AL7GT	5.85	2.93	2.63
2CW4 Nuvistor	4.40	2.20	1.98	4GS8/4BU8	3.15	1.58	1.42	6AL11 Compactron	4.15	2.08	1.87
2CY5	2.90	1.45	1.31	4GZ5	2.35	1.18	1.06	6AM4, A	5.55	2.78	2.50
2DS4 Nuvistor	4.40	2.20	1.98	4HA5	3.85	1.93	1.73	6AN4, A	6.15	3.08	2.77
2DV4 Nuvistor	6.15	3.08	2.77	4HA7 Compactron	3.05	1.53	1.37	6AN8A	3.75	1.88	1.69
2DZ4	3.85	1.93	1.73	4HM6	2.25	1.13	1.01	6AQ5A	2.00	1.00	.90
2EN5	3.20	1.60	1.44	4HS8	3.05	1.53	1.37	6AQ6	2.45	1.23	1.10
2ER5	3.30	1.65	1.49	4HT6	2.25	1.13	1.01	6AQ7GT	3.75	1.88	1.69
2FH5	3.15	1.58	1.42	4JCG	3.30	1.65	1.49	6AQ8	3.00	1.50	1.35
2FQ5A	3.85	1.93	1.73	4JD6	3.30	1.65	1.49	6AR5	2.45	1.23	1.10
2FS5	4.85	2.43	2.18	5AM8	3.70	1.85	1.67	6AR8	4.85	2.43	2.18
2GK5	3.85	1.93	1.73	5AN8	4.10	2.05	1.85	6AR11 Compactron	4.10	2.05	1.85
2GU5	4.10	2.05	1.85	5AQ5	2.20	1.10	.99	6AS5	2.75	1.38	1.24
2HA5	3.85	1.93	1.73	5AR4	4.25	2.13	1.91	6AS8	4.00	2.00	1.80
2HK5	3.85	1.93	1.73	5AS4A	3.10	1.55	1.40	6AS11 Compactron	4.75	2.38	2.14
3A2	5.50	2.75	2.48	5AS8	4.10	2.05	1.85	6AT6	1.80	.90	.81
3A3/3B2	3.20	1.60	1.44	5AT8	3.60	1.80	1.62	6AT8A	4.00	2.00	1.80
3AF4A	3.80	1.90	1.71	5AU4	3.20	1.60	1.44	6AU4GTA	3.40	1.70	1.53
3AF4B	3.80	1.90	1.71	5AV8	3.85	1.93	1.73	6AU5GT	4.25	2.13	1.91
3AL5	1.95	.98	.88	5B8	5.50	2.75	2.48	6AU6A	1.95	.98	.88
3AT2 Compactron	3.05	1.53	1.37	5BC3 Novar	2.65	1.33	1.19	6AU8A	4.00	2.00	1.80
3AU6	2.20	1.10	.99	5BE8	3.10	1.55	1.40	6AV5GA	4.40	2.20	1.98
3AV6	1.80	.90	.81	5BK7A	3.40	1.70	1.53	6AV6	1.60	.80	.72
3AW3	3.20	1.60	1.44	5BQ7A	3.80	1.90	1.71	6AV11 Compactron	4.40	2.20	1.98
3BA6	2.35	1.18	1.06	5BR8	4.00	2.00	1.80	6AW8A	3.50	1.75	1.58
3BC5/3CE5	2.45	1.23	1.10	5BT8	3.10	1.55	1.40	6AX3 Compactron	2.55	1.28	1.15
3BN4A	2.90	1.45	1.31	5BW8	3.20	1.60	1.44	6AX4GTB	2.50	1.25	1.13
3BN6	3.60	1.80	1.62	5CG8	3.15	1.58	1.42	6AX5GT	2.90	1.45	1.31
3BU8	3.15	1.58	1.42	5CL8A	3.55	1.78	1.60	6AX8	3.50	1.75	1.58
3BY6	2.75	1.38	1.24	5CM8	3.55	1.78	1.60	6AY3 Novar	2.60	1.30	1.17
3BZ6	2.15	1.08	.97	5CQ8	3.85	1.93	1.73	6AY11 Compactron	3.70	1.85	1.67
3CA3	3.20	1.60	1.44	5CD5	4.10	2.05	1.85	6BZ8	5.50	2.75	2.48
3CB6	2.15	1.08	.97	5DH8	4.50	2.25	2.03	6B8	6.85	3.43	3.08
3CF6	2.55	1.28	1.15	5DJ4	3.15	1.58	1.42	6B10 Compactron	3.35	1.68	1.51
3CS6	2.45	1.23	1.10	5EA8	3.40	1.70	1.53	6BA3 Novar	3.05	1.53	1.37
3CY5	3.35	1.68	1.51	5EU8	3.15	1.58	1.42	6BA6	1.90	.95	.86
3DG4	3.70	1.85	1.67	5EW6	2.75	1.38	1.24	6BA7	5.60	2.80	2.52
3DK6	2.30	1.15	1.04	5FG7	2.60	1.30	1.17	6BA8A	3.65	1.83	1.64
3DT8, A	3.30	1.65	1.49	5FV8	3.00	1.50	1.35	6BA11 Compactron	3.50	1.75	1.58
3DZ4	2.85	1.43	1.28	5GH8	3.70	1.85	1.67	6BC4	5.50	2.75	2.48
3EH7/XF183	3.55	1.78	1.60	5GM6	2.45	1.23	1.10	6BC5	2.25	1.13	1.01
3EJ7/XF184	3.55	1.78	1.60	5GX6	2.45	1.23	1.10	6BC7	3.60	1.80	1.62
3ER5	3.30	1.65	1.49	5HG8	3.70	1.85	1.67	6BC8	3.75	1.88	1.69
3FS5	4.30	2.15	1.94	5J8	2.70	1.35	1.22	6BD6	2.35	1.18	1.06
3GK5	3.85	1.93	1.73	5KE8	4.75	2.38	2.14	6BD11 Compactron	4.80	2.40	2.16
3GS8/3BU8	3.15	1.58	1.42	5T8	3.40	1.70	1.53	6BE3 Compactron	2.85	1.43	1.28
3HA5	3.85	1.93	1.73	5U4C, GB	3.95	1.98	1.88	6BE6	2.10	1.05	.95
3HM5	3.85	1.93	1.73	5UR	1.10	.55	.40	6BF5	2.35	1.18	1.06
3V4	2.35	1.18	1.06	5V3A	3.60	1.80	1.62	6BF6	1.80	.90	.81
4AU6	2.45	1.23	1.10	5V4GA	3.55	1.78	1.60	6BF11 Compactron	4.50	2.25	2.03

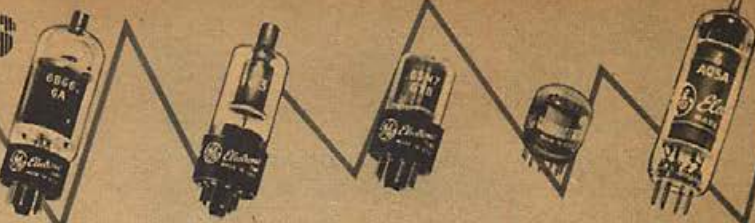




# ELECTRONICS

## SERVICE-DESIGNED

### RECEIVING TUBES



TUBE TYPE	List Price	Net Each		TUBE TYPE	List Price	Net Each		TUBE TYPE	List Price	Net Each	
		1-49	50 Up			1-49	50 Up			1-49	50 Up
6BQ6G, GA	\$6.10	\$3.05	\$2.75	6DW4 Novar	\$3.50	\$1.75	\$1.58	6HL8	\$3.05	\$1.53	\$1.37
6BH3 Novar	2.80	1.40	1.26	6DX8/ECL84	2.95	1.48	1.33	6HM5	3.85	1.93	1.73
6BH6	2.55	1.28	1.15	6DZ4	3.75	1.88	1.69	6HR6	2.75	1.38	1.24
6BH8	3.75	1.88	1.69	6DZ7	8.45	4.22	3.80	6HS6	2.75	1.38	1.24
6BH11 Compactron	3.90	1.95	1.76	6E5	5.20	2.60	2.34	6HS8	3.05	1.53	1.37
6BJ3 Compactron	2.50	1.25	1.13	6EA5	3.55	1.78	1.60	6HZ6	2.75	1.38	1.24
6BJ6	2.45	1.23	1.10	6EA7	4.80	2.40	2.16	6HZ8	5.50	2.75	2.48
6BJ7	2.95	1.48	1.33	6EA8	3.00	1.50	1.35	6J5, GT	3.40	1.70	1.53
6BJ8	3.30	1.65	1.49	6EB5	4.60	2.30	2.07	6J6A	2.65	1.33	1.19
6BK4B	7.55	3.78	3.40	6EB8	4.00	2.00	1.80	6J10 Compactron	5.00	2.50	2.25
6BK5	3.50	1.75	1.58	6EH5	2.90	1.45	1.31	6J11 Compactron	4.50	2.25	2.03
6BK7B	3.20	1.60	1.44	6EH7/EF183	3.85	1.93	1.73	6JB6 Novar	5.60	2.80	2.52
6BL7GTA	4.00	2.00	1.80	6EH8	3.40	1.70	1.53	6JC6	3.75	1.88	1.69
6BL8	3.75	1.88	1.69	6EJ7/EF184	3.55	1.78	1.60	6JC8	2.90	1.45	1.31
6BM8/ECL-82	2.90	1.45	1.31	6EM5	3.20	1.60	1.44	6JD6	3.30	1.65	1.49
6BN4A	3.15	1.58	1.42	6EM7	4.80	2.40	2.16	6JE6 Novar	8.50	4.25	3.83
6BN6	3.00	1.50	1.35	6EQ7	2.75	1.38	1.24	6JES	3.70	1.85	1.67
6BN8	2.85	1.43	1.28	6ER5	3.55	1.78	1.60	6JG6A	5.70	2.85	2.57
6BQ5	2.30	1.15	1.04	6ES5	2.85	1.43	1.28	6JH6	2.45	1.23	1.10
6BQ6GTB/6CU6	4.10	2.05	1.85	6ES8	5.45	2.73	2.45	6JH8	4.10	2.05	1.85
6BQ7A	3.75	1.88	1.69	6ET7	4.00	2.00	1.80	6JK8	4.05	2.03	1.82
6BR8A	3.55	1.78	1.60	6EU7	2.55	1.28	1.15	6JM6	4.15	2.08	1.87
6BS8	3.55	1.78	1.60	6EU8	3.10	1.55	1.40	6JN6	3.85	1.93	1.73
6BU8	3.15	1.58	1.42	6EV5	2.85	1.43	1.28	6JN8	3.65	1.83	1.64
6BV3	3.00	1.50	1.35	6EV7	2.75	1.38	1.24	6JT6A	4.80	2.40	2.16
6BW4	2.75	1.38	1.24	6EW6	2.35	1.18	1.06	6JTB	2.20	1.10	1.00
6BW8	3.35	1.68	1.51	6EW7 Novar	5.50	2.75	2.48	6JUB	3.05	1.53	1.37
6BX7GT	5.35	2.68	2.41	6EX6	7.50	3.75	3.38	6JV8	3.65	1.83	1.64
6BY5GA	4.80	2.40	2.16	6EY6	3.20	1.60	1.44	6JZ8 Compactron	3.55	1.78	1.60
6BY6	2.45	1.23	1.10	6EZ5	3.40	1.70	1.53	6K6GT	2.45	1.23	1.10
6BY8	2.50	1.25	1.13	6EZ8	3.55	1.78	1.60	6K11/6Q11 Compac.	3.65	1.83	1.64
6BZ6	2.10	1.05	.95	6F7	11.05	5.53	4.97	6KAB	3.85	1.93	1.73
6BZ7	3.75	1.88	1.69	6FA7	2.95	1.48	1.33	6KDS	2.80	1.40	1.26
6BZ8	4.20	2.10	1.89	6FD7	4.75	2.38	2.14	6KES	4.75	2.38	2.14
6C4	1.75	.88	.79	6FE5	3.40	1.70	1.53	6KLB	2.60	1.30	1.17
6C6	7.85	3.93	3.53	6FG5	5.35	2.68	2.41	6KMS	3.45	1.73	1.55
6C9	5.50	2.75	2.48	6FG6/EM84	3.35	1.68	1.51	6KRA	4.25	2.13	1.91
6C10 Compactron	3.70	1.85	1.67	6FG7	3.25	1.63	1.46	6KTB	3.60	1.80	1.62
6CA4	1.95	.98	.88	6FH5	2.75	1.38	1.24	6KV8	5.85	2.93	2.63
6CA5	3.00	1.50	1.35	6FH8	3.70	1.85	1.67	6KY8	7.25	3.63	3.26
6CA7	5.75	2.88	2.59	6FJ7 Compactron	3.45	1.73	1.55	6KZ8	2.60	1.30	1.17
6CB5A	9.40	4.70	4.23	6FM7 Compactron	3.25	1.63	1.46	6L5	8.80	4.40	3.96
6CB6A	2.10	1.05	.95	6FM8	2.85	1.43	1.28	6L6GC	4.45	2.23	2.00
6CD6GA	5.50	2.75	2.48	6FQ5A	3.85	1.93	1.73	6LBB	4.70	2.35	2.12
6CE5/6BC5	2.25	1.13	1.01	6FQ7	2.35	1.18	1.06	6LC8	3.85	1.93	1.73
6CF6	2.40	1.20	1.08	6FS5	4.10	2.05	1.85	6LF8	3.55	1.78	1.60
6CG7	2.35	1.18	1.06	6FV6	3.70	1.85	1.67	6M11 Compactron	4.55	2.28	2.05
6CG8A	3.10	1.55	1.40	6FW5	3.85	1.93	1.73	6N7	4.80	2.40	2.16
6CH8	5.45	2.73	2.45	6FY5	2.75	1.38	1.24	6N7GT	4.90	2.45	2.21
6CK4	3.20	1.60	1.44	6FY7 Compactron	3.20	1.60	1.44	6SA4	2.35	1.18	1.06
6CL6	3.55	1.78	1.60	6G11 Compactron	4.10	2.05	1.85	6SA7, GT	4.05	2.03	1.82
6CL8A	3.40	1.70	1.53	6GC5	4.00	2.00	1.80	6SC7	4.25	2.13	1.91
6CM6	3.10	1.55	1.40	6GE5 Compactron	3.85	1.93	1.73	6SN7GTB	2.45	2.23	1.10
6CM7	2.75	1.38	1.24	6GF5 Compactron	3.50	1.75	1.58	6SQ7	3.55	1.78	1.60
6CM8	4.05	2.03	1.82	6GF7 Novar	4.85	2.43	2.18	6SQGT	3.55	1.78	1.60
6CN7	3.70	1.85	1.67	6GH8	3.00	1.50	1.35	6TA	5.15	2.58	2.32
6CQ4	3.05	1.53	1.37	6GH8A	3.00	1.50	1.35	6T8A	3.20	1.60	1.44
6CQ8	3.30	1.65	1.49	6GJ5A Novar	5.40	2.70	2.43	6T9 Compactron	3.45	1.73	1.55
6CR6	2.30	1.15	1.04	6GJ7	3.40	1.70	1.53	6T10 Compactron	4.25	2.13	1.91
6CS6	2.45	1.23	1.10	6GK5	3.85	1.93	1.73	6U5	7.40	3.70	3.33
6CS7	2.80	1.40	1.26	6GK6	2.90	1.45	1.31	6U8A	3.10	1.55	1.40
6CU5	2.45	1.23	1.10	6GL7	4.80	2.40	2.16	6U10 Compactron	3.65	1.83	1.64
6CU6	4.10	2.05	1.85	6GM5	3.05	1.53	1.37	6V3A	4.55	2.28	2.05
6CU8	4.10	2.05	1.85	6GM6	2.75	1.38	1.24	6V4/EZ80	1.50	.75	.68
6CW4 Nuvistor	4.45	2.23	2.00	6GM8/ECC86	4.35	2.18	1.96	6V6GTA	2.05	1.03	.92
6CW5	3.40	1.70	1.53	6GN8	3.70	1.85	1.67	6W4GT	2.30	1.15	1.04
6CX8	4.00	2.00	1.80	6GTS Novar	4.80	2.40	2.16	6W6GT	2.70	1.35	1.22
6CY5	3.10	1.55	1.40	6GU5	4.10	2.05	1.85	6X4	1.60	.80	.72
6CY7	3.05	1.53	1.37	6GU7	3.20	1.60	1.44	6X5GT	1.95	.98	.88
6CZ5	4.15	2.08	1.87	6GV5 Compactron	4.15	2.08	1.87	6X8A	3.00	1.50	1.35
6D6	7.35	3.68	3.31	6GV8	3.10	1.55	1.40	6Y6GA	4.05	2.03	1.82
6D10 Compactron	3.85	1.93	1.73	6GW6	3.90	1.95	1.76	6Z4/84	3.40	1.70	1.53
6DA4A	2.75	1.38	1.24	6GW8/ECL86	3.05	1.53	1.37	7AU7	2.45	1.23	1.10
6DB5	5.00	2.50	2.25	6GX6	2.35	1.18	1.06	7EY6	3.00	1.50	1.35
6DC6	3.55	1.78	1.60	6GY5 Compactron	4.80	2.40	2.16	7HG8/PCF86	3.15	1.58	1.42
6DE4	2.10	1.05	.95	6GY6	2.60	1.30	1.17	8AU8, A	3.85	1.93	1.73
6DE6	2.40	1.20	1.08	6GY8	3.55	1.78	1.60	8AW8A	3.50	1.75	1.58
6DE7	3.20	1.60	1.44	6GZ5	2.70	1.35	1.22	8B10 Compactron	3.35	1.68	1.51
6DG6GT	3.25	1.63	1.46	6HG6	4.05	2.03	1.82	8BA8A	3.45	1.73	1.55
6DK6	2.25	1.13	1.01	6HAS/ECC900	3.85	1.93	1.73	8BH8	3.35	1.68	1.51
6DM4	2.70	1.35	1.22	6HA6	4.15	2.08	1.87	8BN8	3.05	1.53	1.37
6DN6	7.00	3.50	3.15	6HB5 Compactron	4.20	2.10	1.89	8BQ5	2.75	1.38	1.24
6DN7	3.35	1.68	1.51	6HB6	4.45	2.23	2.00	8CG7	2.35	1.18	1.06
6DQ4	2.45	1.23	1.10	6HB7	3.05	1.53	1.37	8CM7	2.70	1.35	1.22
6DQ5	7.85	3.93	3.53	6HD5 Compactron	5.35	2.68	2.41	8CN7	2.65	1.33	1.19
6DR4	1.75	.88	.79	6HE5 Compactron	3.70	1.85	1.67	8CS7	2.80	1.40	1.26
6DR7	3.85	1.93	1.73	6HF5 Compactron	7.30	3.65	3.29	8CW5	2.80	1.40	1.26
6DS4 Nuvistor	4.45	2.23	2.00	6HF8	4.00	2.00	1.80	8CX8	4.40	2.20	1.98
6DS5	3.30	1.65	1.49	6HG5	2.00	1.00	.90	8EB8	4.10	2.05	1.85
6DT5	3.55	1.78	1.60	6HG8	4.10	2.05	1.85	8EM5	3.25	1.63	1.46
6DT8	3.55	1.78	1.60	6HJ8	3.10	1.55	1.40	8ET7	4.15	2.08	1.87
6DV4 Nuvistor	6.20	3.10	2.79	6HK5	3.90	1.95	1.76	8FQ7	2.35	1.18	1.06





# RECEIVING TUBES

TUBE TYPE	List Price	Net Each		TUBE TYPE	List Price	Net Each		TUBE TYPE	List Price	Net Each	
		1-49	50 Up			1-49	50 Up			1-49	50 Up
8GN8	\$3.70	\$1.85	\$1.67	12DY8	\$7.95	\$3.98	\$3.58	19E28	\$4.50	\$2.25	\$2.03
8JV8	1.65	1.83	1.64	12DZ6	2.75	1.38	1.24	19GQ7	3.85	1.93	1.73
8KA8	3.85	1.93	1.73	12EA6	2.45	1.23	1.10	19HR6	2.45	1.23	1.10
8LC8	3.85	1.93	1.73	12EC8	3.40	1.70	1.53	19HS6	2.40	1.20	1.08
9A8/PCF80	3.75	1.88	1.69	12ED5	2.70	1.35	1.23	19HV8	3.55	1.78	1.60
9AU7	2.65	1.33	1.19	12EG6	3.05	1.53	1.37	19J6	3.70	1.85	1.67
9BR7	3.15	1.58	1.42	12EK6	2.75	1.38	1.24	19JN8	3.05	1.53	1.37
9EA8	3.05	1.53	1.37	12EL6	1.90	.95	.86	19T8	3.35	1.68	1.51
9GV8/XCL85	3.75	1.88	1.69	12EN6	2.90	1.45	1.31	19X8	4.10	2.05	1.85
9KZ8	2.40	1.20	1.08	12EZ6	3.55	1.78	1.60	20E27	3.45	1.73	1.55
9U8A	3.10	1.55	1.40	12F8	3.20	1.60	1.44	21GV5 Compactor	4.65	2.33	2.09
10AL11 Compactor	4.20	2.10	1.89	12FK6	2.20	1.10	.99	21HB5 Compactor	4.35	2.18	1.96
10C8	4.00	2.00	1.80	12FM6	2.20	1.10	.99	21HB5A	4.35	2.18	1.96
10DE7	3.20	1.60	1.44	12FQ8	3.25	1.63	1.46	21HJ5 Compactor	5.85	2.93	2.63
10DR7	4.10	2.05	1.85	12FR8	6.90	3.45	3.11	22BH3A Novar	3.10	1.55	1.40
10DX8	2.75	1.38	1.24	12FV7	3.40	1.70	1.53	22BW3	3.05	1.53	1.37
10EG7	4.40	2.20	1.98	12FX5	2.45	1.23	1.10	22DE4	2.95	1.48	1.33
10EM7	4.45	2.23	2.00	12FX8A	3.85	1.93	1.73	22JG6 Novar	5.75	2.88	2.59
10EW7	4.40	2.20	1.98	12GA6	2.40	1.20	1.08	25AV5GA	4.40	2.20	1.98
10GN8	3.55	1.78	1.60	12GC6	3.95	1.98	1.78	25AX4GT	3.05	1.53	1.37
10HF8	4.65	2.33	2.09	12GE5 Compactor	3.90	1.95	1.76	25BK5	3.40	1.70	1.53
10JA8	3.55	1.78	1.60	12GJ5A Novar	4.35	2.18	1.96	25BQ6GTB/CU6	4.40	2.20	1.98
10JY8	3.65	1.83	1.64	12GN7	3.90	1.95	1.76	25C5	2.05	1.03	.92
10KR8	4.25	2.13	1.91	12GT5 Novar	4.50	2.25	2.03	25CA5	2.95	1.48	1.33
11AR11 Compactor	4.10	2.05	1.85	12H6	4.00	2.00	1.80	25CD6GB	5.75	2.88	2.59
11CY7	3.05	1.53	1.37	12J8	4.35	2.18	1.96	25DN6	5.95	2.98	2.68
11JE8	3.85	1.93	1.73	12JB6A Novar	5.65	2.83	2.54	25EC6	5.40	2.70	2.43
11KV8	5.90	2.95	2.66	12K5	3.45	1.73	1.55	25EH5	2.90	1.45	1.31
12AB5	3.30	1.65	1.49	12KL8	2.45	1.23	1.10	25F5A	3.85	1.93	1.73
12AC6	2.10	1.05	.95	12L6GT	3.15	1.58	1.42	25L6GT	2.45	1.23	1.10
12AD6	2.25	1.13	1.01	12R5	2.90	1.45	1.31	25WAGT	2.55	1.28	1.15
12AE6A	2.30	1.15	1.04	12SN7GTA	2.55	1.28	1.15	25Z5	4.35	2.18	1.96
12AF3	3.85	1.93	1.73	12U7	2.50	1.25	1.13	27G85/PL500	3.70	1.85	1.67
12AF6	2.60	1.30	1.17	12V6GT	3.40	1.70	1.53	29GK6	3.60	1.80	1.62
12AJ6	2.40	1.20	1.08	12W6GT	3.40	1.70	1.53	30AG11 Compactor	4.40	2.20	1.98
12AL5	1.80	.90	.81	12X4	1.95	.98	.88	32ET5A	2.40	1.20	1.08
12AL8	6.20	3.10	2.79	13CW4 Nuvistor	4.75	2.38	2.14	33GY7 Compactor	6.95	3.48	3.13
12AL11 Compactor	4.20	2.10	1.89	13DE7	2.80	1.40	1.26	33GT7 Compactor	6.05	3.03	2.72
12AQ5	2.45	1.23	1.10	13DR7	3.20	1.60	1.44	34GD5A	2.20	1.10	.99
12AT6	1.75	.88	.79	13EM7	4.45	2.23	2.00	35B5	3.20	1.60	1.44
12AT7	2.85	1.43	1.28	13FD7	4.55	2.28	2.05	35C5	2.00	1.00	.90
12AU6	2.00	1.00	.90	13FM7	3.00	1.50	1.35	35DZ8	3.25	1.63	1.46
12AU7, A	2.35	1.18	1.06	13GB5	3.70	1.85	1.67	35EH5	2.20	1.10	.99
12AV5GA	4.10	2.05	1.85	13GF7 Novar	4.65	2.33	2.09	35GL6	2.35	1.18	1.06
12AV6	1.60	.80	.72	13J10 Compactor	5.05	2.53	2.27	35L6GT	2.30	1.15	1.04
12AV7	3.40	1.70	1.53	14A7	5.55	2.78	2.50	35W4	1.05	.53	.47
12AX3 Compactor	2.60	1.30	1.17	14GT8	3.05	1.53	1.37	35Y4	4.50	2.25	2.03
12AX4GTB	2.55	1.28	1.15	15AF11 Compactor	4.75	2.38	2.14	36AM3B	1.55	.78	.70
12AX7	2.40	1.20	1.08	15BD11 Compactor	4.85	2.43	2.18	38HE7 Compactor	6.65	3.33	3.03
12AX7A	2.40	1.20	1.08	15CW5/PL84	2.65	1.33	1.19	42	4.85	2.43	2.18
12AY3 Novar	2.65	1.33	1.19	15EW6	3.45	1.73	1.55	43	7.20	3.60	3.24
12AY7	4.85	2.43	2.18	15FM7 Compactor	3.40	1.70	1.53	50A5	5.85	2.93	2.63
12AZ7A	2.60	1.30	1.17	15FY7 Compactor	3.25	1.63	1.46	50B5	2.60	1.30	1.17
12B4A	2.70	1.35	1.22	15HB6	3.85	1.93	1.73	50BM8	3.15	1.58	1.42
12BA6	1.60	.80	.72	15KY8 Novar	4.75	2.38	2.14	50C5	2.00	1.00	.90
12BA7	5.60	2.80	2.52	15LE8	7.60	3.80	3.42	50DC4	1.95	.98	.88
12BD6	2.35	1.18	1.06	16AQ3	2.70	1.35	1.22	50EH5	2.20	1.10	.99
12BE3 Compactor	2.60	1.30	1.17	16GK6	3.05	1.53	1.37	50FE5	4.10	2.05	1.85
12BE6	1.85	.93	.74	16GY5 Compactor	4.85	2.43	2.18	50FK5	2.20	1.10	.99
12BF6	2.10	1.05	.95	17AX3 Compactor	2.60	1.30	1.17	50HC6	2.15	1.08	.97
12BH7A	2.90	1.45	1.31	17AX4GTA	2.75	1.38	1.24	50HK6	2.15	1.08	.97
12BK5	3.75	1.88	1.69	17AY3 Novar	2.70	1.35	1.22	50L6GT	2.40	1.20	1.08
12BL6	2.45	1.23	1.10	17BE3 Compactor	2.90	1.45	1.31	50X6	5.85	2.93	2.63
12BN6	4.10	2.05	1.85	17BF11 Compactor	4.55	2.28	2.05	50Y6GT	4.35	2.18	1.96
12BQ6GTB/CU6	4.20	2.10	1.89	17BH3 Novar	2.85	1.43	1.28	50Y7GT	4.25	2.13	1.91
12BR7	3.05	1.53	1.37	17BQ6GTB	5.20	2.60	2.34	60FX5	2.60	1.30	1.17
12BT3 Compactor	2.85	1.43	1.28	17BS3 Novar	3.35	1.68	1.51	69Y3	4.25	2.13	1.91
12BV7	3.30	1.65	1.49	17C9	7.15	3.58	3.22	70Z5	2.80	1.40	1.26
12BW4	2.75	1.38	1.24	17CU5	2.35	1.18	1.06	70Z7A	6.75	3.38	3.04
12BY7A	3.05	1.53	1.37	17D4	2.75	1.38	1.24	7189A	2.80	1.40	1.26
12BZ6	2.10	1.05	.95	17DE4	3.20	1.60	1.44	7199	4.45	2.23	2.00
12BZ7	4.15	2.08	1.87	17DM4A	3.05	1.53	1.37	7247	2.90	1.45	1.31
12C5/12CU5	2.35	1.18	1.06	17DQ6B	3.95	1.98	1.78	7355	3.10	1.55	1.40
12CA5	2.85	1.43	1.28	17EW8/HCC85	2.60	1.30	1.17	7408	3.05	1.53	1.37
12CN5	3.25	1.63	1.46	17GE5 Compactor	3.90	1.95	1.76	7543	2.90	1.45	1.31
12CR6	2.60	1.30	1.17	17GJ5 Novar	5.50	2.75	2.48	7581A	4.55	2.28	2.05
12CT8	4.05	2.03	1.82	17GT5 Novar	4.00	2.00	1.80	7591A	2.80	1.40	1.26
12CX6	2.75	1.38	1.24	17GV5 Compactor	4.20	2.10	1.89	7695	4.40	2.20	1.98
12D4	2.75	1.38	1.24	17GW6	4.00	2.00	1.80	7868 Novar	3.85	1.93	1.73
12DB5	2.60	1.30	1.17	17H3	2.75	1.38	1.24	8136	2.55	1.28	1.15
12DE8	3.10	1.55	1.40	17JB6 Novar	5.50	2.75	2.48	8425A/6AU6A	2.55	1.28	1.15
12DK6	2.30	1.15	1.04	17JM6	4.20	2.10	1.89	8426A/12AU6A	2.80	1.40	1.26
12DK7	2.75	1.38	1.24	17JZ8 Compactor	3.55	1.78	1.60				
12DL8	5.85	2.93	2.63	18A5	3.90	1.95	1.76				
12DQ6B	3.95	1.98	1.78	18FW6A	2.05	1.03	.92				
12DQ7	3.25	1.63	1.46	18FX6, A	2.20	1.10	.99				
12DS7	3.70	1.85	1.67	18FY6, A	1.80	.90	.81				
12DT5	3.10	1.55	1.40	18GD6A	2.00	1.00	.90				
12DT8	3.55	1.78	1.60	19AU4GTA	3.55	1.78	1.60				
12DU7	4.40	2.20	1.98	19BG6GA	6.15	3.08	2.77				
12DV8	3.55	1.78	1.60	19CL8A	3.30	1.65	1.49				
12DW7	3.05	1.53	1.37	19EA8	3.20	1.60	1.44				

AS NEW RECEIVING TUBE TYPES  
BECOME AVAILABLE  
WE WILL STOCK THEM FOR  
IMMEDIATE DELIVERY





# Micropots, Motors, Dials



## 205 SERIES PRECISION MICROPOTS®

### TYPE 205 TEN-TURN

Precision potentiometers; rugged and dependable under exacting electrical and environmental specifications. Resistance wire locked in place; precision positioned and molded integrally with housing for permanent accuracy; rigid terminals also molded integrally with housing. Two bearings support the rotor assembly for precise positioning. Stainless steel, double thread, precision lead screw guides the moving contact assuring accurate settings and smooth action and uniform low torque. Anti-backlash spring in contact guide makes for accurate setting and resetting. Fine resolution due to 43½° Kohrausch winding in the helical element. Resistance output directly proportional to shaft rotation with extra high accuracy; each pot is automatically machine tested for linearity at 100 points. **Linearity Accuracy:** ±0.1%; independent of zero based except 1.5-50 ohms independent only. **Mechanical Rotation:** 3600° ±15°-0°. **Electrical Rotation:** 3600° ±14°-0°. **Total Resistance:** 1.15 to 100K ohms, tol. ±10% and ±3%. **Torque:** Not over 1.5 in./oz., running; 3.0 in./oz., starting. **Power Dissipation:** 5 watts at 40° C. **Life:** Not less than 50,000 cycles (1 million revolutions). **Size:** 1¼" O.D. x 2¼" l., body. Shaft ¼" long with ¼-32 threaded base with hex nut. Terminals ¼" h. **Amph. Model 205 Ten-Turn Micropot®** (1% zero-based linearity) —Specify resistance when ordering: 1.15, 2.9 and 25 ohms with ±0.1% linearity, ±10% resistance tolerance; 50, 100, 200 and 500 ohms with ±0.1% linearity, ±3% resistance tolerance; 1000, 2000, 5000, 10K, 20K ohms with ±0.1%—±.05% linearity, ±3% resistance tolerance; 50K and 100K ohms with ±0.1% linearity, ±3% resistance tolerance. **Prices below.\***

### MICRODIALS®

**Type 1300:** Digital units for fast, accurate readings; indicates precise shaft position up to 1000 turns. Available in 3-digit 10-turn, 4-digit 100-turn, and 5-digit 1000-turn models with counts to 6000 per minute. Optional finger-tip brakes. Knurled aluminum knobs; nylon counter wheels. Rugged, dust-sealed case. Continuous rotation. Numbers ¼" high. **Prices below.\***

Amphenol Number	Std. With Brake	No. Digits	No. Turns	Counts	Size, In. Dia.xDepth
1310	1309	3	10	000-999	1.8 x 1¼
1304	1314	4	100	0000-9999	2¼ x 1½
1305	1315	5	1000	00000-99999	2¼ x 1½

**Type 1330:** Superior 3-digit units with on-off switchable brake and magnified digits for widest versatility. Internally illuminated. Lens type window gives 1½X magnification of digits. Snap-on cap for easy lamp replacement. Sealed against dust and moisture. Five colors available. Machined aluminum knob with fluted rim. Numbers ¼" high. Size, 1¼" dia. x 1¼" deep. **Prices below.\***

Amphenol Number			Std. Color Cap and Arm
No Light	White Light	Red Light	
1331	1331LW	1331LR	Dark Gray
1332	1332LW	1332LR	Light Gray
1333	1333LW	1333LR	Red
1334	1334LW	1334LR	Black
1335	1335LW	1335LR	White

**Type 1320:** Concentric 10-turn type may also be used to indicate angular position of other multiturn devices. Two concentric dials: One indicates full turn; other 1/100th of a turn. Won't backlash; smooth action without stepping; fingertip brake. Size, 1¼" dia. x 1¼" deep. **Prices below.\***

Amph. Model	Finish*		Amph. Model	Finish*	
	Cover	Dials		Cover	Dials
1320	B. Chrome	S. Chrome	1324	G. Black	S. Chrome
1321	B. Chrome	G. Black	1325	G. Black	G. Black
1322	S. Chrome	S. Chrome	1326	D. Black	S. Chrome
1323	S. Chrome	G. Black	1327	D. Black	D. Black

\*B.—Bright S.—Satln. G.—Glossy. D.—Dull.

**Type 1360:** Economical 10-turn concentric type with dial same as Type 1320. Smooth, continuous operation either direction. Fingertip brake. Size, 1¼" dia. x 1" deep. **Prices below, right.\***

Amphenol Number	Coloring			
	Large Dial	Turns Dial	Cover	Arm
1361	Dark Gray	White*	Dark Gray	Light Gray
1362	Light Gray*	White*	Light Gray	Dark Gray
1363	Black	White*	Red	Black
1364	Dark Gray	White*	Red	Light Gray
1365	Light Gray*	White*	Red	Dark Gray

\*Black numerals; other dials have white numerals.

**Type 3000:** Miniature concentric turns counter is only 1" dia. Companion to Series 2100 and 2440 potentiometers. It is suitable for angular positioning of any precision shaft-controlled device of ten turns or less. **Prices below at right.\***

Amphenol Number	¼" Shaft	3041	Colors	Brake*	
				Suffix	Knob Color
3021	3041	White numbers on black	-1	White	
3022	3042	Black numbers on white	-2	Black	
3023	3043	Fluorescent nos. on black	-3	Red	
			-4	Dk. Gray	
			-5	Lt. Gray	

\*Add suffix to standard type, i.e. 3021-1.

### TYPE 1003-45Y INSTRUMENT MOTORS

Geared, synchronous 4-pole motors for quality instrument applications. Also available in inductance types, 2-pole construction, and without gear trains (data on request). Reversible; capacitor-start (0.8 µf). **Power Input:** Rated for 110 v. AC, 60 cycles. May also be operated on 50 cycles at reduced speed. Also operate on 220 v. AC, 50/60 cycles when properly connected. Connection diagrams supplied. **Size:** 2.916" sq. x 2¼" l. body; ¼" dia. flattened shaft extends 1"; two 8-32 thread screws on 2.696" (diag.) centers for mounting. Stack lgth., ¼".

**Amphenol Model 1003-45Y Geared 4-Pole Synchronous Motor**—Specify gear ratio when ordering: 2-gear type, 6:1 (300 rpm), 8:1 (225 rpm), 10:1 (180 rpm) or 12:1 (150 rpm); 3-gear, 15:1 (120 rpm), 18:1 (100 rpm), 24:1 (75 rpm), 30:1 (60 rpm), 36:1 (50 rpm), 60:1 (30 rpm) or 72:1 (25 rpm); 4-gear, 100:1 (18 rpm), 150:1 (12 rpm), 180:1 (10 rpm) or 200:1 (9 rpm); 5-gear, 300:1 (6 rpm), 360:1 (5 rpm), 600:1 (3 rpm), 900:1 (2 rpm) or 1800:1 (1 rpm). **Prices at right.\***

### TYPE 205-3T THREE-TURN

Rugged and reliable precision potentiometer with much shorter housing length than that of 10-turn Micropot. **Linearity Accuracy:** ±0.5—±0.1%, independent or zero-based. **Mechanical Rotation:** 1080° ±15°-0°. **Electrical Rotation:** 1080° ±14.4°-0°. **Total Resistance:** 10 ohms ±10%; balance, ±3% tol. **Torque:** Not over 1.5 in./oz., running; 3.0 in./oz., starting. **Power Dissipation:** 3 watts at 40° C. **Size:** 1¼" O.D. x 1¼" l., body. Shaft ¼" long with ¼-32 hex nut.

**Amph. Model 205-3T Three-Turn Micropot®** (0.5% independent linearity)—Specify resistance when ordering: 10 or 50 ohms with ±0.5% linearity; 100 or 500 ohms with ±0.5—±0.25% linearity; 1000, 2000, 5000, 10K, 20K, 30K, 50K or 100K ohms with ±0.5—±0.1% linearity. **Prices below.\***

### TYPE 2101B TEN-TURN MICROPOT®

Machined aluminum end caps and housing. Sealed against dust, sand and moisture. Turret-type, gold-plated, color coded terminals. Miniature size. Lead wires welded to terminals. One-piece stainless steel shaft. **Linearity Accuracy:** ±.05 to ±.5% independent or zero-based. **Mechanical Rotation:** 3600° ±5°-0°. **Electrical Rotation:** 3600° ±5°-0°. **Total Resistance:** 25, 50 ohms ±10%; 100-100,000 ohms, ±3% tol., and 120,000 ohms, ±5% tol. **Life:** 1,000,000 revolutions. **Power Dissipation:** 5 watts at 40° C. **Size:** ¾" dia. x 1.448" l. body. Shaft, ¼" l. with ¼-32 NEF-2A thd. hex nut. Lugs, ¼" h. off body.

**Amph. Model 2101B Ten-Turn Micropot®**—Single unit, solder lug type. Standard bushing mounting. Specify resistance when ordering: 25, 50, 100 or 200 ohms with ±.5—±.25% linearity; 500, 1000, 2000 or 5000 ohms with ±.5—±.1% linearity; 10K, 20K, 30K, 40K, or 50K with ±.5—±.05% linearity; 100K or 120K with ±.5—±.1% linearity. **Prices below.\***

### TYPE 2201B TEN-TURN MICROPOT®

High resolution and long life at a modest cost. Dust-proof and gangable up to 3 units. Copper 7/27 lead wire welded to lug terminals and soldered to resistance element terminals. Independent linearity. **Total Resistance:** 25 and 50 ohms, ±5% tol.; 100-100K ohms, ±3% tol.; 200K ohms, ±5% tol. **Mechanical Rotation:** 3600° ±4°-0°. **Electrical Rotation:** 3600° ±4°-0°. **Power Dissipation:** 5 watts at 40° C. **Life:** 5 million cycles (2 million rev.). **Size:** 1¼" dia. x 2¼" l., body. Shaft, ¼" l. with ¼-32 NEF-2 thd. hex nut. Lugs, ¼" h. off body.

**Amph. Model 2201B Ten-Turn Micropot®**—Single unit, solder lug type. Std. bushing mount. Specify resistance when ordering: 25 and 50 ohms, ±.5—±.1% linearity; 100, 500 and 1K ohms, ±.25—±.1% linearity; 2K, 5K, 10K, 20K, 30K, 50K and 100K, ±.25—±.05% linearity; 200K ohms, ±.5—±.05% linearity. **Prices below.\***

Amphenol Model	Net Each, Lots of				
	1-9	10-24	25-49	50-99	100-199*
205	\$16.86	\$15.81	\$14.75	\$14.75	\$14.05
205-3T	13.38	12.55	11.72	11.72	11.16
2101B	23.10	21.66	20.21	20.21	19.25
2201B	8.70	8.15	7.55	6.95	6.55
1003-45Y, 2-Gear	31.96	28.78	26.95	26.95	25.47
1003-45Y, 3-Gear	32.26	29.94	28.04	28.04	26.50
1003-45Y, 4-Gear	35.87	32.29	30.25	30.25	28.58
1003-45Y, 5-Gear	33.11	33.41	31.29	31.29	29.57
1305	18.00	17.10	16.20	14.85	13.95
1309	23.00	21.90	20.70	19.60	18.40
1309	14.00	13.30	12.60	11.55	10.80
1310	13.00	12.35	11.70	10.75	10.10
1314	19.50	18.53	17.55	16.10	15.10
1315	24.50	23.30	22.10	20.80	19.60
1320-1327	5.82	5.46	5.09	5.09	4.85
1331-1335	16.90	16.10	15.50	14.85	14.20
1331LR-1335LR	20.25	19.25	18.60	17.80	17.00
1331W-1335W	20.25	19.25	18.60	17.80	17.00
1361-1365	5.82	5.46	5.09	5.09	4.85
3021, 3022	8.55	8.06	7.67	7.67	7.23
3023	9.05	8.54	8.12	8.12	7.66
3043, 3042	7.55	7.11	6.77	6.77	6.38
3043	8.05	7.59	7.22	7.22	6.81
3021-1-3022-5	8.75	8.25	7.85	7.85	7.40
3023-1-3023-5	9.25	8.73	8.30	8.30	7.83
3041-1-3042-5	7.75	7.30	6.95	6.95	6.55
3043-1-3043-5	8.25	7.78	7.40	7.40	6.98

\*Additional quantity discounts on up to 499 pieces, available on Type 1300, 1330 and 2101B.



# BOURNS TRIMPOT® Potentiometers

Feature space-saving configuration; fine, multi-turn settings and stable, self-locking shafts. Commercial and MIL spec models with wire-wound or carbon elements in four terminal styles to meet all requirements.

## MILITARY STANDARD WIRE-WOUND POTENTIOMETERS

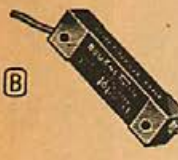
### HIGH POWER TRIMPOT® MODEL 3020 (FIG. A)



High power dissipation in conventional size. MIL spec humidity performance meets MIL-R-27208A. Excellent temperature stability. Power Rating: 5 W at 25° C; 3.75 W at 70° C; 2 W at 130° C. Temperature Range: -65° C to +200° C. Abs. Min. Res.: 0-0.1% or 0-1 ohm, whichever is greater. Size: 1/4" h. x 3/8" w. x 1 1/4" lg.

Available in L terminals only; see last page for terminal data (\*), standard resistances (†) and panel mount version (‡).

Bourns Number	Ohms†	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
3020L-(†)	100 to 10K	\$14.04	\$13.00	\$11.70	\$11.10	\$10.40
	20K, 25K	15.66	14.50	13.05	12.38	11.60
	50K	16.20	15.00	13.50	12.81	12.00



Sealed against humidity, liquids and potting compounds; meets MIL-R-27208A, style RT11. Power Rating: 1 watt at 70° C. Abs. Min. Res.: 0-0.2% or 0-0.5 ohm, whichever is greater, for 10 ohms-1K; 0-0.1% for 2K-50K; 0-5.0% for 100K. Max. Operating Temp.: 175° C. Size: 1/4" h. x 0.28" w. x 1 1/4" lg. Sealed in high temperature plastic case. Ceramic winding card plus Silverweld® termination. Available in L or P terminals; see last page for terminal

data (\*), standard resistances (†) and panel mount version (‡). MIL style RT11C2L(†) or RT11C2P(†) 10 ohms-10K available at same prices; specify when ordering.

Bourns Number	Ohms†	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
3010L-(†)	10 to 10K	\$ 7.02	\$ 6.50	\$5.85	\$5.55	\$5.20
	20K, 25K	8.64	8.00	7.20	6.83	6.40
3010P-(†)	50K	9.18	8.50	7.65	7.26	6.80
	100K‡	11.34	10.50	9.45	8.97	8.40

‡Specify 3010L-2-(†) (†) or 3010P-2-(†) (†).



Low cost military quality pot ideal for computers and lab use. Exceeds steady-state humidity of MIL-STD-202B. Self-locking adjustment screw for high shock, vibration and acceleration stability. Power Rating: 0.50 watt at 70° C. Abs. Min. Res.: 0-0.7% or 0-0.5 ohm, whichever is greater, for 10 ohms-50K; 0-5% for 100K. Max. Operating Temperature: 125° C. Sealed against sand and dust. Size: 1/4" h. x 1/4" w.

### IMPROVED TRIMPOT® MODEL 200 (FIGS. C, D, E)

x 1 1/4" lg. Available in L, S or P terminals; see last page for terminal data (\*), standard resistances (†) and panel mount version (‡).

Bourns Number	Ohms†	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
200L-(†)	10 to 10K	\$4.86	\$4.50	\$4.05	\$3.84	\$3.60
	20K, 25K	6.48	6.00	5.40	5.12	4.80
200P-(†)	50K	7.56	7.00	6.30	5.98	5.60
	100K‡	9.18	8.50	7.65	7.26	6.80

‡Available with L terminals only; specify 200L-2-(†) (†).



High power; sealed against sand and dust. Available in humidity-proof model on special order. Power Rating: 2.0 watts at 50° C. Abs. Min. Res.: 0-0.2% or 0-1.0 ohm, whichever is larger. Max. Operating Temperature: 175° C. Size: 1 1/4" h. x 0.28" w. x 1 1/4" lg. Available in L terminals only; see

### TRIMPOT® MODEL 207L (FIG. F)

last page for terminal data (\*), standard resistances (†) and panel mount version (‡).

Bourns Number	Ohms†	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
207L-(†)	100 to 50K	\$10.26	\$ 9.50	\$8.55	\$8.11	\$7.60
	100K	11.88	11.00	9.90	9.39	8.80



Dual-element, sealed against sand and dust; available in humidity-proof model on special order. Power Rating: 0.50 watt at 70° C. Each element. Abs. Min. Res.: 0-0.2% or 0-0.5 ohm, whichever is greater, for 10 ohms-1K; 0-0.1% for 2K-50K. Max. Operating Temperature: 135° C. Size: 1/4" h. x 1/2" w. x 1 1/4" lg. Available in

### TWINPOT® MODEL 209L

L terminals only; see last page for terminal data (\*), standard resistances (†) and panel mount version (‡).

Bourns Number	Ohms†	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
209L-(†)	10 to 10K	\$12.96	\$12.00	\$10.80	\$10.25	\$ 9.60
	20K, 25K	14.58	13.50	12.15	11.53	10.80
	50K	16.20	15.00	13.50	12.81	12.00



Humidity-proof design. Meets or exceeds all requirements of MIL-R-27208A, style RT10. Power Rating: 1.0 watt at 70° C. Abs. Min. Res.: 0-0.1% or 0-1.0 ohm, whichever is greater. Max. Operating Temperature: 175° C. Size: 3/16" h. x .18" w. x 1" lg. Available in L or W terminals; see last page for terminal data (\*), standard

### SUBMINIATURE TRIMPOT® MODEL 220 (FIG. G)

resistances (†) and panel mount version (‡). MIL style RT10C2L(†) 100 ohms-10K also available at same prices; specify when ordering.

Bourns Number	Ohms†	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
220L-(†)	10 to 10K	\$ 8.64	\$8.00	\$7.20	\$6.83	\$6.40
	20K, 25K, 30K	10.26	9.50	8.55	8.11	7.60

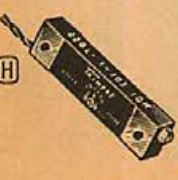


High temperature type sealed against humidity, liquids and potting compounds. Meets or exceeds all requirements of MIL-R-27208A, style RT12. Power Ratings: 1.0 W at 70° C; 0.5 W at 125° C; zero W at 175° C. Abs. Min. Res.: 0-0.2% or 0-0.5 ohm, whichever is greater, 10 ohms-1K; 0-0.1% for 2K-50K; 0-5% for 100K. Temperature Range: -65° C to +175° C. Size: 1/4" h. x 3/8" w. x 1 1/4" lg. Available in L, S or P terminals; see last page for terminal

### TRIMPOT® MODEL 224 (FIG. H)

data (\*), standard resistances (†) and panel mount version (‡). MIL style RT12C2L(†) or RT12C2P(†) 10 ohms-20K also available at same prices; specify when ordering.

Bourns Number	Ohms†	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
224L-(†)	10 to 10K	\$ 7.02	\$ 6.50	\$5.85	\$5.55	\$5.20
	20K, 25K	8.64	8.00	7.20	6.83	6.40
224P-(†)	50K	9.18	8.50	7.65	7.26	6.80
	100K	11.34	10.50	9.45	8.97	8.40



High reliability version of Model 224. Similar specifications except: Power Rating 0.50 W. Max. Temp., 150° C. Available in L or P terminals; see last page for terminal data (\* and standard resistances (†).

### ULTRA-RELIABLE TRIMPOT® MODEL 224-500 (FIG. H)

224-500L-(†)	100 to 10K	\$14.58	\$13.50	\$12.15	\$11.53	\$10.80
	20K	16.20	15.00	13.50	12.81	12.00
224-500P-(†)	100 to 10K	14.58	13.50	12.15	11.53	10.80
	20K	16.20	15.00	13.50	12.81	12.00

### TRIMPOT® MODEL 236 (FIGS. C, D, E)

data (\*), standard resistances (†) and panel mount version (‡).

Bourns Number	Ohms†	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
236L-(†)	10 to 10K	\$ 7.02	\$ 6.50	\$5.85	\$5.55	\$5.20
	20K, 25K	8.64	8.00	7.20	6.83	6.40
236P-(†)	50K	9.18	8.50	7.65	7.26	6.80
	100K‡	11.34	10.50	9.45	8.97	8.40

‡Available with L terminals only; specify 236L-2-(†) (†).

\*SEE LAST BOURNS PAGE FOR TERMINAL DATA, STANDARD RESISTANCE VALUES (WITHIN RANGES LISTED FOR INDIVIDUAL MODELS) AND PANEL MOUNT VERSIONS.



# BOURNS TRIMPOT® Potentiometers

## MILITARY STANDARD WIRE-WOUND POTENTIOMETERS (CONT'D)

### TRIMPOT® MODEL 260 (FIGS. C, D, E)

High temp. model. Sealed against sand and dust; exceeds steady state humidity requirements of MIL-STD-202B. Power Rating: 1.0 watt at 70° C. Abs. Min. Res.: 0-0.2% or 0-0.5 ohm, whichever is greater, 10 ohms to 1K; 2K-50K, 0-0.1%; 100K, 0-5%. Max. Operating Temp.: 175° C. Size:  $\frac{1}{4}$ " h. x  $\frac{1}{2}$ " w. x  $1\frac{1}{4}$ " lg. Available in L, S or P terminals; see last page for

terminal data (\*), standard resistances (†) and panel mount version (‡).

Bourns Number	Ohms†	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
260L-(†)	10 to 10K	\$5.94	\$5.50	\$4.95	\$4.70	\$4.40
260S-(†)	20K, 25K	7.56	7.00	6.30	5.98	5.60
or	50K	8.10	7.50	6.75	6.41	6.00
260P-(†)	100K‡	9.72	9.00	8.10	7.68	7.20

‡ Available with L terminals only; specify 260L-2-(†) (‡).

### SUBMINIATURE BOURNS® MODEL 3367 (FIG. I)

Single-turn adjustment; lightweight all-plastic case; Silverweld® terminations. Meets steady-state humidity. Power Rating: 0.5 watt, 70° C amb. Abs. Min. Res.: 0-1.0%. Max. Oper. Temp.: 105° C. Size:  $\frac{1}{2}$ " O.D. x  $.540$ " h. (3367S);  $.240$ " h. (3367P). Available in P or S terminals;

see last page for terminal data (\*) and standard resistances (†). Type S is panel mount version.

Bourns Number	Ohms†	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
3367P-(†)	10 to 20K	\$4.86	\$4.50	\$4.05	\$3.84	\$3.60
3367S-(†)	10 to 20K	5.67	5.25	4.73	4.48	4.20

### SUBMINIATURE TRIMPOT® MODEL 3250 (FIG. J)

Combines high reliability and subminiature size. Humidity-proof, high temperature, high power performance. Power Rating: 1 W at 70° C. Abs. Min. Res.: 0-0.1% or 0-1 ohm, whichever is larger. Max. Operating Temperature: 175° C. Size:  $0.87$ " sq. x  $0.19$ " thk. (3250I);  $.22$ " thk. (P or W). Sealed in high temp. plastic case. Silverweld® termination. Available in L, P or W terminals; see last page for terminal data (\*) and

standard resistances (†). Panel mount version NOT available. MIL style RT22C2L(†) or RT22C2P(†), 50 to 20K ohms available at same price; specify when ordering.

Bourns Number	Ohms†	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
3250L-(†)	10 to 10K	\$ 6.71	\$6.22	\$5.59	\$5.31	\$4.97
	20K, 25K	7.56	7.00	6.30	5.98	5.60
	50K	10.01	9.27	8.34	7.91	7.41
3250P-(†)	10 to 10K	7.23	6.69	6.02	5.71	5.35
or	20K, 25K	7.97	7.38	6.64	6.30	5.90
3250W-(†)	50K	10.53	9.75	8.78	8.33	7.80

### HIGH RELIABILITY TRIMPOT® MODEL 3250-501 (FIG. K)

Extra-high reliability version of Model 3250. Specifications similar, except: Power Rating: 0.50 W. Max. Temp.: 150° C. Size: 3250-501L,  $\frac{1}{2}$ " x  $\frac{1}{2}$ " sq.; 3250-501P or W,  $\frac{1}{4}$ " x  $\frac{1}{2}$ " x  $1$ ". Available in L, P, or W

terminals; see last page for terminal data (\*) and standard resistances (†).

Bourns Number	Ohms†	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
3250-501L-	100 to 10K	\$13.50	\$12.50	\$11.25	\$10.68	\$10.00
P, or W-(†)	20K	14.58	13.50	12.15	11.53	10.80

### MICRO-MINIATURE HUMIDITY-PROOF BOURNS® MODEL 3280 (FIG. K)

Only  $\frac{3}{8}$ " square; single central hole for #1 screw mounting. Two types for printed circuit use. Stacking tabs for alignment and anti-rotation locking. All plastic case; 25-turn screwdriver adjustment. Power Rating: 1 watt at 70° C; 0.5 watt at 125° C. Max. Temp.: 175° C. Abs. Min. Res.: 0-0.1% or 0-1 ohm, whichever is greater. Size:  $\frac{3}{8}$ " sq. x  $1\frac{1}{4}$ ". Available in L, P or W

terminals; see last page for terminal data (\*) and standard resistances (†). Panel mount version NOT available.

Bourns Number	Ohms†	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
3280L-(†)	10 to 10K	\$7.56	\$7.00	\$6.30	\$5.98	\$5.60
3280P-(†) or	20K, 25K	9.18	8.50	7.65	7.26	6.80
3280W-(†)	50K	9.72	9.00	8.10	7.69	7.20

### MICRO-MINIATURE SINGLE TURN BOURNS® MODEL 3300 (FIG. Q)

Lightweight plastic case, for high temperature operation. Single-turn adjustment with stops at each end of travel. Silverweld® termination and precious metal contacts. Meets applicable portions of MIL-R-27208A, MIL-E-5272C. Power Rating: 0.5 W at 70° C. Abs. Min. Res.: 1.0 ohm or 1.0%, whichever is greater. Max. Temp.:

175° C. Size:  $\frac{1}{8}$ " dia. x  $\frac{1}{4}$ " h. (P);  $\frac{1}{8}$ " h. (S);  $\frac{3}{8}$ " x  $\frac{1}{4}$ " (W). Available in P, W or S terminals; see last page for terminal data (\*) and standard resistances (†). Type S is panel mount version.

Bourns Number	Ohms†	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
3300P-(†) or	10 to 10K	\$ 5.94	\$5.50	\$4.95	\$4.70	\$4.40
3300W-(†)	20K	7.56	7.00	6.30	5.98	5.60
3300S-(†)	10 to 10K	8.91	8.25	7.43	7.05	6.60
	20K	10.53	9.75	8.78	8.33	7.80

### MICRO-MINIATURE TRIMPOT® MODEL 3000 (FIG. L)

High temperature, humidity-proof design for printed circuit boards. Silverweld® terminations; 15-turn adjustment. Power Rating: 0.5 W, 70° C. Abs. Min. Res.: 0-1.0 ohm or 0-1%, whichever is greater. Oper. Temp.: -65° C to +175° C. Size:

$\frac{1}{2}$ " w. x  $\frac{1}{4}$ " h. x  $\frac{3}{4}$ " lg. Available in P terminal only; see last page for terminal data (\*) and standard resistances (†).

Bourns Number	Ohms†	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
3000P-(†)	50 to 10K	\$ 9.72	\$ 9.00	\$8.10	\$7.68	\$7.20
	20K	10.80	10.00	9.00	8.54	8.00

## MILITARY STANDARD CARBON POTENTIOMETERS

### SUBMINIATURE SINGLE TURN RESISTOR® MODEL 3368 (FIG. I)

Lightweight, all plastic case with printed circuit pins or solder lugs with bushing mount. Stable infinite resolution element. Power Rating: 0.25 W or 300 V max. at 50° C. End Settings: 0-1.0% voltage ratio.

Max. Temp.: 105° C. Size: S,  $\frac{1}{2}$ " dia. x  $1\frac{1}{2}$ "; P,  $\frac{1}{2}$ " dia. x  $1\frac{1}{2}$ ". Available in P or S terminals; see last page for terminal data (\*), standard resistances (†). Type S is panel mount version.

Bourns Number	Ohms†	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
3368P-(†)	20K to 1 meg	\$5.94	\$5.50	\$4.95	\$4.70	\$4.40
3368S-(†)	20K to 1 meg	6.75	6.25	5.63	5.34	5.00

### MICRO-MINIATURE TRIMPOT® RESISTOR® MODEL 3001 (FIG. L)

High temperature, humidity-proof; meets MIL requirements for humidity, shock, vibration, etc. 15-turn adjustment. Power Rating: 0.20 W or 300 V max. at 70° C. Max. Temp.: 150° C. End Settings: 0-1.0%

voltage ratio. Size:  $.16$ " w. x  $.31$ " h. x  $.75$ " lg. Available in P terminal only; see last page for terminal data (\*) and standard resistances (†).

Bourns Number	Ohms†	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
3001P-(†)	20K to 1 meg	\$9.18	\$8.50	\$7.65	\$7.26	\$6.80

### SUBMINIATURE TRIMPOT® RESISTOR® MODEL 3251 (FIG. J)

Meets or exceeds all requirements of MIL-R-22097B, style RJ22. Sealed against humidity, liquids and potting compounds. Power Rating: 0.5 W or 300 V max. at 50° C. End Setting: 1% max. voltage ratio. Max. Temp.: 150° C. Size:  $\frac{1}{2}$ " sq. x  $.22$ " thk. (3251L, .19" thk.). Available in L, P or W terminals; see last page for terminal data (\*) and standard resistances (†). MIL

style RJ22BL(†) or RJ22BP(†) also available in same values at extra cost (shown) when so specified on ordering.

Bourns Number	Ohms†	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
3251L-, P- or W-(†)	20K to 1 meg	\$7.83	\$7.25	\$6.53	\$6.19	\$5.80
RJ22 Add-on	20K to 1 meg	.54	.50	.45	.43	.40

### TRIMPOT® RESISTOR® MODEL 215 (FIGS. M, N, O)

Stable infinite resolution carbon element; protected from sand, dust and salt spray. Power Rating: 0.25 W or 300 V max. at 50° C. End Setting: 0-1.0% voltage ratio. Max. Operating Temperature: 125° C. Size:  $\frac{1}{4}$ " h. x  $\frac{1}{2}$ " w. x  $1\frac{1}{4}$ " lg. Available

in L, S or P terminals; see last page for terminal data (\*), standard resistances (†) and panel mount version (‡).

Bourns Number	Ohms†	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
215L-, S-(†)	5K to 5 meg	\$4.86	\$4.50	\$4.05	\$3.84	\$3.60
215P-(†)	5K to 5 meg	4.86	4.50	4.05	3.84	3.60

\* † ‡ SEE LAST BOURNS PAGE FOR TERMINAL DATA, STANDARD RESISTANCE VALUES (WITHIN RANGES LISTED FOR INDIVIDUAL MODELS) AND PANEL MOUNT VERSIONS.

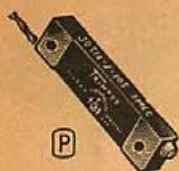


# BOURNS Potentiometers

## MILITARY STANDARD POTENTIOMETERS (CONT'D)

### TRIMPOT® RESISTOR MODEL 3051 (FIG. P)

High temperature, all plastic case. Meets or exceeds all requirements of MIL-R-22097B, style RJ12. Power Rating: 0.25 W or 300 V max. at 50° C. End Settings: 0-1.0% voltage ratio. Max. Operating Temperature: 150° C. Size: 0.19" w. x 0.32" h. x 1 1/4" lg. Available in L, S or P terminals; see last page for terminal data (\*), standard resistances (†) and panel mount version (‡).



ion (‡). MIL style RJ12BL(†) or RJ12BP(†) also available on some values at extra cost (shown) when so specified on ordering.

Bourns Number	Ohms†	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
3051L-, S-(†)	5K to 5 meg	\$7.02	\$6.50	\$5.85	\$5.55	\$5.20
3051P-(†)	5K to 5 meg	7.02	6.50	5.85	5.55	5.20
RJ12 Add-on	20K to 1 meg	.54	.50	.45	.43	.40

### TRIMPOT® RESISTOR MODEL 235 (FIGS. M, N, O§)

Humidity-proof design, sealed against humidity, liquids and potting compounds. Meets applicable portions of MIL-R-22097B and MIL-E-3272C. Power Rating: 0.25 W or 300 V max. at 50° C. Temperature Range: -65° C to +125° C. Size: 1.340" lg. x .300" w. x .360" h. Available in L, S or P terminals; see last page for terminal data (\*), standard resistances (†) and panel mount version (‡).

Bourns Number	Ohms†	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
235L-, S-(†)	5K to 5 meg	\$7.02	\$6.50	\$5.85	\$5.55	\$5.20
235P-(†)	5K to 5 meg	7.02	6.50	5.85	5.55	5.20

### HUMIDITY-PROOF CARBON RESISTOR MODEL 3011 (FIG. P)

High operating temperature and power dissipation. Meets or exceeds all requirements of MIL-R-22097B, style RJ11. 22-turn screwdriver adjustment. Power Rating: 0.25 W or 300 V max. at 50° C; zero at 150° C. End Settings: 0-1% voltage ratio. Oper. Temp.: -65° C to +150° C. Size: 1/2" h. x 1/2" w. x 1 1/4" lg. Available in L or P terminals; see following page for terminal data (\*), standard resistances (†) and panel mount version (‡).

nal data (\*), standard resistances (†) and panel mount version (‡). MIL style RJ11BL(†) or RJ11BP(†) also available in some values at extra cost (shown) when so specified on ordering.

Bourns Number	Ohms†	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
3011L-(†), P-(†)	5K to 5 meg	\$7.02	\$6.50	\$5.85	\$5.55	\$5.20
RJ11 Add-on	20K to 1 meg	.54	.50	.45	.43	.40

### HIGH TEMPERATURE CARBON RESISTOR MODEL 3301 (FIG. Q)

Humidity-proof, single-turn design for high temperatures. Power Rating: 0.25 W or 300 V max. at 70° C. Rotation, 260°. Max. temperature, 150° C. Size: W, 3/8" x 1 1/4" x 1 1/2"; P, 3/8" dia. x 1 1/4" x 1 1/2"; S, 3/8" dia. x 1 1/2" x 1 1/2". Available in W, P or S terminals; see last

page for terminal data (\*) and standard resistances (†).

Bourns Number	Ohms†	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
3301W-(†)	10K to 1 meg	\$5.94	\$5.50	\$4.95	\$4.70	\$4.40
3301P-(†)	10K to 1 meg	5.94	5.50	4.95	4.70	4.40
3301S-(†)	10K to 1 meg	8.91	8.25	7.45	7.05	6.60

### MICRO-MINIATURE SINGLE-TURN RESISTOR MODEL 3281 (FIG. K§)

All-plastic sealed case; meets military specifications for sand, dust, salt spray and moisture. Mechanical worm gear for 25 turn adjustment. Power Rating: 0.50 W or 300 V max. at 50° C. Max. temp.; 150°

C. Size: 3/8" sq. x 1 1/4". Available in L, P or W terminals; see last page for terminal data (\*) and standard resistances (†).

Bourns Number	Ohms†	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
3281L-, P- or W-(†)	20K to 1 meg	\$7.56	\$7.00	\$6.30	\$5.98	\$5.60

### NEW PALIRIUM®

Employ infinite resolution resistance element providing desirable features of carbon type with stability of wire-wound units. Meet applicable portions of MIL-R-22097B. Idles at both ends of travel preventing damage from forced adjustment. Max. Oper. Temp.: 175° C. Adj. turns, 25. Types 3012 and 3052: Power Rating, 1.0 W or 500 V max. at 70° C. Tol., ±10%. End Settings, 0-0.1% voltage ratio. Size: 1/2" w. x 1 1/4" lg. x 1/2" th., 3012; 3/4" th., 3052. Type 3053: Power rating, 0.50 W at

### ELEMENT POTENTIOMETERS (FIG. P)

70° C. Tol., ±15% at 2 ohms; ±10% other values. Size: 1/2" w. x 1/4" th. x 1 1/4" lg. Available in L, S and P terminals; see following page for terminal data (\*), standard resistances (†) and panel mount version (‡).

3012L-, S-(††)	2K to 1 meg	\$5.94	\$5.50	\$4.95	\$4.70	\$4.40
3012P-, 3052P-(†)	2K to 1 meg	5.94	5.50	4.95	4.70	4.40
3052L-, S-(†)	2K to 1 meg	5.94	5.50	4.95	4.70	4.40
3053L-(††)	20 to 200	5.94	5.50	4.95	4.70	4.40
3053P-(†) or 3053S-(††)	2, 5, 10 to 200	9.18	8.50	7.65	7.26	6.80
		5.94	5.50	4.95	4.70	4.40

### TEN-TURN BUSHING MOUNT

Potentiometer, knob and readout dial in one package, only 3/4" dia. x 1" lg. Requires no back panel space. Only two holes needed for panel mtg. Meets MIL-STD-202, Method 103 humidity. Excellent readability and setting accuracy. Power Rating: 1.5 W at 25° C. End Settings: 0-0.1%

### PRECISION KNOBPOT® MODEL 3600S (FIG. R)

or 0-1.0 ohm, whichever is greater. Max. Temp.: 125° C. Repeatability: 0.1% voltage ratio. Type S terminal only. See following page for terminal data (\*) and standard resistances (†).

3600S-(†)	100 to 100K	\$20.52	\$19.00	\$17.10	\$16.23	\$15.20
	150K, 200K	30.24	28.00	25.20	23.91	22.40
	250K	30.24	28.00	25.20	23.91	22.40

### TEN-TURN BUSHING MOUNT

Same as Model 3600S, but 1 1/4" dia. x 1 1/2" lg.; dial accuracy ±0.1%; power rating, 2.5 W at 25° C; and repeatability, 0.05% voltage ratio. Type S terminal only. See

### PRECISION KNOBPOT MODEL 3640S (FIG. R)

following page for terminal data (\*) and standard resistances (†).

3640S-(†)	100 to 250K	\$20.52	\$19.00	\$17.10	\$16.23	\$15.20
	500K	30.24	28.00	25.20	23.91	22.40

### BOURNS® PRECISION BUSHING MOUNT POTENTIOMETERS

#### TEN-TURN MODEL 3500S (FIG. S)

Standard type exceeds steady state humidity requirements; optional feature meets MIL-STD-202-B, Method 106. Molded all-plastic case with shaft seal. Silverweld® termination. Power Rating: 2 watts at 70° C. End Settings: 0-0.1% or 0-1.0 ohm, whichever is greater. Max.

Temperature: 125° C. Size: 3/8" dia. x 1". Type S terminal only. See following page for terminal data (\*) and standard resistances (†).

3500S-1-(†)	50 to 125K	\$10.00	\$9.50	\$9.00	\$8.50	\$8.00
	150K-250K	19.00	18.05	17.10	16.15	15.20
	500K	28.00	26.60	25.20	23.91	22.40

#### THREE-TURN MODEL 3510S AND FIVE-TURN MODEL 3520S (FIG. T)

Standard type exceeds steady state humidity requirements; optional feature meets MIL-STD-202-B, Method 106. Molded all-plastic case with shaft seal. Compact case with 20% longer resistance element. Type 3520S has screwdriver adjustment. Power Rating at 70° C: 3510, 1 watt; 3520, 1.5 watts. End Settings: Thru 500 ohms, 1 ohm max.; 1K up, 0.1% max. Max. Temperature: 125° C. Size: 3510, 3/8" dia. x 3/4"; 3520, 3/4" dia. x

1 1/4". Type S terminal only. See following page for terminal data (\*) and standard resistances (†).

Bourns Number	Ohms†	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
3510S-1-(†)	25 to 50K	\$15.00	\$14.25	\$13.50	\$13.50	\$12.75
	100K	33.00	31.35	29.70	29.70	28.05
3520S-1-(†)	100 to 75K	13.50	12.83	12.15	11.48	10.80
	100K	22.50	21.38	20.25	19.13	18.00
	250K	31.50	29.93	28.35	26.78	25.20

#### TEN-TURN 1/2" DIAMETER MODEL 3700S (FIG. U)

Standard type exceeds steady state humidity requirements; optional feature meets MIL-STD-202B, Method 106. Molded plastic, moisture resistant case. Silverweld® termination, excellent wiper stability. Power Rating: 1 watt at 70° C. Max. Temp.: 125° C. End Settings: 0-0.1% or 0-1 ohm, whichever is greater.

Size: 1/2" dia. x 1". Type S terminal only. See following page for terminal data (\*) and standard resistances (†).

Bourns Number	Ohms†	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
3700S-1-(†)	50 to 100K	\$24.50	\$23.28	\$22.05	\$20.83	\$19.60
	250K	32.00	30.40	28.80	27.20	25.60

\*†SEE LAST PAGE FOR ORDERING INFORMATION. §SEE PREVIOUS PAGE FOR ILLUSTRATIONS.



# BOURNS Potentiometers

## COMMERCIAL POTENTIOMETERS

### COMMERCIAL WIRE-WOUND TRIMIT® POTENTIOMETERS (FIGS. M, N, O) resistances (†) and panel mount version (‡).

Low cost, lead screw potentiometers designed to give improved performance over single-turn units in many commercial applications. Power Rating: 0.50 watt. Maximum Operating Temperature: 105° C. Size: 3/8" h. x 3/4" w. x 1 3/4" lg. See below for terminal data (\*), standard

Bourns Number	Terminal*	Ohms†	Net Each, Lots of				
			1-9	10-24	25-99	50-99	100-249
271-(†)	L	50 to 10K	\$3.19	\$2.95	\$2.66	\$2.52	\$2.36
273-(†)	S	20K	4.32	4.00	3.60	3.42	3.20
275-(†)	P						

### COMMERCIAL WIRE-WOUND E-Z-TRIM® MODEL 3067 (FIG. V)§

Leadscrew actuated with 15-turn screwdriver adjustment. Subminiature size, self-locking shaft. Power Rating: 0.5 watt, room temp. Abs. Min. Res.: 0-2.0% max. Oper. Temp.: -55° C to +85° C. Size: 0.36" h. x 0.28" w. x 1" lg. Available in S or

P terminals; see below for terminal data (\*) and standard resistances (†).

Bourns Number	Ohms†	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
3067S-, P-(†)	10 to 20K	\$1.85	\$1.71	\$1.54	\$1.46	\$1.37

### COMMERCIAL CARBON TRIMIT® POTENTIOMETERS (FIGS. M, N, O)§

Same as wire-wound units, but with carbon element. Power Rating: 0.2 watt at room temperature. See below for terminal data (\*), standard resistances (†) and panel mount version (‡).

Bourns Number	Terminal*	Ohms†	Net Each, Lots of				
			1-9	10-24	25-49	50-99	100-249
272-(†)	L	5K to 5 meg	\$3.78	\$3.50	\$3.15	\$2.99	\$2.80
274-(†)	S	5K to 5 meg	3.78	3.50	3.15	2.99	2.80
276-(†)	P	5K to 5 meg	3.78	3.50	3.15	2.99	2.80

### COMMERCIAL CARBON E-Z-TRIM® RESISTOR MODEL 3068 (FIG. V)§

Leadscrew actuated; subminiature size and space-saving configuration. Self-locking shaft; 15-turn screwdriver adjustment. Power Rating: 0.2 watt at room temperature. End Settings: 0-5% voltage ratio. Operating Temperature: -55° C to +85° C. Size: .28" w. x .36" h. x 1" lg. Available in

S and P terminals. See below for terminal data (\*) and standard resistances (†).

Bourns Number	Ohms†	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
3068S-, P-(†)	20K to 1 meg	\$1.85	\$1.71	\$1.54	\$1.46	\$1.37

### 1-INCH TURNS COUNTING DIALS

Require only 1" panel space; easy to read and set to less than 0.1% of total travel. No mounting holes required; knurled knob fastens directly to shaft. Reliable locking; anodized aluminum dial.

Bourns Number	Shaft Dia.	Brake	Net Each, Lots of				
			1-9	10-24	25-99	100-249	
H-462	H-412	3/8"	Yes	\$8.95	\$8.50	\$8.06	\$7.61
H-461	H-411	3/8"	No	7.75	7.36	6.98	6.59
H-482	H-432	3/8"	Yes	9.30	8.84	8.37	7.91
H-481	H-431	3/8"	No	8.10	7.70	7.29	6.89
H-472	H-422	3/8"	Yes	8.95	8.50	8.06	7.61
H-471	H-421	3/8"	No	7.75	7.36	6.98	6.59

### 1/2-INCH TURNS COUNTING DIALS AND HARDWARE

Bourns No.	Description	Net Each, Lots of			
		1-9	10-24	25-99	100-249
H-351	10-turn clock-dial readout; for 3/8" or 1/2" dia. shaft	\$8.00	\$7.60	\$7.20	\$6.40
H-353	Adapter for shaft extensions	.50	.48	.45	.40
H-354	Same as H-351, but with brake	8.50	8.08	7.65	6.80
H-355	Snap-on color ring*	.35	.35	.30	.25

### KNOBPO® ACCESSORIES

Bourns No.	Description	Net Each, Lots of			
		1-24	25-99	100	501-999
H-93	H-99	\$0.35	\$0.30	\$0.25	\$0.20
H-95	H-98	1.50	1.25	1.00	.75
H-103	H-97	1.25	1.07	.97	.90
H-101	H-102	1.25	1.07	.97	.90
H-100	MIL 1" dia. slip-on knob†	1.25	1.07	.97	.90

Accessory colors meet Federal Spec 595, to order add suffix (H-355-1): -1, red; -2, yellow; -3, blue; -4, green; -5, white; -†, red; -2, yellow; -3, blue; -4, green; -5, black; -6, gray. †Stainless steel.

### POTENTIOMETER MOUNTING HARDWARE

Bourns No.	Description	Net Each, Lots of		
		1-24	25-99	100 Up
H-01	#2-56x1 1/2" rd. head machine screw	\$0.02	.....	.....
H-02	#2-56x1 1/2" thd. stainless rod	.80	.....	.....
H-03	#2-56 nickel-plated hex nuts	.03	.....	.....
H-11E	End mounting bracket; 1" centers	.20	\$0.15	\$0.10
H-12S	Slide mtg. bracket; 1" centers	.20	.15	.10
H-22S	Slide mtg. bracket; 3/4" centers	.20	.15	.10
H-25	Stack mtg. strap for 3/8" sq. units	.05	.04	.03
H-21E	End mounting bracket; 3/4" centers	.20	.15	.10
H-26S	Slide mtg. bracket; for 3/8" sq. pots	.20	.15	.10

### POTENTIOMETER ORDERING INFORMATION

#### \*TERMINAL DATA

Four terminal types are available, as specified for each individual model: Type S, solder lugs, flat pierced, per Figs. E, O; or hooks, for Model 224. Type L, stranded insulated leads per Figs. C, M. Type P, printed circuit pins per Figs. D, N. Type W, per Fig. G, solid wire. When ordering, add L, S, P or W to model number (example, 200S-1-100 indicates Model 200 with solder lugs and capacitance of 10 ohms).

#### ‡PANEL MOUNT VERSION

Available for most models. Add suffix M to stock number for value desired; example 200L-1-200 M. Comes fully assembled for mounting with hex nut and lockwasher.

For Model	Net Each, Lots of				
	1-9	10-24	25-49	50-99	100-249
209L	\$2.16	\$2.00	\$1.80	\$1.72	\$1.60
All others	.81	.75	.68	.64	.60

Complete individual catalog sheets on each model available on request.

#### STANDARD RESISTANCE TOLERANCE

Wire-Wound Types: ±10% except 224, 224-500, 3010, 3020, 3250, 3250-501, 3280, 3300 and 3367, ±5%. Carbon Types: ±20%. Bushing Mount Types: ±3% except 3700, ±5%. Knobpot® Types: ±5%, 3600, ±3%, 3640. Palrium® Types: ±10% except 3053 2-ohm resistance, ±15%. Closer Tolerances available.

§SEE PREVIOUS PAGES FOR OTHER ILLUSTRATIONS

#### ‡RESISTANCE VALUES

Add suffix indicated to stock number for value desired, within limits shown for each model on previous pages and above. Other resistances available on special order.

#### WIRE-WOUND TYPES

Ohms	Suf- fix	Ohms	Suf- fix	Ohms	Suf- fix
10	100	500	501	20K	203
20	200	1000	102	25K	253
50	500	2000	202	30K*	303
100	101	5000	502	50K	503
200	201	10K	103	100K	104

#### RESISTON, RESISTALOY, E-Z-TRIM

5K	502	100K	104	1 meg	105
10K	103	200K	204	2 meg	205
20K	203	500K	504	5 meg	505
50K	503	750K	754		

#### PALIRIUM TYPES

2	2R0	200	201	100K	104
5 <td>5R0</td> <td>5K</td> <td>202</td> <td>200K</td> <td>204</td>	5R0	5K	202	200K	204
10	100	5K	502	500K	504
20	200	10K	103	750K	754
50	500	20K	203	1 meg	105
100	101	50K	503		

#### PRECISION & KNOBPO® TYPES

25	250	5K	502	125K†	1253
50	500	10K	103	150K†	154
100	101	20K	202	200K†	204
200	201	30K†	303	250K	254
500	501	50K	503	500K	504
1K	102	75K†	753		
2K	202	100K	104		

Available only in Model: ‡220; ‡350; ‡3520. †Not available in Model 3640.



Clear Dial with Brake

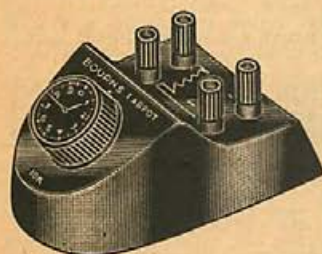


Black Dial



H-351

### MODEL 3660B LABPOT® POTENTIOMETER



Precision potentiometer for development, testing and lab applications. High accuracy and repeatability. Easily-readable clock-face. Large, 5-way binding posts for easy hookup of any lead. Fused against burn-out; extra fuse inside for handy replacement. Sturdy base is weighted with cork bottom; light enough for easy portability. Power Rating: 2.5 watts at room temp. Temp. Range: -65° C to +125° C. Tolerance: ±1%. Dial Accuracy: 0.15% at 1K ohms; ±10% at 10K and 100K ohms. Repeatability: ±0.05% voltage ratio.

Bourns Model	Specify Ohms	Net Each, Lots of		
		1-9	10-24	25-49 50-99
3660B	1K, 10K or 100K	\$42.20	\$40.00	\$36.00 \$34.16



# Daven Networks and Attenuators

## UNBALANCED LADDER NETWORKS

### SERIES LA-350 LADDER NETWORKS

Twenty step, low impedance controls for PA and broadcast systems. Accuracy of resistance:  $\pm 5\%$ . Insertion loss: Six db for 1:1 impedance ratio and two db for 1:2 impedance ratio. Contact spacing  $15^\circ$  between centers. Dimensions:  $1\frac{1}{2}''$  dia.,  $1\frac{1}{2}''$  back of panel depth. Mounts in single hole to clear  $\frac{3}{8}''$  bushing. Wt., 6 oz.



**Terminal Impedance:** For desired impedance, add corresponding suffix to model number (e.g., LA-352-K): A, AH, B, BJ, C, K, KF, D, E, F or G. See table for impedances. Series 350 not available in AH. Series 351, 352 and 353 not available in EF.

Daven Series	Net Each, Lots of		
	1-4	5-9	10-24
LA-350	\$26.56	\$21.27	\$17.59
LA-351, 352 and 353	27.23	21.87	18.09

Dials and Knobs—Net Each... \$2.25

Daven Series	Decibels Per Step	Characteristic	Decibel Total
LA-350	2.0	Tapered	Infinite
LA-351	1.5	Linear	Infinite
LA-352	2.0	Linear	Infinite
LA-353	2.0	Linear	40

### SERIES LA-130 LADDER NETWORKS

Thirty-step unbalanced networks for limited mounting space. Housing is  $1\frac{1}{2}''$  dia. To obtain cuing position, add letter "Q" after type letters. LA-130 is 1.5 db per step, tapered; LA-131 is 2 db per step, tapered; LA-132 is 1.5 db per step, linear; LA-133 is 2 db per step, linear. LA-132 and LA-133 have detents. All have cutoff.

**Terminal Impedance:** For desired impedance, add corresponding suffix to model number (e.g., LA-130-E): A, B, C, K, KU, KG, D, E, EF, F or G. See table for impedances. Series 131 and 133 not available in EF.

Daven Series	Net Each, Lots of		
	1-4	5-9	10-24
LA-130 or 131	\$35.57	\$28.68	\$23.89
LA-132 or 133	36.24	29.28	24.39

### SERIES LA-730 LADDER NETWORKS

Thirty-step unbalanced networks supplying wide range of control. LA-730 and LA-731 have smooth taper, recommended as mixer controls. LA-732 and LA-733 not tapered, recommended as master gain controls or for use in measuring equipment. Add "Q" for cuing position. LA-730 and LA-732 are 1.5 db per step; LA-731 and LA-733 are 2 db per step. All have cut off position. LA-732 and LA-733 have detents.

**Terminal Impedance:** For desired impedance, add corresponding suffix to model number (e.g., LA-733-B): A, B, C, K, KU, KG, D, E, EF, F or G. See table for impedances. Series 731, 732 and 733 not available in EF.

Daven Series	Net Each, Lots of		
	1-4	5-9	10-24
LA-730 or 731	\$32.72	\$26.86	\$22.39
LA-732 or 733	33.61	27.59	22.99

### SERIES LA-120 LADDER NETWORKS AND CP-120 POTENTIOMETERS

Smallest step-type (20 steps) attenuators. Dia.,  $1\frac{1}{2}''$ . Adapted to portable amplifiers and tape recorders. Cuing position available on ladder. Two db per step. LA-120 is tapered; LA-122 is not tapered, has detents; CP-120 is not tapered, has detents; CP-124 is tapered.

**Terminal Impedance:** For desired impedance, add corresponding suffix to model number (e.g., LA-122-BJ): A, B, C, K, KU, KG, D, E, EF, F or G; CP-120 and -124, M, P, R, S, T, W, X or Y. See table for impedances.

Daven Series	Net Each, Lots of		
	1-4	5-9	10-24
LA-120	\$27.09	\$21.71	\$17.96
LA-122	27.76	22.31	18.46
CP-120	21.31	16.70	13.69
CP-124	20.38	15.97	13.09

## BALANCED LADDER NETWORKS

### SERIES BAL-255—20 STEPS

For limited mounting space, BAL-255 tapered to infinity, no detents, recommended as mixer. BAL-256, 257 and 258 may be used as master gain controls, have detents, are linear. BAL-256 is 2 db per step, has cutoff position; BAL-257 is 2 db per step, 40 db total; BAL-258 is 1.5 db per step, 30 db total. Cuing position avail.

**Terminal Impedance:** For desired impedance, add corresponding suffix to model number (e.g., BAL-255-E): A, B, K, KU, KG, D, E, EF, F or G. See table for impedances. Series 256 and 258 not available in EF.

Daven Series	Net Each, Lots of		
	1-4	5-9	10-24
BAL-255	\$46.33	\$37.80	\$31.25
BAL-256, 257 and 258	47.26	38.56	31.88

### SERIES BAL-730—30 STEPS

Wide range of attenuation in  $2\frac{1}{2}''$  dia. housing. BAL-730 is suggested mixer, has 1.5 db steps, tapered, no detents. BAL-731, 732 and 733 are suggested masters, have detents. BAL-731 has 1.5 db steps, no taper, cutoff position. BAL-732 has 1.5 db steps, no taper, 45 db total. BAL-733 has 2 db steps, no taper, cutoff.

**Terminal Impedance:** For desired impedance, add corresponding suffix to model number (e.g., BAL-731-A): A, B, C, K, KU, KG, D, E, EF, F or G. See table for impedances. Series 730 and 732 not available in C. Series 731 and 733 not available in EF.

Daven Series	Net Each, Lots of		
	1-4	5-9	10-24
BAL-730	\$58.97	\$47.95	\$39.96
BAL-731, 732 and 733	59.93	48.73	40.61

### SERIES BAL-330—30 STEPS

Recommended for broadcasting and recording systems, where a greater control range is needed. BAL-330 is suggested mixer, is tapered to infinity, has 1.5 db steps. BAL-331, 332 and 333 are suggested masters, have detents. BAL-331 is linear, has cutoff, 1.5 db steps. BAL-332 is linear, has 1.5 db steps, 45 db total. BAL-333 is linear, has cutoff, 2 db steps.

**Terminal Impedance:** For desired impedance, add corresponding suffix to model number (e.g., BAL-330-G): A, B, C, K, KU, KG, D, E, EF, F or G. See table for impedances. Series 330 and 332 not available in C. Series 331 and 333 not available in EF.

Daven Series	Net Each, Lots of		
	1-4	5-9	10-24
BAL-330	\$63.64	\$51.88	\$43.23
BAL-331, 332 and 333	64.61	52.66	43.89

## BALANCED "H" NETWORKS

### SERIES BH-320—20 STEPS

Two bridged-T networks on a common shaft. Each deck is a complete unbalanced T attenuator which is connected to each side of the balanced transmission line. Each T has half the impedance but same attenuation as the balanced-H, e.g., a 600-ohm H is made of two 300-ohm T sections. All are linear, have detents. BH-320 has 2 db steps, 40 db total. BH-321 has 1.5 db steps, 30 db total. BH-322 has 1 db steps, 20 db total. BH-323 has 0.5 db steps, 10 db total and is suggested vernier; others are suggested masters.

**Terminal Impedance:** For desired impedance, add corresponding suffix to model number (e.g., BH-323-F): A, B, C, K, KU, KG, D, E, F or G. See table for impedances.

Daven Series	Net Each, Lots of		
	1-4	5-9	10-24
BH-320, 321, 322, 323	\$76.25	\$64.50	\$53.32

## PRINTED CIRCUIT

### SLIDE ATTENUATORS



Designed for audio program applications requiring control of multiple units with one hand (max. 3 oz. pressure needed). Gold-plated contacts; noise free operation; long life. Contacts protected from dust, foreign objects and accidental spills. Flat-faced for flush or escutcheon mounting; vertical or horizontal. Special escutcheons for mounting

1, 2, 3 and 4 units together. Available in any input and output impedance (specify). Ladders and "T" attenuators available with cuing position (add Q to prefix), potentiometers are not. Series 1080: No taper, with off pos.; 20 steps, 2 db/step. Series 1081: Tapered to off; 20 steps, 2 db/step. Series 1090: No taper, with off pos.; 30 steps, 2 db/step. Series 1091: Tapered to off; 30 steps,  $1\frac{1}{2}$  db/step. All units supplied with knobs, plugs and connectors. Specify E for end connector or R for rear connector (e.g., ELA-1081). Size:  $1\frac{1}{2}''$  w. x  $3\frac{1}{2}''$  d. x  $6''$  h.

Daven Series*	Net Each, Lots of		
	1-4	5-9	10-24
CP-1080, 1081	\$38.00	\$28.50	\$24.40
CP-1090, 1091	40.00	29.80	25.40
LA-1080, 1081	38.00	28.50	24.40
LA-1090, 1091	40.00	29.80	25.40
BAL-1080, 1081	58.00	43.00	36.80
BAL-1090, 1091	61.00	45.50	38.90
T-1080, 1081	58.00	43.00	36.80
T-1090, 1091	61.00	45.50	38.90

## PRINTED CIRCUIT ATTENUATORS

Ideal for broadcast equipment and PA systems; use as mixer or master controls in broadcast recording console. Compact design facilitates use in portable equipment. All units have 20 steps with 2 db/step.

**Accuracy:**  $\pm 5\%$ . **Frequency Response:** No appreciable change in db attenuation or terminal impedance over a 0-20,000 cps range. **Switch Noise Level:** None Indicated at low levels. **Rotation:**  $300^\circ$  CCW. **Shaft:** 0.250" dia. **Shield:** Fully enclosed and dust-proof. **Mounting:** Single hole. Double hole bracket available. **Contact Spacing:**  $15^\circ$  between centers. **Rating:** 0.6 watt to 100 V; up to 2.5 watts to 200 V. Ladders and "T" attenuators available with cuing position (add Q to prefix), potentiometers are not. Knob and indicator plate furnished at slight additional cost.

**Terminal Impedance:** For desired impedance, add corresponding suffix to model number (e.g., BAL-1021-F): LA-1020 and LA-1022, K, KU, G and UG. BAL-1020 and BAL-1021, A, B, K, KU, KG, D, E, EF, F and G. Series BAL-1021 not available in EF. T-1020 and T-1021, A, B, C, K, KU, KG, D, E, F and G. CP-1020 and CP-1024, T. See table for impedances.

CP-1020†, 1021†	1022†	Net Each, Lots of		
		1-4	5-9	10-24
		\$13.20	\$10.25	\$ 8.70
BAL-1020†, 1021†		13.20	10.25	8.70
T-1020†, 1021†		25.08	19.48	16.53
		25.08	19.48	16.53

\*CP, single potentiometer. LA, unbalanced ladder. BAL, balanced ladder. "T", T-network. †Available in dual potentiometer, DCP, same price as CP. ‡Avail. in double deck, 2CP and 2LA, write for prices. †No taper, last step cut-off (Infinity); detents. ‡Tapered on last steps to cut-off (Infinity); no detents.

## TERMINAL IMPEDANCE CODE

Terminal Impedance	Code Letter	Terminal Impedance	Code Letter
30/30	A	500/500	F
30/60	AH	300/600	UG
50/50	B	600/600	
50/100	BJ	1000	M
125/125	C	20,000	P
150/150	K	25,000	R
150/300	KU	50,000	S
150/500	KF	100,000	T
150/600	KG	200,000	X
200/200	D	250,000	W
250/250	E	500,000	Y
250/500	EF		



# Daven Networks, Potentiometers

## "T" NETWORKS

### 255 SERIES 20 STEPS

For mounting, two holes tapped for 8-32 machine screws,  $1\frac{1}{2}$ " apart on the horizontal center line. Diameter,  $2\frac{1}{4}$ ", back-of-panel depth,  $2\frac{1}{4}$ ". Shipping Wt., 11 oz.

Daven No.	Net Each		
	1-4	5-9	10-24
T-255	\$48.25	\$36.59	\$30.24
T-256, 257, 258	49.14	37.34	30.86

Dials and Knobs—Net Each....\$2.85

Daven No.	Decibel per Step	Characteristic	Decibel Total
T-255	2.0	Tapered Linear	Infinite
T-256	2.0	Linear	Infinite
T-257	2.0	Linear	40
T-258	1.5	Linear	30

Daven No.	Terminal Imped.	Daven No.
T-255-A	30/30	T-256-A
T-255-B	50/50	T-256-B
T-255-C	125/125	T-256-C
T-255-K	150/150	T-256-K
T-255-KF	150/500	T-256-KF
T-255-KG	150/600	T-256-KG
T-255-D	200/200	T-256-D
T-255-E	250/250	T-256-E
T-255-F	500/500	T-256-F
T-255-G	600/600	T-256-G
T-257-A	30/30	T-258-A
T-257-B	50/50	T-258-B
T-257-C	125/125	T-258-C
T-257-K	150/150	T-258-K
T-257-KF	150/500	T-258-KF
T-257-KG	150/600	T-258-KG
T-257-D	200/200	T-258-D
T-257-E	250/250	T-258-E
T-257-F	500/500	T-258-F
T-257-G	600/600	T-258-G

### 320 SERIES

The T-320 attenuator is a twenty step "T" type network offered for general sound control applications. This unit has zero initial loss, constant impedance both in and out at all settings of the control and a quiet, rugged, self-cleaning switch for low level control. The series T-320 is offered as a main gain control. The series T-321 is supplied with a taper on the last three steps before cut-off and is an ideal twenty-step mixing control. 2.0 decibels per step, infinite. T-320 attenuator linear, T-321 tapered. Accuracy of resistance,  $\pm 5\%$ . Insertion loss: Zero for 1:1 impedance ratio and minimum loss for unequal impedance. Net Weight, 12 oz.

Daven No.	Net Each		
	1-4	5-9	10-24
T-320	\$36.98	\$29.85	\$24.88
T-321	36.31	29.25	24.38

Dials and Knobs—Net Each....\$2.25

Daven No.	Terminal Imped.	Daven No.
T-320-A	30/30	T-321-A
T-320-B	50/50	T-321-B
T-320-C	125/125	T-321-C
T-320-K	150/150	T-321-K
T-320-KF	150/500	T-321-KF
T-320-KG	150/600	T-321-KG
T-320-D	200/200	T-321-D
T-320-E	250/250	T-321-E
T-320-F	500/500	T-321-F
T-320-G	600/600	T-321-G

### 330 SERIES

The T-330 attenuator is designed for use as either a mixing or master gain control in broadcasting speech input equipment, sound recording studios and sound projection systems. 30 steps of 1.5 decibel per step, infinite. Type T-330 tapered, T-331 linear. Accuracy of resistance,  $\pm 5\%$ .

Daven No.	Net Each		
	1-4	5-9	10-24
T-330	\$43.53	\$35.23	\$29.46
T-331	44.20	35.83	29.96

Dials and Knobs—Net Each....\$2.25

Daven No.	Terminal Imped.	Daven No.
T-330-A	30/30	T-331-A
T-330-B	50/50	T-331-B
T-330-C	125/125	T-331-C
T-330-K	150/150	T-331-K
T-330-KF	150/500	T-331-KF
T-330-KG	150/600	T-331-KG
T-330-D	200/200	T-331-D
T-330-E	250/250	T-331-E
T-330-F	500/500	T-331-F
T-330-G	600/600	T-331-G

### 345 SERIES

Forty-five steps; tapered on last steps to cutoff (infinity); detents not attached. Accuracy,  $\pm 5\%$ . Diameter,  $2\frac{1}{4}$ ", back-of-panel depth,  $2\frac{1}{4}$ ". Two 8-32 holes for mounting; removable cover. Provide appreciable total attenuation in relatively small steps. Circuit is "Bridged T". To order culling position, change desired model number to "TQ".

Daven No.	Net Each		
	1-4	5-9	10-24
T-345, 346, 347	\$69.21	\$56.36	\$47.43

Dials and Knobs—Net Each....\$2.25

Daven No.	Decibel Per Step	Characteristic	Decibel Total
T-345	0.5	Tapered	Infinite
T-346	0.75	Tapered	Infinite
T-347	1.0	Tapered	Infinite

Daven No.	Imped.	Daven No.
T-345-B	50/50	T-346-B
T-345-C	125/125	T-346-C
T-345-K	150/150	T-346-K
T-345-KF	150/500	T-346-KF
T-345-KG	150/600	T-346-KG
T-345-D	200/200	T-346-D
T-345-E	250/250	T-346-E
T-345-EF	250/500	T-346-EF
T-345-F	500/500	T-346-F
T-345-G	600/600	T-346-G
T-347-B	50/50	
T-347-C	125/125	
T-347-K	150/150	
T-347-KF	150/500	
T-347-KG	150/600	
T-347-D	200/200	
T-347-E	250/250	
T-347-EF	250/500	
T-347-F	500/500	
T-347-G	600/600	

## FIXED ATTENUATORS (T-NETWORK)



Resistive networks having fixed impedances and losses. Employ accurately calibrated card-type non-inductive resistors, rigidly mounted inside a metal shield.

Daven No.	Net Each		
	1-4	5-9	10-24
T-950	\$5.33	\$4.80	\$4.00

### RANGE OF DB LOSS VALUES AVAILABLE

Input	Output	Decibel Loss*	
		Min.	Max.
30	30	0	50
30	50	6.47	55
30	150	12.53	60
30	200	13.91	60
30	250	14.95	65
30	300	15.82	65
30	600	18.92	70
50	30	6.47	55
50	50	0	55
50	150	9.96	60
50	200	11.44	65
50	250	12.54	65
50	300	15.79	65
50	600	16.63	70
150	30	12.53	60
150	50	9.96	60
150	150	0	65
150	200	4.77	70
150	250	6.47	70
150	500	10.52	70
150	600	11.43	75
150	3000	18.92	80
250	150	6.47	65
250	200	4.18	70
250	250	7.65	75
250	500	8.73	75
250	600	8.73	75
500	30	18.11	65
500	50	15.79	65
500	150	10.52	70
500	200	8.96	75
500	250	7.65	75
500	500	0	75
500	600	3.76	80
600	30	18.92	65
600	50	16.63	70
600	150	11.43	75
600	200	9.95	75
600	250	8.73	75
600	500	3.76	80
600	600	0	80

\*Pad can be supplied in any decibel loss within limits noted.

## POTENTIOMETERS

### CP-350

Twenty-step potential dividers for use in portable equipment; fit in small mounting space. Carbon type resistors; accuracy,  $\pm 5\%$ ;  $1\frac{1}{2}$ " diameter;  $1\frac{1}{2}$ " depth behind panel;  $250$ " shaft diameter. Mounts in single hole to clean  $\frac{1}{4}$ " bushing.

Daven No.	Net Each		
	1-4	5-9	10-24
CP-354	\$16.75	\$13.08	\$10.69
CP-350, 352, 353, 355	17.42	13.75	11.19

Dials and Knobs—Net Each....\$2.25

Daven No.	Decibels Per Step	Characteristic	Decibel Total
CP-350	2	Linear	Infinite
CP-352	1.5	Linear	Infinite
CP-353	3	Linear	Infinite
CP-354	2	Tapered	Infinite
CP-355	5	Linear	100

Daven No.	Impedance	Daven No.
CP-350-M	10,000	CP-352-M
CP-350-P	20,000	CP-352-P
CP-350-R	25,000	CP-352-R
CP-350-KF	50,000	CP-352-KF
CP-350-T	100,000	CP-352-T
CP-350-W	200,000	CP-352-W
CP-350-X	250,000	CP-352-X
CP-350-Y	500,000	CP-352-Y
CP-353-M	10,000	CP-354-M
CP-353-P	20,000	CP-354-P
CP-353-R	25,000	CP-354-R
CP-353-K	50,000	CP-354-K
CP-353-T	100,000	CP-354-T
CP-353-W	200,000	CP-354-W
CP-353-X	250,000	CP-354-X
CP-353-Y	500,000	CP-354-Y
CP-355-S	50,000	
CP-355-T	100,000	
CP-355-W	200,000	
CP-355-X	250,000	
CP-355-Y	500,000	

### P-350 WIRE-WOUND

Popular-priced potential dividers for use in portable equipment. Twenty steps. Accuracy,  $\pm 2\%$ . Types P-350, P-351 and P-353 have detents.

Daven No.	Decibels Per Step	Characteristic	Decibel Total
P-350	2	Linear	Infinite
P-351	1.5	Linear	Infinite
P-353	3	Linear	Infinite
P-354	2	Tapered	Infinite

### IMPEDANCE CODE LETTERS\*

Terminal Imped.	Code Letter	Terminal Imped.	Code Letter
5000	L	25000	R
10000	M	50000	S
20000	P		

\*Add at end of Model Number.

Daven No.	Net Each		
	1-4	5-9	10-24
P-350, 351, 353-L, M or P	\$27.29	\$22.40	\$18.53
P-350, 351, 353-R	34.56	28.30	23.40
P-350, 351, 353-S	41.28	33.80	27.95
P-354-L, M or P	26.32	21.62	17.88
P-354-R	33.60	27.51	22.75
P-354-S	40.32	33.01	27.30

### VU METER MULTIPLIERS

Provide 20 steps of attenuation, 2 db per step, when used as a VU meter attenuator. VU meters, when used as program monitors, are bridged across a 600-ohm line with attenuator and fixed resistor inserted between the line and the meter, as an isolating network to extend the meter range and reduce meter distortion.

Daven No.	Net Each		
	1-4	5-9	10-24
TA-1000 (-1 to -6)	\$53.07	\$43.09	\$36.14

Dials and Knobs—Net Each....\$2.25

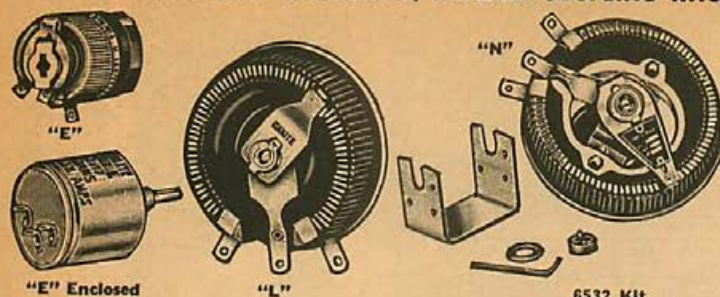
Daven No.	DB Range	Impedance
TA-1000-1*	1 mw +4 to +40 and off	7100/3900
TA-1000-2†		7500/3900
TA-1000-3‡		6900/3900
TA-1000-4*	+4 to +42 and off	7100/3900
TA-1000-5†		7500/3900
TA-1000-6‡		3900/3900

\*Zero adjust rheostat req.; 800-1000 ohms.  
 †Zero adjust rheostat req.; 1200-1500 ohms.  
 ‡External 3600 ohm series resistor needed.



# OHMITE Rheostats, Couplings

## VITREOUS ENAMELED RHEOSTATS, TANDEM COUPLING KITS



Wire-wound vitreous enameled rheostats with solid ceramic core. Pivoted, universal action. Copper graphite brushes (silver-graphite on heavy-current units). All Series "A" units are U.L. Listed, except Nos. 4210-4215. Current ratings listed are in free air; when enclosed, currents should be reduced up to 50% depending on ventilation. \*Silicone-ceramic coated.

**Model "E" Rheostats, 12 1/2-Watt**—Rating on metal panel. Size, 3/8" dia. x 1 1/8" d. behind panel.

Ohmite No.	Res., Ohms	Net Each, Lots of			
		1-4	5-9	10-24	25 Up
0101	1	\$4.63	\$3.94	\$3.10	\$2.55
0102	2	4.63	3.94	3.10	2.55
0103	3	4.63	3.94	3.10	2.55
0104	6	4.63	3.94	3.10	2.55
0105	8	4.63	3.94	3.10	2.55
0106	10	4.63	3.94	3.10	2.55
0107	15	4.11	3.49	2.75	2.26
0108	25	4.11	3.49	2.75	2.26
0109	35	4.11	3.49	2.75	2.26
0110	50	4.11	3.49	2.75	2.26
0111	75	4.11	3.49	2.75	2.26
0112	100	4.11	3.49	2.75	2.26
0113	125	4.11	3.49	2.75	2.26
0114	175	4.11	3.49	2.75	2.26
0115	250	4.11	3.49	2.75	2.26
0116	350	4.11	3.49	2.75	2.26
0117	500	4.11	3.49	2.75	2.26
0118	750	4.11	3.49	2.75	2.26
0119	1000	4.63	3.94	3.10	2.55
0120	1500	4.63	3.94	3.10	2.55
0121	2500	4.63	3.94	3.10	2.55
0122	3500	4.90	4.17	3.28	2.70
0123	5000	4.90	4.17	3.28	2.70
4190*	7500	5.06	4.30	3.39	2.78
4191*	10K	5.06	4.30	3.39	2.78
4192*	12.5K	5.50	4.68	3.69	3.03
4193*	15K	5.50	4.68	3.69	3.03

**Model "E" Enclosed Rheostats**—Same, but in dust-proof aluminum enclosure. To order, use same stock numbers as above, but with prefix W (example: W0101). Mount on 1/2" panels.

Range, Ohms	Net Each, Lots of		
	1-4	5-9	10 Up
1-10	\$6.31	\$4.75	\$3.87
15-750	5.79	4.30	3.52
1K-2.5K	6.31	4.75	3.87
3.5K-5K	6.58	4.98	4.05
7.5K-10K	6.74	5.11	4.16
12.5K-15K	7.18	5.49	4.46

**Model "H" Rheostats, Series A—25-Watt**—Size, 1 1/4" dia. x 1 3/4" d. behind panel.

Ohmite No.	Res., Ohms	Net Each, Lots of			
		1-4	5-9	10-24	25 Up
0140	1	\$4.63	\$3.94	\$3.10	\$2.55
0141	2	4.63	3.94	3.10	2.55
0142	3	4.63	3.94	3.10	2.55
0143	6	4.63	3.94	3.10	2.55
0144	8	4.63	3.94	3.10	2.55
0145	10	4.63	3.94	3.10	2.55
0146	15	4.11	3.49	2.75	2.26
0147	25	4.11	3.49	2.75	2.26
0148	35	4.11	3.49	2.75	2.26
0149	50	4.11	3.49	2.75	2.26
0150	75	4.11	3.49	2.75	2.26
0151	100	4.11	3.49	2.75	2.26
0152	125	4.11	3.49	2.75	2.26
0153	175	4.11	3.49	2.75	2.26
0154	250	4.11	3.49	2.75	2.26
0155	350	4.11	3.49	2.75	2.26
0156	500	4.11	3.49	2.75	2.26
0157	750	4.11	3.49	2.75	2.26
0158	1000	4.63	3.94	3.10	2.55
0159	1500	4.63	3.94	3.10	2.55
0160	2500	4.63	3.94	3.10	2.55
0161	3500	4.90	4.17	3.28	2.70
0162	5000	4.90	4.17	3.28	2.70
4200*	7500	5.06	4.30	3.39	2.78
4201*	10K	5.06	4.30	3.39	2.78
4202*	15K	5.50	4.68	3.69	3.03
4203*	20K	6.16	5.24	4.13	3.39
4204*	25K	6.82	5.80	4.57	3.75

**Model "J" Rheostats, Series A—50-Watt**—Size, 2 1/4" dia. x 1 3/4" d. behind panel.

Ohmite No.	Res., Ohms	Net Each, Lots of			
		1-4	5-9	10-24	25 Up
0308	0.5	\$5.15	\$4.38	\$3.45	\$2.83
0309	1	5.15	4.38	3.45	2.83
0310	2	5.15	4.38	3.45	2.83
0311	4	5.15	4.38	3.45	2.83
0312	6	5.15	4.38	3.45	2.83
0313	8	4.63	3.94	3.10	2.55
0314	12	4.63	3.94	3.10	2.55
0315	16	4.63	3.94	3.10	2.55
0316	22	4.63	3.94	3.10	2.55
0317	35	4.63	3.94	3.10	2.55
0318	50	4.63	3.94	3.10	2.55
0319	80	4.63	3.94	3.10	2.55
0320	125	4.63	3.94	3.10	2.55
0321	150	4.63	3.94	3.10	2.55
0322	225	4.63	3.94	3.10	2.55
0323	300	4.63	3.94	3.10	2.55
0324	500	4.63	3.94	3.10	2.55
0325	800	4.90	4.17	3.28	2.70
0326	1000	4.90	4.17	3.28	2.70
0327	1600	4.90	4.17	3.28	2.70
0328	2500	4.90	4.17	3.28	2.70
0329	3500	5.15	4.38	3.45	2.83
0330	5000	5.15	4.38	3.45	2.83
0331	8K	5.15	4.38	3.45	2.83
0332	10K	5.15	4.38	3.45	2.83
4210*	15K	5.83	4.96	3.91	3.21
4211*	20K	6.60	5.61	4.42	3.63
4212*	25K	7.26	6.17	4.86	3.99
4213*	30K	8.03	6.83	5.38	4.42
4214*	40K	9.35	7.95	6.26	5.14
4215*	50K	10.23	8.70	6.85	5.63

**Model "G" Rheostats, Series A—75-Watt**—Size, 2 3/4" dia. x 1 3/4" d. behind panel.

Ohmite No.	Res., Ohms	Net Each, Lots of			
		1-4	5-9	10-24	25 Up
1100	0.5	\$6.97	\$5.92	\$4.67	\$3.83
1101	1	6.97	5.92	4.67	3.83
1102	2	6.97	5.92	4.67	3.83
1103	3	6.97	5.92	4.67	3.83
1104	5	6.97	5.92	4.67	3.83
1105	7.5	6.97	5.92	4.67	3.83
1106	10	6.97	5.92	4.67	3.83
1107	16	6.41	5.45	4.29	3.53
1108	25	6.41	5.45	4.29	3.53
1109	50	6.41	5.45	4.29	3.53
1110	75	6.41	5.45	4.29	3.53
1111	100	6.41	5.45	4.29	3.53
1112	200	6.41	5.45	4.29	3.53
1113	300	6.41	5.45	4.29	3.53
1114	400	6.41	5.45	4.29	3.53
1115	500	6.41	5.45	4.29	3.53
1116	750	6.97	5.92	4.67	3.83
1117	1000	6.97	5.92	4.67	3.83
1118	1500	6.97	5.92	4.67	3.83
1119	2000	6.97	5.92	4.67	3.83
1120	2500	6.97	5.92	4.67	3.83
1121	5000	7.45	6.33	4.99	4.10
1122	7500	8.00	6.80	5.36	4.40
1123	10K	8.00	6.80	5.36	4.40

**Model "K" Rheostats, Series A—100-Watt**—Size, 3 1/4" dia. x 1 3/4" d. behind panel.

Ohmite No.	Res., Ohms	Net Each, Lots of			
		1-4	5-9	10-24	25 Up
0440	0.5	\$7.72	\$6.56	\$5.17	\$4.25
0441	1	7.72	6.56	5.17	4.25
0442	2	7.72	6.56	5.17	4.25
0443	3	7.72	6.56	5.17	4.25
0444	5	7.72	6.56	5.17	4.25
0445	7.5	7.72	6.56	5.17	4.25
0446	10	7.72	6.56	5.17	4.25
0447	16	7.21	6.13	4.83	3.97
0448	25	7.21	6.13	4.83	3.97
0449	50	7.21	6.13	4.83	3.97
0450	75	7.21	6.13	4.83	3.97
0451	100	7.21	6.13	4.83	3.97
0452	200	7.21	6.13	4.83	3.97
0453	300	7.21	6.13	4.83	3.97
0454	400	7.21	6.13	4.83	3.97
0455	500	7.21	6.13	4.83	3.97
0456	750	7.21	6.13	4.83	3.97
0457	1000	7.72	6.56	5.17	4.25
0458	1500	7.72	6.56	5.17	4.25
0459	2000	7.72	6.56	5.17	4.25
0460	2500	7.72	6.56	5.17	4.25
0461	5000	8.24	7.00	5.52	4.53
0462	7500	8.76	7.45	5.87	4.82
0463	10K	9.26	7.87	6.20	5.09

**Model "L" Rheostats, Series A—150-Watt**—Size, 4" dia. x 2" d. behind panel.

Ohmite No.	Res., Ohms	Net Each, Lots of			
		1-4	5-9	10-24	25 Up
0524	0.5	\$9.78	\$8.31	\$6.55	\$5.38
0525	1	9.78	8.31	6.55	5.38
0526	2	9.78	8.31	6.55	5.38
0527	3	9.78	8.31	6.55	5.38
0528	5	9.78	8.31	6.55	5.38
0529	7.5	9.78	8.31	6.55	5.38
0530	10	9.78	8.31	6.55	5.38
0531	15	9.78	8.31	6.55	5.38
0532	25	9.26	7.87	6.20	5.09
0533	35	9.26	7.87	6.20	5.09
0534	50	9.26	7.87	6.20	5.09
0535	75	9.26	7.87	6.20	5.09
0536	100	9.26	7.87	6.20	5.09
0537	150	9.26	7.87	6.20	5.09
0538	200	9.26	7.87	6.20	5.09
0539	250	9.26	7.87	6.20	5.09
0540	350	9.26	7.87	6.20	5.09
0541	500	9.26	7.87	6.20	5.09
0542	750	9.78	8.31	6.55	5.38
0543	1250	9.78	8.31	6.55	5.38
0544	1800	10.30	8.76	6.90	5.67
0545	2250	10.30	8.76	6.90	5.67
0546	3000	10.30	8.76	6.90	5.67
0547	4500	10.81	9.19	7.24	5.95
0548	7500	11.33	9.63	7.59	6.23
0549	10K	12.35	10.50	8.27	6.79

**Model "P" Rheostats, Series A—225-Watt**—Size, 5" dia. x 2 1/2" d. behind panel. Net Ea., 1-2, \$14.11 Net Ea., 3-4, \$11.99

**Model "N" Rheostats, Series A—300-Watt**—Size, 6" dia. x 2 3/4" d. behind panel. Net Ea., 1-2, \$15.29 Net Ea., 3-4, \$13.00

Resis., Ohms	Model "P"	Model "N"	Resis., Ohms	Model "P"	Model "N"
1	1250	0650	150	1262	0662
2	1251	0651	200	1263	0663
3	1252	0652	300	1264	0664
4	1253	0653	400	1265	0665
5	1254	0654	700	1266	0666
7.5	1255	0655	900	1267	0667
10	1256	0656	1200	1268	0668
15	1257	0657	1500	1269	0669
25	1258	0658	1750	1270	0670
50	1259	0659	2000	1270A	0670A
75	1260	0660	2500	1271	0671
100	126				



# OHMITE Quality Controls

## MODEL C MINIATURE 7.5-WATT RHEOSTATS



Ultra-miniature 7.5-watt (at 40° C ambient) power rheostat sets the standards for high performance with minimum size. Resistance element wound on ceramic ring, coated with vitreous enamel and joined to ceramic base. Completely insulated and enclosed in corrosion-resistant case. It is designed to operate at 340° C max. hot spot temperature. **Power Rating:** 7.5 watts on steel panel 4" sq. x .04" th. at 40° C; 5 watts in non-metallic panel or transistor socket. **Resistance Tolerance:** ±10%. **Torque:** 1-3 oz.-in. **Rotation:** 300° (±5°). **Knob:** No. 5151 recommended (not supplied). **Shaft:** 1/8" dia. with screwdriver slot for standard (with knob) or locking bushing. **Size:** Body .515" dia. x 1/4" lg.; bushing 1/8"-32 flatted and threaded x 1/4" lg. for panels to 1/4" thick. Lug terminals take 22 ga. solid or 24 ga. stranded wire; fit EIA type TS-E3R100 transistor socket. Taper pin terminals for quick-connect connectors, or spade lug terminals available on special order.

## ● FITS TRANSISTOR SOCKETS STOCK VALUES

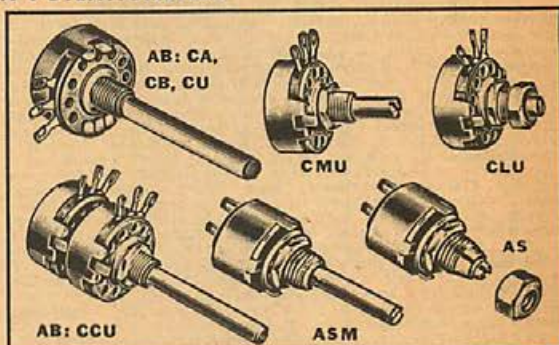
Ohms	Amps	Ohmite Model No. for	
		Std. Shaft	Locking Shaft
10	.86	4908	4948
15	.71	4909	4949
25	.55	4910	4950
35	.46	4911	4951
50	.39	4912	4952
75	.32	4913	4953
100	.27	4914	4954
150	.22	4915	4955
200	.19	4916	4956
250	.17	4917	4957
350	.15	4918	4958
500	.12	4919	4959
750	.1	4920	4960
1000	.086	4921	4961
1500	.071	4922	4962
2500	.055	4923	4963
3500	.046	4924	4964
5000	.039	4925	4965

## NET PRICES

Resistance Range, Ohms	With Standard Shaft Net Each, Lots of			With Locking Shaft Net Each, Lots of		
	1-4	5-9	10-24	1-4	5-9	10-24
10 thru 750	\$ 8.59	\$7.30	\$5.15	\$10.48	\$8.02	\$5.60
1000 thru 2500	9.72	8.26	5.83	11.61	8.98	6.28
3500 and 5000	10.15	8.63	6.09	12.04	9.35	6.54
No. 6595 Socket for Model C Rheostats				.42	.40	.37

## MOLDED COMPOSITION POTENTIOMETERS

Available in MIL-R-94 Styles RV4N, RV4L, RV6L, RV6N. High reliability for universal use as rheostats or potentiometers in industrial, military or other high quality electronic devices. All units provide a very large safety factor; overloads of short duration can be safely absorbed. Positive, trouble-free connections assured with terminals molded directly into control elements. Resistance and collector tracks are bridged by a molded composition brush for long life. Noise level is exceedingly low; actually decreases with use of the unit. Various elements of the unit are molded together at one time into a single, integral structure that is sealed against moisture. A metal cover is sealed to the element to electrically shield the internal parts: a synthetic resin is the sealing agent with non-mercurial fungicide to assure dust-tight, splash-proof and fungus resistant safety. Molding method permits predetermination of resistance-rotation characteristics to such a fine degree that ideal curves are followed quite closely. Thus, a single element with a smoothly graduated resistance change produces modified logarithmic tapers in AB units. **Type AB Controls:** Rated 2 watts at 70° C; 500 volts, rms, 60-cycle max. continuous across resistance elements; 1000 V rms for 1 sec., high potential test. Size, 1 1/2" dia. Available in Style CMU, linear control with 3/4" slotted shaft, linear taper, MIL Style RV4N; Style CU single control with 2" unslotted shaft, linear taper; Style CA clockwise modified log taper version of CU; Style CB, counter-clockwise modified log taper version of CU; Style CLU single control with locking-type shaft, linear taper MIL Style RV4L; and, Style CCU dual control with 2" shaft, linear taper. **Type AS Miniature Controls:** Rated 1/2 watt at 70° C; 350 volts, rms, 60-cycle max. continuous voltage across resistance elements; 750 V rms for 1 sec., high potential test. Size, 1/2" dia. Available with locking type shaft, slotted for screwdriver with collet bushing and conical nut; linear taper, MIL Style RV6L; or, 3/8" lg. shaft for knob control, standard bushing MIL Style RV6N. **Temp. Range:** -55° C to +120° C, operating; derate linearly from full rating at +70° C to zero at +120° C, for linear taper; other tapers, multiply ratings obtained for linear taper by 0.5. **Humidity and Corrosion:** Temporary resistance changes less than 5% after exposure for 100 hours at 40° C to 95% relative humidity. Meets 200 hr. salt spray corrosion test QQ-M-151, military specification. **Rotation:** 312° ±3°, Type AB without on-off switch; 333°, ±3°, with switch. Type AS, 295°, ±5°. **Switch:** SPST type rated 2 amps, 125 volts; or 10



amps, 10 volts available for use on AB controls except Style CCU. Switch is "off" at the extreme CCW shaft position.

## NET PRICES

Ohmite No.	Description	Net Each, Lots of			
		1-9	10-49	50-99	100 Up
CMU	3/4" shaft, single MIL	\$1.95	\$1.75	\$1.62	\$1.46
CU	2" shaft, linear	1.95	1.75	1.62	1.46
CA	2" shaft, CW log	2.25	2.02	1.87	1.69
CB	2" shaft, CCW log	2.25	2.02	1.87	1.69
CLU	Locking shaft, MIL	2.55	2.29	2.12	1.90
CCU	Dual locking shaft	5.85	5.26	5.06	4.40
AS	Locking shaft, mln. MIL	5.10	4.59	4.23	3.58
ASM	3/8" knob shaft, MIL	5.10	4.59	4.23	3.58
CS-1	Switch for CMU, CU, CA, CB or CLU	.66	.62	.59	.55

## STOCK VALUES

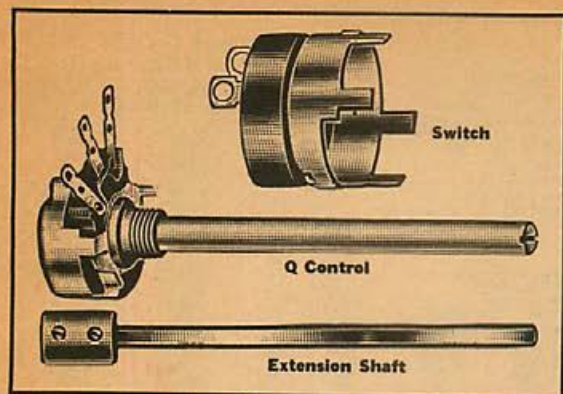
Resistance Ohms ±10%	Type AB (1 1/2" Dia.)										Type AS (1/2" Dia.)			
	Single, 3/4" Shaft		Single Unit 2" Shaft		Locking		Dual		Min. Locking		Min. 3/8" Shaft			
	Style CMU Linear	MIL Desig. RV4NAY	Style CU Linear	Style CA CW log	Style CB CCW log	Style CLU Linear	MIL Desig. RV4LAY	Style CCU Linear	Style AS Linear	MIL Desig. RV6LAY	Style ASM Linear	MIL Desig. RV6NAY		
50	CMU5001	SD500A	CU5001			CLU5001	SA500A							
100	CMU1011	SD101A	CU1011			CLU1011	SA101A	AS3601	SA101A	ASM6661	SD101A			
150	CMU1511	SD151A	CU1511			CLU1511	SA151A							
250	CMU2511	SD251A	CU2511			CLU2511	SA251A	AS3602	SA251A	ASM6662	SD251A			
350	CMU3511	SD351A	CU3511			CLU3511	SA351A							
500	CMU5011	SD501A	CU5011			CLU5011	SA501A	AS3603	SA501A	ASM6663	SD501A			
750	CMU7511	SD751A	CU7511			CLU7511	SA751A							
1,000	CMU1021	SD102A	CU1021			CLU1021	SA102A	AS3604	SA102A	ASM6664	SD102A			
1,500	CMU1521	SD152A	CU1521			CLU1521	SA152A							
2,500	CMU2521	SD252A	CU2521			CLU2521	SA252A	AS3605	SA252A	ASM6665	SD252A			
3,500	CMU3521	SD352A	CU3521			CLU3521	SA352A							
5,000	CMU5021	SD502A	CU5021			CLU5021	SA502A	AS3606	SA502A	ASM6666	SD502A			
7,500	CMU7521	SD752A	CU7521			CLU7521	SA752A							
10,000	CMU1031	SD103A	CU1031			CLU1031	SA103A	AS3607	SA103A	ASM6667	SD103A			
15,000	CMU1531	SD153A	CU1531		CB1031	CLU1531	SA153A							
25,000	CMU2531	SD253A	CU2531		CB2531	CLU2531	SA253A	AS3608	SA253A	ASM6668	SD253A			
35,000	CMU3531	SD353A	CU3531		CB5031	CLU3531	SA353A							
50,000	CMU5031	SD503A	CU5031			CLU5031	SA503A	AS3609	SA503A	ASM6669	SD503A			
75,000	CMU7531	SD753A	CU7531			CLU7531	SA753A							
.1 meg	CMU1041	SD104A	CU1041	CA1041		CLU1041	SA104A	AS3610	SA104A	ASM6670	SD104A			
.15 meg	CMU1541	SD154A	CU1541			CLU1541	SA154A							
.25 meg	CMU2541	SD254A	CU2541	CA2541		CLU2541	SA254A	AS3611	SA254A	ASM6671	SD254A			
.35 meg	CMU3541	SD354A	CU3541			CLU3541	SA354A							
.5 meg	CMU5041	SD504A	CU5041	CA5041		CLU5041	SA504A	AS3612	SA504A	ASM6672	SD504A			
.75 meg*	CMU7542	SD754A	CU7542			CLU7542	SA754A							
1.0 meg*	CMU1052	SD105B	CU1052	CA1052		CLU1052	SA105B	AS3613	SA105B	ASM6673	SD105B			
1.5 meg*	CMU1552	SD155B	CU1552			CLU1552	SA155B							
2.0 meg*	CMU2052	SD205B	CU2052			CLU2052	SA205B	AS3684	SA205B	ASM6674	SD205B			
2.5 meg*	CMU2552	SD255B	CU2552	CA2552		CLU2552	SA255B	AS3614	SA255B	ASM6675	SD255B			
3.5 meg*	CMU3552	SD355B	CU3552			CLU3552	SA355B							
5.0 meg*	CMU5052	SD505B	CU5052			CLU5052	SA505B	AS3615	SA505B	ASM6676	SD505B			

\* ±20% tolerance. † Resistance shown is for each unit.





# "Q" Volume Controls



## TYPE Q VOLUME CONTROLS FOR RADIO AND TV TECHNICIANS

Superior quality design, carefully engineered and manufactured of premium materials. Compact  $\frac{1}{4}$ " dia. size. **Resistance Element:** Permanently bonded to phenolic laminate by controlled heat process. Increased rotation arc permits same resistance ratios provided by larger controls. Electrical rotation unchanged with or without switch. **Control Base:** Precision molded type. Molded voltage baffles provided between terminals and between element and cover. **Contactor:** One-piece dual type of thin, high-stress alloy. Radius especially designed for stable noise-wear characteristics. **Collector Ring:** Silver nickel ring and center terminal in a single unit; snapped and locked in position for trouble-free performance. **Element Terminals:** Brass, tinned for easy soldering. Secured with silver-plated rivets. Soldering cannot loosen them. May be bent for wiring without becoming noisy. **Knob Master Fixed Shaft:** Standard shaft is knurled, flattened and slotted. Fits most knobs without alteration. For knurled or spring-type push-on knobs, shaft is simply cut to length needed. For worn, oversize or web-type knobs, split the shaft slot lengthwise and spread the ends. For positioned knobs, the locating pins are simply bent down and control base rotated to the correct knob position. **Bushing:** Shorter  $\frac{1}{4}$ " lg. bushing and  $\frac{1}{16}$ " dial control design makes it suited for all small sets; yet, is capable of handling large set needs as well. **Rotation:** 280°, effective.

### EXPLANATION OF TAPERS

New number (1, 2, etc.) replaces old letter (A, B, etc.) system. Both are shown for replacement convenience. 1, A or 2, A—For pot or rheostat where uniform resistance change is required. 3, C—Left-hand logarithmic taper for audio circuit control. 4, Q or 5, Q or 5, P or 23, D—Right-hand, semi-log for TV contrast and picture control. Taper 4 also used for stereo tone and balance. 6, S—Phileo bass and treble tone control. 7, 39 or 41, S—Phileo bass and treble tone with open-circuited mid-point. 8, 9, 20, 27 or 38, S—Tapped right-hand for TV contrast and picture control. 10, S—Tapped left-hand for TV contrast and picture control; also used for audio compensation. 22, 24, 26, 30, 31, 37, 40 or 47, S; plus 30 or 44, H—Tapped left-hand log taper for audio level with automatic bass compensation. 12, S—Left-hand taper tapped at 50% of total resistance for audio compensation. 13, S—Same, but tapped at 10% for transistorized circuits. 14, 21, 28 or 29, S—Right-hand log taper tapped for TV contrast and picture control. 15, 16, 17, 18, 19, 35, 36, 43 or 46, S—Left-hand log taper with double taps for tone and loudness compensation. 32, S—Fader control. 33, S—Left-hand with two taps for TV contrast and picture control. 34, 38 or 48, S—Right-hand with two taps for TV contrast and picture.

### Q CONTROL ACCESSORIES

Assemble standard or special controls by using base elements and control parts as listed below. **Plain Q Control:** One base element, one interchangeable fixed shaft, one QCB bushing and one QCC cover. **Switch-Q Control:** One base element, one interchangeable fixed shaft, one QCB bushing and one 76-1 or 76-2 switch. **Special with Fixed Shaft:** Remove control cover by bending up tabs. Remove resilient retainer ring with pointed tool. Remove standard shaft. Insert special shaft. Roll new ring into shaft groove and replace cover (or add switch).

### EXTENSION SHAFTS

441	4" x $\frac{3}{8}$ " with $\frac{1}{16}$ " flat
442	4" x $\frac{3}{8}$ " with $\frac{1}{8}$ " flat
443	4" x $\frac{3}{8}$ " with $\frac{1}{4}$ " flat
444	8" x $\frac{3}{8}$ " with $\frac{1}{8}$ " flat for 4"

### CONTROL SWITCHES

76-1	Single pole, single throw
76-2	Double pole, single throw
76-4	Single pole, double throw or make 1—break 1 spot killer
76-5	Single pole, single throw push-pull type

### DEALER NET PRICES

IRC Part Type	Typical Numbers	Net Each
Plain Q Control	Q11-201, Q17-105, Q13-116	\$1.02
Tapped Q Control	Q17-105X, Q17-110XX, Q13-118XX	1.44
Plain Base-Element	B11-201, B17-110, B14-120	.36
Tapped Base-Element	B17-105X, B17-110XX, B13-118X	.78
Q Multi-Section	M11-103, M13-128, M17-140	1.35
Control Switch	76-1, 76-2 or 76-5	.60
Control Switch	76-4	.75
Extensions	441, 442, 443 or 444	.64

### CONTROLS, BASE-ELEMENTS, MULTI-SECTIONS

Ohms	Taps	Ta-per*	Q Control No.	Q Base-Element No.	Q Multi-Section No.
250		2, A	Q11-201	B11-201	
500		1, A	Q11-103	B11-103	M11-103
750		1, A	Q11-105	B11-105	
750		5, P	Q17-105	B17-105	
1000		8, S	Q17-105X	B17-105X	
1000		2, A	Q11-108	B11-108	M11-108
1000		5, P	Q17-108	B17-108	
1500		2, A	Q11-109	B11-109	
1500		4, Q	Q11-109	B17-109	
2000		2, A	Q11-110	B11-110	M11-110
2000		4, Q	Q17-110	B17-110	
2000		34, S	Q17-110XX	B17-110XX	
2500		3, C	Q13-111	B13-111	
2500		4, A	Q17-111	B17-111	
3000		4, A	Q11-112	B11-112	M11-112
3000		4, Q	Q17-112	B17-112	
5000		2, A	Q11-114	B11-114	M11-114
5000		3, C	Q13-114	B13-114	
5000		4, Q	Q17-114	B17-114	
7500		2, A	Q11-115	B11-115	
10K		2, A	Q11-116	B11-116	M11-116
10K		3, C	Q13-116	B13-116	
10K		23, D	Q14-116	B14-116	
10K		4, Q	Q17-116	B17-116	M17-116
15K	10K	8, S	Q13-118X	B13-118X	
15K	5K, 10K	33, S	Q13-118XX	B13-118XX	
15K	5K	29, S	Q17-118X	B17-118X	
15K	5K, 10K	48, S	Q17-118XX	B17-118XX	
20K		2, A	Q11-119	B11-119	
20K		15, S	Q16-119	B16-119	
25K		2, A	Q11-120	B11-120	M11-120
25K		3, C	Q13-120	B13-120	
25K		23, D	Q14-120	B14-120	
30K		2, A	Q11-121	B11-121	M11-121
35K		2, A	Q11-122	B11-122	
50K		2, A	Q11-123	B11-123	M11-123
50K		3, C	Q13-123	B13-123	
50K		23, D	Q14-123	B14-123	
75K		2, A	Q11-125	B11-125	
100K		2, A	Q11-128	B11-128	M11-128
100K		3, C	Q13-128	B13-128	M13-128
125K		2, A	Q11-228	B11-228	
150K		2, A	Q11-328	B11-328	
150K		3, C	Q13-328	B13-328	
150K	10K, 38K	34, S	Q17-328X	B17-328X	
200K		2, A	Q11-129	B11-129	
250K		2, A	Q11-130	B11-130	M11-130
250K		3, C	Q13-130	B13-130	M13-130
250K	60K	44, H	Q18-130X	B18-130X	
250K	125K	12, S	Q13-130X	B13-130X	
250K	60K, 120K	46, S	Q18-130XX	B18-130XX	
300K		2, A	Q11-131	B11-131	
350K		2, A	Q11-132	B11-132	
350K		3, C	Q13-132	B13-132	
350K	35K	14, S	Q17-132X	B17-132X	
350K	75K	30, H	Q18-132X	B18-132X	
500K		2, A	Q11-133	B11-133	M11-133
500K		3, C	Q13-133	B13-133	M13-133
500K		23, D	Q14-133	B14-133	
500K		4, Q	Q17-133	B17-133	
500K	25K	40, S	Q17-133X	B17-133X	
500K	50K	13, S	Q18-133X	B18-133X	
500K	125K	44, H	Q13-133X	B13-133X	
500K	250K	12, S	Q19-133X	B19-133X	
500K	100K, 200K	35, S	Q18-133XX	B18-133XX	
600K		2, A	Q11-134	B11-134	
750K		2, A	Q11-136	B11-136	
1 meg		2, A	Q11-137	B11-137	M11-137
1 meg		3, C	Q13-137	B13-137	M13-137
1 meg		23, D	Q14-137	B14-137	
1 meg		4, Q	Q17-137	B17-137	
1 meg	35K	22, S	Q17-137X	B17-137X	
1 meg	100K	13, S	Q18-137X	B18-137X	
1 meg	250K	44, H	Q13-137X	B13-137X	
1 meg	500K	32, S	Q19-137X	B19-137X	
1 meg	500K	32, S	Q19-137X	B19-137X	
1 meg	50K, 100K	36, S	Q17-137XX	B17-137XX	
1 meg	250K, 500K	18, S	Q18-137XX	B18-137XX	
1.5 megs		2, A	Q11-138	B11-138	
1.5 megs	250K	20, S	Q13-138X	B13-138X	
2 megs		2, A	Q11-139	B11-139	M11-139
2 megs		3, C	Q13-139	B13-139	M13-139
2 megs		4, Q	Q17-139	B17-139	
2 megs	50K	22, S	Q19-139X	B19-139X	
2 megs	150K	37, H	Q17-139X	B17-139X	
2 megs	500K	44, H	Q13-139X	B13-139X	
2 megs	1 meg	12, S	Q18-139X	B18-139X	
2 megs	250K, 500K	43, S	Q18-139XX	B18-139XX	
2 megs	500K, 1 meg	18, S	Q13-139XX	B13-139XX	
2.5 megs		2, A	Q11-239	B11-239	
3 megs		2, A	Q11-140	B11-140	
3 megs		3, C	Q13-140	B13-140	M13-140
3 megs		4, Q	Q17-140	B17-140	M17-140
3 megs	900K	47, S	Q13-140X	B13-140X	
3 megs	1.5 megs	12, S	Q18-140X	B18-140X	
5 megs		2, A	Q11-141	B11-141	M11-141
5 megs		6, S	Q12-141	B12-141	
5 megs		3, C	Q13-141	B13-141	
5 megs		4, Q	Q17-141	B17-141	
7.5 megs		2, A	Q11-142	B11-142	
10 megs		2, A	Q11-143	B11-143	M11-143

See Following Page For Additional Q Parts and Accessories





# CTS-IRC Military Resistors

## MIL-R-94B COMPOSITION VARIABLE RESISTORS

Certified for MIL-R-94B and available in common shaft lengths and values. **Rotational Life:** 10% max., 25,000 cps. **Load Life:** 12% max., 1000 hours, rated load, 70° C. **Moisture Resistance:** 10% average, 14% max., Method 106 MIL-STD-202, 50 megs. min. insulation resistance. **Low Temperature, Storage and Operation:** 4% max. **Thermal Cycling:** 10% max. **Acceleration:** 3% max. **Shock and Vibration:** 2% max. **Temperature Range:** -63° C to +150° C.

### TYPE 65 1/2-WATT MINIATURE STYLE RV5

**Type 65:** Linear resistance taper; 3/8" slotted shaft with 1/4" lg. bushing. **Type 65LT:** Linear resistance taper; 3/8" slotted shaft with 3/8" lg. locking bushing.

Ohms ±10%	CTS Type 65 RV5NA XSD- or RV5NAYSD-	CTS Type 65LT RV5LA XSB- or RV5LAYSB-	Ohms ±10%	CTS Type 65 RV5NA XSD- or RV5NAYSD-	CTS Type 65LT RV5LA XSB- or RV5LAYSB-
250	251A	251A	50,000	503A	503A
500	501A	501A	100,000	104A	104A
1,000	102A	102A	250,000	254A	254A
2,500	252A	252A	500,000	504A	504A
5,000	502A	502A	1.0 meg.*	105B	105B
10,000	103A	103A	2.5 meg.*	255B	255B
25,000	253A	253A			

### TYPE 90 1-WATT STYLE RV2

**Type 90:** Linear resistance taper; 3/4" slotted shaft with 3/8" lg. bushing. **Type 90LT:** Linear resistance taper; 3/4" slotted shaft with 3/8" lg. locking bushing.

Ohms ±10%	CTS Type 90 RV2NA XSD- or RV2NAYSD-	CTS Type 90LT RV2LA XSA- or RV2LAYSA-	Ohms ±10%	CTS Type 90 RV2NA XSD- or RV2NAYSD-	CTS Type 90LT RV2LA XSA- or RV2LAYSA-
100	101A	101A	25,000	253A	253A
250	251A	251A	50,000	503A	503A
500	501A	501A	100,000	104A	104A
1,000	102A	102A	250,000	254A	254A
2,500	252A	252A	500,000	504A	504A
5,000	502A	502A	1.0 meg.*	105B	105B
10,000	103A	103A	2.5 meg.*	255B	255B
25,000	253A	253A			

### TYPE 96 2-WATT STYLE RV4

**Type 96:** Linear resistance taper; 3/4" slotted shaft with 3/8" lg. bushing. **Type 96LT:** Linear resistance taper; 3/4" slotted shaft with 3/8" lg. locking bushing.

Ohms ±10%	CTS Type 96 RV4NAYSD-	CTS Type 96LT RV4LAYSA-	Ohms ±10%	CTS Type 96 RV4NAYSD-	CTS Type 96LT RV4LAYSA-
100	101A	101A†	50,000	503A	503A†
250	251A	251A†	100,000	104A	104A†
500	501A	501A†	250,000	254A	254A†
1,000	102A	102A†	500,000	504A	504A†
2,500	252A	252A†	1.0 meg.	105A	105A†
5,000	502A	502A†	1.0 meg.*	105B	105B
10,000	103A	103A†	2.5 meg.*	255B	255B
25,000	253A	253A†	5.0 meg.*	505B	505B

\* = 20%. † Also available with 3/8" slotted shaft; use prefix RV4LAYSD- to order.

### TYPE 300 1/2-WATT MINIATURE STYLE RV6

**Type 300:** Linear resistance taper; 3/4" slotted shaft; 1/4" lg. bushing. **Type 300LT:** Linear resistance taper; 3/4" slotted shaft; 1/4" lg. locking bushing.

Ohms ±10%	CTS Type 300 RV6NAYSD-	CTS Type 300LT RV6LAYSA-
100	101A	101A
250	251A	251A
500	501A	501A
1,000	102A	102A
2,500	252A	252A
5,000	502A	502A
10,000	103A	103A
25,000	253A	253A
50,000	503A	503A
100,000	104A	104A
250,000	254A	254A
500,000	504A	504A
1.0 meg.*	105B	105B
2.0 meg.*	205B	205B
2.5 meg.*	255B	255B

\* = 20%.

### TYPE 321 2-WATT INDUSTRIAL MIL GRADE RV4 (NOT ILLUS.)

Not Certified. **Type 321:** Linear resistance taper; 2" plain shaft; 3/8" lg. bushing.

**Type 321LT:** Linear resistance taper; 3/4" slotted shaft; 3/8" lg. locking bushing.

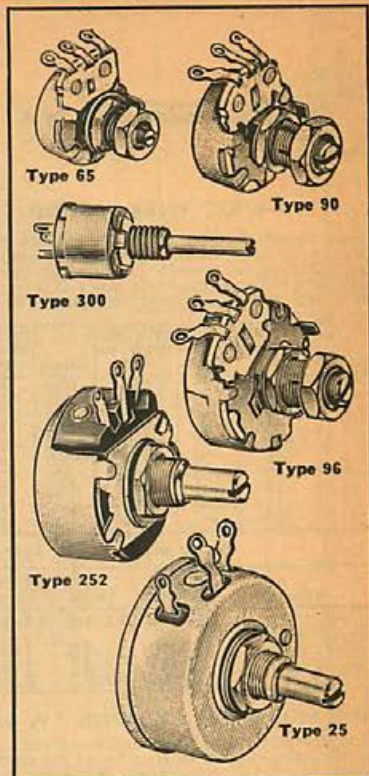
#### STOCK VALUES

Ohms ±10%	CTS Type 321 Number	CTS Type 321LT Number
250	321S251A	321LT251A
500	321S501A	321LT501A
1,000	321S102A	321LT102A
2,500	321S252A	321LT252A
5,000	321S502A	321LT502A
10,000	321S103A	321LT103A
25,000	321S253A	321LT253A
50,000	321S503A	321LT503A
100,000	321S104A	321LT104A
250,000	321S254A	321LT254A
500,000	321S504A	321LT504A
1.0 meg.*	321S105B	321LT105B
2.5 meg.*	321S255B	321LT255B

\* = 20%.

#### PRICING

CTS-IRC Series	Net Each, Lots of				
	1-9	10-24	25-49	50-99	100-249
321	\$1.76	\$1.63	\$1.47	\$1.40	\$1.30
321LT	2.03	1.88	1.70	1.62	1.50



## MIL-R-19A VARIABLE WIRE-WOUND RESISTORS

Certified for MIL-R-19A and available in common shaft lengths and values. **Rotational Life:** 5% max., 25,000 cps. **Load Life:** 3% max., 1000 hours rated load, 40° C. **Moisture Resistance:** 10% max., Method 106, MIL-STD-202, 3.5 megs. min. insulation resistance. **Low Temperature, Storage and Operation:** 4% max. **Thermal Cycling:** 4% max. **Acceleration:** 3% max. **Shock and Vibration:** 2% max. **Temperature Range:** -63° C to +105° C.

### TYPE 252 2-WATT STYLE RA20

**Type 252:** Linear resistance taper; 3/4" slotted shaft with 3/8" long bushing. **Type 252LT:** Linear resistance taper; 3/4" slotted shaft with 3/8" lg. locking bushing.

Resistance, Ohms ±10%	CTS Type 252 Number RA20NASD-	CTS Type 252LT Number RA20LASB-	Resistance, Ohms ±10%	CTS Type 252 Number RA20NASD-	CTS Type 252LT Number RA20LASB-
3	3R0A	3R0A†	500	501A	501A†
10	100A	100A†	1,000	102A	102A†
25	250A	250A†	2,500	252A	252A†
50	500A	500A†	5,000	502A	502A†
75	750A	750A†	7,500	752A	752A†
100	101A	101A†	10,000	103A	103A†
200	201A	201A†	15,000	153A	153A†
250	251A	251A†			

† Also available with 3/4" slotted shaft; use prefix RA20LASD- to order.

### TYPE 25 4-WATT STYLE RA30

**Type 25:** Linear resistance taper; 3/4" slotted shaft with 3/8" lg. bushing. **Type 25LT:** Linear resistance taper; 3/4" slotted shaft with 3/8" lg. locking bushing.

Ohms ±10%	CTS Type 25 RA30NASD-	CTS Type 25LT RA30LASB-	Ohms ±10%	CTS Type 25 RA30NASD-	CTS Type 25LT RA30LASB-
10	100A	100A	1,000	102A	102A
25	250A	250A	2,500	252A	252A
50	500A	500A	5,000	502A	502A
100	101A	101A	7,500	752A	752A
200	201A	201A	10,000	103A	103A
250	251A	251A	15,000	153A	153A
500	501A	501A	25,000	253A	253A
750	751A	751A			

#### PRICING INFORMATION

CTS-IRC Series	MIL Style	Net Each, Lots of					
		1-24	25-34	35-49	50-64	65-99	100-249
65	RV6NAXSD	\$3.00	\$2.58	\$2.05	\$1.66	\$1.45	\$1.20
65	RV6NAYSDB	3.00	2.61	2.08	1.69	1.48	1.23
65LT	RV6LAYSB	3.00	2.66	2.13	1.74	1.52	1.28
65LT	RV6LAYSB	3.00	2.66	2.16	1.77	1.55	1.31
90	RV2NAXSD	3.00	2.63	2.10	1.71	1.50	1.25
90	RV2NAYSDB	3.00	2.66	2.13	1.74	1.53	1.28
90LT	RV2LAXSA	3.00	2.71	2.18	1.79	1.58	1.33
90LT	RV2LAYSA	3.00	2.74	2.21	1.82	1.60	1.35
96	RV4NAYSDB	1.95	1.71	1.35	1.11	1.00	0.85
96LT	RV4LAYSA	2.55	2.21	1.85	1.51	1.35	1.15
96LT	RV4LAYSDB	2.55	2.21	1.88	1.54	1.38	1.18
300	RV6NAYSDB	4.05	3.80	3.80	3.10	3.10	2.24
300LT	RV6LAYSB	4.13	3.88	3.88	3.18	3.18	2.32
252	RA20NASD	3.00	2.54	2.01	1.62	1.41	1.16
252LT	RA20LASB	3.00	2.62	2.09	1.70	1.49	1.24
252LT	RA20LASD	3.00	2.62	2.09	1.70	1.49	1.24
25	RA30NASD	3.00	2.72	2.19	1.80	1.59	1.34
25LT	RA30LASB	3.00	2.80	2.27	1.88	1.67	1.42



# Controls and Resistors

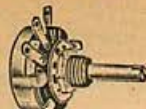
## CENTRALAB CONTROLS



WW



WN



JMP, JWP



JML, JWL

### 5-WATT WIRE-WOUND CONTROLS

Packs 5-watt capacity into a 2-watt size unit; linear taper, 1 1/4" diam. x 3/4" deep. Model WW has full round aluminum shaft 1/4" dia. x 3" long. Model WN has fingertip knurled, slotted shaft 1/4" diam. x 3 1/4" long. Breakdown, 900 v. AC rms to ground. Specify by using WN or WW as prefix. Shipping Weight, 4 oz.

Ohms	CRL No. WW- or WN-	Ohms	CRL No. WW- or WN-	Ohms	CRL No. WW- or WN-	Ohms	CRL No. WW- or WN-
1	010	25	250	400	401	7500	752
2	020	30	300	500	501	10K	103
3	030	40	400	750	751	15K	153
4	040	50	500	1000	102	20K	203
5	050	60	600	1500	152	25K	253
6	060	75	750	2000	202	30K	303
8	080	100	101	2500	252	40K	403
10	100	200	201	3000	302	50K	503
15	150	250	251	4000	402	75K	753
20	200	300	301	5000	502	100K	104

### INDUSTRIAL NET PRICES

Values	Net Each, Lots of				
	1-9	10-24	25-49	50-99	100-249
1-7500 ohms	\$1.32	\$1.19	\$1.10	\$1.05	\$0.99
10K, 15K, 20K, 25K, 30K	1.59	1.43	1.33	1.26	1.19
40K, 50K	2.01	1.81	1.68	1.59	1.51
75K, 100K	2.46	2.22	2.05	1.95	1.85

### MINIATURE WIRE-WOUND 1/2-WATT CONTROLS

Rugged quality for military and industrial uses. Meet MIL-R-19A specifications. Conservatively rated 1 1/2 watts at 40° C; derate to 0 watt at 125° C. Breakdown, 900 volts AC rms at atmospheric pressure. Enclosed resistance element permits further sealing or encapsulation. Resistance tolerance, ±5%. Linear taper. Left side locating lug. Mechanical rotation, 250° ±3°. Only 1/4" dia. With mounting nut and lockwasher. Model JWP: Plain type with stainless steel, screwdriver slotted shaft 1/4" dia. x 3/4" lg. from mounting surface. Bushing, 1/4"-32 NEF-2A threaded x 1/4" long. Model JWL: Same, but shaft is 1/2" lg. from mounting surface and bushing is 3/4" lg. Shaft locking nut supplied.

Ohms	Model JWP		Model JWL		Net Each, Lots of				
	CRL No.	CRL No.	1-9	10-24	25-49	50-99	100-249		
50	JWP-500	JWL-500	\$6.60	\$5.94	\$5.50	\$5.23	\$4.95		
100	JWP-101	JWL-101	6.60	5.94	5.50	5.23	4.95		
200	JWP-201	JWL-201	6.60	5.94	5.50	5.23	4.95		
300	JWP-301	JWL-301	6.60	5.94	5.50	5.23	4.95		
500	JWP-501	JWL-501	6.60	5.94	5.50	5.23	4.95		
750	JWP-751	JWL-751	6.60	5.94	5.50	5.23	4.95		
1000	JWP-102	JWL-102	7.80	7.02	6.50	6.18	5.85		
1500	JWP-152	JWL-152	7.80	7.02	6.50	6.18	5.85		
2000	JWP-202	JWL-202	7.80	7.02	6.50	6.18	5.85		
2500	JWP-252	JWL-252	7.80	7.02	6.50	6.18	5.85		
3000	JWP-302	JWL-302	7.80	7.02	6.50	6.18	5.85		
4000	JWP-402	JWL-402	7.80	7.02	6.50	6.18	5.85		
5000	JWP-502	JWL-502	7.80	7.02	6.50	6.18	5.85		
7500	JWP-752	JWL-752	7.80	7.02	6.50	6.18	5.85		
10K	JWP-103	JWL-103	9.00	8.10	7.50	7.13	6.75		
15K	JWP-153	JWL-153	9.00	8.10	7.50	7.13	6.75		
20K	JWP-203	JWL-203	9.00	8.10	7.50	7.13	6.75		
25K	JWP-253	JWL-253	9.00	8.10	7.50	7.13	6.75		
30K	JWP-303	JWL-303	9.60	8.64	8.00	7.60	7.20		

## IRC METAL GLAZE SEMI-PRECISION MIL-R-22684A RESISTORS



Unique thick-film resistance element of glass and precious metal alloys fused to crystalline ceramic core gives economical, stable and reliable performance; significantly better than MIL-R-11 units. High performance features include excellent load life and temperature coefficient characteristics. Average resistance change is less than 0.6% after 1000 hours, full load at 70° C. Metal glaze film up to 100 times thicker than conventional films for rugged performance against high temperatures and overloads. Power density is twice that of comparable carbon composition types. Tested to five million unit hours to MIL-R-22684A requirements. Temperature coefficient, +150 ppm/°C average. Moisture resistance, ±0.11%. Temperature cycling, ±0.05%. Short time overload, ±0.11%. Low temperature operation, ±0.03%. Dielectric withstanding voltage, ±0.02%. Shock and vibration, ±0.03%. Tolerance ±2% (G) or ±5% (J). Type L07: MIL style RL07, Char. AD. Rated 1/2 watt at 70° C ambient; 250 v. max. continuous. Size: 250 lg. x .090" O.D. Type L20: MIL style RL20, Char. AD. Rated 1/2 watt at 70° C ambient; 350 v. max. continuous. Size: .375" lg. x .138" O.D.

### INDUSTRIAL NET PRICES

IRC Type	Tol.	Resistance Range, Ohms*	Net Each, Lots of				
			1-99	100-249	250-499	500-999	1000-4999
L07	±2%	51-150K	\$0.37	\$0.26	\$0.18	\$0.15	\$0.145
	±5%	51-150K	.29	.22	.16	.14	.125
L20	±2%	51-150K	.30	.24	.18	.15	.09
		151K-470K	.34	.26	.21	.17	.099
	±5%	51-150K	.25	.20	.15	.09	.065
		151K-470K	.28	.22	.17	.12	.095

### \*STANDARD VALUES

Standard values in one decade. For other decades multiply by 10, 100, etc.

51	75	110	160	240	360
56	82	120	180	270	390
62	91	130	200	300	430
68	100	150	220	330	470

### 1/5-WATT COMPOSITION CONTROLS

Meet MIL-R-94B requirements. Element completely enclosed, permitting further sealing or encapsulation. Linear taper. Rated 1/5 watt at 70° C; derate to 0 watt at 120° C. Resistance tolerance, ±10%. Breakdown, 900 volts AC rms to ground at atmospheric pressure. Only 1/4" dia. Model JMP: Stainless steel, screwdriver-slotted shaft 1/4" dia. x 3/4" lg. from mounting surface. Left side locating lug. Mechanical rotation, 260° ±3°. Bushing, 1/4"-32 NEF-2A threaded x 1/4" lg. from mounting surface; with mounting nut and lockwasher. Model JML: Same as above, except shaft is 1/2" long from mounting surface and bushing is 3/4" lg. from mounting surface with shaft-locking nut supplied.

Ohms	Stock Values Model JMP		Stock Values Model JML	
	CRL No.	MIL-R-94B Number	CRL No.	MIL-R-94B Number
500	JMP-501	RV1NAXSD501A	JML-501	RV1LAXSB501A
1000	JMP-102	RV1NAXSD102A	JML-102	RV1LAXSB102A
1500	JMP-152	RV1NAXSD152A	JML-152	RV1LAXSB152A
2500	JMP-252	RV1NAXSD252A	JML-252	RV1LAXSB252A
5000	JMP-502	RV1NAXSD502A	JML-502	RV1LAXSB502A
7500	JMP-752	RV1NAXSD752A	JML-752	RV1LAXSB752A
10K	JMP-103	RV1NAXSD103A	JML-103	RV1LAXSB103A
10K	JMP-2103*	RV1NAXSD103A	JML-253	RV1LAXSB253A
25K	JMP-253	RV1NAXSD253A	JML-503	RV1LAXSB503A
50K	JMP-503	RV1NAXSD503A	JML-104	RV1LAXSB104A
100K	JMP-104	RV1NAXSD104A	JML-254	RV1LAXSB254A
250K	JMP-254	RV1NAXSD254A	JML-504	RV1LAXSB504A
500K	JMP-504	RV1NAXSD504A	JML-504	RV1LAXSB504A
500K	JMP-504*	RV1NAXSD504A	JML-105	RV1LAXSB105A
1 meg.	JMP-105	RV1NAXSD105A	JML-105	RV1LAXSB105A
2500K	JMP-255	RV1NAXSD255A	JML-255	RV1LAXSB255A

\*Audio taper C2.

### MODELS JMP AND JML INDUSTRIAL NET PRICES

All Values CRL Type	Net Each, Lots of				
	1-9	10-24	25-49	50-99	100-249
JMP	\$3.60	\$3.24	\$3.00	\$2.85	\$2.70
JML	3.90	3.51	3.25	3.09	2.93

### KNOBES FOR SERIES JM AND JW

Knobs have pointer, are 1/4" dia. Specify color desired: KC-3, black; KC-4, white; KC-5, red.

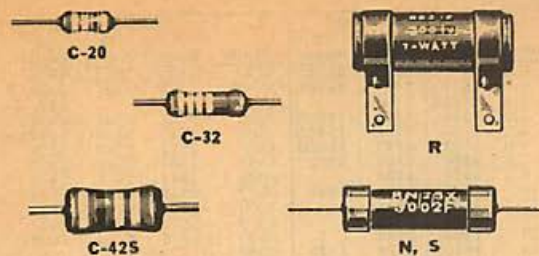
KC Knobs	Net Each, Lots of				
	1-9	10-24	25-49	50-99	100-249
	30c	27c	25c	24c	23c

NOTE: Items requiring certified test data and government source inspection are special; prices and information supplied upon request.

FOR THE LATEST DEVELOPMENTS IN SWITCH ENGINEERING, ALWAYS SPECIFY CENTRALAB. RELIABLE COMPONENTS, FLEXIBLE DESIGN, AND CONVENIENT KIT PUT-UPS MAKE PROTOTYPE CONSTRUCTION EASY.



# CORNING Resistors



## TYPES H AND R POWER RESISTORS

Outstanding performance under shock and moisture. Tin oxide film fused to Corning glass core at red heat. Silver metallized termination bands at ends; special silicone base paint. TYPE H: High frequency, non-inductive type for use in dummy antennas, circuit loading, damping and terminating. Dissipation may be increased by forced air cooling. TYPE R: Non-reactive high power type for computers, power supplies and other precision gear. Combine high moisture resistance with high overload capacity. Meet MIL-R-11804D specifications. **Voltage Coefficient:** 0.001% per volt, average. **Temperature Coefficient:** Less than  $\pm 500$  ppm per  $^{\circ}\text{C}$  in  $-55^{\circ}\text{C}$  to  $+235^{\circ}\text{C}$  range. **Load Life:** 3% resistance change after 500 hours at max. dissipation,  $40^{\circ}\text{C}$ . Type H. Less than 5% after 1000 hours at rated dissipation, Type R. **Moisture Resistance:** Exceeds MIL-R-11804D. **Resistance Values:** Per MIL-R-11804D decade table only. **Standard Tolerance:**  $\pm 5\%$ ; write for prices on  $\pm 1\%$ ,  $\pm 2\%$  and  $\pm 10\%$ . **Size:**  $1\frac{1}{2}''$  lg. x  $1\frac{1}{2}''$  dia. max., R31 and H31;  $3''$  lg. x  $1\frac{1}{2}''$  dia. max., R33 and H33;  $4''$  lg. x  $1\frac{1}{2}''$  dia. max., R35 and H35;  $6''$  lg. x  $1\frac{1}{2}''$  dia. max., R37 and H37;  $12''$  lg. x  $1\frac{1}{2}''$  dia. max., R39 and H39.

Corning No.	Watts at 25°C	Resistance Range, Ohms	Volts	Net Each, Lots of			
				1-9	10-49	50-99	100-249
H31	7*	1001-70K	625	5.08	4.35	3.63	\$2.47
	H33	15*	1001-70K	1380	5.43	4.65	3.88
71K-150K			5.60	4.80	4.00	2.72	
H35	30*	1001-70K	2275	6.37	5.46	4.55	3.09
		71K-150K	6.55	5.61	4.68	3.18	
		151K-30K	6.76	5.79	4.83	3.28	
		301K-500K	7.00	6.00	5.00	3.40	
H37	70*	1001-70K	3675	8.40	7.20	6.00	4.08
		71K-150K	9.07	7.77	6.48	4.40	
		151K-300K	9.24	7.92	6.60	4.49	
		301K-500K	9.45	8.10	6.75	4.59	
H39	140*	71K-150K	7875	14.46	12.39	10.33	7.02
		151K-300K	14.07	12.06	10.05	6.83	
		301K-500K	13.86	11.88	9.90	6.73	
		501K-1 meg	16.17	13.86	11.55	7.85	
R31†	7	10-100	525	5.78	4.95	4.13	2.81
		101-1000	4.90	4.20	3.50	2.38	
R33†	13	30-100	1380	6.13	5.25	4.38	2.98
		101-1000	5.25	4.50	3.75	2.55	
R35†	25	20-100	2275	7.14	6.12	5.10	3.47
		101-1000	5.92	5.07	4.23	2.87	
R37†	55	20-100	3675	10.99	9.42	7.85	5.34
		101-1000	8.47	7.26	6.05	4.11	
R39†	115	40-100	7875	19.08	16.35	13.63	9.27
		101-1000	14.25	12.21	10.18	6.92	
		1001-70K	14.46	12.39	10.33	7.02	

\*AC watts at  $40^{\circ}\text{C}$ . †MIL type RD31P, RD33P, RD35P, RD37P and RD39P respectively.

## TYPE N METAL-OXIDE FILM RESISTORS

### NON-INSULATED TYPES

Small, economical units meet MIL-R-10509B. Characteristic X (non-insulated units). Made by bonding rugged metallic oxide film into the skin of Pyrex brand glass rod at red heat. Extremely stable; inherently impervious to moisture; unaffected by heat of solder, overloads or normal production handling. Moisture-resistant varnish baked on; withstands chlorinated hydrocarbon solvents used in cleaning flux from printed circuit boards. **Voltage Coefficient:** Less than 0.001% per volt. **Temperature Coefficient:**  $\pm 0.25\%$  per  $^{\circ}\text{C}$ , measured over temperature range of  $-55^{\circ}\text{C}$  to  $+140^{\circ}\text{C}$  is guaranteed. **Load Life:** Less than 0.35% resistance change after 1000 hours at rated wattage. Change guaranteed less than 1%. **Noise Level:** 0.1  $\mu\text{V}$  per volt of applied signal. **Standard Tolerance:**  $\pm 1\%$ ; other tolerances available as noted. **Size:**  $355''$  lg. x  $131''$  dia., N12;  $594''$  lg. x  $172''$  dia., N20;  $938''$  lg. x  $297''$  dia., N25;  $2.062''$  lg. x  $1.27''$  dia., N30; Leads  $1\frac{1}{2}''$  long.

No.	MIL Type RN-	W	Resistance Range, Ohms	V	Net Each, Lots of*				
					1-24	25-99	100-249	250-499	500-1000
N12	20X	$\frac{1}{4}$	100-133K	250	\$0.72	\$0.38	\$0.31	\$0.23	\$0.18
			10-49.9	350	1.72	0.38	0.31	0.23	0.18
			50-499	60	0.32	0.24	0.15	0.13	0.11
N25	25X	1	10-99.9	500	1.05	0.53	0.41	0.28	0.22
			100-1.5 meg	60	0.90	0.48	0.35	0.22	0.19
N30	30X	2	30-199.9	750	1.35	0.72	0.54	0.35	0.29
			200-4.2 meg	750	1.08	0.57	0.43	0.29	0.27

\*For  $\pm 0.5\%$  tol., add 40% to above prices; for  $\pm 2\%$  tol., discount 10% from above prices. Add 10% for non-standard values. †For resistance values, consult a MIL-BELL decade table.

## TYPE NA METAL-OXIDE FILM RESISTORS

Meets requirements of MIL-R-10509E. Characteristic D. Built-in reliability through continuous tin oxide fusing process and quality monitoring; unaffected by overloads and thermal shocking. **Frequency Characteristic:** Non-inductive. **Temperature Coefficient:**  $\pm 0.01\%$  per  $^{\circ}\text{C}$ , or 100 ppm over range of  $-55^{\circ}\text{C}$  to  $+165^{\circ}\text{C}$  on NA55, NA60 and NA65;  $\pm 0.02\%$  per  $^{\circ}\text{C}$  or 200 ppm on NA70. **Load Life:** Less than 0.5% in accordance with MIL-R-10509E. **Shelf Life:** One year shows  $\Delta R$  of less than 0.1%. **Insulation Resistance:**  $1 \times 10^{11}$  megohms. **Standard Tolerance:**  $\pm 1\%$ . **Size:** NA55,  $0.281''$  lg. x  $0.090''$  dia.; NA60,  $0.406''$  lg. x  $0.145''$  dia.; NA65,  $0.625''$  lg. x  $0.215''$  dia.; NA70,  $0.750''$  lg. x  $0.287''$  dia.

Corning No.	MIL Type	Resis. Range, Ohms	V	Net Each, Lots of				
				1-24	25-99	100-199	200-999	1000-9999
NA55	RN65D	51-150K	250	\$0.95	\$0.41	\$0.19	\$0.17	\$0.12
NA60	RN60D	10-49.9	300	0.99	0.46	0.32	0.24	0.19
		50-249K	300	0.73	0.27	0.13	0.10	0.08
NA65	RN65D	10-49.9	350	0.99	0.46	0.32	0.24	0.19
		50-499K	350	0.73	0.27	0.13	0.10	0.08
NA70	RN70D	51-1 meg	500	0.75	0.30	0.16	0.12	0.10

## TYPE C METAL-OXIDE FILM RESISTORS

Long life operation; low temp. coefficient and noise level. Solvent-resistant insulating coating meets MIL-R-22684A (Navy) requirements. **Voltage Coefficient:** 0.001% per volt. **Temperature Coefficient:**  $\pm 200$  ppm guaranteed,  $-55^{\circ}\text{C}$  to  $+150^{\circ}\text{C}$ . **Load Life:** Typical change, less than 1% after 1000 hours; C20 and C32 guaranteed less than 2%; C42 less than 3%. **Noise Level:** 0.1  $\mu\text{V}$  per volt applied signal. **Insulation Dielectric:** Withstands a  $\sqrt{V}$  per volt applied signal. **Moisture Resistance:** Typical resistance change after 240 hours in accordance with MIL-R-22684A and MIL-STD-202, Method 106, 0.3%. Guaranteed less than 1.5% for C-20 and C-32, 2% for C-42. **Resistance Values:** MIL-R-22684A and EIA STD GEN 102 values only. **Standard Tolerance:**  $\pm 2\%$  and  $\pm 5\%$ . **Size:** C-07,  $0.250''$  lg. x  $0.090''$  dia.; C-20,  $0.375''$  lg. x  $0.138''$  dia.; C-32,  $0.562''$  lg. x  $0.190''$  dia.; C-42,  $0.688''$  lg. x  $0.318''$  dia. Leads,  $1\frac{1}{2}''$  long; copper leads are standard on all C styles.

Corning No.	MIL Type	W	Resis. Range, Ohms	Tol.	Net Each, Lots of				
					1-24	25-99	100-199	200-999	1000-9999
C-07	RL07	$\frac{1}{4}$	51-150K	2%	\$0.352	\$0.269	\$0.234	\$0.135	\$0.112
				5%	0.305	0.223	0.185	0.117	0.097
C-20	RL20	$\frac{1}{2}$	10-51	2%	\$0.329	\$0.259	\$0.201	\$0.169	\$0.119
				5%	0.320	0.250	0.195	0.120	0.108
				5%	0.300	0.240	0.180	0.150	0.090
				5%	0.250	0.200	0.150	0.090	0.065
C-32	RL32	1	10-51	2%	0.340	0.260	0.210	0.170	0.099
				5%	0.280	0.220	0.170	0.120	0.095
				5%	0.329	0.259	0.201	0.169	0.119
				5%	0.320	0.250	0.195	0.120	0.108
C-42	RL42	2	10-1.5 meg	2%	0.300	0.275	0.225	0.160	0.118
				5%	0.200	0.142	0.120	0.090	0.057
				5%	0.300	0.275	0.225	0.160	0.118
				10%	0.200	0.142	0.120	0.090	0.057

## TYPE S HIGH TEMPERATURE RESISTORS

Meets rigid requirements of MIL-R-11804D. Characteristic P. May be used at full rating at  $130^{\circ}\text{C}$  ambient; at double rating at  $25^{\circ}\text{C}$  ambient. Made by bonding a rugged metallic oxide film into the skin of Corning glass rod at red heat. Extremely stable, impervious to moisture, and unaffected by solder heat or repeated overloads. High temperature-fungus-resistant silicone coating overall. Teflon® stand-off insulating sleeves available. **Voltage Coefficient:** Less than 0.001% per volt. **Temperature Coefficient:** Less than  $\pm 0.03\%$  per  $^{\circ}\text{C}$  in  $-55^{\circ}\text{C}$  to  $+235^{\circ}\text{C}$  range, referred to  $25^{\circ}\text{C}$ . **Load Life:** Less than 0.35% resistance change after 1000 hours operation at rated dissipation. **Noise Level:** 0.1  $\mu\text{V}$  per volt. **Resistance Values:** Standard values per MIL-R-11804-D only. **Standard Tolerance:**  $\pm 1\%$  and  $\pm 5\%$ . **Size:**  $594''$  lg. x  $172''$  dia., S20;  $938''$  lg. x  $297''$  dia., S25;  $2.062''$  lg. x  $297''$  dia., S30. **KEL-F® Endcaps for S20 Types—Net Each.....5c** **KEL-F® Endcaps for S25 or S30 Types—Net Each.....10c**

Corning No.	MIL Type	W	Resistance Range, Ohms	V	Net Each, Lots of				
					1-49	50-99	100-249	250-499	500-999
S-20	RD60P	1	10-49	350	\$1.02	\$0.93	\$0.72	\$0.68	\$0.51
S-20	RD60P	1	10-49*	350	0.96	0.88	0.68	0.64	0.48
S-20	RD60P	1	50-500K	350	0.72	0.66	0.51	0.48	0.36
S-20	RD60P	1	50-500K*	350	0.69	0.63	0.49	0.46	0.34
S-25	RD65P	2	10-99.9	500	1.05	0.96	0.74	0.70	0.52
S-25	RD65P	2	10-99.9*	500	1.02	0.93	0.72	0.68	0.51
S-25	RD65P	2	100-40K	500	0.75	0.69	0.53	0.50	0.37
S-25	RD65P	2	100-40K*	500	0.72	0.66	0.51	0.48	0.36
S-25	RD65P	2	40K-1.5 meg	500	0.87	0.80	0.62	0.58	0.43
S-25	RD65P	2	40K-1.5 meg*	500	0.84	0.77	0.59	0.56	0.42
S-30	RD70P	4	30-199.9	750	1.23	1.12	0.87	0.82	0.61
S-30	RD70P	4	30-199.9*	750	1.14	1.04	0.80	0.76	0.57
S-30	RD70P	4	200-100K	750	0.87	0.80	0.62	0.58	0.43
S-30	RD70P	4	200-100K*	750	0.81	0.74	0.57	0.54	0.40
S-30	RD70P	4	100K-4.2 meg	750	1.05	0.96	0.74	0.70	0.52
S-30	RD70P	4	100K-4.2 meg*	750	0.99	0.91	0.70	0.66	0.49

\*Tolerance  $\pm 5\%$ ; others  $\pm 1\%$ ;  $\pm 2\%$  prices upon request. ®Trademark: Teflon of DuPont; Kel-F of M. W. Kellogg Co.



# OHMITE Fixed Resistors



**BROWN DEVIL® FIXED RESISTORS**  
Wire-wound, vitreous enameled resistors, durable and rugged. Resistance Tolerance: For values 1 ohm and higher, ±5%; for 0.5 ohm, ±10%. Tinned 18-gauge leads are 1½" long.

Ohms	Stock Number			Ohms	Stock Number		
	8 Watts	12 Watts	20 Watts		8 Watts	12 Watts	20 Watts
0.5	1700A	1700A	1800A	2250	1539	1743	1828
1.0	1500	1701	1802A	2500	1540	1744	1830
1.5	1500B	1704		2750			1831
2.0	1501	1705	1802B	3000	1541	1745	1832
3.0	1502	1706	1802C	3500	1542	1746	1833
4.0	1503	1707	1802D	4000	1543	1747	1834
5.0	1504	1708	1803	4500	1544	1748	1835
7.5	1505	1709		5000	1545	1749	1836
10	1506	1711	1804	6000	1546	1750	1837
15	1508	1712		7000	1547	1751	1838
20	1509	1713		7500	1548	1752	1839
25	1510	1714	1805	8000	1549	1753	1840
30	1511	1715		8500			1754
35	1512	1716		9000	1550	1754A	1840A
40	1513	1717		10K	1551	1755	1841
50	1514	1718	1806	11K			1756
75	1515	1719	1807	12K	1552	1758	1842
100	1516	1720	1808	12.5K			1757
125	1517	1721		13.5K			1759
150	1518	1722	1809	15K	1553	1761	1843
200	1519	1723	1810	16K			1762
225	1520	1724		17.5K	1554	1763	
250	1521	1725	1811	18K			1764
300	1522	1726	1812	20K	1555	1765	1844
350	1523	1727	1813	22.5K	1556	1766	
400	1524	1728	1814	25K	1557	1767	1845
450	1525	1729		30K			1768
500	1526	1730	1815	35K			1769
600	1527	1731		40K			1770
650			1816	45K			1771
700	1528	1732	1817	50K			1772
750	1529	1733	1818	55K			1851
800	1530	1734	1819	60K			1852
900	1531	1735	1820A	65K			1853
1000	1532	1736	1821	70K			1854
1100	1533	1737		75K			1855
1200	1534	1738	1822	80K			1856
1250	1535	1739	1823	85K			1857
1500	1536	1740	1824	90K			1858
1750	1537	1741	1825	95K			1859
2000	1538	1742	1827	100K			1860

Values, Ohms*	8-Watt Brown Devils Net Each, Lots of				12-Watt Brown Devils Net Each, Lots of			
	1-9	10-24	25-99	100-249	1-9	10-24	25-99	100-249
0.5-1000	52c	44c	36c	31c	57c	48c	40c	34c
1100-5K	55c	47c	39c	33c	61c	52c	43c	37c
6K-10K	58c	49c	41c	35c	70c	60c	49c	42c
11K-20K	65c	55c	46c	38c	79c	67c	55c	47c
22.5K-40K	68c	58c	48c	41c	83c	71c	58c	50c
45K and 50K					93c	79c	65c	56c

Values, Ohms*	20-Watt Brown Devils—Net Each, Lots of			
	1-9	10-24	25-99	100-249
0.5	\$0.95	\$0.81	\$0.67	\$0.57
1-1000	.98	.88	.78	.68
1200-5K	1.00	.90	.80	.70
6K-10K	1.05	.95	.85	.75
12.5K-20K	1.10	1.00	.90	.80
25K-40K	1.15	1.05	.95	.85
45K-60K	1.20	1.10	1.00	.90
65K-80K	1.25	1.15	1.05	.95
85K-100K	1.30	1.20	1.10	.99

\*Restricted to values shown in table of stock numbers. Prices are for each unit ordered, not assortments.

3-Watt Size				5/8-Watt Size			
Ohms	Stock No.	Ohms	Stock No.	Ohms	Stock No.	Ohms	Stock No.
1.0	2712	150	2764	1.0	2822	150	2874
1.1	2713	160	2765	1.1	2823	160	2875
1.2	2714	180	2766	1.2	2824	180	2876
1.3	2715	200	2767	1.3	2825	200	2877
1.5	2716	220	2768	1.5	2826	220	2878
1.6	2717	240	2769	1.6	2827	240	2879
1.8	2718	270	2770	1.8	2828	270	2880
2.0	2719	300	2771	2.0	2829	300	2881
2.2	2720	330	2772	2.2	2830	330	2882
2.4	2721	360	2773	2.4	2831	360	2883
2.7	2722	390	2774	2.7	2832	390	2884
3.0	2723	430	2775	3.0	2833	430	2885
3.3	2724	470	2776	3.3	2834	470	2886
3.6	2725	510	2777	3.6	2835	510	2887
3.9	2726	560	2778	3.9	2836	560	2888
4.3	2727	620	2779	4.3	2837	620	2889
4.7	2728	680	2780	4.7	2838	680	2890
5.1	2729	750	2781	5.1	2839	750	2891
5.6	2730	820	2782	5.6	2840	820	2892
6.2	2731	910	2783	6.2	2841	910	2893
6.8	2732	1000	2784	6.8	2842	1000	2894
7.5	2733	1100	2785	7.5	2843	1100	2895
8.2	2734	1200	2786	8.2	2844	1200	2896
9.1	2735	1300	2787	9.1	2845	1300	2897
10	2736	1500	2788	10	2846	1500	2898
11	2737	1600	2789	11	2847	1600	2899
12	2738	1800	2790	12	2848	1800	2900
13	2739	2000	2791	13	2849	2000	2901
15	2740	2200	2792	15	2850	2200	2902
16	2741	2400	2793	16	2851	2400	2903
18	2742	2700	2794	18	2852	2700	2904
20	2743	3000	2795	20	2853	3000	2905
22	2744	3300	2796	22	2854	3300	2906
24	2745	3600	2797	24	2855	3600	2907
27	2746	3900	2798	27	2856	3900	2908
30	2747	4300	2799	30	2857	4300	2909
33	2748	4700	2800	33	2858	4700	2910
36	2749	5100	2801	36	2859	5100	2911
39	2750	5600	2802	39	2860	5600	2912
43	2751	6200	2803	43	2861	6200	2913
47	2752	6800	2804	47	2862	6800	2914
51	2753	7500	2805	51	2863	7500	2915
56	2754	8200	2806	56	2864	8200	2916
62	2755	9100	2807	62	2865	9100	2917
68	2756	10K	2808	68	2866	10K	2918
75	2757			75	2867	11K	2919
82	2758			82	2868	12K	2920
91	2759			91	2869	13K	2921
100	2760			100	2870	15K	2922
110	2761			110	2871	16K	2923
120	2762			120	2872	18K	2924
130	2763			130	2873	20K	2925

Values, Ohms*	3-Watt Brown Devils Net Each, Lots of				5/8-Watt Brown Devils Net Each, Lots of			
	1-9	10-24	25-99	100-249	1-9	10-24	25-99	100-249
1-1000	49c	42c	34c	29c	52c	44c	36c	31c
1,100-4,700	52c	44c	36c	31c	55c	47c	39c	33c
5,100-10,000	55c	47c	39c	33c	58c	49c	41c	35c
11,000-20,000					65c	55c	46c	39c

## LITTLE DEVIL® COMPOSITION RESISTORS

Can be used at full wattage ratings at 70° C (158° F) ambient temp. Feature high heat dissipation, low noise level and low voltage coefficient. Meet test requirements for MIL-R-11 characteristics in 1/4 to 2-watt sizes. Max. continuous voltage drop 150 V for 1/4 watt; 250 volts for 1/2-watt; 350 V for 3/4-watt; 500 V for 1-watt; 750 V for 2-watt units. Size: .145" l. x .062" dia., 1/4 watt; 1/8" l. x .090" dia., 1/2 watt; 3/8" l. x 1/8" dia., 3/4 watt; 1/2" l. x 1/8" dia., 1 watt; 5/8" l. x 1/4" dia., 2 watts.

STOCK RESISTORS								
All values available ±5% tol.; bold types are ±10% EIA.								
Ohms	Ohms	Ohms	Ohms	Ohms	Megs	Megs	Megs	Megs
1.0	6.8	47	330	2200	15000	0.1	0.68	4.7
1.1	7.5	51	360	2400	16000	0.11	0.75	5.1
1.2	8.2	56	390	2700	18000	0.12	0.82	5.6
1.3	9.1	62	430	3000	20000	0.13	0.91	6.2
1.5	10	68	470	3300	22000	0.15	1.0	6.8
1.6	11	75	510	3600	24000	0.16	1.1	7.5
1.8	12	82	560	3900	27000	0.18	1.2	8.2
2.0	13	91	620	4300	30000	0.20	1.3	9.1
2.2	15	100	680	4700	33000	0.22	1.5	10.0
2.4	16	110	750	5100	36000	0.24	1.6	11.0
2.7	18	120	820	5600	39000	0.27	1.8	12.0
3.0	20	130	910	6200	43000	0.30	2.0	13.0
3.3	22	150	1000	6800	47000	0.33	2.2	15.0
3.6	24	160	1100	7500	51000	0.36	2.4	16.0
3.9	27	180	1200	8200	56000	0.39	2.7	18.0
4.3	30	200	1300	9100	62000	0.43	3.0	20.0
4.7	33	220	1500	10000	68000	0.47	3.3	22.0
5.1	36	240	1600	11000	75000	0.51	3.6	
5.6	39	270	1800	12000	82000	0.56	3.9	
6.2	43	300	2000	13000	91000	0.62	4.3	

## SPECIFICATIONS AND PRICING

Prices apply to a quantity of one resistance value, one watt, one tolerance. Minimum resistance for 1/4 watt size, per MIL-R-11, 10 ohms; 1/2 watt size, 2.7 ohms.

W.	Resistance Range, Ohms	Net Each, Lots of						
		1-4	5-49	50-99	100-249	250-499	500-999	1000 Up
1/4	2.7-9.1	\$0.37	\$0.31	\$0.249	\$0.218	\$0.19	\$0.175	\$0.164
1/4	10-22 meg	.34	.28	.226	.198	.173	.159	.149
1/4	2.7-9.1	.29	.24	.154	.105	.10	.08	.068
1/4	10-22 meg	.26	.22	.14	.095	.091	.073	.062
1/2	1-2.4	.26	.22	.14	.095	.091	.073	.062
1/2	2.7-22 meg	.24	.20	.12	.075	.073	.065	.056
1	2.7-22 meg	.36	.30	.18	.125	.123	.11	.09
2	10-22 meg	.48	.40	.24	.19	.185	.175	.16

W.	Resistance Range, Ohms	Net Each, Lots of						
		1-4	5-49	50-99	100-249	250-499	500-999	1000 Up
1/4	2.7-8.2	\$0.27	\$0.22	\$0.18	\$0.156	\$0.134	\$0.123	\$0.116
1/4	10-22 meg	.24	.20	.16	.14	.122	.112	.105
1/4	2.7-8.2	.14	.12	.077				



# OHMITE Resistors



## VITREOUS ENAMELED RESISTORS

**Dividohm® Adjustable Type:** Vitreous enameled on ceramic cores with narrow strip of the wire-turns forming a contact surface for the embossed contact of a screwdriver—adjustable lug. A patented percentage of the resistance scale is stamped on the units to make it easy to set the lug at the desired value. **Fixed Resistors:** Lug type, wire-wound on ceramic cores. Wattage ratings are for use in free air.

### STOCK VALUE ORDERING NUMBERS

Ohms	Dividohm Adjustable Resistor Nos.						Fixed Resistor Nos.					
	10-Watt	25-Watt	50-Watt	75-Watt	100-Watt	160-Watt	200-Watt	25-Watt	50-Watt	100-Watt	160-Watt	200-Watt
1	1001 0360	0560 A	0769 A	0956 A	1156 A	1356 A	0200J	0400J	0600C	0700C	0900C	0900D
2	1002 0360 B	0560 B	0769 B	0956 B	1156 B	1356 B	0200K	0400K	0600D	0700D	0900D	0900E
3	1003 0361	0560 C	0769 C	0956 C	1156 C	1356 C	0200L	0400L	0600E	0700E	0900E	0900F
4	1004 0362	0560 D	0769 D	0956 D	1156 D	1356 D	0200M	0400M	0600F	0700F	0900F	0900G
5	1005 0362 B	0560 E	0769 E	0956 E	1156 E	1356 E	0200N	0400N	0600G	0700G	0900G	0900H
7.5	1006 0363	0561	0770	0957	1157	1357	0200B	0400B	0600B	0700B	0900B	0900I
10	1007 0364	0561	0771	0957	1157	1357	0200R	0400R	0600C	0700C	0900C	0900J
15	1008 0364 B	0562	0772	0958	1158	1358	0200Q	0400Q	0600D	0700D	0900D	0900K
20	1009 0365	0563	0773	0959	1159	1359	0200P	0400P	0600E	0700E	0900E	0900L
25	1010 0366	0564	0774	0960	1160	1360	0200O	0400O	0600F	0700F	0900F	0900M
50	1011 0367	0565	0775	0961	1161	1361	0200H	0400H	0600G	0700G	0900G	0900N
75	1012 0368	0566	0776	0962	1162	1362	0200I	0400I	0600H	0700H	0900H	0900O
100	1013 0369	0567	0777	0963	1163	1363	0200G	0400G	0600I	0700I	0900I	0900P
125	1014 0370	0568	0778	0964	1164	1364	0200F	0400F	0600J	0700J	0900J	0900Q
150	1015 0371	0569	0779	0965	1165	1365	0200E	0400E	0600K	0700K	0900K	0900R
200	1016 0372	0570	0780	0966	1166	1366	0200D	0400D	0600L	0700L	0900L	0900S
250	1017	0571	0781	0967	1167	1367	0200C	0400C	0600M	0700M	0900M	0900T
300	1018 0371 B	0568 B	0775 B	0960 B	1160 B	1360 B	0200A	0400A	0600A	0700A	0900A	0900U
350	1019 0372	0569	0776	0961	1161	1361	0200Z	0400Z	0600Z	0700Z	0900Z	0900V
400	1020	0570	0777	0962	1162	1362	0200Y	0400Y	0600Y	0700Y	0900Y	0900W
450	1021 0373	0570	0777	0962	1162	1362	0200X	0400X	0600X	0700X	0900X	0900X
500	1022 0374	0571	0777 B	0962	1162	1362	0200W	0400W	0600W	0700W	0900W	0900Y
600	1023 0375	0572	0778	0962	1162	1362	0200V	0400V	0600V	0700V	0900V	0900Z
750	1024 0375 B	0572 B	0778 B	0962	1162	1362	0200U	0400U	0600U	0700U	0900U	0900A
800	1025 0376	0573	0779	0962	1162	1362	0200T	0400T	0600T	0700T	0900T	0900B
1000	1026 0377	0574	0780	0962	1162	1362	0200S	0400S	0600S	0700S	0900S	0900C
1250	1027 0377 B	0574 B	0780 B	0962	1162	1362	0200R	0400R	0600R	0700R	0900R	0900D
1500	1028 0378	0575	0781	0963	1163	1363	0200Q	0400Q	0600Q	0700Q	0900Q	0900E
2000	1029 0379	0576	0781 B	0963	1163	1363	0200P	0400P	0600P	0700P	0900P	0900F
2250	1030 0380	0576 B	0782	0963	1163	1363	0200O	0400O	0600O	0700O	0900O	0900G
2500	1031 0381	0577	0782 B	0963	1163	1363	0200N	0400N	0600N	0700N	0900N	0900H
3000	1032 0381 B	0577 B	0782 C	0963	1163	1363	0200M	0400M	0600M	0700M	0900M	0900I
3500	1033 0382	0578	0783	0964	1164	1364	0200L	0400L	0600L	0700L	0900L	0900J
4000	1034 0383	0578 B	0783 B	0964	1164	1364	0200K	0400K	0600K	0700K	0900K	0900K
4500	1035 0383 B	0578 C	0783 C	0964	1164	1364	0200J	0400J	0600J	0700J	0900J	0900L
5000	1036 0384	0579	0784	0964	1164	1364	0200I	0400I	0600I	0700I	0900I	0900M
5500	1037 0384 B	0580	0784 B	0964	1164	1364	0200H	0400H	0600H	0700H	0900H	0900N
6000	1038	0581	0785	0965	1165	1365	0200G	0400G	0600G	0700G	0900G	0900O
7000	1039 0384 C	0580 B	0784 C	0965	1165	1365	0200F	0400F	0600F	0700F	0900F	0900P
8000	1040	0581	0785 B	0965	1165	1365	0200E	0400E	0600E	0700E	0900E	0900Q
8500	1041	0582	0785 B	0965	1165	1365	0200D	0400D	0600D	0700D	0900D	0900R
9000	1042	0583	0786	0966	1166	1366	0200C	0400C	0600C	0700C	0900C	0900S
10K	1043	0584	0787	0967	1167	1367	0200B	0400B	0600B	0700B	0900B	0900T
12K	1044	0585	0788	0968	1168	1368	0200A	0400A	0600A	0700A	0900A	0900U
15K	1045	0586	0789	0969	1169	1369	0200Z	0400Z	0600Z	0700Z	0900Z	0900V
20K	1046	0587	0790	0970	1170	1370	0200Y	0400Y	0600Y	0700Y	0900Y	0900W
25K	1047	0588	0791	0971	1171	1371	0200X	0400X	0600X	0700X	0900X	0900X
30K	1048	0589	0792	0972	1172	1372	0200W	0400W	0600W	0700W	0900W	0900Y
35K	1049	0589	0793	0973	1173	1373	0200V	0400V	0600V	0700V	0900V	0900Z
40K	1050	0590	0794	0974	1174	1374	0200U	0400U	0600U	0700U	0900U	0900A
45K	1051	0591	0795	0975	1175	1375	0200T	0400T	0600T	0700T	0900T	0900B
50K	1052	0592	0796	0976	1176	1376	0200S	0400S	0600S	0700S	0900S	0900C
55K	1053	0593	0797	0977	1177	1377	0200R	0400R	0600R	0700R	0900R	0900D
60K	1054	0594	0798	0978	1178	1378	0200Q	0400Q	0600Q	0700Q	0900Q	0900E
70K	1055	0595	0799	0979	1179	1379	0200P	0400P	0600P	0700P	0900P	0900F
75K	1056	0596	0800	0980	1180	1380	0200O	0400O	0600O	0700O	0900O	0900G
80K	1057	0597	0801	0981	1181	1381	0200N	0400N	0600N	0700N	0900N	0900H
100K	1058	0598	0802	0982	1182	1382	0200M	0400M	0600M	0700M	0900M	0900I
125K	1059	0599	0803	0983	1183	1383	0200L	0400L	0600L	0700L	0900L	0900J
150K	1060	0600	0804	0984	1184	1384	0200K	0400K	0600K	0700K	0900K	0900K
175K	1061	0601	0805	0985	1185	1385	0200J	0400J	0600J	0700J	0900J	0900L
200K	1062	0602	0806	0986	1186	1386	0200I	0400I	0600I	0700I	0900I	0900M
250K	1063	0603	0807	0987	1187	1387	0200H	0400H	0600H	0700H	0900H	0900N

## FIXED RESISTORS

### NEW 10-WATT TYPES

Limited space prevents full listing. Write for details; stock values and numbers. Core, 1 1/4" x 3/8"; with No. 5 brackets.

Values, Ohms	Net Each Lots of			
	1-9	10-24	25-99	100-249
.51-1000	\$0.57	\$0.48	\$0.40	\$0.34
1200-4700	.61	.52	.43	.37
5600-10K	.70	.60	.49	.42
12K-18K	.79	.67	.55	.47
22K-39K	.83	.71	.58	.50
47K-51K	.93	.79	.65	.56

### 25-WATT TYPES

Core, 2" x 1/2"; with No. 9 brackets.

Values, Ohms	Net Each Lots of			
	1-9	10-24	25-99	100-249
1-1000	\$0.72	\$0.61	\$0.50	\$0.43
1500-5000	.75	.64	.53	.45
6000-10K	.85	.72	.60	.51
12K-20K	.90	.77	.63	.54
25K-40K	1.04	.88	.73	.62
50K and 60K	1.21	1.03	.85	.73
70K and 80K	1.42	1.21	.99	.85
100K	1.64	1.39	1.15	.98

### 100-WATT TYPES

Core, 6 1/4" x 3/4"; with No. 12 brackets.

Values, Ohms	Net Each Lots of			
	1-9	10-24	25-99	100-249
1-3	\$2.16	\$1.84	\$1.51	\$1.30
4-1000	1.54	1.31	1.08	.92
1500-5000	1.60	1.36	1.12	.96
7500 and 10K	1.73	1.47	1.21	1.04
15K and 20K	1.87	1.59	1.31	1.12
25K-40K	2.13	1.81	1.49	1.28
50K and 60K	2.21	1.88	1.55	1.33
75K	2.45	2.08	1.72	1.47
100K	2.75	2.34	1.93	1.65

### 50-WATT TYPES

Core, 4" x 3/4"; with No. 9 brackets. Mounting centers, 4 3/4".

Values, Ohms	Net Each Lots of			
	1-9	10-24	25-99	100-249
1	\$1.55	\$1.32	\$1.09	\$0.93
2-1000	1.11	.94	.78	.67
1500-5000	1.14	.97	.80	.68
7500-10K	1.23	1.05	.86	.74
12K-20K	1.35	1.15	.95	.81
25K and 35K	1.54			





# Precision Resistors

±1% MOLDED AND DEPOSITED CARBON RESISTORS

## TYPE DC

Unique combination of close tolerance, stability and economy. Pure crystalline carbon bonded to selected ceramic cores; protected by exclusive epoxy M-Coat; DCF and DCH regular baked-on insulating coat. Available to MIL-R-10509 specifications. Ideal for instrumentation, advanced electronics and critical TV circuitry. Offers a wide range of values, accuracy, high stability, low voltage coefficient, excellent frequency characteristics, high voltage rating, low noise level and small size.

**Type DCC:** MIL type RN20X, rated ½-watt at 70° C amb.; 350 v. max. continuous. Size, .594" lg. x .180" dia. **Type DCF:** MIL type RN25X, rated 1-watt at 40° C amb.; 500 v. max. continuous. Size, .937" lg. x .297" dia. **Type DCH:** MIL type RN30X, rated 2 watts at 40° C amb.; 750 v. max. continuous. Size, 2.062" lg. x .297" diameter.

## TYPE DM

Low power, close tolerance resistor for high stability and economy. Red plastic insulation. Meets MIL-R-10509, RN55D specifications. Rated ¼-watt, 70° C ambient. Size, .250" lg. x .093" dia.

## TYPE MD

**Type MDA:** Rated ¼-watt. Size, .406" lg. x .130" dia. **Type MDB:** Rated ¼-watt. Size, .594" lg. x .203" dia. **Type MDC:** Rated ¼-watt. Size, .719" lg. x .261" dia. **Type MDF:** Rated 1-watt. Size, 1.105" lg. x .395" dia. **Type MDH:** Rated 2-watt. Size, 2.234" lg. x .395" dia.



IRC Type	MIL Style	Tolerance, ±1%* Range, Ohms*	Net Each, Lots of				
			1-24	25-99	100-249	250-999	1M-9999
DCC	RN20X	10 ohms—2.49 megs	\$0.54	\$0.28	\$0.21	\$0.11	\$0.095
		2.51 megs—5 megs	.75	.37	.27	.15	.13
		5.1 megs—25 megs	1.10	.80	.69	.31	.26
DCF	RN25X	10 ohms—5.11 megs	.81	.43	.31	.22	.20
		5.12 megs—10 megs	.90	.47	.36	.25	.23
		10.1 megs—50 megs	1.25	.85	.65	.43	.40
DCH	RN30X	15 ohms—10 megs	.97	.51	.38	.31	.29
		10.1 megs—50 megs	1.21	.64	.48	.36	.34
		50.1 megs—100 megs	1.98	1.25	1.03	.72	.68
DM	RN55D	10 ohms—301K ohms	1.12	.61	.44	.23	.19
MDA	RN60D	10 ohms—1 meg	.85	.44	.26	.17	.13
		1.01 megs—5 megs	1.29	.68	.48	.25	.21
MDB	RN65D	10 ohms—2 megs	.85	.44	.26	.17	.13
		2.01 megs—5 megs	1.29	.68	.48	.25	.21
MDC	RN70D	10 ohms—2.49 megs	.85	.44	.26	.17	.13
		2.5 megs—5 megs	1.03	.55	.39	.21	.17
		5.1 megs—25 megs	1.80	.96	.69	.37	.31
MDF	RN75B	10 ohms—5.11 megs	1.28	.68	.52	.31	.29
		5.12 megs—10 megs	1.42	.76	.58	.34	.32
		10.1 megs—50 megs	2.27	1.22	.93	.56	.48
MDH	RN80B	15 ohms—10 megs	1.56	.83	.64	.39	.36
		10.1 megs—50 megs	1.88	1.00	.76	.45	.41
		50.1 megs—100 megs	2.76	1.88	1.44	.90	.77

\*Available in ±0.5% tolerance on most values. †IRC trademark.

## MOLDED AND COATED, EVAPORATED METAL FILM PRECISION RESISTORS—MIL-R-10509

### MOLDED TYPES EM, ME

Combine high accuracy, reliability and stability with low and controllable temperature coefficients. Equal and surpass precision wire-wound types without the limitations of bulk, weight and poor RF performance. Designed to surpass MIL-R-10509E specifications. Stability and reliability under prolonged severe environments. Element is a metal film of controlled thickness and composition; terminals are noble metal bands integrally bonded to resistor base; leads are axial type of alloy coated copper for superior soldering. Element is molded in special moisture-resistant, high temperature plastic insulation. **Tolerance:** ±1% standard; closer tolerances available on request.

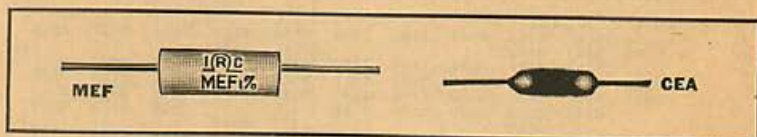
**Temperature Coefficient:** T-0, ±25 ppm/°C; T-2, ±50 ppm/°C; T-9, ±25 ppm/°C. **Voltage Coefficient:** Less than 5 ppm/volt for all values measured between 1/10 and full rated voltage; on low and medium value resistors, the coefficient is essentially zero. **Type EM:** MIL style RN55 rated 1/10-watt; 200 v. max. Size, .250" lg. x .093" dia. **Type MEA:** MIL style RN60 rated ¼-watt. Size, .406" lg. x .130" dia. **Type MEB:** MIL style RN65 rated ¼-watt. Size, .594" lg. x .203" dia. **Type MEC:** MIL style RN70 rated ¼-watt. Size, .719" lg. x .261" dia. **Type MEF:** MIL style RN75 rated 1-watt. Size, 1.105" lg. x .395" dia. **Type MEH:** MIL style RN80 rated 2-watts. Size, 2.234" lg. x .395" dia.

### MILITARY VALUE CHART

Std. military values in one decade. For other decades multiply by 0.1, 10, 100, etc.

1.00*	1.47*	2.15*	3.16*	4.64*	6.81*
1.02	1.50	2.21	3.24	4.75	6.98
1.05	1.54	2.26	3.32	4.87	7.15
1.07	1.58	2.32	3.40	4.99	7.32
1.10	1.62	2.37	3.48	5.11	7.50
1.13	1.65	2.43	3.57	5.23	7.68
1.15	1.69	2.49	3.74	5.49	8.06
1.18	1.74	2.55	3.74	5.49	8.25*
1.21*	1.78*	2.61*	3.83*	5.62*	8.45
1.24	1.82	2.67	3.92	5.76	8.66
1.27	1.87	2.74	4.02	5.90	8.87
1.30	1.91	2.80	4.12	6.04	9.09*
1.33*	1.96*	2.87*	4.22*	6.19*	9.31
1.37	2.00	2.94	4.32	6.34	9.53
1.40	2.05	3.01	4.42	6.49	9.76
1.43	2.10	3.09	4.53	6.65	

\*Preferred values.



### "M-Coat" TYPES

Essentially the same as Type ME, but with exclusive, moisture-proof, gray finish M-Coat insulation. Alloy-coated axial leads for improved solderability; gold-plated durometer leads available. Extremely low noise performance. **Voltage and Temperature Coefficients:** Same as Type ME. **Type CEA:** T-0 meets MIL style RN55D for physical size. Rated ¼-watt. Size, .312" lg. x .100" dia. **Type CEB:** MIL style RN60 rated ¼-watt. Size, .468" lg. x .109" dia. **Type CEC:** Commercial type rated

¼-watt. Size, .562" lg. x .156" dia. **Type CES:** Commercial type rated ¼-watt at 125° C.

### CAPPED TYPES

**Type CCA:** MIL style RN60 rated ¼-watt at 125° C. Size, .397" lg. x .140" dia. **Type CCB:** MIL style RN65 rated ¼-watt at 125° C. Size, .594" lg. x .185" dia. **Type CCM:** MIL style RN55 rated 1/10-watt at 125° C. Size, .250" lg. x .088" dia. **Type MMC:** MIL style RN50 rated 1/20-watt at 125° C. Size, .152" lg. x .065" dia.

IRC Type	T.C. Code	MIL Char.	Tot., ±1% Range, Ohms*	Net Each, Lots of				
				1-24	25-99	100-249	250-999	1000-9999
MMC	T-0	D	20-100K	\$2.29	\$1.89	\$1.00	\$1.00	\$0.67
	T-2	D	50-100K	3.25	2.70	1.50	1.50	1.06
EM or CCM	T-0	C	30-100K	1.12	.61	.44	.23	.19
	T-2	C	30-100K	2.20	1.15	.64	.64	.50
	T-9	E	30-100K	3.99	2.34	1.23	1.23	1.09
MEA, CCA, CEA or CEB	T-0	D	10-500K	.85	.44	.30	.17	.14
	T-2	C	30-500K	1.31	.70	.39	.39	.30
	T-9	E	30-500K	2.97	1.78	1.10	1.10	.95
MEB or CCB	T-0	D	10-1 meg	.85	.44	.30	.17	.14
	T-2	C	50-1 meg	1.31	.70	.39	.39	.30
	T-9	E	50-1 meg	2.97	1.78	1.10	1.10	.95
MEC	T-0	D	10-1.5 megs	.85	.44	.30	.17	.14
	T-2	C	24.9-1.5 megs	1.31	.70	.39	.39	.30
	T-9	E	24.9-1.5 megs	2.97	1.78	1.10	1.10	.95
CEC or CES†	T-0	D	10-1.5 megs	.54	.28	.21	.11	.095
	T-2	C	50-1.5 megs	1.31	.70	.39	.39	.30
	T-9	E	50-1.5 megs	2.97	1.78	1.10	1.10	.95
MEH	T-0	B	50-4 megs	1.27	.82	.72	.62	.43
	T-2	C	50-4 megs	2.03	1.16	.86	.86	.83
	T-9	E	50-4 megs	3.72	2.14	1.61	1.61	1.44
	T-0	B	100-10 megs	1.75	1.05	.88	.72	.58
	T-2	.....	100-10 megs	2.52	1.44	1.05	1.05	.96
	T-9	.....	100-10 megs	4.55	2.73	2.05	2.05	1.84
Add on for closer tolerance of:				0.10%	.50	.40	.25	.15
				0.25%	.35	.30	.20	.10
				0.50%	.20	.15	.10	.05

†Available in T-0 only. †IRC trademark.

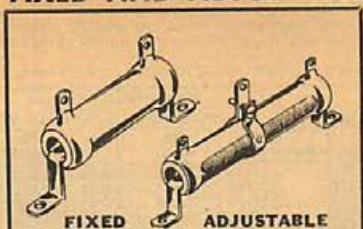




# Ward Leonard Resistors

## VITROHM® FIXED AND ADJUSTABLE RESISTORS

Vitrohm Resistors feature ceramic cores, resistance wire with a low-temperature coefficient of resistivity and a vitreous enamel coating developed by Ward Leonard for toughness, hardness, moisture and acid resistance, and good heat conductance. Terminals are tightly clamped to the core and spot-welded. Resistance wire is secured to terminal band by silver-brazing or spot welding. ADJUSTOHRM resistors are furnished with one screw-driver type adjustable band terminal. Mounting brackets furnished with all resistors, except 5F, 10F and 20F, furnished only on request. Tolerances: Fixed, ±5%; adjustable, ±10%. -5% (entire resistor less band). Stock Values On Request.



### FIXED RESISTORS (CONT'D)

Resistance Range, Ohms	Net Each, Lots of			
	1-24	25-99	100-249	250-499*
1-1000	\$2.50	\$1.74	\$1.50	\$1.25
25-1000	1.67	1.17	1.00	.83
1250-5000	1.73	1.21	1.04	.86
7500-10K	1.83	1.28	1.10	.91
15K-20K	2.01	1.40	1.20	1.00
25K-40K	2.17	1.52	1.30	1.08
50K-60K	2.51	1.76	1.51	1.26
70K-75K	2.64	1.85	1.58	1.32
100K	2.79	1.95	1.68	1.40

Resistance Range, Ohms	Net Each, Lots of			
	1-24	25-99	100-249	250-499*
1-25	\$2.80	\$1.96	\$1.68	\$1.40
50-1000	1.86	1.30	1.12	.93
1500-5000	1.93	1.35	1.16	.97
7500-10K	2.10	1.47	1.26	1.05
15K-20K	2.13	1.49	1.28	1.07
25K-40K	2.30	1.61	1.38	1.15
50K-60K	2.60	1.82	1.56	1.30
70K-80K	2.95	2.07	1.77	1.48
100K	3.25	2.28	1.95	1.63

Resistance Range, Ohms	Net Each, Lots of			
	1-24	25-99	100-249	250-499*
1-25	\$2.94	\$2.05	\$1.76	\$1.47
50-1000	1.96	1.37	1.17	.98
1500-5000	2.00	1.40	1.20	1.00
7500-10K	2.07	1.45	1.24	1.04
15K-20K	2.28	1.60	1.37	1.14
25K-40K	2.57	1.80	1.55	1.29
50K-60K	2.61	1.83	1.56	1.30
75K	2.82	2.02	1.74	1.44
100K	3.21	2.24	1.92	1.60

### ADJUSTABLE RESISTORS

Resistance Range, Ohms	Net Each, Lots of			
	1-24	25-99	100-249	250-499*
1-1000	\$1.58	\$1.11	\$0.95	\$0.73
3-1000	1.26	.89	.76	.58
1100-5000	1.30	.90	.78	.59
6000-10K	1.37	.95	.83	.63

Resistance Range, Ohms	Net Each, Lots of			
	1-24	25-99	100-249	250-499*
1-10	\$2.72	\$1.90	\$1.73	\$1.30
25-1000	2.09	1.46	1.26	.98
1250-5000	2.14	1.49	1.28	1.00
6000-10K	2.20	1.54	1.32	1.03
12K-20K	2.34	1.62	1.40	1.10
25K-40K	2.67	1.86	1.60	1.26
50K-60K	2.77	2.01	1.72	1.37
75K-80K	2.96	2.06	1.77	1.42
100K	3.20	2.24	1.92	1.54

### RESISTOR DIMENSIONS

Type	Size, in.	Mtg.
5F*	1 x 1/4	1 3/8"
10F* and 10A†	1 1/4 x 3/8	2 1/8"
20F*	2 x 3/8	2 3/8"
25F† and 25A†	2 x 3/8	2 3/8"
50F† and 50A†	4 1/2 x 3/8	5 1/8"
80A†	6 1/2 x 3/8	7 3/8"
100F† and 100A†	6 1/2 x 1 1/8	7 3/8"
160F† and 160A†	8 1/2 x 1 1/8	9 3/8"
200F† and 200A†	10 1/2 x 1 1/8	11 3/8"

\*Lugs and wire leads, †Lugs and sliding band, ‡Lug terminals.

### ADJUSTABLE RESISTORS (CONT'D)

Resistance Range, Ohms	Net Each, Lots of			
	1-24	25-99	100-249	250-499*
1-3	\$1.82	\$1.28	\$1.09	\$0.86
5-1000	1.42	1.00	.86	.67
1250-5000	1.49	1.04	.90	.70
6000-10K	1.60	1.12	.96	.75
12K-20K	1.65	1.15	1.00	.78
25K	1.77	1.24	1.07	.84

Resistance Range, Ohms	Net Each, Lots of			
	1-24	25-99	100-249	250-499*
1-15	\$3.03	\$2.13	\$1.82	\$1.45
25-1000	2.32	1.62	1.39	1.08
1250-5000	2.37	1.66	1.42	1.12
6000-10K	2.46	1.72	1.48	1.16
15K-20K	2.61	1.82	1.56	1.23
25K-40K	2.99	2.09	1.79	1.43
45K-60K	3.22	2.26	1.93	1.54
70K-80K	3.32	2.32	1.99	1.59
100K	3.60	2.51	2.16	1.72

Resistance Range, Ohms	Net Each, Lots of			
	1-24	25-99	100-249	250-499*
1-25	\$3.88	\$2.70	\$2.33	\$1.86
50-1000	2.97	2.08	1.78	1.39
1500-5000	3.03	2.12	1.82	1.43
6000-10K	3.14	2.20	1.89	1.48
15K-20K	3.34	2.33	2.00	1.58
25K-40K	3.52	2.46	2.11	1.67
50K-60K	3.89	2.73	2.34	1.87
75K	4.03	2.83	2.42	1.93
100K	4.20	2.93	2.53	2.02

Resistance Range, Ohms	Net Each, Lots of			
	1-24	25-99	100-249	250-499*
1-25	\$4.44	\$3.11	\$2.67	\$2.11
50-1000	3.41	2.38	2.05	1.59
1500-5000	3.48	2.44	2.10	1.64
6000-10K	3.67	2.57	2.21	1.73
15K-20K	3.70	2.59	2.33	1.75
25K-40K	3.89	2.72	2.34	1.84
50K-60K	4.22	2.95	2.54	2.00
75K-80K	4.61	3.23	2.77	2.20
100K	4.94	3.46	2.97	2.36

Resistance Range, Ohms	Net Each, Lots of			
	1-24	25-99	100-249	250-499*
1-50	\$4.95	\$3.46	\$2.97	\$2.34
100-1000	3.88	2.71	2.32	1.80
1500-5000	3.92	2.74	2.35	1.82
7500-10K	3.99	2.79	2.39	1.86
15K-20K	4.23	2.96	2.54	1.97
25K-40K	4.55	3.18	2.74	2.14
50K-60K	4.90	3.21	2.75	2.15
75K-100K	5.25	3.42	2.94	2.30
125K	5.67	3.66	3.14	2.48
150K	5.78	3.97	3.39	2.70

## AXIOHM® LO-WATTAGE WIRE-WOUND RESISTORS

Rugged construction has high quality ceramic core and vitreous enamel coating overall. Axial leads are hot tin dipped and permanently anchored. Ratings are based on 325° C max. "free air" temperature rise in ambient temperature not exceeding 25° C. Standard tolerance, ±5%.

W-L Type	W.	Size, In. Dia. x Lg.	Resistance, Ohms	Net Each, Lots of			
				1-24	25-99	100-249	250-499*
1X	1	1/2 x 1 1/2	1-1000	\$0.57	\$0.40	\$0.29	\$0.28
			1100-2000	.60	.42	.30	.29
			2200-3000	.71	.50	.36	.34
			3300-4300	.86	.60	.43	.41
			4700-6800	1.02	.72	.51	.49
2X	2	3/8 x 3/4	1-1000	.48	.34	.24	.23
			1100-3000	.50	.35	.25	.24
			3300-3900	.60	.56	.30	.29
			4300-5100	.72	.51	.36	.35
			1-1000	.44	.31	.24	.23
3X	3	1/2 x 1 1/2	1100-6500	.47	.33	.26	.25
			6800-9000	.60	.42	.30	.29
			10,000	.72	.50	.36	.35
			1-1000	.47	.33	.26	.25
			1100-5000	.52	.36	.29	.27
5XM	5	3/8 x 1 1/2	5600-10K	.55	.39	.30	.28
			11K-15K	.61	.43	.34	.29
			16K-20K	.79	.55	.40	.38
			22K-27K	.95	.67	.48	.46
			1-1000	.60	.42	.30	.29
10XM	10	1/2 x 1 3/4	1100-5000	.69	.48	.35	.33
			6000-10K	.72	.50	.36	.35
			11K-20K	.79	.55	.40	.38
			22.5K-45K	.86	.60	.43	.41
			50,000	1.02	.71	.51	.49

### TYPES 1X AND 2X STOCK VALUES

Ohms	Ohms	Ohms	Ohms	Ohms	Ohms	Ohms
1	13	36	91	240	560	1500
1.5	15	39	100	250	620	1600
2	16	43	110	270	680	1800
3	18	47	120	300	750	2000
4	20	51	130	330	820	2200
5	22	56	150	360	910	2400
7.5	24	62	160	390	1000	2500
10	27	68	180	430	1100	2700
11	30	75	200	470	1200	3000
12	33	82	220	510	1300	3300

### TYPES 3X, 5XM AND 10XM STOCK VALUES

1	25	100	300*	1000	3300*	8000	20,000
1.5	27*	120*	400	1100	3500	8200*	22,000†
2	30	125	450	1200	3900*	8500†	22,500†
3	33*	150	470*	1250	4000	9000	25,000
4	35	180*	500	1500	4500	10,000	27,000†
5	39†	200	560*	1750	4700*	11,000	30,000†
7.5	40	220*	600	1800*	5000	12,000	35,000†
10	47*	225	680*	2000	5600*	12,500	40,000†
12	50	250*	700	2200*	6000	13,500	45,000†
15	56*	270	750	2250	6500†	15,000	50,000†
18*	68*	300	800	2500	6800*	16,000	
20	75	330*	820*	2700*	7000	17,500	
22*	82*	350	900	3000	7500	18,000	

\*Not available in 10XM type. †Available only in 10XM type. ‡Available only in 5XM type. §Not available in 2X type.

•LARGER QUANTITY PRICES AVAILABLE ON REQUEST



# SPRAGUE

# INDUSTRIAL AXIAL-LEAD KOOLOHM® WIRE-WOUND RESISTORS



- Wound with wire which is insulated before winding with a flexible ceramic coating. Coating is impervious to heat up to 1000° C.
- "Tropicalized" by glazed ceramic coating and new type end seals.
- May be mounted anywhere—even flat against chassis or grounded parts.
- Extremely high insulation resistance—10,000 volts from surface of ceramic jacket to inner resistance elements.
- Insulated wire permits winding in layers, which means smaller physical size for each wattage rating.

Standard Type										Non-Inductive Type										PRICES, NET EACH						
Ohms	3-Watt		5-Watt		7-Watt		10-Watt		14-Watt		Ohms	3-Watt		5-Watt		7-Watt		10-Watt		14-Watt		†	1-24	25-49	50-99	100-249
	No. 450E*	No. 452E*	No. 454E*	No. 456E*	No. 458E*	No. 451E*	No. 453E*	No. 455E*	No. 457E*	No. 459E*		No. 451E*	No. 453E*	No. 455E*	No. 457E*	No. 459E*	‡	‡	‡	‡	‡					
1	1R05	1R05	21R05	11R05	15R05	15R05	27	1.5	1R55	1R55	221R55	11R55	15R55	15R55	27	2	20.366	20.248	20.230	20.212						
1.5	1R55	1R55	21R55	11R55	15R55	15R55	27	2	2R05	2R05	222R05	11R05	15R05	15R05	27	3	3.378	3.265	3.246	3.227						
2	2R05	2R05	22R05	11R05	15R05	15R05	27	3	3R05	3R05	223R05	11R05	15R05	15R05	27	4	4.380	4.266	4.247	4.228						
3	3R05	3R05	23R05	11R05	15R05	15R05	27	4	4R05	4R05	224R05	11R05	15R05	15R05	27	5	5.388	5.272	5.252	5.233						
4	4R05	4R05	24R05	11R05	15R05	15R05	27	5	5R05	5R05	225R05	11R05	15R05	15R05	27	6	6.394	6.276	6.256	6.236						
5	5R05	5R05	25R05	11R05	15R05	15R05	27	6	6R05	6R05	226R05	11R05	15R05	15R05	27	7	7.396	7.277	7.257	7.238						
7.5	7R55	7R55	27R55	11R55	15R55	15R55	27	7.5	7R55	7R55	227R55	11R55	15R55	15R55	27	8	8.408	8.287	8.265	8.245						
10	10R05	10R05	210R05	11R05	15R05	15R05	27	10	10R05	10R05	2210R05	11R05	15R05	15R05	27	9	9.418	9.293	9.271	9.251						
12	12R05	12R05	212R05	11R05	15R05	15R05	27	12	12R05	12R05	2212R05	11R05	15R05	15R05	27	10	10.420	10.294	10.273	10.252						
15	15R05	15R05	215R05	11R05	15R05	15R05	27	15	15R05	15R05	2215R05	11R05	15R05	15R05	27	11	11.426	11.298	11.277	11.256						
18	18R05	18R05	218R05	11R05	15R05	15R05	27	18	18R05	18R05	2218R05	11R05	15R05	15R05	27	12	12.432	12.302	12.281	12.259						
20	20R05	20R05	220R05	11R05	15R05	15R05	27	20	20R05	20R05	2220R05	11R05	15R05	15R05	27	13	13.438	13.307	13.285	13.263						
22	22R05	22R05	222R05	11R05	15R05	15R05	27	22	22R05	22R05	2222R05	11R05	15R05	15R05	27	14	14.440	14.308	14.286	14.264						
25	25R05	25R05	225R05	11R05	15R05	15R05	27	25	25R05	25R05	2225R05	11R05	15R05	15R05	27	15	15.442	15.309	15.287	15.265						
27	27R05	27R05	227R05	11R05	15R05	15R05	27	27	27R05	27R05	2227R05	11R05	15R05	15R05	27	16	16.444	16.311	16.289	16.266						
30	30R05	30R05	230R05	11R05	15R05	15R05	27	30	30R05	30R05	2230R05	11R05	15R05	15R05	27	17	17.451	17.318	17.295	17.272						
33	33R05	33R05	233R05	11R05	15R05	15R05	27	33	33R05	33R05	2233R05	11R05	15R05	15R05	27	18	18.458	18.324	18.299	18.275						
35	35R05	35R05	235R05	11R05	15R05	15R05	27	35	35R05	35R05	2235R05	11R05	15R05	15R05	27	19	19.462	19.327	19.299	19.274						
39	39R05	39R05	239R05	11R05	15R05	15R05	27	39	39R05	39R05	2239R05	11R05	15R05	15R05	27	20	20.466	20.329	20.299	20.273						
40	40R05	40R05	240R05	11R05	15R05	15R05	27	40	40R05	40R05	2240R05	11R05	15R05	15R05	27	21	21.468	21.330	21.299	21.272						
47	47R05	47R05	247R05	11R05	15R05	15R05	27	47	47R05	47R05	2247R05	11R05	15R05	15R05	27	22	22.473	22.333	22.299	22.272						
50	50R05	50R05	250R05	11R05	15R05	15R05	27	50	50R05	50R05	2250R05	11R05	15R05	15R05	27	23	23.478	23.336	23.299	23.272						
56	56R05	56R05	256R05	11R05	15R05	15R05	27	56	56R05	56R05	2256R05	11R05	15R05	15R05	27	24	24.482	24.339	24.299	24.272						
68	68R05	68R05	268R05	11R05	15R05	15R05	27	68	68R05	68R05	2268R05	11R05	15R05	15R05	27	25	25.488	25.343	25.299	25.272						
75	75R05	75R05	275R05	11R05	15R05	15R05	27	75	75R05	75R05	2275R05	11R05	15R05	15R05	27	26	26.493	26.346	26.299	26.272						
82	82R05	82R05	282R05	11R05	15R05	15R05	27	82	82R05	82R05	2282R05	11R05	15R05	15R05	27	27	27.498	27.349	27.299	27.272						
100	100R05	100R05	2100R05	11R05	15R05	15R05	27	100	100R05	100R05	22100R05	11R05	15R05	15R05	27	28	28.504	28.353	28.299	28.272						
120	120R05	120R05	2120R05	11R05	15R05	15R05	27	120	120R05	120R05	22120R05	11R05	15R05	15R05	27	29	29.506	29.354	29.299	29.272						
150	150R05	150R05	2150R05	11R05	15R05	15R05	27	150	150R05	150R05	22150R05	11R05	15R05	15R05	27	30	30.510	30.357	30.299	30.272						
180	180R05	180R05	2180R05	11R05	15R05	15R05	27	180	180R05	180R05	22180R05	11R05	15R05	15R05	27	31	31.518	31.363	31.299	31.272						
200	200R05	200R05	2200R05	11R05	15R05	15R05	27	200	200R05	200R05	22200R05	11R05	15R05	15R05	27	32	32.524	32.367	32.299	32.272						
220	220R05	220R05	2220R05	11R05	15R05	15R05	27	220	220R05	220R05	22220R05	11R05	15R05	15R05	27	33	33.532	33.373	33.299	33.272						
250	250R05	250R05	2250R05	11R05	15R05	15R05	27	250	250R05	250R05	22250R05	11R05	15R05	15R05	27	34	34.537	34.376	34.299	34.272						
270	270R05	270R05	2270R05	11R05	15R05	15R05	27	270	270R05	270R05	22270R05	11R05	15R05	15R05	27	35	35.542	35.379	35.299	35.272						
300	300R05	300R05	2300R05	11R05	15R05	15R05	27	300	300R05	300R05	22300R05	11R05	15R05	15R05	27	36	36.548	36.384	36.299	36.272						
330	330R05	330R05	2330R05	11R05	15R05	15R05	27	330	330R05	330R05	22330R05	11R05	15R05	15R05	27	37	37.552	37.387	37.299	37.272						
350	350R05	350R05	2350R05	11R05	15R05	15R05	27	350	350R05	350R05	22350R05	11R05	15R05	15R05	27	38	38.558	38.391	38.299	38.272						
390	390R05	390R05	2390R05	11R05	15R05	15R05	27	390	390R05	390R05	22390R05	11R05	15R05	15R05	27	39	39.562	39.394	39.299	39.272						
400	400R05	400R05	2400R05	11R05	15R05	15R05	27	400	400R05	400R05	22400R05	11R05	15R05	15R05	27	40	40.568	40.399	40.299	40.272						
450	450R05	450R05	2450R05	11R05	15R05	15R05	27	450	450R05	450R05	22450R05	11R05	15R05	15R05	27	41	41.574	41.403	41.299	41.272						
470	470R05	470R05	2470R05	11R05	15R05	15R05	27	470	470R05	470R05	22470R05	11R05	15R05	15R05	27	42	42.578	42.406	42.299	42.272						
500	500R05	500R05	2500R05	11R05	15R05	15R05	27	500	500R05	500R05	22500R05	11R05	15R05	15R05	27	43	43.584	43.411	43.299	43.272						
560	560R05	560R05	2560R05	11R05	15R05	15R05	27	560	560R05	560R05	22560R05	11R05	15R05	15R05	27	44	44.588	44.414	44.299	44.272						
600	600R05	600R05	2600R05	11R05	15R05	15R05	27	600	600R05	600R05	22600R05	11R05	15R05	15R05	27	45	45.594	45.419	45.299	45.272						
680	680R05	680R05	2680R05	11R05	15R05	15R05	27	680	680R05	680R05	22680R05	11R05	15R05	15R05	27	46	46.598	46.422	46.299	46.272						
700	700R05	700R05	2700R05	11R05	15R05	15R05	27	700	700R05	700R05	22700R05	11R05	15R05	15R05	27	47	47.604	47.427	47.299	47.272						
750	750R05	750R05	2750R05	11R05	15R05	15R05	27	750	750R05	750R05	22750R05	11R05	15R05	15R05	27	48	48.608	48.429	48.299	48.272						
800	800R05	800R05	2800R05	11R05	15R05	15R05	27	800	800R05	800R05	22800R05	11R05	15R05	15R05	27	49	49.612	49.432	49.299	49.272						
820	820R05	820R05	2820R05	11R05	15R05	15R05	27	820	820R05	820R05	22820R05	11R05	15R05	15R05	27	50	50.618	50.437	50.299	50.272						
900	900R05	900R05	2900R05	11R05	15R05	15R05	27	900	900R05	900R05	22900R05	11R05	15R05	15R05	27	51	51.624	51.442	51.299	51.272						
1000	1000R05	1000R05	21000R05	11R05	15R05	15R05	27	1000	1000R05	1000R05	221000R05	11R05	15R05	15R05	27	52	52.630	52.447	52.299	52.272						
1100	1100R05	1100R05	21100R05	11R05	15R05	15R05	27	1100	1100R05	1100R05	221100R05	11R05	15R05	15R05	27	53	53.636	53.452	53.299	53.272						
1200	1200R05	1200R05	21200R05	11R05	15R05	15R05	27	1200	1200R05	1200R05	221200R05	11R05	15R05	15R05	27	54	54.642	54.457	54.299	54.272						
1400	1400R05	1400R05	21400R05	11R05	15R05	15R05	27	1400	1400R05	1400R05	221400R05	11R05	15R05	15R05	27</											



# SPRAGUE

# BLUE JACKET® AXIAL LEAD, POWER WIRE-WOUND RESISTORS

## TYPE 239E, 1-WATT

## TYPE 240E, 2-WATT

Axial design provides secure, vibration-proof mounting. Satisfies MIL specification performance requirements with 35% to 50% size reduction. Crazeproof, humidity-proof, corrosion-proof enamel coating prevents failure from electrolysis. Ceramic winding core and coating enamel withstand rapid thermal changes. Hot spot rating: 300° C rise above 40° C ambient temperature. Size, 1/4" dia. x 3/8" lg., Type 239E; 3/8" dia. x 3/4" lg., Type 240E; 1 1/4" dia. x 1 1/2" lg., Type 242E; 1 3/4" dia. x 1 3/4" lg., Type 243E; 1 3/4" dia. x 1 3/4" lg., Type 244E; 1 3/4" dia. x 1 1/2" lg., Type 247E. Standard Tolerance: ±5%.

## TYPE 242E (CONT'D)

Resistance, Ohms	Sprague Number
300	242E3015
330	242E3315
390	242E3915
400	242E4015
470	242E4715
500	242E5015
560	242E5615
600	242E6015
680	242E6815
700	242E7015
800	242E8015
820	242E8215
900	242E9015
1000	242E1025
1200	242E1225
1400	242E1425
1500	242E1525
1800	242E1825
2000	242E2025
2200	242E2225
2500	242E2525
2700	242E2725
3000	242E3025
3300	242E3325
3900	242E3925
4000	242E4025
4700	242E4725
5000	242E5025
5600	242E5625
6000	242E6025
6800	242E6825
7500	242E7525
8000	242E8025
8200	242E8225
9000	242E9025
10000	242E1035

## TYPE 244E, 7-WATT

Resistance, Ohms	Sprague Number
1	244E1R05
1.5	244E1R55
2	244E2R05
3	244E3R05
4	244E4R05
5	244E5R05
7.5	244E7R55
10	244E1005
12	244E1205
15	244E1505
20	244E2005
25	244E2505
30	244E3005
35	244E3505
40	244E4005
50	244E5005
75	244E7505
100	244E1015
120	244E1215
150	244E1515
200	244E2015
220	244E2215
250	244E2515
300	244E3015
350	244E3515
400	244E4015
500	244E5015
600	244E6015
700	244E7015
750	244E7515
800	244E8015
900	244E9015
1000	244E1025
1100	244E1125
1200	244E1225
1400	244E1425
1500	244E1525
1800	244E1825
2000	244E2025
2200	244E2225
2500	244E2525
3000	244E3025
3300	244E3325
3500	244E3525
3900	244E3925
4000	244E4025
4500	244E4525
5000	244E5025
6000	244E6025
7000	244E7025
7500	244E7525
8000	244E8025
9000	244E9025
10000	244E1035
11000	244E1135
12000	244E1235
14000	244E1435
15000	244E1535
16000	244E1635
17000	244E1735
18000	244E1835
20000	244E2035
22000	244E2235
25000	244E2535
30000	244E3035

## TYPE 247E, 10-WATT

Resistance, Ohms	Sprague Number
1	247E1R05
1.5	247E1R55
2	247E2R05
3	247E3R05
4	247E4R05
5	247E5R05
7.5	247E7R55
10	247E1005
12	247E1205
15	247E1505
20	247E2005
25	247E2505
30	247E3005
35	247E3505
40	247E4005
50	247E5005
75	247E7505
100	247E1015
120	247E1215
150	247E1515
200	247E2015
220	247E2215
250	247E2515
300	247E3015
350	247E3515
400	247E4015
500	247E5015
600	247E6015
700	247E7015
750	247E7515
800	247E8015
900	247E9015
1000	247E1025
1100	247E1125
1200	247E1225
1400	247E1425
1500	247E1525
1800	247E1825
2000	247E2025
2200	247E2225
2500	247E2525
3000	247E3025
3300	247E3325
3500	247E3525
3900	247E3925
4000	247E4025
4500	247E4525
5000	247E5025
6000	247E6025
7000	247E7025
7500	247E7525
8000	247E8025
9000	247E9025
10000	247E1035
11000	247E1135
12000	247E1235
14000	247E1435
15000	247E1535
16000	247E1635
18000	247E1835
20000	247E2035
22000	247E2235
25000	247E2535
30000	247E3035
40000	247E4035
45000	247E4535
50000	247E5035

## TYPE 243E, 5-WATT

Resistance, Ohms	Sprague Number
1	243E1R05
1.5	243E1R55
2	243E2R05
3	243E3R05
4	243E4R05
5	243E5R05
7.5	243E7R55
10	243E1005
12	243E1205
15	243E1505
20	243E2005
25	243E2505
30	243E3005
35	243E3505
40	243E4005
50	243E5005
75	243E7505
100	243E1015
120	243E1215
150	243E1515
200	243E2015
220	243E2215
250	243E2515
300	243E3015
350	243E3515
400	243E4015
450	243E4515
500	243E5015
600	243E6015
700	243E7015
750	243E7515
800	243E8015
900	243E9015
1000	243E1025
1100	243E1125
1200	243E1225
1400	243E1425
1500	243E1525
1800	243E1825
2000	243E2025
2200	243E2225
2500	243E2525
3000	243E3025
3500	243E3525
4000	243E4025
4500	243E4525
5000	243E5025
6000	243E6025
7000	243E7025
7500	243E7525
8000	243E8025
9000	243E9025
10000	243E1035
12000	243E1235
14000	243E1435
15000	243E1535
18000	243E1835
20000	243E2035
22000	243E2235
25000	243E2535
30000	243E3035

## TYPE 242E, 3-WATT

Resistance, Ohms	Sprague Number
1	242E1R05
1.5	242E1R55
2	242E2R05
3	242E3R05
4	242E4R05
5	242E5R05
7.5	242E7R55
10	242E1005
12	242E1205
15	242E1505
18	242E1805
20	242E2005
22	242E2205
25	242E2505
27	242E2705
30	242E3005
33	242E3305
39	242E3905
40	242E4005
47	242E4705
50	242E5005
56	242E5605
68	242E6805
75	242E7505
82	242E8205
100	242E1015
120	242E1215
150	242E1515
180	242E1815
200	242E2015
220	242E2215
250	242E2515
270	242E2715

## INDUSTRIAL NET PRICES

Sprague Type	Values, Ohms	1-9	10-24	25-99	100-249	250-499	500-999
239E* 1-Watt	1-10	53c	46c	38c	32c	28c	26c
	12-1000	52c	44c	36c	31c	27c	25c
	1200-2500	55c	47c	38c	33c	29c	26c
240E* 2-Watt	1-10	53c	46c	38c	32c	28c	26c
	12-1000	52c	44c	36c	31c	27c	25c
	1200-3500	55c	47c	38c	33c	29c	26c
242E† 3-Watt	1-10	53c	46c	38c	32c	28c	26c
	12-1000	52c	44c	36c	31c	27c	25c
	1200-5000	55c	47c	38c	33c	29c	26c
243E† 5-Watt, 244E; 7-Watt	1-10	56c	49c	40c	35c	31c	29c
	12-1000	55c	47c	38c	33c	29c	27c
	1100-5000	58c	49c	41c	36c	32c	30c
	6000-10K	62c	53c	45c	40c	36c	34c
	12K-20K	69c	58c	49c	44c	40c	38c
247E† 10-Watt	1-10	62c	53c	44c	38c	32c	30c
	12-1000	60c	51c	42c	36c	30c	28c
	1100-5000	65c	54c	45c	39c	32c	30c
	6000-10K	74c	63c	52c	44c	37c	34c
	11K-20K	84c	71c	59c	50c	42c	40c
22K-40K	93c	80c	66c	57c	48c	45c	
45K-50K	98c	84c	69c	59c	50c	47c	

Order in Standard Packages: \*50; †25; ‡20 or in section quantities: \*10; †5; ‡5. ‡24E, 11K-20K.



# SPRAGUE Tantalum Capacitors

## TYPE CS12 AND CS13 SOLID ELECTROLYTE MIL-D-26655 TUBULAR TANTALUMS



MIL version of Industrial type 150D. Hermetically sealed miniatures will not seep even if seal is broken. **Temperature Range:** -80° C to +65° C; to +125° C with voltage derating. **Tolerance:** ±10% unless otherwise noted. Type **CS13**, insulated sleeve (listed). **CS12**, without sleeve. To Order: Change prefix **CS13** to **CS12**; deduct **2c** from price; for ±20% (\*) tolerance, change suffix **K** to **M**, deduct **5c** from price.

### 6 WORKING VOLTS DC

MIL Type No.	Cap., µf	Case Size	Net Each, Lots of				
			1-24	25-49	50-99	100-499	500-999
CS13BB565K	5.6	A	\$1.34	\$1.08	\$0.75	\$0.62	\$0.53
CS13BB685K*	6.8	A	1.34	1.08	.75	.62	.53
CS13BB476K*	47	B	1.57	1.27	.77	.64	.54
CS13BB566K	56	B	1.57	1.27	.77	.64	.54
CS13BB157K*	150	R	2.23	2.01	1.36	1.12	.94
CS13BB187K*	180	R	2.23	2.01	1.36	1.12	.94
CS13BB277K*	270	S	4.50	3.56	2.34	1.91	1.60
CS13BB337K*	330	S	4.50	3.56	2.34	1.91	1.60

### 10 WORKING VOLTS DC

MIL Type No.	Cap., µf	Case Size	Net Each, Lots of				
			1-24	25-49	50-99	100-499	500-999
CS13BC395K	3.9	A	\$1.34	\$1.08	\$0.75	\$0.62	\$0.53
CS13BC475K*	4.7	A	1.34	1.08	.75	.62	.53
CS13BC276K	27	B	1.57	1.27	.77	.64	.54
CS13BC336K*	33	B	1.57	1.27	.77	.64	.54
CS13BC396K	39	B	1.57	1.27	.77	.64	.54
CS13BC826K	82	R	2.23	2.01	1.36	1.12	.94
CS13BC107K*	100	R	2.23	2.01	1.36	1.12	.94
CS13BC127K*	120	R	2.23	2.01	1.36	1.12	.94
CS13BC187K*	180	S	4.50	3.56	2.34	1.91	1.60
CS13BC227K*	220	S	4.50	3.56	2.34	1.91	1.60

### 15 WORKING VOLTS DC

MIL Type No.	Cap., µf	Case Size	Net Each, Lots of				
			1-24	25-49	50-99	100-499	500-999
CS13BD275K	2.7	A	\$1.34	\$1.08	\$0.75	\$0.62	\$0.53
CS13BD335K*	3.3	A	1.34	1.08	.75	.62	.53
CS13BD186K	18	B	1.57	1.27	.77	.64	.54
CS13BD226K*	22	B	1.57	1.27	.77	.64	.54
CS13BD566K	56	R	2.23	2.01	1.36	1.12	.94
CS13BD686K*	68	R	2.23	2.01	1.36	1.12	.94
CS13BD127K*	120	S	4.50	3.56	2.34	1.91	1.60
CS13BD157K*	150	S	4.50	3.56	2.34	1.91	1.60

### 20 WORKING VOLTS DC

MIL Type No.	Cap., µf	Case Size	Net Each, Lots of				
			1-24	25-49	50-99	100-499	500-999
CS13BE125K	1.2	A	\$1.34	\$1.08	\$0.75	\$0.62	\$0.53
CS13BE155K*	1.5	A	1.34	1.08	.75	.62	.53
CS13BE185K*	1.8	A	1.34	1.08	.75	.62	.53
CS13BE225K*	2.2	A	1.34	1.08	.75	.62	.53
CS13BE825K	8.2	B	1.57	1.27	.77	.64	.54
CS13BE106K*	10	B	1.57	1.27	.77	.64	.54
CS13BE126K	12	B	1.57	1.27	.77	.64	.54
CS13BE156K*	15	B	1.57	1.27	.77	.64	.54
CS13BE276K	27	R	2.23	2.01	1.36	1.12	.94
CS13BE336K*	33	R	2.23	2.01	1.36	1.12	.94
CS13BE396K	39	R	2.23	2.01	1.36	1.12	.94
CS13BE476K*	47	R	2.23	2.01	1.36	1.12	.94
CS13BE566K	56	S	4.50	3.56	2.34	1.91	1.60
CS13BE686K*	68	S	4.50	3.56	2.34	1.91	1.60
CS13BE826K	82	S	4.50	3.56	2.34	1.91	1.60
CS13BE107K*	100	S	4.50	3.56	2.34	1.91	1.60

### 35 WORKING VOLTS DC

MIL Type No.	Cap., µf	Case Size	Net Each, Lots of				
			1-24	25-49	50-99	100-499	500-999
CS13BF334K*	.33	A	\$1.34	\$1.08	\$0.75	\$0.62	\$0.53
CS13BF394K	.39	A	1.34	1.08	.75	.62	.53
CS13BF474K*	.47	A	1.34	1.08	.75	.62	.53
CS13BF564K	.56	A	1.34	1.08	.75	.62	.53
CS13BF684K*	.68	A	1.34	1.08	.75	.62	.53
CS13BF824K	.82	A	1.34	1.08	.75	.62	.53
CS13BF105K*	1.0	A	1.34	1.08	.75	.62	.53
CS13BF125K	1.2	B	1.57	1.27	.77	.64	.54
CS13BF155K*	1.5	B	1.57	1.27	.77	.64	.54
CS13BF185K*	1.8	B	1.57	1.27	.77	.64	.54
CS13BF225K*	2.2	B	1.57	1.27	.77	.64	.54
CS13BF275K	2.7	B	1.57	1.27	.77	.64	.54
CS13BF335K*	3.3	B	1.57	1.27	.77	.64	.54
CS13BF395K	3.9	B	1.57	1.27	.77	.64	.54
CS13BF475K*	4.7	B	1.57	1.27	.77	.64	.54
CS13BF565K	5.6	B	1.57	1.27	.77	.64	.54
CS13BF685K*	6.8	B	1.57	1.27	.77	.64	.54
CS13BF825K	8.2	R	2.57	2.07	1.42	1.16	.98
CS13BF106K*	10	R	2.57	2.07	1.42	1.16	.98
CS13BF126K	12	R	2.57	2.07	1.42	1.16	.98
CS13BF156K*	15	R	2.57	2.07	1.42	1.16	.98
CS13BF186K	18	R	2.57	2.07	1.42	1.16	.98
CS13BF226K	22	R	2.57	2.07	1.42	1.16	.98
CS13BF276K	27	S	4.60	3.66	2.53	2.06	1.73
CS13BF336K*	33	S	4.60	3.66	2.53	2.06	1.73
CS13BF396K	39	S	4.75	3.81	2.81	2.29	1.91
CS13BF476K*	47	S	4.75	3.81	2.81	2.29	1.91

### 50 WORKING VOLTS DC

MIL Type No.	Cap., µf	Case Size	Net Each, Lots of				
			1-24	25-49	50-99	100-499	500-999
CS13BG105K	1.0	A	\$2.48	\$1.99	\$1.68	\$1.45	\$1.31
CS13BG105M†	1.0	A	1.92	1.54	1.30	1.11	1.02
CS13BG125K	1.2	B	2.62	2.10	1.77	1.52	1.39
CS13BG155K	1.5	B	2.62	2.10	1.77	1.52	1.39
CS13BG155M†	1.5	B	2.02	1.62	1.37	1.17	1.07
CS13BG185K	1.8	B	2.62	2.10	1.77	1.52	1.39
CS13BG225K	2.2	B	2.62	2.10	1.77	1.52	1.39
CS13BG225M†	2.2	B	2.02	1.62	1.37	1.17	1.07
CS13BG275K	2.7	B	2.62	2.10	1.77	1.52	1.39
CS13BG335K	3.3	B	2.62	2.10	1.77	1.52	1.39
CS13BG335M†	3.3	B	2.02	1.62	1.37	1.17	1.07
CS13BG395K	3.9	B	2.62	2.10	1.77	1.52	1.39
CS13BG475K	4.7	B	2.62	2.10	1.77	1.52	1.39
CS13BG475M†	4.7	B	2.02	1.62	1.37	1.17	1.07
CS13BG565K	5.6	R	4.28	3.43	2.90	2.47	2.26
CS13BG685K	6.8	R	4.28	3.43	2.90	2.47	2.26
CS13BG685M†	6.8	R	3.30	2.64	2.24	1.91	1.75
CS13BG825K	8.2	R	4.28	3.43	2.90	2.47	2.26

### 50 WORKING VOLTS DC (CONTINUED)

MIL Type No.	Cap., µf	Case Size	Net Each, Lots of				
			1-24	25-49	50-99	100-499	500-999
CS13BG106K	10	R	\$4.28	\$3.43	\$2.90	\$2.47	\$2.26
CS13BG106M†	10	R	3.20	2.64	2.24	1.91	1.75
CS13BG126K	12	R	4.28	3.43	2.90	2.47	2.26
CS13BG156K	15	R	4.28	3.43	2.90	2.47	2.26
CS13BG156M†	15	R	3.30	2.64	2.24	1.91	1.75
CS13BG186K	18	R	4.28	3.43	2.90	2.47	2.26
CS13BG226K	22	S	7.98	6.39	5.39	4.60	4.20
CS13BG226M†	22	S	6.14	4.92	4.16	3.54	3.24

### 75 WORKING VOLTS DC

MIL Type No.	Cap., µf	Case Size	Net Each, Lots of				
			1-24	25-49	50-99	100-499	500-999
CS13BH104K	.10	A	\$3.73	\$2.99	\$2.51	\$2.15	\$1.97
CS13BH104M†	.10	A	2.87	2.30	1.94	1.66	1.52
CS13BH124K	.12	A	3.73	2.99	2.51	2.15	1.97
CS13BH154K	.15	A	3.73	2.99	2.51	2.15	1.97
CS13BH154M†	.15	A	2.87	2.30	1.94	1.66	1.52
CS13BH184K	.18	A	3.73	2.99	2.51	2.15	1.97
CS13BH224K	.22	A	3.73	2.99	2.51	2.15	1.97
CS13BH224M†	.22	A	2.87	2.30	1.94	1.66	1.52
CS13BH274K	.27	A	3.73	2.99	2.51	2.15	1.97
CS13BH334K	.33	A	3.73	2.99	2.51	2.15	1.97
CS13BH334M†	.33	A	2.87	2.30	1.94	1.66	1.52
CS13BH394K	.39	A	3.73	2.99	2.51	2.15	1.97
CS13BH474K	.47	A	3.73	2.99	2.51	2.15	1.97
CS13BH474M†	.47	A	2.87	2.30	1.94	1.66	1.52
CS13BH564K	.56	A	3.73	2.99	2.51	2.15	1.97
CS13BH684K	.68	A	3.73	2.99	2.51	2.15	1.97
CS13BH684M†	.68	A	2.87	2.30	1.94	1.66	1.52
CS13BH824K	.82	B	3.92	3.14	2.66	2.27	2.08
CS13BH105K	1.0	B	3.92	3.14	2.66	2.27	2.08
CS13BH105M†	1.0	B	3.02	2.42	2.05	1.75	1.60
CS13BH125K	1.2	B	3.92	3.14	2.66	2.27	2.08
CS13BH155K	1.5	B	3.92	3.14	2.66	2.27	2.08
CS13BH155M†	1.5	B	3.02	2.42	2.05	1.75	1.60
CS13BH185K	1.8	B	3.92	3.14	2.66	2.27	2.08
CS13BH225K	2.2	B	3.92	3.14	2.66	2.27	2.08
CS13BH225M†	2.2	B	3.02	2.42	2.05	1.75	1.60
CS13BH275K	2.7	B	3.92	3.14	2.66	2.27	2.08
CS13BH335K	3.3	B	3.92	3.14	2.66	2.27	2.08
CS13BH335M†	3.3	B	3.02	2.42	2.05	1.75	1.60
CS13BH395K	3.9	B	3.92	3.14	2.66	2.27	2.08
CS13BH475K	4.7	R	6.41	5.14	4.36	3.71	3.40
CS13BH475M†	4.7	R	4.94	3.95	3.35	2.86	2.62
CS13BH565K	5.6	R	6.41	5.14	4.36	3.71	3.40
CS13BH685K	6.8	R	6.41	5.14	4.36	3.71	3.40
CS13BH685M†	6.8	R	4.94	3.95	3.35	2.86	2.62
CS13BH825K	8.2	R	6.41	5.14	4.36	3.71	3.40
CS13BH106K	10	R	6.41	5.14	4.36	3.71	3.40
CS13BH126K	12	S	11.96	9.58	8.09	6.89	6.31
CS13BH156K	15	S	11.96	9.58	8.09	6.89	6.31
CS13BH156M†	15	S	9.20	7.37	6.23	5.30	4.85

### 100 WORKING VOLTS DC

MIL Type No.	Cap., µf	Case Size	Net Each, Lots of				
			1-24	25-49	50-99	100-499	500-999



# SPRAGUE Tantalum Capacitors

## TYPE 150D SOLID ELECTROLYTE TANTALEX® CAPACITORS

True miniaturization with characteristics previously unobtainable in electrolytics. Solid electrolyte cannot leak or corrode; hermetically sealed. **Temperature Range:** 85° C without derating; to 125° C with derating. **Ordering Information:** Select capacitance and read across chart to voltage desired. Suffix on number (A, B, R or S) refers to size; find this key and your capacitance in the price chart at the bottom of this page.



### TYPE 150D ±10% TOLERANCE CAPACITANCE VALUES AVAILABLE

Capacitance, $\mu$ F	Sprague Prefix†	Suffix for WVDC of:								
		6	10	15	20	35	50	60	75	100
.0047	150D472X				9020A*	9035A*	9050A*	9060A*	9075A*	9100A*
.0056	150D562X				9020A	9035A	9050A	9060A	9075A	9100A
.0068	150D682X				9020A	9035A	9050A	9060A	9075A	9100A
.0082	150D822X				9020A	9035A	9050A	9060A	9075A	9100A
.01	150D103X				9020A	9035A	9050A	9060A	9075A	9100A
.012	150D123X				9020A	9035A	9050A	9060A	9075A	9100A
.015	150D153X				9020A	9035A	9050A	9060A	9075A	9100A
.018	150D183X				9020A	9035A	9050A	9060A	9075A	9100A
.022	150D223X				9020A	9035A	9050A	9060A	9075A	9100A
.027	150D273X				9020A	9035A	9050A	9060A	9075A	9100A
.033	150D333X				9020A	9035A	9050A	9060A	9075A	9100A
.039	150D393X				9020A	9035A	9050A	9060A	9075A	9100A
.047	150D473X				9020A	9035A	9050A	9060A	9075A	9100A
.056	150D563X				9020A	9035A	9050A	9060A	9075A	9100A
.068	150D683X				9020A	9035A	9050A	9060A	9075A	9100A
.082	150D823X				9020A	9035A	9050A	9060A	9075A	9100A
.1	150D104X				9020A	9035A	9050A	9060A	9075A	9100A
.12	150D124X				9020A	9035A	9050A	9060A	9075A	9100A
.15	150D154X				9020A	9035A	9050A	9060A	9075A	9100A
.18	150D184X				9020A	9035A	9050A	9060A	9075A	9100A
.22	150D224X				9020A	9035A	9050A	9060A	9075A	9100A
.27	150D274X	9006A*	9010A*	9015A*	9020A	9035A	9050A	9060A	9075A	9100A
.33	150D334X	9006A*	9010A*	9015A*	9020A	9035A	9050A	9060A	9075A	9100A
.39	150D394X	9006A*	9010A*	9015A*	9020A	9035A	9050A	9060A	9075A	9100A
.47	150D474X	9006A*	9010A*	9015A*	9020A	9035A	9050A	9060A	9075A	9100A
.56	150D564X	9006A*	9010A*	9015A*	9020A	9035A	9050A	9060A	9075A	9100A
.68	150D684X	9006A*	9010A*	9015A*	9020A	9035A	9050A	9060A	9075A	9100A
.82	150D824X	9006A*	9010A*	9015A*	9020A	9035A	9050A	9060B	9075B	9100B
1.0	150D105X	9006A*	9010A*	9015A*	9020A	9035A	9050A	9060B	9075B	9100B
1.2	150D125X	9006A*	9010A*	9015A*	9020A	9035B	9050B	9060B	9075B	9100B
1.5	150D155X	9006A*	9010A*	9015A*	9020A	9035B	9050B	9060B	9075B	9100B
1.8	150D185X	9006A*	9010A*	9015A*	9020A	9035B	9050B	9060B	9075B	9100B
2.2	150D225X	9006A*	9010A*	9015A*	9020A	9035B	9050B	9060B	9075B	9100B
2.7	150D275X	9006A*	9010A*	9015A*	9020B	9035B	9050B	9060B	9075B	9100B
3.3	150D335X	9006A*	9010A*	9015A*	9020B	9035B	9050B	9060B	9075B	9100B
3.9	150D395X	9006A*	9010A*	9015B	9020B	9035B	9050B	9060B	9075B	9100B
4.7	150D475X	9006A*	9010A*	9015B	9020B	9035B	9050B	9060B	9075B	9100B
5.6	150D565X	9006A*	9010B	9015B	9020B	9035B	9050B	9060B	9075B	9100B
6.8	150D685X	9006A*	9010B	9015B	9020B	9035B	9050B	9060B	9075B	9100B
8.2	150D825X	9006B	9010B*	9015B*	9020B*	9035B*	9050B*	9060B	9075B	9100B
10	150D106X	9006B	9010B*	9015B*	9020B*	9035B*	9050B*	9060B	9075B	9100B
12	150D126X	9006B	9010B*	9015B*	9020B*	9035B*	9050B*	9060B	9075B	9100B
15	150D156X	9006B	9010B*	9015B*	9020B*	9035B*	9050B*	9060B	9075B	9100B
18	150D186X	9006B	9010B*	9015B*	9020B*	9035B*	9050B*	9060B	9075B	9100B
22	150D226X	9006B	9010B*	9015B*	9020B*	9035B*	9050B*	9060B	9075B	9100B
27	150D276X	9006B	9010B*	9015B*	9020B*	9035B*	9050B*	9060B	9075B	9100B
33	150D336X	9006B	9010B*	9015B*	9020B*	9035B*	9050B*	9060B	9075B	9100B
39	150D396X	9006B	9010B*	9015B*	9020B*	9035B*	9050B*	9060B	9075B	9100B
40	150D406X	9006B	9010B*	9015B*	9020B*	9035B*	9050B*	9060B	9075B	9100B
47	150D476X	9006B*	9010R*	9015R*	9020R*	9035R*	9050R*	9060R	9075R	9100R
56	150D566X	9006B	9010R	9015R	9020R	9035R	9050R	9060R	9075R	9100R
60	150D606X	9006B*	9010R*	9015R*	9020R*	9035R*	9050R*	9060R	9075R	9100R
68	150D686X	9006R*	9010R*	9015R*	9020R*	9035R*	9050R*	9060R	9075R	9100R
82	150D826X	9006R	9010R	9015R	9020R	9035R	9050R	9060R	9075R	9100R
100	150D107X	9006R*	9010R*	9015R*	9020R*	9035R*	9050R*	9060R	9075R	9100R
120	150D127X	9006R*	9010R*	9015R*	9020R*	9035R*	9050R*	9060R	9075R	9100R
150	150D157X	9006R*	9010R*	9015R*	9020R*	9035R*	9050R*	9060R	9075R	9100R
180	150D187X	9006R*	9010R*	9015R*	9020R*	9035R*	9050R*	9060R	9075R	9100R
220	150D227X	9006S*	9010S*	9015S*	9020S*	9035S*	9050S*	9060S	9075S	9100S
270	150D277X	9006S*	9010S*	9015S*	9020S*	9035S*	9050S*	9060S	9075S	9100S
330	150D337X	9006S*	9010S*	9015S*	9020S*	9035S*	9050S*	9060S	9075S	9100S

\*Available in ±20% tolerance; see price section for ordering information and prices.

### PRICE CHART AND ORDERING INFORMATION FOR TYPE 150D CAPACITORS

When ordering give full number as shown above (for ±10% tol.) for value desired (i.e., 150D224X9006A). For ±20% tol., change first digit in suffix above to 0 (i.e., 150D224X0006A). For bare metal case add final digit 0 (i.e., 150D224X9006A0). For plastic film sleeve type add final digit 2 (i.e., 150D224X9006A2) and add 2c to prices below. For rigid plastic sleeve add final digit 3 (i.e., 150D224X9006A3) and add 2c to prices below.

WV DC	Case Size	Size, In. Dia. x Lgth.*	Cap. Range $\mu$ F	±10% Tolerance (X9), Net Each, Lots of					±20% Tolerance (X0), Net Each, Lots of				
				1-24	25-49	50-99	100-499	500-999	1-24	25-49	50-99	100-499	500-999
6	A	.125 x .250	.0047-8.8†	\$1.32	\$1.06	\$0.73	\$0.60	\$0.51	\$1.29	\$1.03	\$0.70	\$0.57	\$0.48
10	B	.175 x .438	2.7-60†	1.65	1.25	.75	.62	.52	1.52	1.22	.72	.59	.49
15	R	.279 x .650	18-180†	2.21	1.89	1.34	1.10	.92	2.18	1.96	1.31	1.07	.89
20	S	.341 x .750	56-330†	4.48	3.99	2.32	1.89	1.58	4.45	3.51	2.29	1.86	1.55
35	A	.125 x .250	.0047-1.0	1.1	1.06	.73	.60	.51	1.29	1.03	.70	.57	.48
	B	.175 x .438	1.2-6.8	1.2	1.06	.73	.62	.52	1.52	1.22	.72	.59	.49
	R	.279 x .650	8.2-22	1.8	1.69	1.14	1.14	.92	2.18	1.96	1.31	1.07	.89
50	A	.125 x .250	.0047-1.0	2.2	2.06	1.69	1.43	1.29	2.18	1.96	1.31	1.07	.89
	B	.175 x .438	1.2-4.7	2.4	2.06	1.69	1.43	1.29	2.18	1.96	1.31	1.07	.89
	R	.279 x .650	5.6-18	4.2	3.99	2.32	1.89	1.58	4.45	3.51	2.29	1.86	1.55
60	A	.125 x .250	.0047-.68	2.2	2.06	1.69	1.43	1.29	2.18	1.96	1.31	1.07	.89
	B	.175 x .438	8.2-3.9	2.4	2.06	1.69	1.43	1.29	2.18	1.96	1.31	1.07	.89
	R	.279 x .650	4.7-10	4.2	3.99	2.32	1.89	1.58	4.45	3.51	2.29	1.86	1.55
75	A	.125 x .250	.0047-.68	3.7	3.57	2.49	2.13	1.95	3.71	3.51	2.29	1.86	1.55
	B	.175 x .438	8.2-3.9	4.2	3.99	2.32	1.89	1.58	4.45	3.51	2.29	1.86	1.55
	R	.279 x .650	4.7-10	6.39	5.15	3.34	2.49	2.13	6.39	5.15	3.34	2.49	2.13
100	A	.125 x .250	.0047-.56	4.62	3.86	3.24	2.77	2.54	3.71	2.96	2.50	2.13	1.95
	B	.175 x .438	6.8-2.7	5.07	4.06	3.43	2.93	2.68	3.90	3.12	2.64	2.25	2.05

\*For sleeved units add .015" to dia. and .062" to lgth. for A and B size units; .006" dia. and .109" lgth. for R and S size units. †Min.-max. for all four voltages combined; see individual voltages in table, above, for specific values and range.



# SPRAGUE Tantalum Capacitors

## TYPES 111D AND 113D 85° C TANTALEX® TANTALUM FOIL CAPACITORS



For military and industrial electronic equipment where small size, stable electrical characteristics

and long service life are required. High capacitance stability at low temperatures. Extremely low leakage current. End-seal design with virtually leakproof TFE-fluorocarbon elastomer seal. **Type 111D:** Non-polarized plain-foil design; tol., +20%. **Type 113D:** Non-polarized etched-foil design; tol., -15%, +75%. **Note:** Units listed are bare metal case types, for plastic insulated case types change final digit to 1 and add 4c to price.

### TYPE 113D NP ETCHED-FOIL TANTALEX CAPACITORS

µF	WV NP	Sprague No. 113D-	Net Each, Lots of					
			1-9	10-24	25-49	50-99	100-499	500-999
10	15	106C7015D0	\$ 4.20	\$ 3.33	\$ 2.42	\$ 1.70	\$ 1.19	\$0.84
40	15	406C7015G0	7.55	4.94	3.80	2.70	1.87	1.46
120	15	127C7015J0	12.60	8.65	6.65	4.73	3.27	2.70
250	15	257C7015M0	20.55	14.11	10.83	7.70	5.31	4.75
350	15	357C7015P0	27.35	18.76	14.44	10.26	7.10	6.30
5	25	505C7025D0	4.20	3.33	2.42	1.70	1.19	.84
20	25	206C7025G0	7.55	4.94	3.80	2.70	1.87	1.46
70	25	706C7025J0	12.60	8.65	6.65	4.73	3.27	2.70
140	25	147C7025M0	20.55	14.11	10.83	7.70	5.31	4.75
200	25	207C7025P0	27.35	18.76	14.44	10.26	7.10	6.30
4.5	30	455C7030D0	4.20	3.33	2.42	1.70	1.19	.84
18	30	186C7030G0	7.55	4.94	3.80	2.70	1.87	1.46
60	30	606C7030J0	12.60	8.65	6.65	4.73	3.27	2.70
120	30	127C7030M0	20.55	14.11	10.83	7.70	5.31	4.75
170	30	177C7030P0	27.35	18.76	14.44	10.26	7.10	6.30
2.5	50	255C7050D0	4.20	3.33	2.42	1.70	1.19	.84
10	50	106C7050G0	7.55	4.94	3.80	2.70	1.87	1.46
30	50	306C7050J0	12.60	8.65	6.65	4.73	3.27	2.70
60	50	606C7050M0	20.55	14.11	10.83	7.70	5.31	4.75
80	50	806C7050P0	27.35	18.76	14.44	10.26	7.10	6.30
1.5	75	155C7075D0	4.20	3.33	2.42	1.70	1.19	.84
6	75	605C7075G0	7.55	4.94	3.80	2.70	1.87	1.46
15	75	156C7075J0	12.60	8.65	6.65	4.73	3.27	2.70
35	75	356C7075M0	20.55	14.11	10.83	7.70	5.31	4.75
50	75	506C7075P0	27.35	18.76	14.44	10.26	7.10	6.30
1	100	105C1100D0	4.20	3.33	2.42	1.70	1.19	.84
4	100	405C1100G0	7.55	4.94	3.80	2.70	1.87	1.46
12	100	126C1100J0	12.60	8.65	6.65	4.73	3.27	2.70
25	100	256C1100M0	20.55	14.11	10.83	7.70	5.31	4.75
35	100	356C1100P0	27.35	18.76	14.44	10.26	7.10	6.30
2	150	205C1150D0	4.20	3.33	2.42	1.70	1.19	.84
8	150	805C1150G0	7.55	4.94	3.80	2.70	1.87	1.46
20	150	206C1150J0	12.60	8.65	6.65	4.73	3.27	2.70
12	150	126C1150M0	20.55	14.11	10.83	7.70	5.31	4.75
18	150	186C1150P0	27.35	18.76	14.44	10.26	7.10	6.30

### TYPE 120D 125° C POLARIZED PLAIN-FOIL TANTALEX CAPACITORS

Small in size. Long shelf and service life. Operate at 125° C without derating. Remain stable at low operating temperatures. Extra low leakage current. Double synthetic rubber and TFE-fluorocarbon elastomer combination seals. Tol., -20%.

Cap., µF	WV DC	Sprague No. 120D-	Net Each, Lots of					
			1-9	10-24	25-49	50-99	100-499	500-999
4.5	10	455X0010E0	\$ 7.37	\$ 5.18	\$ 4.00	\$ 2.84	\$ 1.96	\$0.97
15	10	186X0010H0	9.80	6.89	5.32	3.78	2.59	1.43
48	10	556X0010K0	14.18	9.98	7.70	5.47	3.78	2.46
110	10	117X0010N0	18.31	12.87	9.94	7.07	4.85	3.70
160	10	167X0010O0	23.54	16.58	12.78	9.08	6.25	5.27
3	15	305X0015E0	7.37	5.18	4.00	2.84	1.96	.97
12	15	126X0015H0	9.80	6.89	5.32	3.78	2.59	1.43
35	15	356X0015K0	14.18	9.98	7.70	5.47	3.78	2.46
70	15	706X0015N0	18.31	12.87	9.94	7.07	4.85	3.70
100	15	107X0015Q0	23.54	16.58	12.78	9.08	6.25	5.27
1.5	30	155X0030E0	7.37	5.18	4.00	2.84	1.96	.97
6	30	605X0030H0	9.80	6.89	5.32	3.78	2.59	1.43
20	30	206X0030K0	14.18	9.98	7.70	5.47	3.78	2.46
40	30	406X0030N0	18.31	12.87	9.94	7.07	4.85	3.70
55	30	556X0030O0	23.54	16.58	12.78	9.08	6.25	5.27
1	50	105X0050E0	7.37	5.18	4.00	2.84	1.96	.97
4	50	405X0050H0	9.80	6.89	5.32	3.78	2.59	1.43
14	50	146X0050K0	14.18	9.98	7.70	5.47	3.78	2.46
28	50	286X0050N0	18.31	12.87	9.94	7.07	4.85	3.70
40	50	406X0050O0	23.54	16.58	12.78	9.08	6.25	5.27
1	65	804X0065E0	7.37	5.18	4.00	2.84	1.96	.97
3	65	305X0065H0	9.80	6.89	5.32	3.78	2.59	1.43
10	65	106X0065K0	14.18	9.98	7.70	5.47	3.78	2.46
20	65	206X0065N0	18.31	12.87	9.94	7.07	4.85	3.70
30	65	306X0065O0	23.54	16.58	12.78	9.08	6.25	5.27
1	75	504X0100E0	7.37	5.18	4.00	2.84	1.96	.97
2	100	205X0100H0	9.80	6.89	5.32	3.78	2.59	1.43
7	100	705X0100K0	14.18	9.98	7.70	5.47	3.78	2.46
14	100	146X0100N0	18.31	12.87	9.94	7.07	4.85	3.70
20	100	206X0100O0	23.54	16.58	12.78	9.08	6.25	5.27
1	150	155X0150H0	7.37	5.18	4.00	2.84	1.96	.97
5	150	505X0150K0	14.18	9.98	7.70	5.47	3.78	2.46
10	150	106X0150N0	18.31	12.87	9.94	7.07	4.85	3.70
15	150	156X0150O0	23.54	16.58	12.78	9.08	6.25	5.27
1	200	105X8200H0	14.25	11.21	7.73	5.50	4.15	3.81
3	200	305X8200K0	20.48	16.12	11.12	7.90	5.97	5.47
7	200	705X8200N0	25.31	19.93	13.74	9.77	7.38	6.76
10	200	106X8200O0	31.92	25.13	17.33	12.31	9.30	8.53
1	250	804X8250H0	14.25	11.21	7.73	5.50	4.15	3.81
2.5	250	255X8250K0	20.48	16.12	11.12	7.90	5.97	5.47
5	250	505X8250N0	25.31	19.93	13.74	9.77	7.38	6.76
8	250	805X8250O0	31.92	25.13	17.33	12.31	9.30	8.53
1	300	154X8300E0	10.85	8.54	5.89	4.19	3.16	2.80
1.5	300	354X8300H0	14.25	11.21	7.73	5.50	4.15	3.81
2	300	285X8300K0	20.48	16.12	11.12	7.90	5.97	5.47
4	300	405X8300N0	25.31	19.93	13.74	9.77	7.38	6.76
6	300	605X8300O0	31.92	25.13	17.33	12.31	9.30	8.53

\*Bare tube without sleeve; for plastic sleeve, change suffix 0 to 1 and add 4c to price.

### TYPE 111D NON-POLARIZED PLAIN-FOIL TANTALEX CAPACITORS

µF	WV NP	Sprague No. 111D-	Net Each, Lots of					
			1-9	10-24	25-49	50-99	100-499	500-999
5	6	505X0006D0	\$ 4.20	\$ 3.33	\$ 2.42	\$ 1.70	\$ 1.19	\$0.84
25	6	256X0006G0	6.60	4.51	3.47	2.48	1.70	1.25
85	6	856X0006J0	10.45	7.17	5.51	3.92	2.68	2.15
170	6	177X0006M0	14.60	10.02	7.70	5.49	3.78	3.21
250	6	257X0006P0	19.60	13.44	10.31	7.34	5.06	4.60
5	10	305X0010D0	4.20	3.33	2.42	1.70	1.19	.84
10	10	106X0010G0	6.60	4.51	3.47	2.48	1.70	1.25
55	10	556X0010J0	10.45	7.17	5.51	3.92	2.68	2.15
110	10	117X0010M0	14.60	10.02	7.70	5.49	3.78	3.21
150	10	157X0010P0	19.60	13.44	10.31	7.34	5.06	4.60
2.5	15	255X0015D0	4.20	3.33	2.42	1.70	1.19	.84
10	15	106X0015G0	6.60	4.51	3.47	2.48	1.70	1.25
35	15	356X0015J0	10.45	7.17	5.51	3.92	2.68	2.15
70	15	706X0015M0	14.60	10.02	7.70	5.49	3.78	3.21
100	15	107X0015P0	19.60	13.44	10.31	7.34	5.06	4.60
1.5	25	155X0025D0	4.20	3.33	2.42	1.70	1.19	.84
6	25	605X0025G0	6.60	4.51	3.47	2.48	1.70	1.25
20	25	206X0025J0	10.45	7.17	5.51	3.92	2.68	2.15
40	25	406X0025M0	14.60	10.02	7.70	5.49	3.78	3.21
60	25	606X0025P0	19.60	13.44	10.31	7.34	5.06	4.60
1.4	30	145X0030D0	4.20	3.33	2.42	1.70	1.19	.84
5.5	30	555X0030G0	6.60	4.51	3.47	2.48	1.70	1.25
18	30	186X0030J0	10.45	7.17	5.51	3.92	2.68	2.15
30	30	306X0030M0	14.60	10.02	7.70	5.49	3.78	3.21
45	30	456X0030P0	19.60	13.44	10.31	7.34	5.06	4.60
3	50	804X0050D0	4.20	3.33	2.42	1.70	1.19	.84
8	50	305X0050G0	6.60	4.51	3.47	2.48	1.70	1.25
30	50	106X0050J0	10.45	7.17	5.51	3.92	2.68	2.15
60	50	206X0050M0	14.60	10.02	7.70	5.49	3.78	3.21
100	50	306X0050P0	19.60	13.44	10.31	7.34	5.06	4.60
2.5	60	604X0060D0	4.20	3.33	2.42	1.70	1.19	.84
8.5	60	855X0060G0	6.60	4.51	3.47	2.48	1.70	1.25
17	60	176X0060J0	10.45	7.17	5.51	3.92	2.68	2.15
24	60	246X0060P0	14.60	10.02	7.70	5.49	3.78	3.21
2	75	504X0075D0	4.20	3.33	2.42	1.70	1.19	.84
7.5	75	205X0075G0	6.60	4.51	3.47	2.48	1.70	1.25
14	75	705X0075J0	10.45	7.17	5.51	3.92	2.68	2.15
20	75	146X0075M0	14.60	10.02	7.70	5.49	3.78	3.21
1.5	100	405X0100D0	19.60	13.44	10.31	7.34	5.06	4.60
5	100	155X0100G0	6.60	4.51	3.47	2.48	1.70	1.25
10	100	106X0100J0	10.45	7.17	5.51	3.92	2.68	2.15
15	100	156X0100M0	14.60	10.02	7.70	5.49	3.78	



# SPRAGUE Tantalum Capacitors

## TYPE 109D TUBULAR SINTERED-ANODE 85° C TANTALEX® CAPACITORS

For applications requiring reliable design, such as in military equipment. Large capacitance values in small physical size. Double spun TFE-fluorocarbon elastomer high temperature end seals. Meet 2000 cps missile vibration requirements. Operate to 85° C without voltage derating; to 105° C with 15% derating. Available as bare metal case type or with plastic sleeve; tolerances, see listing below.



### GROUP 1—TOLERANCES: ±10%; +20%, -15%; +75%, -15%

		6 WVDC		
μF	Size Code	Sprague Number		
		±10%	+20%, -15%	+75%, -15%
27	C	109D276X9006C*	109D276C2006C*	109D276C7006C*
30	C	109D306X9006C*	109D306C2006C*	109D306C7006C*
120	F	109D127X9006F*	109D127C2006F*	109D127C7006F*
140	F	109D147X9006F*	109D147C2006F*	109D147C7006F*
290	T	109D297X9006T*	109D297C2006T*	109D297C7006T*
330	T	109D337X9006T*	109D337C2006T*	109D337C7006T*

		8 WVDC		
μF	Size Code	Sprague Number		
		±10%	+20%, -15%	+75%, -15%
22	C	109D226X9008C*	109D226C2008C*	109D226C7008C*
25	C	109D256X9008C*	109D256C2008C*	109D256C7008C*
100	F	109D107X9008F*	109D107C2008F*	109D107C7008F*
120	F	109D127X9008F*	109D127C2008F*	109D127C7008F*
260	T	109D267X9008T*	109D267C2008T*	109D267C7008T*
290	T	109D297X9008T*	109D297C2008T*	109D297C7008T*

		10 WVDC		
μF	Size Code	Sprague Number		
		±10%	+20%, -15%	+75%, -15%
18	C	109D186X9010C*	109D186C2010C*	109D186C7010C*
20	C	109D206X9010C*	109D206C2010C*	109D206C7010C*
85	F	109D856X9010F*	109D856C2010F*	109D856C7010F*
100	F	109D107X9010F*	109D107C2010F*	109D107C7010F*
220	T	109D227X9010T*	109D227C2010T*	109D227C7010T*
250	T	109D257X9010T*	109D257C2010T*	109D257C7010T*

		15 WVDC		
μF	Size Code	Sprague Number		
		±10%	+20%, -15%	+75%, -15%
13	C	109D136X9015C*	109D136C2015C*	109D136C7015C*
15	C	109D156X9015C*	109D156C2015C*	109D156C7015C*
55	F	109D556X9015F*	109D556C2015F*	109D556C7015F*
70	F	109D706X9015F*	109D706C2015F*	109D706C7015F*
150	T	109D157X9015T*	109D157C2015T*	109D157C7015T*
170	T	109D177X9015T*	109D177C2015T*	109D177C7015T*

		25 WVDC		
μF	Size Code	Sprague Number		
		±10%	+20%, -15%	+75%, -15%
9	C	109D905X9025C*	109D905C2025C*	109D905C7025C*
10	C	109D106X9025C*	109D106C2025C*	109D106C7025C*
45	F	109D456X9025F*	109D456C2025F*	109D456C7025F*
50	F	109D506X9025F*	109D506C2025F*	109D506C7025F*
100	T	109D107X9025T*	109D107C2025T*	109D107C7025T*
110	T	109D117X9025T*	109D117C2025T*	109D117C7025T*

		30 WVDC		
μF	Size Code	Sprague Number		
		±10%	+20%, -15%	+75%, -15%
7	C	109D705X9030C*	109D705C2030C*	109D705C7030C*
8	C	109D805X9030C*	109D805C2030C*	109D805C7030C*
35	F	109D356X9030F*	109D356C2030F*	109D356C7030F*
40	F	109D406X9030F*	109D406C2030F*	109D406C7030F*
80	T	109D806X9030T*	109D806C2030T*	109D806C7030T*
100	T	109D107X9030T*	109D107C2030T*	109D107C7030T*

\*Add suffix 0 for bare metal case type; add suffix 2 for units with plastic sleeves.

		50 WVDC		
μF	Size Code	Sprague Number		
		±10%	+20%, -15%	+75%, -15%
4.5	C	109D455X9050C*	109D455C2050C*	109D455C7050C*
5	C	109D505X9050C*	109D505C2050C*	109D505C7050C*
22	F	109D226X9050F*	109D226C2050F*	109D226C7050F*
25	F	109D256X9050F*	109D256C2050F*	109D256C7050F*
55	T	109D556X9050T*	109D556C2050T*	109D556C7050T*
60	T	109D606X9050T*	109D606C2050T*	109D606C7050T*

		60 WVDC		
μF	Size Code	Sprague Number		
		±10%	+20%, -15%	+75%, -15%
3.6	C	109D365X9060C*	109D365C2060C*	109D365C7060C*
4	C	109D405X9060C*	109D405C2060C*	109D405C7060C*
18	F	109D186X9060F*	109D186C2060F*	109D186C7060F*
20	F	109D206X9060F*	109D206C2060F*	109D206C7060F*
45	T	109D456X9060T*	109D456C2060T*	109D456C7060T*
50	T	109D506X9060T*	109D506C2060T*	109D506C7060T*

		75 WVDC		
μF	Size Code	Sprague Number		
		±10%	+20%, -15%	+75%, -15%
3	C	109D305X9075C*	109D305C2075C*	109D305C7075C*
3.5	C	109D355X9075C*	109D355C2075C*	109D355C7075C*
13	F	109D136X9075F*	109D136C2075F*	109D136C7075F*
15	F	109D156X9075F*	109D156C2075F*	109D156C7075F*
35	T	109D356X9075T*	109D356C2075T*	109D356C7075T*
40	T	109D406X9075T*	109D406C2075T*	109D406C7075T*

		100 WVDC		
μF	Size Code	Sprague Number		
		±10%	+20%, -15%	+75%, -15%
2.5	C	109D255X9100C*	109D255C2100C*	109D255C7100C*
10	F	109D106X9100F*	109D106C2100F*	109D106C7100F*
11	F	109D116X9100F*	109D116C2100F*	109D116C7100F*
27	T	109D276X9100T*	109D276C2100T*	109D276C7100T*
30	T	109D306X9100T*	109D306C2100T*	109D306C7100T*

		125 WVDC		
μF	Size Code	Sprague Number		
		±10%	+20%, -15%	+75%, -15%
1.7	C	109D175X9125C*	109D175C2125C*	109D175C7125C*
9	F	109D905X9125F*	109D905C2125F*	109D905C7125F*
18	T	109D186X9125T*	109D186C2125T*	109D186C7125T*

		150 WVDC		
μF	Size Code	Sprague Number		
		±10%	+20%, -15%	+75%, -15%
1.7	C	109D175X9150C*	109D175C2150C*	109D175C7150C*
6.8	F	109D685X9150F*	109D685C2150F*	109D685C7150F*
14	T	109D146X9150T*	109D146C2150T*	109D146C7150T*

\*Add suffix 0 for bare metal case type; add suffix 2 for units with plastic sleeves.

### GROUP 2—TOLERANCES: ±10% AND ±20%

Approximately twice the capacitance yet maintain same physical size at a given voltage rating as compared with Group 1 Capacitors.

		6 WVDC	
μF	Size Code	±10% Tol.	±20% Tol.
		Sprague No. 109D-	Sprague No. 109D-
68	C	686X9006C*	686X0006C*
270	F	277X9006F*	277X0006F*
560	T	567X9006T*	567X0006T*
1200	W	128X9006W*	128X0006W*

		8 WVDC	
μF	Size Code	±10% Tol.	±20% Tol.
		Sprague No. 109D-	Sprague No. 109D-
56	C	566X9008C*	566X0008C*
220	F	227X9008F*	227X0008F*
430	T	437X9008T*	437X0008T*
850	W	857X9008W*	857X0008W*

		10 WVDC	
μF	Size Code	±10% Tol.	±20% Tol.
		Sprague No. 109D-	Sprague No. 109D-
47	C	476X9010C*	476X0010C*
180	F	187X9010F*	187X0010F*
390	T	397X9010T*	397X0010T*
750	W	757X9010W*	757X0010W*

		15 WVDC	
μF	Size Code	±10% Tol.	±20% Tol.
		Sprague No. 109D-	Sprague No. 109D-
33	C	336X9015C*	336X0015C*
120	F	127X9015F*	127X0015F*
270	T	277X9015T*	277X0015T*
540	W	547X9015W*	547X0015W*

\*Add suffix 0 for bare metal case type; add suffix 2 for units with plastic sleeves.

		25 WVDC	
μF	Size Code	±10% Tol.	±20% Tol.
		Sprague No. 109D-	Sprague No. 109D-
22	C	226X9025C*	226X0025C*
100	F	107X9025F*	107X0025F*
180	T	187X9025T*	187X0025T*
350	W	357X9025W*	357X0025W*

		30 WVDC	
μF	Size Code	±10% Tol.	±20% Tol.
		Sprague No. 109D-	Sprague No. 109D-
15	C	156X9030C*	156X0030C*
68	F	686X9030F*	686X0030F*
150	T	157X9030T*	157X0030T*
300	W	307X9030W*	307X0030W*

		50 WVDC	
μF	Size Code	±10% Tol.	±20% Tol.
		Sprague No. 109D-	Sprague No. 109D-
10	C	106X9050C*	106X0050C*
47	F	476X9050F*	476X0050F*
82	T	826X9050T*	826X0050T*
160	W	167X9050W*	167X0050W*

		60 WVDC	
μF	Size Code	±10% Tol.	±20% Tol.
		Sprague No. 109D-	Sprague No. 109D-
8.2	C	825X9060C*	825X0060C*
39	F	396X9060F*	396X0060F*
68	T	686X9060T*	686X0060T*
140	W	147X9060W*	147X0060W*

\*Add suffix 0 for bare metal case type; add suffix 2 for units with plastic sleeves.

		75 WVDC	
μF	Size Code	±10% Tol.	±20% Tol.
		Sprague No. 109D-	Sprague No. 109D-
6.8	C	685X9075C*	685X0075C*
33	F	336X9075F*	336X0075F*
56	T	566X9075T*	566X0075T*
110	W	117X9075W*	117X0075W*

		100 WVDC	
μF	Size Code	±10% Tol.	±20% Tol.
		Sprague No. 109D-	Sprague No. 109D-
4.7	C	475X9100C*	475X0100C*
22	F	226X9100F*	226X0100F*
43	T	436X9100T*	436X0100T*
86	W	866X9100W*	866X0100W*

		125 WVDC	
μF	Size Code	±10% Tol.	±20% Tol.
		Sprague No. 109D-	Sprague No. 109D-
3.6	C	365X9125C*	365X0125C*
14	F	146X9125F*	146X0125F*
25	T	256X9125T*	256X0125T*
56	W	566X9125W*	566X0125W*

		150 WVDC	
μF	Size Code	±10% Tol.	±20% Tol.
		Sprague No. 109D-	Sprague No. 109D-
3	C	305X9150C*	305X0150C*
11	F	116X9150F*	116X0150F*
22	T	226X9150T*	226X0150T*

\*Add suffix 0 for bare metal case type; add suffix 2 for units with plastic sleeves.

### DIMENSIONS AND OEM PRICING (SUBTRACT 5c FROM PRICE FOR BARE METAL CASE TYPE)

Size
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# SPRAGUE Tantalum Capacitors

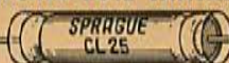
## TYPE 112D 85° C TYPE TANTALEX® CAPACITORS



Designed for military and industrial equipment where small physical size,

stable electrical characteristics and long life are important. Offer high capacitance stability even at low operating temperatures. Unlike aluminum foil electrolytics, extremely low leakage current. End-seal design is virtually leakproof using TFE-fluorocarbon elastomer seal. These units are also available in comparable MIL types; order by complete MIL-C-3965B type style designation. Tolerance: -15%, +75%.

## TYPES CL24 AND CL25 MIL-C-3965B ETCHED-FOIL TANTALUM CAPACITORS



Long life, miniature capacitors for military equipment usage. Excellent capacitance stability at low

operating temperatures. Low leakage current; leakproof end seal. Capacitance tolerance indicated by 10th char. in MIL No.: S, +30%, -15%; T, +50%, -15%; U, +75%, -15%. For vibration grade 1, change last digit of MIL No. to 1; prices are the same.

### TYPE CL24 WITH BARE TUBE

### STANDARD POLARIZED ETCHED-FOIL CONSTRUCTION

Sprague No. 112D-*	Cap., $\mu$ F	WV DC	Net Each, Lots of					
			1-9	10-24	25-49	50-99	100-499	500-999
156C7015D0	15	15	\$ 4.20	\$ 3.33	\$ 2.42	\$ 1.70	\$ 1.19	\$ 0.84
606C7015G0	60	15	7.55	4.94	3.80	2.70	1.87	1.46
207C7015J0	200	15	12.60	8.65	6.65	4.73	3.27	2.60
407C7015M0	400	15	20.55	14.11	10.83	7.70	5.31	4.65
587C7015P0	580	15	27.35	18.76	14.44	10.26	7.10	5.90
106C7025D0	10	25	4.20	3.33	2.42	1.70	1.19	.84
406C7025G0	40	25	7.55	4.94	3.80	2.70	1.87	1.46
127C7025J0	120	25	12.60	8.65	6.65	4.73	3.27	2.60
257C7025M0	250	25	20.55	14.11	10.83	7.70	5.31	4.65
357C7025P0	350	25	27.35	18.76	14.44	10.26	7.10	5.90
805C7030D0	8	30	4.20	3.33	2.42	1.70	1.19	.84
326C7030G0	32	30	7.55	4.94	3.80	2.70	1.87	1.46
117C7030J0	110	30	12.60	8.65	6.65	4.73	3.27	2.60
227C7030M0	220	30	20.55	14.11	10.83	7.70	5.31	4.65
307C7030P0	300	30	27.35	18.76	14.44	10.26	7.10	5.90
455C5050D0	4.5	50	4.20	3.33	2.42	1.70	1.19	.84
186C5050G0	18	50	7.55	4.94	3.80	2.70	1.87	1.46
606C5050J0	60	50	12.60	8.65	6.65	4.73	3.27	2.60
107C5050M0	100	50	20.55	14.11	10.83	7.70	5.31	4.65
157C5050P0	150	50	27.35	18.76	14.44	10.26	7.10	5.90
405C5060D0	4	60	4.20	3.33	2.42	1.70	1.19	.84
305C5075D0	3	75	4.20	3.33	2.42	1.70	1.19	.84
124C5075G0	12	75	7.55	4.94	3.80	2.70	1.87	1.46
306C5075J0	30	75	12.60	8.65	6.65	4.73	3.27	2.60
706C5075M0	70	75	20.55	14.11	10.83	7.70	5.31	4.65
107C5075P0	100	75	27.35	18.76	14.44	10.26	7.10	5.90
205C3100D0	2	100	4.20	3.33	2.42	1.70	1.19	.84
805C3100G0	8	100	7.55	4.94	3.80	2.70	1.87	1.46
256C3100J0	25	100	12.60	8.65	6.65	4.73	3.27	2.60
506C3100M0	50	100	20.55	14.11	10.83	7.70	5.31	4.65
706C3100P0	70	100	27.35	18.76	14.44	10.26	7.10	5.90
105C3150D0	1	150	4.20	3.33	2.42	1.70	1.19	.84
405C3150G0	4	150	7.55	4.94	3.80	2.70	1.87	1.46
136C3150J0	13	150	12.60	8.65	6.65	4.73	3.27	2.60
256C3150M0	25	150	20.55	14.11	10.83	7.70	5.31	4.65
366C3150P0	36	150	27.35	18.76	14.44	10.26	7.10	5.90

MIL No. CL24-	Cap., $\mu$ F	Net Each, Lots of					
		1-9	10-24	25-49	50-99	100-499	500-999
BE150UP3	15	\$ 4.20	\$ 3.33	\$ 2.42	\$ 1.70	\$ 1.19	\$ 0.84
BE600UP3	60	7.55	4.94	3.80	2.70	1.87	1.46
BE201UP3	200	12.60	8.65	6.65	4.73	3.27	2.60
BE401UP3	400	20.55	14.11	10.83	7.70	5.31	4.65
BE581UP3	580	27.35	18.76	14.44	10.26	7.10	5.90
BG100UP3	10	\$ 4.20	\$ 3.33	\$ 2.42	\$ 1.70	\$ 1.19	\$ 0.84
BG400UP3	40	7.55	4.94	3.80	2.70	1.87	1.46
BG121UP3	120	12.60	8.65	6.65	4.73	3.27	2.60
BG251UP3	250	20.55	14.11	10.83	7.70	5.31	4.65
BG351UP3	350	27.35	18.76	14.44	10.26	7.10	5.90
BH080UP3	8	\$ 4.20	\$ 3.33	\$ 2.42	\$ 1.70	\$ 1.19	\$ 0.84
BH320UP3	32	7.55	4.94	3.80	2.70	1.87	1.46
BH111UP3	110	12.60	8.65	6.65	4.73	3.27	2.60
BH221UP3	220	20.55	14.11	10.83	7.70	5.31	4.65
BH301UP3	300	27.35	18.76	14.44	10.26	7.10	5.90
BH455TP3	4.5	\$ 4.20	\$ 3.33	\$ 2.42	\$ 1.70	\$ 1.19	\$ 0.84
BH180TP3	18	7.55	4.94	3.80	2.70	1.87	1.46
BH600TP3	60	12.60	8.65	6.65	4.73	3.27	2.60
BH101TP3	100	20.55	14.11	10.83	7.70	5.31	4.65
BH151TP3	150	27.35	18.76	14.44	10.26	7.10	5.90
BL030TP3	3	\$ 4.20	\$ 3.33	\$ 2.42	\$ 1.70	\$ 1.19	\$ 0.84
BL120TP3	12	7.55	4.94	3.80	2.70	1.87	1.46
BL300TP3	30	12.60	8.65	6.65	4.73	3.27	2.60
BL700TP3	70	20.55	14.11	10.83	7.70	5.31	4.65
BL101TP3	100	27.35	18.76	14.44	10.26	7.10	5.90
BN020SP3	2	\$ 4.20	\$ 3.33	\$ 2.42	\$ 1.70	\$ 1.19	\$ 0.84
BN080SP3	8	7.55	4.94	3.80	2.70	1.87	1.46
BN250SP3	25	12.60	8.65	6.65	4.73	3.27	2.60
BN500SP3	50	20.55	14.11	10.83	7.70	5.31	4.65
BN700SP3	70	27.35	18.76	14.44	10.26	7.10	5.90
BQ010SP3	1	\$ 4.20	\$ 3.33	\$ 2.42	\$ 1.70	\$ 1.19	\$ 0.84
BQ040SP3	4	7.55	4.94	3.80	2.70	1.87	1.46
BQ130SP3	13	12.60	8.65	6.65	4.73	3.27	2.60
BQ250SP3	25	20.55	14.11	10.83	7.70	5.31	4.65
BQ360SP3	36	27.35	18.76	14.44	10.26	7.10	5.90

### HIGH CAPACITANCE POLARIZED ETCHED-FOIL

296C7015D0	29	15	\$ 5.69	\$ 4.50	\$ 3.27	\$ 2.30	\$ 1.61	\$ 1.13
107C7015G0	100	15	10.19	6.67	5.13	3.65	2.52	1.97
317C7015J0	310	15	17.01	11.68	8.98	6.39	4.41	3.51
657C7015M0	650	15	26.35	18.10	13.89	9.88	6.81	5.97
927C7015P0	920	15	36.92	25.33	19.49	13.85	9.59	7.97
176C7025D0	17	25	5.69	4.50	3.27	2.30	1.61	1.13
606C7025G0	60	25	10.19	6.67	5.13	3.65	2.52	1.97
187C7025J0	180	25	17.01	11.68	8.98	6.39	4.41	3.51
387C7025M0	380	25	26.35	18.10	13.89	9.88	6.81	5.97
557C7025P0	550	25	36.92	25.33	19.49	13.85	9.59	7.97
156C7030D0	15	30	5.69	4.50	3.27	2.30	1.61	1.13
526C7030G0	52	30	10.19	6.67	5.13	3.65	2.52	1.97
157C7030J0	150	30	17.01	11.68	8.98	6.39	4.41	3.51
327C7030M0	320	30	26.35	18.10	13.89	9.88	6.81	5.97
467C7030P0	460	30	36.92	25.33	19.49	13.85	9.59	7.97
705C5050D0	7	50	5.69	4.50	3.27	2.30	1.61	1.13
256C5050G0	25	50	10.19	6.67	5.13	3.65	2.52	1.97
756C5050J0	75	50	17.01	11.68	8.98	6.39	4.41	3.51
167C5050M0	160	50	26.35	18.10	13.89	9.88	6.81	5.97
237C5050P0	230	50	36.92	25.33	19.49	13.85	9.59	7.97
405C5075D0	4	75	5.69	4.50	3.27	2.30	1.61	1.13
156C5075G0	15	75	10.19	6.67	5.13	3.65	2.52	1.97
456C5075J0	45	75	17.01	11.68	8.98	6.39	4.41	3.51
956C5075M0	95	75	26.35	18.10	13.89	9.88	6.81	5.97
137C5075P0	130	75	36.92	25.33	19.49	13.85	9.59	7.97
305C1100D0	3	100	5.69	4.50	3.27	2.30	1.61	1.13
106C1100G0	10	100	10.19	6.67	5.13	3.65	2.52	1.97
306C1100J0	30	100	17.01	11.68	8.98	6.39	4.41	3.51
636C1100M0	63	100	26.35	18.10	13.89	9.88	6.81	5.97
906C1100P0	90	100	36.92	25.33	19.49	13.85	9.59	7.97
165C1500D0	1.6	150	5.69	4.50	3.27	2.30	1.61	1.13
555C1500G0	5.5	150	10.19	6.67	5.13	3.65	2.52	1.97
176C1500J0	17	150	17.01	11.68	8.98	6.39	4.41	3.51
356C1500M0	35	150	26.35	18.10	13.89	9.88	6.81	5.97
506C1500P0	50	150	36.92	25.33	19.49	13.85	9.59	7.97
905X0200G0	3	200	15.62	12.38	8.57	6.06	4.57	4.19
905X0200J0	9	200	24.64	19.53	13.52	9.56	7.21	6.61
196X0200M0	19	200	35.79	28.37	19.64	13.88	10.48	9.60
276X0200P0	27	200	44.49	35.26	24.41	17.25	13.02	11.94
205X0250G0	2	250	15.62	12.38	8.57	6.06	4.57	4.19
605X0250J0	6	250	24.64	19.53	13.52	9.56	7.21	6.61
136X0250M0	13	250	35.79	28.37	19.64	13.88	10.48	9.60
196X0250P0	19	250	44.49	35.26	24.41	17.25	13.02	11.94
18X0300G0	1.8	300	15.62	12.38	8.57	6.06	4.57	4.19
505X0300J0	5	300	24.64	19.53	13.52	9.56	7.21	6.61
116X0300M0	11	300	35.79	28.37	19.64	13.88	10.48	9.60
156X0300P0	15	300	44.49	35.26	24.41	17.25	13.02	11.94

MIL No. CL25-	Cap., $\mu$ F	Net Each, Lots of					
		1-9	10-24	25-49	50-99	100-499	500-999
BE150UP3	15	\$ 4.24	\$ 3.37	\$ 2.46	\$ 1.74	\$ 1.23	\$ 0.88
BE600UP3	60	7.59	4.98	3.84	2.74	1.91	1.50
BE201UP3	200	12.64	8.69	6.69	4.77	3.31	2.64
BE401UP3	400	20.59	14.15	10.87	7.74	5.35	4.69
BE581UP3	580	27.39	18.80	14.48	10.30	7.14	5.94
BG100UP3	10	\$ 4.24	\$ 3.37	\$ 2.46	\$ 1.74	\$ 1.23	\$ 0.88
BG400UP3	40	7.59	4.98	3.84	2.74	1.91	1.50
BG121UP3	120	12.64	8.69	6.69	4.77	3.31	2.64
BG251UP3	250	20.59	14.15	10.			



# SPRAGUE Tantalum Capacitors

Temperature range, -55° C to +85° C, up to 150 volts. Low leakage current and good temperature coefficient.

## TYPE 110D POLARIZED PLAIN-FOIL, 85° C TANTALEX® CAPACITORS—TOL. ±20%

Cap., $\mu$ F	WV DC	Sprague Number	*	Cap., $\mu$ F	WV DC	Sprague Number	*	Cap., $\mu$ F	WV DC	Sprague Number	*
10	3	110D106X0003D0	D	10	30	110D106X0003G0	G	7	150	110D705X0150J0	J
55	3	110D556X0003G0	G	30	30	110D306X0003J0	J	14	150	110D146X0150M0	M
160	3	110D167X0003J0	J	60	30	110D606X0003M0	M	20	150	110D206X0150P0	P
350	3	110D357X0003M0	M	85	30	110D856X0003P0	P	.35	200	110D354X8200D0	D
440	3	110D447X0003P0	P	1.5	50	110D155X0050D0	D		1.5	200	110D155X8200G0
8	6	110D805X0006D0	D	6	50	110D605X0050G0	G	10	200	110D505X8200J0	J
30	6	110D306X0006G0	G	20	50	110D206X0050J0	J	10	200	110D106X8200M0	M
35	6	110D356X0006G0	G	40	50	110D406X0050M0	M	15	200	110D156X8200P0	P
100	6	110D107X0006J0	J	55	50	110D556X0050P0	P	.3	250	110D304X8250D0	D
200	6	110D207X0006M0	M	1.2	60	110D125X0060D0	D		1.2	250	110D125X8250G0
300	6	110D307X0006P0	P	5	60	110D505X0060G0	G	4	250	110D405X8250J0	J
6	10	110D605X0010D0	D	17	60	110D176X0060J0	J	8	250	110D805X8250M0	M
25	10	110D256X0010G0	G	34	60	110D346X0060M0	M	12	250	110D126X8250P0	P
80	10	110D806X0010J0	J	48	60	110D486X0060P0	P	1	300	110D105X8300G0	G
160	10	110D167X0010M0	M	1	75	110D105X0075D0	D	3	300	110D305X8300J0	J
220	10	110D227X0010P0	P	4	75	110D405X0075G0	G	7	300	110D705X8300M0	M
4.5	15	110D455X0015D0	D	14	75	110D146X0075J0	J	10	300	110D106X8300P0	P
	18	110D186X0015G0	G	28	75	110D286X0075M0	M	.2	375	110D204X8375D0	D
55	15	110D556X0015J0	J	40	75	110D406X0075P0	P	8	375	110D804X8375G0	G
110	15	110D117X0015M0	M	.8	100	110D804X0100D0	D	2.5	375	110D255X8375J0	J
160	15	110D167X0015P0	P		3	100	110D305X0100G0	G	5	375	110D505X8375M0
3	25	110D305X0025D0	D	10	100	110D106X0100J0	J	7	375	110D705X8375P0	P
12	25	110D126X0025G0	G	20	100	110D206X0100M0	M	.15	450	110D154X8450D0	D
35	25	110D356X0025J0	J	30	100	110D306X0100P0	P		.65	450	110D654X8450G0
70	25	110D706X0025M0	M	.5	150	110D504X0150D0	D	2	450	110D205X8450J0	J
100	25	110D107X0025P0	P		1	150	110D105X0150G0	G	4	450	110D405X8450M0
2.5	30	110D225X0030D0	D	2	150	110D205X0150G0	G	6	450	110D605X8450P0	P

## TYPES CL34 AND CL35 MIL-C-3965-B PLAIN-FOIL TANTALUM CAPACITORS—TOL. ±15% AND ±20%

Cap., $\mu$ F	WV DC	Sprague Number	*	Cap., $\mu$ F	WV DC	Sprague Number	*	Cap., $\mu$ F	WV DC	Sprague Number	*
10	3	CL34BA100MP3	D	60	30	CL34BH600MP3	M	7	150	CL34BQ700MP3	J
50	3	CL34BA500MP3	G	85	30	CL34BH850MP3	P	8	150	CL34BQ800MP3	M
8	6	CL34BB080MP3	D	1.5	50	CL34BJ1R5MP3	D	12	150	CL34BQ120MP3	M
30	6	CL34BB300MP3	G	6	50	CL34BJ300MP3	J	14	150	CL34BQ140MP3	M
100	6	CL34BB101MP3	J	20	50	CL34BJ200MP3	J	20	150	CL34BQ200MP3	P
200	6	CL34BB201MP3	M	40	50	CL34BJ400MP3	M	.35	200	CL34BRR35LP3†	D
300	6	CL34BB301MP3	P	55	50	CL34BJ550MP3	P		1.5	200	CL34BRR15LP3†
6	10	CL34BD060MP3	D	1	75	CL34BL010MP3	D	5	200	CL34BR050LP3†	G
25	10	CL34BD250MP3	G	4	75	CL34BL040MP3	G	10	200	CL34BR100LP3†	M
80	10	CL34BD800MP3	J	14	75	CL34BL140MP3	J	15	200	CL34BR150LP3†	P
160	10	CL34BD161MP3	M	28	75	CL34BL280MP3	M	.30	250	CL34BSR30LP3†	D
220	10	CL34BD221MP3	P	40	75	CL34BL400MP3	P		1.2	250	CL34BS1R2LP3†
4.5	15	CL34BEAR5MP3	D	0.8	100	CL34BN0R8MP3	D	4	250	CL34BS040LP3†	J
	18	CL34BE180MP3	G	3	100	CL34BN030MP3	G	8	250	CL34BS080LP3†	M
55	15	CL34BE550MP3	J	10	100	CL34BN100MP3	J	12	250	CL34BS120LP3†	P
110	15	CL34BE111MP3	M	20	100	CL34BN200MP3	M	1	300	CL34BX010LP3†	G
160	15	CL34BE161MP3	P	30	100	CL34BN300MP3	P	3	300	CL34BX030LP3†	J
2.5	30	CL34BH2R5MP3	D	0.5	150	CL34BQR05MP3	D	7	300	CL34BX070LP3†	M
	30	CL34BH300MP3	J	2	150	CL34BQ020MP3	J	10	300	CL34BX100LP3†	P
				4	150	CL34BQ400MP3	G				

†Tol., ±15%; all others, ±20%.

### DIMENSIONS AND PRICES FOR CL34, CL35 AND 110D TANTALUMS

Prices shown are for units with bare tube. For units with plastic insulating sleeve: change CL34 to CL35 (i.e., CL35BA100MP3) and 110D numbers last digit to 1 (i.e., 110D106X0003D1); add 4c to prices shown below and 1/8" to dia. x lgth. sizes shown.

For vibration grade 1 (CL34, CL35) change last digit to 1; same prices apply. To determine price: Select value desired from tables above, and using adjacent size indicator, determine price by case size key below, within working voltage range indicated.

WV DC	Case Size	* Size, In. Diameter x Length	Net Each, Lots of					
			1-9	10-24	25-49	50-99	100-499	500-999
2 thru 150	D	5/16 x 1 1/8	\$ 4.20	\$ 3.33	\$ 2.42	\$ 1.70	\$ 1.19	\$ 0.84
	G	5/16 x 1 1/8	6.60	4.51	3.47	2.48	1.70	1.25
	J	5/16 x 1 1/8	10.45	7.17	5.51	3.92	2.68	2.15
	M	5/16 x 2 1/8	14.60	10.02	7.70	5.49	3.78	3.21
	P	5/16 x 2 1/8	19.60	13.44	10.31	7.34	5.06	4.60
200 thru 300	D	5/8 x 1 1/2	10.85	8.54	5.89	4.19	3.16	2.90
	G	5/8 x 1 1/2	14.25	11.21	7.73	5.50	4.15	3.81
	J	5/8 x 1 1/2	20.48	16.12	11.12	7.90	5.97	5.47
	M	5/8 x 2 1/8	25.31	19.93	13.74	9.77	7.38	6.76
	P	5/8 x 2 1/8	31.92	25.13	17.33	12.31	9.30	8.53

WV DC	Case Size	* Size, In. Diameter x Length	Net Each, Lots of					
			1-9	10-24	25-49	50-99	100-499	500-999
375	D	5/8 x 1 1/2	\$15.65	\$14.53	\$ 8.94	\$ 6.71	\$ 5.36	\$ 4.91
	G	5/8 x 1 1/2	20.58	19.11	11.76	8.82	7.06	6.47
	J	5/8 x 1 1/2	29.40	27.30	16.80	12.60	10.08	9.24
	M	5/8 x 2 1/8	35.77	33.22	20.44	15.33	12.26	11.24
	P	5/8 x 2 1/8	42.88	39.81	24.50	18.38	14.70	13.48
450	D	5/8 x 1 1/2	19.71	18.30	11.26	8.45	6.76	6.19
	G	5/8 x 1 1/2	25.83	23.99	14.76	11.07	8.86	8.12
	J	5/8 x 1 1/2	37.03	34.39	21.16	15.87	12.70	11.64
	M	5/8 x 2 1/8	44.94	41.73	25.68	19.26	15.41	14.12
	P	5/8 x 2 1/8	54.64	50.73	31.22	23.42	18.73	17.17

### CROSS REFERENCE—CL34's vs. 110D's

Cap., $\mu$ F	WVDC	Type Designation	Sprague Number	Cap., $\mu$ F	WVDC	Type Designation	Sprague Number
10	3	CL34BA100MP	110D106X0003D0	14	75	CL34BL140MP	110D146X0075J0
8	6	CL34BB080MP	110D805X0006D0	28	75	CL34BL280MP	110D286X0075M0
30	6	CL34BB300MP	110D306X0006G0	40	75	CL34BL400MP	110D406X0075P0
100	6	CL34BB101MP	110D107X0006J0	.8	100	CL34BN0R8MP	110D804X0100D0
200	6	CL34BB201MP	110D207X0006M0		3	100	CL34BN030MP
300	6	CL34BB301MP	110D307X0006P0	10	100	CL34BN100MP	110D106X0100J0
6	10	CL34BD060MP	110D605X0010D0	20	100	CL34BN200MP	110D206X0100M0
25	10	CL34BD250MP	110D256X0010G0	30	100	CL34BN300MP	110D306X0100P0
80	10	CL34BD800MP	110D806X0010J0	.5	150	CL34BQR05MP	110D504X0150D0
160	10	CL34BD161MP	110D167X0010M0		2	150	CL34BQ020MP
220	10	CL34BD221MP	110D227X0010P0	7	150	CL34BQ070MP	110D705X0150J0
4.5	15	CL34BEAR5MP	110D455X0015D0	14	150	CL34BQ140MP	110D146X0150M0
	18	CL34BE180MP	110D186X0015G0	20	150	CL34BQ200MP	110D206X0150P0
55	15	CL34BE550MP	110D556X0015J0	.35	200	CL34BRR35LP3	110D354X8200D0
110	15	CL34BE111MP	110D117X0015M0		1.5	200	CL34BRR15LP3
160	15	CL34BE161MP	110D167X0015P0	5	200	CL34BR050LP3	110D505X8200J0
2.5	30	CL34BH2R5MP	110D255X0030D0	10	200	CL34BR100LP3	110D106X8200M0
	30	CL34BH300MP	110D306X0030G0	15	200	CL34BR150LP3	110D156X8200P0
60	30	CL34BH600MP	110D606X0030M0	.30	250	CL34BSR30LP3	110D304X8250D0
85	30	CL34BH850MP	110D856X0030P0		1.2	250	CL34BS1R2LP3
1.5	50	CL34BJ1R5MP	110D155X0050D0	4	250	CL34BS040LP3	110D405X8250J0
	5	50	CL34BJ060MP	110D605X0050G0	8	250	CL34BS080LP3
20	50	CL34BJ200MP	110D206X0050J0	12	250	CL34BS120LP3	110D126X8250P0
40	50	CL34BJ400MP	110D406X0050M0	1	300	CL34BX010LP3	110D105X8300G0
55	50	CL34BJ550MP	110D556X0050P0	3	300	CL34BX030LP3	110D305X8300J0
1	75	CL34BL010MP	110D105X0075D0	7	300	CL34BX070LP3	110D705X8300M0
4	75	CL34BL040MP	110D405X0075G0	10	300	CL34BX100LP3	110D106X8300P0



# SPRAGUE Tantalum Capacitors

## "CUP TYPE" TANTALEX® TANTALUM CAPACITORS TO MIL-C-3965-B



**Capacitance Tolerance:** Indicated by the 10th character in catalog number shown: **K**,  $\pm 10\%$ ; **M**,  $\pm 20\%$ ; **S**,  $+30\%$ ,  $-15\%$ ; **T**,  $+50\%$ ,  $-15\%$ . **Vibration Grades:** For vibration grade 1 or 3, add 1 or 3 suffix to number (example: CL44BB300KP3); all vibration grades unchanged in price.

### STOCK VALUES TYPE CL44 BARE METAL CASE

Type CL45 is the same as Type CL44 but with plastic insulating sleeve.

Cap., $\mu$ F	WV DC	Sprague Number	Tol. *	†	Cap., $\mu$ F	WV DC	Sprague Number	Tol. *	†	Cap., $\mu$ F	WV DC	Sprague Number	Tol. *	†
30	6	CL44BB300KP	K	T1	170	15	CL44BE171TP	T	T3	50	60	CL44BK500SP	S	T3
30	6	CL44BB300MP	M	T1	10	25	CL44BG100KP	K	T1	50	60	CL44BK500TP	S	T3
30	6	CL44BB300SP	S	T1	10	25	CL44BH100MP	M	T1	3.5	75	CL44BL3R5KP	K	T1
30	6	CL44BB300TP	T	T1	10	25	CL44BG100SP	S	T1	3.5	75	CL44BL3R5MP	M	T1
140	6	CL44BB141KP	K	T2	10	25	CL44BG100TP	T	T1	3.5	75	CL44BL3R5SP	S	T1
140	6	CL44BB141MP	M	T2	8	30	CL44BH080KP	K	T1	3.5	75	CL44BL3R5TP	T	T1
140	6	CL44BB141SP	S	T2	8	30	CL44BH080MP	M	T1	15	75	CL44BL150KP	K	T2
140	6	CL44BB141TP	T	T2	8	30	CL44BH080SP	S	T1	15	75	CL44BL150MP	M	T2
330	6	CL44BB331KP	K	T3	8	30	CL44BH080TP	T	T1	15	75	CL44BL150SP	S	T2
330	6	CL44BB331MP	M	T3	40	30	CL44BH400KP	K	T2	15	75	CL44BL150TP	T	T2
330	6	CL44BB331SP	S	T3	40	30	CL44BH400MP	M	T2	40	75	CL44BL400KP	K	T3
330	6	CL44BB331TP	T	T3	40	30	CL44BH400SP	S	T2	40	75	CL44BL400MP	M	T3
25	8	CL44BC250KP	K	T1	40	30	CL44BH400TP	T	T2	40	75	CL44BL400SP	S	T3
25	8	CL44BC250MP	M	T1	100	30	CL44BH101KP	K	T3	40	75	CL44BL400TP	T	T3
25	8	CL44BC250SP	S	T1	100	30	CL44BH101MP	M	T3	2.5	100	CL44BN2R5KP	K	T1
25	8	CL44BC250TP	T	T1	100	30	CL44BH101SP	S	T3	2.5	100	CL44BN2R5MP	M	T1
20	10	CL44BD200KP	K	T1	100	30	CL44BH101TP	T	T3	2.5	100	CL44BN2R5TP	T	T1
20	10	CL44BD200MP	M	T1	5	50	CL44BJ050KP	K	T1	2.5	100	CL44BN2R5TP	T	T1
20	10	CL44BD200SP	S	T1	5	50	CL44BJ050MP	M	T1	11	100	CL44BN110KP	K	T2
20	10	CL44BD200TP	T	T1	5	50	CL44BJ050SP	S	T1	11	100	CL44BN110MP	M	T2
100	10	CL44BD101KP	K	T2	5	50	CL44BJ050TP	T	T1	11	100	CL44BN110SP	S	T2
100	10	CL44BD101MP	M	T2	25	50	CL44BJ250KP	K	T2	11	100	CL44BN110TP	T	T2
100	10	CL44BD101SP	S	T2	25	50	CL44BJ250MP	M	T2	30	100	CL44BN300KP	K	T3
100	10	CL44BD101TP	T	T2	25	50	CL44BJ250SP	S	T2	30	100	CL44BN300MP	M	T3
250	10	CL44BD251KP	K	T3	25	50	CL44BJ250TP	T	T2	30	100	CL44BN300SP	S	T3
250	10	CL44BD251MP	M	T3	60	50	CL44BJ600KP	K	T3	30	100	CL44BN300TP	T	T3
250	10	CL44BD251SP	S	T3	60	50	CL44BJ600MP	M	T3	1.7	125	CL44BP1R7KP	K	T1
250	10	CL44BD251TP	T	T3	60	50	CL44BJ600SP	S	T3	1.7	125	CL44BP1R7MP	M	T1
15	15	CL44BE150KP	K	T1	60	50	CL44BJ600TP	T	T3	1.7	125	CL44BP1R7SP	S	T1
15	15	CL44BE150MP	M	T1	4	60	CL44BK040KP	K	T1	1.7	125	CL44BP1R7TP	T	T1
15	15	CL44BE150SP	S	T1	4	60	CL44BK040MP	M	T1	9	125	CL44BP090KP	K	T2
15	15	CL44BE150TP	T	T1	4	60	CL44BK040SP	S	T1	9	125	CL44BP090MP	M	T2
70	15	CL44BE700KP	K	T2	4	60	CL44BK040TP	T	T1	9	125	CL44BP090SP	S	T2
70	15	CL44BE700MP	M	T2	20	60	CL44BK200KP	K	T2	9	125	CL44BP090TP	T	T2
70	15	CL44BE700SP	S	T2	20	60	CL44BK200MP	M	T2	18	125	CL44BP180KP	K	T3
70	15	CL44BE700TP	T	T2	20	60	CL44BK200SP	S	T2	18	125	CL44BP180MP	M	T3
170	15	CL44BE171KP	K	T3	20	60	CL44BK200TP	T	T2	25	125	CL44BP250SP	S	T3
170	15	CL44BE171MP	M	T3	50	60	CL44BK500KP	K	T3	25	125	CL44BP250TP	T	T3
170	15	CL44BE171SP	S	T3	50	60	CL44BK500MP	M	T3					

### †PRICING FOR TYPES CL44 AND CL45 CAPACITORS

To find price, use size key (†) from table (above) adjacent to value desired; read in price table (below) with tolerance (\*) desired to find proper price. Units listed are bare metal case, for plastic insulating sleeve, change prefix to CL45 (i.e., CL45BB300MP3), and add 5c to prices shown.

† Size Key	Size, Inches Dia. x Lgth.	Tol. K* ( $\pm 10\%$ ), Net Each, Lots of					Tol. M* ( $\pm 20\%$ ), or S* ( $+30\%$ , $-15\%$ ), Net Each, Lots of					Tol. T* ( $+50\%$ , $-15\%$ ), Net Each, Lots of				
		1-24	25-49	50-99	100-499	500-999	1-24	25-49	50-99	100-499	500-999	1-24	25-49	50-99	100-499	500-999
T1	$\frac{1}{8} \times \frac{1}{16}$	\$2.44	\$1.96	\$1.65	\$1.41	\$1.01	\$2.22	\$1.78	\$1.50	\$1.28	\$0.92	\$1.98	\$1.58	\$1.34	\$1.14	\$0.82
T2	$\frac{1}{8} \times \frac{1}{8}$	3.72	2.97	2.51	2.13	1.55	3.38	2.70	2.28	1.94	1.41	3.02	2.42	2.04	1.74	1.25
T3	$\frac{3}{8} \times \frac{1}{4}$	5.85	4.69	3.95	3.37	2.43	5.32	4.26	3.59	3.06	2.21	4.72	3.78	3.19	2.71	1.95

## TYPE 132D "CUP TYPE" TANTALEX® TANTALUM CAPACITORS



- $-55^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  operation at full rating;  $100^{\circ}\text{C}$  operation with 15% derating.
- Stable in performance characteristics over entire temperature range.
- Large capacitance in small physical size.
- Extremely low leakage currents.

• Designed to withstand severe military vibration tests.

### BARE METAL CASE $\pm 10\%$ TOLERANCE

Cap., $\mu$ F	WV DC	Sprague No. 132D-*	Net Each, Lots of				
			1-24	25-49	50-99	100-499	500-999
30	6	306X9006U0	\$1.96	\$1.57	\$1.32	\$1.13	\$0.92
140	6	147X9006V0	3.02	2.42	2.04	1.74	1.42
320	6	327X9006T0	4.74	3.79	3.20	2.73	2.25
25	8	256X9008U0	1.96	1.57	1.32	1.13	.92
20	10	206X9010U0	1.96	1.57	1.32	1.13	.92
100	10	107X9010V0	3.02	2.42	2.04	1.74	1.42
250	10	257X9010T0	4.74	3.79	3.20	2.73	2.25
15	15	156X9015U0	1.96	1.57	1.32	1.13	.92
70	15	706X9015V0	3.02	2.42	2.04	1.74	1.42
170	15	176X9015T0	4.74	3.79	3.20	2.73	2.25
10	25	106X9025U0	1.96	1.57	1.32	1.13	.92
40	30	406X9030V0	3.02	2.42	2.04	1.74	1.42
100	30	107X9030T0	4.74	3.79	3.20	2.73	2.25
5	50	505X9050U0	1.96	1.57	1.32	1.13	.92
25	50	256X9050V0	3.02	2.42	2.04	1.74	1.42
60	50	606X9050T0	4.74	3.79	3.20	2.73	2.25
4	60	405X9060U0	1.96	1.57	1.32	1.13	.92
20	60	206X9060V0	3.02	2.42	2.04	1.74	1.42
50	60	506X9060T0	4.74	3.79	3.20	2.73	2.25
3.5	75	355X9075U0	1.96	1.57	1.32	1.13	.92
15	75	156X9075V0	3.02	2.42	2.04	1.74	1.42
40	75	406X9075T0	4.74	3.79	3.20	2.73	2.25
2	100	205X9100U0	1.96	1.57	1.32	1.13	.92
11	100	116X9100V0	3.02	2.42	2.04	1.74	1.42
30	100	306X9100T0	4.74	3.79	3.20	2.73	2.25
1.7	125	175X9125U0	1.96	1.57	1.32	1.13	.92
9	125	905X9125V0	3.02	2.42	2.04	1.74	1.42
25	125	256X9125T0	4.74	3.79	3.20	2.73	2.25

### BARE METAL CASE $-15\%$ , $+20\%$ TOLERANCE

Cap., $\mu$ F	WV DC	Sprague No. 132D-*	Net Each, Lots of				
			1-24	25-49	50-99	100-499	500-999
30	6	306C2006U0	\$1.78	\$1.42	\$1.20	\$1.02	\$0.84
140	6	147C2006V0	2.74	2.19	1.85	1.58	1.29
320	6	327C2006T0	4.30	3.44	2.90	2.47	2.04
25	8	256C2008U0	1.78	1.42	1.20	1.02	.84
20	10	206C2010U0	1.78	1.42	1.20	1.02	.84
100	10	107C2010V0	2.74	2.19	1.85	1.58	1.29
250	10	257C2010T0	4.30	3.44	2.90	2.47	2.04
15	15	156C2015U0	1.78	1.42	1.20	1.02	.84
70	15	706C2015V0	2.74	2.19	1.85	1.58	1.29
170	15	177C2015T0	4.30	3.44	2.90	2.47	2.04
10	25	106C2025U0	1.78	1.42	1.20	1.02	.84
40	30	406C2030V0	2.74	2.19	1.85	1.58	1.29
100	30	107C2030T0	4.30	3.44	2.90	2.47	2.04
5	50	505C2050U0	1.78	1.42	1.20	1.02	.84
25	50	256C2050V0	2.74	2.19	1.85	1.58	1.29
60	50	606C2050T0	4.30	3.44	2.90	2.47	2.04
4	60	405C2060U0	1.78	1.42	1.20	1.02	.84
20	60	206C2060V0	2.74	2.19	1.85	1.58	1.29
50	60	506C2060T0	4.30	3.44	2.90	2.47	2.04
3.5	75	355C2075U0	1.78	1.42	1.20	1.02	.84
15	75	156C2075V0	2.74	2.19	1.85	1.58	1.29
40	75	406C2075T0	4.30	3.44	2.90	2.47	2.04
2	100	205C2100U0	1.78	1.42	1.20	1.02	.84
11	100	116C2100V0	2.74	2.19	1.85	1.58	1.29
30	100	306C2100T0	4.30	3.44	2.90	2.47	2.04
1.7	125	175C2125U0	1.78	1.42	1.20	1.02	.84
9	125	905C2125V0	2.74	2.19	1.85	1.58	1.29
25	125	256C2125T0	4.30	3.44	2.90	2.47	2.04

\*For unit with plastic sleeve change last number to 4 (i.e., 132D306C2006U4), and add 5c to net.



# SPRAGUE Vitamin Q® Capacitors

## TYPES 91P AND 191P SUBMINIATURE VITAMIN Q® CAPACITORS

### STYLE 2—PLAIN METAL CASE—+10% TOLERANCE—85° C OPERATION



Most widely used of all paper capacitors in commercial and military applications. Units are hermetically sealed in metal cases and are electrically and mechanically designed to meet stringent operating requirements. Impregnated

with Vitamin Q, a substantially linear, controlled molecular weight, hydrocarbon polymer which is exclusive with Sprague units. Available for operation in two temperature ranges: -55° C to +85° C and -55° C to +125° C. Units have a higher insulation resistance and a longer life than comparable units with ordinary oils. Exceed performance requirements of MIL-C-26A. Available in inserted tab or extended foil construction and may be used in low voltage applications (e.g., below 10 volts). Unless losses at resonance are a critical factor, inserted tab types are recommended, because of the size of the roll. Also available with plastic outer sleeve. Tolerance: +10% as listed; +20% available.

#### TYPE 91P INSERTED TAB CONSTRUCTION

Sprague Number 91P-	Cap., $\mu$ F	WV DC	Net Each, Lots of					
			1-9	10-24	25-49	50-99	100-499	500-999
1029152	.001	100	\$1.426	\$1.069	\$0.802	\$0.535	\$0.407	\$0.331
1029252	.001	200	1.346	1.01	.758	.505	.384	.313
1029352	.001	300	1.366	1.025	.769	.512	.390	.317
1029452	.001	400	1.386	1.04	.779	.52	.396	.322
1029552	.001	600	1.406	1.055	.791	.527	.401	.327
1529152	.0015	100	1.426	1.069	.802	.535	.407	.331
1529252	.0015	200	1.346	1.01	.758	.505	.384	.313
1529352	.0015	300	1.366	1.025	.769	.512	.390	.317
1529452	.0015	400	1.386	1.04	.779	.52	.396	.322
1529552	.0015	600	1.406	1.055	.791	.527	.401	.327
2229152	.0022	100	1.426	1.069	.802	.535	.407	.331
2229252	.0022	200	1.346	1.01	.758	.505	.384	.313
2229352	.0022	300	1.366	1.025	.769	.512	.390	.317
2229452	.0022	400	1.386	1.04	.779	.52	.396	.322
2229552	.0022	600	1.406	1.055	.791	.527	.401	.327
3329152	.0033	100	1.426	1.069	.802	.535	.407	.331
3329252	.0033	200	1.346	1.01	.758	.505	.384	.313
3329352	.0033	300	1.366	1.025	.769	.512	.390	.317
3329452	.0033	400	1.386	1.04	.779	.52	.396	.322
3329552	.0033	600	1.406	1.055	.791	.527	.401	.327
4729152	.0047	100	1.465	1.099	.824	.55	.418	.340
4729252	.0047	200	1.346	1.01	.758	.505	.384	.313
4729352	.0047	300	1.366	1.025	.769	.512	.390	.317
4729452	.0047	400	1.386	1.04	.779	.52	.396	.322
4729552	.0047	600	1.406	1.055	.791	.527	.401	.327
6829152	.0068	100	1.465	1.099	.824	.55	.418	.340
6829252	.0068	200	1.346	1.01	.758	.505	.384	.313
6829352	.0068	300	1.366	1.025	.769	.512	.390	.317
6829452	.0068	400	1.386	1.04	.779	.52	.396	.322
6829552	.0068	600	1.406	1.055	.791	.527	.401	.327
1039152	.01	100	1.465	1.099	.824	.55	.418	.340
1039252	.01	200	1.366	1.025	.769	.512	.390	.317
1039352	.01	300	1.386	1.04	.779	.52	.396	.322
1039452	.01	400	1.386	1.04	.779	.52	.396	.322
1039552	.01	600	1.426	1.069	.802	.535	.407	.331
1539152	.015	100	1.465	1.099	.824	.55	.418	.340
1539252	.015	200	1.366	1.025	.769	.512	.390	.317
1539352	.015	300	1.386	1.04	.779	.52	.396	.322
1539452	.015	400	1.426	1.069	.802	.535	.407	.331
1539552	.015	600	1.465	1.099	.824	.55	.418	.340
2239152	.022	100	1.465	1.099	.824	.55	.418	.340
2239252	.022	200	1.366	1.025	.769	.512	.390	.317
2239352	.022	300	1.386	1.04	.779	.52	.396	.322
2239452	.022	400	1.485	1.114	.835	.557	.424	.345
2239552	.022	600	1.505	1.129	.847	.564	.429	.350
3339152	.033	100	1.426	1.069	.802	.535	.407	.331
3339252	.033	200	1.465	1.099	.824	.55	.418	.340
3339352	.033	300	1.465	1.099	.824	.55	.418	.340
3339452	.033	400	1.485	1.114	.835	.557	.424	.345
3339552	.033	600	1.544	1.158	.869	.58	.441	.359
4739152	.047	100	1.445	1.084	.813	.542	.412	.336
4739252	.047	200	1.465	1.099	.824	.55	.418	.340
4739352	.047	300	1.505	1.129	.847	.564	.429	.350
4739452	.047	400	1.525	1.144	.858	.572	.435	.354
4739552	.047	600	1.544	1.158	.869	.58	.441	.359
6839152	.068	100	1.445	1.084	.813	.542	.412	.336
6839252	.068	200	1.465	1.099	.824	.55	.418	.340
6839352	.068	300	1.544	1.158	.869	.58	.441	.359
6839452	.068	400	1.525	1.144	.858	.572	.435	.354
6839552	.068	600	1.544	1.158	.869	.58	.441	.359
1049152	.1	100	1.465	1.099	.824	.55	.418	.340
1049252	.1	200	1.624	1.218	.914	.609	.463	.377
1049352	.1	300	1.703	1.277	.958	.639	.486	.396
1049452	.1	400	1.742	1.307	.98	.653	.497	.405
1049552	.1	600	1.564	1.174	.88	.587	.446	.363
1549152	.15	100	1.584	1.188	.891	.594	.452	.368
1549252	.15	200	1.703	1.277	.958	.639	.486	.396
1549352	.15	300	1.861	1.396	1.047	.698	.531	.432
1549452	.15	400	1.881	1.411	1.058	.706	.537	.437
1549552	.15	600	1.624	1.218	.914	.609	.463	.377
2249152	.22	100	1.782	1.337	1.003	.669	.509	.414
2249252	.22	200	1.822	1.366	1.025	.683	.520	.423
2249352	.22	300	1.98	1.485	1.174	.743	.565	.460
2249452	.22	400	2.02	1.515	1.136	.758	.576	.469
2249552	.22	600	1.861	1.396	1.047	.698	.531	.432
3349152	.33	100	1.901	1.426	1.069	.713	.542	.442
3349252	.33	200	1.98	1.485	1.114	.743	.565	.460
3349352	.33	300	2.00	1.50	1.125	.75	.571	.465
3349452	.33	400	2.218	1.663	1.247	.832	.633	.515
3349552	.33	600	1.98	1.485	1.114	.743	.565	.460
4749152	.47	100	2.02	1.515	1.136	.758	.576	.469
4749252	.47	200	2.416	1.812	1.359	.906	.689	.561
4749352	.47	300	2.439	1.83	1.373	.914	.696	.567
4749452	.47	400	2.653	1.99	1.492	.995	.757	.616
4749552	.47	600	2.059	1.544	1.158	.772	.588	.478
6849152	.68	100	2.095	1.571	1.18	.788	.598	.487
6849252	.68	200	2.574	1.931	1.448	.966	.735	.598
6849352	.68	300	3.267	2.453	1.838	1.227	.927	.754
6849452	.68	400	3.226	2.435	1.871	1.247	.944	.769
6849552	.68	600	1.861	1.396	1.047	.698	.531	.432
1059152	1.0	100	2.574	1.931	1.448	.966	.735	.598
1059252	1.0	200	3.226	2.495	1.871	1.247	.949	.773
1059352	1.0	300	3.366	2.525	1.894	1.263	.961	.782
1059452	1.0	400						

#### TYPE 191P EXTENDED FOIL CONSTRUCTION

Sprague Number 191P-	Cap., $\mu$ F	WV DC	Net Each, Lots of					
			1-9	10-24	25-49	50-99	100-499	500-999
1029152	.001	100	\$1.465	\$1.099	\$0.824	\$0.55	\$0.418	\$0.340
1029252	.001	200	1.374	1.031	.773	.516	.392	.319
1029352	.001	300	1.394	1.04	.779	.52	.396	.322
1029452	.001	400	1.426	1.069	.802	.535	.407	.331
1029552	.001	600	1.445	1.085	.813	.542	.412	.336
1529152	.0015	100	1.465	1.099	.824	.55	.418	.340
1529252	.0015	200	1.374	1.031	.773	.516	.392	.319
1529352	.0015	300	1.386	1.04	.779	.52	.396	.322
1529452	.0015	400	1.426	1.069	.802	.535	.407	.331
1529552	.0015	600	1.445	1.085	.813	.542	.412	.336
2229152	.0022	100	1.465	1.099	.824	.55	.418	.340
2229252	.0022	200	1.374	1.031	.773	.516	.392	.319
2229352	.0022	300	1.386	1.04	.779	.52	.396	.322
2229452	.0022	400	1.426	1.069	.802	.535	.407	.331
2229552	.0022	600	1.445	1.085	.813	.542	.412	.336
3329152	.0033	100	1.465	1.099	.824	.55	.418	.340
3329252	.0033	200	1.374	1.031	.773	.516	.392	.319
3329352	.0033	300	1.406	1.055	.791	.527	.401	.327
3329452	.0033	400	1.426	1.069	.802	.535	.407	.331
3329552	.0033	600	1.445	1.085	.813	.542	.412	.336
4729152	.0047	100	1.465	1.099	.824	.55	.418	.340
4729252	.0047	200	1.374	1.031	.773	.516	.392	.319
4729352	.0047	300	1.406	1.055	.791	.527	.401	.327
4729452	.0047	400	1.426	1.069	.802	.535	.407	.331
4729552	.0047	600	1.445	1.085	.813	.542	.412	.336
6829152	.0068	100	1.465	1.099	.824	.55	.418	.340
6829252	.0068	200	1.374	1.031	.773	.516	.392	.319
6829352	.0068	300	1.406	1.055	.791	.527	.401	.327
6829452	.0068	400	1.426	1.069	.802	.535	.407	.331
6829552	.0068	600	1.445	1.085	.813	.542	.412	.336
1039152	.01	100	1.465	1.099	.824	.55	.418	.340
1039252	.01	200	1.374	1.031	.773	.516	.392	.319
1039352	.01	300	1.386	1.04	.779	.52	.396	.322
1039452	.01	400	1.426	1.069	.802	.535	.407	.331
1039552	.01	600	1.445	1.085	.813	.542	.412	.336
1539152	.015	100	1.465	1.099	.824	.55	.418	.340
1539252	.015	200	1.366	1.025	.769	.512	.390	.317
1539352	.015	300	1.386	1.04	.779	.52	.396	.322
1539452	.015	400	1.426	1.069	.802	.535	.407	.331
1539552	.015	600	1.465	1.099	.824	.55	.418	.340
2239152	.022	100	1.465	1.099</				



# SPRAGUE Vitamin Q<sup>®</sup> Capacitors

TYPE 96P VITAMIN Q SUBMINIATURE METAL-CLAD PAPER CAPACITORS



Exceeds the performance requirements of MIL-C-25A. Extensively used in military and commercial equipment; assures reliability under the most severe operating conditions. Featuring positive hermetic glass-to-metal end seals. Available in inserted tab construction. **Capacitance Tolerance:** \*10% and \*20%. **Temperature Range:** -55° C to +125° C.

INSERTED TAB—STYLE 2—PLAIN METAL CASE—±10% TOLERANCE\*

## 100 WVDC

Sprague Number	Cap., $\mu$ F	Net Each, Lots of					
		1-9	10-24	25-49	50-99	100-499	500-999
96P10291S2	.001	\$1.485	\$1.114	\$0.835	\$0.557	\$0.424	\$0.345
96P15291S2	.0015	1.485	1.114	.835	.557	.424	.345
96P22291S2	.0022	1.485	1.114	.835	.557	.424	.345
96P33291S2	.0033	1.485	1.114	.835	.557	.424	.345
96P47291S2	.0047	1.505	1.129	.847	.564	.429	.350
96P68291S2	.0068	1.505	1.129	.847	.564	.429	.350
96P10391S2	.01	1.505	1.129	.847	.564	.429	.350
96P15391S2	.015	1.505	1.129	.847	.564	.429	.350
96P22391S2	.022	1.505	1.129	.847	.564	.429	.350
96P27391S2	.027	1.465	1.099	.824	.550	.381	.311
96P33391S2	.033	1.465	1.099	.824	.550	.418	.340
96P47391S2	.047	1.465	1.099	.824	.550	.418	.340
96P68391S2	.068	1.544	1.158	.869	.580	.441	.359
96P82391S2	.082	1.584	1.188	.891	.594	.452	.368
96P10491S2	.1	1.584	1.188	.891	.594	.452	.368
96P12491S2	.12	1.663	1.247	.936	.624	.475	.386
96P15491S2	.15	1.663	1.247	.936	.624	.475	.386
96P18491S2	.18	1.663	1.247	.936	.624	.475	.386
96P22491S2	.22	1.663	1.247	.936	.624	.475	.386
96P27491S2	.27	1.901	1.426	1.069	.713	.494	.403
96P33491S2	.33	1.901	1.426	1.069	.713	.542	.442
96P39491S2	.39	2.020	1.515	1.136	.758	.525	.428
96P47491S2	.47	2.020	1.515	1.136	.758	.576	.469
96P56491S2	.56	2.099	1.574	1.181	.788	.546	.445
96P68491S2	.68	2.099	1.574	1.181	.788	.599	.488
96P82491S2	.82	2.534	1.901	1.427	.954	.659	.538
96P10591S2	1.0	2.534	1.901	1.427	.954	.723	.589

## 200 WVDC

Sprague Number	Cap., $\mu$ F	Net Each, Lots of					
		1-9	10-24	25-49	50-99	100-499	500-999
96P10292S2	.001	\$1.426	\$1.069	\$0.802	\$0.535	\$0.407	\$0.331
96P15292S2	.0015	1.426	1.069	.802	.535	.407	.331
96P22292S2	.0022	1.426	1.069	.802	.535	.407	.331
96P33292S2	.0033	1.465	1.099	.824	.550	.418	.340
96P47292S2	.0047	1.465	1.099	.824	.550	.418	.340
96P68292S2	.0068	1.465	1.099	.824	.550	.418	.340
96P103292S2	.01	1.465	1.099	.824	.550	.418	.340
96P153292S2	.012	1.505	1.129	.847	.564	.429	.350
96P183292S2	.015	1.485	1.114	.835	.557	.424	.345
96P223292S2	.018	1.485	1.114	.835	.557	.424	.345
96P273292S2	.022	1.485	1.114	.835	.557	.424	.345
96P333292S2	.033	1.505	1.129	.847	.564	.429	.350
96P393292S2	.039	1.544	1.158	.869	.580	.441	.359
96P473292S2	.047	1.544	1.158	.869	.580	.441	.359
96P563292S2	.056	1.584	1.188	.891	.594	.452	.368
96P683292S2	.068	1.584	1.188	.891	.594	.452	.368
96P823292S2	.082	1.624	1.218	.914	.609	.463	.377
96P104292S2	.1	1.624	1.218	.914	.609	.463	.377
96P124292S2	.12	1.643	1.233	.925	.617	.469	.382
96P154292S2	.15	1.643	1.233	.925	.617	.469	.382
96P184292S2	.18	1.802	1.352	1.013	.676	.469	.382
96P224292S2	.22	1.802	1.352	1.013	.676	.514	.419
96P274292S2	.27	1.940	1.455	1.092	.728	.505	.412
96P334292S2	.33	1.940	1.455	1.092	.728	.554	.451
96P394292S2	.39	2.059	1.544	1.158	.772	.536	.437
96P474292S2	.47	2.059	1.544	1.158	.772	.588	.478
96P564292S2	.56	2.178	1.634	1.225	.817	.567	.462
96P684292S2	.68	2.178	1.634	1.225	.817	.622	.506
96P824292S2	.82	2.614	1.960	1.471	.980	.680	.554
96P105292S2	1.0	2.614	1.960	1.471	.980	.746	.607

## 300 WVDC

Sprague Number	Cap., $\mu$ F	Net Each, Lots of					
		1-9	10-24	25-49	50-99	100-499	500-999
96P10293S2	.001	\$1.465	\$1.099	\$0.824	\$0.550	\$0.418	\$0.340
96P15293S2	.0015	1.465	1.099	.824	.550	.418	.340
96P22293S2	.0022	1.465	1.099	.824	.550	.418	.340
96P33293S2	.0033	1.485	1.099	.824	.550	.418	.340
96P47293S2	.0047	1.485	1.099	.824	.550	.418	.340
96P68293S2	.0068	1.505	1.129	.847	.564	.429	.350
96P10393S2	.01	1.505	1.129	.847	.564	.429	.350
96P15393S2	.015	1.525	1.144	.858	.572	.435	.354
96P22393S2	.022	1.584	1.188	.891	.594	.452	.368
96P33393S2	.033	1.584	1.188	.891	.594	.452	.368
96P47393S2	.047	1.624	1.218	.914	.609	.463	.377
96P68393S2	.068	1.663	1.247	.936	.624	.475	.386
96P104393S2	.1	1.663	1.247	.936	.624	.475	.386
96P154393S2	.15	1.742	1.307	.980	.653	.497	.405
96P224393S2	.22	1.861	1.396	1.047	.698	.531	.432
96P334393S2	.33	2.020	1.515	1.136	.758	.576	.469
96P474393S2	.47	2.455	1.841	1.382	.921	.701	.579
96P684393S2	.68	2.614	1.960	1.471	.980	.746	.607
96P105393S2	1.0	3.366	2.525	1.894	1.263	.961	.782

\*Also available with plastic outer sleeve, Style 4. Both Styles 2 and 4 come in ±20% tolerances. Write for information.

## 400 WVDC

Sprague Number	Cap., $\mu$ F	Net Each, Lots of					
		1-9	10-24	25-49	50-99	100-499	500-999
96P10294S2	.001	\$1.485	\$1.114	\$0.835	\$0.557	\$0.424	\$0.345
96P15294S2	.0015	1.485	1.114	.835	.557	.424	.345
96P22294S2	.0022	1.485	1.114	.835	.557	.424	.345
96P33294S2	.0033	1.525	1.144	.858	.572	.435	.354
96P47294S2	.0047	1.525	1.144	.858	.572	.435	.354
96P68294S2	.0068	1.525	1.144	.858	.572	.435	.354
96P82294S2	.0082	1.544	1.158	.869	.580	.441	.359
96P10394S2	.01	1.544	1.158	.869	.580	.441	.359
96P15394S2	.015	1.575	1.188	.891	.594	.452	.368
96P22394S2	.022	1.604	1.203	.902	.601	.457	.373
96P27394S2	.027	1.604	1.203	.902	.601	.417	.340
96P33394S2	.033	1.604	1.203	.902	.601	.457	.373
96P39394S2	.039	1.663	1.247	.936	.624	.475	.386
96P47394S2	.047	1.663	1.247	.936	.624	.475	.386
96P56394S2	.056	1.703	1.277	.958	.639	.443	.361
96P68394S2	.068	1.703	1.277	.958	.639	.443	.361
96P82394S2	.082	1.742	1.307	.980	.653	.457	.370
96P10494S2	.1	1.742	1.307	.980	.653	.497	.405
96P12494S2	.12	1.901	1.426	1.069	.713	.494	.403
96P15494S2	.15	1.901	1.426	1.069	.713	.542	.442
96P18494S2	.18	2.020	1.515	1.136	.758	.525	.428
96P22494S2	.22	2.020	1.515	1.136	.758	.576	.469
96P27494S2	.27	2.059	1.544	1.160	.775	.536	.437
96P33494S2	.33	2.059	1.544	1.160	.775	.588	.478
96P39494S2	.39	2.455	1.841	1.382	.921	.701	.579
96P47494S2	.47	2.455	1.841	1.382	.921	.750	.620
96P56494S2	.56	3.267	2.451	1.838	1.225	.850	.693
96P68494S2	.68	3.267	2.451	1.838	1.225	.932	.759
96P82494S2	.82	3.386	2.540	1.904	1.270	.881	.718
96P10594S2	1.0	3.386	2.540	1.904	1.270	.966	.787

## 600 WVDC

Sprague Number	Cap., $\mu$ F	Net Each, Lots of					
		1-9	10-24	25-49	50-99	100-499	500-999
96P10296S2	.001	\$1.505	\$1.129	\$0.847	\$0.564	\$0.429	\$0.350
96P12296S2	.0012	1.505	1.129	.847	.564	.429	.350
96P15296S2	.0015	1.505	1.129	.847	.564	.429	.350
96P18296S2	.0018	1.505	1.129	.847	.564	.429	.350
96P22296S2	.0022	1.505	1.129	.847	.564	.429	.350
96P27296S2	.0027	1.544	1.158	.869	.580	.441	.359
96P32296S2	.0033	1.544	1.158	.869	.580	.441	.359
96P39296S2	.0039	1.544	1.158	.869	.580	.441	.359
96P47296S2	.0047	1.544	1.158	.869	.580	.441	.359
96P56296S2	.0056	1.544	1.158	.869	.580	.441	.359
96P68296S2	.0068	1.544	1.158	.869	.580	.441	.359
96P82296S2	.0082	1.584	1.188	.891	.594	.452	.368
96P10396S2	.01	1.584	1.188	.891	.594	.452	.368
96P12396S2	.012	1.624	1.218	.914	.609	.463	.377
96P15396S2	.015	1.624	1.218	.914	.609	.463	.377
96P18396S2	.018	1.624	1.218	.914	.609	.463	.377
96P22396S2	.022	1.624	1.218	.914	.609	.463	.377
96P27396S2	.027	1.683	1.263	.947	.631	.438	.357
96P33396S2	.033	1.683	1.263	.947	.631	.480	.391
96P39396S2	.039	1.703	1.277	.958	.639	.443	.361
96P47396S2	.047	1.703	1.277	.958	.639	.486	.396
96P56396S2	.056	1.782	1.337	1.003	.669	.464	.378
96P68396S2	.068	1.782	1.337	1.003	.669	.509	.414
96P82396S2	.082	1.901	1.426	1.069	.713	.494	.403
96P10496S2	.1	1.901	1.426	1.069	.713	.542	.442
96P12496S2	.12	1.980	1.485	1.114	.743	.515	.420
96P15496S2	.15	1.980	1.485	1.114	.743	.565	.460
96P18496S2	.18	2.138	1.604	1.203	.802	.556	.454



# SPRAGUE Industrial Capacitors

## TYPE 118P SUBMINIATURE 125°C DIFILM<sup>®</sup> METALLIZED CAPACITORS



Unmatched in performance by any other metallized capacitors. Rated at 125° C without voltage derating. Dual dielectric combines metallized paper and polyester film; impregnated with special high temperature mineral wax. Sections are non-inductive construction. Hermetically sealed with glass-to-metal solder-seal terminals. Self-healing dielectric. May be used at extremely low voltages.

TOLERANCE ±10%

Type 118P is also available with ±20% tolerance. Write for information and prices.

Cap., $\mu$ F	VW DC	Bare Tube					With Plastic Sleeve						
		Sprague No. 118P-*	Net Each, Lots of					Sprague No. 118P-*	Net Each, Lots of				
			1-24	25-49	50-99	100-499	500-999		1-24	25-49	50-99	100-499	500-999
.01	200	10392S2	\$1.950	\$1.138	\$0.878	\$0.780	\$0.715	10392S4	\$2.004	\$1.169	\$0.902	\$0.802	\$0.735
.012	200	12392S2	1.950	1.138	.878	.780	.715	12392S4	2.004	1.169	.902	.802	.735
.015	200	15392S2	1.950	1.138	.878	.780	.715	15392S4	2.004	1.169	.902	.802	.735
.018	200	18392S2	1.950	1.138	.878	.780	.715	18392S4	2.004	1.169	.902	.802	.735
.022	200	22392S2	1.950	1.138	.878	.780	.715	22392S4	2.004	1.169	.902	.802	.735
.027	200	27392S2	1.950	1.138	.878	.780	.715	27392S4	2.004	1.169	.902	.802	.735
.033	200	33392S2	1.950	1.138	.878	.780	.715	33392S4	2.004	1.169	.902	.802	.735
.039	200	39392S2	1.950	1.138	.878	.780	.715	39392S4	2.004	1.169	.902	.802	.735
.047	200	47392S2	1.950	1.138	.878	.780	.715	47392S4	2.004	1.169	.902	.802	.735
.056	200	56392S2	1.950	1.138	.878	.780	.715	56392S4	2.004	1.169	.902	.802	.735
.068	200	68392S2	2.016	1.176	.907	.806	.739	68392S4	2.076	1.211	.934	.830	.761
.082	200	82392S2	2.025	1.181	.911	.810	.743	82392S4	2.085	1.216	.938	.834	.765
.1	200	10492S2	2.034	1.187	.915	.814	.746	10492S4	2.094	1.222	.942	.838	.768
.12	200	12492S2	2.040	1.190	.918	.816	.748	12492S4	2.100	1.225	.945	.840	.770
.15	200	15492S2	2.070	1.208	.932	.828	.759	15492S4	2.130	1.243	.959	.852	.784
.18	200	18492S2	2.070	1.208	.932	.828	.759	18492S4	2.136	1.246	.961	.854	.783
.22	200	22492S2	2.070	1.208	.932	.828	.759	22492S4	2.136	1.246	.961	.854	.783
.27	200	27492S2	2.145	1.251	.965	.858	.787	27492S4	2.211	1.290	.995	.884	.811
.33	200	33492S2	2.220	1.295	.999	.888	.814	33492S4	2.286	1.334	1.029	.914	.838
.39	200	39492S2	2.280	1.330	1.026	.912	.836	39492S4	2.370	1.383	1.067	.948	.869
.47	200	47492S2	2.325	1.356	1.046	.930	.853	47492S4	2.415	1.409	1.087	.966	.886
.56	200	56492S2	2.370	1.383	1.067	.948	.869	56492S4	2.460	1.435	1.107	.984	.902
.68	200	68492S2	2.400	1.400	1.080	.960	.880	68492S4	2.490	1.453	1.121	.996	.913
.82	200	82492S2	2.475	1.444	1.114	.990	.908	82492S4	2.574	1.502	1.158	1.030	.944
1.0	200	10592S2	2.550	1.488	1.148	1.020	.935	10592S4	2.649	1.545	1.192	1.060	.971
1.5	200	15592S2	3.615	2.109	1.627	1.446	1.326	15592S4	3.714	2.167	1.671	1.486	1.362
2.0	200	20592S2	4.290	2.503	1.931	1.716	1.573	20592S4	4.410	2.573	1.985	1.764	1.617
3.0	200	30592S2	4.500	2.625	2.025	1.800	1.650	30592S4	4.620	2.695	2.079	1.848	1.694
4.0	200	40592S2	4.800	2.800	2.160	1.920	1.760	40592S4	4.965	2.896	2.234	1.986	1.821
5.0	200	50592S2	5.250	3.063	2.363	2.100	1.925	50592S4	5.460	3.185	2.457	2.184	2.002
6.0	200	60592S2	6.000	3.500	2.700	2.400	2.200	60592S4	6.210	3.623	2.795	2.484	2.277
8.0	200	80592S2	6.150	3.588	2.768	2.460	2.255	80592S4	6.360	3.710	2.862	2.544	2.332
10.0	200	10692S2	6.570	3.833	2.957	2.628	2.409	10692S4	6.780	3.955	3.051	2.712	2.486
12.0	200	12692S2	7.410	4.323	3.335	2.964	2.717	12692S4	7.620	4.445	3.429	3.048	2.794
.01	400	10394S2	1.968	1.148	.886	.787	.722	10394S4	2.028	1.183	.913	.811	.744
.012	400	12394S2	1.968	1.148	.886	.787	.722	12394S4	2.028	1.183	.913	.811	.744
.015	400	15394S2	1.968	1.148	.886	.787	.722	15394S4	2.028	1.183	.913	.811	.744
.018	400	18394S2	1.980	1.155	.891	.792	.726	18394S4	2.040	1.190	.918	.816	.748
.022	400	22394S2	2.004	1.169	.902	.802	.735	22394S4	2.064	1.204	.929	.826	.757
.027	400	27394S2	2.004	1.169	.902	.802	.735	27394S4	2.064	1.204	.929	.826	.757
.033	400	33394S2	2.004	1.169	.902	.802	.735	33394S4	2.064	1.204	.929	.826	.757
.039	400	39394S2	2.004	1.169	.902	.802	.735	39394S4	2.070	1.208	.932	.828	.759
.047	400	47394S2	2.004	1.169	.902	.802	.735	47394S4	2.070	1.208	.932	.828	.759
.056	400	56394S2	2.004	1.190	.918	.816	.748	56394S4	2.106	1.229	.948	.842	.772
.068	400	68394S2	2.100	1.225	.945	.840	.770	68394S4	2.166	1.264	.975	.866	.794
.082	400	82394S2	2.220	1.295	.999	.888	.814	82394S4	2.310	1.348	1.040	.929	.850
.1	400	10494S2	2.310	1.348	1.040	.924	.847	10494S4	2.400	1.400	1.080	.960	.880
.12	400	12494S2	2.340	1.365	1.053	.936	.858	12494S4	2.430	1.418	1.094	.972	.891
.15	400	15494S2	2.370	1.383	1.067	.948	.869	15494S4	2.460	1.435	1.107	.984	.902
.18	400	18494S2	2.400	1.400	1.080	.960	.880	18494S4	2.490	1.458	1.125	1.000	.916
.22	400	22494S2	2.430	1.418	1.094	.972	.891	22494S4	2.529	1.475	1.138	1.012	.927
.27	400	27494S2	2.460	1.435	1.107	.984	.902	27494S4	2.569	1.493	1.152	1.024	.938
.33	400	33494S2	2.505	1.461	1.127	1.002	.919	33494S4	2.604	1.519	1.172	1.042	.955
.39	400	39494S2	2.640	1.540	1.188	1.056	.968	39494S4	2.760	1.610	1.242	1.104	1.012
.47	400	47494S2	2.799	1.633	1.260	1.120	1.026	47494S4	2.919	1.703	1.314	1.168	1.070
.56	400	56494S2	2.940	1.715	1.323	1.176	1.078	56494S4	3.060	1.785	1.377	1.224	1.122
.68	400	68494S2	3.090	1.803	1.391	1.236	1.133	68494S4	3.210	1.873	1.445	1.284	1.177
.82	400	82494S2	3.240	1.890	1.458	1.296	1.188	82494S4	3.405	1.986	1.532	1.362	1.249
1.0	400	10594S2	3.393	1.979	1.527	1.357	1.244	10594S4	3.558	2.076	1.601	1.423	1.305
1.5	400	15594S2	4.290	2.503	1.931	1.716	1.573	15594S4	4.500	2.625	2.025	1.800	1.650
2.0	400	20594S2	4.950	2.888	2.228	1.980	1.815	20594S4	5.160	3.010	2.322	2.064	1.892
3.0	400	30594S2	5.850	3.413	2.633	2.340	2.145	30594S4	6.060	3.535	2.727	2.424	2.222
.01	600	10396S2	2.010	1.173	.905	.804	.737	10396S4	2.070	1.208	.932	.828	.759
.012	600	12396S2	2.019	1.178	.909	.808	.740	12396S4	2.079	1.213	.936	.832	.762
.015	600	15396S2	2.025	1.181	.911	.810	.743	15396S4	2.085	1.216	.938	.834	.765
.018	600	18396S2	2.034	1.187	.915	.814	.746	18396S4	2.094	1.222	.942	.838	.768
.022	600	22396S2	2.040	1.190	.918	.816	.748	22396S4	2.100	1.225	.945	.840	.770
.027	600	27396S2	2.040	1.190	.918	.816	.748	27396S4	2.100	1.225	.945	.840	.770
.033	600	33396S2	2.040	1.190	.918	.816	.748	33396S4	2.100	1.225	.945	.840	.770
.039	600	39396S2	2.052	1.197	.923	.821	.752	39396S4	2.118	1.236	.953	.847	.771
.047	600	47396S2	2.064	1.204	.929	.826	.757	47396S4	2.130	1.243	.959	.852	.781
.056	600	56396S2	2.100	1.225	.945	.840	.770	56396S4	2.166	1.264	.975	.866	.794
.068	600	68396S2	2.160	1.260	.972	.864	.792	68396S4	2.226	1.299	1.002	.890	.816
.082	600	82396S2	2.250	1.313	1.013	.900	.825	82396S4	2.340	1.365	1.053	.936	.858
.1	600	10496S2	2.340	1.365	1.053	.936	.858	10496S4	2.430	1.418	1.094	.972	.891
.12	600	12496S2	2.385	1.391	1.073	.954	.875	12496S4	2.484	1.449	1.118	.994	.911
.15	600	15496S2	2.430	1.418	1.094	.972	.891	15496S					



# SPRAGUE Metallized Capacitors

## TYPE 155P AND 156P MOLDED METALLIZED PAPER CAPACITORS

Superior to most competitive units. Withstand twice rated voltage tests to give extra design safety factor. Stand up under high humidity conditions. Self-generated noise is practically nonexistent. Type 155P is molded in case. Type 156P is in premolded case, sealed with epoxy. **Ordering Information:** Number shown in table below indicates molding type, followed by a number indicating capacitance in  $\mu\text{f}$ ; final number indicates working volts DC.



Sprague Number	Net Each, Lots of			
	1-24	25-49	50-99	100-499
155P .01-200	\$0.42	\$0.26	\$0.20	\$0.18
155P .015-200	.42	.26	.20	.18
155P .02-200	.42	.26	.20	.18
155P .022-200	.42	.26	.20	.18
155P .03-200	.45	.27	.21	.18
155P .033-200	.45	.27	.21	.18
155P .047-200	.45	.27	.21	.18
155P .05-200	.45	.27	.21	.19
155P .068-200	.45	.28	.22	.19
155P .1-200	.45	.28	.22	.19
155P .15-200	.45	.28	.22	.19
155P .22-200	.45	.28	.22	.20
155P .25-200	.66	.39	.30	.27
155P .33-200	.66	.39	.30	.27
155P .47-200	.66	.40	.31	.28
155P .5-200	.78	.60	.46	.41
155P .68-200	.78	.60	.46	.41
155P 1.0-200	1.05	.63	.48	.43
155P 1.5-200	1.20	.70	.54	.48
155P 2.0-200	1.41	.85	.66	.59
156P 2.5-200	1.65	.97	.75	.66
156P 3.0-200	1.80	1.05	.81	.72
156P 3.5-200	2.10	1.23	.95	.84
156P 4.0-200	2.22	1.30	1.00	.89
156P 4.5-200	2.40	1.40	1.08	.96
156P 5.0-200	2.55	1.49	1.15	1.02
156P 5.5-200	2.70	1.58	1.22	1.08
156P 6.0-200	3.00	1.75	1.35	1.20
156P 6.5-200	3.15	1.84	1.42	1.26

Sprague Number	Net Each, Lots of			
	1-24	25-49	50-99	100-499
156P 7.0-200	\$3.33	\$1.95	\$1.50	\$1.34
156P 7.5-200	3.51	2.05	1.58	1.41
156P 8.0-200	3.75	2.19	1.69	1.50
156P 8.5-200	3.90	2.28	1.76	1.56
156P 9.0-200	4.05	2.37	1.83	1.62
156P 9.5-200	4.20	2.45	1.89	1.68

Sprague Number	Net Each, Lots of			
	1-24	25-49	50-99	100-499
155P .01-400	\$0.42	\$0.26	\$0.20	\$0.18
155P .015-400	.42	.26	.20	.18
155P .02-400	.42	.27	.21	.18
155P .022-400	.42	.27	.21	.18
155P .03-400	.42	.27	.21	.19
155P .033-400	.42	.27	.21	.19
155P .04-400	.42	.28	.22	.19
155P .047-400	.42	.28	.22	.19
155P .05-400	.45	.29	.23	.20
155P .068-400	.45	.29	.23	.20
155P .1-400	.51	.30	.23	.21
155P .15-400	.66	.39	.30	.27
155P .2-400	.69	.44	.35	.30
155P .22-400	.69	.44	.35	.30
155P .25-400	.72	.48	.37	.33
155P .33-400	.72	.48	.37	.33
155P .47-400	.90	.55	.43	.38
155P .5-400	.93	.62	.48	.42

Sprague Number	Net Each, Lots of			
	1-24	25-49	50-99	100-499
156P .68-400	\$1.05	\$0.62	\$0.48	\$0.42
156P 1.0-400	1.29	.77	.60	.53
156P 1.5-400	1.59	.93	.72	.64
156P 2.0-400	1.80	1.09	.84	.75
156P 2.5-400	2.25	1.32	1.02	.90

Sprague Number	Net Each, Lots of			
	1-24	25-49	50-99	100-499
155P .01-600	\$0.45	\$0.27	\$0.21	\$0.19
155P .015-600	.45	.28	.21	.19
155P .02-600	.45	.28	.22	.19
155P .022-600	.45	.28	.22	.19
155P .03-600	.48	.29	.23	.20
155P .033-600	.48	.29	.23	.20
155P .04-600	.51	.31	.24	.22
155P .047-600	.51	.31	.24	.22
155P .05-600	.51	.32	.25	.22
155P .06-600	.51	.32	.25	.22
155P .068-600	.51	.32	.25	.22
155P .1-600	.57	.35	.27	.24
155P .15-600	.72	.42	.33	.29
155P .2-600	.90	.54	.42	.37
155P .22-600	.90	.54	.42	.37
155P .25-600	.90	.55	.42	.38
155P .33-600	.93	.55	.42	.38
156P .47-600	1.14	.67	.52	.46
156P .5-600	1.14	.76	.59	.52
156P .68-600	1.14	.76	.59	.52
156P 1.0-600	1.38	.84	.65	.57
156P 1.5-600	1.89	1.10	.85	.75

## TYPE 121P METALLIZED PAPER CAPACITORS



Metallized paper capacitors designed to operate at 125° C without voltage derating; this is extremely important in military and industrial equipment where higher operating temperatures are almost always encountered. High insulation resistance at 85° C; minimum product of insulation resistance and capacitance is 20 megohm-microfarads. At 125° C, minimum product is 1.0 megohm-microfarad. Hermetically sealed with glass-to-metal-solder-seal terminals. Capacitor cases are of corrosion resistant materials. May be operated at low voltages also, unlike many other metallized capacitors. Capacitors listed are of the ungrounded case type. Available with bare metal tube (suffix 2) or with plastic insulating sleeve (suffix 4). Tolerance,  $\pm 10\%$ , WVDC, 150.

$\mu\text{f}$	Sprague No. 121P-	Net Each, Lots of				
		1-24	25-49	50-99	100-499	500-999
1.5	15591R552	\$2.73	\$1.593	\$1.229	\$1.092	\$1.001
1.5	15591R554	2.829	1.65	1.273	1.132	1.037
2.0	20591R552	3.00	1.75	1.35	1.20	1.10
2.0	20591R554	3.099	1.808	1.395	1.24	1.136
2.5	25591R552	3.09	1.803	1.391	1.236	1.133
2.5	25591R554	3.189	1.86	1.435	1.276	1.169
3.0	30591R552	3.45	2.013	1.553	1.38	1.265
3.0	30591R554	3.57	2.083	1.607	1.428	1.309
3.5	35591R552	3.66	2.135	1.647	1.464	1.342
3.5	35591R554	3.78	2.205	1.701	1.512	1.386
4.0	40591R552	3.72	2.17	1.674	1.488	1.364
4.0	40591R554	3.84	2.24	1.728	1.536	1.408
5.0	50591R552	4.08	2.38	1.836	1.632	1.496
5.0	50591R554	4.20	2.45	1.89	1.68	1.54
6.0	60591R552	4.44	2.59	1.998	1.776	1.628
6.0	60591R554	4.605	2.686	2.072	1.842	1.689
8.0	80591R552	5.16	3.10	2.322	2.064	1.892
8.0	80591R554	5.325	3.106	2.396	2.13	1.953
10	10691R552	5.97	3.483	2.687	2.388	2.189
10	10691R554	6.135	3.579	2.761	2.454	2.25
12	12691R552	6.75	3.938	3.038	2.70	2.475
12	12691R554	6.96	4.06	3.132	2.784	2.552
14	14691R552	7.53	4.393	3.389	3.012	2.764
14	14691R554	7.74	4.515	3.483	3.096	2.838
16	16691R552	8.01	4.673	3.605	3.204	2.937
16	16691R554	8.22	4.795	3.699	3.288	3.014
18	18691R552	9.12	5.32	4.104	3.648	3.344
18	18691R554	9.33	5.443	4.199	3.732	3.421

## NEW 192P PACER® FILMITE® "E" CAPACITORS



- Minimum size for commercial and industrial electronic assemblies; only  $2\frac{1}{4} \times \frac{5}{8}$  for .1  $\mu\text{f}$  value.
- Completely new construction; extended foil film sections are terminated in end caps with wire leads, to insure best possible non-inductive section.
- Carefully controlled dimensions; may be used with automatic insertion equipment on printed wiring boards.
- Encased in hard, durable, orange epoxy coating. Designed for operation to 85° C (185° F).
- Rated to 200 WVDC
- Capacitance tolerance:  $\pm 10\%$

Sprague No.	$\mu\text{f}$	Dia. x L. Inches	Net Each, Lots of			
			1-24	25-49	50-99	100-249
192P47192	.00047	$\frac{1}{4} \times \frac{5}{8}$	\$0.33	\$0.23	\$0.18	\$0.15
192P56192	.00056	$\frac{1}{4} \times \frac{5}{8}$	.30	.22	.17	.14
192P68192	.00068	$\frac{1}{4} \times \frac{5}{8}$	.30	.22	.17	.14
192P82192	.00082	$\frac{1}{4} \times \frac{5}{8}$	.30	.22	.17	.14
192P10292	.001	$\frac{1}{4} \times \frac{5}{8}$	.27	.19	.15	.12
192P12292	.0012	$\frac{1}{4} \times \frac{5}{8}$	.27	.19	.15	.12
192P15292	.0015	$\frac{1}{4} \times \frac{5}{8}$	.27	.19	.15	.12
192P18292	.0018	$\frac{1}{4} \times \frac{5}{8}$	.27	.19	.15	.12
192P22292	.0022	$\frac{1}{4} \times \frac{5}{8}$	.27	.19	.15	.12
192P27292	.0027	$\frac{1}{4} \times \frac{5}{8}$	.27	.19	.15	.12
192P33292	.0033	$\frac{1}{4} \times \frac{5}{8}$	.27	.19	.15	.12
192P39292	.0039	$\frac{1}{4} \times \frac{5}{8}$	.27	.19	.15	.12
192P47292	.0047	$\frac{1}{4} \times \frac{5}{8}$	.27	.20	.15	.12
192P56292	.0056	$\frac{1}{4} \times \frac{5}{8}$	.27	.20	.15	.12
192P68292	.0068	$\frac{1}{4} \times \frac{5}{8}$	.27	.20	.15	.12
192P82292	.0082	$\frac{1}{4} \times \frac{5}{8}$	.30	.21	.16	.13
192P10392	.01	$\frac{1}{4} \times \frac{5}{8}$	.30	.21	.17	.13
192P12392	.012	$\frac{1}{4} \times \frac{5}{8}$	.30	.22	.17	.14
192P15392	.015	$\frac{1}{4} \times \frac{5}{8}$	.30	.22	.17	.14
192P18392	.018	$\frac{1}{4} \times \frac{5}{8}$	.30	.22	.17	.14
192P22392	.022	$\frac{1}{4} \times \frac{5}{8}$	.30	.23	.18	.14
192P27392	.027	$\frac{1}{4} \times \frac{5}{8}$	.33	.24	.19	.15
192P33392	.033	$\frac{1}{4} \times \frac{5}{8}$	.33	.25	.20	.16
192P39392	.039	$\frac{1}{4} \times \frac{5}{8}$	.36	.26	.21	.17
192P47392	.047	$\frac{1}{4} \times \frac{5}{8}$	.39	.28	.22	.17
192P56392	.056	$\frac{1}{4} \times \frac{5}{8}$	.39	.29	.23	.18
192P68392	.068	$\frac{1}{4} \times \frac{5}{8}$	.42	.31	.24	.19
192P82392	.082	$\frac{1}{4} \times \frac{5}{8}$	.45	.32	.25	.20
192P10492	.1	$\frac{1}{4} \times \frac{5}{8}$	.45	.34	.26	.21
192P12492	.12	$\frac{1}{4} \times \frac{5}{8}$	.48	.35	.27	.22
192P15492	.15	$\frac{1}{4} \times \frac{5}{8}$	.48	.35	.27	.22
192P22492	.22	$\frac{1}{4} \times \frac{5}{8}$	.51	.37	.29	.23

WE CAN SUPPLY ALL YOUR TANTALUM CAPACITOR REQUIREMENTS. WRITE FOR SPECIFICATIONS AND PRICES ON NEW OR UNLISTED ITEMS.



# SPRAGUE Electrolytic Capacitors

## TYPE TE LITTL-LYTIC® CAPACITORS

Hermetically sealed in metal case. Low leakage current; long shelf life. Rated 85° C. Voltage: TE1010, 1 WVDC; TE1050-1068, 3 WVDC; TE1080-1106, 6 WVDC; TE1114-1119, 6 WVDC; TE1120-1138, 12 WVDC; TE1148-1164, 15 WVDC; TE1200-1211, 25 WVDC; TE1300-1307, 50 WVDC; TE1400-1409, 100 WVDC; TE1500-1508, 150 WVDC.



Net Each, Lots of						Net Each, Lots of						Net Each, Lots of														
No. TE-	Cap. μF	±	1-24	25-49	50-99	100-249	250 Up	No. TE-	Cap. μF	±	1-24	25-49	50-99	100-249	250 Up	No. TE-	Cap. μF	±	1-24	25-49	50-99	100-249	250 Up			
1010	5	A	\$5.51	\$3.72	\$2.89	\$2.31	\$1.91	1106	300	G	\$9.93	\$6.89	\$5.36	\$4.28	\$3.52	1201.1	3	A	\$5.57	\$4.23	\$3.29	\$2.63	\$2.17			
1050	1	A	.51	.372	.289	.231	.191	1114	10	A	.57	.408	.317	.254	.209	1201.2	4	A	.57	.427	.332	.266	.219			
1051	2	A	.51	.372	.289	.231	.191	1116	15	A	.57	.408	.317	.254	.209	1202	5	A	.57	.427	.332	.266	.219			
1052	3	A	.51	.372	.289	.231	.191	1118	25	A	.75	.551	.429	.343	.282	1203	6	A	.57	.427	.332	.266	.219			
1052.1	4	A	.51	.372	.289	.231	.191	1119	50	C	.81	.608	.473	.378	.311	1203.5	8	A	.60	.435	.337	.269	.222			
1052.2	5	A	.51	.372	.289	.231	.191	1119.3	100	D	.81	.608	.473	.378	.311	1204	10	A	.60	.435	.339	.271	.223			
1052.3	6	A	.51	.372	.289	.231	.191	1119.6	200	F	.96	.711	.553	.442	.364	1205	15	B	.75	.551	.429	.343	.282			
1052.5	8	A	.51	.372	.289	.231	.191	1120	1	A	.57	.408	.317	.254	.209	1206	20	C	.81	.608	.473	.378	.311			
1053	10	A	.51	.372	.289	.231	.191	1121	2	A	.57	.408	.317	.254	.209	1207	25	C	.81	.608	.473	.378	.311			
1053.5	15	A	.51	.372	.289	.231	.191	1122	3	A	.57	.408	.317	.254	.209	1208	35	D	.81	.608	.473	.378	.311			
1054	20	A	.51	.372	.289	.231	.191	1123	4	A	.57	.408	.317	.254	.209	1209	50	E	.81	.608	.473	.378	.311			
1055	25	A	.51	.372	.289	.231	.191	1127	4	A	.57	.408	.317	.254	.209	1210	75	F	.87	.641	.499	.399	.328			
1056	35	A	.57	.422	.328	.263	.216	1127.1	6	A	.57	.408	.317	.254	.209	1211	100	G	.90	.664	.516	.413	.340			
1057	40	A	.72	.529	.411	.329	.271	1127.3	8	A	.57	.408	.317	.254	.209	1300	1	A	.54	.405	.315	.252	.207			
1058	50	A	.72	.529	.411	.329	.271	1128	10	A	.57	.408	.317	.254	.209	1301	2	A	.54	.405	.315	.252	.207			
1059	75	B	.75	.551	.429	.343	.282	1129	15	A	.57	.408	.317	.254	.209	1302	3	A	.57	.423	.329	.263	.217			
1059.5	100	B	.81	.608	.473	.378	.311	1130	20	A	.57	.408	.317	.254	.209	1302.1	4	A	.57	.427	.332	.266	.219			
1060	110	B	.81	.608	.473	.378	.311	1131	25	A	.75	.551	.429	.343	.282	1303	5	A	.57	.427	.332	.266	.219			
1061	150	C	.81	.608	.473	.378	.311	1132	35	B	.75	.551	.429	.343	.282	1303.1	6	B	.81	.590	.459	.367	.302			
1064	200	D	.81	.608	.473	.378	.311	1133	50	C	.81	.608	.473	.378	.311	1303.3	8	B	.81	.594	.460	.368	.304			
1065	250	E	.81	.608	.473	.378	.311	1134	75	D	.81	.608	.473	.378	.311	1304	10	B	.81	.594	.462	.370	.304			
1066	300	E	.87	.653	.508	.406	.334	1135	100	D	.81	.608	.473	.378	.311	1304.2	15	C	.81	.605	.471	.377	.310			
1067	400	F	.93	.698	.543	.434	.357	1136	150	F	.93	.682	.530	.424	.349	1305	20	D	.81	.608	.473	.378	.311			
1068	500	G	.99	.743	.578	.462	.380	1137	200	F	.96	.711	.553	.442	.364	1306	35	F	.84	.630	.490	.392	.322			
1080	1	A	.54	.383	.298	.238	.196	1148	1	A	.57	.417	.324	.259	.214	1307	60	G	.87	.648	.504	.403	.332			
1081	2	A	.54	.383	.298	.238	.196	1149	2	A	.57	.417	.324	.259	.214	1400	1	E	.81	.594	.462	.370	.304			
1082	3	A	.54	.383	.298	.238	.196	1150	3	A	.57	.417	.324	.259	.214	1401	2	E	.81	.594	.462	.370	.304			
1083	4	A	.54	.383	.298	.238	.196	1151	4	A	.57	.417	.324	.259	.214	1403	4	E	.81	.594	.462	.370	.304			
1084	5	A	.54	.383	.298	.238	.196	1152	5	A	.57	.417	.324	.259	.214	1404	5	E	.81	.594	.462	.370	.304			
1085	6	A	.54	.383	.298	.238	.196	1153	6	A	.57	.417	.324	.259	.214	1405	6	E	.81	.599	.466	.372	.306			
1086	8	A	.54	.383	.298	.238	.196	1154	8	A	.57	.417	.324	.259	.214	1406	8	E	.81	.601	.467	.374	.308			
1087	10	A	.54	.383	.298	.238	.196	1155	10	A	.57	.417	.324	.259	.214	1407	10	E	.81	.603	.469	.375	.309			
1089	15	A	.54	.383	.298	.238	.196	1156	15	A	.57	.417	.324	.259	.214	1408	15	F	.84	.614	.478	.382	.314			
1090	20	A	.54	.383	.298	.238	.196	1157	20	A	.57	.417	.324	.259	.214	1409	20	G	.84	.626	.487	.389	.320			
1091	25	A	.54	.383	.298	.238	.196	1157.1	25	B	.75	.551	.429	.343	.282	1500	1	E	.84	.626	.487	.389	.320			
1092	30	A	.57	.422	.328	.263	.216	1158	30	B	.75	.551	.429	.343	.282	1501	2	E	.84	.626	.487	.389	.320			
1093	35	A	.57	.422	.328	.263	.216	1159	35	C	.75	.551	.429	.343	.282	1502	3	E	.84	.626	.487	.389	.320			
1095	40	A	.57	.422	.328	.263	.216	1160	50	C	.81	.608	.473	.378	.311	1503	4	E	.84	.626	.487	.389	.320			
1100	50	B	.75	.551	.429	.343	.282	1161	75	D	.81	.608	.473	.378	.311	1504	5	E	.84	.626	.487	.389	.320			
1101	60	B	.75	.551	.429	.343	.282	1162	100	E	.81	.608	.473	.378	.311	1505	6	F	.84	.626	.487	.389	.320			
1101.5	75	C	.81	.608	.473	.378	.311	1163	150	F	.87	.653	.508	.406	.334	1506	8	F	.84	.628	.488	.391	.321			
1102	100	C	.81	.608	.473	.378	.311	1164	200	G	.96	.720	.560	.448	.368	1507	10	F	.84	.630	.490	.392	.322			
1103	150	E	.81	.608	.473	.378	.311	1200	1	A	.54	.405	.315	.252	.207	1508	12	G	.87	.644	.501	.400	.332			
1104	200	F	.84	.630	.490	.392	.322	1201	2	A	.57	.405	.315	.252	.208											
1105	250	F	.87	.653	.508	.406	.334																			

Size (dia. x lg.): A— $\frac{1}{2}$ " x  $\frac{1}{8}$ "; B— $\frac{3}{8}$ " x  $\frac{1}{8}$ "; C— $\frac{3}{8}$ " x  $\frac{1}{4}$ "; D— $\frac{1}{2}$ " x  $\frac{1}{8}$ "; E— $\frac{3}{8}$ " x  $\frac{1}{4}$ "; F— $\frac{1}{2}$ " x  $\frac{1}{4}$ "; G— $\frac{3}{4}$ " x  $\frac{1}{4}$ ".

## DIFILM® BLACK BEAUTY® MOLDED TUBULARS

No derating to 105° C. Tolerance:  $\pm 10\%$ , .001  $\mu$ F and up except  $\pm 20\%$  for 2TM-M1. Voltage: 2TM, 200 WVDC; 4TM, 400 WVDC; 6TM, 600 WVDC; 10TM, 1000 WVDC; MB and TR Buffers, mineral oil impreg., 1500 WVDC (TR, waxed cardboard type); TVM356-256, mineral oil impreg., 6000 WVDC; TVM351, mineral oil impreg., 10,000 WVDC; 12TVM325, mineral oil impreg., 12,500 WVDC. Max. oper. temp. 85° C for oil impreg.



Net Each, Lots of						Net Each, Lots of						Net Each, Lots of													
Sprague No.	Cap. μF	±	1-24	25-49	50-99	100-249	250 Up	Sprague No.	Cap. μF	±	1-24	25-49	50-99	100-249	250 Up	Sprague No.	Cap. μF	±	1-24	25-49	50-99	100-249	250 Up		
2TM-510	.01	A	\$1.15	\$1.09	\$0.97	\$0.854	\$0.754	6TM-D25	.0025	A	\$1.15	\$1.09	\$0.97	\$0.854	\$0.754	10TM-S10	.015	D	\$3.10	\$5.16	\$1.13	\$1.10	\$0.79		
2TM-520	.02	B	.15	.12	.09	.07	.057	6TM-D30	.003	A	.15	.11	.09	.07	.054	10TM-S15	.015	E	.30	.18	.14	.11	.087		
2TM-522	.022	B	.15	.12	.09	.07	.057	6TM-D33	.0033	A	.15	.11	.09	.07	.054	10TM-S20	.02	E	.30	.21	.16	.13	.104		



# SPRAGUE Tubular Capacitors

## ORANGE DROP® DIFILM® DIPPED TUBULAR CAPACITORS



200 VDC

Sp. No. 2PS-	μf	Dia. x L. Inches	Net Each, Lots of			
			1-24	25-49	50-99	100-249
S20	.02	3/8 x 3/8	\$0.15	\$0.11	\$0.09	\$0.07
S22	.022	3/8 x 3/8	.15	.11	.09	.07
S47	.047	3/8 x 3/8	.15	.13	.10	.08
S50	.05	3/8 x 3/8	.15	.13	.10	.08
P10	.1	3/8 x 1 1/8	.21	.15	.12	.09
P15	.15	3/8 x 1 1/8	.21	.17	.13	.11
P20	.2	3/8 x 1 1/8	.24	.20	.16	.13
P22	.22	3/8 x 1 1/8	.24	.20	.16	.13
P25	.25	3/8 x 1 1/8	.24	.20	.16	.13
P33	.33	3/8 x 1 1/8	.30	.23	.18	.15
P47	.47	3/8 x 1 1/8	.36	.26	.21	.17
P50	.5	3/8 x 1 1/8	.36	.27	.21	.17

400 VDC

Sp. No. 4PS-	μf	Dia. x L. Inches	Net Each, Lots of			
			1-24	25-49	50-99	100-249
S10	.01	1/2 x 1/2	\$0.15	\$0.10	\$0.08	\$0.07
S15	.015	1/2 x 1/2	.15	.11	.08	.07
S20	.02	1/2 x 1/2	.15	.12	.09	.07
S22	.022	1/2 x 1/2	.18	.12	.09	.08
S25	.025	1/2 x 1/2	.18	.12	.10	.08
S30	.03	1/2 x 1/2	.18	.13	.10	.08
S33	.033	1/2 x 1/2	.18	.13	.10	.08
S40	.04	1/2 x 1/2	.18	.14	.11	.09
S47	.047	1/2 x 1/2	.18	.14	.11	.09
S50	.05	1/2 x 1/2	.18	.15	.11	.09
S56	.056	1/2 x 1/2	.21	.15	.12	.10
S68	.068	1/2 x 1/2	.21	.15	.12	.10
S75	.075	1/2 x 1/2	.21	.16	.13	.10
P10	.1	3/4 x 1 1/4	.21	.17	.13	.11
P15	.15	3/4 x 1 1/4	.24	.21	.16	.13
P20	.2	3/4 x 1 1/4	.27	.25	.20	.16
P22	.22	3/4 x 1 1/4	.27	.25	.20	.16
P25	.25	3/4 x 1 1/4	.30	.26	.20	.16

- Especially made for exact, original replacement.
- Dual dielectric (polyester film-paper) solidly impregnated with exclusive HCX®—produces rock-hard capacitor section.
- Outperforms any other dipped tubular capacitor.
- Double dipped in bright orange epoxy resin—beats heat and humidity.
- Won't leak or drip.
- Also available in handy Sprague Kleer-Pak® boxes.

600 VDC

Sp. No. 6PS-	μf	Dia. x L. Inches	Net Each, Lots of			
			1-24	25-49	50-99	100-249
D10	.001	1 1/8 x 1 1/8	\$0.15	\$0.10	\$0.08	\$0.07
D12	.0012	1 1/8 x 1 1/8	.15	.10	.08	.07
D15	.0015	1 1/8 x 1 1/8	.15	.10	.08	.07
D18	.0018	1 1/8 x 1 1/8	.15	.10	.08	.07
D20	.002	1 1/8 x 1 1/8	.15	.10	.08	.07
D22	.0022	1 1/8 x 1 1/8	.15	.10	.08	.07
D25	.0025	1 1/8 x 1 1/8	.15	.10	.08	.07
D27	.0027	1 1/8 x 1 1/8	.15	.10	.08	.07
D30	.003	1 1/8 x 1 1/8	.15	.10	.08	.07
D33	.0033	1 1/8 x 1 1/8	.15	.10	.08	.07
D39	.0039	1 1/8 x 1 1/8	.15	.10	.08	.07
D40	.004	1 1/8 x 1 1/8	.15	.10	.08	.07
D47	.0047	1 1/8 x 1 1/8	.15	.10	.08	.07
D50	.005	1 1/8 x 1 1/8	.15	.10	.08	.07
D56	.0056	1 1/8 x 1 1/8	.15	.10	.08	.07
D60	.006	1 1/8 x 1 1/8	.15	.11	.08	.07
D68	.0068	1 1/8 x 1 1/8	.18	.11	.08	.07
D75	.0075	1 1/8 x 1 1/8	.18	.11	.09	.07
D80	.008	1 1/8 x 1 1/8	.18	.11	.09	.07
D82	.0082	1 1/8 x 1 1/8	.18	.11	.09	.07
S10	.01	1 1/8 x 1 1/8	.18	.11	.09	.07
S12	.012	1 1/8 x 1 1/8	.18	.11	.09	.07
S15	.015	1 1/8 x 1 1/8	.18	.11	.09	.07
S20	.02	1 1/8 x 1 1/8	.18	.13	.10	.08
S22	.022	1 1/8 x 1 1/8	.18	.13	.10	.08
S25	.025	1 1/8 x 1 1/8	.21	.13	.11	.09
S27	.027	1 1/8 x 1 1/8	.21	.13	.11	.09
S30	.03	1 1/8 x 1 1/8	.21	.14	.11	.09
S33	.033	1 1/8 x 1 1/8	.21	.14	.11	.09
S35	.035	1 1/8 x 1 1/8	.21	.14	.11	.09
S39	.039	1 1/8 x 1 1/8	.21	.14	.11	.09
S40	.04	1 1/8 x 1 1/8	.21	.15	.12	.10
S47	.047	1 1/8 x 1 1/8	.24	.15	.12	.10
S50	.05	1 1/8 x 1 1/8	.24	.15	.12	.10
S56	.056	1 1/8 x 1 1/8	.24	.15	.12	.10
S60	.06	1 1/8 x 1 1/8	.24	.18	.14	.11

600 VDC (CONTINUED)

Sp. No. 6PS-	μf	Dia. x L. Inches	Net Each, Lots of			
			1-24	25-49	50-99	100-249
S68	.068	1 1/8 x 1 1/8	\$0.27	\$0.18	\$0.14	\$0.11
S75	.075	1 1/8 x 1 1/8	.27	.18	.14	.12
S82	.082	1 1/8 x 1 1/8	.27	.18	.14	.12
P10	.1	1 1/8 x 1 1/8	.27	.19	.15	.12
P15	.15	1 1/8 x 1 1/8	.30	.23	.18	.15
P20	.2	1 1/8 x 1 1/8	.39	.27	.21	.17
P22	.22	1 1/8 x 1 1/8	.42	.27	.21	.17
P25	.25	1 1/8 x 1 1/8	.45	.27	.21	.17

1000 VDC

Sp. No. 10PS-	μf	Dia. x L. Inches	Net Each, Lots of			
			1-24	25-49	50-99	100-249
D10	.001	1 1/8 x 1 1/8	\$0.30	\$0.09	\$0.07	\$0.06
D15	.0015	1 1/8 x 1 1/8	.30	.10	.08	.06
D20	.002	1 1/8 x 1 1/8	.30	.10	.08	.06
D22	.0022	1 1/8 x 1 1/8	.30	.10	.08	.06
D30	.003	1 1/8 x 1 1/8	.30	.10	.08	.06
D40	.004	1 1/8 x 1 1/8	.30	.11	.08	.07
D47	.0047	1 1/8 x 1 1/8	.30	.11	.08	.07
D50	.005	1 1/8 x 1 1/8	.30	.11	.09	.07

## HYPASS® CAPACITORS

Sprague No.	μf	WVDC	Dia. x L. Inches	Net Each
				Each
48P18*	.5	50	1 x 1 1/8	\$2.28
48P18*	.25	200	3/4 x 1 1/8	1.56
48P14*	.5	200	1 x 1 1/8	1.89
48P9*	.1	250†	1 1/8 x 1 1/8	1.53
48P6*	.1	400	1 1/8 x 1 1/8	1.53
80P1†	.1	400	1 1/8 x 1 1/8	1.74
46P12	.002	600	3/4 x 1 3/8	1.29
46P8	.005	600	3/4 x 1 3/8	1.29
47P6	.01	600	3/4 x 1 3/8	1.41
47P8	.02	600	3/4 x 1 3/8	1.44
48P8*	.1	600	1 1/8 x 1 1/8	1.56
80P3†	.1	600	1 1/8 x 1 1/8	1.77
48P12*	.25	600	1 x 1 1/8	1.65
48P16*	.5	600	1 x 2 1/8	2.10
47P13	.005	1000	3/4 x 1 1/2	1.44
47P14	.005	1000	3/4 x 1 1/2	1.56
47P15	.01	2500	1 x 1 1/8	1.74
47P16	.002	5000	1 x 1 1/8	1.86

\*Has female screw terminals. †Bulkhead mounting. ‡WVAC.

## TYPE VL VERTI-LYTIC® ELECTROLYTICS



- Low leakage current and long shelf life.
- Sections housed in sturdy, pre-molded phenolic cases.
- For replacement of units of this type found on printed wiring boards in original equipment.
- Resin end fill will not contaminate electrolyte—protects against drying and entrance of external moisture.
- Polarity easily determined by larger diameter of negative lead.

3 WVDC

Sprague Number	Capacity, μF	Dia. x L. Inches	Net Each
VL-1031	1	3/8 x 3/4	\$0.87
VL-1032	2	3/8 x 3/4	.87
VL-1033	3	3/8 x 3/4	.87
VL-1034	4	3/8 x 3/4	.87
VL-1035	5	3/8 x 3/4	.87
VL-1036	6	3/8 x 3/4	.87
VL-1037	8	3/8 x 3/4	.87
VL-1038	10	3/8 x 3/4	.87
VL-1039	15	3/8 x 3/4	.87
VL-1040	20	3/8 x 3/4	.87
VL-1041	25	3/8 x 3/4	.87
VL-1043	35	3/8 x 3/4	.90
VL-1045	50	3/8 x 3/4	.93
VL-1048	75	3/8 x 3/4	1.02
VL-1051	100	3/8 x 3/4	1.05
VL-1055	150	3/8 x 3/4	1.05
VL-1059	200	3/8 x 3/4	1.08
VL-1063	250	3/8 x 3/4	1.17
VL-1067	290	3/8 x 3/4	1.20

6 WVDC

Sprague Number	Capacity, μF	Dia. x L. Inches	Net Each
VL-1080	1	3/8 x 3/4	\$0.87
VL-1081	2	3/8 x 3/4	.87
VL-1082	3	3/8 x 3/4	.87
VL-1083	4	3/8 x 3/4	.87
VL-1084	5	3/8 x 3/4	.87
VL-1085	6	3/8 x 3/4	.87
VL-1086	8	3/8 x 3/4	.87
VL-1087	10	3/8 x 3/4	.87
VL-1088	15	3/8 x 3/4	.87
VL-1089	20	3/8 x 3/4	.87
VL-1090	25	3/8 x 3/4	.87
VL-1092	35	3/8 x 3/4	.90
VL-1094	50	3/8 x 3/4	.93
VL-1097	75	3/8 x 3/4	1.02
VL-1100	100	3/8 x 3/4	1.05
VL-1104	150	3/8 x 3/4	1.14
VL-1108	200	3/8 x 3/4	1.17

12 WVDC

Sprague Number	Capacity, μF	Dia. x L. Inches	Net Each
VL-1120	1	3/8 x 3/4	\$0.87
VL-1121	2	3/8 x 3/4	.87
VL-1122	3	3/8 x 3/4	.87
VL-1123	4	3/8 x 3/4	.87
VL-1124	5	3/8 x 3/4	.90
VL-1125	6	3/8 x 3/4	.90
VL-1126	8	3/8 x 3/4	.90
VL-1127	10	3/8 x 3/4	.90
VL-1128	15	3/8 x 3/4	.93
VL-1129	20	3/8 x 3/4	.93
VL-1130	25	3/8 x 3/4	.93
VL-1132	35	3/8 x 3/4	.93
VL-1134	50	3/8 x 3/4	.99
VL-1137	75	3/8 x 3/4	1.05
VL-1140	100	3/8 x 3/4	1.14
VL-1144	140	3/8 x 3/4	1.17

15 WVDC

Sprague Number	Capacity, μF	Dia. x L. Inches	Net Each
VL-1160	1	3/8 x 3/4	\$0.87
VL-1161	2	3/8 x 3/4	.87
VL-1162	3	3/8 x 3/4	.87
VL-1163	4	3/8 x 3/4	.87
VL-1164	5	3/8 x 3/4	.90
VL-1165	6	3/8 x 3/4	.90
VL-1166	8	3/8 x 3/4	.90
VL-1167	10	3/8 x 3/4	.90
VL-1168	15	3/8 x 3/4	.93
VL-1169	20	3/8 x 3/4	.93
VL-1170	25	3/8 x 3/4	.93
VL-1172	35	3/8 x 3/4	.93
VL-1174	50	3/8 x 3/4	.99
VL-1177	75	3/8 x 3/4	1.05
VL-1180	90	3/8 x 3/4	1.17

6-6 WVDC

Sprague Number	Capacity, μF	Dia. x L. Inches	Net Each
VL-2150	100-30	1 1/8 x 1 1/8	\$1.26

25 WVDC

Sprague Number	Capacity, μF	Dia. x L. Inches	Net Each
VL-1200	1	3/8 x 3/4	\$0.90
VL-1201	2	3/8 x 3/4	.90
VL-1202	3	3/8 x 3/4	.93
VL-1203	4	3/8 x 3/4	.99
VL-1204	5	3/8 x 3/4	.99
VL-1205	6	3/8 x 3/4	.99
VL-1206	8	3/8 x 3/4	.99
VL-1207	10	3/8 x 3/4	.99
VL-1208	15	3/8 x 3/4	.99
VL-1209	20	3/8 x 3/4	.99
VL-1210	25	3/8 x 3/4	.99
VL-1212	35	3/8 x 3/4	1.05
VL-1			



# SPRAGUE Electrolytic Capacitors

## TYPE 36D POWERLYTIC® ALUMINUM ELECTROLYTIC CAPACITORS

For applications requiring maximum capacitance in given case size, especially in transistorized circuitry, at temperatures up to +65° C. Low ESR and leakage currents, plus extremely long shelf life. Uses reliable seal, plus pressure type safety vents of silicone rubber. High 1/2" screw insert terminal.



Sprague No.*	μF	WVDC	Net Each, Lots of		
			1-24	25-49	50-99
36D274G003DF2A	270,000	3	\$10.964	\$9.594	\$7.401
36D124G006DC2A	120,000	6	8.194	7.170	5.531
36D194G006DF2A	190,000	6	11.038	9.658	7.451
36D602G010AA2A	6,000	10	1.844	1.614	1.245
36D123G010AB2A	12,000	10	2.228	1.950	1.504
36D183G010AC2A	18,000	10	2.568	2.247	1.733
36D283G010BB2A	28,000	10	3.428	3.000	2.314
36D423G010BC2A	42,000	10	4.150	3.631	2.801
36D483G010CB2A	48,000	10	4.656	4.074	3.143
36D104G010DC2A	100,000	10	8.266	7.253	5.580
36D164G010DF2A	160,000	10	11.094	9.707	7.488
36D462G015AA2A	4,600	15	1.844	1.614	1.245
36D922G015AB2A	9,200	15	2.232	1.953	1.507
36D133G015AC2A	13,300	15	2.574	2.252	1.737
36D213G015BB2A	21,000	15	3.444	3.014	2.325
36D313G015CB2A	31,000	15	4.160	3.640	2.808
36D363G015CB2A	36,000	15	4.676	4.092	3.156
36D543G015CC2A	54,000	15	6.134	5.367	4.140
36D633G015CD2A	63,000	15	6.868	6.010	4.636
36D873G015DC2A	80,000	15	7.970	6.974	5.280
36D202G025AA2A	2,000	25	1.844	1.614	1.245
36D552G025AB2A	5,500	25	2.236	1.957	1.509
36D822G025AC2A	8,200	25	2.582	2.259	1.743
36D183G025BC2A	18,000	25	4.172	3.651	2.816
36D323G025CC2A	32,000	25	6.176	5.404	4.169
36D473G025DC2A	47,000	25	7.990	6.991	5.193
36D553G025DF2A	55,000	25	9.510	8.321	6.439
36D713G025DF2A	71,000	25	10.990	9.616	7.418
36D363G030DD2A	36,000	30	8.050	7.044	5.434
36D423G030DD2A	42,000	30	9.552	8.358	6.448
36D552G040AB2A	5,500	40	2.600	2.275	1.755
36D842G040BB2A	8,400	40	3.494	3.057	2.358
36D123G040CB2A	12,000	40	4.256	3.724	2.873
36D213G040CC2A	21,000	40	6.218	5.441	4.197
36D253G040CD2A	25,000	40	7.014	6.137	4.734
36D132G050AA2A	1,300	50	1.854	1.622	1.251
36D262G050AB2A	2,600	50	2.256	1.974	1.523
36D392G050AC2A	3,900	50	2.608	2.282	1.760
36D602G050BB2A	6,000	50	3.512	3.073	2.371
36D902G050CB2A	9,000	50	4.266	3.733	2.880
36D153G050CC2A	15,000	50	6.238	5.458	4.211
36D223G050DC2A	22,000	50	8.090	7.079	5.461
36D252F075AC2A	2,500	75	2.614	2.287	1.764
36D392F075BB2A	3,900	75	3.526	3.085	2.380

Sprague No.*	μF	WVDC	Net Each, Lots of		
			1-24	25-49	50-99
36D592F075BC2A	5,900	75	4.272	3.738	2.884
36D113F075CD2A	11,000	75	7.080	6.195	4.779
36D143F075DC2A	14,000	75	8.134	7.117	5.490
36D223F075DF2A	22,000	75	11.516	10.077	7.773
36D451F100AA2A	4,500	100	1.856	1.624	1.252
36D132F100AB2A	1,300	100	2.596	2.272	1.752
36D302F100BC2A	3,000	100	4.234	3.705	2.858
36D532F100CC2A	5,300	100	6.218	5.441	4.197
36D782F100DC2A	7,800	100	8.496	7.434	5.735
36D301F150AA2A	3,000	150	1.852	1.621	1.250
36D901F150AC2A	9,000	150	2.574	2.252	1.737
36D142F150BB2A	1,400	150	3.442	3.012	2.323
36D212F150BC2A	2,100	150	4.172	3.651	2.816
36D362F150CC2A	3,600	150	6.238	5.458	4.211
36D532F150DC2A	5,300	150	8.412	7.361	5.678
36D782F150DF2A	7,800	150	11.388	9.965	7.687
36D251F200AA2A	250	200	1.848	1.617	1.247
36D431F200AB2A	430	200	2.214	1.937	1.494
36D641F200AC2A	640	200	2.558	2.238	1.727
36D142F200BC2A	1,400	200	4.108	3.595	2.773
36D162F200CB2A	1,600	200	4.696	4.109	3.170
36D372F200CC2A	3,700	200	8.202	7.177	5.536
36D552F200DF2A	5,500	200	11.346	9.928	7.659
36D531F250AC2A	530	250	2.548	2.230	1.720
36D122F250BC2A	1,200	250	4.088	3.577	2.759
36D302F250DC2A	3,000	250	6.182	5.159	3.923
36D452F250DF2A	4,500	250	11.284	9.874	7.617
36D241F300AB2A	240	300	2.194	1.920	1.481
36D821F300CB2A	820	300	4.066	3.558	2.745
36D212F300DC2A	2,100	300	4.160	3.640	2.808
36D950F350AA2A	95	350	1.834	1.605	1.238
36D191F350AB2A	190	350	2.170	1.899	1.465
36D421F350BB2A	420	350	3.170	2.774	2.140
36D651F350BC2A	650	350	4.034	3.530	2.723
36D112F350CC2A	1,100	350	5.902	5.164	3.984
36D162F350DC2A	1,600	350	8.050	7.044	5.434
36D250F350DF2A	2,500	350	11.074	9.690	7.475
36D421F400BC2A	420	400	4.014	3.512	2.709
36D500F450AA2A	50	450	1.796	1.572	1.232
36D141F450AC2A	140	450	2.504	2.191	1.690
36D221F450BB2A	220	450	3.222	2.813	2.175
36D331F450CB2A	330	450	3.986	3.488	2.691
36D861F450DC2A	860	450	8.370	7.324	5.650

### \*SIZE

Digits 11 and 12 indicate case size (e.g., 36D101F350AB2A, 1 1/2" dia. x 3 1/2" lg.).

Size Code	Dia. x Lg., In.†	Size Code	Dia. x Lg., In.†
AA	1 1/2" x 2 1/2"	CC	2 1/2" x 4 1/2"
AB	1 1/2" x 3 1/2"	CD	2 1/2" x 4 3/4"
AC	1 3/4" x 4 1/2"	CC	3" x 4 3/4"
BB	2" x 3 1/2"	DD	3" x 5 1/4"
BC	2" x 4 1/2"	DF	3" x 5 3/4"
CB	2 1/2" x 3 1/2"		

†Add 1/8" to dia. and 1/16" to length for plastic outer tube.

## TYPE TL TRANSI-LYTIC® CAPACITORS

Miniature, low cost electrolytics for use in transistorized pocket and portable radios. Special, low-leakage construction meets transistor circuitry requirements. Sturdy plastic case with thermo-setting resin end-seals. High resistance to high humidity. Polarity marked on case.



No. TL-	Cap., μf	†	Net Each, Lots of					
			1-24	25-49	50-99	100-249		
1050	1	A	42c	32c	25c	20c		
1051	2	A	42c	32c	25c	20c		
1052	3	A	42c	32c	25c	20c		
1052.1	4	A	42c	32c	25c	20c		
1052.2	5	A	42c	32c	25c	20c		
1052.3	6	A	42c	32c	25c	20c		
1052.5	8	A	42c	32c	25c	20c		
1053	10	B	42c	32c	25c	20c		
1053.5	15	B	42c	32c	25c	20c		
1054	20	B	42c	32c	25c	20c		
1055	25	C	42c	32c	25c	20c		
1055	35	C	42c	32c	25c	20c		
1058	50	C	42c	32c	25c	20c		
1059	75	D	45c	33c	26c	21c		
1059.5	100	D	45c	33c	26c	21c		
1061	150	E	54c	41c	32c	25c		
1064	200	E	54c	41c	32c	25c		
1065	250	E	60c	44c	38c	30c		

No. TL-	Cap., μf	†	Net Each, Lots of					
			1-24	25-49	50-99	100-249		
1120	1	A	42c	32c	25c	20c		
1121	2	A	42c	32c	25c	20c		
1122	3	A	42c	32c	25c	20c		
1123	4	A	42c	32c	25c	20c		
1127	5	A	42c	32c	25c	20c		
1127.1	6	B	42c	32c	25c	20c		
1127.3	8	B	42c	32c	25c	20c		
1128	10	B	42c	32c	25c	20c		
1129	15	C	42c	32c	25c	20c		
1130	20	C	42c	32c	25c	20c		
1131	25	D	42c	32c	25c	20c		
1132	35	D	42c	32c	25c	20c		
1133	50	D	42c	32c	25c	20c		
1134	75	E	45c	33c	26c	21c		
1135	100	E	45c	33c	26c	21c		

No. TL-	Cap., μf	†	Net Each, Lots of					
			1-24	25-49	50-99	100-249		
1170	1	A	42c	32c	25c	20c		
1171	2	A	42c	32c	25c	20c		
1172	3	A	42c	32c	25c	20c		
1173	4	B	42c	32c	25c	20c		
1174	5	B	45c	33c	26c	21c		
1175	6	B	45c	33c	26c	21c		
1176	8	C	45c	33c	26c	21c		
1177	10	C	45c	33c	26c	21c		
1178	15	D	45c	33c	26c	21c		
1179	20	D	45c	33c	26c	21c		
1180	25	D	45c	33c	26c	21c		
1181	35	E	44c	32c	25c	20c		
1182	50	E	44c	32c	25c	20c		
1183	75	E	44c	32c	25c	20c		



# SPRAGUE Ceramic, Film Capacitors

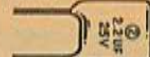
## TYPE 3C, 4C, 5C MONOLITHIC<sup>®</sup> CERAMIC CAPACITORS—FORMULATION O23

High-K formulation, resin-coated.

+80% -20% CAPACITANCE TOLERANCE

Axial

Radial



+20% CAPACITANCE TOLERANCE

RADIAL LEADS

RADIAL LEADS

Sprague No.	μF	WVDC	Net Each, Lots of			
			1-49	50-99	100-249	250-499
3C3A	.01	25	\$1.70	\$1.27	\$0.956	\$0.85
3C6A	.015	25	1.70	1.27	.956	.85
3C9A	.022	25	1.70	1.27	.956	.85
3C12A	.033	25	1.70	1.27	.956	.85
3C15A	.047	25	1.70	1.27	.956	.85
3C18A	.068	25	1.80	1.36	1.013	.90
3C21A	.1	25	1.88	1.41	1.058	.94
4C39A	.15	25	2.14	1.60	1.204	1.07
4C41A	.22	25	2.34	1.75	1.316	1.17
4C44A	.33	25	2.98	2.22	1.678	1.49
4C47A	.47	25	3.77	2.83	2.124	1.888
4C50A	.68	25	5.064	3.82	2.849	2.532
5C7A	.1	25	.76	.57	.428	.38
5C8A	.15	25	.88	.65	.495	.44
5C9A	.22	25	1.02	.76	.574	.51
5C10A	.33	25	1.16	.87	.653	.58
5C11A	.47	25	1.34	1.00	.754	.67
5C12A	.68	25	1.44	1.08	.81	.72
5C13A	1.0	25	1.92	1.44	1.08	.96
5C14A	1.5	25	2.66	2.22	1.665	1.48
5C15A	2.2	25	3.82	2.84	2.205	1.96
5C50A	.1	50	1.02	.76	.574	.51
5C51A	.15	50	1.16	.87	.653	.58
5C52A	.22	50	1.34	1.00	.754	.67
5C53A	.33	50	1.66	1.22	.956	.85
5C54A	.47	50	2.48	1.86	1.395	1.24

Sprague No.	μF	WVDC	Net Each, Lots of			
			1-49	50-99	100-249	250-499
3C3	.01	25	\$1.74	\$1.305	\$0.979	\$0.87
3C6	.015	25	1.74	1.305	.979	.87
3C9	.022	25	1.74	1.305	.979	.87
3C12	.033	25	1.74	1.305	.979	.87
3C15	.047	25	1.74	1.305	.979	.87
3C18	.068	25	1.84	1.38	1.035	.92
3C21	.1	25	1.92	1.44	1.08	.96
4C38	.15	25	2.18	1.635	1.226	1.09
4C41	.22	25	2.38	1.785	1.339	1.19
4C44	.33	25	3.02	2.265	1.699	1.51
4C47	.47	25	4.064	3.048	2.286	2.032
4C50	.68	25	5.136	3.852	2.889	2.568
5C7	.1	25	.80	.60	.45	.40
5C8	.15	25	.92	.69	.518	.46
5C9	.22	25	1.06	.795	.596	.53
5C10	.33	25	1.20	.90	.675	.60
5C11	.47	25	1.38	1.035	.776	.69
5C12	.68	25	1.48	1.11	.833	.74
5C13	1.0	25	1.96	1.47	1.103	.98
5C14	1.5	25	3.00	2.25	1.688	1.50
5C15	2.2	25	3.96	2.97	2.228	1.98
5C50	.1	50	1.06	.795	.596	.53
5C51	.15	50	1.20	.90	.675	.60
5C52	.22	50	1.38	1.035	.776	.69
5C53	.33	50	2.00	1.50	1.125	1.00
5C54	.47	50	2.52	1.89	1.418	1.26

AXIAL LEADS

AXIAL LEADS

3C1A	.01	25	\$1.78	\$1.33	\$1.001	\$0.89
3C7A	.022	25	1.78	1.33	1.001	.89
3C10A	.033	25	1.78	1.33	1.001	.89
3C13A	.047	25	1.78	1.33	1.001	.89
3C16A	.068	25	1.88	1.41	1.058	.94
3C19A	.1	25	1.96	1.47	1.103	.98
4C36A	.15	25	2.22	1.66	1.249	1.11
4C39A	.22	25	2.42	1.81	1.361	1.21
4C42A	.33	25	3.06	2.29	1.721	1.53

3C1	.01	25	\$1.82	\$1.36	\$1.024	\$0.91
3C7	.022	25	1.82	1.36	1.024	.91
3C10	.033	25	1.82	1.36	1.024	.91
3C13	.047	25	1.82	1.36	1.024	.91
3C16	.068	25	1.92	1.44	1.08	.96
3C19	.1	25	2.00	1.50	1.125	1.00
4C36	.15	25	2.26	1.695	1.251	1.13
4C39	.22	25	2.46	1.845	1.384	1.23
4C42	.33	25	3.10	2.325	1.744	1.55

## TYPE 3C, 4C MONOLITHIC<sup>®</sup> CERAMIC CAPACITORS—FORMULATION N030

TEMPERATURE COMPENSATING, ±5% TOLERANCE

Temperature coefficient guaranteed less than ±0.6% between -55° C and +125° C. 200 WVDC. For radial leads, add suffix BH3; for axial leads, suffix BH1. (Example: 3C5105BH3 is 51 pF with radial leads.)

Sprague Number	pF	Radial Leads, Suffix BH3				Axial Leads, Suffix BH1			
		Net Each, Lots of				Net Each, Lots of			
		1-49	50-99	100-249	250-499	1-49	50-99	100-249	250-499
3C5105	51	\$1.32	\$0.99	\$0.743	\$0.66	\$1.40	\$1.05	\$0.788	\$0.70
3C5605	56	1.32	.99	.743	.66	1.40	1.05	.788	.70
3C6205	62	1.32	.99	.743	.66	1.40	1.05	.788	.70
3C6805	68	1.32	.99	.743	.66	1.40	1.05	.788	.70
3C7505	75	1.32	.99	.743	.66	1.40	1.05	.788	.70
3C8205	82	1.32	.99	.743	.66	1.40	1.05	.788	.70
3C9105	91	1.32	.99	.743	.66	1.40	1.05	.788	.70
3C1015	100	1.60	1.20	.90	.80	1.686	1.26	.945	.84
3C1115	110	1.60	1.20	.90	.80	1.686	1.26	.945	.84
3C1215	120	1.60	1.20	.90	.80	1.686	1.26	.945	.84
3C1315	130	1.60	1.20	.90	.80	1.686	1.26	.945	.84
3C1515	150	1.60	1.20	.90	.80	1.686	1.26	.945	.84
3C1615	160	1.60	1.20	.90	.80	1.686	1.26	.945	.84
3C1815	180	1.64	1.23	.923	.82	1.72	1.29	.968	.86
3C2015	200	1.70	1.275	.956	.85	1.78	1.335	1.001	.89
3C2215	220	1.74	1.305	.979	.87	1.82	1.365	1.024	.91
3C2415	240	1.74	1.305	.979	.87	1.82	1.365	1.024	.91
3C2715	270	1.82	1.365	1.024	.91	1.90	1.425	1.069	.95
3C3015	300	1.82	1.365	1.024	.91	1.90	1.425	1.069	.95
3C3315	330	1.82	1.365	1.024	.91	1.90	1.425	1.069	.95
3C3615	360	1.82	1.365	1.024	.91	1.90	1.425	1.069	.95
3C3915	390	1.82	1.365	1.024	.91	1.90	1.425	1.069	.95
3C4315	430	1.90	1.425	1.069	.95	1.98	1.485	1.114	.99
3C4715	470	1.90	1.425	1.069	.95	1.98	1.485	1.114	.99
3C5115	510	1.90	1.425	1.069	.95	1.98	1.485	1.114	.99
3C5615	560	1.90	1.425	1.069	.95	1.98	1.485	1.114	.99
3C6215	620	1.90	1.425	1.069	.95	1.98	1.485	1.114	.99
3C6815	680	1.90	1.425	1.069	.95	1.98	1.485	1.114	.99
4C7515	750	1.96	1.47	1.103	.98	2.04	1.53	1.148	1.02
4C8215	820	2.08	1.56	1.17	1.04	2.16	1.62	1.215	1.08
4C9115	910	2.16	1.62	1.235	1.08	2.24	1.68	1.26	1.12
4C1025	1000	2.16	1.62	1.235	1.08	2.24	1.68	1.26	1.12
4C1125	1100	2.26	1.695	1.271	1.13	2.34	1.755	1.316	1.17
4C1225	1200	2.36	1.77	1.328	1.18	2.44	1.83	1.373	1.22
4C1325	1300	2.42	1.815	1.361	1.21	2.50	1.875	1.406	1.25
4C1525	1500	2.60	1.95	1.463	1.30	2.68	2.01	1.508	1.34
4C1825	1800	2.70	2.025	1.539	1.35	2.78	2.085	1.564	1.39
4C2025	2000	2.86	2.145	1.609	1.43	2.94	2.205	1.654	1.47
4C2225	2200	3.72	2.79	2.093	1.86	.....	.....	.....	.....
4C2425	2400	4.06	3.045	2.284	2.03	.....	.....	.....	.....
4C2725	2700	4.06	3.045	2.284	2.03	.....	.....	.....	.....
4C3025	3000	4.48	3.36	2.52	2.24	.....	.....	.....	.....
4C3325	3300	4.48	3.36	2.52	2.24	.....	.....	.....	.....
4C3625	3600	6.54	4.905	3.679	3.27	.....	.....	.....	.....
4C3925	3900	6.54	4.905	3.679	3.27	.....	.....	.....	.....
4C4325	4300	7.16	5.37	4.028	3.58	.....	.....	.....	.....
4C4725	4700	7.16	5.37	4.028	3.58	.....	.....	.....	.....
4C5125	5100	7.20	5.40	4.05	3.60	.....	.....	.....	.....

## WF YELLOW-JACKET<sup>®</sup> FILMITE<sup>®</sup> "E" CAPACITORS



- Excellent for use in transistorized circuits and low-voltage electron tube circuits.
- Extended foil type sections, wound from selected, ultra-thin polyester film and thin gauge foil.
- Outer plastic film wrap and resin end seals protect against moisture and humidity.
- "Smaller than small"—These capacitors will fit anywhere.
- Rated to 200 WVDC.
- Capacitance Tolerance: ±10%.
- Designed for operation to 85° C (185° F).

Sprague No.	μF	Dia. x L. Inches	Net Each
2WF-510	.01	18 1/8 x 1 1/8	50.87
2WF-512	.012	18 1/8 x 1 1/8	.57
2WF-515	.015	18 1/8 x 1 1/8	.57
2WF-518	.018	18 1/8 x 1 1/8	.57
2WF-522	.022	18 1/8 x 1 1/8	.57
2WF-527	.027	18 1/8 x 1 1/8	.57
2WF-533	.033	18 1/8 x 1 1/8	.60
2WF-539	.039	18 1/8 x 1 1/8	.60
2WF-547	.047	18 1/8 x 1 1/8	.60
2WF-556	.056	18 1/8 x 1 1/8	.60
2WF-568	.068	18 1/8 x 1 1/8	.60
2WF-582	.082	18 1/8 x 1 1/8	.60
2WF-P10	.1	18 1/8 x 1 1/8	.63
2WF-P12	.12	18 1/8 x 1 1/8	.63
2WF-P15	.15	18 1/8 x 1 1/8	.63
2WF-P18	.18	18 1/8 x 1 1/8	.66
2WF-P22	.22	18 1/8 x 1 1/8	.66
2WF-P27	.27	18 1/8 x 1 1/8	.66
2WF-P33	.33	18 1/8 x 1 1/8	.66
2WF-P39	.39	18 1/8 x 1 1/8	.72
2WF-P47	.47	18 1/8 x 1 1/8	.72
2WF-P56	.56	18 1/8 x 1 1/8	.90
2WF-P68	.68	18 1/8 x 1 1/8	.90
2WF-P82	.82	18 1/8 x 1 1/8	.90
2WF-M1	1.0	18 1/8 x 1 1/8	.90



## 3000-6000 VOLT HI-VO-DISC® CAPACITORS

All these units are highly efficient for bypass-coupling in high frequency circuits under conditions of extreme humidity or temperature. Special phenolic insulation with triple, high temperature wax impregnation. Maintain high capacity and performance at 85° C. Tolerance: ±20%.

Capacity, $\mu\text{f}$	3000 Volt, DC Working		6000 Volt, DC Working	
	CRL No.	Dia.	CRL No.	Dia.
4.7	DD30-4R7		DD60-4R7	
10	DD30-100		DD60-100	
15	DD30-150		DD60-150	
22	DD30-220			
25	DD30-250			
30	DD30-300		DD60-300	
33	DD30-330		DD60-330	
39	DD30-390		DD60-390	
47	DD30-470		DD60-470	
50	DD30-500		DD60-500	
56	DD30-560		DD60-560	
68	DD30-680		DD60-680	
75	DD30-750		DD60-750	
82	DD30-820		DD60-820	
100	DD30-101		DD60-101	
120	DD30-121		DD60-121	
150	DD30-151		DD60-151	
180	DD30-181		DD60-181	
200	DD30-201		DD60-201	
220	DD30-221		DD60-221	
250	DD30-251		DD60-251	
270	DD30-271		DD60-271	
300	DD30-301		DD60-301	
330	DD30-331		DD60-331	
390	DD30-391		DD60-391	
400	DD30-401			
470	DD30-471		DD60-471	
500	DD30-501		DD60-501	
560	DD30-561		DD60-561	
680	DD30-681		DD60-681	
750	DD30-751		DD60-751	
820	DD30-821		DD60-821	
1000	DD30-102		DD60-102	
1200	DD30-122		DD60-122	
1500	DD30-152		DD60-152	
2000	DD30-202		DD60-202	
2200	DD30-222		DD60-222	
2500	DD30-252			
2700	DD30-272			
3000	DD30-302			
3300	DD30-332			
3900	DD30-392			
4700	DD30-472			
5000	DD30-502			

### INDUSTRIAL NET PRICES TYPE DD30 (3000 WVDC)

Values, $\mu\text{f}$	Net Each, Lots of				
	1-24	25-99	100-249	250-499	500-999
4.7 thru 120	\$0.24	\$0.19	\$0.16	\$0.12	\$0.09
150	.24	.19	.16	.12	.09
180 thru 270	.24	.19	.16	.12	.09
300 thru 470	.24	.19	.16	.12	.09
500 and 560	.24	.19	.16	.12	.09
680 thru 820	.24	.19	.16	.12	.09
1000 thru 5000	.30	.238	.20	.15	.113

### TYPE DD60 (6000 WVDC)

	1-24	25-99	100-249	250-499	500-999
4.7 thru 820	\$0.36	\$0.285	\$0.24	\$0.18	\$0.135
1000 thru 2200	.60	.475	.40	.30	.225

### TYPE DD16 HI-KAP® BUFFERS

Compact, easy to install. Long life, low cost. Able to withstand high heat, moisture, and vibration. Size:  $\frac{3}{8}$ " dia.,  $\frac{1}{4}$ " thick. Tolerance: GMV. Rated 1600 WVDC.

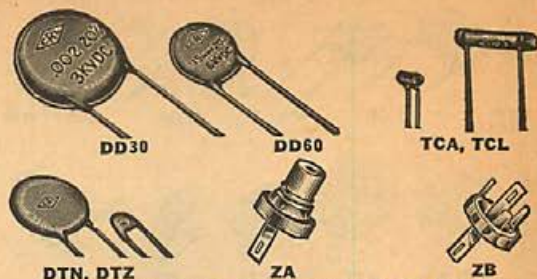
Capacity, $\mu\text{f}$	CRL No.	Max. Dia.	Net Each, Lots of				
			1-24	25-99	100-249	250-499	500-999
.003	DD16-302		\$0.27	\$0.214	\$0.18	\$0.135	\$0.10
.004	DD16-402		.27	.214	.18	.135	.10
.005	DD16-502		.27	.214	.18	.135	.10
.006	DD16-602		.27	.214	.18	.135	.10
.007	DD16-702		.27	.214	.18	.135	.10
.0075	DD16-752		.27	.214	.18	.135	.10
.008	DD16-802		.27	.214	.18	.135	.10
.01	DD16-103		.27	.214	.18	.135	.10
.015	DD16-153*		.48	.38	.32	.24	.18

\* $\frac{3}{8}$ " thick; tolerance, -20, +80%.

### TYPE CI AC LINE DISC HI-KAPS® (1000 WVDC)

U/L Approved per Underwriters Laboratories' Examination Service #E32296, dated 12-6-60. Suitable for continuous operation at 220 v. AC, rms, 60 cycles. Recommended for AC by-pass application or where a steady or intermittent higher voltage may occur. Tol., ±20%.

Cap., $\mu\text{f}$	CRL No.	Max. Dia.	Net Each, Lots of				
			1-24	25-99	100-249	250-499	500-999
470	CI-471	.400"	18c	14.3c	12c	9c	6.8c
680	CI-681	.400"	18c	14.3c	12c	9c	6.8c
1,000	CI-102	.600"	18c	14.3c	12c	9c	6.8c
2,200	CI-222	.600"	18c	14.3c	12c	9c	6.8c
5,000	CI-502	.850"	19c	14.3c	12c	9c	6.8c
10,000	CI-103	.850"	24c	19c	16c	12c	9c



### TYPE TCA AND TCL TUBULAR HI-KAPS®

Intermediate stock values. This group changes negatively capacity-wise with temperature increases. Type TCA: Changes 330 parts per million per degree C. Type TCL: Changes minus 1500 parts per million per degree C. Size: .400" x .200", except TCA-100, .690" x .200".

Cap., $\mu\text{f}$	CRL No.	Tol.	Net Each, Lots of				
			1-24	25-99	100-249	250-499	500-999
10	TCA-10	.5 $\mu\text{f}$	\$0.30	\$0.238	\$0.20	\$0.15	\$0.113
15	TCA-15	2%	.30	.238	.20	.15	.113
22	TCA-22	2%	.30	.238	.20	.15	.113
33	TCA-33	2%	.30	.238	.20	.15	.113
47	TCA-47	2%	.30	.238	.20	.15	.113
68	TCA-68	2%	.30	.238	.20	.15	.113
100	TCA-100	2%	.30	.238	.20	.15	.113
10	TCL-10	.5 $\mu\text{f}$	.30	.238	.20	.15	.113
15	TCL-15	2%	.30	.238	.20	.15	.113
22	TCL-22	2%	.30	.238	.20	.15	.113
33	TCL-33	2%	.30	.238	.20	.15	.113
47	TCL-47	2%	.30	.238	.20	.15	.113
68	TCL-68	2%	.30	.238	.20	.15	.113
100	TCL-100	2%	.30	.238	.20	.15	.113

### TEMPERATURE COMPENSATING DISC HI-KAPS®

Very popular unit that replaces mica types in all applications. High stability and small size, using TC ceramic dielectric material. Type DTZ is NPO or zero TC disc type. Type DTN is an N750TC type. Thickness:  $\frac{1}{8}$ " and  $\frac{1}{4}$ ". Tolerance: ±5%.

#### TYPE DTN (N750)

Cap., $\mu\text{f}$	CRL No.	Dia., In.	Net Each, Lots of				
			1-24	25-99	100-249	250-499	500-999
5	DTN-5*	$\frac{1}{8}$ "	\$0.18	\$0.143	\$0.12	\$0.09	\$0.068
10	DTN-10*	$\frac{1}{8}$ "	.18	.143	.12	.09	.068
15	DTN-15	$\frac{1}{8}$ "	.18	.143	.12	.09	.068
20	DTN-20	$\frac{1}{8}$ "	.18	.143	.12	.09	.068
22	DTN-22	$\frac{1}{8}$ "	.18	.143	.12	.09	.068
25	DTN-25	$\frac{1}{8}$ "	.18	.143	.12	.09	.068
33	DTN-33	$\frac{1}{8}$ "	.18	.143	.12	.09	.068
47	DTN-47	$\frac{1}{8}$ "	.18	.143	.12	.09	.068
68	DTN-68	$\frac{1}{8}$ "	.18	.143	.12	.09	.068
75	DTN-75	$\frac{1}{8}$ "	.18	.143	.12	.09	.068
100	DTN-100	$\frac{1}{8}$ "	.18	.143	.12	.09	.068
150	DTN-150	$\frac{1}{8}$ "	.30	.238	.20	.15	.113
200	DTN-200	$\frac{1}{8}$ "	.30	.238	.20	.15	.113
220	DTN-220	$\frac{1}{8}$ "	.30	.238	.20	.15	.113
330	DTN-330	$\frac{1}{8}$ "	.30	.238	.20	.15	.113

#### TYPE DTZ (NPO)

Cap., $\mu\text{f}$	CRL No.	Dia., In.	Net Each, Lots of				
			1-24	25-99	100-249	250-499	500-999
1.5	DTZ-1R5*	$\frac{1}{8}$ "	\$0.18	\$0.143	\$0.12	\$0.09	\$0.068
2.2	DTZ-2R2*	$\frac{1}{8}$ "	.18	.143	.12	.09	.068
3.3	DTZ-3R3*	$\frac{1}{8}$ "	.18	.143	.12	.09	.068
4.7	DTZ-4R7*	$\frac{1}{8}$ "	.18	.143	.12	.09	.068
6.8	DTZ-6R8*	$\frac{1}{8}$ "	.18	.143	.12	.09	.068
10	DTZ-10	$\frac{1}{8}$ "	.18	.143	.12	.09	.068
15	DTZ-15	$\frac{1}{8}$ "	.18	.143	.12	.09	.068
20	DTZ-20	$\frac{1}{8}$ "	.18	.143	.12	.09	.068
22	DTZ-22	$\frac{1}{8}$ "	.18	.143	.12	.09	.068
25	DTZ-25	$\frac{1}{8}$ "	.18	.143	.12	.09	.068
33	DTZ-33	$\frac{1}{8}$ "	.18	.143	.12	.09	.068
47	DTZ-47	$\frac{1}{8}$ "	.18	.143	.12	.09	.068
50	DTZ-50	$\frac{1}{8}$ "	.18	.143	.12	.09	.068
68	DTZ-68	$\frac{1}{8}$ "	.18	.143	.12	.09	.068
75	DTZ-75	$\frac{1}{8}$ "	.18	.143	.12	.09	.068
82	DTZ-82	$\frac{1}{8}$ "	.18	.143	.12	.09	.068
100	DTZ-100	$\frac{1}{8}$ "	.18	.143	.12	.09	.068
120	DTZ-120	$\frac{1}{8}$ "	.30	.238	.20	.15	.113
150	DTZ-150	$\frac{1}{8}$ "	.30	.238	.20	.15	.113
180	DTZ-180	$\frac{1}{8}$ "	.30	.238	.20	.15	.113
200	DTZ-200	$\frac{1}{8}$ "	.30	.238	.20	.15	.113
220	DTZ-220	$\frac{1}{8}$ "	.30	.238	.20	.15	.113
270	DTZ-270	$\frac{1}{8}$ "	.30	.238	.20	.15	.113

\*Tolerance, ±0.5  $\mu\text{f}$ .

### BUTTON-STYLE CERAMICS

Solder-sealed for long life and high QCV performance. Shell is effective at ground potential. 500 VDCW, 1000 VDCV. Type ZA is standoff 3-48 thread tapped base and ground terminal. Type ZB is feed-thru style with three solder lugs.

Cap., $\mu\text{f}$	CRL No.	Tol.	Net Each, Lots of				
			1-24	25-99	100-249	250-499	500-999
15	ZA-150	±10%	\$0.75	\$0.594	\$0.50	\$0.375	\$0.281
50	ZA-500	±10%	.75	.594	.50	.375	.281
500	ZA-501	±20%	.75	.594	.50	.375	.281
1000	ZA-102	GMV	.75	.594	.50	.375	.281
15	ZB-150	±10%	.75	.594	.50	.375	.281
50	ZB-500	±10%	.75	.594	.50	.375	.281
500	ZB-501	±20%	.75	.594	.50	.375	.281
1000	ZB-102	GMV	.75	.594	.50	.375	.281





### LOW VOLTAGE CAPACITORS

Miniature ceramic capacitors designed to meet the demands for high capacity, low voltage applications in transistor circuits. Double duress insulation with high vacuum wax impregnation to withstand extreme temperature, humidity and vibration. Where size permits, capacitors are stamped with capacity and voltage.

#### TYPE DA PLATE CAPACITOR (30 WVDC)

Cap., $\mu$ F	CRL No.	Tolerance	Size In.	Net Each, Lots of				
				1-24	25-99	100-249	250-499	500-999
.02	DA-203	+100-20%	$\frac{1}{2} \times \frac{1}{2}$	50.36	50.285	50.24	50.18	50.135
.05	DA-503	+100-20%	$\frac{1}{2} \times \frac{1}{2}$	.81	.641	.54	.405	.304
.1	DA-104	+100-20%	$\frac{1}{2} \times \frac{1}{2}$	1.35	1.070	.90	.675	.506

#### TYPE UK ULTRA-KAPS® (3 WVDC)

Cap., $\mu$ F	CRL No.	Tol.	Max. Dia.	Net Each, Lots of				
				1-24	25-99	100-249	250-499	500-999
.005	UK-502	GMV	.120"	75c	59.4c	50c	37.5c	28.1c
.01	UK-103	GMV	.120"	75c	59.4c	50c	37.5c	28.1c
.02	UK-203	GMV	.120"	75c	59.4c	50c	37.5c	28.1c
.1	UK-104	GMV	.220"	42c	33.3c	28c	21c	15.9c
.22	UK-224	GMV	.220"	24c	19c	16c	12c	9c
.47	UK-474	GMV	.408"	24c	19c	16c	12c	9c
1.0	UK-105	GMV	.590"	36c	28.5c	24c	18c	13.5c
2.2	UK-225	GMV	.840"	42c	33.3c	28c	21c	15.8c

#### TYPE UK10 ULTRA-KAPS (10 WVDC)

Cap., $\mu$ F	CRL No.	Tolerance	Max. Dia.	Net Each, Lots of				
				1-24	25-99	100-249	250-499	500-999
.05	UK10-503	+80-20%	.290"	18c	14.3c	12c	9c	6.8c
.1	UK10-104	+80-20%	.408"	18c	14.3c	12c	9c	6.8c
.2	UK10-204	+80-20%	.590"	24c	19c	16c	12c	9c
.47	UK10-474	+80-20%	.840"	42c	33.3c	28c	21c	15.8c

#### TYPE UK20 ULTRA-KAPS (20 WVDC)

Cap., $\mu$ F	CRL No.	Tolerance	Max. Dia.	Net Each, Lots of				
				1-24	25-99	100-249	250-499	500-999
.05	UK20-503	+80-20%	.408"	18c	14.3c	12c	9c	6.8c
.1	UK20-104	+80-20%	.590"	21c	16.6c	14c	10.5c	7.9c
.2	UK20-204	+80-20%	.840"	39c	31c	26c	19.5c	14.6c

#### TYPE CK DISC CAPACITORS (50 WVDC)

Cap., $\mu$ F	CRL No.	Tolerance	Max. Dia.	Net Each, Lots of				
				1-24	25-99	100-249	250-499	500-999
.005	CK-502	+80-20%	.385"	21c	16.6c	14c	10.5c	7.9c
.01	CK-103	+80-20%	.385"	21c	16.6c	14c	10.5c	7.9c
.02	CK-203	+80-20%	.590"	21c	16.6c	14c	10.5c	7.9c
.025	CK-253	+80-20%	.590"	21c	16.6c	14c	10.5c	7.9c
.03	CK-303	+80-20%	.590"	21c	16.6c	14c	10.5c	7.9c
.05	CK-503	+80-20%	.800"	30c	23.8c	20c	15.1c	11.3c
.1	CK-104	+80-20%	.719"	60c	47.5c	40c	30c	22.5c

#### TYPE DDA DISC CAPACITORS (7.5 WVDC)

Cap., $\mu$ F	CRL No.	Tolerance	Max. Dia.	Net Each, Lots of				
				1-24	25-99	100-249	250-499	500-999
.05	DDA-503	+80-30%	.690"	30c	23.8c	20c	15c	11.3c
.1	DDA-104	+80-30%	.719"	60c	47.5c	40c	30c	22.5c

#### TYPE DDM DISC CAPACITORS (150 WVDC)

Cap., $\mu$ F	CRL No.	Tolerance	Max. Dia.	Net Each, Lots of				
				1-24	25-99	100-249	250-499	500-999
.005	DDM-502	+60-40%	.385"	30c	23.8c	20c	15c	11.3c
.01	DDM-103	+60-40%	.385"	30c	23.8c	20c	15c	11.3c
.02	DDM-203	+60-40%	.590"	54c	42.8c	36c	27c	20.3c
2x.01	DDM2-103	+60-40%	.390"	54c	42.8c	36c	27c	20.3c

#### TYPE DM FLAT-PLATE MIN-KAPS®

150 WVDC, 300 VDC, test. Size:  $\frac{1}{8} \times \frac{1}{8} \times \frac{1}{16}$ ". Tolerance: +50%, -20%, except (\*), +80%, -20%.

Cap., $\mu$ F	CRL No.	Tolerance	Net Each, Lots of				
			1-24	25-99	100-249	250-499	500-999
.001	DM-101	±1.05	50.83	50.70	50.525	50.394	
.002	DM-201	±1.05	.83	.70	.525	.394	
.003	DM-301	±1.05	.83	.70	.525	.394	
.005	DM-501	±1.05	.83	.70	.525	.394	
.01	DM-102	±1.05	.83	.70	.525	.394	
.02	DM-202	±1.05	.83	.70	.525	.394	
.03*	DM-302	±1.05	.83	.70	.525	.394	
.05*	DM-502	±1.05	.83	.70	.525	.394	
.01*	DM-103	±1.05	.83	.70	.525	.394	
2 x .005*	DM2-502	±1.05	.83	.70	.525	.394	

#### TYPE DF FLAT-PLATE HI-KAPS®

A dependable 600 volt ceramic capacitor recommended for general replacement applications where their unusual thickness makes them useful. Types listed below are  $\frac{1}{8} \times \frac{1}{8} \times \frac{1}{16}$ " h. 600 WVDC, 1200 WVDC, test. Tol.: GMV except DF-104, +80, -20%.

Cap., $\mu$ F	CRL No.	Thickness	Net Each, Lots of				
			1-24	25-99	100-249	250-499	500-999
.05	DF-503	$\frac{1}{16}$ "	50.75	50.594	50.50	50.375	50.281
.1	DF-104	$\frac{1}{16}$ "	1.05	.831	.70	.525	.394

#### FT AND MFT FEED-THRU HI-KAPS

Rated 500 VDC, working; 1000 VDC, test. Type FT: Hooked end terminals; mounting nut supplied. Type MFT:  $\frac{1}{4}$ " (max.) flange eyelet inserts in .160" hole; solders direct to chassis.

Type FT HI-Kaps			Type MFT HI-Kaps		
pF	No.	Tolerance	pF	No.	Tolerance
500	FT-500	±20%	50	MFT-50	±10%
1000	FT-1000	±20%	100	MFT-100	±10%
1500	FT-1500	-20, +50%	500	MFT-500	±10%
1800	FT-1800	-20, +50%	1000	MFT-1000	±10%
2300	FT-2300	-20, +50%			GMV

#### FT, MFT INDUSTRIAL NET PRICES

All Values, CRL Type	Net Each, Lots of				
	1-24	25-99	100-249	250-499	500-999
FT	\$0.75	\$0.594	\$0.50	\$0.375	\$0.281
MFT	.30	.238	.20	.15	.113

#### CERAMIC AND STEATITE TRIMMERS

Highly stable, small lightweight design. Power factor less than 0.2% at 1 Mc. All units rated 500 VDC, working; 1,000 VDC, test. Suffix Z: Indicates zero temperature coefficient. Suffix N: Indicates negative coefficient. Shpg. Wt., 3 oz. max.

CRL Type 820—High dielectric ceramic base impervious to moisture. Flat rotor and stator. Mounting holes take No. 4 machine screws;  $\frac{3}{8} \times \frac{1}{2}$ ". CRL Type 822—Steatite body; silver rotor and stator plates;  $\frac{1}{4} \times \frac{1}{2}$ ". Mfg. holes take No. 4 screw. CRL Type 823—Steatite body;  $\frac{1}{8} \times \frac{1}{2}$ ". CRL Type 827—Ceramic molded phenolic body; high stability under vibration. Insulation resistance 10,000 megs. minimum. Size,  $\frac{1}{8} \times \frac{1}{2}$ ". CRL Types 829-3, -4, -6, -7 and -10—Tiny tubular high voltage types for TV or FM. Ceramic bodies .215" dia. Full capacity in 180° rotation.

Range, pF	CRL No.	Range, pF	CRL No.	Range, pF	CRL No.
1.0-3.5	820D	4.5-25	822-AZ	8-50	823-DN
2.5-6.0	820A	2.0-6.0	822-DN	10-100	823-BN
5.0-20	820B	4.0-30	822-EN	20-125	823-AN
7.0-35	820C	4.5-25	822-CN	2-7	827A
35-55	820E*	7.0-45	822-BN	3.5-12	827B
55-75	820F*	8.0-50	822-AN	6.0-30	827C
70-90	820G*	5-12	823-EZ	7.0-35	827D
1.5-3	822-DZ	6-25	823-DZ	5-3	829-3
1.5-7	822-EZ	10-50	823-BZ	1-4	829-4
2.0-7.5	822-CZ	12-62	823-AZ	1-6	829-6
2.5-13.0	822-BZ	5-15	823-FN	1-7.5	829-7
3.0-12	822-FZ	8-25	823-EN	1.5-10	829-10

\*Less brackets.

#### CRL TYPE 825 (MIL-C-81A) TRIMMERS

Ceramic design meets MIL-C-81A specifications. Strong, low loss steatite base with pure silver fired on top surface to form stator plate. Rated 500 VDC; 1500 VDC test. Power Factor less than 0.2% at 1 Mc. Drift = 0.75% or ±0.5 pF, whichever is greater. Insulation resistance, 10,000 megs. initial; 1000 megs. after humidity. Silver-plated brass terminals bent at 90° angle from plane of stator,  $\frac{1}{8}$ " lg. Mfg. holes clear #4 machine screws. Body,  $\frac{1}{8} \times \frac{1}{2}$ " lg. x  $\frac{1}{16}$ " w. Shipping Weight, 2 oz.

Zero Temp. Coefficient			Neg. 650 Temp. Coefficient		
Cap., pF	CRL No.	MIL Spec.	Cap., pF	CRL No.	MIL Spec.
1.5-7	825-EZ	CV11A070	2.0-6	825-DN	CV11D060
3.0-12	825-FZ	CV11A120	4.0-30	825-EN	CV11D300
4.5-25	825-AZ	CV11A250	7.0-45	825-BN	CV11D450

#### TRIMMER INDUSTRIAL NET PRICES

All Values, CRL Series	Net Each, Lots of					
	1-9	10-24	25-99	100-249	250-499	500-999
820	\$1.14	\$0.95	\$0.90	\$0.76		
822	1.14	.95	.90	.76		
823	3.60	3.00	2.85	2.40		
825	1.17	.98	.93	.78		
827	.90	.75	.71	.60		
829-3, 829-4	.30	.30	.238	.20	\$0.15	\$0.113
829-6	.30	.30	.238	.20	.15	.113
829-7, 829-10	.30	.30	.238	.20	.15	.113

#### TYPE CPR POLYSTYRENE CAPACITORS (500 WVDC)

Highly reliable sealed polystyrene foil capacitors. Ideal direct replacements for mica and Mylar's in TV and radio. Tol.: ±5%. Size: 20-250 pF, .304" lg. x .157"-270" dia.; 251-3000 pF, .591" lg. x .197"-413" dia.; 3001-10,000 pF, .787" lg. x .335"-531" dia. Number indicate capacitance in pF. \*Reg. DuPont TM.

CRL No.	CRL No.	CRL No.	CRL No.	CRL No.	CRL No.
CPR-20J	CPR-68J	CPR-220J	CPR-680J	CPR-2200J	CPR-5000J
CPR-22J	CPR-75J	CPR-240J	CPR-750J	CPR-2400J	CPR-6200J
CPR-24J	CPR-82J	CPR-270J	CPR-820J	CPR-2500J	CPR-6800J
CPR-27J	CPR-91J	CPR-300J	CPR-910J	CPR-2700J	CPR-7500J
CPR-30J	CPR-100J	CPR-330J	CPR-1000J	CPR-3000J	CPR-8200J
CPR-33J	CPR-110J	CPR-360J	CPR-1100J	CPR-3300J	CPR-9100J
CPR-36J	CPR-120J	CPR-390J	CPR-1200J	CPR-3600J	CPR-10000J
CPR-39J	CPR-130J	CPR-430J	CPR-1300J	CPR-4300J	
CPR-43J	CPR-150J	CPR-470J	CPR-1500J	CPR-4700J	
CPR-47J	CPR-160J	CPR-510J	CPR-1600J	CPR-4700J	
CPR-51J	CPR-180J	CPR-560J	CPR-1800J	CPR-5000J	
CPR-56J	CPR-200J	CPR-620J	CPR-2000J	CPR-5100J	

#### TYPE CPR INDUSTRIAL NET PRICES

Values, pF	Net Each, Lots of				
	1-24	25-99	100-249	250-499	500-999
20 thru 1000	15c	11.9c	10c	7.5c	5.6c
1100 thru 3000	18c	14.3c	12c	9c	6.8c
3300 thru 10,000	21c	16.6c	14c	10.5c	7.9c

Note: Write for information on items requiring certified test data and government source inspection.



### DD CERAMIC DISC HI-KAPS<sup>®</sup>

Ideal for bypass coupling or filter service where high capacity is required and control stability is secondary. Operate for long periods of time under extreme moisture, temperature and vibration. Rated 1000 WVDC except: DD-6-103, DD-153, DD-203, DD-303, DD-403 and DD-503, which are 600 WVDC. Tolerance:  $\pm 10\%$  unless otherwise noted.

Cap., pF	CRL Number	Dia., in.	Cap., pF	CRL Number	Dia., in.
3.3*	DD-3R3	1/4	500	DD-501	1/4
5	DD-050	1/4	510	DD-511	1/4
6	DD-060	1/4	560	DD-561	1/4
6.8	DD-6R8	1/4	600	DD-601	1/4
7.5	DD-7R5	1/4	650	DD-681	1/4
8	DD-080	1/4	780	DD-751	1/4
10	DD-100	1/4	800	DD-801	1/4
12	DD-120	1/4	820	DD-821	1/4
15	DD-150	1/4	910	DD-911	1/4
18	DD-180	1/4	1000	DD-102	1/4
20	DD-200	1/4	1000†	DD-102G	1/4
22	DD-220	1/4	1200	DD-122	1/4
24	DD-240	1/4	1200†	DD-122G	1/4
25	DD-250	1/4	1300	DD-132	1/4
27	DD-270	1/4	1500	DD-152	1/4
30	DD-300	1/4	1500†	DD-152G	1/4
33	DD-330	1/4	1600	DD-162	1/4
39	DD-390	1/4	1800	DD-182	1/4
47	DD-470	1/4	2000†	DD-202	1/4
50	DD-500	1/4	2200†	DD-222	1/4
51	DD-510	1/4	2500†	DD-252	1/4
56	DD-560	1/4	2700†	DD-272	1/4
68	DD-680	1/4	3000†	DD-302	1/4
75	DD-750	1/4	3300†	DD-332	1/4
82	DD-820	1/4	3900†	DD-392	1/4
91	DD-910	1/4	4000†	DD-402	1/4
100	DD-101	1/4	4300†	DD-432	1/4
120	DD-121	1/4	4700†	DD-472	1/4
130	DD-131	1/4	4700†	DD-472G	1/4
150	DD-151	1/4	5000†	DD-502	1/4
180	DD-181	1/4	5000†	DD-502	1/4
200	DD-201	1/4	5600†	DD-562	1/4
220	DD-221	1/4	6800†	DD-682	1/4
240	DD-241	1/4	7500†	DD-752	1/4
250	DD-251	1/4	8200†	DD-822	1/4
270	DD-271	1/4	10,000†	DD-103	1/4
300	DD-301	1/4	10,000†	DD-1032	1/4
330	DD-331	1/4	10,000†	DD-5-103	1/4
350	DD-351	1/4	15,000‡	DD-153	1/4
360	DD-361	1/4	20,000‡	DD-203	1/4
390	DD-391	1/4	30,000‡	DD-303	1/4
400	DD-401	1/4	40,000‡	DD-403	1/4
470	DD-471	1/4	50,000‡	DD-503	1/4
470†	DD-471G	1/4			

### DD INDUSTRIAL NET PRICES

Values, pF	Net Each, Lots of					
	1-24	25-99	100-249	250-499	500-999	1000-4000
3.3-8	\$0.15	\$0.119	\$0.10	\$0.075	\$0.056	\$0.048
10-240	.15	.119	.10	.075	.056	.038
250-470	.15	.119	.10	.075	.056	.041
470†	.15	.119	.10	.075	.056	.036
500-750	.15	.119	.10	.075	.056	.041
800†	.15	.119	.10	.075	.056	.036
820, 910	.15	.119	.10	.075	.056	.043
1,000	.15	.119	.10	.075	.056	.038
1,000†	.15	.119	.10	.075	.056	.031
1,200	.15	.119	.10	.075	.056	.044
1,200†	.15	.119	.10	.075	.056	.031
1,300, 1,500	.15	.119	.10	.075	.056	.044
1,500†	.15	.119	.10	.075	.056	.038
1,600, 1,800	.15	.119	.10	.075	.056	.044
2,000†-3,000†	.15	.119	.10	.075	.056	.038
3,300†-4,300†	.15	.119	.10	.075	.056	.044
4,700†	.15	.119	.10	.075	.056	.040
4,700†	.15	.119	.10	.075	.056	.044
5,000†	.15	.119	.10	.075	.056	.046
5,000†	.15	.119	.10	.075	.056	.044
5,600†-7,500†	.15	.119	.10	.075	.056	.044
8,200†	.15	.119	.10	.075	.056	.054
10,000†	.24	.19	.16	.12	.09	.044
10,000†	.24	.19	.16	.12	.09	.062
10,000†	.24	.19	.16	.12	.09	.054
15,000‡	.24	.19	.16	.12	.09	.054
20,000‡	.45	.356	.30	.225	.169	.054
30,000‡	.45	.356	.30	.225	.169	.099
40,000‡, 50,000‡	.45	.356	.30	.225	.169	.155

Tolerance: \*  $\pm 0.5$  pF, † GMV, ‡  $\pm 20\%$ , †  $\pm 80$ , -  $20\%$ .

### D6 TUBULAR BC HI-KAPS

Rated 600 VDC working; 1200 V test. Tropicalized. Operating Temp.:  $-55^{\circ}$  to  $+85^{\circ}$  C. Tolerance:  $\pm 0.5$  pF, D6-030:  $\pm 10\%$ , 5 pF through 680 pF;  $\pm 20\%$ , 750 pF through 2200 pF, GMV, 2500 pF and up.

Cap., pF	CRL No.	Size *	Cap., pF	CRL No.	Size *	Cap., pF	CRL No.	Size *
3	D6-030	A	27	D6-270	A	75	D6-750	A
5	D6-050	A	33	D6-330	A	82	D6-820	A
10	D6-100	A	39	D6-390	A	100	D6-101	A
12	D6-120	A	40	D6-400	A	120	D6-121	A
15	D6-150	A	47	D6-470	A	150	D6-151	A
20	D6-200	A	50	D6-500	A	180	D6-181	A
22	D6-220	A	56	D6-560	A	200	D6-201	A
25	D6-250	A	68	D6-680	A	220	D6-221	A

\*Size: A— $260^{\circ}$  x  $.460^{\circ}$ . B— $260^{\circ}$  x  $.790^{\circ}$ . C— $280^{\circ}$  x  $.900^{\circ}$ . D— $330^{\circ}$  x  $1.21^{\circ}$ .

### D6 TUBULAR BC HI-KAPS (CONT'D)

Cap., pF	CRL No.	Size *	Cap., pF	CRL No.	Size *	Cap., pF	CRL No.	Size *
250	D6-251	A	680	D6-681	B	2700	D6-272	B
270	D6-271	A	750	D6-751	A	3000	D6-302	B
300	D6-301	A	820	D6-821	A	3300	D6-332	B
330	D6-331	A	1000	D6-102	A	4000	D6-402	B
390	D6-391	A	1200	D6-122	A	4700	D6-472	C
400	D6-401	A	1500	D6-152	A	5000	D6-502	C
470	D6-471	A	1800	D6-182	A	5600	D6-562	C
500	D6-501	A	2000	D6-202	B	10000	D6-103	D
560	D6-561	B	2200	D6-222	B			
600	D6-601	B	2500	D6-252	B			

\*Size: A— $260^{\circ}$  x  $.460^{\circ}$ . B— $260^{\circ}$  x  $.790^{\circ}$ . C— $280^{\circ}$  x  $.900^{\circ}$ . D— $330^{\circ}$  x  $1.21^{\circ}$ .

### D6 INDUSTRIAL NET PRICES

Values, pF	Net Each, Lots of				
	1-24	25-99	100-249	250-499	500-999
3 thru 5000	\$0.15	\$0.119	\$0.10	\$0.075	\$0.056
5600	.18	.143	.12	.09	.068
10,000	.30	.238	.20	.15	.113

### TYPE DD2 DUO-KAPS<sup>®</sup>

Single disc, dual capacity. Double Durez insulation. Rated 600 VDC, working; 1200 VDC, test. Tolerance: GMV. Dia.: A— $.390^{\circ}$ ; B— $.594^{\circ}$ ; C— $.719^{\circ}$ .

Cap., pF	CRL No.	Dia.	Net Each, Lots of				
			1-24	25-99	100-249	250-499	500-999
2 x .001	DD2-102	A	\$0.24	\$0.19	\$0.16	\$0.12	\$0.09
2 x .0015	DD2-152	B	.24	.19	.16	.12	.09
2 x .005	DD2-502*	C	.36	.285	.24	.18	.135

\*Tolerance:  $-20$ ,  $+80\%$ .

### TYPE DD3 SHIELDED DUO-KAPS

Three leads—two capacitors in the space formerly needed for one. Shielded to minimize stray capacities between discs. Rated 600 VDC, working; 1200 VDC, test. Tolerance: GMV. Dia.: A— $.391^{\circ}$ ; B— $.593^{\circ}$ ; C— $.719^{\circ}$ .

Cap., pF	CRL No.	Dia.	Net Each, Lots of				
			1-24	25-99	100-249	250-499	500-999
2 x .001	DD3-102	A	\$0.30	\$0.238	\$0.20	\$0.15	\$0.113
2 x .0015	DD3-152	A	.30	.238	.20	.15	.113
2 x .002	DD3-202	B	.30	.238	.20	.15	.113
2 x .005	DD3-502	B	.30	.238	.20	.15	.113
2 x .01	DD3-103	C	.30	.238	.20	.15	.113

### MIL-C-11015B GENERAL PURPOSE CERAMIC DISC HI-KAPS (500 WVDC)

Cap., pF	CRL No. & Designation	CRL No. & Designation	CRL No. & Designation
2.2*	CK60BV2R2 K	220*	CK60A X221 K
3.3*	CK60BV3R3 K	220*	CK60A X221 M
4.7*	CK60BV4R7 K	330*	CK60A X331 K
6.8*	CK60BV6R8 K	330*	CK60A X331 M
10*	CK60BV10 K	330*	CK61B X331 K
15*	CK60BV15 K	330*	CK61B X331 M
22*	CK60BV22 K	470*	CK60A X471 K
33*	CK60B X330 K	470*	CK60A X471 M
33†	CK60B X330 M	470*	CK61B X471 K
47*	CK60B X470 K	470*	CK61B X471 M
47†	CK60B X470 M	680*	CK61B X681 K
150*	CK60B X151 K	680*	CK61B X681 M
150†	CK60B X151 M	820*	CK62B X821 K

Tolerances: \*  $\pm 10\%$ ; †  $\pm 20\%$ .

### MIL-C-11015B INDUSTRIAL NET PRICES

Values, pF	Net Each, Lots of				
	1-24	25-99	100-249	250-499	500-999
2.2 thru 680	21c	16.6c	14c	10.5c	7.9c
820 thru 1500	27c	21.4c	18c	13.5c	10c
2200 (-AX-)	27c	21.4c	18c	13.5c	10c
2200 (-BX-), 3300	30c	23.7c	20c	15c	11.3c

### TYPES CE TEMPERATURE STABLE AND CF SEMI-STABLE DISC HI-KAPS

Offer exceptional stability through an extended temperature range; for applications requiring low capacity change between  $-55^{\circ}$  C and  $+85^{\circ}$  C temperatures. Rated 500 WVDC. Life test, 1000 hours at 1000 VDC at  $+85^{\circ}$  C. Leakage resistance, 10,000 megohms, min. Initial; 1000 megohms, after humidity. Phenolic insulation vacuum impregnated with high temperature wax. Power factor, 2% max. at 1 kc. Leads #22 tinned copper, 1/4" lg. minimum. Tolerance,  $\pm 10\%$ . Only .156" thick. Dia.: 150-560 pF, .290"; 680-1800 pF, .385"; 2000-3900 pF, .590"; 4700-6200 pF, .690"; 8200 and 10K pF, .920".

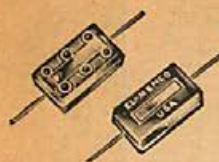
Temperature Stable "K"					Temp. Semi-Stable "K"				
Cap. pF	CE	No. pF	CE	No. pF	Cap. pF	CF	No. pF	CF	No. pF
150	151	500	501	800	1200	122	2200	222	5000
220	221	560	561	1000	1500	152	3300	332	6200
330	331	680	681		1800	182	3900	392	8200
470	471	750	751		2000	202	4700	472	10K

### CE, CF INDUSTRIAL NET PRICES

Values, pF	Net Each, Lots of				
	1-24	25-99	100-249	250-499	500-999
150 thru 1800	18c	14.3c	12c	9c	6.8c
2000 thru 6200	21c	16.6c	14c	10.5c	7.9c
8200	24c	19c	16c	12c	9c
10K	24c	19c	16c	12c	9c



# Elmenco Silvered Mica Capacitors



Molded silvered mica capacitors manufactured in accordance with MIL-C-5 military specifications, and EIA specification RS-153. Standard part numbers for molded mica capacitors have nine characters, containing complete and specific information for the part. **Typical Number CM-20-D-471-J:** "CM", molded capacitor; "20", case size; "D", characteristic; "471", capacitance value; "J", tolerance designation. **Case Size:** Precedes tables below. **Characteristics:** See designation table. **Capacity Value:** See tables below. **Tolerances Available:** \*5%, \*2%, \*1%, \*1/2%, \*1/4%. Pricing is for \*5% (J) tolerance. **Temperature Range:** All types, -55°C to +85°C. **Vibration Frequency:** Withstands 10-2,000 cps (all types). **Ordering:** Specify characteristic letter(s) and tolerance suffix to meet specifications required. **Voltage:** 500 WVDC except as otherwise noted.

## TYPE CM-30 (CONT'D)

Elmenco No. CM-30-	Cap., pF	Net Each, Lots of			
		1-24	25-99	100-499	500-999
E-162J	1600	\$0.51	\$0.459	\$0.306	\$0.255
E-182J	1800	.54	.486	.324	.27
E-202J	2000	.60	.54	.36	.30
E-222J	2200	.66	.594	.396	.33
E-242J	2400	.72	.648	.432	.36
E-252J	2500	.75	.675	.45	.375
E-272J	2700	.78	.702	.468	.39
E-302J	3000	.84	.756	.504	.42
E-332J	3300	.90	.81	.54	.45
E-362J	3600	.96	.864	.576	.48
E-392J	3900	1.02	.918	.612	.51
E-432J	4300	1.08	.972	.648	.54
E-472J	4700	1.14	1.026	.684	.57
E-502J	5000	1.20	1.08	.72	.60
E-512J	5100	1.20	1.08	.72	.60
E-562J	5600	1.26	1.134	.756	.63
E-622J	6200	1.32	1.188	.792	.66

## TYPE CM-35

Size: 1 1/8" x 1 1/8" x 1 1/8".

Elmenco No. CM-35-	Cap., pF	Net Each, Lots of			
		1-24	25-99	100-499	500-999
E-682J	6800	\$1.32	\$1.188	\$0.792	\$0.66
E-752J*	7500	1.44	1.296	.864	.72
E-822J*	8200	1.56	1.404	.936	.78
E-912J*	9100	1.68	1.512	1.008	.84
E-103J*	10000	1.86	1.674	1.116	.93
E-123J*	12000	2.16	1.944	1.296	1.08
E-153J*	15000	2.58	2.322	1.548	1.29
E-682J†	6800	1.44	1.296	.864	.72
E-752J†	7500	1.56	1.404	.936	.78
E-822J†	8200	1.68	1.512	1.008	.84
E-912J†	9100	1.86	1.674	1.116	.93
E-103J†	10000	2.04	1.836	1.224	1.02

\*Voltage, 300 WVDC. †For 500 WVDC, add prefix V to No., e.g. VCM-35-E-682J.

## TYPE CM-42

Size: 1 1/2" x 1 1/2" x 1 1/2".

Elmenco No. CM-42-	Cap., pF	Net Each, Lots of			
		1-24	25-99	100-499	500-999
E-123J	12000	\$2.82	\$2.538	\$1.692	\$1.41
E-133J	13000	3.06	2.754	1.836	1.53
E-153J	15000	3.48	3.132	2.088	1.74
E-163J	16000	3.72	3.348	2.232	1.86
E-183J	18000	4.14	3.726	2.484	2.07
E-203J	20000	4.56	4.104	2.736	2.28
E-223J	22000	4.98	4.482	2.988	2.49
E-243J	24000	5.40	4.86	3.24	2.70
E-253J	25000	5.64	5.076	3.384	2.82
E-273J*	27000	5.40	4.86	3.24	2.70
E-303J*	30000	5.64	5.076	3.384	2.82
E-333J*	33000	6.12	5.508	3.672	3.06
E-363J*	36000	6.84	6.156	4.104	3.42
E-393J*	39000	7.56	6.804	4.536	3.78

\*Voltage, 300 WVDC. **Note:** Silvered mica units, types CM-30, CM-35 and CM-42 available in "F" characteristic at no extra cost.

## CHARACTERISTICS DESIGNATION

	Capacitance Drift	TC ppm/°C
A	* (5% +1 pF)†	EIA, ±1000†
B	* (3% +1 pF)†	EIA, ±500†
C	* 0.5%	-200 to +200
D	* 0.3%	-100 to +100
E	* (0.1% +0.1 pF)	-20 to +100
F	* (0.05% +0.1 pF)	0 to +70

\*Characteristic letter. †MIL not specified.

## TYPE CM-15

Size: 1/2" lg. x 3/8" w. Thickness: 3/64". 1-300 pF; 3/8", 310-510 pF.

Elmenco No. CM-15-	Cap., pF	Net Each, Lots of			
		1-24	25-99	100-499	500-999
C-010J	1†	\$0.18	\$0.162	\$0.108	\$0.09
C-020J	2†	.18	.162	.108	.09
C-030J	3†	.18	.162	.108	.09
C-050J	5†	.18	.162	.108	.09
C-100J	10	.18	.162	.108	.09
C-120J	12	.18	.162	.108	.09
C-150J	15	.18	.162	.108	.09
C-180J	18	.18	.162	.108	.09
C-200J	20	.18	.162	.108	.09
C-220J	22	.18	.162	.108	.09
E-240J	24	.18	.162	.108	.09
E-270J	27	.18	.162	.108	.09
E-300J	30	.18	.162	.108	.09
E-330J	33	.18	.162	.108	.09
E-360J	36	.18	.162	.108	.09
E-390J	39	.18	.162	.108	.09
E-430J	43	.18	.162	.108	.09
E-470J	47	.18	.162	.108	.09
E-500J	50	.18	.162	.108	.09
E-510J	51	.18	.162	.108	.09
E-560J	56	.18	.162	.108	.09
E-620J	62	.18	.162	.108	.09
E-680J	68	.18	.162	.108	.09
E-750J	75	.18	.162	.108	.09
E-820J	82	.18	.162	.108	.09
E-910J	91	.18	.162	.108	.09
E-101J	100	.18	.162	.108	.09
E-111J	110	.21	.189	.126	.105
E-121J	120	.21	.189	.126	.105
E-131J	130	.21	.189	.126	.105
E-151J	150	.21	.189	.126	.105
E-161J	160	.24	.216	.144	.12
E-181J	180	.24	.216	.144	.12
E-201J	200	.24	.216	.144	.12
E-221J	220	.27	.243	.162	.135
E-241J	240	.27	.243	.162	.135
E-251J	250	.27	.243	.162	.135
E-271J	270	.30	.27	.18	.15
E-301J	300	.30	.27	.18	.15
E-331J	330	.33	.297	.198	.165
E-361J	360	.36	.324	.216	.18
E-391J	390	.39	.351	.234	.195
E-431J	430	.39	.351	.234	.195
E-471J	470	.42	.378	.252	.21
E-501J	500	.42	.378	.252	.21
E-511J	510	.42	.378	.252	.21
E-561J*	560	.42	.378	.252	.21
E-621J*	620	.45	.405	.27	.225
E-681J*	680	.48	.432	.288	.24
E-751J*	750	.51	.459	.306	.255
E-821J*	820	.54	.486	.324	.27

\*Voltage, 100 WVDC. †Closest tolerance, ±0.5 pF. **Note:** ±0.5% tolerance available above 100 pF. CM-15 available in "F" characteristic above 30 pF; no extra cost.

## TYPES CM-19 AND CM-20

Size: 1/2" w. x 1/2" thk. Length: CM-19, 1 1/8"; CM-20, 1 1/4".

Elmenco No. CM-20-	Cap., pF	Net Each, Lots of			
		1-24	25-99	100-499	500-999
C-050J	5	\$0.18	\$0.162	\$0.108	\$0.09
C-100J	10	.18	.162	.108	.09
C-120J	12	.18	.162	.108	.09
C-150J	15	.18	.162	.108	.09
C-180J	18	.18	.162	.108	.09
C-200J	20	.18	.162	.108	.09
C-220J	22	.18	.162	.108	.09
C-240J	24	.18	.162	.108	.09

## TYPES CM-19 AND CM-20 (CONT'D)

Elmenco No. CM-20-	Cap., pF	Net Each, Lots of			
		1-24	25-99	100-499	500-999
C-270J	27	\$0.18	\$0.162	\$0.108	\$0.09
C-300J	30	.18	.162	.108	.09
C-330J	33	.18	.162	.108	.09
C-360J	36	.18	.162	.108	.09
C-390J	39	.18	.162	.108	.09
C-430J	43	.18	.162	.108	.09
C-470J	47	.18	.162	.108	.09
C-500J	50	.18	.162	.108	.09
C-510J	51	.18	.162	.108	.09
C-560J	56	.18	.162	.108	.09
C-620J	62	.18	.162	.108	.09
C-680J	68	.18	.162	.108	.09
C-750J	75	.18	.162	.108	.09
C-820J	82	.18	.162	.108	.09
C-910J	91	.18	.162	.108	.09
C-101J	100	.18	.162	.108	.09
C-111J	110	.21	.189	.126	.105
C-121J	120	.21	.189	.126	.105
C-131J	130	.21	.189	.126	.105
C-151J	150	.21	.189	.126	.105
C-161J	160	.21	.189	.126	.105
C-181J	180	.21	.189	.126	.105
D-201J	200	.21	.189	.126	.105
D-221J	220	.21	.189	.126	.105
D-241J	240	.24	.216	.144	.12
D-251J	250	.24	.216	.144	.12
D-271J	270	.24	.216	.144	.12
D-301J	300	.24	.216	.144	.12
D-331J	330	.24	.216	.144	.12
D-361J	360	.24	.216	.144	.12
D-391J	390	.27	.243	.162	.135
D-471J	470	.27	.243	.162	.135
D-501J	500	.30	.27	.18	.15
D-511J	510	.30	.27	.18	.15
D-561J	560	.30	.27	.18	.15
D-621J	620	.33	.297	.198	.165
D-681J	680	.36	.324	.216	.18
D-751J	750	.36	.324	.216	.18
D-821J	820	.39	.351	.234	.195
E-911J	910	.42	.378	.252	.21
E-102J	1000	.42	.378	.252	.21
E-112J	1100	.45	.405	.27	.225
E-122J	1200	.48	.432	.288	.24
E-132J	1300	.48	.432	.288	.24
E-152J	1500	.51	.459	.306	.255
E-162J	1600	.54	.486	.324	.27
E-182J	1800	.60	.54	.36	.30
E-202J	2000	.66	.594	.396	.33
E-222J	2200	.72	.648	.432	.36
E-242J	2400	.75	.675	.45	.375
E-252J	2500	.78	.702	.468	.39
E-272J	2700	.84	.756	.504	.42
E-302J	3000	.90	.81	.54	.45
E-332J	3300	.96	.864	.576	.48
E-362J*	3600	1.02	.918	.612	.51
E-392J*	3900	1.08	.972	.648	.54
E-432J*	4300	1.14	1.026	.684	.57
E-472J*	4700	1.20	1.08	.72	.60
E-502J*	5000	1.26	1.134	.756	.63
E-512J*	5100	1.26	1.134	.756	.63

\*Voltage, 300 WVDC. **Note:** CM-19 and CM-20 available in "E" characteristic above 110 pF and "F" characteristic above 200 pF. Capacitance values from 5 pF to 2,400 pF can be supplied in CM-19 cases. In values above 1,000 pF, add 10% to the prices shown.

## TYPE CM-30

Size: 1 1/8" x 1 1/8" x 1 1/8".

Elmenco No. CM-30-	Cap., pF	Net Each, Lots of			
		1-24	25-99	100-499	500-999
E-511J	510	\$0.33	\$0.297	\$0.198	\$0.165
E-561J	560	.36	.324	.216	.18
E-621J	620	.36	.324	.216	.18
E-681J	680	.39	.351	.234	.195
E-751J	750	.39	.351	.234	.195
E-821J	820	.42	.378	.252	.21
E-911J	910	.42	.378	.252	.21
E-102J	1000	.45	.405	.27	.225
E-112J	1100	.45	.405	.27	.225
E-122J	1200				



# Elmenco Mylar Capacitors, Trimmers

## TYPE DP MYLAR® PAPER CAPACITORS 600 WVDC (CONTINUED)



Designed for use in a variety of circuits ranging from TV bypass to critical industrial applications requiring stringent electrical and environmental characteristics. Non-inductively wound and vacuum dipped to obtain solid impregnation and rugged moisture-resistant coat. Special winding design provides insulation resistance comparable to competitive polyester film units. High reliability maintained in constant operation at 125° C at full rated voltage (derating required at higher temperatures). Miniaturized for transistor circuitry yet compare favorably in price with commercial general purpose units. Crimped radial leads to facilitate use in printed circuits. Leads are tinned copper #20 gauge and 1 3/8" lg. min. below the crimp. Standard tolerance, ±10%. ©Reg. DuPont TM.

### 100 WVDC

Elmenco No. 1DP-	Cap., μF	Net Each, Lots of			
		1-24	25-99	100-499	500-999
1-502	.005	\$0.18	\$0.162	\$0.108	\$0.09
1-602	.006	.18	.162	.108	.09
1-682	.0068	.18	.162	.108	.09
1-752	.0075	.18	.162	.108	.09
1-103	.01	.18	.162	.108	.09
1-153	.015	.18	.162	.108	.09
1-203	.02	.18	.162	.108	.09
1-223	.022	.18	.162	.108	.09
1-253	.025	.18	.162	.108	.09
1-303	.03	.18	.162	.108	.09
1-333	.033	.18	.162	.108	.09
1-403	.04	.18	.162	.108	.09
2-473	.047	.21	.189	.126	.105
2-503	.05	.21	.189	.126	.105
2-563	.056	.21	.189	.126	.105
2-683	.068	.21	.189	.126	.105
2-753	.075	.21	.189	.126	.105
2-104	.1	.21	.189	.126	.105
3-154	.15	.24	.216	.144	.12
3-204	.2	.27	.243	.162	.135
3-224	.22	.27	.243	.162	.135
3-254	.25	.27	.243	.162	.135
4-324	.33	.36	.324	.216	.18
4-474	.47	.45	.405	.27	.225
4-504	.5	.45	.405	.27	.225
5-684	.68	.57	.513	.342	.285
5-105	1.0	.72	.648	.432	.36

### 200 WVDC

Elmenco No. 2DP-	Cap., μF	Net Each, Lots of			
		1-24	25-99	100-499	500-999
3-104	.1	\$0.21	\$0.189	\$0.126	\$0.105
3-154	.15	.24	.216	.144	.12
4-204	.2	.27	.243	.162	.135
4-224	.22	.27	.243	.162	.135
4-254	.25	.27	.243	.162	.135
5-334	.33	.36	.324	.216	.18
5-474	.47	.45	.405	.27	.225
5-504	.5	.45	.405	.27	.225

### 400 WVDC

Elmenco No. 4DP-	Cap., μF	Net Each, Lots of			
		1-24	25-99	100-499	500-999
1-103	.01	\$0.15	\$0.135	\$0.09	\$0.075
1-153	.015	.15	.135	.09	.075
2-203	.02	.15	.135	.09	.075
2-223	.022	.18	.162	.108	.09
2-253	.025	.18	.162	.108	.09
2-303	.03	.18	.162	.108	.09
2-333	.033	.18	.162	.108	.09
3-403	.04	.18	.162	.108	.09
3-473	.047	.21	.189	.126	.105
3-503	.05	.21	.189	.126	.105
3-563	.056	.21	.189	.126	.105
3-683	.068	.24	.216	.144	.12
3-753	.075	.24	.216	.144	.12
3-104	.1	.24	.216	.144	.12
4-154	.15	.27	.243	.162	.135
5-204	.2	.33	.297	.198	.165
5-224	.22	.33	.297	.198	.165
5-254	.25	.36	.324	.216	.18
5-274	.27	.36	.324	.216	.18
5-334	.33	.54	.486	.324	.27
6-474	.47	.68	.594	.396	.33
6-504	.5	.72	.648	.432	.36

### 600 WVDC

Elmenco No. 6DP-	Cap., μF	Net Each, Lots of			
		1-24	25-99	100-499	500-999
1-102	.001	\$0.15	\$0.135	\$0.09	\$0.075
1-122	.0012	.15	.135	.09	.075
1-152	.0015	.15	.135	.09	.075
1-202	.002	.15	.135	.09	.075
1-222	.0022	.15	.135	.09	.075

Elmenco No. 6DP-	Cap., μF	Net Each, Lots of			
		1-24	25-99	100-499	500-999
1-252	.0025	\$0.15	\$0.135	\$0.09	\$0.075
1-272	.0027	.15	.135	.09	.075
1-302	.003	.15	.135	.09	.075
1-332	.0033	.15	.135	.09	.075
1-392	.0039	.15	.135	.09	.075
1-402	.004	.15	.135	.09	.075
1-472	.0047	.15	.135	.09	.075
1-502	.005	.15	.135	.09	.075
1-562	.0056	.15	.135	.09	.075
1-602	.006	.15	.135	.09	.075
1-682	.0068	.18	.162	.108	.09
2-752	.0075	.18	.162	.108	.09
2-802	.008	.18	.162	.108	.09
2-822	.0082	.18	.162	.108	.09
2-103	.01	.18	.162	.108	.09
2-123	.012	.18	.162	.108	.09
2-153	.015	.18	.162	.108	.09
2-183	.018	.18	.162	.108	.09
2-203	.02	.18	.162	.108	.09
2-223	.022	.18	.162	.108	.09
2-253	.025	.21	.189	.126	.105
3-273	.027	.21	.189	.126	.105
3-303	.03	.21	.189	.126	.105
3-333	.033	.21	.189	.126	.105
3-393	.039	.21	.189	.126	.105
3-403	.04	.21	.189	.126	.105
3-473	.047	.24	.216	.144	.12
3-503	.05	.24	.216	.144	.12
3-563	.056	.24	.216	.144	.12
3-603	.06	.27	.243	.162	.135
4-683	.068	.27	.243	.162	.135
4-753	.075	.27	.243	.162	.135
4-823	.082	.27	.243	.162	.135
4-104	.1	.27	.243	.162	.135
5-154	.15	.36	.324	.216	.18
5-204	.2	.42	.378	.252	.21
5-224	.22	.42	.378	.252	.21
5-254	.25	.45	.405	.27	.225
6-334	.33	.63	.567	.378	.315
6-474	.47	.90	.81	.54	.45
6-504	.5	.90	.81	.54	.45

## 1600 WVDC

Elmenco No. 16DP-	Cap., μF	Net Each, Lots of			
		1-24	25-99	100-499	500-999
2-102	.001	\$0.24	\$0.216	\$0.144	\$0.12
2-152	.0015	.24	.216	.144	.12
2-182	.0018	.24	.216	.144	.12
2-202	.002	.24	.216	.144	.12
2-222	.0022	.24	.216	.144	.12
2-252	.0025	.27	.243	.162	.135
2-302	.003	.27	.243	.162	.135
2-332	.0033	.27	.243	.162	.135
2-402	.004	.27	.243	.162	.135
2-472	.0047	.27	.243	.162	.135
2-502	.005	.27	.243	.162	.135
3-602	.006	.30	.27	.18	.15
3-702	.007	.30	.27	.18	.15
3-752	.0075	.30	.27	.18	.15
3-802	.008	.30	.27	.18	.15
3-103	.01	.30	.27	.18	.15
4-153	.015	.33	.297	.198	.165
4-183	.018	.36	.324	.216	.18
4-203	.02	.36	.324	.216	.18
5-223	.022	.42	.378	.252	.21
5-253	.025	.42	.378	.252	.21
5-303	.03	.42	.378	.252	.21
5-333	.033	.42	.378	.252	.21
5-403	.04	.45	.405	.27	.225
5-473	.047	.48	.432	.288	.24
5-503	.05	.48	.432	.288	.24

## DIMENSIONS FOR TYPE DP CAPACITORS

Type	L x H x W		
	Inches*		
DP-1	1 1/4 x 1 1/4 x 3/8		
DP-2	1 1/4 x 1 1/4 x 3/8		
DP-3	1 1/4 x 1 1/4 x 3/8		
DP-4	1 1/4 x 1 1/4 x 3/8		
DP-5	1 1/4 x 1 1/4 x 3/8		
DP-6	2 1/4 x 1 1/4 x 3/8		

\*Include highest capacitance values in each size. Since dipped unit size varies with size of winding, lower capacitances will have smaller dimensions.

## TRIMMER AND PADDER CAPACITORS

### TYPE 40, 42, 46 TRIMMERS

Type 40: Miniature, 3/8" x 1/4". Type 42: Midjet, 3/8" x 3/8". Type 46: Standard, 3/8" x 3/8". India ruby mica. Ceramic base.

### 175 WVDC, 350 VDCT

Elmenco No.	No. of Plates	Guar. Cap., pF		Net Ea., 1-24
		Tight (Min.)	Open* (Max.)	
400	1 1/4	7	0.9	\$0.30
402	2	20	1.5	.30
403	3	35	3	.36
404	4	60	8	.39
420	1 1/4	12	1	.30
421	1 1/4	25	2	.30
422	2	40	4	.30
423	3	100	7	.33
424	4	150	14	.39
425	5	200	24	.42
426	6	250	37	.48
427	7	300	55	.57
428	8	350	70	.63
429	9	400	90	.63
4210	10	450	110	.75
4211	11	500	130	.84
4212	12	550	150	.90
4213	13	600	170	.99
4214	14	650	190	1.05
4215	15	700	210	1.14
460	1 1/4	15	1.5	.30
461	1 1/4	30	2.7	.30
462	2	80	5	.30
463	3	180	9	.33
464	4	280	25	.39
465	5	380	50	.42
466	6	480	80	.48
467	7	580	110	.54
468	8	680	140	.57
469	9	780	170	.63
4610	10	900	190	.72
4611	11	1000	210	.78
4612	12	1100	240	.84
4613	13	1200	300	.93
4614	14	1300	340	1.02
4615	15	1400	390	1.11

\*At 3 turns.

Note: Type 46 trimmer assembly with mtg. bracket and adjusting shaft for ease of tuning is also available. Add prefix "S" to trimmer number and add 27c to the net price. Type 40, 42 and 46 also available as printed circuit trimmers. Prefix "PC" and add 3c to net price.

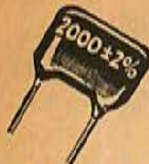
### TYPE 30, 30-M, 50, 58 PADDERS

Type 30, 30-M: 3/8" x 1 1/2". "30" is 250 WVDC, 500 VDCT; "30-M", 500 WVDC, 1000 VDCT. Type 50: Dual, tuning components for IF transformers; 175 WVDC; fits shield 1 1/2" sq. or larger. Type 58: 1" x 1 1/2"; single variable trimmer; 175 WVDC. India ruby mica, sapphire base.

Elmenco No.	No. of Plates	Guar. Cap., pF		Net Ea., 1-24
		1 1/2" lbs. (Min.)	Open* (Max.)	
302	2	130	15	\$0.54
303	3	340	65	.57
304	4	550	100	.63
305	5	760	190	.69
306	6	970	275	.72
307	7	1180	350	.78
308	8	1390	450	.84
309	9	1600	550	.87
310	10	1890	650	.93
311	11	2110	780	.99
312	12	2330	880	1.05
313	13	2605	1150	1.14
314	14	2830	1300	1.20
315	15	3055	1400	1.26
302-M	2	120	15	.54
303-M	3	320	65	.60
304-M	4	500	100	.66
305-M	5	690	180	.72
306-M	6	880	265	.78
307-M	7	1070	340	.84
308-M	8	1260	425	.90
309-M	9	1415	525	.96
310-M	10	1600	615	1.02
311-M	11	1785	730	1.08
312-M	12	1970		



# Elmenco Dur-Mica Capacitors



Highly reliable, compact silvered mica capacitors coated for maximum protection against moisture and temperature extremes. Meet or exceed MIL-C-5C and ICA standards for fixed mica capacitors. Leads: Wire gauge #26 (DM-10), #22 (DM-15, -19), #20 (DM-19, -20), #18 (DM-30, -42, -43). Tinned brass except the following which are copper-clad steel, 30% min. conductivity: DM-10, -42, -43; DM-19 and -20, 3000 pF and above; DM-30, 10,000 pF and above. All 1 1/4" lg. min. Operating Temperature Range: -55° C to +150° C. Type DM: Per MIL-C-5C. Type SCDM: Single coat of dure; thinner than regular DM-10's. DM-15's and DM-19's. To order, use prefix SC. Tolerances Available: ±10%, ±5%, ±2%, ±1% and ±.5%. Prices are for ±5% (J) tolerance except as otherwise noted. Voltage: 500 WVDC except as otherwise noted.

## TYPE DM-10—500 WVDC (SCDM-10 values and prices the same.)

Elmenco Number	Cap., pF	Net Each, Lots of			
		1-24	25-99	100-499	500-999
DM-10-010K	1	\$0.18	\$0.162	\$0.108	\$0.09
DM-10-020K	2	.18	.162	.108	.09
DM-10-030K	3	.18	.162	.108	.09
DM-10-050K	5	.18	.162	.108	.09
DM-10-100J	10	.198	.178	.119	.099
DM-10-120J	12	.234	.211	.14	.117
DM-10-150J	15	.234	.211	.14	.117
DM-10-180J	18	.234	.211	.14	.117
DM-10-200J	20	.234	.211	.14	.117
DM-10-220J	22	.234	.211	.14	.117
DM-10-240J	24	.234	.211	.14	.117
DM-10-270J	27	.234	.211	.14	.117
DM-10-300J	30	.234	.211	.14	.117
DM-10-330J	33	.234	.211	.14	.117
DM-10-360J	36	.234	.211	.14	.117
DM-10-390J	39	.234	.211	.14	.117
DM-10-430J	43	.234	.211	.14	.117
DM-10-470J	47	.264	.238	.158	.132
DM-10-500J	50	.264	.238	.158	.132
DM-10-510J	51	.264	.238	.158	.132
DM-10-560J	56	.264	.238	.158	.132
DM-10-620J	62	.264	.238	.158	.132
DM-10-680J	68	.264	.238	.158	.132
DM-10-750J	75	.264	.238	.158	.132
DM-10-820J	82	.264	.238	.158	.132
DM-10-910J	91	.264	.238	.158	.132
DM-10-101J	100	.264	.238	.158	.132
DM-10-111J	110	.264	.238	.158	.132
DM-10-121J	120	.30	.27	.18	.15
DM-10-131J	130	.30	.27	.18	.15
DM-10-151J	150	.33	.297	.198	.165
DM-10-161J	160	.366	.329	.22	.183
DM-10-181J	180	.396	.356	.238	.198
DM-10-201J	200	.396	.356	.238	.198
DM-10-221J	220	.432	.389	.259	.216
DM-10-241J	240	.462	.416	.277	.231
DM-10-251J	250	.462	.416	.277	.231
DM-10-271J*	270	.462	.416	.277	.231
DM-10-301J*	300	.498	.448	.299	.249
DM-10-311J†	330	.498	.448	.299	.249
DM-10-361J†	360	.528	.475	.317	.264
DM-10-391J†	390	.564	.508	.338	.282

## TYPE DM-15—500 WVDC

(SCDM-15 values and prices are the same.) Values 1 to 24 pF are "C" characteristic; 27 to 82 pF, "E" char.; 91 pF and up, "F" characteristic.

Elmenco Number	MIL-C-5C Type	Cap., pF	Net Each, Lots of			
			1-24	25-99	100-499	500-999
DM-15-010K		1	\$0.15	\$0.135	\$0.09	\$0.075
DM-15-020K		2	.15	.135	.09	.075
DM-15-030K		3	.15	.135	.09	.075
DM-15-050K	CM05C050K03	5	.15	.135	.09	.075
DM-15-060K	CM05C060K03	6	.15	.135	.09	.075
DM-15-070K	CM05C070K03	7	.15	.135	.09	.075
DM-15-080K	CM05C080K03	8	.15	.135	.09	.075
DM-15-100J	CM05C100J03	10	.168	.151	.101	.084
DM-15-120J	CM05C120J03	12	.168	.151	.101	.084
DM-15-150J	CM05C150J03	15	.168	.151	.101	.084
DM-15-180J	CM05C180J03	18	.168	.151	.101	.084
DM-15-200J	CM05E200J03	20	.168	.151	.101	.084
DM-15-220J	CM05E220J03	22	.168	.151	.101	.084
DM-15-240J	CM05E240J03	24	.168	.151	.101	.084
DM-15-270J	CM05E270J03	27	.168	.151	.101	.084
DM-15-300J	CM05E300J03	30	.168	.151	.101	.084
DM-15-330J	CM05E330J03	33	.168	.151	.101	.084
DM-15-360J	CM05E360J03	36	.168	.151	.101	.084
DM-15-390J	CM05E390J03	39	.168	.151	.101	.084
DM-15-430J	CM05E430J03	43	.168	.151	.101	.084
DM-15-470J	CM05E470J03	47	.168	.151	.101	.084
DM-15-500J		50	.168	.151	.101	.084
DM-15-510J	CM05E510J03	51	.168	.151	.101	.084
DM-15-560J	CM05E560J03	56	.168	.151	.101	.084
DM-15-620J	CM05E620J03	62	.168	.151	.101	.084
DM-15-680J	CM05E680J03	68	.168	.151	.101	.084
DM-15-750J	CM05E750J03	75	.168	.151	.101	.084
DM-15-820J	CM05E820J03	82	.168	.151	.101	.084
DM-15-910J	CM05F910J03	91	.168	.151	.101	.084
DM-15-101J	CM05F101J03	100	.168	.151	.101	.084
DM-15-111J	CM05F111J03	110	.198	.178	.119	.099
DM-15-121J	CM05F121J03	120	.198	.178	.119	.099
DM-15-131J	CM05F131J03	130	.198	.178	.119	.099
DM-15-151J	CM05F151J03	150	.198	.178	.119	.099
DM-15-161J	CM05F161J03	160	.234	.211	.14	.117

## TYPE DM-15 (CONT'D)

Elmenco Number	MIL-C-5C Type	Cap., pF	Net Each, Lots of			
			1-24	25-99	100-499	500-999
DM-15-181J	CM05F181J03	180	\$0.234	\$0.211	\$0.14	\$0.117
DM-15-201J	CM05F201J03	200	.234	.211	.14	.117
DM-15-221J	CM05F221J03	220	.264	.238	.158	.132
DM-15-241J	CM05F241J03	240	.264	.238	.158	.132
DM-15-251J		250	.264	.238	.158	.132
DM-15-271J	CM05F271J03	270	.30	.27	.18	.15
DM-15-301J	CM05F301J03	300	.30	.27	.18	.15
DM-15-311J	CM05F311J03	330	.33	.297	.198	.165
DM-15-361J	CM05F361J03	360	.33	.297	.198	.165
DM-15-391J	CM05F391J03	390	.366	.329	.22	.183
DM-15-431J		430	.366	.329	.22	.183
DM-15-471J		470	.396	.356	.238	.198
DM-15-501J		500	.396	.356	.238	.198
DM-15-511J		510	.396	.356	.238	.198
DM-15-561J*		560	.432	.389	.259	.216
DM-15-621J*		620	.462	.416	.277	.231
DM-15-681J*		680	.498	.448	.299	.249
DM-15-751J*		750	.528	.475	.317	.264
DM-15-821J*		820	.564	.508	.338	.282
DM-15-911J†		910	.63	.567	.378	.315
DM-15-102J†		1000	.66	.594	.396	.33

## TYPE DM-16—500 WVDC

DM-16-431J		430	\$0.366	\$0.329	\$0.22	\$0.183
DM-16-471J		470	.396	.356	.238	.198
DM-16-501J		500	.396	.356	.238	.198
DM-16-511J		510	.396	.356	.238	.198
DM-16-561J		560	.432	.389	.259	.216
DM-16-621J		620	.462	.416	.277	.231
DM-16-681J		680	.498	.448	.299	.249
DM-16-751J		750	.528	.475	.317	.264
DM-16-821J		820	.564	.508	.338	.282
DM-16-911J		910	.594	.535	.356	.297
DM-16-102J		1000	.63	.567	.378	.315
DM-16-112J*		1100	.66	.594	.396	.33
DM-16-122J*		1200	.696	.626	.418	.348
DM-16-132J*		1300	.762	.686	.457	.381
DM-16-152J†		1500	.66	.594	.396	.33
DM-16-162J†		1600	.696	.626	.418	.348

## TYPE DM-19—500 WVDC

(SCDM-19 values and prices are the same.)						
DM-19-101J		100	\$0.168	\$0.151	\$0.101	\$0.084
DM-19-111J		110	.198	.178	.119	.099
DM-19-121J		120	.198	.178	.119	.099
DM-19-131J		130	.198	.178	.119	.099
DM-19-151J		150	.198	.178	.119	.099
DM-19-161J		160	.198	.178	.119	.099
DM-19-181J		180	.198	.178	.119	.099
DM-19-201J		200	.198	.178	.119	.099
DM-19-221J		220	.198	.178	.119	.099
DM-19-241J		240	.234	.211	.14	.117
DM-19-251J		250	.234	.211	.14	.117
DM-19-271J		270	.264	.238	.158	.132
DM-19-301J		300	.264	.238	.158	.132
DM-19-311J		330	.264	.238	.158	.132
DM-19-361J		360	.30	.27	.18	.15
DM-19-391J		390	.30	.27	.18	.15
DM-19-431J	CM06F431J03	430	.30	.27	.18	.15
DM-19-471J	CM06F471J03	470	.33	.297	.198	.165
DM-19-501J		500	.33	.297	.198	.165
DM-19-511J	CM06F511J03	510	.33	.297	.198	.165
DM-19-561J	CM06F561J03	560	.366	.329	.22	.183
DM-19-621J	CM06F621J03	620	.366	.329	.22	.183
DM-19-681J	CM06F681J03	680	.396	.356	.238	.198
DM-19-751J	CM06F751J03	750	.396	.356	.238	.198
DM-19-821J	CM06F821J03	820	.396	.356	.238	.198
DM-19-911J	CM06F911J03	910	.396	.356	.238	.198
DM-19-102J	CM06F102J03	1000	.462	.416	.277	.231
DM-19-112J	CM06F112J03	1100	.462	.416	.277	.231
DM-19-122J	CM06F122J03	1200	.498	.448	.299	.249
DM-19-132J	CM06F132J03	1300	.528	.475	.317	.264
DM-19-152J	CM06F152J03	1500	.564	.508	.338	.282
DM-19-162J	CM06F162J03	1600	.594	.535	.356	.297
DM-19-182J	CM06F182J03	1800	.66	.594	.396	.33
DM-19-202J	CM06F202J03	2000	.726	.653	.436	.363
DM-19-222J	CM06F222J03	2200	.792	.713	.475	.396
DM-19-242J	CM06F242J03	2400	.858	.772	.515	.429
DM-19-252J		2500	.894	.805	.536	.447
DM-19-272J	CM06F272J03	2700	.924	.832	.554	.462
DM-19-302J	CM06F302J03	3000	.99	.891	.594	.495
DM-19-312J	CM06F312J03	3300	1.056	.95	.634	.528
DM-19-362J	CM06F362J03	3600	1.122	.981	.673	.561
DM-19-392J	CM06F392J03	3900	1.188	1.069	.713	.594
DM-19-432J	CM06F432J03	4300	1.254	1.129	.752	.627
DM-19-472J	CM06F472J03	4700	1.32	1.188	.792	.66
DM-19-502J		5000	1.386	1.247	.832	.693
DM-19-512J		5100	1.386	1.247	.832	.693
DM-19-562J*		5600	1.452	1.307	.871	.726
DM-19-622J*		6200	1.518	1.366	.911	.759
DM-19-682J†		6800	1.518	1.366	.911	.759
DM-19-752J†		7500	1.584	1.426	.95	.792
DM-19-822J†		8200	1.65	1.485	.99	.825

## TYPE DM-20—500 WVDC



# Special Purpose Capacitors

## ELMENCO DUR-MICA CAPACITORS (CONT'D)

### TYPE DM-20—500 WVDC (CONT'D)

Elmenco Number	MIL-C-5C Type	Cap., pF	Net Each, Lots of			
			1-24	25-99	100-499	500-999
DM-20-152J		1500	\$0.498	\$0.448	\$0.299	\$0.249
DM-20-162J		1800	.528	.475	.317	.264
DM-20-182J		1800	.594	.535	.356	.297
DM-20-202J		2000	.63	.567	.378	.315
DM-20-222J		2200	.696	.626	.418	.348
DM-20-242J		2400	.726	.653	.436	.363
DM-20-252J		2500	.736	.653	.436	.363
DM-20-272J		2700	.792	.713	.475	.396
DM-20-302J		3000	.858	.772	.515	.429
DM-20-322J		3300	.924	.832	.554	.462
DM-20-342J		3600	.99	.891	.594	.495
DM-20-362J		3900	1.056	.95	.634	.528
DM-20-432J		4300	1.122	1.01	.673	.561
DM-20-472J		4700	1.188	1.069	.713	.594
DM-20-502J		5000	1.254	1.129	.752	.627
DM-20-512J		5100	1.29	1.161	.774	.645
DM-20-562J		5500	1.32	1.188	.792	.66
DM-20-622J*		6200	1.32	1.188	.792	.66
DM-20-682J*		6800	1.386	1.247	.832	.693
DM-20-752J†		7500	1.452	1.307	.871	.726
DM-20-822J†		8200	1.584	1.426	.95	.792
DM-20-912J†		9100	1.782	1.604	1.069	.891
DM-20-103J†		10000	1.98	1.782	1.188	.99

### TYPE DM-30—500 WVDC

DM-30-432J	4300	\$1.056	\$0.95	\$0.634	\$0.528
DM-30-472J	4700	1.122	1.01	.673	.561
DM-30-502J	5000	1.188	1.042	.695	.579
DM-30-512J	5100	1.158	1.042	.695	.579
DM-30-562J	5500	1.188	1.069	.713	.594
DM-30-622J	6200	1.254	1.129	.752	.627
DM-30-682J	6800	1.386	1.247	.832	.693
DM-30-752J	7500	1.618	1.366	.911	.759
DM-30-822J	8200	1.65	1.485	.99	.825
DM-30-912J	9100	1.782	1.604	1.069	.891
DM-30-103J	10000	1.98	1.782	1.188	.99
DM-30-113J	11000	2.15	1.94	1.29	1.07
DM-30-123J	12000	2.31	2.079	1.386	1.155
DM-30-133J	13000	2.478	2.23	1.487	1.239
DM-30-153J	15000	2.808	2.527	1.685	1.494
DM-30-163J	16000	2.97	2.673	1.782	1.485
DM-30-183J	18000	3.30	2.97	1.98	1.65
DM-30-203J	20000	3.63	3.267	2.178	1.815
DM-30-223J*	22000	3.762	3.386	2.257	1.881

### TYPE DM-30—500 WVDC (CONT'D)

Elmenco Number	MIL-C-5C Type	Cap., pF	Net Each, Lots of			
			1-24	25-99	100-499	500-999
DM-30-243J*		24000	\$4.062	\$3.656	\$2.437	\$2.031
DM-30-251J*		25000	4.224	3.802	2.534	2.132
DM-30-273J*		27000	4.524	4.072	2.714	2.262
DM-30-303J†		30000	4.95	4.456	2.97	2.475
DM-30-333J†		33000	5.448	4.903	3.269	2.724
DM-30-363J†		36000	5.94	5.346	3.564	2.97

### TYPE DM-42—500 WVDC

DM-42-103J	10000	\$2.25	\$2.03	\$1.35	\$1.13
DM-42-123J	12000	2.64	2.38	1.58	1.32
DM-42-133J	13000	2.76	2.48	1.66	1.38
DM-42-153J	15000	3.12	2.81	1.87	1.56
DM-42-163J	16000	3.36	3.02	2.02	1.68
DM-42-183J	18000	3.66	3.29	2.20	1.83
DM-42-203J	20000	3.96	3.56	2.38	1.98
DM-42-223J	22000	4.29	3.86	2.57	2.15
DM-42-243J	24000	4.68	4.23	2.81	2.34
DM-42-253J	25000	4.80	4.32	2.88	2.40
DM-42-273J	27000	5.19	4.67	3.11	2.60
DM-42-303J	30000	5.67	5.10	3.40	2.84
DM-42-333J	33000	6.15	5.48	3.69	3.08
DM-42-393J	39000	6.75	6.08	4.05	3.38
DM-42-433J	43000	7.20	6.48	4.32	3.60
DM-42-473J	47000	7.80	7.02	4.68	3.90
DM-42-503J	50000	8.40	7.56	5.04	4.20
DM-42-513J	51000	8.85	7.97	5.31	4.43
DM-42-563J*	56000	9.00	8.10	5.40	4.50
DM-42-623J*	62000	9.30	8.37	5.58	4.65
DM-42-683J†	68000	9.60	8.64	5.76	4.80
DM-42-753J†	75000	10.20	9.18	6.12	5.10

### TYPE DM-43—500 WVDC

Elmenco Number	Cap., pF	Elmenco Number	Cap., pF	Elmenco Number	Cap., pF
DM-43-473J	47000	DM-43-683J	68000	DM-43-114J†	110000
DM-43-503J	50000	DM-43-753J†	75000	DM-43-124J†	120000
DM-43-513J	51000	DM-43-823J*	82000	DM-43-134J†	130000
DM-43-563J	56000	DM-43-933J*	91000		
DM-43-623J	62000	DM-43-104J*	100000		

\*300 WVDC. †100 WVDC. Note: Values listed in DM-30, -42 and -43 cases are "F" characteristic. ‡Prices on Request.

## MALLORY HIGH CAPACITY DRY ELECTROLYTICS



HC and NP capacitors are furnished in heavy-duty molded phenolic cases with integral safety vent. HC types are polarized; NP types are non-polarized. Temp. Range: -20° C to +85° C. Tolerance: Type HC—0-50 WVDC, -10%, +150%; 51-350 WVDC, -10%, +100%; 361 WVDC up, -10%, +50%. Type NP—±25%, all units.

### NON-POLARIZED TYPE NP

Mallory No.	Cap., μF	WV DC	Size	Net Each
NP0340	2,000	25	7	\$ 5.43
NP0555	500	50	5	4.38
NP1225A	200	125	4	4.04
NP1235A	300	125	4	4.87
NP1245	400	125	4	5.69
NP1255A	500	125	5	6.30
NP2514	100	250	5	5.95
NP2520	150	250	5	6.15
NP2525	200	250	7	6.34
NP3003A	15	300	1	2.87
NP3006	30	300	2	3.85
NP3008	50	300	2	5.25
NP3014A	100	300	4	6.13
NP3020	150	300	7	6.56
NP3025	200	300	7	7.00
NP4503	30	450	2	4.90
NP4505	50	450	4	6.30
NP4510	100	450	7	7.70

### POLARIZED TYPE HC

Mallory No.	Cap., μF	WV DC	Size	Net Each	Mallory No.	Cap., μF	WV DC	Size	Net Each
HC1020A	2,000	10	1	\$ 3.36	HC18005	500	100	2	\$ 4.20
HC1040A	4,000	10	2	4.60	HC18010	1,000	100	5	5.66
HC1060A	6,000	10	5	5.20	HC18015	1,500	100	7	6.44
HC1085	8,000	10	7	6.00	HC18020	2,000	150	4	5.09
HC10100	10,000	10†	7	7.82	HC18010	1,000	150	7	6.89
HC10120	12,000	10	7	7.34	HC18010A	1,000	150	5	6.44
HC10150	15,000	10	7	7.67	HC20002	200	200	4	4.08
HC1520A	2,000	15	1	3.47	HC20005	500	200	7	5.97
HC1540A	4,000	15	3	5.37	HC20005A	500	200	4	5.53
HC1560A	6,000	15	4	5.62	HC25001	100	250	2	4.59
HC1580	8,000	15	7	6.62	HC25002	200	250	4	4.88
HC15100	10,000	15	7	7.14	HC25003	300	250	5	5.37
HC2050-50	2x5,000	20	7	8.00	HC25004	400	250	7	5.64
HC2060	6,000	20	7	6.60	HC35001	100	350	4	4.88
HC2060A	6,000	20†	5	6.11	HC35002	200	350	5	5.93
HC20250	25,000	20	9	12.88	HC35003	300	350	7	6.97
HC2510A	1,000	25	1	3.19	HC45001	100	450	4	5.97
HC2520A	2,000	25	2	4.15	HC45002	200	450	7	7.47
HC2530	3,000	25	4	4.88	HC45003	300	450	7	8.47
HC2540A	4,000	25	4	5.58					
HC2550	5,000	25	7	6.30					
HC4040	4,000	40	7	7.64					
HC4040A	4,000	40	5	6.98					
HC4060	6,000	40	7	7.91					
HC5005	500	50	2	3.60					
HC5005A	500	50	1	3.33					
HC5030A	1,000	50	2	4.25					
HC5020A	2,000	50	4	5.06					
HC5030	3,000	50	7	7.00					
HC5040	4,000	50	7	7.32					
HC8005	500	80	2	3.85					
HC8010	1,000	80	4	5.34					
HC8020	2,000	80	7	6.62					

†Semi-polarized.

### \*HC AND NP CASE SIZES

Code	Size, In. Dia. x Lg.	Use Hardware No. for		
		Cap	Brkt.	Clamp
1	1 1/8 x 2 1/4	PL3, PL4	H82	VR3
2	1 1/8 x 3 1/8	PL3, PL4	H84	VR3
3	1 1/8 x 4 1/8	PL3, PL4	H88	VR3
4	1 1/8 x 5 1/8	PL6, PL6	H84	VR6
5	1 1/8 x 6 1/8	PL6, PL6	H88	VR6
6	2 1/8 x 3 1/8	PL8, PL8	H84	VR8
7	2 1/8 x 4 1/8	PL8, PL8	H88	VR8
8	1 1/2 x 4 1/8	.....	.....	VR4
9	3 x 4 1/8	.....	.....	VR12

## SPRAGUE HYPASS® CAPACITORS



• Suppress TVI from short-wave transmitters, diathermy machines, electronic heating apparatus, etc.

• Install leads in series with circuit being filtered and ground the case.

Sprague No.	μF	WVDC	Dia. x L. Inches	Net Each
48P18*	.5	50	1 x 1 1/8	\$2.28
48P100	.5	50	1 x 1 1/8	3.75
48P10*	.25	200	1 1/2 x 1 1/8	1.56
48P14*	.5	200	1 x 1 1/8	1.89
48P9*	.1	250†	1 1/8 x 1 1/8	1.56
48P6*	.1	400	1 1/8 x 1 1/8	1.53
80P11	.1	400	1 1/8 x 1 1/8	1.74
46P12	.002	600	1 1/8 x 1 1/8	1.29
47P6	.005	600	1 1/8 x 1 1/8	1.29
47P8	.01	600	1 1/8 x 1 1/8	1.41
47P8	.02	600	1 1/8 x 1 1/8	1.44

Sprague No.	μF	WVDC	Dia. x L. Inches	Net Each
48P8*	.1	600	1 1/8 x 1 1/8	\$1.56
80P3†	.1	600	1 1/8 x 1 1/8	1.77
48P12*	.25	600	1 x 1 1/8	1.65
48P16*	.5	600	1 x 2 1/8	2.10
47P12	.005	1000	1 1/8 x 1 1/8	1.44
47P13	.01	1000	1 1/8 x 1 1/8	1.56
47P14	.005	2500	1 x 1 1/8	1.74
47P15	.01	2500	1 x 1 1/8	1.86
47P16	.002	5000	1 x 1 1/8	1.92

\*Has female screw terminals. †Bulkhead mounting. ‡WVAC.





# Dry Electrolytic Capacitors



## METAL CAN ELECTROLYTIC CAPACITORS

FP-WP capacitors are designed for 55° C operation, and have standard twist-prong mounting lugs with solder terminals. PFP-PWP types use standard EIA printed circuit terminals and can be used in place of normal solder terminal types. FPS is special mounting for auto radios. FP-WP types may be adapted to printed circuit mounting by using an FPA Adapter Kit (Net. Each, 27¢). All types use "etched cathode" construction for hum-free operation, and have an exclusive vent and seal design. Standard tolerance: Up to 50 WVDC, -10% to +100%; 51 to 350 WVDC, -10% to +100%; 351 WVDC and up, -10% to +50%. \*Sizes shown are at end of listing.

### FP-WP AND PFP-PWP—SINGLES

Mallory No.	Cap., $\mu$ F	WV DC	*	Net Each	Mallory No.	Cap., $\mu$ F	WV DC	*	Net Each	Mallory No.	Cap., $\mu$ F	WV DC	*	Net Each	Mallory No.	Cap., $\mu$ F	WV DC	*	Net Each
WP510	.6Z/15750	3NP	d	\$1.32	WP057A	500	25	l	\$1.53	FP116.6	120	150	f	\$1.23	FP140.5A	140	350	g	\$2.34
WP540	1.0Z/601	3NP	h	2.40	WP059	1000	25	f	2.13	PFP116.5A	140	150	b	1.44	FP140.6A	150	350	g	2.55
WP505	10Z/301	3NP	a	1.20	PWP060	1500	25	d	2.57	FP117.5	150	150	f	1.29	FP141	320	350	l	4.05
PWP030A	750	6	c	1.29	FP060.2	2000	25	f	2.56	FP118A	200	150	f	1.47	FP142A	10	450	a	.93
FP030.6	5000	6	c	3.14	FP060.4	4000	25	h	3.93	FP119A	300	150	f	1.68	FP144	20	450	b	1.02
FP030.8	10000	6	c	5.52	FP060.5	5000	25	h	4.63	FP121	120	200	f	1.41	FP144A	20	450	b	1.29
PWP031A	2500	10	c	2.84	WP063	4	50	a	.75	FP122A	125	200	b	1.47	FP145	30	450	c	1.17
FP031.6	5000	10	d	3.45	PWP	100	50	l	.99	PFP122	160	200	h	1.93	FP146	40	450	c	1.23
FP031.8	10000	10	h	6.16	063.9A	100	50	c	1.04	WP123A	500	200	h	2.19	FP147	50	450	d	1.25
PWP0316	225	15	a	1.95	WP064.2A	150	50	l	1.08	FP125	15	250	a	.93	FP148	60	450	g	1.68
WP0316	400	15	a	1.16	WP065	500	50	f	1.59	WP125.5A	140	250	c	1.74	FP149	80	450	g	1.83
WP031A	1000	15	f	1.53	WP066A	500	50	c	1.59	WP125.9A	150	250	c	1.71	FP150	100	450	h	2.07
WP041A	2000	15	f	2.07	FP066.5	1000	50	f	2.50	FP128A	80	300	c	1.53	FP155	125	450	j	2.76
WP042A	3000	15	f	2.10	PWP067A	1250	50	g	2.90	WP129.1A	100	300	c	1.74	FP171A	10	500	l	.96
FP042.6	5000	15	g	4.06	FP070	1500	50	h	2.31	WP131.5	160	300	g	2.31	FP173	20	500	b	1.11
FP042.8	10000	15	j	6.66	WP068	200	50	j	3.21	FP132	200	300	g	2.58	FP175	30	500	c	1.20
WP052	40	25	a	.81	FP115	30	150	a	.93	WP135A	30	350	l	1.14	FP176	40	500	f	1.50
WP055A	100	25	l	.96	FP115A	50	150	l	.99	FP137.2A	50	350	e	1.26	FP177	40	500	d	1.50
PWP056	400	25	b	1.44	FP116A	100	150	l	1.20	FP138A	80	350	e	1.32	PFP176.5	40	500	d	1.74
					FP116.5A	120	150	b	1.23	FP140A	125	350	g	2.37	FP187	90	500	h	2.10

### FP-WP AND PFP-PWP—DUALS

Mallory No.	Capacity, $\mu$ F	WVDC	*	Net Each	Mallory No.	Capacity, $\mu$ F	WVDC	*	Net Each	Mallory No.	Capacity, $\mu$ F	WVDC	*	Net Each	Mallory No.	Capacity, $\mu$ F	WVDC	*	Net Each
WP204	250-1000	10-6	f	\$1.71	PFP216.45	50-100	200-150	f	\$1.91	WP230.2	20-200	450-250	i	\$2.73	FP230.2	40-10	450-350	i	1.56
WP205	.6Z-2.6Z/157501-601	12-6	f	1.216	PFP216.5A	40-20	200-200	f	1.42	FP230.3	10-60	450-350	d	1.71	FP230.5	10-100	450-350	d	2.40
WP200	1000-1000	15-15	f	2.64	FP216.6A	60-60	200-200	b	1.51	FP230.6	10-100	450-350	h	2.19	FP230.6	20-80	450-350	h	2.51
WP200.1A	1000-1000	15-15	c	2.64	PFP216.1A	200-5	200-200	f	2.26	FP230.7	20-80	450-350	h	2.41	PFP217.11	2-20	450-400	b	1.81
FP5200.13	1000-1000	16-10	c	2.77	FP216.7	250-100	200-200	g	2.78	PFP230.7	80-20	450-400	b	1.81	WP230.9A	5-5	450-450	l	1.02
WP200.23	1500-1000	16-10	f	2.55	FP217.565	100-100	200-300	k	2.23	PFP217.11	2-20	450-400	b	1.81	FP231.2	10-10	450-450	b	1.14
FP200.6	500-500	16-16	b	1.95	FP216.8A	40-25	250-150	l	1.29	FP231.2	20-5	450-450	b	1.46	FP231.3	20-10	450-450	c	1.32
FP200.65	500-500	16-16	l	1.83	FP217A	20-25	250-150	l	1.14	FP231.3	20-10	450-450	c	1.53	FP234	30-30	450-450	g	1.83
PFP200.45A	700-200	16-16	l	2.09	FP221A	40-40	250-250	m	1.50	FP234A	20-20	450-450	c	1.83	FP238A	40-40	450-450	h	2.07
WP200.18	800-200	16-16	b	1.68	FP217.7A	160-150	250-250	g	3.09	FP239	60-40	450-450	h	2.19	FP239	60-40	450-450	h	2.19
PFP200.19	1000-200	16-16	b	1.81	FP217.74A	200-200	250-250	h	3.60	FP240	50-50	450-450	h	2.31	FP240A	60-20	450-450	h	2.10
WP200.21A	1000-500	16-16	b	2.28	WP217.85A	35-500	300-60	m	1.68	FP242.5A	60-80	450-450	h	2.70	FP242.5A	80-10	450-450	h	2.16
PWP200.3A	250-250	20-20	l	1.69	FP217.86A	30-20	300-60	l	1.14	FP245.2	80-10	450-450	h	2.34	FP245.2	80-10	450-450	h	2.49
WP200.5A	500-100	20-20	l	1.65	FP217.8A	20-60	300-250	b	1.65	FP245.3A	80-30	450-450	h	2.31	FP245.3A	100-40	450-450	l	2.19
PWP200.6	500-100	20-20	b	1.79	PFP217.86	10-10	300-300	f	1.57	FP245.3A	80-30	450-450	h	2.31	FP245.3A	100-40	450-450	l	2.19
FP200.7	500-100	20-20	b	1.80	PFP217.87	10-10	300-300	f	1.77	FP245.3A	80-30	450-450	h	2.31	FP245.3A	100-40	450-450	l	2.19
WP200.7A	500-200	20-20	l	1.80	FP217.88	50-10	300-300	g	2.48	FP245.3A	80-30	450-450	h	2.31	FP245.3A	100-40	450-450	l	2.19
PWP200.4	800-250	20-20	c	2.25	FP217.9A	75-75	300-300	g	2.48	FP245.3A	80-30	450-450	h	2.31	FP245.3A	100-40	450-450	l	2.19
WP200.2A	1000-2000	25-15	g	3.87	FP218A	120-20	300-300	g	2.70	FP245.3A	80-30	450-450	h	2.31	FP245.3A	100-40	450-450	l	2.19
WP201.1A	40-40	25-25	l	.93	WP219	125-60	300-300	h	3.11	FP245.3A	80-30	450-450	h	2.31	FP245.3A	100-40	450-450	l	2.19
PWP201.13	400-200	25-25	b	1.79	FP219.7	160-100	300-300	h	3.11	FP245.3A	80-30	450-450	h	2.31	FP245.3A	100-40	450-450	l	2.19
WP201.15	1000-1000	25-25	g	3.48	PFP220.1	40-25	350-25	b	1.54	FP245.3A	80-30	450-450	h	2.31	FP245.3A	100-40	450-450	l	2.19
PWP201.3	1500-1500	25-25	h	4.52	FP223A	5-75	350-150	m	1.26	FP245.3A	80-30	450-450	h	2.31	FP245.3A	100-40	450-450	l	2.19
WP201.5	1000-1000	35-35	g	3.93	FP225A	15-15	350-350	m	1.35	FP245.3A	80-30	450-450	h	2.31	FP245.3A	100-40	450-450	l	2.19
WP202.1A	50-50	50-50	l	1.02	FP227A	20-20	350-350	b	1.38	FP245.3A	80-30	450-450	h	2.31	FP245.3A	100-40	450-450	l	2.19
WP202.5A	100-100	50-50	l	1.26	FP227.3A	30-30	350-350	c	1.74	FP245.3A	80-30	450-450	h	2.31	FP245.3A	100-40	450-450	l	2.19
WP205.6A	50-500	150-5	l	1.41	WP227.35	80-20	350-350	d	2.10	FP245.3A	80-30	450-450	h	2.31	FP245.3A	100-40	450-450	l	2.19
WP205.8	50-1000	150-8	b	1.71	FP227.4A	80-40	350-350	f	2.16	FP245.3A	80-30	450-450	h	2.31	FP245.3A	100-40	450-450	l	2.19
WP206A	20-20	150-25	l	1.32	FP227.5A	80-20	350-350	g	2.16	FP245.3A	80-30	450-450	h	2.31	FP245.3A	100-40	450-450	l	2.19
FP208A	20-20	150-150	l	1.02	FP227.6A	80-20	350-350	h	2.82	FP245.3A	80-30	450-450	h	2.31	FP245.3A	100-40	450-450	l	2.19
FP211A	30-30	150-150	l	1.1	FP227.7A	100-100	350-350	l	3.19	FP245.3A	80-30	450-450	h	2.31	FP245.3A	100-40	450-450	l	2.19
FP210A	40-20	150-150	l	1.08	FP227.8	150-20	350-350	m	2.73	FP245.3A	80-30	450-450	h	2.31	FP245.3A	100-40	450-450	l	2.19
FP212A	40-40	150-150	l	1.14	FP228.3	100-60	400-60	n	3.56	FP245.3A	80-30	450-450	h	2.31	FP245.3A	100-40	450-450	l	2.19
FP213A	50-30	150-150	l	1.29	FP229A	35-100	400-60	d	4.41	FP245.3A	80-30	450-450	h	2.31	FP245.3A	100-40	450-450	l	2.19
PFP213.1A	50-30	150-150	l	1.40	FP229.2	40-4	400-350	e	2.10	FP245.3A	80-30	450-450	h	2.31	FP245.3A	100-40	450-450		





# Dry Electrolytic Capacitors

## FP-WP AND PFP-PWP—TRIPLES (CONTINUED)

Mallory No.	Capacity, $\mu$ F	Working Volts DC	*	Net Each	Mallory No.	Capacity, $\mu$ F	Working Volts DC	*	Net Each	Mallory No.	Capacity, $\mu$ F	Working Volts DC	*	Net Each
FP314A	40-40-200	150-150-25	m	1.63	WP326.8A	4-100-40	350-25-25	f	1.35	FP342.5	30-15-40	450-350-25	f	\$1.92
WP308.1A	40-40-250	150-150-25	m	1.89	FP327	40-100-25	350-50-25	f	1.92	FP342.7	30-40-50	450-350-25	c	2.22
FP309A	50-30-100	150-150-25	m	1.62	WP327.2A	20-50-100	350-100-75	g	1.98	FP342.8	30-60-100	450-350-200	l	3.51
FP311A	50-50-20	150-150-25	m	1.59	FP327.3A	60-200-30	350-150-150	g	2.82	FP343.1A	15-20-20	450-350-250	c	1.71
PFP-					FP327.35	10-150-200	350-200-75	g	2.52	FP343.2A	20-15-25	450-350-350	d	1.95
FP11.12A	70-30-20	150-150-25	b	1.63	FP327.4A	125-5-40	350-200-75	g	1.18	FP343.6A	20-40-10	450-350-350	f	2.10
FP311.05	80-40-200	150-150-25	b	1.78	FP327.5A	15-40-40	350-200-200	b	2.58	FP343.9	10-30-150	450-400-5	d	1.80
FP311.1A	80-40-25	150-150-25	b	1.65	FP327.6A	30-20-100	350-250-50	c	1.95	FP344.2	60-80-20	450-400-250	l	3.27
FP311.15A	80-40-300	150-150-25	f	2.22	FP313A	30-30-20	350-300-25	c	1.89	FP344.4	4-40-40	450-400-300	g	2.22
FP311.2A	20-20-20	150-150-150	l	1.38	FP327.8A	30-60-20	350-300-25	f	2.16	FP344.5	10-30-40	450-400-300	g	2.19
PFP311.3	30-26-20	150-150-150	b	1.52	FP327.89A	40-40-40	350-300-300	f	2.61	FP345.2	10-10-20	450-450-25	b	1.44
PFP-					WP327.89B	160-120-30	350-300-300	l	3.09	FP345.5	15-15-40	450-450-25	c	1.65
FP11.63A	30-50-40	150-150-150	b	1.67	PWP-					FP345.8	20-20-20	450-450-25	c	1.83
FP311.4A	40-20-20	150-150-150	l	1.44	327.95	20-20-1000	350-350-15	g	2.57	FP345.3	40-20-20	450-450-25	g	2.10
FP311.5A	40-40-40	150-150-150	m	1.56	FP328A	15-10-20	350-350-25	m	1.50	FP346	40-40-20	450-450-25	h	2.37
PFP311.51	40-60-40	150-150-150	b	1.70	FP329.1A	20-4-100	350-350-25	m	1.56	FP345.4	80-10-125	450-450-25	h	2.64
FP311.55A	50-20-20	150-150-150	m	1.53	FP329.5	20-20-20	350-350-25	b	1.68	FP36A	80-40-100	450-450-25	j	3.06
PFP311.62	50-30-20	150-150-150	b	1.59	FP330A	30-20-20	350-350-25	c	1.84	FP36A	10-10-40	450-450-50	b	1.47
FP311.6A	50-40-10	150-150-150	m	1.53	FP330.13A	200-10-50	350-350-25	l	3.06	FP36B	20-10-50	450-450-50	c	1.71
FP311.65A	50-50-50	150-150-150	b	1.80	FP330.15A	10-5-30	350-350-50	l	1.32	FP36B.5A	20-10-150	450-450-50	f	2.10
PFP311.65	60-60-40	150-150-150	f	2.03	FP330.2A	10-5-150	350-350-50	l	1.62	FP367A	35-25-100	450-450-50	g	2.37
FP326.45	60-60-80	150-150-150	c	1.75	FP330.23A	20-5-150	350-350-50	b	1.77	FP367.5	40-30-25	450-450-50	g	2.25
FP311.66A	70-15-15	150-150-150	m	1.62	FP330.23	80-40-40	350-350-50	h	3.39	FP368A	60-40-75	450-450-50	f	2.76
FP311.8A	70-40-40	150-150-150	b	1.74	FP330.22A	100-20-50	350-350-50	g	2.91	FP368.3A	20-20-100	450-450-50	f	2.88
FP311.67A	80-30-10	150-150-150	m	1.65	FP330.244	150-4-30	350-350-50	g	2.90	FP368.5	80-50-60	450-450-50	l	3.12
FP311.7	80-40-20	150-150-150	f	1.74	FP330.246	150-50-100	350-350-50	l	3.04	FP368.6A	30-30-125	450-450-75	g	2.70
FP311.71	80-40-20	150-150-150	b	1.67	FP330.25A	30-20-100	350-350-150	f	2.40	FP368.6BA	10-4-20	450-450-150	m	1.50
PWP-					FP330.248A	70-40-50	350-350-150	g	2.64	FP368.9	40-30-8	450-450-150	g	2.51
FP11.75A	80-60-20	150-150-150	c	1.78	FP330.24	125-20-20	350-350-150	h	2.85	FP369.1	40-40-40	450-450-150	h	2.49
FP311.54	120-80-20	150-150-150	c	1.90	FP330.29A	30-5-100	350-350-200	h	2.25	FP370A	40-10-80	450-450-200	g	2.34
FP311.85A	120-80-40	150-150-150	f	2.22	FP330.26A	100-60-20	350-350-200	h	3.30	FP375A	40-40-100	450-450-200	j	2.97
FP311.9A	120-120-40	150-150-150	f	2.43	FP330.27A	125-60-40	350-350-200	h	3.54	FP375.2A	15-10-120	450-450-300	h	2.70
FP311.95A	150-50-50	150-150-150	f	2.22	FP330.28A	100-60-100	350-350-200	h	3.36	FP375.6A	60-20-40	450-450-350	l	2.94
FP312.5A	200-100-80	150-150-150	g	2.73	FP330.3A	20-10-5	350-350-250	m	1.53	FP375.7	20-10-15	450-450-400	d	1.86
FP312.6A	300-100-80	150-150-150	g	2.97	PFP330.4	10-10-40	350-350-300	g	2.35	FP375.8	10-10-10	450-450-450	d	1.71
PWP313	80-100-40	150-150-150	d	1.42	FP330.5A	10-10-20	350-350-350	h	1.84	FP376.3	15-10-10	450-450-450	d	1.77
FP312.8A	60-200-140	200-150-150	g	2.85	FP330.6A	20-20-20	350-350-350	e	1.84	FP376.5	20-20-10	450-450-450	d	1.74
FP314.7	150-150-500	200-150-150	g	2.85	FP330.7A	30-20-10	350-350-350	c	1.95	FP376.5	20-20-20	450-450-450	d	2.16
FP318.1	60-5-200	200-200-50	d	1.80	PFP330.8A	40-40-40	350-350-350	c	2.64	FP376.6	30-10-10	450-450-450	f	1.89
FP318.1A	30-20-40	200-200-150	m	1.62	FP330.9A	60-60-50	350-350-350	h	2.94	FP376.7	30-30-30	450-450-450	h	2.67
FP318.5A	20-20-20	200-200-200	l	1.50	FP331.2	80-20-20	350-350-350	g	2.57	FP376.8	40-40-10	450-450-450	h	2.49
FP318.7A	30-20-20	200-200-200	m	1.62	FP331.3A	80-60-60	350-350-350	g	3.33	FP376.9	40-40-20	450-450-450	h	2.67
FP318.7A	40-40-20	200-200-200	f	1.77	FP331.6A	90-40-20	350-350-350	g	3.15	FP377.1	40-40-40	450-450-450	j	3.12
FP318.77	60-60-40	200-200-200	f	2.16	WP331.7A	100-40-5	350-350-350	g	2.82	FP377.2A	50-30-30	450-450-450	j	2.94
FP318.8A	250-200-10	200-200-200	h	4.02	FP331.76A	100-40-40	350-350-350	h	3.15	FP377.4A	60-10-10	450-450-450	g	2.34
FP318.85	250-200-50	200-200-200	l	3.56	FP331.8A	100-60-40	350-350-350	l	3.39	FP377.6	60-30-10	450-450-450	h	2.70
FP319A	80-40-50	250-150-50	f	1.98	FP332.4A	100-100-10	350-350-350	l	4.08	FP377.7	60-30-10	450-450-450	l	3.41
WP319.6A	60-5-100	250-250-50	b	1.80	WP332.4A	140-140-20	350-350-350	l	4.16	FP378	80-40-20	450-450-450	l	3.24
FP319.5A	90-90-20	250-250-50	f	2.76	FP332.5A	40-200-60	400-200-200	l	3.33	FP378.1	80-40-30	450-450-450	l	3.53
WP319.7	60-5-50	250-250-200	f	2.13	FP332.7A	10-4-40	400-350-25	l	1.32	FP378.4	80-40-60	450-450-450	l	3.68
FP319.8A	20-20-20	250-250-250	m	1.56	FP333	10-50-30	400-350-25	h	1.86	FP379.1A	20-50-20	475-50-25	c	1.68
FP320	40-20-20	250-250-250	f	1.74	FP333.05	10-10-20	400-350-25	h	2.99	FP381A	80-50-60	475-150-50	f	2.91
FP321A	40-40-20	250-250-250	b	1.74	FP333.08	10-4-4	400-350-150	b	1.43	FP382.1A	40-40-100	475-250-100	g	2.46
FP321.5	80-40-40	250-250-250	c	1.92	FP331.1	40-4-4	400-350-150	d	1.71	FP384	20-20-40	475-300-25	f	1.86
FP322A	80-80-60	250-250-250	f	2.94	PFP331.16	40-30-20	400-350-300	g	2.44	FP384.1A	30-100-50	475-300-50	h	2.46
FP323A	100-60-20	300-150-25	f	2.52	FP331.2A	80-40-100	400-400-60	j	3.00	FP384.12A	5-100-200	475-300-150	l	3.09
PWP-					FP331.3A	80-40-150	400-400-60	j	3.09	FP384.16	10-4-100	475-350-50	b	2.37
326.16A	10-20-10	300-150-150	l	1.47	FP331.15	100-20-20	400-400-60	h	2.88	FP384.2	10-4-40	475-350-300	f	1.80
FP326.2A	20-150-80	300-150-150	f	2.37	FP331.5A	20-10-40	400-400-350	k	2.04	FP384.35	20-10-5	475-350-350	c	1.71
FP326.3A	100-200-60	300-150-150	h	3.27	FP333.6	20-20-10	400-400-350	d	1.80	FP384.5	10-45-100	475-450-50	g	2.19
WP326.35A	20-100-100	300-200-50	d	1.95	FP333.7	60-30-20	400-400-350	h	2.73	FP384.7	40-40-25	475-450-50	h	2.64
FP326.61	80-200-10	300-200-300	h	2.97	FP333.8	80-20-10	400-400-350	h	2.58	FP385A	10-40-100	475-450-200	g	2.52
FP326.4A	60-30-30	300-250-250	f	2.25	FP333.85	100-10-80	400-400-350	l	3.66	FP385.5	40-80-10	475-450-450	l	3.30
FP335A	100-60-20	300-250-250	g	2.94	FP333.86	100-10-100	400-400-350	l	4.04	FP386	10-10-5	475-475-25	c	1.47
FP336A	200-60-20	300-250-250	h	3.48	FP333.88	50-30-4	400-400-400	g	2.11	FP387.1	10-10-10	475-475-50	d	1.80
FP336.2A	60-10-25	300-300-25	f	2.07	FP333.89	80-60-4	400-400-400	j	3.63	FP388.1	25-10-20	475-475-50	d	1.77
FP336.5A	150-10-25	300-300-25	f	2.37	FP333.9	90-10-5	400-400-400	g	2.64	FP389.1A	20-10-100	475-475-400	l	3.15
FP336.5A	20-20-50	300-300-50	g	1.62	FP333.95	100-30-20	400-400-400	l	3.30	FP391.1A	20-20-60	475-475-450	l	2.91
FP336.6A	100-10-60	300-300-50	f	2.43	WP334.6A	20-500-500	450-25-25	g	3.21	FP394	10-10-10	475-475-475	d	1.62
FP327A	140-100-60	300-300-50	h	3.57	FP342	40-40-130	450-150-50	g	2.22	FP396	30-30-20	475-475-475	h	2.67
WP327A	140-100-100	300-300-50	h	3.36	FP343A	40-100-60	450-150-50	g	2.37	FP396.2	40-10-10	475-475-475	g	2.31
					WP339.5A	10-50-100	450-150-75	c	1.95	FP396.1	40-20-20	475-475-475	h	2.85
FP326.74A	140-10-200	300-300-15												



## FP-WP AND PFP-PWP—QUADS (CONTINUED)

Mallory No.	Capacity, $\mu$ F	WVDC	*	Net Each	Mallory No.	Capacity, $\mu$ F	WVDC	*	Net Each
FP417.2A	20-150-150-100	300-150-150-300	g	53.09	FP413X	40-40-40-20	450-300-300-150	h	\$2.94
FP417.3A	10-200-140-30	300-150-150-150	g	3.06	FP423.9	10-100-20-20	450-300-300-300	h	3.15
FP417.8A	10-200-200-30	300-150-150-150	h	3.21	FP423.4	10-40-100-100	450-350-350-50	h	3.33
FP417.9A	100-60-10-20	300-200-150-50	g	2.91	WP423.5	10-140-100-20	450-350-300-300	h	3.87
FP419A	200-20-100-20	300-250-50-25	h	3.48	FP424.1	10-100-10-20	450-350-350-25	h	3.12
FP423	40-40-40-40	300-250-250-25	g	2.64	FP424.3A	20-80-50-100	450-350-350-50	j	3.60
FP419.11	60-5-50-20	300-300-50-50	f	2.16	FP425	30-40-40-10	450-350-350-200	h	3.09
FP418.7A	140-10-10-100	300-300-150-50	g	2.97	FP425.6	40-100-20-10	450-350-350-350	j	3.84
FP419.4A	100-10-200-30	300-300-150-150	h	3.54	FP425.1A	80-10-40-30	450-400-300-300	j	3.48
FP419.1A	200-20-10-250	300-300-250-50	h	3.63	FP426	20-15-20-20	450-450-25-25	f	2.07
FP419.2A	40-30-20-50	300-300-300-25	f	2.49	FP426.2	80-40-100-100	450-450-25-25	j	3.48
FP419.7A	60-40-20-50	300-300-300-25	f	2.73	FP426.5	20-20-60-100	450-450-150-25	g	2.55
FP419.35A	60-30-10-60	300-300-300-50	h	2.52	FP426.9A	40-40-125-125	450-450-150-25	j	3.42
FP419.37A	150-30-30-150	300-300-300-50	h	3.66	FP427.5A	10-10-60-100	450-450-200-50	f	2.31
FP419.42A	20-20-20-100	300-300-300-150	f	2.41	FP427.6A	35-25-20-100	450-450-200-50	f	2.79
WP419.39A	80-20-20-200	300-300-300-150	h	3.12	FP427.65A	40-40-100-60	450-450-200-200	j	3.63
FP419.45	120-10-40-10	300-300-300-250	f	3.63	FP427.7	80-50-20-50	450-450-250-50	j	3.58
FP419.53A	60-40-10-10	300-300-300-300	f	2.23	FP427.69	30-20-100-40	450-450-250-150	f	3.39
FP419.55A	150-100-10-10	300-300-300-300	g	3.96	FP427.7	10-10-10-50	450-450-300-25	f	1.89
WP419.554	150-100-30-10	300-300-300-300	j	3.69	FP427.9A	20-20-20-10	450-450-350-350	g	2.49
WP419.52	150-150-30-30	300-300-300-300	f	4.17	FP428	40-10-35-10	450-450-350-350	h	2.76
FP419.54A	200-20-20-20	300-300-300-300	j	3.87	FP428.4A	40-40-30-30	450-450-350-350	f	3.54
FP419.56	60-60-30-160	350-150-150-25	h	2.76	FP424	15-15-10-20	450-450-450-25	j	2.10
FP419.58	20-60-160-40	350-200-25-25	g	2.40	FP428.9	30-30-10-125	450-450-450-25	h	2.58
FP414	15-80-40-200	350-200-200-25	f	2.70	FP432A	40-10-10-250	450-450-450-25	g	2.82
FP418.3	120-20-100-20	350-250-50-25	f	3.03	FP431	40-15-10-25	450-450-450-25	g	2.46
WP419.585A	50-60-5-100	350-250-250-50	f	2.58	FP430.2	40-20-20-25	450-450-450-25	h	2.76
FP419.59A	160-30-30-20	350-300-300-50	j	3.54	FP436	40-20-20-40	450-450-450-25	h	2.79
FP419.51	40-80-10-10	350-300-300-300	g	2.72	FP429	40-30-10-20	450-450-450-25	h	2.70
FP419.514	160-100-20-20	350-300-300-300	n	3.88	FP429.2	40-40-30-100	450-450-480-25	j	3.21
FP419.65A	160-60-10-10	350-300-300-300	j	2.84	FP430.6A	40-40-40-40	450-450-450-25	j	3.30
FP419.6	40-10-100-25	350-350-25-25	f	2.55	FP430.9	60-40-10-10	450-450-450-25	j	3.60
FP419.62A	60-4-100-40	350-350-25-25	f	2.28	FP430.95A	60-50-5-20	450-450-450-25	j	3.21
FP419.61	100-4-50-50	350-350-50-25	h	3.03	FP430.97	20-20-20-20	450-450-450-50	g	2.49
FP419.63A	200-10-4-20	350-350-50-25	j	3.36	FP437	20-20-20-100	450-450-450-50	g	2.73
FP419.635	40-40-50-50	350-350-50-50	h	2.52	FP431.2	40-40-10-25	450-450-450-50	h	2.82
FP419.64	40-20-50-25	350-350-150-25	g	2.49	FP431.3A	40-40-10-50	450-450-450-50	h	2.13
FP419.649A	40-20-100-100	350-350-200-50	f	2.70	FP431.35	40-40-20-40	450-450-450-50	h	3.03
FP419.67A	100-60-60-40	350-350-200-75	j	3.93	FP431.4A	60-40-10-25	450-450-450-50	j	3.15
FP419.661	100-60-10-100	350-350-200-150	i	3.43	FP431.7A	40-40-10-100	450-450-450-100	j	3.18
FP419.66A	60-40-60-20	350-350-250-150	g	3.24	FP433	60-10-10-20	450-450-450-150	h	2.76
FP419.68	15-15-15-15	350-350-300-25	f	2.07	FP432.4A	40-40-30-10	450-450-450-200	j	3.21
FP419.8	35-35-10-20	350-350-300-25	g	2.49	FP432.8	35-35-15-25	450-450-450-250	h	2.91
FP419.82	20-10-5-10	350-350-350-25	f	1.86	FP432.9A	40-20-10-100	450-450-450-250	j	3.51
FP419.84	30-10-5-200	350-350-350-25	f	2.28	FP450.2	80-50-10-20	450-450-450-300	i	3.67
FP419.86A	40-20-5-10	350-350-350-25	f	2.28	FP433.2	40-10-10-40	450-450-450-350	h	2.85
FP419.87	40-20-20-50	350-350-350-25	g	2.55	FP433.4	40-20-20-20	450-450-450-350	h	3.00
FP419.88A	40-30-15-30	350-350-350-25	g	2.70	WP433.6	5-5-5-5	450-450-450-450	f	1.80
FP419.3A	40-40-20-20	350-350-350-25	g	2.79	FP434	10-10-10-10	450-450-450-450	f	2.22
FP419.895	10-150-100-100	350-350-350-50	f	4.08	FP434.5	20-20-10-10	450-450-450-450	f	2.82
FP419.9	15-15-15-50	350-350-350-50	f	2.25	FP444	20-20-20-20	450-450-450-450	g	2.67
PFP420.17A	40-20-10-100	350-350-350-50	f	2.45	FP444.4A	30-15-15-15	450-450-450-450	g	2.76
FP420.15A	70-40-10-50	350-350-350-50	g	3.15	FP444.5	30-20-10-10	450-450-450-450	h	2.67
FP420.2A	50-40-40-160	350-350-350-50	h	3.45	FP444.6	30-30-15-10	450-450-450-450	h	2.82
FP420.23A	100-10-10-20	350-350-350-50	g	3.09	FP444.8	30-30-20-10	450-450-450-450	h	3.12
FP419.89	30-30-10-40	350-350-350-50	h	2.94	FP444.9	30-30-30-15	450-450-450-450	i	3.18
WP420.25A	100-40-4-100	350-350-350-50	h	3.09	FP444.54	40-20-20-4	450-450-450-450	h	2.79
FP420.26A	100-40-30-50	350-350-350-50	h	3.93	FP444.95	40-20-20-20	450-450-450-450	h	3.06
FP420.273	100-100-60-100	350-350-350-50	h	4.08	FP445	35-35-10-5	450-450-450-450	h	2.76
FP420.276	120-20-10-50	350-350-350-50	h	3.00	FP446	40-35-10-10	450-450-450-450	h	2.88
FP420.28A	140-20-10-100	350-350-350-50	h	3.63	FP447A	40-40-20-20	450-450-450-450	j	3.33
FP420.29A	60-30-5-100	350-350-350-75	h	3.54	FP447.5	40-40-30-30	450-450-450-450	i	3.63
FP420.31A	100-80-10-20	350-350-350-150	f	3.42	WP447.7	40-40-40-40	450-450-450-450	j	3.78
FP420.32A	20-10-5-60	350-350-350-200	f	2.13	FP448A	60-20-20-20	450-450-450-450	j	3.36
FP420.33A	30-10-5-100	350-350-350-200	f	2.64	FP448.5	60-30-10-2	450-450-450-450	j	3.09
WP420.34	40-40-40-40	350-350-350-300	h	3.00	FP449	70-10-10-5	450-450-450-450	h	2.85
FP420.35A	40-20-20-10	350-350-350-350	f	2.61	FP450A	80-10-10-10	450-450-450-450	j	3.03
FP420.36A	40-40-30-20	350-350-350-350	g	2.82	FP450.08	80-40-20-10	450-450-450-450	f	3.66
FP420.38A	40-40-40-40	350-350-350-350	h	3.60	FP450.16	80-40-20-20	450-450-450-450	i	3.79
FP420.4A	80-60-40-20	350-350-350-350	j	3.84	FP450.5	40-40-50-80	475-250-150-50	h	3.00
FP420.405A	20-10-20-15	350-350-350-350	g	2.85	FP451A	10-100-10-100	475-300-300-25	g	2.94
FP420.39A	100-40-25-25	350-350-350-350	j	4.20	FP451.3A	10-140-4-100	475-300-300-50	j	3.18
FP420.407	80-80-4-100	400-200-150-50	j	3.04	FP452	20-80-20-10	475-300-300-300	h	3.00
FP420.41A	40-120-10-150	400-250-250-50	j	3.48	FP452.5	10-20-100-50	475-350-25-25	f	2.07
FP420.44A	30-40-50-200	400-300-250-150	j	3.60	FP453A	20-40-80-100	475-350-200-100	h	3.27
FP420.43	80-80-100-100	400-350-25-25	j	3.78	FP453.4A	10-40-80-100	475-350-300-100	h	3.33
FP420.438	10-4-4-20	400-350-150-25	f	2.26	FP453.8A	10-30-5-80	475-350-350-50	f	2.22
PFP420.439	40-100-5-100	400-350-150-50	j	3.18	FP454A	10-130-20-10	475-350-350-350	j	3.54
FP420.45A	40-80-100-25	400-350-200-50	j	3.63	FP454.2	20-60-40-10	475-350-350-350	h	3.12
FP420.46A	80-40-20-20	400-350-300-300	j	3.48	FP454.6	10-40-4-100	475-400-400-50	g	2.43
FP420.47	20-50-40-80	400-350-350-50	h	3.00	FP454.8A	10-80-40-100	475-400-400-50	g	2.48
FP420.5A	30-60-20-100	400-350-350-50	j	3.00	FP455.5	25-20-20-100	475-450-300-50	k	2.48
PFP420.52	40-30-20-20	400-350-350-350	h	2.80	FP456	25-20-10-100	475-450-300-50	h	2.97
FP420.51	20-20-50-50	400-400-15-15	f	2.04	FP456.5A	10-60-30-125	475-450-400-50	j	3.33
FP420.53	20-5-20-20	400-400-25-25	f	1.83	FP457	10-50-30-30	475-450-450-25	h	2.85
FP420.54	80-50-25-25	400-400-25-25	h	3.21	FP457.5	10-40-10-20	475-450-450-50	g	2.37
FP420.56A	50-25-100-20	400-400-50-25	g	2.79	FP459	10-40-10-100	475-450-450-50	g	2.58
FP420.6A	80-10-100-20	400-400-50-25	j	3.36	FP460	80-4-4-4	475-450-450-450	j	3.09
FP420.7	100-10-30-20	400-400-50-50	h	3.06	FP461A	15-15-80-40	475-475-300-50	g	2.88
FP420.8	20-10-10-25	400-400-100-25	f	1.86	FP463A	50-30-20-20	475-475-300-300	j	3.42
WP420.9A	20-20-100-100	400-400-100-100	g	3.15	FP464.9	40-10-4-40	475-475-300-300	h	2.97
FP420.95	80-40-100-100	400-400-20-100	j	3.63	FP467	20-10-20-100	475-475-450-25	g	2.52
FP420.97	40-40-40-100	400-400-300-50	h	3.27	FP47A	10-10-10-10	475-475-475-475	g	2.10
FP421	5-5-50-50	400-400-300-250	h	2.79	FP474	20-20-10-10	475-475-475-475	h	2.61



# CORNING Glass Capacitors

## TYPE TYO GLASS CAPACITORS

Upright flush mounting in printed circuits with minimum rocking; or, point-to-point wiring. Glass dielectric and foil fused to form single element with high stability. Gold plated 1/4" leads spaced 0.1". General performance to MIL-C-11272B. WVDC: 300 V, -55° C to +125° C. Temperature Coefficient: +140 (±25) ppm/° C at 100 kc. Varies from +115 ppm/° C at -55° C to +165 ppm/° C at +125° C. Maximum deviation at any temperature, 5 ppm. Drift less than 0.1% or 0.1 pF, whichever is greater. Tolerance: Suffix J, ±5%; M, ±20% and C, ±0.25 pF. Available in ±10%, ±2% and ±1% on request.

### TYPE TYO6

Size: .300" lg. x .200" w. x .115" thk. Weight, 0.3-0.4 gram.

Corn. No. TYO6-	Cap., pF	Net Each, Lots of				
		1-49	50-99	100-249	250-499	500-999
1R0C	1.0	\$3.75	\$3.44	\$2.65	\$2.50	\$1.88
1R5C	1.5	3.75	3.44	2.65	2.50	1.88
2R2C	2.2	3.75	3.44	2.65	2.50	1.88
2R7C	2.7	3.60	3.30	2.54	2.40	1.80
3R0C	3.0	3.60	3.30	2.54	2.40	1.80
3R3C	3.3	3.60	3.30	2.54	2.40	1.80
3R6C	3.6	3.60	3.30	2.54	2.40	1.80
3R9C	3.9	3.60	3.30	2.54	2.40	1.80
4R3C	4.3	3.60	3.30	2.54	2.40	1.80
4R7C	4.7	3.45	3.16	2.44	2.30	1.73
5R1J	5.1	3.10	2.83	2.18	2.06	1.55
5R6J	5.6	3.10	2.83	2.18	2.06	1.55
6R2J	6.2	3.10	2.83	2.18	2.06	1.55
6R8J	6.8	3.10	2.83	2.18	2.06	1.55
7R5J	7.5	3.00	2.75	2.12	2.00	1.50
8R2J	8.2	3.00	2.75	2.12	2.00	1.50
9R1J	9.1	3.00	2.75	2.12	2.00	1.50
100J	10	3.00	2.75	2.12	2.00	1.50
100M	10	.80	.70	.60	.57	.49
110J	11	3.00	2.75	2.12	2.00	1.50
110M	11	.80	.70	.60	.57	.49
120J	12	1.29	1.18	.92	.86	.65
120M	12	.80	.70	.60	.57	.49
130J	13	1.29	1.18	.92	.86	.65
130M	13	.80	.70	.60	.57	.49
150J	15	1.29	1.18	.92	.86	.65
150M	15	.80	.70	.60	.57	.49
160J	16	1.29	1.18	.92	.86	.65
160M	16	.80	.70	.60	.57	.49
180J	18	1.29	1.18	.92	.86	.65
180M	18	.80	.70	.60	.57	.49
200J	20	1.29	1.18	.92	.86	.65
200M	20	.80	.70	.60	.57	.49
220J	22	1.29	1.18	.92	.86	.65
220M	22	.80	.70	.60	.57	.49
240J	24	1.29	1.18	.92	.86	.65
240M	24	.80	.70	.60	.57	.49
270J	27	1.29	1.18	.92	.86	.65
270M	27	.80	.70	.60	.57	.49
300J	30	1.29	1.18	.92	.86	.65
300M	30	.80	.70	.60	.57	.49
330J	33	1.29	1.18	.92	.86	.65
330M	33	.80	.70	.60	.57	.49
360J	36	1.29	1.18	.92	.86	.65
360M	36	.80	.70	.60	.57	.49
390J	39	1.29	1.18	.92	.86	.65
390M	39	.80	.70	.60	.57	.49
430J	43	1.29	1.18	.92	.86	.65
430M	43	.80	.70	.60	.57	.49
470J	47	1.29	1.18	.92	.86	.65
470M	47	.80	.70	.60	.57	.49
510J	51	1.29	1.18	.92	.86	.65
510M	51	.80	.70	.60	.57	.49
560J	56	1.29	1.18	.92	.86	.65
560M	56	.80	.70	.60	.57	.49
620J	62	1.29	1.18	.92	.86	.65
620M	62	.80	.70	.60	.57	.49
680J	68	1.29	1.18	.92	.86	.65
680M	68	.80	.70	.60	.57	.49
750J	75	1.29	1.18	.92	.86	.65
750M	75	.80	.70	.60	.57	.49
820J	82	1.29	1.18	.92	.86	.65
820M	82	.80	.70	.60	.57	.49
910J	91	1.29	1.18	.92	.86	.65
910M	91	.80	.70	.60	.57	.49
101J	100	1.29	1.18	.92	.86	.65
101M	100	.80	.70	.60	.57	.49
110J	110	1.44	1.32	1.02	.96	.72
110M	110	.80	.70	.60	.57	.49
121J	120	1.44	1.32	1.02	.96	.72
121M	120	.80	.70	.60	.57	.49
131J	130	1.44	1.32	1.02	.96	.72
131M	130	.80	.70	.60	.57	.49
151J	150	1.44	1.32	1.02	.96	.72
151M	150	.80	.70	.60	.57	.49
161J	160	1.44	1.32	1.02	.96	.72
161M	160	.80	.70	.60	.57	.49
181J	180	1.44	1.32	1.02	.96	.72
181M	180	.80	.70	.60	.57	.49
201J	200	1.44	1.32	1.02	.96	.72
201M	200	.80	.70	.60	.57	.49
221J	220	1.44	1.32	1.02	.96	.72
221M	220	.80	.70	.60	.57	.49
241J	240	1.44	1.32	1.02	.96	.72
241M	240	.80	.70	.60	.57	.49
271J	270	1.44	1.32	1.02	.96	.72
271M	270	.80	.70	.60	.57	.49
301J	300	1.62	1.48	1.14	1.08	.80
301M	300	.80	.70	.60	.57	.49
331J	330	1.62	1.48	1.14	1.08	.80
331M	330	.80	.70	.60	.57	.49

### TYPE TYO6 (CONTINUED)

Corn. No. TYO6-	Cap., pF	Net Each, Lots of				
		1-49	50-99	100-249	250-499	500-999
361J	360	\$1.62	\$1.48	\$1.14	\$1.08	\$0.80
361M	360	.80	.70	.60	.57	.49
391J	390	1.62	1.48	1.14	1.08	.80
391M	390	.80	.70	.60	.57	.49
431J	430	1.62	1.48	1.14	1.08	.80
431M	430	.80	.70	.60	.57	.49
471J	470	1.62	1.48	1.14	1.08	.80
471M	470	.80	.70	.60	.57	.49
511J	510	1.62	1.48	1.14	1.08	.80
511M	510	.80	.70	.60	.57	.49

### TYPE TYO7

Use prefix TYO7-C; .300" lg. x .300" w. x .115" thk. Weight, 0.4-0.5 gram.

621J	620	\$1.68	\$1.54	\$1.19	\$1.12	\$0.84
621M	620	.80	.70	.60	.57	.49
681J	680	1.68	1.54	1.19	1.12	.84
681M	680	.80	.70	.60	.57	.49
751J	750	1.68	1.54	1.19	1.12	.84
751M	750	.80	.70	.60	.57	.49
821J	820	1.68	1.54	1.19	1.12	.84
821M	820	.80	.70	.60	.57	.49
911J	910	1.80	1.65	1.27	1.20	.90
911M	910	.80	.70	.60	.57	.49
1021J	1000	1.80	1.65	1.27	1.20	.90
1021M	1000	.80	.70	.60	.57	.49

### TYPE TYO8

Use prefix TYO8-; .500" lg. x .300" w. x .115" thk. Weight, 0.7-0.8 gram.

1100J	112	\$2.07	\$1.90	\$1.46	\$1.38	\$1.04
1200J	122	2.07	1.90	1.46	1.38	1.04
1300J	132	2.07	1.90	1.46	1.38	1.04
1400J	142	2.07	1.90	1.46	1.38	1.04
1500J	152	2.07	1.90	1.46	1.38	1.04
1600J	162	2.58	2.37	1.82	1.72	1.29
1800J	182	2.58	2.37	1.82	1.72	1.29
2000J	202	2.58	2.37	1.82	1.72	1.29
2200J	222	3.18	2.92	2.25	2.12	1.59
2400J	242	3.18	2.92	2.25	2.12	1.59
2700J	272	3.18	2.92	2.25	2.12	1.59

## CYFM GLASS CAPACITORS

Fusion-sealed, environment-proof capacitors have glass-to-metal seals at leads. Foil and glass element is frozen inside glass. Meet or exceed MIL-C-11272B requirements. Subjected to moisture resistance conditions of MIL-STD-202A, Method 106A for 1200 hours without failure or degradation. WVDC: 300 and 500 V, -55° C to +125° C. Temperature Coefficient: +140 (±25) ppm/° C at 100 kc. Varies from +115 ppm/° C at -55° C to +165 ppm/° C at +125° C. Max. deviation, 5 ppm. Drift less than 0.1% or 0.1 pF, whichever is greater. Tolerance: Standard, ±5% or ±0.25 pF, whichever is greater; ±10%, ±2% and ±1% on request.

### TYPE CYFM10

Size: 1/4" lg. x 1/4" w. x 1/4" thk.

No. CYFM-10C-	Cap., pF	Net Each, Lots of				
		1-49	50-99	100-249	250-499	500-999
0R5C†	0.5	\$3.78	\$3.47	\$2.67	\$2.52	\$1.89
1R0C†	1.0	3.78	3.47	2.67	2.52	1.89
1R5C†	1.5	3.78	3.47	2.67	2.52	1.89
2R2C†	2.2	3.78	3.47	2.67	2.52	1.89
2R7C†	2.7	3.63	3.33	2.57	2.42	1.82
3R0C†	3.0	3.63	3.33	2.57	2.42	1.82
3R3C†	3.3	3.63	3.33	2.57	2.42	1.82
3R6C†	3.6	3.63	3.33	2.57	2.42	1.82
3R9C†	3.9	3.63	3.33	2.57	2.42	1.82
4R3C†	4.3	3.63	3.33	2.57	2.42	1.82
4R7C†	4.7	3.63	3.33	2.57	2.42	1.82
5R1C†	5.1	3.63	3.33	2.57	2.42	1.82
5R6C†	5.6	3.63	3.33	2.57	2.42	1.82
6R2C†	6.2	3.63	3.33	2.57	2.42	1.82
6R8C†	6.8	3.63	3.33	2.57	2.42	1.82
7R5C†	7.5	3.63	3.33	2.57	2.42	1.82
8R2C†	8.2	3.63	3.33	2.57	2.42	1.82
9R1C†	9.1	3.63	3.33	2.57	2.42	1.82
100C†	10	3.63	3.33	2.57	2.42	1.82
110C†	11	3.63	3.33	2.57	2.42	1.82
120C†	12	3.63	3.33	2.57	2.42	1.82
130J	13	1.20	1.10	.85	.80	.60
150J	15	1.20	1.10	.85	.80	.60
160J	16	1.20	1.10	.85	.80	.60
180J	18	1.20	1.10	.85	.80	.60

## TYPE CYFM10 (CONTINUED)

No. CYFM-10C-	Cap., pF	Net Each, Lots of				
		1-49	50-99	100-249	250-499	500-999
200J	20	\$1.20	\$1.10	\$0.85	\$0.80	\$0.60
220J	22	1.20	1.10	.85	.80	.60
240J	24	1.20	1.10	.85	.80	.60
270J	27	1.20	1.10	.85	.80	.60
300J	30	1.20	1.10	.85	.80	.60
330J	33	1.20	1.10	.85	.80	.60
360J	36	1.35	1.24	.95	.90	.68
390J	39	1.35	1.24	.95	.90	.68
430J	43	1.35	1.24	.95	.90	.68
470J	47	1.35	1.24	.95	.90	.68
510J	51	1.35	1.24	.95	.90	.68
560J	56	1.35	1.24	.95	.90	.68
620J	62	1.35	1.24	.95	.90	.68
680J	68	1.35	1.24	.95	.90	.68
750J	75	1.35	1.24	.95	.90	.68
820J	82	1.35	1.24	.95	.90	.68
910J	91	2.16	1.98	1.53	1.44	1.08
101J	101	2.16	1.98	1.53	1.44	1.08
111J	110	2.16				





BLUE BEAVER® TUBULAR ELECTROLYTIC CAPACITORS

Hermetically sealed in aluminum cases with cardboard insulating sleeve. Negative terminal grounded to can. Temperature range to 85° C below 500 VDC; units, 600 VDC and above, to 65° C. Etched cathode to 150 V. With rubber-Bakelite® hermetic seal; seal provided with rubber safety vent for units over 1/2" dia. ®Registered Bakelite Corp. trademark.

CDE Number	Cap., µf	WVDC	Net Each, Lots of*				
			1-24	25-49	50-99	100-499	500-999
BR 40-150	40	150	\$0.81	\$0.58	\$0.45	\$0.36	\$0.31
BR 50-150	50	150	.84	.59	.46	.37	.32
BR 25-6	25	6	.90	.63	.49	.39	.34
BR 80-150	80	150	.96	.68	.54	.43	.37
BR 100-150	100	150	1.05	.74	.58	.46	.40
BR 150-150	150	150	1.14	.82	.63	.51	.44
BR 200-150	200	150	1.32	.98	.77	.62	.53
BR 250-150	250	150	1.53	1.17	.90	.73	.63
BR 300-150	300	150	1.77	1.35	1.04	.84	.72
BR 4-250	4	250	.60	.47	.37	.30	.26
BR 8-250	8	250	.69	.54	.41	.33	.29
BR 12-250	12	250	.75	.57	.44	.36	.31
BR 16-250	16	250	.78	.60	.47	.38	.32
BR 20-250	20	250	.81	.64	.49	.40	.34
BR 30-250	30	250	.87	.68	.53	.42	.37
BR 40-250	40	250	.93	.73	.57	.46	.39
BR 50-250	50	250	1.02	.80	.62	.50	.43
BR 60-250	60	250	1.08	.84	.65	.52	.44
BR 100-250	100	250	1.47	.96	.75	.60	.52
BR 150-250	150	250	1.89	1.12	.87	.70	.60
BR 200-250	200	250	2.10	1.28	1.00	.80	.69
BR 4-350	4	350	.63	.47	.38	.30	.26
BR 8-350	8	350	.72	.55	.43	.34	.30
BR 12-350	12	350	.78	.60	.47	.38	.32
BR 16-350	16	350	.84	.66	.51	.41	.35
BR 20-350	20	350	.87	.68	.52	.42	.36
BR 30-350	30	350	.99	.77	.60	.48	.41
BR 40-350	40	350	1.05	.81	.62	.51	.43
BR 50-350	50	350	1.11	.87	.68	.54	.47
BR 60-350	60	350	1.17	.91	.71	.57	.49
BR 80-350	80	350	1.26	.98	.78	.63	.54
BR 100-350	100	350	1.53	1.11	.86	.69	.60
BR 150-350	150	350	2.37	1.36	1.05	.85	.73
BR 200-350	200	350	2.70	1.72	1.34	1.11	.92
BR 1-450	1	450	.66	.51	.39	.32	.27
BR 2-450	2	450	.66	.52	.40	.32	.28
BR 4-450	4	450	.65	.53	.42	.34	.29
BR 8-450	8	450	.75	.59	.46	.37	.32
BR 10-450	10	450	.78	.62	.47	.38	.32
BR 12-450	12	450	.81	.64	.50	.40	.34
BR 16-450	16	450	.84	.65	.53	.42	.36
BR 20-450	20	450	.93	.73	.56	.45	.39
BR 30-450	30	450	1.02	.80	.62	.50	.43
BR 40-450	40	450	1.08	.83	.64	.52	.45
BR 50-450	50	450	1.26	.97	.75	.61	.57
BR 60-450	60	450	1.41	1.08	.83	.67	.58
BR 80-450	80	450	1.68	1.28	.99	.79	.68
BR 100-450	100	450	1.92	1.48	1.15	.92	.80
BR 150-450	150	450	2.85	2.00	1.55	1.27	1.07
BR 200-450	200	450	3.00	2.50	1.95	1.56	1.34
BR 4-500	4	500	.72	.56	.43	.35	.30
BR 8-500	8	500	.78	.61	.47	.38	.33
BR 12-500	12	500	.84	.66	.51	.41	.35
BR 16-500	16	500	.90	.70	.54	.43	.38
BR 20-500	20	500	.96	.74	.60	.47	.40
BR 30-500	30	500	1.05	.82	.64	.52	.45
BR 4-600	4	600	1.35	1.03	.80	.64	.55
BR 8-600	8	600	1.38	1.08	.84	.67	.58
BR 10-600	10	600	1.47	1.12	.87	.69	.60
BR 12-600	12	600	1.65	1.24	.96	.78	.67
BR 16-600	16	600	1.89	1.52	1.18	.94	.81
BR 20-600	20	600	2.10	1.72	1.34	1.08	.93
BR 8-700	8	700	1.47	1.12	.87	.69	.60
BR 10-700	10	700	1.53	1.17	.91	.73	.63
BR 12-700	12	700	1.71	1.30	1.01	.80	.70
BR 16-700	16	700	2.10	1.68	1.30	1.05	.90

CDE Number	Cap., µf	WVDC	Net Each, Lots of*				
			1-24	25-49	50-99	100-499	500-999
BBR 25-3	25	3	\$0.51	\$0.36	\$0.28	\$0.23	\$0.19
BBR 50-3	50	3	.57	.40	.31	.25	.21
BBR 5-6	5	6	.48	.35	.27	.22	.19
BBR 25-6	25	6	.51	.37	.29	.23	.20
BBR 50-6	50	6	.57	.41	.32	.26	.22
BR 100-6	100	6	.72	.50	.39	.31	.27
BR 250-6	250	6	.81	.64	.50	.40	.34
BR 500-6	500	6	.93	.73	.57	.45	.39
BR 1000-6	1000	6	1.14	.89	.69	.55	.48
BR 2000-6	2000	6	1.38	1.04	.84	.67	.58
BR 3000-6	3000	6	1.71	1.35	1.04	.84	.72
BR 4000-6	4000	6	1.95	1.54	1.20	.95	.82
BR 100-12	100	12	.72	.51	.40	.32	.27
BR 250-12	250	12	.87	.68	.53	.43	.37
BR 500-12	500	12	1.02	.79	.62	.49	.42
BR 1000-12	1000	12	1.35	1.06	.82	.66	.57
BR 2000-12	2000	12	1.59	1.25	.97	.78	.67
BR 100-15	100	15	.75	.52	.41	.33	.28
BR 250-15	250	15	.93	.73	.57	.46	.40
BR 500-15	500	15	1.05	.82	.64	.51	.44
BR 1000-15	1000	15	1.38	1.07	.83	.67	.58
BR 2000-15	2000	15	1.92	1.26	.97	.78	.68
BR 3000-15	3000	15	2.37	1.82	1.42	1.14	.98
BR 4000-15	4000	15	2.91	2.25	1.75	1.40	1.20
BR 5000-15	5000	15	3.15	2.45	1.91	1.53	1.31
BBR 10-25	10	25	.60	.42	.33	.26	.23
BBR 20-25	20	25	.60	.43	.34	.27	.23
BBR 25-25	25	25	.60	.44	.35	.28	.24
BR 50-25	50	25	.66	.47	.37	.30	.25
BR 100-25	100	25	.81	.57	.45	.36	.31
BR 250-25	250	25	1.02	.79	.62	.49	.42
BR 500-25	500	25	1.38	1.07	.83	.67	.57
BR 1000-25	1000	25	2.37	1.82	1.42	1.14	.98
BR 2000-25	2000	25	2.91	2.25	1.76	1.41	1.21
BBR 1-50	1	50	.54	.39	.31	.24	.21
BBR 2-50	2	50	.54	.39	.31	.24	.21
BBR 4-50	4	50	.60	.42	.32	.26	.22
BBR 5-50	5	50	.60	.42	.32	.26	.22
BBR 10-50	10	50	.60	.42	.33	.27	.23
BR 25-50	25	50	.63	.44	.35	.28	.24
BR 50-50	50	50	.72	.51	.40	.32	.28
BR 100-50	100	50	.84	.59	.46	.37	.32
BR 150-50	150	50	.93	.68	.51	.41	.36
BR 250-50	250	50	1.05	.87	.64	.51	.44
BR 500-50	500	50	1.44	1.11	.86	.69	.59
BR 1000-50	1000	50	2.52	1.93	1.49	1.20	1.03
BR 1500-50	1500	50	3.00	2.26	1.76	1.41	1.26
BR 2000-50	2000	50	3.48	2.60	2.02	1.61	1.38
BBR 4-150	4	150	.60	.43	.33	.27	.23
BBR 8-150	8	150	.63	.45	.34	.28	.24
BBR 10-150	10	150	.63	.46	.35	.29	.25
BBR 12-150	12	150	.66	.42	.36	.29	.25
BBR 16-150	16	150	.69	.49	.38	.31	.26
BBR 20-150	20	150	.72	.50	.39	.31	.27
BR 25-150	25	150	.75	.53	.41	.33	.29
BR 30-150	30	150	.78	.55	.43	.34	.30

NON-POLARIZED CAPACITORS

Suitable for use when no DC polarizing voltage is present. Physically similar to type BBR. Note: First figures in CDE number indicate capacitance in microfarads. Second figures indicate Working Volts NP.

CDE No. BRNP-	Net Each, Lots of*				
	1-24	25-49	50-99	100-499	500-999
1000-3	\$1.29	\$0.92	\$0.77	\$0.62	\$0.53
4-10	.75	.51	.40	.30	.26
8-10	.75	.54	.42	.33	.28
170-10	.81	.56	.44	.35	.30
500-10	1.20	.91	.75	.56	.44
5-15	.75	.51	.40	.30	.26
68-25	.75	.51	.40	.30	.26
4-25	.75	.51	.40	.30	.26
20-30	.75	.51	.40	.30	.26
4-50	.75	.51	.40	.30	.26
5-400	.81	.56	.42	.33	.28
10-400	.93	.71	.57	.43	.38
20-400	1.20	.91	.75	.60	.46

WIDE-RANGE ELECTROLYTIC

Cardboard-sleeved capacitor provides exact replacement for eight standard 150-volt capacitors found in home receivers. Additionally covers replacement of many single and dual units, within its ratings. Designed especially for printed board use. Principal Capacitances: 50-30 µf, 70-30 µf, 75-30 µf, 60-40 µf, 80-40 µf, 50-50 µf, 70-50 µf and 80-50 µf. Size: 1" dia. x 2 1/4" lg. case; lugs extend 1/4".

CDE No. E55-7515—Net...\$1.20



BLUE BEAVER® MULTI-SECTION CAPACITORS

Features construction similar to BBR, cardboard insulated; combination vent and hermetic seal; vinyl-insulated 7' leads; mounting strap standard. Operation temperature up to 85° C. Sizes range from 1/4" dia. x 1 1/4" long to 1 1/2" dia. x 4 1/4" long.

BBRQ—QUADRUPLE COMMON NEGATIVE

CDE No. BBRQ-	Cap. µf	WVDC	Net Each, Lots of*				
			1-24	25-49	50-99	100-499	500-999
111145	10-10-10-10	450	\$1.92	\$1.67	\$1.28	\$1.02	\$0.98
222245	20-20-20-20	450	2.70	2.12	1.61	1.29	1.24
0125	20-20-20-10	450	2.55	2.00	1.52	1.22	1.18
0170.5	40-20-20-10	450	3.22	2.20	1.68	1.34	1.29
0174	40-40-20-10	450	3.27	2.50	1.89	1.51	1.46
33215C	30-30-20, 20	150, 25	1.74	1.49	1.14	.91	.88
42215C	40-40-20, 20	150, 25	1.71	1.49	1.14	.91	.88
44315C	40-40-30, 20	150, 25	1.80	1.55	1.18	.94	.91
53215C	50-30-20, 20	150, 25	1.83	1.55	1.17	.93	.90
55515C	50-50-50, 20	150, 25	2.09	1.60	1.24	.94	.90
0789.4	140-5, 200-30, 300, 150		2.09	1.60	1.24	.94	.90
0385	120-40-40, 10, 300, 250		2.09	1.60	1.24	.94	.90
22245C	20-20-20, 20	450, 25	4.43	3.96	3.18	2.59	2.40
0500	10-10-10, 150, 450, 50		3.76	3.18	2.59	2.12	2.03
0695.3	10, 20-20-10	450, 350	3.10	2.74	2.33	1.96	1.92
0789.5	80-60, 40, 20	350, 300, 150	4.54	4.00	3.33	2.81	2.71
0925	140, 5,						





**CORNELL-DUBILIER**

# ELECTROLYTIC AND FILM CAPACITORS

## BLUE BEAVER® MULTI-SECTION CAPACITORS (CONT'D)

### BBRT—TRIPLE COMMON NEGATIVE

CDE No. BBRT-	Cap., $\mu$ F	WVDC	Net Each, Lots of*				
			1-24	25-49	50-99	100-499	500-999
22215	20-20-20	150	\$1.32	\$1.23	\$0.94	\$0.75	\$0.72
32V215	30-25-20	150	1.35	1.28	.87	.78	.76
33315	30-30-30	150	1.41	1.30	.99	.79	.76
42215	40-20-20	150	1.35	1.33	1.02	.81	.78
43215	40-30-20	150	1.41	1.30	.99	.79	.76
44215	40-40-20	150	1.41	1.31	1.00	.80	.77
44415	40-40-40	150	1.47	1.36	1.04	.83	.80
53215	50-30-20	150	1.47	1.31	1.00	.80	.77
84215	80-40-20	150	1.65	1.40	1.08	.86	.83
0126.5	150-150-150	150	2.85	2.30	1.75	1.40	1.35
0129	250-200-10	150	3.39	2.33	1.77	1.41	1.36
7V4125	75-40-10	250	2.07	1.59	1.22	.97	.94
1010425	100-100-40	250	2.64	1.90	1.48	1.26	1.01
0185	40-40-40	300	2.76	1.71	1.30	1.04	1.00
0196	120-40-10	300	2.91	2.18	1.68	1.33	1.28
0235	60-60-5	350	2.85	2.43	1.59	1.27	1.22
11145	10-10-10	450	1.47	1.43	1.40	1.12	1.08
16745	16-16-16	450	1.86	1.57	1.20	.96	.93
4415X25	40-40, 250	150, 10	1.56	1.39	1.06	.85	.82
5315X20	50-50, 200	150, 10	1.53	1.36	1.04	.83	.80
5515C	50-50, 20	150, 25	1.41	1.35	1.16	.93	.90
8415C	80-50, 20	150, 25	1.50	1.34	1.02	.82	.79
2215C	80-40, 20	150, 25	1.59	1.38	1.05	.84	.81
3215C10	30-20, 100	150, 25	1.41	1.30	.98	.79	.76
3315C	30-20, 20	150, 25	1.23	1.20	.93	.74	.71
3315C	30-30, 20	150, 25	1.32	1.24	.96	.76	.73
4215C	40-20, 20	150, 25	1.29	1.24	.96	.76	.73
4315C	40-30, 20	150, 25	1.32	1.28	.97	.78	.75
4415C	40-40, 20	150, 25	1.35	1.30	.99	.79	.76
5315C10	50-30, 100	150, 25	1.47	1.36	1.03	.83	.80
5315C25	50-30, 250	150, 25	1.86	1.48	1.13	.90	.87
8215C10	80-20, 100	150, 25	1.65	1.40	1.07	.85	.82
2225C	20-20, 20	250, 25	1.35	1.28	.98	.78	.76
4225C	40-20, 20	250, 25	1.53	1.36	1.04	.83	.80
4425C	40-40, 20	250, 25	1.74	1.44	1.09	.88	.85
0733	80-10, 100	300, 50	4.02	2.82	2.15	1.72	1.66
0878	140-5, 200	350, 200	2.43	1.88	1.44	1.15	1.11
2245C	20-20, 20	450, 25	1.74	1.51	1.15	.92	.89
0925	10-10, 100	450, 50	1.90	1.50	1.06	.85	.82
1238	5, 80-40	450, 400	2.73	2.38	1.82	1.45	1.40
1411	30, 50, 100	450, 150, 25	2.22	1.80	1.36	1.09	1.05

### BBRD—DUAL COMMON NEGATIVE

CDE No. BBRD-	Cap., $\mu$ F	WVDC	Net Each, Lots of*				
			1-24	25-49	50-99	100-499	500-999
2202	20-20	25	\$0.84	\$0.72	\$0.55	\$0.44	\$0.43
115	10-10	50	.84	.72	.55	.44	.43
2115	20-10	150	.93	.77	.58	.47	.46
2215	20-20	150	.99	.79	.60	.48	.47
3215	30-20	150	1.02	.82	.62	.50	.49
3315	30-30	150	1.08	.84	.64	.51	.49
4215	40-20	150	1.05	.84	.63	.51	.49
4315	40-30	150	1.08	.86	.65	.52	.50
4415	40-40	150	1.11	.87	.66	.53	.51
5315	50-30	150	1.17	.87	.67	.53	.51
5515	50-50	150	1.26	.87	.73	.59	.57
8415	80-40	150	1.35	.97	.77	.61	.59
8515	80-50	150	1.38	1.02	.78	.62	.60
0183.7	100-50	150	1.80	1.10	.83	.67	.65
0101015	100-100	150	1.92	1.20	.91	.73	.71
0196	200-5	200	2.10	1.31	1.00	.80	.77
8D25	8-8	250	.96	.74	.56	.45	.44
16825	16-8	250	1.02	.81	.61	.49	.47
16D25	16-16	250	1.08	.87	.66	.53	.51
2225	20-20	250	1.11	.92	.70	.56	.54
3325	30-30	250	1.15	1.02	.78	.62	.60
7V225	75-20	250	1.56	1.18	.90	.72	.69
0242	80-10	250	1.53	1.16	.88	.71	.69
0246	120-80	250	2.40	1.80	1.38	1.11	1.07
0286	150-100	300	3.15	2.40	1.84	1.47	1.42
0334	140-5	300	2.49	1.88	1.44	1.15	1.11
8D45	8-8	450	1.02	.81	.69	.55	.53
1145	16-10	450	1.17	.95	.72	.58	.56
16845	16-16	450	1.20	1.04	.78	.63	.61
16D45	16-16	450	1.35	1.12	.85	.68	.66
2245	20-20	450	1.50	1.23	.94	.75	.72
3345	30-30	450	1.80	1.50	1.14	.91	.88
4445	40-40	450	2.04	1.74	1.32	1.06	1.02
0576	60, 125	200, 50	1.95	1.14	.86	.69	.67
0646	20, 100	450, 25	1.32	1.10	.84	.67	.65
0652	40, 50	450, 50	1.80	1.32	1.00	.80	.77
0722	80, 100	450, 50	2.25	1.65	1.26	1.01	.97
0707	30, 50	450, 200	1.71	1.31	1.00	.80	.77

\*1000 Up Prices on Request.

### TYPE WMF MYLAR DIELECTRIC

Ultra-compact Mylar\* dielectric in Mylar film wrap; thermostating plastic end seals. High resistance to humidity. Excellent stability.

CDE No.	Cap., $\mu$ F	WVDC	Net Each, Lots of*				
			1-24	25-49	50-99	100-499	500-999
WMF1D1	.001	100	\$0.21	\$0.15	\$0.12	\$0.10	\$0.09
WMF1D12	.0012	100	.21	.15	.12	.10	.09
WMF1D15	.0015	100	.21	.15	.12	.10	.09
WMF1D18	.0018	100	.21	.15	.12	.10	.09
WMF1D22	.0022	100	.21	.15	.12	.10	.09
WMF1D27	.0027	100	.21	.15	.12	.10	.09
WMF1D33	.0033	100	.21	.15	.12	.10	.09
WMF1D39	.0039	100	.21	.15	.12	.10	.09
WMF1D47	.0047	100	.21	.15	.12	.10	.09
WMF1D5	.0050	100	.21	.15	.12	.10	.09
WMF1D56	.0050	100	.21	.15	.12	.10	.09
WMF1D68	.0068	100	.21	.15	.12	.10	.09
WMF1D82	.0082	100	.21	.15	.12	.10	.09
WMF1S1	.01	100	.21	.15	.12	.10	.09
WMF1S12	.012	100	.21	.15	.12	.10	.09
WMF1S15	.015	100	.21	.15	.12	.10	.09
WMF1S18	.018	100	.21	.15	.12	.10	.09
WMF1S22	.022	100	.24	.16	.13	.11	.09
WMF1S27	.027	100	.24	.16	.13	.11	.10
WMF1S33	.033	100	.24	.16	.13	.11	.10
WMF1S39	.039	100	.24	.16	.13	.11	.10
WMF1S47	.047	100	.27	.18	.14	.12	.10
WMF1S5	.050	100	.27	.18	.14	.12	.10
WMF1S6	.056	100	.27	.18	.14	.12	.10
WMF1S68	.068	100	.27	.18	.14	.12	.10
WMF1S82	.082	100	.36	.23	.18	.13	.11
WMF1P1	.1	100	.36	.23	.18	.13	.11
WMF1P12	.12	100	.36	.23	.18	.13	.11
WMF1P15	.15	100	.36	.23	.18	.13	.11
WMF1P18	.18	100	.36	.23	.18	.13	.11
WMF1P22	.22	100	.39	.26	.20	.14	.12
WMF1P27	.27	100	.39	.26	.20	.14	.12
WMF1P33	.33	100	.45	.29	.22	.17	.14
WMF1P39	.39	100	.45	.29	.22	.17	.14
WMF1P47	.47	100	.47	.30	.24	.20	.17
WMF1P5	.50	100	.54	.36	.28	.24	.20
WMF1P56	.56	100	.54	.36	.28	.24	.20
WMF1P68	.68	100	.57	.38	.30	.26	.22
WMF1P82	.82	100	.72	.48	.37	.32	.27
WMF1W1	1.0	100	.87	.56	.44	.38	.32
WMF1W1P25	1.25	100	1.05	.68	.53	.46	.38
WMF1W1P5	1.5	100	1.23	.81	.63	.54	.45
WMF1W2	2.0	100	1.50	.98	.76	.66	.55
WMF1W3	3.0	100	1.86	1.37	1.07	.92	.77
WMF1W4	4.0	100	2.34	1.62	1.26	1.08	.90
WMF2D1	.001	200	.21	.15	.12	.10	.09
WMF2D15	.0015	200	.21	.15	.12	.10	.09
WMF2D22	.0022	200	.21	.15	.12	.10	.09
WMF2D33	.0033	200	.21	.15	.12	.10	.09
WMF2D47	.0047	200	.21	.15	.12	.10	.09
WMF2D68	.0068	200	.21	.15	.12	.10	.09
WMF2S1	.01	200	.21	.15	.12	.10	.09
WMF2S15	.015	200	.21	.15	.12	.10	.09
WMF2S18	.018	200	.21	.15	.12	.10	.09
WMF2S22	.022	200	.24	.16	.13	.11	.09
WMF2S27	.027	200	.24	.16	.13	.11	.09
WMF2S33	.033	200	.24	.16	.13	.11	.09
WMF2S39	.039	200	.24	.16	.13	.11	.09
WMF2S47	.047	200	.27	.18	.14	.12	.10
WMF2S5	.050	200	.27	.18	.14	.12	.10
WMF2S6	.056	200	.27	.18	.14	.12	.10
WMF2S68	.068	200	.27	.18	.14	.12	.10
WMF2S82	.082	200	.36	.23	.18	.13	.11
WMF2P1	.1	200	.36	.23	.18	.13	.11
WMF2P12	.12	200	.36	.23	.18	.13	.11
WMF2P15	.15	200	.36	.23	.18	.13	.11
WMF2P22	.22	200	.39	.26	.20	.14	.12
WMF2P27	.27	200	.39	.26	.20	.14	.12
WMF2P33	.33	200	.45	.29	.22	.17	.14
WMF2P47	.47	200	.51	.33	.26	.21	.17
WMF2P68	.68	200	.57	.38	.30	.26	.22
WMF2W1	1.0	200	.87	.56	.44	.38	.32
WMF2W1P25	1.25	200	1.05	.68	.53	.46	.38
WMF2W1P5	1.5	200	1.23	.81	.63	.54	.45
WMF2W2	2.0	200	1.50	.98	.76	.66	.55
WMF4D1	.0015	400	.27	.18	.14	.13	.10
WMF4D15	.0015	400	.27	.18	.14	.13	.10
WMF4D22	.0022	400	.27	.18	.14	.13	.10
WMF4D33	.0033	400	.27	.18	.14	.13	.10
WMF4D47	.00						



# TRW (Formerly) Mylar Capacitors

## TYPE 663UW TUBULAR MYLAR CAPACITORS

Instrument quality capacitors for maximum space saving; tough, durable moisture-resistant plastic case. Conservatively rated for long life and reliable service. Can be produced to MIL-C-14157 and MIL-C-26244 reliability on special order. Dense thermosetting epoxy endfill bonds securely to lead and case. **Insulation Resistance:** Greater than 100,000 megohm- $\mu$ F, 25° C, but need not exceed 200,000 megohms. **Temperature Range:** -55° C to +85° C; up to +125° C with 50% derating. **Humidity Resistance:** Exceeds EIA RS 164, Para. 2.3.8 specification. **Dielectric Strength:** Two times rated voltage. **Life:** 250 hours at 85° C and 125% of rated voltage. **Tolerance:** Units shown,  $\pm 20\%$ . Available in  $\pm 10\%$ ,  $\pm 5\%$ ,  $\pm 2\%$  and  $\pm 1\%$ ; prices on request.

### 100 AND 200 WVDC

Cap., $\mu$ F	Net Each, Lots of		
	1-24	25-49	50-99*
.001	\$0.56	\$0.34	\$0.24
.0015	.56	.34	.24
.0022	.56	.34	.24
.0033	.56	.34	.24
.0047	.60	.34	.24
.0068	.60	.34	.24
.0082	.60	.34	.24
.01	.64	.34	.24
.015	.64	.34	.24
.022	.64	.34	.24
.033	.67	.40	.24
.047	.67	.40	.24
.068	.67	.40	.24
.082	.71	.43	.24
.1	.71	.43	.24
.15	.75	.45	.33
.22	.79	.46	.34
.27	.79	.46	.34
.33	.82	.49	.36
.47	.90	.54	.39
.68	.98	.59	.42
.82	1.01	.60	.44
1.0	1.09	.65	.47
2.0	1.43	.89	.62

### 400 WVDC

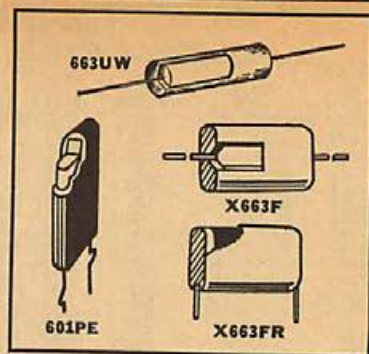
Cap., $\mu$ F	Net Each, Lots of		
	1-24	25-49	50-99*
.001	\$0.56	\$0.34	\$0.24
.0015	.56	.34	.24
.0022	.60	.36	.26
.0033	.60	.36	.26
.0047	.64	.38	.28
.0068	.64	.38	.28
.0082	.64	.38	.28
.01	.67	.40	.29
.015	.67	.40	.29
.022	.71	.43	.31
.033	.71	.43	.31
.047	.75	.45	.33
.068	.75	.45	.33
.082	.79	.49	.36
.1	.82	.49	.36
.15	.90	.54	.39
.22	.94	.56	.41
.27	.98	.58	.42
.33	1.09	.65	.47
.47	1.27	.76	.55
.68	1.46	.88	.64
.82	1.57	.95	.68
1.0	1.57	.95	.68
2.0	2.14	1.28	.93

### 600 WVDC

Cap., $\mu$ F	Net Each, Lots of		
	1-24	25-49	50-99*
.001	\$0.60	\$0.36	\$0.26
.0015	.60	.36	.26
.0022	.60	.36	.26
.0033	.60	.36	.26
.0047	.64	.38	.28
.0068	.64	.38	.28
.0082	.67	.40	.29
.01	.67	.40	.29
.015	.67	.40	.29
.022	.71	.43	.31
.033	.75	.45	.33
.047	.79	.46	.34
.068	.82	.49	.36
.082	.86	.52	.37
.1	.89	.54	.39
.15	.98	.59	.42
.22	1.05	.65	.47
.27	1.13	.67	.49
.33	1.24	.74	.54
.47	1.43	.85	.62
.68	1.65	.99	.72
.82	1.76	1.06	.77
1.0	1.95	1.17	.85
2.0	3.71	2.23	1.61

### 1000 WVDC

Cap., $\mu$ F	Net Each, Lots of		
	1-24	25-49	50-99*
.001	\$0.60	\$0.36	\$0.26
.0015	.64	.38	.28
.0022	.64	.38	.28
.0033	.67	.40	.29
.0047	.67	.40	.29
.0068	.71	.43	.31
.0082	.71	.43	.31
.01	.79	.46	.34
.015	.82	.49	.36
.022	.82	.49	.36
.033	.86	.52	.37
.047	.98	.58	.42
.068	1.01	.61	.44
.082	1.09	.65	.47
.1	1.09	.65	.47
.15	1.27	.76	.55
.22	1.50	.90	.65
.27	1.61	.97	.70
.33	1.72	1.03	.75
.47	2.10	1.26	.91
.68	2.18	1.31	.95
.82	2.32	1.40	1.01
1.0	2.48	1.48	1.08
2.0	4.72	2.84	2.05



## TYPE 601PE "SLIM-LINE" MYLAR CAPACITORS

Special shape and leads for maximum space saving and flexibility in transistor and printed circuit applications. Replaces ceramic discs where stability with temperature change is important. Features high insulation resistance. Available in units comparable to MIL-C-14157 and MIL-C-26244 specifications on special order. Dipped epoxy coating over extended foil (non-inductive) Mylar dielectric. **Insulation Resistance:** Greater than 75,000 megohms at 100 VDC, 25° C for 2 minutes, max. **Temperature Range:** Up to 85° C; derate 50% at 125° C. **Temperature Cycling:** Min. insulation resis., 75,000 megohms after MIL-STD-202A, Method 102A, Condition D no voltage applied test, capacitance change less than 1%, same test. **Dissipation Factor:** Less than 1% at 1 kc, 25° C. **Dielectric Strength:** 100 VDC. **Tolerance:** Units shown  $\pm 20\%$ . Available in  $\pm 10\%$  and  $\pm 5\%$ ; prices on request.

### 50 WVDC

Cap., $\mu$ F	Net Each, Lots of		
	1-24	25-49	50-99*
.01	\$0.68	\$0.41	\$0.29
.015	.71	.43	.31
.022	.75	.45	.33
.033	.79	.47	.34
.047	.83	.50	.36
.068	.86	.52	.37
.1	.94	.56	.41
.15	.98	.59	.42
.22	1.05	.63	.46
.33	1.13	.68	.49

## TYPES X663F AND X663FR FLAT METALLIZED MYLAR CAPACITORS

Ultraminature, lightweight design available with axial or radial leads to fit crowded chassis layouts. Thin, oval profile offers significant space saving. Feature high insulation resistance; self healing; long, stable life. **Insulation Resistance:** Better than 30,000 megohm- $\mu$ F at 25° C, but need not exceed 30,000 megohms. **Dissipation Factor:** Less than 1% at 1000 cps, 25° C up through 1  $\mu$ F at 60 cps above 1  $\mu$ F. **Temperature Range:** -55° C to

+100° C; to +125° C with 50% derating. **Humidity Resistance:** Exceeds RS-164, EIA specification, Paragraph 2.3.8. **Dielectric Strength:** Twice rated voltage for one minute. **Life:** 250 hours at +100° C and 125% of rated voltage. **Tolerance:** Units shown,  $\pm 20\%$ . Available in  $\pm 10\%$ ,  $\pm 5\%$ ,  $\pm 2\%$  and  $\pm 1\%$ ; prices on request.

### AXIAL LEAD TYPE X663F

Cap., $\mu$ F	100 and 200 WVDC, Net Each			400 WVDC, Net Each			600 WVDC, Net Each		
	1-24	25-49	50-99*	1-24	25-49	50-99*	1-24	25-49	50-99*
.01	\$1.13	\$0.68	\$0.49	\$1.59	\$0.95	\$0.69	\$1.95	\$1.17	\$0.85
.022	1.05	.63	.48	1.43	.85	.62	1.78	1.06	.77
.033	.98	.59	.44	1.31	.74	.54	1.61	.96	.70
.047	.90	.54	.39	1.24	.74	.54	1.50	.90	.65
.068	.90	.54	.39	1.18	.71	.52	1.44	.86	.61
.1	.86	.52	.37	1.06	.63	.48	1.36	.83	.53
.22	.98	.59	.44	1.34	.81	.58	1.69	.95	.69
.33	1.11	.72	.52	1.57	.94	.68	2.03	.73	.69
.47	1.25	.81	.59	1.87	.94	.68	2.33	1.21	.88
.68	1.50	.90	.65	2.12	1.13	.81	2.84	1.39	1.01
1.0	1.65	1.01	.73	2.32	1.27	.92	3.33	1.71	1.23
1.5	1.80	1.14	.80	2.64	1.53	1.11	3.84	2.11	1.53
2.0	1.99	1.27	.90	3.14	1.89	1.35	4.57	2.74	1.99
3.0	2.74	1.84	1.11	3.78	2.27	1.64	5.63	3.55	2.57
4.0	4.11	2.05	1.11	.....	.....	.....	.....	.....	.....
5.0	5.86	2.32	1.44	.....	.....	.....	.....	.....	.....

### RADIAL LEAD TYPE X663FR

Cap., $\mu$ F	100 and 200 WVDC, Net Each			400 WVDC, Net Each			600 WVDC, Net Each		
	1-24	25-49	50-99*	1-24	25-49	50-99*	1-24	25-49	50-99*
.01	\$1.60	\$0.97	\$0.71	\$2.10	\$1.26	\$0.91	\$2.58	\$1.55	\$1.12
.022	1.51	.94	.66	1.89	1.13	.82	2.34	1.41	1.02
.033	1.39	.87	.62	1.72	1.03	.75	2.12	1.27	.92
.047	1.29	.76	.57	1.60	.98	.71	1.98	1.19	.86
.068	1.24	.74	.56	1.50	.94	.68	1.91	1.14	.83
.1	1.20	.74	.56	1.44	.92	.67	1.91	1.07	.77
.22	1.40	.84	.62	1.84	1.16	.84	2.28	1.37	.99
.33	1.70	1.02	.75	2.22	1.39	.98	2.91	1.74	1.26
.47	1.95	1.17	.86	2.59	1.63	1.17	3.34	2.00	1.45
.68	2.15	1.29	.95	3.04	1.93	1.37	4.10	2.46	1.78
1.0	2.40	1.44	1.05	3.68	2.30	1.55	5.07	3.02	2.20
1.5	3.06	1.78	1.30	4.44	2.72	1.87	6.10	3.95	2.86
2.0	3.36	1.97	1.43	5.44	3.27	2.36	6.97	4.51	3.70
3.0	4.33	2.44	1.73	.....	.....	.....	.....	.....	.....
4.0	5.33	2.82	2.00	.....	.....	.....	.....	.....	.....
5.0	6.33	3.33	2.44	.....	.....	.....	.....	.....	.....

\*DuPont TM.

\*Write for prices on larger quantities.



# Filters and Audio Transformers

## CORNELL-DUBILIER INTERFERENCE FILTERS



### QUIETONE® RESIDENTIAL RF INTERFERENCE TYPES

Plastic cased units designed for residential and light commercial applications. Can be used as portable or semi-permanent accessory for radio and television receivers, household or office appliances. Connects directly between appliance and wall receptacle. Type IF-4 designed for use on appliances which radiate a low intensity noise level. Type IF-6 provides slightly higher reduction. Types IF-18 and IF-19 are designed for use on appliances where noise level is increasingly severe. All 5 amps.

CDE No.	Fig.	Cap., $\mu$ F	Weight	Net Each, Lots of			
				1-24	25-49	50-99	100-499
IF-4†	A	.1	5 oz.	\$0.90	\$0.77	\$0.64	\$0.60
IF-6†	A*	2 x .1	6 oz.	1.41	1.21	1.00	.94
IF-18†	B	2 x .25	4 lbs.	6.60	5.70	4.70	4.45
IF-19†	B	2 x .1	1½ lbs.	5.55	4.90	3.90	3.70

\*With side ground terminal. †110 VAC/DC. ‡115 VAC/DC.

### QUIETONE INDUSTRIAL RF INTERFERENCE TYPES

Metal cased units designed to suppress RF interference generated by industrial type electrically operated equipment. Types IF-24 and IF-54 are for permanent installation at interference source. Types NF-10431, NF-10431-1 and NF-1C230 are similar to Type IF-54 but designed for installation inside appliances or equipment. Type NF-1C230 for use in vacuum cleaners, floor polishers, etc. All others U/L listed for fluorescent fixtures but can be applied to other equipment.

CORNELL-DUBILIER FILTERS STOCKED IN DEPTH AT FEDERAL ELECTRONICS, INC., BINGHAMTON, N. Y.

### QUIETONE INDUSTRIAL RF TYPES (CONT'D)

CDE Number	Volts AC/DC	Cap., $\mu$ F	Net Each, Lots of			
			1-24	25-49	50-99	100-499
IF-24*	110	2 x .1	\$1.14	\$0.94	\$0.78	\$0.74
IF-54	110-220	2 x .25‡	1.80	1.54	1.27	1.20
NF-10431	280	2 x .02* ea. line	3.30	2.85	2.35	2.18
NF-10431-1†	280	2 x .02* ea. line	3.75	3.25	2.65	2.40
NF-1C230†	125	.09 line to line; 2 x .005 line to ground	.75	.65	.53	.37

\*Fig. C. †Cardboard case only. ‡With mtg. for direct replacement of GE 89G365. §2 amps. \*3.5 amps.

### VEHICULAR RF INTERFERENCE TYPES FEED-THRU TYPES

Types NFF-055B-1, NFF-315D and NFF-1F246 have conductor completely surrounded by the capacitor. All feed-thru type units are housed in metal case.

CDE Number	Volts DC	Current, Amps	Cap., $\mu$ F	Size, In. Dia. x L.	Net Each, Lots of			
					1-24	25-49	50-99	100-499
NFF-055B-1	50	40	0.5	1 x 1½	\$2.10	\$1.39	\$1.21	\$0.85
NFF-315D	600	20	.1	1¼ x 1½	1.77	1.17	1.00	.72
NFF-1F246	200*	20	.25	¾ x 2½	3.66	2.15	1.82	1.46

\*115 VAC.

### BYPASS TYPES

Specially designed for use on automobile accessories. All bypass type units are housed in a metal case. Single lead with terminal except MC-8D98, terminal lug.

CDE Number	Volts DC	Cap., $\mu$ F	Net Each, Lots of			
			1-24	25-49	50-99	100-499
MC-8D98	100	.1	\$0.99	\$0.57	\$0.44	\$0.39
IC-2P5C	200	.5	.54	.43	.25	.22
INH-2P5-7	200	.5	.66	.45	.26	.23
INS-2W1	200	1.0	.90	.70	.40	.35
ICH-2W1	200	1.0	.93	.73	.42	.38

## ALTEC-LANSING "PEERLESS" AUDIO TRANSFORMERS



### INPUT TRANSFORMERS

Maximum operating level and low insertion loss. Gray enamel case. No. K-241-D: "20-20 Plus" transformer with guaranteed  $\pm 1$  db, 10-25,000 cps frequency response; 90 db electromagnetic shielding; high power rating suitable for use as output transformer; primary balanced to attenuate longitudinal currents in excess of 50 db. No. K-308-D: Used for line, mixer or mike to single grid; frequency response,  $\pm 1$  db, 30-20,000 cps when terminated; 60 db magnetic shielding.

Peerless No.	Max. Level dbm	Impedance Ohms		Size, In. H. x D. x W.	Wt., Lbs.	Net Each
		Pri.	Sec.			
K-241-D	+8	500-280-125-31*	70K†	2¼ x 1½ x 2	1	\$36.00
K-308-D	0	250 CT	50K	1½ x 1¼ dia.	¼	18.00

\*Or 600-340-150-37.5. †Or 84K; total of 2 separate windings. ‡Reference 1 mw.

### IMPEDANCE MATCHING TRANSFORMERS

Standard units meet most requirements. High level "20-20 Plus" series for matching amplifiers and speakers up to 70 volts across entire winding; No. E-372-Q is not "20-20 Plus".

Peerless No.	Freq. Res. Cps. at $\pm 1$ db	Imped., Ohms		Max. Level‡	Pri. DC Ma	Wt., Lbs.	Net Each
		Pri.	Sec.				
E-372-Q	20-20,000	500 CT-333	Same as Pri.	+18 dbm	...	1½	\$27.00
E-204-D†	5-80,000	500 CT or 125 CT or 600 CT or 150 CT	Same as Pri.	+23 dbm	100	1¼	42.00
A-262-E‡	10-100,000	18, 8, 4 or 8, 4, 2	...	48.7 dbm 44.7 dbm	...	5¾	21.00

\*Applies to 20-20,000 cps range. †Maximum. ‡Also makes excellent hybrid transformer. †Autotransformer may be used in any combination of rated impedances.

### OUTPUT TRANSFORMERS

#### STANDARD OUTPUT TRANSFORMER

Single or PP plates to line; 30 db humbucking. Frequency Response:  $\pm 1$  db, 20-20,000 cps.

Peerless No.	Imped., Ohms		Max. Pri. DC Ma	Audio Watts	Wt., Lbs.	Net Each
	Primary	Secondary				
S-448-Q	20K CT 12.5K CT 5,000-3125	500 CT 200 CT-333 250-125-50	15	+18 dbm	1¼	\$24.75

#### "20-20 PLUS" HIGH LEVEL OUTPUTS

All "20-20 Plus" series have guaranteed frequency response.

Peerless No.	Freq. Res. Cps. at $\pm 1$ db	Imped., Ohms		Max. Level‡	Pri. DC Ma	Wt., Lbs.	Net Each
		Pri.	Sec.				
S-217-D*	5-65,000	12.5K, 3125	600-300 150-75	+20 dbm	25	1¼	\$42.00
S-238-Q	10-75,000	10K CT	16, 8, 2500 CT	+43 dbm 20 watts	50	3¼	\$7.50
S-258-Q	10-100,000	5000 CT	16, 8, 1250 CT	+46 dbm 40 watts	120	6¾	\$1.00
S-271-S	10-100,000	1250 CT	16, 8, 1250 CT	+49 dbm 80 watts	200	18	69.00

\*May be used as input transformer or bridging; has CT tertiary winding for feedback or ground for electrostatic shielding. †Applies to 20-20,000 cps range. ‡Maximum.

### ALTEC TRANSFORMERS STOCKED IN DEPTH AT

HARVEY RADIO CO., INC., NEW YORK CITY

HARVEY RADIO CO., INC. • WOODBURY, L. I. AND NEW YORK CITY

FEDERAL ELECTRONICS, INC. BINGHAMTON, N. Y.



# CHICAGO STANCOR Audio Transformers

## HIGH FIDELITY OUTPUT TRANSFORMERS

Frequency response excellent from 20 to 20,000 cps. Extremely low level of intermodulation distortion over entire range and at any power level. Type "C" upright shell mounting for all units. Shipping Weight, 6.5 lbs. Size: 4 1/2" h. x 3 1/2" w. x 4 1/4" d.

C/S No.	Pri. Imp. (PP) Ohms	Sec. Imp. Ohms*	Max. Watts	Max. Pri. DC Ma†	Net Each, Quantities of			
					1-9	10-24	25-49	50-99
A-8053	5000	8, 16	50	150	\$14.32	\$12.89	\$12.18	\$11.46*
A-8056	6600	8, 16	50	125	14.32	12.89	12.18	11.46*
A-8054	9000	8, 16	50	100	14.32	12.89	12.18	11.46*
A-8072**	7600	4, 8, 16	25	100	17.85	16.07	15.18	14.28*

\*Where more than one secondary impedance is shown, only one value is to be used at any time. \*\*Primary provided with screen taps for ultra-linear use. †DC Ma per half of primary.

## SINGLE PLATE TO VOICE COIL

C/S No.	Impedance in Ohms		Max. Watts	Mtg. Type	Net Each, Quantities of			
	Primary	Secondary			1-9	10-24	25-49	50-99
A-3332	2,000	3.2	3	A	\$1.46	\$1.32	\$1.25	\$1.17*
A-3876	2,000	4	5	A	1.56	1.41	1.33	1.26*
A-3328	4,000	3.5	3	A	1.45	1.31	1.24	1.18*
A-2203	4,000	8	5	A	2.59	2.34	2.21	2.08*
A-3877	5,000	4	5	A	1.56	1.41	1.33	1.25*
A-8092	5,000	3-4	8	A	2.25	2.03	1.92	1.80*
A-3330	5,000	6-8	10	S	2.45	2.21	2.09	1.96*
A-3310	5,000	500, 15, 8, 4	20	C	6.00	5.40	5.10	4.80*
A-3878	7,000	4	5	A	1.60	1.44	1.36	1.28*
A-2313	7,000	4	5	A	2.69	2.43	2.29	2.16*
A-8114	7,600	3.2	3	A	1.86	1.68	1.59	1.49*
A-3329	8,000	3.5	5	A	1.31	1.24	1.24	1.16*
A-3879	10,000	4	5	A	1.56	1.41	1.33	1.25*
A-3881	15,000	4	5	A	1.72	1.55	1.47	1.38*
A-3327	25,000	4	5	A	1.93	1.74	1.65	1.55*

## PUSH-PULL PLATES TO VOICE COIL

C/S No.	Impedance in Ohms		Max. Watts	Mtg. Type	Net Each, Quantities of			
	Primary, CT	Secondary			1-9	10-24	25-49	50-99
A-8098†	2,000	8, 16, 32	15	C	\$ 8.54	\$ 7.69	\$ 7.26	\$ 6.84*
A-3802	3,800/3,300	500, 250, 8, 4	75	C	12.61	11.35	10.72	10.09*
A-8094†	4,000	8, 16, 32	7 1/2	A	4.28	3.86	3.64	3.43*
A-3851*	4,400	500, 250, 15, 8, 4	30	A	4.90	4.41	4.17	3.92*
A-3872	5,000	15, 8, 4	18	TD	4.30	3.86	3.62	3.43*
A-3800	5,000	500, 250, 15, 8, 4	30	C	4.23	3.81	3.57	3.38*
A-3307	6,000	500, 15, 8, 4	30	C	8.31	7.48	7.07	6.66*
A-3801	6,600	500, 250, 15, 8, 4	35	C	9.18	8.27	7.87	7.46*
A-3885	9,000	500, 250, 15, 8, 4	35	C	9.11	8.20	7.80	7.39*
A-4432	10,000	4	10	S2	2.59	2.34	2.21	2.08*
A-3304	10,000/7,000	500, 15, 8, 4	25	C	6.76	6.09	5.75	5.41*
A-3311	10,000	500, 15, 8, 4	25	C	7.26	6.54	6.18	5.81*
A-3831	10,000	8, 4, 2	5	A	2.84	2.56	2.42	2.28*
A-8093	10,000	3-4	10	A	2.28	2.06	1.94	1.83*
A-3335	10,000	6-8/3,2-4	10	S	3.31	2.98	2.82	2.65*
A-3839	10,000	2,000, 15, 8, 4	10	TD	5.09	4.59	4.33	4.08*
A-2312	14,000	4	10	A	2.30	2.07	1.96	1.84*
A-3496	14,000	4	5	A	2.87	2.56	2.42	2.28*
A-3303	14,000	500, 15, 8, 4	20	C	6.84	6.19	5.84	5.50*
A-3857	25,000	4	5	A	2.53	2.28	2.16	2.03*

\*Has tertiary winding to provide 10% inverse feedback, †For use in "Twin-Coupled" amplifier.

## SINGLE PLATE TO PUSH-PULL GRIDS

Single Plate (7,000 to 15,000 ohms) to p-p class "A" grid; rated 10 ma DC. A-53 Single Plate to Single Grid (7,000-20,000 ohms).

C/S No.	Turns Ratio	H. x W. x D. Inches	Mtg. Type	Net Each, Quantities of			
				1-9	10-24	25-49	50-99
A-53	1:3	1 1/2 x 2 1/2 x 1 1/2	A	\$2.12	1.91	\$1.81	1.70*
A-53-C	1:3	1 1/2 x 2 1/2 x 1 1/2	A	2.53	2.28	2.16	2.03*

## PRINTED CIRCUIT "POLYCHROMATRANS"

Printed circuit board transistor transformers. Test volts, 500 rms. Color-coded by application. Up to 50% reduction in distortion over other brands. Improved lower-end frequency response. Leads are fatigue resistant nickel-iron alloy, .020" dia., .563" long, gold-plated to MIL-G-45204, Class 1. Size: .405" w. x .305" d. x .460" h.

C/S No.	MIL Type Number	Pow. Lev. Mw	Use	Matching Impedance		Max. DC Ma*	Net Each, Quantities of			
				Primary	Secondary		1-9	10-24	15-49	50-99
PCT-14	TF58X16ZZ	15	Input	200K CT	1K CT	0	\$8.35	\$7.52	\$7.10	\$6.68*
PCT-15	TF58X16ZZ	35	Input	50K CT	1K CT	0	8.19	7.38	6.97	6.55*
PCT-17	TF58X16ZZ	15	Input	200K	1K	0	7.23	6.51	6.15	5.78*
PCT-21	TF58X13ZZ	55	Interst.	25K	1K	.5	6.75	6.08	5.74	5.40*
PCT-23	TF58X13ZZ	55	Interst.	25K CT	1K CT	.5	7.71	6.94	6.56	6.17*
PCT-25	TF58X13ZZ	75	Interst.	10K CT	1.5K CT	1	7.39	6.66	6.29	5.91*
PCT-30	TF58X13ZZ	75	Driver	10K CT	1.2K CT	1	7.39	6.66	6.29	5.91*
PCT-31	TF58X13ZZ	75	Driver	10K CT	2K CT	1	7.39	6.66	6.29	5.91*
PCT-39	TF58X13ZZ	75	Driver	10K CT	500 CT	1	7.39	6.66	6.29	5.91*
PCT-43	TF58X17ZZ	75	Output	1K	50	3	6.26	5.64	5.33	5.01*
PCT-54	TF58X17ZZ	75	Output	800 CT	12	4.5	6.42	5.78	5.46	5.14*
PCT-60	TF58X17ZZ	75	Output	500 CT	600	3	6.42	5.78	5.46	5.14*
PCT-61	TF58X17ZZ	75	Output	900 CT	600	4	6.58	5.93	5.60	5.26*
PCT-62	TF58X17ZZ	75	Output	1.5K CT	600	3	6.75	6.08	5.74	5.40*
PCT-70	TF58X17ZZ	75	Output	320 CT	3.2	6	6.26	5.64	5.33	5.01*
PCT-71	TF58X17ZZ	75	Output	600 CT	3.2	4.5	6.26	5.64	5.33	5.01*
PCT-76	TF58X13ZZ	75	Output-Isolation	10K CT	10K CT	1	8.35	7.52	7.10	6.68*
PCT-77	TF58X17ZZ	75	Output-Isolation	600 CT	600 CT	3	7.71	6.94	6.56	6.17*
PCT-116	TF58X20ZZ	....	Choke	6 hys.	.....	2	6.10	5.50	5.19	4.88*
PCT-117	TF58X20ZZ	....	Choke	1.25 hys.	.....	2	5.14	4.63	4.37	4.11*
PCT-118	TF58X20ZZ	....	Choke	3.5 hys.	.....	2	5.14	4.63	4.37	4.11*
PCT-128	TF58X20ZZ	....	Choke	.3 hy.	.....	4	5.14	4.63	4.37	4.11*

\*Max. Ma, DC unbalanced in primary.  
C/S No. SPCT-10—Magnetic alloy shield for all PCT transformers. Net Each: 1-9, 90c; 10-24, 81c; 25-49, 77c; 50-99, 72c.

\*PRICES ARE FOR INDIVIDUALLY BOXED UNITS. SEE LAST STANCOR PAGE FOR BULK PRICES.



# CHICAGO STANCOR Transistor Transformers

## ULTRA-MINIATURE ENCAPSULATED TYPES

Designed and built in accordance with MIL-T-27B specifications. Excellent for use with printed circuitry, etc., as lead spacing is 1/10" grid type for easy mounting on punched boards. **Dimensions:** .312" x .400" x .420". Weight (Approx.), .125 oz. Mtg. Type UME.

C/S No.	Application	DC Ma#	Impedance, Ohms		DC Res. Ohms		Net Each, Quantities of			
			Primary	Secondary	Pri.	Sec.	1-9	10-24	25-49	50-99
UME-20	Driver	1	10K	1200 CT	1000	100	\$6.94	\$6.25	\$5.90	\$5.55
UME-23	Single†	7	12.5K	1500 CT	35	2.5	5.95	5.36	5.06	4.76
UME-34	Input	0	200K CT	16	6500	250	7.97	6.91	6.52	6.14
UME-37	Reactor	2	1 hy.*	1000 CT	190	.....	5.25	4.73	4.47	4.20

\*At 2 DC ma. †Or p-p output. #In primary.

## AUDIO TRANSFORMERS

Maximum operating altitude, 50,000 feet. Built to MIL-T-27B specifications. Mounting Type TAMS.

C/S No.	Application	Impedance, Ohms		DC Ohms		Net Each, Quantities of				
		Primary	Secondary	Pri. DCma	Sec.	1-9	10-24	25-49	50-99	
TAMS-5	Driver	1000	200 CT	10	400	115	\$15.60	\$14.04	\$13.26	\$12.48
TAMS-6	Driver	2000	200 CT	5	720	115	12.71	11.44	10.81	10.17

## IRON CORE AUDIO TRANSFORMERS

Small iron core weighing only 1/10 of an ounce. Useful range is below 1 mw. Mtg. Type, UM.

C/S No.	Application	Imped., Ohms		DC Ohms		Wt. Lbs.	Net Each, Quantities of			
		Pri.	Sec.	Pri.	Sec.		1-9	10-24	25-49	50-99
UM-110	Interstage	20K	1000	1675	285	.07	\$6.66	\$6.00	\$5.67	\$5.33*
UM-112	Hi-Z Mic. In.	200K	1000	4000	195	.10	7.35	6.62	6.25	5.88*
UM-113	Interstage	20K	1000	1350	205	.10	5.09	4.59	4.33	4.07*
UM-114	Out. or Mtxchg.	500	50/60	70	9.0	.10	4.55	4.10	3.87	3.64*

Dimensions: UM-110 1/4" x 3/8" x 3/8"; others, 3/8" x 3/8" x 3/8", = .015".

## TRANSISTOR POWER TRANSFORMERS

Primary, 117 v., 60 cycle operation.

C/S No.	Plate Supply AC Volts	DC Ma	Size, In., W. x D. x H.		Mtg. Type	Net Each, Quantities of				
			W.	D.		H.	1-9	10-24	25-49	50-99
TP-1*	13 or 18	900	3	2 1/4	3	C	\$5.21	\$4.69	\$4.43	\$4.17*
P-8196	80 CT	1200	2 3/4	3 1/2	3 1/2	C	7.01	6.31	5.96	5.61*
TP-2†	10/20 CT/40 CT	100	2 1/4	1 3/8	1 3/8	A	4.28	3.86	3.64	3.42*
TP-3†	10/20 CT/40 CT	300	3 3/4	2	2 1/4	A	5.57	5.02	4.74	4.46*
TP-4†	10/20 CT/40 CT	1000	2 1/2	3	3 1/4	A	9.10	8.19	7.74	7.28*

\*For bridge rectifier systems, has 2 identical plate supplies. †Tapped primary to obtain lower secondary voltages.

## SPECIAL TRANSISTOR TRANSFORMERS

Special transformers for transistor applications. Mtg. Types: TA-56, J; TA-57 and TA-61, S; TA-13 and TA-14, TD; TA-60, TS; all others, Mtg. Type A.

C/S Number	Impedance, Ohms		DC Res., Ohms		Max. Pri. DCma	Watts	Net Each, Quantities of			
	Pri.	Sec.	Pri.	Sec.			1-9	10-24	25-49	50-99
TA-1*	600 CT	10	42	.8	20	.05	\$2.03	\$1.83	\$1.73	\$1.62*
TA-2†	100 CT	10 CT	4.3	.8	100	.25	2.03	1.83	1.73	1.62*
TA-3†	100	1000 CT	5.8	45	100	.25	2.03	1.83	1.73	1.62*
TA-4†	500 CT	5000 CT	37	250	12	.03	2.67	2.41	2.27	2.14*
TA-5†	1000	200 CT	400	115	10	.05	5.04	4.54	4.26	4.03*
TA-6†	2000	200 CT	720	115	5	.05	5.71	5.14	4.86	4.57*
TA-7†	100	100 CT	12	12	100	.5	2.03	1.83	1.73	1.62*
TA-9†	1000	4/8/16	180	3.5	10	.2	5.21	4.69	4.43	4.17*
TA-10†	2000 CT	4/8/16	250	4	.....	.....	5.71	5.14	4.86	4.57*
TA-11†	48 CT	8/16	5	1.5	275	5	3.91	3.52	3.33	3.13*
TA-12†	20 CT	8	.....	.35	500	10	2.03	1.83	1.73	1.62*
TA-13†	200 CT	400 CT	.....	.....	10	.6	4.31	3.88	3.67	3.45*
TA-14†	24 CT	16/4†	.....	.....	200	10	10.78	9.71	9.17	8.62*
TA-52†	500 CT	.....	40	55	.....	.30	3.21	2.89	2.73	2.57*
TA-54†	20K	800 CT	1350	95	.....	.15	3.10	2.79	2.64	2.48*
TA-55†	500K	200 CT	7000	8.5	.....	.30	4.46	4.02	3.80	3.57*
TA-56†	48 CT	3.2/8/16	3.6	1.4	550	10	3.26	2.94	2.78	2.61*
TA-57†	100 CT	3.2/8/16	6.6	1.5	500	10	3.21	2.89	2.73	2.57*
TA-58†	100	200 CT	6.5	15.5	200	.5	2.28	2.06	1.94	1.82*
TA-59†	500 CT	200 CT	36.5	15.5	50	.5	2.53	2.28	2.16	2.02*
TA-61†	1:1*	.....	1.8*	.....	.....	.....	2.79	2.52	2.38	2.23*
TA-62†	25	4	1.5	0.4	400	4	2.00	1.80	1.70	1.60*
TA-63†	20K CT	2K CT	2140	325	.....	.....	4.79	4.32	4.08	3.83*

\*Input. †Interstage. ‡Driver. §Output. #CT, 2 secondaries 16 ohm series, 4 ohms parallel. \*Turns ratio: Primary to 1/2 secondary, 1:1. †Per winding.

## MINIATURE AUDIO TRANSFORMERS (MTG. TYPE A)

.150-Watt Group—Dimensions: 1/4" w. x 1/2" d. x 1/4" h. Mtg. tabs; 1/8" centers, 1/4" w. Wt., .65 oz. Net Each, 1-9.....\$3.91  
Net Each, 10-24.....\$3.52 Net Each, 25-49.....3.33  
Net Each, 50-99.....3.13\*

C/S No.	Application	Impedance, Ohms		DC Res., Ohms		Watts
		Primary	Secondary	Pri.	Sec.	
TA-18	Input	30 CT	50,000	14.7	4060	
TA-19	Interstage	100 CT	10 CT	19	1.27	
TA-20	Output	350 CT	4, 12	38	1.45	
TA-21	Output	500 CT	4, 8, 16	75.3	3.55	
TA-22	Interstage	500 CT	4, 50	59.7	7.9	
TA-23	Output	800 CT	4, 8, 16	73.2	3.2	
TA-24	Interstage	500 CT	50,000	76.8	5135	
TA-25	Output	825 CT	4, 8, 16	74	2.7	
TA-26	Output	1,250	4, 12	132.5	1.4	
TA-27	Interstage	1,200	20,000 CT	142	1860	
TA-28	Interstage	1,500	500 CT	104	46.5	
TA-29	Output	2,500	4, 16	370	2.3	
TA-30	Interstage	5,000 CT	7,500 CT	650	790	
TA-31	Interstage	5,000 CT	10,000 CT	635	825	
TA-32	Interstage	5,000 CT	80,000 CT	573	5740	
TA-33	Output	10,000 CT	4, 8, 16	1174	2.6	
TA-34	Interstage	10,000	200 CT	1200	33.4	

\*PRICES ARE FOR INDIVIDUALLY BOXED UNITS. SEE LAST STANCOR PAGE FOR BULK PRICES.

HARVEY RADIO CO., INC.  
WOODBURY, L. I. AND NEW YORK CITY

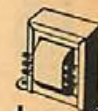
FEDERAL ELECTRONICS, INC.  
BINGHAMTON, N. Y.



A



C



J



S



TD



TAMS



UM



UME

C/S No.	Application	Impedance, Ohms		DC Res., Ohms	
		Primary	Secondary	Pri.	Sec.
TA-35	Interstage	10,000	2,000 CT	1200	257
TA-36	Interstage	10,000	3,000 CT	1200	385
TA-38	Interstage	500 CT	150 CT	62	21.2

.300-Watt Group—Dimensions: 1 1/4" w. x 3/4" d. x 1/4" h. Mtg. Centers, 1/8" weight, 1.2 oz. Net Each, 1-9.....\$3.91  
Net Each, 10-24.....\$3.52 Net Each, 25-49.....3.33  
Net Each, 50-99.....3.13\*

C/S No.	Application	Impedance, Ohms		DC Res., Ohms	
		Primary	Secondary	Pri.	Sec.
TA-39	Output	100 CT	4, 8, 16	10.9	1.45
TA-40	Output	160	4, 8, 16	18.7	1.4
TA-41	Output	400 CT	4, 8, 16	34	1.5
TA-42	Output	500 CT	4, 8, 16	47	.85
TA-43	Output	700 CT	4, 8, 16	77	1.15
TA-44	Output	2,500	4, 8, 16	172	1.15
TA-45	Output	3,000	4, 8, 16	192	1.2
TA-46	Interstage	100,000	1,500 CT	3250	143
TA-47	Input	1,000 CT	200,000 CT	123	1815



# CHICAGO STANCOR

# Power Transformers

## PLATE TRANSFORMERS

All primary windings for 60 cps, 115 v. operation. DCMA: 300 CCS, 375 ICAS.

C/S No.	Secondary VAC (at Plate)	DC Volts	Mtg. Type	Net Each, Quantities of			
				1-9	10-24	25-49	50-99
P-8040	500/40-0-500	400, 40	C	\$14.18	\$12.77	\$12.06	\$11.34*
P-8042	770/510/40-0-510/770	600, 400, 40	C	22.59	20.34	19.21	18.07*



BV

DC output rated at load terminals of single-section, reactor-input filter with full-wave mercury-vapor rectification (secondary CT must be grounded). 117 volts, AC.

C/S No.	Secondary AC Volts	DC Volts	DCMA		Mtg. Type	Wt., Lbs.	Net Each, Quantities of			
			CCS	ICAS			1-9	10-24	25-49	50-99
PT-8311	1200-0-1200	1000	225	280	PT	13.0	\$17.90	\$16.11	\$15.22	\$14.32*
PT-8315	2065-0-2065	1750	200	250	PT	24.5	32.57	29.33	27.69	26.01*



C, PC

DC output rated CCS at load terminals of single-section reactor-input filter, ICAS with single-section capacitor-input filter (secondary CT must be grounded). Primary, 117 volts, AC. Mounting PC.

C/S No.	Secondary AC Volts	DC Output		Filter Input	Rectifier	Net Each, Quantities of			
		Volts	Ma			1-9	10-24	25-49	50-99
PC-8301	415-0-415	300 425	200 160	Reactor Capacitor#	5U4G 5U4G	\$ 8.44	\$ 7.60	\$ 7.18	\$ 6.75*
PC-8302	515-0-515	385 500	235 200	Reactor Capacitor#	5U4G 5R4GY	11.05	9.95	9.40	8.84*
PC-8303	665-0-665	500 750	250 200	Reactor Capacitor#	5R4GY 5R4GY	14.03	12.63	11.93	11.22*
PC-8304	750-0-750	600 850	265 200	Reactor Capacitor#	2-5R4GY 5R4GY	15.79	14.22	13.43	12.63*
PC-8305	920-0-920	750 1000	250 200	Reactor Capacitor#	2-5R4GY 5R4GY	16.44	14.80	13.98	13.15*

#Capacitor input rating is for intermittent duty.



PT

## SELENIUM RECTIFIER TRANSFORMERS

For nominal input of 117 v. AC, 50-60 cps, Mtg. Type BV.

Chicago/ Stancor No.	Applied VAC under Load	Output, Max. DC				Filter Cap., µf	Net Each, Quantities of			
		Resistive/ Induct. Load		Capacitive Load*			1-9	10-24	25-49	50-99
		Volts	Amps	Volts	Amps					
RT-201†	11.7-29.4	11.2	2.0	13.8	2.0	1 K	\$ 5.33	\$ 4.80	\$ 4.54	\$ 4.26*
RT-201‡	11.1-28.5	23.0	1.25	30.0	1.25	.5K	5.33	4.80	4.54	4.26*
RT-202†	12.0-29.8	11.1	4.0	14.7	4.0	2 K	7.17	6.46	6.10	5.74*
RT-202‡	12.0-29.8	24.3	2.0	33.0	2.0	1 K	7.17	6.46	6.10	5.74*
RT-204†	11.7-29.2	12.0	8.0	14.5	8.0	4 K	9.37	8.44	7.97	7.50*
RT-204‡	11.6-29.2	24.0	4.0	32.4	4.0	2 K	9.37	8.44	7.97	7.50*
RT-206†	12.0-29.7	11.5	12.0	14.4	12.0	6 K	12.71	11.44	10.81	10.17*
RT-206‡	12.0-29.7	24.0	6.0	32.0	6.0	3 K	12.71	11.44	10.81	10.17*
RT-208†	12.1-29.2	11.4	15.0	14.8	15.0	7.5K	16.01	14.41	13.61	12.81*
RT-208‡	12.1-29.2	23.7	8.0	32.5	8.0	4 K	16.01	14.41	13.61	12.81*
RT-2012†	12.2-29.0	11.4	22.5	14.3	22.5	12 K	23.62	21.26	20.08	18.90*
RT-2012‡	12.2-29.0	23.5	12.0	33.0	12.0	6 K	23.62	21.26	20.08	18.90*
RT-408†	25.0-53.5	44.0	8.0	63.0	8.0	4 K	34.93	31.44	29.70	27.94*
RT-4012†	25.0-53.0	43.5	12.0	60.0	12.0	6 K	45.99	41.40	39.10	36.79*
P-8193‡	17 or 18	.....	.....	.....	.....	.....	9.05	8.15	7.70	7.24*
P-8194‡	36 at 3A	.....	.....	.....	.....	.....	15.37	13.84	13.07	12.30*

†CT Rectifier Circuit. ‡Bridge Rectifier Circuit. \*For complete details and instructions, write for Chicago/Stancor Bulletin No. 518R. †Sec., 6 amps rms. ‡Dual Sec., rms rated.

## SILICON RECTIFIER POWER TRANSFORMERS

### COMMERCIAL MODELS

Combination plate and filament power transformers designed primarily for use with silicon rectifiers. They bridge the gap between low voltage, high current output for use with transistor power amplifiers and the lower range of plate voltages used with electronic tubes. Two 6.3 v. filament windings, on each unit supply heater power for tubes or low voltage DC for many applications when used with suitable rectifier. Mtg. type C. Height, 4 3/4".

C/S No.	Secondary No. 1		Secondaries 2 & 3		Base Area, Inches	Wt., Lbs.	Net Each, Quantities of			
	Volts	DCMa	Volts	Amps			1-9	10-24	25-49	50-99
RP-400	400 CT	400	6.3	3.0	3 3/8 x 4 3/8	7.1	\$14.32	\$12.89	\$12.18	\$11.46*
RP-600	300 CT	600	6.3	2.5	3 3/8 x 4 3/8	7.1	14.29	12.87	12.15	11.43*
RP-800	200 CT	800	6.3	2.0	3 3/8 x 4 3/8	6.9	14.25	12.83	12.12	11.40*
RP-1600	100 CT	1600	6.3	1.5	3 3/8 x 3 3/4	6.0	12.65	11.39	10.76	10.12*
RP-2000	80 CT	2000	6.3	1.5	3 3/8 x 4 3/8	6.5	13.77	12.40	11.71	11.02*
RP-2500	60 CT	2500	6.3	1.5	3 3/8 x 3 3/4	6.0	13.82	12.44	11.75	11.06*

### MILITARY MODELS

Same electrical specifications as commercial units, above. Case Type H; Size: 3 1/4" x 4 3/4" x 5 1/2". Hermetically sealed. Designed and built in accordance with MIL-T-27B specifications; military type No. TF4RX03LA.

C/S No.	Secondary No. 1		Secondaries 2 & 3		Wt., Lbs.	Net Each, Quantities of			
	Volts	DCMa	Volts	Amps		1-9	10-24	25-49	50-99
HRP-400	400 CT	400	6.3	3.0	10.5	\$29.73	\$26.76	\$25.28	\$23.78
HRP-600	300 CT	600	6.3	2.5	10.5	29.64	26.68	25.20	23.71
HRP-800	200 CT	800	6.3	2.0	10.0	29.64	26.68	25.20	23.71
HRP-1600	100 CT	1600	6.3	1.5	10.5	29.64	26.68	25.20	23.71
HRP-2000	80 CT	2000	6.3	1.5	9.6	28.64	25.68	24.32	22.91
HRP-2500	60 CT	2500	6.3	1.5	9.0	28.73	25.77	24.43	23.03

\*PRICES ARE FOR INDIVIDUALLY BOXED UNITS. SEE LAST STANCOR PAGE FOR BULK PRICES.



# CHICAGO STANCOR Power Transformers

## SPECIAL POWER TRANSFORMERS

FOR REGULATED POWER SUPPLIES

"H" TYPE MOUNTING UNITS, CASE NO. 22

Chicago/ Stancor No.	High Volt. Secondary			Rect.		Filament				Net Each, Quantities of			
	AC Volts	DC Ma	Out. VDC	V.	A.	No. 2		No. 3		1-9	10-24	25-49	50-99
						V.	Amps	V.	A.				
PHC-165	440-0-440	165	430	5	3	6.3	7.5, 0.6	6.3	3.3	\$37.33	\$33.60	\$31.74	\$29.86

"S" TYPE MOUNTING UNITS, CASE NO. 22

Chicago/ Stancor No.	High Volt. Secondary			Rect.		Filament				Net Each, Quantities of			
	AC Volts	DC Ma	Out. VDC	V.	A.	No. 2		No. 3		1-9	10-24	25-49	50-99
						V.	Amps	V.	A.				
PSC-165	440-0-440	165	430	5	3	6.3	7.5, 0.6	6.3	3.3	\$35.10	\$31.59	\$29.84	\$28.05*

COMBINATION PLATE AND FILAMENT—PRIMARY 50-60 CYCLES

"H" TYPE MOUNTING UNITS

Chicago/ Stancor No.	Pri. Volts	High Volt. Secondary			Fila. Rect.		Case No.	Net Each, Quantities of				
		AC Volts	DC Ma	V.	A.	Volts		Amps	1-9	10-24	25-49	50-99
1BH-150	115			150	5.0	3.0	19	\$27.94	\$25.15	\$23.75	\$22.36	

### PLATE AND FILAMENT SUPPLIES

All primary windings for 117 v., 60 cps operation. All plate supplies center-tapped. PC Series—Type PC Mtg.; PM Series—Type PM Mtg.; Series PA—Type PA Mtg.; Series PS—Type PS. Provide approximately 260 v. DC to condenser input filter.

Chicago/ Stancor No.	Plate		Rec. Fil.		Fila. Amp.		Base Area, Inches	Wt., Lbs.	Net Each, Quantities of			
	AC V.	DC Ma	V.	A.	V.	A.			1-9	10-24	24-49	50-99
PC8401	470	40	5	2	6.3 CT	2.0	2 3/8 x 2 3/8	2.2	\$5.80	\$5.22	\$4.93	\$4.64*
PM8401	470	40	5	2	6.3 CT	2.0	2 3/8 x 3	2.2	6.09	5.49	5.18	4.87*
PC8402	480	55	5	2	6.3 CT	2.0	2 3/8 x 2 3/8	2.4	5.76	5.19	4.90	4.61*
PM8402	480	55	5	2	6.3 CT	2.0	2 3/8 x 3	2.4	5.92	5.33	5.04	4.74*
PC8403	500	70	5	2	6.3 CT	2.5	2 3/8 x 3 3/8	3.2	6.69	6.03	5.69	5.35*
PM8403	500	70	5	2	6.3 CT	2.5	2 3/8 x 3	3.2	6.69	6.03	5.69	5.35*
PC8404	520	90	5	2	6.3 CT	3.0	3 x 3 3/8	4.0	7.42	6.68	6.31	5.94*
PM8404	520	90	5	2	6.3 CT	3.0	3 x 3 3/8	4.0	7.42	6.68	6.31	5.94*
PC8405	540	120	5	3	6.3 CT	3.5	3 1/4 x 3 3/8	4.9	9.67	8.71	8.22	7.74*
PM8405	540	120	5	3	6.3 CT	3.5	3 1/4 x 3 3/8	4.9	9.67	8.71	8.22	7.74*

Use with choke input, VR supply, Spkr. field or HI-V. with condenser input filter.

Chicago/ Stancor No.	AC V.	DC Ma	V.	A.	Fila. Amp.	Base Area, Inches	Wt., Lbs.	1-9	10-24	24-49	50-99	
PM8423	600	90	5	2	6.3 CT	3.5	2 1/2 x 3 3/8	4	\$ 8.54	\$ 7.69	\$ 7.26	\$ 6.83*
PC8406	650	40	5	2	6.3 CT	2.0	2 3/8 x 2 3/8	2.4	6.05	5.45	5.15	4.84*
PM8406	650	40	5	2	6.3 CT	2.0	2 3/8 x 3	2.4	6.05	5.45	5.15	4.84*
PC8407	650	55	5	2	6.3 CT	2.0	2 3/8 x 3 3/8	3.2	6.30	5.67	5.36	5.04*
PM8407	650	55	5	2	6.3 CT	2.0	2 3/8 x 3	3.2	6.30	5.67	5.36	5.04*
PC8422	650	150	5	3	6.3 CT	5.0	3 1/4 x 3 3/8	5.8	10.06	9.06	8.56	8.05*
PM8422	650	150	5	3	6.3 CT	5.0	3 1/4 x 3 3/8	5.8	10.06	9.08	8.57	8.06*
PC8408	680	70	5	2	6.3 CT	2.5	3 x 3 3/8	3.8	7.88	7.10	6.70	6.30*
PM8408	680	70	5	2	6.3 CT	2.5	2 3/4 x 3 3/8	3.8	7.88	7.10	6.70	6.30*
PC8409	700	90	5	2	6.3 CT	3.0	3 x 3 3/8	4.5	8.30	7.47	7.06	6.64*
PM8409	700	90	5	2	6.3 CT	3.0	2 3/4 x 3 3/8	4.5	8.30	7.47	7.06	6.64*
PC8410	720	120	5	3	6.3 CT	3.5	3 1/4 x 3 3/8	5.5	9.44	8.50	8.03	7.55*
PM8410	720	120	5	3	6.3 CT	3.5	3 1/4 x 3 3/8	5.5	9.82	8.84	8.35	7.86*
PC8411	750	150	5	3	6.3 CT	4.5	3 3/8 x 4	8.2	12.65	11.39	10.76	10.12*
PM8411	750	150	5	3	6.3 CT	4.5	3 3/8 x 4 1/2	8.2	13.17	11.86	11.20	10.54*
PC8412	800	200	5	3	6.3 CT	5.0	4 x 4	8.2	13.17	11.86	11.20	10.54*
PM8412	800	200	5	3	6.3 CT	5.0	3 3/4 x 4 1/2	8.2	13.21	11.89	11.23	10.57*
PC8413	800	250	5	4	6.3 CT	5.0	4 x 4 1/2	10.0	15.05	13.55	12.80	12.04*
PM8413	800	250	5	4	6.3 CT	5.0	4 x 4 1/2	10.0	15.48	13.94	13.16	12.38*

For use with 6AX5, 6X4, 6X5, or selenium rectifiers.

Chicago/ Stancor No.	AC V.	DC Ma	V.	A.	Fila. Amp.	Base Area, Inches	Wt., Lbs.	1-9	10-24	24-49	50-99	
PS8415	125	15	4	...	6.3	0.6	2 1/2 x 1 3/8	0.7	\$2.49	\$2.25	\$2.12	\$1.99*
PS8416	250	25	...	...	6.3	1.0	2 3/8 x 1 3/8	1.0	3.00	2.70	2.55	2.40*
PA8421	125	50	...	...	6.3	2.0	3 3/8 x 2 3/8	1.5	4.02	3.62	3.42	3.22*
PC8417	440	50	6.3	6	25.2	0.5	2 3/8 x 2 3/8	2.2	6.73	6.06	5.73	5.38*
PM8418	480	50	...	...	6.3	2.5	2 3/8 x 2 3/8	2.2	5.94	4.54	4.25	4.03*
PC8419	480	50	...	...	6.3	2.5	2 3/8 x 2 3/8	2.2	5.94	4.54	4.25	4.03*
PM8419	480	70	...	...	6.3	3.0	2 3/8 x 2 3/8	2.6	5.80	5.22	4.93	4.64*
PC8420	520	90	...	...	6.3	4.0	3 x 3 1/2	3.5	6.73	6.06	5.73	5.38*
PM8420	520	90	...	...	6.3	4.0	2 3/4 x 3 3/8	3.5	7.02	6.32	5.97	5.62*

Special or combination filament windings.

Chicago/ Stancor No.	AC V.	DC Ma	V.	A.	Fila. Amp.	Base Area, Inches	Wt., Lbs.	1-9	10-24	24-49	50-99	
P-8359†	70	...	...	...	6.3	0.6	2 1/2 x 2 3/8	2.8	\$ 8.08	\$ 7.28	\$ 6.87	\$ 6.46*
P-6348*	480	60	...	...	6.3 CT	2.75	2 3/8 x 2 1 1/2	2.3	5.85	5.27	4.98	4.68*
P-6358†	600	65	...	...	6.3 CT	2.7	2 3/8 x 2 3/8	3	6.25	5.63	5.32	5.00*
P-8173††	500	10	...	...	6.3	0.6	2 3/8 x 2 3/8	1.0	4.90	4.41	4.17	3.92*
P-8174††	500	20	...	...	6.3	1.2	3 1/8 x 2 3/8	1.5	5.08	4.58	4.32	4.06*
P-8175†	600	70	5.0	3	6.3 CT	3.0	2 3/8 x 3 3/8	4.0	8.25	7.43	7.02	6.60*
P-8177†	600	120	5	3	6.3 CT	3.0	3 1/8 x 3 3/8	5.75	10.06	9.06	8.56	8.05*
P-8176†	700	110	5	2	6.3 CT	3.0	3 1/8 x 3 3/8	5.5	11.09	9.99	9.43	8.87*
P-6007*	800	110	5 CT	3	2.5 CT	15.0	3 3/8 x 3 3/8	5.4	11.94	10.75	10.15	9.55*
P-8360†	875*	185	5.0*	3.0	6.3	3.0	4 x 4 1/2	9.5	17.12	15.41	14.56	13.70*
P-6143†	880	130	5	3	6.3 CT	3.5	3 3/8 x 4 1/2	7.0	11.84	10.66	10.07	9.47*
P-5059††	875	200	5 CT	3	6.3 CT	5.0	3 3/8 x 4 1/2	9.6	13.98	12.59	11.89	11.18*
P-6315†	740	275	5 CT	3	6.3 CT	7.0	3 3/8 x 4 1/2	9.3	14.65	13.19	12.46	11.72*

\*Type M Mtg. †Type C Mtg. ††Type C1 mounting. †117/107 primary. †1/2 wave.

†100/160-0-160/190. \*2000 v. rms test.

\*PRICES ARE FOR INDIVIDUALLY BOXED UNITS. SEE LAST STANCOR PAGE FOR BULK PRICES.

HARVEY RADIO CO., INC. • FEDERAL ELECTRONICS, INC.

WOODBURY, L. I. AND NEW YORK CITY

BINGHAMTON, N. Y.



H



S



A, PA



C, PC



PM, M



PS



TD



# CHICAGO STANCOR Filament Transformers

## COMMERCIAL GRADE FILAMENT TRANSFORMERS

### SINGLE SECONDARY

Primary 50 or 60 cycle operation.

C/S No.	Secondary		H. x W. x D. Inches	Wt. Lbs.	Mtg. Type	Net Each, Quantities of			
	Volts	Amps				1-9	10-24	25-49	50-99
P-4026*	2.5	1.5	1 1/8 x 2 1/8 x 1 1/8	0.7	A	\$ 2.90	\$ 2.61	\$ 2.47	\$ 2.32*
P-4082†	2.5 CT	2.5	2 1/8 x 2 1/8 x 2 1/8	1.5	TD	5.08	4.58	4.32	4.06*
P-6133*	2.5 CT	5.0	2 1/8 x 3 1/8 x 2 1/8	1.5	S	3.99	3.60	3.40	3.19*
P-3024†	2.5 CT	10.0	3 1/8 x 2 1/8 x 2 1/8	2.5	S	5.25	4.73	4.47	4.20*
P-6454†	2.5 CT	10.0	3 1/8 x 3 1/8 x 2 1/8	2.5	C	4.21	3.79	3.58	3.37*
P-3060*	2.5 CT	10.0	3 1/8 x 2 1/8 x 2 1/8	2.5	BV	7.06	6.36	6.01	5.65*
P-3026†	5.0 CT	3.0	3 1/8 x 2 1/8 x 2 1/8	2.4	AV	5.25	4.73	4.47	4.20*
P-4088*	5.0 CT	3.0	3 1/8 x 2 1/8 x 2 1/8	1.8	BV	4.45	4.01	3.79	3.56*
P-6467*	5.0 CT	3.0	2 1/8 x 3 1/8 x 2 1/8	1.4	A	3.37	3.04	2.87	2.70*
P-6455†	5.0 CT	6.0	2 1/8 x 3 1/8 x 2 1/8	2.0	S	4.55	4.10	3.87	3.64*
P-3062*	5.0 CT	6.0	3 1/8 x 2 1/8 x 2 1/8	2.3	BV	5.39	4.86	4.59	4.31*
P-5000†	5.0 CT	6.0	3 1/8 x 2 1/8 x 2 1/8	3.1	C	6.09	5.49	5.18	4.87*
P-6135*	5.0 CT	10.0	3 1/8 x 2 1/8 x 2 1/8	3.0	BV	5.87	5.29	4.99	4.70*
P-4086*	5.0 CT	14.0	5 1/8 x 4 1/8 x 3 1/8	12.3	FA	24.02	21.62	20.42	19.22*
P-6432*	5.0 CT	21.0	3 1/8 x 3 1/8 x 3 1/8	4.5	BV	8.76	7.89	7.45	7.01*
P-6433*	5.0 CT	15.0	3 1/8 x 2 1/8 x 2 1/8	3	BV	7.52	6.77	6.40	6.02*
P-6302†	5.0 CT	22.0	5 1/8 x 4 1/8 x 3 1/8	13.5	FA	34.98	31.49	29.74	27.98*
P-6492†	5.0 CT	30.0	4 3/8 x 3 3/8 x 3 3/8	7.5	C	11.49	10.35	9.77	9.19*
P-6468†	5.0 CT	30.0	4 3/8 x 3 3/8 x 3 3/8	6.3	D	13.43	12.09	11.42	10.74*
P-6305†	5.0 CT	30.0	5 1/8 x 4 1/8 x 10	18.3	FA	32.49	29.25	27.62	25.99*
P-6134*	6.3 CT	1.2	1 1/8 x 2 1/8 x 1 1/8	0.8	A	2.19	1.98	1.87	1.75*
P-8190*	6.3	1.2	2 x 3 1/4 x 1 1/4	1.0	A	2.90	2.61	2.47	2.32*
P-8191†	6.3	1.2	2 x 3 1/4 x 1 1/4	1.0	A	3.11	2.80	2.65	2.49*
P-5014*	6.3 CT	3.0	3 1/8 x 2 1/8 x 2 1/8	2.0	BV	4.90	4.41	4.17	3.92*
P-6466*	6.3 CT	3.0	2 x 3 3/8 x 2	1.4	A	3.56	3.21	3.03	2.85*
P-6462†	6.3	3.0	3 x 3 1/2 x 2 1/2	2.0	S	5.87	5.29	4.99	4.70*
P-4019†	6.3 CT	4.0	3 1/8 x 2 1/8 x 2 1/8	2.7	C	5.30	4.77	4.51	4.24*
P-6465*	6.3 CT	4.0	1 1/8 x 2 1/8 x 1 1/8	0.4	A	2.09	1.89	1.78	1.67*
P-3064*	6.3 CT	6.0	3 1/8 x 2 1/8 x 2 1/8	2.4	BV	5.68	5.12	4.83	4.54*
P-4089†	6.3 CT	6.0	3 1/8 x 3 x 3 1/8	3.5	C	6.94	6.25	5.90	5.55*
P-6456†	6.3 CT	6.0	2 1/8 x 3 1/8 x 2 1/8	2.0	A	4.01	3.61	3.41	3.21*
P-6308†	6.3 CT	10.0	3 1/8 x 2 1/8 x 2 1/8	3.4	BV	6.90	6.21	5.87	5.52*
P-6464*	6.3 CT	10.0	3 1/8 x 3 x 3 1/4	3.5	C	7.28	6.56	6.19	5.82*
P-5309†	6.3 CT	20.0	4 3/8 x 3 3/8 x 3	6.7	NV	10.73	9.66	9.13	8.58*
P-5015†	7.5 CT	4.0	3 1/8 x 2 1/8 x 2 1/8	2.7	BV	4.98	4.49	4.24	3.98*
P-4091†	7.5 CT	5.0	3 1/8 x 3 x 3	3.4	C	7.04	6.34	5.99	5.63*
P-6138*	7.5 CT	8.0	3 1/8 x 3 1/8 x 2 1/8	4.7	NV	7.65	6.89	6.51	6.12*
P-6457†	7.5 CT	2.1	4 1/8 x 3 3/8 x 4	8.0	C	13.35	12.02	11.35	10.68*
P-5015†	10.0 CT	4.0	3 1/8 x 2 1/8 x 2 1/8	3.3	BV	6.37	5.74	5.42	5.10*
P-6458†	10.0 CT	5.0	3 1/8 x 2 1/8 x 2 1/8	3.0	NV	4.94	4.45	4.20	3.95*
P-4096†	10.0 CT	5.0	4 1/8 x 3 1/8 x 3 1/8	4.0	C	7.59	6.84	6.46	6.07*
P-6139*	10.0 CT	8.0	3 1/8 x 3 1/8 x 3 1/8	4.9	NV	7.88	7.10	6.70	6.30*
P-4097†	10.0 CT	8.0	4 x 3 1/8 x 3 1/8	5.2	C	8.21	7.39	6.98	6.57*
P-6461*	10.0 CT	10.0	3 1/8 x 3 1/8 x 3 1/8	5.0	C	9.22	8.30	7.84	7.38*
P-3020†	11.0 CT	10.0	4 1/8 x 4 x 3 1/2	7.7	C	10.46	9.42	8.90	8.37*
P-8130*	12.6 CT	2.0	2 x 3 1/4 x 2	1.4	A	3.60	3.24	3.06	2.88*
P-6469*	25.2	1.0	2 x 3 1/4 x 2	1.4	A	3.42	3.08	2.91	2.74*

### MULTIPLE SECONDARY

P-6333*	5.0 5.0 6.3 CT 7.5/6.3 CT	3.0 3.0 4.0 3.0	2 1/8 x 2 1/8 x 3 3/8	4.7	BH	59.89	58.91	58.41	57.91*
P-6428*§	6.3 6.3 6.3 6.3 CT	1.75 1.75 1.75 1.75	3 1/8 x 2 1/8 x 3	3.0	C	6.64	5.98	5.65	5.31*
P-6429*§	6.3 6.3 6.3 6.3 CT	3.5 3.5 3.5 3.5	3 1/8 x 3 1/8 x 3 1/8	4.8	C	8.83	7.95	7.51	7.06*
P-6430*§	6.3 CT 6.3 CT	3.0 3.0	3 1/8 x 2 1/8 x 2 1/8	2.8	C	5.78	5.21	4.92	4.62*
P-6431*§	6.3 CT 6.3 CT	6.0 6.0	3 1/8 x 3 1/8 x 3 1/8	4.8	C	8.75	7.88	7.44	7.00*

Primary Volts: \*117 v.; †117/107 v.; ‡63 v. †Shipping. §Has electrostatic shield.

### F-SERIES FILAMENT TRANSFORMERS

Units with secondaries rated for less than 6 amps have solder-lug terminals; those with secondaries rated at more than 6 amps have screw-type terminals. Numbers F-210, F-210H and F-520HB are for high voltage rectifier supply. Type S mtg. with screw terminals except F-54, F-63, F-65, F-104 and F-615 without screw terminals.

C/S No.	Secondary		Insul. VRMS	Size, Inches H. x W. x D.	Wt. Lbs.	Net Each, Quantities of			
	Volts	Amps				1-9	10-24	25-49	50-99
F-210	2.5 CT	10	5000	3 1/4 x 2 1/8 x 2 3/8	3	511.39	510.26	5 9.69	5 9.12*
F-210H	2.5 CT	10	9000	4 1/4 x 3 x 3 1/4	4	13.84	12.46	11.77	11.08*
F-54	5.0 CT	4	2500	3 1/8 x 2 1/8 x 2 1/8	2 1/4	7.61	6.85	6.47	6.09*
F-58	5.0 CT	10	2500	3 1/8 x 2 1/8 x 2 1/8	3 1/2	15.79	14.22	13.43	12.64*
F-516	5.0 CT	20	2500	4 1/8 x 3 1/8 x 3 1/8	6 1/2	19.95	17.96	16.96	15.96*
F-520HB	5.0 CT	20	10,000	5 1/8 x 4 1/8 x 4 1/8	13	19.79	17.82	16.83	15.84*
F-530	5.0 CT	30	2500	5 1/8 x 4 1/8 x 4 1/8	10 1/2	25.59	23.04	21.76	20.48*
F-615	6.3 CT	1.5	2500	2 1/8 x 2 1/8 x 2 1/8	1	12.53	11.28	10.66	10.03*
F-63	6.3 CT	3	2500	3 1/8 x 2 1/8 x 2 1/8	2	7.35	6.62	6.25	5.88*
F-65	6.3 CT	5.5	2500	3 3/4 x 2 1/8 x 2 1/8	3	13.10	11.79	11.14	10.48*
F-610	6.3 CT	10	2500	4 1/8 x 3 x 3 1/4	5	17.63	15.87	14.99	14.11*
F-725	7.5 CT	25	2500	5 1/8 x 4 1/8 x 4 1/8	12	28.31	25.48	24.07	22.65*
F-104	10 CT	4	2500	3 1/8 x 2 1/8 x 2 1/8	3 1/4	12.96	11.67	11.02	10.37*

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## VIBRATOR TRANSFORMER

C/S No.	Secondary VAC	Filter Input VDC*	DC Ma	Recom. Buffer Capac.	Mtg. Type	Net Each, Quantities of			
						1-9	10-24	25-49	50-99
P-6166†	350-0-350	6.3‡	135	.01 µf	C	\$12.70	\$11.43	\$10.80	\$10.16*

\*When used with syne vibrator. †6 v. DC and 117 v. AC primaries. ‡Filament, at 2.25 amps.

## AUTOMATION CONTROL TRANSFORMERS

Automation control transformers for such usages as automatic assembly equipment, relays, solenoids, small motors, speed changers, recording devices, pumps, tubes, heating elements, control valves, fans and blowers and many others. Primary, 115/230 v. AC, 50/60 cps on all models.

C/S No.	Secondary		VA Rating	Mtg. Type	Wt., Lbs.	Net Each, Quantities of			
	Parallel	Series				1-9	10-24	25-49	50-99
P-6375	6 v. at 2 amps	12 v. at 1 amp	12	J	1	\$ 3.66	\$ 3.30	\$ 3.12	\$ 2.93*
P-6376	6 v. at 4 amps	12 v. at 2 amps	24	J	1½	3.97	3.58	3.38	3.18*
P-6377	12 v. at 4 amps	24 v. at 2 amps	48	J	2½	5.02	4.52	4.27	4.02*
P-6378	12 v. at 8 amps	24 v. at 4 amps	96	BV	4¾	8.11	7.30	6.90	6.49*
P-6379	12 v. at 16 amps	24 v. at 8 amps	192	BV	8	13.99	12.60	11.90	11.19*

## LINE ADJUSTING TRANSFORMERS

Nominal output, 115 v. Input (50-60 cps); 65/75/90/100/115/130/145 v. Type PV case with output meter.

C/S No.	Watts	H. x W. x D. Inches	Shpg. Wt., Lbs.	Mtg. Type	Net Each, Quantities of			
					1-9	10-24	25-49	50-99
PV-6441	150†	5¼ x 3¼ x 5¾	6.4	PV	\$20.80	\$18.72	\$17.68	\$16.64*
PV-6442	350†	5½ x 3½ x 6¾	10.5	PV	23.95	21.56	20.36	19.16*
PV-6443	500†	5¾ x 3¾ x 6¾	15.0	PV	26.48	23.84	22.51	21.19*

†Watts to pure resistive load. To other types of loads, multiply rating of line adjuster by power factor of load for actual wattage.

## BIAS SUPPLY TRANSFORMERS

Rectifier Filament, 5 v., 3 amps. Type CD mounting.

C/S No.	High Voltage Supply (CT) VAC at DC Milliamperes	H. x W. x D. Inches	Shpg. Wt., Lbs.	Mtg. Type	Net Each, Quantities of			
					1-9	10-24	25-49	50-99
P-6317*	200/170/130/90 at 200 ma.	4 x 3¼ x 3¾	4.4	K	\$12.04	\$10.84	\$10.24	\$ 9.63*
P-6318†	450/400/350/250 at 200 ma.	4¾ x 3¾ x 4¾	6.4	K	14.32	12.89	12.18	11.46*

Shipping Weight: \*4.9 lbs. †7 lbs.

## CATHODE-RAY TUBE POWER TRANSFORMER

For use with type 2X2 rectifier tubes in half-wave high voltage supply circuit. Primary, 117 v. AC, 50-60 cps. Mtg. Type C. Supplies 1,800 v. AC at 2.0 ma DC; 2.5 v. rect. fl. at 1.8 amps; and 2.5 v. at 2.2 amps or 6.3 v. at 0.6 amp other winding. Size: 3¼" w. x 3¼" d. x 3¾" h. Shipping Weight, 5 lbs.

Stancor No. P-8178—Net Each, 1-9.....\$9.67  
Net Each, 10-24.....\$8.71 Net Each, 25-49.....8.22  
Net Each, 50-99.....7.74\*

## AUTOTRANSFORMERS

115 v. secondary; 230 v. primary.

C/S No.	Watts	H. x W. x D. Inches	Shpg. Wt., Lbs.	Mtg. Type	Net Each, Quantities of			
					1-9	10-24	25-49	50-99
P-6287	40	3¼ x 2½ x 2¾	2.2	K2	\$ 6.81	\$ 6.13	\$ 5.79	\$ 5.45*
P-5062	80	3¾ x 3 x 3¼	3.8	K	8.32	7.49	7.08	6.66*
P-5063	100	4 x 3¼ x 3¼	4.5	K	8.83	7.95	7.51	7.06*
P-5064	150	4½ x 3¾ x 3¾	5.2	K	10.41	9.37	8.85	8.33*
P-5065	300	4¾ x 4 x 4¾	8.8	K	14.46	13.02	12.30	11.57*
P-6141	500	4¾ x 4 x 5¾	13.7	K	19.02	17.12	16.17	15.22*

## MOBILE OR FIXED TRANSISTOR POWER TRANSFORMER

C/S Number	Primaries	Secondaries	RMS V. Test	Mtg. Type	Size, in H. W. D.	Net Each, Quantities of			
						1-9	10-24	25-49	50-99
P-8195	12 v. DC or 117 v. AC 60 cycles	280 v. DC at 150 ma* and 12.6 v. AC at 3 amp†	1500	C	3¾ x 3¾ x 3¾	\$14.55	\$13.10	\$12.37	\$11.64*

\*Continuous duty, 250 ma intermittent. †With 117 v. AC primary only.

## ISOLATION TRANSFORMERS

Built-in electrostatic shields grounded to core internally.

### STRAIGHT ISOLATION (125/115/105 V. TO 115 V.)

C/S No.	Watts	Mtg. Type	H. x W. x D. Inches	Shpg. Wt., Lbs.	Net Each, Quantities of			
					1-9	10-24	25-49	50-99
P-6410*	50	K	3¾ x 2½ x 3¾	3.7	\$ 8.32	\$ 7.49	\$ 7.08	\$ 6.66*
P-6160	100	KA	4¾ x 4 x 3¾	7	15.22	13.70	12.94	12.18*
P-6161	250	KA	4¾ x 4 x 5¾	14.2	22.49	20.25	19.12	17.99*
P-6298	500	KA	7¾ x 6¾ x 7¾	28	45.27	40.75	38.48	36.22*
P-6125	1000	FK	7¾ x 5¾ x 7¾	34.8	71.19	64.08	60.52	56.95*
P-6123	1500	FK	7¾ x 5¾ x 9	49.8	99.12	89.21	84.26	79.30*
P-6371†	175	TE	5¾ x 4¾ x 5¾	9	20.31	18.28	17.27	16.25*

\*Primary 115 v. only. †Specifically designed for AC-DC Portable TV Receivers. Primary 117 v. only.

### STEP-DOWN ISOLATION (250/230/210 V. TO 115 V.)

P-6383	100	KA	4¾ x 4 x 3¾	7.3	\$15.37	\$13.84	\$13.07	\$12.30*
P-6385	250	KA	4¾ x 4 x 5¾	14.2	25.04	22.54	21.29	20.03*

### ISOLATION TESTING (117 V. TO 105/115/125 V.)

P-6415	350	KC	5¾ x 4¾ x 5¾	17	\$24.68	\$22.22	\$20.98	\$19.74*
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\*PRICES ARE FOR INDIVIDUALLY BOXED UNITS. SEE LAST STANCOR PAGE FOR BULK PRICES.



## FILTER CHOKES, AUDIO FILTER

### SMOOTHING CHOKES

For DC power supplies. Rated 10 v., 60 cps. with max. DC in windings. Tolerance of -15% +50% on all ratings.

C/S No.	Hys.	Ma	Ohms	H. x W. x D. Inches	Mtg. Type	Wt., Lbs.	Net Each, Quantities of			
							1-9	10-24	25-49	50-99
C-2707	2.0	15	70	1 3/4 x 2 1/2 x 1 1/4	A	0.4	\$ 1.61	\$ 1.45	\$ 1.37	\$ 1.29*
C-2344	1.5	10	85	1 1/4 x 2 1/4 x 1 1/4	A	0.5	1.17	1.06	1.00	.94*
C-1515	20.0	15	900	1 3/4 x 2 3/4 x 1 1/4	A	0.7	2.26	2.04	1.93	1.81*
C-2318	12.0	30	400	1 3/4 x 2 3/4 x 1 1/4	A	0.5	1.93	1.74	1.65	1.55*
C-1706	4.5	50	300	1 3/4 x 2 3/4 x 1 1/4	A	0.4	1.34	1.21	1.14	1.08*
C-1707	7.0	50	550	1 3/4 x 2 3/4 x 1 1/4	A	0.4	1.47	1.33	1.25	1.18*
C-1003	16.0	50	580	2 x 3 1/4 x 1 1/4	A	1.1	2.28	2.06	1.94	1.83*
C-1708	13.0	65	500	2 x 3 1/4 x 1 1/4	A	1.0	2.53	2.28	2.16	2.03*
C-1355	8.0	75	290	2 1/4 x 2 3/4 x 1 1/4	L	1.0	2.78	2.51	2.37	2.23*
C-1002	15.0	75	400	2 1/4 x 3 3/4 x 2 1/4	A	1.7	3.04	2.74	2.59	2.44*
C-1420	16.0	80	360	3 1/4 x 2 3/4 x 2 3/4	C	2.5	4.87	4.39	4.14	3.90*
C-1709	8.0	85	250	3 1/4 x 3 1/4 x 2	A	1.4	2.53	2.28	2.16	2.03*
C-2305	5.0	100	300	2 1/4 x 2 3/4 x 2 1/4	TD	1.5	3.62	3.26	3.08	2.90*
C-1001	10.5	110	225	2 3/4 x 4 x 2 1/4	A	2.3	3.75	3.38	3.19	3.00*
C-2704	9	125	250	2 3/4 x 3 3/4 x 1 1/4	A	1.8	3.23	2.91	2.75	2.59*
C-2303	2.5	130	100	2 x 3 1/4 x 1 1/4	A	1.0	2.35	2.12	2.00	1.88*
C-1421	7.0	140	165	3 1/4 x 2 3/4 x 2 3/4	C	2.5	4.87	4.39	4.14	3.90*
C-2304	2.3	150	60	2 x 3 1/4 x 1 1/4	A	1.0	2.35	2.12	2.00	1.88*
C-2309	3.0	150	90	2 1/4 x 3 3/4 x 2 1/4	A	1.7	2.71	2.44	2.31	2.17*
C-1710	7.0	150	200	2 3/4 x 4 x 2 1/4	A	2.2	3.78	3.41	3.22	3.03*
C-2335	7.0	150	170	3 x 2 1/4 x 3	TD	2.3	5.25	4.73	4.47	4.20*
C-1410	4.0	175	100	3 1/4 x 2 3/4 x 2 3/4	C	2.4	4.76	4.29	4.05	3.81*
C-2327	1.5	200	85	1 3/4 x 2 1/4 x 1 1/4	A	0.8	1.88	1.70	1.60	1.51*
C-2325	2.0	200	60	2 1/4 x 3 3/4 x 2 1/4	A	1.8	3.00	2.70	2.55	2.40*
C-1646	5.0	200	90	4 x 3 1/4 x 3 3/4	C	4.5	7.14	6.43	6.07	5.72*
C-1411	4.5	200	80	3 3/4 x 3 x 3 3/4	C	3.5	5.95	5.36	5.06	4.76*
C-1721	8.5	200	120	3 3/4 x 3 3/4 x 3	NV	4.4	7.88	7.10	6.70	6.31*
C-2705	10	200	150	3 3/4 x 3 x 3 1/4	C	4.5	7.61	6.85	6.47	6.09*
C-1703	4.0	250	60	3 3/4 x 2 3/4 x 3 3/4	BV	4.2	6.52	5.87	5.55	5.22*
C-1412	4.0	250	60	3 3/4 x 3 x 3 1/4	C	4.3	7.32	6.59	6.23	5.86*
C-2326	1.0	300	43	2 1/4 x 3 1/4 x 2 1/4	A	1.7	3.05	2.75	2.60	2.44*
C-2334	2.8	300	60	2 3/4 x 2 3/4 x 4	A	2.5	3.71	3.34	3.16	2.97*
C-1722	8.0	300	80	4 3/4 x 3 3/4 x 3 1/4	NV	7.3	11.60	10.44	9.86	9.28*
C-1413	8.0	300	80	4 3/4 x 4 x 4 1/4	D	7.8	12.04	10.84	10.24	9.64*
C-2308	8.0	300	80	4 3/4 x 4 x 3 3/4	C	7.8	11.60	10.44	9.86	9.28*
C-2328	8.0	375	25	2 1/4 x 3 3/4 x 2	A	1.5	3.78	3.41	3.22	3.03*
C-1414	7.5	400	60	4 3/4 x 4 x 5 1/4	D	11.8	16.48	14.84	14.01	13.19*
C-2708	0.32	600	10	1 1/2 x 3 1/4 x 2	A	1.3	3.07	2.77	2.61	2.46*
C-1723	4.5	50	325	1 3/4 x 2 3/4 x 1 1/4	A	0.4	1.48	1.34	1.26	1.19*

### SWINGING CHOKES

C/S No.	Hys.	Ma	Ohms	H. x W. x D. Inches	Mtg. Type	Wt., Lbs.	Net Each, Quantities of			
							1-9	10-24	25-49	50-99
C-1718	13.5-3.5	15-150	130	3 3/4 x 2 3/4 x 2 1/4	C	2.3	\$ 4.66	\$ 4.20	\$ 3.97	\$ 3.73*
C-1400	12-2	17.5-175	100	3 3/4 x 2 3/4 x 2 3/4	C	2.4	4.98	4.49	4.24	3.99*
C-1401	12-2	20-200	80	3 3/4 x 3 x 3 1/4	C	3.5	6.25	5.63	5.32	5.00*
C-1402	12-2	25-250	60	3 3/4 x 3 x 3 1/4	C	4.3	7.32	6.59	6.23	5.86*
C-2307	20-4	30-300	80	4 3/4 x 4 x 3 3/4	C	7.9	12.01	10.81	10.21	9.61*
C-1404	17-3	40-400	60	4 3/4 x 4 x 5 1/4	D	11.7	16.00	14.40	13.60	12.80*

### AUDIO FILTER

#### SPLATTER SUPPRESSOR FILTER

C/S No.	Ind. Range Henries*	Max. DC Ma	Mtg. Type	H. x W. x D. Inches	Net Each, Quantities of			
					1-9	10-24	25-49	50-99
C-2317	0.048-0.9	300	BH	2 3/4 x 3 x 3	55.85	55.27	54.98	54.68*

\*Taps provided to obtain various amounts of inductance.

### AUDIO CHOKE

Rated at 2 v., 200 cps. with max. DC in windings.

C/S No.	Hys.	Ma	Ohms	H. x W. x L. Inches	Mtg. Type	Net Each, Quantities of			
						1-9	10-24	25-49	50-99
C-1003	16	50	580	2 x 3 3/4 x 1 1/4	A	52.28	52.06	51.94	51.83*

### SPLATTER CHOKE

Provide sharp cut-off above 3000 cps in modulators of communications transmitters. Prevent negative peak clipping. Tapped windings.

C/S No.	Case No.	Induct. in Henries	DC Ma	Test Volts	Wt., Lbs.	Net Each, Quantities of			
						1-9	10-24	25-49	50-99
SR-300	22	.02 to 1.5	300	7,500	10	\$40.21	\$36.19	\$34.18	\$32.17

See case sizes elsewhere.

### HIGH CURRENT FILTER CHOKES

Inductance values rated at 1 v. rms, 60 cps.

C/S No.	Hys.	Amps	Ohms	H. x W. x D. Inches	Mtg. Type	Wt., Lbs.	Net Each, Quantities of			
							1-9	10-24	25-49	50-99
C-2685	.035	2.0	.75	2 3/4 x 2 3/4 x 2 3/4	NH	1.9	\$ 3.74	\$ 3.37	\$ 3.18	\$ 3.00*
C-2686	.025	4.0	.425	3 x 3 3/4 x 2 3/4	NH	3.4	6.37	5.74	5.42	5.10*
C-2687	.01	8.0	.15	3 1/4 x 3 3/4 x 3 3/4	NH	5.3	8.37	7.54	7.12	6.70*
C-2688	.01	12.5	.11	3 3/4 x 4 3/4 x 3 3/4	NH	5.9	9.63	8.67	8.19	7.71*
C-2689	.005	22.5	.03	3 3/4 x 4 3/4 x 4 3/4	NH	11.9	14.13	12.72	12.02	11.31*
C-2690	0.3†	1	3‡	3 3/4 x 2 3/4 x 3 3/4	NV	5	8.42	7.58	7.16	6.74*
C-2691	80‡	2.5*	0.6*	3 3/4 x 3 3/4 x 3 3/4	NV	7	10.73	9.66	9.13	8.59*

†Series, 0.075 h. parallel. ‡Series, 2 parallel. §Series, .75 parallel. ¶Mh, series, 20 mh parallel. \*Series, 5 parallel. \*\*Series, 0.15 parallel.

\*PRICES ARE FOR INDIVIDUALLY BOXED UNITS. SEE LAST STANCOR PAGE FOR BULK PRICES.



A



BH



BV



NV



TD



SR



# CHICAGO STANCOR O.E.M. Bulk Pricing

O.E.M. bulk prices available on items listed on single shipments to a single destination with a minimum order of 100 of any part number. Prices F.O.B. Chicago; freight prepaid on orders \$500 and over. Delivery from stock or 6 weeks maximum subject to prior sale.

C/S No.	Net Each, Lots		C/S No.	Net Each, Lots		C/S No.	Net Each, Lots		C/S No.	Net Each, Lots	
	100-249	250-499		100-249	250-499		100-249	250-499		100-249	250-499
A-53	\$ 1.12	\$ 1.02	F-2	\$ 8.28	\$ 7.54	P-6492	\$ 6.28	\$ 5.72	PSC-165	\$18.04	\$16.42
A-53C	1.34	1.22	F-3	9.88	8.99	P-8040	7.75	7.06	PSC-200	15.00	13.65
A-2203	1.33	1.21	F-4	11.64	10.60	P-8042	11.90	10.83	PSR-55	8.85	8.06
A-2312	1.59	1.45	F-5	12.16	11.07	P-8130	1.85	1.69	PSR-70	9.71	8.84
A-2313	1.39	1.27	F-6	10.00	9.10	P-8173	2.52	2.30	PSR-105	10.40	9.47
A-3303	3.53	3.22	F-7	11.48	10.45	P-8174	2.61	2.38	PSR-200	17.26	15.71
A-3304	3.56	3.24	F-8	13.83	12.59	P-8175	4.35	3.96	PSU-2000	9.93	9.04
A-3307	4.28	3.90	F-54	4.31	3.93	P-8176	6.07	5.53	PSU-3000	11.93	10.86
A-3310	3.16	2.88	F-58	8.12	7.39	P-8177	5.30	4.83	PT-8311	9.78	8.90
A-3311	3.83	3.49	F-63	3.79	3.45	P-8178	5.10	4.65	PT-8315	17.80	16.20
A-3327	1.05	.96	F-65	6.73	6.13	P-8190	1.53	1.40	PV-6441	11.36	10.34
A-3328	.77	.70	F-104	6.67	6.07	P-8191	1.60	1.46	PV-6442	13.09	11.92
A-3329	.80	.73	F-210	6.22	5.66	P-8193	4.77	4.34	PV-6443	14.46	13.16
A-3332	.78	.71	F-210H	8.01	7.29	P-8194	7.91	7.20	RC-1055	2.99	2.72
A-3335	1.71	1.56	F-516	10.25	9.33	P-8195	7.48	6.81	RC-1085	3.40	3.10
A-3337	1.30	1.19	F-520HB	12.08	11.00	P-8196	3.69	3.36	RC-1540	2.84	2.59
A-3496	1.47	1.34	F-530	13.16	11.98	P-8359	4.08	3.72	RC-1555	3.24	2.95
A-3800	3.81	3.47	F-610	10.60	9.65	P-8360	9.27	8.44	RC-1585	3.73	3.40
A-3801	4.84	4.41	F-615	6.44	5.86	PA-8421	2.08	1.90	RC-8150	5.28	4.81
A-3802	6.65	6.06	F-725	14.56	13.25	PC-8301	4.46	4.06	RC-8200	5.97	5.44
A-3831	1.51	1.38	IS-50	6.78	6.17	PC-8302	5.83	5.31	RC-8300	8.47	7.71
A-3839	2.61	2.38	IS-100	8.59	7.82	PC-8303	7.66	6.97	RC-12105	5.72	5.21
A-3851	4.25	3.87	IS-150	10.11	9.20	PC-8304	8.63	7.86	RC-12200	6.12	5.57
A-3857	1.31	1.20	IS-250	13.70	12.47	PC-8305	8.98	8.18	RP-400	7.36	6.70
A-3872	2.59	2.36	NCF-2450	3.79	3.45	PC-8401	3.06	2.79	RP-600	7.35	6.69
A-3876	.85	.78	NS1-1	7.22	6.57	PC-8402	3.04	2.77	RP-800	7.32	6.67
A-3877	.85	.78	P-3020	5.52	5.04	PC-8403	3.53	3.22	RP-1600	6.51	5.93
A-3878	.88	.80	P-3024	2.78	2.53	PC-8404	3.91	3.56	RP-2000	7.08	6.45
A-3879	.85	.78	P-3026	2.78	2.53	PC-8405	4.97	4.53	RP-2500	7.11	6.47
A-3881	.80	.83	P-3060	3.73	3.40	PC-8406	3.19	2.91	RS-1055	4.12	3.75
A-3885	4.90	4.37	P-3062	2.95	2.69	PC-8407	3.45	3.14	RS-1085	4.56	4.15
A-4417	1.47	1.34	P-3064	4.83	4.40	PC-8408	4.15	3.78	RS-1540	3.97	3.62
A-8053	7.36	6.70	P-3069	2.89	2.73	PC-8409	4.54	4.14	RS-1555	4.15	3.78
A-8054	7.36	6.70	P-4026	1.49	1.36	PC-8410	4.97	4.53	RS-1585	4.79	4.36
A-8056	7.36	6.70	P-4082	2.61	2.38	PC-8411	6.67	6.07	RS-8105	5.79	5.27
A-8072	9.00	8.19	P-4086	13.59	12.37	PC-8412	7.20	6.56	RS-8150	6.84	6.23
A-8092	1.13	1.03	P-4088	2.35	2.14	PC-8413	8.23	7.49	RS-8200	5.27	4.80
A-8093	1.17	1.07	P-4089	3.66	3.33	PC-8414	8.16	7.43	RS-8300	8.01	7.29
A-8094	2.26	2.06	P-4091	3.72	3.39	PC-8417	3.47	3.16	RS-12105	5.72	5.21
A-8098	4.40	4.01	P-4096	4.15	3.78	PC-8418	2.66	2.42	RS-12150	6.44	5.86
A-8114	.98	.90	P-4097	4.49	4.09	PC-8419	3.06	2.79	RS-12200	7.74	7.05
BI-2	19.99	18.19	P-5000	3.21	2.93	PC-8420	3.56	3.24	RT-201	3.02	2.75
BI-3	18.41	16.76	P-5014	2.68	2.44	PC-8422	5.50	5.01	RT-202	4.10	3.74
BO-1	8.56	7.79	P-5015	2.82	2.57	PCC-40	5.36	4.88	RT-204	5.29	4.82
BO-2	10.35	9.42	P-5016	3.36	3.06	PCC-55	5.73	5.22	RT-206	7.05	6.69
BO-5	12.25	11.15	P-5059	7.38	6.72	PCC-60	6.40	5.83	RT-208	9.05	8.25
C-1001	2.05	1.87	P-5062	4.55	4.14	PCC-70	6.60	6.01	RT-408	20.20	18.39
C-1002	1.60	1.46	P-5063	4.83	4.40	PCC-85	7.16	6.52	RT-2012	13.67	12.44
C-1003	1.25	1.10	P-5064	5.59	5.18	PCC-105	7.44	6.77	RT-4012	26.60	24.21
C-1055	1.53	1.40	P-5065	7.62	6.94	PCC-200	11.49	10.46	SD-50	3.49	3.18
C-1400	2.63	2.40	P-6007	6.53	5.95	PCD-25	4.31	3.93	SD-100	4.37	3.98
C-1401	3.29	3.00	P-6123	54.14	49.27	PCF-2050	4.15	3.78	SD-150	5.54	5.05
C-1402	3.86	3.52	P-6125	38.88	35.38	PCF-24075	4.87	4.44	SD-250	6.58	5.99
C-1404	8.74	7.96	P-6133	2.18	1.99	PCO-150	7.25	6.60	SD-500	9.92	9.03
C-1410	2.51	2.29	P-6134	1.16	1.06	PCO-150A	7.73	7.04	SD-1000	14.08	12.82
C-1411	3.15	2.87	P-6135	3.22	2.93	PCR-55	6.19	5.64	TA-1	1.11	1.01
C-1412	3.86	3.52	P-6138	4.18	3.81	PCR-70	6.92	6.30	TA-2, 3	1.07	.98
C-1413	6.58	5.99	P-6139	4.31	3.93	PCR-105	7.51	6.84	TA-4	1.41	1.29
C-1414	9.01	8.20	P-6141	10.41	9.48	PCR-300	16.24	14.78	TA-5	2.60	2.37
C-1420	2.67	2.43	P-6143	6.47	5.89	PCT-14	5.85	5.33	TA-6	2.93	2.67
C-1421	2.67	2.43	P-6160	8.61	7.84	PCT-15	5.07	4.62	TA-7	1.07	.98
C-1515	1.19	1.09	P-6161	12.29	11.19	PCT-17	5.07	4.62	TA-9	2.84	2.59
C-1646	3.77	3.43	P-6166	6.94	6.32	PCT-21	4.73	4.31	TA-10	2.93	2.67
C-1703	3.57	3.25	P-6287	3.73	3.30	PCT-23	5.40	4.92	TA-11	2.01	1.83
C-1706	.74	.68	P-6308	25.60	23.60	PCT-25	5.40	4.92	TA-12	1.07	.98
C-1707	1.78	1.62	P-6302	18.44	16.78	PCT-30	5.18	4.72	TA-13	2.35	2.14
C-1708	1.34	1.22	P-6305	18.38	16.73	PCT-39	5.18	4.72	TA-14	5.90	5.37
C-1709	1.34	1.22	P-6308	3.75	3.42	PCT-43	4.39	4.00	TA-18, 19	2.01	1.83
C-1710	2.07	1.89	P-6309	5.86	5.34	PCT-54	4.50	4.10	TA-20	2.01	1.83
C-1718	2.46	2.24	P-6315	7.72	7.03	PCT-60	4.50	4.10	TA-21	2.06	1.88
C-1721	4.31	3.93	P-6317	6.35	5.78	PCT-61	4.62	4.21	TA-22	2.01	1.83
C-1722	6.11	5.56	P-6318	7.55	6.87	PCT-62	4.73	4.31	TA-23	2.06	1.88
C-1723	.78	.71	P-6333	5.21	4.75	PCT-70	4.39	4.00	TA-24, 25	2.01	1.83
C-2303	1.24	1.13	P-6348	3.01	2.74	PCT-71	4.50	4.10	TA-26, 27	2.01	1.83
C-2304	1.24	1.13	P-6358	3.21	2.93	PCT-76	5.85	5.33	TA-28, 29	2.01	1.83
C-2305	1.93	1.76	P-6371	10.44	9.50	PCT-77	5.40	4.92	TA-30, 31	2.01	1.83
C-2307	6.56	5.97	P-6375	1.93	1.76	PCT-116	4.28	3.90	TA-32, 33	2.06	1.88
C-2308	6.34	5.77	P-6376	2.10	1.92	PCT-117	3.60	3.28	TA-34, 35	2.01	1.83
C-2309	1.43	1.31	P-6377	2.65	2.42	PCT-118	3.60	3.28	TA-36	2.01	1.83
C-2317	3.03	2.74	P-6378	4.28	3.90	PCT-128	5.06	4.58	TA-38, 39	2.01	1.83
C-2318	1.00	.95	P-6383	8.40	7.65	PM-8401	3.21	2.93	TA-40	2.01	1.83
C-2325	1.59	1.45	P-6385	13.68	12.45	PM-8402	3.12	2.84	TA-41, 42	2.06	1.88
C-2326	1.61	1.47	P-6410	4.39	4.00	PM-8403	3.53	3.22	TA-43	2.06	1.88
C-2327	1.00	.91	P-6415	13.49	12.28	PM-8404	4.05	3.69	TA-44, 45	2.01	1.83
C-2328	1.95	1.78	P-6428	3.44	3.13	PM-8405	4.97	4.53	TA-46	2.01	1.83
C-2334	2.04	1.86	P-6429	4.66	4.24	PM-8406	3.19	2.91	TA-47	2.06	1.88
C-2335	2.71	2.47	P-6430	3.05	2.78	PM-8407	3.45	3.14	TA-52	1.69	1.54
C-2344	.66	.60	P-6431	4.62	4.21	PM-8408	4.31	3.93	TA-54	1.64	1.50
C-2685	2.04	1.86	P-6432	4.62	4.21	PM-8409	4.54	4.14	TA-55	2.35	2.14
C-2686	3.36	3.06	P-6433	3.97	3.62	PM-8410	5.37	4.89	TA-56	1.68	1.53
C-2687	4.58	4.17	P-6434	2.22	2.02	PM-8411	6.77	6.16	TA-57	1.65	1.51
C-2688	5.08	4.63	P-6435	2.35	2.14	PM-8412	6.97	6.35	TA-58	1.20	1.10
C-2689	7.72	7.03	P-6436	2.12	1.93	PM-8418	2.76	2.52	TA-59	1.34	1.22
C-2690	4.44	4.04	P-6457	7.30	6.85	PM-8420	3.70	3.37	TA-60	1.07	1.01
C-2691	5.66	5.15	P-6458	2.71	2.47	PM-8422	5.32	4.85	TA-62	1.06	.98
C-2704	1.59	1.45	P-6461	4.87	4.44	PM-8423	4.40	4.01	TA-63	2.48	2.26
C-2705	4.01	3.65	P-6462	3.03	2.76	PS-8415	1.36	1.24	TP-1	2.75	2.51
C-2707	.86	.79	P-6464	3.84	3.50	PS-8416	1.65	1.51	TP-2	2.20	2.01
C-2708	1.52	1.39	P-6465	1.10	1.01	PSC-40	8.41	7.66	TP-3	2.88	2.62
CIC-1	9.03	8.22	P-6466	1.88	1.71	PSC-55	8.32	7.58	TP-4	4.72	4.30
CIC-2	4.01	3.65	P-6467	1.73	1.58	PSC-70	9.44	8.59	UM-110	3.43	3.13
COC-1	4.56	4.15	P-6468	7.34	6.68	PSC-85	9.87	8.99	UM-112	3.79	3.45
COC-2	5.47	4.98</									



# MICROTRAN<sup>®</sup> Miniaturized Transformers

## PICO MINIATURE TRANSFORMERS—PM SERIES (FIG. A)

Epoxy molded finish with gold plated leads, 0.020" x 1/8". Frequency Response, =2 db, 300 cps to 100 kc, except PM3 and PM5, to 45 kc. Power level given for 15% max. distortion, except PM35, 20% and PM37, 25%. Maximum size, .410" x .465" x .310". Weight, 0.1 oz. MIL type TF5RX—ZZ (Insert MIL No. from table).

Microtran No.†	Application	Impedance		Pri. DC DC Ma*	DC Resist., Ohms		Power Level, Mw	MIL No.	Net Each, 1-9*
		Primary	Secondary		Pri.	Sec.			
PM3-M	Input	200K CT	1K CT	0	5300	110	10	16	\$7.65
PM5-M	Input	200K	1K	0	5300	110	10	16	6.60
PM7-M	Interstage	50K CT	1K CT	0	3300	75	10	16	7.50
PM9-M	Interstage	50K	1K/250†	0	3300	75	10	16	8.10
PM11-M	Interstage	25K CT	1K CT	0.5	1700	110	40	12	7.05
PM13-M	Interstage	25K	1K/250†	0.25	1700	110	40	12	7.65
PM15-M	Interstage	25K	1K	0.25	1700	110	40	12	6.15
PM17-M	Isolation	10K CT	10K CT	1	1000	1300	50	12	7.65
PM19-M	Driver	10K CT	2K CT	1	1000	300	50	12	6.75
PM21-M	Driver	10K	2K/500†	0.5	1000	300	50	12	7.35
PM23-M	Driver	10K CT	1200 CT	1	1050	280	50	12	6.75
PM25-M	Driver	10K	1200/300†	0.5	1050	280	50	12	7.20
PM27-M	Driver	10K	1200	0.5	1050	280	50	12	6.00
PM29-M	Driver	10K CT	500 CT	1	1050	80	50	12	6.75
PM31-M	Isolation	2500	2500 CT	1	250	325	50	12	6.30
PM33-M	Output	1500 CT	600	3	170	95	50	12	6.15
PM35-M	Output	500	50	3	60	8	50	17	5.40
PM37-M	Output	120 CT	3.2	2	16	0.75	50	17	5.70
PM39-M	Audio Choke	6 hys.	.....	10	1800	.....	.....	20	5.40
PM41-M	Audio Choke	.3 hys.	.....	4	43	.....	.....	20	4.65

\*Unbalanced. †Split.

## DC TO DC CONVERTER TRANSFORMERS

### SWITCHING TYPE

Provides improved reliability and efficiency over vibrator and rotary power converters. Approx. 800 cps repetition rate. Full wave and CT loads may be drawn simultaneously, but VA output should not be exceeded for continuous duty. Fig. B except MS072, Fig. C.

Microtran No.	In-put VDC	VA Out-put	Transistors Suggested	DC Output				Size, Inches W. x D. x H.	Mtg. Ctrs., In. M/L/MW	MIL Case	Net Each, 1-9*
				FW V.	Br. Ma	CT V.	CT FW Ma				
MS034	28	125	Delco 2N174	500	250	250	420	2 3/4 x 2 3/4 x 3 1/2	1 3/4	GA	\$26.70
MS035	13.6	125	Delco 2N442	500	250	250	420	2 3/4 x 2 3/4 x 3 1/2	1 3/4	GA	26.70
MS036	13.6	40	Delco 2N442	450	90	225	155	2 1/4 x 2 1/4 x 3 1/4	1 1/4	FA	24.90
MS072	2.7	190†	Delco 2N1307	480*	400†	.....	.....	1 5/8 x 1 1/2 x 1 7/8	1 1/2	ZZ	5.40

\*Output when used with half wave cap. Input filter. †µa. †Mw.

### BLOCKING OSCILLATOR TYPE

Approx. 400 cps repetition rate. Fig. C, except MS051, Fig. D.

Microtran No.	Turns Ratio HV: Coll.: Feedback	Input		Output		Size, Inches W. x D. x H.	Mtg. Ctr., In.	Net Each, 1-9*
		DC V.	DC Ma	DC Volts	DC µa			
MS050	600:12:1	3	20	1000*	25	1 5/8 x 1 1/2 x 1 1/2	1 3/4	\$ 5.55
MS051	600:12:1	3	20	1000*	25	1 x 1 x 1 1/4	1 3/4	11.85
MS073	44:1:1	4	2-15†	425-500†	50†	3/4 x 1/2 x 1 1/4	.....	5-25
MS074	65.5:33:1	3	45	535*	90	1 5/8 x 1 1/2 x 1 1/2	1 3/4	5-10

\*When used in blocking oscillator circuit with single cap. Input rectifier. †Varies with load and bias conditions. Frequency varies from 100 to 2800 cps. \*Maximum.

## MICRO-MINIATURE AUDIO AND TRANSISTOR TRANSFORMERS—MM AND MMT SERIES

MM-M (Fig. E): Molded, for plug-in printed circuit applications. Cast epoxy resin for high resistance to extremes of ambient temperature. MIL Type TF6RX—ZZ (Insert MIL No. from table). Size, 3/4" x 1/2" x 1 1/2" with 1/8" pins, .020" dia. Weight, 1/2 oz. MM-H (Fig. F): Hermetically sealed with high compression

glass terminals. Gray enamel finish. MIL Type TF4RX—YY. Size, 1 1/4" dia. x 1 1/2". Weight, 3/4 oz. MM-FB (Fig. C): Open frame with channel. Available with plug-in tab channel or without channel on special order. MIL Type TF6RX—ZZ. Size, 1 1/4" x 1 1/2" x 1 1/2", plus tabs.

Microtran No.†	Application	Impedance		Pri. Unbal. DC Ma	Oper. Level, dbm	Freq. Resp. =2 db, cps	MIL No.	Net Each, Lots of 1-9*		
		Pri.	Sec.					-FB	-H	-M
MM1-	Input	200/50	250K/62.5K	0	4	200-10K	10	\$4.50	\$7.35	\$8.55
MM2-	Interstage 3:1	10K	90K	0	4	150-10K	10	4.80	7.50	8.70
MM3-	Plate to line	10K	200	3	20	150-10K	13	4.20	7.20	8.40
MM4-	Output	30K	50	1	20	150-10K	13	4.05	7.05	8.25
MM5-	Reactor 50 hys. at 1 mill DC	4.7K ohms	DC Res.	.....	.....	.....	20	4.05	6.90	8.10
MM6-	Output	100K	60	0.5	20	250-10K	13	4.20	7.20	8.40
MM7-	Output	30K	1200	0.5	20	200-10K	13	3.30	6.45	7.65
MMT1-	Line to base	600	600	8	22	200-15K	17	3.90	7.35	8.55
MMT3-	Coll. to base or line	50K	600	0.7	20	200-15K	13	4.05	7.50	8.70
MMT4-	P-p coll. to p-p base	50K CT	600 CT	20.4	20	200-15K	13	4.80	8.55	9.75
MMT5-	Coll. to speaker	50K	6	1	20	200-15K	13	4.35	7.95	9.15
MMT7-	Coll. to p-p base	25K	1200 CT	1	20	200-15K	13	4.50	8.40	9.60
MMT8-	P-p coll. to p-p base	50K CT	1200 CT	1.4	20	200-15K	13	4.65	8.55	9.75
MMT9-	Line to p-p base	600 CT	1200 CT	16	22	200-15K	17	4.20	7.65	8.85
MMT10-	Coll. to base	25K	600	1	20	200-15K	13	3.45	7.20	8.40
MMT11-	P-p coll. to p-p base or line	4K CT	600 CT	5	28	200-15K	12	4.35	7.80	9.00
MMT12-	Coll. to speaker	2K	3.4	5	28	200-15K	13	3.90	7.35	8.55
MMT13-	Output p-p coll. to speaker	4K CT	3.4	5	28	200-15K	13	4.05	7.50	8.70
MMT16-	Coll. to p-p base	10K	1500 CT	1	20	200-15K	13	4.50	8.40	9.60
MMT17-	P-p coll. to p-p base	10K CT	200 CT	6	20	200-15K	13	4.50	8.10	9.30
MMT18-	P-p coll. to p-p base	25K CT	1200 CT	2	23	200-15K	13	4.65	8.55	9.75
MMT19-	Coll. to p-p base	2500	600	2	23	200-15K	13	4.05	7.50	8.70
MMT21-	P-p coll. to p-p base	4K CT	600/150 Split	5	28	200-15K	13	4.65	8.55	9.75
MMT25-	P-p coll. to p-p base	4750 CT	600 CT	4	22	200-15K	13	4.35	7.80	9.00
MMT26-	Line to base	600 CT	600 CT	16	22	200-15K	17	4.20	7.65	8.85
MMT27-	P-p coll. to p-p base	25K CT	600 CT	2	20	200-15K	13	4.50	8.40	9.60
MMT28-	P-p coll. to p-p base	10K CT	1500 CT	2	20	200-15K	13	4.65	8.55	9.75
MMT29-	Driver/Isolation	10K CT	10K CT	2	20	200-15K	13	4.65	8.55	9.75
MMT30-	P-p coll. to p-p base	7500 CT	1200 CT	4	22	200-15K	13	4.50	8.40	9.60
MMT31-	P-p coll. to p-p base	2K CT	500 CT	10	28	200-15K	13	4.35	8.25	9.45
MMT32-	Line to p-p base	600 CT	1200/300 Split	16	22	200-15K	17	4.65	8.55	9.75

★SEE FOURTH MICROTRAN PAGE FOR QUANTITY PRICING AND MIL CASE SIZES

†ORDER BY COMPLETE MICROTRAN NUMBER; EXAMPLE MM1-FB.



# MICROTRAN® Miniaturized Transformers

## ULTRA-MINIATURE TRANSISTOR TRANSFORMERS—UM SERIES

Frequency Response:  $\pm 2$  db, 300-10K cps. Leads supplied, 4" #27 color-coded. Power levels given for 7 1/2% max. distortion. **UM-F (Fig. A):** Size, 3/8" x 3/8" x 1 1/2". Weight, 0.08 oz. MIL type TF6RX—ZZ (Insert MIL No. from table). **UM-M (Fig. B):** Size, 1/2" dia. x 1/2", with 1" leads. Weight, 0.14 oz. MIL type TF6RX—ZZ.

Microtran No.†	Application	Impedance		Unbal. Pri. DC Ma	DC Resis., Ohms		Level at 1kc, mw	MIL No.	Net Each, 1-9*	
		Primary	Sec.		Pri.	Sec.			-F	-M
UM21	Input	100K	1K	0	1900	135	70	18	\$6.00	\$6.60
UM22	Driver	20K	1K	0.5	1100	100	300	13	4.35	5.40
UM23	Driver	20K	1200 CT	0.5	1100	110	300	13	4.65	6.00
UM24	Output	1K	50	3	65	10	500	17	3.90	4.95
UM25	Output	400	50	3	35	5	500	17	3.90	4.95
UM26	Output	400	11	3	35	1.5	500	17	3.90	4.95
UM27	Output	400 CT	11	6	35	1.5	500	17	4.20	5.25
UM28	Choke	10 hy., 0 DC	.....	Shy., 0.5ma	650	.....	.....	20	3.75	5.25
UM29	Interstage	600 CT	600 CT	7	45	60	400	21	4.65	5.70
UM30	Choke	1.5 hy., 0 DC	.....	.....	100	.....	.....	20	3.60	4.50
UM31	Interstage	10K CT	1200 CT	2	850	120	500	21	4.80	5.85
UM32	Output	1500 CT	600	5	135	65	500	17	4.35	5.40
UM33	Output	1K CT	600	6	80	65	500	17	4.35	5.40
UM34	Driver	10K CT	600 CT	2	850	40	500	13	4.50	5.55
UM35	Isolation	15K CT	15K CT	1	930	1210	300	15	4.95	6.15

## VERI-MINIATURE TRANSISTOR TRANSFORMERS—VM SERIES

Frequency Response:  $\pm 2$  db, 200-10K cps. Leads supplied, 4" #27 color-coded. Power levels given for 7 1/2% max. distortion. **VM-M (Fig. C):** For plug-in printed circuit applications. Cast Epoxy Resin provides high resistance. Size, 1/2" x 1/2" x 1/2". Weight, 0.25 oz. MIL type TF6RX—ZZ (Insert MIL No. from table). **VM-FPB (Fig. D):** Plug-in tab mounted channel. Size, 1 1/2" x 1 1/2" x 1/2". Weight, 0.2 oz. MIL type TF6RX—ZZ.

Micro No.	Application	Impedance		Pri. DC Ma	DCR, Ohms		Level, mw	MIL No.	Net Ea., 1-9*	
		Primary	Secondary		Pri.	Sec.			-FPB	-M
VM1	Input	50	600, 1.5 ma	7	90	15	21	\$4.20	\$5.55	
VM2	Input or Intrstg.	200K	600, 1.0 ma	3000	110	5	21	5.70	7.20	
VM3	Interstage	25K	600, 1.0 ma	720	45	5	21	4.50	6.30	
VM4	Input or Intrstg.	200K	1200, .72 ma	3100	165	5	21	5.70	7.20	
VM5	Interstage	50K	600, 1.0 ma	830	55	5	21	4.65	6.60	
VM6	Interstage	100K	1200, .72 ma	2000	150	5	21	5.85	7.35	
VM7	Output	500, 3.5 ma	3.4	50	50	0.5	15	4.20	5.55	
VM8	Output	1250, 2.0 ma	3.4	135	50	0.5	15	4.35	5.70	
VM9	Output	250, 2.0 ma	50	135	6.5	1.5	21	4.35	5.70	
VM10	Interstage	2500, 1.5 ma	2500 CT	225	215	3	21	4.65	6.90	
VM11	Choke	20 hy., 0 ma	12hy., .5ma	1000	.....	.....	21	4.05	5.10	
VM12	Interstage	20K	1000, .75 ma	625	85	5	21	4.50	6.30	
VM13	Interstage	20K	1000, .75 ma	625	85	5	21	4.65	6.90	
VM14	Interstage	600, 7 ma	600 CT	50	85	15	17	4.50	6.75	
VM15	Isolation	50K CT	50K CT	2000	2600	5	15	6.00	8.40	
VM16	Driver	500, 7.5 ma	250 CT	40	13	15	17	4.50	6.75	

## TRANSISTOR DRIVER AND OUTPUT TRANSFORMERS (FIG. E)

Hermetically sealed and magnetically shielded with MIL-T-27A construction. MIL Type TF4RX—(Add MIL No. 17 and Case from table). MIL No. 17 except where noted.

Micro No.	Application	Impedance		Pri. Unb. DC Ma	Level Watts	Freq. Resp. $\pm 2$ db, cps	MIL Case	Net Ea., 1-9*	
		Pri.	Sec.					-F	-M
M8002*	Coll. to p-p base	500	400 CT	18	0.15	200-20K	AJ	\$11.25	
M8003*	Coll. to p-p base	625 CT	100 CT	20	1.5	200-20K	AJ	12.30	
M8004*	Coll. to p-p base	5400	600 CT	15	0.075	200-15K	AH#	14.85	
M8005	Coll. to p-p base	7000	320 CT	7	0.040	70-15K	AH#	14.85	
M8006	Coll. to p-p base	10K	6500 CT	0.75	0.005	200-15K	YY#	9.45	
M8008	Coll. to speaker	25	3-4	600	3	200-20K	AJ	11.10	
M8007*	P-p auto transformer	30 CT	3-4	200	2	100-20K	AJ	11.40	
M8009	P-p output to spkr.	48 CT	3.2/S	50	5	200-20K	AJ	11.70	
M8010	P-p coll. to servo	120 CT	1K	40	6	300-15K	AJ	11.55	
M8011	P-p output to spkr.	125 CT	3-4	20	1.5	200-15K	AH	14.55	
M8012*	P-p coll. to servo	140 CT	500	50	6	300-15K	AJ	11.25	
M8013*	P-p output to spkr.	250 CT	3-4	20	0.4	70-15K	AH	14.55	
M8014	P-p output to spkr.	400 CT	11	2	0.25	300-15K	YY	9.15	
M8015	P-p coll. to servo	1600 CT	80	5	2.5	150-20K	AJ	12.00	
M8016	P-p output to spkr.	2500 CT	12	4	0.10	300-15K	YY	9.30	
M8054	P-p output to servo	250 CT	130	20	3	200-15K	AH	14.55	

†CT. \*Bi-filar wound to minimize switching transients. #MIL No. 13.

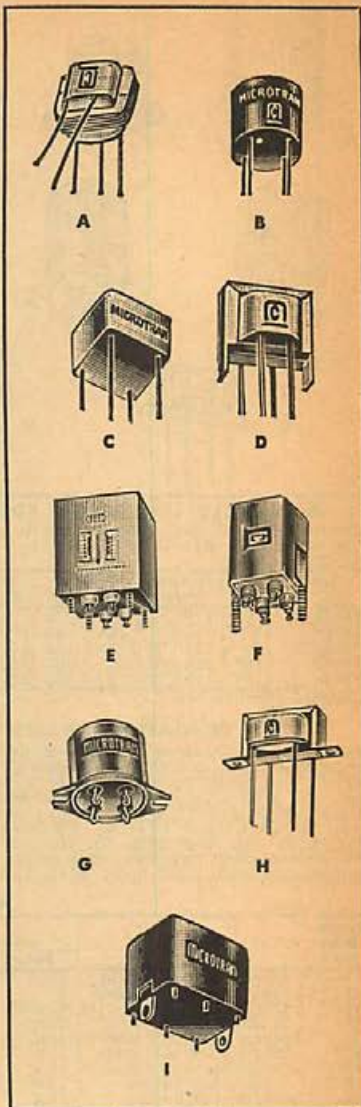
## SUBMINIATURE AUDIO AND TRANSISTOR TRANSFORMERS—SM AND SMT SERIES

**SM-AF (Fig. F):** MIL-T-27A-AF modified case with compression sealed ceramic terminals. Gray enamel finish. MIL Type TF4RX—YY (Insert MIL No. from table). Max. Size, 3/4" x 3/4" x 1 1/4" with two 4-40NC-2 spade mtg. bolts. Weight, 1 1/2 oz. **SM-H (Fig. G):** Hermetically sealed with high compression glass terminals, gray enamel finish. MIL Type TF4RX—YY. Size, 1 1/2"

dia. x 1 1/2" h. Weight, 1 oz. **SM-FB (Fig. H):** Open frame with channel. Available with plug-in tab mounted channel or without channel on special order. MIL Type TF6RX—ZZ. Size, 1 1/2" x 1 1/2" x 3/4", plus tabs. Weight, 0.710 oz. **SM-M (Fig. I):** Molded, for plug-in printed circuit applications. MIL Type TF5RX—ZZ. Size, 1 1/2" max. x 3/4" x 3/4". Weight, 1 1/2 oz.

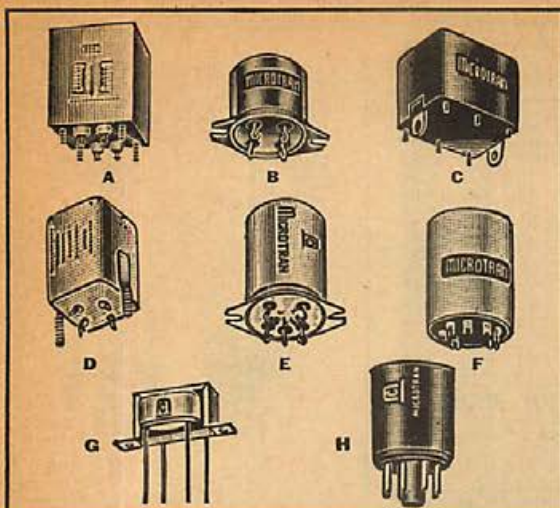
Microtran No.†	Application	Impedance		Pri. Unb. DC Ma	Oper. Level, dbm	Frequency Resp., $\pm 2$ db, cps	MIL No.	Net Each, Lots of 1-9*			
		Pri.	Sec.					-AF	-FB	-H	-M
SM1	Input	200/50	250K/82.5K	0	6	80-10K	10	\$9.00	\$4.35	\$7.20	\$9.00
SM2	Interstage 3:1	10K	90K	0	8	100-10K	10	8.70	3.90	6.90	9.00
SM3	Plate to line	10K	200	3	21	150-10K	13	8.70	3.90	6.90	9.00
SM4	Output	30K	50	1	21	150-10K	13	8.70	3.90	6.90	9.00
SM5	Reactor 50 hy. at 1 mil DC	3K ohms	DC Resis.	.....	.....	.....	20	7.20	3.30	6.30	8.40
SM6	Output	100K	60	0.5	21	150-10K	13	8.70	4.35	7.05	9.00
SMT1	Line to base	600	600	9	23	200-15K	17	6.75	3.90	6.00	7.20
SMT3	Coll. to base or line	50K	600	1	20	300-15K	13	7.35	4.50	6.60	7.80
SMT4	P-p coll. to p-p base	50K CT	600 CT	2	20	200-15K	13	.....	4.95	7.05	8.25
SMT5	Coll. to speaker	50K	6	1	20	300-15K	13	7.20	4.35	6.45	7.65
SMT7	Coll. to p-p base	25K	1200 CT	2.5	20	200-15K	13	7.50	4.65	6.75	7.95
SMT8	P-p coll. to p-p base	50K CT	1200 CT	2	20	200-15K	13	.....	4.95	7.05	8.25
SMT9	Line to p-p Base	600 CT	1200 CT	18	23	200-15K	17	.....	4.20	6.30	7.50
SMT10	Coll. to base	25K	600	2	20	200-15K	13	7.05	4.20	6.30	7.50
SMT12	Output coll. to speaker	2K	3.4	5	30	200-15K	13	6.75	3.90	6.00	7.20
SMT13	Output p-p coll. to speaker	4K CT	3.4	5	30	200-15K	13	6.90	4.05	6.15	7.35
SMT16	Coll. to p-p base	10K	1500 CT	1	23	200-15K	13	7.50	4.65	6.75	7.95
SMT17	P-p coll. to p-p base	10K CT	200 CT	6	20	200-15K	13	.....	4.80	6.90	8.10
SMT18	P-p coll. to p-p base	25K CT	1200 CT	3	20	200-15K	13	.....	4.95	7.05	8.25
SMT19	Coll. to p-p base	2500	2500 CT	2.5	26	200-15K	13	7.50	4.65	6.75	7.95
SMT26	Line to base	600 CT	600 CT	18	23	200-15K	17	.....	4.50	6.60	7.80

\*SEE FOURTH PAGE FOR QUANTITY PRICING AND MIL CASE SIZES  
†ORDER BY COMPLETE MICROTRAN NO. EXAMPLE, UM21-M





# MICROTRAN<sup>®</sup> Miniaturized Transformers



## 400 CYCLE ISOLATION TRANSFORMERS

Electrostatic shielding. Also for use in either F.W. bridge or F.W. CT circuit. MIL Type TF4RX01—, Fig. A except M8058, Fig. B.

Micro. No.	Input Volts	Output Volts	RMS Amps	VA	Size, Inches W. x D. x H.	MIL Case	Net. 1-9*
M8058	115	115 CT	.017	2	1 1/4" dia. x 1 1/2"	YY	\$ 9.60
M8059	115	115 CT	.35	40	1 1/4" x 1 1/2" x 2 1/2"	EB	14.70
M8060	115	115 CT	1.3	150	2 1/2" x 2 1/2" x 3 1/2"	GA	18.45
M8061	115*	115 CT	2.6	300	3 1/2" x 3 1/2" x 4 1/2"	JA	24.90
M8062	115*	115 CT	4.4	500	3 3/4" x 3 1/2" x 5 1/2"	KA	26.85

\*Primary 105/115/125 v.

## MINIATURE TRANSISTOR AND AUDIO TRANSFORMERS—MT AND M SERIES

M-M (Fig. C): Molded, for plug-in printed circuit use. Cast epoxy resin provides highest resistance to temperature extremes. MIL Type TF6RX—ZZ (Insert MIL No. from table). Max. Size, 1 1/2" x 1/2" x 1/2". Weight, 1 1/2 oz. M-AG (Fig. D): Enclosed in modified MIL-T-27 AG case with compression sealed ceramic terminals. MIL Type TF4RX—YY. Max. Size, 1" x 1" x 1 1/2". Weight, 2 1/2 oz. M-H (Fig. E): Hermetically sealed with high compression glass terminals, gray enamel finish. Available on special order with .120" holes. MIL Type TF4RX—YY. Size,

## POWER SUPPLY TRANSFORMERS

For silicon rectifier circuitry and filament applications. Hermetically sealed. Primary, 105/115/125 v. Output voltage given for resistive or inductive loads, based on approx. 1 v. drop per rectifier. MIL Type TF4RX01— (Add MIL Case Type from table) per MIL-T-27A. Fig. A except M8063 and M8069, Fig. B.

### 400 CYCLE TYPE

Micro. No.	Secondary		Rect. VDC	Cir. VDC	Size, Inches W. x D. x H.	MIL Case	Net. 1-9*
	VAC	RMS					
M8063	2.85	.045 a.	1.5	3	1 1/2" dia. x 1 1/2"	YY	\$10.50
	2.85	.045 a.					
M8064	6.3 CT	.8 a.	1.9	3.8	1 1/2" x 1 1/2" x 1 1/2"	AJ	11.10
M8039	12.6	.8 a.	10.5	21	1 1/2" x 1 1/2" x 2 1/2"	EH	15.15
	12.6 CT	.8 a.					
M8018	18.5 CT	1 a.	7	14	1 1/2" x 1 1/2" x 2 1/2"	EA	15.30
M8019	18.5 CT	1.5 a.	10.7	21	2 1/2" x 2 1/2" x 3 1/2"	EA	15.90
M8065	26 CT	3 a.	10.7	21	5 1/2" x 1 1/2" x 2 1/2"	FA	15.60
M8066	26 CT	3 a.	10.7	21	5 1/2" x 2 1/2" x 3 1/2"	FA	16.05
M8067	30 CT	3.5 a.	12.5	25	5 1/2" x 2 1/2" x 3 1/2"	FB	15.00
M8020	35 CT	3 a.	14.5	29	2 1/2" x 2 1/2" x 3 1/2"	GA	18.00
M8068	40 CT	2 a.	17	34	1 1/2" x 1 1/2" x 1 1/2"	JA	13.20
M8041	50 CT	2.5 a.	21.5	43	1 1/2" x 1 1/2" x 1 1/2"	AH	11.10
M8069	50 CT	.003 a.	26	52	1 1/2" dia. x 1 1/2"	YY	9.75
M8070	55 CT	.170 a.	28.4	56.8	1 1/2" x 1 1/2" x 1 1/2"	AH	9.75
M8021	70 CT	1 a.	30	60	2 1/2" x 2 1/2" x 3 1/2"	FA	16.05
M8071	80 CT	.90 a.	35.2	70.4	2 1/2" x 2 1/2" x 3 1/2"	FA	16.20

### 60 CYCLE TYPE

Micro. No.	Secondary		Rect. VDC	Cir. VDC	Size, Inches W. x D. x H.	MIL Case	Net. 1-9*
	VAC	RMS					
M8042	6.3 CT	2.6 a.	1.9	3.8	1 1/2" x 1 1/2" x 2 1/2"	AJ	\$10.20
M8043	6.3 CT	2 a.	1.9	3.8	2 1/2" x 2 1/2" x 2 1/2"	JB	12.00
M8044	12.6 CT	2 a.	10.5	21	3 1/2" x 3 1/2" x 3 1/2"	FB	21.60
	12.6 CT	2 a.					
M8022	18.5 CT	3 a.	7	14	3 1/2" x 3 1/2" x 3 1/2"	JB	20.25
M8045	28 CT	6 a.	11.7	23.4	2 1/2" x 2 1/2" x 3 1/2"	FA	16.35
M8055	30 CT	2.5 a.	12.5	25	3 1/2" x 3 1/2" x 3 1/2"	JA	25.65
M8023	35 CT	3 a.	14.5	29	3 1/2" x 3 1/2" x 5 1/2"	KA	26.10
M8046	49 CT	2.5 a.	21	42	3 1/2" x 4 1/2" x 5 1/2"	LA	28.20
M8024	70 CT	1 a.	30	60	3 1/2" x 3 1/2" x 4 1/2"	JA	25.65
M8056	80 CT	6 a.	35	70	5 1/2" x 3 1/2" x 4 1/2"	HA	16.65
M8057	115 CT	.9 a.	51	102	3 1/2" x 3 1/2" x 5 1/2"	KA	25.35

†CT full wave. #F.W. bridge. ‡P. 115 v. only.

## MINIATURE AUDIO TRANSFORMERS—M SERIES

Micro-tran No.	Application	Impedance		Pri. DC Ma*	Oper. Level, dbm	Freq. Resp. as 2 db, cps	MIL No.	Net Each, Lots of 1-9*					
		Pri.	Sec.					-A	-AG	-FB	-H	-M	-P
M1-	Mike or line to 1 grid	↑	50K	0	5	20-20K	10	\$ 7.50	\$ 9.90	\$ 4.05	\$ 9.00	\$ 9.90	\$ 8.85
M2-	Mike or line to 2 grids	↑	50K CT	0	5	20-20K	10	7.65	10.35	4.20	9.45	10.20	8.85
M3-	Dynamic mike to 1 grid	7.5/30	50K	0	5	20-20K	10	7.50	9.90	3.90	9.00	9.75	8.40
M4-	Single plate to 1 grid	15K	60K	0	6	20-15K	10	6.45	8.55	3.45	7.65	8.55	7.50
M5-	Single plate to 1 grid	15K	60K	4	14	200-20K	15	6.45	8.55	3.45	7.65	8.55	7.50
M6-	Single plate to 2 grids	15K	95K CT	0	5	20-15K	10	7.35	9.45	3.60	8.55	9.45	8.25
M7-	Single plate to 2 grids	15K	95K CT	4	11	200-20K	15	7.35	9.75	3.75	8.85	9.75	8.25
M8-	Single plate to line	15K	↑	0	8	20-20K	16	7.65	10.50	3.75	9.60	10.50	8.85
M9-	Single plate to line	15K	↑	4	21	150-20K	13	7.65	10.50	3.75	9.60	10.50	8.85
M10-	Push-pull plates to line	30K, p-p	↑	0	8	30-50K	16	8.25	10.80	3.90	9.60	10.80	9.00
M11-	Crystal mike to line	50K	↑	0	5	20-20K	16	7.65	10.50	3.75	9.30	10.50	8.85
M12-	Mixing and matching	↑	↑	0	8	20-20K	16	7.50	10.50	3.75	9.30	10.50	9.00
M13-	Reactor	300#	↑	0	8	6K ohms DCR	20	6.15	8.25	3.30	7.35	8.25	7.50
M14-	50:1 mike to grid	200	1/2 meg.	0	9	80-3K	10	7.35	9.90	3.90	9.00	10.20	8.85
M15-	10:1 plate to grid	10K	1 meg.	0	11	100-2500	10	7.35	9.30	3.60	8.40	9.30	8.85

## MINIATURE TRANSISTOR TRANSFORMERS—MT SERIES

MT	Line to base	600	600	10	23	200-15K	17	\$7.20	\$8.70	\$3.60	\$7.80	\$9.00	\$7.35
MT2-	Coll. to p-p base 2N57	100	10 CT/40 CT	100	27	200-20K	17 <td>8.10</td> <td>9.60</td> <td>4.20</td> <td>8.70</td> <td>9.90</td> <td>8.25</td>	8.10	9.60	4.20	8.70	9.90	8.25
MT3-	Coll. to base or line	50K	600	3	20	300-15K	13	7.80	9.30	3.90	8.40	9.60	7.95
MT5-	Coll. to speaker	50K	6	3	20	300-15K	13	7.80	9.30	3.90	8.40	9.60	7.95
MT6-	Coll. to p-p base	100K	1200 CT	1.4	17	200-15K	13	7.95	9.45	4.05	8.55	9.75	8.10
MT7-	Coll. to p-p base	25K	1200 CT	3	22	200-15K	13	7.95	9.45	4.05	8.55	9.75	8.10
MT8-	P-p coll. to p-p base	50K CT	1200 CT	3	22	200-15K	13	8.10	9.60	4.20	8.70	9.90	8.25
MT9-	Line to p-p base	600 CT	1200 CT	4	23	200-15K	13	8.10	9.60	4.20	8.70	9.90	8.25
MT10-	Coll. to base	25K	600	4	22	200-15K	13	8.10	9.60	4.20	8.70	9.90	8.25
MT11-	P-p coll. to p-p base	4K CT	600 CT	3	32	200-15K	13	7.80	9.30	3.90	8.40	9.60	7.95
MT12-	Output coll. to sprkr.	2K	3.4	10	32	200-15K	13	7.80	9.30	3.90	8.40	9.60	7.95
MT13-	P-p coll. to sprkr.	4K CT	3.4	3	32	200-15K	13	7.95	9.45	4.05	8.55	9.75	8.10
MT14-	Coll. to sprkr. 2N179	400	10	50	25	200-20K	13	7.20	8.70	3.60	7.80	9.00	7.35
MT15-	P-p servo output 2N57	500 CT	210	30	27	300-20K	17	7.80	9.30	3.90	8.40	9.60	7.95
MT18-	P-p coll. to p-p base	25K CT	1200 CT	6	22	200-15K	13	8.10	9.60	4.20	8.70	9.90	8.25
MT20-	P-p coll. to p-p base	50K CT	1200 CT	3	22	200-15K	13	8.40	9.90	4.50	9.00	10.20	8.55
MT21-	P-p coll. to p-p base	4K CT	↑	3	32	200-15K	13	8.25	9.75	4.35	8.85	10.05	8.40
MT22-	Line to p-p base	↑	1200 CT	4	23	200-15K	17	8.25	9.75	4.35	8.85	10.05	8.40
MT23-	P-p coll. to servo	250 CT	1000	10	30	200-15K	17	7.80	9.30	3.90	8.40	9.60	7.95
MT24-	Coll. to p-p base	2500	600 CT	10	32	200-15K	17	7.80	9.30	3.90	8.40	9.60	7.95
MT25-	P-p coll. to p-p base	7500 CT	600 CT	8	32	200-15K	12	8.10	9.60	4.20	8.70	9.90	8.25
MT26-	Line to p-p base	600 CT	600 CT	20	23	200-15K	17	7.95	9.45	4.05	8.55	9.75	8.10
MT28-	P-p coll. to servo	1600 CT	450	15	30	200-15K	17	7.80	9.30	3.90	8.40	9.60	7.95
MT30-	P-p coll. to servo	250 CT	500	10	30	200-15K	17	7.80	9.30	3.90	8.40	9.60	7.95
M-A-Sh	Shield can for M-A							1.35					

\*Unbalanced. †50/250/600 CT. ‡50/250 CT. #Hy. 0 DC. \*50 hy. at 3 ma. †1200/300 split. ‡600/150 split.

★SEE FOURTH PAGE FOR QUANTITY PRICING. †ORDER BY COMPLETE MICROTRAN NUMBER: EXAMPLE M1-A.



# MICROTRAN<sup>®</sup> Miniaturized Transformers

## LOW LEVEL CHOPPER INPUT TRANSFORMERS (FIG. A)

(FIG. A)

Efficiently transfers 30-500 cps. Transducer or thermocouple signals to instrument amplifiers. Resin impregnated to minimize mechanical vibration noise signal. Three Mumetal and two copper shields insure low hum pickup. Accurate center taps and external electrostatic shield connection improve low level operation. Signal level range, 0.5  $\mu$ V to 0.5 V, 90 db magnetic shielding. Size, 1 $\frac{1}{2}$ " dia. x 1 $\frac{1}{2}$ " h. with two 6-32 x  $\frac{1}{4}$ " mtg. studs on 1 $\frac{1}{2}$ " centers. Weight, 4.5 oz.

Microtran No.	Turn Ratio		Full Pri. Hys.*	Full Pri. Imped.*	DC Resis.		Net Each, 1-9*
	Full Pri.-Full Sec.	1/2 Pri.-Full Sec.			Full Pri.	Sec.	
M8025	1:7.7	1:15.4	17.5	6600	3650	41400	\$13.80
M8026	1:3.2	1:5.4	60	22,500	4550	35000	13.80
M8052	1:4.53	1:9.06	90	34,000	7600	52200	14.25
M8053	1:0.5	1:1	140	53,000	9200	65300	13.65

\*At 0.5 v., 60 cps.

## PLUG-IN INPUT TRANSFORMERS (FIG. B)

Broadest fidelity type, double Mumetal\* shielded. Octal base, except M8032 and M8033, 9-pin.

M8030 is designed as a replacement for Ampex No. 1733-1; M8032 and M8033 mate with sockets on many RCA amplifiers. Frequency Response:  $\pm$ 2 db, 20-20K. (M8031,  $\pm$ 2 db, 30-20K.) Magnetic shielding, 65 db. Level, +5 dbm.

Micro. No.	Impedance		Size, In. H. x Dia.	Wt., Oz.	Net Ea., 1-9*
	Pri.	Sec.			
M8030	200/50 CT	50K	2 $\frac{1}{2}$ x 1 $\frac{1}{2}$ dia.	6	\$13.50
M8031	600 CT /150	50K	2 $\frac{1}{2}$ x 1 $\frac{1}{2}$ dia.	6	13.35
M8032	250 CT	50K	2 $\frac{1}{2}$ x 1 $\frac{1}{2}$ dia.	6	13.05
M8033	50 CT	50K	2 $\frac{1}{2}$ x 1 $\frac{1}{2}$ dia.	6	13.05

\*Allegheny Ludlum Steel Corp. trademark.

## MODEL 400K TRANSISTOR TRANSFORMER

### SELECTOR KIT (FIG. C)

● IDEAL FOR BREADBOARD CIRCUITRY

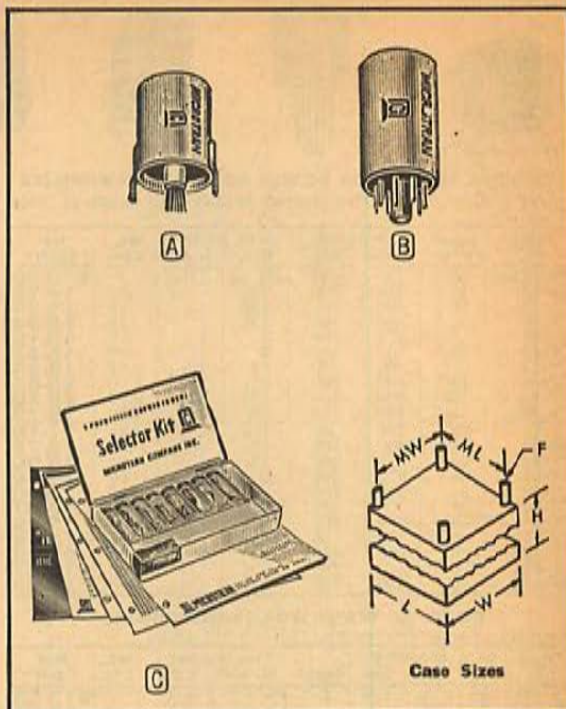
● INCLUDES FULL DESIGN DATA

Set of nine transistor transformers covers impedance range of 150 through 200K ohms, matching most new transistor impedance ratings. Sizes range from a  $\frac{3}{8}$ " cube to  $\frac{3}{8}$ " x  $\frac{3}{8}$ " x 1". All units vacuum resin impregnated for long, reliable life and for protection against rough handling. Each type has 4<sup>+</sup> color-coded leads. Includes full design data; nomographs and circuitry for determining correct impedances for Class A and B transistor amplifiers; power versus dbm chart; terminal connection sheet; guide to MIL-T-27A; cross reference index; outline drawings for inter selection of stock items with same electrical ratings in many other mechanical constructions. Each transformer individually boxed in transparent plastic case.

Microtran Model 400K Transistor Transformer Select- \$2950\*  
tor Kit—Net Each.

\*Standard quantity discounts do not apply.

MICROTRAN TRANSFORMERS ARE AVAILABLE IN MANY OTHER MECHANICAL AND ELECTRICAL TYPES ON SPECIAL ORDER. WRITE FOR COMPLETE INFORMATION.



## STANDARD MIL-T-27A CASE SIZES

Case Type	Size, Inches W. x L. x H.	Mtg. Centers, In.		Stud Type F
		ML	MW	
AF	$\frac{1}{4}$ x $\frac{3}{8}$ x $1\frac{1}{2}$	1 $\frac{1}{2}$	.....	4-40 x $\frac{3}{16}$
AG	1 x 1 x 1 $\frac{1}{2}$	1 $\frac{1}{2}$	.....	6-32 x $\frac{3}{16}$
AH	1 $\frac{1}{2}$ x 1 $\frac{1}{2}$ x 1 $\frac{1}{2}$	1 $\frac{1}{2}$	.....	6-32 x $\frac{3}{16}$
AJ	1 $\frac{1}{2}$ x 1 $\frac{1}{2}$ x 2 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	6-32 x $\frac{3}{16}$
EA	1 $\frac{1}{2}$ x 1 $\frac{1}{2}$ x 2 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	6-32 x $\frac{3}{16}$
EB	1 $\frac{1}{2}$ x 1 $\frac{1}{2}$ x 2 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	6-32 x $\frac{3}{16}$
FA	2 $\frac{1}{2}$ x 2 $\frac{1}{2}$ x 2 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	6-32 x $\frac{3}{16}$
FB	2 $\frac{1}{2}$ x 2 $\frac{1}{2}$ x 2 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	6-32 x $\frac{3}{16}$
GA	2 $\frac{1}{2}$ x 2 $\frac{1}{2}$ x 3 $\frac{1}{2}$	2 $\frac{1}{2}$	1 $\frac{1}{2}$	6-32 x $\frac{3}{16}$
HA	2 $\frac{1}{2}$ x 3 $\frac{1}{2}$ x 2 $\frac{1}{2}$	2 $\frac{1}{2}$	1 $\frac{1}{2}$	8-32 x $\frac{3}{16}$
JA	3 $\frac{1}{2}$ x 3 $\frac{1}{2}$ x 2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	8-32 x $\frac{3}{16}$
JB	3 $\frac{1}{2}$ x 3 $\frac{1}{2}$ x 2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	8-32 x $\frac{3}{16}$
KA	3 $\frac{1}{2}$ x 3 $\frac{1}{2}$ x 5 $\frac{1}{2}$	3	2 $\frac{1}{2}$	10-32 x $\frac{1}{4}$
LA	3 $\frac{1}{2}$ x 4 $\frac{1}{2}$ x 5 $\frac{1}{2}$	3 $\frac{1}{2}$	2 $\frac{1}{2}$	10-32 x $\frac{1}{4}$
YY	All metal not included above or with non-std. mtg. ctrs.			
ZZ	Open type and encapsulated.			

\*Not in conformance with MIL-T-27A. †Two studs in a diagonal.

## \*QUANTITY PRICING

Net Each, Lots of				Net Each, Lots of				Net Each, Lots of			
1-9	10-49	50-99	100-249	1-9	10-49	50-99	100-249	1-9	10-49	50-99	100-249
\$1.35	\$1.22	\$1.13	\$0.90	\$ 7.65	\$ 6.89	\$ 6.38	\$5.10	\$13.20	\$11.88	\$11.00	\$ 8.80
3.30	2.97	2.75	2.20	7.80	7.02	6.50	5.20	13.35	12.01	11.13	8.90
3.45	3.10	2.88	2.30	7.95	7.15	6.63	5.30	13.50	12.15	11.25	9.00
3.60	3.24	3.00	2.40	8.10	7.29	6.75	5.40	13.65	12.28	11.38	9.10
3.75	3.38	3.13	2.50	8.25	7.42	6.88	5.50	13.80	12.42	11.50	9.20
3.90	3.51	3.25	2.60	8.40	7.56	7.00	5.60	14.25	12.82	11.88	9.50
4.05	3.64	3.38	2.70	8.55	7.70	7.13	5.70	14.55	13.09	12.13	9.70
4.20	3.78	3.50	2.80	8.70	7.83	7.25	5.80	14.70	13.26	12.25	9.80
4.35	3.92	3.63	2.90	8.85	7.97	7.38	5.90	14.85	13.42	12.38	9.90
4.50	4.05	3.75	3.00	9.00	8.10	7.50	6.00	15.00	13.58	12.50	10.00
4.65	4.18	3.88	3.10	9.15	8.24	7.63	6.10	15.15	13.63	12.63	10.10
4.80	4.31	4.00	3.20	9.30	8.37	7.75	6.20	15.30	13.77	12.75	10.20
4.95	4.44	4.13	3.30	9.45	8.51	7.88	6.30	15.45	14.04	13.00	10.40
5.10	4.59	4.25	3.40	9.60	8.64	8.00	6.40	15.90	14.31	13.25	10.60
5.25	4.73	4.38	3.50	9.75	8.76	8.13	6.50	16.05	14.44	13.38	10.70
5.40	4.86	4.50	3.60	9.90	8.91	8.25	6.60	16.20	14.58	13.50	10.80
5.55	5.00	4.63	3.70	10.05	9.05	8.38	6.70	16.35	14.71	13.63	10.90
5.70	5.13	4.75	3.80	10.20	9.18	8.50	6.80	16.65	14.98	13.88	11.10
5.85	5.27	4.88	3.90	10.35	9.32	8.63	6.90	18.00	16.20	15.00	12.00
6.00	5.40	5.00	4.00	10.50	9.45	8.75	7.00	18.45	16.60	15.17	12.30
6.15	5.54	5.13	4.10	10.80	9.72	9.00	7.20	20.25	18.22	16.87	13.50
6.30	5.67	5.25	4.20	11.10	9.99	9.25	7.40	21.60	19.44	18.00	14.40
6.45	5.81	5.38	4.30	11.25	10.12	9.38	7.50	24.90	22.41	20.75	16.60
6.60	5.94	5.50	4.40	11.40	10.26	9.50	7.60	25.35	22.81	21.12	16.90
6.75	6.08	5.63	4.50	11.55	10.39	9.63	7.70	25.65	23.09	21.38	17.10
6.90	6.21	5.75	4.60	11.70	10.53	9.75	7.80	26.10	23.49	21.75	17.40
7.05	6.35	5.88	4.70	11.85	10.66	9.88	7.90	26.70	24.03	22.25	17.80
7.20	6.48	6.00	4.80	12.00	10.80	10.00	8.00	26.85	24.16	22.38	17.90
7.35	6.62	6.13	4.90	12.15	11.07	10.25	8.20	28.20	25.38	23.50	18.80
7.50	6.75	6.25	5.00	13.05	11.74	10.88	8.70				

ORDER BY COMPLETE MICROTRAN NUMBER

Stocked in Depth at Federal Electronics, Inc., Binghamton, N. Y.





# Miniature Transformers

## AUDIO, POWER AND TRANSISTOR TRANSFORMERS



TY-80 Series Type



SP



JAF



JO



X



JZ



S Type

### TOROIDAL TRANSISTOR POWER SUPPLY TRANSFORMERS

Epoxy molded, DC to DC. Exceed MIL-T-27A Grade 5, Class R specs.

Triad No.	Input Volts	Output† Volts	Ma	Size, Inches Dia. Height	Wt. Lbs.	Net Each*
TY-68S†	12	250	65	1 1/2 sq. 1 1/2	.2	\$ 5.50
TY-78	12.6	250	100	1 1/2 1 1/2	.35	14.72
TY-79	12.6	300	200	1 1/2 1 1/2	.35	15.34
TY-80	12.6	325	150	1 1/2 1 1/2	.35	15.94
TY-81	12.6	375	200	2 1 1/2	.50	15.19
TY-82	12.6	450	150	2 1 1/2	.50	15.27
TY-83	12.6	500	250	2 1/2 1 1/2	.85	18.34
TY-84	12.6	600	200	2 1/2 1 1/2	1.00	15.84
TY-85	12.6	600	350	2 1/2 2 1/2	2.00	28.20
TY-86	12.6	425	350	2 1/2 1 1/2	1.00	19.75
TY-88	28	250	80	1 1/2 1 1/2	.25	11.10
TY-89	28	300	100	1 1/2 1 1/2	.35	13.72
TY-90	28	325	200	1 1/2 1 1/2	.35	16.00
TY-91	28	375	200	2 1 1/2	.50	15.60
TY-92	28	450	200	2 1 1/2	.50	15.50
TY-93	28	500	250	2 1/2 1 1/2	.85	18.07
TY-94	28	600	200	2 1/2 1 1/2	1.00	15.98
TY-99	6	300	100	1 1/2 1 1/2	.35	13.45
TY-100	6	325	150	2 1 1/2	.50	20.62
TY-101	6	375	200	2 1/2 1 1/2	1.00	19.67
TY-102	6	450	150	2 1/2 1 1/2	1.00	18.90

### DC TO AC TRANSFORMER TRANSFORMERS

Open frame type. Secondary, 110-115-125 volts.

Triad No.	DC Pri.	Secondary W. Cps.	Case	Size, Inches H. x W. x D.	Wt. Lbs.	Net Each*
TY-468	28	60 400	L	1 1/2 x 2 1/2 x 2	1 1/2	\$12.12
TY-462	12	60 400	L	1 1/2 x 2 1/2 x 2	1 1/2	16.25
TY-75A	12	115 60	A	3 1/2 x 2 1/2 x 3 1/2	5	9.60
TY-76A	12	60 60	A	3 1/2 x 2 1/2 x 2 1/2	3	9.60

### "RED SPEC" TRANSISTOR TRANSFORMERS

Size: 0.31" x 0.41" x 0.465" h. Weight, 1/10 oz.

Triad No.	Application	Impedance, Ohms		Net Each*
		Primary	Secondary	
SP-4	Input	200000 CT	1000 CT	\$8.17
SP-5	Input	50000 CT	1000 CT	7.12
SP-7	Input	200000 CT	1000	7.50
SP-11	Interstage	25000	1000	7.00
SP-13	Interstage	25000 CT	1000 CT	7.22
SP-15	Interstage	10000 CT	1500 CT	7.48
SP-20	Driver	10000 CT	1200 CT	7.27
SP-21	Driver	10000 CT	2000 CT	7.48
SP-22	Driver	10000	2000 CT/500†	7.77
SP-29	Driver	10000 CT	500 CT	7.50
SP-32	Output	500	50	6.34
SP-33	Output	1000	50	6.82
SP-34	Output	600	3.2	6.56
SP-35	Output	1200	3.2	6.65
SP-36	Output	10000	3.2	6.32
SP-42	Output	150 CT	12	7.00
SP-43	Output	300 CT	12	6.50
SP-44	Output	600 CT	12	7.12
SP-46	Output	1000 CT	12	7.12
SP-47	Output	1500 CT	12	7.12
SP-48	Output	7500 CT	12	6.88
SP-49	Output	300 CT	600	5.38
SP-50	Output	500 CT	600	6.67
SP-51	Output	900 CT	600	6.28
SP-52	Output	1500 CT	600	8.10
SP-59	Output	120 CT	3.2	6.88
SP-60	Output	320 CT	3.2	7.00
SP-61	Output	600 CT	3.2	6.67
SP-62	Output	800 CT	3.2	6.84
SP-63	Output	1200 CT	3.2	6.28
SP-64	Output	1800 CT	3.2	6.43
SP-65	Output*	8000 CT	3.2	7.50
SP-66	Output*	10000 CT	10000 CT	7.68
SP-67	Output*	600 CT	600 CT	6.90
SP-68	Output*	10000	10000 CT/2500†	7.95
SP-69	Output*	600	600 CT/150†	7.18
SP-106	Choke	6 hy at 2 ma		5.83
SP-107	Choke	1.25 hy at 2 ma		5.34
SP-108	Choke	3.5 hy at 2 ma		5.90
SP-117	Choke	.9 hy at 2 ma		4.88
SP-118	Choke	.3 hy at 4 ma		5.68
SP-128	Choke	.1 hy at 5 ma		4.48
SP-310	Magnetic Shielding Case			.84

### TRANSCEIVER TRANSFORMERS, VOICE FREQUENCY

Triad No.	Application	Pri. Ohms	Sec. Ohms	Size, Inches H. x W. x D.	Net Each*
A-21X	Mike or plate to grid	100 10000	100000	1 1/2 x 2 1/2 x 1 1/2	\$2.77
A-23X	Tube to line or phones	10000	50 2000	1 1/2 x 2 1/2 x 1 1/2	2.85

\*Isolation. †Split secondary. ‡F.W. bridge. #Open frame type.

### OUTPUT AND DRIVER TRANSISTOR TRANSFORMERS

Triad No.	Impedance, Ohms		Output, Watts	Net Each*
	Primary	Secondary		
TY-29X	24 CT (500 ma bal)	8/4	8	\$3.68
TY-31X	200 CT (50 ma bal)	8/4	2	2.73
TY-48X	100 CT (40 ma)	16/8/4	5	4.50
TY-30X	100 CT (100 ma bal)	8/4	2	2.98
TY-53X	200 CT (10 ma)	400 CT	6	3.67
TY-61X	100 (100 ma)	100 CT	4	2.72
TY-63X	48 CT (275 ma bal)	16/8	8	3.82
TY-64X	32 CT (575 ma bal)	16/8/4	10	5.95
TY-65Z	32 CT (575 ma bal)	6K/4K/3K	10	2.83
TY-66A	6 CT (5 a.)	6K/4K/3K	40	8.94
TY-67A	6 CT (5 a.)	16/8/4	40	9.24

### MIDGET AUDIOS—HERMETICALLY SEALED

All units have 45 db shielding. Std. threaded stud mounting plus optional bracket (1 1/2" mtg.). Conform to MIL specs.

Triad No.	Impedance, Ohms	Frequency Response:	Net Each*	
JO-11*	600/250/50	50000	60-15000	\$13.38
JO-2*	600/250/50	250000	60-15000	13.92
JO-3*	600/250/50	60000 CT	50-15000	14.04
JO-5*	30/12/4	50000	50-12000	13.82
JO-11	15000	60000	50-15000†	13.32
JO-12	15000	60000 CT	50-15000†	13.74
JO-13	15000*	95000 CT	50-15000†	13.74
JO-21	15000	600/250/50	20-20000†	13.74
JO-22	15000*	600/250/50	100-10000†	13.74
JO-23	20000 CT	600/250/50	40-30000†	13.92
JO-31*	600/250/50	600/250/50	40-20000†	13.98
JO-101	50 hrs at 2 ma coupling reactor			12.60

### MINIATURE "TRIJET" AUDIOS—UNCASED

Open frame construction, 1 1/2" w. x 3/4" d. x 1/2" h. except T-41X and T-42X, 1 1/2" w. x 1 1/2" d. x 1/2" h.

T-1X*	600/250/50	50000	60-15000	\$4.98
T-2X*	600/250/50	250000	100-15000	3.95
T-3X	600/250/50	60000 CT	60-15000	4.55
T-5X*	30/12/4	50000	50-15000	4.07
T-11X	15000	50000	60-15000†	3.57
T-12X	15000	60000 CT	60-15000†	3.88
T-13X	15000*	95000 CT	250-15000†	3.72
T-14X*	200	500000	200-10000†	4.00
T-15X	15000	1 meg.	150-15000†	4.11
T-20X	15000	600/250/50	60-15000†	3.68
T-21X	30000	50	100-15000†	3.45
T-22X	15000*	600/250/50	100-50000†	3.45
T-23X	20000 CT	600/250/50	40-30000†	4.48
T-24X	10000 CT	2000 CT	50-20000†	3.72
T-25X	12000 CT†	600 CT/150‡	50-16000†	3.35
T-26X	50000 CT*	600 CT/150‡	100-15000†	3.40
T-31X	600/250/50	600/250/50	50-15000†	4.23
T-32X	1500 CT†	600 CT/150‡	50-20000†	4.45
T-33X*	5000 CT	5000 CT	60-15000†	4.90
T-34X	500 CT	500 CT/125‡	50-20000†	3.19
T-35X	600 CT	2000 CT/500‡	50-20000†	3.68
T-41X	1000 (10 ma)	200 CT	20-15000	3.90
T-42X	9800 (2 ma)	15	200-50000	3.90
T-101X	50 hrs at .75 ma audio choke			2.62
T-102X	6 or 4 hy, 3 or 6 ma coupling reactor			2.38

### MINIATURE JAF AUDIOS—HERMETICALLY SEALED

"TriAlloy" hermetically sealed meet MIL specs; 45 db shielding.

JAF-1*	600/250/50	50000	60-15000	\$13.21
JAF-2*	600/250/50	250000	100-15000	13.74
JAF-3	600/250/50	60000 CT	60-15000	13.74
JAF-5*	30/12/4	50000	50-15000	13.74
JAF-11	15000	50000	60-15000†	12.84
JAF-12	15000	60000 CT	250-15000†	13.21
JAF-13	15000*	95000 CT	250-15000†	13.74
JAF-14*	200	1/2 megohm	350-5000†	13.74
JAF-15	15000	1 megohm	300-3000†	13.74
JAF-21	15000	600/250/50	60-15000†	13.21
JAF-22	15000*	600/250/50	350-7000†	13.21
JAF-23	20000 CT	600/250/50	60-15000†	13.74
JAF-24	10000 CT	2000 CT	50-20000†	14.30
JAF-25	12000 CT†	600 CT/150‡	50-15000†	14.15
JAF-26	50000 CT*	600 CT/150‡	100-15000†	14.30
JAF-31*	600/250/50	600/250/50	60-15000†	14.18
JAF-32	1500 CT†	600 CT/150‡	50-20000†	14.18
JAF-33*	5000 CT	5000 CT	60-15000†	14.18
JAF-34	500 CT	500 CT/125‡	50-20000†	14.10
JAF-35	600 CT	2K CT/500‡	50-20000†	14.10
JAF-101	50 hrs at .75 ma coupling reactor			12.61
JAF-102	6 or 4 hrs at 3 or 6 ma coupling reactor			12.70

\*Designed for 3 ma in primary except; †2 ma; ‡.5 ma (low freq. results from DC in primary of all other units). †Power output 1 mw except; ‡10 mw; †25 mw; ‡20 mw; †1 1/2" x 1 1/2" dia.; other JO types are 1 1/2" x 1 1/2" dia. †Split winding. ‡Static shield.

### ★ QUANTITY DISCOUNTS

1-9, Net; 10-24, 10%; 25-49, 19%; 50-99, 25%; 100-249, 28 1/2%; 250 up, 32 1/2%.



# Audio Transformers



## SUBMINIATURE AUDIO TRANSFORMERS

Can-type case  $\frac{1}{4}$ " dia.  $\frac{1}{2}$ " x long; wire leads. Hermetically sealed.

Triad No.	Application	Impedance, Ohms		Net Each*
		Primary	Secondary	
JZ-1	Mike or line to grid	600/250/50	60000	\$11.79
JZ-5	Mike or VC to grid	30/12/4	60000	12.13
JZ-7	Mike or VC to xslistor	30/12/4	1000	11.79
JZ-13	Plate to agie, or p-p grid.	15000 (1 ma)	135000 CT	11.79
JZ-15	Transistor interstage	20000 (.5 ma)	1200/600/ 100	11.79
JZ-25	Plate or xslistor to xslistor or line	10000 (1 ma)	200	11.47
JZ-26	Xslistor to line or xslistor	1000 (5 ma)	50	11.47

## MINIATURE AUDIO TRANSISTOR TRANSFORMERS

Triad No.	Impedance, Ohms		Output, Watts	Net Each*
	Primary	Secondary		
TY-23X	50000 (.5 ma)	500 CT	.1	\$5.00
TY-24X	50000 (.5 ma)	3000 CT	.2	3.23
TY-25X	100000 (.5 ma)	200 CT	.2	6.22
TY-26X	100000 (.5 ma)	3000 CT	.2	5.22
TY-27XT	500 CT (2 ma)	500 CT	.01	4.12
TY-28XT	500 CT (2 ma)	200 CT	.01	4.28
TY-32X	200 CT (2 ma)	2000 CT	.2	2.95
TY-33X	400 CT (5 ma)	16/8/4	.2	3.90
TY-34X	400 CT (5 ma)	2000 CT	.2	3.12
TY-35X	500 CT (2 ma)	150 CT	.1	3.17
TY-36X	2000 (2 ma)	1500 CT	.2	3.33
TY-37X	2000 CT (4 ma)	8000 CT	.2	3.99
TY-38X	3000 CT (4 ma)	1000 CT	.2	3.99
TY-39X	4000 CT	16/8/4	.2	5.15
TY-40X	5000 (1 ma)	200 CT	.1	3.75
TY-41X	16000 (1 ma)	400	.1	3.84
TY-42X	20000 (.5 ma)	8/4	.1	4.40
TY-43X	20000 (.5 ma)	800 CT	.1	4.43
TY-44X	1000 (10 ma)	16/8/4	.2	4.23
TY-45X	500 CT (5 ma)	16/8/4	.2	4.78
TY-46X	100 (100 ma)	1000 CT	1.0	2.45
TY-47X	2000 CT (10 ma)	16/8/4	.2	4.67
TY-49X	500 CT (12 ma)	5000 CT	1.0	3.28
TY-50X	125000	2000 CT	.04	6.28
TY-51X	2000 CT (10 ma)	200 CT	.1	4.85
TY-52X	20000 CT (1 ma)	2000 CT	.2	5.35
TY-54X	15000 (1.5 ma)	200 CT	.2	5.00
TY-55X	2000 CT (2 ma)	500 CT	.2	4.74
TY-56X	10000 (1 ma)	2000 CT	.2	4.12
TY-57X	250 CT (10 ma)	16/8/4	.2	4.55
TY-58X	125 CT (15 ma)	8/4	.2	4.07
TY-59X	5000 CT (1 ma)	50000 CT	.1	5.83
TY-60X	200000	1000	.1	4.50
TY-62X	10000 (2 ma)	4	.1	3.55

## SUBMINIATURE AUDIO TRANSFORMERS

Open frame construction. Type XT,  $\frac{1}{4}$ " x  $\frac{1}{2}$ " x  $\frac{1}{4}$ ". All others,  $\frac{1}{4}$ " x  $\frac{1}{2}$ " x  $\frac{1}{4}$ ". Power output, 1 mw.

Triad No.	Impedance, Ohms		Frequency Response	Net Each*
	Primary	Secondary		
TZ-1	600/250/50	60000	70-20000	\$4.83
TZ-2XT	200 CT	200000	100-20000	5.62
TZ-5	30/12/4	50000	70-20000	4.98
TZ-7	30/12/4	1000	70-15000	3.95
TZ-13	15000 (1 ma)	135000 CT	70-15000	6.17
TZ-15	20000 (.5 ma)	1200/600/100	70-15000	5.00
TZ-17XT	10000 CT	2000 CT	70-15000	4.80
TZ-24XT	25000 CT	500 CT	100-15000	4.98
TZ-25	10000 (1 ma)	200	70-20000	4.27
TZ-26	1000 (5 ma)	50	100-10000	3.67
TZ-28	600	50	40-60000	3.67
TZ-29XT	10000 CT	10000 CT	70-15000	4.77
TZ-32XT	1500 CT	600 CT/150*	70-20000†	5.02
TZ-103XT	1 or 4 hy.	Coupling Reactor		3.00

## DRIVER TRANSFORMERS

Triad No.	Impedance		Freq. Resp.	Size, Inches H. x W. x D.	Net Each*
	Primary	Secondary			
A-81X	15000 15 ma	8500 CT	300- 3000	$1\frac{1}{4}$ x $2\frac{1}{4}$ x $1\frac{1}{4}$	\$2.62
A-83X	7000 40 ma	15800 CT	70- 7000	$1\frac{1}{2}$ x $2\frac{1}{4}$ x $1\frac{1}{2}$	2.58
A-85X	7000 40 ma	4000 CT	10000	$1\frac{1}{2}$ x $3\frac{1}{2}$ x $1\frac{1}{4}$	3.06
A-89A	4K/8K 100 ma	4.4K/8.8K Split	50- 10000	$3\frac{1}{2}$ x $2\frac{1}{2}$ x $2\frac{1}{2}$	6.33
TY-61X	100 ma 100 ma	100 CT	50- 10000	$1\frac{1}{2}$ x $2\frac{1}{4}$ x $1\frac{1}{2}$	2.72

\*Split winding. †Power output, 10 mw. ‡Ma ratings are DC.

## \*QUANTITY DISCOUNTS

1-9, Net; 10-24, 10%; 25-49, 19%; 50-99, 25%; 100-249, 28 $\frac{1}{2}$ %; 250 up, 32 $\frac{1}{2}$ %.

Case Types: Suffix letter(s) of Triad No. indicates case style. Type of transformer is indicated by prefix letter(s). Case dimensions not listed in individual sections may be found on another page of Triad listings.

## HIGH FIDELITY OUTPUT TRANSFORMERS

Tube to Line or Voice Coil

Triad No.	Impedance, Ohms		Output Watts	Case Size, Inches H. x W. x D.	Wt., Lbs.	Net Each*
	Primary	Secondary				
S-34X	4000 CT	32/16/8	7.5	$2\frac{1}{2}$ x $3\frac{1}{2}$ x $1\frac{1}{2}$	1.5	\$4.73
S-31A	8000 CT	16/8/4	15	$3\frac{1}{2}$ x $2\frac{1}{2}$ x $1\frac{1}{2}$	3.8	6.85
S-32A	8000 CT	500/250/125	15	$3\frac{1}{2}$ x $2\frac{1}{2}$ x $1\frac{1}{2}$	3.8	8.82
S-142A	8000 CT†	16/8/4	15	$3\frac{1}{2}$ x $2\frac{1}{2}$ x $1\frac{1}{2}$	3.75	11.17
S-35A	5000 CT	16/8/4	20	$3\frac{1}{2}$ x $2\frac{1}{2}$ x $1\frac{1}{2}$	4.3	8.32
S-36A	5000 CT	500/250/125	20	$3\frac{1}{2}$ x $2\frac{1}{2}$ x $1\frac{1}{2}$	4.25	9.32
S-144A	8000 CT†	16/8/4	25	$3\frac{1}{2}$ x $2\frac{1}{2}$ x $1\frac{1}{2}$	6	15.24
S-146A	6600 CT†	16/8/4	25	$3\frac{1}{2}$ x $2\frac{1}{2}$ x $1\frac{1}{2}$	5.75	14.84
S-148A	10000 CT†	16/8/4	25	$3\frac{1}{2}$ x $2\frac{1}{2}$ x $1\frac{1}{2}$	6	13.69
S-149A	3300 CT	16/8/4	50	$4\frac{1}{2}$ x $3\frac{1}{2}$ x $1\frac{1}{2}$	8	22.62
S-156A	6600 CT/ 1650 CT†	16/8/4	30	$3\frac{1}{2}$ x $2\frac{1}{2}$ x $1\frac{1}{2}$	5	16.50
S-42A	4500 CT	16/8/4	50	$4\frac{1}{2}$ x $3\frac{1}{2}$ x $1\frac{1}{2}$	8.25	15.19
S-152A	4000 CT†	16/8/4	65	$4\frac{1}{2}$ x $3\frac{1}{2}$ x $1\frac{1}{2}$	9.75	19.05
S-154A	4000 CT†	16/8/4	70	$4\frac{1}{2}$ x $3\frac{1}{2}$ x $1\frac{1}{2}$	12.5	23.82
S-158A	4500 CT	16/8/4	100	$5\frac{1}{2}$ x $4\frac{1}{2}$ x $1\frac{1}{2}$	14.8	32.74
SR-45Z*	4000/2000/ 1000/500	16/8/4	10	$2\frac{1}{2}$ x $3\frac{1}{2}$ x $1\frac{1}{2}$	1.75	6.79
S-46A*	2000/1000/ 500/250	16/8/4	20	$3\frac{1}{2}$ x $2\frac{1}{2}$ x $1\frac{1}{2}$	4	9.67

†Williamson type circuit may be used. Taps on primary for proper screen operation. \*70 v. line autoformer.

## HI-FI STEREO SHIELDED OUTPUT TRANSFORMERS

Baked vacuum varnished structure. Frequency response,  $\pm 2$  db, 20-20,000 cps. High open circuit inductance; low leakage. Output, 10-15 w. (SX-203, 5-7 w.). Sec. Imped., 4/8/16 ohms. Test, 2000 v. rms (SX-201-SX-204, 1500 v. rms). Size, 3" w. x 2 $\frac{1}{2}$ " d. x 2 $\frac{1}{2}$ " h. Weight, 2 $\frac{1}{2}$  lbs.

Williamson Circuit			Push-Pull Operation		
Triad No.	Pri. Imp.	Net*	Triad No.	Pri. Imp.	Net*
SX-201	3300 CT	\$7.44	SX-204	5000 CT	\$7.44
SX-202	4500 CT	7.41	SX-205	6600 CT	7.50
SX-206	6600 CT	7.59	SX-208	8000 CT	7.50
SX-207	8000 CT	7.62	SX-203*	5000	7.26

\*Single ended operation.

## UNIVERSAL OUTPUT TRANSFORMERS

Single or Push-Pull Tubes to Voice Coil

Triad No.	Pri. Imped. Kohms	Pri. DC Ma		Output Watts	Wt., Lbs.	Net Each*
		P-P	Single			
S-51X*	4-14	70	35	5	.45	\$3.77
S-52X*	4-24	50	25	4	.45	4.38
S-53X*	4-14	80	40	8	.6	3.93
S-54X†	1.5-5	70	70	8	.6	4.52
S-55Z†	4-14	100	100	10	1	4.12
S-55X†	4-14	100	100	10	1	4.17
S-56Z†	1.5-6	85	85	12	1.6	5.27
S-57Z†	4-14	110	110	15	1.6	5.93
S-59Z†	1.5-4	175	175	15	1.6	5.72
S-61Z†	4-12	125	125	20	1.8	5.93
S-62X*	2-10	60	30	2	.21	4.17
S-63X*	1.5-7	100	50	6	.45	3.05

\*Single or p-p plates. †Single plate, †P-p plates.

## INTERSTAGE TRANSFORMERS, PLATE TO GRID

Triad No.	Frequency Resp.	Impedance, Ohms		Turns Ratio	Size, Inches H. x W. x D.	Net Ea.*
		Pri.	Sec.			
A-31X	100-10000	10000	90000 CT	1:3	$1\frac{1}{2}$ x $2\frac{1}{2}$ x $1\frac{1}{2}$	\$2.73
A-33X	70-10000	10000	90000 CT	1:3	$1\frac{1}{2}$ x $2\frac{1}{2}$ x $1\frac{1}{2}$	3.88
A-42Z	70-10000	15000 CT	135000 CT	1:3	$1\frac{1}{2}$ x $3\frac{1}{2}$ x $1\frac{1}{2}$	3.60
A-39A	50-10000	20000 CT	135000 CT	1:6	$2\frac{1}{2}$ x $2\frac{1}{2}$ x $2\frac{1}{2}$	6.22
		20000 CT	45000 CT	1:1.5		

## LOW LEVEL OUTPUT TRANSFORMERS

Triad No.	Freq. Resp.	Impedance, Ohms		Size, Inches H. x W. x D.	Net Each*
		Pri.	Sec.		
A-51X	200-8000	7000	50	$1\frac{1}{2}$ x $2\frac{1}{2}$ x $1\frac{1}{2}$	\$2.22
A-53X	70-10000	18000 CT	600/250/50	$1\frac{1}{2}$ x $2\frac{1}{2}$ x $1\frac{1}{2}$	3.18
S-58X	100-10000	600†/150*	600†/150*	$1\frac{1}{2}$ x $2\frac{1}{2}$ x $1\frac{1}{2}$	2.50

\*Split windings. †Center tapped.

## MATCHING TRANSFORMERS—25 OR 70.7 VOLT LINE

Triad No.	Matching Imped., Ohms Primary	Sec.	Audio Watts	Size, Inches H. x W. x D.	Net Each*
S-130Z	166 CT (70-25 v.)	20.8 CT	10	$2\frac{1}{2}$ x $2\frac{1}{2}$ x $1\frac{1}{2}$	3.23
	62.5 CT (25-70 v.)	500 CT			
	500 CT (70-25 v.)	62.5 CT			

## OUTPUT TRANSFORMERS

25 Volt Line to Voice Coil

Triad No.	Impedance, Ohms		Output Watts	Size, Inches H. x W. x D.	Net Each*
	Primary	Secondary			
S-131X	1250/625/ 312*	8/4	2	$1\frac{1}{2}$ x $2\frac{1}{2}$ x $1\frac{1}{2}$	\$2.82
S-132X	1000/500/ 250/125*	16/8/4	5	$1\frac{1}{2}$ x $2\frac{1}{2}$ x $1\frac{1}{2}$	2.93
S-133Z	500/250/ 125/62.5*	16/8/4	10	$2\frac{1}{2}$ x $3\frac{1}{2}$ x $1\frac{1}{2}$	5.90

\*Isolation.





# Audio Transformers

## LINE OUTPUT TRANSFORMERS

### Tube to Voice Coil and Line

Triad No.	Impedance, Ohms		Audio Watts	Size, Inches H. x W. x D.	Net Each*
	Primary	Secondary			
S-27A	2500	500/16/8/4	8	2 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub>	\$5.85
S-28X	7500	500/16/8/4	5	1 <sup>11</sup> / <sub>16</sub> x 3 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	3.90
S-29X	5000	500/16/8/4	5	1 <sup>11</sup> / <sub>16</sub> x 3 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	4.50
S-22A	5000 CT	500/16/8/4	15	2 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub>	6.27
S-24A	8000 CT	500/16/8/4	15	2 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub>	6.27
S-60A	6600 CT	500/250/16/8/4	35	3 <sup>11</sup> / <sub>16</sub> x 3 <sup>11</sup> / <sub>16</sub> x 3 <sup>11</sup> / <sub>16</sub>	10.24

### Line to Voice Coil

Triad No.	Impedance, Ohms		Audio Watts	Size, Inches H. x W. x D.	Net Each*
	Primary	Secondary			
S-23X*	50	3.2-4	1	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	\$2.16
S-26X*	500/50	3.2-4	4	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.22
S-65X	500	8/4	5	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.52
S-62X	500	16/8/4	3	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.73
S-76Z	250/125/62.5/31	16/8/4	10	2 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub>	2.73
S-77U <sub>1</sub>	500 CT/125	32/16/8/4/2	30	3 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 4 <sup>11</sup> / <sub>16</sub>	11.32

### 70.7 Volt Line to Voice Coil

S-70Z*	16K/8K/4K/2K/1K	8/4	5	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	\$ 3.83
S-71Z*	4K/2K/1K/500	16/8/4	10	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	5.10
S-25Z*	4K/2K/1K/500	8/4	10	2 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	4.52
SR45Z*	4K/2K/1K/500	16/8/4	10	2 <sup>11</sup> / <sub>16</sub> x 3 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub>	6.79
SR74K†	4K/2K/1K/500	16/8/4	10	3 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 3 <sup>11</sup> / <sub>16</sub>	6.45
S-72Z*	2K/1K/500/250	16/8/4	20	2 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	4.20
S-46A*	2K/1K/500/250	16/8/4	20	3 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 3 <sup>11</sup> / <sub>16</sub>	9.67
S-75K†	2K/1K/500/250	16/8/4	20	4 <sup>11</sup> / <sub>16</sub> x 3 <sup>11</sup> / <sub>16</sub> x 4 <sup>11</sup> / <sub>16</sub>	11.32
S-78Z†	4K/2K/1K/500	16/8/4	10	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	4.85
S-79Z†	2K/1K/500/250	16/8/4	20	2 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	5.32
S-47Z†	10K/5K/2.5K/1250/625	16/8/4	8	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	3.84
S-73X†	16K/8K/4K/2K/1K	16/8/4	5	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	4.00

\*Autoformer. †Weatherproof autoformer. ‡Isolation transformer. §Split winding.

## LOW LEVEL AUDIO

Single-hole mounting, permits rotation for minimum hum pickup. Alloy shielding for a 40-60 db reduction in hum pickup (60-80 db on A-11J and A-12J), and flexible leads. Units have a wide frequency range. Input units electrostatically and magnetically shielded. Circuit diagrams permanently affixed to case.

Triad No.	Application	Primary Ohms	Net Each*
A-9J†	Line or mike to grid	600/250/50	\$ 8.67
A-10J†	Bal. line or mike to grid	600 CT/150*	7.68
A-11J†	Line or mike to grid	600/250/50	10.90
A-12J†	Bal. line or mike to grid	600 CT/150*	9.52
A-13J†	Line to line or transistor	600/300/200 CT/110/50*	10.12
A-40J	Plate to 1 or 2 grids	15000	8.44
A-41J	Tube to 1 or 2 grids	15000	9.15
A-50J	P-P plates to voice coil	10000 CT	6.55
A-52J	Line or transistor to line or transistor	500 CT/125*	7.73
A-55J	Plate to line	15000	8.00
A-56J	Line or transistor to VC	500 CT/125*	7.15
A-57J	Line or transistor to line	600/250/50	8.28
A-58J	P-P plates or transistors to line or transistors	10000 CT/2500*	7.73
A-64J	Line or transistor to transistor	100 CT/25*	5.95
A-65J	Sgl or p-p plates to bal. line	15000 CT	8.89
A-66J	Plate to line	15000	8.94
A-67J	Bal. line to bal. line	600 CT/150*	8.90
A-68J	Sgl or p-p plates to bal. line	15000 CT	9.07
A-69J	P-P plates or bridging to line	25000 CT/6250*	8.34
A-70J	Line or transistor to line or transistor	500 CT/125*	7.15
A-77J	Audio choke, 250 hys., 5 ma DC; 62.5 hys., 10 ma DC		8.90
A-78J	1 or 2 transistor to bal. line	2000 CT	8.90
A-79J	Transistor to p-p transistors or line	1000	8.60

Note: Frequency response of all units is 30-15,000 cps except, A-66J, A-68J, 40-15,000 cps; and A-79J, 20-15,000 cps. \*Split winding. †Static shield.

## INPUT TRANSFORMERS, LINE OR MIKE TO GRID

Triad No.	Application	Pri. Ohms	Turns Ratio	Size, Inches H. x W. x D.	Net Each*
A-1X	Line or mike to grid	100	1:31.4	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	\$2.23
A-3X	Line or mike to grid	400*	1:12.2	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.62
A-4X	Line to single grid	†	1:12	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.67
A-5X	Mike or line to sgl. or p-p grid	100	1:83.3	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.97
A-6X	Intercom-spkr. VC to grid	8/4	1:79.6	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.57
A-7X		3.2-4	1:124	1 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	4.78

\*Center tapped. †500 CT/333/200 CT/125/67.5 CT/50.

## PLUG-IN INPUT TRANSFORMERS

Highly magnetic shielded for coupling low-Z mikes or magnetic heads to amplifier input. Nos. A-200P and A-202P have 9-prong plugs for commercial amplifiers; HS-273P has 8-prong plug.

Triad No.	Imped., Ohms Pri.†	Sec.	Freq. Resp.	Shielding	Size, In. H. x Dia.	Net Each*
A-200P	200/50 CT	36,000	50-15,000	70 db	2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	\$15.00
A-202P	200/50 CT	36,000	30-15,000	90 db	2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	20.85
HS-273P	200/50 CT	80,000	30-20,000	70 db	1 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	17.10
A-210P*	1:1 ratio, 0 dbm		20-20,000	45 db	2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	10.86

\*Stereo isolation transformer; primary and secondary impedance, 27K ohms. †Split winding except A-210P.

## REPLACEMENT PUSH-PULL OUTPUT TRANSFORMERS

Push-pull tubes to voice coil, 3-4 ohms.

Triad No.	Primary Impedance	Total DC Ma	Output Watts	Size, Inches H. x W. x D.	Net Each*
S-39X	12000 CT	60	3-4	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	\$2.40
S-64X	6000 CT	80	4-6	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.40
S-15X	10000 CT	70	7-10	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	3.73
S-19Z	10000 CT	100	10-14	2 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 2	3.12
S-88Z	3400 CT/3000 CT/3800 CT	180	15-18	2 <sup>11</sup> / <sub>16</sub> x 3 <sup>11</sup> / <sub>16</sub> x 2	3.78
S-69Z	5000 CT	120	15-18	2 <sup>11</sup> / <sub>16</sub> x 3 <sup>11</sup> / <sub>16</sub> x 2	5.35
S-21A	8000 CT	110	15-18	2 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub>	4.72
S-21Z	8000 CT	110	15-18	2 <sup>11</sup> / <sub>16</sub> x 3 <sup>11</sup> / <sub>16</sub> x 2	4.05

## REPLACEMENT OUTPUT TRANSFORMERS

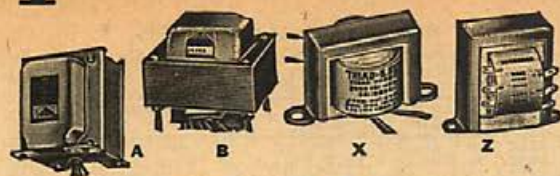
Single Tube to Standard Voice Coil (3-4 ohms)

Triad No.	Primary Impedance	DC Ma	Audio Watts	Size, Inches H. x W. x D.	Net Each*
S-40X	14000	5.5	.25	1 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub> x 1	\$4.60
S-37X	25000	4	.25	1 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub> x 1	5.07
S-20X	2000	50	2-3	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	1.85
S-20Z	2000	50	2-3	1 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	1.85
S-12X	2500	50	2-3	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	1.90
S-12Z	2500	50	2-3	1 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	1.90
S-16X	3000/5% tap	50	2-3	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.02
S-14Z	4000	50	2-3	1 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.02
S-6X	5000	35	2-3	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	1.98
S-6Z	5000	35	2-3	1 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.17
S-48X	6500	35	2-3	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.00
S-48Z	6500	35	2-3	1 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.02
S-8X	8000	30	2-3	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	1.90
S-8Z	8000	30	2-3	1 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.02
S-11X	10000	30	2-3	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	1.98
S-11Z	10000	30	2-3	1 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.10
S-38X	16000	15	2-3	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.15
S-38Z	16000	15	2-3	1 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.15
S-13X	25000	10	2-3	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.27
S-13Z	25000	10	2-3	1 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.27
S-2X	2000	55	3-5	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.46
S-2X	2500	60	3-5	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	1.98
S-30X	3000	60	3-5	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.10
S-41X	4000	50	3-5	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.05
S-41Z	4000	50	3-5	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.05
S-3X	5000	40	3-5	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.38
S-49X	6500	35	3-5	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.12
S-7X	7500	30	3-5	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.02
S-17X	10000	30	3-5	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.10
S-50X	2500	60	4-6	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.27
S-67X	3200	60	4-6	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.27
S-18X	8000	45	4-6	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.33
S-18Z	8000	45	4-6	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.35
S-10X	10000	45	4-6	1 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.23
S-4X	3000	70	5-8	1 <sup>11</sup> / <sub>16</sub> x 3 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.57
S-5X	5000	50	5-8	1 <sup>11</sup> / <sub>16</sub> x 3 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.62
S-5Z	5000	50	5-8	2 <sup>11</sup> / <sub>16</sub> x 2 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.72
S-9X	7500	50	5-8	1 <sup>11</sup> / <sub>16</sub> x 3 <sup>11</sup> / <sub>16</sub> x 1 <sup>11</sup> / <sub>16</sub>	2.73
S-9Z	7				





# Standard Series Transformers



## COMBINED PLATE AND FILAMENT

Primary 115 Volts—60 Cycles

"Climatite" treated coils and cores for protection against moisture and for elimination of lamination chatter. Small in size, yet loss at a minimum. Temperature rise design is 55° C. Copper foil static shields grounded to case and core.

Triad No.	Secondary		Rect. Fil.		Other Filament		Wt. Lbs.	Net Each*
	AC Volts	DC Ma	V.	A.	Volts	A.		
R-104A	500 CT	40	...	...	6.3 CT	2	1.55	\$ 5.48
R-104B	500 CT	40	...	...	6.3 CT	2	1.55	5.78
R-105A	600 CT	65	...	...	6.3 CT	2.7	2	6.90
R-105B	600 CT	65	...	...	6.3 CT	2.7	2	7.02
R-106A	480 CT	50	5	2	6.3 CT	2	2.1	6.33
R-106B	480 CT	50	5	2	6.3 CT	2	2.1	6.65
R-107A	600 CT	50	5	2	6.3 CT	2	2.35	7.60
R-107B	600 CT	50	5	2	6.3 CT	2	2.35	7.62
R-108A	600 CT	75	5	2	6.3 CT	2.5	2.4	7.28
R-108B	600 CT	75	5	2	6.3 CT	2.5	2.4	7.40
R-109A	600 CT	75	5	2	6.3 CT	3	2.9	9.17
R-109B	600 CT	75	5	2	6.3 CT	3	2.9	9.17
R-110A	525 CT	90	5	2	6.3 CT	3	3.25	11.82
R-110B	525 CT	90	5	2	6.3 CT	3	3.25	8.85
R-111A	700 CT	90	5	3	6.3 CT	3.5	3.25	8.34
R-111B	700 CT	90	5	3	6.3 CT	3.5	3.25	8.34
R-112A	550 CT	110	5	2	6.3 CT	5	3.7	8.34
R-112B	550 CT	110	5	2	6.3 CT	5	3.7	8.23
R-113A	650 CT	40	5	2	6.3 CT	2	2.3	7.57
R-113B	650 CT	40	5	2	6.3 CT	2	2.3	7.72
R-114A	700 CT	125	5	3	6.3 CT	4.5	4.7	9.95
R-114B	700 CT	125	5	3	6.3 CT	4.5	4.7	9.95
R-115A	680 CT	70	5	2	6.3 CT	2.5	3.5	7.80
R-115B	680 CT	70	5	2	6.3 CT	2.5	3.5	7.68
R-116A	700 CT	180	5	3	6.3 CT	5	5.65	11.07
R-116B	700 CT	180	5	3	6.3 CT	5	5.65	11.07
R-118A	750 CT	175	5	3	6.3 CT	7	7.45	12.35
R-118B	750 CT	175	5	3	6.3 CT	7	7.45	12.45
R-120A	700 CT	200	5	3	6.3 CT	8	8.25	12.45
R-120B	700 CT	200	5	3	6.3 CT	8	8.25	13.34
R-121A	800 CT	200	5	3	6.3 CT	6	8.25	13.34
R-121B	800 CT	200	5	3	6.3 CT	6	8.25	11.65

## FILAMENT TRANSFORMERS, SINGLE SECONDARY

Primary 115 Volts—50/60 Cycles

Triad No.	Secondary		Test Volts	Case Size, In. H. x W. x D.	Wt. Lbs.	Net Each*
	Volts	Amps				
F-1X	2.5 CT	3	1500	1 1/2 x 2 1/2 x 1 1/2	0.68	\$2.77
F-72Z	2.5 CT	5	7500	2 1/2 x 3 1/2 x 2 1/2	1.7	4.52
F-6X	2.5 CT	6	2500	1 1/2 x 2 1/2 x 1 1/2	1	3.78
F-3X	2.5 CT	10	3000	2 1/2 x 3 1/2 x 2 1/2	1.7	4.55
F-5U	2.5 CT	10	7500	3 1/2 x 4 1/2 x 2 1/2	2.2	6.38
F-71U	2.5 CT	10	10000	3 1/2 x 4 1/2 x 2 1/2	2.6	5.15
F-7X	5 CT	3	1500	1 1/2 x 2 1/2 x 1 1/2	1.3	3.57
F-8X	5 CT	6	1500	2 1/2 x 3 1/2 x 2 1/2	1.7	5.93
F-12X	5 CT	13	2500	2 1/2 x 3 1/2 x 2 1/2	2.5	6.22
F-9A	5.2 CT	13	1500	3 1/2 x 2 1/2 x 3 1/2	4.25	8.89
F-9U	5.2 CT	13	1500	3 1/2 x 2 1/2 x 2 1/2	4	7.93
F-15U	5 CT	15	3000	3 1/2 x 4 1/2 x 2 1/2	3.25	7.00
F-10U	5 CT	14	10000	3 1/2 x 4 1/2 x 2 1/2	3.75	7.00
F-11U	5.2 CT	24	1500	3 1/2 x 4 1/2 x 3 1/2	6.75	10.50
F-13X	6.3	15	1500	1 1/2 x 2 1/2 x 1 1/2	0.7	2.45
R-84K	6.3	6	3500	2 1/2 x 3 1/2 x 2 1/2	1.5	6.15
F-14X	6.3 CT	1.2	2500	1 1/2 x 2 1/2 x 1 1/2	1.7	2.85
F-52X	6.3	1.2	5000	1 1/2 x 2 1/2 x 1 1/2	1	3.67
F-51X	6.3/5	2	5000	1 1/2 x 2 1/2 x 2 1/2	1.25	4.55
F-53X	6.3	4	5000	2 1/2 x 3 1/2 x 2 1/2	2.1	5.48
F-43X	6.3	4	1500	1 1/2 x 2 1/2 x 2 1/2	1.25	3.84
F-16X	6.3 CT	3	2500	1 1/2 x 2 1/2 x 2 1/2	1.3	4.73
F-18X	6.3 CT	6	1500	2 1/2 x 3 1/2 x 2 1/2	2.3	5.02
F-18A	6.3 CT	6	1500	3 1/2 x 4 1/2 x 2 1/2	2.5	7.05
F-19X	6.3/6 CT	6	2000	2 1/2 x 3 1/2 x 2 1/2	2.3	4.23
F-21A	6.3 CT	10	1500	3 1/2 x 4 1/2 x 2 1/2	3.8	9.00
F-20X	6.3/6 CT	11	3000	3 1/2 x 4 1/2 x 2 1/2	4	7.80
F-17U	6.3 CT	15	10000	3 1/2 x 4 1/2 x 2 1/2	7.5	11.74
F-22A	6.3 CT	20	2000	3 1/2 x 4 1/2 x 3 1/2	7	12.50
F-24U	7.5/6.3 CT	8	3000	3 1/2 x 4 1/2 x 2 1/2	3.65	6.88
F-28U	7.5/6.3 CT	25	3000	4 1/2 x 5 1/2 x 2 1/2	7.5	14.85
F-23U	10 CT	7	1500	3 1/2 x 4 1/2 x 2 1/2	3.9	7.77
F-29U	12/11/10 CT	11	3000	4 1/2 x 5 1/2 x 3 1/2	6.5	11.52
F-25X	12.6 CT	1.5	1500	1 1/2 x 2 1/2 x 2	1.3	3.17
F-44X	12.6 CT	2	1500	1 1/2 x 3 1/2 x 2	1.25	3.32
F-26X	12.6 CT	2.5	1500	2 1/2 x 3 1/2 x 2	1.55	3.65
F-40X	26.8 CT	1	1500	1 1/2 x 3 1/2 x 2	1.3	3.39
F-41X	25.2 CT	2	1500	2 1/2 x 3 1/2 x 2 1/2	2.2	4.43
F-50X	6.3/5	1	5000	1 1/2 x 2 1/2 x 2	1.2	4.88
F-45X	24 CT	1	1500	1 1/2 x 2 1/2 x 2	1.3	3.39

\*Tapped primary to produce lower voltages. †Static shield. ‡Filament line transformer; primary 6.3 V./5V. †60 cycle operation.

## ★ QUANTITY DISCOUNTS

1-9, Net; 10-24, 10%; 25-49, 19%; 50-99, 25%; 100-249, 28 1/2%; 250 up, 32 1/2%.

## FILAMENT TRANSFORMERS, MULTIPLE SECONDARY

Primary 115 Volts—50-60 Cycles

Triad No.	Secondary		Test Volts RMS	Case Size, In. H. x W. x D.	Wt. Lbs.	Net Each*
	Volts	Amps				
F-27U	10 CT	10	1500	4 3/4 x 3 1/2 x 3 1/2	6.2	\$11.39
	2.5 CT	10	7500			
F-30A	5 CT	3	1500	3 1/2 x 2 1/2 x 3 1/2	4	8.49
	6.3 CT	8				
F-32A	6.3 CT	3	1500	3 1/2 x 2 1/2 x 2 1/2	2.5	5.82
	6.3 CT	3				
F-34A	6.3 CT	1.75	1500	3 1/2 x 2 1/2 x 3	3.3	8.67
	6.3†	1.75				
	6.3†	1.75				
F-36A	6.3 CT	3.5	1500	3 1/2 x 3 1/2 x 3 1/2	5	10.27
	6.3†	3.5				
	6.3†	3.5				
	6.3†	3.5				
F-38A	6.3 CT	5	1500	3 1/2 x 3 1/2 x 3 1/2	6	11.94
	6.3†	5				
	5 CT	2				
	5	4				
F-42A	12.6 CT	2.5	1500	3 1/2 x 2 1/2 x 3 1/2	3.7	6.77
	12.6†	2.5				
F-83A*	12.6 CT	5	1500	3 1/2 x 3 1/2 x 3 1/2	6	10.84
	12.6†	5	2500			

\*Primary tapped for 105/115/125 volts; 60 cycle operation. †Windings may be connected in series or in parallel.

## PLATE POWER TRANSFORMERS

Static Shield; Primary 115 Volts—60 Cycles

Triad No.	Secondary Volts		Sec. DC Ma		Rect. Fil.	Wt. Lbs.	Net Each*
	AC	DC	CCS	ICAs			
P-1A	440/220 CT	180/90	160	192	5V-3A	4	\$ 9.12
P-3A	600/300 CT	250/125	300	360	5V-4A	6.25	11.74
P-5A	400	400	250	300	5V-4A	8	12.50
P-7A	1235 CT	500	250	300	5V-4A	9	14.65
P-9A	1235 CT	500	500	600	5V-6A	18	25.46
P-11A	1455 CT	600	250	300	.....	8.5	12.50
P-213AL	1780 CT	750	250	300	.....	9.5	19.50
P-14A	1780 CT	750/600	250	300	.....	13.5	19.12
P-215AL	2340 CT	1000	250	300	.....	13.5	21.65
P-216AL	2430 CT	1000	500	600	.....	25	43.32
P-217AL	2880 CT	1250	250	300	.....	14.8	24.67
P-218AL	2880 CT	1250	500	600	.....	27.5	48.30
P-220AL	3300 CT	1500	350	420	.....	24.5	41.68
PR-21AL	3300 CT	1500	500	600	.....	29	50.67

\*Primary, 115/230 v. AC. †Plate leads outside of case for rectifiers. ‡Also 1425 AC volts CT. §At 50-60 cycles.

## COMBINED PLATE AND FILAMENT TRANSFORMERS

Static Shield; Primary 115 Volts—50-60 Cycles

Triad No.	Secondary		Rect. Fil.		Other Filament		Wt. Lbs.	Net Each*
	AC Volts	DC Ma	V.	A.	Volts	A.		
R-22A*	380/320 CT	70	...	...	6.3	3	2 1/2	\$ 7.52
R-22B*	380/320 CT	70	...	...	6.3	3	2 1/2	7.85
R-4A	500 CT	40	...	...	6.3	2	1 1/2	6.15
R-4B	500 CT	40	...	...	6.3	2	1 1/2	6.33
R-5A*	600 CT	65	...	...	6.3	2.7	2 1/2	7.40
R-5B*	600 CT	65	...	...	6.3	2.7	2 1/2	7.45
R-6A	480 CT	50	5	2	6.3	2	2 1/2	7.17
R-6B	480 CT	50	5	2	6.3	2	2 1/2	7.50
R-7A*	600 CT	50	5	2	6.3	2	2 1/2	8.22
R-7B*	600 CT	50	5	2	6.3	2	2 1/2	8.44
R-8A	500 CT	75	5	2	6.3	2.5	3	8.28
R-8B	500 CT	75	5	2	6.3	2.5	3	8.34
R-9A	600 CT	75	5	2	6.3	3	3 1/2	8.67
R-9B	600 CT	75	5	2	6.3	3	3 1/2	9.05
R-10A	525 CT	90	5	2	6.3	5	4 1/2	10.69
R-10B	525 CT	90	5	2	6.3	5	4 1/2	9.27
R-11A	700 CT	90	5	3	6.3	3.5	4 1/2	10.34
R-11B	700 CT	90	5	3	6.3	3.5	4 1/2	10.22
R-12A	550 CT	110	5	2	6.3	5	4 1/2	10.67
R-12B	550 CT	110	5	2	6.3	5	4 1/2	10.72
R-14A	700 CT	125	5	3	6.3	4.5	6	12.40
R-14B	700 CT	125	5	3	6.3	4.5	6	11.45
R-16A	700 CT	160	5	3	6.3	5	7	13.00
R-16B	700 CT	160	5	3	6.3	5	7	13.69
R-17A	750 CT	160	5	3	6.3	5	7 1/2	15.39
R-18A	80 Tap	175	5	3	6.3	8	8 1/2	12.66
R-18B	750 CT	175	5	3	6.3	8	8 1/2	13.79
R-19A	750 CT	200	5	3	6.3	6	9 1/2	17.94
R-20A	80 Tap	200	5	3	6.3	8	9 1/2	12.50
R-20B	700 CT	200	5	3	6.3	8	9 1/2	13.52
R-72A	800 CT	140	5	3	6.3	4	5 1/2	11.77
R-21A	800 CT	200	5	3	6.3	6	9 1/2	15.82
R-21B	800 CT	200	5	3	6.3	6	9 1/2	14.79
R-24A*	800 CT	300	5	6	6.3	6	14	16.74
R-24B*	800 CT	300	5	6	6.			





# Special Transformers



## MODULATION TRANSFORMERS, TUBE TO RF LOAD

Triad No.	Primary Imped.†	Secondary Imped.†	Ma	Audio Watts	Size, Inches H. x W. x D.	Net Each*
TY-65Z	32 CT (575 ma) Xsistor use	3K/4K/6K	100	10	2 1/2 x 2 3/4 x 2	\$ 2.83
M-4Z	5000 Autoformer	6750/4	100	10	1 1/2 x 2 3/4 x 1 3/8	2.22
M-5Z	5000 Autoformer	6750/4	165	20	2 1/2 x 3 1/2 x 2 3/8	4.11
M-1X	10000 CT (5 ma)†	5000/8000/10000	50	5	1 3/8 x 2 1/2 x 1 3/4	2.52
M-3X	10000 CT (10 ma)†	3000/5000/8000	100	20	2 1/2 x 3 1/2 x 2	4.50
M-6X	10000 CT (10 ma)†	3K/5K/8K/4	100	20	2 1/2 x 3 1/2 x 2	4.77
TY-66A	6 CT (5 a.) Xsistor use	3K/4K/6K	200	40	3 3/4 x 3 1/2 x 3 3/4	8.94
M-7AL*	4250 CT	3000/5000/8000	200	60	4 1/4 x 3 1/2 x 3 3/4	11.22
M-15A	4000-20000 Universal	4000 to 20000	150	30	3 3/2 x 2 1/2 x 3 3/4	9.05
M-12AL*	4000-20000 Universal	4000 to 20000	300	125	4 3/4 x 3 1/2 x 4 3/4	17.89

\*Plate leads outside of case. †Ohms. ‡Unbalanced.

## AUTO RADIO TRANSISTOR TRANSFORMERS

Triad No.	Imped.†	Pri. Sec.	Pri. DC Ma	Pwr. W.	Size, Inches H. x W. x D.	Mtg. Ctr.	Net Each*
TY-1XT*	1K	40	10	2	1 1/2 x 2 x 1 3/8	1 3/8 x 1 3/8	\$2.10
TY-2Z†	30 CT	4	50†	10	2 1/2 x 2 3/4 x 1 3/8	2 3/8 holes	2.97
TY-3XT†	9 tap at 4	920	10	1 1/2	1 1/2 x 1 3/4 x 1 3/8	1 3/8 x 1 3/8	2.79
TY-4XT*	1K	10	10	2	1 1/2 x 2 x 1 3/8	1 3/8 x 1 3/8	2.10

\*Interstage. †Output. ‡Autoformer. #Per side.

## FILTER CHOKES

Test Voltage, 1000 v. rms. Size, 1 1/2" h. x 2 1/8" w. x 1 1/4" d. Mtg. Ctrs., 1 3/4" holes on 1 3/4" x 1/4".  
 Triad No. TY-16XT—3 mh at 1 a. Net Each..... \$1.35\*  
 Triad No. TY-17XT—11 mh at 1 a. Net Each..... 1.23\*

## SIGNALLING TRANSFORMERS

Triad No.	Primary Volts	Secondary Volts, AC	Amps	Size, Inches H. x W. x D.	Net Each*
F-102X	115 60 cy	4/8/12/16/20/24	2	2 1/2 x 3 1/2 x 2 1/2	\$4.77
F-104U	115 60 cy	4/8/12/16/20/24	4	3 1/2 x 2 3/4 x 2 1/2	9.15

## HERMETICALLY SEALED MIL-T-27A TRANSFORMERS

### FILAMENT TRANSFORMERS, 380-1500 CYCLES

Triad No.	Primary Volts	Secondary Volts	Ampers	RMS Test Voltage	Case Key*	Net Each*
HS-436	115	6.3 CT	1	1500	AH	\$11.40
HS-425	105-115-125	6.3 CT	2	1500	AJ-2	13.32
HS-427	105-115-125	6.3 CT	5	500	EA	16.02
				2500		
HS-445	105-115-125	12.6 CT	3	2500	EA	16.22
HS-438	105-115-125	24 CT	1.5	1500	EA	16.38
HS-433	105-115-125	6.3 CT*	5	1500	FA	17.76
		6.3*	5	2500		
HS-435	105-115-125	6.3 CT*	3.5	2000	FA	19.86
		6.3*	3.5			
		6.3/5†	3			
HS-441	105-115-125	5 CT*	10	2000	HA	27.15
		5*	10	7500		
		2.5 CT	10			
HS-443	105-115-125	12.6 CT*	.8	1500	AJ-2	16.08
		12.6*	.8			
HS-442†	57.5-99.7-115-120	12.6 CT*	2	1500	EA	19.08
		12.6*	2			
HS-444†	57.5-99.7-115-120	26 CT*	2	2000	FA	26.70
		26 CT*	2			

\*Windings may be connected in series or parallel. †Tapped for 5-volt rectifier use. ‡For Scott connection.

## ISOLATION TRANSFORMERS

Primary 115 V.—400 Cycle, Operate 380-1500 Cycles  
 All types are electrostatically shielded.

Triad No.	VA Output	Secondary Amps	Output Volts	Case Key*	Net Each*
HS-470	40	.35	115	EA	\$13.74
HS-471	80	.7	115	FA	14.82
HS-472	160	1.39	115	GA	18.60
HS-474	300	2.6	115	JA	22.86
HS-475	505	4.4	115	KA	25.62

\*See case size table elsewhere.

## NEW CONTROL TRANSFORMERS

Multiple usage with relays, solenoids, electronic tubes, recording devices and similar applications. All use 115/230 VAC, 50/60 cps and have lug type connections.

Triad No.	Secondary Parallel	Series -	VA Rating	Size, Inches H. x W. x Base	Net Each*
F-105Z	6 V at 2A	12 V at 1A	12	2 3/8 x 2 3/4 x 1 3/4	\$ 3.42
F-106Z	6 V at 4A	12 V at 2A	24	2 3/8 x 3 1/2 x 2 3/8	3.71
F-107Z	12 V at 4A	24 V at 2A	48	3 3/8 x 3 3/4 x 2 3/8	4.69
F-108U	12 V at 8A	24 V at 4A	96	3 3/8 x 4 1/2 x 3 3/8	7.58
F-109U	12 V at 16A	24 V at 8A	192	4 3/8 x 5 1/2 x 3 3/8	13.07

## UNIVERSAL ISOLATING AUTOFORMERS

For 50/60 cps voltage control use.

Triad No.	Output Watts (VA)	RMS Test Voltage	Size, Inches H. x W. x D.	Net Each*	
N-64AC	500	1000	1500	5 1/2 x 4 1/2 x 3 3/4	\$ 27.39
N-62AC	1000	2000	1500	6 1/2 x 5 1/2 x 6	54.30
N-60SC	2000	4000	2500	4 3/4 x 8 1/2 x 13 1/2	104.79

## LOW VOLTAGE RECTIFIER TRANSFORMERS

All use 115 volt tapped primary. Used to supply transistor drive voltage. DC voltage, 15 half wave or 30 in bridge circuit.

Triad No.	Secondary Volts	Amps	Test Voltage	Size, Inches H. x W. x D.	Net Each*
F-94X	10-20 CT-40 CT	.035	1500	1 3/8 x 2 3/8 x 1 3/8	\$3.22
F-90X	10-20 CT-40 CT	.1	1500	1 3/8 x 2 3/8 x 1 3/8	3.40
F-91X	10-20 CT-40 CT	.3	1500	2 1/8 x 3 1/2 x 1 3/8	4.08
F-93X	10-20 CT-40 CT	.75	1500	2 1/8 x 4 1/2 x 1 3/8	5.48
F-92A	10-20 CT-40 CT	1	1500	3 3/8 x 2 3/8 x 3	7.73

## CHOPPER INPUT GEOFORMERS

Adjust at 60 cps; high Z and untuned windings for frequency of 30-500 cps. Static shield.

Triad No.	Impedance, Ohms	Turns Ratio	Max. Pri. Volts	Case Key*	Net Each*
G-20	10,000 CT-2,500	640,000 CT	1:8	25	GP-4T \$28.90
G-21	200,000 CT	12,500 CT	4:1	84	GP-2L 23.65
G-21TS	200,000 CT	12,500 CT	4:1	84	GP-4T 28.90
G-22	50,000 CT	800,000 CT	1:4	90	GP-5W 31.22
G-22H	50,000 CT	800,000 CT	1:4	90	GP-3R 25.85
G-23	40,000 CT	1,000 CT	6.32:1	75	GP-2L 28.90
G-23TS	40,000 CT	1,000 CT	6.32:1	75	GP-4T 28.90
G-24	40,000 CT	40,000 CT	1:1	19.5	GP-5S 37.83
G-25	40,000 CT-10,000 CT	10,000 CT	2:1	70	GP-2L 23.65
G-25TS	40,000 CT-10,000 CT	10,000 CT	2:1	70	GP-4T 28.90

†Full primary to full secondary. \*See case size table elsewhere.

## BOX SHIELDED ISOLATION TRANSFORMERS

Primary 115 V.—50-60 Cycle

Epoxy potted with leads.

Triad No.	Secondary Voltage	Current	VA	RMS Test Volts	Case Key*	Net Each*
HC-25	115	.218 a.	25	1000	GA	\$21.25
HC-115	115	1 a.	115	1000	KA	29.25
HC-300	115	2.6 a.	300	1000	NB	38.10

## ISOLATION TRANSFORMERS

Primary 115/230 V.—50-60 Cycles

Triad No.	VA Output	Secondary Amps	Output Volts	Case Key*	Net Each*
HSM-270	50	.4	105/115/125	JB	\$20.52
HSM-271	125	1	105/115/125	KA	26.10
HSM-272	250	2	105/115/125	NB	36.96

## HERMETICALLY SEALED FILTER REACTORS

Meet inductance tolerances of +50%, -20%.

Triad No.	Cur. DC Ma	Induct. Henries	Resist. Ohms	RMS Test Volts	Case Key*	Net Each*
HSM-301	20	30	1000	1500	EB	\$11.82
HSM-302	20	14	560	1500	AJ	11.04
HS-331	40	4	375	1500	AH-2	8.16
HS-303	50	12	385	1500	EB	11.34
HS-333	70	3	225	1500	AJ-2	9.09
HSM-305	70	15	300	2500	GB	12.24
HS-335	120	3	150	1500	EB	11.49
HSM-307	120	15	185	2500	JB	15.15
HSM-309	150	9	115	2500	JB	16.32
HS-339	200	3	105	2000	FB	12.48
HSM-315	200	10	100	2500	JA	18.84
HS-341	300	2	48	2000	GB	13.32
HSM-319	300	10	85	2500	LA	26.01

\*See case size table elsewhere.

## ★ QUANTITY DISCOUNTS

1-9, Net; 10-24, 10%; 25-49, 19%; 50-99, 25%; 100-249, 28 1/2%; 250 up, 32 1/2%.





# MIL-T-27A Sealed Transformers



HS & HSM

## HERMETICALLY SEALED IN MIL STANDARD CASES

All Series HS and HSM units are designed to meet MIL-T-27A specifications, and are cased in MIL-T-27A standard cases. Exceptions are those in GP cases, which may be classified as MIL-T-27A "YY" cases. All are "Climate" treated, finished in gray enamel, and permanently marked with electrical and test data as specified in MIL-T-27A.

### LOW LEVEL AUDIO INPUT TRANSFORMERS

Static shield except HS-5.

Triad No.	Impedance, Ohms		Freq. Resp.	Case Key*	Net Each*
	Primary	Secondary			
HS-1	600*/250*/150/62.5	77000	20-20000	GP-4†	\$28.58
HS-11	600*/250*/150/62.5	77000	20-20000	GP-2‡	21.68
HS-3	600*/250*/150/62.5	117600 CT	20-20000	GP-5‡	31.10
HS-4	600*/250*/150/62.5	117600 CT	20-20000	GP-4‡	28.40
HS-14	600*/250*/150/62.5	117600 CT	20-20000	GP-3‡	22.52
HS-15†	600*/250*/150/62.5 (10 ma)	38400 CT*	30-20000	GP-5‡	26.65
HS-5	30	127500	40-12000	GP-4†	27.55
HS-8	600*/250*/150/62.5	117600 CT*	20-20000	GP-4‡	28.58

### LOW LEVEL AUDIO INTERSTAGE TRANSFORMERS

HS-23	15000	110000	20-20000	GP-4†	\$21.73
HS-25	15000	110000 CT*	20-20000	GP-4‡	21.73
HS-35	15000	110000 CT*	20-20000	GP-2‡	19.51
HS-27	20000 CT*/5000	60000 CT*/15000	20-20000	GP-4‡	19.70
HS-29	20000 CT*/5000	80000 CT*/20000	20-20000	GP-4‡	27.50
HSM-31	20000 CT*/5000	20000 CT*/5000 CT	20-20000	FA	21.08
HS-32†	15000 (6 ma)	60000 CT*/15000	20-15000	GP-5‡	27.50

### LOW LEVEL OUTPUT, MIXING, MATCHING, BRIDGING

HS-50	15000	600*/250*/150/62.5	20-20000	GP-4†	\$23.23
HS-60	15000	600*/250*/150/62.5	20-20000	GP-2‡	19.51
HS-61†	15000 (5 ma)	600*/250*/150/62.5	40-15000	GP-5‡	20.65
HS-52	20000 CT*/5000	600*/250*/150/62.5	20-20000	GP-4‡	24.02
HS-54	20000 CT*/5000	600*/250*/150/62.5	20-20000	GP-4‡	28.58
HS-56†	600*/250*/150/62.5	600*/250*/150/62.5	10-30000	GP-4‡	25.82
HS-66†	Same as above	Same as above	10-30000	GP-3‡	23.18
HS-58†	Same as above	Same as above	20-20000	GP-5‡	30.32

\*Balanced two windings. †Designed for DC in primary; all other types will show low frequency loss with unbalanced DC in winding. ‡45 db shielding. †70 db shielding. ‡90 db shielding. †Static shield. \*Balanced parallel windings. †Split winding. ‡115 db shield.

### HI-FI AUDIO TRANSFORMERS

Hi-Fi output to line or voice coll. All models except HSM-184 have split winding in primary.

Triad No.	Impedance		Output Watts	Case Key*	Net Each*
	Primary	Secondary			
HSM-79*	20000 CT (20 ma) or 5000 (40 ma)	16/8/4	5	FA	\$19.51
HSM-80*	20000 CT (20 ma) or 5000 (40 ma)	600 CT/250 CT/150/62.5	5	FA	21.31
HSM-81†	8000 CT	16/8/4	15	JB	23.60
HSM-82†	8000 CT	600/250/125	15	JB	23.60
HSM-181†	8000/2000 CT	16/8/4	15	JB	23.60
HSM-182†	8000/2000 CT	600/250/125	15	JB	23.60
HSM-84†	5000 CT	16/8/4	25	KB	30.02
HSM-184†	8000 CT	16/8/4 (Split)	25	KB	30.02
HSM-189†	10000/2500CT	500/250/125	25	KB	30.02
HSM-190†	10000/2500CT	500/250/125	25	KB	30.02
HSM-186†	6600/1650 CT	16/8/4	25	KB	30.02
HSM-187†	6600/1650 CT	500/250/125	25	KB	30.02
HSM-94†	4500 CT	16/8/4	55	LA	43.65
HSM-192†	4000 CT	16/8/4	65	LA	45.04
HSM-193†	1000/445 CT	500/250/125	65	LA	45.04

Frequency Response: \*40-20,000 cps; †7-50,000 cps; ‡10-50,000 cps; §15-30,000 cps. †Williamson type circuit may be used. Taps on primary for proper screen operation.

### SOLID STATE POWER TRANSFORMER

Triad No. HSM-248—Primary 105/115/125 v., 50/60 cps. Secondary 35 v. AC CT at 3 amps rms. For full-wave or full-wave bridge rectifier circuits providing 14.5 or 29 v. DC. Case KA. Net Each.....\$26.10\*

### \* QUANTITY DISCOUNTS

1-9, Net; 10-24, 10%; 25-49, 19%; 50-99, 25%; 100-249, 28 1/2%; 250 up, 32 1/2%.

### POWER OUTPUT TO LINE OR VC

Triad No.	Impedance, Ohms		Max. Watts	Case Key*	Net Each*
	Primary	Secondary			
HS-71	10000 (10 ma)	800 CT/150 (Split)	2	AH-2	\$14.41
HS-73	5000	4/8/16/250/500	5	AJ-2	15.43
HS-75	10000 CT (50 ma)	4/8/16/250/500	10	EB	18.19
HS-77	9000 CT (120 ma)	4/8/16/250/500	25	GA	21.20

### COMBINED PLATE AND FILAMENT TRANSFORMERS

Primary 115 V.—50-60 Cycle

All types have static shield except HSM-208.

Triad No.	Plate Supply			Case Key*	Net Each*
	AC Volts	DC Ma	Filaments Volts at A.		
HSM-200	120	100	6.3 CT-1.6 a.	FA	\$16.98
HSM-201	500 CT	20	6.3 CT-2 a.	GA	21.68
HSM-202	120	20	6.3 CT-6 a.	EA	14.75
HSM-203	600 CT	50	6.3 CT-2.5 a.	JB	22.86
			5 -2 a.		
			5 -3 a.		
HSM-205	700 CT	70	6.3 CT-3 a.	JA	24.42
			5 -3 a.		
HSM-207	700 CT	120	6.3 CT-5 a.	KA	26.40
			5 -3 a.		
HSM-208	626 CT	200	6.3/5.0-3 a.	KA	27.90
			6.3 CT-5 a.		
HSM-241	700 CT	150	6.3 CT-6 a.	LA	33.00
	70 v. bias tap		6.3 v.-2 a.		
			5 v.-3 a.		
HSM-212	1000/800 CT	150	6.3 CT†-4 a.	LA	34.56
			6.3†-4 a.		
			6.3†-4 a.		
HSM-245	800/700 CT	200	6.3 CT-6 a.	MA	39.90
	70 v. bias tap		6.3 v.-4 a.		
			5 -6 a.		
HSM-216	1000/800 CT	200	6.3 CT†-5 a.	MA	40.50
			6.3†-5 a.		
			6.3/5†-4 a.		
HS-247	800/700 CT	300	6.3 CT-8 a.	GP-15	45.99
	70 v. bias tap		6.3 v.-4 a.		
			5 -6 a.		

### COMBINED PLATE AND FILAMENT TRANSFORMERS

Primary 115 V.—400 Cycle, Operate 380-1500 Cycles

All types have static shield except HS-400, -404.

HS-402	476 CT	20	6.3 CT-1.5 a.	AJ	\$15.96
HS-400	125	25	6.3 CT-8 a.	AH	13.31
HS-401	500 CT	40	6.3 CT-1 a.	EB	17.64
			6.3-1 a.		
HS-405	600 CT	70	6.3 CT†-2 a.	GA	21.90
			6.3†-2 a.		
			6.3/5†-2 a.		
HS-404	450 CT	120	6.3 CT-3 a.	FA	21.00
			6.3/5-3 a.		
HS-407	600 CT	120	6.3 CT†-3.5 a.	JB	26.34
			6.3†-3.5 a.		
			6.3/5†-3 a.		
HS-409	700 CT	150	6.3 CT-4 a.	HA	22.38
			6.3†/5†-3 a.†		
HS-413	450 CT	200	6.3 CT†-6 a.	JA	27.30
			6.3†-6 a.		
			6.3/5†-4 a.		
HS-415	800-600 CT	200	6.3 CT†-6 a.	KB	34.20
			6.3†-6 a.		
			6.3/5†-6a.		
HS-417	800/600 CT	300	6.3 CT†-6 a.	LA	37.44
			6.3†-6 a.		
			6.3/5†-6 a.		

\*60 cps operation. †Series or parallel connection. ‡Tapped for 5-volt rectifier use.

### FILAMENT TRANSFORMERS, 50-60 CYCLES

Triad No.	Primary Volts	Secondary		RMS Test Volts	Case Key*	Net Each*
		Volts	A.			
HSM-223*	115	6.3	0.6	1500	AJ-2	\$11.61
HSM-225*	105-115-125	6.3 CT	2	1500	EA	14.28
HSM-226*	105-115-125	6.3 CT	3.6	1500	FA	16.32
HSM-224	105-115-125	6.3 CT	5.5	2500	HB	18.32
HSM-234	105-115-125	6.3 CT†	10	2500	KA	25.80
		6.3†	10			
HSM-227	105-115-125	6.3 CT†	3	2500	GA	19.44
		6.3†	3			
HSM-229	105-115-125	6.3 CT	8	2500	JB	21.96
HSM-233	105-115-125	12.6 CT	8	1500	EA	14.00
HSM-237	105-115-125	12.6 CT	2	2000	FA	16.49
HSM-230	105-115-125	24 CT	0.8	1500	FA	15.72
HSM-239	105-115-125	24 CT	1.5	2500	GA	18.00
HSM-240	115/230	12.6 CT†	1.5	2500	GA	19.44
		12.6†	1.5			
HSM-236	105-115-125	12.6 CT†	2	2500	JB	21.54
		12.6†	2			
HSM-228	105-115-125	6.3 CT†	6	2500	JA	23.19
		6.3†	6			
HSM-231	105-115-125	6.3 CT	5	2500	JB	20.64
		5 CT	3			
HSM-238*	105-115-125	26 CT†	2	2500	JA	24.58
		26†	2			

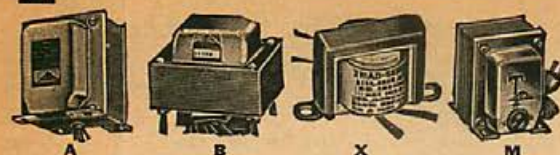
\*60 cps operation. †Series or parallel connection.

\*See case size table listed elsewhere in this section.





# Special Transformers, Filters



**INSTRUMENT POWER SUPPLY TRANSFORMERS**  
PRIMARY 115 VOLTS,\* FOR PREAMPS, VTVM, ETC.

Triad No.	Plate Supply AC Volts	DC Ma	Filament Windings Volts and Amps	Case Size, Inches H. x W. x D.	Wt., Lbs.	Net Each*
R-68A	800 CT	30	5v.-2a., 6.3v.-1.2a., 6.3v.-1.2 a.	3 3/4 x 2 1/2 x 3 1/2	3	\$ 9.00
R-23B	250 CT	22	6.3 v.-.8 a. 15.5/12.6 v.-.6 a.	1 1/2 x 2 1/2 x 2 1/2	1 1/2	6.15
R-2C	135	15	6.3 v.-.9 a.	1 1/4 x 1 1/2 x 1 1/2	1	4.50
R-3A	500 CT	20	6.3 CT-2 a.	2 1/2 x 2 1/2 x 2 1/2	1 1/2	6.28
R-29A	230 CT	40	6.3 CT-1.5 a.	2 1/2 x 2 1/2 x 2 1/2	1 1/2	5.50
R-30X	135	50	6.3 v.-1.5 a.	2 1/2 x 2 1/2 x 2 1/2	1 1/2	4.89
R-54X	115	15	6.3 v.-.6 a.	1 1/2 x 2 1/2 x 2 1/2	1	4.35
R-56A	130	20	0/15/22.5/30-.6 a.	2 1/2 x 2 1/2 x 2 1/2	2	6.32
R-73B	135	200	6.3 CT-5.5 a.	1 1/2 x 3 1/2 x 2 1/2	2 1/2	7.45

\*50-60 cps (R-73B, 60 cps). †Series or parallel. ‡Static shield.

## FOR CATHODE RAY TUBES (115 V. 50-60 CPS)

Triad No.	Plate Supply AC Volts	DC Ma	Filament Windings Volts and Amps	Case Size, Inches H. x W. x D.	Net Each*
R-41C	440-0-440-1250	125/5	5v.-3a., 2.5v.-1.75 a., 2.5v.-1.75a., 6.3 v.-.6 a., 5 v.-.3 a.	3 1/2 x 4 1/2 x 3 1/2	\$15.12
R-45C	400-0-400-800	30/5	5v.-1.2 a., 5v.-1.2 a., 6.3 v.-.6 a., 6.3 CT-3 a., 6.3 v.-1 a.	2 1/2 x 3 1/2 x 3 1/2	13.47
R-43C*	1600	3	6.3/5/2.5 v.-1 a. 6.3/5/2.5 v.-3 a.	2 1/2 x 3 1/2 x 2 1/2	12.22
R-83A*	800 CT 650	70	6.3 CT-3.5 a.	3 1/2 x 2 1/2 x 3 1/2	14.24
R-84K	117	3	6.3-.6 a., 1.25/-3 a.	2 1/2 x 2 1/2 x 2 1/2	6.15
R-85A	1825 117 180	200 3 475	1.25 v.-2 a. 6.3 CT-5.65 a.	3 1/2 x 3 1/2 x 4 1/2	15.99

\*60 cps operation. †Windings may be connected in series or parallel. ‡2-ohm resistor (2 w.) in series with filament when 1V2 is used.

## FOR REGULATED POWER SUPPLIES

All have static shield; 115 volts, 50-60 cps.

Triad No.	Plate Supply AC Volts	DC Ma	Filament Windings Volts and Amps	Case Size, Inches H. x W. x D.	Net Each*
R-70A	880†	75	6.3 v.-.6 a., 6.3 v.-.9 a., 6.3 v.-.3 a., 6.3 v.-.3 a.	3 1/2 x 3 1/2 x 3 1/2	\$11.10
R-26A	880-720†	200	6.3†-8 a., 6.3 v.-.3 a., 6.3 v.-1 a., 5 v.-.3 a.	4 1/2 x 3 1/2 x 4 1/2	18.90
R-28A	1250†	300	6.3†-8 a., 6.3 v.-1.3 a., 6.3 v.-1.3 a., 5 v.-.6 a.	5 1/2 x 4 1/2 x 5 1/2	25.86
R-46A	1250† 130* 117	350 50 117	5 v.-4 a., 6.3 v.-4 a., 6.3 v.-1 a., 6.3 v.-1 a.	5 1/2 x 4 1/2 x 5 1/2	25.12
R-27A	1500†	400	5 v.-.6 a., 6.3 v.-.3 a., 6.3 v.-.8 a.	5 1/2 x 4 1/2 x 7 1/2	37.29

\*For bias using sel. rect.; supplies 550 v. DC using 2-5R4GY rect. tubes, choke input, filament windings regulate screen voltages. †Center tapped. ‡Windings may be connected in series or parallel.

## ISOLATION TRANSFORMERS—50/60 CYCLES

Triad No.	VA Output	Input Volts	Output Volts	Case Size, In. H. x W. x D.	Net Each*
N-51X†	35	115	115	2 1/2 x 3 1/2 x 2 1/2	\$ 4.17
N-68X	50	115/230†	115	2 1/2 x 3 1/2 x 2 1/2	5.67
N-53M	85	115	115	3 1/2 x 2 1/2 x 3 1/2	9.32
N-54M	150	115	115	3 1/2 x 3 1/2 x 3 1/2	12.69
N-73A	150	115	115/230†	3 1/2 x 3 1/2 x 3 1/2	10.60
N-74A	150	115	67.5/115†	3 1/2 x 3 1/2 x 3 1/2	10.45
N-67A	150	115/230†	115	3 1/2 x 3 1/2 x 3 1/2	10.39
N-59M	250	115	115	4 1/2 x 3 1/2 x 5	17.88
N-65A	250	115/230†	115	4 1/2 x 3 1/2 x 5	15.82
N-57M	500	115	115	5 1/2 x 4 1/2 x 6 1/2	33.85
N-59M	1000	115	115	5 1/2 x 4 1/2 x 7 1/2	38.86
N-56M†	150	95-130†	115	4 1/2 x 3 1/2 x 5 1/2	24.87
N-52M*	350	95-130†	115	4 1/2 x 3 1/2 x 7 1/2	28.07
N-469A†	50	220/400†	115	3 1/2 x 2 1/2 x 2 1/2	6.05
N-470A†	150	220/440†	115	3 1/2 x 3 1/2 x 3 1/2	8.91
N-471A†	300	220/440†	115	4 1/2 x 3 1/2 x 4 1/2	12.51

\*With cord, switch and meter for primary voltage control. †60 cps. ‡Split winding. †\$5-volt steps.

## "SPLATTER" CHOKES

Triad No.	Inductance, Henries	Cur., Ma.	Res., Ohms	Size, Inches H. x W. x D.	Net Each*
C-26X	2 to 1.5*	100	95	1 1/2 x 3 1/2 x 2	\$3.55
C-43X	.05 to 1*	300	40	2 1/2 x 4 x 2 1/2	4.77

\*Tapped; inductance tolerance, -20% +50%.

Note: Last letter(s) of Triad No. indicates case style.

## QUANTITY DISCOUNTS

1-9, Net; 10-24, 10%; 25-49, 19%; 50-99, 25%; 100-249, 28 1/2%; 250 up, 32 1/2%.

## STEP-DOWN AUTOFORMERS—50-60 CYCLES

Triad No.	VA Output	Input Volts	Output Volts	Size, Inches H. x W. x D.	Net Each*
N-1X	50	230	115	2 1/2 x 3 1/2 x 2	\$ 3.43
N-3M	85	230	115	3 1/2 x 2 1/2 x 2 1/2	7.88
N-4M	150	230	115	3 1/2 x 2 1/2 x 3 1/2	8.68
N-5M	250	230	115	3 1/2 x 3 1/2 x 3 1/2	11.50
N-7M	600	230	115	4 1/2 x 3 1/2 x 5	18.52
N-9M	1250	230	115	5 1/2 x 4 1/2 x 6 1/2	36.33
N-11M	2000	230	115	5 1/2 x 4 1/2 x 7 1/2	50.59
N-34X	150	95/105/115/125/135	115	2 1/2 x 4 x 2 1/2	6.07

N-35M*	350	95-130†	115	4 1/2 x 3 1/2 x 3 1/2	15.79
N-50M†	500	95-130†	115	4 1/2 x 3 1/2 x 5 1/2	23.94

\*M case with switch for primary voltage control; detachable cord. †With switch and meter for primary voltage control; detachable cord. ‡5-volt steps.

## DC TO DC CONVERTER TRANSFORMERS

For use in blocking oscillator type power supplies where small size, high voltage and low power are required.

Triad No.	Typical Operation		Net Each*
	Input	Output	
TY-200X	3 v. DC at 20 ma	1050 v. DC at 25 ma	\$5.55
TY-201TZ	4 v. DC at 15 ma	500 v. DC at 50 ma	5.25
TY-202X	3 v. DC at 45 ma	550 v. DC at 80 ma	5.10

## CONSTANT VOLTAGE TRANSFORMERS

Input: 95-130 v. 60 cps. Output: 117 v., 118 v. normal harmonic.

Triad No. K-101-30 VA.	Net Each	\$20.00*
Triad No. K-101-60 VA.	Net Each	25.00
Triad No. K-102-120 VA.	Net Each	33.00*
Triad No. K-103-250 VA.	Net Each	49.00*
Triad No. K-104-500 VA.	Net Each	77.00*
Triad No. K-105-750 VA.	Net Each	97.00*

## 400 CPS FILTERS—SOURCE IMP., 10K-OHM

No.	Application	Load Imp.	Case Key	Net Ea.*
FL-381	Bandpass	1 Meg	GP-4	\$43.90
FL-389	Band rej.	10 kΩ	EA	41.39

\*See case size table listed elsewhere in this section.

## TELEMETERING FILTERS (EPOXY MOLDED)

Source and load imp., 47 kΩ. Insertion loss, less than 3 db at Fo. Attenuation (Fo ± 15%): Less than 1 db, pass band; over 20 db, below 15% Fo; over 30 db, above 2 x Fo. 1.562" x 1.375" x .75" h.

Triad No.	IRIG Chan. No.	Center Freq., Fo	Net Each*	Triad No.	IRIG Chan. No.	Center Freq., Fo	Net Each*
FL-384	A	22 kc	\$62.25	FL-387	D	52.5 kc	\$61.42
FL-385	B	30 kc	61.42	FL-388	E	70 kc	63.62
FL-386	C	40 kc	61.42				

## SMOOTHING FILTER REACTORS

Triad No.	Induct., Henries*	Current DC Ma	Resist., Ohms	Size, Inches H. x W. x D.	Net Each*
C-30X	50	15	3500	1 1/2 x 2 1/2 x 1 1/2	\$ 2.17
C-2X	2	15	70	1 1/2 x 2 1/2 x 1 1/2	1.65
C-1X	15	20	1000	1 1/2 x 2 1/2 x 1 1/2	1.78
C-3X	10	50	500	1 1/2 x 2 1/2 x 1 1/2	2.10
C-4X	4	50	360	1 1/2 x 2 1/2 x 1 1/2	1.77
C-6X	5	65	330	1 1/2 x 2 1/2 x 1 1/2	2.04
C-8X	12	75	390	1 1/2 x 3 1/2 x 1 1/2	2.34
C-5X	7	75	240	1 1/2 x 3 1/2 x 1 1/2	2.50
C-7X	10	90	270	1 1/2 x 3 1/2 x 2	2.67
C-9X	4	90	100	1 1/2 x 3 1/2 x 1 1/2	2.34
C-11X	6	110	160	2 1/2 x 3 1/2 x 2	3.18
C-10X	9	125	250	2 1/2 x 3 1/2 x 2	3.21
C-12X	6	160	165	2 1/2 x 3 1/2 x 2 1/2	3.39
C-12A	6	160	165	2 1/2 x 3 1/2 x 2 1/2	5.00
C-13X	3	160	75	2 1/2 x 3 1/2 x 2 1/2	3.24
C-14X	6	200	150	2 1/2 x 4 x 2 1/2	3.33
C-14A	6	200	150	3 1/2 x 4 x 2 1/2	5.43
C-16A	10	200	150	3 1/2 x 4 x 2 1/2	7.68
C-21X	1.5	225	65	1 1/2 x 3 1/2 x 1 1/2	2.38
C-15X	4	250	100	2 1/2 x 4 x 2 1/2	3.38
C-15A	4	250	100	3 1/2 x 2 1/2 x 2 1/2	5.25
C-23X	1.2	260	45	1 1/2 x 3 1/2 x 2	2.48
C-24X	1	240	50	1 1/2 x 2 1/2 x 1 1/2	2.02
C-27X	.7	290	30	1 1/2 x 2 1/2 x 1 1/2	2.10
C-36X	.5	300	30	1 1/2 x 2 1/2 x 1 1/2	1.82
C-17X	1.5	300	40	2 1/2 x 3 1/2 x 2	2.93
C-18A	8	300	90	3 1/2 x 3 1/2 x 3 1/2	8.49
C-19A	10	300	105	4 1/2 x 3 1/2 x 4 1/2	11.57
C-25A	2.6	310	60	3 1/2 x 2 1/2 x 3 1/2	6.10
C-42AL	8	350	105	4 1/2 x 3 1/2 x 4 1/2	9.52
C-34X	6	350	35	1 1/2 x 3 1/2 x 1 1/2	2.02
C-28X	1	350	35	1 1/2 x 3 1/2 x 1 1/2	3.57
C-29X	1.5	375	50	2 1/2 x 3 1/2 x 2	2.93
C-50X	2	400	40	2 1/2 x 4 x 2 1/2	4.49
C-20A	6	400	60	4 1/2 x 3 1/2 x 4 1/2	12.12
C-22A	10	500	65	5 1/2 x 4 1/2 x 5 1/2	19.74
C-45AL	10	500	65	5 1/2 x 4 1/2 x 5 1/2	30.74
C-40X	.32	600	10	1 1/2 x 3 1/2 x 2	2.67
C-47U	.3/.075†	1A/2A	3/0.75	3 1/2 x 2 1/2 x 3 1/2	7.48
C-48U	.08/.02†	2.5A/5A	.61/.155	3 1/2 x 3 1/2 x 3 1/2	9.55
C-49U	.032/.008†	5A/10A	.19/.05	4 1/2 x 3 1/2 x 3 1/2	12.65
C-80U	.024/.006†	20A/40A	1/.025	5 1/2 x 4 1/2 x 5 1/2	34.52

## SWINGING FILTER REACTORS

C-31A	25/5	20/200	150	3 1/2 x 2 1/2 x 3 1/2	\$ 7.12
C-32AL	20/4	35/350	105	4 1/2 x 3 1/2 x 4 1/2	11.57
C-33A	25/5	30/300	105	4 1/2 x 3 1/2 x 4 1/2	10.34
C-35A	20/4	40/400	65	4 1/2 x 3 1/2 x 4 1/2	12.00
C-38AL	25/5	50/500	65	5 1/2 x 4 1/2 x 5 1/2	21.62
C-39A	25/5	50/500	65	5 1/2 x 4 1/2 x 5 1/2	21.24

\*Inductance tolerance, -20% +50%. †Split winding.



# Power and Pulse Transformers



BS



BC



A

## SPECIAL POWER TRANSFORMERS

Multiple filament industrial and TV replacement type. Static shield. Primary 115 v., 50-60 cps. except R-65BC thru R-675A, 60 cps.

Triad No.	Plate Supply AC Volts	DC Ma	Filaments Volts-Amps	Size, Inches H. x W. x D.	Net Each*
R-37BC	735 CT	275	5-6A., 6.3-8.5A., 6.3/5-2A.*	3 3/4 x 4 1/2 x 3 3/4	\$21.94
R-38A	750 CT	225	5-3A., 6.3-10A., 6.3-2.5A., 6.3-1.2A.*	4 3/4 x 3 1/2 x 4 3/4	18.18
R-38BC	750 CT	225	As above	3 3/4 x 4 1/2 x 3 3/4	20.45
R-39BC	840 CT	225	5-3A., 6.3-10A., 6.3-1.2A.*	3 3/4 x 4 1/2 x 3 3/4	18.90
R-40BC	840 CT/440 CT	300	5-3A., 5-3A., 5-2A., 6.3-8.5A., 6.3-3.5A.	3 3/4 x 4 1/2 x 3 3/4	23.65
R-42BC	675 CT	185	5-3A., 6.3-7A., 6.3-2A.*	2 1/2 x 4 1/2 x 3 3/4	14.49
R-49BC	650 CT	240	5-3A., 6.3-9A., 6.3-9A., 6.3-1.2A.*	4 1/4 x 4 1/2 x 3 3/4	20.32
R-49BS	650 CT	240	As above	3 3/4 x 4 1/2 x 3 3/4	21.27
R-50BC	790 CT	310	5-3A., 5-2A., 5-3A., 6.3-5A.†, 6.3-5A.†	4 1/4 x 4 1/2 x 3 3/4	24.60
R-50A	790 CT/650 CT	310	5-3A., 5-2A., 5-3A., 6.3-5A.†, 6.3-5A.†	3 3/4 x 4 1/2 x 3 3/4	26.06
R-51BC	505 CT	320	5-3A., 6.3-7.8A., 6.3-5A.†, 6.3-2.6A.	3 3/4 x 4 1/2 x 3 3/4	14.17
R-52BC	600 CT	270	5-6A., 6.3-5A.†, 6.3-5A.†, 6.3-1.2A.*	3 3/4 x 4 1/2 x 3 3/4	17.15
R-60BC	460 CT	300	5-6A., 6.3-10A., 6.3-2.5A., 6.3-1.2A.*	3 3/4 x 4 1/2 x 3 3/4	20.39
R-61BC	560 CT	300	5-6A., 6.3-6A.†, 6.3-6A.†, 6.3-1.2A.*	3 3/4 x 4 1/2 x 3 3/4	22.29
R-62BC	680 CT	290	Same as R-60BC	4 1/4 x 4 1/2 x 3 3/4	26.82
R-64BC	520 CT	270	5-3A., 6.3-10A.	2 3/4 x 4 1/2 x 3 3/4	14.58
R-65BC	550 CT	270	5-3A., 6.3-10A.	2 3/4 x 4 1/2 x 3 3/4	14.35
R-66BC	680 CT	270	5-3A., 6.3-10A.	2 3/4 x 4 1/2 x 3 3/4	16.02
R-67BC	600 CT	250	5-3A., 6.3-9A.	3 3/4 x 4 1/2 x 3 3/4	16.15
R-69BC	550 CT	270	5-3A., 6.3-10A.	3 3/4 x 4 1/2 x 3 3/4	16.07
R-74BC	680 CT	190	5-3A., 6.3-7.8A., 6.3-1.2A.*	3 3/4 x 4 1/2 x 3 3/4	17.99
R-76BC	650 CT	350	5-6A., 6.3-8A.†, 6.3-5A.†, 6.3-2A.*	3 3/4 x 4 1/2 x 3 3/4	17.92
R-77BC	550 CT	350	5-6A., 6.3-8A., 6.3-6A., 6.3-2A.*	3 3/4 x 4 1/2 x 3 3/4	19.50
R-77BS	550 CT	350	Same as above	3 3/4 x 4 1/2 x 3 3/4	21.45
R-78BC	700 CT	200	5-3A., 6.3-6A., 6.3-4A., 6.3-2A.*	2 3/4 x 4 1/2 x 3 3/4	16.90
R-81BC	590 CT	350	5-6A., 6.3-8A., 6.3-4A., 6.3-2A.*	3 3/4 x 4 1/2 x 3 3/4	21.44
R-81BS	590 CT	350	Same as above	3 3/4 x 4 1/2 x 3 3/4	21.42
R-675A	660 CT	270	5-6A., 6.3-9.35A., 6.3-1.2A.*	4 3/4 x 3 1/2 x 4 3/4	17.57

\*Dampener winding. †Designed for either series or parallel connection. ‡Except 5 volts at 3 amps.

## PULSE TRANSFORMERS (BLOCKING OSC. TYPE)

Triad No.	Pulse Volts Per Winding	Pulse µsec.	Duty Ratio	Imped. Ohms	Size, In.	Net Each*
PL-4	100-100	.54-.66	.01	500	3/4 x 1 1/2	\$10.66
PL-5	100-100-100	.36-.54	.01	2000	1 1/4 x 1 1/2	12.14
PL-6	100-100-100	.36-.54	.01	2000	3/4 x 1 1/4	12.14

## PULSE TRANSFORMERS

High Speed Low Power, Ferrite Toroidal Core

Triad No.	Turns Ratio	Pulse Width µsec	Rise Time µsec	Rep. Rate	Load Ohms	Output Volts	Net Each*
PL-81H	2-1	.07	.03	1-2 mc.	200	20	\$12.25
PL-81P	2-1	.07	.03	1-2 mc.	200	20	11.67
PL-81E	2-1	.07	.03	1-2 mc.	200	20	11.47
PL-82H	3-1	.08	.03	1-2 mc.	100	15	12.69
PL-82P	3-1	.08	.03	1-2 mc.	100	15	12.02
PL-82E	3-1	.08	.03	1-2 mc.	100	15	11.39
PL-83H	4-1	.08	.03	1-2 mc.	100	15	12.92
PL-83P	4-1	.08	.03	1-2 mc.	100	15	12.27
PL-84H	5-1	.08	.03	1-2 mc.	100	15	13.07
PL-84E	5-1	.08	.03	1-2 mc.	100	15	11.82

Low Speed Low Power, Silicon Core

Triad No.	Pulse Voltage per Winding	Pulse Duration µsec	Max. Duty Ratio	Load Impedance Ohms	Net Each*
PL-124E	300-300-300	.6 to 5	.002	150	\$11.39
PL-140E	100-400-100	.6 to 5	.002	175	11.39
PL-140H	100-400-100	.6 to 5	.002	175	12.77
PL-140M	100-400-100	.6 to 5	.002	175	13.85
PL-139E	100-100	.3 to 1.5	.002	250	9.80
PL-139H	100-100	.3 to 1.5	.002	250	10.88
PL-139M	100-100	.3 to 1.5	.002	250	11.75
PL-146E	300-300	.6 to 5	.002	250	11.39
PL-146H	300-300	.6 to 5	.002	250	12.72
PL-146M	300-300	.6 to 5	.002	250	13.84

## PHOTOFLASH (ELECTRONIC FLASH) TRANSFORMERS

Triad No. VR-30Z—From 115 v., 60 cps line or 4 v., 180 cps vibrator to 350 v. rms at 14 ma. Wt., 1 1/2 lbs. Net Each. .... \$4.15  
Triad No. PL-10—Trigger coil, 1:30 turn ratio. Net Ea. .... 1.78\*

## UNIVERSAL RECTIFIER TRANSFORMERS (PRI. 50-60 CPS)

Triad No.	Pri. Volts	Secondary		DC Volts		Case Size, Inches H. x W. x D.	Net Each*
		AC Volts	Amps RMS	Half Wave	Full Wave		
F-47U	115	17-18	3	6-7	13-14	3 1/2 x 2 1/4 x 2 1/4	\$ 9.02
F-48U	115	17-18	6	6-7	13-14	3 1/2 x 3 1/4 x 3 3/4	13.55
F-49U	115	36†	3	13	26	4 1/2 x 3 1/2 x 3 3/4	6.15
F-60U	115	6.5-13-19.5-26	3	9	18	3 3/4 x 2 3/4 x 2 1/4	9.27
F-61U	115	24-27-30-33-36	3	13	26	3 1/2 x 3 3/4 x 3 3/4	17.72
F-67U	110-120	24-27-30-33-36	8	13	26	4 1/2 x 3 1/2 x 3 3/4	6.43
F-63U	115	8-9†	2	.....	6-7	3 3/4 x 2 3/4 x 2 3/4	6.57
F-64U	115	8-9†	2	.....	6-7	3 3/4 x 2 3/4 x 2 3/4	23.49
F-62U	105-115-125	9†	10	.....	7	4 1/2 x 3 1/2 x 5 1/2	9.50
F-68U	115	9 CT†	3.5	.....	7	3 1/2 x 3 1/2 x 2 1/4	8.79
F-65U	110-120	140-150	.76	60	115	3 1/2 x 3 3/4 x 3 3/4	27.60
F-66U	110-120	140-150	2.5	60	115	5 1/2 x 4 1/4 x 5	24.74
F-79U	115	24-26-28-30	15	11.4	22.8	3 1/2 x 4 1/2 x 5 1/2	39.31
F-80U	115*	12-13.5-15-16.5-18†	20	.....	13	5 1/2 x 4 1/4 x 4 3/4	20.27
F84AC	230-115†	12 CT†	10	.....	8.5	4 1/2 x 3 1/2 x 4 3/4	16.17
R-93A	110-120	150-180-170 6.3 CT	6	65	120	4 1/2 x 3 1/2 x 4 3/4	26.11
R94H	115	180-177-6.3-6.3	.5-.005-5.5-5.5	Dblr 470		3 1/2 x 4 1/2 x 5 1/2	

\*Tapped. †Windings in series or parallel. 160 cps. ‡Split winding.

## NEW UNIVERSAL RECTIFIER POWER

Triad No.	Primary 50/60 cps	Secondary No. 1 VAC	Secondary ADC		Net Each*
			CT†	Bridge	
F-200A	117 V	13/18 at 9 ADC*	.....	.....	\$ 4.87
F-202U	117 V	11.0-29.5	2.0	1.25	4.98
F-203U	117 V	12.0-30.0	4.0	2.0	6.70
F-204U	117 V	11.5-29.0	8.0	4.0	8.75
F-205U	117 V	12.0-29.5	12.0	6.0	11.87

\*Sec. No. 2, same. †Full wave.  
SOLID STATE RECTIFIER POWER TRANSFORMERS  
Pri., 115 v., 50/60 cps. Fil. 1 and 2 are 6.3 v.

Triad No.	Sec. Volts	DC A.	Fil. 1, 2	Net Ea.*	Triad No.	Sec. Volts	DC A.	Fil. 1, 2	Net Ea.*
R-200A	400 CT	.4	3 a.	\$13.38	R-203A	100 CT	1.6	1.5 a.	\$11.82
R-201A	300 CT	.6	2.5 a.	13.35	R-204A	80 CT	2.0	1.5 a.	12.87
R-202A	200 CT	.8	2 a.	13.31	R-205A	60 CT	2.5	1.5 a.	12.91

## CASE SIZES FOR TRIAD TRANSFORMERS

Case Type	Dimensions, Inches						Weight, Lbs.
	A	B	C	D	E	G	
AF	1 1/4	1 3/4	1 1/2	1 1/2	.....	.....	4-40
AG	1 1/4	1 3/4	1 1/2	1 1/2	.....	.....	6-32
AH	1 1/4	1 3/4	1 1/2	1 1/2	.....	.....	6-32
AJ	1 1/4	1 3/4	1 1/2	1 1/2	.....	.....	4 oz.
AJ-2	1 1/4	1 3/4	1 1/2	1 1/2	.....	.....	6-32
AH-2	1 1/4	1 3/4	1 1/2	1 1/2	.....	.....	6-32
EA	1 1/4	1 3/4	1 1/2	1 1/2	.....	.....	6-32
EB	1 1/4	1 3/4	1 1/2	1 1/2	.....	.....	6-32
FA	2 1/4	2 3/4	2 1/2	2 1/2	.....	.....	6-32
FB	2 1/4	2 3/4	2 1/2	2 1/2	.....	.....	6-32
GA	2 1/4	2 3/4	2 1/2	2 1/2	.....	.....	6-32
GB	2 1/4	2 3/4	2 1/2	2 1/2	.....	.....	6-32
GP-1	2 1/4	2 3/4	2 1/2	2 1/2	.....	.....	1 1/2
GP-2	1 1/4	1 1/2	1 1/2	1 1/2	.....	.....	3 oz.
GP-3	1 1/4	1 1/2	1 1/2	1 1/2	.....	.....	5 1/2 oz.
GP-4	1 1/4	1 1/2	1 1/2	1 1/2	.....	.....	8 oz.
GP-5	1 1/4	1 1/2	1 1/2	1 1/2	.....	.....	12 oz.
GP-15	5 1/4	4 3/4	6 3/4	4 3/4	.....	.....	17 oz.
HA	2 1/4	3 1/4	4 3/4	2 1/4	.....	.....	22
HB	2 1/4	3 1/4	4 3/4	2 1/4	.....	.....	2 1/2
JA	3 1/4	3 3/4	4 3/4	2 3/4	.....	.....	3 1/2
JB	3 1/4	3 3/4	4 3/4	2 3/4	.....	.....	4 1/2
JOA	1 1/4	1 1/2	1 1/2	1 1/2	.....	.....	8-32
JOB	1 1/4	1 1/2	1 1/2	1 1/2	.....	.....	4
JOA	1 1/4	1 1/2	1 1/2	1 1/2	.....	.....	8-32
JOA	1 1/4	1 1/2	1 1/2	1 1/2	.....	.....	4
JZ	1 1/4	1 1/2	1 1/2	1 1/2	.....	.....	2 oz.
KA	3 3/4	3 1/4	5 1/4	3	.....	.....	2 1/2 oz.
KB	3 3/4	3 1/4	5 1/4	3	.....	.....	5 oz.
LA	3 1/4	4 1/4	5 1/4	3 1/4	.....	.....	7 3/4
LB	3 1/4	4 1/4	5 1/4	3 1/4	.....	.....	10-32
MA	4	4 1/4	6	3 1/4	.....	.....	10-32
MB	4	4 1/4	6	3 1/4	.....	.....	9 1/4
NA	4 1/4	5 1/4	6 1/4	4 1/4	.....	.....	10-32
NB	4 1/4	5 1/4	6 1/4	4 1/4	.....	.....	8 1/2
OA	4 1/4	5 1/4	6 1/4	4 1/4	.....	.....	13 1/2
OB	4 1/4	5 1/4	6 1/4	4 1/4	.....	.....	





# Transformers and Inductors

### HERMETICALLY SEALED TO CONFORM TO MIL-T-27B

#### DO-T★ AND DI-T★ TRANSISTOR TRANSFORMERS



Subminiature transistor transformers hermetically sealed to MIL-T-27B specifications. Leads are plastic insulated; withstand 10-lb. pull. Ideal for printed circuit use. High efficiency, low distortion and wide frequency range. Metal case. Size:  $\frac{1}{4}$ " dia. x  $\frac{1}{2}$ " lg. DO-T;  $\frac{1}{4}$ " dia. x  $\frac{3}{8}$ " lg. DI-T. U.S. Pat. No. 2,949,591; others pending.

UTC Type*	Net Each	††	Pri. Imped., Ohms, DC Ma	Sec. Imped., Ohms	UTC Type*	Net Each
DO-T1	\$6.00	a	20K/30K, 0.5	800/1200	DI-T1	\$6.00
DO-T2	5.40	b	500/600 CT, 3	50/60	DI-T2	5.40
DO-T3	5.40	b	1K/1.2K, 3	50/60	DI-T3	5.40
DO-T4	5.40	b	600, 3	3.2		
DO-T5	5.40	b	1.2K, 2	3.2	DI-T5	5.40
DO-T6	6.00	b	10K, 1	3.2		
DO-T7	6.60	c	200K	1K		
DO-T8	4.80	d	3.5 hys. @ 2	2.5 hys.††	DI-T8	4.80
DO-T9	6.60	e	10K/12K, 1	500/600 CT	DI-T9	6.60
DO-T10	6.60	f	10K/12.5K, 1	1.2K-1.5K CT	DI-T10	6.60
DO-T11	6.60	f	10K/12.5K, 1	2K/2.5K CT	DI-T11	6.60
DO-T12	5.70	b	150/200 CT, 10	12/16		
DO-T13	5.70	b	300/400 CT, 7	12/16		
DO-T14	6.00	b	600/800 CT, 5	12/16		
DO-T15	6.00	b	800/1070 CT, 4	12/16		
DO-T16	6.00	b	1K/1330 CT, 3.5	12/16		
DO-T17	6.00	b	1.5K/2K CT, 3	12/16		
DO-T18	6.30	b	7.5K/10K CT, 1	12/16		
DO-T19	6.00	b	300 CT, 7	600	DI-T19	6.00
DO-T20	6.00	b	500 CT, 5.5	600	DI-T20	6.00
DO-T21	6.00	b	900 CT, 4	600	DI-T21	6.00
DO-T22	6.00	b	1500CT, 3	600	DI-T22	6.00
DO-T23	6.90	a	20K/30K CT, .5	0.8K/1.2K CT	DI-T23	6.90
DO-T24	7.50	c	200K CT	1K CT		
DO-T25	7.20	a	10K/12K CT, 1	1.5K/1.8K CT	DI-T25	7.20
DO-T26	5.70	d	6 hys. @ 2	4.5 hys.††	DI-T26	5.70
DO-T27	4.80	d	1.25 hys. @ 2	0.9 hys.††	DI-T27	4.80
DO-T28	4.80	d	0.3 hys. @ 4	0.1 hys.††	DI-T28	4.80
DO-T29	5.70	b	120/150 CT, 10	3.2/4		
DO-T30	5.70	b	320/400 CT, 7	3.2/4		
DO-T31	6.00	b	640/800 CT, 5	3.2/4		
DO-T32	6.00	b	800/1K CT, 4	3.2/4		
DO-T33	6.00	b	1060/1330 CT, 3.5	3.2/4		
DO-T34	6.00	b	1.6K/2K CT, 3	3.2/4		
DO-T35	6.30	b	8K/10K CT, 1	3.2/4		
DO-T36	7.50	a	10K/12K CT, 1	10K/12K CT	DI-T36	7.50
DO-T37	7.80	a	2K/2.5K CT, 3	8K/10K split	DI-T37	7.80
DO-T38	7.80	a	10K/12K CT, 1	2K/2.4K split	DI-T38	7.80
DO-T39	7.80	a	20K/30K CT, .5	1K/1.5K split		
DO-T40	8.40	a	40K/50K CT, 25	400/500 split		
DO-T41	7.50	a	400/500 CT, 8/6	400/500 split	DI-T41	7.50
DO-T42	7.50	a	400/500 CT, 8/6	120/150 split		
DO-T43	7.50	a	400/500 CT, 8/6	400/500 split	DI-T43	7.50
DO-T44	7.50	a	80/100 CT, 12/10	32/40 split	DI-T44	7.50
DO-T45	7.80	a	1K/1.25K CT, 3.5	16K/20K split		
DO-T46	8.40	c	100K CT	500 CT		
DO-T47	8.40	a	9K/10K, 1	9K/10K CT		
DO-T48	7.80	a	8K/10K, 1	1.2K/1.5K CT		
DO-T49	7.80	d	Series, .075 hy at 10 ma, 10.5 ohms; Par., .018 hy at 20 ma, 2.6 ohms			
DO-T50	5.70	d	Series, 20 hy at 1 ma, 5.1K ohms; Par., 5 hy at 2 ma, 1275 ohms			
DO-T51	7.80	a	2K/2.5K CT, 3	2K/2.5K split	DI-T51	7.80
DO-T52	7.80	a	4K/5K CT, 2	8K/10K CT	DI-T52	7.80
DO-T400	6.60	h	28 v., 380-1 kc	6.3 v., 60 ma		
DO-T410	7.80	h	28 v., 380-1 kc	Two 6.3 v., 30 ma		
DO-T420	7.80	h	28 v., 380-1 kc	28 v., 10 ma		
DO-T5H	.90		High mu shield and cover; 25 db		DI-T5H	.90

\*560 ohms, †2100 ohms, †100 ohms, †25 ohms, †2 windings. ††Application; a—Interstage, b—Output, c—Input, d—Inductor. e—Driver or output, f—Driver, g—Matching, h—Power unit. ††DI—Primary Impedance, \*Wt., 1/10 oz. \*Wt., 1/20 oz. \*With electrostatic shield. †Replaces old No. DO-T500.

#### PIL★ ULTRAMINIATURE AUDIO INDUCTORS

Smallest audio inductor available. Incorporating the DO-T and DI-T construction, these units are reliable, metal encased, ruggedized and hermetically sealed to MIL-T-27B. All inductors are subjected to a 500 volts dielectric strength test instead of 100 volts, for higher safety and reliability. Size:  $\frac{1}{4}$ " dia. x  $\frac{3}{8}$ " h. Wt., 1/20 oz. U.S. Pat. No. 2,949,591; others pending.

UTC Type	Connection	Ind. Hys. Min. at 1 V., 1 Kc	DC Ma	DCR Ohms	Net Each
PIL-5	Series	.12	0	43	\$6.00
	Parallel	.03	0	10.7	
	Series	.10	10		
	Parallel	.025	10		
PIL-8	Series	.32	0	115	6.00
	Parallel	.08	0	28	
	Series	.16	10		
	Parallel	.06	10		
PIL-12	Series	.8	0	300	6.00
	Parallel	.2	0	75	
	Series	.4	5		
	Parallel	.15	5		

#### NEW DI-T200★ TRANSISTOR TRANSFORMERS



Rugged, reliable construction uses the same unique winding techniques and physical construction found in DO-T and DI-T transformers (see listing at left). Specially designed for printed circuit applications, units come with straight pin 1" long, .016" d. Dumet wire, gold-plated leads. Hermetically sealed to MIL-T-27B. Size:  $\frac{1}{4}$ " dia. x  $\frac{3}{8}$ " h. Wt., 1/16 oz. U.S. Pat. No. 2,949,591; others pending.

UTC Type	Application	Impedance, Ohms		Net Each
		Primary	Secondary	
DI-T225	Interstage	80/100 CT	32/40 split	\$8.40
DI-T230	Outp./match	300 CT	600 CT	7.20
DI-T235	Interstage	400/500 CT	40/50 split	8.40
DI-T240*	Inter./outp.	400/500 CT	400/500 split	8.40
DI-T245	Outp./match	500/600 CT	50/60 CT	6.90
DI-T250	Outp./mixing	500 CT	600 CT	7.20
DI-T255	Outp./match	1K/1.2K CT	50/60 CT	6.90
DI-T260	Output	1500 CT	600 CT	7.20
DI-T265	Isol./inter.	2K/2.5K CT	8K/10K split	8.70
DI-T270	Isol./driver	10K/12K CT	500/600 CT	7.80
DI-T273	Outp./driver	10K/12.5K CT	1.2K/1.5K CT	7.80
DI-T276	Inter./driver	10K/12K CT	2K/2.4K CT	7.80
DI-T278	Inter./driver	10K/12.5K CT	2K/2.5K split	8.70
DI-T283	Isol./inter.	10K/12K CT	10K/12K CT	8.40
DI-T288	Inter./driver	20K/30K CT	800/1.2K CT	8.10
DI-T204	Split inductor: 0.1 hy-4 ma, 25 ohms, series; .025 hy-8 ma, 6 ohms, parallel			6.00
DI-T208	Split inductor: 0.9 hy-2 ma, 105 ohms, series; 0.2 hy-4 ma, 26 ohms, parallel			6.00
DI-T212	Split inductor: 2.5 hy-2 ma, 630 ohms, series; 0.6 hy-4 ma, 157 ohms, parallel			6.00
DI-T216	Split inductor: 4.5 hy-2 ma, 2.3K ohms, series; 1.1 hy-4 ma, 575 ohms, parallel			6.90
DI-T2005H	Drawn Hipermalloy shield provides 15 to 20 db shielding through side of case			.75

\*Ratio, 2:1:1.

#### TUBE, TRANSISTOR FILTER INDUCTORS

The multiple ratings applied to "H" series of filter chokes are also applicable to these units. Transistor supply units are swinging type to increase regulation. Terminals for H-79 are opposite mounting. Metal case TF4 Type, H-70 thru H-79, H-170 and H-171. Lightweight molded type MIL TF55X04ZZ, H-105 thru H-109. Type H-79 case, 7" x 7" x 8".



UTC Type	Ind. at DC Hys.	Ma	Res. Ohms	Max. VDC Chk. Inp.	Test VRMS	MIL Case	Net Each
H-70	20	20	925	350	1000	AH	\$ 7.20
H-71	20	40	350	500	2500	FB	8.40
H-72	13	70	215	500	2500	GB	9.00
H-73	11	100	150	700	2500	HB	11.40
H-74	11	150	135	700	2500	JB	12.90
H-75	11	200	90	700	2500	KB	17.40
H-76	11	200	85	1500	4500	LB	24.00
H-77	10	300	60	2000	5500	MB	27.00
H-78	7	400	48	2500	7000	OA	34.50
H-79	7	800	20	3000	9000		90.00
H-164	45†	35	1.2		500	AG	6.60
	11.25†	70	.295				
H-166	125†	50	1.2		500	AH	7.50
	31†	100	.3				
H-168	68†	100	.8		750	AJ	8.40
	17†	200	.2				
H-170†	180†	125	.6		1000	GB	10.20
	45†	250	.15				
H-171†	9†	75 a.	.03		1000	JA	15.00
	2.25†	1.25 a.	.0075				
H-172†	70†	25 a.	.22		1000	HA	12.60
	17.5†	.5 a.	.055				
H-173†	80†	.5 a.	.15		1000	KA	21.00
	20†	1 a.	.038				
H-174†	50†	.65 a.	.08		1000	MB	30.00
	12.5†	1.3 a.	.02				

UTC Type	Ind. at DC		DC Res.	Test Volts	Size, Inches			Wt. Lbs.	Net Each
	Hys.	Ma			L.	W.	H.		
H-105	2.5	25	225	1000	1 1/4	1 1/4	1 1/4	.1	\$ 5.70
H-106	2.25	60	110	1000	1 1/8	1 1/8	1 1/8	.28	6.00
H-107	2	120	55	2500	2 1/8	1 1/4	1 1/4	.9	7.50
H-108	2	220	35	2500	2 1/8	2 1/8	2 1/8	1.7	9.60
H-109	.2	150	.6	750	2 1/8	2 1/8	2 1/8	1.7	10.80
H-300	1	.055	250	5	1	3/4	2 1/8	.5	6.30
	.25	10	40	500					

\*To ripple voltage in input circuit only. †Two Windings †In mh. ‡Two windings, split in series and parallel. §Two windings, split in parallel.

★UTC TRADEMARK. ALL PRODUCT LINES OR TYPE DESIGNATIONS ARE UTC TRADEMARKS. SPECIFY BY TRADEMARKS TO ASSURE UTC HIGH QUALITY AND RELIABILITY.

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136 One Purchase Order to Us Will Save You Time, Money and Paper Work





# Hermetic Components

## HERMETICALLY SEALED TO CONFORM TO MIL-T-27B TRANSISTOR SUPPLY TRANSFORMERS



Transistor supply transformers with primary 115 v. AC, 50/60 cps (tapped on H-143 thru H-146 for dual secondary voltages). DC ratings are approximate and are based on silicon bridge rectifier (except H-141, H-142 also shown F.W. CT.). Choke input v. DC is based on 10% voltage drop in choke. Condenser value, C\*, is in 1000  $\mu$ f. H-141, H-142, H-147 under secondaries in parallel is single winding. MIL type TF4RX02.

UTC Type	Sec. Volts RMS	Sec. Amps RMS	Secondary in Parallel					Secondary in Series					MIL Case	Net Each
			Choke Inp.		Cond. Inp.		C*	Choke Inp.		Cond. Inp.		C*		
			DCV	DCA	DCV	DCA		DCV	DCA	DCV	DCA			
H-141	20 CT	.3	16.5	.3	26	.2	.2	.....	.....	.....	.....	.....	EB	\$10.20
H-142	20 CT	.6	16.5	.6	26	.4	.4	.....	.....	.....	.....	.....	EA	12.90
H-143	17/21.5	1.5	14/17.5	3	18.5/25	2	1	28/35	1.5	43/56	1	.5	HA	18.60
H-144	17/21.5	4	14/17.5	8	18.5/25	5	2	28/35	4	43/56	2.5	1	LA	30.00
H-145	17/21.5	9	14/17.5	18	18.5/25	12	6	28/35	9	43/56	6	4	RC-175	45.90
H-146	34/43	4.5	28/35	9	43/56	6	4	56/70	4.5	85/110	3	1	RC-175 KA	45.90
H-147	10	20	8.2	20	10	13	12	.....	.....	.....	.....	.....	.....	27.00

### UNIV. TRANSISTOR SUPPLY TRANSFORMERS

UTC universal transistor supply transformers are ideal for use in low voltage DC supplies, telephone supplies, bias voltage supplies, battery chargers and plating rectifiers. Highly reliable units are encased in MIL cases, similar to TF4 type illus. above. Primary taps can modify nominal AC voltages by -6%, +6% and  $\pm$ 12%. Capacitor following rectifier affects the DC voltage. All units TF4RX02.

#### 50/60-CYCLE TYPES

Primary 115 v. AC, 50/60 cps. Nom. secondary, 8.25-40.5 v. except H-965, 16.5-81 volts nom.

UTC Type	MIL DC Range		Indus. DC Range		MIL Case	Net Each
	Volts	Amps	Volts	Amps		
H-915	6-53	.065-.02	6-53	.085-.025	AJ	\$11.70
H-925	6-53	.22-.07	6-53	.28-.085	AH	12.90
H-935	6-53	1.2-.4	6-53	1.52-.48	FA	14.40
H-94	6-53	3-1	6-53	3.8-1.2	HA	19.80
H-95	6-53	7.5-2.5	6-53	9-3	KA	28.80
H-96	6-53	18-6	6-53	23-7.5	OA	48.00
H-965	12-106	1.5-.5	12-106	1.9-.6	HA	20.40

#### NEW 400-CYCLE MET\* TYPES

Primary 115 v., 400 cps. Nom. sec., 8.25-40.5 v.

MET455	6-53	1.2-.4	6-53	1.52-.48	AJ	\$12.90
MET465	6-53	3-1	6-53	3.8-1.2	FA	14.40
MET475	6-53	7.5-2.5	6-53	9-3	HA	20.40

#### 400-CYCLE MOLDED TYPES

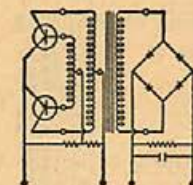
Primary, 105/115 v., 380-1,000 cps. Secondary, 6.3 v. CT; 2,500 v. rms test. Molded type TF5SX01ZZ is illustrated.

UTC Type	Sec. Amps	Size, Inches			Wt., Lbs.	Net Each
		L.	W.	H.		
H-101	3.5	1 $\frac{13}{16}$	1 $\frac{11}{16}$	2	.3	\$14.10
H-102	5.5	1 $\frac{13}{16}$	2 $\frac{1}{8}$	2	.44	15.00
H-103	10	2 $\frac{1}{8}$	2 $\frac{1}{8}$	2	.8	17.40
H-104	25	2 $\frac{1}{8}$	2 $\frac{1}{8}$	3 $\frac{1}{2}$	1.5	21.90
H-118	.3	1 $\frac{1}{4}$	1	1 $\frac{1}{2}$	.05	9.00



### TRANSISTOR INVERTER TRANSFORMERS

Supply high voltage DC. Layer insulated. Drawn MIL case. Circuit details are supplied. With 6 v. DC input instead of 12 v., output voltage is halved, current rating remains the same. For 12/14 or 24/48 v. DC battery.



UTC Type	DC Output Volts	DC Ma	MIL Case	Net Each
H-97	250	60	AH	\$14.70
H-98	375	100	AJ	15.90
H-99	425	175	FA	20.40
H-100	550	200	GB	21.00

### NEW PIP\* SERIES TRANSISTOR PULSE TRANSFORMERS TO MIL-T-20138B

Subminiature transistor-type pulse transformers are designed to give a maximum of component density in equipments. The configuration is especially compatible with transistors. Using the basic design of the UTC DO-T\* and DI-T\* series, units achieve exceptional reliability. Ratio 4:4:1, checked and adjusted



UTC No.	Approx. DC Ohms			Blocking Osc. Pulse					Coupling Circuit Characteristics					Net Each		
	1-2	3-4	5-6	*Width $\mu$ sec.	Rise Time	*	†	‡	*Width $\mu$ sec.	Volts Out	Rise Time	*	†		‡	Imp., Ohms
PIP-1	.18	.20	.07	.05	.02	0	0	37	.05	9	.018	0	0	12	50	
PIP-2	.47	.56	.17	.1	.025	0	0	25	.1	8	.02	0	0	5	50	
PIP-3	1.01	1.25	.37	.1	.030	2	0	15	.2	7	.035	0	0	5	100	
PIP-4	1.5	1.85	.54	.5	.05	0	0	15	.5	7	.06	0	0	0	100	
PIP-5	2.45	3.1	.9	1	.08	0	0	14	1	6.8	.15	0	0	5	100	
PIP-6	3.0	3.7	1.1	2	.10	0	0	15	2	6.6	.18	0	2	10	100	
PIP-7	4.9	6.05	1.8	3	.20	0	0	14	3	6.8	.20	0	2	10	100	
PIP-8	8.0	9.7	2.9	5	.30	0	0	3	5	7.9	.22	0	13	25	200	
PIP-9	13.1	15.9	4.7	10	.35	0	5	12	10	6.5	.4	0	15	20	200	
PIP-10†	.55	.41	.15	.1	.01	0	0	20	.1	8.6	.05	0	6	12	140/50	
PIP-11†	2.9	2.2	.82	1	.02	4	4	6	1	8	.05	0	6	12	280/100	
PIP-12†	9.4	7.1	2.6	5	.05	0	12	12	5	8	.09	2	12	25	560/200	
PIP-100	Transistor pulse transformer kit consists of 1 each PIP-1 through PIP-9 in plastic case															51.00
PIP-5H	Drawn Hipermalloy shield and cover for PIP's provides 20 to 30 db shielding															.90

\*% overshoot. †Droop. ‡% backswing. \*Pulse. †In and out. ‡Ratio 5:3:1, MIL type TF6RX5310CZ.

\*UTC trademark.

SEE LAST PAGE OF UTC LISTING FOR INDUSTRIAL DISCOUNTS AND MILITARY SPECIFICATIONS

HARVEY RADIO CO., INC. • FEDERAL ELECTRONICS, INC.  
WOODSBURY, L. I. AND NEW YORK CITY BINGHAMTON, N. Y.

### TRANSISTOR/FILAMENT SUPPLY TRANSFORMERS

Hermetically sealed units for transistor or filament supply use. Primary: 105/115/210/220 v. AC, 50/60 cps, except types H-119, H-130, H-137, H-138 (115 v. AC) and H-131 (115/220 volts). Suited to 400/100 cycle service. Size: H-128, H-129: 6 $\frac{1}{2}$ " x 5 $\frac{1}{2}$ " x 7 $\frac{1}{2}$ " h. Weight, H-128, 34 lbs.; H-129, 28 lbs. All ratings are MIL-T-27B except Amps (Industrial) ratings.

METAL CASED TF4RX01 TYPE



UTC Type	MIL Type	Sec. Volts	Amps MIL	Amps Indus.	Test* VRMS	MIL Case	Net Each
H-119	TF4RX01AH	6.3CT	3	.38	1500	AH	\$ 8.40
H-120	TF4RX01GB	2.5	10	12	4000	GB	13.80
H-121	TF4RX01JB	2.5	10	12	10000	JB	18.00
H-122	TF4RX01KB	2.5	20	26	10000	KB	21.00
H-123	TF4RX01NB	2.5	5	7.5	10000	NB	36.00
H-124	TF4RX01FB	2.5	10	15	15	FB	12.00
H-125	TF4RX01KB	5	3	3.8	2000	FB	12.00
H-126	TF4RX01KB	5	10	12	10000	KB	21.00
H-126	TF4RX01LA	5	20	25	10000	LA	27.00
H-127	TF4RX01NA*	5	20	30	21000	NA	45.00
H-128	TF4RX01YY*	5	60	75	21000	.....	81.00
H-129	TF4RX01YY*	5	10	12	21000	.....	90.00
H-130	TF4RX01AJ	6.3CT	2	.75	1500	AJ	9.00
H-131	TF4RX01FB	6.3CT	6	2.5	2500	FB	12.00
H-132	TF4RX01JA	6.3CT	6	7	2500	JA	19.20
H-133	TF4RX01HB	6.3CT	6	7	2500	HB	15.00
H-134	TF4RX01HA	6.3CT	10	12	2500	HA	16.80
H-135	TF4RX01JB	10CT	10	13	2500	JB	21.00
H-136	TF4RX01LA	14, 12, 11CT	10	14	2500	LA	27.00
H-137	TF4RX01EB	6.3	8	.75	1500	EB	12.00
H-138	TF4RX01GA	12.6	2	2.5	1500	GA	19.50

#### NEW MET\* 400-CYCLE SERIES

MET-410*	TF4SX01YY	6.3	.6	.75	500	RC-25	\$ 7.80
MET-420	TF4SX01AH	6.3CT	2	2.5	1500	AH	9.60
MET-430†	TF4SX01FA	12.6CT	2	2.5	1500	FA	18.00
MET-435	TF4SX01FA	12.6	2	2.5	1500	FA	18.00
MET-440	TF4SX01GB	6.3CT	6	7	2500	GB	15.00

\*Term. opposite mtg. †Two MET-430's, Scott-connected, provide 26 v., 2-phase from 115 v., 3-phase 400 cps input. Replaces former No. H-139. †105/115/125 v. primary. ‡57.5/99.7/115 v. primary. †Replaces former No. H-140. \*Secondary.

#### TRANSISTOR PULSE TRANSFORMERS TO MIL-T-20138B

In a transistor test circuit to give the required pulse width. Hermetically sealed, manufactured and guaranteed to MIL-T-20138B by full environmental testing. All units are completely metal cased, MIL type TF6RX4410CZ. All units individually adjusted to parameters shown in table below. Size:  $\frac{1}{2}$ " dia. x  $\frac{1}{4}$ " h. Weight, 1/20 oz. U.S. Pat. No. 2,949,591; others pending.









# Hermetic Components

## MAT★ MAGNETIC AMPLIFIERS TO MIL-T-27B FOR SERVO MOTOR APPLICATIONS

### VACUUM TUBE TYPE



Exceptionally stable magnetic amplifiers. MAT-1 to MAT-4 units are designed for control of 2-phase, 115 v., 400 cps servo motors. Units meet MIL-T-27B and MIL-E-5400 specifications and are hermetically sealed against extreme environmental conditions in addition to being compact and magnetically shielded. Output is sinusoidal, amplitude variable and phase reversible. Dual-triode such as a 12AU7 operating with a plate voltage of 115 volts, 400 cps or higher provides control. Signal to triode grids can be polarity reversible DC or phase reversible 400 cps with or without suppressed carrier modulation. DC power requirements are eliminated by these units as well as temperature sensitive dry-disc rectifiers. The high input impedance provides minimum loading on sensing elements along with high power gain for maximum performance. Ringing at low load level is reduced to a minimum through high internal damping factors. Power output ratings are conservative and power gain of the magnetic structure is approx. 40; response time approx. 7.5 msecs.; max. null volts, 3 v. rms. For a single phase supply voltage the load capacitor should effect 90° shift with motor load, for 3-phase, 30° shift. MIL type TF4SY40YY unless otherwise noted.

### MAT-1 THRU MAT-4

UTC Type★	MAT-1	MAT-2	MAT-3	MAT-4
<b>230 Volt Supply</b>				
Power Output	4 w.	8 w.	11 w.	18 w.
RL, Ohms	3300	1600	1200	720
CL, $\mu$ t	.2	.3	.5	.7
<b>115 Volt Supply</b>				
Power Output	2 w.	4 w.	6 w.	9 w.
RL, Ohms	6500	3300	2200	1450
CL, $\mu$ t	.13	.2	.3	.45
Reson. Freq.	40 cye.	35 cye.	35 cye.	20 cye.
Log-Decr.	.58	.65	.65	.65
Cont. Wdg. Res.	6200 ohms	8450 ohms	4750 ohms	5650 ohms
Case Length, In.	1 1/4	1 1/4	1 1/4	2 1/4
Width, In.	1 1/2	2 1/4	2 1/4	3 1/4
Height, In.	2 1/2	2 1/4	2 1/4	3 1/4
Mtg. Ctrs., In.	1 1/4 x 1 1/2	1 x 1 1/4	1 1/4 x 1 1/4	1 1/4 x 2 1/4
Studs, Stainless	4-40	6-32	8-32	8-32
Cutout, In.	1	1	1	1
Weight, Lbs.	.67	1.1	1.7	2.75
<b>Net Each</b>	<b>\$27.00</b>	<b>\$30.00</b>	<b>\$36.00</b>	<b>\$39.00</b>

UTC Type MAT-5—115 v., 400 cps to 460 v. CT provides 230 v. at 48 ma DC or 460 v. at 24 ma DC. RC-37 case. MIL type TF4-SY02YY. Net Each. **\$10.80**

UTC Type MAT-6—Input, 10K ohms primary, 1:15 CT ratio. Phase shift under 1°. Case, RC-25. MIL Type TF4RX10YY. Net Each. **\$9.00**

## PRECISION MINIATURE WIDE-APPLICATION PULSE TRANSFORMERS TO MIL-T-20138B

### ALL UNITS INDIVIDUALLY ADJUSTED TO PARAMETERS SHOWN IN TABLES

Reliable, hermetically sealed to withstand service in a temperature range -70° C to +130° C. Wound-core construction provides temperature stability. Designs are of the high inductance type, providing minimum droop and assuring true pulse width. Ratios, 1:1:1, types H-45 through H-57, MIL type TP7SX1110; ratio 4:4:1, types H-60 through H-68, MIL type TP7SX4410AZ; ratio 5:3:1, all others, MIL type TP7SX5310.

### TRANSISTOR PULSE TRANSFORMERS

Size and weight of Types H-60 thru H-67 are same as Type H-45 in Vacuum Tube Transformer table.

UTC Type	Approx. DCR Ohms			Blocking Osc. Pulse			Coupling Circuit Characteristics						Net Each
	1-2	3-4	5-6	*Width $\mu$ sec.	Rise Time	* * *	*Width $\mu$ sec.	Volts Out	Rise Time	* * *	Imp. Ohms†		
H-60	.124	.14	.05	.05	.016	0 0 30	.05	9.3	.012	0 0 20	50	<b>\$ 6.60</b>	
H-61	.41	.48	.19	.1	.016	0 0 30	.1	8.2	.021	0 0 15	50	<b>6.60</b>	
H-62	.78	.94	.33	.2	.022	0 0 18	.2	7.4	.034	0 5 12	100	<b>6.60</b>	
H-63	1.86	2.26	.70	.5	.027	2 10 20	.5	7.5	.045	0 20 25	100	<b>6.60</b>	
H-64	3.73	4.4	1.33	1	.033	0 12 25	1	7	.078	0 15 25	100	<b>6.60</b>	
H-65	6.2	7.3	2.22	2	.066	0 15 25	2	6.6	.14	0 10 20	100	<b>7.50</b>	
H-66	10.2	12	3.6	3	.087	0 18 30	3	6.8	.17	0 10 20	100	<b>7.50</b>	
H-67	14.5	17.5	5.14	5	.097	0 23 28	5	7.9	.2	0 15 30	200	<b>7.50</b>	
H-68	42.3	52.1	14.8	10	.14	0 15 28	10	6.5	.4	0 18 30	200	<b>7.50</b>	
H611	.426	.32	.132	.1	.018	0 10 10	.1	8.2	.02	0 0 30	▲	<b>6.60</b>	
H641	5	3.6	1.4	1	.04	0 10 10	1	7	.07	0 20 30	▲	<b>6.60</b>	
H671	21	16	6	5	.08	0 14 12	5	8	.2	0 25 30	▲	<b>7.50</b>	
H-69	Transistor pulse transformer kit, H-60 thru H-68 in plastic case.												<b>60.00</b>



TYPICAL

### VACUUM TUBE PULSE TRANSFORMERS

UTC Type	Approx. DCR Ohms			Blkg. Osc. Pulse			Coupling Circuit Characteristics						Size Inches		Wt. Grams	Net Each
	1-2	3-4	5-6	*Width $\mu$ sec.	Rise Time	* * *	*Width $\mu$ sec.	Volts Out	Rise Time	* * *	Imp. Ohms†	L.	W.			
H-45	3	3.5	4	.05	.022	0 20 10	.05	17	.01	20 0 35	250	3/8	3/8	1	<b>\$6.75</b>	
H-46	5.5	6.5	7	.10	.024	0 25 10	.10	19	.01	30 10 50	250	3/8	3/8	1	<b>6.75</b>	
H-47	3.7	4.0	4	.20	.028	0 25 8	.20	18	.01	30 15 65	500	3/8	3/8	4	<b>6.00</b>	
H-48	5.5	5.8	6	.50	.03	0 20 5	.50	20	.01	30 20 65	500	3/8	3/8	4	<b>6.00</b>	
H-49	8	8.5	9	1	.04	0 20 10	1	24	.02	15 15 65	500	3/8	3/8	4	<b>6.00</b>	
H-50	20	21	22	2	.05	0 20 10	2	27	.05	10 15 35	500	3/8	3/8	4	<b>6.00</b>	
H-51	28	31	33	3	.10	1 20 8	3	26	.07	10 10 35	500	3/8	3/8	4	<b>6.00</b>	
H-52	36	41	44	5	.13	1 25 8	5	23	.15	10 10 45	1000	3/8	3/8	6	<b>6.00</b>	
H-53	37	44	49	7	.28	0 25 8	7	24	.20	10 10 50	1000	3/8	3/8	6	<b>6.30</b>	
H-54	50	58	67	10	.30	0 20 8	10	24	.25	5 15 20	1000	3/8	3/8	6	<b>6.30</b>	
H-55	78	96	112	16	.75	0 20 10	16	23	.6	5 10 10	1000	3/8	3/8	6	<b>6.30</b>	
H-56	93	116	138	20	1.25	0 25 10	20	24	1.5	5 10 10	1000	3/8	3/8	6	<b>6.30</b>	
H-57	104	135	162	25	2.0	0 30 10	25	24	1.5	5 10 10	1000	3/8	3/8	6	<b>6.30</b>	
H461	9.6	6.4	2.5	2	.025	0 0 8	2	19	.02	3 5 20	†	3/8	3/8	1	<b>6.75</b>	
H511	30	20	7	1	.08	0 12 5	1	27	.06	12 15 35	†	3/8	3/8	4	<b>6.00</b>	
H531	66	47	17	7	.32	0 12 3	7	24	.23	12 10 40	**	3/8	3/8	6	<b>6.00</b>	
H561	180	142	53	20	1.75	0 13 5	20	23	.7	5 10 10	**	3/8	3/8	6	<b>6.30</b>	
H-58	Pulse transformer kit, consists of 1 each of H-45 through H-57 in partitioned plastic case.												<b>75.00</b>			

\*% overshoot. †Droop. ‡% backswing. †In and out. \*Pulse  $\mu$ 140/50. \*280/100. \*560/200. \*1700/250. †1400/500. \*\*2800/1000.

★UTC trademark. All product lines or type designations are UTC trademarks.

SEE LAST PAGE OF UTC LISTING FOR INDUSTRIAL DISCOUNTS AND MILITARY INFORMATION





# FILTERS, DECADES AND CIRCUIT DEVELOPMENT TRANSFORMERS

## ELECTRIC WAVE FILTERS HERMETICALLY SEALED TO CONFORM TO MIL-F-18327B

### INTERSTAGE AND LINE FILTERS



Hermetically sealed to MIL-F-18327B in compact, shielded case. Frequency: Indicated by stock number, in cps; example, HMI-200 has 200 cps cut-off. Size  $1\frac{1}{2}'' \times 1\frac{1}{2}'' \times 1\frac{1}{2}''$  h. (Wt., 6 oz.) except BML-30, BML-50, all HMI's, LMI-100 and all LMI's are  $2\frac{1}{2}'' \times 1\frac{1}{2}'' \times 1\frac{1}{2}''$  h. (Wt., 9 oz.) **BMI Types:** Bandpass interstage; operate between tube plate (or 10K ohms) and a grid. Provide gain of 2 at center frequency. **BML Types:** Same, but 500/600 ohms input and gain of 9. **BTI Types:** 10K ohms input and output. **HMI Types:** High pass interstage units. **LMI Types:** Low pass interstage. **HML Types:** High pass with input and output 500/600 ohms. **LML Types:** Low pass with input and output 500/600 ohms. **LLP-10:** Low frequency, 10 cps, low pass; less more than 40 db at 20 cps; source and load 100K ohms; size,  $2\frac{1}{2}'' \times 2\frac{1}{2}'' \times 3\frac{1}{2}''$  (Wt.,  $1\frac{1}{2}$  lbs.).



### TELEGRAPH TONE CHANNEL FILTERS

Bandpass filters for multiplex transmitting and receiving. Units utilize a 7-terminal header, matching a 7-pin subminiature tube socket. **TGR** (receiving) and **TGT** (transmitting) filters are 600 ohms input and output. Down less than 3 db at  $\pm 42.5$  cps from center freq. **TGR** units down more than 30 db at  $\pm 170$  cps. Attenuation, greater than 15 db at adjacent channel crossover. **TGT** units down more than 16 db at  $\pm 170$  cps. Attenuation, greater than 7.5 db at adjacent channel crossover. All units MIL Type FR4RX22YY. **TGT Size:**  $1\frac{1}{2}'' \times 1\frac{1}{2}'' \times 2\frac{1}{2}''$ . Weight, 8 oz. Mtg. screws, 6-32. **TGR Size:**  $1\frac{1}{2}'' \times 1\frac{1}{2}'' \times 4\frac{1}{4}''$ . Weight, 15 oz. Mtg. screws, 6-32.

UTC Type	Net Ea.	UTC Type	Net Ea.	UTC Type	Net Ea.	UTC Type	Net Ea.	UTC Type	Net Ea.	UTC Type	Net Ea.
BMI-30	\$36.00	LMI-100	\$31.50	HMI-500	\$31.50	TGT-5		TGT-5		TGT-5	
BMI-50	30.00	LMI-200	31.50	HMI-800	31.50	425	\$42.00	1955	\$33.00	425	\$72.00
BMI-60	30.00	LMI-400	31.50	HMI-1000	31.50	595	42.00	2125	33.00	595	72.00
BMI-90	30.00	LMI-500	31.50	HMI-2000	31.50	765	42.00	2295	33.00	765	72.00
BMI-100	30.00	LMI-800	31.50	HMI-3000	31.50	935	42.00	2465	30.00	935	72.00
BMI-120	30.00	LMI-1000	31.50	BML-400	30.00	1105	36.00	2635	30.00	1105	63.00
BMI-150	30.00	LMI-1500	31.50	BML-1000	30.00	1275	36.00	2805	30.00	1275	63.00
BMI-200	30.00	LMI-2000	31.50	HML-200	39.00	1445	36.00	2975	30.00	1445	63.00
BMI-240	30.00	LMI-2500	31.50	HML-300	39.00	1615	36.00	3145	30.00	1615	63.00
BMI-300	30.00	LMI-3000	31.50	HML-500	39.00	1785	33.00	3315	30.00	1785	60.00
BMI-400	30.00	LMI-4000	31.50	HML-1000	39.00						
BMI-500	30.00	LMI-5000	31.50	LML-1000	31.50						
BMI-750	30.00	LMI-10000	31.50	LML-1500	31.50						
BMI-800	30.00	BTI-60	36.00	LML-2000	31.50						
BMI-1000	30.00	BTI-100	36.00	LML-2500	31.50						
BMI-1500	30.00	BTI-200	36.00	LML-3000	31.50						
BMI-2000	30.00	BTI-420	36.00	LML-4000	31.50						
BMI-3000	30.00	HMI-100	31.50	LML-4000	31.50						
BMI-4000	30.00	HMI-200	31.50	LML-8000	31.50						
BMI-5000	30.00	HMI-400	31.50	LML-10000	31.50						
BMI-10000	30.00	HMI-400	31.50	LLP-10	60.00						

\*Numerical suffix in UTC Type column is center freq. in cps.

### TELEMETERING BAND PASS FILTERS

Both TMN and TMW types, designed for 100K ohms input and output impedance, with insertion loss of less than 6 db. Four-pin hermetically sealed header matches small Winchester socket. **TMN Types (Fig. A):** Down less than 3 db at  $\pm 7.5\%$  of center freq.; down more than 18 db at  $\pm 25\%$  of center freq. Attenuation greater than 40 db beyond 1.75 and .58 center freq.



**TMW Types (Fig. A):** Down less than 3 db at  $\pm 15\%$  of center frequency; down more than 20 db at  $\pm 50\%$  of center frequency. Attenuation, greater than 40 db beyond 2.5 and .4 center frequency. **MNF and MWF Types (Fig. B):** (Minifilter) Provide same performance as TMN and TMW types except are extremely miniaturized for use in transistor circuitry. Pin terminals make use with printed circuits practical. Size: TMN-4 thru -1.7,  $1\frac{1}{2}'' \times 2'' \times 2''$  h. Weight, 3.5 oz. TMN-4 thru TMW-70,  $1\frac{1}{2}'' \times 1\frac{1}{2}'' \times 1\frac{1}{2}''$  h. Weight, 1.2 oz. MNF-4 thru -5.4 (Minifilter)  $1\frac{1}{2}'' \times 1\frac{1}{2}'' \times 1\frac{1}{2}''$  h. Weight, 1 oz. MNF-7.35 thru MWF-70,  $1\frac{1}{2}'' \times 1\frac{1}{2}'' \times 1\frac{1}{2}''$  h. Weight,  $\frac{3}{4}$  oz.

UTC Type	UTC Type	Freq. Kc.	Net Each	UTC Type	UTC Type	Freq. Kc.	Net Each
TMN-MNF-.4	MNF-.4	539.00		TMN-MNF-14.5	MNF-14.5	542.00	
TMN-MNF-.50	MNF-.50	39.00		TMN-MNF-22	MNF-22	42.00	
TMN-MNF-.73	MNF-.73	39.00		TMN-MNF-30	MNF-30	42.00	
TMN-MNF-.96	MNF-.96	39.00		TMN-MNF-40	MNF-40	42.00	
TMN-MNF-1.3	MNF-1.3	39.00		TMN-MNF-52.5	MNF-52.5	42.00	
TMN-MNF-2.7	MNF-2.7	39.00		TMN-MNF-70	MNF-70	42.00	
TMN-MNF-3.0	MNF-3.0	39.00		TMW-MNF-22†	MNF-22†	42.00	
TMN-MNF-3.9	MNF-3.9	39.00		TMW-MNF-30†	MNF-30†	42.00	
TMN-MNF-5.4	MNF-5.4	39.00		TMW-MNF-40†	MNF-40†	42.00	
TMN-MNF-7.35	MNF-7.35	39.00		TMW-MNF-52.5†	MNF-52.5†	42.00	
TMN-MNF-10.5	MNF-10.5	42.00		TMW-MNF-70†	MNF-70†	42.00	

\*To order, add prefix according to type preferred (UTC Type), to frequency, i.e., TMN-4, where .4 is freq. in Kc. †  $\pm 15\%$  bandwidth, all others  $\pm 7.5\%$ .

### NEW 400-CYCLE 115 V. LINE FILTERS

Intended for use on 115 v., 400 cps line to eliminate harmonic distortion.

**UTC No. PLF-25**—Gives 150 v. output into 500 ohm load within  $\pm 1$  db, 375-425 cps. Will attenuate 800 cycles by 30 db; 1200 cycles and higher by at least 60 db. MIL type FR4RX-11NB. Meets MIL-F-18327B. Size,  $4\frac{1}{2}'' \times 5\frac{1}{2}'' \times 5\frac{1}{2}''$  d.  $\times 5\frac{1}{2}''$  h. Weight, 10 lbs. Net. **\$66.00**

**UTC No. PLP-13**—Eliminates harmonic distortion, rejects 60 and 120 cycles, and gives zero phase shift at 400 cycles. Operating into 1000 ohm load, provides 115 v. output at 400 cycles, within  $\pm 1$  db, 375-425 cycles. Attenuates 800 cycles by 15 db; 1200 cps by 45 db; above 1200 cps by at least 35 db; 120 cps by 20 db; and, 60 cps by 30 db. MIL type FR4RX22LB; meets MIL-F-18327B specifications. Size,  $3\frac{1}{2}'' \times 4\frac{1}{2}'' \times 4\frac{1}{2}''$  h. Weight,  $6\frac{1}{2}$  lbs. Net. **\$66.00**



### TRANSISTOR TRANSFORMERS

**UTC Type LAB-20**—20 cycles to 20 kc, up to 50 watts, continuous. Primary Impedance: 6, 12, 24, 40, 54, 70 and 96 ohms. Secondary Impedance: 4, 8, 16 and 64 ohms. Size,  $5\frac{1}{2}'' \times 5'' \times 4\frac{1}{2}''$ . Wt., 15 lbs. Net Each. **\$60.00**

**UTC Type LAB-5**—20 cycles to 20 kc, up to 50 mw, continuous. Humbucking balanced core and windings. High electrostatic shielding; multiple magnetic shielding. Primary Impedance: 125, 200 split, 500 split and 2000 split ohms. Secondary Impedance: Same as primary. Size,  $3\frac{3}{4}'' \times 2\frac{1}{2}'' \times 3\frac{3}{4}''$ . Wt., 3 lbs. Net Each. **\$48.00**

\*UTC trademark.

All product lines or type designations are UTC trademarks.

SEE LAST PAGE OF QTC LISTING FOR INDUSTRIAL DISCOUNTS AND MILITARY INFORMATION

### MINIFILTERS\*

Provide almost identical operational characteristics as standard units. Extremely miniaturized. Hermetically sealed to MIL-F-18327B. Cutoff frequency indicated by number suffix (in cps). Size: BPH, BPM and LPM-6000 (and up),  $\frac{3}{4}'' \times \frac{3}{4}'' \times 1\frac{1}{4}''$  h. (Wt., 1 oz.). HPM and LPM (thru 5000),  $1'' \times 1'' \times 1\frac{1}{4}''$  h. (Wt.,  $2\frac{1}{4}$  oz.). **BPM Types:** Bandpass with gain-2:1. Attenuation, approx. 2 db,  $\pm 3\%$  from center freq.; 35 db/octave. Input, 10K ohms. Output to grid tapped for 10K ohms in transistor circuitry. Used with tubes, continuity is on grid side; with transistors, continuity is on input side. **BPH Types:** Bandpass units; attenuation less than 3 db  $\pm 5\%$  from center freq.; 40 db/octave. Source and load 500 ohms. **HPM Types:** High pass; down less than 6 db at cutoff freq.; more than 30 db at  $\pm 27$  cutoff; 40 db pass units. Input and output, 10K ohms. **LPM Types:** Low pass units; down less than 6 db at cutoff freq.; more than 30 db at 1.5 cutoff; 40 db at 1.65 cutoff. Input and output 10K ohms.



BPM

UTC Type	Net Ea.	UTC Type	Net Ea.	UTC Type	Net Ea.
BPH-50000	\$27.00	BPM-2500	\$27.00	HPM-4000	\$30.00
BPH-100000	27.00	BPM-3000	27.00	LPM-200	30.00
BPM-400	27.00	BPM-3200	27.00	LPM-300	30.00
BPM-440	27.00	BPM-4000	27.00	LPM-500	30.00
BPM-500	27.00	BPM-4800	27.00	LPM-1000	30.00
BPM-600	27.00	BPM-5000	27.00	LPM-1500	30.00
BPM-750	27.00	BPM-6000	27.00	LPM-2000	30.00
BPM-800	27.00	BPM-6400	27.00	LPM-3000	30.00
BPM-1000	27.00	BPM-8000	27.00	LPM-5000	30.00
BPM-1200	27.00	BPM-10000	27.00	LPM-6000	30.00
BPM-1500	27.00	BPM-20000	27.00	LPM-8000	30.00
BPM-1600	27.00	HPM-500	30.00	LPM-10000	30.00
BPM-1800	27.00	HPM-1000	30.00	LPM-15000	30.00
BPM-2000	27.00	HPM-1500	30.00		

### PRECISION INDUCTANCE DECADES

Instruments for use in design and experimental work with tuned circuits, wave filters, etc. Low hum pickup toroid coils employ a permalloy dust core, which combined with special winding offer high Q and stability. Lab adjusted inductance tolerance of 1%. Size:  $4\frac{1}{2}'' \times 1'' \times 4\frac{1}{2}''$  w.  $\times 2\frac{3}{4}''$  h. Weight, 2 lbs. Case is DI Type.

UTC Type	Induct. Hys.	Optimum Range	Max. Q	Max. ACMA	Ins. Test VRMS	Net Each
DI-1	10 x .01	2-80 kc	200	500	500	\$42.00
DI-2	10 x .1	.25-20 kc	200	500	500	54.00
DI-3	10 x 1	.25-10 kc	200	50	500	57.00
DI-4	10 x 10	.2-1.5 kc	100	15	500	72.00

### LAB\* CIRCUIT DEVELOPMENT TRANSFORMERS

Aid the designer in selecting optimum impedances for best power and distortion results from his transistor circuit.

**UTC Type LAB-10**—20 cycles to 20 kc, up to 1 watt continuous. Primary Impedance: 1900 to 14,400 ohms with 20:1 or 10:1 ratio to secondary; 925 to 7600 ohms with 10:1 or 5:1 ratio to secondary. Secondary Impedance: 19 to 36 ohms, and 37 to 76 ohms. Size,  $3\frac{1}{2}'' \times 2\frac{3}{4}'' \times 3\frac{1}{4}''$ . Weight, 3 lbs. Net Each. **\$30.00**







# High "Q" Coils and Inductors



MH, MM ML

Ultraminiature high Q units hermetically sealed to MIL-T-27B, Grade 5; Ideal for transistor and printed circuit use. ML types are in hermalloy shield case; others are molded permalloy dust toroids. Excellent temperature stability: 1% -55°C to +100°C. Pin terminals. **Type MM:** Ultraminiature, epoxy molded, toroidal inductors. Max. Q at 30 kc. Size, 1/8" dia. x 1/4". Wt., 0.7 oz. **Type MH:** Same, but max. Q at 100 kc. **Type ML:** Ultra-miniature, hermalloy cased inductors. Max. Q at 800-2,000 cps, depending on inductance. Size, 1/8" x 1/8" x 1/8". Wt., 0.2 oz. **Type MO:** Miniature, molded type. Max. Q at 600-1500 cps, depending on inductance. Size, 3/4" x 1/2" x 1/2". Wt., 1 oz. **Type MW:** Miniature, toroidal, epoxy molded. Max. Q, 5-10 kc. Size, 1/2" dia. x 1/2". Wt., 0.25 oz.

## MINIDUCTORS\*

UTC Type	Ind., Hys. (0 DC)	Net Each	UTC Type	Ind., Hys. (0 DC)	Net Each	UTC Type	Ind., Hys. (0 DC)	Net Each
ML-0	.15	\$8.40	MM-6	.030	\$8.10	MO-2	2	5 6.60
ML-1	.25	8.40	MM-7	.060	8.40	MO-5	5	6.60
ML-2	.40	8.40	MM-8	.120	8.40	MO-7.5	7.5	6.60
ML-3	.70	8.40	MH-1	.0006	8.10	MO-20	20	6.60
ML-4	1.4	8.40	MH-2	.0015	8.10	MO-50	50	7.20
ML-5	2.5	8.40	MH-3	.0025	8.10	MO-100	100	7.20
ML-6	4.0	8.40	MH-4	.006	8.40	MW-.05	.05	7.20
ML-7	6.0	8.40	MH-5	.010	8.70	MW-.10	.10	7.50
ML-8	10	8.40	MH-6	.015	8.70	MW-.25	.25	7.50
ML-9	25	8.70	MH-7	.025	9.00	MW-.5	.5	7.80
ML-10	60	9.90	MH-8	.040	9.00	MW-.75	.75	8.40
MM-1	.003	7.50	MO-1	.1	6.30	MW-1	1.0	8.70
MM-2	.005	7.50	MO-15	.15	6.30	MW-1.2	1.2	9.30
MM-3	.008	7.80	MO-3	.3	6.30	MW-2	2	10.80
MM-4	.0125	7.80	MO-5	.5	6.30	MW-3	3	11.70
MM-5	.020	8.10	MO-1	1	6.30	MW-5	5	13.50

## HERMETIC "M" TYPE TOROIDS

Permalloy dust toroids provide maximum Q. Hermetically sealed to MIL-T-27B and laboratory adjusted to 1% tolerance; excellent voltage and temperature stability. Toroid plus magnetic case equals 80 db shielding. **MQA Types:** Have Q of 40 at 500 cps, 160 at 5 kc, approx. 40 at 20 kc. Size, 1 1/2" x 1 1/2" x 1 1/2" h.; wt., 4 oz. **MQB Types:** Have Q of 40 at 250 cps, 250 at 3 kc, approx. 40 at 20 kc. Size, 1 1/2" x 2 1/2" x 2 1/2" h.; wt., 14 oz. **MQD Types:** Have Q of 40 at 5 kc, 185 at 50 kc, approx. 40 at 300 kc. Size, 1 1/2" x 1 1/2" x 1 1/2" h.; wt., 4 oz. **MQE Types:** Have Q of 20 at 600 cps, 140 at 10 kc, approx. 40 at 40 kc. Size, 1 1/2" x 1 1/2" h.; wt., 1.5 oz.



UTC Type	Ind., Hys.	Net Each	UTC Type	Ind., Hys.	Net Each	UTC Type	Ind., Hys.	Net Each
MQA-1	.007	\$ 7.50	MQB-1	.010	\$12.90	MQD-6	.020	\$21.00
MQA-2	.012	7.80	MQB-2	.030	13.20	MQD-7	.030	22.80
MQA-3	.020	8.10	MQB-3	.070	13.50	MQE-0	.004	6.90
MQA-4	.030	8.40	MQB-4	.120	13.80	MQE-1	.007	7.20
MQA-5	.050	8.70	MQB-5	.50	14.10	MQE-2	.012	7.50
MQA-6	.070	9.00	MQB-6	1.0	14.40	MQE-3	.020	7.80
MQA-7	.120	9.30	MQB-7	2.0	14.70	MQE-4	.030	7.80
MQA-8	.20	9.60	MQB-8	3.5	15.00	MQE-5	.050	8.10
MQA-9	.30	9.90	MQB-9	7.5	15.30	MQE-6	.070	8.40
MQA-10	.50	10.20	MQB-10	12	15.60	MQE-7	.100	8.40
MQA-11	.70	10.50	MQB-11	18	15.90	MQE-8	.150	8.70
MQA-12	1.0	10.80	MQB-12	25	16.20	MQE-9	.250	8.70
MQA-13	1.5	11.10	MQB-13	40	21.00	MQE-10	.40	9.00
MQA-14	2.5	11.40	MQB-14	60	24.00	MQE-11	.60	9.00
MQA-15	4.0	12.00	MQD-0	.001	14.50	MQE-12	.90	9.30
MQA-16	6.0	12.90	MQD-1	.002	15.00	MQE-13	1.5	9.90
MQA-17	10.0	13.80	MQD-2	.003	15.60	MQE-14	2.0	10.80
MQA-18	15.0	15.00	MQD-3	.005	16.20	MQE-15	2.8	12.00
MQA-19	22.0	18.00	MQD-4	.007	16.80	MQE-16	4.0	13.50
MQA-20	35.0	20.70	MQD-5	.012	18.00			

Note: When requiring center-tapped units for oscillator applications, etc., specify Type TQA-units. When ordering Type TQA-1 thru TQA-15, add \$1.50 to MQA-price. UTC Type TQA-16, Net Each, \$14.70. UTC Type TQA-17, Net Each, \$15.90. UTC Type TQA-18, Net Each, \$17.40. UTC Type TQA-19, Net Each, \$21.00. UTC Type TQA-20, Net Each, \$23.40.

## HIGH "Q" TOROID INDUCTORS



HQA HQE HQC and HQC

Exceeded only by the "M" series toroids. "HQ" coils are available for applications requiring coils for use in circuitry from 100 cps to 100 kc. Coils are adjusted to 1% and inductance is independent of frequency, temperature and vibration. Voltage stability is high and the shielding case assures coupling attenuation of 80 db. All units are hermetically sealed to meet MIL-T-27B specifications under severe environmental conditions. All units are MIL Type TF4RX-20YY. Size: HQA, HQC case, 1 1/2" dia. x 1 1/2" h.; HBQ case, 2 1/2" x 1 1/2" w. x 2 1/2" h.; HQE case, 1 1/2" x 1 1/2" w. x 1 1/2" h. Mounting screws 6-32 except HQE case, 4-40. **Cutout Size:** HQA, HQC cases, 1/2" x 1 1/2"; HBQ case, 1/2" x 1 1/2"; HQE case, 1/2" x 1 1/2". Weight, HQA, HQC cases, 5 oz.; HBQ case, 14 oz.; HQE case, 1.5 oz.

UTC Type	Induct. (0 DC)	Max. DC Ma	Net Each	UTC Type	Induct. (0 DC)	Max. DC Ma	Net Each
HQA-1	5	400	\$ 7.50	HQB-3	70	170	\$19.90
HQA-2	12.5	260	7.80	HQB-4	120	120	16.80
HQA-3	20	200	8.10	HQB-5	.5 hy.	60	17.40
HQA-4	30	160	8.40	HQB-6	1 hy.	41	18.00
HQA-5	50	130	8.70	HQB-7	2 hy.	30	18.90
HQA-6	80	100	9.00	HQB-8	3.5 hy.	22	19.80
HQA-7	125	85	9.00	HQB-9	7.5 hy.	16	21.00
HQA-8	200	65	9.60	HQB-10	12 hy.	11	21.90
HQA-9	300	50	9.60	HQB-11	18 hy.	9	22.80
HQA-10	.5 hy.	40	9.90	HQB-12	25 hy.	8	24.00
HQA-11	.75 hy.	35	9.90	HQC-1	1	1350	15.60
HQA-12	1.25 hy.	26	10.80	HQC-2	2.5	850	16.80
HQA-13	2 hy.	20	11.40	HQC-3	5	600	18.00
HQA-14	3 hy.	16	12.90	HQC-4	10	420	19.80
HQA-15	5 hy.	13	13.80	HQC-5	20	300	24.00
HQA-16	7.5 hy.	10	15.00	HQE-1	5	155	7.80
HQA-17	10 hy.	9	15.90	HQE-2	10	110	7.80
HQA-18	15 hy.	8	16.80	HQE-3	50	50	8.10
HQB-1	1	410	15.00	HQE-4	100	35	8.40
HQB-2	30	240	15.30	HQE-5	200	25	8.70

## LOW FREQUENCY HIGH "Q" COILS

### TYPE MQL

Hermetically sealed to MIL-T-27B specifications, all units are MIL Type TF4RX20YY. Inductance values are lab. adjusted to 2% tolerance at 1 v., 60 cps. Total inductance swing is less than 3.5% from -55°C to +85°C. Two windings brought to four terminals permit series, parallel, center-tapped, or transformer type connections. Case, 1 1/2" dia. x 2 1/2" h. Square mounting, 1 1/2" x 1 1/2", 6-32 screw. Cutout, 1 1/2" dia. Weight, 1 lb.

UTC Type	Hys. (0 DC) Series	Parallel	Net Each	UTC Type	Hys. (0 DC) Series	Parallel	Net Each
MQL-0	1	.25	\$30.00	MQL-3	200	50	\$30.00
MQL-1	10	2.5	30.00	MQL-4	400	100	31.50
MQL-2	20	5	30.00	MQL-5	2500	625	33.00

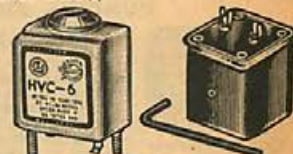
### TYPE MQM

Similar to above, MQM types provide exceptional stability. Inductance variation less than 2%, -55°C to +130°C. MIL Type TF4SX20YY. Case, 1 1/2" dia. x 1 1/2" h. Wt., 5 oz.

MQM-2	2	.5	\$12.60	MQM-300	300	75	\$13.50
MQM-16	16	4	12.60	MQM-600	600	150	13.50
MQM-40	40	10	12.60				

## VARIDUCTORS\*

Ideally suited for use in tuning of oscillator circuits, tuned circuits, etc. **HVC Types:** Hermetically sealed to meet MIL-T-27B specifications and provide a wide inductance range with high Q in a compact unit. Units are usable over a wide frequency range and have high voltage with temperature and voltage fluctuation. TVC inductors are the same as HVC units except they provide taps at 30% and 50% of total turns. Inductance range, -70% to +200% of the mean value through use of adjusting screw on top of case. **VIC Types:** Standard inductors that may be adjusted through use of a set-screw on the side of case. Inductance range, -45% to +85% of the value. **HVV Types:** For precise matching; vernier inductance variation +10% of nominal value. Offer high Q over a wide frequency range and high temperature stability. Size: HVC, TVC and HVV types, 1 1/2" lg. x 1 1/2" w. x 1 1/2" h.; weight, 2 oz. VIC type, 1 1/2" lg. x 1 1/2" w. x 1 1/2" h.; weight, 5 1/2 oz. HVC and TVC, U.S. Pat. No. 2,879,489; HVV, Pat. pending.



HVC, TVC, HVV VIC

UTC Type	Mean Hys.	DC Ma	Net Each	UTC Type	Mean Hys.	DC Ma	Net Each
HVC-1	.006	100	\$ 9.00	TVC-6	.6	15	\$11.10
HVC-2	.015	60	9.00	TVC-7	1.5	10	11.70
HVC-3	.040	40	9.00	TVC-8	4	7	11.70
HVC-4	.1	30	9.00	TVC-9	10	5	11.70
HVC-5	.25	20	9.00	TVC-10	25	3.5	12.90
HVC-6	.6	15	9.00	TVC-11	60	2	14.10
HVC-7	1.5	10	9.60	TVC-12	150	1.5	15.30
HVC-8	4	7	9.60	VIC-1	.0085	75	6.60
HVC-9	10	5	9.60	VIC-2	.013	60	6.60
HVC-10	25	3.5	9.90	VIC-3	.021	50	6.60
HVC-11	60	2	10.80	VIC-4	.034	40	6.60
HVC-12	150	1.5	12.00	VIC-5	.053	35	6.60
HVV-.006	.006	200	12.00	VIC-6	.084	30	6.60
HVV-.015	.015	120	12.00	VIC-7	.13	25	6.60
HVV-.04	.04	80	12.00	VIC-8	.21	21	6.90
HVV-.1	.10	50	12.00	VIC-9	.34	18	6.90
HVV-.25	.25	30	12.00	VIC-10	.54	15	6.90
HVV-.6	.6	20	12.00	VIC-11	.85	12	6.90
HVV-1.5	1.5	13	12.90	VIC-12	1.3	10	7.20
HVV-4	4	6	12.90	VIC-13	2.2	8	7.20
HVV-10	10	4.5	12.90	VIC-14	3.4	7	7.20
HVV-25	25	3	13.20	VIC-15	5.4	6	7.50
HVV-60	60	2	14.40	VIC-16	8.5	5	7.50
HVV-150	150	1.3	15.90	VIC-17	13	4	7.50
TVC-1	.006	100	11.10	VIC-18	21	3.5	7.80
TVC-2	.015	60	11.10	VIC-19	33	3	7.80
TVC-3	.040	40	11.10	VIC-20	52	2	8.40
TVC-4	.1	30	11.10	VIC-21	83	1.5	9.00
TVC-5	.25	20	11.10	VIC-22	130	1	12.00

\*UTC TRADEMARK. ALL PRODUCT LINES OR TYPE DESIGNATIONS ARE UTC TRADEMARKS. SPECIFY BY TRADEMARKS TO ASSURE UTC HIGH QUALITY AND RELIABILITY.

SEE LAST PAGE OF UTC LISTING FOR INDUSTRIAL DISCOUNTS AND MILITARY INFORMATION





# Miniature Transformers

## SUBOUNCER★ AND SUB-SUBOUNCER★ HERMETICALLY SEALED TRANSISTOR AND TUBE TYPE AUDIO TRANSFORMERS



SML-70



SO-P



SSO-P

Ideal miniaturized components offer high efficiency and wide frequency response. Special nickel-iron core materials and winding methods assure exceptional performance and reliability. These units are vacuum molded to MIL Grade 5. Employ 40 mil, deeply anchored pin terminals ideally suited for printed circuit and transistor applications. Terminals are strong enough to support these light weight units.

### SUBOUNCER★ PRINTED CIRCUIT MOLDED TO MIL GRADE 5

Size: 3/4" x 1" x 1/4". Pin length, 3/4". Weight, .05 lb.

UTC Type	Application	MIL Type	Imped., Ohms Primary	Secondary	Net Each
SO-2P	Interstage, 3:1	TF5RX13ZZ	10K	90K	56.90
SO-3P	Plate to line	TF5RX13ZZ	10K	200	6.90
			25K	500	
SO-5P	Inductor: 40 hy at 1 ma, 2675 ohms, series; 4 hy at 4 ma, 670 ohms, parallel; TF5RX20ZZ				6.90
SO-7P	Transistor Interstage	TF5RX13ZZ	20K 30K	800 1200	6.60
SO-8P	P-r to p-p sec.	TF5RX13ZZ	10K	2000 CT	7.50
SO-9P	P-r tr. to V.C.	TF5RX17ZZ	500 CT	3.2	7.50
SO-14P	Transistor Interstage	TF5RX17ZZ	80 CT 100 CT	32 spl. 40 spl.	7.80
SO-15P	Tr. output	TF5RX17ZZ	600 CT	600 spl.	7.80
SO-17P	Inductor: 16 hy at 2 ma, 1.1K ohms, series; 4 hy at 4 ma, 275 ohms, parallel; TF5RX17ZZ				6.90

### OUNCER★ AUDIO UNITS

#### STANDARD AND PLUG-IN UNITS



Plug-in Ouncer

UTC Ouncer components are fully impregnated and sealed against severe environmental conditions in a drawn aluminum housing. Only 1/4" in diameter, they are ideal for mounting opposite terminal boards. Ideal for use in portable radios, aircraft, etc. Wide-frequency range characteristics are provided, =1 db, 30-20,000 cps response except where indicated otherwise. "P" units are identical in all respects except are housed in a Bakelite\* case with oetal plug-in pins. UTC Type O-16 has heavy shielding (1 1/2" dia.). Wt., 3 oz.; P-16 has 9-pin plug (1 1/4" dia.). Weight, 4 oz. Weight of Ouncers, 1 oz., max. \*Bakelite Corp. trademark.

UTC Type	Net Each	Application	Pri. Imped., Ohms	Sec. Imped., Ohms	UTC Type	Net Each
O-1	7.80	Input	50, 200, 500	50K	P-1	9.00
O-2	7.80	P-p input	50, 200, 500	50K CT	P-2	9.00
O-3	7.50	Input	7.5/30	50K	P-3	8.40
O-4	6.60	Pl. to grid	15K	60K		
O-5	6.60	Pl. to grid	15K, 4 ma	60K		
O-6	7.50	Pl. to p-p	15K	95K CT	P-6	8.40
O-7	7.50	Pl. to p-p	15K, 4 ma	95K CT	P-7	8.40
O-8	7.80	Pl. to line	15K	See O-1 prl.	P-8	9.00
O-9	7.80	Pl. to line	15K, 4 ma	As above	P-9	9.00
O-10	8.40	P-p to line	30K CT	As above	P-10	9.00
O-11	7.80	Cry. to line	50K	As above	P-11	9.00
O-12	7.80	Mixing	50, 200, 500	As above	P-12	9.00
O-13	6.30	Inductor: 300 hy-0 ma, 6000 ohms				
O-14	7.50	50:1 input	200	500K		
O-15	7.50	10:1 P/G	10K	1 meg.	P-15	9.00
O-16	10.20	Shld. input	250 CT	50K	P-16	11.40
O-17	1.50	Hipermalloy shield, 25 db, for Ouncers				
O-18	7.80	Tr. intrstg.	10K split	2K split		
O-19	7.80	Tr. intrstg.	10K split	4K split		
O-20	6.30	Tr. to line	1.5K CT	500 split		
O-21	5.40	Tr. to V.C.	2K/4K CT	8/16		
O-22	5.40	Tr. to V.C.	500/400 CT	4/3.2		
O-23	5.10	Inductor: 7 hy-3 ma, 230 ohms				
O-24	5.10	Inductor: 1.6 hy-3 ma, 25 ohms				
O-25	8.10	Tr. input	600/150 spl.	2K/500 split		
O-26	8.10	Tr. intrstg.	10K CT, 4 ma	10K CT		
O-27	8.40	Tr. intrstg.	10K CT, 4 ma	500/125 split		
O-28	8.40	Tr. intrstg.	50K CT, 2 ma	500/125 split		
O-29	8.70	Tr. intrstg.	100K CT, 1 ma	500/125 split or chopper		
O-30	8.10	Tr. intrstg.	500/125 split	500/125 split		
O-31	8.10	Tr. intrstg.	500/125 split	150/37.5 sp.		
O-32	8.10	Tr. intrstg.	500/125 split	50/12.5 split		
O-33	8.10	Tr. intrstg.	100/25 split	40/10 split		
O-34	5.10	Spl. induct.: 60 mh-50 ma, 4 ohms, series; 15 mh-160 ma, 1 ohm, parallel				
O-36	5.10	Spl. induct.: 1 hy-20 ma, 60 ohms, series; 0.25 hy-40 ma, 15 ohms, parallel				
O-37	8.10	Tr. to line	4K/1K spl., 4 ma	650/150 split		
O-38	5.10	Spkr. match	0, 4, 8, 16 ODC			
O-39						
BR	.21	Mounting U-bracket for ouncers				

### HIPERMALLOY SHIELD CASE AUDIO UNIT

Ultra-miniature transformer provides high shielding, extremely low insertion loss with wide band response, 200-20,000 cps. Provided with pin terminals .025" dia., strong enough to support the unit. Ideal for printed circuits. Size: 1/4" x 1/4" x 1/4". Wt., .2 oz.

UTC Type	Application	MIL Type	Imped., Ohms Primary	Secondary	Net Each
SML-70	Input or chopper	TF5RX16ZZ	200K	1K	58.40

### SUB-SUBOUNCER★ PRINTED CIRCUIT

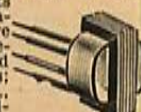
#### MOLDED TYPES TO MIL GRADE 5

Size: 3/4" x 3/4" x 1/4". Pin length, 3/4". Weight, .04 lb.

UTC Type	Application	MIL Type	Imped., Ohms Primary	Secondary	Net Each
SSO-3P	Plate to line	TF5RX13ZZ	10K	200	57.20
			25K	500	
SSO-5P	Inductor: 100 hy at 0 ma, 4.4K ohms, series; 25 hy at 0 ma, 1.1K ohms, parallel; TF5RX20ZZ				6.90
SSO-8P	Tr. to p-p sec.	TF5RX13ZZ	10K	2000 CT	7.20
SSO-14P	Transistor Interstage	TF5RX13ZZ	10K CT	200 CT	7.50
			25K CT	500 CT	
SSO-15P	Transistor Interstage	TF5RX13ZZ	20K CT	800 CT	7.50
			30K CT	1200 CT	
SSO-19P	Outp. matching	TF5RX17ZZ	500 CT	600 CT	7.20
SSO-20P	Output	TF5RX17ZZ	1.5K CT	600 CT	7.20
SSO-21P	Cry. chopper	TF5RX16ZZ	200K CT	1000 CT	7.20
SSO-22P	Interstage	TF5RX13ZZ	10K CT	1500 CT	8.10
			12K CT	1800 CT	
SSO-23P	Inductor: 8 hy at 2 ma, 600 ohms, series; 2 hy at 4 ma, 150 ohms, parallel; TF5RX20ZZ				6.90
SSO-24P	Inductor: 3.5 hy at 2 ma, 160 ohms, series; 0.9 hy at 4 ma, 40 ohms, parallel; TF5RX20ZZ				6.90
SSO-25P	Transistor Interstage	TF5RX13ZZ	10K CT	10K/2.5K spl.	8.10
SSO-27P	Transistor Output or Driver	TF5RX13ZZ	4K CT	800 spl.	8.10

### SUB-SUBOUNCERS★ AND SUBOUNCERS★

Miniature nickel-iron core units for use in vacuum tube and transistorized circuitry. Units are vacuum sealed for highest dependability. Windings are wound on high-quality nylon bobbins; plastic insulated leads, 4" l., color coded. No mounting facilities are provided. Units may be used for impedances other than those indicated, keeping in mind that the impedance ratio is constant. Units may be reversed, input to secondary. Subouncer units handle a higher level than Sub-Subouncers. Constructional details are identical. Available hermetically sealed on special order. SSO Sub-Subouncers: Approx. 2 db, 140-10,000 cps, Size: 1/4" x 1/4" x 1/4"; weight, .02 lb. SO Subouncers: Approx. 2 db, 100-10,000 cps, Size: 1/4" x 1/4" x 1/4"; weight, .03 lb.



SO



SSO

UTC Type	Net Each	Application	Pri. Imp., Ohms	Sec. Imp., Ohms	UTC Type	Net Each
SSO-1	54.50	Input	50/200	62.5K/250K	1	53.60
2	4.80	Interstage	10K/25 ma	30K	2	3.30
3	4.20	Pl. to line	10K/25K	200/500	3	3.10
4	3.90	Output	30K, 1 ma	50	4	4.10
5	3.90	Inductor	50 hys. @ 1 ma	4400 ohms	5	3.90
6	4.20	Output	100K, 5 ma	60	6	3.90
7	3.10	Tr. intrstg.	20K/30K†	800/1200	7	3.00
8	3.90	Tr. intrstg.	10K, 1 ma	2K CT	8	3.60
9	3.00	Tr. to V.C.	10K, 2 ma	16		
		Tr. to V.C.	500 CT	3.2	9	3.60
10	3.00	Tr. to V.C.	10K, 2 ma	3.2		
		Tr. to V.C.	2K/4K CT	8/16	10	3.60
11	3.00	Tr. output	500/600	50/60		
		Tr. intrstg.	400/500 CT	400/500 split	11	4.20
12	3.00	Tr. output	1K/1.2K††	50/60		
		Tr. intrstg.	400/500 CT	120/150 split	12	4.20
13	4.50	Input	200	1K		
		Tr. intrstg.	400/500 CT	40/50 split	13	4.20
14	4.20	Tr. intrstg.	10K/25K CT	200/500 CT	14	4.20
		Tr. intrstg.	80/100 CT	32/40 split		
15	4.20	Tr. intrstg.	20K/30K CT	8/1.2K CT		
		Tr. output	600 CT, 6 ma	800 split	15	4.20
16	3.00	Tr. output	1.2K/1.5K††	3.2/4		
		Tr. intrstg.	2.5K CT, 4 ma	2500 split	16	4.20
17	3.30	Output	10K/12.5K**	500/600 CT		
		Inductor: 16 hy at 2 ma, 1.1K ohms, series; 4 hy at 4 ma, 275 ohms, parallel			17	3.30
18	3.30	Output	7.5K/9.4K CT	3.2/4		
19	3.30	Matching	500 CT	600 CT		
20	3.30	Output	1.5K CT	600 CT		
21	4.80	Chopper	200K CT	1K CT		
22	3.90	Tr. intrstg.	10K/12K CT	1.5K/1.8K CT		
23	3.00	Inductor: 4 hys. @ 5 ma, 650 ohms				
24	3.00	Inductor: 1.5 hys. @ 5 ma, 160 ohms				
25	5.10	Tr. intrstg.	10K/12K CT	10K/12K CT		
26	5.10	Tr. intrstg.	40K/50K CT	400/500 split		
27	5.10	Tr. output	4K CT, 2.5 ma	600 split		
CH	.30	Mounting channel for any of above			CH	.30

\*1.5 ma, †0.5 ma, ††Resis., 2675 ohms, ‡3.5 ma, \*\*2 ma, ††3 ma, ††DC resis.

★UTC TRADEMARK. ALL PRODUCT LINES OR TYPE DESIGNATIONS ARE UTC TRADEMARKS. SPECIFY BY TRADEMARKS TO ASSURE UTC HIGH QUALITY AND RELIABILITY.





# Hi-Fi, Broadcasting Transformers

## HI-FI, AUDIO TRANSFORMERS

### ULTRA COMPACT\* HI-FI AUDIOS

Compact, rugged audio transformers, small in size and light in weight, for use in remote amplifier and similar compact equipment. High fidelity frequency response is obtainable in all units. Frequency response,  $\pm 2$  db, 20-20,000 cps, except where noted. All units except those carrying DC in primary employ a hum-balancing coil structure, combined with a high conductivity outer shell, effecting good inductive shielding. Case is die-cast, mounts top or bottom. Size:  $1\frac{1}{2}'' \times 1\frac{1}{2}'' \times 2''$  h. Weight,  $\frac{1}{2}$  lb.

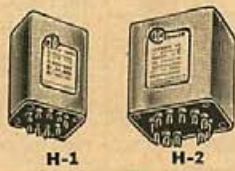


UTC Type	Use	Primary Impedance, Ohms	Sec. Impedance, Ohms	Level dbm	Net Each
A-10	Input	50, 125/150, 200/250, 333, 500/600	50K split	a	\$13.20
A-11	Shld. Input	50, 200, 500	50K CT	a	12.00
A-12	Input	Same as A-10	80K split	a	12.00
A-15	Interstage*	10K/2.5K split**	2K/500K split	a	9.90
A-16	Pl. to grid	15K	60K	a	9.90
A-17	Pl. to grid	15K, 8 ma	60K	a	12.00
A-18	Pl. to p-p	15K split	80K split	a	12.00
A-19	Pl. to p-p	15K, 8 ma	80K split	a	12.00
A-20	Mixing	Same as A-10	Same as pri.	d	14.40
A-21	Sh. mixing	50, 200/250, 500/600	Same as pri.	c	9.90
A-22	Tr. to line*	500 CT	500/125 sp.	c	12.00
A-23	Tr. to V.C.*	500 CT	16/4 split	c	9.90
A-24	Pl. to line	15K split	Sec A-10 pri.	f	12.90
A-25	Pl. to line	15K, 8 ma	See A-10 pri.	c	12.00
A-26	P-p to line	30K CT	See A-10 pri.	f	13.20
A-27	Input	100K split	See A-10 pri.	b	12.00
A-28	Tr. to V.C.	48 CT, 5 watts	16 split, 8, 4	c	10.20
A-34	Tr. intstage.	25K/6250 split	500/125 sp.	b	10.20
A-35	Tr. intstage.	10K/2.5K split	500/125 sp.	b	9.90
A-36	Tr. intstage.	500/125 split	150/37.5 sp.	c	9.60
A-37	Tr. intstage.	500/125 split	50/12.5 sp.	c	9.60
A-38	Tr. intstage.	100/25 split	40/10 split	c	9.30
A-39	Line to tr.	600/150 split	2K/500 sp.	a	11.10
A-30	Inductor: 250 hys. at 5 ma $\ddagger$ , series 65 hys. at 10 ma $\ddagger$ .				10.20
A-32	Split inductor: 60 hys. at 15 ma $\ddagger$ ; 15 hys. at 30 ma $\ddagger$				6.60
A-33	Hipermalloy shield fits A units; 20 db				2.70
A-40	Power transf.: 115 v., 60 cps to 2-6.3 CT—2 a sec.				9.90
A-41	Split inductor 240 mh at 2 a, 6 ohms, series; 60 mh at 4 a, 1.5 ohms, parallel				6.30
A-42	Split filter inductor: 4 hy-50 ma, 100 ohms, series; 1 hy-100 ma, 25 ohms, parallel				6.60
A-43	Match 2 siml. lines or tr.; 600/150 spl. ohms, pri.; two 600/150 spl. ohms, sec.				14.10
A-44	†stge./outp. 4K/1K split, 12 ma	600/150 spl.	b		9.90
A-45	Spkr. match 4, 8, 16	4 w. max lvl.	c		6.60
A-46	Chopper 10K/2.5K	50K	...		15.00
A-47	3-wdg. hybrid, 500/600 CT	2x500/600CT	...		15.00

\*+30 dbm. †6K ohms. ‡1.5K ohms. ††2K ohms. †††500 ohms.  
 \*\*8 ma. †Frequency Response ( $\pm 2$  db), cps: a—20-20,000, b—30-20,000, c—40-20,000, d—10-50,000, e—30-30,000, f—20-40,000, g—20-30,000.

### HIPERMALLOY\* TRANSFORMERS

Hipermalloy audio and power transformers are designed specifically for use in portable and compact equipment. Neither dependability or wide-range response has been sacrificed. The frequency characteristic of hipermalloy audio transformers is uniform 30-20,000 cps; incorporation of a hipermalloy-nickel iron core and hum balanced coil structure is responsible. Case is rugged, die-cast type of high conductivity alloy, finished in gray. Mounts with terminals up or down. DC in primary as shown is maximum, unbalanced. Size: H-1 Case,  $2\frac{3}{4}'' \times 1\frac{1}{2}'' \times 1\frac{1}{2}''$  w. x  $3\frac{3}{4}''$  h. H-2 Case,  $3\frac{1}{4}'' \times 1\frac{1}{2}'' \times 2\frac{1}{4}''$  w. x  $3\frac{1}{4}''$  h. Mtg. screws, 6-32. Weight: H-1 case, 2 lbs.; H-2 case, 6 lbs.



minals up or down. DC in primary as shown is maximum, unbalanced. Size: H-1 Case,  $2\frac{3}{4}'' \times 1\frac{1}{2}'' \times 1\frac{1}{2}''$  w. x  $3\frac{3}{4}''$  h. H-2 Case,  $3\frac{1}{4}'' \times 1\frac{1}{2}'' \times 2\frac{1}{4}''$  w. x  $3\frac{1}{4}''$  h. Mtg. screws, 6-32. Weight: H-1 case, 2 lbs.; H-2 case, 6 lbs.

### LOW IMPEDANCE TO GRID AND MIXING TRANSFORMERS

UTC Type	Application	Pri. Imped., Ohms	Sec. Imp., Ohms	Level dbm	Net Each
HA-100	Line to grid	50, 125/150, 200/250, 333, 500/600	60K split	+18	\$17.40
HA-100X	Line to grid*	As above	As above	+18	17.40
HA-101	Line to grids	As above	120K split	+18	22.20
HA-101X	As above*	As above	80K split	+18	18.00
HA-103A	Mike mixer to grid	2.5, 5.5, 10, 15, 60K split	60K split	+18	15.00
HA-108†	Mixing	Same as HA-100	Same as pri.	+20	19.80
HA-108X†	As above*	As above	Same as pri.	+18	19.80
HA-130X	Line to grids	30, 50, 200/250	60K split	+18	21.00

Units housed in Type H-1 case; HA-107 in H-2 case.

UTC Type	Application	Pri. Imped., Ohms	Sec. Imp., Ohms	Level dbm	Net Each
HA-104	Pl. to grids	15K split	95K	100†	\$15.00
HA-105	Pl. to grids	15K	60K	100†	21.00
HA-106	Pl. to grids	15K split	135K	100†	18.90
HA-107	Pl's. to grids	30K	80K	600†	27.00
HA-137	Pl's. to grids	30K	68K	100†	16.80

\*Multiple-alloy shields for low hum pickup. †High electrostatic shielding. †Level in mw.

### LINEAR STANDARD\* TRANSFORMERS

Frequency response,  $\pm 1$  db, 20-20,000 cps;  $\pm 1$  db, 7-50,000 cps on high level units. These transformers offer uniform frequency response of wide range and low distortion. High efficiency, dependability, and freedom from hum are provided by shielding. Mount from top or bottom. Die-cast case. Guaranteed frequency response.



### LOW LEVEL TRANSFORMERS

Case Type LS-1. Size:  $2\frac{3}{4}'' \times 3\frac{1}{4}'' \times 3\frac{1}{4}''$  h. Suffix "X" indicates units that have multiple alloy shield. Weight, 3 lbs.

UTC Type	Application	Pri. Imped., Ohms	Sec. Imped., Ohms	Level dbm	Net Each
LS-10	Input	50, 125/150, 200, 250, 333, 500/600	60K split	+19	\$24.00
LS-10X	Input	As above	50K	+17	24.00
LS-12	Input	As above	120K split	+19	27.00
LS-12X	Input	As above	80K split	+17	24.00
LS-30	Mixing	As above	Same as pri.	+23	24.00
LS-30X	Mixing	As above	Same as pri.	+20	27.00
LS-19	Pl. to grids	15K	95K	+20	19.50
LS-21	Pl. to p-p	15K split	135K split	+20	24.00
LS-40	Pl. to p-p	15K, 8 ma	135K split	+20	33.00
LS-25	P-p to p-p	30K split	50K split	+23	27.00
LS-27	Pl. to line	15K, 8 ma	See LS-10 pri.	+23	24.00
LS-50	Pl. to line	15K	See LS-10 pri.	+23	24.00
LS-51	P-p to line	30K split	See LS-10 pri.	+24	27.00
LS-14X	Lo-Z to grids	2.5, 5.5, 10, 15, 22, 30, 38, 60	50K	+17	24.00
LS-26	Line to grids	5K	60K	+23	27.00
LS-31	Line to line	30, 50, 200, 250	See LS-10 pri.	+23	24.00
LS-32	Lo-Z to line	Same as LS-14X	See LS-10 pri.	+23	33.00
LS-68	Matching	600/150 split	(2) 600/150 split	+15	24.00
LS-150	Line to line	4K	See LS-10 pri.	+23	21.00
LS-151	Line to line	16K	See LS-10 pri.	+26	21.00
LS-140	70 db hybrid	500/600 split	Same as pri.	+18	27.00
LS-141	Hybrid†	500/600 split	Same as pri.	+18	21.00

\*In dbm. †Has three sets of colls. ‡Two siml. lines or tr.

### HIGH LEVEL TRANSFORMERS

Case style similar to Low Level units. Size: LS-33, -34, -35, -47, -52, -54, -55, -56, -57, -61, -63,  $3\frac{1}{2}'' \times 4\frac{1}{2}'' \times 4\frac{1}{2}''$  h. (Wt. 7 $\frac{1}{2}$  lbs.). LS-61L, -61A, -48, -58, -65, -66, -667,  $5'' \times 5\frac{1}{2}'' \times 4\frac{1}{2}''$  h. (Wt. 15 lbs.). LS-691,  $13'' \times 15\frac{1}{2}'' \times 24''$  h. (Wt. 370 lbs.). LS-692,  $13'' \times 15\frac{1}{2}'' \times 28''$  h. (Wt., 520 lbs.).

UTC Type	Application	Pri. Imped., Ohms	Level Watts	Net Each
LS-33	Matching	50, 125/150, 200/250, 333, 500/600	a	20 \$ 24.00
LS-34	Matching	As above	a	40 33.00
LS-47	Driver	5K	i	20 24.00
LS-48	Driver	12K	j	40 60.00
LS-61	P-p output	9K	b	30 36.00
LS-61L	P-p output	4.5K/3.8K	b	55 66.00
LS-58	P-p output	2.5K/1.5K	b	40 57.00
LS-52	P-p output	8000 split	b	20 24.00
LS-55	P-p output	5K/3K split	b	20 24.00
LS-61	P-p output	10K/6K split	b	20 24.00
LS-54	P-p output	8000 split	c	20 21.00
LS-57	P-p output	5K/3K split	c	20 21.00
LS-63	P-p output	10K/6K split	c	20 21.00
LS-56	P-p output	5K/3K split	d	20 27.00
LS-35	EL-34*	5K CT 43% taps	e	35 24.00
LS-65	6550*	3.3K CT 40% taps	f	60 42.00
LS-666	P-p transls.	8 split	g	50 21.00
LS-667	P-p transls.	8 split	h	50 21.00
LS-691	Modulation	10,400	g	1,000 600.00
LS-692	Modulation	4,750	h	2,500 930.00

\*With feedback loops. †Secondary impedance: a—1.2, 2.5, 5, 7.5, 10, 15, 20, 30, 50, 125, 200/250, 333, 500/600 ohms. b—50, 333, 250/200, 125, 50, 30, 20, 15, 10, 7.5, 5, 2.5, 1.2 ohms. c—30, 20, 15, 10, 7.5, 5, 2.5, 1.2 ohms. d—6K, 5K, 4K, 1.8K, 1.5K, 1K, 30, 20, 15, 10, 7.5, 5, 2.5, 1.2 ohms. e—4, 8, 16 ohms. f—500 ohms split. g—4.5K, 4K, 3.5K, 2.75K, 2K ohms. h—2.5K, 2K, 1.75K, 1.5K, 1.25K ohms. i—Pri./ $\frac{1}{2}$ . Sec. 3:2:1. j—Pri./ $\frac{1}{4}$ . Sec. 5:1:1

### PLATE-TO-LINE TRANSFORMERS

UTC Type	Application	Pri. Imp., Ohms	Sec. Imped., Ohms	Level Mw	Net Each
HA-113	To multi-line	15K split	50, 125/150, 200/250, 333, 500/600	125	\$18.00
HA-114	Lo-Z/multi-line	30K	Same as above	200	21.00
HA-133	To multi-line	15K split	Same as above	160	21.00

### OUTPUT TRANSFORMERS

UTC Type	Application	Pri. Imp., Ohms	Sec. Imped., Ohms	Level Mw	Net Each
HA-134†	P-p to line	5K/9.4K	50, 125/150, 200/250, 333, 500/600	15 w.	\$16.80
HA-135†	P-p to v-c	3K/5K	30, 20, 15, 10, 7.5, 5, 2.5, 1.2	18 w.	16.80
HA-136†	5881's*	6.6K	4, 8, 16	20 w.	18.00

\*Screen taps provided. †Housed in Type H-2 case.

### POWER TRANSFORMERS

UTC Type	Application	Pri. Volts 50-60 Cps	Hi-Voltage	Filament Winding	Net Each
HP-122	Preamp	115	220-0-220, 15 ma	6.3 v. CT, 6 a.; 6.3 v. CT, 1.2 a.	\$12.00
HP-123	Preamp or tuner	115	275-0-275, 35 ma	6.3 v. CT, 6 a.; 6.3 v. CT, 2 a.	12.00

\*UTC TRADEMARK. ALL PRODUCT LINES OR TYPE DESIGNATIONS ARE UTC TRADEMARKS.

SEE LAST PAGE OF UTC LISTING FOR INDUSTRIAL DISCOUNTS AND MILITARY SPECIFICATIONS

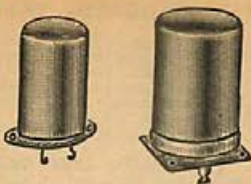




# Commercial Grade Components

## COMMERCIAL GRADE COMPONENTS

Conservative design and rugged construction assure dependability under continuous service. Cases are attractively finished in light gray enamel and are intended for chassis mounting. All items are poured with a special sealing compound plus vacuum impregnation of coil structures to insure operation under severe environmental conditions. All audio components are linear, ±1% db, 40-10,000 cps (no unbalanced DC), except CVL and CVM units, 40-6,000 cps. CG-134, -135, -136 are humbucking type to assure low hum pickup. Parallel feed, low level interstage units, 50,000 ohms and .25 μf; 200 ohm windings on input transformers are balanced and may be used for 150-250 ohm circuits. Case sizes are given in the table below. For CG type transistor/filament supply transformers see fourth UTC page.



SIZE, COMMERCIAL GRADE CASE "RC"					
Case No.	Base Dim. (Sq.)	Mounting Dim. (Sq.)	Ht. ± 1/8"	Cutout Dia.	Unit Wt. (Lbs.)
RC-37	1 1/8	1 1/8	1 1/8	1 1/8	.35
RC-50	1 1/8	1 1/8	1 1/8	1 1/8	1/2
RC-62	1 1/2	1 1/2	1 1/2	1 1/2	1
RC-75	2 1/8	1 1/2	2 1/8	1 1/2	1 1/2
RC-87	2 1/4	2 1/4	3 1/4	2	2 1/4
RC-100	3	2 3/8	3 3/4	2 3/8	3 1/2
RC-112	3 1/2	2 1/4	4 1/4	2 3/8	5
RC-125	3 3/4	3	4 3/4	3	6 1/2
RC-150	4 1/4	3 3/8	5 1/4	3 3/4	11
RC-152	4 3/4	4 1/4	5 3/4	4	15 1/2
RC-175	5 3/4	4 3/4	7	4	22

SWINGING INPUT AND FILTER CHOKES						
UTC Type	Induct. Henries	DC MA	DC Res. Ohms	Test Volts	Case No.	Net Each
CG-40	10	200	110	1750	RC-112	\$ 8.10
CG-44	30	100	400	1750	RC-100	6.90
CG-45	250	15	5000	1750	RC-87	6.00
CG-48C	75	50	2200	1750	RC-87	7.50
CG-100	12	150	110	2500	RC-125	9.00
CG-102	12	250	100	3000	RC-150	13.20
CG-104	10	350	90	5000	RC-152	15.00
CG-108	10	500	52	7000	RC-175	27.00
CG-15	10	1000	40	9000	1 1/2" x 4 3/4" x 6 3/4" h.t.	54.00
CG-101	25/5	150	110	2500	RC-125	9.00
CG-103	25/5	250	100	3000	RC-150	13.20
CG-105	25/5	350	90	5000	RC-152	15.00
CG-109	25/5	500	52	7000	RC-175	27.00
CG-111*	100/10 mh (2 wdg): 25/2.5 mh	2.5 a .5 a	.6 .15	1500	RC-87	11.40
CG-112*	40/10 mh (2 wdg): 10/2.5 mh	6 a 12 a	.24 .06	1500	RC-112	12.60
CG-113*	7/1.75 mh (2 wdg): 1.8/45 mh	17.5 a 35 a	.036 .009	1500	RC-125	14.70
CG-1C	25/5	1000	40	9000	1 1/2" x 4 3/4" x 6 3/4" h.t.	54.00

\*Split winding in series. †Wt., 40 lbs. ‡Split winding in parallel.

## POWER AND BIAS TRANSFORMERS

Primary 115 volts, 50/60 cycles. Ma DC is for choke input; reduce 70% for condenser input. Filament 1 is 5 volts, 3 amps and Filament 2 is 5 volts, 2 amps, except as otherwise noted.

UTC Type	High Voltage	DC Ma	Filament 3	Filament 4	Case No.	Net Each
CG-422	435-365-0-365-435 125-0-125-25	125	6.3 VCT-3A	2.5 VCT-5A	RC-150	\$21.00
CG-428	400-0-500-80-0-80	250	6.3 VCT-4A	6.3 VCT-3A, tapped 2.5 VCT-3A	RC-152	24.90
CG-429*	600-525-0-525-600	250	7.5 VCT-3A, tapped 6.3 VCT-4A		RC-152	24.90
CG-431†	500-400-0-400-500-80-0-80	500	6.3 VCT-5A	6.3 VCT-3A	RC-175	36.00
CG-315	Tapped for any DC voltage from 15 to 100 volts within 6%—250 MA				RC-125	14.40
CG-316	Tapped for any DC voltage from 75 to 400 volts within 6%—250 MA				RC-152	21.00

\*Filament 2 is 6.3 VCT-3A. †Filament 1 is 5V-6A.

## VARIPOWER AUTOFORMERS

Designed for line voltage control, filament control and reduced power operation. Output voltage: 0-130 volts, 50/60 cps. Permit control of filament voltage at tube socket to ±2 1/2% simultaneously with line and plate voltage control. Use to reduce or increase voltages on filament transformers. Taps at: 25, 55, 75, 95, 100, 105, 110, 115, 120, 125, and 130 volts.

UTC Type	Watts Output	Case No.	Net Each	UTC Type	Watts Output	Case No.	Net Each
CVA-1	150	RC-112	\$12.00	CVA-4	1000	RC-152	\$21.00
CVA-2	250	RC-125	14.10	CVA-5	2000	RC-175	36.00
CVA-3	500	RC-150	18.00				

## AUDIO UNITS

UTC Type	Use †	Pri. Imped., Ohms	Level	Case RC-	Net Each
CG-131	a	15K	+28 dbm	50	\$ 9.90
CG-132	b	15K	+30 dbm	62	9.90
CG-133	c	30K CT	+32 dbm	75	10.50
CG-134	d	50, 200, 500	+30 dbm	50	9.00
CG-135	e	50, 200, 500	+30 dbm	50	9.90
CG-235	f	50, 200, 500	+28 dbm	75	12.00
CG-136	g	15K, 50, 200	+30 dbm	62	13.20
CG-137	h	50, 200, 500	+28 dbm	50	8.40
CG-140	i	15K	+30 dbm	50	7.80
CG-141	j	30K CT	+32 dbm	50	9.00
CG-233	k	30K CT	+35 dbm	87	9.00
CG-333	k	30K CT	+35 dbm	87	9.00
CG-433	k	5K CT	10 w.	100	9.90
CG-15	l	8K CT	20 w.	100	12.00
CG-16	l	3K/5K CT	20 w.	100	12.00
CG-19	l	6K/10K CT	20 w.	100	12.00
CG-710	l	14K/20K CT	20 w.	100	12.00
CG-2L6	l	9K CT	30 w.	125	13.80
CG-20	m	5K CT, 43% screen taps	25 w.	125	15.00
CG-21	m	3.3K CT, 40% screen taps	50 w.	150	24.00
CVP-1	n	3K/5K/6K/8K/10K/14K CT	12 w.	100	13.20
CVP-2	n	As above	30 w.	125	14.40
CVP-3	n	As above	60 w.	150	21.00
CVP-4	n	As above	125 w.	152	24.00
CVP-5	n	As above	300 w.	175	39.00
CVL-1	p	500	15 w.	87	9.00
CVL-2	p	500	40 w.	125	10.50
CVL-3	p	500	75 w.	150	15.00
CVM-0	q	Any Class B	12 w.	100	10.50
CVM-1	q	As above	30 w.	125	13.80
CVM-2	q	As above	60 w.	150	18.00
CVM-3	q	As above	125 w.	152	21.00
CVM-4	q	As above	300 w.	175	39.00
CVM-5	q	As above	600 w.	*	105.00
CG-51AX	r	15K	5 w.	87	9.00
CG-53AX	r	3K/10K CT	20 w.	112	10.50
CG-59AX	r	50, 200, 500	20 w.	112	10.80

\*7" x 12" x 9"; Wt., 82 lbs. †a—Pl. to grid. b—Pl. to 2 grids. c—2 pl. to 2 grids. d—Input, humbucking. e—P-p input, humbucking. f—Input, mag. shielded. g—Dual input, humbucking. h—Mixing. i—Pl. to line. j—P-p to line. k—Driver. l—Output. m—Feedback output. n—Universal output. p—Universal matching. q—Universal modulator. r—Universal driver.

## PLATE TRANSFORMERS

F—maries for 105, 115, 220, 230 volts; 50/60 cycles. For reduced power, secondary can be cut in half, using 220 v. primary on 110 volts; may be used on 25 to 43 in this case. Suffix W: Indicates units designed for full wave center tap and full wave bridge applications. Center tap may be disconnected from ground.

UTC Type	High Voltage	DC Volts	Case RC-	Net Each
CG-300	625-515-0-515-625	500/400	150	\$16.20
CG-300W	625-515-0-515-625	1000/800	150	17.70
CG-301	580-530-300-0-300-530-580	475/425/250	150	24.90
CG-301W	580-530-300-0-300-530-580	950/850/500	152	26.40
CG-302	950-750-0-750-950	760/610	175	36.00
CG-302W	950-750-0-750-950	1520/1220	175	33.00
CG-303	1500-1235-400-0-400-1235-1500	1250/1000/300	175	36.00
CG-303W	1500-1235-400-0-400-1235-1500	2500/2000/600	175	39.60

## END CASTING UNITS

Suffix W: Units designed for full wave center tap and full wave bridge applications. Center tap may be disconnected from ground.

UTC Type	High Volt	DC Volts	Size, Inches			Wt Lb.	Net Each
			L.	W.	H.		
CG-304	1500-1235-0-1235-1500	1.25K/1K	14 1/2	8 1/2	10 1/2	100	\$141.00
CG-304W	1500-1235-0-1235-1500	2.5K/2K	14 1/2	8 1/2	10 1/2	100	156.00
CG-305	2400-1750-0-1750-2400	2K/1.5K	10 1/2	4 1/2	6 1/2	50	63.00
CG-305W	2400-1750-0-1750-2400	4K/3K	10 1/2	4 1/2	6 1/2	50	69.00
CG-306	as above	2K/1.5K	13 1/2	8 1/2	10 1/2	100	150.00
CG-306W	as above	4K/3K	13 1/2	8 1/2	10 1/2	100	165.00
CG-307	3500-3000-2400-0-2400-3000-3500	3K/2.5K 2K	13 1/2	8 1/2	10 1/2	90	138.00
CG-308	as CG-307	3K/2.5K 2K	15 1/2	8 1/2	10 1/2	125	162.00
CG-309	as CG-307	3K/2.5K 2K	21	10	13 1/2	253	360.00
CG-310	4600-4050-3500-0-3500-4050-4600	4K/3.5K 3K	17 1/2	10	13 1/2	150	309.00
CG-311	1500-1235-0-1235-1500	1.25K/1K	10 1/2	4 1/2	6 1/2	50	66.00
CG-311W	1500-1235-0-1235-1500	2.5K/2K	10 1/2	4 1/2	6 1/2	50	69.00
CG-312	1800-1500-0-1500-1800	1.5K/1.25K	10 1/2	4 1/2	6 1/2	38	66.00

Also see first UTC page for full wave bridge rectifier types.

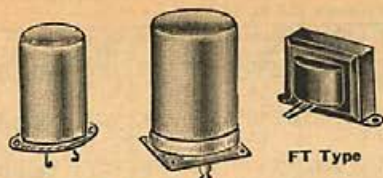
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# Commercial & MS Transformers

## TRANSISTOR TRANSFORMERS (COMMERCIAL TYPE) TRANSISTOR/FILAMENT SUPPLY TRANSFORMERS



### CG Types

Primary, 105/115/210/220/230 v. AC, 50/60 cps  
All are as above, except Type CG-34, 105/115/220/230 v. AC. These transformers may be operated on 25 to 43 cps if 220 v. primary is utilized on 110 v.; simultaneously the secondary voltage is reduced by half. See previous UTC page for complete listing of CG Series types and case dimensions.

UTC Type	Secondary			Sec. Test VRMS	Case No.	Net Each
	VCT	Amps	WVDC			
CG-33	6.3	4	500	2000	RC-75	\$ 9.00
CG-34	2.5	10	2500	6000	RC-112	10.20
CG-35	6.3	6	500	2000	RC-87	9.50
CG-36	6.3/6.3	5/5	500	2000	RC-100	12.50
CG-120	2.5	10	5000	11000	RC-125	15.00
CG-121	5	25	5000	11000	RC-150	18.00
CG-122	7.5/6.3	10	1500	4000	RC-125	15.00
CG-124	10	10	1500	4000	RC-150	15.00
CG-125	14/12/11	10	1500	4000	RC-150	18.00
CG-126	14/11/10	10	1500	4000	RC-152	24.00

### CHANNEL FRAME TYPE

Primary, 115 v. AC, 50/60 cps. Test v. rms, 1500.

UTC Type	Secondary		Size, inches			Wt. Lbs.	Net Each
	VCT	Amps	W.	H.	Mtg.		
FT-1	2.5	3	2 1/2	1 1/2	2 3/8	3/4	\$4.05
FT-2	6.3	1.2	2 1/2	1 1/2	2 3/8	3/4	3.90
FT-3	2.5	6	3 1/2	2 1/2	2 3/8	1	4.50
FT-4	6.3	3	3 1/2	2 1/2	2 3/8	1 1/4	4.65
FT-5	2.5	10	3 1/2	2 1/2	2 3/8	1 1/2	4.65
FT-6	7.5	3	3 1/2	2 1/2	2 3/8	1 1/2	4.65
FT-7	6.3	8	4	2 1/2	2 3/8	1 1/2	5.40
FT-8	6.3	3	4	2 1/2	2 3/8	1 1/2	5.55
FT-10*	24	2	4	2 1/2	2 3/8	1 1/2	4.95
FT-11†	24	1	3 1/2	2 1/2	2 3/8	1 1/2	5.55
FT-12‡	36	1.3	4	2 1/2	2 3/8	1 1/2	4.20
FT-13§	26	.04	2 1/2	1 1/2	1 3/4	3/4	4.50
FT-14¶	26	.25	2 1/2	1 1/2	2 3/8	3/4	6.30
FT-15	48	1	4	2 1/2	2 3/8	2 1/2	

\*Or 12 v., 4 amps sec. †Or 12 v., 2 amps sec. ‡Or 18 v., 2.6 amps sec. §Taps on primary to modify sec. nom. voltage -6%, +6% and +12%. See complete R Series on last UTC page.

## MILITARY STANDARD TRANSFORMERS AND INDUCTORS

### HERMETICALLY SEALED TO MIL-T-27B SPECIFICATIONS

Made and guaranteed to meet MIL-T-27B by full environmental testing.



### FILAMENT, POWER, PLATE TRANSFORMERS

Primary 105/115/125 v., 54/66 cycles. Current ratings are for high voltage secondary DC, choke input filter. For condenser input, reduce by 70%. All units are MIL grade 4, ruggedized; equally usable where grade 1 is specified. Electrostatically shielded.

UTC Type	MS No.	MIL Type TFRX-	Secondary Rating	MIL Case	Net Each
N-583A	90016-2	01EB002	2.5 v.-3 a.; 1000 WV	EB	\$10.20
N-584A	90017-2	01GB003	2.5 v.-10 a.; 1000 WV	GB	14.10
N-585A	90018-2	01FB004	5 v.-3 a.; 1000 WV	FB	11.10
N-586A	90019-2	01HB005	5 v.-10 a.; 1000 WV	HB	15.30
N-587A	90020-2	01FB006	6.3 v.-2 a.; 1000 WV	FB	11.10
N-588A	90021-2	01GB007	6.3 v.-5 a.; 1000 WV	GB	12.90
N-589A	90022-2	01JB008	6.3 v.-10 a.; 1000 WV	JB	17.70
N-590A	90023-2	01KB009	6.3 v.-20 a.; 1000 WV	KB	22.50
N-591A	90024-2	01JB012	2.5 v.-10 a.; 6300 WV	JB	18.00
N-592A	90025-2	01KB013	5 v.-10 a.; 6300 WV	KB	21.00
N-593A	90026-2	03HA001	200-100-0-100-200, 70 ma.; 6.3/5 v.-2 a.; 6.3 v.-3 a.	HA	20.70
N-594A	90027-2	03JB002	325-0-325, 70 ma.; 6.3/5 v.-2 a.; 6.3 v.-1 a.	JB	22.35
N-595A	90028-2	03KB006	325-0-325, 150 ma.; 5 v.-3 a.; 6.3 v.-5 a.	KB	25.35
N-596A	90029-2	03LB003	400-0-400, 175 ma.; 5 v.-3 a.; 6.3 v.-8 a.	LB	27.30
N-597A	90030-2	03MB004	450-0-450, 250 ma.; 5 v.-3 a.; 6.3 v.-8 a.	MB	33.90
N-598A	90031-2	02KB001	350-0-350, 250 ma.	KB	19.80
N-599A	90032-2	02LB002	550-0-550, 250 ma.	LB	26.85
N-600A	90036-2	02NB003	800-0-800, 250 ma.	NB	37.50

\*UTC trademark. All product lines or type designations are UTC trademarks.

SEE LAST PAGE OF UTC LISTING FOR INDUSTRIAL DISCOUNTS AND MILITARY INFORMATION

HARVEY RADIO CO., INC. • FEDERAL ELECTRONICS, INC.  
WOODBURY, L. I. AND NEW YORK CITY BINGHAMTON, N. Y.

### Primary, 115 v. AC, 50/60 cps

UTC Type	Sec. Volts RMS	Sec. Amps RMS	Sections in Parallel				Sections in Series				Net Each
			Choke VDC	Inp. ADC	Cond. VDC	Inp. ADC	Choke VDC	Inp. VDC	Cond. VDC	Inp. ADC	
CG-30*	17/21.5	1.5	14/17.5	3	18.5/25	2	28/35	1.5	43/56	1	\$18.90
CG-31†	17/21.5	1.5	28/35	9	43/56	6	56/70	4.5	85/110	3	42.00
CG-32‡	34/43	4.5	34/43	4.5							10.50
	6.3 CT	1.2									

Case Nos.: \*RC-112; †RC-175; ‡RC-62. (See previous UTC page for case sizes.)

### Primary, 115 v. AC, 50/60 cps. Bridge Rectifiers

UTC Type S-77 and S-78 tapped for dual secondary volts. See following UTC page.

UTC Type	Volts DC	Amps DC	Case No.	Net Each
S-75	5.2/14	1.2/4	G-1	\$ 6.00
S-76	10/26	4/1.4	G-4	9.00
S-77	14/56	3/1	G-5	10.20
S-78	28/110	9/3	G-9	30.00
S-79	32/120	3/1	G-7	18.00

### NEW CAT★ TRANSISTOR IMPEDANCE TYPES

All units in RC-50 case. Frequency range, 2 db, 50-15,000 cps. Power level 1 watt except CAT-15, 5 watts.

UTC Type	Appli- cation	Primary		Unbal. Ma DC	Secondary Imped., Ohms	Net Each
		Impedance Ohms	Ohms			
CAT-15	Output	48/12 spl.	750*	16 spl./8/4	\$8-10	
CAT-20	Istg./outp.	500/125 spl.	20	16/4 split	7.80	
CAT-25	Isol./outp.	500/125 spl.	20	500/125 spl.	7.80	
CAT-30	Input/istg.	500/125 spl.	20	2K/500 split	7.80	
CAT-40	Istg./outp.	10K/2.5K spl.	8	2K/500 split	7.80	

\*Balanced.

NOW OVER 1200 STOCK ITEMS ARE AVAILABLE FROM UTC: "PIONEERS IN MINIATURIZATION"—THE STANDARD OF RELIABILITY FOR OVER 30 YEARS

### AUDIO TRANSFORMERS

Frequency response 300-10,000 cps, ±2 db. Split 600-ohm units provides for 600 ohms CT and 1500 ohms. Electrostatic shielding provided on W784, W-785 and W-786; W-783 has center-tapped secondary for 90K CT or 22.5K CT. All units in AJ case. Wt., 0.6 lb.

UTC Type	MS No.	MIL Type TFRX-	Primary Imped. Ohms	Primary DC Unbal. Ma.	Sec. Imped. Ohms	Net Each
W-783	90000-1	15AJ001	10K CT	10	90K spl.	\$15.90
W-784	90001-1	16AJ002	b 600 spl.	.....	4/8/16	14.70
W-785	90002-1	10AJ001	c 600 spl.	.....	135K CT	14.10
W-786	90003-1	16AJ001	d 600 spl.	.....	600 spl.	14.10
W-787	90004-1	13AJ001	e 7.6K/4.8K	40	600 spl.	12.90
W-788	90005-1	13AJ002	f 7.6K/4.8K	40	4/8/16	12.90
W-789	90006-1	13AJ003	g 15K CT	10	600 spl.	12.45
W-790	90007-1	13AJ004	h 24K CT	20†	600 spl.	12.90
W-791	90008-1	13AJ005	i 60K CT	20†	600 spl.	12.45

\*Use: a—PP plates to pp grids, 15 dbm level. b—Line to VC, 2 watts. c—Line to pp grids, 15 dbm. d—Line to line, 15 dbm. e—Plate to line, 2 watts. f—Plate to VC, 2 watts. g—PP plates to line. †Balanced. ‡2 watts. §1 watt. ¶0.5 watt.

### INDUCTORS

Two windings for series or parallel connection. Inductance shown for series connection. All but Z-857 are standard MIL case types. Rated 3500 WVDC, unless otherwise noted.

UTC Type	MS No.	MIL Type TFRX-	Induct. Hy	Ma DC	DCR Ohms	MIL Case	Net Each
Z-848*	90009-1	04FA001	16	80	645	FA	\$11.40
Z-849*	90010-1	04GA002	25	80	670	GA	14.10
Z-850*	90011-1	04HA003	40	80	1020	HA	21.30
Z-851†	90013-1	04HA005	16	125	330	HA	15.50
Z-852†	90014-1	04JB006	25	125	490	JB	24.30
Z-853	90037-1	04KA007	40	125	535	KA	29.40
Z-854	75000-2	04LA009†	16	200	180	LA	\$1.50
Z-855	75001-2	04MA010†	25	200	210	MA	36.90
Z-856	75002-2	04NA012†	16	315	105	NA	43.20
Z-857	75003-2	04YY013†	25	315	150	YY	75.00

\*1000 WVDC. †2000 WVDC. ‡TFRX- prefix.





# Amateur and PA Transformers

## SPECIAL SERIES\* TRANSFORMERS

UTC Special Series\* transformers are designed specifically for amateur and popular priced PA service. Units are finished in a fine, commercial type medium gray enamel. Recessed terminal strip is provided, permitting above-chassis wiring or breadboard type wiring setups in addition to standard chassis wiring. Case sizes are in table below.



Case	W., In.	D., In.	H., In.	Wt., Lbs.	Case	W., In.	D., In.	H., In.	Wt., Lbs.
G-1	2 1/2	1 3/4	1 3/4	1	G-8	5 3/8	5 3/8	5 3/8	12
G-2	3 3/8	1 5/8	2 1/4	1 1/2	G-9	5 3/8	6 3/8	5 3/8	21
G-3	3 3/8	2 1/8	2 1/2	2	G-10	6 1/8	6 3/8	5 3/8	24
G-4	4 1/8	2 1/8	2 1/2	3	G-11	6 1/8	7 3/8	5 3/8	31
G-5	3 3/8	4 1/8	3 3/8	4 1/2	G-12	7 3/8	9 3/8	10 3/8	52
G-7	4 3/8	5 3/8	4 3/8	8					

## COMBINED PLATE AND FILAMENT TRANSFORMERS

Primary 115 V., 50-60 Cy.

UTC Type	Voltage	DC V.	Rect. Fil.	Filament No. 1	Filament No. 2	Case No.	Net Each
S-39	490-400-0 400-490 175 ma	400/ 310	5 V-3A	2.5 VCT-6A	6.3 VCT-4A	G-7	\$16.50
S-40	525-425-0 425-525 250 ma	400/ 310	5 V-3A	6.3 VCT-3A	6.3 VCT-3A	G-7	18.00
S-41	600-0-600 200 ma	475	5 V-3A	7.5 V tapped 6.3 V-3A	6.3 VCT-2A	G-7	18.00
S-42	600-525-0 525-600 300 ma	480/ 400	5 V-6A	7.5 V tapped 6.3 V-3A	6.3 VCT-3A	G-7	19.50

## INPUT AND DRIVER TRANSFORMERS

UTC Type	Application	Ratio Pri. to Sec.	Level	Case	Net Each
S-1	Plate to grid	1:3	+30 dbm	G-2	\$4.80
S-2	Plate to p-p grids	1:4*	+30 dbm	G-2	6.00
S-3	Pl. to 1 or 2 grids	1:4	+25 dbm	G-1	4.50
S-4	Line to grid, humbuck.	1:16	+30 dbm	G-2	4.50
S-5	Line to grid, compact	1:16	+25 dbm	G-1	4.50
S-6	Driver pl. to p-p	2.66:1, 5:1*	5 w.	G-3	6.60
S-7	Driver p-p to p-p	2.66:1, 3.6:1, 5:1*	20 w.	G-4	8.70
S-10	Driver p-p to p-p	2.25:1*	5 w.	G-3	6.60

## MATCHING, OUTPUT AND MODULATION UNITS

UTC Type	Application	Pri. Imped., Ohms	Level, Watts	Case	Net Each
S-11	Pl. to line	15K	a .25	G-2	\$5.10
S-12	Line to V.C.	.5K/2K/4K	b 15	G-2	5.40
S-13	Line to V.C.	.5K/2K/4K	b 30	G-4	7.80
S-14	Output	2.5K/4K/7K/10K	c 10	G-2	6.60
S-15	PP output	4K/5K/10K CT	c 12	G-2	7.20
S-16	PP output	3K/6K/9/10K CT	c 30	G-4	8.40
S-17	PP output	3.8K/4.5-5K CT	c 55	G-5	12.00
S-18	Univ. modul.	Any Class B	d 12	G-3	7.20
S-19	Univ. modul.	Any Class B	d 30	G-4	9.30
S-20	Univ. modul.	Any Class B	d 55	G-5	15.00
S-21	Univ. modul.	Any Class B	d 110	G-7	21.00
S-22	Univ. modul.	Any Class B	d 250	G-9	33.00

\*Secondary Impedance; a—200/500 ohms. b—2, 4, 8, 15 ohms. c—2, 8, 15, 50 ohms. d—Any Class C. \*Center tapped.

## PLATE AND BIAS TRANSFORMERS

Primary 115 V. 50/60 Cycles

UTC Type	High Voltage	DC Voltages*	DC Ma	Case	Net Each
S-44	575-525-0-525-575	470/430	500	G-9	\$25.80
S-45	900-750-0-750-900	750/620	200	G-8	21.00
S-46	1000-750-0-750-1000	825/600	300	G-9	24.00
S-47	1500-1250-1000-0-1000-1250-1500	1275/1050/825	300	G-10	33.00
S-48	1500-1250-1000-0-1000-1250-1500	1300/1075/850	500	G-11	39.00
S-49	2100-1800-1500-0-1500-1800-2100	1815/1540/1275	300	G-11	36.00
S-50	3000-2500-0-2500-3000	2625/2175	300	G-12	60.00
S-51	Any bias voltage from 15 to 100	±6%	200	G-5	12.00
S-52	Any bias voltage from 75 to 400	±6%	200	G-7	15.60

\*Based on two section filter for 200 ma. and 300 ma. units. Single section filter for 500 ma. units, both choke input.

SEE PREVIOUS UTC PAGE FOR TRANSISTOR TRANSFORMERS

## PHOTOFLASH TRANSFORMERS

Standard photoflash transformers that may be used with either standard Amglo type or Sylvania trigger type multiple flash tubes. Circuit details are included with the units.

**UTC Type PF-1**—Primary, 115 v. AC, 50/60 cps. Secondary for power supply delivering 2,200 v. DC to capacitor up to 100 µf. Units are compound-sealed in G-3 cases, 2 1/2" x 2 3/4" (3 3/4" incl. flange) x 2 3/4" h. Weight, 2 lbs. Net Each.....**\$8.40**

**UTC Type PF-3**—Trigger transformer for use with above unit, 15K v. peak. Size: 3/4" O.D. x 3" lg. Weight, 2 oz. Net Each.....**\$6.00**

## TRANSISTOR PHOTOFLASH TRANSFORMERS

Miniaturized, lightweight units for use in transistorized photoflash circuits.

**UTC Type PF-5**—Primary, 115 v. AC, 50/60 cps or 4 1/2 v. battery switched by PF-6 inverter transformer. Output, 400 v. DC when used in voltage doubler circuit to charge photoflash capacitor (40-watt-second rating). Case, G-1 (see above).**\$8.40**

**UTC Type PF-6**—Inverter transformer for use in transistor inverter circuit with PF-5 step-up transformer and 4.5 v. DC battery. Size, 3/4" dia. x 1 1/4" l. Net Each.....**\$5.10**

**UTC Type PF-7**—Trigger transformer. Shorting .25 µf capacitor, (charged to approx. 225 v. DC) across terminals 1-2 produces 6 kv pulse at terminal 3 for triggering flash tube. Size: 3/4" dia. x 1 1/4" l. Weight, .5 oz. Net Each.....**\$3.60**

SEE LAST PAGE OF UTC LISTING FOR INDUSTRIAL DISCOUNTS AND MILITARY SPECIFICATIONS

## FILTER, SWINGING AND AUDIO CHOKES

Type	Henries	DC Ma	Ohms	Insul.	Case	Net Each
S-23*	300	5	5000	1500 v.	G-2	\$ 4.50
S-24†	500	3	6000	1500 v.	G-2	5.10
S-25	30	30	800	1500 v.	G-2	3.90
S-26	12	60	250	1500 v.	G-2	3.90
S-27	25	75	350	1500 v.	G-4	5.10
S-28	20	100	350	1500 v.	G-4	6.30
S-29	6	175	90	1500 v.	G-4	5.10
S-30†	4/20	175	90	1500 v.	G-4	5.10
S-31	6	225	100	2700 v.	G-5	6.90
S-32†	4/20	225	100	2700 v.	G-5	6.90
S-33	8	300	100	4000 v.	G-7	9.30
S-34†	4/20	300	100	4000 v.	G-7	9.60
S-35	8	400	60	5000 v.	G-8	12.00
S-36†	4/20	400	60	5000 v.	G-8	12.00
S-37	8	550	60	8000 v.	G-8	15.00
S-38†	4/20	550	60	8000 v.	G-8	15.00
S-80	50/10 mh	1.75‡	.5	500 v.	G-1	3.90
S-81‡	100/8 mh	2.5‡	.6	1500 v.	G-3	6.00
	25/2 mh	5‡	.15			

\*Audio. †P.P. Audio G.T. ‡Swinging. ‡2 windings. §Amps.

## FILAMENT TRANSFORMERS

Primary Tapped 105, 115 Volts, 50-60 Cy.

UTC Type	Secondary Volts	Secondary Current	Insulation	Case No.	Net Each
S-53	2.5 VCT	10 Amp	1600 V	G-3	\$ 6.30
S-54	5 VCT	4 Amp	2500 V	G-3	5.70
S-55	6.3 VCT	3 Amp	1500 V	G-3	5.40
S-57	2.5 VCT	10 Amp	10000 V	G-5	9.00
S-58	2.5 VCT	20 Amp	10000 V	G-5	9.90
S-59	5 to 5.25 VCT	13 Amp	5000 V	G-5	9.30
S-60	5 to 5.25 VCT	22 Amp	10000 V	G-7	13.20
S-61	7.5 VCT tapped	10 Amp	3000 V	G-5	10.20
	6.3 VCT				
S-62	10 VCT	10 Amp	3000 V	G-5	9.30
S-63	14 VCT tapped	10 Amp	5000 V	G-7	13.20
	12 VCT & 11 VCT				

Type	Filament 1	Filament 2	Filament 3	Case	Net Ea.
S-64	2.5 VCT-5A	2.5 VCT-5A	5 VCT-6A	G-5	\$10.80
S-67	5 VCT-6A	6.3 VCT-5A	.....	G-5	10.20
S-68	5 VCT-3A	6.3 VCT-4A	7.5 VCT-5A	G-5	10.50
S-70†	6.3 VCT-5A	6.3 VCT-5A	.....	G-5	10.20
S-71	2.5 VCT-6A	2.5 VCT-6A	2.5 VCT-12A	G-7	15.00
S-72	5 VCT-3A	5 VCT-3A	5 VCT-6A	G-5	11.40

†Insulation 3000 v.

## SIGNALLING AND CONTROL TRANSFORMERS

High power transformers, suitable for operating relays, sirens, horns, etc. from 115 v. AC 50-60 cps. Primary, 110-120 v. AC. Secondary, 4, 8, 12, 16, 20, 24 v. Volt-ampere rating is based on the 24 volt secondary voltage, with corresponding reduction on lower voltages. Primary leads U/L Approved. Screw-type binding posts on output.



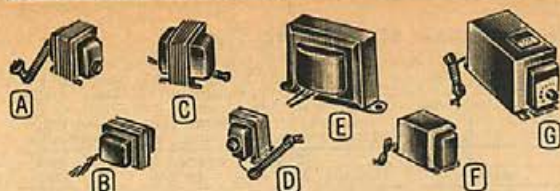
UTC Type	Rating, Watts	Size, inches			Mtg. Size, inches	Wt., Lbs.	Net Each
		L.	W.	H.			
SC-3	50	3	3 1/2	3 3/4	1 1/4 x 2 1/2	3	\$ 8.40
SC-4	100	3 3/4	3 3/4	4	2 1/2 x 2 1/2	5	9.00
SC-5	250	4	4 3/4	4 3/4	3 1/4 x 3	10	14.40

**★ALL PRODUCT LINES OR TYPE DESIGNATIONS ARE UTC TRADEMARKS. SPECIFY BY TRADEMARKS TO ASSURE UTC HIGH QUALITY AND RELIABILITY.**





# Replacement Transformers



## REPLACEMENT TYPE COMPONENTS

All units vacuum sealed. Shells and brackets finished in high luster black enamel. A minimum number of transformers have been developed to cover any requirement in the replacement field.

### STEP-DOWN AUTO-TRANSFORMERS (FIG. A)

220/240 to 110/120 v. AC 50/60 cps.

With 6-ft. cord and female receptacle, except R-64.

UTC Type	Rating	Size, Inches			Wt., Lbs.	Net Each
		L.	W.	H.		
R-41	85 watt capacity	3 3/4	2 3/8	3 3/4	4	\$ 6.75
R-42	125 watt capacity	3 3/4	3	3 3/4	5	7.65
R-43	175 watt capacity	3 3/4	3 3/4	3 3/8	5 1/2	8.40
R-44	250 watt capacity	4 3/8	3 3/4	3 3/8	6 1/2	11.10
R-45	500 watt capacity	4 3/8	3 3/8	4 3/8	12	12.00
R-46	1200 watt capacity	6 3/8	3 3/8	4 3/8	18	24.00
R-64	2500 watts, no cord	10 1/2	4 3/4	6 3/4	30	57.00

### DOUBLE SHELL POWER TRANSFORMERS (FIG. B)

Rectifier filaments 5 volts, 3 amps except R-101, 2 amps.

UTC Type	High V.	DC Ma	Amplifier Filament	Overall Height	Wt., Lbs.	Net Each
R-102	350-0-350	70	6.3 v. CT-3A	3 3/8"	3 3/8	10.20
R-103	350-0-350	90	6.3 v. CT-3.5A	3 1/2"	4 1/2	10.35
R-104	350-0-350	120	6.3 v. CT-5A	3 3/4"	5 1/2	11.10
R-105	385-0-385	160	6.3 v. CT-6A	4 3/8"	7	12.00

### VERTICAL SHELL POWER TRANSFORMERS (FIG. C)

Rectifier filaments 5 volts, 3 amps., except R-110, 2 amps.

UTC Type	High V.	DC Ma	Amplifier Filament	Overall Height	Wt., Lbs.	Net Each
R-111	350-0-350	70	6.3 v. CT-3A	3 3/4"	3 3/8	10.20
R-112	350-0-350	120	6.3 v. CT-5A	4"	5 1/2	11.10
R-113	400-0-400	200	6.3 v. CT-6A	4 3/8"	7	14.10

### EXPORT VOLTAGE ADAPTER (FIG. D)

Complete with cord, plug and locking switch selecting operation from 105, 115, 125, 135, 150, 210, 230, 250, v. AC, 42-60 cps. Output voltage 115 v. AC.

UTC Type	Rating, Watts	Size, Inches			Wt., Lbs.	Net Each	
		L.	W.	H.			
R-47	85	4 3/8	3	3 1/2	2 3/4 x 2 1/4	4 1/2	\$10.20
R-48	150	4 3/4	3 3/4	4	2 3/8 x 2 3/8	5 1/2	11.70

### TV VOLTAGE REGULATOR (FIG. D)

With cord, plug and locking switching selecting 115 v. AC, 50-60 cps from 85, 90, 95, 100, 105, 110, 120, 125 v. AC input.

R-49	350	5	3 3/4	4	2 1/2 x 2 1/4	5	\$12.00
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### CHANNEL FRAME FILTER REACTORS (FIG. E)

Inductance shown is at rated ma DC. Test v. rms, 1,500.

UTC Type	Induct. Hys.	Cur. Ma	Res., Ohms	Size, Inches			Mtg.	Wt., Lbs.	Net Each
				W.	D.	H.			
R-55	6	40	300	2 3/8	1 3/8	1 3/8	2	3 1/2	\$1.65
R-14	8	40	250	2 3/8	1 3/8	1 1/2	2 3/8	3 3/4	1.95
R-15	12	30	450	2 3/8	1 3/8	1 1/2	2 3/8	3 3/4	1.95
R-16	15	30	630	2 3/8	1 3/8	1 1/2	2 3/8	3 3/4	1.95
R-17	20	40	850	3 3/8	1 3/8	1 1/2	2 3/8	3 3/4	2.25
R-18	8	80	250	3 3/8	1 3/8	1 1/2	2 3/8	3 3/4	2.25
R-19	14	100	450	4 3/8	1 3/8	1 1/2	2 3/8	3 3/4	2.25
R-20	5	200	90	4 3/8	1 3/8	1 1/2	2 3/8	3 3/4	2.25
R-21	15/3	200	90	4 3/8	1 3/8	1 1/2	2 3/8	3 3/4	2.25
R-220	100/8*	2.5 a.	.6	3 3/4	2	2	3 3/8	1 1/2	4.20
	25/2*	5 a.	.16						

\*Millihenries.

### ISOLATION TRANSFORMERS (FIG. F)

Ideal for isolating line noise, AC-DC sets, etc. Excellent electrostatic shielding, 1,500 volt breakdown test. Complete with 6' cord and female receptacle, except UTC Type R-77. Primary, 110-120 v. AC, 50/60 cps. Secondary, 110-120 v., except UTC Type R-97, 220 v. AC primary, 120 v. AC secondary.

UTC Type	Rating, Watts	Size, Inches			Mtg. Size, Inches	Wt., Lbs.	Net Each
		L.	W.	H.			
R-72	40	3 3/4	2 3/8	3 3/4	2 x 1 1/2	4	\$ 7.20
R-73	100	3 3/4	3 3/4	3 3/4	2 1/2 x 2 1/2	6	10.50
R-74	250	4 3/8	3 3/8	4 3/8	3 x 3 3/8	12	18.00
R-75	600	7 3/8	3 3/8	4 3/8	3 x 5 3/8	20	24.00
R-76	1200	8 3/8	4 3/8	6 3/8	3 3/4 x 6 3/8	30	57.00
R-77	2500	12	7	9	6 x 11	70	99.00
R-97	250	4 3/4	3 3/4	4 3/4	3 x 3 3/4	12	15.00

### LINE VOLTAGE ADJUSTERS WITH METER (FIG. G)

Adjusts abnormal or fluctuating line voltages. Adjust switch so that meter reads at red line and then the correct line voltage for your equipment is provided. These units combine a tapped auto-former, switch and meter in a rugged, compact assembly. Switch is nine-position type and adjusts for line voltages, 60-140 volts on 115 v. output models and 160-240 v. on 230 v. output model. All units are designed for 50/60 cps service and come complete with 6' cord and plug and output receptacle.

UTC Type	Primary Voltages	Second. Volts	Watts Rating	Size, Inches			Wt., Lbs.	Net Each
				L.	W.	H.		
R-78	↑	115	150	7	4	4 3/4	6	\$17.70
R-79	↑	115	300	7	4	4 3/4	9	18.90
R-80	↑	115	600	10 3/4	4	4 3/4	13	22.80
R-81	↑	115	1200	10 3/4	4	4 3/4	21	33.00
R-86	↓	230	1200	10 3/4	4	4 3/4	21	33.00

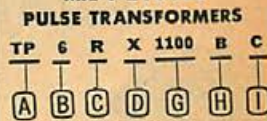
160, 70, 80, 90, 100, 110, 120, 130, 140 volts. 160, 170, 180, 190, 200, 210, 220, 230, 240 volts.

### MILITARY DESIGNATIONS

#### MIL-T-27B INDUCTORS AND TRANSFORMERS



#### MIL-T-21038B PULSE TRANSFORMERS



**A Component:** TF indicates all MIL-T-27( ) transformers or inductors. TP indicates all MIL-T-21038B pulse transformers.

**B Grade:** Refers to case material and environmental capability. MIL-T-27B, Grade 4 is metal-cased with max. reliability; resistant to shock, vibration and thermal shock. Grade 5 same as Grade 4 except encapsulated or molded. MIL-T-21038B, Grade 6 same as Grade 4, MIL-T-27B plus use at high altitudes if required. Grade 7 is encapsulated or molded version of Grade 6.

**C Class:** Indicative of max. operating temperature (ambient plus temperature rise). R is 105° C. S is 130° C.

**D Life Expectancy:** Designers estimate of mean anticipated life. X indicates 10,000 hours life estimated.

**E Family:** Two-digit number code listed in specification, representing each application or category of transformer and inductor.

**F Case Size and Mounting:** Two-letter code listed in specifications. See table of sizes, below. YY is non-standard metal case. ZZ is encapsulated or molded.

**G Turns Ratio:** Four-digit code indicates number of windings and their ratios; e.g., 1110 is 1:1:1.

**H Case Style:** Single letter code for fixed case styles; e.g., A for radial leads and C for terminations at one end.

**I Case Size:** Single letter code for fixed envelope dimension, as given in individual listings. Z indicates other sizes.

### MIL-T-27B CASE SIZES

MIL Case	Size, Inches: Dimension					Mounting Studs
	A	B	C	D	E	
AF	1 3/4	1 3/4	1 1/2	Diag.	3/8	4-40 x 3/8
AG	1	1	1 1/2	Diag.	3/8	4-40 x 3/8
AH	1 1/8	1 1/8	1 1/2	Diag.	1 1/4	6-32 x 3/8
AJ	1 1/8	1 1/8	2 3/8	1 1/2	1 1/4	6-32 x 3/8
EA	1 1/8	1 1/8	2 3/8	1 1/2	1 1/4	6-32 x 3/8
EB	1 1/8	1 1/8	2 3/8	1 1/2	1 1/4	6-32 x 3/8
FA	2 1/8	2 1/8	3 1/2	1 1/2	1 1/4	6-32 x 3/8
FB	2 1/8	2 1/8	2 1/2	1 1/2	1 1/4	6-32 x 3/8
GA	2 3/8	2 3/8	3 1/2	2 1/2	1 3/4	6-32 x 3/8
GB	2 3/8	2 3/8	2 1/2	2 1/2	1 3/4	6-32 x 3/8
HA	3 1/8	2 3/8	4 1/4	2 1/2	1 3/4	8-32 x 3/8
HB	3 1/8	2 3/8	3 3/4	2 1/2	1 3/4	8-32 x 3/8
JA	3 1/8	3 1/8	4 1/4	2 1/2	2 1/4	8-32 x 3/8
JB	3 1/8	3 1/8	3 3/4	2 1/2	2 1/4	8-32 x 3/8
KA	3 1/8	3 3/8	5 3/4	3	2 3/8	10-32 x 3/8
KB	3 1/8	3 3/8	4 3/4	3	2 3/8	10-32 x 3/8
LA	4 3/8	3 1/8	5 3/4	3 3/8	2 1/2	10-32 x 3/8
LB	4 3/8	3 1/8	4 3/4	3 3/8	2 1/2	10-32 x 3/8
MA	4 1/2	4	6	3 1/2	3	14-20 x 3/8
MB	4 1/2	4	4 1/2	3 1/2	3	14-20 x 3/8
NA	5 1/2	4 1/2	6 1/2	4 1/2	3 3/8	14-20 x 3/8
NB	5 1/2	4 1/2	5 1/2	4 1/2	3 3/8	14-20 x 3/8
OA	5 1/2	4 1/2	6 3/4	3 3/4	3	14-20 x 3/8

ALL PRODUCT LINES OR TYPE DESIGNATIONS ARE UTC TRADEMARKS. SPECIFY BY TRADEMARK TO ASSURE UTC HIGH QUALITY AND RELIABILITY.

### INDUSTRIAL DISCOUNTS

Applicable to any UTC products listed in this catalog.

Assorted Quantities, Lots of		
1-24	25-99	100 Up
Net Price	Net -15%	Net -20%





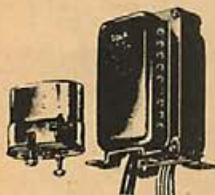
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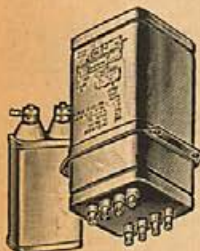
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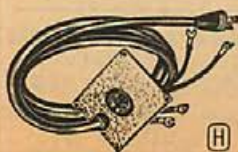
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F



G



H

### CVS STANDARD SINUSOIDAL TYPE

Regulate voltage output within  $\pm 1\%$  regardless of input voltage variations as great as  $\pm 15\%$ . Ultra-fast regulating action. Response time is usually 1.5 cps or less. Less than 3% total rms harmonic content. Particularly suitable for use with equipment having elements sensitive to power frequencies harmonically related to fundamental. Use no filters, eliminating need for extra capacitors and noisy chokes. Smaller and more rugged than transformers using filters for wave-shape improvement. For 60 cps, single phase operation.

Sola No.	Fig.	Volt-Amps	Input Voltage	Output Voltage	Case *	Overall Size, Inches	Net Each
23-13-030	A	30	95-130	118	4	6 1/2 x 4 x 5 1/2	\$25.00*
23-13-060	A	60	95-130	118	4	6 1/2 x 4 x 5 1/2	30.00*
23-22-112	A	120	95-130 x 190-260	118	4	8 x 4 x 5 1/2	38.00*
23-22-125	A	250	95-130 x 190-260	118	4	9 3/4 x 5 1/2 x 7 1/2	52.00*
23-22-150	A	500	95-130 x 190-260	118	4	12 1/2 x 9 x 6 1/2	81.00*
23-23-030	A	30	190-260 x 380-520	118	4	6 1/2 x 4 x 5 1/2	27.00*
23-23-060	A	60	190-260 x 380-520	118	4	6 1/2 x 4 x 5 1/2	32.00*
23-23-112	A	120	190-260 x 380-520	118	4	8 x 4 x 5 1/2	41.00*
23-23-125	A	250	190-260 x 380-520	118	4	10 x 5 1/2 x 7 1/2	56.00*
23-25-210	A	1000	95-130 x 175-235 x 190-260	118 x 236	4	17 1/2 x 9 x 6 1/2	135.00*
23-25-220	A	2000	95-130 x 175-235 x 190-260	118 x 236	4	19 1/2 x 12 1/4 x 10 1/2	245.00*
23-25-230-3	A	3000	95-130 x 175-235 x 190-260	118 x 236	4	21 1/2 x 12 3/4 x 10 1/2	330.00*
23-26-250	B	5000	100-260 x 380-520	118 x 236	5	20 3/4 x 25 1/2 x 10 1/2	515.00*
23-28-275	B	7500	100-260 x 380-520	118 x 236	6	20 3/4 x 38 1/4 x 11 1/2	765.00*

### CVN NORMAL-HARMONIC TYPE

Regulate voltage output within  $\pm 1\%$  regardless of input voltage variations as great as  $\pm 15\%$ . Average 20% total rms harmonic content. Provide regulated voltage for filaments, relays and solenoids. Ideal built-in components. For 60 cps, single phase operation.

Sola No.	Fig.	Volt-Amps	Input Voltage	Output Voltage	Case *	Overall Size, Inches	Net Each
20-10-015	C	15	95-130	118	1	5 1/4 x 2 3/8 x 3 1/2	\$15.00*
20-11-015	E	15	95-130	118	2	5 1/4 x 3 3/8 x 2 3/8	20.00*
20-14-015	D	15	95-130	118	3	4 1/2 x 2 3/8 x 2 3/8	14.00*
20-14-030	D	30	95-130	118	3	4 1/2 x 2 3/8 x 2 3/8	20.00*
20-13-030	A	30	95-130	118	4	6 x 4 x 5 1/2	20.00*
20-13-060	A	60	95-130	118	4	6 1/2 x 4 x 5 1/2	25.00*
20-14-060	D	60	95-130	118	3	4 1/2 x 3 3/8 x 3 3/8	21.00*
20-14-112	D	120	95-130	118	3	4 1/2 x 3 3/8 x 4 1/2	29.00*
20-13-112	A	120	95-130	118	4	7 3/8 x 4 x 5 1/2	33.00*
20-21-112	A	120	190-260	236	4	7 3/8 x 4 x 5 1/2	33.00*
20-13-115	A	150	95-130	118	4	8 3/8 x 5 3/8 x 7 1/2	40.00*
20-13-125	A	250	95-130	118	4	11 1/8 x 6 1/8 x 6 1/8	49.00*
20-23-125	A	250	190-260 x 380-520	118	4	11 1/8 x 6 1/8 x 6 1/8	49.00*
20-13-150	A	500	95-130	118	4	12 1/2 x 6 1/8 x 6 1/8	77.00*
20-23-150	A	500	190-260 x 380-520	118	4	12 1/2 x 6 1/8 x 6 1/8	77.00*
20-24-150	A	500	190-260 x 380-520	236	4	12 1/2 x 6 1/8 x 6 1/8	77.00*
20-13-210	A	1000	95-130	118	4	15 3/8 x 6 1/8 x 6 1/8	128.00*
20-20-210	A	1000	190-260	118	4	15 3/8 x 6 1/8 x 6 1/8	128.00*
20-25-220	A	2000	95-130 x 175-235 x 190-260	118 x 236	4	20 x 10 1/2 x 10 1/2	232.00*
20-25-230	A	3000	95-130 x 175-235 x 190-260	118 x 236	4	22 x 10 1/2 x 10 1/2	315.00*
20-27-250	A	5000	190-260 x 380-520	118 x 236	4	21 x 14 1/2 x 14 3/4	490.00*
20-26-310	B	10000	190-260 x 380-520	118 x 236	5	21 x 29 1/2 x 14 3/4	925.00*

\*Transformer case; 1—Drawn case; 2—Hermetically sealed case; 3—End bell unit with separate capacitor; 4—Housed unit; 5—Duplex housed unit; 6—Triplex housed unit.

### CVA PLUG-IN TYPE TV VOLTAGE REGULATOR (FIG. F)

Will provide a nominal output of 115-120 volts on an input of 95-130 volts, stabilizing it to  $\pm 3\%$  or less. No wiring necessary—just plug in between set and wall outlet.

**Sola No. 72103**—For sets with manufacturer's rating of 105 to 170 watts power input. Output capacity, 180 VA. Size, 8 1/2" x 4 1/2" x 7 1/2". Shipping **\$34.50**. Weight, 20 lbs. Net Each, . . . . .

**Sola No. 72104**—For sets with manufacturer's rating of 165 to 285 watts power input. Output capacity, 300 VA. Size, 8 1/2" x 4 1/2" x 7 1/2". Shipping **\$37.50**. Weight, 27 lbs. Net Each, . . . . .

**Sola No. 72107**—Specifically for color sets rated 240-375 watts input. Harmonic-free output waveform; 400 VA capacity. Size, 9 1/2" x 4 1/2" x 7 1/2". Wt., 32 lbs. **\$55.00** Net Each, . . . . .

### CVF ELECTRONIC-POWER PLATE-FILAMENT TYPE (FIG. G)

Delivers filament and plate voltages regulated within  $\pm 3\%$  or less, with line voltage variations of 100-130 volts. Furnished complete with separate capacitor and capacitor mounting bracket. **No. 7104**: 4 1/2" x 3 1/2" x 3 1/2". Shpg. Wt., 6 lbs. **No. 7106**: 4 1/2" x 3 1/2" x 3 1/2". Shpg. Wt., 8 lbs. **No. 7107**: 7" x 4 1/2" x 4 1/2". Shpg. Wt., 19 lbs.

Sola No.	Input: VDC at Ma	Fil. Wdg., Amps at	5.0 V.	Net Each:
7104	275 at 50	2.5 CT	2.0	\$12.00
7106	385 at 100	3.0 CT	2.0	15.00
7107	380 at 250	4 & 8*	3.0	27.00

\*Unregulated. †To filter. ‡Quantity Discount: 1-9, none; 10-49, 10%; 50-99, 20%.

### CVF ELECTRONIC-POWER FILAMENT TYPE

Sola No.	Fig.	Volt-Amps	Input Volts*	Net Each *
20-01-015	C	15	95-130	\$15.00
20-02-015	C	15	95-130	15.00
20-03-015	E	15	95-130	20.00
20-04-015	D	15	95-130	14.00
20-05-015	D	15	95-130	14.00
20-04-030	D	32	95-130x190-260	16.00
20-04-065	D	65	95-130x190-260	20.00
20-04-095	D	95	95-130x190-260	24.00
20-04-116	D	160	95-130x190-260	35.00

\*Regulated  $\pm 1\%$  output; Nos. 20-01-015, 20-06-015, 6.0 v.; all others, 6.3 v.

### ADAPTER KITS (FIG. H)

Convenient input cord and output receptacle for regulators listed under table.

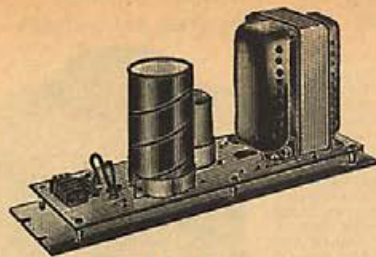
Sola No.	Input Cord	Output	Net Each
999-004*	2-wire	2-wire receptacle	\$1.75
999-018*	3-wire	3-wire receptacle	2.50
999-005*	2-wire	2-wire receptacle	1.75
999-019*	3-wire	3-wire receptacle	2.50
999-009*	2-wire	2-wire receptacle	2.00
999-020*	3-wire	3-wire receptacle	2.50

\*For Nos. 20-13-030, 20-13-060, 20-13-112, 20-21-112, 23-13-030, 23-13-060, 23-22-112, 23-23-030, 23-23-060, and 23-23-112. †For Nos. 20-13-115, 23-22-125, and 23-23-125. ‡For Nos. 20-13-125, 20-13-150, 20-23-125, 20-23-150, 20-24-150, 23-22-150, and 23-25-210.

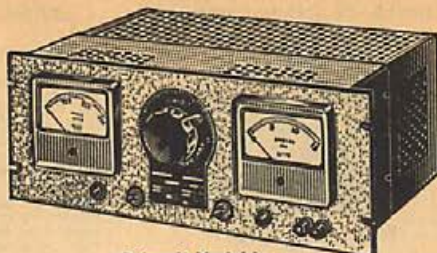
### ★ QUANTITY DISCOUNTS

Quantity	Discount
1-4	None
5-9	10%
10-24	15%





CVDC Fixed



Solavolt Variable



Multi-Tap CV Transformer

## SOLA CONSTANT-VOLTAGE DC POWER SUPPLIES

Compact size and low weight in proportion to power output are prime features of Sola's Constant-Voltage DC Power Supply, plus transient overload capacity without oversize components, and good load regulation over entire operating range.

Other important characteristics and features combine to bring users this impressive list of advantages: 1—Output regulation of  $\pm 1\%$  or less with  $\pm 15\%$  line voltage variations. 2—Minimum output voltage change with wide, rapid load changes. 3—Low input power, with resultant good efficiency. 4—Ability to withstand high, short-time overloads without damage to components. 5—High overall economy by eliminating overload capacity needed in other types of power supplies for certain applications. 6—Low ratio of size and weight to power output. 7—Freedom from routine adjustment and maintenance problems due to absence of any moving or expendable parts. 8—Exceedingly low output impedance.

### CVDC FIXED OUTPUT

For intermittent variable or pulse loads. Input: 100-130 V, 60 cps. Ripple V rms: 1% of total except \*,  $\frac{1}{2}\%$ , 19" panel.

Sola No.	DC Output			Reg. †	Ht., In.	D., In.	Shpg., Lbs.	Net Each	
	W	V	A						
281513-1	60	6	10	7%	3 1/4	7 3/8	31	\$150.00	
281514-1	60	12	5	5%	3 1/4	7 3/8	26	115.00	
281515-1	90	18	5	4%	3 1/4	7 3/8	28	120.00	
281845	180	12	15	5%	5 1/4	9 3/4	50	195.00	
281024-1	144	24	6	4%	5 1/4	9 3/4	34	145.00	
281203	360	24	15	4%	5 1/4	9 3/4	10	55	250.00
28626	224	28	8	4%	5 1/4	9 3/4	48	180.00	
281048	192	48	4	2 1/2%	5 1/4	9 3/4	37	135.00	
281561	480	48	10	3%	5 1/4	9 3/4	50	185.00	
281125	250	125	2	1 1/2%	5 1/4	9 3/4	44	145.00	
281150	300	150	2	1 1/2%	5 1/4	9 3/4	48	145.00	
281200*	200	200	1	3%	5 1/4	9 3/4	39	140.00	
281250*	250	250	1	2%	5 1/4	9 3/4	45	150.00	

\* $\frac{1}{2}\%$  ripple. †Load Regulation,  $\frac{1}{2}$  to full load.

### SOLAVOLT VARIABLE OUTPUT

The DC Solavolt is essentially a constant-voltage transformer to which has been added an adjustable transformer, plus appropriate rectifiers and filters. Offers exceedingly fast transient response time; most changes in supply voltage are compensated for in 1.5 cps or less. The full-range DC model is continuously adjustable from zero to maximum rated voltage without step-switching. The limited-range DC model covers a predetermined narrower voltage range, with a lower ripple content. Supplied with panel for standard 19" relay rack mounting. Input: 100-130 VAC, 60 cps. Operating Temperature: 0-50° C max. ambient.

#### FULL-RANGE

Regulation:  $\pm 1\frac{1}{2}\%$  line regulation at max. voltage and  $\frac{1}{2}$  load, or at reduced voltage and full load;  $\pm 1\%$  at max. voltage and full load;  $\frac{1}{2}\%$  to 8% load regulation,  $\frac{1}{2}$  to full load. Size: 19" w. x 10 1/2" d. behind panel.

Sola No.	Adjust. Output Voltage Range	Rated Load, Amperes		Rms Ripple	Ht., In.	Shpg. Lbs.	Net Each
		At Max. Volts	Reduced Volts Amps at V				
285111	0-35	24	24 at 5	1%*	10 1/2	90	\$417.00
285112	0-35	7	7 at 5	1%*	5 1/2	70	263.00
285113	0-60	4	6 at 25	1%*	5 1/2	70	282.00
285114	0-90	2.8	4 at 30	1%*	5 1/2	70	270.00

\*For 0.20% ripple, change fourth digit in number to 2 (e.g., 285211) and add \$10.00 to price shown.

#### LIMITED-RANGE

Regulation:  $\pm 1\%$  line regulation for input fluctuations of  $\pm 15\%$ ;  $\frac{1}{2}\%$  to 8% load regulation,  $\frac{1}{2}$  to full load. Size: 19" w. x 12 1/2" d. behind panel.

Sola No.	Adjust. Output Voltage Range	Rated Load, Amperes	Rms Ripple	Ht., In.	Shpg. Lbs.	Net Each	
285110	5-35	7	7 at 5	0.10%	7	80	\$325.00
285120	25-60	4	6 at 25	0.05%	7	80	325.00
285130	30-90	2.8	4 at 30	0.04%	7	80	295.00
285140	60-180	1.4	2 at 60	0.03%	7	80	295.00

## SOLAVOLT CONSTANT-VOLTAGE AC POWER SUPPLY

Adjustable and regulated AC power supply with sinusoidal output designed for use with equipment that requires constant AC voltage from 0-130 volts of undistorted wave-shape. Recommended for operations involving elements which are sensitive to power frequencies harmonically related to the fundamental. Solavolt unit provides voltage regulation of  $\pm 1\%$  for line input changes from 100-130 volts, with less than 3% harmonic content at full

load. Response time is 1.5 cps or less. One receptacle for fixed, regulated 115 VAC; one for variable regulated 0-130 VAC output, with a pair of jacks. Dual panel meters show voltage and current outputs. Rated at 500 VA; maximum current, 7 1/2 amps. Overall size of rack mounting, 19" w. x 12 1/2" d. x 7" h. Shpg. Wt., 83 lbs. Sola No. 23-90-150—Net Each.....\$275.00

## SOLA MULTI-TAP CONSTANT-VOLTAGE TRANSFORMERS

Versatile, flexible output transformer provides a wide range of output voltages for prototyping and experimental use. Can be used as a power source for AC or DC outputs or a combination of both; plus the regulating ability of the familiar Sola transformer. Provides line regulation of  $\pm 1\%$  or less with current limiting and isolation from primary voltage. Broad range of regulated output voltages provides immediate available source for bread-

boarding, prototypes, etc.; saves time and money in inventory. Operates similarly to any tapped multiple output transformer: Taps arranged along one side, 60 voltages are tapped off from the minimum to maximum-rated voltage in increments of about 10%. Input: 105-125 VAC, 60 cps. Specific output and necessary tap combinations, along with other applications and operating data, available on request; ask for Sola Bulletin CVR-181.

Sola Number	Rating VA	Range of AC Volts	DC Output		Size, Inches W. x D. x H.	Shpg. Wt., Lbs.	Net Ea., 1-4
			Resistive	Capacitive			
73-13-040	40	9.3-28.9	3.7 to 12.9 V at 2 A 7.7 to 26.5 V at 1.25 A	3.9 to 14.6 V at 2 A 8.4 to 31.1 V at 1.25 A	3 3/4 x 5 1/2 x 4 1/2	6	\$21.00
73-13-075	75	10.3-30.0	4.0 to 12.8 V at 4 A 8.6 to 27.6 V at 2 A	4.2 to 14.6 V at 4 A 9.6 to 31.6 V at 2 A	3 3/4 x 6 1/2 x 4 1/2	8	25.00
73-13-115	150	10.8-31.4	4.0 to 13.0 V at 8 A 8.8 to 27.8 V at 4 A	4.1 to 14.5 V at 8 A 9.5 to 32.9 V at 4 A	4 3/4 x 5 1/2 x 6 1/2	13	35.00
73-13-122	225	10.1-30.1	3.6 to 13.0 V at 12 A 8.0 to 27.5 V at 6 A	3.8 to 14.6 V at 12 A 8.8 to 31.5 V at 6 A	4 3/4 x 7 1/2 x 6 1/2	17	44.00
73-13-130	300	10.2-30.8	3.5 to 13.3 V at 15 A 7.8 to 27.8 V at 8 A	3.6 to 14.6 V at 15 A 8.4 to 31.3 V at 8 A	4 3/4 x 8 x 6 1/2	22	52.00
73-13-145	450	9.4-30.2	3.6 to 13.0 V at 22.5 A 8.2 to 27.5 V at 12 A	3.8 to 14.7 V at 22.5 A 8.8 to 31.3 V at 12 A	4 3/4 x 8 1/2 x 6 1/2	30	66.00



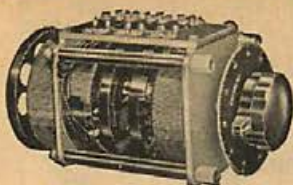


# Superior Electric Powerstats®

## 400/800 CYCLE SINGLE AND 3-PHASE STANDARD POWERSTAT® VARIABLE TRANSFORMERS



Type 1RHS03UK



Type 2HMS07UK-3Y

"Powerstat" variable transformers are now available in several standard series for high frequency aircraft, marine, missile and industrial applications. Single and three phase, 400/800 cycle, manual and motor-driven air-cooled models are offered for 28, 120, 240, and 480 volt service in ratings from 56 VA to 8.7 KVA. Of rugged, compact construction, assemblies perform same task as conventional 60 cycle units, but weigh only 1/4 as much and occupy only 1/2 the cubic space. Engineered to operate in -53° to +40° C ambient at full rated load (reducing to +80° C); altitudes to 50,000 feet; up to 95% relative humidity; vibration, shock and inclination per MIL-T-17113; corrosion resistance per QQM-151-A and other applicable military specifications. All manual units are knob operated but screwdriver slot method of turning may be ordered for types HS and HMS single phase units. All types HL and HMS units are available as motorized assemblies. Motor-driven types are available with either a 28 v. DC or a 120 v., 400 cycle AC motor with a standard speed of 60 seconds for full range travel.

### FOR 28, 120 AND 240-VOLT SINGLE PHASE

Superior Number	Line Volts	Output		Approx. Shpg. Wt., Lbs.	Price Each
		Volts	Max. Amps		
3HS02UK	28	0-28	2.0	.056	20.00
3HS02CK*	28	0-28	2.0	.056	22.00
3HS04UK	28	0-28	4.0	.112	22.00
3HS04CK*	28	0-28	4.0	.112	24.00
1HS01UK	120	0-140	1.0	.14	14.50
1HS01CK*	120	0-140	1.0	.14	20.00
1RHS03UK	120	0-28	2.6	.073	34.00
1HMS03UK	120	0-140	3.0	.42	15.50
1HMS07UK	120	0-140	7.5	1.0	20.00
1HMD07UK	120	0-140	7.5	1.0	20.00
1HMD07CK*	120	0-140	7.5	1.0	20.00
1HL15UK	120	0-140	15.0	2.1	14.00
2HMS03UK	240	0-280	3.0	.84	3.8
2HMD03UK	240	0-280	3.0	.84	4.2
2HMD03CK*	240	0-280	3.0	.84	4.7
2HL09UK	240	0-280	9.0	2.5	15.4

### FOR 240 AND 480-VOLT THREE-PHASE

2HMS03UK-3Y	240	0-280	3.0	1.5	8.5	\$ 49.50
2HMS07UK-3Y	240	0-280	7.5	3.6	11.6	67.00
2HL15UK-3Y	240	0-280	15.0	7.3	41.0	140.00
4HMS03UK-3Y	480	0-560	3.0	2.9	11.6	74.50
4HL09UK-3Y	480	0-560	9.0	8.7	45.5	140.00

\*Enclosed construction. All others are open construction. #Supplied with terminals for limiting maximum output voltage to line voltage, if desired.



Type 21-40

### 40-VOLT POWERSTATS®

Meet the high current, low voltage requirements of low voltage power supplies and a wide range of transistor circuit applications. All types are open construction. Individual units in ganged assemblies have the same electrical ratings as single units of the corresponding type number.

### SINGLE PHASE

Superior Number	Line Volts	Freq. Cps	Output		Max. KVA	Price Each	
			Volts	Amps		Manual	Motor*
10B-40	40	60	0-40	6	.24	\$11.00	.....
10B-40-2†	40	60	0-40	6	.24	33.00	.....
10B-40-3†	40	60	0-40	6	.24	50.00	.....
21-40	40	60	0-40	15	.6	16.00	\$104.00
21-40-2†	40	60	0-40	15	.6	43.00	131.00
21-40-3†	40	60	0-40	15	.6	64.00	152.00
116U-40	40	60	0-40	25	1.0	23.00	111.00
116U-40-2†	40	60	0-40	25	1.0	56.00	144.00
116U-40-3†	40	60	0-40	25	1.0	84.00	172.00

\*Add type number prefix for full range travel motor speed desired: 5M for 5 sec.; 15M for 15 sec.; 30M for 30 sec.; 60M for 60 sec. (for example, 15M21-40). †Ratings given apply separately to each unit in assembly.

## DOUBLE WOUND POWERSTAT® VARIABLE TRANSFORMER WITH ISOLATED SECONDARY

POWERSTAT type LW136 is a double wound assembly with an isolated secondary. Any single unit can be connected for either 120 volt or 240 volt, 50/60 cycle input and can be used as a source of 0-30 volts isolated output; either a 120 volt or 240 volt line corrector; or either a 120 or 240 volt limited range "buck-boost" variable transformer. Any three phase, three gang unit can be connected for either 240 or 480 volt, 60 cycle input and can be used as a source of 0-60 volts isolated output; either a 240 or 480 volt line corrector; or either a 240 or 480 volt limited range "buck-boost" variable transformer. Gray enamel finish for either panel or general utility mounting. When ordering (\*) motor driven assemblies prefix type number with desired speed of either 5, 15, 30 or 60 seconds for full range travel and letters MC. Any of the ratings given below are possible simply by using the proper terminal connections. These are only a few of the many ratings that can be obtained. Data sheet on request.



Type LW136

### FOR 50/60 CYCLE SINGLE PHASE

Superior No.	Line Volts	Output		Max. KVA	Price Each	
		Volts	Max. Amps		Manual	Motor*
LW136	120	0-30	25	.75	\$77.00	\$215.00
	120	15-0-15	35	.52		
	240	0-30	25	.75		
	240	15-0-15	35	.52		
	120	105-135	35	4.7		
	107-137	120	35	4.2		
	240	225-255	35	8.9		
	226-256	240	35	8.4		

### FOR 60 CYCLE THREE-PHASE

LW136-3	240	210-270	35	16.4	\$253.00	\$391.00
	214-260	240	35	14.6		
	480	450-510	35	31.0		
	452-512	480	35	29.1		

### EN TYPE POWERSTATS®

Wide application and mounting flexibility. Housed in lightweight, functional aluminum enclosures that permit easy installation, wiring and servicing. Single units and ganged assemblies available for 120, 240 and 480 volt, single and three phase service with loads up to 5.2 KVA. Data sheet on request. Single units below size: 5 1/4" w. x 6" d. x 6 1/2" h. Shipping Weight, 15 lbs.



Type EN116

### FOR SINGLE PHASE SERVICE

Super. Type	Input		Output		KVA	Price Each
	Volts	Freq.	Volts	Amps		
EN116	120	50/60	0-140	6.5	.91	\$25.00
EN117	120	60	0-120	8.5*	1.5*	25.00
EN216	240	50/60	0-280	2.6	.73	30.00
EN217	240	60	0-240	3.5*	1.3*	31.00

\*Current is maximum for constant-current load; KVA is maximum for constant-impedance load.

### VOLTBOX® AC POWER SUPPLY

Handy instrument for laboratory, inspection department and the plant that eliminates nuisance of collecting variable AC voltage testing elements. Included in gray cast aluminum case are a "Powerstat", direct reading voltmeter, 3 output receptacles, 2 Superior 5-Way binding posts, "on-off" switch, line-load meter switch, renewable fuse and a six foot cord and plug.



Type UC1M

Type UC1M—Input: 120 volts, 50/60 cycles, single phase AC. Output: 0-140 volts, 7.5 amps, 1000 VA. Weight, 13 lbs. \$72.00 Price Each.

Type UC2M—Input: 240 volt, 50/60 cycles, single phase AC. Output: 0-280 volts, 3.0 amps, 840 VA. Weight, 13 lbs. \$77.00 Price Each.





# Superior Electric Powerstats®

## STANDARD POWERSTAT® VARIABLE TRANSFORMERS

**POWERSTAT® Variable Transformers** are auto-transformers of toroidal core design, with a movable brush-tap which rotates to deliver a continuously-adjustable output voltage from AC power lines. Into each "Powerstat" are incorporated superior qualities of top electrical performance, rugged mechanical construction, compact design and durability. "Powerstats" feature zero waveform

distortion, excellent regulation, conservative ratings, standard mountings, smooth control and high efficiency. Manual and motor-driven types available in ratings from 132 VA to 217 KVA. Complete line of standard explosion-proof and oil-cooled models offered in numerous capacities. For complete technical data request "Powerstat" Catalog P363G.

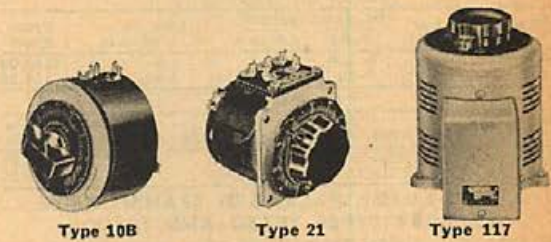
### SINGLE PHASE

Seco†† No.	Line Volt.	Freq.	Output			Price Each	
			Max. Volt.	Max. Amps	Max. KVA	Manual	Motor* Driven
2PF10	120	60	0-132	1.0	.13	\$ 18.00	.....
10B	120	60**	0-132	1.75	.23	9.00	.....
21	120	50/60	0-140	3.75	.53	14.00	\$ 102.00
116U	120	50/60	0-140	7.5	1.0	20.00	108.00
116	120	50/60	0-140	7.5	1.0	26.00	118.00
3PF116	120	50/60	0-140	7.5	1.0	33.00	.....
3TF116	120	50/60	0-140	7.5	1.0	33.00	.....
3PN116	120	50/60	0-140	7.5	1.0	30.00	.....
117T	120	60	0-120	10.0	1.6	25.00	115.00
126U	120	50/60	0-140	12.5	1.8	34.00	150.00
126	120	50/60	0-140	12.5	1.8	39.00	160.00
2PF126	120	50/60	0-140	12.5	1.8	48.00	.....
136	120	50/60	0-140	20.0	2.8	55.00	193.00
2PF136	120	50/60	0-140	20.0	2.8	72.00	.....
136-21	120	50/60	0-140	40.0	5.6	129.00	266.00
1156D	120	50/60	0-140	45.0	6.3	130.00	267.00
1156D-2P	120	50/60	0-140	90.0	12.6	296.00	433.00
1156D-3P	120	50/60	0-140	135.0	18.9	460.00	597.00
1156D-4P	120	50/60	0-140	180.0	25.2	674.00	812.00
1156D-6P	120	50/60	0-140	270.0	37.8	1117.00	1254.00
10B-2	240	60**	0-284	1.75	.46	28.00	.....
216U	240†	50/60	0-280	3.0	.84	22.00	110.00
216	240†	50/60	0-280	3.0	.84	29.00	120.00
3PF216	240	50/60	0-280	3.0	.84	36.00	.....
3TF216	240	50/60	0-280	3.0	.84	36.00	.....
3PN216	240	50/60	0-280	3.0	.84	33.00	.....
217T	240	60	0-240	4.0	1.5	28.00	121.00
226U	240†	50/60	0-280	6.0	1.7	34.00	150.00
226	240†	50/60	0-280	6.0	1.7	39.00	160.00
2PF226	240	50/60	0-280	6.0	1.7	48.00	.....
116U-2	240	50/60	0-280	7.5	2.1	49.00	137.00
116T-2	240	50/60	0-280	7.5	2.1	59.00	153.00
236	240†	50/60	0-280	9.0	2.5	55.00	193.00
2PF236	240†	50/60	0-280	9.0	2.5	72.00	.....
117T-2	240	60	0-240	10.0	3.1	61.00	154.00
126U-2	240	50/60	0-280	12.5	3.5	79.00	195.00
126-2	240	50/60	0-280	12.5	3.5	88.00	209.00
136-2	240	50/60	0-280	20.0	5.6	129.00	266.00
1256D	240†	50/60	0-280	28.0	7.8	130.00	267.00
1156D-2S	240	50/60	0-280	45.0	12.6	287.00	425.00
1256D-2P	240†	50/60	0-280	56.0	15.7	296.00	433.00
1256D-3P	240†	50/60	0-280	84.0	23.5	460.00	597.00
1156D4PS	240	50/60	0-280	90.0	25.2	657.00	794.00
1256D-4P	240†	50/60	0-280	112.0	31.4	674.00	812.00
1256D-6P	240†	50/60	0-280	168.0	47.0	1117.00	1254.00
216U-2	480†	50/60	0-560	3.0	1.7	54.00	142.00
216T-2	480†	50/60	0-560	3.0	1.7	64.00	157.00
217T-2	480	60	0-480	4.0	3.0	66.00	160.00
226U-2	480†	50/60	0-560	6.0	3.4	79.00	195.00
226-2	480†	50/60	0-560	6.0	3.4	88.00	209.00
236-2	480†	50/60	0-560	9.0	5.0	129.00	266.00
1256D-2S	480†	50/60	0-560	28.0	15.7	287.00	425.00
1256D4PS	480†	50/60	0-560	56.0	31.4	657.00	794.00
1256D6PS	480†	50/60	0-560	84.0	47.0	1117.00	1254.00



Type 2PF10

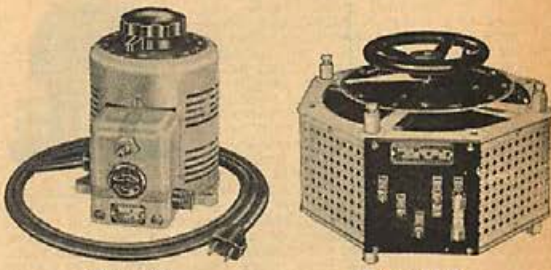
Type 136



Type 10B

Type 21

Type 117



Type 116

Type 1256D

### FOOTNOTES TO ADJACENT TABLE

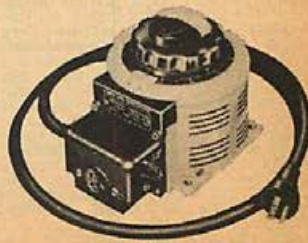
†† Letters in Part Numbers Indicate as follows:  
 2PF—Two-prong parallel-blade plug and receptacle, cartridge type fuse and holder.  
 2TF—Same as 2PF except twist-lock plug and receptacle.  
 3PF—Same as 2PF except with third wire grounded to frame.  
 3PN—Same as 3PF except NEMA plug and receptacle.  
 3TF—Same as 3PF except twist lock plug and receptacle.  
 Suffix letters and numbers (2, 2S, 4P, 6P, etc.), indicate ganged units. Numeral shows number of units in assembly.  
 U—Supplied without protective screening, terminal enclosure, input cord, output receptacle, fuse or switch.  
 \*Add type number prefix for full range travel motor speed desired —126-226 Series: 6MB for 5 sec.; 15MB for 15 sec.; 30 MB for 30 sec.; 60MB for 60 sec. (For example, 15MB226-3), 136-236 Series: 5MC for 5 sec.; 15MC for 15 sec.; 30MC for 30 sec.; 60MC for 60 sec. (For example, 15MC136), 21, 116, 117, 216, 217 and 1156D and 1256D Series: 5M for 5 sec.; 15M for 15 sec.; 30M for 30 sec.; 60M for 60 sec. (For example, 15M1156D-2S).  
 †Not available in 5 second speed.  
 †† Requires also choke type 15000 at \$14.00 additional.  
 ††† If the maximum output voltage is limited to the input voltage, the frequency range is 50-60 cycles.  
 †Unit supplied with terminals for limiting output voltage to line voltage if desired. Other units must be ordered "L" connected.  
 †Also has terminals for operating at 1/2 this input voltage.  
 †Also available as 2TF, 3PF, 3TF and 3PN types.

### THREE PHASE

10B-2	120	60**	0-132	1.75	.40	\$ 28.00	.....
21-2	120	50/60	0-140	3.75	.91	41.00	\$ 129.00
116U-2	120	50/60	0-140	7.5	1.8	59.00	153.00
116T-2	120	50/60	0-140	7.5	1.8	61.00	154.00
117T-2	120	60	0-120	10.0	2.7	79.00	195.00
126U-2	120	50/60	0-140	12.5	3.0	88.00	209.00
126-2	120	50/60	0-140	12.5	3.0	95.00	226.00
136-2	120	50/60	0-140	20.0	4.8	129.00	266.00
1156D-2D	120	50/60	0-140	45.0	10.9	287.00	425.00
1156D-4D	120	50/60	0-140	90.0	21.8	657.00	794.00
1156D-6D	120	50/60	0-140	135.0	32.7	1117.00	1254.00
10B-3	240	60	0-240	1.75	.73	44.00	.....
21-3	240	60**	0-280	3.75	1.8	65.00	153.00
216U-2	240†	50/60	0-280	3.0	1.5	54.00	142.00
216T-2	240†	50/60	0-280	3.0	1.5	64.00	157.00
217T-2	240	60	0-240	4.0	2.6	66.00	160.00
226U-2	240†	50/60	0-280	6.0	2.9	79.00	195.00
226-2	240†	50/60	0-280	6.0	2.9	88.00	209.00
116U-3	240	60**	0-280	7.5	3.6	68.00	156.00
116T-3	240	60**	0-280	7.5	3.6	85.00	178.00
236-2	240†	50/60	0-280	9.0	4.4	129.00	266.00
117U-3	240	60	0-240	10.0	5.4	86.00	180.00
126U-3	240	60**	0-280	12.5	6.1	116.00	231.00
126-3	240	60**	0-280	12.5	6.1	129.00	250.00
136-3	240	60**	0-280	20.0	9.7	187.00	325.00
1256D-2D	240†	50/60	0-280	28.0	13.6	287.00	425.00
1156D-3Y	240	60**	0-280	45.0	21.8	433.00	571.00
1256D-4D	240†	50/60	0-280	56.0	27.2	657.00	794.00
1256D-6D	240†	50/60	0-280	84.0	40.7	1117.00	1254.00
1156D-6Y	240	60**	0-280	90.0	43.6	1090.00	1228.00
216U-3	480†	60**	0-560	3.0	2.9	76.00	164.00
216T-3	480†	60**	0-560	3.0	2.9	91.00	185.00
217T-3	480	60	0-480	4.0	5.2	95.00	188.00
226U-3	480†	60**	0-560	6.0	5.8	116.00	231.00
226-3	480†	60**	0-560	6.0	5.8	129.00	250.00
236-3	480†	60**	0-560	9.0	8.7	187.00	325.00
1256D-3Y	480†	60**	0-560	28.0	27.2	433.00	571.00
1256D-6Y	480†	60**	0-560	56.0	54.3	1090.00	1228.00

### METERED KNOB POWERSTATS®

All manually-operated, enclosed single types in the 116-216, 117-217, 126-226 and 136-236 Series (with or without cord-plugs) listed in adjacent table are available with metered knobs.  
 When ordering, prefix type number with letter "V" and add \$28.00 to listed manual price. Conversion kits at \$30.00 each are also available to modify currently cataloged types not having metered knobs.



Type V3PN126





# Superior Electric Components

## POWERSTAT DC MOTOR SPEED CONTROLLERS



Provide continuously adjustable speed control of DC shunt-wound or series motors from AC power lines. Gives full rated torque at any speed; instant start, stop and reverse. Dynamic braking. Ideal for smooth control of conveyor systems; fast, high-torque starting for heavy loads; adjustable speed with full torque for grinders, drill presses and machine tools. Motor does not have to be derated for rectifier operation due to choke in armature circuit to reduce AC ripple. For continuous slow speed operation, maximum torque may have to be reduced because of insufficient motor rotational cooling. No electron tubes are used. Ruggedly constructed for a long, maintenance-free life. With main input fuse plus separate fuse protection in the DC field output circuit. (but not in the field circuit). **AC Input:** 110-125 V (120 V nominal). **DC Field Output:** 0.5 amp, 120 V. **Motors:** Most DC motors within the controller ratings may be used. Two stocked types are listed here for convenience.

fuse plus separate fuse protection in the DC field output circuit. (but not in the field circuit). **AC Input:** 110-125 V (120 V nominal). **DC Field Output:** 0.5 amp, 120 V. **Motors:** Most DC motors within the controller ratings may be used. Two stocked types are listed here for convenience.

### SPEED CONTROLLERS

Superior Type	For Motor	DC Arm. Output	Size, In.	Price Each
		Volts	H. x W. x D.	
MSC16	1/2 hp	0-120	8 1/2 x 6 x 2 13/16	\$110.00
MSC33	3/4 hp	0-120	11 x 8 3/4 x 4 1/4	155.00

### DC MOTORS

Superior Type	HP	RPM	NEMA Frame	Construction	For Controller	Price Each
MDC16-1	1/2	1725	56	Open	MSC16	\$61.00
MDC33-1	3/4	1725	56	Open	MSC33	71.00

## FLEXIFORMER® PACKAGED TRANSFORMER PRIMARY TYPES TP150 AND TP1000

Self-contained toroidal primary coil encased in high-impact plastic case and equipped with Superior Five-Way® binding posts for rapid connections. Can be used as a multiple source of AC voltages, or as a current transformer. Used as an AC voltage source, the correct number of secondary winding turns needed to obtain the desired output voltage are threaded through the center opening. A handy reference chart, supplied, gives easy-to-follow winding information for the most frequently used ratings. Used as a current transformer, the Flexiformer winding is shunted by an ammeter which indicates the current flow in a conductor that is passed through the center opening. Flexiformers may be used to test the current-carrying capacity of contacts, connectors, relays, circuit breakers, fuses and other devices. Input rating, 120 volts, 50/60 cps single phase for both types. Output rating, 150 VA for type TP150; 1000 VA for type TP1000. Either unit may be used as a portable or may be fastened in place. **Superior Type TP150 Flexiformer—Net Each \$25.00**  
**Superior Type TP1000 Flexiformer—Net Each \$75.00**



## DOUBLE ASSEMBLY SUPERIOR FIVE-WAY® BINDING POSTS

For use on instrument and equipment panels requiring binding posts that mount on 3/4" centers. Rugged, self-contained assemblies; more accurate, faster and simpler usage than two individual binding posts. Fixed-panel-insulator of low-loss Lexan® plastic molded over brass cores frozen to shafts. Shoulders are raised for firm seating in mounting holes. Sliding panel mounting insulator of Lexan® plastic molded over brass cores; seats securely in mounting holes. All brass parts are gold plated. Rated for current carrying capacity of 30 amps, 1000 V working. Mount in any panel 1/4"-3/4" thk. High impact strength from -100° F to +275° F; ductility rather than brittleness under impact. Available in three color code combinations. Specify: Black and White, suffix BWTC; Black and Black, suffix BBC; Black and Red, suffix BRC. **Superior Type DF30-2—85¢**  
Net Each.....  
\*GE trademark



## DUB-L-PLUG DUAL CONNECTORS

Multi-purpose Dub-L-Plug dual connectors provide quick, safe connections to binding posts mounted on 3/4" in. centers. Feature gold plated metal conducting parts, color-coded captive thumbnuts, protectively recessed twin banana plugs. **Shielded/Insulated:** Die-cast chrome plated metal case and internal grounding banana plug, can be removed for use on 2-wire ungrounded circuits or with 2-conductor shielded cable. Shielded cable can be grounded to case with nylon cord-locking screw. **Insulated/Unshielded:** Nylon plastic bodies, available in red, white, blue, black, yellow or green. Provision for wiring connection by stud hole clamping, looping and clamping, or by spade lug, clip-lead or banana plug. Wiring slots permit stacking. **Superior Type SPGK2BC—Shielded/insulated; \$4.50**  
**Superior Type IPG2—Insulated, Net Each \$2.50**  
\*Add suffix for color desired: BC, black; YC, yellow; RC, red; BLC, blue; GNC, green; WTC, white (e.g., IPG2RC is red).



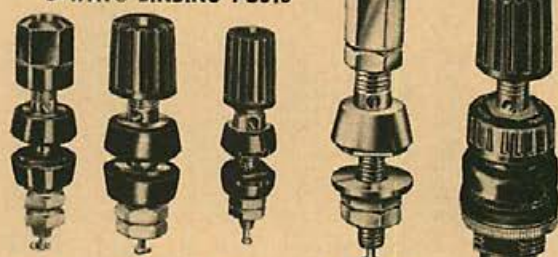
## FIVE-WAY® BINDING POSTS

### DUAL ADAPTER

Designed to facilitate line voltage connections from output receptacles to binding posts. Ideally suited for applications using Dub-L-Plug dual connectors and other connectors designed for mating with binding posts on 3/4" centers. Durable, black plastic body has fluted design for positive grip. Captive thumbnuts are color coded for circuit and polarity identification. Current carrying parts are finely machined brass with gold plating for stable electrical contact and resistance to corrosion. Rated for 125 volts, 15 amps. **Superior Type DAP15BWC—Net Ea. \$1.50**



### 5-WAY® BINDING POSTS



Design permits connection by (1) standard banana plug; (2) clip-lead to shaft; (3) wire looped around the shaft and clamped; (4) wire permanently clamped through center hole; (5) clamped spade lug connection. Binding posts can be mounted and securely locked in any panel from 1/4" to 1/2" thick. Adapter spacers are available for mounting in thinner panels. Current carrying parts of hex nut, fluted nut, miniature and fused types are of gold plated brass. Types with nickel-plated brass parts are available on special order. All metal grounding type binding post is made of finely-machined brass nickel-plated and polished. When ordering hex nut, fluted nut or miniature types, specify color by suffix: BC—black; YC—yellow; RC—red; BLC—blue; GNC—green; or WTC—white.

**Superior Type DF30 Hex Nut—Rated 30 amps, 1000 V working.** Durable, nylon plastic insulating parts meet MIL-M-20693A, Type IV. Net Each..... **40¢**

**Superior Type DF31 Fluted Nut—Insulating parts of Lexan® polycarbonate resin have low loss and power factor; high voltage insulation and impact strength. Rated 30 amps, 1000 V working.** Net Each..... **40¢**  
\*GE trademark.

**Superior Type DF21 Miniature—Smaller in size. Ideal for use on electrical and electronic apparatus where space is limited.** Plastic parts meet MIL-M-20693A, Type IV. Rated 15 amps, 1000 V working. Available in fluted nut design only. Net Each..... **40¢**

**Superior Type GP30NC Grounding—Designed for making rapid connections to ground. Functional design complements other hex nut Superior Five-Way® Binding Posts. Complete with washer and twin 10-32 hex nut. All metal construction.** Net Each..... **40¢**

**Superior Type FP15GBC Fused—Integral fuseloider accepts standard type 3AG fuse replaceable from front of panel. Rated 250 V, 15 amps max. Standard black; colors on special order. Net Each..... \$1.50**

## SUPERCON® ELECTRICAL CONNECTORS

These socket and pin types of plugs and receptacles incorporate many new features. Wiring connections can be soldered or solderless. Two cable fastening screws permit accommodation of a wide range of cable sizes for many needs. Current carrying parts are of gold plated brass for stable electrical contact and resistance to corrosion. Molded plastic parts offer high dielectric strength, durability, color stability, self-locking action, resistance to heat and corrosion. Plug grips of two-piece threaded construction for quick assembly. Receptacles have color-matching caps and bodies for circuit identification in front and back of panel. Plug and receptacles available in red, white, blue, yellow, black or green (see footnote below). Available in 25, 50, 100 and 250 amp ratings.



### SOCKET RECEPTACLES

S. E. No.	Amp	Net Each	S. E. No.	Amp	Net Each
RS25G*	25	\$1.75	PS25G*	25	\$1.30
RS50G*	50	2.50	PS50G*	50	2.00
RS100G*	100	3.00	PS100G*	100	2.50
RS250G*	250	5.50	PS250G*	250	3.65

### PIN RECEPTACLES

S. E. No.	Amp	Net Each	S. E. No.	Amp	Net Each
RP25G*	25	\$1.75	PP25G*	25	\$1.30
RP50G*	50	2.50	PP50G*	50	2.00
RP100G*	100	3.00	PP100G*	100	2.50
RP250G*	250	5.50	PP250G*	250	3.65

\*Add suffix to indicate color desired: B, black; Y, yellow; R, red; BL, blue; GN, green; WT, white (e.g., RS50GB is black).





# Superior

# REGULATORS, CONTROL, TEMPERATURE COUPLER

## STABILINE® AUTOMATIC VOLTAGE REGULATORS

Maintain a constant output voltage regardless of line or load changes. Several series are available for requirements from 0.25 to 480 KVA. A complete line of Stabilines® for use on frequencies of 400 cycles and higher also available. Bulletins giving complete data on all series are available on request.

**ELECTRO-MECHANICAL TRANSISTORIZED SERIES**  
**TYPE EMT**—Ideal for industrial loads up to 100 KVA and where zero waveform distortion is required. Consists of motor driven "Powerstat" variable transformer, detector circuit and auxiliary transformer. The control circuit is completely transistorized. Requires no critical adjustments and operating sensitivity may be adjusted to within ±1%. All EMT types are designed for 50/60 cycle AC service, except as noted.

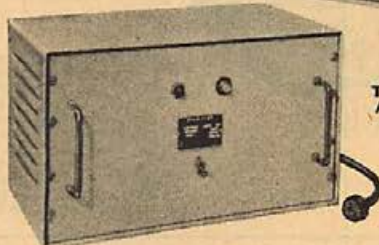
**INSTANTANEOUS ELECTRONIC SERIES**  
**TYPE IE**—Completely electronic without moving parts. Provides complete correction in 3 to 10 cycles in smaller units and in 10 to 20 cycles in larger units. Holds output voltage to within ±0.1% of nominal for wide line variations and within ±0.15% of nominal for any load current changes or load power factor changes from .5 lagging to unity. Waveform distortion is generally under 2%, never exceeds 3%. For single phase operation only.

**INSTANTANEOUS TRANSISTORIZED SERIES**  
**TYPE IET**—Feature a transistorized circuit. Output voltage remains with a 0.5-volt bandwidth for any and all variations in line voltage, load current and load power factor (0.25-volt bandwidth for input voltage changes only; 0.25-volt bandwidth for load current and power factor changes from lagging 0.5 to unity). For 60-cycle operation.

TYPE EMT4102



TYPES IE5101 AND IET5101



Superior Number	Nom'l Output Voltage	Cycles AC	Input Voltage Range	Output Voltage Range	Max. Output Amps	Rated Output KVA	Correction Rate: Sec./Volt	Approx. Wt., Pounds		Superior Number	Price Each
								Net	Shpg.		
EMT4102*	115	50/60	95-135	110-120	17.5	2.0	.075	79	90	EMT4102*	\$ 475.00
EMT4106B*	115	50/60	95-135	110-120	52.0	6.0	.075	114	133	EMT4106B*	550.00
EMT4112B*†	115	50/60	105-125	110-120	104.0	12.0	.15	114	133	EMT4112B*†	550.00
EMT4115	115	50/60	95-135	110-120	130.0	15.0	.125	250	300	EMT4115	700.00
EMT4104J	120	60	228-256	220-240	35.0	8.4	.10	45	60	EMT4104J	550.00
EMT4104UJ	120	60	228-256	220-240	35.0	8.4	.10	37	54	EMT4104UJ	445.00
EMT4104UT	120	60	228-256	220-240	35.0	8.4	.10	40	56	EMT4104UT	475.00
EMT4207	230	50/60	195-255	220-240	32.5	7.5	.083	150	200	EMT4207	600.00
EMT4228B	230	50/60	205-250	220-240	120.0	27.5	.111	288	350	EMT4228B	750.00
EMT4407	460	50/60	400-520	440-480	15.0	6.6	.041	165	175	EMT4407	715.00
EMT4418	460	50/60	400-520	440-480	40.0	17.6	.041	260	270	EMT4418	800.00
EMT6210Y†	230	50/60	195-255	220-240	25.0	10.0	.083	385	480	EMT6210Y†	1055.00
EMT6215Y†	230	50/60	195-255	220-240	38.0	15.0	.083	385	480	EMT6215Y†	1100.00
EMT6220Y†	230	50/60	195-255	220-240	50.0	20.0	.083	385	480	EMT6220Y†	1200.00
EMT6245Y†	230	50/60	195-255	220-240	113.0	45.0	.25	847	975	EMT6245Y†	1620.00
EMT6270D†	230	50/60	195-255	220-240	175.0	70.0	.23	800	928	EMT6270D†	2000.00
EMT6412Y†	460	50/60	400-520	440-480	16.0	12.5	.041	363	438	EMT6412Y†	1140.00
EMT6417Y†	460	50/60	400-520	440-480	22.0	17.5	.041	391	466	EMT6417Y†	1225.00
EMT6425Y†	460	50/60	400-520	440-480	33.0	25.0	.041	409	490	EMT6425Y†	1245.00
EMT6450Y†	460	50/60	400-520	440-480	66.0	50.0	.125	770	966	EMT6450Y†	1765.00
EMT6475Y†	460	50/60	400-520	440-480	100.0	75.0	.125	825	955	EMT6475Y†	1900.00
EMT64100Y†	460	50/60	420-500	440-480	131.0	100.0	.188	840	968	EMT64100Y†	2000.00
IE51002*	115	60 ± 10%	95-135	110-120	2.2	0.25	.....	44	49	IE51002*	345.00
IE51005*	115	60 ± 10%	95-135	110-120	4.5	0.5	.....	56	60	IE51005*	370.00
IE5101*	115	60 ± 10%	95-135	110-120	8.5	1.0	.....	80	92	IE5101*	430.00
IE5102*	115	60 ± 10%	95-135	110-120	22.0	2.5	.....	156	188	IE5102*	660.00
IE5105*	115	60 ± 10%	95-135	110-120	43.5	5.0	.....	234	284	IE5105*	725.00
IE5110	115	60 ± 10%	95-135	110-120	87.0	10.0	.....	484	610	IE5110	1640.00
IE52002*	230	60 ± 10%	195-255	220-240	1.1	0.25	.....	45	48	IE52002*	345.00
IE52005*	230	60 ± 10%	195-255	220-240	2.2	0.5	.....	56	60	IE52005*	370.00
IE5201*	230	60 ± 10%	195-255	220-240	4.5	1.0	.....	77	87	IE5201*	430.00
IE5202*	230	60 ± 10%	195-255	220-240	11.0	2.5	.....	139	172	IE5202*	625.00
IE5205*	230	60 ± 10%	195-255	220-240	22.0	5.0	.....	232	284	IE5205*	725.00
IE5210	230	60 ± 10%	195-255	220-240	43.5	10.0	.....	479	605	IE5210	1640.00
IEL51005*	115	50 ± 10%	95-135	110-120	4.5	0.5	.....	88	100	IEL51005*	450.00
IEL5101*	115	50 ± 10%	95-135	110-120	8.5	1.0	.....	88	100	IEL5101*	485.00
IEL5105*	115	50 ± 10%	95-135	110-120	43.5	5.0	.....	240	290	IEL5105*	760.00
IEL52005*	230	50 ± 10%	195-255	220-240	2.2	0.5	.....	88	100	IEL52005*	450.00
IEL5201*	230	50 ± 10%	195-255	220-240	4.5	1.0	.....	88	100	IEL5201*	485.00
IEL5202*	230	50 ± 10%	195-255	220-240	11.0	2.5	.....	153	190	IEL5202*	665.00
IEL5205*	230	50 ± 10%	195-255	220-240	22.0	5.0	.....	240	290	IEL5205*	765.00
IET51002*	115	60 ± 5%	95-135	110-120	2.2	0.25	.....	44	49	IET51002*	410.00
IET51005*	115	60 ± 5%	95-135	110-120	4.5	0.5	.....	56	60	IET51005*	430.00
IET5101*	115	60 ± 5%	95-135	110-120	8.5	1.0	.....	80	92	IET5101*	510.00

\*Also available as rack models (suffix R when ordering). †Three-phase types; all others are single-phase. ‡Can also be operated on an input range of 95 to 135 V with a rating of 62.0 amps, 6.0 KVA and a correction of .075 second per volt. ‡60 cycles only.

## STABILTEMP PROPORTIONING TEMPERATURE COUPLER

Automatically maintains voltage required to keep electric furnaces and ovens at correct temperature when used with control systems employing commercial type current-proportioning temperature controllers. Designed for use with motor-driven Powerstat variable transformers rated 120 or 240 V, 50/60 cps single-phase. For 3-phase operation, unit can be used to monitor one line-to-neutral or one line-to-line voltage, depending on Powerstat used. For desired temperature, voltage is regulated at any point within the range of the Powerstat as determined by the controller current command signal regardless of line voltage or load variations. **Command Signal:** 5 mA, max. Shunting resistors must be provided by user for 20 or 50 mA command signals. Size: 11" h. x 6" w. x 7" d., overall. Mounting centers 4 1/4" x 10 1/4" maximum.

Superior Type PTC5 Proportioning Temperature Coupler—Price Each.....\$225.00

## STABILINE® FULL-RANGE REGULATOR CONTROLLER

Designed for use with motor-driven Powerstat variable transformers to maintain constant output voltage. Adjustable to any value within the full range of the Powerstat used. Regulates output from any motor-driven Powerstat rated 120 or 240 volts, 50/60 cps, single-phase. Dependant on Powerstat used, unit may be used for 3-phase applications maintaining one line-to-neutral or one line-to-line voltage. Can also be used in 480 volts, 50/60 cps, 3-phase, but an auxiliary step-down transformer is required for sensing line-to-line voltage. Voltage output remains within 4-volt band when used with 240 V types. Voltmeter on front panel monitors Powerstat output in 0-300 volt range. Other controls include voltage adjust, on-off switch, pilot indicating when unit is energized, motor damping control and three fuses. Size: 11" h. x 6" w. x 7" d., overall. Mtg. centers 4 1/4" x 10 1/4" maximum.

Superior Type FR500MP Regulator Controller—Price Each.....\$195.00



PTC5 Coupler



FR500MP Controller



FULL DUTY INVERTER POWERCON POWER SUPPLIES

SQUARE WAVE INVERTERS

Famous, heavy-duty Powercon DC to AC square wave inverters are efficient vibrator-type units recommended for many applications: Operate AC appliances from automobile, aircraft, marine or any other DC power source. AC output is 110 V, 60 cycle, square wave. Output stability is maintained under various loads due to built-in capacity and conservative rating. Intermittent overloads of high ratings will not damage the inverter. Intermittent ratings, below, are for loads with 70% to 100% power factor. Superior filtering and solid mechanical design assures "hash"-free output; eliminates interference for TV, short-wave and FM reception. Ideal applications include stand-by power, night-light operation, spotlights, paging systems, intercoms, radios, television, record players, tape recorders, hair dryers, shavers, blenders, etc. Also operate other AC devices well, within ratings listed.

SINE WAVE INVERTERS

Redesigned "big brother" to famous Powercon square wave inverters and engineered for years of dependable power. Attractive case for portable or permanent mounting on trunk, deck, etc. with accessory kits available. Sine wave units are designated by letters SW in number (i.e., 12ESW25) and have added reactor and capacitors to form true sine wave power indistinguishable from commercial power. Fully regulated, the output voltage is controlled between 110 and 120 VAC with 15% input variation. Regulation is automatic for heavy or light loads. Assure best performance for all delicate electronic equipment such as test equipment, recording instruments, music systems, amateur and commercial radio, or TV equipment. Background hum level is very low. Inductive loads as low as 25% will operate without power factor correction, though wattage rating of the inverter may not be exceeded nor may inrush VA exceed the intermittent ratings.



12TV12

CDE Model	Typical Applications	Output Watts		Replacement Vibrator	Size, Inches W. x D. x H.	Shpg. Wt., Lbs. Approx.	Net Each
		Input VDC	Contin-uous				
12SP2A†	Electric shavers—intermittent duty only	12	None	20	None	2	\$ 8.79
12A4†	Test gear, small dictating machines, shavers, phonos	12	40	50	6567	6	18.84
12A6†	CB gear, larger dictating machines, small amplifiers	12	60	75	6567	12	32.13
12B8	Smallest portable TV, tape recorders, stereo amplifiers	12	80	100	6565	12	33.56
12B10	Office machines, calculators, typewriters and adders	12	100	125	12VB6H	14	42.79
12DSW10	Sine-wave type for utility-type power; any PF load	12	100	125	12VB6H	22	73.99
12TV12	Special for portable TV; also radios and phonos	12	120	140	12VB6H	16	34.57
12D15	Small induction soldering guns and all office machines	12	150	175	12VD6H	26	64.70
12D22	Multi-use; ideal for camp trailer, small tools, CB, TV	12	220	250	12VD6H	31	80.99
12ESW25	Sine-wave type for SSB, large PA systems, 100 W amplifiers	12	250	300	12VD6H	31	103.13
28D15	Aircraft, marine, trucks, etc. using 24 VDC	28	150	175	28VB6H	26	78.99
110B10	Input 110 VDC; for emergency power for AC use from commercial DC sources; used in apartments, larger boats	110	100	150	110VB6H	11	38.84
110B15	and merchant vessels. No. 110F40 is the largest model and is dual RFI filtered	110	150	200	110VB6H	13	51.07
110D25		110	250	325	110VB6H	26	61.21
110F40		110	400	600	110VC6H	49	107.07

†Small units in drawn case; supplied with cigarette lighter plug and lead; outlet receptacle on top.

ACCESSORY KITS FOR ABOVE POWERCON INVERTERS

Designed for use with above Powercons for maximum flexibility in mounting and control.

**Remote Control Kit:** Consist of under-dash or post-mounting control head with switch, pilot light and AC outlet. Uses 4-wire cable from control socket.

**Fuse Kits:** Give maximum protection to power supply. Hot cable fuse block for 2" cartridge fuse to be used with short, heavy cable in

remote installations. Last two digits of type number (i.e., FK-220) indicate ampere rating of fuse.

**Mounting Kits:** Heavy, flange plate for bulkhead or floor mounting. Comes with hardware and full instructions.

**Lead Kits:** Two cables with heavy lugs to fit under the battery clamp screw or starter solenoid. Last two digits of type number (i.e., LK-1016) indicate cable length; digit(s) designate gauge of cable (i.e., LK-1016).

For Powercon Model	Mounting Kits		Lead Kits		Remote Control Kit		Fuse Kits	
	CDE Model	Net Each	CDE Model	Net Each	CDE Model	Net Each	CDE Model	Net Each
12A4	None	.....	LK-1016	\$3.93	RK-112	\$7.07	FK-220	\$2.29
12A6	None	.....	LK-1016	3.93	RK-112	7.07	FK-220	2.29
12B8	MK-3544-4	\$3.57	LK-1016	3.93	RK-112	7.07	FK-220	2.29
12B10	MK-3544-4	3.57	LK-816	5.00	RK-112	7.07	FK-220	2.29
12D15	MK-3544-5	3.86	LK-816	5.00	RK-112	7.07	FK-240	2.66
12D22	MK-3544-5	3.86	LK-616	7.86	RK-112	7.07	FK-240	2.66
28D15	MK-3544-5	3.86	LK-1016	3.93	RK-112	7.07	FK-220	2.29
12TV12	MK-3544-4	3.57	LK-816	5.00	RK-112	7.07	FK-220	2.29
12DSW10	MK-3544-5	3.86	LK-816	5.00	RK-112	7.07	FK-220	2.29
12ESW25	MK-3544-5	3.86	LK-616	7.86	RK-112	7.07	FK-250	2.66

PORTAPOWER PORTABLE INVERTER/CHARGERS

Combination inverter and battery charger available with or without battery-carrying case. Charger replaces DC power used by inverter. Used as inverter, provides up to 140 watts continuous (170 watts intermittent) at 115 VAC, 60 cycle square-wave from 12-volt battery. Fully charged battery will play a portable TV up to 6 hours; record player or radio up to 12 hours. Battery may be recharged at rate desired: High, medium or low by combination output and charge selector switch.

**CDE Model 12PP14 Portable Inverter/Charger**—Consists of 12SC14 unit mounted in convenient carrying case with space for battery (all popular sizes); charging cord and battery wires included. Ideal for campsite, beach, fishing trips, etc., where AC power is not available. Size, 14" w. x 10" d. x 9 1/2" h. \$74.21 overall. Shpg. Wt., less battery, 24 lbs. Net Each.....

**CDE Model 12SC14 Inverter/Charger**—Basic power unit with heavy-duty inverter combined with rapid-charging circuit. Designed for portable, mobile or marine operation or radios, transmitters, recorders, television, etc. Size, 11" w. x 15 1/2" d. x 5 3/4" h. Shpg. Wt., 19 lbs. Net Each..... \$65.64

**CDE Model AK-127 Accessory Kit**—Includes carrying case and lead kit to convert 12SC14 into 12PP14 portable. Net.. \$10.71

**CDE Model LK-1016 Lead Kit**—Includes two 16-ft. #10 leads for use with 12SC14 when not in case. Net Each..... \$3.93



12PP14



12SC14



## CHARGERS, INVERTERS AND VOLTAGE ADJUSTERS

CHANGES BATTERY CURRENT TO 110 VAC, 60 CYCLE,  $\pm 1$  CYCLE, REGARDLESS OF LOAD

### INVERTER-BATTERY CHARGER TRAV-ELECTRIC



Operates anything using 117 VAC, 60 cps from 25 amps rechargeable wet storage battery enclosed. Capacity, 175 watts; 125 watts continuous. Frequency stable within  $\frac{1}{2}$  cps with load change. Plugs into AC outlet or car cigarette lighter to recharge battery. Charger has automatic over-charge protection.

Meter shows charge rate and hours of anticipated output. Size: 12" x 5 $\frac{1}{2}$ " x 8". Wt.: Net, 30 lbs. Including battery: shpg., 36 lbs.  
Terado No. 50-160—Net Each. . . . . \$55.12

### INVERTERS

#### DUAL CONTINENTAL

Transistorized, 600 watts

Converts 12 VDC to 110 V, 60 cycle, 550 to 600 watts. Filtered for tape recorders. Frequency stable within  $\frac{1}{2}$  cycle with changing input voltage load. Includes battery cables, remote control, variable AC output. Size: 10 $\frac{3}{4}$ " w. x 13" d. x 6" h. Shpg. Wt., 60 lbs. \$302.38\*  
Terado No. 50-202—Net Each. . . . .

#### CONTINENTAL

Transistorized, 300 watts

Same as DUAL CONTINENTAL except: 275-300 watts capacity. Size: 10 $\frac{3}{4}$ " w. x 6" d. x 6" h. Shpg. Wt., 30 lbs. \$150.26\*  
Terado No. 50-191—Net Each. . . . .

#### ATLAS

Transistorized, 200 watts

Same as DUAL CONTINENTAL except: 175-200 watts capacity. Size: 10 $\frac{3}{4}$ " w. x 6" d. x 6" h. Shpg. Wt., 21 lbs. \$112.47\*  
Terado No. 50-200—Net Each. . . . .

#### TITAN

Transistorized, 175 watts

Same as DUAL CONTINENTAL except: less remote control; 150-175 watts capacity; on-off switch; AC receptacle. Size: 10 $\frac{3}{4}$ " w. x 6" d. x 6" h. Shpg. Wt., 20 lbs. \$98.72\*  
Terado No. 50-201—Net Each. . . . .

#### SUPREME

Non-transistorized. Converts 12 VDC to AC. Power output, 175-200 W, filtered. Remote control has variable AC output switch and signal light. Size: 10 $\frac{3}{4}$ " w. x 6" d. x 6" h. Shpg. Wt., 25 lbs. \$83.17\*  
Terado No. 50-153—Net Each. . . . .

#### RECORDER

150-175 watt version of SUPREME, less remote control. Plugs into cigarette lighter. Size: 10 $\frac{3}{4}$ " w. x 6" d. x 6" h. Shpg. Wt., 21 lbs. \$75.27\*  
Terado No. 50-175—Net Each. . . . .

#### AUTOMATIC

Operates automatically from 6 or 12 VDC without vibrator change or switching (6 V, 55-75 watts; 12 V, 85-110 watts). Easy installation into cigarette lighter. For dictation machines, radios, tape recorders, phonographs, heating pads, etc. Steel case. Seal brown baked enamel. Size: 3 $\frac{1}{2}$ " w. x 6 $\frac{1}{2}$ " d. x 4" h. Shpg. Wt., 8 lbs. \$43.83\*  
Terado No. 50-134—Net Each. . . . .

#### SUPER

Single input version of AUTOMATIC above. Size: 3 $\frac{1}{2}$ " w. x 6 $\frac{1}{2}$ " d. x 4" h. Shpg. Wt., 8 lbs. \$37.79\*  
Terado No. 50-126—Input, 6 V; AC power output, 60-75 watts. Net Each. \$37.79\*  
Terado No. 50-127—Input, 12 V; AC power output, 75-100 watts. Net Each. . . . .

#### MASTER

Voltage input, 12 V; AC power output, 60-75 watts. Size: 3 $\frac{1}{2}$ " w. x 6 $\frac{1}{2}$ " d. x 4" h. Shpg. Wt., 8 lbs. \$31.39\*  
Terado No. 50-122—Net Each. . . . .

#### CHIEF

Operates tape recorders, power tools, dictation machines, mixers, blenders, etc. Front AC receptacle connects direct to battery. Toggle switch output control. Ventilated steel case. Size: 3 $\frac{1}{2}$ " w. x 6 $\frac{1}{2}$ " d. x 4" h. Shpg. Wt., 8 lbs. \$52.91\*  
Terado No. 50-137—Input, 6 V; AC power output, 75-100 watts. Net Each. \$52.91\*  
Terado No. 50-138—Input, 12 V; AC power output, 100-125 watts. Net Each. . . . .

#### ELECTRAL

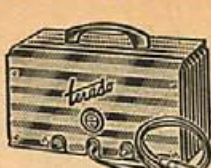
Glove compartment size inverter, available in 12 volt input. Easy installation into cigarette lighter. Vinyl coated steel case with leatherette appearance. Size: 3" w. x 2 $\frac{1}{2}$ " d. x 5 $\frac{1}{2}$ " h. Shipping Weight, 1 lb. \$20.39\*  
Terado No. 50-167—Voltage input, 12 V; AC power output, 42-52 watts. Net Each. . . . .

\*Price includes 8% automotive excise tax.



ATLAS TITAN

#### SUPREME, CONTINENTAL



RECORDER

#### SENIOR

Operates radios, lights, phonographs and small tape recorders. Available in 6 V or 12 V input. Simple to install into cigarette lighter. Aluminum case. Seal brown baked enamel. Size: 2 $\frac{1}{2}$ " w. x 4 $\frac{1}{2}$ " d. x 2 $\frac{1}{4}$ " h. Shipping Weight, 3 lbs. \$18.12\*  
Terado No. 50-115—Voltage input, 6 V; AC power output, 35-40 watts. Net Each. \$18.12\*  
Terado No. 50-116—Voltage input, 12 V; AC power output, 40-50 watts. Net Each. . . . .

#### DYNAMO

Permits operating AC radios and electric shavers on 12 VDC battery. Power output, 25-30 watts. Size: 2" x 2" x 3 $\frac{1}{4}$ ". Shpg. Wt., 2 lbs. \$9.77\*  
Terado No. 50-196—Net Each. . . . .

#### AUTO SHAVER

Operates all electric shavers. Available in 6 V (10-15 W) or 12 V (15-20 W) input. Plugs into cigarette lighter. Polyethylene non-breakable case. Size: 3 $\frac{1}{2}$ " w. x 2 $\frac{1}{4}$ " d. x 4 $\frac{1}{4}$ " h. Shipping Weight, 2 lbs. \$10.06\*  
Terado No. 50-102—6 V. Net Each. . . . . \$10.06\*  
Terado No. 50-103—12 V. Net Each. . . . .

#### GALAXY

Transistorized 12 VDC to 110 VAC, 140-175 watts filtered. Adjustable voltage and frequency. Ideal where frequency is not critical. Size: 10 $\frac{3}{4}$ " w. x 6" d. x 6" h. Shpg. Wt., 9 $\frac{1}{2}$  lbs. \$35.61\*  
Terado No. 50-205—Net Each. . . . .

#### TEMPEST

Transistorized 12 VDC to 110 VAC, 125-150 watts. Ideal where frequency is not important. Size: 10 $\frac{3}{4}$ " w. x 6" d. x 6" h. Shipping Weight, 9 $\frac{1}{2}$  lbs. \$32.37\*  
Terado No. 50-170—Net Each. . . . .

### BATTERY CHARGERS

#### DYN-A-MITE

Baked seal brown paint over aluminum case. Charge rate 1 amp, both 6 and 12 volts. Size: 1 $\frac{1}{2}$ " x 1 $\frac{1}{2}$ " x 3 $\frac{1}{4}$ ". Wt., 1 lb. \$5.90  
Terado No. 50-186—Net Each. . . . .

#### TINY GIANT

Copper clad steel case. Charge rate 1 $\frac{1}{2}$  amps, both 6 and 12 volts. Warning buzzer for improper connection. Size: 2 $\frac{1}{4}$ " x 3" x 5 $\frac{1}{2}$ ". Weight, 1 $\frac{1}{2}$  lbs. \$7.66  
Terado No. 50-185—Net Each. . . . .

#### LEADER

Copper clad steel case. Charge rate 1 $\frac{1}{2}$  amps, both 6 and 12 volts. Warning buzzer for improper connection. Size: 2 $\frac{1}{4}$ " x 3" x 5 $\frac{1}{2}$ ". Weight, 2 lbs. \$10.47  
Terado No. 50-187—Net Each. . . . .

#### CHAMPION

Copper clad steel case. Charge rate 4 amps, both 6 and 12 volts. Automatic circuit breaker protection. Size: 2 $\frac{1}{4}$ " x 3" x 5 $\frac{1}{2}$ ". Weight, 2 lbs. \$13.27  
Terado No. 50-188—Net Each. . . . .

#### HI-POWER

Copper clad steel case. Charge rate 5 amps, 12 volts only. Cigarette lighter plug-in. Charge indicator light shows condition of battery. Size: 2 $\frac{1}{4}$ " x 3" x 5 $\frac{1}{2}$ ". Weight, 3 lbs. \$13.97  
Terado No. 50-180—Net Each. . . . .

#### CHALLENGER

Brown baked enamel, ventilated steel case. Charge rate 6 amps, both 6 and 12 volts. Charge rate meter. Brackets for colling wire provided. Size: 4" x 5" x 6". Weight, 5 lbs. \$20.27  
Terado No. 50-189—Net Each. . . . .

#### SUPER CHARGER

Brown baked enamel, ventilated steel case. Charge rate 10 amps, both 6 and 12 volts. Color coded meter shows condition of battery and charge rate. Size: 4" x 5" x 6". Weight, 7 $\frac{1}{2}$  lbs. \$25.97  
Terado No. 50-181—Net Each. . . . .

### VOLTAGE ADJUSTERS

For TV, hi-fi and AC motorized equipment. Change high or low voltage over range of 95-135 V to normal. Input: 110 VAC line. Size: 5 $\frac{1}{4}$ " x 3" x 2 $\frac{1}{4}$ ". \$780 cont., 300 W int. Wt., 2 lbs. Net Each. \$780  
Terado No. 50-204 Polarix—Cap., 300 W cont., 500 W int. Wt., 3 lbs. Net Each. . . . . \$9.20  
Terado No. 50-172 Saturn—Same as Polarix, but with accurate AC voltmeter. Net Each. \$14.65



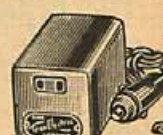
ELECTRAL



AUTOMATIC, SUPER, AND MASTER



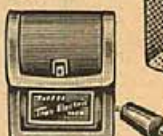
GALAXY, TEMPEST



SENIOR, DYNAMO



CHIEF



AUTOSHAFTER

### BATTERY CHARGERS



DYN-A-MITE



TINY GIANT, LEADER



HI-POWER



CHAMPION

PLANET, POLARIS



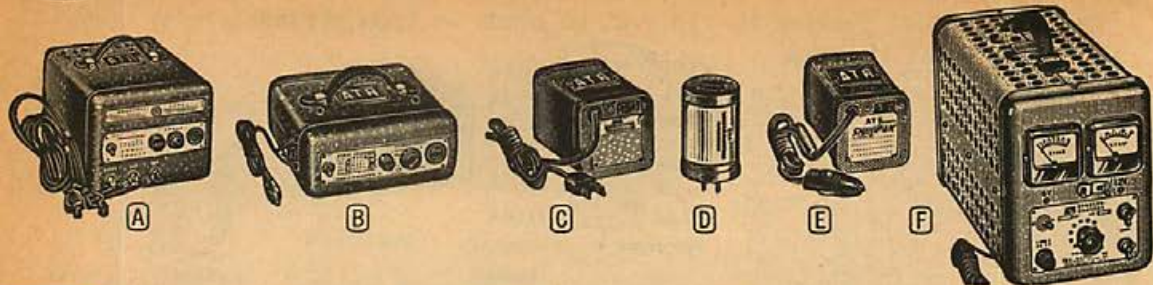
CHALLENGER, SUPER CHARGER



SATURN



# ATR<sup>®</sup> Inverters, Vibrators, etc.



## UNIVERSAL INVERTERS (FIG. A)

Specially designed for operating standard AC tape recorders, TV sets, dictating machines, radios, ham gear, PA amplifiers, phono's, some household appliances, etc., from DC voltages found in autos, trucks, planes, trains, etc. Long life, high efficiency and reliability. **Power Output:** 110 VAC, 60 cps. **Suffixes P and 1** indicate models equipped with cigarette lighter plug for dash receptacle. **RSF and ISP** types are standard models,  $8\frac{1}{2}'' \times 8\frac{1}{2}'' \times 9\frac{1}{2}''$  x  $5\frac{1}{2}''$ ; shpg. wt., 22 lbs. (17 lbs., ISP). **RHG and IHR** heavy duty,  $6\frac{3}{4}'' \times 11\frac{1}{4}'' \times 8\frac{1}{2}''$ ; shpg. wt., 27 lbs. (25 lbs., IHR). **HSJ** super heavy duty,  $6\frac{3}{4}'' \times 12\frac{1}{2}'' \times 8\frac{1}{2}''$ ; shpg. wt., 37 lbs.

ATR No.	Input DC Volts	Output Wattage		Net Each
		Int.	Cont.	
6U-RSF	6	100	80	\$ 55.00
6U-RSF-P	6	100	80	55.00
6U-RHG	6	150	125	73.00
6U-HSJ	6	175	150	91.50
12U-RSF	12	125	100	55.00
12U-RSF-P	12	125	100	55.00
12U-ISP-1	12	160	150	42.30
12U-RHG	12	175	150	73.00
12U-IHR-1	12	200	175	55.97
12U-HSJ	12	250	200	91.50
28U-RSF*	28	125	100	66.00
28U-RHG*	28	175	150	87.50
28U-HSJ*	28	250	200	103.50
32U-RSF	32	150	100	66.00
32U-RHG	32	200	180	77.50
32U-HSJ	32	325	225	103.50
50U-RSF	50	150	100	66.00
50U-RHG	50	225	200	87.50
110U-RSF	110	250	150	66.00
110U-RHG	110	325	250	66.00
110U-HSJ	110	450	350	77.50
220U-RSF	220	250	150	58.25
220U-RHG	220	325	250	73.00
220U-HSJ	220	500	300	103.50

\*Recommended for 24-volt systems.

## PORTABLE INVERTERS (FIG. B)

Lightweight plug-in units for operating AC lamps, dictating machines, record players, razors, test equipment and other small devices from DC sources. Not recommended for tape recorders. Units of 6 and 12 volt type equipped with cigarette lighter plug for dash receptacles; all others have standard line plug. **RME and RMF** types have 4-point voltage regulator; size  $8\frac{3}{4}'' \times 8'' \times 3\frac{3}{4}''$ ; shpg. wt., 12 lbs. **DME** units are  $5\frac{1}{4}'' \times 4\frac{3}{4}'' \times 2\frac{3}{4}''$ ; shpg. wt., 5 lbs. **Power Output:** 110 VAC, 60 cps.

ATR No.	Input DC Volts	Output Wattage		Net Each
		Int.	Cont.	
6-DME*	6	40	30	\$18.50
6C-DME*	6/12	40	30	21.25
6-RMF†	6	80	60	36.50
6C-RMF†	6/12	80	60	40.25
12-DME*	12	50	40	18.50
12C-DME-1*	12	50	40	16.75
12T-RME††	12	125	90	36.50
12T-RME-1†	12	140	120	29.18
28-RME†	28	100	80	46.50
32-RME†	32	100	80	46.50
110-RMF†	110	150	100	43.50
220-RME	220	150	100	46.50

Recommended for: \*Edison VP dictating machines; †Dietaphone's Time Master, Gray Autograph or similar; ††For ROA 8 $\frac{3}{4}$  portable TV or GE 9" TV sets in automobile. ‡Recommended for 24-volt battery systems. ††For popular 11-13" TV sets and small tape recorders; shpg. wt., 14 lbs. \*Not illustrated.

## ELECTRONIC TUBE PROTECTORS

Two handy models; protect all electronic tubes in TV, Hi-Fi, or similar equipment. Will double or triple tube life. Thermal cushion action eliminates damaging surge currents. For use with equipment having input wattage of 100 to 300 watts. Unit plugs into AC wall socket. Rugged metal case construction; automatic operation.

Input, 115 VAC. Output, 115 VAC, 1-3 amps.

**ATR Model 300 (Fig. C)**—With line cord and wall plug for additional flexibility. Size,  $4'' \times 2\frac{1}{2}'' \times 2\frac{1}{4}''$ . Shipping \$330

Weight, 2 lbs. Net Each... \$330  
**ATR Model 250 (Fig. D)**—Size,  $1\frac{1}{2}''$  dia. x  $3\frac{3}{4}''$  long. Plugs directly into wall socket. Shpg. Wt., 1 lb. Net Each... \$2.63

## SHAV-PAKS (FIG. E)

Miniature DC to AC inverters for operating standard AC electric shavers from 6 or 12 volt DC sources. Plugs in cigarette lighter receptacle. May be used for other AC devices requiring no more than 15 watts. Size,  $4'' \times 2\frac{1}{2}'' \times 2\frac{1}{4}''$ . Shipping Weight,  $2\frac{1}{2}$  lbs.

**ATR Model 6-SPB**—For 6 VDC sources. Net Each... \$8.63  
**ATR Model 12-SPB**—For 12 VDC sources. Net Each... \$8.63

## "A" BATTERY ELIMINATORS

(FIG. F)

For testing and operating auto radios and DC electrical apparatus on regular AC lines of 110 volts, 50-60 cps. Operate 6 or 12 VDC transistor or vibrator operated radios. Units may be connected in series for higher voltages or parallel for higher currents. Features: On-off switch, 8-position voltage control, minimum ripple, fully automatic operation, full-wave dry disc selenium rectifier for noiseless, interference-free operation and long life. Includes 6 ft. rubber cord set. May be used as battery charger.

**ATR Model 610C-ELIF**—Rated output 6 VDC at 10 amps and 12 VDC at 6 amps, continuous. Size,  $6\frac{1}{2}'' \times 9\frac{1}{2}'' \times 8\frac{1}{2}''$ . Shipping Weight, 22 lbs. Net Each... \$55.00

**ATR Model 620C-ELIT**—Rated output 6 VDC at 20 amps and 12 VDC at 10 amps, continuous. Size,  $6\frac{3}{4}'' \times 12\frac{1}{2}'' \times 8\frac{1}{2}''$ . Shipping Weight, 33 lbs. Net... \$73.50

## EMERGENCY LIGHTING AND POWER UNITS



Automatic standby power units for instantaneous, continued operation of lighting, PA systems, intercoms, alarms, clocks, emergency power equipment, etc. Thousands of uses in construction work, hospitals, offices, factories, schools, farms, homes, etc. Units are a combination of an ATR Inverter, automatic battery charger and transfer panel featuring RF frequency interference suppression, instant starting, frequency stability and built-in power

factor corrector. Assures long life with high efficiency and reliability. Uses heavy-duty, plug-in type inverter vibrators and 4-point voltage regulators. Recommended for use only with loads having power factor in excess of 70%. Power factor correction is required as low as 50%. The charger unit is fully automatic; maintains the storage battery at full charge with minimum gassing from regular 115 VAC, 60 cycle power line. If power line fails, the battery is automatically connected and the inverter supplies the power. All units are equipped with lamps operating directly from storage battery for maximum flexibility. Recommended for use with 100-amp/hour lead-acid auto storage battery or 50-100 amp/hour nickel-cadmium batteries. Units listed are complete with lamps. For units without lamps deduct \$14.67 from price; 5" from 16" size and 4 $\frac{1}{2}$  lbs. from shipping weight.

ATR No.	Bat. Inp. Volts	Output Watts*		Size, Inches	Shpg. Lbs.	Net Each
		Int.	Cont.			
661-ETM	6	80	60	11 $\frac{1}{2}$ x 16 x 15	29 $\frac{1}{2}$	\$113.00
662-ETS	6	100	80	11 $\frac{1}{2}$ x 16 x 16 $\frac{1}{4}$	36 $\frac{1}{2}$	131.67
663-ETH	6	150	125	11 $\frac{1}{2}$ x 16 x 18	42 $\frac{1}{2}$	149.67
1232-ETS	12	125	100	11 $\frac{1}{2}$ x 16 x 16 $\frac{1}{4}$	36 $\frac{1}{2}$	131.67
1233-ETH	12	175	150	11 $\frac{1}{2}$ x 16 x 18	42 $\frac{1}{2}$	149.67
1234-ETJ	12	250	200	12 $\frac{1}{2}$ x 16 x 19 $\frac{1}{4}$	50 $\frac{1}{2}$	168.34

\*At 110 VAC, 60 cps.

## PLUG-IN AUTO-HOME BATTERY CHARGERS

Plugs into cigarette lighter receptacle for easy motor starting; keeps car batteries fully charged in your own garage. Operates on standard 110 VAC current. Lightweight, rugged construction is built to last. In gray hammerhead metal case with own cord set.

**ATR Model 612CA4**—Four amps for 6 or 12 volts;  $5\frac{3}{4}'' \times 4\frac{1}{4}'' \times 2\frac{3}{4}''$ . Shpg. \$1948

Wt., 6 lbs. Net Each... \$1948  
**ATR Model 612CA6**—Six amps for 6 or 12 volts;  $8\frac{3}{4}'' \times 5\frac{3}{4}'' \times 3\frac{3}{4}''$ . Shpg. \$2248

Wt., 8 lbs. Net Each... \$2248  
**ATR Model 612CA10**—Ten amps, 6 or 12 volts;  $8\frac{3}{4}'' \times 5\frac{3}{4}'' \times 5\frac{3}{4}''$ . Shpg. Wt., 10 lbs. Net Each... \$2771



## AUTO RADIO VIBRATORS

Proven units of the highest quality; incorporate only the best workmanship and materials; manufactured under rigid engineering inspections and tests. Ceramic stack spacers for permanent adjustment under any operating conditions. Instant starting due to extra efficient magnetic circuit with formed base. Oversize tungsten contacts have full wiping action. Perforated reed is of the highest quality Swedish spring steel. Most parts are held to within a tolerance of 0.0005".

**ATR Model 1400 Vibrator**—Four-prong, 6-129 volt unit for all sets since 1954. Net Each... \$129

**ATR Model 1843 Vibrator**—Three-prong, 12-volt for all GM 12-volt radios since 1954. Also covers 1956 Ford, Lincoln, Mercury and Chrysler; 1955-57 Mercury. Net Each... \$136



**ATR Model 1840 Vibrator**—Four-prong, 12-volt for all 12-volt radios since 1954 except those covered by No. 1843 type. Net Each... \$136



# Carter Motor

# GENEMOTORS, DC-AC CONVERTERS FREQUENCY CHANGERS



## CARTER CUSTOM DYNAMOTORS

For railroad and marine radio-telephone, industrial communications systems, locomotives, telephone emergency standby power, etc. Heavy duty construction. Low rpm speed, small temperature rise assure extra long life. Filter not normally required. Size: 12 1/2" x 6 1/4" x 7 3/4". Weight, 47 lbs.

Carter Number	Input Range	Output Volts	Output Recv.	Amps Trans.	Net Each
DS1220P	118-132	12.8	5	18	\$189.75
HS1220P	67-74	12.8	5	18	189.75
CS1220P	33-37	12.8	5	18	189.75
WS1220P	45-50	12.8	5	18	189.75
DS640P	118-132	6.3	15	40	189.75
HS640P	67-74	6.3	15	40	189.75
CS640P	33-37	6.3	15	40	189.75

## MARINE REFRIGERATOR-APPLIANCE CONVERTERS

Operates standard refrigerators, compressors (up to 1/6 hp only), vacuum cleaners and other appliances from DC; for use aboard commercial and pleasure boats. Converter operates only when power is called for. Input, from 24 to 230 v. DC. Size: 14" x 6 3/4" x 11" high. Net Weight, 65 lbs.

Carter Number	DC Input	Net Each
RF24	24 v.	\$371.25
RF28	28 v.	371.25
RF32	32 v.	371.25
RF48	48 v.	371.25
RF64	64 v.	371.25
RF115	115 v.	371.25
RF230	230 v.	371.25



## DUOVOLT 6/12 VOLT GENEMOTORS

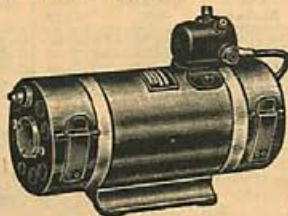


Will operate 30- to 100-watt mobile transmitters. Incorporates two separate six-volt windings, each having its own field. Six or twelve volt operation is obtained simply by connecting the four input leads in parallel or in series. May be transferred from one car to another regardless of battery voltage, without replacing generator and without wiring modification of hookup. Size: 3 1/2" high, 4 1/4" wide, 8" long. Weight, 1 1/2 lbs.

Carter No.	Input		Input		Output		Duty	Net Each
	Volts	Amps	Volts	Amps	Volts	Amps		
450ABNS	6	29	12	14.5	400	.250	Int.	\$81.26
4030VBNS	5.2	40	10.4	20	400	.300	Int.	81.68
4228VBNS	5.8	33	11.6	16.5	420	.280	Int.	81.68
4432VBNS	5.8	42	11.6	21	430	.325	Int.	82.09
520ABNS	6	28	12	14	500	.200	Int.	83.33
624VBNS	5.7	46	11.4	23	600	.240	Int.	83.33
6427VBNS	5.7	51	11.4	25.5	640	.270	Int.	84.98
7212ABNS	6.1	28	12.2	14	720	.125	Int.	84.98

## CHANGE-A-VOLT DYNAMOTORS

Operate 6 volt 2-way radio equipment from 12 volt systems without rewiring. Supplied complete with starting relay and switch, 12 volt fuse block and wiring to directly convert a 12 volt battery to a 6 volt radio supply. B615V delivers 15 amps continuously and 45 amps intermittent, 65% efficiency. Can also serve as battery equalizer when operating low voltage equipment. Size: 11 1/2" x 4 1/2" x 7 3/4" high. Weight, 25 lbs.



Carter No.	Input*		Net Each	Carter No.	Input†		Net Each
	Volts	Amps			Volts	Amps	
B615V	12	11.5	\$97.35	E128V	24	6.0	\$97.35
E615V	24	5.7	97.35	J128V	28	5.3	97.35
J615V	28	5.0	97.35	C128V	32	4.6	97.35
C615V	32	4.3	97.35	H5128V	70	2.2	97.35
HS615V	70	2.1	97.35	D128V	115	1.3	97.35
D615V	115	1.2	97.35				

\*Output 6 volts, 15 amps. †Output 12 volts, 8 amps.

## CUSTOM CONVERTERS



Dependable rotary power for operating office business machines, professional tape recorders, railroad, mobile and marine radio and radar equipment. Finest construction. Sealed ball bearings require no lubrication. Long life, continuous duty, high efficiency on all models. Only popular models listed here. For 50-cycle output, add \$4.13 to net prices. All models 100% power factor. Size: 200 watts, 12 3/4" w. x 6 3/4" d. 7 3/4" h.; 210 and 300 watts, 11 3/4" w.; 500 watts, 12 3/4" w. x 7 3/4" d. x 7 3/4" h.

Carter Number	DC Inp.		Net Each	Carter Number	DC Inp.		Net Each
	V.	A.			V.	A.	
DS1020C5P	115†	2.6†	\$183.00	D1030CP	115‡	4.6‡	\$159.00
HS1020C5P	64†	5†	183.00	E1050CP	24‡	33‡	183.00
CS1020C5P	32†	9†	183.00	C1050CP	32‡	25‡	183.00
BR1021CP*	12†	29†	217.88	D1050CP	115‡	7‡	183.00
B1030CP	123	45‡	159.00	C1075CP	32‡	32‡	206.25
E1030CP	24‡	22‡	159.00	D1075CP	115‡	8.8‡	206.25
C1030CP	32‡	19‡	159.00				

Watts At 115 v. AC, 60 cps: †200 ‡210 ‡300 ‡500 ‡750  
\*Equipped with manual frequency control. For frequency control on all other models, add \$61.88 to net prices. Filter available; add \$33.00 to net prices.

## MONARCH CONVERTERS

The Monarch series is ideal for heavy-duty industrial service, marine, mine, crane and railroad communications. Slow speed (1800 rpm.), long life, 4-pole design; ball bearing equipped. No filter is necessary for most applications. Size: 19" x 11" x 12" high. Three-phase output available at no extra charge. 24 and 28 v. input available.

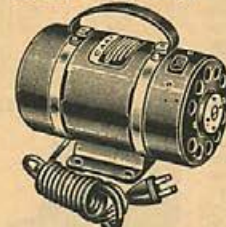


Carter Number	DC Input		Watts*	Net Each
	Volts	Amps		
C10150M	32	69	1500	\$543.75
W10200M†	48	60	2000	581.25
H10200M†	64	45	2000	581.25
D10200M:	115	25	2000	581.25
K10200M:	230	12.5	2000	581.25

\*Reduced voltage starters necessary, add \$119.63 to net price.  
†Reduced voltage starters necessary, add 77.55 to net price.  
‡At 115 v. AC, 60 cps.

## MARK II SUPER CONVERTERS

New, long life design increases brush life and assures dependable service. Smooth, quiet, ball bearing operation. Standard 100% P.F. models change DC to AC for operating amplifiers, office equipment, test instruments, radios and other high-power-factor equipment. Also available in 70% P.F. models to operate popular tape recorders from DC input. Many other catalog models available promptly from factory stock. A converter can be furnished to operate any tape recorder. Continuous duty. Size: 8 3/4" x 4 1/2" x 5" high. Weight, 13 lbs.



## STANDARD 100% PF CONVERTERS

Carter No.	DC Input		Watts, AC at 60 cps, 115 v.	Net Each
	Volts	Amps		
D1040CB	115	7	40	\$ 96.75
D1010CB	115	1.7	100	99.00
D1015CB	115	2.0	150	100.50
B1040CB	12	8	40	88.50
B1010CB	12	15	100	90.75
B1015CB	12	23	150	91.50

Mark II Heavy Duty Super Converter. Continuous duty, less filter, 10 1/2" long, 4 1/2" wide, 5" high. Weight, 19 lbs.

D1020CB	115	2.6	200	\$109.50
D1025CB	115	3.2	250	111.00
B1020CB	12	30	200	103.50
B1025CB	12	34	250	105.00

## AC TO AC FREQ. CHANGERS

Produces 115 v., 50 or 60 cycle AC output from 25 to 400 cycle input. For operating standard equipment on non-standard frequencies. Standard units are for single phase input and output. Three-phase output available on order. 70% PF models to run tape recorders, optional at no extra cost. For frequency control (meter), add \$33.00 to net price.



Carter No.	Output Watts	Net Each	Carter No.	Output Watts	Net Each
FC1040L	40	262.50	FC1050CP	500	513.75
FC1060L	60	272.75	FC1075CP	750	536.25
FC1080L	80	287.50	FC10100M	1000	581.25
FC1010C	100	375.00	FC10150M	1500	1031.25
FC1015C	150	382.50	FC10200M	2000	1087.50
FC1020C	200	390.00			





# Superior Slo-Syn Motors

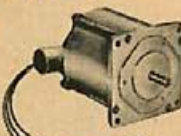
SS25



SS400



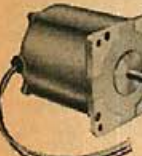
SS50, SS50M



X250



SS150-M, SS152, SS250, SS252



X1000



SS1800

## SLO-SYN® SYNCHRONOUS MOTORS

Units may be used as DC stepping motors and start at full-rated torque. Slo-Syn synchronous motors are permanent magnet types (AC) having instant start, stop and reverse characteristics and a basic shaft speed of 72 rpm with 60 cycles applied. Adaptable for use as a DC stepping motor or incremental positioning device that can be stepped 200 times per revolution of the motor shaft. Negligible overshoot; no ratchets or detents are used. Single-pole, three-position switch gives complete forward, reverse and "off" control because motor has only three leads. Starts or stops in less than 0.025 second or, approximately 1.5 cycles. No need for mechanical or electrical braking; stops in less than 5° of motor shaft rotation. Starting and operating currents nearly identical; no excessive inrush current when motor is turned on. Lubricated-for-life, sealed ball-bearings.

**Type SS25:** Small. Ideal for remote control of rheostats and potentiometers.  
**Types SS50 and SS50M:** Well-suited for limited space applications, actuating selector switches, tape handling and process-timing. Militarized type SS50M meets or exceeds applicable military specifications. Planetary gear types are available.

**Type X250:** Explosion-proof type. Underwriters' Laboratories Approved for Class 1, Group D service. Provides safe operation where small arcs could cause explosions.

**Types SS150, SS150M, SS152, SS250, SS252:** Types SS150 and SS152 are available with resistor and capacitor integrally mounted in an enclosure on the end of the motor (suffix RC when ordering). Militarized type SS150M meets or exceeds applicable military specifications. Planetary gear types are available.

**Type SS400:** Ideally suited for heavy-duty industrial applications, remotely controlled gate and butterfly valves, machine tool carriage feeds, telemetering, etc.

**Type X1000:** Explosion-proof, U/L Approved for Class 1, Group D service. Ideally suited for "on-off" AC servo duty and heavy-duty applications.

**Type SS1800:** Heavy duty. Ideal for machine tools and valves.

### MOTOR UNITS

Specifications at 50/60 cycles, one phase, 72 rpm at 60 cycles.

Superior Type	Torque (Oz.-In.)	Volts	Max. Amps	Resistor, Ohms	Capacitor, $\mu$ F	Shpg., Lbs.	Net Each
SS25	25	120	0.1	500 $\pm$ 5%	5 W	0.75 $\pm$ 6%	330 VAC
SS50	50	120	0.3	250 $\pm$ 5%	25 W	2.6 $\pm$ 6%	330 VAC
SS50M	50	120	0.3	250 $\pm$ 5%	25 W	2.6 $\pm$ 6%	330 VAC
SS150†	150	120	0.4	250 $\pm$ 5%	25 W	3.75 $\pm$ 6%	330 VAC
SS150M	150	120	0.4	250 $\pm$ 5%	25 W	3.75 $\pm$ 6%	330 VAC
SS152†	150	240	0.2	1000 $\pm$ 5%	25 W	1.0 $\pm$ 6%	660 VAC
SS250	250	120	0.6	150 $\pm$ 5%	50 W	6.5 $\pm$ 6%	330 VAC
X250	250	120	0.8	150 $\pm$ 5%	50 W	6.5 $\pm$ 6%	330 VAC
SS252	250	240	0.3	750 $\pm$ 5%	50 W	1.75 $\pm$ 6%	660 VAC
SS400	400	120	0.6	150 $\pm$ 5%	50 W	6.5 $\pm$ 6%	330 VAC
X1000*	1000	120	3.0	65 $\pm$ 5%	160 W	30.0 $\pm$ 6%	330 VAC
SS1800*	1800	120	4.0	40 $\pm$ 5%	280 W	60.0 $\pm$ 6%	330 VAC

\*For 60 cycle operation only. †Available with resistor-capacitor integrally mounted on end of motor. Add suffix RC to number and \$9.00 to price.

### PLANETARY GEAR TYPES

Plan. Suffix	Gear Ratio	Approx. Speed* rpm	Output Torque				Extra Net Each
			SS50, SS50M	SS150, SS150M, SS152	SS250, SS252, SS400	X250	
P1	4- $\frac{3}{4}$	18.6	120 oz.-in.	400 oz.-in.	650 oz.-in.	650 oz.-in.	\$10.00
P2	21- $\frac{1}{3}$	3.32	600 oz.-in.	2000 oz.-in.	.....	2000 oz.-in.	10.00
P3	105- $\frac{1}{3}$	0.665	2000 oz.-in.	2000 oz.-in.	.....	2000 oz.-in.	20.00
P4	541- $\frac{1}{3}$	0.133	2000 oz.-in.	2000 oz.-in.	.....	2000 oz.-in.	30.00
P5	2708- $\frac{1}{3}$	0.027	2000 oz.-in.	2000 oz.-in.	.....	2000 oz.-in.	40.00

\*Exact speed may be calculated from basic motor speed of 72 rpm and given ratio.

Standard types with special gear planetary assemblies are available. Speed reduction assembly is completely enclosed in dust-proof housing mounted on shaft end of motor. Load is evenly distributed over three special nylon gears. Planetary gear shaft is ball-bearing mounted; self lubricated nylon gears. To order, basic type number must be suffixed with the desired planetary gear assembly number. For example, SS50-P1.

Consist of single- or double-reduction, parallel-shaft gearbox driven by Slo-Syn synchronous motor. Stop, start and reverse instantly; need only a single-pole, three-position switch for full control. Spur gear train fully enclosed in aluminum housing. Can be stalled without overheating or damage to motor or gears. Face mounting; foot mounting with optional base. Power input, 120 VAC, 60 cps. For operation from 1-phase sources, capacitors and resistors are available.

**Superior Types GA250-2 thru -16**—Handle inputs as low as 50 cycles with proportional drop in shaft speed. Rated 0.6 amp max. Explosion-proof motor available. Shpg. Wt., 15 $\frac{1}{4}$  lbs. Net Ea. . . \$215.00

**Superior Types GAC250-18 thru -144**—Same, but higher torque. Shpg. Wt., 44 $\frac{1}{4}$  lbs. Net Each. . . \$415.00

**Superior Types GCX1000-2 thru -16**—With explosion-proof motor. Rated 3.0 amps max. Shpg. Wt., 58 lbs. Net Each. . . \$395.00

**Superior Types GC1800-2 thru -16**—Rated 4.0 amps max. Shpg. Wt., 73 $\frac{1}{2}$  lbs. Net Each. . . \$465.00



GCX1000



GA250

Superior Type*	Output rpm†	Torque Lb.-In.	Superior Type	Output rpm	Torque Lb.-In.
GA250-2	36	25	GC1800-2	36	170
GA250-3	24	35	GC1800-3	24	250
GA250-4	18	45	GC1800-4	18	335
GA250-6	12	70	GC1800-6	12	500
GA250-9	8	105	GC1800-9	8	750
GA250-12	6	140	GC1800-12	6	1000
GA250-16	4 $\frac{1}{2}$	185	GC1800-16	4 $\frac{1}{2}$	1340
GCX1000-2	36	95	GAC250-18	4	210
GCX1000-3	24	140	GAC250-24	3	280
GCX1000-4	18	190	GAC250-36	2	420
GCX1000-6	12	280	GAC250-72	1	840
GCX1000-9	8	420	GAC250-96	$\frac{3}{4}$	1100
GCX1000-12	6	560	GAC250-144	$\frac{1}{2}$	1600
GCX1000-16	4 $\frac{1}{2}$	750			

\*Suffix indicates gear ratio (i.e., GA250-4 has gear ratio of 4). †At 60 cycles, 120 V 1-phase.

### PHASE SHIFTING COMPONENTS AND BASES

For Motor	Resistor No.	Net Each	Capacitor No.	Net Each	FT.-Mt. Base	Net Each
GA250	R-SS250/400	\$2.50	C-SS250/400	\$ 4.50	GFA	\$12.00
GA250	R-SS250/400	2.50	C-SS250/400	4.50	GFC	20.00
GCX1000	R-X1000	3.50	C-X1000	19.50	GFC	20.00
GC1800	R-SS1800	6.50	C-SS1800	28.00	GFC	20.00

### SLO-SYN® ADJUSTABLE SPEED DRIVES

Essentially Slo-Syn translators which include a built-in oscillator to supply triggering signals. Oscillator frequency adjustable to vary speed from 4 steps per second to maximum permissible with motor used. Direction of rotation controlled from either front panel or remote switch. Oscillator can be bypassed for operation from an external signal source.

**Superior Type ST250B-1015**—For SS25-1002, SS50-1009 (dropping resistor required); SS150-1010, SS250-1002 and X250-1002 bifilar motor types. Net Each. . . \$370.00

**Superior Type ST1800-1004**—For SS250-1027, X250-1003, SS400-1021 (dropping resistor required); X1000-1002 and SS1800-1007 bifilar motor types. Net Each. . . \$420.00

### SLO-SYN® TRANSLATOR MODULES

Plug-in printed circuit boards with logic capabilities for stepping Slo-Syn motors in one direction. Suitable power supply required to operate. Can be pulsed-operated by -10 volt signal and, with proper motor lead switching, provide bi-directional operation if required. Can be used with SS25-1002, SS50-1009, SS150-1010, SS250-1002 and X250-1002 bifilar motor types; dropping resistor required. Full information on request.

**Superior Type STM250**—Basic translator for general use. Net Each. . . \$95.00

**Superior Type STM250V**—Same, but with built-in, adjustable oscillator for any stepping speed from 4 steps per second up to maximum of motor's capability. Net Ea. . . \$125.00



STM250 STM250V

ST250B-1015 ST1800-1004







# Superior Slo-Syn Motors

## SLO-SYN® PRESET INDEXER TYPES SP250-4 AND SP1800-4



Fully transistorized Slo-Syn Preset Indexers are ideal for control of indexing operations in applications using bifilar type Slo-Syn Synchronous Motors for positioning. Any indexing movement desired can be preset on the control panel. Automatically provide accurate switching sequence needed to drive the Slo-Syn Motor the required number of 1.8° steps. Capable of controlling indexing movements up to 9,999 steps or 50 motor shaft revolutions. Up to 99,999 steps per indexing cycle can be furnished on special order. Stepping speed is adjustable from four steps per second up to the maximum permissible with the Slo-Syn Preset Indexer and Slo-Syn Motor used. External devices, such as solenoids, AC relays or motors, can be actuated at the end of the indexing cycle to perform an additional operation. The index cycle can be initiated manually from the control panel or from an external switch. Can also be made to cycle automatically. Two or more Slo-Syn Motors may be operated in unison from one Preset Indexer or, by using proper switching, any number of Slo-Syn Motors may be operated one at a time from a single Preset Indexer. Size: 13" w. x 11" d. x 5 1/2" h.

Superior Type	Input		Motor Type	Resistor Required	Net Each
	VAC	Amps			
SP250-4	120	0.75	SS250-1002	None	\$725.00
			X250-1002	None	
			SS150-1010	None	
			SS50-1008	2 ohms, 25 W	
			SS25-1001	3 ohms, 25 W	
SP1800-4	120	1.25	SS1800-1007	None	775.00
			X1000-1002	None	
			SS400-1021	1 ohm, 50 W	
			SS250-1027	1 ohm, 50 W	
			X250-1003	1 ohm, 50 W	

## SLO-SYN® TRANSLATOR TYPES ST250B, ST1800

For pulse-to-step conversion of data to appropriate bifilar type Slo-Syn synchronous motors. Essentially, a Slo-Syn Translator converts low-level signal pulses or square waves into correct switching sequence needed to drive a Slo-Syn motor at 200 separate steps per revolution. Depending on torque and stepping speed required, type ST-250B may be used with SS250-1002, X250-1002, SS150-1010, SS50-1009 or SS25-1001 motors. Type ST1800 may be used with SS1800-1007, X1000-1002, SS400-1021, SS250-1027 or X250-1003 motors. Flexibility of command input. Fully transistorized. **Control Applications:** Programmed Positioning; Automatic control of machine tools such as digital positioning of working head without feedback; automatic precision grinding; parts positioning on assembly line; vending machine applications; planetary projector positioning; sampling of memory discs. Remote Positioning; Camera focusing and positioning; remote positioning in radiation areas; reactor control rod positioning; medical equipment; selector switch positioning. Indexing and Indicating; Digital counters; programmed mixing; remote meter indication; high speed film processing; oscillator automatic frequency control; magnetic or paper tape transport. **Inputs:** Power input to the Slo-Syn Translator is 120 VAC, 0.5 amp for type ST250B; 120 VAC, 1 amp for type ST1800. Input impedance consists of 2200-ohm, 0.5-watt resistor shunted by a series RC of 390 ohms and 0.1 µF. The signal input which triggers the unit is a negative change of voltage of 2.0 volts or more with a fall time of 0.1 millisecond or faster. The input may be triggered by either pulse or square wave, or by an external switch. **Temperature:** May be operated in any ambient temperature 0° C to +40° C. May be stored in any temperature -65° C to +85° C.



Superior Type ST250B—Net Each ..... \$325.00  
 Superior Type ST1800—Net Each ..... \$375.00

## SLO-SYN® BIFILAR SYNCHRONOUS MOTORS

Superior Type	Stepping Application Ratings		Net Each
	DC Volts	Amps per Winding	
SS25-1002	5.9	.88	\$65.00
SS25-1001†	11.8	.44	65.00
SS25-1011	23.6	.22	65.00
SS50-1010	2.0	3.3	61.00
SS50-1009*	5.5	1.3	61.00
SS50-1008*	8.0	0.85	61.00
SS50-1001	14.0	0.53	61.00
SS50-1007	35.0	0.21	61.00
SS150-1023	1.4	8.5	70.00
SS150-1009	2.5	4.0	70.00
SS150-1010	10.0	1.25	70.00
SS150-1017	25.0	0.5	70.00
SS250-1006	2.5	5.0	90.00
SS250-1027†	4.6	3.1	90.00
SS250-1002	9.0	1.55	90.00
SS250-1004	22.5	0.61	90.00
X250-1003†	4.6	3.1	115.00
X250-1002	9.0	1.55	115.00
SS400-1021†	5.3	3.4	125.00
SS400-1002†	8.3	2.2	125.00
SS400-1006	21.2	0.85	125.00
X1000-1002	10.0	3.6	220.00
X1000-1007	25.4	1.6	220.00
SS1800-1007	11.5	3.9	290.00
SS1800-1002	14.4	3.1	290.00
SS1800-1006	23.0	2.0	290.00

\*With ST250B Translator or SP250 Indexers, add \$2.00 for dropping resistor BP262G19 (2.0 ohms, ±5%, 25 W). †With ST1800 Translator or SP1800 Indexers, add \$2.50 for dropping resistor BM10208G5 (1.0 ohm, ±5%, 50 W). ‡With ST-250B Translator or SP-250 Indexers, add \$2.00 for dropping resistor (3.0 ohms, ±5%, 25 W).

## SLO-SYN® FOUR-LEAD TYPE SYNCHRONOUS MOTORS

Superior Type	Stepping Application Ratings		Net Each
	DCV Input Winding	Amps per Winding	
SS25-1014	16.0	.35	\$60.00
SS25-1012	4.0	1.4	60.00
SS25-1013	80.0	.07	60.00
SS50-1012	2.5	3.1	56.00
SS50-1011	10.0	0.75	56.00
SS50-1002	25.0	0.30	56.00
SS50-1014	50.0	0.15	56.00
SS150-1007	2.0	6.3	65.00
SS150-1018	7.0	1.75	65.00
SS150-1015	17.5	0.70	65.00
SS150-1025	35.0	0.35	65.00
SS250-1010	3.0	5.3	85.00
SS250-1009	8.0	2.0	85.00
SS250-1008	16.0	1.0	85.00
SS250-1007	32.0	0.50	85.00
SS400-1005	15.0	1.2	120.00
SS400-1007	30.0	0.6	120.00
X1000-1005	11.5	3.2	195.00
X1000-1008	23.0	1.6	195.00
SS1800-1004	9.5	5.7	285.00
SS1800-1005	19.0	2.4	285.00

## DOUBLE-END SLO-SYN® SYNCHRONOUS MOTORS

Bidirectional, permanent magnet AC synchronous motors offer instant start, stop, reverse and slow shaft speed characteristics of conventional types with output shaft at each end of motor. **Applications:** Widely used in various control systems to permit potentiometers, encoding discs and similar devices to be operated in unison with other equipment or for attaching a knob to allow the motor to be rotated manually. **Input:** 120 VAC, 50/60 cycles. **Synchronous Speed:** Basic shaft speed, 72 rpm at 60-cycle. **Types Available:** Three-lead type, standard; bifilar and four-lead types are available. **Torque Ratings:** Choice of 25, 50, 150, 250, 400, 1000 and 1800 oz.-in. **Phase Shifting Network:** A resistor-capacitor phase shifting network must be used for single phase operation. **Control Switch:** Three-lead types require only a single-pole, three-position switch for complete forward, reverse and 'off' control. **Inrush Current:** Nearly identical starting and operating currents assure no excessive inrush current when motor is energized. **Fast Action:** Start or stop in less than 5° of shaft rotation, no need for mechanical or electrical braking. **Adaptability:** Adaptable for On-Off AC servo or phase switched DC stepping operation. **Modifications:** Keyways on one or both output shafts or special shaft extensions can be included to meet the needs of any application.



## THREE-LEAD DOUBLE-END SHAFT TYPES 120 V, 50/60 CYCLES, 1 PHASE, 72 RPM AT 60 CYCLES

Superior Type	Max. Amps	Torque Oz.-In.	Max. Inertia* Lb. In.	Resistor† Ohms, ±5%	Capacitor† µF, 330 VAC	Net Each
SS25-1004	0.1	25	0.25	500, 5 w.	.75, ±6%	\$ 48.00
SS50-1077	.3	50	.5	250, 25 w.	2.6, ±6%	44.00
SS150-1008	.4	150	1.5	250, 25 w.	3.75, ±6%	53.00
SS250-1003	.6	250	3.0	150, 50 w.	6.5, ±6%	73.00
SS400-1012	.6	400	4.5	150, 50 w.	6.5, ±6%	108.00
X1000-1006†	3.0	1000	9.0	65, 160 w.	30.0, ±5%	203.00
SS1800-1003	4.0	1800	16.0	40, 330 w.	60.0, ±6%	273.00

\*Maximum inertia of rigid load. †External resistor and capacitor must be ordered separately. ‡For 60-cycle operation only.



# Power Supplies, Switches

## DELCO ELECTRONICALLY-FILTERED POWER SUPPLY



- LESS THAN 0.01% RIPPLE
- TWO, CONTINUOUSLY VARIABLE, OUTPUT VOLTAGE RANGES
- COOL, EFFICIENT SILICON RECTIFICATION
- IDEAL FOR TRANSISTOR CIRCUIT DESIGN

Portable power supply features extremely low ripple with a continuously variable output voltage. Utilizes highly reliable silicon rectifiers to provide cool operation and high efficiency compared with common selenium types. Circuit breaker protects against overloads. Transistor filter provides better regulation and less ripple than power supplies costing twice as much. Regulation is good for instantaneous loads since no chokes are used. Ideal for transistor circuit design due to low ripple. **Ripple:** Less than .01% up to 1 amp output; approx. .04% at 12 volts and 5 amps output. **Two Output Ranges:** 0 to 8 volts, up to 8 amps; 8 to 16 volts, up to 5 amps. **Output Capacity:** 1.5 farads, effective. **Regulation:** Steady-state internal impedance, 46 milliohms at 6 volts; 100 milliohms at 12 volts. Max. transformer rating may be exceeded up to 15 amps at 6 volts for short duration; up to 10 amps at 12 volts. **Power Required:** 105-120 VAC, 60 cps. **Size:** 11 1/4" x 5 3/4" x 5 3/4". **Weight,** 11 lbs. **Delco Radio Model P-612 Electronically-Filtered Power Supply—Net Each... \$59.95**

## ALCOSWITCH



MST115D

### MINIATURE TOGGLE SWITCHES

Slim, bat handle toggle switches for miniature applications with limited back-of-panel clearance. All terminals and contacts are solid silver; case is of black phenolic; 3/4"-40 threaded bushing. Rated at 5 amps, 115 VAC. Models MST305D, MST315D, MST405N and MST415N have high voltage barriers between terminals; 1-piece case and life cycle of over 25,000 on-off operations. Series MST105 and MST205 have life-cycle of over 80,000 on-off operations; Series MST205PA, 15,000 operations.



MRA-1-10S

### MINIATURE PUSHBUTTON SWITCHES

Rated at 5 amps, 115 VAC; switches have solid silver contacts and terminals; bushing, 3/4"-40 thd. Case, black phenolic resin.

Alcoswitch No.	Con-tacts	Application	Net Each, Lots of			
			1-24	25-99	100-499	500-999
MST105D	SPDT	On-none-on	\$1.65	\$1.12	\$0.99	\$0.83
MST105E	SPDT	On-off-on	1.95	1.33	1.17	.975
MST105F	SPDT	On-none-on†	1.95	1.33	1.17	.975
MST105G	SPDT	On†-off-on†	1.95	1.33	1.17	.975
MST105H	SPDT	On-off-on†	1.95	1.33	1.17	.975
MST115D*	SPDT	On-none-on	1.65	1.12	.99	.83
MST205N	DPDT	On-none-on	2.15	1.43	1.29	1.08
MST205P	DPDT	On-off-on	2.55	1.72	1.53	1.28
MST205PA	DPDT	On-off-on	2.85	1.90	1.71	1.42
MST205R	DPDT	On-none-on†	2.55	1.72	1.53	1.28
MST205S	DPDT	On†-off-on†	2.55	1.72	1.53	1.28
MST205T	DPDT	On-off-on†	2.55	1.72	1.53	1.28
MST215N*	DPDT	On-none-on	2.15	1.43	1.29	1.08
MST305D	3PDT	On-none-on	3.85	2.57	2.31	1.925
MST315D*	3PDT	On-none-on	3.85	2.57	2.31	1.925
MST405N	4PDT	On-none-on	4.85	3.29	2.96	2.55
MST415N*	3PDT	On-none-on	4.85	3.29	2.96	2.55
C-11†	Color-coded caps		.04	.028	.025	.022

\*With white color-coded cap. †Momentary positions. ‡Plastic caps fit only MST115D, MST215N, MST315D and MST415N switches; specify red, blue, black or white.

Alcoswitch No.	Con-tacts	Application	Net Each, Lots of			
			1-24	25-99	100-499	500-999
MSP205N*	DPDT	Push on-push off	\$2.85	\$1.90	\$1.71	\$1.42
MSP205R*	DPDT	Pushbutton†	2.85	1.90	1.71	1.42
C-12	Red or black button		.05	.036	.032	.030

\*Specify red or black button. †Momentary.

### MINIATURE ROTARY SWITCHES

Miniature, (.986" max. behind panel depth x .512" dia.) rotary switches rated 500 mA at 125 VAC. Features: Adjustable-stop; non-shorting; 36° spacing; up to 4 poles on single deck; solid silver terminals and contacts. Types with suffix S, 1/2" dia. slotted shaft; others have 3/8" dia. shaft with knob. Bushing, 3/4"-40 x .255" lg.

Alcoswitch Number		Posi-tions	Net Each, Lots of			
Less Knob	With Knob		1-24	25-99	100-499	500-999
MRA-1-10S	MRA-1-10	2-10	\$3.85	\$2.57	\$2.31	\$1.925
MRA-2-5S	MRA-2-5	2-5	3.85	2.57	2.31	1.925
MRA-3-3S	MRA-3-3	2-3	3.85	2.57	2.31	1.925
MSRA-4-2S*	MSRA-4-2*	2	3.85	2.57	2.31	1.925

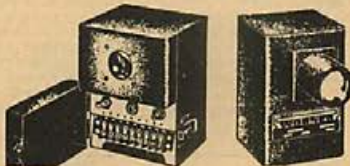
\*Fixed.

## WORNER FOTOELECTRIC® EQUIPMENT

### TWO-UNIT INDOOR SET

Model 62-R combines Photo-cell, amplifier and relay. Engineered for use in combination with Model 62-L Light Source as a two-unit set. Efficient for supervising objects over 2° sq. with directional beam for any distance from a few inches to 75 feet.

For use where relay is not required to operate in excess of 400 times per minute. Designed for simple applications such as counting, sorting large objects, limit switch, start and stop operations. Extraneous light rejector shields Photocell from unavoidable foreign light. Light Source has variable light brilliance which is adjusted by switch for the distance range desired. Cases are 18 gauge steel, welded, gray wrinkle finish. Rated 110-120 v. AC, 50-60 cycle. Size: 62-R, 5 3/4" x 5 3/4" x 7"; 62-L, 4 1/4" x 4 1/2" x 7".



Worner Model 62-R and 62-L—Two-Unit set. Net...\$93.63

### ELECTRONIC RECEPTIONIST

Projects light beam across entrances to announce entrants. Mirror can be installed up to 10' away from photocell; chime can be mounted anywhere. Three-pieces: Photoelectric Unit includes exciter lamp and photocell in hammerhead steel case, 8 1/2" x 6 1/2" x 2 1/2"; Mirror (with adjustable bracket); Chime (in hammerhead steel case). Plugs into any 110-120 V, 60/60 cycle AC outlet. Shpg. Wt., 8 lbs.

**Worner Model 61—Net per Set...\$40.50**  
**Worner Model 61-T—Same, but smaller, fully transistorized version.**  
**Net per Set.....\$45.00**

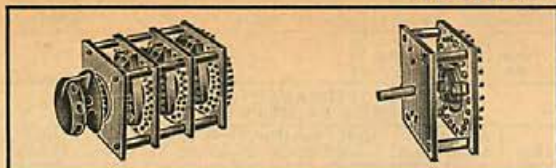


Unit, Mirror and Chime



# Daven Stop and Rotary Switches

## ADJUSTABLE STOP SWITCHES



For maximum flexibility in all types of standard switch applications, circuit experimentation, laboratory work, breadboard setups and in circuitry where the exact number of switch positions might be changed at a later date, Daven has designed 87 adjustable stop switches which meet the same electrical, mechanical and environmental requirements that apply to Daven standard rotary switches. These switches are available for immediate off-the-shelf delivery. Contact panels are EXXXEP-810 Epoxy. Solid silver alloy contacts and wiper arms. Continuous current carrying capacity, 10 amps. Breakdown voltage, 1500 V rms.

### 2 1/4" SQUARE

#### 1 Deck Shorting 15° Between Positions

Daven No.	Replaces	Poles/Deck	Max. Pos.	Net Each	
				1-4	5-9
121-DM-24A	121-DM-2 thru 24	2	24	\$22.85	\$18.30
131-DM-11A	131-DM-2 thru 11	3	11	25.70	20.60
141-DM-11A	141-DM-2 thru 11	4	11	28.55	22.90

#### 2 Decks Shorting 15° Between Positions

Daven No.	Replaces	Poles/Deck	Max. Pos.	Net Each	
				1-4	5-9
221-DM-24A	221-DM-2 thru 24	2	24	\$39.20	\$31.40
231-DM-11A	231-DM-2 thru 11	3	11	44.90	36.00
241-DM-11A	241-DM-2 thru 11	4	11	50.60	40.60

#### 3 Decks Shorting 15° Between Positions

Daven No.	Replaces	Poles/Deck	Max. Pos.	Net Each	
				1-4	5-9
321-DM-24A	321-DM-2 thru 24	2	24	\$55.55	\$44.50
331-DM-11A	331-DM-2 thru 11	3	11	64.10	51.40
341-DM-11A	341-DM-2 thru 11	4	11	72.65	58.30

#### 1 Deck Non-Shorting 15° Between Positions

113-DB-24A	113-DB-2 thru 24	1	24	\$20.00	\$16.00
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#### 2 Decks Non-Shorting 15° Between Positions

213-DB-24A	213-DB-2 thru 24	1	24	\$33.50	\$26.80
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#### 3 Decks Non-Shorting 15° Between Positions

313-DB-24A	313-DB-2 thru 24	1	24	\$47.00	\$37.60
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#### 4 or More Decks Non-Shorting 15° Between Positions One Pole Per Deck

Daven No.	No. of Decks	Net Ea., Lots		Daven No.	No. of Decks	Net Ea., Lots	
		1-4	5-9			1-4	5-9
413DB24A	4	\$60.50	\$48.40	713DB24A	7	\$101.00	\$ 80.80
513DB24A	5	74.00	59.20	813DB24A	8	114.50	91.60
613DB24A	6	87.50	70.00	913DB24A	9	128.00	102.40

#### 1 Deck Non-Shorting 30° Between Positions

Daven No.	Replaces	Poles/Deck	Max. Pos.	Net Each	
				1-4	5-9
121-DB-12A	121-DB-2 thru 12	2	12	\$22.85	\$18.30
131-DB-6A	131-DB-2 thru 6	3	6	25.70	20.60
141-DB-6A	141-DB-2 thru 6	4	6	28.55	22.90

#### 2 Decks Non-Shorting 30° Between Positions

221-DB-12A	221-DB-2 thru 12	2	12	\$39.20	\$31.40
231-DB-6A	231-DB-2 thru 6	3	6	44.90	36.00
241-DB-6A	241-DB-2 thru 6	4	6	50.60	40.60

#### 3 Decks Non-Shorting 30° Between Positions

321-DB-12A	321-DB-2 thru 12	2	12	\$55.55	\$44.50
331-DB-6A	331-DB-2 thru 6	3	6	64.10	51.40
341-DB-6A	341-DB-2 thru 6	4	6	72.65	58.30

#### 1 Deck Shorting 11 1/4° Between Positions

122-DM-32A	122-DM-2 thru 32	2	32	\$22.85	\$18.30
132-DM-15A	132-DM-2 thru 15	3	15	25.70	20.60
142-DM-15A	142-DM-2 thru 15	4	15	28.55	22.90

#### 2 Decks Shorting 11 1/4° Between Positions

222-DM-32A	222-DM-2 thru 32	2	32	\$39.20	\$31.40
232-DM-15A	232-DM-2 thru 15	3	15	44.90	36.00
242-DM-15A	242-DM-2 thru 15	4	15	50.60	40.60

#### 3 Decks Shorting 11 1/4° Between Positions

322-DM-32A	322-DM-2 thru 32	2	32	\$55.55	\$44.50
332-DM-15A	332-DM-2 thru 15	3	15	64.10	51.40
342-DM-15A	342-DM-2 thru 15	4	15	72.65	58.30

#### 1 Deck Non-Shorting 22 1/2° Between Positions

122-DB-16A	122-DB-2 thru 16	2	16	\$22.85	\$18.30
132-DB-8A	132-DB-2 thru 8	3	8	25.70	20.60
142-DB-8A	142-DB-2 thru 8	4	8	28.55	22.90

#### 2 Decks Non-Shorting 22 1/2° Between Positions

222-DB-16A	222-DB-2 thru 16	2	16	\$39.20	\$31.40
232-DB-8A	232-DB-2 thru 8	3	8	44.90	36.00
242-DB-8A	242-DB-2 thru 8	4	8	50.60	40.60

#### 3 Decks Non-Shorting 22 1/2° Between Positions

322-DB-16A	322-DB-2 thru 16	2	16	\$55.55	\$44.50
332-DB-8A	332-DB-2 thru 8	3	8	64.10	51.40
342-DB-8A	342-DB-2 thru 8	4	8	72.65	58.30

### 1 1/4" SQUARE

#### 1 Deck Shorting 15° Between Positions

Daven No.	Replaces	Poles/Deck	Max. Pos.	Net Each	
				1-4	5-9
111-CM-24A	111-CM-2 thru 24	1	24	\$18.50	\$14.80
121-CM-11A	121-CM-2 thru 11	2	11	20.50	16.40
131-CM-7A	131-CM-2 thru 7	3	7	22.50	18.00
141-CM-5A	141-CM-2 thru 5	4	5	24.50	19.60

#### 2 Decks Shorting 15° Between Positions

211-CM-24A	211-CM-2 thru 24	1	24	\$30.45	\$24.35
221-CM-11A	221-CM-2 thru 11	2	11	34.45	27.55
231-CM-7A	231-CM-2 thru 7	3	7	38.45	30.75
241-CM-5A	241-CM-2 thru 5	4	5	42.45	33.95

#### 3 Decks Shorting 15° Between Positions

311-CM-24A	311-CM-2 thru 24	1	24	\$42.40	\$33.90
321-CM-11A	321-CM-2 thru 11	2	11	48.40	38.70
331-CM-7A	331-CM-2 thru 7	3	7	54.40	43.50
341-CM-5A	341-CM-2 thru 5	4	5	60.40	48.30

#### 1 Deck Non-Shorting 30° Between Positions

111-CB-12A	111-CB-2 thru 12	1	12	\$18.50	\$14.80
121-CB-6A	121-CB-2 thru 6	2	6	20.50	16.40
131-CB-4A	131-CB-2 thru 4	3	4	22.50	18.00
141-CB-3A	141-CB-2 and 3	4	3	24.50	19.60

#### 2 Decks Non-Shorting 30° Between Positions

211-CB-12A	211-CB-2 thru 12	1	12	\$30.45	\$24.35
221-CB-6A	221-CB-2 thru 6	2	6	34.45	27.55
231-CB-4A	231-CB-2 thru 4	3	4	38.45	30.75
241-CB-3A	241-CB-2 and 3	4	3	42.45	33.95

#### 3 Decks Non-Shorting 30° Between Positions

311-CB-12A	311-CB-2 thru 12	1	12	\$42.40	\$33.90
321-CB-6A	321-CB-2 thru 6	2	6	48.40	38.70
331-CB-4A	331-CB-2 thru 4	3	4	54.40	43.50
341-CB-3A	341-CB-2 and 3	4	3	60.40	48.30

#### 1 Deck Shorting 11 1/4° Between Positions

112-CM-32A	112-CM-2 thru 32	1	32	\$18.50	\$14.80
122-CM-15A	122-CM-2 thru 15	2	15	20.50	16.40
132-CM-10A	132-CM-2 thru 10	3	10	22.50	18.00
142-CM-7A	142-CM-2 thru 7	4	7	24.50	19.60

#### 2 Decks Shorting 11 1/4° Between Positions

212-CM-32A	212-CM-2 thru 32	1	32	\$30.45	\$24.35
222-CM-15A	222-CM-2 thru 15	2	15	34.45	27.55
232-CM-10A	232-CM-2 thru 10	3	10	38.45	30.75
242-CM-7A	242-CM-2 thru 7	4	7	42.45	33.95

#### 3 Decks Shorting 11 1/4° Between Positions

312-CM-32A	312-CM-2 thru 32	1	32	\$42.40	\$33.90
322-CM-15A	322-CM-2 thru 15	2	15	48.40	38.70
332-CM-10A	332-CM-2 thru 10	3	10	54.40	43.50
342-CM-7A	342-CM-2 thru 7	4	7	60.40	48.30

#### 1 Deck Non-Shorting 22 1/2° Between Positions

112-CB-16A	112-CB-2 thru 16	1	16	\$18.50	\$14.80
122-CB-8A	122-CB-2 thru 8	2	8	20.50	16.40
132-CB-5A	132-CB-2 thru 5	3	5	22.50	18.00
142-CB-4A	142-CB-2 thru 4	4	4	24.50	19.60

#### 2 Decks Non-Shorting 22 1/2° Between Positions

212-CB-16A	212-CB-2 thru 16	1	16	\$30.45	\$24.35
222-CB-8A	222-CB-2 thru 8	2	8	34.45	27.55
232-CB-5A	232-CB-2 thru 5	3	5	38.45	30.75
242-CB-4A	242-CB-2 thru 4	4	4	42.45	33.95

#### 3 Decks Non-Shorting 22 1/2° Between Positions

312-CB-16A	312-CB-2 thru 16	1	16	\$42.40	\$33.90
322-CB-8A	322-CB-2 thru 8	2	8	48.40	38.70
332-CB-5A	332-CB-2 thru 5	3	5	54.40	43.50
342-CB-4A	342-CB-2 thru 4	4	4	60.40	48.30

## SERIES G AND K SUBMINIATURE SWITCHES

**Series G**—For missiles, aircraft and communications; only 1/8" dia. Gold plated, beryl-copper wipers; gold plated solid silver alloy contacts; diallyl phthalate contact panel; stainless steel case, shaft, detent, and hardware. O-ring panel and shaft seals. Epoxy seal on contact panel. Explosionproof and waterproof. **Contacts:** Rated 1 amp, 6-28 VDC or 115 VAC resistive; 1/4-amp 115 VAC inductive; 1/10-amp 6-28 VDC inductive or 1/5 VDC resistive; 3 amps max. Resistance, .004 ohm typ. Life: 50,000 cycles or better. **Temp. Range:** -85° C to +125° C. **Size:** 1 1/2" lg. x 1/2" dia. overall; 1/2" d. behind panel. Shank, 1/2-28 thd. 1/4" lg.; shaft 1/8" dia. x 1/2" lg. Weight, 4 oz.

**Series K**—Unsealed, brass-housing version of Series G; economical design for instruments and commercial uses.



#### 1 DECK SHORTING 36° BETWEEN POSITIONS

No. of Poles	Pos. Per Pole	Series G		Series K	
		Daven No.	Net Each, Lots of	Daven No.	Net Each, Lots of
1	2-10*	18-GM	1-4... \$8.95	18-KM	1-4... \$4.85
2	2-5	28-GM	5-9... 7.20	28-KM	5-9... 4.50
3	2-3	38-GM	10-24... 6.20	38-KM	10-24... 4.30
4	2	48-GM		48-KM	

#### 1 DECK NON-SHORTING 60° BETWEEN POSITIONS

1	2-6*	18-GB	1-4... \$8.95	18-KB	1-4... \$4.85
2	2-3	28-GB	5-9... 7.20	28-KB	5-9... 4.50
3	2	38-GB	10-24... 6.20	38-KB	10-24... 4.30

\*Available as continuous rotation on last position.

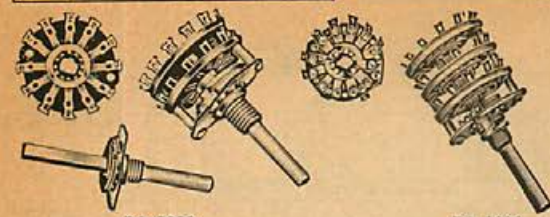


## SILVER CLIPS AND CONTACTS

CRL Number		Index	No. of Poles	No. of Positions
Shorting	Non-Shorting			
PA-16	PA-21	30°	1	2-12
PA-14	PA-23	30°	2	2-6
PA-15	PA-24	30°	4	2

## INDUSTRIAL NET PRICES SERIES PA-2000 CERAMIC

Shtg.	Non-Shtg.	Unit Pkg., Net Each, Lots of					Bulk	
		1-4	5-9	10-24	25-49	50-99		100-249
2000	2001	\$2.61	\$2.18	\$1.96	\$1.86	\$1.74	\$1.57	\$1.39
2002	2003	2.61	2.18	1.96	1.86	1.74	1.57	1.39
2004	2005	3.72	3.10	2.79	2.65	2.48	2.23	1.97
2006	2007	2.61	2.18	1.96	1.86	1.74	1.57	1.39
2008	2009	4.74	3.95	3.56	3.38	3.16	2.84	2.51
2010	2011	3.72	3.10	2.79	2.65	2.48	2.23	1.97
2012	2013	5.70	4.75	4.28	4.07	3.80	3.42	3.02
2014	2015	2.61	2.18	1.96	1.86	1.74	1.57	1.39
2016	2017	6.81	5.68	5.11	4.85	4.54	4.09	3.61
2018	2019	2.61	2.18	1.96	1.86	1.74	1.57	1.39
2020	2021	3.72	3.10	2.79	2.65	2.48	2.23	1.97
2022	2023	4.74	3.95	3.56	3.38	3.16	2.84	2.51
2024	2025	7.92	6.60	5.94	5.64	5.28	4.75	4.19
2026	2027	5.70	4.75	4.28	4.07	3.80	3.42	3.02
2028	2029	4.74	3.95	3.56	3.38	3.16	2.84	2.51
2030	2031	3.72	3.10	2.79	2.65	2.48	2.23	1.97
2032	2033	6.81	5.68	5.11	4.85	4.54	4.09	3.61
2034	2035	3.72	3.10	2.79	2.65	2.48	2.23	1.97
2036	2037	7.92	6.60	5.94	5.64	5.28	4.75	4.19
2038	2039	5.37	4.48	4.03	3.83	3.58	3.22	2.84
2040	2041	5.37	4.48	4.03	3.83	3.58	3.22	2.84
2042	2043	2.37	1.98	1.78	1.69	1.58	1.42	1.25
2048	2049	5.37	4.48	4.03	3.83	3.58	3.22	2.84
2050	2051	2.61	2.18	1.96	1.86	1.74	1.57	1.39
2052	2053	2.37	1.98	1.78	1.69	1.58	1.42	1.25
2054	2045	2.37	1.98	1.78	1.69	1.58	1.42	1.25
2	1	1.32	1.10	.99	.94	.88	.79	.....
0	3	1.32	1.10	.99	.94	.88	.79	.....
4	5	1.32	1.10	.99	.94	.88	.79	.....
6	7	1.32	1.10	.99	.94	.88	.79	.....
8	9	1.32	1.10	.99	.94	.88	.79	.....
10	19	1.32	1.10	.99	.94	.88	.79	.....
11	18	1.32	1.10	.99	.94	.88	.79	.....
12	.....	1.32	1.10	.99	.94	.88	.79	.....
13	.....	1.32	1.10	.99	.94	.88	.79	.....
20	17	1.32	1.10	.99	.94	.88	.79	.....
14	23	2.16	1.80	1.62	1.54	1.44	1.30	.....
15	24	2.16	1.80	1.62	1.54	1.44	1.30	.....
16	21	2.16	1.80	1.62	1.54	1.44	1.30	.....



## SERIES PA-2000 MINIATURE CERAMIC SWITCHES

Insulated with L-533 steatite; only 1 1/4" dia. (3/8" smaller than standard switches). Same ratings as larger switches. Features maximum voltage flashover; high Q, low loss steatite body; minimum intercircuit capacity; insulated front-back clips. Metal parts, except clips and contacts, cadmium plated; withstand 25-hour salt spray test. Rated: 2.75 amps, 15 VDC; 230 mA, 115 VAC, make-break resistive load. Breakdown, 1500 VAC rms between critical parts. One-piece shaft for accurate indexing. Adjustable stop or continuous rotation mtg. using single hole with locating lug. Bushing 3/8"-32 thread, 3/8" long. Shaft, full round 1/4" dia. x 2 1/4" long from mtg. surface. With mtg. nut, lockwasher and knob. Shpg. Wt., 3 oz. per section. **Bulk switches supplied less knobs and instruction sheets. For switches to meet military specifications, write for prices and information.**

## SERIES PA-1000 MINIATURE PHENOLIC SWITCHES

Insulated with type PBE laminated phenolic per MIL-3115-B. Same size as PA-2000 ceramic switches. Rated: 2 amps, 15 VDC; 150 mA, 110 VAC. Breakdown, 1000 VAC. Positive, adjustable stop or continuous rotation; 30° or 60° detents available. Withstand 25-hour salt spray test. With knob. Shpg. Wt., 3 oz. per section. **Bulk switches supplied less knobs and instruction sheets. Military specifications available as above.**

### MINIATURE ROTARY SWITCHES

No. Sect.	Total No. Poles	PA-2000 Ceramic			PA-1000 Phenolic		
		CRL No. PA-		Total Pos.	CRL No. PA-		Total Pos.
		Shtg.	Non-Shtg.		Shtg.	Non-Shtg.	
1	1	2000	2001	2-12	1000	1001	2-11
1	2	2002	2003	2-6	1002	1003	2-5
2	2	2004	2005	2-12	1004	1005	2-11
3	3	2006	2007	2-5	1006	1007	2-3
1	3	2008	2009	2-12	1008	1009	2-11
1	4	2010	2011	2-6	1010	1011	2
2	4	2012	2013	2-12	1012	1013	2-5
4	4	2014	2015	2-3	1014	1015	2-11
1	5	2016	2017	2-12	1016	1017	2-11
5	6	2018	2019	2-5	1018	1019	2-3
2	6	2020	2021	2-6	1020	1021	2-5
3	6	2022	2023	2-6	1022	1023	2-11
6	6	2024	2025	2-12	1024	1025	2
2	8	2026	2027	2-6	1026	1027	2-5
3	9	2028	2029	2-5	1028	1029	2
2	10	2030	2031	2-3	1030	1031	2-5
2	10	2032	2033	2-6	1032	1033	2-5
2	12	2034	2035	2	.....	.....	.....
6	12	2036	2037	2-6	.....	.....	.....
3	15	2038	2039	2-3	.....	.....	.....
3	18	2040	2041	2	.....	.....	.....

### SPECIAL CIRCUIT AND 60° INDEXING SWITCHES

1	1	2052*	.....	2-10	1034*	.....	2-10
1	1	2042†	2049‡	2-10	1040†	.....	2-10
2	2	2048‡	.....	2-12	.....	.....	.....
2	2	2050§	.....	2	.....	.....	.....
1	1	2043¶	.....	2-6	1035††	.....	2-6
2	1	2045¶	.....	2-6	1037††	.....	2-6

\*All shorted to common in full CCW, progressively opened and dropped with CW rotation. †All open in full CCW, progressively picked up and shorted to common with CW rotation. ‡Silver clips and contacts. §For switching dual lines. ¶60° indexing; 1 1/4" spacing between sections.

### SEPARATE SECTIONS

For use with 30° index assemblies No. PA-300, PA-301 and PA-302, except Nos. PA-17, PA-20 and PA-45, for use with 60° index assemblies PA-304 and PA-305.

No. Poles	Index-Ing	PA-2000 Ceramic			PA-1000 Phenolic		
		CRL No. PA-		Total Pos.	CRL No. PA-		Total Pos.
		Shtg.	Non-Shtg.		Shtg.	Non-Shtg.	
1	30°	0	1	2-12	30	31	2-11
2	30°	2	3	2-6	32	33	2-5
3	30°	4	5	2-5	34	35	2-3
4	30°	.....	.....	.....	36	37	2
5	30°	6	7	2-3	.....	.....	.....
6	30°	8	9	2-5	38*	39*	2-5
1	30°	10*	19*	2-11	40†	41†	2-11
2	30°	11*	18†	2-10	43†	.....	2-10
1	30°	12‡	.....	2-10	49‡	.....	2-10
1	30°	13‡	.....	2-10	.....	.....	2-10
1	60°	20	17	2-6	45	.....	2-6

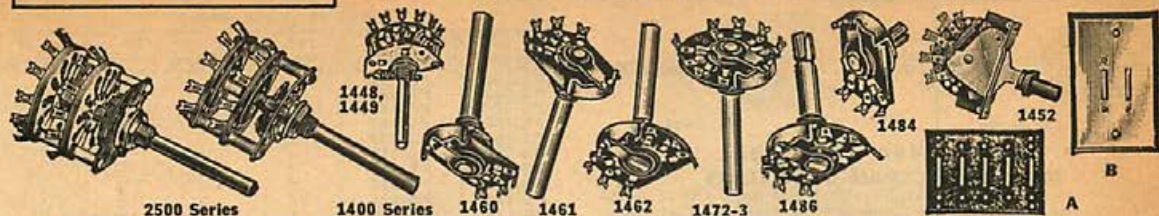
\*Unused contacts one side of common connected and shorted out. †All unused contacts connected and shorted out. ‡Active contacts shorted to common in full CCW, progressively opened and dropped with CW rotation. §All active contacts open in full CCW, progressively picked up and shorted to common with CW rotation.

### SEPARATE INDEX ASSEMBLIES

Index assemblies for series PA-1000 and PA-2000 interchangeable. **CRL No. PA-300 Assembly**—Contains PA-300 (30°) Index, P-120 pointer knob, adjustable stop plate, two 1/4" spacers, two 3/8" spacers, four 1/2" spacers, 2 1/2" tie bolts, nuts, lockwashers and three spacer washers. Rear shaft length 2". Use with 1 to 3 sections. **CRL No. PA-301 Assembly**—Contains PA-301 Index (30°), P-120 pointer knob, adjustable stop plate, two 1/4" spacers, two 3/8" spacers, ten 1/2" spacers, four 1/2" spacers, 5" tie bolts and hardware. Rear shaft length 4". Use with 4 to 6 sections. **CRL No. PA-302 Assembly**—Contains PA-302 (30°) Index, P-120 pointer knob, adjustable stop plate, four 1/4" spacers, two 3/8" spacers, sixteen 1/2" spacers, eight 1/2" spacers, 7" tie bolts, and hardware. Rear shaft length 6". Use with 7 to 9 sections. **CRL No. PA-304 Assembly**—Contains PA-304 (60°) Index and hardware same as PA-300. Rear shaft length 2". Use with 1 to 3. **CRL No. PA-305 Assembly**—Contains PA-305 (60°) Index and hardware same as PA-301. Rear shaft length 4". 4 to 6 sections.

CRL No.	Index-Ing	Net Each, Lots of					
		1-4	5-9	10-24	25-49	50-99	100-249
PA-300	30°	\$1.50	\$1.25	\$1.13	\$1.07	\$1.00	\$0.90
PA-301	30°	1.98	1.65	1.49	1.42	1.32	1.19
PA-302	30°	2.58	2.15	1.94	1.84	1.72	1.55
PA-304	60°	1.50	1.25	1.13	1.07	1.00	.90
PA-305	60°	2.10	1.75	1.58	1.50	1.40	1.26





**SERIES 2500 CERAMIC ROTARY SWITCHES**  
Made of highest quality (grade L-533) Steatite insulation. Meet critical requirements of RF circuit applications. Bushing  $\frac{3}{32}$  thread  $\frac{3}{8}$ " long. Shaft  $1\frac{1}{8}$ " long,  $\frac{1}{4}$ " full round. Sections  $1\frac{1}{2}$ " dia. Positive Index  $30^\circ$  with adjustable stop. Index assemblies and hardware are identical and interchangeable with those of the 1400 Series. Switches include pointer knob, nut and lockwasher. Rated: 2.75 amps, 15 v. DC; 230 ma, 115 v. AC. Breakdown, 1500 v. AC between critical parts. Shipping Weight, 5 oz. per section.

**SERIES 1400 PHENOLIC ROTARY SWITCHES**  
Extremely compact design. Mounting bushings  $\frac{3}{32}$ " thread,  $\frac{3}{8}$ " long. Shafts  $1\frac{1}{8}$ " from end of bushing;  $\frac{1}{4}$ " full round. Sections  $1\frac{1}{2}$ " dia. Positive  $30^\circ$  Index with adjustable stop. With mounting nut, lockwasher and pointer knob. Index assemblies and hardware are identical and interchangeable with those of 2500 series. Rated: 2.75 amps at 15 v. DC; 230 ma at 115 v. AC. Breakdown, 1000 v. AC rms. Shipping Weight, 4 oz. per section.

**ROTARY ACTION FLAT SWITCHES**  
Laminated phenolic insulation. Rated: 5.5 amps, 6 v. DC; 230 ma, 110 v. AC. Breakdown, 1000 v. AC rms. Bushing  $\frac{3}{32}$ " thread,  $\frac{3}{8}$ " long. Shaft  $\frac{1}{4}$ " dia.,  $2\frac{1}{8}$ " long. Shipping Weight, 3 oz.

CRL No.	No. Poles	No. Pos.	Net Each, Lots of					
			1-4	5-9	10-24	25-49	50-99	100-249
1448†	6	3	\$2.37	\$1.98	\$1.78	\$1.69	\$1.58	\$1.42
1449†	6	3	2.37	1.98	1.78	1.69	1.58	1.42
1450†	4	2	1.65	1.38	1.24	1.18	1.10	.99
1451†	4	2	1.98	1.65	1.19	1.42	1.32	1.19
1488†	6	3	3.60	3.00	2.70	2.57	2.40	2.16
1489†	6	3	3.60	3.00	2.70	2.57	2.40	2.16

\*Positive Index. †Non-shorting. ‡Spring return. †Combination positive and spring return index.

**ROTARY SELECTOR SWITCHES**

Ceramic Types		No. Sections	No. Poles	No. Positions	Phenolic Types	
CRL Number	Shorting/Non-Short.				CRL Number	Shorting/Non-Short.
2500	2501	1	1	2-6	1400	1401
2502	2503	1	1	2-11	1402	1403
2504	2505	2	2	2-5	1404	1405
2510	2511	2	2	2-6	1410	1411
2512	2513	2	2	2-11	1412	1413
2506	2507	1	3	2-3	1406	1407
2520	2521	3	3	2-6	1420	1421
2522	2523	3	3	2-11	1422	1423
		1	4	2	1408	1409
2514	2515	2	4	2-5	1414	1415
		4	4	2-6	1426	1427
		4	4	2-11	1428	1429
2516	2517	2	6	2-3	1416	1417
2524	2525	3	6	2-5	1424	1425
		2	8	2	1418	1419
		4	8	2-5	1430	1431

**GENERAL PURPOSE SWITCHES**  
Laminated phenolic insulation. Rated: 1.75 amps, 24 v. DC; 230 ma, 115 v. AC. Breakdown, 1000 v. AC rms. Bushing  $\frac{3}{32}$ " thread,  $\frac{3}{8}$ " long except 1484,  $\frac{1}{4}$ ". Positive index unless otherwise noted.

CRL No.	No. Poles	No. Pos.	Net Each, Lots of					
			1-4	5-9	10-24	25-49	50-99	100-249
1460	1	2	\$1.08	\$0.90	\$0.81	\$0.77	\$0.72	\$0.65
1461	1	3	1.08	.90	.81	.77	.72	.65
1462	2	2	1.08	.90	.81	.77	.72	.65
1463†	1	2	1.08	.90	.81	.77	.72	.65
1464†	2	2	1.08	.90	.81	.77	.72	.65
1465†	1	4	1.80	1.50	1.35	1.28	1.20	1.08
1472†	2	3	1.08	.90	.81	.77	.72	.65
1473†	2	3	1.08	.90	.81	.77	.72	.65
1483†	1	3	.75	.63	.57	.54	.50	.45
1484	1	3	.90	.75	.68	.65	.60	.54
1486†	2	3	1.08	.90	.81	.77	.72	.65

\*Non-shorting; all others shorting. †Spring return indexing. ‡3 active with AC-DPST line switch. †Remote speaker switch. †Remote auto radio spkr. switch. †Remote stereo spkr. switch.

**SEPARATE SECTIONS**

Deluxe Types: .187" rotor slot, use P-270, P-271, P-272 Indexes.

Ceramic Types		No. Poles	No. Positions	Phenolic Types	
CRL Number	Shorting/Non-Short.			CRL Number	Shorting/Non-Short.
TD	XD	1	2-6	AD	HD
UD	YD	1	2-11	BD	JD
PD	RRD	2	2-5	CD	KD
SD	SSD	3	2-3	DD	LD
VD	ZD	4	2-3	ED	MD
		1	2-5	ED	BBB
		1	2-5	FD**	AAD**
GCD*	FFD*	1	2-11	GD*	CCD*
PISD†		1	2-10	PID†	
NSD and PSD		Resistance Decade†		ND and PD	
QSD		Capacitance Decade†		QD	

\*All unused contacts connected and shorted out. †9 contacts, open in full CW, progressively picked up and shorted to common with CWW rotation. †Combine for resistance decade switch. \*\*Unused contacts one side of common connected and shorted out.

**SEPARATE INDEX ASSEMBLIES**  
Deluxe Type: 1-piece shaft, .187" thick flat; use deluxe 1400 or 2500 Series sections. Units include index, pointer knob and hardware for complete assembly.  
CRL No. P-270—For 1-3 sections; 2" rear shaft.  
CRL No. P-271—For 3-5 sections; 4" rear shaft.  
CRL No. P-272—For 5-10 sections; 8" rear shaft.

**INDUSTRIAL NET PRICES**

**CERAMIC SWITCHES, SECTIONS**

CRL Model Number	Net Each, Lots of					
	1-4	5-9	10-24	25-49	50-99	100-249
2500 thru 2507	\$2.82	\$2.35	\$2.12	\$2.01	\$1.88	\$1.69
2510 thru 2517	4.02	3.35	3.02	2.87	2.68	2.41
2520 thru 2525	5.16	4.30	3.87	3.68	3.44	3.10
All Sections	1.35	1.13	1.02	.97	.90	.81

**PHENOLIC SWITCHES, SECTIONS**

CRL Model Number	1-4	5-9	10-24	25-49	50-99	100-249
1400 thru 1409	\$2.52	\$2.10	\$1.89	\$1.80	\$1.68	\$1.51
1410 thru 1419	3.06	2.55	2.30	2.19	2.04	1.84
1420 thru 1425	3.90	3.25	2.93	2.78	2.60	2.34
1426 thru 1431	4.50	3.75	3.38	3.21	3.00	2.70
AD, BD, CD, DD, ED	1.05	.88	.79	.75	.70	.63
HD, JD, KD, LD, MD	1.05	.88	.79	.75	.70	.63
EED and BBD	1.35	1.13	1.02	.97	.90	.81
FD, GD, PID, ND, PD	1.05	.88	.79	.75	.70	.63
QD, AAD, CCD	1.05	.88	.79	.75	.70	.63

**INDEX ASSEMBLIES**

CRL No.	1-4	5-9	10-24	25-49	50-99	100-249
P-270	\$1.65	\$1.38	\$1.24	\$1.18	\$1.10	\$0.99
P-271	2.10	1.75	1.58	1.50	1.40	1.26
P-272	2.85	2.38	2.14	2.03	1.90	1.71

**ECONOMY LEVER ACTION SWITCHES**  
New nylon rotor design results in low cost for use singly or in groups. Have positive and/or spring return Index design with shorting or non-shorting contacts. High-quality laminated phenolic insulation, clips and contacts silver-plated brass. Rated 2.75 amps at 15 v. DC, 230 ma at 115 v. AC. Two-hole type mounting bracket supplied with 8-32 tapped holes. Dimensions of single switch  $\frac{3}{8}$ " w. x  $1\frac{1}{2}$ " h. x  $1\frac{1}{2}$ " d. behind panel. Complete with knob and mounting hardware. Shipping weight, 4 oz. Index Abbreviations: Pos., Positive; Sp., Spring Return.

CRL No.	Shorting	Non-Shorting	No. Poles	No. Pos.	Index	Net Each, Lots of					
						1-4	5-9	10-24	25-49	50-99	100-249
1452	1454	2	3	Pos.	\$1.26	\$1.05	\$0.95	\$0.90	\$0.84	\$0.76	
1453	1455	2	3	Sp.	1.26	1.05	.95	.90	.84	.76	
1466	1467	2	3	Pos., Sp.	1.26	1.05	.95	.90	.84	.76	
1456	1457	4	2	Sp.	1.44	1.20	1.08	1.03	.96	.86	
1459	1458	4	2	Pos.	1.44	1.20	1.08	1.03	.96	.86	

**Mounting Plates for Lever Switches**—Type A made of .035" die cut steel, black crackle finish. Provides  $\frac{3}{4}$ " spacing between switches. Type B for use in electrical outlet boxes. Satin chrome steel with mounting holes  $3\frac{3}{4}$ " between centers. Shpg. Wt., 4 oz.

CRL No.	Fig.	No. Switches	Size, Inches	CRL No.	Fig.	No. Switches	Size, Inches
P-1755	A	1	$\frac{3}{4}$ x $2\frac{3}{4}$	P-1759	A	5	$3\frac{3}{4}$ x $2\frac{3}{4}$
P-1756	A	2	$1\frac{1}{2}$ x $2\frac{3}{4}$	P-221	B	2	$2\frac{3}{4}$ x $4\frac{1}{2}$
P-1757	A	3	$2\frac{1}{4}$ x $2\frac{3}{4}$	P-222	B	1	$2\frac{3}{4}$ x $4\frac{1}{2}$
P-1758	A	4	$3\frac{1}{4}$ x $2\frac{3}{4}$				

**INDUSTRIAL NET PRICES**

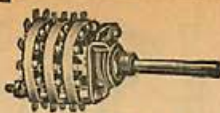
CRL Number	Net Each, Lots of					
	1-4	5-9	10-24	25-49	50-99	100-249
Type A Plates	\$0.30	\$0.25	\$0.23	\$0.22	\$0.20	\$0.18
Type B Plates	.63	.53	.48	.46	.42	.38

**CENTRALAB IS CONSTANTLY DEVELOPING AND MAKING BETTER PRODUCTS. AS THEY ARE RELEASED, WE WILL ADD THEM TO OUR COMPLETE UP-TO-DATE STOCK**





PA Series



PS Series

### MIL-S-3786A STYLE SRO3

### MINIATURE CERAMIC SWITCHES

Designed to meet MIL-S-3786A. Insulated with Grade L-533 steatite, Dow Corning 200 silicone treated against surface moisture. Breakdown, 1000 VAC rms between critical parts. Coin silver clips and contacts; hot tin-dipped terminals. Adjustable stops or continuous rotation on 30° index. Ceramic sections 1 1/2" dia. x .125" th. Single hole mounting with locating lug at 1/2" radius. Bushing, 3/8"-32NEF-2A threaded, 3/8" lg. from mtg. surface. Shaft 1/4" dia. full round, 2 1/4" lg. from mtg. surface. With nut, lockwasher and P-120 pointer knob. Ratings: 450 mA at 115 VAC; 8 amps, 6 VDC; 5.5 amps, 12 VDC (make-break resistive load).

### SERIES PA-6000 SWITCHES

CRL Number		Poles to Section	No. Sections	No. Poles	No. Positions
Shorting	Non-Short				
PA-6000	PA-6001	1	1	1	2-11
PA-6002	PA-6003	2	1	2	2-5
PA-6004	PA-6005	1	2	2	2-11
PA-6006	PA-6007	3	1	3	2-3
PA-6010*	PA-6011*	4	1	4	2
PA-6012	PA-6013	2	2	4	2-5
PA-6018	PA-6019	3	2	6	2-3
PA-6024*	PA-6025*	4	2	8	2

\*Fixed, 2-position stop.

### SEPARATE INDEX ASSEMBLY

CRL No. PA-600—Used with PA-60, PA-70 or PA-80 separate sections to assemble special units of 1 to 4 sections; 30° indexing. Rear shaft 2" long.

### SEPARATE SECTIONS, 30° INDEXING

Used with PA-600 index assembly. Hot solder-dipped terminals. Coin silver clips and contacts. Sections 1 1/2" dia. Phenolic types rated 1000 VAC rms between critical parts. Phenolic types .062" thick; others .125" thick.

Total Poles	No. Pos.	Phenolic Secs.		Mycalex Secs.		Ceramic Secs.	
		Shorting	Non-Short	Shorting	Non-Short	Shorting	Non-Short
1	2-11	PA-60	PA-61	PA-70	PA-71	PA-80	PA-81
2	2-5	PA-62	PA-63	PA-72	PA-73	PA-82	PA-83
3	2-3	PA-64	PA-65	PA-74	PA-75	PA-84	PA-85
4	2	PA-66	PA-67	PA-76	PA-77	PA-86	PA-87

### INDUSTRIAL NET PRICES

CRL Number	Net Each, Lots of					
	1-4	5-9	10-24	25-49	50-99	100-249
PA-6000 thru PA-6003	\$3.39	\$2.83	\$2.55	\$2.42	\$2.26	\$2.03
PA-6004 and PA-6005	5.19	4.33	3.90	3.71	3.46	3.11
PA-6006 thru PA-6011	3.39	2.83	2.55	2.42	2.26	2.03
PA-6012 thru PA-6025	5.19	4.33	3.90	3.71	3.46	3.11
PA-60 thru PA-67	1.50	1.25	1.13	1.07	1.00	.90
PA-70 thru PA-77	1.35	1.13	1.02	.97	.90	.81
PA-80 thru PA-87	1.98	1.65	1.49	1.42	1.32	1.19

NOTE: Items requiring certified test data and government source inspection are special. Prices and information supplied on request.

### MULTIPLE POSITION SWITCHES

Laminated phenolic insulation, type PBE per MIL-P-3115B. Voltage breakdown between critical parts 1000 VAC, rms. Bushing 3/8" thd., 3/8" lg. Shaft 1/4" dia., 2 1/4" lg. from mtg. surface. Rated 5.5 amps, 6 VDC; 2.75 amps, 15 VDC; 1.75 amps, 24 VDC; 230 mA, 115 VAC, rms. Shpg. Wt., 4 oz. per section. PA-3000 Series—18-position. Provides accurate crisp indexing in both single and multiple-section versions through the use of new hill-and-dale Index. Sections 2 1/4" w. x 2 3/4" h. x 1/8" thick. Positive 20° indexing. Adjustable stops or continuous rotation. PA-4000 Series—24-position. Sections 1 3/4" w. x 2 3/4" h. x 1/8" thick.

CRL No. PA-Short.	CRL No. PA-Non-Short.	*	No. Pos.	Net Each, Lots of					
				1-4	5-9	10-24	25-49	50-99	100-249
3000	3001	1	2-17	\$2.04	\$1.70	\$1.53	\$1.45	\$1.36	\$1.22
3002	3003	2	2-17	2.94	2.45	2.21	2.09	1.96	1.76
3004	3005	3	2-17	3.84	3.20	2.88	2.74	2.56	2.30
3006	3007	4	2-17	4.68	3.90	3.51	3.33	3.12	2.81
4000	4001	1	2-23	2.16	1.80	1.62	1.54	1.44	1.30
4002	4003	2	2-23	3.18	2.65	2.39	2.27	2.12	1.91
4004	4005	3	2-23	4.17	3.48	3.13	2.97	2.78	2.50
4006	4007	4	2-23	4.98	4.15	3.74	3.55	3.32	2.99

\*Number of poles and number of sections.

### SERIES PS SUBMINIATURE ROTARY SWITCHES

Deluxe, ceramic insulated rotary switches that are ultra-small. Weigh less than 1 oz., each, yet have the same electrical ratings as switches much heavier and larger. Ideally suited for band switching, transistor circuits, aircraft instruments, etc. Insulation is Dow Corning 200 Silicone treated L-533 steatite; resistance exceeds 10,000 megohms. Size: Ceramic sections 1/2" thick spaced 1/4" apart with ceramic spacing; spacing between front plate and first section, 1/2". All hardware except clips, contacts, and index spring are of cadmium plated steel. Mounting: Single hole with optional locating lug on 3/8" radius. Bushing 1/4"-32 thread, 1/4" long. Shaft 1/4" dia. x 1 1/4" long. Rated: Make and break, resistance load 3.5 amps at 6 volts DC, 160 milliamperes at 110 VAC. Index: Positive 30°; fixed stop.

### SERIES PS (CONTINUED)

CRL Number		Total Poles	No. of Positions	Poles Per Sec.	No. of Sections
Shorting	Non-Shorting				
PS-100	PS-101	1	11	1	1
PS-102	PS-103	2	11	1	2
PS-104	PS-105	2	5	2	1
PS-106	PS-107	3	11	1	3
PS-108	PS-109	3	5	3	2
PS-110	PS-111	4	5	2	4
PS-112	PS-113	4	2	4	1
PS-114	PS-115	6	5	2	3
PS-116	PS-117	6	3	3	2
PS-118	PS-119	8	2	4	2
PS-120	PS-121	9	3	3	3
PS-122	PS-123	12	2	4	3

### SEPARATE SECTIONS

Ceramic*		Phenolic		Total Poles	No. Pos.	Fixed Stop Indexing
Short.	Non-Short.	Short.	Non-Short.			
PS-20	PS-21	PS-40	PS-41	1	11	
PS-22	PS-23	PS-42	PS-43	2	5	Use P-501 thru P-511
PS-24	PS-25	PS-44	PS-45	3	3	
PS-26	PS-27	PS-46	PS-47	4	2	

Breakdown Voltage: \*1500 VAC rms; †1000 VAC rms.

### SEPARATE INDEX ASSEMBLIES

Designed for maximum of three sections. Includes: Index and shaft assembly; P-106 knob; six 3/8" spacers; two 1/4" spacers; two 1/2" spacers; two 3/8" spacers; two 1 1/2" tie bolts; nuts, lockwashers, washers; and 16 plastic spacer washers.

CRL Number	No. of Positions	CRL Number	No. of Positions
P-501	2	P-507	8
P-502	3	P-508	9
P-503	4	P-509	10
P-504	5	P-510	11
P-505	6	P-511	Continuous Rotation
P-506	7		

### INDUSTRIAL NET PRICES

CRL Number	Shorting	Non-Short.	Net Each, Lots of					
			1-4	5-9	10-24	25-49	50-99	100-249
PS-100	PS-101	\$4.80	\$4.00	\$3.60	\$3.42	\$3.20	\$2.88	
PS-102	PS-103	6.02	5.00	4.50	4.28	4.00	3.60	
PS-104	PS-105	4.80	4.00	3.60	3.42	3.20	2.88	
PS-106	PS-107	7.20	6.00	5.40	5.13	4.80	4.32	
PS-108	PS-109	4.80	4.00	3.60	3.42	3.20	2.88	
PS-110	PS-111	6.00	5.00	4.50	4.28	4.00	3.60	
PS-112	PS-113	4.80	4.00	3.60	3.42	3.20	2.88	
PS-114	PS-115	7.20	6.00	5.40	5.13	4.80	4.32	
PS-116	PS-117	6.00	5.00	4.50	4.28	4.00	3.60	
PS-118	PS-119	6.00	5.00	4.50	4.28	4.00	3.60	
PS-120	PS-121	7.20	6.00	5.40	5.13	4.80	4.32	
PS-122	PS-123	7.20	6.00	5.40	5.13	4.80	4.32	
PS-20 thru PS-27		2.10	1.75	1.58	1.50	1.40	1.26	
PS-40 thru PS-47		1.68	1.40	1.26	1.20	1.12	1.01	
P-501 thru P-511		1.95	1.63	1.47	1.40	1.30	1.17	

### PACKAGED SWITCH HARDWARE

#### FOR 1400 AND 2500 SERIES SWITCHES

CRL No.	Description	Pkg. 100	CRL No.	Description	Pkg. 100
P-124	3/4" metal spacer	\$1.80	P-145	7" screw	\$ 8.40
P-125	3/4" metal spacer	1.80	P-146	9" screw	12.00
P-126	1" metal spacer	1.80	P-147	Nut	1.80
P-127	1" metal spacer	1.80	P-148	Lockwasher	1.80
P-128	1" metal spacer	1.80	P-177	Phenol. spacer wshr.	1.80
P-136	1" screw	1.80	P-181	steatite spacer	4.80
P-137	1 1/2" screw	1.80	P-187	steatite spacer	4.80
P-138	2" screw	4.80	P-188	steatite spacer	4.80
P-139	2 1/2" screw	4.80	P-189	steatite spacer	4.80
P-149	1 1/2" screw	8.40	P-190	steatite spacer	4.80
P-143	5" screw	8.40	P-192	steatite spacer	8.40

#### FOR PA-6000 SERIES MINIATURE SWITCHES

P-395	Min. MIL screw	\$8.40	P-397	Min. MIL lockwasher	\$ 1.80
P-396	Min. MIL nut	1.80	P-398	MIL spacer washer	1.80

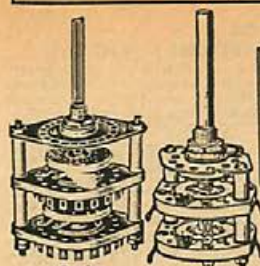
#### FOR PS-100 SERIES SUBMINIATURE SWITCHES

P-515	1 1/2" screw	\$8.40	P-520	1 1/2" steatite spacer	\$1.80
P-516	Nut	1.80	P-521	1 1/2" steatite spacer	1.80
P-517	Lockwasher	1.80	P-522	1 1/2" steatite spacer	1.80
P-518	Flat washer	1.80	P-523	1 1/2" steatite spacer	1.80
P-519	Spacer washer	1.80	P-524	1 1/2" steatite spacer	1.80

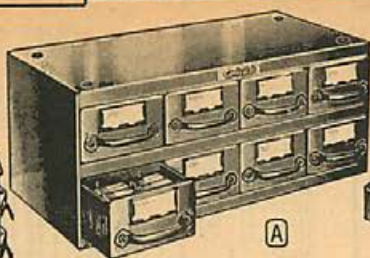
#### FOR PA-1000 & PA-2000 SERIES MINIATURE SWITCHES

CRL No.	Description	Pkg. 100	CRL No.	Description	Pkg. 100
P-319	Min. stop plate	\$4.80	P-348	3/8" steatite spacer	\$ 4.80
P-325	1/2" steatite spacer	4.80	P-350	1/2" steatite spacer	4.80
P-326	3/4" steatite spacer	4.80	P-352	1" steatite spacer	4.80
P-328	1" steatite spacer	4.80	P-362	1" screw	1.80
P-329	1 1/2" steatite spacer	4.80	P-370	2" screw	4.80
P-330	2" steatite spacer	4.80	P-374	2 1/2" screw	4.80
P-332	3" steatite spacer	4.80	P-382	4" screw	8.40
P-334	4" steatite spacer	4.80	P-384	5" screw	8.40
P-336	5" steatite spacer	4.80	P-388	7" screw	12.00
P-340	1 1/2" steatite spacer	4.80	P-390	Nut	1.80
P-342	1" steatite spacer	4.80	P-392	Lockwasher	1.80
P-344	3/4" steatite spacer	4.80	P-394	Phen. spacer washer	1.80

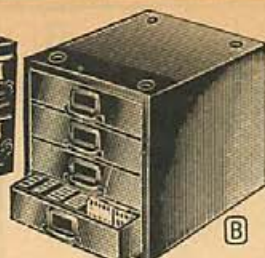




Series JV-9000 Ham Switch



A



B



C

**SERIES JV-9000 HEAVY-DUTY POWER SWITCHES**  
Rotary power switch insulated with Grade L-533 steatite. Rated: 9 amps, 110 VAC; 30 amps, 5 VDC; 15 mA, 2500 VAC. Break-down, 3000 VAC rms between critical parts. Coin silver contacts; 20° indexing adjustable stop. Mtg. bushing 3/8"-32 thread, 7/8" long. Sections 2 1/4" dia. Shipping Weight, 6 oz. per section.

**SERIES JV-9000 ROTARY SWITCHES**

CRL Number		Poles to Section	No. Sections	No. Poles	No. Positions
Shorting	Non-Shorting				
JV-9000	JV-9001	1	1	1	2-17
JV-9002	JV-9003	3	1	3	2-5
JV-9004	JV-9005	1	2	2	2-17
JV-9006	JV-9007	3	2	6	2-5
JV-9008	JV-9009	1	3	3	2-17
JV-9010	JV-9011	3	3	9	2-5
JV-9012	JV-9013	1	4	4	2-17
JV-9014	JV-9015	3	4	12	2-5
JV-9016	JV-9017	1	5	5	2-17
JV-9018	JV-9019	3	5	15	2-5
JV-9020	JV-9021	1	6	6	2-17
JV-9032	JV-9033	2	1	2	2-8
JV-9034	JV-9035	2	2	4	2-8
JV-9036	JV-9037	2	3	6	2-8
JV-9038	JV-9039	2	4	8	2-8

**SERIES JV-9000 SEPARATE SECTIONS**

CRL Number		Number Poles	Number Positions
Shorting	Non-Shorting		
JV-8	JVN-8	1	2-17
JV-9	JVN-9	3	2-5
JV-10	JVN-10	2	2-8
JV-18*	JVN-18*	1	2-18

\*Rotor has 17 fingers making contact with 17 contacts on stator, leaving one contact open. By cutting off unwanted fingers this section can be adapted to special circuits, e.g., one off, nine progressively shorting positions.

**SERIES JV-9000 DIAL PLATES, INDEX ASSEMBLY**

CRL Nos. P-230, P-231 or P-232—2 1/4" dia., etched aluminum on black background; 20°; marked 1-5 for P-230, 1-8 for P-232, and 1-17 for P-231.

CRL No. JV-7 Index Assembly—Includes shaft, tie rods, spacers, nuts and lockwashers, adjustable stop pin, 2" black bar knob and dial plate.

**INDUSTRIAL NET PRICES**

CRL Number	Net Each, Lots of				
	1-4	5-9	10-24	25-49	50-99
JV-9000 thru JV-9003	\$10.50	\$ 8.75	\$ 7.88	\$ 7.49	\$ 7.00
JV-9004 thru JV-9007	17.40	14.50	13.05	12.40	11.60
JV-9008 thru JV-9011	24.30	20.25	18.23	17.32	16.20
JV-9012 thru JV-9015	31.20	26.00	23.40	22.23	20.80
JV-9016 thru JV-9019	38.10	31.75	28.58	27.15	25.40
JV-9020 and JV-9021	45.30	37.75	33.98	32.28	30.20
JV-9032 and JV-9033	10.50	8.75	7.88	7.49	7.00
JV-9034 and JV-9035	17.40	14.50	13.05	12.40	11.60
JV-9036 and JV-9037	24.30	20.25	18.23	17.32	16.20
JV-9038 and JV-9039	31.20	26.00	23.40	22.23	20.80
JV-8 thru JV-10	6.90	5.75	5.18	4.92	4.60
JV-18 and JVN-18	6.90	5.75	5.18	4.92	4.60
JV-7 Index	7.50	6.25	5.63	5.35	5.00
P-230 thru P-232	4.50	3.75	3.38	3.21	3.00
	.21	.18	.16	.15	.14

**STEATITE HAM-TYPE SWITCHES**

Heavy-duty Grade L-533 steatite insulation for ham applications. Available in 60° and 90° index. All metal parts except clips and contacts are cadmium plated steel; all units have phenolic shaft through switch sections. Positive index with adjustable stop; 60° units have 2-6 active positions; 90° units, 2-4. Single hole mounting: 3/8"-32 thread bushing 3/8" long. Shaft 1/2", 2 1/4" long, full round. Rated: 250 milliamperes at 115 VAC; 5 milliamperes at 1500 V AC; 1.75 amps at 24 VDC, will handle 15 watts; for tubes operating at voltages up to 1 kV and inputs to 150 watts. Unit complete includes mounting nut, lockwasher, pointer knob and dial plate. Shipping Weight, 4 oz. per section.

**NON-SHORTING HAM SWITCHES**

CRL Number	No. Poles	Net Each, Lots of						
		1-4	5-9	10-24	25-49	50-99		
2542	2550	1	52.37	\$1.98	\$1.78	\$1.69	\$1.58	\$1.42
2543	2551	2	3.36	2.80	2.52	2.39	2.24	2.02
2544	2552	3	4.32	3.60	3.24	3.08	2.88	2.59
2545	2553	4	5.34	4.45	4.01	3.81	3.56	3.21
2546	2554	5	6.30	5.25	4.73	4.49	4.20	3.78
XXD†	ZZD†	1	1.20	1.00	.90	.86	.80	.72

\*One pole per section. †Separate sections; use with "P" Series Index assemblies.

**SEPARATE INDEX ASSEMBLIES**  
Deluxe 90° and 60° Types: 2-piece shaft with phenolic rear, metal front; for high voltage operation; use XXD section for 90°; use ZZD section for 60°.

CRL No. 90°	CRL No. 60°	Rear Shaft	Suggested No. Sections
P-278	P-273	2"	1 to 2
P-279	P-274	4 1/4"	3 to 4
P-280	P-275	7"	5 to 8

CRL Number Index Assembly	Net Each, Lots of				
	1-4	5-9	10-24	25-49	50-99
P-278 and P-278	\$1.38	\$1.15	\$1.04	\$0.99	\$0.92
P-274 and P-279	1.74	1.45	1.31	1.25	1.16
P-275 and P-280	2.16	1.80	1.62	1.54	1.44

**DUAL SPEAKER SWITCH KIT**

(Not Illustrated) Primarily designed for rear seat auto radio speaker applications. It is adaptable, however, to many commercial applications. Contains: 1484 switch, P-216 bracket-dial plate, P-401 knob, two self-tapping metal screws and instruction sheet. CRL No. PK-300—**\$1.05** Net Each.

**CENTRALAB SWITCH KITS**

**STANDARD KITS (FIG. A)**

Convenient, ready source of stock sections, indexes and hardware. Packed in heavy gauge steel, 8-drawer Equipto cabinet, 23 1/4" w. x 9 1/2" h. x 12" d. with blue, baked enamel finish.

CRL No. SWK-810 Kit—PA-1000 series miniature phenolic parts: 106 pieces of 1 1/4" dia. phenolic sections, 32 index assemblies with spacers, nuts, washers, knobs and dial plates. Makes **\$177.00** up to 32 regular or special switches. Net Each.

CRL No. SWK-820 Kit—PA-2000 series miniature ceramic parts: 102 pieces of 1 1/4" dia. steatite sections, 32 index assemblies with spacers, washers, nuts, knobs and dial plates. Makes **\$210.00** up to 32 regular or special switches. Net Each.

CRL No. SWK-814 Kit—1400 series phenolic switch parts: 100 pieces of 1 1/4" dia. phenolic sections, 30 index assemblies with spacers, washers, nuts, knobs and dial plates. Makes **\$184.80** 30 regular or special switches. Net Each.

CRL No. SWK-825 Kit—2500 series ceramic switch parts: 100 pieces of 1 1/4" dia. steatite sections, 29 index assemblies with spacers, washers, nuts, knobs and dial plates. Both 30° and 60° indexes and sections included. Makes 29 switches. **\$208.00** Net Each.

CRL No. SWK-860 Kit—PA-6000 series miniature ceramic military switch parts: 76 pcs. of 1 1/2" dia. sections, 32 ceramic, 24 phenolic and 20 Mycalex\* sections, 35 index assemblies with spacers, washers, nuts and dial plates. Makes 35 regular or special switches. Net Each. **\$208.20**

\*Mycalex Corp. of America trademark.

**JUNIOR SIZE SWITCH KITS (FIG. B)**

Packed in attractive light blue and gray 4-drawer steel cabinets 10" x 11 1/4" x 10". With balanced stock of index assemblies and separate sections for every application.

CRL No. SWK-410 Kit—PA-1000 series miniature phenolic parts: 48 phenolic 1 1/4" dia. sections, 13 index assemblies and hardware for making 13 phenolic regular or special switches. **\$73.00** Net Each.

CRL No. SWK-420 Kit—PA-2000 series miniature ceramic parts: 52 ceramic 1 1/4" dia. switch sections, 13 complete index assemblies and hardware for making 13 ceramic regular or special **\$95.80** switches. Net Each.

CRL No. SWK-460 Kit—PA-6000 series miniature military switch parts: 45 1 1/2" dia. phenolic sections, 15 complete index assemblies, plus hardware. Makes 15 regular or special switches. **\$89.80** Net Each.

CRL No. SWK-480 Kit—PA-6000 series miniature military switch parts: 24 ceramic and 16 Mycalex sections, 1 1/2" dia.; 15 complete index assemblies, plus hardware. Makes 15 **\$107.80** switches. Net Each.

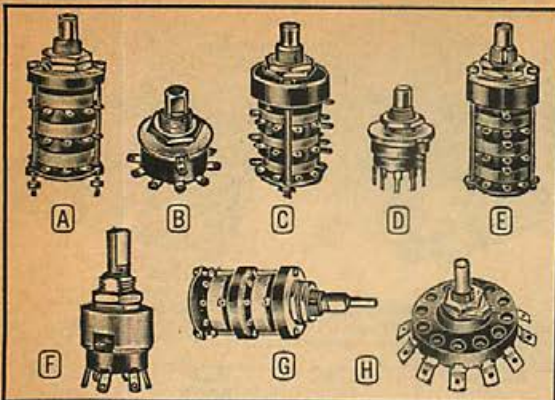
CRL No. SWK-400 Kit—PS100 series subminiature switch parts: 30 1" ceramic sections, 16 complete index assemblies, plus hardware for assembling 16 regular or special switches. **\$117.40** Net Each.

**CUSTOM SWITCH KIT (FIG. C)**

Contains all the parts and tools necessary for any prototype designer to construct the special switch he needs. Packed in handy metal tray cabinet, set up and ready to use. Makes 25 four-section miniature rotary phenolic or ceramic switches with factory precision. Contact nibbling tool can cut any contact arrangement you need. **\$150.00**

CRL No. PK-20-S Kit—Complete. Net Each. ....





## SERIES 5000 MINIATURE ROTARY TAP SWITCHES (FIGS. A AND B)

Light commercial detent switch. Available with 1 to 10 decks, one pole per deck. Enclosed rotary design with two to ten positions per deck. 36° indexing. Stops standard on positions two to nine; ten positions continuous rotation unless otherwise specified. Available in shorting or non-shorting wiring contacts. Base is molded melamine per MIL-M-14, Type CMG. Detent housing, deck separators, and end plate are molded phenolic per MIL-M-14, Type CFG. Rotor contact silver-plated phosphor bronze; lead-tin plated brass terminals; silver-plated brass stator contacts and common plate. Single deck cover, bushings and nuts are cadmium-plated brass. Other metal parts are stainless steel, including passivated shaft. Rotor mounting plate is nylon fabric based, laminated phenolic per MIL-P-15047, Type NPG. Switches of five decks or more have studs extending 1/4" at rear to permit double end mounting to eliminate twisting. Single hole mounting with 3/32 NEF-2 thread with keyway and hex nut. Flatted type shaft.

**Rating:** Breaks 1 amp at 115 v. AC resistive; carries 5 amps. **Contact Resistance:** .003 typical for a new switch. **Insulation Resistance:** In excess of 30,000 megohms. **Life Expectancy:** 100,000 operations normally. **Size:** 1 1/2" max. dia. Threaded to fit panels up to 1/2" thick. Shaft, .310" long. **When Ordering:** Specify number of decks, number of positions and shorting or non-shorting type. See ordering information below.

No. of Decks	Positions Per Deck									
	2	3	4	5	6	7	8	9	10	
1*	\$1.60	\$1.65	\$1.70	\$1.75	\$1.80	\$1.85	\$1.90	\$1.95	\$2.00	
2†	3.60	3.70	3.80	3.90	4.00	4.10	4.20	4.30	4.40	
3‡	4.40	4.55	4.70	4.85	5.00	5.15	5.30	5.45	5.60	
4§	5.15	5.35	5.55	5.75	5.95	6.15	6.35	6.55	6.75	
5¶	5.95	6.20	6.45	6.70	6.95	7.20	7.45	7.70	7.95	
6*	6.85	7.25	7.65	8.05	8.45	8.85	9.25	9.65	10.05	
7*	7.75	8.20	8.65	9.10	9.55	10.00	10.45	10.90	11.35	
8*	8.65	9.15	9.65	10.15	10.65	11.15	11.65	12.15	12.65	
9†	9.60	10.15	10.70	11.25	11.80	12.35	12.90	13.45	14.00	
10‡	10.55	11.15	11.75	12.35	12.95	13.55	14.15	14.75	15.35	

Depth back of panel: \*.047", †.125", ‡.166", §.206", ¶.247", \*\*2.87", \*\*\*3.28", §.369", ¶.410", §.450".

## SERIES 24 MINIATURE TAP SWITCHES (FIGS. C, D)

Fully enclosed for high reliability in military and commercial uses. Accurate indexing with precision detent. One pole per deck, 1 to 10 decks; 2 to 9 positions with stop, or 10 positions continuous rotation; shorting or non-shorting; 36° indexing. Rated to break 1 amp, 115 v. AC resistive; carry 5 amps. Keyed bushing threaded 3/32 x .310" O.D.; solder terminals; 1/4" lg. flatted shaft. Studs, of units 5 decks or more, extend 1/4" at rear for double-ended mounting. Molded melamine and phenolic housing; studs, shaft and end plates are 303 stainless steel. Deck cover, bushings and brass nuts .0003"-.0005" cadmium plated. Heavy silver-plated contacts. Meets many MIL tests. With mounting nut.

No. of Decks	Positions Per Deck									
	2	3	4	5	6	7	8	9	10	
1*	\$2.90	\$3.00	\$3.10	\$3.25	\$3.35	\$3.45	\$3.55	\$3.65	\$3.80	
2†	4.30	4.40	4.50	4.60	4.75	4.85	4.95	5.05	5.15	
3‡	5.00	5.15	5.30	5.45	5.65	5.80	5.95	6.15	6.30	
4§	5.70	5.90	6.10	6.30	6.55	6.80	7.05	7.30	7.55	
5¶	6.40	6.65	6.90	7.15	7.45	7.75	8.05	8.35	8.65	
6*	7.15	7.45	7.75	8.05	8.40	8.75	9.10	9.45	9.80	
7*	7.95	8.30	8.65	9.00	9.40	9.80	10.20	10.60	11.00	
8*	8.75	9.15	9.55	9.95	10.40	10.85	11.30	11.75	12.20	
9†	9.65	10.10	10.55	11.00	11.50	12.00	12.50	13.00	13.50	
10‡	10.55	11.05	11.55	12.05	12.60	13.15	13.70	14.25	14.80	

Depth back of panel: \*.058", †.139", ‡.177", §.214", ¶.252", \*\*2.89", \*\*\*3.27", §.364", ¶.406", §.449".

## SERIES 24-778 PRINTED CIRCUIT SWITCH (FIG. D)

Identical to single deck Series 24 switch, except has bayonet type terminals for printed circuit use. Supplied with 10 mounting terminals. Number of positions determined by stops. Specify number of positions when ordering. Net Each..... \$4.30

## ORDERING INFORMATION ON ROTARY TAP SWITCHES

When ordering Series 5000, Series 24800 and Series 24 assemblies proceed as follows: **Series 5000:** Prefix is 500 for all units; add the number of decks and positions per deck desired to the prefix (i. e. 5002-3 denotes a Series 5000 switch assembly with two decks and three positions per deck). **Series 24800:** Prefix is 24800 for all units; add number of decks and positions (24801-2 for Series 24800 assembly with one deck and two positions per deck). **Series 24:** Prefix is 24000 for all units; add the number of decks and positions (i. e., 24002-3 denotes a Series 24 assembly with two decks and three positions per deck. To designate shorting type, add suffix S on all types. **NOTE:** All prices are Net Each for 1-49. In lots of 50-99, deduct 25%; for lots of 100 or more, write for OEM quantity pricing.

## SERIES 24

### SPRING RETURN TAP SWITCHES (FIG. E)

Spring return rotary, same as Series 24, except gives momentary contact on one or two positions. When on momentary contact position, rotor returns to the adjacent detent position on releasing knob. For shorting contacts, add suffix S to number when ordering.

Contact Terminal No.*	1 Deck				2 Decks		3 Decks	
	9	10	1	2	Num-ber	Net Each	Num-ber	Net Each
M D	M				24101	\$4.75	24102	\$5.25
M D	D				24501-5	5.25	24502-5	5.75
M D	D	D			24501-4	5.00	24502-4	5.50
M D	D	D	D		24501-3	4.75	24502-3	5.25
M D	D	D	D	D	24501-2	4.50	24502-2	5.00
D	D	D	D	M	24401-5	5.25	24402-5	5.75
D	D	D	D	M	24401-4	5.00	24402-4	5.50
D	D	D	D	M	24401-3	4.75	24402-3	5.25
D	D	D	D	M	24401-2	4.50	24402-2	5.00

\*D indicates detent position with maintained contact; M indicates momentary position which returns to the adjacent detent position when knob is released.

## SERIES 24800 MIL SWITCHES (FIG. C)

Identical to Series 24 in construction, ratings and finishes except nickel-plated bushing and Teflon\* or equivalent insulation on through bolts. Single deck switches made per multi-deck construction. Specifically engineered to meet MIL-S-3786A-SR04 and MS-16109D specifications. Switches ordered to MIL-S-3786A are furnished with integral non-turn device, one mounting nut and internal toothed lockwasher. Switches ordered to MS-16109D are supplied to that specification. **When Ordering:** Be sure to state which specification is applicable since marking differs. Specify number of decks, number of positions and shorting or non-shorting type. See ordering information below.

No. of Decks	Positions Per Deck									
	2	3	4	5	6	7	8	9	10	
1*	\$5.20	\$5.35	\$5.45	\$5.60	\$5.70	\$5.85	\$5.95	\$6.05	\$6.20	
2†	6.05	6.15	6.25	6.35	6.50	6.65	6.75	6.85	7.00	
3‡	6.85	7.00	7.15	7.35	7.55	7.70	7.85	8.10	8.25	
4§	7.60	7.85	8.05	8.30	8.55	8.85	9.10	9.40	9.65	
5¶	8.40	8.70	8.95	9.25	9.55	9.90	10.25	10.55	10.90	
6*	9.25	9.60	9.90	10.25	10.65	11.00	11.40	11.80	12.20	
7*	10.15	10.55	10.95	11.30	11.75	12.20	12.65	13.10	13.50	
8*	11.05	11.50	11.95	12.40	12.90	13.35	13.85	14.35	14.85	
9†	12.10	12.55	13.05	13.55	14.10	14.65	15.20	15.75	16.30	
10‡	13.10	13.65	14.20	14.75	15.35	15.95	16.55	17.15	17.75	

Depth back of panel: \*.969", †1.39", ‡1.77", §.214", ¶.252", \*\*2.89", \*\*\*3.27", §.364", ¶.406", §.449". \*DuPont T.M.

## SERIES 45 MIDGET SWITCHES (FIG. F)

Single deck, single pole enclosed switch offers 2-6 positions (stops standard on two to five positions; continuous rotation, six positions unless otherwise specified), 60° indexing. Cadmium plated brass housing and bushing. Stainless steel shaft with flat opposite contact point. Lead-tin plated brass, solder-type terminals; silver-plated phosphor bronze rotor contact; silver-plated brass stator contacts. Common terminal and plate gold flash over silver-plated brass. Base molded melamine per MIL-M-14, Type CMG. **Rated:** To break 1 amp at 115 v. AC, resistive; carries 5 amps. **Contact Resistance:** .004 ohm approx. **Initial Life Expectancy:** 100,000 cycles. **When Ordering:** Add suffix S to number for shorting type. **Size:** 1.41" l. overall x 0.64" O.D.; 0.76" d. behind panel. Threaded 1/8-32 NS-2 x .25" long.

No.	No. Positions	Net Ea.	No.	No. Positions	Net Ea.
45001-2	2	\$6.00	45001-5	5	\$6.30
45001-3	3	6.10	45001-6	6	6.40
45001-4	4	6.20			

## SERIES 19 U/L POWER TAP SWITCHES (FIG. H)

U/L Listed. Single pole, single deck; 2-11 positions plus common; 30° indexing, non-shorting only; built-in stops. Faston or solder terminals standard. Silver alloy rotor and stator contacts. Silver-plated brass detent and terminals. Mineral-filled phenolic, per MIL-M-14E, Type MFH, insulating material. **Rating:** 15 amps, 125 v. AC resistive. **Contact Resistance:** .010 ohm, new switch. **Insul. Resist.:** 100,000 megohms between mutually insulated parts. **Breakdown:** 3500 v. AC, between insulated parts. **Torque:** 22 in.-oz. **Contact Force:** 12 oz. **Life:** Over 50,000 cycles. **To Order:** For Faston terminals use prefix 19101- and specify number of positions; for solder terminals use prefix 19001- and specify number of positions. Add suffix UL to indicate U/L Listed type is desired.

No. Pos.	2	3	4	5	6	7	8	9*
Net Each	\$2.80	\$2.90	\$3.00	\$3.10	\$3.20	\$3.30	\$3.40	\$3.50

\*Add 10c for 10-position. \*Add 20c for 11-position.

## CONCENTRIC SHAFT SWITCHES (FIG. G)

Series 6: Similar to Series 5000 but cuts panel space in half, placing two switches in space normally occupied by one. Available with from one to three decks per shaft (total of six decks) with two to ten positions per deck. Shorting or non-shorting contacts. **Series 36:** Similar to Series 6 except that construction, materials and detent action are the same as Series 24 Tap Switch. Available with one to three decks per shaft (total of six decks) and two to ten positions per deck. **Write for prices.**





# Rotary Tap Switches

## MINIATURE ROTARY TAP SWITCHES (RUGGED PRECISION DETENT)

### SERIES 42-36° INDEXING (FIG. A)

High performance enclosed rotary tap switch designed to meet electrical, mechanical and environmental requirements of MIL-S-3786A/SR04 and MS18109D. Rated to make or break 1 amp at 115 v. AC resistive or carry 10 amps. Available with one to 12 decks, one or two poles per deck, 2 to 10 positions per deck, with shorting or non-shorting contacts. Insulating materials are molded thermosetting plastic per MIL-M-14. Terminals are lead-tin plated, fused brass. Silver alloy rotor contacts, silver-plated brass base contacts. Mounting bushing and nuts cadmium plated brass with yellow chromate per QQ-P-416, Class 2, Type II. Switches with six decks or more include 1/4" through-bolt extension for double end mounting to eliminate twisting. **Contact Resistance:** .010 ohms or less initially, .020 ohms or less after 25,000 cycles at rated load. **Insulation Resistance:** 50,000 megohms, minimum. **Stop Strength:** 15 pound-inches. **Life Expectancy:** 100,000 cycles. **Size:** 1.01" dia. **To Order:** Use prefix 42A36 followed by number of decks (01-12); number of poles per deck, 1 or 2; number of positions per deck (2-10); final suffix S indicates shorting type, N non-shorting. (Example: 42A36-01-1-2-S is Series 42 Style A, 36° indexing, one deck, single pole per deck, 2-position, shorting; 42A36-12-1-10-N is Series 42 Style A, 36° indexing, 12 deck, single pole per deck, 10-position, non-shorting.)

### SERIES 44-30° INDEXING-FIXED STOP (FIG. A)

Same as Series 42, but 1.162" diameter, with up to 12 positions per deck. Available with 1 to 12 decks, and up to six poles per deck, 2 to 12 positions per pole. Shorting or non-shorting contacts for all models. **Life expectancy:** 100,000 cycles. **To Order:** Use prefix 44A30 followed by number of decks (01-12); number of positions per deck (2-12); number of poles per deck -1 to -6; number of positions per deck (2-12); final suffix S indicates shorting type, N non-shorting. (Example: 44A30-10-1-12-N is Series 44 Style A, 30° indexing, 10 deck, single pole per deck, 12-position, non-shorting.)

### PRICES FOR SERIES 42 AND 44

Prices are for single pole types. Multiple-pole prices available on request.

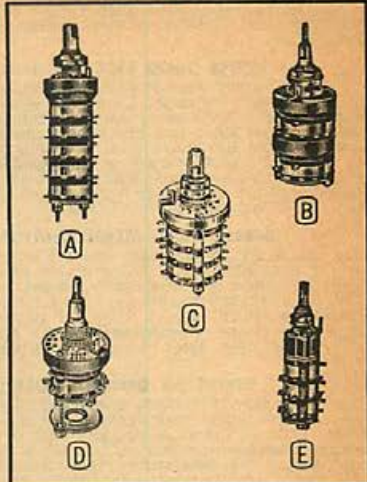
No. of Decks	Positions Per Deck; Net Each, 1-49*											
	2	3	4	5	6	7	8	9	10	11	12	
1	\$ 5.50	\$ 5.60	\$ 5.70	\$ 5.80	\$ 5.90	\$ 6.00	\$ 6.10	\$ 6.20	\$ 6.30	\$ 6.40	\$ 6.50	
2	6.35	6.50	6.65	6.80	6.95	7.10	7.25	7.40	7.55	7.70	7.85	
3	7.20	7.40	7.60	7.80	8.00	8.20	8.40	8.60	8.80	9.00	9.20	
4	8.05	8.35	8.65	8.95	9.25	9.55	9.85	10.15	10.45	10.75	11.05	
5	8.95	9.30	9.65	10.00	10.35	10.70	11.05	11.40	11.75	12.10	12.45	
6	10.10	10.50	10.90	11.30	11.70	12.10	12.50	12.90	13.30	13.70	14.10	
7	11.15	11.60	12.05	12.50	12.95	13.40	13.85	14.30	14.75	15.20	15.65	
8	12.10	12.65	13.20	13.75	14.30	14.85	15.40	15.95	16.50	17.05	17.60	
9	13.10	13.75	14.40	15.05	15.70	16.35	17.00	17.65	18.30	18.95	19.60	
10	14.10	14.85	15.60	16.35	17.10	17.85	18.60	19.35	20.10	20.85	21.60	
11	15.15	16.00	16.85	17.70	18.55	19.40	20.25	21.10	21.95	22.80	23.65	
12	16.25	17.20	18.15	19.10	20.05	21.00	21.95	22.90	23.85	24.80	25.75	

### NEW SERIES 42D (36°, 10-POSITION) AND 44D (30°, 12-POSITION) ADJUSTABLE STOP SWITCHES (FIG. C)

Directly interchangeable with Series 42 and 44 (respectively) fixed-stop types, but with adjustable stop. Same electrical and mechanical specifications. Life expectancy, 100,000 cycles. **Series 42D:** Choice of 1 or 2 poles, 1-12 decks; 36° indexing with 10 positions. **Series 44D:** Choice of 1 to 4 poles, 1-12 decks; 30° indexing with 12 positions. Write for prices on units with more decks (up to 12) and 4-poles-per-deck 44D types.

Grayhill Suffix	No. of Decks	Poles Per Deck	Net Ea., 1-49*		Grayhill Suffix	No. of Decks	Poles Per Deck	Net Ea., 1-49*	
			36° Ind. 42D36-	30° Ind. 44D30-				36° Ind. 42D36-	30° Ind. 44D30-
01-1-ADJ	1	1	\$ 6.30	\$ 6.50	01-2-ADJ	1	2	\$ 7.10	\$ 7.30
02-1-ADJ	2	1	7.55	7.85	02-2-ADJ	2	2	9.15	9.45
03-1-ADJ	3	1	8.80	9.20	03-2-ADJ	3	2	11.20	11.60
04-1-ADJ	4	1	10.45	11.05	04-3-ADJ	1	3	7.70	7.70
05-1-ADJ	5	1	11.75	12.45	05-3-ADJ	2	3	10.25	10.25
06-1-ADJ	6	1	13.30	14.10	06-3-ADJ	3	3	12.80	12.80

\*Net Each, 50-99: Net less 25%; 100 and up, write for OEM prices. \*Series 44 only. †Show full number when ordering: 42D36-01-1-ADJ-N, 44D30-0-1-ADJ-S, etc. with final letter S or N to indicate shorting or non-shorting.



### SERIES 43 AND 54 CONCENTRIC SHAFT SWITCHES (FIG. B)

Concentric shaft versions of the Series 42 (10-position, 36° indexing) and Series 44 (12-position, 30° indexing). Materials, finishes and electrical ratings identical to standard models. Available with 1 to 3 decks per shaft for a total of 6 decks. Front section is controlled by 1/4" dia. shaft, rear section by 1/8" dia. shaft. Write for full information and prices.

### SERIES 43D AND 54D "ADD-A-POT" ADJUSTABLE STOP SWITCHES (FIG. D)

Adjustable stop versions of Series 43 and 54. Mounting plate at rear permits add-on potentiometer (plates provided for either 1/4" or 3/8" bushing). **Series 43D:** Available with 1 pole per deck, 1 to 4 decks, 2-10 positions per pole, shorting or non-shorting. **Series 54D:** Choice of 1 (2-12 positions) or 2 poles (2-6 positions) per deck, 1 to 4 decks, shorting or non-shorting.

Grayhill Suffix	No. of Decks	Poles Per Deck	Net Ea., 1-49*	
			36° Ind. 43D36-	30° Ind. 54D30-
01-1-ADJ	1	1	\$16.10	\$16.50
02-1-ADJ	2	1	18.45	19.25
03-1-ADJ	3	1	20.80	22.00
01-2-ADJ	1	2	17.30	17.30
02-2-ADJ	2	2	20.85	20.85
03-2-ADJ	3	2	24.40	24.40

## ULTRAMINIATURE ROTARY TAP SWITCHES (RUGGED PRECISION DETENT)

### SERIES 8 ULTRAMINIATURES-36° INDEXING (FIG. E)

Enclosed tap switch designed for long, reliable operation is only 1/2" diameter, with 36° angle of throw. Rated to make or break 1/4 amp at 115 v. AC resistive or carry 4 amps. Insulating materials are molded thermosetting plastic per MIL-M-14. Terminals and base contacts are silver-plated brass with gold flash, rotor contacts are silver-plated phosphor-bronze with gold flash. Mounting bushing and nuts cadmium plated brass with yellow chromate per QQ-P-416, Class 2, Type II. Includes integral locking device, two mounting nuts and internal tooth lockwasher; studs completely insulated. Available with one to twelve decks, one pole per deck, two to ten positions per deck, with shorting or non-shortening contacts. Switches with six decks or more have .250" minimum through-bolt extension for double end mounting to eliminate twisting. **Contact Resistance:** .010 ohm or less initially, .020 ohm or less after 25,000 operation cycles at rated load. **Insulation Resistance:** 10,000 megohms, minimum. **Stop Strength:** 12 pound-inches. **Life Expectancy:** 100,000 cycles. **To Order:** Use prefix 8A36 followed by number of decks (01-06), number of poles per deck 1, number of positions (2-10); final suffix S indicates shorting type, N non-shortening. (Example: 8A36-01-1-2-N is Series 8 Style A, 36° indexing, one deck, one pole, two-position, non-shortening; 8A36-06-1-7-S is Series 8 Style A, 36° indexing, six deck, one pole, seven-position, shorting.)

### NEW SERIES 9 ULTRAMINIATURES-30° INDEXING

Same as Series 8, but .562" diameter, with up to 12 positions per deck. Similar to Fig. C. Available with one to twelve decks, one pole per deck, two to twelve positions per deck, with shorting or non-shortening contacts. **To Order:** Use prefix 9A30 followed by number of decks (01-06), number of poles (one only) 1, number of positions (2-12); final suffix S indicates shorting type, N non-shortening. (Example: 9A30-02-1-6-N is Series 9 Style A, 30° indexing, two deck, one pole, six-position, non-shortening.)

### PRICES FOR SERIES 8 AND 9

Series 8 and 9 switches with 7 to 12 decks available only on special order; write for prices. Multiple poles per deck on request.

No. of Decks	Positions Per Deck; Net Each, 1-49*											
	2	3	4	5	6	7	8	9	10			
1	\$7.10	\$7.20	\$7.30	\$7.40	\$7.50	\$7.60	\$7.70	\$7.80	\$7.90			
2	8.25	8.45	8.65	8.85	9.05	9.25	9.45	9.65	9.85			
3	9.45	9.75	10.05	10.35	10.65	10.95	11.25	11.55	11.85			
4	10.60	11.00	11.40	11.80	12.20	12.60	13.00	13.40	13.80			
5	11.75	12.25	12.75	13.25	13.75	14.25	14.75	15.25	15.75			
6	12.90	13.50	14.10	14.70	15.30	15.90	16.50	17.10	17.70			

\*Net Each, 50-99: Net less 25%; 100 and up, write for OEM quantity pricing.

### NEW SERIES 44 DIAL PLATES

For use with Series 9, 44 or 54 switches with 30° indexing. Numerals and letters centered at 30° intervals, dividing dial plate into twelve equal angular spaces. Elongated hole permits use of standard integral non-turn device or separate non-turn washer. Choice of straight numerical marking or Off, 1, 2, 3, etc. Of half-hard brass with black japanned finish on one side only; letters and numerals printed in white on japanned side. Order from table for number of positions required.

No.	Marking	No.	Marking	No.	Marking
44-91-2	1 and 2	44-91-10	1-10	44-92-6	Off, 1-6
44-91-3	1-3	44-91-11	1-11	44-92-7	Off, 1-7
44-91-4	1-4	44-91-12	1-12	44-92-8	Off, 1-8
44-91-5	1-5	44-92-1	Off and 1	44-92-9	Off, 1-9
44-91-6	1-6	44-92-2	Off, 1, 2	44-92-10	Off, 1-10
44-91-7	1-7	44-92-3	Off, 1-3	44-92-11	Off, 1-11
44-91-8	1-8	44-92-4	Off, 1-4	.....	.....
44-91-9	1-9	44-92-5	Off, 1-5	.....	.....

Net Each.....\$1.00





# Pushbutton Switches

Quality line of precision-made pushbutton switches meets most requirements for versatility in switching. Housing, button and internal bridge of molded phenolic per MIL-M-14, Type CFG. Mounting nuts, bushing, washers, screws and nuts are cadmium plated brass.

## SERIES 2000 SNAP ACTION (FIG. A)

SPST momentary contact design available in normally open or normally closed contacts. Choice of standard solder terminals (Nos. 2201 and 2202) or "Faston" terminals (Nos. 7-21 or 7-22). Extremely fast make and break; low contact resistance. Audible click produced by snap-action mechanism. **Rated:** 10 amps at 115 v. AC for 50,000 operations. **Voltage Breakdown:** 2000 v. AC, terminal to terminal, and terminal to bushing. **Mounting:**  $\frac{1}{4}$ "-32 NS-2 thread, .44" long. Fits  $\frac{1}{4}$ " dia. hole. **Size:** 1.2" long behind panel; 1.92" long overall; 0.87" O.D.

## SERIES 4000 SILENT ACTION (FIG. B)

Long life SPST, momentary contact switch available normally open or normally closed. Silver-plated phosphor bronze contact terminals. Solder terminals only. **Rated:**  $\frac{1}{2}$  amp at 115 v. AC resistive for 800,000 operations; 1 amp, 100,000 operations. **Voltage Breakdown:** 3000 v. AC, terminal to terminal; 2500 v. AC, terminal to cover. **Mounting:**  $\frac{1}{4}$ "-32 NS-2 thread, .37" long. Fits  $\frac{1}{4}$ " dia. hole. **Size:** 1" long behind panel;  $1\frac{1}{4}$ " long overall; 0.80" O.D.

## SERIES 35 DOUBLE POLE (FIG. C)

Momentary DPST-NO switch with red button mounts in  $\frac{1}{4}$ " dia. hole. Tinned music wire spring; fine silver contact terminals. **Rated:**  $\frac{1}{2}$  amp, 115 v. AC, resistive for over 100,000 operations. **Voltage Breakdown:** 2000 v. AC, terminal to terminal; 6000 v. AC, terminal to cover. **Mounting:**  $\frac{1}{4}$ "-32 NS-2 thread, .37" long. **Size:** 0.74" length behind panel; 1.26" long, overall; 0.79" O.D.

## SERIES 23 SILENT ACTION MINIATURE (FIG. D)

Small SPST-NO switch with red button gives silent action. Solder terminals; tinned music wire spring; silver-plated phosphor bronze contact terminals. **Rated:**  $\frac{1}{4}$  amp, 115 v. AC resistive, for over 500,000 operations. **Voltage Breakdown:** 2500 v. AC, terminal to terminal; 2000 v. AC, terminals to bushing. **Mounting:**  $\frac{1}{4}$ "-32 NS-2 thread, .25" long. Fits  $\frac{1}{4}$ " dia. hole. **Size:** 0.67" length behind panel;  $1\frac{1}{4}$ " long, overall; 0.50" O.D.

## SERIES 30 SUBMINIATURE (FIG. E)

Silent action, SPST switch available in normally open, normally closed and overtravel (NO) types. Fine silver contacts and shorting bar. **Rated:** 1 amp at 115 v. AC resistive for 1 million operations. **Voltage Breakdown:** 3000 v. AC terminal to terminal; 3500 v. AC, terminals to bushing. **Mounting:**  $\frac{1}{4}$ "-32 NEF-2 thread, .25" long. Fits  $\frac{1}{4}$ " dia. hole. **Size:** .60" d. behind panel, .98" long overall, .37" O.D. for 30-1 and 30-2; .68" d. behind panel, 1.01" long overall, .38" O.D. for No. 30-15 with .056" overtravel.

## SERIES 30-16 MINIATURE PUSH-PULL (FIG. F)

SPST-NO butt contact switch has push-pull operation. Fine silver contacts and shorting bar. **Rated:** 1 amp, 115 v. AC resistive for 100,000 operations. **Voltage Breakdown:** 1500 v. AC, terminal to terminal, and terminal to housing. **Mounting:**  $\frac{1}{4}$ "-32 NS-2 thread, .42" long. Fits  $\frac{1}{4}$ " dia. hole. **Size:** .66" d. behind panel, min.;  $1\frac{1}{2}$ " long, overall;  $\frac{1}{2}$ " O.D.

## SERIES 30-17 MINIATURE (FIG. G)

Positive feel, SPST-NO momentary switch available with red or black cap. Fine silver shorting bar and terminals; stainless steel detent balls; rigid polyethylene button cap. Audible click operation. **Rated:** 1 amp, 115 v. AC resistive for 200,000 operations. **Voltage Breakdown:** 1500 v. AC, terminal to terminal, and terminals to bushing. **Mounting:**  $\frac{1}{4}$ "-32 NS-2 thread, .42" long. Fits  $\frac{1}{4}$ " dia. hole. **Size:** .66" d. behind panel, min.; 1.289" long, overall; 0.47" O.D.

## SERIES 39 ULTRAMINIATURE (FIG. H)

Tiny SPST-NO switch, available in overtravel version. Red button. Fine silver contacts and shorting bar. **Rated:**  $\frac{1}{4}$  amp, 115 v. AC resistive for 1 million operations;  $\frac{1}{2}$  million operations for overtravel version. **Voltage Breakdown:** 1500 v. AC terminal to terminal, and terminal to bushing; 1200 v. AC, overtravel version. **Mounting:** 8-40 NS-2 thread, .12" long. Fits  $\frac{1}{4}$ " dia. hole. **Size:** No. 39-1, .31" d. behind panel,  $\frac{1}{2}$ " long overall, .25" O.D.; No. 39-12, .45" d. behind panel, .75" long overall, .25" O.D., with .040" overtravel.

## SERIES 40 LIGHTED PUSHBUTTON (FIG. I)

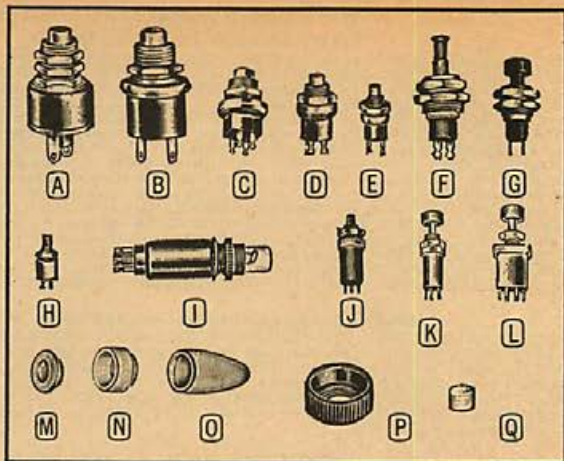
Space saving, SPST-NO momentary contact switch with independent lamp circuit (not connected to switching action). Solder terminals; black anodized aluminum housing. **Rated:** 1 amp, 115 v. AC resistive for 500,000 operations. **Voltage Breakdown:** 1000 v. AC between mutually insulated parts. **Lamp:** No. 40-1 uses NE-2E neon (or equivalent) with life of 25,000 hours, max.; No. 40-100 uses GE 1764 (or equivalent) with 1,000 hours life. **Mounting:**  $\frac{1}{4}$ "-32 NEF-2 thread, .25" long. Fits  $\frac{1}{4}$ " dia. hole. **Size:** 1.15" d. behind panel; 1.84" long, button extended; .44" O.D.

## SERIES 46-101 SPDT MINIATURE (FIG. J)

SPDT switch with silver-plated phosphor-bronze wiping contacts and terminals. **Rated:** Make and break  $\frac{1}{4}$  amp, 115 v. AC resistive. **Contact Resistance:** .01 ohm max. initial, .01 ohm typical after 250,000 operations. **Insulation Resistance:** 100,000 megohms. **Mounting:**  $\frac{1}{4}$ "-32NEF/2A threaded bushing. **Size:** .89" approx. behind panel; 1.33" approx. overall length. Button travel, approx. .187"; overtravel, .062". Actuating force, 16 oz. to bottom button. **Series 46-102 (Fig. K)** same as 46-101 except button is .08" longer to accommodate button cap.

## SERIES 46-200 DPDT MINIATURE (FIG. L)

Same ratings, construction, materials, finishes, and applications as Series 46-101 and 46-102 except DPDT type, wiping contacts. **Mounting:**  $\frac{1}{4}$ "-32NEF/2A threaded bushing. **Size:** .92" approx. behind panel; 1.56" approx. overall length. Button travel, approx. .187"; overtravel, .062". Actuating force, 32 oz. to bottom button.



## PUSHBUTTON SWITCH PRICING

Number	Description	Net Each, Lots	
		1-49	50-99
23-1	Miniature; NO; red button	\$1.05	\$0.788
30-1	Subminiature; NO; red button	.95	.713
30-2	Subminiature; NC; black button	.95	.713
30-3	Subminiature; NO; black button	.95	.713
30-6	Subminiature; NC; red button	.95	.713
30-15	Overtravel; NO; red button	.95	.713
30-16B	Push-pull; NO; red shaft button	1.50	1.125
30-16R	Push-pull; NO; black shaft button	1.50	1.125
30-17R	Pos. feel; NO; red button cap	1.40	1.05
30-17B	Pos. feel; NO; black button cap	1.40	1.05
35-1	DPST-NO; red button	1.20	.90
39-1	Ultra-min.; NO; red button	1.00	.75
39-12	Overtravel; NO; red button	1.15	.863
40-1	Neon lighted; NO;*	2.00	1.50
40-100	Incandescent lighted; NO;†	2.30	1.725
46-101R	Min. SPDT; red button	1.40	1.05
46-101B	Min. SPDT; black button	1.40	1.05
46-102R	Min. SPDT; red button cap	1.85	1.388
46-102B	Min. SPDT; black button cap	1.85	1.388
46-200R	Min. DPDT; red button cap	3.10	2.325
46-200B	Min. DPDT; black button cap	3.10	2.325
2201	Snap NO; solder terminals; red	2.05	1.538
2202	Snap NC; solder terminals; black	2.05	1.538
7-21	Snap NO; "Faston" terminals; red	2.30	1.725
7-22	Snap NC; "Faston" terminals; black	2.30	1.725
7-7	Snap NO; solder terminals; black	2.05	1.538
7-5	Snap NC; solder terminals; red	2.05	1.538
10-9	Silent; NO; black button	.90	.675
10-10	Silent; NO; red button	.90	.675
4001	Silent; NO; red button	.90	.675
4002	Silent; NC; black button	.90	.675

\*Specify color: Clear, frosted white, transparent red or amber. †Specify color: Clear, frosted white, translucent red, green or yellow, or transparent red or amber.

## PENDANT-HOUSINGS AND CAPS

For use with all pushbutton switches with  $\frac{1}{4}$ "-32 bushings, 2201, 2202, 7-21, 7-7, 7-8, 4001, 10-9, 4002, 10-10, 35-1 and 30-17. Polypropylene housing 1" I.D.,  $2\frac{1}{4}$ " long. Set consists of one housing and either flat or recessed cap.

Number	Figures	Description	Color
7Z4950-R	M and O	Flat cap and housing	Red
7Z4950-B	M and O	Flat cap and housing	Black
7Z5150-R	N and O	Recessed cap and housing	Red
7Z5150-B	N and O	Recessed cap and housing	Black

Net Per Set.....\$0.90

## PUSHBUTTON AND ROTARY SWITCH ACCESSORIES

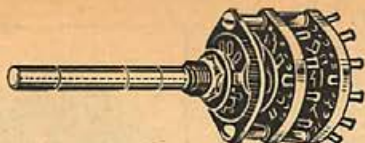
Number	Description	For Switch Series	Net Each
7C1040	Decorative mounting nut	{7, 2000, 4000, 35,	\$0.15
10C1015	Button guard (Fig. P)	30-16 and 30-17	.25
7Z1047R	Red button cap	2000 and 7	.35
7Z1047B	Black button cap	2000 and 7	.35
12C1087	Non-turn washer	5000 and 24	.05
12C1318	1-10 dial plate*	5000 and 24	1.00
12C1319	Off. 1-9 dial plate*	5000 and 24	1.00
12Q1272	Lock washer	Rotary switches	.05
23C1024	Decorative mounting nut	23	.15
30C1023	Decorative mounting nut	30 and 30-15	.15
30B1012	Button capt (Fig. Q)	30 and 39	.10
33-11R	Large shaft red knob	6 and 36	1.10
33-11B	Large shaft black knob	6 and 36	1.10
33-12R	Small shaft red knob	8 and 36	.85
33-12B	Small shaft black knob	8 and 36	.85

\*Specify marking; any numbers within range listed. †Specify color: Black, dark blue, light blue, dark green, light green, pink, gray, white, yellow, red or dark red.





# Oak Rotary Switches



High quality rotary switches with finishes to meet MIL-S-3786A. Adjustable stops. Rated 1 amp at 28 v. DC; 0.5 amp at 115 v. AC. Come with  $\frac{1}{4}$ " dia. x  $2\frac{3}{4}$ " lg. shaft with break-off points at  $\frac{1}{4}$ ",  $1\frac{1}{2}$ " and  $1\frac{3}{4}$ " from mounting surface. Ball type indexing. Silver-plated brass contacts are double wiping, shorting or non-shorting.

## SERIES A SUBMINIATURE SILICONE

Subminiature design with silicone glass insulation. Meets 200-hour MIL-S-3786A salt spray finishes. Dual ball, 30° indexing. Breakdown, 750 V. Frame, 1" h. x  $1\frac{1}{4}$ " w. x  $1\frac{1}{4}$ " over clips. Wt., 4 oz.

Oak Number	Short	Non-Short	Sec-tions	Total Poles	No. Pos.	Net Each 1-4*
399216-A	399217-A	1	2	2	2-12	\$5.40
399218-A	399219-A	1	2	2	2-12	6.90
399220-A	399221-A	1	3	3	2-12	8.70
399222-A	399223-A	1	2	2	2-6	5.40
399224-A	399225-A	1	2	4	2-6	6.90
399226-A	399227-A	3	6	6	2-6	8.70
399228-A	399229-A	1	4	2	2-6	5.40
399230-A	399231-A	2	8	2	2-6	6.90
399232-A	399233-A	1	4	2	2-12	5.70
399234-A	399235-A	1	1	1	2-12	5.70

## SERIES F MINIATURE PHENOLIC

Dual ball, 30° indexing with phenolic insulation. Breakdown, 1000 volts. Frame  $1\frac{1}{4}$ " h. x  $1\frac{1}{4}$ " w. x  $1\frac{1}{4}$ " over clips. Shpg. Wt., 3 oz.

Oak Number	Short	Non-Short	Sec-tions	Total Poles	No. Pos.	Net Each 1-4*
399322-F	399323-F	1	2	2	2-11	\$2.64
399324-F	399325-F	1	2	2	2-11	3.18
399326-F	399327-F	1	2	2	2-5	2.64
399328-F	399329-F	1	2	4	2-5	3.18
399330-F	399331-F	1	3	3	2-3	2.64
399332-F	399333-F	1	4	2	2-3	3.18
399334-F	399335-F	1	4	2	2-3	2.64
399336-F	399337-F	2	8	2	2-3	3.18
399338-F	399339-F	1	1	1	2-11	3.24

## SERIES FC MINIATURE CERAMIC

Dual ball, 30° indexing; ceramic insulation. Breakdown, 1000 volts. Frame,  $1\frac{1}{4}$ " h. x  $1\frac{1}{4}$ " w. x  $1\frac{1}{4}$ " over clips. Shpg. Wt., 5 oz.

Oak Number	Short	Non-Short	Sec-tions	Total Poles	No. Pos.	Net Each 1-4*
399366-FC	399367-FC	1	2	2	2-11	\$2.94
399368-FC	399369-FC	2	2	2	2-11	4.17
399370-FC	399371-FC	1	2	2	2-5	2.94
399372-FC	399373-FC	2	4	2	2-5	4.17
399374-FC	399375-FC	1	3	3	2-3	2.94
399376-FC	399377-FC	2	6	2	2-3	4.17
399378-FC	399379-FC	1	4	2	2-3	4.17
399380-FC	399381-FC	2	8	2	2-3	4.17
399382-FC	399383-FC	1	1	1	2-11	3.54

## SERIES K SEMI-MINIATURE PHENOLIC

Single ball, 30° indexing; phenolic insulation. Breakdown, 1800 volts. Frame,  $1\frac{1}{4}$ " h. x  $1\frac{1}{4}$ " w. x  $1\frac{1}{4}$ " over clips. Shpg. Wt., 4 oz.

Oak Number	Short	Non-Short	Sec-tions	Total Poles	No. Pos.	Net Each 1-4*
399418-K	399419-K	1	2	2	2-12	\$1.86
399420-K	399421-K	2	2	2	2-12	2.67
399422-K	399423-K	3	3	3	2-12	3.36
399424-K	399425-K	4	4	4	2-12	3.96
399732-K	399733-K	5	5	5	2-11	4.68
399736-K	399737-K	6	6	6	2-11	5.40
399426-K	399427-K	1	2	2	2-6	1.86
399428-K	399429-K	2	4	2	2-6	2.67
399430-K	399431-K	3	6	2	2-6	3.36
399738-K	399739-K	4	8	2	2-5	4.68
399742-K	399743-K	5	10	2	2-5	4.68
399744-K	399745-K	6	12	2	2-5	5.40
399746-K	399747-K	2	6	2	2-3	2.67
399432-K	399433-K	1	6	2	2	1.86
399434-K	399435-K	2	12	2	2	2.67
399740-K	399741-K	3	12	2	2	3.36

## SERIES JC SEMI-MINIATURE CERAMIC

Single ball, 30° indexing; ceramic insulation. Breakdown, 1800 volts. Frame,  $1\frac{1}{4}$ " h. x  $1\frac{1}{4}$ " w. x  $1\frac{1}{4}$ " over clips. Shpg. Wt., 5 oz.

Oak Number	Short	Non-Short	Sec-tions	Total Poles	No. Pos.	Net Each 1-4*
399468-JC	399469-JC	1	1	1	2-12	\$2.46
399470-JC	399471-JC	2	2	2	2-12	3.54
399472-JC	399473-JC	3	3	3	2-12	4.50
399474-JC	399475-JC	4	4	4	2-12	5.40

\*Meet special 200-hour salt spray requirements. Have silver alloy gold flash clips and silver alloy rotor blades. Passivated stainless steel or nickel-plated brass frame. Shipping Weight, 5 oz.

## \*QUANTITY PRICES

To Use: Use 1-4 price from product tables, above, and read across to quantity desired, below.

If 1-4 Net Is:	Net Each, Lots of					If 1-4 Net Is:	Net Each, Lots of					If 1-4 Net Is:	Net Each, Lots of				
	5-9	10-24	25-49	50-99	100-249		5-9	10-24	25-49	50-99	100-249		5-9	10-24	25-49	50-99	100-249
51.86	51.55	51.40	51.33	51.24	51.12	53.36	52.80	52.52	52.39	52.24	52.02	54.95	54.03	53.63	53.45	53.30	52.97
2.16	1.80	1.62	1.54	1.44	1.30	3.54	2.95	2.66	2.53	2.35	2.12	5.33	4.45	4.00	3.82	3.56	3.29
2.34	1.95	1.76	1.67	1.56	1.40	3.60	3.00	2.70	2.57	2.40	2.16	5.34	4.45	4.01	3.81	3.56	3.20
2.46	2.05	1.85	1.76	1.64	1.48	3.96	3.30	2.97	2.82	2.64	2.38	5.37	4.48	4.03	3.83	3.58	3.22
2.52	2.10	1.89	1.80	1.68	1.51	4.17	3.48	3.13	2.97	2.78	2.50	5.40	4.50	4.05	3.85	3.60	3.24
2.62	2.19	1.97	1.87	1.75	1.57	4.37	3.65	3.29	3.13	2.93	2.64	5.53	4.62	4.15	3.95	3.69	3.40
2.64	2.20	1.98	1.88	1.76	1.58	4.38	3.65	3.29	3.13	2.92	2.63	5.70	4.75	4.28	4.07	3.80	3.42
2.67	2.23	2.05	1.95	1.78	1.60	4.50	3.75	3.38	3.21	3.00	2.70	6.90	5.75	5.18	4.92	4.60	4.14
2.84	2.45	2.21	2.10	1.96	1.76	4.68	3.90	3.51	3.35	3.12	2.89	7.57	6.30	5.67	5.42	5.03	4.66
3.05	2.58	2.33	2.22	2.07	1.87	4.71	3.93	3.54	3.36	3.14	2.83	8.70	7.25	6.53	6.20	5.80	5.22
3.18	2.65	2.39	2.27	2.12	1.91	4.90	4.10	3.68	3.52	3.27	3.03						

## SERIES JC SEMI-MINIATURE CERAMIC (CONT'D)

Oak Number	Short	Non-Short	Sec-tions	Total Poles	No. Pos.	Net Each 1-4*
399476-JC	399477-JC	1	2	2	2-6	\$2.46
399478-JC	399479-JC	2	4	2	2-6	3.54
399480-JC	399481-JC	3	6	2	2-6	4.50
399706-JC	399707-JC	4	8	2	2-6	5.33
399712-JC	399713-JC	5	10	2	2-6	6.33
399714-JC	399715-JC	6	12	2	2-6	7.57
399704-JC	399705-JC	1	3	2	2-5	2.46
399708-JC	399709-JC	3	9	2	2-5	4.50
399710-JC	399711-JC	2	10	2	2-3	3.54
399716-JC	399717-JC	3	15	2	2-3	4.90
399484-JC	399485-JC	1	6	2	2	2.46
399486-JC	399487-JC	2	12	2	2	3.54
399718-JC	399719-JC	3	18	2	2	4.90
399724-JC	399725-JC	2	2	2	2-12	4.90

## SERIES H STANDARD PHENOLIC

Dual ball, 30° indexing. Breakdown, 2500 volts. Frame,  $1\frac{1}{4}$ " h. x  $1\frac{1}{4}$ " w. x  $1\frac{1}{4}$ " over clips. Shpg. Wt., 4 oz.

Oak Number	Short	Non-Short	Sec-tions	Total Poles	No. Pos.	Net Each 1-4*
399512-H	399513-H	1	1	1	2-11	\$2.64
399514-H	399515-H	2	2	2	2-11	3.18
399516-H	399517-H	3	3	3	2-11	4.05
399518-H	399519-H	4	4	4	2-11	4.71
399520-H	399521-H	1	2	2	2-5	2.64
399522-H	399523-H	2	4	2	2-5	3.18
399524-H	399525-H	3	6	2	2-5	4.05
399526-H	399527-H	1	4	2	2-3	2.62
399528-H	399529-H	2	6	2	2-3	3.18

## SERIES HC STANDARD CERAMIC

Dual ball, 30° indexing. Breakdown, 2500 volts. Frame,  $1\frac{1}{4}$ " h. x  $1\frac{1}{4}$ " w. x  $1\frac{1}{4}$ " over clips. Shpg. Wt., 5 oz.

Oak Number	Short	Non-Short	Sec-tions	Total Poles	No. Pos.	Net Each 1-4*
399562-HC	399563-HC	1	2	2	2-11	\$2.94
399564-HC	399565-HC	2	2	2	2-11	4.17
399566-HC	399567-HC	3	3	3	2-11	5.37
399568-HC	399569-HC	1	1	1	2-6	2.94
399570-HC	399571-HC	1	2	2	2-5	2.94
399572-HC	399573-HC	2	4	2	2-5	4.17
399574-HC	399575-HC	3	6	2	2-5	5.37

## SERIES L 18-POSITION PHENOLIC

Single ball, 20° indexing. Breakdown, 1000 volts. Frame,  $2\frac{1}{4}$ " h. x  $1\frac{1}{4}$ " w. x  $2\frac{1}{4}$ " over clips. Shpg. Wt., 4 oz.

Oak Number	Short	Non-Short	Sec-tions	Total Poles	No. Pos.	Net Each 1-4*
399608-L	399609-L	1	1	1	2-17	\$2.34
399610-L	399611-L	2	2	2	2-17	3.36
399612-L	399613-L	3	3	3	2-17	4.38
399614-L	399615-L	4	4	4	2-17	4.95

## SERIES MF 24-POSITION PHENOLIC

Single ball, 15° indexing. Breakdown, 1000 volts. Frame,  $2\frac{1}{4}$ " h. x  $1\frac{1}{4}$ " w. x  $1\frac{1}{4}$ " over clips. Shpg. Wt., 4 oz.

Oak Number	Short	Non-Short	Sec-tions	Total Poles	No. Pos.	Net Each 1-4*
399658-MF	399659-MF	1	2	2	2-23	\$2.52
399660-MF	399661-MF	2	2	2	2-23	3.60
399662-MF	399663-MF	3	3	3	2-23	4.71
399664-MF	399665-MF	4	4	4	2-23	5.34

## GENERAL PURPOSE SWITCHES

Economical switches designed for low voltage requirements. All switches with last suffix letter C are ceramic insulation; all others are phenolic.

## SPECIAL FUNCTION CONSECUTIVE-SHORTING SWITCHES

Have nine active contacts, with all contacts open in full CCW position and progressively picked up and shorted to common contact with CW rotation, shown as (\*) items. Opposite rotation with shorted contacts progressively opened and dropped with CW rotation, shown as (†) items.

Oak Number	Short	Non-Short	Sec-tions	Total Poles	No. Pos.	Net Each 1-4*
399722-JC*	399723-JC*	1	1	1	2-10	\$2.16
399748-K*	399749-K*	1	1	1	2-10	1.86
399720-JC†	399721-JC†	1	1	1	2-10	2.16
399746-K†	399747-K†	1	1	1	2-10	1.86

## 60° INDEXING ROTARY SWITCHES

Type 399581-HC is a ceramic ham switch.

Oak Number	Short	Non-Short	Sec-tions	Total Poles	No. Pos.	Net Each 1-4*
399729-JC	399730-JC	1	1	1	2-6	\$2.16
399731-JC	399732-JC	2	2	2	2-6	3.05
399747-K	399748-K	1	1	1	2-6	1.86
399749-K	399750-K	2	2	2	2-6	2.64
399581-HC	399582-HC	3	3	3	2-6	4.37



# J-B-T Instrument Switches



SS-14-2

## LAMINATED AND MOLDED ROTARY SWITCHES

Available in two basic types, 14 and 20 position, 1 to 6 decks.  
**Features:** Rigid, 3-post deck suspension, instead of the usual 2; all current carrying parts are brass or phosphor bronze, silver flashed and then heavily plated with fine silver to meet 100 hour salt spray test; ball bearing action, beryllium-copper spring on SS-14; phosphor bronze on SS-20, and sharp detent assure positive indexing. Laminated plastic decks and rotors selected for maximum mechanical and dielectric strength. **Compactness:** 14-position switch takes 13 circuits and "off" in 2" circle; 20-position switch handles 19 circuits and "off" in 2 1/2" circle. Extra decks add only 1/8". **Low Contact Loss:** Double-grip collector arms, and large-area contacts, silver to silver, results in average contact resistance of .007 ohm or less during the useful life of switch. **Ample Dielectric:** AC or DC; normal carrying capacity (make-and-break), 1 amp; maximum momentary capacity (not make-and-break), 5 amps; maximum voltage between contacts, 1500 v. rms; between decks and ground, 2000 v. rms.

### NEW, BONDED RUGGEDIZED TYPES

All molded rotary switches (MS-14, MS-20 or MAS-14) are available with bonded construction as MS-14B, MS-20B or MAS-14B. Cured laminations give ruggedization, shock-proofing and further enclosure. Bonding adds 1/8" max. per deck. Add 35¢ per deck.



MS-20-3

### LAMINATED SERIES SS

#### TYPE SS-14—ANGULAR INDEXING 25° 43'

Knob supplied on individually packed units. Collector arm placed directly opposite to flat of shaft unless otherwise specified. 13 contacts per deck. One to 6 decks; for each additional deck add 1/8" to depth. Continuous rotation type supplied unless otherwise specified. Adjustable stop normally supplied on standard switches.

J-B-T Type	Positions/Circuit	Circuits/Deck	Decks	Shorting, Non-Short.	Net Each
SS-14-1	14	1	1	N-S	\$2.30
SS-14-1A*	5†	2	1	N-S	2.45
SS-14-1S*	14	1	1	S	2.35
SS-14-1CS*†	14	1	1	CS	2.80
SS-14-2	14	1	2	N-S	2.90
SS-14-2A*	5†	2	2	N-S	3.20
SS-14-2S*	14	1	2	S	3.00
SS-14-2CS*†	14	1	2	CS	3.95
SS-14-3	14	1	3	N-S	3.50
SS-14-3S*	14	1	3	S	3.65
SS-14-4	14	1	4	N-S	4.40
SS-14-6	14	1	6	N-S	6.30

#### TYPE SS-20—ANGULAR INDEXING 18°

19 contacts per deck, continuous rotation types. One to six decks; for each additional deck add 1/8" to depth. Continuous rotation type supplied unless otherwise specified.

J-B-T Type	Positions/Circuit	Circuits/Deck	Decks	Shorting, Non-Short.	Net Each
SS-20-1	20	1	1	N-S	\$4.00
SS-20-1A*	6; †	2	1	N-S	4.15
SS-20-1S*	20	1	1	S	4.05
SS-20-2	20	1	2	N-S	4.75
SS-20-2S*	20	1	2	S	4.85
SS-20-3	20	1	3	N-S	5.85
SS-20-4	20	1	4	N-S	7.10
SS-20-6	20	1	6	N-S	9.40

\*Standard items but not regularly stocked. †Complete shorting—all contacts shorted except one in use. ‡Five positions include 4 "live" and 1 "off". †Includes 5 "live" and 1 "off".

### ETCHED DIAL PLATES

For SS-14 or MS-14 Series, and for SS-20 or MS-20 Series. Dull black finish with raised bright metal numerals, 2 3/4" diameter.

J-B-T Type EP-13—"Off" through 13.	Net Each	23¢
J-B-T Type EP-14—1 through 14.	Net Each	23¢
J-B-T Type EP-19—"Off" through 19.	Net Each	23¢
J-B-T Type EP-20—1 through 20.	Net Each	23¢

### LEVER ACTION SWITCHES



Three-, four-, five- and six-position lever switches using the same high quality parts as the SS-14 Series. Ideal for test equipment and communications systems. Five or six live positions and two circuits per deck, fully enclosed and with similar electrical characteristics as the MS-20 Series. Single deck, three-position switches may be ordered with Spring Return, lever returning to 11 giving momentary contact at 9 and 10 (Model suffix, "R"). **Contact Positions:** A, common at 12, contacts at 9, 10, 11; B, common at 9, 10, contacts at 6, 7, 8, 12, 13, 14; C, common and off at 12, contacts at 9, 10, 11; D, common at 12, contacts at 9, 10, 11.

J-B-T Type	Positions/Circuit	Circuits/Deck	No. of Decks	Contact Positions	Net Each
SS-14-1L3	3, no "off"	1	1	A	\$1.00
SS-14-1L3A	3, no "off"	2	1	B	1.15
SS-14-1L3S	3, no "off"	1	1	A	1.05
SS-14-1L3R	3, no "off"	1	1	A	1.15
SS-14-1L3S-R	3, no "off"	1	1	A	1.20
SS-14-1L3-2	3, no "off"	1	2	A	1.70
SS-14-1L4	3 and "off"	1	1	D	1.10
SS-14-1L4F	4, no "off"	1	1	D	1.10
SS-14-1L4F-2	4, no "off"	1	2	D	1.90
SS-14-1L4S	3 and "off"	1	1	C	1.15
MS-20-1L5A-1	5, no "off"	2	1	..	3.25
MS-20-1L6A-1	6, no "off"	2	1	..	3.50

### MOLDED SERIES MS

Same as Laminated Series SS except all moving contact parts are fully enclosed. Fully interchangeable electrically and mechanically with Series SS. Test results available covering certain MIL-E-5272A procedures on insulation resistance, temperature, humidity, altitude, salt spray, vibration, etc.

#### TYPE MS-20—ANGULAR INDEXING 18°

J-B-T Type	Positions/Circuit	Circuits/Deck	Decks	Depth Behind Panel	Net Each
MS-20-1	20	1	1	1 1/2"	\$3.10
MS-20-1-6DT	2	6	1	1 1/2"	3.90
MS-20-1-6DTS	2†	6	1	1 1/2"	4.00
MS-20-1S*	20†	1	1	1 1/2"	3.15
MS-20-2	20	1	2	1 1/2"	3.90
MS-20-2-6DT	2†	6	2	1 1/2"	5.50
MS-20-2-6DTS	2†	6	2	1 1/2"	5.75
MS-20-2S*	20†	1	2	1 1/2"	4.00
MS-20-4	20	1	4	1 1/2"	5.00
MS-20-6	20	1	6	2 1/2"	8.60

#### TYPE MS-14—ANGULAR INDEXING 25° 43'

J-B-T Type	Positions/Circuit	Circuits/Deck	Decks	Depth Behind Panel	Net Each
MS-14-1	14	1	1	1 1/2"	\$2.45
MS-14-1S*	14†	1	1	1 1/2"	2.50
MS-14-2	14	1	2	1 1/2"	3.10
MS-14-2S*	14†	1	2	1 1/2"	3.20
MS-14-3	14	1	3	1 1/2"	3.75
MS-14-4	14	1	4	1 1/2"	4.85
MS-14-6	14	1	6	2 1/2"	7.05

#### TYPE MAS-14—ADJUSTABLE STOP SWITCHES ANGULAR INDEXING 25° 43'

14 positions. Enclosed adjustable stop mechanism located on panel side of switch increases switch length 1/8" behind panel; decreases effective bushing length by 1/8"; and shortens shaft extending from bushing by 1/8". Rings RI-23 and RI-24 are supplied.

J-B-T Type	Positions/Circuits	Circuits/Deck	Decks	Depth Behind Panel	Net Each
MAS-14-1	14	1	1	3 1/2"	\$3.10
MAS-14-1S*	14†	1	1	3 1/2"	3.20
MAS-14-2	14	1	2	3 1/2"	3.80
MAS-14-2S*	14†	1	2	3 1/2"	3.95
MAS-14-3	14	1	3	3 1/2"	4.60
MAS-14-4	14	1	4	3 1/2"	5.70
MAS-14-6	14	1	6	2 1/2"	8.00

\*Standard items but not regularly stocked. Write for date of delivery. †For more than 6 decks, write for prices. ‡Shorting type, all others non-shorting.

### NEW MULTI-POLE MOLDED SERIES 20M

Ruggedized, bonded and improved version of MS-20 types above; directly interchangeable except 1/8" deeper behind panel. Upgraded dielectric and insulation factors result from melamine stators and rotors; MIL-M-14 molded materials available on special order. Improved contacts have silver-plated phosphor bronze rotor brushes. Built-in panel locator or non-turn device. Double ball detent with diaphragm spring for radial alignment of contact surfaces. **Type Listed:** Non-short, break before make, with knob. For shorting type, change N to S (e.g., 20M-1201S) and add 5¢ per pole per deck. For sealed shaft and bushing to MIL-S-3786A, add prefix PS (e.g., PS20M-1210N) and \$1.75 per switch.



J-B-T Type	Live Circuits per Pole†	Continuous Positions	Poles Per Deck	No. of Decks	Depth Behind Panel	Net Each
20M-1201N	19	1-20	1	1	1 1/2"	\$ 3.75
20M-1191N	19†	1-19	1	1	1 1/2"	3.75
20M-2101N	9	20-9	2	1	1 1/2"	4.15
20M-3051N	4	20-4	3	1	1 1/2"	4.50
20M-4051N	4	20-4	4	1	1 1/2"	4.85
20M-1202N	19	1-20	1	2	1 1/2"	5.00
20M-2102N	9	20-9	2	2	1 1/2"	5.80
20M-1203N	19	1-20	1	3	1 1/2"	6.25
20M-2103N	9	20-9	2	3	1 1/2"	7.45
20M-1204N	19	1-20	1	4	2 1/2"	6.70
20M-2104N	9	20-9	2	4	2 1/2"	8.30
20M-1206N	19	1-20	1	6	2 1/2"	10.80
20M-2106N	9	20-9	2	6	2 1/2"	13.20

\*Plus one off position. †No off position.





# MIL and JAN Toggle Switches

## HEAVY-DUTY TOGGLE SWITCHES SINGLE, DOUBLE AND 4-POLE

For use in DC circuits; or, AC circuits in frequencies up to 1600 cps. Rugged, positive action. Built for extra long life to meet government, industrial and commercial requirements for high reliability. Metal top eliminates spring holes; encloses switch behind panel. **Features:** Aircraft lubricant for operation in temperatures -85° F to +185° F. Withstand high humidity. Meets 100-hour salt-spray test Q-Q-M-151a. No momentary make or break or mechanical damage under stringent shake tests and 75 G drop test. Tested to make and break at 50% overload for brief periods due to size, solid coin silver contacts and rocker arms. Contact resistance, under 0.005 ohm. Dielectric exceeds 1,000 v. rms, 60 cps at sea level. Screw terminals and solder lugs withstand 30 lb. pull test. **Series MS35058, MS35059:** With lever seal for sand, dust and 15 ft. water submersion tests. Screw terminals; solderable finish. Meets MIL-S-3950A specifications. **Series ST40, 42, 50, 52:** Heavy-duty type; solder and screw terminals. Meet JAN-S-23 specifications. **Series MS25068:** Extra heavy duty terminals, 4-pole construction for single hole mounting. Silicone rubber bushing seals. Surpass rigorous electrical endurance requirements. Molded, hi-arc resistant bodies. MIL-S-3950A for models with suffix -21 or higher.

**Nominal Ratings:** 20 amps at 125 v. AC; 10 amps at 250 v. AC. **Switch Movement:** Opposite to that of the lever. **Finish:** Dull nickel-plate to government specifications. **Hardware:** Two hex nuts, one internal-tooth lockwasher and locking ring (not supplied in bulk shipments).

### 4PST EIGHT TERMINALS

MIL-S-3950A Circuit	Screw Terminal No.	Net Each, Lots of						
		1	2-9	10-29	30-99	100-249	250-499	500-999
On-Off-X	MS25068-24	\$4.70	\$4.20	\$3.31	\$2.78	\$2.31	\$2.07	\$1.89
On-Off-X*	MS25068-25	5.46	4.96	3.31	3.29	2.73	2.35	2.23
X-Off-On*	MS25068-28	5.46	4.96	3.91	3.29	2.73	2.39	2.23

### 4PST TWELVE TERMINALS

On-Off-On	MS25068-21	\$5.38	\$4.88	\$3.84	\$3.23	\$2.68	\$2.35	\$2.20
On-X-On	MS25068-23	5.46	4.76	3.72	3.10	2.48	2.32	2.17
On-X-On*	MS25068-26	5.76	5.26	4.15	3.49	2.90	2.53	2.37
On*-Off-On*	MS25068-27	5.76	5.26	4.15	3.49	2.90	2.53	2.37
On-Off-On*	MS25068-31	5.76	5.26	4.15	3.49	2.90	2.53	2.37

JAN-S-23 Circuit and Arrangement	Screw Terminal No.	Net Each, Lots of							Solder Terminal No.	Net Each, Lots of						
		1	2-9	10-29	30-99	100-249	250-499	500-999		1	2-9	10-29	30-99	100-249	250-499	500-999
<b>SPST 2-Term.</b>																
On-X-Off	ST40A	\$1.84	\$1.34	\$1.01	\$0.87	\$0.70	\$0.63	\$0.59	ST42A	\$1.76	\$1.26	\$0.95	\$0.76	\$0.62	\$0.58	\$0.54
On-X-Off*	ST40B	2.00	1.50	1.13	.97	.78	.71	.66	ST42B	1.91	1.41	1.06	.84	.69	.64	.60
Off-X-On*	ST40C	2.00	1.50	1.13	.97	.78	.71	.66	ST42C	1.91	1.41	1.06	.84	.69	.64	.60
<b>SPDT 3-Term.</b>																
On-X-On	ST40D	2.12	1.62	1.21	1.04	.84	.76	.71	ST42D	2.00	1.50	1.12	.90	.73	.68	.64
On-Off-On	ST40E	2.12	1.62	1.21	1.04	.84	.76	.71	ST42E	2.00	1.50	1.12	.90	.73	.68	.64
On-X-On*	ST40F	2.28	1.78	1.33	1.14	.92	.83	.78	ST42F	2.17	1.67	1.25	1.00	.82	.76	.71
On*-Off-On*	ST40G	2.28	1.78	1.33	1.14	.92	.83	.78	ST42G	2.17	1.67	1.25	1.00	.82	.76	.71
On-Off-On*	ST40H	2.28	1.78	1.33	1.14	.92	.83	.78	ST42H	2.17	1.67	1.25	1.00	.82	.76	.71
<b>DPST 4-Term.</b>																
On-X-Off	ST50K	2.20	1.70	1.27	1.06	.85	.83	.78	ST52K	2.04	1.54	1.16	.97	.77	.71	.68
On-X-Off*	ST50L	2.49	1.99	1.49	1.25	1.00	.97	.92	ST52L	2.23	1.73	1.30	1.08	.86	.80	.76
Off-X-On*	ST50M	2.49	1.99	1.49	1.25	1.00	.97	.92	ST52M	2.23	1.73	1.30	1.08	.86	.80	.76
<b>DPDT 6-Term.</b>																
On-X-On	ST50N	2.49	1.99	1.49	1.25	1.00	.97	.92	ST52N	2.23	1.73	1.30	1.08	.86	.80	.76
On-Off-On	ST50P	2.49	1.99	1.49	1.25	1.00	.97	.92	ST52P	2.23	1.73	1.30	1.08	.86	.80	.76
On-X-On*	ST50R	2.76	2.26	1.70	1.42	1.13	1.10	1.05	ST52R	2.51	2.01	1.51	1.26	1.00	.93	.88
On*-Off-On*	ST50S	2.76	2.26	1.70	1.42	1.13	1.10	1.05	ST52S	2.51	2.01	1.51	1.26	1.00	.93	.88
On-Off-On*	ST50T	2.76	2.26	1.70	1.42	1.13	1.10	1.05	ST52T	2.51	2.01	1.51	1.26	1.00	.93	.88

## MEDIUM DUTY TOGGLE SWITCHES (INCLUDING MS25098 AND MS25100)

Single-hole, flush-mounting switches for DC or AC circuits up to 1600 cps. Molded bodies fully enclosed. Rugged, positive action built for extra long life. **Features:** Aircraft lubricant to withstand temperatures -85° F to +185° F. Withstand tropical humidity. Meets 100-hour salt-spray test Q-Q-M-151a. No momentary make or break or mechanical damage during shake tests or 75 G drop test. Silver-plated stationary contacts; phosphor-bronze movable contacts; meet 60% overload for brief periods. Dielectric exceeds 1,000 v. rms, 60 cps at sea level. Contact resistance well under 0.01 ohm military requirement. Terminals withstand 5-lb. pull. **Nominal Ratings:** 6 amps at 125 v. AC; 3 amps at 250 v. AC. **Switch Movement:** Same direction as that of the lever. **Finish:** Dull nickel-plate. **Hardware:** Two hex nuts, one internal tooth lockwasher and locking ring (not supplied in bulk shipments). **Series MS25098 and MS25100:** Unique internal design results in surpassing MIL-S-3950A endurance tests. Sand and dust bushing seal; ease to terminal seal. Bushing,  $\frac{1}{8}$ " lg. **Series ST12 thru ST27:** Meet JAN-S-23 specs. Double-throw, self-wiping contacts; threaded bushings,  $\frac{1}{4}$ " or  $\frac{1}{8}$ " lg.; rear or side solder terminals.

### SPST TWO TERMINALS

MIL-S-3950A Circuit	No.	Net Each, Lots of						
		1	2-9	10-29	30-99	100-249	250-499	500-999
On-X-Off	MS25098-22	\$1.88	\$1.38	\$1.10	\$1.04	\$0.97	\$0.94	\$0.90
On-X-Off*	MS25098-29	2.28	1.78	1.42	1.33	1.24	1.21	1.15
Off-X-On*	MS25098-30	2.28	1.78	1.42	1.33	1.24	1.21	1.15

### SPDT THREE TERMINALS

On-X-On	MS25098-23	\$1.88	\$1.58	\$1.27	\$1.19	\$1.11	\$1.08	\$1.03
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### DPST FOUR TERMINALS

On-X-Off	MS25100-22	\$2.48	\$1.98	\$1.58	\$1.49	\$1.39	\$1.35	\$1.29
On-X-Off*	MS25100-29	2.80	2.30	1.84	1.73	1.61	1.57	1.50
Off-X-On*	MS25100-30	2.80	2.30	1.84	1.73	1.61	1.57	1.50

### DPDT SIX TERMINALS

On-X-On	MS25100-23	\$2.65	\$2.15	\$1.72	\$1.60	\$1.50	\$1.47	\$1.40
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### SPST TWO TERMINALS

MIL-S-3950A Circuit	Screw Term. No.	Net Each, Lots of						
		1	2-9	10-29	30-99	100-249	250-499	500-999
On-X-Off	MS35058-22	\$2.15	\$1.65	\$1.24	\$1.01	\$0.82	\$0.68	\$0.63
On-X-Off*	MS35058-29	2.38	1.88	1.41	1.15	.94	.78	.74
Off-X-On*	MS35058-30	2.38	1.88	1.41	1.15	.94	.78	.74
On-Off-X	MS35058-24	2.21	1.71	1.28	1.05	.86	.71	.67
X-Off-On*	MS35058-28	2.46	1.96	1.47	1.20	.98	.81	.77
On-Off-X*	MS35058-25	2.45	1.95	1.46	1.20	.98	.81	.77

### SPDT THREE TERMINALS

On-X-On	MS35058-23	\$2.45	\$1.95	\$1.46	\$1.20	\$0.98	\$0.81	\$0.77
On-Off-On	MS35058-21	2.45	1.95	1.46	1.20	.98	.81	.77
On-X-On*	MS35058-26	2.60	2.10	1.58	1.29	1.05	.87	.83
On*-Off-On*	MS35058-27	2.60	2.10	1.58	1.29	1.05	.87	.83
On-Off-On*	MS35058-31	2.64	2.14	1.61	1.31	1.07	.88	.84

### DPST FOUR TERMINALS

On-X-Off	MS35059-22	\$2.35	\$1.85	\$1.70	\$1.33	\$1.09	\$0.90	\$0.88
On-X-Off*	MS35059-29	2.79	2.29	2.09	1.66	1.34	1.12	1.10
Off-X-On*	MS35059-30	2.65	2.15	1.96	1.55	1.26	1.05	1.03
On-Off-X	MS35059-24	2.35	1.85	1.70	1.33	1.09	.90	.88
X-Off-On*	MS35059-28	2.79	2.29	2.09	1.66	1.34	1.12	1.10
On-Off-X*	MS35059-25	2.94	2.44	2.23	1.77	1.43	1.19	1.17

### DPDT SIX TERMINALS

On-X-On	MS35059-23	\$2.65	\$2.15	\$1.96	\$1.55	\$1.26	\$1.05	\$1.03
On-Off-On	MS35059-21	2.65	2.15	1.96	1.55	1.26	1.05	1.03
On-X-On*	MS35059-26	2.94	2.44	2.23	1.77	1.43	1.19	1.17
On*-Off-On*	MS35059-27	2.94	2.44	2.23	1.77	1.43	1.19	1.17
On-Off-On*	MS35059-31	2.94	2.44	2.23	1.77	1.43	1.19	1.17

### SPST TWO TERMINALS

Circuit and Arrangement	JAN-S-23 No.	Net Each, Lots of						
		1	2-9	10-29	30-99	100-249	250-499	500-999
On-X-Off	ST12A	\$1.41	\$0.91	\$0.73	\$0.68	\$0.64	\$0.61	\$0.58
On-X-Off*	ST12B	1.54	1.04	.83	.78	.73	.69	.66
Off-X-On*	ST12C	1.54	1.04	.83	.78	.73	.69	.66
On-X-Off	ST13A†	1.41	.91	.73	.68	.64	.61	.58
On-X-Off*	ST13B†	1.41	.91	.73	.68	.64	.61	.58
On-X-Off*	ST16B†	1.54	1.04	.83	.78	.73	.69	.66
Off-X-On*	ST16A†	1.54	1.04	.83	.78	.73	.69	.66
On-X-Off	ST17A†	1.41	.91	.73	.68	.64	.61	.58

### SPDT THREE TERMINALS

On-X-On	ST12D	\$1.54	\$1.04	\$0.83	\$0.78	\$0.73	\$0.69	\$0.66
On-X-On*	ST13D†	1.54	1.04	.83	.78	.73	.69	.66
On-X-On	ST16D†	1.54	1.04	.83	.78	.73	.69	.66
On-X-On	ST17D†	1.54	1.04	.83	.78	.73	.69	.66

### DPST FOUR TERMINALS

On-X-Off	ST22K	\$1.76	\$1.26	\$1.01	\$0.95	\$0.89	\$0.85	\$0.82
On-X-Off*	ST22L	1.88	1.38	1.11	1.04	.97	.94	.90
Off-X-On*	ST22M	1.88	1.38	1.11	1.04	.97	.94	.90
On-X-Off	ST23K†	1.76	1.26	1.01	.95	.89	.85	.82
On-X-Off*	ST26K†	1.76	1.26	1.01	.95	.89	.85	.82
On-X-Off*	ST26L†	1.88	1.38	1.11	1.04	.97	.94	.90
Off-X-On*	ST26M†	1.88	1.38	1.11	1.04	.97	.94	.90
On-X-Off	ST27K†	1.76	1.26	1.01	.95	.89	.85	.82

### DPDT SIX TERMINALS

On-X-On	ST22N	\$1.88	\$1.38	\$1.11	\$1.04	\$0.97	\$0.94	\$0.90
On-X-On*	ST23N†	1.88	1.38	1.11	1.04	.97	.94	.90
On-X-On	ST26N†	1.88	1.38	1.11	1.04	.97	.94	.90
On-X-On	ST27N†	1.88	1.38	1.11	1.04	.97	.94	.90

\*Momentary position. †Bushing  $\frac{1}{4}$ " long. ‡Side-connected terminals.





# Cutler-Hammer MIL Switches

## TYPICAL ONE-HOLE MOUNTING TYPES



## MIL-S-6745 AND JAN-S-23 SWITCHES

**AN3021-ST40 ONE-HOLE MOUNTING, SEALED LEVER**  
Single pole, sealed lever toggle switches. One hole mounting. Bushing length,  $\frac{1}{8}$ ". Screw terminals. Rated 10 amps, 115 VAC; 20 amps, 28 VDC; per pole.

Government Drawing No.	C-H No.	Poles and Throw	Circuit			Net Each, Lots		
			A	B	C	1-9	10-99	100 Up
AN3021-1-ST40E	8800K13	SPDT	On	Off	On	\$1.57	\$1.31	\$1.04
AN3021-2-ST40A	8801K13	SPST	On	Off	On	1.30	1.09	.87
AN3021-3-ST40D	8810K12	SPDT	On	Off	On	1.57	1.31	1.04
AN3021-5-ST40H	8809K13	SPDT	On	Off	On*	1.70	1.42	1.13
AN3021-7-ST40G	8812K13	SPDT	On*	Off	On*	1.70	1.42	1.13
AN3021-8-ST40C	8811K12	SPST	Off	On	On*	1.43	1.20	.96
AN3021-9-ST40B	8813K12	SPST	On	Off	On*	1.43	1.20	.96
AN3021-10†	8801K16	SPST	On	Off	On*	1.30	1.09	.87

\*Momentary contact. †Indicates where terminals are omitted. ‡MIL-S-6745 only.

## AN3022-ST45 FLUSH MOUNTING, SINGLE POLE

Standard single pole toggle switches. Two screw, flush mounting. Screw terminals. Rated 15 amps, 125 VAC; 20 amps, 28 VDC; per pole.

Government Drawing No.	C-H No.	Poles and Throw	Circuit			Net Each, Lots		
			A	B	C	1-9	10-99	100 Up
AN3022-1-ST45E	8200K7	SPDT	On	Off	On	\$1.83	\$1.53	\$1.22
AN3022-2-ST45A	8201K6	SPST	On	Off	On	1.52	1.27	1.01
AN3022-3-ST45D	8210K7	SPDT	On	Off	On	1.83	1.53	1.22
AN3022-5-ST45H	8209K6	SPDT	On	Off	On*	1.97	1.65	1.32
AN3022-6†	8208K6	SPDT	On	Off	On*	2.12	1.77	1.42
AN3022-7-ST45G	8212K6	SPDT	On*	Off	On*	1.97	1.65	1.32
AN3022-8-ST45C	8211K7	SPST	On*	Off	On*	1.67	1.40	1.12

\*Momentary contact. †MIL-S-6745 only.

## AN3023-ST55 FLUSH MOUNTING, SEALED LEVER

High capacity, double-pole with sealed lever toggle switches. Two screw flush mounting, screw terminals. Rated 20 amps, 115 VAC; 30 amps, 28 VDC; per pole.

Government Drawing No.	C-H No.	Poles and Throw	Circuit			Net Each, Lots		
			A	B	C	1-9	10-99	100 Up
AN3023-1-ST55P	8700K14	DPDT	On	Off	On	\$4.02	\$3.35	\$2.68
AN3023-2-ST55K	8701K14	DPST	On	Off	On	3.48	2.90	2.32

## AN3027-ST50 ONE-HOLE MOUNTING, SEALED LEVER

Double pole, sealed lever toggle switches. Bushing length,  $\frac{1}{8}$ ". Screw terminals. Rated 10 amps, 115 VAC; 20 amps, 28 VDC; per pole.

Government Drawing No.	C-H No.	Poles and Throw	Circuit			Net Each, Lots		
			A	B	C	1-9	10-99	100 Up
AN3027-1-ST50P	8820K10	DPDT	On	Off	On	\$2.09	\$1.75	\$1.40
AN3027-2-ST50K	8822K8	DPST	On	Off	On	1.74	1.45	1.16
AN3027-3-ST50N	8824K8	DPDT	On	Off	On	2.09	1.75	1.40
AN3027-7-ST50S	8834K4	DPDT	On*	Off	On*	2.27	1.89	1.51
AN3027-8-ST50T	8832K4	DPDT	On	Off	On*	2.27	1.89	1.51
AN3027-11†	8826K12‡	DPST	On	Off	On†	2.09	1.75	1.40

\*Momentary contact. †Momentary contact and location where terminals are omitted. ‡MIL-S-6745 only. §Not provided with sealed lever.

## JAN-S-23 TOGGLE SWITCHES

One hole mounting toggle switches. Bushing length,  $\frac{1}{8}$ ". All solder lug terminals except 8804K12, 8826K5 and 8830K5 which are screw terminals. Rated 10 amps, 115 VAC; 20 amps, 28 VDC; per pole. All with silicon rubber seal between lever and bushing except as otherwise noted. For other JAN-S-23 types, see listing above.

Government Drawing No.	C-H No.	Poles & Throw	Circuit			Net Each, Lots of		
			A	B	C	1-9	10-99	100 Up
ST40F	8804K12	SPDT	On	Off	On*	\$1.70	\$1.42	\$1.13
ST42A	8803K6†	SPST	On	Off	On	1.11	.93	.74
ST42A	8803K10	SPST	On	Off	On	1.23	1.03	.82
ST42B	8819K5†	SPST	On	Off	On*	1.06	.88	.70
ST42C	8817K5†	SPST	Off	On	On*	1.18	.98	.78
ST42C	8817K9	SPST	Off	On	On*	1.36	1.14	.91
ST42D	8816K5†	SPDT	On	Off	On	1.14	.95	.76
ST42D	8816K9	SPDT	On	Off	On	1.46	1.22	.97
ST42E	8802K6†	SPDT	On	Off	On	1.14	.95	.76
ST42E	8802K10	SPDT	On	Off	On	1.46	1.22	.97
ST42F	8805K5†	SPDT	On	Off	On*	1.25	1.04	.83
ST42F	8805K9	SPDT	On	Off	On*	1.59	1.33	1.06
ST42G	8818K5†	SPDT	On*	Off	On*	1.25	1.04	.83
ST42H	8815K6†	SPDT	On	Off	On*	1.25	1.04	.83
ST50M	8826K5†	DPST	Off	On	On*	2.09	1.75	1.40
ST50R	8830K5†	DPDT	On	Off	On*	2.27	1.89	1.51
ST52K	8823K6	DPST	On	Off	On	1.16	.97	.77
ST52K	8823K6	DPST	On	Off	On	1.60	1.33	1.06
ST52M	8827K5†	DPST	Off	On	On*	1.50	1.25	1.00
ST52N	8825K5†	DPDT	On	Off	On	1.30	1.09	.87
ST52P	8825K6	DPDT	On	Off	On	1.87	1.56	1.25
ST52P	8821K5†	DPDT	On	Off	On	1.30	1.09	.87
ST52P	8821K6	DPDT	On	Off	On	1.87	1.56	1.25
ST52R	8831K5†	DPDT	On	Off	On*	1.68	1.40	1.12
ST52S	8835K3†	DPDT	On*	Off	On*	1.68	1.40	1.12
ST52S	8835K4	DPDT	On*	Off	On*	2.05	1.71	1.37
ST52T	8833K3†	DPDT	On	Off	On*	1.68	1.40	1.12

\*Momentary contact. †Indicates location where terminals are omitted. ‡Not provided with sealed lever.

## MIL-S-3950A SEALED LEVER TOGGLE SWITCHES

### MS25068 ONE-HOLE MOUNTING

Four poles; bushing length,  $\frac{1}{8}$ ". Screw terminals. Rated 10 amps, 115 VAC; 20 amps, 28 VDC; per pole.

Government Drawing No.	C-H No.	Poles & Throw	Circuit			Net Each, Lots of		
			A	B	C	1-9	10-99	100 Up
MS25068-23	7664K5	4PDT	On	Off	On	\$4.76	\$3.97	\$3.18
MS25068-24	7660K13	4PST	On	Off	On	3.82	3.18	2.54
MS25068-25	7662K7	4PDT	On	Off	On	4.76	3.97	3.18
MS25068-26	7674K5	4PDT	On*	Off	On*	5.73	4.78	3.82
MS25068-27	7672K5	4PDT	On*	Off	On*	5.73	4.78	3.82

\*Momentary contact. †Indicates where terminals are omitted.

### MS25105 FLUSH MOUNTING, THREE-POLE

Three-pole with sealed lever. Two-screw, flush mounting. Screw terminals. Rated 20 amps, 115 VAC; 25 amps, 28 VDC; per pole.

Government Drawing No.	C-H No.	Poles & Throw	Circuit			Net Each, Lots of		
			A	B	C	1-9	10-99	100 Up
MS25105-21	8742K10	3PDT	On	Off	On	\$3.66	\$3.05	\$2.44
MS25105-23	8744K10	3PDT	On	Off	On	3.66	3.05	2.44
MS25105-24	8740K12	3PST	On	Off	On	3.15	2.63	2.10

†Indicates where terminals are omitted.

### MS25103 FLUSH MOUNTING, TWO-POLE

High capacity, double-pole with sealed lever. Two-screw flush mounting, screw terminals. Rated 20 amps, 115 v. AC; 30 amps, 28 v. DC; per pole.

Government Drawing No.	C-H No.	Poles & Throw	Circuit			Net Each, Lots of		
			A	B	C	1-9	10-99	100 Up
MS25103-21	8700K15	DPDT	On	Off	On	\$4.02	\$3.35	\$2.68
MS25103-23	8710K15	DPDT	On	Off	On	4.02	3.35	2.68

### MS25128 FLUSH MOUNTING, 4-POSITION

Single pole, four-position (SP4T) toggle switches. Two-screw, flush mounting. Screw terminals. Rated 15 amps, 115 v. AC; 30 amps, 28 v. DC; per pole.

Gov't Draw'g No.	C-H No.	Circuit	Net Each, Lots of		
			1-9	10-99	100 Up
MS25128-1	8749K13‡	3 "on" pos. (2*), 1 "off" pos.	\$4.99	\$4.16	\$3.32
MS25128-2	8747K5‡	3 "on" pos., 1 "off" pos.	4.24	3.53	2.82

\*Momentary contact.

### MS35058 ONE-HOLE MOUNTING, 1-POLE

Single pole, sealed lever toggle switches. One hole mounting. Bushing length,  $\frac{1}{8}$ " and  $\frac{1}{16}$ ". Screw terminals. Rated 10 amps, 115 v. AC; 20 amps, 28 v. DC; per pole.

Government Drawing No.	C-H No.	Poles & Throw	Circuit			Net Each, Lots of		
			A	B	C	1-9	10-99	100 Up
MS35058-21	8800K16	SPDT	On	Off	On	\$1.57	\$1.31	\$1.04
MS35058-22	8801K22	SPST	On	Off	On	1.30	1.09	.87
MS35058-23	8810K15	SPDT	On	Off	On	1.57	1.31	1.04
MS35058-24	8801K23	SPST	On†	Off	On	1.30	1.09	.87
MS35058-26	8804K13	SPDT	On	Off	On*	1.70	1.42	1.13
MS35058-27	8812K14	SPDT	On*	Off	On*	1.70	1.42	1.13
MS35058-28	8811K18	SPST	On	Off	On*	1.43	1.20	.96
MS35058-29	8813K17	SPST	On	Off	On*	1.43	1.20	.96
MS35058-30	8811K17	SPST	Off	On	On*	1.43	1.20	.96
MS35058-31	8809K16	SPDT	On	Off	On*	1.70	1.42	1.13

\*Momentary contact. †Indicates where terminals are omitted.

### MS35059 ONE-HOLE MOUNTING, 2-POLE

Same as MS35058 except double-pole.

Government Drawing No.	C-H No.	Poles & Throw	Circuit			Net Each, Lots of		
			A	B	C	1-9	10-99	100 Up
MS35059-21	8820K16	DPDT	On	Off	On	\$2.09	\$1.75	\$1.40
MS35059-22	8822K20	DPST	On	Off	On	1.74	1.45	1.16
MS35059-23	8824K14	DPDT	On	Off	On	2.09	1.75	1.40
MS35059-24	8822K21	DPST	On†	Off	On	1.74	1.45	1.16
MS35059-26	8830K13†	DPDT	On	Off	On*	2.27	1.89	1.51
MS35059-27	8834K5	DPDT	On	Off	On*	2.27	1.89	1.51
MS35059-28	8826K14	DPST	On	Off	On*	2.09	1.75	1.40
MS35059-29	8828K13†	DPST	On	Off	On*	2.09	1.75	1.40
MS35059-30	8826K15†	DPST	On	Off	On*	2.09	1.75	1.40
MS35059-31	8832K6	DPDT	On	Off	On*	2.27	1.89	1.51

\*Momentary contact. †Indicates where terminals are omitted. ‡Not provided with sealed lever.





# Cutler-Hammer MIL Switches

## MIL-5-6745 SWITCHES

### AN3226 FLUSH MOUNTING, 3-POLE, SEALED LEVER

Three-pole, 2-screw flush mounting toggle switches with sealed lever. Snap action, screw terminals. Rated 20 amps, 115 VAC; 25 amps, 28 VDC; per pole.

Gov't Drawing No.	C-H No.	Poles & Throw	Circuit			Net Each, Lots of		
			A	B	C	1-9	10-99	100 Up
AN3226-2	8740K9	3PST	On	...	Off	\$3.15	\$2.63	\$2.10
AN3226-3	8744K9	3PDT	On	...	On	3.66	3.05	2.44

### AN3227 FLUSH MOUNTING, 4-POLE, SEALED LEVER

Four-pole, 2-screw flush mounting toggle switches with sealed lever. Screw terminals. Rated 10 amps, 115 VAC; 20 amps, 28 VDC; per pole.

Gov't Drawing No.	C-H No.	Poles & Throw	Circuit			Net Each, Lots of		
			A	B	C	1-9	10-99	100 Up
AN3227-1	8880K5	4PDT	On	Off	On	\$4.76	\$3.97	\$3.18
AN3227-3	8884K5	4PDT	On	...	On	4.76	3.97	3.18

### MS25068 ONE-HOLE MOUNTING, 4-POLE, SEALED LEVER

Four-pole, sealed lever toggle switches. One-hole mounting. Bushing length, 1/2". Screw terminals. Rated 10 amps, 115 VAC; 20 amps, 28 VDC; per pole.

Gov't Drawing No.	C-H No.	Poles & Throw	Circuit			Net Each, Lots of		
			A	B	C	1-9	10-99	100 Up
MS25068-1	7662K5	4PDT	On	Off	On	\$4.76	\$3.97	\$3.18
MS25068-3	7664K3	4PDT	On	...	On	4.76	3.97	3.18

## MIL-5-8834 POSITIVE ACTION, ONE-HOLE MOUNTING ENVIRONMENT SEALED LEVER TYPE SWITCHES

Positive action toggle switches. One-hole mounting. Bushing length, 1/2". Screw terminals. Available in single, double, or four poles. Rated 20 amps, 115 VAC; 25 amps, 28 VDC; per pole.

Government Drawing No.	C-H No.	Poles and Throw	Circuit			Net Each, Lots of		
			A	B	C	1-9	10-99	100 Up
MS25306-21	8836K1	SPDT	On	Off	On	\$ 5.61	\$ 4.68	\$ 3.74
MS25306-22	8836K9	SPST	On	...	Off	5.22	4.35	3.48
MS25306-23	8836K4	SPDT	On	Off	On	5.61	4.68	3.74
MS25306-24	8836K6	SPDT	On	...	On	5.46	4.55	3.64
MS25306-26	8836K5	SPDT	On	...	On*	6.30	5.25	4.20
MS25306-30	8836K2	SPDT	On	Off	On*	6.03	5.03	4.02
MS25307-21	8837K1	DPDT	On	Off	On	9.18	7.65	6.12
MS25307-22	8837K9	DPST	On	...	Off	8.40	7.00	5.60
MS25307-23	8837K4	DPDT	On	...	On	9.18	7.65	6.12
MS25307-24	8837K6	DPST	On	Off	...	8.40	7.00	5.60
MS25307-26	8837K5	DPDT	On	...	On*	9.96	8.30	6.64
MS25307-27	8837K2	DPDT	On	Off	On*	9.96	8.30	6.64
MS25307-31	8837K3	DPDT	On	Off	On*	9.96	8.30	6.64
MS25308-22	8838K9	4PST	On	...	Off	21.18	17.65	14.12
MS25308-23	8838K4	4PDT	On	...	On	22.20	18.50	14.80
MS25308-26	8838K5	4PDT	On	...	On*	23.88	19.90	15.92

\*Momentary contact.

## MIL LEVER LOCK POSITIVE ACTION SWITCHES

Environment sealed, lever lock type switches. One hole mounting; bushing length, 1/2". Screw terminals. Rated 20 amps, 115 VAC; 25 amps, 28 VDC; per pole.

Government Drawing No.	C-H No.	Poles and Throw	Circuit			Net Each, Lots of		
			A	B	C	1-9	10-99	100 Up
MS24613C232	8844K7	DPDT	On	...	←On	\$14.02	\$11.69	\$ 9.35
MS24613E232	8844K6	DPDT	On	...	←On	14.02	11.69	9.35
MS24614E232	8845K6	4PDT	On	...	←On	30.00	25.00	20.00

Arrow (→) indicates direction of movement against which lever is locked.

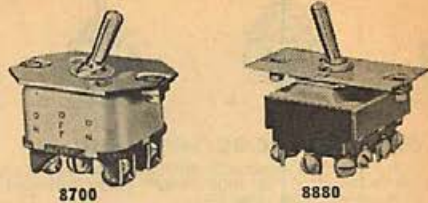
## FOUR-POLE SEALED LEVER SWITCHES

Four-pole, one-hole mounting, sealed lever switches. Bushing length, 1/2". Solder lug terminals except 7660K8, screw terminals. Rated 10 amps, 115 VAC; 20 amps, 28 VDC; per pole.

C-H No.	Poles and Throw	Circuit			Net Each, Lots of		
		A	B	C	1-9	10-99	100 Up
7660K8	4PST	On	...	Off	\$3.82	\$3.18	\$2.54
7661K6	4PST	On	...	Off	3.52	2.94	2.35
7663K5	4PDT	On	Off	On	4.33	3.61	2.89
7665K4	4PDT	On	...	On	4.33	3.61	2.89
7673K4	4PDT	On*	Off	On*	5.29	4.41	3.53
7675K4	4PDT	On	...	On*	5.29	4.41	3.53

\*Momentary contact.

## TYPICAL FLUSH MOUNTING TYPES



Screw Terminals

## MINIATURE POSITIVE ACTION SEALED LEVER SWITCHES

One hole mounting, sealed lever, positive action switches. Gold-plated solder lug terminals. Rated 3 amps, 115 VAC; 4 amps, 28 VDC; per pole.

C-H No.	Bushing Length, Inch	Lever Extension, In.	Poles and Throw	Circuit			Net Each, Lots of		
				A	B	C	1-9	10-99	100 Up
8866K1	.170	.440	SPDT	On	Off	On	\$4.65	\$3.88	\$3.10
8866K2	.170	.440	SPDT	On*	Off	On*	5.25	4.38	3.50
8866K3	.170	.440	SPDT	On	Off	On*	5.25	4.38	3.50
8866K4	.170	.440	SPDT	On	...	On	4.65	3.88	3.10
8866K5	.170	.440	SPST	On	Off	...	4.65	3.88	3.10
8866K6	.170	.440	SPST	...	Off	On*	5.25	4.38	3.50
8866K7	.170	.440	SPST	On	...	Off	4.65	3.88	3.10
8867K1	.170	.440	DPDT	On	Off	On	5.82	4.85	3.88
8867K2	.170	.440	DPDT	On*	Off	On*	6.78	5.65	4.52
8867K3	.170	.440	DPDT	On	Off	On*	6.78	5.65	4.52
8867K4	.170	.440	DPDT	On	...	On	5.82	4.85	3.88
8867K5	.170	.440	DPST	On	Off	...	5.82	4.85	3.88
8867K6	.170	.440	DPST	...	Off	On	5.82	4.85	3.88
8867K8	.170	.440	DPDT	...	On	On*	6.78	5.65	4.52
8868K1	.468	.687	SPDT	On	Off	On	4.74	3.95	3.16
8868K4	.468	.687	SPDT	On	...	On	4.74	3.95	3.16
8868K7	.468	.687	SPST	On	...	Off	4.74	3.95	3.16
8869K1	.468	.687	DPDT	On	Off	On	5.91	4.93	3.94
8869K4	.468	.687	DPDT	On	...	On	5.91	4.93	3.94
8869K7	.468	.687	DPDT	On	...	Off	5.91	4.93	3.94

\*Momentary contact.

## SINGLE-POLE PUSHBUTTON SWITCHES

### FLUSH-MOUNTING TYPE

Single-pole, flush mounting with two screws. Slow make and break. Screw terminals. Rated 7.5 amps, 115 VAC; 15 amps, 28 VDC; per pole.

C-H No.	Poles and Throw	Circuit Arrangement		Net Each, Lots of		
		Normal	Depressed*	1-9	10-99	100 Up
8872K1	SPST-NO	Off	On	\$1.82	\$1.52	\$1.22
8873K1	SPST-NC	On	Off	1.82	1.52	1.22

\*Momentary contact.

### ONE-HOLE MOUNTING TYPE

Single-pole, one-hole mounting. Bushing length, 1/2". Metal button. Screw terminals. Rated 8 amps, 28 VDC, per pole.

C-H No.	Poles and Throw	Circuit Arrangement		Net Each, Lots of		
		Normal	Depressed*	1-9	10-99	100 Up
8450K1	SPST-NO	Off	On	\$1.58	\$1.32	\$1.06

\*Momentary contact.

## BOOTS FOR WATER AND DUST

### RESISTANT APPLICATIONS

Gray silastic flexible material designed to obstruct water and dust from entering the switch interior. Material stands up under extreme temperature conditions, remains flexible at -67° F; withstands exposure to sunlight without deterioration.

C-H No. 8864K2—For use on one-hole mounting switches with minimum bushing length of 1/2". Complete with special nut assembly, boot, flexible washer and metal washer.

Net Each, Lots of: 1-9... 55c 10-99... 46c 100 Up... 37c  
C-H No. 8865K2—For use on flush mounting switches. Complete with special metal plate and boot. Plate and boot must be used together.

Net Each, Lots of: 1-9... 90c 10-99... 75c 100 Up... 60c

### ONE-HOLE MOUNTING SWITCHES FOR USE WITH 8864K2

7660	7665	7670	7675	8804	8811	8817	8822	8827	8832
7661	7666	7671	8800	8805	8812	8818	8823	8828	8833
7662	7667	7672	8801	8808	8813	8819	8824	8829	8834
7663	7668	7673	8802	8809	8815	8820	8825	8830	8835
7664	7669	7674	8803	8810	8816	8821	8826	8831	

### FLUSH MOUNTING SWITCHES FOR USE WITH 8865K2

8783	8785	8786	8787	8788	8789	8793	8794	8795	8850
8784									



# Switches for All Purposes

## CUTLER-HAMMER SWITCHES



STANDARD AC-DC TYPES—FIG. A

Provided with solder lug terminals; phenolic case. U/L Approved.  $1\frac{1}{2}$ " diam. threaded stem  $1\frac{1}{2}$ " long except where indicated otherwise. Use with on-off plate (Fig. G).

C-H Number	Type	Amperes		Net Each, Lots of	
		125V.	250V.	1-9	10-19
8280-K16	SPST	3	3	\$0.53	\$0.48
8280-K14†	SPST	3	3	.53	.48
8381-K8	SPST	6	3	.61	.55
8282-K14	SPDT	3	1	.68	.61
8282-K12†	SPDT	3	1	.68	.61
8360-K7	DPST	3	3	.97	.87
8360-K6†	DPST	3	3	.97	.87
8363-K6†	DPDT	3	3	1.12	1.00
8363-K7	DPDT	3	3	1.12	1.00
8280-K15†	SPST	3	3	.53	.48
8290-K15†	SPST	3	3	.65	.58
8290-K16	SPST	3	3	.65	.58
8295-K7†	SPST	3	3	.65	.58
8295-K8	SPST	3	3	.65	.58
8381-K7†	SPST	6	3	.61	.55
8391-K7†	SPST	6	3	.73	.65
8391-K8	SPST	6	3	.73	.65
8396-K7†	SPST	6	3	.73	.65
8396-K8	SPST	6	3	.73	.65
8370-K7	DPST	6	3	1.04	.94
8372-K7	DPST	6	3	1.28	1.16
8373-K8†	DPDT	6	3	1.20	1.08
8375-K7	DPDT	6	3	1.64	1.39

†Stem length  $1\frac{1}{2}$ ". †Stem length  $1\frac{1}{4}$ ".

### HEAVY-DUTY AC TYPES

Nominally rated at 10 amps at 250 volts AC, 15 amps at 125 volts AC. Slow make, slow break for long dependable use. Threaded stem  $1\frac{1}{2}$ " diam. x  $1\frac{1}{2}$ " long. Solder lug terminals except where marked † indicating screw terminals. † Center off. U/L Approved.

C-H Number	Figure	Type	Net Each, Lots of	
			1-9	10-19
7501-K13		SPST	\$0.53	\$0.48
7500-K14†		SPST	.61	.55
7502-K13†	B	SPDT	.73	.65
7505-K4	B	SPDT	.61	.55
7504-K4†	B	SPDT	.73	.65
7561-K4		DPST	.98	.88
7560-K5†		DPST	.98	.88
7565-K5	B	DPDT	1.21	1.09
7564-K6†	B	DPDT	1.21	1.09
7563-K4†	B	DPDT	1.21	1.09
7562-K4†	B	DPDT	1.21	1.09
7611-K2		3PST	1.69	1.52
7610-K2†		3PST	1.97	1.77
7613-K2†		3PDT	2.08	1.87
7612-K2†		3PDT	2.50	2.25
7503-K13†	B	SPDT	.61	.55
7561-K4		DPST	.83	.75
7615-K2		3PST	2.08	1.87
7614-K2†		3PDT	2.50	2.25

### CENTER-OFF TYPE TOGGLE—FIG. C

C-H No. 7140-K6—SPDT with center off position. Has screw terminals. Threaded stem  $1\frac{1}{2}$ " diam.,  $1\frac{1}{2}$ " long. Rated 3 amps at 125 volts AC, 10 amps at 24 volts DC. U/L Approved. Net Each 1-9.....46c. Net Each 10-19.....42c

### SPST MIDGET SWITCH—FIG. D

C-H No. 8098-K3—SPST midget switch has screw terminals. Threaded stem  $1\frac{1}{2}$ " diam.,  $1\frac{1}{2}$ " long. Rated 3 amps at 125 volts AC, 6 amps at 24 volts DC, 0.75 amps at 125 volts DC. Net Each 1-9.....43c. Net Each 10-19.....38c

### AC-DC INDUSTRIAL TYPES—FIG. E

Standard Duty, in bakelite case. Threaded stem  $1\frac{1}{2}$ " diam.,  $1\frac{1}{2}$ " long except † which is  $1\frac{1}{2}$ " long. Screw terminals. U/L Approved.

C-H Number	Type	Amperes		Net Each, Lots of	
		125V.	250V.	1-9	10-19
7320-K3	DPST	12	6	\$1.03	\$0.92
7321-K3	SPST	12	6	1.03	.92
7360-K8	DPST	15	10	1.78	1.60
7402-K4	DPST	20	20	2.51	2.26
7361-K5	SPST	15	10	1.78	1.60
8690-K2	DPDT	15	10	3.92	3.53
7320-K2†	DPST	12	6	1.03	.92
8680-K1†	DPDT	10	5	3.23	2.91
7360-K7	DPST	15	10	1.78	1.60
7402-K3†	DPST	20	20	2.51	2.26

STANDARD AC TYPES—FIG. E

Equipped with solder lugs except † which have screw terminals. † Indicates center-off position. Threaded stem  $1\frac{1}{2}$ " diam.,  $1\frac{1}{2}$ " long. U/L Approved.

C-H Number	Type	Amperes		Net Each, Lots of	
		125V.	250V.	1-9	10-19
7580-K4†	SPST	6	3	53c	48c
7580-K6	SPST	6	3	46c	42c
7581-K4†	SPDT	6	3	61c	55c
7581-K6†	SPDT	6	3	50c	45c
7582-K4†	SPDT	6	3	61c	55c
7582-K6	SPDT	6	3	50c	45c
7590-K4†	DPST	6	3	83c	75c
7590-K6	DPST	6	3	67c	60c
7591-K4†	DPDT	6	3	98c	88c
7591-K6†	DPDT	6	3	75c	68c
7592-K4†	DPDT	6	3	98c	88c
7592-K6	DPDT	6	3	75c	68c

### PUSH-BUTTON AC-DC TYPES—FIG. F

Momentary contact type control flow of current by opening or closing of door. Solder lug terminals. Stem length  $1\frac{1}{2}$ ". U/L Approved.

C-H Number	Type	Norm. Pos.	Amperes		Net Each, Lots of	
			125V.	250V.	1-9	10-19
8411-K4	SPST	Open	.75	.25	37c	33c
8411-K8	SPST	Closed	.75	.25	26c	23c
8440-K2	SPST	Open	3	1	74c	67c

### PUSH-PUSH ON-OFF SWITCH (NOT ILL.)

C-H No. 7208-K4—AC-DC, provides control of current by alternate impulses. SPST action. Screw type terminals. Threaded stem  $1\frac{1}{2}$ " diam.,  $1\frac{1}{2}$ " long. Rated 3 amps at 250 volts, 6 amps at 125 v. U/L Approved. Net Each 1-9.....84c. Net Each 10-19.....76c

### ON-OFF PLATE—FIG. G

C-H No. 827-228F3—On-Off plate for Cutler-Hammer toggle switches. Net Each.....5c

### "ST" SWITCHES—ONE HOLE MOUNTING LUG TYPE (NOT ILL.)

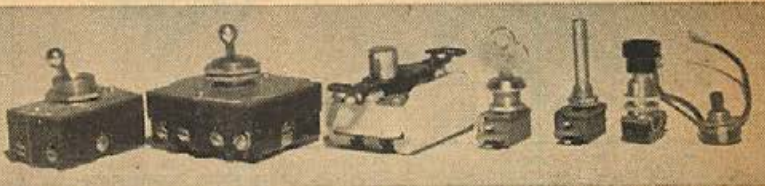
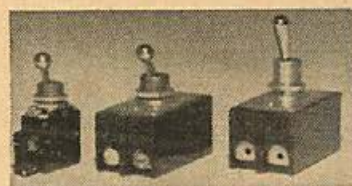
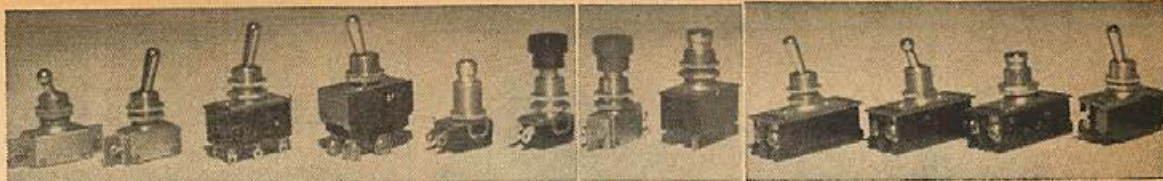
Meet JAN-S-23 specifications; tested 10,000 operations at max. ratings listed below. Solder lug terminals. Threaded stem  $1\frac{1}{2}$ " diam.,  $1\frac{1}{2}$ " long. Size:  $1\frac{1}{4}$ " x  $1\frac{1}{4}$ ". † Indicates has center-off position.

C-H Number	Gov't. No.	Type	Amperes		Net Each, Lots of	
			28 VDC	125VAC	1-9	10-19
8803-K6	ST42A	SPST	20	8	\$0.96	\$0.86
8816-K5	ST42D	SPDT	20	8	1.14	1.03
8802-K6†	ST42E	SPDT	20	8	1.14	1.03
8823-K5	ST52K	DPST	30	20	1.16	1.04
8825-K5	ST52N	DPDT	30	20	1.30	1.17
8805-K5	ST42F	SPDT	20	8	1.25	1.12
8815-K6†	ST42H	SPDT	20	7	1.25	1.12
8817-K5	ST42G	SPST	20	7	1.25	1.12
8818-K5†	ST42G	SPST	20	7	1.25	1.12
8819-K5	ST42B	SPST	20	7	1.25	1.12
8827-K5	ST52M	DPST	20	12	1.30	1.17
8829-K5	ST52L	DPST	20	12	1.30	1.17
8831-K5	ST52R	DPDT	20	12	1.51	1.36
8833-K3†	ST52T	DPDT	20	12	1.51	1.36
8835-K3†	ST52S	DPDT	20	12	1.51	1.36

CUTLER-HAMMER SWITCHES ARE AVAILABLE IN ALL TYPES, SIZES, AND RATINGS FOR COMMERCIAL AND INDUSTRIAL APPLICATIONS. SPACE DOES NOT PERMIT US TO LIST ALL ITEMS AVAILABLE TO USERS. WRITE US FOR PRICES ON LARGER QUANTITIES AND COMPLETE SPECIFICATIONS ON LISTED, AS WELL AS UNLISTED, ITEMS.



# Arrow-Hart and Hegeman Switches



All switches U/L Approved, except Nos. 80421-D, 80421-U, 80630, 80634, 80638, 80985, 80988.

## TOGGLE SWITCHES

Fig. A—Ball lever. Rated 3 a., 125 v. Laminated bakelite base. Nickel-plated finish.

A-H & H No.	Poles	Size *	Net Each		
			1-9	10-99	100 up
20994-CS	SPST	E, 1	\$0.60	\$0.45	\$0.40
21350-BF	SPDT	I, 1	.78	.59	.52
20902-N	DPST	J, 1	1.08	.81	.72
20905-BX	DPST	J, 1	1.26	.95	.84
21615-BD	SPST	E, m	.78	.59	.52
21661-BD	SPDT	I, m	.90	.68	.60
20902-Q	DPST	I, m	1.26	.95	.84
20905-C	DPDT	J, m	1.38	1.04	.92

Fig. B—Bat lever. Same as above.

A-H & H No.	Poles	Size *	Net Each		
			1-9	10-99	100 up
20994-LH	SPST	E, 1	\$0.60	\$0.45	\$0.40
21350-EH	SPDT	I, 1	.78	.59	.52
20902-CX	DPST	I, 1	1.08	.81	.72
20905-FR	DPDT	J, 1	1.26	.95	.84
21615-BE	SPST	E, m	.78	.59	.52
21661-BE	SPDT	I, m	.90	.68	.60
20902-HU	DPST	I, m	1.26	.95	.84
20905-KA	DPDT	J, m	1.38	1.04	.92

Fig. B—Momentary bat lever. Same as above.

A-H & H No.	Poles	Size *	Net Each		
			1-9	10-99	100 up
80054-S	SPST	E, 1	\$1.05	\$0.79	\$0.70
21827-GA	SPDT	I, 1	1.14	.86	.76
20907-H	DPST	I, 1	1.41	1.06	.94
21858-X	DPDT	J, 1	1.59	1.20	1.06

Fig. C—Bat lever molded bakelite. 6 a., 125 v.; 3 a., 250 v. Back connected; slotted sleeve.

A-H & H No.	Poles	Size *	Net Each		
			1-9	10-99	100 up
81015-AW	SPST	G, 1	\$0.81	\$0.61	\$0.54
81021-AV	SPDT	G, 1	.96	.72	.64
81024-GB	DPST	G, 1	1.20	.90	.80
81027-CE	DPDT	G, 1	1.38	1.04	.92

Bat lever, neutral center. 6 a., 125 v., AC/DC. On-off-on position. Black bakelite case.

A-H & H No.	Poles	Size *	Net Each		
			1-9	10-99	100 up
82022-CD	SPDT	P, h	\$1.47	\$1.11	\$0.98
82024-CD	DPDT	P, h	1.74	1.31	1.16

Fig. D—Toggle type utility switches. 10 a., 250 v.; AC; 15 a., 125 v., AC; 3/4 hp, 115-230 v., AC.

A-H & H No.	Poles	Size *	Net Each		
			1-9	10-99	100 up
82600	SPST	D, 1	\$0.72	\$0.54	\$0.48
82604	SPDT	D, 1	.87	.66	.58
82606	DPST	H, 1	1.14	.86	.76
82610	DPDT	H, 1	1.35	1.02	.90

Fig. D—Momentary bat lever. Same as above.

A-H & H No.	Poles	Size *	Net Each		
			1-9	10-99	100 up
82720	SPST	D, 1	\$0.90	\$0.68	\$0.60
82730	DPST	H, 1	1.50	1.13	1.00

Fig. D—Neutral center, momentary both ends. Same as above.

A-H & H No.	Poles	Size *	Net Each		
			1-9	10-99	100 up
82736	DPDT	H, 1	\$1.65	\$1.24	\$1.10
82726	SPDT	D, 1	1.05	.79	.70

Fig. D—Neutral center. Same as above.

A-H & H No.	Poles	Size *	Net Each		
			1-9	10-99	100 up
82602	SPDT	D, 1	\$0.87	\$0.66	\$0.58
82608	DPDT	H, 1	1.35	1.02	.90

## PUSH BUTTON SWITCHES

Fig. E—Midgest momentary. 3 a., 125 v., AC. Molded bakelite base, nickel-plated finish.

A-H & H No.	Poles	Size *	Net Each		
			1-9	10-99	100 up
80511	SPST	A, 1	\$0.51	\$0.39	\$0.34
80511-E	SPST	A, 1	.51	.39	.34

†Normally closed. ‡Normally open.

Fig. F—Single pole, slow make and slow break with bakelite snap-on button in red or black. Rest same as 80511 series.

A-H & H No.	Poles	Size *	Net Each		
			1-9	10-99	100 up
3391-EL	Open-Red	A, 1	\$0.90	\$0.68	\$0.60
3391-EL	Open-Black	A, 1	.90	.68	.60
80541-R	Closed-Red	A, 1	.90	.68	.60
80541	Closed-Black	A, 1	.90	.68	.60

Fig. G—Two-circuit slow make and slow break, momentary switch. One circuit normally on, the other off, with snap-on plastic button. In red or black. Pushing the button reverses the contact. 1 a., 125 v., AC.

A-H & H No.	Poles	Size *	Net Each		
			1-9	10-99	100 up
3392-AR	Red	N	\$1.08	\$0.81	\$0.72
3392-A	Black	N	1.08	.81	.72

Fig. H—Intermediate momentary, normally off. 6 a., 125 v.; 3 a., 250 v. Back connected, slotted sleeve.

A-H & H No.	Poles	Size *	Net Each		
			1-9	10-99	100 up
81075-Q	SPST	G, 1	\$1.38	\$1.04	\$0.92
81081-G	SPDT	G, 1	1.56	1.17	1.04
81084-G	DPST	G, 1	1.80	1.35	1.20
81087-J	DPDT	G, 1	1.95	1.47	1.30

Fig. K—Momentary, normally off. 12 a., 125 v.; 1 hp, 250 v., AC.

A-H & H No.	Poles	Size *	Net Each		
			1-9	10-99	100 up
80630	DPST	O, 1	\$1.74	\$1.31	\$1.16

Fig. U—Double action switch. 6 a., 125 v. Press lever to make contact, press lever to break contact. Nickel-plated finish or snap-on plastic button. In red or black.

A-H & H No.	Poles	Size *	Net Each		
			1-9	10-99	100 up
82403	Nickel-plated	C, k	\$0.87	\$0.66	\$0.58
82403-CR	Red	C, k	1.08	.81	.72
82403-C	Black	C, k	1.08	.81	.72

## POWER SWITCHES

Fig. I—12 a., 125 v.; 6 a., 250 v.; 1 hp, 250 v., AC.

A-H & H No.	Poles	Size *	Net Each		
			1-9	10-99	100 up
80600-BJ	DPST	O, 1	\$1.20	\$0.90	\$0.80

Fig. J—Same as above but with bat lever.

A-H & H No.	Poles	Size *	Net Each		
			1-9	10-99	100 up
80600-B	DPST	O, 1	\$1.20	\$0.90	\$0.80

Fig. J—15 a., 125 v.; 10 a., 250 v.; 1 1/2 hp, 250 v., DC; 1 hp, 240 v., AC.

A-H & H No.	Poles	Size *	Net Each		
			1-9	10-99	100 up
80692-C	DPST	Q, 1	\$2.01	\$1.51	\$1.34

Fig. L—Same as above, but with bat lever.

A-H & H No.	Poles	Size *	Net Each		
			1-9	10-99	100 up
80602-CA	DPST	Q, 1	\$2.01	\$1.51	\$1.34

Fig. M—10 a., 125 v.; 6 a., 250 v., AC; 3/4 hp, 230 v., AC.

A-H & H No.	Poles	Size *	Net Each		
			1-9	10-99	100 up
80323-B	SPST	B, e	\$1.05	\$0.79	\$0.70

(Not illustrated)—Two-hole mounting 3/4" centers. Same as above.

A-H & H No.	Poles	Size *	Net Each		
			1-9	10-99	100 up
80323	SPST	AB	\$0.66	\$0.50	\$0.44

Fig. N—20 a., 250 v.; 1 1/2 hp, 250 v. Fully enclosed tumbler switch.

A-H & H No.	Poles	Size *	Net Each		
			1-9	10-99	100 up
80421-D	DPST	S, f	\$2.91	\$2.19	\$1.94

Fig. O—Same as above with bat lever.

A-H & H No.	Poles	Size *	Net Each		
			1-9	10-99	100 up
80421-U	DPST	S, i	\$2.91	\$2.19	\$1.94

Fig. P—10 a., 25 v.; 5 a., 250 v.; 3/4 hp, 250 v. Contacts have fast "break" which reduces the tendency to arc. Straight thru, no off-center.

A-H & H No.	Poles	Size *	Net Each		
			1-9	10-99	100 up
80976	DPDT	R, g	\$4.20	\$3.15	\$2.80

## EXTRA HEAVY DUTY SWITCHES

Fig. P—Neutral center. 10 a., 125 v.; 5 a., 250 v.; 3/4 hp, 250 v. Used in heavy current circuits, such as transmitters, power amplifiers, motors, etc. Contacts have fast "break" which reduces the tendency to arc.

A-H & H No.	Poles	Size *	Net Each		
			1-9	10-99	100 up
80638	DPDT	R, g	\$4.20	\$3.15	\$2.80

(Not illustrated)—10 a., 250 v.; 20 a., 125 v.; 5 a., 600 v.; 1 1/2 hp, 250 v., DC; 2 hp, 230 v., DC.

A-H & H No.	Poles	Size *	Net Each		
			1-9	10-99	100 up
80634	DPDT	U	\$6.60	\$4.95	\$4.40

Fig. Q—10 a., 125 v.; 3/4 hp, 115-230 v., AC; 5 a., 250 v.

A-H & H No.	Poles	Size *	Net Each		
			1-9	10-99	100 up
80983	3 PDT		\$6.60	\$4.95	\$4.40
80985	4 PDT		8.40	6.30	5.60

## METAL PUSH BUTTON NORMALLY OPEN

Fig. R—20 a., 250 v.; 2 hp, 230 v., AC; 2 hp, 250 v., DC. For use on floor sander, as a foot switch, etc. Size: 1 1/4" x 2 1/2" x 1 1/4". Mounting, 3/8".

A-H & H No.	Poles	Size *	Net Each		
			1-9	10-99	100 up
80050	DPST		\$1.74	\$1.29	\$1.14

## ROTARY SWITCHES

Fig. S—Roto-lock switch. 3 a., 250 v.

A-H & H No.	Poles	Size *	Net Each		
			1-9	10-99	100 up
1561-L	SPST†	F, 1	\$1.20	\$0.90	\$0.80
1561-488	†	F, 1	.21	.16	.14
1561-L8	SPST‡	F, 1	1.20	.90	.80
1561-487	†	F, 1	.21	.16	.14

†With key; key removable in off position only. ‡Key only for No. 1561-L. †With key; key removable in either position. ‡Key only for No. 1561-L8.

Fig. T—Rotary switches. 3 a., 125 v. Nickel-plated finish. Laminated bakelite base.

A-H & H No.	Poles	Size *	Net Each		
			1-9	10-99	100 up
1561-BS	SPST	F, a	\$0.81	\$0.61	\$0.54
1565-BM	SPDT	K, a	.99	.75	.66
1572-AR	DPST	L, a	1.26	.95	.84
1575-AG	DPDT	M, a	1.38	1.04	.92

Fig. V—Rotary canopy switch with fixed plastic handle. 3 a., 125 v.; 1 a., 250 v.

A-H & H No.	Poles	Size *	Net Each		
			1-9	10-99	100 up
41045-H			\$0.39	\$0.30	\$0.26

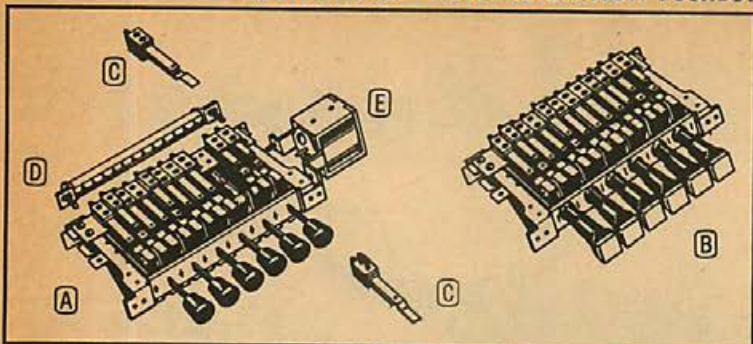
\*\*Stem, 1/8"; wire lead, 8".

## \*BASE DIMENSIONS (INCHES)

Size	L. x W. x H.	Size	L. x W. x H.
A			



## "MULTI-SWITCH" MULTIPLE STATION PUSHBUTTON SWITCHES



Basic design simplicity provides multiple station pushbutton switch that is rugged, compact, versatile and extremely flexible in functions. All switching components—frame, stack switches, lamps and accessories—are interchangeable to provide hundreds of circuit and function combinations. You can order a "Multi-Switch" with the function you now desire; and later change circuits and/or functions by simple positioning adjustments of "stop plate", "latch bar springs" and/or interchanging switch stacks. For a complete multiple station assembly, order the proper frame and the necessary stack switch for each button on the frame. Optional accessories include lock-out bar and solenoid release. Frames can be set up for: 1. Interlock; 2. Non-Lock; 3. All-Lock; 4. Interlock and Non-Lock combinations; 5. All-Lock and Non-Lock combinations. Interlock action restores to normal any previously actuated buttons when actuating a button. Non-Lock is momentary action of each button. All-Lock is accumulative locking of all buttons with restoration of all buttons to normal when release button is depressed. Specify switching function when ordering the frames listed below.

### SERIES 7000

#### NON-ILLUMINATED FRAMES

Mount on panels up to  $\frac{3}{8}$ " thick, with  $\frac{3}{16}$ " depth behind panel. End brackets have four 8-32 tapped holes. Round brown push-on buttons supplied for each station, plus extra red button for use when switch requires a release position. Center-to-center distance between buttons,  $\frac{3}{8}$ "; buttons on  $\frac{3}{4}$ " centers are available in Series 8000. Standard plunger,  $1\frac{1}{2}$ " long; available up to  $4\frac{3}{4}$ " long on special order. Series 7000 available in from 1 to 37 stations. Series 8000, from 1 to 31 stations; add 10% to prices below when ordering Series 8000. Only the most commonly used frames are listed here.

Part No.	No. Stations	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
7200	2	\$5.53	\$5.10	\$4.68	\$4.25	\$3.26
7400	4	7.90	7.20	6.60	6.00	4.63
7600	6	10.40	9.60	8.80	8.00	6.13
7800	8	13.00	12.00	11.00	10.00	7.66
71000	10	15.60	14.40	13.20	12.00	9.20
71200	12	18.20	16.80	15.40	14.00	10.81

### SERIES 21000

#### ILLUMINATED FRAMES

Same as Series 7000 except features modern square button with front and side illumination, lamp diffusers that provide uniform lighting; knurled retaining collar for quick and easy front panel lamp replacement. Uses 6 v. or 28 v. lamp. Buttons with white jewels and white diffusers furnished for switching and release stations. Plungers are on  $\frac{3}{8}$ " centers;  $\frac{3}{4}$ " centers available on special order by specifying Series 22000. Lighting circuits on both Series are isolated from switching stacks. Prefix part numbers with "L" if pushbuttons are to light in "IN" position; with "M" to light in "OUT" position; with "N" to light in "IN" and "OUT" positions. Stacks for illumination circuits are mounted on frame. Only the most commonly used frames are listed.

Series 21000 available up to 37 stations; supplied less lamps and stack switches. Series 22000 to 31 stations; add 10% to prices when ordering this series.

Part No.	No. Stations	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
21200	2	\$9.43	\$8.70	\$7.98	\$7.25	\$5.56
21400	4	15.93	14.70	13.48	12.25	9.41
21600	6	22.43	20.70	18.98	17.25	13.25
21800	8	28.93	26.70	24.75	22.50	17.25
211000	10	35.75	33.00	30.25	27.50	21.13
211200	12	42.25	39.00	35.75	32.50	24.88

### STACK SWITCHES

Interchangeable stack switches for "Multi-Switch" frames. Two types listed below: Series 70, silver contacts for power circuits; Series 70P, welded cross bar palladium contacts for low level circuits. Both rated at 3 amps, 300 watts, max., AC, non-inductive load. If more than one circuit will be required, specify two (or more) stacks in order to balance

the load on the plunger. For example, if two form "C" circuits are required, specify two No. 73 rather than one No. 76; locate stacks to balance load on plunger for easier action. Two mounting screws and one pressure plate furnished with each switch. In addition to Series 70 and 70P Stack Switches, four other Series are available, as standard, from stock.

### SERIES 70—SILVER CONTACTS

Part No.	No. Cont./Schem.	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
71	1 "A"	\$0.33	\$0.30	\$0.28	\$0.25	\$0.194
72	1 "B"	.33	.30	.28	.25	.194
73	1 "C"	.39	.36	.33	.30	.241
73D	1 "D"	.46	.42	.39	.35	.288
74	2 "A"	.52	.48	.44	.40	.325
75	2 "B"	.52	.48	.44	.40	.325
76	2 "C"	.62	.57	.52	.48	.40
76D	2 "D"	.75	.69	.63	.58	.475

### SERIES 70P—PALLADIUM CONTACTS

Part No.	No. Cont./Schem.	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
71P	1 "A"	\$0.39	\$0.36	\$0.33	\$0.30	\$0.241
72P	1 "B"	.39	.36	.33	.30	.241
73P	1 "C"	.52	.48	.44	.40	.325
73PD	1 "D"	.59	.54	.50	.45	.375
74P	2 "A"	.62	.57	.52	.48	.40
75P	2 "B"	.62	.57	.52	.48	.40
76P	2 "C"	.75	.69	.63	.58	.475
76PD	2 "D"	.91	.84	.77	.70	.575

### LOCK-OUT "K" SERIES

Prevents the operation of more than one button at a time. For example, a switch with interlock function, automatically releases a previously actuated station when a new station is depressed, but it is possible to depress more than one station simultaneously, unless the "K" Series Lock-Out Bar has been added. Mounts on back of standard Multi-Switch frame with two screws (furnished). Available from 2 to 37 stations for a single frame. Lock-Out Bars listed below for  $\frac{3}{8}$ " center plungers only; for  $\frac{3}{4}$ " centers, order special.

Part No.	No. Stations	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
K-02	2	\$1.95	\$1.80	\$1.65	\$1.50	\$1.28
K-04	4	2.11	1.95	1.79	1.63	1.39
K-06	6	2.28	2.10	1.93	1.75	1.49
K-08	8	2.44	2.25	2.06	1.88	1.59
K-10	10	2.76	2.55	2.34	2.13	1.81
K-12	12	3.09	2.85	2.61	2.38	2.00

### SOLENOID RELEASE—"J" SERIES

A simple solenoid assembly that can be added on the end of standard frames by two screws to provide automatic remote release of depressed stations. For use in 115 v. AC, 60 cycle circuits. Other voltages available on special order. J-3 designed for use with up to 12 stations. Complete with mounting bracket and screws.

Part No.	Function On	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
J-1	Interlk.	\$5.53	\$5.10	\$4.13	\$4.25	\$3.69
J-3	All-lck.	6.18	5.70	5.23	4.75	4.14

### ESCUTCHEON PLATES

Attractive escutcheon plates for Series 7000 non-illuminated "Multi-Switches". Black satin finish over a  $\frac{1}{16}$ " thick aluminum plate; back side has pressure sensitive adhesive. Listed below are standard lengths; can be made available from 1 to 37 stations.

Part No.	No. Stations	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
ES-04	4	\$0.59	\$0.54	\$0.50	\$0.45	\$0.363
ES-06	6	.72	.66	.61	.55	.45
ES-08	8	.85	.78	.72	.65	.538
ES-12	12	1.14	1.05	.96	.88	.713
ES-18	18	1.63	1.50	1.38	1.25	1.01

### LAMPS FOR "MULTI-SWITCHES"

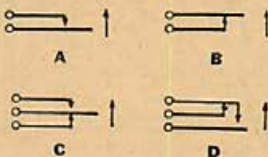
Lamps for Series 21000 and 22000 Frames are not furnished and must be ordered by the part numbers listed below. Both lamps have flange type base.

Part No.	No. Stations	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
P-1593-1*		\$0.98	\$0.90	\$0.83	\$0.75	\$0.60
P-1593-2†		.78	.72	.66	.60	.475

\*28 volts; †6 volts.

Many other "Multi-Switch" frames, buttons, diffusers, stack switches, lock-out bars, etc., are available. For additional information, write for free catalog S-306.

### BASIC CONTACT FORMS



### "HI-D" SWITCHES

Compact momentary action switches. Molded box body protects contact springs. Low electrical leakage, low capacity. Integral fine silver plated contacts for use in circuits where contact resistance is not critical. One piece plastic button and shaft. Series H-100 in red, Series H-200 in black. Mounts on  $\frac{3}{8}$ " centers; in a single  $\frac{3}{8}$ " hole, panels up to  $\frac{1}{2}$ " thick. Depth behind panel,  $\frac{1}{16}$ ".

For black button, change first digit 1 to 2, e.g., H-201. Same price.

Red Button*	Cont./Schem.	Net Each, Lots of				
		1-24	25-49	50-99	100-249	
H-101	1 "A"	\$0.54	\$0.495	\$0.45	\$0.324	
H-102	1 "B"	.54	.495	.45	.324	
H-103	1 "C"	.60	.55	.50	.36	
H-103D	1 "D"	.60	.55	.50	.36	

\*For black button, change first digit 1 to 2, e.g., H-201. Same price.

### SERIES DA SWITCH

Completely enclosed, momentary action push-button switch. Anodized aluminum body protects switch contacts from dirt, dust and from being bent. A-B contact arrangement provides a 1-A, 1-B or 1-C circuit when externally wired. Integral hard gold plated contacts rated at 500 ma. 50 W max., AC, non-inductive load. Terminals accept AMP Series 53 taper pins. Mount in  $\frac{3}{8}$ " hole on  $\frac{1}{2}$ " centers. Depth behind panel,  $\frac{1}{16}$ ".

Part No.	Button	Part No.	Button
DA-01-3	Red	DA-04-3	Blue
DA-02-3	Black	DA-05-3	White
DA-03-3	Green	DA-06-3	Yellow

Any No. Net Each, Lots of 1-24, \$1.35; 25-49, \$1.19; 50-99, \$1.04; 100-249, \$0.90.



Compact, versatile, low cost multiple station pushbutton switch, 6PDT switching in .6 sq. in. Narrow rectangular silhouette permits stacking in parallel rows on  $\frac{3}{4}$ " centers. Only  $2\frac{1}{2}$ " depth behind panel. Four standard functions available: **Inter-Lock**, actuating a button automatically restores to normal the button previously actuated; **Lock-Out**, which prevents operation of more than one button at a time is built-in on all interlock frames; **Non-Lock**, each button has momentary action; **All-Lock**, all buttons, except release, lock when depressed. All buttons restored to normal by actuating release button; **Push to Lock-Push to Release**, button locks when depressed and is released when again depressed. Buttons on  $\frac{3}{4}$ " centers. Frames available from 1 to 18 stations.

### SERIES 35000 NON-ILLUMINATED FRAMES

**A** Switch frames mount on panels up to  $\frac{3}{4}$ " thick. End brackets have four 6-32 tapped mounting holes. A square black pushbutton is furnished for each station and an extra red button is supplied for use when switch requires a release. The following part numbers cover basic frame only, to complete assembly order switch stacks for each station, solenoid release and snap-switch modules if required. Only the most commonly used frames are listed here:

Inter-Lock	Non-Lock	All-Lock	Push-to-Lock	Push-to-Release	No. of Stations
35021	35022	35023		35027	2
35041	35042	35043		35047	4
35061	35062	35063		35067	6
35081	35082	35083		35087	8
35101	35102	35103		35107	10
35121	35122	35123		35127	12

No. of Stations	Net Each, Lots of				
	1-9	10-24	25-49	50-99	100-249
2	\$ 5.53	\$ 5.10	\$ 4.68	\$ 4.25	\$ 3.26
4	7.80	7.20	6.60	6.00	4.63
6	10.40	9.60	8.80	8.00	6.13
8	13.00	12.00	11.00	10.00	7.66
10	15.60	14.40	13.20	12.00	9.20
12	18.20	16.80	15.40	14.00	10.81

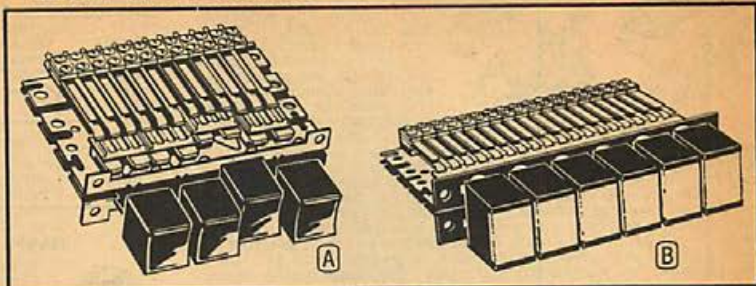
### SERIES 37000 SINGLE LAMP ILLUMINATED FRAMES

**B** Identical in switching functions and characteristics as non-illuminated Series 35000, but feature large rectangular shaped pushbuttons which serve as a color or legend coded panel indicator light which actuates up to 6PDT switching. Switch frames mount in parallel rows from 1" centers and up. Depth behind panel  $2\frac{3}{4}$ ". Pushbuttons with large transparent clear display screen and white legend insert which can be hot-stamped or engraved are furnished for switching and release stations. A single 6 V or 28 V lamp can be used at each station. Lighting such as "L"—pushbuttons light in "IN" position; "M"—pushbuttons light in "OUT" position; and "N"—pushbuttons light in "IN" and "OUT" positions, can be effected by direct wiring to the lamp terminals or through the use of Series H Lighting Stacks. The following part numbers cover basic frames only, to complete assembly order switch stacks, lighting stacks and lamps for each station. Only the most commonly used frames are listed here:

Inter-Lock	Non-Lock	All-Lock	Push-to-Lock	Push-to-Release	No. of Stations
37021	37022	37023		37027	2
37041	37042	37043		37047	4
37061	37062	37063		37067	6
37081	37082	37083		37087	8
37101	37102	37103		37107	10
37121	37122	37123		37127	12

No. of Stations	Net Each, Lots of				
	1-9	10-24	25-49	50-99	100-249
2	\$ 7.74	\$ 7.14	\$ 6.55	\$ 5.95	\$ 4.76
4	12.55	11.58	10.62	9.65	7.73
6	17.35	16.02	14.69	13.35	10.68
8	22.49	20.76	19.03	17.30	13.84
10	27.30	25.20	23.10	21.00	16.80
12	32.11	29.64	27.17	24.70	19.76

### LITTEL "MULTI-SWITCHES"



### SERIES 38000 TWIN-LAMP ILLUMINATED FRAMES

**B** Similar in design to Series 37000, except provides twin lamps at each station for redundancy and two color, spill-face lighting. Utilizes same switch stacks and lighting stacks as Series 37000. Accepts T-1 long-life 6 V lamp, Ind. No. 718. For complete information on Series 38000 request Catalog S-323 from us.

#### SWITCH STACKS

Interchangeable switch stacks for Litel "Multi-Switches". Series 35000, 37000, 38000. Series 80P, cross-bar welded palladium contacts. Use where switching contacts of a released station will return to normal before contacts of a newly operated station are actuated. Series 800P, same as 80P, except designed to be used on push-to-lock, push-to-release function. Both Series rated 3 amps, 300 watts max., AC non-inductive load. Switch stacks fasten direct to switch frame removable switch mounting brackets. Supplied with two mtg. screws and one pressure plate.

#### SERIES 80P

Part No.	Cont. No./Schm.	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
81P	1 "A"	\$0.39	\$0.36	\$0.33	\$0.30	\$0.241
82P	1 "B"	.39	.36	.33	.30	.241
83P	1 "C"	.52	.48	.44	.40	.325
83PD	1 "D"	.54	.50	.45	.375	.353

#### SERIES 800P

Part No.	Cont. No./Schm.	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
801P	1 "A"	\$0.39	\$0.36	\$0.33	\$0.30	\$0.241
802P	1 "B"	.39	.36	.33	.30	.241
803P	1 "C"	.52	.48	.44	.40	.325
803PD	1 "D"	.54	.50	.45	.375	.353

#### LIGHTING SWITCH STACKS

For convenient rear-of-frame lamp circuit wiring on Series 37000, 38000 frames, these stacks (consisting of standard switch stacks, Series 80P or 800P, with an extra long leaf spring on top), are provided. Use No. H-83P for all functions except push-to-lock, push-to-release; No. H-803P for push-to-lock, push-to-release. Each provide 1-C circuitry. Furnished with two screws and pressure plate.

Part No.	Net Each, Lots of				
	1-9	10-24	25-49	50-99	100-249
H-83P	\$0.75	\$0.69	\$0.63	\$0.58	\$0.475
H-803P	.75	.69	.63	.58	.475

#### "PIGGY BACK" SNAP-SWITCH MODULES

Increases the switching load capacity of Litel "Multi-Switches" from 3 amps to 15 amps. Modules consist of snap-action switch, actuator and mounting bracket. Two styles available: Miniature types—No. 835A for all switching functions except push-to-lock, push-to-release; No. 8035A for push-to-lock, push-to-release function. Both rated at 15 amps,  $1\frac{1}{2}$  HP, 125/250 VAC; 1 "C" circuit. Subminiature types rated at 10 amps,  $\frac{1}{4}$  HP, 125 VAC: Nos. 835C, 835D (Double), similar to No. 835A in function; Nos. 8035C, 8035D (Double), similar to No. 8035A in function. All styles supplied with mtg. hardware. Solder terminals.

Part No.	SPDT Circuits	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
835A	1	\$1.63	\$1.50	\$1.38	\$1.25	\$1.00
8035A	1	1.63	1.50	1.38	1.25	1.00
835C	1	2.93	2.70	2.48	2.25	1.80
835D	2	5.20	4.80	4.40	4.00	3.20
8035C	1	2.93	2.70	2.48	2.25	1.80
8035D	2	5.20	4.80	4.40	4.00	3.20

### SERIES NJ SOLENOID RELEASE

A simple solenoid assembly which can be added to the end of a Series 35000, 37000, 38000 Litel "Multi-Switch". For 115 VAC use, No. NJ-1 designed for use with up to 18 interlock stations; No. NJ-3 will handle up to 12 all-lock stations. Complete with mounting bracket, screws and instruction sheet.

Part No.	Function On	Net Each, Lots of			
		1-9	10-24	25-49	50-99
NJ-1	Interlock	\$5.85	\$5.40	\$4.95	\$4.50
NJ-3	All-lock	6.50	6.00	5.50	5.00

#### LAMPS

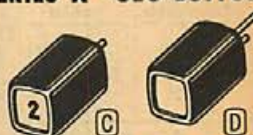
Lamps are not furnished with Series 37000, 38000. Series 37000 will accept lamps P-1593-2 (6 V), P-1593-1 (28 V), and long life P-1890 6 V lamp when used with T-1 lamp adapter. Series 38000 accepts only the P-1890 lamp. All lamps have flange type base.

Part No.	Ind. No.	Net Each, Lots of				
		1-9	10-24	25-49	50-99	100-249
P-1593-2	328	\$0.78	\$0.72	\$0.66	\$0.60	\$0.475
P-1890	718	2.28	2.12	1.93	1.75	1.42
P-1593-1	327	.98	.90	.83	.75	.60

#### LAMP ADAPTER

Converts Series 21000 and Series 37000 lamp sockets that accommodate P-1593-2, -1 lamps to accept the P-1890 subminiature lamps. Order a T-1 adapter for each station of Series 21000 and 37000 if long-life P-1890 lamp is specified. Switchcraft Part No. T-1—Net Each, Lots of 1-9, 39c; 10-24, 35c; 25-49, 33c; 50-99, 30c; 100-249, 24c.

### SERIES X "GLO-BUTTON"



Looks and functions like an illuminated button but requires no lamp or electrical power. Mounts on all pushbutton switches with std. .050" x .187" plungers, such as Switchcraft Series 7000, 8000, 35000, and other switches having maintained plunger action with a max. of  $\frac{1}{4}$ " fallback. The "Glo-Button" has a translucent front screen on which a legend is marked in an opaque color. The opaque color provides the background for the legend while the legend itself remains clear. Fig. D. An internal fluorescent illuminator is carried on a pusher which has two legs extending out from the rear. When a switch station is actuated the rear legs of the pusher bring the orange-red fluorescent illuminator flush with the screen. The legend then lights up due to reflected ambient light and projects a clearly visible legend, see Fig. C. Two types are available: Part No. X21248 with black screen; Part No. X51248 with white screen. Both have black button housing. Standard legends: "A" thru "R"; "ON" thru "187" and "OFF". To order, specify part number and add suffix letter or numeral to part number which describes desired legend. Example: To order "Glo-Button" with black screen with numeral "7", part number would read X21248-7. Switchcraft Part No. X21248 or X51248—Net Each, Lots of 1-24, 75c; 25-49, 66.2c; 50-99, 57.5c; 100-249, 50c.



## ILLUMINATED "NF-LITE" SWITCHES



Series 4100

Series 4200

Indicate switching and circuit functions at a glance. Flat frame construction provides multiple pole momentary action switching. Lighting circuit independent of switching circuit. For control panel or press-to-test applications. Fine silver contacts, rated 3 amps, 300 watts max., AC, non-inductive. Series 4100 uses a single miniature lamp, 6 or 28 v. Light is filtered through color chip to clear plastic pushbutton; different chips can be inserted as needed from kit of four (red, amber, green, yellow) furnished. Series 4200 similar except uses two lamps for greater illumination or for color-coding two circuit conditions; two color chip kits furnished. Both series require  $1\frac{1}{4}$ " min.,  $1\frac{3}{4}$ " max. depth behind panel, depending on size of stack, and mount in  $\frac{3}{8}$ " hole in panels up to  $\frac{3}{4}$ " thick. Lamps must be purchased separately; see lamp listing below.

### SERIES 4100

Part No.	Contacts No./Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
4101	1 "A"	SPST-NO	\$1.17	\$1.072	\$0.975	\$0.702
4103	1 "C"	SPDT	1.26	1.155	1.05	.756
4104	2 "A"	DPST-NO	1.32	1.21	1.10	.792
4106	2 "C"	DPDT	1.47	1.347	1.225	.882
4109	3 "C"	3PDT	1.80	1.65	1.50	1.08

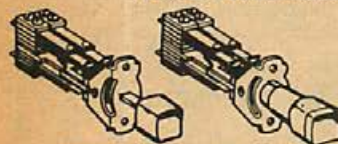
### SERIES 4200

Part No.	Contacts No./Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
4201	1 "A"	SPST-NO	\$1.71	\$1.567	\$1.425	\$1.026
4203	1 "C"	SPDT	1.80	1.65	1.50	1.08
4204	2 "A"	DPST-NO	1.86	1.705	1.55	1.116
4206	2 "C"	DPDT	2.01	1.842	1.675	1.206
4209	3 "C"	3PDT	2.34	2.145	1.95	1.404

## "PUSH-PUSH" SWITCHES

### SERIES 5000—NON-ILLUMINATED

### SERIES 15000—ILLUMINATED



Series 15000

Series 5000

Push-to-lock, push-to-release or momentary action pushbutton switches. Available in numerous multiple pole circuits. Welded cross bar palladium contacts rated at 3 amps, 300 watts max., non-inductive with AC load. Mount with two 3-48 screws on  $\frac{3}{8}$ " centers. Depth behind panel,  $2\frac{3}{4}$ ". Series 5000 non-illuminated pushbutton switch, supplied with square, brown button. Series 15000 illuminated pushbutton switch, supplied with modern white, square button with front and side illumination; white lamp diffuser provides uniform lighting; knurled retaining collar for quick and easy front panel lamp replacement. A 6 v. or 28 v. lamp can be used, lamps are not furnished with switches, see lamp listing elsewhere. Lighting circuits are isolated from switching.

### NON-ILLUMINATED, NON-LOCKING

Part No.	Contacts No./Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
5003	1 "C"	SPDT	\$3.60	\$3.30	\$3.00	\$2.16
5004	2 "A"	DPST-NO	3.90	3.575	3.25	2.34
5006	2 "C"	DPDT	4.05	3.712	3.375	2.43
5008	4 "A"	4PST-NO	4.56	4.18	3.80	2.736
5009	3 "C"	3PDT	4.65	4.262	3.875	2.79
5012	4 "C"	4PDT	5.40	4.95	4.50	3.24

### NON-ILLUMINATED, LOCKING

Part No.	Contacts No./Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
5003L	1 "C"	SPDT	\$3.60	\$3.30	\$3.00	\$2.16
5004L	2 "A"	DPST-NO	3.90	3.575	3.25	2.34
5006L	2 "C"	DPDT	4.05	3.712	3.375	2.43
5008L	4 "A"	4PST-NO	4.56	4.18	3.80	2.736
5009L	3 "C"	3PDT	4.65	4.262	3.875	2.79
5012L	4 "C"	4PDT	5.40	4.95	4.50	3.24

### ILLUMINATED, NON-LOCKING

Part No.	Contacts No./Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
*15003	1 "C"	SPDT	\$5.10	\$4.675	\$4.25	\$3.06
*15004	2 "A"	DPST-NO	5.40	4.95	4.50	3.24
*15006	2 "C"	DPDT	5.55	5.087	4.625	3.33
*15008	4 "A"	4PST-NO	6.00	5.50	5.00	3.60
*15009	3 "C"	3PDT	6.15	5.637	5.125	3.69
*15012	4 "C"	4PDT	6.90	6.325	5.75	4.14

### ILLUMINATED, LOCKING

Part No.	Contacts No./Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
*15003L	1 "C"	SPDT	\$5.10	\$4.675	\$4.25	\$3.06
*15004L	2 "A"	DPST-NO	5.40	4.95	4.50	3.24
*15006L	2 "C"	DPDT	5.55	5.087	4.625	3.33
*15008L	4 "A"	4PST-NO	6.00	5.50	5.00	3.60
*15009L	3 "C"	3PDT	6.15	5.637	5.125	3.69
*15012L	4 "C"	4PDT	6.90	6.325	5.75	4.14

\*Add letter "L" here if pushbuttons are to light in "IN" position only; add "M" if to light in "OUT" position only; add "N" to light both in "IN" and "OUT" positions.

## "TINY SWITCHES"

Sub-miniature pushbutton switches for limited space applications. Series 950, red button; Series 960, black button. Integral contacts suitable for low level circuits where contact resistance is not important. Mount in  $\frac{1}{4}$ " hole in panels up to  $\frac{3}{8}$ " thick; depth behind panel  $\frac{3}{4}$ ".



## "TINY SWITCHES" (CONTINUED)

### SERIES 950—RED BUTTON

Part No.	Contacts No./Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
951	1 "A"	SPST-NO	\$0.54	\$0.495	\$0.45	\$0.324
952	1 "B"	SPST-NC	.54	.495	.45	.324
953	1 "C"	SPDT	.60	.55	.50	.36

### SERIES 960—BLACK BUTTON

Part No.	Contacts No./Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
961	1 "A"	SPST-NO	\$0.54	\$0.495	\$0.45	\$0.324
962	1 "B"	SPST-NC	.54	.495	.45	.324
963	1 "C"	SPDT	.60	.55	.50	.36

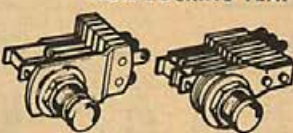
## ILLUMINATED "LITTEL-LITE" SWITCHES



Small momentary contact, illuminated pushbutton switches. Require minimum panel space, thus are ideal for limited space applications and press-to-test circuits. One-piece, clear plastic button and shaft illuminated by single miniature 6 or 28 v. lamp. Lamps are not furnished; see lamp listing below. Includes kit of 4 color chips (red, amber, green, and yellow); can be inserted in switch at any time. Nickel silver spring contacts are recommended for low level circuits where contact resistance is not important. Also available, fine silver contacts (Part No. with suffix "S") rated at 3 amps, 300 watts max., AC non-inductive load. Lighting circuit is independent of switching circuit. Mount in single  $\frac{3}{8}$ " hole in panels up to  $\frac{3}{4}$ " thick; depth behind panel  $1\frac{1}{4}$ ".

Part No.	Contacts No./Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
211	1 "A"	SPST-NO	\$0.99	\$0.907	\$0.825	\$0.594
212	1 "B"	SPST-NC	.99	.907	.825	.594
213	1 "C"	SPDT	1.14	1.045	.95	.684
211S	1 "A"	SPST-NO	1.11	1.017	.925	.666
212S	1 "B"	SPST-NC	1.11	1.017	.925	.666
213S	1 "C"	SPDT	1.26	1.155	1.05	.756

## NON-LOCKING FLAT FRAME SWITCHES



FF Switches, Series 1000—Flat frame construction provides multiple pole switching with minimum depth behind panel. Fine silver contacts rated at 3 amps, 300 watts max., AC, non-inductive load. One-piece black button and shaft,  $\frac{3}{8}$ " diameter threaded shaft, mount in panels up to  $\frac{1}{4}$ " thick. NF Switches, Series 4000—Same as FF except smaller spring design; for mounting in ultra-compact equipment. Only  $\frac{1}{8}$ " w.;  $1\frac{1}{8}$ " lg.; mount in  $\frac{3}{8}$ " hole in panels up to  $\frac{3}{8}$ " thick.

### SERIES 1000 FF SWITCHES

Part No.	Contacts No./Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
1001	1 "A"	SPST-NO	\$0.63	\$0.577	\$0.525	\$0.378
1002	1 "B"	SPST-NC	.63	.577	.525	.378
1003	1 "C"	SPDT	.72	.66	.60	.432
1004	2 "A"	DPST-NO	.78	.715	.65	.468
1005	2 "B"	DPST-NC	.78	.715	.65	.468
1006	2 "C"	DPDT	.93	.852	.775	.558
1009	3 "C"	3PDT	1.26	1.155	1.05	.756

### SERIES 4000 NF SWITCHES

Part No.	Contacts No./Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
4001	1 "A"	SPST-NO	\$0.63	\$0.577	\$0.525	\$0.378
4002	1 "B"	SPST-NC	.63	.577	.525	.378
4003	1 "C"	SPDT	.72	.66	.60	.432
4004	2 "A"	DPST-NO	.78	.715	.65	.468
4005	2 "B"	DPST-NC	.78	.715	.65	.468
4006	2 "C"	DPDT	.93	.852	.775	.558
4009	3 "C"	3PDT	1.26	1.155	1.05	.756

## LAMPS FOR ILLUMINATED SWITCHES

The "NF-Lite", "Litell-Lite" and Series 15000 "Push-Push" Switches are not supplied with lamps. All lamps must be ordered separately by the following part numbers.

### LAMPS FOR "NF-LITE" AND "LITTEL-LITE" SWITCHES

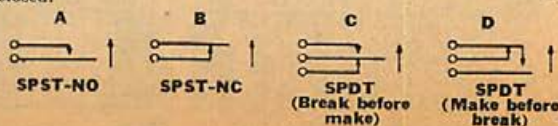
Part No.	V.	Base	Net Each, Lots of			
			1-24	25-49	50-99	100-249
P-1217	6 v.	Screw	\$0.72	\$0.66	\$0.60	\$0.432
P-1218	28 v.	Screw	1.20	1.10	1.00	.72

### LAMPS FOR SERIES 15000 "PUSH-PUSH" SWITCHES

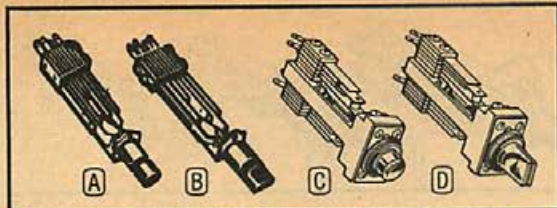
Part No.	V.	Base	Net Each, Lots of			
			1-24	25-49	50-99	100-249
P-1593-1	28 v.	Flange	\$0.80	\$0.686	\$0.60	\$0.565
P-1593-2	6 v.	Flange	.633	.543	.475	.447

## BASIC CONTACT FORMS

Switch circuitry can be described as combinations of the following basic schematic circuits. NO—normally open; NC—normally closed.







### "T-SWITCHES"

Rugged, long frame switches for quality communication equipment. Welded cross bar palladium contacts rated at 3 amps, 300 watts max., AC non-inductive load. Require minimum of panel space, only  $\frac{1}{8}$ " x  $\frac{1}{4}$ " x  $\frac{3}{8}$ " depth behind panel. **Series 11000 (Fig. A)**, pushbutton T-switch available in momentary action and push-to-lock, pull-to-release action. **Series 11200 (Fig. B)**, two position turn button T-switch available in non-locking and locking action. Black button with white arrow indicates switching position.

Part Number		Contacts No./Schematic	Net Each, Lots of			
Push-button*	Turn Button*		1-24	25-49	50-99	100-249
11001	11201	1 "A"	\$2.10	\$1.925	\$1.75	\$1.26
11002	11202	1 "B"	2.10	1.925	1.75	1.26
11003	11203	1 "C"	2.40	2.20	2.00	1.44
11003D	11203D	1 "D"	2.40	2.20	2.00	1.44
11004	11204	2 "A"	2.70	2.475	2.25	1.62
11005	11205	2 "B"	2.70	2.475	2.25	1.62
11006	11206	2 "C"	3.00	2.75	2.50	1.80
11006D	11206D	2 "D"	3.00	2.75	2.50	1.80
11008	11208	4 "A"	3.36	3.08	2.80	2.016
11009	11209	4 "C"	3.60	3.30	3.00	2.16
11012	11212	4 "C"	4.08	3.74	3.40	2.448

\*Add Suffix "L" to Part Number to indicate Locking Type desired; price remains the same.

### "T-LITE" SWITCHES

High-quality illuminated switches, ideal for instrumentation, communication equipment and telephone apparatus. Lightweight, extremely rugged aluminum "T-Beam" frame construction. Frame includes a non-turn device. "Frosted" plastic pushbuttons give quick visual indication of switching function or circuit condition. **Series 32000 (Fig. C)**, momentary action, pushbutton can be engraved. **Series 32001T (Fig. D)**, momentary push with turning-to-lock feature. Button has black indicator line to indicate switching position. Utilize T-2 telephone slide base lamp. Relamp from front of panel. Lamps not supplied with switch. Long leaf nickel silver springs with cross-bar palladium contacts rated at 3 amps, 300 W, max., AC non-inductive load. Mount in single  $\frac{3}{8}$ " hole on  $\frac{1}{8}$ " centers, panels to  $\frac{1}{8}$ " thick. Depth behind panel,  $\frac{3}{8}$ ".

### PUSHBUTTON—SERIES 32000

Part No.	Contacts No./Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
32004	2 "A"	DPST-NO	\$6.00	\$5.30	\$4.60	\$4.00
32006	2 "C"	DPDT	6.45	5.70	4.95	4.30
32008	4 "A"	4PST-NO	6.90	6.10	5.29	4.60
32012	4 "C"	4PDT	7.80	6.89	5.98	5.20

### TURN BUTTON—SERIES 32000TL

Part No.	Contacts No./Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
32004TL	2 "A"	DPST-NO	\$6.30	\$5.57	\$4.83	\$4.20
32006TL	2 "C"	DPDT	6.75	5.96	5.18	4.50
32008TL	4 "A"	4PST-NO	7.20	6.36	5.52	4.80
32012TL	4 "C"	4PDT	8.10	7.16	6.21	5.40

### MINIATURE "TF" BUTTON SWITCHES

Small, sturdily constructed "Tiny Frame" switches. Provide simple, direct acting pushbutton switching for use where space is at a premium. Available in **Series 970L**, push-to-lock, pull-to-release; or **Series 970**, momentary action. Nickel silver springs, integral contacts, recommended for low level circuits where contact resistance is unimportant. Require only  $1\frac{1}{8}$ " depth behind panel; mount in single  $\frac{1}{8}$ " hole in panels up to  $\frac{1}{8}$ " thick.

### SERIES 970—NON-LOCKING

Part No.	Contacts No./Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
974	2 "A"	DPST-NO	\$0.78	\$0.715	\$0.65	\$0.468
975	2 "B"	DPST-NC	.78	.715	.65	.468
976	2 "C"	DPDT	.78	.715	.65	.468

### SERIES 970L—LOCKING

Part No.	Contacts No./Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
974L	2 "A"	DPST-NO	\$0.93	\$0.852	\$0.775	\$0.558
975L	2 "B"	DPST-NC	.93	.852	.775	.558
976L	2 "C"	DPDT	.93	.852	.775	.558

### "CORD SWITCHES"

**Series 903 or 913** button switch in an attractive bright nickel plated housing. Ideal for cord mounted or pendant switch on remote control applications. Sleeve  $\frac{1}{8}$ " diameter,  $2\frac{3}{8}$ " long. All SPDT; part numbers without suffix, break before make; with suffix "D", make before break.

Part Numbers		Contacts No./Schematic	Net Each, Lots of			
Red Button	Black Button		1-24	25-49	50-99	100-249
E-903	E-913	1 "C"	\$1.50	\$1.375	\$1.25	\$0.90
E-903D	E-913D	1 "D"	1.50	1.375	1.25	.90

### "LITTE-SWITCHES"

**Series 100, 200**, tiny, momentary contact, pushbutton switches. Rugged, dependable action. All contacts insulated from panel bushing with interlocking phenolic washers. Nickel silver springs; recommended only for low level circuits where contact resistance is unimportant. **Series 1005 and 2005** have fine silver contacts rated at 3 amps or 300 watts max., AC, non-inductive load. One-piece plastic button and shaft in red or black. Mount in  $\frac{3}{8}$ " hole in panels up to  $\frac{1}{8}$ ".



Part Number		Contacts No./Schematic	Net Each, Lots of			
Red Button	Black Button		1-24	25-49	50-99	100-249
101	201	1 "A"	\$0.54	\$0.495	\$0.45	\$0.324
101S	201S	1 "A"	.63	.577	.525	.378
102	202	1 "B"	.54	.495	.45	.324
102S	202S	1 "B"	.63	.577	.525	.378
103	203	1 "C"	.60	.55	.50	.36
103S	203S	1 "C"	.72	.66	.60	.432

### "BUTTON SWITCHES"

**Series 903, 913** Unusually small, momentary action pushbutton switches. Enclosed in metal housing; black or red plastic button. **Series 903 and 913**, back panel mounting,  $\frac{1}{8}$ " hole, mount in panels up to  $\frac{1}{8}$ " thick. **Series 923 and 933**, front panel mounting,  $\frac{1}{8}$ " hole, mount in panels up to  $\frac{1}{8}$ " thick. All rated at 250 ma, AC, non-inductive load, 30 watts max.

Part No.		Contacts No./Schematic	Action	Net Each, Lots of			
903	923			1-24	25-49	50-99	100-249
903	923	1 "C"	SPDT	\$0.90	\$0.825	\$0.75	\$0.54
903D	923D	1 "C"	Break-Make	1.05	.962	.875	.63
903D	923D	1 "D"	SPDT	.90	.825	.75	.54
903D	923D	1 "D"	Make-Break	1.05	.962	.875	.63

### SERIES 913 AND 933—BLACK BUTTON

Part No.		Contacts No./Schematic	Action	Net Each, Lots of			
913	933			1-24	25-49	50-99	100-249
913	933	1 "C"	SPDT	\$0.90	\$0.825	\$0.75	\$0.54
913	933	1 "C"	Break-Make	1.05	.962	.875	.63
913D	933D	1 "D"	SPDT	.90	.825	.75	.54
913D	933D	1 "D"	Make-Break	1.05	.972	.875	.63

### "RS-SWITCHES"

Rugged rotary switches, available in various multiple circuits, 2- and 3-position types, locking (add suffix "L" to No. 1, price remains the same) or non-locking action. Ideal for communication, musical and test equipment applications. Fiber can actuate long, leaf-type springs resulting in easy action; good wiping action of contacts. Fine silver contacts rated at 3 amps, 300 watts max., AC, non-inductive load. Require only  $\frac{3}{8}$ " depth behind panel, mount in single  $\frac{3}{8}$ " hole in panels up to  $\frac{1}{8}$ " thick.



### TWO POSITION TYPES

Part No.	Contacts No./Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
2001	1 "A"	SPST-NO	\$0.75	\$0.678	\$0.625	\$0.45
2002	1 "B"	SPST-NC	.75	.678	.625	.45
2003	1 "C"	SPDT	.90	.825	.75	.54
2004	2 "A"	DPST-NO	.90	.825	.75	.54
2005	2 "B"	DPST-NC	.90	.825	.75	.54
2006	2 "C"	DPDT	1.17	1.072	.975	.702

### THREE POSITION TYPES

Part No.	Contacts No./Schematic	Action per Section	Net Each, Lots of			
			1-24	25-49	50-99	100-249
2034	1 "A"	1 "A"	\$0.90	\$0.825	\$0.75	\$0.54
2035	1 "B"	1 "B"	.90	.825	.75	.54
2036	1 "C"	1 "C"	1.17	1.072	.975	.702

### "HOOK SWITCHES"

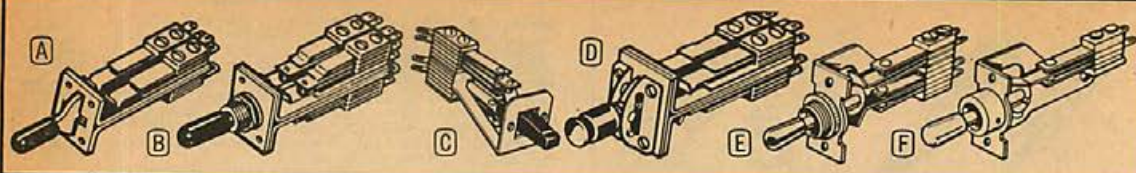
Leaf-type switch actuated by a hook (or hanger). Ideal for equipment where it is necessary to actuate a circuit by hanging an accessory on a "hook", such as a headset, telephone or microphone. Fine silver contacts, rated at 3 amps, 300 watts, max., AC, non-inductive load. Require only  $\frac{1}{8}$ " depth behind panel.

Part No.	Contacts No./Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
14004	2 "A"	DPST-NO	\$1.65	\$1.512	\$1.375	\$0.99
14005	2 "B"	DPST-NC	1.65	1.512	1.375	.99
14006	2 "C"	DPDT	1.80	1.65	1.50	1.08
14012	4 "C"	4PDT	2.31	2.117	1.925	1.386

### BASIC CONTACT FORMS







### "TELEVER" SWITCHES

**(A)** Telephone type lever switches. Feature relatively light but rugged "T-Beam" frame construction. Available in two and three positions, locking and non-locking types. With black knob. Nylon rollers provide smooth action; assure long dependable spring life. Welded cross bar palladium contacts rated 3 amps, 300 watts, max., AC, non-inductive load. **Series 6000 (Fig. A)** mounts with four #3-48 machine screws in panels up to 1/4" thick. Mounting centers, 1 1/2" x 3/4". **Series 16000 (Fig. B)** single 3/4" dia. hole mounting in panels up to 1/4" thick with 1/2"-32 threaded bushing. Can be converted to locking type by removing "Stop Plate". **Part No. 530 Escutcheon Plate** for Series 6000 has four mounting screws. **Part No. 540 Stop Plate** converts Series 16000 from locking to non-locking or momentary action. **Part No. 545 Stop Plate** converts Series 16000 from three-position to two-position. Both stop plates can be changed in the field with two mounting screws supplied.

### TWO-POSITION TYPES

Part No.*	No. of Contacts and Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
6006	2 "C"	DPDT	\$3.00	\$2.75	\$2.50	\$1.80
6006D	2 "D"	DPDT	3.36	3.08	2.80	2.02
6008	4 "A"	4PST-NO	3.36	3.08	2.80	2.02
6009	3 "C"	3PDT	3.60	3.30	3.00	2.16
60012	4 "C"	4PDT	4.08	3.74	3.40	2.45
60012D	4 "D"	4PDT	4.50	4.13	3.75	2.70
60024	8 "C"	8PDT	6.00	5.50	5.00	3.60
16006	2 "C"	DPDT	3.00	2.75	2.50	1.80
16006D	2 "D"	DPDT	3.36	3.08	2.80	2.02
16008	4 "A"	4PST-NO	3.36	3.08	2.80	2.02
16009	3 "C"	3PDT	3.60	3.30	3.00	2.16
160012	4 "C"	4PDT	4.08	3.74	3.40	2.45
160012D	4 "D"	4PDT	4.50	4.13	3.75	2.70
160024	8 "C"	8PDT	6.00	5.50	5.00	3.60

### THREE-POSITION TYPES†

Part No.	No. of Contacts and Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
6036	1 "C"/1 "C"	SPDT	\$3.00	\$2.75	\$2.50	\$1.80
6036D	1 "D"/1 "D"	SPDT	3.36	3.08	2.80	2.02
6038	2 "A"/2 "A"	DPST-NO	3.36	3.08	2.80	2.02
60312	2 "C"/2 "C"	DPDT	4.08	3.74	3.40	2.45
60312D	2 "D"/2 "D"	DPDT	4.50	4.13	3.75	2.70
60316	4 "A"/4 "A"	4PST-NO	5.28	4.84	4.40	3.17
60324	4 "C"/4 "C"	4PDT	6.00	5.50	5.00	3.60
16036	1 "C"/1 "C"	SPDT	3.00	2.75	2.50	1.80
16036D	1 "D"/1 "D"	SPDT	3.36	3.08	2.80	2.02
16038	2 "A"/2 "A"	DPST-NO	3.36	3.08	2.80	2.02
160312	2 "C"/2 "C"	DPDT	4.08	3.74	3.40	2.45
160312D	2 "D"/2 "D"	DPDT	4.50	4.13	3.75	2.70
160316	4 "A"/4 "A"	4PST-NO	5.28	4.84	4.40	3.17
160324	4 "C"/4 "C"	4PDT	6.00	5.50	5.00	3.60

\*Add suffix L to number (i.e., 6006L) for locking type; same price. †Action shown is per section.

### "LK" LITTEL-KEY SWITCHES

**(C)** Short frame, lever switches in two and three positions, locking and non-locking. Ideal where panel mounting space and depth behind panel is limited. Fine silver contacts rated 3 amps, 300 watts max., AC, non-inductive. Two tapped 3-48 holes in frame. Fits panels to 1/4" thick; depth 2 1/2" behind panel.

### TWO-POSITION TYPES

Part No.*	Contacts No./Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
23201	1 "A"	SPST-NO	\$0.99	\$0.885	\$0.758	\$0.663
23203	1 "C"	SPDT	1.17	1.07	.975	.702
23206	2 "C"	DPDT	1.35	1.24	1.13	.81

### THREE-POSITION TYPES†

Part No.	Contacts No./Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
23304	1 "A"/1 "A"	SPST-NO	\$1.26	\$1.16	\$1.05	\$0.756
23306	1 "C"/1 "C"	SPDT	1.35	1.24	1.13	.81
23308	2 "A"/2 "A"	DPST-NO	1.50	1.38	1.25	.90

\*Add suffix L to number (i.e., 23201L) for locking type; same price. †Action shown is per section.

### "LEVER-LOCK" SWITCHES

**(D)** Rugged telephone-type lever switches. "Lever-Lock" feature guards against accidental switching due to shock, vibration, operator fatigue or unintended operation. Ideal for mobile communication equipment. Index bracket and release plunger "locks" lever in any position. Actuator can be permanently locked, unlocked or moved to different switching position easily. Welded cross bar palladium contacts rated at 3 amps, 300 watts, max., AC, non-inductive. Mounts with four 3-48 screws, panels up to 1/4" thick. Requires 3 1/2" depth behind panel. Locking type only.

### TWO POSITION TYPES

Part No.	Contacts No./Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
26206L	2 "C"	DPDT	\$5.10	\$4.68	\$4.25	\$3.06
26208L	4 "A"	4PST-NO	5.46	5.01	4.55	3.28
26212L	4 "C"	4PDT	6.18	5.67	5.15	3.71
26212DL	4 "D"	4PDT	6.60	6.05	5.50	3.96

### "LEVER-LOCK" SWITCHES (CONT'D)

#### THREE POSITION TYPES†

Part No.	Contacts No./Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
26306L	1 "C"/1 "C"	SPDT	\$5.10	\$4.68	\$4.25	\$3.06
26308L	2 "A"/2 "A"	DPST-NO	5.46	5.01	4.55	3.28
26312L	2 "C"/2 "C"	DPDT	6.18	5.67	5.15	3.71
26312DL	2 "D"/2 "D"	DPDT	6.60	6.05	5.50	3.96
26316L	4 "A"/4 "A"	4PST-NO	7.38	6.77	6.15	4.43
26324L	4 "C"/4 "C"	4PDT	8.10	7.43	6.75	4.86

†Action shown is per section.

### "FEATHER LEVER" SWITCHES

Lightweight, miniature lever switches. Locking or non-locking types; two or three positions. Nylon roller actuator for smoother, easier operation. Rugged steel frame withstands rough usage, shock and vibration. Nickel silver springs with fine silver contacts, rated at 2 amps, 200 watts, max., AC, non-inductive load. Mount on 1/4" centers, panels up to 1/4" thick. Depth behind panel, 1 1/2". Supplied with black plastic push-on knob, other colors available. **(E)** Series 2900—With bushing, mounts in 1/4" OD panel hole. Supplied with locknut. **(F)** Series 3100—Mounts with two 2-56 machine screws.

### TWO POSITION TYPES

Part No.*	Contacts No./Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
29201	1 "A"	SPST-NO	\$1.17	\$1.07	\$0.975	\$0.702
29203	1 "C"	SPDT	1.35	1.24	1.13	.81
29204	2 "A"	DPST-NO	1.50	1.38	1.25	.90
29206	2 "C"	DPDT	1.65	1.51	1.38	.99
31201	1 "A"	SPST-NO	1.17	1.07	.975	.702
31203	1 "C"	SPDT	1.35	1.24	1.13	.81
31204	2 "A"	DPST-NO	1.50	1.38	1.25	.90
31206	2 "C"	DPDT	1.65	1.51	1.38	.99

### THREE POSITION TYPES†

Part No.	Contacts No./Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
29303	1 "C"	SPDT-NO	\$1.50	\$1.38	\$1.25	\$0.90
29304	1 "A"/1 "A"	SPST-NO	1.56	1.43	1.30	.936
29306	1 "C"/1 "C"	SPDT	1.74	1.60	1.45	1.04
29307	1 "C"/1 "C"	SPDT-NO	1.77	1.62	1.48	1.06
29312	2 "C"/2 "C"	DPDT	2.25	2.06	1.88	1.35
31303	1 "C"	SPDT-NO	1.50	1.38	1.25	.90
31304	1 "A"/1 "A"	SPST-NO	1.56	1.43	1.30	.936
31306	1 "C"/1 "C"	SPDT	1.74	1.60	1.45	1.04
31307	1 "C"/1 "C"	SPDT-NO	1.77	1.62	1.48	1.06
31312	2 "C"/2 "C"	DPDT	2.25	2.06	1.88	1.35

### INTERCOM TALK-LISTEN SWITCHES

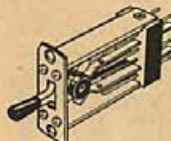
Lever locks on one side of neutral and operates non-locking on the other side.

29303T	1 "C"	SPDT-NO	\$1.50	\$1.38	\$1.25	\$0.90
29307T	1 "C"/1 "C"	SPDT-NO	1.77	1.60	1.48	1.06
31303T	1 "C"	SPDT-NO	1.50	1.38	1.25	.90
31307T	1 "C"/1 "C"	SPDT-NO	1.77	1.60	1.48	1.06

\*Add suffix L to number (i.e., 29201L) for locking type; same price. †Action shown is per section. ‡NO, center position off.

### "LO-CAP" SWITCHES

Low-capacity lever actuated switches (previously referred to as Federal Anti-Capacity switches). Specially designed flat actuator springs and round contact springs are wide spaced in a large molded insulating block. This construction eliminates the build-up of induced alternating current between springs. Rugged "U" shaped aluminum frame. Roller actuation for easy lever operation. Available in 2 and 3 position models, locking and non-locking types. Actuator springs have fine silver contacts rated at 1 amp, 100 watts, max., AC, non-inductive load. Supplied with polished chrome escutcheon plate. Mounts with two 6-32 flat head screws (not supplied). Mounting centers, 1 1/4". Depth behind panel, 3/4".



### TWO-POSITION TYPES

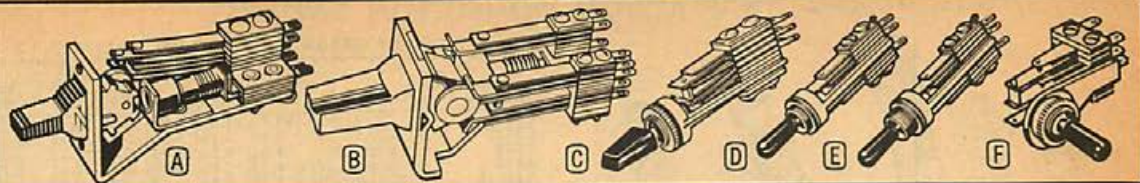
Part No.*	Old Federal No.	Contacts No./Schematic	Net Each, Lots of			
			1-24	25-49	50-99	100-249
10204L	1427	2 "A"	\$4.08	\$3.60	\$3.13	\$2.72
10205L	1426	2 "B"	4.08	3.60	3.13	2.72
10206L	.....	2 "C"	4.20	3.71	3.22	2.80

### THREE-POSITION TYPES

10306L	.....	1 "C"/1 "C"	\$4.20	\$3.71	\$3.22	\$2.80
10307L	1425	1 "C"/1 "C"	4.20	3.71	3.22	2.80
10312L	.....	2 "C"/2 "C"	4.50	3.98	3.45	3.00
10313L	1426	2 "C"/2 "C"	4.50	3.98	3.45	3.00
10324L	.....	4 "C"/4 "C"	9.90	8.75	7.59	6.60
10325L	12494	4 "C"/4 "C"	9.90	8.75	7.59	6.60

\*For non-locking type, omit "L" in part no. †All center position off.





### COLOR-ILLUMINATED "LEVER-LITE" SWITCHES

Indicates each position in separate, illuminated colors. Available in two- or three-position, locking or non-locking types. Reduce panel space; minimize wiring costs. Nickel silver springs; silver contacts rated 3 amps, 300 watts, max., AC, non-inductive. Supplied with 6 v. lamp (28 v. available). Mounts in panels up to 1/8" thick.

**A Series 25000**—With six color insert chips (red, green, amber, yellow, blue and white; chips replaceable in the field). Size: 1 1/4" w. x 2 1/4" d. x 1 1/8" h. Mounts on 3/8" centers, requires 2 1/4" depth behind panel.

**B Series 27000**—Utilizes a larger contoured lever and larger, factory-installed color filters. Mounts on 3/4" centers, requires 2 1/4" depth behind panel. On standard two-position types, in neutral position shows amber lighting; down position, green lighting. On three-position types, in up position, shows red lighting; neutral position, amber lighting; down position, green lighting.

### TWO-POSITION TYPES

Part No.*	Contacts No./Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
25201	1 "A"	SPST-NO	\$2.40	\$2.20	\$2.00	\$1.44
25203	1 "C"	SPDT	2.55	2.34	2.13	1.53
25206	2 "C"	DPDT	3.00	2.75	2.50	1.80
25209	3 "C"	3PDT	3.45	3.16	2.88	2.07
27206	2 "C"	DPDT	3.90	3.58	3.25	2.34
27212	4 "C"	4PDT	4.80	4.40	4.00	2.88

### THREE-POSITION TYPES†

Part No.	Contacts No./Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
25304	1 "A"/1 "A"	SPST-NO	\$2.70	\$2.48	\$2.25	\$1.62
25306	1 "C"/1 "C"	SPDT	3.00	2.75	2.50	1.80
25308	2 "A"/2 "A"	DPST-NO	3.30	3.03	2.75	1.98
25312	2 "C"/2 "C"	DPDT	3.60	3.30	3.00	2.16
27306	1 "C"/1 "C"	SPDT	3.90	3.58	3.25	2.34
27307	1 "C"/1 "C"	SPDT†	3.99	3.66	3.33	2.39
27312	2 "C"/2 "C"	DPDT	4.80	4.40	4.00	2.88

\*Add suffix L to number (i.e., 25201L) for locking type; same price. †Action shown is per section. ‡NO, center position off.

### ESCUTCHEON PLATES

For easy and convenient mounting of above switches without punching rectangular hole in panel. Satin black finish. With two machine screws and template.

Part No.	Use With	Net Each, Lots of			
		1-24	25-49	50-99	100-249
531	Series 25000	9c	8.3c	7.5c	5.4c
532	Series 27000	15c	13.8c	12.5c	9c
P-1864	Series 27000	6c	33c	29c	25c

### REPLACEMENT SCREW BASE LAMPS

Lamps are mounted in a "snap-out" frame assembly.

Part No.	Volts	Ind. No.	Net Each, Lots of			
			1-24	25-49	50-99	100-249
P-1217	6	1768	\$0.72	\$0.66	\$0.60	\$0.432
P-1218	28	Hudson 369	1.20	1.10	1.00	.72

### AMBIENT LIGHT SHIELD

Switchcraft Part No. P-1864—For use where "Lever-Lite" Series 27000 switches are mounted on minimum centers.

### MOLDED KNOB "LEV-R SWITCHES"

**C** Compact, lever action switch with permanently molded black knob. Two- or three-position, locking or non-locking. Fine silver contacts rated 3 amps, 300 watts, max., AC, non-inductive. Supplied with locknut and non-turn ring to prevent switch from turning in mounting hole. Mounts on 3/8" centers, panels up to 1/8" thick. Mounting holes required: 1/2" dia. for bushing, 1/4" dia. for non-turn device. Depth behind panel, 2 1/4".

### TWO-POSITION TYPES

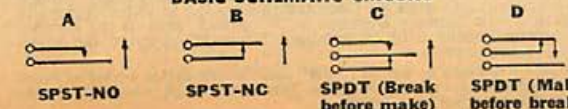
Part No.*	Contacts No./Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
28201	1 "A"	SPDT-NO	\$1.62	\$1.49	\$1.35	\$0.97
28203	1 "C"	SPDT	1.80	1.65	1.50	1.08
28204	2 "A"	DPST-NO	1.95	1.79	1.63	1.17
28206	2 "C"	DPDT	2.10	1.93	1.75	1.26

### THREE-POSITION TYPES†

Part No.	Contacts No./Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
28304	1 "A"/1 "A"	SPST-NO	\$2.01	\$1.84	\$1.68	\$1.20
28306	1 "C"/1 "C"	SPDT	2.19	2.01	1.83	1.31
28307	1 "C"/1 "C"	SPDT-NO‡	2.22	2.04	1.85	1.33
28312	2 "C"/2 "C"	DPDT	2.70	2.48	2.25	1.62

\*Add suffix L to number (i.e., 28201L) for locking type; same price. †Action shown is per section. ‡NO, center position off.

### BASIC SCHEMATIC CIRCUITS



### "LEV-R" SWITCHES

**D E** Compact lever switches take only half the space usually needed for a lever switch. Choice of two or three positions, locking or non-locking type. Non-locking type has spring return. Fine silver contacts rated 3 amps, 300 watts, max., AC, non-inductive. Come with locknut and screw-on black knob. Frame bushing and shaft are nickel plated brass. Width: 3/8". Mounting: 2 1/4" behind panel; single 1/2" dia. hole. Series 3000 (Fig. D) mounts in panels up to 1/8" thick. Series 13000 (Fig. E) mounts in panels up to 1/4" thick. **Intercom types** (with suffix "T") are talk-listen switches, lever locks on one side of neutral and operates non-locking on the other side.

### TWO-POSITION TYPES

Part No.*	Contacts No./Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
3001	1 "A"	SPST-NO	\$1.17	\$1.07	\$0.975	\$0.702
3002	1 "B"	SPST-NC	1.17	1.07	.975	.702
3003	1 "C"	SPDT	1.35	1.24	1.13	.81
3003D	1 "D"	SPDT	1.44	1.32	1.20	.864
3004	2 "A"	DPST-NO	1.50	1.38	1.25	.90
3005	2 "B"	DPST-NC	1.50	1.38	1.25	.90
3006	2 "C"	DPDT	1.65	1.51	1.38	.99
3006D	2 "D"	DPDT	1.74	1.60	1.45	1.04
3009	3 "C"	3PDT	2.04	1.87	1.70	1.22
13001	1 "A"	SPST-NO	1.26	1.16	1.05	.756
13002	1 "B"	SPST-NC	1.26	1.16	1.05	.756
13003	1 "C"	SPDT	1.44	1.32	1.20	.864
13003D	1 "D"	SPDT	1.50	1.38	1.25	.90
13004	2 "A"	DPST-NO	1.59	1.46	1.33	.954
13005	2 "B"	DPST-NC	1.59	1.46	1.33	.954
13006	2 "C"	DPDT	1.65	1.51	1.38	.99
13006D	2 "D"	DPDT	1.74	1.60	1.45	1.04
13009	3 "C"	3PDT	2.25	2.06	1.88	1.35

### THREE-POSITION TYPES†

Part No.	Contacts No./Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
3033	1 "C"	SPDT-NO‡	\$1.50	\$1.38	\$1.25	\$0.90
3034	1 "A"/1 "A"	SPST-NO	1.56	1.43	1.30	.936
3035	1 "B"/1 "B"	SPST-NC	1.56	1.43	1.30	.936
3036	1 "C"/1 "C"	SPDT	1.74	1.60	1.45	1.04
3036D	1 "D"/1 "D"	SPDT	1.86	1.71	1.55	1.12
3037	1 "C"/1 "C"	SPDT-NO‡	1.77	1.62	1.48	1.06
30312	2 "C"/2 "C"	DPDT	2.25	2.06	1.88	1.35
30313	2 "C"/2 "C"	DPDT-NO‡	2.25	2.06	1.88	1.35
13033	1 "C"	SPDT-NO‡	1.59	1.46	1.33	.954
13034	1 "A"/1 "A"	SPST-NO	1.65	1.51	1.38	.99
13035	1 "B"/1 "B"	SPST-NC	1.65	1.51	1.38	.99
13036	1 "C"/1 "C"	SPDT	1.86	1.71	1.55	1.12
13036D	1 "D"/1 "D"	SPDT	1.95	1.79	1.63	1.17
13037	1 "C"/1 "C"	SPDT-NO‡	1.86	1.71	1.55	1.12
130312	2 "C"/2 "C"	DPDT	2.40	2.20	2.00	1.44
130313	2 "C"/2 "C"	DPDT-NO‡	2.40	2.20	2.00	1.44
3033T	1 "C"/1 "C"	SPDT-NO‡	1.50	1.38	1.25	.90
3037T	1 "C"/1 "C"	SPDT-NO‡	1.77	1.62	1.48	1.06
13033T	1 "C"/1 "C"	SPDT-NO‡	1.59	1.46	1.33	.954
13037T	1 "C"/1 "C"	SPDT-NO‡	1.86	1.71	1.55	1.12

\*Add suffix L to number (i.e., 3003DL) for locking type; same price. †Action shown is per section. ‡NO, center position off.

### RIGHT-ANGLE "LEV-R" SWITCHES

**F** Small, right-angle action switch require minimum depth behind panel. Available in two-position and three-position types, locking and non-locking. Long, leaf-type springs for extended life. Fine silver contacts rated 3 amps, 300 watts, max., AC, non-inductive. Mounts in panels 1/8" thick in single 1/2" dia. hole; requires 3/8" depth behind panel. With nickel plated locknut and removable, black plastic knob.

### TWO-POSITION TYPES

Part No.*	Contacts No./Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
12001	1 "A"	SPST-NO	\$1.05	\$0.962	\$0.875	\$0.63
12002	1 "B"	SPST-NC	1.05	.962	.875	.63
12003	1 "C"	SPDT	1.20	1.10	1.00	.72
12003D	1 "D"	SPDT	1.35	1.24	1.13	.81
12004	2 "A"	DPST-NO	1.35	1.24	1.13	.81
12005	2 "B"	DPST-NC	1.35	1.24	1.13	.81
12006	2 "C"	DPDT	1.50	1.38	1.25	.90
12006D	2 "D"	DPDT	1.65	1.51	1.38	.99

### THREE POSITION TYPES†

Part No.	Contacts No./Schematic	Action	Net Each, Lots of			
			1-24	25-49	50-99	100-249
12033	1 "C"	SPDT-NO‡	\$1.35	\$1.24	\$1.13	\$0.81
12033T	1 "C"	SPDT-NO‡	1.35	1.24	1.13	.81
12034	1 "A"/1 "A"	SPST-NO	1.41	1.29	1.18	.846
12035	1 "B"/1 "B"	SPST-NC	1.41	1.29	1.18	.846
12036	1 "C"/1 "C"	SPDT	1.59	1.46	1.33	.954
12036D	1 "D"/1 "D"	SPDT	1.71	1.57	1.43	1.03
12037	1 "C"/1 "C"	SPDT‡	1.65	1.51	1.38	.99
12037T	1 "C"/1 "C"	SPDT‡	1.65	1.51	1.38	.99

\*Add suffix L to number (i.e., 12001L) for locking type; same price. †Action shown is per section. ‡Locking on one side; non-locking on other. ‡NO, center position off.



## SNAP-ACTION PUSHBUTTON SWITCHES

### CONTACT ARRANGEMENTS WITH ADAPTERS

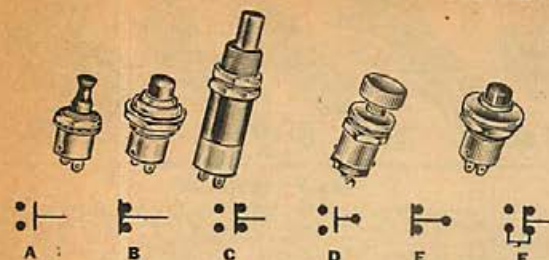
Basic Number*	Circuit	Contacts	†Net Each, Lots of					
			1-9	10-19	20-49	50-99	100-199	200-499
C100	A	SPST, NO	\$3.76	\$3.38	\$3.01	\$2.63	\$2.44	\$2.37
C3100	B	SPST, NC	3.76	3.38	3.01	2.63	2.44	2.37
C200	C	2-circuit	4.36	3.92	3.49	3.05	2.83	2.75
A800	D	3-term, NO	4.36	3.92	3.49	3.05	2.83	2.75
A11200	E	3-term, NC	4.36	3.92	3.49	3.05	2.83	2.75
C4100	F	SPDT	4.52	4.07	3.62	3.16	2.94	2.85

\*Not a complete part number. To order complete adapter switches see **HOW TO ORDER** section. †Includes switch, adapter, and pushbutton.

### HOW TO ORDER "JR SERIES" SWITCHES

**A. COMPLETE "JR" SERIES ADAPTER SWITCH:** 1. Select contact arrangement, i.e., C100, C200, etc. 2. Select mounting adapter, i.e., A, B, etc. 3. Select adapter color, i.e., B—Black, G—Green, M—Magenta, R—Red, Y—Yellow, BL—Blue, BN—Brown. If color is not required, omit this step. 4. Select auxiliary pushbutton, i.e., No. 2, No. 3, No. 4, 5. Select button color. If black plastic button is required, omit this step. 6. Combine these steps in order. Example: C4100HB4R denotes JR Series switch with C4100 contact (SPDT), black anodized type H adapter and a red No. 4 auxiliary pushbutton.

**B. BASIC "JR" SERIES SWITCH WITHOUT ADAPTERS:** 1. Select contact arrangement, i.e., C100, C3100, C200, etc. 2. Select pushbutton style, i.e., No. 2, No. 6, No. 7, etc. Example: C2008 denotes a "JR" series switch with C200 contact (2-circuit) using a black No. 8 pushbutton. For other color, suffix color designation (see A. 3. above).



### "JR SERIES" (MOMENTARY CONTACT)

**Applications:** Aviation, military and industrial. **Case:** Anodized aluminum. **Moisture-and-Dust Proof, Vibration and Shock Resistance:** Can be subjected to over 50G shock, and will withstand wide amplitude vibrations up to 55 cps. **Positive Contact:** Patented snap-action mechanism cannot be teased on or off contact. Contact surfaces are of heavy silver overlay on copper base. **Terminals:** Heavy silvered terminals molded in phenolic and cannot be torn loose by heavy wires. **Hardware:** Lugs (fits #14 gauge wire), 2-56 mounting screws and lockwashers furnished. **Operating Pressure:** 4 lbs. = 1 lb. **Total Button Travel:** Approx. 0.085". **Rating:** See table below. **Size:** 3/4" l. (less button) x 3/8" dia. Weight, Approx. 1/4 oz.

### BASIC SWITCHES

Ratings	Basic Number					
	C100	C3100	C200	A800	A11200	C4100
At 120 v. AC	15 a.	15 a.	15 a.	†	†	15 a.
At 240 v. AC	7.5 a.	7.5 a.	7.5 a.	†	†	7.5 a.
At 28 v. DC						
Min. Life Load*						
25,000 Resistive	17 a.	17 a.	10 a.	10 a.	10 a.	10 a.
25,000 Inductive	10 a.	10 a.	8 a.	8 a.	8 a.	8 a.
5,000 Inductive†	5 a.	5 a.	3 a.	3 a.	3 a.	1 a.
25,000 Lamp	4 a.	4 a.	3 a.	3 a.	3 a.	4 a.
25,000 Motor	10 a.	10 a.	10 a.	10 a.	10 a.	10 a.

\*Sea level, except indicated otherwise. †50,000 ft. †Not U/L Inspected. Center terminal current, 3 amps.

### PUSHBUTTONS

**No. 2 Button—Size:** 3/8" dia. x 3/8" h. Momentary contact.  
**No. 6 Button—Size:** 3/8" dia. x 3/8" h. Momentary contact.  
**No. 7 Button—Size:** 3/8" dia. x 3/8" h. Push-pull maintained contact.  
**No. 8 Button—Size:** 3/8" dia. x 3/8" h. Momentary contact.  
**No. 9 Button—Size:** 3/8" dia. x 3/8" h. Momentary contact.

### MOUNTING ADAPTERS

Removed onto switch in place of nut and lockwasher. Switch may be removed from equipment without disturbing adapter, surrounding components, or marring the panel. Mounting hardware supplied.

### AUXILIARY PUSHBUTTON

Fits on top of a standard button in the basic switch.

**#2 Aux. Button—**1/8" protrusion. Round top.  
**#3 Aux. Button—**1/8" protrusion. Flat top.  
**#4 Aux. Button—**1/8" protrusion. Round top.

Adapter Type	Aux. pb Avail.	Button Protrusion	Mtg. Hole Dia.	Adapter Length, Overall x Behind Panel
A†	#2, #3	1/8"	1/4"	1 1/2" x 1 1/2"
B††	#9	1/8"	1/4"	1 1/2" x 1 1/2"
D†	#2, #3	1/8"	1/4"	1 1/2" x 1 1/2"
E†	#2, #3	1/8"	1/4"	1 1/2" x 1 1/2"
F††	#2, #3	1/8"	1/4"	1 1/2" x 1 1/2"
H‡	#2, #3	1/8"	1/4"	1 1/2" x 1 1/2"
J§	#2, #3	1/8"	1/4"	1 1/2" x 1 1/2"
N¶	#2, #3	1/8"	1/4"	1 1/2" x 1 1/2"
P††	#2, #3	1/8"	1/4"	1 1/2" x 1 1/2"
Q†††	#2, #3	1/8"	1/4"	1 1/2" x 1 1/2"
U†	#2, #3	1/8"	1/4"	1 1/2" x 1 1/2"
Y§§	#2, #3	1/8"	1/4"	1 1/2" x 1 1/2"

\*Adapter flange can be engraved with 3/8" high letters. †#2-24 UNEF-2B nut. ††#3-32 NS-2 nut. ‡Press fit. §Has 2 positioning notches (1/8" R.) for press fit mtg. in stick grips. ††Spring clip mtg. Equiv. to NAS350. †††For front-of-panel, blind-hole mtg. Secured by self-tapping screw in flange (#2 Phillips flat hd.).

### CONTACT ARRANGEMENTS WITHOUT ADAPTERS

For circuits and contacts, see table above. Each switch furnished with 3/32 nut and lockwasher.

Basic Number	*Net Each, Lots of				
	1-9	10-19	20-49	50-99	100-499
C100	\$3.01	\$2.71	\$2.41	\$2.11	\$1.96
C3100	3.01	2.71	2.41	2.11	1.96
C200	3.61	3.25	2.89	2.53	2.27
A800	3.61	3.25	2.89	2.53	2.27
A11200	3.61	3.25	2.89	2.53	2.27
C4100	3.76	3.38	3.01	2.63	2.44

\*Includes switch, pushbutton No. 2, No. 6, No. 7, or No. 8.



### SERIES W100 (MOMENTARY CONTACT)

Similar to "JR" series but designed and built in accordance with MIL-S-6743, Drawing MS-25089. Silicone rubber sleeve offers complete moisture-and-dust proofing. Can be subjected to 4-20G vibration at 5 to 2,000 cps without contact chatter in any position of button travel. Total button travel with Type L adapter, approx. 1/8". Rated at 28 v. DC, 10 amps (resistive load), 5 amps (inductive load), 3 amps (lamp load). Weight with Type L adapter, approx. 1/4 oz. Other specifications, see "JR" series description.

### CONTACT ARRANGEMENTS

Basic No.*	Circuit	Contacts	†Net Each, Lots of					
			1-9	10-19	20-49	50-99	100-499	
W101	A	SPST, NO	\$4.83	\$4.35	\$3.86	\$3.38	\$3.14	\$3.04
W102	B	SPST, NC	4.83	4.35	3.86	3.38	3.14	3.04
W103	C	2-circuit	5.43	4.89	4.34	3.80	3.53	3.42
W104	D	3-term, NO	5.43	4.89	4.34	3.80	3.53	3.42
W105	E	3-term, NC	5.43	4.89	4.34	3.80	3.53	3.42
W106	F	SPDT	5.59	5.03	4.47	3.91	3.63	3.52

\*Not a complete part number. To order complete adapter switch, see **HOW TO ORDER** section. †Includes switch, adapter, and pushbutton. For L type adapter, add following amounts in each column: \$0.80, \$0.72, \$0.64, \$0.56, \$0.52, \$0.51. †Center term. current, 3 amps.

### MOUNTING ADAPTERS

Adapter Type	Corresponds to	Adapter Type	Corresponds to
M*	MS-25089 Type A	U†	MS-25089 Type D (Inactive)
N†	MS-25089 Type B	W‡	MS-25089 Type F
P††	MS-25089 Type C	Y†††	MS-25089 Type E
PA‡	MS-25089 Type G	L	††

\*Force-fit mtg. in stick grips, etc. †Back-of-panel mtg. ‡Flange can be engraved to order. §Back-of-panel mtg. in MIL-P-7788 edge-lit panels. ¶Front-of-panel mtg. ††Front-of-panel, blind-hole mtg. Secured by self-tapping screw through flange. †††Limit-switch application. Can only be supplied with special No. 5 pushbutton. Button pre-travel, 0.09" ± 0.02". Over-travel, 1/8". Has two 3/32 NS-2 hex nuts for positioning. Size, 2 1/4" l. overall; 1/8" button protrusion; 3/8" button dia. †††Two positioning notches for force-fit mtg. in stick grips, etc.

### PUSHBUTTONS

Plastic pushbutton. Black or red color. Other colors available on order.

**No. 5 Button—**Meets MS-25089 requirements. **Size:** 3/8" dia. x 1/2" h.

**No. 3 Button—Size:** 3/8" dia. x 3/8" h.

**No. 4 Button—Size:** 3/8" dia. x 3/8" h.

### HOW TO ORDER W100 SERIES SWITCHES

1. Select contact arrangement, i.e., W101, etc. 2. Select mounting adapter, i.e., M, N, etc. 3. Select adapter color, i.e., B for black anodized aluminum. If color is not required, omit this step. 4. Select pushbutton style, i.e., No. 6 (required by MS-25089), No. 3, or No. 4. Limit-switch type with type "L" adapter can only be furnished with special No. 5 pushbutton. Specify No. 5 on all orders for type "L" adapter. 5. Select button color, i.e., B—Black (Standard), R—Red. 6. Combine these steps in order. Example: W103PB6R denotes a Series W100 switch with W103 contact (2-circuit) using a black anodized type "P" adapter and a red No. 6 pushbutton.

**Button Guards to protect "JR" and W100 Series switches from accidental operation available. Sizes vary with adapters. Write for information and prices.**



CONTROLS COMPANY OF AMERICA

## CONTROL SWITCH SWITCHES

### T SERIES SUB-SUBMINIATURE SWITCH

Extra high current capacity in tiny case. So small they can be stacked side-by-side, four switches to the inch. Excellent shock and vibration characteristics. U/L listed at 7.5 amps, 125/250 v. AC. Also rated 7.5 amps, 30 v. DC resistive; 3 amps, 30 v. DC inductive. Mounts with minimum of hardware. Size:  $\frac{1}{2} \times \frac{1}{4} \times \frac{1}{8}$ .

No.	Description	Net Each, Lots of			
		1-9	10-19	20-49	50-99
T3	SPDT switch, solder terms.	\$2.00	\$1.80	\$1.60	\$1.40
T12	Same, U/L listed	2.00	1.80	1.60	1.40
A5-71	Leaf actuator	.20	.18	.16	.14
A5-73	Roller leaf actuator	.50	.45	.40	.35

### E4 SERIES SUBMINIATURE SWITCH

Ideal for compact electrical and electronic equipment. Low movement differential and operating force; precision control for critical applications. Can be stacked and gang-mounted. Meets MIL Spec. MS-25085, U/L listed at 5 amps, 125/250 v. AC. Also handles 4 amps, 30 v. DC resistive; 2.5 amps, 30 v. DC inductive. Size:  $\frac{1}{2} \times \frac{1}{4} \times \frac{1}{8}$ .

No.	Description	Net Each, Lots of			
		1-9	10-19	20-49	50-99
E4-103	SPDT basic sw., solder terms.	\$1.50	\$1.35	\$1.20	\$1.05
E4-110	Same, but turret terminals	1.50	1.35	1.20	1.05
A3-32-103*	DPDT maintained toggle	5.70	5.13	4.56	3.99
A3-33-103*	TPDT version of above	7.80	7.02	6.24	5.46
A3-41-103*	A3-32-103 but $\frac{1}{4}$ " bushing	5.70	5.13	4.56	3.99
A3-42-103*	SPDT version, $\frac{1}{4}$ " bushing	3.49	3.14	2.79	2.44
A4-86-103*	DPDT pushbutton	6.10	5.49	4.88	4.27
A4-87-103*	DPDT push-on, push-off pb	7.40	6.66	5.92	5.18
A5-9†	Leaf actuator for switches	.20	.18	.16	.14
A5-10†	Roller leaf actuator	.50	.45	.40	.35

### F SERIES MINIATURE SWITCH

Low cost precision unit meets military specifications; U/L listed. Rugged design with positive over-travel stop to protect mechanism from overactuation. Easy to mount; handy terminal locations for easy wiring. Rated 10 amps, 125/250 v. AC and 28 v. DC resistive; 6 amps, 30 v. DC inductive. Size:  $1\frac{1}{2} \times \frac{1}{2} \times \frac{3}{8}$ .

No.	Description	Net Each, Lots of			
		1-9	10-19	20-49	50-99
F2-13	SPDT basic sw., screw terms.	\$1.00	\$0.90	\$0.80	\$0.70
A5-47†	Roller leaf actuator	.40	.36	.32	.28
A5-49†	Leaf actuator	.20	.18	.16	.14

### G SERIES HIGH CURRENT SWITCH

Recommended for precision control of power circuits. Handles 40 amps at 125/250 v. AC. Size:  $1\frac{1}{2} \times \frac{1}{2} \times \frac{3}{8}$ .

G3-4	SPDT basic switch, side solder terminals	\$3.45	\$3.11	\$2.76	\$2.42
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### S SERIES TWO-CIRCUIT SWITCH

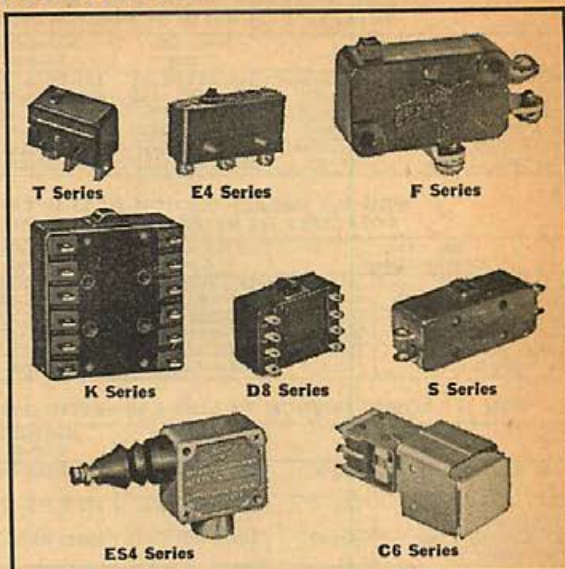
Combines high capacity, small size and long life with high precision. Rated for 10 million operations at full load (tested to 30 million operations). Also good for power circuits. Meets military specifications. Several models are U/L listed. Reset model maintains circuit until reset button is actuated; can be used as inexpensive 2-way limit switch. Rated 10 amps, 125/250 v. AC and 30 v. DC inductive. Size:  $1\frac{1}{4} \times \frac{1}{2} \times \frac{3}{8}$ .

No.	Description	Net Each, Lots of			
		1-9	10-19	20-49	50-99
S1-4	SPDT basic, end solder terms.	\$1.40	\$1.26	\$1.12	\$0.98
S1-304	Same, but reset type	1.65	1.49	1.32	1.16
S2-4	S1-4 but screw terminals	1.50	1.35	1.20	1.05
S2-304	Same, but reset type	1.75	1.58	1.40	1.23
S3-4	S1-4, but side solder terms.	1.47	1.32	1.18	1.03
A2-2†	Roller lever actuator	.80	.72	.64	.56
A4-1/S1-4*	Pushbutton sw., solder terms.	2.40	2.16	1.92	1.68
A4-25-1/S1-4*	Pushbutton sw., solder terms, and detachable button	3.32	2.99	2.66	2.32
A229691	Red plastic button for A4-25-1	.60	.60	.54	.51
A229694	Black button for A4-25-1	.60	.60	.54	.51
A4-102†	Pushbutton actuator, 1" dia.	3.50	3.15	2.80	2.45
A5-5†	Roller leaf actuator	.40	.36	.32	.28
A5-7†	Extended leaf actuator	.50	.45	.40	.35
S1-25	Basic switch	1.75	1.58	1.40	1.23

### D AND K SERIES MULTI-CIRCUIT SWITCHES

High capacity basic switches permit simultaneous switching of multiple circuits and precision control of 3-phase motors. Military and U/L listed models available. Reset model maintains circuit until reset button is actuated; can be used as inexpensive 2-way limit switches. Type D: Double pole units for 4 circuits;  $1\frac{1}{2} \times \frac{1}{2} \times \frac{3}{8}$ . Type K: Triple pole for 6 circuits;  $1\frac{1}{2} \times \frac{1}{2} \times \frac{3}{8}$ .

No.	Description	Net Each, Lots of			
		1-9	10-19	20-49	50-99
D8-4	DPDT basic, side solder terms.	\$6.25	\$5.63	\$5.00	\$4.38
D8-304	Same, but reset type	6.75	6.08	5.40	4.73
K3-4	TPDT basic, side solder terms.	7.45	6.71	5.96	5.22
A2-5†	Roller lever actuator	1.05	.95	.84	.74
A4-2†	Pushbutton actuator	2.00	1.80	1.60	1.40
A4-24-1†	Same, with detachable button	1.71	1.54	1.37	1.20
A229691	Red plastic button for A4-24-1	.60	.60	.54	.51
A229694	Black button for A4-24-1	.60	.60	.54	.51
A4-102†	Pushbutton actuator, 1" dia.	3.50	3.15	2.80	2.45
A5-18†	Extension leaf actuator	.75	.68	.60	.53



### E54 SERIES LIMIT SWITCH

Designed for machine control, automation circuitry, and sequence operation. Aluminum diecast housing protects against damage, dirt, and corrosion; simplifies mounting. Available with neoprene boot on plunger for dirt, oil and metal chip protection. Impulse models eliminate need for 1-way dogs, complicated relays and timers. As plunger is depressed, switch completes electrical circuit during preset section of travel but does not make circuit on return stroke. Rated 10 amps, 125/250 v. AC. Size: 2" (plus plunger length) x  $1\frac{1}{2} \times 2\frac{3}{8}$ .

No.	Standard Action	Over Travel	"On" Period	Net Each, Lots of		
				1-19	20-49	50-99
E54-N	.....	$\frac{1}{8}$ "	.....	\$ 8.50	\$7.65	\$7.23
E54-J	Red $1\frac{1}{2}$ " pb	$\frac{1}{8}$ "	.....	8.80	8.82	8.33
E54-K	Neoprene boot	$\frac{1}{8}$ "	.....	9.50	8.55	8.08

### Impulse Action

E54-NM1	.....	$\frac{1}{8}$ "	$\frac{1}{8}$ "	\$ 9.50	\$8.55	\$8.08
E54-NM2	.....	$\frac{1}{8}$ "	$\frac{1}{8}$ "	9.50	8.55	8.08
E54-NM3	.....	$\frac{1}{8}$ "	$\frac{1}{8}$ "	9.50	8.55	8.08
E54-NM4	.....	$\frac{1}{8}$ "	$\frac{1}{8}$ "	10.80	9.72	9.18
E54-JM3	Red $1\frac{1}{2}$ " pb	$\frac{1}{8}$ "	$\frac{1}{8}$ "	10.50	9.45	8.93
E54-KM1	Neoprene boot	$\frac{1}{8}$ "	$\frac{1}{8}$ "	10.50	9.45	8.93
E54-KM2	Neoprene boot	$\frac{1}{8}$ "	$\frac{1}{8}$ "	10.50	9.45	8.93
E54-KM3	Neoprene boot	$\frac{1}{8}$ "	$\frac{1}{8}$ "	10.50	9.45	8.93
E54-KM4	Neoprene boot	$\frac{1}{8}$ "	$\frac{1}{8}$ "	10.50	9.45	8.93
E54-KM6	Neoprene boot	$\frac{1}{8}$ "	$\frac{1}{8}$ "	10.50	9.45	8.93

### C6 SERIES LIGHTED PUSHBUTTON

#### PANEL SWITCH

Lighting, legend and electrical control in a compact unit. Can be stacked or individually mounted on panels or consoles. Colored plastic pushbuttons can be hot-stamped with words or symbols; button size  $\frac{3}{4} \times 1$ ". Lighted by two separate 6 or 28 volt lamps (provided) wired in parallel. Available without switch as pilot light. Two-piece plastic button has clear slip-in insert for legend. Switch is DPDT, rated 5 amps, 125 v. AC; 4 amps, 30 v. DC resistive, each pole.

#### SWITCH UNITS

No.	Description	Net Each, Lots of		
		1-24	25-99	100-499
C6-52-22	Momentary sw., 2 clear 6 v. lamps	\$ 9.60	\$ 8.64	\$ 7.87
C6-56-22	Same, but 2 clear 28 v. lamps	10.40	9.36	8.53
C6-53-22	Push-push sw., 2 clear 6 v. lamps	11.70	10.53	9.59
C6-57-22	Same, but 2 clear 28 v. lamps	12.50	11.25	10.25
C6-50-22	Pilot light, 2 clear 6 v. lamps	5.25	4.73	4.31
C6-54-22	Same, but with 2 clear 28 v. lamps	6.05	5.45	4.96
1117-5A-19-4	Mounting barrier (use one more than number of units ganged)	.75	.68	.62

#### PUSHBUTTONS

Color	Two-Piece Buttons	Solid Button	Net Each, Lots of		
			1-24	25-99	100-499
Blue	1117-SA19-11-B	1117-229-BB	50c	45c	41c
Green	1117-SA19-11-G	1117-229-GG	50c	45c	41c
Red	1117-SA19-11-R	1117-229-RR	50c	45c	41c
White	1117-SA19-11-W	1117-229-WW	50c	45c	41c
Yellow	1117-SA19-11-Y	1117-229-YY	50c	45c	41c

Note: All switches momentary contact unless otherwise noted. \*Designates actuator assembled with switch;  $\frac{1}{8}$ " bushing unless otherwise noted. †Order these actuators separately; assemble on switch when mounting.



## ILLUMINATED PUSHBUTTON SWITCH ASSEMBLIES

WITH 1/2" ROUND FRICTION FIT LENS CAP—  
ROTATABLE OR KEYED (NON-ROTATABLE)

Cap Color Combinations		Normally Open	Normally Closed	Two Circuits 1-NO, 1-NC
Solid color, translucent face, sides	Rotatable	183-A015-1471	183-B015-1471	183-C015-1471
	Keyed	186-A015-1471	186-B015-1471	186-C015-1471
Trans. colored face, black opaque sides	Rotatable	183-A015-371	183-B015-371	183-C015-371
	Keyed	186-A015-371	186-B015-371	186-C015-371
Trans. colored face, gray opaque sides	Rotatable	183G-A015-371	183G-B015-371	183G-C015-371
	Keyed	186G-A015-371	186G-B015-371	186G-C015-371

WITH 1/2" SQUARE FRICTION FIT LENS CAP—  
ROTATABLE OR KEYED (NON-ROTATABLE)

Cap Color Combinations		Normally Open	Normally Closed	Two Circuits 1-NO, 1-NC
Solid color, translucent face, sides	Rotatable	185-A015-1871	185-B015-1871	185-C015-1871
	Keyed	184-A015-1871	184-B015-1871	184-C015-1871
Trans. colored face, black opaque sides	Rotatable	185-A015-371	185-B015-371	185-C015-371
	Keyed	184-A015-371	184-B105-371	184-C015-371
Trans. colored face, gray opaque sides	Rotatable	185G-A015-371	185G-B015-371	185G-C015-371
	Keyed	184G-A015-371	184G-B015-371	184G-C015-371

WITH 3/4" ROUND FRICTION FIT LENS CAP—KEYED (NON-ROTATABLE)

Cap Color Combinations		Normally Open	Normally Closed	Two Circuits 1-NC, 1-NC
Solid color, translucent face, sides	Keyed	188-A015-1471	188-B015-1471	188-C015-1471
	Keyed	188-A015-371	188-B015-371	188-C015-371
Trans. colored face, black opaque sides	Keyed	188G-A015-371	188G-B015-371	188G-C015-371
	Keyed	188G-A015-371	188G-B015-371	188G-C015-371

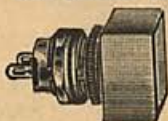
WITH 3/4" SQUARE FRICTION FIT LENS CAP—KEYED (NON-ROTATABLE)

Cap Color Combinations		Normally Open	Normally Closed	Two Circuits 1-NO, 1-NC
Solid color, translucent face, sides	Keyed	187-A015-1871	187-B015-1871	187-C015-1871
	Keyed	187-A015-371	187-B015-371	187-C015-371
Trans. colored face, black opaque sides	Keyed	187G-A015-371	187G-B015-371	187G-C015-371
	Keyed	187G-A015-371	187G-B015-371	187G-C015-371

WITH 1/2" ROUND SCREW-IN CAP—REAR MOUNT

Cap Color Combinations		Mtg. Hole	Normally Open	Normally Closed	Two Circuits 1-NO, 1-NC
Solid color, translucent face, sides	Keyed	1/4"	192-A055-1471	192-B055-1471	192-C055-1471
		1/2"	192-A045-1471	192-B045-1471	192-C045-1471
Trans. colored face, black opaque sides	Keyed	1/4"	192-A055-371	192-B055-371	192-C055-371
		1/2"	192-A045-371	192-B045-371	192-C045-371
Trans. colored face, gray opaque sides	Keyed	1/4"	192G-A055-371	192G-B055-371	192G-C055-371
		1/2"	192G-A045-371	192G-B045-371	192G-C045-371

## MATCHING INDICATOR LIGHT ASSEMBLIES



WITH 1/2" FRICTION FIT LENS CAP—ROTATABLE

Cap Color Combinations		Front Mtg. 1/32" Hole	Front or Rear Mtg. 1/2" Clearance Hole
Solid color, translucent face, sides	Round	183-9730-1471	183-9830-1471
	Square	185-9730-1871	185-9830-1871
Trans. colored face, black opaque sides	Round	183-9730-371	183-9830-371
	Square	185-9730-371	185-9830-371
Trans. colored face, gray opaque sides	Round	183G-9730-371	183G-9830-371
	Square	185G-9730-371	185G-9830-371

WITH 1/2" FRICTION FIT LENS CAP—KEYED (NON-ROTATABLE)

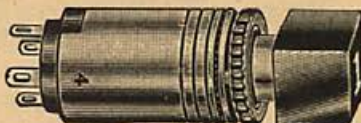
Cap Color Combinations		Front Mtg. 1/32" Hole	Front or Rear Mtg. 1/2" Clearance Hole
Solid color, translucent face, sides	Round	186-9730-1471	186-9830-1471
	Square	184-9730-1871	184-9830-1871
Trans. colored face, black opaque sides	Round	186-9730-371	186-9830-371
	Square	184-9730-371	184-9830-371
Trans. colored face, gray opaque sides	Round	186G-9730-371	186G-9830-371
	Square	184G-9730-371	184G-9830-371

WITH 3/4" FRICTION FIT LENS CAP—KEYED (NON-ROTATABLE)

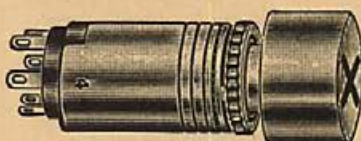
Cap Color Combinations		Front Mtg. 1/32" Hole	Front or Rear Mtg. 1/2" Clearance Hole
Solid color, translucent face, sides	Round	188-9730-1471	188-9830-1471
	Square	187-9730-1871	187-9830-1871
Trans. colored face, black opaque sides	Round	188-9730-371	188-9830-371
	Square	187-9730-371	187-9830-371
Trans. colored face, gray opaque sides	Round	188G-9730-371	188G-9830-371
	Square	187G-9730-371	187G-9830-371

All above accommodate a T-1 1/4 Incandescent lamp with midjet flange base in range of voltage from 1.35 to 28 volts.

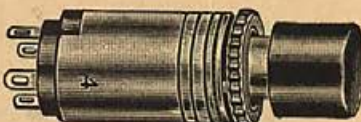
- Seven color combinations
- Single-hole mounting
- Caps of switches and of indicator lights are interchangeable
- Legends may be hot-stamped in positive style or engraved in negative style
- Fit panels up to 3/16" thick
- Size .650" dia. x 1 1/2" lg., less cap



**PRICING FOR COMPLETE ASSEMBLIES—1/2" CAP**  
Normally Open or Normally Closed Type—  
Net Each, 1-24.....\$3.44  
25-99.....3.16  
Two-Circuit Type—Net Ea., 1-24. 3.74  
25-99.....3.43



**PRICING FOR COMPLETE ASSEMBLIES—3/4" CAP**  
Normally Open or Normally Closed Type—  
Net Each, 1-24.....\$3.74  
25-99.....3.44  
Two-Circuit Type—Net Ea., 1-24. 4.04  
25-99.....3.71



**PRICING FOR COMPLETE ASSEMBLIES—1/2" CAP**  
Normally Open or Normally Closed Type—  
Net Each, 1-24.....\$3.44  
25-99.....3.16  
Two-Circuit Type—Net Ea., 1-24. 3.74  
25-99.....3.43

**Overall Size:**  
Front or rear mounting in 1/2" clearance hole—.650" dia. x 1 1/4" lg., max.  
Rear mounting in 1/2" clearance hole—.549" dia. x 1 1/4" lg., max.

### PRICING FOR INDICATOR LIGHT ASSEMBLIES

With 1/2" Cap—Net Each, 1-24...\$1.35  
25-99...1.24  
With 3/4" Cap—Net Each, 1-24...1.65  
25-99...1.52

### COLOR OF LENS FACE

Indicated by last figure in Dialco number. For simplicity, all numbers listed use suffix "1" to indicate the lens face is Red. When a color other than red is required, change the last figure per following list:

Last Figure in No.	Lens Face Color
1	Red (as listed)
2	Green
3	Amber (yellow)
4	Blue
5	White (translucent)
6	Light yellow
8	Ivory

Examples: 183-A015-1472 (Green)  
183-9730-1474 (Blue)



# Indicator Switches and Relays

## CONTROLS COMPANY PANEL INDICATOR SWITCHES



**NEW M-SERIES PUSHBUTTON SWITCHLIGHTS**  
Versatile panel-mounting switch with four independent indicator lamps available in five colors, eight button styles. Provides virtually unlimited display flexibility. Unusual, fool-proof design installs in minutes, without error, in a single cut-out; no barriers or screw holes required. Module design permit selecting and changing 2PDT to 4PDT with momentary, alternate or solenoid-held action as needed; snap-on module convenience. Switch module may be omitted for indicator light use only, if desired. Available in three switch configurations: Medium power with fine silver contacts up to 5 amps resistive at 28 volts; dry circuit with gold bonded on silver contacts for 0.025 ohm max. resistance; and hermetically sealed type for highest reliability. Uses standard MS-25237 flange-base lamps and colored silicone rubber filters; lamps are easily replaceable from front. Available with solenoid-held action; when actuated, switching unit remains in operating position while solenoid coil is energized, operating only as a hold (not as an actuator); when coil is not energized, switching is momentary, positive feel. **Solenoid:** Rated .060 amp at 28 v. DC, continuous. **Switch:** Rated 2.5 amps, 125/250 v. AC, 150,000 operations and 5 amps, 100,000 operations; 2.5 amps, inductive, and 4 amps, resistive, 30 v. DC for 50,000 operations. **Operating Force:** 6 lbs., max. except DPDT momentary type, 3 lbs. max. **Contacts:** Fine silver or gold bonded on fine silver. **Switch Case:** Black, mineral-filled phenolic. **Dielectric Strength:** 1000 v. rms; conforms to MIL-S-8805. **Temperature Range:** -65° to 180° F ambient. **Mechanical Life:** 150,000 cycles minimum. **Terminals:** Double turret. **Housing Size:** 1.20" w. x .960" h. x 1 1/4" d. behind panel

standard; 2 1/4" d. behind panel, solenoid. Fits panel cut-out 1.115" x .375". **Switch Size:** 1 1/4" w. x 1 1/4" h. x 1 1/4" d., DPDT momentary action; 1 1/4" w. x 1 1/4" h. x 1 1/4" d., 4PDT momentary action; 1 1/4" w. x 1 1/4" h. x .980" d., DPDT push-push alternate action; 1 1/4" w. x 1 1/4" h. x .980" d., 4PDT push-push alternate action.

### ORDERING INFORMATION

For complete ordering number, select body, lens code, filters for each lamp, sealed or unsealed, and switch module desired in this sequence (Example: M-12RRGGUB indicates M-1 body and circuit; Lens code 2; Red, Red, Green and Green filters; Unsealed; and B, 4PDT momentary, silver contacts switch).

No. Key	Description	List Price	
		Switch	Indicator
M-1†	Single common ground circuit body	\$ 9.10	\$7.10
4M†	Solenoid-held body	15.10	1.00
1	Single section lens	1.50	1.50
2	2-section lens	1.50	1.50
3	2-section (long way) lens	3.30	3.30
W	White color filter	3.30	3.30
R	Red color filter	3.30	3.30
A	Amber color filter	3.30	3.30
G	Green color filter	3.30	3.30
B	Blue color filter	3.30	3.30
S	Splash-proof sealing cap	2.00	2.00
U	Unsealed (no charge)		
*	Engraving nomenclature	1.00	1.00
A	2PDT momen. silv. contact switch	3.50	
B	4PDT momen. silv. contact switch	8.50	
F	2PDT alternat silv. cont. switch	5.25	
F	4PDT alternat silv. cont. switch	11.60	
G	Indicator light stop plate		.50
J	Gold contact version of A	15.50	
K	Gold contact version of B	17.00	
L	Gold contact version of E	15.60	

\*Specify, separately, special nomenclature desired for engraving onto lens; code numbering will be assigned by manufacturer. †Other special lamp circuits available; request Drawing A258-000.

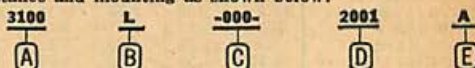
## BOURNS® SERIES 3100 TRIMPOT® RELAYS



Subminiature SPDT relay is rated at 1 amp resistive at 28.5 volts DC. The ultimate in miniaturization; measures only 0.2" x 0.4" x 0.6", weighs only 0.1 oz. Self-damping return spring and balanced armature design for shock and vibration resistance. Withstands 150G shock for 11 milliseconds, 40G vibration to 3000 cps. Meets or exceeds requirements of MIL-R-5757D. Operating sensitivity, 100 mW. Operating time, 4 milliseconds. Operating temperature, -65° C to +125° C. Complete coil resistance range, available with either voltage or current adjustments. With 1/4" plug-in pins (Model 3100H), 1 1/4" wire leads (3100L) or 1/4" hook terminals (3100J).

### ORDERING INFORMATION

Indicate terminal type, whether voltage or current sensitive, coil resistance and mounting as shown below:



- A Model Number
- B Terminal Letter (H, L or J)
- C Dash Number (000 for voltage adjusted, 001 for current adjusted)
- D Coil Resistance (First three digits for significant figures, last for multiplier)
- E Special Mounting Style (If desired)

### OPERATING CHARACTERISTICS

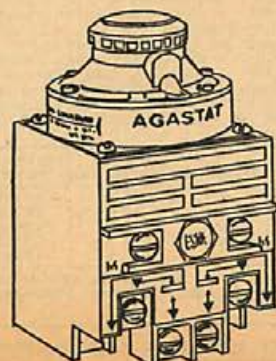
Coil Resistance, Ohms	Norm. Oper. Volts	Voltage Adjusted				Current Adjusted			
		+25°C		+125°C		Norm. Oper. mA	Max. Pull-in mA	Drop-out mA	
		Max.	Min.	Max.	Min.				
50	4.2	2.2	2.85	1.3	0.16	84.0	44.0	26.0	3.2
120	6.4	3.4	4.35	1.9	0.24	53.0	28.0	16.0	2.0
500	13.2	7.0	9.0	4.0	0.5	26.4	14.0	8.0	1.0
1000	18.8	10.0	12.8	5.7	0.7	18.8	10.0	5.7	0.7
2000	26.5	14.1	18.0	8.0	1.0	13.3	7.0	4.0	0.5

### PRICES

Resistance, Ohms, A, B or C*	Net Each, Lots of			
	1-9	10-24	25-49	50-99
50-2000	\$20.52	\$19.00	\$17.10	\$16.22
A, B or C*	21.52	19.93	17.94	17.01

\*Final suffix on order number (see ordering information, above) indicates: A—Horizontal bolt-down brackets; B—Printed circuit board tabs; C—Vertical bolt-down brackets.

## AGASTAT® 2400 SERIES ELECTROPNEUMATIC TIME/DELAY/RELAYS



- **TIME-CALIBRATED ADJUSTMENT DIALS**  
All ranges from milliseconds to minutes, are fully calibrated in timed increments.
- **LONGEST TIME RANGES**  
Standard ranges from milliseconds to 60 minutes, with equal repeatability at all points in between.
- **FRONT TERMINALS**  
Easy-to-reach screw terminals, all on the face of the unit, clearly identified.
- **MODULAR ASSEMBLY**  
Timing head, coil assembly and switch-block all individually field-replaceable. Auxiliary switches easily added in the factory or the field.
- **MODERN PANELMOUNT STYLE**  
Modern dial plate and knob, with mechanism protected behind the panel.
- **AUXILIARY SWITCH OPTIONS**  
Easily added auxiliary switches handle extra circuits or provide two-step timing.

**Operations:** Available in two types—1, delay on pull-in; 2, delay on drop-out. **Contact Arrangement:** DPST. **Coil Voltages:** Available in 21 different voltages. A, 120 V, 60 cps, 110 V, 50 cps. B, 240 V, 60 cps, 220 V, 50 cps. C, 480 V, 60 cps. D, 550 V, 60 cps. E, 24 V, 60 cps. F, 127 V, 50 cps. G, 240 V, 50 cps. H, 12 V, 60 cps. I, 6 V, 60 cps. J, 208 V, 60 cps. M, 28 VDC. N, 48 VDC. O, 24 VDC. P, 120 VDC. Q, 12 VDC. R, 60 VDC. S, 250 VDC. T, 550 VDC. V, 32 VDC. W, 96 VDC. Y, 6 VDC. **Time Ranges:** Available in ten different ranges. A, .1 to 1 sec. B, .2 to 5 sec. C, .8 to 15 sec. D, 2.5 to 50 sec. E, 10 to 200 sec. F, .5 to 10 min. G, 1 to 20 min. H, 1 to 30 min. I, 20 to 60 min. N, .2 to 300 sec. (needle valve models). **Enclosures or Mounting:** BC, plug-in connector and base. GZ, total enclosure with bottom connection. H1, Hermetically sealed with solder hook terminals. W, Watertight enclosure (NEMA-4). Y, horizontal panelmount.

FOR FULL DATA ASK FOR BULLETIN SR-2. PRICES ON REQUEST



# Phillips-Advance MIL Relays

## HERMETICALLY SEALED MILITARY RELAYS

### MV SERIES CRYSTAL CAN

Crystal can type relays designed to meet the requirements of MIL-R-5757D for continuous operation. Available in a variety of mounting and terminal arrangements. Vibration, shock and temperature resistant. Type 2C contact (DPDT), silver magnesium nickel, gold plated. Rated 2 amps resistive at 32 v. DC or 115 v. AC. Contacts available on special order for dry circuit applications. Minimum operation is 100,000 at rated load, +125° C. **Operating Time:** 5 millsec. max. including bounce at nominal power. **Release Time:** 5 millsec. max. including bounce. **Vibration:** 10 to 34 cps at max. excursions of .4", 34 to 2000 cps 20 G's acceleration. **Shock:** 50 G's for 11 millsec. **Dielectric Strength:** Sea level, 750 v. rms between open contacts, 1000 v. rms between all other terminals; 350 v. rms at 70,000 ft. **Insulation Resistance:** 10,000 megs. min. at 25° C; 100 megs. min. at 125° C. **Ambient Temperature Range:** -65° C to +125° C. **Enclosure:** Evacuated to 10 microns absolute. Filled with dry nitrogen. Hermetically sealed. Weight, 0.6 oz., max.



MV Series



NM Series Neomite



VR Series

### VR SERIES CRYSTAL CAN

Continuous duty, crystal can DPDT relays designed to meet MIL-R-5757D requirements. Withstand 35 G's vibration and 100 G's shock. Terminals are 0.2" spaced. **Contacts:** Type 2C (DPDT), silver magnesium nickel, gold plated; rated 3 amps resistive at 28 v. DC or 115 v. AC for 100,000 operations, min.; 0.05 ohm max. resistance before life, 0.10 ohm max. after life. **Operate Time:** 5 millsec. including bounce at nominal power. **Vibration:** 35 G's 55-3000 cps. **Shock:** 100 G's for 11 = 1 millsec., standard. **Dielectric Strength:** Sea level—1,000 v. rms between all mutually insulated terminals and terminals to ground for 1 sec., 750 v. rms between open contacts in energized and de-energized positions for 1 sec.; 70,000 ft., 350 v. rms. **Insulation Resistance:** 10,000 megs. min. at 500 v. DC, 25° C; 100 megs. min. at 500 v. DC, 125° C. **Temperature Range:** -65° C to +125° C, ambient. **Enclosure:** Evacuated to 10 microns absolute, filled with dry nitrogen, hermetically sealed. **Terminals:** Solder-hook (Code 1), .190" L.; Plug-in (Code 2), .190" L., .030" dia. lead; 3" leads (Code 3), .030" dia. **Mountings:** Available in five types: Side angle bracket (Code 0), 1.094" mtg. ctrs.; Side studs (Code 1), .4-40 UNC-2A, 2 places; Top studs (Code 2), .4-40 UNC-2A, 2 places; Two-Hole bracket (Code 3), 1.062" mtg. ctrs.; Plain can (Code 4), .8" w. x .396" d. x .875" h., max. overall. Weight, 0.6 oz., maximum.

Re-sist. Ohms **	Coil				Terminal Arrangement	Mounting Arrangement
	Max. Pull-in, VDC	Nom. VDC	Max. Pull-in, Ma.	Nom. Ma.		
30	2.7	6	85	200	Code 1: Side studs* Code 2: Top studs* Code 3: 2-hole bkt.† Code 4: Plain can† Code 5: 4-hole bkt.† Code 6: Side angle bracket‡ Code 7: Flange bkt.‡	
120	5.5	12	44	100		
600	12.3	26	21	44		
1000	16.0	35	16	35		
2500	25.0	55	10	22		
5000	35.0	78	7	16		
10,000	.....	110	5	.....		

\*1-40 UNC-2A, 2 mtg. studs, †1.062" mtg. ctrs., ‡.797" w. x .875" h., †1.094" mtg. ctrs., †1.078" mtg. ctrs. \*\*Any DC coil resistance from 30 ohms to 10,000 ohms can be supplied.

**How to order**—Specify Relay type, contact form, coil resistance and terminal mounting code. Example: MV solder-hook terminals with top studs and 1000 ohms coil, MV 2C 1000D-12.

### PRICES FOR MV SERIES

Advance No.	Net Each, Lots of				
	1-9	10-49	50-99	100-249	250-499
MV2C30D-11 or -12	\$13.50	\$11.50	\$8.50	\$8.00	\$7.50
MV2C30D-13 thru -16	13.50	11.50	8.50	8.00	7.50
MV2C30D-21 or -22	13.50	11.50	8.50	8.00	7.50
MV2C30D-23 or -24	13.50	11.50	8.50	8.00	7.50
MV2C30D-25 or -26	13.50	11.50	8.50	8.00	7.50
MV2C30D-31 or -32	13.85	11.80	8.72	8.21	7.69
MV2C30D-33 thru -35	13.85	11.80	8.72	8.21	7.69
MV2C30D-36	13.85	11.80	8.72	8.21	7.69
MV2C120D-11 or -12	13.50	11.50	8.50	8.00	7.50
MV2C120D-13 thru -16	13.50	11.50	8.50	8.00	7.50
MV2C120D-21	13.50	11.50	8.50	8.00	7.50
MV2C120D-22	13.50	11.50	8.50	8.00	7.50
MV2C120D-23 or -24	13.50	11.50	8.50	8.00	7.50
MV2C120D-25 or -26	13.50	11.50	8.50	8.00	7.50
MV2C120D-31 or -32	13.85	11.80	8.72	8.21	7.69
MV2C120D-33 thru -36	13.85	11.80	8.72	8.21	7.69
MV2C600D-11 or -12	13.50	11.50	8.50	8.00	7.50
MV2C600D-13 thru -16	13.50	11.50	8.50	8.00	7.50
MV2C600D-21 or -22	13.50	11.50	8.50	8.00	7.50
MV2C600D-23 or -24	13.50	11.50	8.50	8.00	7.50
MV2C600D-25 or -26	13.50	11.50	8.50	8.00	7.50
MV2C600D-31 or -32	13.85	11.80	8.72	8.21	7.69
MV2C600D-33 thru -36	13.85	11.80	8.72	8.21	7.69
MV2C1000D-11	13.50	11.50	8.50	8.00	7.50
MV2C1000D-12	13.50	11.50	8.50	8.00	7.50
MV2C1000D-13 thru -16	13.50	11.50	8.50	8.00	7.50
MV2C1000D-21 or -22	13.50	11.50	8.50	8.00	7.50
MV2C1000D-23	13.50	11.50	8.50	8.00	7.50
MV2C1000D-24	13.50	11.50	8.50	8.00	7.50
MV2C1000D-25 or -26	13.50	11.50	8.50	8.00	7.50
MV2C1000D-31 or -32	13.85	11.80	8.72	8.21	7.69
MV2C1000D-33 thru -36	13.85	11.80	8.72	8.21	7.69
MV2C2500D-11 or -12	13.50	11.50	8.50	8.00	7.50
MV2C2500D-13 thru -16	13.50	11.50	8.50	8.00	7.50
MV2C2500D-21	13.50	11.50	8.50	8.00	7.50
MV2C2500D-22	13.50	11.50	8.50	8.00	7.50
MV2C2500D-23 or -24	13.50	11.50	8.50	8.00	7.50
MV2C2500D-25 or -26	13.50	11.50	8.50	8.00	7.50
MV2C2500D-31 or -32	13.85	11.80	8.72	8.21	7.69
MV2C2500D-33 or -34	13.85	11.80	8.72	8.21	7.69
MV2C2500D-35 or -36	13.85	11.80	8.72	8.21	7.69
MV2C5000D-11 or -12	13.50	11.50	8.50	8.00	7.50
MV2C5000D-13 thru -16	13.50	11.50	8.50	8.00	7.50
MV2C5000D-21	13.50	11.50	8.50	8.00	7.50
MV2C5000D-22	13.50	11.50	8.50	8.00	7.50
MV2C5000D-23	13.50	11.50	8.50	8.00	7.50
MV2C5000D-24	13.50	11.50	8.50	8.00	7.50
MV2C5000D-25 or -26	13.50	11.50	8.50	8.00	7.50
MV2C5000D-31 or -32	13.85	11.80	8.72	8.21	7.69
MV2C5000D-33 or -34	13.85	11.80	8.72	8.21	7.69
MV2C5000D-35 or -36	13.85	11.80	8.72	8.21	7.69
MVT2C10,000D-11 or -12	13.50	11.50	8.50	8.00	7.50
MVT2C10,000D-13 thru -16	13.50	11.50	8.50	8.00	7.50
MVT2C10,000D-21 or -22	13.50	11.50	8.50	8.00	7.50
MVT2C10,000D-23 or -24	13.50	11.50	8.50	8.00	7.50
MVT2C10,000D-25 or -26	13.50	11.50	8.50	8.00	7.50
MVT2C10,000D-31 or -32	13.85	11.80	8.72	8.21	7.69
MVT2C10,000D-33 or -34	13.85	11.80	8.72	8.21	7.69
MVT2C10,000D-35 or -36	13.85	11.80	8.72	8.21	7.69

Re-sist. Ohms	Coil				Terminal Arrangement	Mounting Arrangement
	Max. Pull-in, VDC	Nom. VDC	Max. Pull-in, Ma.	Nom. Ma.		
35	3.0	6.3	86.0	180	Code 1 solder-hook	Code 0-Side angle bracket
125	5.6	12.3	45.0	98	Code 2	Code 1-Side studs
675	13.0	26.5	19.3	39	plug-in	Code 2-Top studs
1500	19.5	42	13.0	28	Code 3	Code 3-Two-hole bkt.
2450	25.0	55	10.2	22.5	3" leads	Code 4-Plain can
9100	48.0	110	5.3	12.1		

**How to order**—Specify: Relay type, contact form, coil resistance, and terminal-mounting code. Example: VR 2C 675D-12 indicates VR type relay, 2C (DPDT) contact, 675-ohm coil, Code 1 terminal (solder-hook), and Code 2 mounting (top studs).

Advance No.	Net Each, Lots of				
	1-9	10-49	50-99	100-249	250-499
VR2C35D-10 or -24	\$13.00	\$12.00	\$11.00	\$9.00	\$8.50
VR2C125D-*	13.00	12.00	11.00	9.00	8.50
VR2C675D-†	13.00	12.00	11.00	9.00	8.50
VR2C1500D-24	13.00	12.00	11.00	9.00	8.50
VR2C2450D-14 or -24	13.00	12.00	11.00	9.00	8.50
VR2C9100D-24 or -31	13.00	12.00	11.00	9.00	8.50

**Terminal-Mounting available:** \*-10, -12, -13, -14, -24, -31, -34, †-10, -11, -12, -13, -14, -20, -24, -33, -34.

**Special Order:** VR Series relays with the following modifications available on special order: Coils with special resistance; coils with 100 milliwatts maximum pull-in power at 25° C; 150 G's for 11 = 1 millsec. shock; contacts for dry circuit applications.

### NM SERIES NEOMITE MICROMINIATURE DC RELAYS

Microminiature DC relays, sealed in transistor-size case; occupy less than 0.04 cu. in. Vibration and shock resistant. Offer extremely long life. Ideal for various dry circuit applications. **Operating Power:** 100 mw. Continuous duty. **Operating Time:** 4 millsec. max., including bounce at rated voltage. **Release Time:** 8 millsec. max., including bounce at rated voltage. **Contacts:** Type 1C (SPDT); rated 0.25 amp. at 28 v. DC, resistive; 0.05 ohm max. resistance. **Drop-Out:** 30% to 60% of pickup. **Dielectric Strength:** 500 v. rms, sea level. **Insulation Resistance:** 100 megs at 500 v. DC. **Shock:** 50 G's without physical damage. **Vibration:** 10 G's at up to 2 kc when mounted with No. 6B346000 bracket. **Temperature Range:** -55° C to +65° C, ambient. **Life Expectancy:** 1,000,000 operations at rated load, at 25° C. **Enclosure:** Evacuated at 2.5" HG Absolute; filled with dry nitrogen; hermetically sealed. **Size:** Body, 0.392" w. x 0.196" d. x 0.531" h.; wire, 1 1/4" long, 0.016" dia. Weight, 0.09 oz., max.

Advance No.	Coil Ohms	Coil Voltage		Maximum Pull-in
		Nominal	Maximum	
NM1C50	50DC	4 v.	5 v.	44 ma
NM1C100	200DC	8 v.	10 v.	22 ma
NM1C500	500DC	12 v.	15 v.	14 ma
NM1C1000	1000DC	16 v.	21 v.	10 ma
NM1C2000	2000DC	24 v.	30 v.	7 ma

Neomite Series prices on application. Screw-down and printed-circuit mounting brackets also available. Write for information and prices.

Other PHILLIPS-ADVANCE relay types available. Write for information and prices.



# Relays, Flashers & Ballast Tubes

## AMPERITE DELAY RELAYS, FLASHERS AND BALLAST TUBES

### DELAY RELAYS



Glass Enclosed—Hermetically Sealed—AC, DC or Pulsating Current. Circuits: SPST only—normally open or normally closed. Heater Wattage: The wattage consumed is approx. 2 W. Heaters can be operated continuously. **Contact Rating, Non-Inductive:** Standard Relays, 115 V, 3 amps AC; 220 V, 1 amp. Miniatures, 115 V, 2 amps; 220 V, 1 amp. For 220 V, use a 6500 $\Omega$ , 5 W resistor in series with 115 V heater. **DC Voltage Breakdown:** 2-10 sec. types, 250 V contact-to-contact, 500 V heater-to-contact; 15-180 sec. types, 800 V. **Contact Drop:** 0.1 V, prox. at 1 amp. **Ambient Temperature:** Compensated for -55° C to +80° C; operable from -80° C to +125° C. Heaters of 28 V or less have better compensation than higher voltages. **Life:** With 115 V, 2 amp AC non-inductive load, at least 250,000 operations. **Bases:** Standard, standard octal; Miniature, 9-pin miniature. Miniature types (designated by suffix T, e.g., 6N05T) available in delays from 2 to 120 sec. (6.3 V from 2 to 180 sec.).



Net Each ..... \$2.40

### NORMALLY CLOSED CONTACTS\*

Del. Sec.	HEATER VOLTAGES						
	2.5 V	5.0 V	6.3 V	12.6 V	26 V (22-30)	50 V	115 V
2	2C2	5C2	6C2	12C2	26C2	50C2	115C2
3	2C3	5C3	6C3	12C3	26C3	50C3	115C3
5	2C5	5C5	6C5	12C5	26C5	50C5	115C5
8	2C8	5C8	6C8	12C8	26C8	50C8	115C8
10	2C10	5C10	6C10	12C10	26C10	50C10	115C10
15	2C15	5C15	6C15	12C15	26C15	50C15	115C15
20	2C20	5C20	6C20	12C20	26C20	50C20	115C20
30	2C30	5C30	6C30	12C30	26C30	50C30	115C30
45	2C45	5C45	6C45	12C45	26C45	50C45	115C45
60	2C60	5C60	6C60	12C60	26C60	50C60	115C60
75	2C75	5C75	6C75	12C75	26C75	50C75	115C75
90	2C90	5C90	6C90	12C90	26C90	50C90	115C90
120	2C120	5C120	6C120	12C120	26C120	50C120	115C120
150	2C150	5C150	6C150	12C150	26C150	50C150	115C150
180	2C180	5C180	6C180	12C180	26C180	50C180	115C180

\*Bold face type indicates most popular types. †See tolerance table.

### DELAY TOLERANCES (AT 20° C)

Delay Seconds	Tol., Sec.	Delay Seconds	Tol., Sec.	Delay Seconds	Tol., Sec.	Delay Seconds	Tol., Sec.
2	±1 1/2	10	±4	45	±10	120	±35
3	±1 1/2	15	±4	60	±15	150	±35
5	±2 1/2	20	±5	75	±15	180	±45
8	±3	30	±10	90	±20		

### NORMALLY OPEN CONTACTS\*

Del. Sec.	HEATER VOLTAGES						
	2.5 V	5.0 V	6.3 V	12.6 V	26 V (22-30)	50 V	115 V
2	2N02	5N02	6N02	12N02	26N02	50N02	115N02
3	2N03	5N03	6N03	12N03	26N03	50N03	115N03
5	2N05	5N05	6N05	12N05	26N05	50N05	115N05
8	2N08	5N08	6N08	12N08	26N08	50N08	115N08
10	2N010	5N010	6N010	12N010	26N010	50N010	115N010
15	2N015	5N015	6N015	12N015	26N015	50N015	115N015
20	2N020	5N020	6N020	12N020	26N020	50N020	115N020
30	2N030	5N030	6N030	12N030	26N030	50N030	115N030
45	2N045	5N045	6N045	12N045	26N045	50N045	115N045
60	2N060	5N060	6N060	12N060	26N060	50N060	115N060
75	2N075	5N075	6N075	12N075	26N075	50N075	115N075
90	2N090	5N090	6N090	12N090	26N090	50N090	115N090
120	2N0120	5N0120	6N0120	12N0120	26N0120	50N0120	115N0120
150	2N0150	5N0150	6N0150	12N0150	26N0150	50N0150	115N0150
180	2N0180	5N0180	6N0180	12N0180	26N0180	50N0180	115N0180

\*Bold face type indicates most popular types. †See tolerance table.

### FLASHER RELAYS

Glass-enclosed, hermetically sealed. Operate approximately 1/2 on, 1/2 off. Percentage time on can be increased by reducing heater voltage. **Heater Wattage:** 1 watt. **Contact Rating, Non-Inductive:** 1/2 amp AC. **DC Voltage Breakdown:** 250 V contact-to-contact; 500 V heater-to-contact. **Bases:** Standard octal and 9-pin miniature. Net Each ..... \$2.40

Flashes per Minute*	6.3 V Heater		26 V Heater		115 V Heater	
	Octal	Min.	Octal	Min.	Octal	Min.
10 = 5	6F10	.....	26F10	.....	115F10	.....
30 = 15	6F30	6F30T	26F30	26F30T	115F30	115F30T
45 = 15	6F45	6F45T	26F45	26F45T	115F45	115F45T
60 = 20	6F60	6F60T	26F60	26F60T	115F60	115F60T
75 = 20	6F75	6F75T	26F75	26F75T	.....	.....
90 = 25	6F90	6F90T	26F90	26F90T	.....	.....

\*Flashes tolerance at 20° C.

### AC-DC BALLAST TUBES

Light, compact, with no moving parts. Will withstand vibrations of 10G min. Hermetically sealed; unaffected by altitude or humidity changes. Current values of 60 mA to 5 amps. Threshold voltage 0.4 to 40 volts. Any number of tubes with the same voltage range can be operated in parallel; DO NOT use in series. Approx. average life, 2,000 hours. Will change up to 3% in current if aged 4-8 hours; very little thereafter.

STANDARD BALLAST TUBES—NET EACH \$1.80  
WRITE FOR COMPLETE LISTING

## GUARDIAN® POWER RELAYS

### SERIES 2200U AND 2210U—25 AMPS

DPDT Series 2200 and DPST Series 2210 power relays are rated 25 amps continuous at 230 VAC at 75% power factor. Operating power required for AC is 9.5 VA, 60 cps. Coil drain approx. .080 amp at 115 V, 60 cps. Interchangeable coil assemblies are available for either relay series (see listing below). Replaceable contact switch parts (see lists) available for Series 2200 only. Mounting: 2 holes .196" dia. holes on 1 1/2" centers. Size: 2200—3 1/2" lg. x 2 1/2" w. x 2 1/4" h. Shpg. Wt., 11 oz.; 2210—2 1/4" lg. x 2 1/2" w. x 2 1/4" h. Shpg. Wt., 10 oz.

Guardian Number	Volts AC	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250 Up
2200U-DPDT-6	6	\$6.25	\$5.63	\$5.31	\$5.00	\$4.38
2200U-DPDT-24	24	6.25	5.63	5.31	5.00	4.38
2200U-DPDT-115	115	6.25	5.63	5.31	5.00	4.38
2200U-DPDT-230	230	6.75	6.08	5.74	5.40	4.73
2210U-DPST-NO-6	6	5.25	4.73	4.46	4.20	3.68
2210U-DPST-NO-24	24	5.25	4.73	4.46	4.20	3.68
2210U-DPST-NO-115	115	5.25	4.73	4.46	4.20	3.68
2210U-DPST-NO-230	230	5.60	5.04	4.76	4.48	3.92

### REPLACEMENT COILS FOR EITHER RELAY

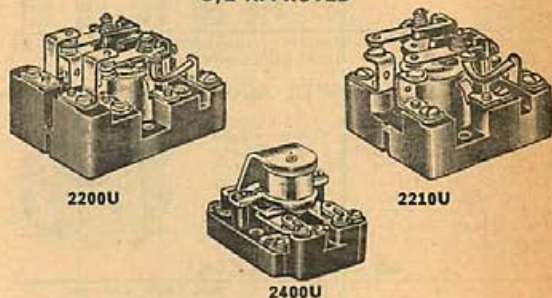
Guardian Number	Volts AC	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250 Up
2200-6A	6	\$2.25	\$2.03	\$1.91	\$1.80	\$1.58
2200-24A	24	2.25	2.03	1.91	1.80	1.58
2200-115A	115	2.25	2.03	1.91	1.80	1.58
2200-230A	230	2.50	2.25	2.13	2.00	1.75

### REPLACEMENT CONTACT SWITCH PARTS

For Series 2200 only. No solder required. Includes one NO and one NC contact bracket, moving blade and terminal. "Right" or "Left" determined by viewing relay from armature hinge end with contacts up.

Guardian Number	Type	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250 Up
CS-2200	Left	\$1.85	\$1.67	\$1.57	\$1.48	\$1.30
CS-2200	Right	1.85	1.67	1.57	1.48	1.30

### U/L APPROVED



### SERIES 2400U AC AND 2405 DC—15 AMPS

Both series have standard DPDT contacts rated for 15 amps non-inductive or 1 hp at 115/230 V, 60 cps. Inverted coil construction protects armature and contacts to insure long life, reliable operation. Screw type terminals easily accessible for top or bottom connections. Armature extension permits manual circuit testing. Mounting: Two .196" dia. holes on 1 1/2" centers. Size, 3 1/4" x 2 1/2" x 2 1/4". Shipping Weight, 8 oz.

Guardian Number	Volts	Amps	Net Each, Lots of				
			1-24	25-49	50-99	100-249	250 Up
2400U-DPDT-6	6*	15	\$5.75	\$5.18	\$4.89	\$4.60	\$4.03
2400U-DPDT-24	24*	15	5.75	5.18	4.89	4.60	4.03
2400U-DPDT-115	115*	15	5.75	5.18	4.89	4.60	4.03
2400U-DPDT-230	230*	15	6.00	5.40	5.10	4.80	4.20
2405-DPDT-6	6†	15	5.75	5.18	4.89	4.60	4.03
2405-DPDT-12	12†	15	5.75	5.18	4.89	4.60	4.03
2405-DPDT-24	24†	15	5.75	5.18	4.89	4.60	4.03
2405-DPDT-110	110†	15	6.25	5.63	5.31	5.00	4.38
2400-SPDT							
AUX Aux. Switch	.....	10	1.35	1.22	1.15	1.08	.95

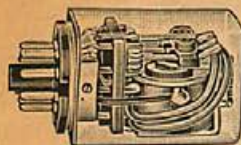
\*AC, †DC.



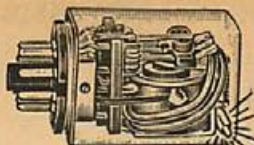


# Guardian® Relays

## ENCLOSED PLUG-IN AC-DC RELAYS



Type 1210 and 1215



Type 1210-N

**Type 1210**—Small size relay in Lexan enclosure for efficient, dust-free, and trouble-free operation. This transparent, lightweight Lexan case has high impact strength, unaffected by weather and is resistant to temperatures of 200° F. Relay is powerful and economical. Available with 8 pin octal plug for DPDT and 11 pin for 3PDT. Contacts rated for 10 amperes, 60 cycles, 115 VAC non-inductive. **Type 1210-N**—Plug-in relay utilizes a miniature neon lamp connected across coil terminals. The lamp lights each time the coil is energized, or indicates a circuit fault when lamp is "dark". Ideal for detecting circuit faults in relay banks, mass relay arrangements, or where relays are visibly located at intermediate switching points of the circuitry. Precludes the use of circuit testers. Available with 8 pin octal plug for DPDT and 11 pin for 3PDT. Contact rated 10 amperes at 115 VAC, 60 c., non-inductive load. **Size 1210 and 1210-N:** 2 1/2" x 1 1/4" x 1 1/4". Shpg. Wt., 3.5 oz. Registered GE trademark.

## ENCLOSED PLUG-IN RELAYS—AC-DC

Guardian Number*	Coil Ohms	Cont. Comb.	Net Each, Lots of				
			1-24	25-49	50-99	100-249	250 Up
1210N-2C-115A	1000	DPDT	\$6.75	\$6.08	\$5.74	\$5.40	\$4.73
1210N-3C-115A	3PDT	8.00	7.20	6.80	6.40	5.60	
1210-2C-6A	2	DPDT	6.00	5.40	5.10	4.80	4.20
1210-3C-6A	2	3PDT	7.50	6.75	6.38	6.00	5.25
1210-2C-24A	33	DPDT	6.00	5.40	5.10	4.80	4.20
1210-3C-24A	33	3PDT	7.50	6.75	6.38	6.00	5.25
1210-2C-115A	1000	DPDT	6.00	5.40	5.10	4.80	4.20
1210-3C-115A	1000	3PDT	7.50	6.75	6.38	6.00	5.25
1210-2C-230A	5230	DPDT	6.25	5.63	5.31	5.00	4.38
1210-3C-230A	5230	3PDT	7.75	6.98	6.59	6.20	5.43
1215-2C-6D	12	DPDT	6.00	5.40	5.10	4.80	4.20
1215-3C-6D	12	3PDT	7.50	6.75	6.38	6.00	5.25
1215-2C-12D	60	DPDT	6.00	5.40	5.10	4.80	4.20
1215-3C-12D	60	3PDT	7.50	6.75	6.38	6.00	5.25
1215-2C-24D	192	DPDT	6.00	5.40	5.10	4.80	4.20
1215-3C-24D	192	3PDT	7.50	6.75	6.38	6.00	5.25
1215-2C-110D	5042	DPDT	6.50	5.85	5.53	5.20	4.55
1215-3C-110D	5042	3PDT	8.00	7.20	6.80	6.40	5.60

\*Suffix indicates volts (i.e., -115A for 115 VAC; -6D, 6 VDC, etc.).

## ENCLOSED PLATE CIRCUIT PLUG-IN RELAYS—DC

Guardian Number†	Oper. mA	Cont. Comb.	Net Each, Lots of				
			1-24	25-49	50-99	100-249	250 Up
1215-2C-2.5	10	DPDT	\$6.20	\$5.58	\$5.27	\$4.96	\$4.34
1215-3C-2.5	12	3PDT	7.25	6.53	6.16	5.80	5.08
1215-2C-5	7.2	DPDT	6.30	5.67	5.36	5.04	4.41
1215-3C-5	8.5	3PDT	7.50	6.75	6.38	6.00	5.25
1215-2C-10	3	DPDT	6.50	5.85	5.53	5.20	4.55
1215-3C-10	6	3PDT	7.75	6.98	6.59	6.20	5.43

†Suffix indicates Coil Resistance (ohms) times 1000 (i.e., -2.5 for 2500 ohms; -10 for 10,000 ohms, etc.).

## MEDIUM POWER AC-DC RELAYS

**Type 1200**—Rated at 10 amps, 60 cycles, 115 V non-inductive load. Heavy solder lug type terminals molded in phenolic block, with barriers for over-surface insulation. For automation, communications, remote control, selectors, switching devices and experimental uses. Single 6-32 tapped mounting hole. **Size:** 1 1/2" x 1" x 1 1/4". **Shipping Weight:** 2.5 oz.



## 60 CYCLES—AC COILS

Guardian Number*	Coil Ohms	Cont. Comb.	Net Each, Lots of				
			1-24	25-49	50-99	100-249	250 Up
1200-2C-6A	2	DPDT	\$3.75	\$3.38	\$3.19	\$3.00	\$2.63
1200-3C-6A	2	3PDT	4.25	3.83	3.61	3.40	2.98
1200-2C-24A	33	DPDT	3.75	3.38	3.19	3.00	2.63
1200-3C-24A	33	3PDT	4.25	3.83	3.61	3.40	2.98
1200-C-115A	800	DPDT	3.75	3.15	2.98	2.80	2.45
1200-3C-115A	800	3PDT	4.25	3.83	3.61	3.40	2.98
1200-2C-230A	3500	DPDT	4.00	3.60	3.40	3.20	2.80
1200-3C-230A	3500	3PDT	4.50	4.05	3.83	3.60	3.15

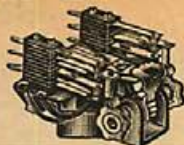
## DC COILS

Guardian Number*	Coil Ohms	Cont. Comb.	Net Each, Lots of				
			1-24	25-49	50-99	100-249	250 Up
1205-2C-6D	12	DPDT	\$3.40	\$3.06	\$2.89	\$2.72	\$2.38
1205-3C-6D	12	3PDT	3.85	3.47	3.27	3.08	2.70
1205-2C-12D	48	DPDT	3.40	3.06	2.89	2.72	2.38
1205-3C-12D	48	3PDT	3.85	3.47	3.27	3.08	2.70
1205-C-24D	192	SPDT	3.20	2.88	2.72	2.56	2.24
1205-2C-24D	192	DPDT	3.40	3.06	2.89	2.72	2.38
1205-3C-24D	192	3PDT	3.85	3.47	3.27	3.08	2.70
1205-2C-110D	4075	DPDT	3.75	3.38	3.19	3.00	2.63
1205-3C-110D	4075	3PDT	4.25	3.83	3.61	3.40	2.98

\*Suffix indicates volts (i.e., -6A for 6 VAC, -12D for 12 VDC, etc.).

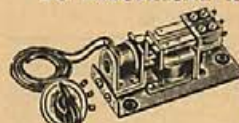
## IMPULSE RATCHET RELAYS—AC

**Type 660**—For on/off control of lighting, motors, appliances and speaker applications, among others. Highly reliable operation over 1,000,000 steps. Each impulse (up to 10 steps per second) reverses contacts. Contact arrangements of SPDT and DPDT; ratings to 1 1/2 amps resistive load at 115 V, 60 cycles. Intermittent duty coil with voltage of 115 VAC, 60 cycles. **Size:** 3" x 1 1/4" x 2 1/2". Shpg. Wt., 7.5 oz.



Guardian Number	Cont. Comb.	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250 Up
660-C-24A	SPDT	\$ 6.50	\$5.85	\$5.53	\$5.20	\$4.55
660-2C-24A	DPDT	7.00	6.30	5.95	5.60	4.90
660-4C-24A	4PDT	10.25	9.22	8.71	8.20	7.17
660-C-115	SPDT	6.50	5.85	5.53	5.20	4.55
660-2C-115A	DPDT	7.00	6.30	5.95	5.60	4.90
660-4C-115A	4PDT	10.25	9.22	8.71	8.20	7.17
665-C-24D	SPDT	6.50	5.85	5.53	5.20	4.55
665-2C-24D	DPDT	7.00	6.30	5.95	5.60	4.90
665-4C-24D	4PDT	10.25	9.22	8.71	8.20	7.17

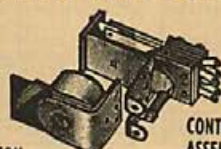
## DC ELECTRICAL RESET OVERLOAD RELAY



**Type X-300-ER**—Applicable for use in industrial panel installation, for remote protection of machines and replacing fuses. Provides precise protection from current surges and continuous overloads. Remote panel installation of the control potentiometer simplifies the adjustment of relay to operate on any current value from 250 to 750 milliamperes. Auxiliary for pilot light indication of "overload" or "clear" position. Reset relay can be operated from any point convenient to operator. Insulation between coil and ground rated at 3,000 volts. **Size:** 4 1/4" x 2" x 1 1/2".

Guardian Number	Shipping Weight	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250 Up
X-300-ER	13 oz.	\$9.50	\$8.55	\$8.08	\$7.60	\$6.65

## SERIES 200 RELAY WITH COMPLETELY INTERCHANGEABLE COIL AND CONTACT ASSEMBLIES



COIL ASSEMBLY



MIDGET CONTACT ASSEMBLY. Dotted line shows size of standard unit.

Two basic parts—a coil assembly and a contact switch assembly—comprise this simple, yet versatile Guardian relay. The coil assembly consists of the coil and field piece; the contact assembly consists of switch blades, armature, return spring and mounting bracket. The Guardian Midget Contact Assembly is interchangeable with the standard Series 200 coil assembly. Available with SPDT, DPDT or 4PDT contact switch assemblies, each interchangeable with all AC or DC coils.

## SERIES 200 RELAY

Guardian Number	Volts	Coil	Net Each, Lots of				
			1-24	25-49	50-99	100-249	250Up
200-6A	6	AC	\$1.75	\$1.58	\$1.49	\$1.40	\$1.23
200-12A	12	AC	1.75	1.58	1.49	1.40	1.23
200-24A	24	AC	1.75	1.58	1.49	1.40	1.23
200-115A	115	AC	2.05	1.85	1.74	1.64	1.44
200-230A	230	AC	2.70	2.43	2.30	2.16	1.89
200-6D	6	DC	1.90	1.71	1.62	1.52	1.33
200-12D	12	DC	1.90	1.71	1.62	1.52	1.33
200-24D	24	DC	1.90	1.71	1.62	1.52	1.33
200-32D	32	DC	1.90	1.71	1.62	1.52	1.33
200-110D	110	DC	2.50	2.25	2.13	2.00	1.75
200-5,000D	.....	†	2.20	1.98	1.87	1.76	1.54
200-10,000D	.....	†	2.50	2.25	2.13	2.00	1.75

†Plate.

## CONTACT SWITCH ASSEMBLIES

Guardian Number	Type	*	Cont. Comb.	Net Each, Lots of				
				1-24	25-49	50-99	100-249	250Up
200-1	Standard	8	SPDT	\$1.50	\$1.35	\$1.28	\$1.20	\$1.05
200-2	Standard	8	DPDT	2.00	1.80	1.70	1.60	1.40
200-4	Standard	12.5	DPDT	2.25	2.03	1.91	1.80	1.58
200-5	Standard	8	4PDT	3.50	3.15	2.98	2.80	2.45
200-M1	Midget	10	SPDT	1.40	1.26	1.19	1.12	.98
200-M2	Midget	10	DPDT	1.75	1.58	1.49	1.40	1.23
200-M5	Midget	8	4PDT	2.85	2.57	2.42	2.28	2.00

\*Contact amps.

## CONTACT SWITCH PARTS

Use contact switch parts 200-3 for adding poles to contact switch assemblies 200-1 and 200-2. Use midget contact switch parts 200-M3 to add poles to midget contact switch assemblies 200-M1 and 200-M2.

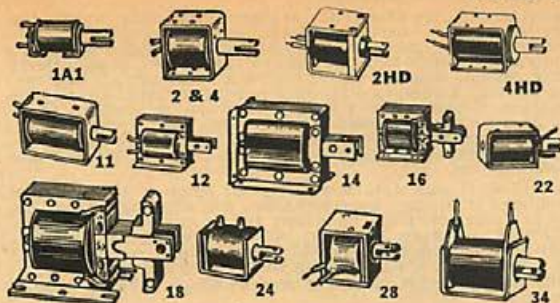
Guardian Number	Net Each, Lots of				
	1-24	25-49	50-99	100-249	250 Up
200-3	\$1.50	\$1.35	\$1.28	\$1.20	\$1.05
200-M3	1.50	1.35	1.28	1.20	1.05





# Guardian® Relays

## AC-DC SOLENOIDS

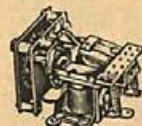


Available in both intermittent and continuous duty types. Intermittent types should not be energized for more than 5 consecutive minutes, or be permitted to rise more than 85° C above 24° C ambient rating without giving sufficient time to cool between operation cycles. Continuous duty types are designed so they will not rise more than 85° C above the 24° C ambient temperature when operated at rated load. Plunger has slotted end with 3/8" diameter hole for coupling. In chart, (I) indicates intermittent duty type, (C) indicates continuous duty type.

### AC ASSEMBLIES

AC No.	AC Volts	*	Ohms	Lift Oz. †	Net Each, Lots of				
					1-24	25-49	50-99	100-249	250 Up
1A1	115	I	300	8	\$3.00	\$2.70	\$2.55	\$2.40	\$2.10
1A1	115	C	675	3	3.00	2.70	2.55	2.40	2.10
2	115	I	60	27	3.50	3.15	2.98	2.80	2.45
2	115	C	166	10.5	3.50	3.15	2.98	2.80	2.45
2HD	115	I	39	60	8.25	7.43	6.81	6.60	5.78
2HD	115	C	113	19	8.25	7.43	6.81	6.60	5.78
4	115	I	37	24	4.00	3.60	3.40	3.20	2.80
4	115	C	133	8	4.00	3.60	3.40	3.20	2.80
11	24	I	5.1	20	3.00	2.70	2.55	2.40	2.10
11	24	C	19	8	3.00	2.70	2.55	2.40	2.10
11	115	I	125	20	3.00	2.70	2.55	2.40	2.10
11	115	C	300	8	3.00	2.70	2.55	2.40	2.10
12	115	I	100	42	4.25	3.83	3.61	3.40	2.98
12	115	C	150	22	4.25	3.83	3.61	3.40	2.98
14	115	I	11	110	5.75	5.18	4.89	4.60	4.03
14	115	C	18	65	5.75	5.18	4.89	4.60	4.03
16	115	I	41	92	3.50	3.15	2.98	2.80	2.45
16	115	C	85	54	3.50	3.15	2.98	2.80	2.45
16	230	I	200	92	3.75	3.38	3.19	3.00	2.63
16	230	C	350	54	3.75	3.38	3.19	3.00	2.63
18	115	I	8.8	304	4.75	4.28	4.04	3.80	3.33
18	115	C	19.7	145	4.75	4.28	4.04	3.80	3.33
18	230	I	45	304	5.00	4.50	4.25	4.00	3.50
18	230	C	78	145	5.00	4.50	4.25	4.00	3.50
24	115	I	310	19	3.25	2.93	2.76	2.60	2.28
24	115	C	500	12	3.25	2.93	2.76	2.60	2.28
28	24	I	7.5	30	3.00	2.70	2.55	2.40	2.10
28	24	C	17.4	20	3.00	2.70	2.55	2.40	2.10
28	115	I	250	33	3.25	2.93	2.76	2.60	2.28
28	115	C	400	20	3.25	2.93	2.76	2.60	2.28
34	115	I	400	16	2.20	1.98	1.87	1.76	1.54
34	115	C	865	9	2.20	1.98	1.87	1.76	1.54

\*Duty. †Max.; obtained during cold operation when plunger is down.



### SERIES MER AC-DC ELECTRICAL RESET STEPPERS

**Type MER**—A direct drive (steps on energization) electrical reset stepper with positive mechanical reset interlock actuated by the reset magnet and unlocked on the first energization of the step magnet. This device assures positive reset on as short a pulse as one-hundredth of a second or even from its own selection contacts. Unit is capable of counting in groups up to 21, then resetting automatically. By interconnecting two or more Steppers, count can be increased to any desired total counting by tens or by any other convenient multiple. Unit can be used to control a sequence of operation and then automatically reset to the initial or starting position. Maximum steps per second, 20; 24 points; 22 active contacts. Coil, 115 VAC, 60 cps, or 24 VDC; will operate satisfactorily at 15% below or 10% above this voltage. Size, 3 3/4" w. x 2 3/4" lg. x 2 3/4" h., max. Shipping Weight, 11 1/2 oz.

Guardian Number	Net Each, Lots of			
	1-24	25-49	50-99	100-249 250 Up
MER-115A	\$15.00	\$13.50	\$12.75	\$12.00 \$10.50
MER-24D	15.00	13.50	12.75	12.00 10.50

WHEN ORDERING, SPECIFY AC OR DC OPERATING VOLTAGE, CONTINUOUS OR INTERMITTENT DUTY

## DC ASSEMBLIES

DC No.	DC Volts	*	Ohms	Lift Oz. †	Net Each, Lots of				
					1-24	25-49	50-99	100-249	250 Up
1A1	24	I	42.6	5	\$2.75	\$2.48	\$2.34	\$2.20	\$1.93
1A1	24	C	74.4	2	2.75	2.48	2.34	2.20	1.93
1A1	115	I	803	2	3.25	2.93	2.76	2.60	2.28
1A1	115	C	2070	2	3.25	2.93	2.76	2.60	2.28
2HD	24	I	20	120	8.50	7.65	7.22	6.80	5.95
2HD	24	C	60	66	8.50	7.65	7.22	6.80	5.95
4	24	I	15	57	4.00	3.60	3.40	3.20	2.80
4	24	C	50	20	4.00	3.60	3.40	3.20	2.80
4	115	I	346	57	4.25	3.83	3.61	3.40	2.98
4	115	C	1210	20	4.25	3.83	3.61	3.40	2.98
4HD	24	I	14	156	6.10	5.49	5.19	4.88	4.27
4HD	24	C	50	86	6.10	5.49	5.19	4.88	4.27
4HD	110	I	330	156	6.10	5.49	5.19	4.88	4.27
4HD	110	C	1200	86	6.10	5.49	5.19	4.88	4.27
11	6	I	2	39	3.00	2.70	2.55	2.40	2.10
11	6	C	5	26	3.00	2.70	2.55	2.40	2.10
11	24	I	32	39	3.00	2.70	2.55	2.40	2.10
11	24	C	72	26	3.00	2.70	2.55	2.40	2.10
22	6	I	4.7	24	2.80	2.52	2.38	2.24	1.96
22	6	C	9	15	2.80	2.52	2.38	2.24	1.96
22	24	I	60	24	2.80	2.52	2.38	2.24	1.96
22	24	C	144	15	2.80	2.52	2.38	2.24	1.96
28	6	I	3.3	41	2.80	2.52	2.38	2.24	1.96
28	6	C	7.7	31	2.80	2.52	2.38	2.24	1.96
28	12	I	27	35	2.80	2.52	2.38	2.24	1.96
28	12	C	27	35	2.80	2.52	2.38	2.24	1.96
28	24	I	50	41	2.80	2.52	2.38	2.24	1.96
28	24	C	104	35	2.80	2.52	2.38	2.24	1.96
34	6	I	4.3	21	2.20	1.98	1.87	1.76	1.54
34	6	C	9.1	8.5	2.20	1.98	1.87	1.76	1.54
34	24	I	66	21	2.20	1.98	1.87	1.76	1.54
34	24	C	145	8.5	2.20	1.98	1.87	1.76	1.54

\*Duty. †Max.; obtained during cold operation when plunger is down.

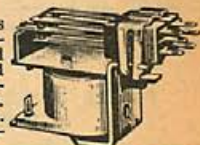
### SIZE, WEIGHT AND STROKE

Type	Adjustable Stroke		Size, Inches L. x W. x H.	Shpg. Wt., Oz.
	Inter.	Cont.		
1A1	AC	1/8" - 1/2"	1 3/4 x 1 1/2 x 1 1/2	4.5
1A1	DC	1/8" - 1/2"	1 3/4 x 1 1/2 x 1 1/2	4.5
2	AC	1/8" - 1/2"	1 3/4 x 1 1/2 x 1 1/2	10
2HD	AC	1/8" - 1/2"	1 3/4 x 1 1/2 x 1 1/2	13
2HD	DC	1/8" - 1/2"	1 3/4 x 1 1/2 x 1 1/2	13
4	AC	1/8" - 1/2"	2 x 1 1/2 x 1 1/2	14.5
4	DC	1/8" - 1/2"	2 x 1 1/2 x 1 1/2	14.5
4HD	DC	1/8" - 1/2"	2 1/4 x 1 1/2 x 1 1/2	15
11	AC	1/8" - 1/2"	1 3/4 x 1 1/2 x 1 1/2	7.5
11	DC	1/8" - 1/2"	1 3/4 x 1 1/2 x 1 1/2	7.5
12	AC	1/8" - 1/2"	1 3/4 x 1 1/2 x 1 1/2	6
14	AC	1/8" - 1/2"	2 1/4 x 1 1/2 x 1 1/2	19
16	AC	1/8" - 1/2"	1 3/4 x 1 1/2 x 1 1/2	7.5
18	AC	1/8" - 1/2"	1 3/4 x 1 1/2 x 1 1/2	16.5
22	DC	1/8" - 1/2"	1 3/4 x 1 1/2 x 1 1/2	2.5
24	AC	1/8" - 1/2"	1 3/4 x 1 1/2 x 1 1/2	3.5
28	AC	1/8" - 1/2"	1 3/4 x 1 1/2 x 1 1/2	3.5
28	DC	1/8" - 1/2"	1 3/4 x 1 1/2 x 1 1/2	3.5
34	AC	1/8" - 1/2"	1 3/4 x 1 1/2 x 1 1/2	2.5
34	DC	1/8" - 1/2"	1 3/4 x 1 1/2 x 1 1/2	2.5

### SERIES 900 AND 910 10-AMP RELAYS

#### U/L AND CSA APPROVED

**Series 900**—Low cost DPDT relay features a trouble-free design incorporating a minimum of parts. U/L Listed. Contacts rated 10 amps, 115 VAC, resistive load. Molded switches; one-piece mounting clip and return spring; molded bobbin and coil cover. Keyed and locked lifters. Shpg. Wt., 6 oz.  
**Series 910**—Same, but with quick-disconnect terminals.



Guardian Number	Coil Volts	Net Each, Lots of			Bulk Pkg. of 50*	
		1-9	10-24	25-49	Each	2 Up
900-2C-24A	24 AC	\$1.75	\$1.66	\$1.49	\$70.00	\$61.50
900-2C-115A	115 AC	1.75	1.66	1.49	70.00	61.50
900-2C-230A	230 AC	1.75	1.66	1.49	70.00	61.50
905-2C-6D	6 DC	1.75	1.66	1.49	70.00	61.50
905-2C-12D	12 DC	1.75	1.66	1.49	70.00	61.50
905-2C-24D	24 DC	1.75	1.66	1.49	70.00	61.50
910-2C-24A	24 AC	1.75	1.66	1.49	70.00	61.50
910-2C-115A	115 AC	1.75	1.66	1.49	70.00	61.50
910-2C-230A	230 AC	1.75	1.66	1.49	70.00	61.50
915-2C-6D	6 DC	1.75	1.66	1.49	70.00	61.50
915-2C-12D	12 DC	1.75	1.66	1.49	70.00	61.50
915-2C-24D	24 DC	1.75	1.66	1.49	70.00	61.50

\*Units of 50 supplied nested in handy "form-fitted" assembly line trays.



### ENGINEER'S SWITCH KIT

Indispensable to those who design, build or test electrical controls. Contains large assortment of switch blades, contacts, separators, adapters, fish paper, bushings, etc.

Engineer's Switch Kit—**\$10.95**  
Net Each.....





# Guardian® Relays

## NEW SOLID STATE AC-DC TIME DELAY RELAYS

- COMMERCIAL CONSTRUCTION
- ECONOMICAL
- ACCURATE, RELIABLE AND FLEXIBLE



**Series TD**—Most accurate, flexible time delay relay available from stock. Welded encapsulated timing module assures high reliability. Employs silicon semiconductors, precision tantalum capacitors and electric clock timing circuit for long delay times. Flexibility achieved with 15-turn potentiometer for high resolution; has screw type adjustment that can't jar off of setting; permits changing setting and then returning to it precisely. DC types are polarity protected. Accuracy,  $\pm 5\%$  of a nominal setting over the full temperature and voltage range. Repeatability,  $\pm 1\%$  of normal setting. Contacts 3PDT rated 10 amps, resistive. Recycle Time, 50 msec. Temp. range,  $-40^\circ\text{F}$  to  $+150^\circ\text{F}$ ; may be exceeded with some change in accuracy. Mounts with Easton 110 quick disconnects, Guardian P/N 137-200431-00 socket, or soldering. Size,  $1.578'' \text{ w.} \times 1.687'' \text{ d.} \times 3'' \text{ h.}$ , max. excluding mounting pins.

**Series TDO**—Economic 115 VAC solid state delay relay has many of the features of more-expensive types. Features multi-turn, knob-controlled pot; octal plug mounting; high resolution, fast reset and accuracy. Delay on attract action. Adjusts 0.5 to 30 secs. with 10-turn pot. Recycle time, 100 msec. Accuracy, 10% of nominal setting. Repeatability, 5% of nominal setting. Contacts 2PDT rated 5 amps. Temp. range,  $-10^\circ\text{F}$  to  $+100^\circ\text{F}$ . Size,  $2.062'' \text{ w.} \times 2.625'' \text{ d.} \times 3'' \text{ h.}$ , including knob, less octal plug. Each relay is supplied with timing chart to determine proper settings. Other adjustment ranges and voltages on request.

Guardian Number	Input Volts ( $\pm 10\%$ )	Adjustment Range	Net Each, Lots of		
			1-49	50-99	100 Up
TD-33C15-24D	24 VDC	1-15 sec.	\$24.20	\$21.88	\$19.69
TD-33C60-24D	24 VDC	10-60 sec.	25.19	22.67	20.40
TD-33C180-24D	24 VDC	50-180 sec.	32.09	29.88	26.90
TD-63C15-115A	115 VAC, 50/60 cps	1-15 sec.	29.70	26.73	24.03
TD-63C60-115A	115 VAC, 50/60 cps	10-60 sec.	30.06	27.54	24.79
TD-63C180-115A	115 VAC, 50/60 cps	50-180 sec.	36.85	33.16	29.84
TDO-62C30-115A	115 VAC, 60/60 cps	0.5-30 sec.	16.32	15.69	14.12

## NEW SERIES 240 AC AND 245 DC RELAYS

For contact ratings up to 15 amps. Compact, reliable and inexpensive AC and DC units are factory pretested and adjusted. Single-screw, center-hole mounting for quick assembly. Easily serviced, though servicing is seldom required. Made to U/L requirements. Silver contacts rated 15 amps; points  $3/4'' \times 1/8''$ ; 5-amp and 10-amp points available to 6PDT; other contact materials available to specifications. Phenolic insulation is tested at 1500 volts, 60 cps. Solder lug terminals. AC coils rated 6 VA, 60 cps; operate satisfactorily at  $-15\%$  of rated voltage and will not overheat at  $+10\%$  of rated voltage on continuous duty. DC coils operate at 1.5 watts min. or 3 watts max.; operate on values up to 10% above, or 20% below rated voltage.

Guardian Number*	Coil Res.	Cont. Comb.	Net Each, Lots of				
			1-24	25-49	50-99	100-249	250 Up
240-A-6A	3	SPST†	\$3.00	\$2.70	\$2.55	\$2.40	\$2.10
240-C-6A	3	DPDT	3.75	3.37	3.18	3.00	2.62
240-4C-6A	1.7	4PDT	5.50	4.95	4.67	4.40	3.85
240-A-24A	48	SPST†	3.00	2.70	2.55	2.40	2.10
240-2C-24A	48	DPDT	3.75	3.37	3.18	3.00	2.62
240-4C-24A	24	4PDT	5.50	4.75	4.67	4.40	3.85
240-A-115A	1400	SPST†	3.00	2.70	2.55	2.40	2.10
240-2C-115A	1400	DPDT	3.75	3.37	3.18	3.00	2.62
240-4C-115A	550	4PDT	5.50	4.75	4.67	4.40	3.85
245-A-6D	25	SPST†	3.00	2.70	2.55	2.40	2.10
245-2C-6D	25	DPDT	3.75	3.37	3.18	3.00	2.62
245-4C-6D	12	4PDT	5.50	4.75	4.67	4.40	3.85
245-A-12D	100	SPST†	3.00	2.70	2.55	2.40	2.10
245-2C-12D	100	DPDT	3.75	3.37	3.18	3.00	2.62
245-4C-12D	50	4PDT	5.50	4.75	4.67	4.40	3.85
245-A-24D	400	SPST†	3.00	2.70	2.55	2.40	2.10
245-2C-24D	400	DPDT	3.75	3.37	3.18	3.00	2.62
245-4C-24D	200	4PDT	5.50	4.75	4.67	4.40	3.85

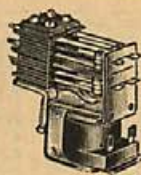
\*Suffix indicates voltage (i.e., -6A for 6 VAC; -6D for 6 VDC, etc.). †Normally open.

## SERIES IR-1220 AC AND IR-1225 DC ENCLOSED RELAYS

Versatile enclosed relay for plug-in or solder connection or use with quick-connect terminals. Reduced height and cost by elimination of radio type plug, extra wiring and sub-assembly between relay and plug. Features "Uni-Guard" continuous loop moving blades; snap-lock cover; and multipurpose terminals usable as solder lugs, AMP Easton 110 quick-connect, or socket plug-in use. Built to U/L requirements. Complete with mounting bracket. Size,  $1\frac{1}{2}'' \times 1\frac{1}{2}'' \times 1\frac{1}{4}''$ .

Guardian Number*	Coil Res.	Cont. Comb.	Net Each, Lots of				
			1-24	25-49	50-99	100-249	250 Up
IR-1220-2C-6A	2.4	DPDT	\$4.00	\$3.60	\$3.40	\$3.20	\$2.80
IR-1220-2C-24A	48	DPDT	4.00	3.60	3.40	3.20	2.80
IR-1220-2C-115A	1000	DPDT	4.00	3.60	3.40	3.20	2.80
IR-1220-2C-230A	4000	DPDT	4.25	3.83	3.61	3.40	2.98
IR-1220-3C-6A	2.4	3PDT	4.50	4.05	3.83	3.60	3.15
IR-1220-3C-24A	48	3PDT	4.50	4.05	3.83	3.60	3.15
IR-1220-3C-115A	1000	3PDT	4.50	4.05	3.83	3.60	3.15
IR-1220-3C-230A	4000	3PDT	4.75	4.28	4.04	3.80	3.33
IR-1225-2C-6D	15	DPDT	4.00	3.60	3.40	3.20	2.80
IR-1225-2C-12D	60	DPDT	4.00	3.60	3.40	3.20	2.80
IR-1225-2C-24D	227	DPDT	4.00	3.60	3.40	3.20	2.80
IR-1225-2C-110D	5000	DPDT	4.25	3.83	3.61	3.40	2.98
IR-1225-3C-6D	15	3PDT	4.50	4.05	3.82	3.60	3.15
IR-1225-3C-12D	60	3PDT	4.50	4.05	3.82	3.60	3.15
IR-1225-3C-24D	227	3PDT	4.50	4.05	3.82	3.60	3.15
IR-1225-3C-110D	5000	DPDT	4.75	4.28	4.04	3.80	3.33

\*Suffix indicates voltage (i.e., -6A for 6 VAC; -6D for 6 VDC, etc.).



240, 245



IR-1220, IR-1225



IR-1220



IR-640, IR-645

**Guardian No. IR-1220 Socket**—Snap-in socket for IR-1220, -1225 relays. Meets all U/L requirements. Socket terminal lugs can be soldered to, or will accept AMP Series 110 quick-connects. Net Each, Lots 1-9.....\$0.60  
Net Each, Package of 10.....5.50

## ALL-PURPOSE ECONOMY AC-DC RELAYS

Compact, lightweight relay capable of unusually heavy power control for its size. Variety of AC-DC voltages and contact combinations. Contacts rated 10 amps (except 4PDT, 8 amps) at 60 cycles, 115-volt non-inductive load. Center mounting with single hole. Size,  $1\frac{1}{2}'' \times 1\frac{1}{2}'' \times 1''$ . Shipping Weight, 3.5 oz.

### 60 CYCLES—AC COILS

Guardian Number†	Coil Ohms	Cont. Comb.	Net Each, Lots of				
			1-24	25-49	50-99	100-249	250 Up
IR-640-A-6A	1.7	SPST*	\$2.75	\$2.48	\$2.34	\$2.20	\$1.93
IR-640U-C-6A	1.7	SPDT	3.00	2.70	2.55	2.40	2.10
IR-640U-2C-6A	1.7	DPDT	3.25	2.93	2.76	2.60	2.28
IR-640U-4C-6A	1.7	4PDT	4.75	4.28	4.04	3.80	3.33
IR-640U-A-24A	24	SPST*	2.75	2.48	2.34	2.20	1.93
IR-640U-C-24A	24	SPDT	3.00	2.70	2.55	2.40	2.10
IR-640U-2C-24A	24	DPDT	3.25	2.93	2.76	2.60	2.28
IR-640U-4C-24A	24	4PDT	4.75	4.28	4.04	3.80	3.33
IR-640U-A-115A	725	SPST*	2.75	2.48	2.34	2.20	1.93
IR-640-C-115A	725	SPDT	3.00	2.70	2.55	2.40	2.10
IR-640U-2C-115A	725	DPDT	3.25	2.93	2.76	2.60	2.28
IR-640U-4C-115A	725	4PDT	4.75	4.28	4.04	3.80	3.33
IR-640U-2C-230A	2050	DPDT	4.00	3.60	3.40	3.20	2.80

### DC COILS

Guardian Number†	Coil Ohms	Cont. Comb.	Net Each, Lots of				
			1-24	25-49	50-99	100-249	250 Up
IR-645-A-6D	12	SPST*	\$2.75	\$2.48	\$2.34	\$2.20	\$1.93
IR-645-C-6D	12	SPDT	3.00	2.70	2.55	2.40	2.10
IR-645-2C-6D	12	DPDT	3.25	2.93	2.76	2.60	2.28
IR-645-4C-6D	12	4PDT	4.75	4.28	4.04	3.80	3.33
IR-645-A-12D	50	SPST*	2.75	2.48	2.34	2.20	1.93
IR-645-C-12D	50	SPDT	3.00	2.70	2.55	2.40	2.10
IR-645-2C-12D	50	DPDT	3.25	2.93	2.76	2.60	2.28
IR-645-4C-12D	50	4PDT	4.75	4.28	4.04	3.80	3.33
IR-645-A-24D	200	SPST*	2.75	2.48	2.34	2.20	1.93
IR-645-C-24D	200	SPDT	3.00	2.70	2.55	2.40	2.10
IR-645-2C-24D	200	DPDT	3.25	2.93	2.76	2.60	2.28
IR-645-4C-24D	200	4PDT	4.75	4.28	4.04	3.80	3.33
IR-645-A-110D	4000	SPST*	3.25	2.93	2.76	2.60	2.28
IR-645-C-110D	4000	SPDT	3.50	3.15	2.98	2.80	2.45
IR-645-2C-110D	4000	DPDT	3.75	3.38	3.19	3.00	2.63
IR-645-4C-110D	4000	4PDT	5.00	4.50	4.25	4.00	3.50

\*Normally open. †Suffix indicates coil voltage (i.e., -6A for 6 VAC; -6D for 6 VDC, etc.).





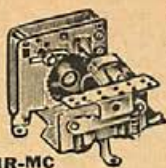
# Guardian® Relays

## STEPPING RELAYS

For accurate sequence selecting, pulse multiplying/dividing, circuit selecting, automatic/remote homing, counting and latching.



IR-PC

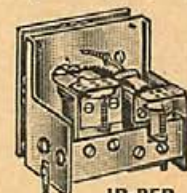


IR-MC

### CONTINUOUS ROTATION

**Type IR-PC**—Micro-finished shaft and Oilite shaft bearing. Beryllium copper pawl control shutter. Selection contacts terminated on phenolic board; solder beaded. Mechanical life expectancy estimated 4,000,000 steps. Has 40-point ratchet with 40 active contacts, including zero position. Size, 3 3/4" lg. x 3 3/4" w. x 3 1/2" h. Shipping Weight, 17 oz.

**Type IR-MC**—A smaller, continuous operation stepper similar to above; has life expectancy of 2,000,000 steps. Has 24-point ratchet with 24 active contacts, including zero. Size, 3 1/4" lg. x 3" w. x 2 3/4" h. Shipping Weight, 9 1/2 oz.



IR-PER

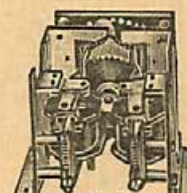


MER

### ELECTRICAL RESET

**Type IR-PER**—Micro-finished shaft and Oilite shaft bearing. Positive mechanical stops limit total number of steps in any single unit. Returns automatically to start position when reset coil is energized. Has 40-point ratchet with 36 active contacts including zero position. Size, 3" lg. x 3 3/4" w. x 3 3/4" h. Shipping Weight, 22 oz.

**Type MER**—Direct drive (steps on energization) with positive mechanical reset interlock actuated by the reset magnet and unlocked on the first energization of the step magnet. Positive reset on a pulse as short as 1/100 sec. By interconnecting 2 or more units, count can be increased to any desired total. Has 24-point ratchet with 22 active contacts, including zero position. Size, 2 3/4" lg. x 3 1/4" w. x 2 3/4" h. Shipping Weight, 11 1/2 oz.



IR-RAS



IR-MAS

### ADD AND SUBTRACT

**Type IR-RAS**—Heavy duty add and subtract stepper with steel box type frame construction. Non-ferrous shutters control motion of the pawl. Steps one step at a time in either direction, depending on which of the two coils is energized. Has 40-point ratchet with 38 active contacts, including zero position. Size, 3 3/4" lg. x 4 3/4" w. x 3" h. Shipping Weight, 29 1/2 oz.

**Type IR-MAS**—Midget stepper similar to above in general operation. Has 30-point ratchet, with zero position switch opened at home position. Size, 3 1/4" lg. x 3 3/4" w. x 1 3/4" h. Shpg. Wt., 11 oz.

### STEPPING RELAY DATA CHART

All units rated 115 VAC coil voltage; will operate satisfactorily at 15% below or 10% above rated voltage. Auxiliary switches may be connected in series with the commutator of the selecting finger and added to the step and/or reset magnet to increase the normal contact rating. Use Guardian Series 200-M3 Contact Switch Kit to add switches except for RAS stepper. Contact fingers insulated from shaft. All units are intermittent duty rated at 10% duty cycle (out of each hour); single period maximum energization, 5 minutes.

Guardian Number	VA	Watts	*	Net Each, Lots of				
				1-24	25-49	50-99	100-249	250 up
IR-PC-115	40	30	20	\$19.00	\$17.10	\$16.15	\$15.20	\$13.30
IR-MC-115	30	17	20	14.00	12.60	11.90	11.20	9.80
IR-PER-115	50†	35†	20	25.00	22.50	21.25	20.00	17.50
MER-115	10‡	7‡						
	35†	20†	20	15.00	13.50	12.75	12.00	10.50
IR-RAS-115	9‡	8‡						
	100	45	10	25.50	22.95	21.68	20.40	17.85
IR-MAS-115	12	9	10	16.50	14.85	14.03	13.20	11.55

\*Maximum steps per second. †Stepping coil. ‡Reset coil.



### 32-POLE DC RELAY

Group selector relay can simultaneously make common up to 32 circuits. All circuits insulated from ground. Contact blades molded in thermosetting phenolic. All contacting members completely enclosed. Phenolic plunger housing. 32 poles made common upon energization. Size, 2 3/4" x 1 1/2" x 2 3/4". Shipping Wt., 6 oz.

Guardian Number	Volts DC	Coll Ohms	Net Each, Lots of				
			1-24	25-49	50-99	100-249	250 up
IR-805-S	24	72	\$4.75	\$4.28	\$4.04	\$3.80	\$3.33

## HEAVY-DUTY INDUSTRIAL AC RELAYS

Rugged unit breaks up to 20 amps at 230 V. Armature equipped with phenolic contact mounting block carrying 3/4" dual contacts. Phenolic tested at 1500 V breakdown to ground. Contacts are silver alloy. Contact rating 20 amps at 60 c., 230 V non-inductive load. Relay is available in SPST-NO only. Two 8-32 mtg. holes on 2 1/2" centers. Size, 3" x 1 3/4" x 1 3/4". Shipping Wt., 5.5 oz.



### 60 CYCLES—AC COILS

Guardian Number	Volts AC	Coll Ohms	Net Each, Lots of				
			1-24	25-49	50-99	100-249	250 up
IR-220-A-24A	24	25	\$4.30	\$3.87	\$3.66	\$3.44	\$3.01
IR-220-A-115A	115	600	4.80	4.32	4.08	3.84	3.36
IR-220-A-230A	230	2500	5.30	4.77	4.51	4.24	3.71

### DC PLATE CIRCUIT RELAY

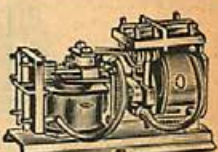


DPDT; constructed with extra long coil for greater sensitivity. Adaptable to voltage operation as well as sensitive plate circuit control installations. Coil in energized for reliability and longer life. Average power requirement, 0.2 watt. Contacts, fine silver, rated 10 amps. Single 8-32 center mtg. hole. Size, 2 1/2" x 2" x 1 1/4". Shipping Weight, 5.5 oz.

Guardian Number	Oper. mA	Coll Ohms	Net Each, Lots of				
			1-24	25-49	50-99	100-249	250 up
IR-625-2.5	9	2500	\$4.25	\$3.83	\$3.61	\$3.40	\$2.98
IR-625-5	6.3	5000	4.50	4.05	3.83	3.60	3.15
IR-625-10	4.5	10,000	5.50	4.95	4.68	4.40	3.85

### INTERLOCKING AC-AC RELAYS

Two interlocking AC relays in sturdy metal frame bracket. Used to maintain circuits continuously without coil power consumption. 4PDT. Electrically pulse operated with mechanical hold and electrical release. Contacts rated at 10 amps, 115 VAC, 60 cps, non-inductive. Size, 1 1/2" x 1 3/4" x 2 3/4". Shipping Weight, 5.5 oz.



Guardian Number	Coll Ohms	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250 up
IR-1200/1200-4C-115A	800	\$10.40	\$9.36	\$8.84	\$8.32	\$7.28

### LATCHING ON/OFF AC RELAY



**Type IR-610L**—Midget latching relay with single coil recommended for positive On/Off control of positioning devices, lighting circuits, etc. Impulse as short as 20 μsec. energizes coil to reverse position of snap-action switches. Holds last position of switch with coil de-energized. Contacts rated 5 amps, 115 VAC, 60 c. for SPST or SPDT combinations. Size, 2 1/2" lg. x 1 1/4" w. x 1 1/4" h. Shipping Weight, 4 oz.

Guardian Number	Cont. Comb.	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250 up
IR-610L-A-115A	SPST	\$4.25	\$3.83	\$3.61	\$3.40	\$2.98
IR-610L-C-115A	SPDT	4.50	4.05	3.83	3.60	3.15

### SEQUENCE RATCHET AC RELAY

**Type IR-M-120-115A**—Small but rugged 4PDT stepper with three-position switch operation, center position "off". Large cam assures precision "step" action. 24 pt. ratchet. Fine silver contacts rated for 10 amps, 115 volts, 60 cps, intermittent duty only. Max. 10 steps per second. Size, 3" x 2 1/4" x 2 3/4". Shipping Weight, 10 oz.



Guardian Number	VA	Watts	Net Each, Lots of				
			1-24	25-49	50-99	100-249	250 up
IR-M-120-115A	120	70	\$11.75	\$10.58	\$9.99	\$9.40	\$8.23

### ROTOMITE STEPPER—DC



Compact, completely metal cased. Continuous rotation on 12 positions up to 20 steps per second. Contact rating 3 amps resistive, 1 amp inductive (50% PF). DC coils are continuous duty. Over 1,000,000 operations. Size, 2" x 1 1/4" dia. Shipping Wt., 5 oz.

Guardian Number	Pos. V	DC	Net Each, Lots of				
			1-24	25-49	50-99	100-249	250 up
IR-705-12P-6D	12	6	\$6.25	\$5.63	\$5.31	\$5.00	\$4.38
IR-705-12P-12D	12	12	6.25	5.63	5.31	5.00	4.38
IR-705-12P-24D	12	24	6.25	5.63	5.31	5.00	4.38





# POTTER & BRUMFIELD RELAYS

## TELEPHONE TYPE RELAYS

The size, sensitivity, wide variety of coils and ability to carry a large number of poles make them ideal for automation, computers, and similar applications.

**L5 Series:** Short springs, light weight armature for fast action with reliability, long life. Stainless steel hinge bearing gives 100 million operations. Twin palladium contacts rated 4 amps. Two 6-32 mtg. holes on  $\frac{3}{4}$ " ctrs.  $2\frac{1}{2}$ " x  $1\frac{1}{2}$ " x  $1\frac{1}{4}$ ". Wt., 4 oz.

**LSP Series:** Identical to L5 Series, but enclosed in plastic cover and has rectangular socket with combination taper tab or solder terminations. Plugs in. LSP17D types have 16-pin socket; size,  $1\frac{1}{2}$ " x  $1\frac{3}{4}$ " x  $2\frac{3}{4}$ " sealed; wt., 4 oz. LSP23D types have 28-pin socket; size,  $2\frac{1}{4}$ " x  $1\frac{3}{4}$ " x  $2\frac{3}{4}$ " sealed; wt.,  $4\frac{1}{2}$  oz.

**MB Series:** Miniature DC contactor for very high current uses. Heavy brass arms with silver contacts rated 60 amps; solder terminals. Four 3-48 mtg. holes on  $\frac{3}{4}$ " centers. Size,  $1\frac{1}{2}$ " x  $1\frac{1}{2}$ " x  $1\frac{1}{4}$ ". Wt., 2 oz.

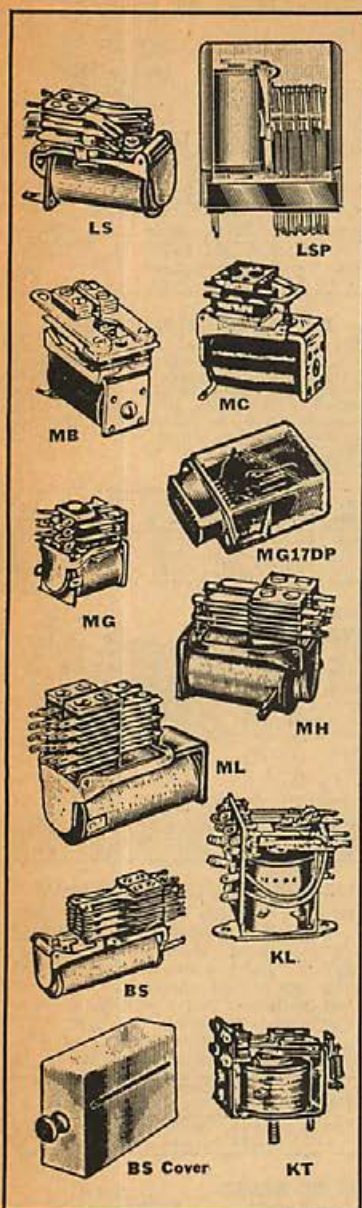
**MC Series:** Low loss at high frequency using ceramic spacers; intercontact capacitance, 1.5 pF. Palladium contacts rated 1 amp. Four 3-48 mtg. holes on  $\frac{3}{4}$ " centers. Size,  $1\frac{1}{2}$ " x  $\frac{3}{4}$ " x  $1\frac{1}{4}$ ". Weight, 2 oz.

**MG Series:** Subminiature relay for aircraft, computer, etc.; has good shock and

vibration resistance. Open, enclosed in nylon dust cover or hermetically sealed. Silver contacts rated at 2 amps. Mounting: Open, four 3-48 holes on  $\frac{3}{4}$ " ctrs.; dust cover, plug-in header to fit Amphenol receptacle No. 57-20140; sealed, three 4-40 studs on  $1\frac{1}{2}$ " x  $\frac{1}{2}$ " ctrs. Size:  $1\frac{1}{2}$ " x  $1\frac{1}{4}$ " x  $1\frac{1}{4}$ " max.; sealed,  $1\frac{1}{2}$ " x  $1\frac{1}{4}$ " x  $2\frac{3}{4}$ "; dust cover,  $1\frac{1}{2}$ " x  $\frac{3}{4}$ " x  $1\frac{1}{4}$ ". Weight: Open, 1.2 oz.; sealed, 2.75 oz.; dust cover, 2.0 oz.

**MH Series:** Fast acting, long life miniature. Gold-flashed silver contacts rated 3 amps for MH11L and LM; 5 amps for all others. Mounting: Open, MH11L, 6-32 stud  $1\frac{1}{2}$ " long with locating boss; other open models have four 3-48 holes on  $\frac{3}{4}$ " centers. Sealed, AMR, -DM and -DD, three 6-32 NC-2 studs on  $1\frac{1}{2}$ " x  $\frac{1}{2}$ " ctrs.; -DD, -D, three 6-32 studs on  $1\frac{1}{2}$ " x  $\frac{1}{2}$ " ctrs. Size,  $1\frac{1}{2}$ " x  $1\frac{1}{4}$ " x  $1\frac{1}{4}$ ". Weight: Open,  $2\frac{1}{4}$  oz. max.; sealed, 5 oz. maximum.

**ML Series:** Small relay with excellent sensitivity and outstanding switching capability for transistorized networks, etc. Single contact arms  $\frac{1}{8}$ " dia. gold-flashed silver contacts rated 3 amps for 100,000 operations. Pierced solder terminals. Four 3-48 mtg. holes on  $\frac{3}{4}$ " centers. Size,  $\frac{3}{4}$ " x  $1\frac{1}{2}$ " x  $1\frac{1}{4}$ ". Weight, 2.5 oz.



P & B No.	Contacts	Coil VDC	Net Each, Lots of		P & B No.	Contacts	Coil VDC	Net Each, Lots of	
			1-20	21-499				1-20	21-499
LS17D	4PDT	24	\$5.60	\$4.74	LS23D	6PDT	24	\$6.80	\$5.75
LS17D	4PDT	48	5.75	4.86	LS23D	6PDT	48	6.95	5.88
LS17D	4PDT	110	6.00	5.08	LS23D	6PDT	110	7.20	6.09
LSP17D	4PDT	24	7.35	6.22	LSP23D	6PDT	24	9.10	7.70
LSP17D	4PDT	48	7.45	6.30	LSP23D	6PDT	48	9.20	7.78
LSP17D	4PDT	110	7.75	6.56	LSP23D	6PDT	110	9.50	8.04

P & B Number	Contacts	Coil Voltage or Current	Net Each, Lots of			
			1-24	25-50	51-99	100-249
MB3D	SPST-NO-DB	6 v. DC	\$ 5.40	\$ 5.13	\$ 4.86	\$ 3.78
MB3D	SPST-NO-DB	12 or 24 v. DC	5.50	5.23	4.95	3.85
MB3D	SPST-NO-DB	110 v. DC	5.90	5.61	5.31	4.13
MC5A	SPDT	6 or 115 v. AC	5.00	4.75	4.50	3.50
MC11A	DPDT	115 v. AC	6.90	6.56	6.21	4.83
MC5D	SPDT	12 or 24 v. DC	4.40	4.18	3.96	3.08
MC11D	DPDT	12 or 24 v. DC	6.35	6.03	5.72	4.45
MC11D	DPDT	110 v. DC	6.85	6.51	6.17	4.80
MG11D	DPDT	6, 12 or 24 v. DC	5.20	4.94	4.68	3.64
MG11D	DPDT	110 v. DC	5.65	5.37	5.09	3.96
MG11D*	DPDT	24 v. DC	10.50	9.97	9.45	7.35
MG17D	4PDT	6, 12 or 24 v. DC	6.95	6.60	6.26	4.87
MG17D	4PDT	110 v. DC	7.40	7.03	6.66	5.18
MG17D*	4PDT	6, 12 or 24 v. DC	11.55	10.97	10.40	8.09
MG17D*	4PDT	110 v. DC	12.15	11.54	10.94	8.51
MG17D*	4PDT	24 v. DC	12.60	11.97	11.34	8.82
MG17D*	4PDT	110 v. DC	13.20	12.54	11.88	9.24
MH11L	DPDT	4.5 ma; 10K ohms resis.	5.45	5.18	4.90	3.81
MH11L*	DPDT	4.5 ma; 10K ohms resis.	9.20	8.74	8.28	6.44
MH17D	4PDT	6, 12 or 24 v. DC	5.45	5.18	4.90	3.81
MH17D*	4PDT	6, 12 or 24 v. DC	11.00	10.45	9.90	7.70
MH17AMR*	4PDT	115v.AC.6.2Kohms, resis.	17.95	17.05	16.15	12.57
MH23D	6PDT	6, 12 or 24 v. DC	6.85	6.51	6.16	4.78
MH23D	6PDT	110 v. DC	7.30	6.93	6.57	5.11
MH23DD*	6PDT	12 or 24 v. DC	14.60	13.87	13.14	10.22
MH23DD*	6PDT	110 v. DC	15.15	14.39	13.63	10.60
ML11D	DPDT	4.0 ma; 2500 ohms, resis.	6.05	5.75	5.44	4.23
ML11D	DPDT	2.83 ma; 5K ohms, resis.	6.20	5.89	5.58	4.34
ML11D	DPDT	2.0 ma; 10K ohms, resis.	6.50	6.17	5.85	4.55
ML17D	4PDT	5.65 ma; 2500 ohms, resis.	7.20	6.84	6.48	5.04
ML17D	4PDT	4.0 ma; 5K ohms, resis.	7.35	6.98	6.61	5.14
ML17D	4PDT	2.83 ma; 10K ohms, resis.	7.65	7.27	6.88	5.35
ML23D	6PDT	6.93 ma; 2500 ohms, resis.	8.15	7.74	7.33	5.70
ML23D	6PDT	4.9 ma; 5K ohms, resis.	8.30	7.88	7.47	5.81
ML23D	6PDT	3.46 ma; 10K ohms, resis.	8.60	8.17	7.74	6.02

\*Sealed relay, †Enclosed relay.

## BS SERIES LONG COIL RELAYS

P & B Number	Contacts	Coil Voltage or Current	Net Each, Lots of	
			1-20	21-499
BS17A	4PDT	115 v. AC	\$9.00	\$7.61
BS17D	4PDT	24 v. DC	7.40	6.26
BS17D	4PDT	110 v. DC	8.00	6.77
BS17L	4PDT	5.5 ma at 10K ohms	8.00	6.77
BS23A	6PDT	115 v. AC	10.50	8.88
BS23D	6PDT	24 v. DC	8.95	7.57
BS23D	6PDT	110 v. DC	9.50	8.04
BS23L	6PDT	7.6 ma at 10K ohms	9.50	8.04

## SERIES KL (MULTIPLE CONTACT) AND KT (ANTENNA SWITCHING) RELAYS

P & B Number	Contacts	Coil Voltages	Net Each, Lots of			
			1-24	25-50	51-99	100-249
KL5A	SPDT	115 v. AC	\$3.85	\$3.66	\$3.47	\$2.70
KL11A	DPDT	12, 24 or 115 v. AC	4.80	4.56	4.32	3.36
KL14A	3PDT	24 or 115 v. AC	5.35	5.08	4.82	3.75
KL17A	4PDT	6, 24 or 115 v. AC	6.30	5.99	5.67	4.41
KL5D	SPDT	12 or 24 v. DC	3.60	3.42	3.24	2.52
KL14D	3PDT	24 v. DC	5.15	4.89	4.64	3.61
KL14D	3PDT	110 v. DC	5.75	5.46	5.18	4.03
KL17D	4PDT	12 or 24 v. DC	6.00	5.70	5.40	4.20
KL17D	4PDT	110 v. DC	6.60	6.27	5.94	4.62
KT11A	DPDT	6 or 115 v. AC	3.70	3.52	3.33	2.59
KT11D	DPDT	6 or 12 v. DC	3.70	3.52	3.33	2.59

**KL Series:** Multiple contact type with varied combinations and high dielectric phenolic insulation for extra versatility. Gold-flashed silver contacts rated 5 amps. Two 6-32 mtg. holes on  $1\frac{1}{4}$ " centers. Size,  $1\frac{1}{2}$ " x  $1\frac{1}{4}$ " x  $2\frac{1}{4}$ ". Weight, 5 oz.

**KT Series:** Antenna switching relay has glass base insulation for minimum RF loss to switch 300-ohm line. Gold-flashed silver contacts rated 5 amps. Single 6-32 mtg. stud. Size,  $1\frac{1}{2}$ " x  $1\frac{1}{4}$ " x  $1\frac{1}{4}$ ". Weight,  $1\frac{1}{2}$  oz.



# POTTER & BRUMFIELD RELAYS

General purpose relays for use in counters, automation, control, transmitters.

**BU Series Buzzer:** AC operated coil with spring steel armature; buzzes when coil is energized. For test, laboratory and other uses. Mounting, 6-32 tapped core. Size,  $1\frac{1}{2} \times 1\frac{1}{2} \times 1\frac{1}{2}$ . Weight,  $1\frac{1}{2}$  oz.

**GA Series:** Multiple-leaf relay permits a wide range of contact combinations. Silver contacts rated 5 amps. Mounts on 8-32 tapped core with locating boss. Size,  $1\frac{1}{2} \times 1\frac{1}{2} \times 1\frac{1}{2}$ . Weight, 3.5 oz.

**GF Series:** Medium duty, industrial control type. Long contact arms have  $\frac{1}{4}$ " dia. silver contacts rated 10 amps, 115 v. AC or 28 v. DC resistive. Self-clean wiping action. Tinned, pierced solder terminals.

Tapped 8-32 core with locating boss. Size,  $2\frac{1}{2} \times 2\frac{1}{2} \times 1$ . Weight,  $4\frac{1}{2}$  oz.

**KA and KAP Series:** Small, low cost, highly efficient relay for light power loads. KA models are U/L Listed. AC types are CSA listed. KAP types with Y suffix bear CSA seal; have U/L component listing. Continuous duty. Mechanical life 10 million operations. Contacts: Suffix Y, movable  $\frac{1}{8}$ " dia. gold-flashed silver; stationary,  $\frac{1}{8}$ " dia. wide silver overlay; rated 5 amps. Suffix G, movable contacts silver-cadmium-oxide rated 10 amps. Size and Mounting: KA,  $1\frac{1}{2} \times 1\frac{1}{2} \times 1\frac{1}{2}$  with 6-32 thd. stud and locating tab on  $\frac{1}{8}$ " ctrs.; wt., 2 oz. KAP, enclosed in clear plastic dust cover  $1\frac{1}{2} \times 1\frac{1}{2} \times 2\frac{1}{2}$  with 8- or 11-pin plug terminals; wt., 3 oz.

P & B Number	Contacts	Coil Voltages	Net Each, Lots of			
			1-24	25-50	51-99	100-249
BU		6, 12, 24 or 115 v. AC	\$ 1.70	\$ 1.61	\$ 1.53	\$1.19
GA11A	DPDT	6, 12, 24 or 115 v. AC	3.35	3.18	3.02	2.35
GA14A	3PDT	24 or 115 v. AC	4.05	3.85	3.65	2.84
GA17A	4PDT	6, 12, 24 or 115 v. AC	4.85	4.61	4.37	3.40
GA17A	4PDT	230 v. AC	5.25	4.99	4.73	3.68
GA11D	DPDT	6, 12 or 24 v. DC	3.35	3.18	3.02	2.35
GA11D	DPDT	110 v. DC	3.80	3.61	3.42	2.66
GA14D	3PDT	24 v. DC	4.05	3.85	3.65	2.84
GA17D	4PDT	6, 12 or 24 v. DC	4.85	4.61	4.37	3.40
GA17D	4PDT	110 v. DC	5.30	5.04	4.77	3.71
GF17A	4PDT	6, 12, 24 or 115 v. AC	6.65	6.32	5.99	4.66
GF17A	4PDT	230 v. AC	7.05	6.70	6.35	4.94
GF17D	4PDT	6, 12 or 24 v. DC	6.65	6.32	5.99	4.66
GF17D	4PDT	110 v. DC	7.10	6.75	6.39	4.97
KA5AY	SPDT	6, 12, 24 or 115 v. AC	3.20	3.04	2.88	2.24
KA5AY	SPDT	230 v. AC	3.60	3.42	3.24	2.52
KA11AY	DPDT	6, 12, 24 or 115 v. AC	3.85	3.66	3.47	2.70
KA11AY	DPDT	230 v. AC	4.25	4.04	3.83	2.98
KA14AY	3PDT	6, 12, 24 or 115 v. AC	4.25	4.04	3.83	2.98
KA14AY	3PDT	230 v. AC	4.65	4.42	4.19	3.26
KAP5AG	SPDT	24 or 115 v. AC	5.50	5.23	4.95	3.85
KAP11AG	DPDT	6, 24 or 115 v. AC	6.15	5.84	5.54	4.31
KAP11AY	DPDT	24 or 115 v. AC	6.05	5.75	5.45	4.24
KAP11AY	DPDT	230 v. AC	6.45	6.13	5.81	4.52
KAP14AG	3PDT	24 or 115 v. AC	7.50	7.27	6.89	5.36
KAP14AY	3PDT	24 or 115 v. AC	7.50	7.13	6.75	5.25
KAP14AY	3PDT	230 v. AC	7.90	7.51	7.11	5.53
KAP5DG	SPDT	24 v. DC	5.45	5.18	4.91	3.82
KAP5DG	SPDT	110 v. DC	6.05	5.75	5.45	4.24
KAP11DG	DPDT	24 v. DC	6.10	5.80	5.49	4.27
KAP11DG	DPDT	110 v. DC	6.70	6.37	6.03	4.69
KAP11DY	DPDT	12 or 24 v. DC	6.00	5.70	5.40	4.20
KAP11DY	DPDT	110 v. DC	6.60	6.25	5.94	4.62
KAP14DG	3PDT	24 v. DC	7.60	7.22	6.84	5.32
KAP14DG	3PDT	110 v. DC	8.20	7.79	7.38	5.74
KAP14DY	3PDT	12 or 24 v. DC	7.45	7.08	6.71	5.22
KAP14DY	3PDT	110 v. DC	8.05	7.65	7.25	5.64
KB17AG	4PDT	6, 12, 24 or 115 v. AC	10.60	10.07	9.54	7.42
KB17AG	4PDT	230 v. AC	11.40	10.83	10.26	7.98
KB23AG	6PDT	24 or 115 v. AC	12.80	12.16	11.52	8.96
KB17AY	4PDT	6, 12, 24 or 115 v. AC	10.50	9.98	9.45	7.35
KB17AY	4PDT	230 v. AC	11.30	10.74	10.17	7.91
KB23AY	6PDT	24 or 115 v. AC	12.60	11.97	11.34	8.82
KB17D	4PDT	6, 12 or 24 v. DC	9.45	8.98	8.51	6.62
KB17D	4PDT	110 v. DC	10.65	10.12	9.59	7.46
KB23D	6PDT	24 v. DC	11.45	10.88	10.31	8.02
KB17DG	4PDT	6, 12 or 24 v. DC	9.65	9.17	8.69	6.76
KB17DG	4PDT	110 v. DC	10.85	10.31	9.77	7.60
KB23DG	6PDT	24 v. DC	11.75	11.16	10.58	8.23
KB23DG	6PDT	110 v. DC	12.95	12.30	11.66	9.07
KM5D	SPDT	6, 12 or 24 v. DC	3.35	3.18	3.02	2.35
KM14D	3PDT	6, 12 or 24 v. DC	3.70	3.52	3.33	2.59
KM14D	3PDT	6, 12 or 24 v. DC	4.25	4.04	3.83	2.98
KR3AH	SPST-NO-DB	6, 12, 24 or 115 v. AC	3.90	3.71	3.51	2.73
KR3DH	SPST-NO-DB	6, 12 or 24 v. DC	3.70	3.52	3.33	2.59
KR3DH	SPST-NO-DB	110 v. DC	4.30	4.09	3.87	3.01
KRP5A	SPDT	6, 24 or 115 v. AC	5.45	5.18	4.91	3.82
KRP5AG	SPDT	6, 24 or 115 v. AC	5.55	5.27	5.00	3.89
KRP11A	DPDT	6, 12, 24 or 115 v. AC	6.05	5.75	5.45	4.24
KRP11A	DPDT	230 v. AC	6.45	6.13	5.80	4.52
KRP11AG	DPDT	6, 12, 24 or 115 v. AC	6.25	5.94	5.63	4.38
KRP11AG	DPDT	230 v. AC	6.65	6.32	5.99	4.66
KRP11AN	DPDT	6, 12, 24 or 115 v. AC	7.15	6.79	6.44	5.29
KRP11AN	DPDT	230 v. AC	7.55	7.17	6.79	5.29
KRP14A	3PDT	6, 12, 24 or 115 v. AC	7.50	7.13	6.75	5.25
KRP14A	3PDT	230 v. AC	7.90	7.51	7.11	5.53
KRP14AG	3PDT	6, 12, 24 or 115 v. AC	7.80	7.41	7.02	5.46
KRP14AG	3PDT	230 v. DC	8.20	7.79	7.38	5.74
KRP14AN	3PDT	6, 12, 24 or 115 v. AC	8.70	8.27	7.83	6.09
KRP14AN	3PDT	230 v. AC	9.10	8.65	8.19	6.37
KRP5D	SPDT	6, 12 or 24 v. DC	5.40	5.13	4.86	3.78
KRP5D	SPDT	110 v. DC	6.00	5.70	5.40	4.20
KRP5DG	SPDT	6, 12 or 24 v. DC	5.50	5.23	4.95	3.85
KRP5DG	SPDT	110 v. DC	6.10	5.80	5.49	4.27
KRP11D	DPDT	6, 12 or 24 v. DC	6.00	5.70	5.40	4.20
KRP11D	DPDT	110 v. DC	6.60	6.27	5.94	4.62
KRP11DG	DPDT	6, 12 or 24 v. DC	6.20	5.89	5.58	4.34
KRP11DG	DPDT	110 v. DC	6.80	6.46	6.12	4.76
KRP11DN	DPDT	6, 12, or 24 v. DC	7.10	6.74	6.39	4.97
KRP11DN	DPDT	110 v. DC	7.70	7.31	6.93	5.39
KRP14D	3PDT	6, 12 or 24 v. DC	7.45	7.08	6.71	5.22
KRP14D	3PDT	110 v. DC	8.05	7.65	7.25	5.64
KRP14DG	3PDT	6, 12 or 24 v. DC	7.75	7.36	6.98	5.43
KRP14DG	3PDT	110 v. DC	8.35	7.93	7.52	5.85
MS2AY	SPST-NC	115 v. AC for $\frac{1}{4}$ hp mot.	3.55	3.37	3.20	2.49
MS2AY	SPST-NC	230 v. AC for $\frac{1}{4}$ hp mot.	3.95	3.75	3.56	2.77
MS4AY	SPST-NC-DB	115 v. AC for 3 hp mot.	4.15	3.94	3.74	2.91
MS4AY	SPST-NC-DB	230 v. AC for 3 hp mot.	4.55	4.32	4.10	3.19
SA-112A	12 steps	115 v. AC	6.60	6.27	5.94	4.62



**KB Series:** Latching relay with release and trip coils at same voltage. One sets the latch and the other releases. Operates on momentary impulse to either coil. Silver contacts are rated 5 amps; suffix "G" indicates silver-cadmium contacts on movables rated at 10 amps. AC relays with 5 amp contacts are U/L and CSA Listed. Two  $\frac{1}{8}$ " holes on  $1\frac{1}{2}$ " mtg. ctrs. Size,  $1\frac{1}{2} \times 2\frac{1}{2} \times 2\frac{1}{2}$ . Weight, 6 oz.

**KM Series:** Subminiature relay for use where size and weight are critical factors. Silver contacts rated 2 amps. Solder lug terminals. Has 2-56 tapped hole and locating half-punch for mtg. Size,  $\frac{1}{4} \times 1\frac{1}{2} \times \frac{1}{2}$ . Weight, .58 oz.

**KR3 Series:** Small size, heavy-duty relay. Open only, SPST-NO-DB contacts. Movable carrier has twin  $\frac{1}{4}$ " dia. silver-cadmium oxide contacts rated 20 A, 115 v. AC 60 cy. resist. or 28 v. DC; 1 hp at 115/230 v. 60 cy. Terminals:  $\frac{1}{8}$ " quick connect or solder for contacts; coil solder only. One 6-32 mtg. stud on  $\frac{1}{8}$ " ctr. Size,  $1\frac{1}{2} \times 1\frac{1}{2} \times 1\frac{1}{2}$ ; seated,  $1\frac{1}{2} \times 1\frac{1}{2} \times 2$ .

**KRP Series:** Versatile, multi-contact arrangements in clear plastic dust cover. Mounts by standard octal 8-pin plug on KRP5 and KRP11 models; 11-pin on KRP14. Gold-flashed silver contacts rated 5 amps. Size,  $1\frac{1}{2} \times 1\frac{1}{2} \times 2$  above plug. Wt., 3 oz. Suffix G means silver-cadmium oxide contacts on movables, rated 10 amps.

**KRP-N Indicator Lamp Relay:** General purpose, incorporating a lamp to indicate current or voltage in power circuit. Clear plastic dust cover. Standard octal plug. Silver cadmium-oxide contacts, rated at 10 amps. Size,  $1\frac{1}{2} \times 1\frac{1}{2} \times 2$ . Wt., 3 oz.

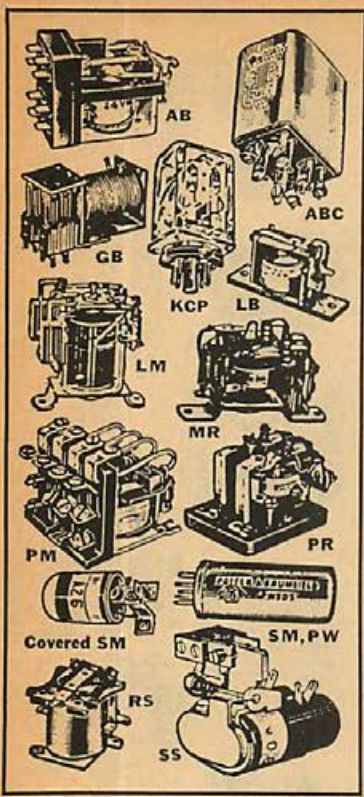
**MS Series:** Motor starting relays for capacitor-start induction-run motors. Operates on back EMF of start winding. Armature gap can be altered. Designed to meet all U/L spacing requirements. Two  $\frac{1}{8}$ " holes,  $1\frac{1}{2} \times 2$ . Suffix G means silver-cadmium oxide contacts on movables, rated 10 amps. Size,  $2\frac{1}{2} \times 2\frac{1}{2} \times 2\frac{1}{2}$ . Wt., 5 oz.

**SA Series:** Stepping switch, 12-position relay with printed circuit strips for currents up to 250 ma. Armature-driven pawl and ratchet wheel driving movable contact in 30° steps. Two 6-32 holes,  $1\frac{1}{2} \times 2$ ;  $2\frac{1}{2} \times 2\frac{1}{2} \times 1\frac{1}{2}$ ; wt., 4 oz.



# POTTER & BRUMFIELD RELAYS

## PLATE CIRCUIT AND SENSITIVE RELAYS



**PW Series:** Precision, lightweight, hermetically sealed relay for aircraft, missile applications. Withstand 10G vibration to 500 cps. Rated 1 amp. Sensitivity, 180 mw for voltage actuated, 40 mw for current actuated models. Standard 7-pin miniature tube base mounting. Size,  $1\frac{1}{4} \times .765$  dia. Weight, 1 oz.

**RS Series:** Small, low cost, sensitive relay for radio-sonde, light dimmer and model uses. Voltage and current actuated (60 mw sensitivity) models. Two 4-40 mtg. holes on  $\frac{3}{4} \times \frac{3}{4}$  diagonal centers. Bar palladium contacts rated 2 amps. Size,  $1 \times 1\frac{1}{4} \times 1\frac{1}{4}$ . Weight,  $1\frac{1}{2}$  oz.

**SM Series:** Medium cost, lightweight relay for light contact load applications. Reed armature for extra long mechanical life.

Hermetically sealed and dust covered models. Voltage and current actuated (75 mw sensitivity) models. Stationary, silver; movable, rhodium contacts rated 0.25 amp. Min. 7-pin tube socket mount on sealed model; two  $\frac{3}{8}$  dia. holes on  $1\frac{1}{2}$  centers on dust cover model. Size,  $1\frac{1}{4} \times .765$  dia., sealed;  $1\frac{1}{2} \times 1\frac{1}{2} \times \frac{3}{4}$ , dust covered. Weight, 1 oz.

**SS Series:** Ultra-sensitive, precision relay has dual series-connected coils with balanced armature on needle-point bearings for low energy circuits. May be used as a differential relay by connecting the two coils in separate circuits. Sensitivity 10 mw. Silver contacts rated 2 amps. Two 6-32 mtg. holes on  $\frac{3}{8}$  centers. Size,  $1\frac{1}{4} \times 1\frac{1}{4} \times 1\frac{1}{4}$ . Weight,  $3\frac{1}{2}$  oz.

P & B Number	Contacts	Coil Voltages or Current	Net Each, Lots of			
			1-24	25-50	51-99	100-249
PW5DS	SPDT	6, 12 or 24 v. DC	\$10.25	\$ 9.74	\$ 9.23	\$7.18
PWLS	SPDT	2.8 ma at 5,000 ohms	10.60	10.07	9.54	7.42
PWLS	SPDT	2.0 ma at 10,000 ohms	11.60	10.45	9.90	7.70
R5SD	SPDT	6 v. DC	2.60	2.47	2.34	1.82
R5SD	SPDT	12 v. DC	2.75	2.61	2.48	1.93
R5SD	SPDT	5 ma at 2,500 ohms	2.85	2.71	2.57	2.00
R5SD	SPDT	3.5 ma at 5,000 ohms	3.15	2.99	2.84	2.21
R5SD	SPDT	2.5 ma at 10,000 ohms	3.60	3.42	3.24	2.52
SM5DS	SPDT	6, 12 or 24 v. DC (slid.)	6.25	5.94	5.63	4.38
SM5L	SPDT	2.7 ma at 10,000 ohms	5.95	5.65	5.36	4.17
SM5LS	SPDT	3.9 ma at 5,000 ohms (slid.)	6.55	6.22	5.90	4.59
SM5LS	SPDT	2.7 ma at 10,000 ohms (slid.)	7.00	6.65	6.30	4.90
S5SD	SPDT	1 ma at 10,000 ohms	12.60	11.97	11.34	8.82

The following plate circuit and sensitive relays are for use in photo-electric, counting bridges and similar control applications.

**GB Series:** Medium cost high quality relay. Silver contacts rated 5 amps. Sensitivity 115 mw for SP, 125 mw for DP, 275 mw for 4P models. Non-adjustable pull-in. Mounts by 8-32 tapped core and locating boss. Size,  $2\frac{1}{2} \times 1\frac{1}{2} \times 1\frac{1}{4}$ . Weight, 5 oz.

**KCP Series:** Low cost plate circuit relay in clear plastic case. Has  $\frac{3}{8}$  gold-flashed silver contacts rated 2 amps. Sensitivity 125 mw for SP, 250 mw for DP and 375 mw for 4P models. Standard octal plug-in mount: 8-pin for KCP5 and KCP11; 11-pin for KCP14. Size,  $1\frac{1}{2} \times 1\frac{1}{2} \times 2$ . Weight, 3 oz.

**LB Series:** Top performance, long life at low cost. Factory adjusted coil for minimum current. Silver contacts rated 5 amps. Two  $\frac{3}{8}$  mtg. holes on  $2\frac{1}{2}$  centers. Size,  $1\frac{1}{4} \times 2\frac{1}{2} \times 1\frac{1}{4}$ . Weight, 2 oz.

**LM Series:** Medium cost but high quality. Sensitivity 100 mw for SP, 200 mw for DP models. Tail spring adjusting screw for pull-in. Silver contacts rated 5 amps. Two 6-32 mtg. holes on  $1\frac{1}{2}$  centers. Size,  $2\frac{1}{2} \times 2\frac{1}{2} \times 2\frac{1}{4}$ . Weight, 5 oz.

P & B Number	Contacts	Coil Resistance 2,500 Ohms				Coil Resistance 5,000 Ohms				Coil Resistance 10,000 Ohms						
		Net Each	1-24	25-50	51-99	100-249	Net Each	1-24	25-50	51-99	100-249	Net Each	1-24	25-50	51-99	100-249
GB5D	SPDT	6.8	\$3.45	\$3.28	\$3.11	\$2.42	4.8	\$3.60	\$3.42	\$3.24	\$2.52	3.4	\$4.10	\$3.90	\$3.69	\$2.87
GB11D	DPDT	7.0	4.85	4.61	4.37	3.40	5.0	4.95	4.70	4.46	3.47	3.53	5.50	5.23	4.95	3.85
GB17D	4PDT	10.5	5.80	5.51	5.22	4.06	7.4	5.95	5.65	5.36	4.17	5.25	6.40	6.08	5.76	4.48
KCP5	SPDT	7.2	5.90	5.61	5.31	4.13	5.0	6.00	5.70	5.40	4.20	3.6	6.40	6.08	5.76	4.48
KCP11	DPDT	10.0	6.30	5.99	5.67	4.41	7.2	6.40	6.08	5.76	4.48	5.0	6.80	6.46	6.12	4.76
KCP14	3PDT	12.3	7.75	7.36	6.98	5.43	8.7	7.85	7.46	7.06	5.50	6.1	8.25	7.84	7.43	5.78
LB5	SPDT	9.0	2.45	2.33	2.21	1.72	6.3	2.65	2.52	2.39	1.86	4.5	2.85	2.71	2.57	2.00
LM5	SPDT	6.3	3.90	3.71	3.51	2.73	4.5	4.10	3.90	3.69	2.87	3.2	4.40	4.18	3.96	3.08
LM11	DPDT	9.0	5.55	5.27	5.00	3.89	6.3	5.75	5.46	5.18	4.03	4.5	6.30	5.99	5.67	4.41

## POWER TYPE RELAYS (ALSO SEE MB SERIES UNDER TELEPHONE TYPES)

Used in automation, motor starting, clutch operation, signaling, etc., wherever a power rating from 5 to 20 amps, 115 v. AC, non-inductive must be handled.

**AB Series:** For appliance and general purpose usage where rugged construction, long life and quiet operation are required. All AC models carry U/L and CSA labels. Silver contacts rated 10 amps. Two 8-32 mtg. holes on  $1\frac{1}{4}$  ctrs. Size,  $1\frac{1}{4} \times 3 \times 1\frac{1}{2}$ . Weight, 5 oz.

**ABC Series:** Medium duty relay. With dust cover; terminals fit snap-on connectors or may be used in printed circuits using dip soldering; snap-on screw adapters are supplied. AC models carry U/L and CSA labels. Silver contacts rated 10 amps. One 8-32 mtg. stud,  $\frac{3}{8}$  lg. and locating tab on  $\frac{3}{8}$  ctrs. Size,  $1\frac{1}{4} \times 2\frac{1}{2} \times 2\frac{1}{2}$ , less terminals. Weight, 7 oz.

**MR Series:** Medium duty relay handles small motors, transmitters, etc. Silver contacts rated 8 amps, except SPST-NO-DB models rated 10 amps. Two  $\frac{3}{8}$  dia. holes on  $2\frac{1}{4}$  ctrs. for MR3 and MR11; on  $2\frac{1}{2}$  ctrs. for MR5 and MR14. Size,  $2\frac{1}{2} \times 1\frac{1}{4} \times 2\frac{1}{2}$ . Weight, 4 oz.

**PR Series:** Heavy-duty relay. Heavy-duty screw terminals. All models except PR11A5 have silver contacts rated 25 amps; PR11A5 has DPDT silver contacts rated 20 amps and SPDT auxiliary contacts rated 5 amps. All models except PR11A5 carry U/L labels. Only AC models, except PR11A5, carry CSA labels also. Mtg., two  $\frac{3}{8}$  holes on  $1\frac{1}{4}$  ctrs. Size,  $2\frac{1}{2} \times 2\frac{1}{2} \times 3\frac{3}{8}$ . Weight, 11 oz., max.

**PM Series:** Compact, heavy-duty 4PDT type for long, dependable polyphase and heavy switching use. Screw terminals staked to phenolic front section. Silver cadmium-oxide contacts rated 25 amps, 115 v.; 25 amps at 230 v. AC, 50/60 cps resistive; 1 hp per movable arm at 120 or

240 v. AC, single phase. Life, 100,000 cycles at rated load. U/L and CSA listed except 440 v. Front key-hole and 2 rear channel slots for 8-32 screws on  $2 \times 2\frac{1}{2}$  triangular ctrs. Size,  $2\frac{1}{2} \times 3\frac{3}{8} \times 2\frac{1}{2}$ . Weight, 14 oz. PM/PR Cover—see listing on another P & B page.

### 60-CYCLE AC RELAYS

P & B Number	Contacts	6, 12, 24 or 115 VAC				230 VAC					
		Net Each	1-24	25-50	51-99	100-249	Net Each	1-24	25-50	51-99	100-249
AB11AY†	DPDT	\$5.30	\$5.04	\$4.77	\$3.71	\$5.70	\$5.42	\$5.13	\$3.99		
ABC11AY†	DPDT	6.40	6.08	5.76	4.48	6.80	6.46	6.12	4.76		
MR3A†	SPST-NO-DB	3.85	3.66	3.47	2.70						
MR5A	SPDT	3.45	3.28	3.11	2.42	3.85	3.66	3.47	2.70		
MR11A	DPDT	4.85	4.61	4.37	3.40	5.25	4.99	4.73	3.68		
MR14A	3PDT	5.80	5.51	5.22	4.06	6.20	5.89	5.58	4.34		
PR1AY*	SPST-NO	4.05	3.85	3.65	2.84						
PR3AY	SPST-NO-DB	4.15	3.94	3.74	2.91	4.50	4.28	4.05	3.15		
PR5AY	SPDT	4.35	4.13	3.92	3.05	4.75	4.51	4.28	3.33		
PR7AY	DPST	4.90	4.66	4.41	3.43	5.35	5.08	4.82	3.75		
PR11A5	DPDT	8.15	7.74	7.34	5.71	8.55	8.12	7.70	5.99		
PR11AY	DPDT	6.45	6.13	5.81	4.52	6.95	6.60	6.26	4.87		
PR17AY	DPDT 440 v.	7.80	7.41	7.02	5.46						
PM7AY	4PDT	12.35	11.73	11.11	8.64	12.75	12.11	11.84	8.93		
PM17A	4PDT 440 v.	13.60	13.02	12.24	9.52						

### DC RELAYS

P & B Number	Contacts	6, 12 or 24 VDC				110 VDC					
		Net Each	1-24	25-50	51-99	100-249	Net Each	1-24	25-50	51-99	100-249
AB11D	DPDT	\$5.20	\$4.94	\$4.68	\$3.64	\$5.70	\$5.42	\$5.13	\$3.99		
ABC11D	DPDT	6.30	5.99	5.67	4.41	6.80	6.46	6.12	4.76		
MR3D	SPST-NO-DB	3.50	3.33	3.15	2.45						
MR5D	SPDT	3.20	3.04	2.88	2.24	3.70	3.52	3.33	2.59		
MR11D	DPDT	4.60	4.37	4.14	3.22	5.10	4.85	4.59	3.57		
MR14D	3PDT	5.45	5.18	4.91	3.82	5.95	5.65	5.36	4.17		
PR3DY	SPST-NO-DB	4.15	3.94	3.74	2.91	4.75	4.51	4.28	3.33		
PR5DY	SPDT	4.35	4.13	3.92	3.05	4.95	4.70	4.46	3.47		
PR7DY	DPST	4.90	4.66	4.41	3.43	5.50	5.23	4.95	3.85		
PR11DY	DPDT	6.45	6.13	5.81	4.52	7.05	6.70	6.35	4.94		
PM17DY	4PDT	11.80	11.21	10.62	8.26	12.40	11.78	11.16	8.68		

\*24 v. AC model only. †No 12 v. AC model. ‡No 6 v. DC model.



# POTTER & BRUMFIELD RELAYS

## SPECIAL PURPOSE RELAYS

**AP Series:** Ratchet, impulse relay for reliability in on-off or reversing action for alternate operations of the control lead. Positive ratchet at all speeds on impulses as short as 60 milliseconds. Intermittent operation only. Silver contacts rated 5 amps. Three 1/2" mtg. holes on 3 3/4" x 1/2" triangular ctrs.; 2 1/4" x 2 3/4" x 7 oz.

**PC Series:** Alternate pulse relay; conventional armature relay operated by 30 millisecond pulses. Armature actuates a phenolic rocker to transfer contacts between alternate positions. For on-off or alternate operation. Gold-plated silver cadmium oxide contacts rated 7.5 amps. Two 1/2" mtg. holes on 2 3/4" centers. Size, 2 1/4" x 2 1/4" x 2 1/4". Weight, 5 oz.

**FC Series:** Conventional, micro-miniature relay less flat on printed circuit board. Takes 100G shock, 400G linear acceleration, and 30G vibration to 2000 cps. Hermetically sealed; bifurcated contacts. Plug-in terminals on 0.2" grid. Meets MIL-R-5757D, and also MSFC-SPEC-339. Ambient temp. range, -65° C to +125° C. Size, 1 1/8" x .925" x .485" h. Wt., .75 oz.

**FL Series:** Dual coil, micro-miniature latching type. Same as above except in operation. Each coil pulses alternately (per polarity), or from a reversing (polarized) source connecting the coils in series. Stays latched without coil power to reduce drain.

**SC Series:** Micro-miniature permanent magnet relay has high shock and vibration resistance; conforms with standard crystal case relay dimensions and circuitry. Coil circuit polarized; positive terminal marked with red dot. Contacts rated at 3 amps, 28 v. DC resistive. Mounting: —D, plug-in

terminals for printed circuit or receptacle; —DA shoulder flanges with two .104" x .136" holes on 1.062" ctrs.; —DB, welded bracket with four .125" holes on 1.062" x .281" ctrs.; —DC, two 4-40 NC-2A threaded studs on .488" x .220" diagonal ctrs.; —DD, plain case. All except —D have hook-end solder terminal leads. SCG11D has plug-in terminals on .2" grid. Wt., 3/4 oz.

**SL Series:** Dual coil, micro-miniature, magnetic latching relay for low power, high shock and vibration resistance. Requires connections to both coils of polarity indicated in diagram on case. Coils may be connected in series for polar operation, reverse polarity to reset. Both coils should not be energized at once. Operates on 1 watt, 3 millisecond pulse to either coil. Mounting: Type and dimensions same as SC series. Contacts rated at 2 amps at 30 v. DC resistive. Weight, 3/4 oz.

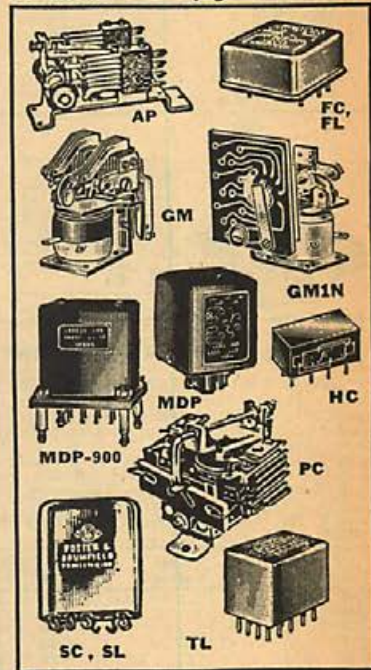
**TL Series:** High performance 4PDT micro-miniature magnetic latching relay for severe environments. Encapsulated and hermetically sealed coils within hermetically sealed relay case can't contaminate contacts by outgassing. Strong permanent magnetic forces keep contacts locked when relay is de-energized. Transfer Time: 5 ms approx. Temperature Range: -65° to +125° C. Meets or exceeds MIL-R-5757D and also MSFC-SPEC-339. Size, .725" x 1.032" x .75", body only. Wt., 1 1/4 oz. Mountings: "D", plain case, plug-in header; "DA", shoulder bracket, .300" from base, hook-end solder; "DB", flat plate, .593" w. x 1.60" lg., four .125" dia. holes on .281" x 1.30" centers, hook-end solder. Contacts rated at 3 amps at 28 v. DC. Coil Resistance, 600 ohms.

**GM Series:** Versatile impulse/sequencing relay for single-coil latching applications. The 2 Form C contact arrangement is switched alternately by cams. Positive switching is by indirect action during drop-out of the armature. Can also be furnished with additional 2 Form C auxiliary contacts, suffix "L", operated directly by the armature. Contacts rated at 3 amps, 115 v. AC, non-inductive. Available with AC or DC coil duty. AC version operates on a 50% coil duty cycle (5 min. max.). Mounting: S-2 tapped core with a locating boss. Size, 1.437" x 2.03" x 2.07" max. Wt., with aux contacts, 4 3/4 oz.; without, 4 oz.

**GM1N Series:** Relays employing basic structure of GM Series in choice of 10 or 12 steps. Board is attached to ratchet shaft extension. Movable contact arm advances one position each time armature drops out. Contacts rated at .25 amp. Size, 1.875" sq. x 2.312". Wt., approx. 4 oz.

**HC Series:** Micro-miniature, non-polarized, non-latching relay hermetically sealed in half-size crystal case. High-torque motor structure and bifurcated, gold-plated silver DPDT contacts offer positive performance in low-level applications. Contacts rated dry circuit to 2 amps at 28 VDC resistive. Meets or exceeds applicable sections of MIL-R-5757D/9; complies with ABMA-PD-R-187 and MSFC-SPEC-339. HC11D has plug-in, plain case; HC11DA has hook-end solder terminals and shoulder brackets; HC11DB has hook-end solder terminals and flat mounting plate with two holes. Temp. range, -65° C to +125° C. Size (plain case), .8" x .4" sq., seated. Wt., 3/4 oz. See another P & B page for accessories.

P & B Number	Contacts	Coil Voltages	Net Each, Lots of			
			1-24	25-50	51-99	100-249
AP11A	DPDT	6, 12, 24 or 115 v. AC	\$ 8.70	\$ 8.27	\$ 7.83	\$ 6.09
AP11A	DPDT	230 v. AC	9.15	8.69	8.24	6.41
AP17A	4PDT	24 or 115 v. AC	10.50	9.98	9.45	7.35
AP11D	DPDT	6 or 24 v. DC	8.70	8.27	7.83	6.09
AP11D	DPDT	110 v. DC	9.35	8.88	8.42	6.55
AP17D	4PDT	12 or 24 v. DC	10.50	9.98	9.45	7.35
AP17D	4PDT	110 v. DC	11.15	10.59	10.04	7.85
PC11A	DPDT	6, 12, 24 or 115 v. AC	5.50	5.23	4.95	3.83
PC17A	4PDT	24 or 115 v. AC	7.60	7.22	6.84	5.32
PC11D	DPDT	6, 12 or 24 v. DC	5.35	5.08	4.82	3.75
PC11D	DPDT	24 v. DC	7.45	7.08	6.71	5.22
FC11D	DPDT	6, 12 or 24 v. DC	16.00	15.20	14.40	11.20
FC11D	DPDT	6, 12 or 24 v. DC	18.00	17.10	16.20	12.60
SC11D	DPDT	6, 12 or 24 v. DC	15.75	14.96	14.18	11.03
SC11DA	DPDT	6, 12 or 24 v. DC	15.75	14.96	14.18	11.03
SC11DB	DPDT	6, 12 or 24 v. DC	15.75	14.96	14.18	11.03
SC11DC	DPDT	24 v. DC	15.75	14.96	14.18	11.03
SC11DD	DPDT	24 v. DC	15.75	14.96	14.18	11.03
SCG11D	DPDT	24 v. DC	15.75	14.96	14.18	11.03
SL11D	DPDT	6, 12 or 24 v. DC	17.25	16.39	15.53	12.08
SL11DA	DPDT	6, 12 or 24 v. DC	17.25	16.39	15.53	12.08
SL11DB	DPDT	6, 12 or 24 v. DC	17.25	16.39	15.53	12.08
SL11DC	DPDT	24 v. DC	17.25	16.39	15.53	12.08
SL11DD	DPDT	24 v. DC	17.25	16.39	15.53	12.08
SLG11D	DPDT	24 v. DC	17.25	16.39	15.53	12.08
TL17D	4PDT	24 v. DC	25.00	23.75	22.50	17.50
TL17DA	4PDT	24 v. DC	25.00	23.75	22.50	17.50
TL17DB	4PDT	24 v. DC	25.00	23.75	22.50	17.50
GM11A	DPDT	24 or 115 v. AC	7.15	6.79	6.44	5.01
GM11A111	DPDT/DPDT	24 or 115 v. AC	10.20	9.69	9.18	7.14
GM11D	DPDT	12 or 24 v. DC	6.90	6.56	6.21	4.83
GM11D	DPDT	110 v. DC	7.35	6.98	6.62	5.15
GM11DL11	DPDT/DPDT	12 or 24 v. DC	10.00	9.50	9.00	7.00
GM11DL11	DPDT/DPDT	110 v. DC	10.45	9.93	9.41	7.32
GM1N10A	SP-10 pos.	115 v. AC	8.85	8.41	7.97	6.20
GM1N12A	SP-12 pos.	115 v. AC	8.95	8.50	8.06	6.27
GM1N10D	SP-10 pos.	24 v. DC	8.65	8.22	7.79	6.06
GM1N12D	SP-12 pos.	24 v. DC	8.75	8.31	7.88	6.13
HC11D	DPDT	24 v. DC	17.50	16.63	15.75	12.25
HC11DA	DPDT	24 v. DC	17.50	16.63	15.75	12.25
HC11DB	DPDT	24 v. DC	17.50	16.63	15.75	12.25



## MDP SERIES SMALL POLARIZED RELAYS

Small size, ultra-sensitivity and high speed switching combine with efficient, bounce-free contact action. Operation depends on both magnitude and direction of coil current. Temp., -60° C to +85° C. MDP-900 and -930 directly replace W.E. 255 relays; extra-long life contacts; 2 1/4" sq. x 3 3/4" h. overall; wt., 10 oz. All others 1 1/4" sq. x 1 1/4" h. (seated); wt., 4 3/4 oz. Plastic dust cover; 8-pin or 12-pin plugs.

### BI-STABLE TYPES (1 FORM C)

Armature remains in its last energized position on coil de-energize. Tungsten and Paliney contacts rated .01-1 amp resistive with suitable arc suppression, 25-150 v except MDP-930-1, silver-tungsten-carbide contacts rated .01-.5 amp resistive.

P & B No.	Pull-in Cur., Ma.	Pull-in Pwr., μw	No. Coils	Ohms/Coil	Net Each, Lots of	
					1-9	10-49
MDP-900-1	1.5	338	2	150	\$21-30	\$19-17
MDP-900-1	2	600	2	150	27-60	24-84
MDP-930-1	2.4	863	2	150	28-15	25-34
MDP-1300-1	1.4	294	2	150	21-30	19-17
MDP-1300-8	0.28	314	2	4000	21-30	19-17

**P & B No. 9MDP51 Bracket**—Hold-down type adapts MDP relays to Barber-Colman socket. Box of 10.....\$2.50  
\*Quantity prices available to 249 units.

### CENTER-STABLE TYPES (1 FORM K)

Armature remains in center-off with contacts open at coil de-energize. Silver contacts rated 3 amps resistive at 28 VDC except MDP-306-5 relays .005-.5 amp resistive with suitable arc suppression, 5-150 V.

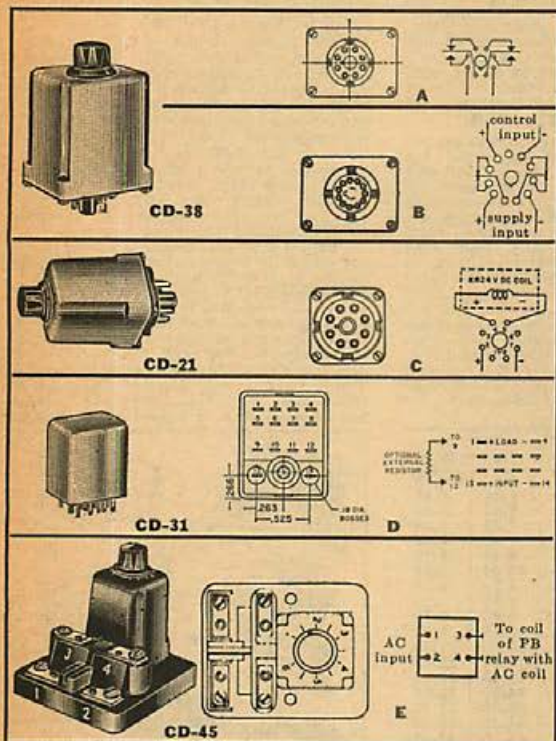
P & B No.	Pull-in Cur., Ma.	Pull-in Pwr., μw	No. Coils	Ohms/Coil	Net Each, Lots of	
					1-9	10-49
MDP-306-5	1.5	562	4	250	\$31-80	\$28-62
MDP-1001	1.75	36.8	1	12	4-35	21-82
MDP-1004	.49	31.2	1	130	4-35	21-82
MDP-1006	.32	33.8	1	330	4-35	21-82
MDP-1007	.27	35	1	480	4-35	21-82
MDP-1008	.23	47.6	1	900	4-35	21-82
MDP-1009	.18	47.3	1	1460	4-35	21-82
MDP-1011	.1	35	1	3500	4-35	21-82
MDP-1013	.067	32.3	1	7200	4-35	21-82
MDP-2001	3.5	73.5	2	6	4-35	21-82
MDP-2008	.46	76.2	2	360	4-35	21-82
MDP-2009	.32	102	2	1000	4-35	21-82
MDP-2011	.17	66.5	2	2300	4-35	21-82
MDP-2101	5.3	169	2	6	4-35	21-82
MDP-2107	.80	154	2	240	4-35	21-82
MDP-2112	.22	160	2	3300	4-35	21-82



# POTTER & BRUMFIELD RELAYS

## CD SERIES SOLID STATE TIME DELAY RELAYS

**How They Work:** The basic timing circuit consists of a resistor in series with a capacitor. When the input voltage is applied to the RC circuit, the voltage across the capacitor slowly increases. When the firing level is reached, a solid state trigger circuit acts to turn on a solid state output switch that energizes a switching relay or external electrical load. Because no cams, clutches, motors or other moving parts are used, the timing circuit can have no mechanical wear. This is an especially desirable advantage when accurate recycling is required.



- ACCURATE TIME DELAY VALUES
- EXCELLENT REPEATABILITY
- FAST RESET TIME
- WIDE TIME DELAY RANGE
- CHOICE OF KNOB-ADJUSTABLE, RESISTOR-ADJUSTABLE OR FIXED TIME DELAY TYPES

Economically priced, solid state relays offering operational characteristics which make them applicable to a wide variety of critical electronic applications. Series includes models for both 115 VAC and 24 VDC operation, and choice of three modes of timing: knob-adjustable, resistor-adjustable, and fixed. Timing accuracy,  $\pm 10\%$ . Repeatability,  $\pm 2\%$ . Fast reset time, 60 msec. Ambient operating temperature,  $-40^\circ\text{C}$  to  $+55^\circ\text{C}$ . Continuous duty. Rugged plastic enclosures. All relays listed provide time delay "on operate" except CDB-38-70012 and CDD-38-30012, which have delayed release when control circuit is de-energized (supply circuits must be energized continuously; see Outline Drawing B). Size: CD-38,  $1\frac{1}{2}'' \times 2\frac{3}{4}'' \times 3\frac{3}{4}''$  h.; wt., 8  $\frac{1}{2}$  oz. CD-21,  $1\frac{1}{2}'' \times 2\frac{1}{4}'' \times 2\frac{1}{4}''$  h.; wt., 4  $\frac{1}{4}$  oz. CD-31,  $1\frac{1}{2}'' \times 1\frac{1}{4}'' \times 1\frac{1}{2}''$  h.; wt., 2 oz. CD-45,  $2\frac{1}{2}'' \times 3'' \times 2\frac{1}{4}''$  h.; wt., 6 oz.

P & B Number	Out-line Dwg.	Time Delay, Seconds	Input Voltage	Notes	Net Each*
CDB-38-70003	A	0.1 to 10	115 VAC	a	\$43.80
CDB-38-70004	A	0.6 to 60	115 VAC	a	43.80
CDB-38-70005	A	1.8 to 180	115 VAC	a	43.80
CDD-38-30003	A	0.1 to 10	24 VDC	a	41.55
CDD-38-30004	A	0.6 to 60	24 VDC	a	41.55
CDD-38-30005	A	1.8 to 180	24 VDC	a	41.55
CDB-38-70012	B	0.6 to 60	115 VAC	a, g	\$2.45
CDB-38-30012	B	0.6 to 60	24 VDC	a, g	49.50
CDB-21-70003	C	0.1 to 10	115 VAC	b	38.70
CDB-21-70001	C	1.8 to 180	115 VAC	b	38.70
CDD-21-30003	C	0.1 to 10	24 VDC	c	38.35
CDD-21-30001	C	1.8 to 180	24 VDC	c	38.35
CDH-31-30005	D	180 max.	24 VDC	d, e	38.90
CDE-45-70002	E	0.6 to 60	115 VAC	f	37.05

\*Quantity prices available to 99 units.

**Notes:** a, Has internal relay with DPDT contacts rated at 10 amps, 115 VAC. b, Use with P & B Type KRP5AG, KRP11AG or KRP14AG, 115 VAC relays. c, Use with P & B Type KRP5DG, KRP11DG or KRP14DG, 24 VDC relays. d, Use with P & B Type KHP17D11, 24 VDC relay. e, As supplied, unit has fixed time delay of 180 sec.; adjustable to 1.8 sec. with external resistor (not furnished). f, Use with P & B Type PR11AY, 115 VAC relay. g, Provides delay on release; all other types have delay on operate.

## GENERAL PURPOSE TELEPHONE RELAYS, KITS

### SERIES KHP (ENCLOSED) AND KHS (SEALED) TYPES

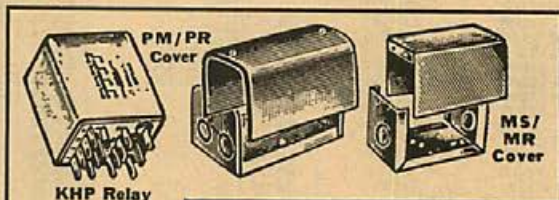
Small, rugged 4PDT, AC or DC relays. KHP has nylon dust cover; KHS is hermetically sealed in metal enclosure. For data processing and computer applications. Contacts  $\frac{1}{2}''$  gold-flashed silver; rated 3 amps, 30 v. DC or 115 v. AC resistive. Mount by solder terminals and 3-48 stud  $\frac{1}{16}''$  lg. Adaptable to sockets. Suffix 12 indicates contacts are silver-cadmium oxide, rated 3 amps. P & B No. 9KH3 Spring—Hold-down for all KHP sockets. Weight, 3 oz./box. Net, Box of 50.....\$5.00  
P & B No. 9KH1 (Solder Term.) or 9KH2 (Printed Circuit). Sockets—Net, Box of 10.....\$6.00

P & B Number	Coil Voltage	Net Each, Lots of			
		1-24	25-50	51-99	100-249
KHP17A11	6, 12, 24 v. AC	\$ 5.85	\$ 5.56	\$5.27	\$4.10
KHP17A11	115 v. AC	6.25	5.94	5.63	4.38
KHP17D11	6, 12, 24 v. DC	4.80	4.56	4.32	3.36
KHP17D11	48 v. DC	5.00	4.75	4.50	3.50
KHP17D11	90, 110 v. DC	5.00	5.32	5.04	3.92
KHS17A11	6, 12, 24 v. AC	10.60	10.07	9.54	7.42
KHS17A11	115 v. AC	11.00	10.45	9.90	7.70
KHS17D11	6, 12, 24 v. DC	7.75	7.36	6.98	5.43
KHS17D11	110 v. DC	8.55	8.12	7.70	5.99
KHP17D12	24 v. DC	4.95	4.71	4.46	3.47
KHP17D12	110 v. DC	5.75	5.46	5.18	4.03

### GP SERIES "PIC & BUILD" KITS

Extra flexibility permitted using separate coils and switches for intercombinations of up to 20 types of relays. Permits easy, rapid changing of coils for different sensitivities; switches for variable contact arrangements. Silver contacts rated 5 amps. Mounts with 8-32 tapped core and locating half-punch. Weight, 4 oz. average.

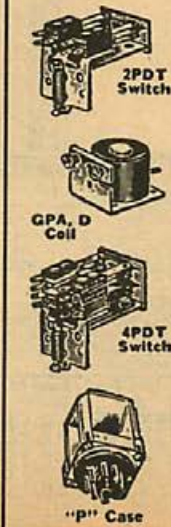
P & B Number	Coil Voltage or Current	Net Each, Lots of			
		1-24	25-50	51-99	100-249
GPA	6, 12, 24 or 115 v. AC	\$1.65	\$1.57	\$1.49	\$1.16
GPA	230 v. AC	2.10	2.00	1.89	1.47
GPD	6, 12 or 24 v. DC	2.10	2.00	1.89	1.47
GPD	110 v. DC	3.15	2.99	2.84	2.21
GPD	2500-ohm coil	1.50	1.43	1.35	1.05
GPD	5000-ohm coil	1.75	1.66	1.58	1.23
GPD	10K-ohm coil	2.10	2.00	1.89	1.47
GP11	2PDT switch	1.70	1.62	1.53	1.19
GP17	4PDT switch	2.95	2.80	2.66	2.07



## DUST COVERS, CASES, ADAPTER AND SPRING

**BS Dust Cover:** Sheet metal enclosures. Small unit for BS relays up to 6 Form C (6PDT, BS23); size,  $1\frac{1}{2}'' \times 2\frac{1}{4}'' \times 3\frac{1}{4}''$  plus  $\frac{1}{2}''$  knob; wt., 6.5 oz. Medium unit for up to 10 Form C; size,  $2\frac{1}{2}''$ ; other dimensions same as small unit; wt., 7 oz.  
**MS/MR Dust Cover:** For MS or MR Series relays; snaps onto metal base; relay mounts on pre-drilled base. **PM and PR Dust Covers:** Sheet metal base; aluminum cover, gray hammertone finish. Four  $\frac{1}{2}''$  conduit knockouts; 3 #10 holes,  $1\frac{1}{2}'' \times 4\frac{1}{2}''$  centers. **9PM1 Adapter:** For mounting PM on PR mounting holes. In box of 10, "P" Cases: Clear plastic dust case. Octal type plug with 8 or 11 pins and four screws. **KCP-KRP Hold Down Spring:** Fits all KCP or KRP plug-in relays. 50 per box.

P & B No.	Type	Net Each, Lots of			
		1-24	25-50	51-99	100-249
35D188	Small BS	\$1.80	\$1.71	\$1.62	\$1.26
35D189	Med. BS	1.80	1.71	1.62	1.26
35D190	MS/MR	1.90	1.81	1.71	1.33
35D227	PM	3.00	2.85	2.70	2.10
35D013	PR	3.00	2.85	2.70	2.10
9PM1	Adapter	1.50	(Per Box of 10)		
35D070	8-pin P	.55	.52	.50	.39
35D072	11-pin P	.70	.67	.63	.49
9-KR-15	Spring	5.00	(Per Box of 50)		





# POTTER & BRUMFIELD RELAYS

## MERCURY-WETTED CONTACT RELAYS



**Dependability:** Reservoir of mercury and contact assembly are hermetically sealed under high pressure hydrogen atmosphere to do away with contact bounce, chatter, pits and welds. Make or break is positive every time. **Long Life:** The mercury used renews the entire surface with a film of mercury for billions of operations. **High Speed:** Operating time—JML, 3 to 1.1 ms depending on coil power; JMP, 3 ms approx.; JMI, 3 ms; JM2 and JM3, 4 ms; JM4, 5 ms. **Three Series:** JML Series, sensitive, SPDT, break-before-make, (Form C), non-bridging contact arrangement. JMP Series, polarized, SPDT, make-before-break, (Form D), bridging contact arrangement. JMI Series, contains a single capsule to 4 capsules providing SPDT, DPDT, 3PDT or 4PDT. **Two Types of Capsules:** JML utilizes two fixed contacts, one normally closed and one normally open interposed by the armature which serves as the movable contact. Others, contact assembly consists of two normally open and two normally closed contacts with the reed extension of the armature interposing and acting as the movable contact. **Single-Side-Stable:** Magnets are factory-adjusted so that the relay will release (open its normally open contacts) when the coil current is reduced to less than must release value. **Bi-Stable:** Magnets are factory-adjusted so that the armature remains in the last operated position until opposite polarity is applied. **Chopper:** Magnets are factory-adjusted for approximately equal dwell on the normally open and closed contacts when the coil is driven by 60 cps sine waves. **Contact Ratings:** JML, 500 v. max., and 2 amps max., 100 VA max. JMP and JMI to JM4, 500 v. max., and 5 amps max., 250 VA max. **Minimum Sensitivity:** JML, 27.3; JMP, 70; JMI, 190; JM2 and JM3, 250; JM4, 260, all in ampere turns. **Operations Per Sec:** JML, 200; JMP and JMI, 100; JM2, JM3, JM4, 60. **Shock Resistance:** All series, 30G for 11 ms, non-operating. Vibrations up to 10G, 10-50 cps. **Temperature:** All series, -39° to +107° C. **Inertial Terminations:** All series, octal style plugs, hook solder, and 14-pin miniature plug. **Enclosures:** Steel case. **Required Mounting Positions:** Vertical. **Overall Size:** (Dia. x Lgth.): JML, 1.234" x 3.218"; JMP, 1.110" x 3.665"; JMI, 1.105" x 3.196"; JM2 and JM3, 1.174" x 3.144"; JM4, 1.174" x 3.345" x 3.32 stud. **Weight:** JML, 5 oz.; JMP, 4.5 oz.; JMI, 4 oz.; JM2 and JM3, 8 oz.; JM4, 10 oz.

### JML SENSITIVE SERIES SINGLE-SIDE-STABLE

Cap- sule	Coil and Ter- minal*	Coil Characteristics			Net Each, Lots of		
		Resis., Ohms (±10%)	Must Operate DC Ma	Must Release DC Ma	1-9	10-24	25-99
JML	1061 81	40	9.75	1.68	\$11.60	\$ 9.05	\$ 8.47
JML	1110 81	350	3.56	.61	11.60	9.05	8.47
JML	1160 81	1000	2.21	.38	11.60	9.05	8.47
JML	1190 81	2500	1.43	.17	12.40	9.67	9.05
JML	1200 81	4000	1.25	.25	12.40	9.67	9.05
JML	1260 81	25000	.52	.09	12.40	9.67	9.05
JML	1440 82	(1) 4000 (2) 800	.86 11.60	.10	13.60	10.61	9.93

### BI-STABLE

Cap- sule	Coil and Ter- minal*	Resis., Ohms (±10%)	Must Operate DC Ma	Must Release DC Ma	Net Each, Lots of
JML	5160 81	1000	+1.24	-1.24	\$12.10 \$ 9.44 \$ 8.83
JML	5200 81	4000	+0.53	-0.53	12.40 9.67 9.05
JML	5430 82	(1) 1100 (2) 1100	+1.76	-1.76	13.60 10.61 9.93

### CHOPPER (60-CYCLE)

Cap- sule	Coil and Ter- minal*	Resis., Ohms (±10%)	Must Operate DC Ma	Must Release DC Ma	Net Each, Lots of
JML	8130 81	600	6.3 v. rms		\$12.10 \$9.44 \$8.83

### JMP POLARIZED SERIES SINGLE-SIDE-STABLE

Cap- sule	Coil and Ter- minal*	Resis., Ohms (±10%)	Must Operate DC Ma	Must Release DC Ma	Net Each, Lots of
JMP	1081 11	90	16.00	1.3	\$15.20 \$11.86 \$11.10
JMP	1160 11	1000	5.60	.40	15.20 11.86 11.10
JMP	1200 11	4000	2.96	.24	16.30 12.71 11.90
JMP	1260 11	25000	1.32	.15	16.30 12.71 11.90
JMP	1340 52	(1) 700 (2) 3300	14.20 5.70	2.80	17.25 13.46 12.59
JMP	1470 53	(1) 1020 (2) 970	16.0	6.0	18.95 14.78 13.83

\*Last two digits indicate termination diagram figure, e.g., JML 1061 81, see figure 81 in termination diagram.

### JMP POLARIZED SERIES (CONT'D)

#### BI-STABLE

Cap- sule	Coil and Ter- minal*	Coil Characteristics			Net Each, Lots of		
		Resis., Ohms (±10%)	Must Operate DC Ma	Must Release DC Ma	1-9	10-24	25-99
JMP	5200 11	4000	+1.5	-1.5	\$16.30	\$12.71	\$11.90
JMP	5340 52	(1) 700 (2) 3300	+6.0 +2.4	-6.0 -2.4	17.75	13.85	12.96

#### CHOPPER (60-CYCLE)

Cap- sule	Coil and Ter- minal*	Resis., Ohms (±10%)	Must Operate DC Ma	Must Release DC Ma	Net Each, Lots of
JMP	8120 12	500	6.3 v. rms		\$15.70 \$12.25 \$11.46
JMP	8200 12	4000	18.5 v. rms		16.80 13.10 12.26
JMP	8240 11	11000	117.0 v. rms		16.80 13.10 12.26

\*Last two digits indicate termination diagram figure, e.g., JMP 5200 11, see figure 11 in termination diagram. †With 12K ohms (±5%) 1/2 watt resistor in series with coil.

### JMI TO JM4 SERIES

#### SINGLE CAPSULE, SPDT DUAL COIL

Cap- sule	Coil and Ter- minal*	Coil Characteristics			Net Each, Lots of		
		Resis., Ohms (±10%)	Must Operate DC Ma	Max. Volts at 35° C	1-9	10-24	25-99
JMI	405 51	700	32.0	37.4	\$16.20	\$12.64	\$11.83
		3300	12.3	81.0			

#### SINGLE CAPSULE, SPDT SINGLE COIL

Cap- sule	Coil and Ter- minal*	Resis., Ohms (±10%)	Must Operate DC Ma	Max. Volts at 35° C	Net Each, Lots of
JMI	106 12	40	67.7	9.0	\$14.05 \$10.96 \$10.26
JMI	109 12	130	38.8	16.1	14.05 10.96 10.26
JMI	112 11	500	20.1	31.6	14.05 10.96 10.26
JMI	114 11	700	20.0	37.4	14.05 10.96 10.26
JMI	114 12	700	20.0	37.4	14.05 10.96 10.26
JMI	118 11	2500	10.1	70.7	14.30 11.15 10.44
JMI	119 11	4000	8.1	89.5	8.15 8.15 8.15
JMI	119 12	4000	8.1	89.5	14.80 11.54 10.80
JMI	120 11	7000	6.0	117.0	14.80 11.54 10.80
JMI	121 11	11K	5.0	148.0	14.80 11.54 10.80
JMI	123 11	25K	3.6	224.0	14.80 11.54 10.80

#### TWO CAPSULES, DPDT SINGLE COIL

Cap- sule	Coil and Ter- minal*	Resis., Ohms (±10%)	Must Operate DC Ma	Must Release DC Ma	Net Each, Lots of
JM2	104 22	50	110.0	12.25	\$22.80 \$17.78 \$16.64
JM2	109 22	315	44.0	30.7	22.80 17.78 16.64
JM2	110 22	500	34.8	38.7	22.80 17.78 16.64
JM2	111 22	700	30.6	45.8	22.80 17.78 16.64
JM2	112 22	1250	22.1	61.2	22.80 17.78 16.64
JM2	112 23	1250	22.1	61.2	22.80 17.78 16.64
JM2	115 21	5000	11.3	122.0	22.80 17.78 16.64
JM2	115 22	5000	11.3	122.0	22.80 17.78 16.64
JM2	115 23	5000	11.3	122.0	22.80 17.78 16.64

#### THREE CAPSULES, 3PDT SINGLE COIL

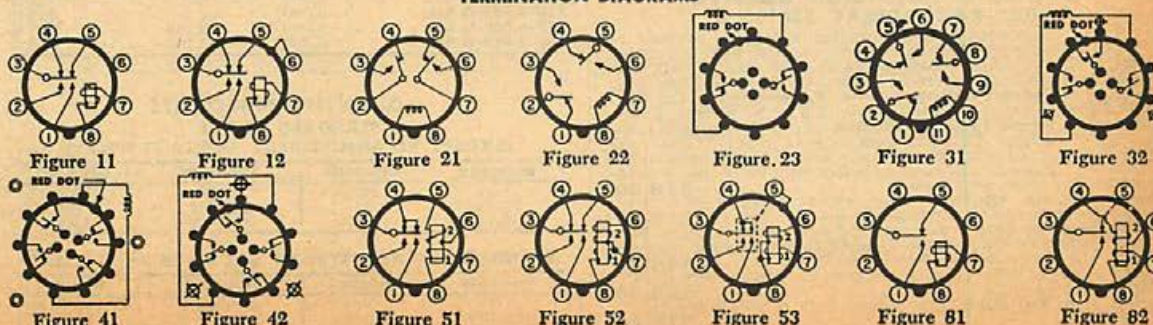
Cap- sule	Coil and Ter- minal*	Resis., Ohms (±10%)	Must Operate DC Ma	Must Release DC Ma	Net Each, Lots of
JM3	109 31	315	44.0	30.7	\$29.50 \$23.01 \$21.54
JM3	110 31	500	34.8	38.7	29.50 23.01 21.54
JM3	111 31	700	30.6	45.8	29.50 23.01 21.54
JM3	112 31	1250	22.1	61.2	29.50 23.01 21.54
JM3	115 31	5000	11.3	122.0	29.50 23.01 21.54
JM3	115 32	5000	11.3	122.0	29.50 23.01 21.54

#### FOUR CAPSULES, 4PDT SINGLE COIL

Cap- sule	Coil and Ter- minal*	Resis., Ohms (±10%)	Must Operate DC Ma	Must Release DC Ma	Net Each, Lots of
JM4	106 41	65	100.0	15.1	\$38.00 \$29.64 \$27.74
JM4	110 41	390	42.0	37.0	38.00 29.64 27.74
JM4	110 42	390	42.0	37.0	38.00 29.64 27.74
JM4	112 41	700	35.4	49.5	38.00 29.64 27.74
JM4	114 41	1400	23.0	70.0	38.00 29.64 27.74
JM4	114 42	1400	23.0	70.0	38.00 29.64 27.74
JM4	117 41	4000	15.6	118.0	38.00 29.64 27.74
JM4	117 42	4000	15.6	118.0	38.00 29.64 27.74
JM4	118 41	6500	10.5	151.0	38.00 29.64 27.74
JM4	118 42	6500	10.5	151.0	38.00 29.64 27.74
JM4	119 41	10K	8.6	187.0	38.00 29.64 27.74
JM4	119 42	10K	8.6	187.0	38.00 29.64 27.74

\*Last two digits indicate termination diagram figure, e.g., JMI 109 12, see figure 12 in termination diagram. †With 12K ohms and 42 have hook solder terminals. Fig. 41 has 14-pin terminals.

### TERMINATION DIAGRAMS



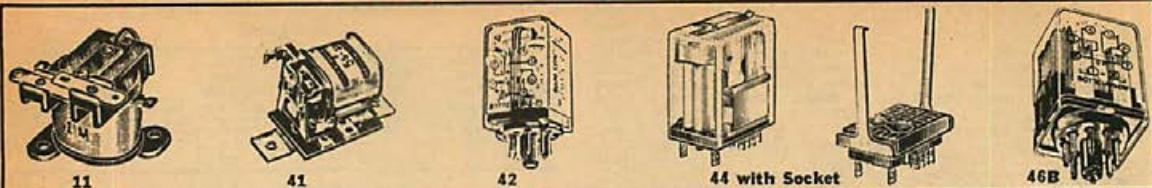




# SIGMA Relays

## INDUSTRIAL, COMMERCIAL, MILITARY

### GENERAL PURPOSE RELAYS



#### SPDT AC AND DC RELAY SERIES 41

Versatile, long-life relays: AC for on-off; DC for gradually changing current. High release for use in circuits with high idle current. U/L Listed. **Contact Ratings:** ACG and G adjustment listings, 10 amps at 28 VDC/120 VAC; S, VS and ACS, 2 amps. **Rated Power:** DC, 100-450 mW; AC, .06-20 VA at 60 cps; 1.3 VA at 400 cps. DC "K" adjustments specifically designed for high-speed keying. **Size:** 41F and 41EZ, unenclosed, 2 1/4" x 1 1/4" x 1 1/2" h. Weight, 2 1/2 oz. **Other adjustments, contact materials, mountings and enclosures available.**

#### AC TYPES

Sigma Type No.	Operate Volts	Nominal Volts	Contact Amps	Net Each*
41FZ-10-ACG BSL	4	6	10	\$3.50
41FZ-35-ACS SIL	4	6	2	4.00
41FZ-50-ACG BSL	9	12	10	3.50
41FZ-100-ACS SIL	8.5	12	2	4.00
41FZ-200-ACG BSL	18	24	10	3.50
41FZ-500-ACS SIL	18	24	2	4.00
41FZ-5,000-ACG BSL	90	120	10	3.65
41FZ-10,000-ACS SIL	85	120	2	4.45
41FZ-12,000-ACG BSL	140	240	10	4.15

#### DC TYPES

Adjustment, 10 amps, units with final suffix BSL; 2 amps, all others.

Sigma Type No.	Coil Ohms	Operate V or mA	Nominal Volts	Net Each*
41F-80-VG BSL	80	4 V	6	\$3.50
41F-250-VG BSL	250	8 V	12	3.50
41F-1,000-VG BSL	1,000	16 V	24	3.50
41F-5,000-VG BSL	5,000	32 V	48	3.65
41F-200-S SIL	200	15 mA	.....	3.50
41F-500-VS SIL	500	4 V	6	3.85
41F-1,600-VS SIL	1,600	8 V	12	3.85
41F-5,000-VS SIL	5,000	16 V	24	4.00
41F-10,000-VS SIL	10,000	2 mA	.....	4.25

#### DPDT AC AND DC RELAY SERIES 42

Double-pole version of Series 41 for long-life, versatile operation. **Contact Ratings:** G, VG and ACG adjustment listings, 5 amps at 28 VDC/120 VAC; VS and ACS, 2 amps. **Rated Power:** DC, 100-200 mW; AC, .30 or .50 VA at 60 cps. **Size:** 42RO and 42ROZ, plastic dust cover, 1 1/4" sq. x 2 1/4" h. Weight, 3 1/4 oz.

#### AC TYPES

Sigma Type No.	Coil Ohms	Operate V or mA	Nominal Volts	Net Each*
42ROZ-8-ACG SIL	8	4 V	6	\$6.20
42ROZ-50-ACG SIL	50	9 V	12	6.20
42ROZ-200-ACG SIL	200	18 V	24	6.20
42ROZ-4,000-ACG SIL	4,000	90 V	120	6.20
42ROZ-7,000-ACS SIL	7,000	90 V	120	7.35
42ROZ-12,000-ACG SIL	12,000	150 V	240	6.80

#### DC TYPES

Sigma Type No.	Coil Ohms	Operate V or mA	Nominal Volts	Net Each*
42RO-80-VG SIL	80	4 V	6	\$6.20
42RO-150-VS SIL	150	4 V	6	6.80
42RO-200-G SIL	200	32 mA	12	6.20
42RO-250-VG SIL	250	8 V	12	6.20
42RO-500-VS SIL	500	8 V	12	6.80
42RO-1,000-VG SIL	1,000	16 V	24	6.20
42RO-2,500-VS SIL	2,500	16 V	24	6.80
42RO-5,000-VG SIL	5,000	32 V	48	6.40
42RO-10,000-VG SIL	10,000	4.5 mA	.....	6.60
42RO-10,000-VS SIL	10,000	32 V	48	7.25

### SPECIAL PURPOSE RELAYS

#### SPDT PHOTORELAY SERIES 8

Dependable, light-actuated industrial controls for counting, sorting, process control, light regulation, machinery protection, and door opening. All types are dust-covered. Types 8R- have a 5-pin plug. **Contact Rating:** 3 amps. **Power Supply:** 120 VAC, 50/60 cps. **Size:** 1 1/2" sq. x 2 1/4" h. Weight, 3 oz. **Sigma Type No. 8RC01A**—For light-no-light applications. Utilizes Sigma Type 41 SPDT AC relay and broad-area, hermetically sealed CdS photoconductive cell. Operates on 5 foot-candles or less. Releases at 0.1 ft-c or more. Net Each.....\$16.50\*

**Sigma Type No. 8RC01B**—Same, except operates from slowly changing light at 35 ft-c; releases at 0.4 ft-c. Net Ea. \$19.80\*

**Sigma Type No. 8PL2**—Receiver and light source system. Electrical specifications same as for Type 8RC01A. Bracket-mounted. 2 1/2" w. x 3 1/2" d. x 4 1/2" h. Net Each.....\$44.00\*

**Sigma Type No. 8P2**—Photorelay receiver portion only of 8PL2 system. Net Each.....\$28.60\*

**Sigma Type No. 8L2**—Light source only of 8PL2 system. Net Each.....\$15.40\*

#### 4PDT UNIVERSAL-MOUNTING RELAY SERIES 44

Compact, high load-rated, long-life relay for on-off applications. Plugs into socket or stud-mounts for solder connections. Interchangeable with similar commercial relays. **Contact Rating:** 5 amps at 28 VDC/120 VAC. **Rated Power:** 800 mW. **Size:** 44R4G4, plastic dust cover, 1 1/4" x 1 1/4" x 1 1/2" h. Weight, 1 oz.

Sigma Type No.	Coil Ohms	Operate Volts	Nominal Volts, DC	Net Each*
44R4G4-45-VG SIL	45	4.3	6	\$4.40
44R4G4-170-VG SIL	170	8.5	12	4.40
44R4G4-680-VG SIL	680	17	24	4.40
44R4G4-2,700-VG SIL	2,700	48	36.8	4.40
44R4G4-17,000-VG SIL	17,000	85	120	5.80
AD15-3	Socket, with hardware*			.65

\*With grounding spring, screw, nut and lock washer.

#### DPDT HEAVY-DUTY AC AND DC RELAY SERIES 46B

For switching industrial loads to 10 amps, including fractional horsepower motors, from on-off input signals. Rugged DC or shaded-pole AC. **Contact Ratings:** DC, 10 amps at 28 VDC/120 VAC; AC, 2 VA/pole, 240 V max. at 10 amps. **Rated Power:** DC, 1 watt; AC, 2 VA. **Size:** 46BRO and 46BROZ, plastic dust cover, 1 1/2" sq. x 2 1/2" h. Weight, 5 oz.

#### AC TYPES

Sigma Type No.	Coil Ohms	Operate Volts	Nominal Volts	Net Each*
46BROZ-2800M*-ACL SIL	2,800M*	4.3	6	\$6.05
46BROZ-11-ACL SIL	11	8.5	12	6.05
46BROZ-43-ACL SIL	43	17	24	6.05
46BROZ-180-ACL SIL	180	34	48	6.05
46BROZ-1,100-ACL SIL	1,100	85	120	6.05
46BROZ-4,500-ACL SIL	4,500	170	240	6.45

#### DC TYPES

Sigma Type No.	Coil Ohms	Operate Volts	Nominal Volts	Net Each*
46BRO-43-LG SIL	43	4.3	6	\$6.00
46BRO-180-LG SIL	180	8.5	12	6.00
46BRO-630-LG SIL	630	17	24	6.00
46BRO-2,800-LG SIL	2,800	34	48	6.20
46BRO-17,000-LG SIL	17,000	85	120	6.60

\*M = milliohms.

#### SPDT SMALL, LOW-COST RELAY SERIES 11

DC types suitable for either slowly changing or suddenly applied signals; AC for on-off circuits only. U/L Listed. All are unenclosed; four mounting styles. **Contact Ratings:** G and ACS adjustments, 1 amp at 28 VDC/120 VAC. **Rated Power:** DC, 50-200 mW; AC, .3 VA at 60 cps in ACS adjustment. **Mounting Types:** 11F and 11FZ, 2 tapped holes, uninsulated; 11F2 and 11FZ2, same but insulated base; 11F3 and 11FZ3, insulated base interchangeable with other brand relays; 11F1P and 11FZ1P, shoulder lug mount for printed circuits. **Size:** 11F and 11FZ, 1 1/4" w. x 1 1/2" d. x 1 1/4" h. Weight, 1 oz.

#### AC TYPES

Sigma Type No.	Coil Ohms	Operate V or mA	Nominal Volts	Net Each*
11FZ-25-ACS SIL	25	4.8 V	6	\$2.75
11FZ-550-ACS SIL	550	18 V	24	2.75
11FZ-9,000-ACS SIL	9,000	75 V	120	3.25

#### DC TYPES

Sigma Type No.	Coil Ohms	Operate V or mA	Nominal Volts	Net Each*
11F-250-G SIL	250	14.0 mA	6	\$1.95
11F-1,000-G SIL	1,000	7.0 mA	12	1.95
11F-2,300-G SIL	2,300	4.6 mA	.....	1.95
11F-3,500-G SIL	3,500	3.7 mA	24	2.10
11F-6,000-G SIL	6,000	2.9 mA	.....	2.15
11F-9,000-G SIL	9,000	2.4 mA	.....	2.35

#### \* QUANTITY DISCOUNTS

##### STANDARD RELAYS

(EXCEPT DC ADJUSTMENT SERIES 11 RELAY)

Quantity	Discount	Quantity	Discount
1-24	Net	75-99	20%
25-49	5%	100-249	30%
50-74	10%	250-499	35%

##### STANDARD DC ADJUSTMENT ONLY, SERIES 11 RELAY

Quantity	Discount	Quantity	Discount
1-99	Net	500-2499	30%
100-499	10%		



# SIGMA Relays INDUSTRIAL, COMMERCIAL, MILITARY

## SENSITIVE RELAYS

### SPDT PLATE CIRCUIT RELAY SERIES 4

For vacuum tube and transistor drives, applications requiring high release or narrow differential, and gradually changing as well as suddenly applied signals. Particularly suited to circuits where energizing current does not drop to zero. Balanced armature. Operates in any position. **Contact Ratings:** S adjustment, 2 amps at 28 VDC/120 VAC; LG, 3 amps, listed relays. **Operate Power:** S adjustment, 20 mW; LG, 50 mW. **Size:** 4F, unenclosed, 1 1/2" x 1 3/4" x 1 1/4" h. Weight, 2 1/4 oz. Available in Type 4R, dust-covered 5-pin plug, U/L Listed for use in burglary protection equipment.

Sigma Type No.	Coil Ohms	Operate mADC	Nominal Volts, DC	Net Each*
4F-1,000-S SIL	1,000	4.5	6	\$6.20
4F-2,500-S SIL	2,500	3.0	12	6.20
4F-5,000-S SIL	5,000	2.0	.....	6.50
4F-8,000-S SIL	8,000	1.6	.....	6.75
4F-8,000-LG SIL	8,000	2.5	.....	6.75
4F-10,000-S SIL	10,000	1.4	24	6.75

### SPDT HIGH-SENSITIVITY RELAY SERIES 5

For highly stable, precise, high release operation from gradually changing or suddenly applied signals, particularly in vacuum tube or transistor drives. U/L Listed for use in burglary protection equipment. **Contact Ratings:** S adjustment, 1 amp at 28 VDC/120 VAC; SS, 0.25 amp, listed relays. Others to 3 amps for 100,000 operations. **Operate Power:** S adjustment, 5 mW; SS, 1 mW, listed relays. Others (27 adjustments available) to 1 watt. **Size:** 5F, unenclosed, 1 1/4" x 1 3/4" x 1 1/4" h. Weight, 4 1/4 oz. Other enclosures, mountings and full-wave rectified AC relay available.

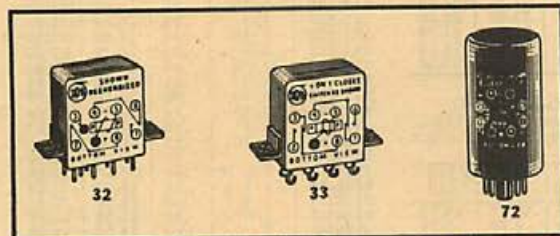
Sigma Type No.	Coil Ohms	Operate mADC	Nominal Volts, DC	Net Each*
5F-1,000-S SIL	1,000	2.3	.....	\$ 8.65
5F-1,000-SS PAL	1,000	1.0	1.5	9.80
5F-2,500-S SIL	2,500	1.4	6	8.65
5F-5,000-S SIL	5,000	1.0	.....	9.25
5F-10,000-S SIL	10,000	.70	.....	10.15
5F-10,000-SS PAL	10,000	.30	.....	11.30
5F-16,000-S SIL	16,000	.55	12	10.95
5F-16,000-SS PAL	16,000	.25	6	12.10

### DPDT SUBMINIATURE DC RELAY SERIES 36

Tungsten inert gas (TIG) welded, half-size subminiature relay exceeding MIL-R-5757D/9 requirements. Applicable from space vehicles to data sampling systems. Exceptional performance at low current. Features elimination of bleeder holes; silver-magnesium-nickel, gold-plated contacts; 0.2" terminal spacing for interchangeability with other full and half-size subminiature relays. **Contact Rating:** 2 amps at 28 VDC resistive. **Operate Power:** 260 mW. **Vibration:** Without contact chatter, 30G, 10-2000 cps. **Shock:** No contact opening, 50G, 11 msec., half-sine. **To Order Specify Prefix:** 36J, no mounting brackets; 36JP2, bottom mounting brackets with .002", .12" dia. holes; 36JP12, bottom mount brackets with two diagonally offset holes .096" dia.; 36JL8, rear mounting brackets with .002", .12" dia. holes. All units with 8 pins. For solder hooks add R to prefix, e.g., 36RJL8-176G-SMN.

Suffix	VDC at 25° C		Nominal VDC	Net Each*
	Pickup	Dropout		
-44G-SMN	3.4	.63	6	\$15.20
-175G-SMN	6.7	1.2	12	15.20
-700G-SMN	13.5	2.5	26-28	15.20
-2800G-SMN	27	5	48	16.50

## POLAR RELAYS



### DPDT HIGH RELIABILITY RELAY SERIES 32

Subminiature relay offers exceptional shock and vibration immunity. Single or dual coil meets MIL-R-5757D. Positive snap action for slowly changing or on-off signals. Stays latched, either position, until reset by reverse current or, in dual coil types, by use of second coil. **Contact Rating:** 2 amps at 28 VDC/120 VAC. **Operate Power:** Single coil, 50 mW; dual coil, 100 mW each coil. **Vibration and Shock:** Withstands 30G vibration, 10-5,000 cps without contact chatter; shock to 100G without damage. **Size:** .80" x .40" x .90" h.; flange, stud, plate or printed circuit mounting; plug-in or J-hook terminal connectors; hermetically sealed. Weight, 18 grams.

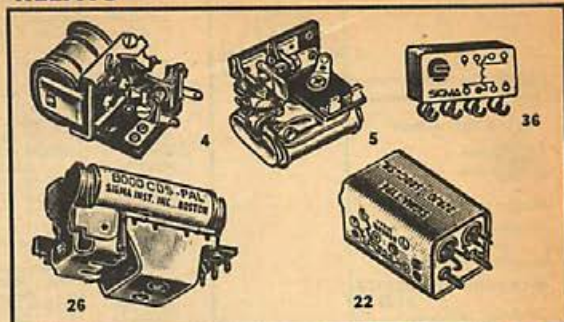
#### SINGLE COIL TYPE

Sigma Type No.	Coil Ohms	Operate mADC	Nominal VDC	Net Each*
32RJP-3,100-G SIL	3,100	4.0	26.5	\$23.50

#### DUAL COIL TYPES

Sigma Type No.	Coil Ohms	Operate mADC	Nominal VDC	Net Each*
32RJPD-325-GD SIL	325	17.5	12	\$26.00
32RJPD-1,200-GD SIL	1,200	9.0	26.5	26.50
32RJPD-200-GD SIL	1,200	9.0	26.5	26.50
32RJPD-2,800-GD SIL	2,800	6.0	.....	27.50

\*SEE PREVIOUS PAGE FOR QUANTITY DISCOUNTS



### SPDT, DPDT MINIATURE RELAY SERIES 22

High-reliability relays offer excellent stability and high release for airborne or ground-based military equipment. **Contact Ratings:** 2 amps at 28 VDC/120 VAC for listed relays. **Operate Power:** SPDT, 20 mW; DPDT, 40 mW. Other adjustments, 12.5 mW SPDT to 80 mW DPDT. **Vibration:** 10G to 300 cps, listed relays. Other adjustments 10G to 500 cps; 15G to 500 cps; 5G to 2,000 cps. **Shock:** 30G, no contact opening; 100G, no damage. Hermetically sealed. **Size:** 1" sq. x 1 1/4" h. Weight, 3 oz.

#### SPDT TYPES

Sigma Type No.	Coil Ohms	Operate mADC	Nominal Volts, DC	Net Each*
22RJCC-500-G SIL	500	6.3	6	\$13.00
22RJCC-1,000-G SIL	1,000	4.5	.....	13.00
22RJCC-2,500-G SIL	2,500	2.8	12	13.50
22RJCC-5,000-G SIL	5,000	2.0	.....	14.00
22RJCC-8,000-G SIL	8,000	1.6	24	14.50

#### DPDT TYPES

Sigma Type No.	Coil Ohms	Operate mADC	Nominal Volts, DC	Net Each*
22RJCC-1,000-G SIL	1,000	6.3	12	\$14.50
22RJCC-2,500-G SIL	2,500	4	.....	15.00
22RJCC-5,000-G SIL	5,000	2.8	24	15.50
22RJCC-8,000-G SIL	8,000	2.3	.....	16.00
22RJCC-12,000-G SIL	12,000	1.8	48	17.50

### SPDT MINIATURE RELAY SERIES 26

Rugged, balanced armature relay with long mechanical life; 10<sup>4</sup> operations at load ratings listed. Controlled drop-out type available. **Contact Ratings:** CDS adjustment, 0.5 amp at 28 VDC/120 VAC; G and S adjustments, 1 amp. **Vibration:** (Without contact chatter); S and CDS, 5G to 55 cps; G, 10G to 55 cps. **Shock:** 100G, non-operating. **Size:** 26F, unenclosed, 1" x 1 1/4" x 1 1/4" h. Weight, 2 oz. Hermetically sealed types also available.

Sigma Type No.	Coil Ohms	Operate Pwr., mW	Operate mADC	Net Each*
26F-1,000-S SIL	1,000	5	2.3	\$ 8.20
26F-2,500-G SIL	2,500	10	2.0	7.90
26F-8,000-CDS SIL	8,000	4	0.7	10.05

### DPDT POLAR RELAY SERIES 33

High-reliability, subminiature, hermetically sealed relays with exceptional shock and vibration immunity. Meets MIL-R-5757D. Actuated by on-off signals of proper polarity. Reverse polarity does not operate the relay. **Typical Life at Load:** At 25° C, 7 x 10<sup>4</sup> operations, 2 amps at 28 VDC/120 VAC. **Operate Power:** FG adjustment, 100 mW; FW, 200 mW. **Vibration:** 30G to 5,000 cps without contact chatter. **Shock:** (Without contact chatter); FG adjustment, 70G; FW, 100G. **Size:** .80" x .40" x .90" h. Flange, stud, plate or printed-circuit mounting; plug-in or J-hook terminal connectors. Weight, 18 grams.

Sigma Type No.	Coil Ohms	Operate V at 25° C	Nominal VDC	Net Each*
33J-1,200-FG SIL	1,200	13	26.5	\$20.00
33RJK-800-FW SIL	800	14	26.5	18.00

### SPDT HIGH SPEED SWITCHING RELAY SERIES 72

For pulse repetition or telegraphy at 100 wpm with virtually no contact bounce; also used where high sensitivity is required. Stays magnetically latched in either of two positions until either coil is energized with proper polarity, or until sum or difference of current in coils reaches listed operate values. Highly immune to extremes of temperature, shock and vibration. **Contact Rating:** 100 mA at 28 VDC/120 VAC for listed relays; others available to 2 amps. **Size:** 72AOZ, removable plastic cover, 1 1/4" dia. x 2 1/4" h. Weight, 3 1/2 oz.

Sigma Type No.	Coil Ohms	Operate mADC	Life	Net Each*
72AOZ-160-TG TCP	160	3.6	500 million	\$33.00
72AOZ-160-TS TCP	160	1.4	.....	33.00
72AOZ-1,000-TS TCP	1,000	0.56	opera-tions*	33.00
72AOZ-4,000-TS TCP	4,000	0.28	.....	34.10

\*With 60 mA, =120 VDC polar inductive load, arc-suppressed.



# LITTELFUSE Quality Fuses



275000 Picofuse      276000 Picofuse

Pigtail Microfuse



Plug-in Microfuse



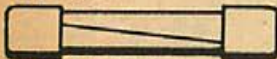
Subminiature 212000  
213000



1AG 301000



7AG 303000



JAG 32 V. 311000



JAG 250 V. 312000



JAG Slo-Blo 313000

## SUBMINIATURE FUSES

A must for servicing European electronic equipment. Size: 20 mm x 5 mm (.8" x .2").

### FAST ACTING (250 V.) TYPE F

L.F. No.	Amp Rating	Net Per 5	Net Per 100	
			100	500
212.100	1/10	\$1.44	\$24.00	\$19.20
212.125	1/8	1.44	24.00	19.20
212.200	2/10	1.08	18.00	14.40
212.250	1/4	1.08	18.00	14.40
212.300	3/10	1.08	18.00	14.40
212.400	4/10	1.08	18.00	14.40
212.500	5/10	1.08	18.00	14.40
212.600	6/10	1.08	18.00	14.40
212.700	7/10	1.08	18.00	14.40
212.800	8/10	1.08	18.00	14.40
212001	1	.90	15.00	12.00
2121.25	1-1/4	.90	15.00	12.00
21201.6	1-6/10	.90	15.00	12.00
212002	2	.90	15.00	12.00
21202.5	2-1/2	.90	15.00	12.00
212003	3	.90	15.00	12.00
212004	4	.90	15.00	12.00
212005	5	.90	15.00	12.00
212006	6	.90	15.00	12.00

### SLO BLO FUSES (250 V.) TYPE T

L.F. No.	Amp Rating	Net Per 5	Net Per 100	Net Per 500
213.125	1/8	1.08	18.00	14.40
213.200	2/10	1.08	18.00	14.40
213.250	1/4	1.08	18.00	14.40
213.300	3/10	1.08	18.00	14.40
213.400	4/10	1.08	18.00	14.40
213.500	5/10	1.08	18.00	14.40
213.600	6/10	1.08	18.00	14.40
213.700	7/10	1.08	18.00	14.40
213.800	8/10	1.08	18.00	14.40
213001	1	1.08	18.00	14.40
2131.25	1-1/4	1.08	18.00	14.40
21301.6	1-6/10	1.08	18.00	14.40
213002	2	1.08	18.00	14.40
21302.5	2-1/2	1.08	18.00	14.40
213003	3	1.08	18.00	14.40
213004	4	1.08	18.00	14.40
213005	5	1.08	18.00	14.40
213006	6	1.08	18.00	14.40

### SUBMINIATURE (125 V. MAX.)

271.500	1/2	\$1.08	\$18.00	\$14.40
27101.5	1-1/2	.90	15.00	12.00

## NEW SUBMINIATURE PICOFUSES

Unique concept in fusing for computer, micro-electronic and aero-space circuits. Designed for circuits of 125 volts or less where short-circuit currents as high as 300 amps occur. High accuracy in blowing time at 300% of rating and higher is ideal for sequential switching or in circuits requiring redundancy. Blow time 4 hours min. at 100% of rating; 5 secs. max. at 200%. Amperage printed on body; can be color-coded at additional cost. Ceramic body only 1/8" lg. x 1/4" dia.; tin-coated copper leads .025" dia. Order 275 (prefix) for axial leads 1 1/4" long for diode clip or in-circuit mounting; 276 for radial leads 1 1/4" long for use in printed circuits or receptacles.

L.F. No.	Amp Rtg.	Res., Ohms*	Net Per 5	Net Per 100	
				100	500
275.125	1/8	2.0	\$3.60	\$60.00	\$48.00
275.250	1/4	.71	2.25	37.50	30.00
275.375	3/8	.43	2.25	37.50	30.00
275.500	1/2	.26	2.25	37.50	30.00
275.750	3/4	.157	2.25	37.50	30.00
275001	1	.125	2.25	37.50	30.00
27501.5	1-1/2	.074	2.25	37.50	30.00
275002	2	.055	2.25	37.50	30.00
275003	3	.035	2.25	37.50	30.00
275004	4	.022	2.25	37.50	30.00
275005	5	.014	2.25	37.50	30.00

\*Average, cold.

## MICROFUSE SUBMINIATURE FUSES

For printed circuits and other minimum space uses: Ultra-fast blowing. Plug-in types use holder (listed on another page); pigtail types for soldering. Short circuit interrupting capacity 125 V., 10,000 amps DC. Blow Specs: 100%, 4-hour min.; 200%, 5-sec. max. Size: 1/8" dia. x 1/2" (fuse body). Plug-in, transparent cap type listed. Use prefix 272 for plug-in, metal cap; prefix 279 for pigtail, transparent cap; prefix 278 for pigtail, metal cap.

L.F. No.	Amp Rating	Net Per 5	Net Per 100	
			100	500
273.002	1/600	\$5.13	\$85.50	\$68.40
273.005	1/200	5.13	85.50	68.40
273.010	1/100	5.13	85.50	68.40
273.015	1/64	5.13	85.50	68.40
273.020	1/32	4.29	71.50	57.20
273.050	1/20	4.29	71.50	57.20
273.062	1/16	4.29	71.50	57.20
273.100	1/10	4.29	71.50	57.20
273.125	1/8	4.29	71.50	57.20
273.200	2/10	4.29	71.50	57.20
273.250	1/4	4.29	71.50	57.20
273.300	3/10	4.29	71.50	57.20
273.400	4/10	4.29	71.50	57.20
273.500	5/10	4.29	71.50	57.20
273.600	6/10	4.29	71.50	57.20
273.700	7/10	4.29	71.50	57.20
273.750	3/4	4.29	71.50	57.20
273.800	8/10	4.29	71.50	57.20
273001	1	4.29	71.50	57.20
27301.5	1-1/2	4.29	71.50	57.20
273002	2	4.29	71.50	57.20
273003	3	4.29	71.50	57.20
273004	4	4.29	71.50	57.20
273005	5	4.29	71.50	57.20

## 1AG FUSES (32 V. OR LESS)

Blow Time: 110%, 4-hour min.; 135%, 1 hour max.; 200%, 20-sec. max. Length 1 1/4", dia. 1/4".

L.F. No.	Amp Rating	Net Per 5	Net Per 100	
			100	500
301001	1	\$0.28	\$4.70	\$3.76
301002	2	.28	4.70	3.76
30102.5	2-1/2	.28	4.70	3.76
301003	3	.28	4.70	3.76
301005	5	.21	3.50	2.80
301006	6	.21	3.50	2.80
30107.5	7-1/2	.21	3.50	2.80
301010	10	.21	3.50	2.80
301015	15	.21	3.50	2.80
301020	20	.21	3.50	2.80
301025	25	.21	3.50	2.80
301030	30	.21	3.50	2.80

## 7AG FUSES (32 V. OR LESS)

Blow Time: 110%, 4-hour min.; 135%, 1 hour max.; 200%, 20-sec. max. Length 1 1/4", dia. 1/4".

L.F. No.	Amp Rating	Net Per 5	Net Per 100	
			100	500
303001	1	\$0.28	\$4.70	\$3.76
30302.5	2-1/2	.18	3.00	2.40
303004	4	.18	3.00	2.40
303006	6	.18	3.00	2.40
303015	15	.21	3.50	2.80
303020	20	.21	3.50	2.80
303030	30	.21	3.50	2.80

## JAG FUSES (32 V. OR LESS)

Blow Time: 110%, 4-hour min.; 135%, 1 hour max.; 200%, 20-sec. max. Length 1 1/4", dia. 1/4".

L.F. No.	Amp Rating	Net Per 5	Net Per 100	
			100	500
311004	4	\$0.25	\$4.20	\$3.36
311005	5	.18	3.00	2.40
311006	6	.18	3.00	2.40
31107.5	7-1/2	.18	3.00	2.40
311010	10	.18	3.00	2.40
311015	15	.18	3.00	2.40
311025	25	.21	3.50	2.80
311030	30	.21	3.50	2.80
311035	35	.25	4.20	3.36

## JAG FUSES (250 V. OR LESS)

Blow Time: 110%, 4-hour min.; 135%, 1 hour max.; 200%, 10-sec. max. Length 1 1/4", dia. 1/4". U/L Approved.

L.F. No.	Amp Rating	Net Per 5	Net Per 100	
			100	500
312.010	1/100	\$1.74	\$29.00	\$23.20
312.031	1/32	1.53	25.50	20.40
312.062	1/16	.69	11.50	9.20
312.100	1/10	.69	11.50	9.20
312.125	1/8	.69	11.50	9.20
312.150	15/100	.69	11.50	9.20
312.175	.175	.69	11.50	9.20
312.187	3/16	.69	11.50	9.20
312.200	2/10	.69	11.50	9.20
312.250	1/4	.45	7.50	6.00
312.300	3/10	.45	7.50	6.00
312.375	3/8	.45	7.50	6.00
312.500	1/2	.45	7.50	6.00
312.600	6/10	.45	7.50	6.00
312.750	3/4	.45	7.50	6.00
312001	1	.28	4.70	3.76
3121.25	1-1/4	.28	4.70	3.76
31201.5	1-1/2	.28	4.70	3.76
31201.6	1-6/10	.28	4.70	3.76
312002	2	.28	4.70	3.76
31202.5	2-1/2	.25	4.20	3.36
312003	3	.25	4.20	3.36
312004	4	.36	6.00	4.80
312005	5	.36	6.00	4.80
312006	6	.36	6.00	4.80
312008	8	.54	9.00	7.20

## JAG SLO BLO FUSES

Blow Time: 110%, 4-hour min.; 135%, 1 hour max.; 200%, 5-sec. min. Length 1 1/4", dia. 1/4". U/L Approved thru 5 amps.

L.F. No.	Amp Rating	Net Per 5	Net Per 100	
			100	500
313.010	1/100	\$1.29	\$21.50	\$17.20
313.031	1/32	1.29	21.50	17.20
313.062	1/16	.96	16.00	12.80
313.100	1/10	.96	16.00	12.80
313.125	1/8	.96	16.00	12.80
313.150	15/100	.96	16.00	12.80
313.175	.175	.96	16.00	12.80
313.187	3/16	.96	16.00	12.80
313.200	2/10	.96	16.00	12.80
313.250	1/4	.96	16.00	12.80
313.300	3/10	.96	16.00	12.80
313.375	3/8	.96	16.00	12.80
313.400	4/10	.96	16.00	12.80
313.500	1/2	.96	16.00	12.80
313.600	6/10	.96	16.00	12.80
313.700	7/10	.96	16.00	12.80
313.750	3/4	.96	16.00	12.80
313.800	8/10	.96	16.00	12.80
313001	1	.96	16.00	12.80
31301.2	1-2/10	.90	15.00	12.00
3131.25	1-1/4	.90	15.00	12.00
31301.5	1-1/2	.90	15.00	12.00
31301.6	1-6/10	.90	15.00	12.00
313002	2	.90	15.00	12.00
31302.5	2-1/2	.69	11.50	9.20
31302.8	2-8/10	.69	11.50	9.20
313003	3	.69	11.50	9.20
31303.2	3-2/10	.69	11.50	9.20
31304	4	.69	11.50	9.20
31305	5	.69	11.50	9.20
3136.25	6-1/4	.69	11.50	9.20
313007	7	.69	11.50	9.20
313008	8	.69	11.50	9.20
313010	10	.69	11.50	9.20
313015	15	.69	11.50	9.20
313020	20	.69	11.50	9.20
313025	25	.69	11.50	9.20
313030				



# LITTEL FUSE

# Quality Fuses

### 3AG SLO BLO PIGTAIL FUSES (125 V.)

Blow Time: 110%, 4-hour min.; 135%, 1 hour max.; 200%, 5-sec. min. Length 1 1/4", dia. 3/4", 1 1/2" pigtails. U/L Approved thru 3.2 amps.

L.F. No.	Amp Rating	Net Per 5	Net Per 100	
			100	500
315.010	1/100	\$1.59	\$26.50	\$21.20
315.031	1/32	1.59	26.50	21.20
315.062	1/16	1.17	19.50	15.60
315.100	1/10	1.17	19.50	15.60
315.125	1/8	1.17	19.50	15.60
315.150	3/16	1.17	19.50	15.60
315.175	1/4	1.17	19.50	15.60
315.187	3/8	1.17	19.50	15.60
315.200	2/10	1.17	19.50	15.60
315.250	1/4	1.17	19.50	15.60
315.300	3/10	1.17	19.50	15.60
315.375	3/8	1.17	19.50	15.60
315.400	4/10	1.17	19.50	15.60
315.500	1/2	1.17	19.50	15.60
315.600	6/10	1.17	19.50	15.60
315.700	7/10	1.17	19.50	15.60
315.750	3/4	1.17	19.50	15.60
315.800	8/10	1.17	19.50	15.60
315001	1	1.17	18.50	14.80
31501.2	1-2/10	1.11	18.50	14.80
3151.25	1-1/4	1.11	18.50	14.80
3151.5	1-1/2	1.11	18.50	14.80
31501.6	1-6/10	1.11	18.50	14.80
315002	2	1.11	18.50	14.80
31502.5	2-1/2	.96	16.00	12.80
31502.8	2-8/10	.96	16.00	12.80
315003	3	.96	16.00	12.80
31503.2	3-2/10	.96	16.00	12.80
315004	4	.96	16.00	12.80
315005	5	.96	16.00	12.80

### 3AG PIGTAIL FUSES (250 V.)

Blow Time: 110%, 4-hour min.; 135%, 1 hour max.; 200%, 10-sec. max. Length 1 1/4", dia. 3/4", 1 1/2" pigtails.

L.F. No.	Amp Rating	Net Per 5	Net Per 100	
			100	500
318.010	1/100	\$1.20	\$20.00	\$16.00
318.062	1/16	1.20	20.00	16.00
318.125	1/8	.90	15.00	12.00
318.150	15/100	.90	15.00	12.00
318.187	3/16	.90	15.00	12.00
318.200	2/10	.90	15.00	12.00
318.250	1/4	.69	11.50	9.20
318.375	3/8	.69	11.50	9.20
318.500	1/2	.69	11.50	9.20
318.750	3/4	.69	11.50	9.20
318001	1	.54	9.00	7.20
31801.5	1-1/2	.54	9.00	7.20
318002	2	.54	9.00	7.20
31802.5	2-1/2	.54	9.00	7.20
318003	3	.54	9.00	7.20
318004	4	.57	9.50	7.60
318005	5	.57	9.50	7.60
318006	6	.57	9.50	7.60
318008	8	.69	11.50	9.20

### 3AG INDICATING FUSES (125 V.)

Blow Time: 110%, 4-hour min.; 135%, 1 hour max. Length 1 1/4", dia. 3/4".

L.F. No.	Amp Rating	Net Per 5	Net Per 100	
			100	500
334.750	3/4	\$2.10	\$35.00	\$28.00
334001	1	1.59	26.50	21.20
33401.5	1-1/2	1.59	26.50	21.20
334002	2	1.59	26.50	21.20
334003	3	1.59	26.50	21.20
334004	4	1.59	26.50	21.20
334005	5	2.22	37.00	29.60
334008	8	2.22	37.00	29.60
334010	10	2.22	37.00	29.60
334012	12	2.22	37.00	29.60
334015	15	2.22	37.00	29.60
334020	20	2.22	37.00	29.60

### 3AB TINY MIGHTY (250 V. OR LESS)

Blow Time: 110%, 4-hour min.; 135%, 1 hour max.; 200%, 30-sec. max. Length 1 1/4", dia. 3/4". U/L Approved thru 15 amps.

L.F. No.	Amp Rating	Net Per 5	Net Per 100	
			100	500
314.125	1/8	\$0.63	\$10.50	\$8.40
314.250	1/4	.63	10.50	8.40
314.375	3/8	.63	10.50	8.40
314.500	1/2	.63	10.50	8.40
314.750	3/4	.63	10.50	8.40
314001	1	.60	10.00	8.00
314002	2	.60	10.00	8.00
314003	3	.60	10.00	8.00
314005	5	.57	9.50	7.60
314006	6	.57	9.50	7.60
314007	7	.57	9.50	7.60
314008	8	.57	9.50	7.60
314010	10	.57	9.50	7.60
314012	12	.60	10.00	8.00
314015	15	.60	10.00	8.00
314020	20	.60	10.00	8.00
314025	25	.72	12.00	9.60
314030	30	.72	12.00	9.60

### LIMITED CURRENT (250 V.) TYPE C

Blow Time: 110%, 4-hour min.; 135%, 1 hour max.; 200%, 10-sec. max. Prices for applicable fuse holders available upon request.

L.F. No.	Amp Rating	Net Per 5	Net Per 100	
			100	500
332.031	1/32	\$1.47	\$24.50	\$19.60
332.062	1/16	.96	16.00	12.80
332.125	1/8	.72	12.00	9.60
332.187	3/16	.72	12.00	9.60
332.250	1/4	.57	9.50	7.60
332.300	3/10	.57	9.50	7.60
332.375	3/8	.57	9.50	7.60
332.400	4/10	.57	9.50	7.60
332.500	1/2	.57	9.50	7.60
332.700	7/10	.57	9.50	7.60
332.750	3/4	.33	5.50	4.40
332001	1	.33	5.50	4.40
33201.5	1-1/4	.33	5.50	4.40
33201.5	1-1/2	.33	5.50	4.40
3321.75	1-3/4	.33	5.50	4.40
332002	2	.33	5.50	4.40
33202.5	2-1/2	.33	5.50	4.40
332003	3	.33	5.50	4.40
33203.5	3-1/2	.42	7.00	5.60
332004	4	.42	7.00	5.60
332005	5	.42	7.00	5.60
332006	6	.42	7.00	5.60
332007	7*	.42	7.00	5.60
332008	8*	.60	10.00	8.00
332010	10*	.63	10.50	8.40

\*125 volt.

### LC SLO BLO (125 V.) TYPE N

Blow Time: 110%, 4-hour min.; 135%, 1 hour max.; 200%, 5-sec. max. Prices for applicable fuse holders upon request.

L.F. No.	Amp Rating	Net Per 5	Net Per 100	
			100	500
333.010	1/100	\$1.38	\$23.00	\$18.40
333.031	1/32	1.38	23.00	18.40
333.062	1/16	.99	16.50	13.20
333.100	1/10	.99	16.50	13.20
333.150	15/100	.99	16.50	13.20
333.200	2/10	.99	16.50	13.20
333.250	1/4	.99	16.50	13.20
333.300	3/10	.99	16.50	13.20
333.400	4/10	.99	16.50	13.20
333.500	1/2	.99	16.50	13.20
333.600	6/10	.99	16.50	13.20
333.700	7/10	.99	16.50	13.20
333.750	3/4	.99	16.50	13.20
333.800	8/10	.99	16.50	13.20
333001	1	.99	16.50	13.20
33301.25	1-1/4	.90	15.00	12.00
33301.6	1-6/10	.90	15.00	12.00
3331.75	1-3/4	.90	15.00	12.00
333002	2	.90	15.00	12.00
33302.5	2-1/2	.84	14.00	11.20
33302.8	2-8/10	.84	14.00	11.20
33303.2	3-2/10	.84	14.00	11.20
333003	3	.84	14.00	11.20
33303.5	3-1/2	.84	14.00	11.20
333004	4	.84	14.00	11.20
333005	5	.84	14.00	11.20
3336.25	6-1/4*	.84	14.00	11.20
333007	7*	.84	14.00	11.20

\*32 volt.

### SFE AUTO FUSES (32 V. OR LESS)

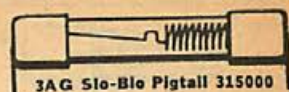
Blow Time: 110%, 4-hour min.; 135%, 0-1 hour; 150%, 20 amps or less 0-15 sec., 30 amps or less 0-30 sec. Dia. 3/4".

L.F. No.	Amp Rating	Lgth. In.	Net Per 5	Net Per 100	
				100	500
307004	4	3/4	\$0.21	\$3.50	\$2.80
307006	6	3/4	.21	3.50	2.80
30707.5	7-1/2	3/4	.18	3.00	2.40
307009	9	3/4	.18	3.00	2.40
307014	14	1 1/4	.16	2.65	2.12
307020	20	1 1/4	.16	2.65	2.12
307030	30	1 1/4	.21	3.50	2.80

### 8AG FUSES

Blow Time: 110%, 4-hour min.; 135%, 1 hour max.; 200%, 10-sec. max. Length 1", dia. 3/4". U/L Approved.

L.F. No.	Amp Rating	Net Per 5	Net Per 100	
			100	500
362.125	1/8	\$0.69	\$11.50	\$9.20
362.250	1/4	.45	7.50	6.00
362.375	3/8	.45	7.50	6.00
362.500	1/2	.45	7.50	6.00
362.750	3/4	.45	7.50	6.00
362001	1	.28	4.70	3.76
36201.5	1-1/2	.28	4.70	3.76
362002	2	.28	4.70	3.76
362003	3	.28	4.70	3.76
362005	5	.18	3.00	2.40
362006	6	.18	3.00	2.40
362008	8	.18	3.00	2.40
362010	10	.18	3.00	2.40
362012	12	.18	3.00	2.40
362015	15	.18	3.00	2.40
362020	20	.18	3.00	2.40
362025	25	.21	3.50	2.80
362030	30	.21	3.50	2.80



3AG Slo-Blo Pigtail 315000



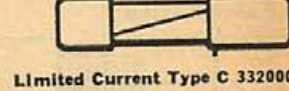
3AG Pigtail 318000



3AG Pin-Indicating 334000



3AB Steatite 314000



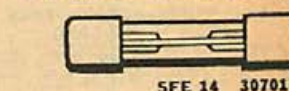
Limited Current Type C 332000



Limited Current Type N 333000



SFE 7 1/2 & 9 30707.5 & 307009



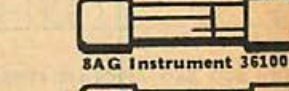
SFE 14 307014



SFE 20 307020



SFE 30 307030



8AG Instrument 361000



8AG U/L 362000

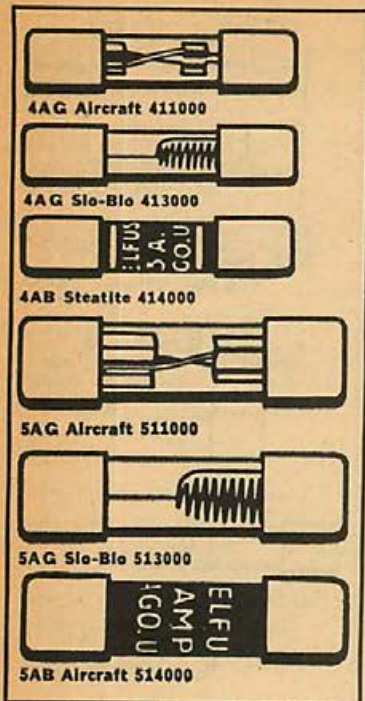
### 8AG INSTRUMENT FUSES

Blow Time: 100%, 4-hour min.; 200%, 5-sec. max. Length 1", dia. 3/4".

L.F. No.	Amp Rating	Net Per 5	Net Per 100	
			100	500
361.002	1/600	\$4.68	\$78.00	\$62.40
361.005	1/200	1.95	32.50	26.00
361.010	1/100	1.74	29.00	23.20
361.031	1/32	1.53	25.50	20.40
361.062	1/16	.96	16.00	12.80
361.100	1/10	.69	11.50	9.20
361.125	1/8	.69	11.50</	



# LITTELFUSE Fuses, Fuse Puller



## 4AG AIRCRAFT FUSES

Blow Time: 110%, 4-hour min.; 135%, 1 hour max.; 200%, 10-sec. max. Length 1 1/4", dia. 1/8".

L.F. No.	Amp Rating	Net Per 5	Net Per 100	
			100	500
411010	10	\$0.39	\$6.50	\$5.20
411015	15	.39	6.50	5.20
411020	20	.39	6.50	5.20
411025	25	.39	6.50	5.20
411030	30	.39	6.50	5.20
411035	35	.45	7.50	6.00
411040	40	.45	7.50	6.00

## 4AB FUSES (STEATITE)

Blow Time: 110%, 4-hour min.; 135%, 1 hour max.; 200%, 30-sec. max. Length 1 1/4", dia. 1/8".

L.F. No.	Amp Rating	Net Per 5	Net Per 100	
			100	500
414001	1	\$0.93	\$15.50	\$12.40
414002	2	.93	15.50	12.40
414003	3	.93	15.50	12.40
414005	5	.87	14.50	11.60
414006	6	.87	14.50	11.60
414008	8	.87	14.50	11.60
414010	10	.87	14.50	11.60
414015	15	.87	14.50	11.60
414020	20	.87	14.50	11.60
414025	25	.87	14.50	11.60
414030	30	.87	14.50	11.60
414035	35	.93	15.50	12.40
414040	40	.93	15.50	12.40

## 5AG AIRCRAFT FUSES

Blow Time: 110%, 4-hour min.; 135%, 1 hour max.; 200%, 20-sec. max. Length 1 1/4", dia. 1/8".

L.F. No.	Amp Rating	Net Per 5	Net Per 100	
			100	500
511010	10	\$0.54	\$9.00	\$7.20
511015	15	.54	9.00	7.20
511020	20	.54	9.00	7.20
511025	25	.54	9.00	7.20
511030	30	.54	9.00	7.20
511035	35	.57	9.50	7.60
511040	40	.57	9.50	7.60
511050	50	.57	9.50	7.60
511060	60	.57	9.50	7.60

## 5AG QUICK-ACTING FUSES (250 V. OR LESS)

Blow Time: 110%, 4-hour min.; 135%, 1 hour max.; 200%, 10-sec. max. Length 1 1/2", dia. 1/8".

L.F. No.	Amp Rating	Net Per 5	Net Per 100	
			100	500
512001	1	\$0.57	\$9.50	\$7.60
512002	2	.57	9.50	7.60
512003	3	.57	9.50	7.60
512004	4	.57	9.50	7.60
512005	5	.54	9.00	7.20
512008	8*	.54	9.00	7.20

\*125 volts.

## 5AG SLO BLO FUSES (250 V. OR LESS)

Blow Time: 110%, 4-hour min.; 135%, 1 hour max.; 200%, 5-sec. min. Length 1 1/2", dia. 1/8".

L.F. No.	Amp Rating	Net Per 5	Net Per 100	
			100	500
513001	1/2	\$1.59	\$26.50	\$21.20
513002	1	1.59	26.50	21.20
513003	2	1.59	26.50	21.20
513005	3	1.26	21.00	16.80
513010	5	1.26	21.00	16.80
513015	10	1.26	21.00	16.80
513020	15	1.26	21.00	16.80
513025	20	1.26	21.00	16.80
513025	25	1.41	23.50	18.80
513030	30	1.41	23.50	18.80

## 5AB AIRCRAFT FUSES

Blow Time: 110%, 4-hour min.; 135%, 1 hour max.; 200%, 30-sec. max. Length 1 1/2", dia. 1/8".

L.F. No.	Amp Rating	Net Per 5	Net Per 100	
			100	500
514001	1	\$1.05	\$17.50	\$14.00
514002	2	1.05	17.50	14.00
514003	3	1.05	17.50	14.00
514005	5	.99	16.50	13.20
514006	6	.99	16.50	13.20
514008	8	.99	16.50	13.20
514010	10	.99	16.50	13.20
514015	15	.99	16.50	13.20
514020	20	.99	16.50	13.20
514025	25	.99	16.50	13.20
514030	30	.99	16.50	13.20
514035	35	1.05	17.50	14.00
514040	40	1.05	17.50	14.00

## HIGH VOLTAGE FUSES

Designed for use in aircraft radio equipment, transmitting equipment, X-ray apparatus, high voltage rectifiers, etc., for circuits up to 20 KW DC or 30 KVA AC. Fuses are fiber enclosed with cadmium plated end caps. Two principles of arc suppression are employed: (1) Multi-break fuse wire which blows at each half inch of its length; (2) Ceramic baffles break the arc into several parts and quench it. Blow Time: 110%, 4-hour min.; 135%, 0-1 hour; 200% 0-2 minutes.

### 1000-VOLT (3" x 1 1/2")

L.F. No.	Amp Rating	Net Each	Net Per 100	
			100	500
621.375	3/8	\$0.29	\$24.00	\$19.20
621.500	1/2	.29	24.00	19.20
621.750	3/4	.29	24.00	19.20
621001	1	.29	24.00	19.20
62101.5	1-1/2	.29	24.00	19.20
621002	2	.29	24.00	19.20

### 2500-VOLT (4 1/2" x 1 1/2")

L.F. No.	Amp Rating	Net Each	Net Per 100	
			100	500
622.500	1/2	\$0.38	\$31.50	\$25.20
622.750	3/4	.38	31.50	25.20
622001	1	.38	31.50	25.20
62201.5	1-1/2	.38	31.50	25.20
622002	2	.38	31.50	25.20

### 3000-VOLT (5 1/2" x 1 1/2")

L.F. No.	Amp Rating	Net Each	Net Per 100	
			100	500
623.500	1/2	\$0.54	\$45.00	\$36.00
623.750	3/4	.54	45.00	36.00
623001	1	.54	45.00	36.00
62301.5	1-1/2	.54	45.00	36.00
623002	2	.54	45.00	36.00

### 1000-VOLT (3" x 1 1/2")

L.F. No.	Amp Rating	Net Each	Net Per 100	
			100	500
701.062	1/16	\$0.65	\$54.50	\$43.60
701.125	1/8	.65	54.50	43.60
701.250	1/4	.65	54.50	43.60
701.375	3/8	.65	54.50	43.60
701.500	1/2	.65	54.50	43.60
701.750	3/4	.65	54.50	43.60
701001	1	.65	54.50	43.60
70101.5	1-1/2	.65	54.50	43.60
701002	2	.65	54.50	43.60

### 5000-VOLT (5" x 1 1/2")

L.F. No.	Amp Rating	Net Each	Net Per 100	
			100	500
702.062	1/16	\$0.70	\$58.50	\$46.80
702.125	1/8	.70	58.50	46.80
702.250	1/4	.70	58.50	46.80
702.375	3/8	.70	58.50	46.80
702.500	1/2	.70	58.50	46.80
702.750	3/4	.70	58.50	46.80
702001	1	.70	58.50	46.80
70201.5	1-1/2	.70	58.50	46.80
702002	2	.70	58.50	46.80
70202.5	2-1/2	.70	58.50	46.80
702003	3	.70	58.50	46.80

### 10,000-VOLT (10" x 1 1/2")

L.F. No.	Amp Rating	Net Each	Net Per 100	
			100	500
703.062	1/16	\$1.34	\$111.50	\$89.20
703.125	1/8	1.34	111.50	89.20
703.250	1/4	1.34	111.50	89.20
703.375	3/8	1.34	111.50	89.20
703.500	1/2	1.34	111.50	89.20
703.750	3/4	1.34	111.50	89.20
703001	1	1.34	111.50	89.20
70301.5	1-1/2	1.34	111.50	89.20
703002	2	1.34	111.50	89.20
703003	3	1.34	111.50	89.20

## FUSE PULLER AND ASSORTMENT

Handy tool provides safe, easy method of extracting any blown fuse. Hooks around fuse permitting easy jerk-out. Available singly (097006) or in card-mounted assortment of 20 pullers, pressure sensitively attached on a card (094066).



L.F. No.	Net Ea.	Lots
097006	\$0.13	50/U
094066	3.80	3.04



# LITTELFUSE

# CIRCUIT BREAKERS, MOUNTINGS AND CLIPS

## MOUNTINGS FOR SARKES TARZIAN AND INTERNATIONAL RECTIFIERS

L.F. No.	Description	Net Each, Lots of 5	Net Per 100	
			100	500
099062	Single pole, 1/4" base	\$0.144	\$12.00	\$ 9.60
099063	Double pole, 1/4" base	.29	24.50	19.60
099065	Double pole, 1/4" base	.19	16.00	12.80
099065-3	1/4" Bakelite insulator	.015	1.25	1.00
099067	Single pole 1/4" base	.084	7.00	5.60
099067-3	1/4" Bakelite insulator	.009	.75	.60

## STANDARD FUSE CLIPS (PHOSPHOR BRONZE, NICKEL PLATED)

L.F. No.	Fuse Adaptation	Type	Net Each, Lots of 5	Net Per 100	
				100	500
101001	SFE, 3AG, 8AG, 3AB	Ear	\$0.0204	\$ 1.70	\$ 1.36
101002	SFE, 3AG, 8AG, 3AB	Earless	.0204	1.70	1.36
101003*	SFE, 3AG, 8AG, 3AB	Lug	.0282	2.35	1.88
103001	4AG, 4AB	Ear	.0354	2.95	2.36
104002	4AG, 4AB	Earless	.0454	3.75	3.00
105001	5AG	Ear	.0454	3.75	3.00
105002	5AG	Earless	.0454	3.75	3.00
107001	1/2" dia.	Ear	.0722	6.00	4.80
107002	1/2" dia.	Earless	.0722	6.00	4.80
109001	1 1/2" dia.	Ear	.192	16.00	12.80
109002	1 1/2" dia.	Earless	.192	16.00	12.80

\*Unplated, bright dip.

## STANDARD FUSE CLIPS (BERYLLIUM COPPER, SILVER PLATED)

L.F. No.	Fuse Adaptation	Type	Net Each, Lots of 5	Net Per 100	
				100	500
121001	SFE, 3AG, 8AG, 3AB	Ear	\$0.045	\$ 3.75	\$ 3.00
121002	SFE, 3AG, 8AG, 3AB	Earless	.045	3.75	3.00
121004	SFE, 3AG, 8AG, 3AB	Lug	.055	4.50	3.60
123001	4AG, 4AB	Ear	.073	6.00	4.80
123002	4AG, 4AB	Earless	.073	6.00	4.80
125001	5AG, hi-volt	Ear	.108	9.00	7.20
125002	5AG, hi-volt	Earless	.108	9.00	7.20
127001	1/2" dia.	Ear	.222	18.50	14.80
127002	1/2" dia.	Earless	.222	18.50	14.80
129001	1 1/2" dia.	Ear	.522	43.50	34.80
129002	1 1/2" dia.	Earless	.522	43.50	34.80

## 3AG MOUNTINGS

L.F. No.	Description	Net Each, Lots of 5	Net Per 100	
			100	500
351009	Hinged can cover, 2 pole	\$1.104	\$92.00	\$73.60
351010	Spare, 1 pole	.144	12.00	9.60
352001	Through panel, 1 pole	.246	20.50	16.40
353001	Panel, 1 pole	.438	36.50	29.20

## 3AG MOUNTINGS WITH SCREW TERMINALS—TYPE T

L.F. No.	Description	Net Ea. Lots of 5	Net Per 100	
			100	500
356001	1 pole	\$0.31	\$ 26.00	\$ 20.80
356002	2 pole	.62	52.00	41.60
356003	3 pole	.94	78.50	62.80
356004	4 pole	1.58	132.00	105.60
356005	5 pole	1.97	164.50	131.60
356006	6 pole	2.33	194.00	155.20
356007	7 pole	2.74	228.00	182.40
356008	8 pole	3.11	259.50	207.60
356009	9 pole	3.49	291.00	232.80
356010	10 pole	3.84	320.00	256.00
356011	11 pole	4.22	351.50	281.20
356012	12 pole	4.51	376.00	300.80

## 3AG MOUNTINGS WITH SOLDER TERMINALS—TYPE S

L.F. No.	Description	Net Ea. Lots of 5	Net Per 100	
			100	500
357001	1 pole	\$0.14	\$ 12.00	\$ 9.60
357002	2 pole	.29	24.50	19.60
357003	3 pole	.44	37.00	29.60
357004	4 pole	.58	48.00	38.40
357005	5 pole	.72	60.00	48.00
357006	6 pole	.86	72.00	57.60
357007	7 pole	1.01	84.00	67.20
357008	8 pole	1.15	96.00	76.80
357009	9 pole	1.30	108.00	86.40
357010	10 pole	1.44	120.00	96.00
357011	11 pole	1.58	132.00	105.60
357012	12 pole	1.73	144.00	115.20

## 3AG MOUNTINGS

383001	1 pole*	\$0.44	\$36.50	\$29.20
383002	1 pole†	.29	24.50	19.60

\*Thru-panel. †Meter back.

## 3AG MOUNTINGS WITH SOLDER TERMINALS—TYPE S

L.F. No.	Description	Net Ea. Lots of 5	Net Per 100	
			100	500
387001	1 pole	\$0.14	\$ 12.00	\$ 9.60
387002	2 pole	.29	24.50	19.60
387003	3 pole	.44	37.00	29.60
387004	4 pole	.58	48.00	38.40
387005	5 pole	.72	60.00	48.00
387006	6 pole	.86	72.00	57.60
387007	7 pole	1.01	84.00	67.20
387008	8 pole	1.15	96.00	76.80
387009	9 pole	1.30	108.00	86.40
387010	10 pole	1.44	120.00	96.00
387011	11 pole	1.58	132.00	105.60
387012	12 pole	1.73	144.00	115.20

# CIRCUIT BREAKERS, MOUNTINGS AND CLIPS

## MANUAL RESET CIRCUIT BREAKERS

Exact replacement protector for TV circuits. Ideal for current overload protection for model railroads, toy transformers, hair dryers, small appliances, tools, wiring, etc. For 125 VAC operation. Size, 1 1/4" x 1 1/2" x 1/2".

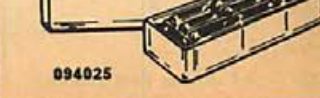
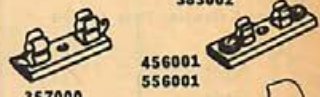
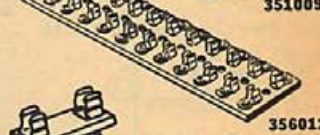
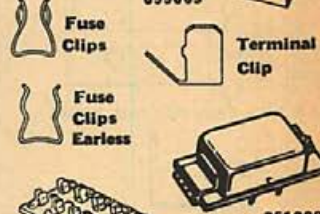
L.F. No.*	Trip Rating Amps	Skin Pack Net Ea.*	Bulk Pkg. Box of 5
815175	1.75	\$0.84	\$3.90
815002	2	.84	3.90
815225	2.25	.84	3.90
815025	2.5	.84	3.90
815275	2.75	.84	3.90
815003	3	.84	3.90
815325	3.25	.84	3.90
815004	3.75	.84	3.90
815045	4.5	.84	3.90

\*Add C when ordering (i.e., 815002C).

L.F. No. 094084 Bulk Assortment—One each of above circuit breakers plus one extra 2.75-amp rating. Net Ea. \$7.80

L.F. No. 094085 Card Assortment—Same, but card packaging. Net Each. \$8.40

## 815000 Series



## 4AG FUSE MOUNTINGS WITH SCREW TERMINALS—TYPE T

L.F. No.	Description	Net Ea. Lots of 5	Net Per 100	
			100	500
456001	1 pole	\$0.40	\$ 33.00	\$ 26.40
456002	2 pole	.79	65.50	52.40
456003	3 pole	1.18	98.50	78.80
456004	4 pole	1.87	155.50	124.40
456005	5 pole	2.33	194.00	155.20
456006	6 pole	2.78	232.00	185.60
456007	7 pole	3.25	270.50	216.40
456008	8 pole	3.70	308.50	246.80
456009	9 pole	4.16	347.00	277.60
456010	10 pole	4.63	385.50	308.40
456011	11 pole	5.08	423.50	338.80
456012	12 pole	5.53	461.00	368.80

## 3AG MOUNTINGS WITH SCREW TERMINALS—TYPE T

L.F. No.	Description	Net Ea. Lots of 5	Net Per 100	
			100	500
556001	1 pole	\$0.45	\$ 37.50	\$ 30.00
556002	2 pole	.92	76.50	61.20
556003	3 pole	1.37	114.00	91.20
556004	4 pole	2.52	210.00	168.00
556005	5 pole	3.15	262.50	210.00
556006	6 pole	3.77	314.50	251.60
556007	7 pole	4.40	367.00	293.60
556008	8 pole	5.02	418.50	334.80
556009	9 pole	5.65	471.00	376.80
556010	10 pole	6.28	523.00	418.40
556011	11 pole	6.91	575.50	460.40
556012	12 pole	7.51	625.50	500.40

## HIGH VOLTAGE FUSE HOLDERS

L.F. No.	Size, In. L. x H.	Net Each	Net Per 100	
			100	500
711001	2 1/2 x 1 1/4	\$1.52	\$126.50	\$101.20

For 702000 Series Fuses.

711002	6 1/2 x 1 1/4	\$1.76	\$146.50	\$117.20
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For 703000 Series Fuses.

711003	12 x 3	\$4.05	\$337.50	\$270.00
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For 621000 Series Fuses.

631001	4 x 1 1/4	\$0.88	\$73.50	\$58.80
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For 622000 Series Fuses.

631002	5 1/2 x 1 1/4	\$1.26	\$105.00	\$84.00
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For 623000 Series Fuses.

631003	6 1/2 x 1 1/4	\$1.30	\$108.50	\$86.80
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## TV SNAP-ON FUSE HOLDERS

094025	10 holders*	\$2.06	\$172.00	\$147.60
350130	Holders†	.....	10.60	7.20

\*In plastic box. †Bulk.



# LITTELFUSE Fuses and Holders

## FUSES AND ASSORTMENTS

### ECON TIME-DELAY PLUG FUSES

Dual-element plug type fuses provide additional protection against blowing during motor starting cycle. U/L Approved. For 125-volt operation.

L.F. No.	Amp Rating	Net Per Box of 4	Net Per 100
TE3/10	3/10	50.64	\$14.00
TE4/10	4/10	.64	14.00
TE3/10	8/10	.64	14.00
TE1	1	.64	14.00
TE1-1/8	1-1/8	.64	14.00
TE1-1/4	1-1/4	.64	14.00
TE1-4/10	1-4/10	.64	14.00
TE1-6/10	1-6/10	.64	14.00
TE1-8/10	1-8/10	.64	14.00
TE2	2	.64	14.00
TE2-1/4	2-1/4	.64	14.00
TE2-1/2	2-1/2	.64	14.00
TE3-2/10	3-2/10	.64	14.00
TE3-1/2	3-1/2	.64	14.00
TE4	4	.64	14.00
TE4-1/2	4-1/2	.64	14.00
TE5	5	.64	14.00
TE5-6/10	5-6/10	.64	14.00
TE6-1/4	6-1/4	.64	14.00
TE7	7	.64	14.00
TE8	8	.64	14.00
TE9	9	.64	14.00
TE10	10	.64	14.00
TE12	12	.64	14.00
TE14	14	.64	14.00

### CLEARSITE ONE-TIME PLUG HOUSE FUSES

Full visibility design for positive, clear indication of fuse condition. For 125 v. AC or DC. U/L Approved. Use with standard Edison base fuse holders.

L.F. No.	Amp Rating	Net Per Box of 5	Net Per 100
CP10	10	\$0.35	\$6.40
CP15	15	.32	5.70
CP20	20	.32	5.70
CP25	25	.32	5.70
CP30	30	.32	5.70

### UNIVERSAL AUTO FUSE ASSORTMENT

Emergency fuse kit with ten popular replacement fuses for any car.

Littelfuse No. 094080—Net Each... **75c**

### FUSE CADDY

Standard fuse caddy for servicemen to carry in tube caddy. Fifteen compartments for 75 fuses; three spare compartments. See-thru plastic top for easy identification.

Littelfuse No. 094037—Net Each... **\$7.39**

### LIMITED-CURRENT FUSE CADDY

Handy, all-inclusive limited-current fuse caddy complete with 75 fuses of 15 different types. Three extra (spare) compartments.

Littelfuse No. 094041—Net Each... **\$10.00**

### FUSEMASTER DISPLAY

Fuse wall rack with 60 individual compartments for easy, instant self-service. Holds index card on back of rack. Ideal for service men, laboratories, etc.

Littelfuse No. 094047—Complete with 100 assorted fuses. Net Each... **\$12.42**

Littelfuse No. 094048—Empty rack... **85c**

### FUSE HOLDERS, RETAINERS

#### MICROFUSE HOLDERS

For mounting of 273000 Series Microfuse. Type 281002 is front panel mounting; 281001 ideal for printed circuit board mtg.; 284000 Series front panel mtg. with indicator bulb.

L.F. No.	Voltage Range	Net Each	Net Per 100
281001	.....	\$0.26	\$21.50
281002	.....	.58	49.00
284004	2 1/2-7	2.21	184.00
284005	7-16	2.21	184.00
284006	16-32	2.21	184.00
284003	100-125	1.35	113.00

#### 3AG FUSE EXTRACTOR POSTS

L.F. No.	Type	Net Ea. Lots of 5	Net Per 100
341001	Screw	\$0.46	\$38.00
342001	Finger	.46	38.00
342004	Miniature	.40	33.00
342005	Miniature*	.46	38.00
342006	Watertight	2.69	224.00
342007	Non-watertight	2.08	173.00

L.F. No.	Type	Net Ea. Lots of 5	Net Per 100
342012	Miniature	.35	29.00
342013	Miniature*	.42	35.00
342014	Miniature	.35	29.00
342015	Miniature*	.42	35.00
342020	Miniature	.64	53.50
342021	Watertight (FHN 26W Cap)	3.42	285.00
342022	Miniature	.40	33.00
342023	Miniature*	.46	38.00
342024	Miniature (FHN 26G)	1.24	103.50
342025	FHN20G	1.17	97.50

\*Dust-proof.

#### 8AG FUSE EXTRACTOR POSTS

L.F. No.	Type	Net Ea. Lots of 5	Net Per 100
371001	Screw	\$0.46	\$38.00
372001	Finger	.46	38.00
372003	FHN31G	2.27	189.50

#### 4AG FUSE EXTRACTOR POSTS

L.F. No.	Type	Net Ea. Lots of 5	Net Per 100
442001	Finger	\$0.96	\$80.00
442006	Watertight	2.69	224.00
442007	Non-watertight	2.08	173.00

#### 5AG FUSE EXTRACTOR POSTS

L.F. No.	Type	Net Ea. Lots of 5	Net Per 100
570001	Non-watertight	\$2.63	\$219.50
571004	Watertight	3.19	266.00



Econ Plug Fuse



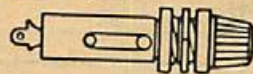
Clearsite Fuse



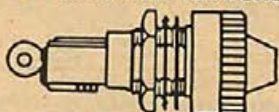
Fuse Caddy and L-C Fuse Caddy



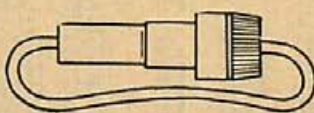
Fusemaster Display



4AG Fuse Extractor Post 442001



Indicating Fuse Post 344000



Bakelite In-Line Fuse Retainer Assembled with Lead

### 3AG INDICATING FUSE POSTS

L.F. No.	Voltage	Net Ea. Lots of 5	Net Per 100
344006	2 1/2-7 V	\$2.35	\$195.50
344012	7-16 V	2.35	195.50
344024	16-32 V	2.35	195.50
344125	100-125 V	1.43	119.50
344250	200-250 V	1.43	119.50

### SERIES 34600 LIMITED CURRENT FUSE HOLDERS

For use with regular and Slo-Blo Type C and N limited current fuses. Specify amperage when ordering.

Net Per 100... **\$11.50**

Net Per 500... **\$46.00**

### UNIVERSAL FUSE RETAINER

Comes with three different length springs for fuse sizes 7 1/2 SFE thru 3AG.

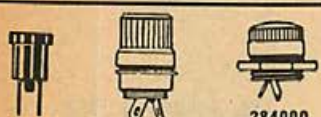
L.F. No. 150145—Net Each... **35c**

Net 100... \$20.00. Lots 500, Net 100... \$22.60

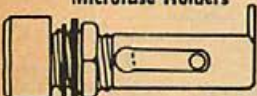
### BAKELITE® IN-LINE FUSE RETAINERS ASSEMBLED WITH 19" LEAD

L.F. No.	Use with Fuses	Net Ea. Lots of 5	Net Per 100
155004A	SFE 4, 1AG	\$0.35	\$29.00
155006A	SFE 6	.35	29.00
155075A	SFE 7 1/2	.35	29.00
155009A	SFE 9, 7AG	.35	29.00
155014A	SFE 14	.35	29.00
155020A	SFE 20, 3AG	.35	29.00
155069-SA-2*		.22	18.50

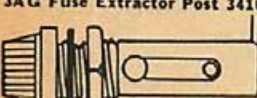
©Bakelite Corp. \*Knob sub-assembly.



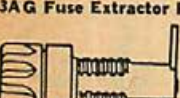
281001 281002 284000 Indicating Microfuse Holders



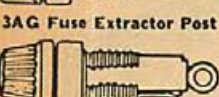
3AG Fuse Extractor Post 341001



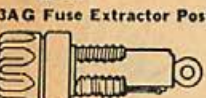
3AG Fuse Extractor Post 342001



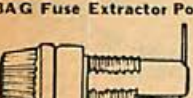
3AG Fuse Extractor Post 342004



3AG Fuse Extractor Post 342012



3AG Fuse Extractor Post 342024



3AG Fuse Extractor Post 342022



8AG Fuse Extractor Post 371001



8AG Fuse Extractor Post 372001



# Buss and Fusetron® Fuses, Holders

## INDICATING FUSES



Fiber tube with silver plated indicating pin which extends when fuse is blown. May be used to actuate a signal when used in HKA fuseholder or Signal Fuse Block. Dual tube construction in sizes larger than 5 amps (cannot be used in HKA fuseholder). Voltage, 125 volts, except 8 amp and over which are 32 volts. Size,  $\frac{1}{4}$ " x  $1\frac{1}{2}$ ".

Buss No.	Amperes	Net Price For	
		Five	100
GLD	$\frac{3}{4}$	\$2.10	\$35.00
	1, 1 $\frac{1}{2}$ , 2, 3, 4, 5	1.60	27.00
	6, 8, 10, 12, 15, 20	2.20	37.00

## LAMP-INDICATING BAYONET TYPE



Transparent bayonet knob with indicating light. Molded phenolic body brown for HKR type, black for HKL and HKL-X types. Side terminals held mechanically as well as soldered (also end terminals on HKL and HKL-X). HKR end terminals held mechanically and have  $\frac{1}{4}$ " outward movement when fuse is inserted. Locking slugs available on request without extra charge,  $\frac{1}{4}$ " size. Models HKL and HKL-X are for Neon Lamps, have voltage rating of 90 to 250 and are rated 220,000 Lamp resistor ohms. Model HKL-X has parallel flat-sided knob for positive finger grip. Model HKR is for use with incandescent lamps, rated 22 to 33 volts, and 330 Lamp resistor ohms. Max. amp, 20.

Buss No.	Fuse Size, Inches	Knob Color	Net Price For	
			Ten	100
HKL	$\frac{1}{4}$ x $1\frac{1}{2}$	Clear	\$14.30	\$120.00
HKL-X	$\frac{1}{4}$ x $1\frac{1}{2}$	Clear	14.30	120.00
HKR	$\frac{1}{4}$ x $1\frac{1}{2}$	Amber	23.50	196.00

## LAMP-INDICATING, SIGNAL-ACTIVATING TYPE

When used with GLD fuses in ratings of  $\frac{3}{4}$  to 5 amps, provides simultaneous lamp and external signal indication when the fuse blows. Extension pin of fuse, on blowing, completes a circuit through the knob to indicating lamp of holder and an external signal (to a distant lamp or an audible alarm or relay). Current provided for signaling is 28 volts, .040 ampere. Transparent amber knob. Holder body is molded brown phenolic. Designed for use on circuits where load is 125 volts. Fits panels up to  $\frac{1}{4}$ " thick. Flat area on threaded section to prevent rotation, or permit use of a  $\frac{1}{4}$ " locking slug in a drilled hole (slug available, free).

Buss No. HKA—Net Each . . . \$ 3.13  
Lot of 10, Net . . . . . 26.10

## IN-THE-LINE FUSEHOLDERS



Bayonet knob with metal holding ears. Center drilled contacts ready to be staked to ends of wire. Designed to take No. 18-22 wire (suffix -A) or 14-16 wire (suffix -B). Max. amps, 15.

Buss No.	Fuse Size, Inches	Max. Volts	Net Price For	
			Ten	100
HHJ	$\frac{1}{4}$ x $1\frac{1}{2}$	250	\$1.70	\$14.00
HHI	$\frac{1}{4}$ x 1 or $1\frac{1}{4}$	250	1.70	14.00
HHH	$\frac{1}{4}$ x $\frac{3}{4}$	250	1.70	14.00
HIG	$\frac{1}{4}$ x $\frac{3}{4}$	250	1.70	14.00
HIF	$\frac{1}{4}$ x $\frac{3}{4}$	250	1.70	14.00

## FUSEHOLDER ASSEMBLY WITH FUSE

Includes fuse and one of the standard holders listed above with 19" loop of #14 wire staked and soldered to terminals. Spring nut supplied for panel mounting.

Buss No.	Comp. Holder and Fuse Nos.	Net Price For	
		Ten	100
HRJ	HHJ w/SFE 20	\$3.50	\$29.00
HRI	HHI w/SFE 14	3.50	29.00
HRH	HHH w/SFE 9	3.50	29.00
HRG	HIG w/SFE 6	3.50	29.00
HRF	HIF w/SFE 4	3.50	29.00

## STANDARD FUSE BLOCKS



Molded black phenolic base; Albaloy-plated spring clips for strong grip, high corrosion resistance.

## SOLDER TERMINAL TYPE ON SMALL BASE

Buss No. for Fuse	No. Poles	Base Size*	Net Each
$\frac{1}{4}$ " x $1\frac{1}{4}$ "			
3823-1	1	1 $\frac{1}{2}$ "	\$0.14
3823-2	2	1 $\frac{1}{2}$ "	.28
3823-3	3	1 $\frac{1}{2}$ "	.42
3823-4	4	2 $\frac{1}{2}$ "	.56
3823-5	5	3"	.70
3823-6	6	3 $\frac{1}{2}$ "	.84
3823-7	7	4 $\frac{1}{4}$ "	.98
3823-8	8	4 $\frac{1}{2}$ "	1.12
3823-9	9	5 $\frac{1}{4}$ "	1.26
3823-10	10	6 $\frac{1}{4}$ "	1.40
3823-11	11	6 $\frac{3}{4}$ "	1.54
3823-12	12	7 $\frac{3}{4}$ "	1.68

## SCREW TERMINAL TYPE ON FULL BASE

Buss No.	No. Poles	Base Size*	Net Each
3833-1	1	3 $\frac{1}{2}$ "	\$0.31
3833-2	2	3 $\frac{1}{2}$ "	.62
3833-3	3	2 $\frac{1}{2}$ "	.93
3833-4	4	3 $\frac{1}{2}$ "	1.24
3833-5	5	4 $\frac{1}{2}$ "	1.55
3833-6	6	5 $\frac{1}{2}$ "	1.86
3833-7	7	6 $\frac{1}{2}$ "	2.17
3833-8	8	7 $\frac{1}{2}$ "	2.48
3833-9	9	8 $\frac{1}{2}$ "	2.79
3833-10	10	9 $\frac{1}{2}$ "	3.10
3833-11	11	9 $\frac{3}{4}$ "	3.41
3833-12	12	10 $\frac{3}{4}$ "	3.72

\* x  $1\frac{1}{2}$ ", 3823 Series; x  $1\frac{3}{4}$ ", 3828 Series; x  $2\frac{1}{4}$ ", 3833 Series.

## FUSETRON DUAL-ELEMENT FUSES



Long time-lag prevents useless shut-downs caused by ordinary fuses opening on starting currents or other harmless overloads, yet protects against short-circuits. On normal installations will guard motors against burnout from overloads or single phasing. U/L Listed for motor running and circuit protection up to 250 volts.

Buss No.	Amperes	Net Price For	
		Ten	100
FRN	1, 1 $\frac{1}{2}$ , 1-6/10, 2, 2 $\frac{1}{2}$ , 3-2/10, 4, 5, 6 $\frac{1}{2}$ , 8, 10, 12, 15, 17 $\frac{1}{2}$ , 20, 25, 30	\$3.30	\$33.00
FRN	35, 40, 45, 50, 60	6.40	64.00

FRN	70, 80, 90, 100	\$15.00	\$150.00
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## FUSETRON® PLUG FUSES



Time-delay fuses recommended by N.E. Code. Won't blow under motor-starting or other current surges, yet provide full protection against heavy currents or short circuits. For voltages up to 125 volts. U/L Approved.

Type "T" Amperes	Net Price For	
	Four	100
3/10, 4/10, 1/2, 6/10, 8/10, 1, 1-1/8, 1-1/4, 1-1/2, 1-5/8, 1-3/4, 2, 2-1/4, 2-1/2, 2-3/4, 3, 3-1/2, 3-3/4, 4, 4-1/2, 5, 5-1/2, 6, 6-1/4, 7, 8, 9, 10, 12, 14	\$0.64	\$14.00
15, 20, 25, 30	.34	7.60

## ONE-TIME FUSES



Get same care in engineering and manufacture as other BUSS products. Each can be depended upon to operate as intended under all service conditions. Carry U/L label. For voltages up to 250.

Buss No.	Amperes	Net Price For	
		Ten	100
NON	1, 3, 6, 10, 15, 20, 25, 30, 35, 40, 45, 50, 60	\$1.86	\$18.60



NON	70, 80, 90, 100	\$8.20	\$82.00
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## CLEAR WINDOW PLUG FUSES



Shockproof—insulated with porcelain-like high voltage power lines. Top cap protects fingers from shock and cuts. Always fit fuseholders. U/L Approved.

Type "W" Amperes	Net Price For	
	Five	100
1, 2, 3, 5, 6, 8, 10, 15, 20, 25, 30	\$0.36	\$6.40
	.32	5.70

## FUSTAT® FUSES AND ADAPTERS



Adapters not included with Fustat fuses, order them separately and specify size.

Fustat Fuses & Amps	Adapter	Fustat Fuses & Amps	Adapter
S 3/10	SA1*	S3-1/2	SA4
S 4/10	SA1*	S4	SA4
S 1/2	SA1*	SA4-1/2	SA5†
S 6/10	SA1*	S5	SA5†
S 8/10	SA1*	S5-6/10	SA6-1/4†
S1	SA1*	S6-1/4	SA6-1/4†
S1-1/8	SA1-1/4*	S7	SA8
S1-1/4	SA1-1/4*	S8	SA8
S1-4/10	SA1-6/10*	S9	SA10*
S1-6/10	SA1-6/10*	S10	SA10*
S1-8/10	SA2	S12	SA15*
S2	SA2	S14	SA15*
S2-1/4	SA2-1/2†	S15	SA15*
S2-1/2	SA2-1/2†	S20	SA20
S2-8/10	SA3-2/10†	S25	SA30*
S3-2/10	SA3-2/10†	S30	SA30*

\*Adapter will also take all smaller sizes. †Adapter will also take 2, 1-8/10 sizes. ‡Adapter will also take 2 $\frac{1}{2}$ , 2 $\frac{3}{4}$ , 2, 1-8/10 sizes. §Adapter will also take 4, 3 $\frac{1}{2}$  sizes. ¶Adapter will also take 5, 4 $\frac{1}{4}$ , 4, 3 $\frac{1}{2}$  sizes. \*Adapter will also take 8, 7 sizes. \*Adapter will also take 10, 9, 8, 7 sizes. \*Adapter will also take 20 amp size.

Fustat Fuses—3/10-14 amp size. Net 16¢  
15 thru 30 amp size. Net . . . . . 13¢  
Adapters—SA1 thru SA30. Net Each 11¢

## OTHER STANDARD AND SPECIAL FUSES, BLOCKS AND HOLDERS

If the fuses, fuse blocks and holders shown do not fit your requirements ask for information on other types. Fuses and fuse mountings to meet JAN and Military specifications also available. If you have a special problem in protection, send description or sketch giving number of circuits, type of fuse, terminals, etc., desired. We welcome such inquiries.



# Buss® Fuses and Fusetron® Fuses

## GRASSHOPPER FUSES



Alarm activating and signal indicating. Length: 1 1/4", except 3/5 D (1 3/8"), 3/5 E (1 1/4").

Buss No.	Amps	Blowing Time		Net Price For	
		Amp	Sec.	Ten	100
35A*	1 1/2	2	90	\$2.30	\$19.00
35B*	1 3/4**	2	90	2.30	19.00
35C*	2**	3	180	2.30	19.00
35D*	2 1/2**	3	180	2.30	19.00
35E*	3**	4	300	2.50	21.00
35F*	3 1/2**	4	300	2.50	21.00
35G*	4**	4 1/2	300	2.30	19.00
35H*	5**	6 1/2	300	2.30	19.00
35J†	1 1/2	2	90	3.40	28.00
35K†	1 3/4	2	180	4.60	39.00
35L†	2	3	180	4.60	39.00
35M†	3	4 1/2	300	4.10	35.00
35N†	4	6 1/2	300	4.10	35.00
35P†	5	9	300	2.90	25.00
35R†	15/100†	270	90	3.40	28.00
35S†	1 1/2	375	90	3.40	28.00
35T†	65/100†	1.1	180	3.40	28.00

Volts: \*90 or less, †160 or less. Mounting Screw: †No. 10. \*\*No. 6.

## AGS GLASS TUBE FUSES



Test specification; carry, 110%, open at 135% within 1 hour except 35 and 40 amp units which open at 300% in 2 to 4 seconds when tested in standard 30-amp test circuit. Note: These units in sizes larger than 30 amps are not recommended for use in fuse clips or fuseholders as clips will not carry the high currents.

Buss No.	Amperes	Volts	Net Price For	
			Five	100
AGS 1/4	250	\$1.45	\$25.00	
AGS 3/8	250	1.00	17.00	
AGS 1/2	250	.50	8.50	
AGS 3/4	250	.45	7.50	
AGS 1, 2, 2 1/2, 3	250	.39	6.50	
AGS 5, 10, 15, 20, 25, 30	32	.45	7.50	
AGS 35, 40, 50	32	.45	7.50	

## FAST ACTING FUSES



Glass tube, 1/4" x 1". Carry 100%, open at 200% in 5 seconds, 1/500 to 1/2 amp sizes have bridge construction; all others straight-through element. U/L Approved.

Buss No.	Amperes	Volts	Net Price For	
			Five	100
AGX 1/500	250	\$4.70	\$78.00	
AGX 1/200	250	1.95	33.00	
AGX 1/100	250	1.75	29.00	
AGX 1/32	250	1.55	26.00	
AGX 1/16	250	.95	16.00	
AGX 1/10, 1/8, 1/4, 2/10	250	.70	12.00	
AGX 3/4, 1, 1 1/4, 4/10, 1/2, 3/4	250	.45	7.50	
AGX 1, 2 1/2, 3, 4	125*	.28	4.70	
AGX 6, 8, 10, 15, 20	32†	.18	3.00	
AGX 25, 30	32	.21	3.50	

\*1 amp, 250, †5 amps, 125.

## FAST ACTING FUSES

Glass tube, 1/4" x 1 1/4". Carry 110%, open at 135% in 1 hour or less, 1/500 to 2 amp sizes will open at 200% in 5 seconds or less, 1/500 to 1/32 amp have bridge construction; all others straight-through element. U/L Approved. \*Not U/L listed.

AGC 1/500	250	\$4.70	\$78.00
AGC 1/200	250	1.95	33.00
AGC 1/100	250	1.75	29.00
AGC 1/32	250	1.55	26.00
AGC 1/16, 1/8, 1/4, 15/100, 175/1000, 1/4, 1/10, 2/10	250	.70	12.00
AGC 3/4, 3/10, 1/2, 45/100, 1/2, 6/10, 3/4	250	.45	7.50
AGC 1, 1 1/4, 1 1/2, 1-6/10, 2	250	.28	4.70
AGC 2 1/2, 3	250	.25	4.20
AGC 4	32*	.25	4.20
MTH 4, 5, 6	250	.36	6.00
AGC 5, 6, 7 1/2, 8, 10, 15	32*	.18	3.00
AGC 20	32*	.16	2.70
AGC 25, 30	32*	.21	3.50

## MIDGET TYPE FUSES

Up to 15 amp size U/L Approved.

BAF 1, 3, 5, 6, 10	250	\$0.47	\$7.90
BAF 15, 20, 25, 30	125	.47	7.90

## CERAMIC TUBE FUSES



High interrupting capacity for use on circuit delivering as high as 25,000 amps at 125 v., or 10,000 amps at 250 v. 1/4" x 1 1/4". Carry 110%, open at 135% in 1 hour. Up to 15 amp size U/L Approved.

Buss No.	Amperes	Volts	Net Price For	
			Five	100
ABC 1/4	250	\$0.65	\$11.00	
ABC 1, 2, 3	250	.60	10.00	
ABC 5, 6, 8, 10	250	.55	9.50	
ABC 12, 15, 20	250	.60	10.00	
ABC 25, 30	125	.70	12.00	

## FUSETRON® GLASS TUBE FUSES



Dual-element slow-blowing type, 1/4" x 1 1/4". Fuse link operates only on very high overloads or short-circuits; thermal cutout functions on low overloads (cannot operate quickly on any load, thus providing long time-lag). Carry 110%, open at 135% in 1 hour. MDL 1/100 to 2-8/10 amp and MDX 3 to 7 amp sizes U/L Approved. MDL type has longer time-lag than MDX type.

Buss No.	Amperes	Volts	Net Price For	
			Five	100
MDL 1/100, 1/2	250	\$1.30	\$22.00	
MDL 1/4, 1/10, 1/8, 15/100, 175/1000, 1/2, 2/10, 3/4, 3/10, 3/8, 4/10, 1/2, 6/10, 7/10, 3/4, 8/10, 1	250	.95	16.00	
MDX 1 1/4, 1 1/2, 1-6/10, 2	250	1.05	18.00	
MDL 1-2/10, 1 1/4, 1 1/2, 1-6/10, 2	125	.90	15.00	
MDL 2 1/2, 2-8/10, 1	125	.70	12.00	
MDX 3, 3-2/10, 4, 5	125	.70	12.00	
MDX 6 1/4, 7	125	.80	14.00	
MDL 2 1/2, 2-8/10, 3, 3-2/10, 4, 5, 6 1/4, 8, 10, 15, 20, 25, 30	32	.70	12.00	

## FUSETRON® FIBER TUBE FUSES



Dual-element slow-blowing type, 1 1/4" x 1 1/4" overall. Fuse link operates only on very high overloads or short circuits; thermal cutout functions on low overloads (cannot operate quickly on any overload, thus providing longer time lag). Carry 110%, open at 135% in 1 hour. 125 and 250 volt sizes U/L Approved.

Buss No.	Amperes	Volts	Net Price For	
			Ten	100
FNM 1/10, 15/100, 2/10, 3/10, 4/10, 1/2, 6/10, 8/10, 1 1/4, 1 1/2, 1 3/4, 1-4/10, 1-6/10, 1-8/10, 2, 2 1/2, 2 1/2, 2-8/10, 3-2/10, 3 1/2, 4, 5, 6 1/4, 7, 8, 9, 10	250	\$2.70	\$23.00	
FNM 12, 15	125	2.70	23.00	
FNM 20, 25, 30	32	2.70	23.00	

## GLASS TUBE FUSES

Glass tube, 1/4" x 1 1/4". Carry 110%, open at 135% in 1 hour.

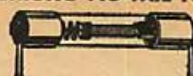
AGA 1, 1 1/2, 2, 2 1/2	32	\$0.56	\$4.70
AGA 3	32	.50	4.20
AGA 5, 6, 7 1/2, 10, 15, 20	32	.42	3.50
AGA 25, 30	32	.42	3.50

## SFE STANDARD FUSES

Different amperages are different lengths, making it impossible to over-fuse. Glass tube, 1/4" dia. Carry 110%, open at 135% in 1 hour. Made to SAE specifications and U/L Approved. 32 volts or less.

Buss No.	Amperes	Lgth. In.	Net Price For	
			Five	100
SFE 4	32	1/4	\$0.21	\$3.50
SFE 6	32	1/4	.21	3.50
SFE 7 1/2	32	1/4	.18	3.00
SFE 9	32	1/4	.18	3.00
SFE 14	32	1/4	.15	2.50
SFE 20	32	1/4	.15	2.50
SFE 30	32	1/4	.21	3.50

## FUSETRON® PIG-TAIL FUSES



Body 1/4" x 1 1/4", #20 tinned leads, 1 1/4", 1/100 to 2-8/10 same as MDL type; 3 to 7 amps same as MDX type. U/L Approved.

Buss No.	Amperes	Volts	Net Price For	
			Five	100
MDV 1/100, 1/2	250	\$1.60	\$27.00	
MDV 1/4, 1/10, 1/8, 15/100, 175/1000, 1/2, 2/10, 3/4, 3/10, 3/8, 4/10, 1/2, 6/10, 7/10, 3/4, 8/10, 1	250	1.15	20.00	
MDV 1 1/4, 1 1/2, 1-6/10, 2	125	1.10	19.00	
MDV 2 1/2, 2-8/10, 3, 3-2/10, 4, 5, 6 1/4, 7	125	.95	16.00	

## PIG-TAIL FUSES

Glass tube 1/4" x 1 1/4" with 1 1/4" leads of #20 tinned wire. Carry 110%, open 135% in 1 hour. 250 v. U/L Approved.

Buss No.	Amperes	Net Price For	
		Five	100
GJV 1/4	250	\$1.20	\$20.00
GJV 3/8	250	.90	15.00
GJV 1/2, 3/10, 1/2, 3/4, 3/4	250	.70	12.00
GJV 1 1/4, 1 1/2, 2, 3	125	.65	9.00
GJV 4, 5, 6	125	.55	9.50

## TYPE C AND N FUSES, HOLDERS



Matched glass fuses and fuseholders for specific size ranges. Type N fuses are dual-element time-delay or slow-blowing type, 0 to 1 1/4 amp sizes, 1/4" x 1 1/4"; 1-3/10 to 7 amp sizes, 1/4" x 1 1/4". Type C fuses are single-element quick-blowing type, 0 to 3 1/2 amp sizes, 1/4" x 1 1/4"; 3-6/10 to 10 amp sizes, 1/4" x 1 1/4". Holders rated at 250 volts.

## TYPE N FUSES

Amperes	Holder No. HN-	Volts	Net Price For	
			Five	100
1/100, 1/2	0 to 3/10	250	\$1.40	\$23.00
1/4, 1/10, 1/8, 15/100, 2/10, 3/4, 3/10	0 to 3/10	250	1.00	17.00
4/10	3/10 to 1/2	250	1.00	17.00
6/10	3/10 to 1/2	250	1.00	17.00
7/10, 1 1/4	1/2 to 3/4	250	1.00	17.00
8/10, 1	3/4 to 1	250	1.00	17.00
1 1/4	3/4 to 1 1/4	250	.90	15.00
1-8/10	1-3/10 to 1	125	.90	15.00
1 1/2	1 1/4	125	.90	15.00
2 1/2	1 1/4 to 2 1/2	125	.90	15.00
2 1/2	1 1/4 to 2 1/2	125	.85	14.00
2-8/10	2 1/2 to 3 1/2	125	.85	14.00
3-2/10	2 1/2 to 3 1/2	125	.85	14.00
3 1/2	2 1/2 to 3 1/2	125	.85	14.00
4	3 1/2 to 5	125	.85	14.00
5	3 1/2 to 5	125	.85	14.00
6 1/4	5 to 7	125	.85	14.00
7	5 to 7	125	.85	14.00

## TYPE C FUSES

Amperes	Holder No. HC-	Volts	Net Price For	
			Five	100
1/4	0 to 3/10	250	\$1.45	\$25.00
0 to 3/10	0 to 3/10	250	.95	16.00
0 to 3/10	0 to 3/10	250	.70	12.00
0 to 3/10	0 to 3/10	250	.55	9.50
3/10	0 to 3/10	250	.55	9.50
3/10 to 1/2	3/10 to 1/2	250	.55	9.50
3/10 to 1/2	3/10 to 1/2	250	.55	9.50
1/2 to 3/4	1/2 to 3/4	250	.55	9.50
3/4 to 1	3/4 to 1	250	.33	5.50
1 1/4 to 1 1/4	1 1/4 to 1 1/4	250	.33	5.50
1 1/4 to 1 1/4	1 1/4 to 1 1/4	250	.33	5.50
1 1/4 to 2 1/2	1 1/4 to 2 1/2	250	.33	5.50
1 1/4 to 2 1/2	1 1/4 to 2 1/2	250	.33	5.50
2 1/2 to 3 1/2	2 1/2 to 3 1/2	250	.33	5.50
2 1/2 to 3 1/2	2 1/2 to 3 1/2	250	.42	7.00
3-6/10 to 5	3-6/10 to 5	250	.42	7.00
3-6/10 to 5	3-6/10 to 5	250	.42	7.00
5 to 7	5 to 7	250	.42	7.00
5 to 7	5 to 7	250	.42	7.00
7 to 10	7 to 10	250	.60	10.00
7 to 10	7 to 10	250	.65	11.00

Type HC and Type HN Fuseholders - All sizes (specify). Net for 100... \$ 1.40 Net for 100..... \$ 12.00



# Buss and Fusetron® Fuses, Holders

## SERIES HLD PANEL-MOUNTING VISUAL INDICATING FUSEHOLDER



For 1/4" x 1 1/4" GBA fuse. Transparent knob permits bright red dot to be seen readily if fuse is open. Knob grips fuse tightly; when removed, pulls fuse from holder. Knob also interchangeable with that of HKP fuseholder for easy conversion. Supplied with washer and nut. Locking keys available without charge; 1/4" lg. for panels up to 3/4" thick; 3/8" lg. for thicker panels. Specify length desired.

Buss No.	Description	Net Price For	
		Ten	100
HLD	Complete holder	\$4.00	\$33.00
HLD	Knob only No. 5487	1.70	14.00

## VISUAL INDICATING FUSE



For use with HLD fuseholder. Bright red dot on indicating pin extends from end of fuse when fuse is open even after power is off. Rated 125 v. or less, carries 110%, opens at 135% in 1 hour or less. Only 1/4" x 1 1/4".

Buss No.	Amperes	Net Price For	
		Five	100
GBA	3/4	\$2.10	\$35.00
GBA	1, 1 1/2, 2, 3, 4, 5	1.60	27.00

## PANEL MOUNTED FUSEHOLDERS BAYONET KNOB TYPE



Side terminal held with solder and mechanically. Knob grips fuse tightly; pulls it from holder when knob is removed. Terminals designed to withstand severe service. Molded black phenolic body with flat spot for lock against rotation when used in punched hole; permits use of locking key in drilled holes. May be used in panels up to 1/2" thick. Locking keys available; specify 1/2" or 3/4" length. U/L Approved.

Buss No.	For Fuse Size, In.	Amps	Volts	Net Price For	
				Ten	100
HJM	1/4 x 1	5	125	\$3.50	\$29.00
HKP	1/4 x 1 1/4	15	250	3.50	29.00

## GBB LIMITRON FUSES



For protecting solid state devices. Extra fast on overloads or fault currents, yet hold max. peak voltage, during interruption to well below PIV of diode being protected. Ceramic tube 1/4" x 1 1/4". All ratings carry 100%, and open within 1 sec. at 250%; units to 10 amps also open in 0.01 sec. at 400%. Voltage: Rated 130 v. or less for 1, 1 1/2, 2, 3, 5, 6, 7, 8, 9 or 10 amps. Rated 65 v. or less for 12, 15, 20, 25 or 30 amps. Specify which amperage when ordering. All Values Above—Net Eac., 15 or less. 54c Net Each, 16 Up.....45c

## HIGH VOLTAGE FUSES



Designed for protection of circuits up to 20 kw on DC and 30 KVA on AC.

Buss No.	Amperes	V.	Net Price For	
			Ten	100
HVA	3/4, 1, 1 1/2, 2	1000	\$2.30	\$19.00
HVB	3/4, 1, 1 1/2, 2	2500	3.00	25.00
HVJ	3/4, 1, 1 1/2, 2	5000	5.60	47.00
HVL	3/4, 1, 1 1/2, 2	10K	11.20	94.00

## HIGH INTERRUPTING CAPACITY FUSES



Type KTK—For use on circuits as high as 100,000 amps at 600 volts or less. A.C. only. Glass fiber melamine tubes and sand filler surrounding a silver fuse element. Amperes: 1/10, 3/10, 2/10, 3/10, 1/2, 3/4, 1, 1 1/2, 2, 3, 4, 5, 6, 8, 10, 15, 20, 25 or 30. Lot of 10, Net \$8.90 Lot of 100, Net \$80.00

## INDICATING FUSETRON® FUSES



Similar to FNM types. Indicating pin extends from fuse when fuse blows. Use in signal fuse block or HPC-C fuseholder (larger than 10 amps units cannot be used in HPC-C). U/L Approved in 0-15 amp sizes.

Buss No.	Amperes	Net Price For	
		Ten	100
FNA	1/10, 15/100, 2/10, 3/10, 4/10, 3/4, 6/10, 8/10, 1, 1 1/2, 1 3/4, 1-4/10, 2, 2 1/4, 2 1/2, 1-8/10, 2, 3, 3-2/10, 3 1/2, 4, 4 1/2, 5, 5-6/10, 6, 6 3/4, 7, 8, 10	\$5.30	\$44.00
	12, 15, 20, 25, 30	5.80	48.00

## INDICATING, LAMINATED TUBE FUSES



Red button on indicating pin extends from end of fuse when fuse is blown. Units are built in accordance with Navy Specifications. These units may be used in Buss HPC-C fuseholders. Voltage, (1-15 amps), 250, others, 125 v.

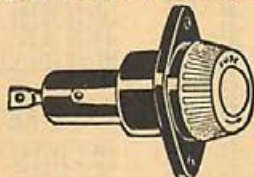
Buss No.	Amperes	Net Price For	
		Ten	100
MIN	1, 2, 3, 5, 10, 15, 20, 25, 30	\$3.40	\$28.00

## SIGNAL OR VISUAL INDICATING FUSES

MIC fuses have silver-plated indicating pin. Pin may be used as visual indicator or may be used to actuate a signal. MIJ fuses are similar to MIC types except they have been specially designed for complex circuitry as in computers. Voltage, 250 except 20 amps and over which are 32 v.

Buss No.	Amperes	Net Price For	
		Ten	100
MIC	1, 2, 3, 5, 10, 15, 20, 25, 30	\$3.90	\$33.00
MIJ	1, 2, 3, 5, 10, 15, 20, 25, 30	4.30	36.00

## SCREW-IN KNOB TYPE FUSEHOLDERS



Attaches to panel with screws or rivets; mounts with flange on front side of panel of any thickness; with flange on rear side, panel up to 3/4" thick. Molded black phenolic body with soldered and mechanically held side terminal. Type HPC U/L Approved for 15 amps 250 volts. Type HPC-L U/L Approved for 5 a., 600 v.

Buss No.	For Fuses	Fuse Size, In.	Net Price For	
			Ten	100
HPC	AGU, ABU, BAF, BAN, FNM, MDR, KLM	1 1/2 x 1 1/4	\$5.30	\$45.00
HPC-L	BBS	1 1/2 x 1 1/4	5.30	45.00
HPC-C	MIN, MIC, FNA	*	6.70	56.00

\*Same as HPC but with transparent knob.

## "QUICK-BLOWING" 600 V. FUSES



Designed to protect control circuits, fluorescent lighting circuits or similar uses where quick-blowing characteristics are desired. Use HPC-L fuseholder or 3845 fuse block. U/L Approved. Fiber tube 1 1/2" x 1 3/4".

Buss No.	Amperes	Net Price For	
		Ten	100
BBS	4/10, 3/4, 8/10	\$1.80	\$15.00
	1, 2, 3, 4, 5	1.70	14.00

## TRON SUBMINIATURE PIGTAIL FUSES



Glass-tube construction with 1 1/2" leads of #24 tinned copper for 1/100-5 amp ratings, #18 tinned copper for 7-15 amp ratings. Hermetically sealed. Color coded to indicate amp ratings. For circuits with fault current of 50 amps or less (1/100-5 amps for 125 v. or less, 7-15 amps for 32 v. or less). GLN, GLX body size, .140" x .3"; GFA body size, .145" x .3".

Buss No.	Amperes	Net Price For	
		Ten	100
GLN	1/100	\$11.00	\$92.00
GLN	1/32, 1/20, 1/16, 1/10, 1/8, 3/10, 4/10, 7, 8, 15	9.30	78.00
GLX	15/100, 2/10, 1/4, 1/2, 6/10, 3/4, 1, 1 1/2, 2, 3, 4, 5	12.20	102.00
GFA	1/100, 1/32, 1/20, 1/16, 1/10, 1/8, 15/100, 2/10, 1/4, 3/10, 4/10, 1/2, 6/10	4.00	34.00
GFA	3/4, 1, 1 1/2, 2, 3, 4, 5, 7, 8, 15	3.50	29.00

## SPACE SAVER PANEL MOUNTED FUSEHOLDERS

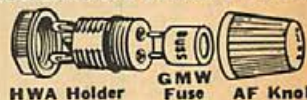


Length 1 1/4"; extends 3/4" behind front of panel. Takes 1/4" x 1 1/4" fuses. Easily converts to take 1/2" x 1 1/4" fuses by changing screw type knob. Flat part of molded phenolic body locks fuseholder against rotation when used on punched hole. Requires 3/8" mounting hole.

Buss No.	For Fuse Size Dia. x L.	Net Each
HCL	1/2" x 1 1/4"	.35
HMB*	1/4" x 1 1/4"	.35
HMM*	1/2" x 1 1/4"	.35

\*Requires 3/8" mounting hole; HMM has screwdriver slot knob.

## SUBMINIATURE PRONG TYPE UNIT



Rated 125 v. or less, faulty current not over 300 amps; open at 200% within 10 sec. or less. Use AF knob for waterproof. Size, .27" dia., 3/4" lg. (body).

Buss No.	Amperes	Net Price for	
		Ten	100
GMW	1/200, 1/100, 1/60, 1/30, 1/15	\$6.70	\$56.00
GMW	1/10, 2/10, 3/10, 4/10, 1/2, 6/10, 3/4, 1, 1 1/2, 2, 3, 4, 5	5.20	43.00
HWA*	Holder, fits all GMW	6.50	55.00
HWA†	Holder, fits all GMW	5.60	47.00
AF	Knob only, fits HWA	.78	6.50

\*With AF knob. †Without AF knob.

## SIGNAL-INDICATING ALARM ACTIVATING TYPE UNIT



Takes only 1/4" x 1 1/4" space. Color indicator. Rated 300 v. or less; 100% for 10 min.; open at 150% within 5 min.

Buss No.	Amperes and Color of Indicator	Net Price for	
		Ten	100
GMT	18/100*, 1/4†, 1/4†, 65/100‡, 3/4†, 1, 1 1/4, 2, 3, 4, 5, 7 1/2, 10†	\$4.00	\$33.00
HLT	Holder, fits all GMT	4.10	35.00

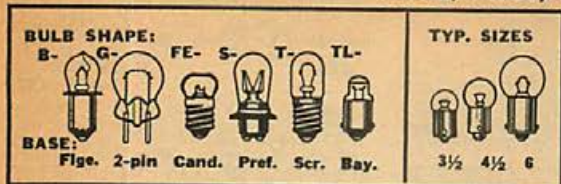
Color of indicator: \*Yellow; †violet; ‡red; §black; ¶brown; \*gray; †white; ‡orange; §blue; †green; ‡black-white; \*\*red-white.





# General Electric Miniature Lamps

## PANEL, PILOT, FLASHLIGHT LAMPS



Lamp No.	Bulb	Base†	Design		Net Price*	
			Volts	Amps	Each	Box 10
PR2*	B-3 1/2	S.C. min. flanged	2.38	0.50	\$0.20	\$1.22
PR3*	B-3 1/2	S.C. min. flanged	3.57	.50	.20	1.22
PR4*	B-3 1/2	S.C. min. flanged	2.33	.27	.20	1.22
PR6*	B-3 1/2	S.C. min. flanged	2.47	.30	.20	1.22
PR7*	B-3 1/2	S.C. min. flanged	3.7	.30	.25	1.52
PR12*	B-3 1/2	S.C. min. flanged	5.95	.50	.20	1.22
PR13	B-3 1/2	S.C. min. flanged	4.75	.50	.20	1.22
8	S-8	D.C. bayonet	6.4	3.00	.35	2.10
10	S-8	D.C. bayonet	8.0	2.20	.35	2.10
13	G-3 1/2	Min. screw	2.5	.50	.26	1.59
14*	G-3 1/2	Min. screw	3.7	.30	.20	1.04
27	G-4 1/2	Min. screw	2.47	.30	.20	1.04
31	G-4 1/2	Min. screw	4.9	.30	.20	1.22
39	T-3 1/4	Min. bayonet	6.15	.30	.22	1.33
40*	T-3 1/4	Min. bayonet	6.3	.36	.35	1.99
41*	T-3 1/4	Min. screw	6.3	.15	.14	.85
42*	T-3 1/4	Min. screw	2.5	.50	.22	1.34
44*	T-3 1/4	Min. screw	3.2	.35	.27	1.67
43*	T-3 1/4	Min. bayonet	2.5	.50	.22	1.34
45*	T-3 1/4	Min. bayonet	6.3	.25	.14	.85
46*	T-3 1/4	Min. bayonet	3.2	.35	.18	1.12
48*	T-3 1/4	Min. screw	6.3	.25	.14	.85
49*	T-3 1/4	Min. bayonet	6.3	.15	.14	.85
49*	T-3 1/4	Min. bayonet	2.0	.06	.22	1.34
50	G-3 1/2	Min. screw	2.0	.06	.18	1.12
51*	G-3 1/2	Min. screw	7.5	.25	.15	.92
53*	G-3 1/2	Min. bayonet	7.5	.25	.13	.82
55*	G-4 1/2	Min. bayonet	14.4	.12	.13	.82
57*	G-4 1/2	Min. bayonet	7.0	.41	.13	.82
57*	G-4 1/2	Min. bayonet	14	.24	.13	.82
57X*	G-4 1/2	Min. bayonet	14	.24	.17	1.05
67*	G-6	S.C. bayonet	13.5	.59	.17	1.05
67K	G-6	Candelabra screw	13.5	.41	.44	2.65
71K	G-6	Candelabra screw	22	.18	.35	1.99
112	TL-3	Min. screw	1.2	.22	.20	1.04
123	G-3 1/2	Min. screw	1.25	.30	.20	1.04
131	G-3 1/2	Min. screw	1.3	.10	.18	1.12
133	G-3 1/2	Min. screw	1.25	.60	.20	1.22
159	TL-3	Wedge	6.3	.15	.22	1.33
222*	TL-3	Min. screw	2.25	.25	.20	1.04
223	FE-3 1/2	Min. screw	2.25	.25	.20	1.22
224	TL-2 3/4	Special 1 1/2-turn thd.	2.15	.22	.20	1.22
233	G-3 1/2	Min. screw	2.33	.27	.20	1.22
243	TL-3	Min. screw	2.33	.27	.20	1.22
259	T-3 1/4	Wedge	6.3	.25	.20	1.22
263X	G-3 1/2	Min. screw	2.65	.30	.27	1.67
313*	T-3 1/4	Min. bayonet	28	.17	.31	1.87
327*	T-1 1/4	S.C. midget flanged	28	.04	.72	4.37
328*	T-1 1/4	S.C. midget flanged	6	.20	.56	3.42
331	T-1 1/4	S.C. midget flanged	1.35	.06	.87	5.29
338	T-1 1/4	S.C. midget flanged	2.7	.06	.87	5.29
345	T-1 1/4	S.C. midget flanged	6	.04	1.50	9.25
363	G-3 1/2	Min. bayonet	14	.20	.22	1.33
401	G-4 1/2	Min. screw, flasher	1.25	.22	.35	1.99
405	G-4 1/2	Min. screw, flasher	6.5	.50	.27	1.67
406	G-4 1/2	Min. screw, flasher	2.6	.30	.22	1.33
407	G-4 1/2	Min. screw, flasher	4.9	.30	.20	1.22
425	G-4 1/2	Min. screw	5	.50	.20	1.22
428	G-4 1/2	Min. screw	12.5	.25	.17	1.04
431R†	G-4 1/2	Min. bayonet	14	.25	.17	1.04
432	G-4 1/2	Min. screw	18	.25	.22	1.33
432G†	G-4 1/2	Min. screw	18	.25	.35	1.99
432R†	G-4 1/2	Min. screw	18	.25	.27	1.67
433	G-4 1/2	Min. bayonet	18	.25	.27	1.67
502	G-4 1/2	Min. screw	5.1	.15	.17	1.04
509K	G-6	Candelabra screw	24	.18	.27	1.67
605	G-4 1/2	Min. screw	6.15	.50	.20	1.22
965	T-4 1/2	Min. screw	9.84	.50	.25	1.53
1000	RP-11	D.C. bayonet	6.2	3.87	1.14	6.95
1034*	S-8	D.C. indexing	12.8	1.80	.35	2.10
1154*	S-8	(2-pos. tallight)	14	.51		
		(2-pos. tallight)	6.4	2.63	.39	2.36
1224K	G-6	Candelabra screw	32	.18	.54	3.30
1240	G-16 1/2	D.C. prefocus	32	3.5	1.90	11.60
1404	G-6	S.C. bayonet	10	.09	.49	2.98
1408	T-3 1/4	Min. bayonet	10	.13	.27	1.67
1446	G-3 1/2	Min. screw	12	.20	.25	1.53
1447	G-3 1/2	Min. screw	18	.15	.20	1.22
1449	G-3 1/2	Min. screw	14	.20	.16	.99
1458	G-5	Min. bayonet	20	.25	.27	1.67
1474	T-3	Min. screw	14	.17	.35	2.14
1476	T-3	Min. screw	18	.17	.44	2.65
1477	T-3	Min. screw	24	.17	.54	3.30
1488	T-3 1/4	Min. screw	14	.20	.25	1.53
1490*	T-3 1/4	Min. bayonet	14	.15	.27	1.67
1491*	T-3 1/4	Min. bayonet	3.2	.16	.18	1.12
1491	G-8	D.C. bayonet	2.4	.80	.49	2.98
1493	S-8	D.C. bayonet	6.5	2.75	1.5	6.42
1630	S-8	D.C. prefocus	6.5	2.75	1.40	8.55

\*Inside frosted. †Outside coated red. ‡Outside coated green. §S.C. indicates single contact; D.C., double contact; Min., miniature. \*Popular Types. \*FET included where applicable.

Lamp No.	Bulb	Base†	Design		Net Price*	
			Volts	Amps	Each	Box 10
1651	S-8	S.C. bayonet	5	0.60	\$0.65	\$3.98
1724	S-11	D.C. bayonet	6.2	4.50	.87	5.29
1763	S-11	S.C. prefocus	6.1	4.10	1.20	7.60
1767	T-1 1/4	Midget screw	2.5	.20	.65	3.98
1768	T-1 1/4	Midget screw	6	.20	.90	5.50
1769	T-1 1/4	Midget screw	2.5	.20	.87	5.29
1809	T-3 1/4	Midget screw	6.3	.075	.87	5.29
1813	T-3 1/4	Min. bayonet	2	.06	.54	3.30
1815*	T-3 1/4	Min. bayonet	14.4	.10	.25	1.53
1819*	T-3 1/4	Min. bayonet	14	.20	.20	1.22
1822	T-3 1/4	Min. bayonet	28	.04	.36	2.18
1828	T-3 1/4	Min. bayonet	37.5	.05	.60	3.67
1829*	T-3 1/4	Min. bayonet	28	.07	.35	2.14
1835	T-3 1/4	Min. bayonet	55	.05	.65	3.98
1847*	T-3 1/4	Min. bayonet	6.3	.15	.18	1.12
1850	T-3 1/4	Min. bayonet	5	.09	.25	1.53
1855	T-4 1/2	Min. bayonet	6.3	.80	.35	1.99
1866	T-3 1/4	Min. bayonet	6.3	.25	.22	1.33
1881	T-3 1/4	Min. bayonet	15.5	.24	.18	1.12
1891*	T-3 1/4	Min. bayonet	14	.24	.16	1.00
1892	T-3 1/4	Min. bayonet	14.4	.12	.25	1.53
1898	T-3 1/4	Min. bayonet	14	.33	.35	2.14

## NEON INDICATING GLOW LAMPS

Gaseous-discharge type for use as indicators. Average useful life, 25,000 hours AC; Types NE-17, 45, 48, 57, 58, 7,500 hours. Types NE-30, 34, 56, 79, 10,000 hours; Type NE-51, 15,000 hours. DC is approximately 60% of AC values. Ambient Temperature: Not to exceed 300° F.

Lamp No.	Nom. Watts	Volts (Circ.)	Bulb (Clear)	Base	Res.* Ohms	Net Each
A1B	1/25	105-125	T-2	Wire term.	220K	\$0.34
A1C†	1/10	105-125	T-2	Wire term.	68K	.14
NE-2 (A1A)	1/17	105-125	T-2	Wire term.	150K	.10
NE-2A (A2A)	1/25	105-125	T-2	Wire term.	220K	.10
NE-2D (A7A)	1/12	105-125	T-2†	SC Mid. Fig.	100K	.82
NE-2E (A9A)	1/12	105-125	T-2†	Wire term.	100K	.10
NE-2H (C2A)†	1/4	105-125	T-2†	Wire term.	30K	.12
NE-2J (C9A)†	1/4	105-125	T-2†	Wire term.	30K	.82
NE-2M (K2A)	1/17	105-125	T-2	Wire term.	150K	.34
NE-2P (K3A)†	1/4	105-125	T-2†	Wire term.	30K	.34
NE-2P (A2B)	1/12	105-125	T-2	Wire term.	100K	.14
NE-17 (B5A)	1/4	105-125	T-4 1/2	DC Bay.	30K	.50
NE-30 (J5A)	1	105-125	S-11	Med. Scr.†	7.5K	1.20
NE-32 (L5A)	1	105-125	G-10	DC Bay.	7.5K	1.20
NE-34 (R2A)	2	105-125	S-14	Med. Scr.	3.5K	1.85
NE-40 (R6A)	3	105-125	S-14	Med. Scr.	2.2K	2.70
NE-45 (B7A)	1/4	105-125	T-4 1/2	Cand. Scr.	30K	.85
NE-48 (B9A)	1/4	105-125	T-4 1/2	DC Bay.	30K	.70
NE-51 (B1A)	1/25	105-125	T-3 1/4	Min. Bay.	220K	.21
NE-51H (B2A)†	1/7	105-125	T-3 1/4	Min. Bay.	47K	.23
NE-56 (J9A)	1	210-250	S-11	Med. Scr.†	33K	1.25
NE-57 (F3A)	1/4	105-125	T-4 1/2	Wire term.	100K	.14
NE-58 (F4A)	1/4	105-125	T-4 1/2	Cand. Scr.†	30K	.99
NE-79 (R1A)	1/2	210-250	S-7	Cand. Scr.	100K	.95
NE-84 (K1A)†	1/4	105-125	T-2†	DC Bay.	7.5K	1.35
				Spec.tel.slide	30K	.64

## AC-DC ARGON INDICATOR LAMPS

Lamp No.	Starting Volts DC	Operating Volts DC	DC Ma	Base	Net Each
AR-1 (W1A)	2	105-125	S-14	Med. Scr.	3.5K \$1.90
AR-3 (J2A)†	1/4	105-125	T-4 1/2	Cand. Scr.	15K .85
AR-4 (J3A)†	1/4	105-125	T-4 1/2	DC Bay.	15K .75
AR-9 (K4A)	1/25	105-125	T-2	Wire term.	220K .20

\*Lamps with screw base have proper ballast built-in. Those with bayonet base or wire terminals do not have them, but are to be supplied and attached by user. Resistance shown for normal operation at indicated circuit volts. †Formed tip bulb. ‡Use 135 v. minimum for satisfactory DC operation. †Round end bulb. ‡Center electrode connected to base shell. \*FET included.

## CIRCUIT COMPONENT NEON LAMPS

For use as voltage indicators, regulators, switching, etc. All ratings below are DC; all bulb types are T-2 except: NE-67 (T-3 1/4) and NE-16 (T-4 1/2). All have parallel-post electrodes (W-11), except NE-16, fireman's hat electrodes (P-3). Ambient Temperature: -60° F to +165° F, limit.

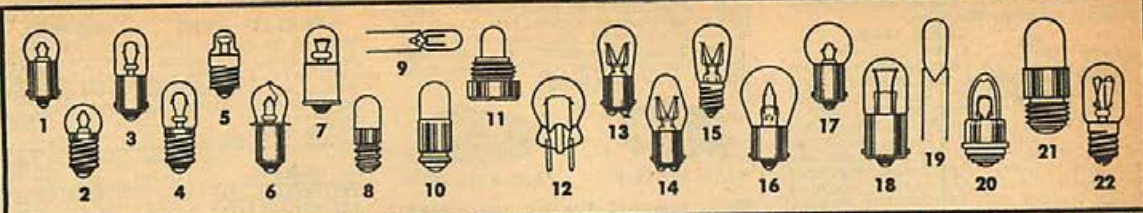
Lamp No.	Starting Volts DC	Operating Volts DC	DC Ma	Base	Net Each
NE-23 (5AB)	60-90	59*	0.3	Wire term.	\$0.16
NE-68 (5AC)†	60-90	52-65	0.3	Wire term.	.40
NE-76 (5AG-A)†	68-76	50-60	0.4	Wire term.	.50
NE-81 (5AG)†	64-80	50-60	0.3	Wire term.	.40
NE-83 (5AH)†	60-100	61*	10.0	Wire term.	.20
NE-86 (5AJ)†	55-90	57*	1.5	Wire term.	.16
NE-95 (4AB)	120-150	60-80	0.5	Wire term.	.20
NE-97 (4AC)	110-140	60-80	0.5	Wire term.	.20
NE-3 (8AC)	55-90	55*	0.3	Tel. Slide.	.63
NE-4 (8AB)	60-90	59*	0.3	Tel. Slide.	.40
NE-5 (8AC)	120-150	60-80	0.5	Tel. Slide.	.43
NE-67 (5AC)	55-90	56*	0.2	Min. Bay.	.20
NE-16 (7AA)	67-87	53-65	1.5	DC Bay.	.63

\*Average, after 100 hours burning at rated current. Individual lots may vary from average. †Leads are tinned. ‡Average greater than indicated value.



# Chicago Miniature Lamps

## MINIATURE, PANEL, INDICATOR, NEON GLOW AND SPECIAL LAMPS



The listings below merely represent a few of Chicago Miniature's most popular lamps. Specifications and engineering data covering all standard lamps are available on request. For proven dependability always ask for Chicago Miniature lamps.

### PANEL, INDICATOR, RADIO AND COIN MACHINE LAMPS

Lamp No.	MS No.	Bulb & Base	Fig.	Volts	Amps or CP	Hrs. Life	Net Price	
							Each	Box of Ten
10		G-3 1/2	12	2.5	.50	3000	\$0.26	\$ 1.59
12		G-3 1/2	12	6.3	.15	L	.25	1.50
19		G-3 1/2	12	12.0	.10	1000	.35	2.14
43		T-3 1/4	3	2.5	.50	3000	.22	1.34
44	15571-1	T-3 1/4	3	6.3	.25	3000	.14	.85
46	15536-1	T-3 1/4	4	6.3	.25	3000	.14	.85
47	15571-2	T-3 1/4	3	6.3	.15	3000	.14	.85
48		T-3 1/4	4	2.0	.06	1000	.22	1.34
49		T-3 1/4	3	2.0	.06	1000	.18	1.12
50		G-3 1/2	2	7.5	.25	500	.16	.92
51	15573-1	G-3 1/2	1	7.5	.22	1000	.13	.82
52		G-3 1/2	2	7.5	.22	1000	.27	1.67
53		G-4 1/2	1	14.4	.12	1000	.13	.82
55	15572-1	G-4 1/2	1	7.0	.41	500	.13	.82
57		G-4 1/2	1	14.0	.24	1000	.13	.82
57X		G-4 1/2	1	14.0	.24	1000	.17	1.05
63	15570-1	G-6	17	7.0	.63	1000	.17	1.05
81	15570-3	G-6	17	6.5	1.02	500	.22	1.31
82	15569-3	G-6	17	6.5	1.02	500	.22	1.31
1458		G-5	17	20.0	.25	250	.27	1.67
1489		T-5	18	6.5	.275	125	2.70	16.70
1490		T-3 1/4	3	3.2	1.16	3000	.18	1.12
1618		S-8	16	6.4	21 CP	200	.70	4.28
1648		S-8	16	8.0	21 CP	200	.70	4.28
1813		T-3 1/4	3	14.4	.10	1000	.25	1.53
1815	15571-8	T-3 1/4	3	14.0	.20	3000	.20	1.22
1820		T-3 1/4	3	28.0	.10	1000	.32	1.94
1822		T-3 1/4	3	36.0	.10	1000	.60	3.67
1847		T-3 1/4	3	6.0	.15	L	.18	1.12
1866		T-3 1/4	3	6.3	.24	L	.22	1.33
1891		T-3 1/4	3	14.0	.24	500	.16	1.00
1892		T-3 1/4	3	14.0	.12	L	.25	1.53

### AIRCRAFT AND SPECIAL LAMPS

Lamp No.	MS No.	Bulb and Base	Fig.	Volts	Amps or CP	Hrs. Life	Net Price	
							Each	Box of Ten
301	25238	G-5	17	28	3 CP	500	\$0.40	\$ 2.44
302	15613-2	G-5	17	28	3 CP	500	.38	2.32
303	15570-6	G-6	17	28	6 CP	500	.38	2.32
304	15569-8	G-6	17	28	6 CP	500	.40	2.44
305	35478-6	S-8	16	28	15 CP	300	.52	3.15
306	15584-15	S-8	16	28	15 CP	300	.85	5.19
307	35478-6	S-8	16	28	21 CP	300	.52	3.15
307F		S-8	16	28	21 CP	300	.61	3.67
308	15584-16	S-8	16	28	21 CP	300	.62	3.78
309		S-11	16	28	32 CP	300	.70	4.28
310		S-11	16	28	32 CP	300	.90	5.50
311	25235-311	S-11	16	28	50 CP	300	.90	5.50
313	25231-313	T-3 1/4	3	28	.17	500	.30	1.87
313R	25231-R313	T-3 1/4	3	28	.17	500	.50	3.02
323	15530-1	T-1 1/4	11	3	.19	350	.90	5.45
323R	AN3136-R323	T-1 1/4	11	3	.19	350	1.05	6.42
325		T-1 1/4	21	3	.19	350	1.25	7.64
327	25237-327	T-1 1/4	7	28	.04	1000	.72	4.37
328	25237-328	T-1 1/4	7	6	.20	500	.56	3.42
328L		T-1 1/4	7	6	.20	3000	1.53	9.50
328R		T-1 1/4	7	6	.20	500	.80	4.89
329		T-1 1/4	21	2.5	.40	30	1.80	11.00
330		T-1 1/4	7	14	.08	750	.80	4.85
331		T-1 1/4	7	1.35	.06	500	.87	5.29
332		T-1 1/4	7	6	.20	500	.83	5.21
334		T-1 1/4	10	28	.04	1000	.78	4.22
335	15612-2	T-1 1/4	8	28	.04	1000	1.50	9.25
336		T-1 1/4	10	14	.08	750	1.50	9.17
337		T-1 1/4	10	6	.20	500	1.60	9.60
337L		T-1 1/4	10	6	.20	3000	2.56	16.00
338		T-1 1/4	7	2.7	.06	500	.87	5.29
342	15612-5	T-1 1/4	8	6	.04	1000	1.50	9.25
344		T-1 1/4	7	10	.015	L	1.50	8.90
345		T-1 1/4	7	6	.04	1000	1.50	9.25
1251		G-6	17	28	3 CP	1000	.40	2.44
1767	15612-4	T-1 1/4	8	2.5	.20	500	.65	3.98
1768	15612-1	T-1 1/4	8	6.0	.20	500	.90	5.50
1769	15612-3	T-1 1/4	8	2.5	.20	500	.87	5.29
1775		T-1 1/4	8	6.3	.075	500	.87	5.29
1816		T-3 1/4	3	13	.33	1000	.24	1.45
1819	15571-6	T-3 1/4	3	28	.035	1000	.36	2.18
1820		T-3 1/4	3	28	.10	1000	.32	1.94
1829		T-3 1/4	3	28	.07	1000	.35	2.14

### FLASHLIGHT AND LANTERN LAMPS

Lamp No.	MS No.	Bulb & Base	Fig.	Volts	Amps or CP	Hrs. Life	Net Price	
							Each	Box of Ten
PR-2		B-3 1/2	6	2.4	.50	15	\$0.20	\$ 1.22
PR-3	15610-1	B-3 1/2	6	3.6	.50	15	.20	1.22
PR-4		B-3 1/2	6	2.3	.27	10	.20	1.22
PR-6	15610-2	B-3 1/2	6	2.5	.30	30	.20	1.22
PR-7		B-3 1/2	6	3.7	.30	30	.25	1.52
PR-12		B-3 1/2	6	6.0	.50	15	.20	1.22
PR-13		B-3 1/2	6	4.75	.50	15	.20	1.22
13	15611-1	G-3 1/2	2	3.7	.30	15	.17	1.04
14	15611-3	G-3 1/2	2	2.5	.30	15	.17	1.04
27	15587-1	G-4 1/2	2	5.0	.30	30	.20	1.22
31	15587-2	G-4 1/2	2	6.15	.30	15	.22	1.33
112		TL-3	5	1.20	.22	5	.17	1.04
123		G-3 1/2	2	1.25	.30	10	.17	1.04
222	15537-1	TL-3	5	2.2	.25	5	.17	1.04
425		G-4 1/2	2	5.0	.50	15	.20	1.22
502		G-4 1/2	2	6.1	.15	100	.17	1.04

### SPECIAL ULTRAMINIATURE LAMPS

With T1 bulb and rated at 5 V. Life. L. Lamps with reference to Fig. 19 are unbased; with reference to Fig. 20, special base.

Lamp No.	MS No.	Fig.	Mean Spherical CP	Net Price	
				Each	Box of Ten
CM8-680	24367-1	19	.032 ± 25%	\$3.20	\$19.60
CM8-715	24367-4	19	.147 ± 25%	3.20	19.60
CM8-682	24515-1	20	.029 ± 25%	4.00	24.40
CM8-718	24515-4	20	.132 ± 25%	4.00	24.40
CM8-685	24515-2	20	.048 ± 25%	4.00	24.40
CM8-714	24515-3	20	.080 ± 25%	4.00	24.40
CM8-683	24367-2	19	.053 ± 25%	3.20	19.60
CM8-713	24367-3	19	.088 ± 25%	3.20	19.60
CM8-682AS15	24515-682AS15	19	.048 ± 15%	4.37	26.50
CM8-685AS15	24515-685AS15	19	.088 ± 15%	4.37	26.50
CM8-714AS15	24515-714AS15	20	.132 ± 15%	4.37	26.50
CM8-718AS15	24515-718AS15	20	.132 ± 15%	4.37	26.50
CM8-680AS15	24367-680AS15	19	.032 ± 15%	3.59	22.00
CM8-683AS15	24367-683AS15	19	.053 ± 15%	3.59	22.00
CM8-713AS15	24367-713AS15	19	.088 ± 15%	3.59	22.00
CM8-715AS15	24367-715AS15	19	.147 ± 15%	3.59	22.00

Bases: \*Min. 2 pin; †Min. Screw; ‡Min. Bayonet; §Single Contact Bayonet; ¶Double Contact Bayonet; \*Midret Flanged; \*Special; \*Min. Flanged; †Midret Grvd.; ‡Midret Screw. Note: "L" in "Hrs. Life" column indicates extremely long life far in excess of 60,000 hours at rated voltage.

### POPULAR NEON GLOW LAMPS

Lamp No.	Watts or mA	Bulb No.	Base	Fig.	Series Resis. Ohms	Hrs. Life	Net Price	
							Each	Ten
NE-2	1/25	T-2	Unbased	9	200K	25K	10c	\$0.70
NE-2A	1/25	T-2	Unbased	9	200K	25K	10c	.70
NE-2D	1/10	T-2	Mid. Fig.	7	82K	5K	82c	5.70
NE-2E	1/10	T-2	Unbased	9	82K	5K	10c	.70
NE-2H	1/10	T-2	Unbased	9	25K	5K	12c	.85
NE-2J	1/10	T-2	Mid. Fig.	7	25K	5K	82c	5.70
NE-2X	1/10	T-2	Unbased	9	62K	5K	10c	.70
NE-45	1/4	T-4 1/2	Candelabra	4	30K	7.5K	85c	6.00
NE-48	1/4	T-4 1/2	D.C. Bay.	3	30K	7.5K	70c	4.90
NE-51	1/25	T3 1/4	Min. Bay.	3	200K	15K	21c	1.50
NE-51H	1/4	T-3 1/4	Min. Bay.	3	25K	5K	23c	1.70
NE-57	1/4	T-4 1/2	Candelabra	4	30K	5K	99c	6.90

### SMALL, STANDARD VOLTAGE LAMPS

Lamp No.	Watts	Bulb	Fig.	Base	Voltage	Net Price	
						Each	Box of Ten
356/5	3	S-6	15	Candelabra	115-120	\$0.39	\$2.70
656	6	S-6	15	Candelabra	135	.45	3.10
7C7	7	C-7	22	Candelabra	115-125	.22	1.60
1056/10	10	S-6	15	Candelabra	260	.52	3.60
1056/13	10	S-6	13	Intermed.	230	.67	4.70

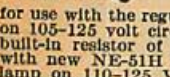




# Pilot Light Assemblies

## NEON SERIES 95408, 52408

Now also available with new High Brightness NE-51H Neon Glow Lamp. Have Patented Built-in Resistor.



Series 95408—Two types available; Series 95408 enclosed neon indicator light has 56,000 ohms, 3/4-watt resistor built-in for use with the regular NE-51 neon lamp on 105-125 volt circuit. Series 95463 has built-in resistor of 22,000 ohms for use with new NE-51H high brightness neon lamp on 110-125 VAC circuits. Rugged design; resistor fully insulated in molded phenolic. Plastic head gives 180° light spread. Lens holder and mounting bushing are black nickel plated. Solder terminals. Size: 2 1/4" long, 1 1/4" O.D.; mounts in 1 1/4" hole in panels up to 3/8" thick. U/L and CSA Listed. Meets requirements of MIL-L-3661A. Series 52408 same as above, but with internally fluted stovepipe lens. Shpg. Wt., 3 oz. Less lamp. For high brightness version: Change 08 in number to 63 (e.g., 95463) and final suffix to -211 (e.g., 95463-931-211) for 22 K ohm resistor. Net Each, 1-9, \$.121; 10-24, \$.109

Dialco No.	Color	Dialco No.	Color
95408-931-241	Red	52408-991-241	Red
95408-933-241	Amber	52408-993-241	Amber
95408-935-241	White	52408-995-241	White
95408-937-241	Clear	52408-997-241	Clear

## DIALCO NEON SERIES 31914

Enclosed assemblies for use with NE-45 neon glow lamps with candelabra screw base for 105-125 volt circuits. Replaceable from front of panel. Convex lens in choice of colors has friction-fit lens holder of polished chrome finish. Nickel plated mounting bushing. Iridite coated, cadmium plated steel hex mounting nut and split lockwasher. Binding screw terminals. Size, 2 1/4" long, 1 1/4" O.D.; mounts in 1" hole. U/L and CSA Listed. Shpg. Wt., 4 oz. Less lamp. Dialco Nos. 31914-111-302 (Red), 31914-113-302 (Amber) or 31914-117-302 (Clear) —Net Each, 1-9, \$.120; 10-24, \$.113



## 1/2" SERIES 81410, 52410

Series 81410—For use with T-3 1/4" bulb, miniature bayonet base incandescent, for 2-55 V circuits. Replaceable from front of panel. Aviation type assembly with socket shell encased in molded phenolic. Smooth face lenses in 3/4" brass lens holder. Holder and mounting bushing black nickel plated. Solder terminals. Size: 2 1/4" lg., 1 1/4" O.D.; mounts in 1 1/4" hole in panels up to 3/8" thick. U/L and CSA Listed. Meets MIL-L-3661A requirements. Net Each, 1-9, \$.127; 10-24, \$.115 Series 95410 and 52410—Same as 81410 but 3/8" plastic stovepipe lens. 52410 lens is internally fluted. Wt., 3 oz. Less lamp. Net Each, 1-9, \$.121; 10-24, \$.109

Convex No.	Stovepipe No.	Fluted No.
* 81410-	95410-	52410-
R 111-201	971-201	991-201
G 112-201	972-201	992-201
A 113-201	973-201	993-201
W 135-201†	975-201	995-201

\*Lens: R—Red, G—green, A—amber, W—white. †Translucent unfrosted lens.

## ENCLOSED ASSEMBLIES ONE-INCH SERIES 314001

Series for use with 8-6 incandescent bulbs with candelabra screw base for 6-125 volt circuits. Lamp replaceable from front of panel. Faceted lens in choice of colors with friction-fit lens holder of polished chrome; white nickel plated mounting bushing. Iridite coated, cadmium plated steel hex nut and split lockwasher. Solder terminals. Size, 2 1/4" long, 1 1/4" O.D.; mounts in 1" hole. U/L and CSA Listed. Shpg. Wt., 4 oz. Less lamp. Dialco Nos. 314001-431-302 (Red), 314001-432-302 (Green), 314001-433-302 (Amber) or 314001-437-302 (Clear)—Net Each, 1-9, \$.120; 10-24, \$.113



## SUBMINIATURE SERIES

For use with T-1 1/4" bulbs for 1.35-28 V. Bulb replaceable from front of panel. Military grade phenolic assures permanent isolation from ground. Fully insulated. Black nickel finish. Lockwasher and nut supplied. Size: 1 1/4" long; 3/4" O.D. Shipping Weight, 2 oz. Less lamp.



Series 101-5030 Series 101-3830

TWO-TERMINAL PLASTIC DOME TYPES Series 101-5030 Front Mount and Series 101-3830 Back Mount; Front mounting units mount in 1 1/4" hole; back mounting units, in 1 1/2" hole. Solder terminals. Net Each, 1-9, \$.126; 10-24, \$.112

Front Mtg. No. \* Back Mtg. No. 101-5030-971-201 R 101-3830-971-201 101-5030-972-201 G 101-3830-972-201 101-5030-973-201 A 101-3830-973-201 101-5030-975-201 W 101-3830-975-201

\*R-Red; G-Green; A-Amber; W-White. INCANDESCENT SUBMIN. MS25256 Front mount., in 1 1/4" hole. Use T-1 1/4" incand. bulbs. Fully insulated. Size: 1 1/4" x 3/4"; 1 1/2 oz. Less lamp. Net Each, 1-9, \$.121; 10-24, \$.108

Dialco No. MS Drwg. Color 162-8430-933-502 MS25256-2 Yellow 162-8430-932-502 MS25256-4 Green 162-8430-931-502 MS25256-6 Red 162-8430-937-502 MS25256-8 Clear 162-8430-975-502 MS25256-10 White 162-8430-934-502 MS25256-12 Blue

NEON SUBMINIATURE MS25257 Front mount., in 1 1/4" hole. Built-in resistor (pat.); use T-2 Neon Glow Lamp (NE-2D); for 105-125 VAC or DC. Size: 1 1/4" x 3/4"; 1 1/2 oz. Less lamp. Net Each, 1-9, \$.202; 10-24, \$.180

Dialco No.	MS Drwg.	Color
137-8836-933-552	MS25257-2	Yellow
137-8836-931-552	MS25257-4	Red
137-8836-937-552	MS25257-6	Clear

1-TERMINAL NON-DIMMING With Binding Screw or Solder Terminal For grounded circuits; meet applicable MIL specs. Frosted lens unless otherwise noted. Size, 1 1/4" long, 3/4" O.D.; mounts in 1 1/4" hole. Shpg. Wt., 1 1/2 oz. Less lamp. Net Each, 1-9, \$.126; 10-24, \$.112

Binding Screw No.	Solder Term. No.
8-1830-111-201 R	8-1930-111-201
8-1830-112-201 G	8-1930-112-201
8-1830-113-201 A	8-1930-113-201
8-1830-135-201 W	8-1930-135-201
8-1830-117-201 C	8-1930-117-201

\*R-Red; G-Green; A-Amber; W-Translucent unfrosted white lens; C-Clear.

DIALCO 1-TERMINAL LIGHT SHIELD UNITS Two Types of Terminals For grounded circuits. Size opening 3/4" x 3/4" for light on panels. Size, 1 1/4" long, 3/4" O.D.; mounts in 1 1/4" hole. Shpg. Wt., 1 1/2 oz. Less lamp. Dialco Nos. 4-1830-201 (Screw terminals); or 4-1930-201 (Solder terminals)—Net Each, 1-9, \$.163; 10-24, \$.143

SERIES 270 FOR PLASTIC PLATE EDGE-LIGHTING Subminiature units for MIL-P-7788 plastic plate panels, per MIL drwg. MS25010-1A to 8A. Size, 1 1/4" long, 1 1/4" O.D.; mounts in 1 1/4" hole. Shpg. Wt., 3 oz. Less lamp. Net Each, 1-9, \$.75; 10-24, \$.68

Solder Term. No.	Filter	Screw Term. No.
270-1930-0111	Clear	270-1830-0111
270-1930-0171	Clear	270-1830-0171
270-1930-3111	Red*	270-1830-3111
270-1930-3771	Clear*	270-1830-3771

\*With light-emitting top.

## TWO-TERMINAL NON-DIMMING SERIES 111-3830



Rugged, general purpose with glass lens in metal holders; unscrew for easy lamp replacement. Frosted lens except as otherwise noted. Internal tooth lockwasher and nut; solder terminals. Size, 1 1/4" long, 3/4" O.D.; mounts in 1 1/4" hole. Shpg. Wt. 1 1/2 oz. Less lamp.

Dialco No.	Lens Color	Net Ea., 1-9	Lots 10-24
111-3830-111-201	Red	\$1.50	\$1.36
111-3830-112-201	Green	1.50	1.36
111-3830-113-201	Amber	1.50	1.36
111-3830-135-201	White*	1.50	1.36
111-3830-117-201	Clear	1.50	1.36

\*Translucent unfrosted lens.

## DIALCO DATALITES

Ultra-Miniature Indicator Lights for Computers, Data Processing Equipment, Automation, etc. Mount in 3/8" hole. "Datalites" are made in two basic styles: With Dialco's lamp cartridges, which are replaceable; and with built-in neon lamps which are permanent, not replaceable. Reg. T.M.

## SINGLE LAMP HOLDER

Use with Dialco's lamp cartridge, removable from front. Size, 1 1/4" long, 1/2" O.D., less cartridge; mounts in 3/8" hole. Two insulated terminals offset for correct polarity when replacing cartridges in DC circuits. Conform to applicable MIL specs. Collar, flange ring and mounting bushing are of aluminum with black anodized finish. Comes complete with mounting hardware, less cartridge. Shpg. Wt., 2 oz. Dialco No. 7538—Net Each, 1-99, \$.122 Dialco No. 7545—Similar to above, but 1/4" longer to accommodate new neon cartridges No. 45 and 45H (High Brightness). Net Each, 1-99, \$.122



## NEON LAMP CARTRIDGES

For use with No. 7538 Lamp Holder Consists of NE-2E neon bulb, 1/25 watt, with starting 65 VAC and 90 VDC, mounted in aluminum sleeve, capped with plastic stovepipe lens. Requires 3/4-watt ballast resistor. Size, 1 1/4" long, 1/4" O.D. Shpg. Wt., 1 oz. Lens is translucent. Dialco Nos. 38-931 (Red), 38-933 (Yellow), 38-935 (White) or 38-937 (Clear)—Net Each, 1-99, \$.86c

## NEON CARTRIDGES NOS. 45, 45H

High Brightness, Similar to No. 38, but 1/4" longer. Built-in resistor (1/10 W).

Stovepipe	Long Cylinder	Lens*
45-56K-931*	45-56K-1531*	Red
45H-22K-931†	45H-22K-1531†	Red

\*Regular: Has built-in 56K resistor for 105-125 VAC/DC. †High-Brightness: Has built-in 22K resistor for 110-125 VAC.

Lens Colors: To specify color, change last digit in Cat. No. as follows: Red-1; Amber-3; White-5; Light Yellow-6; Clear (Colorless)-7. Any Model—Net Each, 1-99, \$.114

## INCANDESCENT LAMP CARTRIDGES

Uses T-1 1/4" incandescent bulb mounted in aluminum sleeve and capped with short cylindrical lens. Specify Voltage: Numbers listed are for standard 6 V cartridges; for other voltages change -6- to -14- or -28-. Size, 1 1/4" long, 1/4" O.D. Shpg. Wt., 1 oz. Lens is translucent. Any Model—Net Each, 1-99, \$.117

Dialco No.	Lens	Dialco No.	Lens
39-6-1471	Red	39-6-1474	Blue
39-6-1472	Green	39-6-1475	White
39-6-1473	Yellow		



## DIALCO DATALITES

\*Reg. T.M.

### DATALITES WITH PERMANENT LAMPS Neon Glow Lamp Built-in, Not Replaceable

Built-in, rugged NE-2E neon lamp requires ballast resistor, also available built-in. Lightweight aluminum design; plastic stovepipe lens. With mtg. hardware and built-in lamp; two fully insulated terminals. Conform to applicable MIL specs. Mounts in 1/4" hole.

### WITHOUT BUILT-IN RESISTOR

1 1/4" long, 1/2" O.D.;

1 1/2 oz.



Dialco No.	Lens Color	Net Ea., 1-99
249-7840-931	Red	\$1.07
249-7840-933	Yellow	1.07
249-7840-935	White	1.07
249-7840-937	Clear	1.07

### WITH BUILT-IN 100K OHMS RESISTOR

1 1/4" long,  
1/2" O.D.; 2 oz.



Dialco No.	Lens Color	Net Ea., 1-99
249-7841-931	Red	\$1.34
249-7841-933	Yellow	1.34
249-7841-935	White	1.34
249-7841-937	Clear	1.34

## PRESS-TO-TEST ASSEMBLIES

Meet requirements of MIL-L-7961B



812-1030-971-506

801-1030-331-504

A slight pressure on the face of the unit "breaks" the normal circuit and "makes" a test circuit. If lamp lights up when pressed in, it is satisfactory. If it fails to light, the lamp is defective. Equipped with three terminals: Two for "normal" circuit, the third for "test" circuit.

### SERIES 804/803 (MS25331)

Mount from back in 3/8" clearance hole. Accommodates T-3 1/4 lamp with miniature bayonet base. Overall size, 1/2" x 2 3/4". Shpg. Wt., 1 1/2 oz. Less lamp.

### WITH MECH. SHUTTER DIMMER

Net Each, 1-24....\$1.95; 25-49....\$1.84

Lens Color	Dialco No.	MIL Type No.
Clear	804-1710-337-504	MS25331-1
Red	804-1710-331-504	MS25331-2
Green	804-1710-332-504	MS25331-3
Amber	804-1710-333-504	MS25331-4
Blue	804-1710-334-504	

### WITHOUT DIMMER

Net Each, 1-24....\$1.87; 25-49....\$1.74

Lens Color	Dialco No.	MIL Type No.
Clear	803-1710-337-504	MS25331-5
Red	803-1710-331-504	MS25331-6
Green	803-1710-332-504	MS25331-7
Amber	803-1710-333-504	MS25331-8
Blue	803-1710-334-504	

### SERIES 801/800 (MS25041)

Similar to above, but mounts in 1/4" clearance hole, accommodates T-1 1/4 lamp with midge flange base, 3/4" x 1 1/4". Less lamp.

### WITH MECH. SHUTTER DIMMER

Net Each, 1-24....\$1.92; 25-49....\$1.75

Lens Color	Dialco No.	MIL Type No.
Clear	801-1030-337-504	MS25041-1
Red	801-1030-331-504	MS25041-2
Green	801-1030-332-504	MS25041-3
Amber	801-1030-333-504	MS25041-4
Blue	801-1030-334-504	MS25041-10

### WITHOUT DIMMER

Net Each, 1-24....\$1.81; 25-49....\$1.64

Lens Color	Dialco No.	MIL Type No.
Clear	800-1030-337-504	MS25041-5
Red	800-1030-331-504	MS25041-6
Green	800-1030-332-504	MS25041-7
Amber	800-1030-333-504	MS25041-8
Blue	800-1030-334-504	MS25041-11

### SERIES 812

Same as above, but with translucent stovepipe lens.

Dialco Nos. 812-1030-975-506 (White), 812-1030-971-506 (Red), 812-1030-972-506 (Green) or 812-1030-973-506 (Amber) —Net Ea., 1-24....\$1.81; 25-49....\$1.64

## OIL-TIGHT ASSEMBLIES

For Heavy Duty Industrial Applications



### 1" SERIES

Enclosed rugged design gasketed with oilproof gaskets impervious to oil, water and dust. Rugged binding screw terminals. Caps unscrew from face of panel. One-piece, solid brass mounting bushing; solid brass knurled lens holder; chrome finish. Glass lens gives omnidirectional (180°) light spread. High impact phenolic insulation. Size, 1 1/4" long, 1 1/2" O.D. Mounts in 1" clearance hole. Shpg. Wt., 3 oz., average. Less lamp.

Net Each, 1-9....\$2.23; 10-24....\$2.07

### FOR 656 INCANDESCENT LAMPS

Torpedo Faceted Lens

For Screw Base	*	For Bayonet Base
103-3101-1211-403	R	103-3502-1331-403
103-3101-1212-403	G	103-3502-1332-403
103-3101-1213-403	A	103-3502-1333-403
103-3101-1214-403	B	103-3502-1334-403
103-3101-1215-403	W	103-3502-1335-403
103-3101-1216-403	Y	103-3502-1336-403
103-3101-1217-403	C	103-3502-1337-403

### DOME TYPE LENS (FROSTED BACK)

Dialco No.	Lens Color	Net Ea., 1-9	10-24
103-3114-1231-403	Red	\$2.23	\$2.07
103-3114-1233-403	Amber	2.23	2.07
103-3114-1236-403	Yellow	2.23	2.07
103-3114-1237-403	Clear	2.23	2.07
103-3114-1217-403	Clear*	2.23	2.07

\*R-Red; G-Green; A-Amber; B-Blue; W-Translucent, unfrosted white; Y-Yellow; C-Clear.

### FOR NEON GLOW LAMPS

For use with NE-45 candelabra screw base lamps. Resistor built into lamp base. Size, 2 1/4" long, 1 1/4" O.D. Fits 1" clearance hole. Shpg. Wt., 3 oz. Less lamp.

Dialco No.	Lens Color	Net Ea., 1-9	10-24
103-3114-1231-403	Red	\$2.23	\$2.07
103-3114-1233-403	Amber	2.23	2.07
103-3114-1236-403	Yellow	2.23	2.07
103-3114-1237-403	Clear	2.23	2.07
103-3114-1217-403	Clear*	2.23	2.07

\*Frosted back.

### DIALCO ONE-INCH SERIES 75

#### DETACHABLE LAMP SOCKET

Candelabra base, 115 volt pilot light assembly with faceted jewel in highly polished chrome plated brass holder. For standard bulbs. Requires hole of 1-inch diameter for mounting. Easily adjusted to lens thickness. Less bulb. Shipping Weight, 5 oz.

Dialco Nos. 75C-431 (Red), 75C-432 (Green), or 75C-433 (Amber) —Net Each, 1-9....\$9.00; 10-24....\$8.00

### DIALCO SERIES 510-710

#### ANGLE BRACKET ASSEMBLY

Economical space saver. For low volt operation of incandescent miniature lamps. With solder terminals. White nickel finish. Mounting hole 1/4" diameter. Effective lens diameter 3/8". Angle bracket units are secured to the panel by the threaded shank of the lens holder and lamps are accessible only from back of panel. Convex lens. Less bulb.

SERIES 510 MINIATURE SCREW  
Dialco Nos. 510-121 (Red), 510-122 (Green) or 510-123 (Amber) —Net Each, 1-9....\$2.30  
Net Each, 10-24....\$2.10

SERIES 710 MINIATURE BAYONET  
Dialco Nos. 710-121 (Red), 710-122 (Green) or 710-123 (Amber) —Net Each, 1-9....\$2.30  
Net Each, 10-24....\$2.10

## OIL-TIGHT, 1 1/16" SERIES



Stovepipe Lenses Fluted or Plain With built-in resistor. Size, 2 1/4" long, 1 1/4" O.D. Mounts in 1 1/4" diameter hole.

Shipping Weight, 2 oz. Less lamp.  
Net Each, 1-9....\$1.86; 10-24....\$1.80

### FOR NE-51 NEON GLOW LAMP

Fluted Lens	*	Plain Lens
125-408-1191-443	R	125-408-1131-443
125-408-1193-443	A	125-408-1133-443
125-408-1196-443	Y	125-408-1136-443
125-408-1197-443	C	125-408-1137-443
		125-408-1117-443

### FOR LOW-VOLTAGE T-3 3/4 MINIATURE BAYONET BASE LAMP

Fluted Lens	*	Frosted Lens
125-410-1191-403	R	125-410-1111-403
125-410-1192-403	G	125-410-1112-403
125-410-1193-403	A	125-410-1113-403
125-410-1194-403	B	125-410-1114-403
125-410-1195-403	W	125-410-1115-403†
125-410-1196-403	Y	125-410-1116-403
125-410-1197-403	C	125-410-1117-403

\*R-Red; G-Green; A-Amber; B-Blue; W-White; Y-Yellow; C-Clear; †Frosted back, clear. ‡Translucent unfrosted.

## OPEN SOCKET ASSEMBLIES

### DIALCO SERIES 31-18-16

#### ONE-INCH REMOVABLE JEWEL

Candelabra base, 115 volt pilot light assembly with faceted jewel in highly polished chrome plated brass holder. For standard bulbs. Requires 1" mounting hole. Solder terminals. Easily adjusted to panel. Secured to panel by separate bushings into which the lens holders are a friction fit, permitting removal for lamp replacement.

Dialco Nos. 31-18-16-431 (Red), 31-18-16-432 (Green) or 31-18-16-433 (Amber) —Net Each, 1-9....\$9.00; 10-24....\$8.00

### DIALCO SERIES 810

#### HALF-INCH REMOVABLE JEWEL

For operation with low volt, miniature bayonet and miniature screw base, incandescent lamps. Burnished nickel finish. Requires 1/4" mounting hole. Faceted lens. Solder terminals. Effective lens diameter 1/2". All brackets are insulated from the live terminals. Unit secured by separate bushings from which caps may be removed easily for access to the lamps. Less bulb.

Dialco Nos. 810B-431 (Red), 810B-432 (Green) or 810B-433 (Amber) —Net Each, 1-9....\$2.00; 10-24....\$1.90

### MINIATURE SCREW BASE

Dialco Nos. 810M-431 (Red), 810M-432 (Green) or 810M-433 (Amber) —Net Each, 1-9....\$2.00; 10-24....\$1.90

### MINIATURE BAYONET BASE

Dialco Nos. 810B-431 (Red), 810B-432 (Green) or 810B-433 (Amber) —Net Each, 1-9....\$2.00; 10-24....\$1.90

### LENSES IN THREADED HOLDERS

#### FOR PANEL MOUNTING

For use with separately mounted lamp sockets. All-purpose smooth jewels in polished chrome-plated brass holders for up to 1/2" panels. 1/4", 3/8" and 1/2" diameters —requiring 1/4", 3/8" and 1/2" holes, respectively, for mounting. Shpg. Wt., 2 oz.

Dialco Nos. 2500E-111-802 (Red), 2500E-112-302 (Green) or 2500E-113-302 (Amber) —Dia., 1/4" —Net Each, 1-9....\$4.00  
Net Each, 10-24....\$3.50

Dialco Nos. 1000E-621-102 (Red), 1000E-622-102 (Green) or 1000E-623-102 (Amber) —3/8" dia. —Net Each, 1-9....\$2.60  
Net Each, 10-24....\$2.20

Dialco Nos. 500E-621-102 (Red), 500E-622-102 (Green) or 500E-623-102 (Amber) —1/2" dia. —Net Each, 1-9....\$3.60  
Net Each, 10-24....\$3.20

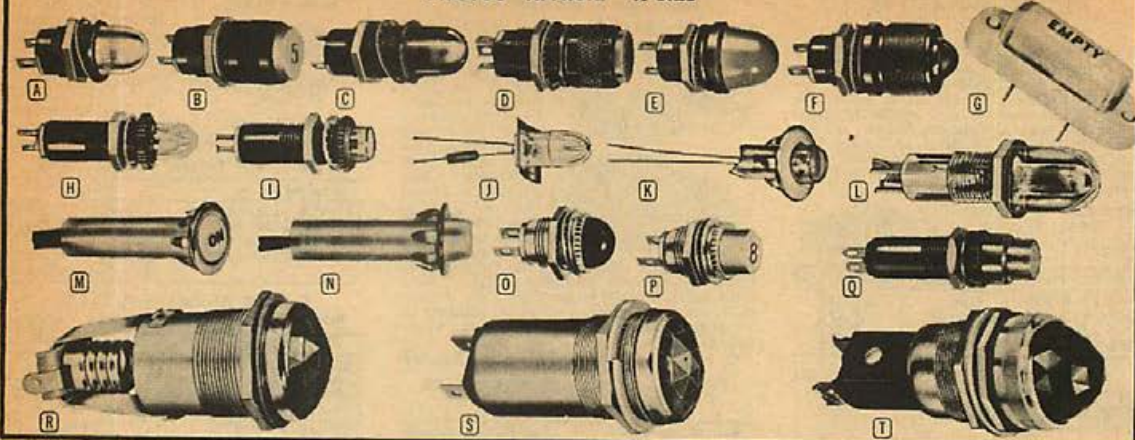




# DRAKE

## INDICATOR LIGHTS, LAMPHOLDERS & LENSES

PHOTOS APPROX. 1/2 SIZE



### "MF" SERIES INDICATOR LIGHTS MIDGET FLANGE BASE UNITS

Incandescent except for neon -703. Front mounted in 1/8" hole; aluminum body. Both lugs insulated from mounting. Threaded shank lens. Commercial units, clear finish; MIL units, black anodized: †LH73-LC12, ‡LH73-LC11 and §LH74-LC13 respectively.

Drake Number	Fig.	Lens Dia.	Projection		Net Each, Lots of*		
			Front	Rear	1-9	10-24	25-99
5131-038-303†	A	1/8"	19/64"	3/8"	\$1.09	\$0.98	\$0.90
5131-038-544‡	B	1/8"	35/64"	3/8"	1.48	1.34	1.24
5133-048-703§	C	1/8"	17/64"	15/64"	.84	.76	.70

\*Built-in 62K-ohm resistor. Max. panel th., 1/32"; others, 1/16".

### "MF" PRESS-TO-TEST UNITS

Provides reliable, instantaneous check of lamp condition. Maximum panel thickness, 1/16".

Drake Number	Fig.	Lens Dia.	Projection	Net Each, Lots of*
5131-638-504	D	13/64"	17/64"	\$2.24 \$2.02 \$1.87

### "MF" OIL-TITE/WATER-TITE UNITS

Recessed rubber "O" rings will withstand up to 25 p.s.i. pressure. Type 5150 has salt shaker dimmer in lens assembly. Maximum panel thickness, 3/16". Per MIL drawing: †D5-15-3217; \*SM-B-450166; \*SM-C-415155; \*ON020148.

Drake Number	Fig.	Lens Dia.	Projection	Net Each, Lots of*
5139-038-304†	E	37/64"	15/64"	\$1.25 \$1.12 \$1.04
5150-038-101*	F	15/64"	15/64"	1.63 1.46 1.35

### NEON INDICATOR LIGHTS—115 VOLTS

#### "FLUSHLITE"—U/L AND CSA APPROVED

"One-of-a-kind". Built-in neon lamp and 25K ohm resistor. To be flush with face of panel, mount from rear in panel, up to 1/16" thick, on 1/8" or 1/4" centers; or, may be mounted on panel top.

Drake Number	Fig.	Lens Size	Projection		Net Each, Lots of*		
			Front	Rear	1-9	10-24	25-99
110-025	G	13/64" x 1 1/4"	11/64"	17/64"	\$0.50	\$0.45	\$0.41

### "MINEON"

Similar to "Econoglo"; mounted in black-anodized aluminum body with two turret or solder (\*) lugs (specify on order). Mount from rear of panel, up to 3/8" thick, in 3/8" dia. hole on 3/8" centers. Hi-Brite, built-in neon lamp with 22K-ohm resistor; 115 VAC.

Drake Number	Fig.	Lens Dia.	Projection	Net Each, Lots of*
HR118-323*	H	11/64"	15/64"	\$0.92 \$0.83 \$0.76
HR118-323	I	11/64"	15/64"	1.09 .98 .91
HR118-603	I	11/64"	15/64"	1.09 .98 .91

### "ECONOGLO"

Mount from front of panel. For type 116, mount in 1/8" hole on panel up to 3/8" thick (fastened with tinnerman nut). For type 117, mount in 1/8" hole on panel up to 1/2" thick (chrome snap-in). Lens shapes (last 3 digits) interchangeable on types 116 and 117. Termination; two-wire leads. Built-in 25K-ohm resistor (\*); others require external resistors, not supplied. Built-in neon lamp. Low cost 115 VAC indicator lights.

Drake Number	Fig.	Lens Dia.	Projection	Net Each, Lots of*
116-603	...	11/64"	3/8"	\$0.22 \$0.20 \$0.18
HR116-323*	...	11/64"	3/8"	.28 .25 .23
117-603	...	11/64"	3/8"	.29 .26 .24
HR117-323*	...	11/64"	3/8"	.34 .31 .28

### "POSTLITE"

Extremely decorative. Built-in series resistor, 25K ohms, and neon lamp for 110-125 v. ac. Mount from front of panel, up to 1/8" thick, in 1/2" dia. hole on 3/8" centers. Hi-Brite lamp.

Drake Number	Fig.	Lens Dia.	Projection	Net Each, Lots of*
105-025	L	1 3/8" sq.	3/8"	\$0.68 \$0.61 \$0.56

PRICES LESS LAMPS UNLESS BUILT-IN.

WRITE FOR O.E.M. DISCOUNTS ON LARGER QUANTITY ORDERS.

### NEON INDICATOR LIGHTS (CONT'D) "GLO-LITES"

One-piece nylon body and lens with built-in Hi-Brite neon lamp. With two lead terminations, 22 ga. plastic-insulated wire. Mount from front of panel, up to .080" thick, in 1/4" dia. hole on 1/8" centers. Built-in resistor: 25K for 115 V; 100K for 250 V (\*).

Drake Number	Fig.	Lens Dia.	Projection		Net Each, Lots of*		
			Front	Rear	1-9	10-24	25-99
6073-544	M	17/64"	1/8"	1 1/2"	\$0.58	\$0.52	\$0.48
6073-634	N	17/64"	1/8"	1 1/2"	.50	.45	.42
6075-544*	M	17/64"	1/8"	1 1/2"	.62	.56	.52
6075-634*	N	17/64"	1/8"	1 1/2"	.54	.49	.45

### "TINYLITE" SERIES INDICATOR LIGHTS MIDGET SCREW BASE LAMPS G-2 7 TO 28 VOLTS INCANDESCENT

Lamps replaceable from front. Mount from front of panel, up to 1/8" thick, in 1/8" dia. hole on 1/8" centers. Lamps built-in: 7 V in 121-7; 28 V in 121-28.

Drake Number	Fig.	Lens Dia.	Projection		Net Each, Lots of*		
			Front	Rear	1-9	10-24	25-99
121-7-204	O	1/8"	31/64"	15/64"	\$0.79	\$0.71	\$0.66
121-7-604*	...	1/8"	31/64"	15/64"	.79	.71	.66
121-7-644	P	1/8"	31/64"	15/64"	.87	.78	.72
121-28-204	O	1/8"	31/64"	15/64"	1.34	1.20	1.11
121-28-604*	...	1/8"	31/64"	15/64"	1.34	1.20	1.11
121-28-644	P	1/8"	31/64"	15/64"	1.42	1.27	1.18

\*Same as -644 type, but unprinted.

### NEW MIDGET BI-PIN CARTRIDGE—120 VOLTS INCANDESCENT INDICATOR LIGHTS

Relamped from front. Rear mounted in 3/8" dia. "D" hole. Black anodized body and lens holder. Two turret lugs. Translucent (\*) or transparent refracting lenses. Maximum panel thickness, 1/16".

Drake Number	Fig.	Lens Dia.	Projection		Net Each, Lots of*		
			Front	Rear	1-9	10-24	25-99
5300-428-607*	Q	13/64"	15/64"	1 1/2"	\$1.07	\$0.96	\$0.89
5300-428-696	Q	13/64"	15/64"	1 1/2"	1.07	.96	.89

### 1" LENS INDICATOR LIGHTS CANDELABRA SCREW 5-6—115 VOLTS MONEY-SAVER—U/L AND CSA APPROVED

Polished chrome lens holder. Lamps replaceable from front or rear. Mount from front of panel, up to 3/8" thick, in 1" dia. hole on 1 1/2" centers. Slip-fit bezel (\*).

Drake Number	Fig.	Lens Dia.	Projection		Net Each, Lots of*		
			Front	Rear	1-9	10-24	25-99
75-110*	R	1"	1 1/8"	2 3/8"	\$1.00	\$0.90	\$0.83

### STANDARD—U/L AND CSA APPROVED

Easy front replacement of pop-forward lamps. Snap-in lens ass'y.

Drake Number	Fig.	Lens Dia.	Projection	Net Each, Lots of*
B1476L-ISE-110	S	1"	1 1/8"   2 3/8"	\$1.46 \$1.31 \$1.21

### "TITELITE"

Neoprene gaskets seal out oil, water, dust and dirt.

Drake Number	Fig.	Lens Dia.	Projection	Net Each, Lots of*
B1479L-IBE-410	T	1"	1 1/8"   1 1/2"	\$2.05 \$1.84 \$1.70

SPECIFY COLOR ON ORDER: Incandescent and Neon—Red, Yellow (Amber), White or Colorless. Incandescent Only—Green or Blue.

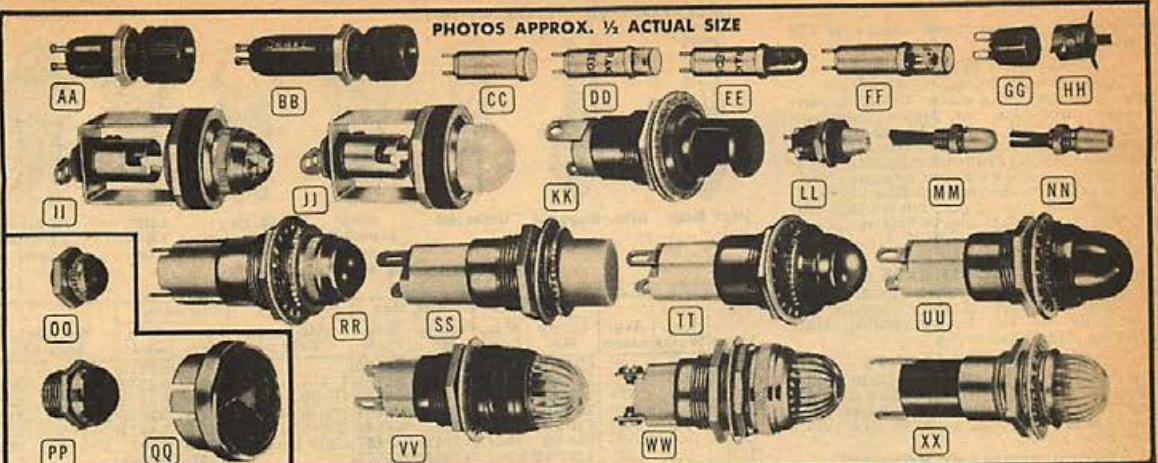
Lenses 503, 504, 603 and 604 may be imprinted; change 0 (2nd digit) to 4 (e.g., 543). Prices on Request.





# DRAKE

## INDICATOR LIGHTS, LAMPHOLDERS & LENSES



### BI-PIN CARTRIDGE LAMPHOLDERS

Lampholders have lamp cartridges replaceable from front. Mount from rear of panel, up to 1/4" thick, in 3/8" dia. hole on 1/2" centers. Two tinned turret lugs.

Drake Number	Fig.	Projection Front	Projection Rear	Resis., Ohms	Net Each, Lots of*		
					1-9	10-24	25-99
4428-001	AA	3/8"	1 1/4"	None	\$1.00	\$0.90	\$0.83
4438-001	BB	3/8"	1 1/4"	22K	1.25	1.12	1.04

### "BI-PIN CARTRIDGE LAMPS"

Small size, easy-plug-in neon or incandescent lamp sealed into aluminum casing. Stainless steel pins. Neon cartridges require a series resistor. Nos. 5-(\*) have built-in 22K ohm resistor.

NEON							
Drake Number	Fig.	Lens Dia.	Projection Front	Projection Rear	Volts	Net Each, Lots of*	
						1-9	10-24 25-99
1-503	CC	3/8"	1 1/4"	1 1/4"	115	\$0.80	\$0.72 \$0.66
1-603	DD	3/8"	1 1/4"	1 1/4"	115	.80	.72 .66
5-703*	EE	3/8"	1 1/4"	1 1/4"	115	.80	.72 .66
5-803*	FF	3/8"	1 1/4"	1 1/4"	115	.80	.72 .66

INCANDESCENT							
Drake Number	Fig.	Lens Dia.	Projection Front	Projection Rear	Volts	Net Each, Lots of*	
						1-9	10-24 25-99
6-604	DD	3/8"	1 1/4"	1 1/4"	6	\$0.98	\$0.88 \$0.81
7-503	CC	3/8"	1 1/4"	1 1/4"	10	1.53	1.38 1.27
11-604	DD	3/8"	1 1/4"	1 1/4"	28	1.08	.97 .90

### CONNECTORS AND FASTENERS

Drake No. 399-558 Connector (Fig. GG)—Used with 763 fastener to mount "Bi-Pin Cartridge Lamps" where conventional method is impractical; or, to save money. Net Each, Lots 1-9... 14c\* Lots 10-24... 12c\* Lots 25-99... 11c\*

Drake No. 763 Fastener (Fig. HH)—Net Each, Lots 1-9... 4c\* Lots 10-24... 3c\* Lots 25-99... 3c\*

### "MONEY-SAVER" INDICATOR LIGHTS

#### MINIATURE BAYONET BASE T-3 1/4—6 TO 28 VOLTS

Nickel-plated lens holder. Lamps replaceable from front. Mount from front of panel, up to 3/8" thick, in 1/2" dia. hole on 1" centers. Rated 2 watts.

Drake Number	Fig.	Lens Dia.	Projection Front	Projection Rear	Net Each, Lots of*		
					1-9	10-24	25-99
50-113	II	3/8"	1 1/4"	1 1/4"	\$0.46	\$0.42	\$0.38
51-304	JJ	3/8"	1 1/4"	1 1/4"	.39	.35	.32

### INSTRUMENT LIGHT

#### MINIATURE BAYONET BASE T-3 1/4—6 TO 28 VOLTS

Threaded hood. Lamps replaceable from front. Mount from front of panel, to 1/2" th., in 1/2" dia. hole on 1 1/2" ctrs.; 2 solder lugs.

168E | KK | ... | 1 1/2" | \$1.55 | \$1.40 | \$1.29

### NEW "GEMLITE"

Replaceable, long-life, sub-midget incandescent lamp T-1, 5 V. Front mounted in 3/8" hole. Brass body; two lugs insulated from ground. Meets MIL applications. Max. panel thickness, 1/2".

5160-458-604 | LL | 3/8" | 3/8" | 1 1/2" | \$1.75 | \$1.58 | \$1.46

5160-458-644 | LL | 3/8" | 3/8" | 1 1/2" | 1.84 | 1.66 | 1.53

### NEW "ASTROLITE"

Built-in T-1 incandescent lamp with 60,000 hours life, 5 V. Mounts in .191" dia. "D" hole. Stainless steel body. Two Teflon® insulated, 6' leads. Translucent, butyrate lens per MS25446. Maximum panel thickness, 1/8".

6026-704 | MM | 7/8" | 1 1/4" | 1 1/4" | \$2.95 | \$2.65 | \$2.46

6026-844 | MM | 7/8" | 1 1/4" | 1 1/4" | 3.04 | 2.73 | 2.53

### DRAKE LENSES

The last three digits of most Drake numbers identify lens shapes and other variations. Below are three popular lenses.

Drake Number	Fig.	Lens Dia.	Shank			Net Each, Lots*		
			O.D.	I.D.	Lgth.	1-9	10-24	25-99
14-15-113	OO	3/8"	3/8"-32 thd.	1 1/4"	3/8"	\$0.11	\$0.10	\$0.09
16-17-113	PP	3/8"	3/8"-27 thd.	1 1/4"	3/8"	.15	.14	.13
75A-110	QQ	1"	.887/.889	1 1/4"	3/8"	.47	.42	.39

### "DELUXE MOLDED" INDICATOR LIGHTS

#### MINIATURE BAYONET BASE T-3 1/4—6 TO 28 VOLTS

#### NEON NE-51H—115 & 250 V.—U/L & CSA APPROVED

Polished chrome finish. Assured dependability; fine appearance. Feature E-Z-Tite flange for quick assembly with Drake No. 32 wrench. Lamp replaceable from front. Mount from front of panel, up to 1/4" thick, in 1/2" dia. hole on 1/2" centers. Neon lamps have built-in series resistor. Two solder lugs.

Drake Number	Fig.	Lens Dia.	Projection Front	Projection Rear	Resis., Ohms	Net Each, Lots*		
						1-9	10-24	25-99
5200-222-101	RR	3/8"	1 1/4"	1 1/4"	22K	\$0.97	\$0.87	\$0.81
5200-222-604	SS	3/8"	1 1/4"	1 1/4"	22K	.81	.73	.67
5200-228-101*	TT	3/8"	1 1/4"	1 1/4"	22K	1.33	1.19	1.10
5200-228-301*	UU	3/8"	1 1/4"	1 1/4"	22K	1.57	1.41	1.30
5200-232-623	SS	3/8"	1 1/4"	1 1/4"	100K	.98	.88	.81
5200-242-604	SS	3/8"	1 1/4"	1 1/4"	100K	.98	.88	.81
5202-222-301†	SS	3/8"	1 1/4"	1 1/4"	100K	1.19	1.07	.99

### MAXIMUM VISIBILITY SERIES

Female thread in lens holder permits neon lamp to project into macrodome lens for maximum visibility. U/L and CSA Approved.

5204-238-320\* | VV | 3/8" | 1 1/4" | 1 1/4" | 27K | \$1.87 | \$1.68 | \$1.56

\*MIL unit black nickel-plated—5200-228-101 (LH75-LC14), 5200-228-301 (LH75-LC15), or 5204-238-320 (LH78-LC20).

### "TITELITE" SERIES

Neoprene gasket seals out oil, water and dust. Front or rear panel mount.

5205-223-320† | WW | 3/8" | 1 1/4" | 1 1/4" | ... | \$1.69 | \$1.52 | \$1.40

### STANDARD SERIES INDICATOR LIGHTS

#### MINIATURE BAYONET T-3 1/4—6 TO 28 VOLTS

#### NEON NE-51H—115 & 250 V.—U/L & CSA APPROVED

Nickel-plated lens holder and flange. Replace lamps from front. Front-mount in 1/2" hole on 1 1/2" centers in panel up to 1/2" thick. Two solder lugs.

5100-182-110 | ... | 3/8" | 1 1/4" | 1 1/4" | ... | \$0.70 | \$0.63 | \$0.58

5100-182-304 | ... | 3/8" | 1 1/4" | 1 1/4" | ... | .60 | .54 | .50

5100-192-323 | XX | 3/8" | 1 1/4" | 1 1/4" | 25K | .71 | .64 | .59

5100-202-323 | XX | 3/8" | 1 1/4" | 1 1/4" | 100K | .71 | .64 | .59

NEW—For the first time—these Drake units can use 120 v. min. bay. incandescent lamp; 3 watts, T-2 bulb, 1500 ft. candle, life 3000 hrs. (twice cand. screw). Lamp prices on request.

### LAMPHOLDERS

SOCKET TYPES: 100 Series, miniature screw; 200 Series, miniature bayonet. BRACKET TYPES: Last two digits in number indicate mounting bracket type: 03, flanged clip bracket; 04, flat clip bracket; 06, flat bracket, 1/4" lg. slot; 09, flat bracket, #8 screw hole; 17, lugs only. BRACKET 5 & LUGS POSITIONS: A, bracket alongside socket; C, bracket away from socket; E, lugs 60° apart; H, lugs 180° apart—add these suffixes when ordering (i.e., 103AE, AH, CE or CH).

Drake Numbers	Socket Type	Net Each, Lots of*			
		1-9	10-24	25-99	100-249
103, 104, 106, 109	Min. screw	11c	10c	9c	8c
117H	Min. screw	11c	10c	9c	8c
203, 206, 208, 209	Min. bayonet	12c	11c	10c	9c
217H	Min. bayonet	12c	11c	10c	9c

\*PRICES LESS LAMPS UNLESS BUILT-IN.

WRITE FOR O.E.M. DISCOUNTS ON LARGER QUANTITY ORDERS.

Lenses 503, 504, 603 and 604 may be imprinted; change 0 (2nd digit) to 4 (e.g., 543). Prices on Request.

SPECIFY COLOR ON ORDER: Incandescent and Neon—Red, Yellow (Amber), White or Colorless. Incandescent Only—Green or Blue.



# SYLVANIA Pilot Lights

Subsidiary of GENERAL TELEPHONE & ELECTRONICS

No bulky, expensive transformers for 120 V lamps.

## SLIDE BASE PILOT LAMPS

(For use with Universal Housings)  
**Life:** 6000 hrs. min., static. **Construction:** Rugged fair-stem for highest environmental reliability. **The Lamp for the Particular Job:** Established resonance frequencies for each lamp type permits accurate selection of correct lamp for optimum performance. **Exclusive Slide Base:** Greatly increases the area of positive contact and reduces lamp failure due to extreme shock and vibration. **Size:** 1.075" lg. x .280" diameter, maximum.

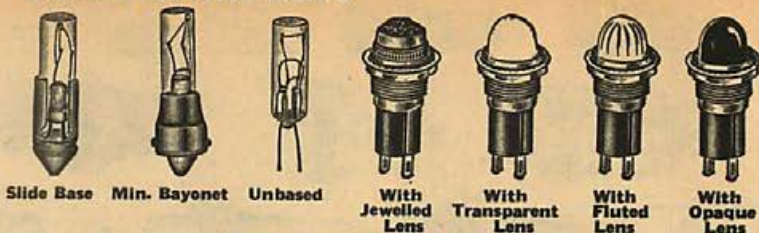
**MINIATURE BAYONET BASE LAMPS**  
 Designed to replace conventional T-3 1/4 miniature bayonet lamps. Feature the same long life and environmental reliability as Slide Base types.

**UNBASED PILOT LAMPS**  
 The extra long life of Spec-Master pilot lights permits you to wire the lamp directly into the circuit by using the unbased pilot lamp. **Size:** .746" lg. x .240"-.275" dia., plus .875" leads.

**SHOCK RESISTANT HOUSING**  
 (For use with Slide Based Pilot Lamps)  
 Rugged phenolic housing with nickel-plated contacts to MS-33586 specifications. Chrome-plated, threaded mounting bushing. Electrical contact can be made with AMP No. 42040-1 connector; or leads can be soldered through holes provided in contacts. Rated 75 watts, 125 V. Length: 1 1/2". Panel Thickness: 1 1/2" max. U/L Approved.

Sylvania Housing B0099—Net Ea., Lots of  
 1-9. **65c**; 10-99. **56c**; 100-499. **51c**;  
 500-999. **49c**; 1000 Up. **47c**

## SPEC-MASTER PILOT LIGHTS



## SPEC-MASTER PILOT LIGHTS

To Order, Use Lamp No. and Mfg. Code.

Volts	Avg. Watts	Avg. Amps	Slide Base		Min. Bay		Net Each, Lots of	Unbased		Net Each, Lots of	
			Lamp No.	Mfg. Code	Lamp No.	Mfg. Code		Lamp No.	Mfg. Code		
6	.8	.140	6PSB	B0672	6MB	B5100	1-9	6PS	B0673	1-9	38c
12	2.0	.170	12PSB	B1272	12MB	B5101	10-99	12PS	B1273	10-99	33c
24	1.7	.073	24PSB	B2472	24MB	B5103	100-499	24PS	B2473	100-499	30c
28	1.1	.040	28PSB	B2872	28MB	B5104	500-999	28PS	B2873	500-999	27c
48	2.5	.053	48PSB	B4872	48MB	B5106	1000 Up.	48PS	B4873	1000 Up.	25c
60	3.0	.050	60PSB	B6072	60MB	B5107					
120	3.0	.025	120PSB	B2072	120MB	B5108					

## SPEC-MASTER COLOR LENSES

High temperature Lexan thermoplastic lenses withstand up to 290° F at 66 psi. Provide a wide angle of visibility with only a 15% loss of signal.

Lens Color	Jewelled Number	Transparent Number	Fluted Number	Opaque Number	Lens Color	Net Each, Lots of
Red	JR-B0100	TR-B0110	FR-B0120	OR-B0130	Red	1-9
Green	JG-B0102	TG-B0112	FG-B0122	OG-B0132	Green	10-99
Blue	JB-B0103	TB-B0113	FB-B0123		Blue	100-499
Amber	JA-B0106	TA-B0111	FA-B0126		Amber	500-999
Yellow		TY-B0114		OY-B0131	Yellow	1000 Up.
White				OW-B0133	White	
Clear		TC-B0116	FC-B0125		Clear	

## INDICATOR LAMPS AND SOCKETS

### INDICATOR LAMPS

Used by major computer manufacturers and other leaders in the electronic field. **Life:** 5,000 to 15,000 hrs. **Construction:** Slide base and ruggedized construction resist extreme shock and vibration. **Molded Glass Mount:** Provides greater filament stability. **Unique Flat-Top:** For maximum light output. **Operating Temperature Range:** -70° F to +375° F, base insulator. **Contacts:** Nickel-plated, meet MS-33586 specs. Other features include: Dumet lead wire, nickel-iron alloy core, copper sleeve with same coefficient of expansion as glass. Lead length (unbased lamp), 1/4". **Size:** Based—.875" lg. x .240"-.275" dia.; Unbased—.640" lg. x .240"-.275" dia., plus .875" leads.

### STRIP SOCKETS

Made of Lexan†. Twelve sockets per strip on either 1/4" or 3/8" centers. Can be easily cut to any size. Nickel-plated contacts, when used with nickel-plated indicator lamps, comply with MS-33586 (Disimilar Metals). Three Tinnerman clips (C10464-012-27 for 1/4" centers, C11600-012-27 for 3/8" centers) for mounting to panel. AMP 42040-1 receptacle may be used or leads may be soldered to socket contacts. **Size of Strip:** 1/4" ctrs.—9.0" w. x .563" d. x .734" h. plus .375" lugs; 3/8" ctrs.—6.0" w. x .563" d. x .734" h. plus .375" lugs. †Registered GE trademark.

### SINGLE SOCKETS

Choice of rectangular or round. Nickel-plated contacts per MS-33586 specs. The rectangular socket can be positioned either 1/4" or 3/8" centers according to the socket strip used. AMP 42040-1 receptacle may be used. Tinnerman clip C10464-012-27 for socket mounting supplied. **Size:** Rectangular—.750" w. x .500" d. x .734" h. plus .375" lugs, socket, .500" dia. Round—.694" dia. x .859" h. plus .281" lugs, under flange dia., .497".

### COLOR CAPS

Both Pyrex and Profax type caps in five standard colors. Profax cap is desirable in applications in which aesthetic value and illumination of the cap is important. Should be used with lamps rated below 1.5 watts. Pyrex cap is used with lamps above 1.5 watts. Only Profax color caps can have up to two numbers or letters legended.



Based, Unbased Lamps

Socket Strip

Sockets and Color Caps

### INDICATOR LAMPS

Order by Lamp No. and Mfg. Code.

Volts	Avg. Watts	Current Amperes Min.-Max.	Slide Base Lamps			Unbased Lamps (Two Leads)		
			Lamp No.	Mfg. Code	Net Each, Lots of	Lamp No.	Mfg. Code	Net Each, Lots of
4	.16	.035-.045	4ESB	B0450	1-9	4ES	B0452	1-9
5	.20	.035-.045	5ESB	B0550	10-99	5ES	B0551	10-99
6	.24	.035-.045	6ESB	B0650	100-499	6ES	B0652	100-499
10	.18	.015-.020	10CSB	B1030	500-999	10CS	B1031	500-999
10	.40	.035-.045	10ESB	B1063	1000 Up.	10ES	B1053	1000 Up.
12	.36	.035-.045	12ESB	B1255		12ES	B1257	
16	.28	.015-.020	16CSB	B1630		16CS	B1632	
16	.64	.035-.045	16ESB	B1650		16ES	B1652	
18	.72	.035-.045	18ESB	B1860		18ES	B1861	
24	.96	.035-.045	24ESB	B2455		24ES	B2454	
24	.42	.015-.020	24CSB	B2490		24CS	B2491	
28	1.12	.035-.045	28ESB	B2900		28ES	B2905	
10	.10	.009-.011	10ASB	B1040	1-9	10AS	B1041	1-9
					10-99			10-99
					100-499			100-499
					500-999			500-999
					1000 Up.			1000 Up.
48	1.92	.035-.045	48ESB	B4861	1-9	48ES	B4862	1-9
					10-99			10-99
					100-499			100-499
					500-999			500-999
					1000 Up.			1000 Up.

### SOCKET STRIPS AND SOCKETS

Use this No. to Order	Socket Type	Centers	Net Each, Lots of				
			1-9	10-19	20-49	50-99	100 Up
Strip-B1250†	Strip of 12 sockets	1/4"	\$2.98	\$2.79	\$2.54	\$2.39	\$2.24
Strip-B1275†	Strip of 12 sockets	3/8"	2.98	2.79	2.54	2.39	2.24
Strip-B3250*	Strip of 12 sockets	1/4"	3.10	2.95	2.75	2.58	2.39
Strip-B3275*	Strip of 12 sockets	3/8"	3.10	2.95	2.75	2.58	2.39
Socket-B0150	Single, round	.....	.26	.24*	.23†	.21†	.20†
Socket-B0131	Single, rectangular	.....	.26	.24*	.23†	.21†	.20†

Lots of: \*10-99; †100-499; ‡500-999; §1000 Up. Connection: †Common ground; \*Individual contacts.

### COLOR CAPS

Color Cap	Pyrex Glass Cap Order No.	Profax Cap* Order No.	Net Each, Lots of
Red	CAP-B8071	CAP-B8001	1-9
Yellow	CAP-B8072	CAP-B8002	10-99
White	CAP-B8073	CAP-B8003	100-499
Green	CAP-B8074	CAP-B8004	500-999
Blue	CAP-B8075	CAP-B8005	1000 Up.

\*Legends available up to 2 per cap; specify numbers 0 thru 9 or letters A thru Z and add 1c per legend to price.





# Waber Multiple Outlets

MASTER POWER CONTROLS FOR INDUSTRY, LABORATORY OR SERVICE SHOP

## INLINE OUTLET BOXES

Extra outlet on end for series-string wiring. Model 15 has control unit with 7 "U" ground outlets, switch and pilot light; Model 17, slave with 9 outlets only.

Waber Model	Type	Cord Lgth.	Net Each
15	Fuse	6 ft.	\$ 8.75
15-15	Fuse	15 ft.	9.75
15CB	Circuit breaker	6 ft.	9.75
15CB-15	Circuit breaker	15 ft.	10.75
17	Outlets only	6 ft.	6.75
17-15	Outlets only	15 ft.	7.75

## "U" GROUND OUTLET BOXES

Model 24 has six outlets, pilot light and switch; Model 32, four sets color-coded outlets and switches.

Waber Model	Type	Cord Lgth.	Net Each
24	Fuse	6 ft.	\$ 8.50
24-15	Fuse	15 ft.	9.50
24CB	Circuit breaker	6 ft.	9.50
24CB-15	Circuit breaker	15 ft.	10.50
32	Fuse	6 ft.	8.50
32-15	Fuse	15 ft.	9.50
32CB	Circuit breaker	6 ft.	9.50
32CB-15	Circuit breaker	15 ft.	10.50

## 600 SERIES COMPACT TWO-LINE "U" GROUND OUTLET BOXES

Model 602 has five outlets; Model 603, four outlets; Model 605, three outlets, pilot light and switch; Model 606, two sets of switch and pilot light outlets.

Waber Model	Type	Cord Lgth.	Net Each
602	Outlets only	6 ft.	\$4.80
602-15	Outlets only	15 ft.	5.80
603	Fuse	6 ft.	5.25
603-15	Fuse	15 ft.	6.25
603CB	Circuit breaker	6 ft.	6.25
603CB-15	Circuit breaker	15 ft.	7.25
605	Fuse	6 ft.	5.95
605-15	Fuse	15 ft.	6.95
605CB	Circuit breaker	6 ft.	6.95
605CB-15	Circuit breaker	15 ft.	7.95
606	Fuse	6 ft.	5.95
606-15	Fuse	15 ft.	6.95
606CB	Circuit breaker	6 ft.	6.95
606CB-15	Circuit breaker	15 ft.	7.95

## "LONG JOHN" SERIES

"U" Ground Outlet Types: Model 700 has 8 outlets, pilot light and switch; Model 705, same but 15 outlets; Model 707, same but 14 outlets. Model 710 has 8 outlets only; Model 711, 14 outlets only; Model 715, 15 outlets only. **Locking Outlet Types:** Model 720 has 14 outlets, switch and pilot light; Model 725 has 14 outlets only. **Crow's Foot Outlet Types:** Model 730 has 14 outlets, switch and pilot light; Model 735 has 14 outlets only.

700	Fuse	6 ft.	\$14.95
700-15	Fuse	15 ft.	15.95
700CB	Circuit breaker	6 ft.	15.95
700CB-15	Circuit breaker	15 ft.	16.95
705	Fuse	6 ft.	18.95
705-15	Fuse	15 ft.	19.95
705CB	Circuit breaker	6 ft.	19.95
705CB-15	Circuit breaker	15 ft.	20.95
707	Fuse	6 ft.	15.75
707-15	Fuse	15 ft.	16.75
707CB	Circuit breaker	6 ft.	16.75
707CB-15	Circuit breaker	15 ft.	17.75
710	Outlets only	6 ft.	12.95
710-15	Outlets only	15 ft.	13.95
711	Outlets only	6 ft.	13.95
711-15	Outlets only	15 ft.	14.95
715	Outlets only	6 ft.	16.95
715-15	Outlets only	15 ft.	17.95
720	Fuse	6 ft.	32.95
720-15	Fuse	15 ft.	33.95
720CB	Circuit breaker	6 ft.	33.95
720CB-15	Circuit breaker	15 ft.	34.95
725	Outlets only	6 ft.	31.95
725-15	Outlets only	15 ft.	32.95
730	Fuse	6 ft.	32.95
730-15	Fuse	15 ft.	33.95
730CB	Circuit breaker	6 ft.	33.95
730CB-15	Circuit breaker	15 ft.	34.95
735	Outlets only	6 ft.	31.95
735-15	Outlets only	15 ft.	32.95

## TEN-SOCKET OUTLET BOXES

Ten outlets with pilot light and switch. Model 800 has "U" ground outlets; Model 801, locking type outlets; Model 802, crow's foot outlets.

Waber Model	Type	Cord Lgth.	Net Each
800	Fuse	6 ft.	\$13.50
800-15	Fuse	15 ft.	14.50
800CB	Circuit breaker	6 ft.	14.50
800CB-15	Circuit breaker	15 ft.	15.50
801	Fuse	6 ft.	29.95
801-15	Fuse	15 ft.	30.95
801CB	Circuit breaker	6 ft.	30.95
801CB-15	Circuit breaker	15 ft.	31.95
802	Fuse	6 ft.	34.95
802-15	Fuse	15 ft.	35.95
802CB	Circuit breaker	6 ft.	35.95
802CB-15	Circuit breaker	15 ft.	36.95

## RACK PANEL TYPE OUTLET CHASSIS

All have six outlets, pilot light and switch. Model 900 has front-mounted "U" ground outlets; 904, same but two in front, four in rear. Model 905 same as 904, but locking outlets; Model 906 same, but crow's foot outlets and plug.

900	Fuse	6 ft.	\$10.95
900-15	Fuse	15 ft.	11.95
900CB	Circuit breaker	6 ft.	11.95
900CB-15	Circuit breaker	15 ft.	12.95
904	Fuse	6 ft.	12.95
904-15	Fuse	15 ft.	13.95
904CB	Circuit breaker	6 ft.	13.95
904CB-15	Circuit breaker	15 ft.	14.95
905	Fuse	6 ft.	23.95
905-15	Fuse	15 ft.	24.95
905CB	Circuit breaker	6 ft.	24.95
905CB-15	Circuit breaker	15 ft.	25.95
906	Fuse	6 ft.	24.95
906-15	Fuse	15 ft.	25.95
906CB	Circuit breaker	6 ft.	25.95
906CB-15	Circuit breaker	15 ft.	26.95

Dust and Safety Cover—For rack mount panels. Net Each.....\$4.00

## "STRING BEAN" SERIES

All have "U" ground outlets. Model 1000 has 12 outlets, pilot light and switch; Model 1001 and 1002 same, but 12 outlets only; Model 1010 has 8 sets of outlets, pilot lights, and on-off switches plus master switch and pilot light.

1000	Fuse	6 ft.	\$15.95
1000-15	Fuse	15 ft.	16.95
1000CB	Circuit breaker	6 ft.	16.95
1000CB-15	Circuit breaker	15 ft.	17.95
1001	Fuse	6 ft.	14.95
1001-15	Fuse	15 ft.	15.95
1001CB	Circuit breaker	6 ft.	15.95
1001CB-15	Circuit breaker	15 ft.	16.95
1002	Outlets only	6 ft.	13.95
1002-15	Outlets only	15 ft.	14.95
1010	Fuse	6 ft.	19.95
1010-15	Fuse	15 ft.	20.95
1010CB	Circuit breaker	6 ft.	20.95
1010CB-15	Circuit breaker	15 ft.	21.95

## "POWR POINTR" MASTER CONTROL BOXES

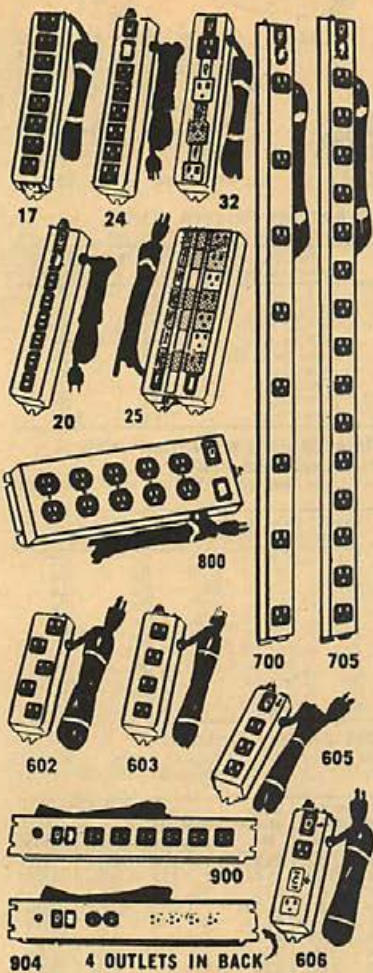
Pilot light on each set of color-coded switched outlets; master switch and pilot light. Series 25P and 35P have 7 outlet sets; 30P and 32P, four outlet sets.

25P	Fuse	6 ft.	\$19.50
25P-15	Fuse	15 ft.	20.50
25PCB	Circuit breaker	6 ft.	20.50
25PCB-15	Circuit breaker	15 ft.	21.50
30P	Fuse	10 ft.	7.50
30PCB	Circuit breaker	10 ft.	8.50
32P	Fuse	6 ft.	10.50
32P-15	Fuse	15 ft.	11.50
32PCB	Circuit breaker	6 ft.	11.50
32PCB-15	Circuit breaker	15 ft.	12.50
35P	Fuse	10 ft.	17.50
35PCB	Circuit breaker	10 ft.	18.50

## VARI-FINE CONTROLLER

Solid state device for speed and light control. Provides infinite control of motor speed and light intensity, and the speed of AC/DC universal type motors. Plugs into any wall outlet, fused for circuit protection. Compact and portable; mounting ears provided for fixed installation. Rated 7 amps, 117 volts.

Model 200 Vari-Fine Controller—Net Each.....\$14.95



## TWO-WIRE OUTLET BOXES

Model 20 has six outlets, pilot light and switch; Model 30, four color-coded outlets and switch.

Waber Model	Type	Cord Lgth.	Net Each
20	Fuse	10 ft.	\$5.95
20CB	Circuit breaker	10 ft.	6.95
30	Fuse	10 ft.	5.95
30CB	Circuit breaker	10 ft.	6.95

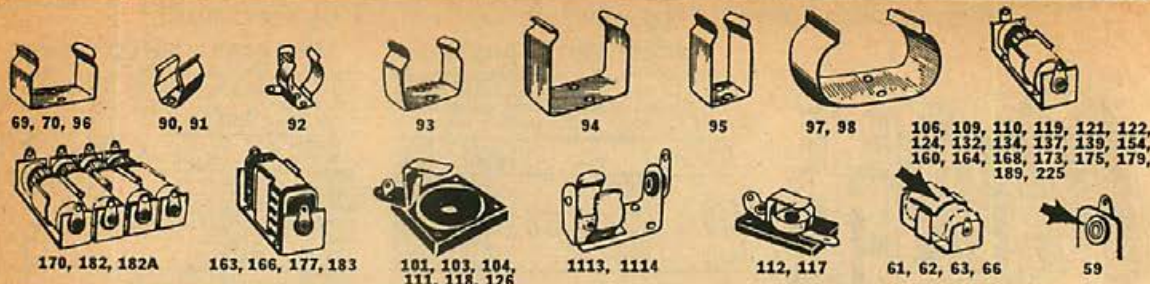
## DELUXE OUTLET BOXES

Seven color-coded switch and outlet sets with master switch, pilot light and center "write-on" marking strip. Model 25 has "U" ground outlets; Model 35, two-wire.

Waber Model	Type	Cord Lgth.	Net Each
25	Fuse	6 ft.	\$15.50
25-15	Fuse	15 ft.	16.50
25CB	Circuit breaker	6 ft.	16.50
25CB-15	Circuit breaker	15 ft.	17.50
35	Fuse	10 ft.	13.50
35CB	Circuit breaker	10 ft.	14.50



# ALUMINUM BATTERY HOLDERS CLIPS AND HARDWARE



Keystone battery holders feature engineered snap clips, moisture-proof fiber washers, spring-temper aluminum alloy, nickel-plated brass eyelets. Coated terminals for easy soldering. Mounting holes on all holders.

### STANDARD BATTERY, CELL HOLDERS

All batteries as grouped are similar in size and fit all holders listed alongside.

#### MINIATURE CELL HOLDERS

Standard package, 10 pieces.

Keystone No.	Holds Cells	NEDA	Used with Mfr's Types			Net Each, Lots of	
			Eveready	Burgess	RCA	1-19	20-99
137	1					23c	21c
138	2					38c	34c
169	3	24	912	7	VS074	49c	44c
170	4					64c	57c

#### PENCELL HOLDERS

Keystone No.	Holds Cells	NEDA	Used with Mfr's Types			Net Each, Lots of	
			Eveready	Burgess	RCA	1-19	20-99
139	1		E9, E12	Z, CD6		23c	21c
140	2		E91	9R		38c	34c
171	3	15	E133	HG9	VS034A	49c	44c
182	4	15A	333	HG12R	VS144	64c	57c
189	2	1103	E502	H133	VS149	45c	36c
191	3	1107	515	HG502	VS813A	49c	44c
193	4		915, 1015	920	VS934	64c	54c
193	6		N46	930		93c	81c

#### "C" CELL HOLDERS

Keystone No.	Holds Cells	NEDA	Eveready	Burgess	RCA	Net Each, Lots of	
						1-19	20-99
173	1			1		30c	26c
174	2			P6	VS035A	38c	34c
187	3	14	E233	120	VS300	45c	36c
185	2	1300	635	130	VS335	45c	36c
195	3	1600	935	H233	VS400	64c	54c
196	4			302599		93c	81c

#### "D" CELL HOLDERS

Keystone No.	Holds Cells	NEDA	Eveready	Burgess	RCA	Net Each, Lots of	
						1-19	20-99
175	1		E42	2		30c	26c
176	2		E95	2R	VS036A	38c	34c
190	3	13	D99	CD7	VS036	49c	44c
186	2		A190	210	VS336	46c	37c
199	3		N56	230		50c	45c
200	4		950			65c	55c
201	6		1050			95c	85c
205	6					95c	85c

#### 1½-VOLT CELL HOLDERS

Keystone No.	Holds Cells	NEDA	Eveready	Burgess	RCA	Net Each, Lots of	
						1-19	20-99
154	1		E340	N	VS073	21c	20c
155	2	910	904			35c	32c
156	3					49c	44c
160	1	20	964	21R	VS236	49c	44c
179	1	927	E94			30c	26c

#### 4½-VOLT CELL HOLDER

Keystone No.	Holds Cells	NEDA	Eveready	Burgess	RCA	Net Each	Lots of
139	1	1306	333		VS1149	23c	21c

#### 9-VOLT CELL HOLDERS

Keystone No.	Holds Cells	NEDA	Eveready	Burgess	RCA	Net Each	Lots of
139A	1	1611	206		VS327	26c	24c
203P	1	1604	216	2U6	VS323	44c	36c
173P	1	1600	226	P6M	VS300A	33c	29c

#### 15-VOLT BATTERY HOLDERS

Keystone No.	Holds Cells	NEDA	Eveready	Burgess	RCA	Net Each	Lots of
163	1	224	417		K10	30c	26c
161	1					30c	26c
166	1	208	411		U10	38c	34c
167	2					38c	34c
225	1	220	504		Y10	21c	20c
226	2					35c	32c

#### 22½-VOLT BATTERY HOLDERS

Keystone No.	Holds Cells	NEDA	Eveready	Burgess	RCA	Net Each	Lots of
164	1	225			K15	30c	26c
168	1		420			30c	26c
177	1	215	412		U15	30c	26c
178	2					38c	34c
139A*	1					26c	24c
140A*	2					41c	37c
171A*	3	221	505		Y15	52c	47c
182A*	4					67c	60c

\*Cannot be polarized.

#### 30-VOLT BATTERY HOLDERS

Keystone No.	Holds Cells	NEDA	Eveready	Burgess	RCA	Net Each	Lots of
165	1	226	430		K20	30c	26c
183	1					30c	26c
184	2	210	413		U20	38c	34c
157	1	223	506		Y20	30c	26c
134	1	222	507		Y20S	38c	34c

### STANDARD BATTERY HOLDER CLIPS

Made of Aluminum per QQ-A-362. Standard package, 10 pieces.

Keystone No.	Battery Type	Dia., Inches Min. to Max.	Net Each, Lots of	
			1-19	20-99
70	(2) RM 12	3/8 x 1 1/4	8c	8c
90	7	3/8 to 1 1/4	8c	4c
91	AA	.531 to .656	7c	5c
93	C	.875 to 1.125	7c	6c
94	D	1.187 to 1.375	8c	7c
95	U15	3/8 x 1 1/2	7c	6c
96		3/8 x 1 1/4	8c	7c
97	Two of "C"	Two 1 1/4	9c	8c
98	Two of "D"	Two 1 1/4	11c	10c

### COMPACT INSULATED AND NON-INSULATED BATTERY HOLDER CLIPS

Made of spring tempered, nickel plated SAE 1065 steel. Standard package, 10 pieces.

Keystone No.	Battery Type	Insulated	Dia., Inches Min. to Max.	Net Each, Lots of	
				1-19	20-99
69	2U6 or (2)AA	No	3/8 x 1 1/4	7c	6c
92	AA	No	.531 to .660	5c	4c
99	AA	No	.531 to .660	5c	4c
100	AA	Yes	.531 to .660	8c	7c
86	C	No	.875 to 1.125	9c	8c
87	C	Yes	.875 to 1.125	12c	11c
88	D	Yes	1.187 to 1.375	13c	12c
89	D	No	1.187 to 1.375	10c	9c
217	1 1/2" dia.	No	1 1/2" dia.	18c	14c
218	1 1/2" dia.	No	1 1/2" dia.	20c	15c
219	2" dia.	No	2" dia.	22c	16c

### MERCURY BATTERY HOLDERS

Aluminum base and clips with copper, cadmium plated terminals. Contact eyelets of brass NP. Resin impregnated fiber insulating washers.

Keystone No.	Mallory Batteries	Net Each, Lots of		Keystone No.	Mallory Batteries	Net Each, Lots of	
		1-19	20-99			1-19	20-99
101*	RM 1R	30c	26c	1132†	TR 176	35c	30c
103*	RM 3R	30c	26c	1142	TR 177	25c	23c
104*	ZM 4R	30c	26c	173	TR 233	30c	26c
139	ZM 9	23c	21c	1144†	TR 234	25c	23c
139	RM 12R	30c	26c	1133†	TR 235	40c	38c
175	RM 42	30c	26c	185	TR 236	45c	36c
1113†	TR 113	30c	26c	111*	RM 400	30c	26c
1114†	TR 114	30c	26c	102	RM 401	23c	20c
132	TR 115	30c	26c	166	RM 411	30c	26c
139A	TR 126	26c	24c	177	RM 412	30c	26c
132	TR 132	30c	26c	183	RM 413	30c	26c
139	TR 133	23c	21c	112*	RM 450	30c	26c
134	TR 134	30c	26c	139	RM 502	23c	20c
135	TR 135	30c	26c	1116†	RM 601	30c	26c
189	TR 136	44c	36c	117*	RM 625	30c	26c
1125†	TR 137	30c	26c	102*	RM 630	30c	26c
1145†	TR 145	30c	26c	118*	RM 640	30c	26c
124	TR 152	30c	26c	127*	RM 675	30c	26c
106	TR 153	30c	26c	119	302351	38c	34c
1113†	TR 162	30c	26c	120	302478	38c	34c
132	TR 163	30c	26c	121	302642	38c	34c
109	TR 164	30c	26c	122	302435	38c	34c
110	TR 165	30c	26c	139	302437	38c	34c
189	TR 169	44c	36c	173	302599	30c	26c
124	TR 175	23c	21c				

\*Available with phosphor bronze spring, phenolic base only.  
†Available in steel only.

### RETAINER CLIPS FOR HOLDERS

Made of spring tempered, nickel plated, high carbon steel.

Keystone No.	Battery Type	Holders	Net Each, Lots of	
			1-19	20-99
61	AA	91, 92, 95, 99, 100	5c	4c
62	C	86, 87, 93	5c	4c
63	D	89, 89, 94	5c	4c
66	Mercury*	91, 92, 99, 100	5c	4c

\*For use with .650" dia. types.

### INSULATING POLARIZING WASHERS

Precision molded plastic washers prevent short circuits in transistor equipment. The washers hold securely when snapped over the eyelets used on Keystone standardized battery holders.

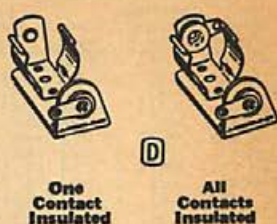
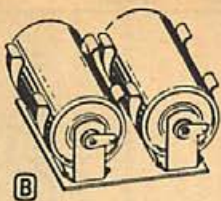
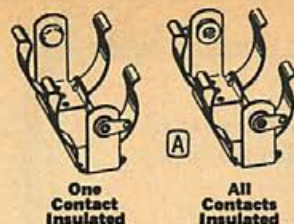
Keystone No. 59 (Red) or No. 60 (Black)—Net Each, Lots of:  
1-19.....4c; 20-99.....3c

SPECIAL BATTERY HOLDERS CAN BE BUILT TO YOUR SPECIFICATIONS. WRITE FOR INFORMATION.



# STEEL BATTERY HOLDERS, STANDARDIZED TERMINAL BOARDS

## STEEL BATTERY HOLDERS



Hold batteries under spring tension at constant pressure assuring low resistance contact. Multi-cell series types have sturdy insulating tube. Ideal for nickel-cadmium, mercury and alkaline cells. Made of SAE 1065 carbon steel to MIL Spec. 17919, heat treated to spring temper and nickel-plated .0002" thick. Contact assembly consists of a stainless steel eyelet, moistureproof vulcoloid washers and coated copper solder lug. Nickel-plated carbon steel base ribbed for added support, has 2 mounting holes. Modifications available: Jumpers, which save wiring; printed circuit solderless connectors or quick disconnect lugs; polarized contacts to insure proper insertion of batteries; or multiple units with any of the foregoing modifications.

### STEEL HOLDERS FOR MERCURY BATTERIES

For single batteries.

For Maltory Battery	Fig.	One Contact Insulated		All Contacts Insulated	
		Keystone No.	Net Ea., Lots	Keystone No.	Net Ea., Lots
RM1R	D	1101	35c 30c	2101	35c 34c
RM3R	D	1103	35c 30c	2103	35c 34c
RM4R	D	1104	35c 30c	2104	35c 34c
ZM9	A	1139	25c 23c	2139	30c 26c
RM12R	A	1139	25c 23c	2139	30c 26c
RM42	A	1175	35c 30c	2175	35c 33c
TR113	D	1113	35c 30c	2113	35c 34c
TR114	D	1114	35c 30c	2114	35c 34c
TR115	D	1132	35c 30c	2132	35c 34c
TR132	D	1132	35c 30c	2132	35c 34c
TR133	A	1139	25c 23c	2139	30c 26c
TR134	A	1134	35c 30c	2134	35c 34c
TR135	A	1135	35c 30c	2135	40c 37c
TR136	A	1189	40c 38c	2189	40c 38c
TR137	A	1125	30c 28c	2125	40c 34c
TR145	D	1145	35c 30c	2145	35c 34c
TR162	D	1113	35c 30c	2113	35c 34c
TR163	D	1132	35c 30c	2132	35c 34c
TR164	A	1109	35c 30c	2109	35c 34c
TR165	A	1110	35c 30c	2110	35c 34c
TR169	A	1189	40c 38c	2189	40c 38c
TR176	D	1132	35c 30c	2132	35c 34c
TR177	A	1142	25c 23c	2142	30c 26c
TR233	A	1173	35c 30c	2173	35c 33c
TR234	A	1144	25c 23c	2144	30c 26c
TR235	A	1133	40c 38c	2133	45c 41c
TR236	A	1185	50c 45c	2185	50c 49c
RM602	A	1139	25c 23c	2139	30c 26c
RM601	D	1116	35c 30c	2116	35c 34c
302351	A	1119	35c 30c	2119	35c 34c
302478	A	1120	40c 38c	2120	45c 41c
302642	A	1121	40c 38c	2121	45c 41c
302437	A	1139	25c 23c	2139	30c 26c
302599	A	1173	35c 30c	2173	35c 33c

### PENCELL HOLDERS

Hold NEDA battery types 15, 15A, 1103, 1107; Burgess Z, HG9, CD6, 9R, HG12R, H133, HG502R, 920, 930; Eveready E9, E12, E91, E133, E502, N46, 515, 915, 1015; RCA VS034A, VS144, VS149, VS313A, VS334.

Holds Cells	Fig. No.	One Contact Insulated		All Contacts Insulated	
		Keystone No.	Net Ea., Lots	Keystone No.	Net Ea., Lots
1	A	1139	25c 23c	2139	30c 26c
2	B	.....	.....	2140*	40c 38c
3	B	.....	.....	2171*	65c 64c
4	B	.....	.....	2182*	75c 70c
2	C	1189	40c 38c	2189	40c 38c
3	C	1191	45c 41c	2191	45c 40c
4	C	1194	50c 48c	2194	55c 51c

### "C" CELL HOLDERS

Holds NEDA battery types 14, 1300, 1600; Burgess 1, P6, 120, 130, H233, 302599; Eveready 226, E233, 635, 935; RCA VS035A, VS300, VS335, VS400.

Holds Cells	Fig. No.	One Contact Insulated		All Contacts Insulated	
		Keystone No.	Net Ea., Lots	Keystone No.	Net Ea., Lots
1	A	1173	35c 30c	2173	35c 33c
2	B	.....	.....	2174*	50c 48c
3	B	.....	.....	2187*	75c 70c
4	B	.....	.....	2188*	95c 85c
2	C	1185	50c 48c	2185	50c 49c
3	C	1195	50c 48c	2195	55c 51c
4	C	1198	55c 51c	2198	60c 57c

### "D" CELL HOLDERS

Hold NEDA battery type 13; Burgess 2, 2R, CD7, 210, 230; Eveready E42, N56, E95, D99, A100, 950, 1050; RCA VS036, VS036A, VS336.

Holds Cells	Fig. No.	One Contact Insulated		All Contacts Insulated	
		Keystone No.	Net Ea., Lots	Keystone No.	Net Ea., Lots
1	A	1175	35c 30c	2175	35c 33c
2	B	.....	.....	2176*	50c 49c
3	B	.....	.....	2190*	75c 70c
4	B	.....	.....	2192*	95c 85c
2	C	1186	45c 44c	2186	50c 49c
3	C	1199	50c 51c	2199	55c 51c
4	C	1162	60c 54c	2162	60c 57c

Holds NEDA type 927; Eveready E94.

1	A	1179	35c 30c	2179	35c 34c
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\*Clips mounted on Bakelite® 1/4" thick per MIL Spec. 31150. ®Registered Bakelite Corp. trademark.

## STANDARDIZED TERMINAL BOARDS

### TURRET TERMINAL BOARDS

Cut production cost by eliminating tooling and set-up charge required by non-standardized boards. Terminals securely riveted and hot tinned for easy soldering. Material 1/4" natural Bakelite to MIL-F-3115B, Type PBE specifications. Five 2 1/4" sections scored for easy separation; scoring marks can be eliminated. Marking can be added. Five terminals, each side, per section; spare holes on each end (of groups of 5 terminals) may be used for mounting, or extra terminals added. Terminals (and holes) spaced 1/2" apart, center to center. Holes .120" dia., No. 3.

### WITH TURRET TERMINALS

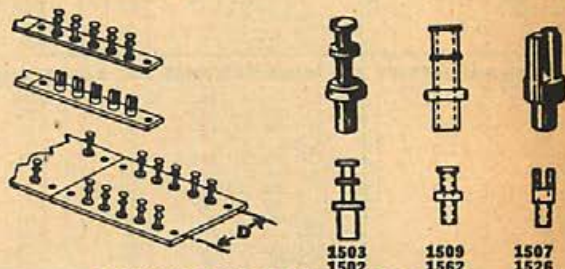
Available with No. 1503 (NAS 707T3) or 1509 (NAS 708T3) type terminals installed; extend 1 1/4" h. above board.

Board Width	No. Terms.	Term. Rows Spaced (D)	No. 1503 Terminals		No. 1509 Terminals	
			Keystone No.	Net Ea., Lots	Keystone No.	Net Ea., Lots
1 1/2"	25	Single	15031	\$0.80 50.75	15091	\$1.20 51.10
1 1/2"	50	1"	15032	1.75 1.50	15092	2.00 1.90
2"	50	1 1/4"	15033	1.85 1.70	15093	2.10 2.00
2 1/2"	50	2"	15034	1.90 1.80	15094	2.30 2.20
3"	50	2 1/2"	15035	2.00 1.90	15095	2.40 2.30
1 1/2"	50	1 1/4"	15036	1.75 1.50	15096	2.20 2.10

### WITH FORK TYPE TERMINAL

Has No. 1507 fork terminal mounted; extend 1 1/4" above board.

Keystone Number	Board Width	No. of Terminals	Term. Rows Spaced (D)	Net Ea., Lots	
				1-19	20-99
15071	1 1/2"	25	Single	\$1.25	\$1.10
15072	1 1/2"	50	1"	2.05	1.90
15073	2"	50	1 1/4"	2.15	2.00
15074	2 1/2"	50	2"	2.25	2.10
15075	3"	50	2 1/2"	2.40	2.25
15076	1 1/2"	50	1 1/4"	2.05	1.90



### MINIATURE TURRET TERMINAL BOARDS

Same as standard type but only 1/4" thick. Sections 1 1/4" long. No. 42 size holes .093" dia.; spaced on 1/4" centers. Choice of 1502 turret, 1562 drilled turret, or 1526 fork terminals. No. 1502 terminal (NAS 705T2) extends 1/4" h. above board; others, 1/2".

Keystone Number	Board Width	Terminals Type	Term. Rows Spaced (D)	Net Ea., Lots	
				1-19	20-99
15021	1 1/2"	1502	25	Single	\$1.25 1.10
15028	1 1/2"	1502	50	1"	1.85 1.70
15022	1"	1502	50	1 1/4"	1.90 1.80
15023	1 1/2"	1562	25	Single	1.00 1.90
15029	1 1/2"	1562	50	1"	1.85 1.75
15024	1"	1562	50	1 1/4"	2.00 1.75
15025	1 1/2"	1526	25	Single	1.25 1.15
15026	1 1/2"	1526	50	1"	1.85 1.75
15030	1"	1526	50	1 1/4"	2.00 1.75



# EVEREADY® Batteries

## SEALED RECHARGEABLE NICKEL-CADMIUM BATTERIES FOR PORTABLES AND ELECTRONIC APPLICATIONS

"Ever-ready" No.	Formerly Battery No.	Voltage	Overall Dimensions, Inches L. x W. x H.	List Price Each	Unit Pkg. Qty.	Unit Wt. Lbs.	Battery Weight	Terminals and Voltages	Net Price	
									Per Unit Package	Each Unit Pkg.
B1	N39	1.25	1.984 dia. x .394	\$ 3.80	1	.....	2 oz.	Flat Contacts - , +1.25	.....	5 2.66
B1T*	N39T	1.25	1.984 dia. x .414	4.00	1	.....	2 oz.	Solder Tabs - , +1.25	.....	2.79
BH1	N40	1.25	1.984 dia. x .394	4.00	1	.....	2 oz.	Flat Contacts - , +1.25	.....	2.92
BH1T*	N40T	1.25	1.984 dia. x .414	4.20	1	.....	2 oz.	Solder Tabs - , +1.25	.....	2.88
CH1.2	N53	1.25	900 dia. x 1.684	3.60	1	.....	1.7 oz.	Flat Contacts - , Solder Tab + 1.25	.....	2.51
CH1.2T*	N53T	1.25	900 dia. x 1.689	3.80	1	.....	1.7 oz.	Solder Tabs - , +1.25	.....	2.78
CH1.5	N64	1.25	1.031 dia. x 1.969	5.80	1	.....	2.3 oz.	Flat Contacts - , Solder Tab + 1.25	.....	4.06
CH1.5T*	N64T	1.25	1.031 dia. x 1.974	6.00	1	.....	2.3 oz.	Solder Tabs - , +1.25	.....	4.19
RH1.6	N69	1.25	1 1/4 x 1 1/4 x 2 1/4	5.00	1	.....	4.1 oz.	Nut & Stud - , +1.25	.....	3.53
B2	N41	1.25	1.984 dia. x .689	6.70	1	.....	3.3 oz.	Flat Contacts - , +1.25	.....	4.69
B2T*	N41T	1.25	1.984 dia. x .709	6.90	1	.....	3.3 oz.	Solder Tabs - , +1.25	.....	4.82
C2	N66	1.25	1.344 dia. x 2.406	5.80	1	.....	5 oz.	Flat Contacts - , Solder Tab + 1.25	.....	4.06
C2T*	N66T	1.25	1.344 dia. x 2.416	6.00	1	.....	5 oz.	Solder Tabs - , +1.25	.....	4.19
R2	N71	1.25	1 1/4 x 1 1/4 x 4 1/4	8.50	1	.....	6 oz.	Nut, Stud & Tab - , +1.25	.....	5.97
BH2.6	N71	1.25	1 1/4 x 1 1/4 x 4 1/4	7.95	1	.....	6.8 oz.	Nut & Stud - , +1.25	.....	5.51
B3	N43	1.25	1.984 dia. x .984	8.15	1	.....	5 oz.	Flat Contacts - , +1.25	.....	5.70
B3T*	N43T	1.25	1.984 dia. x 1.004	8.35	1	.....	5 oz.	Solder Tabs - , +1.25	.....	5.83
R3.5	N74	1.25	1 1/4 x 1 1/4 x 3 1/4	10.15	1	.....	9.2 oz.	Nut, Stud & Tab - , +1.25	.....	7.12
CH4	N57	1.25	1.344 dia. x 2.406	8.15	1	.....	5.4 oz.	Flat Contacts - , Solder Tab + 1.25	.....	5.69
CH4T*	N57T	1.25	1.344 dia. x 2.416	8.35	1	.....	5.4 oz.	Solder Tabs - , +1.25	.....	5.82
RH4	N72	1.25	1 1/4 x 1 1/4 x 4 1/4	12.00	1	.....	9.5 oz.	Nut & Stud - , +1.25	.....	8.40
R4.5	N75	1.25	1 1/4 x 1 1/4 x 3 1/4	13.35	1	.....	13.4 oz.	Nut & Stud - , +1.25	.....	9.35
R6	N76	1.25	2 1/4 x 1 1/4 x 3 1/4	14.60	1	.....	15.7 oz.	Nut & Stud - , +1.25	.....	10.21
RH7	N78	1.25	1 1/4 x 1 1/4 x 4 1/4	17.10	1	.....	14.7 oz.	Nut & Stud - , +1.25	.....	11.96
R7.5	N77	1.25	2 1/4 x 1 1/4 x 4 1/4	15.95	1	.....	1 lb. 2 oz.	Nut & Stud - , +1.25	.....	11.17
R11	N79	1.25	3 1/4 x 1 1/4 x 4 1/4	19.70	1	.....	1 lb. 12 oz.	Nut & Stud - , +1.25	.....	13.79
R15	N81	1.25	3 1/4 x 1 1/4 x 4 1/4	23.95	1	.....	2 lb. 3 oz.	Nut & Stud - , +1.25	.....	16.78
RH15	N82	1.25	3 1/4 x 1 1/4 x 4 1/4	30.75	1	.....	1 lb. 11 oz.	Nut & Stud - , +1.25	.....	21.57
R19	N83	1.25	3 1/4 x 1 1/4 x 4 1/4	28.45	1	.....	2 lb. 10 oz.	Nut & Stud - , +1.25	.....	19.90
B20	N22	1.25	.457 dia. x .213	1.50	1	.....	0.4 oz.	Flat Contacts - , +1.25	.....	1.05
R20T*	N22T	1.25	.457 dia. x .227	1.70	1	.....	0.4 oz.	Solder Tabs - , +1.25	.....	1.18
R23	N85	1.25	3 1/4 x 2 1/4 x 4 1/4	32.75	1	.....	3 lb. 2 oz.	Nut & Stud - , +1.25	.....	22.94
B50	N24	1.25	.610 dia. x .256	1.00	1	.....	0.12 oz.	Flat Contacts - , +1.25	.....	.70
B50T*	N24T	1.25	.610 dia. x .266	1.20	1	.....	0.12 oz.	Solder Tabs - , +1.25	.....	.83
N64	.....	1.5	2.81 x 2.81 x 1.32	93.50	1	.....	12.5 oz.	Recessed Flat - , +1.25	.....	65.38
N65	.....	13.75	7.32 x 3.11 x 1.46	145.00	1	.....	1 lb. 11 oz.	Socket - , +13.75	.....	101.28
N-67	.....	6.25	1 1/4 x 1 1/4 x 4 1/4	26.50	1	.....	8.3 oz.	Wire Leads - , +6.25	.....	18.38
N70	.....	6.25	3 1/4 x 1 1/4 x 4 1/4	42.50	1	.....	1 lb. 12 oz.	Wire Leads - , +6.25	.....	29.62
B100	N26	1.25	.992 dia. x .252	1.10	1	.....	0.32 oz.	Flat Contacts - , +1.25	.....	.77
B100T*	N26T	1.25	.992 dia. x .272	1.30	1	.....	0.32 oz.	Solder Tabs - , +1.25	.....	.90
B150	N28	1.25	.992 dia. x .272	1.15	1	.....	0.4 oz.	Flat Contacts - , +1.25	.....	.80
B150T*	N28T	1.25	.992 dia. x .292	1.35	1	.....	0.4 oz.	Solder Tabs - , +1.25	.....	.93
B225	N32	1.25	.992 dia. x .350	1.20	1	.....	0.45 oz.	Flat Contacts - , +1.25	.....	.83
B225T*	N32T	1.25	.992 dia. x .370	1.40	1	.....	0.45 oz.	Solder Tabs - , +1.25	.....	.97
BH225	N33	1.25	.992 dia. x .358	1.40	1	.....	0.46 oz.	Flat Contacts - , +1.25	.....	.97
BH225T*	N33T	1.25	.992 dia. x .378	1.60	1	.....	0.46 oz.	Solder Tabs - , +1.25	.....	1.10
B450	N36	1.25	1.697 dia. x .300	2.10	1	.....	1.17 oz.	Flat Contacts - , +1.25	.....	1.47
B450T*	N36T	1.25	1.697 dia. x .320	2.30	1	.....	1.17 oz.	Solder Tabs - , +1.25	.....	1.60
C450	N46	1.25	.563 dia. x 1.969	2.75	1	.....	0.8 oz.	Flat Contacts - , +1.25	.....	1.93
C450T*	N46T	1.25	.563 dia. x 1.969	3.00	1	.....	0.8 oz.	Solder Tabs - , +1.25	.....	2.10
BH500	N38	1.25	1.355 dia. x .394	2.50	1	.....	1 oz.	Flat Contacts - , +1.25	.....	1.75
BH500T*	N38T	1.25	1.355 dia. x .414	2.70	1	.....	1 oz.	Solder Tabs - , +1.25	.....	1.88
CH750	.....	1.25	900 dia. x 1.684	3.24	1	.....	1.7 oz.	Flat Contacts - , Solder Tab + 1.25	.....	2.32
CH750T	.....	1.25	900 dia. x 1.689	3.42	1	.....	1.7 oz.	Solder Tabs - , +1.25	.....	2.44
C900	N52	1.25	6 1/4 x 3 1/4 x 3 1/4	4.55	1	.....	1.4 oz.	Socket - , +1.25	.....	3.17
1007	.....	10	6 1/4 x 3 1/4 x 3 1/4	50.00	1	.....	3 lb. 13 oz.	Socket - , +10	.....	35.00
1010	.....	1.25	2 1/4 x 1 1/4 x 3 1/4	7.95	1	0.5	4 oz.	Screw Terms - , +1.25	.....	5.30

## SPECIAL BATTERIES FOR RADIOS, ELECTRONIC EQUIPMENT, TEST INSTRUMENTS, AND OTHER APPLICATIONS

W350	.....	45	3 1/4 x 1 1/4 x 4 1/4	\$3.85	1	1.0	14.5 oz.	Plastic Knurls - , +22 1/2, +45	.....	\$2.69
W352	.....	3	2 1/4 x 1 1/4 x 4 1/4	1.90	1	0.8	12 oz.	Plastic Knurls - , +3	.....	1.33
W353	.....	1 1/2	2 1/4 x 1 1/4 x 4 1/4	1.75	1	0.8	12.5 oz.	Socket - , +1 1/2	.....	1.22
W356	.....	3	2 1/4 x 1 1/4 x 4 1/4	1.5	1	0.5	1 lb. 6 oz.	Plastic Knurls - , +3	.....	1.64
W357	.....	3	3 1/4 x 2 1/4 x 5 1/4	2.50	1	2.7	2 lb. 12 oz.	Fahnestock - , +3	.....	1.75
W358	.....	45	2 1/4 x 1 1/4 x 4 1/4	4.50	1	0.7	8.75 oz.	Plastic Knurls - , +45	.....	2.93
W359	.....	45	3 1/4 x 2 1/4 x 4 1/4	4.50	1	1.9	1 lb. 11.8 oz.	Socket - , +45	.....	3.86
W361	.....	103 1/2	1 1/4 x 1 1/4 x 1 1/2	6.95	1	1.4	1 lb. 4 oz.	Flat Contacts - , +103 1/2	.....	2.05
W362	.....	7 1/2	2 1/4 x 1 1/4 x 1 1/2	2.95	1	0.2	1.5 oz.	Plastic Knurls - , +4 1/2, +7 1/2	.....	6.96
W363F†	.....	45	8 1/4 x 4 1/4 x 7 1/4	9.95	1	11.0	10 lb. 5 oz.	Fahnestock - , +22 1/2, +45	.....	6.96
W364F†	.....	45	8 1/4 x 4 1/4 x 7 1/4	9.95	1	12.8	11 lb. 14 oz.	Fahnestock - , +22 1/2, +45	.....	6.96
W365F†	.....	45	8 1/4 x 2 1/4 x 7 1/4	9.95	1	12.8	7 lb. 7.5 oz.	Fahnestock - , +22 1/2, +45	.....	6.96
W369	.....	1 1/2, 90	9 1/4 x 2 1/4 x 4 1/4	9.50	1	5.5	4 lb. 5 oz.	Socket - A, +1 1/2 A, -B, +90B	.....	6.65
W371	.....	3	1 1/4 x 1 1/4 x 2 1/4	1.35	1	0.2	0.8 oz.	Socket including plug - , +3	.....	.90

## PREMIUM SERVICE ALKALINE BATTERIES FOR RADIO, PHOTOFLASH, TOYS, HIGH DRAIN ELECTRONIC APPLICATIONS

S41	.....	1.5	.455 dia. x .165	\$0.40	6	0.03	0.06 oz.	Flat Contacts - , +1.5	.....	\$1.62	\$0.27
S76	.....	1.5	.455 dia. x 0.211	.45	6	0.03	0.08 oz.	Flat Contacts - , +1.5	.....	1.80	.30
E90	.....	1.5	.470 dia. x 1.130	.40	3	0.1	0.35 oz.	Flat Contacts - , +1.5	.....	.81	.27
E91	.....	1.5	1/2 dia. x 1 1/4	.50	12	0.6	0.75 oz.	Flat Contacts - , +1.5	.....	3.90	.325
E92	.....	1.5	.410 dia. x 1.745	.50	12	0.3	0.4 oz.	Flat Contacts - , +1.5	.....	3.90	.325
E93	.....	1 1/2	1 1/4 dia. x 1 1/4	.60	12	1.6	2.2 oz.	Flat Contacts - , +1 1/2	.....	4.68	.39
E94	.....	1 1/2	1 1/4 dia. x 1 1/4	.50	12	1.5	2.1 oz.	Flat Contacts - , +1 1/2	.....	3.90	.325
E95	.....	1 1/2	1 1/4 dia. x 2 1/4	.75	12	3.5	4.5 oz.	Flat Contacts - , +1 1/2	.....	5.88	.49
E177	.....	9.0	1 1/4 dia. x 1 1/4	1.98	1	0.04	0.67 oz.	Min. Snap - , +9.0	.....	.....	1.29
S23	.....	4.5	.662 dia. x 1.965	1.25	1	0.07	1.17 oz.	Flat Contacts - , +4.5	.....	.82	.82
S31	.....	4.5	.664 dia. x 2.290	1.25	1	0.08	1.25 oz.	Snap Type - , +4.5	.....	.82	.82
S32	.....	3	.664 dia. x 1.670	1.00	1	0.08	0.8 oz.	Snap Type - , +3	.....	.....	.70

## ALKALINE BATTERIES FOR PORTABLE TELEVISION SETS

560	.....	7.5	2 1/4 x 1 1/4 x 7 1/4	\$ 6.50	1	1.6	1 lb. 9 oz.	Socket - , +7.5	.....	\$ 4.33	
561	.....	15	8 1/4 x 2 1/4 x 5 1/4	15.95	1	7.2	6 lb.	Socket - , +15	.....	10.62	
563	.....	4.5	1 1/4 dia. x 7 1/4	4.15	3	2.7	15 oz.	Flat Contacts - , +4.5	.....	\$8.28	2.76
564	.....	13.5	8 1/4 x 2 1/4 x 5 1/4	14.95	1	5.8	5 lb. 8 oz.	Socket - , +13.5	.....	9.94	9.94

## FLASHLIGHT BATTERIES—FOR TOYS, GAMES, ETC.

515	.....	1 1/2	1 1/4 dia. x 1 1/4	\$0.15	24	0.8	0.6 oz.	Flat Contacts - , +1 1/2	.....	\$2.28	\$0.095
904	.....	1 1/2	0.445 dia. x 1.180	.125	6	0.1	0.22 oz.	Flat Contacts - , +1 1/2	.....	.48	.08
912	.....	1 1/2	1 1/4 dia. x 1 1/4	.15	12	0.2	0.3 oz.	Flat Contacts - , +1 1/2	.....	1.14	.095
915	.....	1 1/2	1 1/4 dia. x 1 1/4	.20	24	0.9	0.6 oz.	Flat Contacts - , +1 1/2	.....	3.12	.13
935	.....	1 1/2	1 1/4 dia. x 2 1/4	.20	24	2.1	1.4 oz.	Flat Contacts - , +1 1/2	.....	3.12	.13
950	.....	1 1/2	1 1/4 dia. x 2 1/4	.20	48	9.5	3 oz.	Flat Contacts - , +1 1/2	.....	6.24	.13
D39	.....	1 1/2	1 1/4 dia								





# Batteries

## TRANSISTOR ENERGIZER BATTERIES FOR PORTABLE RADIO AND ELECTRONIC APPLICATIONS

"Eveready" No.	Voltage	Overall Dimensions, Inches L. x W. x H.	List Price Each	Unit Pkg. Qty.	Unit Wt., Lbs.	Battery Weight	Terminals and Voltages	Net Price	
								Per Unit Package	Each in Unit Pkg.
206	9	3/4 dia. x 2	\$0.89	6	0.4	1.2 oz.	Flat Contacts, Neg. Recess. - , +9	\$3.72	\$0.62
216	9	1 1/4 x 1 1/4 x 1 1/4	.89	12	0.9	1.3 oz.	Min. Snap - , +9	5.76	.48
222BP	9	1 1/4 x 1 1/4 x 1 1/4	.98	12	1.4	1.3 oz.	Min. Snap - , +9	7.80	.65
226	9	1 dia. x 1 1/4	.89	6	0.6	2 oz.	Snap Type - , +9	3.72	.62
228	12	1 dia. x 2 1/4	1.50	1	0.1	2.3 oz.	Snap Type - , +12		1.05
239	9, 13 1/2	1 1/4 x 1 1/4 x 2 1/4	1.85	1	0.2	3 oz.	Socket - , +9, +13 1/2		1.30
243	4 1/2	1 1/4 x 1 1/4 x 2 1/4	1.85	1	0.3	4.5 oz.	Min. Snap - , +4 1/2		1.30
246	9	1 1/4 x 1 1/4 x 2 1/4	1.85	1	0.3	4.5 oz.	Min. Snap - , +9		1.30
266	9	1 1/4 x 1 1/4 x 2 1/4	1.95	1	0.4	7 oz.	Snap Type - , +9		1.36
274	6	2 1/4 x 2 1/4 x 3 1/4	5.75	1	2.7	2 lb. 7 oz.	Snap Type - , +6		1.36
276	9	2 1/4 x 2 1/4 x 3 1/4	1.95	1	0.9	15 oz.	Snap Type - , +9		1.36
333	4 1/2	.662 dia. x 1.965	.89	6	0.3	0.9 oz.	Flat Contacts - , +4 1/2	3.72	.62
1015*	1 1/2	1 1/4 dia. x 1 1/4	.25	24	0.9	0.6 oz.	Flat Contacts - , +1 1/2	3.72	.155
1035*	1 1/2	1 1/4 dia. x 1 1/4	.25	12	1.2	1.4 oz.	Flat Contacts - , +1 1/2	1.86	.155
1050†	1 1/2	1 1/4 dia. x 2 1/4	.30	48	9.9	3.3 oz.	Flat Contacts - , +1 1/2	9.12	.19
2314	12, 21	1 1/4 x 1 1/4 x 2 1/4	2.75	1	0.2	3 oz.	Socket + , -12, -21		1.92
2356N	3, 6, 9	2 1/4 x 1 1/4 x 6 3/4	1.95	1	0.7	11 oz.	Snap Type - , +9		1.36
2506	3, 6, 9	8 x 2 1/4 x 1 1/4	2.75	1	1.4	1 lb. 8 oz.	Socket - , +3, +6, +9		1.92
2709N	9	1 1/4 x 1 1/4 x 4 1/4	1.50	1	0.3	2.5 oz.	Snap Type - , +9		1.05
2713N	6	1 1/4 x 1 1/4 x 4 1/4	1.50	1	0.3	3.5 oz.	Min. Snap - , +6		1.05
2731N	4 1/2	2 1/4 x 1 1/4 x 8 1/4	3.50	1	1.7	1 lb. 9 oz.	Socket - , +4 1/2		2.45
2761N	9	2 1/4 x 1 1/4 x 7 1/4	2.75	1	1.5	1 lb. 3 oz.	Socket - , +9		1.93
2762N	9	2 1/4 x 1 1/4 x 8 1/4	3.50	1	3.0	1 lb. 9 oz.	Socket - , +9		2.45

### "B" BATTERIES FOR PORTABLE RECEIVERS

411	15	1 1/4 x 3/4 x 1 1/4	\$1.15	1	0.05	0.95 oz.	Flat Contacts - , +15		\$0.81
412	22 1/2	1 1/4 x 3/4 x 2	1.50	1	0.1	1.3 oz.	Flat Contacts - , +22 1/2		1.05
413	30	1 1/4 x 3/4 x 2 1/4	1.75	1	0.1	1.6 oz.	Flat Contacts - , +30		1.23
415	45	1 1/4 x 3/4 x 3 1/4	2.50	1	0.1	2.5 oz.	Min. Snap - , +45		1.75
416	67 1/2	1 1/4 x 3/4 x 3 1/4	2.95	1	0.3	4 oz.	Min. Snap - , +67 1/2		2.07
417	15	1 1/4 x 3/4 x 3 1/4	1.75	1	0.1	1.8 oz.	Flat Contacts - , +15		1.23
420	22 1/2	1 1/4 x 3/4 x 1 1/4	1.95	1	0.2	2.5 oz.	Flat Contacts - , +22 1/2		1.37
430	30	1 1/4 x 1 x 2 1/4	2.35	1	0.2	3.2 oz.	Flat Contacts - , +30		1.65
437	75	1 1/4 x 1 1/4 x 6 1/4	4.50	1	1.1	14.8 oz.	Snap Type - , +75		2.27
455	45	2 1/4 x 1 x 3 1/4	3.25	1	0.5	7.8 oz.	Snap Type - , +45		2.27
457	67 1/2	2 1/4 x 1 1/4 x 2 1/4	3.85	1	0.5	7.4 oz.	Snap Type - , +67 1/2		2.70
467	67 1/2	2 1/4 x 1 1/4 x 3 1/4	3.85	1	0.8	12 oz.	Snap Type - , +67 1/2		2.70
477	67 1/2	1 1/4 x 1 1/4 x 5 1/4	3.85	1	0.5	8.6 oz.	Snap Type - , +67 1/2		2.70
479	90	1 1/4 x 1 1/4 x 7 1/4	4.25	1	1.0	12 oz.	Snap Type - , +90		2.97
482	45	3 1/4 x 2 1/4 x 5 1/4	4.25	1	2.0	1 lb. 14 oz.	Socket - , +45		2.97
484	45	3 1/4 x 2 1/4 x 5 1/4	4.95	1	4.1	3 lb. 2 oz.	Socket - , +45		3.47
487	22 1/2, 45	5 1/4 x 2 1/4 x 7 3/4	5.50	1	4.1	4 lb. 2 oz.	Socket - , +22 1/2, +45		3.84
495	90	3 1/4 x 1 1/4 x 7 3/4	4.50	1	1.0	15 oz.	Snap Type - , +90		3.15
495	90	3 1/4 x 1 1/4 x 7 3/4	4.95	1	1.1	1 lb.	Snap Type - , +90		3.15
504	15	1 1/4 x 1 1/4 x 1 1/4	1.15	1	0.03	0.6 oz.	Flat Contacts - , +15		.81
506	22 1/2	3/4 x 1 1/4 x 1 1/4	1.50	1	0.04	0.8 oz.	Flat Recessed - , +22 1/2		1.05
506	30	1 1/4 x 3/4 x 1 1/4	1.85	1	0.05	0.9 oz.	Flat Contacts - , +30		1.30
507	30	3/4 x 1 1/4 x 2.605	1.85	1	0.05	0.9 oz.	Flat Contacts - , +30		1.30
738	22 1/2, 45	3 x 2 1/4 x 4 1/4	3.95	1	1.5	1 lb. 3 oz.	Socket - , +22 1/2, +45		2.76

### "A" BATTERIES FOR PORTABLE RECEIVERS

707	7 1/2	2 1/4 x 2 1/4 x 2 1/4	\$ 1.65	1	0.8	12 oz.	Snap Type - , +7 1/2		\$1.15
713	7 1/2	3 1/4 x 2 1/4 x 2 1/4	3.25	1	0.4	9 oz.	Socket - , +7 1/2		2.27
717	7 1/2	2 1/4 x 1 1/4 x 3 1/4	1.75	6	3.9	8 oz.	Socket - , +7 1/2	57.38	1.23
718	6	3 1/4 x 2 1/4 x 5 1/4	4.10	1	2.8	2 lb. 4 oz.	Socket - , +6		2.87
720	1 1/2	2 1/4 x 1 1/4 x 3 1/4	1.65	1	0.5	6.5 oz.	Socket - , +1 1/2		1.15
724	6	1 1/4 x 1 1/4 x 2 1/4	1.25	1	0.2	2.5 oz.	Flat Contacts - , +6		.87
726	4 1/2	4 1/4 x 1 1/4 x 2 1/4	1.75	1	0.7	10.5 oz.	Socket - , +4 1/2		1.23
736	4 1/2	3 1/4 x 1 1/4 x 4	1.75	1	1.1	1 lb.	Socket - , +4 1/2		1.23
740	1 1/2	4 1/4 x 3 1/4 x 7 3/4	10.95	1	6.7	6 lb.	Socket - , +1 1/2		7.65
741	1 1/2	3 1/4 x 2 1/4 x 5 1/4	3.95	1	2.8	2 lb. 10 oz.	Socket - , +1 1/2		2.76
742	1 1/2	2 1/4 x 2 1/4 x 3 1/4	1.65	1	1.4	1 lb. 6 oz.	Socket - , +1 1/2		2.69
743	1 1/2	3 1/4 x 2 1/4 x 4 1/4	3.85	1	2.1	1 lb. 15 oz.	Socket - , +1 1/2		1.15
744	6	2 1/4 x 2 1/4 x 3 1/4	1.65	1	1.4	1 lb. 6 oz.	Socket - , +6		1.36
746	4 1/2	3 1/4 x 1 1/4 x 4 1/4	1.95	1	1.3	1 lb. 3 oz.	Socket - , +4 1/2		1.87
960P	1 1/2	1 1/4 dia. x 4 1/4	1.25	1	0.4	5.9 oz.	Socket - , +1 1/2		.42
964	1 1/2	1 1/4 dia. x 4 1/4	.80	1	0.2	5.9 oz.	Flat Contacts - , +1 1/2		.42
1035*	1 1/2	1 1/4 dia. x 1 1/4	.25	12	1.2	1.4 oz.	Flat Contacts - , +1 1/2	1.86	.155
1050†	1 1/2	1 1/4 dia. x 2 1/4	.30	48	9.9	3.3 oz.	Flat Contacts - , +1 1/2	9.12	.19

### "A-B" PACKS FOR PORTABLES AND FARM RECEIVERS

727	9, 90	8 3/4 x 2 1/4 x 3 1/4	\$ 7.45	1	2.8	2 lb. 14 oz.	Recessed Plug - A, +9A, -B, +90B		\$ 5.22
729	1 1/2, 90	3 1/4 x 2 1/4 x 3 1/4	6.25	1	2.3	2 lb. 7 oz.	Socket - A, +1 1/2A, -B, +90B		4.38
752	9, 90	14 1/4 x 2 1/4 x 4 1/4	8.25	1	6.5	6 lb. 2 oz.	Recess. Plug - A, +9A, -B, +90B		5.78
752W	1 1/2, 9, 90	14 1/4 x 2 1/4 x 4 1/4	9.25	1	7.0	6 lb. 8 oz.	Same - A, +9A, -B, +90B, - , +1 1/2		6.48
753	7 1/2, 9, 90	9 1/4 x 2 1/4 x 4 1/4	7.75	1	5.3	4 lb. 12 oz.	Socket - A, +7 1/2A, +9A, -B, +90B		5.43
754	7 1/2, 9, 90	10 1/4 x 3 3/4 x 4 1/4	9.45	1	7.0	6 lb. 1 oz.	Socket - A, +7 1/2A, +9A, -B, +90B		6.62
755	6 1/2, 7 1/2, 75	8 3/4 x 3 3/4 x 4 1/4	7.25	1	2.4	3 lb. 9 oz.	Socket - A, +6A, +7 1/2A, -B, +75B		5.08
757	7 1/2, 9, 90	9 1/4 x 2 1/4 x 3 1/4	6.95	1	2.9	2 lb. 14 oz.	Socket - A, +7 1/2A, +9A, -B, +90B		4.87
757	9, 90	9 1/4 x 2 1/4 x 3 1/4	7.95	1	5.5	4 lb. 12 oz.	Recess. Plug - A, +9A, -B, +90B		5.57
759	1 1/2, 90	15 1/4 x 4 1/4 x 6 1/4	10.65	1	16.5	16 lb. 4 oz.	Socket - A, +1 1/2A, -B, +90B		7.95
776	7 1/2, 9, 90	7 3/4 x 4 1/4 x 9 3/4	14.95	1	15.5	14 lb. 12 oz.	Socket & Recess. Plug - A, +7 1/2A, +9A, -B, +90B		10.47
785	7 1/2, 75	8 3/4 x 3 3/4 x 2 1/4	7.50	1	2.8	2 lb. 12 oz.	Recess. Plug - A, +7 1/2A, -B, +75B		5.25

### SPECIAL BATTERY TYPES FOR RADIOS, ELECTRONIC EQUIPMENT, PHOTOFLASH AND OTHER APPLICATIONS

425P	22 1/2	1 1/4 x 1 1/4 x 3 1/4	\$ 1.95	1	0.3	4.1 oz.	Socket - , +22 1/2		\$ 1.37
430P	30	1 1/4 x 1 1/4 x 3 1/4	2.35	1	0.2	3.2 oz.	Socket - , +30		1.65
433P	33	2 1/4 x 1 1/4 x 3 1/4	3.25	1	0.4	6 oz.	Socket - , +33		2.27
455P	45	2 1/4 x 1 1/4 x 3 1/4	3.25	1	0.5	8.6 oz.	Socket - , +45		2.27
460K†	45	1 1/4 x 1 1/4 x 2.43	2.50	1	0.8	5.3 oz.	Flat Contacts - , +45		1.67
468	67 1/2	2 1/4 x 1 1/4 x 3 1/4	3.95	1	0.8	12 oz.	Snap Type - , +67 1/2		2.77
489	225	4 1/4 x 2 1/4 x 4 1/4	9.95	1	2.3	2 lb. 12 oz.	Socket - , +225		5.56
491	240	2 1/4 x 1 1/4 x 4 1/4	7.95	1	0.8	13 oz.	Flat Recessed and Socket - , +240		7.85
492	180, 225	3 1/4 x 2 1/4 x 4 1/4	10.95	1	2.5	2 lb. 8 oz.	Socket - , +180, +225		11.16
497	180, 510	3 x 1 1/4 x 5 3/4	15.95	1	1.6	1 lb. 10 oz.	Flat Recessed - , +180, +510		11.16
621	3	2 1/4 dia. x 13 3/4	4.25	12	56.1	4 lb. 10 oz.	Plastic Knurls - , +3	\$33.60	2.80
771	3, 4 1/2	4 1/4 x 1 1/4 x 3	2.95	1	0.8	13 oz.	Socket + , -3, +4.5		2.07
812	1.5	1 1/4 dia. x 1 1/4	.20	12	0.2	0.3 oz.	Flat Contacts - , +1.5	1.56	.13
815	1.5	1 1/4 dia. x 1 1/4	.25	24	1.0	0.6 oz.	Flat Contacts - , +1.5	3.84	.16
835	1.5	1 1/4 dia. x 1 1/4	.25	24	2.3	1.4 oz.	Flat Contacts - , +1.5	3.84	.16
850	1.5	1 1/4 dia. x 2 1/4	.30	12	2.1	3.3 oz.	Flat Contacts - , +1.5	2.28	.19

\*Formerly No. 635. †Formerly No. A100. ‡Contains one No. 460 battery and one No. 428 lamp.





# Batteries

## MERCURY BATTERIES FOR RADIO, ELECTRONIC AND INDUSTRIAL APPLICATIONS

"Eveready" No.	Voltage	Overall Dimensions, Inches L. x W. x H.	List Price Each	Unit Pkg. Qty.	Unit Wt., Lbs.	Battery Weight	Terminals and Voltages	Net Price	
								Per Unit Package	Each in Unit Pkg.
E1*	1.35	.625 dia. x .650	\$ 0.75	4	0.10	0.43 oz.	Flat Contacts - +1.35	\$ 2.08	\$ 0.52
EPX1	1.35	.625 dia. x .650	.95	4	0.10	0.43 oz.	Flat Contacts - +1.35	2.64	.66
E3†	1.35	.985 dia. x .660	1.50	4	0.30	0.93 oz.	Flat Contacts - +1.35	4.20	1.05
E4†	1.35	1.195 dia. x .660	1.95	4	0.50	1.6 oz.	Flat Contacts - +1.35	5.24	1.31
EPX4	5.4	.662 dia. x 1.965	2.25	1	0.20	1.16 oz.	Flat Contacts - +5.40	.....	1.57
EPX6	4.05, 8.1	.662 dia. x 4.145	3.95	1	0.25	1.6 oz.	Flat Contacts - +4.05, +8.1	.....	2.75
E9	1.4	.550 dia. x 1.968	.95	4	0.30	1.05 oz.	Flat Contacts - +1.40	2.56	.64
E12*	1.35	.640 dia. x 1.968	1.25	2	0.30	1.6 oz.	Flat Contacts - +1.40	1.74	.87
EPX13	1.35	.615 dia. x .238	.75	4	0.20	0.14 oz.	Flat Contacts - +1.35	2.00	.50
EPX14	2.7	.655 dia. x .607	1.50	1	0.10	0.3 oz.	Flat Contacts - +2.7	.....	1.05
E42*	1.35	1/8 dia. x 2.300	3.50	1	0.50	3.88 oz.	Flat Contacts - +1.35	.....	2.44
E13†	4.05	.660 dia. x .845	2.50	1	0.07	0.45 oz.	Flat Contacts - +4.05	.....	1.72
E14†	5.4	.660 dia. x 1.080	2.65	1	0.07	0.59 oz.	Flat Contacts - +5.40	.....	1.85
E15†	7.0	.660 dia. x 1.395	2.95	1	0.07	0.73 oz.	Flat Contacts - +7	.....	2.06
E126†	8.4	3/8 x 2	1.95	2	0.13	1.65 oz.	Flat Contacts Neg. Recess. - +8.4	.....	1.31
E132**	2.7	.662 dia. x 1.315	1.50	2	0.10	0.9 oz.	Flat Contacts - +2.70	2.10	1.05
E133**	4.2	.662 dia. x 1.965	1.65	12	1.14	1.4 oz.	Flat Contacts - +4.2	14.04	1.17
E134**	5.4	.662 dia. x 2.620	2.25	2	0.30	1.9 oz.	Flat Contacts - +7.00	3.14	1.57
E135**	7.0	.662 dia. x 3.275	2.75	1	0.20	2.4 oz.	Flat Contacts - +8.40	.....	2.06
E136**	8.4	.662 dia. x 3.930	3.25	1	0.20	2.9 oz.	Flat Contacts - +9.80	.....	2.27
E137**	9.8	.662 dia. x 4.585	3.75	1	0.20	3.3 oz.	Flat Contacts - +7.00	.....	2.62
E145†	7.0	1 1/8 dia. x 1 1/8	2.50	1	0.10	0.7 oz.	Flat Contacts - +7.00	.....	1.31
E146X†	8.4	1 1/8 x 1 1/8 x 2 1/8	1.95	6	0.50	1.6 oz.	Min. Snap - +8.40	7.38	1.31
E152**†	2.8	.485 dia. x 1.140	1.25	1	0.10	0.42 oz.	Flat Contacts - +2.80	.....	.87
E153**†	4.2	.485 dia. x 1.708	1.65	1	0.10	0.6 oz.	Flat Contacts - +4.20	.....	1.17
E162M†	2.7	.662 dia. x 0.887	1.50	1	0.07	0.58 oz.	Flat Contacts - +2.70	.....	1.05
E163**†	4.2	5/8 dia. x 1.327	1.65	2	0.20	0.87 oz.	Flat Contacts - +4.2	2.34	1.17
E164**†	5.6	.662 dia. x 1.767	1.95	12	1.0	1.16 oz.	Flat Contacts - +5.6	15.72	1.31
E165**†	7.0	.662 dia. x 2.207	2.50	2	0.20	1.45 oz.	Flat Contacts - +7.0	3.40	1.70
E169†	12.6	.662 dia. x 3 1/4	4.95	1	0.18	4.2 oz.	Flat Contacts - +12.6	.....	3.50
E175†	7.0	1 1/8 dia. x 1 1/8	1.50	10	1.0	1 oz.	Flat Contacts - +7.0	10.50	1.05
E233**†	4.2	1 1/8 dia. x 1 1/8	3.25	1	0.20	3 oz.	Flat Contacts - +4.2	.....	2.27
E234**†	5.6	1 1/8 dia. x 2 1/8	3.95	1	0.50	3.88 oz.	Flat Contacts - +5.6	.....	2.76
E235M	6.0	1 1/8 dia. x 3 1/8	5.50	1	0.5	5 oz.	Flat Contacts - +6.75	.....	3.64
E236M†	8.1	1 1/8 dia. x 3 1/8	5.50	1	0.5	5 oz.	Flat Contacts - +8.1	.....	4.12
E286†	8.4	1 dia. x 1 1/8	1.95	6	1.0	1.6 oz.	Flat Contacts - +8.4	8.10	1.35
E289†	12.6	1 dia. x 2 1/8	3.25	6	1.4	3.6 oz.	Snap Type - +12.6	13.62	2.27
E312†	1.4	.310 dia. x 0.140	.35	6	0.03	0.02 oz.	Flat Contacts - +1.40	1.44	.24
E400**†	1.4	.455 dia. x 0.135	.35	6	0.03	0.04 oz.	Flat Contacts - +1.40	1.44	.24
E401**†	1.4	.470 dia. x 0.130	.65	3	0.1	0.4 oz.	Flat Contacts - +1.40	1.32	.44
E450†	1.35	.455 dia. x .570	.75	4	0.25	0.18 oz.	Flat Contacts - +1.35	2.12	.53
E502†	1.35	.550 dia. x 1.968	1.25	1	0.10	1.05 oz.	Flat Contacts - +1.35	.....	.87
E520†	1.4	.495 dia. x 0.286	.25	6	0.05	0.07 oz.	Flat Contacts - +1.40	1.02	.17
E601†	1.35	.627 dia. x 1.140	1.30	1	0.10	1.22 oz.	Flat Contacts - +1.35	.....	.83
E625**†	1.4	.615 dia. x 0.238	.60	4	0.05	0.15 oz.	Flat Contacts - +1.40	1.68	.42
EPX625	1.35	.615 dia. x 0.238	.75	4	0.05	0.15 oz.	Flat Contacts - +1.40	1.68	.40
E610**†	1.4	.615 dia. x 0.238	.60	4	0.05	0.17 oz.	Flat Contacts - +1.40	1.68	.42
E610**†	1.4	.625 dia. x 0.440	.60	4	0.15	0.38 oz.	Flat Contacts - +1.40	1.68	.42
E675†	1.4	.455 dia. x 0.210	.45	6	0.01	0.07 oz.	Flat Contacts - +1.40	1.92	.32
E302157	1.35	2 1/8 x 1 1/8 x 4 1/8	17.75	1	1.02	13.5 oz.	Socket - +1.35	.....	12.50
E302250	9.45	1 1/8 dia. x 1 1/8	4.10	1	0.06	1 oz.	Tabs - +9.45	.....	2.90
E302351	5.4	1 1/8 dia. x 2 1/8	8.00	1	0.40	4.5 oz.	Flat Contacts - +5.4	.....	4.10
E302358	10.8	3/8 dia. x 2 1/8	5.95	1	0.05	0.87 oz.	Wire Leads - +10.8	.....	5.60
E302362	16.2	1 1/8 dia. x 3 1/8	8.00	1	0.07	1.13 oz.	Flat Contacts - +16.2	.....	3.46
E302435	6.75	1 1/8 dia. x 1 1/8	4.95	1	0.05	0.75 oz.	Flat Contacts - +6.75	.....	4.00
E302462	97.2	2 1/8 x 1 1/8 x 6 3/8	56.00	1	2.0	2 lb.	Wire Leads - +97.2	40.00	22.50
E302465	47.25	2 1/8 dia. x 3 3/8	32.00	1	1.0	1 lb. 1 oz.	Wire Leads - +47.25	6.90	8.05
E302478	9.8	1 1/8 dia. x 3 3/8	9.80	1	0.6	9 oz.	Flat Contacts - +9.8	.....	8.05
E302497	6.75	1 1/8 dia. x 4 1/8	11.50	1	0.4	6 oz.	Screw - +6.75	.....	12.50
E302579	29.7	1 1/8 x 2 1/8 x 3 3/8	18.00	1	0.3	5 oz.	Wire Leads - +29.7	33.60	5.20
E302580	27.0	2 1/8 x 2 1/8 x 3 1/8	48.00	1	2.0	2 lb. 1.6 oz.	Socket - +27.0	4.80	3.80
E302642	7.00	1 1/8 dia. x 2 1/8	7.40	1	0.40	5 oz.	Flat Contacts - +7.00	.....	6.75
E302651	1.35	1 1/8 dia. x 2 1/8	6.90	1	0.40	6.14 oz.	Special Leads - +1.35	.....	3.80
E302702	2.70	1 1/8 dia. x 1 1/8	5.40	1	0.20	2 oz.	Wire Leads - +2.70	.....	6.75
E302904	5.40	1 1/8 dia. x 2 1/8	9.95	1	0.40	6 oz.	Wire Leads - +5.40	.....	8.05
E302905	6.75	1 1/8 dia. x 3 1/8	11.50	1	0.50	9 oz.	Wire Leads - +6.75	.....	10.50
E302907	9.45	1 1/8 dia. x 4 1/8	15.00	1	0.80	11.6 oz.	Wire Leads - +9.45	.....	11.50
E302908	10.8	1 1/8 dia. x 5 1/8	16.50	1	0.8	12 oz.	Wire Leads - +10.8	.....	5.00
E303145	8.4	2 1/8 x 7/8 x 4 1/8	9.95	1	0.6	8.82 oz.	Snap Type - +8.4	.....	2.06
E303219	9.8	2 1/8 dia. x 1 1/8	9.95	1	0.03	1 oz.	Flat Contacts - +9.8	.....	.92
E303236	4.2	2 1/8 x 1 1/8 x 1 1/8	1.80	1	0.1	1.28 oz.	Flat Contacts - +4.2	.....	12.56
E303314	16.8	2 1/8 x 2 1/8 x 1.320	17.95	1	0.80	13 oz.	Recessed Flat Contacts - +16.8	.....	7.25
E303394	11.2	2 1/8 x 1 1/8 x 2 1/8	14.50	1	0.8	14 oz.	Snap Type - +11.2	.....	

### CARBON-ZINC LANTERN AND FLASHER BATTERIES

509	6	2 1/8 x 2 1/8 x 4 1/8	\$1.20	1	1.3	1 lb. 5.6 oz.	Coll Springs - +6	.....	\$0.85
510F	6	2 1/8 x 2 1/8 x 4 1/8	1.29	1	1.3	1 lb. 4 oz.	Fahnestock - +6	.....	.85
510S	6	2 1/8 x 2 1/8 x 4 1/8	1.29	1	1.4	1 lb. 7 oz.	Plastic Knurls - +6	.....	.85
520*	6	6 1/8 x 4 1/8 x 2 1/8	4.05	1	2.9	2 lb. 8 oz.	Ins. Screw - +6	.....	3.11
731	6	6 1/8 x 2 1/8 x 4 1/8	2.95	1	3.1	3 lb. 4 oz.	Ins. Screw - +6	.....	1.96
732	12	6 1/8 x 2 1/8 x 4 1/8	2.95	1	3.2	3 lb. 2 oz.	Ins. Screw - +12	.....	1.96
2744N	6	2 1/8 x 2 1/8 x 3 1/8	1.19	1	1.6	1 lb. 7 oz.	Socket - +6	.....	.79
2745N	6	2 1/8 x 2 1/8 x 4 1/8	1.19	1	1.8	1 lb. 7 oz.	Coll Spring - +6	.....	.79
2746N	6	2 1/8 x 2 1/8 x 4 1/8	1.19	1	2.0	1 lb. 7 oz.	Plastic Knurls - +6	.....	.79
2780N	12	6 1/8 x 2 1/8 x 4 1/8	3.40	1	3.5	3 lb.	Socket - +12	.....	2.37

### CARBON-ZINC NO. 6 DRY CELL TYPE BATTERIES

6 Ig.*	1 1/2	2 1/8 dia. x 6 3/8	\$1.35	1	2.0	2 lb. 2 oz.	†Plastic Knurls - +1 1/2	.....	\$0.91
6 Tel.*	1 1/2	2 1/8 dia. x 6 3/8	1.35	1	2.1	2 lb. 2 oz.	†Fahnestock - +1 1/2	.....	.91
6 Ind.*	1 1/2	2 1/8 dia. x 6 3/8	1.40	1	2.1	2 lb. 2 oz.	†Plastic Knurls - +1 1/2	.....	.94

### CARBON-ZINC "HOT SHOT" BATTERIES

1461	6	10 1/8 x 2 1/8 x 7 7/8	\$4.98	1	9.2	9 lb. 4 oz.	Plastic Knurls - +6	.....	\$3.34
1462	6	10 1/8 x 5 3/8 x 7 3/8	5.98	1	9.7	9 lb.	Plastic Knurls - +6	.....	4.01
1463	12	10 1/8 x 2 1/8 x 7 7/8	5.98	1	7.8	7 lb. 11 oz.	Plastic Knurls - +12	.....	4.01
1562	7 1/2	7 1/8 x 4 1/8 x 7 7/8	7.25	1	11.8	11 lb. 4 oz.	Plastic Knurls - +7 1/2	.....	4.86
1662	9	7 1/8 x 5 1/8 x 7 3/8	8.25	1	14.0	13 lb. 8 oz.	Plastic Knurls - +9	.....	5.53

### CARBON-ZINC SPECIAL LIGHTING AND HOBBY BATTERIES

766	6	8 1/8 x 2 1/8 x 0 1/8	\$5.98	1	6.5	5 lb. 14 oz.	Ins. Screw - +6	.....	\$4.01
731	1 1/2	2 1/8 x 1 1/8 x 4 1/8	1.15	1	1.3	12 oz.	Plastic Knurls - +1 1/2	.....	.79
735	7 1/2	7 3/8 x 4 1/8 x 6 1/8	7.25	1	7.9	7 lb. 10 oz.	Ins. Screw - +7 1/2	.....	4.86
736	9	8 1/8 x 4 1/8 x 6 1/8	8.25	1	9.3	8 lb. 8 oz.	Ins. Screw - +9	.....	5.53
735	1 1/2	2 1/8 x 2 1/8 x 4 1/8	1.25	1	1.5	1 lb. 7 oz.	Plastic Knurls - +1 1/2	.....	.84

Available at extra cost: \*Suffix N types for instrument voltage ref. and hi-temp use; †1/8" steel tab connectors for solder/weld. ‡Specify for Fahnestock. §Specify for screw ter. †Ignitor@ 6 general purpose. \*Gray Label@ 6 Telephone. \*6 Rlt and Ind. \*Alkaline.



# Batteries, Jacks and Covers

## MALLORY DRY BATTERIES



**MERCURY BATTERIES**  
Mercury batteries offer more power per unit of volume than any other type. They are available in a very wide range of sizes, voltages and shapes. Voltage stability is excellent throughout operating life. "B" types rated 1.35 volts per cell, "non-R" at 1.4 V. Mercury batteries cost less per listening hour than ordinary zinc-carbon types. Alkaline batteries are "Best Buy" for lighting and photoflash. Zinc-carbon types are used where low price is more important than long-life economy. Mercury batteries listed below have flat terminals unless otherwise noted. Types with T suffix have solder tabs.

Mallory Number	Volts	Cap., mAh	Use	Size, Inches L. x W. x H.	Wt., Oz.	Net Each
RM1	1.4	1000	Phys. hndcp.	3/4 dia. x 1 1/2	0.75	\$0.52
RM1R	1.35	1000	Electronic	3/4 dia. x 1 1/2	0.75	.64
RM1RT	1.35	1000	Electronic	3/4 dia. x 1 1/2	0.75	.69
RM1RT2	1.35	1000	Electronic	3/4 dia. x 1 1/2	0.75	.74
RM3R	1.35	2200	Electronic	1 dia. x 1 1/2	0.93	1.15
RM4R	1.35	3400	Electronic	1.2 dia. x 1 1/2	1.0	1.31
RM4RT	1.35	3400	Electronic	1.2 dia. x 1 1/2	1.0	1.36
RM4Z	1.4	2400	Electronic	1.2 dia. x 1 1/2	1.2	1.00
RM12	1.4	3600	Tape recdr.	3/4 dia. x 2	2.0	.87
RM12R	1.35	3600	Tachometer	3/4 dia. x 2	2.0	1.05
RM12RT	1.35	3600	Electronic	3/4 dia. x 2	2.0	1.10
RM12RT2	1.35	3600	Electronic	3/4 dia. x 2	2.0	1.15
RM24	1.4	1000	Radio AAA	0.4 dia. x 1 1/4	0.5	.53
RM42	1.4	14000	Elec. "D"	1.2 dia. x 2 3/4	5.9	2.44
RM42R	1.35	14000	Elec. "D"	1.2 dia. x 2 3/4	5.9	2.76
RM42RT	1.35	14000	Elec. "D"	1.2 dia. x 2 3/4	5.9	2.81
RM42RT2	1.35	14000	Elec. "D"	1.2 dia. x 2 3/4	5.9	2.86
RM312	1.4	36	Phys. hndcp.	3/4 dia. x 3/4	0.01	.24
RM400	1.4	80	Phys. hndcp.	3/4 dia. x 3/4	0.04	.24
RM400R	1.35	80	Electronic	3/4 dia. x 3/4	0.04	.35
RM400RT2	1.35	80	Electronic	3/4 dia. x 3/4	0.04	.45
RM401	1.35	800	Radio "N"	3/4 dia. x 1 1/4	0.4	.44
RM401R	1.35	800	Electronic	3/4 dia. x 1 1/4	0.4	.60
RM411	1.4	160	Electronic	1 x 1 1/2 x 1 1/2	1	2.00
RM412	22.4	160	Electronic	1 x 1 1/2 x 1 1/4	1	2.76
RM413	28	160	Electronic	1 x 1 1/2 x 2 1/4	1.5	3.46
RM415*	42	160	Electronic	1 x 1 1/2 x 3 1/4	2.5	5.10
RM450R	1.35	350	Electronic	3/4 dia. x 1 1/2	0.18	.53
RM502R	1.35	2400	Electronic	3/4 dia. x 1 1/2	1.05	.77
RM520	1.4	130	Phys. hndcp.	3/4 dia. x 3/4	0.07	.17
RM575	1.4	100	Phys. hndcp.	455 dia. x 1.29	0.01	.24
RM601R	1.35	1800	Electronic	3/4 dia. x 1 1/2	1.2	.83
RM625	1.4	250	Phys. hndcp.	3/4 dia. x 3/4	0.15	.42
RM625R	1.35	250	Electronic	3/4 dia. x 3/4	0.15	.53
RM625RT	1.35	250	Electronic	3/4 dia. x 3/4	0.15	.58
RM625RT2	1.35	250	Electronic	3/4 dia. x 3/4	0.15	.63
RM630	1.4	250	Phys. hndcp.	3/4 dia. x 3/4	0.17	.42
RM640R	1.35	250	Electronic	3/4 dia. x 3/4	0.17	.55
RM640	1.4	500	Radio	3/4 dia. x 3/4	0.38	.47
RM640R	1.35	500	Electronic	3/4 dia. x 3/4	0.38	.53
RM640RT2	1.35	500	Electronic	3/4 dia. x 3/4	0.38	.63
RM675	1.4	160	Phys. hndcp.	3/4 dia. x 3/4	0.07	.32
TR113R	4.05	250	Electronic	1 1/4 dia. x 1 1/4	0.45	1.72
TR114R	5.4	250	Electronic	1 1/4 dia. x 1 1/4	0.59	1.85
TR114RT2	5.4	250	Electronic	1 1/4 dia. x 1 1/4	0.59	1.95
TR115	7.0	250	Dictating	1 1/4 dia. x 1 1/4	0.73	2.06
TR115R	6.75	250	Electronic	1 1/4 dia. x 1 1/4	0.73	2.06
TR126	8.4	600	Radio	3/4 dia. x 1 1/4	1.6	1.31
TR132	2.8	1000	Paging	3/4 dia. x 1 1/4	1	1.05
TR132R	2.7	1000	Electronic	3/4 dia. x 1 1/4	1	1.17
TR133	4.2	1000	Radio, Pag.	3/4 dia. x 2	1.4	1.17
TR133R	4.05	1000	Radio, Pag.	3/4 dia. x 2	1.4	1.35
TR134	5.6	1000	Gar. door	3/4 dia. x 2 3/4	1.9	1.57
TR134T2	5.6	1000	Electronic	3/4 dia. x 2 3/4	1.9	1.67
TR134R	5.4	1000	Electronic	3/4 dia. x 2 3/4	1.9	1.72
TR135	7.0	1000	Gar. door	3/4 dia. x 3 3/4	2.4	2.06
TR135R	6.75	1000	Electronic	3/4 dia. x 3 3/4	2.4	2.00
TR136	8.4	1000	Gar. door	3/4 dia. x 3 3/4	2.9	2.27
TR136R	8.1	1000	Electronic	3/4 dia. x 3 3/4	2.9	2.40
TR137	9.8	1000	Electronic	3/4 dia. x 4 3/4	3.4	2.62
TR137R	9.45	1000	Electronic	3/4 dia. x 4 3/4	3.4	2.76
TR145	7	250	Electronic	3/4 dia. x 1 1/4	0.58	1.72
TR146X*	8.4	575	Radio	1 x 1 1/4 x 1 1/4	2.0	1.31
TR152	2.8	350	Electronic	3/4 dia. x 1 1/4	0.42	.87
TR152R	2.7	350	Electronic	3/4 dia. x 1 1/4	0.42	1.05
TR153	4.2	350	Electronic	3/4 dia. x 1 1/4	0.6	1.17
TR153R	4.05	350	Electronic	3/4 dia. x 1 1/4	0.6	1.35
TR162R	2.7	500	Electronic	3/4 dia. x 3/8	0.58	1.05
TR163	4.2	500	TV tuner	3/4 dia. x 1 1/4	0.87	1.17
TR163R	4.05	500	Electronic	3/4 dia. x 1 1/4	0.87	1.29
TR164	5.0	500	Radio	3/4 dia. x 1 1/4	1.16	1.31
TR164R	5.4	500	Electronic	3/4 dia. x 1 1/4	1.16	1.57
TR165	7	500	TV tuner	3/4 dia. x 2 1/4	1.45	1.70
TR165R	6.75	500	Electronic	3/4 dia. x 2 1/4	1.45	1.90
TR169	12.6	500	Electronic	3/4 dia. x 3 3/4	2.88	3.50
TR175	7	350	Radio	3/4 dia. x 1 1/4	1	1.05
TR177*	9.8	250	Radio	3/4 dia. x 1 1/4	1	1.31
TR233	4.2	2200	Radio	1 1/4 dia. x 1 1/4	3	2.27
TR233R	4.05	2200	Electronic	1 1/4 dia. x 1 1/4	3	2.62
TR234	5.6	2200	Electronic	1 1/4 dia. x 2 1/4	3.88	2.76
TR234R	5.6	2200	Electronic	1 1/4 dia. x 2 1/4	3.88	3.15
TR235R	6.75	2200	Electronic	1 1/4 dia. x 3 1/4	4.63	3.67
TR236R	8.10	2200	Electronic	1 1/4 dia. x 3 1/4	4.76	4.15
TR285*	8.4	750	Radio	1 dia. x 1 1/4	1.6	1.35
TR285*	12.6	750	CB radio	1 dia. x 2 1/4	3.6	2.27
ZM9	1.4	2400	Radio "AA"	3/4 dia. x 1 1/4	.64	.64
ZM12	1.4	3600	Clock	3/4 dia. x 2	2.0	.92

\*Snap terminals. †tab, 1 flat terminal. ‡tab terminals. †Available in blister pack.

## MERCURY POWER-PAK BATTERIES

Mall. No.	Volts	Cap.*	Use	Terminals	Net
302157	1.35	28,000	Radiation eqpt.	Socket	\$12.50
302250	9.45	250	Radiation eqpt.	Tab	2.90
302351	5.4	2,200	Fire alarm	Flat	5.40
302358	10.8	250	Radiation eqpt.	Leads	4.10
302362	16.2	250	Radiation eqpt.	Leads	5.60
302435	6.75	250	Radiation eqpt.	Flat	3.46
302462	97.2	1,000	Transmitter "B"	Leads	40.00
302465	47.25	1,000	Geophysical	Leads	22.50
302488	9.8	2,400	Recorder	Flat	6.90
302497	6.75	2,200	Test equipment	Posts	7.85
302579	29.7	250	Test equipment	Leads	12.50
302580	27	3,400	Electronic	Socket	33.60
302642	7.0	2,400	Fire alarm	Flat	5.20
302651	1.35	14,000	Electronic	Leads	4.80
302702	2.7	2,200	Geophysical	Leads	3.80
302904	5.4	3,400	Meter	Leads	6.75
302905	6.75	3,400	Test equipment	Leads	8.05
302907	9.45	3,400	Electronic	Leads	10.50
302908	10.8	3,400	Radiation eqpt.	Leads	11.50
303145	8.4	3,600	Depth finder	Snap	6.75
303219	9.8	175	Electronic	Flat	2.06
303236	4.2	1,000	Electronic	Flat	1.26
303314	16.8	2,400	Transceiver	Leads	10.80
303394	11.2	3,600	Electronic	Snap	10.15

## ALKALINE BATTERIES

Mallory No.	Volts	Use	Wt., Oz.	Net Each
Mn1300	1.5	All Purpose "D"	5 3/4	65c
Mn1306	4.5	Transistor radio	1 1/2	84c
Mn1400	1.5	All Purpose "C"	2 1/2	50c
Mn1500	1.5	All Purpose "AA"	.82	33c
Mn1604	9.0	Transistor radio	1 1/2	84c
Mn2400	1.5	All Purpose "AAA"	.4	33c
Mn9100	1.5	All Purpose "N"	.34	24c

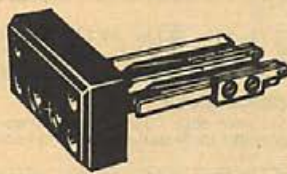
## PHOTO BATTERIES

For flashguns, electronic flash, photocells, meters, Wink-lites®, etc. Mercury type with flat terminals except as otherwise noted.

Mallory Number	Volts	Wt., Oz.	Net Each	Mallory Number	Volts	Wt., Oz.	Net Each
PX1	1.35	0.6	\$0.66	PX24*	3.0	1.0	\$ 0.75
PX4	5.6	3.2	1.57	PX450	1.35	0.3	.51
PX6	8.1	4.0	2.75	PF489†	225	37	6.96
PX13B	1.35	0.6	.50	PF491†	240	13	5.56
PX14	2.7	1.3	1.05	PF492†	225	40	7.65
PX18	46.2	6.0	4.05	PF497†	510	26	11.16
PX19*	4.5	1.5	.84	PX625	1.4	0.15	.51
PX21*	4.5	1.5	.84	PX640	1.35	0.35	.51
PX23*	5.6	2.0	.60	PX675B	1.35	0.07	.42

\*Alkaline. †Zinc-carbon. ‡Snap term. †Available in blister pack. \*mAh. ©Polaroid Corp. TM.

## SWITCHCRAFT JACK COVERS AND JACK BLOCKS



**"DUAL-JACK BLOCKS"**  
For mounting MT-Jax and T-Jax on 3/8" centers. Molded black phenolic blocks are 2 1/4" w. x 3/8" d. x 1 1/4" h. Rack panel mounted singly or in multiples using four 8-32 flat head screws.

Part No.	Description	Net Each, Lots of			
		1-24	25-49	50-99	100-249
2300	Block only	\$0.90	\$0.82	\$0.75	\$0.64
2331	2 MT-331	2.70	2.48	2.25	1.62
2332A	2 MT-332A	2.94	2.70	2.45	1.76
2332B	2 MT-332B	2.94	2.70	2.45	1.76
2333	2 MT-333	3.24	2.97	2.70	1.94

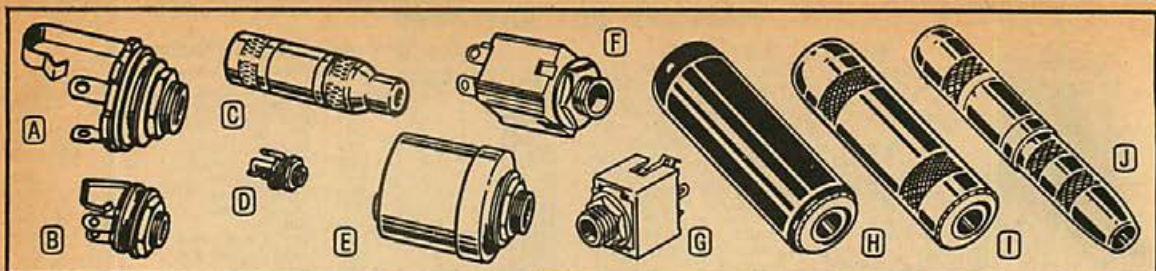
## JACK COVERS

Handy, rugged, spring-load phone jack covers. Automatically covers jack openings when phone plug is removed. Protects against dust and moisture.  
Series 500—Used with standard 3/8"-32 threaded bushing type phone jacks.  
Series 600—Used with certain type tip jacks with 1/2" mounting; height of tip jack head 3/8" to 1/2". Also used as covers for "Tint-Jax".



Part No.	Color	Net Each, Lots of				
		1-24	25-49	50-99	100-249	500-999
510	Olive drab	\$0.63	\$0.55	\$0.471	\$0.413	\$0.388
512	Bright nickel	.63	.55	.471	.413	.388
515	Black	.63	.55	.471	.413	.388
520	Navy gray	.63	.55	.471	.413	.388
610	Olive drab	.45	.40	.343	.30	.282
612	Bright nickel	.45	.40	.343	.30	.282
615	Black	.45	.40	.343	.30	.282
620	Navy gray	.45	.40	.343	.30	.282





### "LITTEL-JAX" PHONE JACKS

**A** Economical phone jacks with notched insulating washers mechanically interlock springs and solder lugs. "V" bend in tip spring firmly "holds" mating plug. Minimum space requirements; mount in single  $\frac{3}{8}$ " hole, panels up to  $\frac{1}{4}$ " thick, except L-11 and L-12A in panels up to  $\frac{1}{2}$ " thick. Nos. C-11 and C-12B have locating pins (non-turn devices). No. S-11 similar to No. 11 except .210" I.D. sleeve. Typical Mating: All mate with standard  $\frac{1}{4}$ " dia. plug except: C-11 (JJ-034) and C12A (JJ-089) mate with 440 (PJ-055B) plug; C-12B (JJ-033), S-12B and S-13B mate with 480 (JAN-PJ-068) or 484 (W.E. 309) plug.

#### TWO-CONDUCTOR TYPES

Part No.	Schematic Number	Net Each, Lots of					
		1-24	25-49	50-99	100-249	250-499	500-999
11	I	\$0.24	\$0.192	\$0.164	\$0.144	\$0.135	\$0.128
C-11*	I	.36	.325	.279	.244	.229	.217
L-11	I	.30	.225	.193	.169	.159	.15
S-11	I	.27	.233	.20	.175	.165	.156
12A	III	.27	.233	.20	.175	.165	.156
C-12A*	III	.45	.35	.29	.263	.247	.233
L-12A	III	.33	.267	.229	.20	.188	.178
13	V	.54	.50	.429	.375	.353	.333
13A	VI	.51	.458	.393	.344	.324	.306
13E	LX	.54	.50	.429	.375	.353	.333

#### THREE-CONDUCTOR TYPES

Part No.	Schematic Number	Net Each, Lots of					
		1-24	25-49	50-99	100-249	250-499	500-999
12B	IV	\$0.33	\$0.297	\$0.254	\$0.223	\$0.209	\$0.198
C-12B*	IV	.42	.383	.329	.288	.271	.256
L-12B	IV	.39	.347	.297	.26	.245	.231
S-12B	IV	.39	.347	.297	.26	.245	.231
13B	VIII	.45	.417	.357	.289	.253	.239
S-13B	VIII	.57	.517	.443	.388	.365	.344
14B	X	.57	.50	.43	.38	.36	.34

\*Per JAN-J-641.

### "TINI-JAX" MINIATURE PHONE JACKS

**B** Miniature 2-conductor jacks mate with 750 plug. Approximately  $\frac{1}{2}$  the size of "Littel-Jax"; otherwise similar in construction. Mount in  $\frac{1}{4}$ " dia. hole; panel up to  $\frac{1}{8}$ " thick. No. 43A has a unique spring design that requires a pear shaped tip, such as Switchcraft "Tini-Plug" No. 750.

Part No.	Schematic Number	Net Each, Lots of					
		1-24	25-49	50-99	100-249	250-499	500-999
41	I	\$0.24	\$0.192	\$0.164	\$0.144	\$0.135	\$0.128
42A	III	.27	.233	.20	.175	.165	.156
43A	VI	.42	.367	.314	.275	.259	.244

### "TINI-EXTENSION JAX"

**C** An extension or cable jack to mate with "Tini-Plugs". Two-conductor. Metal housing for ruggedness and electrical shielding. Solder lug terminals.

Part No.	Net Each	25-49	50-99	100-249	250-499	500-999
125	\$0.75	\$0.667	\$0.571	\$0.50	\$0.471	\$0.444

### "MICRO-JAX" SUBMINIATURE PHONE JACK

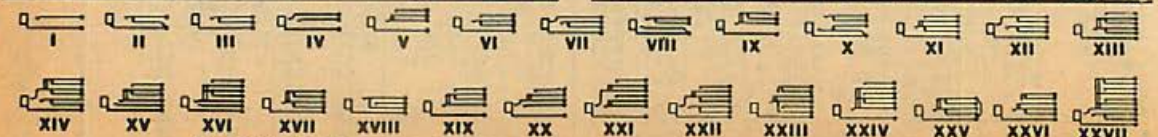
**D** Precision manufactured jack for miniaturized applications. Only 1/25th the size of standard phone jacks. Mates with "Micro-Plug", Series 850, 880. Two-conductor, single closed circuit. Silver plating on special tempered nickel silver springs. Internally keyed nylon insulation interlocks springs and solder lugs to eliminate shorts. Fits .190" dia. hole in panels to  $\frac{1}{8}$ " thick.

Part No.	Net Each	25-49	50-99	100-249	250-499	500-999
TR-2A	\$0.27	\$0.233	\$0.20	\$0.175	\$0.165	\$0.156

### "SHIELDED JAX"

**E** A unique modification of the "Littel-Jax". The shield is assembled into and made part of the jack. Ideal for high impedance circuits. CN-11 and CN-12A are 2-conductor type, mate with 250 Plug; others are 3-conductor and mate with 267 plug.

Part No.	Schematic Number	1-24	25-49	50-99	100-249	250-499	500-999
CN-11	I	\$0.48	\$0.417	\$0.357	\$0.313	\$0.294	\$0.278
CN-12A	III	.51	.45	.386	.338	.318	.30
CN-12B	IV	.57	.517	.443	.388	.365	.344
CN-13B	VIII	.69	.633	.543	.475	.447	.422



The above electrical schematics do not necessarily indicate relative solder lug positions.

### "HI-D JAX" PHONE JACKS

**F** Compact phone jacks mate with std.  $\frac{1}{4}$ " phone plugs. Molded box body protects integral silver-plated, nickel silver springs. Low contact resistance and electrical leakage with little capacity between the springs. Mount on  $\frac{3}{8}$ " centers in single  $\frac{3}{8}$ " dia. hole, panels up to  $\frac{1}{8}$ " thick, depth behind panel,  $1\frac{1}{2}$ ". All part nos. with "L" prefix mount in panels up to  $\frac{1}{4}$ " thick; part nos. with "N" prefix feature a threaded nylon bushing to provide complete insulation of jack sleeve front mtg. panel. Stereo "HI-D Jax", Nos. 114B, L-114B, N-114B: Switches out speakers when connecting stereo headphones. Dual NO switch contacts open both stereo circuits independently when a 3 cond. plug is inserted.

#### TWO CONDUCTOR TYPES—MATE NO. 250 PLUG

Part No.	Schematic Number	Net Each, Lots of					
		1-24	25-49	50-99	100-249	250-499	500-999
111	I	\$0.24	\$0.192	\$0.164	\$0.144	\$0.135	\$0.128
L-111	I	.30	.225	.193	.169	.159	.15
N-111	I	.30	.225	.193	.169	.159	.15
112A	III	.27	.233	.20	.175	.165	.156
L-112A	III	.33	.267	.229	.20	.188	.178
N-112A	III	.33	.267	.229	.20	.188	.178
113	V	.54	.50	.429	.375	.353	.333
113D	VI	.54	.50	.429	.375	.353	.333
113E	IX	.54	.50	.429	.375	.353	.333

#### THREE CONDUCTOR TYPES—MATE NO. 267 PLUG

Part No.	Schematic Number	Net Each, Lots of					
		1-24	25-49	50-99	100-249	250-499	500-999
112B	IV	\$0.30	\$0.225	\$0.193	\$0.169	\$0.159	\$0.15
L-112B	IV	.39	.347	.297	.26	.245	.231
N-112B	IV	.39	.347	.297	.26	.245	.231
113B	VIII	.39	.347	.297	.26	.245	.231
L-113B	VIII	.45	.417	.357	.313	.294	.278
N-113B	VIII	.45	.417	.357	.313	.294	.278
113F	VII	.39	.347	.297	.26	.245	.231
114B	X	.45	.417	.357	.313	.294	.278
L-114B	X	.51	.451	.391	.34	.323	.306
N-114B	X	.51	.451	.391	.34	.323	.306

### "TINI-D JAX" SUBMINIATURE PHONE JACKS

**G** Small completely enclosed, molded phone jack mate with "Tini-Plugs" No. 750. Phenolic housing protects the bifurcated beryllium copper springs from being bent during mounting. Two conductor. No. 142A has threaded bushing for conventional mtg.; No. PC-142A, with plain bushing. Both have tip spring terminals that "snap-in" P.C. boards. Mount on  $\frac{3}{8}$ " ctrs.,  $\frac{1}{4}$ " dia. hole, panels to  $\frac{1}{8}$ " thk., depth behind panel,  $\frac{1}{4}$ ".

Part No.	Schematic Number	Net Each, Lots of					
		1-24	25-49	50-99	100-249	250-499	500-999
142A	III	\$0.27	\$0.233	\$0.20	\$0.175	\$0.165	\$0.156
PC-142A	III	.30	.265	.23	.20	.19	.18

### "EXTENSION JAX" CABLE EXTENSION JACKS

**H I J** Standard  $\frac{1}{4}$ " dia. 2- and 3-conductor extension phone jacks with solder lugs or screw type terminals. Black handles, durable plastic; shielded handles are brass, bright nickel-plated. Size,  $\frac{1}{4}$ " O.D.,  $2\frac{1}{2}$ " lg.; Nos. 121, 131,  $\frac{1}{2}$ " O.D.,  $2\frac{1}{2}$ " lg.

#### WITH BLACK PLASTIC HANDLE

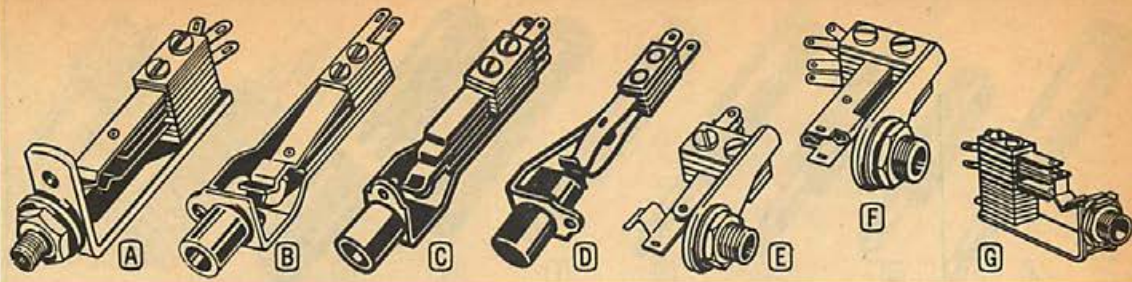
Part No.	Fig.	Cond.	Term.	Net Each, Lots of					
				1-24	25-49	50-99	100-249	250-499	500-999
80	H	2	Screw	\$0.69	\$0.625	\$0.536	\$0.469	\$0.441	\$0.417
88	H	2	Solder	.60	.525	.45	.394	.371	.35
830	H	3	Screw	.93	.825	.707	.619	.582	.55
S-830	H	3	Screw	1.20	1.13	.974	.85	.80	.756
838	H	3	Solder	.84	.742	.636	.556	.524	.494

#### WITH SHIELDED HANDLE

Part No.	Fig.	Cond.	Term.	Net Each, Lots of					
				1-24	25-49	50-99	100-249	250-499	500-999
120	I	2	Screw	\$0.93	\$0.825	\$0.707	\$0.619	\$0.582	\$0.55
121	J	2	Solder	.96	.883	.757	.663	.624	.589
126	I	2	Solder	1.08	.967	.829	.725	.682	.644
128	I	2	Solder	.84	.742	.636	.556	.524	.494
S-128	I	2	Solder	.90	.833	.714	.625	.588	.556
131	J	3	Solder	1.20	1.13	.971	.85	.80	.756
1230	I	3	Screw	1.17	1.07	.914	.80	.753	.711
S-1230	I	3	Screw	1.50	1.40	1.20	1.05	.988	.933
1238	I	3	Solder	1.08	.967	.829	.725	.682	.644



# SWITCHCRAFT INC. Phone Jacks



## "M-JAX" MILITARY TYPE PHONE JACKS

**A** Very heavy long frame jacks often referred to as the Navy Jack. For industrial and military equipment. Long, heavy duty springs with fine silver contacts. Mount on single  $\frac{3}{8}$ " hole, in panels up to  $\frac{1}{4}$ " thick.

Part Number	Schematic Number*	Net Each, Lots of					
		1-24	25-49	50-99	100-249	250-499	500-999
M-441	I	\$0.90	\$0.767	\$0.657	\$0.575	\$0.541	\$0.511
M-442A	III	1.02	.90	.771	.675	.635	.60
M-442A	VI	1.17	1.02	.871	.763	.718	.678
M-443B	VII	1.26	1.05	.90	.788	.741	.70
M-444*	XII	1.38	1.12	.957	.838	.788	.744
M-444B	XII	1.32	1.07	.914	.80	.753	.711
M-445	XIII	1.65	1.22	1.04	.913	.859	.811
M-446	XIV	2.10	1.73	1.49	1.30	1.22	1.16
M-446A	XVI	2.34	1.82	1.56	1.36	1.28	1.21

\*Bushing, .2085".

## "MT-JAX" MILITARY TELEPHONE JACKS

**B** Long frame, telephone switchboard jacks designed for high quality communication and military equipment. Springs are of a special nickel silver alloy with welded cross bar palladium contacts. "A" frame design with side mounting ear. All jacks listed mate with  $\frac{1}{4}$ " diameter phone plugs, unless otherwise indicated.

**C** "C" frame design with mounting ear centered at top of frame; to order, add prefix "C" to part number.

Part Number	Schematic Number*	Net Each, Lots of					
		1-24	25-49	50-99	100-249	250-499	500-999
MT-331	I	\$0.90	\$0.633	\$0.543	\$0.475	\$0.447	\$0.422
MT-332	II	1.02	.75	.643	.563	.529	.50
MT-332A	III	1.02	.75	.643	.563	.529	.50
MT-332B	IV	1.02	.75	.643	.563	.529	.50
MT-332C	VIII	1.17	.833	.714	.625	.588	.556
MT-333	V	1.17	.833	.757	.663	.624	.589
MT-333B	VII	1.17	.833	.757	.663	.624	.589
MT-333E	IX	1.17	.833	.757	.663	.624	.589
MT-334A	XI	1.20	.917	.786	.688	.647	.611
MT-334B	XII	1.20	.917	.786	.688	.647	.611
MT-334C	XVII	1.20	.917	.786	.688	.647	.611
MT-334E	XXV	1.20	.917	.786	.688	.647	.611
MT-334F	XIX	1.20	.917	.786	.688	.647	.611
MT-335	XIII	1.35	1.02	.871	.763	.718	.678
MT-335A	XXVI	1.35	1.18	1.01	.888	.835	.789
MT-336	XX	1.35	1.02	.871	.763	.718	.678
MT-336A	XIV	1.65	1.32	1.13	.988	.929	.878
MT-336B	XXI	1.65	1.32	1.13	.988	.929	.878
MT-336C	XXII	1.65	1.32	1.13	.988	.929	.878
MT-336E	XXIII	1.65	1.32	1.13	.988	.929	.878
CMT-336E	XIII	1.65	1.32	1.13	.988	.929	.878
MT-337	XXIV	1.65	1.32	1.13	.988	.929	.878
CMT-337	XXIV	1.65	1.32	1.13	.988	.929	.878
MT-339	XXVII	2.40	2.05	1.76	1.54	1.45	1.37
MT-342B*	IV	1.17	.783	.671	.588	.553	.522
MT-344B*	XII	1.35	.967	.829	.725	.682	.644

\*Bushing, .2085".

## "T-JAX" TELEPHONE TYPE PHONE JACKS

**B** Long frame, switchboard type, phone jacks. For high quality communication equipment. Springs of nickel silver alloy for maximum life and corrosion resistance. Fine silver contacts are standard. "A" frame design with side mounting ear. All jacks listed mate with standard  $\frac{1}{4}$ " diameter phone plugs.

**C** "C" frame design with mounting ear centered at top of frame; to order, add prefix "C" to part number.

Part Number	Schematic Number*	Net Each, Lots of					
		1-24	25-49	50-99	100-249	250-499	500-999
T-331*	I	\$0.63	\$0.517	\$0.443	\$0.388	\$0.365	\$0.344
T-332A*	III	.72	.60	.514	.45	.424	.40
T-332B†	IV	.72	.60	.514	.45	.424	.40
T-332C*	VIII	.87	.692	.593	.519	.488	.461
T-333*	V	.81	.742	.636	.556	.524	.494
T-334A†	XI	.90	.775	.664	.581	.547	.517
T-334B†	XII	.96	.825	.707	.619	.582	.55
T-334C*	XVII	.90	.825	.707	.619	.582	.55
T-334F*	XIX	.90	.825	.707	.619	.582	.55
T-335*	XIII	.96	.875	.75	.656	.618	.583
T-336*	XXVI	1.05	.825	.707	.619	.582	.55

\*Two-conductor, mates with 250 Plug. †Three-conductor, mates with 267 Plug.

## "LAMP JAX" SWITCHBOARD PANEL TYPE

**D** Black nylon lamp housing completely insulates lamp from frame. Interchangeable with W.E. Nos. 47A and 47B. Accepts standard switchboard lamps and lamp caps, W.E. Nos. 2 and 72, etc.

LT-47	.....	\$0.84	\$0.742	\$0.636	\$0.556	\$0.524	\$0.494
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## "SF-JAX" SHORT FRAME PHONE JACKS

**E** Series 20—High quality commercial jacks, solder lugs parallel to mounting surface. Mount in  $\frac{3}{8}$ " dia. holes, panels up to  $\frac{1}{4}$ " thick.

**F** Series 50—Similar to Series 20, except solder lug location. Require more depth but less panel space; panels up to  $\frac{1}{4}$ " thick. Series C-20 and C-50—Similar to commercial Series 20 and 50, except have military insulation and finishes; both will mount in panels up to  $\frac{1}{4}$ " thick. MIL designation: C-23 (JJ-099), C-23A (JJ-098), C-23E (JJ-102), C-51 (JJ-096), C-52A (JJ-097), C-52B (JJ-103), C-53A (JJ-092), C-54A (JJ-093), C-54B (JJ-101), C-55B (JJ-095).

All "SF-Jax" mate with standard  $\frac{1}{4}$ " diameter plugs, except as noted.

### SERIES 20 AND C-20

Part No.	Schematic Number*	Net Each, Lots of					
		1-24	25-49	50-99	100-249	250-499	500-999
21	I	\$0.39	\$0.358	\$0.307	\$0.269	\$0.253	\$0.239
22	II	.48	.442	.379	.331	.312	.294
22A	III	.48	.442	.379	.331	.312	.294
22B	IV	.48	.442	.379	.331	.312	.294
23	V	.57	.533	.457	.40	.376	.356
C-23*	V	.81	.767	.657	.575	.541	.511
23A	VI	.57	.533	.457	.40	.376	.356
C-23A*	VI	.81	.767	.657	.575	.541	.511
23B	VII	.57	.533	.457	.40	.376	.356
23C	VIII	.57	.533	.457	.40	.376	.356
23E	IX	.57	.533	.457	.40	.376	.356
C-23E*	IX	.81	.767	.657	.575	.541	.511
24	X	.66	.617	.529	.463	.435	.411
24A	XI	.66	.617	.529	.463	.435	.411
24B	XII	.66	.617	.529	.463	.435	.411
25	XIII	.78	.742	.636	.556	.524	.494
26	XIV	.84	.80	.686	.60	.565	.533

### SERIES 50 AND C-50

Part No.	Schematic Number*	Net Each, Lots of					
		1-24	25-49	50-99	100-249	250-499	500-999
51	I	\$0.39	\$0.355	\$0.304	\$0.266	\$0.251	\$0.237
C-51*	I	.72	.675	.579	.506	.476	.45
52	II	.48	.433	.371	.325	.306	.289
52A	III	.48	.433	.371	.325	.306	.289
C-52A*	III	.78	.733	.629	.55	.518	.489
52B	IV	.48	.433	.371	.325	.306	.289
C-52B†	IV	.78	.733	.629	.55	.518	.489
53	V	.57	.517	.443	.388	.365	.344
53A	VI	.57	.517	.443	.388	.365	.344
C-53A*	VI	.93	.825	.707	.619	.582	.55
53B	VII	.57	.517	.443	.388	.365	.344
53C	VIII	.57	.517	.443	.388	.365	.344
53E	IX	.57	.517	.443	.388	.365	.344
54	X	.66	.592	.507	.444	.418	.394
54A	XI	.66	.592	.507	.444	.418	.394
C-54A*	XI	.96	.883	.757	.663	.624	.589
54B	XII	.66	.592	.507	.444	.418	.394
C-54B†	XII	.96	.883	.757	.663	.624	.589
55	XIII	.78	.717	.614	.538	.506	.478
C-55B†	XV	1.11	1.05	.90	.788	.741	.70
56	XIV	.84	.767	.657	.575	.541	.511

\*Mates with 440 Plug. †Mates with 480 Plug.

## "LF-JAX" LONG FRAME JACKS

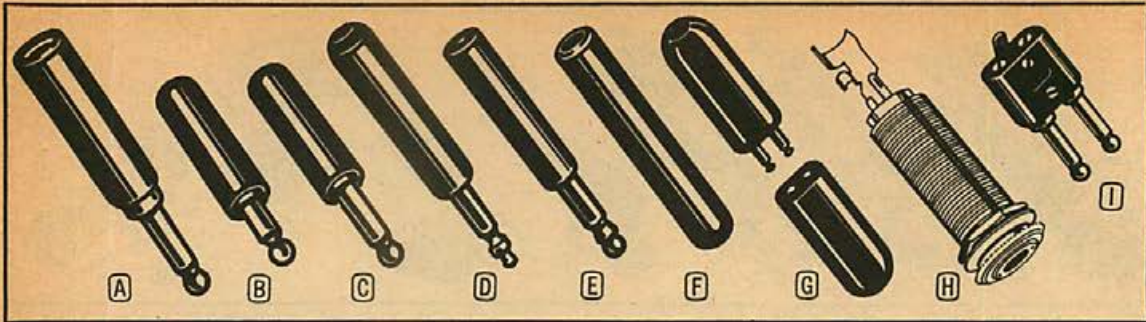
**C** Quality long frame phone jacks with integral ground lug. Fine silver contacts rated 3 amps, 300 watts AC, non-inductive. Mount in single  $\frac{3}{8}$ " dia. hole, panels up to  $\frac{1}{4}$ " thick. Depth behind panel, 2 $\frac{1}{2}$ ". Frame also available with a non-turn device, add prefix "R" to part number, e.g., R31.

Part Number	Schematic Number*	Net Each, Lots of					
		1-24	25-49	50-99	100-249	250-499	500-999
31*	I	\$0.45	\$0.417	\$0.357	\$0.313	\$0.294	\$0.278
32*	II	.57	.533	.457	.40	.376	.356
32A*	III	.57	.533	.457	.40	.376	.356
32B†	IV	.57	.533	.457	.40	.376	.356
33*	V	.63	.592	.507	.444	.418	.394
33A*	VI	.63	.592	.507	.444	.418	.394
33B†	VII	.63	.592	.507	.444	.418	.394
33C†	VIII	.63	.592	.507	.444	.418	.394
33E*	IX	.63	.592	.507	.444	.418	.394
34†	X	.72	.683	.586	.513	.482	.456
34A*	XI	.72	.683	.586	.513	.482	.456
34B†	XII	.72	.683	.586	.513	.482	.456
35*	XIII	.87	.833	.714	.625	.588	.556
36†	XIV	1.02	.975	.836	.731	.688	.65

\*2-conductor; mates with 260 Plug. †3-conductor; mates with 267 Plug.

\*REFER TO PREVIOUS PAGE FOR ELECTRICAL SCHEMATICS.





**MILITARY TYPE "LITTEL-PLUGS" AND "EXTENSION JAX"**  
 "Littel-Plugs" are made in accordance with MIL-P-642(A) specifications. One-piece tip rod and one-piece sleeve and plug body provide internal interlock to prevent parts shifting in position. Type 820 "Extension Jax" meets MIL-J-641(A) specifications and mates with "Littel-Plug" Nos. 430, 435, 450, and 455. All handles are plastic except that of No. 470 which is shielded, 2-conductor except 480 Series, 3-conductor. All plugs have screw terminals.

Part No.	Fig.	MIL Type	Net Each, Lots of					
			1-24	25-49	50-99	100-249	250-499	500-999
420*	A	PJ-047B	\$0.90	\$0.817	\$0.70	\$0.613	\$0.576	\$0.544
425*	A	PJ-047R	.90	.817	.70	.613	.576	.544
430*	B	PJ-054B	.84	.70	.60	.525	.494	.467
435*	B	PJ-054R	.84	.70	.60	.525	.494	.467
440*	C	PJ-055B	.84	.65	.557	.488	.459	.433
445*	C	PJ-055R	.84	.65	.557	.488	.459	.433
450*	B	PJ-540B	.84	.70	.60	.525	.494	.467
455*	B	PJ-540R	.84	.70	.60	.525	.494	.467
470		PJ-055M	1.20	.917	.786	.683	.647	.611
480*	D	PJ-088	2.16	1.42	1.23	1.06	1.00	.944
482*	E	PJ-051R	2.40	1.58	1.36	1.19	1.12	1.06
483*	E	PJ-051B	2.40	1.58	1.36	1.19	1.12	1.06
484*	E	PJ-309	2.16	1.58	1.36	1.19	1.12	1.06
820*	F	JJ-026	1.20	1.03	.886	.775	.729	.689

\*Black handle. †Red handle.

Switchcraft Part No. P-1074-1—Strain Relief Clamp. Nickel-plated brass. Net Per Package of 25..... 51c

### TYPE 410 PLUG AND TYPE 810 JACK

Miniature 2-conductor extension jack and mating plug; often referred to as "Throat Microphone Plug and Jack". Both jack and plug are of two-piece molded construction. Plug has solder-cup terminals; jack has solder lugs. After wiring, shells must be cemented and clamped till dry. Overall size (engaged), 2 3/8" x 1 1/2" x 3/4".

Part No.	Plug or Jack	MIL Type	Net Each, Lots of					
			1-24	25-49	50-99	100-249	250-499	500-999
410	Plug	PJ-291	\$0.36	\$0.33	\$0.283	\$0.248	\$0.233	\$0.22
810	Jack	JJ-048	.48	.433	.371	.325	.306	.289

### "THICK PANEL JAX"

Phone jacks with long bushing. Mount in single 1/2" dia. hole in panels up to 1/4" thick. Solder lug terminals. Extra shielding virtually eliminates audio hum. Ideal for use with microphones. No. 151, 2-conductor mates with 240, 245, 250, 255, 270 and 280 Plugs. No. 152B, 3-conductor mates with 260, 267, 269 and 297 Plugs. Nickel plated.

Part No.	Description	Net Each, Lots of					
		1-24	25-49	50-99	100-249	250-499	500-999
151	Brass	\$0.81	\$0.70	\$0.60	\$0.525	\$0.494	\$0.467
152B	Brass	.90	.783	.671	.588	.553	.522

### MILITARY TYPE "TWIN-PLUGS"

Meet exact industrial and military requirements. "Twin-Plug" sleeves spaced 3/8" center to center with self-aligning feature. See table for MIL types.

Switchcraft Part No. 411—Two electrically independent 2-conductor plugs in black plastic handle. Both design and material per MIL-P-642(A). Provision for No. 8-2674 Cord Clamp.

Switchcraft Part No. 412—Material used identical to that of No. 411. Two electrically independent 2-conductor plugs in black plastic handle. Has external cord clamp.

Switchcraft Part No. 413—Material used identical to that of No. 411. Three circuit plug with two electrically independent tip circuits in heavy duty die cast frame. Molded black phenolic handle notched to indicate polarity.

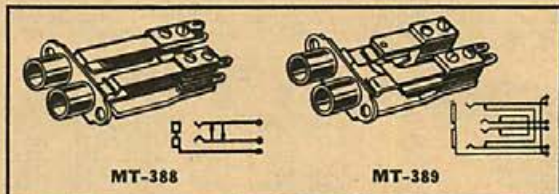
Switchcraft Part No. 414—Two electrically independent 3-conductor plugs in black plastic handle. Fingers, 1/4" dia.

Switchcraft Part No. 415—Same as 414 but has one 1/4" dia. and one .206" dia. fingers. For automatic polarization.

Part No.	MIL Type	Replaces W.E. No.	Net Each, Lots of					
			1-24	25-49	50-99	100-249	250-499	500-999
411	PJ-327*	327	\$2.85	\$2.58	\$2.21	\$1.94	\$1.82	\$1.72
412	PJ-289	289B	2.70	2.42	2.07	1.84	1.71	1.61
413	PJ-421	241	2.70	2.33	2.00	1.75	1.65	1.56
414	.....	338A	5.40	4.77	4.14	3.60	3.42	3.24
415	.....	.....	6.00	5.30	4.60	4.00	3.80	3.60

\*Old Navy No. 491242.

Switchcraft Part No. S-2674—Strain Relief Clamp. Natural brass. For use with Nos. 411, 414, 415. Net Per Package of 10..... 30c



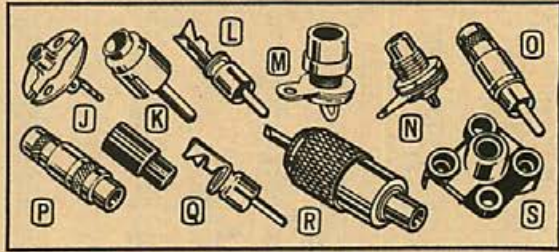
MT-388

MT-389

### "TWIN JAX" DUAL MILITARY JACKS

Similar in design to "MT-Jax" except width of frame is doubled. Two mounting ears on 1 3/4" centers; bushings are on 3/4" centers. MT-388 (MIL-Type No. JJ-088) mates with Nos. 411, 412, 413 "Twin-Plugs" or 420, 425 "Littel-Plugs". MT-389 has two 3-conductor jacks interconnected; mates with No. 482 "Littel-Plug".

Part No.	Net Each, Lots of					
	1-24	25-49	50-99	100-249	250-499	500-999
MT-388	\$3.09	\$2.18	\$1.87	\$1.64	\$1.54	\$1.46
MT-389	3.39	2.65	2.27	1.99	1.87	1.77



### PHONO JACKS AND PLUGS

Low cost 2-cond. jacks and plugs for record players, FM-AM tuners, tape recorders, test equipment, etc. 3501MC has 3/4" O.D. shell and cable clamp. 3501FP for front panel mount in 3/4" hole, in panels up to 1/4" thick. 3501FR for rear panel mount in 3/4" hole, in panels up to 1/4" thick. 3502 has unique cable clamp with 1/2" O.D. shielded removable handle. 3503 extension jack has shielded removable handle, 1/2" O.D. with cable clamp. 3508 Series phono plugs with cable clamp and "snap-on" plastic handle. 3511 Series "4-Leaf Clover" molded phono jack with dual contact surfaces for minimum shunt resistance and greater reliability. Mates with all Switchcraft phono plugs. Open circuit type. 3512 Series same as 3511 Series except is closed circuit type.

Part No.	Fig.	Description	Net Each, Lots of					
			1-24	25-49	50-99	100-249	250-499	500-999
3501F	K	Chassis Jack	9c	5c	4.3c	3.8c	3.5c	3.3c
3501M	K	Plug, no clamp	6c	3.3c	2.9c	2.5c	2.4c	2.2c
3501MC	L	Plug, w/clamp	9c	7c	6c	5.3c	4.9c	4.7c
3501FP	M	Chassis Jack	21c	14.5c	12.4c	10.9c	10.2c	9.7c
3501FR	N	Chassis Jack	24c	19c	16.3c	14.3c	13.4c	12.7c
3502	O	Plug/shield	30c	25.8c	22.1c	19.4c	18.2c	17.2c
3503	P	Ext. Jack	36c	32.5c	27.9c	24.4c	22.9c	21.7c
3508-1	Q	Plug, red handle	15c	11.7c	10c	8.8c	8.2c	7.8c
3508-2	Q	Plug, blk handle	15c	11.7c	10c	8.8c	8.2c	7.8c
3508-5	Q	Plug, wht handle	15c	11.7c	10c	8.8c	8.2c	7.8c
3511*	S	Open circuit	15c	13.4c	11.4c	10c	9.4c	8.8c
3511A*	S	Open ckt., gnd.	15c	13.4c	11.4c	10c	9.4c	8.8c
3512*	S	Closed circuit	18c	16c	13.7c	12c	11.3c	10.7c
3512A*	S	Closed ckt., gnd	18c	16c	13.7c	12c	11.3c	10.7c

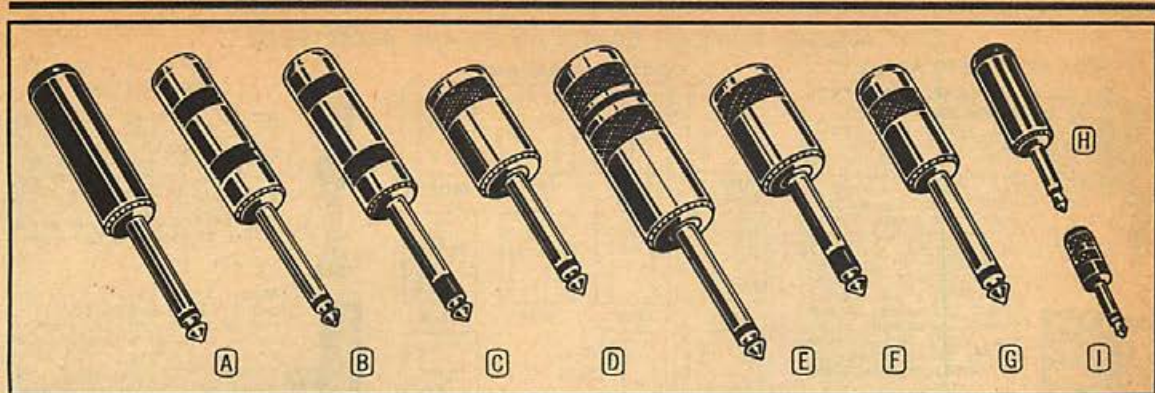
\*Chassis Jack.

### RF JACKS AND RF PLUGS

Standard phono jacks and plugs with nylon insulation. 3505F mounts front of panel in 3/4" hole, panel up to 1/4" thick. 3506 has coaxial connector (Amphenol 83-1SP) one end; 3505F, other end. 3507 has 1/2" O.D. shielded, screw-on handle with cable clamp.

Part No.	Fig.	Description	Net Each, Lots of					
			1-24	25-49	50-99	100-249	250-499	500-999
3504M	K	3/4" O.D. plug	\$0.12	\$0.107	\$0.091	\$0.08	\$0.075	\$0.071
3505F	M	Chassis Jack	.36	.30	.257	.225	.212	.20
3506	R	A dapter	1.20	1.12	.957	.838	.788	.744
3507	O	Plug, shld. hdl.	.48	.417	.357	.313	.294	.278





### "LITEL PLUG" PHONE PLUGS

Small size phone plugs fit standard  $\frac{1}{4}$ " phone jacks except Nos. S-250, S-260, S-280 and S-290 which have a .206" dia. sleeve. Nos. C-240, C-245 and C-270 feature an integral cable clamp with screw terminals. R-280 has short sleeve for Revere Recorders. No. 288 has a wide insulator between tip and sleeve for use in a 3-conductor jack to perform a 2-conductor function without shorting. Plugs with solder terminals have built-in cable clamp. Shielded metal handles are nickel plated brass; others are molded of durable plastic;  $\frac{3}{8}$ " long x  $\frac{1}{2}$ " dia.

### TWO-CONDUCTOR TYPE

Part No.	Fig.	Handle	Net Each, Lots of					
			1-24	25-49	50-99	100-249	250-499	500-999
240*	A	Black	\$0.45	\$0.407	\$0.349	\$0.305	\$0.287	\$0.271
C-240*	A	Black	.54	.483	.414	.363	.341	.362
245*	A	Red	.45	.407	.349	.305	.287	.271
C-245*	A	Red	.54	.483	.414	.363	.341	.322
250	A	Black	.42	.383	.329	.288	.271	.256
255	A	Red	.42	.383	.329	.288	.271	.256
270*	B	Shielded	.63	.542	.464	.406	.382	.361
C-270*	B	Shielded	.72	.65	.557	.488	.459	.433
280	B	Shielded	.60	.50	.429	.375	.353	.333
288	C	Shielded	.63	.567	.486	.425	.40	.378
S-250	A	Black	.45	.408	.35	.306	.288	.272
S-280	B	Shielded	.60	.533	.457	.40	.376	.356
R-280	B	Shielded	.75	.575	.443	.431	.406	.383

### THREE-CONDUCTOR TYPE

Part No.	Fig.	Handle	Net Each, Lots of					
			1-24	25-49	50-99	100-249	250-499	500-999
260*	A	Black	\$0.72	\$0.658	\$0.564	\$0.494	\$0.465	\$0.439
S-260*	A	Black	.99	.933	.80	.70	.659	.622
267	A	Black	.63	.583	.50	.438	.412	.389
269	A	Red	.63	.583	.50	.438	.412	.389
290*	B	Shielded	.84	.758	.65	.569	.535	.506
S-290*	B	Shielded	1.11	1.05	.90	.788	.741	.70
297	B	Shielded	.78	.733	.629	.55	.518	.489

\*Screw terminals; balance are solder type.

### STANDARD $\frac{1}{4}$ " PHONE PLUGS

Available with phenolic or shielded, nickel plated over brass handle.

### TWO-CONDUCTOR—SCREW TERMINALS

Typical mating jack "Littel-Jax" No. 11. Nos. 49 and 169 feature circuit closing device. Nos. 170 and 475 (ML-PJ-636) have two-piece handle with built-in clamp for  $\frac{1}{4}$ " cable. No. 180 has wide insulator between tip and sleeve for use in a 3-conductor jack to perform a 2-conductor function without shorting.

Part No.	Fig.	Handle	Net Each, Lots of					
			1-24	25-49	50-99	100-249	250-499	500-999
40*	A	Black	\$0.45	\$0.407	\$0.349	\$0.305	\$0.287	\$0.271
45*	A	Red	.45	.407	.349	.305	.287	.271
49*	A	Black	.90	.825	.707	.619	.582	.55
70†	B	Shielded	.72	.675	.579	.506	.476	.45
160†	D	Shielded	.54	.483	.414	.363	.341	.322
169†	D	Shielded	1.05	.967	.829	.725	.682	.644
170†	E	Shielded	.99	.933	.80	.70	.659	.622
180†	F	Shielded	.63	.558	.479	.419	.394	.372
475†	E	Shielded	1.17	1.07	.914	.80	.753	.711

### THREE-CONDUCTOR—SOLDER TERMINALS

Typical mating jack "Littel-Jax" No. 12B. No. 190A has two-piece handle with built-in cable clamp for  $\frac{1}{4}$ " cable.

Part No.	Fig.	Handle	Net Each, Lots of					
			1-24	25-49	50-99	100-249	250-499	500-999
60†	A	Black	\$0.63	\$0.558	\$0.479	\$0.419	\$0.394	\$0.372
90†	D	Shielded	.78	.717	.614	.538	.506	.478
190†	B	Shielded	.90	.817	.70	.613	.576	.544
190A†	E	Shielded	1.17	1.08	.929	.813	.765	.722

Size (Lgth. x Dia.): \*2 $\frac{1}{8}$ " x  $\frac{3}{8}$ "; †2 $\frac{1}{8}$ " x  $\frac{1}{2}$ "; †1 $\frac{1}{2}$ " x  $\frac{1}{2}$ "; †1 $\frac{1}{2}$ " x  $\frac{3}{8}$ "; †1 $\frac{1}{2}$ " x  $\frac{3}{4}$ ."

### "MICRO-PLUGS" ULTRA-MINIATURE PHONE PLUGS

Ultra-miniature 2-conductor phone plugs, only  $\frac{1}{4}$ " long;  $\frac{1}{8}$ " O.D., .097" dia. sleeve. Mate with No. TR-2A. Have screw-on handles in black, red or natural anodized aluminum; accommodates cables up to  $\frac{1}{4}$ " dia. All plugs have integral cable clamps.

Part No.	Fig.	Handle	Net Each, Lots of					
			1-24	25-49	50-99	100-249	250-499	500-999
850	I	Black	\$0.45	\$0.383	\$0.329	\$0.288	\$0.271	\$0.256
855	I	Red	.45	.383	.329	.288	.271	.256
880	I	Natural	.45	.383	.329	.288	.271	.256

### "LUG-PLUG" PHONE PLUGS

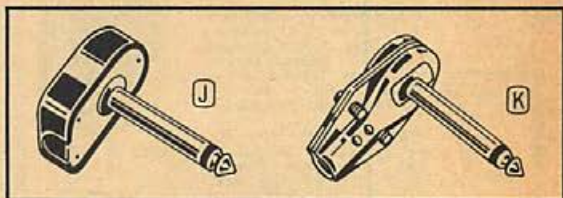
Low cost, 2-conductor phone plugs fit all  $\frac{1}{4}$ " phone jacks. No. 385 Plug has a .206" dia. sleeve and mates with S-11 "Littel-Jax". Solder lug terminals. Shielded metal or phenolic handle. Size (Lgth. x Dia.): Series 350, 1 $\frac{1}{8}$ " x  $\frac{1}{2}$ "; Series 380, 1" x  $\frac{1}{2}$ ".

Part No.	Fig.	Handle	Net Each, Lots of					
			1-24	25-49	50-99	100-249	250-499	500-999
350	A	Black	\$0.33	\$0.297	\$0.254	\$0.223	\$0.209	\$0.198
355	A	Red	.33	.297	.254	.223	.209	.198
380	G	Shielded	.42	.367	.314	.275	.259	.244
385	G	Shielded	.60	.45	.386	.338	.318	.30

### "TINI-PLUGS" SUBMINIATURE PHONE PLUGS

Miniature 2-conductor phone plugs for use with "Tini-Jax"; only  $\frac{1}{8}$ " the size of standard phone plugs. Handle 1 $\frac{1}{2}$ " overall length; plastic or brass, nickel plated. Terminals: Screw, Series 740, 770; Solder, Series 750, 780.

Part No.	Fig.	Handle	Net Each, Lots of					
			1-24	25-49	50-99	100-249	250-499	500-999
740	H	Black	\$0.45	\$0.407	\$0.349	\$0.305	\$0.287	\$0.271
745	H	Red	.45	.407	.349	.305	.287	.271
750	H	Black	.42	.383	.329	.288	.271	.256
755	H	Red	.42	.383	.329	.288	.271	.256
770	H	Shielded	.63	.55	.471	.413	.388	.367
780	H	Shielded	.60	.50	.429	.375	.353	.333



### "FLAT PLUGS" FLAT PHONE PLUGS

These  $\frac{1}{4}$ " phone plugs feature flat, space-saving handles. Ideal for applications where conventional plugs would protrude too far. Nos. 220, 225 have adapter clips which make them convenient to clamp standard phone tips to terminals. Shielded flat plugs, Nos. 228 and 229 have nickel plated steel handles; all others have red or black plastic handles. Nos. S-230 and S-235 have .206" dia. sleeve.

### TWO-CONDUCTOR TYPE

Part No.	Fig.	Handle	Net Each, Lots of					
			1-24	25-49	50-99	100-249	250-499	500-999
220*	J	Black	\$0.54	\$0.483	\$0.414	\$0.363	\$0.341	\$0.322
225*	J	Red	.54	.483	.414	.363	.341	.322
227†	J	Black	.51	.433	.371	.325	.306	.289
228†	K	Shielded	.57	.517	.443	.388	.365	.344
229†	J	Red	.51	.433	.371	.325	.306	.289

### THREE-CONDUCTOR TYPE

Part No.	Fig.	Handle	Net Each, Lots of					
			1-24	25-49	50-99	100-249	250-499	500-999
230*	J	Black	\$0.78	\$0.717	\$0.614	\$0.538	\$0.506	\$0.478
S-230*	J	Black	1.05	.967	.829	.725	.682	.644
235*	J	Red	.78	.717	.614	.538	.506	.478
S-235*	J	Red	1.05	.967	.829	.725	.682	.644
237†	J	Black	.75	.683	.586	.513	.482	.456
238†	K	Shielded	.84	.767	.657	.575	.541	.511
239†	J	Red	.75	.683	.586	.513	.482	.456

Terminals: \*Screw; †Solder.



# Pomona Components

## 3/4" MOLDED STACK-UP DOUBLE PLUGS AND ACCESSORIES

### DOUBLE PLUGS AND ADAPTERS



MDP



MDP-ST



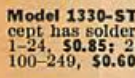
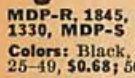
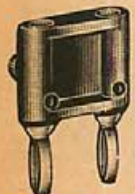
MDP-X



1837



1855



1823

1-24, 50.50; 25-49, 50.45; 50-99, 50.43; 100-249, 50.35.

### BANANA PLUG TYPE

**Model 1868**—Double for std. 0.166" dia. banana jacks, 3/4" spaced. Two .171" dia. stack-up connections. Through-hole for cable to attach to unit. Has set screws to secure cable leads. Spring, 1-piece beryllium copper, nickel-plated. Rated 15 amps, cont.; 30 amps, int., 5000 WVDC. Capacity, 0.8 pF at 1 Mc. **Colors:** Black, brown, red, orange, yellow, green, blue, violet, gray, white. Net Ea., 1-24, 50.75; 25-49, 50.68; 50-99, 50.64; 100-249, 50.53.

**Model MDP-ST**—Similar to Model MDP, except solder turret terminals. **Color:** Black. Net Ea., 1-24, 50.85; 25-49, 50.77; 50-99, 50.72; 100-249, 50.60.

**Model MDP-X**—Four terminal isolation plug. Suitable for design of attenuators, filters, pads, networks, etc. **Color:** Red. Net Ea., 1-24, 53.25; 25-49, 52.93; 50-99, 52.76; 100-249, 52.28.

**Model 1837**—Three-terminal isolation for T or Pi networks. Solder turret terminals on 3/4" centers. Ground is straight feed-thru; hot side isolated. **Color:** Blue. Net Ea., 1-24, 52.50; 25-49, 52.25; 50-99, 52.12; 100-249, 51.75.

**Model 1855**—Metal shorting bar, 3/4" spaced. Low profile, nickel-plated brass bar 3/8" thick. Resistance less than 1.5 milliohms installed. Net Ea., 1-24, 50.75; 25-49, 50.68; 50-99, 50.64; 100-249, 50.53.

**Model MDP-S**—Insulated shorting bar 3/4" spaced, noise free, solder bonded internally. **Colors:** Black, red, cream. Net Ea., 1-24, 50.95; 25-49, 50.86; 50-99, 50.81; 100-249, 50.67.

**Model MDP-R**—Has 1% tol. deposited carbon resistor molded-in. Specify 50, 75, 120, 130, 150, 200, 250, 500, 600, 900 ohms; 1K, 5K, 10K, 20K, 50K, 100K, 200K, 250K or 500K ohms; 1, 2, 5 or 10 megohms (value stamped on plug top). Plugs 3/4" spaced. Net Ea., 1-24, 52.75; 25-49, 52.48; 50-99, 52.34; 100-249, 51.93.

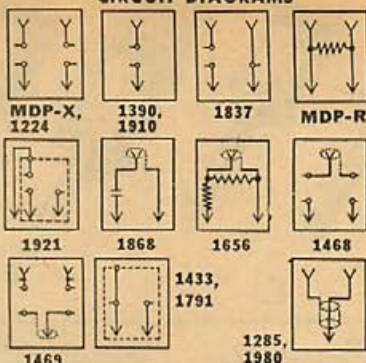
**Model 1330**—Component mounting plug. Ideal for lab standards, R & D, etc. Recess for small components, internal set screws firmly secure lead wires.

**Model 1330-ST**—Same as Model 1330 except has solder turret terminals. Net Ea., 1-24, 50.85; 25-49, 50.77; 50-99, 50.72; 100-249, 50.60.

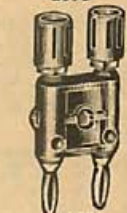
**Model 1845**—Tip jacks to double plug adapter. Adapts .080" tip plugs to equipment with banana jacks; 3/4" centers. Stack-up cross holes. **Colors:** Black. Net Ea., 1-24, 50.85; 25-49, 50.77; 50-99, 50.72; 100-249, 50.60.

**Model 1823**—Double banana plug splice. Jacks on each end spaced 3/4". **Colors:** Black, red. Net Ea., 1-24, 50.50; 25-49, 50.45; 50-99, 50.43; 100-249, 50.35.

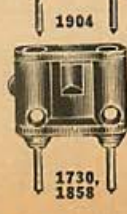
### CIRCUIT DIAGRAMS



1978



1286



**Model 1978**—Double banana plug cable splice. Internal set screws hold leads; plus, cable strain relief. Jacks on 3/4" centers. **Colors:** Black, red. Net Ea., 1-24, 50.75; 25-49, 50.68; 50-99, 50.64; 100-249, 50.53.

**Model 1286**—Blinding post to double plug adapter. Adapts double banana plugs to insulated blinding posts on 3/4" centers. Stack-up cross holes. **Color:** Black body; black and red posts. Net Ea., 1-24, 52.50; 25-49, 52.25; 50-99, 52.12; 100-249, 51.75.

**Model 1224**—Component mounting box with double banana plugs. For building active or passive networks. Molded phenolic housing. Banana jacks at top; plugs on bottom; 3/4" centers. **Color:** Black housing; black and red jacks. Net Ea., 1-24, 52.95; 25-49, 52.65; 50-99, 52.51; 100-249, 52.07.

**Model 1977** (3/4" spaced, black) or **1991** (3/4" spaced, gray)—Banana jacks to AMP program board adapter. Adapts single or double 3/4" spaced banana plug to 3/4" or 3/8" spaced program boards. Set screws hold leads. Net Ea., 1-24, 53.85; 25-49, 53.47; 50-99, 53.27; 100-249, 52.70.

### PIN PLUG TYPE

**Model 1730**—Insulated shorting bar with tip plugs. Upper connection, banana jacks on 3/4" centers; lower connection, .080" pin tips on 3/4" centers. **Colors:** Black, red. Net Ea., 1-24, 50.75; 25-49, 50.68; 50-99, 50.64; 100-249, 50.53.

**Model 1904**—Component mounting pin tip plug. Solder turret terminals; pin jacks on 3/4" centers. Pin tips .080" dia. on 3/4" centers. **Colors:** Black, red. Net Ea., 1-24, 50.85; 25-49, 50.77; 50-99, 50.72; 100-249, 50.60.

**Model 1858**—Banana jacks to pin tip adapter. Adapts single or double banana plugs to tip jack equipment. Internal set screws hold leads firmly. Banana jacks at top; .080" dia. pin tips bottom; on 3/4" centers. **Color:** Black. Net Ea., 1-24, 50.75; 25-49, 50.68; 50-99, 50.64; 100-249, 50.53.

### SINGLE PLUGS AND ADAPTERS



1325, 1809



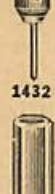
1825



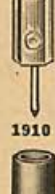
1390



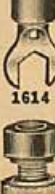
1829



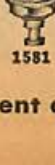
1432



1432



1910



1614

**Model 1325**—Single banana plug. Solderless type, with stack-up feature. Simplifies assembly of test cords by use of internal set screw. **Colors:** Black, brown, red, orange, yellow, green, blue, violet, gray, white. Net Ea., 1-24, 50.50; 25-49, 50.45; 50-99, 50.43; 100-249, 50.35.

**Model 1825**—Safety type banana plug. Same as No. 1325, but with integral safety collar, covers exposed wire lead. **Colors:** Black, brown, red, orange, yellow, green, blue, violet, gray, white. Net Ea., 1-24, 50.50; 25-49, 50.45; 50-99, 50.43; 100-249, 50.35.

**Model 1390**—Component mounting isolation plug. Top stack-up jack isolated from lower plug for mounting of resistors, diodes, etc., on solder turret terminals. For computer, general lab circuit design and testing, etc. **Colors:** Black, red. Net Ea., 1-24, 50.95; 25-49, 50.86; 50-99, 50.81; 100-249, 50.67.

**Model 1829**—Single banana plug splice. Banana jack on each end for quick cable splicing. **Colors:** Black, red. Net Ea., 1-24, 50.25; 25-49, 50.23; 50-99, 50.21; 100-249, 50.18.

**Model 1809**—Pin jack to banana plug adapter. Adapts .080" dia. pin tip to banana jack equipment. **Colors:** Black, red. Net Ea., 1-24, 50.50; 25-49, 50.45; 50-99, 50.43; 100-249, 50.35.

**Model 1432**—Banana jack to pin tip adapter. Adapts banana plug to tip jack equipment. **Colors:** Black, red. Net Ea., 1-24, 50.15; 25-49, 50.14; 50-99, 50.13; 100-249, 50.11.

**Model 1910**—Component mounting, pin tip isolation plug. Pin jack isolated from pin plug. Permits mounting resistors, diodes, etc. on solder turret terminals. For computer, general lab circuit design, testing, etc. **Colors:** Black, red. Net Ea., 1-24, 50.95; 25-49, 50.86; 50-99, 50.81; 100-249, 50.67.

**Model 1614**—Insulated spade lug adapter. Heavy-duty machined 1-piece spade lug, nickel-plated brass with molded-on plastic. Fits 3/8" dia. stud. For rear insertion of banana plug. **Colors:** Black, red. Net Ea., 1-24, 50.35; 25-49, 50.32; 50-99, 50.30; 100-249, 50.25.

**Model 1581**—Insulated banana jack assembly. Silver-plated brass body; solder turret terminal; lockwasher and hex nut nickel-plated. Insulator head molded to plug body. Closed-entry receptacle, .166" I.D. Ceramic washer, insulator head. Fits 3/8" dia. hole; panels to 3/8" thick. Rated 2500 WVDC. **Colors:** Black, 1581. Add suffix -1 for brown; -2, red; -3, orange; -4, yellow; -5, green; -6, blue; -7, violet; -8, gray; -9, white. Net Ea., 1-24, 50.25; 25-49, 50.23; 50-99, 50.21; 100-249, 50.18.



# Pomona Components

## 3/4" MOLDED STACK-UP DOUBLE PLUGS AND ACCESSORIES

### SHIELDED DOUBLE PLUGS AND ADAPTERS

**Model 1433**—Shielded double plug, 3/4" spaced. Black anodized aluminum shell; 3/8" dia. cable hole. Gold flash solder turret terminals. Nickel-plated, 1-piece, beryllium copper springs. Ground marker clearly molded in diecast shell. Rated 15 amps, cont., 1200 WVDC; 3400 VDC breakdown. Cap., 2.5 pF at 1 Mc. Size, 1 1/2" w. x 1" d. x 1 1/2" h. Net Ea., 1-24, \$2.25; 25-49, \$2.02; 50-99, \$1.91; 100-249, \$1.57.



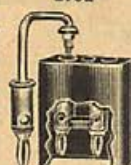
1433



1645



1791



1921



1575, 1975, 1983, 1708

**Model 1645**—Shielded BNC adapter. Adapts BNC plug to 3/4" spaced binding posts. Color: Black. Net Ea., 1-24, \$3.45; 25-49, \$3.10; 50-99, \$2.93; 100-249, \$2.42.

**Model 1681**—Shielded BNC adapter. Same as 1645, but with banana jacks. Color: Black. Net Ea., 1-9, \$3.45; 10-24, \$3.10; 25-49, \$2.93; 50-99, \$2.42.

**Model 1791**—Shielded double plug with right-angle cable entry. Internal solder turret. Diecast aluminum shell. Vinyl grommet and snap button supplied. Ceramic insulating base. Rated 15 amps cont., 2800 WVDC; 5000 VDC breakdown. Cap., 2.0 pF at 1 Mc. Color: Black. Net Ea., 1-24, \$2.95; 25-49, \$2.65; 50-99, \$2.51; 100-249, \$2.07.

**Model 1921**—Balanced line, shielded double plug. Three terminals connect to shielded 2-cond. cable. Gold flashed solder turrets; black anodized diecast shell. Low noise; minimum ground loop error. Rated 15 amps cont., 1000 WVDC line to shield. Cap., 2.0 pF at 1 Mc. line to line. Net Ea., 1-24, \$4.85; 25-49, \$4.37; 50-99, \$4.13; 100-249, \$3.40.

**Model 1708**—Shielded UHF adapter. 3/4" spaced banana plugs adapt binding posts to UHF plug. Color: Black. Net Ea., 1-9, \$4.85; 10-24, \$4.37; 25-49, \$4.13; 50-99, \$3.40.

**Model 1575**—Shielded Microdot adapter. 3/4" spaced banana plugs adapt binding posts to Microdot coaxial screw-on plug (50 ohms). Color: Black. Net Ea., 1-24, \$6.85; 25-49, \$6.17; 50-99, \$5.84; 100-249, \$4.80.

**Model 1975**—Shielded TNC adapter. 3/4" spaced banana plugs adapt binding posts to TNC plug. Shield reduces noise 70 db. Color: Black. Net Ea., 1-24, \$4.85; 25-49, \$4.37; 50-99, \$4.13; 100-249, \$3.40.

**Model 1983**—Shielded N adapter. 3/4" spaced banana plugs adapt binding posts to N plug. Color: Black. Net Ea., 1-24, \$4.85; 25-49, \$4.37; 50-99, \$4.13; 100-249, \$3.40.

### PHONE PLUG ADAPTERS

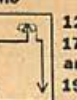
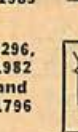
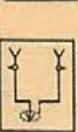
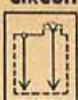
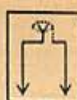
**Model 1285**—Phone plug adapter. Adapts phone jack to 3/4" spaced banana plugs. Color: Black. Net Ea., 1-24, \$4.85; 25-49, \$4.37; 50-99, \$4.13; 100-249, \$3.40.

1285

**Model 1980**—Phone plug adapter. Adapts phone jack to 3/4" spaced banana plugs. Phone plug 1/4" dia. x 1 1/2" long. Color: Black. Net Ea., 1-24, \$2.85; 25-49, \$2.57; 50-99, \$2.42; 100-249, \$2.00.

1980

### CIRCUIT DIAGRAMS



1270, 1770 and 1981

1452, 1792, 1976 and 1992

### TNC AND N ADAPTERS

**Model 1340**—TNC receptacle adapter. Adapts 3/4" spaced jacks to TNC plug. Color: Black. Net Ea., 1-24, \$5.85; 25-49, \$5.27; 50-99, \$4.97; 100-249, \$4.10.



1340, 1740

**Model 1740**—N receptacle adapter. Adapts 3/4" spaced jacks to N plug. Color: Black. Net Ea., 1-24, \$5.85; 25-49, \$5.27; 50-99, \$4.97; 100-249, \$4.10.

**Model 1982**—TNC plug to binding post adapter. Adapts TNC jack to double banana plug; 3/4" centers. Color: Black body; black, red posts. Net Ea., 1-24, \$6.85; 25-49, \$6.17; 50-99, \$5.84; 100-249, \$4.80.



1982, 1796

**Model 1796**—N plug to binding post adapter. Adapts N jack to double banana plug; 3/4" centers. Color: Black body; black, red posts. Net Ea., 1-24, \$5.85; 25-49, \$5.27; 50-99, \$4.97; 100-249, \$4.10.

**Model 1770**—N plug adapter. Adapts 3/4" spaced jacks to N jack. Color: Black. Net Ea., 1-24, \$5.85; 25-49, \$5.27; 50-99, \$4.97; 100-249, \$4.10.



1770, 1981

**Model 1981**—TNC plug adapter. Adapts 3/4" spaced jacks to TNC jack. Color: Black. Net Ea., 1-24, \$6.85; 25-49, \$6.17; 50-99, \$5.84; 100-249, \$4.80.

**Model 1976**—TNC receptacle adapter. Adapts TNC plug to 3/4" double banana plugs. Color: Black body; black, red posts. Net Ea., 1-24, \$5.85; 25-49, \$5.27; 50-99, \$4.97; 100-249, \$4.10.



1976, 1992

**Model 1992**—N receptacle adapter. Adapts N plug to 3/4" double banana plugs. Color: Black body; black, red posts. Net Ea., 1-24, \$5.85; 25-49, \$5.27; 50-99, \$4.97; 100-249, \$4.10.

### MICRODOT ADAPTERS

**Model 1276**—Microdot receptacle adapter, slide-on type. Adapts 3/4" spaced jacks to Microdot coaxial miniature plugs, slide-on type. Universally adapts to 50, 70 or 93 ohms. Color: Black. Net Ea., 1-24, \$7.85; 25-49, \$7.05; 50-99, \$6.67; 100-249, \$5.48.



1276

**Model 1275** (50-ohm, green), 1277 (70-ohm, violet) or 1279 (93-ohm, white)—Microdot receptacle adapters, screw-on type. Adapts 3/4" spaced jacks to Microdot miniature coaxial plugs, screw-on type. Net Ea., 1-24, \$6.85; 25-49, \$6.17; 50-99, \$5.84; 100-249, \$4.80.

### BNC ADAPTERS

**Model 1269**—BNC receptacle adapter. Adapts 3/4" spaced jacks to BNC plug. Color: Black. Net Ea., 1-24, \$2.85; 25-49, \$2.57; 50-99, \$2.42; 100-249, \$2.00.



1269, 1868, 1656-1

**Model 1868**—BNC signal isolation adapter. Same as 1269, but molded-in ceramic .01 uF cap. =20%, 200 WVDC. For isolated DC signals from VTVM or generator. Color: Blue. Net Ea., 1-24, \$7.85; 25-49, \$7.05; 50-99, \$6.67; 100-249, \$5.48.

**Model 1656-1** (50-ohms, yellow), 1656-2 (75-ohms, red) or 1656-3 (93-ohms, white)—BNC matching pad adapters. Same as 1269, but built-in resistors adapt 600-ohm source to 50, 75 or 93 ohm cables. Deposited carbon 3/4-watt resistors, 1%. Net Ea., 1-24, \$10.85; 25-49, \$9.75; 50-99, \$9.22; 100-249, \$7.58.



1270

**Model 1468\***—BNC receptacle to double plug isolation adapter. Useful for design of networks, pads, etc. Isolation on all connections. Color: Black. Net Ea., 1-24, \$9.85; 25-49, \$8.85; 50-99, \$8.38; 100-249, \$6.90.



1296, 1469

\*Similar to 1269, but with 4 turret terminals for component mounting; see schematic.

**Model 1270**—BNC plug adapter. Adapts 3/4" spaced jacks to BNC receptacle. Color: Black. Net Ea., 1-24, \$3.85; 25-49, \$3.47; 50-99, \$3.27; 100-249, \$2.70.



1452

**Model 1296**—BNC binding post adapter. Adapts BNC receptacle to 3/4" spaced banana plugs. Color: Black. Net Ea., 1-24, \$4.85; 25-49, \$4.37; 50-99, \$4.13; 100-249, \$3.40.



1707

**Model 1469**—BNC plug to binding post isolation adapter. Useful for design of attenuators, filters, networks, pads, etc. Solder turret terminals to mount components to complete circuit. Isolation on all connections. Color: Black. Net Ea., 1-24, \$10.85; 25-49, \$9.75; 50-99, \$9.22; 100-249, \$7.58.

**Model 1452**—BNC binding post adapter. Adapts BNC plug to 3/4" spaced banana plugs. Color: Black. Net Ea., 1-24, \$4.85; 25-49, \$4.37; 50-99, \$4.13; 100-249, \$3.40.



1699

### UHF ADAPTERS

**Model 1707**—UHF adapter. Adapts 3/4" spaced banana jacks to UHF plug. Color: Black. Net Ea., 1-9, \$4.85; 10-24, \$4.37; 25-49, \$4.13; 50-99, \$3.40.



1792

**Model 1699**—UHF adapter. Adapts UHF receptacle to 3/4" spaced banana plugs. Center conductor binding post, red; ground, black. Net Ea., 1-9, \$4.85; 10-24, \$4.37; 25-49, \$4.13; 50-99, \$3.40.

**Model 1698**—UHF single binding post adapter. Similar to 1699, but no bracket to ground post. Red center post. Net Ea., 1-9, \$3.85; 10-24, \$3.47; 25-49, \$3.27; 50-99, \$2.70.

**Model 1792**—UHF receptacle to binding post adapter. Adapts 1 or 2 banana plugs, 3/4" spaced, to UHF plug. Color: Black body; black, red posts. Net Ea., 1-24, \$5.85; 25-49, \$5.27; 50-99, \$4.97; 100-249, \$4.10.



# Pomona Components

## 3/4" DOUBLE-PLUG STACK-UP PATCH CORD AND TEST LEADS

Molded plastic plug body fully insulated. Permits parallel multiple stacking. Ground connection clearly marked. Shielded double plugs have black-anodized aluminum case. One piece beryllium copper spring. Solder bonded noise-free connection. Fits standard banana jacks 1.66" dia. **Cable Used: 2BA Series**—Two cond. twisted pair, 18 AWG, stranded 65 x 36 T.C. Vinyl insul.; gray vinyl jacket .250" O.D. Nom. cap., 30 pF/ft. **2BB Series**—Shielded microphone cable, polyethylene insulation; gray vinyl jacket .205" O.D. Nom. cap., 25 pF/ft. **2BC Series**—RG-58C/U shielded coaxial cable; polyethylene insulation; black vinyl jacket .195" O.D. Nom. cap., 28.5 pF/ft.

### WITH STANDARD DOUBLE PLUGS

**BOTH ENDS FIG. A**

Cable Lgth.*	Model No.	Net Each
18"	2BA-18	1-9
24"	2BA-24	54.85
30"	2BA-30	
36"	2BA-36	
18"	2BB-18	10-24
24"	2BB-24	54.37
30"	2BB-30	
36"	2BB-36	25-49
18"	2BC-18	54.13
24"	2BC-24	
30"	2BC-30	50-99
36"	2BC-36	\$3.40

**A Double Plugs**

**END FIGS. A AND B**

Cable Lgth.*	Model No.	Net Each
18"	2BA-AL-18	1-9
24"	2BA-AL-24	55.85
30"	2BA-AL-30	
36"	2BA-AL-36	
18"	2BB-AL-18	10-24
24"	2BB-AL-24	55.27
30"	2BB-AL-30	
36"	2BB-AL-36	25-49
18"	2BC-AL-18	54.97
24"	2BC-AL-24	
30"	2BC-AL-30	50-99
36"	2BC-AL-36	\$4.10

**A Double Plug**  
**B Alligator Clips**

**END FIGS. A AND C**

Cable Lgth.*	Model No.	Net Each
18"	2BB-BNC-18	1-9
24"	2BB-BNC-24	55.85
30"	2BB-BNC-30	10-24
36"	2BB-BNC-36	55.27
18"	2BC-BNC-18	54.97
24"	2BC-BNC-24	
30"	2BC-BNC-30	50-99
36"	2BC-BNC-36	\$4.10

**A Double Plug**  
**C UG88E/U Male BNC Connector**

**END FIGS. A AND D**

Cable Lgth.*	Model No.	Net Each
18"	2BA-PP-18	1-9
24"	2BA-PP-24	57.50
30"	2BA-PP-30	
36"	2BA-PP-36	
18"	2BB-PP-18	10-24
24"	2BB-PP-24	56.75
30"	2BB-PP-30	
36"	2BB-PP-36	25-49
18"	2BC-PP-18	56.38
24"	2BC-PP-24	
30"	2BC-PP-30	50-99
36"	2BC-PP-36	\$5.25

**A Double Plug**  
**D Phone Tips**

**END FIGS. A AND E**

Cable Lgth.*	Model No.	Net Each
18"	2BB-UHF-18	1-9
24"	2BB-UHF-24	55.85
30"	2BB-UHF-30	10-24
36"	2BB-UHF-36	55.27
18"	2BC-UHF-18	25-49
24"	2BC-UHF-24	54.97
30"	2BC-UHF-30	50-99
36"	2BC-UHF-36	\$4.10

**A Double Plug**  
**E PL-259 Male UHF Connector**

**END FIGS. A AND F**

Cable Lgth.*	Model No.	Net Each
18"	2BA-MG-18	1-9
24"	2BA-MG-24	55.85
30"	2BA-MG-30	
36"	2BA-MG-36	
18"	2BB-MG-18	10-24
24"	2BB-MG-24	55.27
30"	2BB-MG-30	
36"	2BB-MG-36	25-49
18"	2BC-MG-18	54.97
24"	2BC-MG-24	
30"	2BC-MG-30	50-99
36"	2BC-MG-36	\$4.10

**A Double Plug**  
**F Minigator Clips**

**END FIGS. A AND G**

**A Double Plug**  
**G Banana Plugs**

Model 1368-18 (18"), 1368-24 (24"), 1368-30 (30") or 1368-36 (36")—With 2BA type cable. Net Each, 1-9, \$5.85; 10-24, \$5.27; 25-49, \$4.97; 50-99, \$4.10.

**END FIGS. A AND H**

**A Double Plug**  
**H Test Probe and Minigator Clip**

Model 1569-B-48—With 2BB shielded mike cable (see above), 48" long. Net Ea., 1-9, \$5.85; 10-24, \$5.27; 25-49, \$4.97; 50-99, \$4.10.

**BOTH ENDS FIG. I**

**I Double Plug and Ground Plug**

Model 1167-18 (18"), 1167-24 (24"), 1167-30 (30") or 1167-36 (36")—Shielded two-conductor mike cable, polyethylene insulation; vinyl jacket .231" O.D. Nom. cap. between cond., 18 pF/ft.; between one cond. and remaining cond. connected to shield, 32 pF/ft. Gray cable and double plug with green single ground plug. Net Each, 1-9, \$7.85; 10-24, \$7.05; 25-49, \$6.67; 50-99, \$5.48.

### WITH SHIELDED DOUBLE PLUGS

**BOTH ENDS FIG. J**

Cable Lgth.*	Model No.	Net Each
18"	1550-B-18	1-9
24"	1550-B-24	55.85
30"	1550-B-30	10-24
36"	1550-B-36	55.27
18"	1550-C-18	25-49
24"	1550-C-24	54.97
30"	1550-C-30	50-99
36"	1550-C-36	\$4.10

**J Shielded Double Plug**

**END FIGS. J AND C**

Cable Lgth.*	Model No.	Net Each
18"	1555-B-18	1-9
24"	1555-B-24	56.85
30"	1555-B-30	10-24
36"	1555-B-36	56.17
18"	1555-C-18	25-49
24"	1555-C-24	55.84
30"	1555-C-30	50-99
36"	1555-C-36	\$4.80

**J Shielded Double Plug**  
**C UG88E/U Male BNC Connector**

**END FIGS. J AND E**

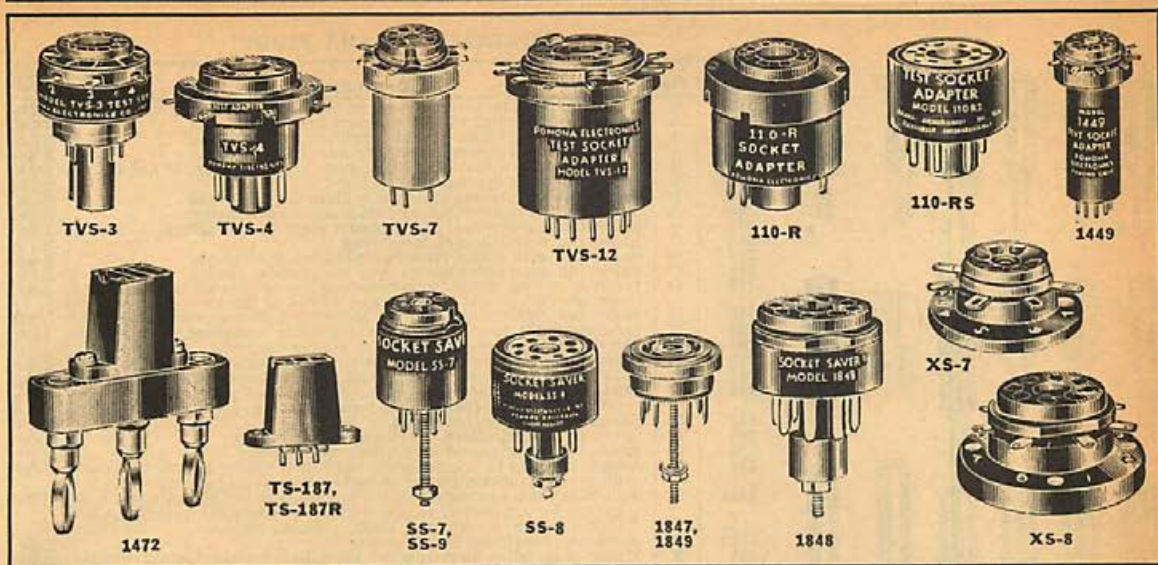
Cable Lgth.*	Model No.	Net Each
18"	1556-B-18	1-9
24"	1556-B-24	56.85
30"	1556-B-30	10-24
36"	1556-B-36	56.17
18"	1556-C-18	25-49
24"	1556-C-24	55.84
30"	1556-C-30	50-99
36"	1556-C-36	\$4.80

**J Shielded Double Plug**  
**E PL-259 Male UHF Connector**

\*For 48" length, add 15c to prices shown. For 60" length, add 30c. †For 48" length, add 25c to prices shown. For 60" length, add 50c. NOTE: Cable color: 2BA and 2BB Series, standard color is gray with matching molded plugs. Also available in 36" length as standard color in black, brown, red, orange, yellow, green, blue, violet, gray and white with molded plugs to match. Lengths other than 36" also available with colored cable. Minimum order for other lengths is 25 pieces per color, per model, per length at no extra cost. 2BC Series is black only with black molded double plug to match.



# Pomona Adapters and Sockets



## CRT TEST SOCKET ADAPTERS

For measuring voltage, resistance, and video from the base of the picture tube. Inserted between CRT base and socket, it makes all connections accessible. Measurements can be made without tracing circuit wiring.

- Model TVS-1 Duodecal**—For TV. Net Each... **\$1.95**  
**Model TVS-2 Neo-Diheptal**—For color TV. Net Each... **\$7.45**  
**Model TVS-3 Eightar**—For 110° TV tubes. Net Each... **2.55**  
**Model TVS-4 Seven Pin**—For 110° TV tubes. Net Each... **1.95**

## TEST SOCKET TUBE ADAPTERS

For measuring voltage, resistance, audio, and video from the top of the chassis. Inserted between the tube to be tested and its socket. Adapter completes the circuits and makes all the connections accessible. Extended test tabs for use with alligator clips or test prods. Low loss mica-filled molded phenolic construction per MIL-M-14. MPE. Power Factor: Less than 0.010 at 10 Mc. Insulation Resistance: Over 500,000 megohms at 40% R.H., 24° C. Interlemtent Capacity: About 1 pF. Voltage Breakdown: More than 1,700 volts AC/DC between elements. No. TVS-12 molded electrical grade black phenolic.

Model No.	Description	Net Each, Lots of		
		1-49	50-99	100-249
TVS-7	Seven-pin miniature adapter	\$1.65	\$1.40	\$1.35
TVS-8	Eight-pin octal adapter	1.75	1.50	1.40
TVS-9	Nine-pin miniature adapter	1.85	1.57	1.52
TVS-12	Twelve-pin compactron adapter	2.55	2.29	2.17

**Model No. TVS-789 Kit**—One each of TVS-7, -8 and -9. Net Per Kit... **\$5.25**

## TUBE SOCKET CONVERSION ADAPTERS

For testing new narrow-neck 110° CR tubes. Plug end wired to duodecal 12L basing.

- Model 110-R Adapter**—Has .600" pin-circle dia. (.040" pins), similar to 17BZP4, etc. Net Each... **\$1.55**  
**Model 110-RS**—Socket end SHR basing to 7-pin button, 7FA base. Net Each... **\$1.95**  
**Model 110-S Adapter**—Has .820" pin-circle dia. (.093" pins), for 17BVP4, etc. Net Each... **\$1.55**  
**Model 110-P Adapter**—Wired to test 110° semi-flat (S-F) series 17DAP4/SF17, 21EAP4/SF21, etc. Net Each... **\$1.55**  
**Model 110-G**—Similar to 110-P, but for 8J5 based, 110° types such as 17DLP4, 21ESP4, 23KP4, etc. Net Each... **\$1.55**

## TUNER TV TEST SOCKET TUBE ADAPTERS

Quality adapters for use with tuners having captive or telescoping tube shields. Available in 7, 9 or 10 pins. The adapters rise above the shields and place testing in the open. Tube shield or tuner covers do not have to be removed. Makes tuner testing quick and easy. The tall and slim features insure an easy, sure fit in the tuner socket. The test tabs of the adapters clear the tops of captive or telescoping tube shields. Interlemtent distributed capacity is approximately 1.5 pF. Voltage breakdown elements exceed 1,800 volts AC/DC. Insulation resistance exceeds 5 x 10<sup>8</sup> megs at 40% R.H., at 24° C.

- Model 1447 Adapter**—7-pin. Net Each, 1-49... **1.52**  
 Net Each, 50-99... **\$1.57** Net Each, 100-249... **\$1.52**  
**Model 1449 Adapter**—9-pin. Net Each, 1-49... **1.95**  
 Net Each, 50-99... **\$1.66** Net Each, 100-249... **1.56**  
**Model 1710 Adapter**—10-pin. Net Each, 1-49... **2.25**  
 Net Each, 50-99... **\$1.91** Net Each, 100-249... **1.80**

## TRANSISTOR TEST ADAPTER

For use with .017" dia. leads. Banana plugs on 3/4" spacing. Heavy-duty molded phenolic construction. Socket contacts and banana springs are of beryllium copper.

- Model 1472 Adapter**—Net Each, Lots of 1-24, 55.85; 25-49, 55.27; 50-99, 54.97; 100-249, 54.10.

## TRANSISTOR TEST SOCKET

Three wire lead type for plug-in testing of transistors. Leads are self aligning, .017" dia. Point contact is eliminated for low contact resistance. Design allows foreign matter to pass through, preventing false parameter readings. Socket hole is located off center so contact may be reversed, doubling its life. Made of specially processed, heavy-duty molded phenolic with beryllium copper contacts. **Temperature Range:** -100° C to +300° C, TS-187; -125° C to +700° C, TS-187R.

Model No.	Color	Insulation Resistance*	Net Each, Lots of			
			1-24	25-49	50-99	100-249
TS-187	Black	1 x 10 <sup>8</sup> megohms	\$1.75	\$1.58	\$1.50	\$1.23
TS-187R	Red	1 x 10 <sup>8</sup> megohms	3.75	3.38	3.20	2.63

\*Minimum at 500 VDC at 40% R.H., 24° C.

## SOCKET SAVERS®

Save wear and tear and costly replacement time on original test equipment. Easily installed: Threaded shaft fits through center hole of permanent socket, fastening securely with nut.

Model No.	Description	Max. Ht.	Net Each, Lots of		
			1-49	50-99	100-249
SS-7	7-pin miniature	13/16"	\$1.75	\$1.50	\$1.40
SS-8	8-pin octal	15/16"	1.75	1.50	1.40
SS-9	9-pin miniature	1 1/2"	1.75	1.50	1.40
1751	9-pin novar	1 1/2"	1.95	1.66	1.56
SS-11	11-pin octal	1"	1.95	1.66	1.56
SS-12	12-pin compactron	1 1/2"	2.25	1.92	1.80
1847	7-pin miniature*	.336"	1.95	1.66	1.56
1848	8-pin octal*	.687"	1.95	1.66	1.56
1849	9-pin miniature*	.336"	1.95	1.66	1.56

\*For restricted height use; contact and pin 1-piece, heat-treated beryllium copper.

**Model No. SS-789 Kit**—Set of one each of SS-7, SS-8, SS-9. Net Per Kit... **\$5.25**

## SURFACE MOUNTED BREADBOARD SOCKETS

For experimental circuit design, portable and enclosed units, plug-in and packaged assemblies. Base insulated to prevent elements shorting to chassis. Eliminates double chassis design. Circuits may be wired in an enclosed unit. Base connections numbered. Grade-A phosphor bronze contacts. Seven- and nine-pin miniatures mount in centers or on sides; eight-pin octal mounts on sides. Mounting holes are standard center-to-center, but small.

Model No.	Description	Net Each, Lots of		
		1-49	50-99	100-249
XS-7	Seven-pin miniature socket	\$0.59	\$0.54	\$0.50
XS-8	Eight-pin octal socket	.75	.68	.64
XS-9	Nine-pin miniature socket	.69	.63	.59

## UNIVERSAL HARNESS TESTING ADAPTERS



Quick testing of current, voltage, resistance and video. Eliminates de-soldering and resoldering. Extends 24" from chassis to make all test points accessible. Color-coded, current and in-circuit connections. Two combination phone tip/banana plug adapters permit use with all meters. Insulated plug fits shielded or plain tube sockets. Heavy-duty test socket has phenolic base, phosphor bronze contacts; easy-to-read connections.

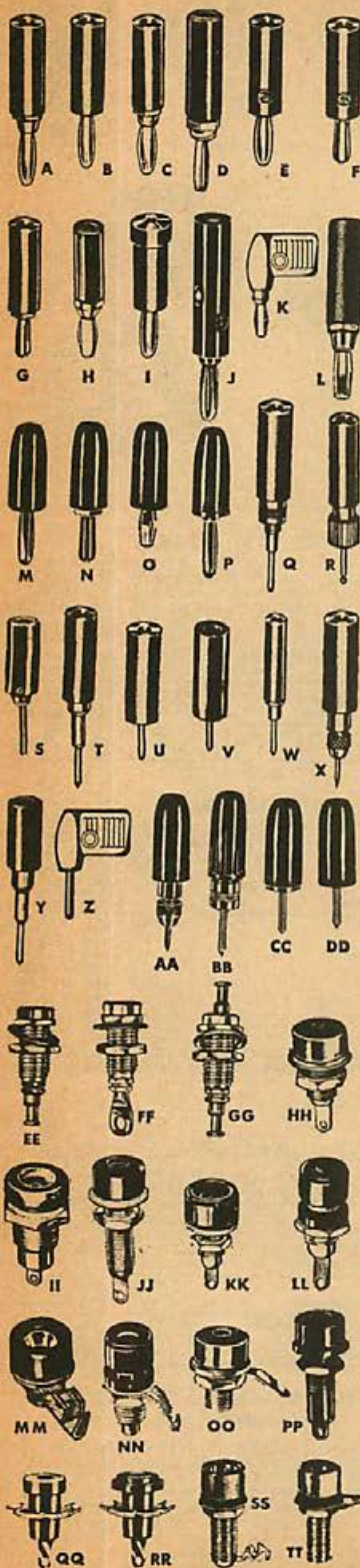
- Model 1737 (7-pin), 1738 (8-pin) or 1739 (9-pin)**—Net Each, Lots of 1-24... **\$9.95**  
 Lots of 25-49... **8.95**





# H. H. Smith Jacks and Plugs

## INSULATED BANANA PLUGS\*



H. H. S. No.	Fig.	Description	Net Each*
212	A	Solderless with nickel-plated phosphor bronze spring; 1" handle	21c
232	A	Same as above, but with silver-plated spring	4c
242	A	Same, but with nickel-plated beryllium copper spring	30c
262	A	Same, but with silver-plated beryllium copper spring	33c
261	B	Solderless with nickel-plated phosphor bronze spring; 1" handle	18c
271	B	Same, but with silver-plated spring	11c
277	B	Same, but with nickel-plated beryllium copper spring	20c
281	B	Same, but with silver-plated beryllium copper spring	7c
295	C	Screw-term. solderless; nickel-plated phos. bronze spring; 1" handle	18c
296	C	Same, but with silver-plated spring	11c
297	C	Same, but with nickel-plated beryllium copper spring	4c
298	C	Same, but with silver-plated beryllium copper spring	7c
239	D	Internal spring collet solderless; phosphor bronze nickel-plated spring; 1 1/4" plastic handle—specify red or black	39c
236	D	Same, but cross-drilled hole in spacer for solderless connection	33c
204	E	Set-screw solderless; nickel-plated phosphor bronze spring; 1" handle	18c
254	E	Same, but nickel-plated beryllium copper spring	27c
213	F	Plastic handled version of No. 204; cross-slotted for spring tension	18c
253	G	Soldered or solderless with internal stud; cross-slotted; 1" handle	18c
291	H	Stud-soldered midjet plug with 3/8" machined plastic handle; 1 1/4" plug with nickel-plated phos. bronze spring; specify red or black	18c
292	H	Same, but silver-plated spring	21c
293	H	Same, but nickel-plated beryllium copper spring	4c
294	H	Same, but silver-plated beryllium copper spring	7c
214	I	Adapts tip plug to banana plug; machined plastic handle with jack for tip plug; nickel-plated phosphor bronze spring; red or black	30c
1511	J	Solderless stack banana plugs; banana plugs in top and side of plastic handle for unlimited, multiple circuits; phosphor bronze nickel-plated spring; specify red, black, yellow or green	27c
1512	J	Same, but beryllium copper spring	30c
255	K	Meter plug with nickel-plated phosphor bronze spring; molded Bakelite® handle; specify red or black	36c
285	L	Giant type with machined plastic handle, deep solder well; 6-leaved phosphor bronze spring nickel-plated; specify red or black	46c
476	M	Molded nylon plug; soldered or solderless; phosphor bronze nickel-plated spring; specify color†	21c
477	M	Same, but silver-plated phosphor bronze spring; specify color†	24c
478	M	Same, but nickel-plated beryllium copper spring; specify color†	7c
479	M	Same, but silver-plated beryllium copper spring; specify color†	30c
494	N	Solderless split-type plug with molded nylon handle; specify color†	18c
426	O	Midjet version of No. 476; specify color†	18c
427	O	Midjet version of No. 477; specify color†	21c
428	O	Midjet version of No. 478; specify color†	4c
429	O	Midjet version of No. 479; specify color†	7c
455	P	Solderless wrap-around version of No. 476; specify color†	11c
456	P	Solderless wrap-around version of No. 477; specify color†	4c
457	P	Solderless wrap-around version of No. 478; specify color†	7c
458	P	Solderless wrap-around version of No. 479; specify color†	30c

## INSULATED TIP PLUGS\*

290	Q	Solderless threaded type; 1" handle; 2 1/4" long	15c
291	Q	Same, but slightly smaller; 1" handle; 1 1/4" long	15c
250	R	Sig. C. approved; prod tip recess holds plugs more firmly; has 1" ethyl cellulose handle; specify red or black	54c
237	S	Easy-solder hollow tip; 3/8" machined plastic handle, red or black	10c
229	T	Heavy duty, easy solder connection; 1" handle, 2 1/4" long	15c
293	U	Short tip plug inserts flush to handle; 1" handle; 1 1/4" long	12c
283	V	Same as above, but solderless connection	13c
270	W	Subminiature tip with 1" bone fiber handle; specify red or black	18c
216	X	Phono needle tip with removable chuck; 1" handle; 2" long	15c
215	Y	Std. tip plug with jack for banana plug; 3/4" machined plastic handle; specify red, black, yellow or green	15c
235	Z	Meter tip plug with molded Bakelite handle; specify red or black	27c
493	AA	Removable chuck type with molded nylon handle and phono needle; specify color†	17c
490	BB	Solderless type with molded nylon handle; specify color†	17c
492	CC	Short version of above without knurled collar; specify color†	15c
491	DD	Short tip plug; inserts flush to nylon handle; specify color†	14c

## INSULATED JACKS†

1501	EE	Nylon tip jack with metal shell; wrap-around type. Specify color by suffix -101 thru -108, -112 and -113‡	29c
1502	FF	Same, spade terminal type; specify color (per No. 1501)	42c
1503	GG	Same, feed-thru type; specify color (per No. 1501)	39c
1505	EE	Same as 1501 but all-nylon construction; specify color (per No. 1501)	21c
1506	FF	Spade terminal version of 1505; specify color (per No. 1501)	30c
1507	GG	Feed-thru version of 1505; specify color (per No. 1501)	28c
202	HH	Bakelite insulated phone tip jack; standard colors or white	13c
223	HH	Same, but machine plastic; standard colors (no blue)	13c
240	II	Molded nylon tip jack rated 4,000 v. AC; standard colors	18c
206	JJ	Bakelite head combo jack takes phone tip or banana plugs in head; standard colors or white	16c
282	KK	Meter type with molded plastic head; standard colors	15c
241	LL	Molded nylon head; insulated from panel; standard colors	18c
219	MM	Bakelite head banana jack; recessed body; standard colors	15c
221	NN	Nylon head and washer; insulated from panel; for std. banana plugs; std. color	18c
295	OO	Bakelite head banana jack; standard colors or white	13c
256	PP	Bakelite head banana jack with solder tab; standard colors or white	15c
279	QQ	Phone tip jack with dish lockwasher "speedi-mount"; Bakelite, red or black	7c
299	RR	Same, but larger 1/2" dia. head; specify red or black	7c
286	SS	Giant banana jack; red or black plastic head	42c
287	TT	Giant banana jack fits 1/2" hole; panel to 3/4"; red or black plastic	42c

\*Bakelite handle unless otherwise specified. Specify red, black, yellow, green, blue or white unless other colors specified. †For colors add suffix: -101, white; -102, red; -103, black; -104, dark green; -105, light blue; -106, orange; -107, yellow; -108, brown; -109, light green; -110, dark blue; -111, ivory; -112, violet; -113, gray. ‡Standard colors red, black, green, blue and yellow unless otherwise noted. †Wire may also be soldered to brass stud or directly into plug. ®Registered Bakelite Corp. trademark.  
\*Lots of 1-499, Net: 500-999, -16 2/3%.





# H. H. Smith Components

## NON-INSULATED BANANA PLUGS AND JACKS

H. H. S. No.	Fig.	Description	Net Each*
102	A	3/8" threaded stud; hex brass body; nickel-plated phos. bronze spring	15c
103	B	1/2" threaded stud; hex brass body; nickel-plated phos. bronze spring	15c
100	C	Screw-on type; hex brass body; nickel-plated phos. bronze spring	15c
190	C	Same, but with beryllium copper spring	24c
104	D	1/2" threaded stud; hex brass body; split type banana plug	13c
121	E	Midjet rivet type; silver-pl. brass body; phos. bronze silvered spring	16c
145	F	Soldered or solderless type with hex body; phos. bronze spring	16c
135	F	Same, but beryllium copper spring	27c
431*	G	6-32 x 3/8" stud type; hex body; phos.-bronze spring nickel-plated; 1 1/2" h.	15c
432*	G	Same, but 6-32 x 1/4" stud; 1 1/2" h.	15c
433*	G	Same, but 6-32 x 3/8" stud; 1 1/2" h.	15c
434*	G	Same, but 8-32 x 3/8" stud; 1 1/2" h.	15c
435*	G	Same, but 8-32 x 1/2" stud; 1 1/2" h.	15c
436*	G	Same, but 8-32 x 3/4" stud; 1 1/2" h.	15c
401†	H	6-32 x 3/8" stud type; hex body; phos. bronze spring nickel-plated; 1 1/2" h.	15c
403†	H	Same, but 6-32 x 1/4" stud; 1 1/2" h.	15c
404†	H	Same, but 6-32 x 3/8" stud; 1 1/2" h.	15c
405†	H	Same, but 8-32 x 3/8" stud; 1 1/2" h.	15c
406†	H	Same, but 8-32 x 1/2" stud; 1 1/2" h.	15c
407†	H	Same, but 8-32 x 3/4" stud; 1 1/2" h.	15c
460§	I	Midjet 4-40 x 3/8" stud; nickel-plated phos.-bronze spring; 1 1/2" h.	15c
461§	I	Same, but 4-40 x 1/2" stud; 1 1/2" h.	15c
462§	I	Same, but 6-32 x 3/8" stud; 1 1/2" h.	15c
463§	I	Same, but 6-32 x 1/2" stud; 1 1/2" h.	15c
111	J	Midjet cross-slotted body type; 10-32 x 1 1/4" stud; 1 1/2" h.	10c
112	K	Midjet banana jack accepts No. 111 plug	8c
191	L	Submin. rivet type plug; silver-plated beryl. copper spring; 1 1/4" h.	15c
192	M	Submin. 2-56 stud type; plug similar to No. 191	15c
193	N	Submin. jack rivets direct to chassis of p-c board	9c
194	O	Submin. jack rivets direct to chassis of p-c board (Package of 100)	90c
101	P	Hex body jack with recessed head; fits 1/4" hole; panels to 1/4" thick	10c
109	Q	Std. hex head banana jack fits 1/4" hole; panels to 3/8" thick	10c
185	R	Giant 6-leaved plug with deep solder well; phos. bronze spring	30c
186	S	Same, but screw fit instead of stud	30c
188	T	Same as No. 186 but slimmer base	30c
187	U	Giant banana jack fits 3/4" hole; panels to 1/2" thick	30c

**Note:** Some types available with silver-plated phos. bronze springs (add 3c)—where specified \*add 6 to stock number (example: 431 becomes 437); †add 6 to stock number; ‡add 7 to stock number; §add 4 to stock number. For nickel-plated beryllium copper spring (add 3c)—\*add 12 to stock number; †add 12 to stock number; ‡add 13 to stock number; §add 8 to stock number. For silver-plated beryllium copper spring (add 6c)—\*add 18 to stock number; †add 18 to stock number; ‡add 19 to stock number; §add 12 to stock number. ‡Per 100.

## NON-INSULATED TIP PLUGS AND JACKS

105	V	Solderless with knurled collar force fit; 1 1/2" h.	10c
106	W	Smaller version of above; 1 1/2" h.	10c
156	X	Heavy-duty force fit type; large soldering well; accepts banana plugs; 1 1/2" h.	10c
108	Y	Standard solder type; 1" long (Package of 100)	††
123	Y	Large I.D. solder type; 1" long (Package of 100)	††
158	Z	Drawn (all-hollow) solder type; 1 1/2" long (Package of 100)	††
124	AA	Threaded solderless type; knurled collar; will fit plastic handle; 1 1/2" h.	12c
127	BB	Smaller version of above; 1 1/4" h.	11c
125	CC	Heavy duty threaded type; extra large solder well; 1 1/2" h.	10c
128	DD	Needle tip with removable chuck; 1 1/2" h.	13c
107	EE	Phone tip jack with hex nut; fits 1/4" hole; panels to 3/8" thick	10c
147	FF	Headless version of above used with plastic cases	6c

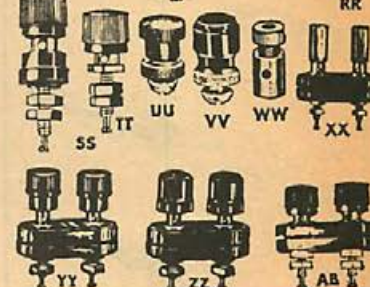
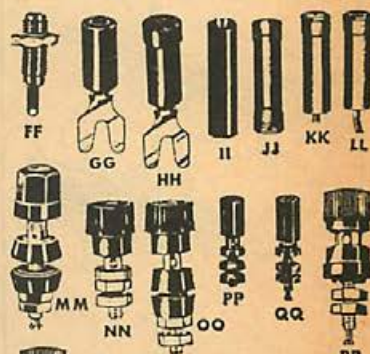
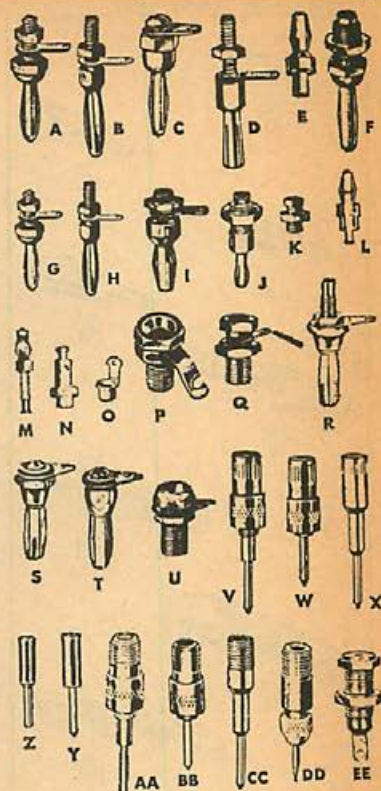
‡Per 100. \*\*\$26.40 per M. †\$21.00 per M. ††\$15.00 per M.

## TEST LEAD ACCESSORIES

218	GG	Plastic handle spade lug; accepts banana plug; specify red or black	11c
249	HH	Phone tip to spade lug adapter; plastic handle; specify red or black	33c
245	II	Banana plug splice of plastic; specify red, black, yellow or green	24c
246	JJ	Phone tip plug splice of plastic; specify red, black, yellow or green	27c
248	KK	Inline phone tip jack of plastic; specify red, black, yellow or green	21c
251	LL	Inline banana jack of plastic; specify red, black, yellow or green	21c

## BINDING POSTS

257	MM	Multi-purpose with banana plug receptacle, wire hole, washer hole, production punch and non-removable nylon head. For 1/4"-1/2" panels. Rated 30 amps, 2000 v. AC rms test. Specify red, black, yellow, blue, green, white	36c
220	NN	5-way grounding type; red or black plastic, captive head; 8-32 thd.	18c
230	NN	Same, but 6-32 threaded stud	18c
280	NN	Same, 8-32 thd., with nickel-plated brass insert in head	24c
264	NN	Same as No. 230 with nickel-plated brass insert in head	27c
260	OO	All insulated version of No. 220; red or black plastic, captive head	32c
259	OO	Same, but 6-32 threaded stud	32c
290	OO	Same as No. 280 with nickel-plated brass insert in head	33c
231	OO	Same as No. 259 with nickel-plated brass insert in head	33c
137	PP	Metal 5-way post has captive hex nickel-plated brass head	21c
208	QQ	Same as No. 137 but with wrap-around terminal	25c
377	RR	Molded nylon grd. type with nickel-plated brass insert; red or black	26c
378	SS	Same, but with Bakelite washer to insulate from chassis; red or black	26c
379	TT	Molded nylon grounding type; nickel-plated brass insert; red or black	21c
265	UU	Bakelite post; brass threaded insert; specify red or black	15c
266	VV	Bakelite post; brass threaded insert; specify red or black	18c
136	WW	Nickel-plated brass post for phone tips or banana plugs	15c
110	UU	Nickel-plated brass post with screw and lockwasher	15c
209	XX	Dual assembly; metal heads; styrene washer cross-slotted for forward or sideways phone tip insertion; colors on special order	60c
224BB	YY	Dual assembly; black plastic heads; styrene washer cross-slotted	54c
224RR	YY	Same, both heads red	54c
263BB	YY	Same, one red and one black head	66c
263RR	YY	Same as 224 but with nickel-plated brass insert in head; black	66c
263RB	YY	Same, both heads red	66c
263RB	YY	Same, one red and one black head	66c
269BB	ZZ	Same as No. 263, but heads are molded Bakelite; both heads black	66c
269RR	ZZ	Same, both heads red	66c
269RB	ZZ	Same, one red and one black head	66c
284BB	AB	Same as No. 263, but heads are molded nylon; both heads black	60c
284RR	AB	Same, both heads red	60c
284RB	AB	Same, one red and one black head	60c



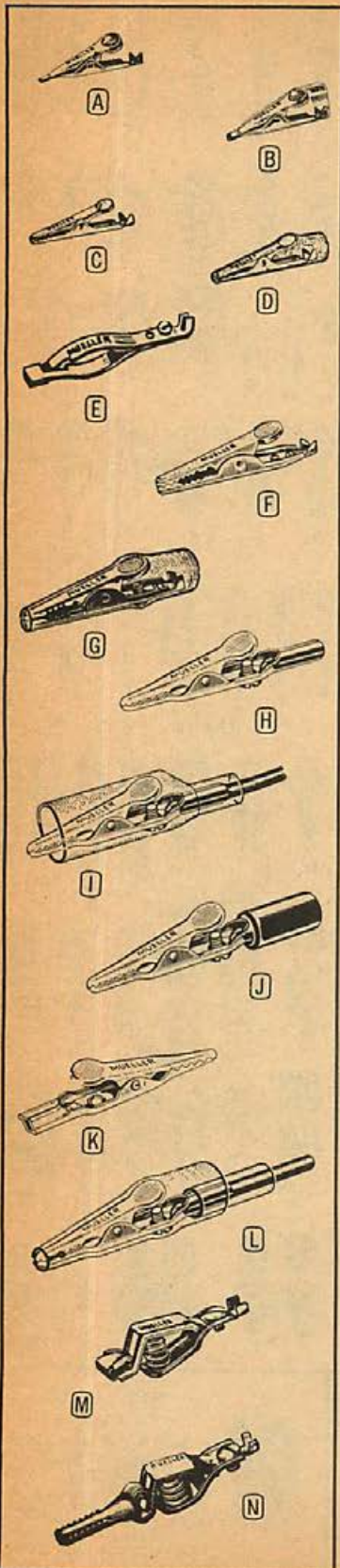
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Gives full specifications, parts data and dimensional drawings on all H. H. Smith components. Send for your copy today.

\*Lots of 1-499, Net; 500-999, -16 2/3%.



# Mueller Test and Battery Clips



## NEW 34 SERIES MICRO-GATOR CLIPS

Smallest insulated clip ever made. Microscopic tip can be used where no other clip will do: Printed circuits, tight spots and crowded, tiny terminals. Same speed, free-handed ease and convenience as other Mueller clips. When used with separate, skin-tight insulator, the tip is no bigger than the head of a pin; yet, has ample thumb grip. Sure bite to stand up straight on the smallest terminals;  $\frac{1}{8}$ " jaw spread; length,  $1\frac{1}{2}$ ". Solder connection, separate insulator. Locked ear construction for strong hinge. For No. 20 wire or smaller.

Mueller Number	Fig.	Description	Net Each, Lots of			
			1-9	10	100	500
34	A	Cadmium-plated steel Micro-gator	\$0.06	\$0.04	\$0.034	\$0.032
34-C	A	Solid copper Micro-gator	.07	.05	.043	.041
36	B	Vinyl insulator*	.05	.03	.025	.024

## MINI-GATOR CLIPS

The original miniature alligator clip. Ideal for testing miniaturized and subminiaturized equipment. Strong spring gives bite through protective coatings; fine tooth jaws. Easy solder connection. Takes No. 20 or smaller wire. Jaws open  $\frac{1}{8}$ ". Length,  $1\frac{1}{2}$ ". Nose only  $1\frac{1}{4}$ " O.D., including insulator.

Mueller Number	Fig.	Description	Net Each, Lots of			
			1-9	10	100	500
30	C	Cadmium-plated steel Mini-gator	\$0.06	\$0.04	\$0.034	\$0.032
30-C†	C	Solid copper Mini-gator	.07	.05	.043	.041
32	D	Vinyl insulator*	.05	.03	.025	.024

## WEE-PEE-WEE CLIP

Entirely non-ferrous, lightweight, thin nosed clip has many uses. Ideal for coils, high frequency work and in crowded chassis. Phosphor bronze clip; brass screw. Jaws open  $\frac{1}{8}$ ". Length  $1\frac{1}{4}$ ".

Mueller Number	Fig.	Description	Net Each, Lots of			
			1-9	10	100	500
88	E	Wee-Pee-Wee non-ferrous clip	\$0.23	\$0.16	\$0.137	\$0.13
93	.....	Red or black vinyl insulator	.12	.08	.07	.067

## 70 SERIES ALLIGATOR CLIPS

Streamlined, simplified design for low cost efficiency. Cord strain relief ears prevent breakage of lead wire. Makes screw connection faster; soldering easier. Improved meshing teeth; knurled thumb grip and trim shape are ideal for test work in close quarters. Length  $1\frac{1}{2}$ ". Jaws open  $\frac{1}{4}$ ". Separate insulator has "lip-action" tip so jaws stay covered whether open or closed.

Mueller Number	Fig.	Term. Type	Body Metal	Net Each, Lots of			
				1-9	10	100	500
70	F	Solder	Cadmium-plated steel	\$0.07	\$0.042	\$0.036	\$0.034
70-S	F	Screw	Cadmium-plated steel	.08	.048	.041	.039
70-CS†	F	Screw	Solid copper	.11	.075	.064	.06
72	G	.....	Vinyl insulator*	.05	.035	.03	.028

## 60 SERIES ALLIGATOR CLIPS

New slim-jaw design allows nose of clip to make friction fit in binding post or banana jack. Full meshing teeth grip even finest wires. Barrel connection for banana plug or wire. Small lip for soldering; or, wire may be staked in barrel using staking tool. Strong hinge prevents jaw offset; spring gives hard bite. Available with screw connection, insulated barrel or fully insulated. Jaws open  $\frac{1}{4}$ ". Length 2" on uninsulated models;  $2\frac{1}{4}$ " models with insulated barrel. 63 and 63-C: Length,  $2\frac{1}{2}$ "; jaws open  $\frac{1}{4}$ "; nose,  $1\frac{1}{4}$ " O.D.

### UNINSULATED 60 SERIES

Mueller Number	Fig.	Term. Type	Body Metal	Net Each, Lots of			
				1-9	10	100	500
60	H	Solder	Cadmium-plated steel	\$0.07	\$0.046	\$0.04	\$0.038
60-S	H	Screw	Cadmium-plated steel	.14	.08	.052	.044
60-CS†	H	Screw	Solid copper	.12	.08	.069	.066
60PR-2	K	.....	Cadmium-plated steel	.10	.072	.062	.058
62	I	.....	Vinyl insulator*	.05	.035	.03	.028

### INSULATED 60 SERIES

60-HS	J	Screw	Cadmium-plated steel; insul. barrel	\$0.11	\$0.075	\$0.064	\$0.061
60-CHS†	J	Screw	Solid copper; insulated barrel	.15	.10	.086	.082
63	L	Screw	Cadmium-plated steel; fully insul.	.19	.13	.11	.105
63-C	L	Screw	Solid copper; fully insulated	.22	.15	.13	.124

## PEE-WEE CLIPS (FIG. M)

Very small clip for general test purposes. Jaw teeth mesh. Interlocking necks prevent jaw offset. Jaws open  $\frac{1}{8}$ ". Length,  $1\frac{1}{2}$ ". Screw connection. No. 45-C is completely non-ferrous; has phosphor bronze spring and brass screw. Jaws open  $\frac{1}{4}$ ".

Mueller Number	Description	Net Each, Lots of			
		1-9	10	100	500
45	Cadmium-plated steel Pee-Wee clip	\$0.08	\$0.053	\$0.045	\$0.043
45-C†	Solid copper Pee-Wee clip	.14	.095	.08	.076
47	Vinyl insulator*	.06	.04	.035	.033

## CROCODILE CLIPS (FIG. N)

Designed for test work in close quarters. Nesting teeth give solid contact along entire length of jaw. Jaws open  $\frac{1}{4}$ ". Length,  $2\frac{1}{2}$ ". Screw terminal connection. No. 85-C is completely non-ferrous version with brass screw and phosphor-bronze spring. No. 85-T is equipped with standard phone tip on one jaw; otherwise is identical to No. 85; permits use as prod or for clip connections, etc.; length,  $2\frac{1}{2}$ ".

Mueller Number	Description	Net Each, Lots of			
		1-9	10	100	500
85	Cadmium-plated steel crocodile clip	\$0.09	\$0.065	\$0.056	\$0.053
85-C†	Solid copper, non-ferrous crocodile clip	.18	.12	.105	.10
85-T	"Tip-clip" cadmium-plated steel crocodile	.23	.163	.14	.133
87	Vinyl insulator*	.06	.04	.035	.033

\*Specify red or black; also available in yellow, blue, white or green, priced 10% higher. †Fed. Spec. W-C-440a, Feb. 5, 1964. ‡Crimped barrel for tight friction-fit on standard phone tip or test prod tip.



# Mueller Test and Battery Clips

## GENERAL PURPOSE TEST CLIPS

**No. 48-B:** Small, general purpose clip used as standard equipment on ignition test sets, electroplating racks, etc. Length, 2". Jaws open  $\frac{1}{2}$ ".

**No. 48-C:** Same as above, but solid copper; suitable for testing highly rated auto generators. Good current-carrying capacity.

**No. 50-C:** Solid bronze clip with sharp needle in one jaw to pierce wire insulation for immediate electrical contact. Popular for quick connection of trailer lights; used by phone linemen, auto and electrical testing, etc. Jaws make solid contact on round stud terminals. Brass screw; non-corroding beryllium-copper alloy needle. Length,  $2\frac{1}{4}$ ". Jaws open  $\frac{1}{2}$ ".

**No. 51-C:** Same as No. 50-C, but without needle. For railway signal work and meter testing. High current-carrying capacity.

**No. 27:** 20-amp capacity clip used with test sets, voltmeters and shop testing devices. Meshing teeth on all three sides of jaw. Length,  $2\frac{1}{4}$ ". Jaws open  $\frac{1}{2}$ ".

**No. 27-C:** Finest clip made for accurate test work. Same as No. 27, but solid copper; 40-amp capacity.

**No. 22:** Twin clip with jaws at both ends that may be opened separately or together. For quick splices and temporary repairs. Length, 2". Jaws open  $\frac{1}{2}$ ".

Mueller Number	Fig.	Description	Net Each, Lots of			
			1-9	10	100	500
48-B	O	Cadmium-plated steel clip	\$0.12	\$0.086	\$0.074	\$0.07
48-C†	O	Solid copper clip	.17	.12	.104	.098
50-C	P	Solid bronze needle clip	.28	.20	.166	.158
51-C	P	Solid bronze test clip	.19	.133	.114	.108
49	...	Vinyl insulator for above clips*	.09	.065	.054	.052
27	Q	Cadmium-plated steel clip	.14	.098	.084	.08
27-C†	Q	Solid copper, 40-amp clip	.23	.16	.134	.128
29	...	Vinyl insulator, 27 and 27-C*	.13	.09	.076	.072
22	R	Cadmium-plated steel twin clip	.13	.086	.074	.07

## HEAVY-DUTY TEST AND BATTERY CLIPS

Rugged interlocking neck construction. Series 25 has meshing teeth on three sides of jaw. Lead plated steel clips; No. 25, cadmium-plated. Clips with suffix letter -A or -C have copper shunt to protect spring. Clips rated 100-amp or more have detachable copper solder lug.

Mueller No.	Fig.	Length	Jaws Open	Cap., Amps	Material	Net Each, Lots of			
						1-9	10	100	500
24-A	S	2 $\frac{3}{4}$ "	$\frac{3}{4}$ "	25	Steel	\$0.24	\$0.163	\$0.14	\$0.133
25	Q	3"	$\frac{3}{4}$ "	40	Steel	.21	.15	.13	.12
25-C†	Q	3"	$\frac{3}{4}$ "	75	Copper	.43	.30	.26	.24
21-A	S	4"	1 $\frac{1}{2}$ "	50	Steel	.42	.29	.25	.24
21-C†	T	4 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	100	Copper	.97	.68	.58	.55
11-A	T	6"	1 $\frac{1}{2}$ "	100	Steel	1.06	.75	.64	.61
11-C†	T	6"	1 $\frac{1}{2}$ "	200	Copper	1.81	1.27	1.08	1.03
26	.....	.....	.....	.....	Vinyl insulator for 24-A, 25 or 25-C*	.21	.15	.13	.12
23	.....	.....	.....	.....	Vinyl insulator for 21-A or 21-C*	.40	.28	.237	.225
13	.....	.....	.....	.....	Vinyl insulator for 11-A or 11-C*	.80	.56	.48	.45

## "BIG BRUTE" TEST CLIP AND WELDING GROUND CLAMP (FIG. T)

Solid copper clip rated 300 amps capacity; even more on short tests. Equipped with removable copper lug for cable attachment. Improved pin-hinge construction. Widely used as welding ground clamp; many applications in heavy test work, on thawing machines and for grounding gasoline trucks. Length, 7 $\frac{3}{4}$ ". Jaws open 2 $\frac{1}{2}$ ".

Mueller Number	Description	Net Each, Lots of			
		1-9	10	100	500
33-C†	"Big Brute" 300-amp solid copper clip	\$3.45	\$2.41	\$2.07	\$1.97
35	Red or black insulator for above	2.93	2.05	1.76	1.67

## PLIER-TYPE BATTERY CLIPS

**Hippo-Clip:** For battery booster cables and fast chargers. High quality construction and lead-coated spring assure long-life. Built-in solder-strap and clinching ears for quick cable attachment. Minimum handle spread for easy grip, yet has giant 1 $\frac{1}{2}$ " jaw spread. Furnished with red or black vinyl handle insulators, 6" long. Marked for polarity.

**Pigmy-Hippo Clip:** For battery operated equipment and automotive usage. Flat, wide handle allows positive grip. Won't "squelch away". Exclusive built-in solder-strap and clinching ears for convenient wire attachment. High quality plated spring. Large, 1 $\frac{1}{2}$ " jaw spread. Furnished with red or black vinyl handle insulators, 3" long.

Mueller Number	Fig.	Description	Net Each
41-A	V	Hippo-Clip, steel, bright copper-plated, 100 amps	\$0.45
41-C†	V	Hippo-Clip, solid copper construction, 200 amps	.90
46-A	U	Pigmy-Hippo Clip, steel, bright copper-plated, 50 A	.15
46-C	U	Pigmy-Hippo Clip, solid copper construction, 75 A	.24

\*Specify red or black; also available in yellow, blue, white or green, priced 10% higher. †Fed. Spec. W-C-440a, Feb. 5, 1964.

## QUALITY, HEAVY-DUTY BATTERY BOOSTER CABLES (FIG. W)

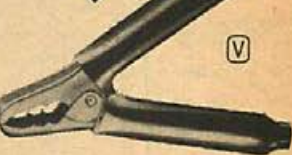
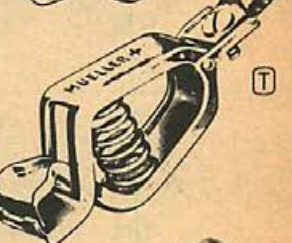
For connecting external, booster battery to "dead" battery in a disabled vehicle. Pure copper cables are finely stranded with rubber insulation for high flexibility even in the coldest weather. Equipped with Hippo-Clips (described above) which are both clinched to cable insulation and soldered for genuine trouble-free operation. Nos. 8A6 and 12A6 have 6 ga. cable with 259 strands of #30 copper wire. No. 12C4 has 4 ga. cable with 413 strands of #30 copper wire. Each set furnished in attractive display carton.

Mueller No.	Length Ft.	Cable Gauge	Clip No.	Cap., Amps	Net Per Pair
8A6	8	6	41-A	100	\$ 4.50
12A6	12	6	41-A	100	6.00
12C4	12	4	41-C	200	11.40

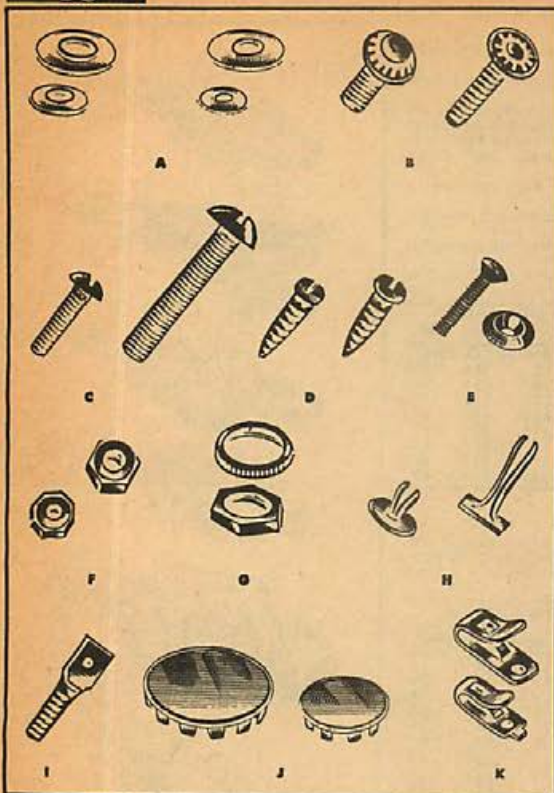
## GENERAL PURPOSE CLAM-PIPE GROUND CLAMP (FIG. X)

Commonly used for grounding appliances and all kinds of electrical devices. Patented, channelled construction gives 5-point contact with extreme rigidity. Pointed screw cuts through to clean, fresh metal for good contact. Takes pipes up to 1 $\frac{1}{2}$ " O.D.

Mueller Number	Description	Net Each, Lots of			
		1-9	10	100	500
58	ClamPipe ground clamp	\$0.20	\$0.14	\$0.12	\$0.114







### THE "50" LINE

Small quantities of always-needed service supplies, packaged in small re-usable plastic containers with a hinged top. Clear plastic box lets you see what and how much is inside. Each box clearly labeled. Quantities indicated in tables below.

Walsco "50" Line Hardware Assortment—Net Each..... **36¢**

### THE "100" PACK

Especially packaged for industrial and commercial users in the new, handsome carton. Parts are packed 100 to carton.

### INSULATING WASHERS (FIG. A)

Precision made from vulcanized phenolic fiber. Assures proper insulation between components and controls or the chassis and other metal parts. Flat or extruded. Overall thickness of washers is  $\frac{3}{16}$ " (extruded), and  $\frac{1}{4}$ " (flat).

Description	Size, Inches			"100" Line	
	O.D.	I.D.	B*	Number	Net/Pkg.
#6 screw, extruded	$\frac{3}{16}$	.140	$\frac{3}{16}$	7856-C	87c
#6 screw, flat	$\frac{3}{16}$	.140		7836-C	42c
#8 screw, extruded	$\frac{3}{16}$	.169	$\frac{1}{4}$	7858-C	87c
#8 screw, flat	$\frac{3}{16}$	.166		7838-C	42c
#10 screw, extruded	$\frac{3}{16}$	.195	.308	7860-C	95c
#10 screw, flat	$\frac{3}{16}$	.195		7840-C	42c
$\frac{1}{4}$ " screw, extruded	$\frac{3}{16}$	.250	$\frac{11}{16}$	7862-C	95c
$\frac{1}{4}$ " screw, flat	$\frac{3}{16}$	.250		7842-C	47c
$\frac{3}{8}$ " screw, extruded	$\frac{3}{8}$	.380	$\frac{1}{2}$	7864-C	98c
$\frac{3}{8}$ " screw, flat	$\frac{3}{8}$	.380		7844-C	77c

\*Outside diameter of extrusion.

### ORNAMENTAL HEAD SCREWS (FIG. B)

Finished in lustrous bronze, stamped with a rosette design. For use when mounting screws are visible from exterior of cabinet.

Description	"50" Line		"100" Line	
	Number	Quantity	Number	Net/Pkg.
#6-32 x $\frac{3}{4}$ " screw	8252-F	20	8252-C	\$1.28
#6-32 x 1" screw	8253-F	20	8253-C	1.40
#8-32 x $\frac{1}{4}$ " screw	8255-F	12	8255-C	2.22

### ROUND-HEAD MACHINE SCREWS (FIG. C)

Suit electronic technician's need for fasteners. Round-head steel, nickel-plated.

Description	"50" Line		"100" Line	
	Number	Quantity	Number	Net/Pkg.
#2-56 x $\frac{3}{16}$ "	8023-F	40	8023-C	47c
#2-56 x $\frac{1}{2}$ "	8024-F	40	8024-C	48c
#4-36 x $\frac{1}{2}$ "	8032-F	40	8032-C	48c
#4-36 x $\frac{3}{4}$ "	8034-F	35	8034-C	62c
#4-36 x 1"	8036-F	30	8036-C	77c

### ROUND-HEAD MACHINE SCREWS (CONTINUED)

Description	"50" Line		"100" Line	
	Number	Quantity	Number	Net/Pkg.
#4-40 x $\frac{3}{4}$ "	8042-F	40	8042-C	\$0.48
#4-40 x 1"			8043-C	.50
#4-40 x $\frac{1}{2}$ "	8044-F	35	8044-C	.53
#6-32 x $\frac{1}{2}$ "	8062-F	40	8062-C	.53
#6-32 x $\frac{3}{4}$ "	8063-F	35	8063-C	.53
#6-32 x 1"	8064-F	30	8064-C	.62
#6-32 x $\frac{1}{4}$ "	8066-F	30	8066-C	.80
#6-32 x 2"			8068-C	.83
#8-32 x $\frac{1}{2}$ "	8078-F	15	8078-C	1.50
#8-32 x $\frac{3}{4}$ "	8082-F	30	8082-C	.70
#8-32 x 1"	8083-F	25	8083-C	.78
#8-32 x $\frac{3}{8}$ "	8084-F	25	8084-C	.82
#8-32 x $\frac{1}{4}$ "	8086-F	20	8086-C	.93
#10-32 x $\frac{1}{2}$ "	8104-F	15	8104-C	1.07
#10-32 x $\frac{3}{4}$ "	8106-F	20	8106-C	.96
#10-32 x 1"	8108-F	15	8108-C	1.25

### SHEET METAL AND SELF-TAPPING SCREWS (FIG. D)

Hex-head, pointed type A. Easier than riveting, faster than machine screws. Cut their own threads in metal or plastic. No nut or tapping necessary. Replaces rivets, eyelets, etc.

Description	"50" Line		"100" Line	
	Number	Quantity	Number	Net/Pkg.
#6 x $\frac{1}{2}$ "	8362-F	30	8362-C	\$0.87
#6 x $\frac{3}{4}$ "	8363-F	25	8363-C	.90
#6 x 1"	8364-F	25	8364-C	.92
#6 x $\frac{3}{8}$ "	8366-F	20	8366-C	1.00
#6 x 1 1/2"	8368-F	20	8368-C	1.37
#8 x $\frac{1}{2}$ "	8382-F	20	8382-C	1.00
#8 x $\frac{3}{4}$ "	8383-F	20	8383-C	1.06
#8 x $\frac{1}{4}$ "	8384-F	20	8384-C	1.08
#8 x $\frac{3}{8}$ "	8386-F	15	8386-C	1.32
#8 x 1"	8388-F	15	8388-C	1.38
#10 x $\frac{3}{8}$ "	8403-F	15	8403-C	1.25
#10 x $\frac{1}{2}$ "	8404-F	15	8404-C	1.75
#10 x $\frac{3}{4}$ "	8406-F	12	8406-C	1.40

### RACK SCREWS AND CUP WASHERS (FIG. E)

Nickel-plated oval-head screws and cup washers give a finished appearance to panels mounted on racks or cabinets.

#### SCREWS

Description	"50" Line		"100" Line	
	Number	Quantity	Number	Net/Pkg.
#6-32 x $\frac{3}{4}$ "	8265-F	30	8265-C	\$0.87
#8-32 x $\frac{3}{4}$ "	8269-F	25	8269-C	.95
#10-32 x $\frac{3}{4}$ "	8273-F	20	8273-C	1.12

#### WASHERS

#6 ( $\frac{7}{16}$ " O.D.)	7806-F	45	7806-C	\$0.47
#8 ( $\frac{1}{2}$ " O.D.)	7808-F	45	7808-C	.53
#10 ( $\frac{5}{8}$ " O.D.)	7810-F	35	7810-C	.55

### HEX NUTS (FIG. F)

Popular "small pattern" hex nuts, preferred in the electronics industry. Precision tapped, corrosion resistant and neat appearance.

### SMALL PATTERN NICKEL-PLATED STEEL

Description	Size, Inches		"50" Line		"100" Line	
	Width	Thk.	Number	Qty.	Number	Net/Pkg.
#2-66	$\frac{3}{16}$	$\frac{1}{16}$	8802-F	30	8802-C	\$0.68
#4-40	$\frac{1}{8}$	$\frac{1}{16}$	8804-F	30	8804-C	.67
#6-32	$\frac{1}{4}$	$\frac{1}{16}$	8806-F	30	8806-C	.68
#8-32	$\frac{1}{2}$	$\frac{1}{16}$	8808-F	30	8808-C	.73
#10-32	$\frac{3}{8}$	$\frac{1}{16}$	8810-F	25	8810-C	.97

### BRASS HEX NUTS

#6-32	$\frac{1}{4}$	$\frac{1}{4}$	8846-F	20	8846-C	\$1.17
#8-32	$\frac{1}{2}$	$\frac{1}{4}$	8848-F	12	8848-C	1.40
#10-32	$\frac{3}{8}$	$\frac{1}{2}$			8850-C	1.53

### SPECIAL MOUNTING NUTS (FIG. G)

For panel mounting components such as potentiometers, volume controls, jacks, toggle switches, etc. 8923 and 8924 are nickel-plated steel; 8926 is nickel-plated brass.

Description	"50" Line		"100" Line	
	Number	Qty.	Number	Net/Pkg.
$\frac{1}{2}$ "-32 Vol. control hex nut	8923-F	12	8923-C	\$2.20
$\frac{1}{2}$ "-32 Toggle sw. hex nut	8924-F	8	8924-C	3.15
.473 Toggle switch ring nut	8926-F	8	8926-C	4.50

### SNAP-IN TRIMOUNTS (FIG. H)

For light assembly. Snap through holes as in back covers, dial scales, chassis, etc.

Description	"50" Line		"100" Line	
	Number	Quantity	Number	Net/Pkg.
For $\frac{1}{8}$ " opening	7373-F	20	7373-C	\$1.13
For $\frac{1}{4}$ " opening	7375-F	18	7375-C	1.77
For $\frac{3}{8}$ " opening*	7377-F	15	7377-C	1.77

\*Rectangular,  $\frac{3}{4}$ " x  $\frac{11}{16}$ ".



# "50" & "100" Line Hardware

## SPADE BOLTS (FIG. I)

For fastening condensers, coils, shields, etc. Type 8572 is straight and has a  $\frac{1}{8}$ " long thread. Type 8573 is  $\frac{1}{4}$ " long. Both types are  $\frac{3}{4}$ " overall, have 6-32 thread and hole for 6-32 screw or  $\frac{3}{8}$ " rivet.

Description	Hole Dia.	D*	"100" Line	
			Number	Net/Pkg.
6-32 Straight	.141"	$\frac{1}{8}$ "	8572-C	\$1.22
6-32 Offset	.141"	$\frac{1}{4}$ "	8573-C	2.55

\*Spade width.

## SNAP-HOLE PLUGS (FIG. J)

Easiest and quickest way to cover an opening in the chassis or panel. Spring flanges hold polished, nickel-plated flat-head button firmly in place. Use plugs to seal adjustments, cover unused holes, etc.

Description	"50" Line		"100" Line	
	Number	Quantity	Number	Net/Pkg.
Fits hole diameter $\frac{1}{8}$ "	7306-F	8	7306-C	\$2.25
Fits hole diameter $\frac{1}{4}$ "	7308-F	8	7308-C	2.85
Fits hole diameter $\frac{3}{8}$ "	7310-F	6	7310-C	3.08
Fits hole diameter $\frac{1}{2}$ "	7312-F	6	7312-C	3.30
Fits hole diameter $\frac{5}{8}$ "	7314-F	5	7314-C	3.60
Fits hole diameter 1"	7316-F	4	7316-C	4.95

## SPRING CONNECTOR CLIPS (FIG. K)

No tools are required for connecting or disconnecting wires to these clips, as they hold wire firmly by pressure. Useful in "breadboard" work. Made of spring brass or phosphor bronze.

Hole Size	Description	"50" Line		"100" Line	
		Number	Quantity	Number	Net/Pkg.
4 and 5	#16 ga. and under	7592-F	15	7592-C	\$1.50
6	#14 ga. and under	7594-F	12	7594-C	1.73

## TERMINAL LUGS

Ready-tinned lugs for assembly, experimentation, and repair.

Description	"100" Line	
	Number	Net/Pkg.
For screw size #6 (Fig. L)	7116-C	\$1.23
For screw size #8 (Fig. L)	7118-C	1.28
For screw size #6 (Fig. M)	7126-C	1.27
For screw size #8 (Fig. M)	7128-C	1.07
For screw size #6 (Fig. N)	7136-C	1.20
For screw size #8 (Fig. N)	7148-C	1.18
For screw size #6 (Fig. O)	7148-C	1.13
For screw size #8 (Fig. O)	7149-C	1.13
For screw size #10 (Fig. P)	7156-C	1.07
For screw size #8 (Fig. P)	7158-C	1.07
For screw size #6 (Fig. Q)	7166-C	.98
For screw size #8 (Fig. Q)	7168-C	.87
For screw size #10 (Fig. Q)	7169-C	.83
For screw size #10 (Fig. R)	7179-C	1.05
For screw size #10 (Fig. S)	7189-C	1.70

## SOLDERLESS TERMINAL LUGS (FIG. T)

Fold-over type. Fits #8 and #10 screws. Makes a positive connection without soldering.

For both #8 and #10 screw sizes	7199-C	\$1.65
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## RADIO KNOB SPRINGS (FIG. U)

Modern method of fastening knobs to shafts. Made of the finest steel, (tempered spring). Carefully selected to meet the needs of the electronic service shop.

Description	"50" Line		"100" Line	
	Number	Quantity	Number	Net/Pkg.
Radio knob spring	7492-F	20	7492-C	\$1.33
Radio knob spring	7493-F	20	7493-C	1.10
Radio knob spring	7495-F	15	7495-C	1.50

## RUBBER CABINET FEET

Made of synthetic rubber, these cabinet feet are available in two types—screw or tack. Screw type is easily installed with wood screws, metal screws or tacks, and is supplied with wood screws on the "50" and "100" Line packages. The tack type is the same physically, but has handy tacks molded into feet.

Description	"50" Line		"100" Line	
	Number	Quantity	Number	Net/Pkg.
Screw type, $\frac{3}{8}$ " (Fig. V)	7052-F	8	7052-C	\$1.13
Screw type, $\frac{1}{2}$ " (Fig. V)	7054-F	8	7054-C	1.47
Screw type, $\frac{3}{4}$ " (Fig. V)	7056-F	8	7056-C	2.25
Screw type, $\frac{1}{2}$ " (Fig. V)	7058-C	.....	7071-C	1.86
Tack type, $\frac{3}{8}$ " (Fig. W)	.....	.....	7072-C	1.95
Tack type, $\frac{1}{2}$ " (Fig. W)	.....	.....	.....	.....

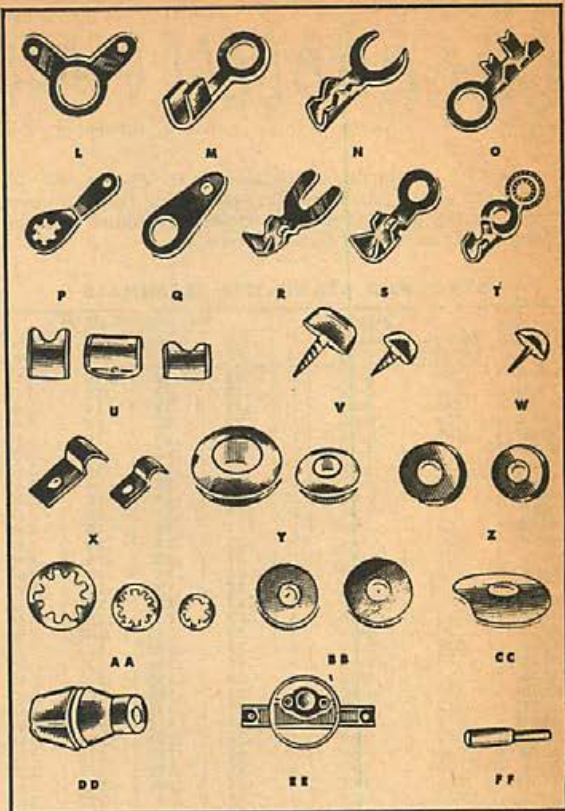
\*Diameter.

## VINYL GROMMETS (FIG. Y)

Vinyl grommets are soft like rubber, but have much greater resistance to age, temperatures, oils and chemicals. All grommets below are for chassis up to  $\frac{1}{8}$ " in thickness.

Size, Inches			"50" Line		"100" Line	
Dia.*	Dia.†	Thickness	Number	Quantity	Number	Net/Pkg.
$\frac{1}{16}$ "	$\frac{3}{16}$ "	$\frac{1}{16}$ "	7030-F	14	7030-C	\$1.00
$\frac{1}{8}$ "	$\frac{1}{4}$ "	$\frac{1}{16}$ "	7032-F	12	7032-C	1.25
$\frac{3}{16}$ "	$\frac{3}{8}$ "	$\frac{1}{16}$ "	7034-F	12	7034-C	1.37
$\frac{1}{4}$ "	$\frac{1}{2}$ "	$\frac{1}{16}$ "	7036-F	10	7036-C	1.47
$\frac{5}{16}$ "	$\frac{3}{4}$ "	$\frac{1}{16}$ "	7038-F	8	7038-C	2.27

\*Outside diameter. †Inside diameter.



## CABLE CLAMPS (FIG. X)

For cable or wire groups from  $\frac{1}{8}$ " to  $\frac{1}{4}$ " in diameter.

Hole Size*	Description	"50" Line		"100" Line	
		Number	Quantity	Number	Net/Pkg.
#6	$\frac{1}{8}$ " to $\frac{1}{4}$ "†	7502-F	25	7502-C	\$0.98
#8	$\frac{1}{8}$ " to $\frac{1}{4}$ "†	7503-F	20	7503-C	1.12
#8	$\frac{1}{8}$ " to $\frac{1}{4}$ "†	7505-F	16	7505-C	2.08

\*Mounting. †Cable diameter.

## METAL WASHERS (FIG. Z)

Precision-cut steel washers, nickel-plated, with concentric center-hole. Sizes most frequently used in electronic assemblies.

Screw Size	Size, Inches		"50" Line		"100" Line	
	I.D.	O.D.†	Number	Quantity	Number	Net/Pkg.
#4	.125	$\frac{1}{8}$	7874-F	80	7874-C	50c
#6	.140	$\frac{3}{16}$	7876-F	80	7876-C	50c
#8	.171	$\frac{1}{4}$	7878-F	80	7878-C	50c
#10	.203	$\frac{5}{16}$	7880-F	70	7880-C	50c

## LOCK WASHERS (FIG. AA)

Made of steel selected for its elasticity and hardness. Lock washers dig into panels and chassis to lock nuts firmly in place, with a one-way ratchet-type action. Cadmium-plated, internal type.

Screw Size	Description	"50" Line		"100" Line	
		Number	Qty.	Number	Net/Pkg.
#2	Lock washer, .180" O.D.	7922-F	35	7922-C	\$0.72
#4	Lock washer, .260" O.D.	7924-F	50	7924-C	.45
#6	Lock washer, .280" O.D.	7926-F	50	7926-C	.45
#8	Lock washer, .330" O.D.	7928-F	50	7928-C	.50
#10	Lock washer, .375" O.D.	7930-F	45	7930-C	.60
$\frac{1}{4}$ "	Lock washer, .470" O.D.	.....	.....	7932-C	.65
$\frac{3}{8}$ "	Lock washer, .690" O.D.	.....	.....	7935-C	1.10

## ELECTRONIC HARDWARE

Description	"50" Line		"100" Line	
	Number	Qty. Pkg.	Number	Net/Pkg.
Cord strain reliefs (Fig. DD)	7048-F	4	7048-C	\$5.27
Spring friction washers (Fig. CC)	7760-F	40	7752-C	1.65
Felt knob washers* (Fig. BB)	7565-F	35	7760-C	.38
Twin-lead wiring nails (Fig. EE)	7565-F	35	7565-C	.57
Phone tips (Fig. FF)	7645-F	10	7645-C	2.10

\*Brown.





# Insulated Terminals



Column "I" (insulation) abbreviations: H, III-Alumina; T, Teflon; P, Phenolic; A, Alkyd. Standard finish, gold plate over silver. Standard packages of 25 or 100 pieces. Mounting hardware supplied unassembled on feed-thru terminals.

## MINIATURE STAND-OFF TERMINALS

USECO No.	Shank Length	Thd. or Shank Dia.	I	Net Each, Lots of			
				25-75	100-250	275-475	500-975
1409	.250	6-32	A	\$0.23	\$0.195	\$0.175	\$0.155
1411	.250	6-32	A	.23	.195	.175	.155
1413A	.250	6-32	A	.23	.195	.175	.155
1413B	.250	6-32	A	.23	.195	.175	.155
1413C	.250	6-32	A	.23	.195	.175	.155
1413D	.250	6-32	A	.23	.195	.175	.155
1424B	.250	6-32	A	.28	.24	.215	.19
1424C	.250	6-32	A	.28	.24	.215	.19
1424D	.250	6-32	A	.28	.24	.215	.19
1425	.218	2-56	A	.28	.24	.215	.19
1427	.250	2-56	A	.28	.24	.215	.19
1470A	.188	6-32	T	.305	.26	.235	.21
1470B	.250	6-32	T	.305	.26	.235	.21
1470C	.312	6-32	T	.305	.26	.235	.21
1470D	.375	6-32	T	.305	.26	.235	.21
1470E	.188	4-40	T	.305	.26	.235	.21
1470F	.250	4-40	T	.305	.26	.235	.21
1470G	.312	4-40	T	.305	.26	.235	.21
1470H	.375	4-40	T	.305	.26	.235	.21
1471A	.250	2-56	T	.305	.26	.235	.21
1471B	.250	2-56	T	.305	.26	.235	.21
1472A	.075	1-16	T	.305	.26	.235	.21
1472B	.105	1-16	T	.305	.26	.235	.21
1472C	.135	1-16	T	.305	.26	.235	.21
1472D	.165	1-16	T	.305	.26	.235	.21
1475A	.188	6-32	T	.32	.27	.25	.22
1475B	.250	6-32	T	.32	.27	.25	.22
1475C	.312	6-32	T	.32	.27	.25	.22
1475D	.375	6-32	T	.32	.27	.25	.22
1475E	.188	4-40	T	.32	.27	.25	.22
1475F	.250	4-40	T	.32	.27	.25	.22
1475G	.312	4-40	T	.32	.27	.25	.22
1475H	.375	4-40	T	.32	.27	.25	.22
1476A	.250	2-56	T	.32	.27	.25	.22
1476B	.250	2-56	T	.32	.27	.25	.22
1477A	.075	1-16	T	.32	.27	.25	.22
1477B	.105	1-16	T	.32	.27	.25	.22
1477C	.135	1-16	T	.32	.27	.25	.22
1477D	.165	1-16	T	.32	.27	.25	.22

## STANDARD STAND-OFF TERMINALS

USECO No.	Shank Length	Thd. or Shank Dia.	I	Net Each, Lots of			
				25-75	100-250	275-475	500-975
1400A	.187	6-32	P	\$0.21	\$0.18	\$0.16	\$0.145
1400B	.250	6-32	P	.21	.18	.16	.145
1400C	.312	6-32	P	.21	.18	.16	.145
1400D	.375	6-32	P	.21	.18	.16	.145
1400E	.187	4-40	P	.21	.18	.16	.145
1400F	.250	4-40	P	.21	.18	.16	.145
1400G	.312	4-40	P	.21	.18	.16	.145
1400H	.375	4-40	P	.21	.18	.16	.145
1401	.187	6-32	P	.21	.18	.16	.145
1401A	.054	1-16	P	.21	.18	.16	.145
1410A	.094	1-16	P	.21	.18	.16	.145
1410C	.125	1-16	P	.21	.18	.16	.145
1410D	.156	1-16	P	.21	.18	.16	.145
1417	.187	6-32	A	.23	.195	.175	.155
1417A	.187	6-32	A	.23	.195	.175	.155
1418A	.250	6-32	A	.23	.195	.175	.155
1418B	.312	6-32	A	.23	.195	.175	.155
1418C	.375	6-32	A	.23	.195	.175	.155
1418D	.187	4-40	A	.23	.195	.175	.155
1418E	.250	4-40	A	.23	.195	.175	.155
1418F	.312	4-40	A	.23	.195	.175	.155
1418G	.375	4-40	A	.23	.195	.175	.155
1419A	.054	1-16	A	.23	.195	.175	.155
1419B	.094	1-16	A	.23	.195	.175	.155
1419C	.125	1-16	A	.23	.195	.175	.155
1419D	.156	1-16	A	.23	.195	.175	.155
1421	.250	6-32	A	.28	.24	.215	.19
1422	.187	6-32	A	.28	.24	.215	.19
1423	.187	6-32	A	.28	.24	.215	.19
1456A	.187	6-32	T	.28	.24	.215	.19
1456B	.250	6-32	T	.28	.24	.215	.19
1456C	.312	6-32	T	.28	.24	.215	.19
1456D	.375	6-32	T	.28	.24	.215	.19
1456E	.187	4-40	T	.28	.24	.215	.19
1456F	.250	4-40	T	.28	.24	.215	.19
1456G	.312	4-40	T	.28	.24	.215	.19
1456H	.375	4-40	T	.28	.24	.215	.19
1451	.187	6-32	T	.28	.24	.215	.19
1451A	.054	1-16	T	.28	.24	.215	.19
1452A	.094	1-16	T	.28	.24	.215	.19
1452B	.125	1-16	T	.28	.24	.215	.19
1452C	.156	1-16	T	.28	.24	.215	.19
1455A	.187	6-32	T	.29	.245	.22	.195
1455B	.250	6-32	T	.29	.245	.22	.195
1455C	.312	6-32	T	.29	.245	.22	.195
1455D	.375	6-32	T	.29	.245	.22	.195
1455E	.187	4-40	T	.29	.245	.22	.195
1455F	.250	4-40	T	.29	.245	.22	.195
1455G	.312	4-40	T	.29	.245	.22	.195
1455H	.375	4-40	T	.29	.245	.22	.195
1456	.187	6-32	T	.29	.245	.22	.195
1456A	.054	1-16	T	.29	.245	.22	.195
1457A	.094	1-16	T	.29	.245	.22	.195
1457B	.125	1-16	T	.29	.245	.22	.195
1457C	.156	1-16	T	.29	.245	.22	.195
1457D	.187	6-32	H	.28	.24	.215	.19
1460A	.250	6-32	H	.28	.24	.215	.19
1460B	.312	6-32	H	.28	.24	.215	.19
1460C	.375	6-32	H	.28	.24	.215	.19
1460E	.187	4-40	H	.28	.24	.215	.19
1460F	.250	4-40	H	.28	.24	.215	.19
1460G	.312	4-40	H	.28	.24	.215	.19
1460H	.375	4-40	H	.28	.24	.215	.19
1461	.187	6-32	H	.28	.24	.215	.19
1461A	.054	1-16	H	.28	.24	.215	.19
1462A	.094	1-16	H	.28	.24	.215	.19
1462B	.125	1-16	H	.28	.24	.215	.19
1462C	.156	1-16	H	.28	.24	.215	.19
1465A	.187	6-32	H	.29	.245	.22	.195
1465B	.250	6-32	H	.29	.245	.22	.195
1465C	.312	6-32	H	.29	.245	.22	.195
1465D	.375	6-32	H	.29	.245	.22	.195
1465E	.187	4-40	H	.29	.245	.22	.195
1465F	.250	4-40	H	.29	.245	.22	.195
1465G	.312	4-40	H	.29	.245	.22	.195
1465H	.375	4-40	H	.29	.245	.22	.195
1466A	.054	1-16	H	.29	.245	.22	.195
1467A	.094	1-16	H	.29	.245	.22	.195
1467B	.125	1-16	H	.29	.245	.22	.195
1467C	.156	1-16	H	.29	.245	.22	.195

## SUBMINIATURE STAND-OFF TERMINALS

USECO No.	Shank Length	Thd. or Shank Dia.	I	Net Each, Lots of			
				25-75	100-250	275-475	500-975
1426	.218	2-56	A	\$0.26	\$0.22	\$0.20	\$0.18
1427	.218	2-56	A	.26	.22	.20	.18
1429B	.165	1-16	A	.26	.22	.20	.18
1429C	.165	1-16	A	.26	.22	.20	.18
1429D	.165	1-16	A	.26	.22	.20	.18
1480A	.125	2-56	H	.315	.265	.24	.215
1480B	.218	2-56	H	.315	.265	.24	.215
1480C	.125	4-40	H	.315	.265	.24	.215
1480D	.218	4-40	H	.315	.265	.24	.215
1481A	.125	4-40	H	.315	.265	.24	.215
1481B	.218	4-40	H	.315	.265	.24	.215
1482A	.054	1-16	H	.315	.265	.24	.215
1482B	.094	1-16	H	.315	.265	.24	.215
1482C	.125	1-16	H	.315	.265	.24	.215
1482D	.156	1-16	H	.315	.265	.24	.215
1485A	.125	2-56	H	.33	.28	.25	.22
1485B	.218	2-56	H	.33	.28	.25	.22
1485C	.125	4-40	H	.33	.28	.25	.22
1485D	.218	4-40	H	.33	.28	.25	.22
1486A	.125	4-40	H	.33	.28	.25	.22
1486B	.218	4-40	H	.33	.28	.25	.22
1487A	.054	1-16	H	.33	.28	.25	.22
1487B	.094	1-16	H	.33	.28	.25	.22
1487C	.125	1-16	H	.33	.28	.25	.22
1487D	.156	1-16	H	.33	.28	.25	.22
1490A	.125	2-56	T	.315	.265	.24	.215
1490B	.218	2-56	T	.315	.265	.24	.215
1490C	.125	4-40	T	.315	.265	.24	.215
1490D	.218	4-40	T	.315	.265	.24	.215
1491A	.054	1-16	T	.315	.265	.24	.215
1492A	.094	1-16	T	.315	.265	.24	.215
1492B	.125	1-16	T	.315	.265	.24	.215
1492C	.156	1-16	T	.315	.265	.24	.215
1495A	.125	2-56	T	.33	.28	.25	.22
1495B	.218	2-56	T	.33	.28	.25	.22
1495C	.125	4-40	T	.33	.28	.25	.22
1495D	.218	4-40	T	.33	.28	.25	.22
1496A	.054	1-16	T	.33	.28	.25	.22
1497A	.094	1-16	T	.33	.28	.25	.22
1497B	.125	1-16	T	.33	.28	.25	.22
1497C	.156	1-16	T	.33	.28	.25	.22
1497D	.187	1-16	T	.33	.28	.25	.22

## FEED-THRU TERMINALS

Dimension in second column is overall length.

USECO No.	Shank Length	Thd. or Shank Dia.	I	25-75	100-250	275-475	500-975
1430	.687	10-32	P	\$0.41	\$0.35	\$0.32	\$0.28
1431	.687	10-32	T	.49	.41	.375	.33
1432	.840	5-40	T	.385	.325	.295	.26
1433	.893	3/8-28	P	.49	.41	.375	.33
1434	.893	3/8-28	T	.50	.42	.385	.34
1435	1.310	5/8-32	P	.60	.51	.465	.41
1436	1.310	5/8-32	T	.62	.53	.48	.43





# Electronic Hardware



4401 4402 4430 4435 4437 4440 4446 4460 4441 4442 4443 4444 4445 4447 4448 4449 4482 4487 4489 4490 4491 4492 4493 4494 4495 4496 4497 4498 4499



2540 1200 1260 1330 1380 1390 1392 2010 2011 2010T 1240 1255 1305 1307 1309 1310 1391 2001 2005 2020 2022 2221 1311 1315 1316 7000 7001 7010 7011 7020 7021 7030 7040 7041 7050

## LOC-FIT® TEFLON INSULATED TERMINALS AND CONNECTORS

Consists of 2 parts: Teflon grommet that is pushed into chassis hole; gold plate finish metal terminal presses into grommet, positive locking. Available for various board thicknesses, according to following table (denote choice by adding letter at end of model number). †Registered DuPont trademark.

Board Thick.	Model No. Suffix	Board Thick.	Model No. Suffix
.031"	A	.094"	C
.062"	B	.125"	D

## NON-INSULATED TERMINALS

Made of 1/4-hard brass stock, per QQ-B-626 comp. 22. Silver-plated MIL-QQ-S-365 Type III. Mount with swaging tool (except threaded styles). All are miniature size or subminiature (marked with \*).

Board Thick.	Model No. Suffix	Board Thick.	Model No. Suffix
.016"	AA	.166"	E
.031"	A	.188"	F
.062"	B	.250"	G
.094"	C	Threaded, shank length indicated.	T
.125"	D		

## INSULATED TERMINALS

USECO No.	Board Thickness Available	Net Each, Lots of†			
		25-75	100-475	500-975	1000-1975
4402	A, B, C	\$0.095	\$0.08	\$0.07	\$0.06
4430	A, B, C, D	.105	.09	.08	.07
4435	A, B, C	.095	.08	.07	.06
4440	A, B, C	.105	.09	.08	.07
4443	A, B, C	.12	.10	.09	.08
4446	A, B, C	.10	.085	.075	.065
4460	A, B, C	.105	.09	.08	.07
4470	A, B, C	.10	.085	.075	.065
4476	A, B, C	.10	.085	.075	.065

## INSULATED FEED-THRU

USECO No.	Board Thickness Available	Net Each, Lots of†			
		25-75	100-475	500-975	1000-1975
4401	A, B, C	\$0.125	\$0.105	\$0.095	\$0.085
4437	A, B, C	.125	.105	.095	.085
4441	A, B, C, D	.125	.105	.095	.085
4442	A, B, C	.125	.105	.095	.085
4444	A, B, C	.13	.11	.10	.09
4445	A, B, C	.13	.11	.10	.09
4471	A, B, C, D	.105	.09	.08	.07
4472	A, B, C	.11	.095	.085	.075
4474	A, B, C	.13	.11	.10	.09
4475	A, B, C	.13	.11	.10	.09

## TAPER PIN RECEPTACS

USECO No.	Board Thickness Available	Net Each	100-475	500-975	1000-1975
4447	A, B, C	\$0.145	\$0.125	\$0.11	\$0.095
4448*	A, B, C	.185	.155	.14	.105
4449*	A, B, C	.17	.145	.13	.115

## INSULATED TEST POINTS (FOR .080" PROBE)

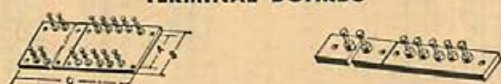
USECO No.	Board Thickness Available	Net Each	100-475	500-975	1000-1975
4450	A, B, C, D	\$0.28	\$0.24	\$0.215	\$0.19
4451	A, B, C, D	.26	.22	.20	.18

## INSULATED SUBMINIATURE TERMINALS

USECO No.	Board Thickness Available	Net Each, Lots of†			
		25-75	100-475	500-975	1000-1975
4480	A, B	\$0.105	\$0.09	\$0.08	\$0.07
4482	A, B	.12	.10	.09	.08
4483	A, B	.125	.105	.095	.085
4484	A, B	.12	.10	.09	.08
4485*	A, B	.125	.105	.095	.085
4487*	A, B	.13	.11	.10	.09
4489*	A, B	.145	.125	.11	.095

\*Insulated feed-thrus. †Std. packages of 25, 100 and 1000.

## TERMINAL BOARDS



1100, 1102, 2200, 2202

1110, 1112, 2210, 2212

Series 1100 and 2200 are 5-section (scored). Series 1100, terminals #1300. Series 2200 are miniature boards, #2010 terminals.

USECO No.	Mat.	A, In.	B, In.	C, In.	Term.	Net Each, Lots of			
						1-5	6-24	25-49	50-149
1100A	Phen.	1.0	1.5	13.12	50	\$2.57	\$2.175	\$1.975	\$1.745
1100B	Phen.	1.5	2.0	13.12	50	2.655	2.245	2.04	1.80
1100C	Phen.	2.0	2.5	13.12	50	2.76	2.335	2.12	1.87
1100D	Phen.	2.5	3.0	13.12	50	2.86	2.42	2.20	1.945
1110	Phen.	.5	1.12	25	1.165	.985	.895	.79	
DEL1110	Phen.	.5	1.87	3	4.70	5.9	5.35	4.7	
1102A	Epoxy	1.0	1.5	13.12	50	4.78	4.04	3.67	3.24
1102B	Epoxy	1.5	2.0	13.12	50	4.94	4.18	3.80	3.355
1102C	Epoxy	2.0	2.5	13.12	50	5.585	4.725	4.295	3.79
1102D	Epoxy	2.5	3.0	13.12	50	6.21	5.255	4.775	4.215
1112	Epoxy	.5	1.12	25	2.015	1.705	1.55	1.365	
2200B	Phen.	.5	.75	7.81	50	2.62	2.22	2.015	1.78
2200C	Phen.	.75	1.0	7.81	50	2.965	2.51	2.28	2.015
2202B	Epoxy	.5	.75	7.81	50	3.265	2.765	2.51	2.215
2202C	Epoxy	.75	1.0	7.81	50	4.215	3.565	3.24	2.86
2210	Phen.	.31	7.81	25	1.475	1.25	1.135	1.00	
2212	Phen.	.31	7.81	25	2.34	1.98	1.80	1.59	

## TURRET TERMINALS

USECO No.	Board Thickness Available	Net 1000, Pkg. of 100 and 1000			
		100-900	1000-2400	2500-7400	7500-14,900
1210	A, B, C, D	\$16.95	\$14.34	\$13.04	\$11.51
1280	A, B, C, D	11.09	9.38	8.53	7.52
1299	A, B, C, D, E, F	36.22	30.66	27.86	24.59
1300	A, B, C, D, E, F, G	16.95	14.34	13.04	11.51
1300T	.188, 4-40	36.03	30.48	27.71	24.44
1340	A, B, C, D	15.52	13.13	11.94	10.54
1340T	.125, 2-56	22.01	18.62	16.93	14.94
1350	B, C, D, E, F	19.06	16.13	14.66	12.94
1370	B, C, D, G	22.77	19.26	17.51	15.46
2030*	AA, A, B, C, D	17.84	15.10	13.73	12.11
2035	A, B, C, D	18.78	15.88	14.44	12.75
2060*	AA, A, B, C, D	16.02	13.55	12.32	10.87
2520	A, B, C, D	19.62	16.60	15.09	13.32
2540*	A, B, C, D	17.35	14.66	13.34	11.78

## HOLLOW TERMINALS

USECO No.	Board Thickness Available	Net 1000	Pkg. of 100	Pkg. of 1000
1200	A, B, C, D, E, F	\$15.49	\$13.10	\$11.91
1260	B, C, D	25.34	21.44	19.49
1330	B, C, D	26.54	22.46	20.42
1380	B, C, D, E	34.32	29.04	26.40
1390	A, B, C, D, E, F	43.41	36.73	33.39
1392	A, B, C, D	19.11	16.17	14.70
2010*	AA, A, B, C, D	16.40	13.88	12.62
2010T*	.125, 4-40	19.05	16.12	14.65
2011*	AA, A, B, C, D	18.15	15.36	13.96

## BIFURCATED TERMINALS

USECO No.	Board Thickness Available	Net 1000	Pkg. of 100	Pkg. of 1000
1240	B, C, D, E, F	\$34.32	\$29.04	\$26.40
1250*	A, B, C, D	28.47	24.09	21.90
1255	A, B, C, D	23.34	19.75	17.95
1305*	B, C, D	29.85	25.27	22.97
1306	B, C, D	76.26	64.53	58.66
1307	C, D, E, F	81.98	69.37	63.06
1308	A, B, C, D	22.46	19.01	17.28
1309	A, B, C, D	23.96	20.27	18.43
1310	A, B, C, D	21.74	18.39	16.72
1391	A, B, C, D, E, F	26.70	22.59	20.54
2000*	AA, A, B, C, D, E	19.13	16.19	14.72
2001*	AA, A, B, C, D	33.35	28.23	25.66
2005*	AA, A, B, C, D	33.35	28.23	25.66
2020*	AA, A, B, C, D	21.11	17.86	16.24
2021*	AA, A, B, C, D	24.78	20.97	19.06
2022*	AA, A, B, C, D	25.74	21.78	19.80

## FEED-THRU

USECO No.	Board Thickness Available	Net 1000	Pkg. of 100	Pkg. of 1000
1220	B, C, D, E, F	\$35.22	\$29.80	\$27.09
1221	B, C, D, E, F	42.71	36.15	32.86
1230	B, C, D, E, F	54.62	46.21	42.01
1311	B, C, D	72.45	61.30	55.73
1315	B, C, D	34.32	29.04	26.40
1316	B, C, D	34.32	29.04	26.40

## PRINTED CIRCUIT TERMINALS

Floating printed circuit terminals that can be used with no fear of lifting of circuitry, even under high soldering iron heat. Mounting hole, min. dia., .063". Eyelets not furnished.

USECO No.	Board Thickness Available	Net per 1000, Pkgs. of 100 and 1000			
		1000-900	1000-2400	2500-7400	7500-14,900
7000	A, B, C, D	\$22.21	\$18.79	\$17.08	\$15.07
7001	A, B, C, D	20.02	16.94	15.40	13.59
7010	A, B, C, D	20.02	16.94	15.40	13.59
7011	A, B, C, D	20.02	16.94	15.40	13.59
7020	A, B, C, D	20.02	16.94	15.40	13.59
7021	A, B, C, D	20.02	16.94	15.40	13.59
7030	A, B, C, D	20.98	17.75	16.24	14.23
7031	A, B, C, D	20.98	17.75	16.24	14.23
7040	A, B, C, D	25.93	21.93	19.94	17.60
7041	A, B, C, D	25.93	21.93	19.94	17.60
7050	A, B, C, D	21.92	18.55	16.86	14.88



### SPADE TONGUE TYPE (FIG. D)

Install with WT100M, WT111M, WT110M or WT130 hand tools.

T. & B. No.	Wire Range	Stud Size	Unit Qty.	Std. Pkg.	Net per 100, Lots of		
					Below Unit Qty.	Unit Qty.	Std. Pkg.
A18-6F	22-18	#6	100	1000	\$3.52	\$2.75	\$2.20
A18-8F	22-18	#8	100	1000	3.52	2.75	2.20
A18-10F	22-18	#10	100	1000	3.52	2.75	2.20
A18-14F	22-18	#14	100	500	4.72	3.69	2.95
B14-6F	20-16	#6	100	2000	3.52	2.75	2.20
B14-8F	20-16	#8	100	2000	3.52	2.75	2.20
B14-10F	20-16	#10	100	5000	4.72	3.69	2.95
B14-14F	20-16	#14	100	500	5.60	4.44	3.55
C10-6F	16-10	#6	50	500	5.60	4.44	3.55
C10-8F	16-10	#8	50	500	5.60	4.44	3.55
C10-10F	16-10	#10	50	5000	5.60	4.44	3.55
C10-14F	16-10	#14	50	500	5.60	4.44	3.55

### SPADE TONGUE WITH INSULATION GRIP (FIG. E)

Install with WT100M or WT110M hand tools.

T. & B. No.	Wire Range	Stud Size	Unit Qty.	Std. Pkg.	Net per 100, Lots of		
					Below Unit Qty.	Unit Qty.	Std. Pkg.
B14-6FG	20-14	#6	100	500	\$4.72	\$3.69	\$2.95
B14-8FG	20-14	#8	100	500	4.72	3.69	2.95
B14-10FG	20-14	#10	100	500	4.72	3.69	2.95
B14-14FG	20-14	#14	100	500	5.68	4.44	3.55

### NYLON SELF-INSULATED TERMINALS

Types with prefix RZ install with WT162 hand tool; all others install with WT100M, WT152 or WT145A hand tools. Also available with expanded insulation grip.

### RING TONGUE TYPE (FIG. F)

T. & B. No.	Wire Range	Stud Size	Unit Qty.	Std. Pkg.	Net per 100, Lots of		
					Below Unit Qty.	Unit Qty.	Std. Pkg.
RZ22-2	26-22	#2	100	500	\$7.68	\$6.00	\$4.80
RZ22-4	26-22	#4	100	500	7.68	6.00	4.80
RZ22-6	26-22	#6	100	500	7.68	6.00	4.80
RZ22-8	26-22	#8	100	500	7.68	6.00	4.80
RZ22-10	26-22	#10	100	500	7.68	6.00	4.80
RA18-4	22-18	#4	100	500	7.68	6.00	4.80
RA18-6	22-18	#6	100	500	7.68	6.00	4.80
RA18-8	22-18	#8	100	500	7.68	6.00	4.80
RA18-10	22-18	#10	100	2000	7.68	6.00	4.80
RA18-14	22-18	#14	100	500	8.80	6.88	5.50
RA18-516	22-18	#16	100	500	8.80	6.88	5.50
RA18-38	22-18	#18	100	500	8.80	6.88	5.50
RB14-4	16-14	#4	100	500	7.68	6.00	4.80
RB14-6	16-14	#6	100	500	7.68	6.00	4.80
RB14-8	16-14	#8	100	2000	7.68	6.00	4.80
RB14-10	16-14	#10	100	2000	7.68	6.00	4.80
RB14-14	16-14	#14	100	500	8.80	6.88	5.50
RB14-516	16-14	#16	100	500	8.80	6.88	5.50
RB14-38	16-14	#18	100	500	8.80	6.88	5.50
RC10-6	12-10	#6	50	500	9.60	7.50	6.00
RC10-8	12-10	#8	50	500	9.60	7.50	6.00
RC10-10	12-10	#10	50	2000	9.60	7.50	6.00
RC10-14	12-10	#14	50	500	10.56	8.25	6.60
RC10-516	12-10	#16	50	500	10.56	8.25	6.60
RC10-38	12-10	#18	50	500	10.56	8.25	6.60

### FLANGED TONGUE TYPE (FIG. G)

T. & B. No.	Wire Range	Stud Size	Unit Qty.	Std. Pkg.	Net per 100, Lots of		
					Below Unit Qty.	Unit Qty.	Std. Pkg.
RA18-6FS	22-18	#6	100	500	\$7.68	\$6.00	\$4.80
RA18-8FS	22-18	#8	100	500	7.68	6.00	4.80
RA18-10FS	22-18	#10	100	500	7.68	6.00	4.80
RB14-6FS	16-14	#6	100	500	7.68	6.00	4.80
RB14-8FS	16-14	#8	100	500	7.68	6.00	4.80
RB14-10FS	16-14	#10	100	500	7.68	6.00	4.80
RC10-8FS	12-10	#8	50	500	9.60	7.50	6.00
RC10-10FS	12-10	#10	50	500	9.60	7.50	6.00

### SPADE TONGUE TYPE (FIG. H)

T. & B. No.	Wire Range	Stud Size	Unit Qty.	Std. Pkg.	Net per 100, Lots of		
					Below Unit Qty.	Unit Qty.	Std. Pkg.
RA18-6F	22-18	#6	100	2000	\$7.68	\$6.00	\$4.80
RA18-8F	22-18	#8	100	500	7.68	6.00	4.80
RA18-10F	22-18	#10	100	500	7.68	6.00	4.80
RA18-14F	22-18	#14	100	500	8.80	6.88	5.50
RB14-6F	16-14	#6	100	2000	7.68	6.00	4.80
RB14-8F	16-14	#8	100	500	7.68	6.00	4.80
RB14-10F	16-14	#10	100	2000	7.68	6.00	4.80
RB14-14F	16-14	#14	100	500	8.80	6.88	5.50
RC10-6F	12-10	#6	50	500	9.60	7.50	6.00
RC10-8F	12-10	#8	50	500	9.60	7.50	6.00
RC10-10F	12-10	#10	50	2000	9.60	7.50	6.00
RC10-14F	12-10	#14	50	500	10.56	8.25	6.60

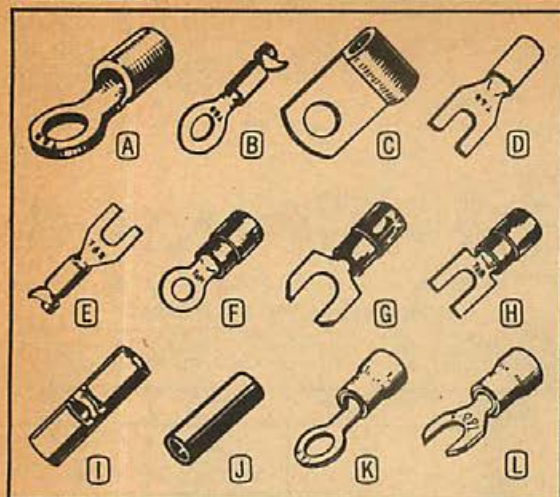
### UNINSULATED 2-WAY BUTT SPLICES (FIG. I)

T. & B. No.	Wire Range	Unit Qty.	Std. Pkg.	Net per 100, Lots of		
				Below Unit Qty.	Unit Qty.	Std. Pkg.
2A18*	22-18	100	2000	\$ 4.32	\$ 3.38	\$ 2.70
2B14*	20-14	100	2000	4.32	3.38	2.70
2C10*	16-10	50	2000	6.00	4.69	3.75
2D8†	9-7	25	250	13.60	10.63	8.50
2E6†	6-5	20	200	19.36	15.13	12.10
2F4†	4-3	15	150	26.88	21.00	16.80
2G2†	2-1	5	50	36.16	28.25	22.60

### UNINSULATED PARALLEL SPLICES (FIG. J)

T. & B. No.	Wire Range	Unit Qty.	Std. Pkg.	Net per 100, Lots of		
				Below Unit Qty.	Unit Qty.	Std. Pkg.
2A22-20†	22-20	100	500	\$ 3.52	\$ 2.75	\$ 2.20
2B18-16†	18-16	100	500	3.52	2.75	2.20
2C14-12†	14-12	50	500	5.04	3.94	3.15
2D10-9†	10-9	20	200	7.04	5.50	4.40
2E6-7†	6-5	20	200	11.76	9.19	7.35
2F6-5†	6-5	20	200	15.12	11.81	9.45
2G4-2†	4-2	10	100	18.48	14.44	11.55

Install with hand tools: \*WT100M, WT111M, WT110M or WT130; †WT115 or WT127; ‡WT100M or WT110M.



Copper (tin-plated) terminals, which, when crimped with proper Sta-Kon tool, comprises a terminal with less resistance than an equal length of the conductor. Barrel serrated to increase grip and contact area. Insulated terminals color coded for wire size range identification. Wire size also stamped on terminals. Meet or exceed U/L, CSA and military specifications.

### UNINSULATED TERMINALS

#### RING TONGUE TYPE (FIG. A)

Install with WT100M, WT111M, WT110M or WT130 hand tools.

T. & B. No.	Wire Range	Stud Size	Unit Qty.	Std. Pkg.	Net per 100, Lots of		
					Below Unit Qty.	Unit Qty.	Std. Pkg.
A18-4	22-18	#4	100	500	\$3.52	\$2.75	\$2.20
A18-6	22-18	#6	100	1000	3.52	2.75	2.20
A18-8	22-18	#8	100	1000	3.52	2.75	2.20
A18-10	22-18	#10	100	5000	4.72	3.69	2.95
A18-14	22-18	#14	100	500	4.72	3.69	2.95
A18-516	22-18	#16	100	500	4.72	3.69	2.95
A18-38	22-18	#18	100	500	4.72	3.69	2.95
B14-4	20-14	#4	100	500	3.52	2.75	2.20
B14-6	20-14	#6	100	2000	3.52	2.75	2.20
B14-8	20-14	#8	100	2000	3.52	2.75	2.20
B14-10	20-14	#10	100	5000	4.72	3.69	2.95
B14-14	20-14	#14	100	500	4.72	3.69	2.95
B14-516	20-14	#16	100	500	4.72	3.69	2.95
B14-38	20-14	#18	100	500	4.72	3.69	2.95
C10-6	16-10	#6	50	500	5.60	4.44	3.55
C10-8	16-10	#8	50	1000	5.60	4.44	3.55
C10-10	16-10	#10	50	5000	5.60	4.44	3.55
C10-14	16-10	#14	50	1000	5.60	4.44	3.55
C10-516	16-10	#16	50	500	5.60	4.44	3.55
C10-38	16-10	#18	50	500	5.60	4.44	3.55

Install with WT115 hand tool.

T. & B. No.	Wire Range	Stud Size	Unit Qty.	Std. Pkg.	Net per 100, Lots of		
					Below Unit Qty.	Unit Qty.	Std. Pkg.
D8-10	9, 8, 7	#10	25	500	\$13.04	\$10.19	\$8.15
D8-14	9, 8, 7	#14	25	500	13.04	10.19	8.15
D8-516	9, 8, 7	#16	25	500	13.04	10.19	8.15
D8-38	9, 8, 7	#18	25	500	13.04	10.19	8.15
E6-10	6, 5	#10	20	200	14.64	11.44	9.15
E6-14	6, 5	#14	20	200	14.64	11.44	9.15
E6-516	6, 5	#16	20	200	14.64	11.44	9.15
E6-38	6, 5	#18	20	200	14.64	11.44	9.15
F4-10	4, 3	#10	20	200	19.36	15.13	12.10
F4-14	4, 3	#14	20	200	19.36	15.13	12.10
F4-516	4, 3	#16	20	200	19.36	15.13	12.10
F4-38	4, 3	#18	20	200	19.36	15.13	12.10
G2-14	2, 1	#14	10	100	36.96	28.88	23.10
G2-516	2, 1	#16	10	100	36.96	28.88	23.10
G2-38	2, 1	#18	10	100	36.96	28.88	23.10
H10-14†	1/0	#14	10	100	46.40	36.28	29.00
J20-38†	2/0	#10	10	100	62.40	48.50	39.00
K30-38†	3/0	#8	5	50	64.40	48.50	39.00
L40-38†	4/0	#6	5	50	62.40	48.50	39.00
M250-38†	*	#6	5	50	72.00	56.25	45.00

\*250MCM. †Installs with WT127 hand tool only.

#### RING TONGUE WITH INSULATION GRIP (FIG. B)

Install with WT100M or WT110M hand tools.

T. & B. No.	Wire Range	Stud Size	Unit Qty.	Std. Pkg.	Net per 100, Lots of		
					Below Unit Qty.	Unit Qty.	Std. Pkg.
B14-6G	20-14	#6	100	500	\$4.72	\$3.69	\$2.95
B14-8G	20-14	#8	100	500	4.72	3.69	2.95
B14-10G	20-14	#10	100	500	4.72	3.69	2.95
B14-14G	20-14	#14	100	500	5.68	4.44	3.55

#### FLAG TYPE TERMINAL (FIG. C)

Install with WT100M hand tool.

T. & B. No.	Wire Range	Stud Size	Unit Qty.	Std. Pkg.	Net per 100, Lots of		
					Below Unit Qty.	Unit Qty.	Std. Pkg.
AB14-6A	20-14	#6	100	500	\$4.72	\$3.69	\$2.95
AB14-8A	20-14	#8	100	500	4.72	3.69	2.95
AB14-10A	20-14	#10	100	500			





# Thomas and Betts STA-KON<sup>®</sup> TERMINALS

## VINYL GRIP SERIES TERMINALS

Install with WT100M, WT152 or WT145A hand tools. Also available with expanded insulation.

### RING TONGUE TYPE (FIG. K)

T. & B. No.	Wire Range	Stud Size	Unit Qty.	Std. Pkg.	Net per 100, Lots of		
					Below Unit Qty.	Unit Qty.	Std. Pkg.
18RA-4	22-18	#4	100	500	\$5.20	\$4.06	\$3.25
18RA-6	22-18	#6	100	500	5.20	4.06	3.25
18RA-8	22-18	#8	100	500	5.20	4.06	3.25
18RA-10	22-18	#10	100	500	5.20	4.06	3.25
18RA-14	22-18	#14	100	400	6.24	4.88	3.90
18RA-516	22-18	#16	100	500	6.24	4.88	3.90
18RA-38	22-18	#38	100	500	6.24	4.88	3.90
14RB-4	16-14	#4	100	500	5.20	4.06	3.25
14RB-6	16-14	#6	100	500	5.20	4.06	3.25
14RB-8	16-14	#8	100	500	5.20	4.06	3.25
14RB-10	16-14	#10	100	1000	5.20	4.06	3.25
14RB-14	16-14	#14	100	500	6.24	4.88	3.90
14RB-516	16-14	#16	100	500	6.24	4.88	3.90
14RB-38	16-14	#38	50	500	6.24	4.88	3.90
10RC-6	12-10	#6	50	500	6.72	5.25	4.20
10RC-8	12-10	#8	50	500	6.72	5.25	4.20
10RC-10	12-10	#10	50	1000	6.72	5.25	4.20
10RC-14	12-10	#14	50	500	7.60	5.94	4.75
10RC-516	12-10	#16	50	500	7.60	5.94	4.75
10RC-38	12-10	#38	50	500	7.60	5.94	4.75

### SPADE TONGUE TYPE (FIG. L)

T. & B. No.	Wire Range	Unit Qty.	Std. Pkg.	Net per 100, Lots of			
				Below Unit Qty.	Unit Qty.	Std. Pkg.	
18RA-6F	22-18	#6	100	500	\$5.20	\$4.06	\$3.25
18RA-8F	22-18	#8	100	500	5.20	4.06	3.25
18RA-10F	22-18	#10	100	500	5.20	4.06	3.25
14RB-6F	16-14	#6	100	500	5.20	4.06	3.25
14RB-8F	16-14	#8	100	500	5.20	4.06	3.25
14RB-10F	16-14	#10	100	1000	5.20	4.06	3.25
10RC-8F	12-10	#8	100	500	6.72	5.25	4.20
10RC-10F	12-10	#10	50	1000	6.72	5.25	4.20
10RC-14F	12-10	#14	50	500	7.60	5.94	4.75

### STA-KON<sup>®</sup> SPLICES

NYLON INSULATED, BUTT TYPE, METAL GRIP (FIG. M)

Meets MIL specs. for aircraft/missile systems. Use WT145A.

T. & B. No.	Wire Range	Unit Qty.	Std. Pkg.	Net per 100, Lots of		
				Below Unit Qty.	Unit Qty.	Std. Pkg.
2RZZ	22-22	50	500	\$29.60	\$23.13	\$18.50
2RAA	22-18	50	500	29.60	23.13	18.50
2RBB	16-14	50	500	29.60	23.13	18.50
2RCC	12-10	25	250	41.60	32.50	26.00

### VINYL GRIP SERIES (FIG. N)

Install with WT100M or WT105M hand tools.

T. & B. No.	Wire Range	Unit Qty.	Std. Pkg.	Net per 100, Lots of		
				Below Unit Qty.	Unit Qty.	Std. Pkg.
2RA18	22-18	100	500	\$7.04	\$5.50	\$4.40
2RB14	16-14	100	1000	7.04	5.50	4.40
2RC10	12-10	50	500	9.76	7.63	6.10
2A20*	22-20	100	500	6.08	4.75	3.80
2B16*	18-16	100	500	6.08	4.75	3.80
2C12*	14-12	50	500	7.76	6.06	4.85

\*Overlap type (not illus.), all others butt type.

### 4-WAY UNINSULATED TYPE (FIG. O)

Install with WT100M, WT111M, WT110M or WT130M hand tools.

T. & B. No.	Wire Range	Unit Qty.	Std. Pkg.	Net per 100	Lots of	
4A18	22-18	50	500	\$23.52	\$18.38	\$14.70
4B14	20-14	50	500	23.52	18.38	14.70
4C10	16-10	25	250	30.24	23.63	18.90

### WIRE JOINTS

#### NYLON INSULATED (FIG. P)

T. & B. No.	Holds Wires	Unit Qty.	Std. Pkg.	Net per 100, Lots of		
				Below Unit Qty.	Unit Qty.	Std. Pkg.
RB44*	2-#20, 2-#16	100	2000	\$3.52	\$2.75	\$2.20
RC55*	3-#14, 3-#16	50	2000	5.76	4.50	3.60
RP12*	3-#14, 4-#12	100	1000	5.60	4.38	3.50
PT66M†‡	3-#12	100	1000	4.16	3.25	2.60

#### UNINSULATED

T. & B. No.	Wire Range	Unit Qty.	Std. Pkg.	Net per 100	Lots of	
PT76†	3-#12	200	2000	\$1.60	\$1.25	\$1.00
PT78M†	4-#12	200	2000	1.60	1.25	1.00
PT80†	4-#10	50	500	4.48	3.50	2.80

Install with tools: \*WT100M; †WT111M, WT100M, WT161; ‡WT100M, WT161. †Two piece, not illus.

### TERMINAL TOOLS

#### STA-KON<sup>®</sup> HAND TOOLS

T. & B. Number	For Use With Series	Net Each
WT100M	A, B, C, AB, PT, RA, RB, RC (Fig. Q)	\$ 4.50
WT105M	RA, RB, RC splices except exp. insulation	6.00
WT152	RA, RB, RC and exp. insulation splices	8.50
WT161	A, B, C, RA, RB, RC, PT	6.50
WT115	D, E, F, G	20.00
WT111M	A, B, C, PT	4.25
WT110M	A, B, C	5.00

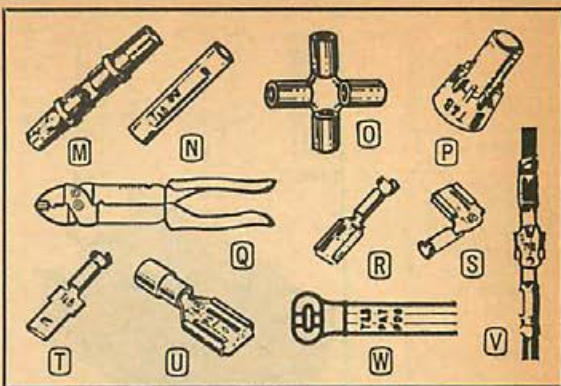
### SHURE STAKE<sup>®</sup> TOOLS

T. & B. No.	Wire Range	Unit Qty.	Std. Pkg.	Net Each
WT130	22-10 wire for A, B and C			#
WT145A	22-10 wire for RA, RB, RC, RZZ, etc.			#

### TY-RAP<sup>★</sup> TOOLS

T. & B. No.	Description	Net Each
WT183F	For TY505, 515, 508, 542	\$15.00
WT185F	For TY503, 513	15.00
WT186F	For TY507, 517	15.00
WT195F	For TY525M, 523M	15.00
WT184	Shoehorn	1.00

†Prices on application. \*Trademark.



### SNAP-ON DISCONNECTS

Female fits on male tab (B14-250T) for fast, secure assembly. Install with WT100M, WT111M or WT110M hand tools. Insulation grip, RB14-250F nylon insulated. Male tabs for terminal board mounting available.

T. & B. No.	Fig.	Wire Range	Unit Qty.	Std. Pkg.	Net per 100, Lots of		
					Below Unit Qty.	Unit Qty.	Std. Pkg.
B14-250F	R	20-14	100	500	\$5.20	\$4.06	\$3.25
B14-250A	S	20-14	50	500	5.76	4.50	3.60
B14-250T	T	20-14	100	500	5.20	4.06	3.25
RB14-250F*	U	16-14	100	500	8.80	6.88	5.50

\*Installed with WT100M, WT152 or WT145A hand tools.

### WRISTLOCK DISCONNECT

Identical pieces have double spring pressure, strong insulation grip; disconnects with a pull; won't jackknife. U/L listed. Install with WT100M, WT111M or WT110M hand tools.

T. & B. No.	Wire Range	Unit Qty.	Std. Pkg.	Net per 100	Lots of		
B14-D	V	20-14	50	500	\$7.80	\$5.50	\$4.20
T209W	...	(Insul.)	25	250	4.00	3.13	2.50
RA18D*	...	22-18	50	500	13.76	10.75	8.60
RB14D*	...	16-14	50	500	13.76	10.75	8.60

\*Nylon insulated; install with WT100M, WT152 or WT145A.

### TERMINAL ASSORTMENT KITS

T. & B. No. 20 Kit—Contains one carton each of A18-10, B14-10, C10-10 terminals plus WT111M tool. Net Each.....\$10.00

T. & B. No. PK-4 Insulated Sta-Kon Kit—Includes an assortment of insulated ring and spade terminals and WT152 hand tool. Net Each.....\$31.00

T. & B. No. PK-3 Aircraft M & R Kit—Contains an assortment of self-insulated terminals, aircraft splices and WT145A hand tool. Net Each.....\$65.00

T. & B. No. 20WJ Kit—Contains one carton each of B14-10, C10-10 and PT70M terminals plus one WT111M hand tool. Net Each.....\$10.00

T. & B. No. 21WJ Kit—Contains two cartons each of B14-10 and C10-10 terminals; one carton each of B14-10F and RB14-10 terminals and PT70M joints plus one WT100M tool. Net.....\$20.25

### TY-RAP<sup>★</sup> CABLE TIES AND CLAMPS (FIG. W)

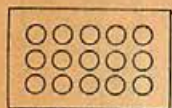
T. & B. Number	Description	Net per 100, Lots of		
		1-99	100	500
TY503	1/2"-3/4" tie	\$ 3.84	\$ 3.00	\$ 2.40
TY505	3/8"-1 1/4" tie	5.60	4.40	3.50
TY505X*	1/2"-1 1/4" tie	6.40	5.00	4.00
TY507	3/8"-3/4" tie	19.20	15.00	12.00
TY507X*	1/2"-3/4" tie	21.12	16.50	13.20
TY508	1/2"-4" tie	12.80	10.00	8.00
TY508X*	3/8"-4" tie	14.08	11.00	8.80
TY513	3/8"-3/4" clamp	4.80	3.75	3.00
TY515	3/8"-1 1/4" clamp	6.40	5.00	4.00
TY515X*	1/2"-1 1/4" clamp	7.04	5.50	4.40
TY517	3/8"-3/4" clamp	27.04	21.00	16.80
TY517X*	1/2"-3/4" clamp	24.32	19.00	15.20
TY523M	1/2"-3/4" tie	4.80	3.75	3.00
TY523MX*	3/8"-3/4" tie	5.30	4.15	3.30
TY525M	1/2"-1 1/4" tie†	6.72	5.25	4.20
TY525MX*	3/8"-1 1/4" tie†	7.36	5.75	4.60
TY527M	3/8"-3/4" tie†	30.40	23.75	19.00
TY527MX*	1/2"-3/4" tie†	33.60	26.25	21.00
TY528M	1/2"-4" tie†	15.20	11.88	9.50
TY528MX*	3/8"-4" tie†	16.96	13.25	10.60
TY535M	3/8"-1 1/4" clamp†	7.88	6.00	4.80
TY535MX*	1/2"-1 1/4" clamp†	8.64	6.75	5.40
TY537	3/8"-3/4" clamp†	34.56	27.00	21.60
TY537X*	1/2"-3/4" clamp†	38.08	29.75	23.80
TY542	1/2"-2 1/4" tie†	11.20	8.75	7.00
TY542X*	3/8"-1 1/4" tie†	12.48	9.75	7.80
TY546M	3/8"-1 1/4" tie†	15.36	12.00	9.60
TY546MX*	1/2"-1 1/4" tie†	16.96	13.25	10.60
TC501	Clamp mount‡	4.80	3.75	3.00
TC502	Clamp mount‡	4.16	3.25	2.60
TC503	Clamp mount	19.20	15.00	12.00
TC504	Clamp mount	3.20	2.50	2.00
TC555	1 1/2" dia. rings	40.00	31.25	25.00
TC556	2 1/2" dia. rings	56.00	43.75	35.00

\*Outdoor. †Self-clinching; all others tool installed. ‡Identification type. §Use with all Ty-Raps except TY507, TY517, TY527 and TY537; use TC503 for these. \*Trademark.

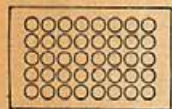




# Vector Terminals, Boards, Kits



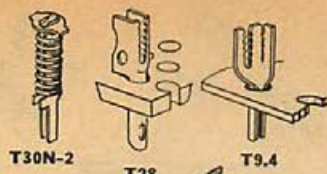
Pattern A



Pattern H



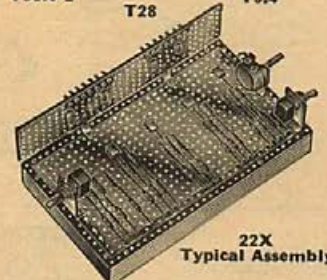
Pattern G



T30N-2

T28

T9.4



22X  
Typical Assembly

## PUSH-IN TERMINALS

Self-holding without staking in 0.093" or 0.062" hole. Wires fit serrated slots without soldering in test setups. Bulk quantities of 1,000 or more also available. No. T9.6 has notch for clipping large diode leads. T30-2 and T30N-2 are solderless springclip type; holds up to 6 leads without soldering; permits re-use.

Vector Number	Description	Qty/Bag	Net/Bag
T9.4-Pkg. C	Fused tin-plated brass	100	\$ 1.25
T9.4-Pkg. M	Fused tin-plated brass	1000	8.90
T9.6-Pkg. C	Fused tin-plated beryl. copper	1000	13.69
T9.6-Pkg. M	Fused tin-plated beryl. copper*	100	1.55
T28-Pkg. C	Fused tin-plated beryl. copper*	1000	11.00
T28-Pkg. M	Fused tin-plated beryl. copper*	100	7.98
T30-2 Pk. X	Silver-plated solderless	100	7.40
T30-2 Pk. C	Silver-plated solderless	10	8.95
T30N-2 Pk. X	Nickel-plated solderless	100	6.95
T9.62-Pkg. 25	Two T9.6's in tandem	25	1.22
T9.63-Pkg. 25	Three T9.6's in tandem	25	1.75
T9.64-Pkg. 25	Four T9.6's in tandem	25	2.27
P91	Inserting tool for T28	1	1.50
P92A	Inserting tool for T30-2, T30N-2	1	1.50
P122	Insert. tool for T9.4 and T9.6	1	1.00

\*Fits 0.062" hole; all others, 0.093".

## EXPERIMENTERS' CHASSIS KITS

Save set-up time on experimental circuitry. Chassis, punched boards and solderless clips for quick set-up of circuits with simple hand tools. Some kits also permit soldering for permanent use.

**Vector Kit No. 25X**—Punched phenolic deck 8 1/2" x 17" x 1/8" on wood frame has .093" holes spaced .265" on grid. Employs T30N-2 spring clip for quick, solderless connection; clip holds up to 6 leads with low contact resistance. With tube and transistor sockets. See parts list, below, for kit contents. Net Each Kit... **\$19.50**

**Vector Kit No. 22X**—Punched phenolic deck 4 1/2" x 8 1/2" x 1/8" mounted on aluminum channels. Employs T9.4 push-in terminals for soldered component connection. Transistor sockets and flexible array of parts supplied (see listing, below) for widest applications. Net Each Kit... **\$10.50**

**Vector Kit No. 21X**—Same as 22X, but board 4 1/2" x 17" x 1/8" and with tube sockets. See listing, below, for parts supplied. Net Each Kit... **\$15.25**

**Vector Kit No. 20X**—Same as 22X, but supplied with tube sockets only. See parts listing, below, for contents. Net Each Kit... **\$6.25**

## VECTORBOARD PUNCHED TERMINAL BOARD

Available in tan XXXP phenolic (MIL-P-3115B), Ivory epoxy paper (MIL-P-22324) or G-10 epoxy glass (MIL-P-18177), with pre-punched holes for breadboards and prototypes. May be sawed, drilled or punched. Copper clad types (2 oz.) may be etched. **Pattern "A"**: 0.093" holes on 0.265" centers. **Pattern "F"**: 0.062" holes on 0.200" centers. **Pattern "G"**: 0.062" holes on 0.200" centers, staggered. **Pattern "H"**: 0.100" x 0.100" spacing.

### XXXP PHENOLIC

Vector No.	Pattern	Size, In.	No. of Holes	Net Each
32A9	A	8.51 x 2.41 x 1/8	32 x 9	\$0.45
32AA9	A	8.51 x 2.41 x 1/8	32 x 9	.60
32AA18	A	8.51 x 4.80 x 1/8	32 x 18	.84
42F22C1	F*	8.5 x 4.5 x 1/8	42 x 22	1.05
42F22C2	F†	8.5 x 4.5 x 1/8	42 x 22	1.32
64A18	A	4.80 x 16.99 x 1/8	64 x 18	1.25
64AA18	A	4.80 x 16.99 x 1/8	64 x 18	1.60
64AA32	A	16.99 x 8.51 x 1/8	64 x 32	2.45

### EPOXY PAPER

32AA18EP	A	8.51 x 4.80 x 1/8	32 x 18	\$1.40
64AA18EP	A	16.99 x 4.80 x 1/8	64 x 18	2.73
64AA32EP	A	16.99 x 8.51 x 1/8	64 x 32	4.39
85F24EP	F	16.99 x 4.80 x 1/8	85 x 23	2.06
85G24EP	G	16.99 x 4.80 x 1/8	2(85 x 23)	1.39
3070-1EP	F*	6.5 x 4.5 x 1/8	28 x 22	1.67
3070-2EP	F†	6.5 x 4.5 x 1/8	28 x 22	1.67

### EPOXY GLASS

32A18-WE	A	8.51 x 4.80 x 1/8	32 x 18	\$ 1.89
42G22WEC1	G*	8.5 x 4.5 x 1/8	2(42 x 22)	2.55
42G22WEC2	G†	8.5 x 4.5 x 1/8	2(42 x 22)	2.60
64A18WE	A	16.99 x 4.80 x 1/8	64 x 18	3.72
85G24WE	G	16.99 x 4.80 x 1/8	2(85 x 23)	3.81
85F42WEC1	F*	16.99 x 8.51 x 1/8	2(85 x 42)	9.33
85F42WEC2	F†	16.99 x 8.51 x 1/8	2(85 x 42)	10.25
170H48WE/032	H	17.00 x 4.80 x 1/8	170 x 47	3.57

\*Copper clad, 1 side. †Copper clad, 2 sides.

## MICRO-VECTORBOARD PUNCHED INSULATING BOARD

Pre-punched, epoxy glass insulating board in choice of 1/8" or 1/4" thickness; meets MIL-P-18177, Grade G-10 specifications. Small, closely-spaced holes for micro-miniature module or other small component mounting. **Pattern "P"**: Has .042" dia. holes on 0.1" grid on 1/8" thick board. **Pattern "M"**: .025" dia. holes on .05" grid on 1/4" thick board. **Special Sizes on Request.**

Vector Number	Pat-tern	Size, in. x Lg.	No. of Holes	Net Each, Lots of		
				1-19	20-99	100-199
59P19/032	P	2 x 6	59 x 19	\$ 1.09	\$0.98	\$0.92
169P59/032	P	6 x 17	169 x 59	4.82	4.34	4.05
76M38/016	M	2 x 4	76 x 38	1.67	1.51	1.41
336M76/016	M	4 x 17	336 x 76	10.89	9.80	9.15

## EXPERIMENTERS' ETCHED CIRCUIT KITS

Permits making quick, easy etched circuits without fancy art work, negatives or long waiting. Low cost, uncomplicated preliminary circuits can be made at any desk at a low cost. Contains everything needed, except hot water. Simply sketch the circuit on layout paper grid; apply etch resist on copper-clad board using resist ink or tape; place board in plastic bag; and, add hot water—in 45 minutes the circuit is ready to be washed and used. Board can be cut, drilled or punched as needed.

**Vector Kit No. 27X**—With two XXXP phenolic boards 4 1/2" x 6 1/2", copper-clad on one side with .062" dia. holes on 2" center grid; 1 sheet resist circles; 1 sheet resist tape strips; 2 bags of etchant; resist ink; 2 sheets 8 1/2" x 11" layout paper; and full instructions. Net Each Kit... **\$5.95**

**Vector Kit No. 27XA**—Similar to 27X, except built around "Vector-resist", rub-on transfer resist. Simply apply resist pattern to board by rubbing back of 10" x 15" sheet having assortment of varying-width lines, circles, dots and connector pattern; 43 contacts spaced .158" on centers. Boards, etchant same as 27X. Net Each Kit... **\$5.95**

## KIT PARTS AND REPLACEMENT PRICES

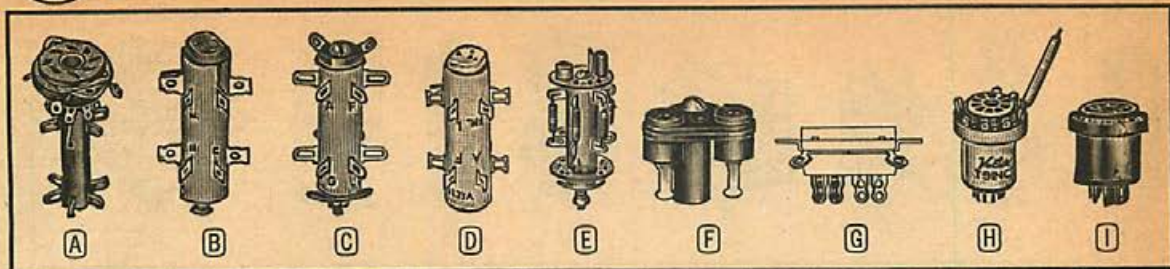
Vector Number	Description	Qty. in Kit No.				Net Each
		20X	21X	22X	25X	
32AA18	4 1/2" x 8 1/2" phen. board	1	1	1	1	\$0.84
64AA18	4 1/2" x 17" phen. board	1	1	1	1	1.60
64AA32	8 1/2" x 17" phen. board	1	1	1	1	2.45
SR2-8.5/093	Random "A" Vectorboards	2	2	2	2	...
SR2-4.8/093	8 1/2" x 2" chassis rails, pair	1	1	1	1	.99
SR2-17/093	Same, 4 1/2" x 2", pair	1	1	1	1	.79
BR50	Corner bracket for rails	18	18	18	18	1.43
SC4-2	Self-tap rail screws	8	8	8	8	1.75
RA-2	Power transistor socket	2	2	2	2	4.55
RA4.5	Univ. transistor socket	2	2	2	2	.29
RA4.51	Same, with pigtaills	4	6	4	4	.39
R72	7-pin min. socket	3	3	3	3	.09
R92	9-pin socket	3	3	3	3	.14
R8	8-pin socket and Saddle	2	2	2	2	.11
T9.62	Tandem (2) push-in term.	4	4	4	4	1.22
T9.4	Push-in solder terminal	75	100	75	100	1.25
T30N-2	Push-in solderless term.	20	50	20	90	6.95
T32A	Slide-entry springclip	...	...	...	...	9.45
T64	Spring for T30N-2 leg	18	12	18	18	4.05
T31A	Solderless lug-clip	...	...	...	...	9.45
K6.09	9" patch cord	8	6	10	10	3.00
T57	.20" x 16" punched bus	2	3	3	3	1.10
T58	8 1/2" x 8" punched bus	2	3	3	3	.70
*1507/313	3/4" O.D. x .313" spacer	6	6	6	6	.04
*1513/500	Same, .50" lg.	6	6	6	6	.04
*1114/406	3/4" O.D. x 1/2" spacer	6	16	16	16	.04
*07/750	2-56 x 1/4" screws, rd. hd.	6	16	15	10	.90
*01/250	2-56 x 1/4" screws, rd. hd.	6	16	15	10	.60
*14/875	2-56 x 1/4" screws, flat hd.	6	16	15	10	.60
109/313	4x1 1/4" self-tap rd. hd. ser.	12	16	16	16	.60
130/750	Same, 3/4" lg.	6	12	12	12	.60
NT-4-1	#4 sheet metal nuts	...	...	...	...	.35
0251-210-01	2-56 thd. steel nuts	12	18	24	36	.94
HD2.1	Term. retainer clip	10	10	10	10	.50
520	Water for 7-pin socket	...	...	...	...	.17
515	Water for 8-pin socket	...	...	...	...	.20
516	Water for 9-pin socket	...	...	...	...	.18
P92A	Install tool for T30N-2	1	1	1	1	.50
P122	Same, but for T9.4 term.	1	1	1	1	1.00
2323A-20/5	50-ft. #20 bare tinned wire	1	1	1	1	.97
2323A-20/6	20-ft. #20 insul. wire	1	1	1	1	.75
K7	Thumb pins	4	4	4	10	2.29
0079-02/5	Plastic small parts box	1	1	1	1	2.29
R173A-1	"A" 8 1/2" x 17" layout paper	3	3	3	3	2.50
R173A	Same, 8 1/2" x 11"	3	3	3	3	2.20
B20	L-type switch, pot. bkts.	2	2	2	2	.46
B20A	Same, Z-type	2	2	2	2	.58
0311-91-19	Brkt.-to-1/4" shaft washers	4	4	4	4	.45
BR2	1/4" x 1/4" L-bracket	4	4	4	4	.50
BR4	1/4" x 1/4" L-bracket	4	4	4	4	.50
BR5	1/4" x 1/4" Z-bracket	4	4	4	4	.26
R393/Por.	Number/letter transfers	1	1	1	1	2.00

Package of: \*4; #10; #25; #50; #100. Add Prefix When Ordering: \*0865-(e.g., 0865-1507/313); \*0111-221-; \*0111-211-; \*0111-424-.





# Vector Socket Turrets



## SOCKET TURRETS (FIGS. A, B, C)

Compact, efficient mount for circuit components. Grade XXXP phenolic posts  $\frac{1}{8}$ " O.D.,  $\frac{1}{16}$ " wall; mica filled sockets; fused tin brass terminals; hot tin dipped steel saddles. Turret has six terminals at far end; three, six or nine near socket. Terminal turrets without sockets used for many mountings. Military types available with MIL sockets, silver-plated beryllium copper contacts, nickel-plated tin-dipped brass saddles and glass silicone turret post with fused tin brass terminals. Longer or shorter types and other terminal configurations available on special order. Dimension tolerance,  $\pm \frac{1}{64}$ ".

Vector Comm. Type No.	MIL No.	Type	Hgt., In.	No. of Term.	No. of Rings	Space Between Rings, Inches	Net Each Com. Type
6-0-6T	680	Octal	1 1/2	6	1	.....	59c
8-0-9T	681	Octal	2	9	2	1	65c
8-0-12T	682	Octal	2	12	2	1	69c
10-0-9T	683	Octal	2 1/2	9	2	1 1/2	69c
10-0-12T	684	Octal	2 1/2	12	2	1 1/2	73c
6-M-6T	687	7-pin	1 1/2	6	1	.....	63c
8-M-9T	688	7-pin	2	9	2	1	69c
8-M-12T	689	7-pin	2	12	2	1	72c
10-MB-12T	690	7-pin	2 1/2	12	2	1 1/2	81c
6-N-6T	693	9-pin	1 1/2	6	1	.....	63c
8-N-9T	694	9-pin	2	9	2	1	69c
8-N-12T	695	9-pin	2	12	2	1	72c
10-NB-12T	696	9-pin	2 1/2	12	2	1 1/2	81c
6-12	676	Term.*	1 1/2	12	2	1 1/2	53c
8-12	677	Term.*	1 1/2	12	2	1 1/2	56c
10-12	678	Term.*	1 1/2	12	2	1 1/2	59c
6-12-C	.....	Term.†	2.0	12	2	1.00	59c
8-12-C	.....	Term.†	2.5	12	2	1 1/2	62c
10-12-C	.....	Term.†	3.0	12	2	1.87	65c
6H-6	.....	Term.‡	1.5	6	1	.....	40c
6H-12	.....	Term.‡	1.5	12	2	1 1/2	45c
8H-12	.....	Term.‡	2.0	12	2	1 1/2	47c

Terminal types: \*No socket; †Bolted; ‡No washers; †Hollow tube type with threaded 6-32 knurled nut in one end.

## COMPACTRON SOCKET TURRETS (FIG. A)

Accommodates compactron circuit components with twelve 0.040" pins on 0.75" dia. circle. Grade MFE, mica-filled phenolic sockets; brass terminals; cadmium-plated steel saddles.

**Vector No. 6-C-6 Socket Turret**—One ring, six terminals. Height, 1 1/2". Net Each..... **73c**  
**Vector 8-C-12 Socket Turret**—Two rings, spaced 1" apart; twelve terminals. Height, 1 1/2". Net Each..... **75c**

## TRANSISTOR TURRETS (FIGS. D, E)

Transistor turrets permit mounting of transistors and other essential circuit components on one structure. Socket type accommodates three in-line or "top-hat" transistors. Wafer turret holds four transistors on wafer punched for JEDEC or in-line leads. Type 6-, 7- or 9-A-12T-440 is supplied with knurl nut.

Vector No.	Hgt., In.	Space Between Rings, In.	Space Between Wafers, In.	Saddle	Net Each
5-A-12T	1 1/4	3/8	.....	Yes	\$1.05
6-A-12T	1 1/2	3/8	.....	Yes	1.06
6-A-12T-440	1 1/2	3/8	.....	No	1.03
7-A-12T-440	1 1/2	3/8	.....	No	1.04
8-A-12T	2	1 1/2	.....	Yes	1.08
9-A-12T-440	2 1/4	1 1/2	.....	No	1.07
652*	2 1/2	1	1 1/2	No	.81
654*	2 3/8	1 1/2	2 1/2	No	.87

\*Wafer type, Fig. E, all others Fig. D.

## TRANSISTOR SOCKETS

Small transistor sockets with mica-filled phenolic (MFE) bodies, beryllium copper terminals silver-plated plus gold flashed. Socket type available for combination three leads on 0.2 dia. circle or three in line, or four leads on same circle dia. Standoff style mounting on printed circuits or on "G" pattern Vectorbord. With large mounting saddle carrying 1/4" dia. ground lug holes spaced .750" upon request. Round sockets carry one amp with 1200 V between contacts, less than 0.03 ohm; insulation resistance 1000 megohms minimum.

## TRANSISTOR SOCKETS (CONT'D)

Vector No.	Contacts	Saddle*	Body	Net Each
RA4	4	No	Round	\$0.27
RA4.1	4	Yes	Round	.35
RA9	4	No	Round	.38
RA9.1	4	Yes	Round	.37
RA2†	2	No	Triangle	.09
0712-01-01	Retainer ring for round sockets			.03

\*Add suffix P to model number if 4/40 tapped hole in extruded portion of saddle is desired (e.g., RA4P). †Power transistor socket in black Bakelite\* (Grade CFG) with phosphor bronze terminals cadmium plated (Fig. F). \*Registered Bakelite Corp. trademark.

## TUBE SOCKETS (FIG. G)

Miniature and noval tube socket types permit passing of 1/4" rivet or #5 screws on .875" centers, 7-pin; 1.125" centers, 9-pin; 8-pin octal types with .136" holes on 1.312" centers. No center shields. Available with or without saddles, or 0.200" dia. counter-bore required for recessing through screw for turret applications. For socket less saddle add suffix No. 2 to model number (e.g., R72). Mica filled phenolic with cadmium plated brass terminals; add spec. suffix "J" for beryllium copper contacts, silver-plated and hot tin dipped (e.g., R7J). Specify cadmium plated, hot-tin dipped steel or brass saddles.

Vector No.	Min. Type	Ctr. Bore	Net Each	Vector No.	Octal Type	Ctr. Bore	Net Each
R7	7-pin	No	\$0.11	R8	8-pin	No	\$0.11
R71	7-pin	Yes	.13	R8.5	8-pin	No*	.14
R9	9-pin†	No	.13	R8.6	8-pin	No*	.45
R91	9-pin†	Yes	.17				

\*1/2" holes on 1/2" centers. †Noval type.

## CURRENT TEST ADAPTERS (FIG. H)

Make tube circuit current or voltage measurements without cutting leads or making computations; made from tube side of equipment. Special dual-sided probe "breaks" circuit to read current. Adapter placed between tube and socket; tabs provide test points. Fit into shield bases for miniature and noval types; or, standard tube clamps.

Vector No.	Description	Net Each
T-7-M-C	Miniature 7-pin socket adapter	\$2.30
T-8-O-C	Octal socket adapter	2.90
T-9-N-C	Noval socket adapter	2.45
P-2	Dual sided plug-in probe for above	.75
T-789-C	Set of above 4 items in case	8.85

## TUBE SOCKET TEST ADAPTERS (FIG. I)

Each adapter has straight through plug to socket connections extended to radial test tabs on adapter skirt surrounding the socket. Tabs are recessed into skirt. Contacts of highest quality beryllium copper. Molded phenolic bodies.

Vector No.	Tube Type	Body Dia.	Skirt Dia.	Length*	Net Ea.
T-7-M	7-Pin Min.	0.74"	1.03"	1.47"	\$1.65
T-8-O	8-Pin Octal	1.26"	1.56"	1.50"	1.76
T-9-N	9-Pin Noval	0.87"	1.16"	1.47"	1.85
P-1	Probe for above adapters				
T-789	Set of above 4 items in plastic case				

\*Less prongs.

## SOCKET SADDLE NUTS (NOT ILLUS.)

Convenient method of quickly screwing sockets to chassis. U nut slips over and clamps on socket saddles. Type 4-40 U fits No. 4-40 screws. Type 4Z U is made of thicker metal and fits No. 4 sheet metal screw. Made of cadmium plated steel, in bags of 50. **Vector No. 4-40 U Nut-Pkg. L— \$1.00**  
 Net, per bag of 50.....  
**Vector No. 4-Z U Nut-Pkg. L—** Net, per bag of 50..... **\$1.25**  
**Vector No. 54/250-Pkg. L Screw—** Net, per bag of 50..... **.60**  
**Vector No. 54Z/250-Pkg. L Screw—** Net, per bag of 50..... **.60**

## TUBE TESTER SOCKET EXTENDERS (NOT ILLUS.)

Similar to Fig. H, except do not have test points. Also have long screw through center to secure to original socket. Saves wear on tester sockets; easily replaced when worn.

Vector No.	Tube Type	Body Dia.	Skirt Dia.	Length*	Net Ea.
1262	8-Pin Octal	1 1/4"	.....	3/4"	\$1.75
1263	9-Pin Noval	3/4"	.....	1 1/2"	1.75
1264	7-Pin Min.	3/8"	.....	1 1/2"	1.75

\*Less prongs.

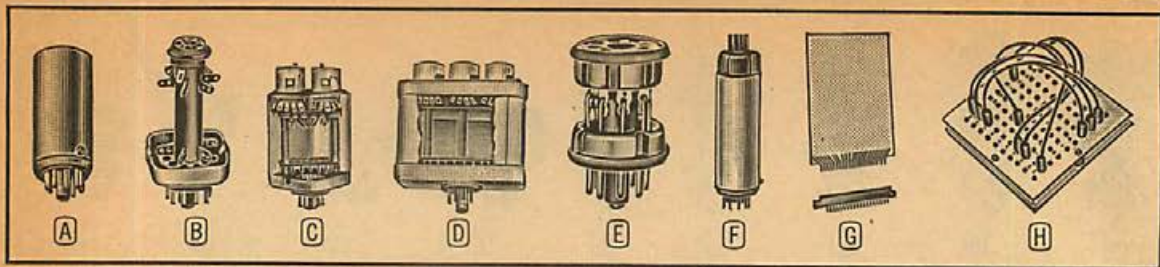
## TUBE BASE SHIELDS (NOT ILLUS.)

Mount above socket as a base for bayonet type tube shields. Cadmium plated steel.  
**Vector No. 5-7—7-pin type. Net Each..... 7c**  
**Vector No. 5-9—9-pin type. Net Each..... 5c**





# Vector Socket Turrets



### PLUG-IN UNITS (FIGS. A, B, C)

Small round and square plug-ins for amplifiers, counters, etc. Deep drawn aluminum cases with caustic etch finish. Tube base type plugs. Sockets mica-filled phenolic with cadmium-plated brass contacts. Premium grade Military types available with MIL sockets, beryllium copper contacts silver-plated; add suffix **J** to order. Other sizes, plugs, decks, walls and turrets available.

Vector No.	Plug Type	Socket Type	Turret Type	Hgt., In.	Size, In.	Net Each
B-8	Octal	None	None	2	1 1/2 sq.	\$1.33
B-10	Octal	None	None	2 1/4	1 3/4 sq.	1.18
B-10-T	Octal	None	Post	2 1/4	1 3/4 sq.	1.73
B-10-M	Octal	Min. 7-pin	Post	2 1/4	1.37 sq.	2.07
B-10-N	Octal	Noval	Post	2 1/4	1.37 sq.	2.24
B-10-4	Octal	None	A*	2 1/4	1 1/2 sq.	1.99
C-10	Octal	None	None	2 1/2	2 sq.	1.28
C-12	Octal	None	None	3	2 sq.	1.31
C-12-T	Octal	None	Post	3	2 sq.	1.92
C-12-M	Octal	Min. 7-pin	Post	3	2 sq.	2.24
C-12-N	Octal	Noval	Post	3	2 sq.	2.27
C-12-4	Octal	None	A*	3	2 sq.	2.85
C-12-NN	Octal	Two 9-pin	Post	3	2 sq.	3.11
C-10-NN	Octal	Two 9-pin	Post	2 1/2	2 sq.	3.08
G2-10	Octal	None	None	1 1/4	1 1/4 dia.	1.05
G2-10-4	Octal	None	D†	1 1/4	1 1/4 dia.	2.04
G2-10-T-1	Octal	None	#	1 1/4	1 1/4 sq.	1.76
G2-1-8	Noval	None	None	2 1/2	2 1/2 dia.	2.04
G2-1-8-N	Noval	Noval	None	2 1/2	2 1/2 dia.	2.04
G2-1-8-4	Noval	None	G‡	2 1/2	2 1/2 dia.	1.90
G2-2-8	Min. 7-pin	None	None	2 1/2	2 1/2 dia.	1.27
G2-2-8-M	Min. 7-pin	Min. 7-pin	None	2 1/2	2 1/2 dia.	1.93
G2-2-8-4	Min. 7-pin	None	G‡	2 1/2	2 1/2 dia.	1.88

\*Strip A, .093" holes spaced .265". †Strip D, .093" holes spaced .2" x .25". ‡Strip G, 1/8" holes spaced .141" to fit JEDEC transistor leads. #Wafer 1" dia. as used on transistor turret No. 654.

### MULTI-USE PLUG-IN KITS (FIG. D)

Plug-in kits permit wiring and packaging a wide variety of circuits. Consist of aluminum case with plug and accessories for mounting either tube sockets or transistor type assemblies. Lip-Loc Case units used for tube circuits. Kit includes mounted noval sockets, shield bases, two Zip wiring decks with 1 1/4" spacing and 11-pin octal plug. Each kit also includes set of extra components; equal number of 7-pin miniature sockets, shield bases and adapter mounting rings; plug buttons for closing unused socket holes; one extra unpunched base with spacers and screws for mounting larger plugs; one extra wiring deck. Extra parts may be easily installed as needed in place of regular items. For transistor and printed circuit assemblies type HK3 kit uses Frame-Loc case with Elco Varicon 16-pin plug and optional perforated epoxy-paper center wall. Center wall has 1/4" holes on alternate centers of 0.1" grid. Type T28 push-in terminals are included but not installed. Cases are made of caustic etched aluminum; sockets are mica-filled phenolic, commercial grade; terminal strips and spacers are phenolic for tube kits and epoxy-paper for transistor kits. Overall height of all units, 3". Many other sizes and types are available.

Vector No.	Sockets	Case Size, In.	No. Terms	Net Each
4-EK3	3N, 3M	1 3/4 x 3 3/4	22	\$6.60
5-E2K3	4N, 4M	1.68x 4.82	30	7.20
4-HK3	None	1 x 4	.....	6.84
5-HK3	None	1 x 5	.....	7.04

### TUBE BASE SHIELDS (NOT ILLUS.)

For mounting above socket as base for conventional bayonet type tube shields. Types **S7.17** and **S9.17** are commercial type. Nos. **S7.22** and **S9.22** are military.  
**Vector No. S7.17**—7-pin, cadmium plated steel. Net Each... **7c**  
**Vector No. S9.17**—9-pin, cadmium plated steel. Net Each... **5c**  
**Vector No. S7.22**—7-pin, nickel plated brass. Net Each... **18c**  
**Vector No. S9.22**—9-pin, nickel plated brass. Net Each... **19c**

### SOCKET CHANGE ADAPTERS (NOT ILLUS.)

Facilitate use of tube bases in existing sockets where a change of tube types is required. To be wired by user. For outer shell that may be cemented in place, add suffix **S**; prices on request.

Vector No.	Socket Type	Plug Type	Net Each
T 780	Min. 7-pin	Octal	\$1.05
T 79	Min. 7-pin	9-pin Noval	1.02
T 807	Octal	9-pin Noval	1.23
T 809	Octal	9-pin Noval	1.02
T 97	9-pin Noval	Min. 7-pin	1.02
T 980	9-pin Noval	Octal	1.05

### TUBE BASE PLUGS (NOT ILLUS.)

Mica-filled castings with phosphor bronze cadmium plated pins. Mount with 5-40 or 4-40 screw through center hole (except K1.14). **KF** types mount to aluminum shells with side screws furnished.

Vector No.	Tube Type	Dia., In.	Pin Size, In.	Net Each
P7	7-pin Min.	.621	1 1/2	\$0.47
P9	9-pin Noval	.748	1 1/2	.52
P7A	7-pin Min.	.621	1 1/4	.47
P9A	9-pin Noval	.748	1 1/4	.52
K1.302	7-pin Min.*	.621	1 1/2	.47
K1.402	9-pin Noval*	.748	1 1/2	.52
K1.334	7-pin Min.	.621	1 1/2	.162
K1.434	9-pin Noval*	.748	1 1/2	.162
P8L	8-pin Loctal*	1.000	1 1/2	.55
K1.14	14-pin	.750	1 1/2	.63
KF1.335	7-pin Min.†	.621	1 1/2	.65
KF1.435	9-pin Noval†	.748	1 1/2	.70

\*No center post. †Kaurl nuts, no keyway.

### EXPERIMENTERS' TEST ADAPTERS (FIG. E)

Less shells and tabs; connections can be cross-connected by user; must be soldered. For outer shells, add suffix **S** to number and add **20c** to prices shown; **60c** to kit.

**Vector No. TX-789**—Set of three types in kit. Net... **\$3.25**

Vector No.	Socket Type	Lgth., less prongs	Net Each
TX-8-O	Octal	1.50"	\$1.30
TX-7-M	Min. 7-pin	1.47"	.80
TX-9-N	Noval	1.47"	.85

### CABLE CONNECTOR PLUGS (FIG. F)

Permit connecting cables to miniature and noval tube sockets. Aluminum shells fitted to 7-pin and 9-pin plugs. In Type D, Heyco strain relief grommet mounted in the end of the shell; base screws hold the shell on the plug. In type C, a rubber grommet with 1/4" hole is mounted in side wall and center screw holds assembly together. Approx. length, 2 1/4", less pins.  
**Vector No. P7D**—7-pin, 3/8" O.D. end outlet. Net Each... **\$1.58**  
**Vector No. P9D**—9-pin, 3/8" O.D. end outlet. Net Each... **\$1.67**  
**Vector No. P7C**—7-pin, 3/8" O.D. side outlet. Net Each... **1.13**  
**Vector No. P9C**—9-pin, 3/8" O.D., side outlet. Net Each... **1.26**

### PLUGBORDS (FIG. G)

For use in test instruments, printed circuit prototypes and modular plug-ins. Made of 1/4" epoxy paper or glass with 1/4" holes on alternate 0.1" centers. Take type T28 push-in, eyelets or turned terminals. Elco Varicon or printed circuit plug contacts are attached to board. Copper clad boards may be etched.

Vector No.	Type	Contacts	Size, In.	Net Each
812	Epoxy paper	16 Varicon	4 1/2 x 6 1/2	\$2.73
812WE	Epoxy glass	16 Varicon	4 1/4 x 6 1/2	3.23
R616-1	Recept. for above	16	.....	2.04
837	Epoxy paper	12 Varicon	3 x 4 1/2	2.13
837WE	Epoxy glass	12 Varicon	3 x 4 1/2	2.36
R612-1	Recept. for above	12	.....	1.66
848WE	Epoxy glass	35 Varicon	4 1/2 x 6 1/2	5.58
R635	Recept. for above	35	.....	4.44
838A	Epoxy paper	22 etched	4 1/2 x 6 1/2	2.57
838	Epoxy paper, 2 sides	43	4 1/2 x 6 1/2	2.62
R644	Recept. for above	43	.....	1.36
838C	Copper clad, 1 side*	Like 838A	.....	1.82
838D	Copper clad, 2 side*	Like 838	.....	1.82

\*No etching.

### PATCH BOARDS (FIG. H)

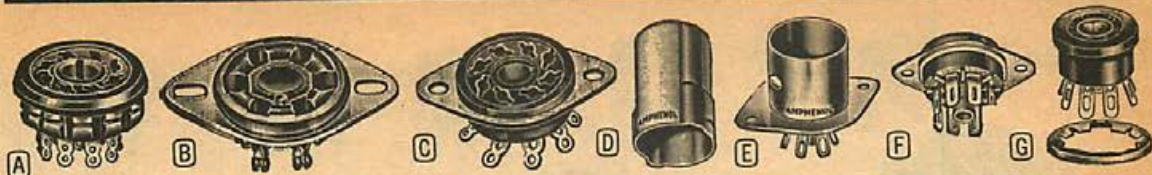
Simple, reliable units for multiple connectors, single conductor patching on computers and test fixtures. Made in blocks of 100 receptacles on 0.265" centers, 10 rows of 10 each. Horizontal rows lettered starting from top, vertical rows numbered starting from left. Panels are epoxy paper, ivory color, .093" thick; terminals are beryllium copper, silver plated with gold flash. Size, 3 1/2" x 3 1/2" x 3/8". Hole dia., 0.094", ±.002". Recommended plug, 0.087" to 0.091" dia. x 0.468" long. Contact tabs have two holes for soldering on wires. Includes four brackets and drilled mtg. holes. Special sizes are available.  
**Vector No. PB1010**—Standard 100 contact patch board. **\$10.75**

**Vector No. K2.06**—6" sgl. cond. patchcord. Net, pkg. 25... **\$2.00**

**Vector No. K2.09**—9" sgl. cond. patchcord. Net, pkg. 25... **2.25**

**Vector No. K2.15**—15" sgl. cond. patchcord. Net, pkg. 25... **2.50**





## TYPE 5 MOLDED SOCKETS (FIG. A)

Retainer ring mounted. Mounting hole dia., 1 1/4". Black phenolic except 78-SST, -S11T, mica filled phenolic.

Amphenol No. 78-	Contacts	Net Each, Lots of				
		1-49	50-249	250-499	500-999	1M-2499
S4	4	\$0.13	\$0.107	\$0.091	\$0.081	\$0.073
S5	5	.14	.116	.098	.088	.078
S6	6	.16	.13	.111	.099	.088
S7S	7 Small	.17	.137	.116	.104	.093
S8	8 Octal	.15	.127	.108	.096	.086
S8L	8 Loktal	.22	.183	.153	.139	.124
S8T	8 Octal	.19	.153	.13	.116	.104
S9	9	.18	.147	.125	.111	.10
S11	11	.20	.167	.141	.126	.113
S11T	11	.24	.195	.165	.148	.132
A7P	7 Min.	.34	.28	.24	.22	.20
A9P	9 Min.	.34	.28	.24	.21	.19

## MINIATURE 7- AND 9-PIN SOCKETS

Fig. G Type: Retainer ring style fits D-shaped or round hole 5/8" dia. Fig. E and F Types: Shielded types mount above chassis; unshielded, below chassis. Min. 7-pin sockets fit 3/8" hole with 3/8" mtg. centers; 9-pin sockets fit 1/2" hole, 1 1/4" centers.

Amphenol No.	Fig.	Contacts	Net Each, Lots of				
			1-49	50-249	250-499	500-999	1M-2499
78-7P	G	7	\$0.22	\$0.18	\$0.153	\$0.136	\$0.122
147-500	F	7	.21	.177	.15	.134	.12
147-505	F	7	.22	.178	.15	.135	.121
59-409	F	9	.27	.22	.186	.166	.149
59-410	F	9	.26	.21	.181	.161	.144
147-905*	E	7	.28	.23	.196	.175	.157
147-913*	E	7	.28	.23	.199	.178	.159
59-406*	E	9	.32	.27	.23	.20	.181
59-407*	E	9	.36	.30	.25	.23	.20

\*With .095" rivet holes.

## TYPE RS REPLACEMENT SOCKETS (FIG. B)

Same as Type "S" but with retainer rings in nickel-plated steel mounting rings. Replaces wafer types. Slotted holes in mounting ring fit 1 1/4" to 1 1/2" mtg. centers. Uses 6-32 screw. Black phenolic except R8T and RS11T, mica filled phenolic.

Amphenol No. 78-	Contacts	Net Each, Lots of				
		1-49	50-249	250-499	500-999	1M-2499
RS4	4	\$0.18	\$0.15	\$0.127	\$0.114	\$0.102
RS5	5	.20	.163	.139	.124	.111
RS6	6	.21	.17	.144	.129	.115
RS7S	7 Small	.22	.18	.153	.136	.122
RS8	8 Octal	.20	.163	.139	.124	.111
RS8L	8 Loktal	.27	.22	.189	.169	.151
RS8T	8 Octal	.25	.20	.174	.155	.139
RS9	9 Octal	.23	.186	.158	.141	.127
RS11	11	.25	.21	.178	.156	.14
RS11T	11	.26	.22	.185	.165	.148

## MIP MOLDED-IN-PLATE SOCKETS (FIG. C)

Steel mounting plate molded in black phenolic body; can't come loose. Mounts in 1 1/4" hole with two 1/4" holes on 1 1/2" centers.

Amphenol No. 77-	Contacts	Net Each, Lots of				
		1-49	50-249	250-499	500-999	1M-2499
MIP4	4	\$0.14	\$0.116	\$0.098	\$0.088	\$0.078
MIP4T*	4	.17	.142	.12	.108	.096
MIP4TM‡	4	.42	.35	.29	.26	.24
MIP5	5	.15	.127	.108	.096	.086
MIP5T*	5	.18	.152	.129	.115	.103
MIP5TM‡	5	.46	.38	.32	.29	.26
MIP6	6	.18	.147	.125	.111	.10
MIP6T*	6	.20	.165	.14	.125	.112
MIP6TM‡	6	.50	.41	.35	.31	.28
MIP7L†	7 Large	.19	.16	.136	.121	.109
MIP7S	7 Small	.19	.16	.136	.121	.109
MIP7ST*	7 Small	.21	.177	.15	.134	.12
MIP8	8	.16	.13	.111	.099	.088
MIP8F	8	.16	.13	.111	.099	.088
MIP8FK	8	.32	.26	.22	.199	.178
MIP8T*	8 Octal	.19	.157	.133	.119	.106
MIP8TM‡	8 Octal	.48	.40	.34	.30	.27
MIP9	9	.18	.15	.127	.114	.102
MIP9T	9	.20	.168	.143	.128	.114
MIP11	11	.21	.177	.15	.134	.12
MIP11T*	11	.24	.195	.165	.148	.132
MIP11TM‡	11	.58	.48	.41	.36	.32
MIP12	12	.21	.177	.15	.134	.12
MIP12T*	12	.23	.188	.16	.143	.128
MIP12TM‡	12	.40	.33	.28	.25	.22
MIP20	20	.54	.45	.38	.34	.30

\*Mica filled. †Fits 1 1/4" hole. ‡Mica-filled phenolic with silver-plated contacts and stainless steel mounting plate.

## MIP COMPACT SOCKETS (FIG. C)

Black phenolic body; fit 1 1/4" mounting holes on 1 1/2" centers.

Amphenol No. 88-	Contacts	Net Each, Lots of				
		1-49	50-249	250-499	500-999	1M-2499
8	8 Octal	\$0.17	\$0.139	\$0.118	\$0.105	\$0.094
8T*	8 Octal	.18	.152	.129	.115	.103
8TM†	8 Octal	.46	.38	.32	.29	.26
8X	8 Loktal	.22	.182	.154	.138	.123

\*Mica filled. †Mica filled phenolic with silver-plated contacts and stainless steel mounting plate.

## SOCKET SHIELDS WITH SPRINGS (FIG. D)

Amphenol No.	For Tube	Hgt., In.	Net Each, Lots of				
			1-49	50-249	250-499	500-999	1M-2499
5-401	7	1 3/8	\$0.16	\$0.129	\$0.109	\$0.098	\$0.087
5-402	7	1 3/8	.15	.127	.108	.096	.086
5-405	9	1 3/8	.14	.114	.097	.086	.077
5-408	9	1 1/2	.19	.158	.134	.12	.108
5-409	9	2 3/8	.23	.193	.164	.146	.131



## SHIELDED CABLE CONNECTORS (FIG. H)

Type S socket or CP plug in metal cap shield.

Amphenol Number	Contacts*	Net Each, Lots of				
		1-49	50-249	250-499	500-999	1M-2499
86-PM4	4 M	\$0.36	\$0.30	\$0.25	\$0.23	\$0.20
86-PM5	5 M	.37	.30	.26	.23	.21
86-PM6	6 M	.38	.31	.27	.24	.21
86-PM7S	7 Sm. M	.39	.32	.27	.24	.22
86-PM8	8 Octal M	.39	.32	.27	.24	.22
86-PM9	9 Octal M	.40	.33	.28	.25	.22
86-PM11	11 Octal M	.42	.35	.29	.26	.24
86-PM12	12 M	.44	.36	.31	.28	.25
86-PM20	20 M	.62	.51	.43	.39	.35
78-PF4	4 F	.32	.27	.23	.20	.18
78-PF5	5 F	.33	.27	.23	.21	.185
78-PF6	6 F	.35	.29	.24	.22	.194
78-PF7S	7 Small F	.35	.29	.25	.22	.198
78-PF8	8 Octal F	.34	.28	.24	.21	.192
78-PF9	9 Octal F	.37	.30	.26	.23	.21
78-PF11	11 Octal F	.39	.32	.27	.24	.22

\*F indicates female; M, male.

## CAPS

Fig. I and J Types: Rubber grommet types with side outlet for Fig. J style. Takes up to 1/4" diameter cable. Japan black finish except 3-857, clear cadmium finish. Fig. K Type: With cable clamp outlet; takes up to 3/8" diameter cable. Clear cadmium finish except 3-24, Japan black.

Amphenol Number	Fig.	Net Each, Lots of				
		1-49	50-249	250-499	500-999	1M-2499
3-10*	.....	\$0.11	\$0.087	\$0.074	\$0.066	\$0.059
3-12†	.....	.12	.097	.083	.074	.066
3-13	I	.13	.104	.088	.079	.071
3-17	J	.17	.142	.12	.108	.096
3-24	K	.19	.153	.13	.116	.104
3-856	K	.20	.163	.139	.124	.111
3-857	I	.14	.117	.099	.089	.08

\*Dust cap. †Metal cable outlet; takes up to 1/4" dia. cable.

## RECESSING SHELLS

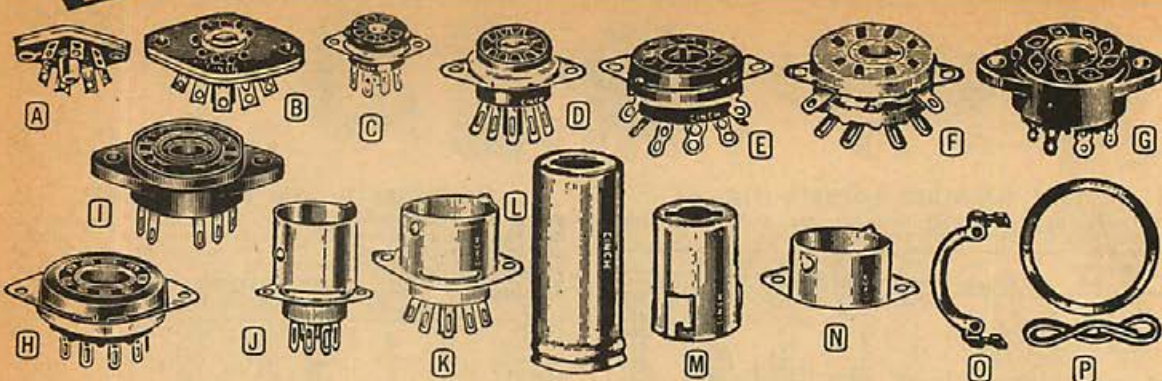
Fig. L Type: Aluminum shell mounts 1/4" above or below chassis. Fits 1 1/4" hole, uses three No. 6 screws. 61-61 is cadmium plated steel shell, recesses unit 1 1/4"; mounts in 1 1/4" hole; two 1/2" mounting holes on 1 1/4" centers.

Amphenol Number	Fig.	Net Each, Lots of				
		1-49	50-249	250-499	500-999	1M-2499
23-15	L	\$0.14	\$0.117	\$0.099	\$0.089	\$0.08
61-61	.....	.11	.094	.08	.071	.064





# Tube Sockets, Accessories



## WAFER TYPE SOCKETS

Cadmium-plated brass contacts; hot-solder-coated center shield.

C-J No.	Fig.	Description	Mtg. Ctrs.	Net Ea.	Lots
7W2A	A	7-pin miniature. Chocolate XP Bakelite* laminations.	1 3/8"	6.8c	3.4c
7WL2	A		1 1/2"	6.8c	3.4c
7WL4	A		1 3/4"	8c	4c
9W1	B	9-pin miniature	1 3/8"	8.4c	4.2c
9W2	B	9-pin miniature	1 1/2"	9.3c	4.7c

\*Bakelite Corp. trademark.

## COMPACTRON SOCKETS (FIG. I)

All-molded sockets for compactron tubes. High dielectric black phenolic (CFG) or mica-filled, low loss phenolic. Available in 12-contact or high voltage eight contact sizes. Mtg. ctrs., 1 1/4".

C-J No.	No. of Contacts	Description	Net Each, Lots of		
			50-99	100-249	250-499
8CS-B	8	Black	29.5c	23.6c	22.4c
8CS-M	8	Mica	32c	25.6c	23.3c
12CS-B	12	Black	36c	28.8c	27.4c
12CS-M	12	Mica	38.5c	30.8c	29.3c

## SADDLE TYPE SOCKETS

C-J No.	Fig.	Description	Mtg. Centers	Mounting	Net Each, Lots of	
					1-99	100-999
7EB	C	Black	3/8"	Bottom	9.4c	4.7c
7EC	C	Ceramic	3/8"	Bottom	11.3c	5.6c
7EM	C	Mica	3/8"	Bottom	11.3c	5.6c
7AB1	C	Black	1/2"	Top	11.3c	5.6c
7AM1	C	Mica	1/2"	Top	11.3c	5.6c
9EB	D	Black	1 1/8"	Bottom	14.5c	7.2c
9EM	D	Mica	1 1/8"	Bottom	14.5c	7.2c
9AB	D	Black	1 1/8"	Top	14.5c	7.2c
9AM	D	Mica	1 1/8"	Top	14.5c	7.2c
8AB	E	Black	1 1/8"	Bottom	14.5c	7.2c
8AM	E	Mica	1 1/8"	Bottom	14.5c	7.2c
8EB	E	Black	1 1/8"	Top	14.5c	7.2c
8EM	E	Mica	1 1/8"	Top	14.5c	7.2c

## SHIELD BASE TYPE SOCKETS

### MINIATURE AND NOVAL TYPES

Miniature (Fig. J): Mtg. holes, .125" dia. on 3/4" mounting centers. Noval (Fig. K): Mtg. holes, .093" dia. on 1 1/4" mounting centers.

Description	C-J No.	Fig.	Net Ea.	Lots of	C-J No.	Fig.	Net Ea.	Lots of
			1-99	100-999			1-99	100-999
Black	7XB1	J	19.3c	9.6c	9XB	K	20.8c	10.4c
Mica	7XM1	J	25.5c	12.5c	9XM	K	25.5c	12.5c
Ceramic	7XC	J	33c	16.5c	9XC	K	35.7c	17.9c

## MIL-5-12883A TYPE SOCKETS

Mounting centers, 7-pin, 3/8"; 9-pin, 1 1/4".

C-J No.	Fig.	MIL-5-12883A No.	Description	Net Each, Lots of	
				100-999	
7JC-2	J	TS102C01	Ceramic		11.6c
7JMN-1	C	TS102P02	MFE		8.3c
7JM-2	J	TS102P01	MFE		9.8c
7JCN-1	C	TS102C02	Ceramic		14.3c
9JM-2	K	TS103P01	MFE		12.8c
9JMN-1	D	TS103P02	MFE		9.8c
9JC-2	K	TS103C01	Ceramic		19.4c
9JCN-1	D	TS103C02	Ceramic		16.6c

## MIL-5-12883A SADDLE TYPE SOCKETS

MIL Type: 7-pin, TS102P03 (MFE), TS102C03 (ceramic); 9-pin, TS103P03 (MFE), TS103C03 (ceramic). Bottom mounting.

C-J No.	Fig.	Description	Mtg. Ctrs.	Mounting Holes	Net Each, Lots of	
					100-999	
7JM-3	C	MFE	3/8"	.125" dia.		8.3c
7JC-3	C	Ceramic	3/8"	.125" dia.		14.3c
9JM-3	D	MFE	1 1/8"	.125" dia.		9.8c
9JC-3	D	Ceramic	1 1/8"	.125" dia.		16.6c

## MIL MOLDED OCTAL SOCKETS (FIG. F)

Castings of molded thermosetting plastic (MFE). Silver-plated phosphor bronze contacts, with heavy tinned tails. Heavy brass saddle, hot-solder-coated, with four hot tinned ground lugs. Mounting centers, 1 1/4".

C-J No.	MIL-5-12883A No.	Mtg. Hole, in.	Net Each, Lots of	
			1-99	100-999
8JM-2	TS101P01	.156 dia.	35.4c	17.7c
8JMN-2	TS101P02	6-32 tap	54c	27c

## ALL-MOLDED OCTAL SOCKETS (FIG. G)

All-molded octal socket offers complete one-piece construction; the saddle and body are a single casting. The standard socket is molded of high dielectric black Bakelite. Contacts are brass, cadmium plated. No. 8XM mica filled phenolic insulation, prevents loss from leakage. Mounting holes, .144" dia. on 1 1/4" centers.

C-J No. 8XM Socket—Mica.  
Net Each, Lots of 1-99.....13.2c; 100-999.....6.6c  
C-J No. 8XB Socket—Black. List Price.....14.5c\*

## NOVAL SOCKETS (FIG. H)

Molded from high dielectric black phenolic (CFG) or mica-filled, low loss phenolic. Top or bottom mounting. Cadmium-plated brass contacts. Mounting centers, 1 1/4".

Bottom Mounting			Top Mounting		
C-J No.	Type	List Pr.*	C-J No.	Type	List Pr.*
9NS-B	Black	22.5c	9NS-B1	Black	26.0c
9NS-M	Mica	27.5c	9NS-M1	Mica	30.0c

## MODEL 8RO RETAINER RING (FIG. P)

A crimped retaining ring formed of .020" spring steel. Will securely anchor sockets designed for ring mounting. Standard finish is cadmium.

C-J No. 8RO—Net Each, Lots of 1-99...3.5c; 100-999...1.7c

## J-SLOT TUBE SHIELDS (FIG. M)

C-J No.	Description	Length, inches	Net Each, Lots of	
			1-99	100-999
7S2	Steel	1 3/4"	11c	5.5c
7S3	Steel	1 3/4"	11.6c	5.8c
7S4	Steel	2 3/4"	17.8c	8.9c
7SJ2-1	MIL*, brass	1 3/4"	14.3c	7.2c
7SJ3-1	MIL*, brass	2 3/4"	16.1c	8c
7SJ4-1	MIL*, brass	2 3/4"	17.8c	8.9c
9S1	Steel	1 1/2"	16.3c	8.2c
9S2	Steel	1 1/2"	16.4c	8.2c
9S3	Steel	2 3/4"	29.8c	15c
9SJ1-1	MIL*, brass	1 1/2"	17.6c	8.8c
9SJ2-1	MIL*, brass	1 1/2"	19.3c	9.7c
9SJ3-1	MIL*, brass	2 3/4"	21.1c	10.5c

\*JAN-S-28A.

## SNAP ON TYPE TUBE SHIELD (FIG. L)

C-J No. 7S1—Size: 1 1/4" h.  
Net Each, Lots of 1-99.....9c; 100-999.....4.5c

## SHIELD BASES

C-J No.	Fig.	Dimensions, in.			Material	Net Each, Lots of	
		H.	Mtg. Hole	Mtg. Ctrs.		1-99	100-999
7SB1	N	3/4"	.125 dia.	3/8"	Steel	5.4c	2.7c
7SB2	N	3/4"	.125 dia.	3/8"	Brass	7.2c	3.6c
9SB1	N	1 1/4"	3/8 dia.	1 1/4"	Steel	7.2c	3.6c

## STRAP NUTS (FIG. O)

C-J No. 7SN—Cadmium-plated brass strap nuts for use in mounting sockets with saddles or shield bases. One strap nut takes the place of two conventional type nuts. Mounting centers, 3/8". For 7-contact sockets. Ground lugs are hot-solder-dipped. Net Each, Lots of 1-99.....16.8c; 100-999.....8.4c

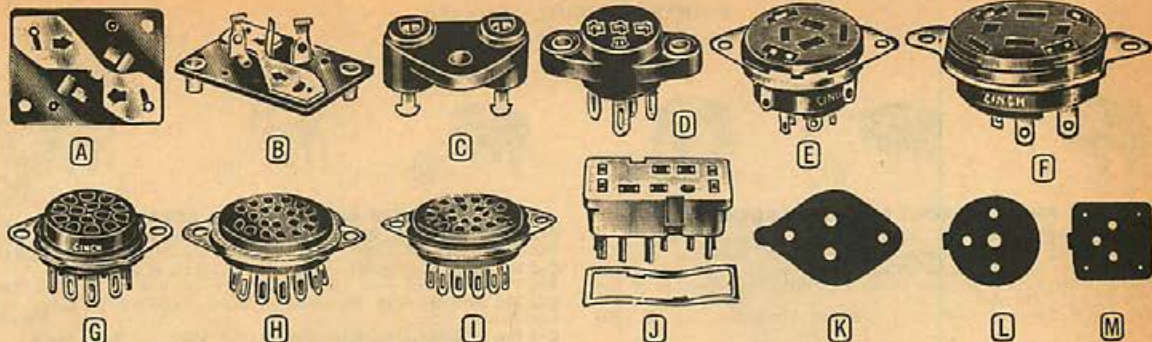
C-J No. 9SN—Same as Model 7SN except mounting centers are 1 1/4" and are for 9-contact sockets. Net Each, Lots of 1-99.....18.3c; 100-999.....9.2c

\*CONTACT DISTRIBUTOR FOR QUANTITY PRICES





# Sockets for All Purposes



## POWER TRANSISTOR SOCKETS

### LAMINATED TYPE

**C-J No. 27S-1 (Fig. A)**—Top and bottom plates are of natural XP Bakelite<sup>®</sup>, vacuum was impregnated. Contacts are of brass, cadmium plated. Formed thread for 6-20 screw. Has .104/.110" dia. hole in CR steel plate. Provides easy attachment to a heat sink. List Price..... **15c\***

**C-J No. 27S-2 (Fig. B)**—Identical with above except equipped with integral eyelets for easy assembly to chassis. Net Each, Lots of 1-99..... **10.7c**; 100-999..... **5.4c**  
\*Bakelite Corp. trademark.

### MODEL 27S-3 MOLDED TYPE (FIG. C)

Molded power transistor socket. Casting is molded of general purpose Bakelite. Contacts are phosphor bronze, cadmium plated. Mounting holes are .098" dia.; mounting centers are .425/.435".  
**C-J No. 27S-3**—Net Each, Lots of 1-99, 9c; 100-999, 4.5c

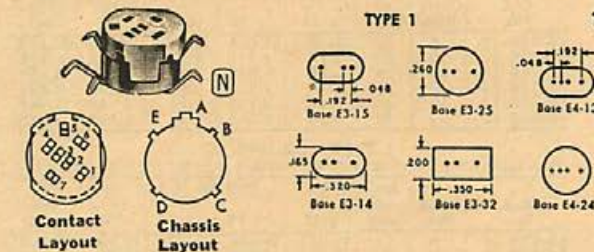
### MODEL 27S-4 GENERAL PURPOSE (FIG. D)

This new transistor socket was originally designed for an all-transistor television set; however, its future applications are many. This socket may be used in industrial communications, test equipment, ham gear, etc. Socket has a triangular base layout with 0.2" by 0.1" (JETECC-30) contact centers, as well as three contacts in line (.048" by .192" contact centers). Casting is molded of general purpose Bakelite; contacts are phosphor bronze, cadmium plated. May be used with the following EIA base designations: E3-14, E3-15, E3-25, E3-32, E3-38, E3-39, E3-42, E3-43, E3-44, E3-51, E3-53, E4-13, E4-24, E4-31, E4-43, E4-52, ET-103-D.  
**C-J No. 27S-4**—List Price..... **25.5c\***

## CAPACITOR "PLUG-IN" SOCKETS

**C-J No. 2C5 (Fig. E)**—Designed for use with Mallory and Magnavox 1" FP type capacitors. Molded from high dielectric black Bakelite. Sturdy steel mounting saddle has four ground lugs. Mounting centers, 1 1/2". Three recessed center contacts for extended prongs of capacitor and two outer contacts flush with surface for short prongs of capacitor. All contacts are cadmium plated for fast, easy soldering.  
Net Each, Lots of 1-99..... **43.5c**; 100-999..... **21.8c**

**C-J No. 2C7 (Fig. F)**—Designed for use with Mallory and Magnavox 1 1/2" FP type capacitors. Molded from high dielectric black Bakelite. Sturdy cadmium-plated steel saddle has 1 1/2" mounting centers. Four recessed center contacts for extended prongs of capacitor and three outer contacts flush with surface for short prongs of capacitor. All contacts are cadmium plated.  
Net Each, Lots of 1-99..... **67.8**; 100-999..... **33.9c**



## RELAY SOCKETS

### SERIES 14RS RELAY SOCKETS (FIG. G)

**C-J No. 14RS**—Bottom-mount, 14-contact type with mica-filled, low-loss Bakelite casting. Beryllium-copper contacts silver-plated with hot-tinned tails. Saddle length 1 1/2". Mounting centers, 1 1/2". Net Each, Lots 1-99..... **50.73c**; 100-999..... **50.36c**  
**C-J No. 14RS-2**—Same, but top mount instead of bottom mount. Net Each, Lots of 250-999..... **50.369**

### MODEL 20RS TOP MOUNTED RELAY SOCKET (FIG. H)

A 20-pin top-mounted relay socket. Contacts are of beryllium copper, silver-plated with hot-tinned tails. Steel saddle, cadmium plated; 1 1/2" mounting centers.  
**C-J No. 20RS**—Net Each, Lots of 1-99, **51.68**; 100-999, **50.84**

### BOTTOM-MOUNTED RELAY SOCKETS (FIG. I)

**C-J No. 20RS-1**—A 20-contact relay socket with mica-filled low-loss Bakelite casting. Contacts are of beryllium copper, silver-plated with hot-tinned tails. Mounting centers, 1 1/2". Net Each, Lots of 1-99..... **51.68**; 100-999..... **50.84**

**C-J No. 14RS-1**—A 14-contact relay socket. Same as above except contacts 15 to 20 are omitted.  
Net Each, Lots of 1-99..... **51.32**; 100-999..... **50.66**

**C-J No. 16RS-1**—A 16-contact relay socket. Same as Model 20RS-1 except contacts 15, 17, 18 and 20 are omitted.  
Net Each, Lots of 1-99..... **51.44**; 100-999..... **50.72**

### MODEL 8RS RELAY SOCKET (FIG. J)

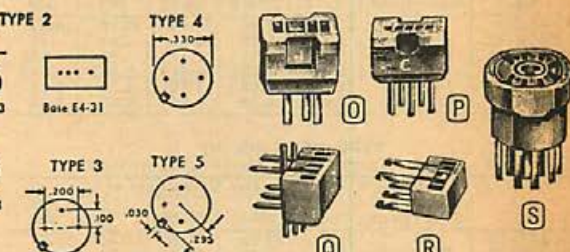
This relay socket is molded of mica filled phenolic and is attached to the chassis with a cold rolled steel clip that is cadmium plated. The contacts are beryllium copper, silver-plated. Mounting clip 20731 furnished with each socket. This socket fits the following relays: Advance MV-2C, AEMCO 95-3274, Brubaker K110A, Filters P.26.A1.P.6A, G.E. D200A and G-203A, Potter & Brumfield SL and Ace Relay No. 50-6-A (single contact type).  
**C-J No. 8RS**—Net Each, Lots of 1-99, **45c**; 100-999, **22.5c**

## POWER TRANSISTOR HEAT SINKS

Hard anodized aluminum insulator wafers for use with power transistors. Feature high thermal conductivity, high dielectric resistance, high abrasion resistance and high corrosion resistance.  
**C-J No. 2W-1 (Fig. K)**—For Motorola transistors 2N179, 2N176 and 2N554.

**C-J No. 2W-2 (Fig. L)**—For Delco transistor 2N174.

**C-J No. 2W-3 (Fig. M)**—For Texas Instruments transistor 2N389.  
Any Model Listed Above—Net Each, Lots of 1-24, **31.5c**; 25-49, **25.2c**; 50-99, **21c**; 100-249, **16.8c**; 250-499, **16c**; 500-999, **15.1c**



## UNIVERSAL TRANSISTOR SOCKETS (FIG. N)

Universal transistor socket that can be used with all transistor bases shown in illustration above. Casting is of mica-filled phenolic (MFE). Contacts are beryllium copper and are gold plated. Contacts may be used with either one or two-sided 1/2" printed circuit boards.

C-J No.	Base Types	Tabs Used (See Diag.)	Cont. Pos. Used	Net Ea., Lots of	
				1-99	100-999
7UTS	All	A, B, C, D, E	1, 3, 4, 7	67.5c	33.8c
7UTS-1	1 and 3	C, D, E	1, 3, 4, 7	45c	22.5c
7UTS-3	3	C, D, E	1, 4, 7	40.5c	20.25c
7UTS-4	4	A, B, C, D, E	1, 4, 5, 6, 7	54c	27c
7UTS-5	5	B, D, E	1, 6, 7	40.5c	20.25c
7UTS-6	1 and 3	C, D, E	1, 3, 4, 7	45c	22.5c

## SUBMINISTRATOR TUBE SOCKETS

Use extensively for hearing aids, radios and other electronic apparatus. Molded from mica-filled low loss Bakelite with silver-plated beryllium copper contacts. No. 2H5 can be used for four prong tube or as a transistor socket. No. 5PC for printed circuits. No. 5WC for wired circuits.

C-J No.	Pin	Fig.	Net Ea., Lots of		C-J No.	Pin	Fig.	Net Ea., Lots of	
			1-99	100-999				1-99	100-999
2H3*	3	O	20.8c	10.4c	5PC	5	Q	39.6c	19.8c
2H5*	5	P	22.4c	11.2c	5WC	5	R	37.6c	18.8c
2H6*	6	S	29.8c	14.9c	85M*	8	S	42c	21c
2H7*	7	T	33c	15.5c	85M-Pi	8	T	54c	27c

\*Mounting ring included. †No. 88M with a mounting plate.

\*CONTACT DISTRIBUTOR FOR QUANTITY PRICES



## PRINTED CIRCUIT SOCKETS



### PRINTED CIRCUIT MINIATURE SOCKETS

**C-J No. 7PC-B (Fig. A)**—Seven-pin, brass contacts with hot-solder-coated finish. General purpose black phenolic casting. Special tabs prevent tube shields from contacting the printed wire chassis. Center shields provide mechanical retention of the socket in the chassis. Net Each, Lots of 1-99.....**6.3c**; 100-999.....**3.15c**

**C-J No. 7PC-B1 (Fig. A)**—Same as 7PC-B but without center shield or tabs. Net Each, Lots of 1-99.....**7.1c**; 100-999.....**3.5c**

**C-J No. 7PC-B4 (Fig. B)**—Seven-pin, brass contacts with hot-solder-dipped finish. Molded of general purpose black phenolic. No center shield. List Price.....**16.5c\***

**C-J No. 7PC-M4 (Fig. B)**—Same as 7PC-B4, except molded of mica-filled, low-loss phenolic. List Price.....**16c\***

**C-J No. 7PC-B5 (Fig. B)**—Same as 7PC-B4, except has brass center shield, hot-solder-dipped. List Price.....**16.5c\***

**C-J No. 7PC-M5 (Fig. B)**—Same as 7PC-M4, except has brass center shield, hot-solder-dipped. List Price.....**23c\***

### PRINTED CIRCUIT NOVAL SOCKETS

**C-J No. 9PC-B (Fig. C)**—Same as 7PC-B but 9-pin noval. Net Each, Lots of 1-99.....**8.58c**; 100-999.....**4.29c**

**C-J No. 9PC-B1 (Fig. C)**—Same as 7PC-B1 but 9-pin noval. Net Each, Lots of 1-99.....**9.5c**; 100-999.....**4.7c**

**C-J No. 9PC-B4 (Fig. D)**—Same as 7PC-B4, but 9-pin noval. List Price.....**19c\***

**C-J No. 9PC-M4 (Fig. D)**—Same as 7PC-M4, but 9-pin noval. List Price.....**19.5c\***

**C-J No. 9PC-B5 (Fig. D)**—Same as 7PC-B5, but 9-pin noval. List Price.....**20.5c\***

**C-J No. 9PC-M5 (Fig. D)**—Same as 7PC-M5, but 9-pin noval. List Price.....**22c\***

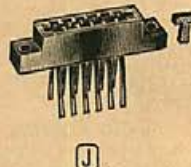
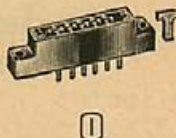
### PRINTED CIRCUIT SOCKETS WITH SHIELD BASES

**C-J No. 7PC-M2 (Fig. E)**—Seven-pin miniature standoff socket. Has an attached bayonet type shield base with ground tab. For use with 1/8" printed circuit boards. Castings are low-loss mica-filled phenolic (MFE). Contacts are phosphor bronze with a hot-tinned finish. Center shield and ground tab are brass, hot-tinned and base, nickel-plated brass. Net Each, Lots of 1-99.....**\$0.948**; 100-999.....**\$0.474**

**C-J No. 9PC-M2 (Fig. F)**—Same as 7PC-M2 but 9-pin noval. Net Each, Lots of 1-99.....**\$1.17**; 100-999.....**\$0.585**

\*CONTACT DISTRIBUTOR FOR QUANTITY PRICES

## PRINTED CIRCUIT EDGE CONNECTORS



Designed for minimum printed circuit card wear, low insertion force and positive contact with the printed circuit board. Insulation is glass-filled diallyl phthalate, type SDG-F per MIL-M-14. Contacts are of phosphor bronze with .00003" minimum gold plated. Types 250, 251 and 252 utilize bifurcated contacts, permitting two flexing surfaces instead of one for positive contact.

### TYPE 250 (FIG. G)

Bifurcated contacts, single row. Conventional wiring tails.

C-J No.	Cont. Pos.	No. of Cont.	Net Each, Lots of				
			1-24	25-49	50-99	100-249	250-499
50-6A-20	6	6	\$1.125	\$0.90	\$0.75	\$0.60	\$0.57
50-10A-20	10	10	1.50	1.20	1.00	.80	.76
50-12A-20	12	12	1.688	1.35	1.125	.90	.855
50-15A-20	15	15	1.973	1.578	1.315	1.052	.999
50-18A-20	18	18	2.25	1.80	1.50	1.20	1.14
50-22A-20	22	22	2.625	2.10	1.75	1.40	1.33

### TYPE 251 (FIG. H)

Bifurcated contacts, double row. Conventional wiring tails.

C-J No.	Cont. Pos.	No. of Cont.	Net Each, Lots of				
			1-24	25-49	50-99	100-249	250-499
50-12A-30	6	12	\$1.125	\$0.90	\$0.75	\$0.60	\$0.57
50-20A-30	10	20	1.50	1.20	1.00	.80	.76
50-24A-30	12	24	1.688	1.35	1.125	.90	.855
50-30A-30	15	30	1.973	1.578	1.315	1.052	.999
50-36A-30	18	36	2.25	1.80	1.50	1.20	1.14
50-44A-30	22	44	2.625	2.10	1.75	1.40	1.33

### TYPE 252 (FIG. I)

Bifurcated contacts, double-row. Contact tails designed for dip soldering, and will fit into .051" diameter holes.

C-J No.	Cont. Pos.	No. of Cont.	Net Each, Lots of				
			1-24	25-49	50-99	100-249	250-499
50-12B-10	6	12	\$1.26	\$1.008	\$0.84	\$0.672	\$0.638
50-20B-10	10	20	1.74	1.392	1.16	.928	.882
50-24B-10	12	24	1.98	1.584	1.32	1.056	1.003
50-30B-10	15	30	2.34	1.872	1.56	1.248	1.186
50-36B-10	18	36	2.70	2.160	1.80	1.440	1.368
50-44B-10	22	44	3.18	2.544	2.12	1.696	1.611

### TYPE 253 (FIG. J)

Standard contacts, double-row. Contact tails are for wire-wrapping.

C-J No.	Cont. Pos.	No. of Cont.	Net Each, Lots of				
			1-24	25-49	50-99	100-249	250-499
50-12B-20	6	12	\$1.913	\$1.530	\$1.275	\$1.020	\$0.969
50-20B-20	10	20	2.483	1.986	1.655	1.324	1.258
50-24B-20	12	24	2.768	2.214	1.845	1.476	1.402
50-30B-20	15	30	3.195	2.556	2.130	1.704	1.619
50-36B-20	18	36	3.623	2.898	2.415	1.932	1.835
50-44B-20	22	44	4.193	3.354	2.795	2.236	2.124

## TYKON MINIATURE EDGE CONNECTORS



High density edge connectors with .050" centers for use with double-sided .062" printed circuit boards. Conventional wiring tails. Insulator is diallyl phthalate, type SDG-F per MIL-M-14. Contacts are phosphor bronze with .00003" gold plate. Carbon steel mounting clip for use in semi-flush printed circuit mounting, and cellulose acetate polarizing key available as separate items.

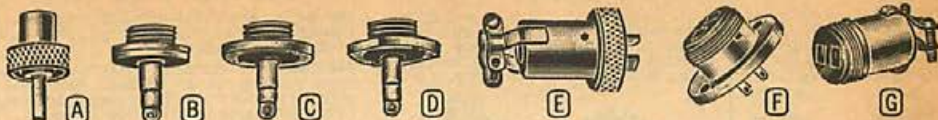
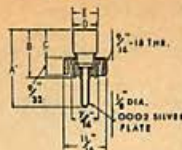
C-J No.	Cont. Pos.	No. of Cont.	Net Each, Lots of				
			1-24	25-49	50-99	100-249	250-499
50-12A-40	6	12	\$3.22	\$2.57	\$2.15	\$1.72	\$1.63
50-20A-40	10	20	3.94	3.15	2.63	2.10	2.00
50-30A-40	15	30	4.79	3.83	3.20	2.56	2.43
50-40A-40	20	40	5.69	4.55	3.80	3.04	2.88
50-50A-40	25	50	6.58	5.26	4.39	3.51	3.33
50-MC	Mounting Clip		.038	.03	.025	.02	.019
50-PK	Polarizing key		.083	.066	.055	.044	.042





# Plugs and Sockets

## AUDIO PLUGS AND SOCKETS



### SERIES 101 PLUGS (FIG. A)

All plugs are identical except the cable ferrule which is furnished in five sizes listed below. All metal parts are of brass. Fit 101 Series sockets. Ideal for high frequency connections.

C-J No.	A	B	C	D	E
P-101-1/4"	1 1/4"	3/4"	7/8"	1 1/2"	3/8"
P-101-.290	1 1/4"	3/4"	7/8"	1 1/2"	3/8"
P-101-1/2"	1 1/2"	3/4"	7/8"	1 1/2"	3/8"
P-101-3/4"	1 3/4"	3/4"	7/8"	1 1/2"	3/8"
P-101-1"	1 3/4"	3/4"	7/8"	1 1/2"	3/8"

### QUANTITY PRICES FOR 101 SERIES PLUGS

C-J No.	Net Each, Lots of				
	1-24	25-49	50-99	100-249	250-499
P-101-1/4"	\$0.653	\$0.522	\$0.435	\$0.348	\$0.331
P-101-.290	.795	.636	.53	.424	.403
P-101-1/2"	.795	.636	.53	.424	.403
P-101-3/4"	.795	.636	.53	.424	.403
P-101-1"	.885	.708	.59	.472	.448

### SERIES 101 SOCKETS

Brass base, bright nickel finish. Brass contact is silver plated. Insulation is of low loss natural color XXX Bakelite. Meets Navy specifications. Bakelite of No. S-101-D is recessed in the base. Two sides of base of No. S-101-D Mod are milled. Mounting Holes: No. S-101, #41 drill on 1/16" centers; all others, #30 drill on 1/16" centers.

C-J No.	Fig.	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250-499
S-101	B	\$0.578	\$0.462	\$0.385	\$0.308	\$0.293
S-101-D	C	.885	.708	.59	.472	.448
S-101-D Mod	D	.885	.708	.59	.472	.448

### MODEL 201-3/4 PLUG

Same as Series 101 but is of heavier stock and larger. Made in one size only with 3/4" ferrule. All metal parts are of brass. Same

finish as Series 101 and wax impregnated ceramic insulation. Length, 1 1/4", overall. Prong diameter, 3/16". Fits only Series 201 socket.

### MODEL S-201 SOCKET (FIG. C)

Similar to No. S-101-D except larger. Brass base is bright nickel finish. Brass contact is silver plated. Insulation is low loss natural color XXX Bakelite. Mounting holes, #30 drill on 1" centers. Thread, 3/4"-27.

### QUANTITY PRICES FOR 201 SERIES PLUG AND SOCKET

C-J No.	Net Each, Lots of				
	1-24	25-49	50-99	100-249	250-499
P-201-3/4"	\$1.02	\$0.816	\$0.68	\$0.544	\$0.517
S-201	1.095	.876	.73	.584	.555

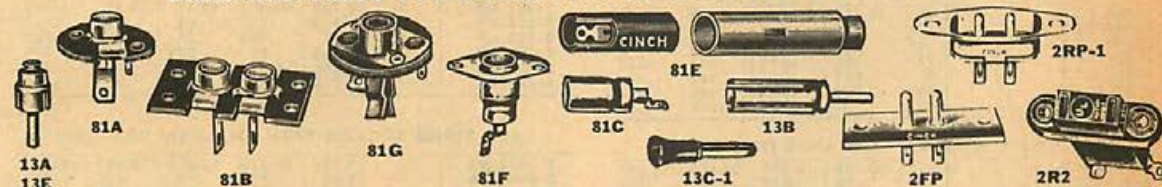
### SERIES 202 PLUGS AND SOCKETS

Made in two contacts only. Brass metal parts with bright nickel finish. Molded Bakelite insulation. Phosphor bronze "knife switch" type socket contacts engage both sides of flat brass plug contacts—double contact area. Formed fiber linings in caps. Polarized. Knurled nut has 3/4"-27 thread. Socket mounting holes, #30 drill on 1" centers. No. S-202-CCT-THR, when used with No. P-202-CCT, will make an ideal microphone connector.

C-J No.	Fig.	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250-499
P-202-CCT	E	\$0.81	\$0.648	\$0.54	\$0.432	\$0.41
S-202-CCT	E*	.825	.66	.55	.44	.418
P-202-FHT	E†	.653	.522	.435	.348	.331
S-202-FHT	E†	.668	.534	.445	.356	.338
S-202-B	F	.96	.768	.64	.512	.486
P-202-B	F‡	.923	.738	.615	.492	.467
S-202-CCT-THR	G	1.095	.876	.73	.584	.555

\*Socket instead of plug. †Less cable clamp. ‡Socket instead of plug, less cable clamp. ††Plug instead of socket.

## JACKS AND PLUGS FOR RADIO, TV AND PHONOGRAPH APPLICATIONS



### RCA TYPE PHONO CONNECTORS

C-J No. 13A Plug—1/4" long pin.  
List Price.....7c\*  
C-J No. 13E Plug—1/4" long pin.  
List Price.....7c\*  
C-J No. 81A Jack—Single jack for No. 13A. Mtg. ctrs., 1 1/4". List Price...21c\*  
C-J No. 81B Jack—Double jack for No. 13A. Mtg. ctrs., 1 1/4". Jacks spaced on 1/2" ctrs. Size, 1 1/2" x 1". List Price...37.5c\*  
C-J No. 81G Jack—Normally connected; this connection breaks when plug is inserted, making plug connection. Brass mtg. plate. Mtg. holes, 136". List...69.5c\*

### ANTENNA CONNECTORS

C-J No. 81F Jack—Motorola type. Shielded. Sturdy steel flange, 1 1/2" mtg. ctrs. with 136" dia. mtg. holes. Mounts with screws or rivets. Mates 13B plug. List Price.....36c\*  
C-J No. 81C Jack—Same as 81F less flange. May be soldered in position. Mates No. 13B. List Price.....24c\*

### MOTOROLA TYPE ANTENNA PLUG

C-J No. 13B Plug—Has 3/4" pin extending 1/2" from shell whose eight cutting edges provide positive grounded connection when inserted in No. 81C or No. 81F. List Price.....28-8c\*

### INSULATED PIN PLUG

C-J No. 13C1 Plug—Pin, 1/4" brass tube, 1/2" lg. Fiber insulator, 1 1/2" lg. Mates Nos. 81A and 81B phono jacks. List Price.....22.5c\*

### SHIELDED EXTENSION JACK

C-J No. 81E Jack—Cadmium plated brass shell 2 1/4" long with black Bakelite insert providing insulation for heat treated steel, hot solder coated positive grip contact. Mates No. 13E plug. Net Each, Lots of 1-99, 29.2c; 100-999, 14.6c

### MODEL 2FP CONNECTOR PLUG

Consists of two prongs mounted on a Bakelite board. One piece contact. Mounting

plate is of 1/4" natural XP Bakelite 1 1/2" lg. x 3/4" w. The .135/.140" mounting holes are on 1 1/4" centers. An inexpensive current supply connector for TV sets.

C-J No. 2FP—List Price.....14.4c\*

### MODEL 2RP-1 RECESSED PLUG

Recessed sub-panel mounting type plug. One piece contact. Perfect for current supply for TV sets. Rated at 125 v., 7 amps. Size: 3/4" w. x 1 1/4" lg., overall. Body Depth: 1/4". Mounting Centers: .140/.145". U/L Approved.

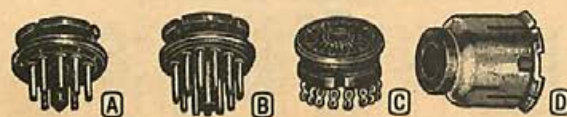
C-J No. 2RP-1—List Price.....19.7c\*

### MODEL 2R2 110-250 VOLT SOCKET

Rated at 15 amps, 110 v., or 10 amps, 250 v. Accepts any standard 2-prong electric plug. Mounts in 3/4" x 1 1/2" hole. Ideal for radio and TV chassis. Underwriters Listed.

C-J No. 2R2—  
Net Each, Lots of 1-99, 18.9c; 100-999, 9.5c

## MOLDED CONNECTOR PLUGS AND SOCKETS



### MODEL 8PB 8 CONTACT PLUG (FIG. A)

Molded from high dielectric black Bakelite. Pins are nickel-plated and have tapered ends for easy insertion. Mounts on 1/4" chassis using No. SRO retaining ring, or can be used with No. 16F cap. Will fit any standard octal socket.

C-J No. 8PB—Net Each, Lots of 1-99, 19.5c; 100-999, 9.8c

### MODEL 11PB 11 CONTACT PLUG (FIG. B)

Molded from high dielectric black Bakelite. Pins are nickel-plated and have tapered ends for easy insertion. Mounts on 1/4" chassis using No. SRO retaining ring. Can be used with No. 16F cap. Will fit No. 11RB socket.

C-J No. 11PB—Net Each, Lots of 1-99, 27c; 100-999, 13.5c

### MODEL 11RB 11 CONTACT SOCKET (FIG. C)

Molded from high dielectric black Bakelite. Solder coated brass contacts. Mounts on 1/4" chassis using No. SRO retaining ring. Can be used with No. 16F cap. Mates with No. 11PB plug.

C-J No. 11RB—Net Each, Lots of 1-99, 31.8c; 100-999, 15.9c

### MODEL 16F PLUG CAP (FIG. D)

Cadmium plated steel plug cap for snapping on 8 or 11 prong sockets grooved for 1/4" chassis. Screwdriver slot at bottom to facilitate removal. Rubber grommet has 1/4" dia. hole.

C-J No. 16F—List Price.....92.5c\*

\*CONTACT DISTRIBUTOR FOR QUANTITY PRICES

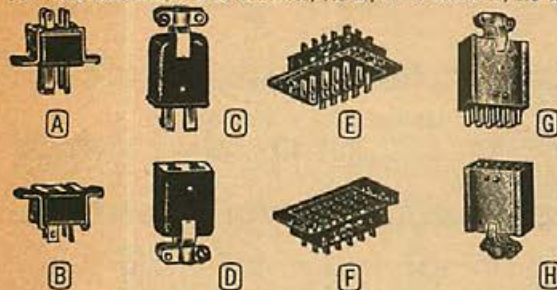




# "Jones" Type Plugs, Sockets

## 300 SERIES CONNECTORS

Compact, polarized connectors. Insulating material is molded Bakelite. Fiber lined metal caps are black wrinkle finished. New "Monoblock" construction eliminates internal moisture traps. Snap-in contacts may be prewired or replaced. Rated Voltage: 730 volts rms. Amps: 2-12 contacts, 7.5 a.; 15-33 contacts, 4.5 a.



PLUGS WITH ANGLE BRACKETS (FIG. A)

C-J No.	Contacts	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250-499
P-302-AB	2	\$0.248	\$0.198	\$0.165	\$0.132	\$0.125
P-303-AB	3	.308	.246	.205	.164	.156
P-304-AB	4	.338	.27	.225	.18	.171
P-306-AB	6	.42	.336	.28	.224	.213
P-308-AB	8	.495	.396	.33	.264	.251
P-310-AB	10	.563	.45	.375	.30	.285
P-312-AB	12	.623	.498	.415	.332	.315

SOCKETS WITH ANGLE BRACKETS (FIG. B)

S-302-AB	Contacts	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250-499
S-302-AB	2	\$0.27	\$0.216	\$0.18	\$0.144	\$0.137
S-303-AB	3	.323	.258	.215	.172	.163
S-304-AB	4	.36	.288	.24	.192	.182
S-306-AB	6	.45	.36	.30	.24	.228
S-308-AB	8	.563	.45	.375	.30	.285
S-310-AB	10	.688	.534	.445	.356	.338
S-312-AB	12	.773	.618	.515	.412	.391

PLUGS WITH CABLE CLAMPS (FIG. C)

P-302-CCT	Contacts	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250-499
P-302-CCT	2	\$0.57	\$0.456	\$0.38	\$0.304	\$0.289
P-303-CCT	3	.608	.486	.405	.324	.308
P-304-CCT	4	.668	.534	.445	.356	.338
P-306-CCT	6	.735	.588	.49	.392	.372
P-308-CCT	8	.81	.648	.54	.432	.41
P-310-CCT	10	.908	.726	.605	.484	.46
P-312-CCT	12	.99	.792	.66	.528	.502

SOCKETS WITH CABLE CLAMPS (FIG. D)

S-302-CCT	Contacts	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250-499
S-302-CCT	2	\$0.578	\$0.462	\$0.385	\$0.308	\$0.293
S-303-CCT	3	.623	.498	.415	.332	.315
S-304-CCT	4	.675	.54	.45	.36	.342
S-306-CCT	6	.773	.618	.515	.412	.391
S-308-CCT	8	.90	.72	.60	.48	.456
S-310-CCT	10	1.005	.804	.67	.536	.509
S-312-CCT	12	1.155	.924	.77	.616	.585

PLUGS WITH SHALLOW BRACKETS (FIG. E)

P-315-SB	Contacts	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250-499
P-315-SB	15	\$1.223	\$0.978	\$0.815	\$0.652	\$0.619
P-318-SB	18	1.508	1.206	1.005	.804	.764
P-321-SB	21	1.778	1.422	1.185	.948	.901
P-324-SB	24	2.108	1.686	1.405	1.124	1.068
P-327-SB	27	2.37	1.896	1.58	1.264	1.201
P-330-SB	30	2.715	2.172	1.81	1.448	1.376
P-333-SB	33	2.993	2.394	1.995	1.596	1.516

SOCKETS WITH SHALLOW BRACKETS (FIG. F)

S-315-SB	Contacts	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250-499
S-315-SB	15	\$1.373	\$1.098	\$0.915	\$0.732	\$0.695
S-318-SB	18	1.635	1.308	1.09	.872	.828
S-321-SB	21	1.913	1.53	1.275	1.02	.969
S-324-SB	24	2.259	1.806	1.505	1.204	1.144
S-327-SB	27	2.52	2.016	1.68	1.344	1.277
S-330-SB	30	2.865	2.292	1.91	1.528	1.452
S-333-SB	33	3.135	2.508	2.09	1.672	1.588

PLUGS WITH CABLE CLAMPS (FIG. G)

P-315-CCT	Contacts	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250-499
P-315-CCT	15	\$1.29	\$1.032	\$0.86	\$0.688	\$0.654
P-318-CCT	18	1.56	1.248	1.04	.832	.79
P-321-CCT	21	1.838	1.47	1.225	.98	.931
P-324-CCT	24	2.168	1.734	1.445	1.156	1.098
P-327-CCT	27	2.46	1.968	1.64	1.312	1.246
P-330-CCT	30	2.865	2.292	1.91	1.528	1.452
P-333-CCT	33	3.068	2.454	2.045	1.636	1.554

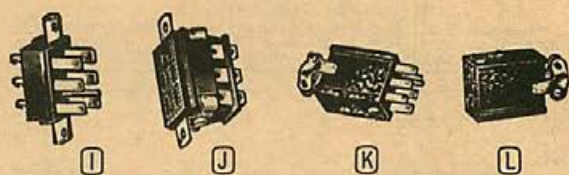
SOCKETS WITH CABLE CLAMPS (FIG. H)

S-315-CCT	Contacts	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250-499
S-315-CCT	15	\$1.433	\$1.146	\$0.955	\$0.764	\$0.726
S-318-CCT	18	1.703	1.362	1.135	.908	.863
S-321-CCT	21	1.973	1.578	1.315	1.052	.999
S-324-CCT	24	2.325	1.86	1.55	1.24	1.178
S-327-CCT	27	2.595	2.076	1.73	1.384	1.315
S-330-CCT	30	3.00	2.40	2.00	1.60	1.52
S-333-CCT	33	3.21	2.568	2.14	1.712	1.626

## 400 AND 2400 SERIES CONNECTORS

400 Series are rated at 1200 volts rms at 15 amps. Polarized. Phosphor bronze "knifewitch" socket contacts engage both sides of flat plug contacts.

2400 Series are rated at 1700 volts at 15 amps. New design provides greater contact surface, increased pressure and smoother action. Greater contact-to-contact and contact-to-ground distance. Interchangeable with the 400 Series.



400 SERIES PLUGS WITH ANGLE BRACKETS (FIG. I)

C-J No.	Contacts	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250-499
P-402-AB	2	\$0.623	\$0.498	\$0.415	\$0.332	\$0.315
P-404-AB	4	.758	.606	.505	.404	.384
P-406-AB	6	.915	.732	.61	.488	.464
P-408-AB	8	1.05	.84	.70	.56	.532
P-410-AB	10	1.193	.954	.795	.636	.604
P-412-AB	12	1.313	1.05	.875	.70	.665

2400 SERIES PLUGS WITH SHALLOW BRACKETS

P-2402-SB	Contacts	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250-499
P-2402-SB	2	\$0.84	\$0.672	\$0.56	\$0.448	\$0.426
P-2404-SB	4	.99	.792	.66	.528	.502
P-2406-SB	6	1.155	.924	.77	.616	.585
P-2408-SB	8	1.305	1.044	.87	.696	.661
P-2410-SB	10	1.493	1.194	.995	.796	.756
P-2412-SB	12	1.635	1.308	1.09	.872	.828

400 SERIES SOCKETS WITH ANGLE BRACKETS (FIG. J)

S-402-AB	Contacts	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250-499
S-402-AB	2	\$0.705	\$0.564	\$0.47	\$0.376	\$0.357
S-404-AB	4	.915	.732	.61	.488	.464
S-406-AB	6	1.11	.888	.74	.592	.562
S-408-AB	8	1.313	1.05	.875	.70	.665
S-410-AB	10	1.538	1.23	1.025	.82	.779
S-412-AB	12	1.733	1.386	1.155	.924	.878

2400 SERIES SOCKETS WITH SHALLOW BRACKETS

S-2402-SB	Contacts	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250-499
S-2402-SB	2	\$0.923	\$0.738	\$0.615	\$0.492	\$0.467
S-2404-SB	4	1.08	.864	.72	.576	.547
S-2406-SB	6	1.253	1.002	.835	.668	.635
S-2408-SB	8	1.425	1.14	.95	.76	.722
S-2410-SB	10	1.605	1.284	1.07	.856	.813
S-2412-SB	12	1.778	1.422	1.185	.948	.901

PLUGS WITH CABLE CLAMPS (FIG. K)

P-402-CCT	Contacts	400 SERIES				
		1-24	25-49	50-99	100-249	250-499
P-402-CCT	2	\$0.975	\$0.78	\$0.65	\$0.52	\$0.494
P-404-CCT	4	1.193	.954	.795	.636	.604
P-406-CCT	6	1.395	1.116	.93	.744	.707
P-408-CCT	8	1.59	1.272	1.06	.848	.806
P-410-CCT	10	1.793	1.434	1.195	.956	.908
P-412-CCT	12	2.003	1.602	1.335	1.068	1.015

P-2402-CCT	Contacts	2400 SERIES				
		1-24	25-49	50-99	100-249	250-499
P-2402-CCT	2	\$1.185	\$0.948	\$0.79	\$0.632	\$0.60
P-2404-CCT	4	1.343	1.074	.895	.716	.68
P-2406-CCT	6	1.50	1.20	1.00	.80	.76
P-2408-CCT	8	1.643	1.314	1.095	.876	.832
P-2410-CCT	10	1.815	1.452	1.21	.968	.92
P-2412-CCT	12	2.003	1.602	1.335	1.068	1.015

SOCKETS WITH CABLE CLAMPS (FIG. L)

S-402-CCT	Contacts	400 SERIES				
		1-24	25-49	50-99	100-249	250-499
S-402-CCT	2	\$1.058	\$0.846	\$0.705	\$0.564	\$0.536
S-404-CCT	4	1.32	1.056	.88	.704	.669
S-406-CCT	6	1.605	1.284	1.07	.856	.813
S-408-CCT	8	1.883	1.506	1.255	1.004	.954
S-410-CCT	10	2.168	1.734	1.445	1.156	1.098
S-412-CCT	12	2.438	1.95	1.625	1.30	1.235

S-2402-CCT	Contacts	2400 SERIES				
		1-24	25-49	50-99	100-249	250-499
S-2402-CCT	2	\$1.275	\$1.02	\$0.85	\$0.68	\$0.646
S-2404-CCT	4	1.425	1.14	.95	.76	.722
S-2406-CCT	6	1.583	1.266	1.055	.844	.802
S-2408-CCT	8	1.763	1.41	1.175	.94	.893
S-2410-CCT	10	1.943	1.554	1.295	1.036	.984
S-2412-CCT	12	2.223	1.698	1.415	1.132	1.075





# Hinge Connectors & Barriers

## HINGE CONNECTORS



Plug and socket bodies showing contact arrangement.

No contact damage due to insertion and extraction. Maximum contact in minimum space; engaged with normal pressure. Simple locking device insures positive contact. Spring action contacts separate units after releasing the lock. Wiping contact action for clean contacts at all times. Castings are of black Bakelite, type CFG. Contacts are of phosphor bronze, cadmium plated (.0001). Current rating is 4.5 amps. **Alternate Lock:** For more secure locking, order Alternate Lock No. 37AL separately. It has a special device to prevent accidental unlocking. **Caps:** Formed fiber liners, nickel-plated cable clamps. Designed to take the alternate lock when required. Black wrinkle finish.

### PLUG WITH LOCK

C-J No.	Con-tacts	Mtg. Ctrs. In.	Over-all Size, In.	Net Each, Lots of				
				1-24	25-49	50-99	100-249	250-499
37-M20L	20	1.375	1.750	\$2.25	\$1.80	\$1.50	\$1.20	\$1.14
37-M30L	30	1.812	2.187	2.663	2.13	1.775	1.42	1.349
37-M40L	40	2.250	2.625	3.075	2.46	2.05	1.64	1.558
37-M50L	50	2.687	3.062	3.488	2.79	2.325	1.86	1.767
37-M60L	60	3.125	3.500	3.90	3.12	2.60	2.08	1.976
37-M70L	70	3.562	3.937	4.313	3.45	2.875	2.30	2.185
37-M80L	80	4.000	4.375	4.725	3.78	3.15	2.52	2.394
37-M90L	90	4.438	4.812	5.138	4.11	3.425	2.74	2.603
37-M100L	100	4.875	5.250	5.55	4.44	3.70	2.96	2.812

### SOCKET WITH LOCK

C-J No.	Con-tacts	Mtg. Ctrs. In.	Over-all Size, In.	Net Each, Lots of				
				1-24	25-49	50-99	100-249	250-499
37-F20L	20	1.375	1.750	\$2.25	\$1.80	\$1.50	\$1.20	\$1.14
37-F30L	30	1.812	2.187	2.663	2.13	1.775	1.42	1.349
37-F40L	40	2.250	2.625	3.075	2.46	2.05	1.64	1.558
37-F50L	50	2.687	3.062	3.488	2.79	2.325	1.86	1.767
37-F60L	60	3.125	3.500	3.90	3.12	2.60	2.08	1.976
37-F70L	70	3.562	3.937	4.313	3.45	2.875	2.30	2.185
37-F80L	80	4.000	4.375	4.725	3.78	3.15	2.52	2.394
37-F90L	90	4.438	4.812	5.138	4.11	3.425	2.74	2.603
37-F100L	100	4.875	5.250	5.55	4.44	3.70	2.96	2.812

### PLUG WITHOUT LOCK

C-J No.	Con-tacts	Mtg. Ctrs. In.	Over-all Size, In.	Net Each, Lots of				
				1-24	25-49	50-99	100-249	250-499
37-M20	20	1.375	1.750	\$2.025	\$1.62	\$1.35	\$1.08	\$1.026
37-M30	30	1.812	2.187	2.438	1.95	1.625	1.30	1.235
37-M40	40	2.250	2.625	2.85	2.28	1.90	1.52	1.444
37-M50	50	2.687	3.062	3.263	2.61	2.175	1.74	1.653
37-M60	60	3.125	3.500	3.675	2.94	2.45	1.96	1.862
37-M70	70	3.562	3.937	4.088	3.27	2.725	2.18	2.071
37-M80	80	4.000	4.375	4.50	3.60	3.00	2.40	2.28
37-M90	90	4.438	4.812	4.913	3.93	3.275	2.62	2.489
37-M100	100	4.875	5.250	5.325	4.26	3.55	2.84	2.698

### SOCKET WITHOUT LOCK

C-J No.	Con-tacts	Mtg. Ctrs. In.	Over-all Size, In.	Net Each, Lots of				
				1-24	25-49	50-99	100-249	250-499
37-F20	20	1.375	1.750	\$2.025	\$1.62	\$1.35	\$1.08	\$1.026
37-F30	30	1.812	2.187	2.438	1.95	1.625	1.30	1.235
37-F40	40	2.250	2.625	2.85	2.28	1.90	1.52	1.444
37-F50	50	2.687	3.062	3.263	2.61	2.175	1.74	1.653
37-F60	60	3.125	3.500	3.675	2.94	2.45	1.96	1.862
37-F70	70	3.562	3.937	4.088	3.27	2.725	2.18	2.071
37-F80	80	4.000	4.375	4.50	3.60	3.00	2.40	2.28
37-F90	90	4.438	4.812	4.913	3.93	3.275	2.62	2.489
37-F100	100	4.875	5.250	5.325	4.26	3.55	2.84	2.698

C-J No. 37AL Alternate Lock—For above series.  
Net Each, Lots of 1-24.....45c; 25-49.....36c; 50-99.....30c;  
100-249.....24c; 250-499.....22.8c

### CAPS FOR PLUGS OR SOCKETS

C-J No.	For Cast-ing with No. of Con-tacts	Hole Size, Inches	Net Each, Lots of				
			1-24	25-49	50-99	100-249	250-499
37-C20	20	3/8	\$3.15	\$2.52	\$2.10	\$1.68	\$1.596
37-C30	30	1/2 x 1	3.188	2.55	2.125	1.70	1.615
37-C40	40	1/2 x 1	3.225	2.58	2.15	1.72	1.634
37-C50	50	1/2 x 1	3.263	2.61	2.175	1.74	1.653
37-C60	60	1/2 x 1 1/4	3.30	2.64	2.20	1.76	1.672
37-C70	70	1/2 x 1 1/4	3.338	2.67	2.225	1.78	1.691
37-C80	80	1/2 x 1 1/2	3.375	2.70	2.25	1.80	1.71
37-C90	90	1/2 x 1 1/2	3.413	2.73	2.275	1.82	1.729
37-C100	100	1/2 x 1 1/2	3.45	2.76	2.30	1.84	1.748

### 170 SERIES SOLDER TERMINAL STRIPS

Heavy solder terminals are made of .032" brass, hot solder coated; mounted on 3/8" centers. Black molded Bakelite. Size, 1/8" w. x 1/2" thick. Mounting holes, 3/8" from center of end terminals.

C-J No.	Ter-minals	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250-499
1-170	1	19.5c	15.6c	13c	10.4c	9.9c
2-170	2	24.8c	19.8c	16.5c	13.2c	12.6c
3-170	3	30.8c	22.8c	19c	15.2c	14.4c
4-170	4	36.8c	27c	22.5c	18c	17.1c
5-170	5	42.8c	31.8c	26.5c	21.2c	20.1c
6-170	6	48.8c	35.4c	29.5c	23.6c	22.4c
7-170	7	54.8c	38.4c	32.5c	26c	24.3c
8-170	8	60.8c	41.8c	35.5c	28.4c	26.6c
9-170	9	66.8c	44.8c	38.5c	30.8c	28.9c
10-170	10	72.8c	48.8c	41.5c	33.2c	31.5c



140-141-142 Series (2-140, 2-141, 2-142)

171 Series (6-171)

## "JONES" 140-141-142 SERIES BARRIER TERMINAL BLOCKS

Increased insulation is provided by having barriers placed between each terminal. These barriers follow around the edge of the strips and terminate at the base. They not only make a long leakage path but prevent direct shorts from frayed wires at terminals. Size: 140 Series—Base, 1/8" w. x 1 1/2" h.; term. centers, 3/8". 141 Series—Base, 1 1/8" w. x 3/8" h.; term. centers, 3/8". 142 Series—Base, 1 1/8" w. x 3/8" h.; term. centers, 3/8".

### 140 SERIES

C-J No.	Con-tacts	Net Each, Lots of					
		1-24	25-49	50-99	100-249	250-499	
1-140	1	\$0.113	\$0.09	\$0.075	\$0.60	\$0.057	\$0.05
2-140	2	.18	.144	.12	.096	.091	.079
3-140	3	.248	.198	.165	.132	.125	.109
4-140	4	.315	.252	.21	.168	.16	.139
5-140	5	.383	.306	.255	.204	.194	.168
6-140	6	.443	.354	.295	.236	.224	.195
7-140	7	.51	.408	.34	.272	.258	.224
8-140	8	.578	.462	.388	.308	.293	.254
9-140	9	.645	.516	.43	.344	.327	.284
10-140	10	.713	.57	.475	.38	.361	.314
11-140	11	.773	.618	.515	.412	.391	.34
12-140	12	.84	.672	.56	.448	.426	.37
13-140	13	.908	.726	.605	.484	.46	.399
14-140	14	.983	.786	.655	.524	.498	.432
15-140	15	1.05	.84	.70	.56	.532	.462
16-140	16	1.118	.894	.745	.596	.566	.492
17-140	17	1.178	.942	.785	.628	.597	.518
18-140	18	1.245	.996	.83	.664	.631	.548
19-140	19	1.313	1.05	.875	.70	.665	.578
20-140	20	1.38	1.104	.92	.736	.699	.607
21-140	21	1.448	1.158	.965	.772	.733	.637

### 141 SERIES

C-J No.	Con-tacts	Net Each, Lots of					
		1-24	25-49	50-99	100-249	250-499	
1-141	1	\$0.15	\$0.12	\$0.10	\$0.08	\$0.076	\$0.066
2-141	2	.233	.186	.155	.124	.118	.102
3-141	3	.315	.252	.21	.168	.16	.139
4-141	4	.405	.324	.27	.216	.205	.178
5-141	5	.488	.39	.325	.26	.247	.216
6-141	6	.563	.45	.375	.30	.285	.248
7-141	7	.66	.528	.44	.352	.334	.29
8-141	8	.743	.594	.495	.396	.376	.327
9-141	9	.825	.66	.55	.44	.418	.363
10-141	10	.915	.732	.61	.488	.464	.403
11-141	11	.998	.798	.665	.532	.505	.439
12-141	12	1.08	.864	.72	.576	.547	.475
13-141	13	1.17	.936	.78	.624	.593	.515
14-141	14	1.253	1.002	.835	.668	.635	.551
15-141	15	1.335	1.068	.89	.712	.676	.587
16-141	16	1.425	1.14	.95	.76	.722	.627
17-141	17	1.508	1.206	1.005	.804	.764	.663
18-141	18	1.59	1.272	1.06	.848	.806	.70
19-141	19	1.68	1.344	1.12	.896	.851	.739
20-141	20	1.763	1.41	1.175	.94	.893	.776

### 142 SERIES

C-J No.	Con-tacts	Net Each, Lots of					
		1-24	25-49	50-99	100-249	250-499	
1-142	1	\$0.173	\$0.138	\$0.115	\$0.092	\$0.087	\$0.076
2-142	2	.27	.216	.18	.144	.137	.119
3-142	3	.383	.306	.255	.204	.194	.168
4-142	4	.488	.39	.325	.26	.247	.215
5-142	5	.585	.468	.39	.312	.296	.257
6-142	6	.69	.552	.46	.368	.35	.304
7-142	7	.803	.642	.535	.428	.407	.353
8-142	8	.90	.72	.60	.48	.456	.396
9-142	9	1.005	.804	.67	.536	.509	.442
10-142	10	1.113</					





# Barrier Terminal Blocks



172 Series (6-172)



"Y" Solder Terminal



"W" Terminal



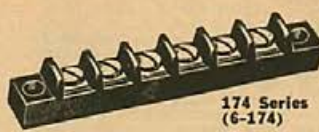
"3/4 W" Terminal



172 Series (3-172-W)



172 Series (6-172-Y)



174 Series (6-174)



500 Series (2-540)

## "JONES" 172 SERIES BARRIER TERMINAL BLOCKS WITH CONVENTIONAL TERMINALS

Double screw terminals mounted on  $\frac{1}{4}$ " centers with 2-56 x  $\frac{1}{4}$ " blinder head screws. Mounting holes,  $\frac{1}{8}$ " dia.

C-J No.	Con-tacts	Net Each, Lots of					
		1-24	25-49	50-99	100-249	250-499	500-999
2-172	2	\$0.428	\$0.342	\$0.285	\$0.228	\$0.217	\$0.188
3-172	3	.548	.438	.365	.292	.277	.241
4-172	4	.668	.534	.445	.356	.338	.294
5-172	5	.788	.63	.525	.42	.399	.347
6-172	6	.90	.72	.60	.48	.456	.396
7-172	7	1.02	.816	.68	.544	.517	.449
8-172	8	1.14	.912	.76	.608	.578	.502
9-172	9	1.26	1.008	.84	.672	.638	.554
10-172	10	1.38	1.104	.92	.736	.699	.607
11-172	11	1.508	1.206	1.005	.804	.764	.663
12-172	12	1.628	1.302	1.085	.868	.825	.716
13-172	13	1.74	1.392	1.16	.928	.882	.766
14-172	14	1.86	1.488	1.24	.992	.942	.818

### WITH "Y", "W" OR "3/4 W" TERMINALS

Series 172 barrier type terminal blocks also available with "Y", "W" or "3/4 W" terminals. For blocks with "W" terminals, change suffix "Y" to "W", for blocks with "3/4 W" terminals, change suffix "Y" to "3/4 W" (2-172-W, 2-172-3/4 W, etc.); same price.

C-J No.	Con-tacts	Net Each, Lots of					
		1-24	25-49	50-99	100-249	250-499	500-999
2-172-Y	2	\$0.48	\$0.384	\$0.32	\$0.256	\$0.243	\$0.211
3-172-Y	3	.63	.504	.42	.336	.319	.277
4-172-Y	4	.78	.624	.52	.416	.395	.343
5-172-Y	5	.93	.744	.62	.496	.471	.409
6-172-Y	6	1.08	.864	.72	.576	.547	.475
7-172-Y	7	1.23	.984	.82	.656	.623	.541
8-172-Y	8	1.38	1.104	.92	.736	.699	.607
9-172-Y	9	1.53	1.224	1.02	.816	.775	.673
10-172-Y	10	1.68	1.344	1.12	.896	.851	.739
11-172-Y	11	1.83	1.464	1.22	.976	.927	.805
12-172-Y	12	1.98	1.584	1.32	1.056	1.003	.871
13-172-Y	13	2.13	1.704	1.42	1.136	1.079	.937
14-172-Y	14	2.28	1.824	1.52	1.216	1.155	1.003

## "JONES" 174 SERIES BARRIER TERMINAL BLOCKS

Single screw terminals mounted on  $\frac{1}{4}$ " centers. Size,  $\frac{3}{4}$ " w. x  $\frac{1}{2}$ " h., overall. Brass blinder head screws, 4-40 x  $\frac{1}{4}$ ". Mounting holes,  $\frac{1}{8}$ " dia.

C-J No.	Con-tacts	Net Each, Lots of					
		1-24	25-49	50-99	100-249	250-499	500-999
2-174	2	\$0.18	\$0.144	\$0.12	\$0.096	\$0.091	\$0.079
3-174	3	.248	.198	.165	.132	.125	.109
4-174	4	.315	.252	.21	.168	.16	.136
5-174	5	.383	.306	.255	.204	.194	.168
6-174	6	.45	.36	.30	.24	.228	.198
7-174	7	.518	.414	.345	.276	.262	.228
8-174	8	.585	.468	.39	.312	.296	.257
9-174	9	.653	.522	.435	.348	.331	.287
10-174	10	.72	.576	.48	.384	.365	.317

## "JONES" 500 SERIES BARRIER TERMINAL BLOCKS

Barrier type terminal blocks designed for applications where electrical and mechanical performance requirements are especially critical. Closed bottoms eliminate additional insulating strips. Knockouts are molded into the base so that "Y" terminals can be accommodated if desired. Top-mounted marker strip available.

### 540 TERMINAL BLOCKS

Terminals are mounted on  $\frac{1}{4}$ " centers with 5-40 blinder head screws. Size,  $1\frac{1}{4}$ " w. x  $\frac{1}{4}$ " h. Creepage distance,  $\frac{1}{2}$ ". Rating: 2300 v. rms, 15 amps.

C-J No.	Con-tacts	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250-499
1-540	1	\$0.128	\$0.102	\$0.085	\$0.068	\$0.065
2-540	2	.195	.156	.13	.104	.099
3-540	3	.27	.216	.18	.144	.137
4-540	4	.345	.276	.23	.184	.175
5-540	5	.42	.336	.28	.224	.213
6-540	6	.488	.39	.325	.26	.247
7-540	7	.563	.45	.375	.30	.285
8-540	8	.638	.51	.425	.34	.323
9-540	9	.713	.57	.475	.38	.361
10-540	10	.788	.63	.525	.42	.399
11-540	11	.848	.678	.565	.452	.429
12-540	12	.923	.738	.615	.492	.467
13-540	13	.998	.798	.665	.532	.505
14-540	14	1.08	.864	.72	.576	.547

## 540 TERMINAL BLOCKS (CONT'D)

C-J No.	Con-tacts	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250-499
15-540	15	\$1.155	\$0.924	\$0.77	\$0.616	\$0.585
16-540	16	1.23	.984	.82	.656	.623
17-540	17	1.298	1.038	.865	.692	.657
18-540	18	1.373	1.098	.915	.732	.695
19-540	19	1.448	1.158	.965	.772	.733
20-540	20	1.515	1.212	1.01	.808	.768
21-540	21	1.59	1.272	1.06	.848	.806
22-540	22	1.665	1.332	1.11	.888	.844
23-540	23	1.74	1.392	1.16	.928	.882
24-540	24	1.808	1.446	1.205	.964	.916
25-540	25	1.883	1.506	1.255	1.004	.954
26-540	26	1.958	1.566	1.305	1.044	.992
27-540	27	2.033	1.626	1.355	1.084	1.03
28-540	28	2.10	1.686	1.405	1.12	1.06
29-540	29	2.175	1.74	1.45	1.16	1.102
30-540	30	2.25	1.80	1.50	1.20	1.14
31-540	31	2.325	1.86	1.55	1.24	1.178

## 541 TERMINAL BLOCKS

Terminals are mounted on  $\frac{1}{4}$ " centers with 6-32 blinder head screws. Size,  $1\frac{3}{4}$ " w. x  $\frac{1}{4}$ " h. Creepage distance,  $\frac{1}{2}$ ". Rating: 2800 v. rms, 20 amps.

C-J No.	Con-tacts	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250-499
1-541	1	\$0.165	\$0.132	\$0.11	\$0.088	\$0.084
2-541	2	.255	.204	.17	.136	.129
3-541	3	.345	.276	.23	.184	.175
4-541	4	.443	.354	.295	.236	.224
5-541	5	.54	.432	.36	.288	.274
6-541	6	.623	.498	.415	.332	.315
7-541	7	.728	.582	.485	.388	.369
8-541	8	.818	.654	.545	.436	.414
9-541	9	.908	.726	.605	.484	.46
10-541	10	1.005	.804	.67	.536	.509
11-541	11	1.095	.876	.73	.584	.555
12-541	12	1.185	.948	.79	.632	.60
13-541	13	1.29	1.032	.86	.688	.654
14-541	14	1.38	1.104	.92	.736	.699
15-541	15	1.47	1.176	.98	.784	.745
16-541	16	1.568	1.254	1.045	.836	.794
17-541	17	1.658	1.326	1.105	.884	.84
18-541	18	1.748	1.398	1.165	.932	.885
19-541	19	1.845	1.476	1.23	.984	.935
20-541	20	1.943	1.554	1.295	1.036	.984
21-541	21	2.033	1.626	1.355	1.084	1.03
22-541	22	2.123	1.698	1.415	1.132	1.075
23-541	23	2.213	1.77	1.475	1.18	1.121
24-541	24	2.31	1.848	1.54	1.232	1.17
25-541	25	2.40	1.92	1.604	1.28	1.216
26-541	26	2.49	1.992	1.66	1.328	1.262
27-541	27	2.58	2.064	1.72	1.376	1.307
28-541	28	2.67	2.136	1.78	1.424	1.353
29-541	29	2.768	2.214	1.845	1.476	1.402
30-541	30	2.858	2.286	1.905	1.524	1.448

## 542 TERMINAL BLOCKS

Terminals are mounted on  $\frac{1}{4}$ " centers with 8-32 blinder head screws. Size,  $1\frac{3}{4}$ " w. x  $\frac{1}{4}$ " h. Creepage distance,  $\frac{1}{2}$ ". Rating: 4000 v. rms, 30 amps.

C-J No.	Con-tacts	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250-499
1-542	1	\$0.188	\$0.15	\$0.125	\$0.10	\$0.095
2-542	2	.30	.24	.20	.16	.152
3-542	3	.42	.336	.28	.224	.213
4-542	4	.54	.432	.36	.288	.274
5-542	5	.645	.516	.43	.344	.327
6-542	6	.758	.606	.505	.404	.384
7-542	7	.885	.708	.59	.472	.448
8-542	8	.99	.792	.66	.528	.502
9-542	9	1.103	.882	.735	.588	.559
10-542	10	1.23	.984	.82	.656	.623
11-542	11	1.335	1.068	.89	.712	.676
12-542	12	1.455	1.164	.97	.776	.737
13-542	13	1.568	1.254	1.045	.836	.794
14-542	14	1.68	1.344	1.12	.896	.851
15-542	15	1.80	1.44	1.20	.96	.912
16-542	16	1.913	1.53	1.275	1.02	.969
17-542	17	2.025	1.62	1.35	1.08	1.026
18-542	18	2.145	1.716	1.43	1.144	1.087
19-542	19	2.258	1.806	1.505	1.204	1.144
20-542	20	2.37	1.896	1.58	1.264	1.201
21-542	21	2.49	1.992	1.66	1.328	1.262
22-542	22	2.603	2.082	1.735	1.388	1.319
23-542	23	2.715	2.172	1.81	1.448	1.376
24-542	24	2.835	2.268	1.89	1.512	1.436
25-542	25	2.948	2.358	1.965	1.572	1.493
26-542	26	3.06	2.448	2.04	1.632	1.55





# Marker and Fanning Strips

## MARKER STRIPS FOR BARRIER TERMINAL BLOCKS



MS-8-140



MSX-4-540 (Installed)

### 140 AND 160 SERIES MARKER STRIPS

For labelling terminal positions on barrier terminal blocks and insulating exposed portions of terminals from metallic mounting surface. Mounting holes correspond with those on appropriate barrier terminal block. Made of 1/2" vulcanized fiber and numbered sequentially from 1 with legible white numerals.

#### MARKER STRIPS FOR 140, 140W, 140-3/4 W, 164, 164W and 164-3/4 W

C-J No.	Term.	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250-499
MS-2-140	2	6.6c	5.3c	4.4c	3.5c	3.3c
MS-3-140	3	7.3c	5.8c	4.9c	3.9c	3.7c
MS-4-140	4	8c	6.4c	5.4c	4.3c	4.1c
MS-5-140	5	8.7c	7c	5.8c	4.6c	4.4c
MS-6-140	6	9.5c	7.6c	6.3c	5c	4.8c
MS-7-140	7	10.1c	8.1c	6.8c	5.4c	5.1c
MS-8-140	8	10.9c	8.7c	7.3c	5.8c	5.5c
MS-9-140	9	11.6c	9.2c	7.7c	6.2c	5.9c
MS-10-140	10	16.1c	12.8c	10.7c	8.6c	8.1c
MS-11-140	11	16.7c	13.4c	11.2c	8.9c	8.5c
MS-12-140	12	17.5c	14c	11.7c	9.3c	8.9c
MS-13-140	13	18.2c	14.5c	12.1c	9.7c	9.2c
MS-14-140	14	18.9c	15.1c	12.6c	10.1c	9.6c
MS-15-140	15	19.6c	15.7c	13.1c	10.4c	9.9c
MS-16-140	16	24.1c	19.3c	16.1c	12.8c	12.2c
MS-17-140	17	24.8c	19.8c	16.5c	13.2c	12.5c
MS-18-140	18	25.5c	20.4c	17c	13.6c	12.9c
MS-19-140	19	26.2c	20.9c	17.5c	14c	13.3c
MS-20-140	20	30.7c	24.5c	20.5c	16.4c	15.5c
MS-21-140	21	31.4c	25.1c	20.9c	16.7c	15.9c

#### MARKER STRIPS FOR 141, 141W AND 141-3/4 W

MS-2-141	2	7.1c	5.6c	4.7c	3.8c	3.6c
MS-3-141	3	8c	6.4c	5.4c	4.3c	4.1c
MS-4-141	4	9c	7.2c	6c	4.8c	4.6c
MS-5-141	5	9.9c	7.9c	6.6c	5.3c	5c
MS-6-141	6	10.9c	8.7c	7.3c	5.8c	5.5c
MS-7-141	7	11.9c	9.5c	7.9c	6.3c	6c
MS-8-141	8	12.8c	10.2c	8.5c	6.8c	6.5c
MS-9-141	9	13.7c	11c	9.2c	7.3c	7c
MS-10-141	10	18.4c	14.7c	12.3c	9.8c	9.3c
MS-11-141	11	19.4c	15.5c	12.9c	10.3c	9.8c
MS-12-141	12	20.3c	16.3c	13.6c	10.8c	10.3c
MS-13-141	13	21.2c	17c	14.2c	11.3c	10.8c
MS-14-141	14	22.2c	17.8c	14.8c	11.8c	11.3c
MS-15-141	15	26.9c	21.5c	18c	14.4c	13.6c
MS-16-141	16	27.8c	22.3c	18.6c	14.8c	14.1c
MS-17-141	17	28.8c	23c	19.2c	15.4c	14.6c
MS-18-141	18	29.8c	23.8c	19.9c	15.9c	15.1c
MS-19-141	19	34.4c	27.5c	23c	18.4c	17.4c
MS-20-141	20	35.4c	28.3c	23.6c	18.9c	17.9c

#### MARKER STRIPS FOR 142, 142W AND 142-3/4 W

MS-2-142	2	7.6c	6.1c	5.1c	4c	3.8c
MS-3-142	3	8.7c	7c	5.8c	4.6c	4.4c
MS-4-142	4	9.9c	7.9c	6.6c	5.3c	5c
MS-5-142	5	11.1c	8.9c	7.4c	5.9c	5.6c
MS-6-142	6	12.3c	9.8c	8.2c	6.6c	6.2c
MS-7-142	7	13.5c	10.8c	9c	7.2c	6.8c
MS-8-142	8	14.6c	11.7c	9.8c	7.8c	7.4c
MS-9-142	9	15.8c	12.7c	10.6c	8.4c	8c
MS-10-142	10	20.8c	16.6c	13.9c	11.1c	10.5c
MS-11-142	11	22c	17.6c	14.7c	11.7c	11.1c
MS-12-142	12	23.2c	18.5c	15.5c	12.4c	11.7c
MS-13-142	13	24.4c	19.5c	16.3c	13c	12.4c
MS-14-142	14	25.5c	20.4c	17c	13.6c	12.9c
MS-15-142	15	30.5c	24.4c	20.3c	16.2c	15.4c
MS-16-142	16	31.7c	25.3c	21.1c	16.8c	16c
MS-17-142	17	32.9c	26.3c	21.9c	17.5c	16.6c

### 500 SERIES MARKER STRIPS

For labelling terminal positions on "500" series barrier terminal blocks. Made of 1/2" XP Bakelite, 1/2" wide. Numbered sequentially from 1 with 1/2" legible white numerals. Mounted on top of terminal block as illustrated. Mounting screws furnished.

### SERIES 162 FANNING STRIPS FOR CONNECTING TO SERIES 142 BARRIER BLOCKS



Terminals are of .032" brass, cadmium plated. Bakelite strips furnished with a hole in either the right or left end for fastening the cable with a clamp or lacing twine. Simplex cable or harness wiring, assure positive connections. Terminals mounted on 1/2" Bakelite, 1/2" w. and on 1/4" cts. L, cable clamp on left, R, right. Fanning strips for 140, 141 series barrier blocks above.

C-J No.	C-J No.	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250-499
2-162-L	2-162-R	\$0.143	\$0.114	\$0.095	\$0.076	\$0.072
3-162-L	3-162-R	.188	.15	.125	.10	.095
4-162-L	4-162-R	.24	.192	.16	.128	.122
5-162-L	5-162-R	.293	.234	.195	.156	.148
6-162-L	6-162-R	.353	.282	.235	.188	.179

## MARKER STRIPS FOR 540

C-J No.	Term.	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250-499
MSX-2-540	2	11.3c	9c	7.5c	6c	5.7c
MSX-3-540	3	12c	9.6c	8c	6.4c	6.1c
MSX-4-540	4	12c	9.6c	8c	6.4c	6.1c
MSX-5-540	5	12c	9.6c	8c	6.4c	6.1c
MSX-6-540	6	12.8c	10.2c	8.5c	6.8c	6.5c
MSX-7-540	7	12.8c	10.2c	8.5c	6.8c	6.5c
MSX-8-540	8	12.8c	10.2c	8.5c	6.8c	6.5c
MSX-9-540	9	12.8c	10.2c	8.5c	6.8c	6.5c
MSX-10-540	10	16.5c	13.2c	11c	8.8c	8.4c
MSX-11-540	11	17.3c	13.8c	11.5c	9.2c	8.7c
MSX-12-540	12	17.3c	13.8c	11.5c	9.2c	8.7c
MSX-13-540	13	17.3c	13.8c	11.5c	9.2c	8.7c
MSX-14-540	14	18.8c	15c	12.5c	10c	9.5c
MSX-15-540	15	22.5c	18c	15c	12c	11.4c
MSX-16-540	16	22.5c	18c	15c	12c	11.4c
MSX-17-540	17	24.8c	19.8c	16.5c	13.2c	12.5c
MSX-18-540	18	26.3c	21c	17.5c	14c	13.3c
MSX-19-540	19	26.3c	21c	17.5c	14c	13.3c
MSX-20-540	20	30c	24c	20c	16c	15.2c
MSX-21-540	21	30c	24c	20c	16c	15.2c
MSX-22-540	22	31.5c	25.2c	21c	16.8c	16c
MSX-23-540	23	31.5c	25.2c	21c	16.8c	16c
MSX-24-540	24	31.5c	25.2c	21c	16.8c	16c
MSX-25-540	25	35.3c	28.2c	23.5c	18.8c	17.9c
MSX-26-540	26	35.3c	28.2c	23.5c	18.8c	17.9c
MSX-27-540	27	35.3c	28.2c	23.5c	18.8c	17.9c
MSX-28-540	28	35.3c	28.2c	23.5c	18.8c	17.9c
MSX-29-540	29	35.3c	28.2c	23.5c	18.8c	17.9c
MSX-30-540	30	42c	33.6c	28c	22.4c	21.3c
MSX-31-540	31	42c	33.6c	28c	22.4c	21.3c

## MARKER STRIPS FOR 541

MSX-2-541	2	12c	9.6c	8c	6.4c	6.1c
MSX-3-541	3	12c	9.6c	8c	6.4c	6.1c
MSX-4-541	4	12.8c	10.2c	8.5c	6.8c	6.5c
MSX-5-541	5	12.8c	10.2c	8.5c	6.8c	6.5c
MSX-6-541	6	12.8c	10.2c	8.5c	6.8c	6.5c
MSX-7-541	7	12.8c	10.2c	8.5c	6.8c	6.5c
MSX-8-541	8	13.5c	10.8c	9c	7.2c	6.8c
MSX-9-541	9	13.5c	10.8c	9c	7.2c	6.8c
MSX-10-541	10	17.3c	13.8c	11.5c	9.2c	8.7c
MSX-11-541	11	17.3c	13.8c	11.5c	9.2c	8.7c
MSX-12-541	12	18.8c	15c	12.5c	10c	9.5c
MSX-13-541	13	18.8c	15c	12.5c	10c	9.5c
MSX-14-541	14	18.8c	15c	12.5c	10c	9.5c
MSX-15-541	15	26.3c	21c	17.5c	14c	13.3c
MSX-16-541	16	26.3c	21c	17.5c	14c	13.3c
MSX-17-541	17	26.3c	21c	17.5c	14c	13.3c
MSX-18-541	18	26.3c	21c	17.5c	14c	13.3c
MSX-19-541	19	27.8c	22.2c	18.5c	14.8c	14.1c
MSX-20-541	20	31.5c	25.2c	21c	16.8c	16c
MSX-21-541	21	31.5c	25.2c	21c	16.8c	16c
MSX-22-541	22	31.5c	25.2c	21c	16.8c	16c
MSX-23-541	23	31.5c	25.2c	21c	16.8c	16c
MSX-24-541	24	31.5c	25.2c	21c	16.8c	16c
MSX-25-541	25	35.3c	28.2c	23.5c	18.8c	17.9c
MSX-26-541	26	38.3c	30.6c	25.5c	20.4c	19.4c
MSX-27-541	27	38.3c	30.6c	25.5c	20.4c	19.4c
MSX-28-541	28	38.3c	30.6c	25.5c	20.4c	19.4c
MSX-29-541	29	38.3c	30.6c	25.5c	20.4c	19.4c
MSX-30-541	30	42c	33.6c	28c	22.4c	21.3c

## MARKER STRIPS FOR 542

MSX-2-542	2	12c	9.6c	8c	6.4c	6.1c
MSX-3-542	3	12.8c	10.2c	8.5c	6.8c	6.5c
MSX-4-542	4	12.8c	10.2c	8.5c	6.8c	6.5c
MSX-5-542	5	12.8c	10.2c	8.5c	6.8c	6.5c
MSX-6-542	6	12.8c	10.2c	8.5c	6.8c	6.5c
MSX-7-542	7	13.5c	10.8c	9c	7.2c	6.8c
MSX-8-542	8	13.5c	10.8c	9c	7.2c	6.8c
MSX-9-542	9	15c	12c	10c	8c	7.6c
MSX-10-542	10	18.8c	15c	12.5c	10c	9.5c
MSX-11-542	11	18.8c	15c	12.5c	10c	9.5c
MSX-12-542	12	22.5c	18c	15c	12c	11.4c
MSX-13-542	13	22.5c	18c	15c	12c	11.4c
MSX-14-542	14	22.5c	18c	15c	12c	11.4c
MSX-15-542	15	27.8c	22.2c	18.5c	14.8c	14.1c
MSX-16-542	16	27.8c	22.2c	18.5c	14.8c	14.1c
MSX-17-542	17	27.8c	22.2c	18.5c	14.8c	14.1c
MSX-18-542	18	27.8c	22.2c	18.5c	14.8c	14.1c
MSX-19-542	19	27.8c	22.2c	18.5c	14.8c	14.1c
MSX-20-542	20	34.5c	27.6c	23c	18.4c	17.9c
MSX-21-542	21	34.5c	27.6c	23c	18.4c	17.9c
MSX-22-542	22	34.5c	27.6c	23c	18.4c	17.9c
MSX-23-542	23	34.5c	27.6c	23c	18.4c	17.9c
MSX-24-542	24	34.5c	27.6c	23c	18.4c	17.9c
MSX-25-542	25	38.3c	30.6c	25.5c	20.4c	19.4c
MSX-26-542	26	38.3c	30.6c	25.5c	20.4c	19.4c

C-J No.	C-J No.	Net Each, Lots of				
		1-24	25-49	50-99	100-249	250-499
7-162						



# Amphenol MS Connectors



Meet MIL-C-5015D specifications; interchangeable with units made to meet previous specifications. **Finish:** Cadmium-plated aluminum with olive drab chromate conversion coating; non-reflective, corrosion-resistant. **Inserts:** Molded diallyl phthalate; offers dimensional stability, high insulation resistance, high arc resistance. **Contacts:** Non-rotating, silver-plated; pre-tinned solder pockets. **Coupling Rings:** Made from solid aluminum bar stock. Other MS/AN connectors for potting and pressurizing are available; write for complete literature.

**Note:** For W, X, Y or Z polarization, add 5c to price shown.

**Type 3100A:** Wall receptacle with mounting flange; with AN3057 cable clamp.

**Type 3101A:** Cable receptacle. Provides for detachable splice in cable or conduit.

**Type 3102A:** Panel receptacle that mounts on chassis or panel. For open type wiring.

**Type 3106A:** Straight plug with solid back shell.

**Type 3106B:** Same but with split back shell.

**Type 3108A:** Angle plug. Solid back shell.

**Type 3108B:** Same, but with split back shell.

Insert	Net Each, Lots of 1-9* Shell Style						
	3100A	3101A	3102A	3106A	3106B	3108A	3108B
8S-1P	\$1.31	\$1.26	\$0.84	\$1.14	.....	\$1.53	.....
8S-1S	1.29	1.25	.83	1.13	.....	1.52	.....
10S-2P	1.16	.99	.59	1.01	.....	1.71	\$1.05
10S-2S	1.16	.99	.59	1.01	.....	1.71	1.05
10S1-3P	1.01	.96	.71	1.01	.....	1.71	.....
10S1-3S	1.01	.96	.71	.98	.....	1.77	1.22
10S1-4P	.93	.87	.63	.98	.....	1.77	.....
10S1-4S	.93	.87	.63	.95	.....	1.74	1.19
12-5P	1.17	1.32	.71	1.17	.....	1.98	1.28
12-5S	1.35	1.50	.89	1.35	.....	2.16	1.46
12S-1P	1.04	1.16	.66	1.10	.....	2.10	1.44
12S-1S	1.10	1.20	.71	1.14	.....	2.15	1.49
12S-2P	1.04	1.16	.66	1.10	.....	2.10	1.44
12S-2S	1.10	1.20	.71	1.14	.....	2.15	1.49
12S-3P	.96	1.08	.59	1.01	.....	2.01	1.35
12S-3S	1.01	1.13	.63	1.05	.....	2.07	1.41
12S-4P	1.04	1.16	.66	1.10	.....	2.10	1.44
12S-4S	1.01	1.13	.63	1.05	.....	2.07	1.41
12S-6P	3.26	3.36	2.87	3.30	.....	4.31	3.65
12S-6S	3.44	3.56	3.06	3.48	.....	4.49	3.83
12S1-844P	3.44	3.56	1.32	3.48	.....	4.49	.....
12S1-844S	3.44	3.56	1.32	3.48	.....	3.69	.....
14-3P	1.25	1.46	.93	1.34	.....	2.15	1.98
14-3S	1.44	1.65	1.13	1.53	.....	2.34	2.18
14S-1P	1.05	1.28	.68	1.13	\$1.41	1.94	1.19
14S-1S	1.11	1.32	.72	1.17	1.46	1.98	1.25
14S-2P	1.05	1.28	.68	1.13	1.41	1.94	1.19
14S-2S	1.16	1.37	.78	1.22	1.50	2.03	1.29
14S-4P	.99	1.20	.62	1.05	1.34	1.86	1.13
14S-4S	1.02	1.25	.65	1.10	1.37	1.91	1.16
14S-5P	1.19	1.41	.81	1.26	1.53	2.07	1.32
14S-5S	1.22	1.44	.84	1.29	1.58	2.10	1.35
14S-6P	1.31	1.52	.93	1.37	1.65	2.18	1.44
14S-6S	1.31	1.52	.93	1.37	1.65	2.18	1.44
14S-7P	1.05	1.28	.68	1.13	1.41	1.94	1.19
14S-7S	1.11	1.32	.72	1.17	1.46	1.98	1.25
14S-9P	1.01	1.22	.63	1.08	1.35	1.88	1.14
14S-9S	1.04	1.26	.66	1.11	1.38	1.92	1.17
14S-10P	1.14	1.35	.77	1.20	1.49	2.01	1.28
14S-10S	1.25	1.46	.86	1.31	1.59	2.12	1.37
14S-11P	1.14	1.35	.77	1.20	1.49	2.01	1.28
14S-11S	1.25	1.46	.86	1.31	1.59	2.12	1.37
14S-12P	1.14	1.35	.77	1.20	1.49	2.01	1.28
14S-12S	1.19	1.41	.81	1.26	1.53	2.07	1.32
16-2P	1.20	1.44	.81	1.41	1.53	2.54	1.53
16-2S	1.37	1.61	.98	1.58	1.53	2.70	1.70
16-7P	1.53	1.77	1.14	1.74	1.53	2.87	1.86
16-7S	1.68	1.92	1.29	1.88	1.53	3.02	2.01
16-9P	1.38	1.62	.99	1.59	1.53	2.73	1.71
16-9S	1.47	1.70	1.08	1.67	1.53	2.81	1.80
16-10P	1.31	1.53	.92	1.50	1.53	2.64	1.64
16-10S	1.55	1.79	1.16	1.76	1.53	2.90	1.88
16-11P	1.19	1.43	.80	1.38	1.53	2.52	1.52
16-11S	1.38	1.62	.99	1.59	1.53	2.73	1.71
16-12P	1.59	1.82	1.19	1.79	1.53	2.93	1.92
16-12S	1.83	2.07	1.44	2.03	1.53	3.17	2.16
16-13P	3.62	3.84	3.23	3.81	1.53	4.95	3.95
16-13S	4.23	4.46	3.83	4.43	1.53	5.57	4.56
16S-1P	1.31	1.47	.89	1.37	1.67	2.73	1.58
16S-1S	1.38	1.55	.98	1.46	1.76	2.81	1.65
16S-3P	1.08	1.25	.66	1.14	1.44	2.49	1.34
16S-3S	1.16	1.32	.75	1.22	1.52	2.58	1.43
16S-4P	1.22	1.38	.81	1.29	1.59	2.64	1.49
16S-4S	1.26	1.43	.84	1.32	1.62	2.67	1.52
16S-5P	1.22	1.38	.81	1.29	1.59	2.64	1.49
16S-5S	1.29	1.46	.87	1.35	1.65	2.70	1.55
16S-6P	1.31	1.47	.89	1.37	1.67	2.73	1.58
16S-6S	1.35	1.52	.95	1.43	1.71	2.78	1.62
16S-8P	1.26	1.43	.84	1.32	1.62	2.67	1.52
16S-8S	1.32	1.49	.92	1.38	1.68	2.75	1.59
16S-15P	1.31	1.47	.89	1.37	1.67	2.73	1.58
16S-15S	1.34	1.50	.93	1.41	1.70	2.76	1.61
18-1P	1.65	1.94	1.17	1.83	2.27	3.35	2.15
18-1S	1.86	2.15	1.38	2.04	2.48	3.57	2.36
18-3P	1.32	1.61	.84	1.50	1.94	3.02	1.82
18-3S	1.55	1.83	1.08	1.74	2.16	3.26	2.04

Insert	Net Each, Lots of 1-9* Shell Style						
	3100A	3101A	3102A	3106A	3106B	3108A	3108B
18-4P	\$1.35	\$1.64	\$0.87	\$1.53	\$1.97	\$3.06	\$1.85
18-4S	1.47	1.76	.99	1.65	2.09	3.17	1.97
18-5P	1.82	2.10	1.34	2.00	2.43	3.51	2.31
18-5S	1.55	1.83	1.08	1.74	2.16	3.26	2.04
18-6P	1.55	1.83	1.08	1.74	2.16	3.26	2.04
18-6S	1.86	2.15	1.38	2.04	2.48	3.57	2.36
18-7P	1.35	1.64	.87	1.53	1.97	3.06	1.85
18-7S	1.62	1.91	1.14	1.80	2.24	3.32	2.12
18-8P	1.64	1.92	1.16	1.82	2.25	3.33	2.13
18-8S	1.79	2.07	1.31	1.97	2.40	3.48	2.28
18-9P	1.59	1.86	1.11	1.77	2.19	3.29	2.09
18-9S	1.77	2.04	1.29	1.95	2.37	3.47	2.27
18-10P	1.50	1.79	1.02	1.68	2.12	3.20	2.00
18-10S	1.88	2.16	1.41	2.07	2.49	3.59	2.37
18-11P	1.67	1.95	1.19	1.85	2.28	3.36	2.16
18-11S	1.86	2.15	1.38	2.04	2.48	3.57	2.36
18-12P	1.58	1.85	1.10	1.76	2.18	3.27	2.07
18-12S	1.71	2.00	1.25	1.91	2.33	3.42	2.21
18-13P	1.71	2.00	1.25	1.91	2.33	3.42	2.21
18-13S	2.04	2.33	1.58	2.24	2.66	3.75	2.54
18-14P	1.58	1.85	1.10	1.76	2.18	3.27	2.07
18-14S	2.00	2.28	1.52	2.18	2.61	3.69	2.49
18-15P	6.29	6.57	5.81	6.47	6.90	7.98	6.78
18-15S	7.41	7.70	6.93	7.59	8.03	9.11	7.91
18-16P	1.52	1.80	1.04	1.70	2.13	3.23	2.01
18-16S	1.79	2.07	1.31	1.97	2.40	3.48	2.28
18-17P	1.67	1.95	1.19	1.85	2.28	3.36	2.16
18-17S	1.85	2.13	1.37	2.03	2.46	3.56	2.34
18-18P	1.67	1.95	1.19	1.85	2.28	3.36	2.16
18-18S	1.85	2.13	1.37	2.03	2.46	3.56	2.34
18-19P	2.31	2.60	1.83	2.49	2.93	4.01	2.81
18-19S	2.09	2.36	1.61	2.27	2.69	3.78	2.58
18-20P	1.43	1.70	.95	1.61	2.03	3.12	1.92
18-20S	1.64	1.92	1.16	1.82	2.25	3.33	2.13
18-22P	1.46	1.74	.98	1.64	2.07	3.15	1.95
18-22S	1.50	1.79	1.02	1.68	2.12	3.20	2.00
18-23P	1.74	2.01	1.26	1.92	2.34	3.44	2.24
18-23S	1.95	2.24	1.47	2.13	2.57	3.65	2.45
18-24P	1.74	2.01	1.26	1.92	2.34	3.44	2.24
18-24S	1.95	2.24	1.47	2.13	2.57	3.65	2.45
18-29P	1.52	1.80	1.04	1.70	2.13	3.23	2.01
18-29S	1.71	2.00	1.25	1.91	2.33	3.42	2.21
18-404P	3.65	3.93	3.17	3.83	4.26	5.34	4.14
18-404S	4.16	4.44	3.68	4.34	4.77	5.87	4.65
18-420P	2.67	3.09	2.49	3.41	3.77	5.12	3.80
18-420S	3.03	3.29	2.69	3.60	3.96	5.31	3.99
20-2P	2.00	2.28	1.55	2.30	2.52	4.05	2.61
20-2S	2.24	2.51	1.79	2.52	2.76	4.28	2.84
20-3P	1.61	1.88	1.16	1.91	2.13	3.65	2.21
20-3S	2.04	2.33	1.61	2.34	2.58	4.10	2.66
20-4P	1.62	1.91	1.17	1.92	2.15	3.66	2.24
20-4S	1.86	2.15	1.43	2.16	2.40	3.92	2.48
20-5P	1.52	1.80	1.08	1.82	2.04	3.57	2.13
20-5S	1.65	1.94	1.20	1.95	2.18	3.69	2.27
20-6P	1.49	1.77	1.04	1.79	2.01	3.33	2.10
20-6S	1.65	1.94	1.20	1.95	2.18	3.69	2.27
20-7P	1.62	1.91	1.17	1.92	2.15	3.66	2.24
20-7S	1.83	2.12	1.38	2.13	2.36	3.89	2.45
20-8P	1.50	1.78	1.05	1.80	2.00	3.48	2.19
20-8S	2.31	2.60	1.86	2.61	2.84	4.35	2.93
20-9P	1.95	2.24	1.50	2.25	2.48	3.99	2.57
20-9S	2.19	2.48	1.76	2.49	2.73	4.25	2.81
20-10P	2.09	2.36	1.64	2.37	2.61	4.13	2.69
20-11S	3.35	3.63	2.91	3.65	3.89	5.40	3.96
20-12P	1.88	2.16	1.44	2.18	2.42	3.93	2.49
20-12S	2.15	2.43	1.70	2.45	2.67	4.19	2.76
20-13P	1.47	1.76	1.02	1.77	2.00	3.51	2.09
20-13S	2.21	2.49	1.77	2.51	2.75	4.26	2.82
20-14P	2.03	2.31	1.59	2.33	2.57	4.08	2.64
20-14S	2.63	2.91	2.18	2.93			





# MS Connectors

Net Each, Lots of 1-9\*  
Shell Style

Net Each, Lots of 1-9\*  
Shell Style

Insert	Net Each, Lots of 1-9* Shell Style							Insert	Net Each, Lots of 1-9* Shell Style						
	3100A	3101A	3102A	3106A	3106B	3108A	3108B		3100A	3101A	3102A	3106A	3106B	3108A	3108B
20-18P	\$ 1.98	\$ 2.27	\$ 1.53	\$ 2.28	\$ 2.51	\$ 4.02	\$ 2.60	24-12P	\$3.09	\$3.30	\$2.51	\$3.47	\$3.72	\$ 5.54	\$3.57
20-18S	2.19	2.48	1.76	2.49	2.73	4.25	2.81	24-12S	3.75	3.96	3.17	4.13	4.38	6.20	4.23
20-19P	2.01	2.30	1.58	2.31	2.54	4.07	2.63	24-14P	2.78	2.99	2.19	3.15	3.41	5.22	3.26
20-19S	2.52	2.81	2.09	2.82	3.06	4.58	3.14	24-14S	3.57	3.78	2.99	3.95	4.19	6.00	4.05
20-20P	2.07	2.34	1.62	2.36	2.60	4.11	2.67	24-16P	2.52	2.75	1.95	2.91	3.15	4.97	3.00
20-20S	2.52	2.81	2.09	2.82	3.06	4.58	3.14	24-16S	2.99	3.20	2.42	3.36	3.62	5.43	3.47
20-21P	1.80	2.09	1.35	2.10	2.33	3.84	2.42	24-17P	2.10	2.31	1.52	2.48	2.73	4.55	2.58
20-21S	2.01	2.30	1.58	2.31	2.54	4.07	2.63	24-17S	2.30	2.51	1.71	2.67	2.93	4.74	2.78
20-22P	2.27	2.54	1.82	2.57	2.79	4.31	2.87	24-18P	1.98	2.19	1.41	2.36	2.61	4.43	2.46
20-22S	2.69	2.97	2.25	2.99	3.23	4.74	3.30	24-18S	3.20	3.42	2.63	3.59	3.83	5.64	3.68
20-23P	1.82	2.10	1.37	2.12	2.34	3.86	2.43	24-19P	2.49	2.70	1.92	2.87	3.12	4.94	2.97
20-23S	2.18	2.46	1.74	2.48	2.70	4.23	2.79	24-19S	2.64	2.85	2.07	3.02	3.27	5.09	3.12
20-24P	1.95	2.24	1.50	2.25	2.48	3.99	2.57	24-20P	2.46	2.67	1.88	2.84	3.09	4.91	2.94
20-24S	2.33	2.61	1.88	2.63	2.85	4.38	2.94	24-20S	2.52	2.75	1.95	2.91	3.15	4.97	3.00
20-27P	1.83	2.12	1.38	2.13	2.36	3.89	2.45	24-21P	2.46	2.67	1.88	2.84	3.09	4.91	2.94
20-27S	2.18	2.46	1.74	2.48	2.70	4.23	2.79	24-21S	2.78	2.99	2.19	3.15	3.41	5.22	3.26
20-29P	1.98	2.27	1.53	2.28	2.51	4.02	2.60	24-22P	2.79	3.00	2.21	3.17	3.42	5.24	3.27
20-29S	2.40	2.67	1.95	2.69	2.93	4.44	3.00	24-22S	3.53	3.75	2.96	3.92	4.16	5.97	4.01
20-33P	2.00	2.28	1.55	2.30	2.52	4.05	2.61	24-23P	2.70	2.93	2.13	3.09	3.33	5.15	3.18
20-33S	2.19	2.48	1.76	2.49	2.73	4.25	2.81	24-23S	3.32	3.53	2.75	3.69	3.95	5.76	3.80
22-1P	2.00	2.18	1.44	2.36	2.63	4.05	2.52	24-24P	2.66	2.87	2.09	3.03	3.29	5.10	3.14
22-1S	2.42	2.60	1.85	2.78	3.03	4.46	2.94	24-24S	3.42	3.63	2.84	3.80	4.05	5.87	3.90
22-2P	2.18	2.36	1.62	2.54	2.81	4.23	2.70	24-27P	2.24	2.45	1.65	2.61	2.85	4.67	2.70
22-2S	2.61	2.79	2.04	2.97	3.24	4.65	3.14	24-27S	2.31	2.52	1.74	2.69	2.94	4.76	2.79
22-3P	2.34	2.52	1.79	2.70	2.97	4.40	2.87	24-28P	2.66	2.87	2.09	3.03	3.29	5.10	3.14
22-3S	2.45	2.63	1.88	2.81	3.08	4.49	2.97	24-28S	3.14	3.35	2.57	3.51	3.77	5.58	3.62
22-4P	2.21	2.40	1.65	2.58	2.84	4.26	2.75	24-768P	2.97	3.18	2.40	3.35	3.60	5.42	3.45
22-4S	2.82	3.00	2.27	3.18	3.45	4.88	3.35	24-768S	4.16	4.38	3.59	4.55	4.79	6.60	4.64
22-5P	1.98	2.16	1.43	2.34	2.61	4.02	2.51	24-835P	2.33	2.54	1.76	2.70	2.96	4.77	2.81
22-5S	2.49	2.67	1.94	2.85	3.12	4.55	3.02	24-835S	2.93	3.14	2.34	3.30	3.56	5.37	3.41
22-6P	2.13	2.31	1.58	2.49	2.76	4.17	2.66	28-1P	3.39	3.78	2.63	3.95	3.95	5.93	3.89
22-6S	2.48	2.66	1.92	2.84	3.11	4.52	3.00	28-1S	4.26	4.65	3.50	4.82	4.82	6.80	4.76
22-7P	2.16	2.34	1.61	2.52	2.79	4.22	2.69	28-2P	2.66	3.06	1.91	3.23	3.23	5.20	3.44
22-7S	2.60	2.78	2.03	2.96	3.23	4.64	3.14	28-2S	3.94	4.33	3.27	4.59	3.59	5.48	3.44
22-8P	1.70	1.87	1.18	2.07	2.33	3.75	2.42	28-3P	2.82	3.21	2.07	3.50	3.50	5.37	3.37
22-8S	2.13	2.31	1.58	2.49	2.76	4.17	2.66	28-3S	3.33	3.74	2.58	3.90	3.90	5.85	3.83
22-9P	1.80	1.98	1.25	2.16	2.43	3.84	2.33	28-4P	2.67	3.08	1.92	3.24	3.24	5.22	3.17
22-9S	2.27	2.45	1.70	2.63	2.90	4.31	2.79	28-4S	2.87	3.27	2.12	3.44	3.44	5.42	3.36
22-10P	1.76	1.94	1.19	2.12	2.37	3.80	2.28	28-5P	3.32	3.72	2.57	3.89	3.89	5.87	3.81
22-10S	1.95	2.13	1.38	2.31	2.58	3.99	2.48	28-5S	3.98	4.38	3.23	4.55	4.55	6.53	4.47
22-11P	1.62	1.80	1.05	1.98	2.25	3.66	2.15	28-6P	3.69	4.10	2.94	4.26	4.26	6.24	4.19
22-11S	1.85	2.03	1.29	2.21	2.48	3.90	2.37	28-6S	4.64	5.04	3.89	5.21	5.21	7.19	5.13
22-12P	2.19	2.37	1.64	2.57	2.82	4.25	2.73	28-7P	2.99	3.39	2.24	3.56	3.56	5.54	3.48
22-12S	2.79	2.97	2.24	3.15	3.42	4.83	3.32	28-7S	3.57	3.96	2.81	4.13	4.13	6.11	4.07
22-13P	2.00	2.18	1.44	2.36	2.63	4.05	2.52	28-8P	2.78	3.17	2.01	3.33	3.33	5.31	3.27
22-13S	2.19	2.37	1.64	2.57	2.82	4.25	2.73	28-8S	3.12	3.51	2.36	3.68	3.68	5.66	3.62
22-14P	2.19	2.37	1.64	2.57	2.82	4.25	2.73	28-9P	2.84	3.24	2.09	3.41	3.41	5.39	3.33
22-14S	2.63	2.81	2.07	2.99	3.26	4.67	3.15	28-9S	3.18	3.59	2.43	3.75	3.75	5.73	3.68
22-15P	2.21	2.40	1.65	2.58	2.84	4.26	2.75	28-10P	3.81	4.22	3.06	4.38	4.38	6.36	4.31
22-15S	2.63	2.81	2.07	2.99	3.26	4.67	3.15	28-10S	4.89	5.28	4.13	5.45	5.45	7.43	5.39
22-16P	2.15	2.33	1.59	2.51	2.78	4.19	2.67	28-11P	3.08	3.47	2.31	3.63	3.63	5.61	3.57
22-16S	2.42	2.60	1.85	2.78	3.03	4.46	2.81	28-11S	3.63	4.02	2.87	4.19	4.19	6.17	4.13
22-17P	2.03	2.21	1.47	2.40	2.66	4.08	2.57	28-12P	3.11	3.50	2.34	3.66	3.66	5.64	3.60
22-17S	2.43	2.61	1.86	2.79	3.06	4.47	2.95	28-12S	3.69	4.10	2.94	4.26	4.26	6.24	4.19
22-18P	1.83	2.07	1.32	2.25	2.51	3.93	2.42	28-13P	3.18	3.59	2.43	3.75	3.75	5.73	3.68
22-18S	2.04	2.24	1.49	2.42	2.67	4.10	2.58	28-13S	3.78	4.17	3.02	4.34	4.34	6.32	4.28
22-19P	2.51	2.69	1.95	2.87	3.14	4.56	3.03	28-14P	2.94	3.33	2.18	3.50	3.50	5.48	3.44
22-19S	2.49	2.67	1.94	2.85	3.12	4.55	3.02	28-14S	3.24	3.63	2.48	3.80	3.80	5.78	3.74
22-20P	1.95	2.13	1.38	2.31	2.58	3.99	2.48	28-15P	3.60	3.99	2.84	4.16	4.16	6.14	4.10
22-20S	2.33	2.51	1.77	2.69	2.96	4.38	2.85	28-15S	4.14	4.55	3.39	4.71	4.71	6.69	4.64
22-21P	2.36	2.54	1.80	2.73	2.99	4.41	2.90	28-16P	3.23	3.62	2.46	3.78	3.78	5.76	3.72
22-21S	2.70	2.90	2.15	3.08	3.33	4.76	3.24	28-16S	3.48	3.89	2.73	4.05	4.05	6.03	3.98
22-22P	2.58	2.76	2.01	2.94	3.20	4.62	3.11	28-17P	2.63	3.02	1.86	3.18	3.18	5.16	3.12
22-22S	3.15	3.33	2.60	3.51	3.78	5.21	3.68	28-17S	3.20	3.60	2.45	3.77	3.77	5.75	3.69
22-23P	2.33	2.51	1.77	2.69	2.96	4.38	2.85	28-18P	2.99	3.39	2.24	3.56	3.56	5.54	3.48
22-23S	2.99	3.17	2.43	3.35	3.62	5.04	3.51	28-18S	3.24	3.63	2.48	3.80	3.80	5.78	3.74
22-24P	1.86	2.04	1.31	2.24	2.49	3.92	2.40	28-19P	2.73	3.12	1.97	3.29	3.29	5.27	3.23
22-24S	2.15	2.33	1.59	2.51	2.78	4.19	2.67	28-19S	3.26	3.65	2.49	3.81	3.81	5.79	3.75
22-26P	2.07	2.25	1.50	2.43	2.69	4.11	2.60	28-20P	3.20	3.60	2.45	3.77	3.77	5.75	3.69
22-26S	2.36	2.54	1.80	2.73	2.99	4.41	2.90	28-20S	3.51	3.92	2.76	4.08	4.08	6.06	4.01
22-27P	2.16	2.34	1.61	2.52	2.79	4.22	2.69	28-21P	3.63	4.02	2.87	4.19	4.19	6.17	4.13
22-27S	2.66	2.84	2.10	3.02	3.29	4.71	3.18	28-21S	4.28	4.67	3.51	4.83	4.83	6.81	4.77
22-28P	2.25	2.43	1.68	2.61	2.87	4.29	2.75	28-22P	3.74	4.13	2.97	4.29	4.29	6.27	4.23
22-28S	3.03	3.21	2.48	3.41	3.67	5.09	3.57	28-22S	4.47	4.86	3.72	5.04	5.04	7.02	4.97
22-29P	2.25	2.43	1.68	2.61	2.87	4.29	2.75	28-766P	4.19	4.59	3.44	4.76	4.76	6.74	4.68
22-29S	2.57	2.75	2.00	2.93	3.18	4.61	3.09	28-766S	5.24	5.63	4.47	5.79	5.79	7.77	5.73
22-33P	2.03	2.21	1.47	2.40	2.66	4.08	2.57	32-1P	4.32	4.49	3.26	5.01	4.97	7.62	5.18
22-33S	2.16	2.34	1.61	2.52	2.79	4.22	2.69	32-1S	5.31	5.48	4.25	6.00	5.96	8.61	6.17
22-34P	1.86														





# MS and AN Connectors

## MS CONNECTORS (CONTINUED)

Insert	Net Each, Lots of 1-9* Shell Style						
	3100A	3101A	3102A	3106A	3106B	3108A	3108B
32-15P	\$ 5.45	\$ 5.61	\$ 4.38	\$ 6.14	\$ 6.09	\$ 8.75	\$ 6.30
32-15S	5.78	5.94	4.71	6.47	6.42	9.08	6.63
32-17P	5.28	5.45	4.22	5.97	5.93	8.58	6.14
32-17S	5.78	5.94	4.71	6.47	6.42	9.08	6.63
32-414P	5.75	5.91	4.67	6.44	6.39	9.05	6.60
32-414S	7.64	7.80	6.57	8.34	8.28	10.94	8.51
36-1P	5.45	5.75	4.05	7.77	5.87	8.91	6.20
36-1S	6.56	6.86	5.15	8.88	6.96	10.02	7.29
36-2P	5.54	5.82	4.13	7.86	5.94	9.00	6.27
36-2S	7.10	7.40	5.70	9.42	7.52	10.56	7.85
36-3P	5.99	6.29	4.59	8.31	6.41	9.45	6.74
36-3S	7.76	8.06	6.36	10.08	8.18	11.22	8.51
36-4P	5.94	6.24	4.55	8.27	6.36	9.41	6.69
36-4S	7.10	7.40	5.70	9.42	7.52	10.56	7.85
36-5P	7.41	7.71	6.00	9.74	7.82	10.88	8.15
36-5S	8.87	9.17	7.46	11.19	9.27	12.33	9.60
36-6P	7.35	7.64	5.94	9.68	7.76	10.82	8.09
36-6S	9.08	9.38	7.68	11.40	9.50	12.54	9.83
36-7P	5.94	6.24	4.55	8.27	6.36	9.41	6.69
36-7S	6.59	6.89	5.18	8.91	6.99	10.05	7.32
36-8P	5.79	6.09	4.40	8.12	6.21	9.26	6.54
36-8S	6.21	6.50	4.80	8.54	6.62	9.68	6.95
36-9P	6.65	6.95	5.25	8.97	7.07	10.11	7.40
36-9S	8.13	8.43	6.74	10.46	8.55	11.60	8.88
36-10P	5.45	5.75	4.05	7.77	5.87	8.91	6.20
36-10S	6.21	6.50	4.80	8.54	6.62	9.68	6.95
36-13P	4.62	4.92	3.23	6.95	5.04	8.09	5.37
36-13S	5.34	5.64	3.95	7.68	5.76	8.81	6.09
36-14P	7.38	7.68	5.97	9.71	7.79	10.85	8.12
36-14S	7.94	8.24	6.54	10.26	8.36	11.40	8.69
36-15P	5.04	5.33	3.63	7.37	5.45	8.51	5.78
36-15S	5.93	6.23	4.52	8.25	6.33	9.39	6.66
36-21P	6.99	7.29	5.60	9.33	7.41	10.46	7.74
36-21S	8.55	8.85	7.14	10.88	8.96	12.02	9.29
36-403P	6.30	6.60	4.91	8.63	6.72	9.77	7.05
36-403S	8.55	8.85	7.14	10.88	8.96	12.02	9.29
36-404P	7.29	7.59	5.90	9.62	7.71	10.76	8.04
36-404S	8.75	9.05	7.35	11.07	9.17	12.21	9.50
36-405P	8.72	9.02	7.32	11.04	9.12	12.18	9.45
36-405S	11.01	11.31	9.60	13.30	11.42	14.48	11.75
36-406P	7.73	8.03	6.32	10.05	8.13	11.19	8.46
36-406S	11.55	11.85	10.16	13.88	11.97	15.02	12.30
36-407P	8.75	9.05	7.35	11.07	9.17	12.21	9.50
36-407S	12.41	12.71	11.01	14.73	12.83	15.87	13.16
40-1P	6.39	6.39	4.16	8.27	7.25	15.87	7.53
40-1S	7.19	7.19	4.95	9.06	8.04	15.87	8.31
40-2P	5.60	5.60	3.38	7.47	6.45	15.87	6.74
40-2S	6.27	6.27	4.05	8.15	7.13	15.87	7.41
40-3P	7.47	7.47	5.25	9.36	8.34	15.87	8.61
40-3S	8.55	8.55	6.32	10.43	9.41	15.87	9.69
40-4P	9.20	9.20	6.96	11.07	10.05	15.87	10.34
40-4S	9.99	9.99	7.76	11.87	10.85	15.87	11.12
40-5P	9.93	9.93	7.71	11.82	10.79	15.87	11.07
40-5S	12.41	12.41	10.19	14.30	13.26	15.87	13.55
40-9P	10.85	10.85	8.61	12.72	11.70	15.87	11.99
40-9S	12.71	12.71	10.49	14.58	13.56	15.87	13.85
40-10P	11.07	11.07	8.85	12.96	11.93	15.87	12.21
40-10S	12.80	12.80	10.56	14.67	13.65	15.87	13.92
44-1P	8.51	8.51	6.23	11.28	10.32	15.87	10.37
44-1S	8.76	8.76	6.48	11.55	10.58	15.87	10.62

## CAP AND CHAIN ASSEMBLIES

Fits MS and 97 type receptacles and plugs. Provides protection against live circuits, dirt and dust when connector is not in use. Add P to the part number for plug cap and chain.



Cap and Chain			Cap Only, No Chain		
Amphenol Number	Shell Size	Net Ea. 1-49*	Amphenol Number	Shell Size	Net Ea. 1-49*
9760-8	8S	#	9760-8G	8S	#
9760-10	10S, SL	\$0.50	9760-10G	10S, SL	\$0.39
9760-12	12, S, SL	.56	9760-12G	12, S, SL	.45
9760-14	14, 14S	.60	9760-14G	14, 14S	.50
9760-16	16, 16S	.66	9760-16G	16, 16S	.56
9760-18	18	.78	9760-18G	18	.68
9760-20	20	.86	9760-20G	20	.75
9760-22	22	.98	9760-22G	22	.87
9760-24	24	1.14	9760-24G	24	1.04
9760-28	28	1.37	9760-28G	28	1.26
9760-32	32	1.59	9760-32G	32	1.49
9760-36	36	1.76	9760-36G	36	1.65
9760-40	40	#	9760-40G	40	#
9760-44	44	#	9760-44G	44	#
9760-48	48	#	9760-48G	48	#

\*Prices on request.

## CABLE CLAMPS



Sturdy Amphenol AN3057 Cable Clamp supports cable or wire at the plug or receptacle, prevents twisting or pulling at soldered connections.

Amphenol Number	Shell Size	Net Ea. 1-49*	Amphenol Number	Shell Size	Net Ea. 1-49*
AN3057-3	8S, 10S	\$0.56	AN3057-20	32	\$1.13
AN3057-4	12, 12S	.57	AN3057-24	36	1.56
AN3057-6	14, 14S	.57	AN3057-28	40	1.94
AN3057-8	16, 16S	.59	AN3057-32	44	2.33
AN3057-10	18	.71	AN3057-40	48	3.16
AN3057-12	20, 22	.75	97-3057-10-6†	18	.77
AN3057-14	24, 28	.71	AN3057-40	20, 22	.81
AN3057-16	24, 28	.92	97-3057-12-6†		

†Step-down type.

## MINIATURE AN 165 SERIES CONNECTORS

Economical, quality miniature connectors feature quick mate and disconnect with reliable bayonet coupling. Pressure- and weather-proof. **Finish:** Aluminum shells with clear conversion seal. **Construction:** Internal rubber gasket, cable clamp except those with potting construction. **Inserts:** Hard dielectric, rubber faced for environmental capability. Available in eight insert configurations with from 5-24 contacts in two shell sizes. **Contacts:** Gold over silver-plated; available in X and W alternate positions. **Mounting:** Small receptacles mount in 1/8" dia. hole, four .125 screw holes on 3/8" centers. Large receptacles mount in 1/4" hole with four .125 screw holes on 1/2" centers. **Size:** Small plugs, 2 1/4" lg. x 1/4" dia.; large plugs, 2 1/4" lg. x 1/4" dia. **Rated:** 500 volts rms except as otherwise indicated. **Weight:** 3 oz., average.

### SMALL SIZE CONNECTORS

#### WITH FIVE #20 CONTACTS

Rated 600 volts rms.

Type	Pin Contacts		Socket Contacts	
	Amphenol Number 165-	Net Each, Lots of	Amphenol Number 165-	Net Each, Lots of
Plug	33	\$3.36	34	\$4.59
Recept.*	35	2.40	36	2.91
Plug†	33-1000	2.37	34-1000	3.01
Recept.†	35-1000	4.07	36-1000	5.93
Recept.	35-1002	5.19	36-1003	5.69

#### WITH NINE #20 CONTACTS

Plug	13	\$3.52	\$2.81	14	\$5.41	\$4.31
Recept.*	15	2.61	2.07	16	3.34	2.66
Plug	13-1000	2.62	2.09	14-1000	3.66	2.91
Recept.	15-1000	4.33	3.44	16-1000	5.36	4.27
Recept.	15-1002	5.24	4.18	16-1003	6.30	5.01

#### WITH EIGHT #20 AND ONE SHIELDED CONTACTS

Recept.*	73	\$4.63	\$3.68	83	\$7.55	\$6.01
Plug	82	5.69	4.54	61-1008	8.90	7.09
Recept.†	73-1000	6.20	4.93	83-1000	9.37	7.46
Plug†	82-1000	4.69	3.74	61	7.67	6.10
Recept.	73-1001	6.58	5.24	83-1001	9.30	7.41

#### WITH TWELVE #20 CONTACTS

Plug	9	\$3.71	\$2.95	10	\$5.53	\$4.40
Recept.*	11	2.79	2.22	12	4.58	3.64
Plug†	9-1000	2.86	2.27	10-1000	5.29	4.22
Recept.†	11-1000	4.58	3.64	12-1000	6.98	5.56
Recept.	11-1002	5.51	4.39	12-1002	7.93	6.32

\*Square flange. †Potting construction.

### LARGE SIZE CONNECTORS

#### WITH SEVEN #20 AND FOUR #16 CONTACTS

Type	Pin Contacts		Socket Contacts			
	Amphenol Number 165-	Net Each, Lots of	Amphenol Number 165-	Net Each, Lots of		
Plug	17	\$4.93	\$3.92	18	\$6.03	\$4.80
Recept.*	19	3.11	2.47	20	4.19	3.34
Plug†	17-1000	3.26	2.59	18-1000	4.68	3.72
Recept.†	19-1000	5.04	4.02	20-1000	6.53	5.20
Recept.	19-1002	6.63	5.28	20-1003	8.03	6.40

#### WITH FOURTEEN #16 CONTACTS

Plug	29	\$5.03	\$4.00	30	\$6.98	\$5.56
Recept.*	31	3.24	2.58	32	5.16	4.11
Plug†	29-1000	3.42	2.73	30-1000	6.05	4.81
Recept.†	31-1000	5.19	4.14	32-1000	7.83	6.24
Recept.	31-1003	6.66	5.31	32-1006	9.40	7.49

#### WITH NINETEEN #20 AND ONE SHIELDED CONTACTS

Recept.*	84	\$7.08	\$5.64	85	\$10.57	\$ 8.42
Plug	86	7.98	6.28	62-1007	12.64	10.07
Recept.†	84-1000	8.13	6.48	85-1000	12.59	10.03
Plug†	86-1000	6.35	5.05	62	11.16	8.88
Recept.	84-1001	7.21	5.75	85-1001	13.21	10.52

#### WITH TWENTY-FOUR #20 CONTACTS

Plug	25	\$5.83	\$4.64	26	\$ 7.65	\$6.09
Recept.*	27	4.02	3.21	28	5.83	4.64
Plug†	25-1000	4.48	3.56	26-1000	6.91	5.51
Recept.†	27-1000	6.26	4.99	28-1000	10.70	8.53
Recept.	27-1005	7.85	6.25	28-1003	10.32	8.22

\*Square flange. †Potting construction.

### \*QUANTITY DISCOUNTS FOR MS TYPES

Quantity In Lots	MS Connector		Fittings	
	Discount	Multiplier	Discount	Multiplier
10-49	15-2%	0.833		
50-99	26%	0.740	15-2%	0.833
100-999	33 1/2%	0.667	33 1/2%	0.667

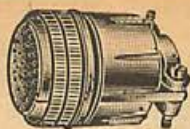


## MS-E AND MS-R CONNECTORS

Feature resistance to moisture, are pressurized up to one atmosphere differential (equivalent to MS-C), and are made of resilient dielectric of MIL-R-3065 neoprene rubber for environmental capability. All MS-R and MS-E connectors, except MS3102R and MS3102E receptacles, have an individual wire grommet seal.

**Other Information:** Construction, alternate position, voltage and current ratings are similar to hard dielectric MS connectors. Will also mate with Series 172, hermetically-sealed receptacles. MS-E Series: As revised, similar in size to the hard dielectric MS connectors; employs a mechanical, self-centering strain relief clamp.

**MS-R Series:** Are  $\frac{1}{2}$  shorter and  $\frac{1}{2}$  lighter than the MS-E. Comes with O-ring seal in the MS3106R plug to provide additional environmental capability.



MS-E

MS-R &amp; Poke "R"

## 69 SERIES POKE "R" CONNECTORS

Similar to MS-R connectors, but exceed the capability of the MS-R. Crimp-type contacts save labor costs; assemble faster by semi-skilled labor while producing a reliable terminating conductor without the possibility of cold solder joints. Also facilitate easy removal of contact for rewiring at any time. Gold-plated contacts provide continual, low contact resistance by eliminating all possibility of tarnish. Tested at factory to maintain their voltage and 100 megohms min. insulation resistance after altitude cycling at 70,000 feet for 30 minutes while entirely immersed in water. **Prefix Indicates Shell Type:** 69-0R equivalent to MS3100; 69-1R = MS3101 and 69-6R = MS3106 (see MS listing at left).

## ACCESSORY TOOLS

Amphen. No.	Description	Net Each
294-226	MS3191 Universal crimping tool (#12, 16 or 20)	\$ 97.50
294-57	Crimping tool kit (#12, 16 and 20)	157.95
294-85	Single set #16 contact crimping tool	108.04
294-86	Same, but #12 contact	108.04
294-39	Insertion & removal tool, #16 contact size	13.65
294-40	Same, but #12 contact size	15.05

## POKE "R" CONNECTORS

Supplied with contacts and sealing plugs, as listed.

Insert*	69-0R Shell		69-1R Shell		69-6R Shell		
	Net Each, Lots	1-49	50-99	1-49	50-99	1-49	50-99
105L-3P	\$ 4.34	\$ 3.46	\$ 4.49	\$ 3.51			
105L-3S					\$ 4.91	\$ 3.91	
105L-4P	4.51	3.59	4.54	3.62			
105L-4S					4.89	3.90	
125-3P	3.81	3.03	3.84	3.06	4.41	3.51	
125-3S	4.19	3.34	4.23	3.36	4.79	3.82	
145-2P	3.87	3.09	3.92	3.13	4.34	3.46	
145-2S	4.61	3.67	4.68	3.72	5.08	4.04	
145-5P	4.14	3.30	4.21	3.35	4.61	3.67	
145-5S	5.06	4.03	5.11	4.07	5.53	4.40	
145-7P	3.87	3.09	3.92	3.13	4.34	3.46	
145-7S	4.44	3.54	4.51	3.59	4.91	3.91	
145-9P	3.75	2.98	3.80	3.03	4.38	3.48	
145-9S	4.09	3.25	4.13	3.29	4.71	3.72	
165-1P	5.08	4.04	5.13	4.08	5.68	4.52	
165-1S	6.35	5.05	6.41	5.11	6.95	5.53	
165-4P	4.51	3.59	4.55	3.63	5.11	4.07	
165-4S	4.89	3.90	4.94	3.94	5.50	4.38	
165-8P	4.91	3.91	4.96	3.95	5.51	4.39	
165-8S	5.83	4.64	5.89	4.69	6.43	5.12	
16-10P	5.38	4.28	5.43	4.32	5.98	4.76	
16-10S	6.36	5.07	6.41	5.11	6.96	5.55	
18-1P	5.38	4.28	5.41	4.31	6.28	5.00	
18-1S	7.20	5.73	7.23	5.76	8.07	6.42	
18-4P	4.84	3.86	4.88	3.88	5.71	4.55	
18-4S	5.58	4.44	5.59	4.45	6.45	5.13	
18-8P	5.78	4.60	5.81	4.63	6.65	5.29	
18-8S	6.71	5.35	6.75	5.37	7.45	6.04	
18-11P	5.99	4.98	6.03	5.00	6.98	5.76	
18-11S	6.98	5.95	7.03	5.99	7.96	6.74	
20-7P	5.48	4.36	5.54	4.42	6.41	5.11	
20-7S	6.91	5.51	6.96	5.55	7.85	6.25	
20-15P	7.05	5.61	7.10	5.65	7.98	6.36	
20-15S	8.43	7.51	8.50	7.57	10.20	8.23	
20-16P	6.21	4.94	6.26	4.99	7.15	5.69	
20-16S	8.12	6.46	8.18	6.52	9.05	7.21	
20-18P	6.41	5.11	6.46	5.15	7.35	5.85	
20-18S	8.45	6.73	8.60	6.85	9.39	7.47	
20-27P	6.41	5.11	6.46	5.15	7.35	5.85	
20-27S	8.90	7.09	8.88	7.08	9.84	7.83	
20-29P	6.58	5.24	6.63	5.28	7.51	5.98	
20-29S	9.58	7.63	9.63	7.67	10.52	8.38	
22-14P	7.11	5.66	7.15	5.69	8.22	6.54	
22-14S	10.47	8.34	10.50	8.37	11.57	9.22	
24-20P	6.91	5.51	6.96	5.55	8.12	6.46	
24-20S	9.20	7.32	9.25	7.37	10.37	8.26	
24-28P	7.98	6.36	8.05	6.41	9.15	7.29	
24-28S	12.29	9.79	12.36	9.84	13.46	10.72	
28-11P	9.07	7.22	9.13	7.28	10.19	8.11	
28-11S	13.64	10.87	13.71	10.92	14.74	11.74	
28-12P	8.62	6.86	8.68	6.92	9.57	7.62	
28-12S	13.41	10.68	13.46	10.72	14.51	11.56	
28-20P	9.08	7.24	9.13	7.27	10.19	8.11	
28-20S	13.06	10.40	13.11	10.44	14.16	11.28	
28-21P	9.98	7.95	10.05	8.00	11.09	8.83	
28-21S	16.58	13.21	16.63	13.25	17.68	14.08	
32-7P	12.69	10.11	12.74	10.14	13.63	11.65	
32-7S	20.04	15.96	20.11	16.01	21.99	17.51	
36-10P	13.39	10.67	13.44	10.71	15.73	12.53	
36-10S	21.81	17.37	21.88	17.42	24.15	19.23	

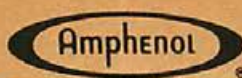
\*Add suffix (100) when ordering; i.e., 69-0R-105L-3P(100). Specify polarization W, X, Y or Z when ordering; +X or Y polarization only, +X polarization only, #W or Z polarization only. #N0 Z polarization. \*Not polarized.

## ★MS-E AND MS-R QUANTITY DISCOUNTS

Quantity, Lots of	Discount	Multiplier
10-49	10%	0.90
50-99	20%	0.80
100-199	34%	0.66

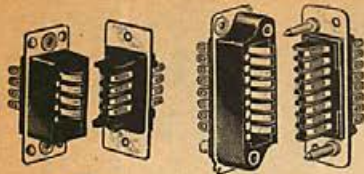
\*Show full number when ordering; i.e., MS3100E-SS-1P. †Add suffix E or R (i.e., MS3102E or MS3102R).





# Rack & Panel Connectors

## BLUE RIBBON® CONNECTORS



Barrier Polarization

Pin Polarization

Patented gold plated ribbon contact provides self-wiping action with low contact resistance. Steel mounting plates with float bushings for alignment in rack and panel applications. Impact and moisture resistant, high quality diallyl phthalate dielectric.

### BARRIER POLARIZATION TYPES

Requires rectangular panel cutout. Polarization and contact alignment by construction of dielectric barriers at end of connectors (26-182, -183), or by barrier thickness between contacts. **Rating:** 5 amps, 800 v.

Amph. No. 26-	Con-tacts	*	Net Each, Lots of			
			1-9	10-49	50-99	100-249
182	8	M	\$1.10	\$0.82	\$0.66	\$0.59
4100-8P	8	M	1.02	.76	.61	.55
4100-16P	16	M	1.91	1.43	1.14	1.03
4100-24P	24	M	2.27	1.70	1.36	1.23
4100-32P	32	M	2.66	1.99	1.59	1.44
183	8	F	1.75	1.31	1.05	.95
4200-8S	8	F	1.67	1.25	1.00	.91
4200-16S	16	F	2.40	1.80	1.44	1.30
4200-24S	24	F	2.90	2.17	1.73	1.57
4200-32S	32	F	3.42	2.56	2.04	1.85

### PIN POLARIZATION TYPES

Polarized by two tapered posts which also align contacts prior to mating. **Rating:** 5 amps, 750 v.

Amph. No. 26-	Con-tacts	*	Net Each, Lots of			
			1-9	10-49	50-99	100-249
159-16	16	M	\$2.05	\$1.55	\$1.23	\$1.12
159-24	24	M	2.48	1.86	1.48	1.34
159-32	32	M	2.92	2.19	1.75	1.58
190-16	16	F	2.58	1.94	1.54	1.40
190-24	24	F	3.11	2.33	1.86	1.68
190-32	32	F	3.66	2.74	2.18	1.98

\*Type: M-Male, F-Female.

## MINIATURE HEXAGON CONNECTORS



Quality miniature connectors at economy prices. Body of diallyl phthalate dielectric; gold-over-silver contacts. Rated 7.5 amps, 500 v. rms at sea level.

### RACK AND PANEL WITH HEX NUT (ILLUSTRATED)

No. 126-	Description	Net Each, Lots of			
		1-9	10-49	50-99	100-249
010	5-pin plug	\$0.77	\$0.59	\$0.47	\$0.39
011	5-pin socket	1.26	.99	.78	.65
191	7-pin plug	.92	.70	.55	.46
192	7-pin socket	1.48	1.13	.89	.74
012	9-pin plug	1.08	.83	.65	.54
013	9-pin socket	2.00	1.53	1.21	1.00

### RECEPTACLES WITH LOCKING CLIP

No. 214	4-pin plug	\$0.87	\$0.66	\$0.53	\$0.44
216	5-pin plug	.82	.63	.50	.41
218	5-pin socket	1.34	1.02	.81	.67
197	7-pin plug	.99	.75	.60	.50
198	7-pin socket	1.53	1.16	.92	.77
219	9-pin plug	1.15	.88	.70	.58
221	9-pin socket	2.04	1.57	1.23	1.03

### CABLE TO PANEL WITH HOOD AND CLAMP

No. 215	4-pin socket	\$1.60	\$1.22	\$0.97	\$0.80
217	5-pin plug	1.81	1.38	1.09	.91
223	5-pin socket	1.39	1.06	.84	.70
195	7-pin plug	1.98	1.51	1.19	.99
196	7-pin socket	2.58	1.98	1.56	1.30
220	9-pin plug	2.21	1.69	1.33	1.10
222	9-pin socket	3.00	2.30	1.82	1.51

### KEYED SHELLS

For rack and panel or module applications requiring additional keying or connector protection. Notched keys in shell provide a variety of positioned connectors. Rated 5 amps, 800 v.

### PLUGS

Amph. No. 26-	Con-tacts	Net Each, Lots of			
		1-9	10-49	50-99	100-249
4101-8P	8	\$2.01	\$1.51	\$1.20	\$1.09
4101-16P	16	3.00	2.25	1.79	1.63
4101-24P	24	3.47	2.60	2.08	1.88
4101-32P	32	3.99	2.99	2.39	2.16
4102-8P	8	2.01	1.51	1.20	1.09
4102-16P	16	3.00	2.25	1.79	1.63
4102-24P	24	3.47	2.60	2.08	1.88
4102-32P	32	3.99	2.99	2.39	2.16

### MATING RECEPTACLES

Amph. No. 26-	Con-tacts	Net Each, Lots of			
		1-9	10-49	50-99	100-249
4201-8S	8	\$2.30	\$1.72	\$1.37	\$1.25
4201-16S	16	3.13	2.35	1.87	1.70
4201-24S	24	3.73	2.80	2.23	2.02
4201-32S	32	4.36	3.27	2.61	2.36
4202-8S	8	2.30	1.72	1.37	1.25
4202-16S	16	3.13	2.35	1.87	1.70
4202-24S	24	3.73	2.80	2.23	2.02
4202-32S	32	4.36	3.27	2.61	2.36

### CABLE TO PANEL TYPES WITH KEYED LATCH-LOCK SHELLS

With end cable clamp (26-4301) or right angle cable clamp (26-4501) on the plug; both units mate with receptacle 26-4401. With notched keying to avoid cross-mating.

### PLUGS

Amph. No. 26-	Con-tacts	*	Net Each, Lots of			
			1-9	10-49	50-99	100-249
4301-8P	8	M	\$5.14	\$3.85	\$3.07	\$2.79
4301-16P	16	M	6.45	4.83	3.85	3.49
4301-24P	24	M	7.23	5.42	4.32	3.92
4301-32P	32	M	8.04	6.02	4.81	4.36
4301-8S	8	F	5.80	4.34	3.46	3.14
4301-16S	16	F	6.94	5.20	4.15	3.76
4301-24S	24	F	7.86	5.89	4.70	4.26
4301-32S	32	F	8.80	6.59	5.26	4.77
4501-8P	8	M	5.14	3.85	3.07	2.79
4501-16P	16	M	6.45	4.83	3.85	3.49
4501-24P	24	M	7.23	5.42	4.32	3.92
4501-32P	32	M	8.04	6.02	4.81	4.36
4501-8S	8	F	5.80	4.34	3.46	3.14
4501-16S	16	F	6.94	5.20	4.15	3.76
4501-24S	24	F	7.86	5.89	4.70	4.26
4501-32S	32	F	8.80	6.59	5.26	4.77

### MATING RECEPTACLES

Amph. No. 26-	Con-tacts	*	Net Each, Lots of			
			1-9	10-49	50-99	100-249
4401-8P	8	M	\$3.11	\$2.33	\$1.86	\$1.68
4401-16P	16	M	4.10	3.07	2.45	2.22
4401-24P	24	M	4.60	3.44	2.75	2.49
4401-32P	32	M	5.12	3.83	3.06	2.77
4401-8S	8	F	3.76	2.82	2.25	2.04
4401-16S	16	F	4.62	3.46	2.76	2.50
4401-24S	24	F	5.22	3.91	3.12	2.83
4401-32S	32	F	5.85	4.38	3.49	3.17

\*Type: M-Male, F-Female.

### MICRO RIBBON MINIATURE CONNECTORS

Extremely small connectors for dependable use where miniaturization is needed. Smooth, easy insertion and extraction. Self-wiping and cleaning. Double sided, flexing action of both contact members for added reliability. Available in up to 50-contact arrangements. Diallyl phthalate dielectric bodies. **Rating:** 700 v. DC at sea level, 200 v. DC at 70,000 feet. Shells, cadmium-plated brass with clear chromate finish.



Amph. No. 57-	Con-tacts	Net Each, Lots of				
		1-9	10-49	50-99	100-249	
10140	†	14	\$1.77	\$1.31	\$1.06	\$0.94
20140	†	14	1.82	1.35	1.09	.97
30140	†	14	3.38	2.50	2.03	1.80
40140	†	14	2.24	1.66	1.34	1.19
10240	†	24	2.37	1.75	1.42	1.26
20240	†	24	2.39	1.77	1.44	1.27
30240	†	24	3.69	2.73	2.21	1.96
40240	†	24	2.68	1.98	1.61	1.42
10360	†	36	2.70	2.00	1.62	1.44
20360	†	36	2.73	2.02	1.64	1.45
30360	†	36	4.55	3.37	2.73	2.42
40360	†	36	2.86	2.12	1.72	1.52
10500	†	50	3.54	2.62	2.12	1.88
20500	†	50	3.59	2.66	2.15	1.91
30500	†	50	5.05	3.74	3.03	2.69
40500	†	50	3.72	2.75	2.23	1.98

\*Type: †Plug; ‡receptacle; for rack and panel use. ††Plug with cable clamp; ‡‡receptacle; for cable to panel use.

## MINIATURE RECTANGULAR CONNECTORS

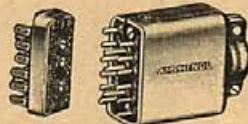
Rectangular connectors of a miniature size, intended for use wherever a circuit must be re-routed, made or broken in the interior of the equipment. Contacts and polarizing pins are gold-plated over silver-base plating; will not tarnish or corrode. Dielectric bodies are of melamine. **Voltage Rating:** Types A and B, 700 v. rms at sea level between terminal and 600 v. rms at sea level between terminals and ground with a current of 17 amps; Type C and D, 600 v. with a current of 7.5 amps. **Insertion Force:** 15 lbs., minimum to 40 lbs., max. **Withdrawal Force:** 1 lb., minimum to 4 lbs., maximum.



No. 126-	Con-tacts	Net Each, Lots of			
		1-9	10-49	50-99	100-249
016*	7 p.	\$1.53	\$1.16	\$0.92	\$0.77
017*	7 s.	2.30	1.76	1.39	1.16
204*	15 p.	2.40	1.82	1.45	1.20
205*	15 s.	4.25	3.26	2.57	2.14
206*	18 p.	2.61	1.99	1.58	1.31
207*	18 s.	4.96	3.78	2.98	2.49
173*	14 p.	2.68	2.04	1.62	1.35
174*	14 s.	4.42	3.64	2.67	2.22
199†	18 p.	2.73	2.08	1.65	1.37
189†	18 s.	4.58	3.49	2.77	2.30
171†	21 p.	4.09	3.12	2.47	2.06
172†	21 s.	6.51	4.96	3.94	3.27
188†	34 p.	4.09	3.12	2.47	2.06
187†	34 s.	7.38	5.63	4.46	3.71

Current Rating: \*17 amps, †7.5 amps. Contacts: p.-pins; s.-sockets.

## SERIES 126 RACK AND PANEL CONNECTORS



11, 15 and 20 contact connectors for use on rack and panel mountings. All have eyelets inserted in the mounting holes for added strength, holes for wiring instead of the usual hooks on the male contacts, and interlocking barriers to prevent accidental shorting. All models can be supplied with or without a protective can and cable clamp as shown. Moulded of mica-filled phenolic. Male contacts are brass, silver plated and moulded into the insert. Female contacts are beryllium copper, silver plated. **Voltage Rating:** 900 volts rms, 60 cps at sea level.

### SPECIFICATIONS

Amphenol No. 126-	Description	Contacts		Spacing
		No. 16	No. 20	
804,809	Male	2	9	.864
805,808	Female	2	9	.864
151,152	Male	3	12	1.188
150,153	Female	3	12	1.188
806,811	Male	4	16	1.620
807,810	Female	4	16	1.620
812	Female	20	.....	.....
813	Male	20	.....	.....

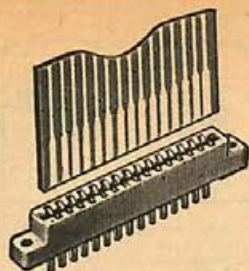
### SERIES 126 PRICES

No. 126-	Con-tacts	Mtg. Screw	Net Each, Lots of			
			1-9	10-49	50-99	100-249
804*	11	‡	\$1.18	\$0.90	\$0.71	\$0.59
809	11	‡	2.00	1.53	1.21	1.00
805	11	‡	1.15	.88	.69	.58
808	11	‡	2.09	1.60	1.26	1.05
151*	15					



# Amphenol Connectors

## PRIN-CIR® CONNECTORS



### PRIN-CIR RECEPTACLES

#### -143 SERIES



#### Contact Style

The contact is the secret of these connectors' effectiveness; gold plated tuning fork contacts firmly but gently. Will form fit any standard .055" to .073" board. Contacts are on .156" centers. Rated 600 v. rms, 5 amps.

-01—Eyelet contact type. -03—Pin contact type. May be ordered with one contact replaced with a key, for positioning. When ordering, number indicates exactly what is desired: Example—143-010-01 indicates 143 Series, 10 contacts, -01 contact style.

No. 143-	Contacts	Net Each, Lots of				
		1-49	50-99	100-249	250-999	1M-2499
006-01	6	\$1.23	\$1.03	\$0.86	\$0.74	\$0.64
010-01	10	.83	.70	.58	.50	.44
012-01	12	1.50	1.25	1.05	.90	.78
015-01	15	1.08	.90	.76	.65	.57
018-01	18	1.31	1.10	.92	.79	.69
022-01	22	1.46	1.22	1.02	.88	.76
036-01	36	3.62	3.03	2.54	2.18	1.90
122-01	22	5.16	4.30	3.62	3.10	2.70
136-01	36	12.65	10.58	8.85	7.60	6.63
006-03	6	1.29	1.08	.91	.80	.68
010-03	10	.92	.77	.64	.55	.48
012-03	12	1.60	1.34	1.12	.96	.84
015-03	15	1.19	.99	.83	.71	.62
018-03	18	1.44	1.20	1.00	.86	.76
022-03	22	1.62	1.36	1.14	.98	.86
036-03	36	3.70	3.10	2.60	2.23	1.94

### PRIN-CIR PLUGS—133 SERIES



For use with printed circuit boards requiring frequent mating and disengagement, also for boards of non-standard thickness. Contacts are on .156" centers. Type 21 contact tail for use in cable to panel applications using a mate to 143 Series connector. Rugged, gold plated contacts. Rated 600 v. rms, 5 amps. May be ordered with contact omitted for keying.

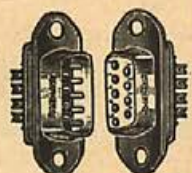
#### Contact Types

- 21—Double Tail, solder type.
- 03—Single Side Mount, pin type.

Stock Number Identification: No. 133-022-21 indicates 133 Series, 22 contacts, 21 contact tail (double tail, solder type).

No. 133-	Contacts	Net Each, Lots of				
		1-49	50-99	100-249	250-999	1M-2499
006-21	6	\$1.77	\$1.48	\$1.24	\$1.06	\$0.93
010-21	10	2.00	1.67	1.40	1.20	1.05
012-21	12	2.45	2.05	1.72	1.48	1.29
015-21	15	2.30	1.93	1.62	1.39	1.21
018-21	18	2.45	2.05	1.72	1.48	1.29
022-21	22	2.66	2.23	1.87	1.60	1.40
006-03	6	1.73	1.44	1.21	1.04	.90
010-03	10	1.93	1.62	1.36	1.16	1.01
012-03	12	2.04	1.71	1.43	1.23	1.07
015-03	15	1.88	1.56	1.34	1.14	1.01
018-03	18	2.00	1.68	1.41	1.21	1.06
022-03	22	2.10	1.77	1.51	1.31	1.16

## MIN-RAC 17 MINIATURE RACK AND PANEL CONNECTORS WITH POKE-HOME® CONTACTS



Half the size and weight of standards. "Poke Home" contacts are soldered to leads outside the connector, then "Poked Home" for quick, simple and reliable assembly. No damage or difficulty from "close in" soldering. From 9 to 50 contacts. Solder type contacts take up to #20 AWG wire. Crimp type take #20 or #22 AWG wire. Steel shells with either clear chromate (listed) or gold iridite (change 2nd number from 0 to 1, e.g., -21090), over cad-plate finish. Nylon inserts. Current rating: 5 amps. Prices listed are less cable housing.

#### PLUGS

Amphenol No.	Contacts	Net Each, Lots of						
		1-9	10-49	50-99	100-249	250-499	500-999	1M-2499
17-20090*	9	\$1.04	\$0.93	\$0.76	\$0.68	\$0.57	\$0.55	\$0.52
17-20150*	15	1.26	1.13	.93	.83	.69	.66	.63
17-20250*	25	1.82	1.63	1.34	1.19	1.00	.96	.91
17-20370*	37	2.50	2.24	1.84	1.63	1.38	1.31	1.25
17-20500*	50	3.22	2.88	2.37	2.11	1.77	1.69	1.61
17-20090-1†	9	.98	.88	.72	.64	.54	.52	.49
17-20150-1†	15	1.18	1.06	.87	.77	.65	.62	.59
17-20250-1†	25	1.68	1.50	1.24	1.10	.92	.88	.84
17-20370-1†	37	2.32	2.08	1.71	1.52	1.28	1.22	1.16
17-20500-1†	50	2.98	2.67	2.19	1.95	1.64	1.57	1.49

\*Solder contacts. †Crimp contacts.

#### MATING RECEPTACLES

Amphenol No.	Contacts	Net Each, Lots of						
		1-9	10-49	50-99	100-249	250-499	500-999	1M-2499
17-10090*	9	\$1.48	\$1.32	\$1.09	\$0.97	\$0.81	\$0.78	\$0.74
17-10150*	15	2.02	1.81	1.49	1.32	1.11	1.06	1.01
17-10250*	25	3.04	2.72	2.23	1.99	1.67	1.60	1.52
17-10370*	37	4.18	3.74	3.07	2.74	2.30	2.20	2.09
17-10500*	50	5.38	4.82	3.95	3.52	2.96	2.83	2.69
17-10090-1†	9	2.10	1.88	1.54	1.38	1.16	1.10	1.05
17-10150-1†	15	3.08	2.76	2.26	2.02	1.69	1.62	1.54
17-10250-1†	25	4.76	4.26	3.50	3.12	2.62	2.50	2.38
17-10370-1†	37	6.70	6.00	4.93	4.39	3.69	3.52	3.35
17-10500-1†	50	8.78	7.86	6.45	5.75	4.83	4.61	4.39

\*Solder contacts; for float mount, add suffix -5; prices slightly higher. †Crimp contacts; for float mount, change suffix to -6; prices slightly higher.

#### CABLE ASSEMBLIES FOR MIN-RAC SERIES

17-310-01	9	\$1.13	\$0.95	\$0.76	\$0.68	\$0.57	\$0.52	\$0.49
17-311-01	15	1.18	.99	.78	.71	.59	.54	.50
17-312-01	25	1.24	1.02	.82	.74	.62	.57	.53
17-313-01	37	1.28	1.07	.86	.77	.64	.59	.55
17-314-01	50	1.31	1.09	.87	.79	.65	.60	.56
17-529*	9-37	.65	.59	.49	.40	.36	.30	.....
17-770*	50	.65	.59	.49	.40	.36	.30	.....

\*Locking assemblies latch cable to panel with clamp assemblies. No. 294-136 Crimping Tool—Net Each... \$108.00  
No. 294-92 Insertion and Removal Tool—Net Each... 13.28



#### 64-15

#### MICRO EDGE® RECEPTACLE

Reliable 15-contact micro-miniature printed circuit or printed wiring receptacle. 60% smaller than standard receptacles. Contacts on .075" centers, are .010" beryllium copper, gold-over-silver plated. Glass-filled diallyl phthalate per MIL-M-19833, Type GDI-30. Overall Size: 1.4" w. x .167" d. x .243" h. with 1/4" contact tails. Will take 1/4" printed board or cable.

Amphenol No.	Net Each, Lots of			
	1-9	10-49	50-99	100-249
64-15	\$7.26	\$6.06	\$4.83	\$4.36

#### MICRO MOD® CONNECTORS

Compact 380° sq. connectors for interconnection of micro-miniature modules or "stick" circuitry. Number of contacts is 12. Available in polarized and non-polarized versions. 96-3 is supplied without contacts



to permit the using of module conductors as contacts. AWG #28 solid conductors are recommended and are easily attached to 96-3 without soldering.

Amph. No.	Type	Net Each, Lots of			
		1-9	10-49	50-99	100-249
96-1	†	\$3.05	\$2.53	\$2.01	\$1.82
96-2	†	6.30	5.26	4.19	3.75
96-3	†	5.4	4.5	3.6	3.2
96-4	†	5.40	4.51	3.59	3.24

†Polarized receptacle. †Polarized plug. †Receptacle, less contacts. †Plug.

#### MICRO MIN® CONNECTORS

Just 1/4" long x 1/4" wide with 38 or 19 contacts. Ideal for ribbon wire, printed circuits, micro modules and all miniature circuitry. Low capacitance contacts are on .050" centers, with .040" spacing between contacts. The 19-contact unit is single sided; 38-contact double sided. \*TM



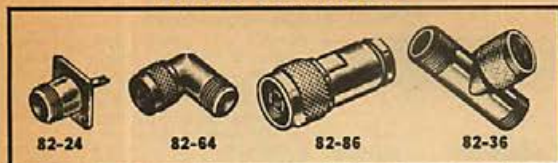
#### 74-103, 74-104

No. 74-	Contacts	Description	Net Each, Lots of			
			1-9	10-49	50-99	100-249
101	19	Component mtg. board	\$4.64	\$3.87	\$3.09	\$2.78
102	19	Mating Receptacle	6.82	5.69	4.54	4.09
103	38	Plug/Adapter	9.32	7.78	6.20	5.59
104	38	Receptacle	11.66	9.74	7.75	7.00



# Amphenol RF Connectors

## TYPE N CONNECTORS



Popular RF connectors impedance matched to 50-ohm cables except 82-84, 82-89, 82-90 and 82-112 matched to 70-ohm; 50-ohm connectors not designed for use with 75-ohm connectors. Rated 500 volts max.; up to 10,000 Mc. With threaded coupling.

Amph. No.	Military Number	Net Each, Lots of				
		1-24	25-99	100-499	500-999	1000-2499
82-86	UG-18B/U	\$3.18	\$2.61	\$2.19	\$1.89	.....
82-203	UG-18C/U	3.71	3.04	2.55	2.20	.....
82-87	UG-19B/U	4.07	3.34	2.80	.....	.....
82-207	UG-19C/U	2.91	2.39	2.00	.....	.....
82-88	UG-20B/U	2.76	2.27	1.90	.....	.....
82-61	UG-21B/U	1.08	.89	.74	.64	50.57
82-96	UG-21C/U	2.89	2.37	1.99	1.72	1.52
82-282	UG-22B/U	1.18	.97	.81	.70	.62
82-62	UG-23B/U	1.73	1.42	1.13	1.03	.....
82-63	UG-23B/U	1.47	1.21	1.01	.88	.77
82-209	UG-23D/U	1.46	1.20	1.00	.87	.76
82-64	UG-27A/U	2.94	2.41	2.02	1.75	1.54
82-98	UG-27B/U	3.69	3.03	2.54	2.20	1.93
82-213	UG-27C/U	4.14	3.40	2.85	2.46	2.17
82-99	UG-28A/U	3.14	2.58	2.16	1.87	1.65
82-65	UG-29A/U	1.70	1.40	1.17	1.01	.89
82-101	UG-29B/U	1.88	1.54	1.29	1.12	.98
82-66	UG-30/U	3.08	2.53	2.12	1.83	1.62
82-100	UG-37B/U	2.66	2.18	1.83	1.58	1.39
82-24	UG-58/U	.76	.62	.52	.45	.40
82-97	UG-58A/U	.93	.77	.64	.56	.49
82-84	UG-94A/U	2.01	1.65	1.38	1.19	1.05
82-89	UG-95A/U	2.02	1.66	1.39	1.20	.....
82-90	UG-96A/U	2.62	2.15	1.80	.....	.....
82-36	UG-107A/U	6.90	5.66	4.70	4.10	.....
82-102	UG-107B/U	4.17	3.42	2.87	2.48	2.19
82-67	UG-180A/U	3.92	3.22	2.70	.....	.....
82-93	UG-180B/U	4.48	3.67	3.08	2.66	.....
82-104	UG-187A/U	7.99	6.55	5.50	4.75	.....
82-100A	UG-536/U	3.13	2.56	2.15	1.86	1.64
35500	UG-593/U	3.05	2.51	2.10	.....	.....
82-811	UG-680/U	2.21	1.81	1.52	1.32	1.16
82-212	UG-940A/U	2.76	2.27	1.90	.....	.....
82-204	UG-941A/U	2.95	2.42	2.03	.....	.....
82-48	MX-564	1.09	.90	.75	.65	.....
82-106	MX-913	.56	.46	.38	.33	.29
82-112	.....	2.84	2.33	1.95	1.69	1.49
82-835	.....	4.13	3.39	2.84	2.45	2.16

## TYPE BN CONNECTORS

Non-impedance, low power coaxial connectors for use up to 200 Mc. Rated 250 volts max. With threaded coupling.

Amph. No.	MIL No.	UG	1-24	25-99	100-499	500-999	1000-2499
82-21	UG-85/U		\$4.65	\$3.82	\$3.20	.....	.....
82-42	UG-87/U		3.49	2.86	2.40	.....	.....
82-25	UG-114/U		2.11	1.73	1.45	.....	.....
82-26*	UG-115/U		3.78	3.10	2.60	.....	.....

\*\$50.00 set-up charge.

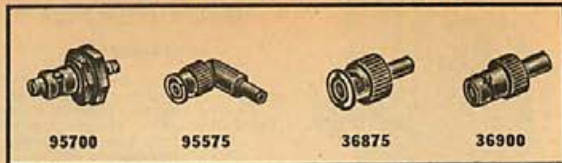
## BETWEEN SERIES ADAPTERS

Provides a means of connection between the various RF connector series. Non-constant impedance, but designed to minimize electrical discontinuity.

Amph. No.	MIL No. UG-	Mates With Plug	Receptacle	Net Each, Lots of				
				1-24	25-99	100-499	500-999	1000-2499
14000	83/U	N	UHF	\$3.42	\$2.80	\$2.35	.....	.....
4400	146/U	N	UHF	2.84	2.33	1.95	\$1.69	\$1.49
31-830	201/U	BNC	N	2.33	1.91	1.60	1.38	1.22
31-216	201A/U	BNC	N	1.62	1.33	1.11	.96	.85
2900	265/U	UHF	BNC	2.81	2.30	1.93	1.67	1.47
31-028	273/U	BNC	UHF	4.62	3.79	3.18	.....	.....
8900	308/U	BNC	HN	6.03	4.95	4.15	.....	.....
26700	318/U	N	UHF	4.94	4.05	3.40	.....	.....
82-25*	335/U	N	BNC	3.71	3.04	2.55	.....	.....
2975	349/U	N	BNC	2.55	2.09	1.75	1.51	1.33
31-217	349A/U	N	BNC	2.47	2.03	1.70	1.47	.....
82-508	564/U	C	N	2.76	2.27	1.90	1.64	.....
82-540	565A/U	N	C	2.55	2.09	1.75	1.51	.....
83175	635/U	C	BNC	1.75	1.43	1.20	1.04	.92
83200	636A/U	BNC	C	4.94	4.05	3.40	.....	.....
5225	1034/U	.....	BNC, N	5.45	4.47	3.75	.....	.....
2800†	.....	BNC, N	.....	5.16	4.23	3.55	.....	.....
4900	.....	BNC, N	.....	5.00	4.10	3.44	.....	.....
5850†	.....	BNC	UHF	4.29	3.52	2.95	.....	1.86
12025	.....	BNC	UHF	4.21	3.46	2.90	.....	.....
21850*	.....	BNC, N	.....	5.30	4.35	3.65	.....	.....
32750	.....	HN	BNC	3.14	2.58	2.16	.....	.....
47200	.....	BNC, MB	.....	3.53	2.90	2.43	2.10	1.85
47250	.....	BNC	MB	2.89	2.37	1.99	.....	.....
47275	.....	MB	BNC	4.14	3.40	2.85	.....	.....
79025	.....	TNC	BNC	2.84	2.33	1.95	1.69	1.49
79675	.....	BNC	TNC	.....	.....	.....	.....	.....

\*Bulkhead mount. †Angle, flange mount. ‡Pressurized, bulkhead mount. \$50.00 set-up charge.

## QUICK-CRIMP BNC CONNECTORS



Exclusive new design with optional crimp or solder center contact. Connector maintains constant impedance even when center contact is crimped. May be used with cables other than 50-ohm as a non-impedance match connector. VSWR identical to standard solder-type BNC connectors (1.25 to 1) up to 10,000 Mc.

Amph. No.	MIL No. UG/U	Type	Fits Cable	Net Each, Lots of				
				1-24	25-99	100-499	500-999	1000-2499
36775	88E	P	a	\$0.86	\$0.71	\$0.59	\$0.51	\$0.45
36875	88E	P	b	.86	.71	.59	.51	.45
36800	89C	CJ	a	1.05	.86	.72	.63	.55
36900	89C	CJ	b	1.05	.86	.72	.....	.....
342625	260B	P	c	.88	.72	.60	.52	.46
68175	260B	P	d	.88	.72	.60	.52	.46
34650	261C	CJ	c	1.06	.87	.73	.....	.....
68150	261C	CJ	d	1.06	.87	.73	.63	.56
95700	909B	BJ	b	1.41	1.16	.97	.84	.74
95725	909B	BJ	a	1.41	1.16	.97	.84	.74
95750	910B	BJ	d	1.41	1.16	.97	.84	.74
95775	910B	BJ	e	1.41	1.16	.97	.....	.....
95800	910B	BJ	e	1.41	1.16	.97	.84	.74
99725	910B	BJ	f	1.70	1.40	1.17	.....	.....
99750	910B	BJ	g	1.70	1.40	1.17	.....	.....
95575	913A	RAP	b	2.72	2.23	1.87	1.62	1.43
95600	913A	RAP	a	2.72	2.23	1.87	1.62	1.43
95625	913A	RAP	d	2.72	2.23	1.87	1.62	1.43
95650	913A	RAP	c	2.72	2.23	1.87	1.62	1.43
95675	913A	RAP	e	2.72	2.23	1.87	.....	.....
99625	913A	RAP	f	2.72	2.23	1.87	.....	.....
99650	913A	RAP	g	2.72	2.23	1.87	.....	.....
36650	1033	P	e	1.01	.83	.69	.60	.53
99575	1033	P	f	1.01	.83	.69	.....	.....
99600	1033	P	g	1.01	.83	.69	.....	.....
36675	1056	CJ	e	1.06	.87	.73	.....	.....
99675	1056	CJ	f	1.41	1.16	.97	.....	.....
99700	1056	CJ	g	1.41	1.16	.97	.....	.....

\*P = plug; CJ = cable jack; BJ = bulkhead jack; RAP = right angle plug. a = 58, 58A, 58C, 141; b = 55, 55A, 142, 223; c = 71; d = 59, 59A, 59B, 62, 62A, 62C, 140; e = 180A, 195; f = 122; g = Amph. 21-597. \$50.00 set-up charge.

## TYPE C CONNECTORS

Constant impedance connector designed for use with 50-ohm RF cable; may be used with cables other than 50-ohm where impedance match is not critical. Low VSWR, up to 10,000 Mc. For use up to 1,500 volts. Meets applicable sections of MIL-C-3989.

Amph. No.	Military Number	Net Each, Lots of				
		1-24	25-99	100-499	500-999	1000-2499
82-535	UG-567A/U	\$5.81	\$4.77	\$4.00	.....	.....
82-504	UG-568/U	1.12	.92	.77	\$0.67	\$0.59
82-503	UG-572/U	2.04	1.67	1.40	1.21	.....
82-530	UG-573A/U	1.89	1.55	1.30	1.13	.99
82-532	UG-628A/U	2.69	2.21	1.85	1.60	.....
82-515	UG-634/U	2.47	2.03	1.70	1.47	.....
82-534	UG-709A/U	1.96	1.61	1.35	1.17	1.03
82-531	UG-710A/U	4.21	3.46	2.90	2.51	2.21
82-512	MX-1142	.96	.79	.66	.57	.51
82-513	MX-1143	.69	.56	.47	.41	.36

## HN SERIES CONNECTORS

Medium size, high voltage (1,500 V peak) 50-ohm constant impedance connectors with threaded coupling. Low VSWR to 10,000 Mc. Meets applicable sections of MIL-C-3643.

Amph. No.	UG	1-24	25-99	100-499	500-999	1000-2499
82-38	UG-50A/U	\$3.20	\$2.62	\$2.20	\$1.90	\$1.68
82-804	UG-60B/U	2.94	2.41	2.02	1.75	1.54
82-39	UG-60A/U	3.78	3.10	2.60	2.25	.....
82-814	UG-60B/U	5.57	4.57	3.83	.....	.....
82-40	UG-61A/U	2.84	2.33	1.95	1.69	.....
82-91	UG-212A/U	5.09	4.17	3.50	3.02	.....
82-56	UG-333/U	9.59	7.86	6.60	.....	.....
82-107	UG-333A/U	7.41	6.08	5.10	.....	.....
82-57	UG-334/U	16.99	13.94	11.70	.....	.....
82-111	UG-495A/U	7.41	6.08	5.10	4.41	.....
82-92	UG-496/U	1.98	1.62	1.36	1.18	1.04
82-805	UG-560/U	2.73	2.24	1.88	1.63	1.43
82-130	.....	1.09	.90	.75	.....	.....
82-816	.....	3.20	2.62	2.20	1.90	1.68
82-833	.....	4.65	3.82	3.20	2.77	2.44
82-856	.....	8.72	7.15	6.00	5.18	4.56

## TYPE LC RF CONNECTORS

Weatherproof, high voltage (5,000 V peak) 50-ohm constant impedance coaxial connectors for use with RF cable. Low VSWR; up to 1,000 Mc. Threaded coupling.

Amph. No.	UG	1-24	25-99	100-499	500-999	1000-2499
82-59	UG-154/U	\$9.06	\$7.44	\$6.24	\$5.39	.....
82-110	UG-352A/U	8.38	6.88	5.77	.....	.....



# Amphenol RF Connectors

## TYPE BNC CONNECTORS



Coaxial connectors with popular bayonet coupling design. For use up to 500 volts; 10,000 Mc.

Amph. No.	Military Number	Net Each, Lots of				
		1-24	25-99	100-499	500-999	1000-2499
31-002	UG-88/U	\$0.63	\$0.52	\$0.43	\$0.38	\$0.33
31-018	UG-88B/U	.76	.62	.52	.45	.40
31-202	UG-88C/U	.67	.55	.46	.40	.35
31-005	UG-89/U	.82	.67	.56	.49	.43
31-019	UG-89A/U	1.09	.90	.75	.65	.....
31-205	UG-89B/U	1.41	1.16	.97	.84	.74
4500	UG-185/U	1.53	1.25	1.05	.91	.80
31-016	UG-254A/U	4.21	3.46	2.90	2.51	.....
31-012	UG-260/U	.66	.54	.45	.39	.35
31-021	UG-260A/U	.72	.59	.49	.43	.38
31-212	UG-260B/U	.73	.60	.50	.44	.38
31-015	UG-261/U	1.53	1.25	1.05	.91	.80
31-022	UG-261A/U	1.46	1.20	1.00	.....	.....
31-215	UG-261B/U	2.18	1.79	1.50	1.30	1.14
31-011	UG-262/U	1.67	1.37	1.15	1.00	.88
31-023	UG-262A/U	1.60	1.31	1.10	.....	.....
31-213	UG-262B/U	2.47	2.03	1.70	1.47	.....
31-008	UG-274/U	1.96	1.61	1.35	1.17	1.03
31-208	UG-274A/U	2.68	2.20	1.84	1.59	1.40
31-003	UG-290/U	.72	.59	.49	.43	.38
31-203	UG-290A/U	.72	.59	.49	.43	.38
31-001	UG-291/U	1.75	1.43	1.20	1.04	.92
31-020	UG-291A/U	1.75	1.43	1.20	1.04	.....
31-201	UG-291B/U	2.18	1.79	1.50	1.30	1.14
31-009	UG-306/U	2.40	1.97	1.65	1.43	1.26
31-209	UG-306A/U	2.36	1.93	1.62	1.40	1.24
47000	UG-414/U	1.96	1.61	1.35	1.17	1.03
31-817	UG-447/U	1.06	.87	.73	.63	.56
31-218	UG-491A/U	2.12	1.74	1.46	1.26	1.11
31-220	UG-492A/U	2.66	2.18	1.83	1.58	1.39
2075	UG-624/U	2.25	1.85	1.55	.....	.....
31-236	UG-626B/U	.72	.59	.49	.43	.38
31-102	UG-657/U	1.96	1.60	.87	.58	.51
31-206	UG-906/U	1.24	1.02	.85	.74	.65
31-207	UG-910/U	1.33	1.09	.91	.79	.70
31-204	UG-913/U	3.08	2.53	2.12	1.83	1.62
31-219	UG-914/U	1.22	1.00	.84	.73	.64
31-221	UG-1094/U	.63	.52	.43	.38	.33
31-222	UG-1098/U	2.40	1.97	1.65	1.43	1.26
31-006	CW-123	.54	.44	.37	.32	.29
31-026	CW-123A	.43	.35	.29	.25	.22
31-007	CW-155	.60	.49	.41	.36	.32
31-027	CW-155A	.45	.37	.31	.27	.24
31-017	CW-159	.66	.54	.45	.39	.35
31-210	CW-282	.96	.79	.66	.....	.....
31-105	.....	1.43	1.17	.98	.85	.75
31-842	.....	1.57	1.29	1.08	.....	.....
31-850	.....	3.11	2.55	2.14	1.85	1.63

## SUBMINAX® SERIES 5116 CONNECTORS

Subminiature hex-erimp coaxial connectors featuring screw-on type coupling, Teflon dielectric and captivated contact. Simplicity of assembly with few component parts. Extremely low VSWR, typical value below 1.2 to 1. Rated 500 V. For use with cables in .075" to 155" O.D. range. †Reg. DuPont TM.

Amph. No.	Impedance, Ohms*	Net Each, Lots of				
		1-24	25-99	100-499	500-999	1000-2499
5116-037475	50	\$1.86	\$1.53	\$1.28	\$1.11	\$0.98
5116-037525	75	2.05	1.68	1.41	.....	.....
5116-037550	95	1.86	1.53	1.28	1.11	.98
5116-037575	50†	1.86	1.53	1.28	1.11	.98
5116-037600	50	3.72	3.05	2.56	2.21	1.95
5116-037625	75	4.30	3.53	2.98	.....	.....
5116-037650	95	3.90	3.20	2.68	2.32	2.04
5116-037675	50†	3.90	3.20	2.68	2.32	2.04
5116-037700	50	2.60	2.14	1.79	1.55	1.36
5116-037725	75	2.88	2.36	1.98	.....	.....
5116-037750	95	2.88	2.36	1.98	.....	.....
5116-037775	50†	2.88	2.36	1.98	.....	.....
5116-037800	50	3.26	2.67	2.24	1.94	1.71
5116-037825	75	3.55	2.91	2.44	.....	.....
5116-037850	95	3.55	2.91	2.44	.....	.....
5116-037875	50†	3.55	2.91	2.44	.....	.....
5116-056825	75	2.60	2.14	1.79	1.55	1.36
5116-057400	95	2.33	1.91	1.60	1.38	1.22
5116-058350	50	2.23	1.83	1.53	1.32	1.17

\*50-ohm connectors for .075"-080" O.D. cable; 75-ohm for .090"-110" O.D. cable; 95-ohm for .141"-155" O.D. cable. †For .100"-110" O.D. cable.

Amphenol Crimping Tool No. 227-911—Net Each... \$16.00

## SUBMINAX SERIES 27 CONNECTORS

Miniature coaxial connectors feature full size electrical characteristics (50- and 75-ohm impedance) combined with lightweight design. Push-on or screw-on mating; differing types are not interchangeable.

### 50-OHM PUSH-ON TYPES

Amph. No.	Type	Net Each, Lots of				
		1-24	25-99	100-499	500-999	1000-2499
27-1	Plug	\$0.85	\$0.69	\$0.58	\$0.50	\$0.44
27-2	Jack	.85	.69	.58	.50	.44
27-3	Blkh. recept.	1.03	.85	.71	.62	.54
27-4	Blkh. jack	.89	.73	.61	.53	.....
27-5	Blkh. adapter	1.25	1.03	.88	.75	.....
27-6	Rt. angle plug	1.86	1.53	1.28	1.11	.98
27-27	Hermetic recept.	2.02	1.66	1.39	.....	.....
27-30*	Plug	2.30	1.89	1.58	1.37	.....
27-31*	Jack	3.45	2.83	2.37	.....	.....
27-32*	Blkh. jack	1.38	1.14	.95	.....	.....
27-33*	Rt. angle plug	3.07	2.52	2.11	.....	.....
27-801	Cable term.	1.92	1.58	1.32	.....	.....

\*Field serviceable type; requires no crimping.

### 75-OHM PUSH-ON TYPES

Amph. No.	Type	Net Each, Lots of				
		1-24	25-99	100-499	500-999	1000-2499
27-13	Plug	\$0.93	\$0.77	\$0.64	\$0.56	\$0.49
27-14	Jack	1.06	.87	.73	.....	.....
27-15	Blkh. recept.	1.11	.91	.76	.66	.58
27-16	Blkh. jack	1.15	.94	.79	.....	.....
27-17	Blkh. adapter	1.73	1.42	1.19	.....	.....
27-18	Rt. angle plug	1.92	1.58	1.32	1.14	.....
27-45	Hermetic recept.	3.55	2.91	2.44	.....	.....
27-804	Cable term.	1.92	1.58	1.32	.....	.....

### 50-OHM SCREW-ON TYPES

Amph. No.	Type	Net Each, Lots of				
		1-24	25-99	100-499	500-999	1000-2499
27-7	Plug	\$0.85	\$0.69	\$0.58	\$0.50	\$0.44
27-8	Jack	.66	.54	.45	.39	.35
27-9	Blkh. recept.	.85	.69	.58	.50	.44
27-10	Blkh. jack	.85	.69	.58	.50	.44
27-11	Blkh. adapter	1.35	1.11	.93	.81	.....
27-12	Hermetic recept.	1.95	1.60	1.34	1.16	1.02
27-26	Rt. angle plug	1.59	1.30	1.09	.94	.83
27-34*	Plug	1.86	1.53	1.28	1.11	.98
27-35*	Jack	1.73	1.42	1.19	.....	.....
27-36*	Blkh. jack	2.59	2.12	1.78	.....	.....
27-37*	Rt. angle plug	2.97	2.43	2.04	1.76	1.55
27-800	Recept.†	1.40	1.15	.96	.83	.73

\*Field serviceable type; requires no crimping. †Printed circuit board type.

### 75-OHM SCREW-ON TYPES

Amph. No.	Type	Net Each, Lots of				
		1-24	25-99	100-499	500-999	1000-2499
27-19	Plug	\$0.90	\$0.74	\$0.62	\$0.54	\$0.48
27-20	Jack	1.06	.87	.73	.....	.....
27-21	Blkh. recept.	.90	.74	.62	.54	.48
27-22	Blkh. jack	1.21	.99	.83	.72	.63
27-23	Blkh. adapter	1.59	1.30	1.09	.94	.83
27-24	Hermetic recept.	5.01	4.11	3.45	2.98	2.63
27-25	Rt. angle plug	1.67	1.37	1.15	1.00	.88

## SUBMINAX TO BNC BETWEEN SERIES ADAPTERS

For use with BNC plug; replaces BNC center contact and cable clamp. "Adapted" plug mates with Subminax Series 27 plug and BNC receptacle.

Amph. No.	Replaces Contact and Clamp in BNC Military Number	Net Each, Lots of				
		1-24	25-99	100-499	500-999	1000-2499
27-28	UG-88/U	\$1.03	\$0.85	\$0.71	\$0.62	\$0.54
27-29	UG-88/U	1.73	1.42	1.19	.....	.....
27-40	UG-89/U, -291/U	1.73	1.42	1.19	.....	.....
27-41	UG-260B/U	4.42	3.62	3.04	.....	.....
27-42	UG-261B/U, -262B/U	2.49	2.04	1.71	.....	.....
27-805	UG-260B/U	2.49	2.04	1.71	.....	.....

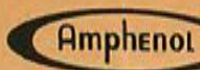


## MHV CONNECTORS

High voltage coaxial connectors feature small size and bayonet lock coupling. Rated 5,000 volts max.; up to 50 Mc.

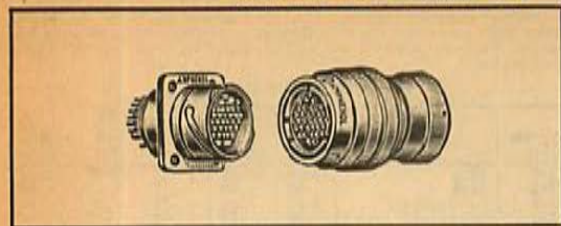
Amph. No.	Military No.	Net Each, Lots of				
		1-24	25-99	100-499	500-999	1000-2499
27900	UG-931/U	\$2.04	\$1.67	\$1.40	\$1.21	\$1.07
28000	UG-932/U	1.92	1.58	1.32	1.14	1.01
28225	UG-961/U	2.81	2.30	1.93	.....	.....





# Miniature Connectors

## MINNI-E® SERIES 67 MINIATURE CONNECTORS



Quick disconnect, multi-contact, miniature bayonet connectors are environment sealed with unitized back end grommet or provision for potting. Shells are polarized for easy mating alignment; single key on 12, 14 and 18 sizes, 5 keys for sizes 20 and 22. Spring-loaded coupling ring for positive locking action in bayonet slot; stainless steel slots and pins. Hooded contacts resist test prod damage. Contacts gold plated over silver. Visual engagement indicator built-in. Face seal gasket has individual barriers; hard insert dielectric. **Insulation Resistance:** 100 megohms, min. after altitude-moisture resistance test. **Test Voltage:** 1500 V. rms, 70,000 ft. on sealed connectors. **Vibration:** 10-2,000 ops at 20 G's per Method 204 of MIL-STD-202A. **Temperature Cycling:** Per MIL-C-5015, Para. 4.5.3 increased to 257° F max., -67° F. min. Dialyl phthalate dielectric except hermetically sealed type. **Type P:** Potting mold meets MIL-C-5015. Indicated by P in number (example: 67-01P12-75). Comes with disposable polyethylene potting form. **Type E:** Meets MIL-C-5015. With unitized grommet and clamp; individual wire seal. **Type J:** For use with jacketed cables; has waterproofing type cable clamp. **Type C:** General duty construction has standard type cable clamp to provide strong support for jacketed cables or unjacketed individual wire leads. When potted, meets requirements of "E" performance while providing a mechanical cable support. **Type H:** Glass dielectric hermetically sealed. **For X or W Positioning:** Specify by adding appropriate suffix, and 20c (1-24), 18c (25-99) or 35c (100-199) to net price shown.

### CABLE-TO-CABLE RECEPTACLES WITH FORM FOR POTTING SEAL

No. Contacts	Pin Contacts			Socket Contacts		
	Amph. No. 67-01-	Net Each, Lots of	Amph. No. 67-01-	Net Each, Lots of	Amph. No. 67-01-	Net Each, Lots of
		1-24 25-99 100-199		1-24 25-99 100-199		1-24 25-99 100-199
7	P12-7P	\$ 7.56 \$ 6.62 \$ 5.67	P12-7S	\$ 9.04 7.91 \$ 6.78		
3	P12-60P	7.46 6.53 5.60	P12-60S	8.28 7.25 6.21		
5	P14-5P	6.18 5.41 4.64	P14-5S	7.04 6.16 5.28		
9	P14-9P	6.58 7.46 4.94	P14-9S	7.76 6.79 5.82		
12	P14-12P	6.66 5.83 5.00	P14-12S	8.10 7.09 6.08		
9	P14-61P	7.56 6.62 5.67	P14-61S	11.16 9.77 8.37		
5	P14-63P	6.96 6.09 5.22	P14-63S	8.00 7.00 6.00		
24	P18-24P	7.46 6.53 5.60	P18-24S	10.90 9.54 8.18		
20	P18-62P	8.76 7.67 6.57	P18-62S	15.94 13.99 11.96		
14	P18-64P	8.48 7.42 6.36	P18-64S	9.46 8.28 7.10		
11	P18-65P	9.34 8.17 7.01	P18-65S	8.76 7.67 6.57		
10	P20-37P	11.24 9.87 8.46	P20-37S	16.22 14.19 12.17		
37	E20-66P	9.56 8.37 7.17	E20-66S	12.74 11.15 9.56		
48	E22-48P	12.54 10.97 9.41	E22-48S	18.64 16.31 13.98		
25	E22-67P	10.82 9.47 8.12	E22-67S	15.04 13.16 11.28		
38	E22-68P	11.68 10.22 8.76	E22-68S	16.92 14.81 12.69		
42	E22-69P	12.22 10.69 9.17	E22-69S	17.44 15.26 13.08		

### WITH INDIVIDUAL WIRE SEAL GROMMET

No. Contacts	Amph. No. 67-01-	Net Each, Lots of	Amph. No. 67-01-	Net Each, Lots of
		1-24 25-99 100-199		1-24 25-99 100-199
7	E12-7P	\$ 9.62 \$ 8.42 \$ 7.22	E12-7S	\$ 11.10 \$ 9.71 \$ 8.33
3	E12-60P	9.62 8.42 7.22	E12-60S	10.44 9.14 7.83
5	E14-5P	8.42 7.37 6.32	E14-5S	9.10 8.14 6.98
9	E14-9P	8.82 7.72 6.62	E14-9S	10.02 8.77 7.52
12	E14-12P	8.70 7.61 6.51	E14-12S	10.14 8.87 7.61
9	E14-61P	10.20 8.93 7.65	E14-61S	13.80 12.08 10.35
5	E14-63P	9.10 7.96 6.83	E14-63S	10.36 9.07 7.77
24	E18-24P	10.38 9.08 7.79	E18-24S	13.82 12.09 10.37
20	E18-62P	12.48 10.92 9.36	E18-62S	19.68 17.22 14.76
14	E18-64P	11.06 9.68 8.30	E18-64S	12.04 10.54 9.03
11	E18-65P	11.82 10.34 8.87	E18-65S	11.24 9.84 8.43
37	E20-37P	13.76 12.04 10.32	E20-37S	18.62 16.29 13.97
10	E20-66P	11.42 9.99 8.57	E20-66S	14.58 12.76 10.94
48	E22-48P	13.76 12.04 10.32	E22-48S	19.86 17.38 14.90
25	E22-67P	12.46 10.90 9.35	E22-67S	16.68 14.60 12.51
38	E22-68P	13.58 11.88 10.19	E22-68S	18.80 16.45 14.10
42	E22-69P	13.76 12.04 10.32	E22-69S	19.00 16.63 14.25

### WITH CLAMP FOR JACKETED CABLE

No. Contacts	Amph. No. 67-01-	Net Each, Lots of	Amph. No. 67-01-	Net Each, Lots of
		1-24 25-99 100-199		1-24 25-99 100-199
7	J12-7P	\$ 7.70 \$ 6.74 \$ 5.78	J12-7S	\$ 9.18 \$ 8.03 \$ 6.89
3	J12-60P	7.60 6.65 5.70	J12-60S	8.42 7.37 6.32
5	J14-5P	12.48 10.92 9.36	J14-5S	13.34 11.67 10.01
9	J14-9P	12.88 11.27 9.66	J14-9S	14.06 12.30 10.55
12	J14-12P	12.96 11.34 9.72	J14-12S	14.40 12.60 10.80
9	J14-61P	13.86 12.13 10.40	J14-61S	17.46 15.28 13.10
5	J14-63P	13.06 11.43 9.80	J14-63S	14.32 12.53 10.74
24	J18-24P	8.14 7.32 6.11	J18-24S	11.58 10.13 8.69
20	J18-62P	9.44 8.26 7.08	J18-62S	16.62 14.54 12.47
14	J18-64P	9.16 8.02 6.87	J18-64S	10.14 8.87 7.61
11	J18-65P	10.02 8.77 7.52	J18-65S	9.44 8.26 7.08
37	J20-37P	16.00 14.00 12.00	J20-37S	20.86 18.25 15.65
10	J20-66P	14.28 12.50 10.71	J20-66S	17.44 15.26 13.08
48	J22-48P	17.90 15.66 13.43	J22-48S	20.40 18.00 15.60
25	J22-67P	16.18 14.16 12.14	J22-67S	20.40 17.85 15.30
38	J22-68P	17.04 14.91 12.78	J22-68S	22.26 19.48 16.70
42	J22-69P	17.58 15.38 13.19	J22-69S	22.80 19.95 17.10

### WITH STANDARD CABLE CLAMP

No. Contacts	Amph. No. 67-01-	Net Each, Lots of	Amph. No. 67-01-	Net Each, Lots of
		1-24 25-99 100-199		1-24 25-99 100-199
7	C12-7P	\$ 9.00 \$ 7.88 \$ 6.75	C12-7S	\$ 10.48 \$ 9.17 \$ 7.86
3	C12-60P	8.90 7.79 6.68	C12-60S	9.72 8.51 7.29
5	C14-5P	8.36 7.32 6.27	C14-5S	9.22 8.07 6.92
9	C14-9P	8.76 7.67 6.57	C14-9S	9.94 8.70 7.46
12	C14-12P	8.84 7.74 6.63	C14-12S	10.28 9.00 7.71
9	C14-61P	9.74 8.52 7.31	C14-61S	13.14 11.67 10.01
5	C14-63P	8.94 7.82 6.71	C14-63S	10.20 8.97 7.65
24	C18-24P	9.36 8.19 7.02	C18-24S	12.80 11.20 9.60
20	C18-62P	10.66 9.33 8.00	C18-62S	17.84 15.61 13.38
14	C18-64P	10.38 9.08 7.79	C18-64S	11.36 9.94 8.52
11	C18-65P	11.22 9.82 8.42	C18-65S	10.66 9.33 8.00
37	C20-37P	15.46 13.53 11.60	C20-37S	18.26 15.98 13.70
10	C20-66P	11.66 10.20 8.75	C20-66S	14.84 12.99 11.13
48	C22-48P	14.46 12.65 10.85	C22-48S	20.86 17.99 15.42
25	C22-67P	12.74 11.15 9.56	C22-67S	16.96 14.84 12.72
38	C22-68P	13.60 11.90 10.20	C22-68S	18.82 16.47 14.12
42	C22-69P	14.14 12.37 10.61	C22-69S	19.36 16.94 14.52

### PLUGS WITH FORM FOR POTTING SEAL

No. Contacts	Pin Contacts			Socket Contacts		
	Amph. No. 67-06-	Net Each, Lots of	Amph. No. 67-06-	Net Each, Lots of	Amph. No. 67-06-	Net Each, Lots of
		1-24 25-99 100-199		1-24 25-99 100-199		1-24 25-99 100-199
7	P12-7P	\$ 7.12 \$ 6.23 \$ 5.34	P12-7S	\$ 8.62 \$ 7.54 \$ 6.47		
3	P12-60P	7.02 6.14 5.27	P12-60S	7.84 6.86 5.88		
5	P14-5P	5.98 5.23 4.49	P14-5S	6.84 5.99 5.13		
9	P14-9P	6.36 5.57 4.77	P14-9S	7.56 6.62 5.67		
12	P14-12P	6.44 5.64 4.83	P14-12S	7.88 6.90 5.91		
9	P14-61P	7.36 6.44 5.52	P14-61S	10.96 9.59 8.22		
5	P14-63P	6.56 5.74 4.92	P14-63S	8.02 7.02 6.02		
24	P18-24P	7.46 6.53 5.60	P18-24S	10.90 9.54 8.18		
20	P18-62P	8.76 7.67 6.57	P18-62S	15.94 13.99 11.96		
14	P18-64P	8.48 7.42 6.36	P18-64S	9.46 8.28 7.10		
11	P18-65P	9.34 8.17 7.01	P18-65S	8.76 7.67 6.57		
37	P20-37P	11.34 9.92 8.53	P20-37S	16.20 14.18 12.15		
10	E20-66P	9.60 8.40 7.20	E20-66S	12.78 11.18 9.59		
48	E22-48P	12.26 10.73 9.20	E22-48S	18.36 16.07 13.77		
25	E22-67P	10.52 9.21 7.89	E22-67S	14.74 12.90 11.06		
38	E22-68P	11.40 9.98 8.55	E22-68S	16.62 14.54 12.47		
42	E22-69P	11.92 10.43 8.94	E22-69S	17.16 15.02 12.87		

### WITH INDIVIDUAL WIRE SEAL GROMMET

No. Contacts	Amph. No. 67-06-	Net Each, Lots of	Amph. No. 67-06-	Net Each, Lots of
		1-24 25-99 100-199		1-24 25-99 100-199
7	E12-7P	\$ 9.18 \$ 8.03 \$ 6.89	E12-7S	\$ 10.68 \$ 9.35 \$ 8.01
3	E12-60P	9.18 8.03 6.89	E12-60S	10.02 8.77 7.52
5	E14-5P	8.22 7.19 6.17	E14-5S	9.08 7.95 6.81
9	E14-9P	8.94 7.82 6.71	E14-9S	10.14 8.87 7.61
12	E14-12P	8.48 7.42 6.36	E14-12S	9.92 8.68 7.44
9	E14-61P	10.00 8.75 7.50	E14-61S	13.60 11.90 10.20
5	E14-63P	8.90 7.79 6.68	E14-63S	10.16 8.89 7.62
24	E18-24P	10.38 9.08 7.79	E18-24S	13.82 12.09 10.37
20	E18-62P	12.48 10.92 9.36	E18-62S	19.68 17.22 14.76
14	E18-64P	11.06 9.68 8.30	E18-64S	12.04 10.54 9.03
11	E18-65P	11.82 10.34 8.87	E18-65S	11.24 9.84 8.43
37	E20-37P	13.76 12.04 10.32	E20-37S	18.62 16.29 13.97
10	E20-66P	11.42 9.99 8.57	E20-66S	14.58 12.76 10.94
48	E22-48P	13.76 12.04 10.32	E22-48S	19.86 17.38 14.90
25	E22-67P	12.46 10.90 9.35	E22-67S	16.68 14.60 12.51
38	E22-68P	13.28 11.62 9.96	E22-68S	18.52 16.21 13.89
42	E22-69P	13.48 11.80 10.12	E22-69S	18.70 16.36 14.03

### WITH CLAMP FOR JACKETED CABLE

No. Contacts	Amph. No. 67-06-	Net Each, Lots of	Amph. No. 67-06-	Net Each, Lots of
		1-24 25-99 100-199		1-24 25-99 100-199
7	J12-7P	\$ 7.32 \$ 6.41 \$ 5.49	J12-7S	\$ 8.14 \$ 7.12 \$ 6.11
3	J12-60P	7.32 6.41 5.49	J12-60S	8.14 7.12 6.11
5	J14-5P	8.52 7.46 6.39	J14-5S	9.40 8.23 7.05
9	J14-9P	8.92 7.81 6.69	J14-9S	10.12 8.86 7.59
12	J14-12P	9.00 7.88 6.75	J14-12S	10.44 9.14 7.83
9	J14-61P	9.80 8.66 7.43	J14-61S	13.52 11.83 10.14
5	J14-63P	9.10 7.96 6.83	J14-63S	11.36 9.07 7.77
24	J18-24P	8.14 7.32 6.11	J18-24S	11.58 10.13 8.69
20	J18-62P	9.78 8.56 7.34	J18-62S	16.98 14.86 12.74
14	J18-64P	9.52 8.33 7.14	J18-64S	10.48 9.17 7.86
11	J18-65P	10.36 9.07 7.77	J18-65S	9.78 8.56 7.34
37	J20-37P	14.30 12.51 10.73	J20-37S	19.16 16.77 14.37
10	J20-66P	12.56 10.99 9.42	J20-66S	15.74 13.77 11.81
48	J22-48P	16.22 14.19 12.17	J22-48S	22.30 19.51 16.73
25	J22-67P	14.48 12.67 10.85	J22-67S	18.70 16.36 14.03
38	J22-68P	15.34 13.42 11.51	J22-68S	20.58 18.01 15.44
42	J22-69P	15.88 13.90 11.91	J22-69S	21.12 18.48 15.84

### WITH STANDARD CABLE CLAMP

No. Contacts	Amph. No. 67-06-	Net Each, Lots of	Amph. No. 67-06-	Net Each, Lots of
		1-24 25-99 100-199		1-24 25-99 100-199
7	C12-7P	\$ 8.56 \$ 7.49 \$ 6.42	C12-7S	\$ 10.08 \$ 8.80 \$ 7.55
3	C12-60P	8.46 7.40 6.35	C12-60S	9.30 8.14 6.98
5	C14-5P	8.16 7.14 6.12	C14-5S	9.02 7.89 6.77
9	C14-9P	8.54 7.47 6.41	C14-9S	9.74 8.52 7.31
12	C14-12P	8.64 7.56 6.48	C14-12S	10.08 8.82 7.56
9	C14-61P	9.54 8.35 7.16	C14-61S	13.14 11.50 9.86</



# Miniature Connectors, Audio Plugs

## AMPHENOL MINNI-E® SERIES 67 MINIATURE CONNECTORS (CONTINUED)

### WALL RECEPTACLES WITH FORM FOR POTTING SEAL

No. Con- tacts	Pin Contacts				Socket Contacts				
	Amph. No. 67-00-	Net Each, Lots of		Amph. No. 67-00-	Net Each, Lots of		Amph. No. 67-00-	Net Each, Lots of	
		1-24	25-99		1-24	25-99		1-24	25-99
7	P12-7P	\$ 7.62	\$ 6.67	5.77	P12-7S	\$ 9.10	\$ 7.96	\$ 6.83	
3	P12-60P	7.52	6.58	5.64	P12-60S	8.34	7.30	6.26	
5	P14-5P	6.94	6.07	5.21	P14-5S	7.80	6.83	5.85	
9	P14-9P	7.34	6.42	5.51	P14-9S	8.52	7.46	6.39	
12	P14-12P	7.42	6.49	5.57	P14-12S	8.86	7.75	6.65	
9	P14-61P	8.32	7.28	6.24	P14-61S	11.92	10.43	8.94	
5	P14-63P	7.52	6.58	5.64	P14-63S	8.78	7.68	6.59	
24	P18-24P	8.18	7.16	6.14	P18-24S	11.62	10.17	8.72	
20	P18-62P	9.48	8.30	7.11	P18-62S	16.66	14.58	12.50	
14	P18-64P	9.20	8.05	6.90	P18-64S	10.18	8.91	7.64	
11	P18-65P	10.06	8.80	7.55	P18-65S	9.48	8.30	7.11	
37	P20-37P	12.14	10.62	9.11	P20-37S	17.00	14.88	12.75	
19	P20-66P	10.40	9.10	7.80	P20-66S	13.58	11.88	10.19	
48	P22-48P	14.50	12.78	10.95	P22-48S	20.70	18.11	15.53	
38	P22-67P	12.88	11.27	9.65	P22-67S	17.10	14.96	12.83	
48	P22-68P	13.74	12.02	10.31	P22-68S	18.98	16.61	14.24	
42	P22-69P	14.28	12.50	10.71	P22-69S	19.50	17.06	14.63	

### PANEL RECEPTACLES WITH 4-HOLE MOUNT AND INDIVIDUAL WIRE SEAL GROMMET

No. Con- tacts	Pin Contacts				Socket Contacts				
	Amph. No. 67-02-	Net Each, Lots of		Amph. No. 67-02-	Net Each, Lots of		Amph. No. 67-02-	Net Each, Lots of	
		1-24	25-99		100-199	1-24		25-99	100-199
7	E12-7P	\$ 5.54	\$ 4.85	\$ 4.16	E12-7S	\$ 7.02	\$ 6.14	\$ 5.27	
3	E12-60P	5.42	4.74	4.07	E12-60S	6.30	5.51	4.73	
5	E14-5P	4.88	4.27	3.66	E14-5S	5.74	5.02	4.31	
9	E14-9P	5.30	4.64	3.98	E14-9S	6.48	5.67	4.86	
12	E14-12P	5.34	4.67	4.01	E14-12S	7.14	6.25	5.36	
9	E14-61P	6.28	5.50	4.71	E14-61S	9.90	8.66	7.43	
5	E14-63P	5.46	4.78	4.10	E14-63S	6.72	5.88	5.04	
24	E18-24P	6.60	5.78	4.95	E18-24S	9.92	8.68	7.44	
20	E18-62P	7.46	6.53	5.60	E18-62S	12.60	11.03	9.45	
14	E18-64P	7.08	6.20	5.31	E18-64S	8.12	7.11	6.09	
11	E18-65P	8.02	7.02	6.02	E18-65S	7.44	6.51	5.58	
37	E20-37P	11.08	9.70	8.31	E20-37S	14.58	12.76	10.94	
19	E20-66P	8.40	7.35	6.30	E20-66S	7.98	6.98	5.99	
48	E22-48P	11.82	10.34	8.87	E22-48S	17.66	15.45	13.25	
25	E22-67P	9.78	8.56	7.34	E22-67S	14.06	12.30	10.55	
38	E22-68P	10.88	9.52	8.16	E22-68S	16.30	14.26	12.23	
42	E22-69P	11.38	9.96	8.54	E22-69S	16.84	14.74	12.63	

### WITH INDIVIDUAL WIRE SEAL GROMMET

No. Con- tacts	Pin Contacts				Socket Contacts				
	Amph. No. 67-03-	Net Each, Lots of		Amph. No. 67-03-	Net Each, Lots of		Amph. No. 67-03-	Net Each, Lots of	
		1-24	25-99		100-199	1-24		25-99	100-199
7	E12-7P	\$ 9.68	\$ 8.47	\$ 7.26	E12-7S	\$ 11.16	\$ 9.77	\$ 8.37	
3	E12-60P	9.68	8.47	7.26	E12-60S	10.50	9.19	7.88	
5	E14-5P	9.18	8.00	6.89	E14-5S	10.06	8.89	7.55	
9	E14-9P	9.90	8.66	7.43	E14-9S	11.10	9.71	8.33	
12	E14-12P	9.46	8.28	7.10	E14-12S	10.90	9.54	8.18	
9	E14-61P	10.96	9.59	8.22	E14-61S	14.56	12.74	10.92	
5	E14-63P	9.86	8.63	7.40	E14-63S	11.12	9.73	8.34	
24	E18-24P	11.10	9.71	8.33	E18-24S	14.54	12.72	10.91	
20	E18-62P	13.20	11.55	9.90	E18-62S	20.40	17.85	15.30	
14	E18-64P	11.78	10.31	8.84	E18-64S	12.76	11.17	9.57	
11	E18-65P	12.54	10.97	9.41	E18-65S	11.96	10.47	8.97	
37	E20-37P	14.60	12.78	10.95	E20-37S	19.46	17.03	14.60	
19	E20-66P	12.26	10.73	9.20	E20-66S	15.42	13.49	11.57	
48	E22-48P	15.82	13.81	11.87	E22-48S	21.92	19.18	16.44	
25	E22-67P	14.52	12.74	10.89	E22-67S	18.74	16.40	14.06	
38	E22-68P	15.64	13.69	11.73	E22-68S	20.86	18.25	15.65	
42	E22-69P	15.82	13.84	11.87	E22-69S	21.06	18.43	15.80	

### WITH STANDARD CABLE CLAMP

No. Con- tacts	Pin Contacts				Socket Contacts				
	Amph. No. 67-00-	Net Each, Lots of		Amph. No. 67-00-	Net Each, Lots of		Amph. No. 67-00-	Net Each, Lots of	
		1-24	25-99		100-199	1-24		25-99	100-199
7	C12-7P	\$ 9.06	\$ 7.93	\$ 6.80	C12-7S	\$ 10.54	\$ 9.22	\$ 7.91	
3	C12-60P	8.96	7.84	6.72	C12-60S	9.78	8.56	7.34	
5	C14-5P	9.10	7.98	6.86	C14-5S	10.60	9.38	8.16	
9	C14-9P	9.52	8.33	7.14	C14-9S	10.72	9.38	8.04	
12	C14-12P	9.60	8.40	7.20	C14-12S	11.04	9.66	8.28	
9	C14-61P	10.50	9.19	7.88	C14-61S	14.12	12.36	10.59	
5	C14-63P	9.70	8.49	7.28	C14-63S	10.96	9.59	8.22	
24	C18-24P	10.08	8.82	7.56	C18-24S	13.52	11.83	10.14	
20	C18-62P	11.38	9.96	8.54	C18-62S	18.56	16.24	13.92	
14	C18-64P	11.10	9.71	8.33	C18-64S	12.08	10.57	9.06	
11	C18-65P	11.94	10.45	8.96	C18-65S	11.38	9.96	8.54	
37	C20-37P	14.24	12.46	10.68	C20-37S	19.10	16.71	14.33	
19	C20-66P	12.50	10.94	9.38	C20-66S	15.68	13.72	11.76	
48	C22-48P	16.52	14.46	12.39	C22-48S	22.62	19.79	16.97	
25	C22-67P	14.80	12.95	11.10	C22-67S	19.02	16.64	14.27	
38	C22-68P	15.66	13.70	11.75	C22-68S	20.88	18.27	15.66	
42	C22-69P	16.20	14.18	12.15	C22-69S	21.42	18.74	16.07	

### ROUND FLANGE RECEPTACLES REAR MOUNT WITH HEX NUT

No. Con- tacts	Pin Contacts				Socket Contacts				
	Amph. No. 67-03-	Net Each, Lots of		Amph. No. 67-03-	Net Each, Lots of		Amph. No. 67-03-	Net Each, Lots of	
		1-24	25-99		100-199	1-24		25-99	100-199
7	E12-7P	\$ 6.30	\$ 5.51	\$ 4.73	E12-7S	\$ 7.78	\$ 6.81	\$ 5.84	
3	E12-60P	6.18	5.41	4.64	E12-60S	7.24	6.27	5.30	
5	E14-5P	5.40	4.73	4.05	E14-5S	6.26	5.48	4.70	
9	E14-9P	5.80	5.08	4.35	E14-9S	7.00	6.13	5.25	
12	E14-12P	5.86	5.13	4.40	E14-12S	7.66	6.70	5.75	
9	E14-61P	6.80	5.95	5.10	E14-61S	10.42	9.12	7.82	
5	E14-63P	5.98	5.23	4.49	E14-63S	7.24	6.34	5.43	
24	E18-24P	7.16	6.27	5.37	E18-24S	10.52	9.21	7.89	
20	E18-62P	8.04	7.04	6.03	E18-62S	13.18	11.53	9.89	
14	E18-64P	7.66	6.70	5.75	E18-64S	8.70	7.61	6.53	
11	E18-65P	8.62	7.54	6.47	E18-65S	8.02	7.02	6.02	
37	E20-37P	11.84	10.36	8.87	E20-37S	15.38	13.46	11.54	
19	E20-66P	9.14	8.00	6.86	E20-66S	12.34	10.80	9.26	
48	E22-48P	13.34	11.67	10.01	E22-48S	19.18	16.78	14.39	
25	E22-67P	11.34	9.92	8.51	E22-67S	15.62	13.67	11.72	
38	E22-68P	12.40	10.85	9.30	E22-68S	17.82	15.59	13.37	
42	E22-69P	12.92	11.31	9.69	E22-69S	18.36	16.07	13.77	

### HERMETICALLY-SEALED, PIN CONTACT

No. Con- tacts	Amph. No. 67-04-	Hex Nut Front Mount Type			Stake-On Solder Flange Type*		
		Net Each, Lots of		100-199	Net Each, Lots of		100-199
		1-24	25-99		1-24	25-99	
7	H12-7P	\$ 19.32	\$ 16.91	\$ 14.49	\$ 9.76	\$ 8.54	\$ 7.32
12	H14-12P	22.34	19.55	16.76	12.14	10.62	9.11
9	H14-61P	24.20	21.18	18.15	13.18	11.53	9.89
24	H18-24P	30.26	26.48	22.70	17.54	15.35	13.16
20	H18-62P	33.58	29.38	25.19	16.88	14.77	12.66
37	H20-37P	41.52	36.33	31.14	28.86	25.25	21.65
48	H22-48P	41.52	36.33	31.14	35.46	31.03	26.60

\*Add suffix (105) when ordering—example: 67-04-H12-7P(105)—stake-on solder flange type.

## CANNON LK, LKT AND SK AUDIO PLUGS

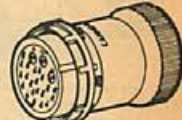
Same as CANNON K Plugs, but used for audio, TV and telephone equipment. LKT types are television plugs with special shells or cable entries. **LK and LKT Plugs:** Have 24 contacts of which 21 are 15-amp type; other three as follows: -A24C numbers have three coax for RG-59/U or -62/U; -E24C numbers, two RG-59/U and one RG-58/U coax; -B24C numbers, two RG-59/U and one RG-7/U coax; -R24C numbers, three RG-58/U coax. Following suffix indicates shell type and insert: 21, socket; 22, pin plug; 23, 90° angle socket; 24, 90° angle pin plug; 31, flange-mount receptacle; 32, flange-mount pin receptacle. **C** indicates cable clamp entries. **Final Suffix:** Indicates cable size (i.e., 1/2 for 1/2", etc.). **SK Plugs:** Have three contacts rated 10 amps plus 4 rated 30 amps. Shell and insert, cable entries and final suffix same as **LK** and **LKT**.



LK-R24C-31S Recept.



LK-R24C-32S



LKT-R24C-21 1/2

Cannon Number	Net Ea., Lots	
	1-9	10-49
LK-R24C-21-1/2 T	\$21.44	\$17.87
LK-R24C-22-1/2 T	20.10	16.75

Cannon Number	Net Ea., Lots	
	1-9	10-49
LK-A24C-31S	\$15.45	\$12.88
LK-E24C-31S	15.44	12.87
LK-R24C-31S	13.79	11.49
LK-E24C-32S	11.53	9.61
LK-R24C-32S	10.04	8.37
LKT-B24C-21-1/2	25.99	21.66
LKT-B24C-22-1/2	25.26	21.05
LKT-E24C-22-1/2	26.00	21.67
LKT-E24C-23-1/2	32.42	27.02
LKT-R24C-21-1/2	26.13	21.77
LKT-R24C-21-1/2-4	25.67	21.39
LKT-R24C-22-1/2	25.45	21.23
LKT-R24C-22-1/2-4	24.94	20.78
LKT-R24C-23-1/2	32.97	27.47

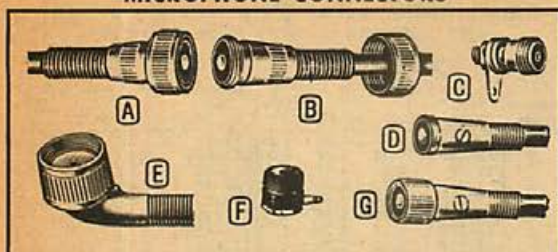
Cannon Number	Net Ea., Lots	
	1-9	10-49
LKT-R24C-24-1/2	\$31.97	\$26.64
LKT-59A-2DC*	3.10	2.58
LKT-60A-2DC†	2.89	2.41
SK-M7-21C-1/2	4.53	3.77
SK-M7-21C-3/4	4.53	3.77
SK-M7-21C-1	4.33	3.77
SK-M7-23C-1/2	5	





# Mike and RF Connectors

## AMPHENOL SERIES 75 MICROPHONE CONNECTORS

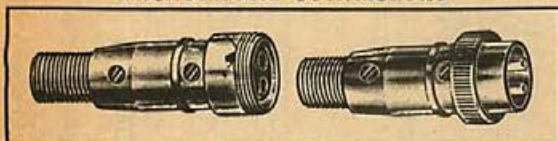


Unique button contact and threaded coupling permit plug conversion to jack by removal of coupling ring. Receptacles mount in .385" holes when grounding, .500" holes for ungrounded two circuit operation, except miniature versions 75-1, -2, -3 which mount in  $\frac{1}{4}$ " chassis hole. Bright chrome finish.

Amphenol No.	Description	Fig.	Net Each, Lots of				
			1-24	25-99	100-249	250-499	500-999
75-CC1	Cap and Chain Chassis Recept.*	...	\$0.44	\$0.36	\$0.31	\$0.28	\$0.25
75-CL-PC1M	...	...	.52	.43	.36	.33	.29
75-MC1F	Straight Plug	A	.46	.38	.32	.29	.26
75-MC1FA	Angie Plug	E	1.28	1.06	.90	.80	.72
75-MC1M	Cable Jack	B	.42	.35	.29	.26	.24
75-MC1S	Mike Switch	...	1.98	1.63	1.39	1.34	1.24
75-PC1M	Chassis Recept.	F	.37	.30	.26	.23	.20
75-1	Plug	G	.48	.40	.34	.30	.27
75-2	Jack	D	.29	.24	.21	.184	.155
75-3	Receptacle	C	.33	.28	.23	.21	.187

\*Closed circuit.

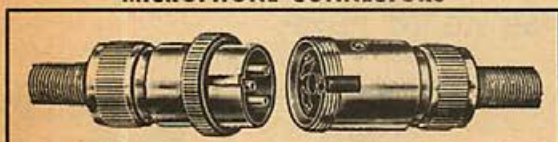
## AMPHENOL SERIES 80 MICROPHONE CONNECTORS



Receptacles mount in  $\frac{1}{2}$ " chassis hole with maximum panel thickness of  $\frac{1}{16}$ ". Single contacts, except (\*), 2 contacts.

Amphenol No.	Description	Net Each, Lots of				
		1-24	25-99	100-249	250-499	500-999
80-C	Female Recept.	\$0.60	\$0.50	\$0.42	\$0.38	\$0.34
80-C1	Male Recept.	.60	.50	.42	.38	.34
80-F	Female Jack	.58	.46	.39	.35	.31
80-F1	Female Plug	.66	.54	.46	.41	.37
80-M	Male Plug	.64	.53	.45	.40	.36
80-M1	Male Jack	.52	.43	.36	.33	.29
80-MC2F	Female Jack*	.62	.51	.43	.39	.35
80-MC2F1	Female Plug*	.70	.58	.49	.44	.39
80-MC2M	Male Plug*	.68	.56	.48	.43	.38
80-MC2M1	Male Jack*	.52	.43	.36	.33	.29
80-PC2F	Female Recept.*	.60	.50	.42	.38	.34
80-PC2M	Male Recept.*	.60	.50	.42	.38	.34

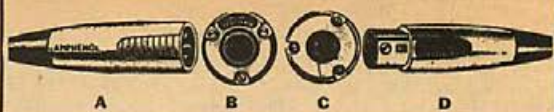
## AMPHENOL SERIES 91 MICROPHONE CONNECTORS



Mounting hole,  $\frac{1}{2}$ " diameter; maximum  $\frac{1}{8}$ " thick panel. Three contacts, except (\*) 4 contacts, (†), 6 contacts. Chrome finish.

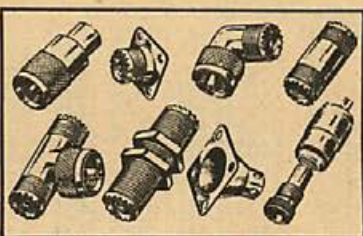
Amphenol No.	Description	Net Each, Lots of				
		1-24	25-99	100-249	250-499	500-999
91-CCC3	Cap and Chain	\$0.38	\$0.32	\$0.27	\$0.24	\$0.22
91-MC3F	Female Jack	.84	.69	.59	.53	.47
91-MC3F1	Female Plug	.92	.76	.64	.58	.52
91-MC3M	Male Plug	.88	.73	.62	.55	.49
91-MC3M1	Male Jack	.80	.66	.56	.50	.45
91-MC4F	Female Jack*	.90	.74	.63	.56	.50
91-MC4F1	Female Plug*	.98	.81	.69	.61	.55
91-MC4M	Male Plug*	.90	.74	.63	.56	.50
91-MC4M1	Male Jack†	.82	.68	.57	.51	.46
91-MC6F	Female Jack†	1.20	1.10	1.01	.84	.72
91-MC6M	Male Plug†	1.14	1.04	.95	.80	.68
91-PC3F	Female Recept.	.72	.59	.50	.45	.40
91-PC6F	Female Recept.†	.79	.72	.66	.55	.48
91-PC3M	Male Recept.	.82	.68	.57	.51	.46
91-PC4F	Female Recept.*	.74	.61	.52	.46	.41
91-PC4M	Male Recept.*	.82	.68	.57	.51	.46

## AMPHENOL QWIK MICROPHONE CONNECTORS



Extra efficient male or female plugs or receptacles; 3 or 4 contacts. Dielectric is Amphenol 1-501 blue, diallyl phthalate; gold plated contacts; corrosion resistant nickel finish. Four contacts, except (†), 3 contacts.

Amph. No.	Fig.	Description	Net Each, Lots of				
			1-24	25-99	100-249	250-499	500-999
91-853	A†	Male Plug	\$1.34	\$1.11	\$0.94	\$0.84	\$0.75
91-854	D†	Female Jack	1.54	1.27	1.08	.96	.86
91-855	C†	Male Receptacle	1.00	.83	.70	.63	.56
91-856	B†	Female Recept.	2.23	1.84	1.56	1.39	1.25
91-857	A	Male Plug	1.42	1.17	.99	.89	.80
91-858	D	Female Jack	1.96	1.62	1.37	1.23	1.10
91-859	C	Male Recept.	1.04	.86	.73	.65	.58
91-860	B	Female Recept.	2.29	1.89	1.60	1.43	1.28



## AMPHENOL SERIES 83 COAXIAL CONNECTORS UHF TYPE

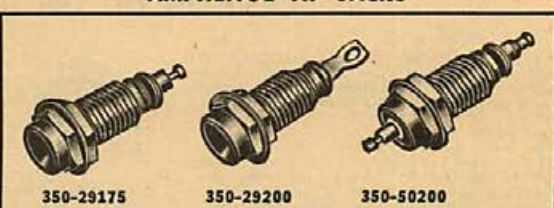
Low cost, general purpose connectors of non-constant impedance. Meet military specifications.

## SMALL, SINGLE CONTACT CONNECTORS

Amphenol No.	UG/U No.	Use With RG/U	Net Each, Lots of				
			1-24	25-99	100-499	500-999	1000-2499
83-1SP*	PL259	8, 11	\$ 0.51	\$0.42	\$0.35	\$0.31	\$0.27
83-1SPN*	PL259A	8, 11	.76	.62	.52	.45	.40
83-86*	17	10.18	8.35	7.01	...	...	...
83-750*	111/U	59, 62	.76	.62	.52	.45	.40
83-850*	11	2.44	2.00	1.68	1.45	...	...
83-851*	8	1.79	1.47	1.23	...	...	
83-89†	8, 11	2.76	2.27	1.90	1.64	1.45	
83-1R†	S0239	...	.51	.42	.35	.31	.27
83-1RT†	S0239	...	.63	.52	.43	.38	.33
83-716†	...	...	3.18	2.61	2.19	...	...
83-798†	S0239A	...	1.14	.93	.78	.68	.60
83-1F†	363/U	...	1.92	1.58	1.32	1.14	1.01
83-1J†	299/U	...	.93	.77	.64	.56	.49
83-1AP†	646/U	...	1.60	1.31	1.10	.95	.84
83-1T**	...	...	2.53	2.08	1.74	1.51	1.33
83-168*	176/U	59, 62, 71	.13	.11	.09	.08	.07
83-185*	175/U	55, 58	.13	.11	.09	.08	.07
83-1H††	106/U	8, 11	.35	.29	.24	.21	.19
83-1HP††	372/U	8, 11	.44	.36	.30	.26	.23
83-765††	177/U	55, 58	.28	.23	.19	.17	.15

\*Plug, †Angle plug, ‡Panel receptacle, ††Straight adapter, †††Angle adapter, \*\*T adapter, \*Reducing adapter, ††Hood.

## AMPHENOL TIP JACKS



Nylon body with recessed silver-plated contact, tinned terminal. Mounting hole,  $\frac{1}{4}$ " diameter. Specify Color: Add suffix to indicate color desired (example: 350-29175-1): -1, Red, -2, Black, -3, Brown, -4, Green, -5, Orange, -6, White, -7, Blue, -8, Gray, -9, Pink, -10, Light Blue, -11, Light Green, -12, Buff, -13, Yellow, -14, Natural, -15, Violet.

Amph. No. 350-	Terminal	Lgth. in.	Net Each, Lots of				
			1-49	50-249	250-499	500-999	1000-2499
29175	Turret	$\frac{19}{64}$	34c	28c	24c	21c	19c
29200	Spade	$1\frac{1}{16}$	30c	26c	21c	19c	17c
50200	Feed-thru	$\frac{13}{16}$	40c	36c	31c	28c	26c

†Packed in packages of ten of the same part number and color only. Colors may be assorted for quantity pricing.





# Audio Plugs

## XLR AUDIO/ELECTRONIC PLUGS



XLR-12C



XLR-11C



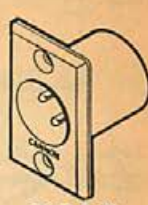
XLR-14N



XLR-13N



XLR-3-31



XLR-3-32

CANNON Plug Series XLR is a newly expanded line of audio-microphone plugs. A new resilient insulator and specialized construction of socket contact assembly protect the plugs from mechanical interference and noise problems when plugs are shifted, pulled or subjected to shock. This is a really noiseless plug. Main features include: Streamlined design; satin nickel finish; integral cable clamp; neoprene cable relief; and quick-action, fast-holding latch-lock.

Cannon* No. XLR.	Description	Con-tacts	Net Each	1-9	10-49
3-11C	Str. cord plug	Sekt.	\$1.29	\$1.18	
3-11SC	Steel shell 3-11	Sekt.	3.49	3.20	
3-12C	Str. cord plug	Pin	1.13	1.03	
3-12SC	Steel shell 3-12	Pin	2.68	2.55	
3-13	Wall receptacle	Sekt.	1.85	1.70	
3-13N	Panel-mt. recept	Sekt.	2.14	1.96	
3-14	Wall receptacle	Pin	.83	.76	
3-14N	Panel-mt. recept	Pin	1.73	1.59	
3-15	90° cord plug	Sekt.	3.38	3.10	
3-31	Wall-mt. recept	Sekt.	1.93	1.77	
3-32	Wall-mt. recept	Pin	1.10	1.01	
3-35	Same, 1-gang	Sekt.	4.03	3.70	
3-35-2G	Same, 2-gang	Sekt.	7.42	6.80	
3-36	Same, 1-gang	Pin	3.52	3.22	
3-36-2G	Same, 2-gang	Pin	6.41	5.88	

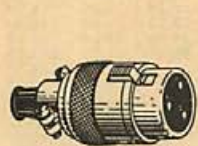
Cannon* No. XLR.	Description	Con-tacts	Net Each	1-9	10-49
3-42	90° wall recept	Pin	\$1.39	\$1.27	
3-50	Plain adpt. recep	Pin†	1.55	1.42	
3-50N	Cplg. nut 3-50	Pin†	2.10	1.93	
3-50T	Thd. barrel 3-50	Pin†	1.80	1.65	
4-11C	Str. cord plug	Sekt.	1.64	1.50	
4-11SC	Steel shell 4-11	Sekt.	3.55	3.26	
4-12C	Str. cord plug	Pin	1.20	1.10	
4-12C	A95 vers. 4-12	Pin	2.23	2.05	
4-12SC	Steelshell 4-12	Pin	2.87	2.63	
4-13	Wall receptacle	Sekt.	1.93	1.77	
4-13N	Panel-mt. recept	Sekt.	2.20	2.02	
4-14	Wall receptacle	Pin	.87	.80	
4-14N	Panel-mt. recept	Pin	1.87	1.71	
4-15	90° cord plug	Sekt.	3.41	3.13	
4-31	Wall-mt. recept	Sekt.	1.99	1.82	

Cannon* No. XLR.	Description	Con-tacts	Net Each	1-9	10-49
4-32	Wall-mt. recept	Pin	\$1.22	\$1.12	
4-35	Same, 1-gang	Sekt.	4.09	3.75	
4-35-2G	Same, 2-gang	Sekt.	7.54	6.91	
4-36	Same, 1-gang	Pin	3.64	3.33	
4-36-2G	Same, 2-gang	Pin	6.65	6.09	
4-42	90° wall recept	Pin	1.45	1.33	
4-50	Plain adpt. recep	Pin†	1.63	1.50	
4-50N	Cplg. nut 4-50	Pin†	2.17	1.99	
4-50T	Thd. barrel 4-50	Pin†	1.88	1.73	
5-11C	Str. cord plug	Sekt.	2.75	2.52	

\*Prefix number indicates number of pins or sockets (i.e., XLR-3-11C has three sockets). †Mount in or on mikes, etc.; mate with -11C, -11SC or -15 plugs.

## AUDIO P PLUGS

The CANNON Audio P Plug series is widely used in sound and related applications. These are high quality plugs with a size and type for every requirement. Five layouts with two to six contacts (30 amp) accommodate No. 10 B & S stranded wire. One layout with 8 contacts (15 amp) accommodates No. 14 wire. All 90 degree plugs have split-shell construction for easy wire servicing and inspection. Shells are steel with an integral zinc clamp. Insulating material is black phenolic.



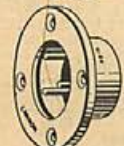
P-CG-11S



P-13



P3-CG-15



P-14

\*Show full number when ordering (i.e., P2-CG-11S, P-P3-14, PPC-DC, etc.); first number indicates number of contacts (14 wire for P8, 10 wire for all others) (i.e., P2-CG-11S has two socket contacts).

Cannon No. P.*	Description	Con-tacts	Net Each	1-9	10-49
2-CG-11S	Str. cord plug	Sekt.	\$4.06	\$3.72	
2-CG-12S	Str. cord plug	Pin	3.30	3.03	
2-13	Wall-mt. recept	Sekt.	3.43	3.15	
2-14	Wall-mt. recept	Pin	2.04	1.87	
2-17	Surf.-mt. recept	Sekt.	4.64	3.86	
2-18	Surf.-mt. recept	Pin	11.17	9.31	
2-35	Wall 1-gang rep	Sekt.	8.23	6.86	
2-36	Wall 1-gang rep	Pin	6.89	5.74	
3-CG-11S	Str. cord plug	Sekt.	4.16	3.81	
3-CG-12S	Str. cord plug	Pin	3.40	3.12	
3-13	Wall-mt. recept	Sekt.	3.68	3.38	
3-14	Wall-mt. recept	Pin	2.19	2.01	
P3-14	High-volt 3-14	Pin	3.01	2.76	
3-CG-15	90° cord plug	Sekt.	4.96	4.55	
P3-CG-15	Same, hi-volt	Sekt.	5.81	5.32	
3-35	Wall 1-gang rep	Sekt.	5.74	5.26	
4-CG-11S	Str. cord plug	Sekt.	4.39	4.03	
4-CG-12S	Str. cord plug	Pin	3.50	3.21	
4-13	Wall-mt. recept	Sekt.	3.94	3.61	

Cannon No. P.*	Description	Con-tacts	Net Each	1-9	10-49
4-14	Wall-mt. recept	Pin	\$2.35	\$2.15	
5-CG-11S	Str. cord plug	Sekt.	4.62	4.24	
5-CG-12S	Str. cord plug	Pin	3.56	3.27	
5-13	Wall-mt. recept	Sekt.	4.18	3.83	
5-14	Wall-mt. recept	Pin	2.50	2.29	
6-CG-11S	Str. cord plug	Sekt.	4.75	4.36	
6-CG-12S	Str. cord plug	Pin	3.73	3.42	
6-13	Wall-mt. recept	Sekt.	4.43	4.06	
6-14	Wall-mt. recept	Pin	2.65	2.43	
6-CG-15	90° cord plug	Sekt.	5.72	5.24	
6-CG-16	90° cord plug	Pin	8.22	6.85	
6-18	Surf.-mt. recept	Pin	12.08	10.07	
8-CG-11S	Str. cord plug	Sekt.	5.08	4.66	
8-CG-12S	Str. cord plug	Pin	3.96	3.63	
8-13	Wall-mt. recept	Sekt.	4.69	4.30	
8-14	Wall-mt. recept	Pin	3.99	3.32	
8-17	Surf.-mt. recept	Sekt.	6.52	5.43	
PC-DC	Dust cap for pin type		2.77	2.31	

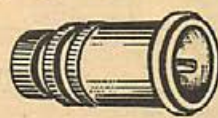
## AUDIO O, X, XK PLUGS



X-3-11



O-3-11



XK-3-12

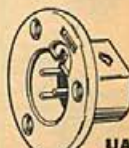
**Series O:** Flattened cylindrical-shaped plug for mike use. Latch-lock coupling. Polarization by insert arrangement. Integral clamp takes 1/8" dia. max. cable size. Three contacts rated 30 amps for #10 stranded wire. Satin nickel finish chrome shell. **Series X:** Features friction coupling for frequent disconnect use. Polarization by insert arrangement. Cable entry 1/8" to 1/4" dia. with gland nut and bushing. Satin nickel finish zinc shell. X-3 has three 15-amp contacts for #14 wire; X-4 has three 10-amp (for #16) and one 15-amp (for #14) contacts. **Series XK:** Has Acme threads for quick positive connect. Cable clamp takes 1/4" to 1/2" wire with gland bushing. Contacts and finish same as X Series.

Cannon Number	Description	Con-tacts	Net Each	1-9	10-49
UA-3-11	Plug	Sekt.	\$7.04	\$4.70	
UA-3-12	Plug	Pin	4.55	3.04	
UA-3-13	Receptacle	Sekt.	4.73	3.16	
UA-3-14	Receptacle	Pin	2.34	1.56	
UA-3-31	Receptacle	Sekt.	4.91	3.27	
UA-3-32	Receptacle	Pin	2.35	1.57	

## AUDIO UA PLUGS



UA-3-11



UA-3-14

CANNON Audio UA Plugs, designed in cooperation with the EIA committee, have all the features of the P series plus gold-plated contacts, double protection rubber relief collar and rubber bushings, flat-polarization for hinged touch action, improved latch-lock, and steel plug shells. Insert barrel insulators are high dielectric phenolic. Three 15-amp contacts accommodate No. 14 stranded wire.

## FACTORY O.E.M. PRICES STOCK DELIVERIES

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# Belden Electronic Wire and Cable

## MICROPHONE AND SHIELDED POWER SUPPLY CABLES

### RUBBER JACKET CABLE

Great abrasion and impact resistance; extra limp so cable lies flat. **No. 8410:** 3 strands copper, 4 strands Copperweld®, tinned, cellulose yarn braid, rubber insul., rayon braid, tinned copper braid shield, cellulose yarn wrap, black rubber jacket. **Nos. 8406 and 8413:** Tinned cadmium bronze, cotton serve, rubber insulated, cabled with fillers, conductive textile serve, tinned copper braid shield, cotton serve, black rubber jacket. **Nos. 8428 and 8407:** Tinned copper, separator, rubber insul., cabled, rayon braid, tinned copper braid shield, cotton wrap, black neoprene jacket. **All Others:** Tinned copper, cotton wrap, rubber insul., rayon braid, tinned copper braid shield, cotton wrap, black rubber jacket.

Belden No.	Fig.	No. of Cond.	AWG and (Stranding)	Cap.,* pF/ft.	Nom. O.D.	Net Each, Spool of						
						15'	25'	50'	100'	250'	500'	1000'
8410	A	1	25 (7 x 33)	33†	.245*	.....	\$2.70	\$4.75	\$ 8.65	\$20.25	\$40.50	.....
8413	B	2	24 (45 x 40)	71	.190*	\$1.80	2.55	4.60	8.25	19.50	39.00	.....
8406	B	2	24 (45 x 40)	76	.223*	.....	.....	.....	10.05	24.30	48.60	.....
8428	C	2	21 (26 x 34)	68	.268*	.....	2.65	5.10	9.55	21.75	43.50	\$ 87.00
8428	C	2	18 (41 x 34)	80	.295*	.....	.....	.....	12.15	24.40	48.75	\$7.50
8423	C	3	20 (26 x 34)	85	.277*	2.20	.....	5.65	10.50	24.40	48.75	.....
8424	C	4	20 (26 x 34)	95	.295*	2.50	.....	6.55	12.15	29.25	56.65	113.25
8425	C	5	20 (26 x 34)	80	.323*	.....	.....	.....	14.25	34.90	.....	.....
8426	C	6	20 (26 x 34)	78	.349*	.....	.....	.....	17.00	42.75	.....	.....
8427	C	7	20 (26 x 34)	75	.360*	.....	.....	.....	18.75	45.40	.....	.....
8418	C	8	20 (26 x 34)	75	.386*	.....	.....	.....	21.00	51.75	.....	.....
8407	C	4	16 (65 x 34)	65	.422*	.....	.....	.....	21.00	51.00	.....	.....

### VINYL JACKET CABLE

Low capacitance and loss; lightweight; small size. **Nos. 8401 and 8411:** 3 strands copper, 4 strands Copperweld®, tinned, cellulose yarn braid, polyethylene insulation, tinned copper braid shield, chrome vinyl jacket. **No. 8434:** 3 strands copper, 4 strands Copperweld®, tinned, polyethylene insulated, black and red conductors under Beldfoil aluminum-Mylar® shield, stranded ground wire, green and white conductors under overall Beldfoil aluminum-Mylar shield, chrome vinyl jacket. **No. 8420:** Tinned cadmium bronze, cotton wrap, polyethylene insulated, cabled with fillers, rayon braid, tinned copper braid shield, chrome vinyl jacket. **No. 8723:** Tinned copper, polypropylene insulated, black and red under a Beldfoil aluminum-Mylar shield, green and white under a Beldfoil aluminum-Mylar shield (each pair separate), stranded tinned copper drain wire, chrome vinyl jacket. **No. 8729:** Tinned copper, polyethylene insulated, cabled Beldfoil aluminum-Mylar shield, 18 AWG stranded tinned Copperweld drain wire, white vinyl jacket. **No. 8392:** Stranded tinned copper, FEP Teflon® insulated, cabled, tinned copper braid shield, white FEP Teflon jacket. **All Others:** Tinned copper, polyethylene insulated, cabled, rayon braid, tinned copper braid shield, chrome vinyl jacket.

Belden No.	Fig.	No. of Cond.	AWG and (Stranding)	Cap.,* pF/ft.	Nom. O.D.	Net Each, Spool of						
						15'	25'	50'	100'	250'	500'	1000'
8411	D	1	25 (7 x 33)	34†	.144*	\$0.90	\$1.23	\$1.88	\$ 3.45	\$ 7.20	\$14.40	\$ 28.80
8401	D	1	25 (7 x 33)	25†	.200*	1.10	1.41	2.52	4.65	9.75	19.50	39.00
8420	E	2	24 (45 x 40)	40	.185*	1.65	2.50	3.70	6.90	17.85	32.40	.....
8422	F	2	22 (16 x 34)	32	.231*	1.31	2.03	3.55	6.30	14.20	28.35	56.70
8403	F	3	20 (26 x 34)	45	.244*	1.71	.....	4.75	8.70	20.25	39.00	78.00
8404	F	4	20 (26 x 34)	45	.255*	2.10	.....	.....	9.75	23.50	45.40	90.80
8405	F	5	20 (26 x 34)	45	.275*	.....	.....	.....	.....	26.80	51.00	102.00
8434	G	4	25 (7 x 33)	40	.179*	.....	.....	.....	5.05	.....	24.40	48.80
8723	G	4	22 (7 x 30)	62	.165*	.....	.....	.....	5.05	.....	21.75	43.50
8729	H	4	22 (19 x 34)	42	.250*	.....	.....	.....	.....	.....	36.75	73.50
8392	I	4	22 (19 x 34)	35	.205*	.....	.....	.....	14.55	54.00*	.....	270.00*

\*Capacitance between one conductor and other conductors connected to shield. †Capacitance between conductor and shield. ‡Miniature cable. §Neoprene heavy duty jacket. ¶High temp., 200° C max. \*Spools may contain more than one piece, minimum length of any one piece is 25 ft.

### COILED MICROPHONE, TELEPHONE, POWER, CONTROL CABLES (FIG. J)

**Shielded Microphone Cables:** Tinned cadmium bronze, rubber insul., paper tape wrap, shield (double Beldfoil tape shield with drain wire or spiral tinned copper shield), black neoprene or vinyl jacket. **Nos. 8415 and 8490:** Same, less shield. **No. 8409:** Tinned copper, nylon insul., neoprene jacket. **Power Cables:** Bare copper, paper wrap, rubber insul., cabled with fillers, paper tape wrap, black neoprene jacket; 6" straight portion each end. **Telephone Cords:** Bare cadmium bronze, vinyl insul., cabled, paper wrapped, black vinyl jacket; ends stripped, spade terminals; hook strain relief one end.

Belden No.	Use	Conductors	AWG	Jacket	Cap.,* pF	Nom. O.D.	Length		Net Each
							Ext.	Retr.	
8409	Microphone	4 unshielded	28	Neoprene	.....	.165*	6'	12'	\$1.05
8415	Microphone	4 unshielded	23	Neoprene	.....	.250*	6'	11½"	1.41†
8439	Microphone	1 shielded; 2 unshielded	24	Neoprene	285	.180*	4'	7½"	.98
8487	Microphone	1 shielded; 2 unshielded	24	Neoprene	480	.200*	6'	11½"	1.46*
8491	Microphone	2 shielded*, 2 unshielded	23	Neoprene	480	.300*	6'	12"	1.73
8490	Microphone	5 unshielded	23	Neoprene	.....	.265*	6'	11½"	1.70
8601	Power, Control	2 unshielded	18	Neoprene	.....	.270*	6'	12"	1.05
8602	Power, Control	3 unshielded	18	Neoprene	.....	.360*	6'	12"	1.59
8603	Power, Control	3 unshielded	16	Neoprene	.....	.370*	6'	12"	1.62
8604	Power, Control	3 unshielded	16	Neoprene	.....	.370*	12'	22"	2.52
8495	Telephone	3 unshielded	23	Vinyl	.....	.220*	4½"	10"	1.31
8494	Telephone	4 unshielded	23	Vinyl	.....	.245*	4½"	10"	1.56

\*Double Beldfoil tape shield. †Copper shield. ‡All cond. stranded. §Cap. per cord of shielded conductor. ¶In std. pkg. of 50, Net Each.....\$1.28 \*In std. pkg. of 50, Net Each.....\$1.32

### TV CAMERA CABLES

**Belden No. 8283 (Fig. K)**—82-conductor TV color camera cable has four 14 AWG (19 x 27) tinned copper conductors, vinyl plastic insulated, color coded; three 16 AWG (26 x 30) tinned copper, vinyl plastic insulated, color coded; Beldfoil aluminum-Mylar wrapped shield around those seven conductors cabled with stranded, tinned copper drain wire. Eight color-coded coaxial cables have 53.5 ohms nominal impedance; 67-22 AWG (7 x 30) tinned copper conductors, vinyl plastic insulated, color coded; 7 under conductive textile shield with stranded ground wire; tinned copper braid shield. Chrome vinyl plastic jacket. 1.22" nom. O.D. Cut to customer's specified length, maximum 1000 ft.\* 1000 ft., Net.....\$2430.00 Less than 1000 ft., Net per foot.....\$2.84

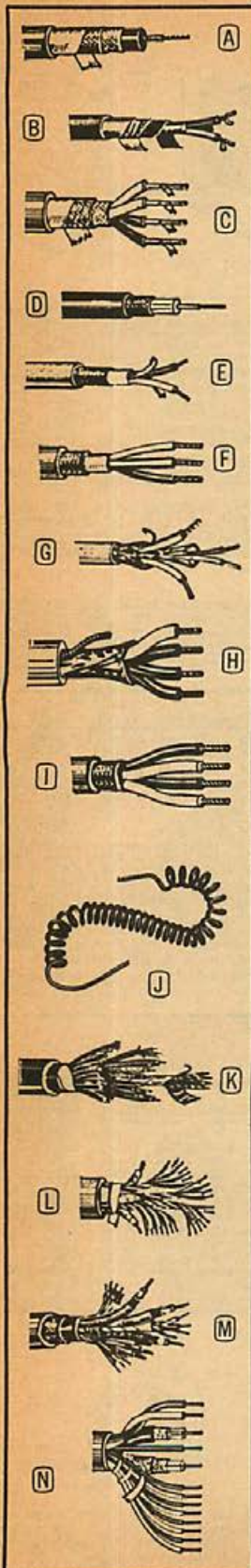
**Belden No. 8280 (Fig. L)**—28-conductor camera cable. Four 18 AWG (16 x 30) tinned copper, vinyl insulated, color coded; 21-22 AWG (7 x 30) tinned copper, vinyl insulated, cabled in 3 groups of 7, color coded; 3 coaxial cables color coded, nominal impedance 51 ohms; tinned copper braid shield; chrome vinyl jacket. 750" nom. O.D. Cut to customer's specified length, maximum 1500 ft.\* 1000 ft., Net.....\$652.50 Less than 1000 ft., Net per foot.....\$0.76

**Belden No. 8286**—Similar to above, but nom. impedance 75 ohms. Additionally, the group of four 18 AWG and a group of seven 22 AWG conductors are separately wrapped with Beldfoil shield with stranded drain wire and Mylar tape over each group. Jacket is black Hypalon®, 730" O.D. Cut to customer's specified length, maximum 1000 ft.\* 1000 ft., Net.....\$675.00 Less than 1000 ft., Net per foot......79

**Belden No. 8284 (Fig. M)**—24-conductor camera cable has 17-22 AWG (7 x 30) tinned copper, vinyl insulated, color coded, 3 under Beldfoil shield with stranded drain wire; 4-16 AWG (26 x 30) tinned copper, vinyl insulated, color coded; 3 coaxial cables color coded, nom. impedance 53.5 ohms; tinned copper braid shield; heavy cotton braid; chrome vinyl jacket. 800" nom. O.D. Cut to customer's specified length, maximum 1000 ft.\* 1000 ft., Net.....\$810.00 Less than 1000 ft., Net per foot.....\$0.95

**Belden No. 8282 (Fig. N)**—13-conductor TV eye cable. Nine 22 AWG (7 x 30) tinned copper, vinyl insulated, color coded; 2-18 AWG (16 x 30) tinned stranded copper conductor, vinyl insulated, black and red; 1 RG-58A/U 50-ohm coax cable; one 72-ohm coax stranded conductor, Mylar tape wrapped; chrome vinyl jacket. 470" nom. O.D. Cut to customer's specified length, maximum 2000 ft.\* 1000 ft., Net.....\$292.50 Less than 1000 ft., Net per foot.....\$0.34

\*Minimum length, 25 ft.; 25' to 199', plus 25', minus 0'; 200' or over, plus 50', minus 0'. ©TM: Beldfoil of Belden; Teflon, Mylar, Hypalon of DuPont; Copperweld of Copperweld Steel Co.





# Belden Electronic Wire and Cable

## 75-OHM PRECISION VIDEO CABLES

High quality carrier of video signal in color or monochrome studios with superior picture definition; eliminates problems of periodicity; 100% sweep tested.

**Belden No. 8279 (Fig. A)**—Has 23 (7 x 31) tinned compacted conductor, polyethylene insulated, tinned copper braid shield, black polyethylene jacket. Nom. impedance, 75 ohms. Nom. capacitance, 21 pF/ft. Nom. O.D., .220"; fits RG-59/U connectors.

**100' Spool, Net. . . . . \$9.00 250' Spool, Net. . . . . \$21.00 500' Spool, Net. . . . . \$39.00**

**Belden No. 8281 (Fig. B)**—Has 20 (solid) copper conductor, polyethylene insulated, tinned copper double braid shield, black polyethylene jacket. Nom. impedance, 75 ohms. Nom. capacitance, 21 pF/ft. Nom. O.D., .304".

**500' Spool, Net. . . . . \$76.90 1000' Spool, Net. . . . . \$153.80**

**Belden No. 8299 Adapter**—For use with PL-259 connector and 8281 cable only. Net per 25. . . . . 3.75

## AUDIO AND SOUND CABLES (FIG. C)

Have 22 AWG (7 x 30) tinned copper, polypropylene insulation, cabled in quads, Beldfoil shield over black and red conductors, 24 AWG stranded tinned copper drain wire, clear Mylar tape over entire quad, shields color-coded, chrome vinyl jacket. Nom. capacitance, 67 pF/ft. between one conductor and other conductors connected to shield. Nom., O.D., .330" No. 8726; .450" No. 8727.

**Belden No. 8726—100' Spool, Net. . . \$15.55 500' Spool, Net. . . \$ 69.75 1000' Spool, Net. . \$139.50**

**Belden No. 8727—100' Spool, Net. . . \$2.25 500' Spool, Net. . . \$17.50 1000' Spool, Net. . . \$35.00**

## BROADCAST AUDIO CABLES

**Nos. 8437 and 8441:** Tinned copper, vinyl insulated, conductors cabled, 8441 stranded, and 8437 solid tinned copper drain wire, tinned copper braid shield, black vinyl jacket. **Nos. 8450 and 8451:** Tinned copper, polypropylene insulated, conductors cabled, stranded tinned copper ground drain wire, Beldfoil aluminum-Mylar® shield, paper wrap, black or gray vinyl jacket. All types color-coded black and red.

Belden No.	Fig.	AWG and (Stranding)	Nom. O.D.	Cap.* pF/ft.	Work Volts	Net Each, Spool of			
						100'	250'	500'	1000'
8437	D	22 (Solid)	.200"	85	200	.....	.....	\$19.50	\$39.00
8441	D	22 (16 x 34)	.210"	86	200	\$4.90	.....	22.75	45.50
8450†	E	22 (Solid)	.118"	76	200	3.30	\$6.75	12.15	24.30
8451†	E	22 (7 x 30)	.135"	67	200	3.70	8.25	15.40	30.80

\*Between one conductor and other conductor connected to shield. †Miniature.

## AUDIO AND INSTRUMENTATION CABLES

Working voltage, 100 V (8725, 400 V); max. operating temperature, 105° C. **No. 8700:** Solid tinned copper, polypropylene insulation, copper braid, black vinyl jacket. May be steam sterilized for medical research. **No. 8725:** Tinned copper conductors, polypropylene insulated, four groups of two conductors with 22 AWG drain wire, each group individually Beldfoil shielded with Mylar tape wrap, chrome vinyl jacket. **Color-coded:** Red, black, green, white; white/red, white/black, white/green, white/yellow. **Nos. 8640 and 8642:** Solid copper, Beldsol® insulated Beldfoil aluminum-Mylar shield on each pair (red, brown, orange textile marker and isolating Mylar tape for each pair on 8642), Copperweld® ground drain wire, white vinyl jacket.

Belden No.	Fig.	AWG	Nom. O.D.	Shield Coverage	Cap.* pF/ft.	Cap.† pF/ft.	Net Each, Spool of					
							25'	50'	100'	250'	500'	1000'
8700	F	28 (coaxial)	.054"	80%	48	.....	\$1.55	\$2.52	\$4.50	\$10.15	.....	.....
8725	G	20 (7 x 28)	.360"	100%	27	49	.....	.....	.....	.....	\$89.25	\$178.50
8640	H	26 (1 pair)	.089"	100%	80	140	.....	.....	.....	6.45	12.15	.....
8642	H	26 (3 pair)	.140"	100%	80	140	.....	.....	.....	17.85	33.20	.....

\*Between conductors. †Between one conductor and other conductor connected to shield.

## MULTI-CONDUCTOR PORTABLE CORDAGE

**Nos. 8462 and 8888 (Fig. I):** Two conductors, stranded copper, parallel, insulated with one conductor polarity ribbed. **All Others (Fig. J):** Stranded copper, rubber insulated, cabled with fillers, black rubber jacket. **Color-coded:** Black and white except as noted.

Belden No.	U/L Type	No. Cond.	AWG and (Stranding)	Nominal O.D.	Net Each, Spool of						
					25'	50'	100'	250'	500'	1000'	
8462*	SP-1	2	18 (41 x 34)*	.123" x .223"	\$1.16	.....	\$3.25	\$ 7.30	.....	.....	.....
8888†	SP-T-1	2	18 (41 x 34)	.110" x .207"	1.13	.....	2.60	5.70	.....	.....	.....
8452	SV	2	18 (41 x 34)	.245"	1.80	\$3.00	5.20	12.15	\$22.75	\$45.50	.....
8478	SJ	2	18 (41 x 34)	.295"	.....	.....	5.85	14.65	.....	\$35.25	.....
8472	SJ	2	16 (66 x 34)	.325"	2.25	.....	7.75	18.25	.....	.....	.....
8474	.....	2	14 (41 x 30)	.360"	.....	.....	3.75	23.05	.....	.....	.....
8454	SV	3†	18 (41 x 34)*	.265"	.....	.....	3.45	6.85	.....	14.05	.....
8454	.....	4†	18 (41 x 34)*	.265"	.....	.....	4.45	7.80	.....	37.30	74.60
8455	.....	5†	3-20 (26 x 34)*	.280"	.....	.....	.....	8.10	20.25	.....	.....

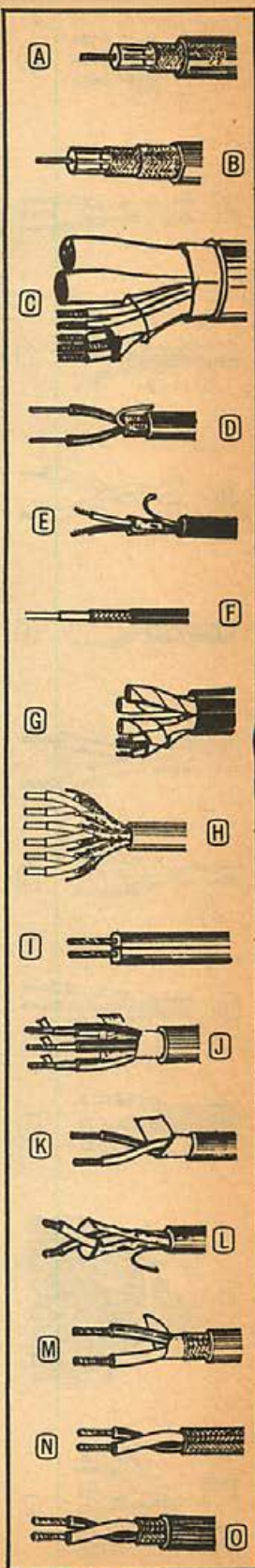
Specify: \*Brown or Ivory rubber; †Brown, ivory or gray vinyl. ‡Black, white, green. †Black, white, brown, red. ‡Brown, green, white, black, red. \*Tinned.

## TWO CONDUCTOR SHIELDED CABLE

Variety of gauges, insulations, shieldings and jackets meet every service requirement. Uniform quality for dependable service. **Fig. K Types:** Tinned copper, vinyl insulated, tinned copper spiral wrapped shield, chrome vinyl jacket. **Fig. L Types:** Tinned copper, polyethylene insulated, Beldfoil aluminum-Mylar shield, stranded tinned copper ground drain wire, chrome vinyl jacket. **Fig. M Type:** Tinned copper, rubber insulated, braided tinned copper shield, chrome vinyl jacket. **Fig. N Types:** Tinned copper, vinyl insulated, braided tinned copper shield. **Fig. O Type:** High temperature. Stranded tinned copper, FEP Teflon® insulated, cabled tinned copper braid shield, white FEP Teflon jacket. Max. operating temperature, 200° C. Note: For additional two conductor shielded cables, see Mike and Broadcast Audio Cables.

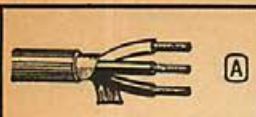
Belden No.	Fig.	AWG and (Stranding)	Nom. O.D.	Color Coding	Cap.* pF/ft.	Work Volts	Net Each, Spool of				
							25'	100'	250'	500'	1000'
8739	K	22 (Solid)	.160"	Blk, red	66	350	.....	\$ 3.15	.....	\$ 13.00	\$26.00
8737	K	22 (7 x 30)	.170"	Blk, red	70	350	.....	3.70	\$ 7.80	14.65	29.30
8759	K	20 (7 x 28)	.195"	Blk, red	79	350	.....	4.05	.....	17.85	35.70
8790	K	18 (7 x 26)	.231"	Red, wht	92	450	.....	4.80	11.40	21.60	43.20
8780	K	16 (19 x 29)	.268"	Blk, wht	98	450	.....	6.15	.....	29.25	58.50
8641	L	24 (7 x 30)	.160"	Blk, wht	42	350	.....	3.15	.....	12.55	25.10
8762	L	20 (7 x 28)	.196"	Blk, wht	49	350	.....	3.75	8.65	16.20	32.40
8760	L	18 (16 x 30)	.222"	Blk, wht	44	450	.....	.....	10.15	19.05	38.10
8719	L	16 (19 x 29)	.274"	Blk, wht	47	600	.....	.....	.....	28.35	56.70
8720	L	14 (19 x 27)	.340"	Blk, wht	47	750	.....	.....	.....	43.15	86.30
8208	M	18 (16 x 30)	.255"	Red, wht	77	200	.....	6.40	.....	27.50	55.00
8738	N	22 (Solid)	.130"	Blk, red	61	350	.....	.....	.....	.....	22.50
8758	N	20 (7 x 28)	.165"	Blk, red	72	350	.....	3.45	.....	15.00	30.00
8789	N	18 (7 x 26)	.204"	Blk, wht	89	450	.....	.....	.....	21.00	42.00
8779	N	16 (19 x 29)	.225"	Blk, wht	112	600	.....	.....	.....	26.65	53.30
8390	O	22 (19 x 34)	.180"	Blk, wht	40	1000	\$9.75	36.75†	.....	183.75†	.....

\*Between one conductor and other conductor(s) connected to shield. †Spools may contain more than one piece, min. length of any one piece is 25 ft.; 500' length may vary ±10% from lgth. shown. ‡Trade-mark: Beldfoil and Beldsol of Belden; Teflon and Mylar of DuPont; Celanese of Celanese Corp.; Copperweld of Copperweld Steel Co.





# Belden Electronic Wire and Cable



**THREE CONDUCTOR SHIELDED CABLES**  
 Three conductor cable with three conductors shielded; #22 thru #18 gauge. Color-coded: Black, red and white. Fig. A Types: Tinned copper, vinyl insulated, conductors cabled, tinned copper spiral wrapped shield. Chrome vinyl jacket. Fig. B Types: Tinned copper, vinyl insulated, conductors cabled, tinned copper braid shield. Chrome vinyl jacket. High Temperature Type #391: Stranded tinned copper, FEP Teflon® insulated, cabled, tinned copper braid shield, white FEP Teflon jacket. Max. operating temperature, 200° C. Fig. C Types: Tinned copper, polyethylene insulated, conductors cabled, Beldfoil® aluminum-Mylar® shield, stranded tinned copper ground drain wire (22 AWG for 8771; 20 AWG for 8770 and 18 AWG for 8772). Chrome vinyl jacket.

Belden No.	Fig.	AWG and (Stranding)	Nom. O.D.	Cap. * pF/ft.	Working Volts	Net Each, Spool of				
						15'	50'	100'	500'	1000'
8731	A	22 (Solid)	.178*	63	350					
8791	A	18 (7 x 26)	.236*	84	450			\$ 5.85	\$ 15.40	\$ 30.80
8735	B	22 (7 x 30)	.199*	60	350	\$1.05	\$ 2.60	4.65	27.25	54.50
8391	B	22 (19 x 34)	.190*	35	1000		12.15	45.00	225.00	41.30
8771	C	22 (7 x 30)	.175*	41	350			8.40	16.20	32.40
8772	C	20 (7 x 28)	.200*	51	350				20.25	40.50
8770	C	18 (16 x 30)	.230*	48	450				25.50	51.00

\*Capacity between one conductor and other conductor connected to shield. †25' length may vary ±10%. ‡500' length may vary ±10%. §250'.



**TWO CONDUCTOR UNSHIELDED CABLES**  
 All purpose cable for sound, intercom and alarm systems in a variety of sizes and insulations. Uniform quality and size for dependable service, easy installation. Fig. D Types: Copper, vinyl insulated, twisted. Fig. E Types: Copper, vinyl insulated, cabled, chrome vinyl jacket. Fig. F Types: Copper vinyl insulated, chrome colored parallel cable, one conductor tinned. Note: For additional two conductor cables see Portable Cordage and Duplex Primary Wire.

Belden No.	Fig.	AWG and (Stranding)	Colors †	Nom. O.D.	Suggested Work Volts	Net Each, Spool of			
						25'	100'	500'	1000'
8481	D	22 (Solid)*	1	.112*	350	\$1.65	\$ 5.40	\$ 9.75	
8482	D	19 (Solid)*	1	.130*	350	1.95	7.15	13.00	
8492	D	19 (Solid)†	2	.170*	600			15.00	
8460	D	18 (7 x 26)	3	.175*	450	2.70	10.75	20.80	
8470	E	18 (19 x 29)	3	.195*	600		13.00	26.00	
8442	E	22 (7 x 30)	4	.165*	200	1.95†	7.15	13.80	
8205	E	20 (10 x 30)	4	.190*	350		8.95	17.90	
8486	E	19 (Solid)*	1	.162*	350	2.70	10.50	20.80	
8461	E	18 (7 x 26)	3	.226*	450		14.65	18.30	
8471	E	16 (19 x 29)	3	.256*	600	3.75	18.45	36.90	
8473	E	14 (19 x 27)	3	.332*	600		30.00	60.00	
8782	F	24 (7 x 32)†	5	.058 x .115	300	\$0.66‡	1.47	4.90	9.80
8781	F	22 (Solid)†	1	.060 x .120	100		1.62	4.80	8.25
8649	F	20 (7 x 28)†	1	.073 x .146	300		2.05	7.00	14.00

\*Not tinned. †One conductor tinned for polarity. ‡Colors: 1—Brown, tan, 2—Specify white or brown. 3—Black, white. 4—Black, red. 5—Specify chrome, sand, clear or white. §50', 98¢. ‡250', \$4.05.



**THREE CONDUCTOR UNSHIELDED CABLES**  
 Three conductor unshielded cables of high quality for intercom, control line and many other applications. Fig. G Type: Bare copper, vinyl insulated and cabled. Fig. H Types: Copper, vinyl insulated, cabled. Chrome vinyl jacket. Fig. I Types: Copper, vinyl insulated, parallel cable.

Belden No.	Fig.	AWG and (Stranding)	Colors †	Nom. O.D.	Suggested Work Volts	Net Each, Spool of		
						25'	100'	500'
8483	G	19 (Solid)	6	.132*	350	\$2.50	\$10.05	\$18.60
8443	H	22 (7 x 30)*	7	.150*	200	\$1.05	2.70	10.15
8487	H	19 (Solid)	6	.180*	350		12.45	24.90
8701	I	22 (Solid)†	8	.060 x .190	100		2.20	7.75
8475	I	16 (19 x 29)	9	.102 x .295	300		4.95	22.15

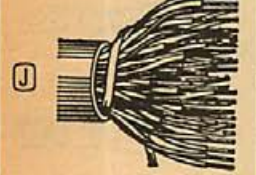
\*Tinned. †One conductor tinned. ‡Colors: 2—Brown, 6—Brown, gray, tan. 7—Black, green, red. 8—Chrome, 9—White, brown, red. ‡250', \$5.65.



**MULTIPLE PAIR UNSHIELDED SOUND CABLES (FIG. J)**  
 Made with 80° C vinyl plastic compounds for high dielectric strength and best physical properties. Conductors are paired with a short-lay twist for conductor balance to assure a quiet circuit, free from crosstalk. Tinned copper, vinyl insulated, cabled in color-coded pairs, chrome vinyl jacket. Voltage, 200 V working except 18 gauge, 400 V.

Belden No.	No. of Pairs	AWG and (Stranding)	Nom. O.D.	Net Each, Spool of			
				100'	250'	500'	1000'
8740	1	22 (Solid)	.150*	\$ 1.95	\$ 4.05	\$ 7.15	\$ 13.80
8741	2	22 (Solid)	.201*	3.25	7.50	13.00	25.15
8742	3	22 (Solid)	.240*	4.20	9.90	17.85	34.90
8690	3	18 (16 x 30)	.362*	9.75		40.50	81.00
8757	4	22 (Solid)	.255*			22.30	44.60
8743	6	22 (Solid)	.305*	6.85	16.50	30.00	60.00
8747	6	22 (7 x 30)	.340*	8.95	21.00	40.50	81.00
8691	8	18 (16 x 30)	.550*	18.75		84.75	169.50
8744	9	22 (Solid)	.354*	9.15	22.50	41.65	83.30
8748	9	22 (7 x 30)	.389*	12.30	30.00	58.50	117.00
8692	9	18 (16 x 30)	.638*	25.90		125.25	250.50
8753	11	22 (Solid)	.384*	11.80	30.00	56.25	112.50
8754	13	22 (Solid)	.409*	13.35	33.40	63.75	127.50
8745	15	22 (Solid)	.420*	15.00	37.50	72.00	144.00
8749	15	22 (7 x 30)	.425*	21.00	49.50	97.50	195.00
8755	19	22 (Solid)	.480*			99.75	199.50
8756	23	22 (Solid)	.510*			116.25	232.50
8746	27	22 (Solid)	.550*			.31*	267.00
8750	27	22 (7 x 30)	.595*			.43*	364.50

\*Less than 1000', per foot.



**MULTIPLE PAIR INDIVIDUALLY SHIELDED CABLES (FIG. K)**  
 For audio, sound and instrument applications. Conductors vinyl or polypropylene insulated, cabled in color-coded pairs, each pair and its ground wire under Beldfoil aluminum-Mylar shield (8769-8778, Z-fold), overall chrome vinyl jacket. Working voltage, 300 V. Max. operating temperature 80° C, vinyl; 105° C, polypropylene.

Belden No.	No. of Pairs	Stranding	Nom. O.D.	Cap. * pF/ft.	Net Each, Spool of			
					100'	250'	500'	1000'
8767	3	Solid	.270*	40	\$ 7.15	\$17.85	\$ 35.65	\$ 71.30
8768	6	Solid	.394*	40	13.95	34.90	69.75	139.50
8769	9	Solid	.440*	40	19.50	49.75	97.50	195.00
8765	11	Solid	.486*	40	23.25	58.15	116.25	232.50
8766	15	Solid	.540*	40	30.75	76.90	153.75	307.50
8777†	3	7 x 30	.270*	30	9.30	23.25	46.50	93.00
8778†	6	7 x 30	.394*	30	17.85	44.56	89.25	178.50
8774†	9	7 x 30	.440*	30	25.35	63.40	126.75	253.50
8775†	11	7 x 30	.486*	30	29.70	74.25	148.50	297.00
8776†	15	7 x 30	.540*	30	38.25	95.65	191.25	382.50
8769†	19	7 x 30	.620*	30	53.40	133.50	267.00	534.00
8773†	27	7 x 30	.780*	30			.94†	809.00

\*Cap. between cond. †Polypropylene, all others vinyl. ‡Less than 1000', per ft. §Trademark: Beldfoil of Belden; Mylar and Teflon of DuPont.



# Belden Electronic Wire and Cable

## MULTIPLE UNPAIRED CONTROL AND AUDIO CABLES

Tinned copper, vinyl plastic insulated, cabled, vinyl jacket. Suggested Working Voltage: #22 AWG, 200 V; #18 AWG, 400 V; #16 and #14 AWG, 600 V.

### COLOR CODING

No. of Cond.	Color Code 1	Color Code 2 (IPCEA)
1	Black	Black
2	Red	White
3	Green	Red
4	White	Green
5	Brown	Orange
6	Blue	Blue
7	Orange	White/black
8	Yellow	Red/black
9	Purple	Green/black
10	Gray	Orange/black
11	Pink	Blue/black
12	Tan	Black/white
13	.....	Red/white
14	.....	Green/white
15	.....	Blue/white
16	.....	Black/red
17	.....	White/red
18	.....	Orange/red
19	.....	Blue/red
20	.....	Red/green
21	.....	Orange/green
22	.....	Blk/wht/red
23	.....	Wht/blk/red
24	.....	Red/blk/wht
25	.....	Grn/blk/wht

Belden No.	Fig.	No. Cond.	AWG and (Stranding)	Nom. O.D.	Color Code	Net Each, Spool of				
						15'	25'	100'	250'	500'
8443	A	3	22 (7x30)	.150"	1	\$1.05	\$ 2.70	\$ 5.65	\$ 10.15	\$ 20.30
8444	A	4	22 (7x30)	.168"	1	1.23	3.25	7.50	13.35	26.70
8445	A	5	22 (7x30)	.180"	1	1.31	4.00	9.00	16.20	32.40
8456	A	10	22 (7x30)	.260"	1	7.65	20.00	45.00	85.50	171.00
8457	A	12	22 (7x30)	.260"	1	8.10	22.00	49.50	91.50	183.00
8458	A	15	22 (7x30)	.320"	2	14.65	39.00	87.00	162.00	324.00
8459	A	25	22 (7x30)	.370"	2	22.50	58.50	130.50	246.00	492.00
8446	A	6	4-22 (7x30)	.222"	1	\$1.23	5.85	13.50	25.15	50.30
8447	A	7	5-22 (7x30)	.246"	1	6.70	15.00	28.50	57.00	114.00
8448	A	8	6-22 (7x30)	.250"	1	1.38	6.90	16.50	31.50	63.00
8449	A	9	7-22 (7x30)	.261"	1	1.58	7.75	18.00	34.90	69.80
8465	A	5	18 (16x30)	.272"	1	6.55	16.30	30.00	60.00	120.00
8467	A	7	18 (16x30)	.320"	1	8.95	21.75	39.75	79.50	159.00
8469	A	9	18 (16x30)	.375"	1	12.15	28.50	52.50	105.00	210.00
8466	A	12	18 (16x30)	.402"	2	18.00	42.75	82.50	165.00	330.00
8468	A	15	18 (16x30)	.490"	2	25.90	64.75	117.75	235.50	471.00
8620	B	4	16 (19x29)	.375"	2	9.00	22.50	42.00	84.00	168.00
8621	B	7	16 (19x29)	.455"	2	14.65	36.60	69.00	138.00	276.00
8622	B	12	16 (19x29)	.600"	2	25.90	64.75	117.75	235.50	471.00
8623	B	15	16 (19x29)	.650"	2	35.65	89.10	162.00	324.00	648.00
8624	B	19	16 (19x29)	.715"	2	42.00	105.00	198.75	397.50	795.00
8627	B	4	14 (19x27)	.495"	2	15.00	37.50	69.75	139.50	279.00
8628	B	7	14 (19x27)	.630"	2	25.90	64.75	117.75	235.50	471.00
8629	B	12	14 (19x27)	.770"	2	45.00	112.50	210.00	420.00	840.00

\*18 AWG conductors in these cables are color-coded black and red.

### TELEPHONE CABLES (FIG. A)

Similar to above cables, but with bare copper (solid) conductors, polyethylene insulated, cabled, and rose gray vinyl jacket. Conductors coded: 8795, red and green; 8794, red, green and yellow. Insulation .016" thick. Jacket .022" thick.

Belden No. 8795—Two conductors; nom. O.D., .160". 500' Spool, Net.....	\$8.25	1000' Spool, Net.....	\$16.50
Belden No. 8794—Three conductors; nom. O.D., .168". 500' Spool, Net.....	\$10.15	1000' Spool, Net.....	20.30

### SPECIAL AUDIO AND SOUND CABLES

**Belden No. 8734 (Fig. C)**—Tinned copper, vinyl insulated, 1 white coded conductor with tinned copper braid shield, 3 conductors cabled, chrome vinyl jacket; unshielded conductors coded black, red. Conductors 22 AWG, 7 x 30 stranded, O.D., .194" nominal. Suggested 350 V working.  
100' Spool, Net..... \$4.05 500' Spool, Net..... \$18.60 1000' Spool, Net..... \$37.20

**Belden No. 8763 (Fig. D)**—Three 20 AWG, 7 x 28 stranded, tinned copper conductors polyethylene insulated; 2 conductors (black, red) shielded in Beldfoil® aluminum-Mylar® wrap; unshielded conductor coded white; with #20 stranded tinned copper ground wire, chrome vinyl jacket, O.D., .210" nominal. Suggested 350 V working.  
500' Spool, Net..... \$20.65 1000' Spool, Net..... \$41.30

**Belden No. 8732 (Fig. E)**—Four 22 AWG, 7 x 30 stranded tinned copper conductors polyethylene insulated; tinned copper braid shield over 2 (black, white) conductors; unshielded conductors coded black, white; overall chrome vinyl jacket, O.D., .188" x .296" nominal. Suggested 350 V working.  
100' Spool, Net..... \$5.10 500' Spool, Net..... \$23.10 1000' Spool, Net..... \$46.20

**Belden No. 8722 (Fig. F)**—Four 20 AWG, 7 x 28 stranded, tinned copper conductors vinyl insulated; Beldfoil aluminum-Mylar shield over 2 conductors (black, red); unshielded conductors coded green, white; #22 stranded tinned ground wire, overall chrome vinyl jacket, O.D., .260" nominal. Suggested 350 V working.  
500' Spool, Net..... \$25.90 1000' Spool, Net..... \$51.80

**Belden No. 8724 (Fig. F)**—Same as 8722, but 22 AWG, 7 x 30 stranded, 24 AWG stranded tinned copper drain wire, 200 working volts; polypropylene insulated, nominal O.D., .165".  
250' Spool, Net..... \$11.25 500' Spool, Net..... \$21.75 1000' Spool, Net..... \$43.50

**Belden No. 8733 (Fig. G)**—Three 22 AWG, 7 x 30 stranded, tinned copper conductors, polyethylene insulated, each separately Beldfoil aluminum-Mylar shielded; ground wire for each conductor is tinned cadmium-bronze ribbon under Beldfoil Z-fold; conductors color coded, black, red and white. Overall chrome vinyl jacket. Nominal .205" O.D. Suggested 350 volts working.  
100' Spool, Net..... \$4.90 500' Spool, Net..... \$21.75 1000' Spool, Net..... \$43.50

**Belden No. 8788 (Fig. H)**—Same as 8733 but vinyl insul., color coded blk, red, grn, plus 2 cond. unshielded, cabled around vinyl filler (yel., blue). Nom. O.D., .236". 500' Spool, Net..... \$36.40

### HI-FI, STEREO AND PHONOGRAPH CABLES

Shielded connector cords and phono pick-up arm cables are light, flexible and small diameter with excellent dielectric strength. For maximum channel isolation in stereo phono pickups use one cable for each channel (or total of 4 conductors in two pairs).

**Belden No. 8430 (Fig. I)**—Phono arm cable has two 32 AWG, 7 x 40 stranded, tinned copper conductors, vinyl insulated, twisted pair, O.D., .050" nominal. Coded black, red. Capacitance, 21 pF/ft., nom. 10' Spool, Net..... 57c 25' Spool, Net..... 75c 250' Spool, Net..... \$4.50

**Belden No. 8429 (Fig. J)**—Phono arm cable same as above, but with tinned copper braid shield. Capacitance 38 pF/ft. one conductor to other conductor and shield, Nom. O.D., .057".  
10' Spool, Net..... 74c 25' Spool, Net..... \$1.17 250' Spool, Net..... \$8.25

**Belden No. 8419 (Fig. J)**—Similar to the above but has three conductors for three-wire systems. Capacity one conductor to other conductors and shield, 50 pF/ft. O.D., .067" nominal.  
10' Spool, Net..... 90c 25' Spool, Net..... \$1.58 250' Spool, Net..... \$11.35

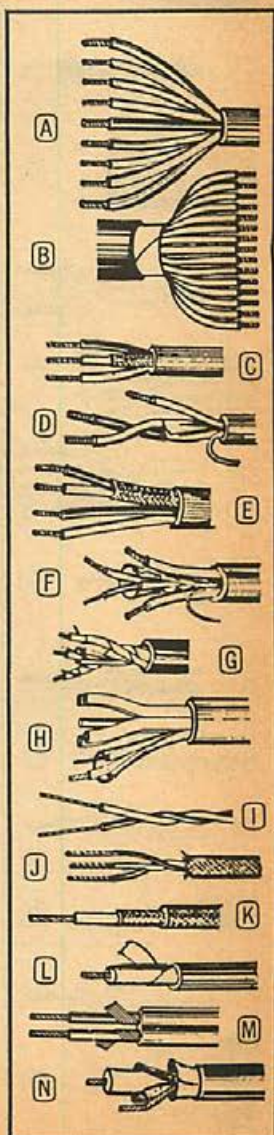
**Belden No. 8431 (Fig. K)**—Single 24 AWG, 16 x 36 stranded, tinned copper conductor, rubber insulated, with tinned copper braid shield and brown cotton braid overall, O.D., .095" nominal. Capacitance, 96 pF/ft., nominal.  
10' Spool, Net..... \$0.66 15' Spool, Net..... \$ 0.75  
25' Spool, Net..... \$1.17 100' Spool, Net..... 3.75 500' Spool, Net..... 17.35

**Belden No. 8421 (Fig. L)**—Hi-Fi connecting cable has single 25 AWG, 7 x 33 stranded of 3 strands tinned copper, 4 strands tinned Copperweld®; cellular polyethylene insulated for low loss, tinned copper spiral wrapped shield and overall chrome vinyl jacket, O.D., .180" nominal. Capacitance, 18 pF/ft. nominal.  
15' Spool, Net..... \$1.05 25' Spool, Net..... \$1.31 50' Spool, Net..... \$2.55  
100' Spool, Net..... \$4.05 250' Spool, Net..... 9.15

**Belden No. 8416 (Fig. M)**—Stereo, language lab. Same as 8421 except: Polyethylene insulated; Color-coded red, white (polarity rib on red); vinyl jacket .106" x .213" O.D. Nom. cap., 35 pF/ft. between conductors, each channel.  
15' Spool, Net..... \$1.23 25' Spool, Net..... \$1.58 50' Spool, Net..... \$ 2.85  
100' Spool, Net..... \$4.90 250' Spool, Net..... 11.35

**Belden No. 8417 (Fig. N)**—Min. audio connecting cable, totally shielded. Same as 8416 except single cond. with double Beldfoil aluminum-Mylar shield, inner shield folded. Nom. O.D., .140". Nom. cap., 25 pF between cond.  
15' Spool, Net..... \$0.98 25' Spool, Net..... \$1.31  
50' Spool, Net..... \$2.10 100' Spool, Net..... 4.00 250' Spool, Net..... 8.65

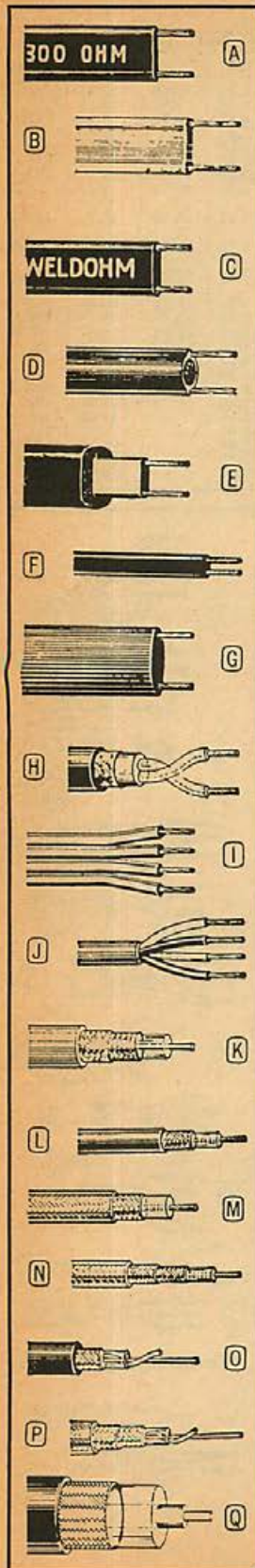
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# Belden Electronic Wire and Cable

## TRANSMISSION LINE CABLES



### TV TWIN LEAD WIRE

Two conductors stranded, paralleled, and polyethylene jacketed for long wear and weather resistance. **Fig. A Type:** Bare copper conductors 20 (7 x 28) parallel, polyethylene insulated. Brown polyethylene for best weathering. **Fig. B Type:** Bare copper conductors 20 (7 x 28) parallel, ivory or clear polyethylene insulated. For indoor use only. **Fig. C Type:** Copperweld® conductors 20 (7 x 28) parallel brown polyethylene insulated. Weldohm® cable is 1½ times stronger and 2½ times more flexible than the equivalent twin lead with all copper conductors, without altering the RF characteristics. Superior resistance to pulling, whipping and twisting for a long lasting installation. **Fig. D Type:** Copperweld conductors 20 (7 x 28) parallel, tubular polyethylene jacketing with inert gas filled unicellular polyethylene core. Cellulne® maintains uniformity of electrical characteristics by eliminating all possibilities of moisture between conductors. No end-sealing is necessary. Brown polyethylene outer jacket protects cable from abrasion and sun damage. Efficient, it maintains a stronger UHF or VHF picture. **Fig. E Type:** Copperweld conductors 22 (7 x 30) parallel, orange polyethylene insulation and web between conductors, cellular polyethylene oval jacket. Permohm® encapsulated twin lead offers strong clear signals on all channels despite salt spray, industrial contamination, rain, ice, and fringe area reception. Offers excellent color, VHF and UHF properties. **Fig. F Type:** Bare copper conductors 20 (7 x 28) parallel, brown polyethylene insulated.

Belden No.	Fig.	Imped., Ohms	Nom. O.D., Inch	Cap., pF/ft.	db at 400 Mc	Net Each, Spool of						
						25'	50'	75'	100'	250'	500'	1000'
8225	A	300	.058 x .400	4.4	2.7	\$0.72*	\$1.13*	\$1.43*	\$1.65*	\$ 4.05	\$ 7.50	\$14.95
8226	B	300	.058 x .400	4.4	2.7	.72*	1.13*	1.43*	1.65*			
8230	C	300	.072 x .400	4.4	2.7	.84*	1.28*	1.70*	2.13*	5.25	10.20	19.20
8275	D	300	.300 x .400	4.6	2.5	.....	2.40†	3.45†	4.28†	10.75	21.40	42.00
8285	E	300	.255 x .468	5.3	3.8‡	.....	2.65†	3.60†	4.65†	11.65†	22.50†	45.00
8222	F	72	.076 x .128	20.3	15.9	.....	.....	.....	1.65	7.50		

### AMATEUR TRANSMITTING AND RECEIVING CABLES

Both types rated 1 kW (RF). **No. 8210 (Fig. F):** Two bare copper 13 AWG, 7 x 21 stranded conductors parallel, brown polyethylene insulated. **No. 8235 (Fig. G):** Two bare copper 18 AWG, 7 x 26 stranded conductors parallel, brown polyethylene insulated.

Belden No.	Fig.	Imped., Ohms	Nom. O.D., Inch	Cap., pF/ft.	db at 400 Mc	Net Each, Spool of
8210	F	72	.106 x .278	21.0	9.3	\$6.10
8235	G	300	.185 x .520	5.0	2.20	\$14.65
						\$21.00

\*Pancake coil in sleeve. †Coil, in counter dispenser. ‡At 500 Mc. †Coil. ‡Nominal.

### SHIELDED 100-OHM IMPEDANCE LINE (H)

**Belden No. 8227**—One tinned, one bare 20 AWG, 7 x 28 stranded copper conductors, polyethylene insulated, cabled, in polyethylene jacket, tinned copper braid shield with overall black vinyl jacket. O.D., .325" nom. Cap., 15.5 pF/ft. nom. Attenuation 4.1 db at 100 Mc; 10.2 db at 400 Mc. **500' Spool, Net. \$46.80**

### ANTENNA ROTATOR CABLE

**Fig. I Types:** Bare copper, parallel, #464 chrome vinyl insulated, 1 cond. tinned and insulation ribbed. #463 brown polyethylene insulated, 1 cond. tinned. Suggested working, 200 V. **Fig. J Types:** Bare copper cond. vinyl insulated, cabled, chrome vinyl jacket. Color Coded: 1—Black, 2—Green, 3—Red, 4—White, 5—Yellow.

Belden No.	Fig.	No. Cond.	AWG and (Stranding)	Nom. O.D., Inch	Net Each, Spool of				
					50'	75'	100'	500'	1000'
8463	I	4	20 (7 x 28)	.070 x .375	\$2.06*	\$2.85*	\$3.55*	\$16.35	.....
8464	I	5	20 (7 x 28)	.070 x .390	1.80*	2.40*	3.05*	12.75	\$25.50
8484	J	4	20 (7 x 28)	.180	.....	.....	3.40	14.10	28.20
8485	J	5	20 (7 x 28)	.190	.....	.....	4.00	18.40	36.80
8488†	J	8	22 (7 x 30)	.205	.....	.....	4.90	21.75	43.50

\*Pancake coil. †Color coded: 1—Blk, 2—Blue, 3—Brn, 4—Grn, 5—Orange, 6—Red, 7—Wht, 8—Yel.

### RG/U TRANSMISSION LINE CABLES

Meet JAN-C-17A specs and polyethylene insulation over conductors except as otherwise indicated.

Belden No.	Fig.	No. RG.	AWG and (Stranding)	Shields	Jack- et	Nom. O.D.	Net Each, Spool of				
							No. Type	25'	50'	100'	500'
8264	K	5A/U	16 (Solid) a	2	a	GN .328*	.....	.....	.....	\$112.50	\$225.00
8237	L	8/U	13 (7 x 21) b	1	b	BV .405*	.....	\$6.15	\$11.65*	45.50	91.00
8242	K	9/U	13 (7 x 21) a	2	a, b	GN .420*	.....	27.40	.....	.....	246.75
8243*	K	9B/U	13 (7 x 21) a	2	a	BN .420*	.....	.....	.....	159.40	318.80
8238	L	11/U	18 (7 x 26) c	1	b	BV .405*	.....	.....	11.00	42.25	84.50
8216*	L	11A/U	18 (7 x 26) c	1	b	BN .405*	.....	.....	11.40	48.40	96.80
8239	M	54A/U	18 (7 x .0152) b	1	c	CP .245*	.....	.....	.....	30.90	61.80
8245	N	55/U	20 (Solid) b	2	c	CP .201*	.....	.....	.....	31.70	63.40
8259	L	58A/U	20 (19 x .0071) c	1	c	BV .195*	\$1.80	2.80	5.20	18.50	37.00
8240	L	58/U	20 (Solid) b	1	c	BV .195*	1.60	2.50	4.35*	15.40	30.80
8262*	L	58C/U	20 (19 x .0071) c	1	c	BN .195*	.....	.....	.....	20.40	40.80
8241	L	59/U	22 (‡)	1	b	BV .242*	1.80	2.80	5.10*	17.70	35.40
8263*	L	59B/U	.023 (‡)	1	b	BN .242*	.....	.....	.....	21.60	43.20
8254	O	62/U	22 (‡)†	1	b	BV .242*	.....	.....	5.40	20.00	40.00
8255*	O	62B/U	24 (7 x 32) †	1	b	BN .242*	.....	.....	.....	23.85	47.70
8257	P	71/U	22 (‡)†	2	c	CP .245*	.....	.....	.....	32.50	65.00
8258*	P	71B/U	22 (‡)†	2	c	BP .245*	.....	.....	.....	32.50	65.00
8216†	L	174/U	(7 x 34)†	1	c	BV .100*	.....	.....	3.10	11.50	23.00
8218	L	.....	27 (7 x 35)†	1	c	BV .150*	.....	.....	4.50	17.25	34.50
8265*	L	178B/U	30 (7 x 38) d‡	1	a	FT .072*	.....	.....	12.15*	56.25*	.....
8266*	L	180B/U	30 (7 x 38) d‡	1	a	FT .142*	.....	.....	34.20*	152.25*	.....
8269*	M	188A/U	26 (7 x .0067) d‡	1	a	TT .106*	.....	.....	22.80*	102.75*	.....
8270*	M	196A/U	30 (7 x 38) d‡	1	a	TT .076*	.....	.....	18.25*	76.00*	.....
8267*	L	213/U	13 (7 x 21) b	1	b	BN .405*	.....	.....	.....	52.25	104.50
8268*	K	214/U	13 (7 x .0296) a	2	a	BN .425*	.....	.....	.....	167.25	334.50

\*MIL-C-17-D spec. †Navy drwg RE-49B716. ‡Bare Copperweld. a—Silver-coated; b—Bare; c—Tinned copper. d—Silver-coated Copperweld. BN—Black, non-contaminating vinyl. BP—Black polyethylene. BV—Black vinyl. CP—Clear polyethylene. GN—Gray non-contaminating vinyl. FT—Brown FEP Teflon. TT—White TFE Teflon. †Semi-solid polyethylene insulation. ITFE Teflon. \*Spools may contain more than one piece, minimum length of any one piece is 25 ft.; 500' length may vary ±10%. 250' spools available at: \$25.25; \$25.00; \$9.20; \$11.50.

### FOAM CORE TRANSMISSION LINE (FIG. L)

**Belden No. 8214**—RG-8/U for citizens' band and amateur radio as 50-ohm antenna cable. Copper 11 AWG, 7 x 19 stranded conductor, cellular polyethylene foam insulation, bare copper braid shield with black vinyl jacket overall. Nom. cap., 26 pF/ft. Shield coverage, 96.8%. Nom. O.D., .403". **50' Spool, Net. \$6.75; 100' Spool, Net. \$12.40; 500' Spool, Net. \$55.90; 1000' Spool, Net. \$111.80**  
**Belden No. 8219**—Same, but RG-58/U with copper 20 AWG, 19 x 32 stranded conductor; nom. O.D. .195"; 96% shield coverage. **100' Spool, Net. \$5.50; 500' Spool, Net. \$21.40; 1000' Spool, Net. \$42.80**

### 80 KV DC HIGH VOLTAGE CABLE (FIG. Q)

Solid Copperweld (22 AWG), conductive polyethylene, polyethylene insulation, tinned copper braid equiptential sheath, black polyethylene jacket. Nom. O.D., .440". **500' Spool, Net. \$32.25**  
 †Trademark: Permohm, Weldohm and Cellulne of Belden; Copperweld of Copperweld Steel Corp.; Teflon of DuPont.



# Belden Electronic Wire and Cable

## JUKE BOX CABLES

No. 8783: Tinned copper, vinyl insul., cabled, chrome vinyl jacket. No. 8786: Tinned copper, vinyl insul., 4 cond., twisted under Beldfoil® aluminum-Mylar® shield; 2 unshld. conds., drain wire; chrome vinyl jacket. No. 8787: Eight conductors, cabled in 2 quads, each quad Mylar tape wrap, Beldfoil shield; two unshielded cond., chrome vinyl jacket; conductors and shields color-coded. No. 8784: Ten unshielded conductors, color-coded vinyl insul., 16 AWG pair twisted, vinyl jacket.

Belden No.	Fig.	No. Cond.	AWG and (Stranding)	Nom. O.D.	WV	Net Each, Spool of	
						100'	500'
8783	A	3	1-20 (10x30), 2-16 (26x30)	.250"	450	\$4.90	\$22.65
8786	B	6	2-22 (7x30), 4-24 (7x32)	.256"	350	6.25	30.00
8787	C	10	8-24 (7x32), 2-22 (7x30)	.290"	350	.....	63.00
8784	...	10	2-16 (26x30), 1-20 (10x30), 7-22 (7x30)	.295"	300	.....	46.90

## COMMUNITY ANTENNA AND CLOSED CIRCUIT TV CABLES

All cables are sweep-tested at all channels in the VHF frequency range, preventing unsatisfactory program reception due to imperfections in the cable acting as filter traps at some frequencies. The black polyethylene jackets are manufactured with a non-contaminating, non-migratory compound specially formulated for superior weather resistance. Nos. 8211, 8212, 8213: Conductor cellular polyethylene insulated, bare copper braid shield. Black polyethylene jacket. Nos. 8232, 8233: Conductor cellular polyethylene insulated, bare copper braid shield, polyethylene insulated, bare copper braid shield. Black polyethylene jacket. No. 8215: Conductor polyethylene insulated, two bare copper braid shields, black polyethylene jacket. No. 8217: Same as 8211, but extra limp white vinyl jacket.

Belden No.	Fig.	AWG and (Stranding)	Nom. O.D.	Cap., pF/ft.	Nom. db at 400 Mc	Net Each, Spool of		
						100'	500'	1000'
8211	D	22 (Solid)*	.242"	16.3	6.7	\$20.00	\$ 40.00	\$ 80.00
8217	D	22 (Solid)*	.242"	16.3	6.7	\$ 5.10	20.00	40.00
8212	D	20 (Solid)*	.242"	17.3	6.3	20.00	40.00	80.00
8213	D	14 (Solid)	.405"	17.3	3.4	50.00	100.00	200.00
8215	E	21 (Solid)*	.332"	20.5	6.5	10.50	47.00	94.00
8232	F	20 (Solid)*	.315"	17.3	6.3	41.65	83.30	166.60
8233	F	14 (Solid)	.475"	17.3	3.4	76.75	153.50	307.00

\*Copperweld®.

## TELEVISION AND CHEATER CORDS (NOT ILLUS.)

No.	Description	Each	No.	Description	Each
8874	6' SP-1 brown rubber, male TV plug	57c	8889	9' SPT-1 brn. plastic, male TV plug	45c
8895	6' SPT-1 brn. plastic, male TV plug	45c	8875	6' SPT-1 red plastic extension	42c

Belden No. 8873 TV and Cheater Cord—Same as 8895 but polarized. Net Each.....48c\*

\*Available in bulk, 100-pack at lower cost.

## TEST PROD WIRE (FIG. G)

Extremely limp and flexible wire has high dielectric strength. Tinned copper 18 AWG, 65 x 36 stranded, separator, rubber insulated, specify red or black. No. 8897 made per MIL-W-13169. Miniature type 8890, 24 AWG, 45 x 40 stranded tinned copper, cotton separator, rubber insulated, specify red or black.

Belden No.	Nom. O.D.	Breakdown Volts	Suggested Work Volts	Net Each, Spool of					
				10'	14'	25'	100'	500'	1000'
8899†	.144"	20,000	5,000	\$0.75	\$0.81	\$1.15	\$3.25	\$13.00	\$24.30
8897	.144"	20,000	5,000	.....	.....	.....	.....	14.65	29.30
8898	.230"	29,000	10,000	1.05	.....	1.95	5.05	21.00	.....
8890	.086"	10,000	1,000	.....	.....	.90	2.05	7.95	.....

\*7 ft. of red; 7 ft. of black. †25', 100' and 500' also available in green or yellow.

## COILED TEST PROD WIRE (FIG. H)

Coiled test prod wire, prevents that cluttered up work bench. Retracted length 8 inches, stretched length 5 feet. Tinned copper wire, rubber insulated, red or black. Complete with prods. AWG and stranding, 20 (42 x 36). Nom. O.D., .173". Breakdown, 20,000 V; suggested working, 5,000 V.

Belden No. 8878—One red and one black. Net per Pair.....\$3.10

Belden No. 8879—Same as above, less prods. Net per Pair.....1.30

## UL-600 HOOK-UP AND LEAD WIRES

Fig. I Type UL-600V-105C (CSA-600V-Type TEW): Tinned copper conductor vinyl insulated; 105° C. Fig. J Type UL-600V-90C (CSA-Type TRB): Tinned copper conductor vinyl insulated with cotton braid, lacquered; 90° C.

Belden No.	Fig.	AWG and (Stranding)	Nom. O.D.	Stock Colors†	Net Each, Spools of		
					100'	500'	1000'
8920†	I	22 (7 x 30)	.095"	1-5, 9, 10, 13	\$1.34	.....	\$ 9.75
8919†	I	20 (10 x 30)	.102"	1-5, 9, 10, 13	1.44	.....	10.75
8918†	I	18 (16 x 30)	.112"	1-5, 9, 10, 13	1.80	.....	13.00
8917†	I	16 (26 x 30)	.126"	1-5, 9, 10, 13	2.20	\$ 8.70	.....
8916†	I	14 (41 x 30)	.141"	1-5, 9, 10, 13	2.95	11.80	.....
8937*	J	22 (7 x 30)	.091"	1-5, 9, 10, 13	1.50	.....	11.20
8936*	J	20 (10 x 30)	.098"	1-5, 9, 10, 13	1.62	.....	12.50
8935*	J	18 (16 x 30)	.113"	1-5, 9, 10, 13	2.03	.....	16.20
8934*	J	16 (26 x 30)	.126"	1-5, 9, 10, 13	2.45	10.75	.....
8933*	J	14 (41 x 30)	.177"	1-5, 9, 10, 13	3.75	17.05	.....

\*U/L rated 600 volts for electronic circuits only; 300 volts, other applications. †Stock Colors: 1—Brown, 2—Red, 3—Orange, 4—Yellow, 5—Green, 9—White, 10—Black, 13—Dark Blue. ‡U/L rated 2500 volts peak for electronic circuits.

## SHIELDED AND GRID WIRE

Belden No. 8885 (Fig. K)—Tinned copper 20 AWG, 10 x 30 stranded conductor, rubber insulated, cellulose acetate braid, lacquered, tinned copper braid shield. O.D., .117" nominal. Rated 300 V working; 4000 V breakdown. Capacitance, 80 pF/ft. 15' Spool, Net.....\$ 0.98  
25' Spool, Net.....\$1.22 100' Spool, Net.....\$3.45 500' Spool, Net.....15.75

## MISCELLANEOUS SPECIAL DUTY WIRES

Belden No. 8688 Ignition Wire (Fig. L)—Radiation suppression 7 mm ignition wire with elastomer Duoprene G conductor; insulation .104" thick, black; nom. O.D., .278". 100' Spool, Net.....\$12.00

Belden No. 8689 Ignition Wire (Fig. M)—Tinned Copperweld 20 AWG, 7 x 28 stranded conductor; .120" thick, black insulation. Nom. O.D., .278". 100' Spool, Net.....\$6.15

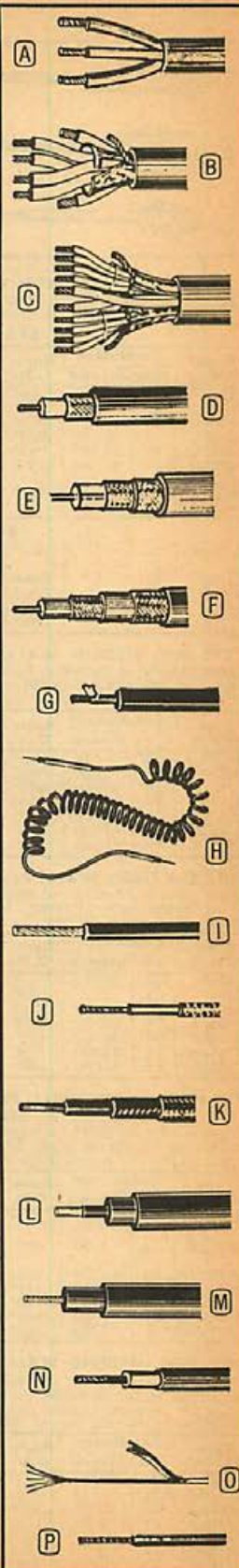
Belden No. 8868 High Voltage CRT Lead (Fig. N)—Tinned copper 22 AWG, 7 x 30 stranded, conductive polyethylene, polyethylene insulated, red vinyl jacket; extra flexible and small. Rated 50,000 V breakdown; 25,000 V working. O.D., .150" nominal. 25' Spool, Net.....\$ 1.05  
100' Spool, Net.....\$2.60 500' Spool, Net.....10.20

Belden No. 8869 High Voltage CRT Lead (Fig. O)—Tinned copper 22 AWG, 7 x 30 stranded, conductive polyethylene, polyethylene insulated, black vinyl jacket. Rated 35,000 V breakdown, 17,000 V working. Nom. O.D., .120".  
25' Spool, Net.....90c 100' Spool, Net.....\$2.10 500' Spool, Net.....\$8.10

Belden No. 8817 Litz Wire (Fig. P)—Copper 5 x 44 stranded conductor, Celanamel® insulated, nylon wrap. O.D., .008" nominal. 100' Spool, Net.....65c

Belden No. 8014 Indoor Aerial Wire (Fig. Q)—Tinned copper 25 AWG, 13 x 36 stranded, chrome vinyl insulation. O.D., .044" nom. 25' Spool, Net.....57c 500' Spool, Net.....\$3.25

®TM: Celanamel and Beldfoil of Belden; Copperweld of Copperweld Steel Co.; Mylar of DuPont.

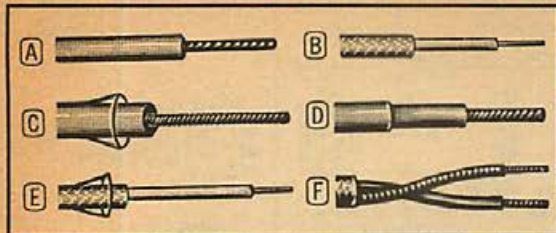






# Alpha Military Hook-Up Wire

## SPECIFICATION MIL-W-76B PLASTIC HOOK-UP WIRE



### TYPE MW (MEDIUM WALL) PLASTIC (FIG. A)

Single conductor stranded or solid tinned copper, polyvinylchloride insulation .016" th. Rated 1000 volts. Temp., -40° C to +80° C.

#### STRANDED

Type MW-C	Conductor		Nom. O.D.	Col-ors*	Alpha No.	Net Per Spool*	
	Size	Strand				1000'†	100'
24(7)U	24	7/32	.059"	1-30	1550	\$ 7.44	\$1.13
22(7)U	22	7/30	.064"	1-30	1551	8.66	1.38
20(10)U	20	10/30	.073"	1-30	1553	11.43	1.65
18(16)U	18	16/30	.084"	1-30	1555	16.46	2.07
16(26)U	16	26/30	.095"	1-30	1557	24.26	2.94
14(41)U	14	41/30	.110"	1-19,	1559	37.07	4.16
				28-30			
12(65)U	12	65/30	.125"	1-19,	1560	60.63	6.93
				28-30			

#### SOLID

Type MW-C	Conductor Size	Strand	Nom. O.D.	Col-ors*	Alpha No.	Net Per Spool*	
						1000'†	100'
24(1)U	24	1	.055"	1-30	1561/24	\$ 6.93	\$1.04
22(1)U	22	1	.060"	1-30	1561	7.10	1.13
20(1)U	20	1	.066"	1-30	1563	9.53	1.38
18(1)U	18	1	.074"	1-10	1565	13.86	1.82
16(1)U	16	1	.083"	1-10	1567	19.58	2.52

### TYPE MW (MEDIUM WALL) PLASTIC, SHIELDED (FIG. B)

Single conductor stranded tinned copper, polyvinylchloride insulation, tinned copper shield overall. Nominal insulation, .016". Voltage rating, 1000 volts. Temp., -40° C to +80° C.

Type MW-C	Conductor		Nom. O.D.	Col-ors*	Alpha No.	Net Per Spool	
	Size	Strand				1000'†	100'
24(7)S	24	7/32	.075"	1	1350	\$22.44	\$2.48
22(7)S	22	7/30	.085"	1	1351	23.76	2.64
20(10)S	20	10/30	.095"	1	1352	26.40	2.90
18(16)S	18	16/30	.105"	1	1353	31.35	3.39
16(26)S	16	26/30	.115"	1	1354	42.08	4.46
14(41)S	14	41/30	.130"	1	1355	49.50	4.95
12(65)S	12	65/30	.145"	1	1356	66.00	6.60

### TYPE MW (MED. WALL) PLASTIC, NYLON JACKET (FIG. C)

Single conductor stranded tinned copper; polyvinylchloride insulation, nylon jacket overall. Nominal insulation, .016". Voltage rating, 1000 volts. Temp., -40° C to +90° C.

Type MW-C	Conductor		Nom. O.D.	Col-ors*	Alpha No.	Net Per Spool*	
	Size	Strand				1000'†	100'
24(7)J	24	7/32	.065"	1-10	1503	\$12.38	\$1.88
22(7)J	22	7/30	.072"	1-10	1504	12.51	1.92
20(10)J	20	10/30	.079"	1-10	1505	14.27	1.98
18(16)J	18	16/30	.090"	1-10	1506	21.75	2.67
16(26)J	16	26/30	.103"	1-10	1507	28.95	3.75
14(41)J	14	41/30	.118"	1-6	1508	40.50	4.80
12(65)J	12	65/30	.135"	1-3	1509	55.50	6.30

### TYPE MW (MEDIUM WALL) PLASTIC, GLASS BRAID, SHIELDED (FIG. D)

Single conductor stranded tinned copper, white polyvinylchloride insulation, lacquered glass braid, tinned copper shield overall. Insul., .016" th. Rated 1000 volts. Temp., -40° C to +80° C.

Type MW-C	Conductor		Nom. O.D.	Col-ors*	Alpha No.	Net Per Spool	
	Size	Strand				1000'†	100'
24(7)BS	24	7/32	.091"	1	1194/24	\$37.35	\$4.20
22(7)BS	22	7/30	.097"	1	1194/22	37.55	4.46
20(10)BS	20	10/30	.105"	1	1194	40.43	4.79
18(16)BS	18	16/30	.117"	1	1196	44.55	5.12
16(26)BS	16	26/30	.129"	1	1197	56.10	6.44
14(41)BS	14	41/30	.143"	1	1198	64.35	7.26
12(65)BS	12	65/30	.162"	1	1199	85.80	9.41

### TYPE MW (MEDIUM WALL) PLASTIC, SHIELDED, NYLON JACKET (FIG. E)

Single conductor stranded tinned copper, white polyvinylchloride insulation, braided tinned copper shield, clear nylon jacket overall. Insul., .016" th. Rated 1000 V. Temp., -40° C to +90° C.

Type MW-C	Conductor		Nom. O.D.	Col-ors*	Alpha No.	Net Per Spool	
	Size	Strand				1000'†	100'
24(7)SJ	24	7/32	.085"	1	1370	\$ 34.43	\$ 3.90
22(7)SJ	22	7/30	.092"	1	1371	34.65	3.96
20(10)SJ	20	7/28	.100"	1	1372	36.30	4.13
18(19)SJ	18	19/28	.110"	1	1373	41.25	4.56
16(19)SJ	16	19/29	.120"	1	1374	54.45	5.78
14(19)SJ	14	19/27	.140"	1	1375	90.75	9.98
12(19)SJ	12	19/25	.156"	1	1376	152.46	17.06

### TYPE MW (MED. WALL) PLASTIC, GLASS BRAID (FIG. D)

Single conductor stranded tinned copper; polyvinylchloride insulation, lacquered glass braid overall. Nominal insulation, .016". Voltage rating, 1000 volts. Temp., -40° C to +80° C.

Type MW-C	Conductor		Nom. O.D.	Col-ors*	Alpha No.	Net Per Spool	
	Size	Strand				1000'†	100'
22(7)B	22	7/30	.080"	1-12	1590	\$17.82	\$2.15
20(10)B	20	10/30	.085"	1-12	1591	21.45	2.67
18(16)B	18	16/30	.090"	1-12	1592	26.73	3.14
16(26)B	16	26/30	.105"	1-12	1593	33.00	4.05
14(41)B	14	41/30	.120"	†	1594	39.20	4.46
12(65)B	12	65/30	.135"	†	1595	66.00	7.43

\*Colors 1, 11 and 12\*.

### TYPE HW (HEAVY WALL) PLASTIC (FIG. A)

Single conductor stranded tinned copper; heavy wall polyvinylchloride insulation. Nominal insulation .032" for 22-16 cond. sizes; .045", all other sizes. Voltage rating, 2500 V 22-16 cond. sizes; 600 V, all other sizes. Temp., -40° C to +80° C.

Type HW-C	Conductor		Nom. O.D.	Col-ors*	Alpha No.	Net Per Spool	
	Size	Strand				1000'†	100'
22(7)U	22	7/30	.092"	1-10	1571	\$12.00	\$1.50
20(10)U	20	10/30	.100"	1-10	1573	13.73	1.80
18(16)U	18	16/30	.112"	1-10	1575	18.15	2.88
16(26)U	16	26/30	.126"	1-3	1577	23.60	3.27
14(41)U	14	41/30	.170"	1-3	1579	43.56	4.91
12(65)U	12	65/30	.186"	1-3	1651	54.45	6.36
10(105)U	10	105/30	.210"	1-3	1653	90.75	9.99
8(133)U	8	133/29	.260"	1-3	1655	235.95	25.41
6(133)U	6	133/27	.305"	1-3	1657	290.40	30.86

### TYPE HW (HEAVY WALL) PLASTIC, GLASS BRAID (FIG. D)

Single conductor stranded tinned copper, heavy wall polyvinylchloride insulation, lacquered glass braid overall. Nom. insulation .045". Rated 600 V. Temp., -40° C to +80° C. Colors: 1, 11, or 12 per Color Table\*.

Type HW-C	Conductor		Nom. O.D.	Alpha No.	Net Per Spool	
	Size	Strand			1000'†	100'
10(105)B	10	105/30	.230"	1598	\$119.79	\$12.89
8(133)B	8	133/29	.280"	1599	199.65	21.78
6(133)B	6	133/27	.325"	1599/6	268.62	28.68

### TYPE LW (LIGHT WALL) PLASTIC (FIG. A)

#### WITH REGULAR TINNED CONDUCTOR

Single conductor stranded tinned copper; light wall polyvinylchloride insulation .010" th. Rated 300 volts. Temp., -40° C to +80° C.

Type LW-C	Conductor		Nom. O.D.	Col-ors*	Alpha No.	Net Per Spool*	
	Size	Strand				1000'†	100'
30(7)U	30	7/38	.033"	1-19	1685	\$6.45	\$1.08
28(7)U	28	7/36	.035"	1-19	1686	5.94	1.05
26(7)U	26	7/34	.038"	1-19	1687	6.44	1.07
24(7)U	24	7/32	.043"	1-19	1688	6.60	1.14
22(7)U	22	7/30	.049"	1-19	1689	7.13	1.20
20(7)U	20	7/28	.060"	1-19	1690	8.10	1.28

### TYPE LW (LIGHT WALL) PLASTIC, NYLON JACKET (FIG. C)

Single conductor stranded tinned copper, light wall polyvinylchloride insulation, clear nylon jacket overall. Insulation .010" nominal. Rated 300 volts. Temp., -40° C to +90° C.

Type LW-C	Conductor		Nom. O.D.	Col-ors*	Alpha No.	Net Per Spool*	
	Size	Strand				1000'†	100'
30(7)J	30	7/38	.036"	1-19	1675	\$ 9.66	\$1.52
28(7)J	28	7/36	.039"	1-19	1676	9.66	1.52
26(7)J	26	7/34	.042"	1-19	1677	9.83	1.58
24(7)J	24	7/32	.047"	1-19	1678	9.99	1.65
22(7)J	22	7/30	.053"	1-19	1679	10.73	1.73
20(7)J	20	7/28	.065"	1-19	1680	12.30	1.80

### \*STOCK COLORS

Prices listed are for solid colors only, specify. Stripping Charges: Following stripping charges apply for either one, two or three spiral tracers per item in any standard put-up. Plastic and Nylon jacketed wire, \$1.13 per 1000'; Teflon wire, \$10.50 per 1000'. Other tracer colors available at extra cost. Write for information.

No.	Color	No.	Color	No.	Color
1	White	11	White/Black	21	White/Black/Green
2	Black	12	White/Red	22	White/Black/Yellow
3	Red	13	White/Green	23	White/Black/Blue
4	Green	14	White/Yellow	24	White/Black/Brown
5	Yellow	15	White/Blue	25	White/Black/Orange
6	Lt. Blue	16	White/Brown	26	White/Black/Gray
7	Brown	17	White/Orange	27	White/Black/Violet
8	Orange	18	White/Gray	28	Tan
9	Gray	19	White/Violet	29	Pink
10	Violet	20	White/Black/Red	30	Dark Blue

†Preferred put-up; when put-up is omitted from order, 1000' is automatically shipped. Spool of 500' also available; prices on request. Also available to order: Cut, stripped and tinned.





# Alpha Military Wire, Cable

## SPECIFICATION MIL-W-16878D HOOK-UP WIRE

### TYPE B UNCOVERED PLASTIC (FIG. A)

Single conductor stranded tinned copper, .010" polyvinylchloride insulation. Rated 600 volts. Temp., -55° C to +105° C.

MIL-W Type	Conductor Size	Strand	Nom. O.D.	Col-ors*	Alpha No.	Net Per 1000'	Spool* 100'
B-32	32	7/40	.028"	1-19	1850	\$10.73	\$1.49
B-30	30	7/38	.032"	1-19	1851	8.58	1.25
B-28	28	7/36	.034"	1-19	1852	7.43	1.16
B-26	26	7/34	.038"	1-19	1853	8.91	1.28
B-24	24	7/32	.043"	1-19	1854	7.68	1.22
B-24	24	19/36	.043"	1-19	1854/19	9.50	1.41
B-22	22	7/30	.050"	1-19	1855	8.42	1.28
B-22	22	19/34	.050"	1-19	1855/19	9.83	1.53
B-20	20	7/28	.058"	1-19	1856	9.08	1.43
B-20	20	19/32	.058"	1-19	1856/19	11.64	1.58
B-18	18	7/26	.068"	1-19	1857	11.22	1.67
B-18	18	19/30	.068"	1-19	1857/19	13.68	1.82
B-16	16	19/29	.077"	1-19	1858/19	14.26	1.86
B-14	14	19/27	.091"	1-19	1859/19	38.12	4.68

### TYPE B NYLON JACKET (FIG. C)

Same as above, but clear nylon jacket overall; 115° C.

MIL-W Type	Conductor Size	Strand	Nom. O.D.	Col-ors*	Alpha No.	Net Per 1000'	Spool* 100'
B-32	32	7/40	.035"	1-19	1869	\$13.20	\$1.65
B-30	30	7/38	.039"	1-19	1861	12.47	1.61
B-28	28	7/36	.041"	1-19	1862	11.81	1.59
B-26	26	7/34	.044"	1-19	1863	11.48	1.56
B-24	24	7/32	.049"	1-19	1864	12.63	1.67
B-24	24	19/36	.049"	1-19	1864/19	15.43	1.87
B-22	22	7/30	.056"	1-19	1865	12.48	1.65
B-22	22	19/34	.056"	1-19	1865/19	14.45	1.88
B-20	20	7/28	.064"	1-19	1866	12.30	1.65
B-20	20	19/32	.064"	1-19	1866/19	14.61	1.91
B-18	18	7/26	.074"	1-19	1867	15.44	1.98
B-18	18	19/30	.074"	1-19	1867/19	17.58	2.24
B-16	16	19/29	.085"	1-19	1868/19	18.90	2.31
B-14	14	19/27	.099"	1-19	1869/19	46.47	5.21

### TYPE B UNCOVERED PLASTIC

#### PRE-BONDED CONDUCTOR (FIG. A)

Each strand is double tinned and then heated to bond the strands together for easy stripping. Insulation per MIL-W-16878D, .010" polyvinylchloride. Rated 600 volts. Temp., -55° C to +105° C.

MIL-W Type	Conductor Size	Strand	Nom. O.D.	Col-ors*	Alpha No.	Net Per 1000'	Spool* 100'
B-24	24	7/32	.044"	1-19	3154	\$ 9.87	\$1.41
B-22	22	7/30	.051"	1-19	3155	11.60	1.59
B-20	20	7/28	.059"	1-19	3156	16.01	2.04
B-18	18	7/26	.070"	1-19	3157	22.70	2.76

### TYPE C UNCOVERED PLASTIC (FIG. A)

Single conductor stranded tinned copper; .016" polyvinylchloride insulation. Rated 1000 volts. Temp., -55° C to +105° C.

MIL-W Type	Conductor Size	Strand	Nom. O.D.	Col-ors*	Alpha No.	Net Per 1000'	Spool* 100'
C-24	24	7/32	.058"	1-19	1930	\$ 9.24	\$1.49
C-22	22	7/30	.064"	1-19	1931	10.56	1.58
C-20	20	7/28	.072"	1-19	1932	12.54	1.65
C-18	18	7/26	.082"	1-19	1933	16.50	1.82
C-16	16	19/29	.091"	1, 11-19	1934	21.45	2.40
C-14	14	19/27	.114"	1, 11-19	1935	31.19	3.30
C-12	12	19/25	.124"	1, 11-19	1936	59.90	6.90

### TYPE C NYLON JACKET (FIG. C)

Same as above, but clear nylon jacket overall; 115° C.

MIL-W Type	Conductor Size	Strand	Nom. O.D.	Col-ors*	Alpha No.	Net Per 1000'	Spool* 100'
C-24	24	7/32	.065"	1-19	1840	\$14.85	\$1.98
C-22	22	7/30	.072"	1-19	1841	14.85	2.15
C-20	20	7/28	.079"	1-19	1842	18.15	2.40
C-18	18	7/26	.090"	1-19	1843	20.13	2.40
C-16	16	19/29	.099"	1, 11-19	1844	26.40	2.81
C-14	14	19/27	.114"	1, 11-19	1845	39.60	4.29
C-12	12	19/25	.135"	1, 11-19	1846	77.15	8.63

### TYPE C SHIELDED NYLON JACKET (FIG. E)

Shielded version of above. Single stranded tinned copper conductor. White .016" polyvinylchloride insulation. Braided, tinned copper shield, 90% coverage. Clear nylon jacket. Rated -55° C to +115° C. Voltage rating, 1000 volts.

MIL-W Type	Conductor Size	Strand	Nom. O.D.	Col-ors*	Alpha No.	Net Per 1000'	Spool* 100'
C-24	24	7/32	.091"	1	1470	\$47.19	\$ 5.63
C-22	22	7/30	.098"	1	1471	50.82	6.00
C-20	20	7/28	.105"	1	1472	55.17	6.45
C-18	18	19/30	.115"	1	1473	66.26	7.55
C-16	16	19/29	.125"	1	1474	80.22	8.91
C-14	14	19/27	.142"	1	1475	110.36	11.99
C-12	12	19/25	.156"	1	1476	174.24	19.23

\*See previous page for stock colors, price adder for stripping, and put-up variations.

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### TYPE D UNCOVERED PLASTIC (FIG. A)

Single conductor stranded tinned copper; .032" polyvinylchloride insulation. Rated 3000 volts. Temp., -55° C to +105° C.

MIL-W Type	Conductor Size	Strand	Nom. O.D.	Col-ors*	Alpha No.	Net Per 1000'	Spool* 100'
D-24	24	7/32	.082"	1, 2, 3	1870	\$ 17.85	\$ 2.22
D-22	22	7/30	.088"	1, 2, 3	1871	18.16	2.31
D-20	20	7/28	.096"	1, 2, 3	1872	21.45	2.64
D-18	18	7/26	.106"	1, 2, 3	1873	26.40	3.14
D-16	16	19/29	.115"	1, 2, 3	1874	39.60	4.79
D-14	14	19/27	.129"	1, 2, 3	1875	44.55	5.45
D-12	12	19/25	.158"	1, 2, 3	1876	70.95	7.92
D-10	10	37/26	.185"	1	1877	92.40	10.89
D-8	8	133/29	.247"	1	1878	214.50	23.10
D-6	6	133/27	.290"	1	1879	264.00	28.88

### TYPE D NYLON JACKET (FIG. C)

Same as above except clear nylon jacket overall; 115° C.

MIL-W Type	Conductor Size	Strand	Nom. O.D.	Col-ors*	Alpha No.	Net Per 1000'	Spool* 100'
D-24	24	7/32	.090"	1, 2, 3	1880	\$ 26.51	\$ 3.56
D-22	22	7/30	.096"	1, 2, 3	1881	30.57	4.17
D-20	20	7/28	.104"	1, 2, 3	1882	34.67	4.35
D-18	18	7/26	.114"	1, 2, 3	1883	43.56	5.27
D-16	16	19/29	.125"	1, 2, 3	1884	61.71	7.08
D-14	14	19/27	.139"	1, 2, 3	1885	76.23	8.54
D-12	12	19/25	.168"	1, 2, 3	1886	110.72	12.89
D-10	10	37/26	.197"	1	1887	152.46	17.06
D-8	8	133/29	.265"	1	1888	297.66	31.58
D-6	6	133/27	.310"	1	1889	399.30	43.56

### TYPE E TEFLON® WIRE (FIG. A)

Single conductor stranded, silver-plated copper, extruded TFE Teflon insulation .010" thick. Temp., -65° C to +200° C. Rated 600 volts. Put-up on spools.

MIL-W Type	Cond. Strd.	Nom. O.D.	Colors*	Alpha	Spool* 100'
E-32	7/40	.029"	1-19	2850	\$ 7.92
E-30	7/38	.032"	1-19	2851	8.42
E-28	7/36	.036"	1-19	2852	8.75
E-26	7/34	.040"	1-19	2853	8.91
E-24	19/36	.045"	1-19	2854	9.66
E-24	7/32	.044"	1-19	2854/7	8.18
E-22	19/34	.051"	1-19	2855	11.06
E-22	7/30	.050"	1-19	2855/7	9.38
E-20	19/32	.059"	1-19	2856	14.03
E-20	7/28	.058"	1-19	2856/7	12.38
E-18	19/30	.070"	1-19	2857	16.50
E-16	19/29	.077"	1-19	2858	21.45
E-14	19/27	.094"	1-6, 11-19	2859	28.05
E-12	19/25	.113"	1, 11-19	2859/12†	42.90
E-10	37/26	.184"	1, 11-19	2859/10†	72.60

†Insul., .012" th.

### TYPE EE TEFLON® WIRE (FIG. A)

Same as above, but .014" thick extruded. TFE Teflon insulation. Rated 1000 volts. Temperature, -65° C to +260° C.

MIL-W Type	Conductor Size	Strand	Nom. O.D.	Colors*	Alpha No.	Spool of 100'
EE-24	24	19/36	.055"	1-19	2874	\$ 10.23
EE-22	22	19/34	.062"	1-19	2875	11.81
EE-20	20	19/32	.070"	1-19	2876	14.78
EE-18	18	19/30	.080"	1-19	2877	17.16
EE-16	16	19/29	.089"	1, 11-19	2878	23.10
EE-14	14	19/27	.106"	1, 11-19	2879	31.35
EE-12	12	19/25	.124"	1, 11-19	2879/12†	51.15
EE-10	10	37/26	.145"	1, 11-19	2879/10†	85.80
EE-8	8	133/29	.210"	1	2879/8†	146.85

†Insul., .017" thick. †Insul., .020" thick.

### TEFLON® SHIELDED CABLES (FIG. F)

Each conductor stranded silver-plated copper, Type E, .010" extruded Teflon insulation per MIL-W-16878D. Rated 600 volts. When shielded, a closely woven silver-plated copper shield is braided over the conductor(s). When braided, a "Teflon" impregnated fiberglass yarn is woven over the shield. Where indicated "fused", a sintered, wrapped white Teflon tape jacket is fused over the shield. Temp., -65° C to +200° C. Colors 1-4, per Color Table\*.

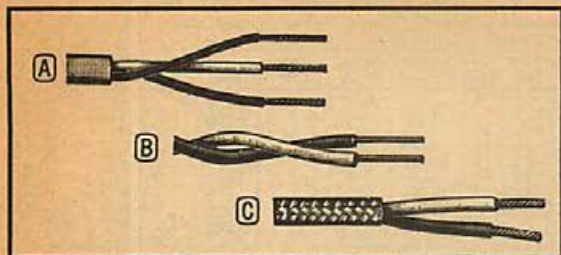
Size	Conductor	Outer Cover	Alpha		Spool of 100'	
			100'	100'	Alpha	100'
24	19/36	Shield	2809	\$18.71	2809/2	\$ 38.12
24	19/36	Braid	2811	31.19	2811/2	47.48
24	19/36	Fused	2821	39.84	2821/2	65.84
22	19/34	Shield	2812	20.79	2812/2	42.45
22	19/34	Braid	2814	32.01	2814/2	51.88
22	19/34	Fused	2824	45.05	2824/2	80.89
20	19/32	Shield	2815	24.80	2815/2	54.57
20	19/32	Braid	2817	40.20	2817/2	64.10
20	19/32	Fused	2827	51.88	2827/2	91.82
18	19/30	Shield	2818	29.45	2818/2	67.56
18	19/30	Braid	2819	42.27	2819/2	73.80
18	19/30	Fused	2829	62.01	2829/2	100.49
Three Conductor						
24	19/36	Shield	2805/3	\$ 54.75	2805/4	\$ 69.30
24	19/36	Braid	2811/3	62.37	2811/4	81.45
24	19/36	Fused	2821/3	97.02	2821/4	114.35
22	19/34	Shield	2812/3	60.65	2812/4	76.23
22	19/34	Braid	2814/3	78.60	2814/4	88.37
22	19/34	Fused	2824/3	105.68	2824/4	136.86
20	19/32	Shield	2815/3	71.04	2815/4	95.30
20	19/32	Braid	2817/3	86.63	2817/4	114.35
20	19/32	Fused	2827/3	124.74	2827/4	155.93
18	19/30	Shield	2818/3	81.42	2818/4	109.14
18	19/30	Braid	2819/3	95.28	2819/4	128.21
18	19/30	Fused	2829/3	133.40	2829/4	171.51





# Alpha Audio Cable

## MULTI-CONDUCTOR AUDIO CABLE



### UNSHIELDED WITH PLASTIC JACKET (FIG. A)

Tinned copper conductors with color-coded polyvinylchloride insulation, twisted, with gray polyvinylchloride jacket overall. Rated 350 volts except as otherwise noted. Temperature, -20° C to +60° C. **Conductors' Color Code:** 1 thru 12, per Color Code Table One\* below.

Conductor		Nominal		Alpha No.	Net Per Spool	
No.	Size	Wall	O.D.		1000'	100'
2	22	Solid	.010"	1793	\$ 20.79	\$3.11
3	22	Solid	.010"	1794	32.04	4.07
4	22	Solid	.010"	1794 1/4	45.74	5.46
2	20	Solid	.016"	1795	38.12	4.67
3	20	Solid	.016"	1796	55.08	6.41
4	20	Solid	.016"	1796 1/4	64.97	7.37
2	18	Solid	.016"	1797	44.69	5.37
3	18	Solid	.016"	1798	60.45	6.93
4	18	Solid	.016"	1798 1/4	80.04	8.84
6	18	Solid	.016"	1798 5/8	104.64	12.12
12	18	Solid	.016"	1798 3/2	125.43	14.30
2	16	Solid	.016"	1799	27.27	3.53
3	16	Solid	.016"	1799 1/3	94.25	11.09
4	16	Solid	.016"	1799 1/2	129.93	14.72
2	14	41/30	.016"	1891	122.47	13.34
3	14	41/30	.016"	1891 1/3	169.79	17.84
2	12	65/30	.016"	1892	176.72	18.53
3	12	65/30	.016"	1892 1/3	259.88	27.72
2	22	7/30	.010"	1893	26.33	3.47
3	22	7/30	.010"	1894	38.12	4.67
4	22	7/30	.010"	1894 1/4	52.83	6.15
2	20	10/30	.016"	1895	32.22	4.32
3	20	10/30	.016"	1896	62.54	7.10
4	20	10/30	.016"	1896 1/4	83.16	9.18
2	18	16/30	.016"	1897	46.08	5.54
3	18	16/30	.016"	1898	81.08	9.18
4	18	16/30	.016"	1898 1/4	111.51	13.50
2	16	16/30	.016"	1898 1/2	230.24	24.77
10	18	16/30	.016"	1898 10/12	291.06	31.22
12	18	16/30	.016"	1898 12/12	343.04	36.38
2	16	26/30	.016"	1899	62.54	7.10
3	16	26/30	.016"	1899 1/3	124.04	14.12
4	16	26/30	.016"	1899 1/2	170.48	18.71

### UNSHIELDED WITHOUT JACKET (FIG. B)

Same, but without plastic jacket. **Conductors' Color Code:** 1 - Brown; 2 - Tan; 3 - Gray.

Conductor		Nominal		Alpha No.	Net Per Spool	
No.	Size	Wall	O.D.		1000'	100'
2	22	Solid	.016"	1900	\$ 15.75	\$2.07
3	22	Solid	.016"	1901	21.83	3.03
2	20	Solid	.016"	1903	20.96	2.94
3	20	Solid	.016"	1904	32.78	4.25
2	18	Solid	.016"	1906	33.57	4.16
3	18	Solid	.016"	1907	47.64	5.63
6	18	Solid	.016"	1908	57.17	6.57
12	18	Solid	.016"	1910	83.16	10.04
2	19 1/2	Solid	.016"	1912	18.18	2.25
3	19 1/2	Solid	.016"	1913	28.45	3.47
2	22	7/30	.016"	1915	23.39	3.21
3	22	7/30	.016"	1916	31.19	3.98
2	20	10/30	.016"	1918	27.02	3.56
3	20	10/30	.016"	1919	40.37	4.94
2	18	16/30	.016"	1921	31.53	3.98
3	18	16/30	.016"	1922	46.25	5.54
2	16	26/30	.016"	1924	35.34	4.43
3	16	26/30	.016"	1925	66.35	7.53
2	14	41/30	.016"	1927	74.15	8.31
3	14	41/30	.016"	1928	128.21	14.55

†Rated 200 volts. ††Rated 300 volts. †††Bare, untinned copper.

### SHIELDED WITHOUT JACKET (FIG. C)

Each conductor tinned stranded copper with color-coded polyvinylchloride insulation; twisted and covered with braided tinned copper shield overall. For PA and sound use, recording equipment, broadcast and audio. Temp., -20° C to +60° C. **Conductors' Color Code:** 1 - Black; 2 - Red.

Conductor		Nominal		Alpha No.	Net Per Spool		
No.	Size	Wall	O.D.		1000'	100'	
2	26	7/34	.010"	1261/26†	\$ 59.07	\$ 6.57	
2	24	16/36	.016"	1261	56.13	6.06	
2	22	7/30	.016"	1400	1256/22V	42.96	5.19
2	20	10/30	.016"	1555	1256V	50.82	5.94
2	18	16/30	.016"	1707	1259V†	76.23	8.48
3	16	26/30	.020"	2107	1260V†	88.80	9.80
2	14	41/30	.020"	2257	1260/14†	148.10	16.34
2	12	65/30	.025"	2957	1260/12†	290.40	30.86

†22 AWG solid tinned copper ground wire under braided copper shield. Rated 350 volts except: †200 V; †450 V; †600 V.

## FLEXIBLE CABLE

### OUTER PLASTIC JACKET (FIG. A)

For unbalanced intercom systems, low voltage relay control cable, PA systems, signal systems, electronic computers. Each conductor suitable for outdoor use. 22 AWG stranded tinned copper; PVC-coded polyvinylchloride insulation; conductors twisted; gray PVC jacket overall. Rated 200 volts. Temp., -20° C to +60° C. **Conductors' Color Code:** 1 thru 60 per Color Code Table One\* below.

Conductor		Nominal			Alpha No.	Net Per Spool	
No.	Strand	Wall	Jacket	O.D.		1000'	100'
2	7/30	.010"	.020"	.140"	1172	\$ 19.64	\$ 2.72
3	7/30	.010"	.020"	.145"	1173	22.28	2.97
4	7/30	.010"	.020"	.170"	1174	29.37	3.56
5	7/30	.010"	.020"	.175"	1175	35.64	4.46
6	7/30	.010"	.020"	.185"	1176	55.28	6.53
7	7/30	.010"	.020"	.190"	1177	62.70	7.35
8	7/30	.010"	.020"	.200"	1178	69.30	7.59
9	7/30	.010"	.020"	.225"	1179	76.73	8.51
10	7/30	.010"	.020"	.235"	1180	78.38	8.42
12	7/30	.010"	.020"	.255"	1181	84.15	8.91
15	7/30	.010"	.020"	.280"	1181/15	239.09	31.19
20	7/30	.010"	.020"	.310"	1181/20	311.85	38.46
25	7/30	.010"	.020"	.340"	1181/25	408.38	48.63
30	7/30	.010"	.020"	.365"	1181/30	490.05	63.53
40	7/30	.010"	.025"	.425"	1181/40	816.75	96.20
50	7/30	.010"	.035"	.500"	1181/50	1016.40	123.42
60	7/30	.010"	.035"	.530"	1181/60	1234.20	143.39

### OUTER COTTON BRAID (FIG. C)

Same as above, but jacket is brown cotton braid, and conductor is 20 AWG stranded. Rated 600 volts. Temp., -40° C to +80° C. **Conductors' Color Code:** 1 thru 30 per Color Code Table Two\* below.

Conductor		Nominal			Alpha No.	Net Per Spool	
No.	Strand	Wall	Jacket	O.D.		1000'	100'
2	10/30	.016"	.....	.170"	1182	\$43.56	\$ 5.25
3	10/30	.016"	.....	.180"	1183	64.61	7.35
4	10/30	.016"	.....	.200"	1184	79.13	8.81
5	10/30	.016"	.....	.220"	1185	102.36	11.16
6	10/30	.016"	.....	.240"	1186	131.40	14.07
7	10/30	.016"	.....	.240"	1187	152.46	16.14
8	10/30	.016"	.....	.265"	1188	177.87	19.59
9	10/30	.016"	.....	.285"	1189	217.80	23.60
10	10/30	.016"	.....	.310"	1190	246.84	25.41
12	10/30	.016"	.....	.322"	1192	290.40	34.49
15	10/30	.016"	.....	.360"	1192/15	381.15	43.56
20	10/30	.016"	.....	.405"	1192/20	526.35	58.08
25	10/30	.016"	.....	.450"	1192/25	672.25	63.53
30	10/30	.016"	.....	.485"	1192/30	844.85	78.05

†600-ft. spool.

## \*MULTI-CONDUCTORS' COLOR CODE

### TABLE ONE

No.	Color	No.	Color
1	Black	31	White/Black/Slate
2	Red	32	White/Black/Purple
3	White	33	White/Black/Black
4	Green	34	White/Red/Black
5	Orange	35	White/Red/Red
6	Blue	36	White/Red/Green
7	Brown	37	White/Red/Blue
8	Yellow	38	White/Red/Brown
9	Purple	39	White/Red/Purple
10	Slate	40	White/Green/Black
11	Pink	41	White/Green/Red
12	Tan	42	White/Green/Green
13	Red/Green	43	White/Green/Blue
14	Red/Yellow	44	White/Green/Brown
15	Red/Black	45	White/Green/Purple
16	White/Black	46	White/Blue/Black
17	White/Red	47	White/Blue/Red
18	White/Green	48	White/Blue/Green
19	White/Yellow	49	White/Blue/Blue
20	White/Blue	50	White/Blue/Purple
21	White/Brown	51	White/Blue/Brown
22	White/Orange	52	White/Brown/Black
23	White/Gray	53	White/Brown/Red
24	White/Violet	54	White/Brown/Green
25	White/Black/Red	55	White/Brown/Blue
26	White/Black/Green	56	White/Brown/Brown
27	White/Black/Yellow	57	White/Brown/Purple
28	White/Black/Blue	58	White/Purple/Red
29	White/Black/Brown	59	White/Purple/Green
30	White/Black/Orange	60	White/Purple/Blue

### TABLE TWO

No.	Color	No.	Color
1	Black	11	Pink
2	Red	12	Tan
3	White	13	White/Black
4	Green	14	White/Red
5	Orange	15	White/Green
6	Blue	16	White/Orange
7	Brown	17	White/Blue
8	Yellow	18	White/Brown
9	Purple	19	White/Yellow
10	Slate	20	White/Purple
21	White/Gray	21	White/Gray
22	White/Black/Red	22	White/Black/Red
23	White/Black/Green	23	White/Black/Green
24	White/Black/Yellow	24	White/Black/Yellow
25	White/Black/Blue	25	White/Black/Blue
26	White/Black/Brown	26	White/Black/Brown
27	White/Black/Orange	27	White/Black/Orange
28	White/Black/Gray	28	White/Black/Gray
29	White/Black/Violet	29	White/Black/Violet
30	Dark Blue	30	Dark Blue





# Alpha Cords, FIT® Tubing

## NEW FIT-350 IRRADIATED KYNAR\* TUBING

High-temperature, thin-wall tubing with excellent cut-through and abrasion resistance. Semi-rigid, polyvinylidene fluoride. Non-flammable; shrinkage ratio, 2:1 (50%); high dielectric strength. Supplied in clear only. Shrinks to half size at 175°C; forms permanent mechanical bond. Operates at temperatures from -55°C to +175°C; withstands intermittent heat shock to 350°C.

Alpha No. FIT-	Dimensions, Inches			4 Ft. Lengths		6 In. Lengths	
	Min. I.D.*	Recov. I.D.†	Wall Th.	Std. Pkg.	Pkg. Net	Std. Pkg.	Pkg. Net
350-1/4"	.046	.023	.010	100'	\$14.70	16'	\$4.00
350-1/8"	.063	.031	.010	100'	16.05	14'	4.00
350-1/2"	.093	.046	.010	100'	19.30	12'	4.00
350-3/8"	.125	.062	.010	100'	21.20	10'	4.00
350-1/4"	.187	.093	.010	100'	32.85	8'	4.00
350-1/2"	.250	.125	.012	100'	41.20	6'	4.00
350-3/4"	.375	.187	.012	100'	58.90	4'	4.00
350-1"	.500	.250	.012	20'	17.53	2'	4.00
350-1 1/2"	.750	.375	.017	20'	32.22	1'	4.00
350-2"	1.000	.500	.019	20'	53.84	.5'	4.00

\*Before shrinking. †After shrinking. \*Pennsalt trademark.

## RETRACTILE COIL CORDS

Permanently coiled in spring-like manner. Constructed with neoprene jackets. U/L Approved.

## NEOPRENE JACKET POWER CORDS

Quality multi-conductor has stranded tinned copper conductors, rubber insulation and weather-resistant neoprene jacket, overall. Retracted length 2 ft. has extended length 12 ft.; retracted length 4 ft. has extended length 25 ft. Temp., -20° C to +60° C. Conductors' Color Code: 1=Black; 2=White; 3=Green; 4=Red.

No.	Conductor			Ratings		Alpha No.†	Net Ea., Lgth.	
	Size	Strand	U/L Type	Amps	Volts		2 Ft.	4 Ft.
2	18	41/34	SVO	7	300	660/2	\$ 4.08	\$ 7.26
3	18	41/34	SVO	7	300	760/2	6.35	11.25
2	18	41/34	SJO	7	300	661/2	4.53	8.16
3	18	41/34	SJO	7	300	662/2	5.63	10.52
4	18	41/34	SJO	5.6*	300	663/2	6.71	12.71
4	18	41/34	SO	7	600	762/2	10.34	19.23
4	18	41/34	SO	5.6*	600	763/2	11.61	21.59
2	16	65/34	SJO	10	300	664/2	5.25	10.44
3	16	65/34	SJO	10	300	665/2	7.07	13.61
4	16	65/34	SJO	8*	300	666/2	9.08	16.70
3	16	41/34	SO	10	600	670/2	10.16	18.87
4	16	65/34	SO	8*	600	671/2	11.25	21.05
2	14	41/30	SO	15	600	672/2	11.27	20.87
3	14	41/30	SO	15	600	673/2	12.71	23.60
4	14	41/30	SO	12*	600	674/2	14.52	27.23
2	12	65/30	SO	20	600	675/2	16.88	31.54
3	12	65/30	SO	20	600	676/2	21.05	40.29
4	12	65/30	SO	16*	600	677/2	23.33	44.82

\*For 4 conductors carrying current; if one lead is used as ground, amp rating is same as 2- and 3-conductor cords. †No. shown is for 2-ft. length; for 4-ft. length change suffix to /4 (example: 660/4).

## POWER CORD SETS

Same as above, but with sturdy, molded male plug on one end; stripped on other end. All are 18" long, retracted; 7 1/2 ft. long, extended. Rated 300 volts. Conductors' Color Code: Same as above cords.

No.	Conductor			U/L Type	Coil O.D., In.	Alpha Number	Net Each
	Size	Strand	U/L Type				
2	18	41/34	SVO	7/8	654	\$3.81	
2	18	41/34	SJO	1 1/8	655	4.53	
3	18	41/34	SJO	1 1/8	656	6.89	
2	16	65/34	SJO	1 1/8	657	4.89	
3	16	65/34	SJO	1 1/8	658	7.44	

## RETRACTILE TEST LEAD WIRE

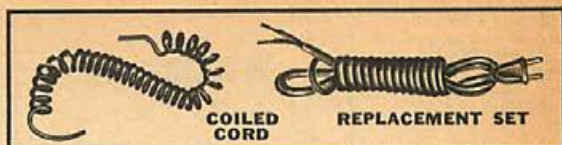
High grade rubber insulated for maximum flex life. Single conductor, extra flexible tinned copper. Retracted length, 12" with 6" straight lead on each end; extends to 6 ft. No. 20 conductor 41/36 stranded. Rated 4 amps, 5,000 volts. Coil 3/4" O.D.

Alpha No. 650 Retractable 12' Test Lead—Specify black \$1.07 or red. Net Each.....

## MINIATURE COMMUNICATION COIL CORDS

Small diameter plastic cord with stranded tinned copper conductors for maximum flexibility. PVC insulated and jacketed. For low voltage power and communication equipment with space and weight limitations. Rated 1/2 amp, 100 volts. Retracted length, 2 ft.; extends approx. 10 ft. With 6" straight lead on each end. Conductors' Color Code: 1=Black; 2=White; 3=Green; 4=Red.

No.	Conductor			Shielded	Coil O.D., In.	Alpha No.	Net Each
	Size	Strand	U/L Type				
2	28	19/40	No	1/2	651	\$3.26	
4	28	19/40	No	1/2	652	4.08	



## COMMUNICATION COIL CORDS

### RETRACTED LENGTHS 2 AND 4 FEET

Multi-conductor with extra flexible, tinned, soft cadmium copper with high flex life. Rated 1 amp, 120 volts. Units 2 ft. retracted are 12 ft. extended; 4 ft. retracted, 25 ft. extended. Some types (see table) have cadmium copper shield over individual conductors (rated 75 volts); shield can be pigtailed for direct solder connection. Conductors' Color Code: 1=Black; 2=White; 3=Red; 4=Green; 5=Blue; 6=Yellow; 7=Brown.

No.	Conductor			Shielded Cond.	Coil O.D., In.	Alpha No.*	Net Ea., Lgth.	
	Size	Strand	U/L Type				2 Ft.	4 Ft.
2	23	21/36	No	1/2	680/2	\$ 3.99	\$ 6.53	
3	23	21/36	No	1 1/8	681/2	4.53	7.62	
4	23	21/36	No	1 1/8	682/2	5.18	8.88	
5	23	21/36	No	1 1/8	683/2	6.71	11.97	
6	23	21/36	No	1 1/8	684/2	8.34	14.88	
7	23	21/36	No	1 1/8	685/2	9.26	16.70	
1	24	41/40	Yes†	3/8	690/2	5.72	9.98	
2	1-23	21/36	No‡	1/2	692/2	7.62	13.79	
	1-24	41/40	Yes†					
3	2-23	21/36	No‡	1/2	694/2	10.52	19.59	
	1-24	41/40	Yes†					
4	2-23	21/36	No‡	1	696/2	12.08	22.68	
	2-24	41/40	Yes†					

### RETRACTED LENGTH 12'

Same as above types except 12' long retracted; 6 ft., extended. Ends prepared as follows: 686—One end, conductors stripped and tinned 1 1/2"; other end, jacket removed 1 1/2". 687—One end, conductors stripped and tinned 1"; other end, jacket removed 1 1/2". 688—Both ends, conductors stripped and tinned 4 1/4". Conductors' Color Code: Same as above unshielded communication types.

3	23	21/36	No	1 1/2	686	\$3.00 (1 Ft.)
4	23	21/36	No	1 1/2	687	4.89 (1 Ft.)
5	23	21/36	No	1 1/2	688	5.45 (1 Ft.)

\*Number shown is for 2-ft. length; for 4-ft., change suffix to /4 (i.e., 680/4). Conductors' Color Code: †White; ‡Black; §Black, Red; ¶White, Green.

## REPLACEMENT CORD SETS

### TWO-CONDUCTOR SETS

Open end cord replacements. Flexible 2-conductor, black rubber cord with molded, black straight plastic plug on one end; other end stripped for easy termination. U/L and CSA Approved. Plugs rated 15 amps, 125 volts. Set rated 300 volts.

No.	Conductor			U/L Type	Nom. O.D.	Lgth., Ft.	Alpha No.	Net Each
	Size	Strand	U/L Type					
2	18	41/34	SV	.245"	6	600	\$0.89	
2	18	41/34	SV	.245"	9	602	.78	
3	18	41/34	SV	.245"	12	604	1.04	
2	18	16/30	SJ	.300"	8	606	.84	
2	18	16/30	SJ	.300"	10	608	.92	
2	16	26/30	SJ	.325"	8	610*	.92	
2	16	26/30	SJ	.325"	10	612*	1.05	

### THREE-CONDUCTOR SETS

Same, but with extra conductor and grounding plug.

3	18	16/30	SJ	.330"	6	615	\$0.89
3	18	16/30	SJ	.330"	9	616	1.13
3	16	26/30	SJ	.365"	6	618*	1.22
3	16	26/30	SJ	.365"	9	619*	1.37

### EXTENSION CORD SETS

Flexible multi-conductor, black rubber cord with black molded plastic male and female plug on either end. Three-conductor type for use where one conductor requires grounding. U/L and CSA Approved.

2	18	41/34	SV	.245"	6	620	\$0.78
2	18	41/34	SV	.245"	9	622	.89
2	18	16/30	SJ	.300"	10	624	1.02
2	18	16/30	SJ	.300"	25	626	2.37
2	16	26/30	SJ	.325"	10	628*	1.13
2	16	26/30	SJ	.325"	25	630*	3.63
2	16	26/30	SJ	.325"	50	632*	4.62
2	16	26/30	SJ	.325"	100	634*	8.58
3	18	16/30	SJ	.330"	10	636	1.41
3	18	16/30	SJ	.330"	25	638	2.88
3	18	16/30	SJ	.330"	50	639	5.94
3	16	26/30	SJ	.365"	15	640	2.57
3	16	26/30	SJ	.365"	25	642	4.46
3	16	26/30	SJ	.365"	50	644	6.93

\*Rated 10 amps; all others, 7 amps.





# Alpha Industrial Wire, Cable

## MULTI-CONDUCTOR CONTROL CABLE

### SHIELDED GENERAL PURPOSE PLASTIC JACKET (FIG. D)

Each conductor, stranded tinned copper with color-coded polyethylene insulation .014" thick, cabled with fillers where necessary; rayon wrap; braided, tinned copper shield; chrome gray polyvinylchloride jacket overall. Rated 600 volts. Temp., -20° C to +60° C. **Conductors' Color Code:** 1 thru 20, per color code table\* below.

No.	Size	Strand	Nom. Jacket		Alpha No.	Net Per Spool	
			Th.	O.D.		1000'	100'
2	20	26/34	.030	.230*	1712	\$ 83.49	\$ 9.26
3	20	26/34	.035	.250*	1713	85.80	9.57
4	20	26/34	.035	.280*	1715	99.83	10.73
5	20	26/34	.035	.275*	1716	112.20	12.00
6	20	26/34	.035	.300*	1717	226.88	24.50
8	20	26/34	.035	.330*	1719	283.14	30.86
10	20	26/34	.035	.375*	1723	353.93	39.93
12	20	26/34	.035	.380*	1723	533.64	59.90
15	20	26/34	.035	.410*	1726	871.20	96.20
20	20	26/34	.035	.455*	1728	1034.55	114.35

### SHIELDED, RUBBER INSULATED, RUBBER JACKET (FIG. E)

Each conductor stranded tinned copper with color-coded rubber insulation .020" thick, cabled with fillers where necessary; cotton wrap; braided tinned copper shield; cotton wrap; tough black rubber jacket overall. Extra flexible for control, video and audio uses. Temp., -20° C to +60° C. **Conductors' Color Code:** 1 thru 20, per color code table\* below.

No.	Size	Strand	Nom. Jacket		Alpha No.	Net Per Spool	
			Th.	O.D.		1000'	100'
2	18	41/34	.035*	.295*	1250/18	\$155.93	\$16.46
2	20	26/34	.035*	.270*	1250	95.70	10.49
3	20	26/34	.035*	.285*	1251	107.25	11.55
4	20	26/34	.035*	.305*	1252	124.58	13.37
5	20	26/34	.035*	.330*	1253	153.45	16.35
6	20	26/34	.035*	.345*	1254	181.50	19.80
7	20	26/34	.035*	.355*	1255	198.00	20.63
8	20	26/34	.035*	.385*	1255/8	239.10	26.10
12	20	26/34	.035*	.440*	1255/10	508.20	59.90
15	20	26/34	.065*	.525*	1255/12	707.85	79.86
20	20	26/34	.065*	.595*	1255/15	907.50	101.64
20	20	26/34	.065*	.680*	1255/20	1143.45	125.24

### UNSHIELDED, RUBBER INSULATED, RUBBER JACKET (FIG. F)

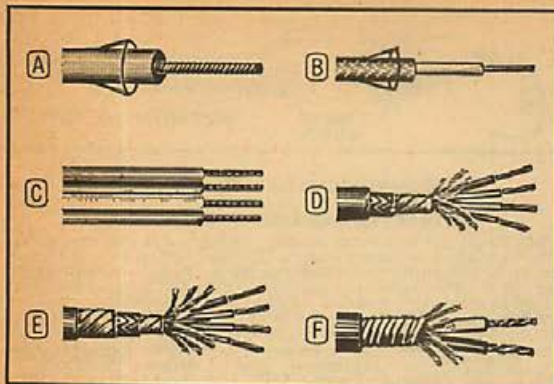
Each conductor stranded, tinned copper with color-coded rubber insulation .020" thick, cabled with fillers where necessary; cotton wrap; tough black rubber jacket overall. Temp., -20° C to +60° C. **Conductors' Color Code:** 1 thru 20, per color code table\* below.

No.	Size	Strand	Nom. Jacket		Alpha No.	Net Per Spool	
			Th.	O.D.		1000'	100'
2	20	26/34	.035*	.240*	1244	\$ 91.83	\$10.08
3	20	26/34	.035*	.255*	1245	100.19	10.89
4	20	26/34	.035*	.275*	1246	119.79	12.89
5	20	26/34	.035*	.300*	1247	152.46	16.14
6	20	26/34	.035*	.315*	1247/6	185.13	20.33
7	20	26/34	.035*	.325*	1247/7	203.28	22.14
8	20	26/34	.035*	.360*	1247/8	225.06	24.32
10	20	26/34	.035*	.410*	1247/10	381.15	45.38
12	20	26/34	.035*	.435*	1247/12	526.35	59.90
15	20	26/34	.035*	.505*	1247/15	762.30	90.75
20	20	26/34	.035*	.570*	1247/20	1016.40	119.79

### SHIELDED, HEAVY-DUTY NEOPRENE JACKET (FIG. E)

Each conductor stranded tinned copper; color-coded rubber insulation (.020" th., 18 ga. cables; .025" th., 16 ga. cables; .030" th., all others), cabled with fillers where necessary; cotton wrap; braided tinned copper shield; cotton wrap and black neoprene jacket overall. Temp., -20° C to +60° C. **Conductors' Color Code:** 1 thru 20, per color code table\* below.

No.	Size	Strand	Nom. Jacket		Alpha No.	Net Per Spool	
			Th.	O.D.		1000'	100'
2	18	41/34	.035*	.295*	1450	\$ 183.65	\$ 19.23
3	18	41/34	.035*	.305*	1451	308.55	38.12
4	18	41/34	.035*	.330*	1452	384.78	47.19
6	18	41/34	.035*	.370*	1454	562.65	65.34
8	18	41/34	.035*	.420*	1456	744.15	83.49
10	18	41/34	.035*	.480*	1458	936.54	105.27
12	18	41/34	.065*	.555*	1459	1306.80	148.83
15	18	41/34	.065*	.640*	1459/15	1631.85	182.16
20	18	41/34	.065*	.730*	1459/20	1821.60	201.14
2	16	65/34	.035*	.335*	1450/16	323.07	39.02
3	16	65/34	.035*	.355*	1451/16	399.30	48.09
4	16	65/34	.035*	.385*	1452/16	457.38	52.64
6	16	65/34	.040*	.445*	1454/16	715.11	80.76
8	16	65/34	.040*	.510*	1456/16	900.24	101.64
10	16	65/34	.040*	.575*	1458/16	1361.25	154.28
2	14	41/30	.040*	.395*	1400	417.45	50.82
3	14	41/30	.040*	.425*	1401	517.28	60.80
4	14	41/30	.040*	.455*	1402	617.10	69.87
6	14	41/30	.040*	.515*	1404	870.00	99.83
2	12	65/30	.040*	.440*	1410	711.48	78.05
3	12	65/30	.040*	.465*	1411	889.35	98.91
4	12	65/30	.040*	.505*	1412	1110.78	120.69
2	10	105/30	.040*	.495*	1420	925.65	103.46
3	10	105/30	.040*	.520*	1421	1161.60	134.31



### MIL-W-5086A AND MIL-C-7078A AIRCRAFT HOOK-UP WIRE

Single conductor. Rated 600 volts. Temp., -55° C to +105° C. Resists water, oil, fuels, alcohol, acids, alkalis, fungus and abrasion.

#### UNSHIELDED MIL-W-5086A (FIG. B)

**Type 1:** Single, stranded tinned copper conductor; white PVC insulation; clear nylon jacket overall. **Type 2:** Single, stranded tinned copper conductor; white PVC insulation; white glass braid; and, clear nylon jacket (AN-22—AN-12) or flame retardant nylon lacquered nylon braid (AN-10—AN-00) overall.

MIL Type	Spec. Type	Conductor		Nom. O.D.	Alpha No.	Net Per Spool	
		Size	Strand			1000'	100'
AN-22	1	22	19/34	.068*	1381*	14.03	\$ 2.07
AN-20	1	20	19/32	.078*	1382*	15.51	2.24
AN-18	1	18	19/30	.088*	1383*	18.65	2.57
AN-16	1	16	19/29	.098*	1384*	22.28	2.81
AN-14	1	14	19/27	.117*	1385*	29.70	3.63
AN-12	1	12	19/25	.137*	1386*	41.25	4.95
AN-22	2	22	19/34	.075*	1341	20.93	2.97
AN-20	2	20	19/32	.085*	1342	24.53	3.06
AN-18	2	18	19/30	.095*	1343	27.23	3.56
AN-16	2	16	19/29	.105*	1344	31.68	3.89
AN-14	2	14	19/27	.125*	1345	40.10	4.46
AN-12	2	12	19/25	.143*	1346	55.44	6.06
AN-10	2	10	49/27	.189*	1387	90.75	9.90
AN-8	2	8	133/29	.240*	1388	198.00	19.80
AN-6	2	6	133/27	.293*	1389	264.00	26.40
AN-4	2	4	133/25	.355*	1389/4	363.00	36.30
AN-2	2	2	665/30	.425*	1389/2	511.50	54.45
AN-0	2	0	1045/30	.525*	1389/0	825.00	90.75
AN-00	2	00	1330/30	.590*	1389/00	1056.00	115.50

\*Fig. A.

### SHIELDED MIL-C-7078A AND MIL-W-5086A (FIG. A)

Single conductor stranded tinned copper, white plastic insulation, nylon jacket, braided tinned copper shield overall.

MIL Type	Spec. Type	Conductor	Nom. O.D.	Alpha No.	Net Per Spool		
AN-22	1	22	19/34	.100*	1391	\$32.10	\$4.05
AN-20	1	20	19/32	.110*	1392	35.64	4.46
AN-18	1	18	19/30	.125*	1393	39.20	4.62
AN-16	1	16	19/29	.140*	1394	44.40	5.37
AN-14	1	14	19/27	.155*	1395	57.45	6.27
AN-12	1	12	19/25	.165*	1396	75.00	8.01

### FLAT RIBBON MULTI-CONDUCTOR PER MIL-W-16878D, TYPE C (FIG. C)

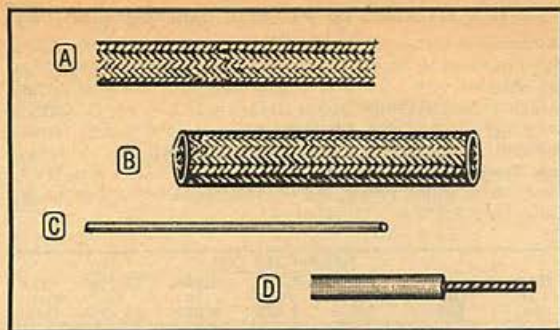
Saves time, weight and space on circuit connections, wiring harnesses, etc. Each conductor color-coded and easily separated for neat terminations. Stranded, tinned copper conductors; color-coded .016" thick PVC insulation; conductors bonded together to form flat ribbon. Rated 1000 volts. Temp., -55° C to +105° C. **Conductors' Color Code:** 1 thru 18 per color code table\* below; 17 = White/Orange; 18 = White/Gray; 19 = White/Violet; 20 = White/Black/Red.

No.	Size	Strand	Nom. Size		Alpha No.	Net Per Spool	
			W. x Th.	W. x Th.		1000'	100'
4	22	7/30	.260" x .065"		3504	\$ 92.57	\$10.16
8	22	7/30	.520" x .065"		3508	169.88	17.96
12	22	7/30	.780" x .065"		3512	280.95	29.04
16	22	7/30	1.040" x .065"		3516	373.89	39.93
20	22	7/30	1.300" x .065"		3520	461.01	50.82

### \*MULTI-CONDUCTORS' COLOR CODE

No.	Color	No.	Color	No.	Color
1	Black	8	Orange	15	White/Blue
2	White	9	Gray (Slate)	16	White/Brown
3	Red	10	Violet (Purple)	17	White/Purple
4	Green	11	White/Black	18	White/Slate
5	Yellow	12	White/Red	19	Black/Red
6	Blue	13	White/Green	20	Black/Yellow
7	Brown	14	White/Yellow		





## SHIELDING AND BRAIDING FLAT BRAID TINNED COPPER (FIG. A)

For shielding insulated wire and cable, bonding and ground straps. For applications requiring extreme flexibility (pigtail, component leads, connecting moving parts, etc). Very fine, soft annealed tinned copper wires, braided and rolled flat. Strand size, 36, except Nos. 1240 thru 1242/4 which are 30 AWG.

Width In.	Alpha No.	Net, Spool		Width In.	Alpha No.	Net Per Spool	
		1000'	500'			1000'	500'
.025	1221	\$30.86	\$3.63	3/4	1234	\$355.74	\$37.29
1/8	1222	31.58	3.72	1	1235	381.15	41.75
3/16	1223	34.67	3.99	1 1/8	1239	435.60	49.01
1/4	1224	40.65	4.53	1 1/4	1240	.....	65.34
5/16	1229	45.00	5.00	1 3/8	1241	.....	127.05
3/8	1230	49.91	5.81	2	1242	.....	163.35
7/16	1231	69.33	7.80	2 1/4	1242/1	.....	174.24
1/2	1232	112.53	12.15	2 3/4	1242/2	.....	217.80
5/8	1233/2	148.83	15.78	2 3/4	1242/3	.....	245.03
3/4	1233	157.53	16.70	3	1242/4	.....	305.25

## TINNED COPPER TUBULAR BRAID (FIG. B) TO MIL SPEC QQ-B-575

Maximum shielding against electrostatic interference for wires, cables, etc. Woven, tinned copper braid fully round per MIL Spec QQ-B-575. Each strand is soft, drawn, tinned copper wire, 36 AWG except as noted. Self-supporting to maintain the round shape. Shielding coverage 95%.

Nom. I.D.	Alpha No.	Net, Spool		Nom. I.D.	Alpha No.	Net, Spool	
		100'	50'			100'	50'
1/8	2160	\$ 3.06	\$1.91	1/8	2171	\$19.05	\$ 9.98
3/16	2162	5.99	3.44	3/16	2171/1†	21.78	11.79
1/4	2163	6.99	3.90	1/2	2172	20.13	10.89
5/16	2164	8.63	4.82	5/8	2173†	32.30	17.06
3/8	2166	8.09	4.46	3/4	2174	29.70	15.68
1/2	2167	15.24	8.09	7/8	2175†	58.98	31.29
5/8	2168	10.56	5.70	1 1/8	2175/1†	91.65	47.63
3/4	2170*	15.78	8.34	1 1/4	2176	43.92	22.86

\*Braid 34 AWG. †Braid 30 AWG.

## UNINSULATED TINNED COPPER WIRE (FIG. C) SOFT-DRAWN SOLID WIRE

Solid wire for winding of coils, antennas, point-to-point wiring, bus-bar, component leads, ground wire. Pure electrolytic solid copper annealed and tinned for quick soldering. MIL-W-3861 Type S, QQ-W-343 Type S and ASTM-B-33 specifications.

Cond. Size	Circ. Mil Area	Nom. O.D.	Alpha Number	Net Per Spool	
				1000'	100'
30 AWG	100.5	.010"	299/3	\$ 3.06	\$ 0.72
28 AWG	159.8	.013"	299/2	3.30	.72
26 AWG	254.1	.016"	299/1	3.14	.66
24 AWG	404.0	.020"	299	3.47	.66
22 AWG	642.4	.025"	298	3.89	.66
20 AWG	1022	.033"	297	5.28	.75
18 AWG	1642	.040"	296	8.25	.92
16 AWG	2583	.051"	295	11.55	1.32
14 AWG	4107	.065"	286	17.33	2.15
12 AWG	6530	.082"	289	25.58	2.57
10 AWG	10380	.103"	292	39.58	7.26
8 AWG	16510	.129"	292/8	59.53	10.70
6 AWG	26250	.162"	292/6	157.53	16.70

## HARD-DRAWN, ROUND BUS BAR

Two foot lengths; 100 lengths per package. ASTM-B-246-51 specifications.

Cond. Size	Circular Mil Area	Nominal O.D.	Package	
			No.	Net
14 AWG	4107	.065"	278	\$ 6.35
12 AWG	6530	.082"	280	8.52
10 AWG	10380	.103"	282	11.87

## POPULAR PRICED U/L HOOK-UP WIRE (FIG. D)

Stranded tinned copper, color coded polyvinylchloride insulation. Resistant to acids, alkalis, oil, flame, moisture and fungus.

### 300 V 80° C—STYLE NO. 1007

Temp.: -10° C to +80° C. Wall Thickness: .016" nom. Colors: 1-19 per Color Table\*.

Size	Conductor Strand	Nom. O.D.	Alpha No.	Net Per Spool		
				1000'	500'	100'
24	7/32	.057"	3050	\$ 5.99	\$3.36	\$1.08
22	7/30	.065"	3051	6.89	3.81	1.18
20	10/30	.071"	3053	8.45	4.64	1.26
18	16/30	.080"	3055	10.89	5.78	1.44
16	26/30	.095"	3057	14.33	7.44	1.91

### 600 V 105° C—STYLE NO. 1015

Temp.: -10° C to +105° C. Wall Thickness: .032" nom. Colors: 1-10 per Color Table\*. CSA Approved 600 V 90° C Type TR-32.

Size	Conductor Strand	Nom. O.D.	Alpha No.	Net Per Spool		
				1000'	500'	100'
22	7/30	.095"	3071	\$10.89	\$ 6.38	\$1.49
20	10/30	.102"	3073	11.97	6.89	1.61
18	16/30	.112"	3075	14.52	8.16	2.00
16	26/30	.125"	3077	19.41	9.71	2.45
14	41/30	.142"	3079	26.31	13.16	3.26

## SERIES "5000"† HOOK-UP WIRE (FIG. D)

### PLASTIC-TYPE MW UNCOVERED PER MIL-W-76B

Solid or bunched stranded tinned copper conductor. Polyvinylchloride insulation, .016" thick. Temperature: -40° C to +80° C. Rated: 1000 V Put-up on spools. Colors: 1-30 per Color Table\*. Other striped color combinations available to order.

#### STRANDED

Type MW-C-	Conductor Size	Strand	Min. O.D.	Alpha No.	Net Per Spool†		
					1000'	500'	100'
24(7)U	24	7/32	.050"	5110	\$ 5.78	\$ 3.23	\$1.11
22(7)U	22	7/30	.056"	5111	6.44	3.56	1.08
20(10)U	20	10/30	.064"	5113	7.85	4.29	1.29
18(16)U	18	16/30	.075"	5115	9.99	5.29	1.62
16(26)U	16	26/30	.084"	5117	14.19	7.35	1.93
14(41)U	14	41/30	.097"	5119	18.98	10.49	2.24
12(65)U	12	65/30	.116"	5120	26.40	14.03	3.47

#### SOLID

MIL-W Type	Cond. Size	Min. O.D.	Alpha No.	Net Per Spool†		
				1000'	500'	100'
MW-C-22(1)U	22	.051"	5121	\$ 4.95	\$2.81	\$0.92
MW-C-20(1)U	20	.058"	5123	5.94	3.30	1.05
MW-C-18(1)U	18	.066"	5125	8.25	4.46	1.32
MW-C-16(1)U	16	.077"	5127	11.15	5.78	1.58

## TEFLON-TYPE E EXTRUDED TEFLON PER MIL-W-16878D

Stranded silver-plated copper conductor, extruded TFE Teflon .010" thick. Temperature: -65° C to +200° C. Rated: 600 V. Put-up on spools. Colors: 1-19 per Color Table\*.

MIL-W Type	Conductor Size	Strand	Nom. O.D.	Alpha No.	Net Per Spool†		
					1000'	500'	100'
E-30	30	7/32	.028"	5851	\$41.58	\$21.65	\$4.67
E-28	28	7/36	.031"	5852	44.00	22.86	4.94
E-26	26	7/34	.035"	5853	46.43	23.90	5.19
E-24	24	19/36	.040"	5854	49.37	25.56	5.46
E-22	22	19/34	.046"	5855	53.70	27.72	6.23
E-20	20	19/32	.054"	5856	62.37	32.04	7.10
E-18	18	19/30	.064"	5857	87.32	44.52	9.62
E-16	16	19/29	.073"	5858	103.95	53.70	11.25

†Also available to order cut, marked and striped.

†"5000"—Alpha's trade name for its popular priced line of wire and cable, produced in full accordance with military specifications. ‡Registered DuPont trademark.

## \*STOCK COLORS

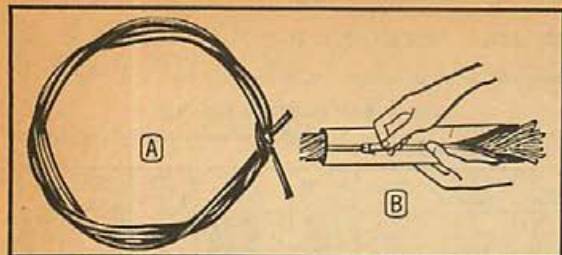
Prices listed are for solid stock colors only. Stripping Charges: Following stripping charges apply for either one, two or three spiral tracers per item in any standard put-up. Plastic and nylon jacketed wire, \$1.13 per 1000'; Teflon wire, \$10.50 per 1000'. Other tracer colors available at extra cost. Write for information.

No.	Color	No.	Color	No.	Color
1	White	11	White/Black	21	White/Black/Green
1	Black	12	White/Red	22	White/Black/Yellow
3	Red	13	White/Green	23	White/Black/Blue
4	Green	14	White/Yellow	24	White/Black/Brown
5	Yellow	15	White/Blue	25	White/Black/Orange
6	Lt. Blue	16	White/Brown	26	White/Black/Gray
7	Brown	17	White/Orange	27	White/Black/Violet
8	Orange	18	White/Gray	28	Tan
9	Gray	19	White/Violet	29	Pink
10	Violet	20	White/Black/Red	30	Dark Blue



## PVC-105 MIL-I-631D PLASTIC TUBING (FIG. A)

Compounded with non-migratory resinous type plasticizers. Offers high resistance to agents of heat, oil, chemicals, corrosion, fungi and abrasion with no loss in tensile strength, self-extinguishing, flexibility; heat stability. Meets MIL-I-631-D, Grade C, ASTM-D876 and ASTM-D922. **Dielectric Strength:** 800 V./mil. **Tensile Strength:** 2700-3300 psi. **Min. Volume Resis.:** 10<sup>11</sup> ohms/cm. **Low Temperature Flexibility:** -20°. **Specify Color:** Sizes 24-2: Clear, black, white, yellow, red or green. Sizes 1-1": Clear, black, white. Sizes 1 1/4"-2 1/4": Clear, black.



Ga. Size	Nom. I.D., in.	Net Per 100 Feet					Std. Put-ups	Ga. Size	Nom. I.D., in.	Net Per 100 Feet					Std. Put-ups
		Less Than 500'	500' to 999'	1,000' to 4,999'	5,000' to 9,999'	10,000' to 24,999'				Less Than 500'	500' to 999'	1,000' to 4,999'	5,000' to 9,999'	10,000' to 24,999'	
24	.022	\$1.93	\$1.61	\$1.30	\$1.08	\$0.70	1000' Spool	2	.263	\$ 6.41	\$ 5.34	\$ 4.00	\$ 3.22	\$ 2.33	250' Coil
22	.027	1.94	1.62	1.31	1.09	.71		1	.294	6.92	5.77	4.31	3.56	2.57	
20	.034	1.99	1.66	1.35	1.11	.73		0	.330	7.48	6.23	4.64	3.89	2.80	
19	.038	2.05	1.71	1.35	1.13	.77		1/4"	.312	8.92	7.44	5.54	4.64	3.40	
18	.042	2.08	1.73	1.38	1.14	.80		3/8"	.375	10.31	8.59	6.41	5.49	4.01	
17	.047	2.11	1.76	1.40	1.15	.81		1/2"	.438	11.58	9.65	7.25	6.20	4.58	
16	.053	2.22	1.85	1.46	1.21	.87		5/8"	.500	12.77	10.64	8.07	6.87	5.13	
15	.059	2.30	1.92	1.49	1.23	.90		3/4"	.562	14.00	11.77	10.77	9.07	6.85	
14	.066	2.39	1.99	1.54	1.28	.93		7/8"	.625	15.30	13.30	11.73	9.83	7.42	
13	.076	2.44	2.04	1.60	1.31	.97		1"	.750	25.34	21.12	16.09	13.44	10.26	
12	.085	2.57	2.14	1.66	1.38	1.02	500' Spool	3/8"	.875	28.49	23.74	18.38	15.31	11.64	
11	.095	2.65	2.21	1.72	1.45	1.05		1/2"	1.000	31.84	26.53	20.52	17.00	13.12	
10	.106	2.77	2.31	1.85	1.55	1.12		5/8"	1.125	41.75	34.79	26.51	21.97	17.95	
9	.118	3.77	3.14	2.46	2.08	1.48		3/4"	1.250	44.13	36.75	28.58	23.89	18.53	
8	.133	4.07	3.39	2.66	2.23	1.57		7/8"	1.375	47.17	39.31	30.29	25.33	19.75	
7	.148	4.34	3.62	2.83	2.35	1.64		1"	1.500	57.20	47.67	36.78	31.11	24.36	
6	.166	4.69	3.91	3.02	2.51	1.73		1 1/4"	1.750	71.32	59.43	46.11	39.27	31.02	
5	.186	5.08	4.23	3.23	2.68	1.83		1 1/2"	2.000	98.00	81.67	62.62	53.12	42.50	
4	.208	5.50	4.58	3.47	2.84	1.97		1 3/4"	2.250	116.52	97.10	73.88	62.82	50.39	
3	.234	5.88	4.90	3.69	3.04	2.09		2 1/4"	2.500	138.14	115.12	87.30	74.06	60.36	

## ALPHLEX® ZIPPER TUBING (FIG. B)

Plastic tubing equipped with a longitudinal zipper that can be permanently sealed to protect the conductors against moisture or abrasion. Write for information on PB-200 Sealer.

**Zipper Tubing:** Material, polyvinylchloride; track thickness (when closed), .095"; dielectric strength, v/mil 759; tensile strength P.S.L., 3,810; ultimate elongation, 255%; operating temperature, upper limit, 106° C; lower limit, -86° C; fungus proof; self-extinguishing; lateral pull strength (permanently sealed), 69.8 #/in. **Colors:** Black or clear (ZIP-31 has also yellow color as standard); ZIP-50 available in silver-gray only as standard. **Standard Put-up:** 100 ft. spools. Other colors and longer lengths on special order. Extra AB-295 metal sliders 5c each.

**ZIP-31M Type:** MIL-I-631D, Grade C materials. Temp., -20° C to +105° C. Wall thickness, .040"; for heavy duty construction.

Alphlex No.	Net Per Foot				
	Under 100'	100' to 499'	500' to 999'	1,000' to 4,999'	5,000' to 14,999'
ZIP-31M-1/4"	\$0.46	\$0.42	\$0.38	\$0.355	\$0.345
ZIP-31M-3/8"	.47	.425	.385	.36	.35
ZIP-31M-1/2"	.475	.43	.39	.365	.355
ZIP-31M-5/8"	.48	.435	.395	.37	.36
ZIP-31M-3/4"	.485	.44	.40	.375	.365
ZIP-31M-7/8"	.49	.445	.405	.38	.37
ZIP-31M-1"	.50	.45	.41	.385	.375
ZIP-31M-1 1/4"	.515	.47	.42	.40	.39
ZIP-31M-1 1/2"	.53	.48	.435	.405	.395
ZIP-31M-1 3/4"	.545	.495	.45	.425	.415
ZIP-31M-1 3/8"	.56	.51	.465	.44	.425
ZIP-31M-2"	.57	.52	.475	.45	.44

**ZIP-44 Type:** MIL-I-7444B materials for low temp. and aircraft industry. Temp., -67° C to +70° C. Wall thick., .020".

Alphlex No.	Net Per Foot				
	Under 100'	100' to 499'	500' to 999'	1,000' to 4,999'	5,000' to 14,999'
ZIP-44-1/4"	\$0.405	\$0.37	\$0.335	\$0.315	\$0.31
ZIP-44-3/8"	.41	.375	.34	.32	.315
ZIP-44-1/2"	.435	.395	.36	.34	.33
ZIP-44-5/8"	.46	.42	.38	.36	.345
ZIP-44-3/4"	.49	.445	.40	.38	.36
ZIP-44-7/8"	.515	.47	.425	.40	.38
ZIP-44-1"	.545	.495	.45	.42	.40
ZIP-44-1 1/4"	.565	.515	.47	.44	.42
ZIP-44-1 1/2"	.585	.54	.49	.455	.435
ZIP-44-1 3/4"	.645	.585	.53	.49	.47
ZIP-44-1 3/8"	.69	.625	.57	.53	.51
ZIP-44-2"	.735	.67	.61	.57	.55

**ZIP-50 Type:** Aluminum foil laminated between two sheets of polyvinyl for 100% RF shielding. Wall thick., .040". Temp., -20° C to +105° C.

Alphlex No.	Net Per Foot				
	Under 100'	100' to 499'	500' to 999'	1,000' to 4,999'	5,000' to 14,999'
ZIP-50-1/4"	\$0.525	\$0.475	\$0.43	\$0.395	\$0.39
ZIP-50-3/8"	.53	.48	.435	.40	.395
ZIP-50-1/2"	.545	.495	.45	.415	.405
ZIP-50-5/8"	.57	.52	.475	.44	.43
ZIP-50-3/4"	.615	.55	.50	.475	.45
ZIP-50-7/8"	.65	.59	.535	.50	.475
ZIP-50-1"	.68	.62	.565	.525	.50
ZIP-50-1 1/4"	.715	.65	.59	.55	.525
ZIP-50-1 1/2"	.74	.675	.615	.57	.545
ZIP-50-1 3/4"	.80	.73	.665	.615	.59
ZIP-50-1 3/8"	.865	.785	.715	.655	.64
ZIP-50-2"	.925	.84	.765	.715	.69

\*Cannot be closed with slider; must be done manually.

**ZIP-31 Type:** MIL-I-631D, Grade C materials. Wall thickness: .020". Temp., -20° C to +105° C. All purpose type.

Alphlex No.	Net Prices Per Foot					
	Under 100'	100' to 499'	500' to 999'	1,000' to 4,999'	5,000' to 14,999'	15,000' Up
ZIP-31-1/4"	\$0.36	\$0.33	\$0.30	\$0.28	\$0.27	\$0.25
ZIP-31-3/8"	.37	.335	.305	.285	.275	.255
ZIP-31-1/2"	.375	.34	.31	.29	.28	.26
ZIP-31-5/8"	.38	.345	.315	.295	.285	.265
ZIP-31-3/4"	.385	.35	.32	.30	.29	.27
ZIP-31-7/8"	.395	.36	.325	.305	.295	.275
ZIP-31-1"	.40	.36	.33	.31	.30	.28
ZIP-31-1 1/4"	.415	.375	.34	.32	.315	.29
ZIP-31-1 1/2"	.42	.38	.345	.325	.315	.295
ZIP-31-1 3/4"	.435	.395	.36	.34	.33	.31
ZIP-31-1 3/8"	.45	.41	.37	.35	.34	.32
ZIP-31-2"	.46	.42	.38	.36	.35	.33

## ALPHLEX® LACING CORDS AND TAPES

### NYLON TWISTED CORD—MIL-T-713A

Alphlex No.	Class	Tensile Strength	N.O.M. (Alphlex No.)	Class	Tensile Strength	Nom. O.D.
LC-113	I	70 lbs.	.050"	LC-115	III	32 lbs., .030"
LC-114	II	48 lbs.	.035"	(All three Nos. P Twine Type)		

### FLAT BRAIDED TAPE (LC-132—LC-162)

**Nom. Thick.:** .014" (LC-134 is .010"). **Nom. Width:** 1/2" (LC-134 is 1/4"). **Tensile Strength:** 50 lbs. (LC-134 is 30 lbs.). **Material:** Nylon (LC-158 and LC-162 are Dacron). **Finish:** Per MIL-T-713A except: LC-132 and LC-158, synthetic rubber-like resin, melting point over 190° F; LC-140, non-slip fungistatic synthetic rubber; LC-143, "wax free" thermoplastic synthetic resin, melting point over 350° F. LC-136 meets MIL-T-713A, Type P, Class II. **Colors:** Black, white.

Alphlex No.	Color	Net Price Each Per Standard Put-up									
		1-9	10-24	25-49	50-99	100-249	250-499	500-1,000	Std. Put-up		
LC-113 (Nylon)	White	\$4.73	\$4.20	\$3.68	\$3.00	\$2.50	\$2.10	\$1.70	1 1/2 lb.		
	Black	5.51	4.99	4.31	3.50	3.00	2.60	2.30	1 1/2 lb.		
LC-114 (Nylon)	White	4.73	4.20	3.68	3.00	2.50	2.10	1.70	1 1/2 lb.		
	Black	5.51	4.99	4.31	3.50	3.00	2.60	2.30	1 1/2 lb.		
LC-115 (Nylon)	White	4.73	4.20	3.68	3.00	2.50	2.10	1.70	1 1/2 lb.		
	Black	5.51	4.99	4.31	3.50	3.00	2.60	2.30	1 1/2 lb.		
LC-132* (Nylon)	White	8.45	7.88	7.35	6.50	6.00	5.00	4.00	500 yds.		
	Black	9.14	8.61	7.98	7.05	6.50	5.50	4.50	500 yds.		
LC-134 (Nylon)	White	5.41	5.04	4.73	4.25	4.00	3.75	3.50	500 yds.		
	Black	6.09	5.78	5.41	4.75	4.50	4.25	4.00	500 yds.		
LC-136 (Nylon)	White	8.45	7.88	7.35	6.50	4.30	4.00	3.60	500 yds.		
	Black	9.14	8.61	7.98	7.05	4.70	4.40	4.00	500 yds.		
LC-140 (Nylon)	White	8.45	7.88	7.35	6.50	5.00	4.50	4.00	500 yds.		
	Black	9.14	8.61	7.98	7.05	4.40	4.00	3.60	500 yds.		
LC-143 (Nylon)	White	8.45	7.88	7.35	6.50	6.00	5.50	5.00	500 yds.		
	Black	9.14	8.61	7.98	7.05	6.00	5.50	5.00	500 yds.		
LC-158* (Dacron)	White	8.45	7.88	7.35	6.50	6.00	5.50	5.00	500 yds.		
	Black	9.14	8.61	7.98	7.05	6.00	5.50	5.00	500 yds.		
LC-162 (Dacron)	White	8.45	7.88	7.35	6.50	6.00	5.50	5.00	500 yds.		
	Black	9.14	8.61	7.98	7.05	6.00	5.50	5.00	500 yds.		

\*Supplied on tubes, all others on spools.





# RG/U Coaxial Cables

## POLYETHYLENE DIELECTRIC RG/U COAXIAL CABLES



Amphenol polyethylene dielectric cables are fully approved and produced to rigid military specifications. Proper size, quality and centering of center conductors, absence of voids in, and accuracy of outside diameter of the dielectric; proper size and quality of braided shielding; close centering of outer jacket; correct overall diameter and proper cable markings are other features which insure utmost efficiency and dependability. Strict end-to-end uniformity of these cables is accomplished by precision plastic extrusion, accurate temperature control, constant process inspection and micrometer gauging standards. The maximum dielectric qualities of polyethylene are fully utilized. The bending radius is ten times the outside cable diameter and is maintained over a wide range of temperatures. Low moisture absorption qualities.

Amphenol No.	MIL No. RG	Center Cond.*	Nom. Imp., Ohms	Net Per Thousand Feet			
				1-99'	100-499'	500-999'	1000-2999'
21-330	6A/U	CW	75	\$ 213.00	\$ 195.00	\$ 175.50	.....
21-004	8/U	C	52	127.50	118.50	118.50	\$109.75
21-290	8A/U	C	52	142.00	132.00	132.00	122.25
21-332	9B/U	S	50	415.00	380.00	342.00	.....
21-338	10A/U	C	52	262.00	240.00	216.00	.....
21-007†	11/U	T	75	118.75	109.50	109.50	101.50
21-296	11A/U	T	75	132.00	123.00	123.00	114.00
21-340	12A/U	T	75	253.00	231.50	208.50	.....
21-334	13A/U	T	74	218.00	200.00	180.00	.....
21-336	14A/U	C	52	337.00	308.00	277.50	.....
21-013	17/U	C	52	637.00	583.00	525.00	.....
21-298	17A/U	C	52	664.00	608.00	547.50	.....
21-300	18A/U	C	52	892.00	816.00	735.00	.....
21-303	19A/U	C	52	1119.00	1025.00	922.50	.....
21-305	20A/U	C	52	1392.00	1275.00	1147.00	.....
21-038	22/U	C	95	173.00	158.00	142.50	.....
21-310	22B/U	C	95	293.00	268.00	241.50	.....
21-792	34B/U	C	75	380.00	348.00	313.50	.....
21-793	35B/U	C	75	910.00	833.00	750.00	.....
21-802	35B/U	S	53.5	109.00	100.50	90.50	.....
21-313	37A/U	C	95	417.00	381.00	343.50	.....
21-024	58A/U	C	53.5	53.00	49.00	49.00	45.50
21-195	58A/U	T	50	53.00	49.00	49.00	45.50
21-316	58C/U	T	50	58.00	54.00	54.00	.....
21-025	59/U	CW	73	55.00	50.75	50.75	47.00
21-794	59B/U	CW	73	63.00	58.50	58.50	54.00
21-026	62/U	CW	95	58.00	54.00	54.00	50.00

Amphenol No.	MIL No. RG	Center Cond.*	Nom. Imp., Ohms	Net Per Thousand Feet			
				1-99'	100-499'	500-999'	1000-2999'
21-318	62A/U	CW	93	\$ 67.00	\$ 62.00	\$ 62.00	\$ 57.50
21-771	62B/U	CW	93	69.50	64.50	64.50	59.75
21-027	63/U	CW	125	142.00	130.00	130.00	117.00
21-320	63B/U	CW	125	172.00	157.50	141.75	.....
21-804	71B/U	CW	93	111.00	101.00	101.00	91.50
21-321	74A/U	C	52	573.00	525.00	472.50	.....
21-325	79B/U	CW	125	337.00	308.00	277.00	.....
21-327	108A/U	T	78	89.00	81.50	73.50	.....
21-329	111A/U	C	95	500.00	458.00	412.50	.....
21-440	114/U	CW	185	155.00	141.00	141.00	127.50
21-520	114A/U	CW	185	173.00	158.00	142.50	.....
21-441	122/U	T	50	63.00	57.50	51.75	.....
21-467	149/U	T	75	191.00	175.00	157.50	.....
21-720	164/U	C	75	655.00	600.00	540.00	.....
21-598	174/U	CW	50	52.00	48.00	48.00	43.00
21-790	212/U	S	50	307.00	281.00	253.00	.....
21-779	213/U	C	50	142.00	132.00	132.00	122.25
21-780	214/U	S	50	415.00	380.00	342.00	.....
21-781	215/U	C	50	262.00	240.00	216.00	.....
21-782	216/U	T	75	218.00	200.00	180.00	.....
21-783	217/U	C	50	337.00	308.00	277.50	.....
21-784	218/U	C	50	664.00	608.00	547.50	.....
21-785	219/U	C	50	892.00	816.00	735.00	.....
21-786	220/U	C	50	1119.00	1025.00	922.50	.....
21-787	221/U	C	50	1392.00	1275.00	1147.00	.....
21-791	222/U	N	50	350.00	320.00	288.75	.....
21-788	223/U	S	50	162.00	148.25	133.50	.....

\*S—Silvered copper; CW—Copperweld; C—Copper; T—Tinned copper; N—Nichrome. †Add suffix -101 for sweep-testing. Standard put-up of minimum 1,000 foot lengths. Reels average approximately 1,500 feet. ‡Not MIL-C-17.

## POLYFOAM® COAXIAL CABLES

Amphenol Number	RG Type	Imped. Ohms	Center Conductor	Jacket	pF Foot	Max. V rms	Net Per Thousand Feet			
							1-99'	100-499'	500-999'	1000-2999'
621-100†	11/U	75	#14 AWG Copper	Black Polyethylene	16.5	3000	\$144.00	\$132.00	\$132.00	\$118.75
621-100-101*	11/U	75	#14 AWG Copper	Black Polyethylene	16.5	3000	159.00	159.00	159.00	131.00
621-102-101*	11/U	75	#14 AWG Copper	Black Polyethylene	16.5	3000	259.00	259.00	259.00	.....
621-111†	8/U	50	7/19 Stranded Copper	Black Vinyl Type I	24.5	1500	156.00	143.00	143.00	129.00
621-715;‡	59/U	72	#22 AWG Copperweld	Black Polyethylene	17.0	500	50.00	45.00	45.00	40.75

\*Sweep-tested for VHF. Available in one standard put-up of minimum 1,000 foot lengths. Reels average approximately 1,500 feet. †Can be used with UHF Series connectors. ‡Can be used with BNC, TNC and UHF Series connectors.

## TEFLON, FIBERGLAS DIELECTRIC RG/U COAXIAL CABLES

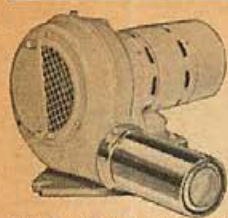
Very low loss; high voltage breakdown. One or two silver-coated copper braids over Teflon§ with two wrappings of Teflon tape overall. Fiberglass\* jacket braided and impregnated with silicone varnish. Teflon and FEP temp. range, -55° C to +200° C; Fiberglass, -55° C to +250° C; Silicone rubber, -55° C to +175° C.

Amph. No.	MIL No. RG	Nom. Imp., Ohms	Jacket		Shields†		Dielectric‡ O.D.	Center Conductor	Cap., pF/ft.	Max. Oper. Volts	Net Per Foot, Lengths of				
			Dia. in.	Type*	1st	2nd					1-99'	100-249'	250-499'	500-999'	1000-4999'
250	87A/U	50	.425	V	S	S	.280" TF	7/20S	29.5	5000	\$2.10	\$1.89	\$1.68	\$1.40	\$1.33
699	115A/U	75	.415	V	S	S	.250" TT	7/21S	29.5	4000	1.54	1.39	1.23	1.03	.98
379	140/U	75	.233	V	S	S	.146" TF	.025SCW	21.0	2300	.72	.65	.575	.48	.455
382	141/U	50	.190	V	S	S	.116" TF	.0359SCW	28.5	1900	.465	.42	.37	.31	.295
139	141A/U	50	.190	V	S	S	.116" TF	.039SCW	28.5	1900	.465	.42	.37	.31	.295
385	142/U	50	.206	V	S	S	.116" TF	.0359SCW	28.5	1900	.54	.485	.43	.36	.34
140	142A/U	50	.206	V	S	S	.116" TF	.039SCW	28.5	1900	.54	.485	.43	.36	.34
176	142B/U	50	.....	V	.....	.....	.....	.....	.....	.....	.63	.56	.50	.415	.395
141	143A/U	50	.325	V	S	S	.185" TF	.059SCW	28.5	3000	1.30	1.18	1.05	.87	.83
094	178B/U	50	.075	VII	S	S	.034" TF	7/38SCW	29.0	1000	.21	.19	.17	.14	1.35
096	179B/U	75	.105	VII	S	S	.063" TF	7/38SCW	19.5	1200	.255	.23	.21	.17	.16
098	180B/U	95	.145	VII	S	S	.102" TF	7/38SCW	15.0	1500	.375	.34	.30	.25	.24
106	187/U	75	.110	VII	S	S	.083" TF	7/38SCW	19.5	1200	.255	.23	.205	.17	.16
105	188/U	50	.110	VII	S	S	.060" TF	7/0067SCW	29.0	1200	.24	.22	.19	.16	.15
111	195/U	50	.155	VII	S	S	.102" TF	7/38SCW	15.0	1500	.48	.43	.385	.32	.305
109	196/U	50	.080	VII	S	S	.034" TF	7/38SCW	29.0	1000	.21	.19	.17	.14	1.35
100	210/U	93	.242	V	S	S	.146" SST	22SCW	13.5	750	.69	.62	.55	.46	.44
090	211A/U	50	.730	V	C	S	.620" TF	190C	29.0	7000	7.13	6.41	5.70	4.75	4.51
135	225/U	50	.430	V	S	S	.285" TF	7/0312S	29.5	5000	2.10	1.89	1.68	1.40	1.33
057	302/U	75	.206	IX	S	S	.146" TF	22SCW	21	2300	.72	.65	.575	.48	.455
055	303/U	50	.170	IX	S	S	.116" TF	.038SCW	28.5	1900	.465	.42	.37	.31	.295
053	304/U	50	.280	IX	S	S	.185" TF	.059SCW	28.5	3000	1.30	1.175	1.05	.87	.83
060	316/U	50	.102	IX	S	S	.060" TF	7/0067SCW	29	1200	.24	.22	.19	.16	.15
117	142/U	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.667	1.50	1.333	1.10	1.05
608	87A/U	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.75	2.47	2.20	1.75	1.69

\*V—Fiberglass; VI—Silicone rubber; VII—Teflon; VIII—Aljak; IX—FEP. †SST—Semi-solid Teflon; TF—Teflon; TT—Teflon tape. ‡RG type; does not fully meet MIL requirements. †C—Copper; S—Silvered copper. §Registered DuPont trademark. \*Registered Owens-Corning trademark. †Max. O.D.



# Heinze Electric HEAT GUNS, FANS AND BLOWERS



## TORCH

Provides flameless heat from ambient temperature to 1200° F. Features continuously variable control of temperature; clean, dry, safe and fast heat; burnout-proof damper; safety interlock to prevent heater burnout; three position switch for cooling as well as heating; constant speed heavy duty fan-cooled, 4-pole induction motor, no brush to wear out; bench or hand-held; rugged tip-proof cast iron base for

bench use with slots for permanent mounting; balanced double handle grip for comfortable hand use; swivel adjustment for pivoting nozzle through an arc of over 180° for easy accurate location of heat zone; convenient safe location of controls and switches. **Watts:** 1300. **Cycles:** 60. **Lineal FPM:** 3000 max. **Cord:** 8 ft. #16-3 HPD heater cord. **Temperature Range:** Ambient through 1200° F. **Overall Size:** 11" w. x 9 1/4" d. x 7" h. **Weight:** With base, 10 lbs.; with handle, 7 lbs.; shipping, 13 lbs. Complete with base and handle.

**HECO Model 101 Torch**—115 VAC, 11 amps. Net Ea. . . . \$59.95  
**HECO Model 102 Torch**—230 VAC, 5 1/2 amps. Net Ea. . . . 61.95

## HEAT GUN



Low cost high performance heat gun provides 35 CFM of air at room temperature or up to 350° F. Features fast heat; over 180° vertical swivel adjustment; constant speed long-life 2-pole induction motor, no motor brushes to wear out; safety interlock and damper for long heater life; hand or bench use; rugged tip-proof detachable base; handle for portable use; convenient, safely located 3-position switch. Numerous uses in production, laboratory, trades, home, trailer, summer camp, etc. Complete with handle and base. **Watts:** 1025. **Cycles:** 60. **Cord:** 8 ft. HPD heater cord. **Maximum Temperature:** 350° F. **Overall Size:** 10 1/4" w. x 7 1/4" d. x 7" h. **Weight:** With base, 8 lbs.; with handle, 5 lbs.; shipping, 10 lbs.

**HECO Model 201 Heat Gun**—115 VAC, 9 amps. Net Ea. \$29.95  
**HECO Model 202 Heat Gun**—220 VAC, 4.5 amps. Net. . . . 31.95

## MINIATURE PANEL FANS

### 5 Year Guarantee, 65 to 100 CFM

Compact and lightweight fan unit features maximum performance and reliability at lowest possible cost. Induction motor design. Available with permanently lubricated sleeve bearings or ball bearings in different models and in a variety of voltages. Mounting holes are standard 4 1/4" center to center. With or without grille.

**Voltage Options (Single Phase): 50-Cycle Only Fans** (For 50-cycle operation use standard 50/60 cycle fans or 60-cycle fans on special order.)—A, 115 V; B, 230 V; C, 115/230 V. **50/60-Cycle Fans** (For optimum performance at 60-cycle, use standard 60-Cycle Only Fans)—D, 115/230 V. Other voltages at 50 or 60 cycles available on special order. **Insulation:** Class A; Series 4100, U/L Approved; Series 4000, manufactured to U/L standards. **Bearings:** Sleeve—Porous bronze, large sealed reservoir with cellulose wicking eliminates need for relubrication. Precision to ±.00015". **Ball**—Stainless steel, double shielded, permanently lubricated. High precision to .0001". (Steel bearings available at lower cost.) **Shafts:** Stainless steel, precision ground to ±.0001". **Corrosion Resistance:** Stainless steel ball bearings and shafts; cadmium plated studs and nuts; zinc chromate treated rotors and stators; moisture-proof insulation. **Fan Blade:** Aluminum. **Venturi and Motor Brackets:** Rugged, light-weight precision zinc die castings.



### SERIES 4000

**Size:** 4 3/8" sq. x 1 1/4" d.; 4 1/4" mounting centers.

**HECO Model 4010**—Super speed fan, 100 CFM (AMCA test at 0 static pressure); 140 CFM (NEMA test, free air). Complete with motor, blades and venturi.

**HECO Model 4011**—Same as Model 4010 less venturi.

**HECO Model 4020**—Pressure fan, 75 CFM (AMCA), 120 CFM (NEMA). Complete with motor, blades and venturi.

**HECO Model 4021**—Same as Model 4020 less venturi.

**HECO Model 4030**—Quiet fan, 85 CFM (AMCA), 85 CFM (NEMA). Complete with motor, blades and venturi.

**HECO Model 4031**—Same as Model 4030 less venturi.

### SERIES 4100—110 CFM (AMCA) U/L APPROVED

Features U/L Approved Impedance protection, no fire hazard possible; symmetrical, 2-pole, double coil induction motor for electrical balance and optimum air flow; low current drain (only .31 amp). **Size:** 4 3/8" sq. x 2 1/4" d.; 4 1/4" mounting centers.

Model	Description
4114	Complete unit including motor, blades, venturi and rear fan guards.
4110	Motor, blades and venturi only, no rear fan guards.
4111	Motor and blades only.
4112	Motor, blades and rear brackets only, no rear fan guards.
4113	Motor, blades, rear brkt., rear fan guards only, no venturi.

115 VAC, Sleeve bearing standard. Other variations, see "ADDER" for additional charge. Specify both model and options when ordering.

HECO Model	Net Each, Lots of					
	1-3	4-9	10-23	24-49	50-99	100-249
4010	\$8.90	\$8.55	\$7.40	\$7.00	\$6.65	\$6.35
4020	8.90	8.55	7.40	7.00	6.65	6.35
4030	9.10	8.75	7.55	7.15	6.80	6.50
4011	4.75	4.75	4.10	3.85	3.65	3.45
4021	4.75	4.75	4.10	3.85	3.65	3.45
4031	4.90	4.90	4.25	4.00	3.80	3.60
4110	9.30	8.95	7.70	7.30	6.95	6.65
4111	5.85	5.85	5.10	4.75	4.55	4.30
4112	8.60	8.25	7.15	6.75	6.40	6.15
4113	9.30	8.95	7.70	7.30	6.95	6.65
4114	10.00	9.60	8.30	7.85	7.45	7.15

### ADDER—ALL MODELS

Front grille	\$0.52	\$0.50	\$0.43	\$0.41	\$0.39	\$0.37
Ball bearings	3.38	3.38	2.93	2.75	2.61	2.48
230 V, 60 cps.	.15	.15	.13	.12	.12	.11
115/230 V, 60 cps.	.23	.23	.20	.18	.17	.17
115/230 V, 50/60 cps.	.30	.30	.26	.24	.23	.22

## BLOWERS

Compact, light-weight blowers feature quiet and dependable performance. Single or double units. CRS or plastic housing. Induction motor-driven units will not cause radio or TV interference. Used in photographic darkrooms, vending machines, refrigeration and air

### TYPE D2 1/2 BLOWERS

**Motor:** Type D, 2-pole, shaded pole, induction. **Housing:** Durable plastic, will safely withstand temperature up to 230° F. **Mounting:** Flat strap; motor vertical up or down. **Rotation:** CW or CCW.

HECO Model	Unit	Voltage	RPM	CFM	Overall Size, W. x D. x H.	Wt., Lbs.
D2 1/2 S	Single	115 VAC,	3100	17*	4 3/8 x 3 7/8 x 4 3/8	2
D2 1/2 D	Double	60 cps	3100	34*	5 1/8 x 3 7/8 x 4 3/8	2 1/2

\*Free air.

### TYPE SM BLOWERS

For intermittent duty applications. Types SMR6 and SMR12 are used for cars, trucks, boats and other battery-operated installations. Type SMR15 is an AC/DC blower with high output for use where quiet operation is not essential. **Motor:** Type SMR universal. **Rotation:** CW or CCW. **Mountings:** Flat strap bracket; L type bracket.

SMR6	Single	6 VDC, 6 A	2300	75	6 1/2 x 6 1/2 x 6 1/2	3
SMR12	Single	12 VDC, 6 A	2300	75	6 1/2 x 6 1/2 x 6 1/2	3
SMR15	Single	115 VAC/DC	2800	100	6 x 6 x 6 1/2	3 1/2

conditioning units, cooling of electronic equipment, induction heaters, laboratories, etc. Models listed are standard, other voltages or for 50 cps operation available. Write for prices on these units.

### TYPE D BLOWERS

**Motor:** Type D, 2-pole, shaded pole, induction. **Housing:** CRS with baked enamel finish. **Rotation:** CW or CCW. **Variations:** Inlet damper, square outlet flange, inlet stud or tapped holes, motor vertical up or down.

HECO Model	Unit	Voltage	RPM	CFM	Overall Size, W. x D. x H.	Wt., Lbs.
DS	Single	115 VAC,	3200	55	7 1/2 x 6 1/2 x 6	4
DD	Double	60 cps	3100	100	10 1/2 x 6 1/2 x 6	5 1/2

### TYPE YS BLOWERS

**Motor:** Type Y, 4-pole, shaded pole, induction. **Housing:** CRS with baked enamel finish. **Rotation:** CW or CCW. **Variations:** Square outlet flange; inlet stud or tapped holes; motor vertical up or down.

YS	Single	115 VAC,	1650	50	6 1/2 x 6 1/2 x 6 1/2	4
YD	Double	60 cps	1650	50	8 1/2 x 6 1/2 x 6 1/2	6 1/2

### TYPE D2 BLOWERS

**Motor:** Type D, 2-pole, shaded pole, induction. **Housing:** Durable plastic, will safely withstand temperature up to 230° F. **Mountings:** Flat strap; motor vert. up or down. **Rotation:** CW or CCW.

D2S	Single	115 VAC,	3100	10*	4 1/2 x 3 1/2 x 3 1/2	2
D2D	Double	60 cps	3100	20*	5 1/2 x 3 1/2 x 3 1/2	2 1/2

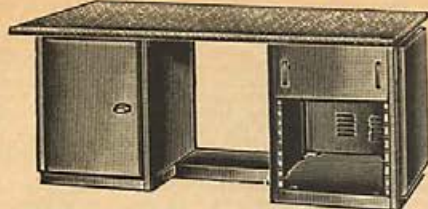
\*Free air.





# Metalware, Accessories

## CONSOLE ASSEMBLIES



Variety of panels, sides, doors, pedestal, table tops and drawer permit easy assembly of a variety of console units, custom made to individual requirements. Typical basic unit would consist of one pedestal, an end pedestal, three or more panels, a door, a table top and a foot rest as illustrated. Many variations of this basic design may be made, and additions or changes in design can be accomplished at any time. Because the system is sold in parts, it offers the user the highest versatility in designing or expanding units as needed.

### BASIC PEDESTAL

Consists of top, bottom and four panel-mounting channels drilled and tapped to accept standard 19" panels on each of four sides. Bottom is slotted so that sides or doors may be installed on any side. Three knock-out holes provided on each of two sides for use in assembling pedestals in series. Channels will support 200 lbs. suspended between them; bottom will support 500 lbs. Bottoms have recessed mounting brackets for hidden caster attachment. Shipped knocked-down, with necessary hardware. **Size:** 22" w. x 22" d. x 29 1/2" h.

### END PEDESTAL

May be used as a housing or as a support. Panel mounting rails are drilled and tapped for mounting panels on each of two sides. Accepts full size solid or louvered panels, ball-cornered doors or sides. Base has hidden caster mounting supports. When used, No. CT-2206 table top is required; eliminates the need for a second CP-2200 pedestal. **Size:** 22" w. x 5" d. x 29 1/2" h. Inside.

### PANELS

Full-sized panels may be used to enclose the openings on any side of either of above pedestals. Available either solid or louvered. Louvered panels can be positioned with louvers pointing down or up, inside or outside the pedestal. **Size:** 24 1/2" h. x 19" w.

### BALL-CORNERED SIDE

Can be used to enclose any side of either of above pedestals for an enhanced appearance. Attach by tongue and slot arrangement at the bottom; and, two screws at the top. Quickly removable from exterior of pedestal for service or inspection. Provide sufficient clearance for installation over knobs and dials. **Size:** 20 1/4" w. x 1 1/4" d. x 25 1/4" h.

### BALL-CORNERED DOOR

Unique hinge and locking arrangement designed so that door may open from right or left side. Attaches to any side of either pedestal with sufficient clearance for knobs and dials. **Size:** 20 1/4" w. x 1 1/4" d. x 25 1/4" h.

### TABLE TOPS

Made of 16 gauge steel and available in three lengths. Adjustable from front to back in three positions to allow overhang as desired. Attach to the pedestals by means of brackets welded to underside of top. **Size:** 30" w. x 1 1/4" thick.

### FOOT REST

Joins two pedestals or one pedestal and one end pedestal, depending on the size top used. Adjustable in two positions, front to back. **Size:** 22" lg. x 10" w. x 2 3/4" thick.

### CONSOLE DRAWER

Fits into pedestal in any position from top to bottom. Slides easily on nylon rollers. Capable of supporting heavy loads. Drawer extends to full depth of pedestal. Easily removable slides fasten to mounting channels in pedestal; stops prevent drawer from falling out. **Size:** 16 3/4" w. x 19 3/4" d. x 6 1/4" h., inside.

## PARTS ORDERING INFORMATION

Bud No.*	Description	Wt. Lbs.	Net Each, Lots of		
			1-14	15-24	25-34
CP-2200	Basic pedestal	36	\$36.00	\$32.40	\$28.80
CF-2202	End pedestal	19	18.95	17.05	15.16
CP-2215	Plain panel	9	6.06	4.73	4.21
CP-2216	Louvered panel	9	8.95	8.06	7.16
CK-2217	Ball-cornered side	13	8.95	8.06	7.16
CD-2220	Ball-cornered door	13	10.95	9.85	8.76
CT-2205	Table top, 25" long	18	22.00	19.80	17.60
CT-2206	Table top, 52" long	35	26.00	23.40	20.80
CT-2207	Table top, 69" long	45	32.10	28.89	25.68
CF-2201	Foot rest	7	3.85	3.46	3.08
CD-2210	Console drawer	24	32.00	28.80	25.60

\*Specify Color: Add suffix **GH** for gray hammertone; add **BH** for brown hammertone.

## SPEAKER ENCLOSURE HANDLES

Attach to any small housing or speaker enclosure to achieve portability. Made of aluminum tubing with etched finish.

Bud No.	Length, Inches	Mtg. Ctrs., Inches	Net Each, Lots of		
			1-49	50-99	100-149
UH-70A	5 3/4	4 3/4	\$0.36	\$0.32	\$0.29
UH-71A	3 3/4	3 3/4	.30	.27	.24

## MINIATURE AMPLIFIER FOUNDATION

With the increased use of miniature tubes, smaller cabinets can be used when designing a compact amplifier. This amplifier foundation was designed expressly for this purpose. The chassis is 5" x 7" x 2". Height, 6". The cover is made of perforated metal. A streamlined handle makes this cabinet portable. Black wrinkle only. 1 1/2 lbs.



Bud No.	Net Each, Lots of		
	1-24	25-49	50-99
CA-1754	\$4.00	\$3.60	\$3.20

## PORTACAB INSTRUMENT CABINETS

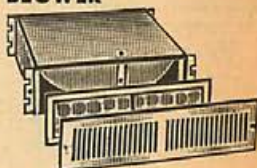


Attractive, versatile cabinets desirable as housings for instrumentation requiring highly stylized appearance. Custom, quality look achieved in standard production models. Made entirely of aluminum to minimize weight. Flexible recessed handle permits easy portability as well as vertical stacking. Well louvered for adequate ventilation. Louvers point inward, permitting side-to-side placement of cabinets without space loss. Aluminum front panel recessed 1/4". Welded back has opening. Perimeter of panel follows contour of body. Has four detachable rubber feet. Gray hammertone finish only.

Bud No.	Size, Inches W. x D. x H.	Wt. Lbs.	Bud Chassis	Net Each, Lots of		
				1-24	25-49	50-99
WA-1540	6 1/2 x 8 x 8	2 3/4	AC-402	\$ 9.20	\$ 8.28	\$ 7.36
WA-1541	8 1/2 x 12 x 9	3	AC-407	12.00	10.80	9.60
WA-1542	10 1/2 x 8 x 8	3 1/4	AC-406	10.65	9.59	8.52
WA-1543	11 1/2 x 18 x 11	6 3/4	AC-416	13.50	12.15	10.80
WA-1544	14 1/2 x 18 x 12	7 3/4	AC-420	15.50	13.95	12.40

## TRANS-AIRE BLOWER

Ideal for use where excessive heat is generated by equipment in an enclosed rack, cabinet or console. Brings in fresh air or exhausts heated air, enabling use as an exhaust or intake blower, depending upon mounting position. Unit will operate in any position—vertical or horizontal. May be mounted to rails of standard cabinet or rack.



Use of Bud Chassis Supporting Angles SA-1349, SA-1360 or CE-2219 is recommended when blower is mounted in rack or cabinet. Motor is rubber mounted to reduce vibration. Operating noise factor reduced to minimum. Thermal overload protection to prevent overheating. Automatic reset. Oil impregnated, fiberglass disposable filter can be changed without removing unit from cabinet. Three sizes provide air displacement from 100 c.f.m. to 750 c.f.m. at 0" static pressure. Complete with filter, chrome-plated grille and 18" three-wire cord. All dimensional and technical data in table below. **Weight:** B-23 17 1/4 lbs., B-25 33 lbs., B-27 35 1/2 lbs.; replacement filter 1 lb.

### BLOWERS

Bud No.	Panel Space	Depth	Air c.f.m.		Mot. hp	Net Each, Lots of		
			High	Low		1-9	10-14	15 Up
B-23	3 1/2 x 19"	12"	200	100	1/20	\$47.10	\$42.39	\$37.68
B-25	5 1/2 x 19"	14 1/2"	500	250	1/6	53.35	48.02	42.68
B-27	7" x 19"	14 1/2"	750	350	1/4	61.35	55.22	49.08

### FILTERS FOR ABOVE BLOWERS

Bud No.	Unit	Net Each, Lots of		
		1-24	25-49	50-99
BF-24	Filter for use with B-23	\$1.35	\$1.22	\$1.08
BF-25	Filter for use with B-25	1.50	1.35	1.20
BF-28	Filter for use with B-27	1.65	1.49	1.32

## "TEM-STAT" TEMPERATURE CONTROLS

Prevents costly damage to electronic components in enclosed cabinets, boxes, etc. Bimetal sensing element responds quickly to gradual or sudden temperature changes and actuates whatever warning device you use. Activates a light, bell, blower or other device; or, shuts off current. Activates snap-action, heavy-duty, normally open switch contacts. High electrical ratings up to 300° F; fully adjustable temperature ranges. Screw terminals for easy attachment. U/L Listed. Small size, 2 1/2" lg. x 1" w. x 1 1/2" d., suitable for limited space applications. **U/L Rating:** 8 amps, full load, 115 VAC (48 amps, locked rotor), 100,000 cps motor rating; derate 50% for 230 VAC. Full load 13.8 amps 120 VAC (82.8 amps, locked rotor), 6,000 cps motor rating; derate 50% for 240 VAC. Pilot duty, 125 VA at 115/230 VAC; or, 250 mv or more.

**Bud Model TL-15**—For 80°–170° F range. Net Each,.... \$5.00  
**Bud Model TL-16**—For 150°–240° F range. Net Each,.... \$5.00

## RUBBER FEET

No. F-7264A: Has recessed head with mounting stud; rubber portion 1 1/2" x 1 1/2" thick. No. F-8038: May be applied to any surface where glue coating is moistened with benzol base solution; 3/4" dia. x 3/8" thick. No. F-9653: Press-fit type for 1/4" hole.

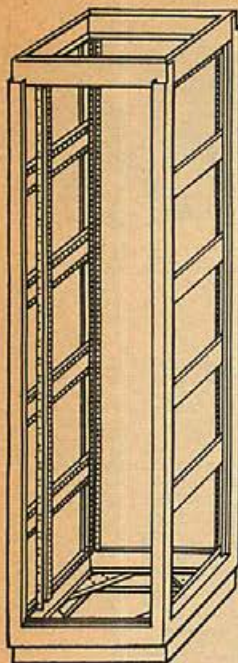
Bud No.	Description	Net per 100, Lots of			
		1-49	50-99	100-149	200-249
F-7264A	High grade black rubber	\$7.35	\$6.62	\$5.88	.....
F-8038	Sponge rubber pad	3.80	3.42	3.04	.....
F-9653	Top grade gray rubber	1.75	1.75	1.58*	\$1.40

\*Lots 100-199.

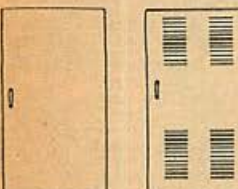




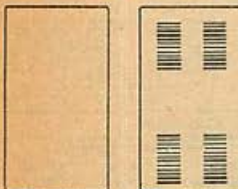
# Series "60" Cabinet Racks



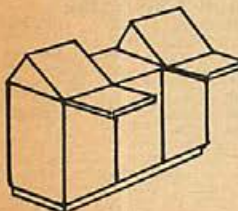
**A Upright Rack**



**B Plain Door C Louvered Door**



**D Plain Side E Louvered Side**



**Typical Assembly**



**F Desk Top**

Scientifically designed to meet all requirements for human needs as well as component physical specifications; the most practical cabinet rack developed for either a single piece of equipment or a large instrumentation system. Very economical to the user, units are shipped fully assembled and ready for immediate use.

Basic frame welded in a solid unit composed of 14-gauge cold-rolled steel channels. Sides have "U" braces with perforated channels for fastening vertical adjustable mounting rails. Rails also support other types of equipment such as brackets, shelves, slides, etc. Eliminates need of drilling holes in the rack. Sides and rear door made of 16 gauge steel. Door may be mounted to open left or right. Vertical channel, 8" wide, welded to door to prevent vibration or whip. Two pairs of panel mounting rails are supplied; fully adjustable. Panels may be mounted in front and rear at the same time. Front rails drilled and tapped 10-32 W.E. spacing. Rear rails are drilled according to universal spacing.

All Series Sixty enclosures may be quickly combined with each other to create units of any desired width as shown in the Add-A-Rack series. In addition, such accessories as desk tops, turrets, drawers, slides, sloping panel supports and front door are easily installed.

Standard finishes are smooth baked enamel over a primer. For two-tone gray, specify by adding suffix **5G**. For two-tone blue, add suffix **5B** to order number. Standard Bud relay rack panels are available for the Series Sixty racks in light gray and light blue; when ordering, add suffix **5G** for gray; **5B** for blue.

## UPRIGHT CABINET RACKS (FIG. A)

Completely assembled with sides, rear door and top. Standard units have plain sides and door; solid top. For greater ventilation, order units with louvered sides and/or rear door; both, with solid top. Width, 24 1/4", all units. Inside depth 20 1/4" clear on units with 22" outside depth; 23 1/4", all others. Top opening 18 1/2" w. x 17" d. on units with 22" outside depth; 18 1/2" w. x 20 1/4" d., all others. Specify Color When Ordering: Add suffix **5G** to number for gray; suffix **5B** for blue.

With Plain Sides and Door				Height	Out-side Depth	Panel Space	Wt., Lbs.	Louvered Sides, Plain Door			
Bud No. 60-	1-9	10-14	15-19					Bud No. 60-	1-9	10-14	15-19
2300	\$106.30	\$ 95.67	\$ 85.05	29 3/4"	22"	21"	118	2600	\$112.00	\$100.80	\$ 89.60
2301	131.45	118.30	105.15	40 1/4"	22"	31 1/2"	158	2601	140.00	126.00	112.00
2302	146.05	131.45	116.85	50 3/4"	22"	42"	173	2602	156.50	140.85	125.20
2303	166.25	149.60	133.00	61 1/4"	22"	52 1/2"	197	2603	175.00	161.10	143.20
2304	180.25	162.20	144.20	69 3/4"	22"	61 1/4"	220	2604	194.75	175.28	155.80
2305	200.00	180.00	160.00	77 1/2"	22"	70"	235	2605	216.50	194.85	173.20
2306	218.65	196.80	174.90	87 3/4"	22"	78 3/4"	265	2606	235.15	211.64	188.12
2307	235.60	212.95	190.40	29 3/4"	25 1/4"	21"	156	2607	135.15	121.64	108.12
2308	151.20	136.10	120.95	40 1/4"	25 1/4"	31 1/2"	176	2608	159.80	143.82	127.84
2309	168.00	151.20	134.40	50 3/4"	25 1/4"	42"	185	2609	178.00	160.20	142.40
2310	186.50	167.85	149.20	61 1/4"	25 1/4"	52 1/2"	211	2610	203.70	183.33	162.96
2311	207.30	186.55	165.85	69 3/4"	25 1/4"	61 1/4"	240	2611	219.90	197.91	175.92
2312	230.30	207.25	184.25	78 3/4"	25 1/4"	70"	256	2612	244.20	219.78	195.36
2313	251.35	226.20	201.10	87 3/4"	25 1/4"	78 3/4"	267	2613	266.20	239.58	212.96

With Louvered Sides and Door				Height	Out-side Depth	Panel Space	Wt., Lbs.	Plain Sides, Louvered Door			
Bud No. 60-	1-9	10-14	15-19					Bud No. 60-	1-9	10-14	15-19
2700	\$110.20	\$ 99.18	\$ 88.16	29 3/4"	22"	21"	118	2800	\$108.50	\$ 97.65	\$ 86.80
2701	137.00	123.30	109.60	40 1/4"	22"	31 1/2"	156	2801	134.30	120.87	107.44
2702	153.40	138.06	122.72	50 3/4"	22"	42"	173	2802	149.20	134.28	119.36
2703	175.30	157.77	140.24	61 1/4"	22"	52 1/2"	197	2803	169.70	152.73	135.76
2704	190.80	171.72	152.64	69 3/4"	22"	61 1/4"	220	2804	184.10	165.69	147.28
2705	212.00	190.80	169.60	78 3/4"	22"	70"	235	2805	204.30	183.87	163.44
2706	230.20	207.18	184.16	87 3/4"	22"	78 3/4"	265	2806	223.40	201.06	178.72
2707	129.90	116.91	103.92	29 3/4"	25 1/4"	21"	156	2807	127.70	114.93	102.16
2708	156.90	141.21	125.52	40 1/4"	25 1/4"	31 1/2"	176	2808	145.00	130.50	116.00
2709	174.70	157.23	139.76	50 3/4"	25 1/4"	42"	185	2809	171.10	153.99	136.88
2710	194.30	174.87	155.44	61 1/4"	25 1/4"	52 1/2"	211	2810	190.00	171.00	152.00
2711	215.90	194.31	172.72	69 3/4"	25 1/4"	61 1/4"	240	2811	211.10	189.99	168.88
2712	239.80	215.82	191.84	78 3/4"	25 1/4"	70"	256	2812	234.60	211.14	187.68
2713	261.30	235.17	209.04	87 3/4"	25 1/4"	78 3/4"	267	2813	256.10	230.49	204.88

## ACCESSORY PERFORATED TOP

Bud No.	Width	Depth	Fits Upright Rack	Wt., Lbs.	Net Each, Lots of
60-2370	21 1/4"	17"	With overall depth of 22"	6	\$5.65 \$5.10 \$4.50
60-2371	21 1/4"	20 1/4"	With overall depth of 25 1/4"	7	6.00 5.40 4.80

## ACCESSORY DOORS

Doors are interchangeable; may be used for front or rear of rack; mount to open either left or right.

Plain Type (Fig. B)				Ht.	Width	Fits Rack With Panel Space of	Wt., Lbs.	Louvered Type (Fig. C)			
Bud No.	1-9	10-14	15-19					Bud No.	1-9	10-14	15-19
60-2340	\$16.05	\$14.45	\$12.85	21"	18 1/2"	21"	8	60-2540	\$18.35	\$16.52	\$14.68
60-2341	19.80	17.80	15.85	31 1/2"	18 1/2"	31 1/2"	11 1/2	60-2541	22.70	20.43	18.16
60-2342	21.90	19.70	17.50	42"	18 1/2"	42"	15 1/2	60-2542	25.20	22.68	20.16
60-2343	24.30	21.85	19.45	52 1/2"	18 1/2"	52 1/2"	19	60-2543	27.95	25.16	22.36
60-2344	27.05	24.35	21.65	61 1/4"	18 1/2"	61 1/4"	22 1/2	60-2544	31.05	27.95	24.84
60-2345	30.05	27.05	24.05	70"	18 1/2"	70"	25 1/2	60-2545	34.50	31.05	27.60
60-2346	32.80	29.50	26.25	78 3/4"	18 1/2"	78 3/4"	29	60-2546	37.70	33.93	30.16

## ACCESSORY SIDES

Plain Type (Fig. D)				Ht.	Width	Fits Rack With Panel Space of	Wt., Lbs.	Louvered Type (Fig. E)			
Bud No.	1-9	10-14	15-19					Bud No.	1-14	15-24	25-34
60-2560	\$24.10	\$21.70	\$19.30	26 1/2"	22"	21"	12 1/2	60-2580	\$28.10	\$25.30	\$22.50
60-2561	31.50	28.35	25.20	37 1/2"	22"	31 1/2"	17 1/2	60-2581	37.20	33.50	29.75
60-2562	36.65	33.00	29.30	47 1/2"	22"	42"	21	60-2582	44.20	39.35	35.35
60-2563	42.70	38.45	34.15	58 1/2"	22"	52 1/2"	26 1/2	60-2583	51.95	46.75	41.55
60-2564	46.70	42.05	37.35	67 1/2"	22"	61 1/4"	30	60-2584	57.40	51.65	45.90
60-2565	51.45	46.30	41.15	75 1/2"	22"	70"	34	60-2585	63.60	57.25	50.90
60-2566	59.00	53.10	47.20	84 1/2"	22"	78 3/4"	38	60-2586	70.75	63.70	56.60
60-2567	30.15	27.15	24.10	26 1/2"	25 1/4"	21"	14 1/2	60-2587	34.70	31.25	27.75
60-2568	39.40	35.45	31.50	37 1/2"	25 1/4"	31 1/2"	20	60-2588	45.30	40.75	36.25
60-2569	45.85	41.25	36.70	47 1/2"	25 1/4"	42"	24	60-2589	52.75	47.50	42.20
60-2570	53.35	48.00	42.70	58 1/2"	25 1/4"	52 1/2"	29 1/2	60-2590	61.35	55.20	49.10
60-2571	58.35	52.50	46.70	67 1/2"	25 1/4"	61 1/4"	34 1/2	60-2591	67.10	60.40	53.70
60-2572	64.30	57.90	51.45	75 1/2"	25 1/4"	70"	39	60-2592	73.95	66.55	59.15
60-2573	67.76	61.00	54.20	84 1/2"	25 1/4"	78 3/4"	43 1/2	60-2593	77.90	70.10	62.30

## SERIES SIXTY DESK TOP (FIG. F)

May be used in connection with any Series Sixty enclosure. Furnished completely assembled with wood-grained Formica surface. Fastens to panel mounting rails by two pre-drilled channels. Will support in excess of 200 lbs. Surface 24 1/4" wide, 19 1/2" deep, 3 1/2" high. Available in two colors. Specify Color: Add suffix **5G** for gray; **5B** for blue.

Bud No.	Fits Series Sixty	Support Channel	Wt., Lbs.	En., 1-14	En., 15-24	En., 25-34
60-2360	With 22" depth	21 1/2" long	22	\$36.05	\$32.45	\$28.85
60-2362	With 25 1/4" depth	24 3/4" long	23	36.75	33.08	29.40





# Series "60" Cabinet Racks

## INCLINED PANEL CABINET RACKS (FIG. G)

Completely assembled with sides, rear door and solid top. Available in four combinations of plain or louvered sides and rear door. Size, 60 1/2" h. x 24 1/2" w. x 22" d., outside; 20 1/2" d., clear inside. Weight, 165 lbs. **Specify Color When Ordering:** Add suffix **SG** to number for gray; suffix **SB**, for blue.

With Plain Sides and Door				Incline Panel Hgt.	Vert. Panel Hgt.	Top Opening W. x D.	Louvered Sides and Plain Door			
Bud No. 60-	1-9	10-14	15-19				Bud No. 60-	1-9	10-14	15-19
2330	\$165.25	\$148.70	\$132.20	10 1/2"	29 3/4"	18 1/2" x 11 3/4"	2630	\$147.20	\$132.48	\$117.76
2331	175.15	157.65	140.10	15 3/4"	24 1/2"	18 1/2" x 10"	2631	184.20	165.78	147.36
2332	175.15	157.65	140.10	17 1/2"	22 3/4"	18 1/2" x 9 3/4"	2632	184.20	165.78	147.36
With Louvered Sides and Door				Plain Sides, Louvered Door						
2730	\$170.90	\$153.81	\$136.72	10 1/2"	29 3/4"	18 1/2" x 11 3/4"	2830	\$168.50	\$151.65	\$134.80
2731	181.00	162.90	144.80	15 3/4"	24 1/2"	18 1/2" x 10"	2831	178.40	160.56	142.72
2732	181.00	162.90	144.80	17 1/2"	22 3/4"	18 1/2" x 9 3/4"	2832	178.40	160.56	142.72

### ACCESSORY FRONT DOORS

Plain Type (Fig. J)				Height	Width	Fits Rack Top Open. Size, in.	Wt., Lbs.	Louvered Type (Fig. K)			
Bud No.	1-9	10-14	15-19					Bud No.	1-9	10-14	15-19
60-2350	\$19.85	\$17.85	\$15.90	30 3/4"	18 1/2"	18 1/2" x 11 3/4"	11	60-2550	\$22.80	\$20.52	\$18.24
60-2351	18.55	16.70	14.85	25 1/2"	18 1/2"	18 1/2" x 10"	9 1/2"	60-2551	21.30	19.17	17.04
60-2352	18.00	16.20	14.40	23 3/4"	18 1/2"	18 1/2" x 9 3/4"	9	60-2552	20.70	18.63	16.56

### ACCESSORY REAR DOORS

60-2342	\$21.90	\$19.70	\$17.50	42 1/2"	18 1/2"	All sizes	15 1/2"	60-2542	\$25.20	\$22.68	\$20.16
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### ACCESSORY SIDES

Specify "L" for left side or "R" for right side, determined when facing front of rack.

60-2574*	\$38.45	\$34.60	\$30.75	47 1/2"	22"	18 1/2" x 11 3/4"	11	60-2594†	\$44.20	\$39.80	\$35.35
60-2575*	39.55	35.60	31.65	47 1/2"	22"	18 1/2" x 10"	9 1/2"	60-2595†	45.50	40.95	36.40
60-2576*	39.55	35.60	31.65	47 1/2"	22"	18 1/2" x 9 3/4"	9	60-2596†	45.50	40.95	36.40

\*Fig. H. †Fig. I.

### ACCESSORY PERFORATED TOPS

Bud No.	Width	Depth	Fits Rack Top Size, in.	Wt., Lbs.	Net Each, Lots of		
					1-24	25-49	50-99
60-2372	21 1/2"	11 1/2"	18 1/2" x 11 3/4"	4	\$4.40	\$3.95	\$3.50
60-2373	21 1/2"	10"	18 1/2" x 10"	3	4.25	3.85	3.40
60-2374	21 1/2"	9 1/2"	18 1/2" x 9 3/4"	3	4.20	3.80	3.35

### ADD-A-RACK SERIES

Each assembly consists of frame, top, bottom, rear door and cowlings; used as an add-on unit to join any of the Series Sixty enclosures into a bank of two or more. One standard rack plus several Add-A-Racks make any desired number of racks combined for optimum width. Colors same as above Racks.

Plain Sides				Louvered Sides				Wt., Lbs.	
Bud No. 60-	For Add-on to Rack No. 60-	Net Each, Lots of			Bud No. 60-	For Add-on to Rack No. 60-	Net Each, Lots of		
		1-9	10-14	15-19			1-9	10-14	15-19
2500	2300, 2600	\$ 86.10	\$ 77.50	\$ 68.90	2900	2700, 2800	\$ 88.40	\$ 79.56	\$ 70.72
2501	2301, 2601	104.75	94.30	83.80	2901	2701, 2801	107.65	96.89	86.12
2502	2302, 2602	114.70	103.25	91.75	2902	2702, 2802	118.00	106.20	94.40
2503	2303, 2603	125.30	112.75	100.25	2903	2703, 2803	128.95	116.06	103.16
2504	2304, 2604	140.00	126.00	112.00	2904	2704, 2804	144.00	129.60	115.20
2505	2305, 2605	156.00	140.40	124.80	2905	2705, 2805	160.45	144.41	128.36
2506	2306, 2606	167.35	150.60	133.90	2906	2706, 2806	172.25	155.03	137.80
2507	2307, 2607	100.00	90.00	80.00	2907	2707, 2807	102.30	92.07	81.84
2508	2308, 2608	117.25	105.55	93.80	2908	2708, 2808	120.15	108.14	96.12
2509	2309, 2609	128.00	115.20	102.40	2909	2709, 2809	131.30	118.17	105.04
2510	2310, 2610	139.60	125.65	111.70	2910	2710, 2810	143.25	128.93	114.60
2511	2311, 2611	156.10	140.50	124.90	2911	2711, 2811	160.10	144.09	128.08
2512	2312, 2612	174.00	156.60	139.20	2912	2712, 2812	178.45	160.61	142.76
2513	2313, 2613	192.50	173.25	154.00	2913	2713, 2813	197.40	177.66	157.92
2514	2314, 2614	212.00	190.00	168.00	2914	2714, 2814	216.80	194.40	171.60
2515	2315, 2615	232.00	208.00	187.20	2915	2715, 2815	236.60	212.58	189.96
2516	2316, 2616	252.00	226.00	206.40	2916	2716, 2816	256.80	231.24	208.80
2517	2317, 2617	272.00	244.00	225.60	2917	2717, 2817	277.40	250.36	227.84
2518	2318, 2618	292.00	262.00	244.80	2918	2718, 2818	298.40	269.92	246.72
2519	2319, 2619	312.00	281.00	264.00	2919	2719, 2819	319.80	289.94	266.76
2520	2320, 2620	332.00	299.00	281.60	2920	2720, 2820	341.60	310.40	287.20
2521	2321, 2621	352.00	317.00	299.20	2921	2721, 2821	363.80	331.26	303.84
2522	2322, 2622	372.00	335.00	316.80	2922	2722, 2822	386.40	352.56	325.44

### SERIES SIXTY TURRETS (FIG. L)

Made of 16 gauge steel; designed so that any one of three sides may be attached to a Series Sixty upright rack or any horizontal surface. Accommodate standard 19" panels. All mounting rails have universal spacing. Sides easily removed when a series of interconnecting turrets are desired. **Specify Color When Ordering:** Add suffix **SG** for dark gray; **SB** for dark blue. For panels, order standard Bud panels with suffix **SG** for light gray; **SB** for light blue.

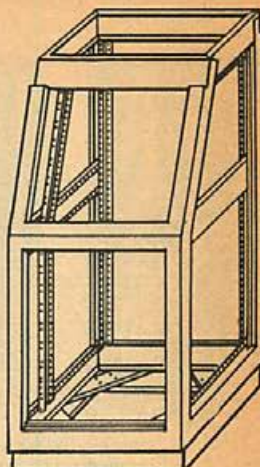
Bud No.	Width	Depth	Panel Space			Wt., Lbs.	Net Each, Lots of		
			Sloping	Bottom	Rear		1-14	15-24	25-34
60-2364	22 1/2"	17 3/4"	12 3/4"	17 3/4"	14"	17	\$39.05	\$36.15	\$31.25
60-2365	22 1/2"	14 3/4"	10 1/2"	12 1/2"	10 1/2"	14	32.55	29.30	26.05
60-2366	22 1/2"	20 1/2"	14 3/4"	21 1/2"	17 3/4"	20	41.00	36.90	32.80

### SERIES SIXTY DRAWER, DESK TOP, AND SHELF ACCESSORIES

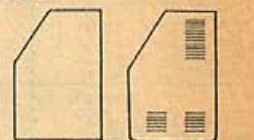
**No. 60-2368 Drawer:** Fits into any Series Sixty cabinet rack. Slides easily on nylon rollers. Will support heavy loads. Extends to full depth; stops prevent drawer from falling out. Slides easily attach to panel supporting rails. Silver anodized handles. Shipped completely assembled. **No. 60-2363 Sliding Desk Top:** Fits all Series Sixty racks. Has smooth Formica® surface for writing, scribbling or inspection. Fits flush with front of unit. Usable area when fully extended, 11" x 16 3/4". Occupies only 1 3/8" of panel height. Will support 75 lbs. Ball-bearing slide mechanism mounts directly in Series Sixty racks; brackets included to fit other Bud cabinets and consoles. **No. 60-2363 Desk Top Drawer:** Fits Series Sixty racks. Has Formica surface. Fits flush with front of unit. Hinged desk top on drawer holds small tools or parts. Special front-panel latch both locks and releases drawer or top as desired. Mounts to cabinet U-braces; slides travel on nylon rollers. Hardware supplied. **No. 60-2380 and 60-2381 Shelves:** Ideal for support of chassis, power supplies or other equipment; also may be used as base plate for bottom support. Of one-piece 16 gauge steel with flanged front and rear for extra strength and rigidity. Easily bolt to cabinet U-braces. Will support 200 lbs. Hardware supplied.

Bud No.	Fig.	Size, Inches	Wt., Lbs.	Net Each, Lots of			
				1-14	15-24	25-34	50-99
60-2368†	M	16 3/4" x 6 3/4" x 19 1/4" inside	28	\$32.05	\$28.85	\$25.65	.....
60-2361†	N	16 3/4" x 15 3/4" x 1 3/4" with std. 19" panel	8	16.65	14.99	13.32	.....
60-2363†	O	16 3/4" x 3 1/4" x 15 inside; 19 x 3 1/4" front panel	19	55.00	49.50	44.00	.....
60-2380†	P	17 1/2" w. x 19 1/2" d.	7 1/2"	6.80	6.80	6.12	\$5.44
60-2381†	P	17 1/2" w. x 22 1/2" d.	8 3/4"	7.10	7.10	6.39	\$5.70

\*Synthane Corp. trademark. †Add suffix **SB** for smooth blue; **SG**, smooth gray. ‡Add suffix **B** for black wrinkle; **G**, gray wrinkle; **HG**, gray hammetone; **SB**, smooth blue; **SG**, smooth gray. §Lots of 25-49.



G Inclined Panel Rack



H Side Panels

I Doors



J Doors

K Turret



L Turret



M Drawer



N Sliding Desk Top



O Desk Top Drawer



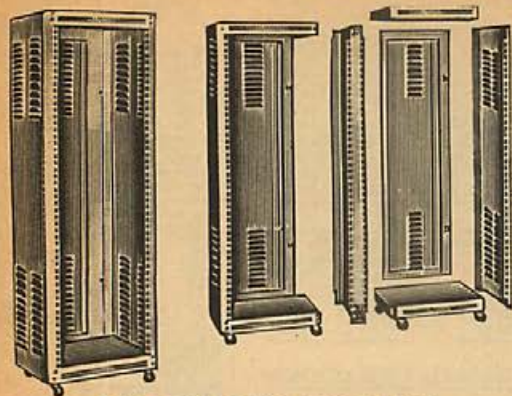
P Shelf





# Cabinet Racks, Accessories

## DELUXE RELAY RACKS WITH ADD-A-RACK



### SUPER DELUXE TWO-DOOR RACKS WITH 19" WIDE PANEL SPACE

Bud No.	Height, Overall	Panel Space	Wt., Lbs.	Net Each, Lots of		
				1-9	10-14	15-19
CR-2174	42 1/2"	36 3/4"	102	\$ 64.13	\$ 57.72	\$51.30
CR-2171	47 1/2"	42"	104	72.65	65.39	58.12
CR-2172	66 1/2"	61 1/4"	138	93.77	84.39	75.02
CR-2175	75 1/2"	70"	150	96.00	86.40	76.80
CR-2173	82 1/2"	77"	163	112.56	101.30	90.05

### WITH 24" WIDE PANEL SPACE

Bud No.	Height, Overall	Panel Space	Wt., Lbs.	Net Each, Lots of		
				1-9	10-14	15-19
CR-2494	42 1/2"	36 3/4"	119	\$ 83.00	\$ 74.70	\$66.40
CR-2491	47 1/2"	42"	122	93.00	83.70	74.40
CR-2492	66 1/2"	61 1/4"	160	121.00	108.90	96.80
CR-2495	75 1/2"	70"	175	123.00	110.70	98.40
CR-2493	82 1/2"	77"	190	145.00	130.50	116.00

### ADD-A-RACK ASSEMBLIES

Includes door, top, bottom and coupling unit for add-on use with racks indicated.

Bud No.	For Use With Rack No.	Wt., Lbs.	Net Each, Lots of		
			1-9	10-14	15-19
AR-1275*	RR-1271	61	\$ 34.90	\$31.41	\$27.92
AR-1276*	RR-1272	81	43.75	39.37	35.00
AR-1277*	RR-1273	94	51.25	46.12	41.00
AR-1778	CR-1774	70	44.34	39.91	35.47
AR-1775	CR-1771	74	49.01	44.11	39.21
AR-1776	CR-1772	100	60.96	54.86	48.77
AR-1779	CR-1780	107	62.00	55.80	49.60
AR-1777	CR-1773	113	74.90	67.41	59.92
AR-4274	CR-2474	82	55.00	49.50	44.00
AR-4271	CR-2471	87	62.00	55.80	49.60
AR-4272	CR-2472	117	77.75	69.98	62.21
AR-4275	CR-2475	125	79.25	71.33	63.41
AR-4273	CR-2473	132	93.25	83.93	74.61
AR-2278*	CR-2074	102	60.15	54.13	48.12
AR-2275*	CR-2071	86	68.06	61.25	54.65
AR-2276*	CR-2072	110	85.17	76.65	68.14
AR-2279	CR-2075	120	87.00	78.30	69.60
AR-2277*	CR-2073	130	103.75	93.38	83.00
AR-3278	CR-2484	100	78.00	70.20	62.40
AR-3275	CR-2481	119	87.00	78.30	69.60
AR-3276	CR-2482	129	109.00	98.10	87.20
AR-3279	CR-2485	140	111.00	99.90	88.80
AR-3277	CR-2483	152	131.00	117.90	104.80

\*Gray hammertone standard; for black or gray wrinkle add 10% to price.

### NEW "PAN-L-LITE" FLUORESCENT LAMP

Provides bright, glare-free lighting for racks, cabinets, desks; ideal for accurate reading of dials, recorders, etc. Quickly attaches to racks or panels—comes mounted on standard 19" x 1 1/4" panel. Has bronzed aluminum frame, translucent light diffuser, pushbutton starter switch, convenience outlet, and heavy-duty 6-ft. cord with plug, U/L Listed. Uses 15-watt tube (not supplied). Gray hammertone finish.



Bud No.	Size, Inches	Weight, Lbs.	Net Each, Lots of		
			1-9	10-14	15-19
PL-5*	18 x 5 x 1 1/4	2	\$9.30	\$8.37	\$7.44

### TRUCK CASTERS

Use with all Bud relay racks and other floor mounted units. Ball bearing wheels are hard tread composition. RC-7756 is for heavy duty applications. RC-7758 is for extra heavy duty use (Series 60 Racks).

Bud No.	Height	Weight (Set of 4)	Net Each, Lots of		
			1-49	50-99	100-149
RC-7756	2 3/8"	1 1/4 lbs.	\$0.90	\$0.81	\$0.72
RC-7757	2"	1 lb.	.40	.36	.32
RC-7758	3 1/4"	6 lbs.	2.17	1.95	1.74

\*New product.

High quality relay racks made of 16-gauge steel with 1/4" panel supports. Panel mounting supports are recessed so that no panel edges will be exposed. Both back and sides are fully louvered for best ventilation. Snap catches are positioned on the door. Rounded corners and red-lined chrome trim give streamlined appearance. Base constructed with four special supports so that casters may be applied directly to base for mobility. All standard panels will fit these racks: 22" wide for 19" panels; 27" wide for 24" panels.

**Super Deluxe Series Relay Racks** are equipped with adjustable panel mounting supports permitting forward and backward adjustment of panels for more efficient use of space. Adjustable points are at 1" intervals for 9" to 15" clearance behind panels. Super Deluxe Racks are fitted with both front and rear doors, the rear to cover any equipment behind the panel while making it easily accessible. The front door, not louvered, conceals controls on the front panel.

**Add-A-Rack Series**—Where relay racks are to be joined in series. Provides additional strength and improved appearance. Includes door, top, bottom and coupling unit, all that is needed to make a double relay rack out of a single Deluxe series.

**All Racks Listed** are shipped knocked-down with all necessary hardware and assembly instructions. Casters optional. When ordering specify finish. Add suffix "HG" for gray hammertone; suffix "G" for gray wrinkle; and suffix "B" for black wrinkle.

### DELUXE RELAY RACKS

#### 17 1/2" Overall Depth

#### WITH 19" WIDE PANEL SPACE

Bud No.	Height, Overall	Panel Space	Wt., Lbs.	Net Each, Lots of		
				1-9	10-14	15-19
CR-1774	42 1/2"	36 3/4"	82	\$45.17	\$40.65	\$36.14
CR-1771	47 1/2"	42"	92	51.10	45.99	40.88
CR-1772	66 1/2"	61 1/4"	115	63.96	57.56	51.17
CR-1780	75 1/2"	70"	125	65.00	59.50	52.00
CR-1773	82 1/2"	77"	135	76.57	68.91	61.26

#### WITH 24" WIDE PANEL SPACE

Bud No.	Height, Overall	Panel Space	Wt., Lbs.	Net Each, Lots of		
				1-9	10-14	15-19
CR-2474	42 1/2"	36 3/4"	96	\$57.50	\$51.75	\$46.00
CR-2471	47 1/2"	42"	108	65.00	58.50	52.00
CR-2472	66 1/2"	61 1/4"	135	81.50	73.35	65.20
CR-2475	75 1/2"	70"	146	83.00	74.70	66.40
CR-2473	82 1/2"	77"	158	97.60	87.84	78.08

### EXTRA DEEP DELUXE RACKS

Same as above, except 22 1/2" deep instead of 17 1/2" deep. Gray hammertone finish standard; for black or gray wrinkle add 10% to price.

#### WITH 19" WIDE PANEL SPACE

Bud No.	Height, Overall	Panel Space	Wt., Lbs.	Net Each, Lots of		
				1-9	10-14	15-19
CR-2074	42 1/2"	36 3/4"	98	\$ 63.10	\$56.79	\$50.48
CR-2071	47 1/2"	42"	102	71.40	64.26	57.12
CR-2072	66 1/2"	61 1/4"	137	89.35	80.42	71.48
CR-2075	75 1/2"	70"	148	90.80	81.72	72.66
CR-2073	82 1/2"	77"	159	106.13	95.52	84.90

#### WITH 24" WIDE PANEL SPACE

Bud No.	Height, Overall	Panel Space	Wt., Lbs.	Net Each, Lots of		
				1-9	10-14	15-19
CR-2484	42 1/2"	36 3/4"	115	\$ 81.00	\$ 72.90	\$64.80
CR-2481	47 1/2"	42"	119	91.00	81.90	72.80
CR-2482	66 1/2"	61 1/4"	160	114.00	102.60	91.20
CR-2485	75 1/2"	70"	173	116.00	104.40	92.80
CR-2483	82 1/2"	77"	186	136.00	122.40	108.80

### SPACE SAVER RELAY RACKS

Same as Deluxe Series, except only 10" deep (9" inside, clear) to save space but retain panel height and width. Suited for use with Bud panel mounting chassis as well as standard 19" relay rack panels; lend themselves to Add-A-Rack assembly. Gray hammertone finish standard; for black or gray wrinkle add 10% to price.

Bud No.	Height, Overall	Panel Space	Wt., Lbs.	Net Each, Lots of		
				1-9	10-14	15-19
RR-1271	47 1/2"	42"	70	\$36.60	\$32.95	\$29.28
RR-1272	66 1/2"	61 1/4"	91	45.85	41.26	36.68
RR-1273	75 1/2"	70"	100	53.75	48.37	43.00

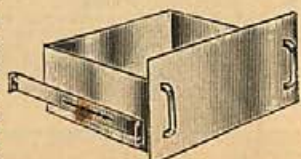
### DOOR HANDLES, CATCH SETS

No. 9347: Fits flush with cabinet door; exposed parts chrome plated. Nos. 9196 and 9223: Lever-type handles are chrome plated with steel spindle and cam; fit Super Deluxe racks.

Bud No.	Description	Net Each, Lots of		
		1-49	50-99	100-149
9196	Non-locking handle	\$2.66	\$2.39	\$2.13
9223	9196 with lock and key	5.00	4.50	4.00
9347	Flush-mount catch set	.98	.88	.78

### DRAWER WITH ADJUSTABLE SLIDES

Fits any cabinet or cabinet rack with 19" panel space. Slide bracket adjustable 16 3/4" to 22 3/4" to fit any cabinet with depth 17" to 23". Fastens by bracket to panel mounting rail in front and rear of cabinet. Nylon rollers for smooth movement. Hardware supplied. Specify color when ordering: Add suffix HG for gray hammertone; B for black wrinkle; or G for gray wrinkle.



Bud No.	Inside Size, Inches	Wt., Lbs.	Net Each, Lots of		
			1-14	15-24	25-34
D-1721	16 3/4 x 6 3/4 x 16 1/4	19 1/2	\$40.80	\$36.72	\$32.64





# Relay Racks and Panels

## STANDARD RELAY RACK PANELS

Choice of steel or aluminum relay rack panels,  $\frac{1}{8}$ " or  $\frac{1}{4}$ " thick, in both 19" and 24" widths. Specify color when ordering, use letter suffix: **B** for black wrinkle; **G** for gray wrinkle; **HG** for gray hammertone; **SB** for smooth blue; **SG** for smooth gray. Aluminum panels 5005 H-36 alloy.

### STANDARD 19" WIDE PANELS

Ht., In.	$\frac{1}{8}$ " STEEL				$\frac{1}{4}$ " ALUMINUM			
	Bud No. PS-	Net Each	Lots of		Bud No. PA-	Net Each	Lots of	
1 1/2	1250	\$0.84	\$0.76	\$0.67	1101	\$1.09	\$0.98	\$0.87
3 1/2	1251	1.00	.90	.80	1102	1.42	1.28	1.14
5 1/2	1252	1.25	1.13	1.00	1103	1.92	1.73	1.54
7 1/2	1253	1.42	1.28	1.14	1104	2.42	2.18	1.94
8 1/2	1254	1.75	1.58	1.40	1105	2.84	2.56	2.27
10 1/2	1255	2.09	1.88	1.67	1106	3.59	3.23	2.87
12 1/2	1256	2.42	2.18	1.94	1107	4.09	3.68	3.27
14	1257	2.84	2.56	2.27	1108	4.76	4.28	3.81
15 1/2	1258	3.09	2.78	2.47	1109	5.34	4.81	4.27
17 1/2	1259	3.51	3.16	2.81	1110	5.85	5.27	4.68
19 1/2	1260	3.84	3.46	3.07	1111	6.43	5.79	5.14
21	1261	4.26	3.83	3.41	1112	7.01	6.31	5.61

### STANDARD 24" WIDE PANELS

Ht., In.	STANDARD 19" WIDE PANELS				STANDARD 24" WIDE PANELS			
	Bud No. PA-	Net Each	Lots of		Bud No. PA-	Net Each	Lots of	
1 1/2	3420	\$1.25	\$1.13	\$1.00	2401	\$1.70	\$1.53	\$1.36
3 1/2	3421	1.45	1.31	1.17	2402	2.20	1.98	1.76
5 1/2	3422	1.80	1.62	1.44	2403	3.00	2.70	2.40
7 1/2	3423	2.05	1.85	1.65	2404	3.75	3.38	3.01
8 1/2	3424	2.55	2.30	2.05	2405	4.40	3.96	3.52
10 1/2	3425	3.05	2.75	2.45	2406	5.60	5.04	4.48
12 1/2	3426	3.60	3.24	2.88	2407	6.35	5.72	5.09
14	3427	4.15	3.74	3.33	2408	7.40	6.66	5.92
15 1/2	3428	4.70	4.23	3.76	2409	8.30	7.47	6.64
17 1/2	3429	5.20	4.68	4.18	2410	9.10	8.19	7.28
19 1/2	3430	5.75	5.18	4.60	2411	10.00	9.00	8.00
21	3431	6.35	5.72	5.09	2412	11.00	9.90	8.80

### STANDARD 1/8" THICK ALUMINUM PANELS

Ht., In.	STANDARD 19" WIDE PANELS				STANDARD 24" WIDE PANELS			
	Bud No. PA-	Net Each	Lots of		Bud No. PA-	Net Each	Lots of	
1 1/2	3101	\$1.74	\$1.57	\$1.39	2431	\$1.39	\$1.279	\$1.148
3 1/2	3102	2.27	2.04	1.82	2432	4.00	3.60	3.20
5 1/2	3103	3.07	2.76	2.46	2433	5.50	4.95	4.40
7 1/2	3104	3.87	3.48	3.10	2434	6.80	6.12	5.44
8 1/2	3105	4.54	4.09	3.63	2435	8.00	7.20	6.40
10 1/2	3106	5.74	5.17	4.59	2436	10.15	9.04	8.12
12 1/2	3107	6.54	5.89	5.23	2437	11.50	10.35	9.20
14	3108	7.62	6.86	6.10	2438	13.50	12.15	10.80
15 1/2	3109	8.54	7.69	6.83	2439	15.05	13.55	12.05
17 1/2	3110	9.36	8.42	7.49	2440	16.50	14.85	13.20
19 1/2	3111	10.29	9.26	8.23	2441	18.20	16.38	14.56
21	3112	11.22	10.10	8.98	2442	20.00	18.00	16.00

### SURFACE SHIELD PANELS

Bright aluminum alloy 5005 H-36 panels have blemish-free mill finish. Covered on both sides with sturdy, pressure-sensitive, white paper; protects against damage and useful for marking for drilling, positioning, etc. Standard notched sizes.

### STANDARD 19" WIDE PANELS

Ht., In.	$\frac{1}{8}$ " ALUMINUM				$\frac{1}{4}$ " ALUMINUM			
	Bud SFA-	Net Each	Lots of		Bud SFA-	Net Each	Lots of	
1 1/2	1831	\$0.97	\$0.87	\$0.78	3161	\$1.79	\$1.61	\$1.43
3 1/2	1832	1.34	1.21	1.07	3162	2.36	2.12	1.89
5 1/2	1833	1.80	1.62	1.44	3163	3.17	2.85	2.54
7 1/2	1834	2.21	1.99	1.77	3164	3.91	3.52	3.13
8 1/2	1835	2.66	2.39	2.13	3165	4.68	4.21	3.74
10 1/2	1836	3.34	3.01	2.67	3166	5.90	5.31	4.72
12 1/2	1837	3.85	3.47	3.08	3167	6.80	6.12	5.44
14	1838	4.45	4.01	3.56	3168	7.85	7.06	6.28
15 1/2	1839	4.97	4.47	3.98	3169	8.76	7.88	7.01
17 1/2	1840	5.47	4.92	4.38	3170	9.67	8.70	7.74
19 1/2	1841	5.99	5.39	4.79	3171	10.57	9.51	8.46
21	1842	6.50	5.85	5.20	3172	11.48	10.33	9.18

### STANDARD 24" WIDE PANELS

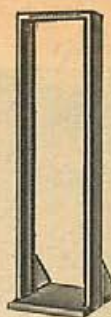
Ht., In.	STANDARD 19" WIDE PANELS				STANDARD 24" WIDE PANELS			
	Bud SFA-	Net Each	Lots of		Bud SFA-	Net Each	Lots of	
1 1/2	2451	\$1.90	\$1.71	\$1.52	3401	\$3.55	\$3.20	\$2.85
3 1/2	2452	2.50	2.25	2.00	3402	4.70	4.23	3.76
5 1/2	2453	3.30	2.97	2.64	3403	6.30	5.67	5.04
7 1/2	2454	4.20	3.78	3.36	3404	7.75	6.98	6.21
8 1/2	2455	4.90	4.41	3.92	3405	9.30	8.37	7.44
10 1/2	2456	5.90	5.33	4.96	3406	11.70	10.53	9.36
12 1/2	2457	7.00	6.30	5.60	3407	13.50	12.15	10.80
14	2458	8.20	7.38	6.60	3408	15.60	14.04	12.48
15 1/2	2459	9.20	8.28	7.36	3409	17.40	15.66	13.92
17 1/2	2460	10.00	9.00	8.00	3410	19.20	17.28	15.36
19 1/2	2461	11.00	9.90	8.80	3411	21.00	18.90	16.80
21	2462	12.00	10.80	9.60	3412	22.80	20.52	18.24

### RACK SHELVES

Heavy gauge steel shelves with 1" flange for rigidity and strength. Mount on chassis supporting angles in rack to hold power supplies, modulators, etc. Width 19". Black enamel finish.

Bud No.	Depth, Inches	Weight, Lbs.	Net Each, Lots of		
			1-24	25-49	50-99
CB-1976	15"	6 1/2	\$3.47	\$3.12	\$2.78
CB-1977	12"	5 1/2	2.64	2.38	2.11

## DELUXE TELEPHONE-TYPE RELAY RACKS



Sturdy open rack with extra strength and greater capacity. Upright U-member is unitize-welded with ventilation provided at top. Two panel-mounting rails, at front and rear, tapped 10-32 with W.E. spacing. Made of 12 ga. steel throughout. Chassis-type base drilled for RC-7756 casters. Triangular brackets hold uprights to base; holes provided on both sides for bolting racks together in "Add-A-Rack" manner. Add suffix **HG** for gray hammertone finish; **B** for black wrinkle; or **G** for gray wrinkle. Nos. RR-1367-RR-1369 have 20 1/2" base width and take 19" wide panels. Nos. RR-2467-RR-2469 have 25 1/2" base width and take 24" wide panels.

Bud No.	Height, Overall	Panel Space	Net Each, Lots of		
			1-9	10-14	15-19
RR-1367	64 3/4"	61 1/2"	\$35.50	\$31.95	\$28.40
RR-1368	73 3/4"	70"	36.25	32.63	29.01
RR-1369	80 3/4"	77"	43.00	38.70	34.40
RR-2467	64 3/4"	61 1/2"	45.00	40.50	36.00
RR-2468	73 3/4"	70"	46.00	41.40	36.80
RR-2469	80 3/4"	77"	54.50	49.05	43.60

## TELEPHONE-TYPE RELAY RACKS

Standard Models: 3" channels and crossbars of 1/4" steel. Base has chassis type bottom with side angles. Base drilled for RC-7756 casters. Black wrinkle (suffix "B") or gray hammertone (suffix "HG").

Heavy Duty Models RR-1265 and RR-1465: Two 3 1/2" x 5" x 3/4", 20 1/2" long angles form base. Steel channels are 3" x 1 1/2", 72 1/2" long. Cross bars are 1 1/2" x 2 1/2" angles. Panel holes tapped 12-24 with W.E. space. Black wrinkle finish only. Usually bolted to floor.

### FOR 19" WIDE PANELS

Bud No.	Height, Overall	Panel Space	Net Each, Lots of		
			1-9	10-14	15-19
RR-1263	35 3/4"	31 1/2"	\$21.71	\$19.53	\$17.37
RR-1363	40 3/4"	36 3/4"	21.96	19.76	17.57
RR-1264	70 3/4"	66 1/2"	24.80	22.32	19.84
RR-1364	75 3/4"	71 3/4"	25.13	22.62	20.10
RR-1366	81 1/4"	77"	29.98	26.98	23.98
RR-1265	72 1/4"	66 1/4"	54.78	49.30	43.82

### FOR 24" WIDE PANELS

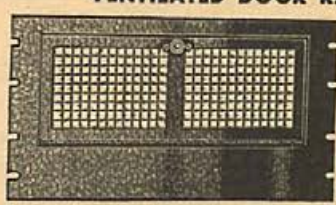
Bud No.	Height, Overall	Panel Space	Wt., Lbs.	Net Each, Lots of		
				1-14	15-24	25-34
RR-1463	35 3/4"	31 1/2"	15	\$28.00	\$25.20	\$22.40
RR-2463	40 3/4"	36 3/4"	18	29.00	26.10	23.20
RR-1464	70 3/4"	66 1/2"	6	32.00	28.80	25.60
RR-2464	75 3/4"	71 3/4"	7	33.00	29.70	26.40
RR-2466	81 1/4"	77"	8	39.00	35.10	31.20
RR-1465	72 1/4"	66 1/4"	7	71.00	63.90	56.80

## TABLE-MOUNT TELEPHONE RACK

Sturdy rack with chassis type base mounts heavy components on table where enclosures are not required. Panel mount rails recessed for flush mount of 19" panels. Shipped knocked down. Specify black wrinkle (suffix "B") or gray hammertone ("HG").

Bud No.	Height, Overall	Panel Space	Wt., Lbs.	Net Each, Lots of		
				1-14	15-24	25-34
RR-1248	24"	21"	15	\$9.10	\$8.19	\$7.28
RR-1249	31"	28"	18	11.19	10.07	8.95

## VENTILATED DOOR RACK PANELS



Generous perforated area in door provides adequate ventilation for adjacent units. Also features a newly designed plunger-type latch for positive locking and easy opening. Distance from hinged side of opening to bottom, 3 1/2"; from lock side of opening to top, 1". Available in black or gray wrinkle finish or gray hammertone finish (specify when ordering). 1/4" steel, 19" long.

Bud No.	Height, Overall	Door Size, Inches	Wt., Lbs.	Net Each, Lots of		
				1-49	50-99	100-149
PS-814	10 1/2"	15 3/4" x 6"	6	\$7.52	\$6.77	\$6.03
PS-815	12 1/2"	15 3/4" x 7 1/2"	7	8.27	7.44	6.62

## NON-VENTILATED METAL DOOR PANELS

Bud No.	Height, Overall	Door Size, Inches	Wt., Lbs.	Net Each, Lots of		
				1-49	50-99	100-149
PS-615	10 1/2"	15 3/4" x 6"	7 1/4	\$6.08	\$5.47	\$4.86
PS-616	12 1/2"	15 3/4" x 7 1/2"	8 1/4	7.52	6.77	6.02

## VENTILATING GRILLE PANELS

Substitute for solid panels for extra ventilation. Made of 1/4" steel with die-cut grille 13 1/2" wide. Standard notched 19" wide sizes. Specify black wrinkle (suffix B), gray wrinkle (suffix G), or gray hammertone (suffix HG).

Bud No.	Height, Overall	Grille Height	Wt., Lbs.	Net Each, Lots of		
				1-49	50-99	100-149
PS-808	5 1/4"	3 3/4"	2 1/2	\$3.26	\$2.93	\$2.61
PS-809	7"	4 3/4"	3 1/2	3.		





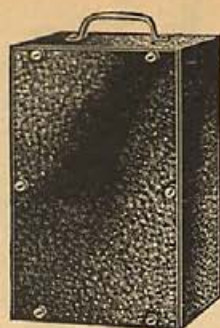
# Cabinets and Cases



A



B



C

## STREAMLINED CABINETS (FIG. A)

Ideal for housing devices not requiring excessive depth. Recessed, hinged cover with convenient finger lift for access. Panels fit flush with embossed, rounded corner fronts. Recommended for use with Bud Open End Chassis. Back opening 3 1/2" h. provides for cables or rear controls; louvered sides provide ample ventilation. Size: 8 1/2" d. x 8" h., overall. Specify black wrinkle (suffix "B"), gray wrinkle (suffix "G") or gray hammertone (suffix "HG") finish.

Bud No.	Width, Overall	Panel Space	Wt., Lbs.	Net Each, Lots of		
				1-24	25-49	50-99
CD-1480	10 1/2"	8" x 8"	5 3/4	\$ 5.90	\$ 5.31	\$ 4.72
CD-1481	12 1/2"	8" x 10"	6	6.01	5.41	4.81
CD-1482	14 1/2"	8" x 12"	6 1/2	6.31	5.68	5.05
CD-1483	16 1/2"	8" x 14"	7	6.77	6.09	5.42
CD-1484	18 1/2"	8" x 16"	7 3/4	7.36	6.62	5.89
CD-1485*	20 1/2"	12" x 18"	15	14.95	13.45	11.96

\*Depth is 12"; has 1/2" vertical chrome strip at corners.

## INSTRUMENT AND RECEIVER CABINETS (FIG. B)

Economy version of the Streamlined Cabinet series. Recessed, hinged cover provides access to contents. Front panel is attached with self-tapping screws. Louvers provide ample ventilation. Bud Open End Chassis are suited for use with these units. Black wrinkle finish only.

Bud No.	Size, Inches H. x W. x D.	Wt., Lbs.	Net Each, Lots of		
			1-24	25-49	50-99
C-973	7 x 8 x 8	5	\$4.18	\$3.76	\$3.34
C-993	7 x 10 x 8	5 1/2	4.84	4.36	3.87
C-994	7 x 12 x 8	5 3/4	5.01	4.51	4.01
C-995	7 x 14 x 8	6	5.26	4.73	4.21
C-1190	8 x 16 x 8	7	7.60	6.84	6.08
C-975	9 x 15 x 11	8	9.19	8.27	7.35
C-999	12 x 18 x 12	15	9.92	8.93	7.94

## CARRYING CASES (FIG. C)

A versatile cabinet that accepts a variety of equipment. Removable front and back panels; handle may be attached to top. Available in sturdy steel or lightweight aluminum to suit your requirements.

### STEEL CASES

Specify black wrinkle (suffix "B") or gray hammertone (suffix "HG") finish when ordering.

Bud No.	Size, Inches D. x W. x H.	Wt., Lbs.	Net Each, Lots of		
			1-24	25-49	50-99
CC-1095	5 x 6 x 9	3 1/4	\$3.01	\$2.71	\$2.41
CC-1091	5 x 9 x 6	3 3/4	3.01	2.71	2.41
CC-1096	6 x 7 x 12	4	4.18	3.76	3.34
CC-1092	6 x 12 x 7	4	4.18	3.76	3.34
CC-1097	7 x 7 3/4 x 15	5	4.68	4.21	3.74
CC-1100	8 x 10 x 10	5	4.84	4.36	3.87
CC-1093	7 x 15 x 9	5	5.85	5.27	4.68

### NATURAL FINISH ALUMINUM CASES\*

Bud No.	Size, Inches D. x W. x H.	Wt., Lbs.	Net Each, Lots of		
			1-24	25-49	50-99
ACC-2095	5 x 6 x 9	1 3/4	\$3.09	\$2.78	\$2.47
ACC-2091	5 x 9 x 6	1 3/4	3.09	2.78	2.47
ACC-2096	6 x 7 x 12	1 3/4	4.50	4.05	3.60
ACC-2092	6 x 12 x 7	1 3/4	4.50	4.05	3.60

### GRAY HAMMERTONE ALUMINUM CASES\*

Bud No.	Size, Inches D. x W. x H.	Wt., Lbs.	Net Each, Lots of		
			1-24	25-49	50-99
ACC-2095HG	5 x 6 x 9	1 3/4	\$3.51	\$3.16	\$2.81
ACC-2091HG	5 x 9 x 6	1 3/4	3.51	3.16	2.81
ACC-2096HG	6 x 7 x 12	1 3/4	5.09	4.58	4.07
ACC-2092HG	6 x 12 x 7	1 3/4	5.09	4.58	4.07

\*Aluminum alloy 5005 H-14.



D



E



F

## METAL UTILITY CABINETS (FIG. D)

Highly useful housing for all types of electronic equipment such as mixers, monitors, frequency meters, etc. Both front and back panels are removable for easy accessibility.

### STEEL CABINETS

Specify black wrinkle (suffix "B") or gray hammertone (suffix "HG") finish.

Bud No.	Size, Inches D. x W. x H.	Wt., Lbs.	Net Each, Lots of		
			1-49	50-99	100-149
CU-883	2 x 4 x 4	3/4	\$1.09	\$0.98	\$0.87
CU-728	3 x 5 x 4	3/4	1.22	1.10	.98
CU-729	4 x 5 x 6	1 1/2	1.38	1.24	1.10
CU-1098	6 x 6 x 6	2 1/2	2.09	1.88	1.67
CU-1099	5 x 6 x 9	3	2.34	2.11	1.87
CU-879	7 x 8 x 10	5	3.34	3.01	2.67
CU-1124	6 x 7 x 12	4	3.29	2.96	2.63
CU-880	8 x 10 x 10	5 1/2	4.01	3.61	3.21
CU-881	8 x 11 x 12	6	4.34	3.91	3.47
CU-882	7 x 9 x 15	7 1/2	4.51	4.06	3.61

### NATURAL FINISH ALUMINUM CABINETS\*

AU-1083	Size, Inches D. x W. x H.	Wt., Lbs.	Net Each, Lots of		
			1-49	50-99	100-149
AU-1083	2 x 4 x 4	3/4	\$1.29	\$1.16	\$1.03
AU-1028	3 x 5 x 4	3/4	1.37	1.23	1.10
AU-1029	4 x 5 x 6	1 1/2	1.50	1.35	1.20
AU-1039	6 x 6 x 6	2 1/2	2.17	1.95	1.74
AU-1040	5 x 6 x 9	1	2.51	2.26	2.01

### GRAY HAMMERTONE ALUMINUM CABINETS\*

AU-1083HG	Size, Inches D. x W. x H.	Wt., Lbs.	Net Each, Lots of		
			1-49	50-99	100-149
AU-1083HG	2 x 4 x 4	3/4	\$1.50	\$1.35	\$1.20
AU-1028HG	3 x 5 x 4	3/4	1.67	1.50	1.34
AU-1029HG	4 x 5 x 6	1 1/2	1.84	1.66	1.47
AU-1039HG	6 x 6 x 6	2 1/2	2.42	2.18	1.94
AU-1040HG	5 x 6 x 9	1	2.84	2.56	2.27

\*Aluminum alloy 5005 H-14.

## MINIATURE UTILITY CABINETS (FIG. E)

Ideal housing for construction of electronic devices using miniature tubes and transistorized circuitry. Front panel has a built-on chassis. Both front and rear panels are removable; fastened by self-tapping screws. Black wrinkle enamel finish.

Bud No.	Size, In. H. x W. x D.	Chassis W. x D., In.	Wt., Lbs.	Net Each, Lots of		
				1-49	50-99	100-149
C-1793	4 x 4 x 2	3 1/2 x 1 3/4*	1 1/4	\$1.34	\$1.21	\$1.07
C-1794	4 x 5 x 3	4 1/2 x 2 1/4*	1 1/4	1.48	1.33	1.18
C-1795	5 x 4 x 3	3 1/2 x 2 1/4*	1 1/4	1.62	1.46	1.30
C-1796	6 x 5 x 4	4 1/2 x 3 1/4*	1 1/2	1.70	1.53	1.36
C-1797	5 x 6 x 4	5 1/2 x 3 1/4*	1 1/2	1.92	1.73	1.54
C-1798	6 x 6 x 6	4 1/2 x 5 1/4*	2	2.17	1.95	1.74

\*1" high. †1 1/4" high. ‡1 3/4" high.

## STREAMLINED MULTI-PURPOSE CABINETS (FIG. F)

Attractive cabinet with curved corners; uses chassis No. CB-1625. Back is entirely open for ventilation. Finished in light gray wrinkle only.

Bud No.	Size, Inches H. x W. x D.	Wt., Lbs.	Net Each, Lots of		
			1-49	50-99	100-149
C-1787	4 1/2 x 5 1/2 x 3 1/2	1	\$1.70	\$1.53	\$1.36
C-1788	6 1/2 x 6 1/2 x 3 1/2	1 1/2	1.75	1.58	1.40

## UNIVERSAL SLOPING PANEL CABINETS

Fully enclosed and shielded housing with one-piece detachable back and sides fastened to body with four self-tapping screws. Components may be mounted on back, bottom, sides or front. Will accommodate Bud Miniature Aluminum Chassis. Size: 4" d. x 4 1/4" h. Gray hammertone finish only.



### ALUMINUM MODELS

Aluminum alloy 5005 H-14.

Bud No.	Uses Chassis	Width	Wt., Lbs.	Net Each, Lots of		
				1-49	50-99	100-149
AC-1610	CB-1617	4"	1 1/4	\$1.68	\$1.51	\$1.34
AC-1611	CB-1618	5"	1 1/2	1.75	1.57	1.40
AC-1612	CB-1619	6"	1 3/4	1.90	1.71	1.52
AC-1613	CB-1620	7"	2	2.10	1.89	1.68

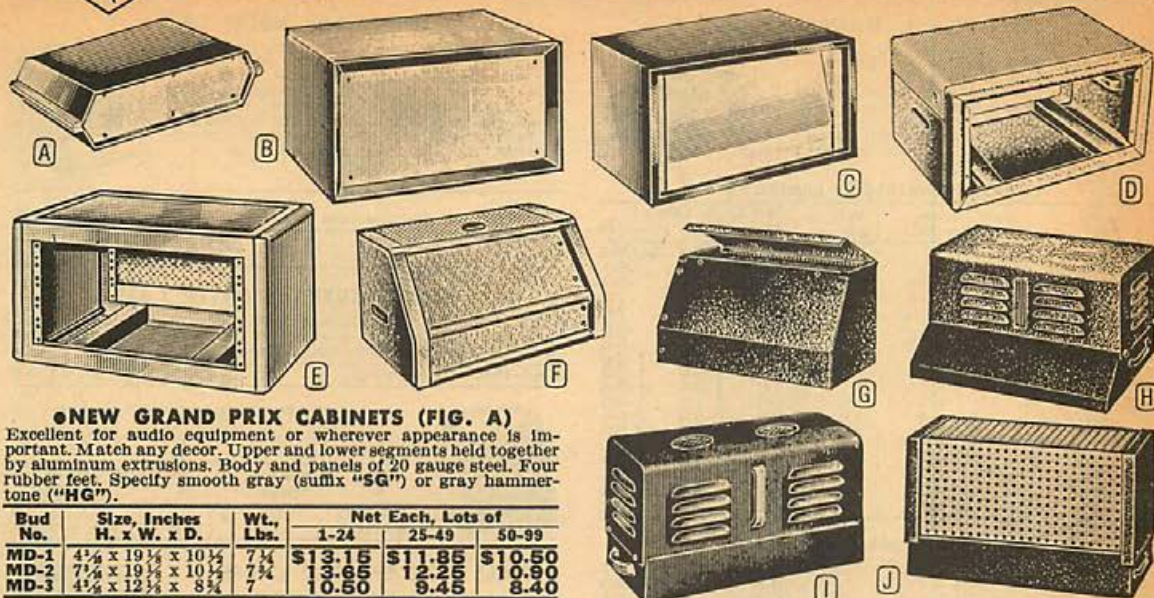
### STEEL MODELS

C-1606	Uses Chassis	Width	Wt., Lbs.	Net Each, Lots of		
				1-49	50-99	100-149
C-1606	CB-1617	4"	3/4	\$1.45	\$1.30	\$1.16
C-1607	CB-1618	5"	3/4	1.55	1.39	1.24
C-1608	CB-1619	6"	1 1/4	1.65	1.48	1.32
C-1609	CB-1620	7"	1 1/2	1.90	1.71	1.52





# Cabinets, Foundations



## NEW GRAND PRIX CABINETS (FIG. A)

Excellent for audio equipment or wherever appearance is important. Match any decor. Upper and lower segments held together by aluminum extrusions. Body and panels of 20 gauge steel. Four rubber feet. Specify smooth gray (suffix "SG") or gray hammer-tone ("HG").

Bud No.	Size, Inches H. x W. x D.	Wt., Lbs.	Net Each, Lots of		
			1-24	25-49	50-99
MD-1	4 3/4 x 19 1/4 x 10 1/2	7 3/4	\$13.15	\$11.85	\$10.50
MD-2	7 1/2 x 19 1/4 x 10 1/2	7 3/4	3.65	12.25	10.90
MD-3	4 1/2 x 12 1/2 x 8 1/2	7	10.50	8.45	8.40

## SHADOW CABINETS (FIG. B)

Versatile housing with removable front, bottom and rear panels. Front panel recessed 1". Rear edge of body is beveled. Body of 18 gauge and panels of 16 gauge steel. Four rubber feet. Available in light gray hammer-tone finish only.

Bud No.	Overall Size, In. W. x H. x D.	Uses Bud Chassis No.	Net Each, Lots of		
			1-24	25-49	50-99
SB-2140	14 1/4 x 8 x 10	AC-424, CB-704	\$6.50	\$5.85	\$5.20
SB-2141	13 1/4 x 7 1/4 x 9	AC-407, CB-1193	5.00	4.50	4.00
SB-2142	17 1/4 x 9 1/2 x 11	AC-411, CB-668	8.85	7.97	7.08
SB-2143	15 1/2 x 6 x 9	AC-409, CB-1194	4.85	4.37	3.98

## NEW FUTURA CABINETS (FIGS. B AND C)

Handsome housing of 20 and 18 gauge steel. Four rubber feet. Nos. MD-1960 thru -1962 (similar to Fig. B) have vertical front panel; others (Fig. C) have inclined front panel rising 2" vertically, then inclining 15°. Specify black (suffix "SB") or gray ("SG").

Bud No.	Size, Inches H. x W. x D.	Uses Bud Chassis No.	Net Each, Lots of		
			1-24	25-49	50-99
MD-1960	13 x 7 x 8	CB-40	\$ 7.50	\$6.75	\$6.00
MD-1961	14 x 8 x 9	CB-997	8.00	7.20	6.40
MD-1962	16 x 8 x 9	CB-998	8.30	7.50	6.65
MD-1963	13 x 7 x 8	CB-40	8.75	7.90	7.00
MD-1964	14 x 8 x 9	CB-997	9.35	8.40	7.50
MD-1965	16 x 8 x 9	CB-998	10.00	9.00	8.00

## STANDARD PRESTIGE CABINETS (FIG. D)

Has two supporting rails, laterally movable to fit any chassis width, and shielded handle slots. Finger holes in cover for easy lifting. Of 16 gauge steel. Takes 19" panels. With embossed feet. Size: 2 1/2" w. x 14 1/2" d. overall. Gray hammer-tone finish.

Bud No.	Height, Overall	Panel Space	Wt., Lbs.	Net Each, Lots of		
				1-14	15-24	25-34
C-1440	9 1/2"	7"	28	\$28.22	\$25.40	\$22.58
C-1441	11 1/2"	8 1/2"	27	32.22	28.22	24.05
C-1442	13 1/2"	10 1/2"	29	32.22	28.22	24.05
C-1550*	9 1/2"	7"	28	32.22	28.22	24.05
C-1551*	11 1/2"	8 1/2"	27	32.22	28.22	24.05
C-1552*	13 1/2"	10 1/2"	29	32.22	28.22	24.05

\*With perforated cover; others solid.

## PRESTIGE VERSA-CABINETS (FIG. E)

Sturdy framework with ball cornered sides, perforated back, solid bottom plate and two supporting channels. Front, back, top and bottom are removable for easy access; also accept 19" panels for full closure; top panel may be perforated. An opening, 1 3/4" x 19", across the bottom of the back is supplied for controls, knobs, leads, etc.; may be covered with PS-1260 or PA-1101 panels if desired. Sides may be removed to join one or more cabinets together, using holes in frame; units may also be stacked. Handles may be attached to side. Four rubber feet. Top may be closed, using PS-1256HG or PA-1107HG solid panels, PS-616HG or PS-815HG door panels, or PC-1710 perforated panel. Size: 23 1/2" w. x 15 1/2" d. overall. Gray hammer-tone finish. Weight, 28 to 35 lbs.

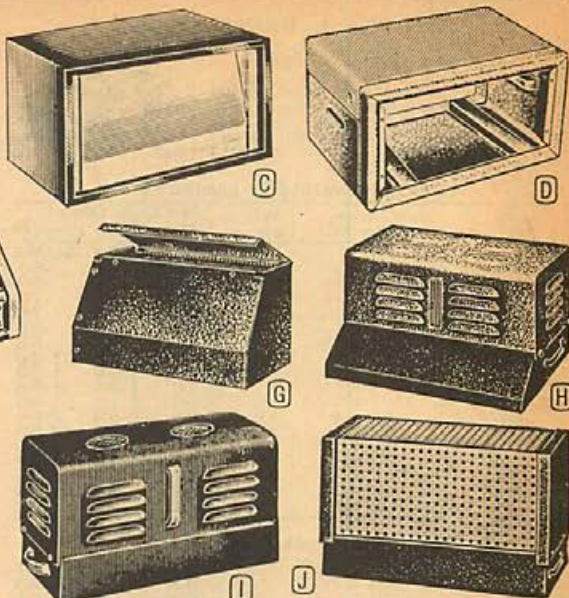
### VERSA-CABINETS

Bud No.	Height, Overall	Panel Space	Rear Panel	Net Each, Lots of		
				1-14	15-24	25-34
PC-1700	8 1/2"	5 1/2"	3 1/2"	\$27.25	\$24.52	\$21.80
PC-1701	10 1/2"	7"	5 1/2"	28.92	26.03	23.14
PC-1702	12 1/2"	8 1/2"	7"	30.75	27.67	24.80
PC-1703	14"	10 1/2"	8 1/2"	33.50	30.16	26.80
PC-1704	15 1/2"	12 1/2"	10 1/2"	35.25	31.72	28.20

### PERFORATED STEEL TOP PLATE

Bud No.	Size, In. W. x D.	Wt., Lbs.	Net Each, Lots of		
			1-49	50-99	100-149
PC-1710	12 1/2 x 19	2 1/2	\$2.70	\$2.43	\$2.16

• New product.



## PRESTIGE SLOPING PANEL CABINETS (FIG. F)

Ventilated top opens completely. Removable panel trim bar permits installation or removal of panels with chassis attached. Top panel is swept back for easy viewing. Takes standard 19" panels. Shielded lifting handles. Rear opening 2 1/2" x 18" for controls, etc.; panel recess 1 1/2"; bottom panel 3 1/2" high. Size: 22" w. x 9" top depth. Gray hammer-tone finish only. Weight, 26, 28 and 31 lbs.

Bud No.	Size, In. H. x D.	Slope Height	Net Each, Lots of		
			1-14	15-24	25-34
C-1555	11 1/2 x 14 1/2	7"	\$36.00	\$32.40	\$28.80
C-1556	13 1/4 x 15 1/2	8 3/4"	38.65	34.78	30.92
C-1557	14 1/2 x 16 1/2	10 1/2"	41.45	37.30	33.16

## SLOPING PANEL CABINETS (FIG. G)

Hinged top for easy access; front panel also removable. Specify black wrinkle (suffix "B") or gray hammer-tone (suffix "HG").

Bud No.	Size, Inches H. x W. x D.	Wt., Lbs.	Net Each, Lots of		
			1-24	25-49	50-99
C-1584	6 1/2 x 7 1/2 x 7 1/2	2 1/2	\$3.30	\$2.97	\$2.64
C-1587	8 x 8 1/2 x 8	2 1/2	4.51	4.06	3.61
C-1585	6 1/2 x 9 1/2 x 7 1/2	3	3.75	3.38	3.00
C-1588	8 x 10 1/2 x 8	3 1/2	5.01	4.51	4.01
C-1586	6 1/2 x 11 1/2 x 7 1/2	3 1/2	4.34	3.91	3.47
C-1894	8 x 14 1/2 x 8	4	5.34	4.81	4.27
C-1892	8 x 13 1/2 x 8 1/2	5 1/2	5.95	5.36	4.76
C-1896	9 x 18 1/2 x 8 1/2	7	7.68	6.91	6.14
C-1893	10 x 18 1/2 x 10 1/2	8 1/2	7.85	7.07	6.28

## SLOPING PANEL FOUNDATIONS (FIG. H)

Removable top cover mounted on 3 1/2" sloping front chassis. Cover gray wrinkle, chrome trim; black wrinkle chassis. Overall ht., 9 1/2".

Bud No.	Chassis W. x D.	Top Depth	Wt., Lbs.	Net Each, Lots of		
				1-24	25-49	50-99
CA-1980	10" x 8"	5"	5	\$ 8.68	\$ 7.81	\$6.94
CA-1981	12" x 10"	7"	6	9.35	8.42	7.48
CA-1982	17" x 10"	7"	8	10.69	9.62	8.55
CA-1983	17" x 13"	10"	10	11.19	10.07	8.95

## STREAMLINED FOUNDATIONS (FIG. I)

Attractive unit houses amplifiers and similar apparatus. Standard chassis with removable top cover with chrome trim. Sides and ends louvered. Handles attached to chassis. Overall height, 9"; chassis 2 1/2" high. Specify black wrinkle (suffix "B"), or gray wrinkle (suffix "G").

Bud No.	Size, In. W. x D.	Wt., Lbs.	Net Each, Lots of		
			1-24	25-49	50-99
CA-1750	10 1/2" x 5	4 1/2	\$6.76	\$6.08	\$5.41
CA-1751	12 1/2" x 7	5	8.02	7.22	6.42
CA-1752	17 1/2" x 7	8	8.52	7.67	6.82
CA-1753	17 1/2" x 10	9	9.27	8.34	7.42

## STANDARD FOUNDATIONS (FIG. J)

Standard chassis with perforated cover for maximum ventilation. Handles are attached to chassis. Chassis 2 1/2" h., except CA-1128, 3" h. Overall height, 8 1/2", except CA-1128, 8 1/4". Black wrinkle finish only.

Bud No.	Size, Inches W. x D.	Wt., Lbs.	Net Each, Lots of		
			1-24	25-49	50-99
CA-699	9 1/2" x 5 1/2"	3	\$5.61	\$5.05	\$4.49
CA-1125	13 1/2" x 5 1/2"	4 1/2	6.43	5.79	5.14
CA-1126	17 1/2" x 7 1/2"	6	7.26	6.53	5.81
CA-1128	12 1/2" x 10 1/2"	7	7.52	6.77	6.02





# Boxes, Baffles, Cases

## MINIBOXES, HANDY BOXES

Design of this box permits installation of more components than would be possible in the conventionally designed boxes the same size. Two-piece construction. Either snap-lock or screw type. The flange type construction assures adequate shielding. Made from heavy .040 ga. aluminum. Available in natural aluminum finish and gray hammertone finish.



### GRAY HAMMERTONE MINIBOXES

Bud No.	Size, Inches L. x H. x W.	Wt. Lbs.	Net Each, Lots of		
			1-49	50-99	100-149
CU-2100A	2 3/4 x 2 3/4 x 1 1/2	3/4	\$0.74	\$0.67	\$0.59
CU-2101A	3 3/4 x 2 3/4 x 1 1/2	3/4	.76	.68	.61
CU-2102A	4 x 2 3/4 x 1 1/2	3/4	.80	.72	.64
CU-2103A	4 x 2 3/4 x 2 3/4	3/4	.90	.81	.72
CU-2104A	5 x 2 3/4 x 2 3/4	3/4	.95	.86	.76
CU-2105A	5 x 4 x 3	3/4	1.20	1.08	.96
CU-2106A	5 1/4 x 3 x 2 3/4	3/4	1.02	.92	.82
CU-2107A	6 x 5 x 4	3/4	1.50	1.35	1.20
CU-2108A*	7 x 5 x 3	3/4	1.65	1.49	1.32
CU-2109A*	8 x 6 x 3 3/4	1 1/4	2.10	1.89	1.68
CU-2110A*	10 x 6 x 3 3/4	1 3/4	2.23	2.12	1.88
CU-2111A*	12 x 7 x 4	1 3/4	3.20	2.88	2.56
CU-2112A*	17 x 5 x 4	2 3/4	3.20	2.88	2.56
CU-2113A*	10 x 5 x 1 1/2	3/4	1.20	1.08	.96
CU-2114A*	12 x 3 1/2 x 2 3/4	3/4	1.50	1.40	1.24
CU-2115A	4 x 2 3/4 x 1 1/2	3/4	.92	.83	.74
CU-2116A	4 1/4 x 2 3/4 x 1 1/2	3/4	.97	.83	.74
CU-2117A	3 3/4 x 2 3/4 x 1 1/2	3/4	.78	.70	.62

\*.050" aluminum.

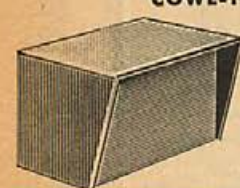
### NATURAL FINISH MINIBOXES

Bud No.	Size, Inches L. x H. x W.	Wt. Lbs.	Net Each, Lots of		
			1-49	50-99	100-149
CU-3000A	2 3/4 x 2 3/4 x 1 1/2	3/4	\$0.59	\$0.53	\$0.47
CU-3001A	3 3/4 x 2 3/4 x 1 1/2	3/4	.61	.55	.49
CU-3002A	4 x 2 3/4 x 1 1/2	3/4	.64	.58	.51
CU-3003A	4 x 2 3/4 x 2 3/4	3/4	.72	.65	.58
CU-3004A	5 x 2 3/4 x 2 3/4	3/4	.76	.68	.61
CU-3005A	5 x 4 x 3	3/4	.96	.86	.77
CU-3006A	5 1/4 x 3 x 2 3/4	3/4	.82	.74	.66
CU-3007A	6 x 5 x 4	3/4	1.20	1.08	.96
CU-3008A	8 x 5 x 3	3/4	1.32	1.19	1.06
CU-3009A	8 x 6 x 3 3/4	1	1.68	1.51	1.34
CU-3010A	10 x 6 x 3 3/4	1 1/4	1.88	1.69	1.50
CU-3011A	12 x 7 x 4	1 3/4	2.56	2.30	2.05
CU-3012A	17 x 5 x 4	2 3/4	2.56	2.30	2.05
CU-3013A	10 x 2 x 1 1/2	3/4	.96	.86	.77
CU-3014A	12 x 2 1/2 x 2 3/4	3/4	1.24	1.12	.99
CU-3015A	4 x 2 3/4 x 2 3/4	3/4	.74	.67	.59
CU-3016A	4 1/4 x 2 3/4 x 1 1/2	3/4	.74	.67	.59
CU-3017A	3 3/4 x 2 3/4 x 1 1/2	3/4	.62	.56	.50

Similar to Miniboxes in design and construction, except made of 22 gauge steel. Black wrinkle finish only. Screw type only.

HB-1621	4 1/4 x 2 3/4 x 1 1/2	3/4	\$1.15	\$1.04	\$0.92
HB-1622	4 x 2 x 2 3/4	3/4	1.17	1.05	.94

### COWL-TYPE MINIBOXES



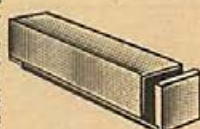
The cowl-type Minibox has a projecting cover to reduce glare on the panel from overhead lighting. It also provides protection for controls and dials. Cover has two box braces to which bottom is attached with sheet metal screws. When assembled, this type of construction results in a sturdy, rigid housing. Constructed of .040" aluminum and available in natural or light hammertone gray finish.

Bud No.	Overall Size, Inches			Net Each, Lots of		
	H.	W.	D.	1-49	50-99	100 & Over
SC-2110*	6	10	7	\$5.95	\$5.36	\$4.76
SC-2111*	7	12	8	6.50	5.85	5.20
SC-2112*	3	8	5	3.45	3.11	2.76
SC-2113*	5	5	5	3.60	3.24	2.88
SC-3030†	6	10	7	4.30	3.87	3.44
SC-3031†	7	12	8	4.70	4.23	3.76
SC-3032†	3	8	5	2.45	2.21	1.96
SC-3033†	5	5	5	2.60	2.34	2.08

\*Painted light gray hammertone. †Natural aluminum finish.

### MINISLIDES

Ideal for housing components or assemblies where easy access to internally mounted parts is important. Can be mounted in a number of positions in a rack or cabinet. Accessibility achieved by removing sliding cover. Design of Minislide Box provides adequate shielding and protection from dust. Sturdily made of .050 aluminum. 4 self-tapping fastening screws included. Choice of gray hammertone (GH) or natural aluminum (NA).



Bud No.	Finish	Size, Inches W. x D. x H.	Wt. Lbs.	Net Each, Lots of		
				1-49	50-99	100-149
MS-2150	(GH)	3 3/4 x 13 x 2 3/4	1	\$3.75	\$3.38	\$3.00
MS-2151	(GH)	5 1/4 x 13 x 2 3/4	1 1/4	4.30	3.87	3.44
MS-2152	(GH)	3 3/4 x 17 x 2 3/4	1 1/4	4.15	3.74	3.32
MS-3050	(NA)	3 3/4 x 13 x 2 3/4	1	2.85	2.57	2.28
MS-3051	(NA)	5 1/4 x 13 x 2 3/4	1 1/4	3.50	3.15	2.80
MS-3052	(NA)	3 3/4 x 17 x 2 3/4	1 1/4	3.35	3.02	2.68

## UNIVERSAL METER CASES

Center hole punched for 2" meters, plus easily removed knock-out ring to provide fit for 3" meters. Single piece detachable back and sides fastened to case with self-tapping screws for easy installation and servicing. Two 3/8" knock-out holes in top provide for installation of feed-through insulators, switches, volume controls, etc. Gray hammertone finish only. Size: 4 1/4" h. x 4" w. x 4" d.



Bud No.	Construction	Weight, Lbs.	Net Each, Lots of		
			1-49	50-99	100-149
CM-1935	Steel	1	\$1.22	\$1.10	\$0.98
CMA-1936	Aluminum	3/4	1.47	1.32	1.18

## WIDE UNIVERSAL METER CASE

Same as above, except extra wide to permit installation of small components along with a meter or accommodate a 4" meter. Made of 5005 H-14 aluminum. Size: 4 3/4" h. x 6" w. x 4" d.

CMA-1930	Aluminum	3/4	\$2.40	\$2.16	\$1.92
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## MINIATURE SPEAKER CASES

Safe, convenient steel housing for 2" and 3" speakers. Black wrinkle finish only.



Bud No.	For Size Speaker	Net Each, Lots of		
		1-24	25-49	50-99
CS-1685	2"	\$1.58	\$1.42	\$1.26
CS-1686	3"	1.58	1.42	1.26

## WALL TYPE SPEAKER CASES

Steel speaker cases for use on either wall or table. Will not warp or split. Not affected by weather or temperature conditions. All types have keyway holes for wall mounting, as well as embossed feet for table mounting. For speaker sizes from 4" to 12". Available in brown wrinkle enamel finish only.



Bud No.	For Speaker	Size, Inches H. x W. x D.	Wt. Lbs.	Net Each, Lots of		
				1-24	25-49	50-99
CS-1948	4"	7 1/2 x 6 1/2 x 4 1/4	1 3/4	\$2.67	\$2.40	\$2.14
CS-1939	5"	7 1/2 x 6 1/2 x 4 1/4	1 3/4	2.75	2.48	2.20
CS-1940	6"	9 1/2 x 8 x 5 1/4	3	3.26	2.93	2.61
CS-1941	8"	11 1/2 x 9 1/2 x 7 1/4	4	4.01	3.61	3.21
CS-1942	10"	13 1/2 x 11 1/2 x 8 1/4	5	5.01	4.51	4.01
CS-1943	12"	15 1/2 x 13 1/2 x 9 1/4	6	6.10	5.49	4.88

## UNIVERSAL SONANCE BAFFLES



Universal Enclosures Bud Adjustable Mount-Bracket (shown in Fig. A and listed below) permits adjustment to any angle in a horizontal position. Hole in bracket passes 3/8" conduit, permitting any of the speaker housings to be suspended from the ceiling. Bi-lateral feature permits sound to come from both front and back. Made of heavy gauge steel. Sound-deadening compound eliminates metallic resonance. All screws and nuts furnished for mounting speaker. No holes to drill. Light gray hammertone finish, except CS-2270, 71, 72 and 73, primer finish only.

### BAFFLES (FIG. A)

Bud No.	For Spkr. Dia., In.	Size, Inches H. x W. x D.	Net Each, Lots of			
			1-24	25-49	50-99	
CS-2240	4, 5	7 1/4 x 6 3/4 x 3 1/2	5	4.92	4.43	53.94
CS-2241	5, 5 1/2, 6	8 1/2 x 7 1/2 x 4	5	5.33	4.80	4.26
CS-2242	6, 8	10 1/2 x 9 1/2 x 5 1/2	8	8.58	7.72	6.86
CS-2243	10, 12	15 1/2 x 13 1/2 x 7 1/2	11	11.67	10.50	9.34
CS-2270	4, 5	7 1/4 x 6 3/4 x 3 1/2	4	4.58	4.12	3.66
CS-2271	5, 5 1/2, 6	8 1/2 x 7 1/2 x 4	4	4.84	4.36	3.87
CS-2272	6, 8	10 1/2 x 9 1/2 x 5 1/2	8	8.16	7.34	6.53
CS-2273	10, 12	15 1/2 x 13 1/2 x 7 1/2	11	11.15	10.04	8.92

### MOUNTING BRACKETS

Bud No.	For Baffle	Wt. Lbs.	Net Each, Lots of		
			1-24	25-49	50-99
AB-2250	CS-2240	1 3/4	\$1.14	\$1.03	\$0.91
AB-2251	CS-2241	1 3/4	1.14	1.03	.91
AB-2252	CS-2242	1 1/2	1.41	1.27	1.13
AB-2253	CS-2243	2 3/4	1.65	1.49	1.32

### RECESSED CEILING, WALL ENCLOSURES (FIG. B)

Suitable for an 8" speaker. Adjustable brackets make the housing ideal for old and new installations. Treated with sound deadening compound. Grille plate is a 14" square for use with acoustical tile ceiling. Depth, 4 1/4". Housing dimensions, 10" x 10" x 4".

Bud No.	Description	Wt. Lbs.	Net Each, Lots of		
			1-24	25-49	50-99
CS-2244	Gray housing with grille	8 3/4	\$10.00	\$9.00	\$8.00
CS-2274	Primer housing with grille	8 3/4	9.69	8.72	7.75
CS-2245	Gray grille plate only	4	2.20	1.98	1.76
CS-2275	Primer grille plate only	4	2.00	1.80	1.60





# Chassis and Accessories

## STEEL AND ALUMINUM CHASSIS BASES, PLATES



Steel



Aluminum



Heavy-Duty Steel

Each chassis is made from a single sheet of metal. All corners are reinforced and spot welded. Aluminum bases are welded on Government approved welders as used for aircraft parts; natural finish aluminum alloy 5005 H-14. All four sides are folded at the bottom for added rigidity and strength.

### STEEL CHASSIS BASES

Made of 20 gauge steel except as otherwise specified.

Size, Inches D. x W. x H.	Zinc Plated Finish			Black Wrinkle Finish		
	Bud CB-	Net Each, Lots of	1-24 25-49 50-99	Bud CB-	Net Each, Lots of	1-24 25-49 50-99
5 1/2 x 5 1/2 x 1	101*	\$1.47	\$1.32	\$1.18		
5 x 7 x 2	629*	1.30	1.17	1.04	628*	\$1.07
4 1/2 x 8 x 1 1/2	102*	1.60	1.44	1.28		
5 x 9 x 1 1/2	103*	1.40	1.26	1.12		
5 x 9 1/2 x 2 1/2	645*	1.67	1.50	1.34	644*	1.37 1.23 1.10
5 x 9 1/2 x 1 1/2	776*	1.69	1.52	1.35	788*	1.20 1.08 .96
5 x 10 x 3	605*	1.84	1.66	1.47	604*	1.27 1.14 1.02
5 x 13 x 3	105	2.30	2.07	1.84		
6 x 8 x 2	104	1.57	1.41	1.26		
6 x 14 x 3	756	2.05	1.85	1.64	755	1.75 1.58 1.40
7 x 7 x 2	1191	1.50	1.35	1.20	789	1.20 1.08 .96
7 x 9 x 2	1192	1.59	1.43	1.27	790	1.40 1.26 1.12
7 x 11 x 2	1193	1.67	1.50	1.34	791	1.45 1.31 1.16
7 x 12 x 3	793	2.05	1.85	1.64	792	1.57 1.41 1.26
7 x 13 x 2	1194	1.92	1.73	1.54	646	1.54 1.39 1.23
7 x 13 1/2 x 2 1/2	1198	2.17	1.95	1.74	647	1.77 1.59 1.42
7 x 15 x 3	1189	2.40	2.16	1.92	649	2.00 1.80 1.60
8 1/2 x 15 x 3	666	2.71	2.44	2.17	665	2.24 2.02 1.79
4 x 17 x 3	1066	2.14	1.93	1.71	1068	1.80 1.62 1.44
7 x 17 x 2 1/2	1199	2.37	2.13	1.90	648	1.99 1.79 1.59
7 x 17 x 3	758	2.59	2.33	2.07	757	2.15 1.94 1.72
8 x 10 x 2 1/2	702	2.02	1.82	1.62	701	1.72 1.55 1.38
8 x 12 x 2 1/2	704	2.24	2.02	1.79	703	1.75 1.58 1.40
8 x 12 x 3	760	2.34	2.11	1.87	759	1.85 1.67 1.48
8 x 17 x 2	774	2.34	2.11	1.87	650	1.70 1.53 1.36
8 x 17 x 3	775	2.62	2.39	2.10	651†	2.05 1.85 1.64
10 x 12 x 3	1195	2.25	2.03	1.80	652	1.89 1.70 1.51
12 x 12 x 3	706	3.34	3.01	2.67		
10 x 14 x 3	779	2.44	2.20	1.95	653	2.04 1.84 1.63
10 x 17 x 2	769	2.39	2.15	1.91	654†	2.00 1.80 1.60
10 x 17 x 3	637	2.84	2.57	2.27	636†	2.00 1.80 1.60
10 x 17 x 3	1196†	3.05	2.75	2.44	655†	2.54 2.29 2.03
10 x 23 x 3	1197†	3.42	3.08	2.74	656†	2.86 2.57 2.29
11 x 17 x 2	770†	2.81	2.53	2.25	657†	2.35 2.12 1.88
11 x 17 x 3	771†	3.49	3.14	2.79	658†	2.77 2.49 2.22
12 x 17 x 2	661†	3.09	2.78	2.47	663†	2.44 2.20 1.95
12 x 17 x 3	662†	3.67	3.30	2.94	664†	2.91 2.62 2.33
13 x 17 x 2	772†	3.72	3.35	2.98	659†	2.91 2.62 2.33
13 x 17 x 3	773†	4.07	3.66	3.26	660†	3.41 3.07 2.73
10 x 17 x 4	641†	3.51	3.16	2.81	640†	2.92 2.63 2.34
13 x 17 x 4	643†	4.68	4.21	3.74	642†	3.92 3.53 3.14
13 x 17 x 5	624†	5.34	4.81	4.27	623†	4.51 4.06 3.61
13 x 17 x 6	626†	5.93	5.34	4.74	625†	4.93 4.44 3.94

\*22 gauge. †Punched to accommodate chassis mounting brackets. ††18 gauge.

### STEEL CHASSIS BOTTOM PLATES

Protect wiring and keep out dust from chassis bottom. Four embossed feet. Two finishes to match chassis finish.

Fits Chassis Size, In. W. x L.	Zinc Plated Finish			Black Wrinkle Finish				
	Bud BP-	Net Each, Lots of	1-49 50-99 100-149	Bud BP-	Net Each, Lots of	1-49 50-99 100-149		
5 x 7	706	\$0.69	\$0.62	\$0.55	705	\$0.57	\$0.51	\$0.46
5 x 9 1/2	667	.75	.68	.60	680	.62	.56	.50
5 x 10	538	.73	.66	.58	536	.67	.60	.54
7 x 7	668	.97	.87	.78	681	.92	.83	.74
7 x 9	669	.99	.89	.79	682	.94	.85	.75
7 x 11	670	1.07	.96	.86	683	.95	.86	.76
7 x 12	539	1.12	1.01	.90	537	.99	.89	.79
7 x 13	671	1.20	1.08	.96	684	1.02	.92	.82
5 x 13 1/2	672	1.00	.90	.80	685	.84	.76	.67
4 x 17	1067	1.07	.96	.86	1069	.84	.76	.67
7 x 17	673	1.37	1.23	1.10	686	.90	.81	.72
8 x 10	708	1.05	.94	.84	707	.92	.83	.74
8 x 12	710	1.34	1.21	1.07	709	1.06	.95	.85
8 x 17	674	1.54	1.39	1.23	687	.95	.86	.76
10 x 12	675	1.57	1.41	1.26	688	.95	.86	.76
10 x 14	514	1.33	1.18	1.06	517	1.25	1.13	1.00
10 x 17	676	1.60	1.44	1.28	689	1.20	1.08	.96
11 x 17	677	1.60	1.44	1.28	690	1.20	1.08	.96
12 x 17	678	1.87	1.68	1.50	691	1.27	1.14	1.02
13 x 17	679	2.24	2.02	1.79	692	1.47	1.32	1.18

### HEAVY DUTY CHASSIS

Complete with 20 ga. bottom plate for uses requiring extra strength to hold heavy weights. Made of 16 ga. steel; 17" wide.

Size, In. D. x H.	Zinc Plated Finish			Black Wrinkle Finish				
	Bud CB-	Net Each, Lots of	1-24 25-49 50-99	Bud CB-	Net Each, Lots of	1-24 25-49 50-99		
8 x 3	1765	\$4.76	\$4.28	\$3.81	1758	\$4.26	\$3.83	\$3.41
11 x 3	1767	4.84	4.36	3.87	1760	4.34	3.91	3.47
13 x 2	1768	5.34	4.81	4.27	1761	4.84	4.36	3.87
13 x 3	1769	5.43	4.89	4.34	1762	4.93	4.44	3.94
13 x 4	1770	5.85	5.27	4.68	1763	5.26	4.73	4.21

### ALUMINUM CHASSIS BASES

Bud No.	Size, Inches D. x W. x H.	Ga.	Wt., Lbs.	Net Each, Lots of		
				1-24	25-49	50-99
AC-430	4 x 6 x 3	18	1 1/2	\$1.34	\$1.21	\$1.07
AC-431	4 x 6 x 2	18	1 1/2	1.10	.99	.88
AC-432	4 x 17 x 3	16	1 1/2	2.33	2.10	1.86
AC-402	5 x 7 x 2	18	1 1/2	1.17	1.05	.94
AC-429	5 x 7 x 3	18	1 1/2	1.42	1.28	1.14
AC-403	5 x 9 1/2 x 2	18	1 1/2	1.24	1.12	.99
AC-401	5 x 9 1/2 x 2 1/2	18	1 1/2	1.47	1.34	1.18
AC-421	5 x 9 1/2 x 3	18	1 1/2	1.60	1.44	1.28
AC-404	5 x 10 x 3	18	1 1/2	1.63	1.47	1.30
AC-422	5 x 13 x 3	18	1 1/2	1.84	1.68	1.47
AC-433	6 x 17 x 3	16	1 1/2	2.67	2.40	2.14
AC-405	7 x 7 x 2	18	1 1/2	1.35	1.22	1.08
AC-406	7 x 9 x 2	18	1 1/2	1.46	1.31	1.17
AC-407	7 x 11 x 2	18	1 1/2	1.58	1.42	1.26
AC-408	7 x 12 x 3	18	1 1/2	2.00	1.80	1.60
AC-409	7 x 13 x 2	18	1 1/2	1.67	1.50	1.34
AC-411	7 x 15 x 3	16	1 1/2	2.67	2.40	2.14
AC-423	7 x 17 x 3	16	1 1/2	2.75	2.48	2.20
AC-424	8 x 12 x 3	16	1 1/2	2.42	2.18	1.94
AC-425	8 x 17 x 2	16	1 1/2	2.51	2.26	2.01
AC-412†	8 x 17 x 3	16	1 1/2	2.84	2.56	2.27
AC-413	10 x 12 x 3	16	1 1/2	2.67	2.40	2.14
AC-414	10 x 14 x 3	16	1 1/2	2.84	2.56	2.27
AC-415	10 x 17 x 2	16	1 1/2	3.68	3.41	3.14
AC-416†	10 x 17 x 3	16	1 1/2	3.17	2.85	2.54
AC-426†	11 x 17 x 2	14	2 1/2	3.42	3.08	2.74
AC-417†	11 x 17 x 3	14	2 1/2	3.97	3.57	3.18
AC-418†	12 x 17 x 3	14	2 1/2	4.08	3.67	3.26
AC-419†	13 x 17 x 2	14	2 1/2	3.51	3.16	2.81
AC-420†	13 x 17 x 3	14	2 1/2	4.26	3.83	3.41
AC-427†	10 x 17 x 4	14	3 1/2	4.51	4.06	3.61
AC-428†	13 x 17 x 4	14	3 1/2	5.76	4.73	4.21

†Punched to accommodate chassis mounting brackets.

### ALUMINUM CHASSIS BOTTOM PLATES

Bud No.	Fits Chassis W. x L., In.	Wt., Lbs.	Net Each, Lots of		
			1-49	50-99	100-149
BPA-1589	5 x 7	1/2	\$0.74	\$0.67	\$0.59
BPA-1590	5 x 9 1/2	3/4	.75	.68	.60
BPA-1591	5 x 10	3/4	.75	.68	.60
BPA-1592	7 x 7	1/2	.77	.69	.62
BPA-1593	7 x 9	1/2	.80	.72	.64
BPA-1594	7 x 11	1/2	.90	.81	.72
BPA-1595	7 x 12	1/2	.97	.87	.78
BPA-1596	7 x 13	1/2	1.14	1.03	.91
BPA-1597	10 x 17	1/2	1.52	1.37	1.22
BPA-1598	13 x 17	3/4	2.07	1.86	1.66

### CHASSIS DECKS

Use in carrying cases, cabinets, etc.; deck is folded 1 1/2" over at front and 1 1/2" on sides. Black enamel finish only.

Bud No.	Size, In. W. x D.	Fits Cabinet Number	Net Each, Lots of		
			1-24	25-49	50-99
CB-522	4 1/4 x 5 1/2	CU-1098	68c	61c	54c
CB-523	4 1/4 x 4 1/2	CU-1099	65c	59c	52c
CB-525	5 1/2 x 5 1/2	CU-1124, CU-1096	78c	70c	62c

### CHASSIS SUPPORTING ANGLES

Distribute weight to sides of the rack to relieve the panel. Angles are 3" x 1 1/2" x 1/4" steel. Black enamel finish. No. CE-2219 designed for attachment to rails of Console Pedestal or Prestige Relay Racks. Slotted for infinite vertical adjustment; extend to full cabinet depth; 21" x 3" x 2 1/4".

Bud No.	Length, Inches	Weight, Lbs.	Net Per Pair, Lots of		
			1-24	25-49	50-99
SA-1349	14 1/2	4	\$2.25	\$2.03	\$1.80
SA-1350	12	3	2.17	1.95	1.74
CE-2219	21	7 1/2	3.00	2.70	2.40

### RACK SHELVES

Sturdily constructed of heavy-gauge steel. Have 1" flange to add rigidity and strength. Rest on chassis supporting angles. Available in black enamel finish only.

Bud No.	Size, Inches W. x D.	Weight, Lbs.	Net Each, Lots of		
			1-24	25-49	50-99
CB-1976	19 x 15	6 1/2	\$3.47	\$3.12	\$2.78
CB-1977	19 x 12	5 1/2	2.64	2.38	2.11

### DIAL LOCK

Dual purpose design functions as both dial lock and position indicator. Completely eliminates problems of dial slippage and accidental movement. Nickel-plated brass construction. Bud No. DL-1947 Dial Lock—Net Each..... 17c





# Cases, Racks, Chassis

## TRANSICASE PORTABLE INSTRUMENT CASES

Handsome, portable instrument case with unlimited applications. Contour design fabricated of .040" aluminum with flush-fitting aluminum panel. Foam-rubber lined lid protects instruments in case; mounted on two slide-off, bright nickel-plated hinges with toggle catches. Rubber feet at both base and back; metal plugs supplied to fill holes if rubber feet are not used. Bright nickel-plated handle. **Specify Color:** Add suffix **SB** for smooth blue; **SG**, for smooth gray enamel.



Bud No.	Inside Panel Size, Inches	Clear Internal Space		Internal Aperture	Overall Size, Inches W. x D. x H.	Wt., Lbs.	Net Each, Lots of		
		Below Panel	Above Panel				1-24	15-24	25-34
TC-300	8 1/2 x 5 1/2	4 1/2	1 1/2	8" x 5 1/2"	10 1/2 x 7 x 6	3 3/4	\$24.95	\$22.46	\$19.96
TC-301	10 1/2 x 7 1/2	4 1/2	1 1/2	9 1/2 x 7 1/2"	11 1/2 x 8 1/2 x 6	4 1/2	25.50	22.95	20.40
TC-302	11 1/2 x 7 1/2	5 1/2	1 1/2	10 1/2 x 7 1/2"	13 x 9 x 7 1/2	6	26.00	23.40	20.80
TC-303	15 1/2 x 7 1/2	5 1/2	1 1/2	14 1/2 x 7 1/2"	16 1/2 x 9 x 7 1/2	8	26.50	23.85	21.20
TC-304	19 x 7	7 1/2	1 1/2	18 1/2 x 7 1/2"	20 3/4 x 8 x 9	10	27.90	25.11	22.32

## DELUXE CABINET RACKS

Rounded corners, red-lined chrome trim. There is a recessed, hinged door on the top with a snap catch. These racks are made of heavy gauge steel and are of sturdy construction. The five large sizes have a hinged rear door, while the small sizes have a welded panel in the rear. Adequate ventilation is assured by means of louvered sides and a 2 1/4 inch opening in the bottom of the back extends the entire width. "NO-SCRATCH" EXTENDED METAL FEET ARE EMBOSSED ON THE BOTTOM. In black wrinkle (add suffix "B" to number when ordering), gray wrinkle (suffix "G"), and hammertone gray (suffix "HG"). Size: 14 1/2" x 22" w. Fits 19" panels. **Aluminum panel cover supplied.**



Bud No.	Height, Overall	Panel Space	Wt., Lbs.	Net Each, Lots of		
				1-14	15-24	25-34
CR-1726	8 1/2	7"	24	\$15.28	\$13.75	\$12.22
CR-1741	10 1/2	8 1/2"	28	16.70	15.03	13.36
CR-1740	12 1/2	10 1/2"	31	19.12	17.21	15.30
CR-1742	14 1/2	12 1/2"	32	20.12	18.11	16.10
CR-1739	15 1/2	14"	35	21.96	19.76	17.57
CR-1743*	19 1/2	17 1/2"	40	26.22	23.60	20.98
CR-1727*	22 1/2	21"	43	28.06	25.25	22.45
CR-1744*	28 1/2	26 1/4"	51	30.14	27.13	24.11
CR-1728*	33 1/2	31 1/2"	58	31.98	28.78	25.58
CR-1745*	36 1/2	35"	63	33.65	30.29	26.92

\*These sizes have both top and rear doors.

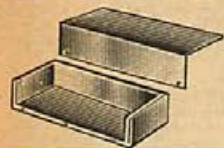
## HEAVY-DUTY CABINET RACKS

Similar to above units with Add-A-Cab feature (similar to Add-A-Rack) for continuously expanding systems. Panel mounting rails are integral part of the sides. Removable rear door. Louvered sides and 2 1/4" x 17 1/2" opening in the bottom of the back assure adequate ventilation. Made of 16 ga. steel. Gray hammertone finish; black or gray wrinkle at 10% additional charge. Size: 17 1/2" d. x 22" w.

Bud No.	Size, Inches H. x W. x D.	Wt., Lbs.	Net Each, Lots of			
			1-24	25-49	50-99	
CR-1736	24 1/2	19 1/2	50	\$26.65	\$23.98	\$21.32
CR-1737	31 1/2	26 1/2	57	28.75	25.87	23.00
CR-1738	40 1/2	35"	70	34.15	30.73	27.32
ACR-1936	Add-A-Cab for CR-1736	42	25.40	22.86	20.32	
ACR-1937	Add-A-Cab for CR-1737	52	27.40	24.66	21.92	
ACR-1938	Add-A-Cab for CR-1738	57	32.55	29.29	26.04	

## CONVERTA-BOXES

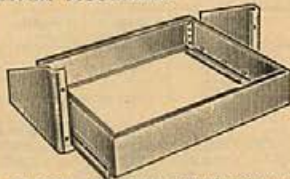
Versatile enclosure combines welded base and two-sided cover. Components or controls are easily mounted to any surface of the unit. All contents easily accessible. Cover and base are fastened by self-tapping screws. Rigid 20 ga. cadmium-plated steel.



Bud No.	Size, Inches H. x W. x D.	Wt., Lbs.	Net Each, Lots of		
			1-24	25-49	50-99
CU-341	1 1/2 x 4 x 3	1 1/2	\$1.90	\$1.71	\$1.52
CU-452	2 x 5 x 4	1	2.00	1.80	1.60
CU-482	2 x 8 x 4	1 1/2	2.09	1.88	1.67
CU-592	2 1/2 x 9 1/2 x 5	1 1/2	2.25	2.03	1.80
CU-622	2 1/2 x 12 x 6	2 1/2	2.50	2.25	2.00
CU-712	2 1/2 x 15 x 7	3 1/2	3.34	3.01	2.67

## SLIDING DRAWER ASSEMBLY

Ideal for use as a record player mounting base, typewriter base, apparatus and instrument base, writing desk, etc. Installs quickly and simply in any standard rack. Can't fall out or tilt. Provides a completely safe mounting base for anything put on it. Ball bearing suspension for easy sliding. Chassis formed from one-piece 14 gauge aluminum; electro-welded. Support brackets formed from one-piece 1/2" aluminum. Slide rail fastens securely to chassis, slides in and out easily on channelled ball bearings. Stop screw on slide rail prevents drawer from falling out of channel. Support brackets and channel finished in natural aluminum; chassis, slide and plate finished in light gray hammertone. Will support up to 50 lbs. Chassis Size: 16 1/2" x 14" x 3", with 1/2" flange top and bottom. \*Fastens to top or bottom.



Bud No.	Description	Wt., Lbs.	Net Each, Lots of		
			1-14	15-24	25-34
SD-1747	Sliding drawer	5	\$11.43	\$10.29	\$9.14
TP-1718	Drawer plate*	1 1/2	2.56	2.30	2.05

## OPEN-END CHASSIS

Primarily intended to be used with the various sizes and styles of Bud metal cabinets, these chassis are ideal for any type of small built-up unit such as a record amplifier, code oscillator, etc. U-shaped construction is used with ends folded over 1/4" for additional strength. This unit is natural finish aluminum alloy 5005 H-14.



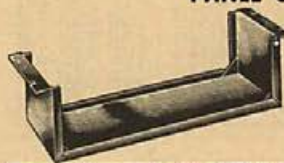
Bud No.	Size, Inches D. x W. x H.	Fits Cabinet Number	Net Each, Lots of		
			1-24	25-49	50-99
CB-38	7 x 6 x 2	C-1584	\$1.00	\$0.90	\$0.80
CB-30	5 x 7 x 1 1/2	.....	.97	.87	.78
CB-41	7 x 7 x 1 1/2	C-973	1.24	1.12	.99
CB-39	7 x 8 x 2	C-1585	1.17	1.05	.94
CB-996	5 1/2 x 9 x 1 1/2	C-993	1.09	.98	.87
CB-976	7 1/2 x 9 x 1 1/2	C-999, CD-1481	1.40	1.26	1.12
CB-40	7 x 10 x 2	C-1586	1.37	1.23	1.10
CB-997	7 x 11 x 1 1/2	C-994, CD-1482	1.30	1.17	1.04
CB-998	7 x 13 x 1 1/2	C-995, CD-1483	1.59	1.43	1.27

## MINIATURE ALUMINUM CHASSIS

Small versions of above with 1/4" flange on bottom for bottom plate or fastening. Ideal for limited space uses. Natural finish.

Bud No.	Size, Inches D. x W. x H.	Fits Cabinet Number	Net Each, Lots of		
			1-24	25-49	50-99
CB-1623	2 1/2 x 2 1/2 x 1 1/2	.....	\$0.38	\$0.34	\$0.30
CB-1624	1 3/4 x 3 1/4 x 1	CU-883	.42	.38	.34
CB-1625	3 1/4 x 4 1/2 x 2	C-1788	.48	.43	.38
CB-1626	2 1/4 x 4 1/4 x 1	CU-728	.45	.41	.36
CB-1627	3 1/4 x 4 1/4 x 1 1/2	CU-729	.45	.41	.36
CB-1628	3 x 6 1/2 x 1 1/4	C-1788	.53	.48	.42
CB-1629	5 1/2 x 4 1/4 x 1 1/2	CU-1098	.57	.51	.46
CB-1617	4 x 3 1/2 x 1	C-1608, C-1610	.41	.37	.33
CB-1618	4 x 4 1/2 x 1	C-1607, C-1611	.50	.45	.40
CB-1619	4 x 5 1/2 x 1	C-1608, C-1612	.53	.48	.42
CB-1620	4 x 6 1/2 x 1	C-1609, C-1613	.55	.50	.44

## PANEL CHASSIS



Panel mounting chassis for vertical installation where depth is limited or front service is desired. Made of .062" aluminum alloy 5005 H-14 in natural finish. Front flange has standard notching. Fits standard 19" panel space.

Bud No.	Height, Inches	Weight, Lbs.	Net Each, Lots of		
			1-24	25-49	50-99
CB-1370	1 1/2	1 1/2	\$2.30	\$2.07	\$1.84
CB-1371	3 1/2	1 1/2	5.59	5.33	5.07
CB-1372	7 1/2	1 1/2	10.84	10.33	9.82
CB-1373	7 1/2	2 1/2	10.76	10.25	9.74
CB-1374	8 1/2	2 1/2	10.98	10.47	9.96
CB-1375	10 1/2	2 1/2	4.43	4.36	4.29
CB-1376	12 1/2	3	4.84	4.66	4.48
CB-1377	14	3 1/2	5.34	4.81	4.27

## CHASSIS MOUNTING BRACKETS

Mounts chassis to panels, essential when panel supports entire chassis weight. Heavy gauge steel 6 1/2" high, cut away at bottom to mount flush to panel. Black enamel finish.

Bud No.	Depth, In.	Net Per Pair, Lots of		
		1-49	50-99	100-149
MB-458	8	\$1.09	\$0.98	\$0.87
MB-448	10	1.35	1.22	1.08
MB-459	11	1.50	1.35	1.20
MB-449	12	1.75	1.58	1.40
MB-460	13	1.69	1.52	1.35
MB-450*	10	1.97	1.77	1.58
MB-451*	13	2.09	1.88	1.67

\*8 1/2" high for chassis height of 4".



## TRIANGULAR MOUNTING BRACKETS

Ideal for rigid support of shelves to take heavy loads. Heavy gauge steel with 3/4" flange. Black enamel finish only.

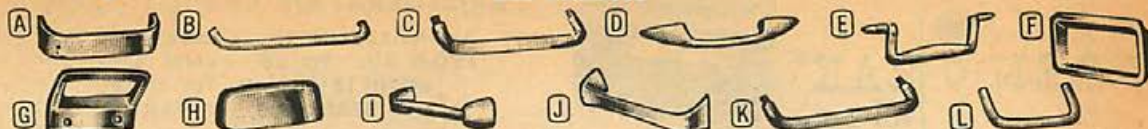
Bud No.	Height, In.	Depth, In.	Wt., Lbs.	Net Per Pair, Lots of		
				1-9	10-14	15-19
MB-1266	5	5	1	\$1.00	\$0.90	\$0.80
MB-1267	7	7	1	1.17	1.05	.94
MB-1268	9	9	1 1/2	1.42	1.28	1.14





# Cabinet Hardware

## BUD HANDLES



Fabricated from steel, brass or cast aluminum. Durable finish provides long wear and attractive appearance. Skin packed in pairs or bulk packed (priced singly) with all necessary mounting

hardware. Designed for rugged applications, they have unlimited use in electronic, electrical and other fields.

Bud No.	Fig.	Description	Net Per Pair, Lots of			Bulk Pack*: Net Each, Lots of		
			1-49	50-99	100-149	50-99	100-199	200-499
H-9100	A	1" x 1/2" chrome-plated solid brass; 4" x 1/2" mtg. ctrs.; 1" hand clearance; four 1/2" x 6-32 threaded screws	\$3.96	\$3.56	\$3.17	\$1.86	\$1.67	\$1.49
H-9101	A	Same, but 8" x 1/2" mtg. centers	6.15	5.54	4.92	2.90	2.61	2.33
H-9102	A	3/4" x 1/4" chrome-plated solid brass; 4" mtg. centers; 1" hand clearance; two 1/2" x 6-32 threaded screws	3.15	2.84	2.52	1.60	1.44	1.28
H-9103	A	Same, but has 6" mounting centers	3.60	3.24	2.88	1.70	1.53	1.36
H-9110	B	3/8" steel rod angular formed, chrome-plated; 6" mtg. ctrs.; 1 1/2" hand clearance; two 1/2" x 10-32 screws	2.79	2.51	2.23	1.06	.95	.85
H-9111	B	3/8" steel rod, chrome plated, 4" mtg. ctrs.; 1" hand clearance; two 1/2" x 10-32 threaded screws	1.50	1.35	1.20	.58	.52	.46
H-9112	B	6" mtg. center version of H-9111	1.89	1.70	1.51	.72	.65	.58
H-9113	B	8" mtg. center version of H-9111	2.10	1.89	1.68	.82	.74	.66
H-9114	B	1/2" steel rod, chrome-plated; 8" mtg. centers; 1 1/2" hand clearance; two 1/2" x 14-28 thd. screws	3.51	3.16	2.81	1.32	1.19	1.06
H-9115	C	3/8" steel rod, chrome-plated; 4" mtg. ctrs.; 1 1/2" hand clearance; two 1/2" x 10-32 thd. nuts	2.40	2.16	1.92	.96	.86	.77
H-9116	C	Same, but has 6" mtg. centers	3.00	2.70	2.40	1.14	1.03	.91
H-9120	D	Silver-anodized die-cast aluminum; 4 3/8" inside, 5 3/8" outside mtg. centers; 1" hand clearance; four 1/2" x 6-32 threaded screws	3.51	3.16	2.81	1.60	1.44	1.28
H-9121	D	Same, except chrome plated alloy	4.95	4.46	3.96	2.34	2.11	1.87
H-9123	D	Similar to H-9120 but 4 1/2" mtg. centers; 1" hand clearance; two 1/2" x 10-32 thd. screws	2.61	2.35	2.09	1.14	1.03	.91
H-9122	E	Silver-anodized die-cast aluminum; hinged on 1/4" steel pins with 2 hinge blocks; 6 1/2" inside, 7 1/2" outside mtg. centers; 1 1/2" hand clearance; four 3/8" x 10-32 threaded screws	5.94	5.35	4.95	2.82	2.54	2.26
H-9130	F	Silver-anodized die-cast aluminum; 3" mtg. centers; two 3/8" x 10-32 thd. screws; size 4 1/2" x 3"	5.25	4.73	4.20	2.50	2.25	2.00
H-9131	G	Silver-anodized die-cast aluminum; size 4" x 2 1/4"; 2 1/4" mtg. centers; two 3/8" x 14-28 thd. raised, counter-sunk screws and nuts	3.90	3.51	3.12	1.78	1.60	1.42
H-9140	H	Silver-anodized die-cast aluminum; 3 1/2" mtg. centers; 3/4" hand clearance; two 1/2" x 10-32 threaded screws	2.34	2.11	1.87	1.08	.97	.86
H-9150	I	Silver-anodized die-cast aluminum; 4" x 1/2" mtg. centers; 1 1/2" hand clearance; four 1/2" x 10-32 threaded screws	3.15	2.84	2.52	1.42	1.28	1.14
H-9151	J	Silver-anodized die-cast aluminum; 5 1/4" x 3/8" mtg. centers; 1 3/4" hand clearance; four 1/2" x 10-32 threaded screws	5.10	4.59	4.08	2.34	2.11	1.87
H-9152	J	Similar to above except 3 3/8" mtg. centers; 1 3/4" hand clearance; two 1/2" x 10-32 threaded screws	4.14	3.73	3.31	1.95	1.76	1.56
H-9160	K	Chrome-plated 3/8" steel rod; 3 1/2" mtg. centers; 1 1/2" hand clearance; two 1/2" x 28 hex nuts	2.70	2.43	2.16	1.02	.92	.82
H-9161	K	Same, but with 5 1/4" mounting centers	3.15	2.84	2.52	1.20	1.08	.96
H-9162	K	Same, but with 7" mounting centers	3.24	2.92	2.59	1.24	1.12	.99
H-9163	K	Same, but with 8 3/4" mounting centers	3.51	3.16	2.81	1.32	1.19	1.06
H-9164	K	Same, but with 10 1/4" mounting centers	3.96	3.56	3.17	1.35	1.22	1.08
H-9165	K	Same, but with 12 1/4" mounting centers	4.35	3.92	3.48	1.50	1.35	1.20
H-9166	L	Chrome-plated 1/4" brass rod; 1 1/2" mtg. centers; 1" hand clearance; two 1/2" x 6-32 thd. screws	1.20	1.08	.96	.54	.49	.43
H-9168	L	Same, but 3" mtg. centers; two 1/2" x 6-32 thd. screws	1.35	1.22	1.08	.58	.52	.46

\*Number shown is for skin packed pairs. For bulk packed handles (priced singly), add suffix B to number (example: H-9100B).

## CHASSIS SLIDES

### "SC" SERIES

#### Inside SC-4312

Precision built slides for smooth operation, long life under repeated movement conditions. Use with full 17" chassis in std. 19" panel rack or cabinet. Drilled for either panel rail bracket or direct slide rail mounting. Brackets and hardware supplied. Quick detach\* models permit change of instrumentation at point of use with infinitesimal delay in exchange. "SC" Series: For commercial uses where top quality and performance is required, but MIL spec is not. Load ratings conservative with plus factor of at least 2:1 under normal conditions.

"SI" Series: Adhere to MIL specifications for industrial or military requirements. Channels 707576 aluminum extrusions per QQ-A-277; parts of 302 stainless steel per MIL-S-5059A; bearings are 440 stainless steel per QQ-8-763. Aluminum-parts anodized per MIL-A-8625A; stainless steel parts passivated per MIL-S-5002. Lubricant is hi-low temp. grease per MIL-G-3278. Load rating extra conservative with plus factor of at least 3:1 under normal conditions.

Bud No.	Description	Load Cap. Per Pair	Net Each, Lots of		
			1-14	15-24	25-34
SC-4312	Full ball-bearing slide 12" long; 12" travel; height, 2"; inner members do not disconnect; 11/2" aluminum extrusions of 2014T8 per QQ-A-261; precision bronched for flawless operation	150 lbs.	\$27.15	\$24.45	\$21.70
SC-4316	Same, but 16" long; 16" travel	110 lbs.	29.10	26.20	23.30
SC-4320	Same, but 20" long; 20" travel	95 lbs.	31.80	28.60	25.45
SC-4412	Same, but outer track ball bearing, inner track dry lubricated friction type; quick detach facility; locks in extended position; height 2"; 12" long; 12" travel	150 lbs.	39.30	35.35	31.45
SC-4416	Same as SC-4412, but 16" long; 16" travel	110 lbs.	42.15	37.95	33.70
SC-4420	Same as SC-4412, but 20" long; 20" travel	95 lbs.	44.10	39.70	35.30
SC-4512	Quick detach, tilting slide with lock in extended position. Permits 90° tilt of chassis above and below horizontal position in 45° increments; height, 3 1/2"; 12" long; 12" travel	275 lbs.	56.25	50.65	45.00
SC-4516	Same, but 16" long; 16" travel	215 lbs.	60.90	54.80	48.70
SC-4520	Same, but 20" long; 20" travel	180 lbs.	64.65	58.20	51.70

### "SI" SERIES

SI-4212	Ball-bearing; 12" long; 12" travel; 3 1/2" high	275 lbs.	\$41.25	\$37.15	\$33.00
SI-4216	Same, but 16" long; 16" travel	225 lbs.	45.00	40.50	36.00
SI-4220	Same, but 20" long; 20" travel	180 lbs.	48.75	43.90	39.00
SI-4012	Same as SI-4212 except outer track ball bearing; inner, dry-lubricated friction type; quick disconnect; extended lock position	275 lbs.	48.75	43.90	39.00
SI-4016	Same, but 16" long; 16" travel	225 lbs.	53.40	48.15	42.80
SI-4020	Same, but 20" long; 20" travel	180 lbs.	59.10	53.20	47.30
SI-4112	Similar to SI-4012, but with tilting action 90° above and below horizontal in 45° increments	275 lbs.	64.65	58.20	51.70
SI-4116	Same, but 16" long; 16" travel	225 lbs.	69.30	62.35	55.45
SI-4120	Same, but 20" long; 20" travel	180 lbs.	72.15	64.95	57.70





# Premier Cabinet Racks

## PREM-O-RAK®

POR SERIES



### ARISTOCRAT OF CABINET RACKS

AVAILABLE IN 24 DIFFERENT SIZES  
FROM 3 1/2" TO 35" PANEL SPACES  
BOTH 15 1/4" AND 18" DEEP  
FOR STANDARD 19" PANELS

SHIPPED KNOCKED-DOWN WITH ALL NECESSARY HARDWARE FOR EASY ASSEMBLY, STORAGE AND SHIPPING

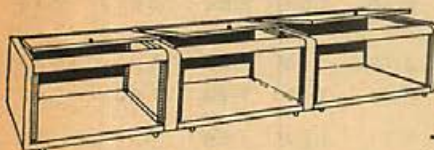
- Both front and rear of top have attractive ball corners.
- All screws for assembling PREM-O-RAK® are not visible from the outside.
- Both front and rear verticals are tapped for 10-32 machine screws on universal spacings so that panels may be mounted on both front and rear if desired.
- Interlocking removable rear panel and top made of perforated metal and held in place by captive screws.

- Rigidly constructed of #16 gauge steel.
- Rear panel has 3 1/4" opening on bottom for leads, etc.
- Panels fit into 1/4" recess.
- Base supplied with four rubber feet.
- Components may be mounted on base before assembly of rack into a complete unit.
- FINISHED IN TWO-TONE HAMMERTONE.  
Top cross braces and base are gray hammertone.  
Top and rear panel and side panels are brown hammertone.

ALL CABINETS ARE 21 1/4" WIDE

15 1/4" DEEP				18" DEEP			
Premier No.	Net Each	Sh. Wt., Lbs.	Overall Height	Panel Space	Premier No.	Net Each	Sh. Wt., Lbs.
POR-3	\$25.10	18	5 3/4"	3 1/2"	POR-318	\$26.40	20
POR-5	26.40	20	7 3/4"	5 1/4"	POR-518	29.10	22
POR-7	27.75	22	9 3/4"	7"	POR-718	30.70	24
POR-8	29.10	24	11 3/4"	8 3/4"	POR-818	32.25	26
POR-10	33.30	26	12 3/4"	10 3/4"	POR-1018	36.75	29
POR-12	40.05	28	14 3/4"	12 3/4"	POR-1218	40.00	31
POR-14	40.20	32	16 3/4"	14"	POR-1418	44.35	35
POR-17	47.85	40	19 3/4"	17 1/4"	POR-1718	52.70	44
POR-21	52.00	44	23 3/4"	21"	POR-2118	57.55	48
POR-26	66.15	45	28 3/4"	26 1/4"	POR-2618	61.85	49
POR-31	88.90	50	33 3/4"	31 1/4"	POR-3118	65.65	55
POR-35	62.40	55	37 3/4"	35"	POR-3518	68.80	60

### MULTIPLE SECTION FOR PREM-O-RAK DESK CABINETS

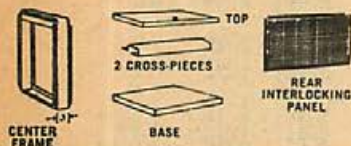


Prem-O-Rak Desk Cabinets can be joined together to make multiple units by means of a center frame section which is bolted to the top cross pieces and base. When ordering multiple units specify number of units, such as Double, Triple, etc.

Example: One Double POR-1218 consists of one POR-1218 and one MOR-1218.  
One Triple POR-8 consists of one POR-8 and two MOR-8.

Unit shown at left is one Triple POR-8 which consists of one POR-8 and two MOR-8.

Each Multiple Section (MOR Series) comprises six pieces as shown below.



15 1/4" Deep					18" Deep		
Premier No.	Shpg. Lbs.	Net Each	Overall Height	Panel Space	Premier No.	Shpg. Lbs.	Net Each
MOR-3	16	\$17.60	5 3/4"	3 1/2"	MOR-318	18	\$18.50
MOR-5	17	18.50	7 3/4"	5 1/4"	MOR-518	19	20.40
MOR-7	18	19.40	9 3/4"	7"	MOR-718	20	21.60
MOR-8	19	20.40	11 3/4"	8 3/4"	MOR-818	21	22.70
MOR-10	20	23.40	12 3/4"	10 3/4"	MOR-1018	23	25.85
MOR-12	21	25.30	14 3/4"	12 3/4"	MOR-1218	24	27.80
MOR-14	23	28.20	16 3/4"	14"	MOR-1418	26	31.10
MOR-17	31	33.55	19 3/4"	17 1/4"	MOR-1718	34	37.00
MOR-21	33	36.45	23 3/4"	21"	MOR-2118	37	40.30
MOR-26	34	39.40	28 3/4"	26 1/4"	MOR-2618	38	43.35
MOR-31	36	41.25	33 3/4"	31 1/4"	MOR-3118	40	46.00
MOR-35	40	43.70	37 3/4"	35"	MOR-3518	44	48.20

### END PEDESTAL AND FOOT BRACE FOR DOUBLE UNIT ASSEMBLY



- Made of No. 18 gauge steel.
- Ball cornered.
- End Pedestal mounts to Work Top CWT Series or WTO Series.
- Foot Brace mounts to Pedestal Frame CPF Series and End Pedestal PE-901.
- Foot Brace can be mounted between two Pedestal Frames (CPF Series).
- Finished in brown hammertone.

#### END PEDESTAL

Premier No.	Shipping Wt.	Net Each
PE-901	25 lbs.	\$31.50

#### FOOT BRACE

Premier No.	Shpg. Wt. Lbs.	Used With	Net Per Pair
FB-801	3	22" wide work tops	\$8.92
FB-802	3 1/2	27" wide work tops	9.64

### 30° AND 45° WEDGE FRAMES



- Used in semi-circular arrangements when bolted to pedestal frames (CPF series) or rack frames (FA series).
- 16 gauge steel, completely welded throughout.
- Supplied with formed panel on rear. End panels (CEP series) can be mounted to the side of wedge frames.
- Finished in gray hammertone.

#### 30° WEDGE RACK FRAMES

Premier Number	Ht., In.	For Use With	Net Each
WED-30-42-22	48 3/4"	FA-42-22	\$122.10
WED-30-52-22	59 3/4"	FA-52-22	132.00
WED-30-61-22	67 3/4"	FA-61-22	138.60
WED-30-70-22	76 3/4"	FA-70-22	148.50
WED-30-77-22	83 3/4"	FA-77-22	155.10
WED-30-42-255	48 3/4"	FA-42-255	146.50
WED-30-52-255	59 3/4"	FA-52-255	154.44
WED-30-61-255	67 3/4"	FA-61-255	158.40
WED-30-70-255	76 3/4"	FA-70-255	171.60
WED-30-77-255	83 3/4"	FA-77-255	178.20

#### 30° WEDGE PEDESTAL FRAMES

Premier No.	Ht., In.	For Use With	Net Each
WED-30-101	29 3/4"	CPF-101	\$102.30
WED-30-102	36 3/4"	CPF-102	108.90

#### 45° WEDGE RACK FRAMES

Premier Number	Ht., In.	For Use With	Net Each
WED-45-42-22	48 3/4"	FA-42-22	\$125.40
WED-45-52-22	59 3/4"	FA-52-22	135.30
WED-45-61-22	67 3/4"	FA-61-22	141.90
WED-45-70-22	76 3/4"	FA-70-22	151.80
WED-45-77-22	83 3/4"	FA-77-22	158.40
WED-45-42-255	48 3/4"	FA-42-255	149.82
WED-45-52-255	59 3/4"	FA-52-255	157.30
WED-45-61-255	67 3/4"	FA-61-255	161.70
WED-45-70-255	76 3/4"	FA-70-255	174.90
WED-45-77-255	83 3/4"	FA-77-255	181.50

#### 45° WEDGE PEDESTAL FRAMES

Premier No.	Ht., In.	For Use With	Net Each
WED-45-101	29 3/4"	CPF-101	\$105.60
WED-45-102	36 3/4"	CPF-102	112.20

SEE INDEX FOR PREMIER SLIDES, BLOWERS AND FANS





# Premier Transmitter Racks

**HEAVY-DUTY RACKS FOR 19", 24" AND 30" PANELS WITH AND WITHOUT FRONT DOORS 18" AND 24" DEEP**

Racks are supplied without louvers on slides unless specified. Constructed of #16 gauge steel with #12 gauge bottom; welded throughout. Panel mounting angles are 1/4" thick; tapped 10-32 on E.L.A. spacings. Racks are supplied with or without louvers. Rear doors are hung on sturdy loose-jointed hinges and closed by a chrome handle. A rectangular cutout in bottom is made for leads, etc. Duplex receptacle and outlet box supplied in the back under the door. Tops and bottoms trimmed with red striped chrome molding. **Series RMA:** Has vertical rounded corner moldings. **Model RMA-7030:** Supplied with double rear doors and 3 point locking device. **Series FD:** Supplied with locking handle on front door; panel mounting angles adjustable to any distance from front by channel slides. **Finish:** Gray hammertone supplied. Also available in black wrinkle.



RMA



RMA-7030



FD

## RACKS WITHOUT DOORS 18" DEEP RACKS

Premier Number	Size, In. H. x W.	Panel Ht., In.	Wt., Lbs.	Net Each
RMA-3619	42 1/2 x 22	36 3/4	100	\$ 69.15
RMA-4219	48 1/2 x 22	42	130	81.00
RMA-6119	67 3/4 x 22	61 1/4	150	90.00
RMA-7618	76 1/2 x 22	70	170	105.84
RMA-7719	83 1/2 x 22	77	190	115.00

## RACKS WITH DOORS 18" DEEP RACKS

Premier Number	Size, In. H. x W.	Panel Ht., In.	Wt., Lbs.	Net Each
FD-3619	42 1/2 x 22	36 3/4	115	\$102.39
FD-4219	48 1/2 x 22	42	120	108.00
FD-6119	67 3/4 x 22	61 1/4	175	115.77
FD-7019	76 1/2 x 22	70	200	132.30
FD-7719	83 1/2 x 22	77	220	142.23

## 24" DEEP RACKS

Premier Number	Size, In. H. x W.	Panel Ht., In.	Wt., Lbs.	Net Each
RMA-3619-24	42 1/2 x 22	36 3/4	110	\$ 84.00
RMA-4219-24	48 1/2 x 22	42	180	93.05
RMA-6119-24	67 3/4 x 22	61 1/4	175	122.40
RMA-7618-24	76 1/2 x 22	70	200	132.30
RMA-7719-24	83 1/2 x 22	77	240	148.85
RMA-7030	76 1/2 x 33	70	240	191.85
RMA-2742	48 1/2 x 27	42	170	120.78
RMA-2761	67 3/4 x 27	61 1/4	210	137.58
RMA-2770	76 1/2 x 27	70	240	148.59
RMA-2777	83 1/2 x 27	77	270	165.39

## 24" DEEP RACKS

Premier Number	Size, In. H. x W.	Panel Ht., In.	Wt., Lbs.	Net Each
FD-3619-24	42 1/2 x 22	36 3/4	125	\$105.00
FD-4319-24	48 1/2 x 22	42	150	114.00
FD-6119-24	67 3/4 x 22	61 1/4	200	152.16
FD-7019-24	76 1/2 x 22	70	255	158.76
FD-7719-24	83 1/2 x 22	77	270	181.89
FD-2742	48 1/2 x 27	42	180	145.00
FD-2761	67 3/4 x 27	61 1/4	230	170.00
FD-2770	76 1/2 x 27	70	260	182.00
FD-2777	83 1/2 x 27	77	290	200.00

\*19" wide unless otherwise noted. †30" wide. ‡24" wide. §Shipping.



**MODULAR SQUARE CORNERED FRAMES FOR MULTIPLE INSTALLATIONS FOR 19", 24" AND 30" PANELS 18" AND 24" DEEP**

Frames accommodate flush side panels (FL Series) or rounded side panels (SP Series). Tops of front and rear are square. Made of No. 14 gauge steel, welded throughout. Supplied with two pair of No. 12 gauge steel panel mounting angles. Both legs of angle tapped 10-32 on E.L.A. spacings (3/8" - 3/8" - 1/2") to accommodate front panels and chassis support angles (CSA Series). Panel mounting angles are held in place at three points by 3/8" bolts, are adjustable. Top of frame is solid; round hole and five mtg. holes for EF Series Exhaust and IF Series Intake Fans. Frames may be ganged. Lead cutout at bottom. Doors can be mounted to front or rear of frame, and can be mounted left or right hand—knockouts for hinge and handle brackets. Holes for casters—CA-4 (2"), CA-5 (3") and CA-6 (double 2"). Gray hammertone finish.

## FRAMES AND DOORS

Frames and doors are sold separately. Doors are made of No. 16 ga. steel; mount either left or right hand by rotating 180°. Supplied blank. Louvers available at no extra charge. Slip-jointed hinges. Locking handle. Gray hammertone finish.

Frame Ht., In.	Panel Space, Inches	Width, In.	18" Deep Frames			24" Deep Frames			Doors			
			Premier Number	Shpg. Lbs.	Net Each	Premier Number	Shpg. Lbs.	Net Each	Premier Number	Size, Inches W. x H.	Shpg. Lbs.	Net Each
48 1/2	42 x 19	22	PRXA-42	48	\$ 46.80	PRXA-42-24	58	\$ 70.80	DF-42	21 1/2 x 45 1/4	20	\$26.40
58 1/2	52 1/2 x 19	22	PRXA-52	60	57.60	PRXA-52-24	72	78.00	DF-52	21 1/2 x 56 1/4	25	29.40
67 3/4	61 1/4 x 19	22	PRXA-61	70	71.70	PRXA-61-24	85	99.54	DF-61	21 1/2 x 64 1/4	28	33.60
76 1/2	70 x 19	22	PRXA-70	88	86.76	PRXA-70-24	108	118.56	DF-70	21 1/2 x 73 1/4	31	36.00
83 1/2	77 x 19	22	PRXA-77	100	88.56	PRXA-77-24	120	126.00	DF-77	21 1/2 x 80 1/4	34	38.40
67 3/4	61 1/4 x 24	27	PRXA-2761	100	80.58	PRXA-2761-24	134	112.38	DF-2761	26 1/2 x 64 1/4	34	39.60
76 1/2	70 x 24	27	PRXA-2770	104	95.58	PRXA-2770-24	140	123.00	DF-2770	26 1/2 x 73 1/4	38	43.50
83 1/2	77 x 24	27	PRXA-2777	116	100.20	PRXA-2777-24	156	128.76	DF-2777	26 1/2 x 80 1/4	41	45.00
67 3/4	61 1/4 x 30	33	PRXA-3361	122	85.56	PRXA-3361-24	162	118.80	DF-3361*	32 1/2 x 64 1/4	40	45.00
76 1/2	70 x 30	33	PRXA-3370	126	109.14	PRXA-3370-24	169	140.64	DF-3370*	32 1/2 x 73 1/4	45	50.50
83 1/2	77 x 30	33	PRXA-3377	142	110.76	PRXA-3377-24	190	143.52	DF-3377*	32 1/2 x 80 1/4	48	54.00

\*Double doors with 3-point locking device.

## SIDE PANELS

With vertical rounded corner. Sold individually—not as pairs. Made of No. 16 gauge steel. Gray hammertone finish.

Height, In.	15" Wide for 18" Deep Frames				21" Wide for 24" Deep Frames			
	Premier Number	Size, In. W. x Thk.	Shpg. Lbs.	Net Each	Premier Number	Size, In. W. x Thk.	Shpg. Lbs.	Net Each
48	SP-42	15 x 1 1/2	20	\$17.40	SP-42-24	21 x 1 1/2	22	\$22.50
58 1/2	SP-52	15 x 1 1/2	21	19.54	SP-52-24	21 x 1 1/2	25	24.58
67 3/4	SP-61	15 x 1 1/2	23	22.62	SP-61-24	21 x 1 1/2	28	27.12
76	SP-70	15 x 1 1/2	26	24.32	SP-70-24	21 x 1 1/2	31	29.18
83	SP-77	15 x 1 1/2	28	26.15	SP-77-24	21 x 1 1/2	34	31.50

One-pc. 16-ga. steel. Fits frame side recess; clips on. Gray hammertone.

Height, In.	15" Wide for 18" Deep Frames				21" Wide for 24" Deep Frames			
	Premier No.	To Fit Frame No.	Shpg. Lbs.	Net Each	Premier No.	To Fit Frame No.	Shpg. Lbs.	Net Each
48	FL-42	PRXA-42	19	\$15.66	FL-42-24	PRXA-42-24	21	\$20.46
58 1/2	FL-52	PRXA-52	21	17.72	FL-52-24	PRXA-52-24	24	22.50
67 3/4	FL-61	PRXA-61,	22	20.64	FL-61-24	PRXA-61-24,	27	24.90
		2761, 3361				2761-24, 3361-24		
76	FL-70	PRXA-70,	25	22.26	FL-70-24	PRXA-70-24,	30	26.88
		2770, 3370				2770-24, 3370-24		
83	FL-77	PRXA-77,	27	24.00	FL-77-24	PRXA-77-24,	33	29.00
		2777, 3377				2777-24, 3377-24		

## INDUSTRIAL DISCOUNTS

Apply to any Premier products listed in this catalog.

Total Price	Discount
Up to \$199.99	Net - 10%
\$200 to \$399.99	Net - 15%
\$400 to \$549.99	Net - 20%
\$550 to \$699.99	Net - 25%
\$700 to \$999.99	Net - 30%
\$1,000 to \$2,499.99	Net - 35%
\$2,500 or more	Net - 33 1/2%





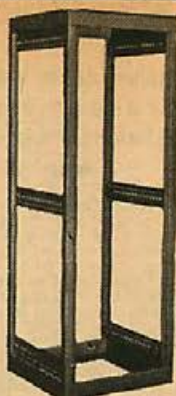
# Premier Modular Racks

## PREM-O-RAK® HEAVY-DUTY RACKS FOR 19" AND 24" PANELS

22" AND 25½" DEEP

FOR STANDARD  
19" RACK PANELS  
DESIGNED FOR  
MULTIPLE  
INSTALLATIONS  
AND FOR USE  
WITH PREM-O-RAK  
CONSOLE  
CABINETS

- Tops of front and rear are rounded.
- Frame made of 14 gauge steel.
- Accommodate ball cornered end panels (CEP Series)
- Supplied with two pair 12 gauge steel panel mounting angles tapped 10-32 on E.I.A. spacings (3/8"-3/8"-1/4") for front panels and chassis support angles.
- Panel mounting angles are held in place at three points by 3/8" bolts, and are adjustable on channel slides.
- Three combination 1 3/8" and 1 1/8" dia. knockouts on both sides of top and bottom.
- Frame completely welded throughout.
- Top of frame is solid; five mounting holes to accommodate EF Series Exhaust and IF Series Intake Fans available at additional cost.
- Knockouts on sides of uprights; cutout on bottom for leads.
- Doors can be mounted front or rear and left or right hand.
- Holes for CA-4 (2"), CA-5 (3") and CA-6 (double 2") casters.
- Gray hammertone finish.



### FRAMES—22" WIDE

Height, Inches	Panel Space, Inches	22" Deep Models			25½" Deep Models		
		Premier No.	Shpg. Wt.	Net Each	Premier No.	Shpg. Wt.	Net Each
48 3/4	42 x 19	FA-42-22	50 lbs.	\$ 78.00	FA-42-255	58 lbs.	\$ 81.96
59 1/4	52 1/2 x 19	FA-52-22	65 lbs.	84.60	FA-52-255	75 lbs.	88.80
67 1/4	61 1/4 x 19	FA-61-22	80 lbs.	95.85	FA-61-255	92 lbs.	105.60
76 3/4	70 x 19	FA-70-22	100 lbs.	112.44	FA-70-255	115 lbs.	123.60
83 3/4	77 x 19	FA-77-22	110 lbs.	115.59	FA-77-255	127 lbs.	127.20

### FRAMES—27" WIDE

Height, Inches	Panel Space, Inches	27" Deep Models			25½" Deep Models		
		Premier No.	Shpg. Wt.	Net Each	Premier No.	Shpg. Wt.	Net Each
67 3/4	61 1/4 x 24	FA-2761-22	90 lbs.	\$105.00	FA-2761-255	98 lbs.	\$114.60
76 3/4	70 x 24	FA-2770-22	110 lbs.	123.60	FA-2770-255	123 lbs.	135.60
83 3/4	77 x 24	FA-2777-22	120 lbs.	126.00	FA-2777-255	135 lbs.	138.00

### END PANELS—1-11/32" DEEP

Made of one-piece 16 ga. steel; ball cornered. Attach to frame by a bracket on bottom; held securely by two captive screws on top. Supplied blank. Louvers furnished at no extra charge. Brown hammertone finish.

#### 22" WIDE

Premier Number	Height, In.	Shpg. Wt., Lbs.	Net Each
CEP-42-22	45 1/4	23	\$18.90
CEP-52-22	55 3/4	27	22.70
CEP-61-22	64 1/4	30	25.20
CEP-70-22	73 1/4	33	27.10
CEP-77-22	80 1/4	35	29.30

#### 25½" WIDE

Premier Number	Height, In.	Shpg. Wt., Lbs.	Net Each
CEP-42-255	45 1/4	28	\$22.05
CEP-52-255	55 3/4	32	25.85
CEP-61-255	64 1/4	35	27.75
CEP-70-255	73 1/4	38	30.25
CEP-77-255	80 1/4	40	32.20

### DOORS—13/16" DEEP

Mount either left or right by rotating 180°; hang on slip-jointed hinges; equipped with locking handle. Made of 16 ga. steel. Supplied blank. Louvers furnished at no extra cost. Gray hammertone finish.

#### 21½" WIDE

Premier Number	Height, In.	Shpg. Wt., Lbs.	Net Each
DF-42	45 1/4	20	\$26.40
DF-52	56 1/4	25	29.40
DF-61	64 1/4	28	33.60
DF-70	73 1/4	31	36.00
DF-77	80 1/4	34	38.40

#### 26½" WIDE

Premier Number	Height, In.	Shpg. Wt., Lbs.	Net Each
DF-2761	64 1/4	34	\$39.60
DF-2770	73 1/4	38	43.50
DF-2777	80 1/4	41	45.00

### FLUSH DOORS—½" DEEP

For Prem-O-Rak console frames GPF, FS, FA and PRXA. Made of 16 gauge steel. Finished in brown or gray hammertone. Mount either left or right hand by rotating 180°. Hinged brackets punched for panel mounting angles on cabinets. Round, chrome-plated handle; snap catch.

Premier Number	Size, In. H. x W.	Shpg. Wt., Lbs.	Net Each
CD-17	17 1/4 x 19	7	\$11.90
CD-21	21 x 19	8	12.85
CD-26	26 1/4 x 19	9	14.40
CD-28	28 x 19	10	15.10
CD-29	29 1/4 x 19	11	15.75
CD-42	42 x 19	16	25.65



## PREM-O-RAK® 10½" AND 17½" SLOPED FRONT CONSOLE FRAMES FOR 19" AND 24" PANELS

- Tops of front and rear are rounded.
- Designed for multiple installation.
- Made of No. 14 gauge steel.
- Sloped front is 19° from vertical.
- Panels fit into 1/4" recess.
- Finished in gray hammertone.
- Frame is completely welded throughout.
- All panel mounting angles are made of No. 12 gauge steel and tapped 10-32 on E.I.A. spacings; front and rear vertical angles are adjustable to any desired position.
- A rectangular cutout is provided in the bottom for leads, etc.
- Holes punched in bottom to accommodate CA-4 (2") and CA-5 (3") casters.

Premier Number	Size, Inches W. x D. x H.	Sloped Front Panel Space, In.	Vertical Space, In.		Shpg. Wt. Lbs.	Net Each
			Front	Rear		
FS-1001	22 x 22 x 50	17 1/2 x 19	26 1/4 x 19	42 x 19	66	\$80.40
FS-1002	22 x 22 x 47	10 1/2 x 19	29 3/4 x 19	42 x 19	64	78.00
FS-1003	27 x 22 x 50	17 1/2 x 24	26 1/4 x 24	42 x 24	70	88.20
FS-1004	27 x 22 x 47	10 1/2 x 24	29 3/4 x 24	42 x 24	74	86.40

### END PANELS FOR SLOPED FRONT FRAMES

- One-piece No. 18 gauge steel; brown hammertone finish.
- Ball cornered, 1 1/8" deep.
- End panels are attached to frame by means of a bracket on the bottom; held securely by two captive screws on top.
- Supplied blank. Louvers furnished at no additional charge.

Premier End Panels	Used for Frame	Shpg. Wt. Lbs.	Net Each
CEP-1201 LH	Left Side FS-1001 & 1003	20	\$18.50
CEP-1201 RH	Right Side FS-1001 & 1003	20	18.50
CEP-1202 LH	Left Side FS-1002 & 1004	18	18.90
CEP-1202 RH	Right Side FS-1002 & 1004	18	18.90

### TURRET WITH FLAT SIDE PANELS

No. 16 gauge steel. All panel openings tapped 10-32 on 3/8"-3/8"-1/4" spacings. Panels fit into 1/2" recess. Flat side panels assembled at factory. Gray hammertone frame; brown hammertone side panels.



TUR-3



TUR-1

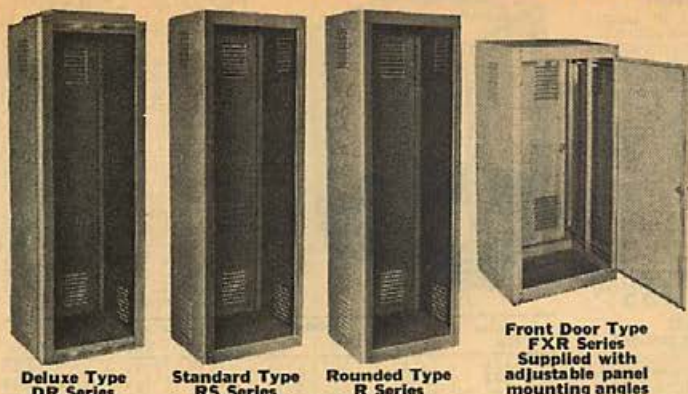
Premier No.	Size, In. W. x H. x D.	Panel Space, In.			Shpg. Lbs.	Net Each
		Front	Rear	Bottom		
TUR-1	22x9 3/4x21	14x19	7x19	14x19	25	\$40.00
TUR-3	22x12 1/4x17 1/4	17 1/2x19	8 3/4x19	17 1/4x19	20	34.80





# Premier Enclosed Relay Racks

FOR STANDARD 19" RACK PANELS



Front Door Type  
FXR Series  
Supplied with  
adjustable panel  
mounting angles

- Rigidly constructed of #16 gauge cold rolled sheet steel.
- Panel mounting angles are of #12 gauge steel and are tapped for 10-32 machine screws on E.I.A. spacings.
- Panels fit into a 1/4" recess so that the edges are not exposed.
- Rear doors are hung on sturdy slip-jointed hinges, and closed by a chrome handle.
- Locking handle with two keys available at additional cost.
- Holes punched in bottom to accommodate CA-4 casters.
- Cabinets finished in gray hammertone. Also available in black wrinkle.
- Racks are shipped knocked down with all necessary bolts for easy assembly.
- **Rounded Type** have front vertical rounded corners.
- **Standard Type** have square front vertical corners.
- **Deluxe Type**—The removable vertical corner moldings are rounded and cover the mounting screws. Top and bottom are trimmed with red striped chrome finished molding.
- **Front Door Type** has front vertical rounded corners and is supplied with locking chrome handle and two keys.

## MULTIPLE RACK UNITS

These racks can be joined together to make multiple units by means of a solid center partition which is bolted to the top and bottom. Each multiple section comprises a top, bottom, rear and center partition. On MXR Models, front door is also supplied. When ordering multiple units, specify number of units, such as double, triple, quad, etc.



Above unit is one double DR3619

Example:

- One Double DR-3619 consists of one DR-3619 and one DMR-3619.
- One Triple RS-3619 consists of one RS-3619 and two MR-3619.
- One Quad R-3619 consists of one R-3619 and three MR-3619.

## SPECIFY FINISH WHEN ORDERING RACKS ARE 22" WIDE X 18" DEEP

Type	Premier No.	Overall Height	Panel Space	Shipping Weight, Lbs.	Net Each
DELUXE	DR-3619	43 1/4"	36 3/4"	85	\$56.70
	DR-6119	67 3/4"	61 1/4"	135	89.30
	DR-7719	83 3/4"	77"	160	83.90
STANDARD	RS-3619	41 1/4"	36 3/4"	80	43.00
	RS-6119	66 3/4"	61 1/4"	120	64.00
	RS-7719	82 3/4"	77"	140	76.00
ROUNDED	R-3619	41 1/4"	36 3/4"	80	43.00
	R-4219	47 1/4"	42"	90	50.00
	R-6119	66 3/4"	61 1/4"	120	64.00
	R-7719	82 3/4"	77"	140	76.00
FRONT DOOR	FXR-3619	41 1/4"	36 3/4"	93	63.50
	FXR-4219	47 1/4"	42"	105	72.00
	FXR-6119	66 3/4"	61 1/4"	140	90.00
	FXR-7719	82 3/4"	77"	164	109.00

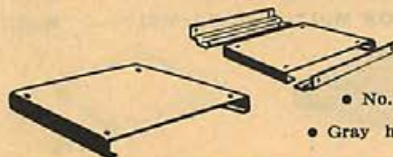
Type	Premier No.	Overall Height	Panel Space	Used With	Net Each
MULTIPLE RACK SECTIONS	DMR-3619	43 1/4"	36 3/4"	DR-3619	\$56.96
	DMR-6119	67 3/4"	61 1/4"	DR-6119	68.02
	DMR-7719	83 3/4"	77"	DR-7719	81.18
	MR-3619	41 1/4"	36 3/4"	R&RS-3619	41.50
	MR-4219	47 1/4"	42"	R&RS-4219	48.50
	MR-6119	66 3/4"	61 1/4"	R&RS-6119	62.50
	MR-7719	82 3/4"	77"	R&RS-7719	74.50
	MXR-3619	41 1/4"	36 3/4"	FXR-3619	61.00
	MXR-4219	47 1/4"	42"	FXR-4219	70.50
	MXR-6119	66 3/4"	61 1/4"	FXR-6119	88.50
	MXR-7719	82 3/4"	77"	FXR-7719	107.50

## PANEL MOUNTING ANGLES

1 1/4" x 1 1/4" x 1/4" thick steel, tapped 10-32 on E.I.A. spacings (3/8"-3/4"-1/2"). Gray hammertone finish.

Premier No.	To Fit Racks	Ht. In.	Net Pair
PMA-362	FD & RMA 3619, 3619-24	36 3/4"	\$11.55
PMA-422	FD & RMA 4219, 4219-24, 2742	42"	13.20
PMA-612	FD & RMA 6119, 6119-24, 2761	61 1/4"	16.50
PMA-702	FD-7019, 7019-24, 2770; RMA 7618, 7618-24, 7030, 2770	70"	18.50
PMA-772	FD & RMA 7719, 7719-24, 2777	77"	20.00

## "S" SERIES SHELVES



- Shelf and chassis support angles in position.

• No. 16 gauge steel.

• Gray hammertone finish.

Premier No.	Depth x Width, Inches	To Fit Frames W. x D.	Net Each
S-22-22	20 3/8" x 17 1/2"	22 x 22, FA	\$3.93
S-27-22	20 3/8" x 22 1/2"	27 x 22, FA	5.10
S-22-255	23 3/8" x 17 1/2"	22 x 25 1/2, FA	4.62
S-27-255	23 3/8" x 22 1/2"	27 x 25 1/2, FA	5.82
S-22-18	16 3/8" x 17 1/2"	22 x 18, PRXA	3.39
S-27-18	16 3/8" x 22 1/2"	27 x 18, PRXA	4.14
S-33-18	16 3/8" x 28 1/2"	33 x 18, PRXA	5.58
S-22-24	22 3/8" x 17 1/2"	22 x 24, PRXA	4.38
S-27-24	22 3/8" x 22 1/2"	27 x 24, PRXA	6.58
S-33-24	22 3/8" x 28 1/2"	33 x 24, PRXA	6.84

## CHASSIS SUPPORT ANGLES

No. 12 gauge steel. Accommodates shelf (S series). Mounts to tapped holes on side legs of panel mounting angles of FA and PRXA series. Gray hammertone finish.



Premier No.	Length, In.	To Fit Frames	Net Pair
CSA-18	16 1/2"	18" deep PRXA	\$4.50
CSA-22	20 1/2"	22" deep FA	5.00
CSA-24	22 1/2"	24" deep PRXA	5.25
CSA-255	23 1/2"	25 1/2" deep FA	5.50

## HEAVY DUTY RELAY RACK

Meets MIL-STD-189. Uprights and top cross straps 1/4" sheet steel. Base and brackets No. 12 gauge sheet steel. Base angle 2" x 2" x 1/4" steel. Panel mounting holes tapped 10-32 on 1 1/4"-1 1/2" spacings. Zinc chromate primer per MIL Spec. 6889A. Shipped knocked down and assembled with 1/4"-20 x 3/4" long hex head cap screws and nuts. Also available in heights up to 10 ft.; prices upon request.



Premier No.	Panel Space	Frame Height	Net Each
HDRR-6619	66 1/2"	71 1/2"	\$67.00
HDRR-7319	73 1/2"	78 1/2"	73.00
HDRR-7719	77 1/2"	82 1/2"	77.00





# Premier Modular Consoles



## PREM-O-RAK® CONSOLE SLOPING CABINET

May be used individually or joined together for multiple installations. Convenient design permits mounting components on base before rack is assembled into complete unit. Neat design has ball corners on front and rear; assembly screws are hidden from outside view. Both front and rear are tapped for 10-32 machine screws on E.I.A. spacings (3/4"-3/8"-3/4"). Interlocking removable rear panel is perforated metal, held in place by four captive screws; has 1 1/4" opening on bottom for leads, etc. Base has side knockouts for leads; furnished with four rubber feet. Panels fit into 1/2" recess. Made of No. 16 gauge steel. Size: 21 3/4" w. x 18" d. x 18 1/2" h. Panel Space: 12 1/4" x 19", sloping (30°) upper panel; 3 1/2" x 19", lower panel; 15 1/4" x 19", rear panel. Finish: Two-tone hammertone with top, cross-piece and base in gray; rear and side panels in brown. Shipping Weight, 35 lbs.

Premier No. CSC-201—Single unit. Net Each..... **\$55.00**

### MULTIPLE SECTION FOR SLOPING CABINET



Premier No. CMS-301—Add-on unit for multiple installation. Includes top, crosspiece, bottom, rear panel and center frame section to combine units together. (For a double unit, order one CSC-201 and one CMS-301; for a triple unit, order one CSC-201 and two CMS-301; etc.) Shipping Weight, 26 lbs. Net Each..... **\$36.00**

### SLIDING DRAWERS AND SHELF



Made of No. 16 gauge steel. Mounted on suspension slides, which sustain 46 lbs. Drawer (Fig. A) extends 16 in. from front. Fits CPF Series, FS Series, FA and 24 in. deep PRXA Series (when used with other formed panels). Sliding shelf (Fig. B) with gray linen-weave formica (2-C-1) on top surface. Supplied with brackets for mounting to tapped holes of panel mounting angles. Attractive, round chrome plated handle; gray hammertone finish. Shipped knocked down, with all hardware. For 19-inch wide panel space.

### SLIDING DRAWERS (FIG. A)

Premier No.	Panel Size, In.	Drawer Size, W. x D. x H., In.	Shpg. Wt.	Net Each
D-1916	10 3/4 x 18 3/4	16 1/4 x 16 1/4 x 6	23 lbs.	<b>\$18.90</b>
D-2016	6 3/4 x 18 3/4	16 1/4 x 16 1/4 x 6	22 lbs.	<b>18.15</b>
D-2316	3 3/4 x 18 3/4	16 1/4 x 16 1/4 x 2 1/4	16 lbs.	<b>17.10</b>

### SLIDING SHELF (FIG. B)

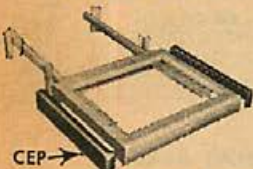
Premier No.	Panel Size, In.	Shelf Size, In.	Shpg. Wt.	Net Each
RDS-319-22	3 3/4 x 18 3/4	16 1/4 x 16 1/4	20 lbs.	<b>\$34.65</b>

### FORMICA WRITING PANELS

Gray linen weave pattern formica is bonded to plywood as top surface. Unfinished formica bonded to bottom surface. 19" x 1 1/2"

Premier Number	Panel Space, Inches	Fits Into	Net Each
FWP-1019	10 1/2 x 19	WW-16-22 and WW-15-255	<b>\$ 6.60</b>
FWP-1419	14 x 19	WW-18-22 and WW-18-255	<b>8.40</b>
FWP-1719	17 1/2 x 19	WW-22-22, WW-22-255, WTO-22-22 and top panel space of CPF-101 and CPF-102	<b>10.20</b>

### PREM-O-RAK® WRITING WORK SHELF



- Made of No. 16 gauge steel.
- Tops, front and rear, are rounded.
- Shipped knocked down.
- Finished in gray hammertone.
- Supplied with 3 1/2" x 19" formed panel.
- Comes complete with channels and brackets for mounting to inside of frames.

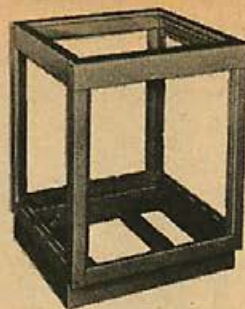
### FOR SINGLE OR MULTIPLE INSTALLATION 22" WIDE, 3" HIGH

Top Panel Space, In.	Depth, In.	For 22" d. Frames		For 25 1/2" d. Frames	
		Premier No. WW-	Shpg. Lbs.	Premier No. WW-	Shpg. Lbs.
10 1/2 x 19	15	15-22	11	15-255	12
14 x 19	18 1/2	18-22	12	18-255	13
17 1/2 x 19	22	22-22	13	22-255	14

### END PANELS FOR WRITING WORK SHELF

Ball cornered. Fits writing work shelf by two captive screws. One piece of No. 18 gauge steel finished in brown hammertone.

Premier No.	Used With	Shpg. Lbs.	Net Ea.
CEP-15	WW-15-22, 15-255	1 1/2	<b>\$3.75</b>
CEP-18	WW-18-22, 18-255	2	<b>4.00</b>
CEP-22	WW-22-22, 22-255	2 1/2	<b>4.25</b>



## PREM-O-RAK® CONSOLE PEDESTAL CABINET FRAME

Accommodates ball cornered end panel (CEP Series). Designed for multiple installation. Adjustable panel mounting angles front and rear are tapped on both legs for 10-32 machine screws on E.I.A. spacings (3/4"-3/8"-3/4"). Panels fit into 1/2" recess. Two rectangular knockouts supplied on one top cross member to accommodate channels of writing work shelf. Brackets welded in base and punched to accommodate CA-5 (3") casters and supplied with adapter to accommodate CA-4 (2") casters. Frame is No. 16 gauge, angles 12 gauge steel. Gray hammertone finish.

Premier No.	W. x D., In.	Height		Panel Space, In.		Wt., Lbs.	Net Each
		*	†	Front‡	Top		
CPF-101	22x22	30"	29 1/2"	21x19	17 1/2x19	45	<b>\$56.04</b>
CPF-102	22x22	37"	36 1/2"	28x19	17 1/2x19	48	<b>64.20</b>
CPF-101-34	22x34 1/2	30"	29 1/2"	21x19	29 1/2x19	54	<b>78.00</b>

\*With casters. †Without casters. ‡And rear.

### SHELF FOR PEDESTAL CABINET

No. 16 gauge steel. Mounts to 10-32 tapped holes on side of panel mounting angles. Gray hammertone finish. Use with CPF-101 or -102. Size, 20 1/4" d. x 20 1/4" w. Premier No. SH-101—Net Each..... **\$9.45**

### END PANELS

Made of one-piece 18 gauge steel. Designed for easy installation and access, panels attach to pedestal frame by means of two brackets on bottom; held securely with two captive screws on top. Finish: Brown hammertone.

Premier No.	W. x H.	Used With	Net
CEP-401	22" x 26"	CPF-101, -103	<b>\$15.75</b>
CEP-402	22" x 33"	CPF-102, -104	<b>18.90</b>
CEP-401-34	34 1/2" x 26"	CPF-101-34	<b>20.80</b>
CSS-701*	22" x 23"	CPF-101, -103	<b>10.00</b>
CSS-701-34*	34 1/2" x 23"	CPF-101-34	<b>13.20</b>

\*Short end panel, 1 1/2" deep. Used only when work top is mounted between two pedestal frames.

### 19" FORMED PANELS

Blank or louvered panels of one-piece 16 gauge steel with edges formed for 1/2" depth. Each panel has only 2 mounting holes on each side. Finish: Specify gray or brown hammertone.

Premier Number	Height, Inches	Type	Shpg. Wt., Lbs.	Net Each
FP-319	3 1/2	Blank	2	<b>\$1.25</b>
FP-519	5 1/4	Blank	2 1/2	<b>1.45</b>
FP-719	7	Blank	3	<b>1.65</b>
FP-819	8 1/2	Blank	4	<b>2.02</b>
FP-1019	10 1/2	Blank	5	<b>2.50</b>
FP-1219	12 1/4	Blank	6	<b>2.90</b>
FP-1419	14	Blank	6 1/2	<b>3.25</b>
FP-1519	15 1/4	Blank	7	<b>3.75</b>
FP-1719	17 1/2	Blank	7 1/2	<b>4.15</b>
FP-1919	19 1/4	Blank	8	<b>4.52</b>
FP-2119	21	Blank	9	<b>4.95</b>
FP-2619	26 1/4	Blank	11	<b>6.10</b>
FP-2819	28	Blank	12	<b>6.60</b>
FPL-719	7	Louvered	3	<b>3.48</b>
FPL-819	8 1/2	Louvered	4	<b>3.90</b>
FPL-1019	10 1/2	Louvered	5	<b>4.30</b>
FPL-1219	12 1/4	Louvered	6	<b>4.85</b>
FPL-1419	14	Louvered	6 1/2	<b>5.22</b>
FPL-1719	17 1/2	Louvered	7 1/2	<b>6.12</b>
FPL-2119	21	Louvered	9	<b>7.60</b>
FPL-2619	26 1/4	Louvered	11	<b>8.52</b>
FPL-2819	28	Louvered	12	<b>9.05</b>

### WORK TOPS FOR MULTIPLE ASSEMBLY—3" HIGH



CWT Solid Type



WTO Open Type

CWT Series are solid type; WTO, open type. Designed for mounting on two pedestal frames or when used with end pedestal (PE Series). Tops of front and rear are rounded. Made of No. 16 gauge steel; gray hammertone finish. Use short end panels (CSS Series) for this installation.

Premier No.	W. x D., In.	Panel Space, In.	Shpg. Wt.	Net Each
CWT-601	22 x 22	.....	14 lbs.	<b>\$14.00</b>
CWT-601-34	22 x 34 1/2	.....	20 lbs.	<b>20.80</b>
WTO-22-22	22 x 22	17 1/2 x 19	9 1/2 lbs.	<b>28.35</b>
WTO-22-34	22 x 34 1/2	29 1/2 x 19	12 lbs.	<b>44.10</b>





# Premier Chassis and Cabinets

## ALUMINUM VERTICAL PANEL CHASSIS



TO FIT 19" STANDARD RACKS  
Made of 14 gauge (.064) aluminum. Flanges are notched for standard rack mounting. All chassis depths are 5 1/2". Gussets are spot welded in each corner for greater strength. Etched finish.

No. ACH-	-1200-	-1201-	-1202-	-1203-	-1204-	-1205-	-1206-	-1207
Height, In.	1 3/4	3 1/4	5 1/4	7	8 3/4	10 3/4	12 3/4	14
Shpg. Wt., Lbs.	3/8	1 1/8	1 1/2	2	2 1/4	2 3/4	3	3 3/4
Net Each	\$2.75	\$3.00	\$3.25	\$3.60	\$4.25	\$4.75	\$5.25	\$6.00

## ALUMINUM OPEN END CHASSIS

Made of .040 aluminum natural finish. Shipping Weights: Chassis Nos. ACH-1350 through ACH-1356, 1/4 lb. Chassis Nos. ACH-1357 through ACH-1360, 1/2 lb.

No. ACH-	Size, Inches D. x W. x H.	Net Each	No. ACH-	Size, Inches D. x W. x H.	Net Each
1350	2 3/4 x 2 3/4 x 1 1/4	40c	1356	5 3/4 x 4 3/4 x 1 1/2	58c
1351	1 3/4 x 3 3/4 x 1	44c	1357	4 1/4 x 4 3/4 x 1	46c
1352	3 3/4 x 4 3/4 x 1	46c	1358	4 1/4 x 5 3/4 x 1	50c
1353	2 3/4 x 4 3/4 x 1	46c	1359	4 x 5 3/4 x 1	54c
1354	3 3/4 x 4 3/4 x 1 1/4	46c	1360	4 x 6 3/4 x 1	58c
1355	3 x 6 3/4 x 1 1/4	55c			

## COMPACT CABINETS

Body of 20 gauge steel with .064 aluminum front panel. All have rounded corners on front and rear of top, recessed handle, four rubber feet, and perforated sides. Panel fits into 1/4" recess. With assembly hardware. Two-tone metallic gray finish.

Premier No.	Size, Inches D. x W. x H.	Use Chassis	Wt., Lbs.	Net Each
CC-2000	8 x 6 1/2 x 8	ACH-426	4	\$ 8.35
CC-2001	8 x 8 1/2 x 8	ACH-403	5	9.10
CC-2002	8 x 10 1/2 x 8	ACH-404	6	9.75
CC-2003	12 x 8 1/2 x 9	ACH-405	7	10.60
CC-2004	18 x 11 1/2 x 11	ACH-415	10	12.70
CC-2005	18 x 14 1/2 x 12	ACH-423	11	14.50

## TRIANGULAR CHASSIS MOUNTING BRACKET

16 gauge steel. Gray hammertone. Sold in pairs.

Prem. No.	Height x Depth	Shpg. Wt.	Net Each
TCB-55	5" x 5"	1 lb.	\$1.04
TCB-77	7" x 7"	1 lb.	1.18
TCB-99	9" x 9"	1 1/2 lbs.	1.44

## DESK PANELS

16 gauge steel bolted to standard 10 1/2" x 19" panel. Front corners rounded. 22" wide. Shipped knocked down. Gray hammertone finish; also available in black enamel.

Premier No. DP-1016—16" deep. Shpg. Wt., 20 lbs. Net. \$17.90  
Premier No. DP-1020—20" deep. Shpg. Wt., 22 lbs. Net. 18.30

## CHASSIS SUPPORTS

Made of #12 gauge steel. Finished in gray hammertone. Sold in pairs only.

No.	Size, In.	Shpg. Wt., Lbs.	Net Ea.
CS-12	12x3x3	4	\$2.15
CS-14	14 1/2 x 3 x 3	5 1/4	2.35

## RACK SHELVES

Made of one piece 16 gauge cold rolled steel 1" high. Holes on sides for mounting on rack. Finished in gray hammertone.

Premier No.	Will Fit Rack	Shelf Size, In.	Shpg. Wt., Lbs.	Net Each
RS-1106	All 15 1/2" SDR & DCR	12 x 21 1/2	7	\$3.10
RS-1107	R, RS, DR, 18" RMA	15 x 21 1/2	7	3.85
RS-1108	18" deep FD	12 x 21 1/2	7	3.50
RS-1110	RMA-27, FD-27 Series	22 x 26 1/2	8	7.26
RS-1111	MDK Series	10 x 21 1/2	6	3.00
RS-1112	24" deep RMA, FD	22 x 21 1/2	7	6.20

## FRONT DOORS

Constructed of one piece of 16 gauge steel. Cylinder lock and angle bracket incl. All necessary bolts included for easy assembly. 20 1/2" wide x 1 1/4" deep. Gray hammertone finish; also available in black enamel.

Prem. No. FD-	Door Ht.	Shpg. Wt.	Net Each
300	26 3/4"	10 lbs.	\$14.66
301	31 3/4"	11 lbs.	17.04
302	35"	12 lbs.	19.00
303	12 3/4"	6 lbs.	11.05
304	14"	7 lbs.	12.00
305	17 1/4"	8 lbs.	13.04
306	21"	9 lbs.	14.04

TO FIT STANDARD  
19" DESK RACK  
CABINETS AND  
ENCLOSED RACKS

## REVERSIBLE BLANK RACK PANELS 19" WIDE

Notched to EIA standards and will fit any rack with multiple 3/8"-5/8"-1 1/2" or 1 1/4"-1 1/2" spacings. All panels with open slots except 1 3/4" and 3 3/4" high, which have closed slots for rigidity. Panels cut 1/8" less than height shown. Made of #12 gauge (.104) cold rolled steel or 1/2" thick aluminum, 5005-H36 alloy. Reversible Finishes: Black and blue-gray wrinkle, gray and brown hammertone; or, gray hammertone and black wrinkle.

ALUMINUM				STEEL		
Premier No.	Wt., Lbs.	Net Each	Height	Premier No.	Wt., Lbs.	Net Each
ARP-119	1 1/2	\$1.12	1 3/4"	RP-119	1	\$0.85
ARP-319	1	1.50	3 1/4"	RP-319	2	1.00
ARP-519	1 1/2	2.05	5 1/4"	RP-519	3	1.20
ARP-719	2	2.46	7 1/4"	RP-719	4	1.40
ARP-819	2 1/2	2.95	8 3/4"	RP-819	5 1/4	1.70
ARP-1019	3	3.75	10 1/4"	RP-1019	6 3/4	2.05
ARP-1219	3 1/2	4.15	12 1/4"	RP-1219	7 3/4	2.45
ARP-1419	4	5.00	14"	RP-1419	8 3/4	2.82
ARP-1519	4	5.50	15 3/4"	RP-1519	9	3.16
ARP-1719	4 3/4	6.10	17 3/4"	RP-1719	10 3/4	3.50
ARP-1919	5	6.70	19 3/4"	RP-1919	12	3.85
ARP-2119	6	7.70	21 3/4"	RP-2119	12 3/4	4.25
ARP-2619	7 1/2	10.20	26 1/4"	RP-2619	15 3/4	6.00
ARP-3119	8 1/2	13.70	31 1/4"	RP-3119	19	9.70
ARP-3519	10	14.85	35"	RP-3519	22	9.00

## PANELS—19" WIDE



Made of No. 12 gauge steel. Finished in gray hammertone. Also available in black wrinkle.

## GRILLE PANELS

Premier No.	Grille Size	Height	Shpg. Wt., Lbs.	Net Each
GRP-601	3 3/4" x 13 3/4"	5 1/4"	2	\$3.40
GRP-602	3 3/4" x 13 3/4"	7"	2	3.64
GRP-603	5 3/4" x 13 3/4"	5 3/4"	2 1/2	4.40
GRP-604	5 3/4" x 13 3/4"	8 3/4"	2 1/2	4.82
GRP-605	7 3/4" x 13 3/4"	10 3/4"	2 1/2	4.40
GRP-606	5 3/4" x 13 3/4"	10 3/4"	2 1/2	4.40
GRP-607	7 3/4" x 13 3/4"	12 3/4"	3	5.00

\*Allows 3 1/2" space at bottom for chassis mounting.

## SPEAKER PANELS



A piece of perforated metal is spot-welded behind the opening.

Premier No.	Height	Speaker Size	Hole Size	Shpg. Wt., Lbs.	Net Each
SRP-819	8 3/4"	8"	4 3/8"	6	\$3.20
SRP-1019	10 3/4"	8"	6 1/2"	8	4.04
SRP-1219	12 3/4"	10"	8 1/2"	9	4.82
SRP-1419	14"	12"	11"	10	5.54

## SIDE HINGED DOOR PANELS



Used for left or right hand opening. Supplied with a quick turn fastener. Full ht. piano hinge welded to panel.

Premier No.	Height	Net Ea.	Premier No.	Height	Net Ea.
SHP-319	3 1/4"	\$3.30	SHP-1019	10 3/4"	\$4.36
SHP-519	5 1/4"	3.44	SHP-1219	12 3/4"	4.65
SHP-719	7"	3.76	SHP-1419	14"	5.05
SHP-819	8 3/4"	4.04	SHP-2119	21"	8.00

## MASKED ALUMINUM PANELS—19" W. X 1/8" THICK

Made of bright natural aluminum covered on both sides with special self-adhesive paper. Drilling or milling can be done on paper in place, affording complete damage protection. Paper is removed simply by peeling.

Premier No.	Ht. In.	Shpg. Lbs.	Net Each	Premier No.	Ht. In.	Shpg. Lbs.	Net Each
MAP-119	1 1/4	1 1/2	\$1.06	MAP-1519	15 1/4	4	\$5.30
MAP-319	3 1/4	1	1.45	MAP-1719	17 1/4	4 3/4	5.85
MAP-519	5 1/4	1 1/2	1.95	MAP-1919	19 1/4	5	6.40
MAP-719	7	2	2.35	MAP-2119	21	6	6.95
MAP-819	8 3/4	2 1/2	2.85	MAP-2619	26 1/4	7 1/2	9.00
MAP-1019	10 3/4	3	3.55	MAP-3119	31 3/4	8 3/2	10.50
MAP-1219	12 3/4	3 1/2	4.15	MAP-3519	35	10	12.50
MAP-1419	14	4	4.75				

## INDUSTRIAL DISCOUNT SCHEDULE

Apply to any Premier products listed in this catalog.

Total Price	Discount	Total Price	Discount
Up to \$199.99	Net -10%	\$700 to \$999.99	Net -25%
\$200 to \$399.99	Net -15%	\$1,000 to \$1,499.99	Net -30%
\$400 to \$599.99	Net -20%	\$2,500 to \$4,999.99	Net -35%
\$550 to \$999.99	Net -20%	\$2,500 or more	Net -33 1/3%





# Premier Chassis and Cabinets

## BLANK CHASSIS

Constructed from one piece of #20 ga. cold rolled steel, except those marked \*, which are #16 ga.; aluminum chassis are #18 ga., except those marked \*\*, which are #14 ga. Gussets are spot welded to bottom flanges for additional strength. Flanges are flanged in on four sides and punched for bottom plates. Steel chassis finished in black wrinkle or cadmium-plated.



Steel Chassis			Aluminum Chassis			
Premier No.	Weight, Lbs.	Net Each	Size, Inches D. x W. x H.	Premier No.	Weight, Lbs.	Net Each
CH-400	1	\$1.10	5 1/2 x 9 1/2 x 1 1/2	ACH-400	1 1/2	\$1.33
CH-401	1 1/4	1.55	5 x 10 x 3	ACH-401	1 1/2	1.52
CH-402	2 1/2	1.80	6 x 14 x 3	ACH-402	1	2.57
CH-403	1 1/4	1.30	7 x 7 x 2	ACH-403	1 1/2	1.33
CH-404	1 1/2	1.55	7 x 9 x 2	ACH-404	1 1/2	1.39
CH-405	1 3/8	1.60	7 x 11 x 2	ACH-405	1 1/2	1.64
CH-406	2	1.70	7 x 13 x 2	ACH-406	1 1/2	1.69
CH-407	2 3/4	2.00	7 x 15 x 3	ACH-407	1	1.64
CH-408	2 3/4	2.20	4 x 17 x 3	ACH-408	1 1/2	1.69
CH-409	3 3/8	2.00	7 x 17 x 2	ACH-409	1 1/2	1.64
CH-410	2 3/4	2.00	8 x 17 x 2	ACH-410	1 1/2	1.69
CH-411	5 3/8	2.20	8 x 17 x 3	ACH-411	1 1/2	1.64
CH-412	2 3/4	1.15	10 x 12 x 3	ACH-412	1 1/2	1.69
CH-413	3 3/8	2.25	10 x 14 x 3	ACH-413	1 1/2	1.64
CH-414	3 3/8	2.30	10 x 17 x 2	ACH-414	1 1/2	1.69
CH-415*	6	.60	10 x 17 x 3	ACH-415**	1 1/2	1.64
CH-416*	7 1/2	.90	10 x 17 x 4	ACH-416**	2	4.20
CH-417*	5 3/4	1.15	11 x 17 x 2	ACH-417**	1 3/4	3.48
CH-418*	6 3/4	1.45	11 x 17 x 3	ACH-418**	2	4.27
CH-419*	5	.40	12 x 17 x 2	ACH-419**	1 3/4	3.81
CH-420*	7	.90	12 x 17 x 3	ACH-420**	2 1/2	4.51
CH-421*	8 1/2	1.15	12 x 17 x 4	ACH-421**	2 1/2	4.98
CH-422*	6	.35	13 x 17 x 2	ACH-422**	1	4.02
CH-423*	7	4.00	13 x 17 x 3	ACH-423**	2 1/2	4.79
CH-424*	10	4.55	13 x 17 x 4	ACH-424**	2 1/2	5.48
CH-425	1 3/4	1.70	7 x 11 x 2	ACH-425	1 1/2	1.64
CH-426	1	2.28	8 1/2 x 7	ACH-426	1 1/2	1.29
CH-427	1 3/8	1.30	8 1/2 x 15 x 3	ACH-427	1 3/4	2.59
CH-428	2	1.90	5 x 7 x 3	ACH-428	1	1.50
CH-429	2	1.90	5 x 13 x 3	ACH-429	1	1.80
CH-430	2 1/2	2.00	8 x 12 x 3	ACH-430	1	2.19
CH-431	1	1.25	4 x 6 x 2	ACH-431	1 1/2	1.29
CH-432	1	1.25	4 x 6 x 3	ACH-432	1 1/2	1.33
CH-433	2 1/2	1.75	7 x 12 x 3	ACH-433	1 1/2	1.83
CH-434	4	2.15	6 x 17 x 3	ACH-434	1	2.70
CH-435*	10	3.30	10 x 23 x 3	ACH-435**	2 1/2	5.37
CH-436	3/4	1.25	4 x 6 x 1 1/2	ACH-436	1	1.09
CH-437	1	1.35	4 x 8 x 2	ACH-437	1 1/2	1.13
CH-438*	13	6.50	17 x 17 x 4	ACH-438**	3	10.79
CH-439*	8 1/2	3.50	10 x 17 x 5			
CH-440*	11	5.15	13 x 17 x 5			
CH-441	2 1/2	1.70	8 x 10 x 2 1/2	ACH-441	1	1.68

## STEEL UTILITY CASES WITH CHASSIS ATTACHED



Made of No. 20 gauge steel with a chassis spot welded to front panel. Removable front and rear panels. Black wrinkle finish.

Premier No.	Case	Size, Inches W. x D. x H.	Shpg. Wt., Lbs.	Net Each
CA-1400	4x2x4	2 1/4 x 1 1/2 x 1	1	\$1.35
CA-1401	5x3x4	3 3/4 x 2 1/2 x 1	1 1/4	1.60
CA-1402	4x3x5	2 1/4 x 2 1/2 x 1 1/4	1 1/4	1.60
CA-1403	5x4x6	3 3/4 x 3 1/2 x 1 3/4	2	2.00
CA-1404	6x4x5	4 1/4 x 3 1/2 x 1 3/4	2	2.00
CA-1405	6x6x6	4 1/4 x 5 1/2 x 1 3/4	3	2.10

## CHASSIS MOUNTING BRACKETS



Gray hammertone finish 16 ga. steel.

Premier No.	For	Wt., Lbs.	Net Each
CB-78*	8" Chassis	1 1/2	\$1.06
CB-710*	10" Chassis	1 3/4	1.42
CB-711*	11" Chassis	2	1.55
CB-712*	12" Chassis	2 1/2	1.66
CB-713*	13" Chassis	2 3/4	1.80
CB-717*	17" Chassis	3	2.80
CB-819*	10" Chassis	2 3/8	2.10
CB-813*	13" Chassis	3	2.22

Notched for: \*3" chassis; †4" chassis.

## UTILITY CASES



With flanged edges, spot-welded corners and two removable flat covers. Black wrinkle finish #20 ga. sheet steel of #16 ga. aluminum cases.

## STEEL CASES

Premier No.	Size, Inches	Wt., Lbs.	Net Each	Premier No.	Size, Inches	Wt., Lbs.	Net Each
C-442	4x4x2	3/4	\$1.05	C-695	6x 9x5	3	\$2.25
C-453	4x5x3	1 1/4	1.25	C-754	7x 5x4	2	1.60
C-564	5x8x4	1 3/4	1.45	C-1276	12x 7x6	4 1/2	3.15
C-596	5x8x6	3	2.25	C-8101	10x10x8	6	3.75
C-666	6x8x6	2 1/4	2.00				

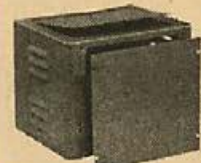
## ALUMINUM CASES

Natural Aluminum			Gray Hammertone		
Premier No.	Net Each	Size, In. W. x L. x H.	Wt., Lbs.	Premier No.	Net Each
AC-442	\$1.40	4 x 4 x 2	3/4	PAC-442	\$1.55
AC-453	1.54	4 x 5 x 3	1 1/4	PAC-453	1.78
AC-564	1.82	5 x 6 x 4	1	PAC-564	2.25
C-596	3.00	5 x 9 x 6	1 1/2	PAC-596	3.40
AC-666	2.10	6 x 8 x 6	1 1/2	PAC-666	2.35
AC-695	3.00	6 x 9 x 5	1 1/2	PAC-695	3.40
AC-1276	4.10	12 x 7 x 6	2 1/4	PAC-1276	4.55
AC-1597	5.65	15 x 9 x 7	3 3/4	PAC-1597	6.25

## HINGED TOP CABINETS

Rounded corners; #20 ga. steel. Gray hammertone; also available in blue-gray wrinkle.

Premier No.	Size, Inches H. x W. x D.	Wt., Lbs.	Net Each
HTC-200	8 x 10 1/2 x 8	6	\$ 7.75
HTC-201	8 x 12 1/2 x 8	6 1/2	8.00
HTC-202	8 x 16 1/2 x 8	11	7.50
HTC-203	9 x 17 1/2 x 11	6 1/2	11.00
HTC-204	12 x 20 1/2 x 12	13 1/2	13.00
HTC-205	8 x 14 1/2 x 8	7 1/2	6.50



## STEEL AND ALUMINUM SLOPING PANEL CABINETS

Rounding top corners with sloping front. No. 20 gauge steel, black wrinkle finish or #18 gauge (.040) aluminum, natural aluminum finish.

Steel			Aluminum		
Premier No.	Shpg. Wt., Lbs.	Net Each	Size, Inches W. x D. x H.	Premier No.	Net Each
SPC-1200	3/4	\$1.20	4 1/4 x 4 1/4 x 4 1/4	ASPC-1200	\$1.51
SPC-1201	1	1.36	5 1/4 x 4 1/4 x 4 1/4	ASPC-1201	1.71
SPC-1202	1	1.54	6 1/4 x 4 1/4 x 4 1/4	ASPC-1202	1.94
SPC-1203	1 1/2	1.86	7 1/4 x 4 1/4 x 4 1/4	ASPC-1203	2.33

## ALUMINUM MINIATURE CASES

A two-piece case made of No. 16 gauge (.051) aluminum. Natural aluminum finish or gray hammertone. \*18 ga. (.040).



Aluminum Finish		Gray Ham. Finish		Size, Inches L. x W. x H.	Shp. Wt., Lbs.
Premier No.	Net Each	Premier No.	Net Each		
AMC-1000*	\$0.70	PMC-1000*	\$0.79	2 1/4 x 2 1/4 x 1 1/2	3/4
AMC-1001*	.70	PMC-1001*	.79	3 1/4 x 2 1/2 x 1 1/2	3/4
AMC-1002*	.73	PMC-1002*	.83	4 x 2 1/2 x 1 1/2	3/4
AMC-1003	.96	PMC-1003	1.06	4 x 2 1/2 x 2 1/4	3/4
AMC-1004	.99	PMC-1004	1.09	5 x 2 1/2 x 2 1/4	3/4
AMC-1005	1.17	PMC-1005	1.23	5 x 4 x 3	3/4
AMC-1006	1.09	PMC-1006	1.19	5 1/2 x 3 x 2 1/2	1
AMC-1007	1.39	PMC-1007	1.53	6 x 5 x 4	1 1/4
AMC-1008	1.56	PMC-1008	1.69	7 x 5 x 3	1 1/2
AMC-1009	2.31	PMC-1009	2.45	8 x 6 x 3 1/2	1 3/4
AMC-1010	2.88	PMC-1010	3.04	10 x 6 x 3 1/2	1 3/4
AMC-1011	3.24	PMC-1011	3.57	12 x 7 x 4	2
AMC-1012	3.84	PMC-1012	4.20	17 x 5 x 4	3 1/2
AMC-1013	1.17	PMC-1013	1.23	10 x 2 x 1 1/2	3/4
AMC-1014	1.53	PMC-1014	1.65	12 x 2 1/2 x 2 1/4	3/4
AMC-1015	.93	PMC-1015	1.20	4 x 2 x 2 1/4	3/8
AMC-1016	.96	PMC-1016	1.06	4 1/4 x 2 1/4 x 1 1/2	3/4

## SLOPING FRONT CABINETS

Gray hammertone #20 ga. steel; also available in blue-gray wrinkle.

Premier No.	Size, Inches H. x W. x D.	Wt., Lbs.	Net Each
SFC-500	8 x 8 1/4 x 8	6	\$ 4.90
SFC-501	8 x 10 1/4 x 8	7	5.45
SFC-502	8 x 14 1/4 x 8	8	5.84
SFC-503	9 x 18 1/4 x 8	10	8.38
SFC-504	12 x 18 1/4 x 12	14	10.70



## 2-IN-1 STEEL AND ALUMINUM METER CASES

Center hole for 2" meter increases to 3" by simply removing a knock-out. Hole dia. 2 1/2" x 2 1/2". Supplied with two 3/4" dia. knock-outs. No. 20 gauge steel in black wrinkle finish. No. 18 gauge (.040) aluminum natural finish. Size, 4 1/2" x 4 1/2" x 4 1/2". Shipping Weight, 3/4 lb.

Premier No. SPC-23—Steel. Net Each.....\$1.40  
Premier No. ASPC-23—Aluminum. Net Each.....1.66







# Premier Cabinets and Racks



DCR  
(Welded)

## PREMIER DESK CABINET RACKS

15 1/4" AND 18" DEEP  
ALL CABINETS 21 3/4" WIDE  
FOR STANDARD 19" RACK PANELS

Made of #16 gauge steel. Finished in gray hammertone; also available in black wrinkle. Size: 21 3/4" wide x 15 1/4" deep, or 18" deep. Top doors on SDR models open to 90° and have rounded front corners.

### 15 1/4" DEEP CABINET RACKS

WELDED CABINETS				Description	KNOCKED-DOWN CABINETS		Cabinet Ht.	Available Panel Space	Shipping Weight, Lbs.
Premier No.	Net Each	Premier No.	Net Each		Premier No.	Net Each			
DCR-70	\$15.00	SDR-70	\$19.00	With door in top only	DRK-70	\$14.00	8 3/4"	7"	22
DCR-80	16.00	SDR-80	20.00		DRK-80	15.00	10 1/2"	8 3/4"	24
DCR-100	17.50	SDR-100	21.50		DRK-100	16.50	12 1/4"	10 1/2"	26
DCR-120	19.50	SDR-120	23.50		DRK-120	18.50	14"	12 1/4"	28
DCR-140	21.00	SDR-140	25.00		DRK-140	20.00	15 3/4"	14"	32
DCR-170	25.50	SDR-170	29.50	With door in top and door on rear	DRK-170	24.50	19 1/4"	17 1/2"	40
DCR-190	27.00	SDR-190	31.00		DRK-190	26.00	21"	19 1/4"	42
DCR-210	28.00	SDR-210	32.00		DRK-210	27.00	22 3/4"	21"	44
DCR-260	30.00	SDR-260	34.00	With door in top and door on rear	DRK-260	29.00	28"	26 1/2"	45
DCR-310	32.00	SDR-310	36.00		DRK-310	31.00	33 1/4"	31 1/2"	50
DCR-350	34.00	SDR-350	38.00	With door in top and door on rear	DRK-350	33.00	36 3/4"	35"	55

### 18" DEEP CABINET RACKS

DCR-1880	\$18.50	SDR-1880	\$22.50	With door in top only	.....	.....	10 1/4"	8 3/4"	26
DCR-18100	21.50	SDR-18100	25.50		.....	.....	12 1/4"	10 1/4"	29
DCR-18120	24.50	SDR-18120	28.50		.....	.....	14"	12 1/4"	31
DCR-18140	26.00	SDR-18140	30.00		.....	.....	15 3/4"	14"	35
DCR-18170	29.50	SDR-18170	33.50	With door in top and door on rear	.....	.....	19 1/4"	17 1/2"	44
DCR-18190	30.50	SDR-18190	34.50		.....	.....	21"	19 1/4"	46
DCR-18210	32.00	SDR-18210	37.00		.....	.....	22 3/4"	21"	48
DCR-18260	35.00	SDR-18260	39.00	With door in top and door on rear	.....	.....	28"	26 1/2"	49
DCR-18310	36.50	SDR-18310	40.50		.....	.....	33 1/4"	31 1/2"	55
DCR-18350	37.50	SDR-18350	41.50	With door in top and door on rear	.....	.....	36 3/4"	35"	60

## AMPLIFIER FOUNDATION CHASSIS

Top cover has grille perforations and rounded corners. Chassis is constructed of one piece with corners spot-welded. Finished in all gray hammertone; also available in two-tone black and blue-gray wrinkle. Cover depth, 6".



Premier No.	Chassis Size, In.	Wt., Lbs.	Net Each
AF-510	5 x 10 x 3	5	\$5.05
AF-615	6 x 14 x 3	7	5.85
AF-1017	10 x 17 x 3	11	7.85
AF-1317	13 x 17 x 3	13	9.43

## PERFORATED TYPE COVERS

Cover made of perforated steel and has rounded corners with solid ends. Finished in gray hammertone; also available in blue-gray wrinkle. Ht., 6" except (\*), 4".



Premier No.	Size, In. W. x D.	Use Chassis Number	Shpg. Wt., Lbs.	Net Each
PC-57	7 x 5*	ACH or CH-426	1	\$3.40
PC-510	10 x 5	ACH or CH-401	1 1/4	3.45
PC-615	14 x 6	ACH or CH-402	2 1/4	4.00
PC-717	17 x 7	ACH or CH-409	3	4.40
PC-1012	12 x 10	ACH or CH-412	3	4.50
PC-1017	17 x 10	ACH or CH-415	3 1/4	5.45

## RELAY RACKS

### CHANNEL TYPE

Made of #12 ga. steel and finished in gray hammertone; also available in black wrinkle.

Premier No.	Size, Inches			Panel Space, Inches	Shpg. Wt., Lbs.	Net Each
	H.	W.	D.			
RR-800	39 1/4	20	18 1/2	36 1/4 x 19	40	\$21.20
RR-801	74 3/4	20	20 1/2	71 3/4 x 19	55	25.20
RR-802	79 1/2	20	20 3/4	77 x 19	60	29.20

### DELUXE CHANNEL TYPE

#### (NOT ILLUS.)

Similar to RR-800 Series, but have gray hammertone finish and uprights are 8 3/4" deep. Panels fit into 1/4" recess; either flat or formed panels may be used. Top is ventilated by means of grille. Racks can be bolted side by side. Vertical members and top cross-piece are welded together. No projecting screw heads. Holes in base accommodate Premier No. CA-5 casters.

### FOR 19" WIDE PANELS

Premier No.	Size, Inches		Panel Space, Inches	Shpg. Wt., Lbs.	Net Each
	H.	W.			
RR-2164	64 1/4	21 1/4	61 1/4 x 19	85	\$38.00
RR-2173	73 3/4	21 1/4	70 x 19	90	41.00
RR-2180	80 3/4	21 1/4	77 x 19	95	45.00

### FOR 24" WIDE PANELS

RR-2664	64 1/4	26 1/4	61 1/4 x 24	100	\$49.00
RR-2673	73 3/4	26 1/4	70 x 24	105	52.00
RR-2680	80 3/4	26 1/4	77 x 24	105	56.00

## TABLE TYPE

Premier No.	Dim., In.		P.S., In.	Wt., Lbs.	Net Each
	H.	W.			
TR-2119	25	21 x 12	21	17	\$8.82
TR-2819	32	21 x 12	28	20	11.04

Gray hammertone #16 gauge steel; also available in black wrinkle.

## SELF-SPRAYING LACQUER

AVAILABLE IN 3 COLORS IN 12 OZ. CANS

Premier No.	To Match	Net Ea.
SGL-101	Premier blue-gray wrinkle	\$1.95
GHL-102	Premier gray hammertone	1.95
BHL-103	Premier brown hammertone	1.95



## ROLLER TRUCKS FOR RACKS

Made of #16 gauge cold rolled steel. Supplied with 2" dia. casters and bolts for easy assembly. Finished in gray hammertone with chrome molding; also available in black wrinkle.

Premier No.	Will Fit Rack No.	Inside Dim., In.	Shpg. Wt., Lbs.	Net Each
RT-1100	All 15 1/4" Racks	15 1/4 x 22 1/4	22	\$10.45
RT-1101	R, R5, DR, 18" deep RMA, FD, FXR, DCS, SDR	18 3/4 x 22 3/4	22	13.20
RT-1103	24" FD and RMA	22 1/4 x 24 1/4	23	16.38
RT-1110	RMA-27, FD-27	27 1/4 x 24 1/4	25	24.50
RT-1111	RMA-7030	33 1/4 x 24 1/4	30	31.50

## CASTERS FOR RACKS, CABINETS

Non-marking composition wheel with ball bearing swivel plate. Packed one set of four in box with screws for assembly.



Premier No.	Wheel Type	Wheel Dia.	Net per Set
CA-4	Plaskite	2	\$ 4.25
CA-5	Rockite	3	10.00
CA-6	Soft Rubber	2	12.00
CA-7*	Rockite	3	22.00
CA-8†	Rockite	4	44.00

\*Foot-operated friction brake. †Roller bearing wheel.



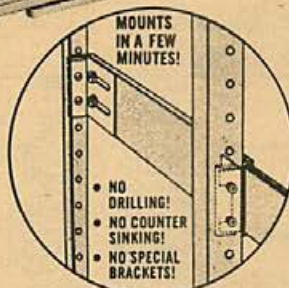


# Premier Chassis Slides

**READY-TO-MOUNT**



Mounts to tapped holes of front and rear panel mounting angles. Simple adjustability of chassis slide assembly from outside of frame.



**MOUNTS IN A FEW MINUTES!**

- NO DRILLING!
- NO COUNTER SINKING!
- NO SPECIAL BRACKETS!

## 100 LB. BALL BEARING SLIDES

### BB SERIES

- Exclusive Quick Disconnect for immediate removal of chassis.
- Carries 100 lbs. fully extended.
- $\frac{5}{8}$ " horizontal side space adjustable  $\pm \frac{1}{8}$ ".
- $1\frac{3}{8}$ " vertical side space.
- Three telescoping anodized aluminum members.
- Full accessibility for servicing.
- Mounts standard 17" wide chassis.
- Stainless steel ball bearings.
- Locks in open position.
- Supplied with all hardware.

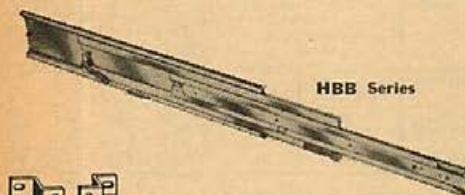
Premier No.	Load Rating, Lbs.	Slide Length, in.	Travel Length, in.	Depth, in.	Net per Pair
BB-100-14*	100	14	13	15 $\frac{1}{4}$ "	\$63.25
BB-100-16*	100	16	15	18	63.25
BB-100-20	100	20	19	22	68.50
BB-100-22*	100	22	21	24	69.75
BB-100-24	100	24	23	25 $\frac{1}{2}$ "	71.50

## 200 LB. HEAVY BALL BEARING SLIDES

### HBB SERIES

- Exclusive Quick Disconnect for immediate removal of chassis.
- Chassis may be removed from slide by depressing quick release lever.
- $\frac{1}{2}$ " horizontal side space adjustable  $\pm \frac{3}{8}$ ".
- Carries 200 lbs. fully extended.
- $3\frac{1}{2}$ " vertical side space.
- Four telescoping anodized aluminum members.
- Mounts standard 17" wide chassis.
- Full accessibility for servicing.
- Stainless steel ball bearings.
- Supplied with all hardware.

Premier No. HBB-	Load Rating, Lbs.	Slide Length, in.	Travel Length, in.	Depth, in.	Net per Pair
200-14*	200	14	13	15 $\frac{1}{4}$ "	\$81.50
200-16*	200	16	15	18	81.50
200-20	200	20	19	22	88.75
200-22*	200	22	21	24	92.00
200-24	200	24	23	25 $\frac{1}{2}$ "	94.00



HBB Series



SA K-35

### SAK-35 SLIDE ADAPTER KIT

Required for rear mounting on RMA, FD, RS, R, DCR, DRK and SDR racks. Mounts to inside rear flange by drilling four holes. Tapped 10-32 on EIA ( $\frac{3}{8}$ "- $\frac{1}{2}$ "- $\frac{3}{4}$ "- $\frac{1}{2}$ " spacings. No. 12 gauge steel; gray hammertone finish. Kit includes 2 brackets, four 10-32 screws and keys.

Premier No. SAK-35—Net Each.....\$3.00

### SLIDE TILTING KIT

For tilting one pair of slides. Consists of four special screws, lock washers and nuts.

Premier No. STK-75—For SB-75 Series. Net Each.....\$1.50

Premier No. STK-175—For SB-175 Series. Net Each.... 1.75

## PREMIER ECONOMY SLIDES

### "A" SERIES



- Mounts on side or underneath.
- Ball bearing spacer and patented silencer spring eliminates slide noise and vibration.
- 16 gauge cold rolled steel.
- Black oxidized finish.

Premier No.	Slide Travel, in.	Track Length, in.	Channel Length, in.	Load Cap.	Net per Pair
A-50-13	9	13	11	50	\$2.80
A-40-15	11	15	11	40	2.90
A-30-165	12 $\frac{1}{2}$	16 $\frac{1}{2}$	11	30	3.00
A-30-185	14 $\frac{1}{2}$	18 $\frac{1}{2}$	11	30	3.20

### "330" SERIES



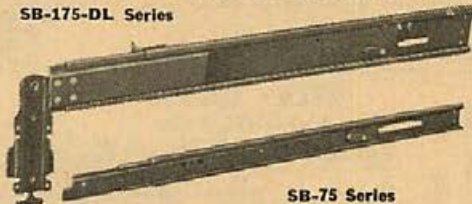
- Side mounted.
- Rolls on two concealed and dust-free nylon wheels.
- No metal-to-metal contact.
- Drawer is tilted up for quick removal.
- 16 gauge cold rolled steel, zinc plated.

Premier No.	Slide Travel, in.	Track Length, in.	Channel Length, in.	Load Cap.	Net per Pair
330-62-12	7 $\frac{1}{2}$	12	12	62	\$3.25
330-58-14	9 $\frac{1}{2}$	14	14	58	3.40
330-54-16	11 $\frac{3}{8}$	16	16	54	3.50
330-50-18	13 $\frac{3}{8}$	18	18	50	3.70
330-46-20	15 $\frac{3}{8}$	20	20	46	3.80

## SOLID BEARING SLIDES

### CARRY 75 AND 175 LB. LOADS

#### SB-175-DL Series



SB-75 Series

- TILT and NON-TILT MODELS.
- Exclusive Quick Disconnect for immediate removal of chassis.
- SB-75 Series carry 75 lbs. fully extended. SB-175 Series carry 175 lbs. fully extended.
- High strength cold rolled steel.
- Withstands 100 hours salt spray.
- Mounts standard 17" wide chassis.
- Three telescoping members. Full accessibility for servicing.
- SB-75 Series: .386" horizontal side space, adjustable  $\pm \frac{1}{8}$ ".
- SB-175 Series: .398" horizontal side space, adjustable  $\pm \frac{1}{8}$ ".
- Electro zinc plated, chromate treated and coated with molybdenum disulfide lubricant.
- SB-175-DL Series have detent locks which allow chassis to be tilted up or down and locked at 90° for servicing.

Premier No.	Load Rating	Slide Length	Travel Length	Depth	Net per Pair
SB-75-14*	75 lbs.	14"	14 $\frac{1}{2}$ "	15 $\frac{1}{4}$ "	\$17.50
SB-75-16*	75 lbs.	16"	14 $\frac{1}{2}$ "	18"	17.50
SB-75-20	75 lbs.	20"	18 $\frac{1}{2}$ "	22"	17.50
SB-75-22*	75 lbs.	22"	22 $\frac{1}{2}$ "	24"	18.75
SB-75-24	75 lbs.	24"	22 $\frac{1}{2}$ "	25 $\frac{1}{2}$ "	19.75
SB-175-14*	175 lbs.	14"	14 $\frac{1}{2}$ "	15 $\frac{1}{4}$ "	37.25
SB-175-16*	175 lbs.	16"	18 $\frac{1}{2}$ "	18"	37.25
SB-175-20	175 lbs.	20"	22 $\frac{1}{2}$ "	22"	39.50
SB-175-22*	175 lbs.	22"	22 $\frac{1}{2}$ "	24"	39.50
SB-175-24	175 lbs.	24"	26 $\frac{1}{2}$ "	25 $\frac{1}{2}$ "	40.25
SB-175-DL-14*	175 lbs.	14"	14 $\frac{1}{2}$ "	15 $\frac{1}{4}$ "	59.00
SB-175-DL-16*	175 lbs.	16"	18 $\frac{1}{2}$ "	18"	59.00
SB-175-DL-20	175 lbs.	20"	22 $\frac{1}{2}$ "	22"	59.00
SB-175-DL-22*	175 lbs.	22"	26 $\frac{1}{2}$ "	24"	61.50
SB-175-DL-24	175 lbs.	24"	26 $\frac{1}{2}$ "	25 $\frac{1}{2}$ "	63.50

\*Use slide adapter kit, No. SAK-35, for RMA, FD, RS, R, DCR, DRK, SDR.

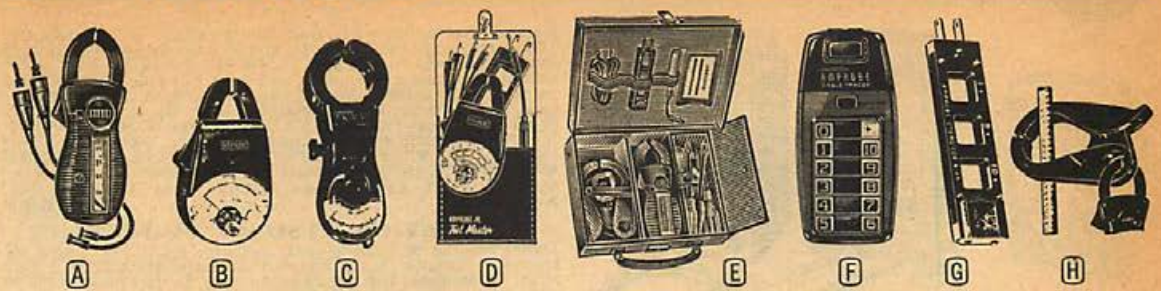


# TEST INSTRUMENTS

# AND ACCESSORIES



# AMPROBE®



### ROTARY SCALE AMPROBES® (FIG. A)

Extra easy reading, with six scales that rotate at the flick of a finger. Four current ranges, two voltage ranges on long, magnified scales minimize chances of error. One-hand operation. Accuracy:  $\pm 3\%$  full scale, including conductor position variations. Self-shielding internal core magnet; insulated probe jaws dovetail; bayonet test leads. Light weight plastic case is ribbed for easy handling; shaped to fit into crowded switch boxes easily. Size: 7 1/2" long. Weight, 14 oz. Leather carrying case included. Current ranges, amps AC; voltage ranges, volts AC.

**Amprobe Model RS-1**—Current ranges, 0-6/15/40/100. Voltage ranges, 0-150/600. Net Each.....\$43.85

**Amprobe Model RS-2**—Current ranges, 0-6/15/40/100. Voltage ranges, 0-150/300. Net Each.....\$43.85

**Amprobe Model RS-3**—Nine scales. Five current ranges, three voltage ranges and one ohm range. Current ranges, 0-6/15/40/100/300. Voltage ranges, 0-150/300/600. Ohmmeter range, 25 ohms mid-scale. Battery attachment for ohmmeter readings included. Net Each.....\$57.50

**Amprobe Model RS-300**—Current ranges, 0-6/15/40/100/300. Voltage ranges, 0-150/300/600. Net Each.....\$52.50

**Amprobe Model RS-1000**—Current ranges, 0-15/40/100/300/1000. Voltage ranges, 0-150/300/600 VAC. Ohmmeter, 25 ohms mid-scale. With battery attachment for ohmmeter readings. Net Each.....\$76.50

### AMPROBE JUNIOR (FIG. B)

Budget models designed to fill a specific need. Comes with voltage test leads; yellow unless black is specified. See accessories for case.

Model	1 Amp Range	2 Volt Ranges	Con. Cap.	Net Each
Y-525	0-25 AC	0-150/600 AC	1/2"	\$22.50
Y-550	0-50 AC	0-150/600 AC	1/2"	22.50
Y-500	0-100 AC	0-150/600 AC	1/2"	22.50
Y-10	0-10 AC	0-125/250 AC	Dim.: 2 3/4" x 4 3/4" x 1 3/4" thick.	22.50
Y-25	0-25 AC	0-125/250 AC	Scale, 1.8".	22.50
Y-50	0-50 AC	0-125/250 AC		22.50
Y-100	0-100 AC	0-125/250 AC		22.50

### HIGH CURRENT AMPROBES (FIG. C)

A snap-around ammeter measures current instantly without shut-downs or ammeter connections. Just snap trigger-operated jaws around one conductor and take your reading. To measure voltage, plug test leads into instrument and clip to load. Insulated jaws. Dovetail transformer joints. High visibility, rimless window.

Model	Specifications	Net Each
600*	6 Ammeter Ranges: 0-15/30/60/150/300/600 amps AC. 3 Voltage Ranges: 0-150/300/600 volts AC. Conductor Cap.: 2". Weight: 15 oz. Dim.: 2 3/4" x 1 1/4" x 8 3/4" long. Scale Length: 2.363".	\$65.50
1200*	6 Ammeter Ranges: 0-15/60/150/300/600/1200 amps AC. 3 Voltage Ranges: 0-150/300/600 volts AC. Conductor Cap.: 2". Wt.: 15 oz. Dim.: 2 3/4" x 1 1/4" x 8 3/4" long. Scale Length: 2.363".	74.50

\*Includes genuine top grain cowhide leather case, test leads.

### AMPROBE JR. TEST MASTER KITS (FIG. D)

Consists of: YO Amprobe Jr. Voltage Tester, A-45 Energizer, battery attachment, test leads and leather case. Precision instruments that measure voltage, amperage and resistance instantly and accurately on a calibrated scale. Freq.: 60 cps.

Model No.	3 Ammeter Ranges			Two Voltage Ranges	Ohmmeter Mid-scale	Net Each
	Basic Inst.	Energizer				
TM-YO-525	0-25	0-5	0-2.5	0-150/600	25 ohms	\$36.50
TM-YO-550	0-50	0-10	0-5	0-150/600	25 ohms	36.50
TM-YO-500	0-100	0-5	0-10	0-150/600	25 ohms	36.50
TM-YO-25	0-25	0-5	0-2.5	0-125/250	25 ohms	36.50
TM-YO-50	0-50	0-10	0-5	0-125/250	25 ohms	36.50
TM-YO-100	0-100	0-10	0-10	0-125/250	25 ohms	36.50

**Amprobe Junior YO Models**—Specifications, ranges and models same as TM-YO models, above, except with test leads only. When ordering, drop prefix TM (example: YO-525). See accessories for case. Net Each.....\$27.50

### AMPROBE TEST MASTER KITS (FIG. E)

**Amprobe Model TM-33**—Contains RS-3 snap-around volt-ammeter-ohmmeter; 6 current, 1 ohm, 3 voltage ranges; Deca-Tran; Extends amperage reading 10x, as high as 1,200 amps; Energizer; Multiplies sensitivity of RS-3 5x or 10x for readings on small appliances and fractional hp motors. Net Each.....\$92.85

**Amprobe Model TM-31**—Contains RS-1, economy snap-around volt-ammeter; Deca-Tran and Energizer. Net Each.....\$78.85

**Amprobe Model HK**—Contains Deca-Tran A-50-1 and Energizer A-45. With Model U carrying case. Net Each.....\$43.85

### TEST MASTER KITS (CONT'D)

**Amprobe Model TM-43**—Contains RS-3 snap-around volt-ammeter-ohmmeter; A-50-1 Deca-Tran; A-45L Energizer and PSA-1 Phase Sequence Adapter. Net Each.....\$103.85

**Amprobe Model TM-53**—Same as above, less A-50-1 Deca-Tran. Net Each.....\$76.85

### CABLE TRACER (FIG. F)

Trace conductors in cables and conduits ten times faster than ever before. Lets you search and identify up to ten separate circuits simultaneously. No needless handling of wires to locate a conductor. Each test made identifies a conductor. The number corresponding to the station block lights up to identify conductors being traced, assuring unmistakable identification. The receptacle takes up to #10 wire directly. Alligator clip leads are provided for larger size wires. Rugged case is ribbed for easy handling. With leather carrying case, 10 station markers, 2 station holders, 1 card of trace tabs and 3 alligator clip leads.

**Model CT-10 Cable Tracer**—Net Each.....\$49.50

### ACCESSORIES

Model No.	Description	Net Each
PSA-1	Phase sequence adapter, permits determining phase sequence of three-phase circuits up to 550 VAC when used with Amprobe or other multimeter having appropriate AC voltage ranges. With top-grain cowhide leather case.	\$11.85
A-45 (Fig. G)	Energizer, permits direct, 5x and 10x sensitivity current readings on equipment having 2-conductor cord. Also line voltage readings. With weatherproof pouch.	5.00
A-45L (Fig. G)	Energizer w/adaptor, same as above but has ADP-45 adaptor for current reading on permanently wired and low-current equipment.	6.75
ADP-45	Energizer adaptor, includes shunting cap and adaptor leads to convert A-45 to A-45L.	2.25
A-50 (Fig. H)	Deca-Tran, extends ampere readings 10 times, up to 1200 amps. Leather case included.	27.50
A-50-1 (Fig. H)	Deca-Tran, same as above but with 2-ft. line cord for remote readings.	30.50
PT	Probe tips, for use with any Amprobe test leads†	.25
VL-11	Bayonet safety type voltage leads, for use with all rotary scale Amprobes†	2.25
VL-22	Automatic safety type voltage leads, for use with Models 300, 600 and 1200†	2.25
VL-55	Voltage leads, for any Amprobe Safety-Yellow Junior, 2 leads†	2.25
VL-144	Voltage leads, set of 3, for use with black Amprobe Juniors having 0-125/250 V ranges. For Models 10, 25, 50 and 100†	2.25
VL-544	Voltage leads, set of 3, for use with black Amprobe Juniors having 0-150/600 V ranges. For Models 525, 550 and 500†	2.25
VL-750	High voltage multiplier leads, for use with all rotary scale Amprobes. Permits readings up to 750 VAC†	3.00
OHB-3	Ohmmeter battery attachment, for use with Amprobe Rotary Scale RS-3, RS-1000. Includes Eveready #912 battery and Littelfuse #8AG 1 amp fuse.	2.95
OHJ	Ohmmeter battery attachment, same as above but for any Amprobe Junior Ohmmeters.	2.95
ADP-3	Fuse adapter, converts unfused OHB to fused. Fuse included.	1.00
SAG-1 912	Littelfuse 1-amp fuse, for OHB-3, OHJ, ADP-3	.35
D	Eveready battery, for OHB-3 or OHJ	.15
E	Genuine top-grain cowhide leather carrying case, for Models A-50 and A-50-1 Deca-Trans.	3.85
G	Genuine leather carrying case, for Models 300, 600, 1200 and RS-1000.	4.50
C	Genuine leather carrying case, for Models RS-1, -2, -3 and RS-300 Rotary Scale Amprobes.	4.50
K	Genuine leather carrying case, for TM-YO or YO Amprobe Junior Test Master Kits.	4.75
P-1	Genuine leather carrying case, for any Y or YO Junior models.	3.25
R	Genuine leather carrying case, for PSA-1 Adapt.	1.85
S	Weatherproof pouch, for Model A-45 Energizer.	.30
T	Weatherproof pouch, for Model A-45L Energ.	.75
U	Genuine leather carrying case, for TM-43 Test Master Kit.	17.75
V	Carrying case, same as above for TM-63 Test Master Kit.	15.50
TB	Extra lamp, for cable tracer; 10 per pkg.	3.85
TH	Station holder, for cable tracer.	1.00
TS	Station marker, for cable tracer, indicate numeral desired.	1.85
TL	Alligator clip leads, set of 3, for cable tracer.	1.75
TP	Leather carrying case, for cable tracer.	3.85
T9E	Battery, for use with CT-10 cable tracer	.85

\*With detachable test prods. †Set of four.





# RCA Quality Test Equipment



WV-38A(K)



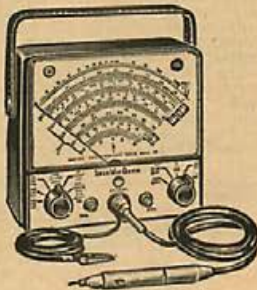
WV-77E(K)



WV-76A



WV-84C



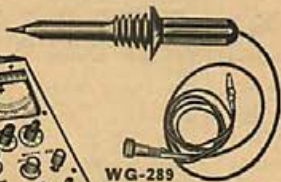
WV-98C(K)



WT-115A



WT-100A



WG-289

## MODEL WV-38A(K) VOLT-OHM-MILLIAMMETER

The basic instrument required for all types of electronic servicing, now available in kit or wired form. High input resistance and extreme accuracy and an extra-large  $5\frac{1}{4}''$  meter scale offer extreme versatility. Two extra scales: 1-volt and 0.25-volt for transistor servicing applications. Clips on side hold probes and cable when not in use. **AC Volts:** 0-2.5, 10, 50, 250, 1000, 5000 volts. Accuracy,  $\pm 5\%$ ; input resistance, 5000 ohms/volt; frequency response, (reference 1000 cps) flat within  $\frac{1}{4}$  db from 10 cps to 50 kc on 2.5, 10, 50-volt ranges. **DC Volts:** 0-0.25, 1.0, 2.5, 10, 50, 250, 1000, 5000 volts. Accuracy,  $\pm 3\%$ ; input resistance, 20,000 ohms/volt. **Ohm Ranges:** 0-2K ohms (12 ohms center); 0-200K ohms (1200 ohms center); 0-20 megs. (120K ohms center). **DC Current:** 0-50  $\mu$ a; 0-1 ma; 0-10, 0-100, 0-500 ma; 0-10 amps. Accuracy,  $\pm 3\%$ . Complete with ground lead and clip, positive probe with slip-on alligator clip, and instruction booklet. Assembly instructions provided with WV-38A(K) kit. **Size:**  $5\frac{1}{4}''$  w. x  $3\frac{1}{4}''$  d. x  $6\frac{3}{4}''$  h. Weight, 3 $\frac{1}{2}$  lbs. **\$29.95**

Model WV-38A (K) VOM Kit—Net Each.....**\$29.95**  
 Model WV-38A VOM—Factory wired and tested. Net.....**\$47.95**

## MODEL WV-77E(K) VOLTOHMYST® KIT

New addition to the VoltOhmyst series, available in kit or wired form. The laminated circuit board is keyed for accurate placement of components. Range switch has only two decks. Meter is electronically protected against burnout. Additional protection provided by a fused ohms-resistor network. Provides for stability under conditions of line voltage fluctuation. An additional circuit minimizes the effect of contact potential change. RF shielding metal case. Uses 1% tolerance resistors in voltage divider network. **AC Volts:** 0 to 1.5, 5, 15, 50, 150, 500, 1500, seven overlapping ranges. **Peak-to-Peak:** 0 to 4, 14, 40, 140, 400, 1400, 4000 volts, seven overlapping ranges. Accuracy,  $\pm 5\%$  of full scale. Frequency

response, flat within  $\pm 5\%$ , from 40 cps to 5 mc on the 1.5, 5, and 15 volt rms ranges and the 4, 14, and 40 volt peak-to-peak voltage ranges. **DC Volts:** 0 to 1.5, 5, 15, 50, 150, 500, 1500 volts, seven overlapping ranges. Accuracy,  $\pm 3\%$  of full scale. Center scale values, 10 ohms, 100 ohms, 1K ohms, 10K ohms, 100K ohms, 1.0 meg, and 10 megs. **Power Required:** 5 w. **Input:** 105-125 volts, 50-60 cps. **Tubes:** 1-6AL5, 1-12AU7. **Battery:** 1-VS035. Hammer-tone finished; satin aluminum front panel with acid etched lettering. **Size:**  $5\frac{1}{4}''$  w. x  $4\frac{1}{2}''$  d. x  $7\frac{3}{4}''$  h. Weight, 5 lbs. **\$29.95**  
 Model WV-77E (K) VoltOhmyst Kit—Net Each.....**\$29.95**  
 Model WV-77E VoltOhmyst—Factory wired and calibrated. Net Each.....**\$46.95**

## MODEL WV-98C (K) SENIOR VOLTOHMYST®

Direct reading of peak-to-peak voltages; DC 0.5 v. range for transistor circuits;  $\pm 3\%$  accuracy on both AC and DC;  $6\frac{1}{2}''$  scale. **AC Voltage:** P-P values of complex waveforms from 0.2 to 4200 v. and rms values from 0.1 to 1500 v. **DC Voltage:** From 0.01 to 1500 v. on two scales in eight overlapping "3-to-1" ranges. **Resistance:** From 0.2 ohm to 1000 megohms on single scale with seven overlapping ranges. Probe with DC/AC-Ohms switch included. **Size:**  $7''$  x  $3\frac{3}{4}''$  x  $6\frac{1}{4}''$ . Wt. 6 lbs. **\$57.95**  
 Model WV-98C (K) Senior VoltOhmyst Kit—Net Each.....**\$57.95**  
 Model WV-98C Senior VoltOhmyst—Net Each.....**\$79.50**

## MODEL WV-76A AC VACUUM TUBE VOLTMETER

High sensitivity AC VTVM for hi-fi and other audio applications. Measures AC voltages from 0.0002 to 500 v., plus decibels. Built-in amplifier may be used separately as a preamplifier, providing 38 db gain. Complete with WG-300B Direct/Low Capacitance probe; probe and cable shielded to eliminate pickup from stray fields. Switch in probe housing for direct or low capacitance input. **Frequency Range:** 10 cps to 1.5 mc. **AC Voltage Ranges:** Zero to .01, .03, .1, .3, 1, 3, 10, 30 and 100 volts. Measures to 500 v. with probe in low capacitance position. **Decibels:** -4 to +40 (+ to +56 with probe in low capacitance position). **Size:**  $5\frac{1}{4}''$  w. x  $4\frac{1}{2}''$  d. x  $7\frac{3}{4}''$  h. Weight, 5 lbs. **\$57.95**  
 Model WV-76A (K) AC VTVM Kit—Net Each.....**\$57.95**  
 Model WV-76A AC VTVM—With WG-300B probe. Net **\$79.95**

## MODEL WV-84C DC MICROAMMETER

Battery-operated vacuum tube microammeter measures minute currents from 0.0002 to 1,000  $\mu$ a. For use in electrolysis and corrosion investigations and checking currents in light meters, ultraviolet and infrared detectors, and spectrophotometric devices. May be used as a voltmeter, especially where loading is a critical factor. Also usable as ohmmeter, measuring extremely high resistances. **DC Current Ranges:** Zero to 0.01, 0.1, 1, 10, 100, 1000  $\mu$ a. Accuracy:  $\pm 5\%$  on .01 range,  $\pm 4\%$  on others. **Voltage Drop:** 0.5 v. for full scale deflection. **Input Resistance:** 100 meg, 0.1-1 v.; 1000 meg, 1-10 v.; 1005 meg, 1-100 v. Self-contained batteries; low-drain tubes for long battery life plus meter protection. **Size:**  $7\frac{1}{4}''$  x  $1\frac{1}{2}''$  x  $6\frac{1}{4}''$ . Weight, 10 lbs. with batteries. With two multiplier resistors and instructions; less batteries. **\$110.00**  
 Model WV-84C DC Microammeter—Net Each.....**\$110.00**

## MODEL WT-100A ELECTRON TUBE MICROMHOMETER

Precision lab instrument tests tubes under typical operating conditions. Useful for production line testing, design and development, critical preselection and many other applications. Tests vacuum tubes, diodes, dry disc and cold and hot cathode rectifiers, gas tubes, regulators and thyristors, providing actual operating voltages. Measures AC heater current, 0.02 to 10 amps, DC up to 250 ma; transconductance from 10 to 100,000 micromhos in six ranges, both control grid to plate and suppressor grid to plate, with accuracy of  $\pm 3\%$ . Also measures voltage drop across rectifier tubes and diodes. Shorts test for any combination of tube elements. Built-in calibrating circuit; no null meters or extra devices needed. Completely burnout-proof meter. Power supplies regulated for DC plate and screen voltages. **Size:**  $23\frac{1}{2}''$  w. x  $18\frac{1}{2}''$  d. x  $8''$  h. Weight, 50 lbs. With four multiple socket plug-in units, instruction booklet. **\$98.00**  
 Model WT-100A Micromhometer—Net Each.....**\$98.00**

## MODEL WT-115A COLOR PICTURE TUBE TESTER

Designed specifically for the testing of color picture tubes including 21AXP22, -A, 21CYP22, -A, 21FBP22, 21FKP22 and 21FJP22. Checks each gun of the color picture tube quickly and reliably, in set or out of set, for emission quality (including warm-up performance), interelectrode leakage and shorted elements. Large, three-color sensitive meter with "quality" scale and leakage scale. AC line voltage adjustment for accurate measurements. Complete with sturdy laminated vinyl case, built-in cable and socket assembly plus convenient cable storage compartment. **Model WT-115A Color Picture Tube Tester—Wired and tested. Net Each.....\$89.50**

## TEST PROBES FOR VOMS

Model WG-289—Hi-Voltage Probe. Microphone connection. Net Each.....**\$11.95**  
 Model WG-297—Extends range of WV-77E (K) and WV-38A to 50,000 v. Net Each.....**\$11.95**  
 Model WG-298B—DC-AC/Ohms Probe and Cable designed for use with VoltOhmysts except WV-77E; replaces Models WG-299A, WG-299B and WG-299C. Net Each.....**\$7.95**  
 Model WG-301A—Slip-on Probe for WG-298A, B, C. Increases frequency range of VoltOhmysts to 250 mc. Net Each.....**\$4.95**  
 Model WG-351A Crystal Diode Probe—For WV-77E VoltOhmyst. Extends RF measuring capacity to over 100 mc. Net Each.....**\$4.95**  
 Model WG-206 1080 Meg Multiplier Resistor—For WV-77, WV-87, WV-98. Multiplying factor, 100. Net Each.....**\$3.50**  
 Model WG-210 900 Meg Multiplier Resistor—For 20,000 ohms/v. VOMs; multiplies 5000 v. DC ranges by 10. Net Each.....**\$3.50**  
 Model WG-211 495 Meg Multiplier Resistor—Multiplies 250 v. DC range of 20,000 ohms/v. VOMs by 100. Net Each.....**\$3.50**





# RCA Quality Test Equipment

## NEW WR-52A STEREO FM SIGNAL SIMULATOR

Compact instrument generates signals for service, alignment and maintenance of mono and stereo FM receivers and multiplex adapters. Its three low-distortion sine wave frequencies (400, 1000 and 5000 cps), crystal-controlled 19- and 38-kc frequencies, and tunable 100-Mc carrier also make it ideal for broadcast, lab and assembly line use. Also produces: 67- and 72-kc frequencies for trap circuit adjustments; standard or composite FM stereo output signals for either left or right channel; low-distortion monaural FM signal with disabling switch for 19-kc oscillator; 60-cps FM sweep; special internal test signal for phase adjustment of WR-52A stereo signal. Carrier signal at 100 Mc is variable from 0 to 75 kc, permitting selection of quiet spot in band for testing; 100-Mc sweep also adjustable from 0 to over 750 kc at 60 cps rate. Crystal-controlled 19- and 38-kc signals for multiplex circuit adjustment are accurate to  $\pm 2$  cps. Panel meter, for adjusting RF deviation of stereo/mono FM output, has separate color-coded stereo/mono scales; meter also used to set 19-kc subcarrier level. Unit has RF output attenuator control and binding posts for AF signals from external source. Blue-gray hammertone case with brushed aluminum panel. **Power Required:** 115-125 VAC, 60 cps, 40 watts. **Size:** 13 $\frac{1}{2}$ " w. x 8" d. x 10" h. **Shipping Weight,** 21 lbs. Complete with WG-371 terminated RF output cable, WG-307 direct output cable, cable-holding bracket, registration card, and instruction booklet. **\$250.00**

Model WR-52A Signal Simulator—Net Each.....

## NEW MODEL WR-64B COLOR-BAR/DOT/CROSSHATCH GENERATOR

Precision instrument featuring exceptional stability, portability and ease of operation. An indispensable aid for servicing any make or model of color TV receiver; also checks out black and white sets. Generates signals for ten bars of different colors simultaneously, accurately spaced at 30° phase intervals. Pattern provides all signals needed for accurate adjustment of color phasing; also invaluable for signal tracing in color circuits, for checking matrixing, and for aligning automatic frequency and phase control circuits. As an aid in checking convergence, three front-panel switches provided for shorting out the red, blue or green guns of color picture tubes. Extremely stable and fine-line crosshatch and dot patterns are free from "jitter" and "crawl". A fixed number of crosshatch bars and dots make over-scan (height, width), linearity adjustments. No external sync connection required; simply connects to antenna terminal of any black-and-white or color set. All three patterns are RF outputs, factory set to channel 3 (can be set to channel 4). Sound carrier permits accurate adjustment of the fine-tuning control on receivers. "Chroma" control helps check color sync lock and AFC alignment. Color subcarrier, horizontal and vertical sync pulses, "bar" and crosshatch pattern generating frequencies are all crystal controlled. Shielded output cable provided. **Size:** 13 $\frac{1}{2}$ " w. x 8" d. x 10" h. **Weight,** 17 lbs. With RF output cable, cable-carrying bracket attachment and instruction booklet. **Model WR-64B Color-Bar/Dot/Crosshatch Generator—Net Each..... \$189.50**

Model WR-64B Color-Bar/Dot/Crosshatch Generator—Net Each.....

## MODEL WR-50A RF SIGNAL GENERATOR

Accurate source of continuous wave or modulated RF signals from 85 kc to 40 mc, for maintenance, troubleshooting or instructional purposes. Ideal for aligning and signal tracing in AM, FM, hi-fi and CB receivers. Easy-to-read dial scale and pointer for variable oscillator. Includes built-in crystal calibrating oscillator with crystal socket on front panel, plus 400 cps oscillator for internal modulation or AF output. Six overlapping tuning ranges, with individual inductance and capacitance adjustments for each. DC blocking capacitors built into each permanently attached, shielded output cable. Two step RF attenuator switch plus continuously variable attenuator control for complete adjustment of RF output. Planetary drive tuning capacitor and large tuning knob for simple, accurate frequency adjustment. **Maximum RF Output:** At least 0.05 v. rms, open circuit. **AF Output:** At least 5 v. rms across 5K ohms. **Frequency Accuracy:**  $\pm 2\%$ . **Power Required:** 105-125 v. AC, 50-60 cps, 15 watts. Brushed aluminum panel with permanent deep-etched multicolor scales and lettering. **Size:** 5 $\frac{3}{4}$ " w. x 4 $\frac{3}{4}$ " d. x 7 $\frac{3}{4}$ " h. **Weight,** 5 lbs. **\$59.95**

Model WR-50A RF Signal Generator—Net Each.....  
Model WR-50A(K) RF Signal Generator Kit—Net Ea. \$39.95

## MODEL WR-99A MARKER GENERATOR

Crystal calibrated generator; supplies fundamental frequency RF carrier for aligning and trouble-shooting color and black-and-white TV receivers, FM receivers, and other electronic equipment operating in the 19-260 mc range. Built-in 4.5 mc crystal calibrator, heterodyne detector, amplifier and speaker provide calibrating beats at 1 mc or 10 mc intervals through entire tuning range in eight bands. At least 0.1 v. output, into 90 ohms terminated; special modulation input for re-transmission; dual markers for bandwidth checks, RF alignment; triple markers for sound IF alignment and band-width checks; matched impedance/resistance pad, 0-60 db in 5 db steps; vertical/horizontal linearity adjustment; usable as heterodyne frequency meter. **Size:** 13 $\frac{1}{2}$ " w. x 7" d. x 10" h. Complete with output cable, two phone tips and instruction book. **\$256.50**

Model WR-99A Marker Generator—Net Each.....

## MODEL WV-120A POWER LINE MONITOR (NOT ILLUS.)

Gives constant indication of power line voltage. Expanded scale indicates true rms voltage, 100 to 140 v. Readable from distance of 10 feet or more. Simply plugs into power outlet. **Accuracy:**  $\pm 2\%$  at 120 v.;  $\pm 3\%$  at 100 and 140 v. **Frequency Range:** 25-400 cps. **Size:** 5" w. x 3 $\frac{1}{2}$ " d. x 3 $\frac{1}{4}$ " h. **Weight,** 1 $\frac{1}{2}$  lbs. **\$149.95**

Model WV-120A Power Line Monitor—Net Each.....



WR-52A



WR-64B



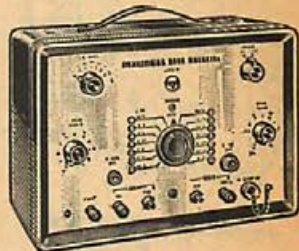
WR-50A, WR-50A(K)



WR-99A



WA-44C



WR-69A

## MODEL WA-44C AUDIO SIGNAL GENERATOR —SINE/SQUARE WAVE OUTPUT

Compact design for testing electronic equipment and other uses requiring a sine or square wave audio-frequency signal. Operates from any 105-125 v. AC, 50-60 cps source. Covers 20-200,000 cps in four bands. Can be used to measure frequency response in amplifiers, speakers and enclosures. Can also be used to find impedance of LC combinations. A "bridged-T" oscillator circuit with cathode follower output stage provides the sine-wave function. Attenuator, clipper and cathode follower circuits produce the square wave output. Signals are stable with an amplitude variation of not more than  $\pm 1.5$  db. Harmonic distortion limited to 0.25% over 30-15,000 cps range. Can be used with high or low impedance circuits. **Size:** 10 $\frac{1}{4}$ " w. x 6 $\frac{1}{2}$ " d. x 7" h. **Weight,** 10 $\frac{1}{2}$  lbs. With 20 page instruction book. **\$98.50**

Model WA-44C Audio Signal Generator—Net Each... \$98.50

## MODEL WR-69A TV/FM SWEEP GENERATOR

Pre-set switch positions for all VHF TV channels, continuous tuning from 50 kc to 50 mc. High output voltage flat and free from spurious responses. Fundamental signals generated on all channels. Special blanking circuit produces zero reference line for quantitative gain measurements and balancing discriminator circuits. Phase-controlled sweep voltage at power-line frequency for scopes lacking sweep and phase controls. Dual-piston attenuator with range down to 5 v. TV channels 2 to 13 preset. IF, 50 kc-50 mc for continuous tuning. Sweep width continuously variable for both IF and VF ranges. Output, 0.1 v. rms min. Max. attenuator ratio: RF, 20,000:1; IF, 4000:1. Hor. phase sweep adjust. range, 160°. **Size:** 13 $\frac{1}{2}$ " w. x 7" d. x 10" h. Wt., 18 lbs. Complete with RF output cable, IF/Video output cable and instruction book. **\$295.00**

Model WR-69A TV Sweep Generator—Net Each.... \$295.00

## MODEL WG-304B RF MODULATOR (NOT ILLUS.)

For checking overall frequency response of TV receivers from antenna to picture tube grid. Permits modulation of RF marker signal from marker generator, by signal from video sweep generator. **\$16.50**

Model WG-304B RF Modulator—Net Each..... \$16.50





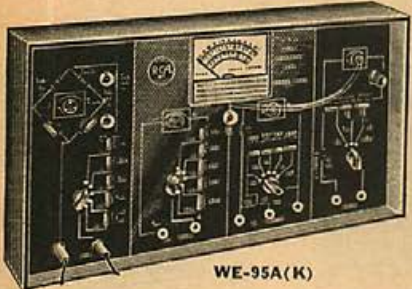
# RCA Quality Test Equipment



WO-91B



WO-33A(K)



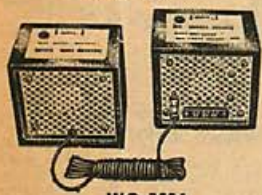
WE-95A(K)



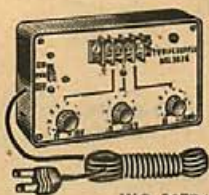
WR-70A



WG-295C



WG-360A



WG-307B(K)

## MODEL WG-360A PHASE CHECKER

For dynamic phase check in any audio system from input to output of speakers. Sound powered; requires no external voltage source. Any VOM, VTVM or oscilloscope may be used as indicator. **Model WG-360A Phase Checker—Net Each. \$14.95**

## MODEL WG-307B(K) TV BIAS SUPPLY

Designed for use in servicing and aligning both color and black and white television receivers. Provides three separate DC output voltages, each adjustable from 0 to -15 volts (minimum) for application in RF, IF, and other circuits of TV receivers. Three output voltages available from three separate terminals on top of unit. Separate potentiometers are provided for adjusting the three 0 to -15 volts outputs. Utilizes a power transformer and operates from 105-125 v. AC. 60 cps power source. Supplied with complete assembly instructions, solder, hook-up wire, and insulating sleeving. **Model WG-307B(K) TV Bias Supply Kit—Net Each. \$11.95**

## TEST PROBES FOR RCA SCOPES

**Model WG-300B—Direct/Low Capacitance Probe and Cable for use with RCA scopes. Net Each. \$9.95**  
**Model WG-302A—RF/IF/VF Signal Tracing Probe, slips on WG-300A and B. Net Each. \$8.50**  
**Model WG-349A Direct/Low Capacitance Probe—For WO-33A scope. Increases input impedance to 10 meg. cap. 12 pF. Eliminates need for switching. Small dia., 48" long, extremely flexible, shielded. Alligator clips for ground, direct, low capacitance connections. Net Each. \$5.95**  
**Model WG-350A Demodulator Probe—For WO-33A scope for demodulation and signal tracing of radio/TV RF and IF. Net Each. \$4.95**  
**Model WG-354A Capacitance-Type Voltage Divider Probe—For WO-91B scope. Slip-on accessory for WG-300B. Extends range so that signal pulse amplitudes up to 5,000 volts can be observed. Net Each. \$7.50**

## MODEL WO-91B OSCILLOSCOPE

Latest model of this famous RCA 5" scope features provision for connecting signals directly to CRT vertical deflection plates, a two-stage sync separator, and choice of wide-band or highly sensitive narrow-band display. Direct application of signal to deflection plates permits observation of high frequency RF waveforms, such as trapezoidal and wave-envelope modulation patterns. Two-stage sync separator simplifies checking of TV horizontal and vertical sweep sync, and provides exceptionally solid lock-in action on composite TV signals. Multiscale graph screen, scaled directly in volts, permits peak-to-peak voltage measurements as easily as with VTVM. Z axis input for direct modulation of CRT grid allows use of timing and calibration markers on trace. Freq. Response: (ref. freq. 10 kc) Wideband pos., +1 db 10 cps to 4.5 mc; Narrowband pos. within -1 db 10 cps to 0.5 mc within -6 db to 1.5 mc. Sensitivity: 0.018 p-p volt rms per inch (0.053 volt rms per inch in wideband). Voltage calibrated, freq. compensated, 3-to-1 step attenuator for "V" amplifier. Simplified semi-automatic voltage calibration for simultaneous voltage measurement and waveshape display. Vertical-polarity reversal switch. With WG-300B Direct/Low capacitance probe and cable, alligator clip, clip insulator, ground cable, green graph screen, instructions. Size: 9" w. x 16 1/2" d. x 13 1/2" h. Shipping Weight, 35 lbs. **Model WO-91B 5" Oscilloscope—Net Each. \$249.50**

## MODEL WO-33A(K) OSCILLOSCOPE

Compact three-inch scope that handles all black and white or color TV servicing problems. Increased gain and bandwidth enables it to be used in PA, radio, TV, broadcast, ham radio, Hi-Fi, laboratory and industrial applications. **Vertical Amplifier Sensitivity:** Wide band, 100 rms mv/inch; Narrow band, 3 rms mv/inch. **Vertical Amplifier Bandwidth:** Wide band, within -3 db, 5.5 cps to 5.5 mc; Narrow band within -3 db, 20 cps to 150 kc. **Sweep Circuit:** Sawtooth range, 15 cps-75 kc; Sync, external, -internal; line sweep, 160° adjustable phase; sync range, to 4.5 mc. Vertical circuit impedance at Lo-Cap cable input, 10 megs, 10 pF (approx.). **Power Required:** 105-125 v. AC, 50-60 cps, 50 watts. **Size:** 6 1/2" w. x 10 1/2" d. x 8 1/2" h. Weight, 14 lbs. Complete with Direct/Lo-Cap probe and cable, and instruction book. **Model WO-33A(K) Oscilloscope Kit—Assembly Instruc- \$79.95** (includes) Net Each. **Model WO-33A Oscilloscope—Factory wired and calibrated. Net Each. \$129.95**

## MODEL WE-95A(K) VOM DYNAMIC DEMONSTRATOR KIT

Dynamic visual aid for teaching principles of meters and metering circuitry, at high school or trade school level. Educational value goes beyond that of assembly; may be used for all normal VOM applications and for effective visual demonstrations of meter circuits. Consists of standard VOM converted into a kit, for easy assembly in panel form. Separate schematic and wiring diagrams printed on large, easily read layout panel; simple assembly instructions provided. Individual wiring diagram for each circuit printed on rear of panel for rapid, accurate assembly. No previous experience required. All components positioned in relation to their proper place in each circuit; each circuit function color-coded for easy identification. Instruction manual not only includes assembly instructions, but illustrates and explains the operation of each VOM circuit. **Model WE-95A(K) VOM Demonstrator Kit—Net Each. \$37.95**

## MODEL WE-93A(K) TRANSISTOR RADIO DYNAMIC DEMONSTRATOR KIT (NOT ILLUS.)

AM superheterodyne transistor radio converted into kit form for educational and instructional applications. Clear, step-by-step instructions make the demonstrator extremely easy to assemble: No previous kit assembly experience required. Circuit diagram drawn on sturdy, 12" x 24" color-coded panel. Wiring diagram on reverse side for rapid, accurate assembly. After construction, the demonstrator serves as a visual aid as well as an operating radio receiver. Components are placed in their proper position in the circuit, with each function color-coded for easy identification and explanation. Special silver-plated spring connectors used for electrical and mechanical connection, assuring easy component installation. Simple operation for convenience in testing and component substitution. Unfinished, solid mahogany frame and stand. Includes 304 page RCA Transistor Manual, plus assembly instructions. Less batteries. **Model WE-93A(K) Transistor Radio Dynamic Demonstrator Kit—Net Each. \$39.95**  
**Model WE-92A(K)—24" x 48" instructor's model of above. Net Each. \$69.50**

## MODEL WR-70A RF/IF/VF MARKER-ADDER

Provides sharp, narrow, easy to read markers for RF, IF and sweep frequency alignment of color and black and white TV receivers. Designed to be used with existing marker generators to give a choice of four markers having different shapes. Eliminates distortion of the marker and distortion of the sweep curve by the marker due to overloading or clipping by the TV receiver circuits. Front panel controls for marker shape, amplitude and polarity as well as the sweep-trace amplitude and polarity. **Size:** 10 1/2" w. x 6 1/2" d. x 7 1/2" h. **Model WR-70A RF/IF/VF Marker-Adder—Net Each. \$74.50**

## MODEL WG-295C VIDEO MULTIMETER

An absorption-type marker device that provides seven simultaneous reference markers on a sweep response curve at factory set frequencies in the video range. Designed for sweep alignment and trouble-shooting of color TV receivers. Markers are provided at 0.5, 1.5, 2.5, 3.0, 3.58, 4.1 and 4.5 mc, each with its own "touch terminal" for checking Q and I filters, bandpass filter, color sub-carrier circuit, soundtrap, etc. Connects to sweep generator by means of 15' coaxial cable. **Model WG-295C Video Multimeter—Net Each. \$32.50**



**MODEL CDE ELECTROLYTIC CAPACITOR SUBSTITUTION BOX**



Provides a reliable, flexible capacitance for substitution purposes in a wide variety of service and experimental electronic and electrical applications. Proper replacement capacitor values can be determined directly from values indicated on the box. Selection of 15 combinations available. Unit can be used individually or can be connected in parallel with other similar units to provide an unlimited range of higher capacitances. Long-life, etched cathode, low ripple, all-purpose type capacitors; especially suited for selenium rectifier applications. **Capacitance**

Range: 10-150  $\mu$ f, in 10  $\mu$ f steps. **Voltage Range:** 450 v., DC, maximum. **Tolerance:** -10%, +50%. **Size:** 3 $\frac{3}{4}$ " x 5" x 3 $\frac{1}{4}$ ". **Cornell-Dubilier Model CDE Electrolytic Capacitor Substitution Box—Net Each.....\$1420**

**MODEL CDT TANTALUM CAPACITOR SUBSTITUTION BOX**

Provides convenient substitution of polarized tantalum foil capacitors, from 10 to 1100  $\mu$ f in 10  $\mu$ f steps. Selection by two rotary switches; individually calibrated with calibration chart showing actual values to  $\pm$ 1% permanently attached to unit. Low range, from 10-100  $\mu$ f, uses plain foil capacitors, tolerance  $\pm$ 5%; high range, 100-1000  $\mu$ f, uses etched foil, tolerance  $\pm$ 10%. Maximum voltage, 50 v. DC polarized. Molded phenolic case with 6-way molded nylon terminal posts. **Size:** 3 $\frac{3}{4}$ " x 5" x 3 $\frac{1}{4}$ ". **Weight,** 1 lb. 4 oz.



**Cornell-Dubilier Model CDT Tantalum Capacitor Substitution Box—Net Each.....\$9950**

**DECADE CAPACITORS**



Provide accurate standards over a wide range of capacitance. May be used in groups of three decades, or individually for maximum flexibility. Each decade is furnished with calibration chart giving exact values for all scale markings, extending use to more precise measurements with 6-way molded nylon terminal posts. Rated Voltage—600 v. DC, 220 v. AC. Model CDC uses one rotary switch, others two. Model CDA uses silver mica capacitors, others paper-oil. **Size:** 3 $\frac{3}{4}$ " x 5" x 3 $\frac{1}{4}$ ".

CDE Model	Max. Capacitance	Tolerance	Dielectric	Net Each
CDA-2	.011 $\mu$ f in .0001 $\mu$ f steps	$\pm$ 2%	Mica	\$17.50
CDA-5	.011 $\mu$ f in .0001 $\mu$ f steps	$\pm$ 5%	Mica	14.20
CDB-5	1.1 $\mu$ f in .01 $\mu$ f steps	$\pm$ 5%	Oil-Paper	14.20
CDB-3	1.1 $\mu$ f in .01 $\mu$ f steps	$\pm$ 3%	Oil-Paper	16.35
CDC-5	10.0 $\mu$ f in 1.0 $\mu$ f steps	$\pm$ 5%	Oil-Paper	24.65
CDC-3	10.0 $\mu$ f in 1.0 $\mu$ f steps	$\pm$ 3%	Oil-Paper	27.26

**DECADE RESISTORS**



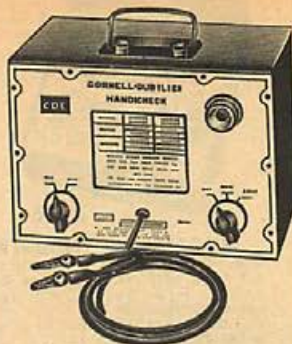
A reliable source of resistance for substitution purposes in a wide variety of electrical and electronic applications. Range selection made by two rotary selector switches. Each decade covers 110 resistance values. Custom calibration chart permanently attached. **Model RDA:** Wire-wound resistors, rated 10 watts max.; covers 1-110 ohms in 1 ohm steps. Low range, 1-10 ohms,  $\pm$ 5%; high range, 10-100 ohms,  $\pm$ 3%. **Model RDB:** Non-inductive wire-wound resistors, rated 10 watts max.; covers 100-11K ohms in 100 ohm steps, tolerance,  $\pm$ 3%. Low range, 100-1K ohms; high range, 1K-10K ohms. **Model RDC:** Non-inductive precision carbon resistors, rated 2 watts max.; covers 10K ohms to 1.1 megohm in 10K steps, tolerance,  $\pm$ 1%. Low range, 10K-100K ohms; high range, 100K-1 megohm. **Size:** 3 $\frac{3}{4}$ " x 5" x 3". **\$1535**

**Cornell-Dubilier Model RDA Decade—Net Each.....\$1535**  
**Cornell-Dubilier Model RDB Decade—Net Each.....\$15.65**  
**Cornell-Dubilier Model RDC Decade—Net Each.....15.65**

**RACK PANEL MOUNTED DECADES**

Rack-panel mounted capacitor and resistor decade units. Mounted on standard 19-inch rack panel. Allows convenient off-bench location and easy access. Includes 3 capacitance or resistance ranges. **Model CDRM:** .011  $\mu$ f in .0001  $\mu$ f steps, 1.1  $\mu$ f in .01  $\mu$ f steps and 10.0  $\mu$ f in 1.0  $\mu$ f steps; one each Model CDA-2, CDB-3 and CDC-3. **Model RDRM:** 1 to 110 ohms in 1 ohm steps, 100 to 11K ohms in 100 ohm steps, 10K ohms to 1.1 megohms in 10K steps; one each Model RDA, RDB, RDC. **Size:** 19" x 5" x 3 $\frac{1}{4}$ ". **\$585**  
**Cornell-Dubilier Model CDRM—Net Each.....\$585**  
**Cornell-Dubilier Model RDRM—Net Each.....\$55.00**  
 Special units available with any combination of decades.

**MODEL BF-90 "HANDICHECK" IN-CIRCUIT CAPACITOR CHECKER**



Designed to determine the condition of capacitors rapidly and conveniently without removing them from the circuit. Detects opens, shorts or intermittent opens and shorts. Will indicate condition of in-circuit capacitors from 30  $\mu$ f to 0.1  $\mu$ f with 50 ohms or higher parallel resistance and from 0.1  $\mu$ f to 2000  $\mu$ f with 1 ohm or higher parallel resistance. A 60 cps circuit with an electron-ray indicator tube is used to detect shorts and intermittents. Has recessed handle for easy carrying. Operates on 110-125 v. AC, 50-60 cps.

**Size:** 5 $\frac{1}{2}$ " d. x 7" h. x 10" w. In finish metal case. **Weight,** 6 $\frac{3}{4}$  lbs.  
**Cornell-Dubilier Model BF-90 "Handicheck"—\$4175**  
 Complete with tubes. **Net Each.....\$4175**

**MODEL BF-60 CAPACITOR-RESISTOR BRIDGE**

Measures the most important capacitor and resistor characteristics and defects: Resistance, capacitance, power factor, low insulation resistance, high leakage, intermittents, shorts, opens. Wien bridge uses electron "eye" for bridge null indications. **Capacitance:** Four ranges, 10  $\mu$ f to 1,000  $\mu$ f. **Resistance:** Two ranges, 1,000 ohms to 5 mega. **Power Factor:** To 50% at 60 cps. Five fixed DC polarizing voltages provided. **Power Required:** 110-125 v. AC, 50-60 cps. Dark brown wrinkle finished case. **Size:** 10" w. x 5 $\frac{1}{2}$ " d. x 7" h. **Wt.,** 8 $\frac{3}{4}$  lbs.  
**Cornell-Dubilier Model BF-60 Capacitor-Resistor Bridge—Complete with tubes, Net Each.....\$5185**



**MODEL BF-71A CAPACITANCE-RESISTANCE ANALYZER**



Revised version of the Model BF-70, with extra features. Checks capacitors rated as low as 1 volt. Fills the need for an instrument to check not only medium to high voltage capacitors, but also low voltage capacitors, such as transistor circuit types, without damage or change of characteristics. Large 3 $\frac{1}{2}$ " multi-range meter measures leakage current even on tantalum capacitors. Refined circuitry eliminates high voltage pot; sloping front panel improves readability. Has high accuracy, stability, and reliability. **Capacitance:** Measures 10  $\mu$ f to 2000  $\mu$ f in four ranges with Wien bridge accuracy of  $\pm$ 3% and test voltage of only 0.5 v. rms. **Power Factor:** 0-50% on electrolytics. **Resistance:** 2.5 ohms to 25 megohms, in three ranges. **Insulation Resistance:** Measured directly or by calculation. **Meter:** 10,000 ohms/volt meter; measures leakage current from 2  $\mu$ a to 100 ma in three ranges, and test voltages from 0-500 v. DC in three ranges. Meter accuracy, 2% of full scale. **Internal Power Supply:** 0-500 v. DC at 35 ma maximum for leakage testing or general lab use. **Power Required:** 110-125 v. AC, 50-60 cps. **Size:** 10" w. x 6 $\frac{1}{2}$ " d. x 11" h. In portable dark brown, wrinkle enamel, metal case. Panel has beige background, red border, black and red lettering. **Weight,** 14 lbs.  
**Cornell-Dubilier Model BF-71A Capacitance-Resistance Analyzer—Net Each.....\$12975**

**FOR THE FINEST IN ELECTRONIC INSTRUMENTS AND COMPONENTS ALWAYS SPECIFY CDE.**

**SEE CATALOG INDEX FOR OTHER CORNELL-DUBILIER PRODUCTS. ASK FOR DATA ON UNLISTED ITEMS.**





580



539C



752A



6000A



800



123R



CA-4



870



890



850P

**MODEL 580 INDUSTRIAL AND LABORATORY PORTABLE TUBE TESTER**  
 Can be set up directly to any tube test condition without having to rely on the built-in roll chart. All tube test potentials are individually variable. Pushbutton speeds dual section tube checks. Accepts 4-, 5-, 6-, and 7-pin standard bases, octal, loctal 7-, 9-, and 10-pin miniatures, 7- and 8-pin subminiatures, 5- and 7-pin nuvistors, novars, and compactrons.  $G_m$  range to 60,000  $\mu$ mhos. Gas test detects grid current to 0.05  $\mu$ a. Leak test sensitivity to 50 megohms. Black leatherette-covered wood case, 19" w. x 15 1/2" d. x 7" h. Shipping Weight, 35 lbs.  
**Model 580 Tube Tester—Net Each.....\$585.00**

**MODEL 539C INDUSTRIAL AND LABORATORY TUBE TESTER**  
 Portable unit for testing all the latest tubes, including compactrons, novars, 5- and 7-pin nuvistors, and 10-pin types. Tests on new types are complete and accurate: No paralleled elements. Also tests VR tubes and low power thyristors, "4-digit" types. Voltage regulator tubes are evaluated under actual operating conditions. Includes provision for separate monitoring of plate current. Panel terminals provide access to grid, plate, cathode and heater circuits for direct measurement of voltages and current. Six ranges cover 600 to 60,000  $\mu$ mhos. Line voltage and grid voltage are metered. Dual leakage readings, either directly on meter or by neon short indicator; sensitivity to 50 megohms. Black leatherette case with lead compartment and detachable lid; 16 3/4" x 18 3/8" x 7 1/2" d. Shipping Weight, 35 lbs.  
**Model 539C Tube Tester—Complete with socket savers. Net Each.....\$485.00**

**MODEL 752A INDUSTRIAL, COMMUNICATIONS PORTABLE TUBE TESTER**  
 Designed for use in maintaining communications equipment and industrial electronic apparatus. Voltage regulator test circuit tests VR tubes to handbook specifications (including firing point, regulating voltage and current range). Tests all the latest tubes: Compactrons, novars, 5- and 7-pin nuvistors, 10-pin types. All tests are complete—no paralleled elements. Handy-pushbutton test for balanced or matched characteristics on dual-section tubes. Covers 0-1500 to 30,000  $\mu$ mhos in 5 ranges. Reads interelement leakage directly on meter (sensitivity to 10 megohms). Illuminated meter, roll chart, socket savers and pin straighteners. Black leatherette case with lead compartment and detachable lid; 18 3/4" x 16 3/4" x 7 1/2" d. Shipping Weight, 27 lbs.  
**Model 752A Industrial and Communications Tube Tester—Net Each.....\$355.00**

**MODEL 6000A HIGH SPEED PORTABLE TUBE, TRANSISTOR, DIODE TESTER**  
 Test all the latest tubes, including compactrons, novars, 5- and 7-pin nuvistors, 10-pin types. Tests on new types are complete and accurate: No paralleled elements. Sensitive, instantaneous interelement leakage and shorts test. Three ranges cover 0-3000 to 15,000  $\mu$ mhos. Also tests transistors and diodes. Supplied complete with test leads. Red leatherette case with detachable lid; 16 3/4" x 11 3/4" x 7 3/8" d. Shipping Weight, 21 lbs.  
**Model 6000A Portable Tube, Transistor and Diode Tester—Net Each.....\$239.50**

**MODEL 800A PORTABLE TUBE AND TRANSISTOR TESTER**  
 Provides direct meter reading of interelement leakage and shorts. New filament continuity test speeds test of transistors, diodes; 4-, 5-, 6-, 7-pin, octal, loctal, nuvistor, 7- and 9-pin miniature, compactron, novar, 5- and 7-pin nuvistors, and 10-pin type tubes. Complete with test leads. Size: 16 3/4" x 11 3/4" x 7 1/2". Shipping Weight, 22 lbs.  
**Model 800A Tube and Transistor Tester—Net Each.....\$199.50**

**MODEL 123R CARDMATIC® AUTOMATIC TUBE TESTER**  
 Laboratory accuracy in a revolutionary card type tube tester. The most accurate portable tube tester available. Code cards make all test settings—test any receiving tube with highest accuracy. All indications are automatic and instantaneous by use of two pushbuttons. Ideal for production line use. Permits special engineering tests to meet any exact tube specifications for special circuit use. Ranges:  $G_m$  500-26,000  $\mu$ mhos; current, 100  $\mu$ a to 510 ma. 55 watts, 105-125 v., 50-60 cps. In black leatherette carrying case, 19 1/2" x 16 1/2" x 9 1/4" d. Shipping Weight, 57 lbs. Includes 500 selected cards, pin straighteners and socket savers.  
**Model 123R Cardmatic Tube Tester—Net Each.....\$585.00**  
**Model 123R Cardmatic Tube Tester—Less cards. Shpg. Wt., 52 lbs. Net Each.....\$445.00**

**MODEL 121 HIGH SPEED AUTOMATIC CARDMATIC TUBE TESTER**  
 Technician's portable Cardmatic tube, transistor and semiconductor diode tester; instantaneous and automatic high sensitivity shorts test. Heater to cathode leakage is quantitatively indicated directly on the meter. Measures: 320 heater voltages; 140 fixed bias potentials; 640 plate voltages; 640 screen voltages; 100 self-bias settings; and 1000 quality-value sensitivity ranges—all set automatically. Accurately checks horizontal and vertical amplifier tubes for pulse operation. 50 watts, 105-125 v., 60 cps. Baked gold finished panel. 19 1/2" x 13 1/2" x 8" d. Shipping Weight, 39 lbs.  
**Model 121 Portable Tube Tester—Includes 342 selected cards. Net Each.....\$359.50**

**MODEL CA-4 SOCKET ADAPTER**  
 Adapter for 10-pin tubes, 5- and 7-pin nuvistors, novars and compactrons. For most older tube testers.  
**Model CA-4 Adapter—Net Each.....\$49.50**

**MODEL 870 DYNAMIC BETA TRANSISTOR TESTER**  
 Variable collector voltage and collector current permit tests according to manufacturer's specifications. Tests switching transistors; measures large signal DC beta on power transistors, small signal AC beta on low and medium power transistors. Collector test current variable up to two amperes permits beta measurement on power transistors rated five amperes or more. Ranges (Ic): 0-100  $\mu$ a, 0-1 ma, 0-10 ma. Beta Ranges: 0-100, 0-300. Requires 40 watts, 115 v. AC, 60 cps. Black leatherette case 14 3/4" x 11 3/4" x 7 3/8". Shipping Weight, 22 lbs.  
**Model 870 Portable Dynamic Beta Transistor Tester—Complete with roll chart. Net Ea. \$355.00**

**MODEL 890 DYNAMIC BETA® IN-CIRCUIT TRANSISTOR TESTER**  
 Utilizes unique new test circuit to measure AC beta in or out of circuit with 5% accuracy. Measures these in-circuit parameters: AC beta, I<sub>c</sub>, R<sub>in</sub>, (transistor) Input impedance, impedance ohms (base-emitter circuit impedance). Measures AC beta, I<sub>c</sub> and I<sub>be</sub> out of circuit. Portable, self-contained and fully transistorized. Battery operated. Size: 10 3/4" x 9" x 6 1/2". Shipping Weight, 8 lbs.  
**Model 890 Transistor Tester—Net Each.....\$139.50**

**MODEL 850P PORTABLE TRANSISTOR ANALYZER**  
 Low-cost, accurate, easy-to-use transistor analyzer that can never become obsolete. Panel selector quickly sets choice of circuit use conditions. Checks parameters in any of three configurations; common base, common emitter, common collector. Checks power transistors with collector current up to 1 amp. Checks collector leakage, C base or C emitter; beta (current) gain; input and output resistance; power gain; linearity. Battery operated. Black leatherette case with aluminum panel; 16 1/2" x 13 1/2" x 8" d. Shipping Weight, 20 lbs.  
**Model 850P Portable Transistor Analyzer—Net Each.....\$169.50**



## MODEL 770A LABORATORY 5-INCH OSCILLOSCOPE

For industrial and laboratory use. Built-in voltage calibrator; choice of recurrent or driven sweep. Wide response vertical amplifier, DC to 5 Mc within 3 db. Narrow band sensitivity, 10 mV/in. rms; rise time, 0.07  $\mu$ sec. Horizontal amplifier response, DC to 500 kc within 3 db; sensitivity, 75 mV/in. rms. Flat face tube for increased linearity; illuminated, calibrated screen. Size: 12" w. x 18" d. x 14" h. Shipping Weight, 61 lbs.

Model 770A Laboratory Oscilloscope—Net Each.....\$585.00

## MODEL 677 WIDE BAND 5-INCH OSCILLOSCOPE

AC response, 5 cps to 4.5 Mc within 3 db. Pre-set horizontal and vertical sweep positions. Sharp, bright trace with full astigmatic correction; illuminated, calibrated screen. Vertical sensitivity, 40 mV/in. rms; rise time, 0.08  $\mu$ sec or better. Horizontal response, 5 cps to 350 kc within 3 db; high gain for detailed observation of TV sync waveforms, including color burst. Sweep generator covers 10 cps to 500 kc, with pre-set frequencies of 30 cps to 7875 cps. Size: 9 $\frac{1}{2}$ " w. x 18 $\frac{1}{2}$ " d. x 14" h. Shipping Weight, 36 lbs.

Model 677 Wide Band Oscilloscope—With instruction book and test leads. Net Each...\$199.50

## MODEL 675A 5-INCH OSCILLOSCOPE

Late design TV service 'scope covers DC to 4.5 Mc, flat through color burst frequency; 20 mV rms per inch sensitivity. Time base generator with 4 calibrated decade ranges with 10-1 vernier. Frequencies: 10-100 cps, 100-1000 cps, 1-10 kc, 10-100 kc. Portable. Size: 13" x 10" x 18" d. Shipping Wt., 45 lbs.

Model 675A Oscilloscope—Complete with low capacity probe and ground lead. Net Ea...\$299.90

## MODEL 209B CAPACITANCE TESTER AND TRUE VACUUM TUBE VOLT-OHM-MILLIAMMETER

Provides eight separate functions, with easy-to-read non-glare black 9" scale. Capacitance measurement as low as 50 pF, high as 2000  $\mu$ F. Zero center DC voltage position for null balance circuits. Extended range to 200 Mc, 100 mV sensitivity. Power supplies regulated to  $\pm$ 1%. Measures inductance from 50 mH to 100 H with conversion chart. DC Volts: 0-0.1, 0.3, 1, 3, 10, 30, 100, 300, 1000. AC Volts: 0-1, 3, 10, 30, 100, 300. mA DC: 0-0.1, 0.3, 1, 3, 10, 30, 100, 300, 1000. Ohms: x1, x10, x100, x1K, x10K, x100K, x1 meg. (Design center 10 ohms.) Capacitance: x10, x1, x0.1, x0.01, x0.001  $\mu$ F; x10, x100 pF. (Design center 38.) Frequency Response: 20 cps to 1 Mc,  $\pm$ 3%; to 100 Mc,  $\pm$ 1 db, full scale. Accuracy: Volts and mA,  $\pm$ 3%, full scale; ohms and capacitance,  $\pm$ 3%. Input Impedance: DC Volts, 11 meg; DC Null, 22 meg; AC Volts, 10 meg shunted by approx. 5 pF. Power Required: 30 watts, 117 VAC  $\pm$ 10%, 50-60 cps. Enamelled steel portable case, chrome meter case. Size: 18" w. x 8" d. x 13 $\frac{1}{2}$ " h. Shipping Weight, 26 lbs.

Model 209B Tester—With AC and DC probe assemblies, test leads, book. Net Each...\$239.50

## MODEL 470A PORTABLE ELECTRONIC VOLT-OHM-METER

Advanced UNI-SCALE design provides increased ranges in all functions while simplifying readability, with only two basic scales. AC and DC values read from same scales, eliminating low range AC error due to crowding. High sensitivity, low voltage range for transistor bias testing. Single unit AC-DC-Ohms probe simplifies operation, eliminates need for multiple leads. For both field and laboratory applications. Large, 7" easy-to-read meter with 100  $\mu$ A movement and clear plastic window; DC zero center. Scale Arcs: 0-1.5 and 0-5 for AC rms and DC; 0-1.4 and 0-4, p-p. AC-DC Volts: 0-0.5, 1.5, 5, 15, 50, 150, 500, 1500. AC Volts Peak-to-Peak: 0-1.4, 4, 14, 40, 140, 400, 1400, 4000. Ohms: x1, x10, x100, x1K, x10K, x100K, x1 meg, x10 meg. Frequency Range: 15 cps to 2.5 Mc. Input Impedance: DC volts, 17.7 meg; AC volts, 17.7 meg paralleled with approx. 150 pF. Power Required: 15 watts, 115 VAC, 50-60 cps; ohmmeter uses 1.5 V "C" cell. Metal case, 6 $\frac{3}{4}$ " x 7 $\frac{1}{2}$ " x 4 $\frac{1}{2}$ ". Shipping Weight, 10 lbs.

Model 470A Electronic Volt-Ohmmeter—Complete with single-unit probe, test leads and instruction book. Net Each.....\$79.50

## MODEL 455A VOLT-OHM-MILLIAMMETER

Exclusive overload cut-out and fuse system provides complete protection for meter, resistors, shunts, and other components. Any high voltage or current can be applied directly across any function without danger or damage. Sensitivity: 20,000 ohms/VDC-AC. Volts: 0-3, 15, 60, 150, 600, 1200 DC-AC. Ohms: 0-100 meg; (5, 50, 500, 500,000 ohms—center scale). Current: 50 microamps; 1, 10, 100, 1000 mA; 10 amps. Single Function-and-Range switch. Full-wave bridge-type rectifier circuit. Streamlined case with curved face and slanted dial; batteries housed in special compartment—just snap in. Portable case, 8 $\frac{1}{2}$ " x 5 $\frac{1}{2}$ " x 3" (inclined to 1 $\frac{1}{4}$ " h.). Shipping Weight, 6 lbs.

Model 455A Volt-Ohm-Milliammeter—Complete with leads. Net Each.....\$89.50

Model 457 Portable Volt-Ohm-Milliammeter—Same features as 455A, but without burnout protection. Sensitivity: 20,000 ohms/VDC, 1000 ohms/VAC. Shpg. Wt., 6 lbs. Net Each...\$45.00

Carrying Case—For Models 455A and 457. Net Each.....\$12.50

## MODEL 288AX AM-FM SWEEP AND MARKER GENERATOR

Complete alignment instrument provides signal voltages for servicing AM, FM and TV receivers, plus crystal-controlled 100 kc and 1000 kc oscillator provides accurate frequency standard. Eight bands from 35 kc to 160 Mc, including ultrasonic range of 35 kc to 110 Mc. Built-in decibel meter with range of -10 to +38 db. External or internal modulation on both AM and FM ranges; internal FM sweep width continuously variable up to 450 kc; choice of 60 or 400 cps sweep rate. Audio output, 20-15,000 cps variable, 400 cps fixed. Size: 16" w. x 7" d. x 13" h. Shipping Weight, 33 lbs.

Model 288AX Sweep and Marker Generator—Net Each.....\$315.00

## MODEL 656XC TV COLOR BAR GENERATOR

Fully saturated 100% NTSC color bar standard for complete color TV alignment. Highest quality obtainable. Portable. Size: 16 $\frac{1}{4}$ " x 18 $\frac{1}{2}$ " x 7 $\frac{1}{2}$ ". Shipping Weight, 45 lbs.

Model 656XC TV Color Bar Generator—Complete with cable. Net Each.....\$549.50

## MODEL 661 NTSC COLOR BAR-WHITE DOT GENERATOR

Chrom-Aligner generator provides individual 100% saturated color bars to NTSC standards. Also provides the following demodulator alignment signals: R-Y, B-Y, -G-Y, G-Y at 90° and RF output on channels 3 or 4. Crystal-controlled chroma and sync. Video output 1.5 V p-p across 75 ohms. With leads. For 110 VAC, 60 cps. Shipping Weight, 20 lbs.

Model 661 Color Bar-White Dot Generator—Net Each.....\$349.50

## MODEL 660 WHITE DOT-BAR COLOR DISPLAY

White line crosshatch, white dot (small size) color display sequence of orange, red, magenta, blue, cyan, green. All frequencies crystal controlled and locked together with extreme stability. Portable. Size: 10 $\frac{1}{2}$ " x 10 $\frac{1}{2}$ " x 5 $\frac{1}{2}$ ". Shipping Weight, 21 lbs.

Model 660 White Dot-Bar Color Display—Complete with 2 crystals and cable. Net Each...\$245.00

## MODEL 725 STEREO STANDARD FM MULTIPLEX GENERATOR

Generates complete composite FM multiplex signal to FCC specifications. Self-contained, requires only an oscilloscope or AC voltmeter for complete stereo alignment. Composite output of L+R, L-R, plus 19 kc pilot carrier. RF output tunable, 92-104 Mc; variable, 2-1000  $\mu$ V. Separation: 35 db or better. Fully compensated for external modulation including standard pre-emphasis and L-R, L+R delay. Size: 16 $\frac{1}{4}$ " w. x 7" d. x 13 $\frac{1}{2}$ " h. Shipping Weight, 27 lbs.

Model 725 Stereo Standard FM Multiplex Generator—Net Each.....\$495.00

## MODEL 295X MICROVOLT AND CRYSTAL-CONTROLLED GENERATOR

Provides continuous frequency coverage in 8 bands, 125 kc to 175 Mc. Calibrated, metered output from 0.1 to 500,000 microvolts. Dial calibration accuracy, 1%. Built-in 1 Mc crystal. Precision step attenuator; direct reading, vernier tuning. 90 watts, 105-125 V, 50-400 cps. Steel case, 19" x 12 $\frac{1}{2}$ " x 9". Shipping Weight, 47 lbs.

Model 295X Generator—Complete with crystal; 48" output cable with two connectors. Net Each.....\$655.00



770A



677



209B



470A



455A



288AX



# Simpson Test Equipment, Cases

INSTRUMENTS THAT STAY ACCURATE



**Features:** Self-shielded hi-flux annular meter movement; spring-backed jewels; increased linearity and stability; input protected with internal 1-amp fuse; greater repeatability; mirror scale on three models; and, a knife-edge pointer. **Other Features:** Polarity reversing switch for easier, faster DC measurements; no lead reversing. Easy-to-read scales with black and red spread-out for faster, more positive reading. Less circuit loading; AC voltage range sensitivity of 5,000 ohms/volt. Adjust-A-Vue handle for prop-up convenience. Available in roll-top case. Come complete with leads and manual. **AC Volts (5,000 ohms/V):** 0-2.5-10-50-250-1000-5000 volts (0.1  $\mu$ F capacitor in series through 250 volts). **DC Volts (20,000 ohms/V):** 0-250 mV; 0-2.5-10-50-250-1000-5000 volts. **DC Current:** 0-50  $\mu$ A; 0-1-10-100-500 mA; 0-10 amps. **DB Scale (1 mW-600 ohms):** -20 to +10; -3 to +22; +6 to +36; +20 to +50. **Resistance:** 0-2K ohms-200K ohms-20 megohms (Rx1-x100-x10K); 12, 1200 and 120K ohms centers, respectively. **Scale Length:** 4.2". **Size:** 5 1/4" x 7" x 3 1/4". Shpg. Wt., 6 lbs.

## 260-5, 260-5M, NEW 260-5P

Lowest priced models of the series, features good accuracy with full range coverage. Choice of scale; 260-5 comes with standard scale; 260-5M has mirror scale. **Accuracies:** AC volts = 3% F.S., 0-2.5 to 0-1000; = 4%, 0-5000. DC volts = 2% F.S. through 1000; = 3%, 0-5000. DC current = 1.5% F.S. through 50  $\mu$ A; = 2% 0-1 mA to 0-10 A. Resist., = 2.5% of arc, Rx1; = 2.0%, Rx100 and Rx10,000. **Simpson 260-5**—With standard scale. Net Each. . . . . \$49.95\*  
**Simpson 260-5M**—With mirror scale. Net Each. . . . . \$1.95\*  
**Simpson 260-5P**—Same as 260-5, but features protective overload circuit with reset button that pops out when an overload is present. Net Each. . . . . \$78.95\*

## MODEL 261 HIGH ACCURACY VOM

Improved design with mirror scale and special calibration circuit to increase accuracy. Diode overload protection prevents movement burnout even on 200,000% overload. **Accuracies:** AC volts = 3% F.S., 0-2.5 to 0-1000; = 4% F.S., 0-5000. DC volts = 1.5% F.S. through 1000; = 2.5%, 0-5000. DC current = 1.0% F.S., 0-50  $\mu$ A; = 1.5%, 0-1 mA to 0-10 amps. Resistance = 2.0% of arc, Rx1; = 1.5%, Rx100 and Rx10,000. **Simpson Model 261**—Net Each. . . . . \$59.95\*

## MODEL 270-2 HIGH ACCURACY VOM

Extra-sensitive, top performer of the family features temperature compensated circuitry. Mirror scale with knife-edge pointer. **Accuracies:** AC volts = 2.0% F.S., 0-2.5 to 0-1000; = 3% F.S., 0-5000. DC volts = 1.25% F.S. through 1000; = 2.25%, 0-5000. DC current = 0.75% F.S., 0-50  $\mu$ A; = 1.25% F.S., 0-1 mA to 0-10 amps. Resistance = 1.5% of arc, Rx1; = 1.0%, Rx100 and Rx10,000. **Simpson Model 270-2**—Net Each. . . . . \$64.95\*  
 \*For Roll-Top Case Version—Add suffix RT (i.e., 260-5MRT). Add. . . . . \$6.00

## NEW MODEL 250 50-mV DROP VOM

Same as 260-5 except: **AC/DC Volts:** Added range of 0-500 VAC and range of 0-50 mV/DC; no 5000 VAC/DC. **Current:** Same but 50 mV drop on all ranges, plus 250 mV drop on 0-50  $\mu$ A range (=1% F.S. accuracy). Diode protected. With test leads. **Simpson Model 250**—With standard scale. Net Each. . . . . \$56.95

## ACCESSORIES FOR ABOVE VOM'S

Simpson Model	Description	Net Each	Simpson Model	Description	Net Each
0249†	Roll-top case only	\$ 9.95	1818	Leather carrying case	\$8.50
0507†	10 kV high-voltage probe	10.20	0805	Ever-Redy vinyl case	9.95
0161†	10 kV high-voltage probe	11.75	0549	Same, but with storage	15.95
0508†	25 kV high-voltage probe	11.50	0574	Snap-on probe case, 0159	3.95
0509†	50 kV high-voltage probe	12.50	7500	Banana plugs; allig. clips	2.10
0163†	5' thermocouple lead	3.95	7538	Banana plugs; test prods.	2.50

†Also used with older 260-3 VOM. ‡For Model 255 only.

## "ADD-A-TESTERS" 260® ADAPTER SERIES

Converts Simpson 260 VOM family (260, 261, 270) into nine different testers with a quality previously found only in individual pieces of test equipment. Just plug in one adapter, and you have added another application; no complicated connections. Take only 1/4 to 1/2 storage space of individual testers. Each combination of Add-A-Tester and 260, 261 or 270-2 is self-contained and self-powered. All adapters provide for normal usage of basic tester without disconnecting adapter. Cannot be used with roll-top cased models.

### MODEL 650 TRANSISTOR TESTER

**Beta Ranges:** 0-10-50-250, (F.S.). **Beta Accuracy:** Adapter, = 3%; with 260, = 5% (nominal); with 261 or 270, = 4% (nominal). **Ico Range:** 0-100  $\mu$ A. **Ico Accuracy:** Adapter, = 1%; with 260, = 3% (F.S.); with 261 or 270, = 2% (F.S.). **Simpson Model 650 Adapter**—Net Each. . . . . \$31.95  
**Simpson Model 7545 Test Lead**—Net Ea. . . . . 1.20

### MODEL 651 DC VTVM

**Voltage Ranges:** 0-5/1.0/2.5/5.0/10/25/50/100/250/500. **Accuracy:** = 1% (with 260, = 3% (F.S.); with 261 or 270, = 2% (F.S.)). **Input Impedance:** More than 10 megohms, all ranges. **Simpson Model 651 Adapter**—Net Each. . . . . \$39.95  
**Simpson Model 7547 Ground Lead**—Net. . . . . 1.20

### MODEL 652 TEMPERATURE TESTER

**Temperature Range:** -50° F to +100° F; +100° F to +250° F. **Accuracy:** = 2° (nominal) with 260, 261 or 270. **Sensing Element:** Thermistor. Three lead positions provided. **Simpson Model 652 Adapter**—Net Each. . . . . \$39.95  
**Centigrade Scale, add.** . . . . . 1.95

### MODEL 653 AC AMMETER

**Ranges:** 0-0.25/1/2.5/12.5/25 amps. **Accuracy:** Adapter, = 2%; with 260, 261 or 270, = 3% F.S. **Frequency Range:** 50-3,000 cps. **Simpson Model 653 Adapter**—Net Each. . . . . \$19.95

### MODEL 654 AUDIO WATTMETER

**Load Ranges:** 4, 8, 16, 600 ohms. **Wattage:** Continuous—25 watts (8, 600 ohms); 50 watts (4, 16 ohms). Intermittent—50 watts (8, 600 ohms); 100 watts (4, 16 ohms). **Accuracy:** Adapter, = 5%; with 260, = 10% (nominal); with 261 or 270, = 7% (nominal). **Direct Reading Scale:** From 17 microwatts to 100 watts. **Simpson Model 654 Adapter**—Net Each. . . . . \$21.95

### MODEL 655 MICROVOLT ATTENUATOR

**Ranges:** 2.5 microvolts to 250,000 microvolts, continuously variable in decade steps. **Frequency:** DC to 20 kc. **Accuracy:** Adapter, = 1/2 db; with 260, 261 or 270, = 1 db. **Simpson Model 655 Adapter**—Net Each. . . . . \$19.95

### MODEL 656 BATTERY TESTER

Checks all radio and hearing aid batteries up to 90 volts at the manufacturer's recommended load, or any external load. **Accuracy:** Adapter, = 1%; with 260, = 3% (F.S.); 261 or 270, = 2% (F.S.). **Simpson Model 656 Adapter**—Net Each. . . . . \$19.95

### MODEL 657 MILLIOHMETER

Ideal for accurate measurements of low resistance windings in meters, generators and transformers; ammeter and milliammeter shunts; and contact resistance in switches and relays. **Ranges:** 0-0.1/0.25/0.5/1.0 ohm. **Accuracy:** Adapter, = 1/2%; with 260, = 2% (F.S.); with 261 or 270, = 1 1/2% (F.S.). **Simpson Model 657 Adapter**—Net Each. . . . . \$44.95

### MODEL 661 DC AMMETER

Converts 260, 261 or 270 VOM's into a rugged, dependable, portable DC ammeter for use in testing automotive accessories and electrical systems, DC supplies, industrial DC control systems, welding, etc. **Range:** 0-1/2.5/5/10/25 amps. **Accuracy:** Adapter, = 1/2%; with 260, = 2% (F.S., nominal); with 261 or 270, = 1 1/2% (F.S., nominal). **Simpson Model 661 Adapter**—Net Each. . . . . \$22.95

### NEW MODEL 255 WIDE TEMP., 50-mV DROP VOM

Same as 260-5, except: **DC Volts:** Added 0-50 mV and 0-1 V ranges; no 0-5000 V range. **AC Volts:** No 0-5000 V range. **Current:** 0-50  $\mu$ A (50 mV drop); to 500 amps. **AC using adapter.** No db scale. **Temp. Range:** +100° F to -1050° F. With leads, prods and 5' thermocouple lead. Diode protected. **Simpson Model 255**—With standard scale. Net Each. . . . . \$89.95  
**Simpson Model 0531**—Clamp-on unit for 0-500 amps. Net Each. . . . . \$29.95

### NEW METER SAFE/GUARD®

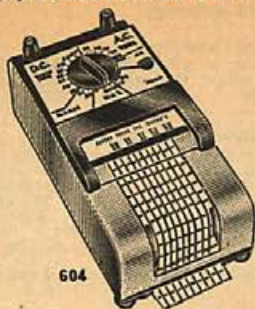
Use with Series 1, 2, 3 or 4 Simpson 260 or any other 20,000 ohms/volt VOM. Installs instantly to prevent damage to meter movement regardless of polarity with currents up to 200 mA, AC or DC. **Simpson Model 12C21**—Net Each. . . . . \$1.95



# Simpson Test Equipment

INSTRUMENTS THAT STAY ACCURATE

## NEW MODEL 604 MULTICORDER® VOM



Volt-amp-millilamp-microamp recorder for permanent record of range and measured value. Inkless design leaves sequential impression on pressure-sensitive strip chart; virtually maintenance-free. High torque meter movement has shock-proof taut band suspension and moving coil system. Rugged, compact, accurate and easy-to-operate on a wide band of ranges and functions; shows range in use as the value is recorded. Makes an impression every 2 seconds with chart speeds of 1", 3" or 12" per hour, driven by self contained synchronous motor or by external means. Paper is 2.3" wide on 50' roll with 50 divisions. Accuracy:  $\pm 1.5\%$  FS, DC and AC (45-65 cps sine wave);  $\pm 2.5\%$  FS recording. Temp. Influence: (For 10° C change) DC, 1% max. of true value; AC, 1% max. 0-20° C positive and 20°-50° C negative. Frequency: Flat, 15-10,000 cps; 2.5% FS, 1-20 kc. DC Volts: (20,000 ohms/volt) 0-0.1-0.5-2.5-10-25-100-250-500. AC Volts: 0-10-25-100-250-500. DC Current: 0-50-250  $\mu$ A; 0-1-5-25 mA; 0-0.1-25-1 A. AC Current: 0-0.2 mA. Power: 115 VAC, 60 cps with grounded cord supplied. Size: 9 $\frac{3}{4}$ " x 4 $\frac{1}{2}$ " x 4". Weight, 5 $\frac{1}{2}$  lbs. **\$199<sup>95</sup>**  
Simpson Model 604 Multicorder—Net Each.

Carrying Case, Replacement Chart and other speed gears available on request.

604

## IMPROVED MODEL 269-2 AC-DC VOM

Self-shielded meter movement with spring-backed jewels; stops damage to meter pivots due to shock and vibration. External battery compartment for easy replacement. Input protected by 1.5-amp fuse. AC Volts: 0-3-8-40-160-400-800 at 5K ohms/volt and  $\pm 3\%$  accuracy. DC Volts: 0-1.6-8-40-160-400-800-1600 ( $\pm 2\%$ )-4000 ( $\pm 3\%$ ) at 100K ohms/volt. Output Ranges: 0.1  $\mu$ F capacitor in series thru 160 v. AC. Ohms: 0-200-20K-200K; 0-2-20-200 megs; 12 ohms center scale. DC Current:  $\pm 2\%$  accuracy 0-16-160  $\mu$ A; 0-1.6-16-160 mA; 0-1.6-8 amps. DB: -12 to +45.5 db; four ranges. Size: 6" x 7 $\frac{1}{4}$ " x 3". Net Weight, 4 lbs. Simpson Model 269-2—With test leads, 4000 v. DC probe extension and manual. Net Each. **\$89<sup>95</sup>**

## NEW MODEL 263 AC-DC DUAL SENSITIVITY VOM

Overlapping ranges for greater accuracy;  $\pm 1\frac{1}{2}\%$  DC and  $\pm 3\%$  AC, full scale. Diode overload protection against burnout (even on 200,000% overload). External battery compartment for easy replacement; takes 1 $\frac{1}{2}$ -volt alkaline type for great stability on low ohms scale. AC Volts: 0-2.5-7.5-30-150-750 at 10K ohms/volt; 0-5-15-60-300-1500 at 5K ohms/volt. DC Volts: 0-15-75-3-7.5-30-75-300-750-3000 at 20K ohms/volt; 0-3-1.5-6-15-60-150-600-1500-6000 at 10K ohms/volt. Output Ranges: 0.1  $\mu$ F capacitor in series thru 300 v. AC. Ohms: 0-500-5K-50K-500K-500K; 0-5-50 megs; 4.5 ohms center scale. DC Current: All ranges  $\pm 1\frac{1}{2}\%$  accuracy. At 150 mv, 0-75  $\mu$ A, 0-75-7.5-75-750 mA and 0-7.5 amps; at 300 mv, 0-150  $\mu$ A, 0-1.5-15-150 mA and 0-1.5-15 amps. DB: -20 to +75.5 db; ten ranges. Size: 6" x 7 $\frac{1}{4}$ " x 3". Net Weight, 4 lbs. Simpson Model 263—With test leads and manual. Net. **\$78<sup>95</sup>**

## MODEL 262-2 AC-DC VOM

Compact design covers 33 ranges on easy-to-read 7" scale with repetitive accuracy. Self-shielded meter movement and spring-backed jewels. AC Volts: 0-3-8-40-160-800 at 5K ohms/volt and  $\pm 5\%$  accuracy. DC Volts: 0-1.6-8-40-160-400-1600-4000 at 20K ohms/volt and  $\pm 3\%$  accuracy. Output Ranges: 0.1  $\mu$ F capacitor in series thru 300 v. AC. Ohms: 0-2K-200K-20 megs; 12 ohms center scale. DC Current: 0-50  $\mu$ A ( $\pm 2\%$ ); 0-1-10-100-500 mA ( $\pm 3\%$ ); 0-10 amps ( $\pm 3\%$ ). DB: -20 to +10, -8 to +22, +6 to +36, and +20 to +60. Size: 6" x 7 $\frac{1}{4}$ " x 3". Net Weight, 4 lbs. Simpson Model 262—With test leads and manual. Net. **\$69<sup>95</sup>**

## MODEL 267 AC-DC VOM

Expanded meter scales on big 7" meter for easy readings. One major switch selects range position and function at the same time. Input protected with internal 1-amp fuse. AC Volts: 0-2.5-10-50-250-500-1000 at 5K ohms/volt and  $\pm 5\%$  accuracy. DC Volts: 0-25-2.5-10-50-250-500-1000 at 20K ohms/volt and  $\pm 3\%$  accuracy. Output Ranges: 0.1  $\mu$ F capacitor in series thru 300 v. AC. Ohms: 0-2K-200K-20 megs; 12 ohms center scale. DC Current: 0-50  $\mu$ A ( $\pm 2\%$ ); 0-1-10-100-500 mA ( $\pm 3\%$ ); 0-10 amps ( $\pm 3\%$ ). DB: -20 to +10, -8 to +22, +6 to +36, and +20 to +60. Size: 6" x 7 $\frac{1}{4}$ " x 3". Net Weight, 4 lbs. Simpson Model 267—With test leads and manual. Net. **\$59<sup>95</sup>**  
Simpson Model 8568 (2500 VDC), 8570 (2500 VAC), 8569 (5000 VDC), 8571 (5000 VAC)—High voltage multipliers. Net. **\$3.60**

## MODEL 268 AC-DC VOM

Same as Model 267, but with slightly different ranges. AC Volts: 0-3-12-60-300-600-1200 at 5K ohms/volt and  $\pm 5\%$  accuracy. DC Volts: 0-3-12-60-300-600-1200 at 20K ohms/volt and  $\pm 3\%$  accuracy. Output Ranges: 0.1  $\mu$ F capacitor in series thru 300 v. AC. Ohms: 0-2K-200K-20 megs; 12 ohms center scale. DC Current: 0-60  $\mu$ A ( $\pm 2\%$ ); 0-1.2-12-120 mA ( $\pm 3\%$ ); 0-12 amps ( $\pm 3\%$ ). DB: -12 to +11, -1 to +22, +13 to +36, and +27 to +60. Size: 6" x 7 $\frac{1}{4}$ " x 3". Net Weight, 4 lbs. Simpson Model 268—With test leads and manual. Net. **\$59<sup>95</sup>**  
Simpson Model 8572 (3000 VDC), 8574 (3000 VAC), 8573 (6000 VDC), 8004 (6000 VAC)—High voltage multipliers. Net. **\$3.60**

## MODEL 311 AC-DC VTVM

High 22 meg DC input impedance reduces circuit loading. AC Volts: 0-1.5-5-15-50-150-500-1,500 ( $\pm 5\%$  FS). Peak-To-Peak Volts: 0-4-14-40-140-400-1,400-4,000. DC Volts: Same ranges as AC ( $\pm 3\%$  FS). AF Volts: Same ranges as AC (30 cps to 100 kc,  $\pm 5\%$ ). RF Volts: 0-1.5-5-15-50-150 with probe (50 cps to 100 mc, 0-150 v. rms), Frequency Response:  $\pm 5\%$  to 100 kc; to 250 mc with probe. Ohms: 0-1K-10K-100K; 0-1-10-100-1,000 megs (centers at 10, 100, 1K, 10K, 100K, 1 meg and 10 megs, respectively). Input Power Required: 105-125 v. AC, 50-60 cps; 220/110 v. available. Size: 7 $\frac{1}{2}$ " x 5 $\frac{1}{2}$ " x 4 $\frac{1}{2}$ ". Wt., 5 lbs. Simpson Model 311—With AC-DC ohms probe, ground **\$69<sup>95</sup>** lead and manual. Net Each.

ACCESSORIES LISTED ON ANOTHER SIMPSON PAGE



262-2, 267, 268, 269-2



263



312



715



303



311

## NEW MODEL 312 VTVM

Up to 40% less circuit loading than conventional VTVM's; input resistance 16 megs instead of the usual 11. Easy-to-read 7" scale. Ideal for solid-state tests with  $\frac{1}{2}$ -volt range. Accuracy:  $\pm 3\%$  FS, AC and DC;  $\pm 3^\circ$  arc, resistance. Frequency Response:  $\pm 3\%$ , 15 cps to 3 Mc, thru 150 VAC;  $\pm 1$  db, 10 kc to 250 Mc with RF probe; usable to 40 V rms. DC Volts: 0-0.5-1.5-5-15-50-150-500-1500 (16 megs impeded). AC Volts: 0-1.5-5-15-50-150-500-1500 V rms (1 meg min. impeded); 0-4-14-40-140-400-1400-4000 V p-p. Resistance: R x1, x10, x100, x1K, x10K, x100K, x1M; 10-ohm center. Power: 105/125 VAC, 50/60 cps. Size: 7 $\frac{1}{2}$ " w. x 6 $\frac{3}{4}$ " h. x 3 $\frac{1}{4}$ " d. Weight, 4 $\frac{3}{4}$  lbs. **\$79<sup>95</sup>**  
Simpson Model 312—With probe and manual. Net Ea.

## MODEL 715 AC VTVM

High sensitivity VTVM for the audio field. Accuracy:  $\pm 5\%$  of full scale. Sensitivity: 10 mv full scale on lowest range. Frequency Response:  $\pm 1$  db, 10-400,000 cps. Input Impedance: 1 meg minimum at 1 kc shunted by 25  $\mu$ F. Internal Multipliers:  $\pm 1\%$  precision resistors. Volts: 0-0.01-0.03-0.1-0.3-1-3-10-30-100-300 rms. DB: Total range, -52 to +52 dbm, Zero DBM: 1 mw in 600 ohms. Scale: -12 to +2 db. Input Power Required: 110-125 V rms, 50-60 cps at 10 watts. Size: 7 $\frac{1}{2}$ " x 5 $\frac{1}{2}$ " x 3". Wt., 3 $\frac{3}{4}$  lbs. Simpson Model 715—Complete with manual and **\$69<sup>95</sup>** shielded input cable. Net Each.

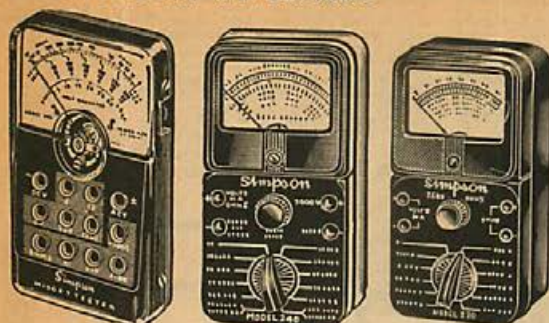
## MODEL 303 AC-DC VTVM

Features easy-to-read 4 $\frac{1}{2}$ " scale. AC Volts: 0-1.2-12-60-300-1200 ( $\pm 5\%$  FS). DC Volts: 0-1.2-12-60-300-1200 ( $\pm 3\%$  FS). AF Volts: 0-1.2-12-60. Frequency flat to 100 kc on the three low AC ranges. RF Volts: 20 v. max.; frequency 20 kc to 100 mc with RF probe. Ohms: 0-1K-100K; 0-1-10-1,000 megs (centers at 10, 1K, 10K, 100K and 10 megs, respectively). DB: -20 to +63; 5 ranges. Input Power Required: 105-125 v. AC, 50-60 cps; 220/110 v. models available. Size: 5 $\frac{1}{2}$ " x 7" x 3 $\frac{1}{4}$ ". Net Wt., 4 lbs. Simpson Model 303—Complete with DCV probe, ACV-**\$73<sup>95</sup>** ohm probe, ground lead and manual. Net Each. **\$82.95**  
Simpson Model 303-RT—In roll top case. Net Each.



# Simpson Test Equipment

INSTRUMENTS THAT STAY ACCURATE



355

240

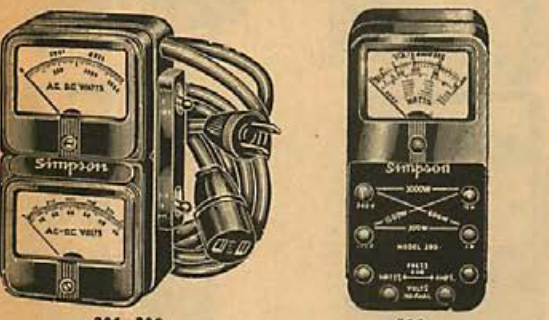
230



370

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372



391, 392

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## MODEL 355 MIDGETESTER® AC-DC VOLT-OHM-METER

Compact meter with 100  $\mu$ A self-shielded core meter movement; 10,000 ohms/volt sensitivity. **AC Volts:** 0-3-12-60-300-1200. **DC Volts:** 0-3-12-60-300-1200. **Ohms:** 0-10K-100K; 0-1-10 megs, 120, 1.2K, 12K and 120K ohms center, respectively. **Accuracy:**  $\pm 3\%$  DC;  $\pm 5\%$  AC;  $\pm 3^\circ$  of linear arc. **Frequency Response:** Essentially flat to 10 kc. **Movement:** Self-shielded core magnet permits use without interference from metals or magnetic fields. **Size:** 2 3/4" x 4 1/2" x 1". **Net Weight,** 8 oz.  
**Simpson Model 355—Complete with leads and manual. \$34.95**  
**Net Each**.....  
**Simpson Model 8600—Test prods. Net Each.**.....\$2.10  
**Simpson Model 6355—Ever-Ready leather case, Net Ea.**.....3.95

## SIMPSON MICRO-TESTERS

General purpose, extra-compact test instruments available in a variety of models. **Size:** 3" x 5 3/4" x 2 1/2". **Net Wt.,** 1 1/2 lbs.

### MODEL 240 AC-DC VOLT-OHM-MILLIAMMETER

For radio and appliance testing. **Sensitivity,** 1,000 ohms/volt. **AC Volts:** 0-15-150-750-3000. **DC Volts:** 0-15-75-300-750-3000. **Ohms:** 0-3K-300K; 30 and 3K ohms center respectively. **DC Current:** 0-15-150-175 ma. **Accuracy:** DC v.  $\pm 3\%$  FS; AC v.  $\pm 5\%$  FS; DC resistance  $\pm 3^\circ$  of linear arc.  
**Simpson Model 240—With leads and manual. Net Each**.....\$34.95

### MODEL 230 AC-DC VOLT-OHM-MILLIAMMETER

For radio and appliance testing. **AC Volts:** (400 ohms/volt) 0-10-250-1000. **DC Volts:** (1,000 ohms/volt) 0-10-50-250-1000. **Ohms:** 0-1K-100K. **DC Current:** 0-10-50-250 ma. **Accuracy:** DC v.  $\pm 3\%$  FS; AC v.  $\pm 5\%$  FS; DC resistance  $\pm 3^\circ$  of linear arc.  
**Simpson Model 230—With leads and manual. Net Each**.....\$33.95

### MODEL 370 AC AMMETER

Self-contained current transformer (use on 60 cps only) and indicating instrument. **Ranges:** 0-1-2.5-5-10-25 amps. **Accuracy:**  $\pm 5\%$  of full scale.  
**Simpson Model 370—Net Each.**.....\$25.95

## MICRO-TESTERS (CONT'D)

### MODEL 375 DC AMMETER

Covers a wide range without auxiliary shunts. Ideal for unmetered power supplies in radio and TV shops. **Ranges:** 0-1-2.5-5-10-25 amps. **Accuracy:**  $\pm 3\%$  of full scale.  
**Simpson Model 375—Net Each.**.....\$24.95

### MODEL 362 LOW-OHM-METER

Makes accurate checks on low-current circuits. Reads from 0.1 to 25 ohms across two ranges, 0-5 and 0-25. **Accuracy** within  $\pm 3^\circ$  of linear arc from absolute value of resistance measured. Ideal for checking motor armatures and fields, switch and relay contact resistances, industrial electrical equipment, shorts in TV and radio chassis wiring, between generator windings and grounds, etc. Draws only 5 ma for long battery life; uses 1 1/4-volt flashlight batteries.  
**Simpson Model 362—Complete with calibrated test leads. Net Each.**.....\$27.95

### MODEL 372 OHMMETER

Features a wide range of measurements from 0.2 ohm to 500 megohms in six ranges. **Ranges:** 0-500-5K-50K-500K ohms; 0-5-50 megs. **Center scale values:** 5, 50, 500, 5K, 50K, 500K ohms. **Accuracy**  $\pm 3^\circ$  of linear arc.  
**Simpson Model 372—Complete with leads and manual. \$32.95**  
**Net Each.**.....

### MODELS 391 AND 392 AC-DC VOLT-WATTMETERS

For simultaneous readings of AC or DC volts or watts. Two separate 3" square meters; built-in cord and plug for connection to line outlet; separate toggle switches for range selection. **Volts:** 0-130-260. **Watts:** 0-1500-3000. **Accuracy:**  $\pm 5\%$  or better of full scale.  
**Simpson Model 391 AC-DC Volt-Wattmeter—With \$47.95**  
**manual. Net Each.**.....  
**Simpson Model 392 AC-DC Volt-Wattmeter—Similar \$49.95**  
**to Model 391 except watt ranges: 0-1000-5000. Net Each.**.....

### MODEL 390 AC VOLT-AMP-WATTMETER

Most popular tester for measuring AC/DC volts, AC amps and AC watts on one meter. Wide coverage permits servicing nearly any appliance. Rugged design. **Volts:** 0-150-300. **Amps:** 0-3-15. **Watts:** 0-300-600-1500-3000. **Accuracy:**  $\pm 5\%$  or better of full scale.  
**Simpson Model 390—Complete with break-in plug, test leads and manual. Net Each.**.....\$54.95

### MODEL 371 AC VOLTMETER

For testing line voltages applied to motors, heating equipment and other industrial uses. **Ranges:** 0-150-300-600 volts. **Accuracy:**  $\pm 3\%$  of full scale.  
**Simpson Model 371—Net Each.**.....\$25.95

### MODEL 376 AC VOLTMETER

Rectifier type, 1000 ohms/volt. Useful where limited current occurs in circuit. Ideal as output meter when used with proper capacitor. **Ranges:** 0-5-10-25-50-100-250-500-1000 volts. **Accuracy:**  $\pm 5\%$  of full scale.  
**Simpson Model 376—Net Each.**.....\$27.95

### MODEL 377 DC VOLTMETER

Resistance 1000 ohms/volt for radio servicing and industrial applications. **Ranges:** 0-1-2.5-5-10-25-50-100-250-500-1000 volts. **Accuracy:**  $\pm 3\%$  of full scale.  
**Simpson Model 377—Net Each.**.....\$29.95

### MODEL 373 DC MILLIAMMETER

General purpose design for plate and screen grid measurements on tubes, etc. **Ranges:** 0-1-5-10-25-50-100-250-1000 ma. **Accuracy:**  $\pm 3\%$  of full scale.  
**Simpson Model 373—Net Each.**.....\$24.95

### MODEL 378 AC MILLIAMMETER

Five ranges for a wide variety of testing: Transformers, vacuum tubes, etc. With current transformer built-in. **Ranges:** 0-5-25-100-250-1000 ma. **Accuracy:**  $\pm 5\%$  of full scale.  
**Simpson Model 378—Net Each.**.....\$29.95

### MODEL 374 DC MICROAMMETER

Basic movement sensitivity, 50  $\mu$ A with self-contained shunts for other ranges. Use with external resistors or multipliers as high sensitivity voltmeter at 20K ohms/volt. Can be shorted out of circuit using selector knob. **Ranges:** 0-50-100-250-500-1000  $\mu$ A. **Accuracy:**  $\pm 3\%$  of full scale.  
**Simpson Model 374—Net Each.**.....\$29.95

### MODEL 379 BATTERY TESTER

Accurate indication of all flashlight, hearing aid (mercury), transistor and portable radio batteries. **Ranges:** 0-1.5-4.5-6-7.5-9-15-22.5-30-45-67.5-90 volts.  
**Simpson Model 379—With test leads and manual, Net**.....\$29.95

## ACCESSORIES FOR MICRO-TESTERS TEST PROBES AND LEADS

Model	For Instrument	Description	Net Ea.
8375	230, 240, 372	Allig. clips and elbow terms.	\$1.75
8376	Micro-Testers	Allig. clips and spade terms.	1.75
8379	Micro-Testers	Test prods and spade terminals	2.50
8381	230, 240, 372	Test prods and elbow terminals	2.50
8600	355	Test prods	2.10

## CASES

3011	Micro-Testers	Leatherette-covered case	\$5.95
3413	391, 392	Leatherette-covered case	6.95
4299	Micro-Testers	Ever-Ready leather case	7.50
6355	355	Ever-Ready leather case	3.95



# Simpson Test Equipment

INSTRUMENTS THAT STAY ACCURATE

## MODEL 383A CAPACOHMMETER

"One-package flexibility" for measuring leakage of defective paper, mica and ceramic capacitors; indicates directly the capacitance of good paper, mica and ceramic capacitors over a range of 10  $\mu$ f to 10  $\mu$ f; detects many marginal capacitors by means of a pulse technique. Borderline or weak capacitors are knocked out by the pulse test. All tests are read directly on a large 4 1/2" meter. No adjustment required of bridge circuit and balancing controls. All measurements are made under load conditions. Many tests are made in the circuit. **Line Voltage:** 105-125 v. AC, 50 or 60 cps (specify). **Size:** 13 3/4" x 10 3/4" x 10". **Shipping Weight, 12 lbs.** **\$99.95**  
**Simpson Model 383A**—With test leads and manual. Net

## MODEL 458 7" COLORSCOPE

An ideal 'scope for servicing color TV. On wide band, frequency response is  $\pm 1$  db to 4.5 mc. Faithfully displays color burst frequency; sensitivity, 40 mv rms/inch of vertical deflection. On narrow band frequency response is flat,  $\pm 2$  db, 10 cycles to 300 kc with sensitivity greater than 15 mv rms/inch of vertical deflection. Good square wave response for accurate representation of sync pulses and composite wave-form pattern, for trouble-shooting video, sync and sweep circuits. Horizontal sweep, to 250 kc, for expansion of high frequency wave-form and color burst. Vernier and compensated decimal step attenuator. Provision for intensity modulation of CRT. Calibration, 1 v. p-p. **Size:** 11" x 16 1/2" x 14 1/2". **Shipping Weight, 38 lbs.**  
**Simpson Model 458**—With manual. For 105-125 v. **\$249.95**  
 AC, 50-60 cps. Net Each.  
**Simpson Model 458 Dual**—For 220/110 volts. Net Ea. **\$259.95**

## MODEL 739 PROBE KIT

For use with Model 458 (above) only. Four color-coded probes and connecting cable. Probes include: 740A voltage doubler (blue); 741A low input capacitance (yellow); 742A 100:1 voltage divider (red); 743A dual direct-resistive—isolation (green). In plastic roll. **Simpson Model 739**—Net Each. **\$45-15**

## MODEL 466 HANDSCOPE

Small, portable 'scope with a 5" screen for practically any TV-radio service job. **Frequency Response:** Vertical Amplifier: 15-100,000 cps,  $\pm 1$  db, 6 db down at 250 kc; usable to 1 mc. Horizontal Amplifier: 15-20,000 cps,  $\pm 1$  db; 3 db down at 100 kc. **Maximum Deflection Sensitivity:** Vertical, 30 mv rms/inch; horizontal, 0.7 v. rms/inch. **Z-Axis Sensitivity:** 20 v. rms (voltage required to extinguish beam). **Calibrating Voltage:** (At 117.5 v. AC) 1 v. p-p,  $\pm 10\%$ . **Input Ratings:** Voltage, 400 v. peak; resistance, 0.1 meg (at attenuation x 1), 0.5 meg (at attenuation x 100); capacitance, 40  $\mu$ f (at attenuation x 1), 35  $\mu$ f (at attenuation x 100). **Sawtooth Sweep Range:** 15-80,000 cps. **Power Consumption:** (At 117.5 v. AC) 50 watts,  $\pm 10\%$ . **Size:** 7 3/4" x 12 1/4" x 16 1/4". **Net Weight, 19 lbs.**  
**Simpson Model 466**—With input cable and manual. **\$159.95**  
 For 110 v., 50-60 cps. Net Each.  
**Simpson Model 466 Dual**—For 220/110 v., 50-60 cps. **\$169.95**  
**Simpson Model 0100**—Input cable. Net Each. **2.85**

## MODEL 338-3L THERM-O-METER

Measures the temperature of gases, air, solids or liquids; over a range of from  $-50^{\circ}$  F to  $+1000^{\circ}$  F. Combined Fahrenheit and Centigrade scale. Thermocouple (iron-constantan) sensing element. **Accuracy:**  $\pm 1 1/2$  scale divisions. **Size:** 7 1/2" x 6" x 2 1/4".  
**Simpson Model 338-3L**—For three probes. With Adjust-A-Vue handle, one general purpose probe, internal battery. **\$67.95**  
 and instruction manual. Net Each.

## MODEL 389-3L THERM-O-METER®

Dual-range temperature meter permitting an accuracy of  $\pm 2^{\circ}$  F. Dial has combination Centigrade and Fahrenheit scales. **Ranges:**  $-50^{\circ}$  F to  $+100^{\circ}$  F;  $+100^{\circ}$  F to  $-250^{\circ}$  F. **Accuracy:**  $\pm 2^{\circ}$  F. Supplied in three-lead model only. **Size:** 7 1/2" x 8" x 2 1/4".  
**Simpson Model 389-3L**—With internal battery, manual, and one Model 0010 15' thermistor type lead; additional probes **\$62.95** are available. Net Each.

## MODEL 385-3L TEMPERATURE METER

Compact instrument ideal for measuring temperatures from  $-50^{\circ}$  F to  $+70^{\circ}$  F under conditions where fast, accurate readings are important. Thermistor sensing element. **Large 3" meter. Accuracy:**  $\pm 1^{\circ}$  F, center scale;  $\pm 2^{\circ}$  F at ends. **Size:** 3" x 5 1/2" x 2 1/2". **Net Weight, 1 1/4 lbs.**  
**Simpson Model 385-3L**—For three probes. Complete with one Model 0010 15' thermistor type lead, and manual. **\$35.95**  
 Net Each.

## TEMPERATURE TESTER ACCESSORIES

For 385-3L or 389-3L			For 388: or 388-3L		
Model	Description	Net Ea.	Model	Description	Net Ea.
0789	Free air T probe	\$ 7.45	0496	8' svc. lead	\$6.95
0010	15' therm. lead	6.50	0190	Gen. purpose thermocouple	4.95
0216	Same, 30 ft.	6.45			
0415	Same, 50 ft.	7.60	0187	Surface temp. thermocouple,	8.90
0416	Same, 100 ft.	10.40		1000°F F max.	
0417	Same, 150 ft.	12.90	5262	Ever-Ready vinyl case†	9.95
0790	Surface T probe	5.95			
8073	Ever-Ready Case*	8.75			

## ACCESSORIES FOR OTHER TESTERS

Model	For Instrument†	Description	Net Ea.
8463	262, 269	Comb. test prods with allig. clips and elbow terms.	\$ 2.30
0009	221	30 kV high voltage probe	12.55
0173	269 Series 1	16 kV high voltage probe	11.95
0181	269 Series 1	40 kV high voltage probe	13.50
0172	262 Series 1	16 kV high voltage probe	11.95
0180	262 Series 1	40 kV high voltage probe	12.50

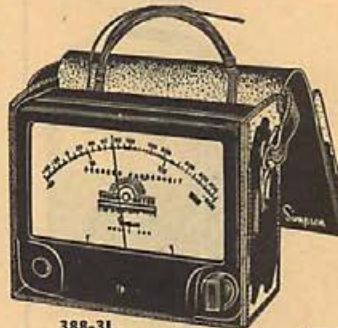
\*Leather, 385-3L only. †For 388, 388-3L or 389-3L. ‡Former Simpson models not now available.



383A



458



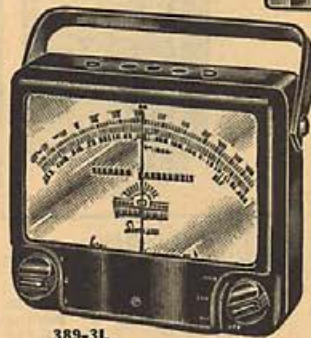
388-3L



466



739



338-3L



385-3L

## VOM AND VTVM ACCESSORIES

Model	For Instrument	Description	Net Ea.
0172	262, 262-2	16 kv high-voltage probe	\$11.95
0180	262, 262-2	40 kv high-voltage probe	12.50
0141	263	Comb. 30kv (10Kohms/volt) and 15 kv (20K ohms/volt) probe	11.95
0507	267	10 kv DC high-voltage probe	10.20
0598	267	25 kv DC high-voltage probe	11.50
0509	267	50 kv DC high-voltage probe	12.50
7538	267, 268	Banana plugs and test prod leads	2.50
0510	268	12 kv DC high-voltage probe	10.95
0511	268	30 kv DC high-voltage probe	12.95
0115	263, 269-2	Comb. test prods, removable alligator clips, elbow terminals	2.30
0119	269-2	16 kv DC high-voltage probe	11.95
0120	269-2	40 kv DC high-voltage probe	12.50
5262	262-2, 263, 267, 268 and 269-2	Ever-Ready vinyl case	9.95
0067	303	DC probe	3.50
0068	303	AC probe	3.50
0069	303	Ground lead	1.00
0073	303	High frequency probe	8.75
0074	303	30 kv high-voltage probe	11.95
0805	303	Ever-Ready leather case	9.75
6379	303	Roll top safety case	9.95
0731	311	High frequency probe	11.50
0732	311	High voltage probe	11.75
0733	311	Ground lead	1.50
0734	311	DC-AC/Ohms probe	8.50
0100	715	Input cable	2.85
0152	312	RF probe	8.75
0155	312	High voltage probe	11.75
0577	312	Vinyl case with storage space	12.95
0740		Voltage doubler probe	14.65
0741		Low capacitance probe	14.00
0742		100:1 voltage divider	15.20
0743		Direct-resistive dual purpose	11.50





630-M and 630-NS



630-NA



630-L



630-APL



630-PLK



630

### MODEL 630-PLK TYPE 2 VOM

Overload protected; transistorized electronic switching circuit for most ranges protects against accidental burnouts. (High imped. circuits protected by inherent design features.) Only one selector switch, minimizing chance of incorrect settings. Includes polarity reversing switch. Special meter shorting provision of "off" position for high damping when moving tester. Patented Bar-Ring movement for self-shielding. Diode network across meter protects against instantaneous transient voltages. Rugged, spring backed instrument jewels; flush mounted controls, jacks and meter. High sensitivity, 20,000 ohms/v. DC, 6000 ohms/v. AC. Usable at frequencies up to 500 kc. Wide spread scales with unbreakable plastic window. **AC Volts:** 0-2.5-10-50-250-1000-5000 at 5000 ohms/v. **DC Volts:** 0-2.5-10-50-250-1000-5000 at 20,000 ohms/v.; 0-0.25 at 100  $\mu$ a. **Ohms:** 0-1K-10K (4.4-44 center scale). **Meg-ohms:** 0-1-10-100-1000 ma; 0-10 amps at 250 mv. **Decibels:** -20 to +11, +21, +35, +49, +61, +75 (Zero db at 1 mw on 600 ohm line). **AC Output:** 0-3-10-50-250-1000 at 5000 ohms/v.; jack with condenser in series with AC ranges. **Accuracy:**  $\pm$ 2% DC,  $\pm$ 3% AC. Molded, insulated case with 50' leads, test prods with removable alligator clips, batteries, leather carrying handle. Banana type jacks. **Size:** 3 1/4" x 5 1/2" x 7 1/2". Wt., 5 lbs. **\$7950**  
**Triplet Model 630-PLK VOM—Net Each.....**

### MODEL 630 VOM

A beautiful streamlined instrument in a completely insulated, molded case that provides AC-DC volts, DC microamps, milliamps, amps, ohms, megs, db's and output readings. All DC scales black on white; AC and Ohms, red on white. 5 1/4" meter has single switch which will select any range. Recessed knob flush with panel. Banana jacks for longer life and better contact. Unit construction—resistors, rectifier, batteries all housed in molded base integral with switch; panel black molded with engraved white markings. **DC Volts:** 0-3-12-60-300-1200-6000 at 20,000 ohms per volt. **AC Volts:** 0-3-12-60-300-1200-6000 at 5000 ohms per volt. **DB:** -20 to +77 (six ranges). **DC Microamps:** 0 to 60 at 250 mv. **DC Milliamps:** 0-1-2-12-120 at 250 mv. **DC Amps:** 0-12 at 250 mv. **Ohms:** 0-1000-10,000. **Megs:** 0-1-100. **Output:** Condenser in series with AC volts. **Accuracy:** 2% DC, 3% AC. **Size:** 3 1/4" x 5 1/2" x 7 1/2". Weight, 4 lbs. **\$4950**  
**Triplet Model 630 VOM—Net Each.....**

### MODEL 630-A VOM

**Triplet Model 630-A VOM—**Similar scale and size as Model 630. **Accuracy:** 1 1/2% DC, 3% AC. Long mirrored scale **\$5950** to eliminate parallax. Net Each.....

### MODEL 630-NS VOM

200,000 ohms per volt DC and 20,000 ohms per volt AC provide greater accuracy on high resistance circuits. Five microampere suspension meter movement makes possible greater sensitivity and repeated identical readings. No pivots, bearings, hairsprings; no rolling friction. Sixty-three temperature compensated ranges. **AC Volts:** 0-3-12-60-300-1200 at 10K ohms/v.; 0-1.5-6-30-150-600 at 20K ohms/v. **DC Volts:** 0-0.6-3-12-60-300-1200 at 100K ohms/v.; 0-0.3-1.5-6-30-150-600 at 200K ohms/v.; 0-0.15 at 60  $\mu$ a. **Ohms:** 0-1K-10K-100K (4.4-44-440 center scale). **Megohms:** 0-1-10-100 (4400-44,000-440,000 center scale). **DC Microamps:** 0-60-600 at 150 mv.; 0-5, 0-120 at 300 mv. **DC Milliamps:** 0-6-60-600 at 150 mv.; 0-1.2-12-120-1200 at 300 mv. **DC Amps:** 0-6 at 150 mv.; 0-12 at 300 mv. **Decibels:** -20 to +63 in 10 ranges. **Frequency Response:** Usable to 100 kc. **Accuracy:** 1 1/2% DC, 3% AC. **Output:** Condenser in series with AC volt ranges. Large, clear plastic, open front window over 4 1/2" mirror scale; knife edge pointer. Protected against accidental overloads. Uses self-contained batteries. Black molded panel with white engraved markings. Heavy black molded case, completely insulated; with removable black leather strap handle. **Size:** 3 1/4" x 5 1/2" x 7 1/2". Weight, 4 lbs.

**Triplet Model 630-NS VOM—**Complete with 48" long leads with test prods and removable alligator clips. **\$9950**  
 Net Each.....

### MODEL 630-M VOLT-OHM-MICROAMMETER

Same as Model 630-NS, but input is 1,000,000 ohms/volt on DC ranges; diode network prevents accidental overloads; 1  $\mu$ a suspension meter movement; 61 temperature compensated ranges and reads as low as 20 nanoamps. **DC Volts:** 0-0.6-3-12-60-300 at 500K ohms/v.; 0-0.3-1.5-6-30-150 at 1 megohm/v.; 0-1200 at 125K ohms/v.; 0-600 at 250K ohms/v. **AC Volts:** 0-3-12-60-300-1200 at 10K ohms/v.; 0-1.5-6-30-150-600 at 20K ohms/v. **Ohms:** 0-1K-10K-100K (4.4-44-440 center scale). **Megohms:** 0-1-10-100 (4400-44,000-440,000 center scale). **DC Microamps:** 0-1 at 300 mv.; 0-60-600 at 300 mv.; 0-120 at 600 mv. **DC Milliamps:** 0-6-60-600 at 300 mv.; 0-1.2-12-120-1200 at 600 mv. **DC Amps:** 0-6 at 300 mv.; 0-12 at 600 mv. **Decibels:** -20 to +63 in 10 ranges. Black molded case. **Accuracy:** 1 1/2% DC, 1 1/2% AC in horizontal position. **Size:** 3 1/4" x 5 1/2" x 7 1/2". Wt., 4 lbs. **Triplet Model 630-M VOM—**With 48" long leads **\$19950** with test prods and removable alligator clips. Net Ea.....

### MODEL 630-NA VOM

This super deluxe VOM offers 70 ranges. Usable with frequencies through 500 KC. Temp. compensated. AC accuracy, 3%; DC, 1 1/2% full scale. Meter protected from overloads. Mirrored scale. **DC Volts:** 0-0.6-3-12-60-300-1200-6000 at 10,000 ohms per volt; 0-120 at 60  $\mu$ a; 0-0.3-1.5-6-30-150-600-3000 at 20,000 ohms per volt. **AC Volts:** 0-3-12-60-300-1200-6000 at 5000 ohms per volt; 0-1.5-6-30-150-600-3000 at 10,000 ohms per volt. **DC Microamps:** 0-120 at 240 mv.; 0-60-600 at 120 mv. **DC Milliamps:** 0-1.2-12-120-1200 at 240 mv.; 0-6-60-600 at 120 mv. **DC Amps:** 0-12 at 240 mv.; 0-6 at 120 mv. **Ohms:** 0-1000-10,000-100,000. **Megohms:** 0-1-10-100. **DB:** -20 to +77. **Size:** 3 1/4" x 5 1/2" x 7 1/2". Wt., 4 lbs. **Triplet Model 630-NA VOM—**Complete with 48" leads, alligator clips, batteries, rubber feet and instruction manual. **\$7950**  
 Net Each.....

### MODEL 630-L VOM LOW mW OHMMETER

Versatile tester has two low power ohm ranges on 140 mv voltage, important for semiconductor circuitry. Single selector switch minimizes chance for incorrect settings. Exclusive shielded Bar-Ring movement. Mercury battery power source. Wired circuits. Polarity reversing switch. Color-coded range switch and dial. **Accuracy:**  $\pm$ 2% on DC;  $\pm$ 3% on AC. Scale 4.5" long at top arc. **DC Volts:** 0-2.5-10-50-250-1000-5000 at 20,000 ohms/volt. **AC Volts:** 0-3-10-50-250-1000-5000 at 5000 ohms/volt. **Decibels:** -20 to +11, +21, +35, +49, +61 and +75; 0 db at 1 mw on 600-ohm line. **DC Current:** 0-100  $\mu$ a, 0-1-10-1000 ma and 0-10 amps at 120 mv. **Ohms:** 0-1000-10K-1 meg-100 meg (13-130-1K-400K at center) including x1 and x10 low mv ranges. **AC Output:** 0-3-10-50-250-1000 v. at 5000 ohms/volt, jack with capacitor in series with AC ranges. **Case & Accessories:** Black molded case, 3 1/4" x 5 1/2" x 7 1/2". With leads, alligator clips, rubber feet, batteries and manual. Banana type connectors. Shipping Weight, 5 lbs. **\$5450**  
**Triplet Model 630-L VOM—Net Each.....**

### MODEL 630-PL TYPE 2 VOM

Wider spread scales in modern design. Measures 5-500,000 cps frequency response in AC. Voltage scales for reading by 10's. DC polarity reversing switch. Can be used with clamp-on adapter. Compensated ohmmeter circuit. Flush-mounted controls; pre-calibrated rectifier. **DC Volts:** 0-2.5-10-50-250-1000-5000 at 20,000 ohms per volt. **AC Volts:** 0-3-10-50-250-1000-5000 at 5,000 ohms per volt. **DB:** -20 to +75 (six ranges). **DC Microamps:** 0-100 at 250 mv. **DC Milliamps:** 0-10-100-1000 at 250 mv. **DC Amps:** 0-10 at 250 mv. **Ohms:** 0-1000-10,000. **Megs:** 0-1-100. **Output:** Condenser in series with AC ranges. **Accuracy:** 2% DC, 3% AC. Weight, 4 lbs. **\$4950**  
**Triplet Model 630-PL VOM—**With leads, clips, batter-  
 les, manual. Net Each.....

### MODEL 630-APL TYPE 2 VOM

**Triplet Model 630-APL VOM—**Same as 630-PL but DC accuracy 1 1/2% and with 1/2% resistors and mirrored scales. **\$5950**  
 Net Each.....

### LEATHER CASES

Model	For Testers	Description	Net Each
859-OP	800, 850	Black, sponge rubber lined*	\$19.50
639	630, -A, -APL, -L	Black	9.90
639-N	-M, -N, -NA, -NS	Black, center-cover flaps*	9.90
639-P	-PL, -PLK, 631	Black, 3/4" sponge rubber lined*	14.90
639-OS	630L, -M, -NS, -PLK	Black, front opens	12.10
369	310, 310C	Black, trouser belt on back	3.20
369-S	310, 310C	Black, adjustable strap & hook*	8.40
369-T	310, 310C	Neckstrap	7.70
669	666-R	Black	6.90
669-OS	666-R	Front opens	7.40

\*Tester can be used in case, no removal necessary.





# Quality Test Equipment

## MODEL 310 HAND-SIZE VOM 20,000 OHMS/VOLT DC SCALE

Complete miniature VOM with selector range switch. Interchangeable test prod fits into tester top, becoming common probe; frees one of your hands for other work. Self-shielded for use in magnetic field. Unbreakable plastic meter window. Rugged, high torque, Bar-Ring instrument. Standard sensitivity, 20,000 ohms per volt, DC; 5,000 ohms per volt, AC. Accuracy: 3% DC, 4% AC. VDC: 0-3-12-60-300-1200. VAC: 0-3-12-60-300-1200. Ohms: 0-20,000-200,000. Megohms: 0-2-20. DC Amps: 0-600  $\mu$ A at 250 mv; 0-6-60-600 ma at 250 mv. Size: 2 3/4" x 4 1/4" x 1 1/2" in molded, fully insulated case. Complete with leads, batteries and manual. Weight, approximately 14 oz. with batteries.

Triplet Model 310 Hand-Size VOM—Net Each..... **\$3750**

## MODEL 310-C VOM

Features fully enclosed lever range switch, reversing switch for DC measurements, 15,000 ohms per volt AC and 20,000 ohms per volt DC. Handy sized, lightweight, pocket-size meter. Accuracy:  $\pm$ 3% DC, 4% AC. VAC: 0-3-12-60-300-600 at 15,000 ohms/v.; VDC: 0-3-12-60-300-600 at 20,000 ohms/v. Ohms: 0-20K-200K. Megohms: 0-2-20. DC Microamperes: 0-600 at 250 mv, DC Milliamperes: 0-6-60-600 at 250 mv. Output Volts: 0-3-12-60-300-600. Fully insulated black molded case; shatterproof clear plastic window. Size: 2 3/4" x 4 1/4" x 1 1/2". Weight, 14 oz.

Triplet Model 310-C Pocket Size VOM—Complete with leads, self-contained battery and instructions. **\$4450**  
Net Each.....

## MODEL 10 AC CLAMP-ON AMMETER ADAPTER FOR MODELS 310 AND 310-C VOM

Clamp-on Ammeter fits around single conductor or bus bar to check all line loads instantly, accurately and safely. No need to break circuit or interrupt load. Reads AC amperage directly in six steps: 0-6-12-30-60-120-300. Attaches easily to Models 310 and 310-C.

Triplet Model 10 Ammeter Adapter—Net Each..... **\$1550**

Triplet Model 511 Lead Attachment—Long lead for using Model 10 as clamp-on ammeter with any VOM having a 3-volt AC scale at 5000 ohms per volt (630, 630-A, 630-NA, etc.). Net Each..... **\$2.10**

Triplet Model 311 Lead—Long lead to separate Model 10 from Models 310 and 310-C to permit easy reading in awkward spots. Net Each..... **\$2.10**

Triplet Model 101 Line Separator—Divides 2-conductor cords and increases sensitivity of Model 10 by 10 and 20 times. Net Each..... **\$6.00**

Triplet Model 379 Case—Handy carrying case has room for 310 and 310-C and Model 10 Adapter combined. Net Each..... **\$6.00**

## VOM AND CLAMP-ON AMMETER SET

Complete set includes Model 310 VOM, Model 10 Clamp-on Ammeter Adapter, Model 101 Line Separator, Model 379 Leather Case, and Model 311 Lead.

Triplet Model 100 VOM and Ammeter Set—Net Ea..... **\$6450**

Triplet Model 100-C VOM and Ammeter Set—Same as above but with Model 310-C. Net Each..... **\$7150**

## MODEL 631 COMBINATION VTVM-VOM

A Volt-Ohm-Milliammeter and a Vacuum Tube Voltmeter combined in one compact low-priced instrument. 34 ranges. Sensitivity: VOM: 20,000 ohms per volt DC, 5000 on AC. VTVM: 11 megs. Single switch selects all ranges. Accuracy: 3% DC, 4% AC. VOM: DC Volts: 0-3-12-60-300-1200 at 20,000 ohms/volt. AC Volts: Same range at 5000 ohms per volt. DC  $\mu$ A: 0-60 at 250 mv. DC mA: 0-1-2-12-120-1200 at 250 mv. DC Amperes: 0-12 at 250 mv. Decibels: -20, +11, +23, +37, +51, +63. Ohms: 0-150-15K (6-8-68 center scale, first division 0.1). Megohms: 0-1.5-150 (6800-680,000 center scale). Output Condenser in series with AC Volts. VTVM: DC Volts: 0-2-6-30-120 (first division is 0.02 volt). Galvanometer Center mark "0-0+"; for discriminator alignment. Size: 5 1/2" x 7 1/2" x 1 1/2". Meter housed flush with panel. 3 1/4" x 5 1/4" x 7 1/2" black molded case. Leads: 48" test prods, removable alligator clips at one end, 48" lead with 1 meg built in for VTVM. Banana type plugs for low contact resistance. Pencil thin prods. Weight, 4 lbs.

Triplet Model 631 VTVM-VOM—Net Each..... **\$6950**

## MODEL 666-R POCKET VOM

Unit construction—resistors, shunts, rectifier, batteries are housed in molded base integral with switch. Single switch selects any range. Recessed knob flush with panel. Precision wire-wound or film resistors. 3" x 0-200 millimeter meter, 250 mv. Banana jacks at top of panel reduce possibility of leads falling over the panel and meter dial. All connectors, knobs and controls are flush with the panel. Precalibrated rectifier unit for easy replacement. DC Volts: 0-10-50-250-1000-5000 at 1000 ohms/volt. AC Volts: 0-10-50-250-1000-5000 at 1000 ohms/volt. DC Milliamperes: 0-10-100 at 250 mv. DC Amps: 0-1 at 250 mv. Ohms: 0-300-300,000. Megohms: 0-3. (Compensated Ohmmeter circuit.) Size: 3 1/4" x 5 3/4" x 2 1/4" black, molded, insulated case with engraved white markings. Leads: 50" long. Test prods with removable alligator clips at one end. Banana type plugs at other end for connecting to tester jacks, give low contact resistance at jacks.

Triplet Model 666-R Pocket VOM—Net Each..... **\$3450**

## MODEL 800 TYPE 2 VOM

Versatile volt-ohm milliammeter with 70 ranges and DC accuracy of 1 1/2% up to 1,200 V; AC 3% to 1,200 V. Temp. comp. suspension meter movement fully protected from overloads. Long 7" scales with mirror and knife-edge pointer to eliminate parallax. Frequency response, flat from 20 cps to 100,000 cps. varies from 3/4 to 1 1/4 db at 500,000 cps. Fused and self-shielded by high flux Bar-Ring magnet. AC Volts: 0-3-12-60-300-1200-6000 at 5,000 ohms/v. 0-1.5-6-30-150-600-3000 at 10K ohms/v. DC Volts: 0-0.6-3-12-60-300-1200-6000 at 10K ohms/v. 0-0.3-1.5-6-30-150-600-3000 at 20K ohms/v. 0.120 at 60  $\mu$ A. Ohms: 0-1K-10K-100K (4.4-44-440 at center scale). Megohms: 0-1-10-100 (4400-44,000-440,000 ohms center scale). DC  $\mu$ A: 0-60-600 at 120 mv; 0-120 at 240 mv. DC mA: 0-6-60-600 at 120 mv; 0-1.2-12-120-



1200 at 240 mv. DC Amps: 0-6 at 120 mv; 0-12 at 240 mv. DB: -30 to +70 in 12 ranges. Output: Condenser in series with AC volt ranges. Shatterproof meter window made of molded transparent plastic; fully antistatic treated. Enclosed in heavy, molded black insulated case with insulated movable handle that serves as stand. Size: 7 1/2" x 6 1/4" x 3 1/4". Weight, 3 3/4 lbs. **\$9950**  
Triplet Model 800 VOM—Net Each.....

## MODEL 850 ELECTRONIC VOLT-OHMMETER

Extremely versatile electronic volt-ohmmeter has superior voltage measuring capabilities, plus resistance ranges to 1000 megs. Features: Cathode circuit of 12AU7 for better stability. Long, full-view 7" scales at top arc for easy reading. Electrical burnout protection. Separate scale on easy-view meter for peak-to-peak readings. Single unit probe with built-in switch for AC/DC/ohms. Fully insulated, molded black case. Use handle for 25° reading angle. Etched aluminum panel. Low Voltage Circuit: 0.5 volt full-scale range on DC for transistor circuits. DC Volts: 0-0.5-1.5-5-15-50-150-500-1500. AC Volts: 0-1.5-5-15-50-150-500-1500 rms; 0-4-14-40-140-400-1400-4000 peak-to-peak. Ohms: 0-1000-10,000-100,000. Megohms: 0-1-10-100-1000. Frequency Range: 15 cps to 3 mc. Input Resistance: 11 megs on all DC voltage ranges. AC Impedance: 0.83 meg, minimum to permit use without loading the circuit under test. Size: 7 3/8" x 6 1/4" x 3 3/4". **\$7950**  
Triplet Model 850 Volt-Ohmmeter—Net Each.....

## MODEL 3490-A TRANSISTOR ANALYZER

The ultimate in transistor analysis, offers three independent power supplies: Collector currents up to 30 amps; Input up to 3 amps; variable tetrode voltage. Separate input and collector meters (4 1/2") monitor emitter or base and collector continuously. Transistor tabulation included at no extra cost. Also tests diodes, rectifiers, zeners, SCR's, etc. Analyzes both power and signal types at specified voltages and currents. Tests DC and AC beta at 1 kc, leakage, alpha, reach-through and saturation voltage and floating potential. Input bias reversing switch. Input Current: 0-100-300  $\mu$ A. 0-1-3-10-30 mA and 0-1-1-3-1-3 amps, emitter or base. Collector Current: 0-300  $\mu$ A, 0-1-3-10-30 mA and 0-1-1-3-1-3-10-30 amps. I<sub>CEO</sub>, I<sub>CO</sub> (I<sub>CBO</sub>): 0-6 mA and 0-600, 0-60 and 0-6  $\mu$ A. Collector Volts: 0-120, 0-60, 0-30, 0-12, 0-6, 0-3 and 0-1.2 V. Emitter or Base Volts: 0-12 and 0-1.2 V. Tetrode: 0-10 V, calibrated control. Size: 18 1/4" x 15 1/4" x 8" in gray leatherette-covered wood case with removable cover and sloping etched aluminum panel. Shpg. Wt., 30 lbs. **\$39950**  
Triplet Model 3490-A Transistor Analyzer—Net Ea.....



### MODEL 250 AC VTVM AND AMPLIFIER

High sensitivity, wideband AC VTVM and amplifier of laboratory accuracy and quality. Measures AC voltages from 1 mV rms to 300 V rms in 12 ranges. Function-selector switch on the attractively designed front panel converts the unit to a wideband amplifier with a gain of 60 db on the 1 mV range and a maximum output of 5 V rms. Responds to average value of the applied wave and reads rms value of a sine wave. The 0-1, 0-3 voltage scales are linear. The decibel scale is based on 0 db equals 1 mW in 600 ohms, with 10 db interval between ranges. Features frame-grid triode-cathode follower input circuit, frequency-compensated input attenuator and cathode circuit attenuator; use of high-gain, frame-grid pentodes permits fewer amplifier stages for less phase shift and greater stability. Two-stage R-C coupled amplifier and full-bridge meter circuit in one overall feedback loop. Single sensitivity adjustment. No response adjustment is required in amplifier circuit. Stabilized power supply incorporates voltage regulator, DC-biased filaments and hum-adjust pot. **VOLTMETER—Voltage Ranges:** 1, 3, 10, 30, 100, 300 mV and V rms. **Decibel Range:** -80 to +52 db in 12 ranges. **Frequency Response:** ±0 db, 10 cps-600 kc. **Input Impedance:** 10 megs, shunted by 15 pF. **Accuracy:** ±3% of full scale. **AMPLIFIER—Max. Output Voltage:** 5 V rms. **Max. Gain:** 60 db in 1 mV range. **Frequency Response:** +0, -3 db, 8 cps-800 kc. **Max. Hum and Noise:** -40 db, inputs above 2 mV. **Input Impedance:** 10 megs shunted by 15 pF. **Output Impedance:** 5K ohms. **Tubes:** 2-6EJ7/EF184 frame-grid pentodes, 1-6BY5/EC97 frame-grid triode, 1-6X4 full-wave rectifier, 1-OA2 voltage regulator. **Power Required:** 15 watts, 105-125 VAC, 60 cps. **Size:** 5 3/4" w. x 7" d. x 8 3/4" h. Weight, 8 lbs.

**Model 250 AC VTVM and Amplifier—Wired, Net Each... \$79.95**  
**Model 250K AC VTVM and Amplifier Kit—Net Each... 49.95**

### MODEL 255 AC VTVM

Highly sensitive, wideband AC VTVM of laboratory accuracy and quality. Measures AC voltages from 1 mV rms to 300 V rms in 12 ranges. Instrument responds to the average value of the applied wave and reads in rms value of a sine wave. The 0-1 and 0-3 voltage scales are linear. The decibel scale is based on 0 db equals 1 mW in 600 ohms, with 10 db interval between ranges. Features are primarily the same as the VTVM section of the Eico Model 250. **Voltage Ranges:** 1, 3, 10, 30, 100, 300 mV rms; 1, 3, 10, 30, 100, 300 V rms. **Decibel Range:** -80 to +52 db in 12 ranges. **Frequency Response:** ±0 db, 10 cps-600 kc. **Input Impedance:** 10 megs, shunted by 15 pF. **Accuracy:** ±3% of full scale. **Tubes:** 2-6EJ7/EF184 frame-grid pentodes, 1-6BY5/EC97 frame-grid triode, 1-6X4 full-wave rectifier, 1-OA2 voltage regulator. **Power Required:** 15 watts, 105-125 VAC, 60 cps. **Size:** 5 3/4" w. x 7" d. x 8 3/4" h. Wt., 8 lbs. **Model 255 AC VTVM—Wired, Net Each... \$72.95**  
**Model 255K AC VTVM Kit—Net Each... 44.95**

### MODEL 249 DELUXE PEAK-TO-PEAK VTVM

Measures directly p-p voltage of complex and sine waves: 0-4, 14, 42, 140, 420, 1400, 4200. **DC/Rms Sine Volts:** 0-1.5, 5, 15, 50, 150, 500, 1,500 (up to 30,000 V with HVP probe and 250 Mc with PRF probe). **Ohms:** 0.2 ohm to 1,000 megs. Seven non-skip ranges on every function. Calibration without removing from cabinet. 7 1/2" meter with "can't-burn-out" circuit. 1% multipliers. Zero center. With AC/DC Uni-Probe: One probe for all functions—half-turn of probe tip selects DC or AC ohms. **Power:** 5 watts, 117 VAC, 60 cps. **Model 249 VTVM—Wired, ready to use, Net Each... \$59.95**  
**Model 249K VTVM Kit—Net Each... 39.95**

### MODEL 232 PEAK-TO-PEAK VTVM

Measures directly p-p voltage of complex and sine waves: 0-4, 14, 42, 140, 420, 1400, 4200. **DC/Rms Sine Volts:** 0-1.5, 5, 15, 50, 150, 500, 1,500 (up to 30,000 V with HVP probe and 250 Mc with PRF probe). **Ohms:** 0.2 ohm to 1,000 megs. Seven non-skip ranges on every function. Calibration without removing from cabinet. 4 1/2" meter with "can't-burn-out" circuit. 1% multipliers. Zero center. With AC/DC Uni-Probe: One probe for all functions—half-turn of probe tip selects DC or AC ohms. **Power:** 5 watts, 117 VAC, 60 cps. **Size:** 5" w. x 5" d. x 5 1/2" h. Weight, 7 lbs. **Model 232 VTVM—Wired, ready to use, Net Each... \$49.95**  
**Model 232K VTVM Kit—Net Each... 29.95**

### MODEL 221 VTVM

Large 4 1/2" meter with "can't-burn-out" circuit. Zero center for TV/FM discriminator alignment. **AC/DC Volts:** 0-5, 10, 100, 500, 1,000 (up to 30,000 V with HVP probe; up to 200 Mc with PRF probe, and peak-to-peak with PTP probe). **Ohms:** 0.2 ohm to 1,000 megs. **DB:** -20 to +55. **Input R:** 25 megs, ±1% precision multipliers. Double-triode bridge circuit. Deep-etched aluminum panel; steel case. **Power:** 10 watts, 117 VAC, 60 cps. **Model 221 VTVM—Wired, ready to use, Net Each... \$39.95**  
**Model 221K VTVM Kit—Net Each... 25.95**

### MODEL 214 DELUXE VTVM

All the versatility and proven features of Model 221, plus a big 7 1/2" meter. Appearance similar to Model 249. **Power:** 10 watts, 105-125 VAC, 50/60 cps. **Model 214K VTVM Kit—Net Each... \$34.95**

### MODEL 222 VTVM

Provides entirely electronic, direct-reading measurements of AC and DC voltages up to 1500 volts in five ranges; resistance in five ranges. Rugged compact VTVM features calibration without removal from cabinet. Completely overload protected electronically, plus fuse. Incorporates 1% ceramic resistors throughout. Zero center scale. Supplied complete with exclusive, time-saving Uni-Probe which measures AC volts, DC volts, or ohms by simply turning the probe tip. Five ranges of DC and AC volts are designed for maximum usefulness. **Frequency Response:** 30 cps to 3 Mc; up to 250 Mc using PRF probe. **Peak-to-peak readings made directly on DC peak using PTP probe. Voltages AC and DC:** 0-3, 15, 75, 300 and 1500; up to 30 Mc. May be measured using Eico's HVP probe with 1090 meg multiplier resistor. **Resistance:** 0.2 ohm to 100 ohms. **Power:** 5 watts, 117 VAC, 60 cps. **Eico Model 222 VTVM—Wired and tested, Net Each... \$42.95**  
**Eico Model 222K VTVM Kit—Net Each... 27.95**



**MODEL 902 IM/HARMONIC DISTORTION METER/AC VTVM**  
 A rugged, versatile combination of intermodulation/harmonic distortion meter, AC VTVM and db meter for precision measurements in audio design and development. Extremely stable and easy to operate. Big 4 1/2" meter reads as low as 0.3% full scale and as low as 10 mV AC full scale with ±5% accuracy on distortion and ±4% on AC voltage. Precision ±1% resistors in bridge circuits. External high and low frequency panel jacks. HD Meter has 6:1 vernier tuning, 300 degree scale; oscilloscope output. AC VTVM and distortion metering employs cathode follower input; frequency-compensated input attenuator and cathode circuit attenuator. Two-stage R-C coupled amplifier with full bridge meter circuit in feedback loop. Single sensitivity adjustment. No response adjustment required. **IM DISTORTION—Ratios of LF to HF:** 4:1 and 1:1, selected by front panel switch. **Test Signal Output:** 0-5 V, adjusted by 600-ohm L-pad. **Output Termination:** 600 ohms or desired external value, selected by front panel switch. **Distortion Ranges:** 0.3, 1, 3, 10, 30%. **HARMONIC DISTORTION—Fundamental Frequency Ranges:** 20-200, 200-2,000, 2,000-20,000 cps. **Distortion Ranges:** 20-200, 200-2,000, 2,000-20,000 cps. **Distortion Ranges:** 0.3, 1, 3, 10, 30, 100%. **Impedance at Input Terminals (HD or IM):** 500K ohms. **Minimum Input Level for Measurements (HD or IM):** 0.7 volts. **AC VTVM—Ranges:** 0.01, 0.03, 0.1, 0.3, 1, 3, 10, 30, 100, 300 V rms. **DB:** -20 to +2. **Impedance at Input Terminals:** 2 megs shunted by 15 pF. **Frequency Response:** ±0 db, 10-100,000 cps; 3 db down at 300 kc. **Power Supply:** Regulated, full wave. **Power Required:** 115 VAC, 60 cps. **Size:** 12 3/4" w. x 10 3/4" d. x 8 3/4" h. Weight, 18 lbs. **Model 902 IM/Harmonic Distortion Meter and AC VTVM—Wired, Net Each... \$250.00**





### NEW MODEL 342 FM MULTIPLEX SIGNAL GENERATOR

For testing and aligning multiplex circuits of FM multiplex stereo tuners and receivers. Measures and adjusts channel separation, balance and input level required for switch-over to stereo operation. Provides controlled amplitude composite audio output and FM RF output (adjustable about 100 Mc); crystal controlled 19 kc pilot signal switches on and off independently of the composite signal; oscilloscope sync output with choice of 19 kc internal sync or 1 kc external oscillator sync; dual inputs and amplifiers for stereo. **Pilot Frequency:** = 2 cps, 19 kc, crystal controlled. **Separation:** 40 db min., 200 cps to 10 kc; 30 db min., 50 cps to 15 kc. **Composite Signal Output:** 0-5 V p-p, continuously variable, output impedance 1.5K ohms. **FM Multiplex RF Output:** 200 mV; output impedance, 50 ohms. **Signal Selection:** L+R (sum), L-R (difference), L only, R only, 19 kc pilot only, stereo source. **Power Requirements:** 117 VAC, 50/60 cps. **Size:** 5 3/4" w. x 12 1/2" d. x 8 3/4" h. **Weight,** 10 lbs.

**Model 342 FM Multiplex Signal Generator—Wired.**  
Net Each.....\$149.95

### NEW MODEL 261 AC VOLT-WATT METER

Designed for testing, evaluating and servicing audio amplifiers. Can be used for "Q" and comparison measurements of capacity, inductance and resistance. **Voltmeter Ranges:** .01, .03, 0.1, 0.3, 1, 3, 10, 30, 100, 300, 1000 V rms. **Frequency Response:** = 0 db, 10 cps to 150 kc; -3 db at 500 kc. **Input Impedance:** 2 megs shunted by 15 pF. **Accuracy:** = 4% F.S. **Wattmeter Ranges:** 0.15, 1.5, 15, 150 mW; 1.5, 15, 150 W. **Frequency Response:** = 0 db, 10 cps to 100 kc. **Accuracy:** = 5% internal loads; 4 ohms (40 watts), 8 ohms (80 watts), 16 ohms (40 watts), 600 ohms (40 watts). **External Loads:** 4, 8, 16, 600 ohms, all up to 150 watts. **Power Requirements:** 15 watts, 105-125 VAC, 60 cps. **Size:** 5 3/4" w. x 7" d. x 8 3/4" h. **Weight,** 6 lbs.

**Model 261 AC Volt-Watt Meter—Wired.** Net Each.....\$79.95  
**Model 261K AC Volt-Watt Meter Kit—Net Each..... 49.95**

### MODEL 565 VOM

20,000 ohms/volt; 31 full-scale ranges. **DC/AC Volts:** 0-2.5, 10, 50, 250, 1,000, 5,000. **DC Current:** 0-100  $\mu$ A; 10, 100, 500 mA; 10 amps. **Ohms:** 0-2,000; 20K; 20 meg. **Ohm:** Five ranges: -12 to +5. **Large 4 1/2" 50  $\mu$ A meter.** Bakelite case. **Size:** 5 1/4" w. x 3" d. x 6 3/4" h. **Weight,** 3 lbs.

**Model 565 VOM—Wired.** Net Each.....\$29.95  
**Model 565K VOM Kit—Net Each..... 24.95**  
**Model 565 VOM—1% resistors.** Wired. Net Each..... 34.95  
**Model 565K VOM Kit—1% resistors.** Net Each..... 29.95  
\*Registered Bakelite Corp. trademark.

### MODEL 536 VOM

1,000 ohms/volt; 31 full-scale ranges. **AC/DC Volts:** 0-1, 5, 10, 50, 100, 500, 5,000. **AC/DC Current:** 0-1, 10 mA; 0.1, 1.0 amp. **Ohms:** 0-5,000, 100K, 1 meg. **Ohm:** Six ranges, -20 to +69. **Meter 3" 400  $\mu$ A.** High Impact Bakelite case. **Size:** 3 3/4" w. x 2 3/4" d. x 6 1/4" h. **Weight,** 2 lbs.

**Model 536 VOM—Wired.** ready to use. Net Each.....\$18.95  
**Model 536K VOM Kit—Net Each..... 14.95**  
**Model 526 VOM—With 1% resistors.** Wired. Net Ea... 19.95  
**Model 526K VOM Kit—With 1% resistors.** Net Each... 15.95

### MODEL 566 VOM

1,000 ohms/volt; 38 full-scale ranges. **AC/DC volts,** **AC/DC current,** **db** and **ohm** ranges same as Model 536 but with 7 additional output voltage ranges: 0-1, 5, 10, 50, 100, 500 and 5,000. **Meter 4 1/2" 400  $\mu$ A.** Bakelite case. **Size:** 5 3/4" w. x 3" d. x 6 3/4" h. **Weight,** 3 lbs.

**Model 566 VOM—Wired.** Net Each.....\$22.95  
**Model 566K VOM Kit—Net Each..... 16.95**  
**Model 556 VOM—1% resistors.** Wired. Net Each..... 25.95  
**Model 556K VOM Kit—1% resistors.** Net Each..... 18.95

### MODEL 632 CRT TESTER AND REJUVENATOR

Portable CRT tester and rejuvenator accommodates any picture tube, color or black and white. Includes transformer-operated 1000 v. DC supply for repairing defects, 150 v. DC negative supply with potentiometer to indicate contrast range, plus rheostat and three-range selector for precisely controlled filament voltage. **Meter (4 1/2"),** reads grid cut-off and filament voltages, plus beam current. Neon lamp short test. Six-pushbutton operation, with panel switch to select color gun; separate pushbutton for rejuvenation-welding. **Power:** 117 VAC. **Size:** 9 1/2" w. x 12" d. x 5 1/4" h. **Weight,** 11 lbs.

**Model 632 CRT Tester and Rejuvenator—Wired.** Net...\$69.95  
**Model 632K CRT Tester and Rejuvenator Kit—Net Ea... 49.95**

**MODEL 944 FLYBACK TRANSFORMER AND YOKE TESTER**  
Positive check of all flybacks and yokes, in or out of set. Uses sensitive grid-dip principle to show up even one shorted strand. Separate calibration for air- and iron-core flybacks. Large, easy-to-read 4 1/2" meter with three colored scales. With one 6K6 tube. **Power:** 105-125 VAC, 60 cps. **Size:** 5" w. x 4" d. x 7" h. **Wt.,** 5 lbs.  
**Model 944 Flyback and Yoke Tester—Wired.** Net Ea...\$34.95  
**Model 944K Flyback and Yoke Tester Kit—Net Each... 23.95**

### MODEL 540 READI-TESTER

AC/DC voltmeter, ammeter, ohmmeter, wattmeter and leakage tester. Rotary switch selector; one-place visual indicator. Instruction book covers basic electricity as well as operation; also procedures and diagrams for common repairs. **AC/DC Voltage Range:** 0-300 V. **AC/DC Current Range:** 0-15 A. **Size:** 3 3/4" w. x 3 3/4" d. x 6 1/4" h. **Weight,** 3 lbs.

**Model 540 Read-Tester—Wired.** Net Each.....\$15.95  
**Model 540K Read-Tester Kit—Net Each..... 12.95**

### MODEL 610 TUBE TESTER ADAPTER

Adapts Models 625 and 666 tube testers for testing 5- and 7-pin novistors, 10-pin miniatures, 12-pin compactrons, and novars. Adapter cable plugs into 9-pin socket; tenth connection is provided by cap terminal on adapter for connecting grid cap lead from tube tester. Also included are roll-chart supplements. Gray wrinkle finish case; brushed aluminum panel. **Size:** 2 1/4" w. x 1 1/4" d. x 6" h.  
**Model 610 Tube Tester Adapter—Wired.** Net Each.....\$11.95  
**Model 610K Tube Tester Adapter Kit—Net Each..... 5.95**



### HIGH VOLTAGE PROBE

For safe measurement up to 30,000 v. DC with any VTVM or 20,000 ohms/volt VOM. Includes choice of high quality multiplier resistor to match most popular instruments.  
**Model HVP-2 High Voltage Probe—Wired.** Net Each...\$6.95

### PEAK-TO-PEAK VTVM PROBES AND KITS

Reads p-p voltages directly on DC scales of VTVM. Traces complex AC waveforms through TV deflection systems.  
**Model PTP-11—For use with 11 meg VTVM.** Wired. Net...\$8.95  
**Model PTP-11K Kit—For 11 meg VTVM.** Net Each... 4.95  
**Model PTP-25—For 25 meg VTVM.** Wired. Net Each... 6.95  
**Model PTP-25K Kit—For 25 meg VTVM.** Net Each... 4.95

### MODEL UP UNI-PROBE® AND KIT

Performs all functions: Half-turn of probe tip selects DC or AC ohms. Adapts to Eico Model 221 VTVM and other VTVM's in just 15 minutes. Complete instructions supplied.  
**Model UP—Wired.** Net Each.....\$6.95  
**Model UPK Kit—Net Each..... 4.95**

### RF VTVM PROBES AND KITS

For RF voltage measurements up to 250 Mc,  $\pm$ 10% accurate.  
**Model PRF-11—For 11 meg VTVM.** wired. Net Each...\$4.95  
**Model PRF-11K Kit—For 11 meg VTVM.** Net Each... 3.95  
**Model PRF-25—For 25 meg VTVM.** wired. Net Each... 4.95  
**Model PRF-25K Kit—For 25 meg VTVM.** Net Each... 3.95

### CRA, CRA-110 AND CRU PICTURE TUBE TEST ADAPTERS

**Model CRA—For testing 70° and 90° picture tubes with Models 625 and 666 tube testers.** Wired. Net Each.....\$4.50  
**Model CRA-110—For testing 110° picture tubes with Models 625 and 666 tube testers.** Wired. Net Each.....\$3.95  
**Model CRU—For testing all color and black-and-white tubes with Models 667 or 628 testers.** Wired. Net Each.....\$9.95





### MODEL 667 TUBE AND TRANSISTOR TESTER

Dynamic conductance tester combines mutual conductance and peak emission tests in single reading. Also tests transistors for gain and leakage. Tests almost any receiving tube, plus nuvistors, novars, compactrons, special purpose tubes. Special pilot light tests. All tests under actual operating conditions. Lever switch sets voltages, 13 pushbuttons for testing. Twenty filament voltages. Tests color or black and white CRT's with Model CRU adapter. Line adjust control; 400  $\mu$ A, 4 1/2" meter. For 105-135 VAC. **Model 667 Tube and Transistor Tester—Wired, Net. . . \$129.95**  
**Model 667K Tube and Transistor Tester Kit—Net Ea. . . 79.95**

### MODEL 628 TUBE TESTER

Tests standard tubes, nuvistors, novars, compactrons, series string, VR and "eye" tubes; all CRT's with adapter. Thirteen lever-type element switches; 4 1/2" meter with three-color scale. Three-column roll chart, snap-out window. Pilot light test socket, line adjust control, overload lamp. **Power: 105-135 VAC.**  
**Model 628 Tube Tester—Wired, Net Each. . . . . \$59.95**  
**Model 628K Tube Tester Kit—Net Each. . . . . 44.95**

### MODEL 615 TUBE TEST ADAPTER

Adapts Models 628 or 667 testers for 4, 5, 6 or 7 pin tubes.  
**Model 615 Test Adapter—Wired, Net Each. . . . . \$11.95**  
**Model 615K Test Adapter Kit—Net Each. . . . . 5.95**

### MODEL 680 TRANSISTOR AND CIRCUIT TESTER

Checks germanium, silicon and selenium diodes and rectifiers. Provides significant measurement of actual transistor parameters, plus, all the VOM ranges needed to service transistor equipment. Meter provides 50  $\mu$ A sensitivity and 3 1/2" long scale for accuracy. **Transistor Measurements:** I<sub>co</sub> and I<sub>Bo</sub> with separate ranges for signal and power types; DC beta in two ranges, 2-30 and 20-300; AC beta indirectly on separate scale, using incremental differences in collector and base currents of DC beta to find AC beta. **DC Current Ranges:** 50  $\mu$ A, 500  $\mu$ A, 5 mA, 50 mA, 500 mA. **DC Voltage:** 5 and 50 volts. **Resistance Range:** x1 (0-2K, 12 ohms center), x100 (0-200K; 12,000 ohms center), and x10K (0-20 megs; 120K ohms center). **Size:** 5 1/4" w. x 3" d. x 6 3/4" h.  
**Model 680 Transistor and Circuit Tester—Wired and tested, Net Each. . . . . \$39.95**  
**Model 680K Transistor and Circuit Tester Kit—Net Ea. . . 25.95**

### NEW MODEL 380 COLOR BAR GENERATOR

Solid state color signal and dot bar generator provides precise color signals and dot-bar patterns for both black-and-white and color sets. Fully saturated NTSC color signals include both chrominance and luminance signals; precision 1% voltage dividers. Color-burst gated and delayed to NTSC standards (8 to 10 burst cycles terminated within 10  $\mu$ sec after leading edge of horizontal sync pulse). Three crystal controlled oscillators for color burst, convergence and RF. **RF Output:** 0 to 50,000  $\mu$ V into 300 ohms (61.25 Mc crystal controlled for TV channel 3). **Video Output:** Both + and - polarities, 0-10 V p-p into 4700 ohms. **Horizontal Lines:** 13 variable thickness. **Vertical Lines:** 10 variable thickness. **Crosshatch:** 13 horiz. and 10 vert. lines. **Dots:** 130 variable size. **NTSC Colors:** Yellow, I, red, R-Y, magenta, Q, B-Y, blue, cyan, green and white. **Power:** 117 VAC, 60 cps. **Size:** 5 1/4" w. x 6 3/4" d. x 8 1/2" h. **Weight:** 4 lbs.  
**Model 380 Color Bar Generator—Wired, Net Each. . . \$159.95**  
**Model 380K Color Bar Generator Kit—Net Each. . . . 109.95**

### NEW MODEL 435 WIDEBAND 3" DC OSCILLOSCOPE

Compact, portable DC 'scope equal in performance to larger, heavier types. Permanently accurate, zener diode calibration (200 mV peak-to-peak). Direct-coupled vertical amplifier is three-stage push-pull type; response, DC to 4.5 Mc; sensitivity, 18 mV rms/cm. Full retrace blanking. Flat-faced 3" CRT with mu-metal shield; distortionless vert. and hor. positioning and trace expansion; adjustable, edge-lighted, grid screen. Horizontal amplifier response, 1 cps to 500 kc; sensitivity, 0.7 V rms/cm. Four overlapping sweep ranges, 10 cps to 100 kc plus TV-vert. position (30 cps) and TV-hor. (7,875 cps). **Power:** 60 watts, 117 VAC. **Size:** 5 1/4" w. x 12 1/2" d. x 8 1/2" h. **Weight:** 15 lbs.  
**Model 435 DC Oscilloscope—Wired, Net Each. . . . . \$149.95**  
**Model 435K DC Oscilloscope Kit—Net Each. . . . . 99.95**

### MODEL 430 HIGH PERFORMANCE 3" OSCILLOSCOPE

Compact and lightweight, but with performance of a bigger 'scope. Vertical amplifier flat from 2 cps to 500 kc. Sensitivity, 25 mV rms/cm. Frequency compensated coarse attenuator plus fine attenuator. Vertical and horizontal positioning controls. Horizontal amplifier, 2 cps to 300 kc with sensitivity of 0.25 V rms/cm. Sweep frequencies from 10 cps to 100 kc in four ranges; internal or external sweep. Full retrace blanking; automatic sync. Flat-face 3" CRT with mu-metal neck shield; direct connection to deflection plates. High intensity modulation input operates from only 3 V rms. Regulated power supply. **Power:** 60 watts, 117 VAC. **Size:** 5 1/4" w. x 11 1/4" d. x 8 1/2" h. **Weight:** 11 lbs.  
**Model 430 Oscilloscope—Wired, Net Each. . . . . \$99.95**  
**Model 430K Oscilloscope Kit—Net Each. . . . . 69.95**

### MODEL 427 HIGH SENSITIVITY DC 5" OSCILLOSCOPE

Now with zener calibrator  $\pm$ 1% permanently accurate. Direct coupled vertical amplifier of three push-pull pairs is flat from DC to 500 kc (-6 db at 1 Mc) with 10 mV p-p/cm or 3.5 mV rms/cm sensitivity. Includes four-position frequency-compensated decade attenuator plus internal voltage calibrating position. All trace controls and DC balance may be adjusted from panel; sharp, clean trace is free of blooming. Instantaneous drift-free positioning permits centering of any part of trace, expanded 30 cm vertically or 20 cm horizontally. Slide switch selection of direct plate connections without removing jumper links. Sawtooth output for frequency compensating trimmer adjustments and intensity modulation input. Horizontal amplifier flat from 2 cps to 460 kc, +1, -3 db; sensitivity 0.18 V rms/cm. Four overlapping sweep ranges from 10 cps to 100 kc. Fully automatic sync and full retrace blanking. **Power:** 55 watts, 117 VAC. **Size:** 8 1/4" w. x 16 1/4" d. x 12 1/4" h. **Weight:** 28 lbs.  
**Model 427 DC Oscilloscope—Fully wired, Net Each. . . \$109.95**  
**Model 427K DC Oscilloscope Kit—Net Each. . . . . 69.95**

### MODEL 460 WIDEBAND DC 5" OSCILLOSCOPE

For color, and monochrome TV, lab and industry. Flat from DC to 4.5 Mc; usable to 10 Mc; DC amplifiers. **Vertical Sensitivity:** 10 mV rms/cm, push-pull throughout. **Sweep Frequency:** 10 cps to 100 kc; low sweep with external capacitor. Automatic sync limiter and amplifier. Internally modulated sawtooth output; 60 cps test signal; external sync; external capacitor jacks; 60 cps variable phase sine sweep. Pre-set TV vertical and horizontal sweep positions. Four frequency-compensated attenuator positions, up to 1,000:1 on either direct or capacitive-coupled input. **Power:** 95 watts, 117 VAC. **Size:** 8 1/4" w. x 16" d. x 13" h. **Weight:** 29 lbs.  
**Model 460 DC 5" Oscilloscope—Wired, Net Each. . . . \$129.50**  
**Model 460K DC 5" Oscilloscope Kit—Net Each. . . . . 89.95**

### MODEL 488 ELECTRONIC SWITCH

Allows you to observe two patterns on one 'scope simultaneously: Compare voltage and current, amplitudes, waveforms, frequency and phase relationships. Continuously variable switching rates from less than 10 cps to over 2 kc. Use as square wave generator on same range. **Power:** 25 watts, 105-125 VAC, 60 cps.  
**Model 488 Electronic Switch—Wired, Net Each. . . . . \$39.95**  
**Model 488K Electronic Switch Kit—Net Each. . . . . 23.95**

### MODEL PLC OSCILLOSCOPE LOW CAPACITY PROBE

For TV sync signal tracing and general testing in video sync and sweep circuits.  
**Model PLC Probe—Wired, ready to use, Net Each. . . . \$5.95**  
**Model PLCK Probe Kit—Net Each. . . . . 3.95**

### MODEL PSD OSCILLOSCOPE DEMODULATOR PROBE

For signal tracing and checking of TV and radio RF and IF stages. Demodulates amplitude modulated carriers between 150 kc and 250 Mc.  
**Model PSD Probe—Wired, ready to use, Net Each. . . . \$5.95**  
**Model PSDK Probe Kit—Net Each. . . . . 3.95**

### MODEL PD OSCILLOSCOPE DIRECT PROBE

For TV waveform tracing in low impedance or low frequency circuits. Eliminates stray pickup and signal re-radiation.  
**Model PD Probe—Wired, Net Each. . . . . \$3.95**  
**Model PDK Probe Kit—Net Each. . . . . 2.95**



**MODEL 315 DELUXE RF SIGNAL GENERATOR**

Better than 1% accuracy on all seven stages. **Frequency:** Fundamentals 75 kc to 50 Mc in five ranges. Calibrated harmonics 13 Mc to 150 Mc in two ranges. **RF Output:** Over 100,000  $\mu$ V. **Audio Modulation Frequency:** 400 cps. VR tube regulated power supply. Internal 400 cps sine wave audio generator with attenuator for RF modulation and external audio testing. Provision for external modulation. **Power Required:** 117 VAC, 60 cps. **Size:** 12" w. x 7" d. x 13" h. **Weight,** 18 lbs.

**Model 315 Deluxe RF Signal Generator—Wired, Net. . . . \$69.95**  
**Model 315K Deluxe RF Signal Generator Kit—Net Ea. 49.95**

**MODEL 324 RF SIGNAL GENERATOR**

IF-RF alignment, signal tracing and trouble-shooting of TV, FM, and AM sets on all fundamentals; marker generator; 400 cps sine wave audio testing. Also for lab and experimental work. **Extended Frequency Range:** Six fundamental bands: 150-400 kc, 400-1,200 kc, 1.2-3.5 Mc, 3.5-11 Mc, 11-37 Mc, 37-145 Mc; harmonic band 111 Mc-435 Mc. **Frequency accuracy** = 1.5%. Co. pits RF oscillator, directly plate-modulated by cathode follower. Variable depth of internal modulation, 0-50% by 400 cps Colpitts oscillator. Variable gain external modulation amplifier; 3 V needed for 30% modulation. Fine and coarse (3-step) RF attenuators: 50-ohm output impedance. **Power Required:** 8 watts, 117 VAC, 60 cps. **Size:** 10" w. x 4 3/4" d. x 8" h. **Weight,** 8 lbs.

**Model 324 RF Signal Generator—Wired, Net Each. . . . \$39.95**  
**Model 324K RF Signal Generator Kit—Net Each. . . . 28.95**

**MODEL 320K RF SIGNAL GENERATOR KIT**

For radio servicing, AM and FM IF alignment, checking RF stages; marker generator for TV alignment, 400 cps sine wave audio testing; laboratory and experimental work. Vernier tuning condenser. Hartley RF oscillator, circuit. **Frequency Range:** 150 kc to 34 Mc in five bands; calibrated harmonics to 102 Mc. RF output attenuator. Colpitts oscillator, 400 cps sine wave output. Modulated or unmodulated RF output. Power supply with full wave rectification. **Power Required:** 117 VAC, 60 cps. **Size:** 10" w. x 4 3/4" d. x 8" h. **Weight,** 8 lbs.

**Model 320K RF Signal Generator Kit—Net Each. . . . \$24.95**

**MODEL 369 TV-FM SWEEP AND POST-INJECTION MARKER GENERATOR**

Electronic inductor sweep generator with variable and fixed (crystal) marker generators. Markers are post-injected so that circuit response is unaffected by markers and vice versa. AGC three-stage circuit keeps signal constant over entire frequency range through 20 Mc. Rear phasing control permanently adjusts horizontal sweep signal. With 6:1 vernier dials and 350° scales frequency tuning. **Sweep Frequency Range:** Fundamental 3-7.5, 6-16, 16-42, 36-95, and 75-220 Mc. **Marker Generator Range:** Four ranges 2-225 Mc; harmonic, 60-225 Mc. **Fixed Frequency Marker Oscillator:** 4.5 Mc, crystal supplied. **Output Impedance:** 50 ohms. **Power Required:** 50 watts, 105-125 VAC, 60 cps. **Tubes:** Six, dual-purpose, plus rectifiers.

**Model 369 Sweep-Marker Generator—Wired, Net Ea. \$139.95**  
**Model 369K Sweep-Marker Generator Kit—Net Ea. 89.95**

**MODEL 360K TV-FM SWEEP GENERATOR KIT**

Covers all VHF TV and FM channels and IF frequencies: 500 kc to 228 Mc on fundamentals. Continuous sweep width control, 0-30 Mc. Crystal marker oscillator. Variable phasing of 60 cps output. Provision for external marker injection. Crystals are not included. **Power Required:** 117 VAC, 60 cps. **Size:** 10" w. x 6 3/4" d. x 8" h. **Weight,** 11 lbs.

**Model 360K TV-FM Sweep Generator Kit—Net Each. \$39.95**  
**C-5 or C-4.5 Mc Crystals—Specify, Net Each. . . . 3.95**

**MODEL 377 SINE AND SQUARE WAVE AUDIO GENERATOR**

Wien bridge tuning circuit, 1% resistors. **Frequency Range:** Sine wave, 20-200,000 cps in four bands; square wave, 60-50,000 cps. **Response:** 60-150,000 cps,  $\pm 1\frac{1}{2}$  db. Less than 1% distortion. **Hum:** Less than 0.4%. **Accuracy:**  $\pm 3\%$ . **Output:** 10 V across 1,000 ohms rated load (100 mW). **Power Required:** 50 watts, 117 VAC, 60 cps. **Size:** 11 3/4" w. x 7 3/4" d. x 7 3/4" h. **Weight,** 13 lbs.

**Model 377 Audio Generator—Wired, Net Each. . . . \$54.95**  
**Model 377K Audio Generator Kit—Net Each. . . . 37.95**

**MODEL 1078 METERED VARIABLE AC BENCH SUPPLY**

Invaluable power supply for production line testing, quality control, and service work. Unit is instrument-styled, fully metered variable AC supply. May be used to study performance under varying line conditions, to check power consumption, to compensate for power line voltage fluctuations, to expose intermittent components by inducing failure with over-voltage. Features 0-140 VAC adjustable output voltage from a 120 VAC input from line. Highly efficient variable auto-transformer is toroidal core design. The smooth, rotary brush-tap is controlled by dial on the panel. Linear variation of output voltage, 0-140 volts. Unit has a separate output ammeter and output voltmeter. Ammeter is dual-range, permitting switching under load. Auto-transformer and ammeter are protected by separate extractor-post fuses on panel. Two-pole power switch disconnects both sides of unit from power line. **Frequency:** 60 cps. **Input Voltage:** 120 VAC. **Output Voltage:** 0-140 VAC (30-140 VAC meter). **Output Current:** Two types, 0-2 1/2 and 0-7 1/2 amps. **Switching:** Power switch, two-pole type. Range switch selects lower or higher current range for ammeter and may be switched under load. **Meter Accuracy:**  $\pm 3\%$  of full scale. **Fusing:** 7 1/2 amps alo-blo; 2 1/2 amps fuse protects ammeter on both current ranges. **Size:** 5 3/4" w. x 7" d. x 8 1/4" h. **Weight,** 13 lbs.

**Model 1078 Bench Power Supply—Wired, Net Each. . . . \$54.95**  
**Model 1078K Bench Power Supply Kit—Net Each. . . . 42.95**

**MODEL 1073 METERED VARIABLE AC BENCH SUPPLY**

Same features as Model 1078, but with 3 amps current rating. **Model 1073 Bench Power Supply—Wired, Net Each. . . . \$47.95**  
**Model 1073K Bench Power Supply Kit—Net Each. . . . 39.95**


**MODEL 145AK MULTI-SIGNAL TRACER KIT**

High gain RF and low gain audio input channels for signal tracing and trouble-shooting. Enough RF gain to trace up to receiver input; signal is heard through built-in 5" PM speaker. Individual panel receptacles for easy change-over from RF to audio tracing or vice versa. Noise locator circuit applies DC test voltage through probe. May be connected as test speaker, amplifier, or output transformer. Output for VTVM or scope. **Power Required:** 40 watts, 105-125 VAC, 60 cps. **Size:** 5-9/10" w. x 5 1/4" d. x 7 1/4" h. **Weight,** 7 lbs.

**Model 145AK Multi-Signal Tracer Kit—Net Each. . . . \$23.95**

**MODEL 147A DELUXE MULTI-SIGNAL TRACER**

For RF and audio signal tracing and trouble-shooting on AM/FM/TV sets. Separate high gain RF and low gain audio input channels. Magie-eye monitor plus speaker for easier estimation of signal strength and gain per stage. High RF sensitivity permits signal tracing to receiver input. Shielded RF crystal demod and direct probes provided. Noise locator circuit applies DC test voltage to component, amplifying effect. Calibrated wattmeter. **Power Required:** 40 watts, 105-125 VAC, 60 cps. **Size:** 10" w. x 4 3/4" d. x 8" h. **Weight,** 10 lbs.

**Model 147A Multi-Signal Tracer—Wired, Net Each. . . . \$44.95**  
**Model 147AK Multi-Signal Tracer Kit—Net Each. . . . 29.95**





### MODEL 1100 EIA RESISTANCE BOX

For rapid substitution of EIA resistance values, 15 ohms to 10 meg in decade multiples of 15, 22, 33, 47, 68 and 100 ohms. Uses standard 1 watt  $\pm 10\%$  EIA resistors. Five-way jack-top binding posts. Size:  $6\frac{1}{2}''$  w. x  $3\frac{1}{2}''$  d. x  $3\frac{1}{2}''$  h. Weight, 2 lbs.

Model 1100 Resistance Substitution Box—Wired, Net. \$12.95  
Model 1100K Resistance Substitution Box Kit—Net. 7.95

### MODEL 1120 EIA CAPACITANCE BOX

For rapid substitution of EIA capacitance values, 0.0001 to 0.22  $\mu$ f in operating circuits;  $\pm 10\%$  accurate. Uses silver mica and molded plastic capacitors, conservatively rated at 600 v. Five-way jack-top binding posts. Size:  $3\frac{1}{2}''$  w. x  $3\frac{1}{2}''$  d. x  $6\frac{1}{2}''$  h. Weight, 2 lbs.

Model 1120 Capacitance Substitution Box—Wired, Net. \$10.95  
Model 1120K Capacitance Substitution Box Kit—Net. 6.95

### MODEL 1140 SERIES/PARALLEL RC COMBINATION

A valuable combination of Model 1100 resistance box and Model 1120 capacitance box. Permits selection of any resistance alone, any capacitance alone, or any combination of either. Open circuit and short circuit positions are provided as well. Capacitance and resistance values are accurate within 10% from 0.0001 to 0.22  $\mu$ f, and 15 ohms to 10 megohms. Size:  $6\frac{1}{2}''$  w. x  $2\frac{3}{4}''$  d. x  $5\frac{1}{4}''$  h. Weight, 3 lbs.

Model 1140 Series/Parallel RC Combination—Wired, Net. Each. \$19.95

Model 1140K Series/Parallel RC Combination Kit—Net. Each. 14.95

### NEW MODEL 965 FARADOHM BRIDGE/ANALYZER

Permits safe, precise measurement of all capacitors (even 1-volt types) and resistors; capacitor leakage measurement; diode reverse and transistor cut-off measurement; resistance-capacitance-inductance comparison. Instant VTVM zeroing; 6-range VTVM; full overload protection; variable polarizing voltage; 11-range VT nano-micro-milliammeter. **Capacitance Ranges:** 5-10,000 pF, 500 pF-1  $\mu$ F, 0.5  $\mu$ F-100  $\mu$ F, 50-5000  $\mu$ F. **Power Factor:** 0-80% at 60 cps. **Resistance:** 0.5-1000, 50-100,000 ohms, 5000 ohms-10 megohms, 5-500 megohms directly and up to 200,000 megohms using metered variable DC supply. **DC Voltages:** 1.5, 5, 15, 50, 150, 500 volts full scale into 10-megohm input. **DC Current:** 0.15, 0.5, 1.5, 5, 15, 50  $\mu$ A; 0.15, 0.5, 1.5, 5, 15 mA (75 mV drop across terminals). **Accuracy:**  $\pm 5\%$  on all except power factor when reading below 30%. **RCL Comparator:** 0.25-50 (ratio). **Variable DC:** 0.4-1.5, 1.4-5, 4-15, 14-50, 40-150, 140-500 volts at 10 mA max. **Power Requirements:** 32-45 watts, 115 VAC, 60 cps. **Size:**  $12\frac{1}{2}''$  w. x  $9''$  d. x  $8\frac{1}{2}''$  h. Weight, 15 lbs.

Model 965 FaradOhm Bridge Analyzer—Wired, Net. \$129.95

### MODEL 955 IN-CIRCUIT BRIDGE-TYPE CAPACITOR TESTER\*

Provides short and open tests; includes Wien bridge for capacitance tests, with shunt resistance balancing provision that permits in-circuit measurements even when shunting resistance is low. One coax lead for all tests; detachable, with mike connector coupling to unit. **Shorts:** In or out of circuit, with shunt as low as 1 ohm; reliable up to 2,000  $\mu$ f; max. test, 6.3 v. AC (open leads), decreasing with decreasing impedance. **Open:** In or out of circuit; tests capacitors as small as 15  $\mu$ f. In-circuit, shunt may be as low as 35 ohms above 250  $\mu$ f, 7K ohms at 15  $\mu$ f. **Capacitance:** 0.1-50  $\mu$ f using Wien bridge with shunt balancing permitting  $\pm 10\%$  accuracy. In or out of circuit. **Power Required:** 8 watts, 105-130 VAC, 60 cps. **Tubes:** 1-6C4, 1-EM84/6BG6. **Size:**  $5\frac{1}{4}''$  w. x  $6''$  d. x  $8\frac{1}{2}''$  h. Weight, 6 lbs. \*Patent pending.

Model 955 Capacitor Tester—Wired, Net. Each. \$39.95  
Model 955K Capacitor Tester Kit—Net. Each. 23.95

### MODEL 950B RC BRIDGE AND R-C-L COMPARATOR

Bridge-type instrument reading directly. **Resistance:** 0.5 ohm to 500 megs, 4 ranges; **Capacitance:** 10 pF to 5,000  $\mu$ F, 4 ranges; power factor. (Kit includes precision calibrating resistor.) Unique comparator range for R, C and L comparison measurement against external standard. Leakage testing of all capacitors at rated WDC with internal 0-500 v. DC source. Electron ray tube as both bridge balance and capacitor leakage indicator. **Power:** 117 V, 60 cps. **Size:**  $10''$  w. x  $4\frac{1}{4}''$  d. x  $8''$  h. Weight, 8 lbs.

Model 950B Bridge-Comparator—Wired, Net. Each. \$29.95  
Model 950BK Bridge-Comparator Kit—Net. Each. 23.95

### MODEL 1064 BATTERY ELIMINATOR AND CHARGER

Heavy-duty battery eliminator drives any auto radio, mobile and marine transceiver. Also charges 6- and 12-volt storage batteries. Continuous output voltage adjustment on both ranges; LC filter with heavy-duty choke; fused primary and automatic reset overload relay in the secondary; heavy-duty selenium rectifiers. **Output Voltages:** 0-8 VDC, 0-16 VDC. **Current Ratings:** 10 amps continuous, 20 amps intermittent at 0-8 V; 6 amps continuous, 10 amps intermittent at 0-16 V. **AC Ripple:** 1.5% at 2 amps, 2% at 6 amps and 4.5% at 10 amps at 0-8 V; 0.3% at 2 amps, 1% at 6 amps and 1.5% at 10 amps at 0-16 V. **Meters:** Voltmeter, 0-20 volts; ammeter, 0-10, 0-20 amps. **Power Requirements:** 150 watts, 117 VAC, 60 cps. **Size:**  $5\frac{1}{4}''$  w. x  $7\frac{1}{2}''$  d. x  $8\frac{3}{4}''$  h. Weight, 14 lbs.

Model 1064 Battery Eliminator and Charger—Wired, Net. Each. \$54.95  
Model 1064K Battery Eliminator and Charger Kit—Net. 45.95

### MODEL 1060 BATTERY ELIMINATOR AND CHARGER

Extra-filtered DC power (0.3% AC ripple) for servicing transistorized equipment. **Two Ranges:** 0-8 v., 10 a. cont., 20 a. inter.; 0-16 v., 6 a. cont., 10 a. inter. Special built-in filter takes full continuous and intermittent current output on both ranges. Variable type transformer; fused primary; automatic reset overload-relay opens secondary. Separate voltmeter and dual-range ammeter; automatic ammeter switching. Wide-angle vision, sloping panel, all-steel case; wall mounting feature optional.

Model 1060 Battery Charger and Eliminator—Wired. \$49.95  
Model 1060K Battery Charger and Eliminator Kit—Net. 39.95

### MODEL 1050 BATTERY ELIMINATOR AND CHARGER

Work bench 6 v. and 12 v. power supply for servicing vacuum tube equipment. Similar to Model 1060, less special filter.

Model 1050 Battery Eliminator and Charger—Wired. \$38.95  
Model 1050K Battery Eliminator and Charger Kit—Net. 29.95

### MODEL 1020 SOLID STATE POWER AND BIAS SUPPLY

A completely transistorized, low-ripple, continuously variable DC power and bias supply. Two 2N256 power transistors permit output voltages up to 30 v. Maximum load current, 300 ma. Max. ripple (120 cps) full load, 1/200 of 1%.

Model 1020 Power and Bias Supply—Wired, Net. Each. \$29.95

Model 1020K Power and Bias Supply Kit—Net. Each. 23.95

### MODEL 1180 CAPACITANCE DECADE

Precision silver-mica capacitors ( $\pm 1\%$  accuracy, 500 VDC rated), arranged in three decades—100  $\mu$ f to 0.111  $\mu$ f. In steps of 100  $\mu$ f. Positive detent ceramic wafer switches.

Model 1180 Capacitance Decade—Wired, Net. Each. \$24.95  
Model 1180K Capacitance Decade Kit—Net. Each. 17.95

### MODEL 1171 RESISTANCE DECADE

Wide range, versatile instrument covering 0-99,999 ohms in one ohm steps with five decades and  $\frac{1}{2}\%$  precision.

Model 1171 Resistance Decade—Wired, Net. Each. \$29.95  
Model 1171K Resistance Decade Kit—Net. Each. 24.95

### MODEL 584 BATTERY TESTER

Provides true dynamic test of A and B portable radio type, hearing aid, lantern, radiation counter and electronic equipment batteries—in or out of equipment. Spare position adapts for other types.

Model 584 Battery Tester—Wired, Net. Each. \$12.95  
Model 584K Battery Tester Kit—Net. Each. 9.95

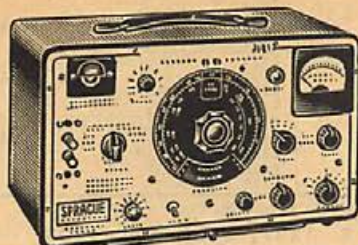


# Test Equipment

## SPRAGUE TEST INSTRUMENTS

### MODEL TCA-1 TRANSFARAD\* CAPACITOR ANALYZER

Precision Instrument designed to safely test low-leakage, low-voltage aluminum and tantalum electrolytic capacitors, solid tantalum capacitors, low-voltage film and paper capacitors, and low-voltage ceramic capacitors. Extremely useful in the laboratory or shop, working with transistor circuit capacitors. Dual regulation in the power supply.



Capacitance bridge measurements are made in five ranges, 1 pF to 2,000  $\mu$ F, with laboratory accuracy. Insulation resistance, 50 megs to 20,000 megs. Only 25 VDC is applied, permitting measurements on low-voltage capacitors. For ceramic capacitors rated below 25 VDC, insulation resistance may be calculated from leakage current measurements at exact rated voltage. Power Factor is measured by a Wien bridge, from 0 to 50%. Leakage current is measured in 7 ranges, 0.6  $\mu$ A to 600  $\mu$ A directly on meter at exact rated VDC of capacitor. AC bridge voltage of only 0.5 V is applied to bridge. \*Trademark.

**Sprague Model TCA-1 Transfarad Capacitor Analyzer**—In gray hammerlock finish. 115 VAC, 60 cps. Net Each..... **\$197.50**

**Sprague Model TCA-1S Analyzer**—115-230 VAC, 50 cps. Net Each..... **\$232.50**

**Sprague Model TCA-1RM Analyzer**—Standard 19" x 10 1/2" rack panel mounted model. 115 VAC, 60 cps. Net Each..... **\$207.50**

**Sprague Model TCA-1SRM Analyzer**—Rack mounted, 115-230 VAC, 60 cps. Net Each..... **\$242.50**

### MODEL TO-6 TEL-OHMIKE® ANALYZER

#### TESTS LOW-VOLTAGE CAPACITORS FOR TRANSISTOR CIRCUITS WITHOUT DAMAGE

A "must" for modern service shops; moderately priced instrument with laboratory quality. Highest accuracy of any instrument of its type available to the service technician. Capacitance bridge measures up to 2000  $\mu$ F in 5 overlapping ranges (including exclusive 1-100 pF range). Large dual range meter reads directly to 10,000 megs at 30 volts, and to 50,000 megs at 150 volts for insulation resistance of paper, ceramic and mica capacitors. Fast charge speeds up testing of high capacitance units. Power factor of electrolytics measured by Wien bridge up to 50%. Leakage current measured directly on meter in four ranges (0-.06-.6-6.0 mA) for transistor-circuit capacitors; three ranges of DC polarizing voltage, continuously variable in each range, for testing at exact rated voltage up to 600 volts. Magic-eye tube simplifies bridge balancing for capacitance and power factor measurements. High gain amplifier improves sensitivity. Color-keyed pushbuttons for range selection discharge capacitors automatically on release. Solid state meter protector prevents burnout from accidental overload. Five-way binding posts for extra convenience. Two-tone gray case 14 1/2" w. x 6 3/4" d. x 8 3/4" h. Weight, 13 lbs.



**Sprague Model TO-6**—For 115 VAC, 50-60 cps. With \$99.50 instruction manual. Net Each.....

**Sprague Model TO-6RM**—Same, but with 19" w. x 10 1/2" h. panel for rack mounting. Net Each..... **\$109.50**

**Sprague Model TO-6S**—For 115-230 VAC, 50 cps. Net. **105.75**

**Sprague Model TO-6SRM**—Rack-mount TO-6S. Net. **115.75**

## SERIES 850W PRECISION DECADE INDUCTORS

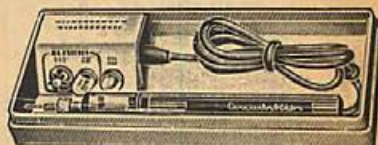
Indispensable for design and experimental work on audio filters, equalizers and tuned circuits. Offer excellent stability with respect to current and ambient temperature changes. All models may be connected in series to provide 11,110 steps of inductance, .001 to 11.11 henries. Each unit contains four precision toroidal inductors, switched to obtain ten discrete steps. Q remains essentially constant over all ranges. Slipping front case facilitates bench-top readings; fitted with 5-way binding posts and rubber feet; gray aluminum finish. **Frequency Range:** 150-20,000 cps, max.; 400-20,000 cps, optimum range all models except 850WA4, 400-5,000 cps, optimum. **Tol.:**  $\pm$ 1%. **Size:** 5 1/4" lg. x 3" w. x 2 1/4" h.



Sprague Number	Inductance Steps, H	Avg. Q at cps		Max. Cur., mA		Net Each
		1000	4500	DC	AC	
850WA1	10 x 0.001	40	75	250	700	\$31.90
850WA2	10 x 0.01	60	125	79	220	31.90
850WA3	10 x 0.1	60	125	25	70	31.90
850WA4	10 x 1.0	60	125	8	22	31.90

## DESCO CIRCUITRACER

- FASTER—MORE ACCURATE TRACING
- WORKS ON LIVE CIRCUITS

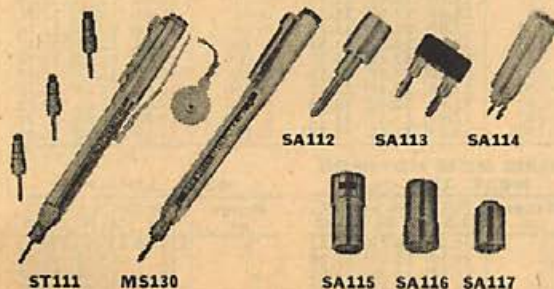


Traces any circuit, dead or alive to 600 volts AC or DC. A virtual test laboratory. Saves time with signal light clearly visible in the tip at point of contact. Sturdy, durable plated brass parts, shock proof case. Contains its own batteries for use on dead circuits as a continuity tracer. Can be quickly changed to low voltage tester (2 to 60 volts), or to a high voltage tester (60 to 600 volts) for use on live circuits. Includes Circuitracer (less batteries), neon lamp, special neon lamp resistor, lamp for testing dead circuits, instruction booklet and kit box. Lamps for low voltage tests not supplied. Weight, 2 1/2 oz. **Desco Circuitracer Kit**—Net Each..... **\$4.95**

## DON BOSCO TEST INSTRUMENTS

### "STETHOTRACER" SIGNAL TRACER

Transistorized pen-size signal tracer detects and amplifies low level microwatt audio or modulated RF signals and reproduces them through the quality earphone provided. For servicing all types equipment and especially suited for locating hum oscillation, ground loop and breaks in printed circuit boards. **Gain:** 60 db. **Amplification:** 1000 times at 1 kc (600 ohm load). **Low Frequency Bandwidth:** 60 cps to 100 kc. **Modulated High Freq. Bandwidth:** 100 kc-200 Mc (with 1 kc audio modulation). **Input Impedances:** 3,500 ohms with 0 attenuation probe, 35,000 ohms with 20 db attenuation probe, 350,000 ohms with 40 db attenuation probe. **Max. AC Input:** 1 mV peak-to-peak. **Max. DC Input:** 250 V. Operates on one 1.5 V AAA cell. Complete with earphone, cord, plug, three attenuator probes, RF detector—demodulator probe, ground clip lead and battery. **Don Bosco Model ST111 Stethotracer**—Net Each..... **\$34.95**



### "MOSQUITO" SIGNAL INJECTOR

Pen-size transistor oscillator puts out 1000 cps signal with harmonics to 30 Mc, for signal tracing in AF, IF and RF circuits. Couples into magnetic pickups and circuits without leads. **Output Voltage:** 50 V peak-to-peak open circuit. Operates on one 1.5 V cell (Eveready #912). **Size:** 5 1/2" x 1 1/2". **Weight:** 1 oz. **Don Bosco Model MS130 "Mosquito"**—Net Each..... **\$9.95**

### STETHOTRACER TRANSDUCERS, ACCESSORIES

No.	Description	Net Ea.
SA112	Vibration Pickup. Detects minute mech. vib.	\$ 29.95
SA113	Output Adapter. For connection to oscilloscope.	7.95
SA114	Microwave Demodulator. For 30 Mc-10 Ge.	39.95
SA115	Magnetic Tape Head. Monitors recording.	24.95
SA116	Microphone. Locates, detects low level sound.	29.95
SA117	Input Adapt. Turns ST111 into hi-gain preamp.	7.50
PHD100	Laboratory Set. ST111 and SA112 thru SA117.	149.95



# Simpson "Wide-Vue" Panel Meters

INSTRUMENTS THAT STAY ACCURATE



Modern styling with durable, open face plastic cover for wide-angle readability and protection of meter face. DC meters have self-shielded meter movement (calibration not affected by stray magnetic fields or magnetic mounting). AC meters have iron-vane type movement. AC Milliammeters and Ammeters (except 0-10 amps) are calibrated for 25-800 cps; AC Ammeters, 0-10 amps, and Voltmeters are calibrated for use on 25-125 cps. Wattmeters calibrated for either magnetic or non-magnetic panels and frequency range of 25-125 cps. For other specified frequencies up to 800 cps, add \$1.65 to price.

Simpson Model 1212 (4 1/4") or 1253 (3 1/4") Bezels—For behind-the-panel mounting of "Wide-Vue" Meters, Net Each... \$1.50

## SPECIFICATIONS

Size	Model	Accuracy, Full Scale	Scale Lgth.	Mtg. Hole	4 Mtg. Studs on
1 1/4"	1212 1214	±2% ±3%*	1.5"	1.5" 1.32" centers	#4-40
2 1/4"	1227 1247 1257	±2% ±3%*	2.5"	2.17" 1.88" centers	#4-40
3 1/4"	1327 1337 1347 1357	±2% ±3%* ±3%* ±2%*	3.14"	2.73" 2.24" centers	#4-40
4 1/4"	1329 1339 1349 1359 1379	±2% ±2%* ±3%* ±2%* ±2%*	3.93"	2.75" 4" x 3.56" centers	#6-32

\*At 25° C and 60 cycle sine wave.

## DC PANEL METERS—MODELS 1212, 1227, 1327 AND 1329

DC VOLTMETERS—SELF-SHIELDED METER MOVEMENT (1000 OHMS/VOLT EXCEPT AS NOTED)

MODEL 1212—1 1/4"				MODEL 1227—2 1/4"				MODEL 1327—3 1/4"				MODEL 1329—4 1/4"			
Range Volts	Net Each, Lots of			Range Volts	Net Each, Lots of			Range Volts	Net Each, Lots of			Range Volts	Net Each, Lots of		
	1-9	10-24	25-49		1-9	10-24	25-49		1-9	10-24	25-49		1-9	10-24	25-49
0-5	\$12.75	\$11.47	\$10.83	0-5	\$13.80	\$12.42	\$11.73	0-5	\$14.52	\$12.82	\$12.11	0-5	\$15.75	\$14.17	\$13.38
0-8	—	—	—	0-8	—	—	—	0-8	14.25	12.82	12.11	0-8	15.75	14.17	13.38
0-10	12.75	11.47	10.83	0-10	13.80	12.42	11.73	0-10	14.25	12.82	12.11	0-10	15.75	14.17	13.38
0-15	12.75	11.47	10.83	0-15	13.80	12.42	11.73	0-15	14.25	12.82	12.11	0-15	15.75	14.17	13.38
0-25	12.75	11.47	10.83	0-25	13.80	12.42	11.73	0-25	14.25	12.82	12.11	0-25	15.75	14.17	13.38
0-30	12.75	11.47	10.83	0-30	13.80	12.42	11.73	0-30	14.25	12.82	12.11	0-30	15.75	14.17	13.38
0-50	12.75	11.47	10.83	0-50	13.80	12.42	11.73	0-50	14.25	12.82	12.11	0-50	15.75	14.17	13.38
0-100	12.75	11.47	10.83	0-100	13.80	12.42	11.73	0-100	14.25	12.82	12.11	0-100	15.75	14.17	13.38
0-150	12.75	11.47	10.83	0-150	13.80	12.42	11.73	0-150	14.25	12.82	12.11	0-150	15.75	14.17	13.38
0-200	—	—	—	0-200	13.80	12.42	11.73	0-200	14.25	12.82	12.11	0-200	15.75	14.17	13.38
0-250	—	—	—	0-250	13.80	12.42	11.73	0-250	14.25	12.82	12.11	0-250	15.75	14.17	13.38
0-300	—	—	—	0-300	13.80	12.42	11.73	0-300	14.25	12.82	12.11	0-300	15.75	14.17	13.38
0-300*	12.75	11.47	10.83	0-300*	—	—	—	0-300*	—	—	—	0-300*	—	—	—
0-500†	16.05	14.44	13.64	0-500*	14.25	12.82	12.11	0-500*	15.00	13.50	12.75	0-500*	16.20	14.58	13.77
0-750*	—	—	—	0-750*†	17.55	15.79	14.91	0-750*	15.00	13.50	12.75	0-750*	16.20	14.58	13.77
0-1000*	—	—	—	0-1000*†	17.85	16.06	15.17	0-1000*†	18.60	16.74	15.81	0-1000*†	19.80	17.82	16.83

\*2000 ohms/volt. †External multiplier furnished; all others self-contained.

## DC AMMETERS—SELF-SHIELDED METER MOVEMENT

Self-contained types are: 1 1/4" through 10 amps; 2 1/4", 3 1/4" and 4 1/4" through 50 amps. All others require external shunts.

MODEL 1212—1 1/4"				MODEL 1227—2 1/4"				MODEL 1327—3 1/4"				MODEL 1329—4 1/4"			
Range Amps	Net Each, Lots of			Range Amps	Net Each, Lots of			Range Amps	Net Each, Lots of			Range Amps	Net Each, Lots of		
	1-9	10-24	25-49		1-9	10-24	25-49		1-9	10-24	25-49		1-9	10-24	25-49
0-1	\$12.75	\$11.47	\$10.83	0-1	\$13.05	\$11.74	\$11.09	0-1	\$13.65	\$12.28	\$11.60	0-1	\$15.00	\$13.50	\$12.75
0-1.5	—	—	—	0-1.5	13.05	11.74	11.09	0-1.5	13.65	12.28	11.60	0-1.5	15.00	13.50	12.75
0-2	12.75	11.47	10.83	0-2	13.05	11.74	11.09	0-2	13.65	12.28	11.60	0-2	15.00	13.50	12.75
0-3	12.75	11.47	10.83	0-3	13.05	11.74	11.09	0-3	13.65	12.28	11.60	0-3	15.00	13.50	12.75
0-5	12.75	11.47	10.83	0-5	13.05	11.74	11.09	0-5	13.65	12.28	11.60	0-5	15.00	13.50	12.75
0-10	12.75	11.47	10.83	0-10	13.05	11.74	11.09	0-10	13.65	12.28	11.60	0-10	15.00	13.50	12.75
0-15	12.75	11.47	10.83	0-15	13.05	11.74	11.09	0-15	13.65	12.28	11.60	0-15	15.00	13.50	12.75
0-25	12.75	11.47	10.83	0-25	13.05	11.74	11.09	0-25	13.65	12.28	11.60	0-25	15.00	13.50	12.75
0-30	—	—	—	0-30	13.05	11.74	11.09	0-30	13.65	12.28	11.60	0-30	15.00	13.50	12.75
0-50	12.75	11.47	10.83	0-50	13.05	11.74	11.09	0-50	13.65	12.28	11.60	0-50	15.00	13.50	12.75
0-100	—	—	—	0-100	13.05	11.74	11.09	0-100	13.65	12.28	11.60	0-100	15.00	13.50	12.75
0-150	—	—	—	0-150	13.05	11.74	11.09	0-150	13.65	12.28	11.60	0-150	15.00	13.50	12.75
0-200	—	—	—	0-200	13.05	11.74	11.09	0-200	13.65	12.28	11.60	0-200	15.00	13.50	12.75
0-300	—	—	—	0-300	13.05	11.74	11.09	0-300	13.65	12.28	11.60	0-300	15.00	13.50	12.75
0-500	—	—	—	0-500	—	—	—	0-500	13.65	12.28	11.60	0-500	15.00	13.50	12.75
15-0-15	—	—	—	15-0-15	—	—	—	15-0-15	14.55	13.09	12.36	15-0-15	—	—	—
30-0-30	—	—	—	30-0-30	—	—	—	30-0-30	14.55	13.09	12.36	30-0-30	—	—	—
50-0-50	—	—	—	50-0-50	—	—	—	50-0-50	14.55	13.09	12.36	50-0-50	—	—	—

## DC MILLIAMMETERS—SELF-SHIELDED METER MOVEMENT

Self contained. Voltage drop, 150 mv or less.

MODEL 1212—1 1/4"				MODEL 1227—2 1/4"				MODEL 1327—3 1/4"				MODEL 1329—4 1/4"			
Range Ma	Net Each, Lots of			Range Ma	Net Each, Lots of			Range Ma	Net Each, Lots of			Range Ma	Net Each, Lots of		
	1-9	10-24	25-49		1-9	10-24	25-49		1-9	10-24	25-49		1-9	10-24	25-49
0-1	\$12.30	\$11.07	\$10.45	0-1	\$12.90	\$11.61	\$10.96	0-1	\$13.50	\$12.15	\$11.47	0-1	\$14.25	\$12.82	\$12.11
0-3	—	—	—	0-3	12.90	11.61	10.96	0-3	13.50	12.15	11.47	0-3	14.25	12.82	12.11
0-5	12.30	11.07	10.45	0-5	12.90	11.61	10.96	0-5	13.50	12.15	11.47	0-5	14.25	12.82	12.11
0-10	12.30	11.07	10.45	0-10	12.90	11.61	10.96	0-10	13.50	12.15	11.47	0-10	14.25	12.82	12.11
0-15	12.30	11.07	10.45	0-15	12.90	11.61	10.96	0-15	13.50	12.15	11.47	0-15	14.25	12.82	12.11
0-20	—	—	—	0-20	12.90	11.61	10.96	0-20	13.50	12.15	11.47	0-20	14.25	12.82	12.11
0-25	12.75	11.47	10.83	0-25	13.20	11.88	11.22	0-25	13.80	12.42	11.73	0-25	15.00	13.50	12.75
0-50	12.75	11.47	10.83	0-50	13.20	11.88	11.22	0-50	13.80	12.42	11.73	0-50	15.00	13.50	12.75
0-100	12.75	11.47	10.83	0-100	13.20	11.88	11.22	0-100	13.80	12.42	11.73	0-100	15.00	13.50	12.75
0-150	12.75	11.47	10.83	0-150	13.20	11.88	11.22	0-150	13.80	12.42	11.73	0-150	15.00	13.50	12.75
0-200	12.75	11.47	10.83	0-200	13.20	11.88	11.22	0-200	13.80	12.42	11.73	0-200	15.00	13.50	12.75
0-250	12.75	11.47	10.83	0-250	13.20	11.88	11.22	0-250	13.80	12.42	11.73	0-250	15.00	13.50	12.75
0-300	12.75	11.47	10.83	0-300	13.20	11.88	11.22	0-300	13.80	12.42	11.73	0-300	15.00	13.50	12.75
0-500	12.75	11.47	10.83	0-500	13.20	11.88	11.22	0-500	13.80	12.42	11.73	0-500	15.00	13.50	12.75
0-750	—	—	—	0-750	—	—	—	0-750	13.80	12.42	11.73	0-750	15.00	13.50	12.75
0-1000	12.90	11.61	10.96	0-1000	13.20	11.88	11.22	0-1000	13.80	12.42	11.73	0-1000	15.00	13.50	12.75

## DC MICROAMMETERS—SELF-SHIELDED METER MOVEMENT

MODEL 1212—1 1/4"				MODEL 1227—2 1/4"				MODEL 1327—3 1/4"				MODEL 1329—4 1/4"			
Range µa	Net Each, Lots of			Range µa	Net Each, Lots of			Range µa	Net Each, Lots of			Range µa	Net Each, Lots of		
	1-9	10-24	25-49		1-9	10-24	25-49		1-9	10-24	25-49		1-9	10-24	25-49
0-15	—	—	—	0-15	\$19.20	\$17.28	\$16.32	0-15	\$22.50	\$20.25	\$19.12	0-15	\$24.60	\$22.14	\$20.81
0-25	—	—	—	0-25	19.20	17.28	16.32	0-25	20.10	18.09	17.08	0-25	22.20	19.98	18.87
0-50	\$16.20	\$14.58	\$13.77	0-50	16.65	14.98	14.15	0-50	17.50	15.39	14.53	0-50	18.45	16.60	15.68
0-100	14.40	12.96	12.24	0-100	15										



INSTRUMENTS THAT STAY ACCURATE

## DC PANEL METERS—MODELS 1212, 1227, 1327 AND 1329 (CONT'D)

DC MILLIVOLTMETERS—SELF-SHIELDED METER MOVEMENT (10 OHMS RESISTANCE)

MODEL 1212—1½"				MODEL 1227—2½"				MODEL 1327—3½"				MODEL 1329—4½"			
Range Mv	Net Each, Lots of			Range Mv	Net Each, Lots of			Range Mv	Net Each, Lots of			Range Mv	Net Each, Lots of		
	1-9	10-24	25-49		1-9	10-24	25-49		1-9	10-24	25-49		1-9	10-24	25-49
0-50	\$12.75	\$11.47	\$10.83	0-50	\$13.05	\$11.74	\$11.09	0-50	\$13.65	\$12.28	\$11.60	0-50	\$15.00	\$13.50	\$12.75
50-0-50	—	—	—	50-0-50	—	—	—	50-0-50	13.65	12.28	11.60	50-0-50	15.00	13.50	12.75

## DC GALVANOMETERS—SELF-SHIELDED METER MOVEMENT

Range	Sensitivity $\mu$ a	Model 1212—1½"			Model 1227—2½"			Range	Sensitivity $\mu$ a	Model 1327—3½"			Model 1329—4½"		
		1-9	10-24	25-49	1-9	10-24	25-49			1-9	10-24	25-49	1-9	10-24	25-49
50-0-50	500-0-500	\$12.45	\$11.20	\$10.58	\$12.90	\$11.61	\$10.96	50-0-50	500-0-500	\$13.65	\$12.28	\$11.60	\$14.40	\$12.96	\$12.24
50-0-50	75-0-75	13.20	11.88	11.22	13.95	12.55	11.85	50-0-50	75-0-75	15.15	13.63	12.87	16.65	14.98	14.15

## AC PANEL METERS—MODELS 1257, 1357, AND 1359

AC VOLTMETERS—IRON VANE TYPE MOVEMENT (SELF-CONTAINED EXCEPT 0-500 V.)

MODEL 1257—2½"				MODEL 1357—3½"				MODEL 1359—4½"			
Range Volts	Net Each, Lots of			Range Volts	Net Each, Lots of			Range Volts	Net Each, Lots of		
	1-9	10-24	25-49		1-9	10-24	25-49		1-9	10-24	25-49
0-5	—	—	—	0-5	\$12.60	\$11.34	\$10.71	0-5	\$14.40	\$12.96	\$12.24
0-10 or 0-15	\$12.30	\$11.07	\$10.45	0-10 or 0-15	12.60	11.34	10.71	0-10 or 0-15	14.40	12.96	12.24
0-25 or 0-50	12.45	11.20	10.58	0-25 or 0-50	13.05	11.74	11.09	0-25 or 0-50	14.40	12.96	12.24
0-100	12.75	11.47	10.83	0-100	13.65	12.28	11.60	0-100	14.40	12.96	12.24
0-150	13.05	11.74	11.09	0-150	13.95	12.55	11.85	0-150	15.00	13.50	12.75
0-250 or 0-300	13.05	11.74	11.09	0-250 or 0-300	13.95	12.55	11.85	0-250 or 0-300	15.00	13.50	12.75
0-500	16.65	14.98	14.15	0-500	17.85	16.06	15.17	0-500	19.05	17.14	16.19

## AC AMMETERS—IRON VANE TYPE MOVEMENT

The following meters are self contained: 2½" through 50 amps, 3½" and 4½" through 75 amps. Higher range AC ammeters are 5 amp meters to be used with external current transformer.

MODEL 1257—2½"					MODEL 1357—3½"					MODEL 1359—4½"				
Range Amps	Approx. Resis., Ohms	Net Each, Lots of			Range Amps	Approx. Resis., Ohms	Net Each, Lots of			Range Amps	Approx. Resis., Ohms	Net Each, Lots of		
		1-9	10-24	25-49			1-9	10-24	25-49			1-9	10-24	25-49
0-1	.287	\$11.70	\$10.53	\$9.94	0-1	.287	\$12.45	\$11.20	\$10.58	0-1	.287	\$14.55	\$13.09	\$12.36
0-1.5	.185	11.70	10.53	9.94	0-1.5	.185	12.45	11.20	10.58	0-1.5	.185	14.55	13.09	12.36
0-2	.115	—	—	—	0-2	.115	12.45	11.20	10.58	0-2	.115	14.55	13.09	12.36
0-3	.027	11.70	10.53	9.94	0-3	.027	12.45	11.20	10.58	0-3	.027	14.55	13.09	12.36
0-5	.012	11.70	10.53	9.94	0-5	.012	12.45	11.20	10.58	0-5	.012	14.55	13.09	12.36
0-10	.0031	11.70	10.53	9.94	0-10	.0031	12.45	11.20	10.58	0-10	.0031	14.55	13.09	12.36
0-15	.0022	11.70	10.53	9.94	0-15	.0022	12.45	11.20	10.58	0-15	.0022	14.55	13.09	12.36
0-25	.0003	12.30	11.07	10.45	0-25	.0003	12.90	11.61	10.96	0-25	.0003	15.00	13.50	12.75
0-30	.0003	12.30	11.07	10.45	0-30	.0003	12.90	11.61	10.96	0-30	.0003	15.00	13.50	12.75
0-50	.0006	12.30	11.07	10.45	0-50	.0006	12.90	11.61	10.96	0-50	.0006	15.00	13.50	12.75
0-75	.012	—	—	—	0-75	.012	13.95	12.55	11.85	0-75	.012	16.05	14.95	13.65
0-100	.012	11.70	10.53	9.94	0-100	.012	12.45	11.20	10.58	0-100	.012	14.55	13.09	12.36
0-150	.012	11.70	10.53	9.94	0-150	.012	12.45	11.20	10.58	0-150	.012	14.55	13.09	12.36
0-200	.012	11.70	10.53	9.94	0-200	.012	12.45	11.20	10.58	0-200	.012	14.55	13.09	12.36
0-300	.012	11.70	10.53	9.94	0-300	.012	12.45	11.20	10.58	0-300	.012	14.55	13.09	12.36

## AC MILLIAMMETERS—IRON VANE TYPE MOVEMENT

Ranges: 0-10, 0-50, 0-100, 0-250, 0-500 ma; specify.

MODEL 1257—2½"				MODEL 1357—3½"				MODEL 1359—4½"			
Range, Ma (Specify)	Net Each, Lots of			Range, Ma (Specify)	Net Each, Lots of			Range, Ma (Specify)	Net Each, Lots of		
	1-9	10-24	25-49		1-9	10-24	25-49		1-9	10-24	25-49
Any range	\$11.70	\$10.53	\$9.94	Any range	\$12.45	\$11.20	\$10.58	Any range	\$14.55	\$13.09	\$12.36

## RECTIFIER TYPE AC VOLTMETERS—SELF-SHIELDED METER MOVEMENT

2,000 OHMS/VOLT RESISTANCE

MODEL 1214—1½"				MODEL 1247—2½"				MODEL 1347—3½"				MODEL 1349—4½"			
Range Volts	Net Each, Lots of			Range Volts	Net Each, Lots of			Range Volts	Net Each, Lots of			Range Volts	Net Each, Lots of		
	1-9	10-24	25-49		1-9	10-24	25-49		1-9	10-24	25-49		1-9	10-24	25-49
0-5	\$17.70	\$15.93	\$15.04	0-5	\$16.50	\$14.85	\$14.02	0-5	\$18.30	\$16.47	\$15.55	0-5	\$20.10	\$18.09	\$17.08
0-10	17.70	15.93	15.04	0-10	16.50	14.85	14.02	0-10	18.30	16.47	15.55	0-10	20.10	18.09	17.08
0-15	—	—	—	0-15	—	—	—	0-15	18.30	16.47	15.55	0-15	20.10	18.09	17.08
0-50	—	—	—	0-50	—	—	—	0-50	18.30	16.47	15.55	0-50	20.10	18.09	17.08
0-150	17.70	15.93	15.04	0-150	16.50	14.85	14.02	0-150	18.30	16.47	15.55	0-150	20.10	18.09	17.08
0-300	17.70	15.93	15.04	0-300	16.50	14.85	14.02	0-300	18.30	16.47	15.55	0-300	20.10	18.09	17.08

## VOLUME LEVEL INDICATORS—SELF-SHIELDED METER MOVEMENT

Range	Model 1214—1½"			Model 1247—2½"			Model 1347—3½"			Model 1349—4½"					
	1-9	10-24	25-49	1-9	10-24	25-49	1-9	10-24	25-49	1-9	10-24	25-49			
General Purpose DB*	—	—	—	\$18.35	\$16.51	\$15.59	—	—	—	\$19.60	\$17.64	\$16.66	\$20.25	\$18.22	\$17.21
A Scale VU†	\$19.80	\$17.82	\$16.83	21.90	19.71	18.61	—	—	—	22.50	20.25	19.12	23.70	21.33	20.14
B Scale VU†	—	—	—	—	—	—	—	—	—	22.50	20.25	19.12	23.70	21.33	20.14

\*Zero power level, 6 mw 500 ohm line; 5,000 ohm range. †Reference level, 1 mw 600-ohm line; meet all electrical and ballistic specifications by Bell Labs and ASA as required by broadcasting, communication and sound engineers.

## RF AMMETERS—SELF-SHIELDED METER MOVEMENT

Range	Approx. Resis., Ohms	Model 1337—3½"			Model 1339—4½"		
		1-9	10-24	25-49	1-9	10-24	25-49
0-1	.343	\$15.90	\$14.31	\$13.52	\$18.15	\$16.34	\$15.43
0-1.5	.200	15.90	14.31	13.52	18.15	16.34	15.43
0-2	.120	15.90	14.31	13.52	18.15	16.34	15.43
0-2.5	.10	15.90	14.31	13.52	18.15	16.34	15.43
0-3	.08	15.90	14.31	13.52	18.15	16.34	15.43
0-5	.045	15.90	14.31	13.52	18.15	16.34	15.43
0-8	.031	15.90	14.31	13.52	18.15	16.34	15.43
0-10	.023	15.90	14.31	13.52	18.15	16.34	15.43

## RF MILLIAMMETERS

0-500	.63	\$18.75	\$16.88	\$15.94	\$21.15	\$19.04	\$17.98
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RANGES LISTED WITHOUT PRICES (—) ARE AVAILABLE ON SPECIAL ORDER ONLY.

## WATTMETERS—MODEL 1379—4½"

DYNAMOMETER TYPE SINGLE PHASE

Range Watts	Range Volts	Max. Amps	Net Each, Lots of		
			1-9	10-24	25-49
0-75	150	1.0	\$34.92	\$31.43	\$29.68
0-150	150	2.0	34.92	31.43	29.68
0-300	150	4.0	34.92	31.43	29.68
0-750	150	10.0	34.92	31.43	29.68
0-600	300	4.0	37.47	33.72	31.85
0-1500	300	10.0	37.47	33.72	31.85
0-3000	300	20.0	37.47	33.72	31.85

## COMPENSATED TYPE

0-10	300	.175	\$46.75	\$42.08	\$39.74
0-20	300	.400	46.75	42.08	39.74
0-30	300	.650	46.75	42.08	39.74



# Simpson Accurate Panel Meters

INSTRUMENTS THAT STAY ACCURATE

## RECTANGULAR AND ROUND PANEL METERS

### ACCURACY AND SCALE LENGTH

DC meters or AC iron vane type meters,  $\pm 2\%$  full scale except mirrored 1150-1,  $\pm 1\%$  full scale; db and rectifier types,  $\pm 3\%$  full scale at 25° C, 60 cycle sine wave; VU meters per ASA specs.

Size	Models	Scale	Size	Models	Scale
1½"	125, 127, 135, 137, 145, 147	1.8"	3¼"	55, 57, 75, 77	2.3"
2¼"	155, 157, 175, 177	1.6"	4½"	29, 39, 49, 142	3.8"
3½"	25, 27, 35, 37, 45, 47	2.5"	6"	59, 79	3.5"
				1150, 1150-1	4.6"

### CALIBRATION AND DIMENSIONS

**DC meters**—External magnet type movement calibrated for non-magnetic panel. When meters for use on steel panels, state panel thickness and add \$1.65 to price shown.

**AC meters:** All have iron vane type movement. AC Milliammeters and Ammeters, except 0-10 amps, are calibrated for use on 25-800 cps; 0-10 AC Ammeters and all AC Voltmeters calibrated for use on 25-125 cps. Wattmeters have dynamometer movement for magnetic or non-magnetic panels; calibrated for 25-125 cps. AC Voltmeters available for other frequencies; specify and add \$1.65 to price.

**Note**—Special dials are available for substitution at \$1.65 extra; write for availability before ordering.

Model	Fig.	Size, inches
127, 137, 147, 157	A	2.37 sq.; body, 2.17 dia. x 1.45 d.
177	A	2.37 sq.; body, 2.17 dia. x 2.02 d.
125, 135, 145, 155	B	Flange, 2.69 dia.; body, 2.17 dia. x 1.39 d.
175	B	Flange, 2.69 dia.; body, 2.17 dia. x 1.98 d.
27, 37, 47	C	3 w. x 3.12 h.; body, 2.75 dia. x 1.36 d.
57	C	3 w. x 3.12 h.; body, 2.75 dia. x 1.45 d.
25, 35, 45	D	Flange, 3.5 dia.; body, 2.75 dia. x 2.11 d.
55	D	Flange, 3.5 dia.; body, 2.75 dia. x 2.31 d.
75	D	Flange, 3.5 dia.; body, 2.75 dia. x 2.06 d.
29, 39, 49	E	4.66 w. x 4.2 h.; body, 2.75 dia. x 1 d.
59	E	4.66 w. x 4.2 h.; body, 2.75 dia. x 1.09 d.
79	E	4.66 w. x 4.2 h.; body, 2.75 dia. x 1.68 d.
142	E	4.25 w. x 3.94 h.; body, 3.25 dia. x 1 d.
1150	F	5.75 w. x 4.63 h.; body, 3 dia. x 1 d.



A



C



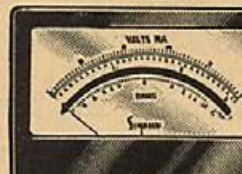
E



B



D



F

### DC VOLTMETERS—EXTERNAL MAGNET METER MOVEMENT EXCEPT 6", 1,000 OHMS/VOLT

Range Volts	MODELS 125, 127—2½"		
	Net Each	Lots of 10-24	Lots of 25-49
0-1.5, -3	\$13.05	\$11.74	\$11.09
0-5, -8	13.05	11.74	11.09
0-10†, -15	13.05	11.74	11.09
0-25†, -30	13.05	11.74	11.09
0-50†, -100	13.05	11.74	11.09
0-150†	13.05	11.74	11.09
0-200	13.05	11.74	11.09
0-250	13.05	11.74	11.09
0-300†	13.05	11.74	11.09
0-500*	13.80	12.42	11.73
0-750*	16.65	14.98	14.15
0-1000*	16.95	15.25	14.40
0-1500*	—	—	—
0-2000*	17.55	15.79	14.91
0-2500*	—	—	—
0-3000*	18.15	16.33	15.42
0-4000*	—	—	—
0-5000*	—	—	—

Range Volts	MODELS 25, 27—3½"		
	Net Each	Lots of 10-24	Lots of 25-49
0-1.5, -3	\$13.50	\$12.15	\$11.47
0-5, -8	13.50	12.15	11.47
0-10†, -15	13.50	12.15	11.47
0-25†, -30	13.50	12.15	11.47
0-50†, -100	13.50	12.15	11.47
0-150†	13.50	12.15	11.47
0-200	13.50	12.15	11.47
0-250	13.50	12.15	11.47
0-300†	13.50	12.15	11.47
0-500*	14.10	12.69	11.98
0-750*	14.10	12.69	11.98
0-1000*	17.55	15.79	14.91
0-1500*	17.85	16.06	15.17
0-2000*	18.15	16.33	15.42
0-2500*	18.45	16.60	15.68
0-3000*	18.75	16.87	15.93
0-4000*	19.05	17.14	16.19
0-5000*	19.35	17.41	16.44

Range Volts	MODEL 29—4½"		
	Net Each	Lots of 10-24	Lots of 25-49
0-1.5, -3	\$14.85	\$13.36	\$12.62
0-5, -8	14.85	13.36	12.62
0-10, -15	14.85	13.36	12.62
0-25, -30	14.85	13.36	12.62
0-50, -100	14.85	13.36	12.62
0-150	14.85	13.36	12.62
0-200	14.85	13.36	12.62
0-250	14.85	13.36	12.62
0-300	14.85	13.36	12.62
0-500*	15.30	13.77	13.00
0-750*	15.30	13.77	13.00
0-1000*	19.20	17.28	16.32
0-1500*	19.50	17.55	16.57
0-2000*	19.80	17.82	16.83
0-2500*	20.10	18.09	17.08
0-3000*	20.40	18.36	17.34
0-4000*	20.70	18.63	17.59
0-5000*	21.00	18.90	17.85

**MODEL 1150—6" (2%)**  
All ranges self-shielded movement. Other ranges available on special order.

Range Volts	MODEL 1150—6" (2%)		
	Net Each	Lots of 10-24	Lots of 25-49
0-10	\$18.90	\$17.01	\$16.06
0-25	18.90	17.01	16.06
0-50	18.90	17.01	16.06
0-100	18.90	17.01	16.06
0-150	18.90	17.01	16.06
0-300	18.90	17.01	16.06
0-500*	19.50	17.55	16.57

**Note:** External multipliers (Model 183) are furnished on 2½" DC meters 750 v. or higher; and on 3½" and 4½" DC meters 1,000 v. or higher. All others are self-contained.

### DC MILLIAMMETERS—EXTERNAL MAGNET METER MOVEMENT EXCEPT 6"

Range Ma	MODELS 125, 127—2½"		
	Net Each	Lots of 10-24	Lots of 25-49
0-1†	\$12.15	\$10.93	\$10.32
0-1.5	12.15	10.93	10.32
0-3, -5	12.15	10.93	10.32
0-10†	12.15	10.93	10.32
0-15†	12.15	10.93	10.32
0-20	12.15	10.93	10.32
0-25†	12.90	11.61	10.96
0-50†	12.90	11.61	10.96
0-75	12.90	11.61	10.96
0-100†	12.90	11.61	10.96
0-150†	12.90	11.61	10.96
0-200†	12.90	11.61	10.96
0-250	12.90	11.61	10.96
0-300†	12.90	11.61	10.96
0-500†	12.90	11.61	10.96
0-750	12.90	11.61	10.96
0-1000	12.90	11.61	10.96

Range Ma	MODELS 25, 27—3½"		
	Net Each	Lots of 10-24	Lots of 25-49
0-1†	\$12.75	\$11.47	\$10.83
0-1.5	12.75	11.47	10.83
0-3, -5	12.75	11.47	10.83
0-10†	12.75	11.47	10.83
0-15†	12.75	11.47	10.83
0-20	12.75	11.47	10.83
0-25†	13.35	12.01	11.34
0-50†	13.35	12.01	11.34
0-75	13.35	12.01	11.34
0-100†	13.35	12.01	11.34
0-150†	13.35	12.01	11.34
0-200†	13.35	12.01	11.34
0-250	13.35	12.01	11.34
0-300†	13.35	12.01	11.34
0-500†	13.35	12.01	11.34
0-750	13.35	12.01	11.34
0-1000	13.35	12.01	11.34

Range Ma	MODEL 29—4½"		
	Net Each	Lots of 10-24	Lots of 25-49
0-1	\$13.95	\$12.55	\$11.85
0-1.5	13.95	12.55	11.85
0-3, -5	13.95	12.55	11.85
0-10	13.95	12.55	11.85
0-15	13.95	12.55	11.85
0-20	13.95	12.55	11.85
0-25	14.85	13.36	12.62
0-50	14.85	13.36	12.62
0-75	14.85	13.36	12.62
0-100	14.85	13.36	12.62
0-150	14.85	13.36	12.62
0-200	14.85	13.36	12.62
0-250	14.85	13.36	12.62
0-300	14.85	13.36	12.62
0-500	14.85	13.36	12.62
0-750	14.85	13.36	12.62
0-1000	14.85	13.36	12.62

**MODEL 1150—6" (2%)**  
All meters use self-shielded movement. Other ranges available on special order.

Range Ma	#	MODEL 1150—6" (2%)		
		Net Each	Lots of 10-24	Lots of 25-49
0-1	46	\$18.90	\$17.01	\$16.06
0-10	10	18.90	17.01	16.06
0-50	20	18.90	17.01	16.06
0-100	10	18.90	17.01	16.06
0-500	2	18.90	17.01	16.06

### DC MICROAMMETERS—MODELS 25, 27, 29, 125, 127, 1150, 1150-1

Range µa	MODELS 125, 127—2½"		
	Net Each	Lots of 10-24	Lots of 25-49
0-15†	\$19.65	\$17.68	\$16.70
0-25	17.10	15.39	14.53
0-50	14.85	13.36	12.62
0-100	13.20	11.88	11.22
0-200	12.75	11.47	10.83
0-50-25	17.35	15.61	14.74
25-0-50	15.00	13.50	12.75
0-300	12.90	11.61	10.96
100-0-100	12.90	11.61	10.96
500-0-500	12.30	11.07	10.45

Range µa	MODELS 25, 27—3½"		
	Net Each	Lots of 10-24	Lots of 25-49
0-15†	\$22.95	\$20.65	\$19.50
0-25	20.55	18.49	17.46
0-50	17.55	15.79	14.91
0-100	15.45	13.90	13.13
0-200	13.95	12.55	11.85
0-50-25	13.35	12.01	11.34
25-0-50	17.70	15.93	15.04
50-0-50	15.60	14.04	13.26
0-300†	13.35	12.01	11.34
100-0-100	14.10	12.69	11.98
500-0-500	12.90	11.61	10.96

Range µa	MODEL 29—4½"		
	Net Each	Lots of 10-24	Lots of 25-49
0-15†	\$25.05	\$22.54	\$21.29
0-25†	22.65	20.38	19.25
0-50	18.90	17.01	16.06
0-100	17.25	15.52	14.66
0-200	15.45	13.90	13.13
0-500	14.85	13.36	12.62
25-0-25	19.05	17.14	16.19
50-0-50	17.40	15.66	14.79
100-0-100	15.75	14.17	13.38
500-0-500	14.10	12.69	11.98

Range µa	#	MODEL 1150—6" (2%)		
		Net Each	Lots of 10-24	Lots of 25-49
0-15†	46	\$29.85	\$26.96	\$25.45
0-25†	26	26.85	24.16	22.82
0-50	24	24.45	22.00	



# Simpson Accurate Panel Meters

INSTRUMENTS THAT STAY ACCURATE

## RECTANGULAR AND ROUND PANEL METERS (CONT'D)

### DC AMMETERS—MODELS 25, 27, 29, 125, 127, 1150

Ranges Available: 0-1, 0-1.5, 0-2, 0-3, 0-5, 0-10, 0-15, 0-25, 0-30, 0-50, 0-75, 0-100, 0-150, 0-200, 0-250, 0-300, 0-500, 0-750, 0-1000, 15-0-15, 30-0-30 and 50-0-50. Ranges 0-75 through 0-1000 require external shunts; all others are self-contained.

Range Amps	Models 125, 127—2½"			Models 25, 27—3½"			Model 29—4½"			Model 1150—6" 2%		
	Net Each, Lots of			Net Each, Lots of			Net Each, Lots of			Net Each, Lots of		
	1-9	10-24	25-49	1-9	10-24	25-49	1-9	10-24	25-49	1-9	10-24	25-49
0-1 to 0-50	\$12.90	\$11.61	\$10.96	\$13.35	\$12.01	\$11.34	\$14.70	\$13.23	\$12.49	\$19.65	\$17.68	\$16.70
0-75 to 0-1000	12.45	11.20	10.58	12.90	11.61	10.96	14.40	12.96	12.24	—	—	—
15-0-15, 30-0-30 or 50-0-50	13.20	11.88	11.22	13.65	12.28	11.60	15.15	13.63	12.87	—	—	—

### DC MILLIVOLTMETERS—MODELS 25, 27, 29, 125, 127, 1150

Range Mv	*	Models 125, 127—2½"			Models 25, 27—3½"			Model 29—4½"			Model 1150—6" 2%								
		Net Each, Lots of			Net Each, Lots of			Net Each, Lots of			Net Each, Lots of								
		1-9	10-24	25-49	1-9	10-24	25-49	1-9	10-24	25-49	1-9	10-24	25-49						
0-50	10	\$12.45	\$11.20	\$10.58	0-50	10	\$12.90	\$11.61	\$10.96	0-50	10	\$14.40	\$12.96	\$12.24	0-50	10	\$19.65	\$17.68	\$16.70
0-100	20	12.45	11.20	10.58	0-100	20	12.90	11.61	10.96	0-100	20	14.40	12.96	12.24	0-100	20	—	—	—

\*Resistance, ohms.

### AC VOLTMETERS—MODELS 55, 57, 59, 155, 157

Range Volts	Imped., Ohms†	Models 155, 157—2½"			Models 55, 57—3½"			Model 59—4½"						
		Net Each, Lots of			Net Each, Lots of			Net Each, Lots of						
		1-9	10-24	25-49	1-9	10-24	25-49	1-9	10-24	25-49				
0-1.5	3	\$11.70	\$10.53	\$ 9.94	0-1.5	3	\$12.45	\$11.20	\$10.58	0-1.5	3	\$14.10	\$12.69	\$11.98
0-3	12	11.70	10.53	9.94	0-3	12	12.45	11.20	10.58	0-3	12	14.10	12.69	11.98
0-5	33	11.70	10.53	9.94	0-5	33	12.45	11.20	10.58	0-5	33	14.10	12.69	11.98
0-10†	133	11.70	10.53	9.94	0-10†	133	12.45	11.20	10.58	0-10	133	14.10	12.69	11.98
0-15†	300	11.70	10.53	9.94	0-15†	300	12.45	11.20	10.58	0-15	300	14.10	12.69	11.98
0-25	833	12.15	10.93	10.32	0-25	833	12.75	11.47	10.83	0-25	833	14.10	12.69	11.98
0-50	3,333	12.15	10.93	10.32	0-50	3,333	12.75	11.47	10.83	0-50	3,333	14.10	12.69	11.98
0-100	16,666	12.20	11.88	11.22	0-100	16,666	13.80	12.42	11.73	0-100	16,666	14.70	13.23	12.49
0-150†	25,000	12.90	11.61	10.96	0-150†	25,000	13.65	12.28	11.60	0-150	25,000	14.85	13.36	12.62
0-250	41,166	12.90	11.61	10.96	0-250	41,166	13.65	12.28	11.60	0-250	41,166	14.85	13.36	12.62
0-300†	50,000	12.90	11.61	10.96	0-300†	50,000	13.65	12.28	11.60	0-300	50,000	14.85	13.36	12.62
0-500*	83,333	17.40	15.66	14.79	0-500*	83,333	17.70	15.93	15.04	0-500*	83,333	18.10	16.47	15.55
0-750*	125,000	19.20	17.28	16.32	0-750*	125,000	19.35	17.41	16.44	0-750*	125,000	20.10	18.09	17.08
0-1000*	166,666	20.70	18.63	17.59	0-1000*	166,666	20.85	18.76	17.72	0-1000*	166,666	21.75	19.57	18.48

\*Model 183 external multiplier supplied; all others, self-contained. †Available in Models 57 and 157 (only) with Lucite illuminated dials with socket and 6 v. bulb; add \$3.45 to price when ordering. ‡Approx., at 60 cps.

### AC AMMETERS—MODELS 55, 57, 59, 155, 157

Range Amps	Imped., Ohms†	Models 155, 157—2½"			Models 55, 57—3½"			Model 59—4½"						
		Net Each, Lots of			Net Each, Lots of			Net Each, Lots of						
		1-9	10-24	25-49	1-9	10-24	25-49	1-9	10-24	25-49				
0-1*	.287	\$11.55	\$10.39	\$ 9.81	0-1*	.287	\$12.15	\$10.93	\$10.32	0-1*	.287	\$14.40	\$12.96	\$12.24
0-1.5*	.185	11.55	10.39	9.81	0-1.5*	.185	12.15	10.93	10.32	0-1.5*	.185	14.40	12.96	12.24
0-2*	.115	11.55	10.39	9.81	0-2*	.115	12.15	10.93	10.32	0-2*	.115	14.40	12.96	12.24
0-3*	.077	11.55	10.39	9.81	0-3*	.077	12.15	10.93	10.32	0-3*	.077	14.40	12.96	12.24
0-5*	.042	11.55	10.39	9.81	0-5*	.042	12.15	10.93	10.32	0-5*	.042	14.40	12.96	12.24
0-10*	.021	11.55	10.39	9.81	0-10*	.021	12.15	10.93	10.32	0-10*	.021	14.40	12.96	12.24
0-15*	.0022	11.55	10.39	9.81	0-15*	.0022	12.15	10.93	10.32	0-15*	.0022	14.40	12.96	12.24
0-25*	.0003	11.85	10.66	10.07	0-25*	.0003	12.45	11.20	10.58	0-25*	.0003	15.00	13.50	12.75
0-30*	.0003	11.85	10.66	10.07	0-30*	.0003	12.45	11.20	10.58	0-30*	.0003	15.00	13.50	12.75
0-50*	.0006	11.85	10.66	10.07	0-50*	.0006	12.45	11.20	10.58	0-50*	.0006	15.00	13.50	12.75
0-75	.0005	—	—	—	0-75*	.0005	13.20	11.88	11.22	0-75*	.0005	15.75	14.18	13.37
0-75	.012	11.55	10.39	9.81	0-75*	.012	12.15	10.93	10.32	0-75*	.012	14.40	12.96	12.24
0-100	.012	11.55	10.39	9.81	0-100	.012	12.15	10.93	10.32	0-100	.012	14.40	12.96	12.24
0-150	.012	11.55	10.39	9.81	0-150	.012	12.15	10.93	10.32	0-150	.012	14.40	12.96	12.24
0-200	.012	11.55	10.39	9.81	0-200	.012	12.15	10.93	10.32	0-200	.012	14.40	12.96	12.24
0-250	.012	11.55	10.39	9.81	0-250	.012	12.15	10.93	10.32	0-250	.012	14.40	12.96	12.24
0-300	.012	11.55	10.39	9.81	0-300	.012	12.15	10.93	10.32	0-300	.012	14.40	12.96	12.24
0-500	.012	11.55	10.39	9.81	0-500	.012	12.15	10.93	10.32	0-500	.012	14.40	12.96	12.24

\*Self-contained. Higher range AC meters (5 amp) require external current transformers, ordered separately. ‡Approx., at 60 cps.

### AC MILLIAMMETERS—MODELS 55, 57, 59, 155, 157

Range Ma	Imped., Ohms†	Models 155, 157—2½"			Models 55, 57—3½"			Model 59—4½"						
		Net Each, Lots of			Net Each, Lots of			Net Each, Lots of						
		1-9	10-24	25-49	1-9	10-24	25-49	1-9	10-24	25-49				
Any range	—	\$11.55	\$10.39	\$9.81	Any range	—	\$12.15	\$10.93	\$10.32	Any range	—	\$14.40	\$12.96	\$12.24

Range Ma	*	RF MILLIAMMETERS—MODELS 35, 37, 39			COMPENSATED WATTMETERS—SINGLE PHASE									
		Models 35, 37—3½"			Model 77—3½"			Model 79—4½"						
		1-9	10-24	25-49	1-9	10-24	25-49	1-9	10-24	25-49				
0-115†	4	\$28.35	\$25.51	\$24.09	0-10	.175	\$44.10	\$39.69	\$37.48	0-10	.175	\$45.75	\$41.17	\$38.88
0-150	4.5	18.00	16.20	15.30	0-20	.400	44.10	39.69	37.48	0-20	.400	45.75	41.17	38.88
0-250	3.5	18.00	16.20	15.30	0-20	.175†	44.10	39.69	37.48	0-20	.175†	45.75	41.17	38.88
0-500	.63	18.00	16.20	15.30	0-30	.650	44.10	39.69	37.48	0-30	.650	45.75	41.17	38.88
					0-30	.300†	44.10	39.69	37.48	0-30	.300†	45.75	41.17	38.88
					0-50	.500†	44.10	39.69	37.48	0-50	.500†	45.75	41.17	38.88

\*Approx. imped. (ohms) at 60 cps. †10-100 linear scale. ‡Max. 500 volts. Others 300 v.

### WATTMETERS—DYNAMOMETER TYPE—SINGLE PHASE—MODELS 75, 77, 79, 175, 177

Range Watts	Maximum Volts	Amps	Models 175, 177—2½"			Models 75, 77—3½"			Model 79—4½"								
			Net Each, Lots of			Net Each, Lots of			Net Each, Lots of								
			1-9	10-24	25-49	1-9	10-24	25-49	1-9	10-24	25-49						
0-75	150	1.0	\$26.25	\$23.62	\$22.31	0-75	150	1.0	\$27.60	\$24.84	\$23.46	0-75	150	1.0	\$33.90	\$30.51	\$28.81
0-150	150	2.0	26.25	23.62	22.31	0-150	150	2.0	27.60	24.84	23.46	0-150	150	2.0	33.90	30.51	28.81
0-300	150	4.0	26.25	23.62	22.31	0-300	150	4.0	27.60	24.84	23.46	0-300	150	4.0	33.90	30.51	28.81
0-750	150	10.0	26.25	23.62	22.31	0-750	150	10.0	27.60	24.84	23.46	0-750	150	10.0	33.90	30.51	28.81
0-600	300	4.0	28.65	25.78	24.35	0-600	300	4.0	30.00	27.00	25.50	0-600	300	4.0	36.45	32.80	30.98
0-1500	300	10.0	28.65	25.78	24.35	0-1500	300	10.0	30.00	27.00	25.50	0-1500	300	10.0	36.45	32.80	30.98
0-3000	300	20.0	28.65	25.78	24.35	0-3000	300	20.0	30.00	27.00	25.50	0-3000	300	20.0	36.45	32.80	30.98

RANGES WITHOUT PRICES (—) AVAILABLE ON SPECIAL ORDER. CONTINUED, NEXT PAGE



# Simpson Panel Meters, Relays

INSTRUMENTS THAT STAY ACCURATE

## RECTANGULAR AND ROUND PANEL METERS (CONTINUED) VOLUME LEVEL INDICATORS—MODELS 45, 47, 49, 142, 145, 147

**Decibel meters**—Zero power level, 6 mw 500 ohm line; -10 to +6 db 5000 ohms.  
**VU meters**—Reference level, 1 mw 600 ohm line. Scale, 3900 ohms.

### MODELS 145, 147—2½"

Range	Net Each, Lots of		
	1-9	10-24	25-49
General Purpose DB	\$18.30	\$16.47	\$15.55

Range	Net Each, Lots of		
	1-9	10-24	25-49
General Purpose DB	\$18.45	\$16.60	\$15.68
High Speed DB	20.40	18.36	17.34
Low Speed DB	20.25	18.22	17.21
A Scale VU*	22.35	20.11	18.99
B Scale VU*	22.35	20.11	18.99
A Scale VU†	—	—	—
B Scale VU†	—	—	—

\*Not illuminated. †Illuminated; available on special order.

Range	Net Each, Lots of		
	1-9	10-24	25-49
General Purpose DB	\$20.10	\$18.09	\$17.08
High Speed DB	21.75	19.57	18.48
Low Speed DB	21.15	19.03	17.97
A Scale VU*	24.15	21.73	20.52
B Scale VU*	24.15	21.73	20.52
A Scale VU†	26.70	24.03	22.69
B Scale VU†	26.70	24.03	22.69

\*Not illuminated. †Illuminated. ‡Model 142; all others Model 49.

### RF AMMETERS—INTERNAL THERMOCOUPLE TYPE

Range Amps	Approx. Imp. Ohms†	Net Each, Lots of		
		1-9	10-24	25-49
0-1*	.343	\$14.10	\$12.69	\$11.98
0-1.5	.200	14.10	12.69	11.98
0-2*	.120	14.10	12.69	11.98
0-2.5	.10	14.10	12.69	11.98
0-3*	.08	14.10	12.69	11.98
0-5*	.045	14.10	12.69	11.98
0-8	.031	14.10	12.69	11.98
0-10	.023	14.10	12.69	11.98

Range Amps	Approx. Imp. Ohms†	Net Each, Lots of		
		1-9	10-24	25-49
0-1*	.343	\$15.00	\$13.50	\$12.75
0-1.5	.200	15.00	13.50	12.75
0-2*	.120	15.00	13.50	12.75
0-2.5	.10	15.00	13.50	12.75
0-3*	.08	15.00	13.50	12.75
0-5*	.045	15.00	13.50	12.75
0-8	.031	15.00	13.50	12.75
0-10	.023	15.00	13.50	12.75

Range Amps	Approx. Imp. Ohms†	Net Each, Lots of		
		1-9	10-24	25-49
0-1	.343	\$17.25	\$15.52	\$14.66
0-1.5	.200	17.25	15.52	14.66
0-2	.120	17.25	15.52	14.66
0-2.5	.10	17.25	15.52	14.66
0-3	.08	17.25	15.52	14.66
0-5	.045	17.25	15.52	14.66
0-8	.031	17.25	15.52	14.66
0-10	.023	17.25	15.52	14.66

\*Add \$3.45 for Lucite illuminated dials with socket and 6 v. bulb, Models 37 and 137 only. †At 60 cps.

### AC VOLTMETERS—RECTIFIER TYPE—MODELS 45, 47, 49 200 OHMS PER VOLT

Range Volts	Models 45 and 47—3½"			Model 49—4½"		
	1-9	10-24	25-49	1-9	10-24	25-49
0-1	\$18.75	\$16.88	\$15.94	\$20.55	\$18.50	\$17.47
0-3	18.75	16.88	15.94	20.55	18.50	17.47
0-5	18.75	16.88	15.94	20.55	18.50	17.47
0-10	18.75	16.88	15.94	20.55	18.50	17.47
0-15	18.75	16.88	15.94	20.55	18.50	17.47
0-50	18.75	16.88	15.94	20.55	18.50	17.47
0-100	18.75	16.88	15.94	20.55	18.50	17.47
0-150	18.75	16.88	15.94	20.55	18.50	17.47
0-300	18.75	16.88	15.94	20.55	18.50	17.47

### AC MILLIAMMETER—RECTIFIER TYPE

Range	Models 45, 47—3½"			Model 49—4½"		
	1-9	10-24	25-49	1-9	10-24	25-49
0-1 ma	\$18.00	\$16.20	\$15.30	\$19.50	\$17.55	\$16.57
0-2 ma	18.00	16.20	15.30	19.50	17.55	16.57
0-5 ma	18.00	16.20	15.30	19.50	17.55	16.57

### AC MICROAMMETERS—RECTIFIER TYPE

Range	Models 45, 47—3½"			Model 49—4½"		
	1-9	10-24	25-49	1-9	10-24	25-49
0-100 µa	\$20.55	\$18.49	\$17.46	\$22.05	\$19.84	\$18.74
0-200 µa	18.15	16.33	15.42	19.80	17.82	16.83
0-300 µa	18.00	16.20	15.30	19.50	17.55	16.57
0-500 µa	17.70	15.93	15.04	19.20	17.28	16.32

### DC GALVANOMETERS—MODELS 25, 27, 29, 125, 127 SCALE: 50-0-50

Sensitivity µa	Res. Ohms	Models 125, 127—2½"		
		1-9	10-24	25-49
500-0-500	46	\$12.75	\$11.47	\$10.83
75-0-75	2000	13.65	12.28	11.60

Sensitivity µa	Res. Ohms	Models 25, 27—3½"		
		1-9	10-24	25-49
500-0-500	46	\$13.20	\$11.88	\$11.22
75-0-75	2000	15.00	13.50	12.75

Sensitivity µa	Res. Ohms	Model 29—4½"		
		1-9	10-24	25-49
500-0-500	46	\$14.85	\$13.36	\$12.62
75-0-75	2000	15.45	13.90	13.13

### EDGEWISE PANEL INSTRUMENTS—MODELS 1522 AND 1542



For mounting wherever space is a problem. Supplied with mounting hardware, including bezel with two speed nuts for quick, easy mounting. Types: DC and AC rectifier. Accuracy: DC, ±2% of full scale; AC, ±3% of full scale at 25° and 60 cycle sine wave. Meter Movement: Self-shielded. Standard Scale: Black numbers on white background, 1½" long. Terminals: Solder, except Ammeters which have stud type. Case: Dustproof, molded acrylic; 2½" w. x 3½" d. x 1.22" h. overall. Fits 2½" x 1½" hole. Two mtg. holes on 2½" centers.

#### MODEL 1522—2½"

Range Mv	Net Each, Lots of		
	1-9	10-24	25-49
0-50	\$15.75	\$14.18	\$13.39

#### MODEL 1522—2½"

##### DC VOLTMETERS

Ranges Available: 0-10, 0-15, 0-25, 0-50, 0-100, 0-150, 0-300 and 0-500. All 1,000 ohms/volt, except 0-500 v., 2,000 ohms/v.

Range Volts	Net Each, Lots of		
	1-9	10-24	25-49
0-10 to 0-300	\$15.00	\$13.50	\$12.75
0-500	15.15	13.63	12.87

##### DC AMMETERS

Ranges Available: 0-1, 0-5, 0-10, 0-15, 0-25 and 0-50.

Range Amps	Net Each, Lots of		
	1-9	10-24	25-49
Any Range	\$15.75	\$14.17	\$13.38

##### DC MILLIAMMETERS

Ranges Available: 0-1, 0-5, 0-10, 0-15, 0-25, 0-50, 0-100, 0-150, 0-200, 0-250, 0-300 and 0-500.

Range Ma	Net Each, Lots of		
	1-9	10-24	25-49
0-1 to 0-15	\$14.85	\$13.36	\$12.62
0-25 to 0-500	15.45	13.90	13.13

#### MODEL 1522—2½"

##### DC MICROAMMETERS

Range µa	Net Each, Lots of		
	1-9	10-24	25-49
0-25	\$22.20	\$19.98	\$18.87
0-50	15.50	13.90	13.13
0-100	17.40	15.66	14.79
0-200	15.75	14.17	13.38
0-500	15.30	13.77	13.00

#### MODEL 1542—2½"

##### VOLUME LEVEL INDICATORS

Model 1542	Net Each, Lots of		
	1-9	10-24	25-49
A or B Scale VU	\$24.75	\$22.27	\$21.03

##### RECTIFIER TYPE AC VOLTMETER

Range, Volts	Net Each, Lots of		
	1-9	10-24	25-49
0-150, 0-300	\$19.20	\$17.28	\$16.32

### METER RELAYS—MODELS 29XA AND 3324XA

**MODEL 29XA CONTACT TYPE**  
D'Arsonval movement. Contacts: Externally adjustable over 95° of 100° scale arc, within 5° of each other. Non-locking; for use in circuits with external locking provisions or in non-locking uses. Will close within 2% and break within 10% of full scale value. Gold alloy. For use at 15 v. DC 10 ma max. on resistive or diode protected inductance loads. Accuracy: ±2% full scale. Insulation Breakdown: 300 v. AC relay terminals to meter circuit; 3 kv AC relay terminals to mounting panel (all at 60 cps). Size: 4.66" x 4.2"; body, 2.75" dia. x 0.97" deep.

#### MODEL 3324XA CONTACTLESS

Set points externally adjustable over 95% of scale arc through external front gear drive; indentation, by separate lance pointers, within 2% of actual switching. Sensing

is done through an infinite life lamp and photoconductors. Solid-state switching circuit and DPDT slave relay provided internally for each control point; both slaves open in case of power failure. Slaves will switch to 10 amps at 115 v. AC. Power Required: 115 v. AC, 50-500 cps. DC required for sensing and switching is provided by external power module furnished with relay. Size: 4.68" x 4.15"; body 2.72" dia. x 4.25" deep.

#### MODEL 29XA

Range	Model No.	Net Each, Lots of		
		1-9	10-24	25-49
0-50 µa	7032	\$44.10	\$39.69	\$37.48
0-100 µa	7034	42.15	37.93	35.82
0-200 µa	7036	39.60	35.64	33.66
0-500 µa	7038	39.00	35.10	33.15
0-1 ma	7040	38.10	34.29	32.38
0-50 mv	7050	38.25	34.42	32.51

#### MODEL 3324XA SINGLE CONTROL

Range	Model No.	Net Each, Lots of		
		1-9	10-24	25-49
0-50 µa	16451	\$ 90.00	\$ 81.00	\$ 76.50
0-100 µa	16452	87.30	78.57	74.21
0-200 µa	16453	87.30	78.57	74.21
0-500 µa	16454	87.30	78.57	74.21
0-1 ma	16455	86.40	77.76	73.44
0-50 mv	16460	86.70	78.03	73.70

#### MODEL 3324XA DOUBLE CONTROL

Range	Model No.	Net Each, Lots of		
		1-9	10-24	25-49
0-50 µa	16470	\$123.90	\$111.51	\$105.32
0-100 µa	16471	121.50	109.35	103.28
0-200 µa	16472	121.20	109.08	103.02
0-500 µa	16473	121.20	109.08	103.02
0-1 ma	16474	120.30	108.27	102.26
0-50 mv	16480	120.75	108.68	102.64



# Simpson Special Panel Meters

INSTRUMENTS THAT STAY ACCURATE

## NEW "RUGGED SEAL" PANEL METERS

Metal-cased panel instruments ideal for use in field test equipment or where rigorous environments are encountered. Completely sealed, commercially ruggedized, metal cased and shielded against steel panel mounting. External magnet movement.

**Standard Metal-Cased Meters:** AC meters are rectifier type with  $\pm 2\%$  of full scale accuracy at 25° C and 60-cycle sine wave. AC ammeters maintain accuracy over 55-125 cps range; other AC meters over 25-2500 cps range. DC meters have  $\pm 2\%$  of full scale accuracy.

**Segmental Metal-Cased Meters:** Measure very small changes in input with segmental voltmeters and frequency meters. Significant portion is expanded to occupy the full scale length.

Expanded-Scale Type Meter	Freq. Range, Cps	Sensitivity Ohms/Volt	Waveform Influence		Max. Input Volts Rms
			Squarewave	Triangular	
AC Voltmeters	55-550	50, 65, 80*	2.5, 2, 1%*	1.2, .6, 3%*	150
DC Voltmeters	.....	100	.....	.....	40†
Frequency Meters	.....	3 VA max.	.1% max.	.1% max.	140

\*For 100-130, 105-125 and 110-120 v. ranges respectively. †Volts max. input. ‡Rms sensing.

### METER SIZES

Size	Fig.	Model	Size, Inches
2½"	B	3282	2.695 dia. flange; body 2.09 dia. x .294 d.
	B	3222	2.695 dia. flange; body 2.21 dia. x 1.60 d.
3½"	B	3223	3.51 dia. flange; body 2.80 dia. x 1.66 d.
	B	3283	3.510 dia. flange; body 2.72 dia. x 3.16 d.
	A	3323, 3343	3.25 sq.; body 2.69 dia. x 1.23 d.
	A	3383	3.25 sq.; body 2.72 dia. x 3.52 d.
4½"	B	3224	4.60 dia. flange; body 3.76 dia. x 1.51 d.
	B	3284	4.51 dia. flange; body 3.58 dia. x 3.83 d.
	A	3324, 3344	4.68 x 4.15; body 2.69 dia. x 1.21 d.
	A	3384	4.68 x 4.15; body 2.72 dia. x 3.52 d.
4" x 6"	C	3326, 3346	5.84 x 4.62; body 2.69 dia. x 1.19 d.
	C	3386	5.84 x 4.62; body 2.72 dia. x 3.60 d.

### DC MODELS 3323, 3324 AND 3326

#### DC VOLTMETERS

Ranges Available: 0-1.5, 0-10, 0-15, 0-25, 0-50, 0-100, 0-500.

Range, Volts	Approx. Resis., Ohms	Model	Size	Net Each, Lots of		
				1-9	10-24	25-49
Any Value, Above	1000 per volt	3323	3½"	\$17.10	\$35.39	\$14.53
		3324	4½"	18.60	16.74	15.81
		3326	4" x 6"	20.40	18.36	17.34

#### DC AMMETERS

Range, Amps	Internal Shunt	Model	Size	Net Each, Lots of		
				1-9	10-24	25-49
0-5 or 0-10	75 mV max.	3323	3½"	\$17.40	\$35.66	\$14.79
		3324	4½"	18.90	17.01	16.06
		3326	4" x 6"	21.00	18.90	17.85

#### DC MILLIAMMETERS

Range, Ma	Approx. Resis., Ohms	Model	Size	Net Each, Lots of		
				1-9	10-24	25-49
0-1	80	3323	3½"	\$16.50	\$34.85	\$14.03
		3324	4½"	18.00	16.20	15.30
		3326	4" x 6"	19.95	17.96	15.96
0-100	.5	3323	3½"	17.40	15.66	14.79
		3324	4½"	18.90	17.01	16.06
		3326	4" x 6"	21.00	18.90	17.85

#### DC MICROAMMETERS

Range, µa	Approx. Resis., Ohms	Model	Size	Net Each, Lots of		
				1-9	10-24	25-49
0-50	3000	3323	3½"	\$22.20	\$39.98	\$18.87
		3324	4½"	23.70	21.33	20.14
		3326	4" x 6"	25.95	23.36	22.06
0-100	1300	3323	3½"	20.10	18.09	17.08
		3324	4½"	21.60	19.44	18.36
		3326	4" x 6"	24.00	21.60	20.40

### EXPANDED-SCALE SEGMENTAL FREQUENCY METERS

Accuracy: 0.25%, checked at center scale frequency at 25° C and 115 volts sine wave after 30-minute warmup; after 1-minute warmup, 1.0%; at end scale, maximum error is 0.5%.

Range, Cps	Center, Cps	Model	Size	Net Each, Lots of		
				1-9	10-24	25-49
57-63	60	3283	3½" rd.	\$152.50	\$337.25	\$129.63
		3284	4½" rd.	159.50	145.55	135.58
		3383	3½" sq.	148.25	133.43	125.01
380-420	400	3384	4½" sq.	153.00	137.70	130.05
		3386	4" x 6"	157.50	141.75	133.88

### SEGMENTAL VOLTMETERS



Models  
1347  
and  
1349

Self-shielding movement. Has 4 mounting studs. Possible to measure small changes in input conditions. Frequency Range: Single, 20-2000 cps; Multi, 50-1000 cps. Sensitivity: 6-1.3 VA, decreases as input voltage increases. Range: Single 100-130 v. AC; Multi, 100-130; 200-260; 400-520 v. AC. Input Voltage (max): Single,

150 v. rms (10 sec.); Multi, 150, 300, 600 v. rms (10 sec.), per range respectively. Waveform Influence: Squarewave, 11%; Triangular, 5%. Size: Model 1349, 4.68" x 4.0" flange, body 2.75" dia. x 1.08" d.; Model 1347, 3.25" sq. flange, body 2.73" dia. x 1.08" d.; Model 49, 4.66" x 4.2" flange, body 2.75" dia. x 1" d.

#### WIDE-VUE TYPES

Model	Size	Net Each, Lots of		
		1-9	10-24	25-49
1347	3½"	\$40.80	\$36.72	\$34.68
1349	4½"	40.95	36.85	34.80
1349*	4½"	50.60	45.54	43.01

#### RECTANGULAR TYPE

49	4½"	\$40.50	\$36.45	\$34.42
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\*Multi-range type; with external potential transformer.



A



B



C

### AC MODELS 3343, 3344 AND 3346

#### AC VOLTMETERS—RECTIFIER TYPE

Range, Volts	Approx. Resis., Ohms	Model	Size	Net Each, Lots of		
				1-9	10-24	25-49
0-150 or 0-300	1000 per Volt	3343	3½"	\$20.70	\$18.63	\$17.59
		3344	4½"	21.90	19.71	18.61
		3346	4" x 6"	24.00	21.60	20.40

#### AC AMMETERS—RECTIFIER TYPE

Range, Amps	Internal Trans. Burden	Model	Size	Net Each, Lots of		
				1-9	10-24	25-49
0-1 or 0-5	0.5 VA max.	3343	3½"	\$25.80	\$23.22	\$21.93
		3344	4½"	27.00	24.30	22.95
		3346	4" x 6"	29.10	26.19	24.74

#### AC MILLIAMMETERS—RECTIFIER TYPE

Range, Ma	Approx. Resis., Ohms	Model	Size	Net Each, Lots of		
				1-9	10-24	25-49
0-1	600	3343	3½"	\$20.40	\$18.36	\$17.34
		3344	4½"	21.60	19.44	18.36
		3346	4" x 6"	23.40	21.06	19.89

#### AC MICROAMMETERS—RECTIFIER TYPE

Range, µa	Approx. Resis., Ohms	Model	Size	Net Each, Lots of		
				1-9	10-24	25-49
0-100	4000	3343	3½"	\$21.60	\$19.44	\$18.36
		3344	4½"	22.50	20.25	19.12
		3346	4" x 6"	24.60	22.14	20.91

### EXPANDED-SCALE SEGMENTAL AC VOLTMETERS

Center Scale: 115 volts, all models.

Range, Volts	Accuracy*	Model	Size	Net Each, Lots of		
				1-9	10-24	25-49
100-130 or 105-125 or 110-120	1.0% or 0.5% or 0.3%	3282	2½" rd.	\$70.00	\$63.00	\$59.50
		3283	3½" rd.	64.50	58.05	54.83
		3284	4½" rd.	71.50	64.35	60.78
		3383	3½" sq.	59.00	53.10	50.15
		3384	4½" sq.	65.00	58.50	55.25
		3386	4" x 6"	69.50	62.55	59.08

### EXPANDED SCALE SEGMENTAL DC VOLTMETERS

Center Scale: 27 volts.

Range, Volts	Accuracy*	Model	Size	Net Each, Lots of		
				1-9	10-24	25-49
24-30	0.5%	3222	2½" rd.	\$60.00	\$54.00	\$51.00
		3223	3½" rd.	54.60	49.14	46.41
		3224	4½" rd.	61.50	55.35	52.28
		3323	3½" sq.	49.20	44.28	41.82
		3324	4½" sq.	55.20	49.68	46.92
		3326	4" x 6"	59.40	53.46	50.49

\*Accuracy is in percent of center scale value.

### ELAPSED TIME METERS

Use self-starting synchronous clock motors. Indicate up to 99999.9, then recycle and begin again at 00000.0. Molded Bakelite case similar to the Simpson 3½" rectangular and round meters. Case depth 2½". Mount by ¼-28 studs. Body 2.75" dia.

Range (60 cps)	Models 55E†, 57E†		
	Net Each, Lots of		
	1-9	10-24	25-49
120 v.	\$18.85	\$16.96	\$16.02
240 v.	19.15	17.23	16.27

\*Round case with 3.50" dia. flange. †Rectangular case 3.12" w. x 3.00" h. ‡Registered Bakelite Corp. trademark.



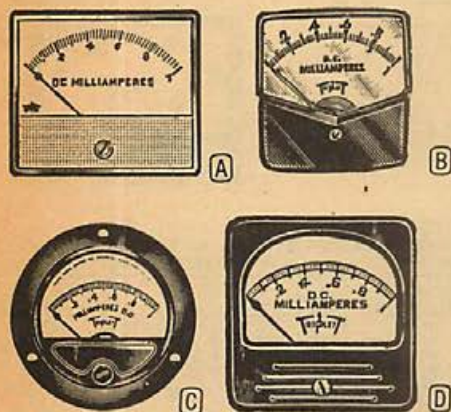


# Panel Meters

## GENERAL PANEL METER INFORMATION (ACCURACY WITHIN ±2%)

DC meters are d'Arsonval type with linear scales; extra-light moving coil; Bar Ring magnet. AC meters are moving iron vane type, air damped, with light moving parts. All have jewel bearings; specially treated pivots; white enameled dials; molded zero adjusters; ceramic pointer stops; molded case and base. **M Series:** Same but longer scales; self-shielded and 3-way terminals on DC meters. **G Series:** Flexible and interchangeable design with optional mounting bezel. Large dial area for multiple scales. Natural aluminum insert panel with special inserts available.

**Mounting Bezels For G Series**—For panels up to 1/4" thick. **Meter and Bezel Size:** 2.5", 3.09" x 1.69"; 3.5", 3.83" x 2.27"; 4.5", 4.92" x 2.85". Net Ea. \$1.50



Model	Nom. Size	Fig.	Scale Length	Flange Size, Inches, W. x H.	Body Size, In. Dia. x Depth
220-G DC	2 1/2"	A	2,530"	2.77 x 2.39	2 1/2 x 1 1/4
230-G AC	2 1/2"	A	2,155"	2.77 x 2.39	2 1/2 x 1 1/4
240-G RF	2 1/2"	A	2,530"	2.77 x 2.39	2 1/2 x 1 1/4
220-M DC	2 1/2"	B	2,5"	2 1/4 sq.	2 1/4 x 1 1/4
230-M AC	2 1/2"	B	2,179"	2 1/4 sq.	2 1/4 x 1 1/4
240-M RF	2 1/2"	B	2,5"	2 1/4 sq.	2 1/4 x 1 1/4
221-T DC	2 1/2"	C	1,76"	2 1/2 dia.	2 1/4 x 1 1/4
231-S AC	2 1/2"	C	1,58"	2 1/2 dia.	2 1/4 x 1 1/4
241-T RF	2 1/2"	C	1,76"	2 1/2 dia.	2 1/4 x 1 1/4
227-PL DC	2 1/2"	†	2,197"	2 1/2 x 2 1/2	2 1/4 x 1 1/4
237-PL AC	2 1/2"	†	1,92"	2 1/2 x 2 1/2	2 1/4 x 1 1/4
227-T DC	2 1/2"	D	1,76"	2 3/8 sq.	2 1/4 x 1 1/4
237-S AC	2 1/2"	D	1,58"	2 3/8 sq.	2 1/4 x 1 1/4
247-T RF	2 1/2"	D	1,76"	2 3/8 sq.	2 1/4 x 1 1/4
320-G DC	3 1/2"	A	3,163"	3.50 x 2.99	3 1/2 x 1 1/4
330-G AC	3 1/2"	A	2,688"	3.50 x 2.99	3 1/2 x 1 1/4
340-G RF	3 1/2"	A	3,163"	3.50 x 2.99	3 1/2 x 1 1/4
320-M DC	3 1/2"	B	3,34"	3 1/2 sq.	3 1/2 x 1 1/4
330-M AC	3 1/2"	B	2,921"	3 1/2 sq.	3 1/2 x 1 1/4
340-M RF	3 1/2"	B	3,34"	3 1/2 sq.	3 1/2 x 1 1/4
321-T DC	3 1/2"	C	2,49"	3 1/2 dia.	3 1/2 x 1 1/4
331-S AC	3 1/2"	C	2,22"	3 1/2 dia.	3 1/2 x 1 1/4
341-T RF	3 1/2"	C	2,49"	3 1/2 dia.	3 1/2 x 1 1/4
327-PL DC	3 1/2"	†	3,11"	3 3/8 x 3 1/4	3 1/2 x 1 1/4
337-PL AC	3 1/2"	†	2,65"	3 3/8 x 3 1/4	3 1/2 x 1 1/4
347-PL RF	3 1/2"	†	3,11"	3 3/8 x 3 1/4	3 1/2 x 1 1/4
327-T DC	3 1/2"	D	2,49"	3 sq.	3 1/2 x 1 1/4
337-S AC	3 1/2"	D	2,22"	3 sq.	3 1/2 x 1 1/4
347-T RF	3 1/2"	D	2,49"	3 sq.	3 1/2 x 1 1/4
420 DC	4 1/2"	*	4,04"	4 3/8 x 4 1/4	4 1/2 x 1 1/2
430 AC	4 1/2"	*	3,6"	4 3/8 x 4 1/4	4 1/2 x 1 1/2
440 RF	4 1/2"	*	4,04"	4 3/8 x 4 1/4	4 1/2 x 1 1/2
420-G DC	4 1/2"	A	4,035"	4.55 x 4.068	4 1/2 x 1 1/2
430-G AC	4 1/2"	A	3,430"	4.55 x 4.068	4 1/2 x 1 1/2
440-G RF	4 1/2"	A	4,035"	4.55 x 4.068	4 1/2 x 1 1/2
420-M DC	4 1/2"	B	4,5"	4 3/8 x 4 1/4	4 1/2 x 1 1/2
430-M AC	4 1/2"	B	3,964"	4 3/8 x 4 1/4	4 1/2 x 1 1/2
440-M RF	4 1/2"	B	4,5"	4 3/8 x 4 1/4	4 1/2 x 1 1/2
420-PL DC	4 1/2"	†	4,14"	4 3/8 x 4 1/4	4 1/2 x 1 1/2
430-PL AC	4 1/2"	†	3,6"	4 3/8 x 4 1/4	4 1/2 x 1 1/2
440-PL RF	4 1/2"	†	4,14"	4 3/8 x 4 1/4	4 1/2 x 1 1/2

\*Similar to Fig. D. †Terminals project 1/2"-3/4" back of case except: G series, 1/2"-11/16"; M series, stud type terminals 11/16" lg. ‡Similar to Fig. A.

### DC VOLTMETERS (1000 OHMS/VOLT)

Film type resistors.

#### 2.5" MODELS 220, 221 AND 227

Range	Scale Div.	Net Each, Lots of		
		1-9	10-24	25-49
0-10	50	\$11.80	\$10.62	\$10.03
0-15	75 (30)†	11.80	10.62	10.03
0-25	50	11.80	10.62	10.03
0-50	50	11.80	10.62	10.03
0-100	50	11.80	10.62	10.03
0-150	75 (30)†	11.80	10.62	10.03
0-200	40	11.80	10.62	10.03
0-250	50	11.80	10.62	10.03
0-300	60 (30)†	11.80	10.62	10.03
0-500*	50	14.10	12.69	11.99
0-750*	75 (30)†	14.60	13.14	12.40
0-1000*	50	14.90	13.41	12.67
0-2000*	40	15.50	13.95	13.18
0-3000*	60 (30)†	16.20	14.58	13.77
0-4000*	40	16.50	14.85	14.03
0-5000*	50	16.80	15.12	14.28

#### 3.5" MODELS 320, 321 AND 327

Range	Scale Div.	Net Each, Lots of		
		1-9	10-24	25-49
0-10	50	\$12.30	\$11.07	\$10.46
0-15	75	12.30	11.07	10.46
0-25	50	12.30	11.07	10.46
0-50	50	12.30	11.07	10.46
0-100	50	12.30	11.07	10.46
0-150	75	12.30	11.07	10.46
0-200	40	12.30	11.07	10.46
0-250	50	12.30	11.07	10.46
0-300	60	12.30	11.07	10.46
0-500	50	13.00	11.70	11.05
0-750	75	13.00	11.70	11.05
0-1000*	50	15.50	13.95	13.18
0-2000*	40	16.20	14.58	13.77
0-3000*	60	16.80	15.12	14.28
0-4000*	40	17.20	15.48	14.62
0-5000*	50	17.50	15.75	14.88

#### 4.5" MODEL 420

Range	Scale Div.	Net Each, Lots of		
		1-9	10-24	25-49
0-10	50	\$13.50	\$12.15	\$11.48
0-15	75	13.50	12.15	11.48
0-25	50	13.50	12.15	11.48
0-50	50	13.50	12.15	11.48
0-100	50	13.50	12.15	11.48
0-150	75	13.50	12.15	11.48
0-200	40	13.50	12.15	11.48
0-250	50	13.50	12.15	11.48
0-300	60	13.50	12.15	11.48
0-500	50	14.20	12.78	12.07
0-750	75	14.20	12.78	12.07
0-1000*	50	16.70	15.03	14.20
0-2000*	40	17.40	15.66	14.79
0-3000*	60	18.00	16.20	15.30
0-4000*	40	18.40	16.56	15.64
0-5000*	50	18.70	16.83	15.90

\*Supplied with external resistors. †Scale div. for 221-T and 227-T in parentheses.

Wire-wound resistors.

#### 2.5" MODELS 220, 221 AND 227

Range	Scale Div.	Net Each, Lots of		
		1-9	10-24	25-49
0-1	50	\$11.80	\$10.62	\$10.03
0-3	60 (30)†	11.80	10.62	10.03
0-5	50	11.80	10.62	10.03

#### 3.5" MODELS 320, 321 AND 327

Range	Scale Div.	Net Each, Lots of		
		1-9	10-24	25-49
0-1	50	\$12.30	\$11.07	\$10.46
0-3	60	12.30	11.07	10.46
0-5	50	12.30	11.07	10.46

#### 4.5" MODEL 420

Range	Scale Div.	Net Each, Lots of		
		1-9	10-24	25-49
0-1	50	\$13.50	\$12.15	\$11.48
0-3	60	13.50	12.15	11.48
0-5	50	13.50	12.15	11.48

\*Scale divisions for 221-T and 227-T in parentheses.

### DC MICROAMMETERS

Lower torque microammeters are for use in horizontal positions only.

#### 2.5" MODELS 220, 221 AND 227

Range	Resist. Ohms	Net Each, Lots of		
		1-9	10-24	25-49
0-20	5600	\$19.40	\$17.46	\$16.49
0-50	2000	16.40	14.76	13.94
0-100	825	14.30	12.87	12.16
0-200	360	12.20	10.98	10.37
0-500	156	11.70	10.53	9.95
50-0-50	825	14.30	12.87	12.16
100-0-100	360	12.20	10.98	10.37
500-0-500	55	10.90	9.81	9.27

#### 3.5" MODELS 320, 321 AND 327

Range	Resist. Ohms	Net Each, Lots of		
		1-9	10-24	25-49
0-20	5600	\$20.10	\$18.09	\$17.09
0-50	2000	17.10	15.39	14.54
0-100	825	15.00	13.50	12.75
0-200	360	12.90	11.61	10.97
0-500	156	12.40	11.16	10.54
50-0-50	825	15.00	13.50	12.75
100-0-100	360	12.90	11.61	10.97
500-0-500	55	11.60	10.44	9.86

#### 4.5" MODEL 420

Range	Resist. Ohms	Net Each, Lots of		
		1-9	10-24	25-49
0-20	5600	\$21.30	\$19.17	\$18.11
0-50	2000	18.30	16.47	15.56
0-100	825	16.20	14.58	13.77
0-200	360	14.10	12.69	11.99
0-500	156	13.60	12.24	11.56
50-0-50	825	16.20	14.58	13.77
100-0-100	360	14.10	12.69	11.99
500-0-500	55	12.80	11.52	10.88

### DC MILLIVOLTMETERS

#### 2.5" MODELS 220, 221 AND 227

Range	Approx. Resist.	Net Each, Lots of		
		1-9	10-24	25-49
0-50	6.3	\$10.90	\$ 9.81	\$ 9.27
0-100	12.5	10.90	9.81	9.27
0-150	20	10.90	9.81	9.27

#### 3.5" MODELS 320, 321 AND 327

Range	Approx. Resist.	Net Each, Lots of		
		1-9	10-24	25-49
0-50	6.3	\$11.60	\$10.44	\$ 9.86
0-100	12.5	11.60	10.44	9.86
0-150	20	11.60	10.44	9.86

#### 4.5" MODEL 420

Range	Approx. Resist.	Net Each, Lots of		
		1-9	10-24	25-49
0-50	6.3	\$12.80	\$11.52	\$10.88
0-100	12.5	12.80	11.52	10.88
0-150	20	12.80	11.52	10.88

### SELF-CONTAINED DC AMMETERS

#### 2.5" MODELS 220, 221 AND 227

Range	Scale Div.	Net Each, Lots of		
		1-9	10-24	25-49
0-1	50	\$11.30	\$10.17	\$ 9.61
0-3	60 (30)†	11.30	10.17	9.61
0-5	50	11.80	10.62	10.03
0-10	50	11.80	10.62	10.03
0-15	75 (30)†	11.80	10.62	10.03
0-25	50	11.80	10.62	10.03
0-30*	60 (30)†	11.80	10.62	10.03
0-50*	50	11.80	10.62	10.03

#### 3.5" MODELS 320, 321 AND 327

Range	Scale Div.	Net Each, Lots of		
		1-9	10-24	25-49
0-1	50	\$12.00	\$10.80	\$10.20
0-3	60	12.00	10.80	10.20
0-5	50	12.30	11.07	10.46
0-10	50	12.30	11.07	10.46
0-15	75	12.30	11.07	10.46
0-25	50	12.30	11.07	10.46
0-30†	60	12.30	11.07	10.46
0-50†	50	12.30	11.07	10.46

#### 4.5" MODEL 420

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# Panel Meters

## DC MILLIAMMETERS

Ranges above 10 milliamperes are shunted and have a drop of approximately 100 millivolts. Special resistances to order. Double-range milliammeters available on special order, prices on request.

### 2.5" MODELS 220, 221 AND 227

Range	Approx. Resist.	Net Each, Lots of		
		1-9	10-24	25-49
0-1	55	\$10.90	\$ 9.81	\$ 9.27
0-1.5	30	10.90	9.81	9.27
0-3	14	10.90	9.81	9.27
0-5	8.5	10.90	9.81	9.27
0-10	3.1	10.90	9.81	9.27
0-15	6.6	10.90	9.81	9.27
0-25	4	11.30	10.17	9.61
0-50	2	11.30	10.17	9.61
0-75	1.3	11.30	10.17	9.61
0-100	1	11.30	10.17	9.61
0-150	0.6	11.30	10.17	9.61
0-200	0.5	11.30	10.17	9.61
0-250	0.4	11.30	10.17	9.61
0-300	0.33	11.30	10.17	9.61
0-400	0.25	11.30	10.17	9.61
0-500	0.2	11.30	10.17	9.61
0-750	0.13	11.30	10.17	9.61
0-1000	0.1	11.30	10.17	9.61

### 3.5" MODELS 320, 321 AND 327

Range	Approx. Resist.	Net Each, Lots of		
		1-9	10-24	25-49
0-1	55	\$11.60	\$10.44	\$ 9.86
0-1.5	30	11.60	10.44	9.86
0-3	14	11.60	10.44	9.86
0-5	8.5	11.60	10.44	9.86
0-10	3.1	11.60	10.44	9.86
0-15	6.6	11.60	10.44	9.86
0-25	4	12.00	10.80	10.20
0-50	2	12.00	10.80	10.20
0-75	1.3	12.00	10.80	10.20
0-100	1	12.00	10.80	10.20
0-150	0.6	12.00	10.80	10.20
0-200	0.5	12.00	10.80	10.20
0-250	0.4	12.00	10.80	10.20
0-300	0.33	12.00	10.80	10.20
0-400	0.25	12.00	10.80	10.20
0-500	0.2	12.00	10.80	10.20
0-750	0.13	12.00	10.80	10.20
0-1000	0.1	12.00	10.80	10.20

### 4.5" MODEL 420

Range	Approx. Resist.	Net Each, Lots of		
		1-9	10-24	25-49
0-1	55	\$12.80	\$11.52	\$10.88
0-1.5	30	12.80	11.52	10.88
0-3	14	12.80	11.52	10.88
0-5	8.5	12.80	11.52	10.88
0-10	3.1	12.80	11.52	10.88
0-15	6.6	12.80	11.52	10.88
0-25	4	13.20	11.88	11.22
0-50	2	13.20	11.88	11.22
0-75	1.3	13.20	11.88	11.22
0-100	1	13.20	11.88	11.22
0-150	0.6	13.20	11.88	11.22
0-200	0.5	13.20	11.88	11.22
0-250	0.4	13.20	11.88	11.22
0-300	0.33	13.20	11.88	11.22
0-400	0.25	13.20	11.88	11.22
0-500	0.2	13.20	11.88	11.22
0-750	0.13	13.20	11.88	11.22
0-1000	0.1	13.20	11.88	11.22

## THERMO AMMETERS (RF)

Internal couples normally furnished. If external are required, specify on order adding \$6.10 to price shown below. External couples only less meter, w/leads. Net Each.....\$7.30

### 2.5" MODELS 240, 241 AND 247

Range	Approx. Resist.	Net Each, Lots of		
		1-9	10-24	25-49
0-.5	.93	\$12.10	\$10.89	\$10.29
0-1	.35	12.10	10.89	10.29
0-1.5	.21	12.10	10.89	10.29
0-2.5	.13	12.10	10.89	10.29
0-3	.06	12.10	10.89	10.29
0-10	.03	12.10	10.89	10.29

### 3.5" MODELS 340, 341 AND 347

Range	Approx. Resist.	Net Each, Lots of		
		1-9	10-24	25-49
0-.5	.93	\$12.80	\$11.52	\$10.88
0-1	.35	12.80	11.52	10.88
0-1.5	.21	12.80	11.52	10.88
0-2.5	.13	12.80	11.52	10.88
0-5	.06	12.80	11.52	10.88
0-10	.03	12.80	11.52	10.88

### 4.5" MODEL 440

Range	Approx. Resist.	Net Each, Lots of		
		1-9	10-24	25-49
0-.5	.93	\$14.00	\$12.60	\$11.90
0-1	.35	14.00	12.60	11.90
0-1.5	.21	14.00	12.60	11.90
0-2.5	.13	14.00	12.60	11.90
0-5	.06	14.00	12.60	11.90
0-10	.03	14.00	12.60	11.90

## AC VOLTMETERS

Self-contained. For use on frequencies from 25 to 133 cycles. Double-range voltmeters are available on special order, prices on request.

### 2.5" MODELS 230, 231 AND 237

Range	Ohms/Volt	Net Each, Lots of		
		1-9	10-24	25-49
0-1.5	1.33	\$11.40	\$10.26	\$ 9.69
0-3	3.33	11.40	10.26	9.69
0-5	4	11.40	10.26	9.69
0-10	10	11.40	10.26	9.69
0-15	16	11.40	10.26	9.69
0-25	20	11.40	10.26	9.69
0-50	50	11.40	10.26	9.69
0-100	91	11.40	10.26	9.69
0-150	125	12.50	11.25	10.63
0-250	144	13.10	11.79	11.14
0-300	144	13.60	12.24	11.56
0-500*	125	17.70	15.93	15.05
0-750*	125	20.50	18.45	17.43
0-1000*	125	22.10	19.89	18.79

### 3.5" MODELS 330, 331 AND 337

Range	Ohms/Volt	Net Each, Lots of		
		1-9	10-24	25-49
0-1.5	1.33	\$12.10	\$10.89	\$10.29
0-3	3.33	12.10	10.89	10.29
0-5	4	12.10	10.89	10.29
0-10	10	12.10	10.89	10.29
0-15	16	12.10	10.89	10.29
0-25	20	12.10	10.89	10.29
0-50	50	12.10	10.89	10.29
0-100	91	12.10	10.89	10.29
0-150	125	13.20	11.88	11.22
0-250	144	13.80	12.42	11.73
0-300	144	14.30	12.87	12.16
0-500*	125	18.40	16.56	15.64
0-750*	125	21.20	19.08	18.02
0-1000*	125	22.80	20.52	19.38

### 4.5" MODEL 430

Range	Ohms/Volt	Net Each, Lots of		
		1-9	10-24	25-49
0-1.5	1.33	\$12.80	\$11.52	\$10.88
0-3	3.33	12.80	11.52	10.88
0-5	4	12.80	11.52	10.88
0-10	10	12.80	11.52	10.88
0-15	16	12.80	11.52	10.88
0-25	20	12.80	11.52	10.88
0-50	50	12.80	11.52	10.88
0-100	91	12.80	11.52	10.88
0-150	125	13.90	12.51	11.82
0-250	144	14.40	12.96	12.24
0-300	144	15.00	13.50	12.75
0-500*	125	19.10	17.19	16.24
0-750*	125	21.90	19.71	18.62
0-1000*	125	23.50	21.15	19.98

\*Supplied with external resistor boxes.

## AC MILLIAMMETERS

For use on frequencies from 25 to 500 cycles.

### 2.5" MODELS 230, 231 AND 237

Range	Approx. Resist.	Net Each, Lots of		
		1-9	10-24	25-49
0-10	3800	\$11.40	\$10.26	\$ 9.69
0-15	1600	11.40	10.26	9.69
0-25	460	11.40	10.26	9.69
0-50	115	11.40	10.26	9.69
0-100	35	11.40	10.26	9.69
0-200	12	11.40	10.26	9.69
0-250	3.8	11.40	10.26	9.69
0-500	1.2	11.40	10.26	9.69

### 3.5" MODELS 330, 331 AND 337

Range	Approx. Resist.	Net Each, Lots of		
		1-9	10-24	25-49
0-10	3800	\$12.10	\$10.89	\$10.29
0-15	1600	12.10	10.89	10.29
0-25	460	12.10	10.89	10.29
0-50	115	12.10	10.89	10.29
0-100	35	12.10	10.89	10.29
0-200	12	12.10	10.89	10.29
0-250	3.8	12.10	10.89	10.29
0-500	1.2	12.10	10.89	10.29

### 4.5" MODEL 430

Range	Approx. Resist.	Net Each, Lots of		
		1-9	10-24	25-49
0-10	3800	\$12.80	\$11.52	\$10.88
0-15	1600	12.80	11.52	10.88
0-25	460	12.80	11.52	10.88
0-50	115	12.80	11.52	10.88
0-100	35	12.80	11.52	10.88
0-200	12	12.80	11.52	10.88
0-250	3.8	12.80	11.52	10.88
0-500	1.2	12.80	11.52	10.88

## AC AMMETERS

Self-contained. For use on frequencies from 25 to 500 cycles. For ranges above 75 (above 50 on 2" models), use current transformers, with 5 amps secondary (60-133 cycles). Add Do-Nut transformer price to price of 0-5 ammeter.

## AC AMMETERS (CONT'D)

Do-Nut Transformers—Pri. amp range: 75, 100, 200, 250, 300, 400. Net Ea. \$11.60  
500, 600 amps. Net Each.....15.20  
750, 1000 amps. Net Each.....21.20  
1200 amps. Net Each.....31.50

### 2.5" MODELS 230, 231 AND 237

Range	Approx. Resist.	Net Each, Lots of		
		1-9	10-24	25-49
0-1	.29	\$11.40	\$10.26	\$ 9.69
0-2	.19	11.40	10.26	9.69
0-3	.03	11.40	10.26	9.69
0-5	.015	11.40	10.26	9.69
0-10	.005	11.40	10.26	9.69
0-15	.002	11.40	10.26	9.69
0-25	.001	11.40	10.26	9.69
0-50	.001	11.40	10.26	9.69
0-75	.0005	11.40	10.26	9.69

### 3.5" MODELS 330, 331 AND 337

Range	Approx. Resist.	Net Each, Lots of		
		1-9	10-24	25-49
0-1	.29	\$12.10	\$10.89	\$10.29
0-2	.19	12.10	10.89	10.29
0-3	.03	12.10	10.89	10.29
0-5	.015	12.10	10.89	10.29
0-10	.005	12.10	10.89	10.29
0-15	.002	12.10	10.89	10.29
0-25	.001	12.10	10.89	10.29
0-30	.001	12.10	10.89	10.29
0-50	.0005	12.10	10.89	10.29
0-75*	.0003	13.30	11.97	11.31

### 4.5" MODEL 430

Range	Approx. Resist.	Net Each, Lots of		
		1-9	10-24	25-49
0-1	.29	\$12.80	\$11.52	\$10.88
0-2	.19	12.80	11.52	10.88
0-3	.03	12.80	11.52	10.88
0-5	.015	12.80	11.52	10.88
0-10	.005	12.80	11.52	10.88
0-15	.002	12.80	11.52	10.88
0-25	.001	12.80	11.52	10.88
0-30	.001	12.80	11.52	10.88
0-50	.0005	12.80	11.52	10.88
0-75*	.0003	14.50	13.05	12.33

\*Not available in M or PL series.



## VIBRATING REED FREQUENCY METERS

J-B-T Vibrating Reed Frequency Meters are used extensively in radio, telephone and television service, on engine generator sets, in laboratories, in many types of electronic equipment—wherever constant or known frequency is important to efficient operation of equipment.

### 5-REED, 60-CYCLE MODELS 31-F, 31-FX AND 31-FHXX

For use in standby power equipment. Handy for measuring frequency of power source. Five reeds, 58-62 cycles, 100-130 volts, 130 ohms/volt; 1 watt power consumption. Accuracy  $\pm 0.3\%$  at reference temperature. Flush panel mounting. Depth behind panel,  $2\frac{1}{4}"$ , incl. lugs. Dia.,  $2\frac{1}{2}"$ ; incl. flange,  $3\frac{1}{2}"$ .

- J-B-T Model 31-F—Net Each ..... \$2665
- J-B-T 31-FX—This Model 31-F in a  $3\frac{1}{2}"$  molded case, MIL-M-6B mounting; depth behind panel,  $2\frac{1}{2}"$ , including lugs; body dia.,  $2\frac{1}{4}"$ . Net Each ..... \$2365
- J-B-T Model 31-FHXX—Model 31-F in a sealed case, glass-to-metal construction, with solder terminals. Maximum barrel diameter  $2\frac{1}{4}"$  ( $2\frac{3}{4}"$  panel mounting hole recommended);  $2\frac{3}{4}"$  overall depth behind flange; mounted on three flange holes for 6-32 screws on  $1.58"$  radius, detachable flange. Net Each ..... \$3045

### 9-REED, 60-CYCLE MODEL 34-FX (SERIES A)

Covers a broad frequency band. Nine reeds, 56-64 cycles; or, in  $\frac{1}{2}$ -cycle steps (accuracy  $\pm 0.2\%$ ), 58-62 cps. Power consumption, 1 watt; 100-130 volts; 110 ohms per volt. Molded  $3\frac{1}{2}"$  case per MIL-M-6B mounting. \*With improved ruggedness and sensitivity.

- J-B-T Model 34-FX (Series A)—Net Each ..... \$2725

### 9-REED, 400-CYCLE MODELS 33-F, 33-FX AND 33-FHXX

Used for measuring frequency of high-cycle power sources, including new, heavy aircraft. Accuracy  $\pm 0.3\%$ . Nine reeds, 380 to 420 cycle range, 100 to 130 volts; 90 ohms per volt; 1.5 watts power consumption. Flush panel mounting. Same dimensions as Model 31-F.

- J-B-T Model 33-F—Net Each ..... \$3710
- J-B-T Model 33-FX—Same as Model 33-F in a  $3\frac{1}{2}"$  molded case, MIL-M-6B mounting. Net Each ..... \$3410
- J-B-T Model 33-FHXX—Model 33-F in a sealed case. Same case specifications as Model 31-FHXX above. Net Each ..... \$4090

### 10-REED, 50/60-CYCLE MODEL 30-FX

Two ranges: 48-52 and 58-62 cycles; double window for easy reading of either range. Often specified for export. Power consumption, 1 watt; 100-130 volts; 130 ohms per volt. Accuracy  $\pm 0.3\%$  at reference temperature. Flush panel mounting. Molded  $3\frac{1}{2}"$  case per MIL-M-6B mounting.

- J-B-T Model 30-FX—Net Each ..... \$2750

### 21-REED, 400-CYCLE MODEL 36-FX-21-115

Advanced design offers 21 reeds as an interchangeable  $3\frac{1}{2}"$  panel meter with 2-cycle intervals for close reading over 380-420 cycle band. Accuracy  $\pm 0.3\%$  at reference temperature. Power consumption,  $1\frac{1}{2}$  watt; 100-130 volts; 90 ohms per volt. Reed flag size is necessarily smaller than 9-reed meter flags, but are located in an enlarged window  $2"$  wide with flags  $\frac{3}{8}"$  h. x  $\frac{1}{4}"$  w. for maximum readability. Reeds are mounted in a single clamp to assure ruggedness. Flush mounting in  $2\frac{1}{4}"$  dia. hole,  $2\frac{1}{2}"$  depth behind panel;  $3\frac{1}{2}"$  O.D.

- J-B-T Model 36-FX-21-115—Net Each ..... \$4500

## ELAPSED TIME AND 5-REED FREQUENCY METER MODELS 31-FE AND 31-FEX-1

This unique panel instrument combines the elapsed time or running time meter with frequency reeds. It is widely used on motor generator sets and on electrical equipment where maintenance routine calls for periodic servicing. Reads 0-9,999.9 hours; 58-62 cycles at 100-130 volts. Self-starting. Tenths shown in red numerals, all others white numerals on black background. Meter panel  $2\frac{1}{4}"$  ( $2\frac{3}{4}"$  panel mounting hole recommended); depth behind flange,  $4\frac{1}{2}"$ . Front mounting same as Model 31-F. Variations with 7, 9 or 11 reeds on special order only.  $3\frac{1}{2}"$  metal case.

- J-B-T Model 31-FE—Net Each ..... \$3300
- J-B-T Model 31-FEX-1—Same, but with  $3\frac{1}{2}"$  metal flange permanently attached for MIL-M-6B mounting. Net Each ..... \$3410

## 60-CYCLE ELAPSED TIME METER MODELS 31-EX, 31-EX-200, 31-ES, AND 31-EHXX

To record operating of AC electrical and electronic equipment, this instrument registers in  $1/10$ th hour steps to 9,999.9 hours, then automatically resets. Shows tenths in red numerals, all others white on black background. Molded case fully encloses all parts. Popular for tube life, TV equipment, punch presses, conveyors, oil burners, maintenance schedules, etc. Meter panel  $2\frac{1}{4}"$  ( $2\frac{3}{4}"$  hole recommended); depth behind flange,  $3\frac{1}{4}"$ .

- J-B-T Model 31-EX—110-125 volt. Net Each ..... \$1675
- J-B-T Model 31-EX-200—230 volt. Net Each ..... \$1750
- J-B-T Model 31-ES—(Square Case  $3" \times 3"$ ) 110-125 volts. Net Each ..... \$1750
- J-B-T Model 31-EHXX—Same as Model 31-EX, but ruggedized and sealed case. Has glass-to-metal sealed construction with flat front and  $3\frac{1}{2}"$  dia. separable flange. Heavy-duty solder terminals. Vacuum chamber checked. Max. 1000 v. rms between terminals and case. Barrel dia.  $2\frac{1}{4}"$  to fit  $2\frac{3}{4}"$  panel hole with  $2\frac{3}{4}"$  depth behind panel. Three flange holes take 6-32 screws on  $1.58"$  radius. Net Each ..... \$1975

### 400-CYCLE SEALED, ELAPSED TIME METER MODEL 33-EHXX

Stable 400-cycle elapsed time meter in  $3\frac{1}{2}"$  flanged case. Fully enclosed design has sealed, glass-to-metal construction with flat glass front. Reads 0-9,999.9 hours in  $1/10$ th-hour steps; 110-125 volts, 400 cycles. Case slightly larger than 31-EHXX.

- J-B-T Model 33-EHXX—Net Each ..... \$5800

### WIDE NUMERAL, ELAPSED TIME METER MODEL 31-EXW

Combines basic Model 31-EX (see above) with easily-read, wide 6-digit face design. Distinctive, contemporary dial shows tenths in black on white; units in white on black. Six digits read 0-99,999.9 hours, then automatically resets; 110-125 volts, 60-cycle operation. Black, molded  $3\frac{1}{2}"$  case interchangeable with Model 31-EX and FX Series meters.

- J-B-T Model 31-EXW—Net Each ..... \$1695

### CLEAR-PLASTIC ELAPSED TIME METERS TYPE EPL

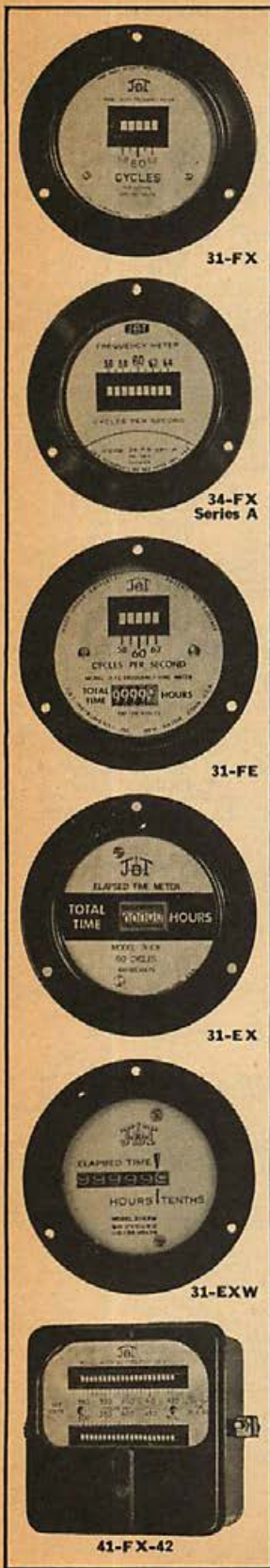
Modern, clear-plastic front design gathers light from every side for easy viewing. Sturdy metal case with solder terminals is used behind the panel. Compatible with all modern instruments. For 110-125 volt, 60 cycle operation.

- J-B-T Model 21-EPL—Reads 0-9,999.9 hours on  $2\frac{1}{4}"$  rectangular meter. Net Each ..... \$2575
- J-B-T Model 31-EPL—Easy-to-read  $3\frac{1}{2}"$  size reads 0-9,999.9 hours on sturdy rectangular meter. Net Each ..... \$2375

### 400-CYCLE BROAD AND VERNIER INDICATOR MODEL 41-FX-42

Widely used in commercial and military testing, this combination unit provides two windows: Broad 300-500 cycles, 21 reeds in 10-cycle steps; and, for a vernier effect, 380-420 cycles with 21 reeds in 2-cycle steps. Back molded case has flush front;  $4\frac{3}{8}"$  h. x  $4\frac{3}{8}"$  d. x  $2\frac{1}{2}"$  depth behind panel, over studs.

- J-B-T Model 41-FX-42—Standard model for 100-130 volts. Net Each ..... \$12500
- J-B-T Model 41-FX-42—Special, with 4 studs for 200-240 (7.7 watts), 115 (4.5 watts) and 30 volts (2 watts). Net Each ..... \$14000





## NEW DIACRON DIAMOND SPATULA

Quality burnisher-cleaner designed for effective cleaning of all relays and contacts. Consists of abrasive diamond particles set in special bonding metal on flexible nylon shaft. Carefully selected particles assure uniform cleaning with little pressure and no clogging; only diamond edges touch surface to be cleaned. Removes only about one micron of material, leaving normal gap unchanged. Color-coded nylon shaft provides flexibility for hard-to-reach areas and insures insulation for use with "live" relays. Overall length, 5 3/4" with 1" x 3/4" face. Supplied in protective plastic boxes.

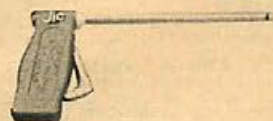
### RELAY AND CONTACT BURNISHER



- LONG LASTING STRONG ABRASIVE
- FLEXIBLE DIELECTRIC
- NON-CLOGGING

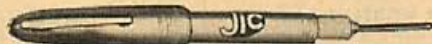
**Jonard No. 200**—Two diamond faces, 0.55 mm thick, for cleaning industrial relays and contactors. Green shaft. Net Each. \$4.95  
**Jonard No. 300**—Two diamond faces, 0.55 mm thick, for intermediate relays, telephone relays, etc. Red shaft. Net Each. \$4.95  
**Jonard No. 400**—Single diamond face, 0.25 mm thick, for sensitive relays and closely set contacts. Blue shaft. Net Each. \$4.95  
**Jonard No. K-234**—Kit of 3 assorted spatulas. Net Each. \$14.85  
**Jonard No. K-222**—Kit of 3 No. 200. Net Each. 14.85  
**Jonard No. K-333**—Kit of 3 No. 300. Net Each. 14.85  
**Jonard No. K-444**—Kit of 3 No. 400. Net Each. 14.85

## TRIGGA-SNIP



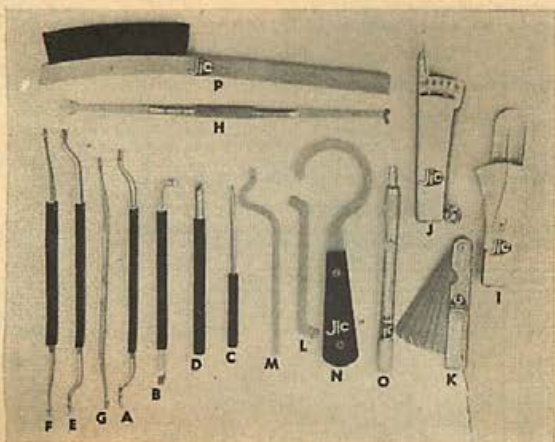
Ingenious wire cutter for removing components in awkward areas; holds wire after cutting. Ideal for use in deep chassis.  
**Jonard No. M-105 Trigga-Snip**—Net Each. \$4.75

## POCKET TYPE CONTACT CLEANER AND BURNISHER



Handy, lightweight tool with replaceable blades, adjustable for length and rigidity. For any type contacts, of any precious metal. Contact burnisher leaves no grit or dust on contact. Hard-tempered steel blades for minimum contact wear. Rust proof, with chrome plated barrel and pocket clip, aluminum chuck. Clear plastic cap for use with "live" contacts. Overall length, 5 1/2", dia. 3/8". In rigid plastic box.  
**Jonard No. P-4 Pen**—With 12 RB4 Blades. Net Each. \$3.90  
**Jonard No. P-6 Pen**—With 12 RB6 Blades. Net Each. 3.90  
**Jonard No. RB4** (1/4" w. x 1 1/4" l.) or **RB6** (3/8" w. x 1 1/4" l.)  
**Replacement Blades**—0.007" thick. Net, Pkg. 25 \$ 3.75  
 Pkg. 100 12.50

## SPECIAL RELAY SERVICE TOOLS, SPRING ADJUSTERS



### SPECIAL RELAY SERVICE TOOLS

**Jonard No. DW-16** (3/8"), **DW-32** (1/2") or **DW-4** (1/4") Adjustable Drop Wrenches (Fig. H)—8" long, bent one side. Any Model, Net Each. \$2.95

## 15-PIECE

### RELAY

### SERVICING

### KIT



Consists of: SA-7 and SA-17 spring adjusters; G-50 spring tension gauge; thickness gauge; duck bill plier; screwdriver; tweezers; mirror; four-way tool; brush; armature and stop benders; contact spray; pocket contact burnisher with 12 blades.  
**Jonard No. K-55 Relay Servicing Kit**—Net Each. \$29.90

## 20-PIECE

### PRECISION

### TOOL

### SET



Comes in durable leatherette zipper case, for electronic assembly and service. Contains: 4 1/2" diagonal cutter; 4 1/2" round nose plier; standard and Phillips screwdrivers; 15-watt soldering iron; pocket contact burnisher with 12 blades; 5 1/4" wrench; .020" and .050" miniature drivers; 1/4" and 3/8" nut drivers; pin vise; two tweezers; aligner; chisel; solder core; magnifying glass; two needle files.  
**Jonard No. K-600 Precision Tool Set**—Net Each. \$24.75

## 12-PIECE

### SERVO

### TOOL KIT



Set of precision tools for servicing complex instruments contains: Wire cutter; 25-watt soldering iron; 40x50x60 microscope; chain nose and locking pliers; inspection mirror; tweezers; swivel screwdriver; wire stripper; pin vise; pocket burnisher with 12 blades.  
**Jonard No. K-50 Servo Tool Kit**—Net Each. \$29.50

**Jonard No. G-50 Tension Gauge (Fig. I)**—0-50 grams, calibrated front and back. Net Each. \$6.95  
**Jonard No. GP-50 Preset Tension Gauge (Fig. J)**—0-50 gram. Net Each. \$8.45  
**Jonard No. 720N Thickness Gauge (Fig. K)**—26 blades, .0015" to .025". Size, 3" long x 1 1/2" w. Net Each. \$3.90  
**Jonard No. AB-21 Armature Arm Bender (Fig. L)**—Slot 3/8". Net Each. \$1.30  
**Jonard No. SB-22 Armature Stop Bender (Fig. M)**—Slot .035" wide. Net Each. \$1.48  
**Jonard No. BC-23 Bank Cleaner (Fig. N)**—6" long x 1 1/2" dia. Net Each. \$2.95  
**Jonard No. FW-24 Four-way Tool (Fig. O)**—Phillips and standard screwdriver, 1/4" and 3/8" hex. Net Each. \$1.95  
**Jonard No. HB-75 Curved Hair Brush (Fig. P)**—For cleaning selector switches. Net Each. \$2.35  
**Jonard No. WB-65 Wire Brush**—Nikkel silver, for relay cleaning. Not illustrated. Net Each. \$1.75  
**Jonard No. WB-70 Steel Brush**—For cleaning contacts and components. Not illustrated. Net Each. \$1.95

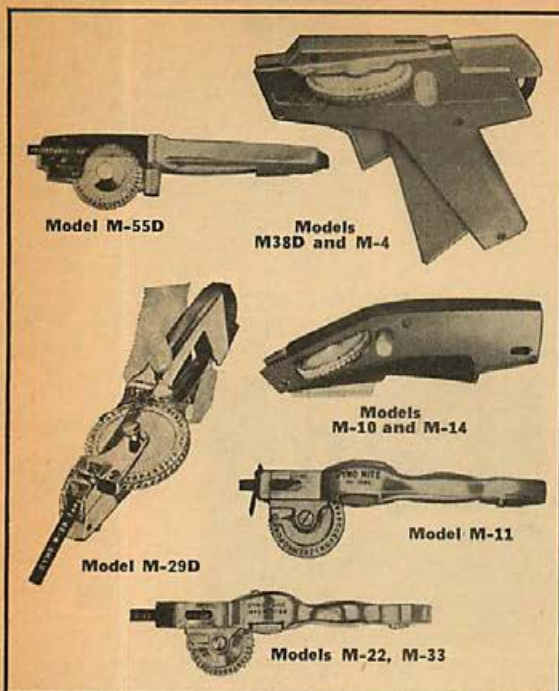
### SPRING ADJUSTERS

Jonard Number	Fig.	Description	Lgth.	Slot Width	Net Each
SA-2	A	General type, chisel edge	7"	.023"	\$2.48
SA-6A	B	For cross, lengthwise slots		.025"	2.45
SA-7	C	For miniature relays		.015"	.99
SA-8	D	For heavy springs; round head		.075"	1.98
SA-16	E	Double-ended, lengthwise slot	8"	.030"	2.40
SA-17	F	For all relay types	8"	.025"	2.95
SA-20	G	For close-set spring relays		.020" x .015"	3.50





# Tapewriter® Hand Embossers



Lightweight instruments designed to give sharp, legible, raised letters on wide variety of metal and vinyl tapes. Tapes used are available in wide selection of colors and have pressure-sensitive adhesive backing unless otherwise specified. Built-in cut-off blade enables trimming label to the exact length desired.

## DYMO® HOME LABELMAKERS

**NEW MODEL M-38D FOR 3/8" AND 1/4" VINYL TAPE**  
Economic, gun-style labeler uses 3/8" or 1/4" tape in handy magazines. Built-in dual tape track permits quick changes of tape widths. Magazines snap in and lock into tool; won't drop loose while tool is in use, yet snap out easily for changing. Choice of normal or letter spacing by simply moving tape advance knob. Each label is cut with a pull tab for easy removal of protective back; self-sticking adhesive backing sticks to any smooth, clean surface. **Embossing Wheel:** Plastic. **Characters:** A-Z, 0-9, plus c, %, +, &, /, dash (—), quote (') and period (.) **Cut-Off:** Straight, with pull tab. Plastic body. **Size:** 6 1/2" lg. x 6" h. Shipping Weight, 6 1/2 oz.  
**Dymo No. 1095 Model M-38D Home Labelmaker—With \$688** magazine of 3/8" tape. Net Each.....

## MODEL M-4 FOR 1/4" VINYL TAPE

Low-cost labeler similar to Model M-38D but for 1/4" tape only, and embossing wheel has A-Z, 0-9, plus \$, c, %, &, +, comma (,), quote ('), dash (—), slash (/), and period (.)  
**Dymo No. 1040 Model M-4 Home Labelmaker—With \$688** magazine of 1/4" tape. Net Each.....

## DUAL-TRACK TAPEWRITER® EMBOSSERS

**MODELS M-10 AND M-14 FOR 3/8" AND 1/4" VINYL TAPE**  
Use both 3/8" and 1/4" tapes. Feature quick change of tape magazines, choice of regular or wide letter spacing, pull tab cut-off, and easy interchangeability of embossing wheels. **Embossing Wheels:** Plastic optimum sized 3/8" h. characters and standard sized 1/4" h. characters. **Characters:** A-Z, 0-9, / and period (.) optimum sized; standard same but with additional \$, c, %, &, quote (') and dash (—). **Cut-Off:** Pull tab. Diecast zinc body. **Size:** 9" lg. x 3" w. Shipping Weight, 13 oz.  
**Dymo No. 1082 Model M-10 Tapewriter—Chrome fin—\$1495** ish; with 3/8" tape magazine. Net Each.....  
**Dymo No. 1084 Model M-14 Tapewriter—Same except blue baked enamel finish and optimum sized wheel only. Net Each. \$10.88**

## NEW MODEL M-55D FOR 3/8" AND 1/4" VINYL TAPE

Similar to Model M-10, but all-metal industrial version. Has rugged aluminum alloy body with chrome finish, and two plastic horizontal letter embossing wheels are included. **Cut-Off:** Pull tab. **Size:** 11 1/2" lg. x 2 3/4" w.  
**Dymo No. 1094 Model M-55D Tapewriter—With opti—\$2995** mum- and standard-sized wheels, 3/8" tape magazine. Net

## NEW MODEL M-29D FOR 1/2" AND 3/8" VINYL TAPE

Deluxe, heavy-duty industrial tool similar to M-55D but for 1/2" and 3/8" vinyl tapes. Supplied with three plastic embossing wheels: Giant letter and standard-sized horizontal, and vertical; characters, A-Z, 0-9, and 9 others. Chrome-finish aluminum alloy body. **Size:** 12 3/4" lg. x 3 3/4" w. Shipping Weight, 1 lb.  
**Dymo No. 1096 Model M-29D Tapewriter—Square \$4995** corner cut-off only. With three wheels. Net Each.....  
**Dymo No. 1097 Model M-29D Tapewriter—Same as above, but rounded corner cut-off only. Net Each. \$49.95**

## DYMO 1/2" TAPEWRITER EMBOSSERS

Aluminum alloy body with chrome finish. Characters A-Z, 0-9, /, period (.) and comma (,).

## MODEL M-22 FOR 1/2" VINYL TAPE

Use with Dymo vinyl tapes. **Cut-Off:** Square, with split tab end for easy removal of protective liner from tape. **Embossing Wheel:** Plastic. Forward and reverse ratcheting. **Size:** 10 1/4" lg. x 3 1/4" w., overall. Shipping Weight, 21 oz.  
**Dymo No. 1022 Model M-22 Tapewriter—Net Each. \$44.95**

## MODEL M-33 FOR 1/2" VINYL TAPE

Identical to Model M-22 but round corner cut-off.  
**Dymo No. 1033 Model M-33 Tapewriter—Net Each. \$44.95**

## MODEL M-11 FOR 1/2" METAL AND VINYL TAPE

Use with 1/2" metal or vinyl tapes. **Cut-Off:** Square and with or without 3/8" hole. **Embossing Wheel:** Hardened steel. **Size:** 10 3/4" lg. x 3 1/4" w., overall. Shipping Weight, 22 oz.  
**Dymo No. 1011 Model M-11 Tapewriter—Net Each. \$44.95**

## TAPEWRITER ACCESSORIES

Vertical wheels orient letters for vertical-reading labels; especially suitable for books, film cans, recording tapes, etc. Special character wheels contain 0-9, fractions, math symbols, etc.

No.	Description	Net Ea.
7175	Quick-change wheel pin for M-11, M-22, M-33	\$ 1.00
7315	M-29D special character wheel	14.85
7367	Standard-sized horizontal letter wheel for M-10, M-14, M-55D	9.85
7460	Vertical letter wheel for M-10, M-14, M-55D	9.85
7461	Carrying case for M-10, M-14	4.95
7502	Steel vertical embossing wheel for M-11	13.10
7504	Steel reverse image wheel for M-11	13.10
7505	Steel horizontal wheel with dash (—) for M-11	13.10
7506	Same as 7505 but plastic for M-11, M-22, M-33	13.10
7511	Steel lower case letter wheel for M-11	13.10
7512	Steel horizontal wheel with slash (/) for M-11	13.10
7513	Same as 7512 but plastic for M-11, M-22, M-33	13.10
7516	Plastic vertical wheel for M-11, M-22, M-33	13.10
7557	Plastic special character wheel for M-11, -22, -33	13.10
7526	Texon carrying case for M-11, M-22, M-33	6.95

Ask About Other Dymo Products Also Available.

## GENUINE DYMO TAPE FOR ALL HAND EMBOSSERS ON THIS PAGE

All vinyl tapes have pressure-sensitive adhesive backing.

### 1/4" GLOSSY VINYL TAPE

Dymo 72" L. Magazine—Any color, Net Each.....\$0.75  
Dymo 144" L. Magazine—Any color listed. Net Each.....1.00

Color	Dymo Number		Color	Dymo Number	
	72" L.	144" L.		72" L.	144" L.
Clear	5204-1	5206-1	Brown	5204-8	5206-8
Red	5204-2	5206-2	Black	5204-9	5206-9
Orange	5204-4	5206-4	Gray	5204-12	5206-12
Green	5204-5	5206-5	Gold	5204-13	5206-13
Blue	5204-6	5206-6	Woodgrain	.....	5206-60
Yellow	5204-7	5206-7			

### 1/2" AND 3/8" VINYL TAPES

Color	1/2" Wide Roll			3/8" Wide Roll†		
	Dymo No.	Lgth. Ft.	Net Each	Dymo No.	Lgth. Ft.	Net Each
Clear	158-1	12	\$1.65	5201-1	12	\$1.25
Red	158-2	12	1.65	5201-2	12	1.25
Orange	158-4	12	1.65	5201-4	12	1.25
Green	158-5	12	1.65	5201-5	12	1.25
Blue	158-6	12	1.65	5201-6	12	1.25
Yellow	158-7	12	1.65	5201-7	12	1.25
Brown	158-8	12	1.65	5201-8	12	1.25
Black	158-9	12	1.65	5201-9	12	1.25
Gray	158-12	12	1.65	5201-12	12	1.25
Metallic gold	158-13	12	1.65	5201-13	12	1.25
Metallic silver	158-14	12	1.65			
Purple	158-15	12	1.65	5201-15	12	1.25
Metallic copper	158-16	12	1.65			
Fluorescent red	158-22	12	1.65			
Fluores. green	158-25	12	1.65			
Woodgrain	158-60	12	1.65	5201-60	12	1.25
Red/Gold*	171-2	12	1.95	5203-2	10	1.50
Green/Gold*	171-5	12	1.95	5203-5	10	1.50
Blue/Gold*	171-6	12	1.95	5203-6	10	1.50
Brown/Gold*	171-8	12	1.95	5203-8	10	1.50
Black/Gold*	171-9	12	1.95	5203-9	10	1.50

\*Edge striped in gold. †Magazine type.

**Dymo Model 158-18 Tape Assortment—One roll each of \$1650** all Nos. 158-2 thru 158-13, plus 158-15. Net Per Box.....

**Dymo Model 171-18 Tape Assortment—Two rolls of each Series** 171 color striped tape. Net Per Box.....\$19.50

### 1/2" METAL TAPE

Dymo No.	Description	Length, Feet	Net Ea. Roll
310	Aluminum, without adhesive	16	\$0.65
313	Copper, with adhesive	12	1.75
325	Stainless steel, without adhesive	21	1.25
348	Copper, without adhesive	21	1.25
355	Monel, without adhesive	21	2.25
358	Aluminum, with adhesive	12	1.65
361	Zinc, without adhesive	15	.85



# Service Supplies

## KRYLON SPRAY-ON ENAMELS AND CHEMICALS



**No. 1302 Crystal-Clear Spray**—Prevents pitting and rusting of antennae; reduces corona and arcing; salt-spray resistant. Dielectric strength, 450-500 V./mil. short time, 1/2" thickness; dielectric constant, 3.2 to 3.7 (1,000 cps); electrical resistance, 10<sup>11</sup> ohms/cm<sup>2</sup>. In pint size spray can. **\$1.30**  
 Net Each, 1-11.....  
 Net Each, 12 or more.....**\$1.17**

### SPRAY ENAMELS

Weatherproof and waterproof. Excellent adhesion. Guaranteed non-clogging valve. Available in the following colors:

Krylon No.	Color	Krylon No.	Color
1401	Bright Silver	1901	Regal Blue
1403*	Dull Aluminum	1902*	Baby Blue
1501	Glossy White	1903*	Champion Blue
1502	Flat White	2001	Hunter Green
1503*	Antique Ivory	2002*	Surf Green
1601	Glossy Black	2101	Cherry Red
1602	Flat Black	2102*	Baby Pink
1603*	Machine Gray	2201	Bright Copper
1604*	Light Gray	2202*	Brass
1605*	Dove Gray	2301*	O.D. Khaki
1701	Bright Gold	2401*	Int'l Orange
1801*	Chrome Yellow	2501*	Leather Brown
1802*	Pastel Yellow	2504	Desert Bleg
1809*	School Bus Yellow		

\*Available only in pint size spray can.

**Pint Size Spray Can**—Net Each, 1-11.....**\$1.19**  
 Net Each, 12 or more.....**\$1.07**  
**5 Oz. Spray Can**—Add A to Krylon number.  
 Net Each, 1-11.....**65¢**  
 Net Each, 12 or more.....**59¢**

### GLOWING FLUORESCENT SPRAY PAINT

For use on paper, wood, cloth, glass, metal, styrofoam and some plastics. Dry in minutes. Glows in daylight. Made to MIL-P-21600 (AER) specifications.

Krylon No.	Color	Krylon No.	Color
3101	Red-Orange-633	3105	Cerise
3102	Yellow Orange-634	3106	Green
3103*	Sunset Gold	3107*	Blue
3104*	Lemon Yellow		

\*Available only in pint size spray can.

**Pint Size Spray Can**—Net Each, 1-11.....**\$1.86**  
 Net Each, 12 or more.....**\$1.67**  
**5 Oz. Spray Can**—Add A to Krylon number.  
 Net Each, 1-11.....**79¢**  
 Net Each, 12 or more.....**71¢**

### HIGH-HEAT ALUMINUM SPRAY PAINT

Thick paint formulation for high heat conditions. Withstands temperatures up to 500° F for long periods, up to 1,000° F for intermittent periods. Use for touching up steam pipes, boilers, furnaces, ovens, radiators, motors or other surfaces painted with industrial aluminum. Fast drying.

**Krylon No. 1402 Pint Size Spray Can**—Net Each, 1-11.....**\$1.66**  
 Net Each, 12 or more.....**\$1.49**

### RED INSULATING VARNISH

Penetrates through multiple layers of taped coils, increasing dielectric strength and leaving a tough, flexible film that resists oil, water, acid and alkali. Dielectric Strength: Dry, 1,000 volts/mil; wet, 700 volts/mil. Film offers high adhesion characteristics, exceptional arc resistance and nontracking properties. Use on stator windings, armatures, coils, commutator rings, bus-bars, etc.

**Krylon No. 7004 Pint Size Spray Can**—Net Each, 1-11.....**\$1.30**  
 Net Each, 12 or more.....**\$1.17**

### "HIDE-A-MARK"® SPRAY OAT

Covers old stencils, crayon markings, etc. Makes drums, crates, cartons reusable. Dries rapidly allows new stenciling almost immediately. Ready to use, no brush, no muss, no fuss.

**Krylon No. 3007 16 Oz. Spray Can**—Net Each, 1-11.....**\$1.13**  
 Net Each, 12 or more.....**\$1.01**

### "RUST MAGIC" METAL PRIMER

Penetrates rust layers in minutes to form a tough bonded union that stops rust and prevents further corrosive action. Dries to the touch in 20 minutes; recoatable in two hours. Activated with GI-358 phenolic resin that gives the vehicle and pigment spectacular piercing power through heavy rust. May be top-coated with most finishes: Krylon spray paint, enamel, vinyl, epoxy, acrylic, etc.

**Krylon No. 1317 Pint Size Spray Can**—Net Each, 1-11.....**\$1.19**  
 Net Each, 12 or more.....**\$1.07**

### ZINC CHROMATE METAL PRIMERS

Always ready spray dispensers of rust inhibiting zinc chromate primer. Indispensable wherever metal priming is necessary. Dries fast. In pint size spray can.

**Krylon No. 1319 (Yellow) or 1320 (Green)**—Net Ea., 1-11.....**\$1.30**  
 Net Each, 12 or more.....**\$1.17**

### ELECTRIC MOTOR CLEANER

Instantly penetrates, dissolves and cleans grease, oil and dirt from motors, generators, fans, etc. Evaporates completely; no residue. Harmless to insulation or painted surfaces. Contains no carbon tet. Extension tube for hard-to-reach areas.

**Krylon No. 1327 Pint Size Spray Can**—Net Each, 1-11.....**\$1.13**  
 Net Each, 12 or more.....**\$1.01**

### TUNER CLEANER

Removes dirt and gummy deposits from electrical contacts. Provides a non-drying film which lubricates contact surfaces. Prevents oxidation, corrosion and will not harm plastics known to Krylon laboratory. Complete with five-inch plastic hose for hard to reach places.

**Krylon No. 1333 16 Oz. Spray Can**—Net Each, 1-11.....**\$1.99**  
 Net Each, 12 or more.....**\$1.79**

**Krylon No. 1333A 6 Oz. Spray Can**—Net Each, 1-11.....**\$1.32**  
 Net Each, 12 or more.....**\$1.19**

### "LET-GO" PENETRANT/SOLVENT

Super-penetrant and rust solvent, lubricates as it penetrates. Loosens frozen nuts, bolts, tight-fitting fasteners.

**Krylon No. 1332 15 Oz. Spray Can**—Net Each, 1-11.....**\$1.13**  
 Net Each, 12 or more.....**\$1.01**

### FLEXO LAMPS



### INCANDESCENT LAMPS

For machine, workbench, or home workshop; ideal for the serviceman's worktable. Designed to provide adjustment to any position or angle. Sturdy construction will last a lifetime. Extended length, full 42 inches. Three spring-controlled joints at base, middle joint and at shade; no old fashioned friction ball swivels to loosen. Permits universal adjustment to any of countless positions. Universal base clamps onto table or may be screw mounted either vertically or horizontally. No nuts or screws to tighten or loosen. U/L Approved electrical materials; enclosed socket will not come apart. With "Cool" shade 5 1/2" diameter; provides cool handling. Switch on shade. Oven-fired enamel, speezy bronze or gray; other colors available. Shipping Weight, 4 lbs.

**Flexo Model 5600**—Net Each.....**\$12.95**

**Flexo Model 5500**—Same as Model 5600 but with 7 3/4" Flare shade. Shpg. Wt., 5 lbs. Net.....**\$12.95**

### FLUORESCENT LAMPS (NOT ILLUS.)

Lamps for the home, office or shop in choice of bases. Type A clamps to any surface to 3" thick. Double arm extends up to 36", made of 1 1/2" 20-ga. steel tubing, diecast into joints for permanent bond. Shade 2 1/4" x 4 1/4" x 18 1/2" is heavy gauge steel with diecast ends, rotates 330°; upper arm moves up and down 160°; lower arm rotates 330°, moves up and down 110°. Balanced springs in joints for easy adjustment and holds lamp in position. On-Off switch. Enclosed wiring. Speezy bronze or gray finish; other colors available. T-8 15-watt fluorescent bulbs not included. For 105-125 V, 60 cps AC. Low power factor type. Special bracket available for wall or vertical use, speezy (no extra charge).

**Flexo Model 4303**—Base A (screws or bolts onto table edge), two-bulb. Net Each.....**\$21.95**

Net Each, Lots of: 2.....**\$16.46**; 3 and Up.....**\$15.39**

**Flexo Model 4300**—Base A, one-bulb. Net Each.....**18.95**

Net Each, Lots of: 2.....**\$14.21**; 3 and Up.....**13.28**

**Flexo Model 4324**—Base B (standard desk base), two-bulb; extends 32". Net Each.....**\$29.95**

Net Each, Lots of: 2.....**\$22.46**; 3 and Up.....**20.99**

### KESTER SOLDER



**Plastic Rosin Core Solder**, 40% Tin, 60% Lead.

1 lb. Spool, 1/4" dia. Net Each.....**\$1.52**

5 lb. Spool, 1/4" dia. Net Each.....**\$7.75**

1 lb. Spool, 1/8" dia. Net Each.....**\$1.49**

5 lb. Spool, 1/8" dia. Net Each.....**\$7.30**

**TV-Radio Solder**. Small package of "Resin-Five" (1/4" dia.). Carton of 10 boxes.....**\$2.00**

Carton, Net.....**\$2.00**

**Acid Core Solder**. For general, non-electrical soldering. 1/4" Dia. Net.....**\$1.49**

1 lb. Spool, Net.....**\$1.49**

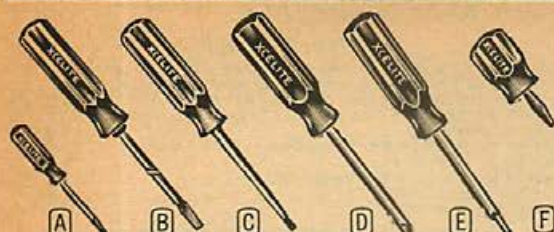
5 lb. Spool, Net.....**\$7.30**

### "RESIN FIVE" CORE

Composition		Net Prices			
Tin	Lead	1/2" Diameter		1/4" Diameter	
		1 lb.	5 lbs.	1 lb.	5 lbs.
40%	60%	\$1.49	\$7.30	\$1.52	\$7.75
50%	50%	1.80	8.85	1.83	9.00
60%	40%	2.07	10.20	2.10	10.35



# XCELITE Quality Service Tools



Finest quality, professional screwdrivers. SAE 6150 chrome vanadium steel blades. Shockproof, breakproof plastic handles, U/L Approved.

## PHILLIPS SCREWDRIVERS (FIG. D)

Xcelite No.	Description	Blade Length	Overall Length	Net Each
X-100	Phillips No. 0 Point	2"	4 1/2"	\$0.48
P-125	Phillips No. 0 Point	2" Pocket Clip Type		.39
X-101	Phillips No. 1 Point	3"	6 1/2"	.72
X-108	Phillips No. 1 Point	6"	9 3/4"	.81
X-1010	Phillips No. 1 Point	10"	13 3/4"	1.08
X-1020	Phillips No. 2 Point	10"	13 3/4"	1.20
X-102	Phillips No. 2 Point	4"	7 3/4"	.90
X-103	Phillips No. 3 Point	6"	10 1/4"	1.20
X-104	Phillips No. 4 Point	8"	12 1/4"	1.50
SX-101	Phillips No. 1 Point	1 1/4" Short Stubby Type		.66
SX-102	Phillips No. 2 Point	1 1/4" Short Stubby Type		.72

## REED AND PRINCE SCREWDRIVERS

For perfect fit on Reed and Prince screws (similar to Phillips heads; but for best results require their own driver).  
 Blade No. RP-101—1/2" x 3" blade, Net Each..... **75c**  
 Blade No. RP-102—1/2" x 4" blade, Net Each..... **\$0.90**  
 Blade No. RP-103—1/2" x 6" blade, Net Each..... **1.20**  
 Blade No. RP-104—1/2" x 8" blade, Net Each..... **1.50**

## CLUTCH HEAD SCREWDRIVERS (FIG. E)

Xcelite Type G No.	Tip Size	Blade Dia.	Blade Length	Net Each
G-183	3/8"	3/8"	3"	\$0.75
G-5324	3/8"	3/8"	4"	.87
G-3164	3/8"	3/8"	4"	.87
G-146	3/8"	3/8"	6"	1.11
G-5166	3/8"	3/8"	6"	1.35
G-3324	3/8"	3/8"	4"	.75

## ALLEN HEX DRIVERS

Xcelite No.	Hex Size	Blade Lgth.	Net Each	Xcelite No.	Hex Size	Blade Lgth.	Net Each
LN-20	.050"	4"	69c	LN-964	3/8"	6"	75c
LN-21	1/16"	4"	69c	LN-25	5/16"	6"	75c
LN-22	1/8"	4"	69c	LN-26	3/4"	6"	75c
LN-23	3/16"	4"	69c	LN-27	1/2"	6"	84c
LN-764	3/8"	4"	69c	LN-28	3/4"	6"	87c
LN-24	1/2"	4"	75c				

## SQUARE BLADE STUBBY SCREWDRIVERS (FIG. F)

Xcelite No.	Handle		Blade		Overall Length	Net Each
	Dia.	Length	Width	Length		
S-3161	3/8"	1 1/2"	3/8" sq.	1 1/4"	2 3/4"	\$0.45
S-141	1 1/8"	2"	3/8" sq.	1 3/4"	3 3/4"	.51
S-5161	1 1/8"	2"	3/8" sq.	1 3/4"	3 3/4"	.51

## HEX NUTDRIVERS

Xcelite No.	Figure	Nut Size	Handle	Overall Length	Net Each
5	G	3/8"	Amber	6"	75c
6	G	3/8"	Black	6"	75c
7	G	3/8"	Brown	6"	75c
8	G	3/8"	Red	6"	75c
9	G	3/8"	Orange	6"	75c
10	G	3/8"	Amber	6"	75c
11	G	11/16"	Green	6"	75c
12	G	3/8"	Blue	6"	75c
14	G	1/2"	Brown	7 1/4"	96c
16	G	1/2"	Red	7 1/4"	96c
A-6	H	3/8"	Black	9"	96c
A-7	H	3/8"	Brown	9"	96c
A-8	H	3/8"	Red	9"	96c
A-9	H	3/8"	Orange	9"	96c
A-10	H	3/8"	Amber	9"	96c
A-11	H	11/16"	Green	9"	96c
A-12	H	3/8"	Blue	9"	96c
S-6	J	3/8"	Black	3 1/4"	63c
S-8	J	3/8"	Red	3 1/4"	63c
S-10	J	3/8"	Amber	3 1/4"	63c
S-11	J	11/16"	Green	3 1/4"	63c
S-12	J	3/8"	Blue	3 1/4"	63c

## POCKET STYLE NUTDRIVERS

Clips into pocket; 10 popular sizes. Net Each..... **48c**

Xcelite No.	Nut Size	Handle	Xcelite No.	Nut Size	Handle
P-3	3/8"	Blue	P-8	1/2"	Red
P-4	3/8"	Red	P-9	3/8"	Orange
P-5	3/8"	Amber	P-10	3/8"	Amber
P-6	3/8"	Black	P-11	11/16"	Green
P-7	3/8"	Brown	P-12	3/8"	Blue

## ROUND BLADES, NICKEL PLATED—POCKET STYLE (FIG. A)

Xcelite No.	Handle		Blade		Overall Length	Net Each
	Dia.	Length	Dia.	Length		
R-3322	1 1/8"	2 1/4"	3/8"	2"	4 1/4"	\$0.27
R-3323	1 1/8"	2 1/4"	3/8"	3"	5 1/4"	.30
R-3324	1 1/8"	2 1/4"	3/8"	4"	6 1/4"	.30
R-181	1 1/8"	2 1/4"	3/8"	2"	4 1/4"	.27
R-183	1 1/8"	2 1/4"	3/8"	3"	5 1/4"	.30
R-184 1/2	1 1/8"	2 1/4"	3/8"	4"	6 1/4"	.30

## ROUND BLADES, POLISHED (FIG. B)

Xcelite No.	Handle		Blade		Overall Length	Net Each
	Dia.	Length	Dia.	Length		
R-182	1 1/8"	2 1/4"	3/8"	2"	4 1/4"	\$0.33
R-184	1 1/8"	2 1/4"	3/8"	4"	6 1/4"	.42
R-186	1 1/8"	2 1/4"	3/8"	6"	8 1/4"	.45
R-188	1 1/8"	2 1/4"	3/8"	8"	10 1/4"	.54
R-1810	1 1/8"	2 1/4"	3/8"	10"	12 1/4"	.63
R-5323	1 1/8"	2 1/4"	3/8"	3"	5 1/4"	.45
R-5324	1 1/8"	2 1/4"	3/8"	4"	6 1/4"	.48
R-5325	1 1/8"	2 1/4"	3/8"	5"	7 1/4"	.48
R-5328	1 1/8"	2 1/4"	3/8"	8"	10 1/4"	.60
R-3163	1 1/8"	3 1/4"	3/8"	3"	6 3/4"	.60
R-3164	1 1/8"	3 1/4"	3/8"	4"	7 3/4"	.66
R-3166	1 1/8"	3 1/4"	3/8"	6"	9 3/4"	.75
R-3168	1 1/8"	3 1/4"	3/8"	8"	11 3/4"	.84
R-31610	1 1/8"	3 1/4"	3/8"	10"	13 3/4"	.90
R-142	1"	3 3/4"	3/8"	2"	5 1/4"	.69
R-144	1"	3 3/4"	3/8"	4"	7 1/4"	.84
R-146	1"	3 3/4"	3/8"	6"	9 1/4"	.90
R-148	1"	3 3/4"	3/8"	8"	11 1/4"	.96
R-1410	1"	3 3/4"	3/8"	10"	13 1/4"	1.02
R-5164	1 1/8"	4 1/4"	3/8"	4"	8 1/4"	.96
R-5166	1 1/8"	4 1/4"	3/8"	6"	10 1/4"	1.05
R-5168	1 1/8"	4 1/4"	3/8"	8"	12 1/4"	1.14

## SQUARE BLADE SCREWDRIVERS (FIG. C)

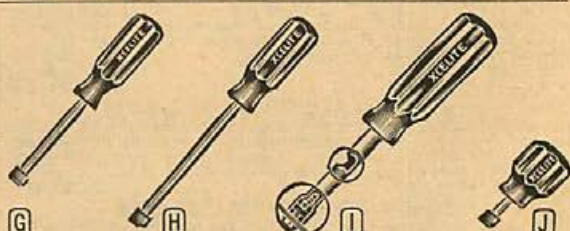
Xcelite No.	Handle		Blade		Overall Length	Net Each
	Dia.	Length	Width	Length		
S-3163	1 1/8"	3 1/4"	3/8"	3"	6 3/4"	\$0.66
S-3164	1 1/8"	3 1/4"	3/8"	4"	7 3/4"	.69
S-3166	1 1/8"	3 1/4"	3/8"	6"	9 3/4"	.81
S-3168	1 1/8"	3 1/4"	3/8"	8"	11 3/4"	.90
S-31610	1 1/8"	3 1/4"	3/8"	10"	13 3/4"	1.05
S-142	1"	3 3/4"	3/8"	2"	5 1/4"	.75
S-144	1"	3 3/4"	3/8"	4"	7 1/4"	.90
S-146	1"	3 3/4"	3/8"	6"	9 1/4"	.96
S-148	1"	3 3/4"	3/8"	8"	11 1/4"	1.05
S-1424	1"	3 3/4"	3/8"	24"	27 1/4"	1.95
S-5162	1 1/8"	4 1/4"	3/8"	2"	6 1/4"	.81
S-5164	1 1/8"	4 1/4"	3/8"	4"	8 1/4"	.99
S-5166	1 1/8"	4 1/4"	3/8"	6"	10 1/4"	1.11
S-5168	1 1/8"	4 1/4"	3/8"	8"	12 1/4"	1.20
S-51610	1 1/8"	4 1/4"	3/8"	10"	14 1/4"	1.35
S-51612	1 1/8"	4 1/4"	3/8"	12"	16 1/4"	1.53
S-388	1 1/8"	4 1/4"	3/8"	8"	12 1/4"	1.44
S-3812	1 1/8"	4 1/4"	3/8"	12"	17 1/4"	2.25
S-3818	1 1/8"	4 1/4"	3/8"	18"	23 1/4"	2.40
S-7166	1 1/8"	5 1/4"	3/8"	6"	11 1/4"	1.80
S-71612	1 1/8"	5 1/4"	3/8"	12"	17 1/4"	2.25
S-71618	1 1/8"	5 1/4"	3/8"	18"	23 1/4"	2.40

## BERYLLIUM-COPPER SCREWDRIVERS

Xcelite beryllium-copper screwdrivers are non-magnetic—no disturbance to TV image. Better fatigue resistance than steel.

Xcelite No.	Blade Size, In.	Net Each	Xcelite No.	Blade Size, In.	Net Each
BR-181*	3/8" x 2"	\$0.30	BR-3168	1/8" x 8"	\$1.32
BR-186	3/8" x 6"	.75	BR-146	3/4" x 6"	1.65
BR-1810	3/8" x 10"	.81	BR-148	3/4" x 8"	1.77

\*Pocket clip type.



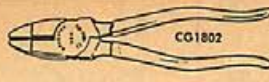
## HOLLOW SHAFT NUTDRIVERS (FIG. I)

Xcelite No.	Nut Size	Handle	Depth of Hole	Overall Length	Net Each
HS-6	3/8"	Black	5"	6 3/4"	\$0.93
HS-7	3/8"	Brown	5"	6 3/4"	.93
HS-8	3/8"	Red	5"	7"	.93
HS-9	3/8"	Orange	5"	7"	.93
HS-10	3/8"	Amber	5"	7"	.93
HS-11	11/16"	Green	5"	7"	.93
HS-12	3/8"	Blue	5"	7"	.93
HS-13	1/2"	Amber	5"	7 3/4"	1.05
HS-14	1/2"	Brown	5"	7 3/4"	1.05
HS-15	1/2"	Amber	5"	7 3/4"	1.08
HS-16	1/2"	Red	5"	7 3/4"	1.08
HS-17	1/2"	Amber	5"	7 3/4"	1.14
HS-18	1/2"	Orange	5"	7 3/4"	1.14
HS-19	1/2"	Amber	5"	7 3/4"	1.26
HS-20	1/2"	Amber	5"	7 3/4"	1.26
HS-22	11/16"	Amber	5"	7 3/4"	1.59
HS-24	3/4"	Amber	5"	7 3/4"	1.59





# Kraeuter Hand Tools



CG1802



CG1830



CG4501



CG4610



CG1643



CG1671



CG1781



CG1631



C-CG141



CG1650



CG5627



C-CG4625



CG1621



CG71



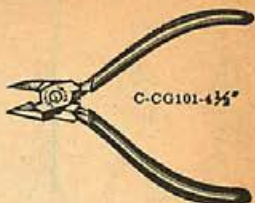
CG710

Quality tools made from hammer-forged fine grain tool steel; individually fitted, tempered and adjusted. Full polished heads. **Prefix CG**—Indicates cushion-grip vinyl covered handles, conveniently color-coded for easy tool selection. Will not crack or peel; resists water, acids, grease, etc.

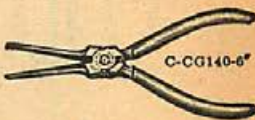
## NEW SPECIALIZED PLIERS FOR ELECTRONICS

These pliers were designed specifically for electronic work. Extra fine points for use in restricted areas on components, chassis and production line work. No. C-CG101-4½ offers a specially designed cutting edge to facilitate re-sharpening to maintain tip cutting alignment. Cross coil spring action.

Kraeuter Number	Size, In.	Description	Net Each, Lots of	
			1-5	6 Up
C-CG101-4½*	4½	Flush edge needle point diag. cutter (soft wire only)	\$3.75	\$3.33
C-CG140-6*	6	Extra fine lg. nose ¼" tip	3.38	3.00
C-CG160-7*	7	Same, but ½" tip	2.85	2.53



C-CG101-4½"



C-CG140-6"

## INDUSTRIAL, ELECTRONIC PLIERS

Kraeuter Number	Size, In.	Description	Net Each, Lots of	
			1-5	6 Up
CG1802	8½	Linemen's oval N.E. side cutter	\$4.86	\$4.32
CG1830	4	Electrician's side cutters	2.25	2.00
CG1830	5	Electrician's side cutters	2.63	2.33
CG1830	6½	Electrician's side cutters	2.63	2.33
CG1830	7	Electrician's side cutters	3.00	2.67
CG1830	8	Electrician's side cutters	3.38	3.00
CG4501	4½	Diagonal "oblique" cutters	2.43	2.16
CG4501	5	Diagonal "oblique" cutters	2.63	2.33
CG4501	6	Diagonal "oblique" cutters	3.00	2.67
CG4610	5	Heavy-duty diagonal cutters	3.00	2.67
CG4610	7	Heavy-duty diagonal cutters	3.00	2.67
CG1643	5	Short chain needle nose pliers	2.69	2.39
CG1641	5	Same, with cutters	2.70	2.40
CG1671	6	Long chain needle nose pliers	2.25	2.00
CG1661	6	Same, with cutters	3.00	2.67
CG1771	7	Extra long chain nose pliers	2.70	2.40
CG1781	7	Same, with cutters	3.60	3.20
CG1631	5½	Curved needle, snipe nose pliers	3.14	2.79
C-CG141	6	Pinned long nose with cutters†	4.50	4.00
CG1650	6	Transverse end cutting pliers	3.75	3.33
CG5627*	5½	End-cutting resistor pliers	3.71	3.30
C-CG4625	5	Needle point diagonal cutter†	3.74	3.32
CG1621	6	Long needle, snipe nose pliers	2.73	2.43
CG71	8	Short nose cutting pliers	3.74	3.32
CG2612	6½	Wire stripping diagonal cutters	3.74	3.32

\*Kraeuter Pat. #2810192. †With cross coil spring.

## CROSS COIL SPRING

The following pliers are available with cross coil spring at slight additional cost. When ordering, specify prefix **C** with tool number: C-CG1661 (6"), C-CG1781 (7"), C-CG4501 (4½"), C-CG4501 (5") and C-CG4501 (6").

## SMALL PRECISION PLIERS

Matched size and handle shape for exacting work.

CG81	4½	Diagonal cutting pliers	\$2.70	\$2.40
CG82	4½	End cutting nipper	3.18	2.83
CG83*	4½	Chain nose pliers (no cutters)	2.55	2.27
CG84*	4½	Flat nose pliers (no cutters)	2.55	2.27
CG85*	4½	Round nose, round jaw pliers	2.55	2.27
CG89	.....	Set of CG81, 83 and 84 in 5¼" x 6¼" black zipper case	9.75	8.67
CG90	.....	Set of CG81, 82, 83, 84 and 85 in 5¼" x 9¼" black zipper case	15.00	13.33

\*Milled jaws at no extra cost when specified.

## NEEDLE POINT PLIERS

CG5601	4½	Diagonal cutting pliers	\$3.00	\$2.67
CG5601	5	Diagonal cutting pliers	3.19	2.83
CG5601	6	Diagonal cutting pliers	3.75	3.33
CG5612	6½	Wire stripping diagonal cutters	3.75	3.33
CG835	5	Medium nose pliers (no cutters)	3.38	3.00
CG825	5	Same, with cutters	3.53	3.13
CG836	6	Long nose pliers (no cutters)	2.88	2.56
CG826	6	Same, with cutters	3.68	3.27
CG837	7	Extra long nose pliers (no cutters)	3.38	3.00
CG827	7	Same, with cutters	4.26	3.79

## COMBINATION PLIERS

Slip-joint type with sharp milled teeth and knurled handles.

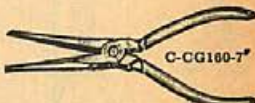
156	6	Chrome-plated 2-position adj.	\$1.05	\$0.93
156	8	Chrome-plated 2-position adj.	1.31	1.17
156	10	Chrome-plated 2-position adj.	1.61	1.43
GC356*	5½	Nickel-plated 2-position adj.	2.10	1.87
GC356*	6	Nickel-plated 2-position adj.	2.10	1.87
GC356*	8	Nickel-plated 3-position adj.	2.69	2.39
GC356*	10	Nickel-plated 3-position adj.	3.41	3.03
40	6	Nickel-plated thin nose	1.65	1.47
CG707*	6½	Polished tongue-n-groove joint	2.25	2.00
CG710*	10	Polished tongue-n-groove joint	2.81	2.49
CG714*	14	Polished tongue-n-groove joint	3.38	3.00

\*With cushion grip handles.

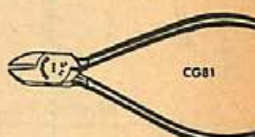
## ADJUSTABLE WRENCHES

Thin design, smooth action; one-hand adjustment. Color-coded cushion-grip handle.

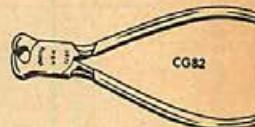
Kr. No.	Cap.	1-5	6 Up	Kr. No.	Cap.	1-5	6 Up
CG31-4"	¼"	\$2.13	\$1.89	CG31-10"	1½"	\$3.48	\$3.09
CG31-6"	¾"	2.13	1.89	CG31-12"	1½"	4.88	4.33
CG31-8"	1"	2.78	2.47	CG31-15"	1½"	7.13	6.33



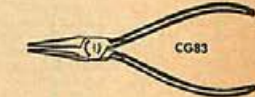
C-CG160-7"



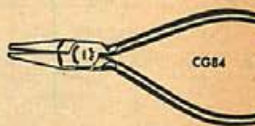
CG81



CG82



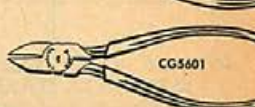
CG83



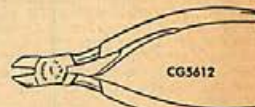
CG84



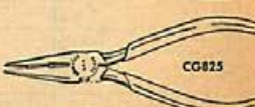
CG85



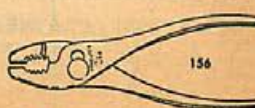
CG5601



CG5612



CG825

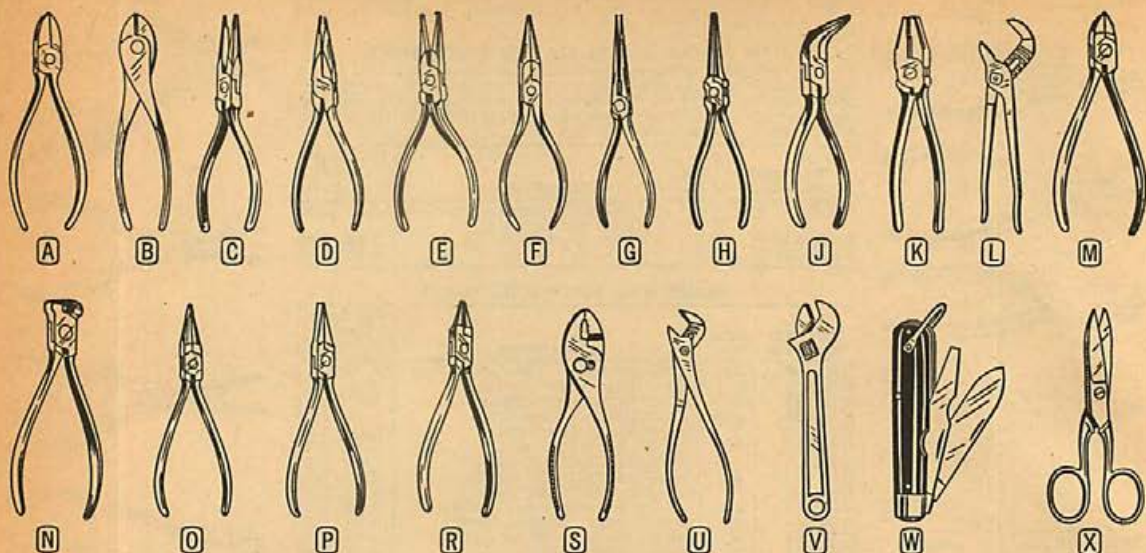


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# Hand Tools and Electrical Tape

## BOKER PLIERS, WRENCHES AND TOOLS



### PLIERS, POLISHED HEADS

Boker Model	Size, In.	Fig.	Description	Net Each
51	4 1/2	A	Diagonal Cutting Pliers	\$2.25
51	5	A	Diagonal Cutting Pliers	2.44
51	5 1/2	A	Diagonal Cutting Pliers	2.70
51	6	A	Diagonal Cutting Pliers	2.98
51	7 1/2	A	Diagonal, Long Shaped Handles	3.08
591	7	B	Heavy Duty Diagonal Cutters	3.70
517	5 1/2	A	Wire Stripping Diagonal Cutters	3.23
5539	6	C	Side Tip Nose Cutters, Flush Cut	3.60
539	6	D	Nose Cutter, Grips at Tips	3.19
532	6	E	Transverse End Cutting	3.15
53	6	F	Long Needle Nose with Cutters	2.78
530	6	F	Long Needle Nose, no Cutters	2.36
53	7	G	Extra Long Chain Nose with Cutters	3.26
530	7	G	Extra Long Chain Nose, no Cutters	2.55
533	6	H	Long Snipe Needle Nose	2.48
538	6	J	Curved Snipe Needle Nose	2.74
52	7	K	Electrician's Side Cutters	2.89

### JEWELERS' 4 1/2" PRECISION PLIERS

Boker Model	Size, In.	Fig.	Description	Net Each
981	4 1/2	M	Diagonal, Polished, Cushion Grips	\$2.44
983	4 1/2	O	Needle Nose, Cushion Grips	2.33
681	4 1/2	M	Diagonal, Nickel and Chrome Plated	2.81
682	4 1/2	N	End Cutter, Nickel and Chrome Plated	3.19
684	4 1/2	P	Needle Nose, Nickel and Chrome Plated	2.70
684	4 1/2	P	Flat Nose, Nickel and Chrome Plated	2.70
685	4 1/2	R	Round Nose, Nickel & Chrome Plated	2.70
781	4 1/2	M	Diagonal, Plated, Cushion Grips	2.70
782	4 1/2	N	End Cutter, Plated, Cushion Grips	3.38
783	4 1/2	O	Needle Nose, Plated, Cushion Grips	2.70
784	4 1/2	P	Flat Nose, Plated, Cushion Grips	2.70
785	4 1/2	R	Round Nose, Plated, Cushion Grips	2.78

### NICKEL AND CHROME-PLATED CUSHION GRIPS

Boker Model	Size, In.	Fig.	Description	Net Each
71	4 1/2	A	Diagonal Cutting Pliers	\$2.81
71	5	A	Diagonal Cutting Pliers	2.96
71	5 1/2	A	Diagonal Cutting Pliers	3.19
71	6	A	Diagonal Cutting Pliers	3.34
5739	6	C	Side Tip Nose Cutters, Flush Cut	3.75
739	6	D	Nose Cutters, Grips at Tips	3.60
732	6	E	Transverse End Cutting	3.15
73	6	F	Long Needle Nose with Cutters	3.26
730	6	F	Long Needle Nose, no Cutters	2.70
73	7	G	Extra-Long Needle Nose Cutters	3.90
730	7	G	Extra-Long Needle Nose, no Cutters	2.93
733	6	H	Long Snipe Needle Nose	2.89

### NICKEL, CHROME-PLATED SLIP-JOINTS

Boker Model	Size, In.	Fig.	Description	Net Each
6041	6 1/2	S	Standard Nose Combination	\$1.20
6042	6 1/2	S	Thin Nose Combination	1.32
6507	8	L	"Groove-Grip" 5-Adjustments	2.33
6507	10	L	"Groove-Grip" 5-Adjustments	2.63
6517	5	U	Midget "Groove-Grip" Ignition	1.88

### NICKEL, CHROME-PLATED ADJUSTABLE WRENCHES

Boker Model	Size, In.	Fig.	Description	Net Each
6 W	4	V	Thin Pattern, Alloy Steel	\$2.06
6 W	6	V	Thin Pattern, Alloy Steel	2.10
6 W	8	V	Thin Pattern, Alloy Steel	2.37

### ELECTRICIAN'S KNIFE AND SHEARS

Boker Model	Size, In.	Fig.	Description	Net Each
9229	3 1/4	W	Electrician's Knife, Locking Screwdriver	\$1.88
709	5	X	Electrician's Shears, Cuts Light Metal	2.06

## 3M SCOTCH® ELECTRICAL TAPE, SPRAY

### NO. 33 VINYL PLASTIC ELECTRICAL TAPE

Proved and accepted for general purpose insulation. Excellent resistance to flame, abrasion, sunlight, moisture, alkalies, solvents, oil and many acids. Quick sticking; strong holding pressure-sensitive adhesive. Excellent stretch and conformability. Full electrical and mechanical protection with minimum bulk. Good "feel" for tight wrapping. Only .007" thick.

Size, W. x L.	Net Each Roll, Pkg. of	
	1 Roll	10 Rolls
3/4" x 60'	\$1.45	\$1.20
3/4" x 44'	.97	.80
3/4" x 20'	.53	.45
3/4" x 20'	.34	.29

\*Available with plastic dispenser; order Scotch No. 33D; same prices.



Size, W. x L.	No. Rolls per Carton	Net Each Roll, Pkg. of	
		1 Roll	10-Roll Ctn.
3/4" x 66 ft.	10	\$1.69	\$1.41
3/4" x 44 ft.	10	1.13	.94
3/4" x 20 ft.	10	.61	.52

### NO. 27 GLASS CLOTH BACKED TAPE

Glass cloth backing and thermosetting adhesive for high heat area applications. Only .006" thick.

Size, W. x L.	No. Rolls per Carton	Net Each Roll, Pkg. of	
		1 Roll	10-Roll Ctn.
3/4" x 66 ft.	10	\$1.61	\$1.41
3/4" x 66 ft.	10	2.42	2.12

### IVI-SPRAY® INSULATING ENAMEL

Electrical insulating enamel in 12-oz. pressurized spray can. Available in three colors. Finds many applications in electronics and electrical insulation needs.

Scotch Number	Enamel Color	No. Cans per Carton	Net Each Can	Lots of 10-Can Ctn.
2528	Gray	10	\$1.70	\$1.49
2529	Black	10	1.70	1.49
2530	Red	10	1.70	1.49

®Registered trademark of 3M Co.



# Weller® Soldering Guns and Tools

## WELLER SOLDERING GUNS, KITS

### MODEL 8200 DUAL HEAT SOLDERING GUN

Two trigger positions provide instant switching to high (140 watts) or low (100 watts) heat. Tip heats instantly and spotlight comes on when trigger is pulled. U/L Listed.

### MODEL 8200PK EXPERT DUAL HEAT SOLDERING GUN KIT

Includes Weller dual heat 100/140 watt gun, rugged plastic utility case, three soldering tips, tip-changing wrench, flux brush, soldering aid and solder.

### SERIES "D" DUAL-HEAT PROFESSIONAL GUNS

Exclusive dual-heat feature saves time, adds convenience, and greatly increases tip life. Triggermatic control switches instantly to high or low heat as the job requires. Tip life is increased by using high heat only when necessary. No wasted time or current. Twin spotlights eliminate shadows on work. Carefully engineered design provides long reach; handles difficult jobs with ease; slips between wiring without damage to insulation. Exclusive tip grip assures full constant heat; wiping action of tip-fastened nut eliminates contact resistance and oxidation. **Model D-440:** Light duty gun rated 145/210 watts. **Model D-550:** Heavy-duty gun rated 240/325 watts. U/L Listed.

### MODEL D-550PK HEAVY-DUTY DUAL HEAT SOLDERING GUN KIT

Features 240/325 watt dual heat gun, break-proof plastic carrying case, soldering, smoothing and cutting tips, tip-changing wrench and solder.

### SOLDERING GUN AND KITS—DEALER NET PRICES

Weller No.	Rating, Watts	Net Each, Lots of			Weller No.	Rating, Watts	Net Each, Lots of		
		1	3-11	12 Up			1	3-11	12 Up
8200	100/140	\$4.65	\$4.35	\$4.15	D550	240/325	\$8.25	\$7.30	\$6.90
8200PK	100/140	6.70	5.95	5.65	D550PK	240/325	9.75	8.65	8.15
D440	145/210	7.45	6.65	6.25					

### SOLDERING GUN REPLACEMENT TIPS

Weller No.	For Gun or Iron No.	Tip Type	Net Pkg. 2	Weller No.	For Gun or Iron No.	Tip Type	Net Each
8125*	8100B, 8200	Solder	35c	6120†	8100B, 8200, D-440	Smoothing	35c
7250	8250A, D-550	Solder	35c	6140†	8250A, D-550	Smoothing	35c
7135	8100, D-440	Solder	25c	6110†	8100B, 8200, D-440	Cutting	35c
	8100B, 8200			6130†	8250A, D-550	Cutting	35c

\*Premium plated tip; all others copper. †With tip nuts.

### MODEL W-PS PENCIL SOLDERING IRON AND TIPS

High efficiency pencil iron does all the work of higher rated irons. Lightweight with rugged heating element. Cool handle is impact-resistant plastic. Interchangeable tips and replaceable parts for convenience. Iron rated 25 watts, 115 v. AC; max. temp., 860° F. Complete with 3/4" tip and cord; 7 3/4" long. Wt., 1 1/4 oz., less cord.

Weller No.	Description	Net Each, Lots of		
		1-11	12-49	50 Up
W-PS	Iron with 3/4" tip (ST-3) and cord (CS-2)	\$3.90	\$3.45	\$3.15
ST-1, -2 or -3	Screwdriver tips: 1/8", 3/16" or 1/4" respectively	.57	.50	.45
HE-1	Heating element for replacement	1.95	1.73	1.56
CS-2	Replacement cord set (2-wire type)	.53	.47	.42
KN-3	Knurled tip-fastening nut for replacement	.15	.13	.12

### MAGNASTAT® SOLDERING IRONS AND TIPS

Sensing device at tip assures reliable soldering; won't overheat; maintains constant temperature. Guaranteed against defects. Fatigue-free, lightweight, balanced design. Sturdy for assembly-line use. Cool, high-impact plastic handle; plug-in flexible cord. Stainless steel sheath protects heat-sensing Magnastat in tip. Tips tempered and premium plated; easy screw-on replacement. Comes with 2-wire cord and plug (3-wire available); tips are ordered separately. For 110-120 v. AC operation.

### MAGNASTAT SOLDERING IRONS

Weller No.	Watts	Specify Tip Temp.	Overall Length	Casing Dia.	Net Each, Lots of		
					1-11	12-49	50 Up
TC-552-STD	55	600°, 700°	8 3/8"	1 1/8"	\$6.75	\$6.00	\$5.40
TC-602-STD	75	750° F	9 1/8"	1 1/8"	7.50	6.67	5.00
TC-1202-STD	120	750° F	9 3/8"	1 1/8"	8.63	7.67	6.90

### MAGNASTAT TEMPERATURE CONTROL TIPS

Available in sizes from 1/8" to 3/8" and up to 1 1/4" long in chisel, screwdriver, pyramid, cone shapes. Full specifications on request. Specify 600, 700 or 750° F when ordering.

Weller Series	For Iron	Shank Dia.	Net Each, Lots of		
			1-11	12-49	50 Up
5	TC-552-STD	3/8"	\$0.57	\$0.50	\$0.45
6	TC-602-STD	3/8"	1.14	1.00	.90
12	TC-1202-STD	3/8"	1.52	1.34	1.20

### TEMPERATURE-CONTROLLED SOLDERING PENCILS AND TIPS

#### MODEL W-TCP LOW VOLTAGE PENCIL

Precision-built, 60-watt soldering pencil. Features: Temperature controlling at tip, choice of interchangeable tip temperatures; low voltage (24 v.) operation from power unit for component protection. Extremely small and lightweight, with cool handle of impact-resistant plastic. Comes attached to power unit with 3/8", 700° F premium plated screwdriver tip. For 120 v. AC, 50-60 cps (220 v. available on request).

#### MODEL W-TCP-2 CONTINUOUSLY VARIABLE TEMPERATURE PENCIL

Small and lightweight. Ideal for low temperature, miniature soldering applications. Continuously variable temperature, controlled at tip, from 200° F to 450° F, with SCR and thermistor control circuit. Simply dial temperature needed for a specific job. Rated 15 watts; operates from 24 v. Isolated winding at power unit for safety. Complete with 3/8" premium plated screwdriver tip and power unit. Operates from 120 v. AC, 50-60 cps (220 v. available on request).

### TEMPERATURE-CONTROLLED SOLDERING PENCILS

Weller No.	Watts	Net Each, Lots of			Weller No.	Watts	Net Each, Lots of		
		1-5	6-23	24 Up			1-3	4-11	12 Up
W-TCP	60	\$19.50	\$17.30	\$15.60	W-TCP-2	15	\$41.25	\$36.75	\$33.00

### TEMPERATURE-CONTROLLED TIPS

Specify size (1/8", 3/16", 1/4" or 3/8") and temperature (500, 600 or 700° F) for Type PT, size (3/8" conical flat tip or 1/8" screwdriver) for Type ST.

Weller No.	For Pencil	Net Each, Lots of			Weller No.	For Pencil	Net Each, Lots of		
		1-5	6-23	24 Up			1-3	4-11	12 Up
PT	W-TCP	\$0.57	\$0.50	\$0.45	ST	W-TCP-2	\$0.57	\$0.50	\$0.45

Weller Model WA-3 Three Wire Adapter—For W-TCP or W-TCP-2. Net Each... 35c



8200



8200PK



D550



D440



D550PK



W-PS



TC552-STD



W-TCP, W-TCP-2



# Ungar "Standard Line" Soldering Tools



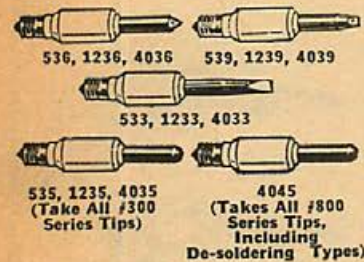
**MODEL 777 "CLEAN ROOM" HANDLE, KIT**  
 Features "Clean Room" grip for the electronic industry, plus handle is in pastel shade for less eye fatigue of the operator. Full contact spring socket; stainless steel heat deflector; new octagonal guard washer; plated socket terminals; new ceramic and glass insulator; thermo-stabilized phenolic body; polyvinyl insulated cord. Tips cannot wobble. For 120 VAC-DC. **\$1.50**  
**Ungar Model 777 Handle**—Net Each, 1-9.....**\$1.25**  
 Net Each, 10-49.....**\$1.25** Net Each, 50 Up.....**\$1.15**  
**Ungar Model 776 Handle**—Same, but red with cork grip.  
 Net Each, 1-9.....**\$1.32** 10-49.....**\$1.09** 50 Up.....**99c**  
**Ungar Model 7070 Technicians Soldering Kit**—Complete soldering kit, with Model 777 handle; No. 1237 heating unit; three copper tips (111, 113, and 116); tin of Anti-Seize; spool of rosin core solder. Net Each, 1-5.....**\$3.59**  
 Net Each, 6-11.....**\$3.44** Net Each, 12 Up.....**3.33**  
**Ungar Model 426 Soldering Iron**—Economy one-piece iron for hobby, kit building, light electrical repairs. Copper alloy tip delivers 750° F. Net Each, 1-5.....**\$1.39**  
 Net Each, 6-11.....**\$1.39** Net Each, 12 Up.....**1.29**

ALL soldering irons and heating units U/L Listed.

## THREAD-ON HEATING UNITS AND TIPS

Provides 100% increase in recovery rate; greater heat transfer. Stops tip seizure from oxidation or solder; passivated plating prevents barrel oxidation and surface flaking. Tips copper alloy, iron clad silver-plated or unplated.

Ungar No.	Description	Net Each, Lots of		
		1-9	10-49	50 Up
4037	850°-900° F, 47 1/2-watt unit	\$2.52	\$2.05	\$1.89
1237	750°-800° F, 37 1/2-watt unit	1.42	1.16	1.06
537	600°-650° F, 23 1/2-watt unit	1.32	1.09	.89
PL111	Iron clad pencil, 3/8" long	.60	.49	.45
PL113	Iron clad pencil, 3/4" long	.60	.49	.45
PL114	Iron clad stepped micro-space	.60	.49	.45
PL116	Iron clad pyramid, 1/4" long	.60	.49	.45
111	Unplated pencil	.27	.20	.20
113	Unplated chisel	.27	.20	.20
116	Copper alloy pyramid 1/4" lg.	.27	.20	.20



## INTERCHANGEABLE TIPS, ELEMENTS AND TIPLET THREAD-IN TIPS

Heating Units Temperature Range: 850°-1000° F for Super Hi-Heat Series #4000 rated 47 1/2 watts; 750°-800° F for Hi-Heat Series #1200 rated 37 1/2 watts; and 650°-750° F for Standard Series #500, rated 23 1/2 watts.

### INTEGRATED HEATING UNITS WITH TIPS

Ungar No.	Description	Net Each, Lots of		
		1-9	10-49	50 Up
533	23 1/2-watt copper, long taper chisel tip	\$1.15	\$0.94	\$0.86
536	23 1/2-watt copper, pyramid tip	1.15	.94	.86
539	23 1/2-watt copper, short taper chisel tip	1.15	.94	.86
1233	37 1/2-watt copper, long taper chisel tip	1.37	1.13	1.02
1236	37 1/2-watt silver-plated, solid Armeo Iron pyramid tip	1.37	1.13	1.02
1239	37 1/2-watt silver-plated, solid Armeo Iron chisel tip	1.37	1.13	1.02
4033	47 1/2-watt iron clad, silver-plated, long chisel tip	2.05	1.89	1.89
4036	47 1/2-watt iron clad, silver-plated, pyramid tip	2.05	1.89	1.89
4039	47 1/2-watt iron clad, silver-plated, taper chisel tip	2.05	1.89	1.89

### HEATING UNITS AND TIPLET THREAD-IN SOLDERING TIPS

Ungar No.	Description	Net Each, Lots of		
		1-9	10-49	50 Up
535	3/8" tap unit for 300 and 7100 Series Tiplets	\$1.15	\$0.94	\$0.86
1235	3/8" tap unit for 300 and 7100 Series Tiplets	2.52	2.05	1.89
4035	3/8" tap unit for 300 and 7100 Series Tiplets	.48	.39	.36
PL331	Iron clad, silver-plated 1" pencil, 3/8" dia.	.17	.14	.13
331	Platin copper version of PL331 Tiplets	.48	.39	.36
PL332	Iron clad, silver-plated 1" offset pencil, 3/8" dia.	.17	.14	.13
332	Platin copper version of PL332 Tiplets	.48	.39	.36
7154	Iron clad, silver-plated stepped pencil	.48	.39	.36
PL333	Iron clad, silver-plated 1" long chisel, 3/8" dia.	.17	.14	.13
333	Platin copper version of PL333 Tiplets	.48	.39	.36
7155	Iron clad, silver-plated stepped chisel	.48	.39	.36
PL338	Iron clad, silver-plated 1 1/4" tapered needle, 3/8" dia.	.48	.39	.36
PL340	Iron clad, silver-plated 3/4" micro-needle, 3/8" dia.	.48	.39	.36
4045	47 1/2-watt 3/8" tap unit for Series 800 Tiplets	2.52	2.05	1.89
PL823	Iron clad, silver-plated 1" pyramid, 3/8" dia.	.52	.42	.39
823	Platin copper version of PL823 Tiplets	.17	.14	.13
PL824	Iron clad, silver-plated 1" chisel, 3/8" dia.	.52	.42	.39
824	Platin copper version of PL824 Tiplets	.17	.14	.13
PL833	Iron clad, silver-plated 1 3/4" chisel, 3/8" dia.	.80	.65	.60
PL834	Iron clad, silver-plated 1 3/4" offset chisel, 3/8" dia.	.80	.65	.60

Note: "Standard Line" components are interchangeable with each other; but, may NOT be used with "Imperial" Line" items.

## SOLDERING IRON HOLDER

Protects operator from burns; protects iron against breakage. Specially made for use with Ungar 776 and 777 handles. Ideal for constant production line use. Attaches quickly to top, side or underside of bench. Angle adjustable to operator's convenience. **\$1.60**  
**Ungar No. 8000**—Net Each, 1-9.....**\$1.30** 50 Up.....**\$1.20**

## DE-SOLDERING TIPS AND KIT

Helps remove components 70% faster; melts solder on all terminals simultaneously. For use with No. 4045 heating unit. **Any Model TIP**—**65c**  
 Net Each, 1-9.....**54c**  
 Net Each, 50 Up.....**49c**

No.	TIP Type
862	Slotted offset
857	Straight slotted
863	Cube
856	3/8" dia. cup
855	3/4" dia. cup
854	1" dia. cup
861	Triangle
858	Bar (inline)

**Ungar No. 270 De-Soldering Kit**  
 —With 5 most popular tips, handle and No. 4045 heating unit in metal case. **\$6.25**  
 Net Each, 1-9.....**\$5.77**  
 Net Each, 10-49.....**\$5.77**  
 Net Each, 50 Up.....**5.35**

## DE-SOLDERING AND CLEANING TOOLS

Designed for printed circuit de-soldering and cleaning, tip utilizes a coating that prevents solder to adhere to tip and clog the orifice. Unit is coupled to Model 777 handle. May also be used on heat shrinkable tubing for instant on-the-spot heat. **Ungar Model 7800 HOT-VAC S995**  
**Tool**—Net Each, 1-5.....**\$7.95**  
 Net Each, 6-11.....**7.45**  
 Net Each, 12 Up.....**7.45**  
**Ungar Model 7806**—Replacement tip for HOT-VAC.  
 Net Each, 1-9.....**60c** 10-49.....**49c** 50 Up.....**45c**  
**Ungar Model 7805 Solder-Off**—De-soldering bulb with fluorocarbon tip. Must be used in conjunction with a soldering iron.  
 Net Each, 1-9.....**\$1.10** 10-49.....**\$1.00** 50 Up.....**95c**

## KLEEN-TIP SPONGE

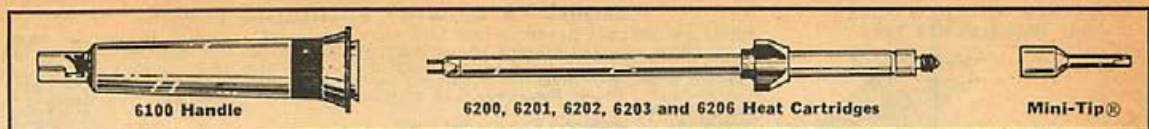
Specially processed sponge provides the surest way to clean soldering tips. Removes oxidation, prevents contamination and insures soldering reliability. Tray is durable phenolic with bracket for fastening to bench. **\$1.00**  
**Ungar No. 400**—Net Each, 1-9.....**81c** Net Each, 50 Up.....**75c**  
**Ungar No. 455 Refill Sponge**—Individually packaged. **40c**  
 Net Each, 1-9.....**33c** Net Each, 50 Up.....**30c**

## UNGAR ANTI-SEIZE

Special lubricant lengthens tip and heating unit life. Reduces thread seizure. Improves heat transfer. **Ungar No. 8001**—2 oz. can. Net Each, 1-9.....**55c**  
 Net Each, 10-49.....**45c** Net Each, 50 Up.....**42c**



# IMPERIAL Ungar Soldering Tools



Designed and built for high efficiency on electronic production lines demanding small, lightweight convenience and a versatile system of interchangeable cord sets, tips and heat cartridges. Ideal for critical micro-miniature components and sub-assemblies in design, research and production. Assured reliability for aerospace system assembly providing low wattage, high temperature performance while Perma-Cool handle remains at body temperature at all times. Heat sink principle employs a double cushion of air combined with five, heat-transition surfaces for continuous cooling. All components, sold separately, are individually packaged on cards permitting user to assemble to suit his needs. **Note:** Imperial components are NOT interchangeable with Standard Line Ungar products.

## PERMA-COOL COLORED HANDLES

Available in three, cool, pastel colors that have been proven to reduce operator fatigue. Virtually indestructible, handles are made of high strength polycarbonate resin. Die-cast aluminum heat sink built-in. Pencil type design for easy handling, U/L Listed. Size, 0.8" O.D. at grip; 4.7" lg. Weight, 1 oz. **Ungar No. 6100-1** (Turquoise), **6100-2** (Beige) or **6100-3** (Ivory)—Handle only. Net Each, 1-9,....\$1.28 10-99,....\$1.07 100 Up,....96c

## IMPERIAL SOLDERING IRON KIT

Contains one 6100 handle, one 6102 cord set, one 6200 heat cartridge, and three assorted Mini-Tips.

**Ungar No. 6010**—Net Each, 1-5, ..\$5.88 6-11, ..\$5.69 12 Up, ..\$5.39

## INTERCHANGEABLE PLUG AND CORD SETS

Instantly adapts your iron to any 2 or 3 wire outlet. Molded female connector plugs onto the Perma-Cool handle without tools. Wire is 6 ft. long, 18 gauge, 65 strands extra-flexible copper; terminals and connectors molded polyvinyl chloride. Center conductor (3-wire type) is insulated with green polyvinyl. Weight: 2½ oz., 2-wire; 4 oz., 3-wire. **Specify Color:** Add suffix -1 for turquoise; -2, beige; -3, ivory (i.e., 6102-1).

Ungar No.	Description	Net Each, Lots of		
		1-9	10-99	100 Up
6102	Standard 2-wire cord set with plug	\$1.36	\$1.14	\$1.02
6103	3-wire cord set with NEMA plug	2.28	1.91	1.72



6103 Cord Set

## INTERCHANGEABLE LONG-LIFE HEAT CARTRIDGES

Stainless steel, sealed cartridge with element at tip and threaded end for quick tip changes; keeps heat at tip where it belongs. Five ratings available: **6200:** 40 watts for 750-950° F; accepts all tip Nos. 6304 through 6482. Size, 7½" l. x .363" dia. (2½" l. from flange). Wt., 1.1 oz. **6201:** Same, but 30 watts for 650-850° F. **6202:** Same, but 25 watts for 600-800° F. **6203:** 60 watts for heat range, 850° to 1050° F. Accepts all iron clad gold-plated tips plus No. 6526 beryllium oxide tip, 750°-800° F. 7½" long; weighs 1.2 oz. **6206:** Miniature 15-watt design for 700°-750° F; for use with sub-miniature tip Nos. 6550 through 6554 only. Superior for micro-miniature assemblies. Size, 6½" l. x .312" dia. (2" l. from flange). Weight, 0.89 oz. U/L Listed.

**Ungar No. 6200** (40 w.), **6201** (30 w.), **6202** (25 w.) or **6206** (15 w. Miniature)—Cartridge only. Net Each, 1-9, ..\$3.44 10-99, ..\$2.86 Net Each, 100 Up, ..2.58  
**Ungar No. 6203** (60 w.)—Cartridge only. Net Each, 1-9, ..\$3.90 10-99, ..\$3.32 Net Each, 100 Up, ..2.97

## THREAD-ON SOLDERING TIPS

Completely interchangeable with the Imperial line (NOT interchangeable with Ungar "Standard Line"). Thread onto heat cartridge (either 25, 30, 40 or 60 watt models) with fingertip ease. Available in beryllium oxide (repels solder), copper alloy or long life, 24 kt. gold-plated iron clad types.

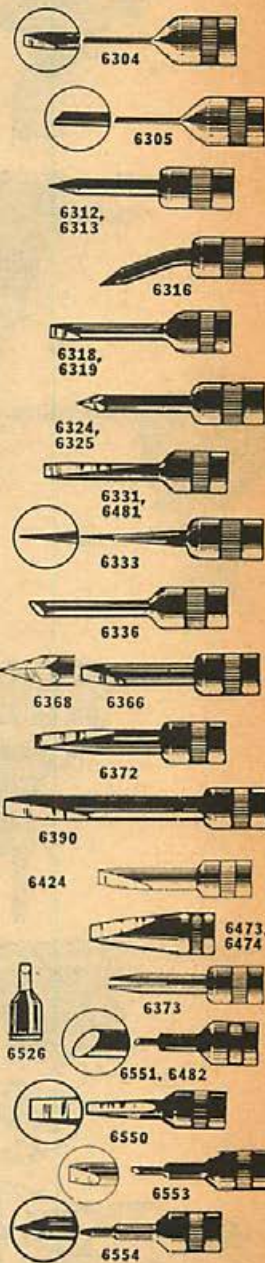
## MINI-TIP® FOR 6200, 6201, 6202 OR 6203 HEAT CARTRIDGES

Ungar No.	Shape	Material	Size, In. O.D. x L.	Temp. (F)° With Cartridge Rated			Net Each, Lots of		
				25 W.	30 W.	40 W.	1-9	10-99	100 Up
6304	Micro-chisel	Iron clad	3/4 x 1 1/2	750	800	890	\$0.85	\$0.71	\$0.63
6305	Micro-spade	Iron clad	3/4 x 1 1/2	750	800	890	.85	.71	.63
6312	Pencil	Copper	3/8 x 3/4	750	800	910	.32	.27	.24
6313	Pencil	Iron clad	3/8 x 3/4	690	750	860	.85	.71	.63
6316	Offset pencil	Iron clad	3/8 x 3/4	690	750	860	.85	.71	.63
6318	Long taper chisel	Copper	3/8 x 3/4	750	800	890	.32	.27	.24
6319	Long taper chisel	Iron clad	3/8 x 3/4	690	750	860	.85	.71	.63
6324	Long taper pyramid	Copper	3/8 x 3/4	750	800	890	.32	.27	.24
6325	Long taper pyramid	Iron clad	3/8 x 3/4	690	750	860	.85	.71	.63
6331	Screwdriver	Iron clad	3/8 x 3/4	690	750	860	.85	.71	.63
6331	Needle	Iron clad	3/8 x 3/4	690	750	860	.85	.71	.63
6336	Spade	Iron clad	3/8 x 3/4	690	750	860	.85	.71	.63
6366	Long taper chisel	Iron clad	3/8 x 3/4	680	730	850	1.00	.84	.76
6368	Long taper pyramid	Copper	3/8 x 3/4	680	730	850	.85	.71	.63
6372	Screwdriver	Iron clad	3/8 x 3/4	680	730	850	1.00	.84	.76
6373	Slotted tip	Copper	3/8 x 3/4	680	730	850	.85	.71	.63
6390	Screwdriver	Iron clad	3/8 x 1 1/2	600	650	750	1.00	.84	.76
6424	Long taper chisel	Iron clad	3/4 x 3/4	680	730	850	1.00	.84	.76
6473	Long taper chisel	Copper	3/8 x 3/4	670	730	840	.40	.34	.30
6474	Long taper chisel	Iron clad	3/8 x 3/4	670	730	840	1.20	1.00	.90
6481	Tapered screwdriver	Iron clad	3/8 x 3/4	690	750	860	.85	.71	.63
6482	Micro-spade	Iron clad	3/4 x 3/4	700	770	890	.85	.71	.63
6526†	Chisel	Beryllium	3/4 x 3/4	475	550	575	15.00	13.95	12.95

## MICRO-TIPS FOR 6206 15-WATT HEAT CARTRIDGE ONLY

6550	Tapered screwdriver	Iron clad	.040x.40	614-743 at 15 w.	\$1.00	\$0.84	\$0.76
6551	Stepped spade	Iron clad	.050x.40	614-743 at 15 w.	1.00	.84	.76
6553	Stepped chisel	Iron clad	.050x.40	614-743 at 15 w.	1.00	.84	.76
6554	Stepped pencil	Iron clad	.050x.40	614-743 at 15 w.	1.00	.84	.76

\*Slight variation in line voltage will give ±25° F deviation. †With adapter and tip protector.



## SAFETY-GUARD HOLDER

Designed especially for the Imperial to protect against hot tip burns, or handle damage. Attaches easily to top or underside of bench. Black with gold cage guard. **Ungar No. 6800**—Net Each, 1-9, ..\$1.60 10-99, ..\$1.30 50 Up, ..1.20

## COIL-A-CORD

Eliminates tangled, twisted cords; automatically keeps cord coiled and out of the way. Slips easily on 2-wire or 3-wire cords of many appliances and hand tools. **Ungar No. 7625**—Net Each, 1-9, ..\$99c 10-99, ..\$83c 50 Up, ..\$78c



# WEN Soldering Guns & Power Tool

ALL WEN SOLDERING GUNS ARE TRANSFORMER TYPE



75

## MODEL 75 50-WATT SOLDERING PISTOL

Automatic Thermal Regulation for high efficiency; provides high heat instantly, then lowers current to hold working temperature. Produces heat of 100-watt device with 50-watt peak surge rating and a normal draw of only 30 watts. Heavy copper tip permits repeated dressing for long life. Single set screw for tip replacement. Built-in spotlight, trigger switch. **Power Required:** 0.45 amp at 120 v., 60 cycles AC. U/L Approved. Shipping Weight, 20 oz.

**Wen Model 75 Soldering Pistol**—Net Each.....\$3.71  
In lots of 3 or more, Net Each.....\$3.30

## MODEL 450 450-WATT SOLDERING GUN

Three heat ranges with three separate tips, interchangeable in seconds. Pencil tip (25-100 watt), medium duty (100-200 watt) and heavy duty (200-450 watt). Perfectly balanced, with single post for long reach, rigid copper tips. Automatic Thermal Regulation: Heat power adjusts automatically to right level for job without wasted current. **Power Required:** 1.2 amp at 120 v. AC, 60 cycles. Prefocused spotlight with trigger on-off switch. Shock resistant black case. **Size:** 9 1/4" lg. x 5 3/8" h. x 2 1/2" w. U/L and CSA Approved 2 amp surge. Shipping Weight, 3 lbs.

**Wen Model 450 Soldering Gun**—With heavy duty tip. Net Each.....\$10.46  
In lots of 3 or more, Net Each.....\$9.30

## MODEL 250 250-WATT SOLDERING GUN

Heats in 3 to 5 seconds when trigger is pressed; cools quickly when trigger is released. Built-in spotlight automatically illuminates work area. Long tips reach into tight places. Tips are rigid and stay tinned; easily replaced. Sturdily constructed: Handle and case are heat- and shock-resistant. **Power Required:** 110-120 v., 60 cycles AC. U/L Approved; guaranteed 1 year against defects in material or workmanship. Shpg. Wt., 3 3/4 lbs.

**Wen Model 250 Soldering Gun**—Net Each.....\$9.71  
In lots of 3 or more, Net Each.....\$8.64

### EXTRA TIPS FOR MODEL 250

Wen No.	Description	Net Pkg. 3	Wen No.	Description	Net Pkg. 3
25-A-4	Soldering	17c	25-F-33	Flat Iron	42c
25-X-20	Long life Feroloy	35c	U-4	Fine soldering	49c
25-C-1	Plastic tile cutting	35c			

## MODEL 250K 250-WATT SOLDERING GUN KIT

Contains Model 250 heavy duty soldering gun, 25-X-20 Feroloy long life tip, 25-C-1 plastic tile cutting tip, 25-F-33 flat iron tip, 5-ft. roll of rosin core solder, 1/4"-3/8" double-end nickel-plated wrench. Metal carrying case. U/L Approved. Shpg. Wt., 5 lbs.

**Wen Model 250K Soldering Gun Kit**—Net Each.....\$11.96  
In lots of 3 or more, Net Each.....\$10.64

## MODEL 288 200-WATT SOLDERING GUN

Heats fully in less than 5 seconds. Rigid, long nose tip. Tip and connectors silver-plated. Built-in spotlight focuses light on work area. **Power Required:** 110-120 v., 60 cycles AC. Ebony black plastic case. **Size:** 6 1/4" h. x 9 1/2" long (less tip). Six-ft. cord and plug. U/L Approved. Shipping Weight, 3 lbs.

**Wen Model 288 Soldering Gun**—Net Each.....\$7.48  
In lots of 3 or more, Net Each.....\$6.64

### EXTRA TIPS FOR MODEL 288

Wen No.	Description	Net Pkg. 3	Wen No.	Description	Net Pkg. 3
28-C-4	Soldering	42c	28-F-33	Flat Iron	42c
28-C-1	Plastic tile cutting	42c	U-4	Fine soldering	49c

## MODEL 199 130-WATT SOLDERING GUN

At working heat 2 1/2 seconds after trigger is pressed; cools quickly when trigger is released. Extra narrow, long nose, long life tip; easily replaced. Built-in spotlight focuses on work area. **Power Required:** 110-120 v., 60 cycles AC; 1.1 amp. Cherry red molded plastic case. **Size:** 5" long (less tip). Six-ft. cord and plug. U/L Approved. Shpg. Wt., 2 1/2 lbs.

**Wen Model 199 Soldering Gun**—Net Each.....\$5.95  
In lots of 3 or more, Net Each.....\$5.30

## MODEL 199K 130-WATT HOME UTILITY SOLDERING GUN KIT

Includes Model 199 soldering gun, plastic tile cutting tip, dent-removing tip, steel-nose tip and roll of rosin-core solder. In metal carrying case. Shpg. Wt., 3 3/4 lbs.

**Wen Model 199K Home Utility Soldering Gun Kit**—Net Each.....\$7.48  
In lots of 3 or more, Net Each.....\$6.64

## MODEL 100 100-WATT SOLDERING GUN

Transformer type gun built for long life. Develops full heat in 2 1/2 seconds. Replaceable, extra long, steel nosed, long life tip. Built-in spotlight angled to focus on work area. **Power Required:** 110-120 v., 60 cycles AC. **Size:** 1 1/4" thick. Six-ft. cord and plug. U/L Approved. Weight: Net, 19 oz.; shipping, 1 1/2 lbs.

**Wen Model 100 Soldering Gun**—Net Each.....\$4.76  
In lots of 3 or more, Net Each.....\$4.46

### EXTRA TIPS FOR MODELS 199 AND 100

Wen No.	Description	Net Pkg. 3	Wen No.	Description	Net Pkg. 3
19-B-4	Soldering	35c	19-F-33	Flat Iron	42c
19-C-1	Plastic tile cutting	42c	U-4	Fine soldering	49c

## MODEL 100K SOLDERING GUN KIT

Includes Model 100 soldering gun, long life soldering tip, plastic tile cutting tip, 5-ft. roll of rosin-core solder, carrying carton. U/L Approved. Shipping Weight, 2 lbs.

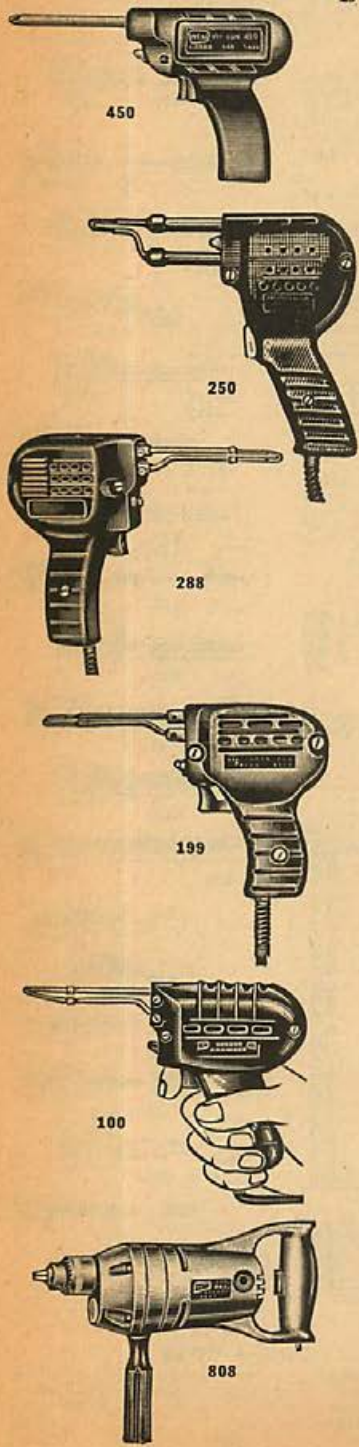
**Wen Model 100K Soldering Gun Kit**—Net Each.....\$5.95  
In lots of 3 or more, Net Each.....\$5.30

## MODEL 808 3/8-INCH TWO-SPEED DRILL

Change speeds by screwing chuck onto either of two spindles for speed desired. Auxiliary grip handle can be inserted on either side for proper grip. Symmetrical modified D handle with switch in center; lock switch with push trigger to release switch. **Capacity:** 3/8" in steel. **Bearings:** Ball thrust on spindles; olive, other shafts. **Power Required:** 115 v. AC or DC. **Size:** 2 1/2" w. x 12 1/2" lg. x 4 3/8" h. (handle). Complete with 3/8" geared chuck and key, auxiliary handle, long cord and plug. Weight: Net, 4 1/2 lbs.; shipping, 5 lbs.

**Wen Model 808 Portable Electric Drill**—Net Each.....\$22.46  
In lots of 3 or more, Net Each.....\$19.97

**Wen Model 80K35 Auxiliary Toter Tool Kit**—Includes 3" wire brush, 3" buffing wheel, 3" x 3/4" grinding wheel, nine drill bits (1/8" to 1/4"), 15-5" sandpaper discs, 5" rubber pad, 5 1/2" lambwool bonnet, 3 adapter sets, speed stand, tote box and tray. Weight, 5 lbs. Net Each.....\$7.48  
In lots of 3 or more, Net Each.....\$6.64

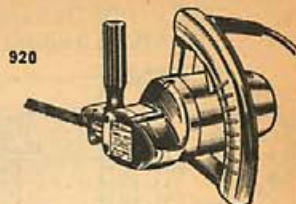




# WEN Electric Power Tools

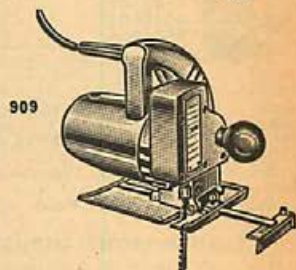
## MODEL 920 ZIPP SAW

Industrially rated saw with special base plate that permits complete cutting flexibility with no adjustments. Cuts flush to wall or floor; cuts almost any material with proper blade. Conventional saw grip. Lightweight, balanced, smooth operating and cool running. Heavy-duty roller and oilite bearings; hardened gears. **Strokes:** 3200 1" strokes per minute. **Motor:** 1/2 hp, 4 1/2 amps. **Power Required:** 115 v., 60 cycles AC only. **Size:** 9" lg. x 7 1/2" w. x 7" h. **Weight:** 6 3/4 lbs. **Wen Model 920 Zipp Saw**—Complete with seven blades and 8-ft. 3-wire cord **\$3372** and plug. **Net Each.**.....**\$29.97**  
In lots of 3 or more, **Net Each.**.....**\$29.97**



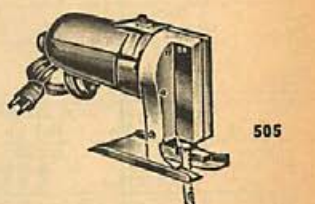
## MODEL 909 ALL SAW

Conventional saw grip, auxiliary grip knob. Air stream blows sawdust clear of work. Heavy-duty roller and oilite bearings; hardened gears. Trigger switch. **Strokes:** 3400 1" strokes per minute. **Motor:** 1/2 hp. **Power Required:** 115 v. AC or DC. **Size:** 8" lg. x 7" w. x 7 1/2" h. **Weight:** 8 1/2 lbs. **Wen Model 909 All Saw**—Complete with seven blades, rip guide, circle cutter **\$3372** and 45° tilting base plate, 8-ft. 3-wire cord and plug. **Net Each.**.....**\$29.97**  
In lots of 3 or more, **Net Each.**.....**\$29.97**  
**Wen Model 912 Table for 909 Saw**—With protractor, circle cutter. **Size:** 18" x 18" x 8 1/2". **Weight:** 14 lbs. **Saw locks in place.** **Bolt-holes.** **Net Each.**.....**\$11.21**  
In lots of 3 or more, **Net Each.**.....**9.97**



## MODEL 505 PORTABLE SAW

Streamlined, lightweight saw. Easy grip, cool handle. Air stream blows sawdust clear of work. **Strokes:** 2650 per minute. **Power Required:** 110 v. AC or DC. **Size:** 6 3/4" lg. x 5" h. (less blade). U/L Approved. **Weight:** 4 lbs. **Wen Model 505 Portable Saw**—Complete with one each coarse, medium and **\$2021** fine blades, long cord and plug. **Net Each.**.....**\$17.97**  
In lots of 3 or more, **Net Each.**.....**\$17.97**  
**Wen Model 505K Portable Saw Kit**—Includes Model 505 saw, rip sawing attachment, circle cutting attachment, five assorted blades, metal carrying box. **Weight:** 6 3/4 lbs. **Net Each.**.....**\$22.46**  
In lots of 3 or more, **Net Each.**.....**19.97**  
**Wen Model 511 Table for 505 Saw**—Can be bolted to bench. With protractor, bracket for dovetail joints and five knife blades. **Saw locks in place.** **Size:** 18" x 18" x 8 1/2". **Weight:** 14 lbs. **Net Each.**.....**\$9.71**  
In lots of 3 or more, **Net Each.**.....**8.64**

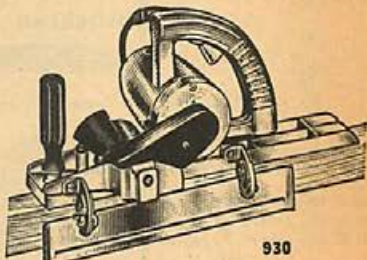


## MODEL 930 PORTABLE ELECTRIC PLANE

Features separately adjustable twin cutters. Driven by air-cooled cog-belt. **Capacity:** Cuts 2 1/4" wide, 1/2" deep (adjustable). **Shoe:** 16". **Miter Guide:** Tilts to 45°; removable. **Cutter Speed:** 14,500 rpm. **Motor:** 1/2 hp, 6 amps. **Power Required:** 120 v., AC or DC. **Industrially rated.** **Weight:** 7 1/2 lbs. **Wen Model 930 Plane**—With cutters, long cord and plug. **Net Each.**.....**\$3372**  
In lots of 3 or more, **Net Each.**.....**\$29.97**

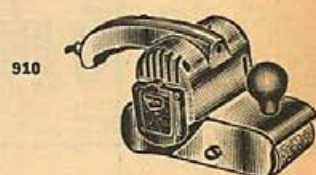
## MODEL 910 BELT SANDER

Industrial duty 3" continuous belt sander. Sealed, permanently lubricated gear train. Change belt in seconds. Air blast keeps dust off work. **Belt:** 3" x 18"; speed, 850 ft./min. **Motor:** 1/2 hp, 4 1/2 amps; universal. **Power Required:** 110-120 v. AC or DC. **Size:** 10 1/2" lg. x 5 1/2" w. x 5 3/4" h. **Weight:** 7 1/2 lbs.; shipping, 8 3/4 lbs. **Wen Model 910 Belt Sander**—Complete with three assorted belts, 3-wire cord **\$3372** and plug. **Net Each.**.....**\$29.97**  
In lots of 3 or more, **Net Each.**.....**\$29.97**  
**Wen Model 911 (60 grit), 912 (80 grit), or 913 (120 grit) Sanding Belts**—**Net Each.**.....**.49c**



## MODEL 202 FINISHING SANDER

Powerful high speed vibrator motor. Straight line action gets into corners, leaves no scratches. Heat and shock-resistant case. Self-tightening clamps. **Pad:** 2 1/2" x 5 1/2" working surface, 13 3/4" sq. in.; sheet size, 2 1/2" x 7". **Strokes:** 14,400 1/2" strokes per min. **Power Required:** 115 v., 60 cycles AC only. **Size:** 5 3/4" x 2 1/2" x 3 1/4" h. U/L Approved. **Weight:** 2 1/2 lbs.; shipping, 3 1/2 lbs. **Wen Model 202 Finishing Sander**—With six sheets of assorted grit garnet flin- **\$1046** ishing paper, polishing cloth, long cord and plug. **Net Each.**.....**\$9.30**  
In lots of 3 or more, **Net Each.**.....**\$9.30**



## MODEL 303 FINISHING SANDER

**Pad:** 2 1/2" x 5 1/2"; sheet size, 2 1/2" x 7". **Strokes:** 14,400 per min. **Power Required:** 120 v., 60 cycles AC. U/L Approved. Cherry red molded impact-resistant case. **Weight:** 5 lbs. **Wen Model 303 Finishing Sander**—Complete with 12 assorted sheets, two pol- **\$1271** ishing cloths, long cord and plug; in metal kit box. **Net Each.**.....**\$11.30**  
In lots of 3 or more, **Net Each.**.....**\$11.30**

## MODEL 404 HEAVY-DUTY FINISHING SANDER

High power vibrator motor handles large pad without stalling. Straight line action for scratch-free sanding. High impact, shatter-resistant nylon-fill plastic case. **Pad:** 3 1/4" x 6 1/4"; sheet size, 3 1/4" x 7 1/4". **Strokes:** 14,000 per min. **Power Required:** 120 v., 60 cycles AC only. **Weight:** 6 1/4 lbs. **Wen Model 404 Finishing Sander**—With 15 assorted sheets aluminum oxide **\$1496** paper, two polishing cloths, long cord and plug; in sturdy metal box. **Net Each.**.....**\$13.30**  
In lots of 3 or more, **Net Each.**.....**\$13.30**  
**Abrasive sheets for Models 202, 303 and 404 available on request.**



## SAW BLADES FOR MODELS 920 AND 909 SAWS

Wen No.	Cuts	Teeth Per"	Net Pkg.	Wen No.	Cuts	Teeth Per"	Net Pkg.
901	Roughs in wood	3	\$1.26*	905	4" knife blade	.....	\$0.84*
902	Roughs in wood	5	1.05*	906	Up to 1/2" steel	14	1.206*
903	Soft metal, wood	8	.84*	907	Thin sheet steel	32	1.206*
904	Scrolls in wood	14	.84*	900	1 ea. 901-907	.....	2.38†

## FOR MODEL 505 SAW

50-A-35	Roughs in wood	7	\$0.70*	50-A-37	Metals	18	\$1.26*
50-A-36	Regular wood	10	.70*	50-A-34	1 ea., 50-A Series	.....	.84*

## FOR MODEL 511 TABLE

50-T-71	Scrolls in wood	14	\$0.70*	50-T-74	Knife blade	.....	\$0.70*
50-T-72	Scrolls in wood	10	.70*	50-T-75	Metals	32	1.26*
50-T-73	Roughs in wood	8	.70*	50-T-70	1 ea., 50-T Series	.....	1.26*

\*Pkg. of 3. †Pkg. of 7. ‡Pkg. of 5.



# Service Tools and Supplies

## G.E. SOLDERING IRONS MINIATURE INDUSTRIAL IRONS

6 VOLTS, 12 WATTS  
U/L LISTED

G.E. No.	Tip and Heater Diameter	Shank Lgth., Inches	Net Each
6A428G3*	3/16" Chisel	3	\$15.75
6A428G4*	3/16" Chisel	6	15.75
6A428G7*	3/16" Pyramid	3	15.75
6A428G8*	3/16" Pyramid	6	15.75
6A428G5†	3/16" Chisel	3	9.50
6A428G6†	3/16" Chisel	6	9.50

\*Complete iron including tip and heater assembly. †Complete with tip and heater assembly, 6' cord with terminals, less transformer.

Renewal 3/16" Dia. Tip and Heater Assembly—No. 6A429G3 (chisel, 3" shank), No. 6A429G4 (chisel, 6" shank), No. 6A429G5 (pyramid, 3" shank), No. 6A429G6 (pyramid, 6" shank). Net Each. . . . . \$5.75

G.E. No. 6A430 Renewal Transformer—With 6' cord set; 6 volts, 115-volt primary. Net Each. . . . . \$7.80

No. 6A428G2 Handle and Cord—Six foot cord with terminals. Net Each. . . . . \$4.90

## LIGHTWEIGHT INDUSTRIAL IRONS

Complete with handle, 6' cord, iron-clad tip, heater assembly. Thread-on heater and tip. Operates on 60 W, 120 V. U/L Listed.

G.E. No.	Rating		Tip		Net Each
	Volts	Watts	Dia.	Type	
6A273	120	60	3/16"	Chisel	\$14.20
6A283	120	60	3/16"	Pyramid	14.20
6A283G23	120	60	3/16"	Chisel	14.20

Dia.	Tip	Renewal Tip & Heater		Ironclad Tip Only	
		G.E. No.	Net Ea.	G.E. No.	Net Ea.
3/16"	Chisel	6A300	\$6.95	6D4P10	\$1.40
3/16"	Pyramid	6A301	6.95	6D4P16	1.40
3/16"	Chisel	6A301G4	6.95	6D4P12	1.40

No. 6A273G2 Handle and Cord—Six foot cord; two conductor. Net Each. . . . . \$7.25

No. 6A273G5 Handle and Cord—Six foot cord; three conductor with NEMA standard plug. Net Each. . . . . \$8.45

## MIDGET SOLDERING IRONS

Midget types rated 6 volts, 18 to 45 watts, nominal; U/L listed. Tips are ironclad.

G.E. No. 6A203 Handle and Cord—For two- and four-tap transformers. Net Each. . . . . \$3.65

G.E. No. 6A203G2 Handle and Cord—For transformer with three-heat switch only. Net Each. . . . . \$4.15

G.E. No. 6A221 Heater Assembly—For threaded tips. Rated 25 watts. Net Each. . . . . \$4.05

G.E. No. 6D4P16 Threaded Ironclad Tip—3/16" pyramid. . . . . \$1.40

G.E. No. 6D4P20 Threaded Ironclad Tip—3/16" cone. . . . . 1.40

G.E. No. 6D4P4 Threaded Ironclad Tip—3/16" spade. . . . . 1.40

ASSEMBLIES				TRANSFORMERS			
G.E. No.	Dia.	Tip Type	Net Each	G.E. No.	Tap	Pri. Volts	Net Each
6A211	3/16"	Chisel	\$4.05	6A362G2	Single	115	\$6.90
6A213	3/16"	Cone	4.05	6A364G2	Four	115	9.20
6A215	3/16"	Pyramid	4.05	6A434	†	115	19.80
6A217	3/16"	Chisel	4.05				
6A211-G31*	3/16"	Chisel	4.60				

\*45 watts, all others 25 watts. †With three-heat switch, 18-45 watts. Use only with No. 6A-203G2.

## GREENLEE CHASSIS PUNCHES AND DRIVER



Greenlee Series 730 Chassis Punches—Cut clean, accurate holes in radio chassis for connectors, tube sockets and other receptacles. Operates simply with ordinary wrench for drive power. No reaming or filing necessary, the hole is smooth and perfect. Will cut holes in chassis up to 16-gauge metal. Average Shipping Weight, 1 1/2 lbs.

Part No.	Hole Size	Cap Screw	Net Each	Part No.	Hole Size	Cap Screw	Net Each
500 2408.6	1/8"	1/4"	\$2.35	500 2419.1	1 1/4"	3/8"	\$ 2.70
500 2433.7	1/8"	3/8"	2.35	500 3912.1	1 3/8"	3/8"	3.25
500 2409.4	1/8"	1/2"	2.35	500 2420.5	1 3/8"	1/2"	3.25
500 2410.8	1/8"	5/8"	2.35	500 2421.3	1 3/8"	3/8"	3.70
500 2411.6	1/8"	3/4"	2.35	500 2422.1	1 3/8"	3/8"	4.40
500 2412.4	1/8"	7/8"	2.35	500 6828.8	1 3/8"	3/8"	4.95
500 2413.2	1/8"	1"	2.35	500 2424.8	1 3/8"	3/8"	6.20
500 2414.0	1/8"	1 1/8"	2.60	500 2425.6	2"	3/8"	6.70
500 2415.9	1"	1 1/8"	2.60	500 2426.4	2 1/8"	3/8"	9.90
500 2416.7	1 1/8"	1 1/8"	2.70	500 2427.2	2 1/8"	3/8"	7.20
500 2417.5	1 1/8"	1 1/4"	2.70	500 2429.9	2 1/8"	3/8"	11.70
500 2428.0	1 1/8"	1 1/4"	2.70	500 2430.2	2 1/8"	3/8"	16.20
500 2418.3	1 1/8"	1 1/2"	2.70	500 2431.0	3"	3/8"	22.50

Greenlee Series 731 Square Radio Chassis Punches—Cut any square or oblong shapes to exact size needed.

Part No.	Hole Size	Net Each	Part No.	Hole Size	Net Each
500 2446.9	1/2"	\$4.95	500 2448.5	3/4"	\$6.85
501 3170.2	3/4"	5.10	501 3172.9	1"	7.10
501 3171.0	3/4"	5.85			

No. 731-R Relay Punch—Makes 1.018" x 0.861" hole for P&B No. KHP relay socket. Starting hole, 3/4". Capacity, 16 ga. Part No. 501 5115.0—Net Each. . . . . \$13.05

Greenlee Series 732 Chassis "Key" Punches—Cut slots for keyed tube sockets.

Part No.	Hole Size	Net Each	Part No.	Hole Size	Net Each
500 2451.5	1 1/2"	\$4.60	500 6832.6	1 1/4"	\$5.90
500 2452.3	1 1/2"	4.70	500 2455.8	1 1/4"	6.25
500 2453.1	1 1/4"	5.25			

Greenlee Series 733 Radio Chassis "D" Punch—For high frequency miniature tube sockets. Drive screw fits 3/8" hole.

Part No. 500 2459.0—Makes 1/2" hole. Net Each. . . . . \$4.25

Part No. 500 2460.4—Makes 3/8" hole. Net Each. . . . . 4.50

## HYDRAULIC PUNCH DRIVER

An efficient, portable hydraulic unit specifically designed for driving standard Greenlee Knockout Punches. Develops over 11 tons ram pressure. Cuts conduit holes in up to 10-gauge metal with ease. Cuts in tight places more easily too, because no wrench space is needed. Set consists of hand hydraulic pump, high pressure hose, ram, adapter screw and die sleeve. The 3-foot high-pressure hose is of heavy wire braid-reinforced oil-resistant rubber. Spring action returns piston when hydraulic pressure is released. The set handles knockout punches for cutting 1/2" to 4" conduit holes and all Greenlee radio chassis punches using 3/8" and larger diameter drive screws. Set is packed in sturdy metal case for easy transportation. Punches and dies not included.

Greenlee Hydraulic Knockout Punch Driver Model 7646—Complete Set. Weight 20 lbs. Net Each. . . . . \$99.00

Write for prices on punches and individual items contained in the above set. Other Greenlee Punch Drivers are available; inquire.

## ERSIN MULTICORE SOLDER

### SAVBIT® MULTICORE—1 POUND CARTONS

Special copper-loaded alloy reduces tip wear by 90%. Five core construction; tins rapidly.

Gauge	Net per Pound			
	1-27 Lbs.	28-83 Lbs.	84-111 Lbs.	112 Lbs. Up
14	\$3.20	\$2.68	\$2.33	\$2.24
16	3.22	2.71	2.34	2.24
18	3.34	2.81	2.44	2.34
20*	3.63	3.05	2.65	2.54
22*	3.90	3.27	2.84	2.73

\*Available in 1-pound cartons only.

### SPECIAL MULTICORE—1 POUND CARTONS

Tin-lead alloys conform to latest Federal Specification QQ-S-571.

Alloy	Gauge	Net per Pound			
		1-27 Lbs.	28-83 Lbs.	84-111 Lbs.	112 Lbs. Up
L.M.P.† (Sn62)	18*	\$5.06	\$4.26	\$3.70	\$3.55
	18*	5.86	4.92	4.27	4.10
	22*	7.25	6.09	5.29	5.07
63/37 (Sn63)	18*	3.54	2.97	2.58	2.47
Eutectic	18*	3.60	3.02	2.63	2.52
	20*	3.74	3.14	2.72	2.62
H.M.P.‡	18*	4.27	3.58	3.12	2.98
Eutectic	18*	4.33	3.63	3.16	3.02

### STANDARD MULTICORE—1 POUND CARTONS

Tin-lead alloys conform to latest Federal Specification QQ-S-571.

Alloy	Gauge	Net per Pound			
		1-27 Lbs.	28-83 Lbs.	84-111 Lbs.	112 Lbs. Up
40/60 (Sn40)	14 (.080")	\$2.61	\$2.19	\$1.91	\$1.83
	16 (.064")	2.67	2.24	1.94	1.86
	18 (.048")	2.70	2.27	1.97	1.89
45/55 (Sn45)	14	2.79	2.34	2.03	1.94
	16	2.82	2.37	2.05	1.97
	18	2.89	2.43	2.12	2.02
50/50 (Sn50)	14	2.94	2.46	2.14	2.06
	16	3.01	2.53	2.20	2.11
	18	3.08	2.58	2.22	2.13
60/40 (Sn60)	14	3.32	2.78	2.42	2.32
	16	3.34	2.81	2.44	2.34
	18	3.40	2.86	2.48	2.39
	20 (.036")*	3.67	3.09	2.68	2.57
	21 (.032")*	3.79	3.19	2.76	2.66
	22 (.028")*	3.95	3.32	2.88	2.76

\*Available in 1 lb. cartons only. †Low Melting Point. ‡High Melting Point; not to Federal Specifications.

Note: For 7-lb. reels, deduct 4c per pound from prices shown.

Kit Paks—Two gauges. Net per Kit Pak . . . . . 25c

Easy Dispenser Pak (60/40)—Ga. 18. Net per Pak . . . . . 69c





# Headsets and Accessories

## COMMERCIAL



One of the most rugged headsets. Widely used on commercial radio applications, amateur radio, industrial test instruments, etc. Weighs less than 5 oz. Bakelite cap and shell. Waterproof cord. **Series 151** (Fig. A)—Has nickel-plated headband and over-the-head cord with pin tips. **Series 152**—Has black, fabric covered double headband and over-the-head cord with pin tips. **Series 155** (Fig. B)—Has black vinyl covered double headband and "Y" cord with No. 501 plug. **Nos. 156 and 157** (Fig. B)—Have black rubber covered double headband and "Y" cord with No. 501 plug. **Nos. 158 and 159**—Have black rubber covered double headband and "Y" cord with pin tips.

Ohms	Standard Types (No Plug)		Net Each	Standard Types (With No. 501 Plug)		Net Each
3.2	151-03	152-03	\$7.26	151-9-03	152-9-03	\$8.34
600	151-06	152-06	7.26	151-9-06	152-9-06	8.34
2KDC	151-2K	152-2K	7.26	151-9-2K	152-9-2K	8.34

Amateur Types				Educational Types			
No.	Ohms	501 Plug	Net Each	No.	Ohms	501 Plug	Net Each
156	600	Yes	\$9.00	155-03	3.2	Yes	\$7.80
157	17M	Yes	9.00	155-06	600	Yes	7.80
158	600	No	8.10	155-2K	2KDC	Yes	7.80
159	17M	No	8.10				

## DEPENDABLE



The original Trimm headset, now further improved. Recommended for general radio, communications, electronic testing applications and low-cost language training systems. Bakelite shell and caps. Cotton, 5-foot braided tinsel cord. Terminals are entirely enclosed. Adjustable tubular vinyl plastic covered, double-wire headband. Available in both standard and

stereo-double headsets and single earphones, (-14 indicates stereo versions). Standard DC ohmages and impedances are listed in table below. **Note:** \*Indicates DC ohms.

Trimm No.	Ohms	Net Ea.	Trimm No.	Ohms	Net Ea.
70-03	3.2	\$3.06	70-9-4K	4,000*†	\$4.08
70-06	600	3.12	70-14-03	3.2‡	4.20
70-9-03	3.2†	3.54	70-14-2K	2,000†	4.74
70-15	1,500	3.18	71-2K	2,000††	3.84
70-2K	2,000*	3.24	72-03	3.2‡	2.10
70-3K	3,000*	3.42	72-1K	1,000*‡	2.16
70-4K	4,000*	3.60	72-2K	2,000*‡	2.25
70-9-2K	2,000†	3.72			

†With plug, ‡Single earphone, ††With special cords, ‡Stereo w/ 513 plug (3 circuit).

## REX

Low cost bi-polar type headset. Cord 4½ ft. long. Weight, 6 oz. Bakelite® shell and cap. Plastic covered wire headband. Enclosed terminals. High sensitivity. Recommended for crystal sets, code training, institutional radios, etc.

®Registered Bakelite Corp. trademark.



Trimm No.	Ohms	Net Ea.	Trimm No.	Ohms	Net Ea.
30-03	3.2‡	\$2.70	32-9-2K*	2,000 DC	\$3.33
30-2K	2,000 DC	2.82	32-03†	3.2‡	1.50
30-3K	3,000 DC	3.00	32-1K†	1,000 DC	1.56
30-9-03*	3.2‡	3.21			

\*With plug, †Single earphone, ‡Impedance.

## EAR CUSHIONS

**Trimm No. 654**—Sponge rubber ear cushion provides maximum ease in wearing headsets. Fits Featherweight, Acme, Rex and "L". Net per Pair..... **96¢**  
**Trimm No. 655**—For Trimm "L", "S" and ANB-H-1. Net per Pair..... **\$1.80**  
**Trimm No. 656**—MIL Type MX-41/AR. For use with "L" and "S". Net Each..... **\$2.52**  
**Trimm No. 660**—Sponge rubber, fits Trimm Dependable, Professional, "K" and "W" (Army-Navy), Clevis-Brush Type A and BA Headsets. Net per Pair..... **\$1.50**

## "L" HEADSETS

Intended especially for high quality communication systems requiring extended frequency range. Particularly suitable for language training systems, broadcast stations, hi-fi and stereo, in addition to a variety of military communication uses. Durable construction. Choice of several impedances. No. 654, 655 or 656 ear cushions may be used, depending on individual choice. Electro-magnetic design with "floating" diaphragm enclosed in ear capsule. **Series No. 56**—Vinyl covered, double headband with an adjustable yoke. Restricted rotation. No. 56 headset terminates with a 5-foot neoprene cord and plug (No. 501). Cord is integral part of headband. No. 56-14 headset terminates with a 5-foot "Y" nylon cord and three-circuit plug (No. 516); **Series No. 50**—Nylon-braided 5-foot "Y" cord; standard headset No. 50, terminated with plug (No. 501); stereo type No. 50-14, terminated with three circuit plug (No. 516). Available in impedances listed below.



Trimm No.	Ohms	Net Each	Trimm No.	Ohms	Net Each
50-06	600	\$13.80	56-06	600	\$16.59
50-08	8	13.80	56-08	8	16.59
50-2M	2,000	13.80	56-2M	2,000	16.59
50-5M	5,000	13.80	56-5M	5,000	16.59
50-12M	12,000	14.40	56-12M	12,000	17.19
50-14-6M*	6,000	16.80	56-14-08*	8	18.99
50-14-08*	8	16.20	56-14-16*	16	18.99
50-14-16*	16	16.20	56-14-6M*	6,000	19.59

\*Stereo.

## FEATHERWEIGHT



World famous "quality" headset. Weighs only 4½ oz. Mercerized cotton, moisture proof, wear resistant 6-foot braided tinsel cord, terminals enclosed. No. 100 and No. 106 series adjustable, nickel-plated steel headband. No. 104 and No. 107 series have adjustable fabric covered double headband. Stereo types are also available.

Trimm No.	Ohms	Net Ea.	Trimm No.	Ohms	Net Ea.
100-03	3.2†	\$6.60	104-9-2K	2,000 DC	\$7.68
100-2K	2,000 DC	6.60	104-14-03*	3.2†	8.16
100-9-2K	2,000 DC	7.68	106	24,000†	6.60
104-03	3.2†	6.60	107	24,000†	6.60
104-2K	2,000 DC	6.60			

\*Stereo, with plug. †Impedance.

## ACME

A superior low-cost headset. Recommended for crystal sets, code training, etc. Black Bakelite shell and cap. Chrome steel magnet. Double headsets, braided 4½ foot tinsel cord. Single headsets, vinyl 4½ foot cord. Enclosed terminals. No. 25 and 27, adjustable, flat steel headband. No. 24, adjustable, vinyl plastic covered double headband.



**Note:** \*Specifies DC ohms, †Specifies impedance.

Trimm No.	Ohms	Net Ea.	Trimm No.	Ohms	Net Ea.
24-03	3.2†	\$2.34	25-03	3.2†	\$2.07
24-9-03	3.2‡	2.85	25-2K	2,000*	2.16
24-9-2K	2,000*‡	2.94	25-4K	4,000*	2.34
24-15	1,500†	2.37	27-03‡	3.2†	1.23
24-2K	2,000*	2.43	27-9-03‡	3.2‡	1.74
24-4K	4,000*	2.61	27-1K‡	1,000*	1.32
24-14-03	3.2‡	3.72	27-2K‡	2,000*	1.41

‡With plug, †Stereo, with No. 513 plug. \*Single earphones.

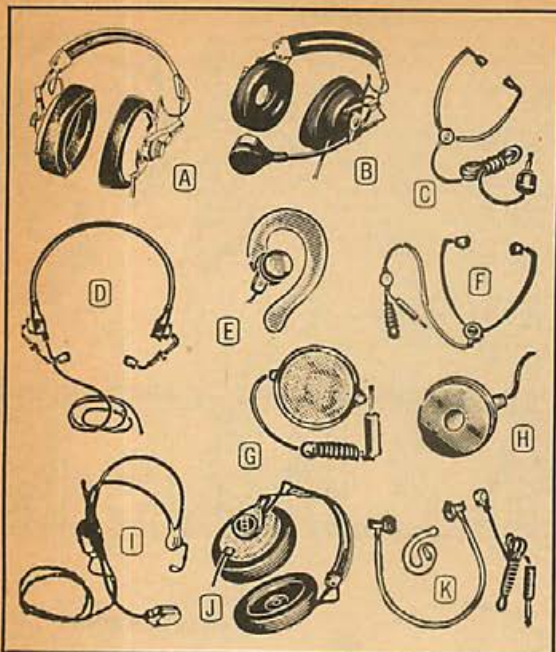
## TV HEADSET KITS

Kits below provide all you need to install phones for use on radios or TV sets. It will permit children to listen to their noisy programs without disturbing adults. In addition the hard of hearing will find new listening pleasure in TV when using headsets. Three kits are offered with three types of head sets. Kits include a small outlet box containing a remote loudspeaker On-Off switch, volume control for headsets, two jacks for multiple-listening. The outlet box is connected to the set by means of a 15-ft. braided cable which is attached to the voice coil leads within the set. Full instructions are included. Outlet box has brown hammertone finish and felt covered base.

**Trimm No. 631**—Outlet box only. Net Each..... **\$4.29**  
**Trimm No. 632**—Outlet box with No. 24-9-03 headset. Net **7.14**  
**Trimm No. 633**—Outlet box with 70-9-03 headset. Net.... **7.83**  
**Trimm No. 635**—Outlet box with No. 115-03 earphone. Net **9.36**



# TELEX® Headsets, Accessories



## NEW STEREO-TWIN HEADSET (FIG. A)

Improved version of the famous Dyna-Twin®, below, but with built-in control on each earpiece for individual volume adjustment for each channel. Comes complete with 8-ft. cord and 3-circuit plug. For 4, 8, or 16 ohms source impedance. **Telex No. ST-20—Net Each.....\$29.15**

## DYNA-TWIN® STEREO HEADSET (FIG. B)

Stereophonic "presence" and private listening comfort with superior balanced sound in one compact pair of stereo phones. Specially designed high fidelity headset receivers deliver sound directly into the ear, eliminating the coloration of sound by environmental room factors and external noise. Great depth and directivity. Response is excellent (30-15,000 cps) for maximum sensitivity in stereophonic or monophonic operation. Light weight of only 12 ounces provides real listening comfort, seven-way headband adjustment for perfect fit and even weight distribution. Ear muffs are foam rubber for greater comfort and background noise absorption. Withstands usage in all temperatures normally encountered and adverse humidity changes. May be used in the recording laboratory, instrument practice (electronic organ), hi-fi listening and monitoring. Deep-cavity construction keeps ears free. Dynamic driver element has moisture-proof Mylar® diaphragm and self-supporting voice coil. All sets are complete with cord. **Response:** 30-15,000 cps. **Sensitivity:** Better than 90 db SPL for 1 milliwatt input.

**Telex No. HDP-53A Headset—Headset with a 3-circuit plug for stereo usage; 8-ft. cord; less boom mike assembly. Net.....\$24.95**  
**Telex No. DYB-15—Dyna-Twin dynamic headset with 250 ohm noise-cancelling dynamic microphone; 5-ft. cord; two standard, 2-circuit plugs; 500 ohms impedance. Net Each.....\$30.55**

## DYNASET® (FIG. C)

Dynamic under-the-ear headset covers speech and music and is excellent for telecasting and radio monitoring. Anodized aluminum tone arms. Sound conducted thru long life flexible tubing. Weighs 1.25 ounces. Sensitivity 105 db above .000204 dynes/cm<sup>2</sup> for one milliwatt power input. Impedance 15 ohms. **Telex No. HUP-01 Dynaset—Net Each.....\$8.33**  
**Telex No. AMT-2 Earrips—Net Each.....8c**

## TWINSET® (FIG. D)

Lightest headset ever made, 1.6 oz. Sound tubes adjustable to fit ears. Sensitivity, 120 db above .000204 dynes/cm<sup>2</sup> for 1 mw input. Standard 5' cord, when included, has phone plug. FAA approval on 500-ohm models. **Telex No. HTL-2—64 ohms impedance. Net Each.....\$14.26**  
**Telex No. HTW-2—500 ohms, for Pilot use (CAATC 3R2-1). Net Each.....\$14.26**  
**Telex No. HTX-2—1000 ohms. Net Each.....14.26**  
**Telex No. ATT-1—White plastic earrips. Net Each.....16c**  
**Telex No. ATT-2—Black rubber earrips. Net Each.....75c**

## TELE-FI® HEADSET (FIG. K)

Sound reaches one ear 1 millisecond after other ear. Receiver snaps onto headset or slips in slot of plastic "Earset". Cord and plug. Weight, 1/4 oz., less cord. **Telex No. HFR-91 (15 ohms), HFV-91 (125 ohms), HFW-91 (500 ohms), HFX-91 (1000 ohms) or HFY-91 (2000 ohms). Net Each.....\$5.78**  
**Telex No. AFT-1—Plastic foam cushions. Net Each.....5c**  
**Telex No. AFC-1—Complete under-ear band. Net Each.....75c**  
 \*Registered DuPont trademark.

## METAL EARSET® (FIG. E)

A high fidelity earphone that slips onto the ear. Weighs only 1/4 ounce. Uses sealed, rust-proof receiver. With 5' cord, standard phone plug. Comfortable listening at .3 mw.

**Telex No. EMR-2 (15 ohms), EMV-2 (125 ohms), EMW-2 (500 ohms), EMX-2 (1000 ohms) or EMY-2 (2000 ohms)—Complete Earset and cord. Net Each.....\$4.50**  
**Telex No. RTR-04 (15 ohms), RTV-04 (125 ohms), RTW-04 (500 ohms), RTX-04 (1000 ohms) or RTY-04 (2000 ohms)—Transistor Receiver only. Net Each.....\$2.09**  
**Telex No. AEF-1—Lucite® ear frame only. Net Each.....29c**  
**Telex No. AEF-2—Metal ear frame only. Net Each.....27c**  
**Telex No. AEF-3—Nylon ear loop only. Net Each.....8c**

## METAL MONOSET® (FIG. F)

Improved, lightweight, under-the-ear set for dependable, superior performance. Signals are direct to the ear, blocking out background noise. Sensitivity, 88 db above .0002 dynes/cm<sup>2</sup> for 10 μw input. Sealed magnetic receiver, removable plastic earrips. Weighs 1.2 oz. With 5 ft. cord, standard phone plug.

**Telex No. HMV-2 (128 ohms); HMY-2 (2000 ohms)—Net.....\$7.50**

## DYNAMIC RADIO PILLOW SPEAKER (FIG. G)

Mellow and smooth tonal quality. Durable stainless steel housing, shock-absorbing polyethylene ring around edge. 3 3/4" dia., 1 1/4" thick, weight 4 oz. without cord. Comfortable listening level with 1 mw input to speaker. Maximum power level, 1/2 watt approx. With 5' cord and standard phone plug.

**Telex No. SDM-2A—3.2 ohms impedance. Net Each.....\$6.33**

**Telex No. SDM-2—10,000 ohms impedance. Net Each.....9.00**

**Telex No. SDM-7A—10,000 ohms impedance; with 5' long cord with Volume Control. 25,000 ohms. Net Each.....\$11.50**

## RADIO PILLOW SPEAKER MODEL "R" (FIG. H)

Palm-sized, weighs only 2.6 oz., easily sterilized in alcohol. Completely shock-proof. Detachable flexible cord. Sensitivity 1 mw, for comfortable listening. Frequency response, 50-4000 cps. 3/4" thick, 2 1/2" diameter, 5' cord and plug.

**Telex No. SMV-2A (128 ohms) or SMY-2A (2000 ohms)—Net Each.....\$5.35**

## BOOM-MIKE HEADSETS (FIG. I)

Two-way communication headset and mike. Adjustable feather-weight metal boom and tone arms. Sound conducted directly to ears with background noise blocked. **Mike Impedance:** 50 ohms. **Receiver Sensitivity:** 120 db above .000204 dyne/sq. cm/mw. **Receiver Response:** 50-5,000 cps. Weight, 3.5 oz. **Telex No. BCW-02—Headset with 2 receivers; no cord. Net Each.....\$24.00**

**Telex No. BDN-04—Two receivers; total impedance 500 ohms. With small, noise-cancelling dynamic mike (135 ohms impd.). Less cord. Net Each.....\$27.00**

**Telex No. BCW-03—Two receivers; total impedance 500 ohms. With high impedance ceramic mike. Less cord. Net Ea.....\$33.00**

## CORD UNITS AND ACCESSORIES

No.	Description	Net
CBE-54	Aircraft-type cord unit, 2 plugs (PI-55, PI-68)	\$ 8.10
CBF-34	Aircraft-type cord with push-to-talk switch	15.00
ATT-2	Extra black soft foam tips for headset tone arms	.75
ATT-1	Extra white plastic tips for tone arms	.16

## MAGNA-TWIN® MARK III HEADSET (FIG. J)

Combines comfort, reliability and hi-fi reproduction. Has many applications: Language teaching; amateur radio; mobile communications; and, even dental audio analgesia.

**MAGNA-TWIN® WITH CERAMIC BOOM MIKE**  
**Mike Response:** 50-9,000 cps. **Mike Sensitivity:** =3 db, 55 db below 1 volt/microbar at 1 kc.  
**Telex No. MRB-30—10,000 ohm phones with ceramic high impedance microphone; 5 ft. cord; 2-standard phone plugs. Net Each.....\$31.90**

## WITHOUT BOOM MIKE

**Telex No. MR-4 (10,000 ohms) or MR-6 (500-600 ohms)—With 2-cir. phone plug ends. Net Each.....\$18.10**

## TV "LISTENER"

For listening to TV without disturbing others. Volume control for headset. On-off speaker switch. Four-foot cord from earset to control; 15' from control to TV.

**Telex No. LCP-98—Control and earset. Net Each.....\$8.97**

**Telex No. ELV-98—Extra earset, with 4' cord. Net Each.....2.85**

## VOLUME CONTROL CORDS

Standard length 5 ft.; standard plug.

**Telex No. VYM-2—For 2,000 ohm Magnetic Pillow speaker. Net Each.....\$5.93**

**Telex No. VXM-2—For 1,000 ohm Twinset. Net Each.....5.93**

**Telex No. VMW-2—For 64 ohm Twinset, 125 ohm Magnetic Pillow speaker. Net Each.....5.93**

**Telex No. VVT-2—For 15, 64 or 125 ohm Metal Monoset, Earsets, or Tele-Fi. Net Each.....5.93**

**Telex No. VXT-2—For 500, or 1,000 ohm Metal Monoset, Earsets, or Tele-Fi. Net Each.....5.93**

**Telex No. VYT-2—For 2,000 ohm Metal Monoset, Earsets, or Tele-Fi. Net Each.....5.93**

**Telex No. VMD-2—For 10K ohm Dynamic Pillow spkr. Net 5.93**

## STANDARD CORDS

Less volume control; gray color; 5 ft. length.

**No. CMM-2—For Twinset, Magnetic Pillow speaker; standard phone plug. Net Each.....\$2.34**

**No. CMM-92—CMM-2 with 90° min. phone plug. Net Ea.....1.82**

**No. CMM-98—As above, but straight miniature plug. Net.....2.04**

**No. CMT-2—For Metal Monoset, Tele-Fi, TV Listener, Plastic Earset and Metal Earset; std. phone plug. Net Each.....\$2.34**

**No. CMT-92—Same as CMT-2 with 90° min. plug. Net.....1.82**

**No. CMT-98—Same as above with straight min. plug. Net.....2.04**

**No. CSD-2—For Dynamic Pillow speaker; std. phone plug. Net Each.....2.34**

**No. CCM-2—Coiled (6-ft. extended) cord with standard phone plug. Coil 1/2" dia. Net Each.....\$3.27**

**No. CCT-2—Same, but 5-ft. extended. Net Each.....3.16**





# ELECTRONIC MUSICAL INSTRUMENT AND COMMUNICATION/AIRCRAFT SPEAKERS

## LIFETIME GUARANTEED ELECTRONIC MUSICAL INSTRUMENT LOUDSPEAKERS

The Jensen LIFETIME Electronic Musical Instrument Loudspeaker group includes four fully LIFETIME GUARANTEED loudspeakers. These 12" and 15" loudspeakers designed especially for bass guitar, string bass, fully instrumented guitar and electronic accordion are fully guaranteed against loudspeaker shatter and diaphragm disintegration.

EM-1220  
EM-1250



EM-1520  
EM-1550

### BASS GUITAR AND STRING BASS

Nom. Size, Inches	Jensen Number	Mag. Wt., Lbs.	Voice Coil		Dimensions, Inches			Net Each
			Imp., Ohms	Power W.	H. x W.	Depth	Baffle Opening	
12	EM-1220	1 3/4*	8	1 1/2	12 1/2	6 3/4	10 1/2	\$34.62
15	EM-1520	3 3/8	8	2	15 1/2	7	13 3/4	67.65

### FULLY INSTRUMENTED GUITAR AND ELECTRONIC ORGAN

12	EM-1250	1 3/4*	8	1 1/2	12 1/2	6 3/4	10 1/2	\$34.62
15	EM-1550	3 3/8	8	2	15 1/2	7	13 3/4	67.65

\*SYNTOX-6@ magnet; all others DP-Alnico 5.

## SPECIAL LOUDSPEAKERS FOR ELECTRONIC MUSICAL INSTRUMENTS

Jensen electronic musical instrument loudspeakers are highly special devices designed to give exactly the correct musical quality required for the particular instrument. Unprecedented ruggedness for unusually long life under severe peak load conditions.

### BASS GUITAR

Nom. Size, Inches	Jensen No.	Mag.* Oz.	Voice Coil		Dimensions, Inches			Net Each	
			Imp., Ohms	Power Watts†	H. x W.	Depth	Baffle Opening		
12	EM-1200	16	8	50	1 1/2	12 1/2	6 3/4	10 1/2	\$22.65
15	EM-1500	27	8	60	1 3/2	15 1/2	7	13 3/4	32.76

### GUITAR

8	EM-801	10	8	25	1	8 1/2	4 1/2	6 3/4	\$12.57
10	EM-1001	10	8	30	1	10 1/2	5 1/4	8 3/4	13.56
12	EM-1201	11	8	40	1 1/4	12 1/2	6 1/2	10 1/2	18.60
12	EM-1202	16	8	50	1 1/2	12 1/2	6 3/4	10 1/2	22.65
15	EM-1501	27	8	60	1 3/2	15 1/2	7	13 3/4	32.76

### ACCORDION

12	EM-1202	16	8	50	1 1/2	12 1/2	6 3/4	10 1/2	\$22.65
15	EM-1501	27	8	60	1 3/2	15 1/2	7	13 3/4	32.76

### ORGAN

6 x 9	EM-6900	10	8	12	1	6 1/2 x 9 1/2	3	5 1/2 x 8 1/2	\$ 9.33
8	EM-802	10	8	15	1	8 1/2	4 1/2	6 3/4	12.57
10	EM-1002	10	8	18	1	10 1/2	5 1/4	8 3/4	13.56
12	EM-1203	10	8	20	1	12 1/2	6 1/2	10 1/2	14.19
12	EM-1204	16	8	25	1 1/4	12 1/2	6 3/4	10 1/2	22.65
15	EM-1502	27	8	30	1 3/2	15 1/2	7	13 3/4	32.76

\*SYNTOX-6@ magnets. †Program power. Peak power is twice program rating.

EM-1500  
EM-1501  
EM-1502



EM-1203



EM-801  
EM-802

## COMMUNICATION AND AIRCRAFT GROUP

Feature special response characteristics for maximum speech intelligibility in high noise conditions. Widely used in amateur, CB and aircraft equipment. No. PC5V45 is excellent for speaker/microphone use. Aircraft types referred to particular makes are for cabin music and announce systems. Where specification number is shown, unit is original equipment item. No. CA6T3 has special voice response widely used in private aircraft. DP-Alnico 5 magnet unless otherwise noted.

### COMMUNICATION TYPES

Nom. Size, Inches	Jensen Number	Mag. Wt., Oz.	Voice Coil		Dimensions, Inches			Net Each	
			Imp., Ohms	Power W.	H. x W.	Depth	Baffle Opening		
3 x 5	PC3X5V3	1.47	3.2	5.0	3/8	3 1/2 x 5 1/4	2	2 1/2 x 4 1/4	\$ 3.15
3 1/2	PC35V3	1.47	3.2	5.0	3/8	3 1/2	2 1/4	3 3/8	2.88
4	PC4V3	1.47	3.2	5.0	3/8	4 1/2	2 1/4	3 3/8	2.88
5	PC5V3	1.47	3.2	5.0	3/8	4 1/2	2 1/4	3 3/8	3.00
6	PC6V45	1.47	4.5	5.0	3/8	4 1/2	2 1/4	4	3.33
6	CA6T3	4.8*	3.2	7.5	3/8	6 1/2	2 1/2	5 1/4	4.74
8	CC8R3	10.0*	3.2	12.5	1	7 1/2	3	6 3/4	6.48
.....	AP-10 (ST-590)	1.47	3.2	5.0	3/8	6 3/4 x 5	5 1/2	.....	17.16
.....	AP-10 (ST-591)	1.47	4.5	5.0	3/8	6 3/4 x 5	5 1/2	.....	18.87

### AIRCRAFT TYPES

5	PA5T45†	3.16	4.5	6.0	3/4	4 3/4	2 1/2	4	\$ 5.04
8	8J10 (V1321-2)‡	1.73	12	9.0	1	7 1/2	2 1/4	6 3/4	8.52
8	C8US (C-7885)§	2.8*	8	10.0	3/4	7 1/2	2 1/4	6 3/4	13.56
8	C8R (C7430)‡	10.0*	*	12.0	1	7 1/2	3	6 3/4	18.15

‡For Douglas aircraft. †For Boeing aircraft. \*Transformer. †SYNTOX-6@ ceramic magnet. ‡For Lockheed aircraft.

4J6



AP-10



8J10







# Concert Series Speakers

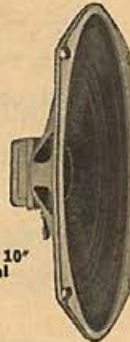
5" x 7" Deluxe Oval Dual Cone



6" x 9" Oval



4" x 10" Oval



C6T8



3 1/2" Model



12" Super Shallow



12" Model



2" Miniature



## MINIATURE GROUP

For small-space use in new or replacement applications. DP-Alnico 5 magnets. P20001 thru P20003, 2" sq. x 1/4" d. for 1 1/4" baffle; mag. wt., .47 oz. P27501 and 2, 2 1/4" sq. x 1 1/4" d. for 2 1/4" baffle; mag. wt., .65 oz.

Nom. Size, In.	Jensen No.	Voice Coil			Net Each
		Imp., Ohms	Pwr., W.	Dia., In.	
2	P20001	6-8	.10	1 1/4	\$3.15
2	P20002	10-12	.10	1 1/4	3.15
2 1/4	P20003	10-12	.10	1 1/4	3.33
2 1/4	P27501	6-8	.25	1 1/4	3.72
2 1/4	P27502	12-16	.25	1 1/4	3.72

## OVAL GROUP

Nom. Size, Inches	Jensen No.	Mag.* Wt., Oz.	Voice Coil			Dimensions, Inches			Net Each
			Imp., Ohms	Power Watts†	Dia., In.	H. x W.	Depth	Baffle Opening	
2 x 6	P2X6X3	.68	3.2	3.5	1 1/2	2 1/4 x 6 1/4	2 1/4	1 1/2 x 5 1/2	\$2.85
3 x 5	P3X5X3	.68	3.2	4.0	1 1/2	3 x 5	2 1/4	2 1/4 x 4 1/4	2.58
3 x 5	P3X5X8	.68	8	4.0	1 1/2	3 x 5	2 1/4	2 1/4 x 4 1/4	2.58
4 x 6	P4X6X3	.68	3.2	4.0	1 1/2	4 1/4 x 6 1/4	2	3 1/4 x 5 1/4	2.76
4 x 6	P4X6V3	1.00	3.2	4.5	1 1/2	4 1/4 x 6 1/4	2 1/4	3 1/4 x 5 1/4	2.97
4 x 6	P4X6V8	1.47	3.2	5.0	1 1/2	4 1/4 x 6 1/4	2 1/4	3 1/4 x 5 1/4	3.09
4 x 8	P4X8V3	1.47	8	7.0	1 1/2	4 1/4 x 8	2 1/4	3 1/4 x 7 1/4	3.75
4 x 8	P4X8U3	1.73	3.2	7.0	1	4 x 8	2 1/4	3 1/4 x 7 1/4	4.32
4 x 8	P4X8U8	1.73	8	7.0	1	4 x 8	2 1/4	3 1/4 x 7 1/4	4.59
4 x 8	P4X8U40	1.73	40 CT	7.0	1	4 x 8	2 1/4	3 1/4 x 7 1/4	4.59
4 x 10	P4X10V8	1.47	8	7.0	1 1/2	4 1/4 x 10	2 1/4	3 1/4 x 9 1/4	4.08
4 x 10	P4X10U3	1.73	3.2	7.5	1	4 1/4 x 10	2 1/4	3 1/4 x 9 1/4	4.65
4 x 10	P4X10U8	1.73	8	7.5	1	4 1/4 x 10	2 1/4	3 1/4 x 9 1/4	4.65
4 x 10	P4X10U20	1.73	20 CT	7.5	1	4 1/4 x 10	2 1/4	3 1/4 x 9 1/4	4.95
4 x 10	P4X10U40	1.73	40 CT	7.5	1	4 1/4 x 10	2 1/4	3 1/4 x 9 1/4	4.95
4 x 10	P4X10T3	2.5*	3.2	8.5	1	4 1/4 x 10	2 1/4	3 1/4 x 9 1/4	5.00
4 x 10	P4X10T9	2.5*	8-10	8.5	1	4 1/4 x 10	2 1/4	3 1/4 x 9 1/4	5.00
5 x 7	P5X7V3	1.47	3.2	6.0	1 1/2	5 x 7 1/4	2 1/4	4 1/4 x 6 1/4	3.50
5 x 7	P5X7V8	1.47	8	6.0	1 1/2	5 x 7 1/4	2 1/4	4 1/4 x 6 1/4	3.50
5 x 7	P5X7VD3†	1.47	3.2	6.0	1 1/2	5 x 7 1/4	2 1/4	4 1/4 x 6 1/4	3.90
5 x 7	P5X7VD8†	1.47	8	6.0	1 1/2	5 x 7 1/4	2 1/4	4 1/4 x 6 1/4	3.90
5 x 7	P5X7U3	1.73	3.2	8.0	1	5 x 7 1/4	2 1/4	4 1/4 x 6 1/4	4.30
5 x 7	P5X7U8	1.73	8	8.0	1	5 x 7 1/4	2 1/4	4 1/4 x 6 1/4	4.30
5 x 7	P5X7T3	2.5*	3.2	9.0	1	5 x 7 1/4	2 1/4	4 1/4 x 6 1/4	4.71
5 x 7	P5X7T9	2.5*	8-10	9.0	1	5 x 7 1/4	2 1/4	4 1/4 x 6 1/4	4.71
5 x 7	P5X7T20	2.5*	20 CT	9.0	1	5 x 7 1/4	2 1/4	4 1/4 x 6 1/4	5.07
5 x 7	P5X7T40	2.5*	40 CT	9.0	1	5 x 7 1/4	2 1/4	4 1/4 x 6 1/4	5.07
5 x 7	C5X7RD3†	10.0	3.2	10.0	1	5 x 7 1/4	2 1/4	4 1/4 x 6 1/4	6.72
5 x 7	C5X7RD8†	10.0	8	10.0	1	5 x 7 1/4	2 1/4	4 1/4 x 6 1/4	6.72
5 x 8	P5X8U9*	1.73	8-10	8.0	1	5 x 8 1/4	2 1/4	4 1/4 x 6 1/4	4.59
6 x 9	P6X9V3	1.47	3.2	7.5	1 1/2	6 1/4 x 9 1/4	3 1/4	5 1/4 x 8 1/4	4.02
6 x 9	P6X9V8	1.47	8	7.5	1 1/2	6 1/4 x 9 1/4	3 1/4	5 1/4 x 8 1/4	4.02
6 x 9	P6X9VD3†	1.47	3.2	7.5	1 1/2	6 1/4 x 9 1/4	3 1/4	5 1/4 x 8 1/4	4.35
6 x 9	P6X9VD8†	1.47	8	7.5	1 1/2	6 1/4 x 9 1/4	3 1/4	5 1/4 x 8 1/4	4.35
6 x 9	P6X9V20	1.47	20 CT	7.5	1 1/2	6 1/4 x 9 1/4	3 1/4	5 1/4 x 8 1/4	4.26
6 x 9	P6X9V40	1.73	3.2	9.0	1	6 1/4 x 9 1/4	3	5 1/4 x 8 1/4	4.53
6 x 9	P6X9U8	1.73	8	9.0	1	6 1/4 x 9 1/4	3	5 1/4 x 8 1/4	4.53
6 x 9	P6X9T3	2.5*	3.2	10.0	1	6 1/4 x 9 1/4	3	5 1/4 x 8 1/4	4.89
6 x 9	P6X9T9	2.5*	8-10	10.0	1	6 1/4 x 9 1/4	3	5 1/4 x 8 1/4	4.89
6 x 9	C6X9T40	4.8	40 CT	10.0	1	6 1/4 x 9 1/4	3	5 1/4 x 8 1/4	5.46
6 x 9	C6X9RD3†	10.0	3.2	11.0	1	6 1/4 x 9 1/4	3	5 1/4 x 8 1/4	9.72
6 x 9	C6X9RD8†	10.0	8	11.0	1	6 1/4 x 9 1/4	3	5 1/4 x 8 1/4	9.72
6 x 10	P6X10U9*	1.73	8-10	9.0	1	6 1/2 x 10 1/2	3	5 1/4 x 8 1/4	4.83

## GENERAL PURPOSE GROUP

3	P3W3	1.00	3.2	3.5	1 1/2	3	1 3/8	2 5/8	\$ 2.73
3 1/2	P35W3	1.00	3.2	4.0	1 1/2	3 1/2	2 3/8	3 1/8	2.73
4	P4W3	1.00	3.2	4.5	1 1/2	4	2 3/8	3 3/8	2.52
4	P4V3	1.47	3.2	5.0	1 1/2	4	2 3/8	3 3/8	2.70
5	P5W3	1.00	3.2	5.0	1 1/2	4 1/2	2 3/8	3 3/8	2.55
5	P5V3	1.47	3.2	5.5	1 1/2	4 1/2	2 3/8	4	2.79
5	C5T3	4.8	3.2	6.0	1 1/2	4 1/2	2 3/8	4	4.65
5 1/4	P525W3	1.00	3.2	5.5	1 1/2	5 1/4	2 1/2	4 1/2	2.73
5 1/4	P525V3	1.47	3.2	6.0	1 1/2	5 1/4	2 1/2	4 1/2	2.91
5 1/4	C525T3	4.8	3.2	6.5	1 1/2	5 1/4	2 1/2	4 1/2	4.65
6	P6W3	1.00	3.2	6.0	1 1/2	6	2 3/8	5 1/4	2.94
6	P6V3	1.47	3.2	6.5	1 1/2	6	2 3/8	5 1/4	3.15
6	C6T3	4.8	3.2	7.5	1 1/2	6	2 3/8	5 1/4	4.71
7	P7V3	1.47	3.2	7.0	1 1/2	7	3 1/8	6 3/8	4.08
8	P8V3	1.47	3.2	8.0	1 1/2	7 1/4	3 1/8	6 3/8	3.51
8	P8U3	1.73	3.2	9.0	1	7 1/4	3 1/8	6 3/8	4.14
8	P8T3	2.5*	3.2	10.0	1	7 1/4	3 1/8	6 3/8	4.83
8	C8T8	4.8	8	11.0	1	7 1/4	3 1/8	6 3/8	4.14
8	C8S8	6.0	8	10.5	1	7 1/4	3 1/8	6 3/8	5.37
8	C8S8*	6.0	8	11.0	1	7 1/4	3 1/8	6 3/8	6.27
8	C8R8	10.0	8	12.0	1	7 1/4	3 1/8	6 3/8	6.90
10	C10T3	4.8	3.2	11.0	1	10 1/2	5 1/4	8 3/4	8.01
10	C10S8	6.0	8	12.0	1	10 1/2	5 1/4	8 3/4	8.52
10	C10S8*	6.0	8	12.0	1	10 1/2	5 1/4	8 3/4	8.58
12	C12T3	4.8	3.2	12.0	1	12 1/2	6 1/4	10 1/2	9.03
12	C12S8	6.0	8	13.0	1	12 1/2	6 1/4	10 1/2	9.42
12	C12S8*	6.0	8	13.0	1	12 1/2	6 1/4	10 1/2	9.42
12	C12R8	10.0	8	14.0	1	12 1/2	6 1/4	10 1/2	10.05
12	C12R8*	10.0	8	14.0	1	12 1/2	6 1/4	10 1/2	10.08
12	C12P8	16.0	8	18.0	1 1/2	12 1/2	6 1/2	10 3/4	18.87
12	C12N8	27.0	8	20.0	1 1/2	12 1/2	6 1/2	10 3/4	24.90
15	C15P8	16.0	8	20.0	1 1/2	15 1/2	7	13 3/4	25.17
15	C15N8	27.0	8	25.0	1 1/2	15 1/2	7	13 3/4	31.20

\*All model numbers beginning with "C" have SYNTAX-6® ceramic magnets. All others DP-Alnico 5. †Program power. Peak power is twice program rating. ‡Dual cone. §Performance equivalent to EIA 2.15 oz. ¶Dual cone and high-compliance annulus. \*Super-shallow dual cone. \*Performance equivalent to EIA 3.16 oz. \*Two-ported speaker housing.

## SPECIAL AUTOMOTIVE GROUP

Superior performance in confined mounting areas. No. C4T8 intended for Jaguar, MG and other British cars; C525T8 for Volkswagen and Karmann-Ghia; C6T8 installs between rear seats where provided for in Chevrolet SS, Buick, Pontiac and Oldsmobile.

Nom. Size, Inches	Jensen Number	Mag.* Wt., Oz.	Voice Coil			Dimensions, Inches			Net Eac.
			Imp., Ohms	Power Watts†	Dia., In.	H. x W.	Depth	Baffle Opening	
4	C4T8	4.8	8	5.5	3 1/4	4 1/2	3 1/2	4 1/2	\$4.65
5 1/4	C525T8	4.8	8	6.5	3 1/4	5 1/4	2 1/2	4 1/2	3.16
6	C6T8	4.8	8	7.5	3 1/4	6 1/2	2 1/2	5 1/2	3.16

\*SYNTAX-6® ceramic magnet. †Program power. Peak power is twice program rating.



# SHOW PACK AND CONCERT SERIES LOUDSPEAKERS



## JENSEN "Show Pack" REPLACEMENT SPEAKERS FOR AUTOMOTIVE, RADIO, TV REPLACEMENT

Jensen replacement loudspeakers sealed on attractive visual display cards are ideal for handy display rack sale by Electronics and Automotive parts distributors. In addition to radio and TV replacement the line includes the most popular and most commonly required loudspeakers for automotive front and rear deck replacement. A convenient detailed tabulation on back of display card shows which JENSEN speaker to choose for any automobile. The attractive packaging of transparent film keep speakers dust free and provides instant model identification.

Nominal Size, Inches	Jensen Number	Alnico-5 Magnet Wt., Oz.	Impedance, Ohms	V.C. Dia., Inches	Net Each
4	B4K5	.55	3.2	7/8	\$1.76
4	B4K7	.68	3.2	7/8	2.12
5	B5K5	.55	3.2	7/8	1.95
5	B5K7	.68	3.2	7/8	2.28
6	B6K73	.68	3.2	7/8	2.48
6	B6K78	.68	8-10	7/8	2.48
8	B8W3	1.00	3.2	7/8	3.60
8	B8W8	1.00	8-10	7/8	3.60
3 x 5	B3X5K5	.55	3.2	7/8	1.95
4 x 10	B4X10W3	1.00	3.2	7/8	3.60
4 x 10	B4X10WM	1.00	8-10, 20, 40	7/8	3.60
5 x 7	B5X7W3	1.00	3.2	7/8	3.05
5 x 7	B5X7WM	1.00	8-10, 20, 40	7/8	3.71
5 x 7	B5X7V3	1.47	3.2	7/8	3.14
5 x 7	B5X7VM	1.47	8-10, 20, 40	7/8	3.80
6 x 9	B6X9W3	1.00	3.2	7/8	3.33
6 x 9	B6X9WM	1.00	8-10, 20, 40	7/8	4.07
6 x 9	B6X9V3	1.47	3.2	7/8	3.60
6 x 9	B6X9VM	1.47	8-10, 20, 40	7/8	4.35



## INTERCOM GROUP

Designed for effective pickup and reproduction of speech in intercom replacement and original equipment. Supplied with DP-Alnico 5 magnets.

Nom. Size, Inches	Jensen Number	Mag. Wt., Oz.	Voice Coil		Dimensions, Inches			Net Each	
			Imp., Ohms	Power Watts	Dia., in.	H. x W.	Depth		Baffle Opening
2 x 6	P2X6V45	1.47	45	4.0	7/8	2 1/2 x 6 1/2	2 3/4	1 3/4 x 5 3/4	\$3.63
3	P3V45	1.47	45	4.0	7/8	3	1 1/2	2 3/4	3.00
3 x 5	P3X5X45	.68	45	4.0	7/8	3 1/4 x 5 1/4	2 1/4	2 1/2 x 4 1/2	2.82
3 1/2	P35V45	1.47	45	4.5	7/8	3 1/2	2 1/4	3 1/2 x 4 1/2	3.00
4	P4W45	1	45	5.0	7/8	4 1/2	2 1/4	3 1/2	3.06
4	P4W45	1	45	5.0	7/8	4 1/2	2 1/4	4	3.24
5	P5U45	1.73*	45	9.0	1	7 1/2	3	6 3/4	4.74
8	P8T45	2.5†	45	10.0	1	7 1/2	3 1/2	6 3/4	5.37

\*Performance equivalent to EIA 2.15 oz. †Performance equivalent to EIA 3.16 oz.

## CONCERT-FIDELITY SPEAKER GROUP

Advanced design, hi-fi quality speakers for full range music reproduction. Dual cone and true coaxial types for single-speaker systems offer low resonance and good bass response; coaxial types have special tweeters with integral crossover. Woofer, tweeter and midrange units provide for multi-speaker systems with 2-way and 3-way crossovers. Crossovers incorporate high frequency control, knob and escutcheon; mount in single hole (1 1/2" drill) with bushing lengths for up to 3/4" panel. Binding post terminals. Impedance, 8 ohms.

Type	Nom. Size, In.	Jensen No.	Frequency Range, cps	Power, Watts †	Dimensions, Inches			Net Each
					H. x W.	D.	Baffle Opening	
Full Range, Dual Cone	8	DC-80	40-14,000	11	8 1/2	4 3/4	7	\$12.57
	12	DC-120	25-13,000	13	12 3/4	6 1/2	10 1/2	14.49
3-element Coaxials*	8	KD-80	30-15,000	12	8 3/4	4 3/4	7	17.82
	12	KD-120	20-15,000	14	12 3/4	6 1/2	10 1/2	20.97
High Compliance	8	W-80	30-2,000	15	8 3/4	4 3/4	7	12.15
Woofer	12	W-120	20-2,000	18	12 3/4	6 3/4	10 1/2	14.04
	15	W-150	20-2,000	20	15 3/4	7 1/2	13 3/4	20.97
Midrange‡	8	M-81	600-4,000	25	8 3/4	4 3/4	7	9.36
Cone Tweeter	3 1/2	TW-350	2,000-15,000	15	3 3/4	2 3/4	3 3/4	3.75
Compression Horn Tweeters	.....	TH-100	1,000-16,000	25	4x10 1/2	11 1/2	3x9 1/2	13.17
	.....	TH-200	2,000-16,000	25	3x7 3/4	6 3/4	2x6 1/2	11.76
2-way Crossover*	.....	XN-100	1000†	.....	1 3/4 x 2 3/4	3 1/4	.....	3.78
	.....	XN-200	2000†	.....	1 3/4 x 2 3/4	3 1/4	.....	9.78
3-way Cross.*	.....	XN-640	600/4000‡	.....	1 3/4 x 2 3/4	3 1/4	.....	12.57

\*With H-F control. †Program power; peak power is twice program rating. ‡Crossover points. §Closed-back.

## HI-FI REPLACEMENT SPEAKER GROUP

Multi-application hi-fi replacements used in many makes of hi-fi equipment. Imp. 8 ohms.

Type	Nom. Size, In.	Jensen No.	Frequency Range, cps	Mag. Wt., Oz.	Power, Watts †	Dimensions, Inches			Net Each
						H. x W.	D.	Baffle Opening	
Full Range, Dual Cone	8	D-8R8	50-14,000	10*	12	7 1/2	3	6 3/4	\$ 9.24
	12	D-12R8	40-13,000	10*	14	12 3/4	4 3/4	10 1/2	11.52
Woofer	8	W-8R8	45-2,000	10*	20	7 1/2	3	6 3/4	8.61
	12	W-12R8	35-2,000	10*	25	12 1/2	4 3/4	10 1/2	11.19
	15	W-15R8	30-2,000	27*	30	15 3/4	6	13 3/4	35.46
	.....	M-8U8	600-4,000	1.73‡	25	7 1/2	3	6 3/4	4.83
Midrange, Closed-back	3	T-3K78	2,000-15,000	.68	15	3	1 3/4	2 3/4	3.12
	3 1/2	T-35K78	2,000-15,000	.68	15	3 1/2	1 3/4	3 3/4	3.33
	3 1/2	T-35W8	2,000-15,000	1.00	15	3 1/2	2 1/4	3 3/4	3.48
	3 1/2	T-35V8	2,000-15,000	1.47	15	3 1/2	2 1/4	3 3/4	3.75
Compression Horn Tweeters	.....	T-107	2,000-16,000	1.47	25	3 x 7 3/4	6 3/4	2 x 6 1/2	10.92
	.....	T-109	1,000-16,000	1.00	25	4 x 10 1/2	11 1/2	3 x 9 1/2	12.21

\*SYNTOX-6® ceramic magnet; all others DP-Alnico 5. †Program power; peak power is twice program rating. ‡Performance equivalent to EIA 2.15 oz.







# Talk-A-Phone Intercoms



## NEW DELUXE INTERCOM SYSTEMS

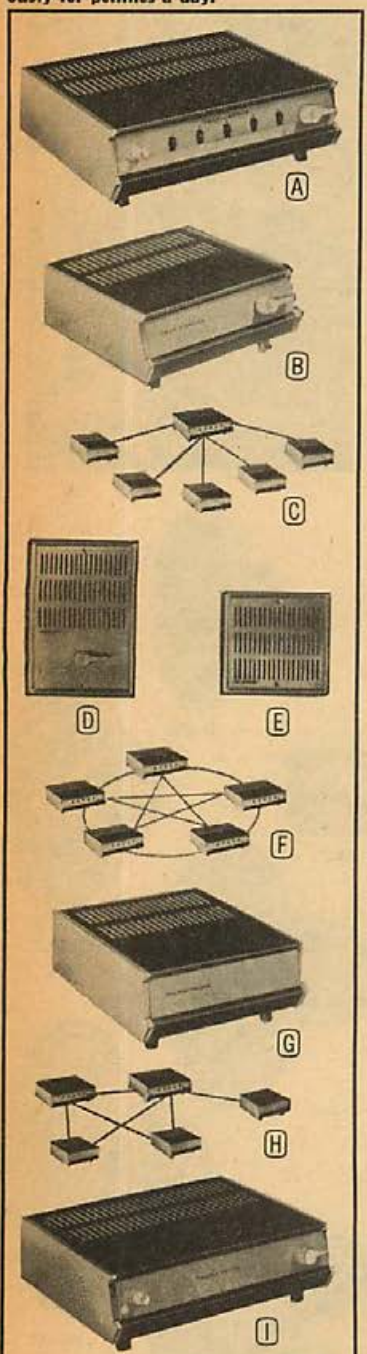
Instant, direct two-way conversations are provided at a flick of a finger. Modern, custom designed cabinetry combines the look and feel of fine grained leather; rigid and strong as steel; charcoal gray

and brushed chrome finish resists abuse. Masters have translucent illuminating indicator when "on". Size: Master, 10 1/2" w. x 8 3/4" d. x 3 1/4" h.; substations, 7 1/2" w. x 8 3/4" d. x 2 3/4" h.

Quality systems for office, industry, and home. Installs easily. Operates continuously for pennies a day.

### MASTER SELECTIVE SYSTEMS (FIGS. A, B, C & D)

Consists of one Master and one to ten Sub-Stations, arranged as in Fig. C. Master can talk and listen to any or all Sub-Stations. Sub-Stations do not communicate with each other. Only the Master plugs into electrical outlet. Start with only one Master and one or two Sub-Stations and add more when necessary. Sub-Stations can be connected "privately" or "non-privately" and still originate calls to Master. Once a conversation has been initiated with "non-private" system, Sub-Stations need operate no controls and can reply from a distance. For "private" operation, Master cannot "listen in" on Sub-Stations. However, they can reply when called and can originate calls to the Master. Operates universally on 110-120 v. AC/DC. U/L Approved. Models T-AC-5406 and -5411 have added feature of 10 times the volume output as the others; for use in large or noisy locations. Only one Master may be used in these systems. Use No. 5303 or 6303 cable listed elsewhere.



Model	Fig.	Description	Lbs.	List	Net
T-LM-5	A	Master that handles up to 5 Sub-Stations	7	\$59.95	\$34.95
T-LM-10	A	Master that handles up to 10 Sub-Stations	7	75.00	44.00
T-AC-5406	A	High volume output Master for up to 5 Sub-Stations	7	75.00	44.00
T-AC-5411	A	High volume output Master for up to 10 Sub-Stations	7	89.95	52.50
T-LR-3	B	Sub-Station for use with any Master	4 1/2	27.50	15.95
T-LR-3M	B	Grained baked enamel finish version of T-LR-3	4 1/2	21.00	11.95
T-LR-3R†	D	Flush-mtg. Sub-Station for above Masters	4	21.00	11.95
T-SM-L	...	Optional surface mount for T-LR-3R on wall	2	7.80	4.60
T-HP-3‡	...	Hi-power Staff Station (wall mt.), gray metal case	9	28.00	16.50
T-C-20*	...	9" weatherproof re-entrant horn, gray color	5	44.95	26.50
T-S-100	...	Call origination wall switch for T-C-20 or T-HP-3	1	6.00	3.50
T-W1	...	Optional pair of wall brackets for T-LR-3, T-LR-3M	1 oz.	1.25	.75
"H"††	...	Cradle phone optional on all units except T-LR-3R, T-HP-3 & T-C-20. Add suffix "H" to model number.	3	59.95	35.00

### SUPER SELECTIVE SYSTEMS (FIGS. A & F)

A system of all Master Stations that interconnect as in Fig. F. Any station can call any other station, permitting several completely private conversations at the same time. Versatile, low cost system; stations can be located up to 1000 ft. apart. Each station has variable volume controlling incoming voice. Start with two or three Masters and add more later, as many as required. Operates universally on 110-120 v. AC/DC. U/L Approved. Models T-AC-505 and T-AC-510 have added feature of 10 times the volume output as the others; cannot be intermixed with any other Master; ideal for noisy locations.

Model	Fig.	Description	Lbs.	List	Net
T-LS-5	A	Master for use in up to 5-Master system	7	\$59.95	\$34.95
T-LS-10	A	Master for use in up to 10-Master system	7	75.00	44.00
T-AC-505	A	Super-Selective station for 5 Masters	7	75.00	44.00
T-AC-510	A	Super-Selective station for 10 Masters	7	89.95	52.50
"H"††	...	Cradle phone optional for any Master	3	59.95	35.00
5906	...	6-cond. cable for T-LS-5 and T-AC-505 systems	3‡	.13*	.07½*
9911	...	11-cond. cable for T-LS-10 and T-AC-510 systems	5‡	.24*	.14*

### COMBINATION SYSTEMS (FIGS. A, E, G & H)

A more flexible multiple-Master system with Sub-Stations that can answer, but cannot originate calls. Masters talk to Masters or Sub-Station selectivity. All calls can be answered by personnel as far as 25 to 40 ft. away from unit. Master stations are optionally "private" or "non-private" at will. Only the Masters plug into the power source. Begin your system with two stations (one of which must be a Master) and add other units as required. Operates universally on 110-120 VAC/DC. U/L Approved. Models T-AC-605 and T-AC-610 have added feature of 10 times the volume output as others; cannot be intermixed with any other Masters.

Model	Fig.	Description	Lbs.	List	Net
T-CL-5	A	Master that handles up to 5 other stations	7	\$72.00	\$42.00
T-CL-10	A	Master that handles up to 10 other stations	7	87.00	51.00
T-AC-605	A	Combination Master for 5-station use	7	87.00	51.00
T-AC-610	A	Combination Master for 10-station use	7	102.00	59.95
T-S-111*	...	Separate, wall-mounted cradle phone	...	75.00	44.00
T-LR-2	C	Sub-Station for use with any Master	4 1/2	27.50	15.95
T-LR-2M	C	Baked enamel finished version of T-LR-2	4 1/2	21.00	11.95
T-LR-2R†	E	Flush-mtg. Sub-Station for above Masters	4	21.00	11.95
T-SM	...	Optional wall surface mount for T-LR-2R	1	6.80	4.00
T-HP-3‡	...	Hi-power staff station (wall mt.), gray metal case	9	28.00	16.50
T-C-20*	...	9" weatherproof re-entrant horn, gray color	5	44.95	26.50
T-W1	...	Optional pair of wall brackets for T-LR-2, T-LR-2M	1 oz.	1.25	.75
6210	...	5-pair cable for 5-station Masters	5‡	.24*	.14*
6226	...	13-pair cable for 10-station Masters	12‡	.47*	.28*
6902	...	2-conductor cable for Sub-Station to Master use	1‡	.03½*	.02*

\*Per foot. †With plaster ring; requires 4 1/2" w. x 6 1/2" h. x 2" d. wall opening; stainless steel front panel measures 4 1/2" w. x 7 1/2" h. ††Stainless steel front panel 4 1/2" sq.; requires 4 1/2" sq. x 2" d. wall opening. ‡Wt. per 100'. §For built-in volume control, add suffix V (T-C-20V); List \$59.95; Net \$34.95. \*For built-in volume control, add suffix V (T-C-20V); List \$59.95; Net \$34.95. †For separate, wall-mounted cradle phone, order T-S-11; List \$75.00; Net \$44.00. \*Used in combination with T-HP-3 or T-C-20.

### TWO-STATION SYSTEM (FIGS. B & I)

Complete two-station system includes a Master station, a Sub-Station and 50 ft. of interconnecting cable; additional cable is available for distances up to 2000 ft. Easy to install and operate. Sub-Station features built-in "private" or "non-private" selectivity; when "private", Master may not "listen in" though Sub-Station can answer or originate calls. Master is equipped with translucent indicator to show when system is "on". A amplifier is rugged, high-gain unit built to withstand continuous use and requiring a minimum of maintenance. Volume is fully adjustable. Cabinet finishing is identical with the quality, multiple-system units, above; resists even corrosive industrial liquids and atmospheres. Operates universally on 110-120 v. AC/DC. U/L Approved.

Talk-A-Phone Model T-LC-2 System—Complete with 50 ft. of cable. Weight, 36 lbs. 11 1/2 lbs. List Price, \$62.00. Net Each, \$36.00  
Talk-A-Phone Model H Cradle Phone—Wt., 3 lbs. List \$59.95. Net Each, \$35.00  
Talk-A-Phone Model T-W1 Wall Brackets—List Price \$1.25. Net Each, 75c  
Talk-A-Phone No. 5303 Cable—3-conductor cable. List Per Foot, 5c. Net, 3c  
Talk-A-Phone No. 6303 Cable—3-conductor; indoor-outdoor. List Per Ft., 6 1/2c. Net, 4c

### TWO-STATION WIRELESS SYSTEM (FIG. I)

No installation, no wiring, no cables. Just plug in any electrical outlet and talk. More stations can be added at any time; all stations will receive any messages transmitted by any other station. Mobile units can be moved anywhere an electrical outlet is available. Uni-Trans gives you dictation and supervisory control. When set for Uni-Trans, unit provides continuous transmission to other unit, to dictate or to "listen in" ... for example, in the baby's room. The "Sonic Gate", together with the Talk-A-Phone "Aqualink", effectively suppresses line noises and hum while system is in actual operation as well as when in stand-by position. For 110-120 volt AC-DC. Complete with tubes and instructions.  
Talk-A-Phone Model T-LC-33 System—Complete two-station system. Ship-Weight, 79 lbs. 16 lbs. List Price, \$138.00. Net Each, \$79.00  
Talk-A-Phone Model T-LC-17—Additional single station. Shipping Weight, 8 lbs. List Price, \$69.00. Net Each, \$39.95  
Talk-A-Phone Model H Cradle Phone—Wt., 3 lbs. List \$59.95. Net Each, \$35.00

**CABLE REQUIREMENTS**  
For Master Selective Systems: Measure from each Substation to Master and order total. For Super Selective Systems: Measure from first Master to second Master, only; second to third Master, only, etc., and total. Cable between first and last Master not necessary. For Combination Systems: Measure for Masters as in Super Selective System; then measure each Sub-Station to nearest Master.





# Talk-A-Phone Intercoms



## NEW "CHIEF" TALK-A-PHONE... ONE MODEL THAT MEETS EVERY REQUIREMENT

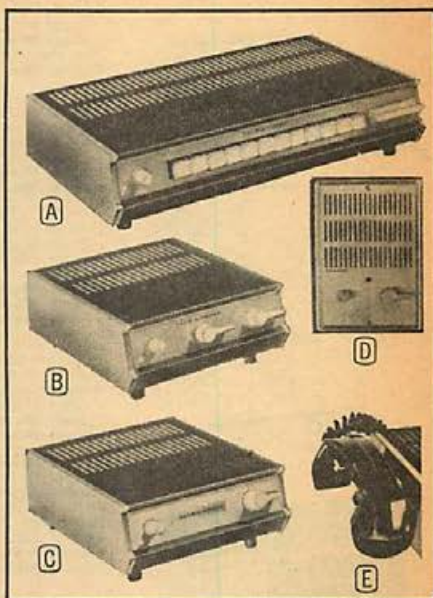
Sets a new standard for versatility and flexibility to meet every intercom need of office, factory, institution or home. Convenient pushbutton operation for instant, direct, two-way communication. Reduces load on busy switchboards. Exciting, modern cabinetry

combines the look and feel of fine grained leather with the strength and rigidity of steel; resistant to corrosive chemicals and atmospheres; finished in charcoal gray with brushed chrome sides and front panels.

### "CHIEF" UNIVERSAL MASTER STATIONS (FIG. A)

The "Chief", with its dynasonic design, can be used in any combination—with all Master Stations—one Master and Staff Station—or a number of Masters combined with Staff Stations. 6, 12, 20, 30, 40 and 50 Station Masters, together with Staff Stations can be intermixed in the same system. Masters can talk with any other Master, as well as with Staffs. Staff Stations can answer all Masters and can originate calls to as many as 6 Masters, depending upon Staff's capacity. Staff stations are not connected to electrical outlet. **Features:** All-transistor system with high gain amplifier; incorporates touch control talk-listen switch. Both Masters and Staffs equipped with busy signal that is provided with over-ride when conversation is urgent. Both Masters and Staffs are provided with an incoming call light; Masters provided with additional chime which may be cut off at user's convenience. All units may be operated both "privately" or "non-privately". Master includes junction box attached by flexible cable and built-in power supply. Power supply is in parallel with other Master's power supply, permitting up to 30% of the Masters in a system to draw their power from one Master where electrical outlets are not available. (For best performance, however, each Master should have its own electrical outlet.) Each Master also supplied with provision for activating external relays to turn on sirens, gongs, lights, etc. **Dynasonic Design:** Permits intermixing of units, variation of performance, and additions to system at any time. Staff Stations can be "private", or "non-private". Any Staff Station can be "non-private" to one or more Masters and "private" to others. **Multi-Magic Selector:** Allows selection of up to 30 stations with 12 pushbuttons. **Uni-Trans:** Unique provision for dictation permits speaking without operating any controls. **Optional LD Long Distance:** Available at slight additional cost built-in at factory; allows up to 10,000 ft. of cable between Master stations. **Power:** Universal 110-120 v AC. **Size:** 14" w. x 8 3/4" d. x 3 3/4" h., Masters.

T-A-P Model	Fig.	Description	Wt., Lbs.	List Price	Net Each
T-C-4906	A	6-station Master	15	\$136.00	\$ 79.50
T-C-4912	A	12-station Master	15	154.00	89.80
T-C-4920	A	20-station Master	16	184.00	107.40
T-C-4930	A	30-station Master	18	214.00	125.00
T-C-4940	A	40-station Master	20	244.00	142.60
T-C-4950	A	50-station Master	22	274.00	160.20



### "CHIEF" REDI-POWER MASTER STATION (FIG. A)

All the operational features listed above, plus built-in extra power for use when needed. This added power (up to 20 watts), gives additional volume needed when calling a number of stations at one time or calling noisy locations. Return speech from called stations is received at normal volume. Needs no separate power booster which would eliminate return speech. Has self-compensating volume, whether you call 2, 10 or 20 stations simultaneously. Each station receives its predetermined volume with no division of output when you call more stations at one time. One or more Redi-Powers can be combined with regular Master and Staff Stations in same system. 110-120 v. AC only.

**Talk-A-Phone Model T-C-RP-5912—12-station Redi-Power Master.** Wt., 20 lbs. List Price \$235.00. Net Each \$138.00

**Talk-A-Phone Model T-C-RP-5920—20-station Redi-Power Master.** Wt., 21 lbs. List Price \$265.00. Net Each \$155.00

### "CHIEF" STAFF STATIONS (FIGS. B, C & D)

For use with any "Chief" Master, Staff Stations may be connected "privately" or "non-privately". Connected "non-privately", persons can answer Master at a distance from the Staff without operation of any controls. Persons at "non-private" Staffs may reply to all Masters in the system (whether connected directly with them or not) and can originate calls to one or two Masters, depending upon its capacity. Connected "privately" no one can "listen-in", but any Master can call. Private Staff can originate calls and reply to one or two Masters, depending on its capacity. Staff Stations do not need electrical outlet. **Features:** Touch control talk-listen switch; incoming call light; busy signal indicator with over-ride feature for urgent communications. Cabinet design matches Masters; fine grained leather look with strength of steel; resists corrosive atmospheres; charcoal gray finish with brushed chrome side and front panels. Metal cases units; finished in charcoal gray. **Size:** 7 1/2" w. x 8 3/4" d. x 2 1/4" h.

T-A-P Model	Fig.	Description	Wt., Lbs.	List Price	Net Each
T-C-41	C	Originates calls to 1 Master	5	\$36.50	\$21.50
T-C-41M	C	Originates calls to 2 Master	5	29.95	17.50
T-C-42	B	Originates calls to 2 Masters	5	45.00	26.50
T-C-42M	B	Originates calls to 2 Masters	5	38.50	22.50
T-C-41R	D	Flush-mt. Staff Station	4	29.95	17.50
T-C-42R	D	Flush-mt. Staff Station	5	38.50	22.50
T-SM-L	...	Wall mtg. for T-C-41R, -42R	2	7.80	4.60
T-HP-3	...	Wall mtg. metal case Staff*	9	28.00	16.50
T-HP-3V	...	Same w/built-in vol. control	...	36.50	21.50
T-C-20	...	Weatherproof re-entrant horn†	5	44.95	26.50
T-C-20V	...	Same w/built-in vol. control†	...	59.95	34.95

\*Capacity, 5 watts. †Capacity, 15 watts. ‡Grained baked enamel finish. †With plaster ring; stainless steel front panel 4 1/2" w. x 7 1/2" h.; requires 4 1/2" w. x 6 1/2" h. x 2" d. wall opening.

### OPTIONAL ACCESSORIES

#### CRADLE PHONE (FIG. E)

Available installed on all models Masters or Staffs except metal case and built-in units. Weight, 3 lbs. Add "H" to model number when ordering. **\$35.00**

### WALL MOUNTED CRADLE PHONE

Use as many as needed in combination with a remote speaker, as Model T-HP-3, T-C-20. **Talk-A-Phone Model T-S-111—List \$75.00. Net Each \$44.00**

### LD LONG DISTANCE FEATURE

Available on all Masters; extends range up to miles of cable between Masters. Add suffix "LD" to model number \$117.50 when ordering. Add to List \$20.00. Add to Net \$117.50

### WALL SWITCHES

**Talk-A-Phone Model T-S-101—Provides for origination of call to one Master through Models T-C-20 or T-HP-3 in "Chief" systems.** Wt., 1 lb. List Price, \$11.95. Net Each \$6.95

**Talk-A-Phone Model T-S-102—Provides for origination of call selectively to two Masters through Models T-C-20 or T-HP-3 in "Chief" systems.** Wt., 1 lb. List Price, \$19.95. Net Each \$11.70

### INTERCOM WALL BRACKETS

Wall mounting brackets for T-C-41, T-C-41M, T-C-42 and T-C-42M Staff Stations. Weight, per pair, 1 oz. **Talk-A-Phone Model T-W1 Wall Bracket—List Price, Pair, \$1.25. Net Per Pair \$0.75**

### RIGHT-OF-WAY RELAY

For use with Redi-Power Masters to call any group of stations with a single button. Capacity up to 10 stations. Add additional relays for more stations. Connects to one Master; others in system also utilize the facility. Weight, 7 lbs. **Talk-A-Phone Model T-RW-10—Right-of-Way relay. \$37.00** List Price \$63.00. Net Each \$37.00

### POWER BOOSTER

Provides ample power for paging, with 30-watt output. Use to connect group of paging speakers that cannot reply or originate calls. When used with Model T-RW-10 Right-Of-Way Relay, these units can then originate calls in regular manner. 110-120 v. AC. U/L Approved. **Size:** 12" x 7 1/2" x 8 3/4" h. Wt., 24 lbs. **Talk-A-Phone Model T-HP-30—Power booster. \$81.00** List Price \$138.00. Net Each \$81.00

### CABLE REQUIREMENTS

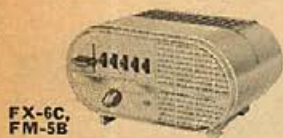
To interconnect Masters, measure from the first Master to second Master only; second Master to third Master only, etc., until the last unit in the system is reached; total. For 20-station Masters, use two lengths of No. 6226 cable; for 30-station Masters, use three lengths; etc. To connect single-call Staff stations and re-entrant horn, measure from Staff to the one Master to which the Staff is to originate calls. For units originating calls to 2 Masters, measure a separate length of cable from Staff to each Master.

**Talk-A-Phone No. 6206 Cable—Connects Staff stations to Masters.** List per Foot, 14c. Net per Foot, 8 1/2c  
**Talk-A-Phone No. 6214 Cable—For interconnecting Model T-C-4906 Masters.** List per Foot, 24c. Net per Foot, 14c  
**Talk-A-Phone No. 6226 Cable—For interconnecting any Master other than Model T-C-4906.** List per Foot, 47c. Net per Foot, 28c  
**Talk-A-Phone No. 6902 Cable—For connecting re-entrant horn or wall mounting Staffs without origination of call.** List per Foot, 3 1/2c. Net per Foot, 2c

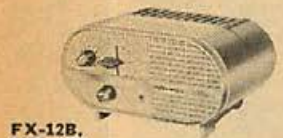




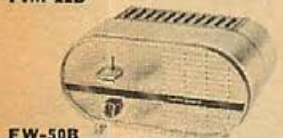
FX-2B



FX-6C, FM-5B



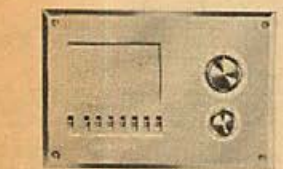
FX-12B, FIM-12B



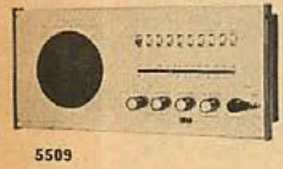
FW-50B



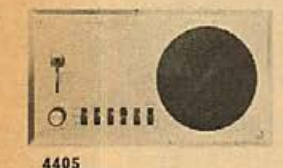
X-606



MC



5509



4405



PHA-4

### "TWIN" FX-2B TWO-STATION SYSTEM

Master station and one remote station with 50' cable. Extremely sensitive—Ideal as baby sitter. Ready for use—no soldering or tools needed. Master has separate volume control. Both stations have Talk-Listen switch for originating calls. Shipping Weight, 7 lbs.  
**Fanon-Masco No. FX-2B—Complete 2-station system, Net Each. \$23.90**  
**Fanon-Masco No. FSB—Additional remote station, Net Each. \$7.95**

### "EXECUTIVE" FX-6C SIX-STATION MASTER

For use with up to five remotes or six masters. Slide switch on back of units selects either "All-Master" or "Master-To-Remote" installation. Permits talking to any number or all stations in the system simultaneously. Use with Remotes having "Call" switch (Model FCB). Shpg. Wt., 3½ lbs.  
**Fanon-Masco No. FX-6C—Six-Station Master. \$23.90**  
**Fanon-Masco No. FCB—Remote station with Talk-Listen switch, Net Each. \$8.40**

### "MANAGER" FX-12B ELEVEN-STATION MASTER

For extensive commercial and industrial installations. Use with up to 10 remotes or 11 Master stations (one station may be a paging horn, if so desired). Switch on back of units selects either "All-Master" or "Master-To-Remote" system. Private or Non-Private conversation. "All-Call" position for paging or announcements. Masters can be up to 2000' apart. Shpg. Wt., 4 lbs.  
**Fanon-Masco No. FX-12B—Master Station, Net Each. \$28.40**  
**Fanon-Masco No. FCB—Remote station with Talk-Listen switch, Net Each. \$8.40**

### "INTERMIX" FIM-12B DELUXE TWELVE-STATION MASTER

Can be used intermixed with any combination of Master and/or Remote station. Each Master has a three-position Talk-Listen-Dictate switch. Two types of Remote stations can be used with this master: Model FC-6B, which can call and speak to six masters; Model FCB, which can call and speak to only one Master. Shipping Weight, 4 lbs.  
**Fanon-Masco No. FIM-12B—Deluxe 12-station Master, Net Each. \$31.20**  
**Fanon-Masco No. FC-6B—Remote with six-master call switch, Net Each. \$13.20**  
**Fanon-Masco No. FCB—Remote with one-master call switch, Net Each. \$8.40**

### "MONITOR" FM-5B FIVE-STATION MASTER

Use this master with up to four Model FCB Remotes for a Master-to-Remote system. "Switch-board" feature provides direct remote-to-remote conversations. Master can monitor any or all remotes; can "set up" remotes to monitor other remotes. Remotes can originate calls to master or other remotes. Busy-light flashes during conversations. Weight, 3½ lbs.  
**Fanon-Masco No. FM-5B—Five-station Master, Net Each. \$25.40**  
**Fanon-Masco No. FCB—Remote station with Talk-Listen switch, Net Each. \$8.40**

### DELUXE WIRELESS FW-50B TWO-STATION INTERCOM SYSTEM

Complete two-station system, ready to operate—just plug into AC or DC outlet. Extremely sensitive. Can operate between adjacent buildings if on the same power line. Talk-Listen-Dictate switch; volume control; noise-silencing control to minimize power line interference; two-wire or three-wire line selector switch to match power line. Several stations may be added. Four tubes and silicon rectifier. Shpg. Wt. (system), 7 lbs.  
**Fanon-Masco No. FW-50B—Deluxe 2-station wireless system, Net Each. \$49.95**  
**Fanon-Masco No. FW-51B—Additional single station for above, Net Each. \$25.45**

### "EXECUTIVE" SERIES INTERCOMS

Finely finished walnut wood-grained cabinets. Electrically compatible with FX Series.  
**Fanon-Masco No. X-600—Two-station wired system similar to FX-2B, 50' cable, Net. \$37.50**  
**Fanon-Masco No. X-610—Two-station wired system consisting of one No. X-601 master and one No. FSB remote station with 50' cable, Net Each. \$29.95**  
**Fanon-Masco No. X-604—Two-station wireless system similar to FW-50B, Net Each. \$63.95**  
**Fanon-Masco No. X-601—Single-station Master, Net Each. \$23.95**  
**Fanon-Masco No. X-606—Six-station Master for "All-Master" or "Master-to-Remote" systems. Similar to No. FX-6C, Net Each. \$29.95**  
**Fanon-Masco No. XR-01—Remote station for X-600, X-601 and X-606, Net Each. \$14.95**

### MUSIC AND VOICE INTERCOM SYSTEMS

New music-intercom systems that reach any area of your home—indoors or outdoors. Choice of several systems, all flush-mounting. Each system consists of two packages: Installation package, consisting of plaster boxes, wire and hardware; and Electronic Equipment package, which contains the master and remote system.

#### MUSI-TALK INTERCOM WITH AM RADIO

Model MC has built-in AM radio, music can be piped to any area of home. Takes up to six remotes. Model BC is companion indoor remote that provides 2-way communication between any 2 or more units. Also serve as monitoring stations to listen-in on any room. Model BJ remote incorporates a phono jack and matching transformer for external music distribution in addition to the intercom features. Model BD is outdoor model for answering door and piping music to outdoor areas. Model BDR, same as BD but with bell-button. Model MCL master has intercom features of MC but is without AM radio. However, an external music source can be plugged in (jack provided) and music distributed. Sizes: Masters, 10¼" x 5½" x 3½"; Remotes, 5¼" x 3¾" x 2". Satin chromium or satin copper finish. Three conductor wire.  
**Fanon-Masco No. EKL—Electronic Equipment package: One MCL, three BC and one BD, Net Each. \$41.95**  
**Fanon-Masco No. EK—Electronic Equipment package: One MC, three BC and one BD, Net Each. \$55.45**  
**Fanon-Masco No. 1K—Installation package for EK or EKL systems, Net Each. \$11.95**  
**Fanon-Masco No. MCL—Extra master without radio; with plaster box, Net Each. \$14.95**  
**Fanon-Masco No. MC—Extra master with radio and plaster box, Net Each. \$44.95**

#### MODEL 5509 AM/FM RADIO-INTERCOM SYSTEM WITH AFC

AM/FM radio with wideband, noise-free amplifier. Automatic frequency lock; flywheel tuning. As many as nine remotes may be connected to master. Remotes may call master or one another. One remote may talk to another privately. Each remote has own volume control, 5" speaker and talk-listen switch. Ideal for baby-sitting or sick-room monitoring. Sizes: Master, 13¼" x 5½" x 4½"; Indoor Remote, 4¾" x 8" x 2½"; Outdoor Remote, 5¼" x 3¾" x 2".  
**Fanon-Masco No. 55-EK—Electronic Equipment package: One 5509 master, three 55-1K remotes, one BD outdoor remote, Net Each. \$112.95**  
**Fanon-Masco No. 55-1K—Installation package for 55 EK system, Net Each. \$14.95**  
**Fanon-Masco No. 5509—Master with plaster box, Net Each. \$97.95**

#### MODEL 4405 TRANSISTORIZED INTERCOM SYSTEM

Nine-volt, 5 remote station, battery-powered system. "Standby" for signalling when power is off.  
**Fanon-Masco No. 44-EK—Electronic Equipment package: One 4405 master, three BC remotes, one BD remote, Net Each. \$42.60**  
**Fanon-Masco No. 44-1K—Installation package for 44EK system, Net Each. \$11.25**  
**Fanon-Masco No. 4405—Extra master with plaster box, Net Each. \$35.25**

#### EXTRA REMOTES AND ACCESSORIES FOR MUSI-TALK, 5509 AND 4405 SYSTEMS

**Fanon-Masco No. BC—Indoor remote with plaster ring; for all but 5509 system, Net Ea. \$ 5.95**  
**Fanon-Masco No. BJ—Same, but with phono jack; for all but 5509 system, Net Each. \$ 8.95**  
**Fanon-Masco No. 56—Indoor remote with plaster ring for 5509 system only, Net Each. \$ 9.75**  
**Fanon-Masco No. BD—Outdoor remote with plaster ring; for all systems, Net Each. \$ 5.95**  
**Fanon-Masco No. BDR—Outdoor remote with bell button and plaster ring, Net Each. \$ 7.50**  
**Fanon-Masco No. WC-55—Walnut table top cabinet for 5509 master, Net Each. \$22.50**  
**Fanon-Masco No. WC-56—Walnut cabinet for 56 remote. For wall or table, Net Each. \$ 8.95**

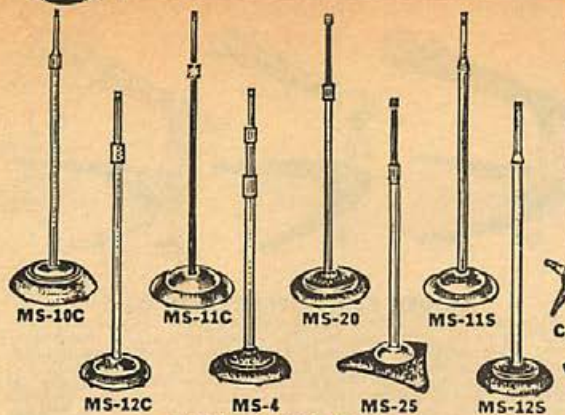
#### MODEL PHA-4 TRANSISTORIZED TELEPHONE AMPLIFIER AND SPEAKER

Frees hands while telephoning; fills room with sound for conferences. Adjustable volume. Complete with four transistors, one nine-volt battery. Size: 10" x 4½" x 3". Shpg. Wt., 4 lbs.  
**Fanon-Masco No. PHA-4—Net Each. \$14.95**





# Microphone Stands, Accessories



## CLUTCH-ACTION STANDS

"Full Grip" Clutch offers extended length body, permitting secure, full-hand grip. Clutch inner-lined with wear-proof Bakelite® locking collet. Include self-leveling, shock-absorbing pads, plus three additional "anti-tip" points between pads. Tube assemblies are "super-chrome" plated. Terminate in 3/8"-27 machined thread.

Atlas No.	Base Finish	Height, Adjust.	Base Diameter	Wt., Lbs.	Net Each
MS-10C	Gray Shrivel	35"-64"	10"	10	\$ 6.45
MS-12C	Gray Shrivel	35"-65"	10"	12	6.90
MS-11C	Full-Chrome	35"-65"	10"	13	8.70
MS-4	Gray Shrivel	26"-61"	10"	11	10.05
MS-20*	Gray Shrivel	37"-66"	12"	15	10.80
MS-25†	Chrome & Gray	37"-66"	17"	22	17.70
CS-1	Carbium plate	29"-62"	Collapsible	5	13.50
CS-2	Chrome Legs	36"-64"	Demountable	5	7.95
CS-3‡	Chrome Legs	26"-64"	Demountable	4	9.30
CS-42	Gray Shrivel	34"-62"	16"	9	8.70
CS-52	Gray Shrivel	34"-62"	15"	9	7.50

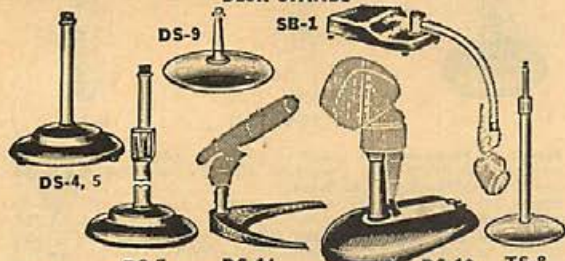
\*3/8" telescoping tube, 1 1/2" base tube. †"Safety Air Lock Cushion" prevents accidental or sudden slippage of telescoping section. ‡3-section, collapsible. †Collapses to min. 22 1/2" in 3 sections. ©Registered Bakelite Corp. trademark.

## SLEEVE-ACTION STANDS

Provide full automatic means of adjusting the height of the stand. Slight forward pressure on "sleeve-action" control permits lowering of telescoping section. Cannot change position without deliberate pressure on the actuating sleeve control.

Atlas No.	Base Finish	Height, Adjust.	Base Diameter	Wt., Lbs.	Net Each
MS-11S	Full Chrome	35"-65"	10"	13	\$15.60
MS-12S	Gray Shrivel	35"-65"	10"	12	14.10

## DESK STANDS



Atlas No. DS-4 Desk Stand—Offers new look in stand design. Highly polished phenolic base; beige color. Excellent accessory for tape recorders. Light weight. Base 5" dia. Tube finished in chrome. Tube, 4", Shpg. Wt., 1/2 lb. Net Each. \$1.50

Atlas No. DS-5 Desk Stand—General purpose, non-adjustable type. Base is 6" dia. cast iron; gun-metal shrivel finish. Equipped with pads. Tube 4" h.; chrome finish; threaded 3/8". Shipping Weight, 2 lbs. Net Each. \$2.10

Atlas No. DS-7 Adjustable Desk Stand—Full-sized "Velvet Action" clutch mechanism. Chrome finished tube assembly adjustable 8" to 13". Gun-metal shrivel base, 6" dia. With pads. \$3.60 Shipping Weight, 3 lbs. Net Each.

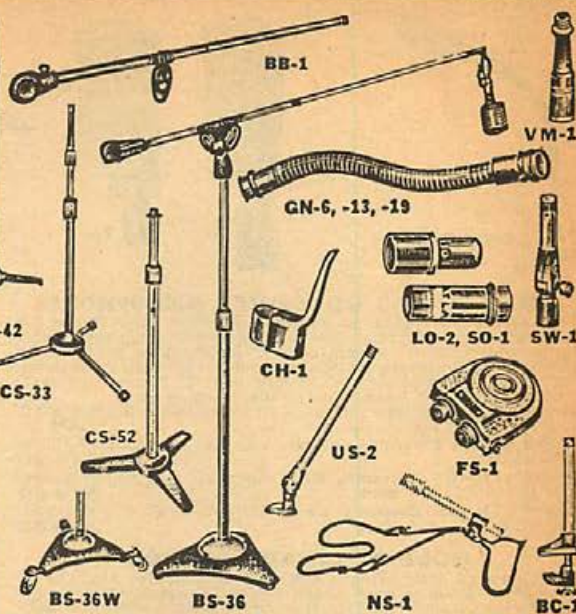
Atlas No. DS-9 Professional Desk Stand—Low silhouette 8" base, tapered 4" tube. Satin chrome finished, with pads. Shipping Weight, 4 lbs. Net Each. \$5.10

Atlas No. DS-10 "Streamliner" Desk Stand—Mike cable concealed in slot under center section of chrome trim strip on base; directed out rear. Cable held down by base; can't drag. Gun-metal opalescent enamel finish; chrome trim. Threaded 3/8"-27. \$3.60 Rubber bumpers. Shipping Weight, 1 1/2 lbs. Net Each.

Atlas No. DS-14 Contemporary Desk Stand—For slim, elongated microphones. Gun metal shrivel base, 3" chrome finish \$2.70 tube, with pads. Shpg. Wt., 2 lbs. Net Each.

Atlas No. SB-1 Switchboard Mike Support—Holds mike over switchboards, etc. Flexible 12" goose-neck on spring-loaded swivel so mike can be swung aside. Feed-through hides cable. Heavy, gray shrivel base rear loaded to prevent tipping. Base 10" x 9" x 6", rubber bumpers. Weight, 13 lbs. Net Each. \$10.80

Atlas No. TS-8 Adjustable Banquet Stand—Modern low silhouette 8" base and upright with "super chrome" finish. Adjustable 14 1/2"-26"; "Full Grip" control. Shpg. Wt., 5 1/2 lbs. \$6.45 Net Each.



## MICROPHONE BOOMS

Atlas No. BS-36 Professional Boom Stand—All advantages of "Floating Action" plus secure and dependable locking. Features "Air-Lock Cushion" and new gyromatic swivel joint at mike end. Boom 62" long; adjustable 48" to 72" vertically. All tubular section "super-chrome" plated. Modern base. Shipping \$4.20 Weight, 36 lbs. Net Each.

Atlas No. BS-36W Mobile—Identical to Model BS-36, except has ball bearing, hard rubber, swivel caster base. Weight, \$48.00 40 lbs. Net Each.

Atlas No. BB-1 "Baby Boom" Arm—Attaches to any mike stand; locks in any position. Castings in gun-metal shrivel. Boom 51" 31" long; chrome plated. Threaded 3/8"-27. Wt., 3 lbs. Net. \$5.10

## MICROPHONE ACCESSORIES

Atlas No. US-2 Multi-purpose Mike Support—Vertical and horizontal spring-load adjust. Cable feeds through swivel and boom. All parts polished chrome. Boom arm 12 1/4" long. Adjusts 180° vertical; 360° rotation. Net Each. \$5.70

Atlas No. VM-1 Shock Mount—Reduces mechanical vibration pick-up. Fits all mikes. Polished chrome. Net Each. \$4.50

Atlas No. BC-1 Bracket Clamp—Usable with BB-1, GN-13, etc. Can be removed and top flange bolted into position. Chrome tube 6" long; 3/8"-27 thread. Shpg. Wt., 1 lb. Net Each. \$2.40

Atlas No. CH-1 Cable Hanger—Proven necessity on every mike stand. Fits all tubes. Single screw mounting. Chrome \$1.65 finish. Net Each.

Atlas No. FS-1 Mike Foot Switch—Press-to-open switch, normally closed, thereby shorting mike. For all mikes having single-ended inputs. Gray enamel finish. Size, 2" x 3". Net Each. \$8.40

Atlas No. GN-6 Flexible Goose Neck—Attach to any stand or fixture. Ends have 3/8"-27 male and female threads; 6" 120 long. Polished chrome finish. Net Each. \$1.20

Atlas No. GN-13—Same, but 13" long. Net Each. \$1.65

Atlas No. GN-19—Same, but 19" long. Net Each. \$2.40

Atlas No. NS-1 "Chesty" Neck-Supported Mike Holder—Adjustable three ways so mike is always in a suitable "close talking" position; reduces acoustic feedback. Wt., 6 oz. Net Each. \$3.90

Atlas No. SW-1 Swivel—Permits mike adjustment to any angle; locks in position. Chrome plated. Net Each. \$3.15

Atlas No. LO-2 Lock-On Accessory—Permits mike attachment or removal from stand quickly, without threading. Positive locking design, pushbutton release. Net Each. \$2.10

Atlas No. SO-1 Snap-On Accessory—Identical to LO-2 but less pushbutton locking feature. Net Each. \$1.65

## MICROPHONE ADAPTERS AND FITTINGS

Model	Description	Net
AD-1	3/8"-27 female to 3/8" pipe thd. male (RCA Adapter)	\$0.63
AD-2	3/8" pipe female to 3/8"-27 male	.45
AD-3	3/8" pipe female to 3/8"-27 female	.48
AD-4	3/8" long, 3/8"-27 male running thread	.48
AD-5	3/8"-27 female to 3/8"-27 female coupling	.30
AD-6	3/8"-27 female to 3/8"-27 female coupling	.81
AD-7	3" long tube 3/8"-27 male each end	.54
AD-8	6" long tube 3/8"-27 male each end	.60
AD-9	3/8"-27 female to 3/8"-27 female	.60
AD-10	3/8"-24 male to 3/8"-27 female (W. E. Adapter)	.90
AD-11	Flange, 3/8"-27 female. Base diameter 1 1/4"	.60
AD-12	Flange, 3/8"-27 male. Base holes on 1 1/4" mtg. ctrs.	.60
AD-13	3/8"-27 male to 3/8"-27 female	.57
AD-14	Right angle bent tube: 3/8"-27 male and female each end	1.05
AD-15	Cable feed-thru adapter; 3/8"-27 male and female each end	.99

Note: Thread sizes specified as 3/8" pipe are I.P.S. (Electrical fitting); measures approx. 3/8" dia. All adapters chrome plated.



# ASTATIC Microphones, Accessories



330-GS Series



77



77L



788



888



988

## SERIES 330-GS GOOSENECK MICROPHONES

Professional performing, all purpose gooseneck microphones for intercommunications, tape recording, amateur, language laboratories and many other applications. Gooseneck is permanently attached, 13" in length. Satin chrome finish for both microphone and gooseneck assembly. Complete with 7' single conductor, shielded cable (335L-GS; 2-cond. for balanced line).

**Model 332-GS Crystal**—Output, -54 db; response, 30-15,000 cps. Net Each. **\$14.70**

**Model 333-GS Ceramic**—Output, -58 db; response, 30-10,000 cps. Net Each. **\$14.70**

**Model 335H-GS Dynamic Hi-Z**—Output, -56 db; response, 100-12,000 cps. Net Each. **\$19.80**

**Model 335L-GS Dynamic Lo-Z**—Output, -57 db; response, 100-12,000 cps. Net Each. **\$18.00**

## MODEL 77 DYNAMIC CARDIOID

Most positive anti-feedback mike ever built. Also available in gold finish. Unidirectional design has suspended cartridge; eliminates external shock mounts. Built-in impedance selector. **Front-to-Back Pick-up**; 18 db differential. **Output**: -48 db. **Frequency Response**: 30-15,000 cps. **Impedance**: Low-Z, 30-50 ohms; medium, 150-250 ohms; high, 40,000 ohms. Shipping Weight, approximately 3 lbs., less stand.

**Model 77**—With on-off switch and provisions for locking in "on" position. Net Each. **\$49.50**

**Model 77 Gold Finish**—Net Each. **\$55.50**

**Model 77-L**—Head only for mounting on G Stand. Net. **\$43.50**

**Model 72-L Gold Finish**—Net Each. **\$49.50**

**Model G-77**—Includes G Stand and 8' cable. Net Each. **\$8.47**

## MODEL 788 "METRO" DYNAMIC

Wide range and rugged construction for voice and music reproduction in PA, recording and TV, indoor or outdoor. **Response**: 60-13,000 cps. **Output**: -58 db, lo-Z; -56 db, hi-Z. Black die cast alloy housing with brushed gold trim. Omnidirectional. Balanced high or low imped. by simple change. Max. dia. 1 1/4" x 8 3/4" h. Built-in On-Off switch. Desk-floor stand adapter, lavaller cord and assembly, belt clip, 20' cable. Net Weight, 8 oz. **\$47.70**

**Model 788**—Dynamic Microphone. Net Each. **\$47.70**

## MODEL 888 "TEMPO" DYNAMIC

High fidelity and advance styling for applications in color TV, sound stage and deluxe PA systems. **Response**: 50-15,000 cps. Multi-impedance, 50-200, balanced, and hi-Z. **Output Level**: -58 db, lo-Z; -56 db, hi-Z. Die cast alloy housing in satin black with brushed chrome finish; 9 1/4" long x 1 1/2" max. dia. Includes SA-8 desk-floor stand adapter, lavaller cord and assembly with belt clip and 20' two-wire shielded cable. Weight, 9 oz. **\$66.00**

**Model 888**—Dynamic Microphone. Net Each. **\$66.00**

## MODEL 988 "VOGUE" DYNAMIC

Beauty and High Fidelity for the most exacting color TV and broadcast requirements. **Response**: 40-17,000 cps. **Output Level**: -56 db, hi-Z. Adjustable imped.: 50, 150 or 250 ohms for balanced line. Black housing with brushed gold finish. 9 1/4" long x 1 1/2" max. dia. With desk-floor stand adapter, lavaller cord and assembly and 20' cable. Net Weight, 8 3/4 oz. **\$90.00**

**Model 988**—Dynamic Microphone. Net Each. **\$90.00**

## MODEL A-8 "FUTURA" DESK STAND

For Models 788, 888, and 988 mikes. Has 3/8"-27 thread. **\$4.95**

**Model A-8 Desk Stand** (Illus. on Models Listed)—Net. **\$4.95**



330 Series



A-7



DN-50



JT-30



10-C, 10-D



D-104

## SERIES 330 MICROPHONES

Small, slim mikes with quality performance for various applications at real low price. Model 331 has momentary on, spring-return switch, furnished with hang-up bracket. Cable provides for audio and relay connections. All other models have slide switch with "lock-on" position complete with lavaller and stand adapter with 3/8"-27 thread. High imped. except No. 335L.

Model	Type	Output	Freq.	Body	Grille	Cap	Net
331	Ceramic	-58 db	300-7000	Black	Black	Chrome	\$10.74
332	Crystal	-54 db	30-15000	Chrome	Black	Chrome	10.74
333	Ceramic	-58 db	30-10000	Black	Black	Chrome	10.74
335H	Dynamic	-56 db	100-12kc	TV Gray	Chrome	Chrome	15.90
335L	Dynamic	-57 db	100-12kc	TV Gray	Chrome	Chrome	14.10

**Model A-7 Desk Stand**—With adjustable swivel. Net Ea. **\$1.47**

## MODEL DN-50 "THE COMMENTATOR"

General purpose. Unitary moving coil system, carefully proportioned acoustic circuit. **Response**: 50-10000 cps. **Output**: DN-50, -51 db; DN-HZ, -52 db. Semi- or non-directional. Opalescent gray and bright chrome finish. With 10' cable. **Size**: 6 3/4" h, 2 1/2" grille dia., 4 3/4" d. Net Wt., 1 lb. 12 oz. (mike only). **\$20.10**

**Model DN-50**—Dynamic Mike, 50 ohms imped. Net Ea.

**Model GDN-50**—Same as above with grip-to-talk stand, 6' two conductor shielded cable. Net Each. **\$31.62**

**Model UGDN-50**—Same as above, but balanced. Net Ea. **\$36.60**

**Model DN-HZ**—Same, but Hi-Z. Net Each. **\$23.82**

**Model GDN-HZ**—Same as DN-HZ with grip-to-talk stand, 6' two conductor shielded cable. Net Each. **\$35.94**

**Model G Stand**—With grip-to-talk On-Off switch. Net. **\$14.97**

**Model UG Stand**—Same; use with DN balanced line. Net **\$16.98**

## SERIES JT-30 "SPOKESMAN"

Streamline die-cast alloy housing; gray Hammerlin finish with chrome grille and fittings; includes handle and interlocking base. Concentric cable connector. For general PA, recording and communication. 8" high, 2 1/2" grille dia., 5 1/4" base dia. Weight, 21 oz.

**Model JT-30 Crystal**—Output, -49 db; Impedance, 1-5 megs.; response, 30-10,000 cps. Complete with 8' single-conductor shielded cable. Net Each. **\$11.04**

**Model JT-30-C Ceramic**—Same as JT-30 except with -54 db output and 5' cable. Net Each. **\$11.34**

**Model JT-30-F Crystal (Head Only)**—Same as Model JT-30, except less handle and desk stand. Threaded 3/8"-27 for mounting. Net Each. **\$9.54**

**Model JT-30-CF Ceramic (Head Only)**—Same as Model JT-30-C, except less handle and desk stand. Threaded 3/8"-27 for mounting. Net Each. **\$9.84**

## MODELS 10-C, 10-D "THE VOICE"

Ideal for SSB, AM transmitters, paging and industrial applications. High Impedance. **Output**: -52 db, Model 10-D; -54 db, Model 10-C. **Range**: 300-3,000 cps. Plug-in 3/8"-27 thread mounting with 5' cable. **\$17.82**

**Model 10-C Ceramic**—Gray chrome grille. Net Each. **\$17.82**

**Model G-10-C Ceramic**—Same as above, but with "G" (grip-to-talk) stand. Net Each. **\$29.94**

**Model 10-D Dynamic**—Chrome body and grille. Net. **\$23.82**

**Model G-10-D Dynamic**—Same as above, but with "G" (grip-to-talk) stand. Net Each. **\$35.94**

## SERIES D-104 "PREMIER"

The radio amateur's first choice. Balanced performance. Matched brass parts; heavy mesh grille; chrome finish. Standard 3/8"-27 thread mounting; adaptable to SC-11 lock-switch adapter or can be mounted on Model G (Grip-to-talk) stand. Metal seal crystal offers protection against moisture and dryness. Ceramic immune to excessive heat and humidity. 3" dia., 1 1/4" deep. Weight, 14 oz. Complete with 5' single conductor shielded cable. **\$18.60**

**Model D-104 Crystal**—Output, -46 db; impedance, 1-5 megs.; response, 30-7,500 cps rising 600-4,000 cps. Net. **\$18.60**

**Model D-140C Ceramic**—Output, -49 db; all other characteristics similar to D-104. Net Each. **\$18.60**

**Model SC-11 Adapter**—Net Each. **\$ 5.40**

**Model G Stand**—With grip-to-talk On-Off switch. Net. **\$14.97**



# ASTATIC Microphones, Accessories

## MICROPHONES



513H, 511      531      539      10M5A      150, 151      L-1      200-S, 241-S      T-3      551

### MODEL 513H MOBILE MICROPHONE

Dynamic mike for Citizens' Band and other communications. Low background noise, feedback and hum. Semi-directional polar pattern. Wide temperature range; humidity-proof. **Frequency Response:** 200-9,000 cps. **Output Level:** -50 db at 1 v./dyne/cm<sup>2</sup>. **Impedance:** 40,000 ohms. With press-to-talk switch, snap-removal mounting bracket and three-conductor (one shielded) coiled cable 5½' long, extended. **Size:** 2¼" w. x 2½" d. x 6" h. Weight, 10 oz. **\$20.70**

Model 513H Mobile Mike—Net Each.....

### MODEL 511 MOBILE MICROPHONE

Ceramic element mike for Citizens' Band and similar uses. Low background noise, feedback and hum. Semi-directional polar pattern. **Frequency Response:** 200-4,000 cps. **Output Level:** -50 db at 1 v./dyne/cm<sup>2</sup>. **Impedance:** 250,000 ohms (1000 cps). With press-to-talk switch, snap-removal mounting bracket and three-conductor (one shielded) coiled cable extending to 5½' long. **Size:** 2¼" w. x 2½" d. x 6" h. Weight, 7 oz. **\$11.97**

Model 511 Ceramic Mike—Net Each.....

### MODEL 531 MOBILE MICROPHONE

High performance ceramic mike for amateur and Citizens' Band applications. Carefully calculated response characteristic for maximum clarity and intelligibility. Semi-directional polar pattern. Fully shielded to minimize hum pickup. **Frequency Response:** 150-3,500 cps with 6 db rise in 2,000 cps range. **Output Level:** -50 db at 1 v./dyne/cm<sup>2</sup>. **Impedance:** 250,000 ohms, approx. at 1,000 cps (EIA, 100,000 ohms). With press-to-talk switch, molded high impact plastic housing and three-conductor (one shielded) coiled vinyl cord, 5' long extended. **Size:** 2¼" w. x 1½" d. x 3¾" h. Weight, 7¼ oz. **\$7.85**

Model 531 Mobile Mike—Net Each.....

### NEW MODEL 539 NOISE CANCELLING MIKE

Super talk power, ceramic mike is highly recommended for CB or ham operations. High output for effective use in noisy locations. Features 360° differential cancellation of background noise for sharp, clear speech. Lip bar maintains uniform, close spacing for high output modulation and maximum cancellation. **Frequency Response:** 100-3,500 cps with mike held for close talking using lip bar. **Output Level:** -50 db at 1 v./dyne/cm<sup>2</sup>. **Impedance:** 250,000 ohms, approx. at 1 ke (EIA, 100,000 ohms). With press-to-talk DPDT switch, wired for relay or electronic switching. Coiled 3-cond. (one cond. shielded) cable extends to 5 ft. High impact plastic housing. **Size:** 2¼" w. x 1½" d. x 3¾" h. **\$10.50**

Model 539 Noise Cancelling Mike—Net Each.....

### MODEL 10M5A "COMMUNICATOR"

For mobile, ship-shore, etc. Sensitive and rugged. **Response:** 100-4,000 cps. Press-to-talk DPST switch. Retracting cable 12-in. coiled extends to 8". Gray finish. **\$17.70**

Model 10M5A Carbon Microphone—Net Each.....

### SERIES 150 RECORDER MIKES

For tape recorder use. Low cost; high output; outstanding performance; compact in size. **Size:** 2¼" sq. x 1¼" d. Plastic housing with rigid metal grille. With 5' cable.

Model 150 Crystal Mike—Frequency response, 30-10,000 cps. Output, -44 db. Net Each..... **\$3.90**

Model 151 Ceramic Mike—Frequency response, 30-8,000 cps. Output, -48 db. Net Each..... **\$3.90**

### MODEL L-1 CRYSTAL LAPEL MIKE

Tiny dual diaphragm with spring clip and 15' of small diameter single conductor shielded cable. Machined brass housing with wire mesh front and rear grilles; black melamine finish. **Output:** -62 db. **Impedance:** 1-5 megohms. **Response:** 30-10,000 cps. 1½" dia., ¾" deep. Weight, 7 oz. **\$16.41**

Model L-1 Crystal Lapel Microphone—Net Each.....

### MODEL T-3 CRYSTAL

For studios, intercom, amateur, PA, recording. **Response:** 30-10,000 cps. **Output Level:** -54 db. Semi- or non-directional. With connector, 10' cable. All chrome finish. **\$17.58**

Model T-3 Crystal Microphone—Net Each.....

### "VELVET VOICE" CRYSTAL MICROPHONES

For PA, home recording, ham, paging, radio. Use with floor or desk stand or in hand. Gold finished housing and handle; chrome grille; brown detachable base. ¾"-27 mounting. 8" high, 2¼" grille dia, 5½" base dia. Weight, 24 oz.

Model 200—Output, -50 db; impedance, 1-5 megs; **\$11.70**

response, 30-7,000 cps. With 8' cable, Net Each.....

Model 200-S—With on-off switch in handle. Net Each..... **\$12.90**

Model 241-S—Same as 200-S, except response 30-10,000 cps with rising response from 1,500-5,500 cps. Net Each..... **\$12.90**

### MODEL 551 INDUSTRIAL MICROPHONE

Dynamic industrial mike provides high intelligibility in noisy areas. Housing and transformer shielded. Withstands temperatures to 200° F; 180° F indefinitely. Moisture-sealed. Semi-directional polar pattern. **Frequency Response:** 300-6,000 cps. High impedance; 300-6,500 cps; low impedance. **Output Level:** -50 db at 1 mw/10 dynes/cm<sup>2</sup>; low impedance; -46 db at 1 v./dyne/cm<sup>2</sup>; high impedance; both open circuit, 1000 cps. **Impedance:** 150 or 40,000 ohms, adjustable. With press-to-talk switch, virtually unbreakable Delrin® housing, and four-conductor (shielded mike, two relay) coiled cord extends to 8' long. **Size:** 1¾" x 2" x 6¾". Weight, 20 oz. **\$41.70**

Model 551 Industrial Mike—Net Each.....

\*DuPont trademark.

## STANDS, CARTRIDGES AND LINE TRANSFORMER



Models G, UG8      Models E-5-G, E-5-B      Model E-1

### MICROPHONE STANDS

Model G Desk Stand—Has grip-to-talk SPST on-off switch, sliding bar for "lock-on". Use with DN-50, DN-HZ, T3, D-104, D-104-C, 10-C, 10-D and 77L. Finish: Bright chrome, gray Hammerlin base. Net Each..... **\$14.97**

Model UG8 Stand—Same as Model G, with DPDT switch for balanced or unbalanced line. Thread, 1½" x 27; eight-terminal strip in base adapts to any circuit. Net Each..... **\$17.97**

Model E-5-G and E-5-B Desk Stands—Finish: Gray or brown Hammerlin base with bright chrome stem. Has ¾"-27 thread. Overall height 8". Net Each..... **\$4.65**

Model E-1 Desk Stand—Finish: Gray Hammerlin base, bright chrome trim. Has ¾"-27 thread. Overall hgt., 5½". Net..... **\$4.95**



LT-6



A B C D E

### REPLACEMENT MICROPHONE CARTRIDGES

Model	Fig.	Use with Astatic Mike Model	Net Ea.
MC 151	D	CX, CX-1, 200, 241, JT-30, JT-30-F, JT-40, T-3	\$4.20
MC 127	D	CC, CC-1, VC, VC-1, JT-30-C, JT-30-CF, JT-40-C, T-3C	4.20
MC 451	E	10M5, 10M5A, 11M5	5.25
MC 563	B	DN-50, DN-500, DN-HZ, DN-MZ, 10-D	9.90
MC 320	A	D-104	5.70
MC 321	A	D-104-C	4.20
MC 551*	C	M-301	4.20
MC 558*	.....	332	4.20
MC 559-2*	.....	331	4.20
MC 560*	.....	335H, 335L	4.65

\*Mikes without screw-fastened caps should be returned to factory for repairs.

### MODEL LT-6 LINE-MATCHING TRANSFORMER

Matches low impedance microphone to high impedance amplifier input; or high impedance dynamic microphone to low impedance amplifier input. Permits long length of cable on the low impedance side of the transformer. Eliminates high frequency loss and objectionable hum pickup. Completely shielded. **Input:** 30-50 or

150-250 ohms. **Output:** 40,000 ohms or higher. **Response:** ±1 db, 20-20,000 cps. Supplied with Amphenol 91-852 and 75-MC1F end connectors. Opalescent gray body with chrome finish connectors. **Size:** ¾" dia. **\$10.50**

Model LT-6 Transformer—Net Each.....



## STUDIO MICROPHONES

## MODEL 576 DYNAMIC OMNIDIRECTIONAL PROBE

Broadcast-quality dynamic microphone designed for superior performance in television, radio and critical PA applications. Ultra-modern, rugged design meets highest standards under typical broadcast conditions. Ultra-slim styling assures maximum view of performance for on-camera use. Smooth, natural, wide-range response assures authentic pickup of voice or music. Dual impedances selectable by moving pin jacks inside case. Comes complete with Model A578 slip-in swivel adapter permitting mike to be tilted 90° from vertical to horizontal;  $\frac{5}{8}$ "-27 threaded. Rugged steel case in non-reflecting gray finish provides effective shielding as well as beauty. Stainless steel grille. May be used with Shure S33B stand, A95A transformer, S39A isolation stand, or A45 Isolation unit. Order in matched pairs for stereo broadcasting and recording. **Frequency Response:** 40-20,000 cps. **Polar Pattern:** Omnidirectional. **Impedance:** 50 or 150 ohms, internally selectable. **Output:** 60 db below 1 mW/10 microbars; 50 ohms, .050 mV/microbar; 150 ohms, .095 mV/microbar. **Cable:** 25-ft., three-conductor, shielded broadcast cable supplied. **Size:**  $\frac{3}{4}$ " dia. x  $8\frac{3}{8}$ " lg., overall. **Net Wt., 7 oz.**

Shure Model 576 Dynamic Omni-Microphone—Net Each.....\$105.00

## MODEL 570 MINIATURE LAVALIER MICROPHONE

Professional quality and miniature size combine in dynamic mike for lavalier use in television, lectures, etc. Special "shaped" response gives superior performance; reduces pickup of clothing and cable noise. Inconspicuous "Flex-Grip" lavalier assembly (supplied) holds mike firmly; yet, permits easy quick removal. Lavalier clip opens left or right; or, can be removed. Optional line transformer, A95A may also be used. Employs Dura-coustic diaphragm and Alnico V magnet. Omnidirectional polar pattern. Comes with lightweight, flexible 30-ft., two-conductor shielded cable attached; belt clip supplied for cable. Non-reflecting gray metal case has stainless steel grille. **Frequency Response:** 50-12,000 cps, shaped for optimum lavalier performance with rising response to 6000 cps. **Impedance:** 150 ohms to match low-Z inputs. **Output:** 59 db below 1 mW/10 microbars; .095 mV/microbar. **Size:**  $\frac{3}{4}$ " dia. x  $2\frac{3}{8}$ " lg., overall. **Weight, 2 oz.**

Shure Model 570 Lavalier Microphone—Net Each.....\$57.00

Shure Model 570S—Same but with built-in on-off switch. **Net Each.....\$63.00**

## NEW MODEL 571 MINIATURE OMNIDIRECTIONAL MICROPHONE

Studio quality dynamic microphone for voice applications. Can be used on stand, hand-held, suspended over stage, concealed in studio or other broadcast, motion picture, theatrical or public address applications. Rugged construction, with steel case for magnetic shielding, finished in non-reflecting gray. Supplied with Model A57R swivel adapter and nondetachable 30 ft., two-conductor shielded cable. **Frequency Response:** 50-10,000 cps. **Impedance:** Matches all low impedance inputs, 50-250 ohms. **Output:** -60.5 db (0 db = 1 mW/10 microbars); .085 mV/microbar. **Size:**  $\frac{1}{2}$ " dia. x  $2\frac{3}{8}$ " lg. **Wt., 2 oz.**

Shure Model 571 Microphone—Net Each.....\$57.00

## MODEL 330 UNIDIRECTIONAL RIBBON MICROPHONE

A truly fine and rugged microphone for discriminating users with the most exacting requirements for high-fidelity recording in the home. A small super-cardioid microphone, recommended for finest quality indoor PA installations. Unidirectional design reduces random noise energy 73%. Patented "Uniphase" system. Horn loaded ribbon transducer for smooth response and production uniformity guaranteed to  $\pm 2\frac{1}{2}$  db, 30-15,000 cps. Features multi-impedance switch, anti-"PFF" filter screen, and self-adjusting lifetime swivel. Sturdy one-piece metal case with vibration-isolation unit mounted in live rubber. Connector is Cannon XL-3-11. **Impedance/Output Level:** Low (50 ohms) output level is 59 db (Model 333, -60 db) below 1 mW per 10 microbar signal; medium (150 ohms), 57 db (Model 333, 59 db) below 1 mW per 10 microbar signal; high-medium (250 ohms), 55 db (Model 333, 59 db) below 1 mW per 10 microbar signal. Furnished with 20' two-conductor shielded cable. Case finish: Model 330, Satin-chrome; Model 333, Bronze-Tone. **Shipping Weight, Model 330, 3 $\frac{1}{2}$  lbs.; Model 333, 4 $\frac{1}{4}$  lbs.**

Shure Model 330 Professional Uni-Ron Mike—Net Each.....\$72.00

Shure Model 333 Studio Uni-Ron Mike—Net Each.....\$150.00

## MODEL 300 BIDIRECTIONAL GRADIENT MICROPHONE

A rugged, high fidelity, multi-impedance mike widely used for TV, radio, Hi-Fi uses, and professional recording. Reduces random noise and reverberation by 66%; combining the best features of conventional velocity mikes with advanced acoustic design. Bidirectional polar pattern is effective over a wide frequency range. **Frequency Response:**  $\pm 2\frac{1}{2}$  db, 40-15,000 cps guaranteed. Anti-"PFF" filter screen eliminates unwanted noise. Gradient factor permits placing the mike at a 73% greater distance from the performer than is possible with omnidirectional mikes; bidirectional feature reduces all sounds at both sides of the mike but with excellent pickup at front and rear. Features voice-music switch, vibration-isolation unit mounted in live rubber, and multi-impedance switch. **Impedance/Output Level:** Low (50 ohms), output level 60 db below 1 mW per 10 microbar signal; medium (150-250 ohms), 59 db below 1 mW per 10 microbars and high, 57 db below 1 volt per microbar. Supplied with 20 ft., two-conductor, rubber-covered shielded cable with Cannon XL-3-11 connector attached. Use Model S33 as accessory desk stand. **Size:**  $1\frac{1}{4}$ " w. x  $2\frac{1}{4}$ " d. x  $9\frac{1}{4}$ " h. **Shipping Weight, 4 lbs.**

Shure Model 300 Bidirectional Gradient Mike—Net Each.....\$90.00

## MODEL 556S "UNIDYNE II" CARDIOID DYNAMIC MIKE

Specially designed to meet the high technical requirements of broadcast and TV studios. Endures heavy punishment of daily use and abuse, operating at optimum efficiency when conventional mikes are out of service. Offers close tolerances in frequency response and directivity. Ideal for station and remote broadcasting, PA, theater-stage sound systems and recording applications. Provided with vibration-isolation unit of live rubber construction; completely eliminates metal-to-metal contact between mike and stand. **Frequency Response:** 40-15,000 cps,  $\pm 2\frac{1}{2}$  db guaranteed. **Polar Pattern:** Ultra-Cardioid (unidirectional); response at rear -15 db from front. **Impedance/Output Level:** Low (35-50 ohms), -54 db; medium (150-250 ohms), -55 db; high, -57 db. **Case:** Diecast zinc with satin chrome finish; lifetime swivel tilts 45° forward, 80° backward, with Cannon XL-3-11 connector and 20 ft., two-conductor shielded broadcast type cable. **Stand:**  $\frac{5}{8}$ "-27 threaded. **Size:**  $2\frac{1}{4}$ " w. x  $3\frac{1}{4}$ " d. x  $7\frac{3}{4}$ " h.

Shure Model 556S "Unidyne II" Dynamic Mike—Net Each.....\$81.00

## MODEL 546 "UNIDYNE III" CARDIOID BROADCAST MIKE

Uniform cardioid pickup pattern in slim dynamic design. Recommended for critical broadcast and theater-stage sound systems, PA and recording applications. Diecast zinc case with "Armo-Dur" in satin chrome and black.  $\frac{3}{8}$ " swivel. Special vibration-isolation shock mount of live rubber. Stand  $\frac{5}{8}$ "-27 threaded. Comes with 20 ft., two-conductor shielded cable and Cannon XL-3-11 connector. **Frequency Response:** 50-15,000 cps. **Output Level:** -55 db below 1 mW per 10 microbars. **Impedance:** Choice of 50 ohms or 50 ohms by switch. **Size:**  $1\frac{1}{4}$ " dia. x  $5\frac{1}{4}$ " lg., less swivel.

Shure Model 546 "Unidyne III" Cardioid Mike—Net Each.....\$81.00

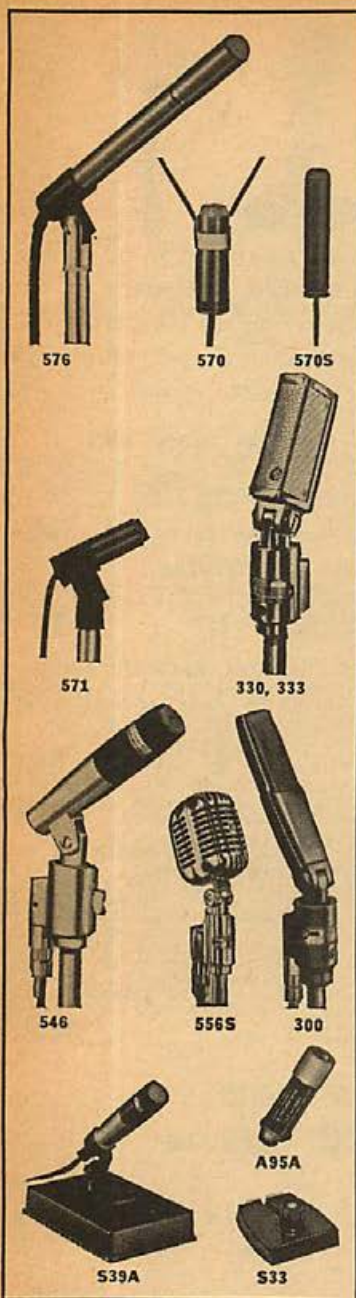
## MODEL A95A CABLE TRANSFORMER

High quality, cable-type transformer for matching low impedance mike (35-50 ohms and 150-250 ohms) to high impedance amplifier. Solves problem of excessive high frequency loss and objectionable hum when long lengths of cable are used. May also be used in matching high impedance to low impedance circuits. **Frequency Response:**  $\pm 1$  db, 20-20,000 cps. Gray and black, magnetically shielded case. Furnished with Cannon XL-3-11 input and Amphenol MC1E output plugs. **Size:**  $2\frac{1}{2}$ " lg. x  $\frac{3}{4}$ " dia.

Shure Model A95A Cable Transformer—Net Each.....\$10.50

Models 546, 556S and 576 available in matched pairs for stereo at no extra cost.

Models 330, 333 and 300 are adaptable to stereo.



## VIBRATION ISOLATION STAND

Ideal for table, desk, stage footlight, remote broadcast such as sporting events, conferences, panels, etc. where vibration is a problem. Gives maximum isolation from extreme vibrations. Fits all Shure mikes and swivel adapters. Extension adapter supplied to increase height of certain mikes requiring cable connector clearance. Durable black crackle finished plastic with heavy-duty foam rubber isolation. **Net Wt., 2 $\frac{1}{2}$  lbs. Shpg. Wt., 2 $\frac{3}{4}$  lbs.**

Shure Model S39A—Net Each.....\$15.00

## BROADCAST DESK STANDS

Shure Model S33—Baked bronze finish. Use with 300, 333, 525 and 535 microphones. **Net Each.....\$9.00**

Shure Model S33B—Same, but black finish. Use with 330, 330, 544, 545, 546, 556S, 576, 578, 415 and 430 mikes. **Net Each.....\$9.00**



## PUBLIC ADDRESS AND RECORDING MICROPHONES

## MODEL 578 OMNIDYNE ULTRA-SLIM PROBE

Outstanding PA dynamic mike combines extra slim design with exceptional performance. Slender, inconspicuous shape has built-in wire mesh "pop" filter which reduces breath noises. Extremely rugged construction provides quality PA use indoors and out. Smooth, natural response. Carefully balanced for comfortable handling. Built-in "on-off" switch with optional locking plate to hold switch in "on" position. Dual Impedance: Low and high to meet any requirement. Swivel adapter, 5/8"-27 threaded, supplied. Employs Duracoustic diaphragm and Alnico V magnet. May be used with S33B desk stand, A95A transformer, S39A isolation stand, or A45 isolation unit. Satin chrome steel case provides magnetic shielding. Available in matched pairs ( $\pm 1$  db, level;  $\pm 1\frac{1}{2}$  db, response) for stereo recording. **Frequency Response:** 50-17,000 cps. **Impedance:** Selectable 200 ohms and high. **Output:** High Impedance, 59 db below 1 mW/microbar; low, 60 db below 1 mW/10 microbars. **Cable:** Shielded three-conductor cable 18 ft. long supplied. **Size:** 3/4" dia. x 7 1/4" lg., overall. **Net Weight,** 7 oz., less cable. **\$49.50\***

**Shure Model 578—Net Each.**.....**\$49.50\***  
**Shure Model 578S—Same but mounted on swivel-switch assembly with attached Cannon XL-3-11 cable connector. Net Each.**.....**\$54.00\***

## "UNIDYNE III" MOVING COIL, WIDE-RANGE CARDIOID

Smallest cardioid dynamic microphone available. Wide range reproduction of voice and music; highly flexible for hand or stand use. Dependable for fine quality PA systems, tape recording, etc. Reduces or eliminates feedback and background noise in adverse acoustic conditions. Permits placement at 75% greater distance from sound source than possible with omnidirectional types. Rugged; will operate for years without deviation from original standards. **Frequency Response:** 50-15,000 cps. **Impedance/Output Level:** Low (50-250 ohms), 57 db below 1 mW per 10 microbars; high, 55 db below 1 volt per microbar. **Polar Pattern:** Uniform cardioid. **Case:** Diecast zinc and "Armo-Dur" in satin chrome and black; 5 1/4" lg. x 1 1/4" dia. With equiv. Amph. MC4M plug, 18 ft. three-conductor shielded cable, and A25B swivel adapter. Use with S33B desk stand. Models 545 and 545S available in matched sets (within 2 db) for stereo recording at no extra cost. **Shipping Weight,** 2 1/2 lbs. **\$51.00\***

**Shure Model 545—Net Each.**.....**\$51.00\***  
**Shure Model 545S—Same as above but with on-off switch. Net Each.**.....**\$53.97\***  
**Shure Model 544-G6—Same, but mounted on 6" flexible gooseneck with mounting flange. With 7' cable; A25B adapter, not supplied. Net Each.**.....**\$49.80**  
**Shure Model 544-G12—Same, but on 12" gooseneck. Net Each.**.....**50.25**  
**Shure Model 544-G18—Same, but on 18" gooseneck. Net Each.**.....**51.00**  
**Shure Model 544—Same, but less gooseneck. Net Each.**.....**48.00**  
**Shure Model 533B—Handsome black finished desk stand. Net Each.**.....**9.00**

## MODEL 555 "UNIDYNE II" DYNAMIC

World-famous for faithfulness of sound reproduction; features patented "Uni-phase" network system. Recommended for PA and theater sound systems, recording and remote broadcasting. **Frequency Response:** 50-15,000 cps. **Impedance/Output Level:** Low (35-50 ohms), 64 db below 1 mW per 10  $\mu$ bars; medium (150-250 ohms), 55 db below 1 mW per 10  $\mu$ bars; high, 57 db below 1 V per  $\mu$ bar. Furnished with 18 ft. cable and plug assembly. **Shure Model 555—Net Each.**.....**\$49.80\***  
**Shure Model 555W—Same but with on-off switch. Net Each.**.....**\$51.00\***

MODEL 315  
BIDIRECTIONAL GRADIENT

A rugged, high fidelity, multi-impedance mike. Bidirectional 8" pickup pattern eliminates side noise, picks up sound from front and rear. **Frequency Response:** 50-12,000 cps. Anti-"PEF" filter. Supplied with 18 ft. two-conductor shielded cable, and equivalent of Amphenol 91-MC3M plug. **Impedance/Output Level:** Low (35-50 ohms), 59.5 db below 1 mW per 10  $\mu$ bars; medium (150-250 ohms), 60 db below 1 mW per 10  $\mu$ bars; high, 57 db below 1 volt per  $\mu$ bar. **Size:** 6" high, 1 1/4" wide, 1 1/2" deep. **Shpg. Wt.,** 3 1/4 lbs. **\$53.70**  
**Shure Model 315—Net Each.**.....**\$53.70**  
**Shure Model 315S—Same as 315 but with on-off switch. Net Each.**.....**\$54.90**

## MODEL 560 DYNAMIC

Dual Impedance dynamic mike with response "tailored" for lavalier applications. Move pin jacks to change from high to low impedance. Black satin finished all-metal case, stainless steel grille, clip-grip lavalier assembly, lightweight 18-ft. two-conductor shielded cable. **Impedance/Output Level:** Medium (150-250 ohms), 55.5 db below 1 mW per 10  $\mu$ bars; high, 56.5 db below 1 volt per  $\mu$ bar. **Shpg. Wt.,** 1 1/2 lbs. **\$25.50**  
**Shure Model 560—Net Each.**.....**\$25.50**

MODEL 51 SONODYNE  
MULTI-IMPEDANCE

Ideal for PA, recording, etc. Built-in receptacle, 15-ft., two-cond. shielded cable, with mike plug attached. **Frequency Response:** 60-10,000 cps. **Impedance/Output Level:** Low (35-50 ohms), 52 db below 1 mW per 10  $\mu$ bars; medium (150-250 ohms), 52 1/2 db below 1 mW per 10  $\mu$ bars; high, 49.5 db below 1 V per  $\mu$ bar. Satin chrome finish. **Wt.,** 3 lbs. 2 oz. **\$29.70**  
**Shure Model 51—Net Each.**.....**\$29.70**  
**Shure Model 51S—With on-off switch. Net Each.**.....**\$30.90**

NEW MODEL 5805  
"UNIDYNE A" DYNAMIC

Ideal for controlling feedback in economy PA systems and improving home record-

ings. True cardioid pickup pattern; rugged, shock-mounted dynamic element; on-off switch. **Frequency Response:** 50-11,000 cps. **Output:** -58 db. **Impedance:** Low, 150-250 ohms; high. Satin chrome case with "Armo-Dur" cap and stainless mesh grille. With 15-ft. attached shielded cable with strain relief. **Size:** 1 1/4" dia. x 6 3/4" lg. **Shure Model 5805A—High Im—\$35.40**  
**pedance. Net Each.**.....**\$35.40**  
**Shure Model 5805B—Low Impedance. Net Each.**.....**\$31.20**

**MODEL 5505 "PROBE-DYNAMIC"**  
Rugged, omnidirectional, dynamic microphone features smooth, wide range response. Excellent for pickup of voice and music. Ideal for use in meeting rooms, auditoriums, for tape recordings, etc. **Frequency Response:** 50-15,000 cps. **Impedance:** 50 to 250 ohms and high. **Output:** -57.5 db. Complete with on-off switch, swivel and 18 ft. two-conductor cable. Satin chrome case. **Size:** 1 1/2" dia. x 6 1/2" lg. excluding swivel. **Net Weight,** 15 oz., less cable. **\$41.40\***  
**Shure Model 5505—Net Each.**.....**\$41.40\***

MODEL 5405 "SONODYNE II"  
DUAL-IMPEDANCE DYNAMIC

The "Sonodyne II" features adjustable frequency response (provisions for alternate response for extra voice intelligibility). **Frequency Response:** 60-10,000 cps. **Impedance/Output Level:** Low (50-250 ohms), 56.5 db below 1 mW/microbar; high, 55 db below 1 volt/microbar. **Polar Pattern:** Omnidirectional. **Case:** Diecast zinc and "Armo-Dur" in satin chrome and black; 3 1/2" lg. x 1 1/2" dia. With equivalent Amphenol connector, MC3M, resonator plate and set-screw for changing response; 15-ft. two-conductor cable, and self-adjusting "positive-action" swivel. Use with Model S36A desk stand and Model A95A cable-type transformer. **Shipping Weight,** 3 1/4 lbs. **\$29.97**  
**Shure Model 5405—Net Each.**.....**\$29.97**  
**Shure Model 540—Same but without switch. Net Each.**.....**\$28.77**

## MODEL 245 "UNIPLEX"

Low-cost solution to feedback problems. Excellent for stereo home recording. Swivel stand adapter included. Rugged ceramic cartridge performs at temperatures from -40° to +170° F. **Frequency Response:** 50-7000 cps. **Output:** -59 db. **Impedance:** High (1-5 megohms recommended). **Polar Pattern:** Cardioid. Diecast zinc case. **Size:** 4 1/2" lg. x 1 1/2" dia. (mike only). **Shpg. Weight,** 3/4 lb. **Shure Model 245—Includes A25B swivel stand adapter and removable single conductor, 15' shielded cable. \$21.00**  
**Net Each.**.....**\$21.00**  
**Shure Model 245S—Same, but with built in on-off switch. Net Each.**.....**\$22.20**



**Shure Model 245G—Gooseneck mounting version of 245 without adapter; 7-ft. single conductor cable. Net Each.**.....**\$18.00**  
**Shure Model 245GS—Gooseneck mounting version of 245S without adapter. On-off switch, fixed 7-ft. single conductor shielded cable. Net Each.**.....**\$19.20**

## MODEL 5755 "VERSADYNE"

Smooth response from 40-15,000 cycles per second. Rugged, high performance dynamic cartridge. High or low impedance models. Complete with switch, stand adapter and lavalier cord. May be hand-held, stand-mounted or used as lavalier. Omnidirectional polar pattern. Single-cond. 7 ft. shielded cable. High-impact plastic body, satin anodized cap, stainless steel grille. **Size:** 4 3/4" lg. x 1 1/4" dia. **Weight,** 5 oz. **Shure Model 5755—For PA amplifiers requiring moderate length of cable. Impedance:** High (100,000 ohms recommended). **Output Level:** 59 db **\$14.40**  
**below 1 V/microbar. Net Each.**.....**\$14.40**  
**Shure Model 5755B—For use where long cable lengths are required or with transistor amplifiers requiring medium or low impedance mike. Impedance:** 150-250 ohms. **Output Level:** -62 db (0 db = 1 mW per 10 microbars). **Net Each.**.....**\$12.60**  
**Shure Model 2755 "Versaplex"—Ceramic model. Response:** 40-12,000 cps. **Impedance:** High (1-5 megs). **Output Level:** -59.5 db (0 db = 1 V/microbar). Complete with switch, stand adapter, lavalier assembly. **Net Each.**.....**\$9.00**

\*Available in gold finish, add \$6.00 to price shown.

MODELS 315, 315S, 555, 555W, 545, 545S, 5505, 578, 578S AND 5805A AVAILABLE IN MATCHED SETS FOR STEREO AT NO EXTRA COST.



## MOBILE AND GENERAL PURPOSE MICROPHONES

## MODEL 450 "DISPATCHER"

Features telescoping height adjustment; push-to-talk switch bar with locking feature. Relay portion is normally open, mike portion either normally open or closed. Controlled magnetic element with impedance switch. With 7-ft. four-conductor (two shielded) cable. **Frequency Response:** 100-9,000 cps. **Impedance:** Switchable for 50-250 ohms or high-impedance. **Output:** High, -52.5 db; low, -54 db. **Size:** 4" w. x 5 $\frac{1}{4}$ " d. x 10 $\frac{1}{2}$ " h. (adjustable). **Net Weight, 1 $\frac{1}{2}$  lbs. \$2970**  
Shure Model 450—Net Each...

## MODEL 520SL "DISPATCHER"

Handles the most severe field requirements of paging, dispatching systems. Operates both mike and relay circuits dependably. Grip-to-talk DPST switch normally closed, normally open. **Frequency Response:** 100-9,000 cps. **Impedance:** High. **Output Level:** 52.5 db below 1 V per microbar. Has 7 ft. 2 conductor shielded cable; equiv. Amphenol MC3M plug. Shipping Weight, 3 $\frac{1}{2}$  lbs. **\$2700**  
Shure Model 520SL—Net Ea...  
Shure Model 520SLB—Same, but low impedance (150-250 ohms); 51.0 db below 1 mV/10 microbars, output level. With 4-conductor (2 shielded), 7 ft. cable and equiv. Amphenol MC4M plug. **\$2955**  
Net Each...

## MODEL 488

## NOISE-CANCELLING MICROPHONES

Differential type mikes with Controlled Reluctance cartridge effectively cancels background noise; permit transmission under conditions impossible for other microphones. **Frequency Response:** 200-4,000 cps. Supplied with heavy duty push-to-talk switch, 5 $\frac{1}{2}$  ft. extended, coiled cable and mounting bracket. High impact "Armo-Dur" gray steel case with perforated steel grille and rubber lip-guard. **Size:** 2 $\frac{1}{2}$ " w. x 2 $\frac{1}{2}$ " d. x 3 $\frac{1}{4}$ " h. **Wt., 3 $\frac{1}{4}$  lb. \$3450**  
Shure Model 488A—Mike switch circuit normally closed with provision for change to normally open. **Impedance:** High (recommended load 100,000 ohms or more). **Output Level:** -18 db; 125 V (1 volt per 100 microbars). Three-conduc-  
tor (one shielded) cable. **Net Ea. \$3450**  
Shure Model 488B—Mike switch circuit normally open with provision for change to normally closed. **Impedance:** Low, 150-250 ohms. **Output Level:** -37 db; 0.14 V (1 V per 100 microbars). Four-conductor (two shielded) cable. **\$3450**  
Net Each...

Shure Model 488C—Mike switch circuit normally open. Transistorized for direct replacement of carbon mikes. **Impedance:** 500 ohms. **Output:** .45 V (-7 db) using 6 V and 500-ohm load. Four-con-  
ductor cable. **Net Each... \$3750**  
Shure Model 488T—Mike switch circuit normally open. Transistorized for direct replacement of carbon mikes; FAA certified for aircraft. **Impedance:** Recommended load 100-800 ohms AC, 6-18 VDC across loaded mike. **Output Level:** 0.71 V (-3 db) using 12 volts and 500-ohm load. Three-conductor tinsel coiled. **\$4350**  
cord with PJ068 plug. **Net Each...**

## NEW MODEL 419 RANGER II NOISE CANCELLING MICROPHONES

Permit transmission under conditions impossible with other microphones (except 488 Series, above). Ideally suited for outdoor and indoor use in exceptionally noisy areas. **Frequency Response:** 200-4,000 cps. **Output:** -55 db. With heavy-duty DPST leaf switch. Case of high-impact, textured "Armo-Dur"; with retractable cable. **\$3750**  
Shure Model 419A—High im-  
pedance. **Net Each... \$3750**  
Shure Model 419B—Low impedance. **\$3750**  
Net Each...

## 100 SERIES CARBON MICROPHONES

"Armo-Dur" high impact, corrosion-proof microphone for police, taxi, bus, track, commercial or professional two-way communication applications. Lightweight and compact size fits in palm of hand perfectly. Bracket for permanent placement in portable or mobile equipment. **Frequency Response:** 300-4,000 cps. **Output:** 5 db below 1 V for 100 microbar speech signal. **Impedance:** 50-100 ohms. **Size:** 2 $\frac{3}{4}$ " w. x 1 $\frac{1}{4}$ " d. x 3 $\frac{1}{4}$ " h. Complete with coiled cord with

trimmed and tinned leads. Shpg. Wt., 1 lb. **Shure Model 104A**—DPST normally open switch to control microphone **\$1800** and relay. **Net Each...**  
**Shure Model 104B**—SPST normally open relay switch (no microphone switch). **Net Each... \$1800**

## THE "COMMANDO"

Rugged mikes suitable for use indoors or outdoors. Models 415 and 430 can be held in the hand or set on a floor or desk stand. Ideal for general purpose applications in home tape recording, theater-restaurant and outdoor PA systems, lecturing, paging and dispatching systems, interview-type shows, etc. **Frequency Response:** 60-10,000 cps. **Impedances:** Model 415, high; others, high and low. **Output Level:** High, 52 db below 1 V per microbar; low, 52 db below 1 mW per 10 microbars. **Shure Model 430**—Furnished with press-to-talk switch, normally closed; switch locking plate; 15-ft., 2-conductor, shielded cable; Amphenol MC2M cable connector; A25B swivel adapter; 3 $\frac{1}{2}$ "-27 stand thread. Impact-resistant polystyrene and ducast zinc case; satin chrome and non-reflecting gray finish. **Size:** 6 $\frac{1}{4}$ " lg. x 1 $\frac{3}{4}$ " dia. (top); handle, 1 $\frac{1}{2}$ " dia. **\$2310**  
Net Each...

**Shure Model 430SL**—Paging microphone. Press-to-talk locking or non-locking switch controls both mike circuit and external relay or control circuit. Included are S38B desk stand and A25B swivel adapter. Three-cond. 15 ft. cable. **\$2997**  
Net Each...

**Shure Model 415**—Similar in appearance to Model 430. High impedance only. With 7-ft. non-detachable single conductor shielded cable; Model A25B swivel adapter; 3 $\frac{1}{2}$ "-27 stand thread. No switch. **Size:** 6 $\frac{1}{4}$ " lg. x 1 $\frac{3}{4}$ " dia.; handle, 1 $\frac{1}{2}$ " dia. **\$1650**  
Net Each...

**Shure Model 420**—Dual impedance, lavallier type. Impact-resistant polystyrene case; non-reflecting gray finish. With 20-ft., 2-conductor, non-detachable, shielded cable; detachable lavallier cord and clip assembly. **Size:** 3 $\frac{1}{4}$ " x 1 $\frac{1}{2}$ " dia. **\$1800**  
lg. x 1 $\frac{3}{4}$ " dia. **Net Each...**

**Shure Model 425**—Electrically identical to Model 420, but with special adapter to accommodate flexible gooseneck and mtg. flange. With 7 ft., 2-cond., non-  
detachable, shielded cable. **Net. \$1800**

**Shure Model 425-G6**—Same, with 6" flexible gooseneck and mtg. flange. **Net Each... \$1980**

**Shure Model 425-G12**—Same, with 12" flexible gooseneck and mtg. flange. **Net Each... \$2025**

**Shure Model 425-G18**—Same, with 18" flexible gooseneck and mtg. flange. **Net Each... \$2100**

## MODEL 444 HAM MICROPHONE

Designed for amateur radio enthusiasts. Press-to-talk switch with locking for relay control and muting mike. Separate switch for disabling relay for VOX operation. Adjustable stand. Controlled-magnetic element; two-tone gray "Armo-Dur" case. With 7-ft., two-conductor shielded cable. **Frequency Response:** 300-3000 cps. **Impedance:** High. **Output:** -52.5 db. **Size:** 4" w. x 5 $\frac{1}{4}$ " d. x 10 $\frac{1}{2}$ " h. (adjustable). **Net Weight, 1 $\frac{1}{2}$  lbs. \$2550**  
Shure Model 444—Net Each...

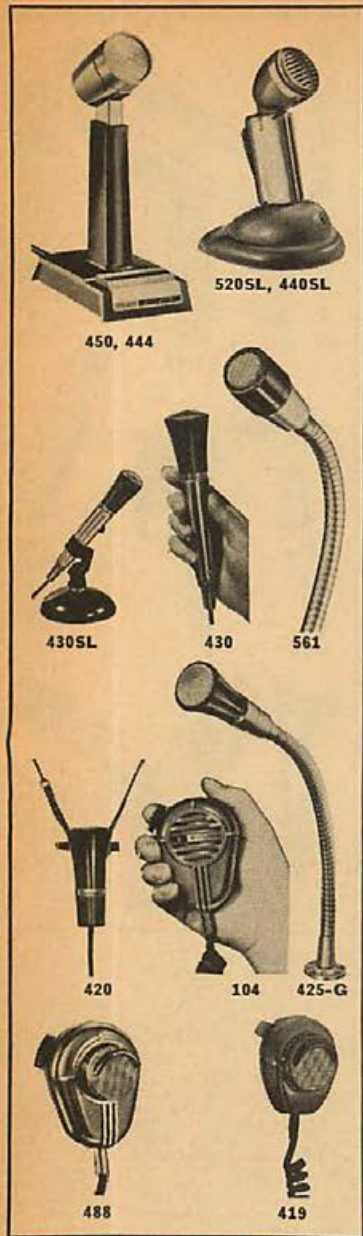
## MODELS "440" AND "440SL"

Response characteristic tailored to meet the demands of radio communications; especially suited for SSB operation. Rising response characteristic with sharp cutoff below 300 and above 3000 cps eliminates need for audio filters. Controlled magnetic type microphones have omnidirectional polar pattern. **Frequency Response:** 300-3000 cps. **Impedance/Output Level:** High, 52.5 db below 1 volt per microbar. **\$1500**  
Shpg. Wt., 1 $\frac{1}{2}$  lbs. **Net Each...**

**Shure Model 440**—Satin chrome finish. Use with S34B or S36A desk stands. With 7 ft. shielded, single conductor; fits 3 $\frac{1}{2}$ "-27 thread stand. **2 $\frac{1}{2}$ "-27 stand thread. \$1500**  
Shpg. Wt., 1 $\frac{1}{2}$  lbs. **Net Each...**

**Shure Model 440SL**—With grip-to-talk switch; satin chrome with gray base; 7 ft. shielded 2-conductor and equiv. Amphenol MC3M plug. 9 $\frac{3}{4}$ " h. x 5" w. x 7" d. incl. stand. Shipping Weight, 3 $\frac{1}{2}$  lbs. **\$2850**  
Net Each...

**Shure Model A87K Modification Kit**—For use with 440SL for flexibility in VOX or push-to-talk operation. **Net Ea. \$195**



## MODEL 561 TAMPER-PROOF DYNAMIC GOOSENECK

Compact, high quality, tamper-proof dynamic mike for general audio use; Language lab systems, paging applications, communications, talk-back and euling from control-room, etc. Designed for direct mounting on flexible gooseneck or fixed pipe to conceal and protect cable. Comes with attached 4-ft., two-conductor shielded cable, standard 3 $\frac{1}{2}$ "-27 thread and Allen wrench to lock on mounting thread and remove microphone head. Low impedance permits unusually long cable lengths to be used without affecting response or level. Black and chrome satin finished all-metal case with stainless steel grille. Rugged dynamic cartridge easily replaced in field. **Frequency Response:** 40-10,000 cps with rising characteristic to 4500 cps. **Impedance:** Matches 50 to 250 ohms. **Output:** 56 db below 1 mW/10 microbars; 1.41 mV/microbar. **Size:** 1 $\frac{3}{4}$ " dia. x 2 $\frac{1}{4}$ " lg. overall. Shipping Weight, 9 oz. x 2 $\frac{1}{4}$ " lg. **Shure Model 561**—Net Each... **\$1950**







## MODEL SM5 UNIDIRECTIONAL BOOM MICROPHONE

For solving the problems of motion picture and television boom applications, and many difficult remote pickups. Features exceptionally uniform and symmetrical cardioid polar pattern to minimize sound coloration due to off-axis pickup, such as from reverberation, reflections from floor or scenery, and performers accidentally "off-mike." Provides very effective rejection of background noise. **Frequency Response:** 50-15,000 cps; unusually low susceptibility to magnetic fields. Completely internal, two-stage mechanical isolation. Highly effective integral windscreen. Lightweight with perfect balance. **Polar Pattern:** Unidirectional. **Output Level:** At 1000 cps, 57 db below 1 mW/10 microbars. **Impedance:** Choice of 50 ohms (SM5A) or 150 ohms (SM5B). Cannon XLR-3-42 receptacle attached. Standard  $\frac{3}{8}$ " boom mounting;  $\frac{3}{8}$ "-27 adapter supplied. **Size:** 4  $\frac{1}{4}$ " dia. x 9  $\frac{3}{8}$ " lg. **Weight:** Net, 1 lb. 15 oz. Shipping, 4  $\frac{3}{4}$  lbs.

Shure Model SM5A Unidirectional Boom Microphone—Net Each..... \$225<sup>00</sup>  
Shure Model SM5B Unidirectional Boom Microphone—Net Each..... \$225<sup>00</sup>  
Shure Model S33C Accessory Desk Mount—For SM5 microphone. Net Ea..... 15<sup>00</sup>

## UNIDYNE III MODELS SM56 AND SM57 CAROID DYNAMIC MIKES

Exceptionally uniform and effective cardioid pickup pattern minimizes effects of studios or location acoustics and background noise. Cartridge is shock mounted for quiet operation. Gives wide-range reproduction of voice and music in broadcasting, recording, motion picture and critical sound reinforcement applications. Very effective for announcing, narration, dialogue, vocal music and rhythm pickups. **Frequency Response:** 50 to 15,000 cps. **Polar Pattern:** Cardioid (unidirectional) response, uniform with frequency and symmetrical about axis. **Dual Impedance:** Low, 30-50 ohms; high, 150-250 ohms. **Output Level:** At 1,000 cps, 56 db below 1 mW/10 microbars. Case is die-cast and "Armo-Dur" in textured gray. With 20-ft. two-conductor shielded cable with Cannon XLR-3-11C connector.

## MODEL SM56

Features separately shock-mounted cartridge and microphone body; convenient impedance switch; accessory switch adapter for applications where an on-off switch is needed at microphone; and, lifetime swivel permitting tilting of head through 180°. Fits standard  $\frac{3}{8}$ "-27 threaded stand. **Size:** 1  $\frac{3}{4}$ " dia. x 5  $\frac{1}{2}$ " long. **Weight:** Net (less cable), 1 lb. 3 oz. Shipping, 2  $\frac{3}{4}$  lbs.

Shure Model SM56 Unidirectional Dynamic Microphone—Net Each..... \$81<sup>00</sup>

## MODEL SM57

Slender dynamic microphone specifically designed for remote and interview-type use and for vocalists where "handability" is important. Factory set at 150-250 ohms; easily changed to 30-50 ohms. Supplied with positive-action swivel adapter that fits standard  $\frac{3}{8}$ "-27 thread. **Size:** 1  $\frac{3}{8}$ " dia. x 6  $\frac{3}{4}$ " long. **Net Weight (less cable),** 10 oz. Shipping, 2  $\frac{3}{4}$  lbs.

Shure Model SM57 Unidirectional Dynamic Microphone—Net Each..... \$63<sup>00</sup>

## MODEL SM33 UNIDIRECTIONAL RIBBON MICROPHONE

A compact and rugged unidirectional ribbon microphone combining wide-range response and a super-cardioid directional pattern. This polar pattern is more directional than the conventional cardioid, providing excellent control of unwanted surrounding noise and reverberation. Well suited to both voice and music. Low-frequency response characteristic is switch-adjustable. Has swivel for tilting head 45° forward and 70° backward. Built-in shock mount. **Frequency Response:** 40-15,000 cps. **Polar Pattern:** Super-cardioid (unidirectional). **Impedances:** Low, 30-50 ohms; high, 150-250 ohms (factory set; easily changed to low). **Output Level:** At 1000 cps, 30-50 ohms, 60 db below 1 mW/10 microbars; 150-250 ohms, 58.5 db below 1 mW/10 microbars. Die-cast zinc case in light and dark gray. With 20-ft. cable with Cannon XLR-3-11C attached. Fits  $\frac{3}{8}$ "-27 threaded stand; adapter for  $\frac{3}{8}$ " pipe or  $\frac{3}{8}$ "-24 thread available free on request. **Size:** 1  $\frac{3}{8}$ " w. x 2  $\frac{1}{4}$ " d. x 7  $\frac{1}{4}$ " lg. (overall, including swivel). **Weight:** Net (less cable), 1 lb. 10 oz.; Shipping, 3  $\frac{3}{4}$  lbs.

Shure Model SM33 Unidirectional Ribbon Microphone—Net Each..... \$129<sup>00</sup>

## MODEL SM76 OMNIDIRECTIONAL DYNAMIC MICROPHONE

Compact in size and superior in performance for studio and remote use in TV, radio and professional recording. Offers extended smooth frequency response, slender design, versatility and dependability under all working conditions; will operate for years with deviation from original standards. Can be used in hand or on stand, either outdoors or indoors. Adjustable swivel allows tilting of head through 90° from vertical to horizontal. **Frequency Response:** 45-20,000 cps. **Polar Pattern:** Omnidirectional. **Impedance:** 50-150 ohms for proper match with any 30- to 250-ohm input (factory set at 150 ohms; easily changed to 50 ohms). **Output Level:** At 1000 cps, 60 db below 1 mW/10 microbars. Case has textured gray finish. With 20-ft. cable with Cannon XLR-3-11C attached. Fits  $\frac{3}{8}$ "-27 threaded stand. **Size:** 1  $\frac{1}{2}$ " dia. x 8  $\frac{1}{2}$ " lg. **Weight:** Net (less cable), 7 oz. Shipping, 2 lbs. 2 oz.

Shure Model SM76 Omnidirectional Dynamic Microphone—Net Each..... \$105<sup>00</sup>

## MODEL SM50 OMNIDIRECTIONAL DYNAMIC MICROPHONE

Self-windscreened ruggedly constructed microphone designed to withstand the most severe field use. Provides highly natural and intelligible voice reproduction with unusual freedom from annoying wind and breath noises. Very comfortable hand held, or may be mounted in the slip-in stand adapter. Ideal for remote interviews, news or sports pickups, other field and studio applications. Smooth, natural-sounding response up to 15,000 cps with excellent "presence". Built-in filter virtually eliminates wind noise, "blasting" or "pop". Light in weight and well balanced. Positive-action 90° swivel. **Frequency Response:** 40-15,000 cps. **Polar Pattern:** Omnidirectional. **Impedance:** Low, 30-50 ohms; high, 150-250 ohms (factory set; easily changed to low). **Output Level:** At 1000 cps, 58.5 db below 1 mW/10 microbars. Aluminum and zinc die-cast case has dark gray finish. With 20-ft. two-conductor shielded cable with Cannon XLR-3-11C attached. Fits standard  $\frac{3}{8}$ "-27 threaded stand. **Size:** 1  $\frac{3}{4}$ " dia. x 6  $\frac{3}{4}$ " lg. **Weight:** Net (less cable), 8 oz.; Shipping, 2 lbs. 5 oz.

Shure Model SM50 Omnidirectional Dynamic Microphone—Net Each..... \$75<sup>00</sup>

## MODEL SE-1 STEREO TRANSCRIPTION PREAMPLIFIER

Designed specifically for stereo broadcasting, recording studio and mastering room playback and related applications where the highest quality of disc reproduction is required. Provides precise RIAA equalization from magnetic phono reproducers at line levels. Features separate high and low frequency response trimmers on each channel and includes a flat position for calibration checks and special applications. Performance meets the most critical standards with exceptionally low distortion, noise level and susceptibility to stray RF fields. **Gain:** +4 dbm min. with .0012 v. input. **Frequency Response:** ±1 db from RIAA or 30-15,000 cps, flat. **Hum and Noise:** -64 db at +4 dbm output. **Input Impedance:** 47,000 ohms. **Output:** +4 to +8 dbm nominal at 600 or 150 ohms (strapped to users choice). **Channel Separation:** Greater than 37 db at 10 kc. **Controls:** Flat/RIAA; Low Frequency Filter; High Frequency Filter; Left Channel Balance; Right Channel Balance; Pilot Light Indicator. **Power Supply:** Separate, with pilot light switch. **Mounting Space Required:** Preamplifier, 3  $\frac{3}{8}$ " x 7" operating with 11" rear clearance; power supply, 3  $\frac{3}{8}$ " x 8" x 11".

Shure Model SE-1 Stereo Transcription Preamplifier—Net Each..... \$295<sup>00</sup>



SE-1





# Neumann Microphones



**Neumann Microphone Studio Systems** consist of the microphone of your choice, the appropriate power supply, suitable stand mounting, microphone-to-power supply interconnect cable, AC cord, and Cannon output connector. Power supplies come equipped with U.S. standard pilot lights, fuses, AC receptacles, and output connectors. Microphones may be used as far as 300 feet from their power supplies. For this purpose, additional interconnect cables are available in lengths of 25, 50 and 100 feet. Swivel suspensions and full elastic suspension units are equipped with U.S. standard  $\frac{3}{8}$ "-27 microphone stand thread.

## MODEL U-67 MICROPHONE SYSTEM

Represents the latest advances in microphone engineering design. Electronically switched directional characteristics: Cardioid, Figure-8 or omnidirectional. Perfectly linear frequency response ( $\pm 1$  db to 16 kc), makes close miking possible without the sharp sound common to previous condenser microphones. Input circuit designed to provide flat response to 40 cps with sharp roll-off below, makes possible full-fidelity pick-up without necessity of elastic suspensions, wind-screens, or "popping" filters. Features separate "Voice-Muscle" switch to raise the roll-off starting point from 40 cps to 100 cps. Advantageous for speech in TV and film applications. Overload switch permits reduction of the capsule's sensitivity by approx. 14 db before the amplifier section. Current regulated filament supply permits wide variation in inter-connecting cable lengths without necessity for filament voltage adjustment. Calibrating input connection on power supply to test preamp with oscillator. Complete protection against RF interference. Service-free operation features gold-sputtered polyester foil diaphragm; printed circuits; completely encapsulated grid-components; Teflon tube socket. Disassembly without tools making tube change a matter of seconds. **Frequency Range:** 20-16,000 cps. **Nominal Output Impedance:** Switchable 30/50 ohms-150/250 ohms. **Effective Output Levels:** (Referred to 10 dyne/cm<sup>2</sup> S.P.L.) Omnidirectional, Figure-8, -59 dbm at 30/50 ohms; -52 dbm at 150/250 ohms; Cardioid, -55 dbm at 30/50 ohms; -48 dbm at 150/250 ohms. **Distortion:** Less than 0.5% rms total harmonic at 40, 1000 and 5,000 cps. **Calibrating Input Impedance:** 600 ohms unbalanced. **Power Requirements:** NU-67u Power Supply; 9 watts, 110/127/220 volts AC, 50-60 cps. **Dimensions:** Mike, 2  $\frac{1}{4}$ " dia., 7  $\frac{1}{4}$ " long; Supply, 4" x 4" x 8  $\frac{1}{2}$ ". **Weight:** 5 lbs., total. **Neumann Model U-67 Microphone System**—Includes U-67 matte satin chrome Condenser Microphone, NU-67u gray hammertone Power Supply, 25 ft. microphone interconnect cable and swivel stand coupling, AC power cord, etc. **\$460.00**

**Neumann U-67 with Elastic Suspension**—Add to Net. **\$14.00**  
**Neumann Model Z-67 Windscreen**—For above system. **32.50**  
 Net Each.



NU-67u Power Supply



Z-43 and Z-118 Windscreens

## NEW MODEL U-64 LINEAR ADMITTANCE CARDIOID MICROPHONE SYSTEMS

Tiny new Neumann condenser microphone designed for mid-distance miking. Provides near-perfect cardioid pattern with uniform frequency response from angles as great as 135° off direct angle of incidence. Ideal for instrumental groups or orchestral sections. Axially addressed. Cannon XLR connectors throughout. Amplifier uses type 7586 nuvistor. Condenser element, vacuum gold-steamed Mylar<sup>®</sup> with acoustical delay network. **Frequency Range:** 40-18,000 cps. **Nominal Output Impedance:** 30/50 ohms-150/250 ohms. **Effective Output Level:** -43 dbm re 10 dyne/cm<sup>2</sup>. **Overload Protection:** Built-in, 10 db switchable. **Harmonic Distortion:** Less than 0.5% to 120 db S.P.L.; to 130 db S.P.L. with overload protection. **Self Noise Level (DIN 45405):** Less than 29 phn. **Microphone Size:**  $\frac{3}{8}$ " dia. x 4" long. Matte satin chrome finish. Weight, 3  $\frac{1}{2}$  oz.

**Neumann Model U-64 Microphone System**—Includes one U-64 mike, N-6u power supply, UC-11 25-ft. cable, swivel stand coupling, mating XLR connector and AC cord. **\$360.00**  
 Net Each.

**Neumann Model U-64-2 Microphone System**—Includes two U-64 mikes, N-62u dual power supply, two UC-11 25-ft. cables and swivel stand couplings, mating XLR connectors and AC cord. **\$620.00**  
 Net Each.

**Neumann Model U-64-6P Microphone System**—Includes six U-64 mikes, N-66u six-way power supply, six UC-11 25-ft. cables and swivel stand couplings, mating XLR connectors and AC cord. **\$1680.00**  
 Net Each.

**Neumann Model U-64-6R Microphone System**—Same as U-64-6P but with N-66k rack-mount power supply for permanently wired installations. **\$1560.00**  
 \*Registered DuPont trademark.

## MODEL SM-2 MINIATURE STEREO MICROPHONE SYSTEM

This recent addition to the condenser microphone field consists of two separate and complete condenser mikes, and their respective preamplifiers, in a miniature housing. The two condenser capsules are mounted one above the other; top one is rotatable to permit M-S stereo recording technique (intensity stereo). Each microphone may be individually switched to any field pattern: Non-directional, bi-directional, cardioid, or any of six intermediate patterns. Extreme balance provided between systems. **Frequency Response:** 40-15,000 cps. **Output Impedance:** Switchable 50 or 250 ohms when ordering. **Non-Linear Distortion:** Less than 0.8% entire range to 110 db absolute. **Size:** Mike, 1  $\frac{1}{4}$ " dia. x 8" long. **Power Supply:** 8  $\frac{1}{2}$ " x 4" x 4  $\frac{1}{4}$ ". **Weight:** Mike, 9  $\frac{1}{2}$  oz.; Power Supply, 5 lbs.

**Neumann Model SM-2 Stereo Microphone System**—With NSM power supply, SC-2 interconnect cable, etc. **\$820.00**  
 Net Each.

**Neumann Model Z-43 Wind Screen**—For above system. **\$46.00**  
 Net Each.

## KM SERIES MINIATURE CONDENSER MICROPHONE SYSTEMS

Miniaturized microphones feature extremely smooth response, a wide dynamic range, absence of distortion and noise. **Frequency Response:** 40-15,000 cps. **Output Impedance:** 50 or 250 ohms; specify when ordering. **Non-Linear Distortion:** Less than 0.8% entire range to 110 db absolute. **Size:** Mike,  $\frac{3}{8}$ " dia. x 6" long (Model KM-56); power supply, 8  $\frac{1}{2}$ " x 4" x 4  $\frac{1}{4}$ ". **Weight:** Mike, 4 oz.; power supply, 5 lbs.

**Neumann Model KM-56 Miniature Microphone System**—With NKM power supply, KC-2 interconnect cable, etc. Field pattern: Non-directional, bi-directional, cardioid (switchable). **\$460.00**  
 Net Each.

**Neumann Model KM-64 Miniature Microphone System**—Same as KM-56, but cardioid pattern only. Length 4  $\frac{3}{4}$ ". **Net \$435.00**

**Neumann Model Z-118 Windscreen**—Gauze-screened sphere 2  $\frac{1}{4}$ " dia. Prevents low frequency wind noise and talking "pops" from interfering with recorder. Fits easily and quickly over all KM series mikes. **Net Each. \$17.50**

**Neumann Model Z-29 Overload Protector**—Miniature switch inserts between capsule and amplifier of KM-64 mike to restrict level fed to preamp when high intensity sound levels are to be recorded at close range. Switchable, straight through, 10 db and 18 db attenuation. **Net Each. \$62.00**

## MODEL M-49b VARIABLE DIRECTIONAL MICROPHONE SYSTEMS

The standard of the German broadcasting industry; permits remote control of the directional characteristic. Smooth, continuous fader control selects non-directional, bi-directional, cardioid and any intermediate pattern. Slight roll-off below 40 cps prevents shock-noise interference. Rugged construction. **Response and Distortion:** 0.6%, 40-15,000 cps up to 110 db absolute. **Size:** Mike, 3" dia. x 6  $\frac{1}{4}$ " long. **Power Supply:** 8  $\frac{1}{2}$ " x 4" x 4  $\frac{1}{4}$ ". **Weight:** Mike, 1  $\frac{3}{4}$  lbs.; Power Supply, 5  $\frac{1}{2}$  lbs.

**Neumann Model M-49b Microphone System**—With NN-48b power supply, C-26 interconnect cable, MZ-49 sus-pension, etc. **Net Each. \$495.00**

**Neumann Model M-50b Microphone System**—Same as M-49b, but frequency sensitivity and the field pattern subtly modified to match room-sound characteristics of large halls. **Net. \$485.00**

## FULL ELASTIC SUSPENSION UNITS

These units, uniquely designed to float the microphone in a rubber truss system, guard against impact noise, building noise, footsteps and similar noise sources.

**Neumann Model Z-38 Suspension**—For use with KM-56, 64 or KM-56 microphones. **Net Each. \$250.00**

**Neumann Model Z-48 Suspension**—For use with U-67 microphone system. **Net Each. \$32.50**



# Electro-Voice® BC-TV-PA-RECORDING MICROPHONES

## BROADCAST-TV-RECORDING DYNAMICS

### CARDILINE\* UNIDIRECTIONAL MICROPHONES

**Model 642**—A highly directional dynamic microphone combining the best characteristics of cardioid and distributed front-opening designs. Essentially cardioid unidirectional up to 500 cps; highly directional over balance of range. Working distance is 2 to 3 (or more) times that of conventional types. Excellent for boom use with Model 356 shock mount. Minimum mechanical shock transfer and wind noise interference. Response: Flat from 30 to 10,000 cps or choice of 5 or 10 db low frequency reduction steps by screwdriver adjustment. Acoustalloy® diaphragm. Impedance: 50, 150 and 250 ohms, externally adjustable. Output level: -48 db. Cast aluminum case with non-reflecting gray finish. Supplied with Cannon UA-3-14 connector, 20-ft. 3-conductor shielded broadcast cable and UA-3-11 Cannon connector. Length, 17 $\frac{1}{2}$ " max. diameter, 3 $\frac{1}{2}$ ". Must be used with Model 356 shock mount or Model 327 windscreens mount. Net Weight, 3 lbs., 4 oz. Net Each.....\$234.00

**Model 643**—Similar to Model 642 above, but designed for more specialized and extended long-range pickup. Provides cardioid pickup pattern to 100 cps and is highly directional over balance of range. Integral 2-position bass tilt-down switch; 100 cps cutoff filter. Impedance: 50, 150 or 250 ohms changed by internal connection. Lightweight cast and extruded aluminum case with integral shock mount and removable wind filter. Output level: -48 db. Response: 30 to 10,000 cps. Length, 7' 2"; max. dia. 4". Cannon UA-3-14 and UA-3-11 connectors; supplied with 20-ft. cable and storage case. Fits  $\frac{1}{8}$ "-27 or  $\frac{1}{2}$ " pipe threads. Net Each.....\$936.00  
\*Electro-Voice trademark.

### CARDIOID UNIDIRECTIONAL MICROPHONES

**Model 668**—Continuously Variable-D cardioid designed specifically for boom use in broadcasting and recording. Extremely smooth cardioid pattern for maximum reduction of ambient noise and reverberation. Integral windscreens eliminates noise caused by motion of boom-mounted microphone through the air. Built-in equalizer provides choice of four response curves in both high and low frequency ranges. Acoustalloy diaphragm. Response: 40-12,000 cps. Output: -51 db. Impedance: 50, 150 or 250 ohms, internally selectable. Size: 9 $\frac{1}{2}$ " lg. x 3 $\frac{1}{4}$ " dia. Non-reflecting gray finished aluminum case. Two-foot mechanical isolation cable and twenty-foot three-conductor shielded broadcast type cable included. Supplied complete with shock isolating boom mount. Net Each.....\$297.00

**Model 667A**—Same as Model 668, but incorporates selection of three low frequency and two high frequency response curves. Net Each.....\$207.00

**Model 666 Super Cardioid**—Variable-D® principle for high discrimination against sounds from back. Permits close talking without bass accentuation. Working distance increased by 1.7:1 over pressure microphones. Single moving element is exclusive, rugged. Acoustalloy diaphragm. Response: 30 to 16,000 cps. Output: -58 db. Internal connector pin impedance change. Wired for 150 ohms; taps at 50 and 250 ohms. Non-reflecting gray finish aluminum case. Built-in Cannon UA-3 connector. Clamp-on stand mount with  $\frac{3}{8}$ "-27 thread and  $\frac{1}{2}$ " pipe thread adapter, and 20-ft. cable. Length, 7 $\frac{3}{4}$ "; diameter, 1 $\frac{3}{4}$ ". Net Weight, 11 oz. Net Each.....\$153.00

**Model 666R Rising Response Cardioid**—Like Model 666, but with response which rises 4 $\frac{1}{2}$  db from 100 to 2,000 cps, reducing pickup of low frequency reverberations, room "rubble" and prop noise. Particularly suited to boom use. Output: -57 db. Net Each.....\$153.00

**Model 665 Cardioid**—Similar in design and function to the Model 666, but for less exacting applications. Uniform response 50 to 14,000 cps. Recessed switch provides 50 or 250 ohms. Pressure-cast zinc case. Non-reflecting gray finish. Diameter, 1 $\frac{1}{2}$ "; length, 7 $\frac{1}{2}$ "; 18-ft. cable. Net Weight, 1 lb. 10 oz. Net Each.....\$90.00

### OMNIDIRECTIONAL MICROPHONES

**Model 655C Slim-Trim TV Dynamic**—Frequency response: 40 to 20,000 cps. Output level: -58 db. Excellent level affords high signal-to-thermal noise ratio. Can be used on stand, in hand or on boom. Easily concealed in studio props. Acoustalloy® diaphragm. Pop-proof grille. Impedance: 50, 150 and 250 ohms. Impedance easily changed at internal terminal board. Cannon UA-3 connector. Clamp-on stand mount included with  $\frac{3}{8}$ "-27 thread and  $\frac{1}{2}$ " pipe thread adapter. Size: Length, 10 $\frac{1}{2}$ " without connector; diameter, 1". With 20-ft. cable. Net Weight, 7 oz. Net Each.....\$120.00

**Model 654A Slim-Trim Broadcast Dynamic**—Frequency response: 50 to 16,000 cps. Output level: -57 db. Can be used stand-mounted, hand-held or as lavalier. Matches all low impedance inputs. Built-in Cannon XLR-3 connector. Acoustalloy® diaphragm. Mounts to  $\frac{3}{8}$ "-27 thread. With 18-ft. cable. Length, 6 $\frac{1}{2}$ "; diameter, 1 $\frac{1}{4}$ ". Non-reflecting gray finish. Net Weight, 17 oz. Supplied with Model 300 clamp and lavalier neck cord. Net Each.....\$60.00

**Model 649B Miniature Lavalier**—Smallest dynamic lavalier—weighs only 31 grams without cable; length, 2 $\frac{1}{4}$ "; diameter,  $\frac{3}{4}$ ". Ideal for programming where unobtrusive or concealed microphone placement is desirable. Frequency response: 70 to 10,000 cps. Output level: -61 db. Acoustalloy® diaphragm. Omnidirectional. Matches all low impedance inputs. With 30-ft. shielded cable. Aluminum case has non-reflecting gray finish. Complete with neck cord assembly. Net Each.....\$63.00

**Model 635A Broadcast Dynamic**—Redesigned and improved microphone perfect for hand or stand use by announcers and vocalists. Rugged, lightweight turned steel case provides magnetic shielding. Four-stage pop and dust filter. Response: 60 to 15,000 cps (rising). Output: -55 db. Acoustalloy® diaphragm. Low impedance. Cannon XL-3 connector. Non-reflecting satin chrome finish. With 310 clamp and 18-ft. cable. Dia., 1 $\frac{3}{8}$ "; length, 6". Weight, 6 oz. Net Each.....\$49.20

### "THIN-TRIM" DYNAMIC MICROPHONES

**Model 652**—New design for an almost invisible dynamic microphone. Microphone is mounted on the end of the semirigid tube bringing the moving coil element closer to the user for full range, pop free response. Breath and wind filter is an integral part of the microphone. Two clear plastic baffles provided to give either 5 db or 5 db boost in the brilliance range of 5,000 cps for added articulation. The microphone without the baffles gives a smooth response of 80 to 8,000 cps. Acoustalloy® diaphragm. Model 652 mounts on a  $\frac{1}{4}$ " steel tube and is finished in non-reflecting gray color. Output level: -60 db. Matches all low impedance inputs. Furnished with 3-conductor shielded 20-ft. cable. Model 300 stand coupler supplied. Length of microphone, 24". Weight, 10 oz. Net Each.....\$72.00

**Model 652A**—Same as Model 652 except 15" long. Net Each.....72.00



All E-V microphones (except crystals) are eligible for FCDA purchases.

HARVEY Stocks Ampex Professional Equipment and Parts



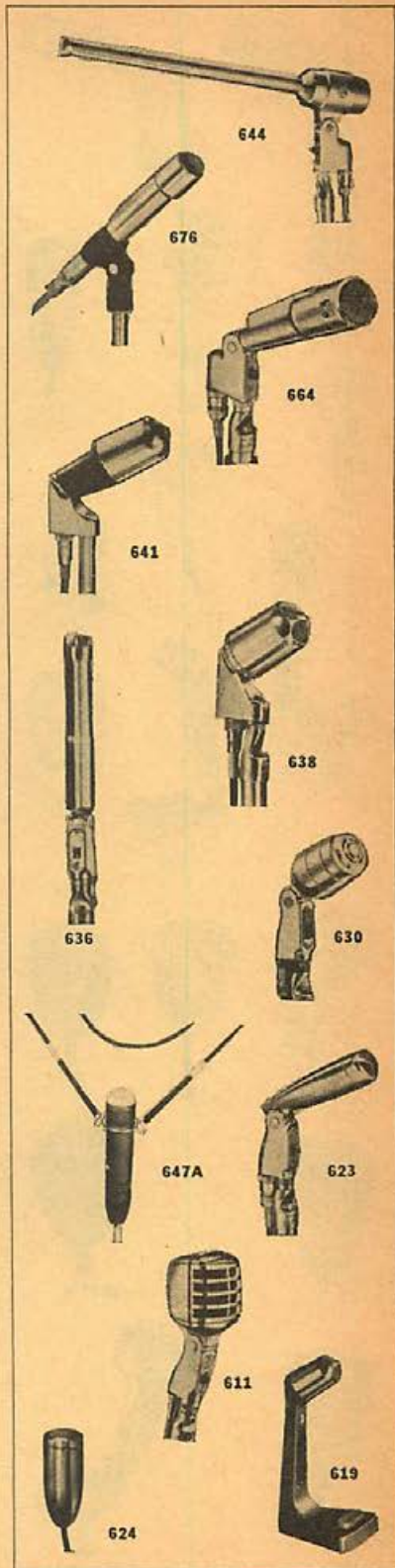
## UNIDIRECTIONAL LINE MICROPHONE

**Model 644 Sound Spot®**—Another Electro-Voice development, the Sound Spot is a combination cardloid and distributed front opening microphone, making it the most directional PA mike ever. The Model 644 has better than 2.5 times the working distance of pressure types. Work close or far away without change of frequency response.

Cancellation from the rear and sides exceeds 20 db above 700 cps, giving practically complete rejection of unwanted sound. Cardloid performance below 700 cps. This feature gives extremely high random noise rejection. Reverberation and feedback are vastly lower than for any other PA mike, allowing much greater leeway in loud-speaker placement.

The effective front acceptance angle is 45° each side of center giving best isolation of individual performers. The Model 644 is 9 db better on the reduction of wind noise and has far less response to shock than most other microphones.

Frequency response is smooth from 40 to 10,000 cps. Acoustalloy® diaphragm. High Output: -53 db. Dual high and low impedance is selected by changing one tap on MC-4M cable connector. The case is high-pressure diecast zinc with 3/4" aluminum tube; satin chrome finish. Rear diameter, 2 1/4"; length, 16". With 16-ft. cable. Weight, 2 lbs. 9 oz. Net Each. . . . . **\$66.00**



## CARDIOID UNIDIRECTIONAL DYNAMIC MICROPHONES

**Model 676 Cardioid Dynamic**—Finest general purpose unidirectional microphone made. Exclusive C-V-D\* principle assures uniform cancellation of unwanted sound at all frequencies. Three-position bass tilt-off switch controls low frequency reverberation and boominess. Permits close talking without boom or bass accentuation. Provides better discrimination against unwanted sound. Blast filter minimizes wind effects. Acoustalloy® diaphragm shielded from dust and magnetic particles. Response: 40-15,000 cps. Output: -58 db. Impedance: 150 ohms and hi-Z, changed by moving one wire in MC-4 cable connector. Chrome finished, pressure-cast case. With on-off switch and 16-ft. cable. Length, 7 3/4"; dia., 1 1/4". Net Weight, 12 oz., less cable. Net Each. . . . . **\$60.00**

**Model 676A**—Non-reflecting gray finish. Wired for 150 ohms. Net Each. . . . . **\$60.00**

**Model 664 Cardioid Dynamic**—Similar to Model 666, but designed specifically for PA. Cardioid pattern at all frequencies. Permits close talking without boom or bass accentuation. Provides better discrimination against unwanted sound. Less feedback than any cardioid PA microphone built. Blast filter minimizes wind effect. Acoustalloy® diaphragm shielded from dust and magnetic particles. Response: 40-15,000 cps. Output: -58 db. Impedance: 150 ohms and hi-Z, changed by moving one wire in MC-4 cable connector. Pressure-cast case with chrome finish; on-off switch and 16-ft. cable. Size, 7 1/4" long (less stand coupler) x 1 1/4" dia. Net Weight, 1 lb. 10 oz. Net Each. . . . . **\$51.00**

**Model 664A**—Non-reflecting gray finish. Wired for 150 ohms. Net Each. . . . . **\$51.00**

**Model 664G**—Gold finish. Net Each. . . . . **\$54.00**

\*Electro-Voice trademark.

## OMNIDIRECTIONAL MICROPHONES

**Model 641 Modern, Two-tone Dynamic**—High output level and wide range response for PA, home recording, communications, electronic teaching aids and paging systems. Integral "on-off" switch. Wide Frequency Response: 70-10,000 cps. Output Level: -57 db. Case is chrome-plated diecast zinc and gray high impact plastic. Standard 3/8"-27 thread connector; 16-ft. cable. Hi-Z or balanced 150 ohms to match standard low impedance inputs, specify. Shipping Weight, 1 lb. Net Each. **\$21.00**

**Model 634A**—Similar to Model 641 except furnished without stand mounting stud or on-off switch. Fits any stand, boom or gooseneck with complete cable concealment. Ideal for desk mounting on electronic teaching aids, amateur and commercial communications and switchboard mounting for paging systems. Cable length, 6 ft. Standard 3/8"-27 threads in rear of case. Hi-Z or balanced 150 ohms. Specify when ordering. Net Each. . . . . **\$18.00**

**Model 638**—Rugged and compact microphone for all applications requiring maximum performance from minimum size unit. Response: 70-10,000 cps. Output: -57 db. Diecast case with satin chrome finish. Complete with 16-ft. cable. Standard 3/8"-27 thread connector. Available in Hi-Z or balanced 150 ohms; specify when ordering. Shipping Weight, 1 lb. Net Each. . . . . **\$20.10**

**Model 636 Dynamic**—Exceptionally fine for PA, recording and general use. Response: 60-13,000 cps. Output: -58 db. Pop-proof grille. Wide pickup range. On-off switch. Satin chrome finish. Tiltable head. Built-in MC-4 connector. Threaded 3/8"-27. High or low impedance by changing one wire in connector. With 16-ft. cable. Size, 10 1/4" long (including stud) x 1 1/4" max. dia. Net Each. . . . . **\$43.50**

**Model 636G**—Gold finish. Net Each. . . . . **\$46.50**

**Model 630 High Fidelity, High Output Dynamic**—Famous for quality at low cost. Response: 60-11,000 cps. Output Level: -55 db. Unaffected by heat or humidity. Acoustalloy® diaphragm. Tiltable head; built-in MC-3 connector; on-off switch. Satin chrome finish. Available in hi-Z or lo-Z balanced to ground, specify. Size, 2" x 6 1/4". With 16-ft. cable. Net Weight, 1 lb. Net Each. . . . . **\$31.50**

**Model 647A Lavalier Dynamic**—Small and rugged for chest or hand use. With neck cord, support clip and 18-ft. cable. Response: 60-12,000 cps. Output Level: -60 db. Impedance: Hi-Z or balanced 150 ohms, must be specified. Acoustalloy® diaphragm. Built-in connector. Non-reflecting gray finish. Size, 3 3/4" long x 3/4" dia. Net Weight, 2 oz., less cable. Net Each. . . . . **\$49.50**

**Model 623 Slim Dynamic**—Ideal for PA, recording and general use. Use on stand or in hand. Response: 60-12,000 cps. Output Level: -56 db. High or low impedance by changing one wire in connector. Pressure cast with satin chrome finish. Tiltable head; on-off switch; built-in MC-4 connector. Threaded 3/8"-27. Size, 7 1/2" x 1 1/2". With 16-ft. cable. Net Weight, 15 oz. Net Each. . . . . **\$34.00**

**Model 611 "Mercury" Dynamic**—Traditional styling, fine performance for general sound pickup. Response: 50-9,000 cps. Output Level: -55 db. Omnidirectional. Acoustalloy® diaphragm. Tiltable head; on-off switch; built-in MC-3 connector. Threaded 3/8"-27. Satin chrome finish. Available in hi-Z or lo-Z balanced to ground, specify. Size, 2 3/4" w. x 2 3/8" d. x 6 1/4" h. With 16-ft. cable. Net Weight, 1 1/2 lbs. Net Each. . . . . **\$27.00**

**Model 624 Dynamic Lavalier**—Most economical dynamic lavalier on the market. For chest or hand use. Supplied with neck cord, support clip and 18-ft. cable. Non-reflecting gray finish. Wire mesh head acoustically treated for wind and moisture protection. Response: 100-7,000 cps. Output Level: -56 db. Acoustalloy® diaphragm. Hi-Z or 150 ohms, not balanced to ground. Size, 3 3/4" lg. x 1 1/4". Cable has integral strain relief. Net Weight, 14 oz. Net Each. . . . . **\$25.50**

**Model 619 Press-to-Talk Dynamic**—Modern, reliable base-station microphone ideal for ham, CB or business communications and paging. Frequency Response: 70-10,000 cps. Output Level: -57 db. Rugged die-cast stand in communications gray and contrasting, chrome plated die-cast head. Press-to-talk switch on base may be moved into upper part of stand for grip-to-talk operation. Switch shorts mike in off position and provides for relay operation or electronic switching. With 16-ft. cable for Hi-Z; 6 1/2" for Lo-Z model. Hi-Z or balanced Lo-Z; specify. Size, 4 3/8" w. x 4 3/4" d. x 9" h. Net Weight, 2 lbs. 2 oz. Net Each. . . . . **\$28.50**

All E-V microphones (except crystals) are eligible for FCDA purchases.



# Electro-Voice® MICROPHONES

## CRYSTAL AND CERAMIC MICROPHONES

**Model 951 Cardioid Crystal**—Mike uses same Variable-D® principle as E-V's BC-TV cardioids to obtain uniform directivity at all frequencies with high discrimination against unwanted sound. An excellent, wide-range all-purpose PA microphone for a great variety of acoustic conditions; especially useful where background noise and reverberation are problems. Response: 50-11,000 cps. Output: -60 db. High impedance. On-off switch; pressure-cast case with metalure gray finish. With 16-ft. cable and MC-1 connector. Size, 5 3/8" long (excluding stud) x 1 3/4" dia., overall. Net Weight, 1 1/4 lbs. less cable. Net Each. . . . . **\$32.70**

**Model 911 Crystal**—Same smart design and fine performance as E-V Model 811. Response: 60-10,000 cps. Output: -50 db. Metal seal crystal. High impedance. MC-1 connector and 16-ft. cable. Net Weight, 1 1/2 lbs. Net Each. . . . . **\$19.50**

**Model 926 Slim Crystal**—Level and response ideal for general purpose use. Response: 60-8,000 cps. Output: -60 db. High impedance. Pressure-cast case; satin chrome finish. Tiltable head. Threaded 5/8"-27. Size, 6 3/4" x 1 1/2". With 16-ft. cable and integral strain relief. Net Weight, 11 oz. Net Each. . . . . **\$17.70**

**Model 920 "Spherex" Crystal**—Omnidirectional mike. Response: 60-10,000 cps. Output: -50 db. Strong wire-mesh head acoustically treated for wind and moisture protection. High capacity, moisture sealed crystal. High impedance. Satin chrome finish; 3/4"-27 threaded. Dia., 2 1/4". With 16-ft. cable. Net Weight, 8 oz. Net Each. . . . . **\$16.50**

**Model 924 Lavalier Crystal**—Unique crystalavalier for chest or hand use. Response: 60-8,000 cps. Output: -60 db. High impedance. Wire-mesh head acoustically treated for wind and moisture protection. Non-reflecting gray. With neck cord, support clip and 18-ft. cable with integral strain relief. Size, 3 3/8" x 1 1/2". Net Weight, 8 oz. Net Each. . . . . **\$12.00**

**Model 714 Ceramic**—High output, ceramic, hand-held communications microphone for paging, ham radio or Citizens' Band. High level, hi-Z output. DPDT switch shorts mike in "off" and closes relay circuit in "on". Response: 100-7,000 cps. Level: -55 db. Coiled cord; hang-up bracket. Size, 2 1/2" x 1 1/2" x 3 3/8". Weight, 8 oz. Net Each. . . . . **\$9.90**

**Model 717 Ceramic**—Similar to Model 714 except close-talking cardioid pickup pattern. Rejects unwanted background noise and feedback. Specially designed ceramic element, with apertures on either side of diaphragm; provides effective attenuation of sounds arriving from rear and sides. Response: 100-7,000 cps. Output: -55 db. Net Each. . . . . **\$11.70**

## DIFFERENTIAL AND SPECIAL PURPOSE MICROPHONES

**Model 606 Differential Dynamic**—Close talking, noise cancelling. Accepts sounds of close origin (1/4") and rejects sounds of distant origin. Response: 100-5,000 cps. Output: -55 db at 1/4". Acoustalloy® diaphragm. Threaded 5/8"-27. Built-in MC-1 connector. Satin chrome finish. Lo-Z (matches 50-250 ohms) or hi-Z; hi-Z not balanced; specify. With 16-foot cable. Size, 2" dia. x 3 1/4" h. including stud. Net Each. . . . . **\$31.50**

**Model 600E Dynamic Mobile**—Improved design for reliability. High impact case and rugged dynamic construction protects against shocks. Easy-action switch shorts mike in "off"; eliminates electrical noise and closes relay circuit when depressed. Response: 100-7,000 cps matched for high intelligibility. Output Level: -55 db. Hi-Z or balanced Lo-Z; specify. Gray finish; with hang-up bracket and 5-ft. coiled cord. Size, 2 1/2" x 1 1/2" x 4". Wt., 10 oz. Net Each. . . . . **\$23.40**

**Model 600ES**—Same, but switch normally open. Net Each. . . . . **\$23.40**

**Model 602F Dynamic Mobile**—Differential, close talking, noise cancelling. Response: 200-5,000 cps. Output: -55 db. Has gray high impact case, press-to-talk switch, 5-ft. coiled cord. Specify Hi-Z or balanced Lo-Z. Size, 2 1/4" x 1 1/4" x 4". Net Wt., 10 oz. Net Each. . . . . **\$34.50**

**Model 603TR Transistorized Mobile**—Noise cancelling, dynamic, for aircraft. Replaces carbon units. Has 48-db gain transistor amplifier, adjustable output to -16 db, magnetic hanger. Acoustalloy® diaphragm, 5-ft. coiled cord. Resp.: 200-4,000 cps. Lo-Z. Size, 2 1/4" x 1 1/2" x 3 3/4". Wt., 8 oz. Net Each. . . . . **\$84.00**

**Model 729 Ceramic Cardioid**—The lowest priced cardioid ever made. Random noise, reverberation and feedback reduced by 67%. Front pickup range nearly double that of pressure microphones. Response: 60-8,000 cps. Output: -60 db. High impedance only. Finished with metalure gray front with medium gray back. Desk stand and floor stand adapter supplied. Net Weight, 9 oz. less cable and stand. Net Each. . . . . **\$14.70**

**Model 729SR**—With relay control switch. Net Each. . . . . **\$15.90**

**Model 727 Slim Ceramic**—A new approach to the design of ceramic mikes for PA, recording and general use. Similar in appearance to Model 729. Withstands extremes of temperature and humidity. Response: 60-8,000 cps. Output: -55 db. High impedance. With 8 1/2-ft. cable. Metalure gray front with medium gray back. Size, 7 3/4" x 1 1/2" x 1 1/2". With attractive desk stand and floor stand coupler. Net Weight, 9 oz. less cable and stand. Net Ea. . . . . **\$10.80**

**Model 727SR**—With relay control switch. Net Each. . . . . **\$12.00**

**Model 715 Ceramic**—Use in any position: in hand, on table or stand, or overhead. Omnidirectional. Response: 60-7,000 cps. Output: -55 db. High impedance. With 6-ft. cable. Metalure gray finish. Size, 3" x 2 1/2" x 1". With 3/4"-27 adapter. AC-DC insulated. Net Weight, 6 oz. Net Each. . . . . **\$7.80**

**Model 715S**—With switch. Net. . . . . **9.00**

**Model 715SR**—With relay control switch. Net Each. . . . . **\$10.50**

**Model 712 Ceramic**—Low cost ceramic microphone. Fits need of low cost PA, home recording, paging and general use. Handheld. Moisture sealed ceramic. Response: 70-7,000 cps. Output: -55 db. Hi-Z. Attractive gray Styron case. Size, 3" x 2 1/4" x 1 1/4". With 5-ft. cable. Net Weight, 4 oz. Net Each. . . . . **\$4.50**

**Model 719 Press-to-Talk Ceramic**—Versatile, low cost base-station mike. Switch can be moved to stand's upper part for grip-to-talk use; shorts in "off" for relay or electronic switching. Response: 70-7,000 cps. Output: -55 db. Hi-Z. Size, 4 3/8" x 4 3/8" x 9". With 6 1/2-ft. cable. Net Wt., 2 lbs. 2 oz. Net Ea. **\$16.50**

**Model 602TR**—Similar to 603TR, with different case design and conventional hanger (supplied). Fixed Output: -23 db. Response: 100-5,000 cps. 2 1/2" x 2" x 4". Net Wt., 13 oz. Net Each. . . . . **\$55.80**

**Model 210E Carbon**—Similar to Model 600E, but single-button carbon. Output: -50 db. Press-to-talk switch; 5-ft. coiled cord. Net Each. . . . . **\$21.00**

**Model 2055TCKK Differential Carbon**—Close-talking, noise-cancelling, single button carbon. FAA approved (Cert. No. 1040) for aircraft and emergency communications. Blastproof, waterproof and shock resistant. Output: -50 db at 1/4". Black phenolic case; press-to-talk switch; mounting bracket and 5-ft. coiled cord. Size, 2 1/4" x 2" x 4". Net Weight, 8 oz. less cable. Net Each. . . . . **\$30.00**

**Model 2055TCKKP**—Same as above, but with PJ-068 plug. Net Ea. **\$32.85**

**Model 6255KK Dynamic Differential Handset**—For paging, intercom and communications. Sturdy phenolic housing contains noise-cancelling 250-ohm microphone and 150-ohm magnetic receiver. Response: 100-5,000 cps. Output Level: -55 db. Switch closes microphone and relay circuit. Five foot, five-conductor coiled cord. Size, 8 1/2" x 3" x 2 3/8". Net Wt., 1 1/2 lbs. Net Ea. **\$51.00**

**Model 625TR5KK**—Identical to Model 6255KK above except with two-stage transistor amplifier for direct replacement in carbon microphone circuits. FAA type certificate: 3R42-2. Net Each. . . . . **\$73.50**

All E-V microphones (except crystals) are eligible for FCDA purchases.





# Electro-Voice® MICROPHONES AND ACCESSORIES

## SPECIAL PURPOSE MICROPHONES

**Model 648 Dynamic Microphone**—Extremely versatile teaching lab, paging, intercom or PA mike. Response: 50-10,000 cps. Output: -58 db. Choice of Lo-Z (matches 50-250 ohms) or high impedance. Omnidirectional. Acoustalloy® diaphragm. Non-reflecting gray. Less cable. Size: 6 1/4" x 1" (including 3/8"-27 thread adapter). Net Weight (with adapter), 8 1/2 oz. Net Each.....\$33.60

**Model 805 Contact**—For guitar, banjo, other stringed instruments. Hi-Z. Sealed crystal. Chrome finish. 15' cable. Net Each.....\$12.00

**Model 327 Shock Mount and Windscreen**—For use with Model 642 mike. Fabricated of Acoustifoam®, eliminates blast caused by fast panning of boom, or when used outdoors. Consists of 324 shock mount and 326 windscreen. Net Weight, 1 lb. 8 oz. Net Each.....\$60.00

**Model 324 Shock Mount**—Suspension mount for Model 642 microphone. Will accept Model 326 windscreen. Net Each.....\$36.90

**Model 326 Windscreen Kit**—Acoustifoam windscreen for Model 642 microphone. Compatible with Model 324 Shock Mount. Net Each.....\$26.10

**Model 335A Windscreen**—Acoustifoam® windscreen fits 630, 634, 638 and 641 microphones. Net Weight, 1/2 oz. Net Each.....\$7.50

**Model 355 Windscreen**—Designed to reduce or eliminate wind noise. Made of Acoustifoam®, a material which will not alter frequency response or polar characteristics of mike. Also protects against mechanical shock damage and pickup of dust and magnetic particles. For use with Models 655C, 654A, 676, 636, 623, 647 and 926. Gray color. Size: 9" x 3 3/4". Net Weight, 1/2 oz. Net Each.....\$6.60

**Model 524A Windscreen**—Designed specifically for use with Model 666 microphone. Minimizes wind effect on boom operation or when used outdoors. Made of Acoustifoam®. Net Weight, 1/2 oz. Net Each.....\$7.20

\*Electro-Voice Trademark.

**Model 415 Reclining Desk Stand**—Mounts 615, 715, 715S at 15° tilt. Metal lustre gray. Size: 2 3/4" x 2 3/4" x 1". Net Weight, 4 oz. Net Each.....\$1.05

**Model 418 Desk Stand**—Use with microphones using small-type stud such as Models 611, 623, 630, 635, 636, 641, 911 and 951. Die cast base. Gray finish. Net Each.....\$6.00

**Model 418-S**—With switch. Net 9.00

**Model 419 Desk Stand**—Similar to Model 418 but for use with microphones using large-type stud such as Models 644, 664 and 665. Net Each.....\$7.50

**Model 419-S**—With switch. Net 9.00

**Model 419G**—Same as Model 419, but has gold finish to match Model 664G microphone. Net Each.....\$9.75

**Model 420 Desk Stand**—Heavy cast iron stand finished in TV gray. Specifically designed for use with Models 666,

## MICROPHONE ACCESSORIES

**Model 356 Suspension Shock Mount**—For use with Model 642 on boom or floor stand. Excellent isolation. Net. \$30.00

**Model 300 Detachable Microphone Clamp**—Light weight adapter fits any 1" cylindrical microphone. Positive stand mounting. 3/8" pipe thread, adapter for 3/8"-27. Net Each.....\$4.50

**Model 310 Detachable Microphone Clamp**—Similar to Model 300 above, but designed for 3/4" diameter microphones. Net Each.....\$3.60

**Model 311 Snap-In Clamp**—Cut back to allow snap-in, snap-out mounting of 3/4" dia. microphones. Net Ea.....\$3.60

**Model 366 Suspension Shock Mount**—Extremely light. Designed for use with 666 microphone. Installs without tools. Pigtail cable connection with UA-3 connectors provides cable loop isolating boom shock noises. For any microphone with 1" diameter. Net Each.....\$24.00

**Model 502A Matching Transformer**—Designed for use in series with mike line. Transformer windings have low distributed capacity and are amply shielded against inductive hum by a shield inside pressure cast case. Designed for 50, 150, 250 and 500 ohms—to Hi-Z. Broadcast fidelity response 40-20,000 cps = 1 db. 2 3/4" lg. x 2" diameter. Net Each.....\$10.50

**Model 513 Filter**—For use with low impedance microphones, has switch to match 50, 150 or 250 ohms. When used in line between mike and preamplifier, it rejects unwanted noise below 100 cps. 2 3/4" dia. x 5 5/8" long. Net Weight, 1 lb. 10 oz. Net Each.....\$42.00

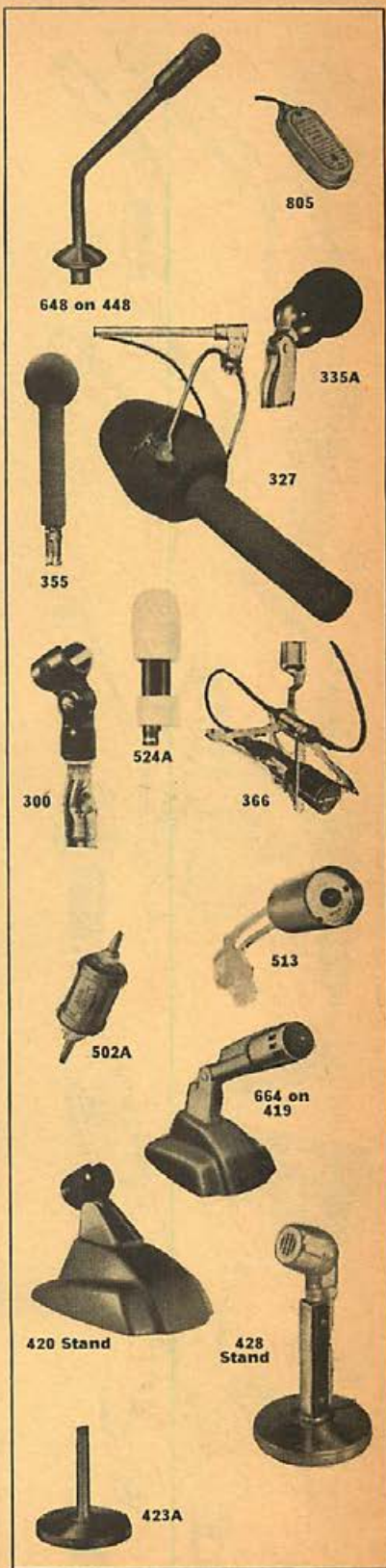
## MICROPHONE STANDS

655C, 654A, 652, 652A, 676 or mikes with 1" dia. using clamp attachment; mounts without tools. Base holds mike in position when subjected to ordinary strain. Net Wt., 3 lbs. Net Ea.....\$12.00

**Model 420G**—Same as Model 420, but has gold finish to match Model 676G microphone. Net Each.....\$15.75

**Model 423A Desk Stand**—Sturdy smartly styled, round die-cast base, 5 1/2" diameter. Rests firmly on rubber base buttons. Rich satin chrome. 3/8"-27 thread. With 5" matching stem riser. Net Weight, 1 lb. Net Each.....\$3.00

**Model 428 Touch-To-Talk Stand**—Fits standard 3/8"-27 thread. Lever-type DPDT switch for relay operation or microphone On-Off—closes or opens instantly or locks in "talk" position. Satin chrome; gray plastic switch lever with locking button. 7" x 5 1/4" base diameter. Net Weight, 1 1/4 lbs. Net Each.....\$10.50



All E-V microphones (except crystals) and accessories are eligible for FCDA purchases.





**C-12A CONDENSER MIKE**

**A** Specially designed for use in broadcasting, film and recording studios. Pattern selector and bass roll off switch in power supply. Nuvistor and printed circuit connection in amplifier. **Directional Characteristics:** Omni-directional/cardioid/bi-directional. **Frequency Range:** 20-20,000 cps,  $\pm 2$  db. **Sensitivity:** -44 db. **Impedance:** 200 ohms. **Front-to-Back Ratio:** 20 db. (cardioid). **Distortion:** 0.3%. **Power Supply:** 110 VAC. **Size:** 1 3/4" w. x 1 1/4" d. x 3 1/2" h. Shpg. Wt., 9 lbs. for system. **Norelco Model C-12A**—Condenser microphone, including power supply/remote control and cable set. Net Each. **\$.480.00**

**C-24 STEREO CONDENSER MIKE**

**B** Same as Model C-12A but incorporates two mike systems for MS or XY stereo recording. Remote controlled variable pattern. 3mc patterns selectable. **Sensitivity:** -39 db. **Impedance:** 50/200 ohms. **Size:** 10" lg. x 1 1/2" dia. Shpg. Wt., 29 lbs. 12.8 oz. for system. **Norelco Model C-24**—Includes tube 6072, power supply N-24, remote control unit, 3 cables with connectors and case. Net Each. **\$.885.00**

**C-60 CONDENSER MIKE**

**C** Light, compact mike with professional reproduction quality. For use on stages, for broadcasting work, and as a hand mike for reporters. Ideal for TV and film studios. Cardioid capsule can be replaced by a CK26A omni-directional capsule in seconds. **Directional Characteristics:** Cardioid or omni-directional. **Frequency Range:** 30-18,000 cps,  $\pm 2.5$  db. **Sensitivity:** -42 db. **Impedance:** 50/200 ohms. **Front-to-Back Ratio:** 20 db. **Size:** 3 1/4" lg. x 1 1/2" dia. Net Weight, 3 lbs. for system. **Norelco Model C-60**—Complete with tube AC701, power supply N-60, cable MK-60 with connectors, mating AF plug, and case. Net Each. **\$.280.00**

**D-12 DYNAMIC MIKE**

**D** Cardioid mike for bandstand, night club, studio, and PA applications. **Frequency Range:** 40-15,000 cps,  $\pm 3$  db. **Sensitivity:** -54 db. **Impedance:** 50-250 ohms. **Front-to-Back Ratio:** 18 db. **Size:** 2 1/4" w. x 2 1/4" d. x 5 3/4" h. Shpg. Wt., 3 lbs. 4.8 oz. **Norelco Model D-12**—Net Ea. **\$.99.00**

**D-19E/200 DYNAMIC MIKE**

**E** Cardioid microphone with bass cut switch for clear response even at very low voice frequencies. **Frequency Range:** 40-16,000 cps,  $\pm 3$  db. **Sensitivity:** -53 db. **Impedance:** 60 or 200 ohms. **Front-to-Back Ratio:** 15 db. **Size:** 6" lg. x 1 1/4" dia. Shpg. Wt., 1 lb. 9.6 oz. **Norelco Model D-19E/200**—With Cannon 3-pole plug. Net Each. **\$.58.00**

**D-119CS, D-119ES DYNAMIC MIKES**

**F** Similar to D-19E/200 except as noted below. **Norelco Model D-119CS**—With bass cut switch and on-off switch. **Impedance:** 200 ohms. Net Each. **\$.66.00** **Norelco Model D-119ES**—With bass cut switch and on-off switch. **Impedance:** 50/200/11 Z. **Size:** 7 3/4" lg. x 1 1/4" dia. Net Weight, 7 oz. Connections, 5-pin. Net Each. **\$.69.00**

**D-24E DYNAMIC MIKE**

**G** Cardioid mike for use in sound, TV, film studios and electro-acoustic installations. **Frequency Range:** 30-16,000 cps,  $\pm 2.5$  db. **Sensitivity:** -53 db. **Impedance:** 60 or 200 ohms. **Front-to-Back Ratio:** 20 db. **Size:** 6 1/2" lg. x 1 1/4" dia. Shpg. Wt., 2 lbs. 3.2 oz. **Norelco Model D-24E**—With bass cut switch and case. Net Each. **\$.160.00**

**D-25B DYNAMIC MIKE**

**H** Cardioid mike for high quality motion picture, TV and studio applications, indoors and outdoors. Rubber shock mounted within a swivel frame. **Frequency Range:** 30-16,000 cps,  $\pm 2.5$  db. **Sensitivity:** -54 db. **Impedance:** 60 or 200 ohms. **Front-to-Back Ratio:** 20 db. **Size:** 7 3/4" x 5 3/4" x 3 3/4". Shpg. Wt., 4 lbs. 9.6 oz. **Norelco Model D-25B**—Complete with case. Net Each. **\$.225.00** **Norelco Model D-20B**—Same as D-25B but less rubber shock mount in frame. **Size:** 7 3/4" x 3 3/4" x 2 1/2". Shpg. Wt., 3 lbs. 11.2 oz. Net Each. **\$.190.00**

**D-58E DYNAMIC SUBMINIATURE DIFFERENTIAL MIKE**

**I** Differential design cancels sound originating farther away from the mike. Ideal for close range voice applications in noisy surroundings. Shielded against dust and stray magnetic fields. Withstands very high humidity. **Frequency Range:** 70-12,000 cps,  $\pm 3$  db. **Sensitivity:** -66 db. **Impedance:** 60 or 200 ohms. **Front-to-Back Ratio:** 25 db. **Size:** 1 5/8" lg. x 1 1/4" dia. Net Weight, 1.1 oz. **Norelco Model D-58E**—Complete with 3-pin connector. Net Each. **\$.43.00**

**D-501, D-503 DYNAMIC MIKES**

**J** **Directional Characteristics:** Cardioid/omni-directional. **Frequency Range:** 50-15,000 cps,  $\pm 3.5$  db. **Sensitivity:** -55 db. **Impedance:** 200 ohms. **Front-to-Back Ratio:** 15 db. Net Weight, 10 oz. **Norelco Model D-501**—Size, 6 1/2" lg. x 2 1/2" dia. Net Each. **\$.48.00** **Norelco Model D-503**—Size, 11 1/2" lg. (with shaft) x 2 1/2" dia. Net. **\$.55.00**

**D-810 DYNAMIC MIKE**

**L** Omni-directional mike. **Frequency Range:** 80-12,000 cps,  $\pm 4$  db. **Impedance:** High. **Norelco Model D-810**—Complete with table stand, lavaller attachment, stand adapter and on-off switch. Net. **\$.34.00**

**DX-11 DYNAMIC AND REVERBERATION MIKE**

**M** Cardioid mike with built-in reverberation element adjustable on microphone. **Frequency Range:** 50-15,000 cps,  $\pm 3.5$  db. **Sensitivity:** Low, -54 db; high, -36 db. **Impedance:** Low, 250 ohms; high, 10,000 ohms. **Front-to-Back Ratio:** 15 db. **Size:** 2 1/2" w. x 1 1/4" d. x 10 1/4" h. Net Weight, 1 lb. **Norelco Model DX-11**—Net. **\$.130.00**

**K-50 STEREO/MONO HEADPHONE**

**N** Dynamic headphone set provides excellent reproduction of stereo and monophonic recordings and broadcasts. Ideal for monitoring or editing applications in radio, TV, recording and sound film studios. **Frequency Range:** 20-25,000 cps. **Impedance:** 75 or 400 ohms. **Power Required:** .156 mW average for a sound pressure of 95 db. **Undistorted Power Level:** 127 db. **Distortion:** Less than 1%. Net Weight, 4.6 oz. **Norelco Model K-50**—Net Ea. **\$.22.50**

**K-59 HEADPHONE-MICROPHONE**

**O** Consists of K-50 stereo headphone and D-58E differential microphone on boom. Separate connections to each headphone and mike. **Norelco Model K-59**—Net Ea. **\$.79.50**

**ACCESSORIES**

**MICROPHONE TABLE STANDS**  
**Norelco Model ST-10**—Fits Models C-60, D-12, D-20B, D-25B, D-58E, etc. Net Each. **\$.65.00**  
**Norelco Model ST-19**—Fits D-19E/200, D-119CS, D-119ES, D-24E, etc. Net Each. **\$.55.00**

**MICROPHONE FLOOR STANDS**  
**Norelco Model ST-200**—Shock proof collapsible base. For all microphones. Net Each. **\$.47.00**  
**Norelco Model ST-201**—Light folding floor stand for all microphones. Net. **\$.21.00**

**WINDSCREENS**

**Norelco Model W-17**—For Model C-60. Net Each. **\$.22.00**  
**Norelco Model W-24**—For Models D-19E/200, D-24E, etc. Net Each. **\$.31.00**  
**Norelco Model W-25A**—For D-20B and D-25B. Net Each. **\$.85.00**

**FLEXIBLE SHAFTS (GOOSENECK)**

**Norelco Model MSH-58E**—Includes connector. For Models D-24E and D-58E. Net Each. **\$.17.00**  
**Norelco Model MSH-60**—With built-in connector. For Model C-60. Net. **\$.13.50**

**SUSPENSIONS**

**Norelco Model H-12**—Elastic suspension for Model C-24, etc. Net Each. **\$.13.50**  
**Norelco Model H-24**—Elastic suspension, silicon rubber. For Models D-19E/200, D-24E, etc. Net Each. **\$.16.50**  
**Norelco Model H-60**—Elastic suspension, silicon rubber. For Model C-60. Net Each. **\$.16.50**

**RUBBER EAR CUSHIONS**

**Norelco Model Z-50**—For Model K-50 headphone. Net per Pair. **\$.19.00**

We carry a complete line of Norelco microphones, handsets, microphone components, and various accessories including hand-held poles, cables, cable dispenser reels, transformers, adapters, etc. Write for complete information.





# RCA Broadcast Microphones

## TYPE 77-DX POLYDIRECTIONAL MICROPHONE

A ribbon microphone suited for exacting tasks, engineered for true versatility and high quality performance. Provides unidirectional, bi-directional and non-directional characteristics by shutter adjustment on slotted shaft. Impedance matching transformer with three-position switch permits selection of best response characteristics for voice or music. For use with mike stand of 1/2" pipe thread. **Frequency Response:** 30-20,000 cps. **Impedance:** 30, 150 or 250 ohms. **Output Level:** -56 dbm at 1000 cps. **Cable:** 30 ft. shielded three-conductor; no plug. **Size:** 3 3/4" w. x 2 1/2" d. x 11 1/2" h. Weight, 3 lbs., with mountings. Finish, satin chrome or TV gray.

RCA Type 77-DX Polydirectional Microphone—Chrome finish. Net Each . . . \$206.00  
RCA Type 77-DX-G—Same as above, but TV gray finish. Net Each . . . . . 197.00

## TYPE BK-1A NON-DIRECTIONAL PRESSURE MICROPHONE

Designed for versatility; for use at TV, FM and AM stations. Excellent for use in open-air pickups and where performer must work close to the mike. Mounts on swivel socket base for easy selection of speaking angle; removable for portable or stand-mounted use. Non-directional when mounted vertically, semi-directional when horizontally mounted. **Frequency Response:** 50-50,000 cps. **Output Impedance:** 30, 150 or 250 ohms. **Output Level:** -52 dbm at 1000 cps. **Size:** 7 3/4" lg. including mount; 1 3/4" dia. **Stand Mount:** 3/4" pipe thread. Weight, 18 oz.; base, 24 oz. **Cable:** 30 ft. shielded three-conductor; no plug.

RCA Type BK-1A Pressure Microphone—Less base. Net Each . . . . . \$86.00

## TYPE BK-5B UNIAXIAL RIBBON MICROPHONE

A dependable, high quality ribbon instrument with improved unidirectional characteristics. Designed for broadcast use in AM, FM and TV stations. Smooth response. Maximum sensitivity lies on the major mechanical axis, permitting uniaxial usage; simplifying mike and camera placement. New blast filter reduces damage from violent noises. Small size and light weight for boom usage. Shield reduces hum. Wind screen available for usage outdoors. Fork mounting fits RCA cushion mounts for either desk or floor stands. Boom unit with improved shock mount available. **Frequency Response:** 30-20,000 cps. **Output Impedance:** 30, 150 or 250 ohms. **Effective Output Level:** -56 dbm at 1000 cps. **Cable:** 30 ft. shielded three-conductor; no plug. **Size:** 7" x 1 3/4" dia. Weight, 1 lb. 11 oz., less cable. Finish, low-gloss TV gray.

RCA Type BK-5B Uniaxial Ribbon Microphone—Net Each . . . . . \$158.00  
RCA MA-25 Wind Screen for BK-5B—Net Each . . . . . 16.50  
RCA MA-24 Boom Mount for BK-5B—Net Each . . . . . 36.50

## TYPE BK-6B DIRECT PRESSURE LAVALIER MICROPHONE

For use in TV, radio and high quality PA applications. Engineered for correct speech balance. Small size and neutral color make it inconspicuous. Lanyard for hanging it conveniently around neck. Semi-directional. **Frequency Response:** 60-15,000 cps. **Output Impedance:** 30, 150 or 250 ohms. **EIA Sensitivity:** -159 db. **Effective Output Level:** -65 dbm at 1000 cps. **Cable:** 30 ft. flexible, shielded two-conductor; no plug. **Size:** 2 1/4" l. x 1 1/2" dia. Weight, 2.3 oz., less cable. Finish, TV low-gloss gray.

RCA Type BK-6B Direct Pressure Microphone—Net Each . . . . . \$86.00

## NEW BK-12A SUBMINIATURE DYNAMIC LAVALIER MICROPHONE

Offers excellent speech balance for TV interviews and PA uses. Tiny size makes it inconspicuous when worn around neck; easily concealed in hand or clothing, or anywhere on the set. Non-directional. Built for rough usage. With clip-type lanyard, tie-clip holder, cable clip. **Frequency Response:** 60-18,000 cps. **Output Impedance:** 30 to 250 ohms, unloaded inputs. **EIA Rating:** -154 db. **Effective Output Level:** (at 1000 cps, 150 ohms); -60 dbm. **Cable:** 30 ft. flexible, shielded two-conductor. **Size:** 1 1/2" l. x 3/4" dia. Weight, 0.71 oz., less cable. Finish, bronze epoxy and matte gold.

RCA Type BK-12A Subminiature Lavalier Microphone—Net Each . . . . . \$95.00

## TYPE BK-11A BI-DIRECTIONAL RIBBON MICROPHONE

Highest quality studio microphone primarily for AM, FM and TV use in general programming. For programming where acoustics are more live than optimum and directional pattern permits orientation to eliminate wall reflection. Dependable bi-directional design uses corrugated metallic ribbon as moving element and reacts very closely to the velocity of the air particles. Free of cavity and diaphragm resonance and pressure doubling. Shielded against magnetic fields. Bottom of mike contains impedance-matching transformer, frequency compensating reactor and 3-point switch for frequency response selection. Swivel mount designed to mate with MA06 stand. **Frequency Response:** 20-20,000 cps. **Output Impedance:** 30, 150 or 250 ohms. **Output Level:** -56 dbm referred to 10 dynes/cm<sup>2</sup> sound pressure at 1,000 cps. **EIA Rating:** -150 db. **Stand Fitting:** 1/2" pipe thread. **Cable:** 30 ft. shielded 3-conductor; no plug. **Size:** 2 3/4" w. x 2 3/4" d. x 8" h. Finish: Low-gloss amber gray and non-reflecting stainless steel. Weight, 2 lbs., less cable.

RCA Type BK-11A Bi-Directional Ribbon Microphone—Net Each . . . . . \$131.25

## TYPE SK-45B NON-DIRECTIONAL PRESSURE MICROPHONE

A rugged, lightweight dynamic mike with good response; best adapted for commercial and industrial uses. Excellent for PA inside and outside; suitable as a "close-talk" mike. Non-directional below 3000 cps, semi-directional above 3000 cps. Clean design, TV gray finish. **Output Impedance:** 200 or 15,000 ohms. **Frequency Response:** 70-12,000 cps. **Effective Output Level:** (at 1000 cps): Low Impedance, -56 db; high Impedance, -58 db. **Size:** 1 3/4" w. x 2" d. x 5 1/4" h. **Cable:** 25 ft. shielded, two-conductor. Weight, 1 lb., less cable.

RCA Type SK-45B Non-Directional Pressure Microphone—Net Each . . . . . \$45.00

## TYPE SK-46 BI-DIRECTIONAL RIBBON MICROPHONE

Excellent performance for AM, FM, TV studio, control room announcing and general indoor programs. Directional characteristics reduce unwanted acoustical background noise, reflections and feedback. Bi-directional characteristics; 85° tilting head. **Frequency Response:** 40-15,000 cps. **Output Impedance:** 200 and 15,000 ohms. **Effective Output Level:** (At 1,000 cps) Low Impedance, -58 dbm; high Impedance, -60 db below 1 volt. **Mounting:** Swivel 3/8"-27 fixture thread. **Size:** 1 1/2" w. x 1 3/4" d. x 5 3/4" h. **Cable:** 25-ft. shielded, two-conductor, no plug. Weight, 13 oz., less cable. Finish, TV gray and satin chromium plated screen.

RCA Type SK-46 Bi-Directional Ribbon Microphone—Net Each . . . . . \$54.95

## TYPE KU-3A UNI-DIRECTIONAL HI-OUTPUT RIBBON MICROPHONE

Rugged and time tested mike for TV and motion picture live pickup applications or wherever boom operation is used. Features very uniform frequency output, response over normal pickup angle. **Response:** 30-15,000 cps. **Output Impedances:** 30, 150 or 250 ohms. **Output Level:** -51 dbm at 1000 cps. **Cable:** 12" cable pigtail, no plug. **Size:** 3" w. x 3 3/4" d. x 8" h. Weight, 2 lbs. 13 oz.

RCA Type KU-3A Uni-Directional Hi-Output Ribbon Microphone—Complete with Voice-Muscle switch and resilient mounting. Net Each . . . . . \$575.00

## TYPE MA-21 VARI-DIRECTIONAL CONDENSER MICROPHONE

For TV and motion picture live pickup, long distance pickup. Used on boom. Employs small lightweight dry cell battery. **Response:** 30-20,000 cps. **Output Impedances:** 30, 150 or 250 ohms. **Output Level:** -36 dbm at 1000 cps. **Cable:** Plug receptacles with mating plug and 25' boom cord. **Size:** 1 1/2" dia. x 6" lg. Weight, 1 lb. 12 oz.

RCA Type MA-21 Vari-Directional Condenser Microphone—Net Each . . . . . \$400.00  
RCA MA-22 Ultra-Directional Attachment—To increase the effectiveness of MA-21 mike at four times the distance of conventional mikes. Net Each . . . . . \$95.00







# SENNHEISER

## PROFESSIONAL MICROPHONES

### MODEL MD-421 DIRECTIONAL STUDIO MICROPHONE (FIG. A)

Beautifully-styled, dynamic hi-fi mike with cardioid polar pattern: Sensitive at the front and "deaf" toward the sides and back. Sound source is received 6 times as loud at 0° as at 180°, given equal output and distance. Equipped with bass control. **Frequency Range:** ±2.5 db, 40-16,000 cps; overall 30-17,000 cps. **Output Level:** -53 db referred to 1 mw/10 dynes/cm<sup>2</sup>. **Discrimination:** 16 db at back for frequencies above 250 cps. **Magnetic Field Interference Factor:** 5 μV/50 milligauss. **Impedance:** 200 ohms. **Size:** 6.96" x 1.9" x 1.81". Weight, 13.4 oz.

Sennheiser Model MD-421 Studio Microphone—Net Each.....\$114.00

Sennheiser Model MD-421/HN High-Low Studio Microphone—Same, but with both high and low input connection: 24K or 200 ohms. Cable transformer available. Net Each.....\$117.00

Sennheiser Model MZT-421 Desk Stand—Net Each.....7.50

Sennheiser Model MZW-22 Wind Screen—Net Each.....15.00

### MODEL MD-31 DYNAMIC FLOOR STAND MICROPHONE (FIG. B)

Advanced design for stage and studio work. Hardly perceptible, only the telescoping, pencil-sized supporting tube can be seen. Moving coil insert located in the foot is fully protected against damage. Near omnidirectional response without disc; broad beam at higher frequencies using disc; sound guide director tube gives strong directional beam (available as accessory). Height adjustable 35° to 60°. **Frequency Range:** ±3 db, 50-12,000 cps. **Internal Resistance:** 200 ohms. **Output Level:** -59 db referred to 1 mw/10 dynes/cm<sup>2</sup>. **Size:** Base, 6.7" dia. x 2.4" h.; speech head .94" dia.; Plexi-glass disc 1.97" dia.; height, 60" extended. Weight, 3 3/4 lbs.

Sennheiser Model MD-31 Floor Mike—With base, speech head and disc. Net...\$107.00

Sennheiser Model MZZ-31 Tube Extension Piece—Net Each.....3.50

Sennheiser Model MZR-31 Directional Sound Guide—Net Each.....38.00

### MODEL MD-212 LAVALIER MICROPHONE (FIG. C)

Widely used by singers and emcees. Using high internal pre-emphasis, this mike restores "live" quality of sound, regardless of positioning with reference to mouth. Internal housing holds moving coil transducer freely suspended from outer housing; provides considerable mechanical isolation. Rugged metal housing finished in durable, non-glare enamel paint; prevents "blooming" and other lighting problems. Noise-free, wide range response combines with maximum operating convenience for an ideal combination. Impervious to tropical conditions. **Frequency Range:** 60 cps (-9 db) to 15,000 cps (-4 db). **Output Level:** -59 db ref. 1 mw/10 dynes/cm<sup>2</sup>. **Polar Pattern:** Spherical. **Magnetic Field Induction Sensitivity:** 8 μV at 50 milligauss max. **Impedance:** 200 ohms. **Size:** 3" x 1.1" x 1.1".

Sennheiser Model MD-212 Lavalier Microphone—Net Each.....\$120.00

### MODEL MD-211 MOVING COIL STUDIO MICROPHONE (FIG. D)

Outstanding performer combines small size with absolutely faithful reproduction of all sound in the audio spectrum. Unusually flat response, free of peaks and valleys within a wide frequency range. Polar pattern is an almost perfect sphere, ideal for sound stage, studio and hi-fi PA applications. Sturdy cartridge is impervious to adverse weather conditions. Satin chrome finished housing is practically unbreakable. **Frequency Range:** ±2.5 db, 40-17,000 cps. **Output Level:** -57 db ref. 1 mw/10 dynes/cm<sup>2</sup>. **Size:** 0.9" dia. x 4.75" lg.

Sennheiser Model MD-211 Moving Coil Studio Mike—Net Each.....\$115.00

Sennheiser Model MZW-211 Wind Screen—Net Each.....18.00

Sennheiser Model MZT-102 Desk Stand—Net Each.....13.00

### MODELS MKH-104, MKH-105 CONDENSER MICROPHONES (FIG. E) WITH TRANSISTORIZED RF CIRCUITRY

Unique Sennheiser innovation incorporates an interlocking, compact, low voltage power supply for widest versatility in microphone convenience. Features a broad frequency range, exceptional flatness, and controlled peak at the upper frequency extreme. Guaranteed stabilization, noise suppression and extended response at good output levels. Low impedance design renders the system insensitive to interference from magnetic and electrical fields. Rugged construction assures safety from mechanical noise, air-pressure shock waves and high humidity. Battery adapter accessory permits use with 6 Mallory RM625 batteries (or equivalent) for 50-60 hours of continuous operation. Acoustic system is pressure responsive type. Omnidirectional polar pattern. **Frequency Range:** 20-20,000 cps. **Output Level:** -35 db ref. 1 mw/10 dynes/cm<sup>2</sup>. **Distortion:** 0.3% at 10 dynes/cm<sup>2</sup>. **Noise Voltage:** Approx. 7 μV. **Overload Level:** Approx. 300 dynes/cm<sup>2</sup>. **Power Required:** Approx. 5 mA, 8 volts (±1 V). **Temperature Range:** +14° F to +158° F. **Impedance:** 770 ohms, unbalanced and ungrounded; accessory cable transformer, TM-515/1 matches to 200 ohms. **Size:** 3/4" dia. x 5" lg. Weight, 3 oz.

Sennheiser Model MKH-104 Condenser Microphone—Net Each.....\$195.00

Sennheiser Model MZA-6 Battery Adapter—Holds 6 miniature batteries. Net. 19.50

Sennheiser Model MZW-104 Wind Screen—Net Each.....18.00

Sennheiser Model MZT-102 Desk Stand—Net Each.....13.00

Sennheiser Model TM-515/1 Cable Transformer—Matches 200 ohms. Net...16.00

Sennheiser Model KA-7 Extension Cable—22 ft. long. Net Each.....14.00

Sennheiser Model MKH-105 Low Impedance Mike—Balanced. Net Each...199.00

### MODELS MKH-404, MKH-405 CARDIOID CONDENSER MIKES (FIG. F) WITH TRANSISTORIZED RF CIRCUITRY

Identical to Model MKH-104, except has cardioid polar pattern. Outstanding front-to-back rejection (separation) over the entire audio frequency range.

Sennheiser Model MKH-404 Condenser Cardioid Microphone—Net Each...\$230.00

Sennheiser Model MKH-405 Low Impedance Mike—Balanced. Net Each...240.00

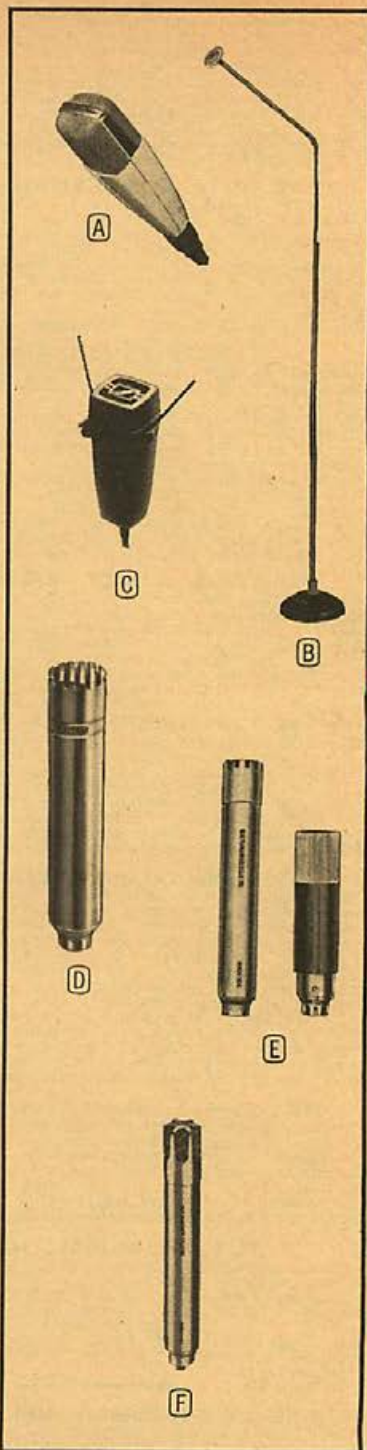
### MODELS MKH-804, MKH-805 CONDENSER TELEMICROPHONES (FIG. G)

WITH TRANSISTORIZED RF CIRCUITRY

Unidirectional condenser microphone designed for long range pick-up with condenser microphone quality. Excellent for use on boom. Working distance 2.5 times that of cardioid microphones. **Frequency Range:** 50-20,000 cps. **Output Level:** -28 db ref. 1 mw/10 dynes/cm<sup>2</sup>. **Size:** 3/4" dia. x 22" long. Weight, 15 oz.

Sennheiser Model MKH-804 Condenser Telemicrophone—Net Each.....\$342.00

Sennheiser Model MKH-805 Low Impedance Mike—Balanced. Net Each.....\$351.00







# SENNHEISER MICROPHONES

## PROFESSIONAL MICROPHONES (CONTINUED)

### MODEL MD-4055 DYNAMIC WIRELESS HAND MIKE (FIG. H)

Super cardioid polar pattern ideal for use with wireless mike systems. Moving coil design housed in metal case. Compensation coil protects against interference from external magnetic fields. Effective damping extends over entire frequency range. **Frequency Range:**  $\pm 3$  db, 100-14,000 cps. **Output Level:**  $-56$  db ref. 1 mv/10 dynes/cm<sup>2</sup>. **Discrimination:** 12 db. **Impedance:** 200 ohms. **Size:** 1.65" dia. x 5 3/4" l. **Weight:** 7 oz. **Sennheiser Model MD-4055 Dynamic Hand Mike**—With on-off switch. Net Each.....\$64.00

### MODEL SM-1002 MIKROPORT WIRELESS SYSTEM (FIG. I)

Ideal for on-the-spot sound reproduction. Light, compact system with choice of two receivers. Microphone for system is the above listed MD-4055. **Sennheiser Model SK-1005 Transmitter**—Net Each.....\$240.00  
**Sennheiser Model T-201 AC Receiver**—Net Each.....275.00  
**Sennheiser Model T-203 DC Receiver**—Battery operated and transistorized. Net Each.....280.00  
**Sennheiser Model TS-201 Dipole Plug**—For AC system. Net Each.....17.00  
**Sennheiser Model TA-203 Telescopic Antenna**—For AC system. Net Each.....29.00  
**Sennheiser Model ETS-201 Strap Antenna**—For DC system. Net Each.....17.00  
**Sennheiser Model ETA-203 Telescopic Antenna**—For DC system. Net Ea.....21.00  
**Sennheiser Model MC-7 Connecting Cable**—For AC system. Net Each.....10.50  
**Sennheiser Model MC-8 Connecting Cable**—For DC system. Net Each.....9.80  
**Sennheiser Model HZS-16 Monitoring Headset**—For DC system. Net Each.....8.00



## GENERAL PURPOSE MICROPHONES

### MODEL MD-21 DYNAMIC MICROPHONE (FIG. A)

Rising response of 5 db beyond 100 cps makes this mike suitable for broadcasting and sound film recording. Nearly omnidirectional polar pattern. **Frequency Range:**  $\pm 3$  db, 50-15,000 cps, slowly rising by 5 db beyond 1 kc. **Output Level:**  $-53$  db referred to 1 mw/10 dynes/cm<sup>2</sup>. **Impedance:** 200 ohms. **Size:** 4.72" x 1.81" sq. **Sennheiser Model MD-21 Dynamic Microphone**—Net Each.....\$57.00  
**Sennheiser Model MD-21/HN Dynamic Microphone**—Same, but with transformer built in to provide match for high impedance inputs (approx. 30K ohms), with short lead to amplifier or tape recorder. Net Each.....\$59.00  
**Sennheiser Model MZT-21 Desk Stand**—Net Each.....6.50  
**Sennheiser Model MZW-21 Wind Screen**—Net Each.....15.00

### MODEL MD-408 UNI-DIRECTIONAL GOOSE-NECK MIKE (FIG. B)

Super cardioid mike on flexible shaft for unobtrusive, wide-range performance with good directionality. Reliable for many applications. Protective wire cage has integral moving coil insert; attaches directly to flexible shaft. Ideal for speech or music with good discrimination; no feedback in PA equipped halls. **Frequency Range:** 100-14,000 cps with 3 db greater sensitivity in 7-14 kc range than at 1 kc. **Output Level:**  $-55$  db, referred to 1 mw/10 dynes/cm<sup>2</sup>. **Discrimination:** Above 12 db at 150° for entire frequency range. **Impedance:** 200 ohms. **Sennheiser Model MD-408 Uni-directional Microphone**—With push-to-talk switch. Net Each.....\$56.00

### MODEL MD-406 DYNAMIC DIRECTIONAL HAND MIKE (FIG. C)

Lightweight, super cardioid hand mike with excellent electrical and directional characteristics. Adaptable to sound reproduction, reporting, public address systems and musical reproduction. Protective gauze sphere acts as blast shield. Includes 25 ft. connecting cable. **Frequency Response:** Better than  $\pm 3$  db, 50-15,000 cps. **Output Level:**  $-55$  db, referred to 1 mw/10 dynes/cm<sup>2</sup>. **Impedance:** 200 ohms. **Size:** 1.7" dia. x 5.5" lg. **Weight:** 6.5 oz. **Sennheiser Model MD-406 Dynamic Hand Mike**—Net Each.....\$62.00

### MODEL MD-407/HN DYNAMIC DIRECTIONAL MICROPHONE (FIG. D)

Super-directional dynamic mike offers a remarkably linear response over a wide range. Very efficient damping extends over the entire range. **Frequency Range:**  $\pm 3$  db, 100-12,000 cps. **Directionality:** Cardioid. **Output Level:**  $-56$  db ref. 1 mv/10 dynes/cm<sup>2</sup>. **Discrimination:** 12 db in the decisive frequency range. **Impedance:** 200 ohms. **Sennheiser Model MD-407/HN High-Low Cardioid Mike**—Comes with a built-in transformer for direct connection to hi-Z inputs. Lead between mike and hi-Z input may be up to 6 ft. long. (For greater distance, cable transformer TM-514HN is available.) Net Each.....\$32.00

### MODEL MD-403 UNI-DIRECTIONAL MICROPHONE (FIG. E)

Eliminates echos in acoustically unfavorable rooms; suppresses room reflections and background noises. Super cardioid configuration for faithful reproduction. Moving coil insert, with little acoustic resistance; folding foot for table-top use; threaded to accept tripod floor stand. **Frequency Response:**  $\pm 3$  db, 50-12,000 cps. **Output Level:**  $-56$  db, referred to 1 mw/10 dynes/cm<sup>2</sup>. **Impedance:** 200 ohms. **Size:** 2.2" w. x 1.46" d. x 3.54" h. **Weight:** 10.5 oz. **Sennheiser Model MD-403 Uni-directional Mike**—Net Each.....\$37.50  
**Sennheiser Model MD-403/HN Mike**—Same as above, but with built-in transformer. Can be connected to high or low impedance inputs. Length of hi-Z lead should not exceed 5 ft. Net Each.....\$41.50

### MODEL MD-42 NOISE CANCELLING HAND MICROPHONE (FIG. F)

Specially designed to obtain excellent speech transmission under exceptionally bad acoustic conditions. The MD-42 neutralizes cophasal noises and echos. Thus, by holding the microphone close to the desired source, unwanted environmental sounds are eliminated. **Frequency Response:** 200-10,000 cps. **Directionality:** Cardioid. **Impedance:** 200 ohms. **Size:** 2" dia. x 5" lg. **Weight:** 6.5 oz. **Sennheiser Model MD-42 Noise Cancelling Mike**—Net Each.....\$48.00

### MODEL MM-23 MAGNETIC LAPPEL MICROPHONE (FIG. G)

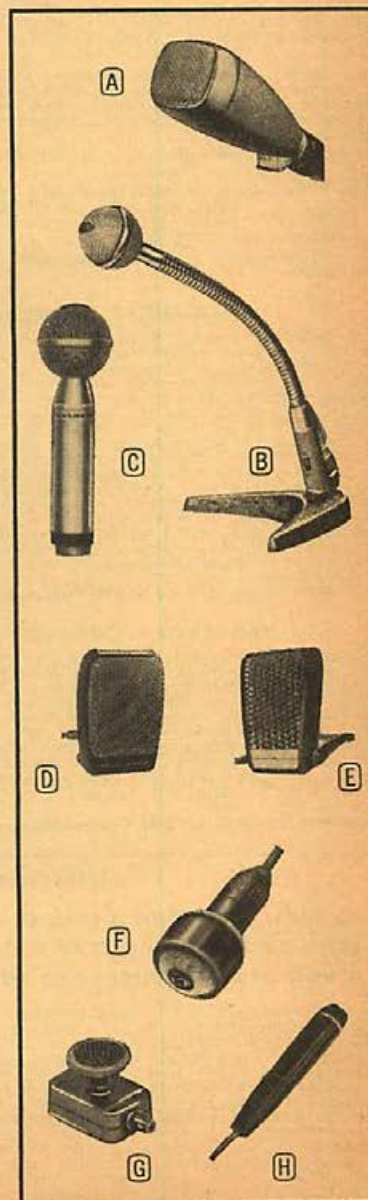
Inconspicuous, miniature mike is excellent for concealed recording of speech using dictating machines. Looks like a pin when inserted in lapel. Good audibility. **Frequency Range:**  $\pm 3$  db, 400-1000 cps and  $\pm 4$  db, 1000-4000 cps. **Output Level:**  $-61$  db ref. 1 mv/10 dynes/cm<sup>2</sup>. **Impedance:** Specify 200 or 2K ohms. **Size:** 3/8" x 3/8" x 1/8" thick with 1/8" dia. lapel button. **Weight:** 0.2 oz. **Sennheiser Model MM-23 Lapel Microphone**—Specify 200 or 2K ohms. Net Ea.....\$15.95

### MODEL MM-61 MAGNETIC "FOUNTAIN PEN" MICROPHONE (FIG. H)

Inconspicuous design particularly suited for dictation applications. **Frequency Range:**  $\pm 3$  db, 400-1000 cps and  $\pm 4$  db, 1000-4000 cps. **Output Level:**  $-61$  db ref. 1 mv/10 dynes/cm<sup>2</sup>. **Impedance:** Specify 200 or 1K ohms. **Size:** 3 3/4" l. x 1/8" dia. **Weight:** 0.25 oz. **Sennheiser Model MM-61 "Fountain Pen" Mike**—Specify impedance. Net Ea.....\$16.95

## ACCESSORIES

**Sennheiser Model MC-1 Connecting Cable**—Pigtails on one end, connector on the other. For Models MD-21 and MD-408. Net Each.....\$6.90  
**Sennheiser Model MC-2 Connecting Cable**—23 ft. long. For Models MD-42 and MD-403. Net Each.....\$9.50  
**Sennheiser Model MC-3 Connecting Cable**—With standard phone plug. For Model MD-21/HN. Net Each.....\$8.50





# Wireless Mike Systems

## VEGA-MIKE® WIRELESS MICROPHONE SYSTEMS

The Vega-Mike® is a professional microphone without a trailing cord to restrict user's mobility. By means of a self-contained low-power miniature FM transmitter and power supply, it transmits through the air to a separately located Vega receiver whose outputs feed the signal to the user's existing sound system amplifier or control board, tape recorder, etc. Absence of a tethering, kinking cord, frees the speaker or performer to walk anywhere in the auditorium or classroom, even out into the audience (ideal for outdoor use) . . . yet will have every word distinctly heard. The one-piece Vega-Mike® microphone-transmitter is small, lightweight (only 7½ oz.), unobtrusive, completely self-contained, including mercury-battery power supply. Can be hung from the neck so user's hands are free, or held in the hand; even passed from one person to another. Used by radio-TV networks and stations, schools in audio-visual applications, sales meetings, conventions, sports event broadcasting, outdoor/indoor sound reinforcement. Range, up to ¼ mile, depending on environment conditions. Typical Basic System: One Vega-Mike® microphone-transmitter and one Vega-Mike® receiver.

### VEGA-MIKE® MICROPHONE-TRANSMITTER

Available in lavaller or hand-held types. Requires no warm-up time; fully transistorized. Contains own professional dynamic microphone, FM transmitter and mercury battery. Uses only one 6.75 v. Mallory TR-115R mercury battery for 20 hours operation. Two batteries supplied. **Standard Frequencies:** 33.14, 35.02, 30.84 and 31.16 Mc for general use; 26.10 to 26.48 Mc for radio/TV low power broadcast auxiliary stations as assigned. **Non-Standard Special Frequencies:** Available on special order in the 25-45 mc range, with evidence of FCC assignment. **Frequency Response:** 80-14,000 cps. **Size:** 1" dia. x 5" long; hand-held type, 5½" lg. Shpg. Wt., 1 lb.

**Vega-Mike® Model 01-0001 Lavaller**—Neck cord serves as part of antenna. Specify standard frequency (see above). Two Models: **Standard Model Lavaller** (single rotary switch turns on or off simultaneously both audio and transmitter). **\$249.75**  
Net Each . . . . .

**EC-Model Lavaller** (separate on-off switches for audio and transmitter). Net Each. **\$288.00**

**Vega-Mike® Model 01-0002 Hand-Held**—With telescoping whip antenna, 5½"—22¾" long, attached by swivel joint at base of mike. Specify standard frequency (see above). **Standard Model** (single rotary switch) only. Net Each. **\$249.75**

**For Non-Standard Special Frequencies**—(See above). Add to net. **\$35.00**

### VEGA-MIKE® FM RECEIVER

The Vega-Mike Receiver is available with built-in whip antenna for full portability; includes an antenna input plug UG-260/BU for use with RG-59/U coax feed from remote antenna permitting longer range operation with semi-portability. Incorporates extremely efficient AFC and AVC control circuitry; assures fixed frequency operation with very constant output. Continuous tuning, 25-45 mc, with 3:1 reduction tuning drive. Calibrated squelch control on rear panel quiets the output unless a signal exceeds the pre-set level. Fuse holder and output for Vegetrol® also supplied on rear panel. Two cathode follower outputs: Line level, 2 volts; mike level, -40 dbm; feed either low or high impedance circuits. Built-in amplifier and 4" x 6" speaker. External headphone jack and gain control on front panel are not coupled to receiver; provide monitoring on PA, broadcast or recording amplifiers fed in association with the receiver. Comes with operating manual and output plug. **Frequency Response:** 20-20,000 cps. **Tubes:** 11, plus 2 diodes. **Size:** 6¾" w. x 12¾" h. x 9¾" d. Wt., 21 lbs. **\$297.15**  
**Vega-Mike Model 01-0003-05 FM Receiver**—Net Ea. **\$297.15**

### VEGATROL® CONTROL RELAY

Extends the use of the system as a carrier-operated wireless, remote-control device. Activated by on-off switch on Vega-Mike. Permits user to operate related equipment (tape recorders, cuing lights, etc.) from the mike-transmitter. Powered by the receiver. Terminal strip with 10 terminals provides 3PDT facility. Heavy-duty 115 v. AC outlet and jack for external switching of AC circuits, 5 amps. Heavy-duty relay with 4PDT capacity provides switching for Vegetrol. **Controls:** On-Off Switch; Power-On Indicator; Vegetrol-On Neon Indicator. With 36" cable and plug. **Tube:** 1-12AT7. **Size:** 4¼" w. x 7¼" d. x 5½" h. Shipping Weight, 4 lbs. **\$69.90**  
**Vegatrol® Model 01-0010-01 Control Relay**—Net Each. **\$69.90**



### ACCESSORIES

**Vega-Mike® Model 01-0008-01 Rack Mount Adapter Kit**—Provides permanent rack-mount installation of Vega-Mike FM receivers. Simple instructions guide installation. Receiver mounts with cover removed and speaker re-located. Requires 10½" rack space on standard 19" panel rack. Includes solid ¼" aluminum panel, monitor speaker face plate and mounting hardware. **Size:** 19" w. x 11¼" d. x 10¼" h. Shpg. Wt., 4 lbs. **\$53.95**  
Net Each . . . . .

**Vega-Mike® Model 01-0004-01 Helmet**—Used with hand-held mike Model 01-0002 to extend the effective range, and aid in spotting the announcer. Socket in top of helmet provides accommodation for whip antenna. Comes with 32" extension cable. Made of lightweight, white styrene with adjustable head-size and chin strap. With black vinyl zipper carrying case with long strap for carrying receiver and helmet; room for storing Vega-Mike microphones, spare batteries, etc. Inside helmet. **Size:** 5¼" h. x 7¼" w. x 10¼" front to back including sun visor. Shpg. Wt., 12 oz. **\$27.90**  
Net Each . . . . .

**Vega-Mike® Model 01-0012 Lavaller "Press-To-Talk" Accessory**—For momentary on-off operation of the Vega-Mike® microphone. Same dia. as the case, extends 1¼" below case; replaces the battery retainer at the bottom of the Vega-Mike®. Pushbutton on the side switches transmitter power on or off. Net Ea. **\$17.00**

**Vega-Mike® Model 01-0013 Hand-Held "Press-To-Talk" Accessory**—Case extends 4¼" below Vega-Mike® case and is used as a handle. Net Each. **\$18.00**

**Spare Batteries Number 93-0001-01**—For Vega-Mike microphone-transmitters. Box contains two Mallory type TR-115R batteries. Net per Box. **\$4.75**

**Slip Cover For Vega Receiver**—Easily put on and taken off to protect receiver. When used with Helmet Hand-Held accessory, the two allow one-handed carrying of receiver and helmet with room for storing Vega-Mikes, spare batteries, etc. Black vinyl plastic with gray beading; edges well stitched for extra strength, durability. Shipping Weight, 12 oz. Net Each. **\$4.95**

### BASIC VEGA-MIKE SYSTEMS

**System L**—Consists of: One Standard Model Lavaller Vega-Mike (specify which standard frequency), one Vega portable FM receiver. Packed with two batteries. Shpg. Wt., 21 lbs. **\$546.90**  
Net Each . . . . .

**System L-EC**—Consists of: One EC-Model Lavaller Vega-Mike (specify which standard frequency), one Vega portable FM receiver. Packed with two batteries. Shpg. Wt., 21 lbs. **\$585.15**  
Net Each . . . . .

**System H**—Consists of: One Hand-Held Vega-Mike (specify which standard frequency), one Vega portable FM receiver. Packed with two batteries. Shipping Weight, 21 lbs. **\$546.90**  
Net Each . . . . .

## KINEMATIX FM WIRELESS MICROPHONES

- SO SMALL IT FITS INTO A PACK OF CIGARETTES
- ACTUALLY A SHIRT-POCKET FM TRANSMITTER
- A HOST OF USES INDOORS AND OUTDOORS

Extremely compact and completely transistorized, the Kinematix Imp II has a built-in pin-head microphone which can pick up voices up to 40 feet away. Ideal for use as a burglar alarm, highly sensitive baby sitter, or for delivering lectures to large groups when used with a large-speaker FM radio. Many other applications in theatrical and TV productions, surveillance and inventory work, and outdoors events where a mobile PA system is employed. Performs with excellent fidelity without restraining wires or cables; free of static and background noise. Tunable transmitter permits finding interference-free spots on an



- EXCELLENT FIDELITY—NO WIRES OR CABLES
- USE ITS BUILT-IN PIN-HEAD MIKE . . . OR PLUG IN YOUR OWN LOW-IMPEDANCE MIKE

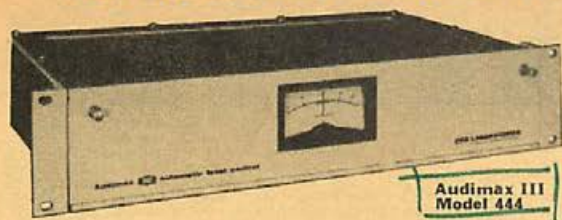
FM tuner or receiver; has an effective transmitting range of up to 225 feet. Provides up to 300 hours of operation when powered by one easy-to-obtain mercury battery. Handsome, black leather case. **Frequency Range:** 88 to 108 Mc. **Frequency Response:** 30-20,000 cps. **Input Impedance:** 1000 ohms (for external microphone). **Power Requirements:** Mallory TR-126, RCA VS-327, Burgess H126, or equivalent mercury battery (not supplied). **Size:** 2¾" x 1½¼" x 2½"; in leather case, 3" x 1½" x 2¾". Weight, 7½ oz. **\$49.95**  
**Kinematix Model IMP II/M-222**—Net Each. **\$49.95**

**Kinematix Model IMP C/M-223**—Same, but with contact microphone for electric guitar. Net Each. **\$59.95**

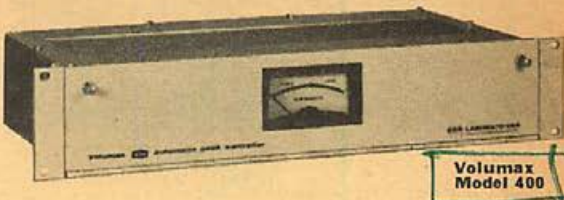




**NEW SOLID STATE AUDIO UNITS FOR PROFESSIONAL BROADCASTERS**



**Audimax III  
Model 444**



**Volumax  
Model 400**

**AUDIMAX® III AUTOMATIC LEVEL CONTROL**

The new solid state Audimax III acts as a trained, super-alert engineer in maintaining maximum modulation or recording level and signal quality. Unlike ordinary compressors or AGC amplifiers with constantly rising or falling gain, the unit operates on a "platform" principle which completely preserves the short term dynamic fidelity and prevents thumping or pumping. Adopted by numerous independent stations as well as by the CBS Radio and Television networks, it has many applications in broadcasting, recording, background music, public address and paging systems. When program levels are too high, Audimax automatically reduces its gain with inaudible speed. When program levels are too low, Audimax automatically turns up the gain without pumping or having to wait for the slow discharge of recovery time elements. When program levels are correct, the gain is not changed. Audimax's exclusive "platform" mode of operation completely preserves short term dynamic fidelity. When pauses occur, Audimax recognizes that only noise or background effects are present. Gated Gain Stabilizer maintains constant gain so that background sounds will neither disappear nor come swishing up during these intervals. All decisions to raise, lower or maintain constant gain are based on an analysis of the previous 10-second history of the program as compared with the incoming signal at any time. Audimax will not be confused by such special effects as pistol shots and barking dogs. If the level of these bursts is too high, Audimax will temporarily reduce its gain, but then immediately return to the pre-burst level. There are no "holes" in the program. In addition to its normal gain riding activities, Audimax subtly boosts program levels to achieve an average of 6 db higher modulation than with normal manual control methods. For the standby condition at the end of programs, such as occur in recording and film studios or with intermittently-used network lines, the Return-to-Zero control waits approximately 10 seconds and then slowly returns the gain to normal. **Frequency Response:** Flat within 1 db, 50-15,000 cps. **Harmonic Distortion:** Less than 1%, 50-15,000 cps at +16 dbm output. **Noise Level:** Below -60 dbm at normal gain. **Control Characteristic:** ±10 db of gain control. **Gated Gain Stabilizer:** Threshold adjustable from -24 db to normal input. **Return-to-Zero Function:** Returns gain to normal during pauses greater than 10 sec. **Maximum Gain:** 50 db. **Input and Output Impedance:** 600 ohms, balanced or unbalanced (150 ohms optional). **Normal Output Level:** +11 VU. **Maximum Output:** +25 dbm. **Minimum Input Level:** -30 VU. **Power Required:** 15 watts at 115/230 VAC, 50/60 cps. **Size:** 9 3/4" d. x 3 3/4" h. standard 19" rack mounting. Shipping Weight, 17 lbs.

**CBS Laboratories Audimax III Model 44 Automatic \$665.00**  
Level Control—Net Each

**AUDIMAX III-S**

**STEREO AUTOMATIC LEVEL CONTROL**

Consists of two Audimax III instruments physically and electronically coupled to provide simultaneous gain control in both channels. Since this gain control is a function of the stereophonic sum signal (L+R), it preserves spatial perspective and prevents undesirable "ping-pong" effects. **Size:** 9 3/4" d. x 7" h., standard 19" rack mounting. Shipping Weight, 34 lbs.

**CBS Laboratories Audimax III-S Model 445 Stereo \$1390.00**  
Automatic Level Control—Net Each

**VOLUMAX® AUTOMATIC PEAK CONTROLLER**

Like its companion-piece, the Audimax III, the completely solid state Volumax is a tool to help the broadcaster obtain maximum program power from each watt of carrier power. Unit doubles effective radiated program power compared with conventional peak limiters; when used along with the Audimax, astonishing power improvements of nearly 8 to 1 have been achieved. Prevents carrier over-modulation caused by instantaneous program peaks without audio distortion and "pumping" effects, and without the necessity of a reduction in program level or wasting valuable modulation capability. Analyzes all program material and automatically chooses the appropriate regulation speed with gentle or micro-second-fast limiting action, depending on the nature of the program waveform. The result is a more even, pleasant sound that can be safely transmitted at twice the program power levels to be expected from conventional limiters. In AM broadcasting, negative peaks must be kept below 100% modulation to prevent carrier cut-off, but positive peaks may modulate the carrier over 100%. Since the Volumax can be operated asymmetrically at the option of the user, limiting levels for negative peaks may be kept below the 100% modulation level while positive peaks may be allowed to modulate over 100%. Unit is normally used in conjunction with the Audimax III or another automatic level control. **Frequency Response:** Flat within 1 db, 50-15,000 cps. **Harmonic Distortion:** Less than 1%, 50-15,000 cps throughout normal control range. **Noise Level:** -70 db. **Maximum Gain:** +50 db. **Input and Output Impedance:** 600 ohms. **Maximum Output Level:** +20 dbm. **Input Level:** -25 to +8 dbm. **Attack Time:** Less than 1 usec or 4 msec, depending on program waveform. **Maximum Operating Temperature:** 55° C. **Power Required:** 15 watts at 117 VAC, 50/60 cps. **Size:** 9 3/4" d. x 3 3/4" h., standard 19" rack mounting. Shipping Weight, 17 lbs.

**CBS Laboratories Volumax Model 400 Automatic \$665.00**  
Peak Controller—Net Each

**COMPLETE STEREO-AUDIO TEST RECORD LABORATORY**

**TECHNICAL SERIES  
PROFESSIONAL TEST  
RECORDS**



CBS Laboratories technical series professional test records are high precision tools designed to assist audio and quality-control engineers, and test or service technicians, in rapid evaluation of audio components, equipment and systems. Each record includes a complete series of tests. Eliminate much special equipment and save hours of time. A productive tool for laboratory, production line or field testing.

**CBS Laboratories Model STR-100 Frequency Test Record**—Tests pickups and systems for: Sweep and spot frequency response, channel separation, wavelength loss, stylus wear, compliance; phasing, vertical and lateral tracking, tone arm resonance. Net Each ..... **\$8.50**

**CBS Laboratories Model STR-110 Square Wave, Tracking and Intermodulation Test Record**—Tests pickups for transient and intermodulation distortion. Also tests for tracking ability, dynamic compliance, damping and high frequency stylus tip mass. Recorded with 2.5° vertical modulation slant. Net Each ..... **\$10.00**

**CBS Laboratories Model STR-111 Square Wave, Tracking and Intermodulation Test Record**—Same tests as Model STR-110, but recorded with new 15° vertical modulation slant recommended by RIAA and EIA. Net Each ..... **\$10.00**

**CBS Laboratories Model STR-120 Wide Range Pickup Response Test Record**—Checks response above and below audible range where audible distortions can originate. Response to 50,000 cps. Twice-normal-level, low frequency glide tones detect arm resonance, cone and cabinet rattles. Silent grooves test for rumble and surface noise. Standard-level bands at 0 db provide for overall signal-to-noise measurements. Net Each ..... **\$10.00**

**CBS Laboratories Model STR-130 RIAA Frequency Response Test Record**—Speeds calibrating and testing of professional recording and record playback equipment. Can be used with automatic curve tracer for permanent record. Net Each ..... **\$10.00**

**CBS Laboratories Model STR-140 RIAA Pink Noise Acoustical Test Record**—Permits testing speakers in the room in which they will be used, under actual listening conditions. Tests include 1/2-octave noise bands with voice announcements; and, continuous 1/2-octave sweeps covering 30-15,000 cps. Net Each ..... **\$10.00**

**CBS Laboratories Model BTR-150 Broadcast Test Record**—Tests all audio equipment for AM, FM, TV and FM stereo. Tests include reference level adjustment, peak capability test, level control adjustment, ballistic testing of VU meters, wow and flutter, rumble and hum, frequency response, separation and phasing. One side is monophonic; other, stereophonic. Net. .... **\$10.00**

**CBS Laboratories Model STR-160 Vertical Tracking Angle Test Record**—Provides for the first time a rapid and precise measurement of the vertical tracking angle of stereo pickups under actual operating conditions. An ideal record for use in conforming with the 15° RIAA standard. Contains 15 bands of 400-cps tone recorded at an effective vertical angle graduated from -6° to +43°. The angle of each band has been accurately calibrated by analysis of the electrical waves, by optical patterns, and by mechanical measurements using a pickup with adjustable vertical tracking angle. Stated angle is held accurate within ±2°. Net Each ..... **\$10.00**

**CBS Laboratories Model STR-101 "Seven Steps to Better Listening" Test Record**—Through easy-to-make tests and simply narrative, this test record for home use will help the hi-fi enthusiast blend his electronic components and room acoustics into one well-tuned, properly functioning system. Offers following stereo tests: Left-right identification, phasing, speaker balance, tone control setting, alternate phasing. Also gives checks on stereo-mono tone control setting, buzz and rattle elimination, lateral and vertical tracking. With booklet of operational notes by Edward Tannall Canby. Net Each ..... **\$5.00**



# Pultec® Program Equipment

## MODEL EQP-1A PROGRAM EQUALIZER



Very useful in electronic and acoustic research and control. Three low and five high boost frequencies. **Shape Control:** High boost curves variable sharp to broad. **No Loss:** Passive equalizer plus push-pull amplifier. **Professional:** 600, 250 and 150 ohms, in and out. Low noise and distortion.

Toroid coils, Peerless audio and Chicago/Stancor power transformers are used for low noise and distortion with high dependability. Separate low and high frequency boost and attenuate controls, continuously variable to permit stepless adjustment on sustained notes. Separate low and high frequency selector switches. In-Out Key switches equalizer in and out without changes in level, or clicks. **Shelf Boost:** 20, 30, 60 and 100 cps to 13.5 db. **Peak Boost:** 3, 4, 5, 8, 10, 12, and 16 kc—0 to 18 db. **Shelf Attenuate:** 20, 30, 60 and 100 cps—0 to 17.5 db; 5, 10 and 20 kc—0 to 16 db. **Noise:** 92 db below +10 dbm. **Distortion:** 0.15% at +10 dbm. **Loss:** None. Insertion loss restored by amplifier. **Input and Load Impedances:** 600, 250 and 150 ohms, balanced/unbalanced. **Circuit:** Push-pull, transformer in and out, 20 db feedback. **Tubes:** 1-ECC-82, 1-ECC-83, 1-6X4. **Power:** 25 watts, 117 v., 50/60 cps. **Size:** 5¼" x 19"; 7¾" deep behind panel. Net Weight, 15 lbs.

Pultec Model EQP-1A—Balanced. Input and Out—500 ohm push both transformer. 600/250/150 ohms. Net Each **\$475.00**

## MAVEC MIKE AMPLIFIER AND VARIABLE EQUALIZER



Equalizes individual mike channel, correcting microphone, studio and performer deficiencies. Supplied, connected for 30 db gain, 250 ohms in, feed 600 ohm load, unless other requested. **Peak Boost:** 2, 3, 5, 8 and 16 kc, continuously variable from 0-13 db of boost. **Shelf Attenuate:** 10 kc attenuate curve variable to 16 db of cut. **Low Boost:** 60 cps curve variable 0 to 10 db of boost. **Low Attenuate:** Four curves effective in reducing vocal microphone boominess and studio rumble and in creation of special sounds. **"S" Cut:** 4 curves effective in reducing vocal sibilance. **Output:** +20 dbm to 600 ohms with less than 0.5% harmonic distortion. **Frequency Response:** 20 cps to 20 kc, +0 db, -1 db from 1 kc reference. **Power Required:** (Self contained), 35 watts, 117 v., 50/60 cps. **Size:** 3¼" x 19" x 7¾" deep behind panel. Finished in blue-gray enamel. Net Weight, 11 lbs.

Pultec Model MAVEC—Net Each **\$395.00**

## MODEL HLF-3C PROGRAM-SOUND EFFECTS FILTER



A very wide range program and sound effects filter designed for musical and dramatic presentations. Removes rumble and hum, hiss and harmonic distortion with a minimum loss of content. As a sound effects filter it includes many most-useful frequencies for effects as: telephone conversations, midjet radios, sounds from "outer space" etc. Shielded toroid coils cut hum. Switches are clickless. "Off" position on each selector provides full frequency transmission. A key switch permits pre-set low and high filter selections to be thrown in and out of circuit on cue. **Low Cut-Off:** OFF, 50, 80, 100, 150, 250, 500, 750, 1000, 1500, and 2000 cps. **High Cut-Off:** 1.5, 2, 3, 4, 5, 6, 8, 10, 12, 15 kc and OFF. **Impedance:** 500-600 ohms input and output; space to mount transformers for others. **Input Level:** -70 dbm; Constant K. **Size:** 3¼" x 19", standard rack panel; 7¾" depth behind panel. Finished in blue-gray baked enamel with engraved dials. Net Weight, 9¼ lbs.

Pultec Model HLF-3C—Net Each **\$296.00**

## MODEL MB-1 MICROPHONE AMPLIFIER

Three-stage, high-gain, low-noise preamplifier or program booster amplifier for broadcast, recording, and laboratory use. Gain continuously adjustable from 28 db to 48 db by changing a resistor across pair of terminals to adjust feedback. Provides 42 db negative feedback at minimum gain, 22 db at maximum. **Tubes:** 1-ECC-82, 1-ECC-83, 1-6X4 rectifier. **Output Noise:** Equivalent to input signal -120 dbm or lower, -72 dbm at maximum gain. **Distortion:** Less than 0.5% total harmonic 50-20,000 cps, and less than 1% at 30 cps with output level of +20 dbm into 600 ohms. **Inputs:** 50, 150 CT, 300, and 600 CT ohms. Input transformer has electrostatic and 90 db magnetic shielding; may be operated loaded or unloaded for extra 6 db gain. **Outputs:** 50, 150, 300, and 600 ohms. **Frequency Response:** ±0.5 db with loaded input transformer. **Panel Size:** Standard 3¼" x 19" rack mount; 7¾" deep. Weight 10 lbs.

Pultec Model MB-1—Net Each **\$178.00**

## MODEL EQH-2 PROGRAM EQUALIZER



Has 16 db of boost or attenuation on the high frequency curves. Low frequency curves provide up to 13.5 db of boost and 17 db of attenuation. Separate boost and attenuate controls permit boosting on any high frequency while attenuating on the 10 kc curve. Continuously variable controls allow variation of the amount of equalization, even on sustained tones, without steps in level, or noise. Key permits cutting the equalizer in or out on cue. **Shelf Boost:** 30, 60 and 100 cps—0 to 13.5 db. **Peak Boost:** 3, 5, 8, 10 and 12 kc—0 to 16 db. **Shelf Attenuate:** 30, 60 and 100 cps—0 to 17 db; 10 kc—0 to 16 db. **Distortion:** 0.15% at +10 dbm into 600 ohms. **Noise:** 87 db below +10 dbm. **Response:** Flat, 20-20,000, +0, -1 db. **Loss:** None. Insertion loss restored by amplifier built-in following passive equalizer. Toroid coils, Peerless audio and Chicago/Stancor power transformers are used for low noise and distortion with high dependability. **Tubes:** 1-ECC-82, 1-ECC-83, 1-6X4. **Power:** 117 v., 50/60 cps, 25 watts. **Panel Size:** 3¼" x 19"; 7¾" deep behind panel. Panel finished in blue-gray baked enamel; standard EIA rack mounting. Net Weight, 12 lbs.

Pultec Model EQH-2—Low Impedance. Transformer Input and Transformer Output: 600/250/150 ohms. Net Each **\$330.00**

## RECORDING EQUALIZERS



MODEL RE-12 provides five accurately calibrated curves for correct high frequency pre-emphasis in disc recording systems. **Compensation Above Crossover:** Flat (compensator off), 8 db boost, 10 db boost, RIAA, and 16 db boost (corresponds to old NAB standard). Passive equalizer is followed by quality amplifier to restore the network loss. **Inputs:** 600 ohms or 10,000 ohms unbalanced. **Outputs:** 50, 150, 300, and 600 ohms. Designed to provide output level of -10 dbm to 0 dbm for excellent signal-to-noise ratio, plus plenty of peak handling capacity with full 16 db pre-emphasis. **Response:** Uniform ±1.0 db from 20 cps to 20,000 cps with selector switch in "off" (flat) position. Mounts on standard 3¼" x 19" rack panel. Weight, 10½ lbs. **MODEL RE-23** provides high frequency pre-emphasis for disc recording. Strap terminals for 10, 12, RIAA or 16 db. **Insertion Loss:** 23 db. **Impedance:** 500-600 ohms. **Size:** 2¾" x 3¾" x 3¾". Net Each **\$235.00**

Pultec Model RE-12 (illus.)—Net Each **\$235.00**  
Pultec Model RE-23—Net Each **\$48.00**

## MODEL PC-10 RECORD COMPENSATOR



Accurate playback compensation for precise reproduction of phonograph records with any magnetic cartridge. Has self-contained power supply. Available with either 5-position control box, or fixed plug-in equalizers. Features input matching transformer, plus stage of tube gain ahead of compensation network to make equalization independent of cartridge 1-C-R characteristics. Accommodates all low impedance (ESL, Fairchild, etc.), and high impedance (GE, Pickering, etc.) cartridges. Cartridge may be easily changed at any time. Gain control, plus vernier controls to boost or attenuate 4 db at 30 cps and 5 db at 10,000 cps to correct for particular cartridge used. **Equalization:** Control box has built-in equalizers for: (1) "Flat" response (flat above 1000 cps, with RIAA compensation below 1000 cps); (2) "European" (old British EMI curve, with 250 cps turnover and 6 db rolloff at 10,000 cps); (3) "RIAA" (modern standard, also identical with New Orthophonic and revised AES and NAB standards); (4) "NAB" (old transcription standard originally adopted in 1942); (5) "Noisy" (like RIAA, but with sharp cut-off above 3500 cps). RIAA and NAB curves within ±1 db of official standards at all points, and gain of system at 1 kc varies less than ±1 db for RIAA to other positions. **Frequency Response:** ±1 db 30-20,000 cps; -2 db at 20 cps. **Noise:** Better than 60 db below +10 dbm output with RIAA compensation. **Distortion:** 0.5% at +20 dbm into 600 ohms. **Outputs:** 600, 300, 150, and 50 ohms. **Size:** Amplifier, 17" x 5" x 6" high (also available on special order in 5¼" x 19" rack panel); control box, 2¼" x 3" x 5¼" high; plug-ins, 1¼" x 1¼" x 3¼" high. **Weight:** Amplifier, 11½ lbs.; control box, 2¼ lbs.; plug-ins, ¼ lb. each.

Pultec Model PC-10—Amplifier only. Net Each **\$292.00**

Pultec Model C2—Control box for PC-10. Net Each **\$88.00**  
Pultec Model C4—"Flat" plug-in equalizer. Net Each **10.00**  
Pultec Model C5—"RIAA" plug-in equalizer. Net Each **10.00**  
Pultec Model C6—"European" (EMI) equalizer. Net **10.00**  
Pultec Model C7—"NAB" plug-in equalizer. Net **10.00**  
Pultec Model C8—"Noisy" plug-in equalizer. Net Each **15.00**



# Professional Audio Equipment

## PULTEC® MIXER, EQUALIZER AND STEREO PANNER

### MODEL MH-4 MIXER



Designed for mixing tape outputs, disc playbacks, film channels, and echo signals. Re-records and edits signals from any source with 0.1-50 v. level, high or low impedance. Mixes stereo signals to make ideal monophonic signals even while recording stereo, if desired. High impedance signals are accepted and delivered at low impedance. Connection of four high level bridging inputs to low impedance buses prevents matching or loading upset. Isolation of 60 db between inputs when either bridging or matching 600-ohm feeds; permits connection of four inputs across four stereo tracks or buses without causing crosstalk between stereo tracks. Potentiometers provide noise free mixing, stepless level adjustment, and smooth fades; dials calibrated in db. Transformer output designed for maximum flexibility.

#### SPECIFICATIONS

**Gain:** 10 db from any input to 600 ohm load, all controls at maximum. **Distortion:** 0.1% at +10 dbm into 600 ohms. **Maximum Output Level:** +20 dbm into 600 ohms. **Output Noise:** Lower than -70 dbm. **Input Level:** 0.1 v. (-18 dbm in 600 ohms) provides over 60 db signal-to-noise ratio. **Frequency Response:** 20 cps to 20 kes; +0, -1 db from 1000 cps reference. **Output Impedance:** 600, 250, 150 and 50 ohms. **Input Impedance:** Each input, 50,000 ohms, unbalanced. **Power Required:** 25 watts, 117 volts, 50/60 cps. **Panel Size:** 3 1/2" x 19" w.; depth behind panel, 7 3/4". **Panel Finish:** Pultec blue-gray baked enamel; engraved. **Mounting:** Standard EIA rack mounting. **Net Weight,** 11 lbs. **Pultec Model MH-4—Net Each..... \$225.00**

### MODEL MEQ-5 MID-RANGE EQUALIZER



Provides for exacting control in program material of the "power region"—that frequency range from approximately 300 cps to 5000 cps in which most of the sound energy is concentrated. The ear is more sensitive to sounds in this region than to other sounds. It is here that pre-emphasis, de-emphasis and crossover networks must blend together smoothly so as not to produce hills or valleys in the sound. It is in this region that even small resonances in studio acoustics and microphone and speaker responses are most evident in their effect on the listenability of the sound. Three independent sets of controls. These make it possible to boost on a peak curve at 200, 300, 500, 700 or 1000 cps while simultaneously boosting on a peak curve at 1.5, 2, 3, 4, or 5 kc, while simultaneously dipping at 200, 300, 500, 700, 1000, 1500, 2000, 3000, 4000, 5000, or 7000 cps. Thus, two selectable peak boost areas and one selectable dip area are available for simultaneous use. Among the purposes of the MEQ-5 are: To add body and presence to music already considered to be well balanced. To highlight or subdue a vocalist where the vocal is already mixed with the orchestra. Usually this is accomplished at frequencies below the brilliance region. To round out a vocal group; or, for the ingte trade, to make it stand out. To improve the basic quality of individual or group vocals or instruments by altering their fundamental and/or overtone characteristics. To equalize the dialog in narration and dramatics.

#### SPECIFICATIONS

**Gain:** 10 db from any input to 600 ohm load, all controls at maximum. **Distortion:** 0.1% at +10 dbm into 600 ohms. **Maximum Output Level:** +20 dbm into 600 ohms. **Output Noise:** Lower than -70 dbm. **Input Level:** 0.1 v. (-18 dbm in 600 ohms) provides over 60 db signal-to-noise ratio. **Frequency Response:** 20 cps to 20 kes; +0, -1 db from 1000 cps reference. **Output Impedance:** 600, 250, 150 and 50 ohms. **Input Impedance:** Each input, 50,000 ohms, unbalanced. **Power Required:** 25 watts, 117 volts, 50/60 cps. **Panel Size:** 3 1/2" x 19" w.; depth behind panel, 7 3/4". **Panel Finish:** Pultec blue-gray baked enamel; engraved. **Mounting:** Standard EIA rack mounting. **Net Weight,** 11 lbs. **Pultec Model MH-4—Net Each..... \$225.00**

**Peak Boost:** At 200, 300, 500, 700 and 1000 cps, 0 to 10 db; at 1.5, 2, 3, 4, and 5 kc, 0 to 8 db. **Dip Attenuate:** At 200, 300, 500, 700, 1000, 1500, 2000, 3000, 4000, 5000 and 7000 cps, 0 to 10 db. **In-Out Key:** Switches equalizer "in" and "out" without changes in level or clicks. **Insertion Loss:** Zero; network loss is restored by amplifier. **Response:** Flat, 20 cps to 20 kc, +0, -1 db from 1000 cps reference. **Distortion:** 0.15% at +10 dbm into 600 ohms. **Noise:** 85 db below +10 dbm. **Input Transformer:** 150/250/600 ohms. **Output Transformer:** For use into loads of 150/250/600 ohms. **Tubes:** One each ECC-83/12AX7, 6AQ5, 6X4. **Power Required:** 25 watts, 117 volts, 50/60 cps. **Panel Size:** 3 1/2" x 19"; depth behind panel, 7 3/4". **Panel Finish:** Pultec blue-gray baked enamel; engraved. **Mounting:** Standard EIA rack mounting. **Net Weight,** 12 pounds. **Pultec Model MEQ-5—Net Each..... \$388.00**

### MODEL SP-3 STEREO PANNER



When producing stereo tapes and discs, it usually becomes necessary to mix down from three or four original tracks to two tracks. During this mix down, the material on each of the original tracks must be acoustically located in exactly the preferred position somewhere between extreme left and extreme right in the final two channel output. Echo is often added at this time. The Pultec Model SP-3 Stereo Panner does all of these things easily and simply. The SP-3 accepts four input channels (and three echo returns) and mixes them down to two channel stereo output. Each of the four input channels can be individually, fully and continuously panned (positioned) from left to right in the two channel stereo output of the SP-3. If three tracks of a tape playback are fed into the Left, Center and Right inputs of the SP-3, then the two-channel (left and right) stereo output will contain all three input signals split between left and right according to the settings of the pan pots. Any input signal can be "walked" by turning its pan pot. If the tape playback has a fourth track, it can be fed into the Spare input of the SP-3 and panned to any position in the Left-Right outputs. Of course, any signal, whether related to the program material or not, can be connected to the Spare input and panned at will. Three independent echo returns (signals from the echo chambers) also are accepted as input signals to the SP-3. Each of these echo signals can be individually set (by means of a switch) to be entirely in the Left stereo output or in the Right stereo output or to pan between the outputs with the corresponding input signal. Regardless of where the echo is positioned, an associated level pot controls the percentage of echo.

#### SPECIFICATIONS

**Insertion Loss:** Zero; network loss is restored by amplifier. **Input Impedance:** All inputs, 600 ohms, unbalanced. **Output:** Transformers feed loads of 600/250/150/50 ohms. **Output Level:** +20 dbm maximum, each channel. **Response:** Flat, 20 cps to 20 kc, -1 db from 1000 cps reference. **Noise:** Lower than -70 dbm at the output, each channel. **Isolation:** Between Left, Center, Right and Spare inputs exceeds 70 db at all frequencies. **Tubes:** 2-ECC-83/12AX7, 2-6AQ5, 1-6X4. **Power Required:** 35 watts, 117 volts, 50/60 cps. **Panel Size:** 5 1/2" x 19"; depth behind panel, 7 3/4". **Panel Finish:** Pultec blue-gray baked enamel; engraved. **Mounting:** Standard EIA rack mg. Wt., 13 lbs. **Pultec Model SP-3—Net Each..... \$495.00**

## McINTOSH INDUSTRIAL POWER AMPLIFIERS

### MODEL MI-200AB 200-WATT AMPLIFIER

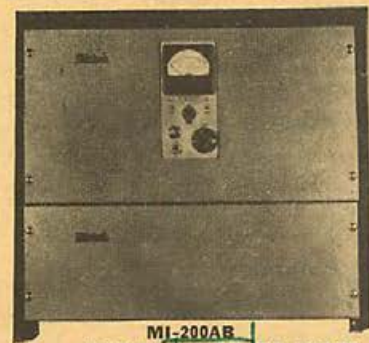
High efficiency output circuitry delivers high power and distortion-free performance for laboratory and industrial audio requirements. May be operated from any signal source delivering 0.5 volt or more; or directly from a McIntosh audio compensator. Components used are of the highest quality to assure long, trouble-free performance. An input transformer socket provides plug-in low-Z or isolated bridging inputs. **Power Output:** 200 watts, continuous; 400 watts peak. **Frequency Response:** ±0.2 db, 20-20,000 cps at 200 watts. **Distortion:** Less than 1% harmonic at 200 watts, 20-20,000 cps; less than 1% IM if instantaneous peak is below 400 watts. **Hum and Noise:** -85 db or more at rated output. **Input:** 0.5 volt will drive amplifier to 200 watts; gain control provided to handle input levels up to 20 volts; greater sensitivity possible by use of plug-in transformer. **Impedance:** Input, 250K  $\Omega$ ; output, 4, 8, 16.5 (67 1/2 v.), 25 (470.7 v.), 66 (117 v.) 100 (141.4 v.) and 600 ohms (balanced to ground); low-Z outputs may be balanced or unbalanced as well as isolated from ground. **Damping Factor:** 10:1 or greater, 20-20,000 cps. **Controls:** On-Off Switch; Gain; Meter Switch for built-in Output Meter on front panel. **Tubes:** 1-12AX7, 1-12AU7, 2-6AV5, 2-6BX7, 2-8005, 4-5U4, 2-5Y3. **Power Required:** 300-600 watts, 108/117/125 v. AC, 50/60 cps; fused. **Size:** 10 1/2" h. x 19" w. (standard rack) panel; 9" behind panel for amplifier, 7" w. x 9" behind panel, power supply. **Panel finished in dark gray hammertone. Weight,** 140 lbs. **McIntosh Model MI-200AB Amplifier—Net Each..... \$640.00**

**Power Required:** 140-240 watts, 117/125 v. AC, 50/60 cps. **Size:** 19" w. x 8 3/4" h. (standard rack) x 7 3/4" d. behind panel. **Weight,** 46 lbs. **McIntosh Model MI-75 Amplifier—Net Each..... \$275.00**

### ACCESSORY PLUG-IN INPUT TRANSFORMERS

McIntosh Number	Description	Net Each
M-107	Double mag. shielded; 50, 250 or 600 ohm input at -14 dbm level	\$23.00
M-107A	Triple mag. shielded version of M-107	24.50
M-105	20K bridging input at approx. -2 dbm level	20.00
M-108	250 or 600-ohm input at approx. -24 dbm level	24.50

Note: Max. input level for above transformers must be limited to +10 dbm.

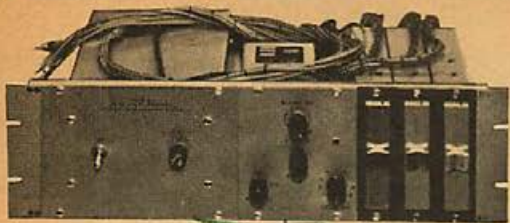


### MODEL MI-75 75-WATT AMPLIFIER

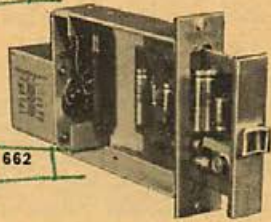
Industrial amplifier provides 75 watts of distortion-free power output for applications requiring exceptional performance, long life and maintenance-free operation. High flexibility in output impedance and voltage taps provide for many applications in PA, sound and laboratory uses. **Power Output:** 75 watts continuous. **Frequency Response:** +0, -0.2 db, 20-20,000 cps at full power. **Distortion:** Less than 0.5% harmonic at full output; 0.5% IM, instantaneous peak output up to 150 watts. **Hum and Noise:** -90 db or more at rated output. **Input:** 0.5 volt; gain control accommodates inputs to 30 volts; greater sensitivity possible using accessory plug-in input transformers. **Impedance:** 250,000 ohms. **Outputs:** 4, 8, 16, 67, 150 and 600 ohms, isolated from ground. **Controls:** On-Off Switch; Gain; Pilot Lamp and Fuse on front panel. **Tubes:** 2-KT88/6550, 1-12AX7, 1-12AU7, 1-12BH7, 1-12AZ7.



# FAIRCHILD PROFESSIONAL RECORDING AND AUDIO EQUIPMENT



658A



662



661TL



663



664



750 on 751

## MODEL 750 STEREO TURNTABLE

**The Turntable Designed for Stereo Broadcasting!**  
Professional three-speed 16" playback turntable with a belt drive. Provides maximum isolation between motor and table to minimize vertical and lateral rumble. Two-speed hysteresis synchronous motor keeps pulley diameter changes to a minimum to avoid belt stretching and assures locked-in speed. Ample room for mounting all arms; mounting plate takes 16" arm. Quiet operation permits use close to open microphones. Can be remotely started. No idlers to develop "flats". Maximum flywheel effect achieved by a 35 lb. no wobble turntable. Rubber belt is machined to .0001" tolerance to insure correct speed and low wow. Attractive aluminum dress plate with 2" space below allows mounting of controls on the plate with ease. **Turntable:** Aluminum, 16" dia.; undercut for easy record handling and cueing; Denseite filled, dynamically balanced; weight 25 lbs. **Motor:** Two-speed hysteresis synchronous 1/42 hp. 1/20 at 78 rpm. **Speeds:** 33 1/3, 45, and 78.26 rpm. Speeds constant within 1/10 of 1%. **Cuing Time:** 33 1/3 rpm, 1/4 rev. max.; 45 rpm, 1/4 rev. max.; 78.26 rpm, 1/4 rev. max.; all with Fairchild universal felt-padded cue disc. **Rumble:** 65 db below 7 cm/sec. at 1 kc. **Wow and Flutter:** Better than 0.03% peak-to-peak. **Power Required:** 110-120 v., 60 cycles, single phase, 1 amp, 120 watts. **Dimensions:** 24" w. x 24" d. x 10" h. **Weight:** Mechanism alone with mounting board, 60 lbs. **Finish:** Black or walnut mounting board; satin finish, aluminum trim.

- Fairchild Model 750 (Black) or 750W (Walnut) Three-Speed Turntable**—With Formica® top mtg. board. Net Ea. **\$695.00**
- Fairchild Model 750-2 (Black) or 750-2W (Walnut) Two-Speed Turntable**—For 33 1/3 and 45 rpm only. With Formica top mtg. board. Net Ea. **\$485.00**
- Fairchild Model 751 (Black) or 751W (Walnut) Mounting Cabinet**—Formica finish. For use with Models 750 or 750-2. Has front pedestal for turntable On-Off foot switch. Size: 24" w. x 24" d. x 34" h. Net Ea. **\$160.00**
- Fairchild Model 753 (Black) or 753W (Walnut) Mounting Cabinet**—Formica finish. For use with Models 750 or 750-2. Size: 24" w. x 24" d. x 28" h. Net Ea. **\$160.00**

## MODEL 658A "REVERBERTRON" SYSTEM

A dynamic reverberation system designed to enhance sound quality in radio stations and recording studios... the compact, professional answer to the creation of reverberated sound effects. Employs six electro-mechanical delay lines, each tuned differently, to produce the effect; these mechanical devices are especially isolated to prevent building rumble and general environmental noise pickup. Unit comes in two sections: A complete electronics system (see illus.), and an electro-mechanical shock-mounted delay generator (not illus.). Offers three basic reverberation periods: Short; moderate 1.5 sec.; and a prolonged effect of about five sec. Electronic time control switch on front panel permits instant and noiseless changes in time effect; also has front-panel control for all mixing of reverberated to straight signals. Easily rack mounted or carried into the field. **Input Impedance:** Up to 600 ohms, unbalanced. **Output Impedance:** 150 and 600 ohms, balanced or unbalanced. **Size:** Electronics unit, 19" w. x 5 1/2" h.; delay generator, 19" w. x 19 1/4" h.; overall, 19" w. x 24 1/2" h.

Fairchild Model 658A Reverbertron—Net Each. **\$985.00**

## INTEGRA/SERIES\* AUDIO COMPONENTS

### MODEL 661TL AUTO-TEN® NOISE ATTENUATOR

Fully transistorized high speed, no-distortion automatic attenuator (not a limiter or compressor) used between any two amplifiers or line amplifiers in balanced or unbalanced lines. Typical applications include: Keeping tight sound on close-up mikes in large halls; eliminating need for acoustic screens in studios; improving signal-to-noise ratios and separation; minimizing tape print-through (such as on language instruction and dramatic tapes); maintaining quiet during LP spirals; automated control room operation; reducing noise in film recording or in multi-track tape transfer; minimizing P.A. feedback. Auto-Ten can also be used as a "ducker", handling two inputs, one input automatically reducing the gain of the other program input. **Input Level Requirements:** -35 dbm to +25 dbm. **Input and Output Impedances:** 150 to 47,000 ohms, balanced or unbalanced. **Insertion Loss:** 2 db loss at 150 ohms, 0.5 db loss at 600 ohms. **Frequency Response:** Flat (resistive network). **Distortion:** None. **Controls:** Threshold Control (determines point of operation, i.e., point where it reduces gain automatically); Adjustable Release Time Control (can be set between 0.3 and 7 sec.). **Transistors and Diodes:** 2-2N508/2N35, 2-2N323/2N307, 1-1N96, 4-1N645. **Power Required:** 6.3 v. AC, 60/50 cps at 200 ma; 8 v. DC at 200 ma. **Weight:** 8 1/2 oz.

Fairchild Model 661TL Auto-Ten—Size: 1 1/2" w. x 6 1/2" d. x 3" h. Net Each. **\$135.00**

### MODEL 662 PREAMP/LINE AMPLIFIER

Completely transistorized printed circuit preamplifier. Can also be used as line amplifier. Variable gain adjustable by screwdriver. Transformer-isolated output may be operated balanced or unbalanced. Temperature range up to 100° F. New module thin line design permits easy installation in consoles or racks. **Gain:** 50 db, variable from 15 to 50 db. **Output:** +24 dbm with 0.5% distortion. **Low Noise Level:** -120 dbm. **Response:** +1 db, 30-20,000 cycles. **Power Required:** 18 v., 85 ma. **Size:** 1 1/2" w. x 6" d. x 4" h.

Fairchild Model 662 Preamplifier—Net Each. **\$134.00**  
Fairchild Model 662TXI Preamplifier—Same as Model 662, but with input transformer for 150/600 ohms. Net Each. **\$149.00**

### MODEL 663 COMPRESSOR

A compact, easy-to-install compressor for effective audio level control. Utilizes miniature parts in a special no-distortion compression circuit. Minimum space required; no larger than a slide-type attenuator. Small size permits installation of compressor for every microphone channel in recording studio, P.A. and broadcast consoles. Guaranteed no distortion. **Impedance:** Works into low impedance circuits from 50 to 1,000 ohms. **Control Level:** Permits control of microphone levels of plus 4 levels; up to 20 db of compression. **Attack Time:** 2 millise. **Release Time:** Variable from 300 millise. to 7 sec. **Controls:** Metering; Threshold Control; Variable Release Control. **Size:** 1 1/2" w. x 4" d. x 7" h.

Fairchild Model 663 Compressor—Net Each. **\$165.00**  
Fairchild Model 663ST Stereo Compressor—Net Ea. **\$25.00**

### MODEL 664 PROGRAM EQUALIZER

Allows user to boost at the frequencies of 4, 6, 8, 10 and 15 kc in steps of 2 db for a total compensation of 12 db at selected frequency. Roll-off in 2 db steps also available. Low frequency boost of 10 db in 2 db steps at 100 cps. Low end can also be rolled off in 2 db steps. **Insertion Loss:** 17 db. **Input:** Up to 600 ohms. **Output:** 50, 150, 300 and 600 ohms. **Size:** 1 1/2" w. x 6" d. x 4" h.

Fairchild Model 664 Program Equalizer—Net Each. **\$155.00**

### MODEL 665 PROGRAM EQUALIZER/AMPLIFIER

Combination of Model 664 Equalizer and Model 662 Preamplifier/Line Amplifier on one module mounting setup. **Size:** 19" w. x 10" d. x 5 1/4" h.

Fairchild Model 665 Program Equalizer/Amplifier—With power supply. Net Each. **\$395.00**  
Fairchild Model 665TXI Program Equalizer/Amplifier—Same as Model 665, but with input transformer. Net Each. **\$425.00**

### MODEL 667 POWER SUPPLIES FOR INTEGRA/SERIES

Fairchild Model 667 Power Supply—For use with 661TL, 662, 663 and 668. Accommodates up to 20 units. Net Each. **\$180.00**  
Fairchild Model 667AA Power Supply—Accommodates up to four type 662, ten type 661TL or ten type 663. Net Each. **\$110.00**  
Fairchild Model 667B Power Supply—For one type 662. Has 6.3 v. for up to ten type 661TL or 663. Net Each. **\$75.00**

\*Trademark of Fairchild Recording Equipment Corp. ®Trademark: Formica of Synthane Corp.; Auto-Ten of Fairchild Recording Equipment Corp.



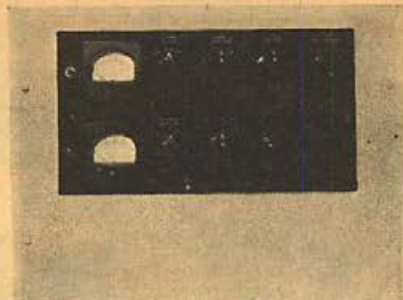
## MODEL 670 STEREO LIMITER

A radical departure from the classical limiter design; characterized by the complete absence of audible thumps, distortion and noise. Another feature is its extreme stability over long periods of time.

The Fairchild Model 670 may be operated either as two independent limiters or as a vertical-lateral component limiter. Function change made by the flick of a switch. The complete unit is enclosed within 14 inches of rack space.

A special feature of the unit is its ability to produce full limiting effect during the first 10,000th of a second (unlike conventional limiters that pass short transients due to their slowness of attack).

**Input Impedance:** 600 ohms each channel.  
**Output Impedance:** 600 ohms each channel.  
**Input Level Range:** 0 dbm to +16 dbm. **Gain:** 7 db. **Frequency Response:** ±1 db, 20-15,000 cps. **Separation:** 60 db, A-B position; 40 db, Vertical-Lateral position. **Release Time:** Adjustable 0.3 to 25 seconds in 6 positions. **IM or Harmonic Distortion:** Less than 1% at any level up to +18 dbm output (no limiting). Less than 1% at 10 db limiting +12 dbm output. **Power Required:** 3 amps, 115 v. AC, 50-60 cps.  
**Fairchild Model 670 Stereo Limiter—Net Each... \$1695.00**  
**Fairchild Model 660 Single Channel Limiter—Net... 995.00**



Model 670



Model 676A

## MODEL 676A EQUALIZED DISC PLAYBACK PREAMPLIFIER

Equalized disc playback preamplifier for use with virtually any magnetic phono cartridge. Offers more than sufficient gain for present or future phono pickups. Employs silicon transistors to accurately and properly compensate for the NAB curve in record playback. Designed with minimal amount of controls to eliminate operating problems. Lack of de-emphasis switch assures continuous operating quality of broadcast station transmitters without high frequency overload; for lab use, however, a subminiature switch can be easily installed to deactivate the de-emphasis network. **Gain:** 70 db max. at 1 kc; 1 mV will produce +10 dbm out. **Frequency Response:** Within .75 db NAB, 30-15,000 cps. **Output Level:** +14 dbm max. **Distortion:** 0.25% at +14 dbm. **Noise:** 60 db below +10 dbm out with input of 5 mV at 1 kc. **Input Impedance:** 47,000 ohms. **Output Impedance:** 20 ohms emitter-follower. **Power Required:** 18 mA at 18VDC. **Size:** 1 1/2" w. x 7 1/2" d. x 5 1/4" h.

**Fairchild Model 676A Disc Preamp—Net Each... \$125.00**  
**Fairchild Model 676A-2 Stereo Disc Preamp—In top plate mounting; size, 6" w. x 7 1/2" d. x 6" h. Net Each... \$225.00**  
**Fairchild Model 676B Tape Preamp—Net Each... 140.00**  
**Fairchild Model 676B-2 Stereo Tape Preamp—Net... 275.00**

## MODEL 673 DYNALIZER

Automatic dynamic equalizer continually introduces a dynamic loudness curve similar to the Fletcher Munson curve into an audio channel. As level drops, low and high frequency ends of the audio range are boosted to create "apparent loudness", without constricted, monotonous sound or harmonic distortion. For use in broadcasting, PA systems, recording, background music systems, etc. **High End Boost:** 10 db max. **Low End Boost:** 14 db max. **Input Impedance:** Up to 1000 ohms. **Output Impedance:** Up to 50K ohms. **Levels Accommodated:** -20 to +20 dbm. **Insertion Loss:** 17 db. **Controls:** Threshold; High Frequency Response. **Power Required:** 6.3 v. AC or 9 v. DC at 150 ma. **Size:** 7" w. x 4 1/2" d. x 1 1/2" h.



**Fairchild Model 673 Dynalizer—Net Each... \$199.00**  
**Fairchild Model 673ST Stereo Dynalizer—Net Each... 435.00**  
**Fairchild Model 683 Dynalizer—With line amplifier and power supply. Net Each... \$399.00**

## CONAX 600 SERIES AUDIO CONTROL DEVICES



A new concept in limiting devices, especially developed for use in systems with treble pre-emphasis such as disc recording and FM/TV sound transmission.

Its action is instantaneous and inaudible for most program material; allows 4 to 6 db higher cuttings or transmitting levels. Also effective in tape and optical recording. **Input Impedance:** 600/150 ohms each channel. **Output Impedance:** 800/150 ohms, each channel. **Input Level:** +4 VU or +8 VU. **Output Level:**

+4 VU or +8 VU (no overload before +27 dbm). **Frequency Response:** ±1 db, 30-15 kc, normal operating conditions; 2-15 kc roll-off depending on level, instantaneous. **Noise:** ±4 dbm, -70 db. **Distortion:** Less than 1% below filter threshold.

**Fairchild Model 602 Stereo Conax—Net Each... \$595.00**  
**Fairchild Model 600 Single Channel Conax—Net... 395.00**  
**Fairchild Model 600A Single Channel Conax—Optical recording. Net Each... \$395.00**  
**Fairchild Model 601 Single Channel Conax—For mixing stages; 40 db gain. Net Each... \$450.00**

## LUMITEN SERIES NOISE-FREE ATTENUATORS

### LOW IMPEDANCE LUMITENS

Maximum impedance variation of 10% over entire impedance range. Easily installed, with plug-in connector. Fits into existing cutouts for conventional attenuators. **Attenuation Range:** Zero to 70 db, then to infinity; range may be changed anywhere from 25 to 70 db. **Insertion Loss:** 3 db. **Response:** Flat to 100,000 ohms. **Max. Level:** +20 dbm. **Impedance:** 150 or 600 ohms. **Power Required:** 6 volts AC or DC at 300 ma.

**Fairchild Model 668—Vertical slide-type attenuator, 600 ohms. Net Each... \$59.00**  
**Fairchild Model 668-1—Vertical slide-type attenuator, 150 ohms. Net Each... 59.00**  
**Fairchild Model 668ACT—Remote control actuator, 150 or 600 ohms. Net Each... 25.00**  
**Fairchild Model 668RAC—Remote control atten. cell, 600 ohms. Net Each... 39.00**  
**Fairchild Model 668-1RAC—Remote control atten. cell, 150 ohms. Net Each... 39.00**  
 Any of above 668 Lumitens available with Cue position. To order add letter Q to number and \$9.00 to price.

**Fairchild Model 669—Rotary type attenuator, 600 ohms. Net Each... \$49.00**  
**Fairchild Model 669-1—Rotary type attenuator, 150 ohms. Net Each... 49.00**  
**Fairchild Model 669ACT—Remote control actuator, 150 or 600 ohms. Net Each... 10.00**  
**Fairchild Model 669RAC—Remote control atten. cell, 600 ohms. Net Each... 39.00**  
**Fairchild Model 669-1RAC—Remote control atten. cell, 150 ohms. Net Each... 39.00**

### HIGH IMPEDANCE LUMITENS

**Input Impedance:** Accepts 50 or 60 to 100K ohms. **Output Impedance:** 10K ohms and up. **Attenuation Range:** Zero to 70 db. **Insertion Loss:** 2 db, no distortion. **Max. Input:** +20 dbm (40 v. peak). **Power Required:** 6 v. AC or DC at 60 ma.

**Fairchild Model 678—Vertical slide type attenuator. Net Each... \$39.00**  
**Fairchild Model 679—Rotary type attenuator. Net Each... 49.95**  
**Fairchild Model 678HACT—Vertical slide remote control actuator. Net Each... 25.00**  
**Fairchild Model 679HACT—Rotary type remote control actuator. Net Each... 5.95**  
**Fairchild Model 678HRAC—Remote atten. cell for 678HACT, 679HACT. Net. 14.00**



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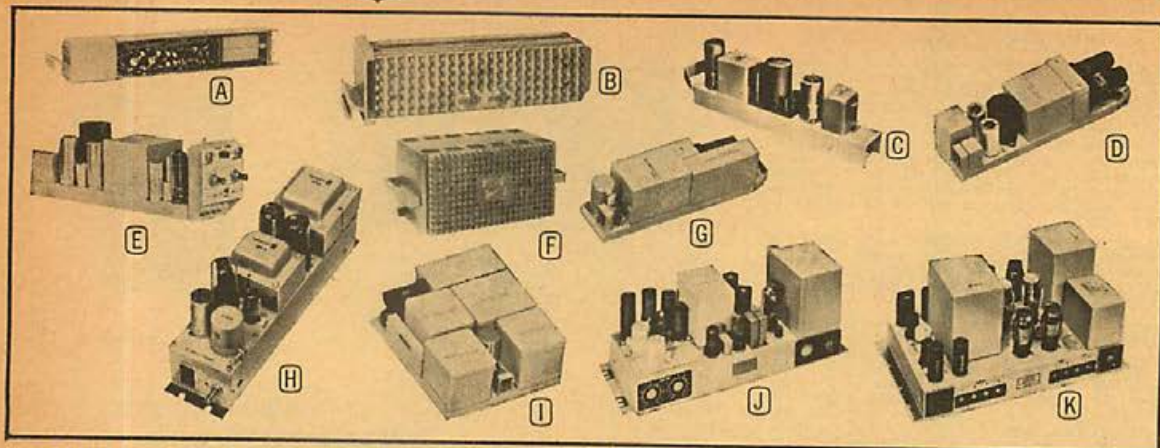
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669

Audio level controls require only a beam of light to vary the gain of an audio circuit. Design guarantees noiseless operation and permits inexpensive and versatile remote control circuits, without use of shielded cable. Only 6 volt AC or DC control voltage is required between the actuator and attenuation cell. More than one circuit can be controlled from one remote control device. Available in high or low impedance, with either rotary or vertical slide-type action. Specify impedance when ordering.





### MINIATURE, LOW LEVEL PLUG-IN AMPLIFIERS

**A Langevin Model AM-16 Solid State Plug-in Preamplifier**—Mike pre-mixing amplifier. Gain 45 db at 1 kc. Noise less than equiv. input -127 dbm, unweighted. Response (at +14 dbm) = 0.5 db, 20-20,000 cps. Harmonic generation less than 0.75%. 30-20,000 cps at +24 dbm, strapped for high power; 0.5% at +18 dbm, low power. Inputs 50, 150 and 600 ohms. Outputs 150 and 600 ohms; strapping on tray or cabinet. Gold-plated plug pins; all silicon transistors; no electrolytics or tubes. Size, \$135.00 1 3/4" w. x 10 1/4" l. x 1 3/4" h. Shpg. Wt., 2 lbs. Net Ea.

**B Langevin Model AM-17 Solid State Program Amplifier**—Also monitor amplifier. Gain 57 db at 1 kc. Noise less than equiv. input -115 dbm, unweighted. Harmonic generation less than 1.0%. 30-20,000 cps at +24 dbm, strapped for high power; 0.5% at +18 dbm, low power. Inputs and outputs 150 and 600 ohms; strap on tray or cabinet for high or low power. Gold-plated pin plugs; all silicon transistors. Size, 4 3/4" w. x 12 3/4" l. \$210.00 x 1 3/4" h. Shpg. Wt., 6 lbs. Net Each.

**Langevin Model TRY-23 Tray**—For AM-16 or PS-221 power supply (see below). Net Each. \$25.00

**C Langevin Model AM-5116-B Plug-in Preamplifier**—Provides 46 db max. gain for all uses up to +24 dbm bus level. Response, = 0.5 db, 20-20,000 cps. Distortion, 0.2% at 1000 cps at +24 dbm (1% IM). Noise = 123 dbm. Input matches all sources. Output, 50/150/200/250/500/600 ohms, balanced, floating. Requires 6.3 v. AC/DC, 0.9 amp filament; 300 v. DC plate. Light gray, baked enamel finish. Size, 1 3/4" w. x 9 1/4" l. x 3 3/4" h. \$126.00 Shpg. Wt., 1 1/2 lbs. With tubes. Net Each.

**Langevin Model TRY-5016 Tray**—For use with above; complete with receptacle. Size, 1 3/4" w. x 9 3/4" l. x 1 1/4" h. Shpg. Wt., 1 lb. Net Each. \$10.50

**D Langevin Model AM-5117 Plug-in Program Booster or Monitor Amplifier**—Matching unit to preamplifier, above; same height. Provides 55 db gain. Input 30/150/600 ohms. Output 150/600 ohms. Input/output CT available. Response, = 0.5 db, 30-15,000 cps. Distortion, below 1% rms total harmonic at 8 W. Noise, -115 dbm. Requires 1.2 amps, 6.3 v. AC/DC filament; 300 v. DC plate. Light gray, baked enamel finish. Size, 2 3/4" w. x 10 1/4" l. x 3" h. Shipping Weight, 5 lbs. With tubes. \$225.00 Net Each.

**E Langevin Model AM-5301 Leveline Plug-in Amplifier**—Matching compressor-limiter to preamplifier, above; same height. Range, 30 db. Can be used as automatic gain control in unattended remote line; or, strapped alternately for monitor. Distortion less than 0.5% total harmonic at +24 dbm; 1% at 6 watts. Response, = 0.5 db, 20-20,000 cps. Gain, 53 db. Input 125-600 ohms, balanced. Output 150-600 ohms, balanced. Noise, less than -115 dbm. Attack time, 11 millsec normal; adjustable to 100 usec. Recovery, 0.5 sec in "dual" position; 3 sec, "average". Requires 1.5 amps, 6.3 v. AC or DC heaters; 90 ma, 300 v. DC as monitor; 50 ma as limiter. Light gray, baked enamel finish. Size, 2 3/4" w. x 10 1/4" l. x 3" h. Shpg. Wt., 5 lbs. Complete \$250.00 with tubes. Net Each.

**Langevin Model TRY-5017 Tray**—For AM-5117 or AM-5301 amplifiers; with plug receptacle. Size, 2 3/4" w. x 9 3/4" l. x 1 1/4" h. Shpg. Wt., 2 lbs. Net Each. \$24.00

### PLUG-IN POWER SUPPLIES

**F Langevin Model PS-221 Power Supply**—10 amps, 24 volts. Protection circuit trips off on overload or short protecting power supply and related amplifier; resets by shut-off of AC for 15 seconds. Use with TRY-23 tray, above. Shipping \$300.00 Weight, 55 lbs. Net Each.

**G Langevin Model PS-222 Power Supply**—3 amps, 24 volts with all the features of PS-221. Write for Price. Net Each. \$13.50

**Langevin Model TRY-7 Tray**—For PS-222. Net Each. \$13.50

**Langevin Model PS-5208-A Power Supply**—Delivers 90 ma, 300 v. DC and 3 amps, 6.3 v. AC. For use with TRY-5017 tray, listed above. Size, 2 3/4" w. x 10 1/4" l. x 3" h. Shpg. \$195.00 Wt., 7 lbs. With 5Z4 tube. Net Each.

**H Langevin Model PS-5206 Power Supply**—Delivers 210 ma, 300 v. DC and 6.5 amps, 6.3 v. AC. Uses TRY-5019 tray, below. Size, 7 3/4" w. x 9 3/4" l. x 3 3/4" h. Shpg. Wt., \$220.00 18 lbs. With two 5Z4 tubes. Net Each.

**Langevin Model TRY-5019 Tray**—For PS-5206, above; complete with plug and mounting hardware. Size, 7 3/4" w. x 9 3/4" l. x 1 3/4" h. Shpg. Wt., 2 lbs. Net Each. \$18.00

**Langevin Model MF-5010 Mounting Frame**—For use with plug-in amplifiers and power supplies in varied combinations. Typical array, seven TRY-5016 and two TRY-5017; one TRY-5019 and three TRY-5017. Fits in 3 1/2" rack multiple; covered by FP-5032 panel, below. Complete with hardware. Size, 19" w. x 13" d. x 3 1/2" h. Shpg. Wt., 6 lbs. Net Each. \$36.00

**Langevin Model FP-5032 Front Panel**—For MF-5010 frame; snaps in place. Formed of rustproof 16 ga. steel; dark gray, baked enamel finish. Size, 19" w. x 3 1/2" h. Shpg. Wt., 1/2 lb. Net Each. \$12.00

### POWER AMPLIFIERS

**I Langevin AM-138 Series 8-Watt Amplifiers**—Provide compact, low noise, low distortion, wide range, dependable performance in continuous duty. Self-contained power supply. Response, = 1.5 db, 30-15,000 cps except AM-138SM, = 1 db. Harmonic distortion, less than 2%. 50-15,000 cps at +39 dbm. Output transformer taps for 4/8/16/150/600 ohms. Supplied with tubes, Hubbel miniature AC plug receptacle, 4- and 10-pin Jones connectors and covers for input/output stages. Size, 3 3/4" w. x 12 3/4" l. x 5 1/4" h. Shipping Weight, 15 lbs.

Langevin Model	Source Impedance	Gain db	Noise db*	Net Each
AM-138SG	Lo-Z mike, 30/150/250/600 ohms	104†	-63	\$204.00
AM-138SK	Disc playback amplifier, 6800 ohms	75.3‡	-52	174.00
AM-138SL	Hi-Z mike or crystal pickup, 1 meg.	77‡	-63	166.50
AM-138SM	Monitor bridging amp., 150/600/5K/20K	58†	-76	159.00

\*Below full output, †600 ohms input and output at 1 kc. ‡Bridging 600 ohms at 1 kc.

**J Langevin Model AM-128X Basic 20-Watt Amplifier**—Allows installation of any one or two of the 4 input panels shown below; permits user to form exact system needed, quickly and easily, without unnecessary extra costs. Load impedance, 2/8/16/32/150/600 ohms nominal. Output power, 43 WU (20 W) output level. Total rms harmonic distortion, 50-15,000 cps, less than 2%. With tubes. Size, 7 3/4" w. x 18 3/4" l. x 7 3/4" h. Shipping Weight, 30 lbs. Net Each. \$270.00

Langevin Model	Description	Gain db	Noise db*	Net Each
INP-A	Line level 600/35,000 ohms; vol. control, -20 dbm level	63†	-78	\$40.50
INP-B‡	Lo-Z, high gain 250 ohm bal./unbal. mike input	115‡	-60	51.00
INP-E	Same as INP-B except hi-Z and unbal. input of 1 meg.	.....	-60	45.00
INP-H‡	Low-level mag. pickup; RIAA equalized for 33 1/3, 45 rpm	§	-55	49.50

\*Below full output, †Matching 600 ohms, ‡Bridging 600 ohms. †Adjustable. ‡With 250K ohm audio taper gain control and tube.

**Langevin No. MG-21A Modification Group**—For rack mounting Model AM-128X amplifier. Includes 7" x 19" mat panel, brackets to remount power switch, pilot light and volume controls. Shpg. Wt., 4 1/2 lbs. Net Each. \$30.00

**K Langevin AM-101-3101 Series 50-Watt Amplifiers**—For dependable high power installations; runs cool and delivers full power in continuous duty cycle. Response, = 2 db, 30-15,000 cps AM-101D; = 2 db, 50-15,000 cps AM-3101B; = 1.5 db, 50-15,000 cps AM-3101E. Distortion, less than 3% total rms, 100-8,000 cps at 50 W. Supplied complete with all required tubes.

Langevin Model	Inputs	Gain, db	Noise, db†	Net Each
AM-101D‡	Line level, 600/25K ohms	60* 45†	-80	\$375.00
AM-3101B	Lo-Z, high gain, 30/250 ohms	104	-57	426.00
AM-3101E	Hi-Z, high gain, 1 meg.	75	-57	420.00

\*Matching. †Bridging. ‡Below full output. †Has conventional 25K volume control on input; others have electronic volume controls which can be rotated.

**Langevin Model MG-7A Modification Group**—For rack mounting AM-101, -3101 amplifiers. Has 12 1/2" mat panel with escutcheon, switch, volume control remount brackets and other hardware. Shpg. Wt., 5 lbs. Net Each. \$27.00





### BROADCAST-QUALITY PROGRAM EQUALIZERS

**L** Langevin Model **EQ-252A** Graphic Program Equalizer—Provides precision quality equalization in recording, TV broadcast, and motion picture studio sound. Employs miniaturized, gold-plated etched circuitry in each of seven plug-in filter units; results in passive assembly requiring no tubes or power supplies. Only input and output connections are necessary. Sliding levers permit 8 db equalization and 8 db attenuation in 1 db steps at 50, 130, 320, 800, 2000, 5000 and 12,500 cps during the program with noise-free switching. Ultra-silent controls give quiet operation at -70 dbm through +24 dbm. Filter assemblies use sealed toroid coils for hum-free operation. Careful design assures  $\pm 1/4$  db accuracy. Overlap from one filter to the next gives combined flat output when levers are in straight line in any equalized or attenuated position. In zero position, each or all filters are flat (resistive only, 16 db loss) from input to output. Impedance: Standard, 600 ohms in and out. Circuit: Bridged-T. Insertion Loss: 16 db. Distortion: Zero. No power required. Black matte escutcheon, engraved. Comes complete with mounting hardware and instructions. Size,  $3\frac{1}{2}'' \times 10'' \times 5\frac{1}{2}''$ . Shpg. Wt., **\$600<sup>00</sup>** 14 lbs. Net Each.

**Langevin Model TF-602C Line-to-Line Transformer**—To work into lower impedances than 600 ohms with above equalizer. Use one on input and one on output. Shpg. Wt.,  $3\frac{1}{2}$  lbs. Net. **\$39.00**

**M** Langevin Model **EQ-255A** Rotary Variable High Pass Filter—Complete with knob and dial. Impedance, 500 to 600 ohms. Eleven positions: 70, 100, 250 and 500 cps; 1, 2, 3, 4, 5 and 7.5 kc as well as "off". No insertion loss; K circuit. Shpg. **\$125<sup>00</sup>** Weight, 3 lbs. Net Each.

**N** Langevin Model **EQ-251A** Program Equalizer—Miniature program equalizer only  $1\frac{1}{4}''$  wide. For corrective equalization in recording and reproduction of sound. Permits mounting adjacent to mixer controls; makes possible multiple installations of several units in close proximity. Improved design has two sliding levers for equalization and attenuation. Perpendicular sliding action functionally better than common rotary types; facilitates reading of knob positions. Adjustable in 2 db steps at specified frequencies; range, 12 db max. equalization to 16 db max. attenuation. Ideal for dubbing and frequency response corrections. Uses passive LCR bridged-T network and does not require power supply or additional connections. Can be inserted directly into a transmission line with only input and output connections. Two rotating cam switches provided on the front panel: Right switch gives high frequency equalization peaks at 3, 5, 10 or 15 kc; left switch gives low frequency equalization peak settings of 40 or 100 cps. Circuit: Bridged-T. Impedance: Standard, 600 ohms in and out. Insertion Loss: 14 db. No power required. Black matte escutcheon, engraved. Comes with mounting hardware and instructions. Chassis parts are nickel plated brass. **\$270<sup>00</sup>** Size,  $1\frac{1}{2}'' \times 3\frac{1}{4}'' \times 5\frac{1}{2}''$ . Shpg. Wt., 3 lbs. Net Each.

**O** Langevin Model **EQ-255B** Rotary Variable Low Pass Filter—Complete with knob and dial. Impedance, 500 to 600 ohms. Eleven positions: 10, 8, 6, 5, 4, 3, 2 and 1 kc; 500 and 250 cps; "off". No insertion loss; K circuit. Shipping Weight, **\$135<sup>00</sup>** 3 lbs. Net Each.

### ROTARY AND STRAIGHT LINE STEREO PAN POTS

Pan pots are precision controls for positioning the source by intensity; employed to change the position of one section of the recording field to another. Either the two-channel or three-channel units can also be used to pick up a monophonic source and place it in any geometrical position in the final stereo recording or reproduction. Provides 16 steps for smooth transition throughout the audible range of control. Rate of attenuation is precise, and conforms to exact calculations governing angular displacement in the sound field with change in level. The circuit configuration of the two-channel units are ganged to permit -3 db point of each control to occur at zero degrees. For three-channel units, the point of -3 db occurs at 60° each side of zero or center. At either 120° position, the extreme opposite channel is at infinite attenuation. Pan pots are available with up to 360° fields, rotary or straight line types, ladder circuits.

**P** Langevin Model **RPP-200T** Rotary Pan Pot—Rotary panoramic divider for mixing a single channel into two. Has "T" configuration with no insertion loss. Rotation 240°; -3 db at 0°. Special, geometrically accurate taper. Impedance, 600 ohms in and out. Size,  $2\frac{1}{4}''$  dia. x  $1\frac{1}{2}''$  lg. With K-108 knob **\$42<sup>00</sup>** and special dial. Shipping Weight, 1 lb. Net Each.

**Q** Langevin Model **RPP-300T** Rotary Pan Pot—Similar to Model RPP-200T, but for dividing a single channel into three. Size,  $2\frac{1}{4}''$  dia. x  $2\frac{3}{8}''$  lg. Shipping Weight, 1 lb. **\$72<sup>00</sup>** Net Each.

**Langevin Model D-111 Dial Plate**—Use with Model RPP-200T rotary pan pot. Engraved black on satin anodized aluminum; standard color code for geometry: Recordist left blue; **\$33<sup>00</sup>** right red. Size,  $2\frac{3}{4}''$  dia. x  $1\frac{1}{2}''$  thick. Net Each.

**Langevin Model D-112 Dial Plate**—For Model RPP-300T rotary pan pot. Same as D-111, but recordist left channel (blue), infinite attenuation at 0° center; right channel (red), opposite; and, center channel (white) is zero attenuation center and infinite attenuation at extreme right and extreme left. Net Each **\$3.30**

**Langevin Model K-108 Knob**—For use with any rotary pan pot above. Specify color when ordering: Black, red, white, blue, green or yellow. Size,  $2\frac{1}{2}''$  dia. x  $1\frac{1}{4}''$  h. Net Each **\$2.50**



**R** Langevin Model **SPP-200T** Straight Line Pan Pot—For mixing one channel into two. Ladder type with 12 db insertion loss and 180° field. Location of -3 db point at 0°; 90° at extreme right and left. Sixteen steps used per section. For horizontal placement. Supplied with red knob. Size,  $6\frac{1}{4}'' \times 1\frac{1}{2}'' \times 2\frac{1}{2}''$  d. **\$108<sup>00</sup>** Shpg. Wt., 1 lb. Net Each.

**Langevin Model SPP-300T** Straight Line Pan Pot—For mixing one channel into three. Ladder circuit with three-gang elements and 12 db insertion loss. Left range tapers from zero attenuation to infinite in center at 0°; right side of control is opposite. Center ganged control is zero attenuation at 0° with infinite attenuation at extreme right or left of center line. Same physical **\$162<sup>00</sup>** details as SPP-200T. Wt.,  $1\frac{1}{2}$  lbs. Net Each.

**Langevin Model SPP-200T-EW Escutcheon**—For Model SPP-200T straight line pan pot. Engraved black on satin anodized aluminum. Recordist left track colored blue; right track, red; -3 db point is at 0° center; infinite attenuation at 90° each **\$45<sup>00</sup>** side of center. Size,  $7'' \times 1\frac{1}{2}'' \times \frac{1}{8}''$  thick. Net Each.

**Langevin Model SPP-300T-EW Escutcheon**—For use with SPP-300T pan pot. Same as SPP-200T-EW escutcheon but left channel (blue) infinite at 0° center; right (red) is opposite; and, center channel (white) is zero attenuation at center and infinite **\$55<sup>00</sup>** at extreme right and left. Net Each.

### ROTARY MIXER ATTENUATORS

**STU** Single, double and triple gang mixers for two-channel or three-channel stereo use supplied in two diameters. Printed circuit used for precision and uniformity. Solder terminals, rear. Sealed against dust, moisture and corrosion. Come with knob and dial; available with or without detents and cue position. Impedance, 600 ohms in and out; 150, 200, 250, 500 and 600 ohms available. No extra charge, some models. Single unit  $1\frac{1}{2}''$  long; two-gang,  $\frac{3}{4}''$  long; three-gang,  $\frac{4}{8}''$  long. RMX-201, RMX-203 are  $1\frac{1}{4}''$  and all others,  $2\frac{3}{8}''$ . When Ordering: Specify if impedance other than 600 ohms and if detents are desired.

No. RMX-	No. Steps	Db/Step	Circuit	Loss	Net Each		
					Single*	2-Gang*	3-Gang*
201	20	2	Unbal. Ladder	6 db	\$22.50	\$ 40.50	\$ 59.00
203	32	1 1/2	Unbal. Ladder	6 db	36.00	67.50	90.00
205	45	1	Unbal. Ladder	6 db	48.00	91.50	135.00
202	20	2	Bal. Ladder	6 db	45.00	87.00	129.00
204	32	1 1/2	Bal. Ladder	6 db	60.00	117.00	174.00
209	45	1	Bal. Ladder	6 db	67.50	132.00	195.00
601	20	2	Bridged T	0 db	36.00	57.00	102.00
602	32	1 1/2	Bridged T	0 db	45.00	87.00	129.00
625	45	1	Bridged T	0 db	69.00	132.00	
612	20	2	Potentiometer		18.00	33.00	46.50
624	30	1 1/2	Potentiometer		27.00	48.00	70.50
618	32	1 1/2	Potentiometer		28.50	54.00	79.50

\*Prefix shown is single-gang type; for two-gang add suffix 2 when ordering (example: RMX2012); for three-gang add suffix 3. If no knob is desired, so specify, and deduct \$1.50 from price. If no dial desired, so specify and deduct \$1.00 from price.

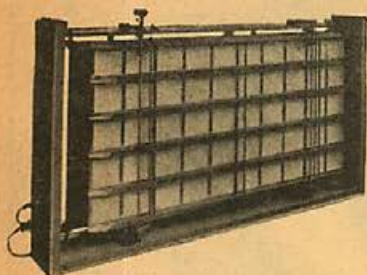
**Cue Circuits**—Use prefix RMXQ- to order (examples: RMXQ201, RMXQ2012, etc.). Add to Net per cue **\$3.00**



# Professional Audio Equipment

## EMT BROADCAST EQUIPMENT

### EMT 140 REVERBERATION UNIT



Vibrating metal plate in free suspension, with a dynamic exciter circuit and piezoelectric contact pickup cartridge. A true, natural echo is provided by the dying down of vibration notes, sounding more natural than echo chambers of usual size. The reverberation period is controlled by a parallel sliding damping plate. Built-in exciter and equalization amplifier. Suitable for

radio, TV, film and recording studio use as a superior replacement for echo-rooms. The EMT 140 reverberation generator can be conveniently located, because of its low radiation and low sensitivity to outside sounds; several units can be operated next to one another without interference. Distortion-free output; no coloration of original sound. Gradual decay of reverberation—not as is obtained with tape devices. Adaptable for either special effect, symphonic or jazz music. **Reverberation Time:** Variable from 0.5 to 5 seconds. Line level in and out. **Power Required:** 117 v. AC, 60 cps. **Size:** 1' x 8' x 4 1/2'. **Weight:** 376 lbs.

Model EMT 140st Stereo Reverberation Unit—Net. **\$2690.00**

Model EMT 140stFB Stereo Remote Control Version—Net Each. **\$3500.00**

Model EMT 140F Remote Control Conversion—Net **710.00**

Model EMT 140B Remote Control Panel—Net Ea. **70.00**

### EMT 940 FOUR-SPEED TURNTABLE

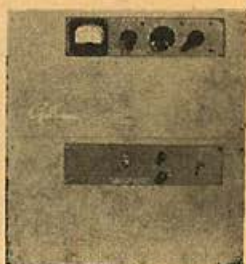


Heavy cast iron main turntable, perfectly balanced; auxiliary felt covered turntable with neon illuminated strobe markings. For 12" tone arms (cartridge and tone arm not supplied). With tone arm lift and lowering device, mechanical brake. Accurate back-up angles for cuing. Run-up time, 0.4 sec. Conversion kit available for remote control brake operation. **Wow and Flutter:** Less than 0.04% rms.

EMT 940 Turntable—Net Each. **\$595.00**

## GOTHAM/GRAMPIAN FEEDBACK DISC CUTTING SYSTEM

Basic monophonic disc cutting system used in hundreds of recording studios. Includes Gotham PFB 150WA 150-watt power amplifier with RIAA equalizer and Gramplan "D" cutter head wired for stylus heat. **Frequency Response:** ±2 db, 30–15,000 cps overall. **Overall Distortion:** Less than 2% at 7 cm./sec. recorded level. **CUTTER-HEAD:** Internal feedback winding for reduced distortion, flat response and improved stability. Damped with Dow Corning silicone fluid. Universal mounting for all cutting lathes. **AMPLIFIER:** Supplied complete in every detail of equalization, pre-emphasis and level correction for all three speeds, ready for use without recalibration or experimentation. Front panel equalization control for switching to standard speed equalization, plus individual screwdriver adjustments for each position; range from -10 to +6 db at 15 kc. Direct indicating, 750 ma plate current meter. **Gain:** 46 db at 1000 cps, in flat, 33 1/2 and 45 rpm positions; 53 db in 78 rpm (at 600 ohm input). **Signal-to-Noise Ratio:** -83 db at 1 watt; -105 db at 150 watts. **Damping Factor:** Greater than 40. **Intermodulation:** Less than 1% at 150 watts. **Input Impedance:** 150/600 ohms balanced or unbalanced; 5000 ohms bridging, unbalanced; 2500/10,000 ohms bridging, balanced. **Input Level:** -16 to +4 dbm, 150/600 ohms; zero to +20 dbm, 2500/5000 ohms; +8 to +28 dbm, 10,000 ohms. **Size:** Mounted on two 19" w. x 10 1/2" h. rack panels, 11" d. **Weight:** Amplifier, 39 lbs.; power supply, 68 lbs.



Gotham/Gramplan Disc Cutting System—Net Ea. **\$1490.00**

## GOTHAM TYPE KW LINEAR ATTENUATORS

Plug-in type, with silicone encapsulated contact path. Noiseless and non-sticking. (Guaranteed against noise for five years.) Changeable color coded knobs. Ladder and "T" configurations; potentiometers up to 250,000 ohms. Rated 0.5 db per step, 60% of travel; -85 db before infinity. Up to four channels ganged without increasing width; 0.25 db tracking between channels. Fader travel, 5 1/4"; with mating connector.

Gotham Type KW Attenuator—Net Ea. **\$59.00**

Gotham Type KW/2 Attenuator—Two gang. Net Each. **\$148.00**

Gotham Type KW/4 Attenuator—Four gang. Net Each. **\$270.00**

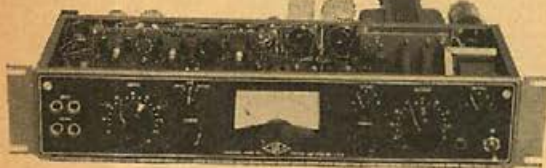


## UNIVERSAL AUDIO PEAK LIMITING AMPLIFIER

### MODEL 175B

An extremely versatile, professional quality peak limiting amplifier designed for use in the recording, broadcasting and motion picture industries as well as other high quality audio systems. Requires only 3 1/2 inches of rack space on standard 19-inch racks. Hinged front panel provides accessibility to inner components. Plug-in type "FP" electrolytic capacitors are used for ease of replacement. Balancing and rebalancing may be accomplished without test equipment; internal test switch is provided. Screwdriver adjustment on front panel allows VU meter to be adjusted with panel closed. VU meter may be switched to indicate input and output level as well as gain reduction in db. Attenuators are detented in 2 db steps, with vernier adjustments in excess of 2 db for each step. All control functions are accessible on the front panel. Terminal strip located on the rear of unit provides a dual means of interconnecting amplifier with another system. Terminal strip can also be used for connecting a remote VU meter. Limit defeat switch is mounted on rear of attack control. **Frequency Response:** ±1 db, 20–20,000 cps, without limiting; ±1 db, 20–20,000 cps, with 5 db limiting. **Signal-to-Noise Ratio:** 80 db. **Impedance:** 600 ohms, input and output unbalanced. **Gain:** 24 db, with jumper in low gain position; 34 db, with jumper in high gain position. **Compression Ratio:** 12 to 1, above threshold of limiting. **Attack Time:** From 100 to 1000 microseconds, adjustable. **Release Time:** From 27 to 527 milliseconds, adjustable. **Power Output:** Less than 1% THD from 50–15,000 cps at 24 dbm, maximum; ±13 dbm maximum at threshold of limiting. **Input Level:** Minimum to accomplish limiting, -12 dbm, jumper in low gain position; -24 dbm, jumper in high gain position. **Tube Complement:** One each: 6BC8, 12AX7, 12BH7, 6AL5, OB2 and GZ34. **Size:** 19" w. x 9 1/4" d. x 3 1/2" h. **Weight:** 17 lbs.

Universal Audio Model 175B Limiting Amplifier—Net **\$425.00**



● MOST COMPACT PROFESSIONAL UNIT AVAILABLE

● MILITARY TYPE PRINTED CIRCUITRY

● COMPLETELY SELF-CONTAINED UNIT WITH POWER SUPPLY



# Professional Recording Equipment

## AMPEX MR-70 SERIES MASTER RECORDERS/REPRODUCERS

- UNSURPASSED PERFORMANCE, RELIABILITY AND OPERATING CONVENIENCE
- ABILITY TO RECORD UP TO EIGHT CHANNELS ON ONE RECORDER
- USES STANDARD 1/4, 1/2 OR 1" TAPES ● COMPATIBLE WITH EXISTING LIBRARIES
- HEAVY DIE-CAST FRAME FOR PERFECT ALIGNMENT OF COMPONENTS
- EASY, FAMILIAR EDITING PROCEDURES ● BUILT-IN SAFETY BRAKING
- OFFER "SOUND-ON-SOUND" RECORDING OR "OVER-DUBBING" CAPABILITY

Precision-made monophonic and stereo masters offering major design innovations to meet the exacting requirements of the recording industry. With today's low noise tapes, an improvement of 10 db in broadband (20-15,000 cps) signal-to-noise ratio is realized; units are capable of even higher ratios with future tape improvements. "Scrape flutter" (FM noise) is virtually eliminated through head assembly design employing a precision idler in the critical unsupported tape path. Components are permanently aligned to rigid, massive heavy-ribbed casting for stable, precise tape motion and tracking. Tape speed is "repeatable" and identical from reel to reel and from day to day. Distortion in the record and reproducer amplifiers is under 1% from 30-15,000 cps. All-nuvistor electronics section uses only two types of military/industrial grade nuvistors for maximum reliability. Operational features include: Variable speed wind/rewind; fully automatic tape lifters; panel pushbutton editing (foot pedal optional) and illuminated pushbutton controls for all functions; drop-down gate for easy access to heads. **Tape Speeds:** Dual track 7 1/2 and 15 or 15 and 30 lps. **Reel Size:** 11 1/2" max.; EIA, NAB or CCIR reels, or hubs. **Input:** 20K ohms unbalanced or Strappable for 150 or 600 ohms, balanced or unbalanced, with nom. line levels of -20 to +12 VU. **Output:** Equalization: Switching automatic by transport speed selector. Choice of curves at each speed provides for NAB, CCIR, or AME (15 lps only); adjustments for other curves in the 17 1/2-100 usec range. **Overall Frequency Response:** ±1 db, 50-15,000 cps or ±2 db, 30-20,000 cps at 15 lps NAB; ±1 db, 50-12,000 cps or ±2 db, 40-15,000 cps at 7 1/2 lps NAB; ±1 db, 50-20,000 cps at 30 lps (17 1/2 usec), full track heads; ±1 db, 100-20,000 cps or ±2 db, 50-20,000 cps at 30 lps (17 1/2 usec), multi-track heads. **Flutter and Wow:** Below 0.05% rms at 15 and 30 lps; 0.08% rms at 7 1/2 lps. **Timing Accuracy:** Better than ±0.15%. **Power Required:** 115 VAC, 60 cps, with selector switch for 105 or 125 VAC. **Size:** Transport, 19" x 24 1/2" x 12" d.; electronics unit, 19" x 5 1/4" x 12" d. per channel; console (4-channel), 29" w. x 29 1/4" d. x 62 1/4" h.

MR-70-4  
Four-  
Channel  
Console



### ACCESSORIES

**Ampex No. 4012107-01 Sel-Sync\* Plug-In Preamp**—Equalized plug-in playback preamp allows recording head to be used as playback head. Incorporates 50 usec post-emphasis characteristics plus compensation for gap loss of record head. One Sel-Sync per channel is required. Net Each. . . \$110.00  
\*Ampex Corp. trademark.

**Ampex No. 4012121-01 Editing Foot Pedal**—Leaves operator's hands free during editing in "Stop", "Play" or "Fast" modes. Net Each. . . \$29.50

### NOTE

Standard models for 115 VAC, 50 cps, or 230 VAC (with selector switch for 220 or 240 V) 50 or 60 cps operation available at same prices. Special six and eight-channel models (1" tape width) also can be supplied. Write for complete information.

### STANDARD MR-70 SERIES TAPE RECORDERS

All with inline heads. Available in single-channel (full track), two, three or four channels, and in dual-speed 7 1/2 and 15 or 15 and 30 lps models.

Ampex Model	Channels	Tape Width	Tape Speeds (lps)	Playback Azimuth	Unmounted		Console	
					Catalog No.	Net Each	Catalog No.	Net Each
MR-70-1	One	1/4"	7 1/2 and 15	Variable	4017011-01	\$4450.00	4017011-03	\$4900.00
MR-70-1	One	1/4"	7 1/2 and 15	Fixed	4017011-05	4500.00	4017011-07	4950.00
MR-70-1	One	1/2"	15 and 30	Variable	4017011-09	4450.00	4017011-11	4900.00
MR-70-1	One	1/2"	15 and 30	Fixed	4017011-13	4500.00	4017011-15	4950.00
MR-70-2	Two	1/4"	7 1/2 and 15	Variable	4017012-01	5750.00	4017012-03	6250.00
MR-70-2	Two	1/4"	7 1/2 and 15	Fixed	4017012-05	5800.00	4017012-07	6300.00
MR-70-2	Two	1/2"	15 and 30	Variable	4017012-09	5750.00	4017012-11	6250.00
MR-70-2	Two	1/2"	15 and 30	Fixed	4017012-13	5800.00	4017012-15	6300.00
MR-70-2	Two	3/4"	7 1/2 and 15	Fixed	4017012-17	5950.00	4017012-19	6450.00
MR-70-2	Two	3/4"	7 1/2 and 15	Variable	4017012-21	5950.00	4017012-23	6450.00
MR-70-3	Three	3/4"	7 1/2 and 15	Fixed	4017013-05	7000.00	4017013-07	7700.00
MR-70-3	Three	3/4"	7 1/2 and 15	Variable	4017013-09	6950.00	4017013-11	7650.00
MR-70-3	Three	1"	15 and 30	Fixed	4017013-13	7000.00	4017013-15	7700.00
MR-70-3	Three	1"	15 and 30	Variable	4017013-17	7200.00	4017013-19	7900.00
MR-70-3	Three	1 1/4"	15 and 30	Fixed	4017013-21	7200.00	4017013-23	7900.00
MR-70-4	Four	1/4"	7 1/2 and 15	Variable	4017014-01	8250.00	4017014-03	8950.00
MR-70-4	Four	1/4"	7 1/2 and 15	Fixed	4017014-05	8300.00	4017014-07	9000.00
MR-70-4	Four	1/2"	15 and 30	Variable	4017014-09	8250.00	4017014-11	8950.00
MR-70-4	Four	1/2"	15 and 30	Fixed	4017014-13	8300.00	4017014-15	9000.00
MR-70-4	Four	3/4"	7 1/2 and 15	Fixed	4017014-17	8500.00	4017014-19	9200.00
MR-70-4	Four	1"	15 and 30	Fixed	4017014-21	8500.00	4017014-23	9200.00

## ALTEC LANSING RECORDING COMPONENTS

### MODEL 1567A MIXER AMPLIFIER

For PA and broadcast applications or as a remote, portable mixer. Four low-level, one high-level inputs with individual volume controls plus a master gain control. Facility provided for accessory VU meter. Two outputs: Main for hi-Z load or low-Z using 15095 plug-in transformer; second for signal to tape recorders is unaffected by master gain or tone controls. Exceeds FCC requirements for AM and FM broadcasting. Model 12866 portable case available. **Frequency Response:** ±1 db, 30-15,000 cps. **Gain:** 97 db max., channels 1-4; 55 db max., channel 5. **Source Impedance:** 30/50 ohms; 120/200 ohms using plug-in mike transformer. **Noise Level:** -68 dbm, master gain control closed. **Controls:** Five Mixer Gains, Master Gain, Bass, Treble, Illumination, VU Range and Power. **Tubes:** 3-12AX7, 1-6CG7. **Power Required:** 20 watts, 117 v. AC, 60 cps. **Size:** 19" w. x 5 1/4" h. x 6 3/4" d. Shipping Weight, 24 lbs. **\$189.00**

Altec Lansing Model 1567A—Dark green finish. Net Each. . . . .

### ACCESSORIES FOR 1567A

Altec Lansing Model 12862 VU Meter Assembly—Net Each. . . . .	\$27.00
Altec Lansing Model 12864 Phono Equalizer Assembly—Net Each. . . . .	5.25
Altec Lansing Model 12863 XL Connector Assembly—Net Each. . . . .	27.00
Altec Lansing Model 12866 Portable Carrying Case—Net Each. . . . .	50.00
Altec Lansing Model 4722 Plug-In Mike Transformer—Net Each. . . . .	12.75
Altec Lansing Model 15095 Plug-In Line Transformer—For 150/600 ohms line impedance. Net Each. . . . .	\$12.00

### MODEL 438C COMPRESSOR AMPLIFIER

Designed for PA use but valuable in broadcast, recording and communication applications. Provides high gain preamplification plus complete automatic compression line amplifier. Assures high intelligibility, free from "blasting". A 600-ohm line bridging input is supplied for other sources. Proper balancing of both sources results in automatic "fading" of background material during paging. Serves as a simple mike preamplifier without compression by removing the 6AL5 tube from the circuit. Conveniently hinged front panel. **Gain:** 90 db, mike input; 40 db, bridging 600-ohm line. **Compression:** 30 db. **Power Output:** +19 dbm at 30 db compression; +24 dbm as straight amplifier. **Frequency Response:** ±1.5 db, 40-10,000 cps. **Source Impedance:** 30/50 ohms, mike; 20,000 ohms unbalanced, bridging input. **Load Impedance:** 150 and 600 ohms. **Noise Level:** -50 dbm output, gain control at min. **Controls:** Gain; AC power switch; Threshold; Release Time. **Attack Time:** 50 milliseconds. **Harmonic Distortion:** Less than 1.5%, 35-15,000 cps at 25 db compression; 2.5%, 35-10,000 cps at 30 db. **Tubes:** 1-12AY7, 1-6BC8, 1-6CG7, 1-6AL5. **Power Required:** 22 watts, 115 v. AC, 60 cps. **Size:** 19" w. x 3 3/4" h. x 8" d. Shipping Weight, 17 lbs. **\$199.00**

Altec Lansing Model 438C—Dark green finish. Net Each. . . . .



1567A



438C

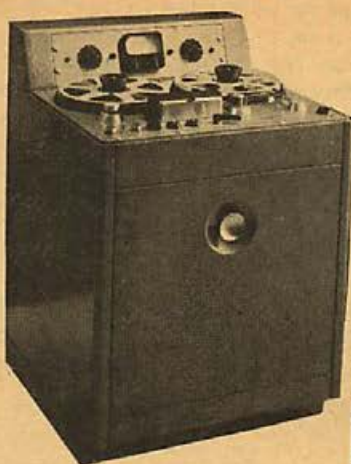


# Tape Recorders, Duplicators

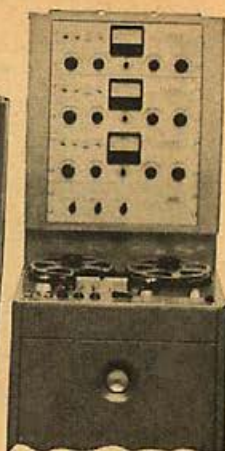
## SERIES 300 MASTER RECORDERS/REPRODUCERS

Unexcelled performance verified by the continued domination of these units in the professional master recording industry. Available in single or multi-channel models (2 to 8 channels), up to three equalizations and a variety of mounting types. Transport uses three precision, heavy-duty motors; takes reels up to 14" dia.; tapes to 1" wide. Rigid unit assembly virtually eliminates flutter and wow; massive flywheel, precision capstan drive and long tape path assure no skewing. Starts and stops instantaneously. Recessed button control prevents accidental action. Fast/slow start switch permits "on" and "stand-by" capstan motor operations; provision made for remote control. Precision head alignment assures perfect playback of multi-channel recordings without phase shift between channels. Exclusive "Sel-Sync" optional feature provides switching to convert any of the heads to serve as temporary playback while others are still recording; permits sound-on-sound recording and other special effects. A-B switch allows monitoring by VU meter, headphones plugged into front panel, or by line-connected studio monitor circuit. **Tape Speeds:** 7 1/2"/sec. and 15"/sec. **Frequency Response:** ±2 db, 40-12,000 cps at 15"/sec.; ±2 db, 40-12,000 cps at 7 1/2"/sec. **Flutter and Wow:** Less than 0.1% rms at 15"/sec.; 0.15% rms at 7 1/2"/sec., measured 0-300 cps. **Noise Ratio:** 60 db, full track; 55 db, multi-track, measured when erasing signal of peak recording level in absence of new signal, 50-15,000 cps. **Equalizations:** NAB 7 1/2"/sec. and 15"/sec. selected by speed on single channel unit; NAB 7 1/2", NAB 15 or AME 15 switch selected on multi-channel units. **Inputs:** Balanced or unbalanced +4 VU bridging, single channel; plus switch selected low-Z mike or bridging input on multi-channel units. **Controls:** Start, Stop and Record pushbuttons, relay operated; Play, Fast Forward and Rewind on Selector; separate button on Multi-Channel units energizes record relay for that channel only; remote control optionally available. **Outputs:** 600 ohm, +4 VU balanced or unbalanced, single channel; 600 ohm, +8 VU or +4 VU by restrapping, balanced or unbalanced, multi-channel. **Power Required:** 117 v. AC, 60 cps; 50 cps available on special order to Ampex International Operations.

Write for Prices for Special Speeds (1 1/2"-30"/sec.), Heads and Extra Channels (Up to 8).



300-C



300-3SSC

### TAPE RECORDERS

Ampex Model	Mounting	Tape Width	Tracks, Channels	Net Each
300-U	Uncased	1/2"	Full track, single channel	\$2395.00
300-C	Console	1/2"	Full track, single channel	2630.00
300-2U	Uncased	1/2"	Two-channel	2750.00
300-2C	Console*	1/2"	Two-channel	3200.00
300-3U	Uncased	1/2"	Three-channel	3500.00
300-3C	Console*	1/2"	Three-channel	3950.00
300-3SSU	Uncased	1/2"	Three-channel with Sel-Sync	3800.00
300-3SSC	Console*	1/2"	Three-channel with Sel-Sync	4250.00
300-4SSU	Uncased	1/2"	Four-channel with Sel-Sync†	4650.00
300-4SSC	Console	1/2"	Four-channel with Sel-Sync†	4975.00

\*Includes integral electronics rack. †Available without Sel-Sync®; deduct \$400.00 from prices shown.

### CABINETS AND MANUALS

Ampex Model	Description	Net Each
565-00	Single channel recorder cabinet	\$238.00
565-08	Console plus 3-channel electronics housing	375.00
30874-01	Electronics housing, only, for 3 channels	175.00
TM-2013	Single channel operation, maintenance manual	7.00
TM-2005	Multi-channel operation, maintenance manual	7.00

## SERIES 3000 TAPE DUPLICATORS

### 3200 SYSTEM

- MAKES UP TO 10 DUPLICATES AT ONE TIME
- POSITIVE, FLEXIBLE CENTRAL CONTROL
- SIMPLE PUSHBUTTON OPERATION



Duplicates high quality tapes at low cost in either single or mass production runs. Meets the demands of audio engineers, broadcast technicians, educators and other critical users for high quality sound. A full system using a double-track master and ten slave recorders can reproduce in 8 minutes the material that would require 20 hours using two standard recorders. Provides simultaneous duplication of both tracks of a double track tape. Identical quality of the duplicated material is assured once the proper duplicating level is determined; tested and proved by thousands of hours of successful commercial operation. Low cost duplication obtained by low set-up time, high duplicating speed, simultaneous use of ten slaves, simplified quality control and the long lived nature of the equipment. The basic system consists of a master playback unit, master amplifier panel, master bias oscillator, master control panel and one duplicating recorder; additional slaves may be added at any time up to a maximum of ten. **Features:** Simultaneous control by master panel of all components. Pushbutton start; full speed attained in 5 to 10 seconds. Master unit and each slave equipped with full controls. Any slave may be stopped or started during duplication without affecting operation of others. All operations are meter-monitored. Handles reels up to

14" dia. Duplicates single or double-track masters in one pass of the tape. Produces 1200 hours of playback material in an 8-hour work day. Runs master tapes "backward" to eliminate need for rewinding duplicates before using. **Tape Speeds:** 30"/sec. and 60"/sec. **Frequency Response:** ±2 db, 50-5,000 cps (±4 db, 50-7,500 cps) for 3 1/2"/sec. duplicate from 3 1/2" or 7 1/2"/sec. master; ±2 db, 50-15,000 cps for 7 1/2"/sec. duplicate from 7 1/2" or 15"/sec. master. **Signal-to-Noise Ratio:** Duplicates exceed 55 db in 7 1/2"/sec. master, made at either 30" or 60"/sec. speed from 15" or 7 1/2"/sec. masters. **Controls:** Central Start, Stop and Record for all units from master control panel; Optional individual controls for each unit; Tape Speed, Reel Selector, Power Switch, Pilot Light, Rewind/Fast Forward/Play selector for each unit. **Monitoring:** Individual metering jacks for each head circuit for use with VTVM and audio oscillator. **Head Assemblies:** Plug-in type with two half-track play heads (one only is used for single-track duplication) for master; plug-in type with two half-track and one full-track heads for recording. **Power Required:** 115 v. AC, 60 cps; 50 cps available at no extra charge if specified. **Size:** 25 1/2" x 26" x 30 1/2" h. with rack extending 23" above top plate, consoles; 49" rack space, master; 3 1/2" rack space, master oscillator; 8 1/2" rack space, master amplifier panel; 3 1/2" rack space, master control panel; 29 1/2" rack space, each duplicating recorder.

Ampex Model 3201-C Master Playback Unit No. 16295-03—To drive 1-10 slaves; with electronics housing; operates \$4950.00 at 30"/sec. and 60"/sec. Net Each.....

Ampex Model 3202-C Slave Console Unit No. 16294-03—Operates at same speeds as playback master for re-recording. Net Each.....\$2550.00

Ampex No. TM-2008 Manual—Operation and maintenance manual for 3200 System. Net Each.....\$7.00

### 3300 SYSTEM

Identical to above system except designed for duplicating 4-track 1/2" tape onto 4-track 1/4" tape. Four-track operation only. Extra fast master unit has tape speeds of 60"/sec. and 120"/sec. Slaves operate at 30"/sec. and 60"/sec. All other features and specifications same as for 3200 System.

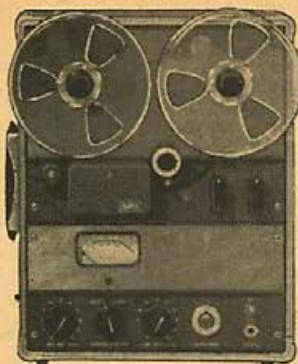
Ampex Model 3301-C Custom Master Unit—Available in console cabinet or uncased version. Custom-made to order only. Specify if to feed over 5 slaves. Price, delivery and availability on request.

Ampex Model 3302-C Slave Console Unit No. 30636-01—Operates at 30"/sec. and 60"/sec. for simultaneous recording \$2775.00 for 4-track 1/4" tape. Net Each.....

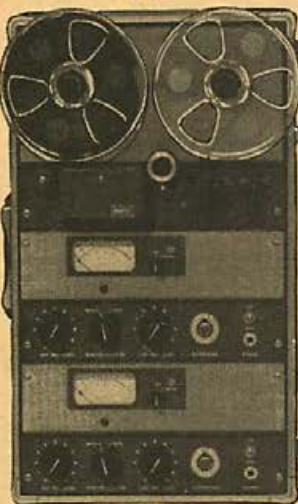
Ampex No. TM-2007 Manual—Operation and maintenance manual for 3300 System. Net Each.....\$7.00



## SERIES 602 COMMERCIAL/PROFESSIONAL FIELD RECORDERS



602-1



602-2

- ALL NEW ELECTRONICS • SILICON DIODE RECTIFIERS FOR COOL OPERATION
- IMPROVED TRANSPORT • BUILT-IN LOW IMPEDANCE MIKE TRANSFORMER
- HYSTERESIS-SYNCHRONOUS DRIVE MOTOR
- RECORD/SAFE SWITCH ON EACH CHANNEL • VERSATILE, PORTABLE, DEPENDABLE
- DC FILAMENT FOR LOW NOISE OPERATION
- REDESIGNED CLUTCHES GIVE UP TO 10 TIMES LONGER LIFE

Versatile instrument offers full portability without compromising its reliability for professional studio performance. Improved version of the famous Ampex 600 Series, this field recorder delivers dependable, versatile recording and playback facilities for the most discriminating user. Available in two channel stereo, or monophonic models and matching speaker/amplifier to meet every field or studio requirement. Carry it with you; or rack mount it for custom installation. Superior electronics permits monitoring tape or source while recording with separate heads and amplifiers for record and playback. Separate mixing controls for mike and line; two mikes can be mixed on one channel with accessory plug-in preamp in line circuit. Facility to feed 600-ohm remote broadcast line; built-in low impedance mike transformer. Cool operation by use of silicon diode rectifiers; DC filament holds noise to a minimum. Professional 3" VU meters permit monitoring during recording or playback. Sturdy parts and high quality components assure reliable operation under rugged operating conditions. Electronic adjustments accessible through "window" in rear of portable case. Improved transport employs hysteresis-synchronous drive motor; may be operated either horizontally or vertically. Redesigned clutches give up to 10 times longer life. Actually costs less per hour than low quality recorders due to fewer adjustments and parts replacements. Easy-to-carry, durable case is lightweight; single channel model weighs only 28 lbs. **Full one-year warranty on all parts.**

### SPECIFICATIONS

**Frequency Response:**  $\pm 2$  db, 40-10,000 cps at  $3\frac{3}{4}$ " /sec.; down no more than -4 db at 15,000 cps.  $\pm 2$ , -4 db, 40-8,000 cps at  $3\frac{3}{4}$ " /sec. **Flutter and Wow:** Less than 0.17% at  $7\frac{1}{2}$ " /sec.; less than 0.25% at  $3\frac{3}{4}$ " /sec., ASA standard. **Signal-to-Noise Ratio:** Over -57 db Model 602-1 with full track head; -55 db, half-track head. Model 602-2, over -55 db at  $7\frac{1}{2}$ " /sec. **Timing Accuracy:**  $\pm 0.2\%$  at  $7\frac{1}{2}$ " /sec. ( $\pm 3.6$  sec. in 30 minute recording). **Tape Speeds:** Separate models for  $7\frac{1}{2}$ " /sec. and  $3\frac{3}{4}$ " /sec.; both with fast forward and rewind (90 sec. for 1200-ft. reel). **Reel Size:** Up to 7". **Inputs:** Each channel has two with individual gain controls: Low-Z mike requires 150  $\mu$ v from either the input source or tape playback while recording. All have Cannon XIL connectors. Provision for use of plug-in balanced line or bridging input transformers. Line input may be used for second mike with accessory plug-in preamplifier. **Equalization:** For 117 v. AC, 60 cps models:  $7\frac{1}{2}$ " /sec., NAB;  $3\frac{3}{4}$ " /sec., 120  $\mu$ sec. For 115/230 v. AC, 50 cps models:  $7\frac{1}{2}$ " /sec., NAB or CCIR;  $3\frac{3}{4}$ " /sec., 120 or 200  $\mu$ sec. **Outputs:** Each channel:  $\pm 4$  dbm into 600 ohms, balanced or unbalanced; headphone jack on front panel with monitor selector knob for monitoring from either the input source or tape playback while recording. **Power Required:** Model 602-1, 70 VA; Model 602-2, 105 VA. Standard models 117 v. AC, 60 cps; 115/230 v. AC, 50 cps also available. **Size:** Transport area  $9\frac{1}{4}$ " x  $12\frac{1}{2}$ "; electronic top area,  $6\frac{1}{2}$ " x  $12\frac{1}{2}$ " (two on Model 602-2); depth, 5" below top plate. Overall with case: Model 602-1, 8" x  $13\frac{1}{2}$ " x  $16\frac{1}{2}$ "; Model 602-2, 8" x  $13\frac{1}{2}$ " x  $23$ ". Weight, 28 lbs., Model 602-1; 42 lbs., Model 602-2.

### STANDARD MODELS

For 117 v. AC, 60 cps operation. Uncased and full-track versions of  $3\frac{3}{4}$ " /sec. model available on special request.

**Ampex Model 602-1 Portable, Catalog No. 602-01** ( $7\frac{1}{2}$ " /sec.,  $\frac{1}{2}$ -track), **No. 602-02** **\$62500** ( $7\frac{1}{2}$ " /sec., full-track) or **No. 602-17** ( $3\frac{3}{4}$ " /sec.,  $\frac{1}{2}$ -track) **Monophonic Recorder**—Net.

**Ampex Model 602-1 Uncased, Catalog No. 602-03** ( $7\frac{1}{2}$ " /sec.,  $\frac{1}{2}$ -track) or **602-04** ( $7\frac{1}{2}$ " /sec., full-track) **Monophonic Recorder**—Less case. See accessories, below, for rack mount adapter. Net Each..... **\$57500**

**Ampex Model 602-2 Portable, Catalog No. 6022-01** ( $7\frac{1}{2}$ " /sec., 2-track) or **6022-07** ( $3\frac{3}{4}$ " /sec., 2-track) **Stereo Recorder**—Two complete channels in portable case. Net Each..... **\$87500**

**Ampex Model 602-2 Uncased, Catalog No. 6022-02** ( $7\frac{1}{2}$ " /sec., 2-track) **Stereo Recorder**—Less case. See accessories, below, for rack mount adapter. Net Each..... **\$79500**

### MODEL 622 SPEAKER/AMPLIFIER

Combined 8" speaker and 10 watt amplifier in matching portable case for use with above 602 Series recorders. Controls include volume, bass-treble, power switch and on-off indicator light. Concentric pin type audio input connector; built-in AC power outlet. External speaker jack automatically cuts out the built-in speaker and reciprocal network, delivering flat amplifier output to an external speaker. Single control on front panel provides boosting bass and attenuating treble, or vice versa; maximum boost 6 db, relative to opposite end. Special design 8" speaker gives full range frequency response. **Frequency Response:** Essentially flat, 65-10,000 cps. **Power Output:** 10 watts without audible harmonic distortion; speaker can handle full power. **Impedance:** Inputs, 100K ohms; output, 12 ohms to external speaker. **Power Required:** 55 watts, 0.5 amp, 117 v. AC, 50 or 60 cps. **Size:** 13" x 10" x 8", in portable case. Weight, 25 lbs. U/L Approved.

**Ampex Model No. 622 Portable Speaker/Amplifier**—Net Each..... **\$18950**



622

### SERIES 602 TAPE RECORDER ACCESSORIES

**Ampex Model 89-0080 Operation and Maintenance Manual**—For all 602 Models. Net Each..... **\$8.00**

**Ampex Model 89-0099 Operator's Guide for 622 Amplifier/Speaker**—Net Each..... **\$1.00**

**Ampex Model 820 Head Demagnetizer**—Net Each..... **9.95**

**Ampex Model 823 Head Cleaner**—4 oz. can. Net Each..... **1.45**

**Ampex Model 825 Lubricating Oil**—In plastic offer. Net..... **.95**

**Ampex Model 854 Portable Case**—For all single-channel models. Net Each..... **\$59.50**

**Ampex Model 855 Portable Case**—For all 2-channel stereo models. Net Each..... **\$89.50**

**Ampex Model 864 Rack Mount Adapter**—Permits installing all 1-channel models in standard 19" rack. Takes  $17\frac{1}{2}$ " vertical space when installed. Net Each..... **\$17.50**

**Ampex Model 865 Rack Mount Adapter**—Same as 864, but for all 2-channel stereo models. Takes  $23\frac{1}{4}$ " vertical space when installed. Net Each..... **\$25.00**

**Ampex Model 894 Professional Accessory Kit**—Includes head cleaner, demagnetizer, motor oil and Q-tips. Net Each..... **\$12.50**

**Ampex Model 897 Minor Hardware Kit**—Net Each..... **11.95**

**Ampex Model 830 Alignment Tape**—Designed for alignment on full track,  $7\frac{1}{2}$ " /sec. Net Each..... **\$21.95**

**Ampex Model 831 Alignment Tape**—Designed for alignment on full track,  $3\frac{3}{4}$ " /sec. Net Each..... **\$21.95**

**Ampex Model 835 Alignment Tape**—Designed for alignment of tracks 1 and 3 on 4-track tape at  $7\frac{1}{2}$ " /sec. Net Each..... **\$21.95**



# Tape Recorders, Tapes

## SERIES PR-10 PORTABLE RECORDERS



- WORLD'S MOST ADVANCED PROFESSIONAL RECORDER
- MONOPHONIC AND STEREO-MONOPHONIC MODELS
- PLUG-IN PREAMPS, EQUALIZERS
- 4-POSITION, 2-CHANNEL MIXER

The first fully-portable, 2-speed compact recorder with professional studio features and quality. Exclusive electro-dynamic clutch system introduces smoothest tape handling mechanism ever designed; faster, gentler, starts without throwing tape loops; lower operating and braking tensions permits use of thin-base tapes; gives maximum tape-to-head contact without pressure pads. Four-position head assembly with separate erase, record and playback heads for long life; extra position for optional, 4-track stereo playback or special requirements. Plug-in equalizers provide easy selection of NAB (supplied) or AME curves. Front-panel accessibility to all bias, level and equalization alignment controls. Positive pushbutton control at relay-solenoid operation permits full remote control. Automatic shut-off switch releases pressure roller and brake solenoids. Large, continuous duty, hysteresis synchronous motor for horizontal or vertical operation. Compact electronics include "record-safe" switch, "A-B" monitor switches and hi-lo speed equalization switches. Record selector on 2-channel model selects A, A and B, or B; permits half track stereo, or parallel track monophonic and sound-on-sound recording. Two track heads permit conversion to two-channel, two-track stereo without changing heads. Write for available information on four-track playback head installed on any PR-10-1 or PR-10-2, complete with integral switch for two or four-track playback selection. Two 3" side-by-side VU meters give simultaneous reading and balancing of channels. Mounts in standard 19" rack in only 14" of space.

### SPECIFICATIONS

Guaranteed minimum performance specifications listed are based on accurate measurement and professional standards for long range usage. **Speeds:** 7 1/2" and 15" sec.; or, 3 3/4" and 7 1/2" sec. **Frequency Response:** 20-6,000 cps at 3 3/4" sec.; 40-12,000 cps at 7 1/2" sec.; 40-6,000 cps at 15" sec. **Signal-to-Noise Ratio:** Better than 55 db at 7 1/2" and 15" sec.; 50 db at 3 3/4" sec. **Flutter and Wow:** Less than 0.15% rms 15" sec.; 0.18% rms at 7 1/2" sec.; 0.25% at 3 3/4" sec. **Timing Accuracy:** ±0.25% at 7 1/2" sec.; ±0.40% at 3 3/4" sec. **Output:** +4 dbm into 600-ohm balanced or unbalanced load. Cannon XL connectors. Single and 2-channel headphone jacks provided. **Inputs:** Single Channel Model—Low-Z mike and unbalanced bridging with provisions for plug-in balanced bridging transformers (or low-Z plug-in mike preamp). Two-Channel Model—One unbalanced bridging input per channel with provision for plug-in balanced bridging or low-Z plug-in mike preamp. Model MX-10 accessory mixer designed to feed unbalanced bridging inputs. **Power Required:** 117 v. AC, 60 cps. **Size:** 8 3/4" x 19" rack space for transport; 5 1/4" x 19", electronics. Weight, 53 lbs. portable.

**AmpeX Model PR-10-1 Single Channel Recorder 96001-11 (Full-Track) or 96001-03 (Two-Track)—Unmounted; for \$1045.00**  
 3 3/4" and 7 1/2" sec. Net Each.....

**AmpeX Model PR-10-1 Single Channel Recorder 96001-09 (Full-Track) or 96001-01 (Two-Track)—Unmounted; for \$1045.00**  
 7 1/2" and 15" sec. Net Each.....

## AMPEX LABORATORY-STANDARD

AmpeX alignment tapes are the standard of the recording and broadcast industry, used by development labs, service depots, recording and broadcast studios throughout the world. All are recorded on the finest AmpeX mastering equipment by skilled engineers working under laboratory conditions.

All signal information on AmpeX alignment tapes is an original recording, not a duplication. Exclusive with AmpeX, this procedure holds deviations from standard to an absolute minimum; assures maximum uniformity from one tape to another.

AmpeX standard alignment tapes are made to agree with published standards of appropriate technical organizations (NAB, CCIR) and are available for various speeds, tape widths and track requirements.

**Custom Alignment Tapes:** Also available on a special order basis to meet various manufacturers, R & D and service organizations needs. Typical tapes include: Manufacturer's checkout tapes; tapes used for development of heads, recorders, etc.; and tapes to complement special machines. Inquiries for your special requirements are invited.

### CALIBRATED FLUTTER TEST TAPE

Provides program of 600 ft. of 3 kc signal at 2 db above operating level. With meter calibration segment.

AmpeX Number	Tape Speed	Description	Net Each
31336-01	3 3/4"	30 min. playback time, 1/4" tape	\$21.95
31326-01	7 1/2"	15 min. playback time, 1/4" tape	21.95
31316-01	15"	7 1/2 min. playback time, 1/4" tape	21.95

- AmpeX Model PR-10-1 Single Channel Recorder 96001-36 (Full-Track) or 96001-34 (Two-Track)—Portable mount—\$1125.00**  
 ing; for 3 3/4" and 7 1/2" sec. Net Each.....
- AmpeX Model PR-10-1 Single Channel Recorder 96001-35 (Full-Track) or 96001-33 (Two-Track)—Portable mount—\$1125.00**  
 ing; for 7 1/2" and 15" sec. Net Each.....
- AmpeX Model PR-10-1 Single Channel Recorder 96001-40 (3 3/4" and 7 1/2" sec.), 96001-17 (7 1/2" and 15" sec. NAB) or 96001-18 (7 1/2" and 15" sec. CCIR)—Full-track; unmounted. \$1095.00**  
 Multi-volt; 50 cps. Net Each.....
- AmpeX Model PR-10-2 Two-Channel Recorder 96000-03 (3 3/4" and 7 1/2" sec.) or 96000-01 (7 1/2" and 15" sec.)—\$1245.00**  
 Unmounted stereo-monophonic recorder-player. Net
- AmpeX Model PR-10-2 Two-Channel Recorder 96000-18 (3 3/4" and 7 1/2" sec.) or 96000-17 (7 1/2" and 15" sec.)—\$1325.00**  
 Two-track; portable mounting. Net Each.....
- AmpeX Model PR-10-2 Two-Channel Recorder 96000-04 (3 3/4" and 7 1/2" sec.), 96000-02 (7 1/2" and 15" sec. CCIR) or 96000-09 (7 1/2" and 15" sec. NAB)—Two-Track; unmounted stereo-monophonic recorder-player. Multi-volt, 50 cps. \$1295.00**  
 Net Each.....
- AmpeX Model PR-10-4 Two-Channel Recorder 4018004-01 (Quarter-Track) with four- and two-track playback. Signal-to-noise ratio better than 55 db at 3 3/4" and 7 1/2" sec. \$1295.00**  
 Unmounted. Net Each.....
- AmpeX Model PR-10-4 Two-Channel Recorder \$1375.00**  
 4018004-03—Same as above, but portable. Net Ea.
- AmpeX Model PR-10-4 Two-Channel Recorder 4018004-06—\$1345.00**  
 Same as Model 4018004-01, except multi-volt version, 50 cps. Unmounted. Net Each.....
- AmpeX Model PR-10-4 Two-Channel Recorder 4018004-08—\$1425.00**  
 Same as above model, but portable. Net Each.....

### ACCESSORIES AND CASES

- AmpeX Model MX-10 Stereo/Monophonic Two-Channel Mixer 96900-01—Four low-Z mike and two high level bridging inputs; each feeds channel A, A and B or B by switch selection. Facilities for coupling up to four MX-10 mixers provided. Matches design and finish of PR-10. Size, 5 1/4" x 19". Unmounted. \$395.00**  
 Net Each.....
- AmpeX Model 622 Speaker-Amplifier 01-0622—Ideal companion to PR-10 Series, 602 Series and other portable recorders. Gives studio sound in compact size. Matched 8" speaker, \$189.50 enclosure and 10-watt, push-pull amplifier. Net Each.**

AmpeX Number	Description	Net Each
15-0200-01	Portable PR-10 case	\$ 75.00
96940-01	Portable case for PR-10 and MX-10	125.00
96015-01	4-track play head, mtg. hardware and switch	79.50
96121-01	7 1/2" NAB/15" NAB record equalizer	9.90
96120-01	3 3/4" NAB/7 1/2" NAB record equalizer	9.90
96122-01	7 1/2" NAB/15" AME record equal. for PR-10-1	9.90
96111-03*	3 3/4" (120 usec) / 7 1/2" NAB reproduce equalizer	9.90
96110-03*	3 3/4" (120 usec) / 7 1/2" NAB reproduce equalizer	9.90
96112-03*	7 1/2" NAB/15" AME reproduce equal. PR-10-1	14.50
96114-03*	3 3/4" (200 usec) / 7 1/2" NAB reproduce equalizer	9.90
96510-01	Remote control with 30' cable	85.00
96520-01	Panel mount version remote, less cord	57.50
58-0116-01	Plug-in bridging input transformer	14.50
58-0116-02	Plug-in matching 600-ohm transformer	14.50
96440-01	Plug-in 40 db mike preamplifier	45.00
96440-04	Plug-in 60 db mike preamplifier	60.00

\*For full track units change suffix to -05 (example: 966111-05). †Specify 120 or 200 usec. ‡For Models PR-10-1 and PR-10-2.

## ALIGNMENT AND TEST TAPES

### CALIBRATED LEVEL SET TAPE

Provides program of 400 ft. of 700 cps signal at operating level.

AmpeX Number	Tape Speed	Description	Net Each
31325-01	7 1/2"	10 min. playback time, 1/4" tape	\$17.50
31315-01	15"	5 min. playback time, 1/4" tape	17.50

### ALIGNMENT TAPE

**Common Program Sequence, Nos. 31311-01, 31312-01, 31313-01, 31311-05, 31312-05:** Operating level 700 cps, 15 secs.; 15 kc, 30 secs.; 12 kc, 10 kc, 7.5 kc, 5 kc, 2.5 kc, 1 kc, 500 cps, 250 cps, 100 cps, 50 cps and 30 cps for 10 secs. each. **Nos. 31321-01, 31323-01, 31321-04 and 31321-05:** 10 db below operating level, 700 cps, 15 secs.; 15 kc, 30 secs.; 12 kc, 10 kc, 7.5 kc, 5 kc, 2.5 kc, 1 kc, 500 cps, 250 cps, 50 cps for 10 secs. each; operating level, 700 cps, 15 secs. No. 31321-04 has additional first signal 3 kc tone for one minute at operating level for vertical head adjustment. **Nos. 31331-01 and 31334-01:** 10 db below operating level 500 cps, 15 secs.; 7.5 kc, 30 secs.; 5 kc, 20 secs.; 2.5 kc, 1 kc, 500 cps, 250 cps, 100 cps and 50 cps for 10 secs. each; final 500 cps at operating level for 15 secs.

AmpeX Number	Tape Speed	Description	Net Each
31331-01	3 3/4"	1/4" full track, 120 usec.	\$21.95
31334-01	3 3/4"	1/4" full track, 200 usec.	21.95
31321-01	7 1/2"	1/4" full track, 60 usec.	21.95
31321-04	7 1/2"	1/4" full track, 50 usec.	21.95
31311-01	15"	1/4" tracks 1 & 3 (of 4), 50 usec.	21.95
31312-01	15"	1/4" full track NAB, 50 usec.	21.95
31312-01	15"	1/4" full track AME	21.95
31321-05	7 1/2"	1/4" full track, 50 usec.	21.95
31311-05	15"	1/4" full track NAB, 50 usec.	21.95
31312-05	15"	1/4" full track AME	21.95



AMPEX

# Recorders/Reproducers

## NEW AG-350 SOLID STATE TAPE RECORDERS/REPRODUCERS

A series of professional units designed for trouble-free continuous duty operation in the most exacting applications. Cover all monophonic and stereo recording and playback requirements where quality, reliability, economy and low maintenance are "musts". Widely used in broadcasting, recording studios, industry, medicine, business, government and defense. The rugged, dependable tape transport retains the time-proven qualities of the previous Ampex 350 Series but incorporates a number of additional features for greater operator efficiency and convenience. The completely redesigned, more compact electronics unit is 100% solid state for cool operation and low power consumption; the plug-in transistors

used are readily available and easily replaced. Special head-gate design allows wider opening for easier editing, cleaning and threading. Equalization is automatic... switching is done when tape speed is selected. Head assembly has ferrite-type erase head, individually mu-metal shielded record and playback heads, and nonwearing, glass tape lifters. Large, easy-to-read VU meters have selectors reading input, tape level, bias and erase current; necessary electronic adjustments can be made from the front panel. Units offer a host of other features to maintain professional recording excellence. Available in dual-speed 7 1/2 and 15 ips or 3 3/4 and 7 1/2 ips models.



Model AG-350-2  
Two-Channel Console

**Tape Speeds:** 7 1/2 and 15 ips, or 3 3/4 and 7 1/2 ips. **Tape Width:** Standard 1/2" tape. **Reel Size:** 10 1/2" max. **Overall Frequency Response:** ±2 db, 30-18,000 cps at 15 ips; ±2 db, 40-10,000 cps (+2, -4 db, 30-15,000 cps) at 7 1/2 ips; ±2 db, 50-7,500 cps at 3 3/4 ips. **Flutter (ASA Z57.1-1954 standard):** Below 0.11% rms at 15 ips; 0.14% rms at 7 1/2 ips; 0.18% rms at 3 3/4 ips. **Signal-to-Noise Ratio:** 60 db full track and 55 db two track at 15 and 7 1/2 ips; 55 db full track and 50 db two track at 3 3/4 ips (peak record level to unweighted noise; includes bias, erase and playback amplifier noise). **Record Input:** 100K bridging; 20 dbm to produce recommended operating level. **Equalization:** NAB (CCIR curves available on special order). **Start Time:** Tape at full speed in less than 1/10 sec. **Stop Time:** Tape moves less than two inches after pressing stop button (at 15 ips). **Playback Timing Accuracy:** ±0.2% (=3.6 sec in 30 min. recording time). **Rewind Time:** Approx. 1 min. for 2400-ft. NAB reel; 30 sec for 1200-ft. EIA reel (thin base tapes proportionately longer). **Electronic Adjustments:** (Front Panel) Equalization; reproduce level; record level; reproduce calibration; record calibration; bias adjustment. **Power Required:** 117 VAC, 2 amps for single channel, 2.5 amps for two channels. **Size:** Console, 24 3/4" w. x 27 3/4" d. x 52" h.; rack-mount transport, 19" x 15 1/2"; rack-mount electronics, 19" x 5 1/2" (two electronics required for two-channel stereo).

Ampex Model	Catalog Number	Mode	Track	Speeds (ips)	Mounting	Net Each
AG-350-1	4010035-01	Mono	Full	7 1/2 and 15	Unmounted	\$1750.00
AG-350-1	4010035-05	Mono	Full	7 1/2 and 15	Portable	1870.00
AG-350-1	4010035-03	Mono	Full	7 1/2 and 15	Console	2075.00
AG-350-1	4010035-13	Mono	Full	3 3/4 and 7 1/2	Unmounted	1750.00
AG-350-1	4010035-17	Mono	Full	3 3/4 and 7 1/2	Portable	1870.00
AG-350-1	4010035-15	Mono	Full	3 3/4 and 7 1/2	Console	2075.00
AG-350-1	4010035-07	Mono	Half	7 1/2 and 15	Unmounted	1750.00
AG-350-1	4010035-19	Mono	Half	3 3/4 and 7 1/2	Unmounted	1750.00
AG-350-2	4010036-01	Stereo	Two	7 1/2 and 15	Unmounted	2345.00
AG-350-2	4010036-05	Stereo	Two	7 1/2 and 15	Portable	2475.00
AG-350-2	4010036-03	Stereo	Two	7 1/2 and 15	Console	2670.00
AG-350-2	4010036-07	Stereo	Two	3 3/4 and 7 1/2	Unmounted	2345.00
AG-350-2	4010036-11	Stereo	Two	3 3/4 and 7 1/2	Portable	2475.00
AG-350-2	4010036-09	Stereo	Two	3 3/4 and 7 1/2	Console	2670.00
AG-350-2	4010036-13	Stereo	Two*	7 1/2 and 15	Unmounted	2395.00
AG-350-2	4010036-19	Stereo	Two*	3 3/4 and 7 1/2	Unmounted	2395.00
AG-350-2	4010036-15	Stereo	Two*	7 1/2 and 15	Console	2720.00
AG-350-2	4010036-21	Stereo	Two*	3 3/4 and 7 1/2	Console	2720.00

\*With four-position head.

## NEW AG-355 SOLID STATE TAPE REPRODUCERS

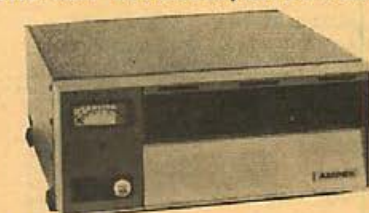
Employ the same basic tape transport as the AG-350 Series Recorders/Reproducers, but contain playback facilities only. Series AG-355 electronics are also completely solid state. One-channel reproducers have full-track or half-track head; two-channel models have two-track reproduce head assembly, or two-track and four-track switchable head assembly. **Playback Frequency Response:** ±1 db, 50-10,000 cps (±1 1/2 db at 15 kc) at 15 ips; ±1 db, 50-10,000 cps (±2 db at 12 kc) at 7 1/2 ips; ±1 db, 50-5,000 cps (±2 db at 7.5 kc) at 3 3/4 ips. **Playback Output:** +8 dbm into 600 ohms, restrapable for +4 dbm, balanced or unbalanced; maximum of +28 dbm before clipping. See AG-350 Series Recorders/Reproducers for other specs.

Ampex Model	Catalog Number	Mode	Track	Speeds (ips)	Mounting	Net Each
AG-355-1	4010037-01	Mono	Full	7 1/2 and 15	Unmounted	\$1325.00
AG-355-1	4010037-03	Mono	Full	7 1/2 and 15	Console	1595.00
AG-355-1	4010037-13	Mono	Full	3 3/4 and 7 1/2	Unmounted	1325.00
AG-355-1	4010037-15	Mono	Full	3 3/4 and 7 1/2	Console	1595.00
AG-355-1	4010037-07	Mono	Half	7 1/2 and 15	Unmounted	1325.00
AG-355-1	4010037-09	Mono	Half	7 1/2 and 15	Console	1595.00
AG-355-1	4010037-19	Mono	Half	3 3/4 and 7 1/2	Unmounted	1325.00
AG-355-1	4010037-21	Mono	Half	3 3/4 and 7 1/2	Console	1595.00
AG-355-2	4010038-13	Stereo	Two	7 1/2 and 15	Unmounted	1525.00
AG-355-2	4010038-15	Stereo	Two	7 1/2 and 15	Console	1820.00
AG-355-2	4010038-19	Stereo	Two	3 3/4 and 7 1/2	Unmounted	1525.00
AG-355-2	4010038-21	Stereo	Two	3 3/4 and 7 1/2	Console	1820.00
AG-355-2	4010038-01	Stereo	Two and four	7 1/2 and 15	Unmounted	1595.00
AG-355-2	4010038-03	Stereo	Two and four	7 1/2 and 15	Console	1890.00
AG-355-2	4010038-07	Stereo	Two and four	3 3/4 and 15	Unmounted	1595.00
AG-355-2	4010038-09	Stereo	Two and four	3 3/4 and 15	Console	1890.00

AG-350/AG-355 SERIES ACCESSORIES AVAILABLE INCLUDE MODEL MX-10 STEREO/MONO MIXER, REMOTE CONTROL UNITS, PLUG-IN EQUALIZERS AND PLUG-IN INPUT UNITS. WRITE FOR PRICES.

## NEW AG-100 CUE-MATIC® MAGNETIC MAT RECORDER/REPRODUCER

Introduces a new concept in short-duration monophonic recording and playback for recording studios, radio stations, advertisers and their agencies. Offers easy operation, day-in day-out dependability of performance, easy maintenance, and improved recording quality at lower cost. Cue-Matic utilizes an 11 1/4" magnetic mat instead of reel-to-reel tape; mat is easily slipped into the front of the recorder and automatically cued. Cue time runs from under 1/2 to 5 seconds maximum depending on position of cue slot on mat; timing is operator controlled. Maximum playing time is 3 3/4 minutes, excellent for individual spots, complete 45's or LP album excerpts. Indicator lights show Cue, Ready, and Run modes. Safety device prevents accidental recording. Automatic, inaudible 30-cps tone at end of recording releases mat, and may be used to start a second Cue-Matic or other equipment, or to re-cue the same mat. All solid state electronics. **Recording/Playing Time:** 3 min., 45 sec. **Timing Accuracy:** ±0.2%. **Flutter and Wow:** Below 0.15% rms. **Start Time:** Approximately 0.1 sec. **Cuing Time:** .5 to 5 sec., operator controlled. **Frequency Response:** ±3 db, 70-12,000-cps during first minute, to ±3 db, 70-10,000 cps at max. record/play time. **Signal-to-Noise Ratio:** 60 db. **Power Required:** 105-125 volts, 60 cps, single phase (50 cps models available). **Size:** 19" w. x 17" d. x 7" h. Can be mounted in standard 19" rack with brackets. Weight, 65 lbs.



Model AG-100 Cue-Matic



Cue-Mat

### CUE-MATIC ACCESSORIES

**Ampex Cue-Mat® No. 672-EGLLJY Magnetic Recording Mat**—11 1/4" diameter, 3-mil polyester mats coated with a special random-oriented magnetic formulation. Maintains all the broadcast quality sound requirements and durability of tape. Can be quickly bulk erased. Includes one pressure-sensitive label per mat. Package of 50.....\$22.50  
**Ampex No. 4010045-01 Accessory File Case**—Provides convenient index and file system for 100 to 200 magnetic recording mats. Includes 100 dividers. Net Each.....\$19.50  
 \*Ampex Corp. trademark.



# Ampex Replacement Parts

## 300/350/351/354 SERIES SPARE PARTS

Ampex Number*	Description	Prof. User Net Price
4030127-10	Capstan Assembly 15, 30, 60 lps	5140.00
4030127-30	Capstan Assembly 7 1/2, 15 lps	95.00
4030127-40	Capstan Assembly 3 3/4, 7 1/2 lps	95.00
4100131-10	Capstan Dust Cap 1 1/2"	10.00
4100131-30	Capstan Dust Cap 3/4"	12.00
4440247-10	Capstan Felt Washer-Dust Seal	.20
430-050	Capstan TRU-ARC Retainer	.35
4030118-10	Capstan Idler Assembly 7 1/2, 15 lps	20.00
4030118-80	Capstan Idler Assembly 3 3/4, 7 1/2 lps, 3/4"	20.00
33-0106-01	Capstan Idler Arm	15.00
4200126-10	Capstan Idler Arm Bearing	9.10
4300063-10	Capstan Idler Solenoid	11.00
4270176-10	Capstan Solenoid Return Spring	.30
4270162-10	Capstan Idler Adjusting Spring	.15
4030131-05	Drive Motor 60 cps 3 3/4, 7 1/2 lps	150.00
4030131-08	Drive Motor 60 cps 7 1/2, 15 lps	150.00
4030131-07	Drive Motor 60 cps 15, 30 lps	150.00
4030131-12	Drive Motor 60 cps 7 1/2, 15 lps	160.00
4030131-11	Drive Motor 60 cps 15, 30 lps	160.00
4270179-10	Drive Motor Return Spring-Console	.55
4270180-01	Drive Motor Return Spring-Rack	.70
4590063-10	Drive Motor Solenoid	11.00
4270175-10	Drive Motor Pressure Adjusting Spring	.20
4030113-40	Take Up Assembly-Complete, 3/4"	160.00
4030115-40	Rewind Assembly-Complete, 3/4"	160.00
4030114-10	Take Up Brake Assembly, 3/4"	49.00
4030114-30	Take Up Brake Assembly, 3/4"	49.00
4030114-20	Rewind Brake Assembly, 3/4"	31.00
4030114-40	Rewind Brake Assembly, 3/4"	49.00

### Parts common to Take Up and Rewind Assembly

85-0050-01	Motor Assembly	5130.00
4040414-10	Brake Band-Raybestos	2.80
85-0070-01	Brake Band-Felt	3.50
4270164-10	Brake Band Leaf	.45
4590067-10	Brake Solenoid	4.30
4330116-10	Turntable	7.00
4130105-10	Turntable Pad-Cork	.35
4030135-20	Rotary Tape Guide, 3/2"	38.00
4040469-10	Reel Guard-10 3/2"	5.70
4110172-10	Reel Guard-14"	3.50
4030111-60	Take Up Tension Arm, 3/2"	39.00
4030111-10	Take Up Tension Arm, 1 1/2"	32.00
4210183-20	Tape Guide, Tension Take Up Arm, 3/2"	4.40
4210183-10	Tape Guide, Tension Take Up Arm, 1 1/2"	4.60
4230158-10	Hook Guide, Tension Take Up Arm	1.30
4040407-15	Reel Idler Assembly 7 1/2, 15 lps, 3/4"	63.00
4040407-08	Reel Idler Assembly 7 1/2, 15 lps, 3/4"	60.00
4040407-03	Reel Idler Assembly 3 3/4, 7 1/2 lps, 3/4"	75.00
4290272-10	Base, Reel Idler Assembly	24.00
4040408-50	Reel Idler Pulley 7 1/2, 15 lps	28.00
4040408-10	Reel Idler Pulley 3 3/4, 7 1/2 lps, 3/4"	31.00
4210188-20	Reel Idler Assembly Tape Guide, 3/2"	4.00
4210188-10	Reel Idler Assembly Tape Guide, 1 1/2"	14.60
4250115-10	Reel Idler Flywheel	12.00
43-0032-10	Guard, Record Pushbutton	1.20
4100124-10	Guard, Stop & Start Pushbutton	.40
238-010	Knob, Speed Change	.15
238-002	Knob, Mode Selector	.70
132-005	Pilot Lamp Base, Amber (single track 300)	2.00
132-006	Pilot Lamp Base, Red	2.60
132-011	Pilot Lamp Base, Amber (multichannel 300)	2.70

### Parts common to all Transports

4040590-01	Capacitor, Drive Motor 5MFD	\$ 5.50
4540292-30	Capacitor, Rewind Motor, 60 cps	.85
4540292-10	Capacitor, Take Up Motor, 60 cps	.85
020-006	Relay	5.90
120-062	Switch, Safety	3.40
122-014	Switch, Speed	5.90
120-003	Switch, Power	2.40
122-029	Switch, Mode Selector	13.00
120-014	Switch, Pushbutton, Stop	1.20
120-013	Switch, Pushbutton, Record	1.20
120-025	Switch, Pushbutton, Play	7.60
581-001	Rectifier	8.90

\*If only one part number with same suffix is shown, it is the same for either 3/4" or 1 1/2" equipment.

## 300 MULTICHANNEL 30960-11 AND -12

### ELECTRONIC PARTS—All for 1/4" equipment

Ampex Number	Description	Prof. User Net Price
4050124-01	Power Supply Board	555.00
4050122-06	Record Board	65.00
4050125-03	Reproduce Board	41.00
4590061-01	Relay, Record	14.00
020-066	Relay	5.80
582-031	Rectifier, Bias Coupling Relay	2.30
581-001	Rectifier, Selenium	8.90
4140012-10	Meter, VU	43.00
62-0130	Switch, Rotary Input Transfer	1.60
62-0132-01	Switch, Equalization	3.90
62-0133-01	Switch, Meter and Output	2.90
122-016	Switch, Line Termination	2.80
120-005	Switch, Power	.80
120-013	Switch, Record	1.20
132-003	Light, Record Indicator	1.10
4580022-01	Transformer, Input	28.00
58-0124-01	Transformer, Output	8.30
58-0125-01	Transformer, Power	16.00
4580115-10	Transformer, Oscillator	13.00
4580122-10	Transformer, Microphone	60.00

## 350 SERIES TRANSPORTS—All for 1/4" equipment

Ampex Number	Description	Prof. User Net Price
850049-01	Drive Motor, 7 1/2, 15 lps, 60 cps	\$160.00
850049-05	Drive Motor, 7 1/2, 15 lps, 60 cps	170.00
850049-04	Drive Motor, 3 3/4, 7 1/2 lps, 60 cps	160.00
850049-03	Drive Motor, 3 3/4, 7 1/2 lps, 50 cps	170.00
4040591-02	Drive Motor Capacitor	7.80
4250114-10	Drive Motor Flywheel, Bodine	8.40
4250113-10	Drive Motor Flywheel, Ashland	20.00
591-001	Drive Motor Fan	2.60
4030113-30	Take Up Assembly	160.00
4030115-30	Rewind Assembly	160.00
4040406-20	Capstan Dust Cap 7 1/2, 15 lps	7.80
4040406-10	Capstan Dust Cap 3 3/4, 7 1/2 lps	16.50
4440237-20	Felt Washer	.05
120-014	Switch, Stop	1.20
120-013	Switch, Play, Fast Forward, Rewind	1.20
120-004	Switch, Tape Speed	2.70
120-005	Switch, Reel Size	.50
020-006	Relay	8.90
582-016	Rectifier	8.50

## 300 AND 350 SERIES HEAD ASSEMBLY

### REPLACEABLE PARTS—All for 1/4" equipment

4270166-10	Gate Spring	\$ 0.20
403-006	Gate Pin	.05
4210181-30	Glass Rod—1 1/2" long	.10
4210181-10	Glass Rod—1 1/4" long	.10
4030189-02	Gate—3/4" Tape	39.00
4030189-06	Gate—1 1/2" long	56.00

## ELECTRONICS—All for 1/4" equipment

4050124-01	Power Supply Board	555.00
4050122-01	Record Board 7 1/2, 15 lps	60.00
4050122-02	Record Board 3 3/4, 7 1/2 lps	60.00
4050125-01	Reproduce Board 7 1/2, 15 lps	44.00
4050125-02	Reproduce Board 3 3/4, 7 1/2 lps	45.00
4590061-01	Relay, Record-351	14.00
020-066	Relay, Bias Coupling	5.80
4590088-10	Relay, Record-350	15.00
582-031	Rectifier, Bias Coupling	2.30
581-001	Rectifier, Selenium	8.90
132-003	Lamp, Record Indicator	1.10
4140012-01	Meter, VU	43.00
62-0130	Switch, Input	1.60
62-0131-01	Switch, Equalization	1.30
62-0132-01	Switch, Meter & Output	3.90
122-016	Switch, Line Termination	2.80
120-005	Switch, Power	.80
120-013	Switch, Record	1.20
4040492-10	Hold Down Knob	12.00
4030145-10	Editing Knob	8.25
4330143-10	Reel Centering Adapter	2.00

## TAPE RECORDER/REPRODUCER ELECTRONICS

Ampex Number	Description	Used in Series	Prof. User Net Price
02-0559-01	Basic Electronics, NAB	300-1	\$ 650.00
02-0515-01	Meter Panel		290.00
2-30960-11	Electronics (for HiZ Heads) NAB/AME	300-2/3	550.00
95-0120-01	LoZ Head Adapter (for 30960-11)		49.50
01-0022-01	Sel-Sync Panel with Cables		495.00
2-30960-12	Electronics (for LoZ Heads) NAB/AME	300-4	600.00
01-0027-01	Sel-Sync Panel with Cables		495.00
2-30637-03	Master: Reproduce Amplifier	3200	390.00
2-30638-01	Master: Bias Oscillator		740.00
2-30639-01	Master: 2 Channel Record Amp.		980.00
02-5997-01	Duplicator Switch Panel		115.00
4010060-01	Single Channel, 7 1/2, 15 lps NAB	AG-350-1	595.00
4010060-02	Single Channel, 3 3/4, 7 1/2 lps NAB		595.00
	Master: Same as 350-1 Single Channel	AG-350-2	
4010060-03	Slave: 7 1/2, 15 lps NAB		595.00
4010060-04	3 3/4, 7 1/2 lps NAB		595.00
4010061-01	Single Channel Reproduce Electronics, 7 1/2, 15 lps; 3 3/4, 7 1/2 lps NAB	AG-355-1	290.00
4010061-02	Dual Channel Reproduce Electronics, 7 1/2, 15 lps; 3 3/4, 7 1/2 lps NAB	AG-355-2	560.00
4010059-01	Single Channel, All Speeds, All Equalization	MR-70	1450.00
02-0211-01	7 1/2 lps NAB or 3 3/4 lps (120 msec) 117 V only	602-1	245.00
02-0211-04	7 1/2 lps CCIR or 3 3/4 lps (200 msec) 115/230 V		265.00
02-0211-02	7 1/2 lps NAB or 3 3/4 lps (120 msec) 117 V only; Master	602-2	245.00
02-0211-03	Same, but Slave		230.00
2-96050-01	NAB, 117 V only; Full Track: 7 1/2, 15 lps	PR-10-1	395.00
2-96050-03	Same, but for 3 3/4, 7 1/2 lps		395.00
2-96050-05	NAB, 117 V only; Half Track: 7 1/2, 15 lps		395.00
2-96050-07	Same, but for 3 3/4, 7 1/2 lps		395.00
2-96050-09	CCIR, Multi-Volt; Full Track: 7 1/2, 15 lps		415.00
2-96050-12	Same, but for Half Track		415.00
2-96052-01	NAB, 117 V only; 7 1/2, 15 lps	PR-10-2	525.00
2-96052-03	NAB, 117 V only; 3 3/4, 7 1/2 lps		525.00
2-96052-05	CCIR, Multi-Voltage; 7 1/2, 15 lps		545.00



# Ampex Replacement Parts



## TAPE TRANSPORTS—Power Required 117 V

Ampex Number	Description	Tape Speed Ips	Freq. cps.	Used in Series	Prof. User Net Price
02-7784-02	With 559 Electronics	7 1/2, 15	60	300-1	\$1750.00
02-7784-03	With 559 Electronics	7 1/2, 15	60		1750.00
02-7784-12	With 30960 Electronics	7 1/2, 15	60	300-2	1750.00
02-7784-13	With 30960 Electronics	7 1/2, 15	60		1750.00
02-7784-14	1/2-inch	7 1/2, 15	60	300-3/4	1800.00
02-7784-15	1/2-inch	7 1/2, 15	60		1800.00
02-7870-01	14" Reel Capacity	30, 60	60	3200	1990.00
02-7870-02	14" Reel Capacity	30, 60	60		1990.00
4020254-01		7 1/2, 15	60	AG-350/355	1150.00
4020254-02		7 1/2, 15	60		1150.00
4020254-03		3 3/4, 7 1/2	60		1150.00
4020254-04		3 3/4, 7 1/2	50		1150.00
4020245-03	For Single-Channel*	3 3/4	60	602-1	300.00
4020245-04	For Single-Channel*	3 3/4	50		300.00
4020245-05	For Single-Channel*	7 1/2	60		305.00
4020245-06	For Single-Channel*	7 1/2	50		305.00
02-0210-07	For Stereo*	3 3/4	60	602-2	305.00
02-0210-08	For Stereo*	3 3/4	50		305.00
2-96200-01	For Stereo*	7 1/2, 15	60		695.00
2-96200-02	For Stereo*	7 1/2, 15	50		715.00
2-96200-03		3 3/4, 7 1/2	60	PR-10	695.00
2-96200-04		3 3/4, 7 1/2	50		715.00

\*602 Transports do not include head cover, head shield, head tape guide and associated hardware.

### Notes:

- Transports do not include heads, hold-down knobs, reels, AC power cord or manuals.
- Electronic components do not include any cables, plugs, etc. unless captive or otherwise specified above.
- All components listed are those currently in production, and may not be interchangeable with units delivered earlier. If replacements are desired, consult the appropriate manual.

## HEAD ASSEMBLIES: NEW AND REBUILT

Ampex Number	Description	Used in Series	Prof. User Net Pr.	
			New	Rebuilt
4020475-02	One Channel, Full Track	300	\$220.00	\$135.00
4020475-18	One Channel, Full Track	350	220.00	135.00
4020475-23	One Channel, Full Track	352	145.00	55.00
02-0101-10	One Channel, Full Track	600/601	95.00	.....
4020475-17	One Channel, Half Track	350	210.00	.....
4020475-22	One Channel, Half Track	352	140.00	50.00
02-0101-20	One Channel, Half Track	600/601	95.00	.....
2-30028-01	Two Channel, Full Track Erase	300/350	295.00	195.00
2-30028-02	Two Channel, Split Erase	300/350	325.00	225.00
2-30028-04	Two Channel	352-2	175.00	85.00
2-96200-03	Two Channel ERP and Four Track Play	300/350	395.00	270.00
2-96200-04	Two Channel, Two Track and Four Track Play	352-2	275.00	150.00
02-0102-01	Two Channel	600/601	115.00	.....
2-30471-04	Three Channel, 1/2 inch	300	520.00	395.00
2-31055-01	Four Channel, 1/2 inch	300	700.00	575.00
4020475-26	Duplicator	3201	225.00	120.00
4020475-28	Duplicator	3202	275.00	170.00
2-80000-01	Duplicator	3301	520.00	395.00
2-80001-01	Duplicator	3302	475.00	395.00

## HEAD STACKS

Ampex Number	Description	Used on Series	Prof. User Net Price
4040076-04	Two Channel Play	601, 602	\$ 40.00
4040076-05	Two Channel Record	601, 602	40.00
4040076-06	Two Channel Erase	602	40.00
4040084-10	Full Track Erase	601, 602	30.00
4040084-20	Full Track Record	601, 602	30.00
4040084-30	Full Track Play	601, 602	30.00
4040084-40	Half Track Erase	601, 602	30.00
4040084-50	Half Track Record	601, 602	30.00
4040084-60	Half Track Play	601, 602	30.00
4040438-63	Full Track Erase	300	32.50
4040401-07	Full Track Erase	351	32.50
4040438-65	Half Track Erase	351	32.50
4040426-01	Two Channel, Two Track: Erase	300-2	65.00
4040437-01	Two Channel, Two Track: Play	351-2	70.00
4040437-02	Two Channel, Two Track: Record	354	70.00
4040438-51	Half Track Play	351	40.00
4040438-52	Full Track Play	300	45.00
4040438-53	Lower Half Play	3201	50.00
4040438-54	Upper Half Play	3201	50.00
4040438-55	Full Track Record	300	45.00
4040438-58	Half Track Record	351	45.00
4040438-59	Full Track Record	3202	55.00
4040438-60	Lower Half Record	3202	45.00
4040438-61	Upper Half Record	3202	45.00
4040534-01	Three Channel Play, 1/2-inch	300-3	125.00
4040534-02	Three Channel Record, 1/2-inch	300-3	125.00
4040534-03	Three Channel Erase, 1/2-inch	300-3	115.00
4040558-01	Four Channel Play, 1/2-inch	300-4	180.00
4040558-02	Four Channel Record, 1/2-inch	300-4	180.00
4040564-01	Four Channel Erase, 1/2-inch	300-4	170.00
4040542-01	Tracks 2 and 4 Record	3302	150.00
4040542-02	Tracks 1 and 3 Record	3302	150.00
2-80020-03	Tracks 1 and 3 Play, 1/2-inch	3301	170.00
2-80020-04	Tracks 2 and 4 Play, 1/2-inch	3301	170.00
2-96170-01	Two Channel, Two Track: Play	PR-10	50.00
2-96170-02	Two Channel, Two Track: Record	PR-10	70.00
2-96170-03	Two Channel, Two Track: Erase	PR-10	65.00

## HEAD STACKS—(CONTINUED)

Ampex Number	Description	Used on Series	Prof. User Net Price
2-96170-04	Play	Two channel,	300-2
2-96170-05	Record	4-position	351-2
2-96170-06	Erase	Assembly	354
2-96170-07	Master, Two Channel Play		PD-10
2-96170-08	Duplicator, Two Channel Record		PD-10
2-96192-01	Full Track: Play		PR-10
2-96192-02	Full Track: Record		PR-10
2-96192-03	Full Track: Erase		PR-10
2-96640-02	Two Channel, Four Track: Play		PR-10
4020228-01	Two Channel, Four Track: Play		CL-10, PR-10-4
4020228-02	Two Channel, Four Track: Record		CL-10, PR-10-4
4020228-03	Two Channel, Four Track: Erase		PR-10-4
4040683-10	Two Channel Erase		E-65
4040684-10	Two Channel Play		E-65
4040684-20	Two Channel Record		E-65

## SERIES PR-10 SPARE PARTS

Ampex Number	Description	Prof. User Net Price
4030185-10	Capstan Assembly 3 3/4, 7 1/2 ips	\$120.00
4030185-20	Capstan Assembly 7 1/2, 15 ips	120.00
4030141-10	Capstan Idler Assembly	4.30
4590090-10	Solenoid, Capstan Idler	8.60
4310051-10	Belt, Capstan Drive	3.50
4230121-10	Fork, Speed Shift, 3 3/4, 7 1/2 ips	3.50
4040326-10	Motor Assembly, Drive 7 1/2, 15 ips	120.00
4310052-20	Belt, Clutch Drive	2.60
4040485-02	Supply Arm Assembly (Brake with lining)	1.30
4040485-01	Takeup Arm Assembly (Brake with lining)	1.30
4590018-10	Solenoid, Brake	8.80
4590050-10	Relay, Transport	6.10
4620144-10	Switch, Pushbtn (Forward/Rewind/Play)	1.50
120-138	Switch Safety	1.60
031-016	Capacitor, Electrolytic (80/150 V)	.85
013-339	Diode, 1N2864	1.15
070-019	Fuse, 2 amp, Slo Blo	.20
4130141-10	Pad, Turntable	1.50
4040-045	Resistor, 500 ohms, WW, 30W	8.00
4590090-01	Pulley, Belt Idler	.35
4270187-10	Spring, Safety Switch	2.00
85-0062	Kit, Head Mounting	18.00
4030183-10	Belt, Separator Assembly	2.40
4550133-50	Capacitor, Electrolytic (40/10/450 V)	3.60
4550133-70	Capacitor, Electrolytic (2x40/400 V, 2x60/300 V)	2.60
4550132-60	Capacitor, Electrolytic (4x10/450 V)	4.00
4550132-30	Capacitor, Electrolytic (3x15/450 V)	2.30
4550131-10	Capacitor, Electrolytic (2000/15 V)	31.00
4140013-01	Meter, VU	1.90
4520138-10	Pot. Assembly (Level Control PR-10-2)	1.40
4520138-20	Pot. Assembly (Level Control PR-10-1)	1.40
582-061	Rectifier, 1N607	6.10
4590050-10	Relay, 3PDT	1.50
62-0128-01	Switch, Equalization (Rec-Select PR-10-1)	2.40
62-0128-02	Switch, Equalization (Rec-Select PR-10-2)	2.40
4620147-10	Switch, Slide A-B	.40
4620125-01	Switch, Record-Select	1.60
4580115-10	Transformer, OSC	13.00
4580118-01	Transformer, Output	3.90
2-96170-02	Two Channel Record Head	70.00
2-96170-01	Two Channel Playback Head	50.00

## SERIES 601 AND 602 SPARE PARTS

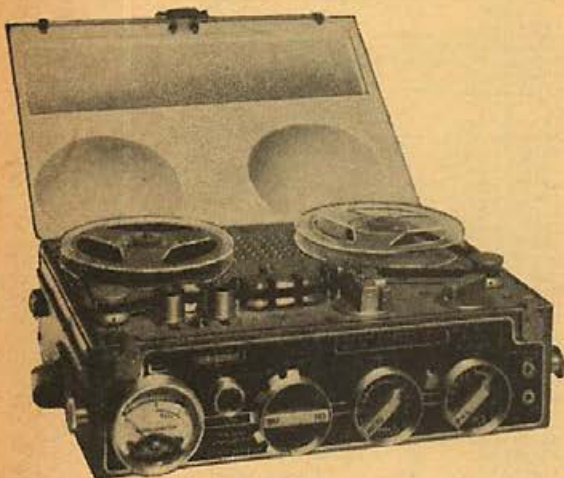
Ampex Number	Description	Prof. User Net Price
4030024-10	Capstan Idler Assembly	\$ 5.60
27-0070	Spring	.30
4040174-10	Pulley Assembly	2.00
4850091-10	Motor, Drive (601, 602)	47.00
4250068-10	Pulley, 7 1/2 ips, 60 cps	17.00
4250068-30	Pulley, 3 3/4 ips, 60 cps	20.00
4440062-20	Washer, Thrust	.05
4270068-10	Spring, Clutch "U"	.35
4250044-10	Clutch, Play Takeup	.85
4040165-10	Disc Assembly	2.20
4040165-20	Disc Assembly	2.30
4040166-10	Clutch Assembly	8.40
164804-030	Bearing, Ball	3.60
85-0033-01	Brake Assembly Kit	2.40
4040169-10	Shock Relief Capstan	1.40
4040161-10	Wheel, Idler Capstan	1.90
05-0245-01	Switch Deck Assembly (602)	2.10
05-0037-01	Switch Deck Assembly (601)	1.90
05-0245-02	Switch Deck Assembly (602-2)	2.50
4620035-20	Switch Mechanism	1.00
4040157-10	Flywheel Assembly, Capstan	9.00
4250041-10	Disc, Thrust	.10
4100129-10	Knob (601)	2.50
4100145-10	Knob (602)	.65
4310007-10	Belt, Drive, 60 cps, 7 1/2 ips	2.80
4310007-20	Belt, Drive, 50 cps, 7 1/2 ips	2.80
432-010	Belt, Takeup	.50
060-013	Bulb, Neon	.90
02-0101-10	Head Assembly, Full Track	95.00
4330028-10	Knob, Reel Holdown	.95
01-0897-01	Kit, Maintenance	11.95
85-0033-01	Kit	1.40
013-339	Diode (602)	1.15
060-122	Lamp, Neon	.70
4140003-10	Meter, VU	37.00
4580118-01	Transformer, Output (602)	3.90
4580144-10	Transformer, Oscillator (602)	3.90
11-0205-10	Glass, Meter	.25
4040084-20	Head, Record, Full Track *	30.00
4040084-30	Head, Playback, Full Track	30.00



# Nagra Tape Recorder, Accessories

## NAGRA III PROFESSIONAL TAPE RECORDER

- COMPLETELY SELF-CONTAINED FOR OUTDOOR SOUND RECORDINGS WITH STUDIO QUALITY
- THREE SPEEDS, THREE HEADS, FULL 1/4" TRACK, BUILT-IN AMPLIFIER, SPEAKER AND POWER SUPPLY
- ELECTRONICALLY CONTROLLED DIRECT DRIVE MOTOR FOR EXCELLENT SPEED STABILITY, WITH REMOTE START-STOP AVAILABLE
- COMPLETELY REDESIGNED SOLID STATE ELECTRONICS USING SILICON SEMICONDUCTORS
- REMARKABLY LOW NOISE, WOW, FLUTTER VALUES
- HIGHLY PORTABLE; POWERED BY TWELVE SIZE D FLASHLIGHT CELLS
- PROVISION FOR BUILT-IN PREAMPLIFIER FOR USE WITH SECOND MICROPHONE
- OPERATES FROM COMMERCIAL MAINS WITH OPTIONAL AC POWER SUPPLY ACCESSORY
- SPECIAL NEOPLOT MODEL AVAILABLE FOR "LIP SYNCHRONIZATION" OF SOUND WITH CAMERA IMAGE; PERFECT FOR ON-LOCATION MOTION PICTURE AND TV FILMING



World-famous professional tape recorder extensively used in radio news reporting, motion picture and TV production, automotive research, aviation, ornithology, linguistic research, photo facsimile recording, record production . . . wherever it is important to bring studio-quality sound recording outdoors. The Nagra III's completely self-contained portability, superb speed stability, low wow and flutter values, and host of other features and specifications, result from meticulous study of problems encountered in recording in the field, coupled with use of the most advanced technology and production methods. The recorder functions efficiently in any operating position, and is virtually unaffected by impact, humidity, tropical or polar climates, altitude, salt air and general outdoor use. Operating temperature range is from -20° C to +50° C.

Operates on 12 flashlight cells or optional AC power supply. Speed, wow and flutter, signal-to-noise, and response values are within NAB (Ampex) primary standards; has CCIR European standard for overseas usage. Two mixing inputs lend to unit's versatility; has Cannon type XLR-3-42 input socket for 50- or 200-ohm microphone. Dual-scale meter on front panel measures recording and line output level on hi-fi playback, and condition of batteries. At 15 ips, an audible alarm signal sounds in monitoring earphones when battery voltage falls below 11 volts. Accepts 5" reels with cover closed, 7" reels with cover open. Motor is servo controlled.

Since the recorder was designed to be operated under the most unfavorable conditions by non-technical personnel, all controls are positioned for easy manipulation whether the unit is being carried on the shoulder or placed on a table. A wide range of accessories are available to add even greater versatility to the Nagra III recorder; see listing below.

### NAGRA III TAPE RECORDER SPECIFICATIONS

**Tape Speeds:** 15, 7 1/2 and 3 3/4 ips, changed by easily accessible rotary switch. **Reel Size:** 7" dia. max. **Equalization:** Ampex and CCIR. **Frequency Response:** (Recording at level of -20 db): At 15 ips, ±1 db, 30-18,000 cps (±1.5 db, 30-16,000 cps). At 7 1/2 ips, ±1 db, 40-15,000 cps (±1.5 db, 50-12,000 cps). **Harmonic Distortion:** 2% of 3rd harmonic; 0.5% of 2nd harmonic on record and playback. **Signal-to-Noise Ratio:** At least 70 db on playback at 15 and 7 1/2 ips; mike preamp noise level, about -125 dbm. **Wow and Flutter** (DIN 45507 standard): ±0.08% or ±0.1% min. peak-to-peak at 15 ips; ±0.12% or ±0.15% min. peak-to-peak at 7 1/2 ips. **Absolute Speed Stability:** ±0.1% at 15 and 7 1/2 ips, factory adjusted. **Speed Variation:** ±0.1% or ±0.2% from beginning to end of 7" reel. **Inputs:** 50- or 200-ohm microphone; 100,000-ohm 0.5 to 10-volt line signal and 2,500-ohm 10 mV to 1-volt line signal for bridging. **Output:** Balanced line;

with load not less than 600 ohms, 4.4 volts (±15 db). Monitoring output unbalanced, with load not less than 50 ohms (0.3 volt). Feeds balanced broadcast lines from normally recorded tape, or may be used as remote pickup amplifier to feed line. **Controls:** Record or Playback Mode Switch; Mike Level; Line Level and Playback combined. **Size:** Case, approx. 12 1/2" w. x 8 3/4" d. x 4 1/2" h.; overall, approx. 14" w. x 9 3/4" d. x 4 1/2" h. **Weight:** Less batteries, 13 lbs. 13 oz.

**Nagra III Model NTD Portable Tape Recorder**—Self-contained recorder with built-in monitoring amplifier, loudspeaker and power supply. Less batteries, microphone and accessories. Net Each. . . . . **\$1250.00**

**Nagra III Model NTD5 Portable Tape Recorder**—Same as Model NTD but equipped with Neopilot system for synchronization of sound with camera. Net Each. . . . . **\$1384.00**

### TAPE RECORDER ACCESSORIES

**Nagra Model ATN AC Power Supply**—Permits operating Nagra portable tape recorders from AC mains. For 110 to 250 volts AC, 50 or 60 cps. Net Each. . . . . **\$46.00**

**Nagra Model BM Mixer**—Compact unit with three additional inputs for 50- to 200-ohm microphones, plus a line input. Has four controls for bass attenuation. Model ATN power supply can be connected to the BM mixer to operate all recorder accessories from AC mains. Net Each. . . . . **\$138.00**

**Nagra Model BS-II Microphone Preamplifier**—Allows connection of a second 50- to 200-ohm moving coil microphone to the recorder. Net Each. . . . . **\$62.00**

**Nagra Model SLO Synchronizer**—Equipped with cathode ray tube. For synchronous playback of recordings made with Model NTD5 recorder; permits synchronous copy on recorder with perforated tapes. Net Each. . . . . **\$450.60**

**Nagra Model SQ Quartz Crystal-Controlled Generator**—Net Each. . . . . **\$181.50**

**Nagra Model DH Self-Contained Speaker-Amplifier**—Consists of a highly efficient speaker, an excellent fidelity Class B amplifier, and 12 size D, 1 1/2-volt flashlight batteries; housed in light alloy case with carrying handle. For monitoring at the level and quality of a small hi-fi installation. Provision for bypassing built-in speaker and connecting amplifier directly to external speaker (3 to 7 ohms). Net Each. . . . . **\$193.50**

**Nagra Model SCC Frequency Converter**—Net Each. . . . . **\$108.80**

**Nagra Model ST Leather Microphone Carrying Case**—Of soft brown leather, with pocket for microphone and adjustable strap. Net Each. . . . . **\$26.15**

**Nagra Model SFT Microphone Case**—Similar to Model ST, but with foam rubber padding. Net Each. . . . . **\$ 33.60**

**Nagra Model SV Speed Adjuster**—Net Each. . . . . **45.00**

**Nagra Model FM-II Frequency Meter**—Net Each. . . . . **186.55**

**PLEASE CALL OR WRITE FOR THE LATEST PRICES ON THE FOLLOWING ACCESSORIES FOR THE NAGRA RECORDERS:**

**Nagra Model MK Cardioid Dynamic Microphone**—Norelco D-24E. Quality microphone recommended for use with Nagra recorders. Impedance, either 60 or 200 ohms.

**Nagra Model GK Table Stand**—Norelco ST-10.

**Nagra Model VK Wind Screen**—Norelco W-24.

**Nagra Model MD General-Purpose Dynamic Microphone**—Sennheiser MD-21. Sensitive, robust microphone suitable for sound film recording. Impedance, 200 ohms.

**Nagra Model GD Desk Stand**—Sennheiser MZT-21.

**Nagra Model VV Wind Screen**—Sennheiser MZW-21.

**Nagra Model EB Earphones**—Beyer DT-48.

**Nagra Model ES Earphones**—Beyer DT-508. Stethoscope type.

**NAGRA III RECORDERS WITH NON-STANDARD SPEEDS FROM 1/4 TO 30 IPS, OR WITH FREQUENCY RESPONSE TO 30,000 CPS, AVAILABLE ON SPECIAL ORDER. WRITE FOR INFORMATION AND PRICES.**



# Tape Accessories

## CINEMA TAPE ACCESSORIES

### MODEL 8905 MAGNETIC ERASING PENCIL



For erasing limited, small areas of magnetic tape or film. A stylable or a complete word may be erased. Thus, errors and editing may be accomplished without complete reworking of area involved. Made of black phenolic material, with a six foot cord and press-to-operate switch, it generally resembles a large fountain pen. Active area at tip, .250" diameter. **Power Requirements:** 115 volts, 60 cps AC, 10 watts. **Overall Dimensions:** 3/4" diameter, 8" long, plus six foot cord. Weight: Net, 6 oz.; Shpg., 12 oz. **Cinema Model 8905 Magnetic Erasing Pencil—\$15.00**  
Net Each.....

### MODEL 9205-A TAPE AND FILM DEGAUSSER



Recommended for the most complete erasure of program and residual noise from magnetic tape and film. Two powerful fields demagnetize up to 5400 foot reels of 1/4" tape and 1000 feet of 35 mm film. Designed for industrial use with heavy duty double pole switches, double fused, with dual pilot lights. Degaussing accomplished by rotating reels by hand on top surface of case (black phenolic top has locating spindle). As reels are withdrawn from the field, rotation is continued. Furnished in heavy steel case, gray baked enamel finish. **Power Requirements:** 115 VAC, 60 cps, 2000 watts. Size: 3 1/4" x 12" x 14". Weight, 33 lbs.; Shipping, 37 lbs. **Cinema Model 9205-A Degausser—Net Each.....\$75.40**  
**Cinema Model 9205-A-220—Same as above but 220 VAC, 60 cps. Net Each.....\$88.26**  
**Cinema Model 12975 Coil—Net Each.....18.75**  
**Cinema Model 12297 Switch—Net Each.....4.86**  
**Cinema Model 12651-2 Panel—Net Each.....7.50**

### MODEL 64221 COMPACT DEGAUSSER

For complete erasure of tapes and films. Capable of erasing recorded signal to more than 50 db below saturation. Designed for home or industrial use. Will handle any reel up to 10 1/2" dia. x 1" thick; 2" reels demagnetized by reversing reel; two locating spindles. Unit housed in heavy-duty case with brown phenolic panel. Degaussing is accomplished by manual rotation of reel. Rotation of reel should be continued as reel is withdrawn from field. Gray enamel finish with rubber feet. Features a vibrating reed for aural indication when in operation. **Power Requirements:** 115 VAC, 50/60 cps, 1000 watts. Fused for 15 amps. Size: 3 1/4" x 8" x 8". Weight, 17 lbs. **Cinema Model 64221 Compact Degausser—Net Each.....\$49.95**

## 3M SCOTCH® BRAND SPECIAL PURPOSE, INDUSTRIAL TAPES

### 1/2" AUDIBLE RANGE TAPES

- No. 111: All-purpose, std. length type with 1 1/2-mil plastic base.  
No. 131: Low print tape; reduces "print-through"; 1 1/2-mil plastic base.  
No. 150: Extra length, extra strength; on 1-mil polyester base.  
No. 201: High signal-to-noise ratio, for mastering and sub-mastering applications. Excellent high frequency response, long life, low ruff; anti-static treated; 1 1/2-mil plastic base.  
No. 202: Extra strength, with 1 1/2-mil polyester base.  
No. 203: Extra length with 1-mil polyester base.

3M Number	Length of Tape and Reel Type	List Price	Net Each	
			1-4	5 Up
111-1/2-2500H	2500' NAB hub	\$16.95	\$11.30	\$10.17
111-1/2-2500RO	2500' NAB 10 1/4" metal reel	19.40	12.93	11.64
131-1/2-2500H	2500' NAB hub	19.95	13.30	11.97
131-1/2-2500RO	2500' NAB 10 1/4" metal reel	23.20	15.47	13.92
150-1/2-3600H	3600' NAB hub	23.45	15.64	14.07
150-1/2-3600RO	3600' NAB 10 1/4" metal reel	26.70	17.80	16.02
201-1/2-2500H	2500' NAB hub	19.95	13.30	11.97
201-1/2-2500RO	2500' NAB 10 1/4" metal reel	23.20	15.47	13.92
202-1/2-2500H	2500' NAB hub	27.95	18.63	16.77
202-1/2-2500RO	2500' NAB 10 1/4" metal reel	31.20	20.80	18.72
203-1/2-3600H	3600' NAB hub	28.35	18.90	17.10
203-1/2-3600RO	3600' NAB 10 1/4" metal reel	31.60	21.07	18.96

See following page for more Scotch® Brand recording tapes.

## CONLEY FIDELIPAC® AUTOMATIC TAPE CARTRIDGES

- NAB STANDARD
- RIBBED CONSTRUCTION FOR STRUCTURAL STRENGTH
- UNIQUE TAPE GUIDE AND PRESSURE PAD INSURE SMOOTH TAPE FLOW AND PROPER HEAD CONTACT
- AUTOMATIC BRAKE SPRING PREVENTS TAPE CREEPING WHEN NOT OPERATING



Extreme versatility in programming for broadcast automation, data storage, language laboratories, background music and other industrial and commercial applications. Continuous, self-contained single reel tape magazine operates on an endless loop principle. Tape is automatically rewound after passing the playing or recording head. Programs can be played from seconds to hours by varying tape length and speed. For instance, 300' of tape repeats itself every 8 minutes when set at 7 1/2 ips tape speed. Double your repeat time by simply cutting tape playback speed in half; time may be doubled again with double coated tape using Moebius loop. Operates from barely perceptible speed to highest commercial standard record speed. Will operate in all NAB, and most automobile cartridge machines.

Conley No.	Length, Feet*	Playing Time at 7 1/2 ips	Net Each, Lots of		
			1-95	96-499	500-999
300(A)	25	40 sec.	\$2.45	\$1.18	\$0.77
	44	70 sec.	2.57	1.24	1.15
	57	90 sec.	2.69	1.34	1.23
	63	100 sec.	2.72	1.36	1.26
	94	2 1/2 min.	3.00	1.49	1.33
	113	3 min.	3.12	1.59	1.43
	132	3 1/2 min.	3.24	1.69	1.53
	188	5 min.	3.58	1.92	1.76
	207	5 1/2 min.	3.70	2.02	1.86
	285	7 1/2 min.	4.02	2.25	2.00
	300	8 min.	4.22	2.35	2.10
	375	10 min.	4.55	2.58	2.35
394	10 1/2 min.	4.85	2.71	2.48	
600(B)	25	40 sec.	\$4.00	\$3.43	\$3.20
	44	70 sec.	4.10	3.52	3.29
	57	90 sec.	4.20	3.60	3.36
	63	100 sec.	4.25	3.64	3.40
	94	2 1/2 min.	4.45	3.81	3.56
	113	3 min.	4.58	3.93	3.66
	132	3 1/2 min.	4.68	4.00	3.75
	188	5 min.	5.06	4.33	4.03
	207	5 1/2 min.	5.16	4.43	4.11
	285	7 1/2 min.	5.68	4.87	4.55
	375	10 min.	6.23	5.30	4.90
	394	10 1/2 min.	6.27	5.33	5.00
1200(C)	506	13 1/2 min.	7.35	6.30	6.87
	563	15 min.	7.75	6.65	7.20
	600	16 min.	8.00	6.85	7.39
	1052	28 min.	12.50	10.75	10.45
	1125	30 min.	13.00	11.18	10.42
3A	1163	31 min.	13.20	11.35	10.60
	1200	32 min.	13.50	11.55	10.80
			1-99	100-499	500-999
3A	Empty cartridge	\$2.06	\$1.82	\$1.73	
6B	Empty cartridge	3.43	3.00	2.84	
12CX	Empty cartridge	4.85	4.25	4.02	

\*Standard tape length of single-coated Mylar† tape. Also available double-coated, double lubricated; to order, add suffix D to length and 10c per 100' (300(A)-132(D)). Max. lengths: 300(A), 285'; 600(B), 500'; 1200(C), 1052'. For 1" foil leader, add suffix F and 10c per cartridge, both types. †Reg. DuPont TM.

## ROTRON "WHISPER FAN®" KIT

Fan assembly kit especially grouped for the home entertainment field, hi-fi/stereo, TV receivers, ham radio equipment, etc. Supplied with Whisper venturi fan electrical connector, mounting hardware and detailed instructions for mounting in three possible arrangements.



Rotron Whisper Fan Kit—  
Net Each.....\$14.85

LET OUR EXPERTS ASSIST YOU ON ALL YOUR PROFESSIONAL AUDIO REQUIREMENTS—WRITE OR CALL FOR INFORMATION ON NEW AND UNLISTED ITEMS IN STOCK.



**NO. 201 "DYNARANGE"**

Provides increased signal-to-noise ratio. For mastering and sub-mastering uses; superb fidelity at slow speeds. Anti-static treated; 1 1/2-mil acetate base.

3M Number	Lgth., Ft.	Reel	List Price	Net Each, Lots of	
				1-11	12 Up
201-1/4-600	600	5" plastic	\$ 2.80	\$ 1.87	\$ 1.68
201-1/4-1200	1200	7" plastic	4.40	2.93	2.64
201-1/4-2500H	2500	NAB hub	9.25	6.17	5.55
201-1/4-2500RO*	2500	10 1/2" metal	12.20	8.14	7.32
201-1/4-5000H	5000	NAB hub	16.95	11.30	10.17
201-1/4-5000R	5000	14" NAB	23.90	15.93	14.34

**NO. 202 "DYNARANGE" EXTRA STRENGTH**

Same as No. 201 but with 1 1/2-mil polyester backing for added strength; resists extreme temperature and humidity.

3M Number	Lgth., Ft.	Reel	List Price	Net Each, Lots of	
				1-11	12 Up
202-1/4-600	600	5" plastic	\$ 2.85	\$ 1.90	\$ 1.71
202-1/4-1200	1200	7" plastic	5.10	3.40	3.06
202-1/4-2500H	2500	NAB hub	11.10	7.40	6.66
202-1/4-2500RO*	2500	10 1/2" metal	13.90	9.27	8.34
202-1/4-5000H	5000	NAB hub	21.00	14.00	12.60
202-1/4-5000R	5000	14" NAB	27.50	18.33	16.50

**NO. 203 "DYNARANGE" EXTRA LENGTH**

Same recording characteristics as No. 201, plus 1-mil polyester backing for 50% more recording time.

3M Number	Lgth., Ft.	Reel	List Price	Net Each, Lots of	
				1-11	12 Up
203-1/4-900	900	5" plastic	\$ 4.25	\$ 2.83	\$ 2.56
203-1/4-1800	1800	7" plastic	7.35	4.90	4.41
203-1/4-3600H	3600	NAB hub	14.20	9.47	8.52
203-1/4-3600RO*	3600	10 1/2" metal	17.15	11.43	10.29
203-1/4-7200H	7200	NAB hub	27.10	18.07	16.26
203-1/4-7200R	7200	14" NAB	34.05	22.70	20.43

**NO. 175<sup>®</sup> STANDARD LENGTH**

Heavy duty coating on 1 1/2-mil "Tenzar" base; lasts 15 times longer than ordinary tapes. Improved conductivity drains off static. Red, blue, yellow or clear (standard) reels; specify.

3M Number	Lgth., Ft.	Reel	List Price	Net Each, Lots of	
				1-11	12 Up
175-1/4-600	600	5" plastic	\$ 2.40	\$ 1.60	\$ 1.44
175-1/4-1200	1200	7" plastic	3.75	2.50	2.25
175-1/4-2500H	2500	NAB hub	8.20	5.47	4.92
175-1/4-2500RO	2500	10 1/2" metal†	11.00	7.33	6.60

**NO. 102 STANDARD LENGTH, EXTRA STRENGTH**

Especially suited for irreplaceable recordings on long term storage; 1 1/2-mil polyester base, unaffected by temperature and humidity.

3M Number	Lgth., Ft.	Reel	List Price	Net Each, Lots of	
				1-11	12 Up
102-1/4-600	600	5" plastic	\$ 2.65	\$ 1.77	\$ 1.59
102-1/4-1200	1200	7" plastic	4.25	2.83	2.55
102-1/4-2500H	2500	NAB hub	8.55	5.70	5.13
102-1/4-2500RO*	2500	10 1/2" metal	11.35	7.57	6.81
102-1/4-5000H	5000	NAB hub	18.50	12.33	11.10
102-1/4-5000R	5000	14" NAB	25.00	16.67	15.00

**NO. 111<sup>®</sup> STANDARD LENGTH**

For all general recording needs. Base, 1 1/2-mil plastic.

3M Number	Lgth., Ft.	Reel	List Price	Net Each, Lots of	
				1-11	12 Up
111-1/4-150-LL	150	3" plastic	\$ 0.90	\$ 0.60	\$ 0.54
111-1/4-150	150	3" plastic	.70	.47	.42
111-1/4-600	600	5" plastic	2.25	1.50	1.35
111-1/4-1200	1200	7" plastic	3.50	2.34	2.10
111-1/4-2500H	2500	NAB hub	7.85	5.23	4.71
111-1/4-2500RO*	2500	10 1/2" metal	10.80	7.20	6.48
111-1/4-5000H	5000	NAB hub	14.40	9.60	8.64
111-1/4-5000R	5000	14" NAB	21.35	14.23	12.81

**NO. 120 HIGH OUTPUT**

For sensitive recording applications; 100% more output. Prevents overloading of passages. Has 1 1/2-mil plastic backing.

3M Number	Lgth., Ft.	Reel	List Price	Net Each, Lots of	
				1-11	12 Up
120-1/4-600	600	5" plastic	\$ 2.25	\$ 1.50	\$ 1.35
120-1/4-1200	1200	7" plastic	3.50	2.34	2.10
120-1/4-2500H	2500	NAB hub	7.85	5.23	4.71
120-1/4-2500RO*	2500	10 1/2" metal	10.80	7.20	6.48
120-1/4-5000H	5000	NAB hub	14.40	9.60	8.64
120-1/4-5000R	5000	14" NAB	21.35	14.23	12.81

**NO. 131 LOW PRINT**

Minimizes print-through to a point below noise level of most professional machines. Has 1 1/2-mil plastic backing.

3M Number	Lgth., Ft.	Reel	List Price	Net Each, Lots of	
				1-11	12 Up
131-1/4-1200	1200	7" plastic	\$ 4.40	\$ 2.93	\$ 2.64
131-1/4-2500H	2500	NAB hub	9.25	6.17	5.55
131-1/4-2500RO*	2500	10 1/2" metal	12.20	8.14	7.32
131-1/4-5000H	5000	NAB hub	16.95	11.30	10.17
131-1/4-5000R	5000	14" NAB	23.90	15.93	14.34

**NO. 138 LOW PRINT, EXTRA STRENGTH**

Same magnetic and recording characteristics as No. 131 but with extra tough 1 1/2-mil polyester base.

3M Number	Lgth., Ft.	Reel	List Price	Net Each, Lots of	
				1-11	12 Up
138-1/4-1200	1200	7" plastic	\$ 5.10	\$ 3.40	\$ 3.06
138-1/4-2500H	2500	NAB hub	11.10	7.40	6.66
138-1/4-2500RO*	2500	10 1/2" metal	13.90	9.27	8.34
138-1/4-5000H	5000	NAB hub	21.00	14.00	12.60
138-1/4-5000R	5000	14" NAB	27.50	18.33	16.50

**NO. 139 LOW PRINT, EXTRA LENGTH**

Same recording characteristics as No. 131, plus 1-mil polyester backing for almost 50% more recording time.

3M Number	Lgth., Ft.	Reel	List Price	Net Each, Lots of	
				1-11	12 Up
139-1/4-1800	1800	7" plastic	\$ 7.35	\$ 4.90	\$ 4.41
139-1/4-3600H	3600	NAB hub	14.20	9.47	8.52
139-1/4-3600RO*	3600	10 1/2" metal	17.15	11.43	10.29
139-1/4-7200H	7200	NAB hub	27.10	18.07	16.26
139-1/4-7200R	7200	14" NAB	34.05	22.70	20.43

**NO. 150 EXTRA LENGTH**

Extra tough 1-mil polyester backing. Super potent oxide for greater response, crisper tones. For use in outdoor recording and in extremes of temperature and humidity.

3M Number	Lgth., Ft.	Reel	List Price	Net Each, Lots of	
				1-11	12 Up
150-1/4-900	900	5" plastic	\$ 3.60	\$ 2.40	\$ 2.16
150-1/4-1800	1800	7" plastic	6.20	4.13	3.72
150-1/4-3600H	3600	NAB hub	11.40	7.60	6.84
150-1/4-3600RO*	3600	10 1/2" metal	14.35	9.57	8.64
150-1/4-7200H	7200	NAB hub	24.00	16.00	14.40
150-1/4-7200R	7200	14" NAB	30.95	20.63	18.57

**NO. 190 EXTRA LENGTH**

Allows 50% more recording time from a conventional size reel. High potency oxide. Thin 1-mil plastic backing.

3M Number	Lgth., Ft.	Reel	List Price	Net Each, Lots of	
				1-11	12 Up
190-1/4-900	900	5" plastic	\$ 3.50	\$ 2.34	\$ 2.10
190-1/4-1800	1800	7" plastic	5.50	3.67	3.30
190-1/4-3600H	3600	NAB hub	9.85	6.57	5.91
190-1/4-3600RO*	3600	10 1/2" metal	12.80	8.53	7.68
190-1/4-7200H	7200	NAB hub	18.40	12.27	11.04
190-1/4-7200R	7200	14" NAB	25.35	16.50	15.21

**NO. 200 DOUBLE LENGTH, DOUBLE STRENGTH**

Provides twice the playing time of conventional tapes. High potency oxide on tensilized 1/2-mil polyester backing.

3M Number	Lgth., Ft.	Reel	List Price	Net Each, Lots of	
				1-11	12 Up
200-1/4-300-LL	300	3" plastic	\$ 1.85	\$ 1.23	\$ 1.11
200-1/4-600	600	4" plastic	3.05	2.03	1.83
200-1/4-1200	1200	5" plastic	5.45	3.63	3.27
200-1/4-2400	2400	7" plastic	9.50	6.33	5.70
200-1/4-4800RPS	4800	10 1/2" EIA†	22.00	14.67	13.20

**NO. 282 SANDWICH TAPE**

Micro-thin protective plastic coating over oxide eliminates oxide rub-off; reduces head wear. Unaffected by temperature and humidity. Base, 1 1/2-mil polyester. Specify blue, clear, green, red or yellow reels.

3M Number	Lgth., Ft.	Reel	List Price	Net Each, Lots of	
				1-11	12 Up
282-1/4-600	600	5" plastic	\$3.10	\$2.07	\$1.86
282-1/4-1200	1200	7" plastic	4.95	3.30	2.97

**NO. 290 TRIPLE LENGTH**

For maximum recording time on given size reel; 3 1/4" size ideal for use with portable transistorized recorders, 7" for recording meeting, etc.; 3/2-mil polyester backing.

3M Number	Lgth., Ft.	Reel	List Price	Net Each, Lots of	
				1-11	12 Up
290-1/4-600-LL	600	3" plastic	\$ 2.95	\$ 1.97	\$ 1.77
290-1/4-1800	1800	5" plastic	6.95	4.63	4.17
290-1/4-3600	3600	7" plastic	11.95	7.97	7.17

**"LIVING LETTERS" TAPES AND ACCESSORIES**

Three tape lengths on 3" reels. Plastic container doubles as reusable mailer or storage unit.

3M Number	Lgth., Ft.	Reel	List Price	Net Each, Lots of	
				1-11	12 Up
111-1/4-150LL	150	3" plastic	\$ 0.90	\$ 0.60	\$ 0.54
200-1/4-300LL	300	3" plastic	1.85	1.23	1.11
290-1/4-600LL	600	3" plastic	2.95	1.97	1.77
LL-1/4-3		Empty box	.45	.30	.27
RL-1/4-3		Reel and box	.60	.40	.36

**NO. 8000 QUICK-LOAD CARTRIDGE**

Compact cartridge slips into place easily. No. 150 tape with 1-mil polyester backing; 560 ft. length in gray opaque plastic (-O) or transparent (-C) case; 320 ft. in transparent only.

3M Number	Length	List	Net Each, Lots of	
			1-11	12 Up
8000-1/4-320-C	320'	\$4.00	\$2.67	\$2.40
8000-1/4-560-O	560'	4.50	3.00	2.70
8000-1/4-560-C	560'	4.50	3.00	2.70

**NO. 24-1 PLASTIC LEADER AND TIMING TAPE**

For identification of ends of tape and selections within roll.

3M Number	Lgth., Ft.	Reel	List Price	Net Each, Lots of	
				1-11	12 Up
23-10W	1/2" x 1000'		\$4.50	\$3.00	\$2.70
24-1W, 24-1Y	1/2" x 100'		.90	.60	.54

**NO. 41 SPLICING TAPE**

Self-sticking, for neat, noiseless splices. In metal dispensers.

3M Number	Lgth., Ft.	Reel	List Price	Net Each, Lots of	
				1-11	12 Up
41-1/2-S	1/2" x 150'		\$0.39	\$0.39	\$0.27
41-1/2-66	1/2" x 66'		.76	.76	.53
41-3/4-66	3/4" x 66'		1.01	1.01	.71
41-1/2-66	1/2" x 66'		.57	.57	.40

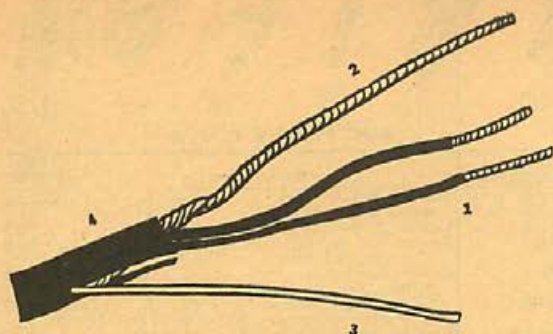
**NO. 51 CONDUCTIVE SENSING TAPE**

For recorders with electronic sensing controls. This thin, flexible, strong conductive foil tape has a pressure-sensitive adhesive.



# Professional Accessories

## HARVEY'S OWN QUALITY AUDIO CABLE



### NO. SF-2 ZIP-'N-STRIP

- THE ONLY AUDIO CABLE DESIGNED AND MANUFACTURED SPECIFICALLY FOR BROADCAST AND RECORDING APPLICATIONS
- USED FOR RACK-MOUNTING COMPONENTS, SNAKING THROUGH CONDUITS, AND GENERAL STUDIO WIRING BUILT TO HARVEY'S OWN SPECIFICATIONS

- 1—Inner "hot" leads are #22 wire, twisted and tinned; color-coded red and black.
- 2—Spiral-wrapped inner shield strips easily, without broken, ragged strands; twists cleanly for positive, easy connection; easily tinned.
- 3—Solid grounding lead makes contact with shield throughout entire length of cable.
- 4—Outer plastic jacket, .180" dia., is flexible yet tough; built for years of hard wear.

It's easy to see why Harvey's "Zip-'N-Strip" cable is superior to all others. The solid ground lead makes for super quieting while it minimizes ground loops. Plastic jacket zips to required stripped length instantly by merely pulling back on the solid ground lead; saves valuable time and effort. Priced low for all your audio wiring requirements.

Harvey Audio Cable No. SF-2—Net, Per 1000 ft. .... **\$50<sup>00</sup>**

### NO. SF-1 AUDIO CABLE

Same as SF-2 except has braided shield. Solid grounding lead is located between twisted pair of inner "hot" leads and the inner shield instead of between the plastic jacket and the inner shield (3 is between 1 and 2, not as shown in the illustration).

Harvey Audio Cable No. SF-1—Net, Per 1,000 ft. .... **\$50<sup>00</sup>**

Used by professionals all over the world because it is the only precision editing block especially designed with a curved groove that takes the time and inconvenience out of tape editing. Each block contains two guide slots: Diagonal, for editing sound; vertical for editing information-recorded tape. Never gouges; provides neat, smooth splices that will not separate, faster splicing, without trimming. Tape is held perfectly straight and will not stick together. Spliced tape may be used over and over. Tiny bits of tape can be reassembled and spliced. Instruction folder included.



**EDITall Model KP-2 Kit**—For professional results. Includes: Editing block, 30 splicing tapes, demagnetized razor blade, grease pencil, tape guide and instructions. Net Each. .... **\$3.50**

**EDITall Model S-2**—Fits compact machines. Adhesive bottom, no mounting holes. 4" x 3/4" x 3/4". Net Each. .... **\$6.50**

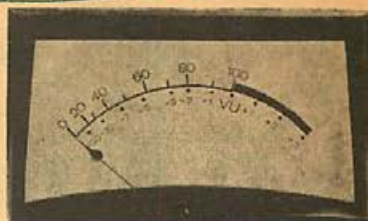
**EDITall Model KS-2 Kit**—Includes S-2, marking pencil, 3/4" splicing tape, cutting blade and instruction folder. Net Each. .... **\$7.50**

## API VU METERS

- CONFORMS TO AMERICAN STANDARD C16.5-1954 SPECIFICATIONS:

- TWO SIZES

- TWO FACE TYPES



Handsome VU meter in a striking modern design. Especially suited for use in all audio frequency transmission systems, including AM and FM radio broadcasting, television, telephone and recording equipment. Also ideal for measuring noise levels in laboratories. Unique housing exposes only the indicating area; the remaining area of the meter is mounted behind the panel. In effect, the dial is 30% larger than comparable units, yet the meter takes up 15% less panel space. For additional visual comfort, the dials of these meters are tilted back 6° so that glare is reflected upward. Meters may be illuminated from behind the panel through a strip of translucent plastic across the top of the dial section. Dial has buff-colored background that provides less glare than white and also enhances your panel by its contrast. Meter reads zero VU, or 100%, with application of 1.228 volts through a 3600-ohm resistor; this represents 4 db above 1 milliwatt into 600 ohms. **Meter Faces:** Specify when ordering: Type B, as illustrated; or Type A, same except -20 to 0 db readings are at top of the scale in black; +1 to +3 at top in red; 0 to 100% at bottom in black. **Meter Sizes:** Available in 5" x 2 3/4" or 3 1/2" x 2" sizes.

API Model 561—5" meter; specify A or B scale. Net Each **\$30<sup>00</sup>**

API Model 361—3 1/2" meter; specify A or B scale. Net Each **\$30<sup>00</sup>**

API Illuminating Bracket—For use with either Model 361 or 561 VU meters. Net Each. .... **\$1.75**

## CHATILLON COMMERCIAL SCALES

### INSTRUMENT SCALES

Model	Capacity	Net Each
0325	2 lb. x 1 oz.	\$13.25
005	4 lb. x 1 oz.	7.25
015	5 lb. x 1 oz.	13.25
06	6 lb. x 2 oz.	7.25
018	10 lb. x 2 oz.	13.25
009	10 lb. x 4 oz.	7.25
09	15 lb. x 4 oz.	7.25
011	30 lb. x 4 oz.	13.25
0011	30 lb. x 8 oz.	8.25
0013	50 lb. x 8 oz.	14.25
0014	60 lb. x 8 oz.	23.00

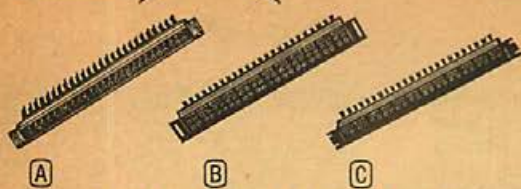
WRITE FOR INFORMATION AND PRICES FOR  
CHATILLON LABORATORY SCALES.

## EDITall® EDITING BLOCKS

- EDITall Model S-3**—Fits consoles. Countersunk 3/8" mtg. holes. 5 3/4" x 1" x 3/4". Net Each. .... **\$8.00**
- EDITall Model KS-3 Kit**—Includes S-3, marking pencil, 3/4" splicing tape, cutting blade and instructions. Net Each. .... **\$9.00**
- EDITall Model S-3.5**—Countersunk 3/8" mtg. holes. For 3/4" tape. 5 3/4" x 1 1/4" x 3/4". Net Each. .... **\$24.00**
- EDITall Model KS-3.5**—Kit for 3/4" tape. Includes block, splicing tape, carbon pencil, cutting blade, instructions. 5 3/4" x 1 1/4" x 3/4". Net Each. .... **\$25.00**
- EDITall Model S-3.75**—Countersunk 3/8" mtg. holes. For 3/4" tape. 5 3/4" x 1 3/4" x 3/4". Net Each. .... **\$29.00**
- EDITall Model KS-3.75**—Kit for 3/4" tape. Includes block, splicing tape, carbon pencil, cutting blade and instructions. 5 3/4" x 1 3/4" x 3/4". Net Each. .... **\$30.00**
- EDITall Model S-4**—Countersunk 3/8" mtg. holes. For 1" tape. 5 3/4" x 1 3/4" x 3/4". Net Each. .... **\$34.00**
- EDITall Model KS-4**—Kit for 1" tape. Includes block, splicing tape, carbon pencil, cutting blade and instructions. 5 3/4" x 1 3/4" x 3/4". Net Each. .... **\$35.00**

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**BROADCAST-TYPE JACK PANELS**

Complete assortment of jack panels for TV and broadcasting stations, recording studios, industrial paging systems and communication equipment. Molded of solid phenolic and reinforced with steel for maximum rigidity and strength. Jacks spaced for use with any standard double plug with  $\frac{3}{8}$ " spacing. Mounting brackets and designation strips supplied. Panels fit standard 19" relay racks. **Double Panel PJ-30 (Fig. A)**: Holds 52 jacks. Requires  $1\frac{1}{2}$ " panel space. Double designation strip. Jack holes on  $\frac{3}{8}$ " centers. With flush mtg. bracket. **Double Panel PJ-35**: Same as above, but with stand-off brackets; hold panel 7" in front of mounting rack. **Double Panel PJ-31 (Fig. B)**: Holds 48 jacks. Holes spaced to prevent patching adjacent circuits. Requires  $2\frac{3}{8}$ " panel space. **Single Panel PJ-33 (Fig. C)**: Single panel version of PJ-31 has 24 jack holes. Requires  $1\frac{1}{2}$ " panel space. **Single Panel PJ-36**: Single panel version of PJ-30 holds 26 jacks. Requires  $1\frac{1}{2}$ " panel space. Jack holes on  $\frac{3}{8}$ " centers. Flush rack mounting.

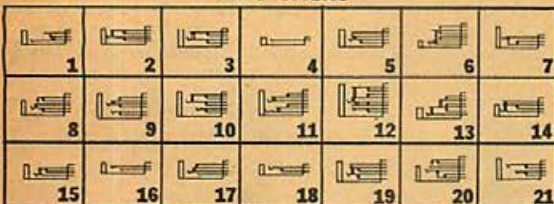
Fig.	Less Jacks		With PJ-318 Jacks		With PJ-339 Jacks	
	ADC Type	List Price	ADC Type	List Price	ADC Type	List Price
A	PJ-30	\$21.50	PJ-340	\$82.50	PJ-390	\$108.00
B	PJ-35	26.00	PJ-350	87.50	PJ-395	112.50
C	PJ-31	15.75	PJ-341	71.25	PJ-391	95.50
	PJ-33	14.20	PJ-343	41.90	PJ-393	54.00
	PJ-36	14.50	PJ-360	46.50	PJ-396	58.50

Panels with MIL jacks and other telephone type jacks also available.

**HOLE PLUG**

Molded black polyethylene plastic. Fits all ADC standard jack panels. Made to plug unused jack mounting holes in jack panels. **ADC Type PJ-29**—List Price..... **25c**

**ADC JACKS**



**TELEPHONE TYPE JACKS**

The leading design in long frame, telephone type jacks. Used by the country's foremost manufacturers of communication gear. Strong, one-piece frame is dimensionally stable; readily interchangeable mechanically and electrically with commonly used jacks. Plated to withstand 50-hour salt spray tests. Coin silver contacts welded to nickel-silver springs. Hot tin-dipped lugs. High grade phenolic insulation.

ADC Type	Ckt.	List Price	ADC Type	Ckt.	List Price	ADC Type	Ckt.	List Price
PJ-115	1	\$1.50	PJ-205	9	\$2.20	PJ-240	9	\$2.05
PJ-116	2	1.50	PJ-206	10	2.20	PJ-241	17	1.70
PJ-117	3	1.50	PJ-207	11	2.50	PJ-242	10	2.05
PJ-123	4	1.00	PJ-208	12	2.50	PJ-318	18	1.10
PJ-125	5	1.70	PJ-209	13	1.70	PJ-336	19	1.90
PJ-202	6	1.70	PJ-226	14	1.70	PJ-338	20	2.05
PJ-203	7	1.30	PJ-237	15	1.45	PJ-339	21	1.54
PJ-204	8	1.70	PJ-238	16	1.10	PJ-418	18	1.15

**MILITARY JACKS**

Meet rugged, exacting military requirements. Made to MIL-J-641B specifications. Highest quality materials. Held closely to dimension tolerances to conform to military specifications.

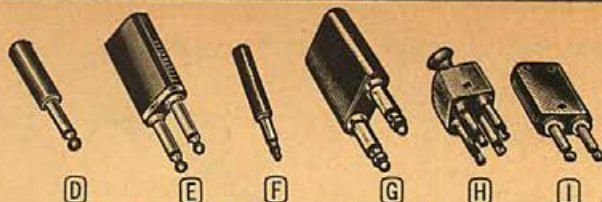
JJ-015	6	\$1.95	JJ-035	14	\$1.95	JJ-077	11	\$2.85
JJ-016	7	1.50	JJ-042	21	1.70	JJ-078	12	2.85
JJ-017	8	1.95	JJ-072	2	1.75	JJ-084	1	1.75
JJ-019	20	2.35	JJ-073	9	2.50	JJ-085	3	1.75
JJ-022	16	1.25	JJ-074	17	1.95	JJ-086	4	1.10
JJ-024	18	1.25	JJ-075	10	2.50	JJ-087	13	1.95

**TERMINAL BLOCKS**

Molded of durable black phenolic. Terminals .040" plated brass. Terminal rows graduated in length for ease of wiring; identified by numbering along the top row. Base, 3" x 6".



ADC Type	No. of Rows	No. of Terminals	List Price
PJ-101	1	20	\$ 5.75
PJ-102	2	40	7.75
PJ-103	3	60	9.75
PJ-104	4	80	11.75
PJ-105	5	100	13.75
PJ-106	6	120	15.75



**ADC PHONE PLUGS**

ADC Type	Fig.	Description	List Price
PJ-5	D	2-cond., fits $\frac{1}{4}$ " jack; 500 v. rms; black phenolic handle. Equiv. to PJ-055, WE-47	\$ 1.30
PJ-1	E	Double 2-cond., equiv. to WE-241	4.25
PJ-3	F	3-cond. for $\frac{1}{4}$ " tip, ring, sleeve jack; 500 v. rms test; red; equiv. to WE-310	2.20
PJ-6	G	Double 3-cond., equiv. to WE-213; black; 500 v. rms; self-aligning prongs, $\frac{1}{16}$ " centers	9.00
D7200	H	Self-aligning 4-prong, for 4 PJ-318 jacks on $\frac{3}{8}$ " centers; 6-cond.; equiv. to WE-315B	24.50
PJ-327	I	Double 2-cond. meets MIL-P-642A; self-aligning sleeves, $\frac{3}{8}$ " centers; equiv. to WE-327	4.25

**PATCH CORDS**

Patch cord and two PJ-1 double plugs and two PJ-5 single plugs or two PJ-3 single plugs. High quality tinned copper, 2-conductor wire. Heavy braided cover, reinforced for 6" at each end. Plugs notched for polarizing identification. Shipping Weight, 9 oz.



Length	Cord, PJ-1 Plugs	List Price	Cord, PJ-5 Plugs	List Price	Replacement Cords	List Price
6 in.	PJ-10 $\frac{1}{2}$	\$10.63	PJ-50 $\frac{1}{2}$	\$5.80	PJ-20 $\frac{1}{2}$	\$1.85
1 ft.	PJ-11	11.00	PJ-51	6.05	PJ-21	2.50
2 ft.	PJ-12	11.25	PJ-52	6.40	PJ-22	2.75
3 ft.	PJ-13	11.50	PJ-53	6.85	PJ-23	2.90
4 ft.	PJ-14	11.88	PJ-54	7.40	PJ-24	3.00
5 ft.	PJ-15	12.13	PJ-55	7.95	PJ-25	3.15
6 ft.	PJ-16	12.63	PJ-56	8.75	PJ-26	4.15
10 ft.	PJ-10	13.50	PJ-50	9.70	PJ-20	5.25

ADC Type PJ-82	Two-foot cord with PJ-3 plug. List.....	\$ 8-80
ADC Type PJ-62	Replacement cord for PJ-82. List.....	3-50
ADC Type PJ-84	Four-foot cord with PJ-3 plug. List.....	9-80
ADC Type PJ-64	Replacement cord for PJ-84. List.....	4-00
ADC Type PJ-86	Six-foot cord for PJ-3 plug. List.....	11-00
ADC Type PJ-86	Replacement cord for PJ-86. List.....	4-70

**NEW BANTAM JACK PANELS**

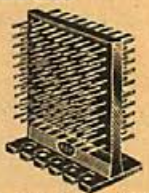
Compact, lightweight jack panels provide twice the number of jacks as a standard panel, weighing 65% less than equivalent standard panel. Double row panel,  $1\frac{1}{2}$ " high, accommodates 96 jacks (48 pair); four molded plastic inserts hold 24 jacks each. Jacks spaced to prevent cross patching of adjacent circuits when using double plugs; pairs mounted on  $\frac{1}{4}$ " centers. Blank inserts available for use when only a single row of jacks is needed. Black anodized panel with clear plastic designation strip; integral mounting brackets.

ADC Type PJ-731	Assembly less jacks. List Price.....	\$ 32-00
ADC Type PJ-737	With 96 PJ-818 jacks (Ckt 18). List.....	154-00
ADC Type PJ-739	With 96 PJ-839 jacks (Ckt 21). List.....	194-00
ADC Type PJ-724	Panel inserts with 24 holes, less jacks. List Price.....	4-00
ADC Type PJ-700	Blank panel insert. List Price.....	2-00

Panels with 104 jacks available on special order.

**NEW "WRAPID" TERMINAL BLOCKS**

Gives up to 100 solderless, wrapped wire connections in a  $2\frac{1}{2}$ " space. Comes in one assembled piece; mounts in seconds. Model PJ-610 for 100 connections is only  $2\frac{1}{2}$ " w. x  $3\frac{1}{2}$ " h. Positive connections easily made in less than five seconds each, using any wrapping tool. Wrapped connections are mechanically stable and offer permanently low contact resistance. Block and fanning strip molded of durable, high-impact rubber-modified acrylic plastic; hard brass, plated terminals. Cadmium-chromate plated mounting studs. Easy terminal identification with letters and numbers. Size:  $2\frac{1}{2}$ " w. max.; terminals .045" sq. x  $1.58$ " long, overall, on .24" x .25" centers;  $\frac{3}{8}$ " studs on 1.75" centers.



ADC Type PJ-604	40 terminals; ht., 1.75". List Price...	\$4-40
ADC Type PJ-606	60 terminals; ht., 2.25". List Price...	5-40
ADC Type PJ-608	80 terminals; ht., 2.75". List Price...	6-40
ADC Type PJ-610	100 terminals; ht., 3.25". List Price...	7-40

**DISCOUNT SCHEDULE**

Discount	Hole Plugs, Jacks	Term. Blocks, Jack Panels	All Other Items		
	Quantity	Quantity	Quantity	Quantity	
	1-99	1-9	10-24	1-24	25-49
	40%	40%	50%	40%	50%

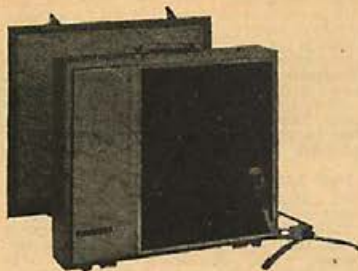


# PA Equipment and Mike Stands

## HOLMIN TRANSISTORIZED PA POWER EQUIPMENT AND ACCESSORIES

### MODEL "300"

#### PERSONAL PORTABLE SOUND SYSTEM



Self-powered, self-contained PA system that is ideal for use at sales meetings, clubs, lectures, etc. Completely adjustable for large or small groups. Sets up in seconds: On-off and volume controls are at the microphone for maximum control and convenience. Self-powered by two flashlight batteries; low current drain transistorized amplifier results in long battery life.

Cardioid microphone provides high speech fidelity while rejecting whine feedback and other noises. Mike can be worn as lavalier, held in hand, or mounted on desk stand. Two high quality speakers, mounted in case as "sound column", provide wide horizontal coverage. Handsome, rugged, lightweight vinyl case. Size: 17½" x 4½" x 15". Weight, 15 lbs.

**Holmin Model "300" Portable Sound System**—Complete with cardioid microphone (with stand, volume control, on-off switch), cable and connector. Net Each. . . . . **\$165.00**

#### AUDIO AMPLIFIER

Entirely portable, no tubes, cords, or other power accessories. Wide variety of uses to commercial sound men and wherever AC or heavy storage battery power is not available. Use with almost any type microphone and any PM type of 4-, 8- or 16-ohm speaker. Three separate inputs: High or low impedance for dynamic, crystal or ceramic microphone, plus phonograph. Mixing circuits permits use of phonograph and microphone simultaneously. Separate bass-out switch and tone control. Low quiescent current for long battery life. High efficiency; low distortion. **Rated Output:** 9 watts rms, 18 watts peak. **Frequency Response:** ±1 db, 100-15,000 cycles. **Distortion:** Less than 3%, 1000 cycles, at maximum rated power. **Idling Current:** Less than 200 ma. **Battery Supply:** 12 volts; two or four 6-volt, flashlight lantern type. **Transistors:** Three power, three medium power. Vinyl covered case with carrying strap. **Output Impedance:** 4-, 8- or 16-ohm. Size: 9½" w. x 3¼" d. x 10" h. Weight, 9½ lbs. with four batteries.



**Holmin Model 210 Transistor Audio Amplifier**—Batteries not included. Net Each. . . . . **\$74.50**

#### MINIATURE DYNAMIC MICROPHONES

**H-40 Series**—Unidirectional, cardfold, dynamic microphone small enough to be worn as a lavalier but large enough for stage and auditorium applications. Increases usable output of PA and other sound systems. Features unique gain control at base of flexible 6" gooseneck for immediate adjustment to acoustical conditions. Black satin, anodized alum. alloy housing; gooseneck finished in satin chrome. **Frequency Response:** 45-12,000 cps. **Impedance:** 150 ohms or high-Z. **Output:** -56 db (EIA: Low, -149 db; high, -151 db). **Polar Pattern:** Unidirectional cardioid with at least 15 db attenuation at 180° with balanced modification below 500 cps. **Size:** Microphone, 3¼" lg. x 1¼" O.D. and 6" gooseneck. Weight, 3½ oz. Includes 18' miniature, two-conductor, shielded cable with cadmium bronze conductors and rubber jacket.

**Holmin Model H-40G**—For stand mount; less gain control. Stand adapter, ¾"-27 thread; cable. Net Each. . . . . **\$41.25**

**Holmin Model H-40S**—Same as H-40G, but with on-off switch at base of gooseneck. Net Each. . . . . **\$45.50**

**Holmin Model H-40V**—With gain control and thread stand adapter. Net Each. . . . . **\$49.50**

**Holmin Model H-40L**—With gain control, folding legs for desk stand, neck cord and cable for hand use. Net Each. . . . . **\$56.50**

**H-30 Series**—Omnidirectional version of H-40. **Frequency Response:** 70-12,000 cps. **Output:** -55 db (EIA: Low, -150 db; high -152 db). Non-directional characteristics. Other specifications are the same as the H-40.

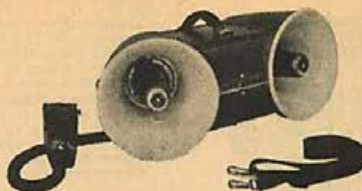
**Holmin Model H-30G**—For stand mount; less gain control. Stand adapter, ¾"-27 thread; cable. Net Each. . . . . **\$34.25**

**Holmin Model H-30S**—Same as H-30G, but with on-off switch at base of gooseneck. Net Each. . . . . **\$38.50**

**Holmin Model H-30V**—With gain control and thread stand adapter. Net Each. . . . . **\$42.50**

**Holmin Model H-30L**—With gain control, folding legs for desk stand, neck cord and cable for hand use. Net Each. . . . . **\$49.50**

### VOICE GUN® PORTABLE PUBLIC ADDRESS SYSTEM



Transistors give this public address system long life and efficiency. Portable and easy to use yet weatherproof and virtually unbreakable. Has voice power and wide angle coverage for use with larger crowds. Completely self-contained; only controls are push-to-talk button and volume control. New microphone design cancels out noise and allows full 20-watt peak power without feedback. Elements of weather-proofed microphone are of magnetic type for clear, intelligible speech. Unit may be placed on almost any surface or carried over the shoulder. **Power Output:** 20 watts peak, 10 watts rms. **Amplifier:** Four stage class B output. **Transistors:** Three power, two medium power. **Batteries:** Two 6 v. **Microphone:** Magnetic anti-feedback, noise-cancelling type. **Size:** 17½" w. x 11" d. x 8" h. Weight, 11 lbs. with batteries.

**Holmin Model 120 Transistorized Portable Public Address System**—Complete with batteries. Net Each. . . . . **\$157.35**

### VOICE GUN® POWER MEGAPHONE

A rugged, self-contained, portable PA system. Consists of mike, transistor amplifier, speaker and power supply—all in one unit. Rugged unit will take all kinds of abuse. Horn, handle and mouth-piece are made of molded Cyclo-lac, which is virtually unbreakable. Functions perfectly in heat, rain, snow and sub-zero cold. No warm-up period—just push the button in the pistol grip and speak. No adjustments or volume control—you simply raise or lower your voice. No tubes, cords or separate power units. Operates on eight ordinary penlight cells that fit in removable clip and slip into the handle. **Amplifier:** Two stage push-pull class B printed circuit; uses one driver and two output transistors. **Microphone:** Water-proofed, controlled magnetic. **Speaker:** Industrial paging type, 8 ohms impedance. **Switch:** Dual spring, push-to-talk type. **Size:** Bell diameter, 7¼"; overall length, 9½"; overall height, 10½". Weight, 3¼ lbs. with batteries.



**Holmin Model A-12 Voice Gun®**—With adjustable ¼" leather strap with nickel-plated clasp and slide. Net Ea. . . . . **\$89.96**

\*Registered Borg-Warner trademark.

### FLEXP® MIKE STANDS MIKESTER MIKE STAND



A new universal type mike stand that will handle any microphone up to 4 lbs. It is almost as flexible as a hand mike. Utilizing the familiar Flexo system of levers and joints, it swings out as much as 30° in any direction when fully extended. The patented enclosed spring controlled swiveling devices offer smooth, silent and sure adjustment to any of countless positions, without loosening or tightening screws or nuts. It stays put where you want it, but easily adjusts to new positions at the touch of a hand. Available in a choice of three bases: Mikester No. 1 has the two-bolt clamp base similar to Lamp Base A; Mikester No. 2 is supplied with a bracket for wall or vertical screw mounting. Mikester No. 3 is mounted on a 40" floor stand (as illustrated) with heavy 13½" base. Shockproof construction, making use of noise-reducing materials throughout. Microphone is attached by means of a spring tensioned swiveling device which makes even the swiveling type of mike more versatile. Sturdy clips hold the mike cable neatly in place and provide quick changeover for mike replacement. The swivel-arm design makes the Mikester ideal for pickups involving several speakers or instrumentalists. Ideal for dispatchers or switchboard operators by freeing both hands for maximum operating efficiency. Finished in a durable royal gray to match or blend with any microphone. Eliminates objectionable reflections from highly polished surfaces.

**Flexo Mikester No. 1**—Microphone stand with two-bolt clamp that grips any surface up to 3" thick. Shipping Weight, 10 1/4 lbs. Net Each. . . . . **\$10.17**

**Flexo Mikester No. 2**—Same, but with bracket for wall or vertical screw mounting. Shipping Weight, 5 1/4 lbs. Net Each. . . . . **\$11.37**

**Flexo Mikester No. 3**—Same, but with 40" floor stand. Net Each. . . . . **\$22.17**



# Newcomb Audio Equipment

## PATHFINDER PA COMPONENTS

Crisp, clean-looking equipment designed for utmost convenience; plus, Newcomb's assured dependability and ease of servicing. Sheet metal cabinetry features angular louvers and hand-holds in soft, two-tone finish in olive green and spruce gray. Slanted con-

trol panels designed for convenience. With 25,000-hour life pilot light. Each mike channel has its own mixer and is wired for plug-in transformer conversion for low-Z mikes; inputs are standard three-contact phone jacks. All models U/L Approved.



E-5P

**FIVE-CHANNEL MODEL E-5P MIXER-PREAMPLIFIER**  
Multi-purpose design gives high performance at a modest cost. Offers four mike channels (one convertible to magnetic phono) and one high-level channel with two, switch-selected inputs (ceramic or tape/radio). Separate master gain control. Supplied with VU meter with concealed sensitivity adjustment. Outputs permit use with booster and tape recorder. Individual mike input tubes have DC on all filaments and assure minimum crosstalk. **Frequency Response:** ±2 db, 30-20,000 cps. **Outputs:** Cathode follower type, 6 v. at less than 2% into hi-Z load. **Hum:** -80 db at 6 volts output, fundamental. **Inputs:** 2 megs, .0025 v. for 2 volts out, mike; 1 meg, .32 v. for 2 v. out, high level; .011 v. for 2 v. output, magnetic phono (from one mike input). **Tubes:** 6, plus power silicon rectifier. **Power Required:** 31 watts, 117 v. AC, 60 cps. **Size:** 14 1/4" w. x 8 3/4" d. x 5" h. **Wt.,** 11 3/4 lbs. **Newcomb Model E-5P Mixer-Preamplifier—Net Each.....\$83.75**



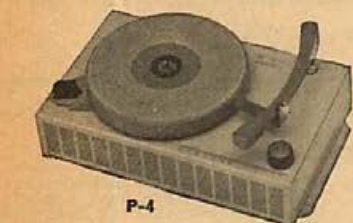
E-10B

**10-WATT MODEL E-10B AMPLIFIER**  
Economical, deluxe amplifier with full, push-pull output system has one mike channel and one high-level channel for ceramic phono, tape or radio. Both channels have mixers. Wide-range tone control has On switch. Output jack permits use with booster or recorder. **Power Output:** 10 watts rms; 20 watts peak at less than 5% distortion. **Power response,** ±3 db, 70-13,000 cps at 5%. **Frequency Response:** ±2 db, 30-15,000 cps. **Hum:** -70 db at full power, fundamental. **Gain:** 118 db at 2 megs, .0055 v. for full power, mike; 79 db at 1 meg, .33 v. for full power, phono. **Outputs:** 4, 8 and 16 ohms; 25-volt and 70-volt lines; 4.4 v. max. (or 1 v. at 1/2 watt), tape jack. **Tubes:** 5. **Power Required:** 60 watts, 117 v. AC, 60 cps. **Size:** 10 1/4" w. x 6 1/2" d. x 5 3/4" h. **Weight,** 9 lbs. **Newcomb Model E-10B Amplifier—Net Each.....\$45.00**



E-20, E-40, E-75

**20-WATT MODEL E-20 AMPLIFIER**  
Powerful, reliable design has one high-level and two mike channels. Each channel complete with mixer; high-level channel has bass-compensated type mixer; separate, master bass and treble controls. **Power Output:** 20 watts rms; 40 watts peak at less than 5% distortion. **Power response,** ±3 db, 50-20,000 cps at 5%. **Frequency Response:** ±2 db, 30-15,000 cps. **Hum:** -70 db at rated output, fundamental. **Gain:** 122 db at 2 megs, .005 v. for full power, mike; 83 db at 1 meg, .315 v. for full power, high level. **Outputs:** 4, 8 and 16 ohms; 70 ohms balanced; 25 v. balanced or unbalanced; 6 v. max. (or 1 v. at 1/2 watt), tape jack. **Tubes:** 5. **Power Required:** 80 watts, 117 v. AC, 60 cps. **Size:** 14 1/4" w. x 9 1/2" d. x 5 3/4" h. **Weight,** 14 1/4 lbs. **Newcomb Model E-20 Amplifier—Net Each.....\$59.70**



P-4

**40-WATT MODEL E-40 AMPLIFIER**  
Higher powered version of Model E-20 with same control facilities. **Power Output:** 40 watts rms; 80 watts peak at less than 5% distortion. **Power response,** ±2 db, 40-20,000 cps at 5%. **Frequency Response:** ±2 db, 30-15,000 cps. **Hum:** -70 db at rated output, fundamental. **Gain:** 125 db at 2 megs, .005 v. for full power, mike; 85 db at 1 meg, .3 v. for full power, phono. **Outputs:** 4, 8 and 16 ohms; 70 ohms balanced; 25 v. balanced or unbalanced; 6 v. max. (or 1 v. at 1/2 watt), tape jack. **Tubes:** 7. **Power Required:** 160 watts, 117 v. AC, 60 cps. **Size:** 14 1/4" w. x 9 1/2" d. x 6 3/4" h. **Weight,** 19 1/4 lbs. **Newcomb Model E-40 Amplifier—Net Each.....\$77.50**

**75-WATT MODEL E-75 AMPLIFIER**  
Extra power at a modest price. Same channels and control facilities as Models E-20 and E-40. **Power Output:** 75 watts rms; 150 watts peak at less than 5% distortion from fixed bias, screen-regulated output. **Power response,** ±2 db, 50-20,000 cps at 5%. **Frequency Response:** ±2 db, 30-15,000 cps. **Hum:** -70 db at rated output, fundamental. **Gain:** 125 db at 2 megs, .005 v. for full power, mike; 88 db at 1 meg, 0.3 v. for full power, phono. **Outputs:** 4, 8 and 16 ohms; 70 ohms balanced; 25 v. balanced or unbalanced; 6 v. max. (or 1 v. at 1/2 watt), tape jack. **Tubes:** 6 plus 3 power silicon rectifiers. **Power Required:** 155 watts, 117 v. AC, 60 cps. **Size:** 14 1/4" w. x 13 1/2" d. x 7" h. **Weight,** 26 lbs. **Newcomb Model E-75 Amplifier—Net Each.....\$113.70**



Half P-212R

C-8

**MODEL P-4 PHONO TOP**  
Four-speed record player designed to fit on top of Model E-20, E-40 or E-75 amplifiers. Includes automatic idler release on power switch to prevent flat spots; plug-in, turnover, dual-sapphire tip, ceramic cartridge; pickup hold-down screw; and, drop pad. **Size:** 14" w. x 8 3/4" d. x 5" h. overall. **Weight,** 6 lbs. **Newcomb Model P-4 Phono Top—Net Each.....\$23.97**

### SPEAKER ASSEMBLIES

**Newcomb Model P-108 Speaker**—8" speaker in portable case with space inside for E-10B amplifier. **Size,** 11 1/4" w. x 9" d. x 14 3/4" h. **Weight,** 9 lbs. **Net Each.....\$24.00**  
**Newcomb Model P-212R Speaker**—Two efficient 12" dual-cone speakers in split portable case with space for E-20 amplifier and P-4 phono top. **Size,** 15 1/4" w. x 13 1/2" d. x 23" h. **Weight,** 22 1/2 lbs. **Net Each.....\$60.00**  
**Newcomb Model P-212H Speaker**—Same, but speakers are heavy-duty 12" type and space is provided for E-40 amplifier with phono top. **Wt.,** 24 1/2 lbs. **Net Each.....\$67.50**  
**Newcomb Model C-8 Column Speaker**—Four, efficient 8" speakers in column-type cabinet. **Handles** 60 watts peak. **Size,** 11 3/4" w. x 6 1/2" d. x 40" h. **Wt.,** 20 1/2 lbs. **Net.....\$69.50**  
**Newcomb Model C-12 Supercolumn**—Four 12" speakers in column cabinet; handles 120 watts peak. **Size,** 15 1/4" w. x 7 1/2" d. x 56" h. **Wt.,** 39 1/2 lbs. **Net Each.....\$139.50**

### PATHFINDER PA SYSTEMS

Complete systems for mobile or permanent installation. Complete with one of the above amplifiers and speaker assemblies (mike not supplied), speaker cord with plug, and mike carrying straps (on portable systems only).

Newcomb Model	Ampl. No.	Speaker No. or Size	Cord Lgth. Ft.	Feature or Installation	System Wt., Lbs.	Net Each
E-10-28F	E-10B	Two 8"	100	No baffle; permanent	12	\$ 59.40
E-1008S	E-10B	P-108	25	Portable system	17 1/2	69.00
E-20-2C8F	E-20	Two C-8	100	Col. speaker; permanent	54 3/4	201.70
E-20-48F	E-20	Four 8"	200	No baffle; permanent	20 1/4	88.50
E-20-212F	E-20	Two 12"	100	No baffle; permanent	20 1/4	86.10
E-20-2C12F	E-20	Two C-12	100	Col. speaker; permanent	93 1/4	341.70
E-20-212R	E-20	P-212R	Two 25	Portable system	37	119.70
E-40-2C8F	E-40	Two C-8	100	Col. speaker; permanent	60	219.50
E-40-2C12F	E-40	Two C-12	100	Col. speaker; permanent	98 1/2	359.50
E-40-212FH	E-40	Two 12"	100	No baffle; permanent	28	110.50
E-40-212H	E-40	P-212H	Two 25	Portable system	44	145.00
E-40-412F	E-40	Four 12"	200	No baffle, permanent	32 1/2	130.30
E-75-2C12F	E-75	Two C-12	100	Col. speaker; permanent	105	395.70
E-75-4C8F	E-75	Four C-8	200	Col. speaker; permanent	107	397.70
E-75-4C12F	E-75	Four C-12	200	Col. speaker; permanent	184	677.70
E-75-412FH	E-75	Four 12"	200	No baffle; permanent	43	179.70

\*As used in P-108. †As used in P-212R, dual-cone. ‡As used in P-212H, heavy-duty.



# Newcomb Audio Equipment

## RS-20 SERIES STEREO PHONOS



Portable four-speed stereo phono has two 9" oval, dual cone speakers. Plays records up to 12". Two channel, Bi-Coupled amplifier, 10 watts peak per channel, 20 watts total. On-off switch automatically retracts idler. Plug-in ceramic turnover cartridge; Jewel styl. Spring-floated "Marlite" feet. 45 rpm adapter. U/L Approved. Size: (Snap-together-case) 24 1/4" x 8 1/2" x 11 1/4". Weight, 28 lbs. **Newcomb Model RS-20 Stereo Phono—\$149.50**  
Net Each.....

**Newcomb Model RS-20-2 Stereo Phono**—Two 12" dual cone speakers in split case, 16 1/4" x 13 1/4" x 16 1/4". Amplifier-turntable same, 15 1/4" x 10 1/4" x 11 1/4". Wt., 42 lbs. total. Net. **\$184.00**

**Newcomb Model RS-20-C2 Stereo Phono**—Two separate two-way reproducers, each 20" x 10 1/4" x 14 1/4". Amplifier-turntable same as RS-20-2. Wt. 60 lbs. total. Net Each..... **\$278.50**

**Newcomb Model RS-20-KN2 Stereo Phono**—Two deluxe two-way enclosed speakers, each 16 1/4" x 10 1/4" x 23 1/4". Amplifier-turntable same as RS-20-2. Weight, 91 lbs. total. Net. **\$385.00**

## RS-1620 SERIES STEREO PHONOS

Portable stereo phono with 20-watt peak Bi-Coupled output. Choice of three different speaker systems and with fixed or variable speeds. Stereo mike, tape or radio inputs; neon strobe and speed control (on variable speed models). Each channel has separate scratch filter, voice filter, mike volume mixer, and separate bass and treble controls. Master stereo-mono selector. Plays records up to 17 1/4". One-piece tone arm; plug-in turnover ceramic stereo cartridge; Jewel styl. U/L Approved. Marlite feet on rubber springs. Turntable-amplifier case, 8" x 15 1/2" x 16 1/4"; weight, 26 1/2 lbs. Perforated metal speaker grilles. Supplied with 25' cable and polarized plug.



**ORDERING INFORMATION**  
Suffix -2: With two 12" full-range speakers, in split case; 16 1/4" x 16 1/4" x 13 1/4". Wt., 47 1/2 lbs., total. Suffix -HF2: Two two-way speaker systems, (12" woofer and 3 1/4" tweeter), case 16 1/4" x 16 1/4" x 13 1/4". Wt., 49 1/2 lbs., total. Suffix -C2: Two separate two-way speakers with ducted port and tweeter level control, each 10 1/4" x 14 1/4" x 20". Wt., 65 1/2 lbs., total.

Cases	Variable Speed Model No.	Net Each	Fixed Speed Model No.†	Net Each
2	RS-1620V-2	\$215.00	RS-1620-2	\$205.00
2	RS-1620V-HF2	239.00	RS-1620-HF2	229.00
3	RS-1620V-C2	309.50	RS-1620-C2	299.50

†Without speed control and strobe light.

## MODEL R-124V PORTABLE PHONO



Variable four-speed portable phono. Ceramic cartridge with dual-sapphire needle; 45 rpm adapter; separate power switch for automatic idler release. Bi-Coupled 12-watt transformer-powered amplifier; volume control; tone control; pilot light. External speaker or earphone jack. With a two-way 9" oval speaker. Requires 55 watts, 117 v. AC, 60 cps. U/L Approved. Size: 14 1/4" x 14 1/4" x 8 3/4". Wt., 20 lbs. **\$85.95**

**Newcomb Model R-124V**—Net Each..... **\$85.95**  
**Newcomb Model R-124**—Fixed speed control. Net Ea. **\$69.50**  
**Newcomb Model R-124-C**—Ten-watt economy phonograph with headphone jack. Net Each..... **\$62.50**

## M-9 AND M-12 AMPLIFIED MONITORS

Auxiliary speaker for music only, or for both music and voice. May be used as a second channel for stereo transcription players, or a pair will provide complete two channel audio system for most stereo tape decks. M-12 incorporates a 10 watt amplifier, tone and volume controls, and a matched 12" full range loud-speaker protected by a metal grille. Gray Fabrikoid covered plywood case. Size: 17 1/2" w. x 7 1/2" d. x 13 3/4" h. Shipping Weight, 17 1/2 lbs.



**Newcomb Model M-12 Amplified Monitor**—Net Each..... **\$79.50**  
**Newcomb Model M-9 Amplified Monitor**—Same as above, but with 9" oval speaker. Size: 13 1/4" w. x 7" d. x 10 1/4" h. Shipping Weight, 10 lbs. Net Each..... **\$69.50**

## TR AND TRS SERIES PORTABLE PHONOS



Portable combination transcription players and public address systems. Instant start, +5% to -15% variable, four-speed motors with "Speed-O-Scope" indicating correct speeds. TR-1625 series has two-pole motor; others four-pole. Ten-inch, 2 lb. turntable; rubber mat, special groove for 45 rpm. Rubber drop pad protects stylus. GE variable reluctance cartridge in "M" models; others plug-in, "power point" ceramic (Provision for stereo conversion). Long tone arm with adjustable stylus pressure. Low distortion, inverse feedback amplifiers have response of ±2 db, 20-20,000 cps. Broadband

output transformers, 4 or 8 ohms. Separate volume mixers for phono and mike, voice and scratch filter controls. Mike unaffected by bass control. Output jacks for entire program or phono only; stereo jack on ceramic models. **TR-1625, TR1625M**: 25-watt peak, mike and aux. input. **TR-1640**: 40-watt peak, separate bass control for phono and mike; input for mike, aux. **TR-1640M**: 40-watt peak; handles four speakers; two-way crossover network speaker systems; phono converts to second mike channel. **TR-1656M**: 56-watt peak; phono channel converts to third mike channel; separate bass control for first mike channel.

**ORDERING INFORMATION**: Suffix indicates number and types of speakers, total number of cases in system. No Suffix: 1-12" removable, spkr., 1 case. -2, -E2, -X2: 2-12", 2 cases. -4, -E4, -X4: 4-12", 3 cases. -CS2: 2 column spkrs., 3 cases. -CS4: 4 column spkrs., 5 cases. -NE2: 2-12", 4-3 1/4", 3 cases. -NE4: 4-12", 8-3 1/4", 5 cases. -SCS2: 8-12", 3 cases. -SCS4: 16-12", 5 cases. -RHf: 2-way syst., 2 cases. -KN: 1-12", 1 horn tweeter, 2 cases. -KN2, -NH2, -NN2: 2-12", 2 horn tweeters, 3 cases. -KN4, -NH4, -NN4: 4-12", 4 horn tweeters, 5 cases. -HF: 1-12", 1-3 1/4", 1 case. -HF2, -NF2: 2-12", 2-3 1/4", 2 cases. -HF4, -NF4: 4-12", 4-3 1/4", 3 cases except 1640M-HF4, 2-3 1/4".

Newcomb Model TR-	Net Each	Newcomb Model TR-	Net Each	Newcomb Model TR-	Net Each
1625	\$139.50	1640-NH2	\$331.00	1640M-SCS4	\$713.50
1625-2	172.50	1640-NH4	530.00	1656M-HF2	288.50
1625-CS2	247.00	1640-SCS2	411.00	1656M-HF4	377.00
1625-NE2	237.00	1640-NE4	690.00	1656M-X2	311.00
1625-SCS2	387.00	1640M-E2	220.00	1656M-X4	421.50
1625M	154.50	1640M-E4	284.50	1656M-CS2	339.00
1625M-2	187.50	1640M-HF	205.00	1656M-CS4	478.00
1625M-CS2	262.00	1640M-HF2	244.00	1656M-NE2	329.00
1625M-NE2	252.00	1640M-HF4	309.50	1656M-NE4	458.00
1625M-RHF	211.50	1640M-CS2	294.50	1656M-NH2	399.00
1625M-SCS2	402.00	1640M-CS4	433.50	1656M-NH4	598.00
1640	169.95	1640M-NE2	284.50	1656M-NN2	439.00
1640-E2	196.50	1640M-NE4	413.50	1656M-NN4	678.00
1640-E4	261.00	1640M-NH2	354.50	1656M-NF2	329.85
1640-2	209.50	1640M-NH4	553.50	1656M-NF4	459.35
1640-4	273.05	1640M-NN2	394.50	1656M-KN2	465.85
1640-CS2	271.00	1640M-NN4	633.50	1656M-KN4	731.35
1640-CS4	410.00	1640M-KN	286.25	1656M-SCS2	479.00
1640-NE2	261.00	1640M-KN2	421.00	1656M-SCS4	758.00
1640-NE4	390.00	1640M-SCS2	434.50		

**TRS Series**—For dual channel stereo or monophonic; 40 watts peak per channel, 80 watts total output. Features similar to TR series with stereo controls (blend, volume, mixing and selector plus input and output jacks); 3 mike channels.

Newcomb Mod. TRS-	Net Each	Newcomb Mod. TRS-	Net Each	Newcomb Mod. TRS-	Net Each
1680-CS2	\$438.50	1680-NH2	\$498.50	1680-KN2	\$565.00
1680-CS4	577.50	1680-NH4	697.50	1680-KN4	830.50
1680-NF2	429.00	1680-NN2	538.50	1680-SCS2	578.50
1680-NF4	558.50	1680-NN4	777.50	1680-SCS4	857.50

## MODEL R-164V PORTABLE PHONO

Variable four-speed high fidelity combination transcription player and portable PA system. For use in the music room, gym, dance classes and outdoor activities. Plays records up to 17 1/4" diameter. Speed variable to 20% below 78, 45, 33 1/3 and 16 2/3 rpm. Idler release interlocked with motor switch. "Twist-up" 45 rpm adapter. Ceramic cartridge with dual-sapphire needle. Bi-Coupled 12-watt transformer-powered amplifier. Separate volume controls for microphone and phonograph; mixing circuit for simultaneous use of both sources. Microphone input; output jack for speaker or headphones. Separate bass and treble controls. Angled control panel; jeweled pilot light. Large, dual cone, 12" speaker in case top with 25' extension cable. Sturdy plywood case, covered with washable scratch-resistant Fabrikoid; reinforced metal corners. Kiek-proof metal speaker grille. Operates on 55 watts, 117 v. AC, 60 cps. Size: 15 1/2" x 15 1/2" x 11" (with case closed). Weight, 25 lbs.



**Newcomb Model R-164V**—Complete system with **\$1075.00** variable speed control. Net Each.....  
**Newcomb Model R-164**—Four-speed player similar to Model R-164V but without variable speed control. Net Each..... **\$93.25**



# BOGEN FLEX-PAK® PUBLIC ADDRESS AMPLIFIERS

## MTX30A PROFESSIONAL DELUXE ALL-SILICON TRANSISTOR 30-WATT PA AMPLIFIER

Extremely versatile packaged amplifier offers highest standards of reliability and flexibility. **Features:** (1) Fully transistorized for continuous operation at full output; (2) Temperature range, -20° C to +70° C; optimum performance at extremes of temperature range; (3) Response to 15 cps, full output 30-20,000 cps; (4) Excellent power curve, low distortion; (5) 13 inputs, six of which may be faded and mixed simultaneously; (6) Six input channels may be provided with remote volume or precedence control; (7) Six input channels have individual speech filter switches; (8) Calibrated low frequency cut-off filter control shapes speech filter response; (9) Inputs for six microphones, plus auxiliary, tape, bridging and phono inputs; (10) Four microphone inputs convert to low impedance with T200, T500 or T50 low-hum plug-in transformers; (11) Outputs for tape and booster amplifier drive; (12) Emergency operation possible from 12-15 VDC source; (13) Printed circuit board modular components simple to locate and service; (14) Optional monitor meter and speaker. **Power Output:** 30 watts at less than 2% distortion; full power, 30-20,000 cps; peak power, 50 watts. **Frequency Response:** = 1 db, 15-25,000 cps. **Gain:** Microphone, 125 db; mag. phono, 120 db; aux, 95 db. **Hum**

**and Noise:** Microphone, -70 db; mag. phono, -65 db; aux, -85 db below rated output. **Sensitivity:** High impedance microphone 2 mV; mag. phono, 3 mV; aux, 0.5 V. **Inputs:** (13) Four microphone (convertible to low impedance), two high impedance microphone; two mag. phono or tape playback heads; two aux (high impedance, high level); one 600-ohm balanced telephone line, two bridging. **Output Impedance:** 4, 8, 16 and 16 ohms; 25-volt balanced line (21 ohms); 70-volt balanced line (163 ohms). **Controls:** Four microphone (each with speech filter or wide-range switch); Mike/Mag. Phono/Tape Head/Aux Fader; Mike/Mag. Phono/Tape Head/Aux 600-ohm Line Fader; Master Volume; Bass; Treble; Power; Variable Filter. Provision for remote control or precedence of all six inputs and master volume. **Tone Controls:** Treble, +12 to -14 db at 10 kc; bass, +15 to -9 db at 50 cps. **Transistors:** 32 transistors plus three silicon diodes and two zener diodes. **Power Consumption:** 60 watts, 105-125 VAC, 50-60 cps or 12-15 VDC. **Size:** 16 1/4" w. x 12" d. x 4 3/4" h. Shpg. Wt., 28 lbs.

Bogen Model MTX30A Amplifier—Net Price.....\$239.25  
Zone 2: 241.80



MTX30A, MX60A, MX30A  
Shown with MMS-1



M120



M60A, M330A  
Shown with MSK-1

### MONITORING ACCESSORIES

**Bogen Model MMS-1 Monitor Meter and Speaker**—Allows operator to check sound levels both by eye and ear. For use with Models MTX30A, MX60A and MX30A. **Net Price:**.....\$29.90  
Zone 2: 30.00

**Bogen Model MSK-1 Monitor Speaker and Panel**—For Models MTX30A, MX60A, MX30A, M120, M60A and M330A. **Net:** \$8.95  
Zone 2: 9.05

A FULL LINE OF ACCESSORIES IS AVAILABLE FOR ALL BOGEN AMPLIFIERS, INCLUDING REMOTE CONTROL UNITS, CARRYING CASES, MICROPHONE TRANSFORMERS AND PHONO TOPS.

### "MX" SERIES DELUXE PA AMPLIFIERS

"MX" Series **Features:** (1) Master gain control; (2) Built-in remote gain control circuit allows changes in gain for distances to 2000 ft.; (3) Constant volume gain control taps; (4) Variable level markers permit resetting controls to predetermined levels; (5) Variable low frequency notch filter; (6) Special filters in five channels to improve speech clarity; (7) Equalized phono input for all cartridges; (8) Separate bass and treble controls; (9) Plug-in sockets for low impedance transformers; (10) Total of six channels can be mixed simultaneously; (11) Broadcast-type (Cannon XL Series) microphone connectors; (12) Push-pull switches in each of five inputs; (13) Sturdy leather carrying handles; (14) Handsome, compact design, finished in silver, gray and black. (15) Many versatile accessories available; see accessories page for complete listing. (16) Inputs include 4 mike (convertible to low imped.), 4 mike (high imped. or mag. tape), 2 aux (high imped. high level/fader), 1 600-ohm bal. telephone line and 1 bridging input/output.

#### MX60A DELUXE 60-WATT PA AMPLIFIER

With master gain control, built-in remote gain control circuit, five microphone channels (one converts to phono), two auxiliary, exclusive variable level markers and other features listed above. **Power Output:** 60 watts at less than 2% distortion. **Full Output:** 21-30,000 cps, = 1 db. **Frequency Response:** = 1 1/2 db, 10-38,000 cps. **Gain:** Microphone, 125 db; aux, 85 db; magnetic phono, 120 db. **Hum:** Mike, -70 db below rated output. **Tone Controls:** Treble, +13 db to -15 db at 10 kc; bass, +15 db to -10 db at 50 cps. **Output Impedance:** 4, 8, 16 and 83 ohms; 25-volt and 70-volt balanced lines. **Tubes:** (8) 3-12AX7A, 3-7247, 2-8417 plus five silicon rectifiers. **Power Consumption:** 180 watts. **Size:** 16 1/2" w. x 12" d. x 4 3/4" h. Shpg. Wt., 40 lbs.

Bogen Model MX60A Deluxe Amplifier—Net Price.....\$194.65  
Zone 2: 197.60

**Bogen Model LVP-1**—Accessory for master volume remote control; precedence over aux by 1 mike or adjustable volume compressor. **Net Price:**.....\$8.25  
Zone 2: 8.35

#### MX30A DELUXE 30-WATT PA AMPLIFIER

Features master gain control, built-in remote gain control circuit, five microphone channels (one converts to phono), auxiliary exclusive variable level markers and other features as listed above. **Power Output:** 30 watts at less than 2% distortion. **Full Output:** 21-40,000 cps, = 1 1/2 db. **Frequency Response:** = 2 db, 10-40,000 cps. **Gain:** Microphone, 125 db; aux, 85 db; magnetic phono, 120 db. **Hum:** Mike, -70 db below rated output. **Tone Controls:** Treble, +13 db to -15 db at 10 kc; bass, +15 db to -10 db at 60 cps. **Output Impedance:** 4, 8, 16 and 163 ohms; 25-volt and 70-volt balanced lines. **Tubes:** (8) 3-12AX7A, 2-7868, 3-7247 plus five silicon rectifiers. **Power Consumption:** 125 watts. **Size:** 16 1/2" w. x 12" d. x 4 3/4" h. Shipping Weight, 34 lbs.

Bogen Model MX30A Deluxe Amplifier—Net Price.....\$157.45  
Zone 2: 160.05

#### M120 120-WATT PA AMPLIFIER

**Power Output:** 120 watts at 3% distortion, 200 watts peak. **Frequency Response:** = 1 db, 20-20,000 cps. **Gain:** Mike, 125 db; mag., 118 db; aux, 95 db. **Hum:** Mike, -65 db; mag., -65 db; aux, 80 db; all below rated output. **Inputs:** 3 mike (convertible to low imped., two convertible to mag.); 1 aux; 1 600-ohm line. **Output Impedances:** 8 and 16 ohms; 25 V (5 ohms) balanced; 70 V (41 ohms) balanced; 25 V, CT (1.25 ohms). **Tone Control:** Treble, -14.5 to +12 db at 10 kc; bass, -9.5 db to +15 db at 50 cps. **Tubes:** (7) 4-8417, 1-7247, 2-6EU7; 3 silicon rectifiers. **Power Consumption:** 320 watts. **Size:** 16 1/2" w. x 12" d. x 4 3/4" h. Shpg. Wt., 42 lbs.

Bogen Model M120 Amplifier—Net Price.....\$194.90  
Zone 2: 197.25

#### M60A 60-WATT PA AMPLIFIER

General purpose 60-watt PA amplifier similar to Model M330A. Seven inputs plus separate volume controls for the four input channels. Bass and treble controls provided for adjusting tonal balance; master volume for several gain. **Power Output:** 60 watts at 3% distortion; 100 watts peak. **Frequency Response:** = 2 db, 20-20,000 cps. **Gain:** Microphone, 122 db; aux, 96 db; magnetic phono, 115 db. **Hum and Noise:** Microphone, -65 db; aux, -80 db. **Inputs:** 3 mike (convertible to low imped. or 2 to mag.), 1 aux, 1 600-ohm bal. line. **Output Impedances:** 4, 8 and 16 ohms; 25-volt (16 ohms) balanced; 70-volt (82 ohms) balanced from quick disconnect sockets. **Tone Controls:** Treble, -15 db to +12 db at 10 kc; bass, -9 1/2 db to +15 db at 50 cps. **Tubes:** (5) 2-8417, 1-7247, 2-6EU7; 2 silicon rectifiers, 1 diode. **Power Consumption:** 160 watts. **Size:** 14 1/2" w. x 9 3/4" d. x 5 3/4" h. Shpg. Wt., 28 lbs.

Bogen Model M60A Amplifier—Net Price.....\$138.75  
Zone 2: 141.25

#### M330A 30-WATT PA AMPLIFIER

Three microphone channels, with two convertible to magnetic cartridge; plus auxiliary inputs. Built-in remote gain control circuit. Sockets provided for low impedance T500/200/50 transformers. Other features include separate master gain, bass, treble controls, plus memory markers for resetting controls. Uses 70 V and 25 V output taps. **Power Output:** 30 watts at 2% distortion. Peak power, 50 watts. **Frequency Response:** = 2 db, 20-20,000 cps. **Gain:** Microphone, 120 db; aux, 95 db; mag. cartridge, 105 db. **Hum and Noise:** Microphone, -65 db; aux, -80 db below rated output. **Inputs:** Identical to Model M60A 60-watt PA amplifier, see above. **Output Impedances:** 4, 8 and 16 ohms; balanced 25-volt (16 ohms); 70-volt (163 ohms). **Tone Controls:** Treble, +10.5 db to -14.5 db at 10 kc; bass, +13.5 db to -9 db at 50 cps. **Tubes:** (5) 2-7868, 1-7247, 2-6EU7; 2 silicon rectifiers, 1 silicon diode. **Power Consumption:** 120 watts, 105-125 VAC, 50/60 cps. **Size:** 14 1/2" w. x 9 3/4" d. x 5 3/4" h. Shipping Weight, 20 lbs.

Bogen Model M330A Amplifier—Net Price.....\$113.25  
Zone 2: 116.05



# BOGEN UTILITY PUBLIC ADDRESS AMPLIFIERS

## "MU" SERIES PA AMPLIFIERS

Handsome styled MU Series amplifiers offer many outstanding features, including: Up to two microphone inputs, plus a variety of auxiliary inputs; individual and master volume controls; separate bass and treble controls; "Memory Markers" for resetting controls to previously determined levels; constant-voltage output taps; sockets for low impedance transformers; provision for remote control. Matching phono tops available for all models.

### MU1250 ALL-TRANSISTOR UNIVERSAL MOBILE PA AMPLIFIER

Transistorized amplifier operates on either 12 volts DC or 117 volts AC, at a temperature range of  $-20^{\circ}$  C to  $+65^{\circ}$  C. Inputs provided for two microphones (high or low impedance), one magnetic phono or tape playback head and two auxiliary inputs. Separate bass, treble, and master-volume controls. Includes AC and DC power cables and back cover. Plug-in transformer not required. **Power Output:** 50 watts at 10%, continuous. **Peak power,** 70 watts. **Frequency Response:**  $\pm 2$  db, 30-15,000 cps. **Gain:** Microphone, 125 db; aux, 95 db. **Hum and Noise:** Microphone, -65 db; aux, -70 db below rated output. **Inputs:** Two microphone (high or low impedance); one mag. phono or tape head; two auxiliary. **Output Impedance:** 4, 8 and 16 ohms; balanced 25-volt line; 70-volt (122 ohms), balanced. **Transistors and Silicon Rectifiers:** (14) 2-2N3053, 7-2N2712, 2-2N1557, 3-MR322. **Power Consumption:** 117 VAC, 12 VDC; 116 watts, 6.7 amps; (quiescent) 16 watts, 3 amp. **Size:**  $15\frac{1}{4}''$  w. x  $10''$  d. x  $6\frac{3}{4}''$  h. **Shipping Weight,** 23 lbs.

**Bogen Model MU1250 Amplifier—Net Price**.....\$149.95  
Zone 2: 151.20

### MU130 30-WATT AMPLIFIER

One microphone channel, plus one auxiliary channel. Has provision for remote control of one microphone. Separate bass, treble, master-volume controls. One plug-in low impedance transformer socket. Constant output taps. **Power Output:** 30 watts at 2% distortion. **Peak power,** 50 watts. **Frequency Response:**  $\pm 2$  db, 20-20,000 cps. **Gain:** Microphone, 122 db; aux, 95 db. **Hum and Noise:** Microphone, -65 db; aux, -80 db below rated output. **Inputs:** One microphone, one auxiliary. **Output Impedance:** 4, 8 and 16 ohms (16 ohms balanced); balanced 25-volt (use 16 ohm tap); 70-volt (163 ohms). **Tubes:** (4) 1-6EU7, 1-7247, 2-7868; 3 silicon rectifiers. **Power Consumption:** 120 watts, 105-125 VAC, 50/60 cps. **Size:**  $15\frac{1}{4}''$  w. x  $10''$  d. x  $6\frac{3}{4}''$  h. **Shipping Weight,** 20 lbs.

**Bogen Model MU130 Amplifier—Net Price**.....\$89.95  
Zone 2: 91.75

### MU15A 15-WATT PA AMPLIFIER

Four separate inputs; selection and mixing of up to three inputs. Master volume control provides control of overall gain; bass and treble switches. Two quick disconnect type plugs for quick connection of speaker system, in addition to screw type terminals. Use with T500, T200 or T50 transformers. **Power Output:** 15 watts continuous at less than 2% distortion, 25 watts peak. **Frequency Response:**  $\pm 2$  db, 20-20,000 cps. **Gain:** Microphone, 125 db; aux, 100 db. **Hum and Noise:** Microphone, -60 db; aux, -80 db. **Inputs:** Two microphone high impedance (convertible to low impedance), two aux (high impedance, high level). **Output Impedance:** 4, 8 and 16 ohms (16 ohm balanced); 25-volt balanced (42 ohms); 70-volt (326 ohms) with quick disconnect sockets only. **Tone Control:** Treble,  $+12$  db to  $-14$  db at 10 kc; bass,  $+15$  db to  $-9$  db at 50 cps. **Tubes:** (4) 1-6EU7, 1-6AV6, 2-6GWS/ECL86 and three silicon rectifiers. **Power Consumption:** 90 watts, 117 V nominal, 50 to 60 cps. **Size:**  $15\frac{1}{4}''$  w. x  $10''$  d. x  $6\frac{3}{4}''$  h. **Shipping Weight,** 19 lbs.

**Bogen Model MU15A Amplifier—Net Price**.....\$83.95  
Zone 2: 85.85

### MU10A 10-WATT AMPLIFIER

Individual microphone and aux inputs plus volume controls to permit mixing of two inputs. Master volume control, bass and treble switches. Uses T155, T156, T157 (Run A) or T50, T200, T500 (Run B) transformers. Two quick disconnect sockets and connectors. **Power Output:** 10 watts continuous at less than 3% distortion, 15 watts peak. **Frequency Response:**  $\pm 2$  db, 20-20,000 cps. **Gain:** Microphone, 125 db; aux, 100 db. **Hum and Noise:** Microphone, -60 db; aux, -80 db. **Inputs:** One microphone (convertible to low impedance), two auxiliary (high impedance, high level). **Output Impedance:** 4, 8 and 16 ohms; 25 V balanced (62 ohms); 70 V (500 ohms). **Tubes:** (3) 1-6EU7, 2-6GWS/ECL86 plus silicon rectifier. **Power Consumption:** 70 watts, 105-125 VAC, 50 to 60 cps. **Size:**  $15\frac{1}{4}''$  w. x  $10''$  d. x  $6\frac{3}{4}''$  h. **Shipping Weight,** 15 lbs.

**Bogen Model MU10A Amplifier—Net Price**.....\$58.45  
Zone 2: 59.80

## TRANSISTORIZED MOBILE AMPLIFIERS

### BT35 TRANSISTORIZED MOBILE 35-WATT PA AMPLIFIER

Ideal for police, fire, Civil Defense and navigation applications. Radio receiver easily connected to auxiliary input. Chassis sealed securely in cabinet with splashproof gasket. Accessory generator available, providing siren tone fog horn. Built-in RF and line filters; polarity protection. Mounts with adjustable fixed lock bracket. Operates over temperature range of  $-20^{\circ}$  C to  $+65^{\circ}$  C. **Power Output:** 35 watts at less than 10% distortion, continuous; 55 watts with siren generator. **Peak Power:** 55 watts. **Frequency Response:**  $\pm 3$  db, 150-15,000 cps. **Gain:** Microphone, 110 db; aux., 90 db. **Hum and Noise:** Microphone, -90 db; aux., -95 db below rated output. **Sensitivity:** Microphone, 1 mV; aux, 0.4 V. **Inputs:** One low impedance microphone; one high level aux. for tuner/tape/phone; one high level aux. for accessory tone signal. **Output Impedance:** 4, 8 and 16 ohms; output for accessory generator. **Controls:** Microphone; Aux. Volume; 4-Position Selector/Power Switch. **Transistors:** 2-2N2431, 1-2N555, 2-2N1557; 1 silicon diode. **Power Consumption:** 3.6 amps at full power, 42 amp quiescent, 12-15 VDC. **Size:**  $8''$  w. x  $6\frac{1}{4}''$  d. x  $3''$  h. **Shipping Weight,** 8 lbs.

**Bogen Model BT35 Amplifier—Net Price**.....\$79.45  
Zone 2: 80.00

**Bogen Model SF-1 Siren/Fog Horn Generator—**Completely silicon transistorized, easily attached to dashboard or to bottom of Model BT35. Provision for remote foot switch operation. May be operated either automatically or manually. Complete with 6 ft. cable and plug for attaching to BT35. **Net Price**.....\$54.70  
Zone 2: 54.95

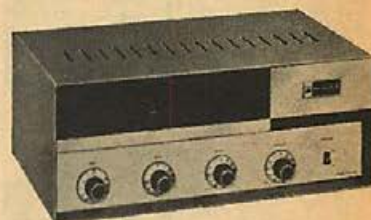
### BT20 TRANSISTORIZED 20-WATT MOBILE PA AMPLIFIER

Economy model for general public address applications. Operation from  $-20^{\circ}$  C to  $+65^{\circ}$  C. **Power Output:** 20 watts at less than 10%, continuous. **Frequency Response:**  $\pm 3$  db, 250-12,000 cps. **Gain:** Microphone, 110 db; aux., 90 db. **Hum and Noise:** Microphone, -90 db; aux., -95 db below rated output. **Sensitivity:** Microphone, 1 mV; aux, 0.4 V. **Inputs:** One low impedance microphone; one aux (tuner, tape, phono). **Output Impedance:** 4, 8 and 16 ohms. **Controls:** Microphone; Aux./Power. **Transistors:** 2-2N2431, 1-2N555, 2-2N669. **Power Consumption:** 2.95 amps at full power; 56 amp quiescent, 12-15 VDC. **Size:**  $4\frac{1}{2}''$  w. x  $4''$  d. x  $6\frac{1}{2}''$  h. **Shipping Weight,** 5 lbs.

**Bogen Model BT20 Amplifier—Net Price**.....\$59.95  
Zone 2: 60.50



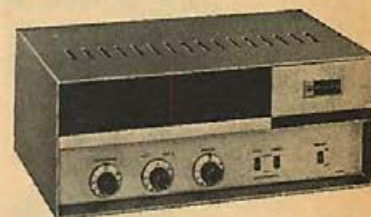
MU1250 Shown with Phono Top



MU130



MU15A



MU10A



BT35



BT20



# BOGEN CHALLENGER "CHB" SERIES PUBLIC ADDRESS AMPLIFIERS

Systems-tested circuitry for continuous, heavy duty operation; protection against circuit damage caused by accidental shorting or disconnecting of speaker lines; master volume control; separate bass and treble controls; no "double duty" control devices; "Memory Markers" for resetting controls to previously determined levels. Reserve power for volume peaks with wide frequency response. High input sensitivity; low noise and hum. Fixed grid bias in push-pull output stage assures low distortion at maximum

output. Constant-voltage output taps simplify addition of matching transformers for multiple speaker systems. Two speaker plug-in sockets, plus screw terminals. Models CHB35A, CHB50 and CHB100 also offer simultaneous mixing of three input signals, two microphones and tuner or phono; accept magnetic phono and tape recorder; built-in remote vol. control. All models except CHB125 have provision for 500/600 ohm phone line input for wired background music and require 105-125 VAC, 50-60 cps.

## CHB125 20-WATT UNIVERSAL MOBILE AMPLIFIER

Transistorized: Operates within a temperature range of  $-20^{\circ}$  C to  $+65^{\circ}$  C. **Power Output:** 20 watts at 10%, continuous; 30 watts peak. **Frequency Response:**  $\pm 2$  db, 60-20,000 cps. **Gain:** Mike, 120 db; aux, 90 db. **Hum and Noise:** Microphone, -65 db; aux, -70 db. **Sensitivity:** Low impedance microphone, 2 mV; high impedance microphone, 3 mV; aux, 0.5 V. **Inputs:** Two microphone, two aux. **Output Impedance:** 4, 8 and 16 ohms; 25 V balanced (25 ohms); 70 V balanced (196 ohms). **Tone Controls:** Treble, -11

db at 10 kc; bass, -9 to +9 db at 50 cps. **Transistors:** (11) 9-2N2712, 2-2CA40050 (matched); 3 silicon rectifiers, 1-50D100D, 2-50D100A. **Power Consumption:** 12 W at 117 VAC quiescent; 50 W at 117 VAC full power; 0.3 amp at 14 VDC quiescent; 2.5 amps at 14 VDC full power. **Size:**  $15\frac{1}{4}''$  w. x  $10''$  d. x  $4\frac{1}{4}''$  h. Shipping Weight, 17 lbs.

**Bogen Model CHB125 Amplifier—Net Price.....\$109.35**  
Zone 2: **110.70**



CHB125

## CHB50 50-WATT AMPLIFIER

**Power Output:** 50 watts at 5% distortion. **Frequency Response:**  $\pm 2$  db, 20-20,000 cps. **Gain:** Microphone, 120 db; aux, 95 db; mag. phono cartridge, 110 db. **Hum and Noise:** Microphone, 70 db; aux, 80 db below rated output. **Sensitivity:** Microphone, 5 mV; aux, 0.3 V; magnetic phono, 15 mV. **Inputs:** Two high impedance microphones; one magnetic phono; two aux (high impedance, high level). **Output Impedance:** 4, 8 and 16 ohms; 25-volt line (12 ohm); 70-volt line (100 ohm); 70 V balanced (196 ohms). **Tone Controls:** Treble, +10 db to -15 db at 10 kc; bass, +11 db to -10 db at 50 cps.  **Tubes:** (5) 1-6EU7, 1-12AX7, 2-6L6GC, 1-6C4; 1 silicon rectifier. **Power Consumption:** 150 watts. **Size:**  $15\frac{1}{4}''$  w. x  $10''$  d. x  $6\frac{3}{4}''$  h. Shipping Weight, 21 lbs.

**Bogen Model CHB50 Amplifier—Net Price.....\$85.40**  
Zone 2: **87.30**



CHB50, CHB35A

## CHB35A 35-WATT AMPLIFIER

**Power Output:** 35 watts at 5% distortion. **Frequency Response:**  $\pm 2$  db, 20-20,000 cps. **Gain:** Microphone, 125 db; aux, 100 db; mag. phono cartridge, 115 db. **Hum and Noise:** Microphone, 65 db; aux, 80 db below rated output. **Sensitivity:** Microphone, 4 mV; aux, 0.2 V; magnetic phono, 12 mV. **Inputs:** Two high impedance microphones; one magnetic phono; two aux (high impedance, high level). **Output Impedance:** 4, 8 and 16 ohms; 25-volt line (18 ohm); 70-volt line (143 ohm). **Tone Controls:** Treble, +10 db to -16 db at 10 kc; bass, +14 db to -10 db at 50 cps.  **Tubes:** (5) 1-6EU7, 2-7868, 1-12AX7, 1-6C4; 2 silicon rectifiers; 1 silicon diode. **Power Consumption:** 125 watts. **Size:**  $15\frac{1}{4}''$  w. x  $10''$  d. x  $6\frac{3}{4}''$  h. Shipping Weight, 21 lbs.

**Bogen Model CHB35A Amplifier—Net Price.....\$73.40**  
Zone 2: **75.20**



CHB100 Shown with Phono Top

## CHB100 100-WATT AMPLIFIER

**Power Output:** 100 watts at 5% distortion. **Frequency Response:**  $\pm 2$  db, 20-20,000 cps. **Gain:** Microphone, 125 db; aux, 100 db; mag. phono cartridge, 115 db. **Hum and Noise:** Microphone, 70 db; aux, 80 db below rated output. **Sensitivity:** Microphone, 5 mV; aux, 0.3 V; magnetic phono, 15 mV. **Inputs:** Two high impedance microphones; one magnetic phono; two aux (high impedance, high level). **Output Impedance:** 4, 8 and 16 ohms; 25 V line bal. (6 ohm); 70-volt line (50 ohm). **Tone Controls:** Treble, +12 db to -15 db at 10 kc; bass, +14 db to -9 db at 50 cps.  **Tubes:** (7) 1-6EU7, 1-12AX7, 4-7868, 1-6C4; 1 silicon rectifier. **Power Consumption:** 300 watts. **Size:**  $15\frac{1}{4}''$  w. x  $10''$  d. x  $6\frac{3}{4}''$  h. Shipping Weight, 25 lbs.

**Bogen Model CHB100 Amplifier—Net Price.....\$116.90**  
Zone 2: **119.15**



CHB20A

## CHB20A 20-WATT AMPLIFIER

**Power Output:** 20 watts at 5% distortion. **Frequency Response:**  $\pm 2$  db, 20-20,000 cps. **Gain:** Microphone, 125 db; aux, 100 db. **Hum and Noise:** Microphone, 65 db; aux, 80 db below rated output. **Sensitivity:** Microphone, 3 mV; aux, 0.5 V. **Inputs:** One high impedance microphone; two aux (high impedance, high level). **Output Impedance:** 4, 8 and 16 ohms; 25 volt balanced line (31 ohm); 70 volt line (250 ohm). **Tone Controls:** Treble, -10 db to -16 db at 10 kc; bass, +14 db to -10 db at 50 cps.  **Tubes:** (3) 1-6EU7, 2-6GW8; 2 silicon rectifiers; 1 silicon diode. **Power Consumption:** 90 watts. **Size:**  $15\frac{1}{4}''$  w. x  $10''$  d. x  $6\frac{3}{4}''$  h. Shpg. Wt., 17 lbs.

**Bogen Model CHB20A Amplifier—Net Price.....\$59.95**  
Zone 2: **61.50**



CHB14A

## CHB14A 14-WATT AMPLIFIER

Same features as CHB20A, 35A, 50 and 100. Two speaker sockets and screw terminals. **Power Output:** 14 watts at 5% distortion. **Frequency Response:**  $\pm 2$  db, 20-20,000 cps. **Gain:** Microphone, 120 db; aux, 95 db. **Hum and Noise:** Microphone, 55 db; aux, 80 db below rated output. **Sensitivity:** Microphone, 4 mV; aux, 0.4 V. **Inputs:** One high impedance microphone; two aux (high impedance, high level). **Output Impedance:** 4, 8, 16 ohms; 25 V (45 ohms); 70 V (355 ohms). **Tone Controls:** Treble, -15 db at 10 kc; bass, -17 db at 50 cps.  **Tubes:** (3) 1-6AU6, 2-ECL85; 2 silicon rectifiers. **Power Consumption:** 70 watts. **Size:**  $15\frac{1}{4}''$  w. x  $10''$  d. x  $6\frac{3}{4}''$  h. Shpg. Wt., 16 lbs.

**Bogen Model CHB14A Amplifier—Net Price.....\$47.90**  
Zone 2: **49.45**



CHB10A

## CHB10A 10-WATT AMPLIFIER

Ideal for wired background music. One speaker socket and screw terminals. Available with or without enclosure. **Power Output:** 10 watts. **Frequency Response:**  $\pm 2$  db, 40-12,000 cps. **Gain:** Microphone, 110 db; phono, 90 db. **Hum and Noise:** Microphone, 80 db; phono, 75 db below rated output. **Sensitivity:** Microphone, 6 mV; phono, 0.2 V. **Inputs:** One high impedance mike, one phono (high impedance, high level); provision for 500/600 ohm telephone line input for wired background music. **Output Impedance:** 4, 8, 16 ohms; 25 V (60 ohms); 70 V (600 ohms). **Tone Control:** Treble, -24 db at 10 kc.  **Tubes:** (2) 1-12AX7/ECC83, 1-7868; rectifier. **Power Consumption:** 50 watts. **Size:**  $11\frac{1}{4}''$  w. x  $8\frac{3}{4}''$  d. x  $5\frac{3}{4}''$  h. Shipping Weight: CHB10A, 12 lbs.; CHB10A-LC, 10 lbs.

**Bogen Model CHB10A Amplifier—With cage. Net Price.....\$38.85**  
Zone 2: **39.90**

**Bogen Model CHB10A-LC Amplifier—Less cage. Net Price.....36.00**  
Zone 2: **36.90**



# Argos Baffles, Cabinets, Systems



Thinline Baffles with Speakers

Regular

Prestige, Deluxe

Professional

Corner Baffles

## THINLINE WALL BAFFLES

Thinline wall baffles with heavy duty PA-quality, Jensen speakers. Units are 1/2" thinner, wider and more attractive through incorporation of ceramic magnet type speakers for high output and efficiency. Units available with or without L-pad and/or transformer, installed and wired; screw terminals 8-ohm. Argos speedy mounting clip is supplied for rapid installation. Heavy wood-grained vinyl covers top, sides and bottom; specify blond or walnut. Cane grille.

- BAFFLES WITH 8" JENSEN SPEAKER (6-OZ. MAGNET)**  
 Speaker rated 15 watts. Size, 12 1/4" x 9 3/4" x 4 3/4" d.  
**Argos No. WB-208CS**—Shpg. Wt., 5 1/2 lbs. Net Each. **\$10.75**  
**Argos No. WB-208CSL**—With L-pad. Shpg. Wt., 5 1/2 lbs. Net Each. **\$12.85**  
**Argos No. WB-208CST**—With 70.7-volt transformer. Shpg. Wt., 6 1/2 lbs. Net Each. **\$12.85**  
**Argos No. WB-208CSLT**—With L-pad and 70.7-volt transformer. Shipping Weight, 6 3/4 lbs. Net Each. **\$15.30**  
**Argos No. WB-208C**—8" baffle only. Shpg. Wt., 3 1/4 lbs. Net **4.35**
- BAFFLES WITH 12" JENSEN SPEAKER (10-OZ. MAGNET)**  
 Speaker rated 18 watts. Size, 16 1/4" x 14" x 6 1/4" d.  
**Argos No. WB-212CS**—Shpg. Wt., 9 1/2 lbs. Net Each. **\$15.40**  
**Argos No. WB-212CSL**—With L-pad. Shipping Weight, 9 1/2 lbs. Net Each. **\$17.60**  
**Argos No. WB-212CST**—With 70.7-volt transformer. Shipping Weight, 10 1/4 lbs. Net Each. **\$17.60**  
**Argos No. WB-212CSLT**—With L-pad and 70.7-volt transformer. Shipping Weight, 10 1/4 lbs. Net Each. **\$20.05**  
**Argos No. WB-212C**—12" baffle only. Shipping Weight, 5 1/2 lbs. Net Each. **\$6.00**

## EFFICIENCY BAFFLE WITH 8" JENSEN SPEAKER (2.4-OZ. MAGNET)

- Argos No. WB-308CS**—Speaker rated 10 watts. Shpg. Wt., 5 lbs. Net Each. **\$8.95**  
**Argos No. WB-308CSV**—With volume control. Shpg. Wt., 5 lbs. Net Each. **\$10.90**  
**Argos No. WB-308CST**—With 70.7-volt transformer. Shipping Weight, 5 1/2 lbs. Net Each. **\$11.40**  
**Argos No. WB-308CSVT**—With volume control and 70.7-volt transformer. Shipping Weight, 5 1/2 lbs. Net Each. **\$12.95**

## ECONOMY BAFFLE WITH 8" JENSEN SPEAKER (1-OZ. MAGNET)

- Speaker rated 6 watts. Shipping Weight, 4 1/4 lbs.  
**Argos No. WB-108CS**—Net Each. **\$7.45**
- CORNER BAFFLE WITH 8" JENSEN SPEAKER**  
 Space-saving thickness, with 8" Jensen Profile speaker installed and wired. Speaker rated 15 watts; utilizes a 6-oz. ceramic magnet. Imped. 8 ohms. Size, 12 1/4" x 18" x 6 3/4" d. Shpg. Wt., 6 lbs.  
**Argos No. SCB-208S**—Net Each. **\$13.65**

## "SPACE-SAVER"

### EXTENSION SPEAKER SYSTEM

Has 8" woofer, 3 1/2" tweeter and crossover. Handles 12 watts. Input, 8 ohms. Built-in volume control. Hardwood enclosure, 18" x 12" x 3 3/4" d. Walnut or whitened-birch furniture finish. Shipping Weight, 6 1/2 lbs.

- Argos No. HFB-8SV**—Net Each. **\$17.95**



## SOUND DIRECTOR SOUND COLUMNS

Provide completely intelligible PA system coverage of large audiences in churches, school and public auditoriums, hotel meeting rooms and restaurants. Available in 6-speaker columns and 10-speaker columns with 8-speaker option. Neat in appearance. Simple to install; complete detailed instructions.

- Argos No. SD-1060**—6-speaker sound column. Size, 30 1/2" x 7" x 3 3/4" d. Shpg. Wt., 10 lbs. Net Ea. **\$39.95**  
**Argos No. SD-1100**—10-speaker sound column. Size, 49 1/2" x 7" x 6" d. Shpg. Wt., 26 1/2 lbs. Net **\$64.95**  
**Argos No. SD-4060**—6-speaker column with self-storing stand, carry-handle and 50' cable. Size, 30 1/2" x 7" x 3 3/4" d. Shpg. Wt., 12 1/2 lbs. Net Each. **\$54.95**  
**Argos No. MSD-1060**—6 full range speakers for voice and music. Size, 50 1/2" x 10 1/4" x 8" d. Shpg. Wt., 43 lbs. Net Each. **\$79.95**  
**Argos No. SD-1082 Outdoor Sound Column**—8-speaker system. Size, 49 1/2" x 9 1/4" x 4 1/4" d. Shpg. Wt., 37 lbs. Net Ea. **\$169.50**  
 Many other models available for voice and music reproduction.

## SOUND CADDY

- Argos No. SC-2DS**—Two 12", 18-watt, 8-ohm speakers in portable case with space for amplifiers and turntables. Size, 17 3/4" x 22" x 13 1/2" d. Shpg. Wt., 28 1/2 lbs. Net Each. **\$39.95**  
**Argos No. SC-2D**—Same, less speakers. Shipping Weight, 20 lbs. Net Each. **\$24.95**

## PRO, DELUXE, PRESTIGE AND REGULAR BAFFLES

Professional wall baffle (PWB) has wider shape for better appearance, more volume. Wood-grain vinyl, blond or walnut (specify). Deluxe wall baffles (DWB) are natural hardwoods. American walnut or whitened birch finish (specify). Satin smooth finish. Prestige wall baffles (PB) are hardwood with either pastel, blond or walnut furniture finish (specify). Regular wall baffles (WB) are the standard of the industry for quality reproduction and appearance. Wood-grain vinyl, walnut or blond (specify). All baffles have Speedy Mounting Clips.

### PROFESSIONAL WALL BAFFLE

Argos No.	Size, Inches			Cubic In.	Shpg. Lbs.	Net Each
	Spkr.	W.	D. x H.			
PWB-8C	8	16 1/4	6 1/4 x 14	1000	6	\$6.00

### DELUXE WALL BAFFLES

DWB-8A	8	9 3/4	6 1/4 x 10 1/2	400	5 1/2*	\$6.00
DWB-12A	12	13 3/8	9 3/8 x 14	1180	9*	8.40

### PRESTIGE WALL BAFFLES

PB-8	8	14	5 3/4 x 9 3/4	450	6*	\$4.90
PB-12	12	15	7 3/4 x 11	1100	11*	6.75

### REGULAR WALL BAFFLES

WB-4/5D	4-5	6 1/2	4 x 6 3/4	100	2 3/4*	\$3.00
WB-6D	6	8 1/4	5 x 8 3/4	210	4 1/2*	3.65
WB-6/9D	6 x 9	10	6 1/2 x 10 3/4	400	6 1/4*	4.35
WB-8D	8	10	6 1/2 x 10 3/4	400	6 1/4*	4.35
WB-10D	10	12 1/2	7 3/4 x 12 3/4	800	8*	6.25
WB-12D	12	13 3/8	9 3/8 x 14 1/4	1180	11*	6.00

\*Shipping weight of two in a carton.

## CORNER BAFFLES

Easily hung on Speedy Mounting Clips. Front panel held by two clips and concealed screw. Screw-type exterior speaker terminals. Bass reflex design, acoustic padding for superior sound. Specify walnut or blond wood-grain vinyl.

### SLANTING CORNER BAFFLES

- Argos No. SCB-8D**—For 8" speaker; volume, 680 cubic inches. Size, 17 3/4" x 15" x 9" d. Weight, 6 lbs. Net Each. **\$8.50**  
**Argos No. SCB-12D**—For 12" speaker; volume, 1240 cubic inches. Size, 20 3/4" x 20" x 10 1/2" d. Weight, 8 lbs. Net Each. **\$11.95**

### REGULAR CORNER BAFFLES

- Argos No. CB-8D**—For 8" speaker; volume, 525 cubic inches. Size, 12 1/4" x 14" x 6 1/2" d. Weight, 4 1/2 lbs. Net Each. **\$6.95**  
**Argos No. CB-12D**—For 12" speaker; volume, 1520 cubic inches. Size, 17 3/4" x 20" x 9" d. Weight, 8 1/2 lbs. Net Each. **\$11.00**

## "PATIO" OUTDOOR SPEAKER

Durable 14" x 10 1/2" x 3 1/2" d. red-wood enclosure with cane grille. Moisture-resistant speaker. Marine-grade plywood baffle board. Built-in volume control. Shipping Weight, 5 1/2 lbs.

- Argos No. PAT-10**—Net **\$14.95**



## PORTABLE SOUND COLUMN PA SYSTEMS

### VOICE DIRECTOR

Combines Argos six-speaker sound column with 25-watt transistor amplifier. System includes microphone, full-size stand and 18 ft. cable. Provides uniform, intelligible coverage of audiences of 700 to 800. Operates on flashlight batteries (not supplied). Fitted Case: 6 1/4" x 9 3/4" x 29 3/4". Shpg. Wt., 30 lbs.  
**Argos No. PSD-5060**—Net Each. **\$169.95**  
 Other models and accessories available.

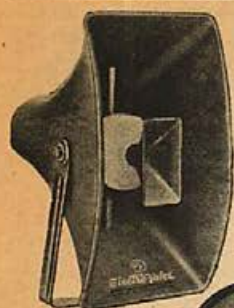
### SPEECH DIRECTOR

Case becomes lectern with 15" x 15" reading table. Has Argos 4-speaker sound column, 20-watt transistor amplifier and unidirectional, cardoid mike with built-in volume control. Amplifier operates on batteries or 115 V.A.C. Battery life, 400 hours or more. Gooseneck mike stand and 18' cable. Fitted case with luggage handle. Size, 21" x 16" x 7 3/4". Shipping Weight, 20 lbs.  
**Argos No. LSD-6040**—Net Each. **\$229.95**





# Electro-Voice® PUBLIC ADDRESS HORN AND DRIVERS



FC100



AC100



FR150



AR150

## COMPOUND DIFFRACTION PROJECTOR

**Model 848**—Combines FC100 Compound Diffraction Horn plus DC30 Compound Driver for finest wide-angle sound, lowest distortion, highest sound quality of any projector. Specifications: Frequency response, 150-10,000 cps; impedance, 16 ohms; dispersion, 90° x 120°; power handling capacity, 30 watts; sound pressure level, 117 db; dimensions, 10 3/4" x 20 3/4" x 20"; Net Weight, 13 3/4 lbs.; Shpg. Wt., 15 lbs. Complete—Net Each. **\$49.50**

## PROJECTOR HORNS

### COMPOUND TYPES

Exclusive compound horns permit widest range at lowest distortion, plus complete directional control of both highs and lows. Best wide-angle coverage with exclusive diffraction horns means better sound through entire coverage area for uniform coverage. Concentrating compound horn provides highest efficiency at lowest distortion. Natural voice and music reproduction result in higher intelligibility without annoying peaks.

**Model FC100**—Similar to the famous CDP®, the FC100 provides two diffraction horns for uniform wide-angle coverage. Frequency response is not compromised since both horns are ideally designed to handle a specific portion of the range. Compound horn reduces distortion far below any other projector design. Flexible coverage control provided by individual adjustment of each horn. Large horn is of fiberglass with Mesa Tan finish molded in. Use any E-V Convertible Driver. Specifications: Low-frequency horn—cut-off, 100 cps; taper, 100 cps; air column length, 58"; sound distribution, 90° x 120°. High frequency sound distribution, 90° x 120°; crossover, 1,000 cps. Mouth size, 10 3/4" x 20 3/4" depth (less driver), 20". Net Wt. (less driver), 10 3/4 lbs. Shpg. Wt., 12 3/4 lbs. Net **\$30.00**

**Model AC100**—Concentrating version of CDP®. Has all of the quality advantages of FC100, except utilizes round horns for most concentrated coverage with greatest efficiency. Retains compound design for lowest distortion—widest range. Use any E-V Convertible Driver with this projector horn. Specifications: Low-frequency horn—cut-off, 100 cps; taper, 100 cps; air column length, 56"; sound distribution, 80°. High-frequency sound distribution, 30°; crossover, 1,000 cps. Diameter, 21"; depth (less driver), 21"; Net Wt. (less driver), 11 lbs. 8 oz. Shpg. Wt., 13 3/4 lbs. Net Each. **\$33.00**

### REENTRANT TYPES

New reentrant horns provide wider range than ever before at lowest cost. Unique E-V ring reflector design provides better balanced highs than possible with conventional exponential designs, by reducing high frequency losses often encountered in reentrant horns. Smoother response plus added useful range increases intelligibility and adds to more natural sound. Rugged aluminum die cast mounting plate plus precision die cast reentrant tubes assure long-lasting performance. Heavy spun aluminum round bell or fiberglass rectangular horn provides either concentrated coverage or medium angle coverage. Electro-Voice Reentrant Horns accept any standard driver with 1 3/4"-18 threads.

**Model FR150**—Reentrant Horn. Medium-angle low-cost rectangular horn provides good coverage at low cost. Virtually indestructible fiberglass horn has Mesa Tan color molded in. Adjustable mounting angle allows best coverage. Can be stacked for multiple speaker applications. Ideal for car-top installation or wherever low silhouette is needed, and where bass response cannot be sacrificed. Accepts Electro-Voice Convertible Drivers or any standard driver with 1 3/4"-18 thread. Specifications: Low-frequency cut-off, 150 cps; taper, 150 cps; air column length, 45"; sound distribution, 70° x 100°; mouth size, 10 3/4" x 20 3/4" depth (less driver), 21"; Net. Wt. (less driver), 9 1/2 lbs. Shpg. Wt., 12 lbs. Net. **\$23.40**

**Model AR150**—Reentrant Horn. Round concentrating horn for maximum penetration at lowest cost. E-V ring reflector plus precision new exponential design contributes to widest range yet achieved from this horn type. Smoother curve results in high intelligibility, and remarkably natural voice and music quality. Rubber edge-damping ring eliminates resonances. High-efficiency design allows more useful volume from driver over entire range. Accepts Electro-Voice Convertible Drivers or any standard driver with 1 3/4"-18 thread. Specifications: Low-frequency horn—cut-off, 150 cps; taper, 150 cps; air column length, 41"; sound distribution, 85°; diameter, 21"; depth (less driver), 17". Net Weight (less driver), 6 1/2 lbs. Shipping Weight, 8 lbs. Net Each. **\$23.40**

**Model HC400**—Horn only from Model 844A Paging Speaker described elsewhere. May be used with any Convertible Driver listed in table. Net Weight, 6 1/2 lbs. Shipping Weight, 9 1/2 lbs. Net Each. **\$6.30**

## VERSATILE CONVERTIBLE DRIVERS

Now, for the first time, here are drivers that can be used interchangeably in compound or reentrant horns. Used on either type of horn, the new Electro-Voice Convertible Drivers feature highest efficiency available. Increased power handling plus extra increased efficiency make the 40 and 50-watt drivers uniquely useful where high power at minimum cost is essential. The high efficiency of all E-V Convertible Drivers is achieved without resorting to "peaked" response which may increase loudness, but does reduce intelligibility. The smooth response of these drivers insures most natural reproduction of voice and music for more satisfying quality with reduced feedback problems and increased tonal range. Double flux ceramic magnets provide long-lasting high efficiency in entirely new low-loss magnetic circuits. Edgewise-wound ribbon voice coils give 18% more efficiency.

The drivers are rugged and weatherproof; conversion to either reentrant or compound use can be made instantly in the field. Voice coils are also field replaceable, thus reducing repair costs to a minimum. E-V Convertible Drivers are available with 16-ohm voice coils or with built-in 70.7-volt line constant voltage transformers.



1828C



1828T



DC40, DC50



DC40T, DC50T

	1828C	1828T	DC40	DC40T	DC50	DC50T
Frequency Response, cps*	150-10,000	150-10,000	140-11,000	140-11,000	140-11,000	140-11,000
Program Power Capacity	30	30	40	40	50	50
Sound Pressure Level†	FC100 Compound Horn 120 db AR150 Reentrant Horn 127 db	120 db 127 db	120 db 129 db	120 db 129 db	124 db 133 db	124 db 133 db
Voice Coil Impedance, Ohms	8	8	16	16	16	16
Transformer Impedances, Ohms	.....	167, 333, 667, 1337	.....	125, 250, 500, 1000	.....	100, 143, 200, 500
Transformer Power Taps, Watts	.....	30, 15, 8, 4	.....	40, 20, 10, 5	.....	50, 35, 25, 10
Dimensions (overall)	4" dia. 3 3/4" l.	5" h. 4" w. 5 3/4" d.	6 3/4" dia. 4 1/4" l.	6 3/4" dia. 6" l.	6 3/4" dia. 4 1/4" l.	6 3/4" dia. 6" l.
Net Each	<b>\$19.80</b>	<b>\$25.80</b>	<b>\$25.20</b>	<b>\$32.70</b>	<b>\$32.70</b>	<b>\$39.30</b>

\*Measured on-axis with FC100 horn. †Measured at 4' on-axis with full rated power from 750-1250 cps.

All E-V public address speakers are eligible for FCDA purchases.



## LINE RADIATOR\* SPEAKERS

Three wide-angle speaker designs permit wide horizontal dispersion while almost eliminating sound output above or below speaker. Superb for voice-reinforcement systems. Unusually wide frequency range coverage.

**Model LR4A**—Curved design overcomes unwanted high-frequency dispersion at ends, eliminating echo and feedback. Contains nine 3" x 5" and three 3 1/2" cone speakers. 160° horizontal dispersion; 60° vertical dispersion. Frequency response: 200-15,000 cps. Power handling capacity: 25 watts program, 50 watts peak. Nominal impedance: 8 ohms. Size: 49" h. x 7" w. x 13" d. Mesa tan finished wooden enclosure. Net. **\$75.00**

**Model LR4S**—Electrical filter removes end speakers from circuit as frequencies increase, eliminating high-frequency lobes at ends. Specifications like LR4A, except that dispersion is 160° horizontal; 30° vertical. Weatherproof enclosure with mesa tan finish. Size: 52" h. x 7 1/2" w. x 4 3/8" d. Net Each. **\$84.00**

**Model LR7**—Offers extended low and high frequencies by using nine 5" x 7" speakers and two T35 drivers. Frequency Range: 100-20,000 cps. Full 1/2-section crossover at 3500 cps. Coverage 160° horizontal; 60° vertical. Handles 50 watts; impedance, 8 ohms. Mesa tan wood enclosure 11" w. x 14" d. x 60" h. Universal mounting brackets supplied. Net Each. **\$180.00**

## PAGING SPEAKERS

**Model PA30**—Reentrant projector uses rectangular Implex horn design for maximum versatility, wide dispersion. High impact, molded housing resists abuse and weather. Entirely new diaphragm and ultra-precise voice coil combine with extra powerful ceramic magnet for high efficiency. Mesa tan finish. Dispersion, 90° x 120° rotatable on bracket. Response, 250-14,000 cps. Power handling capacity, 30 watts. EIA sensitivity, 59 db. Size: 11" h. x 6 1/2" w. x 8 1/2" d. Net Wt., 5 1/2 lbs.; Shpg. Wt., 7 1/2 lbs. Net Each. **\$20.70**

**Model PA30-45**—Same as Model PA30 except for 45 ohms. Net Each. **21.60**

**Model TR3-2 (25 volts) or TR3-7 (70.7 volts) Transformers**—Integral line matching transformer and housing for use with PA30 where mounting provisions are provided. Response, 60-15,000 cps. Ins. loss, .8 db. Primary taps, 30, 15, 8, 4 and 2 watts. Secondary impedance, 8 ohms. Net Wt., 1 1/2 lbs. Net Each. **\$9.00**

**Model 844A**—For medium-angle sound distribution. Features smoothest response in its class with better lows to provide natural paging without feedback. Handles 30 watts—to reduce costs. Rugged diecast horn plus field-replaceable voice coil keeps service costs at a minimum. Frequency response, 250-13,000 cps; power handling capacity, 30 watts; nominal impedance, 8 ohms; dispersion, 180° at 1 kc, 55° at 3 kc; EIA sensitivity rating, 54 db; sound pressure level, 123 db; dimensions, 9 1/2" diameter x 7 3/4" deep; Net Weight, 1 1/4 lbs.; Shpg. Wt., 1 5/8 lbs. Net Ea. **\$23.40**

**Model 847**—Utilizing the famous CDP® Principle—this wide-angle speaker provides higher articulation without annoying "peaked" response over a uniform 120° x 60° area. Low distortion results from use of TWO diffraction horns. 25-watt power handling capacity. Fiberglass horn has mesa tan color molded in. Frequency response, 250-10,000 cps; power handling capacity, 25 watts; sound pressure level, 114 db; dispersion, 90° x 120°; impedance, 16 ohms; dimensions, 11 3/4" x 7 3/4" x 10 1/4"; Net Weight, 8 lbs.; Shipping Weight, 10 lbs. Net Each. **\$30.60**

**Model PA7**—Reentrant projector made of Implex; virtually indestructible. Handles 7 1/2 watts over 400-13,000 cps range. 120° dispersion. Adjustable mtg. bracket. Size: 6 3/4" dia. x 6" d. Weight, 3 1/4 lbs. Net Each. **\$16.20**

**Model PA7-45**—Same as Model PA7, but with 45-ohm impedance. Net Ea. **17.10**

## MUSICASTER\* HI-FI OUTDOOR SPEAKER SYSTEMS

**Musicaster**—Provides high fidelity performance in a compact, portable system. Sturdy aluminum diecast housing protects weatherproof cone speaker and extends bass response through back-loaded folded horn. Dual Radax cone, Mtg. for 70.7-v. line transformer inside. Frequency response, 60-13,000 cps; nominal impedance, 8 ohms; dispersion, 120°; power capacity, 60 watts peak, 30 watts program; sound pressure level, 110 db; dimensions, 21 1/2" x 21 1/2" x 8 1/2"; Wt., 34 lbs. Net. **\$60.00**

**Musicaster II**—Same as the Musicaster except has added brilliance and wider coverage. Response to 18,000 cps. With crossover. Shipping Weight, 36 lbs. Net. **\$81.00**

**Model MB-1**—Surface mounts any Musicaster flat against wall. Replace standard "U" bracket. Shipping Weight, 1 lb. Net Each. **\$3.60**

**Note:** Sound Pressure Level is measured at 4' on-axis with full rated power from 750 to 1250 cps.

\*Electro-Voice trademark.

## PA TRANSFORMERS AND ACCESSORIES



TH



AP-1

**Line Transformers**—All have frequency response of ±2 db, 35-20,000 cps. Accept solderless terminals in TH housings (below). Insertion loss less than 1 db. Distortion less than 0.1% at full power.

**Model TH**—Transformer Housing. Provides neat weatherproof mounting of any E-V transformer. Mount vertically or horizontally on any flat surface or on horn bracket. Exclusive wattage indicator tells power setting at a glance. No soldering required with E-V transformers. Size: 4" h., 5" w., 3 1/2" d. Net Weight, 1 lb., 11 oz. Shipping Weight, 2 1/2 lbs. Net Each. **\$5.10**

**Model AP-1**—Pipe stand adapter for mounting any E-V speaker "U" bracket to standard 1/2" pipe. Shipping Weight, 1 lb. Net Each. **\$3.00**

**Model TR7-2**—Weatherproof housed 7 1/2-watt, 25-volt line transformer for Model PA7, mounting inside the bracket. Primary taps for 83, 156, 312, 624 and 1248 ohms; secondary, 8 ohms. Power line taps at 7 1/2, 4, 2, 1 and 1/2 watt. Shpg. Wt., 1 1/2 lbs. Net. **\$3.60**

**Model TR7-7**—Same as TR7-2 but for 70.7-volt line use with primary taps at 660, 1250, 2500, 5000 and 10K ohms. Net. **\$3.60**

## DIAPHRAGM REPLACEMENT KITS

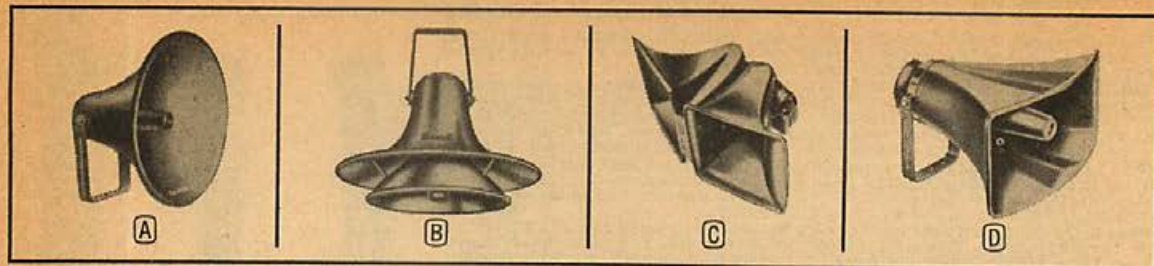
Allow easy field maintenance or conversion of E-V Drivers.

Not available for DC30BT, DC40T or DC50T.

Driver	8-ohm	16-ohm	45-ohm
828 or DC30	82016	82015	
DS30 (844)	8410	8643	
DC30B	83137	8617	
DC40	82088	8618	
DC50	82089	8619	
<b>Net Each</b>	<b>\$7.20</b>	<b>\$7.20</b>	<b>\$9.00</b>

All E-V public address speakers are eligible for FCDA purchases.





### DIRECTIONAL MODELS (FIG. A)

These models, designed to concentrate acoustic energy in a relatively narrow angle of sound dispersion, are incomparable for applications requiring maximum penetration of distance and noise. Rigid adherence to time-proven design formula achieves peak attainable conversion efficiency, resulting in higher sound pressure output and greater utilization of amplifier power. Four trumpet sizes satisfy every need. The GH has very low cut-off for finest reproduction of music. LH is excellent for general use where music quality, voice intelligibility and penetration are important considerations. The PH has wider dispersion and may be used for both music and voice where cost is a factor. The SMH is ideal for speech and for covering wider areas with good penetrative qualities. All models take any University driver unit; have positive-lock, serrated swivel "U" mounting bracket.

### RADIAL MODELS (FIG. B)

Economical and efficient, these models provide uniform horizontal dispersion in all directions from a single projector. Fewer loudspeakers needed to cover an area. Using University drivers, they give as much as 500% more output than radials using cone speakers. Especially popular for high-ceilinged factories, hangars, church interiors and towers, warehouses, etc. Rugged, weather-resistant; ideal as well in installations subject to high humidity and dust-laden atmosphere. Model RLH has longest air column for maximum low frequency response. RPH has higher cut-off; is suitable for music and speech in general purpose uses. RSH is for good speech at lower cost.

### WIDE-ANGLE REFLEX TRUMPETS

**Cobreflex® (Fig. C)**—Unmatched for ruggedness and high speech articulation in fixed or mobile applications requiring coverage of areas having greater width than depth. "Dual Exponential Flare" design . . . two one-piece all die-cast aluminum combination air column/bell castings form integrated, indestructible and scientifically perfect twin wide-angle reflex trumpet. Takes any University driver unit; use singly or in clusters. Adjustable positive-lock "U" mounting bracket.

**Model CLH (Fig. D)**—The CLH combines longest air column length and wide-angle bell designed for maximum low frequency response and compact low silhouette dimensions. Omni-directional positive-lock mounting bracket permits speaker to be placed where most convenient and rotated horizontally and vertically for optimum projection. Dispersion can be literally tuned to avoid echo and reverberation, or used to specifically include elusive "dead spots." CLH is perfect, too, for multi-speaker cluster arrays; can be "stacked" in any configuration, for any sound distribution pattern. Uses any University driver.

**Model L30-1**—Horn stacking kit clamps the bell rims of two CLH wide angle trumpets. Order one kit per two horns. Shpg. Wt., 6 oz. Net Each. . . . . \$1.05

University Model	RLH	RPH	RSH	GH	LH	PH	SMH	Cobreflex	CLH
Low Frequency Cut-Off	120 cps	140 cps	180 cps	85 cps	120 cps	160 cps	200 cps	200 cps	120 cps
Sound Distribution	360°	360°	360°	65°	75°	85°	95°	120° x 60°	120° x 60°
Air Column Length	5 ft.	4 ft.	3 ft.	6½ ft.	4½ ft.	3½ ft.	2½ ft.	2½ ft.	4½ ft.
Horn Length	18¼"	13¼"	11"	28"	19"	15¼"	12"	10¼"	20"
Bell Diameter	28¼"	25¼"	19"	31"	26¼"	20¾"	16¾"	18¼" x 9¼"	21¼" x 11¼"
Shipping Weight	25 lbs.	19 lbs.	13 lbs.	22 lbs.	16½ lbs.	11¾ lbs.	8 lbs.	10¼ lbs.	13¼ lbs.
Net Each	<b>\$38.40</b>	<b>\$31.20</b>	<b>\$29.70</b>	<b>\$49.50</b>	<b>\$29.70</b>	<b>\$23.70</b>	<b>\$20.70</b>	<b>\$26.70</b>	<b>\$29.10</b>

### DELUXE DRIVERS



Fulfill every requirement of power, performance and price. Offer unusually wide response. Feature breakdown-proof mechanisms and full weatherproof protection. Exclusive acrylic finish for long-lived beauty in all weather.

#### MODEL ID-20

Ideal for low-cost, medium power speech and music systems. Wide range with high efficiency. Power rated, 20 watts.

#### MODEL ID-30

Recommended for use wherever maximum speech intelligibility is essential. Also preserves "balance" when used with high cut-off frequency trumpets. Power rated, 30 watts.

#### MODEL ID-40

Fulfills critical PA and industrial requirements, supplying that extra punch needed to cut through heavy noise. Power rated, 40 watts.

#### MODEL ID-40T

Same high performance as Model ID-40, but with built-in line-matching transformer for connection to high impedance lines or "constant voltage" systems. Power rated, 40 watts. Transformer

impedance, 45/122/250/500/1000/2000 ohms. Line 70 V power taps, 40/20/10/5/2.5 watts.

#### MODEL ID-60

Meets the highest standards for power handling capacity, maximum sensitivity, widest frequency response. Rugged, lifetime construction. Power rated, 60 watts.

#### MODEL ID-60T

Deluxe version of Model ID-60 offers extended high and low frequency ranges. Highest continuous duty conversion efficiency. Built-in multimatch transformer. Power rated, 60 watts. Transformer impedance, 16/80/165/250/500/1000/2000 ohms. Power line 70 V taps, 60/30/20/10/5/2.5 watts.

#### MODEL ID-75

Super power version for electronic siren and special purpose, high-power PA applications. Rugged convex/concave diaphragm design results in greater power handling capacity and dependability. Features Alnico V exclusive University "W" magnet that eliminates 50% of the reluctance loss; minimum gap for low leakage; maximum gap flux density for peak electromechanical efficiency. Power rated, 75 watts.

University Model	ID-20	ID-30	ID-40	ID-40T	ID-60	ID-60T	ID-75
Frequency Response, cps*	120-6500	85-7500	80-12,000	80-12,000	70-12,000	70-12,000	150-7000
Power Rating	20	30	40	40	60	60	75
Voice Coil Impedance, Ohms	16	16	16	16	16	16	16
Dimensions, Diameter x Depth	3¼" x 3¼"	4¼" x 3¼"	4½" x 4¾"	5" x 6¾"	4½" x 5"	6¼" x 6¾"	4¾" x 6½"
Shipping Weight, Lbs.	2½	3	4¼	5¼	4½	6½	5
Net Each	<b>\$15.60</b>	<b>\$18.90</b>	<b>\$23.70</b>	<b>\$32.40</b>	<b>\$32.70</b>	<b>\$40.20</b>	<b>\$44.70</b>

\*Low frequency limit based on capability of driver unit; if horn cut-off is higher than rated low frequency limit of driver, horn will be determining factor.



# PAGING AND SPECIAL SPEAKERS, HI-FI SYSTEMS

**UNIVERSITY SOUND**  
A DIVISION OF LTV—LING ALTEC, INC.



IB-A



CIB-A



MM-2PPS



7101B,  
7102B



LIL-8

### MODEL LIL-8

Paging and talk-back speaker. Allows 2-way communication. Attractive housing fits any decor. High conversion efficiency permits use of lower power amplifiers, yet the power rating allows use of high power amplifiers.

### MODEL CIB-A

"Cobra" horn for uniform sound with optimum vertical dispersion where noise level not excessive. Minimizes feedback. "OMNI-LOK" swivel mounting bracket for best direction adjustment.

### MODEL CMIL-A

Similar to CIB-A. For use in low power operations. Offers high efficiency and intelligibility. Has "OMNI-LOK" bracket.

### MODEL IB-A

Medium power speaker for paging, talk-back. Tropicalized and weather-proofed. Special rising frequency characteristic, wide range response for high performance in noisy areas. "OMNI-LOK" mounting bracket; fits 1/2" pipe.

### MODEL MIL-A

Same as IB-A but smaller. Triples effect of low power systems using cone speakers.

### UNDERWATER SPEAKER

Can be left submerged indefinitely. Ideal for synchronized swimming, water ballet, swimming instruction, private pools, etc. Corrosion proof high impact plastic case. Handles 25 watts. Impedance, 16 ohms. Size, 7 3/8" dia. x 3 1/4" d. Shpg. Wt., 5 1/4 lbs. **University Model MM-2PPS—Net Each . . . . . \$44.50**

### EXPLOSION PROOF DRIVERS

U/L Approved for 100% safe systems where flammable liquids, gases, dust, etc., are present. Frequency response to 12,000 cps. Lower limit and dispersion depends on horn used. Most commonly used with PH and SMH horns, but may be used with any University horn. Power capacity, 45 watts. Voice coil impedance, 16 ohms. Transformer impedances, 110/165/200/250/500/1000 ohms. Line power taps 70 V, 45/30/25/20/10/5 watts. Size, 7 3/8" dia. x 7 3/8" d. Shipping Weight, 13 lbs.

**Model 7101B—For Class I, Groups C and D. Net Each . . \$69.60**

**Model 7102B—Same, plus Class II, Groups E, F and G . . . 74.85**

**Model PH Horn—Dispersion, 85°, 150 cps cut-off. Net . . . 23.70**

**Model SMH Horn—Dispersion, 95°, 200 cps cut-off. Net . . . 20.70**



IBR-A



MIS



SH-30



2WP-20

### MODEL IBR-A

Very compact unit complete with built-in driver. Uniform 360° dispersion for economical installations requiring omnidirectional coverage with a minimum number of speakers. For cube-like areas where speakers can be ceiling suspended. Tropicalized and hermetically sealed.

### MODEL MIS

Compact reflex like MIL-A, but for flange or flush mounting in walls, cabinets, bulkheads, dashboards, ceilings, etc. Tropicalized, hermetically sealed. Ideal replacement for less efficient cone speakers; provides more output, greater reliability. With cork neoprene flange gasket.

### MODEL SH-30

The SH-30 is a compact reflex trumpet designed for locations where small size and moderate power are required. Its hyperbolic horn expansion design and driver frequency characteristics provide optimum "High-Audibility" response for maximum sound penetration.

### MODEL 2WP-20

The 2WP-20 is a bi-directional paging speaker that efficiently covers two opposite 120° areas with one 20 watt driver (included). The 2WP-20 horn may be purchased separately and used with any other University driver with the exception of Model ID-60T.

Model	LIL-8	IB-A	CIB-A	MIL-A	CMIL-A	MIS	IBR-A	SH-30	2WP-20
Freq. Resp.	300-10,000 cps	250-13,000 cps	250-13,000 cps	350-13,000 cps	350-13,000 cps	500-13,000 cps	300-13,000 cps	7,500 cps	350-6,500 cps
Power Rating	15 watts	25 watts	25 watts	25 watts	7.5 watts	5 watts	25 watts	30 watts	30 watts
Impedance	8 ohms	4, 8, 45 ohms	4, 8, 45 ohms	4, 8, 45 ohms	4, 8, 45 ohms	4, 8, 45 ohms	4, 8, 45 ohms	16 ohms	16 ohms
Dispersion	110°	90°	120° x 60°	120°	120° x 60°	150°	360°	90°	120° each horn
Pressure Level*	123 db	125 db	125 db	118 db	118 db	115 db	119 db	128 db	123 db
Sensitivity as Microphonet	-27 dbm	-26 dbm	-22 dbm	-23 dbm	-20 dbm	-22 dbm	-28 dbm	-22 dbm	-25 dbm
Size	6 3/8" dia. 15 1/4" d.	10 1/4" dia. 9" deep	7 3/8" high 14" wide 12" deep	7 1/4" dia. 6 3/4" deep	6 1/4" high 9 1/4" wide 8 1/2" deep	5 1/2" o.d. 4 1/4" deep	10 3/8" dia. 11 1/4" d.	8 3/4" dia. 10 1/4" d.	8 3/4" dia. 20 3/4" d.
Shpg. Wt.	4 1/2 lbs.	4 1/2 lbs.	6 lbs.	3 1/4 lbs.	4 lbs.	2 1/2 lbs.	5 3/4 lbs.	6 3/4 lbs.	7 3/4 lbs.
Net Ea.—8 ohms 4 or 45 ohms	<b>\$26.85</b>	<b>\$21.90</b>	<b>\$27.60</b>	<b>\$17.85</b>	<b>\$20.25</b>	<b>\$20.70</b>	<b>\$29.85</b>	<b>\$39.00†</b>	<b>\$35.85†‡</b>
		<b>24.09</b>	<b>30.36</b>	<b>19.64</b>	<b>22.28</b>	<b>22.77</b>	<b>32.85</b>		

\*Sound pressure readings taken at 4 ft. on axis with "Full Range" power input. Reduce by 6 db each time distance is doubled. †Dbm re 10 dynes/cm<sup>2</sup>; ††16-ohm model only. ‡Six holes on 1 1/4" mounting diameter. §Model 2WP same as 2WP-20 less driver. Net Ea. **\$20.70**

### HI-FI WEATHER-PROOF DUAL-RANGE SYSTEMS



MLC



CLC



WLC

LC Series speakers are complete systems, designed to simplify indoor, outdoor HI-FI sound installations. Units feature: Tropicalized, heavy-duty low frequency reproducer (all speakers); separate compression, high frequency reproducer (MLC, WLC); coaxially mounted subsidiary high frequency radiator (CLC)—wired, housed in compact dual-horn projector. Baffle enclosure and folded horn provide optimum loading, assure clean bass. Exceptional uniformity of frequency response and sound distribution helps eliminate reverberation problems. Dependable performers for fixed or mobile applications, indoors or out. All metal construction. Sturdy "U" mounting bracket.

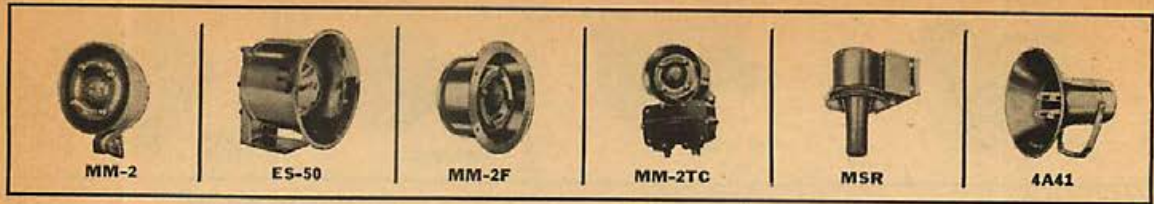
**Model MLC**—Dual Range for Music and Voice, 15 watts; 8 ohms impedance.

**Model CLC**—Demanding budget applications. 30 watts; 8 ohms impedance.

**Model WLC**—A Heavy Duty System, 30 watts; 8 ohms impedance.

University Model	Frequency Response	Sound Pressure	Dispersion	Size W. x D. x H.	Shpg. Wt., Lbs.	Net Each
MLC	150-15,000 cps	117 db	120°	12 3/4" x 10 3/8" x 9 1/4"	10 3/4	\$ 37.50
CLC	55-14,000 cps	118 db	120°	22 3/4" dia. x 12 1/4" d.	23	59.70
WLC	50-15,000 cps	120 db	90°	33 3/4" dia. x 20" d.	68	165.00





**MULTI-DUTY ENVIRONMENT-PROTECTED SPEAKERS**

Patented design for completely reliable operation under conditions of steam, dampness, shock, dust, chemicals, etc.

**Model MM-2:** Offers power capacity and response factors for clear, noise cutting reception. Front removable by screws to permit cleaning of diaphragm. Serrated swivel mounting bracket.

**Model ES-50:** Features a power handling capacity of 50 watts integrated program material over its frequency range of 250-10,000 cps. In addition, it is rated at a full 50 watts for a typical electronic siren signal above 400 cps. Completely weatherproof. The compact size, durability and neat appearance of the ES-50 makes it an ideal choice for siren use as well as any other application where maximum power handling capacity is needed in a minimum amount of space.

**Model MM-2F:** Flush wall mounting version of MM-2 for wall, ceiling, bulkhead, dashboard, etc. mounting. Drains automatically. Weatherproofing gasket. Six mounting holes on 6 3/8" dia. circle.

**Model MM-2TC:** Complete speaker with provision for transformer and pad attenuator. Cast aluminum combination bell and weatherproof housing. Mounts on wall, bulkhead or ceiling. **Model MM-2TC-T** has multi-impedance transformer and pad attenuator wired-in.

**Model MSR:** All die-cast, reflexed air column speaker with radial deflector for 360° horizontal dispersion. Hermetically sealed driver is easily removed. Provisions for line matching transformer and volume control. Wall, ceiling or bulkhead mounting. **Model MSR-T** comes wired with multi-impedance transformer and pad.

University Model	MM-2	ES-50	MM-2F	MM-2TC	MM-2TC-T	MSR	MSR-T
Frequency Response, cps	350-10,000	250-10,000	350-10,000	350-10,000	350-10,000	250-10,000	250-10,000
Power Rating	25	50	25	25	25	25	25
Impedance, Ohms	16	16	16	16	16	16	16
Dispersion	150°	120°	150°	120°	120°	360°	360°
Sound Pressure Level*	117 db	123 db	117 db	117 db	117 db	114 db	114 db
Dimensions	6" O.D. 5" Depth	6 1/2" O.D. 6 1/2" Depth	7 1/4" O.D. 3 3/4" Depth	10" h 6 1/4" w. 4 1/4" d.	10" h 6 1/4" w. 4 1/4" d.	10 3/4" h. 7 3/4" w. 8 1/4" d.	10 3/4" h. 7 3/4" w. 8 1/4" d.
Shipping Weight, Lbs.	5 1/2	5 1/2	5 1/4	8 1/2	9 1/4	10 1/4	11 1/4
Net Each	<b>\$33.90</b>	<b>\$47.85†</b>	<b>\$34.50</b>	<b>\$52.50</b>	<b>\$59.85</b>	<b>\$51.00</b>	<b>\$59.85</b>

\*Taken at 4 ft. with full range power input; reduce by 6 db each time distance is doubled; reduce 3 db each time power input is halved; increase 3 db when power input is doubled. †Order No. **ES-50C** for chrome finish version; Net **\$64.50**.

**SUPERPOWER TRUMPETS**

Versatile, compact units for extra output; used with most drivers. **Model 4A41:** Has four center assemblies; takes all but ID-60T driver. **Model B-6P:** Takes any six of several drivers; 100° dispersion.

**Model B-12P:** Takes 12 drivers. 80° dispersion. Separate bell assembly; patented mixing chamber of heavy cast aluminum.

University Model	With ID-30		With ID-40		With ID-60		Net Each (Less Drivers)
	Frequency Response, cps	Full Range Watts*	Frequency Response, cps	Full Range Watts*	Frequency Response, cps	Full Range Watts*	
4A41	120-7500	120	120-12,000†	160†	120-12,000	240	<b>\$119.70</b>
B-6P	200-7500	180	200-12,000	240	200-12,000	360	<b>232.50</b>
B-12P	100-7500	360	100-12,000	480	100-12,000	720	<b>297.00</b>

\*Continuous duty power rating. When input program response limited to above low frequency cut-off, power capacity is doubled. †Also applies when used with ID-40T.

**TRANSFORMERS AND ACCESSORIES**

**Model CTR Transformer/Junction Housing—**Die-cast aluminum unit; weather protected; exclusive gland nut cable entrance and exit. For housing Nos. 5433, 5434 or other 2 3/4" x 2 3/4" x 2 3/4" (max.) transformers. Use also as junction box for speaker lines. Adjustable slotted adapter mounts transformers with 1 1/2" x 1 1/2" x 2 3/4" centers. Shpg. Wt., 1 1/2 lbs. Net Each..... **\$5.65**

**Model PB-1 Transformer Housing—**Weatherproof, for MIL-A, CMIL-A, IB-A, and OIB-A speakers. Use Model 5434 or other transformer with 2" mtg. center. Shpg. Wt., 1/2 lb. Net **\$2.70**

**Model 5433 Transformer—**Capacity 30 watts. Pri. Imped.: 45/165/200/250/500/1000/2000 ohms. Sec. Imped.: 4/8/16 ohms. Line Power: (70 v). Taps: 30/25/20/10/5/2.5 watts. Size: 1 1/4" x 2 1/4" x 1 1/4". Mtg. Ctrs.: 2 3/4"; fits CTR housing. Shipping Weight, 1 lb. Net Each..... **\$5.10**

**Model 5434 Transformer—**Capacity 15 watts. Pri. Imped.: 45/325/500/1000/2000/4000/8000 ohms. Sec. Imped.: 4/8/16 ohms. Line Power: (70 v). Taps: 15/10/5/2.5/1.25/.65 watts. Size: 1 1/4" sq. x 1 1/4". Mtg. Ctrs.: 2"; fits CTR and PB-1 housings. **\$4.05** Shipping Weight, 1/2 lb. Net Each.....

**Model 2YC Connector—**Allows use of two drivers on a single, radial, directional or wide-angle trumpet. Shpg. Wt., 1 lb. **\$8.55** Net Each.....

**Model PMA Adapter—**Fits 1/2" IPS threaded pipe to any "U" mounting bracket. Shpg. Wt., 1/4 lbs. Net Each..... **\$2.85**

**Model RTA Adapter—**Fits University trumpets to Western Electric and RCA drivers with 1 1/4"-16 threads. Shpg. Wt., 1/2 lb. Net Each..... **\$2.25**

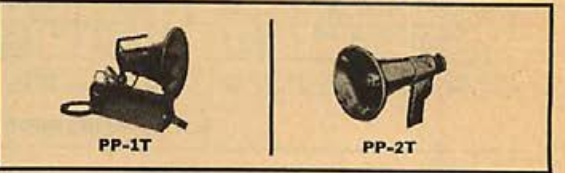
**Model WEA Adapter—**Same as above, but fits University drivers to Western Electric and RCA trumpets. Net Each..... **\$1.80**

**Model SPA Adapter—**Replaces standard base on CR and MM-2 paging speakers and adapts them for 1/2" threaded IPS pipe mounting. Shpg. Wt., 1/2 lb. Net Each..... **\$1.35**

**Model ST Junction Box Adapter—**Weatherproof unit fits MM-2, and ES-50 to house transformers up to 2 1/4" sq. x 2 3/4". Use as terminal or junction box on bulkhead, wall or ceiling. Mounting centers, 2" x 2 3/4". Shpg. Wt., 1 lb. Net Each..... **\$9.15**

**Model SB Mounting Adapter—**For flush-fit mounting of MM-2, ES-50, or MM-2F on bulkhead, wall or ceiling. Three mounting holes 120° apart on 5 1/4" dia. circle. Shpg. Wt., 1 lb. Net... **\$2.25**

**PORTABLE POWRPAGE®**



**MODEL PP-1T**  
Fully transistorized, 25-watt amplifier offers low distortion and high stability in all operating conditions. Rugged dynamic microphone has controlled response curve. Press-to-talk switch. Auxiliary input jack. Talk/listen switch provided for highly directional, sensitive listening. Uses lantern batteries. Shipping Weight, 12 3/4 lbs., less batteries. **\$179.70**  
University Model PP-1T Powrpage—Net Each.....

**MODEL PP-2T**  
Lightweight, hand-held design uses three-transistor, temperature stabilized circuit. Delivers 7 watts output; 14 watts peak. Adjustable gain. Acoustic feedback suppression system allows indoor use without howling. Low standby current. Uses six penlight cells or ten RM601R mercury cells. Shpg. Wt., 5 lbs., less batteries. University Model PP-2T Powrpage— **\$107.70**  
Net Each.....



## MODEL TX-62 VHF TRANSMITTER



Economical crystal-controlled transmitter handles 75 watts phone and CW on two- and six-meter; can also take VFO. All circuits broadbanded up to the final; only final plate and loading capacitors require tuning. **Features:** Built-in modulator and solid state power supply; meter that reads final cathode, grid current and RF output; push-to-talk microphone jack; potentiometer type drive control; audio gain control; front panel mike/ky jack; and crystal socket. **Frequency Range:** 50-54 Mc; 144-148 Mc. **Controls:** Power switch; Phone-CW switch; Meter Selector; Crystal/VFO switch; Audio Gain control and Spot Switch; Drive control; Bandswitch; Final Plate Tuning; Loading. **Tubes:** 3-6GK6, 1-7868, 1-7984, 1-12AX7. **Size:** 11 1/2" x 9 1/4" x 6" h. **\$149.95**

**Ameco Model TX-62 Transmitter—Wired, tested, Net**

## MODEL PCL NUVISTOR PREAMPLIFIER

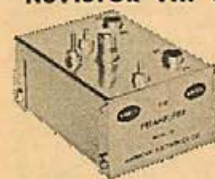
Covers all amateur bands 6 through 160 meters (1.6 thru 54 Mc continuous). Two nuvistors in cascade give noise figures of 1.5-3.4 db, depending upon the band. Over 20 db gain. Greatly improves image and spurious rejection. **Power Requirements:** 120 V at 7 mA, 6.3 V at 27 amps. **Size:** 3" x 5" x 3"



**Ameco Model PCL Nuvistor All-Band Preamplifier—Wired and tested, Net Each. \$24.95**

**Ameco Model PCL-P Nuvistor All-Band Preamplifier—Same as above, but with built-in AC power supply. Size, 5 1/2" x 3 1/4" x 3". Net Each. \$32.95**

## NUVISTOR VHF SINGLE BAND PREAMPLIFIER



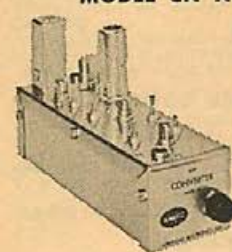
For 27 (CB), 28, 50, 144, or 220 Mc. Over 20 db gain. Will improve gain and noise figure considerably. Two tuned circuits and one 6CW4 nuvistor are used. **Noise Figure:** 2.0 db at 27 Mc, 2.5 db at 50 Mc, 3.0 db at 144 Mc and 4.0 db at 220 Mc. **Power Required:** 100-150 V at 8 mA and 6.3 V at 1.35 A. **Ameco Model PV Nuvistor Preamplifier—Wired and tested, Specify frequency desired. \$13.95**

## HIGH FREQUENCY PREAMPLIFIER

For any band: 80, 40, 20, 15, 11 or 10 meters. Has better noise figure than most multiband receivers. Minimum gain is 20 db. Two tuned circuits will improve image and spurious rejection. Uses 6CB6 tube. Especially effective on 10 or 15 meters. **Ameco Model PH Preamplifier—Wired and tested, \$13.95**

Complete with tube. Specify frequency desired. Net Each.

## MODEL CN NUVISTOR CONVERTERS

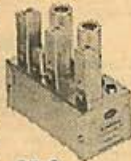


Use of three nuvistors plus one tube gives an extremely low noise figure and high gain. Will never become obsolete since the IF output is easily changed to match any receiver. Special circuit to reduce overload from strong stations. **Noise Figure:** 2.5 db at 50 Mc, 3.0 db at 144 Mc, 4.0 db at 220 Mc. **Gain:** 45 db, average. **Image and Spurious Rejection:** Better than 70 db. **IF Rejection:** Better than 100 db. **Control:** Gain. **Power Required:** 100-150 V at 30 mA, 6.3 V at .84 A. **Size:** 2 1/2" w. x 6 3/4" d. x 2 1/2" h. **Ameco Model CN-50K, CN-144K, or CN-220K Nuvistor Converter—Wired and tested for any one band, using any IF output (specify). \$49.95**

**Ameco Model CN-50K, CN-144K or CN-220K Nuvistor Converter—Kit. For any one band, using any IF output (specify). Net Each. \$34.95**

## MODEL CB TUBE TYPE CONVERTERS

Compact 2- and 6-meter converters feature low noise and high gain. IF output easily changed to any frequency to meet any possible future change of receiver. **Noise Figure:** Less than 4 db. **Gain:** Over 30 db. **IF, Image and Spurious Rejection:** Over 70 db. **Tube Complement:** 2-meter unit—6ES8 low noise cascade first RF amp., 6U8 second RF amp./mixer and 6J6 osc./mult. 6-meter unit—6ES8 cascade RF amp., 6U8 mixer/osc. **Power Required:** 2-meter unit—100-150 V at 28 mA and 6.3 V at 1.26 A. 6-meter unit—100-150 V at 16 mA and 6.3 V at .85 A. **Size:** 2 1/2" w. x 5" d. x 2" h.



CB-6

**Ameco Model CB-6K 6-Meter Converter—Kit. Specify IF output, Net Each. \$19.95**

**Ameco Model CB-6W 6-Meter Converter—Wired and tested, Specify IF output, Net Each. \$27.50**

**Ameco Model CB-2K 2-Meter Converter—Kit. Specify IF output, Net Each. \$23.95**

**Ameco Model CB-2W 2-Meter Converter—Wired and tested, Specify IF output, Net Each. \$33.95**

## POWER SUPPLY

Delivers 50 mA at 125 VDC and 2 amps at 6.3 VAC from 115 VAC input. Plugs directly into all Ameco CN and CB units.

**Ameco Model PS-1K Power Supply—Kit form. \$10.50**

**Ameco Model PS-1W Power Supply—Wired and tested, Net Each. \$11.50**

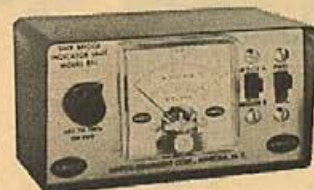
## MODEL SWB STANDING WAVE BRIDGE

Reads SWR accurately from 1.8 Mc to 225 Mc. Handles up to 1 kW. Quality inductive coupling can be left in the line continuously without insertion loss. Contains two SO-239 VHF connectors. **Size:** 4 1/2" w. x 1 3/4" d. x 2 1/4" h. **Ameco Model SWB Standing Wave Bridge—Wired and tested, Net Each. \$9.95**



## MODEL BIU BRIDGE INDICATOR UNIT

Accurately indicates SWR. % of power and % of voltage (three scales) when used with Ameco SWB or other bridge. Contains a sensitive 100 uA 2 1/2" square d'Arsonval meter. Switching circuit provides for reading either one of two bridges. **Size:** 5" w. x 2 3/4" d. x 3" h. **Ameco Model BIU Bridge Indicator Unit—Wired and tested, Net Each. \$15.95**



## CODE PRACTICE OSCILLATOR, KITS

Available in kit or wired form. Produces a pure, steady tone without clicks or chirps. Will handle a large number of headphones or keys. Converts easily to an excellent CW monitor. Variable tone control and volume control. Built-in 4" speaker. Operates on 110 volts AC or DC. **Ameco No. CPS-KL—Kit form, less \$11.95**

tubes. Net Each.

**Ameco No. CPS-WL—Wired, less tubes. Net Each. \$13.15**

**Ameco No. CPS-KT—Kit including tubes. Net Each. \$13.75**

**Ameco No. CPS-WT—Wired, with tubes. Net Each. \$14.95**



## TECHNICAL BOOKS

**No. 3-01 Radio-Electronics Made Simple—Simplified explanation of radio theory written for the layman's complete understanding. Covers basic electricity and all phases of radio through transmitters and receivers. 200 pages. Price Each \$1.95**

**No. 5-01 Amateur License Guide—Prepares for Novice, Technician, Conditional and General classes of radio operation. Over 200 questions and answers similar to ones of FCC exams. 32 pages. Price Each \$0.50**

**No. 6-01 Mastering the Morse Code—Beginning study for learning International Morse Code. Includes alphabet, how to send, how to receive, hook-up of an oscillator, etc. 32 pages. Price Each \$0.50**

**No. 7-01 TV Antennas—Describes the various types of TV antennas and their uses. Provides information for installation and repair. Written in the layman's language. 32 pages. Price Each \$0.50**

**No. 8-01 Commercial Radio Operator's Q & A License Guide, Elements 1 and 2—First of a series, covers FCC exams by questions and detailed, simplified answers. Provides answers for Third Class permit. Price Each \$0.75**

**No. 9-01 Commercial Q & A License Guide, Element 2—Second in the series for FCC exams. Includes questions and answers plus a sample FCC exam. With Elements 1 and 2, it provides answers for Second Class permit. Price Each \$1.75**

**No. 10-01 Commercial Q & A License Guide, Element 4—Covers last element required to obtain a First Class Radiotelephone license. Detailed questions and answers with a sample FCC exam. Price Each \$1.25**

**No. 11-01 Transistor Theory and Circuit Made Simple—Explains both the theory and the applications of transistor in a simple straight-forward manner. Includes many practical circuits. Written for servicemen, amateurs, experimenters and engineers. 128 pages. Price Each \$1.75**

## CODE AND THEORY COURSES

**No. 1—Junior Code Course. Consists of 10 recordings (alphabet through 7 1/2 W. P. M.). Includes typical FCC type code exams. Free instruction book on learning how to send and receive code the simplest, fastest way; plus charts to check your receiving accuracy; plus leatherette bound album. \$6.95**

**No. 100-01 Junior Code Course—78 rpm. Net Each. \$5.95**

**No. 100-45 Junior Code Course—45 rpm. Net Each. \$4.95**

**No. 100-33 Junior Code Course—33 1/2 rpm. Net Each. \$4.95**

**No. 2—Senior Code Course. Includes everything in No. 1 course plus 12 more recordings (alphabet through 18 W. P. M.), plus typical FCC type code exams for General Class and 2nd Class Commercial telegraph licenses. Includes album. \$11.50**

**No. 101-01 Senior Code Course—78 rpm. Net Each. \$10.50**

**No. 101-45 Senior Code Course—45 rpm. Net Each. \$9.50**

**No. 101-33 Senior Code Course—33 1/2 rpm. Net Each. \$9.50**

**No. 3—Complete Radio Theory Course. A complete, simplified home study theory course in radio covering the novice, technician, conditional and general classes—all under one cover—with over 400 typical FCC type questions to prepare for license examination. No technical background required. \$3.95**

**No. 102-01 Radio Amateur Theory Course—Net Each. \$3.95**

**No. 4—Advanced Code Course. Prepares novice operators for the amateur general class and second class commercial license tests. Contains 12 recordings (8 through 18 W. P. M.) plus a complete code book; plus typical FCC code examinations for general and commercial tests. \$5.95**

**No. 103-01 Advanced Code Course—78 rpm. Net Each. \$4.95**

**No. 103-45 Advanced Code Course—45 rpm. Net Each. \$4.95**

**No. 103-33 Advanced Code Course—33 1/2 rpm. Net Each. \$4.95**



# Collins SSB Amateur Equipment

"S/LINE" MEDIUM PRICED SSB EQUIPMENT



325-3

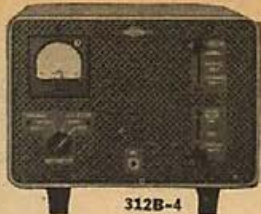
## MODEL 325-3 TRANSMITTER

The finest transmitter of its kind. SSB or CW unit delivers nominal 100-watt output. Offers mechanical filter type sideband generation, permeability-tuned VFO, crystal-controlled HF oscillator, RF inverse feedback and automatic load control. Assures better linearity, higher talk power and protection against flat-topping. CW keying method with hardness control, spotting control, side-tone level adjust and easy access to patch cords. **Features:** VFO tunes 80 to 10 meters in fourteen 200 kc segments; crystal provides 28.5-28.7 mc part at 10 meters; switch and sockets permit two extra crystals. Antenna loading control is factory preset for 50 ohms; adjustable for other impedances up to 2:1 SWR. Automatic load control provides a higher average output without distortion. Unit is powered by the 516F-2. Panel meter monitors dial amplifier plate current, grid current and ALC voltage. Transmitter completely shielded and bypassed for TVI reduction. **Plate Power Input:** 175 watts PEP on SSB; 160 watts on CW. **Power Output:** 100 watts into a 50 ohm load except 90 watts on 15 meters, 80 watts on 10 meters. **Frequency Range:** 3.4-5.0 and 6.5-30.0 mc. With crystal sockets, crystals and bandswitch positions for 13 bands, each 200 kc wide. Three positions are for 10-meter band (one crystal is included, with space for two additional). **Oscillator:** Double conversion circuit; CR18 crystals in HF oscillator; crystal oscillator at 455 kc provides carrier for SSB generator and choice of upper or lower sideband operation; VFO tunes 2,500 to 2,700 mc. **Frequency Stability:** 750 cps overall; backlash, no more than 50 cps; calibration accuracy, 1 kc. **Dial Accuracy:** Visual, 200 cps; electrical, 300 cps (after calibration). **Spurious Radiation:** Carrier suppression, unwanted sideband, oscillator and mixer products, -50 db; second harmonic, -40 db; third order distortion, -30 db. **Audio Input:** High impedance mike and 600-ohm phone patch. **Audio Response:** Nominal 300-2400 cps, -6 db. **Audio Compression:** ALC applied to IF and RF amplifier stages, capable of 10 db compression. **RF Feedback:** 10 db used around PA and driver for improved PA linearity. **Noise Level:** 40 db below single-tone carrier. **Controls:** Band Selector; VFO Dial; Emission Switch (Tune-Lock Key-LSB-USB-CW); Exciter Tune; PA Tune; PA Load Control (concentric with PA Tune); Mike Gain; Meter Switch (ALC, PA grid, PA plate); Frequency Control (Off, Ref VFO, Trans VFO, Sync); VOX Gain; Anti-VOX Gain; VOX Time Constant. **Power Required:** Use Collins 516F-2 for AC operation. Requires 800 v. DC at 220 ma PA plates, 275 v. DC at 175 ma PA screens and low voltage plates; -60 to -80 v. DC adjustable bias supply; and, 6, 12 or 24 v. DC at 6, 3 or 1.5 amps respectively. **Size:** 14 1/4" w. x 11 1/2" d. x 6 1/4" h. Weight, 16 lbs. **Collins Model 325-3 Transmitter—Net Each.....\$750.00**

## MODEL 625-1 VHF CONVERTER



Doubles frequency coverage by providing full 6- and 2-meter operation with the flick of a switch. No cable changing required when moving from HF to VHF. Self-contained unit supplies 3-5 db noise figure on receive; 160 watts PEP input on transmit. For use with Collins S/Line, KWM-2 and KWM-1, this adapter converts most equipment operating in the 14.0-14.2 mc range. Accurate .005% crystals used throughout for highest frequency stability. **Features:** Panel meter to monitor PA grid and plate current or output. High image and IF rejection. Operates on standard AC current, plus DC power from exciter. Can be used with CW, SSB, AM or RTTY systems. **Frequency Range:** 49.6-54.2 and 143.6-148.2 mc; crystals supplied for 50-54 and 144-148 mc in 200 kc increments. **Power Input:** 160 watts PEP. **Power Output:** 65 watts PEP. **Noise Level:** -40 db below rated PEP output. **Rejection:** Greater than 100 db, image on 6 meters; 60 db, 2 meters. Greater than 90 db, IF rejection. At least 50 db below 1  $\mu$ v desired signal level, other spurious responses. **Sensitivity:** 1.2  $\mu$ v max. for 10 db signal-plus-noise-to-noise, 3 kc audio bandwidth, 2 meters; 1.3  $\mu$ v, 6 meters. **Controls:** Function switch (Off, HF, VHF tune, VHF operate); RF gain; Exciter Tune; Bandswitch; Crystal switch; PA tune and load; Meter switch (PA Grid, PA plate, Output); Transmit gain (on rear of chassis). **Power Source:** 115 v. AC, 50/60 cps plus 800 v. DC at 220 ma and 275 v. DC at 20 ma from external source. **Size:** 14 1/4" w. x 13" d. x 7 3/4" h. Weight, 25 lbs. **Collins Model 625-1 VHF Converter—Net Each.....\$895.00**



312B-4



755-3B

## MODEL 755-3B RECEIVER

Versatile receiver provides sharpest selectivity available in SSB, CW and RTTY. Also provides AM reception plus provision for mechanical filter for improved skirt selectivity. **Features:** Rejection tuning with single control for 50 db nominal rejection of unwanted heterodynes and carriers. Choice of variable or crystal BFO. Mechanical 2.1 kc filter for sharp skirt selectivity and band-pass for SSB; can also be used for CW and RTTY. AGC permits choice of characteristics to suit operating conditions. Concentric RF/AF gain controls for operating convenience. Oscillator injection voltages for transmitter without auxiliary coupling units or wiring changes. **Frequency Range:** 3.4-5.0 mc (6.5-30 mc with selection of proper crystal for HF oscillator). Crystals provided for 3.4-4.0 mc; 7.0-7.4 mc; 14.0-14.4 mc. WWV, 14.8-15.0 mc; 21.0-21.6 mc; 28.5-28.7 mc. Sockets provided for two extra crystals for 10-meter band. **Stability:** Within 100 cps after warm-up. **Calibration Accuracy:** 1 kc. **Selectivity:** SSB, 2.1 kc with 2.5:1 shape factor; CW, no filter; AM, 5 kc. **Sensitivity:** 0.5  $\mu$ v for 10 db signal-plus-noise-to-noise ratio, SSB. **Spurious Response:** Image rejection better than 50 db; internal spurious signals below 1  $\mu$ v eqv. antenna input. **Noise:** At least -40 db at 1 watt. **Distortion:** No more than 10% at 1 watt. **Automatic Gain Control:** Threshold 1.5-3.0  $\mu$ v nominal. Selectable for fast, slow and off AGC time constant. **Q Multiplier:** Rejection notch depth 50 db, nominal. **Muting:** Receiver silenced during transmit by opening external ground on mute terminal. **Controls:** Function switch (Off-Standby-Operate-Calibrate); RF gain; AF gain; Pre-selector tune; Dial zero set; Bandswitch; Tuning dial; Emission switch (AM-LSB-USB-CW); AGC switch (Off-Fast-Slow); Variable BFO tune-off; Rejection tune-off. **Power Required:** 85 watts, 105-125 v. AC, 50-60 cps. **Size:** 14 1/4" w. x 7 3/4" h. x 12 1/2" d. Weight, 20 lbs.

**Collins Model 755-3B Receiver—Net Each.....\$620.00**

**Collins Model 755-3B Receiver With Sockets For AM, Mechanical Filters—Net Each.....\$635.00**

**Collins Model 755-3C Receiver—Extended frequency version\* of Model 755-3B. Net Each.....\$690.00**

**Collins Model 755-3C Receiver With Sockets For AM, Mechanical Filters—Net Each.....\$705.00**

**Collins AM Mechanical Filters for 755-3B or -3C—Specify F455FA-31, -40 or -60. Net Each.....\$47.00**

\*Has ext. a board accommodating 14 crystals for use outside of amateur bands, e.g., Mars frequencies. Front panel switch permits instant switching between standard and extra crystal boards.

## MODEL 312B-4 SPEAKER CONSOLE

Includes speaker, directional wattmeter (200 and 2000 w. scales), phone patch and control switches for control of 30S-1, 30L-1, 32S-3 and 75S-3. Upper control switch has three positions (Normal; Receive Only; Transmit Only). Lower switch has three positions (Phone Patch On and Off; Station Mute). **Size:** 10" w. x 12 1/4" d. x 7 3/4" h. Weight, 8 1/2 lbs. **Collins Model 312B-4 Speaker Console—Net Each...\$195.00**

## MODEL 312B-3 SPEAKER

Contains a 5" x 7" speaker and connecting cable. **Size:** 10" w. x 8" d. x 7 3/4" h. Weight, 4 lbs. **Collins Model 312B-3 Speaker—Net Each.....\$32.00**

## POWER SUPPLY

**Collins Model 516F-2 AC Power Supply—Operates from 115 v. AC, 50-400 cps; provides all voltages for Model 325-3 transmitter or Model KWM-2 transceiver. Size:** 10" w. x 12" d. x 7 3/4" h. Weight, 28 lbs. Net Each.....\$115.00

## EQUIPMENT ACCESSORIES AND BOOKS

**Crystals For S/Line or KWM-2—Net Each.....\$3.00**

**Collins No. 440E-1 (MP-1 or 516E-2 to KWM-2) or 440F-1 (S/Line or KWM-2 to 516F-2) Cable Kit—Net Each...\$17.00**

**Collins No. 399B-4 Novice Adapter For 325—Net Each. 40.00**

**Collins No. 399B-5 Novice Adapter For KWM-2—Net. 46.00**

**Collins Table Mount No. 351E-1 (For 32S, 75S), 351E-2 (For 516F-2, 312B-4), 351E-3 (For 312B-3) or 351E-4 (For KWM-2)—Net Each.....\$24.00**

**Collins Rack Mount No. 351R-1 (For 75S-3, 32S-3, KWM-2, 30L-1, 62S-1 or 51S-1) or 351R-2 (For S/Line and KWM-2 accessories)—Net Each.....\$ 32.00**

**Collins No. TD-1 Dipole Antenna—Net Each.....125.00**

**Collins No. CC-3 Carrying Case—Accommodates 312B-4 or 312B-5 Console, 516E-2 or MP-1 Power Supply, TD-1 Antenna and supply of spare tubes and fuses. Net Each.....\$107.00**

**Collins No. CP-1 Crystal Packet—Complete set of crystal grippers and crystals for S/Line or KWM-2. Net Each.....\$480.00**

**Collins No. SM-1 Desk Top Microphone—Net Each.....36.00**

**Collins No. SM-2 Omnidirectional Desk Mike—Net.....48.00**

**Collins No. MM-1 Mobile Microphone—Net Each.....25.00**

**Collins No. MM-2 Microphone/Earphone—Net Each.....44.00**

**"Amateur Single Sideband"—Written exclusively for the amateur operator, hard bound book is valuable addition for any ham shack. Covers practical and equipment aspects. Net Each...\$4.00**



# Collins SSB Amateur Equipment

## SSB TRANSCEIVER AND ACCESSORIES, AMPLIFIER



KWM-2

### MODEL KWM-2 TRANSCEIVER

Designed for mobile or fixed station. Features include: Operation on all bands between 3.4 mc and 29.7 mc, voice or CW; VOX and anti-trip circuits; ALC, permeability-tuned oscillator and RF inverse feedback; SSB generation and crystal-controlled double conversion. Easily moved between mobile and fixed station installations, etc. **Power Output:** Nominal 100 watts PEP into a 50 ohm load. **Frequency Range:** 3.5, 7.0, 14.0, 21.0 and 28.0 mc amateur bands plus 14.8-15.0 mc band for WWV. Choice of any fourteen 200 kc bands by crystal switch easily returned to frequencies between amateur bands by using crystals. **Stability:** Within 100 cps after warm-up. **Calib. Accuracy:** 1 kc. **Power Input:** 175 watts PEP, SSB; 160 watts CW. **Power Required:** 800 v. DC, 275 ma; bias adjustable between -60 and -80 volts; 6 (11 a.), 12 (5.5 a.) or 24 (2.75 a.) v. DC. **Power Consumption:** Approx. 235 watts in receive, 475 watts in transmit at 110 v. AC, 50/60 cps. **Oscillators:** Double conversion circuit; CR-18 crystals in HF oscillator. PTO, tuning 2.5-2.7 mc, provides 200 kc bands. Crystal oscillator at 453.650 or 456.350 kc provides carrier for SSB generator and choice of upper or lower sideband. Tone oscillator operates at about 1,350 cps. **Harmonic and Spurious Radiation:** Carrier suppression, -50 db; unwanted sideband, -50 db; second harmonic, -40 db; oscillator feed-through and/or mixer products, -50 db; third order distortion, -30 db. **Keying Characteristics:** No chirps or clicks; break-in CW and sidetone provided. **Audio Input:** High-impedance mike, 600 ohm or high-impedance phone patch. **Audio Frequency Response:** Nominal = 6 db, 300-2,400 cps. **Audio Compression:** ALC operates on IF and RF amplifier stages; capable of 10 db compression. **Automatic Gain Control:** Audio output level does not change more than 20 db as input signal is changed from 10  $\mu$ v to 1 v. Fast attack, slow release. **RF Feedback:** 10 db around PA and driver. **Noise Level:** -40 db below single-tone carrier. **Controls:** Band Selector; PTO Dial; Emission Switch (Tune Lock, LSB, USB, CW); Exciter Tune; PA Tune; PA Load; Mike Gain with Mike Off Switch; Meter Switch (ALG, PA Grid, PA Plate); Off; On; NB; Cal Switch; AF Gain; RF Gain; VOX Gain; VOX Time Constant and Anti-VOX Gain. Panel meter used as 8-meter on receive and tuning meter on transmit. **Receiver Sensitivity:** 0.5  $\mu$ v for 10 db S/N ratio within amateur bands. **Receiver Selectivity:** 2.1 kc bandwidth at 6 db down; 4.2 kc at 60 db down. **Receiver Spurious Response:** Image rejection better than -50 db. **Audio Output Level:** 1 watt maximum. **Size:** 14 $\frac{3}{4}$ " w. x 14" d. x 7 $\frac{3}{4}$ " h. Weight, 18 lbs., 3 oz.

- Collins Model KWM-2 Transceiver—Net Each. . . . \$1150.00
  - Collins Model KWM-2 Transceiver with 136B-2 Noise Blanking—Ideal for mobile operation. Net Each. . . . \$1296.00
  - Collins Model KWM-2A Transceiver—Extended frequency version\*. Net Each. . . . \$1250.00
  - Collins Model KWM-2A with 136B-2 Noise Blanking—Net Each. . . . \$1396.00
  - Collins Model 136B-2 Noise Blanking—For KWM-2. Net Each. . . . 124.00
  - Collins Model 351D-2 Mobile Mount for KWM-2—Net Each. . . . 120.00
  - Collins Model CC-2 Carrying Case—For KWM-2, KWM-2A. Can also accommodate PM-2 Power Supply. Net Each. . . . \$85.00
  - Collins Model PM-2 Portable Power Supply—Has built-in auxiliary speaker and provides all voltages needed for KWM-2 from 115 v. or 220 v. AC, 50-400 cps. Net Each. . . . \$168.00
  - Collins Model 516E-2 Mobile Power Supply—For operation of KWM-2 from 28 v. DC. Net Each. . . . \$470.00
- \*Has extra board accommodating 14 crystals for use outside of amateur bands, e.g., Mars frequencies. Front panel switch permits instant switching between standard and extra crystal boards.

### MODEL 312B-5 VFO CONSOLE

Combines KWM-2 and accessories into a fixed station operating system. Tuning dial and PTO provides for the following combinations of frequency control: Transceive on KWM-2 PTO; transceive on 312B-5 PTO; receive on KWM-2 PTO and transmit on 312B-5 PTO. Function switch provides for "Normal" station operation, and "Transmit Only" disables the receiver and operates the transmitter VOX. **Size:** 10" w. x 12 $\frac{3}{4}$ " d. x 7 $\frac{3}{4}$ " h. Weight, 8 $\frac{1}{2}$  lbs. **Collins Model 312B-5 VFO Console—Net Each. . . . \$350.00**

### MODEL 1805-1 ANTENNA TUNER

Basic 1 kw pi-network matches various antenna impedances to 50-ohm coax transmission line. Functions as an L network when full pi-network is not required. Range, 3-30 mc. **Collins Model 1805-1 Antenna Tuner—Net Each. . . . \$740.00**

### DIRECTIONAL WATTMETER

Consists of a coupler and an indicator unit which may be housed in a small box on the operators desk or mounted in a custom panel. Wattmeter scales read to 2000 and 200 with  $\pm 5\%$  accuracy over the 2 to 30 mc range. SWR is negligible. **Collins Model 302C-3 Directional Wattmeter—Net. . . . \$130.00**



312B-5

### TRANSMITTER DUMMY LOAD

A 100-watt resistive load used for various tuning functions without putting the transmitter on the air. Front panel control selector switch permits the load to be switched in and out of the transmitter antenna circuitry without changing connections. Type N or RCA phono connectors may be used in connecting to the antenna or transmitter. May be used with 30S-1 for short tune-up period. Power required for operation of relay is 6.3 v. AC. **Collins Model DL-1 Dummy Load—Net Each. . . . \$79.50**



DL-1

### MODEL 30L-1 LINEAR AMPLIFIER



Compact, grounded grid linear amplifier with 1,000 watts PEP input (500 watts nominal output). May be driven by most exciters with 70 to 100 watts output. Matched companion for 32S-3, KWM-2 or KWM-1. Completely self-contained and designed for table top use. Provides SSB and CW emission and covers 80, 40, 20, 15 and 10 meter bands. Also provisions for limited general coverage use. RF inverse feedback permits maximum talking power without overdriving and distortion. Exclusive automatic load control features not only more power but a sharper signal than any comparable unit without removing the unit from the cabinet. Automatic transfer of antenna to the exciter when switch is in off position. Comparator tuning meter simplifies tuning. All removable panels interlocked and input line fused for maximum protection. Easily transported in a CC-2 carrying case. Finish and size match KWM-2. **Power Output:** 500 watts PEP into a 50-ohm load. **Frequency Range:** 80, 40, 20, 15 and 10 meter amateur bands with overlap for 3.4-30 mc. **Radiation:** Second harmonic -40 db. Third order distortion -30 db at full power output. **Noise Level:** -40 db below single-tone carrier. **Output Impedance:** Variable. Nominally 50 ohms unbalanced with not more than 2:1 SWR (amateur bands). **Controls:** Band Selector; PA Loading; PA Tuning; Meter Switch (Tune, Plate Voltage, Plate Current); On-Off Switch. Rear Connectors: ALC, RF Input, antenna relay, RF output. **Power Required:** 115/230 v., 50-400 cps, 400 cps operation requires 60 cps inverter for fan motor. CW, key closed, 1200 watts. AC; SSB, speech modulated, 550 watts. AC; SSB, no modulation, 300 watts. AC. **Size:** 14 $\frac{3}{4}$ " w. x 13 $\frac{3}{4}$ " d. x 7 $\frac{3}{4}$ " h. Weight, 38 lbs. **Collins Model 30L-1 Linear Amplifier—Net Each. . . . \$520.00**

### MOBILE POWER SUPPLY

Permits operation of KWM-1, KWM-2 or KWM-2A transceivers from 12 v. DC. May be mounted in any clean, cool and dry location in an automobile, aircraft or boat. Designed for use with 351D-2 Mobile Mount without requiring extra connecting cable. Toroidal transformers and reactors for increased efficiency and noise reduction. All necessary mounting and wiring hardware supplied.



**Input Requirements:** 11 to 16 v., 14 v. nominal; up to 30 amps. **Nominal Outputs:** Bias -50 to -80 v. adjustable (47,000-ohm load); Low B+ 265 v., 210 ma.; High B+ 750 v., 185 ma. **Output Regulation:** Low Voltage 290 v. max. at 170 ma.; 260 v. min. at 210 ma. High Voltage 360 v. max. at 55 ma.; 690 v. min. at 230 ma. **Ripple:** Bias less than 35 v.; low B+ less than 2 v.; high B+ less than 10 v. **Efficiency:** 80% approx. **Size:** 11" w. x 5 $\frac{3}{4}$ " d. x 3 $\frac{3}{4}$ " h. Weight, 7 $\frac{1}{2}$  lbs. **Collins Model MP-1 Mobile Power Supply—Net Each. . . . \$198.00**

### FIXED STATION POWER SUPPLY

**Collins Model 516F-2 AC Power Supply—Operates from 115 v. AC, 50-400 cps; provides all voltages for Model 32S-3 transmitter or Model KWM-2 transceiver. Size:** 10" w. x 12" d. x 7 $\frac{3}{4}$ " h. Weight, 28 lbs. Net Each. . . . \$115.00





# Communication Equipment *Clegg*



"55-1R"



"Thor VI"



"Venus"



"Interceptor-B"



"FM Alert"



"22'er"



"23'er"

## NEW 55-1R AMATEUR-BAND RECEIVER

High performance receiver for precision coverage of the 80 through 10-meter ham bands, plus WWV. Low-noise balanced mixer front end gives superb freedom from cross-modulation and overload. Digital display of frequency with  $\pm 1$  kc accuracy. Highly selective crystal bandpass filters for SSB/CW. Fixed tuned WWV positions at 10 and 15 Mc with auxiliary 5.0-5.5 Mc band. Tunes 80, 40, 20, 15 and 10 meters in 500-kc segments, with all crystals supplied. **Power Required:** 115 VAC, 60 cps, 55 watts. **Tubes and Diodes:** 12 tubes, 7 diodes, 3 rectifiers. **Size:** 16 $\frac{1}{4}$ " w. x 13" d. x 7 $\frac{3}{4}$ " h. Weight, 25 lbs.

Squires-Sanders 55-1R Receiver—Net Each.....\$895.00

Squires-Sanders 55-1RS Matching 4" x 8" Speaker—Net Each.....35.00

Squires-Sanders 55-1S Noise Silencer—Net Each.....135.00

Squires-Sanders 55-1V Video Bandscanner—Scope shows all or any portion of signals on band in use; marker pip shows receiver frequency; display does not move as receiver is tuned; minimum bandwidth of display approx. 4 kc; center-frequency tuneable over entire band; linear and logarithmic display. Transmitter monitoring provision. Use with 55-1R receiver. Net.....\$395.00

## "INTERCEPTOR-B" AMATEUR VHF RECEIVER

Covers 2- and 6-meter bands with provision for 220 Mc and other UHF converters. Q multiplier and crystal lattice filter combination for maximum selectivity. Frequency meter accuracy tuning in calibrated 1 Mc ranges. Flywheel loaded glide rule dial with full electrical bandwidth for precise tuning. Nuvistor RF stages provide less than 2 db noise figure. Specially designed noise limiter for maximum hash suppression. **Sensitivity:** 0.1  $\mu$ V or better for 10 db S/N. **Cross Modulation:** Less than 5% of 1  $\mu$ V signal by a 25 mV signal. **Controls:** Bandwidth (2 or 6 meters, converter or tuner); On-Off/Audio Gain; Main Tuning; S-meter; Noise Limiter; RF Gain; Mode; AM/USB/LSB; Sharp/Broad Selectivity; Receive/Standby; Phone Jack. **Size:** 15" w. x 9" d. x 9" h. Wt. 32 lbs. **Clegg "Interceptor-B" Receiver**—Net Each.....\$495.00

Clegg "Interceptor Allbander" Converter—Accessory for Interceptor allows reception of 3-31 Mc frequencies. Size, 7" x 7" x 5 $\frac{1}{2}$ ". Shipping Weight, 6 lbs. Net Each.....\$129.95

## 22'er TWO-METER AMATEUR TRANSCEIVER

Ready-to-go VHF station with many refinements for the discerning ham. **Receiver Section:** Special triple conversion design; crystal-controlled injection oscillator; crystal lattice filter gives 10 kc selectivity at 6 db and less than 16 kc at 50 db. Full 143.8-148.2 Mc coverage with dial calibrated 144-148 Mc; free from spurious responses, IF leak-through and images. Excellent AGC performance; adjustable squelch; effective automatic noise limiter. Nuvistor RF stage and low noise first mixer provide 0.35  $\mu$ V sensitivity (6 db, S+N to N). Audio output, 2 watts with self-contained speaker. Panel meter doubles as calibrated 8-meter on receiver and "relative output" meter for transmitter tune-up. **Transmitter Section:** Broadband exciter stages simplify rapid QSY. Straight through final has crystal-controlled 20-watt input. High level plate/screen modulation with clipping. Push-to-talk built-in. Spot switch. **Power Supply:** Solid state, for 115 VAC/12 VDC. **Tubes:** 17. **Size:** 12" x 11" x 7". Weight, 25 lbs. **Clegg 22'er Transceiver**—Net Each.....\$239.50

## "VENUS" 6-METER AMATEUR SSB TRANSCEIVER

Features crystal lattice filter, balanced beam tube modulator, nuvistor front end, offset tuning and 1 kc/division dial plus 10 kc/revolution main dial, and slow AVC release. Connector for external linear amplifier and/or receiver. Complete with high output, matched, shielded mike. **Receiver Section:** Frequency range, 49.975-50.475 kc standard; other ranges available on special order. **Sensitivity:** 0.25  $\mu$ V for 6 db S/N, AM; 0.1  $\mu$ V for 6 db S/N, SSB. **Selectivity:** 2.7 kc at 6 db; less than 6 kc at 50 db. Images and IF leakage down more than 60 db. Less than 5% cross modulation, with two signals 20 kc apart if stronger signal is less than 2 mV across 50-ohm input. **Transmitter Section:** Frequency range, same as for receiver. **Power Input:** 85 watts PEP on AM, SSB and CW. Unwanted sideband down more than 50 db at 1 kc; carrier down more than 66 db. Frequency drift, less than 500 cps after 5-minute warm-up, below 100 cps per hour, after warm-up. **Tubes:** 21. **Size:** 18" w. x 10 $\frac{1}{2}$ " d. x 7" h. Shipping Weight, 22 lbs. **Clegg "Venus" SSB Transceiver**—Net Each.....\$495.00

Clegg Model 416 AC Power Supply—For 115 VAC, 60 cps input; drives "Venus" transceiver, plus has built-in, 4-ohm speaker. Net Each.....\$110.00

## "APOLLO SIX" 6-METER LINEAR AMPLIFIER

Driven by the "Venus", this amplifier provides big-station, 6-meter performance. Built-in solid-state power supply. Three illuminated meters; Grid current; screen current or RF output; and, plate current. Instant exciter/linear selection with the "Venus"; other transceivers require plug-in relay accessory. Styled to match the "Venus." No neutralization is necessary. Self-contained blower. **Power Input:** 675 watts peak DC. **Power Output:** 350 watts CW and SSB PEP; 75 watts AM with 180 mA plate current. **Tubes:** Two 823B's; OA2. **Power Required:** Approx. 500 VA at full load, 115 VAC, 60 cps. **Size:** 15" w. x 10 $\frac{1}{2}$ " d. x 7" h. Wt., 35 lbs. **Clegg Apollo Six Linear Amplifier**—Net Each.....\$247.50

Clegg 510-007 Interconnecting Cable—For Interconnecting Apollo and Venus. Net Each.....\$9.75

Clegg SS Booster—Gives up to 20 db increase in average power. For use with Venus or Venus/Apollo combination. Net.....\$97.50

## "THOR VI" 6-METER TRANSCEIVER

Unique heterodyne VFO system permits transmitter to track receiver tuning while DXing. Other features include: Broadband transmitter; full speech clipping; crystal lattice filter; stable local oscillator; BFO for CW; low noise Nuvistor front end; push-to-talk and antenna switching. Receiver-RF unit on one chassis; power supply-modulator on other. **Receiver Section:** Frequency range, 49.8-52.1 Mc calibrated in 50 kc increments. **Sensitivity:** less than .25  $\mu$ V of 10 db S/N. **Selectivity:** 6 kc at 6 db; down more than 25 db at  $\pm 12$  kc. Spurious images and IF leakage down more than 60 db. AVC within 6 db AF change for 60 db input variation. **Transmitter Section:** Frequency range, 50.0-51.4 Mc with internal VFO; 47-54 Mc, crystal or external VFO. **Power Input:** 60 watts AM and CW with AC power supply; 50 watts with DC power supply. VFO drift less than 15 kc after 5 to 15 minutes warm-up; less than 3 kc per hour after 20 minutes. **Size:** 12" w. x 8 $\frac{1}{2}$ " d. x 6 $\frac{1}{2}$ " h. Weight, 15 lbs. **Clegg "Thor VI" Transceiver**—Net Each.....\$260.00

Clegg Model 417 AC Modulator/Power Supply—To drive above transceiver on 115 VAC, 60 cps input. Wt., 27 lbs. Net.....\$139.95

Clegg Model 418 DC Modulator/Power Supply—Same, but for 12 VDC input. Net Each.....\$159.95

## NEW "FM ALERT" EMERGENCY RADIO

Highly stable FM superhet receiver for 30-50 or 152-174 Mc bands with variable tuning plus provision for two fixed crystal-receive channels. Features smooth variable tuning dial, adjustable squelch, illuminated reception with ample audio output capability. Small in size and attractively styled. Requires external speaker which may be located remotely if desired. **Sensitivity:** 5  $\mu$ V or less. **Audio Output:** About 3 watts. **Power Required:** 115 VAC, 60 cps, 30 watts. **Tubes:** 7. **Size:** 10 $\frac{1}{2}$ " w. x 6" d. x 4 $\frac{1}{2}$ " h. **Color:** Soft grey-green. Weight, 6 $\frac{1}{2}$  lbs. Choice of models for high and low FM bands.

Squires-Sanders 30-50 Mc FM Alert—Net Each.....\$79.95

Squires-Sanders 152-174 Mc FM Alert—Net Each.....79.95

Matching 3" x 5" PM Speaker—For FM Alert. Net Each.....8.95

## NEW 23'er 23-CHANNEL CB TRANSCEIVER

Completely solid-state transceiver provides highly dependable Citizens' Band coverage, even under difficult communications conditions. Offers full crystal-controlled coverage of all 23 CB channels; all crystals furnished. Fully adaptable to the current H.E.L.P. program for your safety. Lightweight and extremely compact, unit is ideal for mobile use; has built-in mobile supply and exclusive Squires-Sanders ignition noise silencer. Transmitter runs full 5-watts input with high "talk power." Ultra-sensitive receiver section has crystal bandpass filter for exceptional selectivity. Front-panel 3" x 5" speaker gives up to 4 watts of clean audio. Provision for instant conversion to PA service. **Power Supply:** Built-in for 12 VDC, negative ground, AC power supply optional. **Semiconductors:** 25 silicon transistors, 6 diodes, 1 zener. **Size:** 8" x 7" x 3 $\frac{1}{2}$ ". Weight, 4 lbs. **Squires-Sanders 23'er CB Transceiver**—Complete with ceramic microphone and coil-cord, mobile mounting bracket, transmit-receive crystals for all 23 channels. Net Each.....\$235.00

115 VAC Power Supply—For 23'er. Net Each.....24.60

Public Address Adapter—Net Each.....11.95



## CITIZENS' BAND TRANSCEIVERS

### NEW MODEL 779 SENTINEL CB TRANSCEIVER

Frequency-synthesized circuit permits crystal-controlled transmit and receive on all 23 channels; no additional crystals needed. Dual-conversion superhet transmit and receiver for high selectivity. Single control selects transmit and receive channel. Combination S-meter and RF meter measures incoming signals and RF output; meter and channel window are illuminated. Front panel switch selects receiver's audio amplifier to act as a PA system. Dual power supply. Bandspeed control; AGC; adjustable squelch; noise limiter; phone jack on front panel; variable pi-network; adjustable harmonic filter eliminates TVI; built-in 4" speaker. **Selectivity:** 3 kc at 6 db down with 6 Mc and 455 kc IF's. **Sensitivity:** 0.25  $\mu$ V for 10 db S/N ratio. **Image Rejection:** 60 db. **Audio Output:** 3.5 watts. **Power Input:** 5 watts. **Power Required:** 70 watts, 117 VAC; or, 5 amps, 12 VDC (transistorized for negative-ground systems only). **Size:** 12" w. x 7 1/2" d. x 4 3/4" h.

**Model 779 Transceiver**—With all crystals, mobile brackets, AC and DC power cords, and noise-cancelling, push-to-talk ceramic mike. Factory wired and tested. Net Each. . . . . \$169.95



779



777

- Model 777 Transceiver—Wired. Net Each. . . . . \$149.95
- Model 777K Transceiver Kit—Net Each. . . . . 99.95
- Model 772 Transceiver—Similar to Model 777 but only four transmit channels and one receive; 117 VAC and 12 VDC operation only. Wired. Net Each. . . . . \$99.95
- Model 772K Transceiver Kit—Net Each. . . . . 69.95

### MODEL 777 CB TRANSCEIVER

Instant selection of up to 6 crystal-controlled transmit and receive frequencies with separate crystals; illuminated front panel channel selector. Receiver has illuminated vernier tuning dial; adjustable squelch; series type noise limiter; heavy-duty 3 1/2" speaker, illuminated S-meter. Post-Lock mounting bracket permits 180° rotation with secure lock every 30°. Socket for selective calling attachment; external antenna controls. **Selectivity:** 5 kc at 6 db; 8 kc at 20 db. **Sensitivity:** Better than 1  $\mu$ V for 10 db S/N ratio. **Modulation:** 100%. **Audio Output:** 3 watts. **Tuning Range:** 26.985 to 27.265 Mc. **Output Impedance:** Variable pi-network. **Power Input:** 5 watts. **Power Required:** 8 amps at 6 VDC; 4 amps at 12 VDC; or, 117 VAC. **Size:** 8 1/2" w. x 10" d. x 6" h. Weight, 18 lbs.

### MODEL 740K CB TRANSCEIVER KIT

Completely portable, battery-powered citizens' band transceiver; requires no license or permit to operate. Unit is lightweight (19 oz.) and compact. Requires no adjustments outside of On/Off/Volume control and push-to-talk button. RF input to final is 100 mW, the maximum allowable under FCC rules. Range is up to 10 miles over water. Nine transistors, two on transmit and seven on receive in a full superhet, crystal-controlled receiver with reflex audio section, push-pull output of 50 mW to speaker. Nickel-cadmium, rechargeable, 10 V battery; charger supplied. Telescoping 41" antenna. With crystals for any one of channels 1-22 (specify frequency). **Size:** 7 1/2" x 2 3/4" x 1 3/8".

**Model 740K Transceiver Kit**—Net Each. . . . . \$54.95



## AMATEUR EQUIPMENT AND ACCESSORIES

### NEW MODEL 753 TRI-BAND 5SB/AM/CW TRANSCEIVER

Rated 200 watts PEP on SSB, AM or CW with coverage on 80, 40 and 20 meter bands for phone and CW. High level ALC prevents flat-topping with extreme overmodulation; automatic carrier level adjust on CW and AM; offset tuning on receiver with 10 kc bandspeed without altering transmit frequency. Standby, VOX or PTT operation; 6:1 band tuning and 30:1 vernier bandspeed with single knob. **Frequency Range:** 3490-4010 kc, 6990-7310 kc and 13890-14410 kc. **Power Input:** 180 watts PEP, SSB, CW and AM. **Power Output:** 110 watts PEP, SSB, CW and AM. **Emission:** LSB, 80 and 40 meters; USB, 20 meters; AM, carrier-inserted SSB. **5SB Generation:** 5.2 Mc crystal lattice filter; bandwidth, 2.7 kc at 6 db. **Stability:** 400 cps after warm-up. **Suppression:** -50 db, carrier; -40 db, unwanted sideband. **Audio Input:** High impedance, low level. **Output Impedance:** 40-80 ohms. **Sensitivity:** 1.0  $\mu$ V for 10 db S/N ratio. **Selectivity:** 2.7 kc at 6 db. **Audio Output:** 2 watts. **Size:** 14" w. x 11 1/4" d. x 5 1/2" h.

**Model 753 Transceiver**—Factory wired, tested. Net Ea. \$299.95

**Model 753K Transceiver Kit**—Net Each. . . . . 179.95

**Model 751 117-VAC Supply/Speaker**—Net Each. . . . . 109.95

**Model 751K**—Kit version of Model 751. Net Each. . . . . 79.95

**Model 752 12-VDC Mobile Power Supply**—For Model 753. Solid state. For positive or negative ground. Net Each. . . . . \$109.95

**Model 752K**—Kit version of Model 752. Net Each. . . . . 79.95

### MODEL 720 90-WATT CW TRANSMITTER

Single bandswitch for all bands. Usable with external VFO. 65 watts phone with external modulator. Line on meter indicates 75-watt novice limit. Effective TVI suppression. **Frequency Range:** 80, 40, 20, 15 and 10 meters. **Power Input:** 90 watts CW, 65 watts phone (with external modulator). **Size:** 15" w. x 9" d. x 5" h. Weight, 30 lbs.

**Model 720 90-Watt CW Transmitter**—Wired. Net. . . \$129.95

**Model 720K 90-Watt CW Transmitter Kit**—Net Each. . . 89.95

### MODEL 723 60-WATT CW TRANSMITTER

Compact CW transmitter for novice or advanced amateur operator. Electron-coupled Colpitts oscillator for minimum crystal heating and plate loading effects; pi-network output circuit minimizes TVI. **Frequency Range:** 80, 40, 20, 15 and 10 meters. **Power Input:** 60 watts. **Size:** 8 1/2" w. x 11 1/4" d. x 6" h. Weight, 17 lbs.

**Model 723 60-Watt CW Transmitter**—Factory wired and tested. Net Each. . . . . \$89.95

**Model 723K 60-Watt CW Transmitter Kit**—Net Each. . . 59.95

### MODEL 722 SELF-POWERED 80-10 METER VFO

Drives any modern transmitter with near-crystal stability. Electron-coupled oscillator has temperature compensating capacitors; oscillator isolated by buffer-multiplier stage. Precision calibrated vernier tuning; delivers 10-20 volts RF output. Self-contained silicon power supply for direct AC power operation. **Frequency Range:** 80, 40, 20, 15 and 10 meters. **Power Requirements:** 117 VAC, 60 cps. **Size:** 8 1/2" w. x 9" d. x 6" h. Wt., 11 lbs.

**Model 722 VFO**—Factory wired and tested. Net Each. . . \$59.95

**Model 722K VFO Kit**—Net Each. . . . . 44.95

### MODEL 710 GRID DIP METER

Basically a VFO with a microammeter in its grid circuit; determines frequency of other oscillators or tuned circuits. Sensitivity control and phone jack facilitate "zero beat" listening. Also excellent as absorption wave meter. Amateur uses include pretuning and neutralizing transmitters, power indication, correcting TVI, etc. Easy to hold and thumb-tune with one hand. Continuous coverage of 400 kc-250 Mc in 8 ranges with pre-wound coils of  $\pm 1\%$  accuracy. Meter in 8 ranges with pre-wound coils of 10 watts, 115 VAC, 60 cps. **Size:** 2 1/2" w. x 6 3/4" d. x 2 1/4" h. Weight, 3 lbs.

**Model 710 Grid Dip Meter**—Wired. Net. . . . . \$49.95

**Model 710K Grid Dip Meter Kit**—Net. . . . . 29.95



753



722



723



720

### MODEL 730 UNIVERSAL MODULATOR-DRIVER

Superb, versatile modulator at low cost. Can deliver 50 W of undistorted audio signal for phone operation. Unique over-modulation indicator. Low level speech clipping and filtering with peak speech frequency range circuitry. Low distortion feedback circuit, premium quality audio power pentodes, indirectly heated rectifier filament. Balance and bias adjust controls. Inputs for crystal or dynamic mikes, phone patch, etc. Excellent deluxe driver for high-power class B modulation. **Power Output:** 50 W. **Output Transformer Matching Impedances:** 500-10,000 ohms. **Inputs:** Low level, high impedance-crystal or dynamic mikes. High level, low impedance-phone patch, etc. **Tubes:** 6, plus rectifier. **Power Requirements:** 150 W, 115 V, 60 cps. **Size:** 14" w. x 8" d. x 6" h. Weight, 21 lbs.

**Model 730 Universal Modulator Driver**—Wired. Net Ea. . . \$89.95

**Model 730K Universal Modulator Driver Kit**—Net Ea. . . 59.95

**Model E5 Cover**—Net Each. . . . . 4.50



### MODEL 706 CODE PRACTICE OSCILLATOR

Battery-operated transistor audio oscillator, tunable over a range of 500-2,000 cps by the pitch control. Has a 3" built-in speaker and a phone jack on the panel. Flashing light on panel for signaling after dark. Panel switch selects tone alone, light alone, or both. External key terminals on front panel. **Current Drain:** Tone, 40 mA at 3 VDC; Light, 300 mA at 3 VDC; Tone and Light, 340 mA at 3 VDC. High-impact Bakelite case; satin finish, deep-etched aluminum panel. **Size:** 4 3/4" w. x 2 3/4" d. x 6 1/2" h. Shipping Weight, 2 lbs.

**Model 706 Code Oscillator**—Wired. Net. . . \$12.95

**Model 706K Code Oscillator Kit**—Net. . . . . 8.95

\*Trademark of Bakelite Corp.





# R. L. Drake Amateur Equipment

## MODEL TR-4 SIDEBAND TRANSCEIVER

Compact and lightweight amateur sideband transceiver, ideal for mobile, portable and limited space applications. Engineered for optimum performance on upper or lower sideband, with provision for AM and CW operation. With 300 watts PEP input, the transceiver provides excellent medium power performance alone, or may be used to drive a high power linear amplifier. Full frequency coverage on all amateur bands, 10 through 80 meters with linear permeability-tuned VFO for receiving and transmitting. RV-3 Remote VFO may be used for transceiving, transmitting or reception on frequencies other than the TR-4 frequency. Provision for voice control or push-to-talk operation. Built-in controlled carrier screen modulator for AM; shifted carrier CW operation with 260 watts input. Special 9 mc crystal filters for sideband selection. Adjustable output impedance with pi-network. Only one DPDT relay; RF switching limited to antenna. Separate receiver S-meter and transmitter plate current ammeter. Receiver section features separate RF and AF gain controls, plus full AGC with dual time constant system; 2.1 kc passband. Built-in 100 kc crystal calibrator. **Frequency Coverage:** Seven ranges: 80M (3.5-4.1 mc); 40M (7.0-7.6 mc); 20M (13.9-14.5 mc); 15M (21.0-21.6 mc); 10M (28.0-28.6, 28.5-29.1 and 29.1-29.7 mc). VFO tunes 4.9-5.5 mc for all ranges. **Calibration:** 10 kc divisions with interpolation to 1 kc on tuning knob skirt. **Frequency Stability:** Drift less than 100 cps after warm-up; less than 100 cps for  $\pm 10\%$  line voltage change. **TRANSMITTER: Power Input:** SSB, 300 watts PEP; CW, 260 watts DC and AM; 260 watts PEP. **SSB:** Two asymmetrical 9 mc crystal filters for sideband selection without oscillator shifting. Sideband suppression, more than 40 db; carrier suppression, 50 db. Frequency response, -6 db, 400-2500 cps. Distortion, -30 db at maximum output. **CW:** Carrier shift approx. 1 kc into one sideband with keyed mixer. Grid block keying with no chirps or clicks; automatic T/R switching. **AM:** Compatible with SSB liners; low carrier power increases six times to 50 watts output at max. modulation; manual T/R switching. **Microphone Input:** High impedance. **Output Impedance:** 50 ohms nominal. **RECEIVER: Sensitivity:** Less than 0.5  $\mu$ v for 10 db S/N. **IF Selectivity:** 2.1 kc at 6 db, 7.5 kc at 60 db. **AGC:** Less than 3 db audio output variation for 60 db signal change. Adjustable, zero to full with RF gain control. **AM Reception:** Exalted carrier. Product detector requires zero beat signal. Choice of sideband; no selective fading; 2.1 kc selectivity. **Frequency Response:** -6 db, 400-2500 cps. **Power Output:** 2 watts. **Output Impedance:** 4 ohms. **Controls:** (Front panel) Main Tuning; RF Tuning; Plate Tuning; Load; Bandswitch; Function (CAL/SSB/X-CW/X-AM); Transmitter Gain; Receiver Gain; Sideband Switch; (Screwdriver adjust) Vox Gain; Anti-Vox Gain; S-Meter Zero; Carrier Balance. **Tubes:** 20. **Transistors:** 2. **Diodes:** 8. **Size:**  $10\frac{3}{4}$ " w. x  $14\frac{1}{2}$ " d. x  $5\frac{3}{4}$ " h. Weight, 16 lbs.

**Drake Model TR-4 Sideband Transceiver—Less** \$585.00  
power supply and speaker. Net Each.....

## ACCESSORIES FOR MODEL TR-4

**Drake Model RV-3 Remote VFO**—Permits reception on frequencies other than the TR-4 transmitting frequency, transceiving on another frequency without changing the TR-4 VFO, or transmitting on frequencies other than TR-4 receiving frequency. Same construction as TR-4 VFO, matching cabinet. With 5" speaker. **Size:**  $10\frac{3}{4}$ " w. x  $11\frac{3}{4}$ " d. x  $5\frac{3}{4}$ " h. Wt., 8 $\frac{1}{2}$  lbs. Net Each. \$79.95

**Drake Model MS-4 Matching Speaker**—Matches TR-4, with 5" x 7" heavy magnet speaker and cable. **Size:**  $10\frac{3}{4}$ " w. x  $11\frac{3}{4}$ " d. x  $5\frac{3}{4}$ " h. Weight, 6 lbs. Net Each. \$19.95

**Drake Model AC-3 AC Power Supply**—Seven silicon rectifiers; operates from 120 v. AC, 50-60 cps. Mounts in MS-4 and RV-3 cabinets. **Size:**  $5$ " x  $5$ " x  $10\frac{3}{4}$ " w. Wt., 15 lbs. Net Each. \$79.95

**Drake Model DC-3 DC Power Supply**—Transistorized, operates from 12 v. DC. With 5 ft. cable, connector. Net Each. \$129.95

**Drake Model MMK-3 Mobile Mounting Kit**—For under-dash or floor mounting of TR-4. With brackets and hardware. Net. \$6.95

**Drake TR-4 Operating Manual**—Net Each..... 2.00



TR-4



T-4



T-4X



R-4

## MODEL T-4 SIDEBAND RECITER

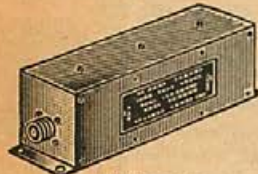
Transceives with R-4 receiver only; receiver controlled exciter. Will operate in transceive mode only. Can be converted into T-4X transmitter with available conversion kit. **Frequency Coverage:** Five Ranges: 3.5-4.0 mc; 7.0-7.5 mc; 14.0-14.5 mc; 21.0-21.5 mc; 28.5-29.0 mc. Operating crystals, plus four accessory crystals supplied. **Calibration:** Better than 1 kc at nearest 100 kc point. **Frequency Response:** -6 db, 300-2600 cps. **Power Input:** SSB, 200 watts PEP; AM, 175 watts PEP; CW, 175 watts. **SSB:** Upper or lower; VOX or push-to-talk; suppression, 40 db above 750 cps. **CW:** Grid-block keying; VOX circuit keyed for automatic transmit-receive switching; suppression, 60 db or better. **AM:** Screen modulation for controlled carrier built-in. VOX or push-to-talk. Suppression, 60 db or better. **Microphone Input:** High impedance. **Output Impedance:** 52 ohms, nominal. **Controls:** On Front—Accessory Crystal Switch; Function; SSB Selector; Band Switch; RF Tune; Gain; Plate Tuning; Plate Load; Plate Ammeter; Microphone Jack and VFO Switch. On Side—Locking Crystal Socket; Key Jack; Receiver Input; VOX and Anti-VOX Gains. **Power Requirements:** Use AC-3 power supply. **Tubes:** 13. **Size:**  $10\frac{3}{4}$ " w. x  $11\frac{3}{4}$ " d. x  $5\frac{3}{4}$ " h. Wt., 14 lbs. **Drake Model T-4 Sideband Reciter—Net Each. .... \$269.95**

**Drake Model T-4X Sideband Transmitter**—Same as the T-4 but includes solid state VFO and crystal oscillators. May be used with the R-4 receiver or any other receiver. PTO adaptable to FSK for RTTY operation. Net Each..... \$379.95

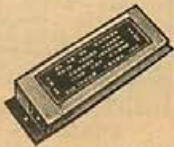
## MODEL R-4 RECEIVER

Covers from 160 to 10 meter bands with accessory crystals. May be used in conjunction with Drake MS-4 speaker. Built-in noise blanketer for all modes. Change sidebands without retuning. Built-in 100 kc crystal calibrator. Transceives with T-4 or T-4X. **Frequency Coverage:** 3.5-4.0, 7.0-7.5, 14.0-14.5, 21.0-21.5 and 28.5-29.0 Mc with crystals supplied; four extra sockets to add crystals for any 500 kc ranges between 1.5 and 30.0 Mc with exception of 5.0-6.0 Mc. **Sensitivity:** Less than .5  $\mu$ v for 10 db S+N/N. **Selectivity:** 4 kc at -6 db and 2.6 kc at -60 db; 1.2 kc at -6 db and 4.8 kc at -60 db; 2.4 kc at -6 db and 8.2 kc at -60 db; 4.8 kc at -6 db and 25 kc at -60 db. **Audio Output:** 1.4 watts max.; 5 watt at AVC threshold. **Output Impedance:** 4 ohms and high impedance for anti-VOX. **Stability:** Less than 100 cps after warm up. Less than 100 cps for 10% line voltage change. **Controls:** Main Tuning; AF Gain; RF Gain; Function; AM-SSB/CW (AVC with Slow, Fast and Off positions); Band Switch; Crystal Switch; Passband Tuning and Selectivity; Prescaler; Notch; Headphone Jack; **Power Required:** 50 watts; 120/240 VAC, 50/60 cps. **Tubes:** 20. **Size:**  $10\frac{3}{4}$ " w. x  $11\frac{3}{4}$ " d. x  $5\frac{3}{4}$ " h. Wt., 16 lbs. **Drake Model R-4 Receiver—Net Each. .... \$379.95**

## INTERFERENCE FILTERS



TV-1000-LP



TV-100-LP



TV-CB-LP



TV-300-HP

### LOW PASS FILTERS

Filters are electrically identical, differing only in power rating and size. Passes 6-160 meters; attenuates transmitter harmonics that fall in channel 2 or higher. Four effective pi sections provide sharp cut-off and high attenuation. Particular attention given to attenuation of harmonics of 8 Mc crystals used on 6 meters and to attenuation of the second harmonic of 10 meters. Will not detune antenna feed systems with low SWR. Matches 52-ohm coax line with low insertion loss. Easy-to-mount rectangular cases. **Weight:** TV-1000-LP, 1 lb. 8 oz.; TV-100-LP, 7 oz.; TV-CB-LP, 8 oz.

**Drake No. TV-1000-LP**—May be used on transmitters with up to 1000 watts maximum input, 200 watts maximum on 16<sup>95</sup> 6 meters. SO-239 conn., built-in. Net Each.....

**Drake No. TV-100-LP**—Same as above, only for use on transmitters up to 100 watts maximum input, 20 watts maximum on 6 meters. Mounts with solder connections provided (or \$5<sup>95</sup> use your own SO-239 connectors). Net Each.....

**Drake No. TV-CB-LP**—Same, but for Citizens' Band or other transmitters up to 100 watts max. operating below 30 \$6<sup>95</sup> Mc. SO-239 connectors built-in. Net Each.....

### UNIVERSAL HIGH PASS FILTER

Completely eliminates interference on TV receiver due to amateur transmission on 6-meter to 160-meter band, even when the transmitter is next door. Also provides full protection against regular IF interference. Design attenuates all signals 55 Mc and higher, less than 1 db; 52 Mc and lower, more than 40 db. Installs easily at the antenna lead-in, at the input to the booster or TV receiver. Optimum impedance 300 ohms. Iron core, bifilar coils for maximum reduction of parallel current interference. Excellent for both UHF and VHF channels. Weight, 2 oz. \$3<sup>97</sup>

**Drake No. TV-300-HP**—Net Each.....

### TV-300-FMT 88 TO 108 MC BAND REJECTOR FILTER

FM transmitters are responsible for considerable interference to the reception of other FM stations and many TV channels. Installing filter in the 300-ohm antenna lead-in and adjusting to frequency of interfering stations will eliminate the interference. Low insertion loss at adjacent TV channels. Weight, 2 oz. \$5<sup>95</sup>

**Drake No. TV-300-FMT Band Rejector**—Net Each.....

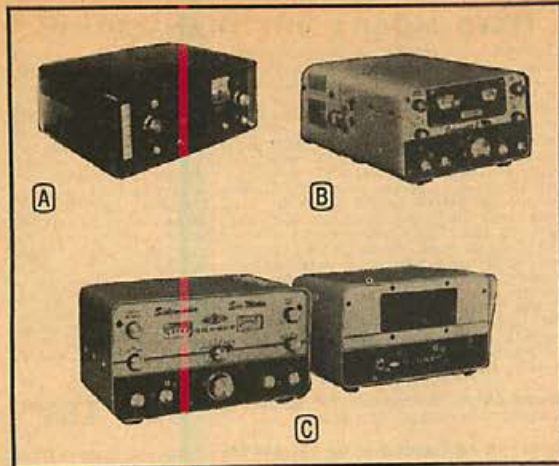




# Mobile Amateur Equipment

## AMATEUR TRANSCEIVERS AND ACCESSORIES

### COMMUNICATOR IV SERIES—TRANSCEIVERS (FIG. A)



"SIDEWINDER" 6-METER 55B-AM-CW TRANSCEIVER (FIG. C)

Compact, top performer offers highly stable receiver combined with 20-watt transmitter for 60-54 Mc coverage. Provision made for crystal-controlled transmitter operation with four, switch-selected sockets. Highly stable receiver utilizes the same VFO as the transmitter; remains VFO-controlled even with transmitter on crystal; has  $\pm 2$  kc independent tuning capability. **Frequency Range:** 50-54 Mc. **Power Input:** 20 watts PEP, SSB; 6 watts, AM; 20 watts, CW. **Receiver Sensitivity:**  $\frac{1}{2}$   $\mu$ V or better for 10 db, S+N/N. **Suppression:** -50 db, spurious noise, both receiver and transmitter using double conversion; -50 db carrier suppression on SSB; -40 db, unwanted sideband. **Audio Output:** 3 watts. **Power Required:** 1.05 amps at 12.6 VDC (1 amp receive/standby), 40 watts at 117 VAC on receive; 8 amps at 12.6 VDC, 100 watts at 117 VAC, transmit. **Size:** 9 $\frac{1}{2}$ " w. x 5 $\frac{1}{4}$ " h. x 7 $\frac{1}{4}$ " d. Weight, 11 lbs.

- Model 910A 6-Meter Sidewinder—Net Each.....\$399.50
- Model 911A AC Power Supply—For 117 VAC operation. Size, 9 $\frac{1}{2}$ " w. x 5 $\frac{1}{4}$ " h. x 5 $\frac{1}{4}$ " d. Weight, 14 lbs. Net Each...\$73.50
- Model 912A DC Power Supply—For 12 VDC operation. Size, 9 $\frac{1}{2}$ " w. x 5 $\frac{1}{4}$ " h. x 5 $\frac{1}{4}$ " d. Weight, 14 lbs. Net Each...\$79.50

### MODELS 903A (2-METER) AND 913A (6-METER) RF POWER AMPLIFIERS (FIG. D)

Delivers 200 watts output operating as Class AB1 linear amplifiers; or 280 watts as non-linear Class C. Rated for all classes of service at 500 watts peak input; linear service for CW, FM, SSB and AM; non-linear service for FM and CW with improved efficiency and output. Both amplifiers cover frequencies above and below the amateur bands specified, and may be used for other services such as MARS, CAP, etc. Can be driven with any exciter with a minimum of 5 watts output in linear service; larger exciter output required for non-linear. When used with exciter/transmitters delivering more power than needed; pads are available in 5 db, 10 db and 15 db attenuation steps for placement between exciter and amplifier. To change from linear to non-linear operation, a simple link on the rear chassis is opened; an additional link permits complete cut-off of all currents in standby or "between words" with VOX, push-to-talk, or keying. Dual scale meter reads 0-500 mA for plate current; 0-50 mA for grid or screen. Built-in power supply consists of 24 solid-state bridge rectifiers rated 800 PIV, 750 mA; controlled avalanche diodes are used for high voltage, 1650 VDC at 400 mA. Bias supply employs solid-state 400 PIV, 500 mA diode for high reliability. **Power Output:** 200 watts, linear; 280 watts non-linear. Rated for all classes at 500 watts peak input. For AM linear, unmodulated carrier should not exceed 125 watts for 500 W peak at 100% modulation. **Input Impedance:** 50-75 ohms. **Output Impedance:** 50 ohms. **Exciter Output Required:** 5 watts, min. **Line Input:** 117 VAC, 50/60 cps. **Size:** 12 $\frac{1}{2}$ " w. x 15" d. x 8 $\frac{3}{4}$ " h. Weight, 60 lbs.

- Model 903A 2-Meter Amplifier—Net Each.....\$339.00
- Model 913A 6-Meter Amplifier—Net Each..... 339.00

### SSB RF LINEAR AMPLIFIER MODEL 3340 (FIG. E)

Exceptionally compact linear amplifier designed for table-top use, finished in blending light colors, presenting a clean-cut appearance. Covers 80, 40, 20, 15, and 10-meter bands; incorporates a pl-network output and full bandswitching. Power input to final is a full 1500 watts PEP, SSB; 1000 watts CW; 400 watts AM. May be driven by exciters in the 65-150 watt category such as Model GSB-100 and similar units. Stable, grounded-grid circuitry. Utilizes low-cost 811A tubes and long-life silicon high voltage rectifiers. Antenna changeover relay built-in. Panel switch permits preliminary tuning to be done at low power. Full-vision panel instrument switchable to indicate plate current or relative power output. **Size:** 12 $\frac{1}{2}$ " w. x 17" d. x 8 $\frac{1}{2}$ " h. Weight, 82 lbs.

- Model 3340 (GSB-201) Amplifier—Net Each.....\$345.00

**Transmitter:** Crystal controlled; greater power than ever at 24 watts input. High level speech clipping and 10 watts of audio insure full "talk power." Choice of six frequencies. Frequency Range 143.7 to 148.3 Mc. Broadband circuitry in driver eliminates panel controls. **Receiver:** Uses latest frame grid VHF tubes in RF and mixer for low noise figure of 4-6 db, triple conversion with crystal controlled first conversion. Excellent sensitivity, selectivity. Also ANL, adjustable squelch, "S" meter, slide-rule type dial, panel speaker. Built-in power supply operates on both 117 VAC and 12 VDC. DC supply transistorized, eliminates vibrator. **Size:** 12 $\frac{1}{2}$ " w. x 11" d. x 5" h. Weight, 22 lbs.

Model 3341—2-meter, 12 VDC, neg. ground only and 117 VAC. Power cables supplied for shift from AC to DC. Net Ea.\$409.95

Model 3341-CD—CD Communicator IV, O.C.D., 2-meter Civil Defense (FCDA Certification U-70). Model 3341 with Model 3409 kit, crystal certificate, complete. Net Each.....\$474.90

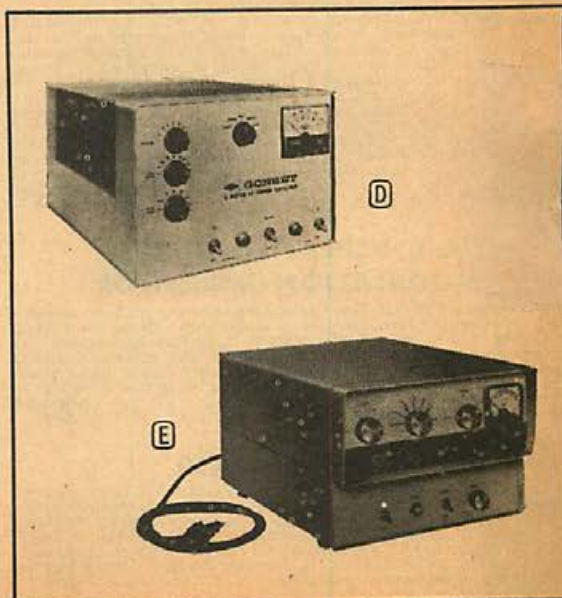
Model 3342—Same size and general appearance as the Communicator IV for 2 meters, except is for the 6-meter band with tunable receiver covering 49.9-54.1 Mc with the 50-51 Mc range spread over one third of the dial range. Receiver is triple-conversion superhet, with sensitivity of 1.0  $\mu$ V for 10 db S+N/N or better. Noise figure, 6-8 db. Operates at power input of 24 watts, has six crystal positions with socket for external VFO. Provision is made for Push-to-Talk operation, 12 VDC and 117 VAC dual power supply is built-in. DC supply is transistorized, operates negative ground only. Net Each.....\$409.95

Model 3342-CD—Same as model 3342, but includes Model 3409 Civil Defense kit to meet O.C.D. requirements. Net Ea.\$474.90

"SIDEWINDER" 2-METER 55B-AM-CW TRANSCEIVER (FIG. B)

Ultra-compact, lightweight transceiver covers entire 2-meter band in four 1 Mc segments, with 20 watts PEP input on SSB, 6 watts AM or 20 watts CW. Designed for either mobile or fixed station operation, with push-to-talk for simplified control. Highly sensitive receiver uses same stabilized VFO as the transmitter, with two-speed concentric dial providing for "coarse" and "vernier" tuning. Both receiver and transmitter feature dual conversion, with a lattice crystal filter for maximum selectivity. Fully transistorized except for the transmitter mixer, driver and final stages. Transistorized power supplies permit either 117 VAC or 12 VDC operation; either may be snap-fastened to rear of transceiver. High voltage power supply is used only in transmit mode. Includes illuminated dial window and "S" meter. **Frequency Range:** 144-148 Mc. **Suppression:** -50 db, spurious receiver, transmitter and SSB carrier; -40 db, unwanted sideband. **Receiver Sensitivity:** 0.5  $\mu$ V or better for 10 db S+N/N. **Image Rejection:** -50 db. **Power Required:** 1.05 amps at 12.6 VDC, 40 watts at 117 VAC, receive; 8 amps at 12.6 VDC, 100 watts at 117 VAC, transmit. **Size:** 8 $\frac{1}{2}$ " w. x 7" d. x 4 $\frac{3}{4}$ " h. Weight, 10 $\frac{1}{2}$  lbs.

- Model 900A 2-Meter Sidewinder—Net Each.....\$399.50
- Model 901A AC Power Supply—Size, 8 $\frac{1}{2}$ " w. x 5 $\frac{1}{4}$ " d. x 4 $\frac{1}{4}$ " h. For 117 VAC operation. Net Each.....\$73.50
- Model 902A DC Power Supply—For 12 VDC operation. Size, 8 $\frac{1}{2}$ " w. x 5 $\frac{1}{4}$ " d. x 4 $\frac{3}{4}$ " h. Net Each.....\$79.50
- Model 3250 Ceramic Mike—With push-to-talk switch and coiled cord; less plug. Net Each.....\$13.60
- Model 343-001—Mike plug for Sidewinder. Net Each... 2.24
- Model 113-022—Mike hanger for 3250 mike. Net Each. .25





# hallicrafters Amateur Gear



SR-46, SR-42



HA-26

## HA-5 DELUXE VFO

Deluxe self-powered, heterodyne-type VFO designed for extreme stability and versatility. Illuminated dial calibrated for all amateur bands from 80 through 2 meters, with 30 to 1 tuning ratio. Heterodyne system assures excellent keying. VFO keyed in cathode of mixer tube. **Output Frequencies:** 3.5-4.0 Mc, 7.0-7.5 Mc, 7.8-8.3 Mc, 8.333-8.833 Mc (crystals for 6 and 2 meter operation not included). **Tubes:** Four, 6U8 osc., 6BA7 mixer, 6AQ5 output, OAZ regulator. For 105-125 VAC, 60 cps operation. **Size:** 7" w. x 8 1/2" d. x 5" h. Shipping Weight, 8 lbs.

**Model HA-5 VFO**—Net Each..... **\$79<sup>95</sup>**

## HA-1 "T.O. KEYS"

For the CW operator who demands perfection. Electronic keyer employs a digital technique in advanced circuitry. Features a constant ratio of dot-to-space-to-dash over the entire speed range. All timing circuits are electronic, unaffected by relay variations. Dots and dashes are self-completing. Employs four dual-purpose triodes, two voltage regulators, two neon lamps and three diodes; transformer operated. Plug-in, vacuum-sealed, mercury wetted relay is used only to key the transmitter and sidetone signal. Monitor or sidetone is heard through speaker mounted behind perforated front panel; or, may be fed through receiver audio circuit. **Speed Range:** Dual calibration on one knob: 10-30 WPM and 25-65 WPM. **Controls:** Function (AC Off, Low Speed, Key-down Tune-up, and High Speed); Neon On/Keying Indicator; Three-circuit Key Jack, Speed Selector, on front panel. Factory-set DC Balance, Weight (dot duration), Sidetone Level, Headset Jack, Key-to-Transmitter Octal Socket, Monitor Tone Output, Aux. Paddle Input, and Extra Relay Contacts on rear. **Size:** 7" w. x 7" d. x 5" h. Shpg. Wt., 9 lbs.

**Model HA-1 "T.O. Keyer"**—Net Each..... **\$79<sup>95</sup>**

## HA-8 "SPLATTER GUARD" MODULATION INDICATOR

An electronic modulation indicating device reduces possible splatter resulting from too heavy audio gain. Meets the highest demands of discriminating operators. Transformer operated and complete with RF probe and interconnecting cable. Sensitivity Adjustment and AC Off controls on front; phono input probe connector and AC cord on rear. **Size:** 7 1/2" w. x 2 3/4" h. x 5 1/2" d. Weight, 5 lbs.

**Model HA-8 "Splatter Guard"**—Net Each..... **\$24<sup>95</sup>**

## R-48A SPEAKER

Latest design, new 5 1/2" x 7 1/2" assembly. Alnico V 3.16 oz. magnet, fully saturated air gap for exceptional damping, distortion-free response. Switch at rear for selection of music or voice response. Use with Models SX-62A, SX-62B, SX-100, SX-110, SX-117, SX-122 and SX-140. Voice coil, 3.2 ohms. Gray steel cabinet. **Size:** 13 1/4" w. x 8 1/2" d. x 6 3/4" h. Shipping Weight, 9 lbs.

**Model R-48A Speaker**—Net Each..... **\$18<sup>50</sup>**

## SR-46, SR-42

### FIXED/MOBILE VHF TRANSCEIVERS

Expertly-constructed transceivers offer full 4-Mc coverage on either 6- or 2-meter amateur bands. Efficient filters and selected injection frequencies make the receiver sections virtually immune to interference from FM and TV signals. Neutralized nuvistor front-end boosts sensitivity; 11 tuned circuits increase selectivity while suppressing interference. Built-in 8-meter automatically switches to read RF power output on transmit position. Double-conversion superheterodyne receiver section incorporates crystal-controlled second oscillator for excellent stability. Lift-up cabinet top allows easy access to crystal sockets, tubes and internal adjustments. **SR-46** covers 50 to 54 Mc; circuit utilizes 10 tubes plus zener diode oscillator and 4 diodes. **SR-42** covers 144 to 148 Mc; has 11 tubes, 2 zeners and 4 diodes. Both models give double the usual amount of bandwidth through use of dual, 2-Mc tuning ranges. **Other Features:** Frequency spot switch; automatic noise limiter; two-way power supply for mobile or fixed-station work; handy push-to-talk operation. **Power Input:** 10 to 12 watts. **Power Supply:** For 115 VAC and 12 VDC, built-in. Vibrator and DC power cord optional, extra. **Transmitting Crystals:** Provision for four transmitting crystals (one furnished) plus external VFO, switch-selected from front panel. **Size:** 12 1/2" w. x 8 1/2" d. x 5 1/2" h. Shipping Weight, 17 lbs.

**Model SR-46 Transceiver for 50-54 Mc**—With one transmitting crystal. Net Each..... **\$189<sup>95</sup>**

**Model SR-42 Transceiver for 144-148 Mc**—With one transmitting crystal. Net Each..... **\$189<sup>95</sup>**

**Model MR-40 Mobile Mounting Kit**—For SR-46 and SR-42 transceivers. Net Each..... **\$12<sup>95</sup>**

## HA-26 VFO

Stable, variable frequency oscillator for use with either SR-42 or SR-46 transceivers. Obtains its power from the transceiver. Dial calibrated 50-54 Mc and 144-148 Mc. **Controls:** Frequency and Band Switches (2-6 meters) on front panel; slide switch on rear panel selects 117 VAC or 12 VDC input. **Tube:** 6U8A oscillator-isolator. **Size:** 5" w. x 4 3/4" d. x 4 3/4" h. Shpg. Wt., 3 1/2 lbs.

**Model HA-26 VFO**—With cable and plug for connection to transceiver. Net Each..... **\$49<sup>95</sup>**



HA-5



HA-1

## R-47 SPEAKER

Matching 4" speaker for Hallicrafters Models SX-110, SX-115, SX-117, SX-122, SX-140 or similar receiver. For voice frequencies only. Voice coil, 3.2 ohms. **Size:** 5 1/2" w. x 3 1/2" d. x 5 1/2" h. Shipping Weight, 3 lbs.

**Model R-47 Speaker**—Net Each..... **\$14<sup>95</sup>**





SX-146

### SX-146 AMATEUR BAND RECEIVER

Features single conversion signal path and pre-mixed oscillator chain for high order frequency stability and freedom from adjacent channel cross-modulation products. Employs a high frequency quartz crystal filter with provision for installation of two more crystal filters. Covers amateur band. May also be used from 2 to 30 mc with the exception of a narrow gap at 9.0 mc by connecting the auxiliary oscillators. The highly stable conversion oscillator chain may be used for transceiver operation of the HT-46 transmitter. **Frequency Bands:** 3.5-4.0, 7.0-7.5; 14.0-14.5, 21.0-21.5; 28.0-28.5, 28.5-29.0, 29.0-29.5; 29.5-30.0 mc (28.0-28.5, 29.0-30.0 require extra crystals). **Front Panel Controls:** Frequency; Power Off CW/Upper/Lower/AM; Audio Gain; Band Selector; Selectivity; Pre-selector; RF Gain; AVC On-Off; Cal. On-Off; Cal Reset; ANL On-Off; Phone Jack; S-Meter. **Rear Chassis Controls:** S-Meter Zero Adjustment; Internal-External Oscillator Switch; Slave Oscillator Output; External Oscillator Input; Antenna Socket; Speaker; Ground and Mute terminals; Grounding Stud. **Power Required:** 55 watts, 105/125 VAC, 50/60 cps. **Tubes:** 9 plus 3 diodes. **Size:** 13 1/2" w. x 11" d. x 5 3/4" h. Shpg. Wt., 20 lbs. **Plug-in 100 kc quartz calibrator available.** **\$269<sup>95</sup>**  
**Model SX-146 Receiver—Net Each.....**

### HT-46 TRANSMITTER

Table top amateur five-band transmitter provides SSB or CW on 80, 40, 20, 15 and 10 meters. 175 watts input plus crystal filter output on CW or SSB; slave (to SX-146) or independent frequency control; upper or lower sideband via 9 Mc quartz crystal filter; built-in power supply; press-to-talk or optional plug-in VOX. **Frequency Bands:** 3.5-4.0, 7.0-7.5, 14.0-14.5, 21.0-21.5, 28-30 mc in four 500 kc steps. Crystal supplied for 28.5-29.0 mc, other plug-in available. **Front Panel Controls:** Frequency; Operation (Off, Standby, USB/LSB, LSB/USB, CW-tune); Microphone Gain; Driver Tune; Carrier Level; Band Selector; Final Tune; VFO Selector (Transmitter-Receiver); Dial Cal. Calibrate Off-On; Meter (mA-RFO). **Rear Controls:** Ground Lug; Fuse; Key Jack; VOX Accessory Socket; Antenna Jack; Receiver Input (for transceive); 11-pin control socket; Bias Adj. **Tubes:** 9. **Size:** 13 1/2" w. x 11" d. x 5 3/4" h. Shpg. Wt., 26 1/2 lbs. **\$349<sup>50</sup>**  
**Model HT-46 Transmitter—Net Each.....**



HT-46

### HT-40 AND HT-40K TRANSMITTERS

Crystal-controlled transmitter. **Features:** Excellent CW and AM performance; full band switching, 80 through 6 meters; easy tune-up for efficient operation; fully metered; TVI filtered. **Band Coverage:** 80, 40, 20, 15, 10 and 6 meters. **Power Input:** 75 watts max. DC; in excess of 35 watts CW; 30 watts peak. AM phone (slightly less on 6 meters). **Controls:** Function (AC Off, Tune, Standby, AM, CW); Band Selector; Drive Control; Plate Tuning and Loading; Crystal-VFO; Grid Current; Meter; AC Indicator Light; RF Output. Mike Gain, Antenna Coax Connector, Remote Control Terminals and AC Power Cord on rear chassis. **Tubes:** 6DQ5, 6CX5, 12AX7, 6DE7 and silicon high voltage rectifiers. Gray steel cabinet. **Size:** 13 3/4" w. x 8 1/2" d. x 6 3/4" h. Shipping Weight, 23 lbs. **\$104<sup>95</sup>**  
**Model HT-40K Transmitter—Kit version. Net Each.....**  
**Model HT-40 Transmitter—Assembled, tested. Net... \$129.95**



HT-40

### S-120 RECEIVER

Deluxe, low cost broadcast and short-wave receiver, with three antennas, covers 540 kc to 32 Mc in four bands. **Features:** Advanced, slimline styling, electrical bandspread tuning, front panel selectivity and BFO control, front panel headphone jack, built-in speaker, built-in loopstick antenna for broadcast reception; adjustable whip for short wave; extra wire antenna. Front panel headphone jack disconnects speaker automatically. **Controls:** Main and Bandspread Tuning; Band Selector; BFO/Selectivity; Standby/Receive; AC On-Off/Volume. **Tubes:** Four, plus rectifier. For 105/125 VAC/DC. U/L Approved. Gray steel cabinet with silver trim. **Size:** 13 1/2" w. x 8 3/4" d. x 5 3/4" h. Shipping Weight, 12 lbs. **\$69<sup>95</sup>**  
**Model S-120 Receiver—Net Each.....**



S-120

### S-118 RECEIVER

General coverage receiver with extended low frequency tuning, covering 185-420 kc and 495 kc to 31 Mc in five bands. Provides reception of consolan, aeronautical, mobile and international distress frequencies, as well as broadcast, amateur and short wave bands. **Features:** Two IF stages; electrical bandspread with slide rule dial; separate volume and sensitivity controls; noise limiter; BFO; loopstick antenna for lower bands, with provision for external antenna; phono input/audio output jack; self-contained speaker; provision for external power supply (filaments wired for 12 volts). **Tubes:** 5, plus two silicon diodes in power supply. For 105/125 VAC, 50/60 cps operation. **Size:** 14 1/2" w. x 8 1/2" d. x 5 1/2" h. Shipping Weight, 19 lbs. **\$94<sup>95</sup>**  
**Model S-118 Receiver—Net Each.....**



S-118



### SR-500 "TORNADO" TRI-BAND FIXED/MOBILE TRANSCEIVER



SR-500

### SR-2000 "HURRICANE" AMATEUR BAND FIXED TRANSCEIVER



SR-2000

- OPERATES ON 20, 40 AND 80 METERS ON SSB OR CW
- DELIVERS 500 WATTS PEP, SSB
- CHOICE OF MOBILE OR FIXED STATION POWER SUPPLIES

- 2000 WATTS PEP INPUT
- LINEAR GEAR DRIVE VFO
- BUILT-IN VOX, CW BREAK-IN AND PIT
- AALC AND PATENTED RIT

High performance, tri-band filter type transceiver for fixed or mobile operation on 20, 40, and 80-meter, SSB or CW. Free of chirping or incidental FM on CW. Features receiver incremental tuning (RIT) control, amplified automatic level control (AALC), quartz crystal filter for receiver and transmitter, built-in 100 kc crystal calibration provision (crystal and tube not supplied). All jacks and switching for operation of linear amplifier included. **Frequency Coverage:** 20 USB, 40 and 80 LSB. **Input:** 500 watts PEP, SSB; 300 watts max., CW. **Carrier Rejection:** -50 db or better. **Unwanted Sideband Rejection:** -50 db or better. **Audio Frequency:** ±3 db, 600-2,800 cps. **Distortion Products:** 30 db. **Sensitivity:** Better than 1 µV for 20 db, S/N. **AVC Figure of Merit:** 100 db. **Controls:** RIT On/Off; RIT Frequency; RF Gain/AF Gain; Operation (Off, Receiver, CW-Tune, SSB, Cal.); Dial Cal.; Band Selector; Driver Tune; Carrier Level/Mike Gain; Final Tune; Phono Jack; Mike Jack. **Size:** 13" w. x 11" d. x 6½" h. **Weight:** 13¼ lbs. VOX accessory optional.

**Model SR-500 Transceiver—Net Each..... \$395<sup>00</sup>**

**Model P-500AC Power Supply—For 117 VAC operation of SR-500; in matching case, Net Each..... \$119.50**

**Model P-500DC Power Supply—For 12 VDC operation of SR-500; in matching case, Net Each..... \$149.95**

**Model MR-500 Mobile Installation Kit—For SR-500. Net Each..... 14.95**

**Model HA-16 VOX Adapter—For SR-500. Net Each... 37.95**

The world's most powerful 5-band transceiver: Delivers 2000 watts PEP input, plus every other important feature desired for either receiver or transmitter. Linear gear drive VFO with less than 1 kc read-out. Adjustable IF noise blanker. Provision for plug-in external VFO or DX adapter. Handy upper-lower sideband selection. Amplified automatic level control (AALC). Improved spurious signal rejection. Built-in 1650 kc quartz crystal filter. Built-in sidetone for CW operation. Superb adjacent-channel desensitizing characteristics and lowest cross-modulation figures. Metering provided for amplified plate current, AALC, RF output and receive "S" units. Fan-cooled final amplifier tubes. Patented RIT for receiver offset. Built-in VOX plus CW break-in and PTT. **Size:** 16½" w. x 15" d. x 7½" h. **Shipping Weight:** 25 lbs.

**Model SR-2000 Transceiver—Full details on request, \$995<sup>00</sup> Net Each.....**

### MODEL P-2000 AC POWER SUPPLY



### R-49 MOBILE SPEAKER



Specifically designed for use in amateur, Citizens' Band and other mobile communications installations. Has 4" speaker for voice frequencies only. Voice coil, 3.2 ohms. **Size:** 5¼" w. x 3¼" d. x 5½" h. **Shipping Weight:** 4 lbs.

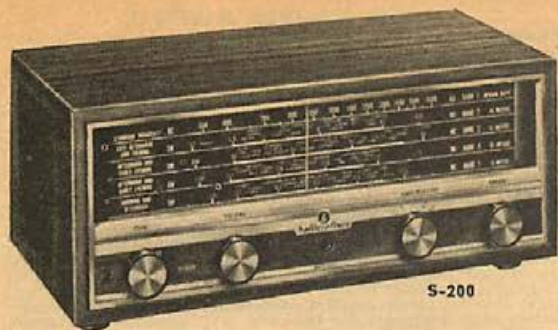
**Model R-49 Speaker—Net Each..... \$16<sup>95</sup>**

For use with Model SR-2000. Matching desk top design; 2 kW solid state power supply for operation on 115/220 VAC. **Size:** 10½" w. x 15" d. x 7½" h.

**Model P-2000 AC Power Supply—Net Each..... \$495<sup>00</sup>**



# hallicrafters Receivers



S-200



SX-122

## SX-130 AND S-129 RECEIVERS

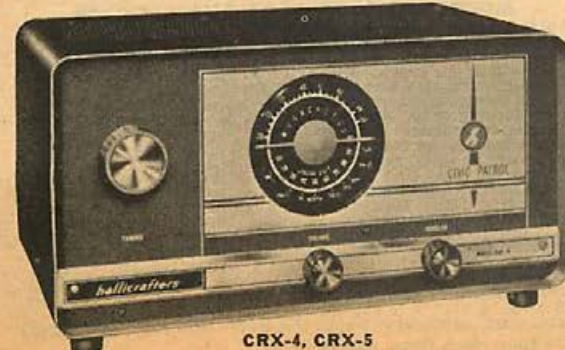
Covers broadcast band, 538-1610 kc plus three short-wave bands, 1.725 kc-31.5 Mc. Features slide rule bandspread dial calibrated for 80, 40, 20, 15 and 10 meter amateur bands, 11 meter Citizens' Band and logging scale. Separate bandspread tuning capacitor, crystal filter, antenna trimmer, "S" meter, one RF, two IF stages. Main tuning dial calibrated in megacycles has 0-100 logging scale. **Audio Output Power:** 2 watts. **Audio Output Impedance:** 3.2 ohms. **Controls:** RF Gain; Band Selector; Antenna Trim; Crystal Phase; Selectivity; ANL On/Off; BFO On/Off; BFO Pitch; AF Gain-On/Off; Main Tuning; Bandspread Tuning. **Tubes:** 7 plus 1 diode. **Power Requirement:** 105-125 VAC, 50/60 cps. Gray steel cabinet with brushed chrome trim. **Size:** 18 3/4" w. x 9 3/4" d. x 8" h. Shipping Weight, 25 lbs., approx. **\$169.95**  
**Model SX-130 Receiver**—Net Each.....  
**Model S-129 Receiver**—Same as above, but less crystal filter and "S" meter. Net Each.....**\$154.95**

## R-50, R-51 SPEAKERS

**Model R-50 Speaker**—High efficiency 5" x 7" oval speaker in housing style of S-129 and SX-130 receivers. **Voice Coil:** 3.2 ohms. **Handling Capacity:** 5 watts. **Size:** 8 3/4" x 8 3/4" x 9 3/4". Shipping Weight, 8 1/2 lbs. Net Each.....**\$19.95**  
**Model R-51 Speaker**—Same styling as Model R-50 with attractive 24-hour digital clock. Has 4" x 6" oval speaker. **Size:** 8 3/4" x 8 3/4" x 9 3/4". Shipping Weight, 7 lbs. Net Each.....**\$34.95**

## HA-18 CODE LEARNING PACKAGE

Complete code learning course in a single package. Includes: Factory-wired, battery-power transistorized oscillator with built-in loudspeaker; professional-type adjustable telegraph key; 12" LP dual-face, code practice record providing 48 minutes of lessons; and, three American Radio Relay League publications: "Learning the Radio Telegraph Code", "How to Become a Radio Amateur" and "The Amateur License Manual". **\$14.95**  
**Model HA-18 Code Learning Package**—Net Each.....



CRX-4, CRX-5

## S-200 RECEIVER

Covers standard broadcast band, 550 kc-1600 kc plus four short-wave bands, 5.9 Mc-6.25 Mc, 9.45 Mc-9.8 Mc, 11.65 Mc-12.05 Mc, 15.05-15.55 Mc. Features front panel headphone jack, self-contained speaker, loopstick antenna for AM and wire antenna for short wave, slide-rule dial scale, compact styling, universal impedance headphone output. **Controls:** Band Selector; Main Tuning; Tone Control; On/Off-Volume. **Tubes:** 4 plus 1 rectifier. **Power Requirement:** 105-125 VAC/DC, 30 watts. Walnut wood grain steel cabinet with silver trim. **Size:** 13 3/4" w. x 8 3/4" d. x 5 7/8" h. Shpg. Wt., 11 3/4 lbs., approx. U/L Approved. **\$59.95**  
**Model S-200 Receiver**—Net Each.....

## SX-122 4-BAND RECEIVER

General coverage receiver features major improvements in both electrical and mechanical stability. Temperature compensated oscillator circuits and crystal controlled second conversion oscillators assure low drift operation. 50 kc IF system for high selectivity. Other features include dual conversion on all bands, antenna trimmer, amplified AVC, series noise limiter. **Coverage:** Standard broadcast, 540-1600 kc; three SW bands—1750 kc-4.9 Mc, 4.8 Mc-12.6 Mc; 12.5 Mc-34 Mc. Bandspread calibrated for 80, 40, 20, 15 and 10 meter bands. **Selectivity:** Three steps—0.5, 2.5 and 5.0 kc at 6 db down. **Controls:** BFO (LSB, USB, CW); Function (SSB/CW, AM, Off); Antenna Trimmer; RF Gain; Audio Gain; Band Selector; Selectivity; Main Tuning; Bandspread Tuning; Calibrator On/Off; Noise Limiter On/Off; Phone Jack. **Terminals:** 3.2 ohms speaker and standby, single wire or double antenna (external antenna provided), AC power cord, audio output, "S" meter. **Audio Power Output:** 1.0 watt with 10% or less distortion. **Tubes:** Nine, plus diode and rectifier. **Power Supply:** 105/125 VAC, 50/60 cps. **Size:** 18 3/4" w. x 9 3/4" d. x 10" h. Weight, 32 lbs. **\$289.95**  
**Model SX-122 Receiver**—Net Each.....  
**Model HA-7 100 Kc Crystal Calibrator**—Net Each.....**\$18.50**



SX-130



R-51



HA-18

## NEW CRX-4, CRX-5 FM RECEIVERS

Low-cost, high performance FM receivers are ideal for base station civic patrol applications. Services heard on the 30-50 and 152-174 Mc FM bands include: Police, fire, ambulance and other emergency calls; industrial, utility, highway maintenance, forestry and railroad communications; taxis; civil defense networks; private mobile telephones; U. S. Weather Bureau forecasts. **Model CRX-4** tunes 30 to 50 Mc. **Model CRX-5** tunes 152 to 174 Mc. Both models have electronic squelch, built-in 5" PM speaker and logging scale on tuning dial for quick resetability. Extremely easy to operate. **Front Panel Controls:** Tuning; Audio Gain and On-Off; Squelch. **Rear Chassis Functions:** Headphone jack; antenna connector. **Tubes:** CRX-4 has seven, plus one silicon diode; CRX-5 has eight, plus one silicon diode. **Power Requirement:** 105/125 VAC, 50/60 cps, 40 watts. **Size:** 13" w. x 8 3/4" d. x 7 1/2" h. Gray steel cabinet with silver trim. Shipping Weight, 12 lbs. **\$79.95**  
**Model CRX-4 30-50 Mc Receiver**—Net Each.....  
**Model CRX-5 152-174 Mc Receiver**—Net Each.....**\$79.95**





# Hammarlund Ham Receivers



HQ-180A



HQ-180AX



HQ-170A, HQ-170A-VHF



HQ-100A

## MODEL HQ-180A RECEIVER

**Features:** Triple conversion 17-tube superhet circuit; automatic noise limiter; separate linear detector; high frequency crystal filter at 3035 kc; slot filter, adjustable  $\pm 5$  kc; tuned IF amplifier; selectable sideband; built-in 100 kc crystal calibrator;  $\pm 2$  kc BFO control; dial scale reset; Auto-Response automatically adjusts audio passband to fit receiving conditions. **Frequency Range:** 540 kc to 30 mc. **Bandspread:** Calibrated every 5 kc on 15, 20, 40 and 80 meter bands; every 10 kc on the 10 meter band. **Output Imped.** 500/3.2 ohms (EIA). **AVC:** Fast attack adjustable decay. **Adjustable Selectivity:** Seven selective positions provide mechanical filter type selectivity. **Sensitivity:** 1.5  $\mu$ v on AM, .5  $\mu$ v on CW; 10:1 signal-to-noise ratio. **Antenna Input:** 72 ohms nominal balanced or unbalanced; compensator for loading effects and balanced transmission line. **Controls:** Main Tuning; Bandspread Tuning; Vernier Tuning; Sensitivity (RF gain); On-Off and Send-Receive; Selectivity; Sideband; Audio Gain; Antenna Compensator; Tuning Range; S-meter; Dial Scale Reset; Phone Jack; Function Switch; AVC; Noise Limiter; CW Tone; Slot, Freq. Calibrator; BFO function. **Rear Panel Connections:** Terminal for speaker connections, terminals for balanced and unbalanced antennas, with separate coaxial connector. Systems socket for transmitter/receiver control. Accessory power socket for preamp, Q-multiplier, or converter. Fuse. **Tubes:** 17. **Power Required:** 120 watts, 115/230 v., 50/60 cps. **Cabinet:** Modern design featuring super ventilation and humanized controls. **Size:** 19" w. x 13" d. x 10 $\frac{1}{2}$ " h. Shipping Weight, 45 lbs.

Hammarlund Model HQ-180A Receiver\*—Net Each...\$439.00

Hammarlund Model PL-26499-G1 Noise Immunizer—For use with HQ-170A, HQ-145A, HQ-180A receivers. Reduces pulse-type interference such as ignition noise. Net Each.....\$33.50

## MODEL HQ-180AX RECEIVER

Crystal controlled model of the famous HQ-180A receiver incorporating 11 fixed-frequency crystals. Six of the crystals are readily interchangeable from the front panel, the balance are located within the cabinet, but are easily accessible from the trap-door top. An unusual feature of this model is the ability to compensate for minor frequency variations of the crystals by means of the  $\pm 3$  kc vernier tuning control of the receiver. Operates on 115-230 v., 50/60 cycles.

Hammarlund Model HQ-180AX Receiver—Less crystals. Net Each.....\$499.00

## MODEL HQ-170A RECEIVER

Radically improved for better electrical and mechanical stability. New features provide an unmatched degree of operating ease and performance. **Features:** Triple conversion, 17-tube superhet circuit, plus two silicon rectifiers for cool, high-efficiency operation; separate vernier tuning,  $\pm 3$  kc for easy SSB tuning; separate linear detector for best CW and SSB reception, plus normal diode AM detection; built-in 100 kc crystal calibrator and dial scale reset; automatic audio response; combination of adjustable noise limiter and squelch; tuned IF type skirt (selectivity). **Frequency Range:** 6, 10, 15, 20, 40, 80 and 160 meters, plus 2-meter calibration. **Output Impedance:** 3.2 ohms and 500 ohms. **AVC:** Fast-attack. Selectable off, slow, medium, fast decay. **Selectable Sidebands:** 6 db bandwidths; upper sideband, 1-2-3 kc; lower sideband, 1-2-3 kc, both sidebands, .5-2-4-6 kc. **Sensitivity:** Average, 1.5  $\mu$ v produces 10:1 signal-to-noise ratio. **BFO:** Variable from zero beat over passband for better than 40 db attenuation; additional attenuation of 20 db at any point by slot depth control. **Controls:** Main Tuning; Vernier or Bandbase Tuning; Sensitivity (RF gain)/On-Off; Selectivity (0.5-1-2-3 kc per sideband); Sideband Range (Band Selector); Audio Gain; Antenna Compensator; Tuning Range (Band Selector); Function (AM-SSB-CW); Slot Frequency Calibration; Slot Depth; CW Tone (BFO Pitch); Noise Limiter; Adjustable On-Off Switch; AVC; Operation (Send-Receive-Calibrator-On); "S" Meter-Phone Jack; Dial Scale Reset. **Rear Panel Connections:** Terminals for speaker connections, 3.2 ohms for voice coil and 500 ohms for line or COX; accessory socket for preamp, Q-multiplier or converter; system socket for simplified associated transmitter/receiver control; phono type coax fitting 455 kc output for Q-multiplier or other use; S-meter controls; antenna input terminals plus SO239 for HF input and phono type coax input for 6 meter antenna or converter unit. **Tubes:** 3-6BE6, 3-6BA6, 2-12AU7, 2-6BZ6, 1-6C4, 1-6BV8, 1-6AL5, 1-6AV6, 1-6AQ5, 1-OB2 plus two 800 v. PIV at  $\frac{1}{2}$  amp silicon rectifiers. **Power Required:** 120 watts, 105-125 v., 50/60 cps. **AC Cabinet:** Modern, super-ventilating type with sturdy, attractive front panel. **Size:** 19" w. x 13" d. x 10 $\frac{1}{2}$ " h. Shipping Weight, 45 lbs.

Hammarlund Model HQ-170A Receiver\*—Net Ea...\$369.00

Hammarlund Model HQ-170A-VHF Receiver—Similar to HQ-170A but requires no add-on converters. Covers 2-160 meters; separate nuvistor front ends for both 2- and 6-meters. Sensitivity, 0.3  $\mu$ v for 10 db S/N. Net Each.....\$419.00

## MODEL HQ-100A ECONOMY RECEIVER

Automatic audio response and noise limiter. Superhet, 10-tube circuitry. Humanized-control organization. Warm-up timer. Extra stable temperature compensated, high frequency oscillator. Q-Multiplier for greater selectivity. **Frequency Range:** 540 kc to 30 mc in four bands. **Bandspread:** Calibrated every 10 kc on 80, 40 and 20 meters; 20 kc on 15 meters; 50 kc on 10 meters; 0-100 arbitrary logging scale. **Audio Output:** 1.0 watt max. undistorted. **Output Impedance:** 3.2 ohms. **AVC:** Operates on RF and IF stages. **Selectivity:** One position for high quality; one for Q-Multiplier continuously variable from 100 cps to 3 kc. **Sensitivity:** 1.75  $\mu$ v produces 10:1 signal-to-noise ratio. **Antenna Input:** 100 ohms nom.; compensator for various loading or balanced line. **Controls:** Tuning; Bandspread Tuning; Audio Gain; Sensitivity; Antenna Compensator; Tuning Range; On-Off and Send-Receive; Q-Multiplier; CW Tone; Limiter On-Off; "S" meter. **Rear Terminals:** Speaker, antenna, ground and phone jack. **Tubes:** 2-6BA6, 1-6BE6, 1-6BZ6, 1-6C4, 1-6BV8, 1-6AQ5, 1-12AX7, 1-OB2, 1-5Y3. **Power Required:** 68 watts, 105-125 v., 50-60 cps; also available in export voltages. **Cabinet:** Die-cast aluminum, 16 $\frac{1}{2}$ " w. x 9 $\frac{1}{2}$ " d. x 9 $\frac{1}{2}$ " h. Shipping Weight, 30 lbs.

Hammarlund Model HQ-100A Receiver\*—Net Each...\$189.00

\*24-Hour clock-timer, \$10.00 extra.





# Hammarlund Amateur Gear

## MODEL HQ-145A RECEIVER

**Features:** Dual conversion 10-30 mc and 20-meter bands; single conversion on 0.54-10.0 mc bands. Conveniently calibrated bandspread; dial marked every 10 kc on 80-, 40- and 20-meter bands, every 20 kc on 15-meter band, and every 50 kc on 10-meter; handy 0-100 logging scale. Antenna compensator. Noise limiter provides better limiting action with minimum effect on modulation. **Frequency Range:** 0.54-30 mc plus 20-meter in 5 bands. **Maximum Audio Output:** 1.0 watt, undistorted. **Sensitivity:** 1  $\mu$ v for 10:1 S/N ratio, average. **Output Impedance:** 3.2 ohms and 500 ohms. **Antenna Input:** 100 ohms, nominal; provides for single wire or balanced line. **AVC Action:** On RF and IF stages; smooth and fast. **BFO:** Variable from 0 to  $\pm$ 2 kc. **Slot Filter:**  $\approx$  5 kc range of center frequency has over 40 db rejection. Calibrations every 1 kc. Max. attenuation, 60 db; 8:1 vernier tuning ratio. **"S" Meter:** Calibrated 1-9 in 6 db steps, plus db scale above 8-9 to +40 db. **Controls:** Main Tuning; Bandspread Tuning; Sensitivity (RF gain); Audio Gain/Power On-Off; Crystal Selectivity; Crystal Phasing; Antenna Compensator; Band Selector; Function Switch; Slot Frequency Adjust; Slot Depth; CW Tone; Noise Limiter On-Off; AVC On-Off; "S" Meter; Dial Scale Reset; and Phone Jack on front panel. Speaker Terminals, Antenna Terminals, External Send-Receive Relay Jack and "S" Meter Zero Adjust on rear. **Tubes:** 2-6BE6, 2-6BA6, 2-6BZ6, 1-6C4, 1-6AT5, 1-12AX7, 1-6AQ5, 1-0BE6, 2 silicon rectifiers. **Power Required:** 80 watts, 105-125 v. or 210-230 v. AC, 50-60 cps. **Size:** 19" w. x 13" d. x 10 1/2" h. Shipping Weight, 42 lbs.



HQ-145A

**Hammarlund Model HQ-145A Receiver—Net Each. \$289.00**  
**Hammarlund Model HQ-145AX Receiver—**Same as above, but with 11 switch-selected, crystal controlled frequencies in addition to the VFO. Six crystals mounted on front panel. Supplied less crystals. Net Each. **\$349.00**  
**24-Hour Clock-Timer—**Installed in above. Add to Net. **10.00**  
**100 kc Crystal Calibrator—**For above receivers. Net Ea. **15.95**

## MODEL HQ-110A RECEIVER

**Features:** Tighter mechanical and electrical stability. Socket for preamp or converter application. Expanded dial, with 144-148 mc calibrations for use with 2 meter converters. Separate 6 meter coax input for rapid shift from VHF to LF operation. Dual conversion, 12-tube superhet circuit. Separate linear detector for best SSB and CW reception. Q-Multiplier for continuously variable selectivity. BFO for SSB and CW reception. Crystal-controlled second conversion oscillator. Built-in 100 kc crystal calibrator and dial scale reset. Automatic audio response and noise limiter. Warm-up timer turns on set at predetermined time. **Frequency Range:** 6, 10, 15, 20, 40, 80 and 160 meters. **Max. Audio Output:** 1.0 watt undistorted. **Sensitivity:** Average, 1.5  $\mu$ v produces 10:1 noise ratio. **Output Impedance:** 3.2 ohms. **Antenna Input** 100 ohms nom.; compensator for loading various types or balanced line. **AVC:** On RF and IF stages; separate, delayed AVC on RF. **BFO:** Variable from zero beat to  $\pm$ 4 kc. **"S" Meter:** Calibrated in nine steps of 6 db plus scale above 8-9 to +40 db. **Noise Limiter:** Series type for minimum effect on modulation. **Controls:** Tuning, Sensitivity and On-Off, Audio Gain, Antenna Compensator, Band Selector, Function (Send-Receive, CW-SSB, Calibrate), Q-Multiplier, CW Tone, Limiter On-Off, "S" Meter, MAN/AVC switch. **Rear Connections:** Speaker, antenna, ground, phone jack and external send-receive relay jack. **Tubes:** 12. **Power Required:** 80 watts, 105-125 v., 50-60 cps. **Cabinet:** Die-cast aluminum, 16 1/4" w. x 9 3/4" d. x 9 3/4" h. Wt., 30 lbs.



HQ-110A

**Hammarlund Model HQ-110A Receiver—Net Each. \$249.00**  
**24-Hour Clock-Timer—**Installed in above. Add to Net. **10.00**

## MODEL HX-50A TRANSMITTER

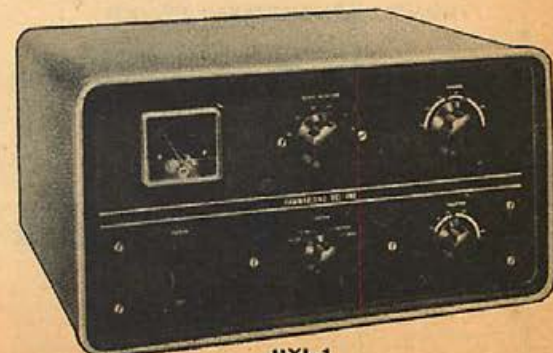
**Features:** Crystal controlled, filter-type transmitter; covers 80, 40, 20, 15, 10, plus most MARS, C.A.P., CD and Novice; 160 m. operation optional. Strong 50 watts output with built-in antenna changeover, VOX and break-in keying. VOX and push-to-talk circuitry. Carrier and unwanted side-band suppression 50 db or better. Complete passband coupler design used throughout, low level stages. **Frequency Ranges:** 3.5-4.0; 7.0-7.3; 14.0-14.35; 21.0-21.45; 28.0-28.55; 28.55-29.1; 29.1-29.65 mc. **Frequency Conversion:** Two. **Output Network:** Pi type, 3 elements variable. **Output Impedance:** 40-80 ohms. **Power Input:** 200 watts P.E.P., SSB; 150 watts, CW; 75 watts, AM; provision for RTTY operation. **VFO Stability:** Better than 250 cps. **Internal VFO Frequency Range:** 5950-6550 kc. **Other Oscillators:** Crystal controlled. **Tuning Accuracy:** Slide rule dial calibrated every 10 kc. **Metering:** RF output and final stage cathode current selectable. **Bandwidth:** 2.7 kc at 6 db down, 4.5 kc at 50 db down. **Controls—Front Panel:** Meter Switch; Meter Sensitivity; RF Level; Final Tuning; Final Loading; Band Selector; Function Switch; Operations Switch; Audio Level; VFO tuning; ZBZ push-to-operate; Calibrate Level. **Behind Doors:** VOX Delay; CW Delay; VOX Sensitivity; Antitrip Sensitivity; Crystal, VFO Switch; Three Crystal Sockets. Many rear chassis facilities. **Tubes:** 9 plus 2 silicon diodes, 2 rectifiers. **Size:** 17 1/2" w. x 9 3/4" d. x 9 3/4" h. Weight, Net, 40 lbs.; shpg. 45 lbs. **Hammarlund Model HX-50A Transmitter—Net Ea. \$495.00**  
**Hammarlund Model HX-50-160 Transmitter—**With 160 meters. Net Each. **\$515.00**



HX-50A

## MODEL HXL-1 LINEAR AMPLIFIER

Ruggedly built linear amplifier will give lifetime service at peak performance in SSB, CW and AM. **Features:** Built-in, multi-purpose meter (including relative RF output indication); complete cut-off during receive with standby bias supply; efficient grounded-grid circuit, using a single high dissipation tube; relays provided for "Exciter Only" or amplifier operation. **Coverage:** All amateur bands, 80 thru 10 meters. **Input:** Conservatively rated at 1.5 kw PEP. **Output:** Three-element pi-network. **Controls:** Band Selector; Plate Tuning; Meter Switch; Antenna Tuning; Meter; On-Off Switch; Power On Pilot Light Indicator. Two fuses, 10 amps and 5 amps. **Tubes:** 1 for grounded-grid circuit plus silicon rectifiers. **Hammarlund Model HXL-1 Linear Amplifier—Net... \$395.00**



HXL-1





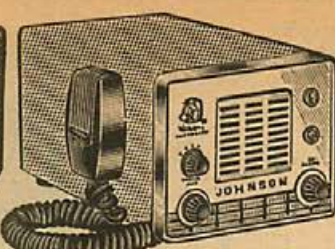
# E. F. Johnson CB & Ham Gear



A



B



C



D

## VIKING PERSONAL MESSENGER® TWO-WAY TRANSCEIVERS (FIG. A)

Crystal-controlled two-way transceiver employs 11 transistors and 4 diodes for highest reliability. No license, application or examination required for Model 242-101; Model 242-102 has 1½-watt power, requires easy-to-obtain Citizens' Band permit. Both models are superhet receivers with tuned RF amplifier for top range and sensitivity. Powerful two-stage transmitter. Push-pull audio circuit for unmatched intelligibility. Automatic noise limiter, a first in transistor equipment, reduces ignition and electrical noise. Automatic volume control prevents distortion at close range; maintains uniform voice level and helps bring in weak signals at maximum range. Smooth-operating "quiet" control (squench) silences receiver on standby and prolongs battery life. Heavy-duty printed circuit board, moisture resistant speaker/microphone, rugged high-impact case, socket-type battery contacts and silver-plated full-wiping push-to-talk switch. Elastic hand strap on slide for firm holding. Plug-in battery case (bottom part of case); optional rechargeable battery unit.

**Johnson No. 242-101 100 Mw Personal Messenger**—No permit required. Crystals supplied for one channel. Less batteries (8 penlight required). Net Each..... **\$109.50**  
**Johnson No. 242-102 ½ Watt Personal Messenger**—Forms supplied for obtaining FCC permit (minimum age, 18). Crystals supplied for one channel. Less batteries (8 penlight required). Net Each..... **\$129.50**

## "THUNDERBOLT" LINEAR AMPLIFIER (FIG. B)

A full 2,000 watts PEP input; equivalent to one kilowatt average. Companion to the "Navigator", "Ranger" or "Pacemaker" transmitters; requiring 10 watts in class AB; linear or 20 watts class C continuous wave. Wide range pi network matches line impedances from 40 to 600 ohms. Self-contained internal blocking bias, voltage regulator screen and bias supplies. Two meters; plate current meter and grid current or plate voltage meter. **Frequency Range:** Continuous 3.5 to 30 mc, bandswitched. **Power Input:** 1,000 watts CW, Class C; 800 watts AM linear, Class AB; 2,000 watts PEP linear, class AB. **Power Required:** 105-125 v. AC 2-wire or 210-240 v. AC 3-wire, 50-60 cps single phase. Fuses on rear of chassis. **Tubes:** Two 4-400A, two 866A, one 6BY5GA, one 5U4GA, one VR75, two VR105, two VR150. **Cabinet:** Cadmium plated steel, with maroon and gray finish, green nomenclature; 21" x 11½" x 14½". Shipping Wt., 140 lbs. **Johnson No. 240-353-2**—Wired and tested. Net Each..... **\$659.00**

## ATTENUATORS FOR "THUNDERBOLT"

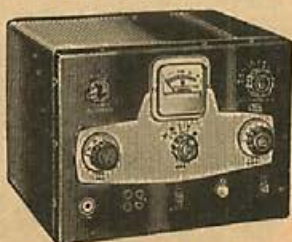
T-pad attenuators provide 6 db of attenuation with power dissipation to enable various units to serve as exciters for the Viking "Thunderbolt" linear amplifier. Coaxial (80-239) input and output receptacles. Size: 4½" w. x 9¾" d. x 3¾" h. Weight: Net, 1 lb.; ship., 2 lbs.

**Johnson No. 250-42-1 Attenuator**—For "Ranger" or similar unit. Dissipates 45 watts; max. input, 60 watts; input and output impedances, 350 ohms. Suitable for use with Viking II or other transmitter/exciter of similar power with plug-in of 75-watt light bulb, which increases max. dissipation to 110-120 watts. Net Each..... **\$21.50**

**Johnson No. 250-42-3 Attenuator**—For HT-32 or similar unit. Max. dissipation, 45 watts; max. input, 70 watts. Impedance, 50 ohms. Net Each..... **\$21.50**

## VIKING "ADVENTURER" CW KIT

One-knob bandswitch (80-10 m.). CW transmitter with 807 tetrode in final stage, 50 watts power input, crystal controlled. Provision for use of external VFO. Pi-network tuner eliminates need of external antenna tuner, permits use of wide choice of antennas. Dual service, self-contained power supply. Power receptacle for use of full 450 v. DC at 150 ma and 6.3 v. AC at 2 amps as auxiliary supply when transmitter is not in use. TVI suppressed. Kit requires little or no construction experience to build or operating experience to use. Simplified instructions included. Completely enclosed in shielded, etched aluminum cabinet, maroon and gray with green nomenclature. External modulator available. Size: 10¾" x 7¾" x 8¾". Shpg. Wt., 19 lbs. **Johnson No. 240-181-1 Viking "Adventurer"**—Complete with tubes. Net Each..... **\$69.95**



## VIKING MESSENGER® CITIZENS' BAND TRANSCEIVER (FIG. C)

Engineered for more than just 2-way radio, this superb transceiver is ideally suited for daily business and personal use. Full-fidelity voice reproduction is unmatched by any other Citizens' Band equipment. Operates on any of the 23 channels in Class D, 27 mc range; licensed without examination by FCC, using simple request form. Transmitter designed for twice the input power used on these frequencies; provides reserve capability for assured reliability and longer component life. The receiver is an extra-sensitive superheterodyne unit with great selectivity that reduces interference from adjacent channels; keeps the received signal clear and crisp for high intelligibility; assures longer range reception. An automatic volume control effectively prevents distortion at close ranges. Built-in automatic noise limiter suppresses ignition and other electrical noise such as from neon signs, power lines, etc. Designed for maximum flexibility and easy operation, transceiver instantly and automatically aligns to the desired frequency when the frequency selector switch is adjusted. You may select up to 5 channels of the 23 available by crystal selection from the front panel. The microphone supplied is an extra-rugged, push-to-talk type unaffected by moisture and heat; small and compact for easy handling. Automatic squench operates like an electronic gate; sets the receiver sensitivity for highest intelligibility and eliminates background noise. Automatic indicator flashes on when mike button is depressed to show that transmission is taking place. **Operating Range:** 6-15 miles, mobile; 8-20 miles from base station with high antenna; 10-30 miles over water. **Accessories Supplied:** Mike and cord, crystals for 1 channel (additional crystals available), and power cords. **Cabinet:** Chrome plated panel, gray wrinkle exterior with rubber mounting feet. Size, 7" w. x 11¾" d. x 5¾" h. **Johnson No. 242-127\***—For 115 v. AC and 6 v. DC operation. Net Each..... **\$114.95**  
**Johnson No. 242-128\***—For 115 v. AC and 12 v. DC operation. Net Each..... **\$114.95**  
 \*Note: Supplied with crystals for one channel. Crystals for channels 1, 5, 7, 11, 18 and 22 in stock for immediate delivery. (Specify frequency desired by adding channel number to model number.) Other frequencies require 3-4 weeks from receipt of order.

## VIKING "INVADER" TRANSMITTER (FIG. D)

Versatile SSB transmitter/exciter for full 200 watts input PEP. Carrier suppression, 55 db; unwanted sideband rejection, 60 db. Utilizes a recently developed crystal filter. Built-in VFO for full coverage. Exclusive RF controlled audio AGC and ALC (limiter type) provide greater average speech power. Mixer-type shaped keying; wide-range pi-network output; TVI suppression; blocking and operating bias for noise-free T-R switch operation. Slide-rule dial has individually calibrated bands assuring reliability in tuning. Heavy-duty power supply is built-in but may be removed for installation of linear amplifier and used externally. Unit is compact desk top unit either with or without linear amplifier. Features: Special high-frequency bandpass crystal filter; symmetrical design; single-knob, wide range loading control; simplified tuning by adjusting for maximum output on meter; differentially compensated VFO; integral fixed loading for linear amplifier; filtered and shielded for max. TVI suppression; variable zero-level control for optimum receiver injection; swinging choke in heavy duty power supply; internal antenna relay switch; provision for simple addition of high power linear amplifier. **Frequency:** 80, 40, 20, 15 and 10 meters. **Power Input:** 200 watts PEP, 200 watts CW and 90 watts AM. **Output Impedance:** 30-600 ohms adjustable, single control. **Output Tubes:** 2-8146, parallel, bridge neutralized. Size: 21" w. x 17½" d. x 11¾" h. Shipping Weight, 67 lbs. **Johnson No. 240-302-2 Viking "Invader"**—Wired and tested. Complete with tubes, crystal filter, crystals, less key and mike. Net Each..... **\$619.50**

## VIKING "INVADER-2000" TRANSMITTER

Full coverage with desk-top convenience and remote power supply for a full 2,000 watts PEP. Simplified tuning as in the "Invader". Two-stage push-pull cooling system forces cool air around tubes, sockets, components and through the chassis. Appearance and specifications similar to the Viking "Invader" transmitter but with the addition of a second meter and four controls to the front panel. Power supply is remote with the linear amplifier conveniently built-in for space economy. **Frequency:** 80, 40, 20, 15 and 10 meters. **Power Input:** 2,000 watts PEP, 1,000 watts CW and 800 watts AM. Transmitter size and weight same as Viking Invader. **Power Supply Size:** 19¾" w. x 14¾" d. x 11¾" h. Weight (power supply), 102 lbs.

**Johnson No. 240-304-2 Viking "Invader-2000" Transmitter**—Wired and tested with remote power supply, tubes, SSB crystal filter, crystals, less key and mike. Net Each..... **\$1229.00**



# Amateur Equipment



A



B



C



D

## VIKING "6N2 THUNDERBOLT" POWER AMPLIFIER (FIG. A)

Breaks through the VHF power barrier. Rated 1,200 watts PEP input, with full coverage on 6 and 2 meters. May be driven by the Viking "6N2" transmitter, Communicators or other units of comparable output; requires approximately 5 watts in Class AB<sub>1</sub> linear, or 6 watts, Class C continuous wave. When used with Viking "6N2" transmitter/exciter or similar units, the non-inductive input circuit requires no grid tuning. Unit is self-contained with high voltage power supply, internal blocking bias, voltage regulator, screen and bias supplies. Two Meters: Plate current and watts input; grid current, screen current, RF output, DC plate voltage and screen supply current. **Features:** Reduced screen voltage on "tune" to protect tubes. Wide range pi-network output on both 6 and 2 meters to match line impedances from 30 to 300 ohms. Two bridge-neutralized 7034, coax type tetrodes, are used for high efficiency and stability. High capacity blower system used for cooling the final amplifier tubes. **Frequency Range:** Continuous bandswitching coverage of 6 and 2 meters. **Power Input:** 1,000 watts CW, Class C; 1,200 watts SSB or DSB, P.E.P., Class AB<sub>1</sub> linear; 700 watts AM linear, Class AB<sub>1</sub>. **Controls:** Tune; Bandswitch; Coupling; Grid Input (5 positions); Mode (CW, Tune, Linear); Filament and Plate On-Off Switches; Meter Function Selector. **Tubes:** 2-7034, 2-866AX, 1-VR75, 2-VR105, 1-VR150. **Cabinet:** Steel, 18 gauge, with maroon and gray finish, green nomenclature. **Size:** 21" w. x 16 1/4" d. x 11 3/8" h. **Weight:** Net, 120 lbs.; shipping, 140 lbs. **Johnson No. 240-362-2**—Wired and tested. Net Ea. **\$549.50**

## VIKING RANGER II TRANSMITTER EXCITER (FIG. B)

Completely TVI suppressed, self contained transmitter-exciter. Transmitter is 75 watt CW input or 65 watt phone unit, using pi-network coupling system to match antenna loads 50-500 ohms. **Features:** Single knob bandswitching with separate scales for 160, 80, 40, 20, 15, 10 and 6 meters; built-in, shielded VFO or crystal control; electronically operated timed sequence (grid block) keying system for perfect "make" or "break" on keyed signal; 100% modulated speech amplifier with 250-3000 cycles response permits use of any crystal or high impedance dynamic microphone. Exciter will drive any popular KW level tubes, provides high quality speech driver system for high powered modulators. Control functions for high powered stage handled at exciter, no modification to switch from transmitter to exciter operation. Receptacle on rear brings out TVI filtered control and audio leads for exciter operation, permits use as filament and plate power source or as modulator for auxiliary equipment. Choke input filter power supplies provide 500-525 v. DC to final and modulators; also 300 v. DC for exciter and speech stages; separate relay jack gives 115 v. AC for antenna change-over and control relays. Uses 12 tubes and three rectifiers. **Size:** 15 1/2" w. x 14" d. x 9 3/8" h. **Shipping Weight,** 54 lbs. **Johnson No. 240-162-1 Viking Ranger II Kit**—With tubes, less crystals, key, and microphone. Gray case. **\$249.50** Net Each. **Johnson No. 240-162-2 Viking Ranger II**—Same as above but completely wired and tested. Net Each. **\$359.50**

## VIKING "6N2" VHF TRANSMITTER (FIG. C)

Instant bandswitching (6 and 2 meters); completely shielded; TVI suppressed. Can be used with Viking "Ranger", Viking "Valiant", or similar power supply modulator combinations capable of at least 6.3 v. AC at 3.5 amps, 300 v. DC at 70 ma., 300-750 v. DC at 200 ma., and 30 or more watts of audio. May be operated by external VFO or built-in crystal control (8-9 mc crystals used in pentode oscillator which doubles in plate circuit). Provision for zeroing VFO. Tune-Standby-Operate switch permits tune-up through driver and receiver zeroing. **Frequency:** 6 and 2 meters. **Power Input:** CW, 150 watts; AM Phone, 100 watts. **Tubes:** 2-6U8, 1-6360, 1-5894 (final), 1-6AQ5. Shipped complete with tubes less crystals, key and mike. Maroon and gray cabinet. **Size:** 13 1/4" x 8 1/2" x 8 1/2". **Weight:** Net, 10 lbs.; shpg., 14 lbs. **\$149.50** **Johnson No. 240-201-1 Kit**—Net Each. **\$194.50** **Johnson No. 240-201-2**—Wired and tested. Net Ea. **\$194.50**

## VIKING "VALIANT II" TRANSMITTER (FIG. D)

Completely bandswitching 160 through 10 meters, the Valiant II delivers 275 watts input CW or SSB (with auxiliary SSB exciter or the new Viking SSB Adapter) and 200 watts AM. Low level audio clipping prevents over modulation and increases modulation level. Differentially temperature-compensated VFO provides stability necessary for SSB operation. High-efficiency pi-network tank circuit matches loads from 50 to 600 ohms and tunes out large amounts of reactance; final tank coil silver-plated. Other features: Complete TVI suppression; timed sequence keying; high gain push-to-talk audio system for use with high impedance crystal or dynamic microphones; built-in low pass audio filter; self-contained power supply and control mode switching. As an exciter, will drive any of the popular kilowatt level tubes, and will provide a high quality speech driver system for high-powered modulators. Nine-pin receptacle brings out TVI filtered control and audio leads for exciter operation, and permits unit to be used as a filament and plate power source or modulator for VHF transmitter or other equipment. Plug-in for SSB; no modifications necessary. Five-pin plug provided for remote control of final amplifier bias and VFO keying through the VOX control of the SSB adapter. May be operated with built-in VFO or crystal control. **Frequency Range:** 160, 80, 40, 20, 15 and 10 meters. **Power Supplies:** Delivers 620 v. at 500 ma. and 300 v. at 90 ma and 6.3 v. AC at 6 amps. Jack for 115 v. AC for antenna change-over and control relays. **Power Requirements:** 105/120 v. AC, 50-60 cycles, single phase. Line and internal fuses. **Cabinet:** 18 gauge steel, two-tone gray metallic, maroon nomenclature. **Size:** 21" w. x 14" d. x 11 1/2" h. **Weight:** Net, 73 lbs.; shpg., 83 lbs.

**Johnson No. 240-105-1 "Valiant II" Kit**—With **\$375.00** tubes, less crystals. Net Each. **Johnson No. 240-105-2 "Valiant II"**—Wired and tested, with tubes, less crystals. Net Each. **\$495.00**

## LOW PASS FILTERS

Four individually shielded sections. Handles at least 1 kw RF. Cut-off freq. 54 mc. M-derived end sections. Filter works effectively in 52-ohm transmission line, or in 52-ohm link line between transmitter and antenna coupler, such as the "Matchbox". **Size:** 2 1/2" diameter x 9" long. **Shipping Weight,** 3 lbs. **\$14.95** **Johnson No. 250-20 Low Pass Filter**—Net Each. **\$14.95** **Johnson No. 250-35 Low Pass Filter**—Same as above except for 72-ohm line. Net Each. **\$14.95**

## PENNWOOD NUMECHRON® CLOCKS NO. 124 CALL-IDENT TYMETER®



Ten-minute station call reminder with 24-hour Tymeter electric numeral clock. Ten-minute repeating timer buzzes warning to sign in your call letters. Special independent switch to turn timer on when beginning QSO. Glorite, dome shaped, full-vision window glows in dark. Clock operates continuously. Self-starting electric; operates on 110 v., 60 cys. Motor and cord U/L Approved. Guaranteed for one year. Available in walnut or ebony finish. Plastic case measures 7 3/4" w. x 4" d. x 4" h. **Weight,** 3 lbs. **\$22.50** **Pennwood No. 124**—Walnut or ebony finish. Net Each. **\$17.50** **Pennwood No. 112**—Same as No. 124 but with 12 hour Tymeter. Net Each. **\$17.50**

## NO. 100-24H JEFFERSON 24-HOUR G.M.T. TYMETER® ELECTRIC CLOCK

Handsome numeral type 24 hour station clock. Ideal for amateur stations, commercial stations, or short wave listeners—wherever 24-hour time is preferred. Guaranteed for one year. U/L Approved motor and cord. **\$15.00** **Pennwood No. 100-24H**—Walnut or ebony. Net Each. **\$15.00**

## F7C "SATELLITE" TYMETER® CLOCK

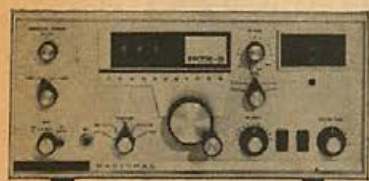
Here is the most remarkable clock you've ever used. Accurate, precise, direct reading "time-at-a-glance". Outdates all other ways of telling time. Plastic case, recessed 3-D face with attractive grille. Colorama numerals handsomely framed by gold trimmed escutcheon, full vision windshield type window enclosure. White, walnut or ebony case; measures 7 3/4" w. x 4 3/8" d. x 4" h. **Weight,** 3 lbs. 110 v., 60 cycles AC. U/L Approved motor and cord. **\$11.95** **Pennwood No. F7C**—One-year guarantee. Net Each. **\$11.95**







HRO-500



NCX-5



NCX-3



VX-501



NCX-A

**MODEL VX-501 VFO CONSOLE**  
 Incorporates the same solid state linear VFO with 100 cps calibration used in Model NCX-5. Provides the following frequency calibration control: Transceiver operation using NCX-5 or VX-501 VFO; transmit with NCX-5 VFO, receive with VX-501 VFO; transmit with VX-501 VFO, receive with NCX-5 VFO. May be used to provide all the advantages of separate transmitter-receiver combinations for round-table or DX operation, plus the ability to select transceiver operation at the flip of a switch. Up to five crystals may be inserted to crystal-control the VX-501 VFO in any of the modes above. This permits the NCX-5 to be used easily by the novice since the CW power input of the transceiver can be reduced to 75 watts, thus meeting FCC rules for novices. Powered by the NCX-5 Transceiver; interconnecting cable supplied. Matches appearance of NCX-5; identical in dimensions to NCX-A AC Power Supply/Speaker Console.  
**Model VX-501 VFO Console**—Net Each.....\$249.95

**Model NCX-A AC Power Supply/Speaker Console**—Matches NCX-3 and NCX-5. Provides all needed operating voltages with built-in PM speaker for fixed station use. Output 300 mA at 700 VDC; 200 mA at 280 VDC; 10 mA at -80 VDC; and, 12.6 volts AC. Speaker 6" x 4" PM type; 3.2 ohms. Input, 115/230 VAC, 50-60 cps; voltage regulation 2% at full load. Size, 8 1/2" w. x 11 3/4" d. x 6 3/4" h. Shpg. Wt., 25 lbs. With interconnecting cable.....\$110.00  
**Model WX-5 Walnut Case for NCX-5**—Oiled walnut with hinged, perforated metal lid. For home or custom installations. Net Each.....\$29.95  
**Model AC-WX-5 Walnut Case for NCX-A or VX-501**—Matches WX-5 case in styling;

## MODEL HRO-500 SOLID-STATE RECEIVER

Professional, solid-state receiver covers the widest tuning range of any commercial type with identical tuning rate and dial calibration. Covers the entire VLF, LF, and HF spectrums with phase-locked crystal frequency synthesizer for oscillator control. All transistor circuitry gives high stability, eliminates warm-up drift and provides "instant-on" operation. Fixed or mobile operation. Passband tuning with 6-pole filter for widest selectivity of any amateur set. Notch filter gives 50 db rejection tuning. AGC threshold control reduces background interference. With 50 kc crystal calibrator. **Frequency Range:** 5 kc to 30 Mc in sixty 500 kc bands, continuous. **Modes:** Upper or lower sideband, AM and CW. **Calibration Accuracy:** Within 1 kc over full 500 kc range of interpolation oscillator (VFO); 250 cps, zeroed to nearest 50 kc calibration point. **Synthesizer Accuracy:** Within 250 cps over full tuning range, zeroed at 10 Mc. **Tuning Ratio:** 10 kc and/or 50 kc per revolution. **Dial Backlash:** Less than 50 cps. **Frequency Stability:** NMT 100 cps overall from turn-on in any 10 minute period with 30° C change in ambient temp. or ±20% AC voltage variation. **Sensitivity:** AM, better than 2.0 μV for 10 db S/N, 5 kc to 30 Mc with LF-10 VLF preselector; 25-50 μV, 5 kc to 500 kc without preselector. **SSB/CW:** better than 1.0 μV for 10 db S/N, 5 kc to 30 Mc with preselector. **Selectivity:** 500 cps, 2.5 kc, 5.0 kc and 8.0 kc at 6 db points. **Shape Factor:** 2.5:1 nom. at 2.5 kc bandwidth. **Filter Image Rejection:** 60 db points. **Notch depth,** 50 db. **Audio Frequency Response:** ±2 db, 200-7,000 cps with less than 10% distortion at 1.5 watts. **Inputs:** 50 ohms unbalanced antenna; high impedance unbalanced antenna; low frequency antenna; sidetone oscillator or audio. **RF gain,** mute, BFO enable/disable remote control inputs. **Outputs:** 3.2 ohms matching speaker impedance; 600 ohms balanced line output; center tap ground reference or floating; BFO, VFO, synthesizer output, 26 Mc oscillator, 230 kc IF, two spare and detector outputs. **Controls:** Synthesizer Tune; Preselector Tune; Passband Tune; Rejection Tune; Main Tuning; RF Gain; AF Gain; Bandwidth; AGC On-Off-Threshold (to 30 db); Bandwidth Selector; Dial Lock; Phase Lock Warning; Preselector Frequency; Synthesizer Frequency; VFO Frequency; S meter (calibrated 1-9 S-units and 0-90 db above 1 μV) on front panel. S-meter zero; Rejection Tune Balance; AC-DC Selector Switch and connections on rear panel. Pilot Light on-off. **Semiconductors:** 37 transistors and 20 diodes. **Power Required:** 200 mA at 12 VDC; or 15 watts, 115/230 VAC, 50-60 cps. **Size:** 16 1/2" w. x 12 3/4" d. x 7 3/4" h. Weight, 32 lbs. **\$1295.00**

**Model HRO-500 Receiver**—Net Each.....\$1295.00  
**Model LF-10 VLF Preselector**—For high sensitivity VLF reception. Net Each.....\$265.60  
**Model HRO-500TS Table Speaker**—Matches HRO-500. Net Each.....40.00  
**Model RMK-5 Rack Mounting Kit**—For HRO-500. Net Each.....66.50

## MODEL NCX-5 AMATEUR SSB/AM/CW TRANSCEIVER

Full 80 through 10-meter coverage with digital frequency read-out accuracy of 1 kc over entire band. SSB/AM/CW operating modes. Direct 100-cycle calibration for use between one kc points. Solid-state VFO for extreme accuracy and stability without warm-up drift. Crystal lattice 8-pole filter for transmit/receive selective superior to any filter ever made for amateur use. Instant upper or lower sideband selection; transceiver vernier for separate receiver tuning ±5 kc from transmit frequency. ALC for maximum talk-power without splatter; product detector for SSB/CW; separate AM diode detector; grid-block, break-in CW keying. Guaranteed one full year against component failure. Complete with mobile mount; oiled walnut cabinet enclosures available for home use. VFO console available for independent choice of transmit/receive or transceiver frequency; or, choice of 5 crystal-controlled novice or net channels. **Frequency Range:** 3500-4000 kc, 7000-7300 kc, 14,000-14,500 kc, 21,000-21,500 kc and 28,500-29,000 kc with crystals supplied; for entire 2800-30,000 kc coverage, three additional crystals are required. **RF Power Input:** 200 watts SSB/CW; 100 watts AM. **Frequency Determination:** Double conversion with crystal-controlled HF oscillators and tunable second oscillator. **Frequency Stability:** No more than 100 cps variation in 10 minutes from turn-on including ±10% input voltage variation. **Dial Accuracy:** 1 kc for entire 500 kc range on all bands. **Tuning Ratio:** 10 kc per 360° main tuning knob rotation. **Dial Calibration:** 100 cps, all bands. **Suppression:** Carrier, -50 db; unwanted sideband, -50 db; third order distortion products, -30 db at full output. **Receiver Sensitivity:** 0.5 μV for 10 db S/N in SSB. **Filter:** 6.0218 Mc, 8-pole crystal lattice type with 2.8 kc bandwidth; 6-60 db shape factor 1.7:1. **Audio Output:** More than 2 watts; 3.2 ohms. **Mike Input:** High Impedance. **Controls:** Main Tuning; USB-LSB; Transceiver Vernier; RF Gain; AF Gain; Calibrator; Dial Set; Function (Off-SSB-AM-CW-Tune); PA Tune; PA Load; 10-Meter Segment Switch; VOX-PTT Switch; MOX Switch; Mike Input; S-meter/Plate Meter; Bandwidth; Rear panel contains Key Jack; Phone Jack; External VFO Input; External ALC Input; Spare Input; Bias Adjust; Antenna; Power; Calibrator Socket; Relay Control. **Tubes and Semiconductors:** 20 tubes with parallel 6GB6's in PA; 15 semiconductors. **Power Required:** 300 mA at 700 VDC; 200 mA at 280 VDC; 10 mA at -80 VDC; 12.6 VAC or DC. **Size:** 13 3/4" w. x 11 3/4" d. x 6 3/4" h. Shipping Weight, 26 lbs. **\$685.00**  
**Model NCX-5 Transceiver**—Net Each.....\$685.00

## MODEL NCX-3 TRI-BAND SSB TRANSCEIVER

Complete SSB/AM/CW station with all necessary facilities to cover 80, 40 and 20 meter phone and CW amateur bands with no extras to buy. Combines National crystal lattice filter with RCA 7360 balanced modulator for improved suppression. Sensitive receiver features superb skirt selectivity and superior adjacent channel rejection. Parallel 6GJ5 pentodes in final amplifier assure conservative operation. May be used on RTTY with AFSK audio injection, and a high power final may be easily added as a result of incorporation of external control relay terminals. Handsome design complements any den or automobile. Rugged construction. Guaranteed for one full year. **Frequency Range:** 3480-4020 kc; 6980-7310 kc; 13880-14420 kc. **RF Power Input:** 200 watts, SSB or CW; 100 watts, AM. **RF Power Output:** 120 watts, SSB PEP or CW; 30 watts, AM. **Output Impedance:** 40-60 ohms. **SSB Generation:** 6200 kc crystal filter; bandwidth 2.5 kc at 6 db. **Frequency Stability:** 400 cycles long term after warm-up. **Suppression:** Carrier, -50 db; unwanted sideband, -40 db. **Operating Facilities:** All modes—full AGC and S-meter on receive; SSB-VOX or PTT transmit; product detector on receive; AM-VOX or PTT transmit, triode detector on receive; CW-grid block break-in transmit, protect-detector on receive. **Audio Input:** High Impedance, low level. **Controls:** Front Panel—Main Tuning; Band Selector; Audio Gain; RF Gain; Microphone Gain; Function (Off, SSB, AM, CW, Tune); Carrier Balance; Calibrator Switch; Driver Tune; PA Tune; PA Load; Mike Input; Phone Jack. Rear Panel—VOX Sensitivity; VOX Delay; Calibrator Socket; Bias Adjust; VOX/PTT Switch; Key; Ext. Relay. **Metering:** PA cathode current on transmit; S-meter on receive. **Receiver Sensitivity:** 1.0 μV for 10 db S/N. **Receiver Selectivity:** 2.5 kc at 6 db. **Tubes:** 18, plus 6 diodes. **Power Required:** 700 VDC at 300 mA; 280 VDC at 125 mA; -80 VDC at 10 mA; 12.6 V at 5 amps. **Size:** 13 3/4" w. x 11 3/4" d. x 6 3/4" h. Shipping Weight, 25 lbs. **\$299.00**  
**Model NCX-3 Transceiver**—Net Each.....\$299.00

## ACCESSORIES FOR NCX-5, NCX-3 AND VX-501

fits either NCX-A or VX-501 VFO console. Oiled walnut. Net Each.....\$24.95  
**Model NCX-D DC Power Supply**—Provides NCX-3 and NCX-5 mobile operation from 11-14 VDC sources. Same outputs as NCX-A. Continuous overload and reverse polarity protection; may be used with positive or negative ground systems. Shpg. Wt., 10 lbs. Net Each.....\$119.95

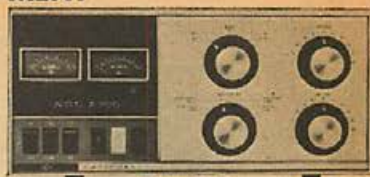


# Amateur Equipment

## NATIONAL RADIO AMATEUR EQUIPMENT

### MODEL NCL-2000 LINEAR AMPLIFIER

Commercial grade SSB linear amplifier covers 80 to 10 meters with 2 kW input PEP, 1300 watts peak output. Full kilowatt on CW, AM and RTTY. Uses two RCA 8122 ceramic tetrodes in output. Low distortion and linear operation at full output with 800 watts of available plate dissipation. Passive, untuned grid circuit may be adjusted to permit excitation at full output from any transmitter or transceiver with 20 to 200 watts peak drive. Grid circuit may be used as dummy load for exciter tune-up, with multimeter indicating optimum tuning. ALC output available. Safety and overload protection with interlock, automatic shorting bar, time delay and current overload relays. Handsome styling complements any ham shack. **Frequency Range:** 80 to 10 meters. **Output Impedance:** 40-60 ohms. **Input Impedance:** 50 ohms nominal, unbalanced. **Distortion:** 30-45 db signal-to-distortion ratio at full output. **Noise Level:** -40 db. **Ambient Temperature:** To +45° C. **Ambient Humidity:** To 90%. **Altitude:** To 8000 ft. **Tubes:** 2-8122, plus 13 semi-conductors. **Power Required:** 115/230 VAC, 60 cps single phase, three wire, neutral ground; 15 amps max. at 230 V. **Size:** 10 1/4" w. x 12 3/4" d. x 7 3/4" h. Wt., 62 lbs. **\$685.00**  
Model NCL-2000 Linear Amplifier—Net Each.



NCL-2000

### MODEL NC-190 DOUBLE CONVERSION RECEIVER

General coverage receiver offering double conversion and true variable IF selectivity using National's Ferrite Filter to provide greater performance than receivers selling for a much higher price. Also features National's exclusive "Dial Selector" which permits selection of calibrated amateur or foreign broadcast bands on the bandspread dial at the flip of a knob. Bandspread tuning ratio is 60:1 with built-in vernier; five separate main tuning ranges. Separate product detector and calibrated upper/lower sideband BFO for the finest SSB reception. Permits both SSB/CW AVC and AM AVC operation. All oscillators are voltage regulated for maximum stability. Handsome edge-reading "S" meter operates on all reception modes. Ferrite filter selects 5 kc AM, 3 kc SSB or 600-cycle single-signal CW selectivity. **Frequency Range:** 540 kc to 30 Mc in five bands. **Sensitivity:** Better than 1 µV for 10 db signal-to-noise ratio. **Selectivity:** 230 kc ferrite filter for 600-cycle CW, 3 kc SSB and 5 kc AM bandwidths at 6 db points. **Controls:** RF Gain; Antenna Trimmer; Dial Selector; BFO; Audio Gain/Off; Selectivity; Main Tuning; Bandspread; Receive/Standby Switch; ANL On-Off; AGC On-Off; BFO On-Off; CAL On-Off. **"S" Meter:** Edge-reading; operates on all reception modes. **Noise Limiters:** Automatic series gate for AM; IF limiting for SSB/CW. **Audio Amplifier:** 3.2 ohms output; more than 1 watt at 10% distortion; front panel headphone jack. **Calibrator:** Use XCU-27 accessory for 1 Mc markers throughout tuning range. **Image Rejection:** Double conversion above 4 Mc; 1st IF, 2215 kc; 2nd IF, 230 kc. **Power Required:** 75 watts, 105-125 VAC, 50/60 cps. **Size:** 15 1/4" w. x 9" d. x 8 3/4" h. Shipping Weight, 28 lbs. **\$239.95**  
Model NC-190 Receiver—Net Each.



NC-190



NC-77X

Model NTS-3B Table Speaker—Net Each. **\$19.95**

### CRYSTAL CALIBRATOR

Model XCU-27 100KC/Optional 1000KC Crystal Calibrator—For use with Models NCX-5, NC-190, NCX-3, NC-303 and HRO-60. Net Each. **\$26.60**

### MODEL NC-77X GENERAL COVERAGE RECEIVER

Precision-engineered superheterodyne general coverage receiver offers the beginning shortwave listener or novice radio amateur maximum reliability and performance. AC transformer operation eliminates hum, shock hazards and grounding problems so often encountered in AC/DC receivers in its price class. Also increases sensitivity and reduces hand capacity difficulties. Covers 540 kc to 31 Mc in four bands, with electrical bandspread on all frequencies. Giant, easy-to-read dial has standard AM broadcast, marine, aircraft, Citizens' Band, CD, WWV, amateur and foreign

shortwave broadcast bands clearly marked. Built-in 5" speaker. Front panel phone jack. Finished in brushed aluminum with black dial background and trim, gray-blue textured-enamel steel cabinet. Front panel is solid aluminum extrusion for stability and sturdiness. **Size:** 13 1/2" w. x 9" d. x 7 3/4" h. Shpg. Wt., 18 lbs. **\$69.95**  
Model NC-77X Receiver—Net Each. **\$69.95**  
Model NC-77XW Receiver—Same as NC-77X except in custom oiled walnut enclosure to complement den or living room. Net Each. **\$89.95**

## SWAN AMATEUR TRANSCEIVERS AND ACCESSORIES

### SWAN-400 SSB TRANSCEIVER

Fixed station, portable or mobile operation for five SSB bands, 10 through 80 meters; delivers 400 watts P.E.P. Input. Combines with Swan-420, full coverage frequency control unit for plug-in VFO, fixed or mobile. Single conversion design has wide-range pi-coupler output circuit with coarse and fine adjustment. Transmitter ALC has audio compression; grid block CW keying with key jack on rear panel. Amplified AGC system. S-meter functions automatically when receiving. Built-in 100 kc crystal calibrator and speaker; provision for external speaker. High frequency crystal lattice filter is common to transmit and receive circuits; 3 kc bandwidth. **Frequency Range:** 10, 15, 20, 40 and 80 meters. **Power Input:** 400 watts P.E.P., SSB with distributed products -30 db; 320 watts CW and 125 watts AM, PA efficiency 60%. **Suppression:** More than -40 db unwanted sideband; over -50 db, carrier; more than -80 db spurious emission and image response. **Receiver Sensitivity:** Better than 0.5 µV for 10 db S+N/N. **Audio Bands:** Flat, 300-3300 cps overall, transmit and receive. **Metering:** 0-800 mA; PA, cathode and grid current position for over-modulation indicator. **Controls:** Function; Sideband Selector; Phone-CW-Transmit Selector; AF Gain; Band Selector; Mike Gain; Carrier Balance; PA Tune; PA Grid; PA Fine-Coarse-Load; mike jack; headphone jack. **Size:** 13" w. x 11" d. x 5 1/2" h. Wt., 15 lbs.  
Swan-400 Transceiver—Net Each. **\$395.00**



SWAN-400

SWAN-420



SWAN-350

SWAN-117-C

### SWAN-350 SSB-CW-AM TRANSCEIVER

Maximum power talk combined with the finest voice quality, this superior instrument leads the amateur field for transceiver value at a modest price. Fixed station, portable or mobile operation for five bands, 10 through 80 meters. Full 400 watts input SSB; 320 watts CW; 125 watts AM. Built-in, transistorized VFO is temperature and voltage stabilized for accuracy at all times. Built-in crystal lattice filter. ALC, AGC and S-meter. Precision dual-ratio tuning. **Frequency Range:** 3.5-4.0, 7.0-7.5, 13.85-14.35, 21.0-21.5 and 28.5-29.0 Mc; 10-meter full coverage kit available. Lower sideband operation on 80 and 40 meters; upper sideband on 20, 15 and 10 meters; opposite sideband kit available. **Suppression:** 40 db, sideband; 50 db, carrier; 30 db third-order distortion. **Controls:** Band Switch; Tuning; Off/AF Gain; Receive/Tune-CW; RF Gain; Mike Gain; Separate Coarse and Fine PA Load; PA Grid; PA Plate; VOX/P/T Switch; Carrier Balance; and mike jack on front panel. **Size:** 13" w. x 11" d. x 5 1/2" h.  
Swan-350 Transceiver—May be used with VX-1 plug-in VOX (as listed under Swan-400). Net Each. **\$395.00**  
Swan Model 117-C AC Power Supply—In matching cabinet with built-in speaker. Net Each. **\$85.00**  
Swan Model 412 DC Power Supply—For 12 VDC operation. Net Each. **\$130.00**

### ACCESSORIES

Swan-420 Fixed Station VFO—Companion full-frequency control unit may also be used for mobile operation. Covers 10 through 80 meters in 20 ranges, 200 kc each. Direct-reading dial calibrated in 2 kc increments; dual knobs for 6:1 or 36:1 tuning ratio. Transistorized VFO and zener-regulated power supply; virtually eliminates warm-up drift; holds voltage stable so input can change ±50% without oscillator frequency change. Size and style matched to Swan-400, with joining base for tilt-up desk-top use. **Size:** 6 1/2" w. x 11" d. x 4 1/2" h. Wt., 9 lbs. Net Each. **\$120.00**  
Swan-406 Mobile VFO—Miniaturized control for phone band coverage 3.8-4.0, 7.1-7.3, 14.15-14.35, 21.25-21.45, 28.5-28.7 and 28.7-28.9 Mc; adjustable to other segments if desired. May also be used for fixed stations. Construction and stability same as Swan-420. Has receiver RF gain control to act as control head; permits placing Swan-400 in auto trunk. Dash mounting with bracket and hardware supplied. **Size:** 4 1/2" w. x 5" d. x 3" h. Wt., 3 lbs. Net Each. **\$75.00**  
Swan Model 117B AC Power Supply—For fixed station. Net Each. **\$85.00**  
Swan Model 512 Mobile Power Supply—600 watts, 12 VDC. Net Each. **\$145.00**  
Swan Model VX-1 Plug-in VOX—Net Each. **35.00**



### MODEL E CITIZENS' BAND TRANSCEIVER



Superbly engineered crystal-controlled transceiver for mobile or fixed station use. Operation on eight channels for both receiver and transmitter; selector switch allows receiver to tune 23 channels. Highly sensitive seven-tube superhet receiver section has eight permeability-tuned high Q circuits, plus adjustable squelch control and automatic series type noise limiter. Transmitter operates at the 5-watt maximum power input allowed by the FCC, with high

level Class B push-pull modulation. RF indicator on front panel greatly aids in tuning. Antenna peaking control included for maximum efficiency. Built-in low pass filter. Ruggedly constructed of aluminum and provided with universal mounting bracket. Heavy duty power supply is usable on either standard AC line or 6 or 12 VDC source. RECEIVER: Sensitivity: 1.0  $\mu$ V for 10 db. quieting. Selectivity:  $\approx$  3 kc at 6 db. Squelch: Adjustable from 1  $\mu$ V. Audio Output: 3 watts minimum. TRANSMITTER: Power Input: 5 watts. Harmonic and Spurious Output: 76 db attenuation. Frequency Stability: 0.005% or better with recommended crystals. GENERAL: Tubes: 9, plus 1 diode and 3 silicon rectifiers. Available for either 6 VDC and 117 VAC, or 12 VDC and 117 VAC operation. Specify when ordering. Size: 9 1/2" w. x 11 1/4" d. x 4 3/4" h. Weight, 9 lbs.

**Sonar Model E Transceiver**—Complete with one pair of crystals, high impedance push-to-talk ceramic microphone, AC and DC cords and universal mounting bracket. Specify voltage. Net Each.....\$179.50

### MODEL G CITIZENS' BAND TRANSCEIVER

Crystal-controlled five-watt Citizens' Band transceiver is similar in design and specifications to the Model E, but with many additional features. Dual conversion receiver section includes full-wave gated noise blanker and adjustable squelch. Multipurpose meter serves as a transmitting tuning meter, modulation indicator and "S" meter. Push-button crystal frequency spotter, plus built-in low pass filter. Front panel is indirectly illuminated. Uses 10 tubes, plus 4 silicon rectifiers and 1 diode. Available for either 6 VDC and 117 VAC, or 12 VDC and 117 VAC operation. Specify when ordering. Weight, 10 lbs.



**Sonar Model G Transceiver**—Complete with one pair of crystals, high impedance push-to-talk ceramic microphone and universal mounting bracket. Specify voltage. Net Each.....\$229.50

### MODEL H CITIZENS' BAND TRANSCEIVER



Compact, crystal controlled transceiver for mobile, marine or fixed station use. Real "talk power" for distance communication. Ideal for industry, sports, hospitals, government and marine. Operation on seven channels for both transmitter and receiver plus external crystal sockets for all 23 assigned CB channel coverage. Receiver has adjustable squelch control and high efficiency automatic gating type noise limiter. Locked

channel receiver fine  $\approx$  2 kc tuning. Transmitter operates at FCC maximum 5 watts input with high level class B modulation. Power supply is transistorized and contains no moving parts. Rugged built for continuous duty. RECEIVER: Sensitivity: 1  $\mu$ V, min. for 10 db signal-to-noise ratio. Selectivity: 5 kc at -6 db. Audio Output: 4 watts, 1 kc. Distortion: 10% max., 1 watt output. Frequency Stability: Better than .005%. Speaker: Closed circuit jack provided a 4-ohm speaker. TRANSMITTER: Power Input: 5 watts. Power Output: 3 watts, min. Impedance: 50 ohms. Harmonic and Spurious Output: Attenuated at least 75 db. Frequency Stability: Better than .005%. Power Supply: 120 VAC or 12 VDC negative ground only, depending upon the power cable used. Size: 8" w. x 10" d. x 4 1/2" h. Weight, 8 3/4 lbs. **Sonar Model H Transceiver**—Complete with one pair of crystals, push-to-talk microphone with retractable cord, microphone hanger, DC and AC cords, universal mounting bracket, hardware and channel markers. Net Each.....\$159.95

### MODEL F5-23 CITIZENS' BAND TRANSCEIVER

All 23 channels frequency-synthesized and crystal-controlled with continuous one-control channel switching. High stability and frequency accuracy under all operating conditions. Transceiver utilizes 13 tubes, 2 silicon diodes, 1 germanium diode and 12 hermetically sealed crystals in 19 stages. Solid state power supply includes 2 power transistors and 4 silicon rectifiers. Class B push-pull modulator assures 100% modulation. Selective IF system, gated noise-limiter, low-noise RF stage and voice-oriented audio system give unequalled reception for both mobile and base station operation. Ruggedly constructed for continuous duty. RECEIVER: Sensitivity: 0.4  $\mu$ V for 10 db S/N; 1.0  $\mu$ V for 20 db S/N. Selectivity:  $\approx$  2.5 kc at -6 db;  $\approx$  7.5 kc at -60 db. Squelch: Adjustable to open at 0.5-300  $\mu$ V. Audio Output: 2.5 watts at 10% distortion. Image Rejection: Better than -60 db. Adjacent Channel Rejection: Better than -80 db. TRANSMITTER: Power Input: 5 watts. Frequency Stability: Better than .003% from -30° to +70° C and  $\approx$  10 input voltage variation. Output Impedance: 35-70 ohms. Power Required: 96 watts, 120 VAC, 7 amps, 12 VDC. Size: 11 1/2" w. x 11 3/4" d. x 5 3/4" h. Wt., 15 lbs. **Sonar Model F5-23 Transceiver**—Complete with microphone, power supply cables and universal mobile mount. Net.....\$299.95



### MODEL D-120B DEPTH INDICATOR

Indispensable guide in shallow water, this superior depth indicator has been acclaimed the most reliable navigational guide for unfamiliar channels. Will also help you find schools of fish and underwater features (rocks, etc.) Designed by expert Sonar electronic engineers for the most accurate readings. Rugged, complete, non-magnetic unit includes power supply, electronic circuitry and indicator. Handsome one-piece unit is specially treated against salt water and fungus. Comes complete with transducer, adjustable gimbal mount and fairing block. Indicator features the exclusive Sonar "Brite-Lite". Scale: 360°, 4" scale in 1 ft. calibrations; reads 1-250 ft. on 2 revolutions. Transducer: Highly sensitive; reads as low as 1 ft.; bronze housed; mounts in single 3/4" hole. Voltage: 6 or 12 volts DC. Size: 11 1/4" w. x 7 1/2" d. x 7 1/2" h. Weight, 9 lbs.

**Sonar Model D-120B Depth Indicator**—Net Each.....\$139.50

**Sonar Model D-600 Depth Indicator**—Same, but reads up to 600 ft. Net Ea.....\$249.50

### MODEL DF7X TRANSISTORIZED DIRECTION FINDER

Completely transistorized and powered by a self-contained battery, this direction finder features a left/right meter indication of boat heading. Meter reading is amplified to give greater sensitivity when nulling a station. Sensing system gives true null bearings  $\approx$  1°. Self-contained energizer-type battery for extra long life operation. Built-in sense antenna which is collapsible. High Q ferrite flat loop, easy-to-read unobstructed dial, meter and compass rose; large, hi-n oval speaker. Constructed of treated aluminum to resist salt spray and fungus. Three-band operation with CD and 2182 emergency channels indicated on dial face. Capable of receiving consolan signals. Automatic noise limiter rejects annoying ignition and atmospheric noises. Bands: Beacon (180-420 kc); standard broadcast (525-1650 kc) and marine (1600-3500 kc). Transistors: 10. Size: 13 3/4" w. x 10 1/2" d. x 8" h. Weight, 12 1/2 lbs. with battery.

**Sonar Model DF7X Direction Finder**—With battery. Net Each.....\$249.50

### MODEL 62 CHALLENGER MARINE RADIOTELEPHONE

Transistorized 62-watt radiotelephone meets FCC requirements for commercial boats. Six marine channels plus broadcast band. All aluminum non-magnetic construction, treated against effects of salt water and fungus. Unit can be installed in any position with universal mounting tray. Greater talk-power through utilization of high level Class B modulation and high level speech limiter. Front panel tuning with antenna RF current indicator; RF sensitivity control. Provisions for remote control operation. Power Input: 62 watts. Frequency Range: 2000-6000 kc for transmitter and receiver. Power Supply: Push-pull transistorized with polarity protector silicon diode. Voltage: 12 VDC. Size: 13 1/2" w. x 10 3/4" d. x 6 1/4" h. Weight, 15 lbs.

**Sonar Model 62 Challenger Radiotelephone**—With three pairs of crystals, \$299.95

**Sonar Model 95 Aristocrat Radiotelephone**—Same, but 95 watts input. Net.....\$379.50





# DOW-KEY COAXIAL RELAYS, SWITCHES, CONNECTORS AND PREAMPLIFIER

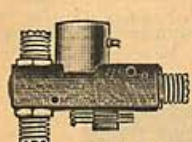
## NEW DK-61 SERIES



High performance SPDT coaxial relay rated at 100 watts to 1,000 Mc. Life, over 500,000 cycles at rated load when operated at 2 cps or less. Designed for military or airborne operations. VSWR, less than 1.1:1, 0 to 400 Mc. Three 2-56 mfr. mounting holes on both sides. Mating connectors for RG-58, 141 and 142 cable supplied at no extra cost. Solder type connectors supplied; for BNC connectors with glass seals soldered into position, add BNC to Model No. (i.e. DK 61-BNC, DK-61 BNC-C2, etc.) and \$1.00 to price. Specify Voltage: 6, 12, 24, 28, 32, 48, 110 or 220 VDC (at less than 3 watts). Size, 4 1/2" x 1 1/2" x 1 1/2". Weight, less than 4 oz.

**Dow-Key Model DK-61-1C**—SPDT auxiliary contacts rated 5 amps. Net Each.....\$25.50  
**Dow-Key Model DK-61-2C**—DPDT auxiliary contacts rated 5 amps. Net Each.....\$27.45

## DK60 SERIES



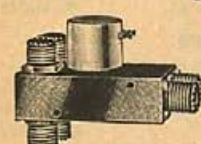
Heavy-duty SPDT coaxial relays rated 1 kW. Impedance, 50 ohms. Life, over 1,000,000 operations. VSWR, less than 1.15:1 from 0 to 500 Mc. DK60-G and DK60-G2C feature patented automatic receiver-protecting connector for positive isolation of RF from receiver: Greater than 100 db isolation between receiver and transmitter lines from 0 to 500 Mc.

Models DK60-2C and DK60-G2C have DPDT external contacts for switching auxiliary circuits (rated 5 A at 110 VAC). Guaranteed one year. With UHF coaxial connectors. Size, 2 3/4" x 3 3/4" x 1 1/2". Shpg. Wt., 9 oz. Specify 12 VDC or 110 VAC when ordering.

Model No.	Net Each	Model No.	Net Each	Model No.	Net Each	Model No.	Net Each
DK60	\$12.45	DK60-G	\$13.70	DK60-2C	\$14.35	DK60-G2C	\$15.65

**Dow-Key Model DK60-DPDT Switch**—External switch assembly for DK60 series relays. Rated 5 A, 110 VAC. Net Each. \$1.95  
**Dow-Key Model DK60-M-110 VAC**—Replacement coils for DK60 series relays for conversion of DC or other AC operated relays to 110 VAC operation. Net Each.....\$2.90

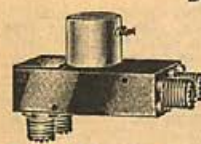
## DK2-60 SERIES



DPDT coaxial switch for switching two coaxial lines simultaneously. Frequency range, 0 to 500 Mc. Power rating to 1 kW. Impedance, 50 ohms. VSWR, less than 1.15:1 from 0 to 500 Mc. Isolation greater than 30 db at 500 Mc. Loss less than 0.03 db at 30 Mc. Life, over 1,000,000 operations. Model DK2-60-2C has DPDT external contacts for switching auxiliary circuits (rated 5 A at 110 VAC). Guaranteed one year. With UHF connectors. Size, 2 3/4" x 3 3/4" x 1 1/2". Wt., 12 oz.

**Dow-Key Model DK2-60**—Specify 6 VAC or 110 VAC. Net Each.....\$19.00  
**Dow-Key Model DK2-60-2C**—Specify 6 VAC or 110 VAC. Net Each.....\$20.95

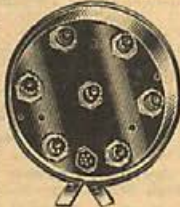
## DK2-60B SERIES



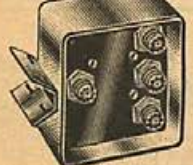
DPDT bypass switch internally connected in de-energizing position. For switching power amplifier in and out between exciter and antenna. Specifications same as DK2-60. Model 2C has external contacts for aux circuits. **Dow-Key Model DK2-60B**—Specify 6 VAC or 110 VAC. Net Ea. \$19.00  
**Dow-Key Model DK2-60B-2C**—Specify 6 or 110 VAC. Net Each. \$20.95

## DK71 SERIES

SP6T weatherproof coaxial relay for remote switching of RF sources. Common connector may be switched directly to any one or combination of the six positions. Frequency range, 0 to 500 Mc. Power rating, 1 kW. VSWR, less than 1.1:1 at 100 Mc. Isolation greater than 40 db at 100 Mc. Life, over 1,000,000 operations. Impedance, 50 ohms. Guaranteed one year. With UHF connectors. Size, 5 1/2" dia. x 2 1/4" deep. Wt., 3 lbs.  
**Dow-Key Model DK71**—Specify 24 VAC or 110 VAC. Net Each.....\$49.50



## DK72 SERIES



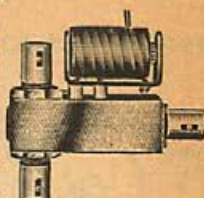
SP3T weatherproof coaxial relay for remote switching of RF sources. Frequency range, 0 to 500 Mc. Power rating, 1 kW. VSWR, less than 1.1:1 at 100 Mc. Isolation greater than 40 db at 100 Mc. Life, over 1,000,000 operations. Impedance, 50 ohms. Guaranteed one year. With UHF connectors. Size, 4" x 3 1/4" x 2 3/8". Wt., 1 lb. 8 oz.  
**Dow-Key Model DK72**—Specify 24 VAC or 110 VAC. Net Each.....\$22.95

Space does not permit listing various modifications or variations of the standard relays shown. The following types and variations of relays however, are also available.

1. Additional types of coaxial connectors on most of the relays.
2. All standard AC and DC voltages in DK60, DK2-60, DK2-60B, DK71 and DK72 series.
3. All standard DC voltages in DK77 series.
4. 72-ohm type in practically all relays (52-ohm standard).
5. Gold plated contacts and others (silver contacts standard).

## DK77 SERIES

Miniature, low-cost version of SPDT, 50-ohm coaxial relays. Available with phono, TNC or BNC coaxial connectors. High performance characteristics. Frequency range, 0 to 1,000 Mc. Power rating to 250 watts. VSWR, less than 1.1:1 at 500 Mc. Isolation greater than 30 db at 500 Mc. Insertion loss, less than .03 db at 500 Mc. Life, over 1,000,000 operations. Models with suffix 1C have SPDT auxiliary switches rated 5 A at 110 VAC, resistive. Wt., less than 3.5 oz. Specify 12 VDC or 28 VDC when ordering.



Dow-Key Model	Connectors (Specify)	Net Each, Lots of			
		1-4	5-9	10-24	25-49
DK77	BNC, TNC or phono	\$7.90	\$7.50	\$7.10	\$6.72
DK77-1C		9.00	8.55	8.10	7.65

## DK78 SERIES

Manual coaxial switches with excellent RF characteristics (not water switches). RF rating, 1 kW. Impedance, 50 ohms. VSWR, less than 1.05:1 at 150 Mc. Isolation greater than 50 db at 500 Mc and greater than 80 db at 30 Mc. With dial plate and knob. Size, 3" dia. x 1 1/4" deep. Wt., 10 oz. With UHF coaxial connectors.

Dow-Key Model	Description	Net Each
DK78-2	Single pole double throw	\$12.75
DK78-3	Single pole three throw	12.75
DK78-6	Single pole six throw	15.75
DK78-T	Transfer-crossover switch	15.75



## MODELS DKC-TRP AND DKC-TRM-1



DKC-TRP



DKC-TRM-1

Electronic switches rated 1 kW. Fully TVI proof. Allow break-in operation with single antenna system. Designed to operate from 1.8 to 30 Mc range. Model DKC-TRM-1 requires 90-120 VDC at 15 to 25 mA and 6.3 V at 1.2 A. Model DKC-TRP has built-in power supply for plug into 120 VAC circuit.

**Dow-Key Model DKC-TRM-1**—Net Each.....\$12.50  
**Dow-Key Model DKC-TRP**—Net Each.....27.75



DKC-RFB



KEY-MUNICATOR

## DKC-RFB PREAMPLIFIER

Tested, proven booster is essentially a 50-75 ohm impedance matching broadband preamplifier; not a pre-selector. For medium-high to less sensitive receivers, it guarantees an overall gain of 1 to 6 "S" until in most receivers over 1.5 to 30 Mc band. A slight gain is noted through 60 Mc. Use for fixed or mobile installations. Powered by receiver or filtered power source; requires 7 mA, 125-175 V for B-plus; 6.3 V at 3 amp for heater of 6CB6 tube. Size, 1 3/4" x 2". Weight, 6 oz.  
**Dow-Key Model DKC-RFB Broadband Preamplifier**—Net Each.....\$10.75

## KEY-MUNICATOR

Transistorized telegraph learner set complete with transmitting key, long-life batteries and earphone. Authentic cast metal telegraph key mounted on a 9" x 12" base containing the code characters and phonetics. Two or more sets may be interconnected through use of bell wire.

**Dow-Key Model Key-Munerator**—Net Each.....\$6.95

## UHF CONNECTORS



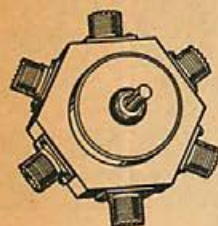
Dow-Key Model	Fig.	Description	Net Each
DKF-2	A	UHF double mate connector	\$0.95
DK60-P	B	UHF panel mount female connector	.70
DK201	C	UHF panel mount male connector	1.25
DK202	D	UHF double female connector	.85
DK210	E	UHF female to male phono connector	1.25
DK211	F	UHF male to male phono connector	1.25



# Amateur Accessories, Equipment

## BARKER & WILLIAMSON COMPONENTS

### MODEL 550A MULTI-POSITION COAXIAL SWITCH



This inexpensive, multi-position coaxial switch permits you to select antennas, transmitters, exciters, receivers and other RF generating devices using 52- or 75-ohm coaxial line, without any need for the fumbling and annoyance of screwing and unscrewing connections. The Model 550A permits instant selection of any one of five transmitters, etc. It will handle up to 1 kw of modulated power with a maximum cross-talk of -45 db at 30 mc.

**B & W Model 550A Switch—\$825**  
Net Each.....

**B & W Model 551A Multi-position Coaxial Switch—A two-pole, two position unit for switching various**

devices using 52 or 75 ohm coaxial lines in or out of series connection. May also be used to switch low impedance coupled power amplifiers in or out of circuit, permitting the driver stage to be connected to a low impedance antenna circuit or similar load as may be necessary.

**B & W Model 551A Switch—Net Each.....\$795**

**B & W Model 570 Multi-position Switch—Single gang, single pole, 5-position switch. Same as Model 550A, but with N-type connectors. Net Each.....\$1325**

**B & W Model 580 Multi-position Switch—Single gang, single pole, 5-position switch. Same as Model 550A, but with phono type connectors. Net Each.....\$735**

### PI NETWORK INDUCTOR ASSEMBLIES

One kw high power, integral bandswitched tank coil for highly efficient operation from 80 through 10 meters. For Class "C" or linear operation using triodes or tetrodes in conventional or grounded grid circuits. Windings provide ample current carrying capacity; minimum "Q" of 300 over the entire operating range.

**B & W Model 850A Inductor—\$3500**  
Net Each.....

**B & W Model 851 Medium Powered Bandswitching Pi-Network Inductor Assembly—An ultra-compact, highly efficient, integrally bandswitched unit, designed for single or parallel tube operation from 80 through 10 meters. Ratings: SSB and CW—2000 v. DC at 500 watts; AM—1250 v. DC at 250 watts; minimum "Q"—300. Size, 7" long, 3" wide, 3½" high. \$1650**

**B & W Model 851 Inductor—Net Each.....\$1650**

### BALUN COILS TYPE 3975

These sturdy bifilar air-wound inductors may be used for impedance matching in both transmitters and receivers. When two of these coil units are assembled and wired together conforming to wiring instructions, the assembly will provide a multiband balun type impedance matching device which can be used to meet the following impedance matching requirements: 1—unbalanced to 75 ohms to balanced 75 ohms; 2—unbalanced 75 ohms to balanced 300 ohms. May be used for single-band operation. Each coil has impedance of 150 ohms.

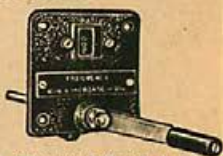


**B & W Model 3975 Balun Coil—Net Each.....\$333**

**B & W Model 3976 Balun Coil Kit (illus.)—Consists of two 3975 coils and 3977 mounting bracket, complete with hardware \$895**  
and fittings. Net Each.....

### CYCLOMETER TYPE COUNTER

Counter for use with units that must be rotated in excess of 360° and reset to the same point. Units are available for 10 or 100 turns to within one-tenth of a turn. Either type may be equipped with a positive stop to limit the number of shaft rotations. Either type may also be equipped with a positive shaft lock. **Front Plate Size:** 3" x 3" x 1¼" d. from front of panel. Standard finish is black crackle, other finishes on special order.



**B & W Model 3901 Counter—10-turn cyclometer type \$1600**  
counter. Net Each.....

**B & W Model 3902 Counter—100-turn type. Numbers decrease with clockwise rotation of handle. Net Each.....\$1600**

**B & W Model 3902-1 Counter—100-turn type. Numbers increase with clockwise rotation of handle. Net Each.....\$1600**

### LOW PASS FILTER

The wave guide principle used in the design of these filters permits compact, multi-section construction and an extremely high order of attenuation. Will handle more than 1 kw of modulated R.F. power. Highest grade electrical Teflon® insulation used. Screw assembled case made of heavy copper sheet.

**Model 425 Low Pass Filter—52 Ohms Imp. Net Each.....\$1710**

**Model 426 Low Pass Filter—75 Ohms Imp. Net Each.....\$1710**

®Registered DuPont trademark.

## ALLTRONICS-HOWARD TELEWRITER FREQUENCY SHIFT CONVERTER MODEL "K"



Receive radio teletyped messages with only Telewriter Converter, Teletype machine and radio receiver with BFO. Converts audio tones from output of receiver into DC pulses. Pulses operate teleprinter or other devices requiring DC pulses. Accepts audio frequency shift tones with center frequency of 2550 cps and shifts from 100 to 1000 cps. Symmetrical limiter, free of DC level shift, removes amplitude variations prior to discriminator. Linear discriminator rejects Gaussian noise, interference; allows operation with narrow shift signals, variations of shift, drift of center frequency. Output of discriminator goes into axis restorer which provides equal mark and space amplitudes in the event of fading signals unaffected by the limiter, and then drives low pass filter to remove effects of beat notes and sharp impulse noise. Filtered DC pulses, 100 volts peak-to-peak, are clipped to use only center four volts of pulses for exceptional cleaning up of noisy signals. Panel control allows clipped pulse to be moved up or down for best signal.

Correctly shaped pulses operate vacuum tube keyer giving direct-magnet operation of teleprinter loop from self-contained loop supply, assuring freedom from local radio noise from DC loop. Meter measures loop current. Converter operation is simple: no adjustments for normal operation. Easy tuning of FSK signals, adjusting transmitter frequency shift, by indicator. Standby switch quits printer while tuning. Send-receive feature allows use of local loop with polar relay for transmitting FSK. Polar relay for keying transmitter and FSK driver circuit optional. Efficient operation under high interference level from CW, phone and FSK signals. **Input Impedance:** 600 ohms. **Input Level:** -33 dbm to 30 dbm, ref 1 mw. **Input Frequency Shift Limits:** 100 to 1000 cps. **Output:** Neutral DC pulses of 60 ma in 0 to 2000 ohm external load with one side grounded. **Keying Speed:** 100 wpm unless special order. **Meter:** 0 to 100 ma panel meter. **Tuning Indicator:** Dual electron indicator tube. **Mounting:** Standard WE 19" relay rack or optional cabinet. **Chassis and Panel:** Aluminum panel 19" w. x 4" h. **Screw Holes:** Three inches on centers. **Steel Chassis, cadmium plated, 16½" w. x 3½" h. x 7½" d. Cabinet: Steel, 19" w. x 4" h. x 4" d. Power Requirements:** 115 volts, 50-60 cps; 50 watts maximum.

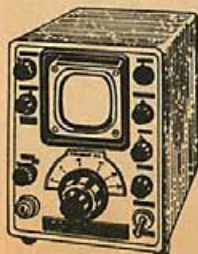
**Telewriter Frequency Shift Converter Model K for \$18900**  
Rack Mounting—Net Each.....

**Cabinet for Model K—Net Each.....\$1450**

**Sigma Polar Relay—Net Each.....2450**

## MILLEN AMATEUR ACCESSORIES

### MODEL 90932 OSCILLOSCOPE



Model  
90932

Cathode ray monitor for improving transmitter output signal. Distinctive display indicates exactly what is causing any trouble or distortion of signal, as well as when modulation, AM or SSB are perfect. Complete envelope or trapezoidal display; blanks out on standby; covers all amateur bands from 3.5 to 54 mc. Six individual coils for each amateur band; light filter. Blanking is automatic or manual.

**Model 90932—Less tube.....\$8700**  
Net Each.....

**2BP1 Cathode Ray Tube—Net.....\$19.05**

### CATHODE RAY OSCILLOSCOPES MODELS 90902, 90903, 90905

The No. 90902, 90903, and 90905 Rack Panel Oscilloscopes, for two, three and five inch tubes, respectively, are inexpensive basic units comprising power supply, brilliancy and centering controls, safety features, magnetic shielding, switches, etc. As a transmitter monitor, no additional equipment or accessories are required. The well known trapezoidal monitoring patterns are secured by feeding modulated carrier voltage from a pickup loop directly to vertical plates of the cathode ray tube and audio modulating voltage to horizontal plates.

**Model 90902—Less tubes. Net.....\$6000**

**Model 90903—Less tubes. Net.....\$7500**

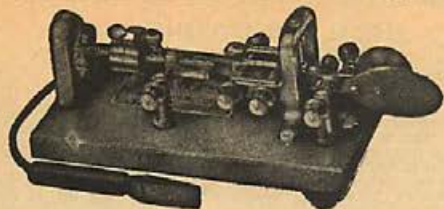
**Model 90905—Less tubes. Net.....12500**



# Amateur Equipment, Accessories

## VIBROPLEX TRANSMITTING KEYS

### THE SUPER DELUXE "PRESENTATION"



24-K gold plated base top. Super-speed control main spring. Patented jewel movement. Instantaneous adjustment to any speed. Red switch knob, finger and thumb piece and adjustable main spring.

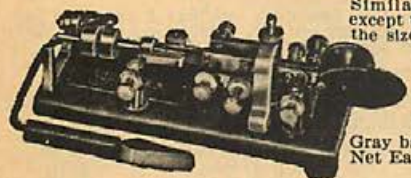
The "Presentation"—Net Each..... **\$33.95**

### THE "CHAMPION"



The "Champion" is an inexpensive transmitter for radio use only, having exceptional sending qualities. The clarity, speed and sending ease will appeal alike to amateur and professional radio operators. Single lever with 2 pairs of contact points. Mounted on large standard size base. Weight 3 lbs., 8 oz. Without circuit closer, cord and wedge. Chromium finished top parts, with gray crystal base. The "Champion"—Net Each..... **\$17.95**

### THE "BLUE RACER"



Similar to "Original" except that it is only half the size. Suitable for all classes of telegraph work. Single lever; 2 pairs of contact points. Weight, 2 lbs., 8 oz.

Gray base. Net Each..... **\$22.45**

The "Blue Racer"—Chromium top parts and base with jeweled movement. Net Each..... **\$26.95**

### THE "ORIGINAL"



Suitable for all classes of transmitting work where speed and perfect Morse are prime essentials; famed for its clarity, precision and ease of manipulation. Can be slowed down to 10 words per minute or less, or geared to high speed as desired. Maintains same high quality signal at any speed, insuring easy reception under all conditions. Has 2 pairs of contact points: one for dots, the other for dashes. Weight, 3 lbs., 8 oz. Gray base. Net Each..... **\$22.45**

The "Original"—Chromium top parts and base with jeweled movement. Net Each..... **\$26.95**

### THE "VIBRO-KEYER"

Features large size contacts and a colorful red finger grip. Smooth easy operation of Vibroplex truncheon lever. Beige base. Size, 3 1/2" x 4 1/2". Weight, 2 1/4 lbs.

The "Vibro-Keyer"—Net Each..... **\$17.95**

The "Vibro-Keyer"—Deluxe finish. Net Each..... **\$22.45**

### THE "LIGHTNING BUG" (NOT ILLUS.)

Greatest sending ease. Single lever. Improved flat pendulum, instantly adjustable dot contact spring, circuit breaker parallel with pendulum. Two pairs of points. Weight, 3 1/2 lbs. Gray base. Net Each..... **\$21.45**

The "Lightning Bug"—Chromium top parts and base with jeweled movement. Net Each..... **\$25.95**

### PHILLIPS CODE

Includes: Radio Code Signals; International Morse; American Morse; Russian, Greek, Arabic, Turkish, and Japanese Morse Codes; World Time Chart; United States Time Chart; Commercial "Z" Code; Aeronautical "Q" Code. Net Each (Postpaid)..... **\$2.75**

Phillips Code—Net Each (Postpaid)..... **\$2.75**

Cord and wedge available for all models at \$1.75 additional. All instruments are available in left hand models at \$2.50 extra.

## TECRAFT TRANSMITTERS, POWER SUPPLIES, CONVERTERS



144



TR-20

### TYPE TR-20 VHF TRANSMITTERS

Oscillator employs standard Type FT-243 8 mc crystals in a Pierce circuit. All models use a 12AX7 as a speech amplifier-driver and two 6AQ5's as Class A modulators. Modulation transformers permit use of audio for external accessory equipment. Features: Audio gain for either dynamic or crystal mike; provision for metering all stages; RF bridge circuit and rectifier allow RF output monitoring; antenna tuning system matches 52 or 72 ohm lines, terminating in standard coax output connector; high level plate modulation; each RF stage separately tuned (no broad-banded circuits). Highly efficient Class C RF amplifier stage operates straight through on output frequency—no frequency multiplication in final. Can be used as an exciter to drive high powered transmitter; Class A modulators handle drive requirements of Class B modulators. Power Requirements: Filaments, 6.3 v. AC/DC at 3.89 amps; 250 v. DC at 250 ma for full input. Can be operated at lower plate current levels to permit use of inexpensive power supplies in mobile service. Permits 6- or 12-volt operation. Furnished complete with crystal and tubes, tuned and air-tested, ready to operate. Size: 9 1/2" x 5 1/2" x 5" h. Shipping Weight, 5 lbs.

Tecraft Model TR 20/50—6 meters, 20-25 watts input. **\$65.95**

Amateur Net.....

Tecraft Model TR 20/144—2 meters, 20 watts inp. Net **\$65.95**

Tecraft Model TR 20/220—1 1/4 meters, 20 watts input. **65.95**

Tecraft Model TR 20/21—15 meters..... **65.95**

Tecraft Model TR 20/28—10 and 11 meters..... **65.95**

### CRITERION CRYSTAL-CONTROLLED CONVERTERS

When connected to the antenna terminals of almost any make or model communications receiver, this converter makes possible reception and control of UHF and VHF signals. Use with any IF frequency. Features: Exceedingly low noise figure; high signal-to-noise ratio; free from spurious responses; maximum rejection of IF feed through; sufficient output to operate several receivers simultaneously. Completely stable; No drift or microphonics. RF gain adjustable to minimize cross modulation. Crystal controlled switching. High frequency crystals, 0.005%, provide maximum calibration accuracy, permit low order of frequency multiplication. IF output selector switch; output attenuator. Provision for AGC Copper plated chassis minimizes circulating current; Lo-Z RF returns. Will withstand shock, vibration and temperature extremes. Output: At least 6 db above noise on 0.1  $\mu$ v input. Noise: Better than 3 db; 20 db thermal quieting at 1  $\mu$ v input. Pass Band: 4 mc; down 6 db at 6 mc; may be peaked to favor any part of band. Input: 52 or 72 ohms; 300 ohms with balun. Tubes: 1-6DS4, 1-6CW4, 1-6JK8, 1-6J8; 2 silicon diodes. Power Input: 25 w., 115 v. AC, 60 cps. Size: 7 1/2" w. x 6 1/2" d. x 5" h. **\$54.95**

Tecraft Model 50—50-54 mc (6 meter band). Net Each..... **\$54.95**

Tecraft Model 144—144-148 mc (2 meter band). Net Ea. **\$54.95**

Tecraft Model 220—220-225 mc (1 1/4 meter band). Net..... **\$4.95**

Note: Specify IF range 6-10, 7-11, 8-12, 10-14, 14-18, 20-30, 28-32, 30.5-34.5 or 50-54.

Extra Crystals—To 40 mc, Net..... **\$3.95; 40 mc-up.....\$4.50**

### MODEL P1 CONVERTER POWER SUPPLY

Designed for use with older C3 converters. Provides both filament and plate voltages. Input: 110 v. AC, 60 cps. Output: 6.3 v. at 3 amps; 200 v. DC at 50 ma. **\$19.95**

Tecraft Model P1—Net Each..... **\$19.95**

### PTR-2 MATCHING POWER SUPPLY

Especially designed for use with Tecraft series TR-20 VHF transmitters. Provides necessary filament and plate voltages. Conservatively rated so as to stand up under continuous use. Ratings: 6.3 volts at 6 amps; 6.3 volts at 4 amps; 250 v. DC at 250 mills. **\$39.95**

Tecraft Model PTR-2—Matched power supply. **\$39.95**

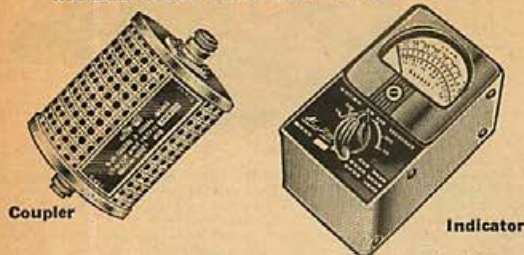


# Amateur Accessory Equipment

## MICROWAVE DEVICES MICRO-MATCH® WATTMETERS

(Successor to M. C. Jones)

### MODEL 263 COUPLER-INDICATOR



Complete instrument consisting of a coupler, equipped with type N connectors, and an indicator calibrated directly in watts. Equipped with 3 scales, 10, 100 and 1000 watts full scale for both incident and reflected power. Selector switch allows readings of incident and reflected power on any of the 3 scales. For example, it is possible to read the RF power output of the transmitter or the incident power on the 1000 watt scale and the reflected power on the 10 watt scale. Provides accurate method for obtaining a perfect match or a Unity standing wave ratio. **Size:** Coupler, 3" x 3" x 5"; Indicator, 3" x 3 1/2" x 5 1/2". **Weight,** 2 lbs., 4 oz. **\$85.00**  
**Model 263 Coupler-Indicator—Net Each..... \$85.00**

### MODEL 261 BIDIRECTIONAL COUPLER



Capable of supplying reading of incident RF power, reflected RF power, net RF power supplied to the antenna or load, and VSWR of the load. Once the coupler has been inserted in the line it is not necessary to remove or reverse its position in the line to obtain any of the above readings. The coupler may be left in a matched RF transmission line at power levels up to 1 kw continuously without damage to the

indicator supplied with each 261 coupler. **Frequency Range:** 0.5 to 225 mc. **Impedance:** 50 ohms. **Power Rating, Continuous:** 1000 watts. **Reflection Coefficient:** Less than 0.5 db. **Power Loss Through Coupler:** Less than 0.1 db. **Directivity:** More than 20 db. **Size:** 3" x 3" x 4 1/2". **\$22.50**  
**Model 261 Coupler Unit—Net Each..... \$22.50**

### MODEL 262 INDICATOR

Simplified type of indicator reading relative power. Sensitivity continuously adjustable from approx. 10 watts full scale to approx. 1000 watts full scale by means of the potentiometer mounted on the front panel. Selector switch allows readings of either incident or reflected RF power. Net power to the antenna or load and VSWR of the load may also be obtained from these readings with any of the Model 261 coupler units. **Size:** 4 1/2" x 4 1/2" x 4 1/2". **\$14.50**  
**Model 262 Indicator..... \$14.50**  
**—Net Each.....**



### VSWR AND RF WATTMETERS

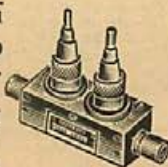


Coupler, equipped with type N and UHF connectors. Indicator calibrated directly in watts, 3 scales, 30, 75, and 300 watts. ± 5% accuracy maintained on reading incident or reflected power. Frequency range is from 25 to 1000 mc. **Size:** 3 1/2" x 5 1/2" x 3". **Weight,** 2 lbs. **\$135.00**  
**Model 711N Coupler-Indicator— \$135.00**  
**Net Each.....**  
 Very similar to the 711N in appearance, usage and size. Uses type N and UHF connectors, 3 scales, 2.5, 5 and 10 watts. Frequency range is from 25 to 1000 mc. **\$135.00**  
**Model 712N Coupler-Indicator— \$135.00**  
**Net Each.....**

### SERIES 576 COUPLERS

Bidirectional coupler only, accurately calibrated to read SWR and RF power on a model 412R indicator or SG-33 station guardian. **Series 576 Couplers—Any model \$60.00**  
 listed below. **Net Each..... \$60.00**

Microwave No.	Frequency Range	Power Range
576Z2	3-30 mc	0-1200 watts
576MW	50-500 mc	0-120 watts
576KE	50-500 mc	0-400 watts
576MX	50-500 mc	0-1200 watts
576MY	50-1000 mc	0-12 watts



**Model 412R Indicator—**Reads forward power and reflected power in watts, and SWR directly. Fits 19" rack panel. **Net. \$50.00**  
**Model SG-33 Station Guardian—**Actuates alarm and reduces or turns off power to transmitter when SWR rises or RF output changes meter. **Net Each..... \$150.00**  
**Other models available for use at frequencies to 5000 mcs and power levels to 120 kw.**

### MODEL 290 CITIZENS' BAND POWER AND SWR METER

Effectively and conveniently measures actual RF power output in watts as well as SWR directly on two calibrated scales at any instant. Designed for transmitter having up to 5 watts input. Also very useful in adjusting for greatest power output and best possible antenna match. No external power required. May be left in circuit for continuous reading with negligible insertion loss. Easy to read, simple to operate. Ideal for dashboard mounting. **Size:** 4 1/2" w. x 2 1/4" d. x 2" h.



**Model 290 Citizens' Band Power & SWR Meter—Net Ea. \$26.50**  
**Cable Assembly for Model 290—Net Each..... \$2.45**

### MODEL 690 CITIZENS' BAND RF LOAD RESISTOR

For terminating transmitters during alignment and testing. Five watts continuous power rating, 10 watts intermittent duty. **Model 690 Citizens' Band RF Load Resistor—Net Each \$2.95**

## PETERSEN CRYSTALS



Petersen "PR" Crystals. Low drift, less than 2 cycles per mc per degree Centigrade. High activity, stability and output. .480" pin spacing. Sealed against contamination and moisture.

#### TYPE Z-2—FUNDAMENTAL

Frequency Range, Kc	Use	Net Each
3500-4000	80 meters	\$2.95
7000-7425	40 meters	2.95
8000-8222	2 meters	2.95
8334-9000	6 meters	2.95

#### TYPE Z-9A—THIRD OVERTONE

Frequency Range, Kc	Use	Net Each
24000-24666	2 meters	\$3.95
25000-27000	2 or 6 meters	3.95

#### TYPE Z-9A—FIFTH OVERTONE

Frequency Range, Kc	Use	Net Each
50000-54000	6 meters	\$4.95

#### TYPE Z-9R CITIZENS' BAND CLASS "D"

FCC assigned frequencies in megacycles: 26.965, 26.975, 26.985, 27.005, 27.015, 27.025, 27.035, 27.055, 27.065, 27.075, 27.085, 27.105, 27.115, 27.125, 27.135, 27.155, 27.165, 27.175, 27.185, 27.205, 27.215, 27.225; calibrated .005%. Shipping Weight, 4 oz. Specify frequency desired when ordering along with manufacturer of equipment. **\$2.95**  
**Petersen No. Z-9R Crystals—Net Each..... \$2.95**

#### TYPE Z-9R RADIO CONTROL CLASS "CC"

FCC assigned frequencies in megacycles: 26.995, 27.045, 27.095, 27.145, 27.195, 27.255. Calibrated to .005%. Shipping Weight, 4 oz. Specify frequency and manufacturer of eqpt. **\$2.95**  
**Petersen No. Z-9R Crystal—Net Each..... \$2.95**

#### TYPE Z-1 MARS AND CAP CRYSTALS

Official assigned transmitter frequencies in the range. Frequency range 1600-10000 kc, tolerance .005%. Shipping Weight, 4 oz. **\$3.45**  
**Petersen No. Z-1 Crystals—Net Each..... \$3.45**

#### TYPE 2XP

Special crystals outside amateur bands. Suitable for converters, experimental usage, etc.

Frequency Range, Kc	Tolerance	Net Each
1600-12000 (fundamental)	± 5 kc	\$3.45
12001-25000 (3rd mode)	± 10 kc	4.45

#### TYPE Z-6A FREQUENCY STANDARD

Petersen No. Z-6A—100 kc, frequency standard. Shipping Weight, 4 oz. **Net Each..... \$6.95**



# Amateur Publications



## LICENSE MANUAL

License manual tells you how to pass government examination for radio amateur's license. Makes simple and comparatively easy task of what otherwise might seem difficult.

Price Each... **\$50c**

**How to Become a Radio Amateur**—A standard elementary guide. Covers fundamentals and construction. Explains how radio works, the amateur bands. **\$1.00** Price Each

**Understanding Amateur Radio**—A manual for the beginning radio amateur. Explains electronics, radio circuits, transmitters, receivers, antennas, etc. Plans for building receivers, phone and code transmitters. Profusely illustrated. 320 pp. Price Each... **\$2.00**

**Antenna Book**—Explains antenna design, construction, theory of radiation. The data contained in this book is the result of practical experience of the authors and hundreds of amateurs who have contributed. Price Each... **\$2.00**

**Learning the Radiotelegraph Code**—Designed to train students to handle code through a novel system based on sound conception. Excellent for the student who does not have continuous help or access to code machine; also useful as home-study material. Includes data on high speed operation, typewriter copy, general operating information, and tone sources. Price Each... **\$50c**

**Hints and Ideas**—A compilation of hundreds of good ideas which amateurs have

## ARRL PUBLICATIONS

found helpful. It will save hours of time and return its cost in money many **\$100** times. Price Each

**Gateway to Amateur Radio**—Set of four books for the beginner. How to Become a Radio Amateur, how to get a license, build a transmitter and receiver. Learning the Radio-Telegraph Code. Ideal for home training. License Manual, covers FCC exams and answers. Operating an Amateur Station, all about "ham" station operation. Price Per Set... **\$2.00**

**The Mobile Manual for Radio Amateurs**—Useful and informative guide to mobile radio. A collection of many articles on tried and tested equipment that have appeared in QST. Includes sections on receiving (including noise suppression), transmitting, antennas and power supplies, and FCC regulations. Price Each... **\$2.50**

**Single Sideband for the Radio Amateur**—A digest of the best SSB articles in QST. Introduction to SSB first, the text is carefully organized to cover Modulators, Phasing, Linear Amplifiers, VFO's, Voice Control Break-in, and includes not only discussion of theory, but plenty of practical how-to-build-it descriptions. Covers entire area of SSB. Price Each... **\$2.50**

**Amateur Station Logbook**—36 log pages and 36 blank pages. "Q" list. Message number sheet. Book is spiral bound. Size, 8 1/2" x 11". Price Each... **50c**

**Message Blanks**—Price Per Pad... **35c**

**The Amateur Radio Map**—Entirely different in conception and design from any other map. Special projection gives greater circle distance measurements in mile or kilometers with an accuracy of  $\pm 2\%$ . Shows principal cities of the world; local time zones; WAC divisions; more than 265 countries, indexed; amateur prefixes throughout the world. Printed in six colors on heavy paper. Size, 30" x 40". Price Each... **\$2.00**

## AMATEUR'S HANDBOOK

World's most valuable and widely used radio book. Latest edition retains material on theory, but has been revised and integrated with constructional data. Treats radio communications problems in terms of how-to-do-it. Presents the soundest and approved aspects of current engineering practice rather than merely the new and novel. Current issue. Price Each... **\$4.00**

**In Buckram Binding**—Price Ea... **\$6.50**  
**Radio Amateur's VHF Manual**—Covers receiving and transmitting, antennas, UHF and microwaves, test equipment and interference remedies. Emphasis on tried and tested equipment and practice. Price Each... **\$2.00**

**A Course in Radio Fundamentals**—A study guide based on the time-tested principle of "learning while doing". Written around the ARRL HANDBOOK. Price Each... **\$1.00**

**ARRL Minilog**—Amateur radio station logbook contains 50 pages. Simplifies compliance with FCC log-keeping regulations. Size, 4" x 6". Price Each... **30c**

**QST Binders**—For monthly QST copies. Holds an entire year's file. Copies **\$3.00** lie flat. Price Each

**Type A Lightning Calculator**—Tells the various values of inductance and capacitance that will resonate at any selected frequency; will find third value if **\$1.50** two are known. Price Each

**Type B Lightning Calculator**—Finds resistance, voltage and current values if two are known. Instructions for finding watts, current resistance and volt-**\$1.50** age also given. Price Each

## EDITORS AND ENGINEERS BOOKS AND MANUALS

### RADIO HANDBOOK (16TH EDITION)

Comprehensive, up-to-the-minute data for designing and building radio equipment. Covers practically every phase of radio theory in simple, easy-to-grasp form. Latest design data permits you to design standard transmitting and receiving equipment from medium to ultra-high frequencies. Gives broadest possible coverage on construction and operation of advanced, high performance equipment. Plans include details and styling cabinetry, etc. All data clearly indexed. Contents includes AC & DC circuits, VT principles, semiconductors, high fidelity, scopes, receiver fundamentals, energy generation, RF feedback; AM, FM, Sideband and RTT; antennas and mobile equipment; transmitter construction, test equipment and power supplies; workshop practice; mathematics and calculations. Hard cover; 800 pages. Price Each... **\$9.50**

### NEW TRANSISTOR RADIO HANDBOOK

Covers a wide range of communication uses for both amateur radio and commercial applications. Gives simplified circuit theory plus practical construction projects. Includes audio and speech amplifiers; VHF transmitting and receiving equipment; SSB excitors, both filter and phasing types; and a complete SSB transceiver. Price Each... **\$5.00**

### THE SURPLUS HANDBOOK (VOL. 1)

Schematic diagrams and large photos on APN-1, APS-13, ARB, ARC-2, ARC-5 (LF and VHF), ARN-5, ARR-2, ASB-7, BC-222, 312, 314, 342, 344, 348, 603, 611, 624, 652, 654, 659, 669, 683, 728, 745, 764, 779, 794, 923, 1000, 1004, 1066, 1206, 1306, 1335; BC-AR-231, CRC-7, DAK-3, GF-11, Mark II, MN-26, RAK-5, RAL-5, RAX-1, SCR-522, Super-Pro, TBY, TCS. Resistor and capacitor color codes. Cross index of A/N V.T. and commercial tubes. Price Each... **\$3.50**

### RADIOTELEPHONE LICENSE MANUAL (3RD EDITION)

In one convenient volume, complete study guide questions with clear, concise answers for preparation of all U.S.A. commercial radiotelephone (elements 1-4) operators' examinations. New hard bound edition with up-to-date coverage. Price Each... **\$5.75**

E & E No. 030—Price Each

### SURPLUS RADIO CONVERSION MANUALS

Standard conversion data, instructions and diagrams for putting many commonly-used surplus equipment items to practical use.

**Volume I**—Covers transmitter types ARC-5, BC-457/459, BC-625, BC-696, SCR-274N, SCR-522, SCR-542. Receiver types ARC-5, BC-224, 312, 342, 348, BC-453/455, BC-624, BC-946B, BC-1068 or 1161A, SCR-268/271, SCR-274N, SCR-522, SCR-542. Transceiver types BC-645 and TBY. Frequency meters BC-221 and SCR-211. Radar 'scope BC-412. Dynamo motor PE-103A. Electronic surplus index; cross index of A/N V.T. and commercial tubes. Price Each... **\$3.50**

**Volume II**—Covers transmitter types ARC-5, ART-13, ATC, AVT-112A, BC-191, BC-375, BC-457/459, GO-9, SCR-274N, TA-12B/12C, TBW, T-23/ARC-5. Receiver types ARC-5, BC-357, BC-454/455, BC-946B, BC-1206, R-26-27/ARC-5, R-28/ARC-5, ARB (schematic only). Transmitter/Receiver AFS-13, Amplifiers AIC, AM-26. Frequency Meter LM. Selenium rectifier power units; simplified coil winding data; surplus beam rotating mechanisms. Price Each... **\$3.50**

**Volume III**—Covers transmitter types ARC-5, ART-13, BC-456 to BC-459, BC-624, BC-696, BC-1253, SCR-522, T-15 to T-23/ARC-5. Receiver types ARC-5, BC-312, BC-342, BC-348, BC-453, BC-455, BC-603, BC-1066, R-9/APN4, R-28/ARC-5, SCR-274N series, SCR-508, SCR-528, SCR-538; ARR-2, ASB-5 and CPR-46AGJ (last three with schematics only). Transmitter/Receiver types CBY-52000 series, COL-43065, CRC-7, MBF, RT-19/

ARC4, RT-159, URC-4; BC-659 and BC-1335A (last two schematics only) Altimeter APN-1, As modulators, BC-191, BC-375, MD-7/ARC-5, Relay BC-442, Dynamotor, DM-34D, DY-5, DY-2A, ARR-2, LM—Power supply for LM Frequency Meter, Crystals FT-241A, Phone patches RM-52, RM-53, Tube WE-701-A. Schematics only on APA-10 adapter; APT-2 and APT-5 radar sets. Price Each... **\$3.50**

### RADIO AMATEUR CALLBOOK

**RADIO AMATEUR CALLBOOK**  
Directory listing, alphabetically by call letters, the names and addresses of licensed radio amateurs in the United States and Possessions, plus service personnel in foreign countries. Table of Great Circle bearings and other useful information. Published quarterly. Current issue. Size: 8 3/4" x 12". Price in U.S.A. .... **\$5.00**

**FOREIGN AMATEUR CALLBOOK**  
Directory listing the names and addresses of amateurs in foreign countries. Quarterly. Current issue. Size: 8 3/4" x 12". Price in U.S.A. .... **\$3.25**

**THE RADIO AMATEUR'S DX GUIDE**  
Includes an International DX log, Great Circle bearings on 291 world points from 22 U.S. cities, time zones, International "Q" signals, other helpful information. Size: 8 3/4" x 12". Price in U.S.A. .... **\$2.00**

### THE RADIO AMATEUR'S WORLD ATLAS

Maps show continental and zone boundaries and country prefixes. Complete world index giving prefix, with continent and zone location, of each country. Size: 8 3/4" x 12". Price in U.S.A. .... **\$1.50**

**THE RADIO AMATEUR'S PREFIX MAP OF THE WORLD**  
Full-color map shows DX zones, time zones, prefixes and countries listed alphabetically, with zone index, etc. Size: 29" x 42", heavy paper. Price in U.S.A. .... **\$1.00**



# Ham Books, Amateur Equipment

## RADIO PUBLICATIONS, INC.

### BEAM ANTENNA HANDBOOK



First complete antenna handbook covering the construction, installation, and evaluation of rotary beam antennas. Whether you buy your beam, or build it yourself, by following the three rules of antenna design given in this handbook you will insure efficient operation of your beam. Sixteen chapters, over 100 charts, drawings and photographs. Full dimensional charts are included for the 6-, 10-, 11-, 15-, 20- and 40-meter bands. Second edition. **Beam Antenna Handbook—\$375**  
Price Each.....

### NOVICE AND TECHNICIAN HANDBOOK

First radio handbook written for the novice, technician, and the newcomer to amateur radio. Covers complete field of radio transmission and reception in simple language. Nine chapters full of new information that will put you on air with your own station. **Novice and Technician Handbook—Price Each.....\$295**

### BETTER SHORTWAVE RECEPTION

Covers shortwave radio for the SWL and the radio amateur. Tells how to: Hunt DX, obtain verification cards from distant stations, buy a second hand receiver, align and maintain your receiver, etc. "Do-it-yourself" radio projects and best antenna designs also included. **Better Shortwave Reception—Ea. \$285**

### VHF HANDBOOK

First complete handbook devoted to very high frequency spectrum. Covers in detail the generation, propagation and reception of VHF signals. Used by leading universities, research organizations, and the Armed Forces. Latest complete, unpublished design information for long Yagi parasitic arrays; complete design charts and construction information included. Three-band VHF beam for 50-144-220 mc also included. **VHF Handbook—Price Each.....\$295**

### ELECTRONIC CONSTRUCTION HANDBOOK

How to design and build electronic gear. Complete instructions on layout, use of tools, sheet metal work, soldering, wiring, assembly and testing. **Electronic Construction Handbook—Price Each.....\$295**

### CUBICAL QUAD ANTENNAS

Describes theory, design, construction and operational characteristics of Quad antennas. History and background of the Quad is given clearly, with information on X-Q Quad, Tri-Gamma and other features. Details on Quads for 7 and 50 mc, for practical "build-it-yourself" enthusiasts. **Quad Antenna Handbook—\$285**  
Price Each.....

### S-9 SIGNALS

Tells all about inexpensive "build-it-yourself" antennas for the radio amateur. Includes information on the construction of efficient antennas for the ham bands: How-To-Build the "Multiband", "Cobra", "Seotsman's Dipole" and many other similar antennas. **S-9 Signals—Price Each.....\$100**

### ANTENNAS FOR CITIZENS RADIO SERVICE

How to construct low cost antennas to get the best radiation from the low power (5 watts) permitted on Citizens' Radio. Clear instructions on building ground plane, self-supporting and high gain beam antennas. **Antennas for Citizens Radio \$100**  
Service—Price Each.....

## B & K/MARK AMATEUR ANTENNAS

### ABB-6 OMNIDIRECTIONAL FIXED STATION 6-METER

Lower angle of radiation gives appreciable gain over ground planes. Maximum possible signal directed onto the horizon. Half-wave radiator is voltage fed at bottom of high impedance point through special  $\frac{1}{4}$ -wave launcher-matcher section of RG-8/U cable. Transforms hi-Z to 52 ohms for best match at SO-239 input connector. Results in less than 1.5:1 VSWR over the entire band. Rugged, two-section aluminum radiator 10-ft. long. Insulated and supported at base end by strong molded Fiberglass\* section. May be clamped to standard TV antenna mounting hardware with C-9626 mounting kit.

### HWD SERIES HELIWHIP®★ DIPOLE ANTENNAS

New principle in HWD Series Heliwhip Dipoles utilizes helical-wound, end loaded section for uniform current distribution on shortened dipole; gives 50-ohm match at resonant frequency. May be mast or pole mounted using small TV rotator to obtain directional characteristics. Can be window mounted for temporary installations. Requires no ground radials. Horizontal or vertical polarization may be used. Rated 1 kW. No. HWD-40 comes with adjustable aluminum tuning sleeve which may be moved along the helical section to permit adjustment to any operating frequency to assure full bandwidth and low VSWR.

### HW SERIES HELIWHIP★ MOBILE ANTENNAS

Improves efficiency and intelligibility for DX, AM and SSB. Short antenna design achieved with top loading, uniform current distribution and 52-ohm match. Performance superior to whip and coil combinations. Helical conductor over flexible, molded Fiberglass core. Exclusive "Static Sheath" plastic covering eliminates precipitation static; improves signal-to-noise ratio; increases receiver sensitivity. Easy, single-hole mounting on trunk lid, cowl, fender or hood. Also available with extra-high radiation efficiency, full kilowatt capability, and special frequencies on request.

### CV-3147 TWO-METER FIXED/MOBILE COLLINEAR ARRAY

Flexible, 6-ft., vinyl-covered antenna gives 3 db gain compared to  $\frac{1}{2}$ -wave dipole (per EIA standard). Two internal  $\frac{1}{2}$ -wave, collinear elements result in an extra low angle of radiation; flat horizon performance gives long range capability. Precise 52-ohm match, without use of radials, improves fixed station efficiency. For mobile use, fading due to multipath transmission effects are reduced or eliminated; pattern distortion is minimized regardless of antenna placement. Performance is improved by increased effective spatial signal-to-noise ratio. Bandwidth 5 Mc with less than 1.5:1 VSWR. Conservative 50-watt RF power rating handles nearly any 2-meter gear. Rugged, heavy-duty design mounts by  $\frac{1}{4}$ "-18 thd. ferrule on special Mark mounts; or, mounts direct on most materials using  $\frac{1}{4}$ " nut on bottom side. Comes with 10-ft. cable internally attached; less connector. Height, 6 ft. Wt., 3 lbs.

### CVS-2144 FLEXIBLE, MOBILE TWO-METER WHIP

Efficient, attractive mobile antenna with  $\frac{3}{8}$  wavelength provides 1.8 db gain over half-wave dipole; far superior to 19" mobile whips. VSWR less than 1.5:1 over whole 2-meter band; 52-ohm match. Sturdy Fiberglass structure with plastic overcoat; 54" long. Standard  $\frac{3}{4}$ "-24 thd. mount; for best results, use HWM-1 (single  $\frac{3}{8}$ " hole mount) on roof, trunk lid or fender. Add SA-1 swivel adapter for up to 90° angle mounting.



### AMATEUR ANTENNA PRICES

B & K/Mark No.	Band M	Lgth., Ft.	Reson. Freq., Mc	Bandwidth, kc	Net Each
ABB-6	6	10	52.0	49-55*	\$22.50
CV-3147	2	6	7	144-148*	40.50
CVS-2144	2	4 1/2	146.0	144-148*	7.50
HW-6	6	3	52.0	49-55*	9.95
HW-10	10	4	29.0	1000	9.95
HW-15	15	4	21.2	500	9.95
HW-20	20	6	14.2	250	10.95
HW-40	40	6	7.25	100	10.95
HW-80	80	6	3.8	50	10.95
HW-160	160	8	1.9	20	29.95
HWD-10	10	8	29.0	1000	22.50
HWD-15	15	12	21.25	500	24.00
HWD-20	20	12	14.15	300	27.00
HWD-40	40	16	7.05	100	29.95

\*Megacycles. †For 2:1 VSWR. ‡Adjustable; see descriptive paragraph. §Specify when ordering; allow 3 weeks for delivery.

### AMATEUR MOUNTS & ACCESSORIES

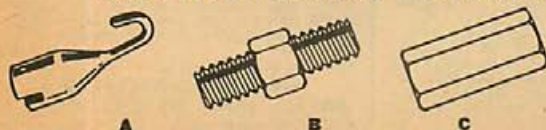
**Model HWM-1 Mobile Mount**—Heavy-duty Fiberglass with SO-239 coax fitting. Single-hole installation. Takes any  $\frac{3}{8}$ "-24 antenna thread. Net Each.....**\$7.50**

**Model HWM-3 Swivel Mount**—Light duty, molded Tenite and butyrate base; rubber gasket, ground lug and washer. Use with light whips only. Adjustable swivel. Single-hole type fits  $\frac{3}{8}$ "-24 thd. Net Each.....**\$4.25**

**Model C-9626 Mounting Kit**—U-bolt kit for ABB-6. Net Each.....**\$1.95**

\*U. S. Process Pat. 2,938,210. †U. S. Pat. 2,966,679. \*Owens-Corning Fiberglass trademark.

## K-W ENGINEERING "UNIVERSAL" MOBILE ANTENNA FITTINGS



**Model 24-055 Whip Hook (Fig. A)**—Secures antenna for garage or highway; requires no holes. Fastens to rain molding with  $\frac{1}{4}$ " set screw. Nickel-chrome plated brass. Net Each.....**\$1.00**

**Model 24-066 Stud (Fig. B)**—Couples coils, springs or antenna rods requiring male threads. Durable, neat chrome plate finish. Threaded  $\frac{3}{4}$ "-24 SAE, both ends. Net Each.....**90¢**

**Model 24-099 Coupling (Fig. C)**—Couples extensions to coils or antenna rods; female threaded  $\frac{3}{4}$ "-24 SAE. Chrome plate finish. Net Each.....**75¢**

**Model 24-077 Collet**—Provides adjustable height or to resonate antenna. Use with plain-end  $\frac{1}{4}$ " dia. antenna rods and standard extension sections. Net Each.....**\$2.35**





# Antenna Specialists Antennas

## MOBILE ANTENNAS

**Antenna Specialists Model ASP-144 (Fig. A)**—Disguise antenna for 30-50 mc use looks exactly like normal telescoping antennas. Especially for police use. Swivel base permits mounting on any surface with slant of 35°. Furnished with 16 ft. stub loading RG-58/U cable and PL-259 connector. Specify frequency. Net Each. . . . . **\$18.00**

**Antenna Specialists Model ASP-145**—Same as above, with tapered, flexible stainless steel rod. Net Each. . . . . **\$18.00**

**Antenna Specialists Model ASPR1 (Fig. B)**—Rooftop 130-470 mc antenna. Mounts in 3/4" hole. Positive 4-point grounding to roof. Stainless steel whip with solderless S 285 type connection. No lead furnished. Net Each. . . . . **\$285**

**Antenna Specialists Model ASP-157 (Fig. C)**—Gutter clamp antenna, 130-470 mc. Clamps to car rain gutter. With 10 ft. RG-58/U and PL-259. Specify frequency. **\$810** Net Each. . . . .

**Antenna Specialists Model M-1D (Fig. D)**—Professional size, 102" cuttable stainless steel whip with removable adapter, chrome-plated swivel base, and spring. Base has 1-piece Cyclocac\* insulator; steel back-up plate. With water sealing gasket and **\$1197** mounting hardware. Net Each. . . . .

\*Registered Borg-Warner trademark.

## AMATEUR BAND ANTENNAS

### MOBILE ANTENNAS

**Antenna Specialists Model MR-64 Fiberglass Whip (Fig. E)**—Forty meter, continuously loaded whip with black plastic covering. Male 3/8"-24 chrome ferrule. Length, **\$1105** 6 ft. Net Each. . . . .

Also available for other bands. MR-60—6 meters, 3 ft. long. Net Each. . . . . **\$ 9.96**

MR-61—10 meters, 5 ft. long. Net. . . . . **\$9.96** MR-62—15 meters, 5 ft. Net. . . . . **9.96**

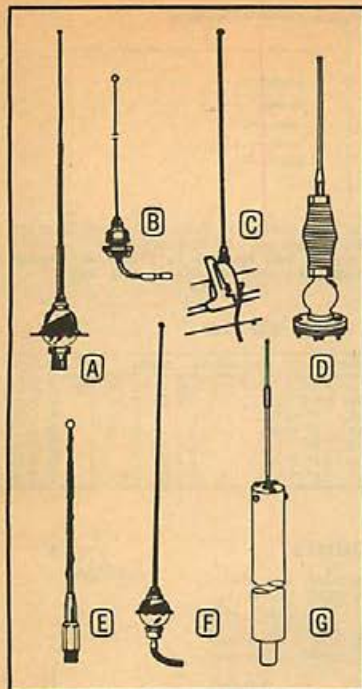
MR-63—20 meters, 6 ft. long. Net. . . . . **9.96** MR-65—80 meters, 6 ft. Net. . . . . **11.05**

**Antenna Specialists Model M-85 Cowl Mount 6-Meter Antenna (Fig. F)**—Flex-**\$897** ible 59" stainless steel whip and cowl mount. 54" lead and gutter clip supplied. Net.

### FIXED STATION ANTENNAS

**Antenna Specialists Model M-39 Coaxial 10-Meter Antenna (Fig. G)**—1/2-wavelength, vertically polarized for fixed station, omnidirectional operation. Low angle radiation. Use with 52-ohm coax. Mounts on 3/4" IPS pipe; takes PL-259. Jointed 8 1/4 ft. solid **\$1995** aluminum vertical radiator bolts to 3/4 ft. aluminum skirt. Net Each. . . . .

**Antenna Specialists Model M-40 Coaxial 6-Meter Antenna**—Same as M-39, but has 4 1/4 ft. radiator and 4 3/4 ft. skirt. Full 1/2-wave, 6-meter performance. Net Each. . . . . **\$14.85**



## MOBILE ANTENNA ACCESSORIES

**Antenna Specialists Model M-9AS (Fig. H)**—Stainless steel spring for use with **\$895** center loading coil. Net Each. . . . .

**Antenna Specialists Model M-9A**—Heavy duty, cadmium-plated spring. Net. . . . . **\$4.77**

**Antenna Specialists Model M-3**—Aluminum swivel base only. Net Each. . . . . **3.03**

**Antenna Specialists Model M-3D**—Chrome-plated base only. Net Each. . . . . **4.83**

**Antenna Specialists Model M-3A**—Cadmium-plated spring only. Net Each. . . . . **2.07**

**Antenna Specialists Model M-3AD**—Chrome-plated spring only. Net Each. . . . . **3.24**

**Antenna Specialists Model M-25 Mini-Spring (Fig. I)**—Heavy-duty; reduces shock when used on top of center load coils. Female 3/8"-24 threaded end mounts. With 198 3/8"-24 removable threaded stud. Net Each. . . . .

**Antenna Specialists Model ASP-180 (Fig. J)**—ASP-3 professional swivel base **\$867** with coaxial adapter; accepts PL-259 connector. Net Each. . . . .

**Antenna Specialists Model ASP-175**—Same as ASP-180, but mounts from outside of vehicle body. Net Each. . . . . **\$10.35**

**Antenna Specialists Model ASP-181 (Fig. K)**—Same as ASP-175, but has right angle coaxial connector. Net Each. . . . . **\$11.37**

**Antenna Specialists Model M-13 (Fig. J)**—Amateur swivel base with coax **\$600** adapter. Net Each. . . . .

**Antenna Specialists Model M-14**—Same, but fitted for outside mounting. Net Ea. **\$6.90**

**Antenna Specialists Model M-15 (Fig. L)**—Coaxial adapter kit converts swivel **\$187** base to accept PL-259. Net Each. . . . .

**Antenna Specialists Model ASP-172 (25-29 mc), ASPA-172 (29-33 mc), ASPB-172 (33-37 mc), ASC-172 (37-42 mc), ASPD-172 (42-47 mc), ASPE-172 (47-50 mc) or ASPF-172 (50-54 mc) (Fig. M)**—Base loading coil for portable radios or transceivers in 25-54 mc bands. Fits into SO-239; 10-32 threaded stud at top for whip. Use with 43" whip **\$950** with 10-32 female adapter (ASP-58). Net Each. . . . .

**Antenna Specialists Model M-11 (3/8"), M-16 (3/8") or M-18 (7/8") (Fig. N)**— **60c** Rubber hole plug to fill size hole indicated. Net Each. . . . .

**Antenna Specialists Model M-10**—Hole plug to fill 1 1/4" hole. Net Each. . . . . **90c**

**Most Extensions and Coupling Nuts (Fig. O)**—Designed to support load coils in vehicular whip assemblies. Made of 3/8" chrome-plated steel. Each end has 3/8"-24 lock nut and washer. Chrome-plated coupling nut supplied with each unit. Stainless steel types available at slightly higher cost.

A/S Model	Length	Net Each	A/S Model	Length	Net Each
M5-6	6"	\$2.25	M5-24	24"	\$3.69
M5-12	12"	2.91	M5-30	30"	4.05
M5-18	18"	3.30	M5-36	36"	4.55

**Antenna Specialists Model M-54 (Fig. P)**—Allows whips to be removed from spring or base with a quick and simple twist. For use when it is desired to remove whip for storage or for changing whips to different bands. Made of chromium plated brass and has 3/8"-24 male and female threads to fit standard bases, springs and whips. Positive locking. **\$295** Adjustable tension. Net Each. . . . .

**Antenna Specialists Model MA-54**—Top member only of M-54 for use on bottom of whips where whips are changed for different bands. Net Each. . . . . **\$2.26**

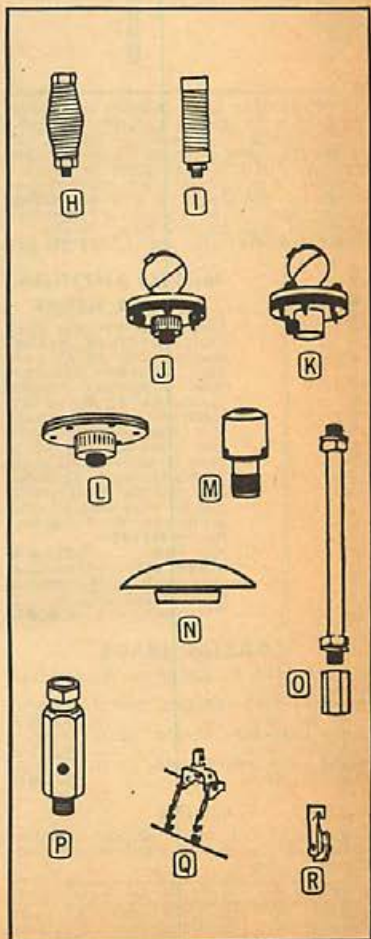
**Antenna Specialists Model ASP-143 Bumper Mount (Fig. Q)**—Double type fits virtually all U.S. and foreign cars. Cadmium-plated alloy steel interlocking "Z" links. **\$795** Takes 3/8"-24 threaded spring or whip. Net Each. . . . .

**Antenna Specialists Model ASP-143S**—Same, but stainless steel. Net Each. . . . . **\$23.76**

**Antenna Specialists Model M-2A**—Same as ASP-143, but single chain. Net. . . . . **5.25**

**Antenna Specialists Model M-2AS**—Same as above, but stainless steel. Net. . . . . **12.60**

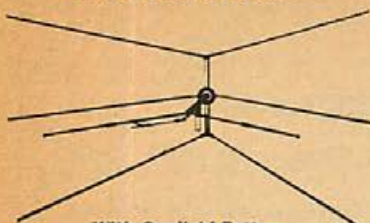
**Antenna Specialists Model M-4 Gutter Clip (Fig. R)**—Holds whip down. Net Each. . . . . **75c**





# NEW-TRONICS Amateur Antennas

## COVEYA-6 6-METER FIXED STATION



With Cardioid Pattern

Ideal beam for round table QSO's. Gain, 10 db over  $\frac{1}{2}$  wave dipole. Front-to-back ratio, 25 db. SWR, 1.1 to 1 at resonance. Band width, 1000 kc with SWR under 2 to 1. Impedance, gamma matched for 52-ohm coax. Center frequency, adjustable for 50 to 54 mc. Power handling capacity, 1 kw. Mounting, mounts on  $1\frac{1}{4}$ " O.D. mast. Weight, 8  $\frac{1}{2}$  lbs.  
Model COV-6—Net Each.....\$39.90

## CLIFF DWELLER

FOR 40 AND 75 METERS  
IN LIMITED ANTENNA  
SPACE. ALSO FOR  
10 METERS



Band switching and antenna resonance finger tip controlled from transmitter location in shack. No traps, no baluns, no matching devices of any kind. Feed direct with any length 52-ohm cable. Feed-point variable to compensate for antenna environment. SWR, 1.1 to 1 or less across entire band. Power handling capacity, maximum legal limit. Weight, 20 lbs.  
Model CD40-75—Net Each...\$129.50

## MOBILE ANTENNA 6 AND 2 METERS

Low SWR permits total band coverage. Sealed loading coil solidly affixed to mast. Stainless steel adjustable tuning tip section. Opens to 44", collapses to 22". Adjustable base mounts in 1" hole. Four-section, heavy duty chrome plated brass tubing assembly. Includes 5 ft. detachable RG-58/U coaxial cable with PL-259 connector. Wt., 1  $\frac{1}{2}$  lbs.  
Model HF-62—Net Each.....\$10.44  
Model HF-2—Antenna only, with  $\frac{3}{8}$ "-24 threaded stud. Weight, 12 oz.  
Net Each.....\$8.64

## COAXIAL LEADS

RG-58/U with PL-259 on one end and lugs on split end.  
Model L-14-60—Length, four ft. Weight, 2 oz. Net Each.....\$2.43  
Model L-14-144—Length, 12 ft. Weight, 5 oz. Net Each.....\$3.12  
Model L-14-240—Length, 20 ft. Weight, 9 oz. Net Each.....\$3.90

## WHIPS

Made of 17-7PH taper ground stainless steel; adapters are heavy cadmium plated. Thread,  $\frac{3}{8}$ "-24.

Model	Lgth.	Net	Model	Lgth.	Net
SW60R	60"	53.27	SW102R	102"	54.23
SW96R	96"	3.93	SW108R	108"	4.50



## MOBILE ANTENNA FOR 10-15-20-40-75 METERS

Buy one mast and select resonators for the bands you operate. Use any length feed line of 52-ohm coax cable. Center frequency tuning by means of adjustable stainless steel tip rod in resonator. The 54-inch fold-over, heat treated,  $\frac{3}{8}$ " aluminum mast has  $\frac{3}{8}$ "-24 base thread. Two sections of the permanently hinged mast are held rigidly in



vertical position. Bottom section of mast triple chrome plated brass.  
SWR is less than 2 to 1 for any center frequency setting within the band.

## POWER RATING 300 WATTS PEP 55B

Model	Description	Total Height of Antenna	Weight	Net Each
MO-1	54" mast folds at 15' fr. base	(Rear deck or fender mt.)	2 lb. 4 oz.	\$ 7.95
MO-2	54" mast folds at 27' fr. base	(Bumper mount)	2 lb. 6 oz.	7.95
RM-10	10 meter resonator	80" max.-75" min.	8 oz.	5.95
RM-15	15 meter resonator	81" max.-76" min.	8 oz.	6.95
RM-20	20 meter resonator	83" max.-78" min.	8 oz.	7.95
RM-40	40 meter resonator	92" max.-87" min.	1 lb.	9.95
RM-75	75 meter resonator	97" max.-91" min.	1 lb. 4 oz.	11.95

## BUMPER MOUNTS



Stainless steel strap fits against any shape bumper. Assembly is held rigid by two  $\frac{3}{8}$ " "J" bolts at the top of the bumper and strap clamp at bottom. Equipped with standard New-Tronics Model C-32 Base. Complete with cadmium plated hardware. Weight, 1 lb. 13 oz.  
Model BM-1—Net Each.....\$6.95  
Model BM-2—Same as Model BM-1 except without base. Weight, 1 lb. 2 oz.  
Net Each.....\$4.85



## BASES AND SPRINGS

Stainless 2" ball, stainless spring. Gray Cycloac insulator.



Model SSM-1—Base, ball and spring. Wt., 2 lbs. 8 oz.  
Net Each...\$12.90

Model SSM-2—Base and ball only. Wt., 1 lb. 4 oz.  
Net Each...\$6.95

Model SSM-3—Spring only. Weight, 1 lb.  
Net Each...\$5.85

Chrome plated  $1\frac{1}{4}$ " die cast ZAMAK ball. Adjustable to 180°. Stainless steel spring. Gray Cycloac insulator and cadmium plated hardware.



Model Description Wt. Net

C-29-32	Ball, spring, insulator, hardware	2 $\frac{1}{4}$ lbs.	\$5.07
C-32	Base only*	14 oz.	2.01
C-29	Spring only*	1 $\frac{3}{4}$ lbs.	3.06
C-30-32	Same as C-29-32, but has chrome plated spring	2 lbs.	4.11
C-30	Chrome plated, oil tempered spring only*	1 $\frac{1}{4}$ lbs.	2.10

\* $\frac{3}{8}$ "-24 thread. †Reg. Borg-Warner TM.

## RESONATOR SPRING



Stainless spring used between resonator and mast of Hustler antenna. Has  $\frac{3}{8}$ "-24 female thread on one end and  $\frac{3}{8}$ "-24 stud on the other. Wt., 6 oz.

Model R55-2—Net Each.....\$3.45

## LoProfile BASE



Has chrome plated split ball. Ball swivels up to 180°. Base has  $\frac{3}{8}$ "-24 female thread. Fits 1" hole. Accepts PL-259 connector. Weight, 8 oz.

Model MM-1—Net...\$3.95

## STANDING WAVE REFLECTOMETER MODEL CM-52

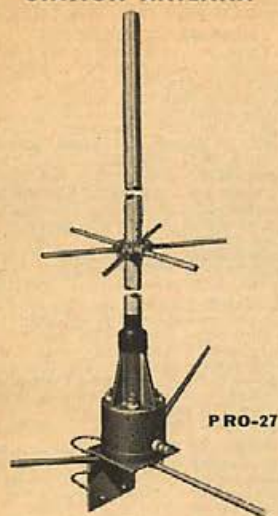


Employs mutual inductance and capacity coupling between linear conductors for continuous measurement of standing waves on transmission lines. For continuous line insertion 25 to 1,000 watts, at frequencies from 3 to 200 mc. Will operate on power input of 10 watts, 7 mc and up. Requires only five watts output, 100 mc and up. Line insertion loss, less than 1 db at 30 mc. Ideal for inserting into coax feed lines at antenna for visual reading in SWR while making antenna adjustments; SWR observed immediately, at all times, without adjustment of Reflectometer. No balancing adjustments, no reversing. Prevents false loading from antenna tuner, match box, pi network, etc. Reduces line reflection, making possible increased radiated power. Uses 0-100  $\mu$ a meter calibrated directly in standing wave ratio and relative power. Each unit hand calibrated and perfectly balanced. Includes loading control and forward to reflected power reversing toggle switch. With 83-1R (80-239) connectors at each end. Gray hammertone aluminum case, 3" w. x 2  $\frac{3}{4}$ " d. x 5  $\frac{1}{4}$ " h. Shipped with key-type mounting on back and full instructions.  
Model CM-52—Net Each.....\$29.95



# NEW-TRONICS CB & H.E.L.P. Antennas

## PRO-27 CB BASE STATION ANTENNA

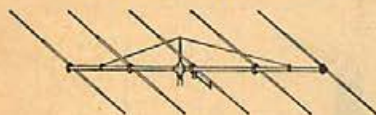


PRO-27

Collinear CB antenna (with .64 wave length) that will outperform all others. Tested under all conditions. Field strength exceeded by no other antenna. Features extremely low angle of radiation, and antenna can be tuned for a low SWR of 1.1:1. Any length of RG-8 or RG-58 coaxial feed line may be used. Mast is 1 1/4" O.D. heat treated seamless aluminum tubing, die-cast aluminum base and steel angle mounting bracket have Iridite finish. Overall height, 19' 8". Length of radials, 9'.

**Model PRO-27—Net. \$32.95**

## CB BEAM ANTENNAS



Ruggedly built from high quality aluminum tubing. Boom, 1 1/4" diameter. Elements have 1/2" center sections with 3/8" tip inserts. Factory pre-tuned gamma for perfect match and efficiency. Resonated on Channel 11. SWR of 1.2 to 1 or less. Has excellent forward gain and front-to-back ratio. Fits on 1 1/4" O.D. mast.

**11M3—Three-element, 9'-4" boom. Wt., 8 lbs. 8 oz. Net Each. \$29.95**

**11M4—Four-element, 14'-1" boom. Wt., 10 lbs. 12 oz. Net Each. \$39.95**

**11M5—Five-element, 18'-10" boom. Wt., 13 lbs. 12 oz. Net Each. \$49.95**

## GUTTER CLIP

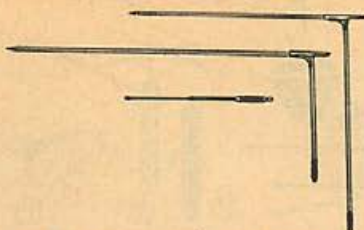


Plastic holder swivels on cadmium plated clamp. Attaches firmly to gutter. Whip is held by plastic and will not rattle.

**Model GC-1—Net Each. \$9.00**

## HUSTLER

### CB MOBILE ANTENNA

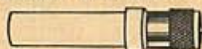


You can communicate over greater distances with outstanding results using this exceptional mobile antenna. No matching devices. Use 52-ohm coax cable. Center frequency tuning by means of adjustable stainless steel tip rod in resonator. Sturdy mast with 11-meter resonator provides exceptional results. Overall height is only 83". SWR is less than 1.5 to 1. Fits in any standard mobile mount.

**Model CB-111—For Rear Deck or Fender. Wt., 1 lb. 8 oz. Net Each. \$13.90**

**Model CB-211—For Bumper Mount. Wt., 1 lb. 8 oz. Net Each. \$13.90**

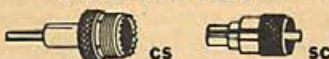
### CB DUMMY ANTENNA LOAD



Non-inductive 52-ohm dummy antenna load has power rating for any CB transceiver. Permits testing and repairing of CB units without radiating a signal or for terminating coaxial line. Weight, 2 oz.

**Model PL-52—Net Each. \$1.49**

### CABLE ADAPTERS



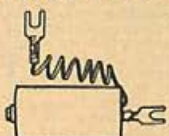
**Model CS—**Permanent connector comprises S3-IR, SO-239 coaxial socket and auto radio type spade plug. One-piece. Net Each. \$1.29

**Model SC—**Rugged, permanent adapter connects auto radio spade plug to coaxial socket S3-IR or SO-239. No floating pins. Net Each. \$1.29

### VOLTAGE REGULATOR FILTER

Eliminates noise created by points of generator control relay in voltage regulator. No tuning or adjusting required. Works on 6-12-24-32-volt systems.

**Model VR-30—Net Each. \$2.95**



### GENERATOR NOISE FILTER

Tunable for 6-, 12- or 24-volt generators. Reduces noise caused by generator brushes. For CB or Amateur. Rated at 30 amps. Wt., 4 oz.

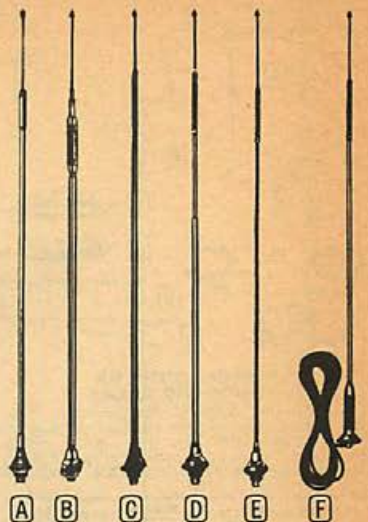
**Model 3-30—Net Each. \$2.95**



### TRANSICHECK

Employs a miniature true coaxial cylindrical unit utilizing mutual inductance and capacity coupling between linear conductors for conducting tests on Citizens' Band transceivers. The unit is for measuring power output and standing wave ratio. It can also be used to tune the transmitter plate circuit and adjust the antenna loading capacitor for maximum output. Wt., 12 oz.

**Model CB-52-T—Net Each. \$19.95**



**A** Fiberglass antenna armored with copper braid and waterproofed with vinyl. Very low SWR. Adjustable stainless steel tip rod provides tuning of resonator. Ht., 51 3/4". Swivel ball base, 60° lead and PL-259 connector. Wt., 14 oz.

**Model FGB-27—Net Each. \$5.97**

**Model FG-27—**Same as FGB-27 except with 3/8"-24 thread. Used with SSM-2, C-32 or MM-1 base. Wt., 5 oz. Net Ea. \$4.77

**B** Four-section mast. Chrome plated, seamless, brass tubing assembly with sealed loading coil. Extends to 60 1/2", collapses to 26 1/2". Swivel ball base. Tunable tip rod adjusts for low SWR on all channels. Includes 5' of RG-58/U cable with PL-259 connector. May be used with ZM-60 or ZM-216 matching harness. Weight, 1 lb. 8 oz.

**Model CB-2—**Same as Model CB-27 except with 3/8"-24 thread. Fits SSM-2, C-32 or MM-1 base. Wt., 12 oz. Net Ea. \$8.64

**C** Triple chrome plated, seamless brass tube mast. Eight ball base adjusts to 30°. Removable resonator has stainless tip rod to provide tuning on all channels. Base accepts PL-259 connector. May be used with ZM-60 or ZM-216 Matcher. Wt., 10 oz.

**Model CBC—**Net Each. \$6.45

**D** Triple chrome, seamless brass tubing assembly with removable resonator and adjustable tip rod for precise tuning. Extends to 52 1/4", collapses to 38 1/4". Swivel ball base accepts PL-259 connector. May be used with ZM-60 or ZM-216 Matcher. Weight, 12 oz.

**Model TC—**Net Each. \$7.45

**E** Fiberglass antenna with removable resonator, armored with copper braid and waterproofed with vinyl. Very low SWR. Stainless steel tip rod provides resonator tuning on all channels. Ht., 41 1/4". Eight ball base accepts PL-259. May be used with ZM-60 or ZM-216 Matcher. Weight, 8 oz.

**Model CBM—**Net Each. \$6.95

**F** Triple chrome plated mast with stainless steel spring on low profile base. For roof top mounting. Removable resonator with tip rod to provide tuning. Only one-piece base available. Includes 15' of RG-58/U cable. Weight, 1 lb. 3 oz.

**Model RT-27—**Net Each. \$9.95

### AM-FM-CB MATCHER



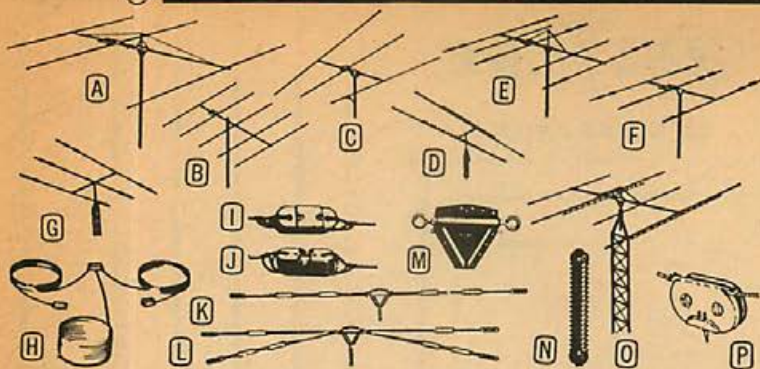
Has approx. 60° each of RG-58/U cable and high impedance auto radio antenna lead. One PL-259 connector attaches to CB transceiver, the other PL-259 to the antenna. Pin plug on auto antenna lead connects to AM or FM receiver. Permits operation of CB/AM/FM on any New-Tronics antenna. Weight, 13 oz.

**Model ZM-60—**Net Each. \$7.95

**Model ZM-216—**Same as ZM-60 except cable and lead are each approx. 216" long. Weight, 1 lb. 8 oz. Net Each. \$9.95



# Hy-Gain HF Amateur Antennas



## "LONG JOHN" DX MONOBAND BEAMS

**A** Optimum spaced, commercial duty beams constructed entirely of aluminum; withstand 125 mph wind. Beta matched for 52-ohm coax; complete with balun. Stainless steel hardware. Rated 5 kW AM, 10 kW PEP.

H-G No.	Band M.	Gain Db	Elements No.	Boom Lgth.	Net Each
106B	10 <sup>1</sup>	14.7	6 18'	36'	\$350.00
155B	15 <sup>1</sup>	13.5	5 25'	36'	390.00
204B	20 <sup>1</sup>	11.7	4 38'	31'	350.00
205B	20 <sup>1</sup>	13.5	5 38'	46'	575.00
206B	20 <sup>1</sup>	15.2	6 38'	64'	790.00
403B	40 <sup>1</sup>	9.5	3 68'	46'	1150.00

Boom OD: 1 3/4", 1 1/2", 1 1/4", 1 1/2". \*Tower type. \*Longest.

## HY-GAIN MONOBAND BEAMS

**B C D** Ruggedly constructed full-size single band beams. Beta matched for 52-ohm coax. All hardware is treated for MIL specs. Rated 1 kW AM, 2 kW PEP. No. 402B uses linear loading for high efficiency at 3/4 normal size.

H-G No.	Band M.	Gain Db	Elements No.	Boom Lgth.	Net Each
103BA	10 <sup>1</sup>	8	3 17'	8'	\$34.95
153B	15 <sup>1</sup>	8	5 23'	12'	39.95
203BA	20 <sup>1</sup>	8	3 35'	16'	69.95
402B	40 <sup>1</sup>	5.2	2 43'	16'	99.75

\*1 1/4" x 1 1/4", 1 x 1 1/4" x 1 1/4", 1 1/2" x 1 1/2" x 1 1/2". Shpg. Wt., lbs.: \*12; \*19; \*35; \*40. \*Illustration.

**HY-GAIN HY-Q TRAP**—Higher Q, lower absorption loss trap designed to provide maximum frequency stability. Encased in solid aluminum housing. Utilize unique air dielectric concept for uncompromising performance under all weather conditions. Built to last a life-time. Used on all models of Hy-Gain Multiband Trap Doublets.

## THUNDERBIRD TRI-BAND BEAMS FOR 10, 15 AND 20 METERS

**E F G** Feature Hy-Q Slim Line Traps for full size performance. Exclusive pretuned Beta match (52-ohm) assures max. gain. Take max. legal power. SWR less than 2:1. Heavy gauge aluminum construction with cable boom brace. Shpg. Wt., Lbs.: 60, 36, 28 and 23 respectively per following table.

H-G No.	Fig.	Gain Db	F/B Db	Boom Lgth.	Net Each
TH8DX	E	9.2	25	6 31'	\$139.95
TH3MK2	F	8	20-25	3 28'	99.75
TH3JR	G	8	20	3 28'	69.95
TH2MK2	...	5.4	15-20	2 28'	69.95

\*Lightweight version of TH3MK2. Max. power: 300 W AM, 500 W PEP. Use TV rotator, #8.7 db on 15 and 20 m. \*No. elements. \*Longest element. \*Boom lg.

## SINGLE-BAND DOUBLETS

**H** Coax-fed antenna kits tuned for high efficiency with low SWR. Kit includes copper-clad stranded steel antenna wire, high impact molded plastic end and center insulators plus 50-ft. RG-58/U coaxial cable.

H-G No.	Freq. M.	Net Each	H-G No.	Freq. M.	Net Each
HD-1*	10 or 15	\$7.95	HD-3†	40	\$8.95
HD-2†	20	7.95	HD-4†	75	9.95

Shpg. Wt., Lbs.: \*1; †1 1/2; ‡2; §3.

**I** Hy-Gain MCI Miniature Center Insulator—Supports 175 lbs.; with clamp for RG-58/U. Shpg. Wt., 1 oz. Net...\$1.50

**J** Hy-Gain MEI Miniature End Insulator—Supports 175 lbs. Shpg. Wt., 2 oz. Net per Pair.....\$6.00

## MULTIBAND TRAP DOUBLETS

**K L** Feature Hy-Q Slim Line Traps for max. frequency stability. Heavy-duty end and center insulators, aluminum clad solid steel wire elements. SWR less than 2:1 at resonance on every band. Install horizontally or as inverted V. Take max. legal power.

H-G No.	Fig.	Frequency, Meters	Lgth. Ft.	Wt. Lbs.	Net Each
2BDQ	...	40, 80	110 1/2	2	\$23.50
3BDQ	K	10, 15, 20	33	3	19.95
4BDQ	...	10, 15, 20, 40	68 1/2	4	29.95
5BDQ	L	Same, +80	111 1/2	5	39.95
248BDQ	...	20, 40, 80	110 1/2	4	26.50

**Hy-Gain 2TDQ Matched Traps**—To construct 40 and 80 m. trap doublet. Shpg. Wt., 2 lbs. Net per Pair.....\$17.95

## TRAPLESS FAN DOUBLET

Provides full efficiency on 40 and 80 m., takes unlimited power. SWR less than 2:1. Mounts horizontally or as inverted V. Overall length, 131 1/2 ft. Shpg. Wt., 2 lbs. **Hy-Gain 2BDP**—Net Each.....\$19.95

**M** Hy-Gain CI Heavy Duty Center Insulator—Lightweight, weatherproof center insulator for horizontal or inverted V installations. Molded from high impact Cycloac\* plastic. Shpg., 4 oz. Net...\$3.95

**N** Hy-Gain EI Heavy Duty End Insulator—High impact Cycloac plastic end insulator heavily serrated to increase leakage path to approx. 12". Shpg., 3 oz. Net per Pair.....\$2.00  
\*Registered Borg-Warner TM.

## 20 AND 40 M. DUOBANDER

**O** Three full-size elements on 20 m., two reduced-size on 40 m. Linear stub decoupling permits two-band operation without inductance and capacity traps. Beta match fed with single 52-ohm coax. Handle 5 kW PEP, 3 kW AM. Forward gain over tuned dipole, 8.1 db on 20 m., 5.2 db on 40 m. F/B, 20-30 db on 20 m., 11-20 db on 40 m. Boom, 24 ft.; longest element, 43 ft. Shpg. Wt., 64 lbs.

**Hy-Gain DB-24**—Net Each...\$169.50

## PORTABLE REEL TAPE DOUBLET

**P** Calibrated stainless steel tape extends to 132 ft. for both receiving and transmitting from 3.5 to 30 Mc. Freq.-to-length chart integrated in housing. Feeds with 52-ohm coax. Install anywhere. Shpg., 3 1/2 lbs. **Hy-Gain 18TD**—Net Each.....\$69.95

## "TOPPER" MOBILE ANTENNAS

**Q** Top loaded, high efficiency single band mobile antennas feature "stabi-fold" mast for low garaging plus unique spring loaded "quick-disconnect" for interchanging whips. Three ft. long mast has 3/4" x 24 stud to fit any standard mount. Shpg. Wt., 1 lb. (TL-40, -75, 1 1/2 lbs.; TM-36, 2 lbs.). Number after TL indicates meters. **Hy-Gain TL-10, TL-15 or TL-20**—Net Each.....\$ 7.95  
**Hy-Gain TL-40**—Net Each.... 9.95  
**Hy-Gain TL-75**—Net Each.... 11.95  
**Hy-Gain TM-36 3' Mast Section**—For all topper whips. Net Each.....\$7.95

## BEAM AND DOUBLET BALUNS

**R** **Hy-Gain BN-12** (10, 15 and 20 m.) or **BN-24** (20 and 40 m.) **Beam Baluns**—Easily mounted on boom of any beam to improve transfer of RF energy and provide more uniform radiation pattern. Minimizes TVI by eliminating stray RF on feedline. Handles up to 2 1/2 kW PEP. Shpg. Wt., 3 lbs. Net Each.....\$13.50

**Hy-Gain BN-48 Doublet Balun**—For single or multiband doublets. Covers 10 thru 80 m.; handles 1 1/2 kW AM, 3 kW PEP. Serves as center insulator and coax cable termination. Ideal for mounting doublets as inverted V. Shpg., 3 lbs. Net...\$15.95

## MULTIBAND VERTICALS

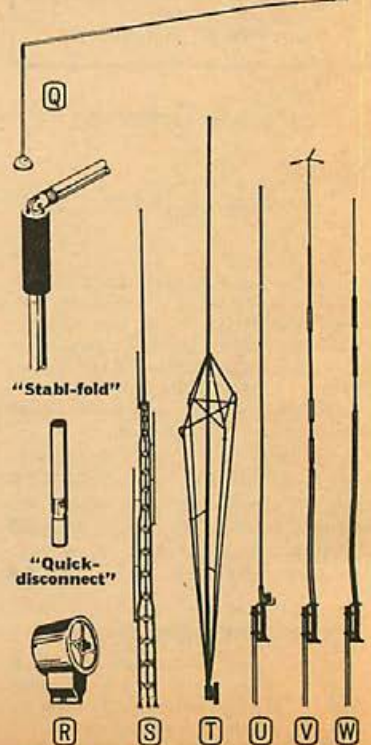
**HY-TOWER—10 THRU 80 METERS**  
**S** Completely self-supporting, high efficiency antenna. SWR below 2:1 on all bands. Unique stub decoupling system for automatic band selection. Max. power, 1 kW AM; 2 kW PEP. For use with 52-ohm coax. Height: Tower, 25 ft.; total antenna, 50 ft. Shpg. Wt., 105 lbs.  
**Hy-Gain 18HT**—Net Each...\$139.50

**HY-TOWER JR.—10 THRU 80 METERS**  
**T** Smaller and lighter all-aluminum version of above. 38" h. Wt., 30 lbs.  
**Hy-Gain 18JR**—Net Each....\$79.95  
**Hy-Gain LC-160 Loading Coil**—Add 160 m. operation to 18HT or 18JR. Shpg. Wt., 2 lbs. Net Each.....\$12.95

**ALL-BAND TRAPLESS VERTICAL**  
**U** Completely self-supporting antenna for 10 thru 80 m. Only 13 ft. high. Tuned to any band by simple adjustment of feed-point on matching base inductor. Feeds with 52-ohm coax. Rugged double grip mast bracket. Roof or ground mount. Shpg. Wt., 10 lbs.  
**Hy-Gain 18V**—Net Each.....\$16.95

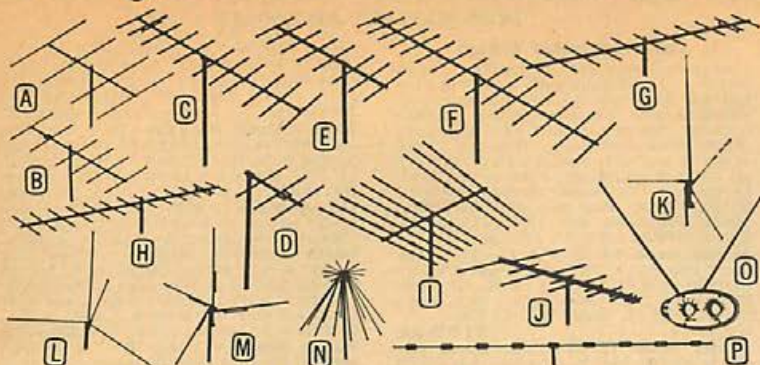
**10 THRU 40 METERS VERTICAL**  
**V** Self-supporting 14AVS improved with added mechanical reliability. Hy-Q frequency-stabilized traps, massive double-grip mast bracket and taper swaged seamless aluminum radiator. Roof or ground mount. Shpg. Wt., 10 lbs.  
**Hy-Gain 14AVQ**—Net Each...\$29.95  
**Hy-Gain LC80Q Loading Coil**—Adds 80 m. operation to 14AVQ. Shpg., 1/2 lb. \$7.95  
**Hy-Gain 14RMQ Roof Mounting Kit**—For 14AVQ. With radial system. Shpg. Wt., 5 lbs. Net Each.....\$11.95

**10 THRU 20 M. TRAP VERTICAL**  
**W** Self-supporting vertical features high performance, Hy-Q frequency-stabilized traps, massive double grip mast bracket, taper swaged seamless aluminum radiator. Pre-tuned Beta match. SWR 2:1 or less. Height, 13.5 ft. Shpg. Wt., 9 lbs.  
**Hy-Gain 12AVQ**—Net Each...\$21.95  
**Hy-Gain 12RMQ Roof Mount Kit**—For 12AVQ. Shpg. Wt., 7 lbs. Net Ea...\$9.50  
**Hy-Gain 6MK 6-Meter Add-On Kit**—Add 6 m. operation to 14AVQ or 12AVQ. Shpg. Wt., 1 lb. Net Each.....\$4.95





# Hy-gain VHF Amateur Antennas



## 6-METER MONOBAND BEAMS

**A B C** Total performance beams feature scientifically staggered, optimum spaced elements plus unique pretuned Beta match for maximum gain. Nominal 50-ohm feedpoint impedance. Coaxial balun assures perfect balance of current to driven element. VSWR 1.5:1 at resonance. F/B ratio, 20-30 db. Top quality seamless aluminum tubing, machine formed heavy gauge brackets, precision molded high impact styron insulators. All steel hardware iridite treated to MIL specs. Max. wind survival, 100 mph. Fig.: \*A, †B, †C.

H-G No.	Gain Db	Elements No.	Longest	Boom Lgth.	Wt., Lbs.	Net Each
63B	10	3	9'10"	8'	7	\$ 16.95
64B†	12.7	4	9'11"	12'	10	21.50
66B†	15	6	9'9"	24'	19	38.50
611B†	19	11	9'8"	47'	94	195.00

## 2-METER MONOBAND BEAMS

**D E F** Similar to above but for 2 meters. Fig.: †D, †E, \*F.

H-G No.	Gain Db	Elements No.	Longest	Boom Lgth.	Wt., Lbs.	Net Each
23F	9	3	3'6"	3'	5	\$ 6.95
28F	14.5	8	3'6"	14'	9	16.50
215*	17.8	15	3'6"	28'	20	33.50

## 11-ELEMENT 1/4 METER BEAM

**G** High Q solid rod optimum spaced elements for maximum gain and F/B ratio. VSWR, 1.2:1. Max. power, 1 kw. Impedance, 450 ohms. Withstands 100 mph winds.

H-G No.	Gain Db	Elements No.	Longest	Boom Lgth.	Wt., Lbs.	Net Each
111	14.2	11	27"	12"	5	\$13.95

## 13-ELEMENT 3/4 METER BEAM

**H** Similar to above but has 13 elements for 3/4 meter band.

H-G No.	Gain Db	Elements No.	Longest	Boom Lgth.	Wt., Lbs.	Net Each
313	16.1	13	13 3/4"	8'	4	\$12.95

## DUO-BANDER FOR 6 AND 2 METERS

**I** Four elements on 6 m., 18 on 2 m. with automatic band switching. Gain, 8 db on 6 m., 15 db on 2 m.; F/B ratio, 15-20 db. SWR below 1.5:1. Feeds with 52-ohm coax. Seamless aluminum boom, hard-drawn aluminum elements, heavy gauge machine formed mast bracket, precision molded high impact polystyrene insulators. Survives winds of 100 mph. Longest element, 10 ft. Boom length, 10 ft. Turning radius, 7 ft. Shpg. Wt., 8 lbs. Hy-Gain DB62—Net Each... \$32.95

## 6- AND 2-METER LOG PERIODIC

**J** Long lasting, trouble-free logarithmic periodic array of center-fed dipoles. Gain, 8 db on 6 m., 15 db on 2 m. with 25 db F/B. SWR below 2:1. Feeds with 52-ohm coax. Longest element, 9 ft. Boom, 24' twin stacked. Shpg. Wt., 23 lbs. Hy-Gain LP-62—Net Each... \$83.50

## COLLINEAR GAIN GROUND PLANES

**K** Omnidirectional gain, 3.4 db. Heavy-duty, all aluminum construction with double-grip mast bracket. Feeds with 52-ohm coax. Solid state matching inductor. SWR below 1.5:1.

Hy-Gain CG66—For 6 m. Shpg. Wt., 9 lbs. Net Each... \$24.95  
Hy-Gain GP62—For 2 m. Shpg. Wt., 4 lbs. Net Each... \$14.95

## STANDARD UNITY GAIN GROUND PLANES

**L** Quarter wavelength ground planes provide efficient, omnidirectional, vertically polarized performance at a very low price. Rugged built for years of trouble-free service. Seamless 1/4" aluminum tubing, heavy gauge machine formed mast and

radial brackets. Feed with 52-ohm coax. Hy-Gain SGP-6—For 6 meters. Shpg. Wt., 7 lbs. Net Each... \$13.95  
Hy-Gain SGP-2—For 2 meters. Shpg. Wt., 3 lbs. Net Each... \$5.90

## 2- AND 6-METER GROUND PLANE

**M** Rugged, unity gain ground plane for 6- and 2-m. Uses parallel decoupling stubs for uncompromising performance. Feeds with 52-ohm coax. SWR below 1.5:1. Max. power, 1 kw. Shpg. Wt., 6 lbs. Hy-Gain GP62—Net Each... \$19.95

## DISCONE (FOR 6- 3/4 METERS)

**N** Vertically polarized, omnidirectional, broad band antenna for 50 thru 500 mc operation. Low angle radiation on all bands without adjustment. Rugged seamless aluminum construction. Iridite treated hardware. Shpg. Wt., 11 lbs. Hy-Gain DS-1A—Net Each... \$39.95

## SHORT WAVE LISTENER ANTENNAS

**O** Hy-Gain SWI Tunable Indoor Telescoping Dipole—Excellent performance for 5 thru 30 mc. Completely wired. Unbreakable plastic case; chrome-plated antennas. With 6 ft. cable. Shpg. Wt., 3 lbs. Net Each... \$14.75

**P** Hy-Gain SWO Outdoor Trap Doublet—Top performance on important 11, 13, 16, 19, 24, 31 and 49 meter bands. Has eight trap assemblies, end insulators and 100-ft. lead-in cable. Length, 40 ft. overall. Shpg. Wt., 4 lbs. Net Each... \$14.75

Hy-Gain SW4 Outdoor Fan Doublet—Copper clad stranded steel antenna wire with molded end and center insulators. For most popular SW bands. Fed with 72-ohm twin lead. Easy to assemble and install. Shpg. Wt., 3 lbs. Net Each... \$3.95

## 6 M. BASE STATION HALO ANTENNAS

**Q** Twin-stacked 6 m. halo array delivers 3.5 db omnidirectional gain through pattern compression and concentration of signal at horizon. Takes 1 kw PEP; 250 w. AM. Hard-drawn seamless aluminum tubing. High mechanical stability. With mast and coaxial phasing harness. Shpg. 27 lbs. Hy-Gain HB6-S2—Net Each... \$36.50

**R** Hy-Gain HB6—Similar, but has single 34" dia. halo. Shpg. Wt., 5 lbs. Net Each... \$12.95

## 2 M. BASE STATION HALO ANTENNAS

**S** Four stacked, center mounted 14' halos. Compress pattern, concentrate signal at horizon for 6.3 db omnidirectional gain. Beta matched for 52-ohm coax. Rugged hard-drawn seamless aluminum construction. Mast, 16 ft. Shpg. Wt., 12 lbs. Hy-Gain HB2-S4—Net Each... \$53.95

**T** Hy-Gain HB2-S2—Similar, but is twin stacked, 3.4 db gain. Mast, 8 ft. Shpg. Wt., 10 lbs. Net Each... \$24.95

**U** Hy-Gain HB2—Similar to HB2-S4 but has single halo. Shpg. Wt., 1 lb. Net Each... \$5.95

## 6-METER DOUBLE RING, CENTER MOUNT MOBILE HALO

**V** Superb performance with maximum reliability. Perfect omnidirectional pattern with max. impedance control. Beta match insures optimum transfer of energy. Tuning rods provide precise frequency adjustment. Rugged hard-drawn seamless aluminum construction with heavy gauge machine-formed mounting hardware. Shpg. Wt., 3 lbs. Hy-Gain HH6BA—Net Each... \$10.95

**W** Hy-Gain HH6BK—Same as above but with HMB4 mast, BPRS bumper mount with stainless steel strap. Shpg. Wt., 6 lbs. Net Each... \$16.50

## 2-METER CENTER MOUNT MOBILE HALO

**X** Similar to HH6BA except for 2-meter operation. Shpg. Wt., 2 lbs. Hy-Gain HH2BA—Net Each... \$5.95  
Hy-Gain HHS2BA—Stacking kit for two 2-m. halos. Offers 3.4 db gain. Shpg. Wt., 3 lbs. Net Each... \$4.95

## TELESCOPING MOBILE MAST FOR HALO INSTALLATIONS

**X** Top quality heavy wall 1" seamless aluminum tubing. Terminates at base with standard 3/4" x 24 stud. Provision at top for mounting 6- or 2-m. halo. May stack two 2-m. halos for 3.4 db gain or a 2-m. and a 6-m. halo for duo-band application. Shpg. Wt., 3 lbs. Hy-Gain HMB4—Net Each... \$5.95

## 6- AND 2-METER MOBILE WHIPS

**Y** Hy-Gain MG-2—Two-meter, 3/4 wave stainless steel whip with hermetically sealed matching inductor. Vertically polarized. Radiator, 52". Feeds with 52-ohm coax that connects internally in unique high impact mount. Roof or deck mount. Rugged miniature spring supplied. Shpg. Wt., 1 1/2 lbs. Net Each... \$15.60

**Z** Hy-Gain MW-2—Two-meter, 1/4 wave stainless steel whip, 20" high. With unique base mount, installs easily from exterior. Mounting hole, 1/4" dia. max. Shpg. Wt., 1 lb. Net Each... \$2.82

Hy-Gain MW6—Six-meter, 1/4 wave taper ground stainless steel whip. Complete with chrome plated single hole body mount. Radiator, 60". Shpg., 2 lbs. Net... \$10.95

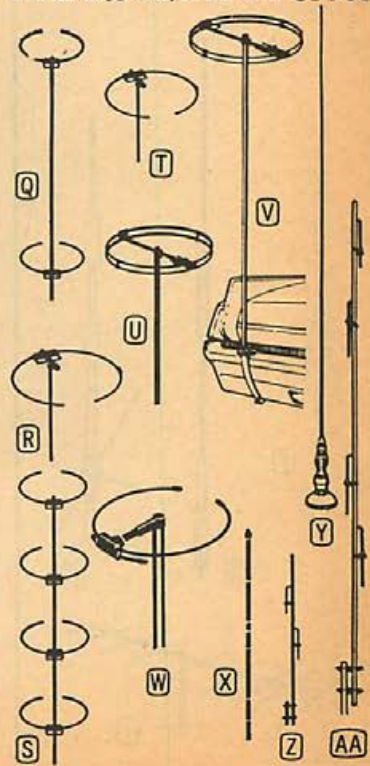
Hy-Gain W60—Same as MW6, less body mount. Fitted with 3/4" x 24 stud. Shpg. Wt., 1 lb. Net Each... \$6.00

Hy-Gain MW62—Same as MG-2 but for both 6 and 2 m. application. Net... \$15.60

## 2 M. VERTICAL STACKED JAYPOLES

All-driven, twin stacked jaypole design, 3.4 db omnidirectional gain. Vertically polarized. Perfect parallel phase relationship. Center fed to minimize beam tilting. Heavy wall aluminum mast. Solid aluminum rod dipoles. Hardware iridite treated to MIL specs. Feeds with 52-ohm coax. Height, 11' overall. Shpg. Wt., 11 lbs. Hy-Gain SJ252—Net Each... \$29.95

Hy-Gain SJ254—Same, with four jaypoles, 6.2 db gain. Height, 21' overall. Shpg. Wt., 21 lbs. Net... \$54.95





# Mosley Amateur Antennas

## "TRAP-MASTER" ANTENNAS

### 10-15-20 METER BEAMS

Exclusive design for outstanding performance and maximum gain. Easily handles full kw AM output. All-aluminum construction with oversize element sections housing resonant circuits of #10 tinned-copper wound on polystyrene coil forms. Weather and dirt-proof design is stable in all weather conditions; reduces windload; assures long life. Double thickness element minimizes sag. Has rust-proof hardware, plastic insulators and 1 1/2" O.D. boom. Easily rotated using TV rotator.

**Mosley Model TA-33 (Fig. A)**—Three-element unit has 8 db forward gain; 25 db front-to-back ratio; 1.1/1 SWR. Max. element lgth., 28 ft.; boom lgth., 14 ft.; turn radius, 15.5 ft. Shpg. Wt., 53 lbs. Net Each. . . . . \$109.99

**Mosley Model TA-32**—Two-element version is convertible to 3 elements; has 5.5 db forward gain; 20 db front-to-back ratio; 1.1/1 SWR. Max. element lgth., 28 ft.; boom length, 7 ft.; turn radius 14.5 ft. Shpg. Wt., 32 lbs. Net Each. . . . . \$76.64

**Mosley Model TA-31 Starter Kit**—Radiator element only of Model TA-33. Net Each. . . . . \$28.49

**Mosley Model TA-36 (Fig. B)**—Six element unit for extra DX. High impedance, parallel resonant "trap circuits" for automatic bandswitching. Built for maximum legal amateur power output. Color coded elements. Net Each. . . . . \$138.72

**Mosley Model TA-31-32 Conversion Kit**—Reflector element, 7 ft. boom and boom-to-mast plate. Converts TA-31 to TA-32. Net Each. . . . . \$46.75

**Mosley Model TA32-33 Conversion Kit**—Provides director element and 7' boom section to make Model TA-32 "Trap-Master" identical to Model TA-33. Conversion is rapid, easy. All materials, and instructions provided. Net Each. \$42.51

**Mosley Model TA-40KR 40-Meter Conversion Kit**—Converts TA-31, 32, 33, 36 and MP-33 (not Jrs.) to 40 meters as a single rotatable dipole. Beam operation on 10, 15 and 20 meters not affected. SWR 1.5:1. Turning Radius: 19' 8". Complete with elements, hardware, mast and guy line. Shpg. Wt., 13 lbs. Net Each. . . . . \$47.01

**Mosley Model TA-32-Jr.**—Junior two-element version handles 300 watts AM. Forward gain 5.5 db; front to back, 20 db. Max. element lgth., 26' 8"; boom, 6' lg.; turn radius, 13' 9". Shipping Weight, 22 lbs. Net Each. . . . . \$54.58

**Mosley Model TA-31-Jr.**—Radiator Element only of Model TA-33-Jr. Net Each. . . . . \$25.04

**Mosley Model TA-31-32-Jr.**—Converts TA-31-Jr. to TA-32-Jr. Net Ea. \$31.87

**Mosley Model TA-32-33-Jr.**—Converts TA-32-Jr. to TA-33-Jr. Net Ea. \$27.69

**Mosley Model TA-33-Jr.**—Junior three-element version handles 300 watts. Forward gain, 8 db; front-to-back, 25 db or better. SWR less than 1.5/1 at resonant frequencies and is flat across full width of each band. Max. element lgth., 26' 8"; boom, 12'; turn radius, 14' 9". Shpg. Wt., 28 lbs. Net Each. . . . . \$76.64

**Mosley Model MP-33 "Tig-Array"**—Handles 750 watts AM and CW, 2000 watts PEP on SSB. Forward gain 8 db, front-to-back 20 db. Max. element lgth., 25 ft.; boom lgth., 12 ft.; turn radius, 15 ft. Net Each. . . . . \$87.12

### MULTIBAND VERTICALS

Top performance in unique, vertically polarized antennas. All-aluminum construction is 100% weather and rust-proof; traps sealed against dirt and corrosion.

**Mosley Model V-5 (Fig. C)**—Single antenna operates 10, 15, 20, 40 and 80 meters on single RG/8U feed. Meets USAF electrical and structural specifications. Handles up to 1 kw to the antenna. No external loading coil needed. For best results, radials of 64 ft. length are required, but not supplied. Complete with polyethylene guy, heavy duty base with internal coaxial fitting, hardware and instructions. Length, 43' 8" max. Net Each. . . . . \$130.66

**Mosley Model V-4-6 (Fig. D)**—Broadband version with automatic bandswitching 10 to 40 meters. Takes full kw with 1/4-wave on each band. No tuning required. Two weatherproof traps, base mount and 3/4" x .058" aluminum element sections. 50' guy rope. Length, 20' max. Weight, 7 lbs. Net Each. . . . . \$29.94

**Mosley Model RV-4 (Fig. H)**—Ground mounting vertical antenna. Max. power

rating 750 W AM, phone; 1000 W CW; 2000 W PEP on SSB. Uses single 52-ohm coax line. For 10-40 meters. Height, 20' 8 3/4" above insulator. Weight, 10 lbs. Net Each. . . . . \$31.94

**Mosley Model RV-4RK**—Roof mounting kit for RV-4. Includes radial wire mast and hinged mounting. Height with roof mtg., 25' 2 3/4" above insulator. Weight, 4 1/2 lbs. Net Each. . . . . \$17.60

**Mosley Model V-4-8**—Two band version for 40 and 80 meters. Husky trap handles 1 kw. Has equivalent to separate 1/4 wavelength vertical on each band. Same base mount as Model V-5. Requires 12 radials 64" long for best performance; not supplied. Complete with mount, polyethylene guy, hardware and instructions. Length, 52' 3" max. Net Each. . . . . \$93.72

**Mosley Model V-3 (Fig. E)**—Three-band vertical for 10, 15 and 20 meters. Rated to a full kilowatt. Automatic bandswitching and low angle radiation. Maintains an electrical quarter wavelength over entire bandwidth. Aluminum trap cover, sealed with polyethylene cap, provides positive weather and dirt protection for coils. Ground system requires only short radials. No tuning or adjustment needed. 6061-T6 aluminum construction. From base to tip, 11' 6". Complete with base mount, guy line, necessary hardware and instructions. Weight: Net, 4 lbs.; Shipping, 8 lbs. Net Each. . . . . \$25.31

**Mosley Model V-3 Jr. (Fig. F)**—Similar to Model V-3, but rated to 300 w., AM. An ideal antenna for hams working low or medium power transmitters. An electrical quarter wavelength covers all three bands, 10, 15 and 20 meters. 6061-T6 aluminum construction, weather-proof traps. All the fine features found in "Trap-Master" design have been incorporated. No tuning or adjusting. Requires only short radials. Overall height, 11' 9". Complete with base mount, guy lines, hardware and instructions. Weight: Net, 2 lbs.; Shipping, 6 lbs. Net Each. . . . . \$19.79

### 10-15-20 METER MOBILE ANTENNA (Fig. G)

**Mosley Model MA-3**—Amateur mobile version of the famous trap design; operates on 10, 15 and 20 meters. Stainless steel whip section. Internally mounted trap is removable if damaged. Standard base stud, 3/8-24 threaded, fits most mounts. Length, 7' 8 1/2". Net Each. . . . . \$23.10

### SCOTCH-MASTER

#### 2 AND 6 METER BEAMS

**Mosley Model A-92-5 (Fig. I)**—Two-meter beam has nine elements. Handles maximum legal power AM or 2000 watts PEP on SSB. Forward gain, 14 db. Front-to-back, 20 db. SWR, 1.5:1 or less at resonant frequencies. Feed, 300 or 75 ohms balanced. Max. element length, 41'. Boom, 12'. Turning radius, 6.5'. Mount vertically or horizontally on masts to 1 1/2". Wt., 4 lbs. Net Each. . . . . \$16.90

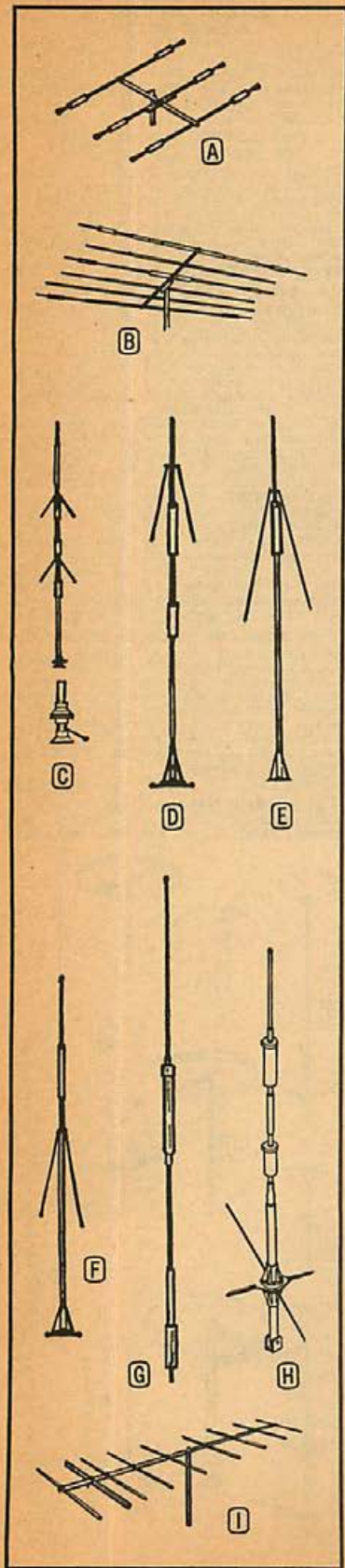
**Mosley Model A-76-S**—Six-meter beam has seven elements. Full legal AM power. Adaptable to TV rotor. Forward gain, 12 db. Front-to-back, 20 db. Feed, gamma matched for 52-ohm unbalanced. Boom, 24'. Turning radius, 13'. Mount vertically or horizontally. Wt., 12.5 lbs. Net \$36.16

**Mosley Model A-56-S**—Six-meter beam has five elements. Full legal power AM. Forward gain, 10 db. Front-to-back, 20 db. Feed, gamma matched for 52 or 75 ohms. SWR, 1.5:1 or less. Max. element length, 118". Boom, 12'. Turning radius, 7' 3 3/4". Wt., 6.5 lbs. Net Each. . . . . \$29.01

**Mosley Model A-92-S-SK1 Stacking Kit**—For stacking two horizontally polarized A-92-S beams one above the other. Feed point impedance, 300 ohms balanced line. Added gain over single beam, 3 db. Complete with matching transformer, insulator, phasing line and instructions. Net. \$3.24

**Mosley Model A-92-S-SK2H Stacking Kit**—For stacking four horizontally polarized A-92-S beams, two over two. Feed point impedance, 75 ohms balanced line. Added gain over single beam, 6 db. With support members, mounting plates, phasing line, insulators, hardware and instructions. Net Each. . . . . \$45.67

**Mosley Model A-92-S-SK2V Stacking Kit**—For stacking four A-92-S beams, two over two, in the vertical plane. Feed point impedance, 75 ohms balanced line. Added gain over single beam, 6 db. Parts same as for A-92-S-SK2H above. Net Ea. \$45.67





# Mosley Amateur Antennas

## "POWER MASTER" SINGLE BAND ANTENNAS (FIG. A)

Full-sized beam designed for a single band; 10, 15 or 20 meter. 100% rust-proof, stainless steel hardware; high impact polystyrene insulators with aluminum elements and boom. Low SWR over entire bandwidth. 8.9 db gain on all bands with an operating capacity well over 1 kilowatt. Fed with 52-ohm coax.

**Mosley Model A-310**—Three-element 10 meter unit has 25 db front-to-back. Max. element length, 18' 7"; boom size, 12' x 1 1/4" O.D. x .058"; turn radius, 11' 1". Weight: Net, 25 lbs.; Shipping, 33 lbs. Net Each. . . . . \$42.60

**Mosley Model A-315**—Three-element 15 meter unit has 25 db front-to-back. Max. element length 23' 4"; boom size 12' x 1 1/4" O.D. x .058"; turn radius, 13' 2". Weight: Net, 26 lbs.; Shipping, 34 lbs. Net Each. . . . . \$48.27

**Mosley Model A-203-C**—(Not Illustrated) Three-element 20-meter unit for DX operation. Forward gain 8 db or better; front-to-back 24 db. Boom length, 24'; max. element length, 37'; turn radius, 22'. Shipping Weight, 49 1/2 lbs. Net Each. . . . . \$117.33

## 6-AND 10-METER MOBILE ANTENNAS

**Mosley Model DI-6 Diplomat**—(Not illus.) For six-meter band. Vertical base station antenna with 3/4 wave. Maximum recommended input is 1000 watts. Net Each. . . . . \$16.34

**Mosley Model DI-10 Diplomat**—(Not illus.) For 10-meters. 3/4 wave vertical base station antenna for 10 meter amateur use. Maximum recommended input is 1000 watts. Net Each. . . . . \$22.76

## TRAP DIPOLES (FIG. C)

**Mosley Model TD-2**—For 40, 75 and 80 meters. Parallel resonant traps automatically select proper electrical length for each frequency. Overall length, 114 ft., 11' for 1/2-wave length dipole pattern. No. 14 Copperweld® wire with center connector; high grade ceramic end insulators 4 1/2" long; "Sr." trap assemblies in 6061-T6 aluminum covers. Handles power up to 1 kw. Weight, 7 lbs. Net Each. . . . . \$41.39

**Mosley Model TD-3-Jr.**—For 10, 15 and 20 meters; 10, 15 and 40 meters by extending outer wire to 53 ft. Overall length 24 ft.; operates at electrical 1/2-wave length on each of the three bands. No. 12 tinned copper wire with glazed porcelain insulators. Handles power up to 300 watts, AM or SSB. Fed with RG-8/U or RG-58/U. Weight, 1 1/2 lbs. Net Each. . . . . \$15.99

**Mosley Model TD-3**—Similar to TD-3-Jr. Extend outer wire to 55' for 40 meters. Overall length 20'. No. 14 Copperweld wire. AM or 2 kW PEP, SSB. Handles 1 kW power. Fed with RG-8/U. Weight, 3 lbs. Net Each. . . . . \$23.67

## SHORT WAVE DIPOLE (FIG. D)

For reception on 11, 13, 16, 19, 25, 31 and 49 meters. Utilizes weatherproof trap assemblies. Resonant over the full width of each of the seven bands. Length: 40 ft. Weight, 2 lbs. Complete with 45 ft. #16 tinned copper wire, eight trap assemblies, transmission line center connector, glazed porcelain insulators, 100 ft. 75 ohm twin lead transmission line.

**Mosley Model SWL-7 SW Dipole Kit**—Net Each. . . . . \$15.79

## AMATEUR DIPOLE (FIG. D)

For reception on 10, 15, 20, 40 and 75/80 meter bands. Resonant half-wave length dipole on each band. Kit includes wire, weatherproof trap assemblies, end insulators, center-connector and 100 ft. of 75 ohm lead-in line. Length: 69 ft. 1 in.

**Mosley Model RD-5 Ham Band Dipole Antenna**—Net Each. . . . . \$17.36

## CITIZENS' BAND ANTENNAS CLASS D

Three elements. Forward gain, 8 db over reference dipole or 10.5 compared to isotropic source. Front-to-back 20 db. Max. element length, 13' 8 3/4". Boom, 12". Impedance point, 52 ohms (gamma matching). Net Each. . . . . \$35.00

**Mosley Model A-411-S Beam (Fig. E)**—Four elements. Forward gain, 8.7 db over reference dipole or 11.2 db compared to isotropic source. Net Each. . . . . \$45.00

**Mosley Model A-511-S Beam**—Five elements. Forward gain, 9.5 db. Front-to-back, 20 db. Max. element length, 18' 8 3/4". Boom, 24". Impedance point, 52 ohms (gamma match). Wt., 16.5 lbs. Net Each. . . . . \$55.00

**Mosley Model Devant "1" (Fig. B)**—Vertical element telescopes into a wrapped phenolic base tube; radials terminate into a Cyclocol® base. Swagged horizontal elements for reduced wind load and vibrations. Gain over standard ground plane, 3.4 db. VSWR, 1.5 or less. Feed point, 52 ohms. Height less than 20'. Fits up to 1 1/4" O.D. masts. Wt., 8 lbs. Net Ea. . . . . \$22.76

**Mosley Model Devant "2" (Fig. H)**—Mobile companion to the Devant "1". SWR less than 1.5/1. Height, 3' 9". Base coil, 1" O.D. x 5 1/4". Stainless steel whip. Comes with 24' of coax, male coax connector and base mount. Weight, 2 lbs. Net Each. . . . . \$14.50

**Mosley Model Devant Special (Fig. G)**—Vertical ground plane base station antenna with Top Hat of 10" radials for extra gain. Gain is 4 db over standard ground plane, 6.5 db compared to isotropic source. Net Each. . . . . \$29.63

**Mosley Model DP-27 Deputy (Fig. I)**—Mobile antenna 43 3/4" lg. Matching accomplished via sinking load or capacity across coax to ground. Net Ea. . . . . \$15.99

**Mosley Model DA-27 Demon (Fig. J)**—CB mobile antenna 17" lg. Matching accomplished through coax to ground capacity. Center loaded. Net Each. . . . . \$11.99

**Mosley Model D-27 Silver Dolphin (Fig. K)**—Marine antenna with over-all height of 8' 5". Features temporary fold-over base. Loaded through salt-resistant weatherproof transformer. Net Each. . . . . \$29.63

**Mosley Model A-311 Deluxe 3-Element Beam (Fig. A)**—Achieves the effect of 40 watts with legal 5-watt input. All 6061-T6 aluminum. Boom 12 ft. long x 1 1/4" O.D. Elements and extensions 3/4" and 5/8" O.D. High impact polystyrene clamping blocks. Turn radius, 9 1/2 ft. Can be turned with heavy-duty TV rotators. Less mast. Net Each. . . . . \$39.75

**Mosley A-311SK**—Stacking kit for two A-311 beams. Increases effective power to equivalent of 63 watts. Connecting transformer and stacking cable included. Net Each. . . . . \$59.65

## DIPOLE LOADING COILS

Holds transmitting or receiving antenna at 1/2 of full-sized dipole (65', 80 meters; 37', 40 meters). One coil for each antenna. Either 52 or 75-ohm fed. Heavy acrylic support bar. No. 12 copper wire, space-wound coils rated to 1 kw.

**Mosley Model 40-D**—Net Each. . . . . \$9.21

**Mosley Model 75/80-D**—Net Each. . . . . 9.21

## ANTENNA ACCESSORIES

**Mosley Model AK-60 Mast Adapter**—Adapts antennas for use with 2" O.D. masts. Net Each. . . . . \$4.88

**Mosley Model DPC-1 Weatherproof Dipole Connector**—Fits RG8/U to 58/U coax line. Net Each. . . . . \$1.52

**Mosley Model MWK "Whip Klip"**—Holds mobile whip securely, attaching to gutter on car roof. Net Each. . . . . \$1.03

**Mosley Model E-101 Antenna Coat**—Applied to elements, boom, hardware, etc., protects all metal surfaces from corrosion. Clear, tough epoxy compound brushes or sprays on easily. Full 1/2-pint covers any beam. Net Each. . . . . \$2.26

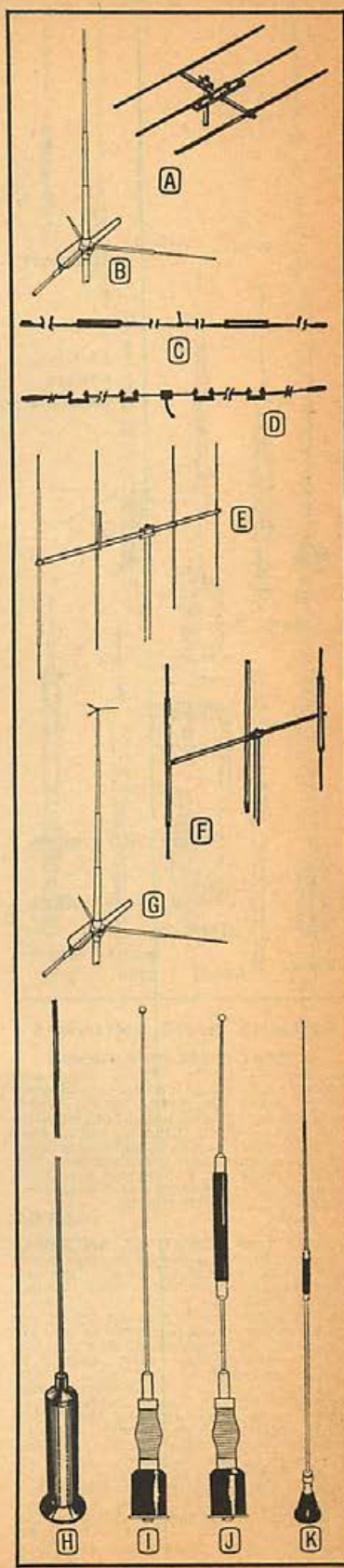
**Mosley Model E-46 Solvent**—For use with E-101 for thinning or cleaning. Net. . . . . 80c

## COAXIAL TERMINATION OUTLETS

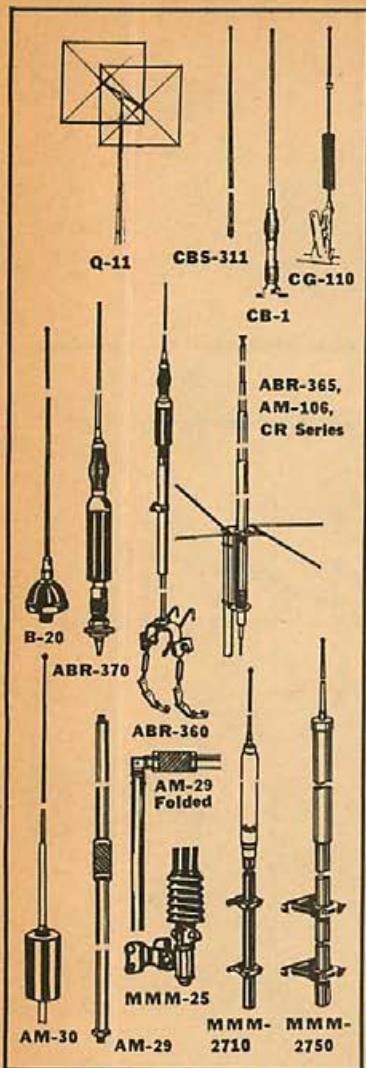
To terminate antenna coax and rotator leads in flush mounting wall outlet. Permit easy disconnection of transmitter and receiver. Ivory plastic only. Supplied with F-9 mtg. bracket and necessary screws except Model 625C. Models CR-4PK, CR-5PK, CR-6PK have rotator plug also.

Mosley Model	Description	Net Each
625C	Direct entrance outlet	\$2.44
C-1PK	One 83-1R connector	2.11
C-2PK	Two 83-1R connectors	3.78
CR-4PK	83-1R & 4-wire rotor socket	3.13
CR-5PK	83-1R & 5-wire rotor socket	3.40
CR-6PK	83-1R & 8-wire rotor socket	3.73

®Trademark: Copperweld of Copperweld Steel Co.; Cyclocol of Borg-Warner.







### CITIZENS' BAND ANTENNAS

#### CUBICAL QUAD CB ANTENNA

**No. Q-11**—Giant in Citizens' Band performance; effectively increases the range of limited power CB. Horizontal or vertical polarization. Forward gain, 8 db; front-to-back, up to 40 db. Rugged, square loop beam of heavy-duty, cadmium-plated steel. Rigid aluminum and fiberglass elements. Light enough for TV rotator use. Easy assembly on tower or ground. Longest element 9' 3"; boom 65½" long. Net Each. . . . . **\$39.95**

**MOBILE "AIR SENTRY" CB ANTENNAS**  
Compact, Fiberglass whips for top performance in CB, Class D, 27 mc auto, aircraft and marine applications. Top loaded. Easy installation.

**No. CB-311**—Factory tuned for 27 mc CB use, money-back performer is only 47" long. Outperforms conventional whips; improves signal-to-noise ratio. Input, 52 ohms. Bandwidth, 1.5 mc min. VSWR, 1.1:1. num. Takes up to 60 watts input. Easy peaking adjustment. Mounts anywhere on car, plane or boat. Omnidirectional radiation. Fits standard mounts. Tunable to exact frequency. Net. . . . . **\$5.25**

**No. CB-1**—Plastic-coated, top-loaded fiberglass whip for CB. Tunable to exact frequency. Mounts anywhere; shorter than conventional ¼-wave whips. With base, spring and replaceable whip. Includes 12 ft. RG-58/U coax cable. Net Each. . . . . **\$10.95**

**No. CB-3**—Whip replacement for CB-1. Net Each. . . . . **\$5.25**

### MOBILE CB ANTENNAS

**No. CB-19**—For 460-465 mc. Hi-gain improved ¼ wave for 2 db gain over ¼-wave roof mounted whip. Stainless steel and chrome-plated brass. Self-tapping threads for use in ¼" hole. Net Each. . . . . **\$5.45**

**No. B-820**—Two-meter roof-top for RG-8/U coax. Net Each. . . . . **\$2.95**

**Spare Whip**—For CB-19. Net Ea. . . . . **3.50**

**No. GP4-65**—For 460-465 mc with four radials and suction cups. Matches 52 ohm cable. Net Each. . . . . **\$8.95**

**No. SB-27**—Citizens' band mobile antenna for 11 meters. Base-loaded, stainless steel whip with an overall height of 40". The bottom of whip is wound in coil which is potted in a pliable plastic to add rigidity. Base fitted with a ¼" dia. brass slug for use with standard broadcast 8-ball type mount; also roof-top or trunk lid mount. Very low standing wave ratio over most of band when fed with 52-ohm cable. Net Each. . . . . **\$12.95**

**No. SB-27**—For curved top mounting such as trunk lids, cowling, etc. Net. . . . . **\$12.95**

**No. CG-110**—Clamp-on antenna for trailer, boat, auto gutter, etc. Coax connector on 40" whip; vinyl-covered loading coil is built in. Net Each. . . . . **\$10.30**

### MOBILE CB GROUND PLANE

**No. 309**—Outperforms any mobile vertical dipole with its ground plane. Four "Drooping" type and four straight radials; straight radials are adjustable. Matches 52-ohm line, for medium or low powered transmission in 460-465 mc range. Net Each. . . . . **\$12.95**

### VHF HIGH GAIN ANTENNAS

**No. E-20**—For 108-170 Mc. Quarter wave stainless steel whip with set screw type adapter for field cutting to frequency. Self-tapping threads, for use in ¼" hole. Net Each. . . . . **\$2.25**

**No. ABR-370**—¾ wave antenna (144-170 Mc) provides 3 db gain for roof-top mounting. Doubles transmitted power while the receiver gain is 4 db. Stainless steel 57" whip with set screw type adapter for field cutting to frequency. Complete with stainless steel spring, whip, plated mount, Cycloact molded matching transformer and 12' RG-58/U. Net Each. . . . . **\$22.95**

**No. ABR-360**—Same features as ABR-370 plus adjustable skirt for tuning. Complete with double chain bumper mount and 12' RG-58/U. Net Each. . . . . **\$32.95**

†Reg. Borg-Warner TM.

### DYNA-MASTER SERIES

#### 1½-WAVE COLLINEAR ANTENNA

Maximum performance for base station antennas from 144 to 174 Mc. Ideal for either business radio or amateur frequencies. Bandwidth is .05 for two to one or less a gain of 5.8 db on transmit, and a receive gain of signal-to-noise ratio of 6 to 20 db and better. SWR is less than 1.5 to 1. Made of heavy polished aluminum tubing 1½", 1", ¾" and ½" in tightly swaged joints. Rugged construction withstands all weather conditions from ice loading to 100 mph wind. A 12" ribbed mast bracket provides self support. Electrical path to ground for lightning protection. Shipping Weight, 4 lbs. Overall length for shipping, 52".

**No. ABR-365**—Complete with cutting chart for full adjustment from 144 to 174 Mc. Net Each. . . . . **\$34.95**

#### ¾-WAVE GROUND PLANE

Power-packed base station antenna with adjustable bandwidth from 50 to 54 Mc. Linear impedance matching insures maximum signal transfer and minimum SWR from antenna to receiver. Up to 20 db signal-to-noise ratio. Lower angle of radiation for increased range of use. On SSB radiated power will be doubled. Equally effective on upper, lower or double sideband. Built-in lightning protector. Completely weathersealed in epoxy. Terminates in SO-239 connector. Power Input: 250 watts, max., AM. VSWR: Less than 1.2:1. Input Impedance: 50 ohms, nominal. Wind Surface Area: 1.21 sq. ft. Wind Load: 48 lbs. at 100 mph. Overall Height: ¾ wave length. Accepts 1½" mast. **No. AM-106**—Net Each. . . . . **\$34.95**

### DYNA-MASTER SERIES (CONT.)

#### COMMERCIAL RADIO ANTENNAS

High gain, omnidirectional antennas specially designed for use in commercial radio frequency range. Linear impedance matching on all channels insures minimum SWR and maximum signal transfer from antenna to receiver. Up to 20 db signal-to-noise improvement. Lower angle of radiation for increased range of use. Heavy aluminum elements with tightly swaged telescoping sections of tubing. Heavy channels support all elements. Omnidirectional Gain: 3.7 db. Maximum Power Input: 250 watts, AM/FM. VSWR: Less than 1.2:1. Input Impedance: 50 ohms, nominal. Lightning Protection: Built-in. Overall Height: ¾ wave. Accepts 1½" mast.

**No. CR-126**—For 26-30 Mc, adjustable. Wind surface area, 1.20 sq. ft. Wind load at 100 mph, 47 lbs. Net Each. . . . . **\$34.95**

**No. CR-133**—For 30-35 Mc, adjustable. Wind surface area, 1.20 sq. ft. Wind load at 100 mph, 47 lbs. Net Each. . . . . **\$34.95**

**No. CR-137**—For 35-40 Mc, adjustable. Wind surface area, 1.00 sq. ft. Wind load at 100 mph, 42 lbs. Net Each. . . . . **\$34.95**

**No. CR-145**—For 40-50 Mc, adjustable. Wind surface area, 0.9 sq. ft. Wind load at 100 mph, 39 lbs. Net Each. . . . . **\$34.95**

#### CIVIL DEFENSE ANTENNAS

**No. 220-1**—For 220-225 mc. Constructed of chrome-plated brass; completely waterproof. Furnished with 10' of 72-ohm coax cable. Type "2" mounts are adjustable to 17". Net Each. . . . . **\$15.95**

**No. 220-2**—Same as above but for top type mounting with threaded base. Net Each. . . . . **\$17.45**

**No. 220-3**—With chrome-plated brass skirt, positive action rubber suction cups for easy mounting. Net Each. . . . . **\$15.95**

Suction cups for 220-3. Net Ea. . . . . **.60**

#### FOLD-OVER TYPE ANTENNAS

10-15-20-40-80 METERS  
Stainless steel laydown extension used with miniaturized coil-whip to handle up to 500 watts AM. One piece coil-whip adjustable to move in and out of resonant frequency. Coil diameter is 2½". Slim locking sleeve holds a rigid vertical position. Folds over easily to clear garage doors, car ports and low overhanging obstructions. The extension terminates in ¾" stud at both ends for added convenience. Completely corrosion resistant and weatherproof. Power Rating: AM DC Input, 250 watts; SSB DC Input, 500 watts.

**No. AM-29**—30" extension, breaks at 18", fender or deck mounting. Net. . . . . **\$11.95**

**No. AM-35**—48" extension, breaks at 36", bumper mounting. Net Each. . . . . **\$14.25**

**No. AM-30**—80-meter coil and whip. Whip, 37"; coil, 9". Net Each. . . . . **\$9.95**

**No. AM-31**—40-meter coil and whip. Whip, 37"; coil, 3½". Net Each. . . . . **\$8.95**

**No. AM-32**—20-meter coil and whip. Whip, 37"; coil, 2". Net Each. . . . . **\$7.95**

**No. AM-33**—15-meter coil and whip. Whip, 37"; coil, 1¾". Net Each. . . . . **\$6.95**

**No. AM-34**—10-meter coil and whip. Whip, 37"; coil, 1". Net Each. . . . . **\$5.95**

**MARINE ANTENNAS, MOUNTS**  
Provides maximum power on all frequencies from 2 to 3 mc. Overall length, 10¾". Plastic coated stainless steel whip; 18" center-loaded coil; 5' base section. Safe from damage by electrolysis. Has rugged insulators, adjustable antenna lead. Whip and coil colors: Yellow, blue or black. Base colors: Gold (salt-water anodized).

**No. MMM-2710**—Antenna complete with solid mounts, 5' base. Net Each. . . . . **\$29.95**

**No. MMM-2715**—Same as above with 10' base. Net Each. . . . . **\$35.95**

**No. MMM-2700**—Antenna, 5' base; less mounts. Net Each. . . . . **\$27.95**

**No. MMM-2705**—Antenna, 10' base; less mounts. Net Each. . . . . **\$33.95**

**No. MMM-10L**—Mount with tiltable base. Net Each. . . . . **\$16.95**

**No. MMM-30**—Mount with adjustable tilt with lock lever on base. Net. . . . . **\$19.95**

**No. MMM-1**—Mounting bracket for 1" mast. Net per Pair . . . . . **\$11.90**

**No. MMM-15**—Mounting bracket for 1½" mast. Net per Pair . . . . . **\$13.50**

**MASTER SUPER MARINE ANTENNA**  
Antenna is 12' anodized 1½" tubing. Coils section, 35" long; 8' Fiberglass whip.

**No. MMM-2750**—With mounts. Net Each. . . . . **\$49.95**

**No. MMM-2750L**—Less mounts. Net Each. . . . . **47.95**

**No. MMM-25**—Master Deluxe Laydown Mount. Mount on side of cabin or on deck; adjustable. Chrome-plated brass, phenolic insulated. Net Each. . . . . **\$19.95**



### BEAM ANTENNAS

#### 3 ELEMENT 11-METER BEAM

Greater strength and performance in the 11-meter band; designed for powers up to 1K watts input. Boom, 1 3/4" dia.; elements, 3/4"; telescoping sections are drawn aluminum tubing. Plated steel channels support elements. Furnished with 3' mast section for attaching to rotator. VSWR, 1:1 with 52-ohm coax. Forward gain (power increase 2 1/2 times), 8 db; attenuation, 20 db front to back ratio. Weight, 11 1/2 lbs.  
**No. SR-500-11**—11-meter citizens' band. Net Each.....\$24.95  
**No. SR-500-2**—2-meter. Net Ea. 10.95  
**No. SR-500-6**—6-meter. Net Ea. 12.95  
**No. SR-500-10**—10-meter. Net... 24.95

#### VHF "CLOVERLEAF" ANTENNA

Lightweight, rugged antenna gives 3 db gain and less than 1.5 to 1 VSWR. Pre-tuned, vertically polarized and omnidirectional.  
**No. AM-23**—420-450 mc. Net... \$12.95  
**No. AM-24**—220-225 mc. Net... 12.95  
**No. AM-25**—144-148 mc. Net... 12.95  
**No. AM-26**—50-54 mc. Net Ea. 12.95  
**No. BR-1**—150-174 mc. Net Ea. 12.95

#### HEAVY-DUTY BUMPER MOUNTS

Tapped for 3/8" stud fitting on antenna end. Shipping weight, 3 lbs. Suffix Code: X—Heavy Duty; XX—Extra Heavy Duty; SS—Special Stainless; XSS—Heavy Duty Stainless; XXSS—Extra Heavy Duty Special Stainless; J—Junior Size.

No.	Description	Net
140		\$ 6.95
140X	Double Tapered Spring	7.95
140J		4.17
140SS		9.85
140XSS	Special Stainless	10.95
140XX	Double Tapered Sp. Extra Heavy Duty	8.95
140XXSS		11.95
142	Less Spring, with Insulators#	3.95
446SS		14.90
446XSS		15.90
446XXSS	Chain Mount	16.90
446		13.45
446L	Dbl. Tapered Spr.; Chain Mount	12.45
446XX		14.45
444	Swvl. Bs., Chain Mt.	17.80
444L	Dbl. Tapered Spr., Swvl. Bs., Chain Mt.	16.70
444SS		20.90
444XX		18.80
444XSS	Swvl. Bs., Chain Mt.	22.90
444XXSS		23.90
445	Threaded 3/8"-24; Chain Mount	7.95

#For direct mounting by Series 100 Antenna or by 92 Extension and 106 Antenna.

#### BODY MOUNTS

Tapped for 3/8" stud fitting on antenna end. Shpg. Wt., 3 lbs. Suffix Code: X—Heavy duty; XX—Extra heavy duty; SS—Special stainless; C—With coax connector; J—Junior size.

No.	Description	Net
232		\$ 8.75
232C	Double Tapered Spring with Swivel Base	8.75
232SS		12.95
232SSC		12.95
132J	Junior Size	4.17
132JC		5.17
232X	Heavy Duty Double Tapered Spring with Swivel Base	9.85
232XC		9.85
232XSS		14.95
232XSSC		14.95
232XX	Extra Heavy Duty Double Tapered Spr. with Swivel Base	10.85
232XXC		10.85
232XXSS		15.95
232XXSSC		15.95
321	Special Rigid Ball, Less Spring	7.95
321C		7.95

#### DELUXE MOBILE MOUNTS

**No. MMW-3AE**—Latest design in universal swivel base. Positive ball-locking with allen-head bolt. Steel, Cycloc and two neoprene washers for watertight mounting without special tools through 3/8"-24 hole. Ebony finish. Net Each.....\$6.95  
**No. MMW-3AES**—As above with stainless steel hardware. Net Each... \$8.95  
**No. MMW-3AP**—Same, but high gloss polish finish. Net Each.....\$7.95  
**No. MMW-3APS**—Polish finish with stainless steel hardware. Net Each... \$9.25  
**No. AD-1**—Roof-top mount with coaxial connector and 12' cable. Net Ea. \$3.95

### UNIVERSAL MOUNTS

#### UNIVERSAL CHAIN MOUNTS

Unique design uses shaped links to fit any surface width. Quick attachment with open-end wrench. Receptacle for spring or whip has phenolic insulators; 3/8"-24 threaded. Single or double chain, stainless or cadmium-plated steel types. U.S. Pat. No. 3,100,124.

No.	Description	Net
MM530	Deluxe double stainless	\$21.95
MM531	Deluxe, single stainless	11.95
MM520	Double, cadmium-plated	7.95
MM519	Single, cadmium-plated	4.95

#### UNIVERSAL BRACKET MOUNTS

**No. MMM-75**—Fits trunk lid, gutter or cowl. Special fiberglass installation adjusts to fit any curved or flat surface. With coax connector. Fits 3/8"-24 threaded antennas. Net Each.....\$7.95  
**No. TM-1**—Angled bracket with swivel mount fits any antenna 3/8"-24 thread. Chrome-plated alloy steel. For trunk lid, gutter or cowl. Net Each.....\$4.45

#### RETRACTABLE GUTTER MOUNT

**No. CG-275**—Precision-built mobile antenna mount permits maximum gain and coverage with car roof antenna. No drilling. Positive lock on antenna. Fits rain gutter and any 3/8"-24 threaded whip mounts in seconds. Aluminum and steel construction. Net Each.....\$7.95

#### MOUNTING ACCESSORIES

##### WHIP HOLD-DOWN CLIP

**No. 20-C Tenna-Clip**—Designed to store mobile whip in storage position; extra finger clip prevents antenna from working loose accidentally. Net Each.....\$1.00

##### MOUNTING SPRINGS

Flexible springs for mobile base or bumper mount. Prevent whip breaks due to sharp impacts. Holds vertical antenna position with normal winds. Tapped 3/8"-24 hole for mast; 3/8"-24 stud for base, MMW types. Tapped 3/8"-24, both ends, 100 type. Prefix Code: MMW—Heavy-duty mobile type. Suffix Code: HC—Heavy cadmium plate; SS—Stainless steel; XX—Extra heavy duty; X—Heavy duty.

No.	Net	No.	Net
MMW-7	\$4.50	100SS	\$6.95
MMW-7HC	5.50	100XSS	7.95
MMW-7SS	8.95	100XX	6.50
100	4.50	100XXSS	8.95
100X	4.50		

#### E-Z-OFF ANTENNA CONNECTOR

Positive lock, noise-free connector. No wrenches, pliers or screwdrivers needed to connect or remove loading coils. Will not corrode.  
**No. E-Z-295**—Net Each.....\$2.95

#### MASTER "TENNAHOLD"

Attaches to rain molding (above door) of car. Holds tip of antenna down; away from low limbs, garage doors, etc. Hard cadmium finish.  
**No. 10H "Tennahold"**—Net Ea. \$1.00

#### MULTI-BAND COILS

**No. 999**—High "Q" unit is tapped for 10, 15 and 20-meter operation. Net...\$14.95  
**No. 55B-156**—Six factory-tuned channels on 40 and 75 meters for large PEP voltage on SSB. Net Each.....\$14.95

#### MIGHTY-MIDGET COIL

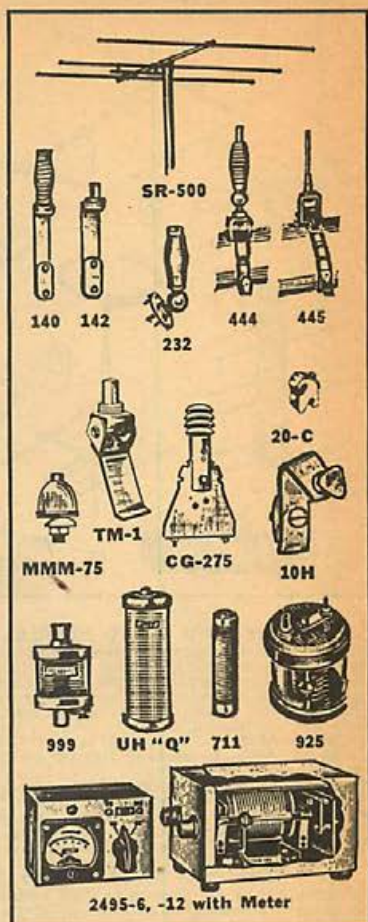
Non-linear, "variable-spaced", engineered to provide highest "Q" consistent with good design. Compact, extremely rugged, lightweight. New silver-plated roller stays put. Perfect for 40, 20, 15, 11, 10 meters.  
**No. 333 Coil**—Net Each.....\$9.95

#### "SLIM-JIM" ALL-BAND COIL

All-band, base-loading coil with whip section adjustable for any band. Whip telescopes into the coil.  
**No. B-1080 Coil**—Net Each... \$17.95

#### MICRO-Z-MATCH

Micrometer impedance matching inductance for mobile antennas. Used on all bands with any type coax cable. Roller coil construction with rear cap rotating inductance within case. 4 µh max. Inductance. With coax adapter kit.  
**No. 925 Micro-Z-Match**—Net Ea. \$9.95



#### DELUXE ULTRA-HI "Q" COILS

Top efficiency for higher "Q" and lighter weight. Spaced to eliminate arcing on high power. Use with 3 ft. base section and 60" whip. C.A.P. types available.

Meters	Net Ea.	Freq., kc	Net Ea.
15	\$ 6.95	2374	\$15.95
20	6.95	2738	15.95
40	8.95	2768	15.95
75/80	9.95	4507.5	10.95
160	14.95	4685	10.95
2251 kc	15.95	4825	10.95

#### ULTRA-HI "Q" COILS

Tried and tested to a "Q" of well over 515; highest sensitivity ever for mobile coils. Deliver more QSO's and greater DX. More than 10 outstanding features; extra rugged, compact, yet lightweight. Size: 3" dia., all ranges; 6 1/2" long, 80" meter unit; 5 1/2" long, 40 meter unit; 3" long, 20 and 15 meter units.  
**Any Band**—Specify 80, 40, 20 or 15 meters. Net Each.....\$5.25

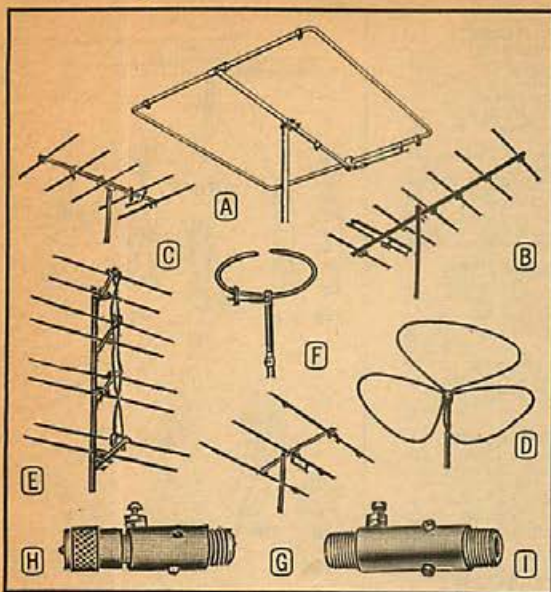
#### MASTER-FLEX-'R

New heavy duty Master-Flex-'R relieves the shock of the whip on all loading coils. Protects the whip and loading coil from injury and detuning while driving at high speed, or from overhanging limbs, or when driving into the garage. Spring steel, cadmium finish. Easy to attach. Size: 4 1/2" long x 3/8" dia. Takes 3/8"-24 thread.  
**No. 711 Master-Flex-'R**—Net Ea. \$1.95

#### THE MASTER-MATCHER

Motor-driven variable reluctance controlled from driver's seat. Built-in field strength meter. Covers 75 and 40 meter bands. Automatic light when roller is at minimum inductance position. Coil in heavy aluminum box.  
**No. 2495-6 (6-volt) or 2495-12 (12-volt)**—Net Each.....\$24.95





### MOBILE AND FIXED "SQUALO" (FIG. A)

Half-wave, horizontally polarized, omnidirectional antenna with full size in compact dimensions. Low Q for broad band coverage and direct 52-ohm Reddi Match feed for ideal net control, monitoring or general ham coverage. Designed for mast or tower mounting. For car-top mounting 6-meter and 2-meter models come with suction cups.

- Model No. ASQ-2—2-meter, 10" square. Net Each. . . . \$8.45
- Model No. ASQ-22—Stacked 2-meter version with 9-ft. mast for bumper mount. Net Each. . . . \$14.95
- Model No. ASQ-6—6-meter, 30" square. Net Each. . . . 12.50
- Model No. ASQ-10—10-meter, 50" square. Net Each. . . . 19.50
- Model No. ASQ-15—15-meter, 65" square. Net Each. . . . 23.50
- Model No. ASQ-20—20-meter, 100" square. Net Each. . . . 29.50
- Model No. ASQ-40—40-meter, 192" square. Net Each. . . . 66.50

### VHF/UHF YAGI BEAMS (FIG. B)

The standard of comparison in VHF communications. Boom, 1" dia. aluminum tubing, preassembled 1/4" dia. elements. Pre-tuned, direct 52- or 72-ohm Reddi Match coaxial feed with average 11 db gain, 7-element; 13 db gain, 11-element. May be ordered for 200- or 300-ohm feed.

- Model A144-11—11-element, 2-meter; 12-ft. boom. Net. . . \$13.95
- Model A144-7—7-element, 2-meter; 98" boom. Net Ea. . . 10.95
- Model A220-11—11-element, 1 1/4-meter; 8 1/2-ft. boom. . . 11.95
- Model A430-11—11-element, 3/4-meter; 57" boom. Net. . . 9.75

### VHF/UHF QUAD STACK ARRAYS (FIG. B)

Extremely high forward gain, large capture area. Complete with four antennas, stacking frames, phrasing bars, Q sections and all hardware. Forward gain 28-element model, -17 db; 44-element, 19 db. Standard Quad 52 ohms; may be ordered for 450, 300 or 200 ohms.

- Model A144-11Q—44-element, 2-meter. Net Each. . . . \$84.50
- Model A144-7Q—28-element, 2-meter. Net Each. . . . 72.50
- Model A220-11Q—44-element, 1 1/4-meter. Net Each. . . . 64.50
- Model A430-11Q—44-element, 3/4-meter. Net Each. . . . 52.50

### 3-, 5-, 6-, 10-ELEMENT 6 METER BEAMS (FIG. C)

Rugged, full size, with proven performance. Aluminum booms, 1 1/4" and 1 1/2" dia.; elements 3/4" with preassembled direct 52- or 72-ohm Reddi Match coaxial feed. Easy assembly with marked parts.

- Model A50-3—3-element; 7.5 db forward gain; 6-ft. boom. Net Each. . . . \$14.95
- Model A50-5—5-element; 9.5 db forward gain; 12-ft. boom. Net Each. . . . \$21.50
- Model A50-6—6-element; 11.5 db forward gain; 20-ft. boom. Net Each. . . . \$32.50
- Model A50-10—10-element, 13 db forward gain, 24-ft. boom. Net Each. . . . \$49.50

### MOBILE AND FIXED VHF/UHF BIG WHEEL (FIG. D)

Horizontally polarized, omnidirectional gain antenna features low-Q, large capture area, ease of matching and improved band width. Single-wheel gain, 5 db over halo; stacked, 8 db.

- Model ABW-144—2-meter; 47" dia.; weight 4 lbs. Net. . . \$10.95
- Model ABW-220—1 1/4-meter; 29" dia.; wt. 3 lbs. Net. . . 9.95
- Model ABW-430—3/4-meter; 17" dia.; wt. 3 lbs. Net. . . . 8.95

### VHF TWIST (NOT ILLUSTRATED)

For satellite tracking, back scatter, moonbounce, combination base to mobile and point-to-point communications. Twenty-element Yagi provides horizontal or vertical, left or right circular polarization by phasing dipoles. Reddi Match for 52-ohm direct feed. Cut to frequency within 135-150 Mc range. Boom 12-ft. long.

- Model No. A144-20T—20-element. Net Each. . . . \$29.50
- Model No. A144-80QT—Four of above antennas stacked in a square arrangement for 80 elements. Net Each. . . . \$186.00

### VHF COLLINEAR ARRAYS (FIG. E)

Lightweight, mechanically balanced VHF antenna systems. Extremely high power gain, major front lobe, low SWR, and broad band coverage; low angle of radiation and large capture area for excellent receiving and transmitting characteristics.

#### 16 ELEMENT ANTENNAS 13.2 DB GAIN

- Model No. CL-116—2 meter, 16-element, collinear. Net. \$16.00
- Model No. CL-216—1 1/4 meter, 16-element, collinear. Net 12.85
- Model No. CL-416—3/4 meter, 16-element, collinear. Net. 9.85
- Model No. CL-MS—Universal matching stub matches 300-ohm 16 element antennas to 450, 200, 52, or 72-ohm feed lines. Net Each. . . . \$4.75

#### 32 ELEMENT ARRAYS 16 DB GAIN

- Order two 16-element antennas and one 32-element kit, complete with all hardware and matching stub.
- Model No. CK-132—32-element, 2 meter stacking kit. Net Each. . . . \$32.50\*
- Model No. CK-232—32-element, 1 1/4 meter stacking kit. Net Each. . . . 32.50\*
- Model No. CK-432—32-element, 3/4 meter stacking kit. Net Each. . . . 19.95\*

#### 64 ELEMENT ARRAYS 20 DB GAIN

- Order four 16-element antennas and one 64-element kit, complete with all hardware and matching stub.
- Model No. CK-164—64-element, 2 meter stacking kit. Net Each. . . . \$69.50\*
- Model No. CK-264—64-element, 1 1/4 meter stacking kit. Net Each. . . . 59.50\*
- Model No. CK-464—64-element, 3/4 meter stacking kit. Net Each. . . . 28.95\*

### VHF MOBILE HALOS (FIG. F)

Aluminum construction; machined hardware; Reddi Match for 52-ohm direct feed, 2 meter, 144 to 148 Mc, 14" dia.; 6-meter, 48 to 56 Mc, 26" dia. Dual halo two bands one 52-ohm feed line, no switching, tuning, or traps, complete with mast.

- Model No. AM-2—2 meter, without mast. Net Each. . . \$4.95
- Model No. AM-2M—2 meter, with mast. Net Each. . . 8.70
- Model No. AM-22—2 meter, stacked. Complete, incl. mast. Net Each. . . . \$14.95
- Model No. AM-6—6 meter, without mast. Net Each. . . 8.75
- Model No. AM-6M—6 meter, with mast. Net Each. . . 12.50
- Model No. AM-26—Dual halo 2 and 6 meter, with mast. Net Each. . . . 17.45

### FULL SIZE SINGLE BAND BEAMS (FIG. G)

Lightweight, rust proof aluminum construction. Factory pretuned and adjusted, direct 52-ohm Reddi Match feed for 1:1 SWR, average 8.5 db gain, will handle maximum legal power.

- Model No. A28-3—3-element, 10 meter, boom 10'. Net. \$28.50
- Model No. A28-4—4-element, 10 meter, boom 18'. Net. 42.50
- Model No. A21-3—3-element, 15 meter, boom 12'. Net. 32.50
- Model No. A21-4—4-element, 15 meter, boom 21 1/2'. Net. 59.50
- Model No. A14-2—2-element, 20 meter, boom 10'. Net. . . 45.00
- Model No. A14-3—3-element, 20 meter, boom 20 3/4'. Net. 77.50

### "BLITZ BUG" LIGHTNING ARRESTERS

The only coaxial cable lightning arrester designed to eliminate heavy static charge build-up to protect valuable radio equipment; in many cases eliminates noise problems; fits any standard coaxial cable. Power handling capacity 1 kW fully modulated. Will not affect SWR or performance to 500 Mc. It will not create insertion loss. U.S. Patent No. 2,922,913.

- Model No. LAC-1 (Fig. H)—One male, one female type 83 connectors. Net Each. . . . \$3.95
- Model No. LAC-2 (Fig. I)—Double female type 83 connectors. Net Each. . . . \$4.45
- Model No. LAC-2N (Fig. I)—Double female type N connectors. Net Each. . . . \$5.95

### STACKING KITS FOR CUSH-CRAFT ANTENNAS

Stacking doubles effective radiated power, provides 3 db gain over single beam, low radiation angle and greater capture area. Complete with cable and hardware.

Model No.	For Antenna No.	For	Net Each
A11-SK	A144-11	2-bay	\$ 4.95
A17-SK	A144-7	2-bay	4.95
A21-SK	A220-11	2-bay	4.95
A41-SK	A430-11	2-bay	4.95
A53-SK	A50-3	2-bay	4.95
A55-SK	A50-5	2-bay	4.95
A56-SK	A50-6	2-bay	4.95
A51-SK	A50-10	2-bay	6.95
ABW-125	ABW-144	2-bay	3.95
ABW-145	ABW-144	4-bay	11.75
ABW-225	ABW-220	2-bay	3.95
ABW-245	ABW-220	4-bay	11.75
ABW-425	ABW-430	2-bay	3.95
ABW-445	ABW-430	4-bay	11.75
ASQ-65K	ASQ-6	2-bay	4.95
ASQ-105K	ASQ-10	2-bay	4.95
ASQ-155K	ASQ-15	2-bay	5.95
ASQ-205K*	ASQ-20	2-bay	16.50
ASQ-405K*	ASQ-40	2-bay	27.50

\*RG-11/U cable supplied.

Model No. VPK Polarization Kit—Provides vertical polarization for dual stacked UHF/VHF Yagis. Includes horizontal support boom, coaxial phasing harness, mast bracket and hardware. To order, add suffix VPK to antenna number (e.g., A144-11-VPK) and add to Net. . . . \$9.50

Note: All Cush-Craft VHF/UHF Yagis and collinear arrays are designed for either horizontal or vertical polarization. Most types listed are available cut to frequency, on order, for commercial services. Add \$7.50 to net prices for cutting.



# telrex Ham Antennas, Rotators

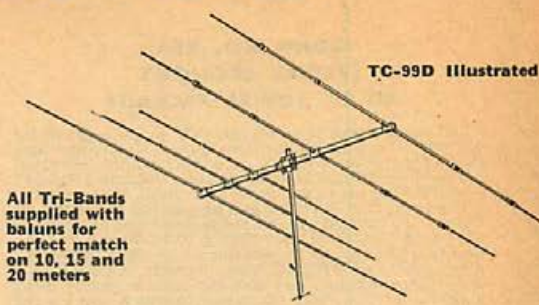
## TRI-BAND® SINGLE TRANSMISSION-LINE 3-BAND ARRAYS

Designed for the perfectionist, full size arrays provide unidirectional radiation pattern on 3 bands using a single transmission line. Calibrated, tuned and matched for easy on-site assembly without any adjustments required. Out-perform and out-last any so-called tri-bander on the market. Employs a 2" or 3" O.D. dural boom, heavy-duty element supports, heavy-duty boom coupler, all stainless steel element clamps and fasteners and heavy-duty steel gusset plate mounting. Elements are taper swaged and assembled through boom with sturdy bolt design and reinforcing sections. "Tri-Band" dipole is "hairpin" impedance matched. Utilizes high efficiency, high voltage, fixed-tuned trap circuitry.

**Telrex Model TM-30C Tri-Band**—Front-to-back ratio 28 db, gain 10 db on 10, 15 and 20 meters, 6 element structure in which 3 elements work on 20M, 3 on 15M and 4 on 10M. Beamwidth 59 degrees or better on 10, 15 and 20M. Rating 3 kW PEP; special "traps" tested at 38,000 volts and 30 amps at 30 Mc; VSWR 1.3:1 at resonance. Turning radius, 28'; boom length, 26'; boom dia., 3"; longest element length, 36'. Shpg. Wt., 114 lbs., Net Ea. **\$378.00**

**Telrex Model TC-88D Tri-Band**—Four-element version with 2 elements working on 20M, 2 on 15M and 2 on 10M. Has 8 ft. boom (2" O.D.). Gain, 5.5 db. Front-to-back ratio, 14 db. Shipping Weight, 46 lbs. Net Ea. **\$149.00**

**Telrex Model TC-99D Tri-Band**—Consists of 5 optimum spaced elements (3 working on 20M, 3 on 15M and 3 on 10M) on 18 ft.



TC-99D Illustrated

All Tri-Bands supplied with baluns for perfect match on 10, 15 and 20 meters

boom for 2" O.D. mast mounting. Gain, 8.5 db average per band. Max. power input 2 kW PEP. VSWR 1.3:1 at resonance. Turn radius, 22 ft. Shipping Weight, 60 lbs. Net Each. **\$249.00**

## DUO-BAND® SINGLE TRANSMISSION-LINE 2-BAND ARRAYS

Similar to Tri-Band models but for two-band use. Laboratory tuned, matched and calibrated to assure proper, exact assembly and perfect match. Recommended supporting mast O.D., 2". Supplied complete with balun.

Telrex No.	Working Elements Per Band	Gain db	F/B Ratio	Boom L. x Dia.	Turning Radius	Net Wt.	Shpg. Wt.	Net Each
DC-105	3 on 10M; 3 on 15M	8.5	24 db	12' x 2"	13 1/4'	41 lbs.	56 lbs.	\$225.00
DB-99D	3 on 15M; 3 on 20M	8.5	28 db	18' x 2"	22'	49 lbs.	60 lbs.	249.00
DB-30C	3 on 15M; 3 on 20M	10.0	28 db	26' x 3"	28'	85 lbs.	114 lbs.	378.00

## BROAD-BAND BALUNS

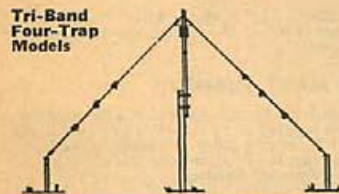
Highly efficient, broad-band type baluns for matching 52-ohm unbalanced input to 52-ohm unbalanced output. Frequency range, 3.5 to 30 Mc unless otherwise indicated.

Telrex No.	PEP Rating	Net Each
1K81B	1 kW	\$17.95
2K81B	2 kW	21.95
4K81B	4 kW	29.95
2K81B*	2 kW	29.95

\*Frequency range, 1.7 to 14 Mc.

## BALUN-FED INVERTED "V" ANTENNA KITS

Tri-Band Four-Trip Models



High performance, balun-fed inverted "V" antennas. Extremely easy to install. Will out-perform any ground plane or other vertical antenna system when properly installed; also will compete favorably with a full-size horizontal doublet at 1/2-wavelength above ground. Although apex height and base line vary with each band, a 36-ft. apex and 90-ft. base line (see illustration) is suitable for most purposes. Tri-Band models have four traps, four-band models six traps, and five-band models eight traps. Supplied complete with balun, traps, wire, insulators, and easy installation and adjustment instructions.

Telrex Model	PEP Rating	Frequency Range, 10 thru 80 Meters*	Net Each
Mono-Band	1 kW	Any single band	\$ 21.95
Mono-Band	2 kW	Any single band	26.95
Duo-Band	1 kW	Any two-band combination	38.00
Duo-Band	2 kW	Any two-band combination	49.95
Tri-Band	1 kW	Any three-band combination	48.00
Tri-Band	2 kW	Any three-band combination	65.00
Four-Band	1 kW	Any four-band combination	64.00
Four-Band	2 kW	Any four-band combination	87.00
Five-Band	1 kW	Ten, 15, 20, 40 and 80-meter bands	80.00
Five-Band	2 kW	Ten, 15, 20, 40 and 80-meter bands	115.00

\*Specify band or bands desired when ordering.

## SINGLE-BAND COMMERCIAL-GRADE ANTENNA ARRAYS

Commercial grade arrays for all amateur bands at amateur prices; superior in performance, design and construction to any other antenna. Precision-tuned, matched and calibrated to provide highest signal-to-interference and signal-to-noise ratio possible. Equipped with famous Telrex "Balun" match for balanced pattern and minimum TVI and BCI. A heavy-duty gusset-plate mounting is supplied for easy attachment to your mast. Rugged, lightweight aluminum construction with stainless steel nuts, bolts and element clamps. Each element is taper-swaged, affording a 55% reduction in silhouette and wind drag.

Telrex Number	Meter Band	Elements No. Space*	Gain db	F/B Ratio db	Boom L. x Dia.	Turning Radius	Mast Dia.†	Net Wt. Lbs.	Shp. Wt. Lbs.	Net Each
430M-1511	34	20 W	16.5	24	9' x 1 1/2"	5'	1.5"	3	7	\$ 39.00
220M-54	1 1/4	5 O	12.8	24	4' x 1 1/2"	2' 2"	1.5"	1	2	14.00
220M-1520	1 1/4	15 O	17.2	24	20' x 1.5"	11' 6"	1.5"	10	12	39.00
2M-5C	2	5 M	12.4	23	5' x 3/4"	3' 6"	1.5"	1 1/2	2 1/2	14.00
2M-609	2	6 O	14.6	23	9' x 1 1/2"	5' 6"	1.5"	3	5	23.00
2M-814	2	8 O	16.5	23	14' x 1 1/2"	7'	1.5"	5	8	39.00
2M-1528	2	15 O	17.2	23	28' x 1.5"	14'	2.0"	15	18	65.00
6M-309	6	3 O	10.0	23	8' x 1.5"	4' 6"	1.5"	5	7	23.00
6M-516	6	5 O	13.0	24	16' x 1.5"	9' 6"	1.5"	11	17	39.00
6M-524	6	5 O	15.0	24	24' x 1.5"	12' 6"	2.0"	17	25	69.00
6M-1136	6	11 W	17.8	24	36' x 2"	19' 6"	2.0"	42	53	135.00
6M-1147	6	11 O	19.0	24	47' x 3"	24' 6"	2.0"	82	90	225.00
6MSR-1147	6	11 O	18.7	24	47' x 3"	24' 6"	2.0"	82	90	225.00
10M-309B	10	3 M	8.5	24	9' x 1.5"	11'	2.0"	12	13	49.00
10M-310B	10	3 W	8.5	24	10' x 2"	10' 8"	2.0"	21	27	79.00
10M-313B	10	3 O	10.0	24	14' x 2"	12'	2.0"	21	28	125.00
15M-312B	15	3 M	8.5	24	12' x 2"	13' 6"	2.0"	32	45	125.00
15M-317B	15	3 O	10.0	24	17' x 2.5"	14' 6"	2.0"	37	48	159.00
20M-317B	20	3 M	8.5	28	17' x 2.5"	22'	2.0"	48	70	159.00
20M-321B	20	3 W	9.5	28	21' x 3"	23'	2.0"	58	80	195.00
20M-326B	20	3 O	10.0	28	26' x 3"	24'	2.0"	71	85	235.00

\*Element spacing: W, wide spaced; O, optimum; M, medium. †Recommended supporting mast O.D. ‡Spiralray® model with skewed dipoles. §"Super-Deluxe" Mono-Band array.

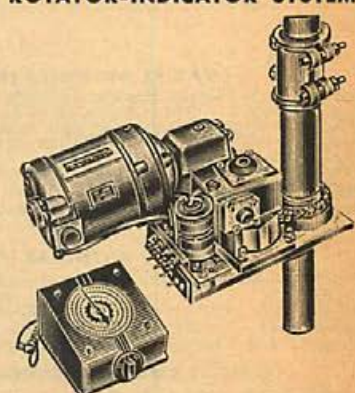
TELREX "BEAMED POWER" ARRAYS ARE AVAILABLE FROM 3/4-METER TO 40-METER, PRICED FROM \$14.00 TO \$999.99, F.O.B. ASBURY PARK, N. J.

## 12-CONDUCTOR CONTROL CABLE

Color-coded control cable consisting of three #12, four #14 and five #18, PVC insulated; carbon-activated polyethylene jacket. Can be buried underground.

**Telrex 12-Conductor Control Cable**—Length, 150 ft. Net Each. **\$ 94.00**  
Length, 250 ft. Net Each. **157.00**  
Length, 500 ft. Net Each. **315.00**

## MODEL TS250-RIS ROTATOR-INDICATOR SYSTEM



Sturdily built rotator designed to outlast and outperform any other beam rotator in its class. Features feed-thru chain drive of masting thru rotator; provides easier and safer antenna installation and maintenance. Rugged, self-locking, worm gears designed to hold and rotate beams in winds up to 110 mph. Automatic limit of rotation controls 1200 in.-lb. rotation torque. Output speed is 1.5 rpm. Designed for 2" O.D. masting; fits into or onto 6" sided tower. Control console aluminum housing is tri-colored azimuth rose with direct and reciprocal readings; has azimuth indications by selsyns. With malleable-cast masting clamp and protective canvas covers for motor and selsyns. Requires 12-conductor motor control cable. Shpg. Wt., 120 lbs. **Telrex Model TS250-RIS—Net Each. \$250.00**

**Telrex Model BT295-RIS Rotator-Indicator System**—Same as Model TS250-RIS, but motor and selsyns are in weather-proof metal housing. Net Ea. **\$295.00**

OTHER ROTATOR-INDICATOR UNITS AVAILABLE ON SPECIAL ORDER



# Towers and Antennas

## ROHN TOWERS, MASTS

### ROHN NO. RE4 SPECIAL ECONOMY 40 FT. TOWER PACKAGE

This special tower provides full 40 ft. height suitable for TV reception and similar uses. One complete package, ready for instant erection, at a truly economical price. All sections utilize the famous Rohn "Magic Triangle" construction, an exclusive wrap-around design that is proved superior. Sections and accessories are fully hot-dipped galvanized after fabrication. Tower includes 8 1/2" x 10 ft. top section; 8 1/2" x 10 ft. second section; two 10 1/2" x 10 ft. bottom sections; base plate; set of 2 ft. drive rods; one EB625G house bracket. An additional bottom section may be added for extra height by using a section of Rohn No. 6G tower, in which case guying must be used.

**Rohn Model RE4 Tower**—Complete package. **\$59.95**  
Wt., 120 lbs. Net Each.

**Rohn Model RE3 Tower**—Same, less drive rods and base plate. Wt., 106 lbs. Net Each. **\$55.35**

**Rohn Model RE2 Tower**—30 ft. tower same as Model RE4 but less 4SG section. Wt., 93 lbs. Net. **\$50.95**

**Rohn Model RE1 Tower**—RE2, less drive rods and base plate. Wt., 79 lbs. Net Each. **\$46.50**

### PARTS AND ACCESSORIES

Rohn Model	Description	Wt., Lbs.	Net Each
4AG	Top sec. 8 1/2" x 10 ft.	26	\$13.95
4TG	Mid. sec. 8 1/2" x 10 ft. w/taper	26	13.35
4SG	Mid. sec. 10 1/2" x 10 ft. straight	27	13.35
4BG	Bottom sec. 10 1/2" x 10 ft. w/taper	27	13.95
BP6G	Base plate	10	5.65
DR6G	Drive rods 2 ft. long	4	3.25
EB625G	Universal cave bracket	7	3.50
RPG-PT	Rotator post	2	1.57
DT6	Drive tool	1	2.85
SB6G	Short base sec. 3' 3" long	10	7.10
BPC-6G	Steel plate for concrete	20	15.65

### ROHN TELESCOPING MASTS

Improved design for highest quality; available in 20, 30, 40 and 50 ft. lengths. Equipped with special clamp and guy ring arrangement. Clamps support each section as it is pushed up; will not slip. When mast is fully extended, clamp tightens with "L" bolt for permanent hold; heavy-duty cotter pin for additional support. Guy rings at top of crimped area of each section except bottom one; bottom section has die-flanged area supporting lower guy ring so mast may be guyed before other sections are hoisted. Flanged inner tubing and crimped exterior for firmer, steadier support. Only heavy-duty, hot-dipped galvanized steel tubing is used; thoroughly protected from corrosion. All tubing is at least 18 gauge; galvanized after fabrication. All masts are fully assembled.



Rohn Model	Description	O.D. †	Wt., Lbs.	Net. ‡
TM-20	15 ga., 20 ft. mast	1 1/4"	18	\$ 6.53
TM-30	15 ga., 30 ft. mast	1 3/4"	30	10.05
TM-40	15 ga., 40 ft. mast	2"	46	14.10
TM-50	15 ga., 50 ft. mast	2 1/4"	62	19.65
ETMD-20	17 ga., 20 ft. mast	1 1/2"	16	5.85
ETMD-30	17 ga., 30 ft. mast	1 3/4"	25	9.07
ETMD-40	17 ga., 40 ft. mast	2"	36	12.67
ETMD-50	17 ga., 50 ft. mast	2 1/4"	50	17.10
MTE-20	17 ga., 20 ft. mast	1 1/2"	15	5.18
MTE-30	17 ga., 30 ft. mast	1 3/4"	24	8.47
MTE-40	17 ga., 40 ft. mast	2"	34	11.55
MTE-50	17 ga., 50 ft. mast	2 1/4"	48	15.68
STM-20	18 ga., 20 ft. mast	1 1/2"	13	4.95
STM-30	18 ga., 30 ft. mast	1 3/4"	22	7.80
STM-40	18 ga., 40 ft. mast	2"	30	10.80
STM-50	18 ga., 50 ft. mast	2 1/4"	41	14.55

\*All sections are 17 gauge, except 1 1/4" section, which is 15 gauge. †Bottom section; top section 1 1/4" O.D. for all masts. ‡Larger quantities available on request.

### ROHN MAST TUBING

High-carbon steel, hot-dipped galvanized interior and exterior after fabrication. Available in lengths to 10 ft.; 16, 18 or 20 gauge; expanded end with companion locking joint or swaged (tapered) end to fit regular joint. Pregalvanized or Rhonokote finish optional. Complete Information and Prices on Request.

## KRECO ANTENNAS

### COAXIAL ANTENNAS (FIG. A)

Vertical coaxial radiator machined entirely of aluminum matching 52 ohm cables. Antenna threaded to fit on standard 3/4" pipe. Feedline is enclosed inside the pipe mast (not swaged). This antenna provides good low angle radiation which gives a most effective coverage.

**Model CO-2A**—Two-meter band. Net Each. **\$15.00**  
**Model CO-6A**—Six-meter band. Net Each. **\$24.00**  
**Model CO-10A**—Ten-meter band. Net Each. **\$30.00**  
**Model CO-CBA**—Citizens' band. Net Each. **\$33.00**

### COPLANE ANTENNAS (FIG. B)

Vertical two-element array provides three db gain over the coaxial models.

**Model CP-2A**—Two-meter band. Net Each. **\$24.00**  
**Model CP-6A**—Six-meter band. Net Each. **\$48.00**  
**Model CP-10A**—Ten-meter band. Net Each. **\$70.00**

### STACKED COAXIAL ANTENNA (FIG. C)

Vertical four-element array which provides six db gain over the coaxial models.

**Model SC-2A**—Two-meter band. Net Each. **\$36.00**

### GROUND-PLANE ANTENNAS (FIG. D)

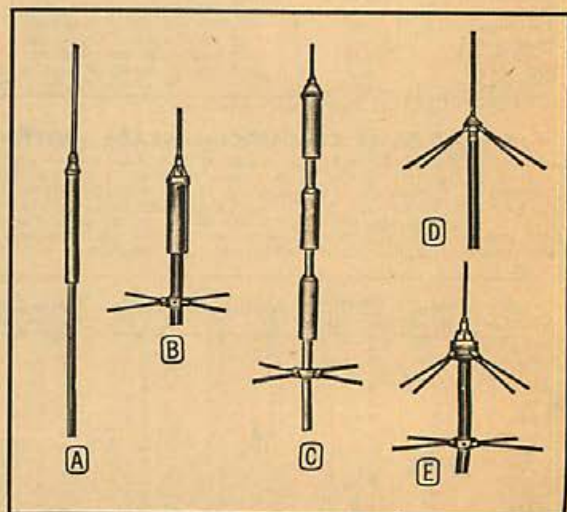
Vertical polarized antenna machined entirely of aluminum matching 52 ohm cables. Ground-plane radials reduce coupling to support pipe thus prevent the pipe from acting as a long vertical radiator which produces high angle radiation.

**Model GP-2A**—Two-meter band. Net Each. **\$15.00**  
**Model GP-6A**—Six-meter band. Net Each. **\$36.00**  
**Model GP-10A**—Ten-meter band. Net Each. **\$42.00**

### DUO GROUND-PLANE ANTENNAS (FIG. E)

Extra ground-plane section to provide lower radiation pattern and further decoupling from the pipe mast.

**Model DGP-2A**—Two-meter band. Net Each. **\$24.00**



**Model DGP-6A**—Six-meter band. Net Each. **\$54.00**  
**Model DGP-10A**—Ten-meter band. Net Each. **\$72.00**  
 Also available—All brass models and cut to exact frequency models for all 2-way radio systems.

**WE CAN SUPPLY ALL ANTENNA ACCESSORY REQUIREMENTS FOR CITIZENS' BAND AND AMATEUR NEEDS. FOR THE LATEST DESIGNS, CONSULT OUR EXPERTS—OR, WRITE FOR FULL INFORMATION**





# Ham Antenna Towers

## "HZN" AND "HZRN" TOWERS CRANK-UP EXTRA LARGE DELUXE



HZN

All HZN towers are engineered to support the heaviest and largest multiple arrays of 10, 15, and 20 meter "Ham" beams. Self-supporting when installed with Tri-Ex accessory Tripod base mount. The HZ-237N and -354N are also self-supporting when using Models TBC-37N or TBC-54N special base mounts. May be motorized for rotation or lifting and lowering. Meets or exceeds EIA and UBC building standards. Complete with crank and base. Engineering data on request.

Tri-Ex Model	Ht.	Wt., Lbs.	Net Each
HZ-237N	37'	430	\$ 624.80
HZ-354N	54'	750	859.60
HZ-471N	71'	1050	1220.00
HZ-588N	88'	1635	1732.40
TBC-37N (Base)	.....	53	38.50
TBC-54N (Base)	.....	55	39.95
TRP-3 Tripod Support	.....	100	100.00

### MODEL "HZRN"

Redesigned for smooth, frictionless rotating, lowering and raising; meets or exceeds EIA and UBC standards. Deluxe version of HZN, needs no guying; has sealed worm-drive 40:1 raising winch. Can be motorized for full remote control. Complete with rotating base, 2 roller chain sprockets, drive chain, crank and 3 concrete anchor rods and braces. Engineering data on request.

Tri-Ex Model	Height	Weight, Lbs.	Net Each
HZR-237N	37'	695	\$1074.80
HZR-354N	54'	1020	1317.05
HZR-471N	71'	1395	1677.45

## EXTRA LARGE CRANK-UP "H" AND "HS" SERIES

### MODEL "H"

Designed and engineered to support large multiple arrays of 10, 15, and 20 meter "Ham" beams, when properly guyed. Model "H" has 1 1/2" and Model "HS" has 1 3/4" cross section diameter on top section. Large enough to accommodate most prop pitch and other rotor motors inside top section. Raising winch includes ratchet for easy cranking up during installation. Provision also provided for padlocking winch for safety.

Tri-Ex Model	Height	Weight, Lbs.	Net Each
H-237	37'	150	\$159.10
H-354	54'	250	232.85
H-471	71'	365	352.00

### MODEL "HS"

Model "HS" has heavy duty large worm gear drive, winch, with 40:1 gear reduction ratio, for maximum ease in raising tower with the largest heavy arrays of "Ham" beams. Full engineering data and calculations are available on request.

Tri-Ex Model	Height	Weight, Lbs.	Net Each
HS-237	37'	200	\$199.00
HS-354	54'	305	279.60
HS-471	71'	440	406.00
HS-588	88'	620	626.71
HS-6105	105'	870	810.00



HS

### ACCESSORIES FOR H, HS, HZN AND HZRN TOWERS

Model	Description	Net Ea.
BMP-61	Winch raising and lowering kit, less motor	\$ 48.50
H-8	Work platform (for all but HZN and HZRN)	32.50
H-8HD	Extra large work platform	107.90
TRP-3	Tripod (eliminates guys) for HZ, HZN or SX	154.20
TBC-37N	Hinged base for HZ-237N, for concrete mtg.	100.00
TBC-54N	Same, for HZ-354N	38.50
TBC-54N	Same, for HZ-354N	39.95
TB-2	Self-aligning flange thrust bearing for mast	17.50
MC-75	BMP-61 kit with 3/4 hp motor for manual control	161.00
RLRH-75	Remote control, 3/4 hp, raising, lowering and rotating kit for HZRN towers; 400-lb. load	1004.80
RLH-75	Remote control 3/4 hp raising and lowering kit for HZN, HZRN, old HZ or old HZR towers	598.75

### TRI-EX 1 X 19 GALVANIZED AIRCRAFT CABLE FOR GUYING

Size	Strength	Net (100 ft.)	Size	Strength	Net (100 ft.)
1/4"	2100 lbs.	\$4.62	3/8"	4700 lbs.	\$ 7.61
5/16"	3300 lbs.	5.96	1/2"	8200 lbs.	11.67

All Tri-Ex Towers Listed Feature Iron-Phosphate Rust-Proof Undercoating, Epoxy Resin Primer and Baked Enamel Finish Coat.

## 10 SERIES TOWERS

Heavy wall tubular sleeves welded to upright members to prevent collapsing tube when tightening bolt. High strength 3/4" galvanized steel bolts used throughout. Top of uprights sleeved with heavy-wall steel inserts. No trained workmen required: Only one or two man-roof or any flat surface. Ten full feet of tower height per section—not nine feet 8 inches when end of tubing is swaged. All failures due to tearing of tubing at joint is eliminated with exclusive Tri-Ex method using heavy steel sleeves and inserts.

Tri-Ex Model	Description	Wt., Lbs.	Net Each
14A2	10' top section for 2" mast	35	\$26.61
14B	10' standard section	36	24.61
14C	5' concrete base mount	18	11.42
14D	Adjustable roof mount	15	19.85
14E	14' erection fixture	18	23.14
14F	Flat steel base mount	8	10.00
H11	Adapter for 2" O.D. (specify I.D.)	.....	4.60

## TOWER ACCESSORIES



H1



H8

Model	Description	Net Ea.
AD-50	2" x 5' mast extension	\$ 9.90
AD-100	2" x 10' mast extension	19.80
AD-200	2" x 20' mast extension	39.60
H-1	Adj. wall bracket for 1-7 sections	16.30
H-2	Adj. wall bracket for 8-10 sections	18.40
H-8	Tower platform (all but HZN & HZRN)	32.45
H-11	2" O.D. adapter; specify I.D.	4.60

## GUYING ACCESSORIES

Model	Description	Net Ea.
EA-4	6" w. x 48" l. screw anchor	\$ 4.35
EA-6	6" w. x 66" l. screw anchor	9.05
EA-8	8" w. x 66" l. screw anchor	14.95
H-15	Triangle guy plate with bolts	5.00
H-16	3/4" x 7" (closed x 10 1/2" open) turnbuckle for 1000 lb. max. load	.60
MA-180	3/8" malleable cable clamp	.15
MA-316	1/2" malleable cable clamp	.16
MA-140	3/8" malleable cable clamp	.18
TH-140	3/8" galvanized guy cable thimble	.11
TH-140	1/2" galvanized guy cable thimble	.12

## CRANK-UP TELESCOPING TOWERS

Die formed guides used to insure minimum friction. Designed and built to prevent binding in raising or lowering of tower. Safety stops constructed of 1 1/2" x 3/4" steel; relieves tension on cable. Ball bearing aircraft control type pulleys. Removable crank for safety. Heavy-gauge steel base plate is hinged to facilitate mounting on slanted or straight surface.

### TOWERS WITH 20-FT. SECTIONS

Tri-Ex Model	Tower Height		Weight, Lbs.	Net Each
	Extended	Collapsed		
T-588	88 ft.	21 ft.	280	\$266.65
T-471	71 ft.	20' 8"	210	197.00
T-354	54 ft.	20' 5"	155	148.40
T-237	37 ft.	20' 3"	100	102.40
T-120	20 ft.	20 ft.	40	36.60

### TOWERS WITH 10-FT. SECTIONS

T-761	61 ft.	11' 9"	280	\$348.35
T-652	52 ft.	11' 4"	215	259.50
T-545	45 ft.	11 ft.	165	190.00
T-436	36 ft.	10' 9"	125	140.35
T-327	27 ft.	10' 6"	90	104.50
T-218	18 ft.	10' 3"	60	72.96

### HEAVY-DUTY MODELS—20-FT. SECTIONS

THD-7122	122 ft.	22' 4"	515	\$466.50
THD-6105	105 ft.	21' 10"	460	406.65
THD-588	88 ft.	21' 4"	360	336.85
THD-471	71 ft.	20' 10"	265	258.73
THD-354	54 ft.	20' 6"	210	191.80
THD-237	37 ft.	20' 3"	135	127.90

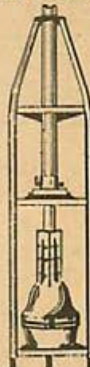
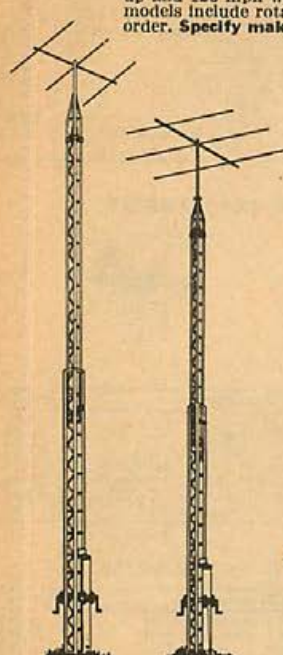
Standard equipment with T towers include base plate and pin, safety stops and crank. Extensions are extra.



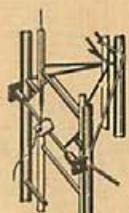
- Crank up and down.
- Tilt-over.
- No guys.

- 55,000 psi steel.
- Hot dipped galvanized.
- Electric arc welded.

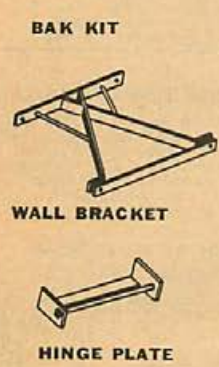
E-Z Way designs have been tried and proven through years of field testing and service. Incorporating all the desirable features and using only the finest material to make these quality towers a ham's dream. Two men can install most E-Z Way towers in a couple of hours. Structurally sound construction throughout features 55,000 psi steel, electrically arc welded, and choice of two finishes, hot dipped galvanized or dipped in Goodyear Pliolite S5 aluminum paint. Both finishes are applied after tower fabrication. Built-in versatility allows operator to crank tower up or down and tilt over for E-Z access to beam or rotor. When tower is cranked up, it is locked at desired height with safety rest. This also relieves all strain from cables. Available in two different mounting kits: BAK type for building attach or GP type for Ground Post mounting. The "Wonder Ground Post" requires only one square ft. of area. No concrete needed. E-Z Way towers will withstand 60-70 mph winds cranked up and 125 mph winds lowered. When recommended antenna load is used, no guy wires are necessary. Most models include rotator head which accepts CDR rotators without modification. Other rotators require special order. Specify make and model of rotator when ordering.



ROTOR HEAD

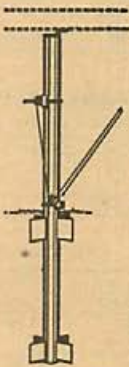


SAFETY REST

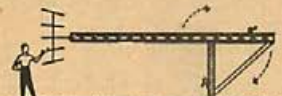


WALL BRACKET

HINGE PLATE



GROUND POST



TILT OVER

RBX-60-3

NO CONCRETE REQUIRED BELOW GRADE

**MODEL HD-40**  
Low cost E-Z quality tower. Maximum tower height, 38 ft.; minimum height, 21 ft. Supports light beams, ground planes and quads in 60 mph winds when cranked up, 125 mph cranked down. No guys. Rotator mounts above tower. Mounting stub and heavy wall galvanized steel 1.32" O.D. mast supplied. Two 20 ft. sections, top section #7, bottom section #9.  
**Model HD-40P—\$11200** Painted, Net Each.  
**Model HD-40G—\$15150** Galvanized, Net Each.  
**Model GPK-D40—\$5650** Ground Post mounting kit with hardware, Net Each.  
**Model BAK-D—\$750** Wall bracket mounting kit, Net Each.

**MODEL RBS-40**  
Standard duty tower. Maximum tower height, 41 ft.; minimum height, 24 ft. Supports triband beams or equivalent at 41 ft. in 60 mph winds cranked up, 125 mph cranked down. No guys. Accepts CDR rotators inside rotator head. Steel 1.60" O.D. x 7 ft. mast supplied. Two 21 ft. sections, top section #9, bottom section #12, plus rotator head.  
**Model RBS-40P—\$19050** Painted, Net Each.  
**Model RBS-40G—\$23550** Galvanized, Net Each.  
**Model GPK-S40—\$8450** Ground Post mounting kit with hardware, Net Each.  
**Model BAK-S40—\$1200** Wall bracket mounting kit, Net Each.

**MODEL RBX-40**  
Heavy duty tower. Maximum height, 41 ft.; minimum height, 25 ft. Supports 4-el. 20 m. full or 9-el. triband at 41 ft. in 90 mph winds. No guys. Stack 3-el. 15 m. and 3-el. 20 m. at 40 ft. in winds to 60 mph. Rotator mounts inside head. Two 21 ft. sections, top section #12, bottom section #15 plus rotator head.  
**Model RBX-40P—\$27550** Painted, Net Each.  
**Model RBX-40G—\$33200** Galvanized, Net Each.  
**Model GPK-X40—\$17150** Ground Post mounting kit with hardware, Net Each.  
**Model BAK-X40—\$1900** Wall bracket mounting kit, Net Each.

**MODEL RBS-50**  
Standard duty tower. Maximum height, 51 ft.; minimum height, 30 ft. Supports a 3-el triband at 51 ft. in winds up to 60 mph. No guys. Rotator mounts inside. Two 26 ft. sections, top section #9, bottom section #12 plus rotator head.  
**Model RBS-50P—\$25250** Painted, Net Each.  
**Model RBS-50G—\$30900** Galvanized, Net Each.  
**Model GPK-S50—\$12900** Ground Post mounting kit with hardware, Net Each.  
**Model BAK-S50—\$1200** Wall bracket mounting kit, Net Each.

**MODEL 6046**  
Ideal three-section tower for VHF. Maximum tower height, 55 ft.; antenna height 60 ft. Tower cranks down to 22 ft. Will support a two or six m. beam at 60 ft. No guys. Top section #7, center section #9, and bottom section #12. Converts to a Model RBS-40 easily if triband or 20 m. operation is desired.  
**Model BA-6046P—\$22450** Building-Attach, painted, Net Each.  
**Model BA-6046G—\$29200** Building-Attach, galvanized, Net Each.  
**Model GP-6046P—\$29700** Ground Post mounting, painted, Net Each.  
**Model GP-6046G—\$36450** Ground Post mounting, galvanized, Net Each.

**MODEL RBX-60-3**  
Super construction. Favorite of hams around the world. Designed to put your beam where you want it. Maximum tower height, 58 ft.; minimum height, 25 ft. Supports triband beams or equivalent at 60 ft. in winds up to 60 mph; 140 mph cranked down. No guys. CDR rotators fit in rotator head. Seven feet of galvanized steel mast 1.90" O.D. included. Three 21 ft. sections, top section #9, center section #12, and bottom section #15 plus rotator head.  
**Model RBX-60-3P—\$39400** Painted, Net Each.  
**Model RBX-60-3G—\$46150** Galvanized, Net Each.  
**Model GPK-X60-3—\$13500** Ground Post mounting kit with hardware, Net Each.  
**Model BAK-X—\$1900** Wall bracket mounting kit, Net Each.

**MODEL TORBX-70-3**  
Similar to Model RBX-60-3 but with 71 ft. max. and 30 ft. min. height. Tilt-over post, two heavy duty winches, cable and hardware included. Three 26 ft. sect., #9 top sect. (plus rotator head), #12 center sect. and #15 bottom sect.  
**Model TORBX-70-3P—\$73650** Painted, Net Each.  
**Model TORBX-70-3G—\$87150** Galvanized, Net Each.

**MODEL TORBZ-66-3G**  
Sheer brute strength with plenty to spare. Maximum tower height, 62 ft.; minimum height, 25 ft. Stacked arrays at 6 ft. in 70 mph winds. No guys. Rotator head accepts CDR rotators without modification. Complete with tilt over post, two heavy duty winches, cable and hardware. Mast of 2" O.D. additional. Three sections, top section 21 ft. #12, center section 21 ft. #15, and bottom section 26 ft. #20 plus rotator head.  
**Model TORBZ-66-3P—\$109850** Painted, Net Each.  
**Model TORBZ-66-3G—\$125950** Galvanized, Net Each.

### FINISHES

All E-Z Way towers are finished in a choice of dip paint Goodyear Pliolite S5 or hot dipped galvanized after fabrication. This method permits a permanent finish to coat inside of tower members as well as outside. Galvanizing in accordance with American Society of Testing Materials, Designation A-123.

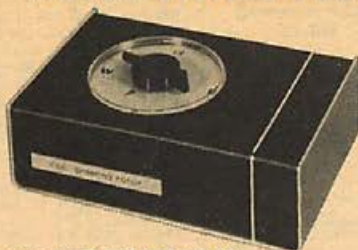
E-Z Way towers are available at greater height and greater strength. FREIGHT PREPAID ANYWHERE IN 48 STATES—USA



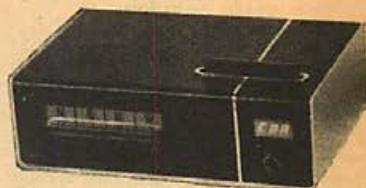
CDR antenna rotor systems include a rugged and precise rotor, combined with a highly sensitive and accurate control unit for optimum performance. Rotors feature a bell shaped, weatherproof housing of heavy reinforced die cast aluminum for environmental protection. Withstands heavy loads and severe weather conditions

with ease. All models are in-line, symmetrical design with heavy spur and pinion gears; heavy duty,  $6\frac{1}{2}$ " dia. ball thrust bearing. For mast or tower mounting, with no adapter required. Standard units are for 110 volt operation; 220 volt units available at slightly higher prices.

## ROTOR SYSTEMS FOR HOME ENTERTAINMENT USE



Controls AR-22R and AR-10



Controls TR-2C and TR-10

### AUTOMATIC ROTOR AR-22R

Modern, low-silhouette styling with time tested circuit. Beautiful black vinyl (over steel), the control blends in with all TV and Hi-Fi styles. Simple dial setting automatically positions antenna in  $6^\circ$  increments. Synchronized for dependable performance with reset switch built into control base. High power motor and positive magnetic brake; precision gear train. Strong, reversible clamps for masts from  $\frac{3}{8}$ " to 2.0" O.D. Suitable for mast, tower or platform mounts. Starting torque 525 in.-lbs. Handles up to 150-lb. antennas. Instantly reversible,  $360^\circ$  rotation in 45 seconds. Used with 4-wire cable. For 110-120 VAC, 60 cps operation. Weight, 15 lbs. **\$33<sup>50</sup>**

CDR No. AR-22R—Net Each

### MANUAL ROTOR TR-2C

Manual antenna rotor version of AR-22R has bell rotor with an attractive, compact (only  $6\frac{1}{4}$ " x  $4\frac{1}{4}$ " x  $2\frac{3}{4}$ " control box designed by Raymond Loewy/William Snaith Inc. The control unit features a patterned black vinyl-clad steel case, trimmed in silver, with lighted indicator panel. Provides precise antenna direction with a touch of the control bar; illuminated compass points monitor position of antenna. Red light indicates end of rotation, for added safety. Heavy duty rotor features in-line, weatherproof construction, with built-in  $6\frac{1}{2}$ " ball thrust bearing; high rotational torque. Uses 8-wire cable; takes masts up to 2.0" O.D. For 110-120 VAC, 60 cps operation. Weight, 15 lbs. **\$29<sup>95</sup>**

CDR No. TR-2C—Net Each

### ANTENNA ROTOR TR-4A

Same as TR-2C except furnished with modern design "meter control" cabinet instead of illuminated letters. **\$29<sup>95</sup>**

CDR No. TR-4A—Net Each

### AUTOMATIC ROTOR AR-10

Most economical automatic rotor system features an advanced rotor design. Rotor has built-in, solid steel antenna mast to install directly to the antenna; saves time and cost. Strong, corrosion resistant, die-cast rotor comes with built-in guy lugs and clamps. High torque motor (100 in.-lbs.) and mechanical brake (700 in.-lbs.) insure turning and holding power. Automatic control gives 45-second rotation in  $6^\circ$  increments over full  $360^\circ$  circle. Ideal for single-stack, directional antennas without cross-bracing. Takes masts up to  $1\frac{1}{2}$ " O.D.; uses 4-wire cable. For 110-120 VAC, 60 cps operation. Weight, 10 lbs. **\$26<sup>95</sup>**

CDR No. AR-10—Net Each

### MANUAL ROTOR TR-10

Same as automatic rotor AR-10, but with manual control. Sensitive touch-bar control for instant response in either direction; compass-point indicator light. Uses 8-wire cable (or two 4-wire cables). For 110-120 VAC, 60 cps operation. Weight, 10 lbs. **\$22<sup>50</sup>**

CDR No. TR-10—Net Each



ROTOR  
AR-22R, TR-2C and TR-4A

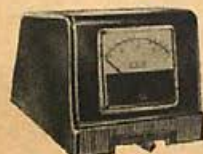


ROTOR  
AR-10 and TR-10

## HAM TYPE ANTENNA ROTORS

Ham type rotors feature an accurate control unit for precise calibration; position of antenna indicated by meter reading. Provides for rotation through complete  $360^\circ$  range.

### ANTENNA ROTOR TR-44



Intermediate version of Model HAM-M; specially designed for intermediate loads; Large VHF arrays and small HF combination antennas. Assures support and rotation for antennas too large for conventional TV type rotors. Forty-eight ball bearing movement provides increased rotational torque; smooth, noiseless operation; no electrical pulse noise. Features electrical power cut-off before reaching mechanical end of rotation. Precise direction indicator in modern cabinet. For 110 v. AC operation. **\$64<sup>95</sup>**

CDR No. TR-44—Net Each



### HAM-M ANTENNA ROTOR

Designed specifically for amateur antennas. Will reliably support and rotate large TV arrays. Supports 1000 lbs. dead weight. Positive brake locks rotor in position, withstands up to 3500 in.-lbs. of torque from wind pressure. Accepts mast sizes up to  $2\frac{1}{2}$ " O.D. Electrical

power is cut before reaching mechanical end of rotation. Illuminated, 1 milliamperer meter indicates direction without rotating antenna. Heavy-duty motor, brake and indicator operated at less than 24 volts with compensated circuit for component tolerance. Features include improved mast clamps for top-of-tower mounting; stainless steel gears, pinions and mounting hardware insure long life and prevent corrosion. System is complete and ready for installation. **\$119<sup>50</sup>**

CDR No. HAM-M Rotor—Net Ea...





# South River Antenna Mounts

## BANTAM TOWER ROOF MOUNT

Preassembled mount is self-supporting even during installation. Adjustable feet fit peak or flat roofs. No guys, hooks, clamps or turnbuckles required. Galvanized steel tubing construction. Takes up to 1 1/2" O.D. mast.

**Model BT-5**—Makes 7 ft. installation with 5 ft. mast. Net Each. **\$450**

**Model BT-10**—Makes 13 ft. installation with 10 ft. mast. Net Each. **\$645**

## WALL BRACKETS

These brackets have special serrated "U" bolts that accommodate masts up to 1 1/2" O.D. without slipping or turning. They are factory assembled and furnished with all installation hardware.

**Model WB-3**—3" aluminum bracket, extruded and embossed for extra strength. For homes with small or no eave **\$140** overhang. Net Each. **\$140**

**Model WB-6**—6" galvanized steel bracket for small overhang. Net Each. **\$140**

**Model WB-9**—9" galvanized steel bracket with a tubular aluminum **\$212** tripod leg. See fig. WB-12, Net Ea.

**Model WB-12**—12" version. Net. **\$297**

**Model WB-15**—15" version. Net. **\$352**

**Model WB-18**—18" version. Net. **\$388**

**Model WB-24** (Not Ill.)—24" bracket of heavy gauge galvanized steel with two tripod legs. One-piece construction and 16" spread. Net Each. **\$530**

## SNAP-IN TYPE WALL MOUNTS

Snap-in type mast holders, rounded and flared, permit easy mast insertion. Factory assembled and complete with all installation hardware.

**Model SN-8**—8" version. Net. **\$1.65**

**Model SN-9**—9" version. Net. **2.12**

**Model SN-12**—12" version. Net. **2.97**

**Model SN-15**—15" version. Net. **3.53**

**Model SN-18**—18" version. Net. **3.88**

**Model SN-24**—24" version. Net. **5.30**

## REVERSE U-BOLT AND CLAMP BRACKETS

**Model NT-3**—3" bracket of 1 1/2" wide embossed, galvanized steel. Reverse U-bolt and clamp mast holder for quick installation of mast. Net Each. **81c**

**Model NT-4**—4" version. Net Each. **90c**

**Model BR-3** (Not Ill.)—3" economy model of 1" wide steel stock, galvanized for rust protection. Reverse U-bolt and clamp mast holder. Net Each. **60c**

\*Two per set.

## ADJUSTABLE WALL BRACKETS

**Model WABV-12**—Adjustable 12" to 19 1/2" bracket is hot-dipped galvanized **\$630** steel. Packed 2 per set. Net Each. **\$630**

**Model WB-3-18A**—All aluminum construction. Mounts to eave and wall. Special U-bolts hold masts up to 1 1/2" O.D. without slipping or turning. Top bracket, 3" lower bracket, adjustable to **\$335** 18". Net Each. **\$335**

**Model WB-18A**—All aluminum tubular construction. U-bolt holds masts up to 1 1/2" O.D. without slipping or turning. Adjusts from 2" to 18" from wall. **\$470** Two per set. Net Each. **\$470**

**Model ST-18A**—Heavy gauge, embossed steel construction, welded for extra rigidity. U-bolt saddle and sliding plate provide simple mounting of mast at best place to clear eave. Two embossed, galvanized steel legs, cross brace. Complete **\$612** with installation hardware. Net. **\$612**

**Model ST-3-18A**—Lower bracket same as ST-18A plus rugged 3" steel upper bracket. Hot dipped galvanized; U-bolt and **\$399** sliding mast clamp. Net Each. **\$399**

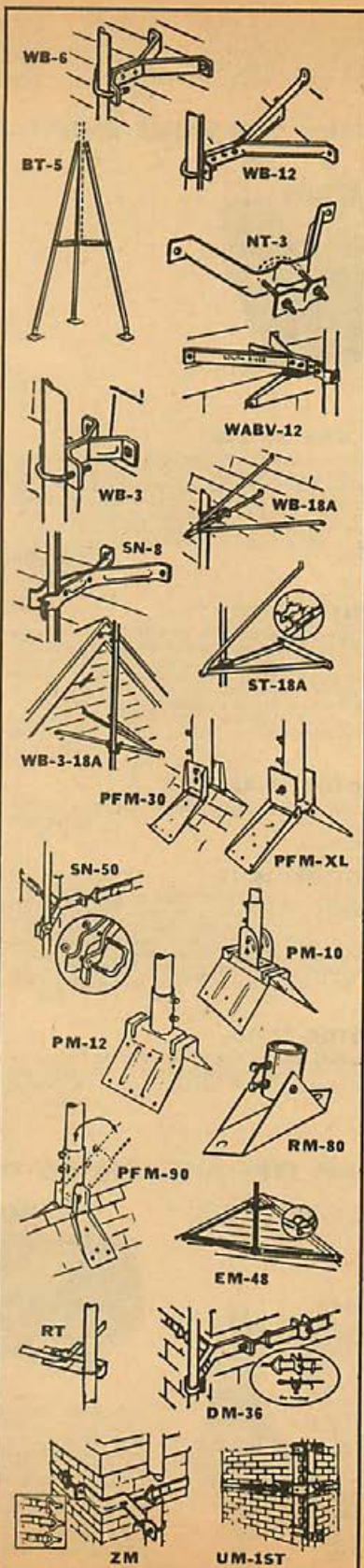
## EAVE MOUNTS

One-piece assembly. Lower bracket made of heavy gauge galvanized steel. Upper bracket of Model EM-48 extends 3" from eave; Model EM-60 extends 4". Both brackets have reverse U-bolt and clamp mast holder for quick installations. Complete with all mounting hardware.

**Model EM-30**—Galvanized, heavy-gauge angle iron 30° eave mount. Extends **\$275** 3" from roof lip. Net Each. **\$275**

**Model EM-48**—48° eave mount. **\$387** Net Each. **\$387**

**Model EM-60**—60° eave mount. Net Each. **\$510**



## PEAK OR FLAT ROOF MOUNTS

Adjustable flaps conform to roof pitch; zinc plate finish. PFM-30 and 30LM have "Walk-Up Drop-Lock" mount. PFM-90 and 90LM have slot type lock. Must be guyed.

**Model PFM-XL**—For heavy, large masts up to 2 1/2" O.D. Heavy gauge, **\$388** galvanized steel. Net Each. **\$388**

**Model PFM-30**—Made of heavy gauge steel. For masts up to 1 1/2" O.D. **\$198** Net Each. **\$198**

**Model PFM-30LM**—For 2" masts. Net Each. **\$2.60**

**Model PFM-90**—Economically priced steel swivel roof mount. For 1 1/2" O.D. masts. Net Each. **\$136**

**Model PFM-90LM**—For 2" masts. Net Each. **\$1.94**

**Model RM-80**—Swivel-type, zinc plated steel mounting for masts up to 1 1/2" O.D. Net Each. **76c**

**Model RM-XL** (Not Ill.) Heavy gauge, galvanized steel for masts up to **\$225** 2 1/2" O.D. Net Each. **\$225**

## SADDLE MOUNTS

**Model PM-10**—Has Drop-Lock feature permitting mast to be "walked-up" to vertical where it drops and locks securely into place. Heavy gauge, galvanized steel construction. Flaps can be bent to conform to pitch. For masts up to 1 1/2" O.D. **\$305** Factory assembled. Net Each. **\$305**

**Model PM-12**—Similar to Model PM-10 but without Drop-Lock-Walk-up feature. For masts up to 1 1/2" O.D. **\$178** Net Each. **\$178**

**Model PM-12LM**—For masts up to 2" O.D. Net Each. **\$2.31**

\*Must be guyed.

## SNAP-IN TYPE CHIMNEY MOUNT

**Model SN-50**—Y-type galv. mount with Snap-In type mast holder and U-bolts for one-hand installation. Two 12" x 3/4" galv. straps. Holds masts up to 1 1/2" O.D. Complete with installation hardware. **\$264** Net Each. **\$264**

**Model SN-50ST**—With stainless steel strapping. Net Each. **\$3.44**

## RATCHET-TYPE CHIMNEY MOUNT

Installation made by pulling the banding around the chimney, threading loose end through slotted shaft and tightening the ratchet. Made of heavy gauge, zinc plated, iridite-finished steel, formed into a channel for extra rigidity and strength. Serrated U-bolts and serrations cut in mounting prevent mast from turning. Complete with two 12" lengths of strapping.

**Model RT**—Galvanized strapping. **\$309** Net Each. **\$309**

**Model RT-ST**—Stainless steel strapping. Net Each. **\$3.71**

## CHALLENGER CHIMNEY MOUNT

Embossed, heavy gauge steel mount with golden iridite finish. Two serrated U-bolts hold masts up to 1 1/2" O.D. Furnished with two 12" lengths of 3/4" strapping and all installation hardware.

**Model ZM**—Galvanized straps. **\$186** Net Each. **\$186**

**Model ZM-ST**—Two 12" x 3/4" stainless steel straps. Net Each. **\$2.59**

## DUO CHIMNEY MOUNT

Galvanized, riveted alloy steel mount with serrated U-bolts that hold masts 3/8"-1 1/2" O.D. without slipping or turning. Kwik-Klip provides simple means of securing loose banding strap ends. Four eyebolts.

**Model DM-36**—With two 12" lengths of galvanized strapping and Kwik-Klip. Net Each. **\$264**

**Model DM-36ST**—With two 12" lengths of stainless steel strapping and Kwik-Klip. Net Each. **\$3.42**

## UNI CHIMNEY MOUNT

One-piece heavy gauge, galvanized, embossed, riveted steel mount. Mast holders spaced 18" apart. Aluminum corner guards; Kwik-Klip banding clamp. Complete with installation hardware.

**Model UM-1ST**—One 12" stainless steel strap. Net Each. **\$503**

## LIGHTNING PROTECTION KIT

TV-FM ant. kit prevents lightning strikes by bleeding off static charges; directs and discharges lightning to ground. With 50' alum. wire, 4' rod, U/L Approved arrester, hardware and instructions.

**Model GND-ANT**—Net Each. **\$5.45**



# CHANNEL MASTER® TV Antennas

## "CROSSFIRE" ADVANCED FRINGE AREA TV ANTENNAS

**Operating Principle:** Unique design employs "Proportional Energy Absorption" for maximum gain on each channel, low band or high band. Using a large number of driven dipoles, with a transposed feed line or cancel rear pickup, the system achieves extremely high front-to-back ratios and unusually clean gain. Gets the signal you want, while eliminating side and rear pickup; polar patterns exhibit ideal characteristics. The dipoles replace commonly used arrays of parasitic directors which are inherently frequency selective, and therefore restrict the performance of any antenna. The proportional energy absorption principle, on the contrary, is frequency-independent; eliminates roll-offs, erratic peaks and valleys in the gain curves. Gains are flat and patterns consistent on each band, like no antenna before. **Dual-Dipoles:** Each parasitic reverses phase of high band current on adjacent low band dipole; thus, operating as three driven,  $\frac{1}{2}$ -wave, high band elements. Because there are more driven elements working with greater efficiency, the gain is the highest ever achieved. **Proportional Energy Absorption:** Each element has a predetermined impedance characteristic at each frequency to determine its degree of energy absorption. This impedance, governed by the taper and spacing of the dipoles, decreases with distance from the feed-point. Transposed between each successive pair of elements, the feed line receives radiations 180° out of phase. Front-to-back ratio 16:1 on either low or high band. **E-P-C Gold Finished:** Unique gold coating enhances the appearance. Protects against weather, and assures good electrical conductivity. All, at no extra cost. **Construction Features:** Precision directors are built into the two largest fringe models. No folded elements give inline design with minimum weight and wind resistance. Preassembled "bulldog grip" mast clamp eliminates U-bolts; installs quickly; lasts longer; hold the mast firmly even in hurricane-force winds. Super-sembled, self-locking elements require no tools. All Crossfires have excellent FM performance.

**Channel Master No. 3600-G 28-Element Crossfire**—Includes two director power groups; 28 elements. Crossarm 146" long. List Price. . . . . **\$59.95**

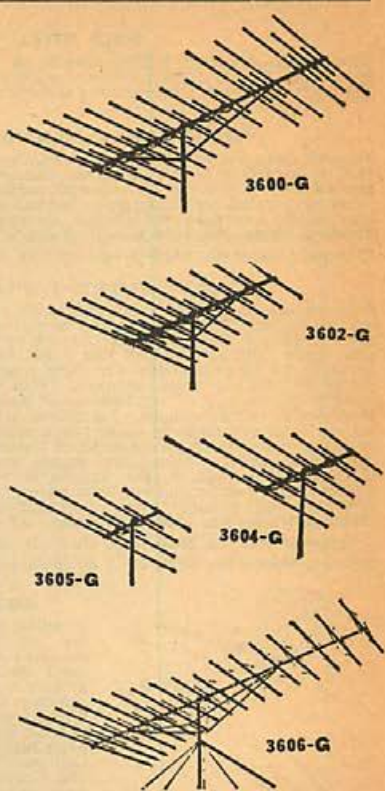
**Channel Master No. 3601-G 23-Element Crossfire**—Includes one director power group; 23 elements; 122" crossarm length. List Price. . . . . **\$49.95**

**Channel Master No. 3602-G 19-Element Crossfire**—110" crossarm. List Price. . . . . **\$39.95**

**Channel Master No. 3603-G 15-Element Crossfire**—86" crossarm. List Price. . . . . **\$29.95**

**Channel Master No. 3604-G 11-Element Crossfire**—62" crossarm. List Price. . . . . **\$21.95**

**Channel Master No. 3605-G 7-Element Crossfire**—38" crossarm. List Price. . . . . **\$14.95**

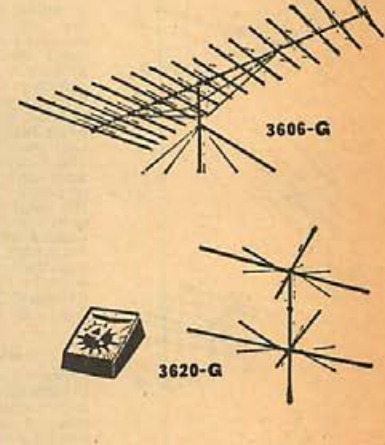


## "SUPER-CROSSFIRE" AND "TELSTAR CROSSFIRE"

Same as "Crossfire" design, above, but with advanced director system with "phase control"; permits each element to receive both high and low bands, and FM stereo. Gives up to 48% more gain than No. 3600, above. Exclusive 2-way boom bracing stops cross-arm bounce and horizontal wind whip. "Telstar" version combines the Super-Crossfire with a built-in Telstar transistorized booster for additional gain. **\$79.95**

**Channel Master No. 3607-G "Super-Crossfire"**—List Price. . . . . **\$79.95**

**Channel Master No. 3606-G "Telstar Crossfire"**—Same, but with built-in Telstar booster for extra gain. List Price. . . . . **\$112.95**



## "OMNI-RAY" TV/FM STEREO ANTENNA

Features electronically-controlled directivity without need for rotator; indoor switch provided. Solves common metropolitan, suburban and near fringe signal-problem areas. Figure-8 reception pattern has deep side nulls for 10:1 rejection ratio at side. Effectively KO's ghosts and interference. Beams are aimed for top power by electronic rotation in 2 1/2° steps. Special "duo-twin" transmission lead prevents mutual coupling.

**Channel Master No. 3620-G—Two-bay stacked antenna with directivity** **\$34.95** control. List Price. . . . .

**Channel Master No. 3622-G—Kit version of above includes 2-bay antenna, control, pair of wall mounts, two 5' masts, 65 ft. transmission line and 4 insulators. Installs easily. List Price. . . . . \$39.95**

**Channel Master No. 3621-G—Single-bay antenna in kit with control, wall mount, one 5 ft. mast, transmission wire and insulators. List Price. . . . . \$25.69**

## VUTRON II TV/FM SIGNAL AMPLIFIER/COUPLER

Adds electronic power boost to any TV or FM antenna with enough stepped up performance for one, two, three or four sets from a single antenna. Very low noise figure and high gain assured by reliable, long life transistorized circuitry. Excellent impedance match and isolation with equal power for each TV set coupled to the antenna. Vutron designed for in-the-home mounting where it is impractical to mount a booster on the antenna or mast. Powered by regular 115 v. AC with very low current gain. Mounts anywhere in home. Size, 5" x 3 3/4" x 1 3/4". **\$22.95**

**Channel Master No. 0024—List**

## GOLDEN ALUMAST

All-aluminum masting with a golden overcoating of E-P-C, promotes electrical conductivity and protects against corrosion. Weighs 1/2 the weight of steel. Aircraft temper aluminum available in 5, 7 1/2 and 10-ft. sections, swaged and notched for perfect joints; go up to stay in less time. Packed 10 lengths per bundle. Write for prices.

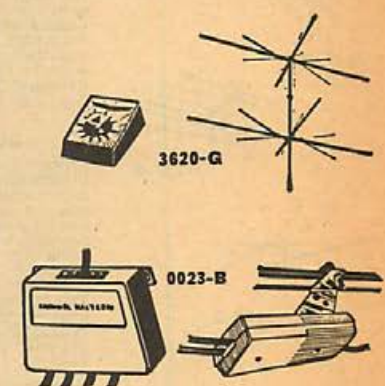
C-M No.	Length, Ft.	O.D., In.	Th., In.	Shpg. Wt. per 10
9203	5	1 1/4	.042	9 1/2
9215	7 1/2	1 1/4	.042	14 1/4
9204*	10	1 1/4	.042	18 3/4
9206	10	1 1/4	.056	25 1/2
9210	10	1 1/2	.056	30 3/4

\*Guying recommended.

## "TELSTAR" ON-ANTENNA TV/FM BOOSTER/COUPLER

Mounts on the antenna where a booster should be, amplifying signals before line loss occurs. Delivers more usable power than any other booster. All transistor circuitry assures dependability, highest gain and signal-to-noise ratios. Power supply also contains a complete four-set coupler to permit driving up to four TV and/or FM sets from a single antenna. The amplifier pod, on the antenna or mast, is light weight, slim design for low wind resistance; rugged Kralastic case withstands all weather conditions. Heavy-duty metal bus bars connect booster to antenna terminals. Unique two-way bracket permits mounting on mast if desired. Neat, wall mounting power supply/coupler, only 5" x 3 3/4" x 1 3/4".

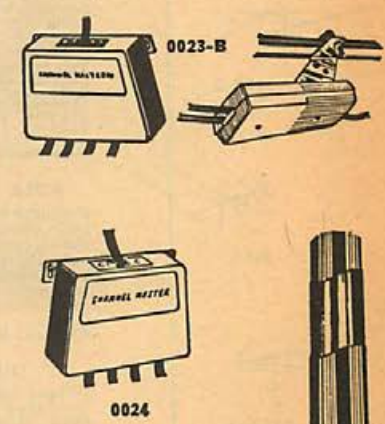
**Channel Master No. 0023-B—\$29.95** List Price. . . . .



## "DURA-TUBE" MASTING

Super-alloy steel masting fully 50% stronger; ends "white rust" forever. The most durable masting ever made because it's double-coated to prevent formation of all rust; takes all weather conditions for years. Finest special process steel with high tensile and bending strength is coated with high-adhesive red oxide primer, then double-guarded with thick gold vinyl-acrylic finish. Primer meets high government specifications for ships, bridges and marine construction. Exclusive, expanded "bead ring" permits anchoring guy ring on top of masting, after insertion of swaged end. Convenient and durable for all mast needs.

C-M No.	Gauge	O.D., In.	Lgth., Ft.	Write for Prices
1612	16	1 1/4	10	
1807	18	1 1/4	5	
1812	18	1 1/4	10	
2007	20	1 1/4	5	
2012	20	1 1/4	10	



## "TOP GUY" ALUMINUM WIRE

Better than ever, extremely tough alloy gives top strength and corrosion resistance without sacrificing flexibility. Each strand (7 strand, 17 gauge) has a core of high strength aluminum, then is clad with pure aluminum jacket. This Alclad process assures resistance to corrosion, weathering, industrial smoke, chemical fumes and salt air. Available in put-up of twenty 50' hanks interconnected (1000' total). **Order No. 9084-A; Write for prices.**





# CHANNEL MASTER® VHF TV Antennas

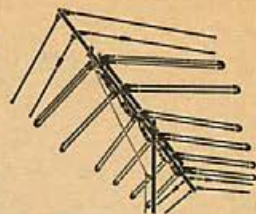
## GOLD METAL "T-W" AND "SUPER T-W" ALL-CHANNEL VHF ANTENNAS

Now feature exclusive E\*P\*C gold finish. Adds exciting golden eye appeal. Provides sure protection against corrosion at all joints and parts. Assures full conductivity of electrical energy. The golden

film is an integral part of the metal; self-healing from scratches. You pay no more for this fine quality.

### "SUPER T-W" ALL-CHANNEL VHF FRINGE ANTENNA

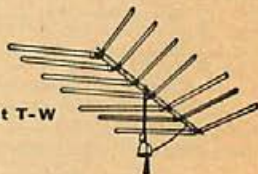
An even more powerful version of the famous "Traveling Wave" antenna provides up to 78% greater gain for fringe areas. The new 10-element "Super" combines six of the famous T-W hairpin dipoles with four parasitic low-band and collinear, hi-band elements. Adds 20% to the high band gain. Increases gain up to 2½ db over the 7-element T-W. Heavy-duty weather-proof harness. Strongest antenna ever made. **Channel Master No. 3580-G—10 elements, for deep fringe. List Price..... \$59.95**  
**Channel Master No. 3590-G—8 elements, List Price..... \$44.95**



10-Element "Super T-W"

### 7, 5 AND 3-ELEMENT "T-W" ALL-CHANNEL VHF ANTENNAS

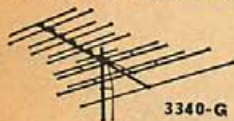
Superior all-channel reception with high power, gain and front-to-back ratio. Installing this antenna is like moving your home miles closer to the TV station. Eliminates snow; protects against co-channel interference by rejecting all signals which strike it from the side or rear. "Super-Sembled" for quick, easy installation. Folded elements and trussed crossarm for super-strength. Crossarm is boom-braced by a second full-length crossarm, joined by powerful truss members. Extra heavy duty, single U-bolt grips the antenna tight to the mast; features twist-proof construction with 4 rivets through the bracket. Ruggedized elements made of seamless ¼" dia. external sleeves and ¼" dia. U-bend. All moldings are made of super-tough plastic; has seven times the impact strength of ordinary polystyrene. Weatherproof harness is extra-thick (¼") virgin polyethylene insulation; protects impedance match and electrical efficiency against all weather; conductors are 16 ga. copper. Ingenious "line-lok" device absorbs all transmission line tension; can't tear or pull out from terminals. **Front-to-Back Ratio: Better than 10:1 on every low band channel; from 5:1 to 12:1 on high bands.** **Channel Master No. 3500-G—7 elements for deep fringe. List Price..... \$54.95**  
**Channel Master No. 3510-G—5 elements for near fringe. List Price..... \$39.25**  
**Channel Master No. 3520-G—3 elements for suburbs. List Price..... 23.50**



7-Element T-W

### GOLD MEDAL SKY BLAZER VHF

Powerized design utilizes impedance-compensating inductance coil for extra power; coil is non-resonant at high band frequencies. Uses two extra elements as high and low directors for greater gain on all VHF channels; full-wave directors on high band. "Super-sembled" for long life and easy installation. Rugged design incorporates massive, double U-bolt mast grip that can't turn or twist; "Line-Lok" to stop strain on twin lead terminals; reinforced reflector with ¼" dia. sleeve to secure brackets. Elements swing open and lock into position without hardware or tools. High band parasitic elements are twice the length of similar antennas; provide an extra gain boost on channels 7 through 13. Highest quality construction. For top performance, with very high front-to-back ratios on low band and high gain on all VHF channels, select a Skyblazer to solve your fringe-area problems. **Channel Master No. 3340-G—Single bay, List Price..... \$23.61**



3340-G



3320-G



3252-G



3130-G

### GOLD MEDAL RAINBOW VHF

Powerful design for color or black and white brings out the best picture quality. All-aluminum construction eliminates rust problems. Radical spacing arrangement extends efficiency; makes stacking easy. "Triple Power" directors and reflector combines power of 3 high band Yagis operating side by side, in perfect phase. Maximum efficiency built-in with separate independent reflectors; one for low band, one for high band. Triple powered dipole assures super gain.

C-M No.	Description	List
3310-G	"Super" for deep fringe	\$37.50
3320-G	Rainbow for near fringe economy installations	17.36

### GOLD MEDAL CHAMPION UHF-VHF

Features original Tri-Pole system in which low band dipole functions as 3 half-wave dipoles, in phase, on the high band. Folded dipoles throughout. Built-in phase correcting harness; screen type reflector. All-aluminum construction is fully preassembled. Gives 10 db avg. gain on VHF high band and 5 db avg. on VHF low band. Two-bay design. **Channel Master No. 3252-G—List... \$40.42**

3190



3150-G

### GOLD MEDAL COLOR PRINCE

Unique flat inline combines high-low Yagi with a T-W type dipole in place of conical elements for ideal reception in intermediate signal areas. "Super-sembled" for easy installation. Stacks easily. Rugged design has heavy-duty brackets at all points; three driven elements; lightweight, 100% aluminum construction that is really compact. **Channel Master No. 3530-G—Single \$18.06**  
**Channel Master No. 3530-G—Single \$18.06**

4190

### GOLD MEDAL SUPER FAN

Redesigned version of the famous Super Fan provides the same outstanding performance plus ruggedized design for fast installation. Durable

100% aluminum construction features super-nest mast grip using two U-bolts; "Line-Lok" to eliminate strain on terminals to twin lead; heavy-duty fan head of high impact polystyrene molding and heavy gauge aluminum to take weather extremes. All elements are reinforced with external sleeves for greater strength at bracket joint; absorb vibration to prevent breakage. Crossarms have spun ends to keep out rain and ice; stops wind howl. "Super-sembled" design for swing out, lock in element positioning without use of tools, hardware or tightening.

C-M No.	Description	List
3130-G	Single bay, butted elements	\$ 8.61
3132-G	Two-bay, butted elements	17.92

### CHALLENGER CONICAL YAGI

Superior reception at a low cost; high gain to meet your requirements. Rugged construction employs reinforced low band elements; extra long conical elements. "Super-sembled" design features snap-lock assembly for installation without tools or extra hardware. **Channel Master No. 3080-B—Single \$11.25**  
**Channel Master No. 3082-B—Two-bay. List Price..... \$23.06**

### MAVERICK CONICAL YAGI

Amazing, low cost antenna improves sight and sound. The only "super-sembled" conical Yagi in its price range, it offers quick, easy installation. Elements swing out and lock in place in seconds; needs no hardware, tools or tightening. Extra long elements; double reflector. **Channel Master No. 3190—Single bay. \$9.03**  
**Channel Master No. 3192—Two-bay. List Price..... \$18.75**

### CITY-VEE ALL-CHANNEL

The most outstanding of the "Vee-type" antennas is made of 100% high tensile aluminum for lasting performance. Ideal for moderate-to-strong signal areas. Full length elements cut to Channel 2; triple wall thick at each element's stress points. Other features include seamless Q-bars; high impact polystyrene moldings; extra reinforcements for Q-bars; exclusive line tension reliever; double-thick U-bolt insulator sandwich. "Super-sembled" snap-lock design for ease of installation. **Channel Master No. 3150-G—Single bay. \$5.78**  
**Channel Master No. 3150-G—Single bay. \$5.78**

### MAVERICK TELE-VEE UHF-VHF

All-channel UHF fringe and all-channel VHF primary area coverage for true versatility. Sturdy design is high powered. Extra narrow forward lobe assures high ghost and interference rejection on UHF. Exclusive, swing-open preassembly installs in seconds. Sturdy design utilizes 1-piece aluminum elements and hardwood crossbars. **Channel Master No. 4190—Single bay. \$3.61**  
**Channel Master No. 4190—Single bay. \$3.61**



# CHANNEL MASTER® VHF TV Antennas

## CONICAL ANTENNAS

Gold Medal Series 3010-G—3062-G: "Super-sembled" design with swing-out, snap-lock elements. Install without hardware, tools or tightening. Extra strong. High impact polystyrene insulators. Challenger Series 3920—3952: Deluxe construction is all aluminum for long life, reliability and economy. Quick easy assembly. Maverick Series 3420-C—3462-C: Economical, solid rod construction. Preassembled head locks securely; each section can be individually oriented.

C-M No.	Description	List Price
3010-G	6-element Gold Medal	5.97
3020-G*	6 elements, 2 hi-band stubs	6.25
3022-G*	Stacked 3020-G's	14.03
3032-G	Stacked 6-element with hi-band director	14.31
3042-G	Stacked 8-element, dbl. X	15.42
3050-G	8-element, double X with hi-band stubs	7.08
3052-G	Stacked 3050-G's	15.83
3062-G	Stacked 8-element, dbl. X, hi-band director	16.11
3920*	6-elements, 2 hi-band stubs	5.08
3922*	Stacked 3920's	10.86
3932	Stacked 6-element with hi-band director	11.42
3942	Stacked 8-element, dbl. X	12.36
3950	8-element, double X with hi-band stubs	6.11
3952	Stacked 3950's	12.92
3962	Stacked 8-element dbl. X, hi-band director	13.47
3420-C	6-element Maverick with hi-band stubs	3.78
3422-C*	Stacked 3420-C's	8.00
3450-C	8-element, dbl. X, with hi-band stubs	4.61
3462-C	Stacked 8-element, dbl. X, hi-band director	10.25

\*Available in kit form with swivel or chimney mount, mast, transmission line, standouts, guy, etc. Write for Price.

## FOLD-FLECTOR VHF ANTENNAS

Feature 3/8" butted tubing and "Swing-Lok" action.

Channel Master No. 3120 Low Band—For medium signal areas. Matched 300-ohm line. List Price.....\$5.56

Channel Master No. 3121 Hi-Band—Converts low band model to all-channel array. Installs instantly. List Price.....\$2.36

## GOLD MEDAL HIGH BANDER YAGIS

Unmatched for rugged construction. Protective gold overcoat resists corrosive atmospheres, enhances appearance, and provides good electrical conductivity. Extra long crossarms assure greater gain. Sure clarity on channels 7 through 13 in most areas. All aluminum construction. Excellent for color reception. Preassembled snap-lock installation.

Channel Master No. 6730-G 6-Element \$7.64—Crossarm 39" long. List Price.....

Channel Master No. 1073-G 10-Element—Crossarm 111 1/2" long. List Price.....\$18.06

Channel Master No. 1573-A 10-Element Challenger—Outstanding for powerful reception and directivity. Crossarm 88 1/2" long. \$14.58 List Price.....

Channel Master No. 1373 10-Element Maverick—Solid performance at a low price. Crossarm 61 1/4" long. List Price.....\$9.72

## FUTURAMIC YAGIS

For optimum low band reception in difficult signal areas. Combines the advantages of Yagis and conventional broad band antennas; highest gain on each channel.

C-M No.	Channels	List Price
1126-G	2, 3, 4, 5, 6	\$31.94
1146-G	4, 5, 6	31.94

## GOLD MEDAL SUPER-SEMBLED CONICAL YAGIS

All-channel VHF fringe area and UHF primary area coverage. Super-sembled for fast assembly; made of 100% aluminum. Elements have seamless sleeves at bracket joint. Installs easily without tools, tightening or hardware. \$13.89

Channel Master No. 3210-G—List.....\$13.89  
Channel Master No. 3212-G—Stacked. List Price.....\$28.47

## COLOR KING ANTENNA

Sets performance records for antennas of this type. Features high fringe gain and excellent front-to-back ratios. Improved, controlled impedance dipole system uses impedance-compensating inductance coil; won't resonate at high band frequencies; flat response. New wire form harness protects against salt water and all kinds of weather. "Super-sembled" construction with snap-out elements. Heavy duty moldings; super-nest mast mount; "Line-lok" protects lead-in terminals.

Channel Master No. 3550-G—9 elements \$25.00  
ments. List Price.....

## GOLD MEDAL "Z-MATCH" SUPER YAGIS

Unique concept in Yagi design achieves higher gain than ever before. Longer crossarm sizes (Channel 6 now the same length as Channel 2) improve gain. The most powerful fringe area Yagis ever designed. Feature graduated spacing between elements; tapered element lengths. Exclusive E\*P\*C gold coating protects complete antenna against corrosion; enhances appearance; and assures good conductivity. High band 10-element antennas have twin-driven dipoles and extendable stacking rods for high gain, wide-spaced stacking. Z-match feature gives perfect 300-ohm impedance match on all antennas, single or stacked. Extra rugged construction on all.

Chan- nel	5-Element Models		10-Element Models	
	C-M No.	List Price	C-M No.	List Price
2	6020-G	\$19.86	1022-G	\$33.33
3	6030-G	19.58	1033-G	32.64
4	6040-G	19.31	1044-G	31.94
5	6050-G	19.03	1055-G	31.25
6	6060-G	18.75	1066-G	30.56
7	6070-G	10.00	1077-G	11.53
8	6080-G	10.00	1088-G	11.53
9	6090-G	10.00	1099-G	11.53
10	6100-G	10.00	1010-G	11.53
11	6110-G	10.00	1011-G	11.53
12	6120-G	10.00	1012-G	11.53
13	6130-G	10.00	1013-G	11.53

Channel Master No. 6260-G Dual Z-Match Yagi—Similar, 5-element construction, but covers all channels from 2 through 6. List Price...\$22.08

## CHALLENGER YAGIS

Stepped-up in quality, these Yagis now have the same dimensions and construction as the former deluxe Z-Match Yagis. Also use impedance-matching Z-Match system. Highest gain, conventionally-designed Yagis made; offer sure directivity for long distance reception. Deluxe all-aluminum construction includes spun-sealed ends on crossarms; high speed, super-sembly reinforced elements on high strength brackets. Z-match feature permits very high stacking gain, without need for extra stacking bars.

Chan- nel	5-Element Yagis		10-Element Yagis	
	C-M No.	List Price	C-M No.	List Price
2	5520-B	\$13.75	1522-B	\$26.39
3	5530-B	13.06	1533-B	26.39
4	5540-B	12.36	1544-B	23.47
5	5550-B	11.39	1555-B	23.47
6	5560-B	10.69	1566-B	20.83
7	5070-C	5.97	1507-C	11.11
8	5080-C	5.97	1508-C	11.11
9	5090-C	5.97	1509-C	11.11
10	5100-C	5.97	1510-C	11.11
11	5110-C	5.97	1511-C	11.11
12	5120-C	5.97	1512-C	11.11
13	5130-C	5.97	1513-C	11.11

## MAVERICK YAGIS

Best low-priced Yagis in the field. The answer to good performance at a low price. All-aluminum construction. Rugged, light weight and rust-proof. Elements snap and lock into position. No hardware or tools required. Low band, 10-element units are boom-braced for extra strength.

Chan- nel	5-Element Models		10-Element Models	
	C-M No.	List Price	C-M No.	List Price
2	5302-A	\$10.00	1302-A	\$19.44
3	5303-A	9.58	1303-A	19.44
4	5304-A	9.17	1304-A	17.78
5	5305-A	8.61	1305-A	17.78
6	5306-A	8.33	1306-A	16.11
7	5307-B	4.44	1307-C	7.22
8	5308-B	4.44	1308-C	7.22
9	5309-B	4.44	1309-C	7.22
10	5310-B	4.44	1310-C	7.22
11	5311-B	4.44	1311-C	7.22
12	5312-B	4.44	1312-C	7.22
13	5313-B	4.44	1313-C	7.22



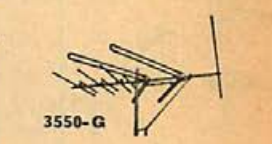
3042-G  
Top Half



3062-G



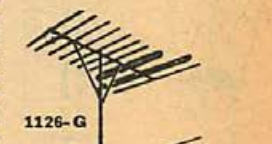
3120, 3121



3550-G



6730-G



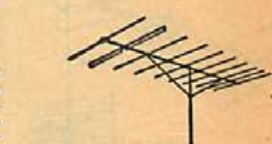
1126-G



1573-A



5-Element Yagi



10-Element Yagi



6260-G



3210-G



# CHANNEL MASTER® TV Antennas

## UHF ANTENNAS

### BANDSAW SERIES



4310-G

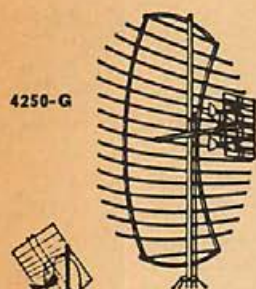
Unique "saw-tooth" flat plane, folded dipole with adjustable band-span that permits broadband coverage of all UHF channels. Provides higher gain than a 16-element Yagi. Calibrated scale with six numbers permits adjustment for groups of UHF channels. Reflecting screen eliminates reception from the rear. All-aluminum sheet elements, protected with E\*P\*C "golden-overcoat".

**Channel Master No. 4310G Super \$1995**

**Bandsaw—22 elements. List Price. . . . .**

**Channel Master No. 4311G Bandsaw—13 elements. List Price. . . . . \$15.95**

**Channel Master No. 4312G Stacking Harness—Tapered-spaced and practically frequency-insensitive; permits stacking above antennas for higher gain. Price on Request.**



4250-G

### GOLD MEDAL PARA-SCOPE PARABOLICS

**Channel Master No. 4251-G Super Para-Scope—Improved design with 7-ft. dia. screen for 36% more reflecting surface than famous Para-Scope. Gain 16.2 db to 20 db for clear reception in deepest fringe areas. Ideal for translator, community or commercial use. Covers full UHF range with 3 1/2 db more gain on low end and 2 1/2 db more gain on all channels than \$4750 Para-Scope, below. List Price. . . . .**

**Channel Master No. 4250-G Para-Scope—Same, but 6-ft. dia. screen with less gain. Excellent for nearer fringe areas. List Price. . . . . \$37.50**



4090-G

### CORNER REFLECTORS

**Channel Master No. 4090-G Gold Medal—Extra-large, 1035 sq. in., reflecting screen, all aluminum tubular construction. Aluminum bow-tie and crossarm. E\*P\*C protective "golden overcoat"; high impact molded insulator. Installs from front of mast, swinging open like a book; automatically adjusts for precise angle for maximum signal strength. Gives sharp directivity and extra high gain for full UHF band. Fully pre-assembled. List Price. . . . . \$1042**

**Channel Master No. 4091 Challenger—Same, but slightly smaller reflecting screen, 570 sq. in. List Price. . . . . \$8.19**

**Channel Master No. 4092 Maverick—Similar, but solid aluminum rod screen, slightly smaller than Model 4091. List Price. . . . . \$6.25**



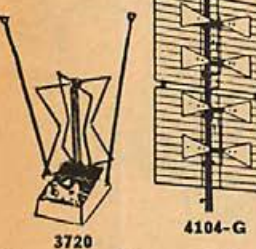
4200-G

### CONTURA "16" YAGI AND TRANSLATOR

Feature super-precision contour-cut dipole of one-piece aluminum for accurate 300-ohm impedance match. Lightweight, rustproof and pre-assembled on crossarm for easy installation. E\*P\*C "golden overcoat" protects against weather; improves conductivity; enhances appearance.

**Channel Master No. 4200-G Yagi—Custom cut to coverage requirements; specify Segment I, (Channels 14 to 35), Seg. II (Ch. 36 to 60) or Seg. III (Ch. 61 to 83). Has 16 elements. \$819 List Price. . . . .**

**Channel Master No. 4260-G Translator—Combines corner reflector and super-sensitive 16-element Yagi with "Contour-cut" dipole for precise 300-ohm match. Best coverage for Channels 70 to 83. List Price. . . . . \$10.42**



3720



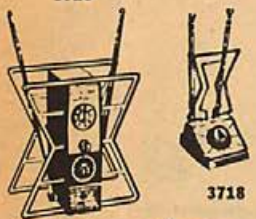
4104-G

### UHF MULTI-BOW ANTENNAS

Rugged aluminum sheet construction with rigid all-welded wire rod screens; high impact molded insulators; free-space terminals. Outstanding performers. Pre-assembled.

**Channel Master No. 4104-G Multi-Bow—Largest screen area for this type antenna, 860 sq. in. High front-to-back ratio, all channels. Con- \$1736 stant phase connecting harness. List. . . . .**

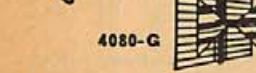
**Channel Master No. 4220 Challenger—All-in-one four-bay for all-channel fringe UHF reception. Exclusive heavy-duty Kralastic insulators; free-space crossover of connecting rods. Rigid and rugged. Vertical crossarm gripped and locked on both sides. Super-assembled for snap-on installation. Integral U-bolt nests and provision for plug-in mast mounting without U- \$972 bolts. List Price. . . . .**



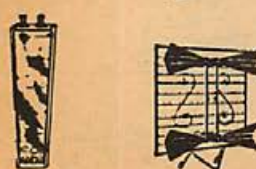
3718



4003



3900



4080-G



3871



4150-A

### BOW-TIE ANTENNAS

**Channel Master No. 4080-G Gold Metal Bow-Flector—Highest gain bow-tie ever designed; has 53% more reflecting screen area. High front-to-back ratio and narrow forward lobe for positive ghost rejection. Full wave spacing provides superior vertical patterns. Snap-in assembly \$625 installs quickly. List Price. . . . .**

**Channel Master No. 4010 Challenger Bow-Flector—Fully assembled high performer utilizes king-size aluminum dipoles and free- \$306 space terminals. List Price. . . . .**

**Channel Master No. 4141 Maverick Bow-Flector—Extra economical antenna delivers the picture with free-space terminals, aluminum dipoles and larger screen area than similarly priced \$236 competition. List Price. . . . .**

## INDOOR TV AND FM ANTENNAS

### UHF CONVERTER

Combination 82-channel antenna and transistorized UHF converter in one unit. Inductive type tuner converts VHF sets to UHF automatically. Built-in diplexer circuit gives uni-directional pattern with UHF antenna; can be reversed 180° by switching. Impedance-compensating VU-82 switch eliminates dipole-handling when changing channels within bands on VHF and FM. Vernier tuning channel selector; "Nite-Lite" dial; 300 ohms output; Impedance match input. For 120 VAC, 50/60 cps.

**Channel Master Model No. 4003— \$3995**

**Fair Trade Price. . . . . \$14.95**

**Channel Master Model No. 4000-VU-82 UHF-VHF-FM Beam Reversing Antenna—Same, less UHF converter. Fair Trade Price. . . . . \$14.95**

### TRANSISTOR-AMPLIFIED APOLLO VHF

Built-in, high gain amplifier improves noise figure and clears "snow" in older TV sets. True electronic circuit. Output 300-ohm impedance matched. Handy switch with automatic adjustment of impedance to varying signal strengths. Long, 4-section dipoles (96" tip to tip) for long distance pull-in power. Raised, cork-cushion legs. Modern styling.

**Channel Master No. 3721—Fair Trade \$1995**

**Price. . . . .**

### GOLDEN CANAVERAL VHF

Most popular non-amplified TV-FM dipole available. "Pix Power" switch with impedance compensator tunes out ghosts and interference; 300-ohm impedance match. Long, 4-section dipoles. Cork-cushioned legs. Ideal for black and white or color TV, plus FM/Stereo.

**Channel Master No. 3720—Fair Trade \$995**

**Price. . . . .**

### THE SHOWMAN VHF/FM

"Metro-Dyne" variable inductance tuning lets you select the actual channel number to match your TV set. No gainy dipoles, yet tunes out ghosts and snow with ease without arm adjustments. Built-in swivel action without moving base. Exact 300-ohm match. Raised, cork-cushioned legs, fits all surfaces, flat or curved.

**Channel Master No. 3900 (Mahogany and Gold) or 3901 (Blond and Gold)—Fair Trade \$695**

**Price. . . . .**

### THE AURORA VHF

Low cost, best selling, top performer with 12-position clarifier switch to eliminate ghosts and interference. Heavy, all plastic mahogany base with cork-cushioned, raised legs. Brass elements with corrosion-resistant finish.

**Channel Master Model 3718—Fair Trade \$498**

**Price. . . . .**

### BRITE-VU ALL-CHANNEL

Economical, sturdy ball and dipole antenna offers switched impedance matching to permit best reception of TV or FM signals. Heavy cast base has convenient 6-position switch connected to spiral-type impedance-match inductance coil. Twin dipoles are fully adjustable.

**Channel Master No. 3873—Price on request.**

### SPOTLITE BALL-TYPE

Delivers fine pictures in urban areas at low cost. Handsome ball base for modern decors. Aluminum elements.

**Channel Master No. 3801 (Ebony) or 3802 (Mahogany)—Price on request.**

### FIDELIA HIDDEN ANTENNA

Mounts on rear of portable or stationary sets for neat, hidden installation. Elements pull out easily to full length in telescoping sections. High impact plastic case takes rough punishment. Universal ball swivel joints. Chrome elements, ivory case.

**Channel Master No. 3871—Price on request.**

### SERENADE UHF

Replaces all "rabbit ears" and similar indoor antennas with perfect reception and high styling. Designed like top performing outdoor antennas using bow-ties and screen reflector. Covers all UHF channels.

**Channel Master No. 4150-A—Gold screen, ebony dipoles. Price on request.**

### PRE-VU VHF

Lowest priced, largest selling TV antenna. Modern, ebony base is extra sturdy, highly attractive. Aluminum elements.

**Channel Master No. 3800—Price on request.**

### FM TRAP

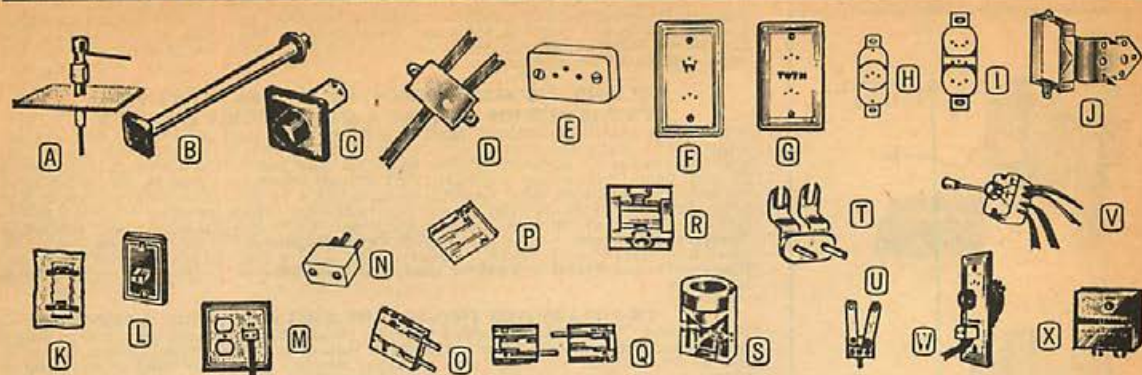
Eliminates FM interference from TV reception. Sharp cut-off and high attenuation of 20 db at 105 mc; 35 db max. Full 88-108 mc coverage. Blue, non-breakable Kralastic weatherproof case. Simple U-bolt hookup on antenna or mast.

**Channel Master No. 0014— \$625**

**List Price. . . . .**



# Mosley TV Antenna Accessories



## TV LEAD-IN ACCESSORIES

Mosley Number	Fig.	Description	Net Each
623	A	Tubular roof-thru; polystyrene bushing	\$4.07
624	A	Same, but for flat line	4.07
625-1	B	Wall feed-thru (13" max.); Ivory	1.32
625-B	B	Same, but brown	1.36
625-PK1	B	625-1 with universal socket and plug; Ivory	2.03
625-PKB	B	Brown version of 625-PK1	2.09
626-1	C	Wall feed-thru; weatherp'f; 2" tube; Ivory	.86
626-B	C	Same, but brown	.88
626-PK1	C	626-1 with universal socket and plug; Ivory	1.56
626-PKB	C	Same, but brown	1.61

## ANTENNA COUPLERS

Mosley Number	Fig.	Description	Net Each
PC-21	D	Printed 2-set coupler for single antenna	\$1.45
PC-41	D	Same, but 4-set type for TV or FM	3.19

## FLUSH-MOUNT TV/FM LEAD-IN SOCKETS

Mosley Number	Fig.	Description	Net Each
F-11	F	Single 300-ohm outlet; Ivory polystyrene	\$1.07
F-1B	F	Same, but brown	1.10
F-1PK*	F	Same as F-1 but with plug and mtg. brckt.	1.25
FD-1PK1	F	Same as F-1, but when plug is in, it switches to disconnect other outlets in system; Ivory	1.35
FD-1PKB	F	Brown version of FD-1PK1	1.39
F-4BPK*	F	Similar to F-1 but with balun for 72-ohm or 300-ohm coaxial cable termination	3.13
FR-11	F	Looks like F-11 but 8 per system can be used on 1 antenna without couplers; Ivory	.81
FR-1B	F	Brown version of FR-11	.85
FR-1PK1	F	Same, but with plug and bracket; Ivory	1.25
FR-1PKB	F	Brown version FR-1PK1	1.30
F-11*	G	Two 300-ohm outlets for separate high or low band antennas; or TV plus FM	1.39
F-11PK1	G	F-11 with 1 mating plug & brackets; Ivory	1.72
F-11PKB	G	Brown version of F-11PK1	1.77
F-1111	G	Triple flush socket, Ivory	1.47
F-1111B	G	Brown version of above	1.48
F-111PK1	G	Socket w/plug and mtg. hardware, Ivory	1.98
F-111PKB	G	Brown version of above	1.99
WPS-11PKB	G	Same as F-11, brn., with built-in resistor 2-set coupler to isolate TV from FM; 2 sects.	2.16
WPS-11PK1	G	Ivory version of WPS-11PKB	2.07
F-14*	F	Like F-1, but rotor cable 4-wire outlet	1.39
F-14PK*	F	F-14 with plug and mounting bracket	2.26
F-114*	F	Dual lead-in and 4-wire socket	1.39
F-114PK*	G	Dual outlet version of F-14PK; Ivory	2.26
F-114PKB*	G	Dual outlet version of F-14PK; brown	2.32
FY-1*	H	Single 300-ohm outlet socket for use with standard AC wall plates (not supplied)	.67
FY-1PK*	H	Same, but with plug and hardware	1.06
FY-14*	I	Double socket version of FY-1 except one socket is 4-wire rotor cable type	.87
FY-14PK*	I	FY-14 with plugs and mounting bracket	1.70
FG-1PK*	I	Similar to FY-1 but used with interchangeable type AC plates and straps; with plug	.59
F-9	K	Mounting brackets for flush mounting sockets; fits 1 3/4" x 4" wall hole	.24
F-8	J	Plaster ring for flush mounting wall sockets	.40

## SURFACE-MOUNTED TV/FM OUTLETS

Mosley Number	Fig.	Description	Net Each
SM-1*	L	Single 300-ohm outlet; no hole needed	\$0.89
SM-1PK1	L	Same, with plug and mtg. hdwre; Ivory	1.06
SM-1PKB	L	Brown version of SM-1PK1	1.10
SM-11*	L	Two-outlet version of SM-1	1.28
SM-11PK*	L	Same, but with one mating line plug	1.49
SM-1111	L	Triple lead-in socket, Ivory	1.50
SM-1111B	L	Brown version of above	1.51
SM-111PK1	L	Triple lead-in socket w/plug, Ivory	1.72
SM-111PKB	L	Brown version of above	1.73
SM-14*	L	Two outlets; 300-ohm plus 4-wire rotor	1.46
SM-14PK*	L	Same, but with mating plugs supplied	2.44
SM-114*	L	Dual lead-in and 4-wire socket	1.50
SM-114PK*	L	4-wire socket with plugs, Ivory	2.36
SM-114PKB*	L	Brown version of above	2.39
343-B	E	UHF-VHF socket also acts as line tap; mts. on No. 625 feed-thru, wall, etc.; Ivory	.52
343-B	E	Same, brown	.53
343-PK1	E	Same, but with plug; Ivory	.68
343-PKB	E	Same, but with plug; brown	.70
354*	E	Solderless 4-wire version of 3431	.95
354-PK*	E	Same, but with plug	1.48

## COMBINATION AC/TV WALL OUTLETS

Wall plate with openings for standard dual electrical sockets plus outlet for 300-ohm TV lead-in or 4-wire rotor lead-in. With mating plugs for each TV socket. Fit standard electrical boxes.

Mosley Number	Fig.	Description	Net Each
AC-1PK1	M	With single 300-ohm socket; Ivory	\$1.27
AC-1PKB	M	Same, but brown	1.30
AC-11PK*	M	With two 300-ohm sockets	1.73
AC-111PK1	M	Triple 300-ohm sockets; Ivory	3.46
AC-111PKB	M	Brown version of above	3.57
AC-14PK*	M	With 300-ohm socket and 4-wire rotor sect.	2.30
AC-114PK*	M	With two 300-ohm 4-wire socket	2.80

## NEW DUO-SOUND WALL OUTLETS

Mosley Number	Fig.	Description	Net Each
DS-11	...	Flush wall outlet for TV plus audio jack; use up to 4 for TV, unlimited for audio for home systems on a single line; Ivory	\$3.32
DS-1B	...	Same, but brown	3.34
DS-1PK1	...	DS-1, with plug & mounting bracket; Ivory	3.67
DS-1PKB	...	Same, but brown	3.71

## TV LINE PLUGS AND SOCKETS

Mosley Number	Fig.	Description	Net Each
303-1	N	3-prong line plug mates with all Mosley TV lead-in 300-ohm wall sockets; Ivory	\$0.21
303-B	N	Same, but brown	.22
301	O	2-prong 300-ohm plug mates with all Mosley TV sockets plus crystal sockets; clear	.21
311	P	Mating line socket to 301; clear	.21
321	Q	Polarized line connector intermates in prs.; prevents polarity reversal; clear	.40
374-11	...	4-wire line plug version of 303-1; mates with all Mosley 4-wire rotor sockets; Ivory	.51
374-B	...	Same, but brown	.52
364*	...	Mating line socket for 374	.95
364-PK*	...	Complete unit; 374 plus 364	1.48
27-S	R	Line splicer interconnects two 300-ohm flat lines; clear	.13
29-S	S	Same but for tubular to flat line connection	.14
304	T	Input adapter connector attaches to TV set at antenna terminals for plug in connection of lead-in using 311 line socket to mate	.21
304-PK	T	Same, but with socket	.41

## "Y-TY" STRAIN RELIEF CONNECTORS

Eliminate lead-in breakage where line connects to antenna elements. Sturdy clamp holds line insulation securely.

Mosley Number	Fig.	Description	Net Each
263-L	U	For antennas with 4" to 8" between terms	\$0.44
263-S	U	Same, but with terminals 4" or less apart	.44

## TUNABLE WAVE TRAPS (FIG. X)

Help knock-out TVI and BCI. HI-Q resonant type can be used on 50 to 600-ohm (bal. or unbal.) receiver input. Solderless.

Mosley No.	Frequency	Mosley No.	Frequency	Net Each
WT-7	6.8-8.5 mc	WT-41	27-55 mc	\$3.19
WT-14	13.8-16 mc	WT-78	47-110 mc	3.19
WT-21	16-28 mc	WT-165	100-230 mc	3.19

## ANTENNA COAT COMPOUND

Epoxy compound forms tough, clear protective film on metal or other surfaces. Ideal to protect TV antennas, masts, rotors and other equipment against corrosion. Use with brush or spray.

Mosley No. E-101 Antenna Coat—Mixes to 1/2 pint. Net. . . \$2.26

Mosley No. E-46 Antenna Coat Solvent—Net Each. . . . . \$0.80

## TV ANTENNA SWITCHES

Mosley No. F-10\* Wall Switch With Socket (Fig. W)—Flush mounting wall plate with 300-ohm line socket and 3-way, rotary switch. Specify brown or Ivory. Net Each. . . . . \$2.61

Mosley No. F-10PK\*—Same, with line plug, brackets. Net. . . . . 3.06

Mosley No. F-201 Switch (Fig. V)—3-way surface-mounting switch with extension rod; handles 3 incoming lines; 1 line out to TV set. Solderless connection; Ivory. Net Each. . . . . \$2.53

Mosley No. F-20B—Same, but brown. Net Each. . . . . 2.61

Mosley No. F-42\* Two-Way Switch—Low insertion loss for UHF or VHF; rotary switch with solderless connections. Surface mounting; wood screws supplied. Brown or Ivory. Net Each. . . . . \$1.39

\*Add suffix B to specify brown or I for Ivory when ordering; same price. †Available in five and eight wire versions also; prices on request.



# BLONDER-TONGUE TV/FM Equipment

Blonder-Tongue television amplifiers, antenna boosters, mixers, distribution amplifiers and accessories are designed for home systems, large and small master systems, and commercial installations. For use in every type of reception area, primary or fringe and every type of TV installation.

## TV AND FM MAST-MOUNTED SIGNAL AMPLIFIERS

### TWO-TRANSISTOR UHF/VHF AMPLIFIER MODEL U/VAMP-2

World's first outdoor all-channel signal amplifier provides peak performance from channel 2 through 83. Fully obsolescence proof... amplifies all present and future channels that may come on the air. Separate antenna inputs for UHF and VHF allow use of best antenna for each band. Built-in low-loss UHF/VHF splitter separates signal at TV set for UHF converter antenna terminals. Amplifier mounts easily on mast; remote AC power supply sends safe 15 volts to amplifier up antenna twin lead. Inputs, separate UHF and VHF, 300 ohms balanced; outputs, separate UHF and VHF, 300 ohms balanced. **Operating Temperature Range:** -40° F to +145° F. **Power Required:** 117 VAC, 60 cps, 0.03 amps. **Size:** Amplifier, 4" x 2 3/4" x 1 3/4"; power supply, 4 3/4" x 2 3/4" x 1 3/4". Shpg. Wt., 1 1/4 lbs. **Blonder-Tongue Model U/VAMP-2 UHF/VHF Amplifier—** **\$325**  
Net Each.....

### TWO-TRANSISTOR TWO-SET VHF AMPLIFIER MODEL VAMP-2

Deluxe home TV amplifier features a powerful two-transistor circuit that brings in sharp, clear pictures where other units fail. Built-in trap minimizes overload from strong local FM or TV stations. Amplifier increases signal strength up to five times when delivered to one set. Splitter at power supply provides good set isolation and precise impedance match. Low noise. Easy to install. Remote power supply can be placed anywhere indoors; delivers power to amplifier up twin lead. Input, 300 ohms balanced; output, two, 300-ohm balanced. Stripless 300-ohm terminals. **Power Required:** 117 VAC, 60 cps, 0.03 amps. **Size:** Amplifier, 4" x 2 3/4" x 1 3/4"; power supply, 4 3/4" x 2 3/4" x 1 3/4". Shpg. Wt., 1 1/4 lbs. **Blonder-Tongue Model VAMP-2 VHF Amplifier—** **\$2585**  
Net Each.....

### TWO-TRANSISTOR 75-OHM VHF AMPLIFIER MODEL VAMP-2-75

Powerful two-transistor amplifier excellent for color TV; ideal for any small professional MATV system in homes, TV showrooms or service shops. When used with 75-ohm shielded coaxial cable, unit provides consistently good pictures even during changing weather conditions. Single 75-ohm output can be split to handle eight or more TV sets. Weatherproof, cast-aluminum housing attaches to mast in seconds; remote power supply can be put anywhere indoors. Amplifier input, 300 ohms balanced; output, 75 ohms unbalanced (BTF connector). **Average Gain:** Channel 2-6, 15.5 db; channel 7-13, 13 db. **Power Required:** 117 VAC, 60 cps, 0.03 amps. **Size:** Amplifier, 4" x 2 3/4" x 1 3/4"; power supply, 4 3/4" x 2 3/4" x 1 3/4". Shipping Weight, 1 1/4 lbs. **Blonder-Tongue Model VAMP-2-75 VHF Amplifier—** **\$2955**  
Net Each.....

### TRANSISTORIZED VHF AMPLIFIER MODEL VAMP-1

Quality-made amplifier to improve reception in weak signal areas where there are no strong local channels. Transistor circuit boosts signal up to five times; provides lower noise figure than tube-type boosters. Low heat dissipation and power drain. For one set. Trap prevents FM station overload. Easy to install with "Miracle Mount", included. Includes remote power supply. Input and output, 300 ohms balanced. **Power Required:** 117 VAC, 60 cps, 0.03 amps. **Size:** Amplifier, 4" x 2 3/4" x 1 3/4"; power supply, 4 3/4" x 2 3/4" x 1 3/4". Weight, 1 1/4 lbs. **Blonder-Tongue Model VAMP-1 VHF Amplifier—** **\$1710**  
Net Each.....

### DELUXE BROADBAND VHF/FM BOOSTER MODEL AB-3 AND MODEL RP-3 POWER SUPPLY

Boosts TV and FM signals more than 25 db. Can be used with either 300-ohm, or 75-ohm coax or open-line. Remote operation on either 110 volts (booster can be located up to one mile from remote control unit) or 117 v. AC. Single multiplex line carries power to mast mounted booster and TV or FM signal to set. Automatic or manual on/off operation. Solderless 75-ohm and striplless 300-ohm connectors simplify installation. **Minimum Gain:** 22 db on VHF and FM bands. **Impedance:** 300-ohm input; 75 or 300-ohm outputs. **Tubes:** 1-6DJ8, 2-6EW6. **Power Required:** 117 v. AC, 60 cps, 40 watts manual on/off. Automatic on/off, 117 v. AC, 135 watts minimum load; 500 watts maximum load. **Size:** Booster, 7 3/4" x 5 3/4" x 5 3/4"; Control, 6 3/4" x 3 3/4" x 4 3/4". Shipping Weight, 5 lbs. **Blonder-Tongue Model AB-3 Mast-Mounted VHF/FM Booster with RP-3** **\$860**  
Remote Power Supply—Net Each.....

### SINGLE-CHANNEL VHF AMPLIFIER MODEL CB

Single-channel TV amplifier for antenna mounting, enclosed in a weatherproof housing. May be used in the home as a preamplifier or booster to increase signal strength for a single weak channel, or in conjunction with other CB amplifiers to make an economical and powerful multi-channel TV amplification system. Permits use of separate antennas. Frame-grid circuitry for maximum gain and minimum noise. May be used indoors or outdoors. Features 300-ohm striplless terminals at the inputs and two solderless 75-ohm coax connectors at the outputs. Units are easily installed in sequence for multi-channel reception. Swing-down chassis permits quick, convenient servicing. **Gain:** Ch. 2-6, 21 db; Ch. 7-13, 18 db. **Noise Figure:** Ch. 2-6, 3.5 db; Ch. 7-13, 7 db. **Maximum Output:** 0.5 volt, 1 1/2% cross modulation. **Response:** ±0.5 db over 6 mc TV channel. **Impedance:** Input, 300 ohms; Output, two 75-ohm coax. **Tubes:** 1-6DJ8/ECC88. **Power Required:** 117 v. AC, 60 cps, 0.09 ampere. **Size:** 6 1/2" x 5 1/4" x 4 3/4". Shipping Weight, 4 lbs. Mounting bracket and stainless steel strap supplied for mast mounting. **Blonder-Tongue Model CB TV Channel Amplifier—Specify channel desired.** **\$435**  
Net Each.....

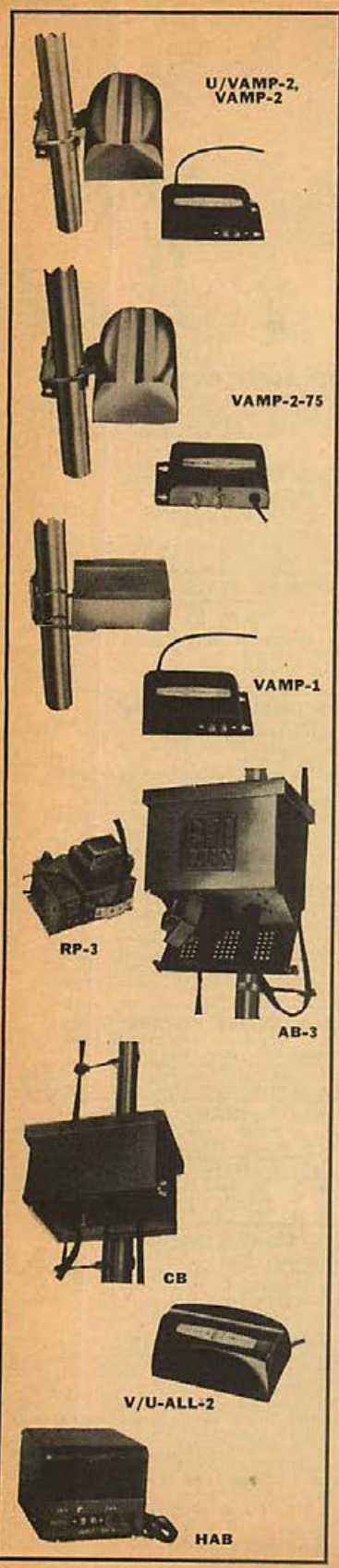
### TV AND FM SIGNAL AMPLIFIERS FOR INDOOR USE

#### TWO-SET UHF/VHF AMPLIFIER MODEL V/U-ALL-2

World's first indoor all-channel TV amplifier boosts reception from channel 2 through 83. Low-noise two-transistor circuit provides gain to bring in weak channels, yet won't overload on strong local stations; unit draws so little current, it may be left on permanently. Can be used with one or two TV sets. Splitter gives excellent impedance match and set isolation. Built-in filter prevents overloading from local FM stations. Single 300-ohm input accepts combined UHF/VHF twin lead; output is two combined UHF/VHF signals at 300 ohms. Extremely easy to install anywhere indoors. Striplless 300-ohm screw terminals. **Operating Temperature Range:** -40° F to +145° F, ambient. **Power Required:** 117 VAC, 60 cps, 0.09 amps. **Size:** 4" x 2 3/4" x 1 3/4". Shpg. Wt., 1 lb. **Blonder-Tongue Model V/U-ALL-2 UHF/VHF Amplifier—** **\$2750**  
Net Each.....

#### DELUXE VHF/FM ALL-CHANNEL AMPLIFIER MODEL HAB

Provides 25 db gain on ch. 2-13, including the FM band. Premium frame-grid circuitry and separate high and low band amplification offers maximum gain and minimum noise. Easy installation with solderless 75-ohm coax connectors or 300-ohm striplless terminals at both input and output. **Gain:** High and Low band TV, FM band, 23 db ± 1 db. **Noise Figure:** 54-108 mc, 4 db; 174-216 mc, 7 db. **Maximum Output:** 54-108 mc, 0.7 volt; 174-216 mc, 0.6 volt. Both with 1% cross modulation, measurements for 75 ohms. **Impedance:** Input, 300 ohms; Output, 75 ohms. **Tubes:** Low band, 1/2-6DJ8/ECC88, 1-6EW6; High band, 1/2-6DJ8/ECC88, 1-6EW6. **Power Required:** 117 v. AC, 60 cps, 0.24 ampere, 19 watts. **Size:** 6" x 4 3/4" x 5 3/4". Shipping Weight, 5 lbs. **Blonder-Tongue Model HAB VHF/FM Amplifier—** **\$4965**  
Net Each.....



U/VAMP-2,  
VAMP-2

VAMP-2-75

VAMP-1

AB-3

CB

V/U-ALL-2

HAB



# BLONDER TONGUE TV/FM Equipment

## ALL-CHANNEL SOLID STATE "ULTRAVERTER" CONVERTERS FOR UHF TV

### DELUXE UHF CONVERTER/BOOSTER MODEL BTX-11A

Powerful, highly stable converter/amplifier engineered especially for home use. Excels in weak signal areas by producing superlative TV pictures in color as well as black and white. Has dual-speed 100-to-1 fine tuning vernier and illuminated dial for smooth, easy tuning. Double-tuned UHF input circuits and shielded oscillator section assure interference-free reception. Efficient, low-noise amplifier multiplies TV signal three times for dependable pictures even in difficult fringe areas; won't overload in prime signal areas. Covers channels 14-83; output on channel 5 or 6. Stripless 300-ohm terminals. **Power Required:** 117 VAC, 60 cps. **Size:** 6" x 3 3/4" x 3 1/4". **Weight,** 1 3/4 lbs. **\$31.20**  
Blonder-Tongue Model BTX-11A "Ultraverter"—Net Each.....

### UHF CONVERTER MODEL BTX-99A

All-channel solid state unit ideal for prime signal areas up to 20 miles from station. Performs well with only an indoor antenna in many locations. Similar to Model BTX-11A but does not boost signal or have fine tuning control. Offers drift-free performance and low noise figure for snow-free pictures on all UHF channels. Output on channel 5 or 6. Stripless 300-ohm terminals. **Power Required:** 117 VAC, 60 cps. **Size:** 6" x 3 3/4" x 3 1/4". **Shipping Weight,** 1 3/4 lbs. **\$19.85**  
Blonder-Tongue Model BTX-99A "Ultraverter"—Net Each.....

### BATTERY-POWERED UHF CONVERTER MODEL BTD-44

First quality, solid state converter at a surprisingly low price. Features reliable tunnel diode circuitry, highly selective tuned RF stage, and positive, easy tuning. Brings in sharp pictures on all channels from 14 to 83 without signal inversion or distortion at high end of spectrum. Employs modern, cordless power for convenient, economical operation; operates 6 to 9 months on a single flashlight battery. For use in prime signal areas only. Output on channel 5 or 6. Stripless 300-ohm terminals. **Power Required:** One 1 1/2-volt "D" cell. **Size:** 6" x 3 3/4" x 3 1/4". **Weight,** 1 3/4 lbs. **\$13.20**  
Blonder-Tongue Model BTD-44 "Ultraverter"—Net Each.....

## TV AND FM BOOSTERS, AMPLIFIERS, COUPLERS, ACCESSORIES

### VHF POWER BOOSTER MODEL B-24c

May be used as a booster or as an amplified coupler. Fine for home systems. On low band, provides more than 10 db gain on all VHF channels for one-set operation, and up to 6 db gain on two sets, and 1.5 db gain on four sets. Couples 4 sets to one antenna, insuring isolation between sets. Low-noise, frame-grid amplifier. No tuning required. Easy installation is accomplished with 300-ohm stripless terminals. Covers all TV channels including converted UHF channels. **Noise Figure:** Low band, 4 db; High band, 7 db. **Impedance Input:** 300-ohms. **Output:** 300-ohm balanced. **Isolation:** 6 db between sets. **Power Required:** 117 v. AC, 60 cps, 0.1 ampere. **Size:** 6 1/4" x 3 3/4" x 2 1/4". **Weight,** 1 3/4 lbs. **\$17.25**  
Blonder-Tongue Model B-24c Power Booster—Net Each.....

### FM STEREOBOOSTER MODEL FMB

Compact, broadband FM amplifier covers entire FM band from 88-108 mc. Assures powerful, distortion free reception by increasing signal strength five times prior to signal entering tuner or radio. Features extremely low noise figure essential in FM stereo, plus high gain. Strong signal handling capability eliminates overload. Needs no separate balun. Stripless terminals for simple indoor installation. **Average Power Gain:** FM, 18 db. **Noise Figure:** FM, 3.8 db. **Input Impedance:** 300-ohm balanced. **Output Impedance:** 300-ohm balanced. **Power Required:** 117 v. AC, 60 cps, .07 amp, 6 watts. **Size:** 6 1/4" x 3 3/4" x 2 1/4". **Shipping Weight,** 1 3/4 lbs. **\$16.95**  
Blonder-Tongue Model FMB FM Stereo booster—Net Each.....

### VHF DISTRIBUTION AMPLIFIER MODEL DA8-b

Distribution amplifier for (3-8) TV receivers from one antenna. Provides isolated outputs to eight sets from 75-ohm or 300-ohm input. Delivers more than 10 db gain on all VHF channels. Needs no tuning or other special accessories. Low noise, all-triode circuitry. Provision for 75-ohm coax or 300-ohm twin-lead at each output. Overload prevented with a 10:1 gain control range. Easy installation, includes power supply, grounding clamps, solder lugs, and terminating resistors. **Gain:** More than 10 db; antenna to each output. **Gain Control:** 20 db (10:1) range. **Isolation:** More than 22 db between outputs. **Tubes:** 4-6J6. **Power Required:** 117 v. AC, 60 cps, 42 watts. **Size:** 9" x 5" x 5 1/2". **Shipping Weight,** 7 lbs. **\$64.95**  
Blonder-Tongue Model DA8-b Distribution Amplifier—Net Each.....

### TV AND FM RECEIVER COUPLERS AND ACCESSORIES

**Blonder-Tongue Model A-104U/V Four-Set UHF/VHF/FM Coupler**—All-channel (2-83) coupler connects up to four sets to a single antenna. Low insertion loss and excellent isolation between sets. For UHF/VHF TV and FM. No-strip 300-ohm terminals. **\$350**  
Shipping Weight, 1/2 lb. Net Each.....

**Blonder-Tongue Model A-102U/V Two-Set UHF/VHF/FM Coupler**—All-channel coupler to connect two sets to a single antenna or amplifier. Low loss and high isolation. Covers TV channels 2-83 plus FM. No-strip 300-ohm terminals. **\$225**  
Shipping Weight, 1/2 lb. Net Each.....

**Blonder-Tongue Model A-105 Hi-Lo TV Coupler**—Combines low band and high band VHF antenna outputs or provides separate low and high band outputs from a single antenna. Weatherproofed in plastic case, 3" x 2 1/2" x 1 1/4". **Weight,** 1/4 lb. **Net..... \$3.85**

**Blonder-Tongue Model A-107 UHF-VHF TV Coupler**—Combines VHF and UHF antenna outputs or provides separate UHF and VHF outputs from a common line or antenna. Weather protected and housed in plastic box, 3" x 2 1/2" x 1 1/4". **Weight,** 1/2 lb. **Net Each..... \$3.40**

**Blonder-Tongue Model MT-283 Matching Transformer**—High quality transformer for most mounting or indoor use. For UHF/VHF TV and FM. Good VSWR and low loss on both UHF and VHF. Insertion loss less than 1 db. Includes most mounting accessories and male "F" connector. Matches 300 ohms to 75 ohms, and vice versa. **Shipping \$4.50**  
**Weight,** 1/2 lb. **Net Each.....**

**Blonder-Tongue Cablematch U/V UHF/VHF/FM Matching Transformer**—High-quality all-channel matching transformer for indoor use. Good VSWR and low loss. Complete with lead and spade lugs for attaching to set antenna terminals, etc., and mating 75-ohm solderless plug. Matches 75 ohms to 300 ohms. **Shipping Weight,** 1/2 lb. **Net Each..... \$3.00**

**Blonder-Tongue Cablematch VHF/FM Matching Transformer**—Same as above, except for VHF and FM only. **Shipping Weight,** 1/2 lb. **Net Each..... \$1.90**

**Blonder-Tongue Model Miracle Mount Outdoor Mounting Kit**—For mounting above couplers. **Net Each..... 73c**



BTX-11A



BTX-99A



BTD-44



B-24c



FMB



DA8-b



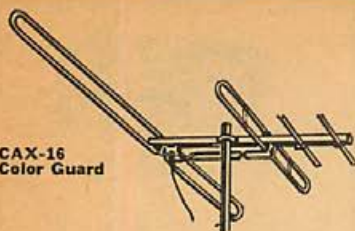
Receiver Couplers



## NEW COLORAXIAL\* PRODUCTS FOR BETTER COLOR TV

A complete line of antenna products for feeding any color TV set through 75-ohm shielded coaxial cable, or for easy conversion of an existing 300-ohm twin-line antenna installation to coax operation. Rugged, efficient coax is truly a "must" for color reception without changes in color, ghosting, and picture smearing. Also best for black-and-white TV, as well as FM stereo.

**CAX-16**  
Color Guard



### MODEL CAX-16 COLOR GUARD VHF ANTENNA

Coaxial version of the famous Jerrold Color Guard antenna for metropolitan and suburban reception areas. Already prematched to 75-ohm coax. Boom length, 26 3/4"; length of longest dipole, 96". No mast-mounted matching transformer is needed; requires indoor Model T-378. Shipping Weight, 3 lbs. **\$7.17**

**Jerrold Model K-CAX-16 Coloraxial Antenna Kit**—Includes everything necessary for a complete Coloraxial antenna installation: one CAX-16 antenna; antenna tri-mount with 5-ft. mast; CAB-50 coax with fittings and weatherboot; and set-mounting T-378 matching transformer. Net Each. **\$17.97**

### MODEL PAX-40 COLORAXIAL PARALOG VHF ANTENNA

Coloraxial version of the world-renowned Jerrold JTP-40 Paralog antenna. For difficult suburban areas. Log periodic design, with four driven elements and two parasitic elements. Prematched to 75-ohm coax. Boom length, 45 3/8". Requires indoor T-378 matching transformer. **\$13.77**

**Jerrold Model PAX-40 Paralog VHF Antenna**—Net Each. **\$13.77**

### MODEL PAX-60 COLORAXIAL PARALOG VHF ANTENNA

Coloraxial version of the JTP-60 Paralog. For suburban to semi-fringe areas. Log periodic design; employs six driven and two parasitic elements. Prematched to 75-ohm coax. Boom length, 71 3/8". Requires T-378. **\$19.77**

**Jerrold Model PAX-60 Paralog VHF Antenna**—Net Each. **\$19.77**

### MODEL CAT-2 MATCHING TRANSFORMER KIT

Permits conversion of existing 300-ohm installations to 75-ohm coax. Includes one TO-374A mast-mounting transformer and one T-378 set-mounting transformer. Supplied with bracket and mounting strap for TO-374A. **\$4.92**

**Jerrold Model CAT-2 Matching Transformer Kit**—Net Each. **\$4.92**

### MODEL CAB COAXIAL CABLE KITS

Lengths of highly efficient RG-59/U coaxial cable supplied complete with F-59A fittings attached to each end, plus weatherboot for the outdoor connection. Fully sweep-tested at factory to eliminate all flaws. **\$5.13**

**Jerrold Model CAB-50 Coax Kit**—50-ft. length. Net Each. **\$5.13**

**Jerrold Model CAB-75 Coax Kit**—75-ft. length. Net Each. **\$6.21**

### OUTDOOR VHF ANTENNA AMPLIFIERS

#### MODEL SPC-103 "SUPER-POWERMATE" COAXIAL TYPE

High-gain, mast mounting transistor preamplifier to bring in distant TV stations without overloading from strong local TV signals. Provides excellent gain with low noise figure and flat response for crisp, clear color pictures. Preamplifier mounts on antenna boom; remote power supply, with switch-selected 75- or 300-ohm output, mounts behind TV set. Shipping Weight, 2 lbs. **\$31.97**

**Jerrold Model SPC-103 "Super-Powermate"**—Net Each. **\$31.97**

#### MODEL SPC-132 SOLID STATE "POWERMATE" DE-SNOWER

A super-gain, five transistor antenna amplifier for extreme fringe areas or wherever high driver gain is needed. Averages 30 db gain on the high TV band, 26 db on the low band. Two transistor preamp mounts on mast; has coaxial down lead for extremely low noise. Signal is further amplified by three transistor circuit in the remote power supply. Impedance: 300 ohms from antenna to amplifier; dual 75 or 300-ohm outputs to set. Shipping Weight, 2 1/2 lbs. **\$65.50**

**Jerrold Model SPC-132 "Powermate" De-Snowmer**—Net Each. **\$65.50**

### MODEL MK-1 "MAGIC CARPET" VHF TV/FM ANTENNA

Famous "indoor antenna with outdoor performance" is the first full-scale printed circuit antenna. Truly a "Magic Carpet" carrying quality TV/FM signals to receivers in the home, the MK-1 is easily installed (lay it on any flat, horizontal surface in the attic, place it under a rug, or staple it to a ceiling) and simple to orientate (shift its position for best reception). Properly installed, the MK-1 provides reception comparable with an outdoor, conical-type antenna mounted in the same location. The "Magic Carpet" provides excellent reception of TV stations within a 30-mile radius and of FM stations within a much greater radius. The antenna is shipped complete with six plastic strap insulators (Model HS-36) and 25 feet of twin-lead for attachment to either a home amplifier or to a TV/FM receiver. Shipping Weight, 1 3/4 lbs. **\$3.90**

**Jerrold Model MK-1 "Magic Carpet" TV/FM Antenna**—Net Each. **\$3.90**

\*Jerrold trademark.

### INDOOR TV, TV/FM COUPLERS

#### MODEL TA-66 "SUPER-POWERMATE" VHF TV COUPLER

Twin-transistor, amplified, four-set TV coupler provides high gain overload to all outputs. Four-set terminals arranged to allow increased gain with connection of two or three sets instead of four. Unexcelled in input overload, gain and output capability. Noise figure is 4.2 db over low band; 8.3 db over high band. Fully isolated power supply; no shock hazards. "Strip or No-Strip" washers permit speedy installation. **\$22.95**

**Jerrold Model TA-66 Amplified "Super-Powermate" TV Coupler**—Net. **\$22.95**

#### MULTI-SET TV/FM COUPLERS

Provide best means for connecting two, three, or four TV/FM receivers to antenna array. Features: Positive matching, very low loss, universal mounting, high isolation, "No Strip" serrated washers on terminals, and unbreakable case. Mount indoors in attic or basement or on baseboard. Mount outdoors on antenna mast or on side of house. Bracket and necessary hardware for mounting supplied. **\$2.70**

**Jerrold Model MF-2**—Two-set coupler for VHF fringe areas. **\$2.70**

**Jerrold Model MF-4**—Four-set coupler for all VHF areas. Net Each. **\$3.45**

**Jerrold Model M-2A**—Two-set coupler for strong signal areas. Best for UHF reception. Net Each. **\$1.86**

**Jerrold Model UF-2**—Two-set UHF coupler. Feeds two UHF sets from single antenna. Low loss. Good isolation. Net Each. **\$2.70**

**Jerrold Model 820-2**—Economy two-set VHF coupler. Net Each. **1.92**

**Jerrold Model 820-3**—Economy three-set VHF coupler. Net Each. **2.19**

#### SPECIAL VHF TV/FM ANTENNA SPLITTER

Splits TV/FM signals from a common antenna without loss to either signal. Provides complete isolation between TV and FM sets; ideal for FM multiplex tuner or radio. **\$3.95**

**Jerrold Model TX-FM Antenna Splitter**—Net Each. **\$3.95**



**CAT-2**  
Transformer  
Kit



**SPC-103, SPC-132**



**MK-1 "Magic Carpet" Antenna**



**TA-66**



**Multi-Set  
Couplers,  
TX-FM  
Splitter**



## SOLID STATE TV, TV/FM ANTENNA AMPLIFIERS

### MODEL SPM-102 VHF "SUPER-POWERMATE"

Twin-transistor TV preamplifier featuring up to 700,000 microvolts output; high gain-overload combination. Excellent noise figure assures gain 7.17 db, average at channel 13; 4.31 db, channel two. Unusual color reception due to extremely flat frequency response; allows a deviation of 0.6 db over entire low band; 0.2 db on high band. Ideal for fringe and weak signal areas; provides "snow-free" TV pictures. Power line operation eliminates battery expense. Weatherproof compact light metal case is shielded from spurious signals. Remote power supply contains dual outputs. Impedance, 300 ohms. Weight, 2 lbs. **\$29<sup>95</sup>**  
**Jerrold Model SPM-102 "Super-Powermate"—Net Each**



"Super-Powermate" Antenna Amplifier and Remote Power Supply



### MODEL LPM-102 VHF/FM "POWERMATE SPECIAL"

Similar to SPM-102, but one-transistor circuit for areas with no overload problems. Average gain, 11.5 db. Includes antenna-mounting preamp and remote power supply. **\$19<sup>95</sup>**  
**Jerrold Model LPM-102 "Powermate Special"—Net Each**

### MODEL APM-102 VHF/FM "POWERMATE"

Super-gain, low-noise Powermate for fringe areas with no overload problems. Transistorized circuit covers VHF TV and FM bands. Average gain, 12 to 18.2 db. Similar to LPM-102. Includes antenna-mounting preamp and remote power supply. Impedance, 300 ohms. **\$26<sup>83</sup>**  
**Jerrold Model APM-102 "Powermate"—Net Each**

### MODEL UPM-104 UHF "POWERMATE"

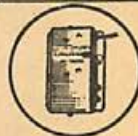
Super-gain, twin-transistor antenna amplifier for fringe and deep-fringe UHF areas. Extremely high average gain; 13.7 db on all UHF channels from 14 to 83. Amplifier mounts on mast or reflector screen of antenna; remote power supply can be up to 100 feet away. Impedance, 300 ohms. Weight, 2 lbs. **\$33<sup>50</sup>**  
**Jerrold Model UPM-104 "Powermate"—Net Each**



"Powermate" Antenna Amplifier and Remote Power Supply

### MODEL ULP-104 UHF "POWERMATE SPECIAL"

High-gain unit similar to UPM-104, but one-transistor circuit for average gain of 4.7 db. Ideal for better viewing on UHF receivers or easier conversion by UHF converters. **\$23<sup>30</sup>**  
**Jerrold Model ULP-104 "Powermate Special"—Net Each**



### "INDOOR POWERMATE" SOLID STATE AMPLIFIED COUPLERS

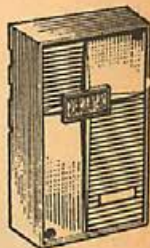
These efficient amplified couplers mount on any flat surface indoors. Have universal (strip or no-strip) screw terminals for easy connection of 300-ohm twin lead. Each is attractively housed and powered from any 117 VAC source.

#### MODEL TA-12 TWO-SET VHF/FM AMPLIFIED COUPLER

Provides sufficient gain to more than adequately drive two VHF TV sets from a single antenna. Average gain: 3 db on low band; 4.5 db on high band. For use in areas without overload problems. Shipping Weight, 12 oz. **\$11<sup>95</sup>**  
**Jerrold Model TA-12 Two-Set Coupler—Net Each**

#### MODEL TA-24 FOUR-SET VHF/FM AMPLIFIED COUPLER

Special transistor in this coupler provides gain to supply four VHF TV sets from one antenna. Average gain: 3.2 db on low band; 4.5 db on high band. If just two or three sets are used, more signal is available at each of two outputs or at one of three outputs. For use in areas without overload problems. Shipping Weight, 8 oz. **\$16<sup>75</sup>**  
**Jerrold Model TA-24 Four-Set Coupler—Net Each**



#### MODEL TAU-12 TWO-SET UHF AMPLIFIED COUPLER

The first two-transistor amplified two-set coupler for UHF TV. Model TAU-12 provides sufficient gain to more than adequately supply two TV sets from one antenna. Average gain on all UHF channels, 2.5 db. Well suited for use in fringe or near-fringe areas. Isolation between outputs, 10 db. Shpg. Wt., 1 lb. **\$19<sup>95</sup>**  
**Jerrold Model TAU-12 Two-Set UHF Coupler—Net Each**

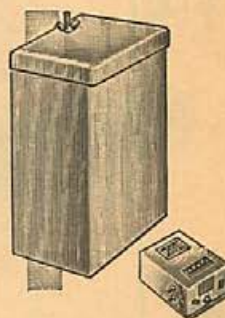
"Indoor Powermate" Amplified Couplers for TV or FM Stereo

#### MODEL SRX FM-STEREO RANGE EXTENDER

Here's the "Indoor Powermate" for the FM band. Incorporates all-transistor circuit to couple FM receiver to an existing broad-band TV antenna, split the FM and TV signals, and then boost the FM signal. Features gain of 15.5 db across entire 88-108 Mc FM band for excellent stereo reception. Input filter has maximum loss of only one db across TV band except for channel 6 (unit should not be used where color reception on this channel is required). Mounts easily on back of set. Shipping Weight, 1 1/4 lbs. **\$19<sup>95</sup>**  
**Jerrold Model SRX FM-Stereo Range Extender—Net Each**

#### MODEL DSA-\* SINGLE-CHANNEL "DE-SNOWER" PREAMP

Covers any channel from 2 to 13 (specify channel when ordering). Gain: 28 db. Bandwidth: 6 mc any TV ch. Frequency Response: 1/2 db max. p/v. Noise Figure: 6 db max. lo-ch.; 7.5 db max. hi-ch. Output: at 300 Ohms: 1.2 v. rms lo; 1.0 v. rms hi. Output at 75 Ohms: 0.6 v. rms lo; 0.5 v. rms hi. Input Impedance and Output Impedance: 75 or 300 ohms. Tubes: Lo-band, 1-6BQ7-A, 1-6CB6; Hi-band, 1-6BQ7-A, 1-6AK5. Power Supply: 117 VAC, 60 eps, 30 watts. Size: Preamp, 2 1/2" x 5" x 10 1/4". Shipping Weight (complete with power supply and accessories furnished): 8 1/4 lbs. **\$65<sup>67</sup>**  
**Jerrold Model DSA-\* Single Channel "De-Snower" Preamplifier—Net Each**  
 \*Specify channel when ordering.

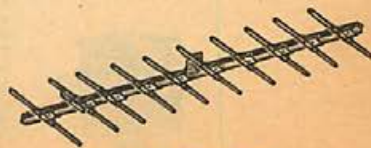


DSA Single-Channel Preamplifier and Remote Power Supply

## VHF TV/FM DISTRIBUTION ANTENNAS

### J-SERIES HEAVY-DUTY 75-OHM MASTER ANTENNAS

Broadband log-periodic antennas and cut-to-channel Yagi models especially for master antenna systems. Welded, bolted construction lasts as long as the rest of the system. Iridized finish and end-sealed elements prevent corrosion. Elements are reinforced 1-piece 1/2" O.D. seamless 6061-T6 aluminum; withstand ice and wind loading. Minimum gain, 10.5 db on 10-element high channel Yagis; 8 db, 5-element low channel Yagis. With 75-ohm gamma match network. With Model F-61 silver-plated coax cable connection; mates to F-59 connector and weather boot supplied. Broadband models are true log-periodic design, assuring flat response and matched output over entire band. Feature minimum gain of 8 1/2 db on high band, 8 db on low band. Stacking kits with instructions available. **\$37-50**  
**Jerrold Model J55-\* (Low Band) or J105-\* (High Band) Yagi—Cut to desired channel. Net Each**  
**Jerrold Model J55-FM—Cut to FM band. Net Each**  
**Jerrold Model J55-Lo (Ch. 2-6) or J105-Hi (Ch. 7-13) Broadband—Net** **74.25**



J105—HI-Band



## HIGH-OUTPUT TV/FM BROADBAND AMPLIFIERS

Complete range of TV/FM broadband distribution amplifiers to fill any system need, from hotel to home. Models available for large, medium, small, and compact systems.

2880



2300A



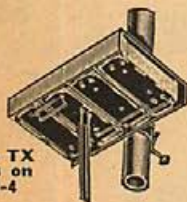
ABD-1A



406-A



AMN-HI



Four TX units on GP-4



AT-\*



G-1518



G-1404

### MODEL 2880 LARGE-SYSTEM AMPLIFIER

For use in large TV/FM distribution systems in hotels, schools, etc. Delivers 1 full volt output per channel—highest available. Minimum gain, 41 db on low band; 44 db on high band. Provision for cable equalization built-in. Dual, manual gain control has 14 db range. Has built-in receptacle for Automatic Overload Control. **Power Required:** 92 watts, 117 VAC, 60 cps. **Size:** 17" x 7" x 5 1/4". Shipping Weight, 18 lbs. **\$225<sup>75</sup>**  
**Jerrold Model 2880 Distribution Amplifier—Net Each.**

### MODEL 2300-A MEDIUM-SYSTEM AMPLIFIER

High gain, high output amplifier covers TV channels 2-13, plus FM. Ideal for medium-sized systems in motels, apartment buildings, etc. Minimum gain, 40 db high band; 39 db low band. Input and output, 75 ohms. Delivers 0.3 volt per channel (in 7-channel system). Response is flat. = 0.5 db. Provision for cable equalization built-in. Has built-in receptacle for Automatic Overload Control. **Power Required:** 63 watts, 117 VAC, 60 cps. **Size:** 14 1/2" x 7 1/2" x 5 1/4". Shipping Weight, 12 1/2 lbs. **\$113<sup>08</sup>**  
**Jerrold Model 2300-A Distribution Amplifier—Net Each.**

### MODEL ABD-1A SMALL-SYSTEM AMPLIFIER

Broadband amplifier for use as head-end amplifier in small systems or as line extender in large systems. Good noise figure; excellent overload capabilities. Minimum gain, 22 db on low band; 20 db, high band. Input and output, 75 ohms. Delivers 0.3 v. per channel (7-channel operation). Covers channels 2 to 13, plus FM. Accommodates Model G-1518 eight-way splitter. Heavy-duty construction. **Power Required:** 45 watts, 117 v. AC, 60 cps. **Size:** 12" x 6" x 4 1/4". Shipping Weight, 9 lbs. **\$68<sup>95</sup>**  
**Jerrold Model ABD-1A Distribution Amplifier—Net Each.**

### MODEL 3440 SOLID STATE COMPACT-SYSTEM AMPLIFIER

Broadband amplifier employs solid state circuitry for high output capability and low noise figure. Dual-circuit input stage has switch-selectable 300- and 75-ohm terminals so that either twin lead or coax can be connected. Metal cabinet shields amplifier from RF radiation and spurious signal pick-up. Minimum gain, 22 db on low and high TV band; 19 db on FM band. Average noise figure, 5.1 db on low band; 7 db on high band. Output impedance, 75 ohms. **Power Required:** 5 watts, 117 volts AC, 60 cps.  
**Jerrold Model 3440 Distribution Amplifier—Price on Request.**

### MODEL 406-A\* SINGLE-CHANNEL AMPLIFIER

**Jerrold Model 406-A\***—Single channel amplifier for indoor mounting. **Gain:** 28 db. **Bandwidth:** = 1/2 db, 6 mc. **Output:** 0.6 volt rms, low band; 0.5 volt rms, high band, max. **Noise Figure:** 6 db low band; 7.5 db high band. **Impedances:** 75 or 300 ohms input; 75 ohms output. **Tubes:** 1-6BQ7A and 1-6CB6 (low band) or 1-6AK5 (high band). **Power Required:** 15 watts, 117 volts AC. **Housing:** Ventilated gray hammertone, 3" x 4" x 10 1/4". **\$46<sup>17</sup>**  
 Shipping Weight, 4 1/4 lbs. Includes (2) F-59 connectors. U/L Approved. Net Ea.

## ANTENNA MIXING NETWORKS

For mixing single-channel or broad band antennas into a common line. May be used in reverse as channel splitters. **AMN Series** is indoor mounting, has 75-ohm input and output, and a tunable filter. Gray hammertone finish. **TX Series** is universal mounting, has 300-ohm input and output, and a fixed filter. Complete with matched mixing jumpers and appropriate hardware.

- Jerrold Model AMN-HI**—For channels 7-13. Net Each. **\$18<sup>15</sup>**
- Jerrold Model AMN-LO**—For channels 2-6. Net Each. **\$18<sup>15</sup>**
- Jerrold Model TX-(\*)**—Single channel. (2-13) Net Each. **4.11**
- Jerrold Model TX-HL**—Mixes hi/lo VHF channels. Net Each. **4.11**
- Jerrold Model TX-FM**—FM from TV antenna. No loss. Net Each. **3.95**
- Jerrold Model TX-UV**—Mixes or splits VHF-UHF signals. Net Each. **4.11**
- Jerrold Model TX-HP**—High-pass filter. Rejects ham/CB interference. Net Ea. **3.57**
- Jerrold Model GP-4**—Mounting plate for 4 TX-(\*) units. Net Each. **1.67**

### MODEL AT-\* AUDIO-TROL

Audio modulator uses your unused TV channels to transport music, voice, radio, etc. to every receiver in a TV distribution system. The audio source may be an FM tuner, AM radio, records, tape or microphones. Used in conjunction with any commercial TV receiver; installed at head-end, no additional equipment or alterations are needed. Offers unique method of adding audio to existing or planned TV distribution in hotels, hospitals, schools, etc. Shpg. Wt., 9 lbs. **\$204<sup>75</sup>**  
**Jerrold Model AT-\* Audio-Trol—Net Each.**

### NEW MODEL AFT-2000 SOLID STATE AM/FM TUNER

Highly selective, sensitive, drift-free tuner for converting any AM or FM broadcast signal into an audio source for Jerrold's Audio-Trol Model AT-\*. Fully independent of the Audio-Trol, the tuner may be separately rack-mounted, or both units can be mounted together in a single cabinet. Designed with built-in, long-life reliability, the solid state AFT-2000 never needs realignment. Its 50  $\mu$ V AM sensitivity together with 10 kc bandwidth and 2.9  $\mu$ V FM sensitivity assure continuous optimum reception across both bands. Special circuit virtually eliminates overload or crosstalk from strong input signals. Has built-in ferrite loopstick antenna for AM and terminals for external 300-ohm FM antenna. **Sensitivity:** FM, 2.9  $\mu$ V usable; AM, 50  $\mu$ V/meter. **FM Rejection:** Image, better than 45 db; spurious response, better than 60 db. **AM Selectivity:** 10 kc bandwidth at 6 db points. **AM IF Rejection:** 55 db. **Power Required:** 117 volts AC, 60 cps. **Size:** 19" w. x 10 1/2" d. x 5 1/4" h. Shipping Weight, 14 lbs.  
**Jerrold Model AFT-2000 AM/FM Tuner—Price on Request.**

### MODEL G-1518 8-WAY COAXIAL SPLITTER

Eight outputs compacted into only nine cubic inches. Impedance-matched unit is designed for even splitting of signals transported over coaxial cables with high degree of isolation between the output terminals. Uses "Gamma Series" chassis fittings and push-on coaxial cable connectors for quick connect and disconnect of each output cable. **Frequency Range:** 54-216 mc. **Splitting Loss:** 9 db nominal, 10 db max. **Impedance:** 75 ohms, input and output. **VSWR:** Low band, 1.2 db max.; high band, 1.4 db max. **Size:** 3" w. x 2 1/2" d. x 1 1/4" h. Shipping Weight, 1 1/2 lbs.  
**Jerrold Model G-1518 Coaxial Splitter**—Includes nine Type G-59 cable connectors. Net Each. **\$18<sup>58</sup>**

### MODEL G-1404 FOUR-OUTLET ISOLATION NETWORK

Four-outlet tap-off network provides high isolation between the four outputs. Equipped with "Gamma" chassis fittings for quick connect and disconnect of coaxial cables. Line output and input terminals use F-59 connectors for permanent feed-through continuity.

Channel	2	4	6	7	9	13
Isolation, Db	22	20	18	15	14	13
Feed-Through Loss, Db	.25	.40	.50	1.2	1.3	1.4

**Jerrold Model G-1404 Isolation Network**—Includes two F-59 and four G-59 cable connectors. Net Each. **\$10<sup>39</sup>**  
 \*Specify channel when ordering.



## MODEL SVC-560 "SUPER VISTA" UHF CONVERTER

High gain low noise converter for reception of all UHF channels in weak or strong signal areas. 1N82A silicon diode mixer specifically used for low noise figure. Post amplifier, operating at channel five or six, is a highly reliable 2N2494 high frequency transistor selected for its low noise figure. Uses 6DV4 Nuvistor for long life, 12 second warm-up, and no-drift circuitry. **Frequency Range:** 470-890 mc; covers channels 14-83. **Input Impedance:** 300 ohms. **Output Impedance:** 300 ohms. **Power Required:** 110-120 v. AC. **Power Consumption:** 6 watts. **Size:** 11" w. x 6" d. x 4" h. Shipping Weight, 6 lbs. **Jerrold Model SVC-560 UHF Converter—Net Each.....\$2750**



SVC-560

## MODEL VC-100 "VISTA" UHF CONVERTER

UHF converter specifically designed to provide a strong-signal-area resident for all UHF stations through channels five or six. Oscillator employs 6DV4 Nuvistor and 1N82A silicon diode mixer for long life and stability, 12 second warm-up, and no-drift circuitry. **Frequency Range:** 470-890 mc; covers channels 14-83. **Input Impedance:** 300 ohms. **Output Impedance:** 300 ohms. **Power Required:** 110-120 v. AC. **Power Consumption:** 5 1/4 watts. **Size:** 11" w. x 6" d. x 4" h. Shipping Weight, 5 lbs. **Jerrold Model VC-100 UHF Converter—Net Each.....\$1995**



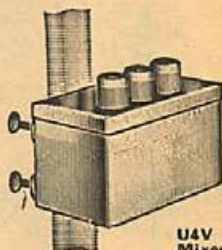
VC-100

## MODEL UTM-1 "TELE-MATE" CORDLESS UHF CONVERTER

Compact, efficient and beautifully styled UHF converter at a surprisingly low price. Completely solid state with maintenance-free tunnel diode design, the Tele-Mate has a low noise figure and requires no warm-up time. Works on unused channel 5 or 6 of any VHF TV receiver to bring in all UHF channels in the area. **Jerrold Model UTM-1 UHF Converter—Net Each.....\$1297**

## MODEL U4V UHF-TO-VHF CONVERTER

Converts any UHF channel to any VHF channel for better reception in fringe areas. Two-unit converter employs a Model 454T mixer head incorporating a solid state VHF amplifier installed at the antenna for optimum signal-to-noise ratio. Gives VHF conversion gain of 7 db min. on low band and 5 db min. on high band, and excellent noise figures of 10 db typical and 14 db max. Model 463 remote oscillator-power supply (finished) mounts indoors up to 100 feet from the head. Oscillator signals and DC are carried via RG-59/U coax up to the head, and amplified VHF signals via another coaxial cable down to the power supply. **Power Consumption:** 117 VAC, 60 cps, 25 watts. **Size:** Mixer head, 6 1/4" x 2 3/8" x 3 1/8"; oscillator-power supply, 9" x 4 1/4" x 5 1/4". Shipping Weight, 7 1/4 lbs. **Jerrold Model U4V\* UHF-to-VHF Converter—Net Each.....\$13500**



U4V Mixer Head

## MODEL U3V UHF-TO-VHF CONVERTER

Similar to Model U4V but for local reception. Employs same remote oscillator-power supply, but mixer does not have solid state amplifier. Low conversion loss: 9 db typical; 12 db max. Noise figure depends on following VHF amplifier. **Jerrold Model U3V\* UHF-to-VHF Converter—Net Each.....\$10500**  
\*To order Model U4V or U3V, specify both UHF channel and VHF channel desired; 300-ohm input supplied unless 75 ohms is specified.

## 300/75 OHM UHF MATCHING TRANSFORMERS

Specially designed wide-band impedance matching transformers eliminate need for field construction of baluns. Response is flat over entire UHF frequency range, 470 to 890 mc. Maximum insertion losses from 0.6 db at 470 mc to 1.2 db or less at 890 mc. Model MTU-372 is for indoor mounting; Model MTUO-374 is outdoor type. Model MTUO-374 passes AC with maximum current rating of 1 amp. Both models use F-61A connectors and crown washer screw terminals at 300-ohm side for fast no-strip twin lead installation. **Size:** MTU-372, 2 3/8" x 2 1/4" x 1 1/8"; MTUO-374, 3" x 2 3/4" x 2 1/4". **Jerrold Model MTU-372 Matching Transformer—Indoor type, Net Each.....\$360**  
**Jerrold Model MTUO-374 Matching Transformer—Outdoor type, Net Each...\$6.00**



U4V, U3V Oscillator/Power Supply

## ULTRA-TAP\* ALL-PURPOSE DISTRIBUTION CONNECTORS

Single, versatile tap-off meets architects' requirements: Choice of 75- or 300-ohm plugs; flush or surface mounting; combination type for TV and FM sets. Push-on fittings for quick connect and disconnect. **Jerrold Model UT-22W, R or Y Basic Tap-Off—For TV or FM, but not both. Choice of three isolation and feed-thru values; specify by color per table below. Crimp-on bushing and positive-grip clutch for fast solderless connection to RG-59 type feeder cable. Flush mounts in 2" x 4" wall box. Special housing available for surface mounting. \$270**  
\*Gamma" receptacle for push-on plugs. Any color, Net Each.....\$270  
\*Trademark.



MTU-372



MTUO-374

**Jerrold Model UT-33W, R or Y Combo TV and FM Tap-Off—Same isolation and feed-thru values as UT-22 (see table). Extra isolation separates TV and FM signals for simultaneous connection of both. Mounting same as for UT-22, except surface mounts \$330**  
by standard wire mold box (not UT-SH). Any color, Net Each.....\$330

Chan-nel	Type	Values, db			Chan-nel	Type	Values, db		
		White	Red	Yellow			White	Red	Yellow
2	Isol.	35	27	22.5	7	Isol.	31	21	13
	Feed-th.	.2	.4	.2		Feed-th.	.25	.5	.4
6	Isol.	34	25	19	13	Isol.	30	20	11.5
	Feed-th.	.2	.4	.3		Feed-th.	.25	.5	1.0

**Jerrold Model UT-12 Wall Terminal—Without isolation or feed-thru; for use with remote isolation unit such as G-1404, 1401 or PT-1461. Same as UT-22 in all other respects. Net Each.....\$210**

## ULTRA-TAP COVER PLATES AND ACCESSORIES

**Jerrold Model UT-PI Flush Cover Plate—Ivory molded plastic. Net Each.....21c**  
**Jerrold Model UT-PS Flush Cover Plate—Brushed stainless steel. Net Each.....60c**  
**Jerrold Model UT-SH Surface Housing—Ivory molded plastic. Net Each.....30c**  
**Jerrold Model G-59 Push-On Connector—For RG-59/U coax. Net Each.....48c**  
**Jerrold Model G-300 Adapter—Quick-connect, 75-300 ohms. Net Each.....60c**

## MODEL 1435 SINGLE-CHANNEL TV/FM FILTER TRAPS

Wide-band cut-off traps eliminate second harmonic interference of high-band TV channel reception. FM band or an individual TV channel is attenuated a minimum of 20 db. May be used with either amplified or non-amplified antennas. Direct antenna crossarm mounting traps out the signal before it is amplified. Impedance, 300 ohms. **\$477**  
**Jerrold Model 1435-FM FM Filter Trap—Net Each.....\$477**  
**Jerrold Model 1435-TV TV Filter Trap—Net Each.....\$4.77**  
\*Specify VHF TV channel to be attenuated when ordering.



UT-22, UT-12



1435-FM, 1435-TV



UT-PI, UT-PS



UT-SH



G-59

G-300





704-B

### MODEL 704-B VHF FIELD STRENGTH METER

A calibrated direct-reading instrument for TV and FM measurements—a "must" for color. Reads down to 5 microvolts and up to 3 volts. 0.6 mc bandwidth. Precise readings in db or microvolts ±0.8 db over entire range. Reads percent of modulation of FM carriers, percent of AM distortion of FM amplifiers, percent of AM of RF generators. Output jacks to phones and scope. **Freq. Range:** 54 to 250 mc, covered in one band. **Ranges:** 0-100 μV; 0-300 μV; 0-1000 μV; 0-3000 μV; 0-10,000 μV; 0-30,000 μV. Four additional ranges through use of built-in precision attenuator: 0-100,000 μV; 0-300,000 μV; 0-1 volt; 0-3.0 volts. **Image Rejection:** 90 db below signal. **Power Requirements:** AC, 55 watts, 105-125 volts, 50/60 cps. **Tubes:** 2-5654; 1-6AB4; 1-6T5; 1-OD3 (VR150); 3-5749; 1-5V4; 1-12AU7. **Dimensions:** 12" H., 12 3/4" W., 8" D. **Finish:** Gray crackle, aluminum case. Accessories furnished: 300/75 transformer and F-59 connector. Shipping Weight, 24 lbs.

**Jerrold Model 704-B VHF Field Strength Meter—Net Each..... \$395.00**

### VARIABLE RF ATTENUATOR

**Jerrold Model A-21 RF Attenuator**—Switch type, for frequency range of 0-250 mc. Matched to 75 ohms with VSWR of less than 1.05; handles 500 mw. Attenuates 1287 from 0-21 db in 3 db steps. Includes two F-59 connectors. Net Each..... **\$12.87**

### 75-OHM LINE SPLITTERS

Feature hybrid circuitry for excellent 75-ohm impedance match and isolation between outputs.

**Jerrold Model 1562**—Two-way splitter with 3.5 db maximum splitting loss; 15-20 db isolation between outputs. Bandwidth, 54-216 Mc. Coax bushings B-59 require no cable connectors. Net Each..... **\$5.20**

**Jerrold Model 1514**—Four-way reactive splitter with only 6.5 db maximum splitting loss. Bandwidth, 54-216 Mc; 15-20 db isolation between outputs. With five F-59 cable connectors; unused outputs to be fixed with TR-72F terminating resistors. Net Each..... **\$9.14**

**Jerrold Model 1592**—Two-way splitter with low loss and high isolation. Splitting loss, 3.5 db; 15-20 db isolation. Bandwidth, 54-216 Mc. Three F-59 fittings included for convenient cable connections. Net Each..... **\$7.87**

**Jerrold Model 1502**—Two-way resistive splitter offering maximum splitting loss of 6 db and 6 db isolating between outputs. Bandwidth, 0-216 Mc. With F-59 connectors. Net Each..... **\$6.45**

**Jerrold Model G-1518**—Eight-way splitter with 54-216 Mc bandwidth, maximum splitting loss of 10 db and 7-17 db isolation between outputs. With G-59 connectors. Net Each..... **\$18.58**

### MATCHING TRANSFORMERS

#### VHF TYPES FOR INDOOR USE

**Jerrold Model T-372**—6 db gain between 75-ohm and 300-ohm lines. Flat response 50-250 Mc. VSWR is 1.26. Isolates line from AC/DC receivers. C-52 male connector included. Net Each..... **\$3.00**

**Jerrold Model T-373**—Wall plate, transformer type terminal unit. Uses 2" x 4" outlet box. 6 db step up between 75- and 300-ohm lines. Isolates line from AC/DC receivers. B-59 cable mounting. Net Each..... **\$3.00**

**Jerrold Model T-378**—Low-cost unit for mounting back of TV set. Housed in high-impact plastic. Has 300-ohm leads on one end and F fitting on other. Easy-to-install; 60 cps AC isolation. With F-59A fitting. Net Each..... **\$1.95**

#### VHF TYPES FOR OUTDOOR USE

**Jerrold Model TO-374A**—Mast-mounting transformer matches 300 ohms to 75-ohm coaxial cable. Passes AC for using open line in long runs between De-Snowor® and power supply. Comes with mounting strap and F-59A fitting. Net Each..... **\$2.95**

### OUTDOOR LINE TAPS

**Jerrold Model PT-1461A**—For single-shield RG-11/U or other 405" cable. Surface mounting. Removable color-coded isolation units. With F-59A connector and protective boot. Specify W, R, Y or G. Net Each..... **\$3.25**

**Jerrold Model PT-1462A**—Similar to Model PT-1461A but for double-shielded RG-11/U or other 460" cable. Specify W, R, Y or G. Net Each..... **\$3.25**

**Jerrold Model 1401**—Surface mounting, non-resistive tap for single or double-jacketed RG-59/U feeders. With mounting bracket and 3 C-52 cable connectors. Specify R, Y or G. Net Each..... **\$3.75**

### TERMINATING RESISTORS

**Jerrold Model TR-72F**—Close tolerance 75-ohm resistor for line or equipment termination. Mates with F-61A, F-81, A-61, F-101-59. Net Each..... **\$90c**

**Jerrold Model TR-72**—Similar to above but mates with C-61 or C-81. Net..... **\$90c**

**Jerrold Model TR-72B**—Same as above but to mount on B-59 type bushings. Net Each..... **\$90c**

### HIGH Q TRAPS

Reject adjacent channel or FM interference. Each unit has 2 tunable L-C circuits in a modified bridged-tee network. Both circuits tuned, rejection is 40 db minimum; insertion loss 1 db at 1 mc off the interfering frequency. Tuned by screwdriver adjustment of Teflon® dielectric trimmers. Come with two F-59 connectors for RG-59/U cable.

**Jerrold Model TLB**—For 95.75 **\$38.55** to 83.75 mc. Net Each.....

**Jerrold Model TFM**—For 88 to **\$38.55** 108 mc. Net Each.....

**Jerrold Model THB**—For 179.75 **\$38.55** to 211.25 mc. Net Each.....  
\*Registered DuPont trademark.

### MATCHED T AND FIXED RF PADS

**Jerrold Model MTP-20**—Matched T pad for 75-ohm line and tap match. Provides 20 db attenuation with an insertion loss of 2 db and VSWR better than 1.2. Complete with three F-59 connectors for **\$6.50** RG-59/U cable. Net Each.....

**Jerrold Models PDL-3, -6, -10, -20**—Fixed attenuator pads for 75-ohm circuits. Two F-59 connectors for inline applications. For chassis mounting order F-71 connectors. Specify 3, 6, 10, or 20 db. **\$3.50** Net Each.....

### DIRECTIONAL COUPLER TAPS

Back-matched directional-coupler type tap units offering high isolation between the tap and output terminals, low insertion loss between input and output, and excellent 75-ohm match on all three terminals. With three F-59 connectors for RG-59/U. Bandwidth, 6-216 Mc unless otherwise specified.

No.	Insertion Loss*	Tap Loss†	Isolation‡ (54-216 Mc)	Net Each
DC-8	1.5 db	8 db	18 db	\$8.47
DC-12	1 db	12 db	15 db	8.47
DC-16	3/4 db	15 db	18 db	8.47

\*Max. †Min. ‡Bandwidth, 7-216 Mc.

### CONNECTOR TOOLS

**Jerrold Model CD-11**—Cable cutter for use with pressure taps. Net Each..... **\$2.16**

**Jerrold Model CT-2**—Replacement cutting tip for CD-11 (above). Net Each. **\$1.10**

**Jerrold Model PL-601**—Crimping tool for all RG-59/U connectors. Net Ea. **\$4.29**

**Jerrold Model PL-602**—Crimping tool for all connectors. Net Each..... **\$5.39**



A-21



1562



1514



1592



T-372



T-373



TR-72



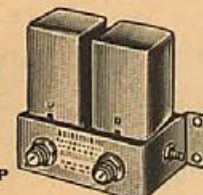
G-59



PT-1461A



TR-72F



HI-Q TRAP



PDL



MTP-20



DC-8



CD-11



A-61



AF-101

### SOLDERLESS COAXIAL CABLE CONNECTORS

Jerrold Number	Description	For Cable or Chassis Hole	Mates With	Net Each
A-61	Male-female adapter		F-59 to C-61	\$1.88†
AF-101	Male connector	RG-11/U	F-81, F-61	1.26
F-201	Male connector	RG-11/U*	F-81, F-61	1.26
C-52	Male connector	RG-59/U	C-61, C-81	.36
C-61	Female chassis fitting	3/4" hole	C-52, A-61	.48
C-81	Female coupling	3/4" hole	Two C-52, A-61 and all "F"	.48
F-59	Male connector	RG-59/U	F-61A, F-81, A-61 and all "F" adapters	.36
F-59A	Male connector‡	RG-59/U	F-61A, F-81, A-61 and all "F" adapters	.36
F-56	Male connector	RG-6/U	F-61A, F-81, A-61 and all "F" adapters	.62
F-61A	Female chassis fitting	3/4" hole	F-59, TR-72F	.43
F-71	Male coupling adapter		F-61A, F-81, F-101-59, A-61	1.00
F-81	Female coupling	3/4" hole	Two F-59	.60
G-59	Push-on connector‡	RG-59/U	G-61	.48
1025	Ferrule	RG-6/U		2.86‡
1051	Ferrule	RG-59/U		1.43‡
1095	Ferrule	RG-11/U		4.29‡

\*Polyfoam. †Per package of 25. ‡Package of 100. §Has built-on ferrule.



# Stereo Amplifier and TV Sets

## NEW MATTES SSP/200 SOLID STATE STEREO POWER AMPLIFIER

A precision-made stereo power amplifier for applications requiring absolute fidelity of music reproduction at low levels as well as at levels approximating those of actual performances. Its unprecedented performance and reliability are made possible by the Sharma Circuit®, a remarkable new amplifier design developed at Mattes Electronics. Provides power output greater than that of any similar unit generally available, whether vacuum tube or transistor type. When used with low efficiency, shelf-type speakers, the SSP/200 still develops sufficient power to reproduce a concert grand piano at the actual level of the instrument; with efficient horn-loaded systems, it easily reproduces the full level of a symphony orchestra.

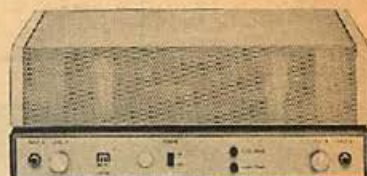
The SSP/200's cost per watt compares favorably with vacuum-tube units of much lower power and far greater distortion; similarly, its performance far exceeds that of any solid state amplifier designed in the past, even those higher in price. High-level transients, short-circuited output terminals, steady drive at high frequencies, or other accidents during installation or use, will not affect the SSP/200. Except for the level controls, all delicate circuit adjustments have been eliminated; the Sharma Circuit renders these, as well as meters and test points, unnecessary.

Because of the inherent thermal and electrical stability of this unique circuit, numerous components are not required; the resulting simplification of design and assembly greatly increases reliability. The need has been eliminated for power-wasting, heat-generating bias current in the output stage; this contains no fuses, thermistors, relays, bulbs or other protective devices normally required in transistor amplifiers.

**Power Output:** 100 watts rms per channel continuous into 8 or 4 ohms; 200 watts, both channels operating simultaneously, at rated distortion. **Frequency Response:** ±0.5 db, 20-20,000 cps at 10 watts; -3 db points at 15 and 60,000 cps. **Power Response:** ±0.5 db, 20-20,000 cps at rated output at 0.5% maximum total harmonic distortion. **IM Distortion:** Less than 0.1% at rated output, 20-20,000 cps. **Harmonic Distortion:** Less than 0.5% total at rated output, 20-20,000 cps. **Noise Level:** Total intermodulation, hum and noise, 0.5% maximum (ref. any level, 50 mW to 100 watts); residual noise, 90 db below rated output. **Sensitivity:** 1 volt at rated output. **Input Impedance:** 100,000 ohms. **Damping Factor:** 250. **Ambient Temperature:** 122° F maximum. **Controls:** Power, Gain A, Gain B, Load Impedance Selector, Indicators: Pilot light, fuse continuity, AC supply interruption. **Power Required:** 117 VAC-125 VAC; 25-300 W. **Size:** 14 1/4" w. x 8 1/4" d. x 5 1/4" h. Weight, 27 lbs. net. **\$375.00**

Mattes Model SSP/200 Stereo Power Amplifier—Net Each.....

- TWO-CHANNEL POWER AMPLIFIER
- OFFERING 100 WATTS PER CHANNEL CONTINUOUS POWER WITH LESS THAN 0.1% IM DISTORTION



- PATENTED SHARMA CIRCUIT FOR REMARKABLE SIMPLICITY, REDUCED COST, LOW HEAT AND DISTORTION, UNEXCELLED RELIABILITY

## SETCHELL-CARLSON "UNIT-IZED" TV EQUIPMENT

### PORTABLE UHF/VHF TV SETS

Smartly styled, advanced-design portable TV sets. Equipped with latest "squared" screen, short depth, super-aluminized picture tube; this self-focusing safety tube has a single thickness screen area that virtually eliminates reflections and gives "movie clear" picture quality. Receive all channels, both UHF and VHF, from 2 to 83. Pre-set fine tuning on VHF automatically keeps each channel at its best setting. Swivel base assures perfect viewing angle. Built-in dipole antenna. **Power Required:** 117 VAC, 60 cps.

**Setchell-Carlson Model 19T66 19-Inch\* Portable Table Model TV**—Built-in 5" speaker. Carrying handles on side. Size, 18 1/2" w. x 8 1/2" d. x 16 1/2" h. Contemporary styling; finished in genuine walnut veneers and solids. Net Each..... **\$175.00**

**Setchell-Carlson Model 16P66 16-Inch\* Portable TV**—Front mount 5" x 3" speaker. Size, 18 1/2" w. x 8 1/2" d. x 13 1/2" h. Carrying handle on top. Specify golden brown or antique white finish. Net Each..... **\$134.75**

### MODEL 2100-SD 23-INCH\* TV RECEIVER

#### WITH MONITOR/AUDIO AMPLIFIER OPTIONS

Many educational, institutional and commercial uses for this versatile unit! Features exclusive "Unit-ized" aluminum chassis design with plug-in units, 23-inch "Sheibond" picture tube, and two front mount, wide range 6" speakers. Supplied ready for conventional UHF/VHF reception. **VHF Sensitivity:** Better than 15 μV on any channel. Built-in, high pass filter. **VHF Noise:** Better than 7.5 db. **Adjacent Channel Rejection:** Picture, -60 db; sound, -55 db or better. **Power Required:** 110-125 VAC, 60 cps, 180 watts. **Size:** 24" w. x 13 1/2" d. (add 2 1/2" for tube cap) x 26" h. **Setchell-Carlson Model 2100-SD TV Receiver**—Specify maple or professional satin black finish, and 72- or 300-ohm antenna input.

Write for prices on Model 2100-SD and optional accessories.

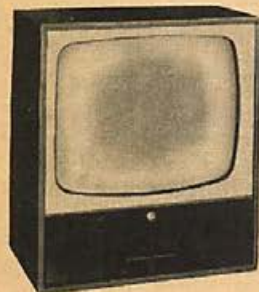
\*Overall diagonal measurement.



19T66



16P66



2100-SD

## SONY® SOLID STATE PORTABLE UHF/VHF TV SETS

### MODEL TV 5-307UW 5-INCH\* PERSONAL "MICRO-TV"

Truly portable TV set fine for picnic, beach, boat, or bedside use. Weighs only 8 1/2 lbs. for extreme carrying ease, and brings in sharp, bright 5" picture just right for personal viewing. Has built-in adjustable antenna, jack for 75-ohm external antenna, and sensitive, 24-transistor 15-diode circuit. Can be taken anywhere—operates on home AC or 12-volt auto/boat battery, and optional snap-on or shoulder rechargeable battery packs. **Channels:** 2-83. **Power Required:** 117 VAC, 60 cps; 12 VDC. **Size:** 8 3/4" w. x 6 5/8" h. x 4 1/4" d. Weight, 8 1/2 lbs.

**Sony Model TV 5-307UW Micro-TV**—Specify black or white finish. Com-plate with earphone and AC power cord. Net Each..... **\$129.95**

### MODEL TV 9-51UW 9-INCH\* PORTABLE TV

Fully transistorized set designed for quality UHF and VHF performance anywhere. Circuit employs stable epitaxial passivated transistors, the famous Sony Esaki diode, and mesa silicon power transistors for ultra-sensitive reception even in fringe areas. Front panel offers the latest in convenience of control knob arrangement. Large 4" x 2 1/2" speaker is front mounted for clear listening. Telescoping, rotating whip antenna provides clear, bright pictures even in daylight. Ideal for group viewing, yet lightweight and compact for easy carrying. Operates on AC, 12-volt auto/boat battery or optional rechargeable battery. Jack for 75-ohm external antenna. Snap-on front cover makes the TV 9-51UW its own carrying case. **Channels:** 2-83. **Power Required:** 117 VAC, 50/60 cps; 12 VDC. **Size:** 9" w. x 8 3/4" d. x 10" h. Weight, 10 lbs.

**Sony Model TV 9-51UW Portable TV**—Specify black or white finish. Com-plate with snap-on front cover, earphone, and sun-hood. Net Each..... **\$159.95**

\*Overall diagonal measurement.

Write for prices on rechargeable batteries, external antenna connector, car battery cord, and other accessories available for these Sony portable TV sets.



TV 5-307UW



TV 9-51UW



# McIntosh Stereo, Hi-Fi Equipment



MR71



C24



MI-3



MX110

## MODEL MR67 STEREO FM TUNER

Highly sensitive, precision engineered FM multiplex tuner features built-in Multipath Indicator. Panloc professional installation method. Similar in appearance to MR71. Cascade amplifier handles wide range with excellent signal-to-noise ratio, minimum spurious signals. Self-matrixing multiplex decoder operates without critical adjustments. Multiplex indicator light activated by 19 kc carrier; will not light on noise or interference. Smooth, quiet tuning with direct-driven tuning capacitor. **Sensitivity:** Better than 2.5  $\mu$ V at 100% modulation for less than 3% total noise and distortion. **Frequency Response:**  $\pm 0.5$  db, 20-20,000 cps. **Distortion:** Less than 0.5% at 100% modulation. **Muting:** At least 60 db quieting between stations. **Image Rejection:** Better than 60 db. **Hum:** Better than 70 db below 100% modulation. **Drift:** Less than 25 kc. **Output:** 2.5 V. **Tubes:** 13, plus one transistor, nine diodes, two selenium rectifiers. **Power Consumption:** 50 watts, 105-125 VAC, 50-60 cps. **Size:** 16" w. x 13" d. x 5 5/8" h. Shipping Weight, 33 lbs. **McIntosh Model MR67—Less cabinet\*. Net Each. . . . \$299.00**

## MODEL C22 STEREO PREAMPLIFIER

Stereo control center combines excellence in performance with operating ease. Consists of three amplifier sections for each channel, with common power supply. Input preamplifier section uses low noise tubes, proper shielding for negligible hum. Second amplifier prevents overloading of high level input circuits, includes switch-type bass and treble controls with 4 db change per step. Cathode follower amplifier includes rumble and high frequency filters with cutoff of 18 db per octave. Panloc installation technique for installation in furniture cabinets, relay racks or custom systems. Jacks provided for external tape recorder. Output level controls for simple balance of entire amplifier-speaker system. **Sensitivity:** Tuner, tape, aux, 0.25 V; microphone, 2.5 mV; phono, 2 mV; tape head, 2 mV. **Frequency Response:**  $\pm 0.5$  db, 20-20,000 cps. **Distortion:** Less than 0.2% at 10 V output; .02% at 3 V. **Noise:** 85 db below rated output. **Output:** 2.5 V; tape, 0.25 V. **Compensator:** RIAA or LP record equalization. **Size:** 16" w. x 13" d. x 5 5/8" h.; front panel clearance, 1 1/2" including knobs. Shipping Weight, 26 lbs. **McIntosh Model C22—Less cabinet\*. Net Each. . . . \$279.00**

## MODEL MR71 STEREO FM TUNER

Computer-designed noise filter, automatic stereo-mono switching, d'Arsonval meter movements, multipath indicator and double-tuned input circuits provide unmatched stereo reception. Filter holds subcarrier noise to absolute minimum; stereo-mono switching is clickless and completely electronic. No zero adjustment with highly sensitive meters; easy antenna adjustment with multipath indicator. Reduces spurious response with double-tuned circuitry before the first RF amplifier. Panloc custom mounting. **Sensitivity:** Better than 2.5  $\mu$ V at 100% modulation and less than 3% total noise and distortion, IHFM standards. **Frequency Response:**  $\pm 0.5$  db, 20-20,000 cps including 75  $\mu$ sec de-emphasis. **Distortion:** Less than 0.5% at 100% modulation  $\pm 75$  kc deviation. **Capture Ratio:** 1.5 db at 100% modulation. **Rejection, Muting and Hum:** Rejection better than 80 db at 90 Mc; better than 70 db at 105 Mc. At least 60 db quieting between stations. Hum better than 70 db below 100% modulation. **Output:** 2.5 volts, low-source impedance. **Inputs:** 300 ohms balanced; 75 ohms unbalanced. **Controls:** Two d'Arsonval meters for Signal Strength and Tuning; Multipath Reception Indicator; MPX Stereo Indicator Light; Volume; Mode (Stereo Auto, Mono, Off); AFC (min.-max.); Muting In/Out. **Components:** 15 tubes, 14 semi-conductors, one 1847 lamp. **Power Required:** 70 watts, 105-125 VAC, 50-60 cps. **Size:** 16" w. x 13" d. x 5 5/8" h.; front panel clearance, 1 1/2" including knobs. Shpg. Wt., 34 lbs. **McIntosh Model MR71—Less cabinet\*. Net Each. . . . \$399.00**

## MODEL C24 SOLID-STATE STEREO PREAMPLIFIER

Finest performance and reliability for all music systems; 99.9% perfect distortion-free reproduction. Employs silicon planar transistors in sophisticated circuitry for superior performance. Tested and guaranteed to meet specifications as stated. Amazing dynamic range will not clip or distort music from high output phonos; takes up to 200 mV without overload. Panloc custom mounting. **Frequency Response:**  $\pm 0.5$  db, 20-20,000 cps. **Distortion:** Less than 0.1% at 2.5 volts, 0.3% at 10 volts, 20-20,000 cps. **Noise:** 110 db below rated output, high level input with volume at minimum, 75 db, volume at max.; 60 db below rated output, low level or less than 4  $\mu$ V at input terminals. **Inputs:** Aux, tape, tuner and tape monitor, 20 volt, 250K for 2.5 volts output; phono 1 and 2, 2 mV, 47K; tape head, 2 mV, 1 megohm. **Controls:** Bass; Treble; RIAA/LP Equalization; Tape Normal/Monitor; LF Filter; HF Filter; Normal/Reverse Phase; On/Off Speaker; Low Imped. Headphone Jack; Input Selector (Aux, Tape, Tuner, Phono 1, Phono 2, Tape Head); Mode Selector (R to L and R, L to L and R, Stereo Rev., Stereo, Mono L and R, L and R to L, L and R to R); Loudness Contour Balance; Volume; Power On-Off. **Transistors:** 1Q-Q103, 7-Q101 and 1-Q102. **Power Required:** 8 watts, 105-125 VAC, 60 cps. **Size:** 16" w. x 11" d. x 5 5/8" h.; front panel clearance, 1 1/2" including knobs. Shipping Weight, 25 lbs. **McIntosh Model C24—Less cabinet\*. Net Each. . . . \$249.00**

## MODEL MI-3 MAX. PERFORMANCE INDICATOR

Five laboratory instruments combined in one compact system to permit obtaining professional performance for FM listening. Accurate oscilloscope displays multipath reception to adjust antenna for best performance; gives minimum noise level, distortion and best stereo separation. Shows relative signal strength for finest tuning; corrects to exact center of channel for perfect stereo. Displays left-to-right balance for your system; shows system phase for smooth natural sound. **Features:** Solid state audio gain stages; conservatively rated power transformer; multipath level controls; audio level controls; Panloc custom mounting. **Sensitivity:** 0.37 V/cm, vertical signal strength and left gain inputs; 0.27 V/cm, horizontal deviation and right gain inputs. **Tubes:** 8 plus 3\* (3RP1) CRT; 6 selenium rectifiers. **Size:** 15 3/4" w. x 11 1/4" d. (behind panel) x 5 1/4" h.; front panel clearance, 1" including knobs. Shipping Weight, 27 lbs. **McIntosh Model MI-3—Less cabinet\*. Net Each. . . . \$249.00**

## MODEL MX110 STEREO FM TUNER/PREAMPLIFIER

Combination of an extremely low-distortion preamplifier with a highly sensitive FM multiplex stereo tuner. **Features:** Inter-station noise suppression; tuning indicator; FM multiplex indicator; separate bass and treble controls for each channel; electronic phase switch. Choice of six different program sources. Mode selector for easy balancing of stereo systems; adds left to right for monophonic; controls left to right stereo perspective. Special loudness adjustment of phono and aux channels is accessible by releasing the Panloc (panel lock) buttons, permitting panel and chassis to be pulled out of case to stop position. Mounting slide for Panloc feature provided; permits professional type installation in custom cabinetry, either vertical or horizontal placement. Highly stable circuitry eliminates need for AFC. Two-position tape monitor for instant comparison of tape before and after recording. Smooth flywheel tuning, accurate without backlash. Automatic, transistorized stereo indicator. Handsome, anodized gold and black front panel. **Sensitivity:** Better than 2.5  $\mu$ V at 100% modulation. **Hum:** Better than 70 db below 100% modulation. **Drift:** Less than 25 kc. **Frequency Response:**  $\pm 0.5$  db, 20-20,000 cps, including 75  $\mu$ sec de-emphasis. **Distortion:** Less than 0.6% at 100% modulation.  $\pm 75$  kc deviation above 2.5  $\mu$ V at antenna. **Muting:** IF injected. **MX Channel Separation:** Better than 30 db at 1 kc. **Inputs:** Aux; Mag. Phono; Mag. or Crystal Phono; Tape Head; Tape Monitor, each channel. **Outputs:** Main Stereo; Tape Stereo; combined L+R center channel monophonic; two switched and one unswitched AC outlets. **Power:** 75 watts, 105-125 VAC, 50/60 cps; fused. **Size:** 16" w. x 13" d. x 5 5/8" h.; knob clearance 1 1/2", chassis and panel. Shipping Weight, 36 lbs. **McIntosh Model MX110—Less cabinet\*. Net Each. . . . \$399.00**

## \*CABINETS

McIntosh Model L10W (Walnut) or L10WO (Oiled Walnut) Cabinet—For Panloc Instruments, C11, C20 (Serial #6L001 up), C22, C24, MI-2, MI-3, MR65, MR65A, MR65B, MR66, MR67, MR71 and MX110 (Serial No. with "M" and "X"). Shipping Weight, 8 1/2 lbs. Net Each. . . . \$25.00  
 McIntosh Model L11WV (Walnut) or L12WVO (Oiled Walnut) Cabinet—Same, but ventilated for all Panloc mounting models plus MA230. Shipping Weight, 10 lbs. Net Each. . . . \$29.00

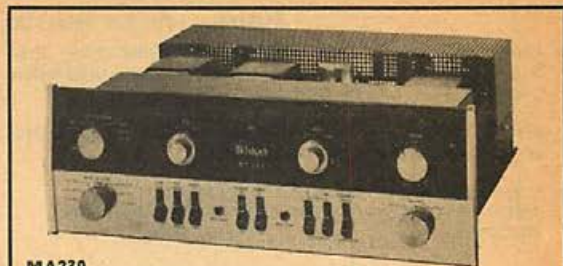


# McIntosh Stereo, Hi-Fi Amplifiers

## MODEL MA230 DUAL 30-WATT STEREO PREAMP-AMPLIFIER

Two-channel stereo/monophonic panel control amplifier delivers continuous 30 watts per channel with both channels operating simultaneously; or, in single-channel monophonic operation, 60 watts. Versatile unit has transistorized preamplifier section with inputs and controls for almost any music source, plus provision for two stereo headsets on front panel. Stereo tapes may be made off the air, using the tape output connections. **Frequency Response:** +0, -0.5 db, 20-20,000 cps; +0, -3 db, 15-70,000 cps at full rated power. **Noise Level:** -75 db, high level inputs; -60 db, low level inputs; less than 4.0  $\mu$ V at terminals. **Harmonic Distortion:** Less than 0.5% at full power output at all frequencies from 20-20,000 cps. **IM Distortion:** Less than 0.5% at twice the instantaneous full-rated power output. **Damping Factor:** 10; internal impedance less than 10% of rated load. **Power Amplifier Phase Shift:** Less than  $\pm 5^\circ$ , 20-20,000 cps. **Input Impedance:** 250K ohms. **Output Impedance:** 4, 8 and 16 ohms. **Input Sensitivity:** Aux, Tuner, Tape Monitor, 25 V, 250K ohms; Phono (1, 2), 3.0 mV, 47,000 ohms; Tape Head, 2.5 mV, 1 megohm. **Controls:** Volume; Separate Treble and Bass ( $\pm 18$  db), with friction clutch for separate control of each channel; Input Selector; Mode Selector, L to L & R, R to L & R, Stereo Rev., Stereo, Mono (L+R), L+R to L, L+R to R; Compensator (RIAA or LP); Tape (Normal-Monitor); Phase (Normal-Rev.); Speaker (On, Off for headphone listening); Power (On-Off); Scratch and Rumble Filter Switch; Loudness; Balance. **Transistors:** 8-2N2926, 4-11BQ101; both are silicon planar. **Tubes:** 4-7591, 2-12AU7, 1-12AX7. **Power Required:** 150 watts at no signal output, 210 watts at full output, 120-125 VAC, 60 cps. Anodized gold and black finish (front panel). **Size:** Front panel, 16" w. x 5 1/4" h.; chassis, 15" w. x 14 1/4" d. x 4 1/4" h. Mounting panel clearance 1 1/2", including knobs. Shipping Weight, 57 lbs.

McIntosh Model MA230—Less cabinet\*, see preced—\$349.00  
ing page. Net Each.....



MA230



MC275

## MODEL MC275 DUAL 75-WATT STEREO AMPLIFIER

Full 75 watts each channel for fine stereophonic reproduction from any source. Harmonic distortion, hum and noise are extremely low permitting excellent transient response. **Power Output:** Stereo or dual amplifier, 75 watts each channel. Single channel monophonic, 150 watts. **Frequency Response:** +0, -0.1 db, 16-40,000 cps; +0, -0.5 db, 16-60,000 cps; +0, -1 db, 10-100,000 cps. **Hum and Noise Level:** Better than 90 db below rated output. **Harmonic Distortion:** Less than 0.5% at full power output at all frequencies from 20-20,000 cps. **IM Distortion:** Less than 0.5% at peak power output of twice the full power output. **Damping Factor:** About 10:1. **Phase Shift:** Less than  $\pm 8^\circ$ , 20-20,000 cps. **Input Impedance:** 250K ohms. **Input Level:** Single channel and dual amplifier, 0.5 V for full power output. **Output Load Impedance:** Stereo or dual amplifier, 4, 8, 16, 67, 150 and 600 ohms. Single channel 2, 4, 8, 16, 32, 34, 75 and 300 ohms. **Output Voltages:** Stereo or dual amplifier, 25, 70.7, 15 and 230 volts. Single channel, 25, 70.7, 115 and 230 volts. **Input Controls:** Gain controls provided for single monophonic or dual amplifier inputs; balance control provided for stereo channels. **Tubes:** 4-KT88/6550, 2-12AZ7, 2-12AU7, 2-12BH7, 1-12AX7. **Power Required:** 240 watts at no signal output, 400 watts at full output, 105-130 VAC, 50/60 cps. Power transformer tapped at 117 and 125 volts. Fused; 5 amp slo-blow. **Size:** 17 1/4" w. x 12 1/4" d. x 8" h. Shipping Weight, 75 lbs.

McIntosh Model MC275—Net Each.....\$444.00

## MODEL MC240 DUAL 40-WATT STEREO AMPLIFIER

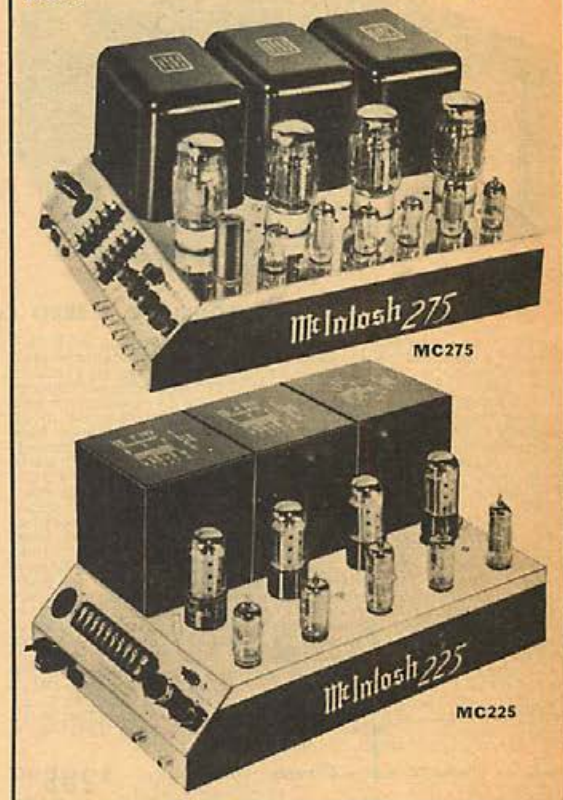
Superb stereo/monophonic two-channel model. High power, distortion-free performance provided in two separate amplifiers mounted on a single chassis; can be connected with an input facility to be used in three ways: As a two-channel stereo amplifier delivering 40 watts for each channel (sensitivity, 2.0 volts); as independent dual amplifier, 40 watts per channel for electronic crossover systems or for stereo if increased sensitivity is desired (sensitivity 0.4 volt); or, as a single channel monophonic amplifier, 80 watts (sensitivity, 0.4 volt). Special features include gain or level balance control on each of the three input facilities; low-Z taps for direct connection to speakers, plus 25 V and 70.7 V taps, and a 300/600 ohm output for line or hi-Z loads. **Frequency Response:**  $\pm 0.1$  db, 20-20,000 cps;  $\pm 1.0$  db, 15-60,000 cps at full rated power. **Noise and Hum Level:** Better than 90 db below rated output. **Harmonic Distortion:** Less than 0.5% at full power, 20-20,000 cps. **Intermodulation Distortion:** Less than 0.5% at peak power output of twice the full rated power output. **Damping Factor:** About 10:1. **Phase Shift:** Less than  $\pm 6^\circ$ , 20-20,000 cps. **Input Impedance:** 250K ohms. **Output Impedance:** 4, 8, 16 (25 V), 125 (70.7 V) and 600 ohms, stereo or dual use; 2, 4, 8 (25 V), 16, 32, 62 (70.7 V) and 300 ohms, single channel monophonic. **Input Controls:** Gain for single or dual inputs; balance for stereo channels. **Preamplifier Power Supply:** Receptacle provided to supply 25.2 V CT at 1.2 amps and 375 V at 15 mA. **Tubes:** 3-12AX7, 2-12AU7, 2-12BH7, 4-6L6GC or 7027A. **Power Output:** 40 watts each channel (80 watts total combined); 160 watts total peak. **Power Consumption:** 270 watts (at full power), 105-130 VAC (selectable), 50/60 cps; slo-blow fused. Convenience outlet, to power other equipment, provided. **Size:** 17 1/4" w. x 10 3/4" d. x 8" h. Shipping Weight, 59 lbs.

McIntosh Model MC240—Net Each.....\$288.00

## MODEL MC225 DUAL 25-WATT STEREO AMPLIFIER

**Frequency Response:** 18-60,000 cps +0, -0.5 db. **Hum and Noise:** 90 db or more below rated output. **Harmonic Distortion:** Less than 0.5% at rated output, 20-20,000 cps. **IM Distortion:** Less than 0.5% at peak power output of twice the full rated power output. **Phase Shift:** Less than  $\pm 15^\circ$ , 20-20,000 cps. **Input Impedance:** 250,000 ohms; sensitivity, 0.5-30 V. **Output Impedance:** Stereo, 4, 8, 16, 150, 200 ohms; mono, 2, 4, 8 ohms and others. **Size:** 14 1/4" x 9 3/4" x 7" h. Shpg. Wt., 39 lbs. \$198.00

McIntosh Model MC225—Net Each.....



MC225

## MODEL MC40 POWER AMPLIFIER

Forty-watt amplifier, perfect for use in a monophonic home music system, one channel in a stereo system or commercial use. **Frequency Response:** 16-60,000 cps, +0, -0.5 db or better. **Noise and Hum:** 90 db or more below rated output. **Harmonic Distortion:** Less than 0.5% at 40 watts, 20-20,000 cps. **IM Distortion:** Less than 0.5% for below 80 watts peak power. **Phase Shift:** Less than  $\pm 8^\circ$ , 20-20,000 cps. **Input Impedance:** 250,000 ohms; sensitivity, 0.5-30 V. **Output Voltages:** 25 and 70.7 V. **Output Impedance:** 4, 8, 16, 125, 150 and 600 ohms. **Tubes:** 2-12AX7, 1-12AU7, 1-12BH7, 2-6L6GC or 2-7027A. **Power Requirements:** 145 watts, 117-125 V, 50/60 cps. **Size:** 13 3/4" x 8 1/4" x 7 3/4" h. Shipping Weight, 35 lbs. \$159.00

McIntosh Model MC40—Net Each.....

## MODEL MC75 POWER AMPLIFIER

Perfect for use in a monophonic home music system, as one channel in a stereo system or many industrial uses. Patented circuit with unity coupling and the McIntosh bifilar wound output transformer permits high power with distortion below 1% at mid-frequencies. Bifilar windings keep notch distortion low; silicon rectifiers for stability; thermistor protects tube life. **Frequency Response:** +0, -0.1 db, 16-40,000 cps at 75 watts output; +0, -0.5 db, 16-60,000 cps at 75 watts output; +0, -1 db, 10-100,000 cps at 35 watts output. **Noise and Hum Level:** 90 db or more below rated output. **Harmonic Distortion:** Less than 0.5% at 75 watts, 20-20,000 cps. **Intermodulation Distortion:** Less than 0.5%. If instantaneous peak power is below 150 watts. **Phase Shift:** Less than  $\pm 8^\circ$  20 cycles through 20,000 cps. **Output Impedance:** 4, 8, 16, 67, 150 and 600 ohms (600 ohm is balanced to ground). **Input Impedance:** 250,000 ohms. **Input Sensitivity:** 0.5 V to 30 V through gain control; 2.0 V with gain control turned fully clockwise. **Power Output:** 75 watts continuous. **Power Requirements:** 117 or 125 volts AC, 50/60 cps. Uses 240 watts at 75 watts output; 140 watts at zero signal output. **Tubes:** 1-12AX7, 1-12AU7, 1-12BH7, 1-12AZ7 and 2-KT-88 or 2-6550. **Size:** 16 3/4" w. x 8 1/4" d. x 8 1/4" h. Shipping Weight, 48 lbs. \$229.50

McIntosh Model MC75—Net Each.....



# marantz Stereo Components

## MODEL 10B FM MULTIPLEX BROADCAST MONITOR

- OSCILLOSCOPE MULTIPATH/TUNING INDICATOR DISPLAYS FIELD STRENGTH, DEVIATION AND ANTENNA SETTING FOR LEAST DISTORTION
- PHASE-LINEAR IF FILTER NEVER NEEDS ALIGNMENT: GIVES UNMATCHED PERFORMANCE
- VERY CLEAN FRINGE-AREA RECEPTION
- AUTOMATIC STEREO SWITCHOVER FOR BUILT-IN MULTIPLEX



Superb professional FM tuner employs new circuit principles that provide performance capability previously unattainable. Unique fixed phase-linear IF filter circuit has almost ideal band-pass characteristics and completely eliminates IF alignment adjustments; unaffected by tube changes or other component aging. Sensitivity, selectivity and quieting are far in advance of present-day circuitry; wide-band detector; very high multipath (ghost) rejection assures cleaner reception with any given antenna. Built-in multiplex section features automatic stereo switchover with indicator light. Oscilloscope tuning indicator provides accurate station setting with simultaneous visual display of field strength, deviation and antenna-setting for least multipath distortion. Gold anodized front panel matches Model 7C. **Sensitivity:** 2  $\mu$ V (at 300 ohms) at better than 40 db quieting; 25  $\mu$ V for better than 70 db quieting. Volume sensitivity, 0.8  $\mu$ V for 10 db reduction in audio output. **Noise:** 7 db, total system. **Distortion:** Better than 0.5% harmonic, input to output. **Adjacent Channel Rejection:** Better than 40 db; alternate rejection, 150 db. **IF Stages:** Six total, featuring phase-linear fixed filter concept; IF bandwidth 220 kc; no alignment needed. **Limiters:** Nine symmetrical aperture limiters. Crest factor 90 db. Unusually high AM rejection. **Tuning Gang:** Military type, silver-plated with ceramic spacers. **Input:** 300 ohms, balanced. **Size:** 15 $\frac{1}{2}$ " w. x 5 $\frac{3}{4}$ " h. (front panel) x 15" d. Shipping Weight, 35 lbs.

Marantz Model 10B FM Monitor—Chassis only. Net **\$600<sup>00</sup>**  
 Marantz Model B10-O (Oiled Walnut) Cabinet—  
 Net Each.....**\$36.00**

## MODEL 7C STEREO CONSOLE PREAMPLIFIER

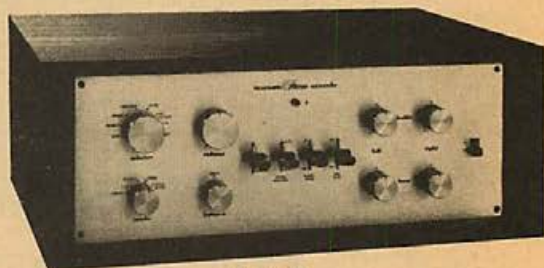
Superb stereo preamplifier combines high versatility with unmatched ease of operation. Assures unexcelled performance in programming any source of stereo or monophonic sound. Features a newly developed low level circuit that reduces noise and distortion to insignificance. Handy toggle selection of equalization and filtering makes adjustments easy. Single knob function and mode selectors meet the most demanding requirements. Stepped bass and treble controls assure matched tone quality in each channel. Six AC outlets (five switched) rated to handle up to 1700 watts of power for your complete system. **Frequency Response:**  $\pm$ 0.5 db, 20-20,000 cps. **Distortion:** 0.1%, 10 volts equivalent peak rms; 0.01%, 2 volts equivalent peak rms. **Noise:** -80 db at 10 mV phono input with RIAA, 20-20,000 cps, total; hum is far below thermal noise. **Controls:** Function Selector (Mike, Phono 1, Phono 2, Tape Head, AM-FM Tuner, FM Multiplex, TV and Aux); Mode (Stereo, Reverse, Channel A, Channel B, Channel A + B Monophonic); Volume (ganged to both channels and tested for 2 db tracking at any point of rotation down to 65 db attenuation); Bass (each channel); Treble (each channel); Tape Playback or Monitor Switch; High Filter; Rumble Filter; Power Switch; Equalization (RIAA, old COL LP and early 78). Bass and treble controls are feedback type units in 3 db steps at 50 cps; 2 $\frac{1}{2}$  db steps at 10 kc. **Inputs:** Nine each channel for total of 18. **Outputs:** One recording and two amplifier outputs for each channel. **Gain:** 64 $\frac{1}{2}$  db, phono and tape head; 62 db, mike; 22 $\frac{1}{2}$  db, high level. At recording output, 42 db, phono and tape head; 40 db, mike; unity (0 db), high level. **Tubes:** 6-ECC83/12AX7. **Size:** 15 $\frac{3}{8}$ " w. x 8 $\frac{1}{2}$ " d. x 5 $\frac{3}{4}$ " h., overall. Shipping Weight, 15 lbs.

Marantz Model 7C Stereo Console—Chassis only. **\$285<sup>00</sup>**  
 Net Each.....

Marantz Model B7-O (Oiled Walnut) Cabinet—  
 Net Each.....**\$24.00**

Marantz Model 7R—Same as Model 7C, but mounted on standard 19" x 7" relay rack. Brushed aluminum finish protected by clear anodize. Machined aluminum knobs. Net Each. **\$309.00**

- HIGH PRECISION CIRCUITRY ● 18 INPUTS
- 6 OUTPUTS ● GANGED VOLUME CONTROL
- COMPLETE TAPE MONITORING FACILITIES
- SEPARATE BASS AND TREBLE
- LOWEST DISTORTION AND NOISE



Model 7C



Model 7R

## MODEL 8B DUAL-CHANNEL, STEREO POWER AMPLIFIER

- BUILT-IN METERED TEST INSTRUMENTS PERMIT SIMPLE, ACCURATE ADJUSTMENTS
- LABORATORY QUALITY FOR TOP PERFORMANCE
- HAS TWO 35-WATT CHANNELS



Engineered for high listening pleasure and long, trouble-free performance, this basic stereo amplifier brings you the high quality normally found only in broadcast or laboratory equipment. Features built-in, metered test instruments to permit simple, accurate adjustments for optimum performance. Essentially two 35-watt amplifiers on a single, compact chassis, this unit is ideal for top quality stereo installations. **Power Output:** 35 watts, 70 watts peak, per channel, ultra-linear operation; 20 watts per channel, triode operation by simple inside-chassis alteration. **Output Impedances:** 4, 8, 16 ohms, each channel. **Input Sensitivity:** 1.3 V rms into 250K ohms for 35 watts output. **Response:** Within 0.2 db, 20-20,000 cps at 35 watts; within 1 db, 15-40,000 cps into grid (or test) input. **Distortion:** Less than 0.1% harmonic at mid-frequencies; 0.5%, 20-20,000 cps; under 0.5% IM (60 cps/12 kc, 4:1) at 35 watts equivalent (70 watts peak). **Inverse Feedback and Stability:** 20 db of overall feedback; exceptional stability under all conditions. **Hum:** Better than 90 db below 35 watts. **Power Supply:** Utilizes silicon rectifiers, three telephone electrolytic capacitors and a choke to provide improved regulation and thorough filtering with long life and high reliability. **Damping Factor:** Greater than 20, 20-20,000 cps. **Power Required:** 170 watts at zero signal (250 watts at maximum signal), 105-125 V AC, 50/60 cps. **Tubes:** 2-6BH6, 2-6CG7, 4-EL34/6CA7. **Size:** 13 $\frac{1}{2}$ " w. x 10 $\frac{1}{2}$ " d. x 7 $\frac{3}{4}$ " h. Shipping Weight, 55 lbs. **\$285<sup>00</sup>**  
 Marantz Model 8B Stereo Power Amplifier—Net Ea.  
 Marantz Model 8G—Gold finished perforated grille. Net. **\$10.50**



# Hi-Fi Components and Kits

## QUAD HI-FI COMPONENTS QUAD II POWER AMPLIFIER

Compact and sturdy, this unit features simple circuitry with feedback winding in the cathode circuits of the output tubes; voltage feedback around the transformer. Stability and performance are entirely independent of signal or load conditions. Suitable for use with any loudspeaker arrangement. **Power Output:** 15 watts, 20-20,000 cps. **Frequency Response:** Within 0.2 db, 20-20,000 cps; 0.5 db, 10-50,000 cps. **Hum and Noise:** -80 db referred to 15 watts. **Distortion:** 0.25% total at 50 cps; less than 0.1% third and higher order at 700 cps; 0.18% due to tube mismatch of 25% introducing 2nd harmonic. **Inputs:** Sensitivity 1.4 v. rms for 15 watts output. Load imposed, 1.5 megohms in parallel with 10  $\mu$ f. **Output Impedance:** 15 and 7 ohms. **Power Supplies:** Input 95-125 v. AC (or 200-250 v. AC) single phase, 40-80 cps.

Quad II Power Amplifier—Net Each.....

\$100.00



Quad II Amplifier

## QUAD 22 STEREO CONTROL UNIT

Designed to operate with two Quad II amplifiers, but may be used with one only for monophonic operation. Complete versatility afforded by push button selection of stereo or monophonic, choice of program and record equalization. Adjustable filter, bass and treble hold distortion to a minimum consistent with widest frequency response. "Cancel" position provides a useful reference standard for comparison with the bass, treble and filter settings found by aural assessment. Convenient balance control. Phono input matches to any pickup by means of plug-in adapters. Complete equalization facilities adjust for all recordings, old or new. **Frequency Response:**  $\pm$ 0.5 db, 20-20,000 cps, radio and tape inputs;  $\pm$ 2 db, mike input;  $\pm$ 1 db, phono input. **Filter Frequencies:** 5, 7 and 10 kc. **Distortion:** 0.02% any input, all controls level. **Hum and Noise:** Better than -70 db, total. **Sensitivity:** 70 mv rms at 100K ohms load, radio and tape; 1.5 mv rms, mike; 400  $\mu$ v rms, basic sensitivity prior to compensation. **Crosstalk:** Better than less than 1 db between channels. **Output:** 1.4 v. rms to power amplifier; 0.25 v. rms peak, tape; 500K ohms and 200  $\mu$ f, max. load. **Power Supply:** 330 v., 4 ma and 6.3 v., 1.1 amp from main amplifier plus power taken by tuner—6.3 v., 3 amp, Rad. 1 and 2 plus 6.3 v., 3 amp, Rad. 1 second channel, total; and, 330 v., 35 ma, each tuner. The heater supply is C.T. to chassis. **Tubes:** 2-EF86 (Z729 or 6267), 2-ECC83 (12AX7). **Size:** 10 1/4" w. x 3 1/4" h. x 6" d.

Quad 22 Stereo Control Unit—Net Each.....

\$107.00



Quad 22 Control Unit

## QUAD FULL RANGE, ELECTROSTATIC LOUDSPEAKER

Sets the standard for all other transducers. Compact design, intended for the highest performance standards, is capable of providing distortionless reproduction up to concert hall volume levels. Suitable for use in rooms from 1,000 to 5,000 cu. ft. Free standing design requires no reinforcement from the usual room resonances; unaffected by conventional room positioning except where tight wall placements occur and tend to produce irregular response patterns. Use with Quad or other amplifiers designed for such speakers. Good musical balance is obtained when the listener is seated in an area 90° symmetrical to the front of the speaker. Speaker is completely sealed in plastic film; immune from the effects of dust; withstands a temperature up to 30° C and humidities of up to 90%. **Maximum Output:** 93 db referred to .0002 dynes/cm<sup>2</sup>, 50-10,000 cps in free space, 6 ft. on axis. Total integrated radiation equivalent to 95 phons in enclosures up to 5,000 cu. ft. with average reverberation. **Bandwidth:** Flat, 45-18,000 kc gradually sloping off on either side. **Dispersion:** At least 70° horizontal and 15° vertical; radiates from front and back in a figure-8 characteristic, minimizing side wall and ceiling or floor bounce. **Impedance:** 15 to 30 ohms. **Voltage Range:** 100-120 and 200-250 v. AC, 50/60 cps. **Size:** 31" h. x 34 1/2" w. x 10 1/4" d. at bottom. Weight, 39 lbs.

Quad Electrostatic Speaker—Net Each.....

\$260.00



Quad Electrostatic Speaker

## H. H. SCOTT SCOTTKITS

**MODEL LT-110B WIDEBAND FM STEREO MULTIPLEX TUNER KIT**  
FM multiplex tuner kit with Sonle-Monitor. Both the multiplex section and famous H. H. Scott silver-plated front end are factory preassembled and sealed. You need only align the tuner's wide-bandpass IF's and detector—using the meter on the tuner itself. Virtually foolproof construction. Special shielding protects against interaction of tuner and multiplex sections. Unique H. H. Scott circuitry eliminates multiplex interference with bias oscillator of any stereo tape recorder. **FEATURES:** Stereo Noise Filter, Vernier Tuning, Front Panel Tuning Meter and Stereo Tape Recorder Output. **IHF Usable Sensitivity:** 2.2  $\mu$ v. **Size:** 15" w. x 10" d. x 4 3/4" h., less case. Shpg. Wt., 16 lbs. **Scottkit Model LT-110B FM Multiplex Tuner Kit—Less case\*. Net Each. \$139.95**

**NEW MODEL LT-112 SOLID STATE FM/MPX TUNER KIT**  
Built-in alignment meter, prewired and pre-assembled MPX for easy building. Features automatic stereo reception and silicon-transistorized IF. **Sensitivity:** 1.9  $\mu$ v. usable. **Frequency Response:**  $\pm$ 1 db, 30-15,000 cps, IHF. **S/N Ratio:** 65 db. **Distortion:** 0.8% harmonic. **Controls:** Function (Off, Normal, Sub-chan. Filter, Noise Filter); Tuning; Meter (Sig. Strength, Align, Center Tuning); Stereo-Mono Selector; Separation adjust and stereo threshold on chassis. **Outputs:** Front panel phone jack; tuner; tape. **Size:** 15 1/2" w. x 13 1/4" d. x 5 1/4" h., in C case. Shipping Weight, 13 lbs. **Scottkit Model LT-112 Solid State FM/MPX Tuner Kit—Less case\*. Net Ea. \$161.95**

**MODEL LK-48B STEREO AMPLIFIER KIT**  
Prewired sockets and terminals for easy assembly. **Power Output:** 24 watts per channel. **Hum and Noise:** Better than -80 db at full output. **Frequency Response:** 20-20,000 cps; IHF power band below 19 cps to above 20,000 cps. **Distortion:** Less than 0.5% IM. **Inputs:** 3  $\mu$ v or 9  $\mu$ v for RIAA or NAB; tuner and extra high level input; tape monitor. **Controls:** Seven-position Stereo Selector; Scratch Filter; Loudness Compensation. Treble and Bass, each channel; Input Selector; Stereo Balance; Loudness/Power. **Outputs:** Tape record; center channel; 4, 8 and 16 ohms, each channel. Shpg. Wt., 26 lbs. **Scottkit Model LK-48B Stereo Amplifier Kit—Less case\*. Net Each. \$129.95**

**NEW MODEL LK-60 STEREO SOLID STATE AMPLIFIER KIT**  
Solid state design uses silicon output transistors, massive heat sinks and heavy-duty coupling capacitors. Front-panel power-monitor meter. **Power Output:** 40 watts rms per channel; 120 watts total IHF. **Power Bandwidth:** 20-20,000 cps. **Frequency Response:**  $\pm$ 1 db, 15-30,000 cps. **Distortion:** 0.8% harmonic. **Hum:** -80 db. **Controls:** Input Selector; Seven-position Stereo Selector; Dual Bass; Treble; Balance; Loudness; Compensator; Tape Monitor, Rumble, Scratch Filter; Speaker Selector. **Inputs:** Tape head, tuner, phono, Extra. **Outputs:** Front panel headphones; speakers; tape. **Size:** 15 1/2" w. x 13 1/4" d. x 5 1/4" h., in C case. Shipping Weight, 21 lbs. **Scottkit Model LK-60 Stereo Amplifier Kit—Less case\*. Net Each. \$169.95**

**MODEL LK-72B STEREO 80-WATT AMPLIFIER KIT**  
Supplied in Kit-Pak. **Power Output:** 40 watts each channel music waveform, 30 watts each channel steady-state. **Frequency Response:**  $\pm$ 1 db, 20-20,000 cps. **Power Bandwidth:** 19-25,000 cps. Cutoff filter is sharp, below 20 cps (12 db or better per octave). **Distortion:** Harmonic, 0.8% at rated out.; IM, CIE, 0.5%. **Hum Level:** High level input, 80 db below rated output; low level inputs, 10  $\mu$ v equivalent. **Sensitivity:** Tape, 3.0  $\mu$ v; Mag. Stereo Selector (Bal. A/B, B, Monophonic Records, Stereo, Stereo Reverse, Chan. A, Chan. B); Treble Chan. 1, Chan. 2; Bass Chan. 1; Bass Chan. 2; Tape Monitor (In, Out); Center Channel Level; Stereo Balance; Loudness; On/Off; Pickup Selector (NAB, RIAA); Scratch Filter. Shipping Weight, 31 lbs. **Scottkit Model LK-72B Stereo Amplifier Kit—Less case\*. Net Each. \$149.95**

\*Cases described on another page.



Model LT-110B



Model LT-112



Model LK-48B



Model LK-60

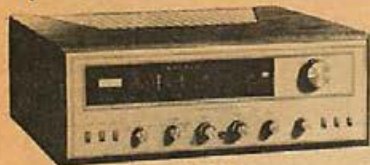


Model LK-72B



# TUNER/AMPLIFIERS AND "STEREO COMPACT" PORTABLE

## STEREOPHONIC TUNER/AMPLIFIERS MODEL 340B FM MULTIPLEX TUNER/AMPLIFIER



Model 340B



Model 342



Model 388



Model 348



Model 344

Moderately priced, this remarkable tuner-amplifier combination offers all the performance of the world famous Model 350D wideband stereo tuner. Unique "Auto-Sensor" circuitry automatically switches tuner to stereo operation when station broadcasts via FM stereo; light indicates change. This is the only FM tuner-amplifier combination using non-magnetic aluminum for most rapid heat dissipation and lowest hum—the only FM tuner-amplifier combination that offers full power (35 watts, IHF) from 20 to 20,000 cycles like the best separate components—the only FM tuner-amplifier combination designed without compromise. Uses the same silver-plated front end and signal strength tuning meter used on the famed Scott Broadcast Monitor tuners. **Usable IHF Sensitivity:** 2.2  $\mu$ V. **Hum:** -80 db (DC heated preamplifier section). **Distortion:** Under 0.8%. Switchable front panel headphone output; powered center channel speaker output; separate tone controls each channel; separate on-off permits presetting all controls; all control features of Model 350D; tape monitor provisions. **Size:** 16 $\frac{3}{4}$ " w. x 15 $\frac{1}{4}$ " d. x 5 $\frac{1}{2}$ " h., less case. Uses G case. Shipping Weight, 35 lbs.

Scott Model 340B Multiplex Tuner/Amplifier—Less case\*. Net Each. . . . \$399.95  
West Coast: 404.95

## MODEL 342 SOLID STATE FM MULTIPLEX TUNER/AMPLIFIER

Wideband, stereo receiver features silver-plated front end, automatic multiplex, logging scale, tuning meter and stereo and sub-channel noise filters. **Sensitivity:** 2.7  $\mu$ V, usable. **Frequency Response:** +1 db, 18-25,000 cps. **Distortion:** 0.8% or less. **Power Output:** 32.5 watts per channel at 4 ohms; 22.5 watts per channel at 8 ohms. **Controls:** Dual Loudness; Speaker Switch; Tape Monitor; Noise Filter; Selector (High and Low Phono, FM, Sub-Channel Filter, Extra); Dual Bass and Treble; Power (On-Off); Balance; Stereo-Mono. **Inputs:** External stereo, 3 pairs. **Output:** Low level front panel jack. **Size:** 15 $\frac{3}{4}$ " w. x 13 $\frac{1}{4}$ " d. x 5 $\frac{1}{4}$ " h., in case C. Shipping Weight, 17 lbs.

Scott Model 342 Stereo Tuner/Amplifier—Less case\*. Net Each. . . . \$299.95  
West Coast: 304.95

## MODEL 388 AM-FM MULTIPLEX TUNER/AMPLIFIER

Compact design will fit 10 $\frac{1}{2}$ " bookshelf. Massive heat sinks; no output transformers. Reliable AM/FM tuner combined with amplifier equivalent of Model 260. **Amplifier Section:** Same as for Model 260. **Sensitivity:** 1.9  $\mu$ V FM; 20  $\mu$ V AM, usable. **Frequency Response:** +1 db, 30-15,000 cps. **Hum:** -70 db. **Harmonic Distortion:** 0.8%. **Selectivity:** 45 db. **Separation:** 40 db. **Inputs:** Phono (switchable 3, 6 or 9 mV); tape head; aux. **Outputs:** Tape; front panel phone jack; speaker terminals. **Size:** 18 $\frac{1}{4}$ " w. x 11 $\frac{1}{4}$ " d. x 6 $\frac{1}{4}$ " h., in KWW case. Shipping Weight, 26 lbs.

Scott Model 388 AM-FM Multiplex Tuner/Amplifier—Less case\*. Net Ea. . . . \$424.95  
IHF measurements. West Coast: 429.95

## MODEL 348 SOLID STATE FM MULTIPLEX TUNER/AMPLIFIER

The ultimate in tuner/amplifiers, combines the Model 312 tuner equivalent with Model 260 amplifier equivalent. Includes sub-channel filter and compensation switch; Dynaford® muting and balance control. **Specifications:** Same as Models 312 and 260, except: **Sensitivity:** 1.9  $\mu$ V, usable. **Selectivity:** 45 db. **Separation:** 40 db. **Size:** 18 $\frac{3}{4}$ " w. x 11 $\frac{1}{4}$ " d. x 6 $\frac{1}{4}$ " h., in KWW case. Shipping Weight, 25 lbs.

Scott Model 348 Solid State FM Multiplex Tuner/Amplifier—Less case\*. Net. \$499.95  
West Coast: 504.95

## MODEL 344 TRANSISTORIZED FM MULTIPLEX TUNER/AMPLIFIER

Peak 100-watt power capability, combined with highly sensitive silver-plated, four-nuvistor front end, provides superior listening quality. Advanced solid state amplifier stage for long life and fine sound. Series-gate, time-switching multiplex section for true stereo separation. Auto-Sensor circuitry for quiet, instant stereo switching. Flat line limiting for noise-free FM. Also feature cool operation, instant stereo indicator and tape monitoring facility. **Sensitivity:** 2.2 mV IHF. **Frequency Response:** Stereo, 30-15,000 cps; +1.0 db, 20-20,000 cps. **Signal-to-Noise Ratio:** 65 db below 100% modulation. **Cross-Modulation Rejection:** 80 db. **Harmonic Distortion:** 0.8%. **Separation:** Better than 35 db. **Capture Ratio:** 6.0 db. **Hum and Noise:** 80 db. **Selectivity:** 45 db.

**AM Suppression:** 55 db. **Power Output:** 25 watts music power per channel. **Controls:** Stereo/Mono; Input (FM, Phono, Tape, Sub-channel Filter, Extra); Loudness/Volume; Bass (dual); Treble (dual); Main/Remote Speaker; Noise Filter; Low Level Output; Power On-Off. **Inputs:** (Rear Panel) Magnetic Phono (switchable 3-6 mV sensitivity); Tape Head; Extra. **Outputs:** Tape Recorder; Derived Center Channel; Left Channel; Right Channel; Left and Right Channel. **Size:** 15" w. x 14 $\frac{1}{2}$ " d. x 4 $\frac{3}{4}$ " h., less case. Uses C case. Shipping Weight, 25 lbs.

Scott Model 344 Transistorized FM Multiplex Tuner/Amplifier—Less case\*. Net Each. . . . \$429.95  
West Coast: 434.95

## "STEREO COMPACT" PORTABLE MUSIC SYSTEM

Completely integrated music system built around a powerful transistorized amplifier matched to two complementary low resonance speaker systems. The result is full fidelity sound that amazes the most discerning listener. The built-in, professional record changer comes complete with high-compliance, magnetic cartridge with diamond stylus to play records with precision and care. Optional tuner is a fine quality, transistorized, FM stereo unit, designed for the best possible multiplex performance. Each speaker system includes a separate woofer and tweeter, plus a crossover network; provides a sound quality ordinarily found only in larger, more expensive systems. Additional features include jack for private stereo headphone listening and an input for playing a tape recorder through the system. Power switch allows direct turn-on of the unit, or, in the "auto" position, automatically shuts system off after the last record has played. **Controls:** Input Selector (Phono, Tuner, Extra); Mono-Stereo Switch; Bass; Treble; Room Sound Balance; Earphone switch; Clutched Volume/Balance control; Automatic Shut-Off/Manual Switch. **Size:** Cabinet, 24 $\frac{1}{2}$ " w. x 15" d. x 8 $\frac{1}{4}$ " h. Speakers, 14" w. x 5 $\frac{1}{2}$ " d. x 8 $\frac{1}{4}$ " h.

Scott Model 2300 "Stereo Compact"—Less tuner. Net Each. . . . \$299.95



Scott Model 2310 Tuner—For addition to "Stereo Compact" system. Net Each. . . . \$129.95

### \*ACCESSORY CASES

Components listed are priced without case. The following are case types available for all Scott units.

#### METAL CASES

Leatherette finished steel case with ventilating louvers. **Scott Model C**—For 233, 260, 299D, 299T, 312, 315, 342, 344, 350D, LK-48B, LK-60, LK-72B, LT-110B and LT-112. Shipping Weight, 5 lbs. Net Each. . . . \$13.95  
West Coast: 14.95

**Scott Model G**—For 340B, Shipping Weight, 7 lbs. Net Each. . . . \$17.95  
West Coast: 18.95

#### WOOD CASES

Cases have removable metal grille. **Scott Model CWM** (Mahogany) or **CWW** (Walnut)—Same as C metal case. Shpg. Wt., 6 lbs. Net Each. . . . \$24.50  
West Coast: 25.50  
**Scott Model GWW** (Walnut)—Same as G metal case. Shipping Weight, 8 lbs. Net Each. . . . \$29.95  
West Coast: 30.95  
**Scott Model KWW** (Walnut)—For 348 and 388. Shipping Weight, 8 lbs. Net Each. . . . \$29.95  
West Coast: 30.95



# H.H. SCOTT FM STEREO TUNERS, STEREO AMPLIFIERS

## FM STEREO TUNERS FOR EVERY SYSTEM

### MODEL 350D AUTOMATIC FM MULTIPLEX TUNER

"Auto-Sensor" circuit automatically switches the tuner to stereo on stations transmitting multiplex. Front-panel Indicator switch permits using the tuning indicator as a sensitive multiplex distortion indicator, allowing you to visually eliminate such distortion. Other flexible control features include: Sub-channel filter; stereo noise filter, automatic stereo position and front panel tape output. **Sensitivity:** 2.3  $\mu$ V, IHF. **Frequency Response:** Better than 50-15,000 cps (FCC multiplex specification) stereo. **Signal-to-Noise Ratio:** 60 db. **Cross-Modulation Rejection:** 80 db. **Distortion:** 0.8%. **Separation:** Better than 30 db. **Capture Ratio:** 6 db. **Audio Hum:** 65 db below 1 volt. **Selectivity:** 35 db. **AM Suppression:** 55 db. **Controls:** Function Switch (Off, Normal, Sub-Channel Filter, Stereo Noise Filter); Mono-Stereo Selector; Indicator Switch (Tuning or Distortion Indication); Stereo Indicator Light; Tape Output Jack; Slide-rule Dial with Logging Scale. Rear Panel has audio outputs, tape outputs and 300-ohm (unbalanced) antenna input. **Size:** 15" w. x 11 1/2" d. x 4 3/4" h., without case, but including space for fuse-post and audio connections. Uses C case. Shipping Weight, 14 lbs.  
**Scott Model 350D Automatic FM Multiplex Tuner—Less case\*, Net Each. \$224.95**  
 West Coast: 227.95



Model 350D

### MODEL 312 SOLID STATE FM MULTIPLEX TUNER

Features the use of silicon transistors in four-stage IF circuitry to assure long life, exceptional stability and high selectivity. Also features silver-plated, nuvistor front-end. Switching unaffected by momentary signal-strength changes; operates only on a 19 kc multiplex pilot carrier. Special filters improve listening quality from marginal stations; no need for local-distant switching. Rear-positioned level controls assure perfect match to any amplifier or tape recorder. Precise d'Arsonval meter for accurate station tuning and antenna orientation. Easy-to-read slide-rule dial includes logging scale. Separate stereo indicator. **Sensitivity:** 2.2  $\mu$ V, IHF. **Frequency Response:** Better than 30-15,000 cps (FCC multiplex specification). **Signal-to-Noise Ratio:** 65 db. **Cross-Modulation Rejection:** 80 db. **Distortion:** 0.8%. **Separation:** Better than 35 db. **Capture Ratio:** 4 db. **Audio Hum:** 70 db below 1 volt. **Selectivity:** 35 db. **AM Suppression:** 55 db. **Controls:** Function (Off, Normal, Sub-Channel Filter, Stereo Filter); Stereo Selector (Mono, Automatic); Stereo Indicator; Tuning meter; Tape output jack. Rear panel has audio outputs, tape outputs, separate level controls for each channel, and 300-ohm (unbalanced) antenna input. **Size:** 15" w. x 11 1/2" d. without case, but including space for fuse post and audio connections. Uses C case. Shipping Weight, 13 lbs.  
**Scott Model 312 Solid State FM Multiplex Tuner—Less case\*, Net Each. \$259.95**  
 West Coast: 262.95



Model 312



Model 315

### MODEL 315 SOLID STATE FM MULTIPLEX TUNER

Features easy-to-read slide rule dial, signal strength meter, stereo indicator light and automatic switch to stereo. **Sensitivity:** 2.5  $\mu$ V, usable. **Frequency Response:**  $\pm$  1 db, 30-15,000 cps. **Cross Modulation Rejection:** 80 db. **Signal-to-Noise Ratio:** 65 db. **Harmonic Distortion:** 0.8%. **Selectivity:** 45 db. **Controls:** Function (Off, Normal, Sub-Ch. Filter, Noise Filter); Stereo-Mono Selector; Tuner, Outputs; Tuner and tape. **Size:** 15 1/2" w. x 9" d. x 5 3/4" h., in C case. Shipping Weight, 12 lbs.  
**Scott Model 315 Stereo FM Tuner—Less case\*, Net. \$156.95**  
 †IHF measurements. West Coast: 159.95

## BUILD YOUR STEREO SYSTEM AROUND A SCOTT AMPLIFIER

### MODEL 299D STEREO 80-WATT AMPLIFIER

Patented balancing method assures equal speaker output. Full function versatility provided by rumble and scratch filters, inputs for both turntable and tape recorder, inputs for tape head and monitoring without changing input cables. **Power Output:** 40 watts per channel. **Frequency Response:** Flat, 20-20,000 cps. **Distortion:** Less than 0.8% harmonic. **Hum Level:** 80 db below max. output. **Inputs:** Mag, hi/low, ceramic, tuner, tape monitor and extra, each channel. **Outputs:** Tape recorder; 4, 8 and 16 ohms speaker taps for each channel; plus center channel; one switched AC outlet. **Controls:** Function (Balance A, Balance B, Stereo, Stereo Reverse, Monophonic, Channel A, Channel B); Bass (each channel); Treble (each channel); Balance; Loudness; Loudness-Volume Switch; Scratch Filter On-Off; Rumble Filter On-Off; Channel A; Channel B; Magnetics; Input Selector (RIAA, NAB, Tuner, Extra); Aux Tape Monitor Switch (with high level playback inputs); Power Off. **Tubes:** 4-12AX7, 4-7591, 2-6GWS, 1-5AR4. **Operation:** 40 watts per section, 105-125 VAC, 50-60 cps, fused. **Size:** 15 1/2" w. x 13 1/4" d. x 5 3/4" h., in C case. Shipping Weight, 31 lbs.  
**Scott Model 299D Stereo Amplifier—Less case\*, Net Each. \$229.95**  
 West Coast: 233.95



Model 299D

### MODEL 233 STEREO 66-WATT AMPLIFIER

Complete 66-watt, two-channel stereophonic amplifier. **Features:** Separate controls for each channel; DC heaters for minimum hum level. Powered center channel eliminates need for external amplifier. All-aluminum chassis. **Power Output:** 33 watts per channel. **Frequency Response:** Flat, 20-20,000 cps. **Distortion:** 0.8% harmonic at full output. **Hum and Noise:** 80 db below full output. **Sensitivity:** Low 3 mV magnetic; high 9 mV magnetic, tuner, tape recorder. **Outputs:** Stereo tape recorder; 4, 8, 16 ohms each channel; center channel; switched AC outlet. **Controls:** Input Selector (Phono or Tape Head, Tuner, Aux); Tape Monitor Switch (with high level playback inputs); Equalization Selector (RIAA or NAB Tape); Stereo Selector (Balance A, Balance B, Channel A, Channel B, Stereo, Reverse Stereo, Monophonic); Channel A Bass; Channel B Bass; Channel A Treble; Channel B Treble; Scratch Filter; Volume-Loudness; Headphone-On/Off Switch. **Tubes:** 11. **Operation:** 105-125 VAC, 50-60 cps. **Size:** 15 1/2" w. x 13 1/4" d. x 5 3/4" h., in C case. Shipping Weight, 29 lbs.  
**Scott Model 233 Stereo Amplifier—Less case\*, Net Each. \$189.95**  
 West Coast: 193.95



Model 233

### MODEL 299T STEREO 65 WATT SOLID STATE AMPLIFIER

No audio transformer required; direct coupled circuitry; silicon output transistors. **Power Output:** 65 watts, IHF; 22.5 watts rms per channel. **Hum:** -80 db. **Frequency Response:** 20-20,000 cps. **Distortion:** Less than 0.8%. **Controls:** Mode; Tape Monitor; Scratch Filter; Balance; Input Selector (High and Low Phono, Tuner, Sub-Channel Filter, Extra); Treble, Bass, Loudness (Ganged); Power; Speakers (On-Off). **Inputs:** Tape head; tuner; phono; aux. **Outputs:** Front panel phone jack; tape; speaker terminals. **Size:** 15 1/2" w. x 12" d. x 5 3/4" h., in C case. Shipping Weight, 12 lbs.  
**Scott Model 299T Stereo Amplifier—Less case\*, Net Each. \$169.95**  
 West Coast: 173.95



Model 299T

### MODEL 260 STEREO 80-WATT SOLID STATE AMPLIFIER

Using vacuum tube measurement techniques, this solid state amplifier delivers a full 60-watt sine wave output. For instantaneous power (full orchestral crescendo), it delivers better than twice this power rating, previously unattainable with tube designs. Rugged, pre-tested, heavy duty components include massive heat sinks, heavy printed circuit boards and silicon output transistors. Regardless of the speaker system used, the power capabilities of the 260 virtually transform the sound delivered. Backed by Scott's famous 2-year guarantee. **Power Output:** 30 watts each channel; 40 watts music power. **Hum and Noise:** -80 db. **Power Bandwidth:** 20-20,000 cps, IHF. **Harmonic Distortion:** 0.8%. **Damping Factor:** Greater than 20. **Controls:** Input Selector Switch (Phono, Tape Head, Tuner and Aux); Stereo Selector Switch (Bal. L, Bal. R, Mono, Reverse, Stereo and Left and Right Input); Loudness Switch; Tape Monitoring Switch; Speakers Switch; Rumble Filter; Scratch Filter; On-Off Switch; Bass and Treble; Stereo Headphone Output. **Inputs:** Mag. phono (switchable sensitivity 3, 6 or 8 mV); tape head; tuner; tape-in; aux. **Outputs:** Switched 4, 8 or 16 ohms, each channel; derived center channel; headphone jack on front panel. **Size:** 15" w. x 13 1/4" d. x 5 3/4" h., in C case. Weight, 21 lbs.  
**Scott Model 260 Amplifier—Less case\*, Net Each. \$259.95**  
 West Coast: 263.95



Model 260

\*Cases described on another page.



# Sherwood Stereo, Hi-Fi Equipment



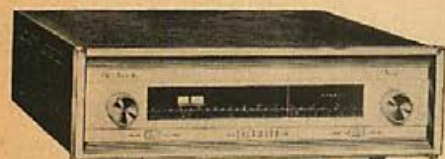
MODEL S-8800



MODEL S-8000IV



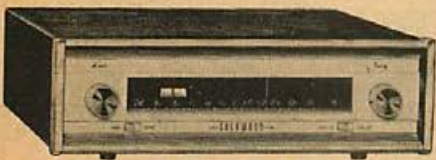
MODEL S-3300



MODEL S-2100II



MODEL S-2000IV



MODELS S-3000V and S-3000III

## RACK PANEL MOUNTING

All models of Sherwood tuners are available mounted on a gray hammertone steel panel for installation in standard relay racks. Panel size, 19" x 5 1/4" (3 1/2" h. for S-2000IV). Shipping Weight, 2 lbs. additional to tuner chassis weight. Add \$10.50 to price of model.

## \*CABINETS

May be ordered when buying component or separately. To order with component, change suffix S on model number to L (Walnut-tone leatherette)—example: S2000IVL and add price shown below to price of component listed. May be ordered separately as listed. Specify cabinet size: Std. for S-1000III, S-2000IV, S-3000III, S-3000V; large, for S-3300, S-5000II, S-9500 and S-9900.

Model L—Walnut-tone leatherette case, Net Each. . . . . \$7.50  
 Model T—Walnut-tone leatherette case for S-2100, S-5500IV, S-9000 and S-9000AS only, Net Each. . . . . \$8.50  
 Model D—Walnut-tone leatherette case for S-8800, S-8000IV, S-7700III, Net Each. . . . . \$9.00  
 Model W—Walnut wood cabinet for S-8800, S-8000IV, S-7700III, Net Each. . . . . \$28.00  
 West Coast: 29.00

## MODEL S-8800 ALL SILICON FM STEREO RECEIVER

Solid state, all silicon receiver for maximum reliability. FEATURES: Automatic FM stereo/mono switching; stereo indicator light; professional zero-center tuning meter; front panel stereo headphone jacks. TUNER: Power Bandwidth: 12-35,000 cps at 1% harmonic distortion. FM Sensitivity: 1.6  $\mu$ V for 30 db, IHF; noise and distortion below 100%. Stereo Separation: 40 db, MX. Signal-to-Noise Ratio: -70 db, over 50  $\mu$ V. AMPLIFIER: Power Output: 100 watts (both ch.) IHF, music. IM Distortion: 3/4% at rated output. Harmonic Distortion: 3/4% at rated output. Hum and Noise: (Max. below rated output) -70 db, phono; -80 db, tuner. Sensitivity: 1 mV, tape head; 1.8 mV, phono; 0.25 V, aux. Inputs: (Two each) High-Level; Phono Preamp (RIAA); Tape Head (NAB); Tape Monitor. Outputs: 4-16 ohm speakers for stereo, record and headphone. Controls: Selector (Tape Head, Phono, FM, Aux); Dual Bass, Treble, Balance; Volume/Off; Mode; Filter (Hi-Low); Speakers; Loudness; Tuning. Size: 16 1/2" w. x 14" d. x 4 1/2" h. Shpg. Wt., 35 lbs. Model S-8800—Less case.\* Net Each. . . . . \$359.50  
 West Coast: 362.50

## MODEL S-8000IV FM/MX STEREO RECEIVER

Combines wideband facilities for receiving FM and FM multiplex with two 40-watt amplifiers and dual preamplifier. Needs only speakers for a complete hi-fi system. Tuner section features 1 Mc wide balanced ratio detector and 3 Mc gated beam limiter for 2.4 db capture ratio. Phase loaded oscillator and balanced synch detector circuitry; drift-free (= 15 kc). Controlled cascade RF amplifiers. Other features: Zero-center d'Arsonval tuning meter; loudness control compensated over 45 db range; 12 db per octave scratch and rumble filters; stereo indicator light and stereo headphone jack. FM Sensitivity: 1.8  $\mu$ V IHF. Frequency Response: = 1/2 db, 20-20,000 cps at 36 V. Harmonic Distortion: 3/4% at 100% modulation. Signal-to-Noise Ratio: 55 db. Stereo Separation: 40 db. AMPLIFIER: Power Output: 36 watts rms, 40 W IHF music, each channel. IM Distortion: 1.5% at 36 V. Harmonic Distortion: 0.5% at 36 V. Hum and Noise: 75 db below one watt output. Sensitivity: 1.2 mV phono, 0.3 V aux. Inputs: Two each: Phono, Tape Head, Tape Monitor, Aux. Outputs: 4, 8 and 16 ohms; 1.5 V audio output signal. Damping Factor: 5:1. Controls: Interchannel Hush; FM Tuning; Friction-locked Bass and Treble; Loudness; Phono Gain; Stereo Balance; Function Selector; Input Selector; Scratch and Rumble Filters; Phase Reverse; Stereo Normal/Reverse Switch; Tape Monitor Switch. Tubes: 19 plus three silicon rectifiers, nine diodes. Size: 16 1/2" w. x 14" d. x 4" h. Weight, 34 lbs.

Model S-8000IVS—Less case.\* Net Each. . . . . \$279.95  
 West Coast: 283.95

## MODEL S-3300 ALL SILICON FM/MX TUNER

Solid state circuitry backed by professional quality instrumentation. FEATURES: Zero-center tuning meter; stereo indicator light; automatic stereo/mono switching; inter-channel hush; 8 1/4" expanded slide-rule scale; dual AGC system; cascaded limiters, and noise filter. Sensitivity: 1.6  $\mu$ V for -30 db quieting and distortion, IHF. Selectivity: -3 db at 200 kc. Frequency Response: = 1/2 db, 20-15,000 cps (stereo); 20-20,000 cps (mono). Distortion: 0.3%, 20-20,000 cps. Signal-to-Noise Ratio: -70 db, over 50  $\mu$ V. Capture Ratio: 2.4 db. Separation: -40 db. Controls: Tuning; Audio Level; Mono/Automatic Stereo; Hush; Noise Filter; Power On/Off. Power Required: 15 watts, 115-125 VAC, 50-60 cps fused. Size: 14" w. x 10 1/2" d. x 4" h. Weight, 10 1/2 lbs. Model S-3300S—Less case.\* Net Each. . . . . \$167.50  
 West Coast: 170.50

## MODEL S-2100II FM STEREO MX/AM TUNER

Engineered for the finest reception of stereo multiplex, FM and AM broadcast. Selective 5 kc front panel passband control for weak AM broadcasts. Exceptional fidelity with 15 kc wide hi-fi bandpass. Highly sensitive superheterodyne circuitry and low distortion. Includes "Stereo-Indicator Light" which instantly identifies stations broadcasting FM multiplex stereo. Drift-free circuitry (= 15 kc) precision zero-center d'Arsonval tuning meter, flywheel tuning and an expanded 8 1/4" tuning scale. Other features include wide band balanced ratio detector, interchannel hush and front panel wide/narrow AM selectivity switch. Sensitivity: FM, 1.8  $\mu$ V IHF, AM, 2  $\mu$ V at 60% modulation for 0.5 V output. 6 db S/N. Selectivity: -3 db at 200 kc. Frequency Response: FM, = 1/2 db at 20-20,000 cps; AM, = 6 db at 20-7,500 cps. Harmonic Distortion: 3/4% at 100% modulation. Signal-to-Noise: 60 db. Capture Ratio: FM, 2.4 db. Stereo Separation: 40 db. Audio Output: FM, 1.2 volts. Tubes: 12 plus two silicon rectifiers, nine diodes. Size: 14" w. x 10 1/2" d. x 4" h. Weight, 21 lbs. Model S-2100IIS—Chassis, less case.\* Net Each. . . . . \$199.50  
 West Coast: 202.50

## MODEL S-2000IV AM-FM TUNER

Identical circuitry as above Model S-2100II but without multiplex circuits. Tubes: Nine plus two silicon rectifiers, three diodes. Model S-2000IVS—Chassis, less case.\* Net Each. . . . . \$162.50  
 West Coast: 165.50

## MODEL S-3000V FM/MX STEREO TUNER

Identical to Model S-2100II but without AM circuitry. Tubes: 9 plus two silicon rectifiers, nine diodes. Model S-3000VS—Less case.\* Net Each. . . . . \$139.95  
 West Coast: 142.95

## MODEL S-3000III FM TUNER WITH MX PROVISIONS

FM tuner features. In addition to its sensitive circuitry, internal plug-in space for FM multiplex adapter. In all other aspects, this superb instrument is identical to Model S-3000V, above. Includes interchannel hush feature, zero-center tuning meter, and 8 1/4" slide-rule tuning scale. Specifications: Same as for Model S-3000V, except without MX facilities. Weight, 15 lbs. Model S-3000IIIS—Chassis, less case.\* Net Each. . . . . \$114.50  
 West Coast: 117.50



# Sherwood Stereo, Hi-Fi Equipment

## MODEL S-9000a 160-WATT SOLID STATE STEREO PREAMP/AMPLIFIER

New solid state amplifier provides audio power previously unattainable in one compact unit. Special circuitry prevents damage to costly transistor components due to shorted output or overheating. Silicon transistors mounted on glass-polyester boards are used throughout audio stages. Transformerless output circuits provide optimum transient response and overall stability. **Power Output:** 160 watts IHF music, 80 watts per channel at 8 or 4 ohms (65 W at 16 ohms); 65 watts per channel continuous at 8 ohms. **Frequency Response:**  $\pm 1\%$  db, 20-20,000 cps at 50 watts. **IM Distortion:** 1% at 55 watts. **Harmonic Distortion:** 0.5% at rated output. **Hum and Noise:** 80 db below 50 watts output. **Sensitivity:** Phono, 1.2 mV; tuner, 0.25 V. **Inputs:** Two each: Phono, Tape Head, Tape Monitor, Aux, Tuner. **Damping Factor:** 20:1. **Controls:** Ganged Stereo Bass, Treble, Loudness, Balance, Phono Level; Input Selector; Mode; Scratch Filter; Rumble Filter; Loudness Contour; Phase, Tape Monitor; Speaker mute. Front panel stereo headphone jack. **Size:** 14" w. x 12 $\frac{3}{4}$ " d. x 4" h. Weight, 24 lbs.

**Model S-9000aS**—Chassis, less case.\* Net Each.....\$309.50  
West Coast: 312.50

**Model S-9000aT**—With walnut-tone leatherette louvered case. Net Each.....\$318.00  
West Coast: 321.00

## MODEL S-9900 90-WATT SOLID STATE STEREO PREAMP/AMPLIFIER

New all-silicon, solid state amplifier with extremely low distortion. Features high phono input overload capabilities and audio power to drive a third (center) channel which also may be used to power remote, single-channel accessory speaker systems. Twenty-three high quality silicon transistors and two silicon rectifiers afford greater heat reserve operation than conventional germanium units. Special power output protection circuits are provided for speaker systems. **Power Output:** 90 watts IHF music power, 45 watts per channel at 4, 8 or 16 ohms; 72 watts continuous sine-wave. **Frequency Response:**  $\pm 1\%$ , 12-35,000 cps. **IM Distortion:** 1% at rated output. **Harmonic Distortion:**  $\frac{1}{2}\%$  at rated output. **Hum and Noise:** Phono, 70 db; tuner, 80 db, below rated output. **Sensitivity:** 1 mV, tape head, 1.8 mV, phono, 0.25 V, tuner. **Inputs:** 6, hi; 4, lo. **Outputs:** 4, 8 and 16 ohms. **Controls:** Selector (Tape, Phono, Tuner and Aux); Stereo/Mono (Rev., Normal, Channel 1, Channel 2, Mixer); Ganged Stereo Bass, Treble, Loudness, Balance; Phono Level; Tape Monitor; High Filter; Loudness (In-Out); Speakers (On-Off). Front panel headphone jack. **Size:** 14" w. x 10 $\frac{1}{2}$ " d. x 4" h. Shipping Weight, 22 lbs.

**Model S-9900S**—Chassis, less case.\* Net Each.....\$229.50  
West Coast: 232.50

**Model S-9900L**—With walnut-tone, leatherette-louvered case. Net Each.....\$237.00  
West Coast: 240.00

**Model S-9500S**—Same as S-9900S but 50 watts output. Chassis, less case.\* Net Each.....\$179.50  
West Coast: 182.50

**Model S-9500L**—With walnut-tone leatherette louvered case. Net Each.....\$187.00  
West Coast: 190.00

## MODEL S-5500IV 80-WATT STEREO PREAMP/AMPLIFIER

Features full power requirements for most home music systems at a reasonable price. Well-filtered DC filament power supply and special phono preamplifier circuitry combine to provide low hum and noise, plus high phono sensitivity and gain required for low-output cartridges and speakers. Other features include: 12 db scratch and rumble filters operating on all channels; tape deck playback preamplifier; loudness compensator (switched); stereo headphone jack, stereo low impedance record outputs; and center channel speaker output. **Power Output:** 80 watts music power, 40 watts per channel. **IHF:** 36 watts per channel, continuous. **Frequency Response:**  $\pm 1\%$  db, 20-20,000 cps at 36 W. **IM Distortion:** 1.5% at 36 W. **Harmonic Distortion:** 0.5%, 26-20,000 cps at 36 W. **Hum and Noise:** 75 db below one watt output. **Sensitivity:** 1.2 mV, phono; 0.3 V, tuner. **Inputs:** Two each: Phono, Tape Head, Tape Monitor, Aux, Tuner. **Outputs:** 4, 8 and 16 ohms. **Damping Factor:** 5:1. **Controls:** Selector (Tape, Phono, Tuner, Aux); Phono Gain; Bass; Treble; Loudness/Power On-Off; Balance; Tape Monitor Switch; Scratch Filter; Phase (Normal and Reverse); Loudness (In-Out); Speaker (In-Out). **Size:** 14" w. x 12 $\frac{3}{4}$ " d. x 4" h. Weight, 25 lbs.

**Model S-5500IVS**—Chassis, less case.\* Net Each....\$179.50  
West Coast: 182.50

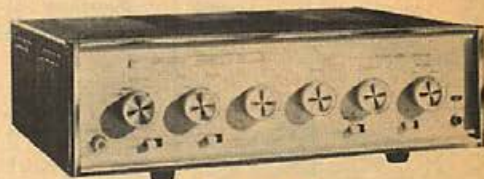
## MODEL A4MX FM MULTIPLEX STEREO ADAPTER

Designed for use within the chassis of the S-3000III tuner; controlled by front panel controls on tuner. Includes stereo indicator light for easy identification of FM stereo stations. Features hand crafted wiring, four transistors and four diodes. **Audio Output:** 2 V at  $\frac{1}{2}\%$  distortion. **Frequency Response:**  $\pm 1\%$  db, 20-15,000 cps. **Separation:** 35 db typical. **Size:** 4 $\frac{3}{4}$ " w. x 4 $\frac{1}{4}$ " d. x 3 $\frac{3}{8}$ " h.

**Model A4MX**—Net Each.....\$56.25



MODEL S-9000a



MODEL S-9900



MODEL S-9500



MODEL S-5500IV



MODEL SL-1

## MODEL SL-1 FM MULTIPLEX STEREO-LIGHT

Provides instant identification of FM stations broadcasting stereo programs for any FM tuner now available. Special sensing circuitry prevents false indications due to noise impulses. Small enough to mount in cabinet space beside any FM tuner; single  $\frac{1}{2}$ " dia. hole is all that is needed for custom installations. Variable control at rear adjusts sensitivity. **Sensitivity:** 10 mV FM stereo composite signal. **Sensing Selectivity:** Stereo pilot may be as low as 4 db below noise. **Connection:** Two parallel jacks for FM tuner output and MX adapter input. **Indicator:** NE-2H. **Tubes:** 6C10 compactron, 2 diodes and silicon rectifier. **Size:** 2 $\frac{1}{2}$ " x 2 $\frac{1}{4}$ " x 7 $\frac{1}{2}$ " deep. Shipping Weight, 2 $\frac{1}{2}$  lbs.

**Model SL-1**—With walnut-tone, textured case. Net Ea...\$28.00  
West Coast: 29.00

\*SEE PRECEDING PAGE FOR CABINETS.





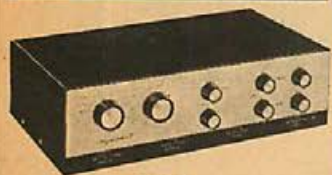
FM-3



FM-1



PAS-3



PAS-2



SCA-35



Stereo-70



Stereo-35

### MODEL FM-3 FM STEREO MULTIPLEX TUNER KIT

Wide-band, highly sensitive multiplex tuner provides automatic switching from mono to full separation stereo just by tuning the station. "Stereo" on the front panel automatically lights up if a station is broadcasting in stereo. Notable for drift-free, low distortion, low noise performance. Etched circuit boards and prealigned coils enable simple and foolproof assembly, including accurate alignment without instruments, in less than 12 hours. Progressive four-stage limiting; balanced bridge discriminator; accurate "reference grid" tuning indicator assures precise tuning for lowest distortion and maximum separation. Front panel volume control. Two volts output at low impedance. Planetary drive, no dial cord. **Sensitivity:** 4  $\mu$ v, IHFM. **Frequency Response:**  $\pm$ 0.5 db, 10-40,000 cps. **Distortion:** IM or harmonic, below 0.5% at 100% modulation. **Audio Noise Level:** 75 db below 100% modulation. **Controls:** Volume, Tuning; On-Off. **Tubes:** 1-ECC85 RF amp, 1-6AT5A mixer-oscillator, 2-6BA6 IF amps, 2-6AU6 IF amps, 2-1N542 matched detector diodes, 1-12AX7 audio, 1-EMM801 tuning eye, 1-EZ80 rectifier, 1-6BL8 19 kc amplifier, 1-12AX7 multiplex audio, 4-1N541 diodes. **Size:** 13" w. x 8" d. x 4" h. Shipping Weight, 13 lbs.

**Dynakit Model FM-3 FM Stereo Multiplex Tuner Kit—Including cover, Net. . . . . \$ 99.95**  
**Dynakit Model FM-3/A—Factory wired, Net Each . . . . . 154.95**  
**Dynakit Model PBK Bracket Kit—For panel mounting FM-3, Net Each . . . . . 2.00**

### MODEL FM-1 "DYNATUNER" FM TUNER KIT

Mono tuner with space provided for addition of FMX-3 Multiplex Adapter for performance identical to FM-3 above.

**Dynatuner FM-1 Kit—With cover, Net Each . . . . . \$ 74.95**  
**Dynatuner FM-1/A—Factory wired, Net Each . . . . . 109.95**  
**Dynakit PK-40 Deluxe Panel and Knobs—For all FM-1 Dynatuners, Net Ea. . . . . 9.95**  
**Dynatuner PM-4 Standard Brass Panel Mounting Kit—Net Each . . . . . 4.95**

### MODEL FMX-3 MULTIPLEX ADAPTER

Converts FM-1 Dynatuner to full fidelity stereo FM reception. Fits inside and is powered by FM-1. Automatically switches tuner to stereo or mono operation; light indicator shows when stereo broadcasts are tuned in; complete alignment without instruments.

**Dynakit Model FMX-3 Multiplex Adapter—Net Each . . . . . \$29.95**

### MODELS PAS-3 AND PAS-2 STEREO PREAMPLIFIER KITS

Flexible, single chassis design incorporates the famous circuitry of the Dynakit monophonic preamplifier, plus full stereo control flexibility. Features built-in full wave power supply, DC operated heaters for minimum noise, and preassembled printed circuits for quick, easy assembly. **Inputs:** RIAA, NAB tape head and Special for stereo low level; FM Multiplex, AM-FM, Auxiliary and Tape Monitor for stereo high level. **Outputs:** Low-impedance audio and tape (unaffected by tone or volume controls). **Controls:** Selector; Volume; Balance; Blend; separate Bass and Treble for each channel; Tape Monitor Switch; Loudness Switch; Power Switch; Scratch Filter Switch. **Distortion:** Under 0.05% IM at 2 volts; harmonic unmeasurable. **Frequency Response:**  $\pm$ 0.5 db, 10-40,000 cps. **Noise:** Less than 2  $\mu$ v, eqvt. on RIAA. **Tubes:** 4-12AX7/ECC83, 1-12X4. **Other Features:** DC heater supply, 4 convenience AC outlets, textured vinyl finish; panel mounting provision. **Size:** 13" w. x 8" d. x 4" h. Shipping Weight, 11 lbs.

**Dynakit Model PAS-3 Stereo Preamplifier Kit—Net Each . . . . . \$ 69.95**  
**Dynakit Model PAS-3/A Stereo Preamplifier—Wired, Net Each . . . . . 109.95**  
**Dynakit Model PAS-2 Stereo Preamplifier Kit—Identical to PAS-3, except for etched brass front panel and brown plastic knobs, Net Each . . . . . \$59.95**  
**Dynakit Model PAS-2/A Stereo Preamplifier—Wired, Net Each . . . . . 99.95**  
**Dynakit Model PM-3 Brass Front Panel Mounting Kit—For PAS-2, Net Ea. . . . . 4.95**  
**Dynakit Model PK-30 Deluxe Front Panel and Knobs—For all PAS-2 preamplifiers, Net Each . . . . . \$13.95**  
**Dynakit Model PBK Bracket Kit—For panel mounting PAS-3, Net Each . . . . . 2.00**

### MODEL SCA-35 STEREO CONTROL AMPLIFIER KIT

Combines stereo amplifier and preamplifier in a single, flexible unit of unequalled quality, economy and dependability. Outperforms similar units with higher power ratings. Matches the "Dynatuner" in design styling and size to make handsome companions. Unique engineering eliminates several stages to reduce distortion and noise while improving stability. Heavy-duty, etched circuit construction makes assembly easy. **Power Output:** 35 watts continuous, 45 watts IHFM both channels. **Frequency Response:**  $\pm$ 0.25 db, 20-20,000 cps. **Hum and Noise:** -70 db at rated output, phono and tape head. **Distortion:** Less than 1% IM at 17 watts (each channel); 0.2% at average listening levels. **Inputs:** RIAA high and low level phono, ceramic phono, NAB tape head, radio, tape and spare for each channel. **Outputs:** Constant level tape; 8 and 16 ohms; provision for headphone. **Controls:** Selector; Volume; Balance; Bass; Treble; Stereo-Mono Switch; Loudness Compensation Switch; Filter Switch; Power Switch. **Tubes:** 2-12AX7/ECC83, 2-7199, 4-6BQ5; 2 silicon diodes. **Special Features:** Center speaker output. Two convenience outlets. Charcoal brown, baked vinyl finish. Dual hum balancing controls. **Size:** 13" w. x 10" d. x 4" h. Shipping Weight, 22 lbs.

**Dynakit SCA-35 Stereo Control Amplifier Kit—Net Each . . . . . \$ 99.95**  
**Dynakit SCA-35/A Stereo Amplifier—Factory wired, Net Each . . . . . 139.95**  
**Dynakit Model PBK Bracket Kit—For panel mounting, Net Each . . . . . 2.00**

### MODEL STEREO-70 AMPLIFIER KIT

Two independent power amplifiers provide 35 watts output on each channel from a single, rugged power supply; may be combined for 70 watts monophonic. Uses 7199 driver and push-pull EL34 tubes operated at 65% of capacity. Patented circuitry assembled on printed-circuit board. Power supply is low impedance, choke filtered type. **Power Output:** 35 watts continuous; 80 watts peak, each channel. **Frequency Response:**  $\pm$ 0.5 db, 10-40,000 cps. **IM Distortion:** Less than 1% at 35 watts; 0.05% at 1 watt. **Hum and Noise:** Inaudible; 90 db below 35 watts. **Output Impedance:** 4, 8 and 16 ohms. **Damping Factor:** 15. **Channel Separation:** 55 db, minimum. **Tubes:** 4-EL34, 2-7199, 1-GZ34, selenium rectifier. **Other Features:** Matched tubes, dual Dyna Blaskets for non-critical adjustment, power for two preamps without interaction; fuse post, stereo-mono switch and on-off switch. Has bright nickel chassis, vinyl coated charcoal brown cover. **Size:** 13" w. x 9 1/2" d. x 6 1/2" h. Shipping Weight, 32 lbs.

**Dynakit Stereo-70 Amplifier Kit—Net Each . . . . . \$ 99.95**  
**Dynakit Stereo-70/A Amplifier—Factory wired, Net Each . . . . . 129.95**

### MODEL STEREO-35 AMPLIFIER KIT

Following the tradition of the famous Stereo-70, this medium-powered amplifier provides true Dynaco quality with economy. Provides a music power rating equivalent to conventional 45- or 50-watt amplifiers; can drive the most inefficient speakers. Uses patented Dynaco output transformers and superb circuitry for dual 17.5 watt amplification. Compact size suited to cabinet or bookshelf installations with limited space. Designed for use with PAS-3 preamplifier. **Power Output:** 35 watts continuous, 45 watts IHFM both channels. **Frequency Response:**  $\pm$ 1 db, 10-40,000 cps. **IM Distortion:** Less than 1% at 17 watts (each channel); 0.1% at average listening levels. **Hum and Noise:** Inaudible; better than -80 db at rated output. **Damping Factor:** 10. **Output Impedance:** 8 and 16 ohms. **Tubes:** 2-7247, 4-6BQ5 and 2 silicon diodes. **Finish:** Cadmium plated chassis; vinyl finish, charcoal brown cover. **Size:** 13" w. x 5 1/2" d. x 4" h. Shipping Weight, 18 lbs.

**Dynakit Stereo-35 Amplifier Kit—Net Each . . . . . \$59.95**  
**Dynakit Stereo-35/A Amplifier—Factory wired, Net Each . . . . . 79.95**



## DYNAKIT MARK III 60-WATT AMPLIFIER KIT

Printed circuit assembly permits construction by anyone within three hours; absolutely no balancing or critical adjustments required. Dyna Blaset permits accurate bias adjustment independent of meter accuracy. Choke filtering. **Power Output:** 60 watts continuous; 140 watts peak. **Frequency Response:** Better than  $\pm 0.5$  db, 6-60,000 cps;  $\pm 0.5$  db, 16-25,000 cps at 60 watts. **IM Distortion:** Less than 1% at 60 watts; 0.5% at 50 watts; less than .05% at 1 watt. **Noise:** -90 db at 60 watts with choke filtering. **Transient Response:** Unequaled on pulses, square waves, etc. **Output Impedances:** 4, 8, and 16 ohms. **Tubes:** 2 matched KT-88's, 1-6AN8, GZ-34, selenium rectifier. **Preamp Provision:** Socket permits draw of 200-400 v. DC at 20 ma, and 6.3 v. AC at 1 amp for preamps without power. **Size:** 9" w. x 9" d. x 6 3/4" h. Weight, 28 lbs.

- Dynakit Mark III Amplifier Kit—With assembly instructions. Net Each . . . \$79.95
- Dynakit Mark III/A Amplifier—Factory wired. Net Each . . . 89.95
- Dynakit Mark III-70 Amplifier Kit—60 W amplifier with added 70.7 volt output for public address use. Same size and weight as Mark III. Net Each . . . \$ 84.95
- Dynakit Mark III-70/A Amplifier—Factory wired. Net Each . . . 104.95
- Dynakit Mark III-500 Amplifier Kit—Same, but with either 125 or 500-ohm output; no voice coil taps. Net Each . . . \$ 89.95
- Dynakit Mark III-500/A Amplifier—Factory wired. Net Each . . . 109.95

## DYNAKIT PAM-1 PREAMPLIFIER KIT

Flexible high gain control unit designed for outstanding performance quality. Printed circuit module for easy construction without harming critical parts; all feedback circuitry lowers distortion and noise; provides improved response and stability. **Inputs:** Low level mag. cartridge, high level mag. cartridge, radio, TV, tape, and special low level for RIAA phono, tape or mike. **Outputs:** Tape and audio. **Controls:** Selector and equalization (RIAA, 78, Orig. LP, Radio, TV, Special); Bass ( $\pm 20$  db at 20 cps); Treble ( $\pm 14$  db at 20 kc); Volume; Tape monitor; Loudness; Hum Balance. **Distortion:** Less than 0.05% at sufficient output to drive all power amplifiers at any volume level. **Frequency Response:**  $\pm 0.5$  db, 10-40,000 cps at any volume level. **Noise:** Less than 3  $\mu$ v on RIAA; 1.5  $\mu$ v on mike; 70-74 db below 10 mv, magnetic cartridge. **Tubes:** 2-12AX7 (ECC-83), 1 selenium stack. **Power Required:** 200-400 v. DC at 3-4 ma; 6 v. AC at 0.75 amp available from Dynakit amplifiers. **Features:** 4 AC outlets; DC heater supply; bone white or charcoal vinyl finish choice. **Size:** 12" w. x 6" d. x 2 3/4" h. Shipping Weight, 7 lbs.

- Dynakit PAM-1 Preamp Kit—Net Each . . . \$34.95
- Dynakit PAM-1/A Preamp Kit—Factory wired. Net Each . . . 59.95
- Dynakit PAM-1 Panel Mounting Kit—For PAM-1 preamp. Net Each . . . 2.95
- Dynakit PS-1 Power Supply Kit—Dual power supply kit provides power for either one or two PAM-1 preamp. when used with amplifiers other than Dynakit. Size, 5" w. x 5" d. x 2" h. Shipping Weight, 2 1/2 lbs. Net Each . . . \$11.95
- Dynakit PS-1/A Power Supply—Factory wired. Net Each . . . 17.95

## DYNAKIT MARK IV 40-WATT AMPLIFIER KIT

Basic 40-watt amplifier equivalent to half of the Dynakit Stereo-70. Preassembled printed circuitry permits assembly in less than three hours. **Power Output:** 40 watts; 90 watts peak. **Frequency Response:**  $\pm 0.5$  db, 10-40,000 cps. **IM Distortion:** Less than 1% at 40 watts; 0.05% at 1 watt. **Hum and Noise:** Inaudible; 90 db below 40 watts. **Output Impedances:** 4, 8 and 16 ohms. **Damping Factor:** 15. **Tubes:** 2-EL34, 1-7199, 1-GZ34, selenium rectifier. **Other Features:** Matched tubes, Blaset for non-critical adjustment, preamp power socket, fuse post, on-off switch, nickel chassis and vinyl coated charcoal brown cover. **Size:** 14" w. x 5" d. x 6 1/2" h. Shipping Weight, 20 lbs.

- Dynakit Mark IV Amplifier Kit—Net Each . . . \$59.95
- Dynakit Mark IV/A Amplifier—Factory wired. Net Each . . . 79.95



Mark III

PAM-1

## DYNACO BECORD TRANSISTORIZED STEREO TAPE RECORDERS



Versatile, professional quality tape recorder provides fine tape handling and superior reliability, with fully transistorized electronics. Manufactured in Denmark, by Bang and Olufsen, to Dynaco specifications; guaranteed one full year. Perfected mechanism, combined with superior electronics, yields outstanding reproduction characteristics.

Full array of special features for widest versatility: Simple "joy-stick" operation; slide-type mixing controls; plug-in conversion for multiple mike inputs; professional 200-ohm mike input; straight-line threading; built-in splicing aid; high and low speed euling; monitoring from source or playback head; pause control; 100 kc bias. Exclusive synchro-monitor permits making self-accompanied stereo recordings by monitoring one-half of the record head. Tape counter has pushbutton instant reset. Dual illuminated meters glow red in record mode. Automatic shut-off on tape runout or within reel (using aluminum tape). Pushbuttons for echo and sound-on-sound from either track. Automatic selection of equalization through speed selector. Positive two hands record interlock; dual autotension arms; hysteresis-synchronous motor and dynamically balanced capstan flywheel. RIAA phono input for copying or playing records; radio, mike and phono mixing stereo inputs. Pushbutton selection of monitor or remote speakers. Plug-in circuit modules for easy servicing. Can be used as separate

amplifier for PA or home music systems. Has separate tone, loudness and balance controls. Choice of console or portable assemblies. **Tape Speeds:** 7 1/2"/sec, 3 3/4"/sec and 1 3/4"/sec. **Heads:** Separate 1/2-track record, play and erase heads. **Frequency Response:**  $\pm 2$  db, 40-16,000 cps at 7 1/2"/sec; 40-12,000 cps at 3 3/4"/sec; 50-6,000 cps at 1 3/4"/sec. **Channel Separation:** Better than 45 db. **Signal-to-Noise Ratio:** Better than 50 db. **Wow and Flutter:** Better than 0.075% rms (0.2% peak-to-peak) at 7 1/2"/sec; 0.11% rms (0.3% peak-to-peak) at 3 3/4"/sec; 0.18% rms (0.5% peak-to-peak) at 1 3/4"/sec. Half-track recorder available on special order.

**Dynaco Model 2000-C Console Tape Recorder**—With teakwood base and smoke-tinted plastic cover; 18" w. x 14 3/4" d. x 9" h. Shipping Weight, 62 lbs. Net Each . . . \$498.00

**Dynaco Model 2000-P Portable Tape Recorder**—In charcoal gray and stainless steel case with monitor speakers in double-top. Size, 18" w. x 14" d. x 10" h. Shpg. Wt., 65 lbs. Net Each . . . \$525.00

## DYNACO SUPER-FIDELITY OUTPUT TRANSFORMERS

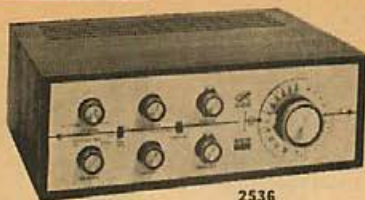
All models come in steel cans with 12" color coded leads, mounting studs and hardware. Taps provided on primary windings except No. A-441, which has tertiary winding. **Frequency Response:**  $\pm 1$  db, 6-60,000 cps except Nos. A-441, and A-451 4-60,000 cps.

Dynaco No.	Power Output at		Impedance Ratio, Ohms	Use with Tubes	Net Each
	30 cps to 15 kc	20 cps to 20 kc			
A-410	30 W	15 W	8,000 CT to 8, 16 sec.	6V6's, EL84's, 6AQ5's	\$14.95
A-420	60 W	30 W	6,600 CT to 8, 16 sec.	KT66's, 5881's, EL34's, 6CA7's	19.95
A-431	120 W	60 W	4,300 CT to 4, 8, 16 sec.	6550's, EL34's, KT-88's, 6CA7's, pp. par. KT-66	34.95
A-431-70	120 W	60 W	4,300 CT to 4, 8, 16 & 70.7 V sec.	Same as A-431	39.95
A-441	240 W	120 W	4,300 CT to 4, 8, 16 sec.	6550's to 100 W tertiary winding for cathode, screen feedback, pp. par. EL34's, 6CA7's to 200 W	39.95
A-451	240 W	120 W	2,200 CT to 4, 8, 16 sec.	Pp. par. 6550's, EL34's, KT-88's	39.95
A-470	70 W	35 W	4,300 CT to 4, 8, 16 sec.	EL34's, 6CA7's, pp. par. EL84's	24.95





# Excellence in Hi-Fi KIT OR WIRED



2536



3566



HFS-6



HFS-8, HFS-10

## MODEL 3566 SOLID STATE FM MPX STEREO TUNER/AMPLIFIER

All-transistor stereo receiver features superior performance, reliability and appearance. Solid state design for long-lasting operation. Stereo broadcast indicator light and center-of-channel tuning meter. Automatic switching between FM stereo and FM mono will operate at even the weakest of signals. FM RF "front-end" combines highest sensitivity and lowest noise and adjusts to abnormally strong signal levels without overloading and cross modulation. M-derived and sharp cut-off LC low-pass filters for interference-free reception and stereo tape recording. Speaker line fusing protects against sustained dynamic overload. Elimination of output transformer greatly improves bass response and reduces transient distortions. Variable inflection feed-back tone controls boost or cut at the extremes of the range without affecting mid-range response or volume level. Illuminated slide rule dial and flywheel tuning. RF "front-end", four wide-band IF stages and limiters as well as time-switching transistor multiplex circuitry are all prewired and aligned in kit. FM TUNER—Sensitivity: 2.0  $\mu$ V, IHFM standard; 2.7  $\mu$ V for 40 db quieting. Signal-to-Noise Ratio: 60 db. Frequency Response:  $\pm 1$  db, 20-15,000 cps. Distortion: 0.5%, IHFM. Rejection: Image, 50 db; IF, 80 db; spurious, 80 db. IHF Capture Ratio: 4.5 db. Separation: 40 db at 1 kc. AMPLIFIER—Power Output: 75 watts, total IHF music power at 8 ohms; 112 watts total IHF music power at 4 ohms. Frequency Response:  $\pm 1$  db, 5-60,000 cps. Distortion: IM, 0.3% at low levels, 2% at 30 watts; Harmonic, 0.4% at 25 watts, 0.16% at 4 watts; 0.16% at 25 watts, 1000 cycles. Hum and Noise: 70 db below 10 mV on mag. phono, 80 db below rated power on tuner, tape, and auxiliary inputs. Sensitivity: 3 mV on mag. phono (10 mV when jumper is removed), 180 mV on tape and auxiliary inputs. Output Impedance: 8 ohms (rated power); also 4 and 16 ohms. Controls: Tuning; Power On-Off; Tuner/Phono/Aux; Volume; Balance; Mode (Mono/Stereo); Bass; Treble; Tape-Input Switch; Loudness/Volume Switch; AFC/Off Switch; Muting/Off Switch; Tape Recording outputs; stereo headphone jack; unswitched outlet; d'Arsonval tuning meter; Stereo Indicator Light. Easy to build, operate and enjoy. Transistor sockets prevent heat damage to transistors while wiring. Military-type amplifier terminal board construction. Size: 16 $\frac{1}{2}$ " w. x 13 $\frac{1}{4}$ " d. x 5" h. Permits console mounting.

- Eico Model 3566 Solid State FM MPX Stereo Tuner/Amplifier—Wired and with oiled walnut cabinet. Net Each. . . . \$325.00  
 Eico Model 3566K Solid State FM MPX Stereo Tuner/Amplifier Kit—Less cabinet. Net Each. . . . \$219.95  
 Oiled Walnut Cabinet—Net Each. . . . 14.95

## WOOD AND METAL ENCLOSURES

Walnut and metal enclosures for Eico preamplifiers, tuners, amplifiers, etc.

- Eico Model WE-72 Walnut—For Classic Series 2715 and 2716. Net Each. . . . \$19.95  
 Eico Model WE-73 Walnut—For Classic Series 2536. Net 19.95  
 Eico Model E-11 Metal—For Classic Series 2715 and 2716. Net Each. . . . \$7.50  
 Eico Model E-12 Metal—For Classic Series 2536. Net Ea. . . 7.50

## MODEL 2536 STEREO FM RECEIVER

Consists of superb stereo FM tuner and complete 36-watt amplifier on single chassis. TUNER: Sensitivity: 3  $\mu$ V for 30 db quieting; 1.5  $\mu$ V for 20 db quieting; 3  $\mu$ V for phase locking; 10  $\mu$ V full limiting. Signal-to-Noise Ratio: 55 db. Harmonic Distortion: 0.6%; less than 1.5% actual stereo reading. Channel Separation: 30 db. Capture Ratio: 3 db. Bandwidth: IF, 280 kc at 6 db points; ratio detector, 1 Mc p-p separation. Antenna Input: 300 ohms. AMPLIFIER: Power Output: 18 watts per channel music, 14 watts continuous. Frequency Response:  $\pm 1$  db, 15-40,000 cps. IHF Power Bandwidth: 30-20,000 cps at rated power and 1% distortion. IM Distortion: 0.2% at 1 watt per channel. Noise: Phono, -65 db; other, -80 db. Sensitivity: Phono, 2.3 mV; other, 250 mV. Inputs: Magnetic or adapted ceramic phono; tape aux. Outputs: 8 or 16 ohms. Tubes: 1-ECC85; 5-6AU6; 1-6AL5; 2-6EU7; 5-12DW7; 4-BQ5/EL84; 1-5AR4/GZ34. Power Required: 115 VAC, 60 cps. Size: 15 $\frac{3}{4}$ " w. x 13 $\frac{3}{8}$ " d. x 5 $\frac{3}{8}$ " h.

- Eico Model 2536 Stereo FM Receiver—Wired. Net. . . \$189.95  
 Eico Model 2536K Stereo FM Receiver Kit—Net Ea. . . 139.95

## MODEL 2715 MONOPHONIC FM RECEIVER

Standard Classic Series FM front end and four-stage IF strip; basic amplifier delivering 18 watts IHF music, 14 watts continuous. Ceramic phono and tape inputs with three-position selector. Precision rotary tuning dial with illuminated readout, bar-type electron-ray tuning indicator. TUNER: Sensitivity: 3  $\mu$ V for 30 db quieting; 1.5  $\mu$ V for 20 db quieting; 10  $\mu$ V full limiting. Signal-to-Noise Ratio: 55 db. Harmonic Distortion: 0.6%. Frequency Response:  $\pm 1$  db, 20-15,000 cps. Bandwidth: IF, 280 kc at 6 db points; ratio detector, 1 Mc p-p separation. Capture Ratio: 3 db. AMPLIFIER: Power Output: 18 watts music, 14 watts continuous. Frequency Response:  $\pm 1$  db, 15-40,000 cps. IHF Power Bandwidth: 30-20,000 cps at rated power and 1% distortion. IM Distortion: 2% at 14 watts per channel. Noise: -80 db. Sensitivity: 240 mV. Inputs: Ceramic phono; tape. Outputs: 8 and 16 ohms; 25-volt line (45 ohms). Tubes: 1-ECC85; 4-6AU6; 1-6AL5; 1-7199; 2-6BQ5/EL84; 1-5AR4/GZ34. Power Required: 115 VAC, 60 cps. Size: 15 $\frac{3}{4}$ " w. x 11 $\frac{3}{8}$ " d. x 5 $\frac{3}{8}$ " h. Weight, 23 lbs.

- Eico Model 2715 Monophonic FM Receiver—Wired. Net Each. . . . \$119.95

## MODEL 2716 MONOPHONIC FM RECEIVER WITH PAGING FACILITY

Same as Model 2715, but with microphone stage and relay for paging or other PA applications. Switch at microphone permits silencing of program source. Noise: Phono and tape, -80 db; mike, -60 db. Tubes: Same as 2715, plus 1-6AV6.

- Eico Model 2716 Monophonic FM Receiver—Wired. Net Each. . . . \$139.95

## SPEAKER SYSTEMS, KITS

### HFS-6 SLIM LINE THREE-WAY SYSTEM

Slim design may be wall mounted or placed on narrow shelf; ideal for stereo in limited space uses. Carefully designed for highest performance with three specialized speakers: Full range 10" bass woofer has impregnated cloth bellows suspension and  $\frac{3}{4}$ -lb. ceramic magnet; 8" mid-range has closed back and high-internal-damping cone for smooth response; special dome-radiator ultratweeter extends beyond audibility (with brilliance control). Coil-capacitor crossover at 600 cps; bridging capacitor crossover at 4000 cps. Resonance: 30 cps. Range: To 20,000 cps. Power: Handles up to 25 watts; requires 10 watts, minimum. Impedance: 8 ohms. Size: 23 $\frac{1}{4}$ " w. x 5 $\frac{1}{4}$ " d. x 13 $\frac{1}{2}$ " h. Wt., 25 lbs.

### HFS-8 SLIM LINE TWO-WAY SPEAKER SYSTEM

Two speakers in hand-rubbed, oiled-walnut, slim silhouette enclosure. Ducted port bass reflex design. Contains 8" woofer with 8.5 oz. slug magnet, long linear travel cloth bellows suspension and 55 cps free-air resonance. Cone-type 2" tweeter with matched efficiency. Bridging capacitor tweeter crossover. Power: Handles up to 25 watts music power per channel; may be used with amplifiers as low as three watts. Impedance: 8 ohms. Size: 22 $\frac{1}{2}$ " w. x 6 $\frac{1}{2}$ " d. x 13" h. Weight, 17 lbs.

### HFS-10 SLIM LINE TWO-WAY SPEAKER SYSTEM

High quality system uses two speakers, a 6 $\frac{1}{2}$ " low resonance, high gap energy woofer, plus matched 2" cone tweeter. Excellent woofer damping and rigid construction for full un-muddied bass. Oiled walnut cabinet with "picture frame" molding. Response: -6 db, 60-15,000 cps. Power: Amps up to 18 watts per channel may be used if adjusted to reasonable volume. Size: 18" x 5 $\frac{1}{4}$ " x 12". Weight, 11 lbs.

## SYSTEMS AND SEMI-KIT PRICES

Eico Model	Finish	Tweeter Type	Net Each	
			Wired	Semi-Kit*
HFS-6	Solid, oiled walnut	Dome	\$89.95	\$59.95
HFS-8	Oiled walnut	Cone	44.95	.....
HFS-10	Oiled walnut	Cone	29.95	.....

\*Add suffix K (HFS-6K) to order Semi-Kit.





# Excellence in Hi-Fi KIT OR WIRED

## MODEL RP100K STEREO/MONO TAPE DECK—

### SEMI-KIT

Pitch and timing is as highly accurate as is necessary for studio, professional and musical study usage. Each head provided with professional four-point head mount to permit adjustment in all planes. Record and playback electronics entirely independent of each other. Transport completely electrically operated, with pushbutton control, assuring positive actuation of any operating mode. Smooth, fast, electro dynamic braking for freedom from tape breakage; automatic end-of-tape stop switch; tape lifters; sweep loading; low tape tension (for long head life); euing and editing facilities; minimal tape-bruise on start and after momentary pause. **Speeds:** 7 1/2"/sec. and 3 3/4"/sec. **Reel Size:** 7" max. **Timing Accuracy:** ±0.3% (±6 sec. in 30 min.). **Playback Frequency Response:** ±2 db, 30-15,000 cps at 7 1/2"/sec.; ±2 db, 30-10,000 cps at 3 3/4"/sec. **Signal-to-Noise Ratio:** 55 db below, at 7 1/2"/sec. **Wow and Flutter:** 0.15% at 7 1/2"/sec.; 0.2% rms at 3 3/4"/sec. **Winding Time:** 1200'/minute. **Heads:** One stacked 1/4-track erase; one stacked 1/4-track record (wide gap); one stacked 1/4-track playback-monitor (narrow gap). **Motors:** One hysteresis synchronous capstan motor; two custom reel motors, extra-powered 4-pole induction type. **Inputs:** Two high-impedance dynamic mike; two line. **Sensitivity:** Mike inputs, 0.5 mV; line inputs, 100 mV. **Playback/Monitor Outputs:** Approximately 1.0 volt at 5000 ohms output impedance each channel. **Controls:** Speed; Power On; Rewind; Fast Forward; Run; Record; Power Off; Play Selector; Play Equalizer; Play Levels; Record Selector; Record Equalizer; Line Level; Mike Level. **Tubes:** 1-6BX7GT push-pull bias-erase oscillator. **Transistors:** 14. **Rectifiers:** 1-6X4 for oscillator; selenium bridge for selenium; brakes; selenium full-wave for amplifiers. **Size:** 15 1/2" w. x 13 1/2" h. x 1 1/2" above panel and 1 1/4" below decorative panel. **Finish:** Brown and pale gold. **Weight,** 45 lbs.

**Eico Model RP100K Tape Deck Kit**—Tape deck in semi-kit form. Includes transport completely assembled and tested with three heads, control electronics, stereo record and stereo playback preamplifiers in kit form. Net Each.....\$299.95

## MODEL ST-97 STEREO FM MULTIPLEX TUNER

Combines station-monitor quality and fringe-area reception capabilities with easy, kit assembly; no test or alignment instruments needed. Pre-wired, pre-aligned front end and four IF-stage circuit board engineered for drift-free reception of weak signals; gives high capture ratio, perfect limiting and full-spectrum, flat response. Filterless detection circuit for perfectly clean stereo. Automatic stereo indicator and station indicator in tandem on twin, slide-rule dials. **Sensitivity:** 3 µV (IHF-M usable) for 30 db quieting and 1.5 µV for 20 db quieting; only 2.5 µV required for phase-locking in stereo. **Signal-to-Noise Ratio:** —55 db. **Distortion:** 0.8% harmonic IHF-M, less than 1.5% stereo harmonic. **Frequency Response:** ±1 db, 20-15,000 cps. **Controls:** Power; Separation; FM Tuning; Stereo-Mono Switch; AFC Defeat. **Size:** 15 1/2" w. x 11 3/4" d. x 5 3/4" h. **Weight,** 19 lbs.

**Eico Model ST-97 FM Multiplex Tuner**—Wired, Net... \$139.95  
**Eico Model ST-97K Kit**—With pre-wired, pre-aligned front end for easy building. Net Each.....\$89.95

## HFT-94A AM TUNER

Similar to HFT-92A Tuner in construction, size. Features high sensitivity and selectivity, low noise and distortion, no 10 kc whistle, slide rule dial with flywheel tuning, auxiliary recording output, front-panel controls, built-in ferrite loop antenna, pre-aligned RF and IF coils, no test equipment required for assembling. **Sensitivity:** 3 µV at 30% mod. for 1.0 V output, 20 db signal-to-noise ratio. **Frequency Response:** (Wide) —3 db, 20-9,000 cps; (Narrow) —3 db, 20-5,000 cps. **Image Rejection:** 58 db. **Hum Level:** 60 db below rated output with 3 µV input, 30% modulation (1.0 V). **Distortion:** Less than 1% harmonic distortion at 100% modulation. **Controls:** Bandwidth Selector; Level/Power On-Off; Tuning. **Output:** Low impedance plate follower (8,000 ohms). Extra recording output. **Tubes:** 7. **Size:** 12" w. x 8 3/4" d. x 3 3/4" h. **Shipping Weight,** 13 lbs.

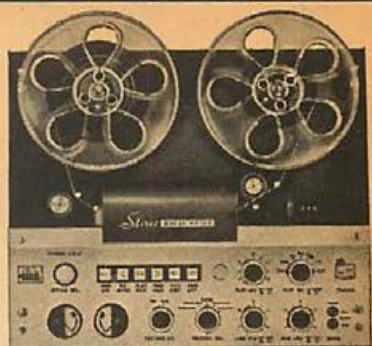
**Eico Model HFT-94A AM Tuner**—Wired and tested. (Including metal cover.) Net Each.....\$64.95  
**Eico Model HFT-94AK AM Tuner Kit**—(Including metal cover.) Net Each.....\$39.95

## MODEL ST-40 INTEGRATED STEREO

### 50-WATT† CONTROL AMPLIFIER

Stereophonic preamplifier and amplifier integrated on one chassis for convenience and versatility. Ganged balance and level controls with balance check switch and loudness/level switch make this unit easy to operate. Bass and treble controls are concentric also. **Power Output:** 20 watts per channel, 40 watts total. **Frequency Response:** ±1 db, 12-25,000 cps. **Distortion:** IM, 1% at 40 watts; harmonic, .5% at 40 watts. **Inputs:** Four magnetic phono (two each channel for turntable and changer); two tape head; two preamplified tape; two FM-AM stereo tuners; two FM multiplex; two aux (crystal or ceramic cartridges). **Outputs:** 4, 8, 16 ohms each channel; center channel speaker connection. **Controls:** Selector; (Tape/Aux, MN, FM-AM, AM-AM, P.H.A, P.H.B, Tape HD); Six Position Mode Switch; Ganged Level; Ganged Balance; Concentric Bass; Concentric Treble; plus Off-On; Balance Check Switch; Loudness Switch; Hi-Filter Switch; Lo-Filter Switch; Tape Monitor Switch. **Tubes:** 2-12AX7, 4-12DW7, 4-7591, 1-GZ34 rectifier. **Power Required:** 117 VAC, 60 cps. **Size:** 15 1/2" w. x 13 1/2" d. x 5 3/4" h. With cover. **Weight,** 33 lbs.

**Eico Model ST-40 Stereo Control Amplifier**—Factory wired. Net Each.....\$129.95  
**Eico Model ST-40K Stereo Control Amplifier Kit**—Kit version of above unit. Net Each.....\$79.95



RP100K



ST-40

## HFT-90A FM TUNER

Exceptionally sensitive FM tuner provides greater fringe area reception with low noise distortion. Features: Entirely pre-wired and aligned "front-end", traveling tuning indicator for precise center location of channel, flywheel tuning, automatic gain control, stabilized low-limiting threshold assures high performance from weak signals, improved capture ratio and tuning. Cabinet optional. **Sensitivity:** 1.5 µV for 20 db quieting. **Frequency Response:** Uniform from 20-20,000 cps, ±1 db. **Inputs:** 300 ohms, balanced. **IF Bandwidth:** 260 kc at 6 db points. **Stability:** 20 kc drift maximum, stable after one minute. **Hum:** 60 db below 1 volt. **Controls:** Tuning; Level/Power On-Off. **Outputs:** Cathode follower up to 200 ft.; 10 µV input for 1.0 volt output; multiplex output provided. **Detector Characteristic:** Peak sep. of 600 kc; linear bandwidth, 400 kc. **Radiation:** Fully shielded and preassembled oscillator circuit and tube cut radiation to minimum. **Tubes:** 8. **Size:** 12" w. x 8 3/4" d. x 3 3/4" h. **Shpg. Wt.,** 10 lbs.

**Eico Model HFT-90A FM Tuner**—Wired, less cover. Net Each.....\$64.95  
**Eico Model HFT-90AK FM Tuner Kit**—Less cover, Net... 39.95  
**Eico Model E3A Metal Cover**—For above tuner, Net... 3.95

## MODEL HFT-92A FM-AM TUNER

Sensitive, low cost tuner for drift-free reception of AM, FM or FM multiplex (with adapter). Features: Pre-wired, pre-aligned front end for low noise, high stability and sensitivity; stabilized low limiting threshold to receive weak signals; broadband ratio detector; slide rule dial; flywheel tuning; front panel volume control. "Eye-Tronic" tuning indicator operates for both AM and FM. **Sensitivity:** 1.5 µV for 20 db quieting, FM; 20 µV for 0.8 V output with 15 db S/N, AM, Hum: —60 db at 1 volt. **Frequency Response:** ±1 db, 20-20,000 cps, FM; ±3 db, 20-5,000 cps, AM. **Harmonic Distortion:** 1.5%, FM; below 2% up to 70% modulation, AM. **Controls:** Tuning; Volume/Power; FM-AM Selector. **Size:** 12" w. x 8 3/4" d. x 3 3/4" h. With metal cover. **Shpg. Wt.,** 13 lbs.

**Eico Model HFT-92A FM-AM Tuner**—Wired, Net Ea. \$92.95  
**Eico Model HFT-92AK FM-AM Tuner Kit**—Net Each. 59.95

## HF-12A 18-WATT† INTEGRATED AMPLIFIER

Provides complete front-end, including built-in preamplifier-equalizer and control section. Direct tape head and magnetic phono inputs with NAB (tape) and RIAA (phono) equalization. Six-tube circuit, dual triode for variable turnover bass and treble. **Power Output:** 14 watts continuous, 25 watts peak. **IM Distortion:** (60 and 6000 cps at 4:1) 2% at 14 watts; 0.55% at 6 watts; 0.3% at 4 watts. **Response:** 1 watt; 12-75,000 cps, ± 1/2 db, 12 watts; 25-20,000 cps, ± 1/2 db, 60 cps; 70 cps; 1 watt drain. **Impedances:** 4, 8, 16 ohms. **Tubes:** 3-ECC83/12AX7, 2-EL84, 1-EZ81. **Size:** 12" w. x 8 3/4" d. x 3 3/4" h. **Weight,** 13 lbs.

**Eico Model HF-12A Integrated Amplifier**—Wired, ready to use. With metal cover. Net Each.....\$59.95  
**Eico Model HF-12AK Integrated Amplifier Kit**—Net Ea. 39.95

## MODEL ST-70 INTEGRATED STEREO

### 80-WATT† CONTROL AMPLIFIER

Similar in appearance to Model ST-40, but has higher output of 35 watts per channel for increased ability to drive inefficient speaker systems. **Power Output:** 35 watts per channel, 70 watts total. **Frequency Response:** ±0.5 db, 10-50,000 cps (2 watts—1 watt each channel). **Distortion:** IM, 1% full output; harmonic, less than 1% from 25-20,000 cps within 1 db. **Hum and Noise:** —63 db, magnetic phono; —54 db, tape head; —78 db, tuners and auxiliaries (each channel). **Sensitivity:** 4 mV, magnetic phono; 2 mV, tape head; 0.5 V, tuners and auxiliaries (each channel). **Tubes:** 3-12AX7, 2-12DW7, 2-6SN7GTB, 4-7591, 1-GZ34 rectifier. **Power Required:** 117 VAC, 60 cps. **Size:** 15 1/2" w. x 15" d. x 5 1/4" h. Complete with metal cover. **Weight,** 44 lbs.

**Eico Model ST-70 Integrated Stereo Control Amplifier**—Factory wired and tested. Net Each.....\$149.95  
**Eico Model ST-70K Integrated Stereo Control Amplifier Kit**—Kit version of above amplifier. Net Each.....\$99.95





# Fisher

## STEREO MULTIPLEX FM TUNERS, AM-FM RECEIVERS



MODEL FM-1000

### MODEL FM-1000 NETWORK-RELAY FM MULTIPLEX TUNER

Offers remarkably high sensitivity, selectivity and rejection of image and spurious response. Tunable front-end incorporates four tuned circuits. All critical circuits temperature-compensated. Two nuvistor tubes as mixer and oscillator hold drift, even without AFC, to negligible levels. Six different IF stages provide flat-topped bandwidth; eliminate phase shift distortion, specially important for multiplex operation. Five limiters assure maximum rejection of AM noise; provide 1.5 db capture ratio. Features: "Stereo Beacon" multiplex circuit automatically indicates if a station is broadcasting in stereo. Response extends to 100 kc to receive the highest of subcarrier frequencies. Two outputs for 600-ohm, plug-in balanced transformers are provided for operation in standard broadcast lines. "MicroTune" tuning for accuracy; interstation noise suppressor switch for both FM and multiplex. Independent 72-ohm and 300-ohm antenna jacks are switch controlled. Illuminated d'Arsonval type signal strength and professional VU meter. Cathode follower outputs for multiplex, field-strength recorder and diversity unit. May be mounted in standard 19" rack panel if desired. **Sensitivity:** 1.5  $\mu$ V, IHFM standard with 300-ohm antenna; 0.9  $\mu$ V for 20 db quieting. **Signal-to-Noise and Hum Ratio:** Better than 75 db. **Distortion:** Less than 0.3% harmonic at 400 cps, 100% mod. **Drift:** 0.004% with AFC; 0.02% without AFC. **Frequency Response:**  $\pm$ 1 db, 20-100,000 cps before de-emphasis. **Audio Hum:** Better than -80 db at rated output. **Controls:** FM Tuning; Audio Level; Selector (Off, FM, MPX, Aux); Meter Level; Muting; AFC (Off, MicroTune, AFC1, AFC2); Front End (Crystal or Tuning); Antenna Selector (Local or Distant 72-ohm or 300-ohm). **Power Required:** 105-120 or 210-240 VAC, 50/60 cps. **Size:** 16 $\frac{1}{2}$ " w. x 12 $\frac{1}{2}$ " d. x 4 $\frac{1}{4}$ " h. Weight, 20 lbs.

Fisher Model FM-1000 FM Multiplex Tuner—Chassis only.\* Net Each . . . \$389.50

Fisher Model FMR-1 FM Multiplex Tuner—Identical to FM-1000 but with 19" rack panel and other small variations that make it adaptable for use in broadcast applications. Available, on special order, with plug-in crystal-controlled front end to hold fixed frequency  $\pm$ 0.0015% for unattended operation. Net Each . . . \$399.50



MODEL FM-100-C

### MODEL FM-100-C WIDEBAND FM MULTIPLEX TUNER

All-transistor multiplex circuitry combines with exclusive Stereo Beacon indicator and switching system for operating convenience. Automatically switches to stereo or monophonic reception, according to broadcasting station's mode. Precision tuning meter selects stations accurately. Nuvistor-Golden Synchrode front end and wideband ratio detector provide for high sensitivity. Transistorized multiplex section is time-division type, with relay-free switching to eliminate clicks and pops. Illuminated meter gives precise center-of-channel tuning. Switchable solid state muting circuit holds interstation noise to a minimum. **Sensitivity:** 1.8  $\mu$ V IHF. **Frequency Response:**  $\pm$ 1 db, 20-15,000 cps. **Selectivity:** 60 db. **Stereo Separation:** 40 db. **Power Required:** 105-120 VAC, 50/60 cps. **Size:** 15 $\frac{1}{4}$ " w. x 11 $\frac{3}{4}$ " d. x 4 $\frac{1}{4}$ " h. Weight, 13 lbs.

Fisher Model FM-100-C FM Multiplex Tuner—Chassis only.\* Net Each . . . \$229.50



MODEL 800-C

### MODEL 800-C FM-AM STEREO MULTIPLEX RECEIVER

Advanced receiver has Stereo Beacon; that signals and automatically switches reception to stereo or monophonic according to the broadcast. Tuning meter included for pinpoint tuning. Golden Synchrode front-end affords greater sensitivity, overload margin and rejection of spurious and image signals than previous designs. Low-noise triode stages are used for the mixer and oscillator, followed by four wideband IF stages and a wideband ratio detector. Ratio detector, plus two more limiters, ensure freedom from interference and noise. Time-division type multiplex converter. Stereo Beacon circuit eliminates all clicks and pops from speakers during switching. AM tuner has a high-gain pentode RF-amplifier, pentagrid converter and IF amplifier with two-position band switch. Direct-Tape-Monitor; system permits monitoring while making a tape recording, without losing use of any audio control facilities on subsequent playback. **Sensitivity:** FM, 0.6  $\mu$ V for 20 db quieting with 72-ohm antenna; 1.8  $\mu$ V, IHFM; AM, 5  $\mu$ V for 2 watts output at 1 Mc. **Power Output:** 75 watts total, IHFM music power. **Frequency Response:** Overall,  $\pm$ 1.5 db, 25-25,000 cps; power amplifier, +0, -2 db, 50-45,000 cps. **Harmonic Distortion:** 0.5% at 1 kc, both channels driven. **Hum and Noise:** 80 db below rated output (high level input). **Controls:** Selector (Spkr 1, Spkr 2, Spkr 1 and 2, Earphones); Separate Bass and Treble each channel; Balance; High Cutoff Filter, Low Cutoff Filter; AM Bandwidth (Sharp, Broad); Tape Monitor; Selector (Tape Head, Phono Mono, Phono Stereo, FM Automatic, FM Stereo Filter, FM Mono, AM, Aux-Tape); Loudness Contour; Volume/AC Off; Tuning. **Power Required:** 105-120 VAC, 50-60 cps. **Size:** 17 $\frac{1}{2}$ " w. x 13 $\frac{1}{4}$ " d. x 5 $\frac{3}{4}$ " h., chassis. Weight, 37 lbs.

Fisher Model 800-C FM-AM Stereo Multiplex Receiver—Chassis only.\* Net. . . \$399.50



MODEL 500-C

### MODEL 500-C FM STEREO MULTIPLEX RECEIVER

Stereo Beacon instantly and silently signals and switches to stereo or monophonic. Golden Synchrode front-end for greater sensitivity. Other features include four intermediate frequency stages, d'Arsonval tuning meter, time-division multiplex section, wideband ratio detector, elimination of clicks from speakers during switching. **Specifications:** Same as for Model 800-C, described above (except excluding AM section). **Controls:** Selector (Spkr 1, Spkr 2, Spkr 1 and 2, Earphones); Separate Bass and Treble each channel; Balance; High Cutoff Filter; Low Cutoff Filter; MPX Filter; Tape Monitor; Selector (Tape Head, Phono Mono, Phono Stereo, FM Automatic, FM Stereo, FM Mono, Aux-Tape); Loudness Contour; Volume/AC Off; Tuning. **Power Required:** 105-120 VAC, 50-60 cps. **Size:** 17 $\frac{1}{2}$ " w. x 13 $\frac{1}{4}$ " d. x 5 $\frac{3}{4}$ " h., chassis. Weight, 36 $\frac{1}{2}$  lbs.

Fisher Model 500-C FM Multiplex Receiver—Chassis only.\* Net Each. . . \$349.50



MODEL 400

### MODEL 400 FM STEREO MULTIPLEX RECEIVER

Combines highly sensitive FM tuner, time-division multiplex demodulator, and 65-watt power amplifier with full control facilities in a single, economical unit. Designed without any essential compromise in quality or performance standards. Sensitive front-end design employs three tuned circuits for high selectivity and rejection of unwanted signals; fully shielded and with enclosed tuning capacitor. Three wideband IF stages and dual limiters; with ratio detector uses matched germanium diodes for wide-range linearity. Stereo Beacon indicator also used as tuning meter; stereo filter eliminates background noise on weak multiplex signals. Simplified control system uses a single selector for input selection and mode of operation. Center channel output permits use with a separate amplifier. DC filaments on low level audio input reduces hum and noise to inaudible levels. Exclusive Direct-Tape-Monitor system permits monitoring tapes without sacrificing use of audio controls on subsequent playback. Other features include: Front panel earphone jack with speaker silencing switch; loudness contour switch; high filter cutoff; separate bass and treble controls with friction-lock system for each channel; Choice of normal or local antenna inputs prevents overloading on strong local signals. **Sensitivity:** 1.8  $\mu$ V, IHFM standard at 300 ohms input, 100% modulation. **Signal-to-Noise and Hum Ratio:** Better than 70 db. **Frequency Response:**  $\pm$ 1 db, 25-25,000 cps, overall; 10-40,000 cps, amplifier section. **Distortion:** Less than 0.5% harmonic. **Channel Separation:** Better than 50 db at 1 kc, amplifier; 35 db at 1 kc, FM stereo. **Power Output:** 65 watts, IHFM music power standard. **Inputs:** Phono Low; Phono High; Tape Head; Tape Monitor; and Aux-Tape. **Capture Ratio:** 2.5 db, IHFM. **Power Required:** 200 watts max., 105-120 VAC, 50/60 cps. **Size:** 17 $\frac{1}{2}$ " w. x 5 $\frac{3}{4}$ " x 13". Weight, 30 $\frac{1}{2}$  lbs.

Fisher Model 400 FM Multiplex Receiver—Chassis only.\* Net Each . . . \$279.50

\*Patent pending.

\*CABINETS LISTED ON A FOLLOWING FISHER PAGE





# Fisher STEREO FM MULTIPLEX TUNERS, MULTIPLEX ADAPTER, AMPLIFIER

## MODEL MF-300 FM MULTIPLEX TUNER WITH CABLE REMOTE CONTROL

### OPTIONAL, WIRELESS REMOTE CONTROL AVAILABLE

Highest quality, sensitive FM tuner with stereo multiplex facilities sets a new standard in operating convenience with automatic remote control. Simply press a button, while seated in your armchair, and Tune-O-Matic circuits take over: The dial pointer moves to left or right (as desired) in silence; and, stops at the station you select at the point of maximum signal. Fisher Stereo Beacon automatically signals the presence of a stereo program and switches the equipment to stereo operation. Tune-O-Matic pushbuttons, on both the remote and the tuner's front panel, activate motor operating tuning that is three times as precise as manual tuning, even with meters; manual tuning knob is also provided, with switchable AFC. Muting switch (Off-Normal-Max.) permits pre-tuning for Tune-O-Matic selection of strong local signals (Max), weak and strong signals (Normal), or any signal available (Off). Selector switch gives normal reception modes for mono or stereo (Automatic), monophonic operation on all stations (Mono), or stereo locked in on fading signals (Stereo). **Sensitivity:** 0.5  $\mu$ V for 20 db quieting; 1.6  $\mu$ V, IHFM standard. **Signal-to-Noise Ratio:** 75 db at 100% modulation. **Frequency Response:**  $\pm$ 1 db, 20-15,000 cps. **Stereo Separation:** 35 db, at 1 kc. **Distortion:** Less than 0.3% FM harmonic at 400 cps, 100% modulation; 0.15% total audio harmonic at rated output. **Selectivity:** 65 db, alternate channel. **Capture Ratio:** 1.5 db. **Size:** 15 $\frac{1}{2}$ " w. x 13" d. x 4 $\frac{1}{4}$ " h., chassis. Weight, 17 $\frac{1}{2}$  lbs.

**Fisher Model MF-300 Tuner with RK-10 Remote—Chassis only.\* Net Ea. . . \$359.50**

**Fisher Model RK-20 Wireless Remote—**Optional remote transmitter/receiver control for use with MF-300 tuner. Provides tuning facilities like RK-10 cable remote, plus volume adjustment and on-off for the entire system; all, without wires. Ideal for stereo where volume should be adjusted at listening point. Receiving unit is placed beside the tuner, and has its own volume and on-off controls as well as the hand-held transmitter. Green standby light indicates receiver is ready to receive signals though rest of the high fidelity system is off. Net Each. . . . . **\$129.50**

**Fisher Model MF-320 Tuner with RK-20 Remote—**Combines MF-300 tuner with RK-20 remote in a single walnut cabinet with integrated control panel. Net Ea. **\$513.95**  
†Patent pending.



MODEL MF-300  
WITH RK-10



MODEL RK-20

## MODEL FM-200-C TRANSISTORIZED FM MULTIPLEX TUNER

Sophisticated FM stereo tuner satisfies the most critical listener with flawless tone quality, absolute quieting, and superb stereo or monophonic reception. Exclusive Nuvistor-Golden Synchrode front end with wideband ratio detector provides high sensitivity, selectivity and freedom from noise. Stereo Beacon and automatic switching circuit silently changes to stereo mode when a station begins multiplex broadcasting. Automatic stereo scanner (Autosean) mutes all monophonic stations and interchannel noise when tuning across the dial; allows reception of stereo stations only. Microtone feature with d'Arsonval meter for ultra-accurate center-of-channel station selection; disengages AFC when tuning knob is touched. Solid state, time-division type multiplex section has diode switching for automatic mode selection without clicks or pops. Noise and distortion are virtually non-existent. **Sensitivity:** 1.8  $\mu$ V. **Frequency Response:** 20-15,000 cps. **Stereo Separation:** 40 db. **Capture Ratio:** 2 db. **Power Required:** 105-120 VAC, 50/60 cps. **Size:** 15 $\frac{1}{2}$ " w. x 11 $\frac{1}{2}$ " d. x 4 $\frac{1}{4}$ " h. Weight, 13 lbs.

**Fisher Model FM-200-C FM Multiplex Tuner—**Chassis only.\* Net Each. . . **\$279.50**

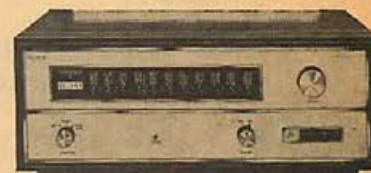


MODEL FM-200-C

## MODEL FM-90-B WIDEBAND FM MULTIPLEX TUNER

Outstanding stereo and monophonic reception combined with operating convenience at a modest price. Exclusive Golden Synchrode front end for high sensitivity and selectivity with unmeasurable distortion. Stereosean indicator automatically signals reception in stereo. Separate tuning meter for exact center-of-channel tuning. Switchable stereo filter eliminates noise on weak stations, without affecting high frequency response. Precision d'Arsonval tuning meter; dual audio level controls; tape outputs. **Sensitivity:** 2  $\mu$ V. **Frequency Response:** 20-15,000 cps. **Stereo Separation:** 35 db. **Power Required:** 105-120 VAC, 50/60 cps. **Size:** 15 $\frac{1}{2}$ " w. x 11 $\frac{1}{2}$ " d. x 4 $\frac{1}{4}$ " h. Weight, 11 $\frac{1}{2}$  lbs.

**Fisher Model FM-90-B FM Multiplex Tuner—**Chassis only.\* Net Each. . . **\$169.50**



MODEL FM-90-B

## MODEL MPX-100 UNIVERSAL STEREO MULTIPLEX ADAPTER

Completely self-contained and self-powered. Designed, engineered and perfected for the FCC-approved multiplex system. For use with all Fisher tuners and receivers, and other makes of tuners having wide-band ratio detector design and MPX output. By means of plug-in connections, this adapter can be installed and ready for use in a matter of seconds. A special feature is the Stereo Beacon which automatically indicates whether or not the station you are tuned to is broadcasting in stereo. Front panel Stereo Balance control. **FM Stereo Separation:** 35 db. **Frequency Response:** Uniform, 20-15,000 cps. **Sensitivity:** 15 mV for 19 kc signal. **Gain:** 18 db. **Input:** Low level, 2 V; high level, 8 V. **Harmonic Distortion:** 0.5% at 1 kc. **Hum and Noise:** Better than -70 db. **Output:** 15 V max. **Power:** 25 W 105-120 V, 50/60 cps. **Size:** 4 $\frac{3}{4}$ " w. x 12" d. x 4 $\frac{1}{4}$ " h. Weight, 9 lbs.

**Fisher Model MPX-100 Universal Stereo Multiplex Adapter—**Chassis only.\*  
Net Each. . . . . **\$69.50**



MODEL MPX-100

## MODEL SA-1000 150-WATT LAB STEREO AMPLIFIER

Features include: Low-distortion output stage with specially-designed power tubes; low-impedance, stable, driver stage with good transient response; phase inverter (pre-driver) that maintains balance despite tube aging; compensated attenuator, cathode follower input stage; separate power tube plate and grid rectifier-filter supplies (silicon diodes). Less-used controls are behind hinged cover. Calibration meter to adjust output tube bias. **Power Output:** 150 watts total (IHFM music power); 130 watts rms. **Frequency Response:**  $\pm$ 0.5 db, 20-20,000 cps;  $\pm$ 1 db, 8-48,000 cps. **Distortion:** IM, 0.4% (60/7000 cps 4:1, rated output); Harmonic, 0.25% (IHFM and rms rated output). **Hum and Noise:** 90 db (below rated rms output). **Sensitivity:** 0.7 V at rated rms output. **Output Impedance:** 4, 8, 16 ohms. **Controls:** Meter Selector (Off, V4, V5, V8, V9); Input Attenuator (Off, -12, -9, -6, -3, -0 db) each channel; V4 Bias; V5 Bias; AC Bal Ch. A; V8 Bias; V9 Bias; AC Bal Ch. B; Sub-Sonic Filter Switch. **Tubes and Diodes:** 9 tubes, 4 diodes. **Power Required:** 105-120 V, 50/60 cps. **Size:** 15 $\frac{1}{2}$ " w. x 12" d. x 7 $\frac{3}{4}$ " h. Weight, 70 lbs.

**Fisher Model SA-1000 150-Watt Stereo Amplifier—**Net Each. . . . . **\$329.50**

## MODEL 300 FM/MULTIPLEX TEST GENERATOR

Complete multiplex test generator with built-in FM signal generator; designed and built to rigid laboratory specifications. Features high accuracy and extreme stability—more than necessary to meet the strict requirements of the multiplex system approved by the FCC. Full details available on request.

**Fisher Model 300 FM/Multiplex Generator—**Net Each. . . . . **\$495.00**



MODEL SA-1000

\*CABINERY LISTED ON A FOLLOWING FISHER PAGE

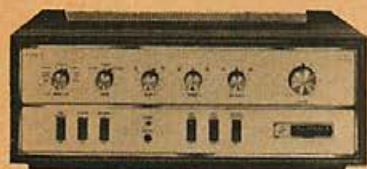
HARVEY RADIO CO., INC.  
WOODBURY, L. I. AND NEW YORK CITY

FEDERAL ELECTRONICS, INC.  
BINGHAMTON, N. Y.

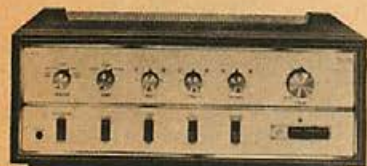




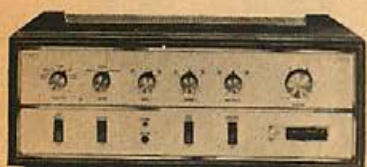
# Fisher HI-FI STEREO AMPLIFIERS, CONTROL CENTER PHONO SYSTEMS



MODEL X-202-C



MODEL X-101-D



MODEL X-100-C



MODEL 400-CX

## MODEL X-202-C STEREO 84-WATT MASTER CONTROL AMPLIFIER

Finest integrated stereo amplifier available, as proven by precise lab measurements and critical listening tests. Enormous power handling capacity assures rich bass and clean highs even at extremely loud power levels. Can drive several pairs of speakers while holding distortion at very low levels; permits remote speaker installations as well as having center-channel output speaker provision. Hum and noise are inaudible. Direct tape monitoring during recording with full use of tone controls and filters. Front panel speaker selection for two independent stereo systems. Seven-position function selector includes provision for mike input; other controls include: Mode; dual concentric Bass and Treble; Balance; Volume; Tape Monitor; Speaker Selector; Low Filter, High Filter, Loudness Contour and Headphone Receptacle. **Power Output:** 84 watts. **Frequency Response:**  $\pm 1$  db, 20-20,000 cps. **Distortion:** 0.5%. **Hum and Noise:** 80 db. **Output Impedance:** 4, 8 and 16 ohms. **Power Required:** 105-120 VAC, 50/60 cps. **Size:** 15 $\frac{1}{2}$ " w. x 11 $\frac{1}{2}$ " d. x 4 $\frac{1}{4}$ " h. Weight, 30 lbs.

Fisher Model X-202-C Stereo Control Amplifier—Chassis only.\* Net Each... \$249.50

## MODEL X-101-D STEREO 66-WATT CONTROL AMPLIFIER

Ample power reserve to drive any speaker, regardless of efficiency. Front panel headphone output; center channel speaker output. High performance output transformers provide extra wide IHF power bandwidth (exceeds 43,000 cps). Direct tape monitoring provision with full use of tone controls. Separate tape and phono equalization permits use of two phonos or tape recorders. Provision for use with Fisher Spacepander. **Controls:** Five-position Function; Mode; Bass (dual concentric); Treble (dual concentric); Balance; Volume; Loudness; Tape Monitor; Headphone Receptacle. **Power Output:** 66 watts. **Frequency Response:**  $\pm 1$  db, 20-20,000 cps. **Hum and Noise:** 80 db. **Output Impedance:** 4, 8 and 16 ohms. **Power Required:** 105-120 VAC, 50/60 cps. **Size:** 15 $\frac{1}{2}$ " w. x 11 $\frac{1}{2}$ " d. x 4 $\frac{1}{4}$ " h. Weight, 27 $\frac{1}{2}$  lbs.

Fisher Model X-101-D Stereo Control Amplifier—Chassis only.\* Net Each... \$199.50

## MODEL X-100-C STEREO 50-WATT MASTER CONTROL AMPLIFIER

Flexible, versatile amplifier at good savings. Features Fisher reliability and versatility with top performance. Solid state power supply assures best B+ regulation for maximum bass response even at full power. DC on preamplifier heaters holds noise and hum to a minimum. Includes direct tape monitoring facility, front panel headphone receptacle, center-channel output for remote speakers and on-off speaker switch. **Controls:** Function; Mode; Bass (dual concentric); Treble (dual concentric); Balance; Volume; Loudness; Tape Monitor; High Filter; Speaker On-Off; Headphone Receptacle. **Power Output:** 50 watts. **Frequency Response:**  $\pm 1$  db, 20-20,000 cps. **Hum and Noise:** 80 db. **Output Impedance:** 4, 8 and 16 ohms. **Power Required:** 105-120 VAC, 50/60 cps. **Size:** 15 $\frac{1}{2}$ " w. x 11 $\frac{1}{2}$ " d. x 4 $\frac{1}{4}$ " h. Weight, 30 lbs.

Fisher Model X-100-C Stereo Control Amplifier—Chassis only.\* Net Each... \$169.50

## MODEL 400-CX MASTER AUDIO CONTROL

Designed for the audio connoisseur and professional user seeking the widest possible flexibility with the highest achievable performance. Provides 18 inputs and 22 controls and switches to implement every conceivable control function. Exclusive Sonic-Null balancing effects perfect acoustic balance between left and right stereo speakers electronically. Pushbutton control selectors; recording monitor facilities; controls for bass, treble, phase, scratch filter and rumble filters. **Tubes:** 10. **Size:** 15 $\frac{1}{2}$ " w. x 11 $\frac{1}{2}$ " d. x 4 $\frac{1}{4}$ " h.

Fisher Model 400-CX Master Audio Control—Chassis only.\* Net Each... \$199.50

\*CABINETS LISTED ON A FOLLOWING FISHER PAGE

## FISHER COMPACT PHONO SYSTEMS

MODEL 75 CUSTOM MODULE

MODEL 50 PORTABLE SYSTEM



High quality, compact music system offers high power reserve, maximum flexibility and operating ease. For use anywhere in home where space is limited, but equal in performance and operation to the finest component arrangement. Built-in Garrard four-speed automatic turntable permits intermix changing 7", 10" and 12" records with automatic last record shut-off. Supplied with Pickering diamond stylus cartridge. Separate speaker systems for each channel. Two-way type with built-in LC crossover, 8" woofer and 2 $\frac{1}{2}$ " cone-type tweeter for smooth, full range response. Transistorized amplifier has Bass, Treble, Balance, Volume and Selector (Mono Phono, Stereo Phono, Tuner, Aux Stereo and Aux Mono) controls; front-panel speaker On-Off switch; front-panel headphone jack. **Power Output:** 30 watts IHF music power both channels; 12 watts rms, each channel. **Distortion:** Harmonic and IM, less than 1% at rated output. **Hum and Noise:** Better than 55 db, phono; 75 db, tuner and aux, volume control at max.; better than 90 db, volume control at min. **Audio Separation:** 40 db. **Damping Factor:** 10. **Input Sensitivity:** 4 mV, phono; 200 mV, tuner and aux, for rated output. **Input Impedance:** 47K, phono; 100K, tuner and aux. **Power Required:** 105-120 VAC, 50/60 cps. **Size:** Main section 24 $\frac{1}{2}$ " w. x 14 $\frac{1}{2}$ " d. x 5 $\frac{1}{2}$ " h. Each speaker 16 $\frac{1}{2}$ " w. x 9 $\frac{1}{2}$ " d. x 10 $\frac{1}{2}$ " h.; can be placed horizontally or vertically. Weight, 53 lbs. total.

Fisher Model 75 Custom Module—With walnut finish case and dual speaker systems. Net Each... \$249.50

Fisher Model PC-1 Plexiglas Cover—For Model 75. Net... \$14.95

High quality, portable music system offers unprecedented power reserve, maximum flexibility and operating ease. For use anywhere in home and portable applications, but virtually equal in performance to the finest component arrangement. Built-in Garrard four-speed automatic turntable permits intermix changing 7", 10" and 12" records with automatic last record shut-off. Supplied with Pickering diamond stylus stereo cartridge. Separate full range hi-fi speaker systems for each channel assure smooth response. Transistorized amplifier has Bass, Treble, Balance, Volume and Selector (Mono Phono, Stereo Phono, Tuner, Aux Stereo and Aux Mono) controls; front-panel speaker On-Off switch; front-panel headphone jack. **Power Output:** 30 watts IHF music power both channels; 12 watts rms, each channel. **Distortion:** Harmonic and IM, less than 1% at rated output. **Hum and Noise:** Better than 55 db, phono; 75 db, tuner and aux, volume control at max.; better than 90 db, volume control at min. **Audio Separation:** 40 db. **Damping Factor:** 10. **Input Sensitivity:** 4 mV, phono; 200 mV, tuner and aux, for rated output. **Input Impedance:** 47K, phono; 100K, tuner and aux. **Power Required:** 105-120 VAC, 50/60 cps. **Size:** 23 $\frac{1}{2}$ " w. x 14 $\frac{1}{2}$ " x 8" when speaker units are attached to main unit for carrying. Weight, 35 lbs.

Fisher Model 50 Portable—In "Royaltite" portable case. Net Each... \$199.50

\*U.S. Rubber trademark.





# Fisher NEW SOLID STATE STEREO HI-FI COMPONENTS

## TRANSISTORIZED COMPONENTS

### MODEL 440-T STEREO 70-WATT FM MULTIPLEX RECEIVER

An instrument of unusually sophisticated design at moderate cost. Its silicon transistor power amplifier circuitry will operate at high efficiency, even under the most demanding use. Unit offers extremely high sensitivity and selectivity, maintains excellent stereo separation, and has reserve power to drive the most inefficient speaker systems. Other features: Exclusive four-gang transistor front end; wideband, solid state IF strip with 4 IF stages and 3 limiters; Stereo Beacon; muting switch; separate friction-lock Bass and Treble controls; five-position Selector; Illuminated d'Arsonval tuning meter. **Sensitivity:** 2.0  $\mu$ V, IHF. **Selectivity:** -50 db, alternate channel. **FM Stereo Separation:** 35 db, 400 cps. **Signal-to-Noise Ratio:** 68 db at 100% modulation. **FM Harmonic Distortion:** 0.5% at 400 cps and 100% modulation. **Capture Ratio:** 2.2 db at 1 mV. **Power Output:** 70 watts IHF, both channels, at 4 ohms. **Harmonic Distortion:** 0.8% at 1 kc and rated output. **IM Distortion:** 0.8% at 60 cps +7 kc, 4:1 at rated output. **Frequency Response:**  $\pm 1.5$  db, 20-22,000 cps, overall; power amplifier section, +0, -2 db, 18-25,000 cps. **Channel Separation:** 50 db at 1 kc. **Input Sensitivity:** 4.5 mV, phono low; 13.5 mV, phono high; 3 mV, tape head; 350 mV, aux; 400 mV, tape monitor for rated output at 1 kc and 8 ohms. **Power Required:** 10 watts, 18 VA, min.; 135 watts, 155 VA, max., 105-120 VAC, 50/60 cps. **Size:** 16 $\frac{3}{4}$ " w. x 12 $\frac{3}{4}$ " d. x 5 $\frac{1}{2}$ " h. **Weight,** 21 lbs.

**Fisher Model 440-T Stereo FM MPX Receiver**—Chassis only. \* Net Each...\$329.50  
†At 40 ohms; 50 watts at 8 ohms.



MODEL 440-T

### MODEL TX-300 STEREO 100-WATT MASTER CONTROL AMPLIFIER

Truly reliable, transistorized control amplifier offers the most sophisticated complement of controls and out-performs many of the lab-standard instruments. Exclusive Direct-Tape-Monitor during recording with full use of tone and filter controls. Low level control sets gain of amplifier stages. Speaker selector switch controls two or more pairs of speakers from front panel. Pushbutton input selection. **Power Output:** 50 watts IHF per channel at 0.5% harmonic distortion. **IM Distortion:** 0.5% at 60 cps +7 kc, 4:1 at rated output. **Power Bandwidth:** 12-50,000 cps. **IHF, Hum and Noise:** -80 db. **Channel Separation:** 55 db at 1 kc. **Input Sensitivity:** 2.8 mV, phono; 1.8 mV, tape head; 2.2 mV, mike; and 200 mV, aux for rated output. **Controls:** Pushbutton Inputs (Tuner, Tape Play, Aux, Low Level); Volume; Balance; Bass; Treble; Speaker Selector; Loudness; High Filter; Low Filter; Tape Monitor; Mode; Low Level Input; Impedance Selector. **Output Impedance:** 4-16 ohms. **Size:** 15 $\frac{1}{4}$ " w. x 11 $\frac{1}{4}$ " d. x 4 $\frac{1}{4}$ " h. **Wt.,** 24 lbs.

**Fisher Model TX-300 Stereo Control Amplifier**—Chassis only. \* Net Each...\$329.50



MODEL TX-300

### MODEL TFM-300 FM STEREO MULTIPLEX TUNER

Highest reliability combined with the world's finest circuitry, convenience and performance for FM stereo and monophonic reception. Nuvistor-Golden Synchroder front end employs wideband, solid state IF strip with 5 IF stages and 5 limiters. Stereo Beacon automatic stereo-monophonic switching to match broadcasting station's mode. Variable threshold muting with four-position control on front panel. Stereo filter position eliminates noise on stereo signals. Four-position, pushbutton mode selector; illuminated d'Arsonval tuning meter. **Sensitivity:** 1.8  $\mu$ V, IHF. **Selectivity:** -55 db, alternate channel. **FM Stereo Separation:** 40 db. **Signal-to-Noise-and-Hum Ratio:** 70 db at 100% modulation. **FM Harmonic Distortion:** 0.4% at 400 cps and 100% modulation. **Capture Ratio:** 2.0 db. **Size:** 15 $\frac{1}{4}$ " w. x 11 $\frac{1}{4}$ " d. x 4 $\frac{1}{4}$ " h. **Weight,** 9 lbs.

**Fisher Model TFM-300 FM Stereo MPX Tuner**—Chassis only. \* Net Each...\$279.50  
†Patent pending.



MODEL TFM-300

### MODEL 600-T STEREO 120-WATT FM MULTIPLEX RECEIVER

Unlimited operational flexibility and superior performance in combined stereo FM tuner and control amplifier on a single chassis. Unparalleled in sensitivity and selectivity. Features include: Direct tape monitoring with full use of tone controls; front panel headphone jack; speaker selector switch for two or more pairs from front panel; pushbutton On-Off; illuminated d'Arsonval tuning meter and Tune-O-Lite dial pointer; Stereo Beacon automatic FM stereo-monophonic switching. **Tuner Performance:** Same as listed for Model TFM-300, above. **Power Output:** 60 watts IHF per channel at 0.5% harmonic distortion. **Power Bandwidth:** 12-35,000 cps, IHF. **Hum and Noise:** -90 db. **Channel Separation:** 55 db at 1 kc. **Input Sensitivity:** 2.8 mV, phono low; 5.5 mV, phono high; 1.8 mV, tape head; 210 mV, aux low; 380 mV, aux high; 800 mV, tape monitor for rated output. **Controls:** Volume; Balance; Friction-lock Bass and Treble; Tuning; Headphone Jack; Speaker Selector; Loudness; Muting; High Filter; Low Filter; Tape Monitor; Mode; On-Off. **Size:** 16 $\frac{3}{4}$ " w. x 11 $\frac{1}{4}$ " d. x 5 $\frac{1}{4}$ " h. **Wt.,** 31 lbs.

**Fisher Model 600-T Stereo FM MPX Receiver**—Chassis only. \* Net Each...\$459.50

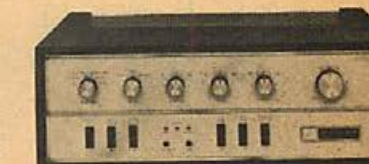


MODEL 600-T

### MODEL TX-200 STEREO 90-WATT CONTROL AMPLIFIER

Features magnificent, 24-carat gold-plated front panel with headphone jack, speaker-silencing switch, exclusive Fisher direct tape monitor. **Power Output:** 90 watts, IHF, both channels. **Harmonic Distortion:** 0.5% at rated output. **Power Bandwidth:** 12-50,000 cps, IHF, at 1% THD. **Hum and Noise:** 80 db below rated output. **Channel Separation:** 55 db at 1 kc. **Frequency Response:**  $\pm 1$  db, 20-20,000 cps, overall; power amplifier section, +0, -1.5 db, 5-50,000 cps. **Sensitivity:** At rated output: Low Phono, 4.0 mV; high phono, 7.5 mV; tape head, 2.6 mV; tuner-aux, 280 mV; monitor 280 mV. **Controls:** Selector (Mike), Tape Head, Phono High, Phono Low, Tuner, Aux); Mode (Mono, Stereo, Reverser) with illuminated indicator lights; Dual Bass; Dual Treble; Dual Balance; Volume (AC Off/On); Low Filter Switch; High Filter Switch; Loudness Contour Switch; Monitor Input Switch; Main Speaker Switch; Tape Jack; Phone Jack. **Power Required:** 30 watts, 36 VA, min.; 195 watts, 250 VA, max., 105-120 VAC, 50/60 cps. **Size:** 15 $\frac{1}{4}$ " w. x 11 $\frac{1}{4}$ " d. x 4 $\frac{1}{4}$ " h. **Weight,** 24 lbs.

**Fisher Model TX-200 Stereo Control Amplifier**—Chassis only. \* Net Each...\$279.50



MODEL TX-200

### MODEL TFM-200 FM STEREO MULTIPLEX TUNER

Features Stereo Beacon with improved automatic, stereo-mono switching circuit to match proper broadcasting station's mode. Nuvistor Golden Synchroder front end; wideband ratio detector; four FM-IF stages; three limiters. Illuminated d'Arsonval tuning meter. Two position front-panel muting control. Gold-plated front panel with tape output. **Sensitivity:** 1.8  $\mu$ V, IHF. **Selectivity:** 55 db, 100% modulation. **FM Harmonic Distortion:** 0.5%, 400 cps, 100% modulation. **IF Rejection:** 40 db, 100 Mc. **Image Rejection:** 65 db, 100 Mc. **Calibration Accuracy:** 0.2%. **Drift:** 0.01%. **Capture Ratio:** 2.2 db. **Controls:** Selector (Mono, Automatic, Stereo, Stereo Filter); Tuning (Power On/Off); Muting (On, 1, 2). **Audio Output:** 2 volts. **Power Required:** 20 watts, 26 VA, 105-120 VAC, 50/60 cps. **Size:** 15 $\frac{1}{4}$ " w. x 11 $\frac{1}{4}$ " d. x 4 $\frac{1}{4}$ " h. **Weight,** 12 $\frac{1}{4}$  lbs.

**Fisher Model TFM-200 FM Stereo MPX Tuner**—Chassis only. \* Net Each...\$229.50



MODEL TFM-200

\*CABINETS LISTED ON THE FOLLOWING FISHER PAGE.

**HARVEY RADIO CO., INC.**  
WOODBURY, L. I. AND NEW YORK CITY

**FEDERAL ELECTRONICS, INC.**  
BINGHAMTON, N. Y.





# Fisher

## STEREO HI-FI STRATAKITS AND COMPONENT CABINETS



MODEL KM-60

### MODEL KM-60 FM MULTIPLEX TUNER KIT

Unique Stratakit construction method permits assembly by easy, error-proof stages. Each stage corresponds to a specific page of instructions, with a facing illustration. Parts and wires (precut and stripped) for each stage are packaged separately. Most mechanical parts are already installed on chassis. Front-end and multiplex adapter factory built, aligned and installed on chassis. High gain "Golden Cascade" front end; four IF stages; two limiters; noise filter; output level control for each channel. Precision d'Arsenal meter and switch are used for alignment and tuning; afterwards, the meter is employed as a tuning meter. It remains available for use in retuning when IFT tubes are replaced. **Sensitivity:** 0.6  $\mu$ V for 20 db quieting (72-ohm antenna); 1.8  $\mu$ V IHFM. **Noise and Hum:** 70 db for 100% modulation. **Selectivity:** 60 db. **Distortion:** Less than 0.5% harmonic; total audio harmonic, less than 0.2%. **Tubes:** 11, plus 12 diodes and a selenium rectifier. **Power:** 45 watts. **Size:** 15 $\frac{1}{4}$ " w. x 13" d. x 4 $\frac{1}{4}$ " h. Weight, 18 lbs.

Fisher Model KM-60 FM Multiplex Tuner Stratakit—Chassis only.\* Net Ea. . . . \$159.50



MODEL KX-200

### MODEL KX-200 STEREO CONTROL 80-WATT AMPLIFIER KIT

Level control permits use of center channel speaker without the need for an additional amplifier. Built-in d'Arsenal calibration meter. Twelve inputs; three speaker outputs. Equalization switch and low-level inputs for magnetic cartridges or tape heads. **Power Output:** 40 watts IHFM total per channel. **Frequency Response:**  $\pm$ 1 db, 20-20,000 cps. **Distortion:** IM, 0.8%; harmonic, 0.4%. **Hum and Noise:** High level, 80 db (450 mV); low level, 66 db (6 mV). **Sensitivity:** High level, 350 mV; low level, 3.5 mV. **Channel Separation:** Better than 50 db at 1 kc. **Damping Factor:** 10. **Output:** 4, 8 and 16 ohms. **Controls:** Input (Mag. 1, Mag. 2, Tuner, Aux 1, Aux 2); Mode (Mono, Reverse, Stereo, A, B); Bass (dual ganged); Treble (dual ganged); Balance; Volume/Off; Center Speaker Level; Stereo Dimension (Mono/Stereo); Tape/Phono Equalization; High Filter On/Off; Tape Monitor On/Off; Loudness On/Off; Pilot Light. **Size:** 15 $\frac{1}{4}$ " w. x 12 $\frac{1}{2}$ " d. x 4 $\frac{1}{4}$ " h. Weight, 26 lbs.

Fisher Model KX-200 Stereo Control Amplifier Stratakit—Chassis only.\* Net. \$169.50



MODEL KX-100

### MODEL KX-100 STEREO CONTROL 50-WATT AMPLIFIER KIT

High versatility in convenient, easy-to-build kit. Facility for direct connection of center channel speaker without need for additional amplifier. Uses new 7868 novar type output tubes. **Power Output:** 50 watts, both channels, IHFM music; 24 watts rms, each channel. **Frequency Response:**  $\pm$ 1 db, 20-20,000 cps overall. **Hum and Noise:**  $\pm$ 65 db at rms output on low level inputs;  $\pm$ 80 db, volume control at minimum. **Controls:** Input (Tape Head, Phono, Tuner, Aux, Tape Play); Mode (Mono, Stereo, Reverse); Bass (dual ganged); Treble (dual ganged); Balance; Volume/On-Off; Power On-Off; Headphone Jack; Tape/Phono Equalization; High Filter On-Off; Tape Monitor On-Off; Loudness On-Off. **Size:** 15 $\frac{1}{4}$ " w. x 12 $\frac{1}{2}$ " d. x 5 $\frac{1}{4}$ " h. Weight, 24 lbs.

Fisher Model KX-100 Stereo Control Amplifier Stratakit—Chassis only.\* Net Each. . . . \$129.50

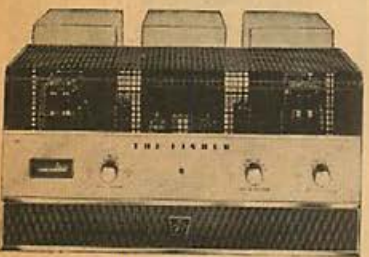


MODEL KX-90

### MODEL KX-90 40-WATT STEREO MASTER CONTROL AMPLIFIER

Superb, low-cost control amplifier with 24-earat gold-plated front panel casting. Includes all essential controls. Speaker-silencing switch permits private listening pleasure. Comprehensive input and output facilities match all magnetic cartridges. Can be built in 9-11 hours and provides years of trouble-free service. **Power Output:** 40 watts, both channels, IHFM music; 17 watts, rms at 1 kc, each channel. **Power Bandwidth:** 29-27,000 cps. **Frequency Response:**  $\pm$ 1.5 db, 20-20,000 cps, overall; power amplifier,  $\pm$ 2.0 db, 10-30,000 cps. **Distortion:** IM, less than 0.8%, rated rms; harmonic 0.5% IHF and rated rms output. **Sensitivity:** Tape Head, 2 mV; Low Phono, 3.5 mV; High Phono, 8.0 mV; Tuner, Aux and Tape Monitor, 300 mV. **Hum and Noise:** Tape Head,  $\pm$ 60 db; Phono,  $\pm$ 60 db, High Level,  $\pm$ 80 db, all below 17 watts. **Controls:** Selector (Tape Head, Phono, Tuner, Aux); Mode (Stereo, Mono); Dual Bass, Dual Treble; Dual Balance; Volume (AC Off-On); Tape Monitor On-Off; Speakers On-Off; High Filter On-Off; Loudness Contour On-Off; Phone Jack. **Power Required:** 115 watts, 117 VAC, 120 VA, full power output. **Size:** 15 $\frac{1}{4}$ " w. x 11 $\frac{3}{4}$ " d. x 4 $\frac{1}{4}$ " h. Weight, 20 lbs.

Fisher Model KX-90 Stereo Master Control Amplifier Stratakit—Chassis only.\* Net Each. . . . \$99.50



MODEL K-1000

### MODEL K-1000 STEREO 150-WATT POWER AMPLIFIER KIT

Provides top performance standards in power distortion, bandwidth, transient response, audio purity and maximum power. Specially designed power tubes result in low-distortion output stage; stable low impedance driver for good transient response. Phase inverter holds balance, despite tube aging. Compensated attenuator, cathode follower input stage; separate power tube and filter supplies use silicon diodes for low noise. Calibration meter to adjust output tube bias. **Power Output:** 150 watts total IHF music power; 30 watts rms. **Frequency Response:**  $\pm$ 0.5 db, 20-20,000 cps;  $\pm$ 1 db, 8-48,000 cps. **Distortion:** IM, 0.4% (60:7000 cps, 4:1 rated output); harmonic, 0.25% (IHF and rms rated output). **Hum and Noise:** 90 db below rated rms output. **Sensitivity:** 0.7 V at rated rms output. **Output Impedance:** 4, 8 and 16 ohms. **Controls:** Meter Selector (Off, V4, V5, V8, V9); Input Attenuator (Off, -12, -9, -6, -3, -0 db) each channel; V4 Bias; V5 Bias; AC Bal. Ch. A; V8 Bias; V9 Bias; AC Bal. Ch. B; Sub-Sonic Filter Switch. Hinged cover over less-used controls. **Tubes and Diodes:** Nine tubes, four diodes. **Power Required:** 105-120 VAC, 50/60 cps. **Size:** 15 $\frac{1}{4}$ " w. x 12" d. x 7 $\frac{3}{4}$ " h. Weight, 70 lbs.

Fisher Model K-1000 Stereo Power Amplifier Stratakit—Net Each. . . . \$279.50



MODEL K-10

### MODEL K-10 DYNAMIC SPACEPANDER®

Added to a stereo system, the Dynamic Spacepander creates a perfect illusion of concert hall sound by supplying the one missing element—reverberation. Adds realism to monophonic reproduction and tape recordings made in the home, too. Can be used with virtually any Fisher component or console now made, as well as all hi-fi systems using separate preamps or having tape monitoring facilities.

Fisher Model K-10 Dynamic Spacepander—Net Each. . . . \$79.50

### \*CABINETS FOR FISHER COMPONENTS

Fisher Model MC-2 Metal Cabinet—Simulated leather finish. For MF-300, 400-CX, KX-200, KX-100 and KM-60 components. Net Each. . . . \$15.95

Fisher Model 10-UW Walnut Cabinet—For MF-300, 400-CX, KX-200, KX-100 and KM-60 components. Net Each. . . \$24.95

Fisher Model 20-UW Walnut Cabinet—For use with FM-1000. Net Each. . . . \$24.95

Fisher Model 30-UW Walnut Cabinet—For 400, 500-C and 800-C components. Net Each. . . . \$24.95

Fisher Model 40-UW Walnut Cabinet—For use with MPX-100. Net Each. . . . \$14.95

Fisher Model 50-UW Walnut Cabinet—For TFM-300, TX-300, FM-90-B, FM-100-C, FM-200-C, X-100-C, X-101-D, X-202-C, TFM-200, TX-200 and KX-90 components. Net Each. . . \$24.95

Fisher Model 100-UW Walnut Cabinet—For use with 600-T and 440-T. Net Each. . . . \$24.95



# KOSS REK-O-KUT

# STEREO TURNTABLES, HEADPHONES, ACCESSORIES

## REK-O-KUT COMPONENTS



A



B



C



D

### HIGH FIDELITY PLAYBACK TURNTABLES

**A Model R-34 Two-Speed Turntable**—Complete turntable with Model S-440 arm and base included. Isolation suspension system eliminates acoustic feedback; vertical rumble reduced to negative factor. Hysteresis synchronous motor is lifetime lubricated; molded Rekothane belt drive. One-piece dynamically balanced, 12" aluminum turntable; gray deck plate; walnut base. Instant speed selection of 33 $\frac{1}{3}$  or 45 rpm. **Noise Level:** -60 db of average recording level. **Wow and Flutter:** 0.08% rms. **Size:** 15" w. x 14 $\frac{1}{2}$ " d. x 5 $\frac{1}{2}$ " h. **\$89.95**  
Net Each.....

**B Model B-12H Three-Speed Stereotable**—Unparalleled, professional quality performance with massive, custom-built, hysteresis synchronous motor offering high rotational accuracy. Oil-grooved turntable shaft is turned to extremes of precision tolerance, as specified only in aircraft industry. Single knob speed selection; idler disengaged by Neon pilot light. Decorator gray and two-tone aluminum finish. **Noise Level:** -59 db of average recording level. **Wow and Flutter:** 0.085% rms. Chassis deck 14" x 15 $\frac{1}{2}$ ". Installs with arm in space 17 $\frac{1}{2}$ " w. x 16" d. x 3" above \$165.00 deck and 6 $\frac{1}{4}$ " below deck. Net Each.....

**B Model B-12GH Three-Speed Stereotable**—Same features as B12H, but with standard hysteresis synchronous motor; ideal for average home use. **Noise Level:** -57 db of average recording level. **Wow and Flutter:** 0.09% rms. Same deck and installation dimensions as B-12H, except requires 4 $\frac{1}{4}$ " below \$109.95 deck. Net Each.....

**C Model CVS-12 Continuously Variable Speed 12" Turntable**—Any speed 25 to 100 rpm, 50 or 60 cycles. Ideal for areas of fluctuating power, or with portable power plant, 16" x 12" overall, 11 $\frac{1}{2}$ " above deck, 5" below. Shpg. Wt., 15 lbs. **\$99.95**  
**Model CVS-12**—Net Each.....

**D Model B-16H Three-Speed, 16" Precision Turntable**—Designed for the three popular recording speeds. **Noise Level:** 50 db below average recording level. **Turntable:** Cast aluminum, lathe-turned, sub-mounted in base. **Motor:** Hysteresis synchronous. Meets NAB standard for speed variation and wow content, instantaneous speed change. Accelerates to 78 rpm in  $\frac{1}{4}$  turn; to 45 and 33 $\frac{1}{3}$  rpm in  $\frac{1}{4}$  turn. Gray wrinkle finish. 18 $\frac{1}{4}$ " x 20"; 11 $\frac{1}{2}$ " above board, 6 $\frac{1}{2}$ " below. Shpg. Wt., 34 lbs. **\$275.00**  
**Model B-16H**—Net Each.....

### WALNUT TURNTABLE BASES, ACCESSORIES

**Model BH**—Walnut base for B-12H, B-12GH. Net Ea. **\$18.95**  
**Model AF-1 Acousti-Mount**—For use with stereotables where external vibration occurs; reduces feedback. Net Each. **\$3.50**  
**Model RBK Rekothane Belt Kit**—Replaces belts on existing Rek-O-Kut belt-driven turntables. Net Each. **\$4.95**

### PROFESSIONAL TONE ARMS

Exceeds critical requirements of ultra-high compliance cartridges. Tracks at 1 gram or less. Tubular aluminum has friction-free vertical movement; Omni-Balance for perfect lateral action. Plug-in die-cast shell takes any cartridge; has open front and 4-wire lugs; twist-lock attachment. Vertical height adjustment. Tracking error under 1". Resonance, 9-12 cps depending on cartridge. Lowest possible hum with 100% shielding. Color-coded cables with phono plugs for each channel; spade lug ground connection.



**Model S-320 Stereo Tone Arm**—With Omni-Balance. **\$34.95**  
Net Each.....  
**Model S-260 Tone Arm**—Same, but 16" long and without Omni-Balance. Net Each. **\$39.95**  
**Model S-440 Tone Arm**—Modified version of S-320 tracks at less than 1 gm. Resonance, below 12 cps. Shown as used on R-34 turntable (Fig. A). Net Each. **\$27.95**  
**Model PS-205** (for S-440), **PS-20L** (for S-220, S-260, or S-320), or **PS-20** (for S-120 or S-160) **Cartridge Shell**—Net Each. **\$6.95**  
**Model RS-20** (for S-340) **Cartridge Shell**—Net Each. **\$3.95**  
**Model OB-1 Omni-Balance Kit**—For adding Omni-Balance to older Rek-O-Kut arms. Net Each. **\$2.95**

### RECORDING ACCESSORIES

**Model RM-5 Cutter**—Impedance: 8-15-500 ohms. Sensitivity: 1.8 W at 1,000 cycles for 6.3 cm/sec peak recorded velocity. **Frequency Response:**  $\pm 2$  db, 30-13,000 cps. **Distortion:** 1.2% at 1,000 cps. Univ. mtg. for most lathes. Stylus, short shank steel or sapphire  $\frac{1}{8}$ " overall length. Net Each. **\$159.50**  
**Model M-125-120 Leadscrew**—(120-line)—Net Each. **\$50.00**  
**M-125-210, -240, or -270 Microgroove Leadscrews** (210, 240, or 270-line)—Net Each. **\$60.00**  
**Model T104-43 Idler**—78 rpm idler for TR-43H. Net. **\$8.00**

## KOSS STEREOGRAPHIC HEADPHONES

### MODEL SP-3X STEREOPHONES

Provide full-range stereophonic sound response through the use of specially constructed 3 $\frac{1}{2}$ " dynamic reproducers. Exceptionally comfortable to wear; foam rubber ear cushions also serve to damp out extraneous ambient sound. Ideal for monophonic as well as stereophonic use. Headset may be connected across the amplifier output directly or across the speaker voice coil leads, preserving the full dimensional effect of stereophonic sound. Reproduces sound with exceptional clarity and tonal realism. Adapter available for 600 to 10,000 ohm impedances, enabling the Stereophones to be used for monitoring purposes. **Frequency Response:** 10-15,000 cps. **Impedance:** 4-16 ohms. Lightweight. **Koss Model SP-3X Stereophones**—Complete with 8-ft. cable, plug and T-2 adapter. Net Each. **\$24.95**  
**Koss Model SP-100**—Same as above, but 100-ohm impedance for special and multiple installations. Net Each. **\$24.95**  
**Koss Model SP-100WC**—Same as SP-100, but with coiled cord for compact storage. Net Each. **\$29.95**  
**Koss Model SP-100CT**—Same as SP-100, but with center tap winding. Net Each. **\$29.95**



### ACCESSORIES

**Koss Model A-1220 Amplifier**—For direct connection of Stereophones to preamp outputs or ceramic cartridges. Transformer powered. Two stereo jacks, two input jacks and gain control for each channel. Net Each. **\$34.95**  
**Koss Model K-29 Port-a-Pac**—Portable system consists of A-1220 amplifier, SP-3X Stereophones and portable carrying case. Net Each. **\$66.50**  
**Koss Model T-1**—Matching transformers for monitoring 600-10,000 ohm outputs. Jacks for two Stereophones. Net Each. **\$7.95**  
**Koss Model T-2**—Adapter plate (normally supplied with SP-3X) 2 $\frac{1}{2}$ " x 1 $\frac{1}{2}$ " with stereo output jack and two 10-ohm resistors; for 12" leads and terminal board. Net Each. **\$1.95**  
**Koss Model T-4**—Connecting box for up to 5 Stereophones from a single music source. Five jacks; 10 ft. cord. Net Each. **\$6.95**

### ACCESSORIES (CONTINUED)

**Koss Model T-5**—Junction box to connect existing stereophonic or monophonic system to the Stereophones. Contains volume controls for changing the level of the phones and for balancing purposes. Two output jacks. Impedance, 4-16 ohms. Net Each. **\$8.95**

### SERIES SP-5 STEREOPHONES

**Koss Model SP-5NS Dual Mode Stereophones**—Unmatched versatility for recorders such as Norelco Continental 400. Switched lavaller with two plugs provides a stereo plug for monitoring; or, two monophonic plugs for playback with recorders having two external speaker jacks. Net Each. **\$24.95**  
**Koss Model SP-5SM Stereo/Mono Stereophones**—Switch in lavaller changes operation from stereo to monophonic. A single set of earphones provides all your listening needs. Net Each. **\$24.95**  
**Koss Model SP-5VW Dual Input Stereophones**—Two monophonic plugs for integrated tape recorder, or phono systems having two external speaker jacks. Net Each. **\$24.95**

### MODEL PRO-4 PROFESSIONAL HEADSET

Shatter-proof and shockproof. Adjustable headband and fluid-filled ear cushions to fit head contour; keep out noise. Equipped for boom mike attachment. **Frequency Response:** 30-20,000 cps. **Impedance:** 4 ohms. (For 600 ohms, order Model PRO-600.) **Maximum Input:** 10 watts per channel; 60 watts per channel music. Eight-ft. four-conductor cord. Shpg. Wt., 2 lbs. **\$45.00**  
**Koss Model PRO-4 Professional Headset**—Net Each. **\$45.00**  
**Koss Model PRO-600 Professional Headset**—600 ohms. Net Each. **\$50.00**

### STEREO DENTAL PACK

Applies stereophonic music in the office to relax patient and cut out noise from drill and machinery. Connects to any electrical outlet or existing sound system. Stereophones mount near chair on self-adhesive wall bracket. System includes a white noise generator in compact cabinet to combat extreme pain. Patient holds handy box to select music or white noise and to control volume. Additional outlet boxes, headsets and wall brackets are available to feed music into other rooms. **\$37.50**  
**Koss Stereophonic Model D-100 CT**—Net Each. **\$37.50**  
**Koss Wall Bracket**—Net Each. **\$6.95**  
**Koss White Noise Generator**—Net Each. **\$9.50**



# Garrard® Automatic Turntables

## NEW LAB 80 AUTOMATIC TRANSCRIPTION TURNTABLE

- INTEGRAL TONE ARM CUIING
- ANTI-SKATING COMPENSATOR

- NON-RESONANT AFRORMOSIA WOOD ARM



- NEW AUTOMATIC PUSHER SPINDLE FOR UNMATCHED SAFETY

Exceptional turntable insures professional reproduction of LP records, 33 $\frac{1}{3}$  and 45 rpm, without compromise. Created specifically for those previously unwilling to accept any automatic. Unequaled by any instrument now available. Styled in satin metal, grained wood and iridescent color; decorator base available. Styled in satin metal, grained wood and iridescent color; decorator base available. Finger-tip tab controls set in engraved escutcheon for easy access, simple operation and safety from jarring. Featherweight touch selects record size (7", 10" or 12"), manual play, automatic play and speed (33 $\frac{1}{3}$  or 45 rpm). Illuminated indicator shows record size selected; also acts as pilot light. At end of a record, or last record in automatic play, the arm returns to its rest and the turntable shuts off. Spring-loaded safety catch permits manual locking of arm to rest. **Minimum Cabinet Dimensions:** 16 $\frac{1}{2}$ " w. x 14 $\frac{3}{4}$ " d. x 5 $\frac{1}{2}$ " above and 3 $\frac{1}{2}$ " below motor board.

Garrard Lab 80 Automatic Transcription Turntable—Less base. Net Ea. **\$99.50**

**Arm Mechanism:** Dynamically-balanced, Afrormosia wood arm held to precision alignment with aluminum stabilizer its entire length. Knurled knob in front of arm pivot sets the tracking force precisely with  $\frac{1}{4}$ -gram click-stops from zero to five grams. Counterweight adjusts for level floating; isolated in rubber. Needle pivots set in ball bearings hold friction to a minimum. Vertical design cancels warp and wow; low center of gravity eliminates sensitivity to jarring. Exclusive, patented bias compensator cancels any skating force; permits use of highest compliance cartridges. Lightweight shell slides into arm on channels; holds rigidly with knurled screw; takes all cartridges; long finger-lift for safety. Integral cuing device provided on manual and automatic operation; arm can be suspended over any groove desired: When tab control on the pick-up rest is activated, the arm gently lowers to cue to the exact groove. Stereo 4-pin, 5-wire system has separate ground connections; female twin phono socket provided on unit plate. AC leads plug into player with Amploek plug for easy installation.

**Precision Automatic Spindle:** Remarkable new design has built-in pusher principle for highest safety and positive action. Three extension arms on spindle hold the record stack; when change operation occurs, the arms retract and individual record is pushed off gently. The trip mechanism is molded Delrin\*, a slippery plastic, holding friction to a minimum. Ultra-sensitive magnetic repulsion activates the cycle; opposing magnets eliminate mechanical contacts to trip reliably at virtually zero force. Separate manual spindle also supplied.

\*Registered DuPont trademark.

**Turntable, Mat and Motor:** Extremely heavy cast 12" dia. turntable is statically and dynamically balanced for constant speed regardless of voltage variations; eliminates any possibility of wow or rumble. Special mat is made of new anti-static material; dissipates electrical charge on records, to repel dust. Completely isolated, Laboratory Series® 4-pole shaded motor mounted in revolutionary suspension system of rubber anti-vibration devices and damping pads; stops all motor interference. Dynamically balanced rotor rides in precision Oilite bearings.

## MODEL AT60 AUTOMATIC TURNTABLE



Successor to the famous Garrard AT6, this distinctive, precision instrument features a heavy, cast, oversized turntable usually found only in more expensive units. Dynamically balanced and non-magnetic. It assures freedom from wow and rumble never before achieved in a turntable at such a modest price. Distinctively styled mat gives sure protection to records. Counterweight adjusted, tubular tone arm incorporates a self-adjusting bias compensator anti-skating device to hold side pressure on stylus to a minimum; permits accurate tracking with the most compliant cartridges. Dynamically balanced arm has built-in stylus pressure gauge, easily visible from the top, for accurate adjustment. Lightweight shell takes all cartridges and is designed for ease in positioning stylus accurately on the record. Super-sensitive changing mechanism employs Delrin to offset friction and assure correct tracking at minimal force. Automatic intermix operation permits playing records of all sizes automatically; Garrard changer action prevents damage to valuable records. Manual spindle is also provided. Double shielded, Laboratory Series, 4-pole shaded motor gives exact record speeds of 16 $\frac{2}{3}$ , 33 $\frac{1}{3}$ , 45 and 78 rpm; built for long, trouble-free life. Ball-bearing arm pivots assure smooth arm action. Tone arm safety catch holds arm against accidental movement when not in use. Stereo 4-pin, 5-lead wiring provided with Amploek plug for quick, easy connection. New decorator styled base available. Handy, sliding control system, located up front for operation convenience, permits jar-free selection of speed and manual or automatic playing. Compact design fits most cabinetry. **Minimum Cabinet Dimensions:** 15 $\frac{1}{2}$ " w. x 13 $\frac{3}{4}$ " d. x 4 $\frac{3}{4}$ " above and 2 $\frac{3}{4}$ " below motor board.

Garrard Model AT60 Automatic Turntable—Less base. **\$59.50**  
Net Each.....

## MODEL 50 AUTOMATIC TURNTABLE



Advanced features and classic styling never before available at such a modest price, includes a full-sized turntable and counterweighted tone arm. Carefully engineered tone arm handles the highest quality cartridges while protecting your records; previously available only on high priced turntables. Made of lightweight, cast aluminum with light, cutaway shell with long finger lift, it is coupled to a frictionless Delrin trip mechanism with Intermix automatic operation. Both automatic operation and manual spindles supplied. Safety catch holds arm when not in use. Garrard changer action gives smooth, safe record operation preventing scratching or excessive wear. Oversize turntable combines with 4-pole motor for smooth, wow-free, accurate speeds of 16 $\frac{2}{3}$ , 33 $\frac{1}{3}$ , 45 and 78 rpm. Contrasting mat design with radial ridges holds records securely with a minimum of contact area; protects against dust and wear. Simple, convenient stylus pressure adjustment and interchangeable cartridge shell arrangement permits use with a variety of cartridges. Stereo wired with Amploek plug for simplified installation. Compact styling with low over-hang, permits installing in virtually any cabinetry; decorator styled base available. **Minimum Cabinet Dimensions:** 14 $\frac{3}{4}$ " w. x 12 $\frac{3}{4}$ " d. x 4 $\frac{3}{4}$ " above and 2 $\frac{3}{4}$ " below motor board.

Garrard Model 50 Automatic Turntable—Less base. **\$44.50**  
Net Each.....



# Garrard® Turntable, Accessories

## TYPE A70 AUTOMATIC TURNTABLE

**Arm and Trip Mechanism:** Virtually frictionless arm movement employs special needle pivots set into miniature ball bearings. Low positioned counterbalance, in line with the cartridge, provides optimum center of gravity for improved tracking and high resistance to external shock. Bias compensator anti-skating device matched with cartridge weight adjustment, holds total side pressure at the stylus to an infinitesimal measurement; adjusts with sliding weight to notches matching stylus pressure desired for a particular cartridge. Knurled screw in front of pivot area gives click-stop adjustment in  $\frac{1}{4}$ -gram increments precise stylus pressure setting. Counterbalance weight adjusts to zero stylus pressure with level float; tightens securely with adjusting screw. Super-sensitive trip mechanism employs Delrin® plastic, a slippery material, so that the load on the arm is virtually unmeasurable; trips perfectly every time, even with the most compliant cartridge. Arm is wired for stereo with Amplok plug for quickest connection. Both automatic operation and manual spindles supplied.

\*Registered DuPont trademark.

**Motor and Turntable:** Double-shielded, Laboratory Series® 4-pole shaded motor is mounted on foam rubber spring cushioning for smoothest possible action. Can't cause wow and rumble driving full size, heavy, balanced turntable of cast "sandwich" construction. Simplified, "Up-front" control system employs lever-action selection for automatic and manual modes on one side; speed selector (16 $\frac{2}{3}$ , 33 $\frac{1}{3}$ , 45 and 78 rpm) on the other side. Famous pusher type changing mechanism protects records fully against damage during automatic changing.

Surpasses every other automatic design, except the Lab 80, for tracking accuracy in both automatic and manual modes. Newly designed, dynamically balanced tone arm combines with unique anti-skating compensator to permit using the highest compliance cartridges available. Slide-in lightweight cartridge shell has cut-away design for ease of installation and service; holds mass to a minimum. Extended finger lift for safest handling. Handsome styling utilizes new iridescent color in combination with sparkling chrome for unusual distinction. Compact design fits into standard hi-fi cabinetry with ease. **Minimum Cabinet Dimensions:** 16 $\frac{1}{4}$ " w. x 14 $\frac{1}{4}$ " d. x 6" above and 2 $\frac{3}{4}$ " below motor board.

Garrard Type A70 Automatic Turntable—Less base. Net Each..... **\$84.50**



• WIRED FOR STEREO

- ANTI-SKATING COMPENSATOR FOR ALL CARTRIDGES
- SUPER-SENSITIVE AUTOMATIC TRIP MECHANISM

### ADAPTER FOR 7" RECORDS

Simple, inexpensive accessory clips onto pusher platform of Type A70 (and old Type A or 88 Series) turntable to permit playing of the 7", small-hole 33 $\frac{1}{3}$  rpm records.

Garrard Model RA7 Adapter—Net Each..... **\$1.50**

## MOUNTING BOARDS AND BASES FOR TURNTABLES AND OLDER MODEL CHANGERS

New decorator style base comes in oiled walnut finish to bring out the Garrard iridescent color and crisp, precision look of the new units. Metallic silver insert matches the turntables' trim. Also available unfinished. Mounting boards are supplied sanded, but unfinished.



Description	For Type A70 or Type A Series 16 $\frac{1}{4}$ " x 13 $\frac{3}{4}$ " x 3"		For Lab 80 Automatic Turntable 16 $\frac{1}{4}$ " x 13 $\frac{3}{4}$ " x 4 $\frac{1}{4}$ "		For AT60, Model 50, AT6 and Autoslim 14 $\frac{1}{4}$ " x 12 $\frac{3}{4}$ " x 3"	
	Model No.	Net Each	Model No.	Net Each	Model No.	Net Each
Oiled walnut base	BSW	\$5.50	B9W	\$6.50	B10W	\$4.95
Sanded, unfinished base	BSU	4.95	B9U	5.95	B10U	4.45
Unfinished mtg. board	MB8	2.25	MB9	2.25	MB10	2.25

\*Add  $\frac{3}{4}$ " to height for legs.

### MODEL SPG3 STYLUS PRESSURE GAUGE

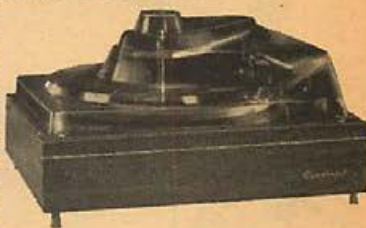


Low-cost, accurate, easy-to-use gauge features large, legible scale inside a clear plastic window. Widely-spaced gram markings are easily read. Can be used to check weight of arm or to set a predetermined weight. Swiveling balance mechanism uses no springs; assures long life accuracy; permits simplified adjustments. Plastic scale pan cannot damage stylus.

Can be used with any cartridge or arm. Comes with 5 gram brass weight for use as a standard and for "zeroing".  
Garrard Model SPG3—Net Each..... **\$2.95**

### GARRARD DUST COVERS

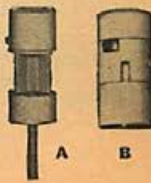
Convenient, economical dust cover protects your changer when not in use. Keeps dust and dirt from fouling the mechanism or collecting on oily parts. Helps keep it looking shiny and new. Prevents dust from accumulating on the turntable to be picked up by records, thus causing unnecessary wear. Also protects your changer from accidents. Molded from clear vinyl.



Garrard Model DC3 (For Lab 80, Type A70 and Type A Series), DC4 (For AT60, Model 50, AT6 and Autoslim Series)—Net Each..... **\$4.95**

### AUTOMATIC 45 RPM CHANGER SPINDLES

- Garrard No. LRS3 (Fig. A)—Permits automatic play of 45 rpm records on Type A70 and older Type A Series changers. Inserts easily. Takes wide-center-hole records without damage. Net Each..... **\$3.80**
- Garrard No. LRS5 (Fig. B)—Same, but for use with Autoslim Series. Net Each..... **3.80**
- Garrard No. LRS6—Same, but fits older AT6 Series. Net Each..... **3.80**
- Garrard No. LRS9—Same, but for use with Lab 80 automatic transcription turntable. Net Each..... **3.80**
- Garrard No. LRS10—Same, but use with AT60 and Model 50. Net Each..... **3.80**





# THORENS Turntables and Tone Arm

## NEW TD-150AB

### UNI-SUSPENSION TURNTABLE

(FIG. A)



A

Incorporates latest drive and suspension systems to minimize effects of feedback and vibrations. Completely integrated turntable unit includes mounting board, platter, drive system, base and tone arm. **Features:** Horizontal and vertical tone arm balancing for specific tracking force. New, low mass plug-in cartridge shell. Single adjustment for mounting board and platter. Rumble, wow and flutter below NAB stereo standards. Two-speed (33 $\frac{1}{3}$  and 45 rpm) capabilities. **Turntable Drive:** One low speed (375 rpm) double synchronous motor. Belt from motor pulley to 6 $\frac{1}{2}$ " dia. flywheel section of turntable platter. Twelve inch, 7 $\frac{1}{2}$  lb., precision balanced turntable made of zinc alloy. **Power Required:** 110/120 VAC, 60 cps. **Size:** 15 $\frac{1}{4}$ " w. x 12 $\frac{3}{8}$ " d. x 4 $\frac{1}{2}$ " h. (with tone arm). Base, 2 $\frac{1}{4}$ " h. Weight, 14 $\frac{1}{2}$  lbs.

**Thorens Model TD-150AB—Turntable with base and tone arm. \$99.75**  
Net Each.....

**Thorens Model TD-150—Turntable only; without tone arm and base for \$75.00**  
universal arm applications. Net..

## TD-121 TURNTABLE

(FIG. B)



B

Single-speed (33 $\frac{1}{3}$  rpm) turntable with Swiss precision craftsmanship throughout. Easily converted to 16 $\frac{3}{4}$ , 45 or 78 rpm. Incorporates 8-pound cast non-magnetic 12" turntable, with the unique combination of a belt and idler drive for complete isolation of motor vibration. **Other Features:** Adjustable speed control ( $\pm 3\%$ ); self-lubricating bronze bushings used on main drive shaft; separate tone-arm board for fast, easy installation; adjustable built-in leveling feet. Metal strobe included. **Size:** 15" x 12"; depth below base plate, 2 $\frac{3}{4}$ ". Complete with mounting instructions. Operates on 110-120 VAC, 60 cps. Shipping Weight, 30 lbs.

**Thorens Model TD-121—With \$85.00**  
out base. Net Each.....

**Thorens Model WB-124/121SW Base—Satin walnut finish. Net Each. \$12.50**

**Thorens Model WB-309SW Base—Satin walnut finish with 16" tone-arm board. Net Each.....\$25.00**



C

## TD-224 "MASTERPIECE" TURNTABLE AND AUTOMATIC RECORD CHANGER

Combines all the benefits of both a professional turntable and an automatic record changer without sacrificing quality and creating record wear. Unlike any other "automatic turntable" or record changer, the record stacking is completely independent from the moving turntable. An individual record is removed from the stack and placed on the turntable. After the record has been played, it is returned to bottom of the stack. The next unplayed record then repeats the same process. All is done carefully and automatically yet even more gently than by hand. No records stacked on the turntable. There is only one record on the turntable at a time. No more distortion, straining or wavering. Fully utilizes any of the finest professional cartridges with highest lateral and vertical compliance. Constant stylus angle and torque, because of non-stacking of records, eliminate vertical tracking error, assuring true high fidelity. The BTD-12S tone arm adds many more unique features. Patented, built-in record brush cleans record continuously during play; won't interfere with the tone arm. Built-in, illuminated stroboscope permits full adjustment of turntable speed. Fine-speed-control knob helps correct visually any speed variation with 0.1% accuracy. Can also be played manually. **Other Features:** Automatically plays up to eight records; Internix records of any diameter, 7" to 12"; automatic shut-off after last record; level indicator; off position disengages idler wheel automatically; far exceeds NAB specifications for rumble, wow and flutter for transcription turntables. **Speeds:** 78, 45, 33 $\frac{1}{3}$ , and 16 rpm; variable speed adjustment. **Size:** Base, 27" w. x 14 $\frac{1}{4}$ " d. x 3 $\frac{1}{2}$ " h. **Maximum Height for Operation: 9". Power Required: 110-220 VAC, 50/60 cps. Full one year warranty. \$250.00**

**Thorens Model TD-224—Without base. Net Each.....**

**Thorens Model WB-224/SW Base—Satin walnut finish. Net Each.....\$30.00**

## ACCESSORIES FOR ALL MODELS

**Model WB-309SW—Satin finish walnut base for all 16" tone arms. Net...\$25.00**

**Model CB-908—Replacement rubber belt for all TD turntables. Net Each...\$1.25**

**Model SD-2 Stroboscope Disc—For 50/60 cps. Net Each.....\$1.25**

**Model WB-124/121SW—Satin walnut base for TD-124. Net Each...\$12.50**

**Model CAB-124/121—Satin walnut cabinet, dust cover for TD-124, -121. Net Each.....\$40.00**

**Model MB-124/121—Unfinished mounting board for TD-124, -121. Net...\$4.50**

## TD-124 TURNTABLE

(FIG. C)

Meets the most critical broadcast standards with lowest wow, flutter and rumble content. Unique design incorporates extra-heavy turntable for smooth performance, yet stops and starts instantly. **Features:** Thorens "Roto-Drive" adjustment of all 4 speeds. Built-in stroboscope has neon bulb. Uses 12" or 16" arm mounting boards (available in various finishes at low cost) for easy installation of tone-arm. Built-in spirit level and four precision-machined leveling knobs. Cuing clutch for immediate speed (ideal for broadcasting or recording purposes). Single control knob for all speed changes and on-off switch. Compact design requires only 2 $\frac{3}{4}$ " clearance below mounting board. **Turntable Drive:** Cast iron, 11 $\frac{1}{2}$  lb., flywheel inner turntable drives lightweight, aluminum outer turntable with special clutching unit. Design permits extra heavy weight without magnetic pickup; allows continued movement of inner turntable (heavy) while outer (light) one is stopped—re-engagement provides instantaneous start. **Size:** 15" x 12 $\frac{3}{8}$ " base plate. **Power Required:** 110-120 VAC, 50/60 cps. Shipping Wt., 32 lbs.

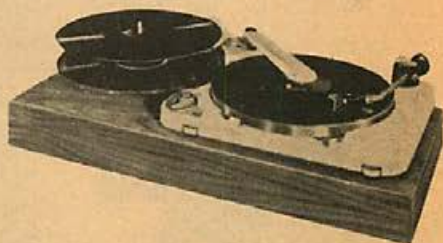
**Thorens Model TD-124— \$125.00**  
Without base. Net Each.....

**Thorens Model TD-124 Series II—Same as above but with color knobs, escutcheon plate, non-ferrous platter and new motor suspension. Net Each.....\$125.00**

## BTD-12S PROFESSIONAL TONE ARM (FIG. D)

Professional type arm has greatest possible reduction of resistance to movement and lowest inertia. The angle of the tone arm places the cartridge at an optimum tangent to the record groove, thus reducing tracking error to a minimum. Unwanted mechanical resonances are cancelled by special alloy of arm and damping material. Vertical pivot keeps stylus vertical for any height adjustment. Adjustable counterweight for precision counter balancing; calibrated stylus force adjustment. Precision cuing device. Interchangeable cartridge shells—4 pin type for stereo or mono. Cartridge slide assembly for stylus spacing. Max. tracking error, 0.5"/in. Offset angle of arm, 25° 15'. Supplied with mounting board for TD-124 and TD-121 turntables.

**Thorens Model BTD-12S—Net. \$40.00**



D

Write for complete listing of various accessories for use with Thorens turntables.



# Turntables and Systems

## BENJAMIN/MIRACORD TURNTABLES, SYSTEMS AND ACCESSORIES



PW-40

### MODEL PW-40 AUTOMATIC TURNTABLE

Combines Miracord's famous features with a dynamically-balanced arm for the finest record reproduction. Feather-touch, pushbutton operation for 7", 10" or 12" playing with automatic or manual change; all speeds provided: 78, 45, 33½ and 16½ rpm. Massive arm suspension with low friction bearings for perfect balance, perfect tracking and freedom from resonant peaks. Vertical pivots near turntable level minimizes wow; improves stacked records performance. Dial reading knob for quick stylus force settings; removable cartridge insert takes most brands and is easily removable. Silver-plated terminals for sure contacts. **Motor:** High torque, 4-pole induction; dynamically balanced rotor. **Turntable:** Non-magnetic metal alloy type weighs 6 lbs.; 12" dia. on ball-bearing race; Teflon\*—enclosed to exclude dust. **Rumble:** —50 db. **Wow and Flutter:** Better than 0.1%. **Stylus Force:** 0-5 grams. **Power Required:** 15 watts, 110 VAC, 60 cps. **Size:** Chassis plate 14½" w. x 12½" d.; requires 5½" above and 3¼" below plate; right side arm clearance, 1½". Shpg. Wt., 18 lbs.

**Benjamin/Miracord PW-40**—Less carriage and base. **\$85.00**  
Net Each. . . . .

\*Reg. DuPont trademark.

### MODEL PW-10H AUTOMATIC TURNTABLE

Plays automatically or manually; single records or stacks of up to 10. Mass-balanced transcription arm uses no springs. Feather-touch pushbuttons for automatic; adjustable stylus pressure. **Motor:** Papst hysteresis motor for constant, accurate speed regardless of voltage variations. **Speeds:** All—78, 45, 33½ or 16½ rpm. **Size of Records:** All sizes—12, 10 or 7 inches. **Rumble:** PW-10H, —55 db. **Wow and Flutter:** Better than 0.1%. **Controls:** Speed; Record-Size Pushbuttons; Stop Pushbutton. **Operation:** Manual or automatic single-record play, automatic repeating of single record, and automatic multiple-record play in sequence. **Turntable:** One-piece, 12" dia. dynamically balanced casting. **Size:** Mounting plate 12½" d. x 14½" w. **Space Required:** Above base plate, 5¾"; below, 3¼". **Power Required:** 15 watts, 110 VAC, 60 cps.

**Benjamin/Miracord PW-10H**—With Papst hysteresis **\$99.50**  
motor, less cartridge and base. Net Each. . . . .

### MODEL PS-18H MANUAL TURNTABLE

All the quality features of famous Model PW-10H, but without changing mechanism. Fully automatic pushbutton or manual operation with additional culling mechanism; Permits selecting exact band or groove on record. Lever on culling device is flipped over, causing a small platform to rise and elevate arm to be moved and placed over any desired groove; returning the lever releases the platform so arm lowers gently to selected groove. Silicon-damped piston assures slow, gentle arm drop. **Specifications:** Identical to those listed for Model PW-10H. **\$110.00**  
**Benjamin/Miracord PS-18H**—Net Each. . . . .

## BENJAMIN/ELAC STEREO CARTRIDGES



### ELAC 322 STEREO CARTRIDGE

Produces an almost perfect electrical waveform replica of the sound groove with effective crosstalk damping way out to 20,000 cycles. Tracks at from 1.5 to 3 grams with most arms, at 1 gram with some arms. **Frequency Response:** ±2 db, 20-20,000 cps. **Channel Separation:** Better than 25 db at 1000 cps; 20 db at 10,000 cps; 12 db at 20,000 cps. **Distortion:** IM, less than 2%; harmonic, less than 1%.

**Output Per Channel:** 7 mV at 2 cm/sec. **Compliance:** 14 x 10<sup>-6</sup> cm/dyne max., lateral and vertical. **Stylus Force:** 1.5 to 3 grams, 1 gram for some arms. **Weight:** 11 grams including mounting bracket.

**Benjamin/Elac STS-322D Cartridge**—For stereo rec-**\$49.50**  
ords only. With .52 mil diamond stylus. Net Each. . . . .

**Benjamin/Elac DM-322 Stylus**—Replacement .52 mil diamond  
stylus for above. Net Each. . . . . **\$25.00**

### ELAC 222 MONO/STEREO COMPATIBLE CARTRIDGE

Similar to 322 but developed especially for use with both mono and stereo records. **Frequency Response:** 20 to 20,000 cps. **Channel Separation:** Better than 24 db at 1000 cycles. **Stylus Force:** 2.5 to 4.5 grams.

**Benjamin/Elac STS-222D Cartridge**—For both stereo **\$39.50**  
and mono records. With .7 mil diamond stylus. Net Ea. . . . .

**Benjamin/Elac DM-222 Stylus**—Replacement .7 mil diamond  
stylus for above. Net Each. . . . . **\$12.50**



PW-10H

### MODEL 200FM SOLID STATE PHONO/FM STEREO SYSTEM

Combines a famous Miracord automatic turntable with solid-state FM multiplex tuner, amplifier, Elac magnetic stereo cartridge (with diamond stylus) and fine cabinetry in a single unit. Plays records of all 4 speeds on 12" platter driven by 4-pole induction motor. **AMPLIFIER: Power Output:** 14 watts rms per channel at less than 1% distortion; 18 watts, IHF music power. **Frequency Response:** ±1 db, 10-22,000 cps. **Hum:** 70 db below rated output. **Sensitivity:** 5 mV, phono; 200 mV, aux. **Equalization:** RIAA. **Inputs:** Two aux. **Components:** 14 transistors; four silicon diodes; two germanium diodes. **Controls:** Volume, Balance, Bass, Treble, Function (Phono, stereo/mono; aux, stereo/mono) and Automatic On-Off for phono operation, manual for auxiliary. **TUNER: Sensitivity:** 3.5 µV, IHF. **Frequency Response:** ±1 db, 30-20,000 cps. **Harmonic Distortion:** Less than 1%. **Multiplex Separation:** 25 db. **Input:** Antenna, 300 ohms. **Controls:** Tuning (with center-of-channel tuning meter); Function (FM and stereo FM mono); AFC On-Off switch. **Components:** 12 transistors; 6 diodes; 1 zener control diode. **Size:** Complete unit, 18½" w. x 16" d. x 9¾" h.

**Benjamin/Miracord 200FM**—With genuine walnut oil-rubbed  
finish and plexiglass lift cover. Less speakers. **\$329.50**  
Net Each. . . . .

**Benjamin/Miracord 200**—Same as Model 200FM, but without  
multiplex FM tuner. Net Each. . . . . **\$219.50**

### ACCESSORIES

No.	Description	Net Each
OWB-1	Oiled walnut base, 16½" w. x 14½" d. x 3½" h.	\$ 9.95
WB-2	Same as above, unfinished.	8.95
CB-1	Integrated cover-base unit—oiled walnut base (18½" w. x 14½" d. x 9" h. with hinged plexiglass cover*)	19.95
MB-1	Unfinished mounting board, 14" d. x 17" w.	3.00
SA-383	Automatic 45 rpm spindle	5.00
TA-K-4	Extra interchangeable plug-in cartridge head	5.00
CR-40	Snap-in, cartridge retainer mount for PW-40	2.25
CC-1	Carrying case with pre-cut mounting board	29.50

\*Need not be removed when playing records.

## NEW MARANTZ STEREO TURNTABLE SYSTEM MODEL SLT-12

- ZERO TRACKING ERROR
- RUMBLE FREE
- CULLING CONTROL
- 100 DB DYNAMIC RANGE



Unique straight-line-tracking arm has no tracking error; holds stylus tangent to record groove at all times. Twelve-pound, precision-machined turntable has tungsten carbide thrust bearings and precision-ground drive belt; assures maximum isolation from acoustical feedback with lowest possible rumble. High compliance pick-up and lightweight, low mass arm produce tone quality capable of over 100 db dynamic range. Positive culling control places arm in desired groove; eliminates accidental scratching and damaging of records. Level adjustment bubble placed under arm enclosure. Mounted in modern walnut base. **Frequency Response:** 20-20,000 cps. **Speeds:** 33½ and 45 rpm. **Flutter and Wow:** Better than 0.04%. **Tracking Weight:** 1 gram or less. **Tracking Error:** None. **Rumble:** Virtually none. **Skating Force:** None. **Stylus:** Diamond elliptical (.0002 x .0009 radius). **Output:** 6 mV. **Recommended Load:** 47,000 ohms. **Compliance:** 30 x 10<sup>-6</sup> cm/dyne. **Motor and Drive:** Hysteresis synchronous; useothane belt. **Power Required:** 117 VAC, 60 cps (50 cps available). **Size:** 18" w. x 14" d. x 6½" h. Weight, 27 lbs.

**Marantz Model SLT-12 Stereo Turntable System**—**\$295.00**  
Complete with pick-up, arm and base. Net Each. . . . .



# Pickering Phono Equipment

## PICKERING STEREO CARTRIDGES

### NEW V-15 SERIES MICRO-MAGNETIC STEREO CARTRIDGES

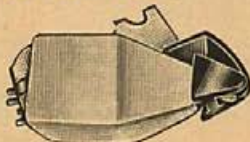


High compliance, high output design in four models to meet every phono mechanism requirement. Super lightweight, (only 5 grams) with mu-metal, hum shielding case with standard mounting centers. Floating stylus and patented replaceable V-Guard stylus assembly protects records and diamond as it plays; available with elliptical or 0.7-mil diamond stylus for stereo or monophonic use. **Frequency Response:** 20-20,000 cps. **Tracking Angle:** 15° (RIAA recommended). **Crosstalk Rejection:** 35 db. **Load:** 47K ohms, cartridge.

**Pickering Model V-15/AME-1**—With D1500AME elliptical stylus. Output, 5.5 mV nominal (reference to 5.5 cm/sec standard record velocity). Tracking force,  $\frac{3}{4}$  to 1 $\frac{1}{2}$  grams. For manual and new automatic turntables. Net Each.....\$29.95  
**Pickering Model V-15/AM-1**—With D1507AM stylus for manual turntables and quality systems. Output, 5.5 mV nominal (reference to 5.5 cm/sec standard record velocity). Tracking force,  $\frac{3}{4}$  to 3 grams. Net Each.....\$21.95  
**Pickering Model V-15/AT-2**—With D1507AT stylus for higher output automatic turntables. Output, 6.9 mV nominal (reference to 5.5 cm/sec standard record velocity). Tracking force, 1 to 5 grams. Net Each.....\$19.95  
**Pickering Model V-15/AC-2**—With D1507AC stylus for standard record changers. Output, 7.5 mV nominal (reference to 5.5 cm/sec standard record velocity). Tracking force, 3-7 grams. Net Each.....\$17.95

### MODEL U38/ATG STEREO FLUXVALVE AUTOMATIC TURNTABLE CARTRIDGE

Matches all automatic turntables. Combines the excellent hum shielding of the Stereo Fluxvalve with high output for unequalled signal-to-noise ratio. High compliance. Improved frequency response, lower inductance. **Frequency Response:** 20-20,000 cps. **Output:** 11.0 mV nominal (reference to 5.5 cm/sec standard record velocity). **Channel Separation:** -35 db. **Tracking Force:** 1-3 grams for featherweight operation of automatic turntables. **Mounting:** Standard  $\frac{3}{8}$ " to  $\frac{1}{2}$ " mounting centers. Complete with V-Guard stylus assembly, instructions and universal mounting hardware. Weight, 14 grams.



**Pickering Model U38/ATG**—With D3807ATG 0.7 mil diamond stylus. Net Each.....\$17.95

### MODEL 380 STEREO FLUXVALVE FLOATING STYLUS CARTRIDGE

Hermetically sealed, fully encapsulated, miniature stereophonic cartridge. Compatible for all records, stereophonic or monophonic. Fits all pickup arms, manual or automatic. **Frequency Response:** 20-17,000 cps. **Output:** 18.0 mV nominal (reference to 5.5 cm/sec standard record velocity). **Channel Separation:** 35 db. **Tracking Force:** 4-7 grams for record changers and manual turntables. Standard  $\frac{3}{8}$ " to  $\frac{1}{2}$ " mounting centers. Mu-metal shielding permits use where hum problems demand a very high signal-to-noise ratio. Complete with patented replaceable V-Guard stylus assembly, instructions and universal mounting hardware. Weight, 14 grams.



**Pickering Model 380C**—With D3807C stylus. Net Ea...\$11.76

### PICKERING DIAMOND REPLACEMENT STYLI

#### T-GUARD FOR MONOPHONIC CARTRIDGES

Model No.	Size Milis	Track Grams	Net Each	Model No.	Size Milis	Track Grams	Net Each
D3510	1.0	2-6	\$12.00	D3505	.6	2-6	\$15.00
D3527	2.7	2-6	12.00				

#### T-GUARD FOR STEREO 90 AND MK II CARTRIDGES

Model No.	Size Milis	Track Grams	Net Each	Model No.	Size Milis	Track Grams	Net Each
D9007C	.7	4-7	\$ 7.50	D3710C	1.0	4-7	\$ 9.90
D3707C	.7	4-7	9.90	D3710A	1.0	3-5	10.90
D3707A	.7	3-5	10.90	D3727C	2.7	4-7	9.90

#### V-GUARD FOR 380 AND U38 SERIES CARTRIDGES

Model No.	Size Milis	Track Grams	Net Each	Model No.	Size Milis	Track Grams	Net Each
D3807AT	.7	2-5	\$ 9.90	D3810C	1.0	4-7	\$ 9.90
D3807C	.7	4-7	9.90	D3810A	1.0	2-5	10.90
D3807A	.7	2-5	10.90	D3827C	2.7	4-7	9.90
D3807ATG	.7	1-3	12.00				

#### V-GUARD FOR V-15 SERIES CARTRIDGES

Model No.	Size Milis	Track Grams	Net Each	Model No.	Size Milis	Track Grams	Net Each
D1500AME	* .7	$\frac{3}{4}$ -1 $\frac{1}{2}$	\$19.90	D1507AC	.7	3-7	\$ 8.90
D1507AM	.7	$\frac{3}{4}$ -3	11.90	D1510	1.0	1-5	11.90
D1507AT	.7	1-5	9.90	D1527	2.7	3-7	9.90

\*Elliptical.

## STANTON PROFESSIONAL LINE

### 581 SERIES STANTON CALIBRATION STANDARD



Laboratory-tested, stereo, magnetic pickup with integrated dust remover built into the stylus. Free-riding brush extends from front of V-Guard and engages grooves before stylus. Brush, in metal housing, does not affect tracking force; requires 1 gram to engage itself (1 gram is added for brush and then tracking force desired is selected). **Frequency Response:**  $\pm$ 1 db, 20-10,000 cps;  $\pm$ 2 db, 10,000-20,000 cps. **Channel Separation:** 35 db. **Output:** 0.8 mV/cm per channel. **Resistance:** Load, 47K ohms; DC, 850 ohms per channel. **Inductance:** 500 mH per channel. **Cable Capacitance:** 275 pF. **Mtg. Size:**  $\frac{3}{8}$ " to  $\frac{1}{2}$ " centers. **Weight:** Cartridge, 5 grams; brush (self-supporting), 1 gram. Comes complete with diamond stylus, mounting hardware and instructions. D5207A (0.7 mil), D5210 (LP), and D5227 (78 rpm) stylus also available.

**Stanton Model 581AA**—With D5205AA stylus;  $\frac{3}{4}$ " to \$49.50\*  
3 grams tracking force. Net Each.....

**Stanton Model 581EL**—With D5200EL elliptical stylus;  $\frac{3}{4}$ " to 1 $\frac{1}{2}$  grams tracking force. Net Each.....\$49.50\*

**Stanton Model 581A**—For professional recording studios to calibrate recording channels. Frequency response,  $\pm$ 1 db, 20-10,000 cps;  $\pm$ 1.5 db, 10,000-20,000 cps. Tracking force, 1-3 grams. Net Each.....\$49.50

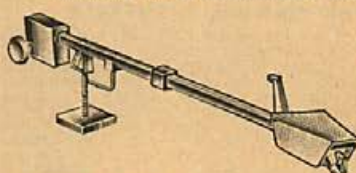
\*Available as an ensemble consisting of either 581AA or 581EL with extra 78 rpm and LP stylus to play all records. Packaged in black leatherette case with metal stylus container and miniature screwdriver.

**Stanton Models 581AAE or 581ELE**—Net Each.....\$60.00

### 500 SERIES BROADCAST STANDARD

Moderately priced stereo cartridge offers performance capability similar to the 581 series. Two models ideally suited for on-the-air use by broadcasters and record reviewing in station libraries. **Frequency Response:**  $\pm$ 1 db, 20-10,000 cps;  $\pm$ 2 db, 10,000-20,000 cps. **Channel Separation:** 35 db. **Output:** 0.8 mV/cm min. **Resistance:** Load, 47K ohms; DC, 720 ohms per channel. **Inductance:** 400 mH per channel. **Cable Capacitance:** 275 pF. **Mtg. Size:**  $\frac{3}{8}$ " to  $\frac{1}{2}$ " centers. Cartridge weight, 5 grams. Comes complete with diamond stylus, mtg. hardware and instructions. **Stanton Model 500A**—With 0.7-mil stylus for on-the-air use by broadcasters. Tracking force, 1-3 grams. Net.....\$30.00  
**Stanton Model 500AA**—With 0.5-mil stylus for record reviewing in station libraries. Tracking force,  $\frac{3}{4}$ -3 grams. Net Ea...\$34.50

### MODEL 200 STANTON UNIPOSE ARM



Stanton studio standard tone arm with adjustable tracking pressure down to  $\frac{1}{4}$  gram. Engineered to provide high compliance at  $\frac{1}{4}$  gram in LP record groove with any professional quality, low mass stylus assembly. Every aspect was considered in

the design of this unit. Lightweight for lowest possible moment of inertia; single pivot bearing polished for a life-time of friction-free motion in all planes, vertical and lateral; all-metal construction, machined to ultra-precision accuracy; calibrated stylus pressure adjustment; universal cartridge mounting; integrated arm rest; cartridge shell with vertical, in-line, fingertip for accurate cueing; color-coded connecting leads with RCA receptacles for no-solder connections and quick installation. **Arm Length:** Overall, 11 $\frac{3}{4}$ "; pivot to stylus tip, 8 $\frac{1}{2}$ "; rear overhang, pivot to rear of arm, 2 $\frac{3}{4}$ "; turntable spindle to arm pivot, 8 $\frac{3}{4}$ ". **Weight:** Moving system,  $\frac{1}{4}$  oz.; with base and pivot assembly, 6 oz. **Tracking Force:**  $\frac{1}{4}$  to 3 grams. Supplied with template and complete mounting instructions. Shipping Weight, 2 lbs. \$24.00  
**Stanton Model 200**—Net Each.....

### V-GUARD STYLI FOR STANTON CARTRIDGES

Series 4000 styli for 400 and 481 cartridges; Model 5100 for 500AT; series 5200 for 581. Models D4000EL and D5200EL track at  $\frac{3}{4}$  to 1 $\frac{1}{2}$  grams; D4005AA, D5107AT and D5205AA track to 3 grams; D4007A, D4010A and D5207A for manual arms tracking at 2 to 5 grams; D4007C and D4010C for automatic changers; D4027C and D5227 for 78 rpm only; D5210 tracks 1-5 grams monophonic only.

Model	Needle	Net	Model	Needle	Net
D4000EL	Ellip. diamond	\$19.50	D5107AT	.7 mil diamond	\$12.00
D4005AA	.5 mil diamond	19.50	D5200EL	Ellip. diamond	19.50
D4007A	.7 mil diamond	18.00	D5205AA	.5 mil diamond	19.50
D4007C	.7 mil diamond	12.00	D5207A	.7 mil diamond	19.50
D4010A	1 mil diamond	18.00	D5210	1 mil diamond	18.00
D4010C	1 mil diamond	12.00	D5227	2.7 mil diamond	18.00
D4027C	2.7 mil diamond	12.00			

Fluxvalve, Micro-Magnetic, T-Guard, Unipose and V-Guard are Trademarks of Pickering and Co., Inc.



# Phono Equipment, Speaker Systems

## GRADO STEREO CARTRIDGES, TONE ARM AND RECORD CLEANER

### NEW MODEL "A" STEREO CARTRIDGE

#### WITH "TWIN-TIP DIAMOND STYLUS"

"Twin Tip Diamond Stylus" (pat. pending) accomplishes all the advantages of elliptical stylus, but without their inherent inaccuracies. Tracks at all pressures, 1 to 2½ grams, limited only by the arm in which it is used. Jewel-bearing construction and precisely machined parts (to millionths of an inch) assure a frequency response to well beyond 50,000 cps and ultra-high compliance. Effortless stylus movement gives unmatched freedom from distortion, optimum tracking and minimum wear. Actually makes old records take on new life. **Frequency Response:** 10-50,000 cps. **Output:** 400 ohms, 1 mV at 5 cmV, pickup only; 6K ohms, 4 mV at 5 cmV, with transformer supplied. **Input Load:** 1 megohm recommended. **Tracking Force:** 1-2 grams in most arms; 2½ grams max. in changers. **Compliance:** 10 x 10<sup>-4</sup> approx. dynamic; 35 x 10<sup>-4</sup> static. **Channel Separation:** 25 db avg., 20-20,000 cps. **Weight:** 6¼ grams (pickup only).

**Grado Model "A" Cartridge**—With transformer. Net. . . \$60.00

**Grado Model "A" Calibrated Cartridge**—Same, but supplied with frequency response curves, separation and distortion specifications. Net Each. . . \$75.00

**Stylus Replacement**—Pickup must be returned to factory for stylus replacement. . . \$20.50

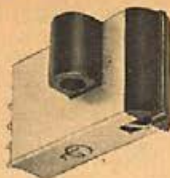
### MODEL "B" SOLID STATE STEREO CARTRIDGE

#### ELLIPTICAL OR SPHERICAL

Designed specifically to eliminate the problems of high quality record reproduction both monophonically and stereophonically. Compatible with all component HI-FI systems. Lack of magnetic attraction allows use with steel turntables. Ideal for systems where hum pick-up is a problem. The Model "B" is completely insensitive to magnetic hum pick-up. Stylus replacement is implemented by a swing lever stylus brace. **Frequency Response:** 10-50,000 cps. **Output:** 5.5 mV at 3.54 cmV. **Input Load:** 47,000 ohms per channel. **Tracking Force:** 1.5-5 grams. **Compliance:** 25 x 10<sup>-4</sup> dynamic. **Channel Separation:** 20 db average, full range. **DC Resistance:** 12,000 ohms. **Stylus:** Diamond .6 mil spherical and .6 mil x .3 mil elliptical (.3 mil spherical available). **Weight:** 3.5 grams.

**Grado Model "BE" Stereo Cartridge**—Elliptical. Net Ea. \$32.50

**Grado Model "BR" Stereo Cartridge**—6 mil spherical. . . 19.95



Model "A"



Model "B"

### "LABORATORY SERIES" TONE ARM

Tone arm constructed of finest gunstock walnut wood. Metal fittings are machined aluminum and anodized. Accepts all cartridges available. Overhang adjustment eliminates constant arm rebalancing. All electrical connections are made by screw terminal; completely wired at factory, including cables. Special wire eliminates lateral mechanical resistance. Additional adjustments can be made for vertical azimuth, vertical balance, lateral balance, linear tracking force and arm height. **Tracking Error:** ±0.5°. **Offset Angle:** 24.5°. **Installation Area:** (With 12" turntable) 13½" x 15½". **Overall Length:** 11¼". **Rear Overhang:** 3". **Height Adjustment:** 1"-2".



**Grado Laboratory Tone Arm**—Less cartridge. Net Ea. . . \$45.00

**Grado Extra Cartridge Slide**—For above tone arm. Net. . . 2.95

### DUSTAT VELVET TOUCH RECORD CLEANER

Easily installed on any turntable. Removes dirt and reduces electrostatic charge on records. No fluids required.

**Grado Dustat Record Cleaner**—Net Each. . . \$6.95

**Grado Dustat Replacement Bar**—Net Each. . . 2.95

## ADC (AUDIO DYNAMICS) STEREO EQUIPMENT

### ADC STEREO MAGNETIC CARTRIDGES

Feature lowest mass cartridge design possible by using Induced Magnet Transducer coupled to a suspension of exceptionally high compliance. The physical arrangement of the elements provides freedom from saturation and hysteresis distortion; permits the pivot point of the tone arm to be brought close to the record surface. Self-retracting stylus automatically protects itself and the record. Replacement of the stylus is simple; accurate positioning is assured. The ADC-Point Four is recommended for manual turntables; the ADC-660/E and ADC-770, are recommended for automatic turntables and record changers. Vertical tracking angle, 15°.

#### MODEL ADC-POINT FOUR AND ADC-POINT FOUR/E CARTRIDGES

**Frequency Response:** ±2 db, 10-20,000 cps. **Sensitivity:** 5 mV at 5.5 cms/sec recorded velocity. **Channel Separation:** 30 db, 50-8,000 cps. **Compliance:** 30 x 10<sup>-4</sup> cms/dyne. **Tracking Force:** ¼-1½ grams. **Stylus Tip:** ADC-Point Four, .0004" radius; ADC-Point Four/E (elliptical), .0002" contact radius, .0008" lateral radius.

**Model ADC-Point Four Cartridge**—Net Each. . . \$39.50

**Model ADC-Point Four/E Cartridge**—Net Each. . . 50.00

**Model R-4 Replacement Stylus**—For ADC-Point Four cartridge. Net Each. . . 15.00

**Model R-4/E Replacement Stylus**—For ADC-Point Four/E cartridge. Net Ea. . . 25.00

#### MODEL ADC-660/E CARTRIDGE

**Frequency Response:** ±3 db, 10-20,000 cps. **Sensitivity:** 8 mV at 5.5 cms/sec recorded velocity. **Channel Separation:** 30 db, 50-8,000 cps. **Compliance:** 20 x 10<sup>-4</sup> cms/dyne. **Tracking Force:** 1-3 grams. **Stylus Tip:** .0002" contact radius, .0008" lateral radius.

**Model ADC-660/E Cartridge**—Net Each. . . \$29.50

**Model R-6/E Replacement Stylus**—Net Each. . . 18.00

#### MODEL ADC-770 CARTRIDGE

**Frequency Response:** ±3 db, 10-20,000 cps. **Sensitivity:** 8 mV at 5.5 cms/sec recorded velocity. **Channel Separation:** 30 db, 50-8,000 cps. **Compliance:** 15 x 10<sup>-4</sup> cms/dyne. **Tracking Force:** 2-6 grams. **Stylus Tip:** .0007" radius.

**Model ADC-770 Cartridge**—Net Each. . . \$17.95

**Model R-770 Replacement Stylus**—Net Each. . . 9.00

#### MODEL ADC-84/E PICKUP SYSTEM

Low moment of inertia of tone arm results in perfect tracking, even at ¼ gram. Tone arm comes with the ADC-Point Four/E cartridge; plug-in head accommodates all cartridges. Arm is side thrust compensated by use of a small weight. Ball bearing assembly keeps cartridge tracking from being impaired. Walnut tone arm suppresses unwanted response. **Arm Length:** 10¾"; pivot to stylus tip, 9"; rear overhang, 1¼" max.

**Model ADC-84/E Pickup System**—Tone arm and ADC-Point Four/E cartridge. Net Each. . . \$84.50

**Model ADC-40 Tone Arm Only**—Net Each. . . 44.50

#### MODEL ADC-303A "THE BRENTWOOD"

Bookshelf or free-standing totally enclosed two-way system similar to ADC-325. Featuring FDD, **Frequency Discriminating Decoupling**, for outstanding performance at a modest cost. The ADC cone is treated so that random vibrations are damped out, allowing the higher frequencies to respond freely and linearly. This results in a reduction in distortion, plus a smoother response free from phase shift. Permits the use of just a simple low frequency blocking capacitor to block the bass frequencies from reaching the tweeter. Switching arrangements included for midrange and treble adjustments. System resonance, 45 cps. **Frequency Response:** ±3 db, 35-20,000 cps. **Power Requirements:** 6 watts min. to 60 watts max. **Impedance:** 8 ohms. **Size:** 23¾" w. x 11¼" d. x 13" h.

**Model ADC-303A "The Brentwood"**—Oiled walnut finish. Net Each. . . \$95.00



ADC-Point Four and Point Four/E



ADC-660/E



ADC-84/E



ADC-303A



## SHURE STEREO AMPLIFIER, PREAMPLIFIERS AND EQUALIZER



SA-1

## NEW MODEL SA-1 "SOLO-PHONE" STEREO HEADPHONE AMPLIFIER

Permits two sets of stereo headphones to be used, allowing for private listening from magnetic phono, tape or tuner. Broad frequency response; low distortion; low hum and noise. Switch on front panel permits two program sources to be plugged in and switched instantly; clutched concentric control allows separate adjustment of each stereo channel to provide proper balance; volume adjustment can be made without rebalancing channels. On-Off switch and pilot light on front panel; AC outlet on back panel for record changer or tuner (when amplifier is turned on, turntable, tuner, etc., is also turned on). Walnut finished solid wood cabinet, with beige metal panel. Size, 10 3/4" w. x 3" d. x 3 1/2" h. Weight, 2 lbs. Shure Model SA-1 Headphone Amplifier—Net Each.....\$45.00



M60

## MODEL M60 STEREO LINE PREAMPLIFIER

High quality, low noise, stereo line preamplifier provides extra gain for use with magnetic stereo phono cartridges and microphones. Additional gain can also be provided from tape recorder outputs on standard preamplifier to improve recording quality. Output response is flat. Low output impedance permits use of longer cable lengths (up to 50 ft.) without loss of gain or deterioration in response. Frequency Response:  $\pm 1/2$  db, 30-80,000 cps. Gain: 17 db per channel, or 7:1 (5 mv input gives 35 mv output); circuit change information provided to give 1/4 and 3/8 output. Channel Separation: Better than 30 db. Impedance: 47,000 ohms, input; 5,000 ohms, output. Hum and Noise: 64 db below rated output. Size: 5 3/4" w. x 2 1/2" d. x 3 3/4" h. Net Weight, 2 lbs. Shure Model M60 Stereo Preamplifier—Net Each.....\$19.95

## MODEL M66 BROADCAST STEREO EQUALIZER

Permits radio stations to compensate the recorded frequency of stereo as well as monophonic recordings. Provides choice of RIAA, flat and roll-off characteristics. A second control lever provides a selection of monophonic or stereo positions. Used between the cartridge and first-line preamplifier, it is a passive type with no controls for volume, bass or treble; these adjustments are made on the broadcast console. Wired for 250-ohm output impedance; 150 and 500 ohms obtained by a simple single-wire change on terminal inside shield. Matches impedance of cartridge to low impedance of the line transformer without loss of high frequencies. Nominal Frequency Response: Within  $\pm 1$  db, 30-20,000 cps of the three playback characteristics. Channel Separation: Better than 30 db over entire frequency range. Output Level: -67 dbm using Shure M3D or M7D cartridges from RCA test record 12-5-71A; 28 db insertion loss on these conditions. Case: Steel, maximum shielding; 3 1/4" w. x 5 1/4" d. x 3" h. Shure Model M66 Broadcast Stereo Equalizer—Net Each.....\$60.00



M66

## MODEL M61 TRANSISTORIZED STEREO PREAMPLIFIER

Choice of AC line or battery power supply. Gain: Phono, 45 db; Tape, 40 db; Microphone, 63 db. Frequency Response:  $\pm 2.5$  db of each function's nominal characteristic, 25 to 15,000 cps. Equalization: Phono, RIAA; Tape, NAB. Microphone, flat response,  $\pm 3$  db 20 to 15,000 cps. Input Impedance: Phono and tape, approx. 50,000 ohms at 1000 cps; microphone, approx. 20,000 ohms. Output Impedance: Low, less than 1000 ohms at 10,000 cps, phono and tape. Channel Separation: At least 50 db at 1000 cps. Channel Balance: 2 db at 1000 cps, phono and tape. Hum: 50 db below rated output. Size: 5 1/4" x 5 1/4" x 2". Wt., 1 1/4 lbs. Shure Model M61-1—For 105-125 v. AC. Net Each.....\$27.50



M61

Shure Model M61-3—30 v. battery included. Net Each.....\$26.50

## MODEL M65 STEREO CONVERSION PREAMPLIFIER

Provides equalization with amplification to convert ceramic inputs to magnetic inputs. Assure smoother, more natural sound. Delivers additional 60 db amplification without equalization. Permits use of magnetic cartridge with consoles provided with ceramic units. Also permits preamplification and equalization for other inputs such as phono, tape and microphone. Gain: 44 db, phono; 45 db, special; 40 db, tape; 63 db, mike. Frequency Response:  $\pm 1.5$  db of each function's nominal characteristic 25-15,000 cps. Equalization: RIAA phono with extra treble boost 3 db at 10 kc to complement magnetic cartridges; special equalization for use with hi-Z amplifiers normally used with ceramic cartridges; NAB tape head; mike,  $\pm 3$  db, 20-12,000 cps. Input: 47,000 ohms. Output: Less than 5000 ohms at 10 kc. Channel Separation: 40 db. Hum and Noise: 50 db below rated output. Size: 6 3/4" w. x 3 3/4" d. x 3 3/4" h. Net Weight, 1 lb. 14 oz. Shure Model M65 Conversion Preamplifier—Net Each.....\$24.00



M65

## SHURE TONE ARMS

## SHURE-SME PRECISION TONE ARMS



Series 2 of the renowned SME tone arm, now made for Shure in England. Precision, professional arm features: Tracking forces from 1/4 to 5 grams, anti-skating control, precision ball races and knife edge bearings, accurate longitudinal and lateral balance control, minimal tracking error, subaudible resonance, convenient overhand adjustment, lever-operated culling device to provide automatic slow descent. Accepts all standard cartridges.

Shure Model SME 3009—12" tone arm. Less car-.....\$100.50  
tridge. Shipping Weight, 1 lb., 5 oz. Net Each.....

Shure Model SME 3012—16" tone arm. Less cartridge. Shipping  
Weight, 1 lb., 7 oz. Net Each.....\$110.50

Shure Model A30H Cartridge Shell—Standard plug-in shell for  
Models 3009 and 3012 arms. Net Each.....\$5.50

Shure Model S2W/9 Lightweight Shell—Same, but ultra-light  
alloy for cartridges of 20 x 10<sup>-6</sup> cm/dyne compliance or higher.  
Weight, 6 grams. With balance weight for SME 3009 arm.  
Net Each.....\$8.75

Shure Model S2W/12 Lightweight Shell—Same as S2W/9, but  
for use with SME 3012 arm. Net Each.....\$8.75

Shure Model S2 Shell—Separate extra light weight shell replacement  
for S2W/9 or S2W/12; balance weight not supplied.  
Net Each.....\$6.00

Shure Model A39M—Precut mounting board for easy installation  
of SME 3009 on Thorens TD-121, -124 turntables. Net.....\$15.00

Shure Model A30M—Same, but for SME 3012 arm. Net.....15.00

## PROFESSIONAL UNIVERSAL TONE ARM



Independent tone arm accepts practically all cartridges, stereo  
or monophonic. Micrometer counterweight and direct-reading  
stylus force gauge maintain perfect balance and tracking  
at all times. Precision ball bearings at pivot points. Plug-in  
head with positive alignment lock. Plug-in cable between arm  
and amplifier. Installs from turntable top without soldering.  
Brushed chrome and black finish. Includes arm rest, mounting  
template, hardware and 4 ft. cable assembly.

Shure Model M232 Professional Arm—For 12" records; 12 1/2"  
long. Weight, 1 lb. Without cartridge. Net Each.....\$29.95

Shure Model M236 Professional Arm—For 16" records; 14 1/2"  
long. Weight, 1 1/4 lbs. Without cartridge. Net Each.....\$31.95

Shure Model A23H Extra Plug-In Head—Net Each.....2.40



# SHURE Phono Cartridges

## MODEL V-15 STEREO DYNETIC® CARTRIDGE WITH EXCLUSIVE BI-RADIAL ELLIPTICAL STYLUS



Premium quality, moving magnet stereo cartridge for the advanced audiophile. Features Bi-Radial elliptical stylus with 15° vertical tracking angle for greatly reduced IM, harmonic and tracing distortion. The Bi-Radial stylus cannot "bottom" in the groove, thus eliminating crackling noise caused by grit and static dust. Retractable stylus prevents audible scratching of records. Unique manufacturing processes and quality controls insure stylus symmetry. Cartridge provides quality stereo and monophonic reproduction

due to larger distance between points of contact of the stylus (1.0 mil). **Frequency Response:** 20-20,000 cps. **Channel Separation:** Over 25 db, 20-5,000 cps; over 20 db, 5,000-10,000 cps. **Output:** 6 mv per channel at 1000 cps at 5 cm/sec. (Output from each channel within 2 db.) **Compliance:** 25 x 10<sup>-6</sup> cm/dyne. **Impedance:** 47,000 ohms per channel, recommended. **Tracking Force:** 3/4 to 1 1/2 grams. **Inductance:** 680 mh. **DC Resistance:** 650 ohms. **Stylus:** Frontal radius, 0.7 mil; side contact radii, .2 mil; distance between contact points, 1.0 mil. **Mounting:** Standard 3/8" mtg. centers; 4 terminals with loop pin for 3-terminal connection. **Net Weight, 11 grams.**

Shure Model V-15—With diamond stylus. Net Each...\$62.50

## MODEL M55E 15° STEREO DYNETIC CARTRIDGE WITH ELLIPTICAL STYLUS

Designed for use with the finest manual turntable arms and the latest automatic turntables. Capable of tracking at 1 1/2 grams or less. Professional elliptical diamond stylus at new 15° tracking angle gives distortion-free, scratch-proof quality. Actually improves the sound of most hi-fi systems. Excelled only by Shure V-15. Note: All elliptical styli should not be used at tracking forces over 1 1/2 grams. To assure no serious record wear, plays both monophonic LP's as well as stereo without changing styli. **Frequency Response:** 20-20,000 cps. **Channel Separation:** Over 25 db at 1 kc; 20 db at 10 kc; 15 db at 20 kc. **Impedance:** 47,000 ohms per channel recommended. **Output:** 6 mv/channel at 1 kc at 5 cm/sec. **Compliance:** 25 x 10<sup>-6</sup> cm/dyne. **Tracking Force:** 3/4 to 1 1/2 grams. **Inductance:** 680 mh. **DC Resistance:** 650 ohms. **Stylus:** Frontal radius, .7 mil; side contact radii, .2 mil. **Net Weight, 7 grams.**



Shure Model M55E—Net Each...\$35.50

## MODEL M80E GARRARD-A-MATIC® STEREO DYNETIC CARTRIDGE

Scratch-proof and bounce-proof performance with Garrard Lab 80 and Model A70 Series Automatic Turntable. Tracks at 15° with elliptical stylus spring-mounted in tone arm shell. Ready to plug-in-and-play. Unique safety feature retracts stylus, bringing safety bumper in contact with record when forces in excess of 1 1/2 grams are applied. **Frequency Response:** 20-20,000 cps. **Channel Separation:** Over 25 db. **Output:** 6.6 mv. **Compliance:** 25 x 10<sup>-6</sup> cm/dyne. **Tracking Force:** 1 1/2 grams maximum. **Stylus:** Elliptically shaped, frontal radius, .0007"; side radius, .0002".



Shure Model M80E—Net Each...\$38.00

Shure Model M/99A—For Garrard Laboratory Type A turntable. With head, mounted cartridge and 0.7 mil conical diamond stylus. **Response:** 20-20,000 cps. **Tracking:** 1.5-3 grams. **Separation:** 22.5 db at 1000 cps. Net Each...\$24.75

Shure Model M99/AT6—Same, for Garrard AT6, AT60, Model 50. Net Each...\$24.75

Shure Model M99/M10—For Miracord 10, 10H. Net Ea. 24.75

## M44 STEREO 15° DYNETIC CARTRIDGES



Tracks at new 15° angle. Reduces IM and harmonic distortion from 75% to 90%. Crosstalk effectively negated in low and mid-range frequencies, providing superior channel separation throughout the audio range. Efficient retractable stylus prevents audible record scratching. **Frequency Response:** Flat, 20-20,000 cps. **Channel Separation:** Over 25 db. **Impedance:** 47,000 ohms, recommended load. **Inductance:** 720 mH per channel. **DC Resistance:** 630 ohms per channel.

**Output:** 7 mv per channel at 1 kc. **Compliance:** 25 x 10<sup>-6</sup> cm/dyne. **Tracking:** 3/4 to 1 1/2 grams. **Stylus:** 0.5 mil diamond. Shure Model M44-5—Net Each...\$21.95

**Model M44-7**  
**Output:** 11 mv per channel at 1 kc. **Compliance:** 20 x 10<sup>-6</sup> cm/dyne. **Tracking:** 1 1/2 to 3 grams. **Stylus:** 0.7 mil diamond. Shure Model M44-7—Net Each...\$19.95

**Model M44C**  
**Output:** 9.3 mv per channel at 1000 cps. **Compliance:** 7.5 x 10<sup>-6</sup> cm/dyne. **Tracking:** Up to 5 grams. **Stylus:** 0.7 mil diamond. Shure Model M44C—Net Each...\$17.95

See Replacement Styli, at right, for Monophonic Styli also available.

## MODEL M7/N21D STEREO DYNETIC CARTRIDGE FOR ARMS TRACKING BELOW 2 1/2 GRAMS



Top-rated, moving magnet cartridge designed for dependable use in record changers or transcription arms. Tracks at 2 1/2 grams or less. Features warm, sweet sound and trouble-free operation. Separates disc stereo sound channels with incisive clarity; prevents cross modulation distortion. Re-creates clean lows, brilliant highs, and true-to-performance mid-range. Plays monophonic or stereo-phonics records. Fits 4-lead and 3-lead stereo record changer and transcription arms. Tubular stylus provides wide-range response. **Frequency Response:** 20-20,000 cps. **Compliance:** 9.0 x 10<sup>-6</sup> cm/dyne. **Channel Separation:** More than 20 db at 1000 cps. **Output Level:** 4 mv per channel at 1000 cps.

Shure Model M7/N21D—Net Each...\$17.95

## MODEL M3D STEREO DYNETIC CARTRIDGE FOR ARMS TRACKING AT OVER 2 1/2 GRAMS

Specially designed for accuracy and honesty of sound. Plays stereophonic and monophonic records. Fits four-lead and three-lead stereo record changer and transcription arms. **Frequency Response:** 20 to 15,000 cps. **Tracking Force:** 3 to 6 grams. **Needle Compliance:** 4.0 x 10<sup>-6</sup> cm/dyne. **Output Level:** 5 mv/channel. **Channel Separation:** More than 20 db.



Shure Model M3D—With .7 mil diamond stylus. Net Ea. \$15.75

## STEREO DYNETIC PHONO REPRODUCER

Improved design. Integral arm and Studio Dynetic cartridge employs moving magnet. Incredibly light tracking, 1/4-1 1/2 grams. Friction-free suspension with jewel bearings; can be used with any high quality turntable. Cartridge performance specifications similar to M7/N21D except for compliance, 22 x 10<sup>-6</sup> cm/dyne and tracking force.

Shure Model M222 Stereo Dynetic Reproducer—Arm, 11 1/2" long; for 12" records. With 0.7 mil diamond. Net Each...\$89.50

Shure Model M226 Stereo Dynetic Reproducer—Arm, 14 3/4" long; for 16" records. With 0.7 mil diamond. Net Each...\$89.50

Shure Model M22 Stereo Dynetic Cartridge—Net Ea. 49.50

## PROFESSIONAL MONO DYNETIC CARTRIDGES

For those who prefer monophonic cartridges with monophonic records, Shure offers the outstanding Model M5D. **Frequency Response:** 20-20,000 cps. **Tracking Force:** 2 to 6 grams. **Load Impedance:** 27,000 ohms recommended. **Output:** 21 mv for 10 cm/sec. **Inductance:** 350 mh. **Resistance:** 440 ohms. **Compliance:** 3 x 10<sup>-6</sup> cm/dyne.

Shure Model M5D Monophonic Dynetic—With 1 mil diamond for microgroove records. Net Each...\$27.50

Shure Model M6S Monophonic Dynetic—With 2.7 mil sapphire for 78 rpm records. Net Each...\$15.00

## SHURE REPLACEMENT STYLI

The Dynetic stylus assembly used in Shure cartridges is the most critical component. To assure original performance standards, be sure that the replacement stylus you buy bears this certification on the package: "This Dynetic stylus is precision manufactured by Shure Brothers, Inc."

Avoid inferior imitations. They will degrade the performance of your cartridge. Shure Brothers, Inc. manufactures all genuine Dynetic styli.

Select the proper replacement stylus for your cartridge from the table below. If you choose a stylus that upgrades your cartridge, make certain your tone arm will track at the force required by the stylus. All tips are diamond except as noted.

Shure No.	Shure Cartridge	Track Grams	Tip Dia.	For Record Type	Net Each
N1	M1	1-3	.0007	Mono LP's	\$21.00
N2	M2	1-3	.0027	Mono 78 rpm	21.00
N3D	M3D; M7D*, M8D*	3-6	.0007	Stereo, mono LP	9.95
N5D	M5D	2-6	.001	Mono LP	16.50
N6S	M6S	2-6	.0027†	Mono 78 rpm	5.00
N21D	M21, M7/N21D, M3/N21D; M3D*, M7D*	1-2 1/2	.0007	Stereo, mono LP	12.50
N22D	M22, M7/N21D, M3/N21D, M3D, M7D	3/4-1 1/2	.0005	Stereo	24.75
N33-1	M33, M77	1 1/2-3	.001	Mono LP	19.50
N33-5	M33-5	1 1/2-3	.0005	Stereo	19.50
N33-7	M33-7	1 1/2-3	.0007	Stereo	19.50
N44-1	M44-5/-7/M55E, V-15	1 1/2-3	.001	Mono LP	9.75
N44-3	M44-5/-7/M55E, V-15	1 1/2-3	.0025	Mono 78 rpm	9.00
N44-5	M44-5	3/4-1 1/2	.0005	Stereo, mono	11.35
N44-7	M44-7	1 1/2-3	.0007	Stereo, mono	9.75
N44-C	M44C	3-5	.0007	Stereo, mono	9.75
N55E	M55/80E, M44-5/7*	3/4-1 1/2	‡	Stereo, mono LP	20.00
N77	M77	3-6	.0007	Stereo	10.50
N78	M77, M33-5, M33-7	4-6	.0027	Mono 78 rpm	8.55
N99	M99/A, /A76, /M10	1 1/2-3	.0007	Stereo, mono LP	12.95
VN2E	V-15	3/4-1 1/2	‡	Stereo, mono LP	25.00

\*Upgrades these cartridge types. †Sapphire. ‡Bi-Radial Elliptical.

We also carry the Shure-SME and Professional Universal Tone Arms. Refer to the Index.



# Stereo Turntables and Headphones

## UNITED AUDIO DUAL TURNTABLES



Dual 1010



Dual 1011



Dual 1009

### DUAL 1010 AND 1011 AUTO/STANDARD TURNTABLES WITH ARM

Provides performance unmatched except by the Dual 1009. Offers unrestricted flexibility of operation: Fully automatic and manual single play, plus automatic changer operation with exclusive Elevator-Action spindle. Highly advanced, **Continuous-Pole\* motor** combines the power and silence of induction types with the speed constancy of hysteresis motors; speed variation is less than 0.1% even with voltage changes beyond  $\pm 10\%$ . **Newly designed tone arm** tracks flawlessly with the highest compliance cartridges; rigid tubular construction, 8" long, has low over-all mass and minimal tracking error (below 0.75"/inch). When cycling, arm is engaged only by slip-clutch and may be restrained at any time without damage; free-floating in play. Simple, **fast cartridge mounting** provided with detachable holder; color-coded leads, push-on connectors and lock-in facility for sure connection without soldering. **Precise stylus force adjustment** has click-stops at 0.5 gram increments for tracking range of 2 to 7 grams; force increases less than 0.2 gram from first to tenth stacked record. **Elevator-Action changer spindle** lifts entire stack off bottom record so that no weight rests on it during release; no center-hole wear after 2,000 changes. Single, feather-touch, slide switch controls all operations: Left for manual; right for automatic. Arm may be placed anywhere on record, while rotating or stationary, at any time; returns automatically to rest and entire unit shuts off at end of play sequence. System is rewired to permit shut-off of amplifier at end of play. Comes with heavy, one-piece platter, detachable power cord and phono cables. Unique three-position top-located spring screw for easy installation. **Power Required:** 110/220 VAC, 60 cps; 50 cps available. **Size:** 10 $\frac{1}{4}$ " x 12 $\frac{1}{4}$ " x 6" above and 3" below motor board. Weight, 15 lbs.

\*Trademark United Audio.

**United Audio Dual 1010 Auto/Standard Turntable**—With slide switch to select 7", 10" or 12" records for automatic play. Net Each. . . . . **\$69.50**

**United Audio Dual 1011 Automatic Intermix Turntable**—Same, but will automatically intermix various size records of same speed and groove. Single control handles all functions. Net Each. . . . . **\$72.50**

### DUAL 1009 AND 1019 AUTO/PROFESSIONAL TURNTABLES WITH ARM

Remarkable record playing instrument achieves highest professional performance, plus versatility of manual or automatic single play and changer operation. **Dynamically balanced tone arm** tracks and trips at as low as  $\frac{1}{2}$ -gram stylus force; can be used with the highest compliance cartridges at their recommended tracking force. Fine-thread adjusting counterweight achieves micrometer-precision tone arm balance. Stylus force varies less than 2/10 gram when there are between one and ten records on the turntable. Arm is completely free-floating when tracking; may be restrained safely during cycling. **Massive 7 $\frac{1}{2}$  lb. single piece non-ferrous turntable** maintains speed accuracy within 0.1%. **All four standard speed positions** provided; plus 6% variation of each speed; strobe disc for speed check supplied. **High torque, four-pole motor** drives turntable almost instantaneously, accepts line voltage variation, even beyond  $\pm 10\%$ , without affecting speed. **Idle wheel** provides automatic disengagement during cycling. **Built-in switching arrangement** provides for automatic shut-off of both the turntable and the rest of hi-fi system as well. **Slide type controls** and insulation between metal to metal contacts virtually eliminate acoustic feedback, shock and vibration. True dynamic balance on arm permits tilting the system up to 60° without affecting play function; consequently turntable leveling is not critical. **Direct reading scale** shows needle tracking force at all times from 0 grams up. Ingenious spring screws permit easy installation on base or in cabinet from top; no underneath fumbling or screw removal. **Detachable head** takes any cartridge meeting U.S. mounting specifications. **Power Required:** 110/220 volts AC, 60 cps; 50 cps pulley available. **Size:** 10 $\frac{1}{4}$ " x 12 $\frac{1}{4}$ " with 6" clearance above and 3" below motor board. Weight, 20 lbs. **United Audio Dual 1009 Turntable with Arm**— **\$99.50** Net Each. . . . . **United Audio Dual 1019 Auto/Professional**—Same but with continuously variable direct-dial, anti-skating compensation and rotating spindle on single play. Weight, 22 lbs. **\$129.50** Net Each. . . . .

### TURNTABLE ACCESSORIES

Dual No.	For Model	Description	Net Each
AS-9	All	Automatic spindle for 45 rpm	\$ 4.80
CH-9	1009	Cartridge holder replacement	3.00
CH-10	1010, 1011	Cartridge holder replacement	3.00
CH-19	1019	Cartridge holder replacement	3.00
DC-1	All	Deluxe dust cover; use with WB-49, -91	8.95
DCB-1	All	Combo walnut base and walnut-pannelled plexiglass cover	29.50
WB-49	All	Oil-finished, genuine walnut base	6.95
WB-91	All	Deluxe oil-finished genuine walnut base	11.95

## SHARPE CIRCUMAUROAL STEREO HEADSETS



HA-10



HA-8

Engineered with a blending of unusual features to assure clarity and natural presence with even the weakest signal. Perfectly reproduces every sound. Dynamic, moving coil, reproducing element for broad response; acoustic inner cup with high frequency damping material for flat characteristics; liquid-filled, circumaural ear cushion for comfort and complete cancellation of external noise. Widely used in military communications, aviation, broadcasting, medicine, language training and similar applications. Internationally recognized by manufacturers of geophysical and audio equipment. Features shockproof and shatterproof construction; utilizes plated steel and plastic. Cords are supplied with strain relief and plugs.

struction; utilizes plated steel and plastic. Cords are supplied with strain relief and plugs.

### PROFESSIONAL STEREO MODEL HA-10

Unmatched for performance standards. **Frequency Response:** Flat, 30-10,000 cps  $\pm 3$  db; 20-20,000 cps range. **Input Power:** 2 watts max. each phone. **Acoustical Output:** 138 db, max. **Sensitivity:** 115 db re. 0.0002 dyne/cm<sup>2</sup> at 1 volt input. **Harmonic Distortion:** 1.7%, 50 cps at 1 volt; .35%, 200 cps; .76%, 500 cps; .86%, 1 kc. **Lateral Pressure:** Approx. 2 lbs. over 10 sq. in. area. **Noise Attenuation:** 40 db, ambient, at 1 kc. **Impedance:** 10 ohms each phone. **Sharpe Model HA-10 Headset**—With stereo plug and exclusive cord caddy. Net Each. . . . . **\$43.50**

### MODEL HA-8 STEREO PHONES

Modestly priced stereo headset but big in performance. Cord enters left ear cup; each side color coded. **Frequency Response:** 20-15,000 cps. **Input Power:** 2 watts, max. **Lateral Pressure:** Approx. 2 lbs. over 8 sq. in. area. **Noise Attenuation:** 20 db, ambient at 1 kc. **Impedance:** 8 ohms per phone. **Sharpe Model HA-8 Headset**—With 6 ft. 4-conductor cord with strain relief and 3-circuit phone plug. Net Each. . . . . **\$24.50**



# Stereo Cartridges and Headphones

## GENERAL ELECTRIC STEREO HI-FI COMPONENTS

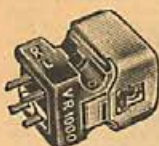
### DUAL FUNCTION PREAMPLIFIER



Two-position switch provides proper equalization for mike or G.E. magnetic phono cartridge. **Gain:** Phono, 33 db; Mike, flat 30-15,000 cps. 18 db bass boost at 50 cps. Completely shielded; for use on 105-125 VAC. Complete with phono-mike input jack, output plug, shielded cable with plug (up to 25' of output cable can be used), one 7025 tube and a selenium rectifier.

Sizes 3 3/4" x 3 3/4" x 1 3/4"; 3 3/4" maximum overall height. Shipping Weight, 1 1/2 lbs.  
Model UPX-003C—Preamplifier. Net Each..... **\$14.95**

### VR1000 ORTHONETIC VARIABLE RELUCTANCE STEREO CARTRIDGES



Offers the purest musical response, even at frequencies above the normal range of human hearing. You hear every subtle overtone without distortion. Unique suspension and damping system prevents loss of higher harmonics, reproducing them in proper relationships to fundamentals. Wide stereo separation assures clean, precise stereo reproduction. Triple, Mumetal® shielding reduces hum. **Tracking Force:** 3-7 grams. **Frequency Response:** ±3 db, 20-20,000 cps. **Output:** 1 mV per cm/sec., min. **Compliance:** 6 x 10<sup>-4</sup> cm/dyne, min. lateral and vertical. **Separation:** 20 db, nominal in the critical stereo range; channel balance 2 db or better at 1000 cps. **Inductance:** 400 mH per channel, nom. **Resistance:** 1100 ohms per channel, nom. **Mounting:** Standard 3/8".

Model VR1000-7—With .7-mil diamond stylus for use with changers. Net Each..... **\$24.95**  
Model VR1000-5—Same, but with better performance, for use with professional arms tracking from 1-3 grams; with .5-mil diamond stylus. Compliance 9 x 10<sup>-4</sup> cm/dyne vertical. Separation, 25 db per channel, nominal. Net Each..... **\$29.95**  
Model DR-7D Stylus—For VR1000-7. Net Each..... **9.95**  
Model DR-5D Stylus—For VR1000-5. Net Each..... **11.95**

### VR-II GE VARIABLE RELUCTANCE CARTRIDGES

#### WITH CLIP-IN-TIP STYLUS



Features improved tracking ability, electrostatic shielding, plug-in terminals, and new sllm design. Easily replaceable clip-in-tip stylus for extra convenience. Available in single or triple play models. Mumetal shielding, special anti-hum coils eliminate unwanted signals. **Tracking Pressure:** 4 grams on professional tone arms; 6-8 grams on changer arms for reduced record wear. **Frequency Response:** 20-20,000 cps.

**Output:** 10 mV nom., at 5.5 cm/sec. **Equalization:** 6.2 K for RIAA, 100 K for std. load. **Mounting:** Either 3/8" or 1/2". Adapter required when used with G. E. A1-500 and A1-501 arm.

### MONOPHONIC CARTRIDGES

G. E. No.	Stylus Size and Material	Net Ea.
4G-053	1-mil diamond and 3-mil diamond	\$19.95
4GD-01D-02D	1-mil diamond and 2.5-mil diamond	19.95
4G-052	1-mil diamond and 3-mil sapphire	16.95
4GD-01D-02S	1-mil diamond and 2.5-mil sapphire	16.95
4G-050	1-mil sapphire and 3-mil sapphire	12.95
4GD-01S-02S	1-mil sapphire and 2.5-mil sapphire	12.95
4G-061	1-mil diamond only	13.95
4GS-015	1-mil diamond only	9.95
4G-041	1-mil sapphire only	9.95
4GS-01S	1-mil sapphire only	9.95
4GS-02D	2.5-mil diamond only	13.95
4GS-02S	2.5-mil sapphire only	9.95
4G-063	3-mil diamond only	13.95
4G-040	3-mil sapphire only	9.95

### CLIP-IN STYLUS FOR VR-II CARTRIDGE

G. E. No.	Sapphire	Net	G. E. No.	Diamond	Net
4G-01S	1-mil	\$9.95	4G-01D	1-mil	\$9.95
4G-02S*	2.5-mil	9.95	4G-02D*	2.5-mil	9.95
4G-03S	3-mil	9.95	4G-03D	3-mil	9.95

\*For low-Z cartridge application.

### CHANGER ADAPTERS FOR 45 RPM PLAY

Used with G.E. and certain VM record changers; center plug for 45 rpm.

Model RX109—For record changers that require a long adapter. Net Each..... **\$3.59**

Model RX209—Short style adapter. Net Each..... **2.50**



### REPLACEMENT STYLUS FOR FORMER G.E. CARTRIDGES

G. E. No.*	Radius, In.	Net	G. E. No.*	Rad., In.	Net
RPJ-007A(S)	.001, .0025	\$ 4.95	RPJ-001(S)	.003	\$22.29
RPJ-010A(S)	.001, .003	4.95	RPJ-004(D)	.001	5.95
RPJ-013A(D-S)	.001, .003	6.95	RPJ-002(D)	.0025	5.95
RPJ-011A(D)	.001, .0025	11.95	RPJ-003(D)	.003	5.95
RPJ-012A(D)	.001, .003	11.95	RPJ-015(S)†	.001	2.29
RPJ-005(S)	.001	2.29	RPJ-025(S)†	.0025	2.29
RPJ-01D(D)†	.001	5.95	RPJ-035(S)†	.003	2.29
RPJ-02D(D)†	.0025	5.95	ST-5D(D)	.0005	7.95
RPJ-03D(D)†	.003	5.95	ST-7D(D)	.0007	6.95
RPJ-006(S)	.0025	2.29	ST-7S(S)	.0007	2.99

\*(D)—Diamond; (D-S)—Diamond, Sapphire; (S)—Sapphire.

†Stylus inserts for use in single and dual assemblies.

NOTE: All sapphires are synthetic. @Allegheny Ludlum Steel Corp. trademark.

## JENSEN STEREO HEADPHONES



HS-2



CC-1



CFN-1



HS-1

### NEW HS-2 STEREO HEADPHONES

Smooth full range, undistorted output and accurate stereo balance are the earmarks of the HS-2. Rugged and durable, with soft polyurethane cushions, for comfortable listening. Adjustable earpieces and extreme lightweight allow perfect individual fit. **Drivers:** High-compliance, moisture resistant diaphragm. **Frequency Response:** Below 20-17,000 cps. **Impedance:** 4 ohms each channel; may be connected to 4-, 8- or 16-ohm amplifier outputs. **Terminals:** Standard 3-conductor headphone plug. **Power Required:** 1-10 mW. **Net Wt.:** 16 oz. **Shpg. Wt.:** 2 lbs. **\$24.95**  
HS-2 Stereo Headphones—With 8' cord. Net Each.....

M-1648 Accessory Jack Panel—Net Each..... **\$4.95**

### STEREO HEADPHONE CONTROL CENTER†

Electrical network achieves close correspondence to normal two-speaker listening through new Space-Perspective\*. Also places complete controls at your fingertips for personal or professional stereo headphone listening. Attractive and compact, the CC-1 may be located wherever you wish to listen; set it on the table or hang it on a wall. Control facilities permit volume control and channel balance to suit your ear; switch from monophonic to stereo, with or without Space-Perspective; select either left or right channel only, or stereo or reverse stereo. May be used with 4-ohm or 8-ohm, nominal, dynamic headphones. Requires as little as 10 watts per channel (20 watts stereo). Oiled walnut finished case. **Size:** 11 3/4" w. x 3" d. x 4 3/4" h. **Shipping Weight:** 3 1/2 lbs. **\$52.00**

CC-1 Stereo Headphone Control Center—Net Each.....

†Licensed by CBS Laboratories Div., Columbia Broadcasting System, Inc.

### HS-1 STEREO HEADPHONES

The moving coil driver units are of a new special design, matched to close tolerances for accurate stereo balance. They have curvilinear, high-compliance diaphragms, with a special acoustic rear mesh in the driver cavity for uniform bass down to below 20 cycles—below the lower limit of most loudspeakers! High frequency range extends to 15,000 cycles.

**SPECIFICATIONS: Drivers:** High-compliance, curvilinear, moisture resistant diaphragm. Aluminum voice coil, sintered magnetic circuit with efficient Alnico magnet. **Frequency Range:** 20-15,000 cycles. **Power Requirements:** Comfortable listening, 1 mW; loud, 10 mW. **Impedance:** 8 ohms each channel (may be connected to 4-, 8- or 16 ohm amplifier outputs). **Sensitivity:** 95 db sound pressure level for 1 milliwatt. **Plug:** Standard 3 conductor headphone plug. **Cord:** 8' long. **Net Weight:** 16 oz. **Shipping Weight:** 2 1/4 lbs.

HS-1 Stereo Headphones—With accessory jack panel. **\$31.50**  
Net Each.....

HS-1L Stereo Headphones—With spade lug terminals. **\$29.50**  
Net Each.....

M-1648 Accessory Jack Panel—Net Each..... **\$4.95**

### SPACE-PERSPECTIVE \* CROSS-FEED NETWORK†

Cross-feed network provides Space-Perspective facility; achieves close correspondence to normal two-speaker listening. Similar to CC-1, but without control facilities. **Size:** 4" w. x 5 1/2" d. x 2 1/2" h. **Shipping Weight:** 1 1/2 lbs. **\$24.75**

CFN-1 Cross-Feed Network—Net Each.....

\*Jensen Mfg. trademark.



# Stereo, Amateur Headsets, Tone Arm

## SUPEREX STEREO, AMATEUR PHONES

### NEW SUPEREX PRO STEREO PHONE



Professional quality stereo headset with woofer-tweeter arrangement with built-in, crossover networks in each acoustic-chambered earpiece. Low and mid-range frequencies are reproduced by two dynamic elements; high frequencies by two ceramic elements. Foam-filled, replaceable ear cushions and fully adjustable, vinyl-covered spring steel headband. Comes with four conductor cord and one pair ear cushion covers. **Freq. Response:** 18-22,000 cps. **Impedance:** 4-16 ohms. **Power:** 30 mW nominal; 2 W max. **Specify Plug Type:** Add suffix -22, two RCA type phone plugs; -33, standard 3-circuit stereo phone plugs; -44, two mini-plugs; -55, two PL-55 phone plugs.

**Superex No. 5T-PRO Stereo Phone**—Net Each.....\$50.00  
**Alternate Impedance**—Specify 600, 2K, 15K or 50K ohms  
 Add to Net.....\$5.00  
**Boom Mike Attachment**—Net Each.....1.00  
**Retractable 10' Cord**—Net Each.....4.00



SX-800



AP-5

### MODEL SX-800 STEREO PHONE

New lightweight (5 oz.) slim-line design provides clear, crisp tonal reproduction through a sound capsule of special design. Sound capsule is housed in high-impact plastic ear cups along with poly-foam ear cushions to eliminate background noises. Adjustable headband; separate adjustment centers give custom fit. **Frequency Response:** 30-15,000 cps. **Impedance:** 4-16 ohms. Strain relief cord and standard stereo-plug termination. **\$21.95**  
**Superex No. SX-800 Stereo Phones**—Net Each.....

### "STEREO MASTER" MODELS

Woofer and tweeter in each phone for the ultimate in hi-fi reproduction. Listen to hi-fi in private without disturbing others. Enables you to actually feel the music while you are listening. For both stereo and monophonic hi-fi listening, plus audio visual and tape monitoring applications, and silent musical instrument practice. Features complete stereo channel separation. Uses acoustic grille for uniform bass response and mechanical protection of driver elements. Modern, functional styling with soft plastic foam cushioning, assuring comfort even during sustained listening periods. Ear cushions keep out distracting outside noise even when wearing glasses. Fully adjustable headband has spring tension adjustments. High impact plastic ear cups and strain relieved cord. **Frequency Response:** 20-20,000 cps. **Specify Plug Type:** Add suffix: -22, two RCA type phono plugs; -33, standard, 3-circuit stereo phone plug; -44, two mini-plugs; -55, two PL-55 phono plugs.



ST-M

**Superex No. ST-M Stereo Phones**—Has miniature crossover networks and tweeter controls built in each phono. Imped- \$29.95  
 ance, 4-16 ohms. Net Each.....

**Superex No. ST-M2H Stereo Phones**—Built-in miniature crossover networks and impedance matching devices; separate treble controls for each ear; boom microphone attachment included. Standard impedance 15,000 ohms, available in 600, 2,000 or 50,000 ohms at no extra cost. Net Each.....\$40.00

**"STEREO STANDARD" AND AMATEUR MODELS**  
 Similar in appearance and performance to "Stereo Masters", above. Features a specially designed dynamic reproducer for full range response. Complete stereo channel separation easily adaptable for monophonic listening. Built-in surge protection. Soft plastic foam cushions for comfort. Acoustic grille gives uniform bass response. Modern styling incorporates fully adjustable headband, high impact plastic ear cups, strain-relieved cord and stereo plug termination. **Frequency Response:** 30-15,000 cps. **\$24.95**  
**Superex No. ST-5 Stereo Phones**—Net Each.....  
**Superex No. ST-5U Stereo Phones**—Same, but left earpiece switch selects 4-16 ohms or high impedance 15,000 ohms. Net. \$29.95  
**Superex Amateur Headphone Model AP-5**—Dual impedance; monophonic 600 ohms or 4-16 ohms. Net Each.....\$24.95

### STEREO PHONE ACCESSORIES

**Superex No. SC-2 Chairside Stereo Control**—Provides chairside control of volume and balance of your stereo phones; turn speakers on or off; permits parallel operation of two phones; audio level markings on all controls assure correct settings. For use with ST-M, ST-S or any low impedance phone terminating in a stereo plug. Two stereo phone jacks plus screw terminals for speakers. Box mounted on rubber feet to protect furniture; instructions included for monophonic connections. Net Each.....\$7.95  
**Superex No. SCP-2 Switch Plate**—Same, but without volume controls. Standard wall plate mounts on rear of equipment. Net Each.....\$4.95  
**Superex No. MC-40**—Adapts two stereo phones to monaural radio or T.V. by plugging in. A switch turns either speaker or headphone on. Step by step instructions and 15' of wire supplied. No soldering necessary. Net Each.....\$7.95  
**Superex No. STEX-20**—Single 20 ft. extension cord for stereo phones terminated with standard stereo plug and jack. Net Each.....\$3.95

## CLARK STEREO HEADSETS

### CLARK/200 STEREO HEADSET



Moderately priced unit that surpasses distortion levels of all dynamic speaker systems available. Larger driving speakers are used to compensate for a slightly larger volume of enclosed air, thus maintaining full frequency response without unpleasant "proximity effects." **Frequency Response:** 20-17,000 cps. **Sensitivity:** 1 mW input at 1,000 cps produces 105 db ref. 0.0002 microbar (per earpiece). **Power Input:** 1 W per phone, max. **Impedance:** 8 ohms, nominal. Wt., 17 oz. **Clark/200 Stereo Headset**—With 6' cord and 2-circuit stereo plug. Net Each.....\$26.95

### CLARK/100 STEREO HEADSET



Designed for assured comfort with full dimensional stereo or monophonic listening. Features direct coupling between reproduced sound and ear; exclusive, high compliant, PVC (polyvinyl chloride) ear seals are comfortable even when wearing glasses. Optimum abatement of outside noise. Dynamic, moving-coil drivers matched for precise efficiency and response. **Frequency Response:** 10-20,000 cps; +3 db, 20-10,000 cps. **Distortion:** Less than 0.2% at 100 phn level over useful frequency range; 0.5%, 110 phn level. **Sensitivity:** One milliwatt input at 1 kc produces 100 db ref. 0.0002 microbar per phone. **Power Input:** One watt max. per phone. **Impedance:** 8 ohms nominal. **Clark/100 Stereo Headset**—With 8' cord and 2-circuit stereo plug. Net Each.....\$39.50  
**Clark/103 Stereo Headset**—Same but 300 ohms. Net. \$39.50  
**Clark/112 Stereo Headset**—Same but 1200 ohms. Net. 44.40

### ACCESSORIES

**Clark/830 Plug Adapter**—Two for one type. Net Each.....\$5.25  
**Clark/840 Amplifier Adapter**—With wires. Net Each.....2.50  
**Clark/Earseals**—For Model 100. Net Per Pair.....3.75

## CASTAGNA MODEL "A" PROFESSIONAL TONE ARM



Studio and lab engineered for professional service, this superb instrument meets the highest standards. Integrates with any cartridge without adding distortion. Sapphire jewel bearings in vertical and horizontal bearings for lowest friction. Arm post has opposing magnets to suspend entire arm; gives high stability while holding friction to almost zero. Balance adjustable in all planes with weight rubber mounted to hold during adjustment of head angle. Tracking angle adjusts 8° to 28° to minimize error. Overhang adjusts ± 3/4" for flexible cartridge positioning. Calibrated 0-5 gram stylus adjustment. Rubber-mounted counterweight holds resonance low. Instantly removable plate accepts most cartridges. Bias on stylus is zero, horizontally; minimum, vertically. Locking arm rest supplied. All parts precision hand-machined of hard, stable aluminum. With 5-wire, plug-in audio cable. **\$125.00**  
**Castagna Model "A" Tone Arm**—Net Each.....



# Recording Discs, Needles, Headsets

## AUDIO DEVICES DISCS AND NEEDLES

**audiodescs**  
FOR EVERY RECORDING NEED

**AUDIODESCS** are high quality, precision-made instantaneous recording blanks which have established new standards of perfection and won the acclaim of professional and amateur recordists.

Description	Type No.	Size, In.	Appr. Thk In.	Std. Pkgs. Contain	Wt. Per Std. Pkg. Lb.	List Price Per Disc	Net Price Per Disc in Std. Pkg.	Net Price Per Disc Broken Lots
<b>RED LABEL AUDIODESCS</b>								
Standard throughout the recording profession, these discs exceed the most exacting requirements for top quality and dependability. The finest discs obtainable. Aluminum base, double-sided. Embossed labels.	7R2	7"	.040	25	4	\$1.60	\$0.96	\$1.07
	8R2	8	.040	25	5	1.27	.77	.85
	10R2	10	.040	25	7½	1.84	1.11	1.23
	12R2	12	.050	25	13	3.20	1.92	2.13
	16R2	16	.050	25	24	5.71	3.43	3.81
<b>SINGLE FACE RED LABEL</b>								
For professional use where only one side is to be recorded. Both sides coated; the recordable side identified with embossed label. Exactly the same fine qualities as Standard Red Label, but bringing real economy to single-face applications.	10R1	10	.040	25	7½	1.71	1.03	1.14
	12R1	12	.050	25	13	2.78	1.67	1.85
	16R1	16	.050	25	24	4.74	2.85	3.16
<b>YELLOW LABEL AUDIODESCS</b>								
The popular choice for all general purpose recording which requires high uniform quality. Aluminum base, double-sided. Designed primarily for applications where the super quality Red Label AUDIODESCS are not required. Paper labels or imprint.	7Y	7"	.040	25	4	1.48	.89	.99
	8Y	8	.040	25	5	1.14	.69	.76
	10Y	10	.040	25	7½	1.58	.95	1.06
	12Y	12	.050	25	13	2.53	1.52	1.69
	16Y	16	.050	25	24	4.59	2.76	3.06
<b>REFERENCE LABEL AUDIODESCS</b>								
Provide maximum economy for test cuts, filling and reference recordings, auditions and equipment adjustments, which do not demand complete surface perfection. Aluminum base. Paper labels or imprint.	10W	10	.040	25	7½	1.35	.81	.90
	12W	12	.050	25	13	1.96	1.18	1.31
	16W	16	.050	25	24	3.37	2.02	2.24
<b>BLUE LABEL AUDIODESCS</b>								
These discs offer the very best in recording quality at a low price for schools, homes, amateur and demonstration work. Made of the same materials as professional type AUDIODESCS—but on a thinner aluminum base. Paper labels or blank.	6A	6½"	.030	50	4½	.68	.41	.46
	8A	8	.030	50	7	.93	.56	.62
	10A	10	.030	50	10	1.33	.80	.89
<b>MASTER AUDIODESCS</b>								
Copies of recordings (pressings) to be made by the electroplating process, these discs are the outstanding choice. Their excellence and consistent quality are well known to all record processors. Fine results with either silvering or gold sputtering. Aluminum base. Center pin and one drive pin hole. Also available with center hole only.	Double Sided							
	10M2	10	.050	25	9	3.08	1.85	2.05
	12M2	12	.050	25	18	4.15	2.49	2.77
	13M2	13½	.050	25	25½	5.48	3.29	3.65
	16M2	16	.050	25	28½	7.37	4.42	4.90
	Single Face							
	10M1	10	.050	25	9	2.53	1.53	1.69
	12M1	12	.050	25	18	3.10	1.86	2.07
	13M1	13½	.050	25	25½	3.96	2.38	2.64
	14M1	14	.050	25	21	4.19	2.52	2.79
	16M1	16	.050	25	28½	5.77	3.47	3.85

\*Standard 45 rpm disc with 1½" dia. center hole. Also available with conventional center hole. To order, specify "Small Center Hole".

**HOW TO MAKE GOOD RECORDINGS Revised, Edition**—144 pages. Price Each \$2.00

## RECORDING AUDIOPPOINTS®



**Sapphire No. 14**—This AUDIOPPOINT has long been recognized by recording engineers as the best recording stylus made. The jewelled point, with 87° included angle, correct radius and fine polish, cuts a silent, shiny groove for many hours. It is especially designed to insure proper thread throw and each stylus is disc tested on a recording machine just before packaging, thus guaranteeing quality and uniformity. Can be resharpened a number of times. Supplied with dural shank. Net Each.....\$4.95

**Sapphire No. 20**—Especially designed for professional microgroove recording. Dural shank. Can be resharpened. Net.....\$4.95

**Stellite No. 34**—A favorite with many professional and non-professional users. Standard short shank (1½") with "flat" is brass; available in long and/or round shank if specified. Net Each.....\$1.50

**Sapphire No. 202**—A professional recording stylus with brass shank ideally suited for those recordists not requiring the super quality of Sapphire AUDIOPPOINT No. 14. Can be resharpened. Net Ea.....\$3.96

## PLAYBACK AUDIOPPOINTS®

**Sapphire No. 113**—The outstanding choice of professional recordists. Materials, workmanship and design make this playback sapphire the finest obtainable. Reproduces recorded sound with complete fidelity and minimum disc wear. One of these points will play thousands of instantaneous recordings or vinyl transcriptions. NOT FOR USE ON SHELLAC RECORDS. Dural shank. Net Each.....\$2.70

**Sapphire No. 123**—For professional use with microgroove recordings. Net.....\$1.20

**"Red Circle Sapphire" No. 103**—With straight dural shank and a fine polished jewel. Excellent for instantaneous recordings and vinyl transcriptions. Complete fidelity and minimum disc wear. Also ideal for phonograph records. Net Ea.....\$1.20

**"Red Circle Sapphire" No. 303**—This is the same playback point as No. 103, but with a bent dural shank. It is thus particularly adapted for heavy pickups. Net Each.....\$1.20

## PERMOFLUX HEADSETS

### STEREO-FONES AND DIMENSI-FONES



Dynamic, moving-coil type headphones have 112 db sensitivity at 1 kc. Frequency response, 20-20,000 cps. With 5' cord and plug. Deluxe chamolite ear cushions for best comfort. **Stereo-Fones:** Offer highest quality materials and precise assembly that meet military specifications. Designed for compatibility to good hi-fi systems without distortion for smooth wide-range stereo. Offer professional broadcast standards to the home user. **Dimensi-Fones:** High fidelity monophonic headphones of the same fine quality as Stereo-Fones. With 1505 ear cushion.

Stereo-F. Model	Imped., Ohms	Net Each	Dimensi-F. Model	Imped., Ohms	Net Each
B-DHS-17	300/300	\$52.50	DHS-17	600	\$50.00
B-DHS-28	12/12	45.00	DHS-28	25	42.50
B-DHS-600	600/600	52.50	DHS-2M	2K	50.00
B-DHS-4M	4K/4K	52.50	DHS-3M	8K	50.00
B-DHS-15M	15K/15K	52.50	DHS-30M	30K	50.00

### NEW "FEATHER-LITE" DYNAMIC HEADPHONES

Employ life-time plastic cones for highest fidelity; smoothest, flattest response. Rugged to withstand heavy use without damage or wear. Ear speakers sealed against moisture and shock. Lightweight, adjustable headbands; soft comfortable cushions stop outside noise. Moving coil design has 108 db sensitivity at 1 kc. Frequency response, flat 40-15,000 cps. With 5 ft. cord.

### STEREO AND MONOPHONIC TYPES

Stereo Model	Imped., Ohms*	Net Each	Mono Model	Imped., Ohms*	Net Each
BHM-16	16/16	\$35.00	HM-8	8	\$32.50
BHM-50	50/50	37.50	HM-50	50	35.00
			HM-100	100	35.00

\*Higher impedances available on special order.

### WITH BOOM-MOUNTED MIKES

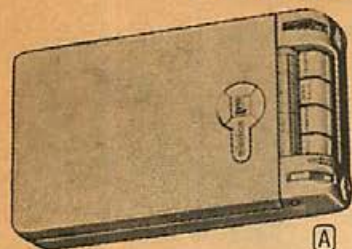
Headset impedance, 8 ohms. With PJ-068 three-circuit plug. Boom has four-way adjustment for positioning.

Model No.	Microphone Specifications					Net Each
	Type	Imped.	Level	Freq. Res., cps		
HMD-8/50	Dynamic	50 ohms	-60	100-6,000	\$55.00	
HMD-8/100	Dynamic	100 ohms	-60	100-6,000	55.00	



# Miniature Recorders, Accessories

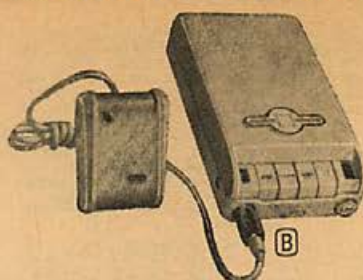
## ITT MINIFON POCKET-SIZE PUSHBUTTON RECORDERS



**MINIFON SPECIAL WIRE RECORDERS (FIG. A)**

Using the world's smallest precision motor, these transistorized wire recorders though small and light enough to be concealed in your pocket, will make speech recordings for up to four hours (two hours for 360S) on a single reel. Record, playback and re-record thousands of times anywhere, any time and by any one. Operates on dry battery, battery eliminator, rechargeable accumulator, or any car battery, 6 or 12 v. Pre-amplifier available for remote recording up to 650 ft. Instantaneous pushbutton control of record, playback, rewind and stop. Automatic wire end light indicator and stop. Calibrated volume control. Message or time indicator quickly locates recorded message. Battery condition meter.

**Wire Speed:** 13.4"/sec. (360S); 9.055"/sec. (240L). **Rewind Speed:** 4.5 times forward speed. **Wire Diameter:** .002". **Frequency Response:** 200-5500 cps (360S); 300-3500 cps (240L). **Input Impedance:** 2000 ohms. **Input Voltage:** 0.4 mv. **Output Impedance:** 400 and 2000 ohms. **Output Voltage:** 0.8 v. at 400 ohms, 2 v. at 2000 ohms. **Amplifier:** Three-stage transistor amplifier. **Power Required:** 6 to 12 v. DC using dry battery, 110 or 220 v. AC (with Model 313), rechargeable accumulator (Model 805), 6 or 12 v. car battery. **Size:** 3 1/4" w. x 6 1/4" d. x 1 1/4" h. **Weight:** 28 oz., approx. **ITT Minifon Special Model 240L Wire Recorder**—Complete with 30 minutes recording wire reel, direct playback dynamic microphone, and battery for **\$269<sup>95</sup>** 15 hours use. Net Each. **ITT Minifon Special Model 360S Wire Recorder**—Complete with 20 minutes recording wire reel, direct playback dynamic microphone and battery for **\$249<sup>95</sup>** 15 hours use. Net Each.



**MINIFON ATTACHE MAGAZINE TAPE RECORDER (FIG. B)**

Pocket-size pushbutton recorder with sealed tape magazine for dictating and transcribing anywhere at any time. Operates on self-contained battery, rechargeable accumulator, car battery or AC power. Features automatic tape end light indicator and stop, roller counter index, one hand microphone stop and start control with red signal light, fast forward and rewind, built-in battery condition meter, numbered volume control, shock-proof, precision-built mechanism, instantaneous operation, etc. Light, instant loading 30 minutes tape can be easily armalmed. **Recording Medium:** 1/2" tape in magazine. **Recording Period:** 30 min. (15 min. dual track); 60 min. (30 min. dual track). **Tape Speed:** 1 1/2"/sec. **Frequency Response:** 250-4500 cps. **Fast Forward and Rewind:** 30:1. **Rapid Erasure:** 30:1. **Normal Erasure:** By re-recording. **Amplifier:** Three-stage transistor amplifier. **Motor:** Precision miniature motor with electrical governor. **Input Impedance:** 2000 ohms. **Input Voltage:** 0.5 mv. **Output Impedance:** 200 and 2000 ohms. **Output Voltage:** 2.5 v., approx. **Power Required:** 6 to 12 v. DC using dry battery, 110 or 220 v. AC (with Model 313), rechargeable accumulator (Model 805), 6 or 12 v. car battery. **Size:** 3 1/4" w. x 6 1/4" d. x 1 1/4" h. **Weight:** 28 oz., approx. **ITT Minifon Attache Model 178A Magazine Tape Recorder**—Complete with 30 minutes dual track tape magazine, start-stop dynamic microphone, stethoset earphones and battery. **\$259<sup>95</sup>** Net Each.

## MINIFON HI-FI MAGAZINE TAPE RECORDER (FIG. B)

Similar to Minifon Attache but has a frequency response of +3 db, 40-12000 cps for professional and hobby use in high fidelity recording and playback.

**ITT Minifon Hi-Fi Model 378H Magazine Tape Recorder**—Complete with 30 minutes dual track tape magazine, start-stop dynamic microphone, stethoset ear- **\$329<sup>95</sup>** phones and battery. Net Each.

## ACCESSORIES

No.	Description	Net Ea.
501	Leather recorder case	\$ 19.95
502	Leather stethoset case	4.95
503	Leather carrying case for recorder and accessories	39.95
517	Nylon shoulder holster	8.95
105	Wristwatch dynamic mike	59.95
106	Throat dynamic mike	39.95
111	Telephone pickup	11.95
118	Special aircraft mike	49.95
119	Clip-on microphone	49.95
122	Wide band (Hi-Fi) mike	79.95
307	Moving coil dynamic mike	44.95
329	Reporter directional mike	69.95
104	Table loudspeaker & mike	79.95
323	Radio-Mike-Loudspeaker Set	129.95
101	Stethoset earphones	9.95
115	Singie earset	9.95
325	Monitoring stethoset	15.95
015/128	30 min. tape magazine* (2 x 15 min. dual-track)	7.95
3015/128	30 min. hi-fi tape magazine* (2 x 15 min. dual-track)	8.95
3030/128	60 min. hi-fi tape magazine* (2 x 30 min. dual-track)	9.95
908*	Wire spool, 90 min. "L" type†	16.50
909*	Same, 120 min. "L" type†	22.50
911*	Same, 180 min. "L" type†	26.00
913*	Same, 240 min. "L" type†	39.75
112	Foot control	14.95
127	Typist hand control	24.75
133	Remote pocket control	14.95
802	Motor battery, 12 v., for Hi-Fi, Attache & Special	3.95
805	Rechargeable accumulator	79.95
313	AC power supply	29.95

\*In Plexiglas® container. †For "S" Type recorder by 1/2".  
®Registered Rohm & Haas trademark.

## WATTS CLEANING EQUIPMENT TURNTABLE "DUST BUG"

Place lightweight arm supplied ahead of stylus on the turntable, then attach it to turntable by suction. Cylindrical pad on the arm collects dirt and dust while tiny nylon brush loosens them. Special antistatic agent on pad prevents static build-up. Does not interfere with either turntable or tone arm operation. Height of arm is adjustable.



**Model TDB Turntable "Dust Bug"**—Complete with fluid. **\$6.00** Net Each.

**Model DFL Replacement Antistatic Fluid for Dust Bug**—Net Per Dispenser. **\$1.25**

## MANUAL "PARASTAT"

For static free records—Restores fidelity in older records and keeps record new. "Parastat" removes dust, grit and residue deep within the record groove. Simply apply fluid per instruction and press the brush on record to remove imbedded dust and dirt. For older records, hold brush upright; for new records, tilt on either side.

**Model PA Manual "Parastat"**—Net Each. **\$15<sup>00</sup>**

**Model PFL Replacement "Parastat" Fluid**—Net Per Dispenser. **\$3.00**

## DISC "PREENER"

Simple to use Disc "Preener" keeps new records new. Record cleaning velour penetrates each record groove to remove all dust, grit and static, by means of internal wick which is activated by water. Cleans record thoroughly within a few turns and can be used between record changer cycles.

**Model PR Disc "Preener"**—Net Each. **\$3.00**



## GOLD LION CUSTOM TUBES

**Gold Lion Type GL-U707**—Full wave rectifier. Extremely high heater to cathode insulation reduces hum, prevents arc-over.

**Gold Lion Type GL-U709**—Full wave rectifier. Domed cathode reduces heat loss. Heater operates at a lower temperature.

**Gold Lion Type GL-Z729**—Low noise pentode. Low grid current provides high gain with low noise content. 100% tested for induced grid hum and for induced cathode hum.

**Gold Lion Type GL-KT88**—Beam power tetrode. 35 w. anode dissipation (100 w./pair). Ultralinear. Gold plated grids.

**Gold Lion Type GL-N709**—Output pentode. 12 w. anode dissipation, maximum.

**Gold Lion Type GL-U52**—Full wave rectifier. Special filament alloys ensure high level emission with a large reserve.

**Gold Lion Type GL-U77**—Full wave rectifier. Special filament alloys ensure high level emission with a large reserve.

No. GL-	Replaces Tube Types	Net Each
B739	12AT7, ECC81, ES1CC, 6060, 6201, 6879, B309	\$ 2.90
B749	12AU7, ECC82, 5814, 6067, 6189, 6680	2.80
B759	12AX7, ECC83, 5721, 5751, 6057, 6681, 7025	3.00
D717	6AL5, 5726, 6058, 6097, 6663, EAA91, EB91, D77	4.50
KT66	6L6, 6L6G, 5881, 5932, 1614, 1622, 7027, 6CN5, EL35, EL36, EL37, EL39	4.50
KT66-MP	Matched pair two GL-KT66's	10.00
KT77	6L8GB, EL34, 6CA7, 7581	5.50
KT77-MP	Matched pair two GL-KT77's	12.00
KT88	6L6GC, 6550, 7027A	6.95
KT88-MP	Matched pair two GL-KT88's	14.90
N709	6BQ5, EL84	3.80
N709-MP	Matched pair two GL-N709's	8.60
U52	5U4G, 5T4, 5931	2.90
U77	GZ30, GZ32, GZ33, GZ34, 5A4R, 5V4, 5Z4	4.10
U707	6X4, 6BX4, U78, EZ90, 5993, 6063, 6202, 6203	4.10
U709	6CA4, EZ81	2.20
Z729	EF86, 6267, 6CF8	3.00



# FM Antennas, Tape Accessories

## FINCO FM ANTENNAS AND KITS

### GOLD CORODIZED NEW "STEREO LOG" SERIES

Features gold corodized, triple thick sleeved elements; reinforced insulator insert cup of heavy aluminum; double contact to 1-piece drive line; exclusive, air-insulated polystyrene crossover spacer.

**Finco Model FM5L-5**—Three driven elements, 1 director and 1 reflector. Turn radius 48". Boom 4 1/2 ft. long. Shipping Weight, 4 1/2 lbs. Net Each.....\$10.77

**Finco Model FM5L-8**—Five driven elements, 2 directors, 1 reflector. Turn radius 60". Boom 8' 4" long. Shpg. Wt., 7 lbs. Net Each.....\$17.97

**Finco Model FM5L-10**—Five driven elements, 4 directors, 1 reflector. Turn radius 70". Boom 10 ft. long. Shipping Weight, 9 lbs. Net Each.....\$23.97

**Finco Model FM5L-12**—Split boom with support tubes; 5 driven elements, 6 directors, 1 reflector. Turn radius 87". Boom 13 ft. long. Shipping Weight, 11 lbs. Net Each.....\$29.97

**Finco Model FM5L-SG Stacking Kit**—For 2-bay stacking of any of above antennas. Net Each.....\$2.31

### GOLD CORODIZED MODEL FM-5

Deluxe 10-element, supersensitive FM antenna. Gold corodized protective finish. Heavy duty boom, locking saddle mounting, self-aligning brackets preassembled.

**Finco Model FM-5**—Net Each.....\$21.81

**Finco Model FM-5-G Stacking Kit**—Net Each.....2.31

### GOLD CORODIZED MODEL FM4-4BD

Excellent performance in areas up to 75 miles from station. Has gain equivalent to 4-element twin driven Yagi off of each end. Average gain on FM band, 6.5 db. Boom length, 10 ft.

**Finco Model FM4-4BD**—Net Each.....\$17.37

### GOLD CORODIZED MODEL FM-4G SUPER DELUXE

Geometrically designed for ultra-high gain using a twin-drive element with impedance control stubs. Extra wide spacing provides greater signal than most 8- to 10-element designs. Pre-assembled all-aluminum construction; has reinforced elements, square boom and snap-out, lock-tite design. Shpg. Wt., 6 1/2 lbs.

**Finco Model FM-4G**—Net Each.....\$14.94

**Finco Model FM-4G Stacking Kit**—Net Each.....2.31

### GOLD CORODIZED MODEL FM-3 YAGI

Broad banded 4-element Yagi for high gain. All aluminum construction with square boom, "Lock-Tite-No-Tilt" saddle bracket and reinforced elements with snap-out brackets. "Impedance step-up" design for maximum energy transfer. Shpg. Wt., 5 lbs.

**Finco Model FM-3 Antenna**—Net Each.....\$ 8.10

**Finco Model FM-3-G Stacking Kit**—Net Each.....2.31

### GOLD CORODIZED MODEL FMT-A KIT

All-direction FM antenna that mounts on your present TV mast. Supplied with 50 ft. of 300-ohm twin line, 2 mast standoff insulators, 3 wood screw-eye standoff insulators.

**Finco Model FMT-A Kit**—Net Each.....\$7.92

### GOLD CORODIZED MODEL FMT-1 KIT

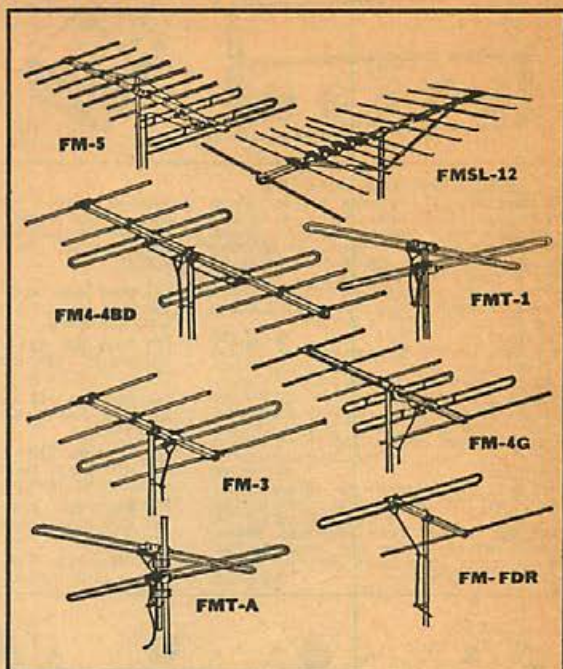
All-direction FM antenna kit covers full FM band without need for rotation. Two folded dipoles matched with special 1/4-wave phasing stub for optimum gain, circular pickup pattern. Kit includes 50 ft. of 300-ohm twin line, 5-ft. mast, mounting base, 2 mast standoffs and 3 wood screw-eye standoff insulators. Shipping Weight, 6 lbs.

**Finco Model FMT-1 Kit**—Net Each.....\$7.92

### GOLD CORODIZED MODEL FMT

Same as FMT-A, but antennas only; wire, mast, base and hardware not supplied.

**Finco Model FMT Antenna**—Net Each.....\$5.97



### GOLD CORODIZED MODEL FM-FDR

Folded dipole and reflector antenna has gain up to 3.5 db. Pre-assembled aluminum construction has snap-out, self-aligning brackets. Shipping Weight, 6 1/2 lbs.

**Finco Model FM-FDR**—Net Each.....\$4.34

**Finco Model FM-5-G Stacking Kit**—Net Each.....2.31

### GOLD CORODIZED MODEL FM2-KR-5 KIT

Same as FM-FDR, but supplied with 50-ft. 300-ohm twin lead, 5' x 1 1/2" O.D. mast, stand-offs, base mount, 25' of guy wire, guy ring and collar, 3 guy hooks and screw nuts. Shpg. Wt., 5 1/2 lbs.

**Finco Model FM2-KR-5 Kit**—Net Each.....\$7.50

## FM ANTENNA ACCESSORIES

Finco Model	Description	Net Each
3005	TV-FM coupler-splitter permits operating both VHF TV and FM from one antenna	\$3.90
3006	FM trap blocks FM signals from TV set	3.45
3007	FM bandpass filter passes FM signal only	4.17
3012	Balun transformer matches 300-ohm lead-in to 72 ohms	2.37
3018	VHF-UHF-FM coupler splitter: all 3 from 1 line	5.37
3019	Same, but TV with isolated FM output only	2.31

## MICROTRAN TAPE ACCESSORIES

### MOLDED MAGNETIC TAPE ERASER

Heavy duty bulk tape demagnetizer that develops high intensity magnetic field to erase recorded signals and noise from magnetic tape, without rewinding. Noise level reduced below level of standard erase heads. Spindle-mounted reel permits rapid coverage without missed spots. For 5" and 7" reels, plus 1 1/2" with adapter; spindle removable for use with other reel sizes. May also be used to demagnetize record-playback-erase heads, watches and other metal objects. Cast epoxy, high impact finish. Size 7" x 3 1/2" x 3 1/2". Weight, 9 lbs.

**Microtran Model HD-11M Magnetic Tape Eraser**—Net \$18.95

**Microtran Model HD-11-AD Adapter Hub**—For use with 1 1/2" reels. Net Each.....\$2.30

### HUM-BUCKING TELEPHONE PICKUP COIL

For transcribing telephone conversations with high impedance input tape recorders, amplifiers and dictating machines. Symmetrical hum cancelling pickup coils eliminate high stray hum pickup encountered with conventional coils. **Mounting:** Double suction cup. **Cable Length:** 5 feet. **Termination:** Tinned leads. **Size:** 2 1/2" w. x 1 1/2" d. x 1/2" h. Finished in gray. Weight, 2 oz.

**Microtran Model HP-70 Telephone Pickup**—Net Each.....\$6.95

**Microtran Model HP-71 Telephone Pickup**—Same, with molded phone plug termination. Net Each.....\$7.50

### TELEPHONE PICKUP COIL

For transcribing telephone conversations with recorder or making messages audible on amplifier. May also be used as probe for locating sources of hum. **Equalized Level:** Local and distant conversations recorded with more constant signal level than base mounted

units. **Suction Cup:** Mounting on telephone receiver. **Type:** Universal model suitable for all types of telephones. **Plug-In Use:** Supplied with 68" shielded cable, terminated with standard phone plug for mike input of recorder or amplifier. **Size:** 3/8" dia. x 2" long. Finished in optical black. Weight, 1 1/2 oz.

**Microtran Model HP-61 Telephone Pickup**—Net Each... \$4

### STEREO THIRD-CHANNEL OUTPUT MATCHING TRANSFORMER

Designed for conversion of monophonic system to stereo, or for modification or enlargement of existing stereo system. May be used for "hole-in-the-middle" fill in with third channel speaker. Permits addition of any combination of speakers, maintaining matched impedances, required polarities, and desired power levels. **Power:** 30 watts. (Peak, 100 watts.) **Frequency Response:** 40-20,000 cps. **Impedance Range:** +16, +8, +4, 0, -4, -8, -16 ohms. **Insertion Loss:** Less than 1 db in most hookups. **Size:** 3 1/2" w. x 2 1/2" d. x 2 1/2" h. **Mounting Centers:** 3 1/2". Finished in vacuum varnish impregnation. Weight, 2 lbs.

**Microtran Model HM-90 Matching Transformer**—Net... \$6.35

### TAPE HEAD DEMAGNETIZER

Designed for removal of any residual permanent magnetism from tape recording heads, reducing noise level, harmonic distortion and tape head hum. Also improves signal-to-noise ratio and insures high frequency response. Consists of heavy duty AC electromagnet with extended pole piece for easy access to most recording heads. When energized, contact of pole piece with pole tip of the head causes the head to be saturated by an alternating magnetic field. Gradual removal of head from this field neutralizes any residual permanent magnetism. **Size:** 1 1/2" dia. x 4" long. Finished in high impact molded epoxy. Weight, 7 oz.

**Microtran Model HD-40M Demagnetizer**—Net Each... \$25





### MICROPHONE MIXERS

- A** Part No. 306 Stereo Mixer—Two-channel, hi-Z mixer feeds up to two pairs of stereo signals; Mikes, tuners, phonos, etc. into two outputs to recorder or amplifier. Individual gain control for each channel. "Lev-R-Switch" converts to use as four monophonic channels. Two phono jack outputs; four standard phone jack inputs. Size, 2" x 3" x 6". Net Each. . . . . \$13.50
- Part No. 306TR Transistorized Stereo Mixer**—Same, but with two battery-operated transistor amplifiers for 6 db gain; permits use with up to 30 ft. cable without loss. Low noise and distortion. Freq. response, 20-20,000 cps. With battery and on-off switch. Tan finish; brown knobs with gold inserts. Rubber feet. Net Each. . . . . \$22.50
- Part No. 301 Monophonic Mixer**—Similar to Part No. 306, but monophonic only. Net Each. . . . . \$11.70
- Part No. 301TR Transistorized Monophonic Mixer**—Same, but with one battery-operated transistor amplifier. With battery. Net Each. . . . . \$18.00

### "MINI-MIX" AUDIO MIXERS

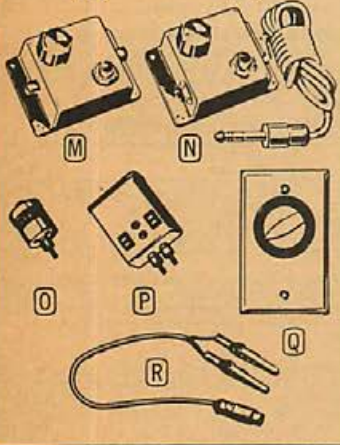
- Miniature, hi-Z mike mixers. Feeds two signals into single output. Separate gain control for each channel. recessed inside housing. Very low loss. Size, 2 1/4" x 1 1/4" x 2 1/8".
- B** Part No. 310—Two 2-cond. phone jack inputs; 2-cond phone plug output. Net Each. . . . . \$4.77
- C** Part No. 311—Same, but long plug output fits recorders with recessed jacks. Net Each. . . . . \$5.37
- D** Part No. 312—Similar, but special size plug and jacks for Gelsco recorders. Net Each. . . . . \$5.37
- E** Part No. 313—Similar to No. 311, but with short Revere plug and jacks for standard or short phone plugs. Net. \$5.37
- D** Part No. 315—Two 2-cond. phone jack inputs to female mike connector. Net Each. . . . . \$4.77
- Part No. 316**—Two phono jack inputs to phono plug output. Net Each. . . . . \$4.77

**Part No. 320**—Similar to No. 315, but two male mike inputs and female mike connector output. Net Each. . . . . \$4.77

**C** Part No. 326—Two 3-cond. phone jack inputs; long 2-cond. phone plug output; with internal resistor network for Webcor recorders. Net Each. . . . . \$5.97

### "MIX-AMP" AMPLIFIERS

- E** Part No. 501 Miniature Transistorized Amplifier—Used with resistance type mixers to overcome loss. Used with "Mini-Mix", provides 3 db gain on signals up to 2 V. On-off and hi-low impedance switches. Freq. response, 20-20,000 cps. Has 2-cond. phone jack input; extra long, 2-cond. phone plug output to fit recorders with recessed jacks. Battery supplied. Size, 2 1/4" x 1 1/4" x 1 1/8". Net Each. . . . . \$12.00
- Part No. 502**—Same, but with male mike connector input to female mike connector output. Net Each. . . . . \$12.00



### HI-FI, STEREO SWITCHES AND CONTROLS

- Tan finish metal housing, 2" x 2" x 1". With hardware and instructions.
- F** Part No. 661 Stereo-Mono Selector—Fast switching, from monophonic to stereo operation. Two each phono jack inputs and outputs. Net Each. . . . . \$1.80
- G** Part No. 662 Stereo-Mono-Reverse Selector—Same, but with channel reversing facility. Net Each. . . . . \$2.10
- F** Part No. 663 Phono-Tuner Adapter—Modernizes old sound equipment by providing two inputs. Switch selects either input. Phono jack output; two phono jack inputs. Net Each. . . . . \$1.50
- G** Part No. 664 Multiple Selector—Accepts up to five input circuits with switch marked AM, FM, Phono, Tape and Aux. Phono jack amplifier output; five phono jack inputs. Net Each. . . . . \$2.97
- F** Part No. 665 Speaker Phase Control—For proper phasing in stereo or other speaker uses by slide switch adjustment. Screw terminals. Net Each. . . . . \$1.50

- H** Part No. 666 Speaker Volume L-Pad Control—Remote or extra speaker volume control rated 5 watts, peak; 8 ohms. Screw terminals. Net Each. \$3.90
- I** Part No. 667 Speaker Selector—Three position switch selects either one or both speakers at same time. Screw terminals; shielded housing. Net Each. \$2.55
- G** Part No. 668 Stereo Selector—Switch to both channels of any one of three stereo sources. Three pair phono jack inputs; one pair, outputs. Net Ea. \$3.75
- H** Part No. 669 Stereo Volume Control—Matched, tandem high impedance control used as master gain for stereo inputs connected to separate amplifiers. One pair each phono jack inputs and outputs. Net Each. . . . . \$3.90
- J** Part No. 670 Stereo Speaker Selector—Connects two remote pairs of stereo speakers to a stereo amplifier. Selects either or both pairs of speakers with 3-position switch. Screw terminals. Net Each. . . . . \$3.75
- J** Part No. 671 Monophonic Speaker Selector—Selects any one of five mono speakers with five-position tap switch. Phono jack output; five phono jack inputs. Net Each. . . . . \$3.30
- K** Part No. 672 Private Listening Station—Wires to TV or radio for individual listening. Phone jack for headphone; 10,000 ohm volume control. Two alternate input terminations: Std. phono jacks or screw terminals. Net Each. . . . . \$2.70
- L** Part No. 676 Audio Junction Box—Provides four outputs for multiple headphone use. Four 2-cond. phone jacks wired in parallel; two side panel grommets for multiple wiring. Net Each. . . . . \$2.10
- Part No. 677 Audio Junction Box**—Same as No. 676 but with two phono jacks for easy plug-in of additional junction boxes. Net Each. . . . . \$2.55
- M** Part No. 678 Deluxe Private Listening Station—For headphone monitor control with PA systems, tape recorders, etc. Phone jack; 10,000 ohm volume control; two phono jacks for multiple hook-ups. Shielded. Net Each. . . . . \$2.55
- N** Part No. 679 Deluxe Private Listening Station—Similar to 678 except 2-cond. phone jack and plug ends on 6' shielded cable; for multiple hook-ups. Net Each. . . . . \$3.45

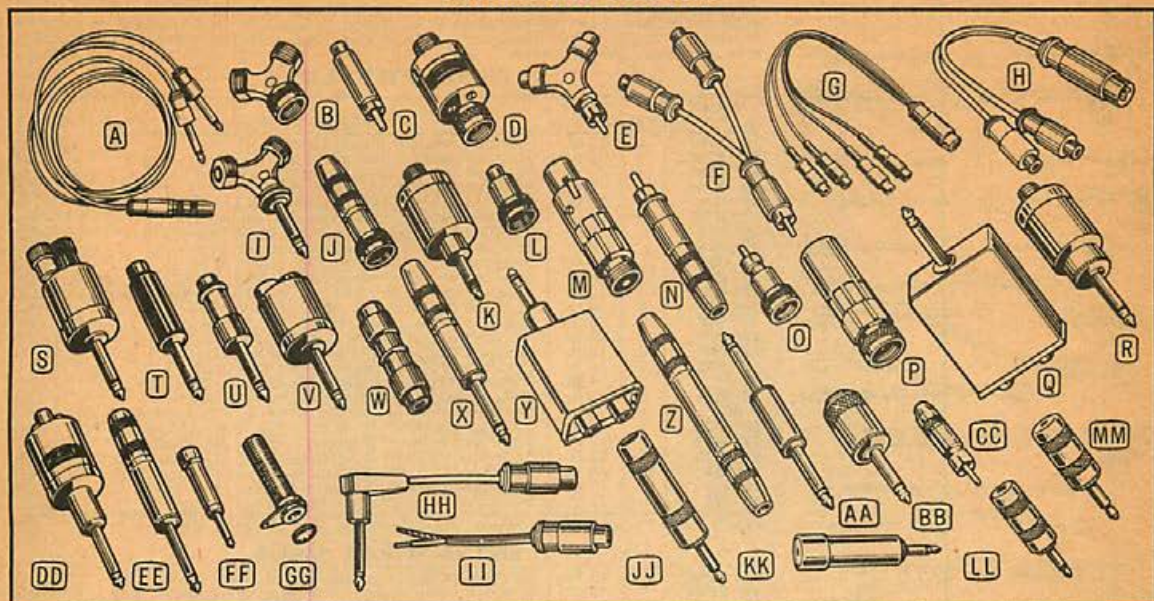
- Q** Part No. 366 Volume Control Adapter—Single channel for hi-Z circuits only. Ideal for balancing stereo channels; use in pairs for dual channel control. Phono jack input to phono plug output. Shielded; nickel-plated. Net Each. . . . . \$2.37
- P** Part No. 367 Dual Volume Control Adapter—Twin-channel version of No. 366; recessed volume controls for each channel. Two phono jack inputs; two phono plug outputs. Shielded; tan finish. Size, 2 1/4" x 1 1/4" x 1 1/8". Net Ea. \$4.50

### WALL PLATE CONTROLS

- Installs in standard electrical outlet box. Mounting centers 3 1/4". Brushed metal wall plate, 2 3/4" x 4 1/2" x 1 1/4" d.; ivory knob and black-white lettered escutcheon.
- Q** Part No. 651 T-Pad Speaker Volume Control—Constant imped. 8-ohm T-pad rated 10 watts; 20 watts, peak. Screw terminals. Brushed brass plate. Net Each. . . . . \$5.97
- Part No. 651-S**—Same, but stainless steel plate. Net Each. . . . . \$5.97
- Part No. 652**—Same as No. 651, but 16 ohms (or two 8 ohms). Net Each. . . . . \$5.97
- Part No. 652-S**—Same, but stainless steel plate. Net Each. . . . . \$5.97
- Q** Part No. 653 Volume Control With Jack—Same as No. 651, but with phono jack on front for external speaker or headset. Rated 4 watts; 8-ohm T-pad. Brushed brass plate. Net Each. . . . . \$7.20
- Part No. 654**—Same, but 16-ohm T-pad. Net Each. . . . . \$7.20
- Q** Part No. 655 Multi-Speaker Selector—A 7-position switch selects any combination of three speakers. Constant impedance. Screw terminals. Brushed brass plate; 2 3/4" x 4 1/2" x 1 1/4" d. Net Ea. \$3.30
- Part No. 655-S**—Same, but stainless steel plate. Net Each. . . . . \$3.30
- Q** Part No. 656 L-Pad Speaker Volume Control—Prevents mismatch to amplifier at different volume levels. Rated 10 watts, peak; 8 ohms. Solder lug terminals. Brushed brass plate, 2 3/4" x 4 1/2" x 1 1/4" d. Net Each. . . . . \$4.17
- Part No. 656-S**—Same, but stainless steel plate. Net Each. . . . . \$4.17
- SPEAKER ADAPTER CABLE**
- R** Two quick-connect alligator clips wired to a molded phono extension jack; 12' shielded cable. Part No. 82AB86—Net Each. . . . . 66c



## SWITCHCRAFT ADAPTERS



A complete line of versatile adapters for interconnecting components without mating jacks and/or plugs. For hi-fi, stereo, phonographs, turners, tape recorders, amplifiers, PA systems, etc. Positive mating design prevents line losses. Nickel-plated finish for long life.

Part No.	Fig.	Description (Connector Terminals)	Net Ea.
05FH81	A	<b>Stereo Headphone Adapter</b> —Two std. 2-conductor phone plugs wired to a 3-cond. phone jack; shielded 4' cable	\$2.61
25Y	B	<b>Y Adapter</b> —Two parallel male mike connectors to one female mike connector	.99
328A	C	<b>Audio Equalizer</b> —Converts ceramic phono cartridge to magnetic input; phone jack input to phono plug output	1.77
329	D	<b>High Impedance Volume Control Adapter</b> —Female mike connector to male mike connector	4.17
330F	E	<b>Y Adapter</b> —Two parallel phono jacks to a phono plug; shielded	1.05
330F1	F	<b>Flexible Y Adapter</b> —Two parallel phono jacks to a phono plug; shielded 4' cable	1.20
330F2	F	<b>Flexible Y Adapter</b> —Same, but jack and plug to plug arrangement	1.20
330F3	F	<b>Flexible Y Adapter</b> —Same as 330F1, but two phono plugs to one phono plug	1.20
330G	G	<b>Stereo Cable Adapter</b> —European 5-pin plug to four phono jacks; shielded, color-coded 12" stereo cables†	3.30
330H	H	<b>Flexible Y Adapter</b> —European 3-pin plug to two phono jacks; shielded, color-coded 5" cable†	1.80
330M	I	<b>Y Adapter</b> —Two parallel male mike connectors to a 2-conductor phone plug	1.14
330PJ	J	<b>Y Adapter</b> —Same, but two phono jacks to a 2-conductor phone plug; shielded	1.14
332A	K	<b>Phone Jack Input to female mike connector output adapter*</b>	1.05
333	L	<b>American Geloso Recorder Adapter</b> —Phone jack to special 2-conductor plug	1.41
334A	L	<b>Phone Jack Input to female mike connector output adapter; shielded*</b>	.75
334B	L	Same, but <b>phone jack input to male mike connector output; shielded</b>	.75
335	M	<b>Switchcraft 2501MP (Amphenol 75PCIM) 2-conductor input to Cannon XL-3-11 output; unsoldered internal wire, one end</b>	1.77
336A	N	<b>Shielded 2-conductor phone jack input to phono plug output</b>	.87
336B	N	Same, but <b>2-conductor phone jack input to phono jack output</b>	.87
338A	O	<b>Phone plug input to male mike connector output; shielded</b>	.60
339B	O	<b>Phone plug input to female mike connector output; shielded*</b>	.60
339	P	<b>Switchcraft 2501F (Amphenol 75MCF) output connector to Cannon XL-3-12 input connector</b>	1.77
340	Q	Two parallel 2-conductor <b>phone jack inputs to 2-conductor phone plug output; shielded</b>	2.25
341	R	<b>Silent Plug Adapter</b> —2-cond. phone jack to 2-cond. phone plug; circuit-closing device stops amplifier squeal	1.58
342	S	<b>Dual purpose binding post/banana jack input to 2-conductor phone plug output</b>	1.58
343	T	<b>Phone jack to phone plug; built-in limiting resistor for Weacor recorders</b>	1.77
345A	U	<b>Phone plug output to phono jack input adapter</b>	1.75
346	V	<b>Tip Jack Input to 2-conductor phone plug output</b>	1.29
349A	W	<b>Phone Plug Coupler</b> —Mates with phono plug at each end; shielded	.60
352	X	<b>Stereo to Mono Adapter</b> —3-conductor phone jack to 2-conductor phone plug; shielded	1.20
353	Y	<b>Stereo Headphone Adapter</b> —Permits two stereo headphones on single 3-circuit jack; shielded tan metal case	2.56
361	Z	<b>Coupler</b> —2-conductor phone jack at each end; shielded	1.35
362	Z	<b>Coupler</b> —Same, but 3-conductor phone jack at each end; shielded	1.65
363	AA	<b>Coupler</b> —2-conductor phone plug at each end; shielded	1.20
364	BB	<b>Adapter</b> —2-conductor "Tini-Jax" $\frac{1}{4}$ " dia. sleeve to 2-conductor $\frac{1}{4}$ " O.D. phone plug; shielded	.87
365	CC	<b>Adapter</b> —2-conductor "Tini-Jax" input to phono jack output; shielded	.87
368	DD	<b>Volume Control</b> —Phone jack input to 2-conductor phone plug output; shielded	2.70
369	EE	<b>2-conductor Revere/Wolensak phone jack to standard 2-conductor phone plug; shielded</b>	1.20
370	FF	<b>Phone jack to 2-conductor "Tini-Plug" (<math>\frac{1}{4}</math>" finger); shielded</b>	.84
371	GG	<b>Thick Panel Adapter</b> —For 3501F phono jack in panels up to $1\frac{1}{2}$ " thick	1.57
372	HH	<b>Molded 2-conductor right angle phone plug to molded phone jack; 2" shielded cable</b>	4.50
373	II	<b>Molded 2-conductor phone jack to 3" shielded cable, stripped and tinned leads</b>	1.05
374	JJ	<b>Phone Jack Input to 2-conductor "Tini-Plug" (<math>\frac{1}{4}</math>" dia. finger) output; shielded, nickel plated brass handles</b>	1.02
375	KK	<b>Phone Jack Input to 2-conductor "Micro-Plug" (.097" dia. finger) output; shielded, nickel plated brass handles</b>	.90
376	LL	<b>"Tini-Jax" input to 2-conductor "Micro-Plug" (.097" dia. finger) output; shielded, nickel plated brass handles</b>	.90
377	MM	<b>"Micro-Jax" input to 2-conductor "Tini-Plug" (<math>\frac{1}{4}</math>" dia. finger) output; shielded, nickel plated brass handles</b>	.90

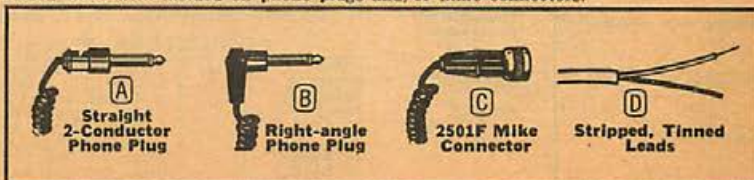
\*May be used as male or female mike connector with coupling ring supplied. †For Grundig, Norelco, Sony or Korting tape recorders.

## MOLDED COILED CORD SHIELDED CABLE ASSEMBLIES

Black neoprene jacketed, single-conductor, shielded cable with molded-on phone plugs and/or mike connectors.

No.	End #1	End #2	Lgth.*	Net Ea.
05LH84	A	D	4'	\$1.95
05LP05	A	A	12'	4.50
05LP15	A	B	12'	4.50
05LP87	A	C	20'	4.59
05LT05	A	A	20'	6.30
05LT15	A	B	20'	6.30
05LT87	A	C	20'	6.39
15LH84	B	D	4'	1.95
87LH84	C	D	4'	2.01

\*Extended.





# Barker Stereo-Audio Cables

The world's largest listing of Hi-Fi, Stereo and Audio cables. Plugs are solid plastic units, molded directly onto the wire ends to provide unfailling performance and unexcelled appearance. Made by the inventors of exclusive "Venar" molding process, famous for reliability. "Molded-On" plugs are completely shielded, noise free, low loss, low capacity, waterproof and indestructible. \*Trademark

## PHONO-STEREO SERIES

Model No.	Fig.	Cable Length	Type Cable and Plugs	Net Each
18" MM	A	18 in.	Shielded cable; 2 phono plugs	\$0.69
36" MM	A	36 in.	Shielded cable; 2 phono plugs	.78
72" MM	A	72 in.	Shielded cable; 2 phono plugs	.96
12" MM	A	12 ft.	Shielded cable; 2 phono plugs	1.35
36" RM	B	36 in.	Shielded cable; 2 right-angle phono plugs	.78
72" RM	B	72 in.	Shielded cable; 2 right-angle phono plugs	.96
36" MS	C	36 in.	Shielded cable; stripped end, phono plug	.63
72" MS	C	72 in.	Shielded cable; stripped end, phono plug	.75
12" MS	C	12 ft.	Shielded cable; stripped end, phono plug	1.20
36" RS	D	36 in.	Shielded cable; stripped end, right-angle phono plug	.63
72" RS	D	72 in.	Shielded cable; stripped end, right-angle phono plug	.75
18" MF	E	18 in.	Shielded cable; phono plug, phono jack	.84
36" MF	E	36 in.	Shielded cable; phono plug, phono jack	.96
72" MF	E	72 in.	Shielded cable; phono plug, phono jack	1.17
12" MF	E	12 ft.	Shielded cable; phono plug, phono jack	1.56
12" MC	F	12 ft.	Parallel cord; phono plug, alligator clips	1.11
M-FF	G	4 in.	2 parallel shielded cables; phono plug, 2 phono jacks	1.29
M-MM	H	4 in.	2 parallel shielded cables; 3 phono plugs	1.20
F-2B	I	5 in.	Shielded cable; phono pin jacks; 2 banana plugs	1.26
36" D2S	J	36 in.	2 shielded cables*; 2 phono plugs, 2 stripped ends	1.65
72" D2S	J	72 in.	2 shielded cables*; 2 phono plugs, 2 stripped ends	1.89
12" D2S	J	12 ft.	2 shielded cables*; 2 phono plugs, 2 stripped ends	2.46
36" D4	K	36 in.	2 shielded cables*; 4 phono plugs	1.98
72" D4	K	72 in.	2 shielded cables*; 4 phono plugs	2.28
12" D4	K	12 ft.	2 shielded cables*; 4 phono plugs	3.00

\*Each cable individually shielded; color-coded to identify each circuit.

## PHONO-STEREO SERIES

72" LPM	L	72 in.	Shielded cable; long phone plug, short phono plug	\$1.41
12" LPM	L	12 ft.	Shielded cable; long phone plug, short phono plug	1.89
72" RPM	M	72 in.	Shielded cable; right-angle phone plug, phono plug	1.41
12" RPM	M	12 ft.	Shielded cable; right-angle phone plug, phono plug	2.01
72" LPP	N	72 in.	Shielded cable; 2 long phone plugs	2.16
12" LPP	N	12 ft.	Shielded cable; 2 long phone plugs	2.01
72" RPP	O	72 in.	Shielded cable; 2 right-angle phone plugs	2.16
12" RPP	O	12 ft.	Shielded cable; 2 right-angle phone plugs	2.29
72" LPS	P	72 in.	Shielded cable; stripped end, long phone plug	1.74
12" LPS	P	12 ft.	Shielded cable; stripped end, long phone plug	1.74
72" RPS	Q	72 in.	Shielded cable; stripped end, right-angle phone plug	1.74
12" RPS	Q	12 ft.	Shielded cable; stripped end, right-angle phone plug	1.38
72" LPC	R	72 in.	Parallel cord; long phone plug, alligator clips	1.50
12" LPC	R	12 ft.	Parallel cord; long phone plug, alligator clips	1.38
72" RPC	S	72 in.	Parallel cord; right-angle phone plug, alligator clips	1.50
12" RPC	S	12 ft.	Parallel cord; right-angle phone plug, alligator clips	2.10
72" L3RC	T	72 in.	Input cable to recorder; phono plug, alligator clips	2.40
12" L3RC	T	12 ft.	Input cable to recorder; phono plug, alligator clips	2.04
72" L3RM	U	72 in.	Input cable to recorder; phono plug, phono plug	2.40
12" L3RM	U	12 ft.	Input cable to recorder; phono plug, phono plug	1.50
72" TPS	V	72 in.	Shielded cable; min. phone plug, stripped end	1.86
12" TPS	V	12 ft.	Shielded cable; min. phone plug, stripped end	1.56
36" TPM	W	36 in.	Shielded cable; min. phone plug, phono plug	1.65
72" TPM	W	72 in.	Shielded cable; min. phone plug, phono plug	2.01
12" TPM	W	12 ft.	Shielded cable; min. phone plug, phono plug	2.40
24" PJW	X	24 ft.	Shielded cable; Wollensak phone plug and jack	3.00
12" PJ	Y	12 ft.	Shielded cable; shielded phone jack, long phone plug	3.00
24" PJ	Y	24 ft.	Shielded cable; shielded phone jack, long phone plug	3.00
72" PJ	Y	72 in.	Shielded cable; shielded phone jack, long phone plug	3.10
3PJ-DM	Z	108 in.	72" shielded 2-cond. cable with 3-cond. phone jack; two 36" shielded cables with phono pin plugs	3.75
3PJ-D2P	Y	108 in.	Same as above, but with two phone plugs	4.05
3LP-3PJ	Y	12 ft.	2-cond. shielded cable; 2-cond. phone jack, phone plug	2.85
2LP-2PJ	Y	6 in.	Similar to above, but two shielded cables in parallel to a 2-cond. phone plug and two 2-cond. phone jacks	3.00
3LP-2PJ	Y	6 in.	Same, but phone plug is 3-conductor type	3.00

## FULLY SHIELDED MICROPHONE CONNECTOR SERIES

72" MIC-S1	AA	72 in.	Shielded cable; mike connector, stripped end	\$1.50
12" MIC-S1	AA	12 ft.	Shielded cable; mike connector, stripped end	1.74
72" MIC-2	BB	72 in.	Shielded cable; mike connectors, each end	1.80
12" MIC-2	BB	12 ft.	Shielded cable; mike connectors, each end	2.04
48" FM-M	CC	48 in.	Shielded cable; mike connector, phono plug	1.32
72" FM-M	CC	72 in.	Shielded cable; mike connector, phono plug	1.56
72" FM-PL	DD	72 in.	Shielded cable; mike connector, long phone plug	1.71
12" FM-PL	DD	12 ft.	Shielded cable; mike connector, long phone plug	2.10

## FULLY SHIELDED ADAPTERS

Model	Fig.	Description	Net Ea.
APF	EE	Phono jack to phono plug adapter	\$0.75
APF3R	FF	Phono jack to Webeor phone plug with 22K-ohm resistor*	1.35
AFF	GG	Phono jack to phono jack adapter	1.60
PJM	HH	Phono jack to phono plug adapter	1.35
MF	II	Ceramic phono cartridge jack to mag. output phono plug	1.11
ATF	JJ	Min. 2-cond. phone plug to phono pin jack adapter	.90
PJT	KK	Female phone jack to 2-cond. phone plug adapter	1.50
MMPM-H	.....	Male mike input to phono plug output adapter	.33

\*Fits Webeor tape recorders, 1946 to present.

## CONNECTORS, PLUGS, WIRE AND FM ANTENNA

FM-1	LL	Twinlead FM dipole indoor antenna; 6' lead-in, spade lugs	\$1.65
FMIC-H	.....	Female mike connector with flexible spring and set screw	.36
MMCI-H	.....	Male mike connector with flexible spring and set screw	.30
MP-5	.....	Cadmium-plated brass phono plug with 1/2" l. pin	.54
10' SMC-2	.....	7 strand, 22 ga. tinned shielded copper wire with non-migrating vinyl jacket; pkg. 10 ft.	.84
15' SMC-2	.....	Same, but pkg. 15 ft.	1.35
25' SMC-2	.....	Same, but pkg. 25 ft.	1.35



# Bozak

# Audio Equipment

## COLUMNAR LOUDSPEAKERS

Wherever broadly-distributed, natural-sounding reproduction is required. Ideal for concerts, churches and theaters. Bozak engineering assures full power-handling throughout the entire music spectrum. Smooth response keeps feedback to a minimum. All units are completely weatherproof and feature a low energy density, unique to columnar speakers. All Bozak columnar loudspeakers must be used with professional quality equipment. This applies to microphones, mixers, amplifiers. Conventional PA systems are not sufficient to deliver the full Bozak columnar potential.

### MODEL CM-109-18 CONCERT SERVICE

Heavy-duty, large-capacity unit for precision reproduction of music. Designed especially for indoor and outdoor symphonic concerts. Freedom from peaking permits placing of speakers close to source without feedback. Features twin-line, two-way system with 6 db/octave crossover at 1500 cps. Six slot-loaded, heavy-duty drivers at low end. Twelve slot-loaded, 2" treble drivers at the high end. May be hung in free space or placed against a wall. Eyebolts supplied. Min. recommended amplifier power, 50 watts RMS; max., 200 watts RMS. Enclosure of 3/4" marine plywood. Finished in beige enamel with expanded aluminum grille. **Frequency Response:** 100-13,000 cps. **Impedance:** 16 ohms. **Output:** 85 db at 1 kc at 4' for .04 watt input. **Power Handling:** 100 watts RMS. **Size:** 15 1/2" w. x 10" d. x 57" h. Shipping Weight, 155 lbs. **\$495.00**  
Bozak Model CM-109-18 Concert Service—Net Each.

### MODEL CM-209-18 CONCERT SERVICE

Similar in appearance and application to the CM-109-18 but for slightly smaller requirements. Min. recommended amplifier power, 50 watts RMS; max., 100 watts RMS. **Frequency Response:** 150-13,000 cps. **Impedance:** 16 ohms. **Output:** 85 db at 1 kc at 4' for .19 watt input. **Power Handling:** 50 watts RMS. **Size:** 12 1/2" w. x 8" d. x 44" h. Shipping Weight, 105 lbs. All other specs same as CM-109-18. **\$395.00**  
Bozak Model CM-209-18 Concert Service—Net Each.

### MODEL CM-109-6 GENERAL PURPOSE, MEDIUM-DUTY

For use both indoors and outdoors. Especially equipped to serve for music and paging in large areas requiring a deep throw and broad coverage. May be modified at the input of the power amplifier for specific usage. Six Bozak 8" M-109 speakers in a tightly-coupled, slot-loaded vertical array are mounted in a 3/4" Ponderosa pine enclosure either finished in a beige or medium gray enamel or unfinished. Twist-lock male receptacle for female plug connector. Should be used in conjunction with cardioid mike with bass roll-off. **Frequency Response:** 50-10,000 cps. **Impedance:** 16 ohms. **Output:** 85 db at 1 kc at 4' for .024 watt input. **Power Handling:** 100 watts. **Size:** 11" w. x 11 1/4" d. x 57" h. Shipping Weight, 110 lbs. **\$325.00**  
Bozak Model CM-109-6 General Purpose—Net Each.

### MODEL CM-209-6 GENERAL PURPOSE, MEDIUM-DUTY

Intermediate in size to the CM-109-6 and CM-200-10. Comprised of six full-range drivers with weatherproof diaphragms, connected in series-parallel and slot-loaded. Features recessed spring terminal connectors. **Frequency Response:** 75-13,000 cps. **Impedance:** 16 ohms. **Output:** 85 db at 1 kc at 4' for .12 watt input. **Power Handling:** 75 watts. **Size:** 11" w. x 8 1/4" d. x 42" h. Shipping Weight, 85 lbs. All other specs same as CM-109-6. **\$225.00**  
Bozak Model CM-209-6 General Purpose—Net Each.

### MODEL CM-200-10 SEVERE REVERBERATION SPEAKER

For reinforcement of speech and music in moderate-sized indoor areas; may also be used outdoors. Specially engineered for locations presenting problems of reverberation and microphone placement. Smooth overall response; restricted bass; extended treble. Treble boost and bass attenuation may be adjusted at the input of the power amplifier. Features two-way system with 6 db/octave crossover at 1500 cps. Comprised two 6" drivers at low end and eight 2" treble speakers at high end. Both slot-loaded in single vertical array. Housed in 3/4" Ponderosa pine finished in beige or medium gray enamel or unfinished. Recessed spring terminals are phased and numbered. Recommended amplifier rating, 50 watts min. **Frequency Response:** 200-15,000 cps. **Impedance:** 8 ohms. **Output:** 85 db at 1 kc at 4' for .42 watt input. **Power Handling:** 50 watts. **Size:** 9" w. x 6 3/4" d. x 42" h. Shipping Weight, 55 lbs. **\$195.00**  
Bozak Model CM-200-10 Severe Reverberation—Net.

## EQUIPMENT CABINETS

Attractive cabinet designs offer enduring beauty and authentic proportions. Solid and veneered hardwood exteriors, hand-rubbed finishes. Made of 3/4" Flakcore®; joints mortised and glued. Equipment cabinets have lift tops, adjustable shelves and motor boards, plus removable backs. Provide maximum space and ventilation for quality hi-fi system installations. Cabinets are also available unfinished, permitting matching to room decor even more closely.

### MODEL C-305-U "URBAN" (FIG. A)

Dignified elegance in modern styling, this carefully crafted unit offers space for complete hi-fi component installation. Designed to match Bozak "Urban" speaker systems and cabinets (B-300, B-302A and B-305), for complete home hi-fi centers. Or, with other modern styles of furniture or speaker systems, blends perfectly in most room interiors. Finished in matte walnut; available in hand-rubbed genuine mahogany on special order. Shipping Weight, 110 lbs. **\$185.00**

Bozak Model C-305-U—Net Each.

Bozak Model C-305-IP—Same, but with double-lift top and two adjustable wells. Net Each. **\$195.00**



CM-109-2



CM-109-18



CM-200-2

## SPECIAL LOUDSPEAKERS

### MODEL CM-109-2 OMNIDIRECTIONAL CEILING SPEAKER

Designed for areas requiring uniform sound intensities. Suited to lecture rooms, restaurants, waiting rooms and general public areas. Affords natural voice and music reproduction. Effectively covers a circle 12' in dia. Should be used with high quality associated equipment for best results. Special sound diffuser plate reflects sound downward in uniform pattern. Tweeter and 8" bass speaker are housed in an 18" hemispherical, metal enclosure. White finish with gold plastic trim and brass hardware. **Frequency Response:** 100-7,500 cps. **Impedance:** 16 ohms. **Power Handling:** 25 watts. Shipping Weight, 30 lbs. **\$875.00**  
Bozak Model CM-109-2 Ceiling Speaker—Net Each.

### MODEL CM-200-2 MONITOR SPEAKER

Precision engineered for use as a monitor speaker in broadcasting and sound recording studios. Combines smooth frequency response, low distortion and fast transient response for quality sound recreation. Speakers are individually calibrated for uniform performance; may be used in groups for multi-channel operations. Non-hygroscopic speakers may be used in any climate without response variation. Active elements include Bozak B-800 wide-range speaker for bass and midrange and a Bozak B-200Y dual tweeter for high frequencies. Special crossover network permits individual speaker calibration. Enclosure designed for ceiling or wall mounting; made from rugged flakeboard core faced with genuine birch veneer; available either sanded, ready for finishing or painted office gray. Woven plastic grille. Comes complete with mounting bracket. **Frequency Response:** 50-20,000 cps. **Impedance:** 8 ohms. **Power Handling:** 20 watts RMS. **Size:** (including mounting bracket) 14 1/4" w. x 16" d. x 23 1/2" h. Shipping Weight, 60 lbs. **\$134.50**  
Bozak Model CM-200-2 Monitor Speaker—Net Each.

## TAPPED AUDIO LINE TRANSFORMERS

High quality transformers used in 70.7 V multi-speaker distribution systems and for matching speaker impedances to distribution line. Different power levels are obtained with other distribution voltages but any tap can carry its full rated capacity without damage. Both units have 8 or 16 ohm output impedances. Designed for continuous duty. **Frequency Resp.:** +0, -3 db, 20-20,000 cps.

### MODEL CM-100 100-WATT AUDIO TRANSFORMER

Unencased unit may be used in sheltered outdoor applications. **Input Impedance:** 50, 100, 200 or 500 ohms, depending on tap. **Output:** 10, 25, 50 or 100 watts, depending on tap. **Size:** 4 1/2" w. x 3 3/4" d. x 3 3/4" h. Weight, 9 lbs. **\$35.00**  
Bozak Model CM-100 100-Watt Audio Transformer—Net Each.

### MODEL CMT-15 15-WATT AUDIO TRANSFORMER

Completely encased for outdoor use. Screw terminals on primary. **Input Impedance:** 333, 500, 1000 or 2000, depending on tap. **Output:** 2.5, 5, 10 or 15 watts, depending on tap. **Size:** 2 1/2" w. x 3" d. x 4" h. Weight, 3 lbs. **\$19.50**  
Bozak Model CMT-15 15-Watt Audio Transformer—Net Each.



A



B

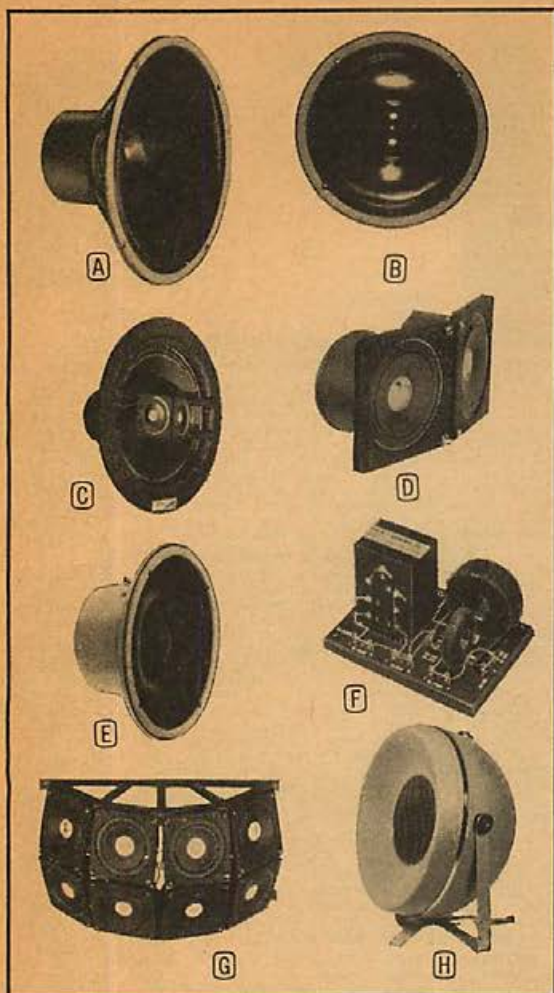
### MODEL C-305-IP "ITALIAN PROVINCIAL" (FIG. B)

Sturdy crafted four-square equipment cabinet designed to match Bozak "Italian Provincial" speaker systems and cabinets (B-300, B-302A and B-305) for complete home listening centers. Finished in fruitwood on genuine cherry. Shpg. Wt., 100 lbs. **\$245.00**  
Bozak Model C-305-IP—Net Each.  
Bozak Model C-305-IP—Same, but with double-lift top and two adjustable wells. Net Each. **\$255.00**

Bozak Model	Lift Top		Adjustable Depth	Below Changer	Left Compartment	Total Size
	DL†	SL†				
C-305-U	17"	15 1/4"	3 1/2" to 7"	16 1/4" w. x 17" d. x 13 3/4" h.	16 1/4" w. x 17" d. x 20 3/4" h.	36 1/2" w. x 20" d. x 30 3/4" h.
C-305-IP	17 3/4"	15 1/4"	3 1/2" to 7"	16 1/2" w. x 17 3/4" d. x 14 3/4" h.	16 1/4" w. x 17 3/4" d. x 20 3/4" h.	38" w. x 20" d. x 30" h.

Bozak Model TD Tape Draw Shelf—Adaptable to any above cabinet. Specify style and finish. Net Each. **\$12.50**  
\*Compacted-wood material, superior to solid lumber and plywood in acoustical properties and dimensional stability. Will not warp, crack or split. †Double lift. ‡Single lift.





These loudspeakers and crossover networks are the "building blocks" for all Bozak speaker systems. Each is designed to do the best possible job in its own range of response, plus match perfectly with its "team-mates" for tonal quality and sound level. The design and engineering enables you to achieve your goal by easy stages of growth without the penalty of scrapping "outgrown" speakers and networks. Start modestly with a wide-range, 2-way B-207A speaker; then add other speakers along with a modifiable crossover network; step-by-step you achieve a four-woofer 50 to 80 watt giant. Your Bozak enclosure works the same way; an infinite baffle that can be chosen for the largest system you expect to finally have. A removable back and unused speaker openings with removable panels permit simplified expansion of your system.

### MODEL B-199A BASS SPEAKER (FIG. A)

For use in two-way systems with Bozak B-200Y, and three-way systems with Bozak B-209B and B-200Y or B-200YA speakers. **Response:** 40 to 4,500 cycles, with gradual roll-off. **Impedance:** 8 or 16 ohms, specify. **Power Rating:** 20 watts. **Resonance:** Below 40 cycles in free air.  $1\frac{1}{2}$ " diameter voice coil. High density field of a  $1\frac{1}{2}$  lb. Alnico V magnet. Diaphragm of Bozak-made variable-density felted paper, with moisture-proof centering, high-compliance suspension on rubberized cloth. **Depth:**  $5\frac{1}{2}$ " front-to-back. Four equally spaced mounting holes, on  $12\frac{1}{2}$ " diameter circle. Eleven-inch diameter, baffle opening. Enclosure should have optimum value of 8 cubic feet, with 5 to 16 cubic feet being acceptable. It should be a totally enclosed box, acoustically lined and cross braced. **Weight,** 8 lbs.  
**Bozak Model B-199A Bass Speaker—Net Each... \$54.50**

### MODEL B-209B MID-RANGE SPEAKER (FIG. B)

For use in three-way systems with Bozak B-199A and B-200Y or B-200YA Speakers. **Response:** 200 to 3500 cycles. **Impedance:** 8 or 16 ohms. **Power Rating:** For use in 20 to 75-watt systems. **Resonance:** None. Voice coil  $1\frac{1}{2}$ " diameter. **Crossovers** (recommended values): 400 or 800, and 2500 cycles. Field  $1\frac{1}{2}$  lb. Alnico V magnet. Damping to permit use in woofer cavity without isolation; and if baffled separately, 1 cubic foot lined with sound-absorbent materials. Direct radiating design matched to Bozak Bass and Treble Speakers; 6 db per octave crossovers with single non-resonant networks and without leveling pads or controls. **Depth:**  $3\frac{1}{2}$ " front to back. **Mounting:** Four equally spaced holes on  $6\frac{1}{2}$ " diameter circle. **Baffle Opening:**  $5\frac{1}{2}$ " diameter. **Weight,**  $6\frac{1}{4}$  lbs.  
**Bozak Model B-209B Mid-Range Speaker—Net Each... \$52.50**

### MODEL B-207A COAXIAL SYSTEM (FIG. C)

A complete two-way Speaker System, consisting of a Bozak B-199A Bass Speaker ("woofer") with a coaxially mounted Bozak B-200Y Treble Speaker ("tweeter"). Provides excellent sound at an extremely low cost for a complete system. **Response:** 40 to 20,000 cycles; useful beyond 20,000. **Impedance:** 8 ohms. **Power Rating:** 20 watts, peaks to 60 watts. **Size:** O.D. of mounting ring  $1\frac{1}{2}$ "; depth behind panel 7". Fits  $12\frac{1}{4}$ " cutouts. Enclosure same as B-199A. The B-207A should be powered by an amplifier of 20 watts or greater power. Connect the B-207A to the 8-ohm tap on your amplifier. **Weight,** 15 lbs.  
**Bozak Model B-207A Coaxial System—Net Each... \$94.50**

### MODEL B-200Y TREBLE SPEAKER (FIG. D)

For use in two-way systems with Bozak B-199A, and three-way systems with Bozak B-209B and B-199A Speakers. No leveling controls needed for matching. Response is smooth and clean with a natural quality, wide angle dispersion, and complete absence of metallic harshness. **Response:** 1500 to 20,000 cycles. **Horizontal Coverage:** 120 degrees at 10 kc. **Impedance:** 8 ohms (two 16-ohm sections in parallel). For use in 20-watt systems. (Use in multiples for greater power.) **Field:** Two 8-ounce Alnico V magnets. **Size:**  $6\frac{1}{2}$ " w. x  $2\frac{1}{2}$ " d. x  $3\frac{1}{4}$ " h. **Weight,** 3 lbs.  
**Bozak Model B-200Y Treble Speaker—Net Each... \$33.50**

**Bozak Model XAB Tweeter Bracket—Bracket for mounting up to four B-200Y speakers as shown in Fig. G. Net Each... \$3.60**

**Bozak Model CXR Coax Mounting Ring—Mounting ring fits on B-199A Bass speaker for mounting B-200Y tweeter to form coaxial unit as shown in Fig. C. Net Each... \$4.50**

### MODEL B-800 FULL RANGE SPEAKER (FIG. E)

An eight inch speaker that provides excellent quality of both music and voice reproduction from a low cost, easily installed unit. Clean bass, detailed mid-range, and smooth highs combine to give extraordinary transient response. Mounts in a small infinite baffle, bookshelf enclosure, or flush in any interior wall between studding. The B-800 has a full range sound quality never before attained with a single speaker. **Impedance:** 8 or 16 ohms. **Frequency Response:** 50 to 10,000 cps. **Music Power Rating:** 15 watts. **Size:**  $8\frac{1}{2}$ " diameter,  $3\frac{1}{4}$ " deep. **Weight,** 7 lbs.  
**Bozak Model B-800 Full Range Speaker—Net Each... \$47.50**

**Bozak Model B-800A Mid-Range Speaker—Specially damped version for use with Model B-1000. Net Each... \$47.50**

### CROSSOVER NETWORKS (FIG. F)

All-electric devices, ruggedly built to separate the audio spectrum into three ranges and distribute them to the proper speakers in a Bozak 3-way system. Unlike conventional systems, Bozak speakers overlap the adjacent ranges broadly; eliminating "disembodiment" of instruments. "Slow" 6 db per octave networks are inherently free of transient distortion (ringing).

### MODEL N-10102A CONVERTIBLE CROSSOVER

Engineered for easy conversion to facilitate building one Bozak speaker system to another. For a B-302A system, there are 8 ohm crossovers at 800 and 2500 cps. For B-305 system, crossovers are 16 ohms at 800 and 2500 cps. For B-310A and B-410 systems, crossovers are 8 ohms at 400 and 2500 cps when used with N-25 condenser bank, below. Complete operating instructions provided. **Size:** 8" w. x 6" d. x  $5\frac{1}{2}$ " h. **Weight,** 5 lbs.  
**Bozak Model N-10102A Crossover Network—Net Each... \$29.50**

### MODEL N-25 CONDENSER BANK

Convenient accessory to the N-10102A Crossover; provides 8 ohm crossovers at 400 and 2500 cps as required for B-310A and B-410 systems.  
**Bozak Model N-25 Condenser Bank—Net Each... \$11.60**

### MODEL N-103 CROSSOVER NETWORK

Designed for crossover at 400 and 2500 cps for 16 ohm speakers; specifically, B-305 systems. "Slow" 6 db per octave crossover subtly enhances mid-range response. **Size:** 8" w. x 8" d. x  $5\frac{1}{2}$ " h. **Weight,** 6 lbs.  
**Bozak Model N-103 Crossover Network—Net Each... \$37.50**

### MODEL N-104 CROSSOVER NETWORK

Versatile unit for use with B-310A or B-410 systems. Provides 8-ohm crossovers at 400 and 2500 cps, 6 db per octave. **Size:** 8" w. x 8" d. x  $5\frac{1}{2}$ " h. **Weight,** 6 lbs.  
**Bozak Model N-104 Crossover Network—Net Each... \$37.50**

### MODEL N-105 CROSSOVER NETWORK

Specifically designed for B-4000 systems. Provides 8 ohm crossovers at 200 and 1500 cps, 6 db per octave. **Size:** 8" w. x 6" d. x  $5\frac{1}{2}$ " h. **Weight,** 5 lbs.  
**Bozak Model N-105 Crossover Network—Net Each... \$35.00**

### MODEL B-200YA TWEETER ARRAY (FIG. G)

Four B-200Y dual tweeters positioned for best horizontal and vertical coverage. **Response:** 1500 to 20,000 cps; useful beyond 20,000 cps. **Horizontal Coverage:**  $120^\circ$  at 10 kc. **Impedance:** 8 ohms. **Power Rating:** For 75-watt systems. **Magnets:** Eight 8-ounce Alnico V. **Size:**  $12\frac{1}{4}$ " wide, 5" deep,  $6\frac{1}{4}$ " high. **Mount:** Outside woofer cavity. **Weight,** 12 lbs.  
**Bozak Model B-200YA Tweeter Array—Net Each... \$142.50**

### B-1000 PORTABLE WEATHERPROOF UNIT (FIG. H)

Weatherproof unit that can be exposed to the elements indefinitely without damage. Easy to move about, rests steadily on its four-point base, can be wall-mounted or hung up. Built-in phone jack makes for easier connection and disconnection. Can be used in pairs for stereo operation. **Response:** 50-15,000 cps. **Impedance:** 8 ohms. **Power Rating:** 15 watts. **Size:** (Upright) 18" w. x 12" d. x 21" h. **Weight,** 20 lbs. Specky beige or eggshell white.  
**Bozak Model B-1000 Portable Unit—Net Each... \$79.50**



# Bozak Systems and Cabinets

These systems use the building-block units shown on the opposite page for unrivaled performance. Enclosures are rugged, infinite baffles finished in hardwood veneers. "Provincial" units in cherry fruitwood; "Urban" in matte finish walnut or mahogany. Specify finish desired.

## MODEL B-310A THREE-WAY SYSTEM (FIG. A)

Achieves full reality in sound reproduction; for amplifiers of 60 watts or more. **Components:** Four B-199A Woofers; two 16-ohm B-209B, one B-200YA Tweeter Array with N-104 network crossing over 6 db per octave at 400 and 2500 cps. **Frequency Response:** Below 28 to above 20,000 cps; distortion nearly unmeasurable. Outstanding transient response. **Enclosure:** 16 cu. ft. Infinite baffle; 13 1/2" front panel. Tweeter array isolated. Cavities acoustically lined, eliminating resonance. Mahogany or walnut finish. Size: 36" w. x 19" d. x 52" h.

**Bozak Model B-310A 3-Way System—Net Each. . . . \$778.00**

**Bozak Model P-310AP Panel Mounted System—Same as above, only mounted on panel (without enclosure). Net Each. . . \$555.00**

**Bozak Model E-310A Cabinet Only—Net Each. . . . . 275.00**

**Bozak Model B-410 (Fig. C)—Same performance features as Model B-310A, but uses vertical array of treble speakers. Size: 36" w. x 19" d. x 52 1/4" h. Specify mahogany or walnut finish. Net Each. . . . . \$790.00**

**Bozak Model P-410P Panel Mounted System—Same as above, only mounted on panel (without enclosure). Net Each. . \$555.00**

## MODEL B-305 THREE-WAY SYSTEM

A three-way system with built-in 6 db per octave crossovers at 800 and 2500 cycles. Two B-199A bass units, one B-209B mid-range, two B-200Y speakers, and the N-10102A Crossover. The Woofers are housed in a rigid, acoustically treated baffle of about 8 cubic foot volume. The distinctive cabinet is of 3/4" plywood rigidly braced with 2 x 4's. **Response:** 35 to 20,000 cycles. **Impedance:** 16 ohms. **Power Rating:** 30 watts; peaks to 60 watts.

**Bozak Model B-305 Italian Provincial (Fig. B)—Net. \$427.50**

**Bozak Model B-305 Urban (Similar to Fig. F)—Size: 36" w. x 20" d. x 30" h. Net Each. . . . . \$397.50**

**Bozak Model P-305P Panel Mounted System—Same as above, only mounted on panel (without cabinet). Net Each. . \$279.50**

**Bozak Model E-305 Italian Provincial Cabinet Only—Net Each. . \$156.50**

**Bozak Model E-305 Urban Cabinet Only—Net Each. . . 126.50**

## MODEL B-4000 FURNITURE SYSTEM (FIG. D)

Stereo speaker system designed for use in spacious rooms, maintains true perspective in both width and depth. Entirely new configuration of speaker components with four B-200Y tweeters arranged in vertical column to disperse highs in perfect 150° pattern on horizontal plane, concentrating them in narrow, vertical beam at listening level. Special B-800A eight-inch mid-range speaker and two B-199A woofers, plus N-105 crossover. Housed in tastefully designed cabinet; blends with any decor. For amplifiers providing 30 watts or more. **Frequency Response:** 35-20,000 cps. **LC Network Crossover:** Low to mid-range, 200 cps; mid-range to treble, 1500 cps. **Impedance:** 8 ohms. Finished in matte finish walnut or genuine mahogany. **Size:** 28" w. x 16" d. x 44" h. Shipping Weight, 150 lbs.

**Bozak Model B-4000 Furniture System—Net Each. . \$495.00**

**Bozak Model P-4000P Panel Mounted System—Same as above, only mounted on panel (without enclosure). Net Each. \$339.50**

## MODEL B-211 BOOKSHELF SYSTEM

Designed for very limited space applications. Blends in with any decor. Uses one B-199A speaker for the lows, one B-200Y tweeter for the highs. Designed for amplifiers of 20 watts or more of output. **Frequency Response:** 50-16,000 cps. **LC Network:** 6 db per octave at 2500 cps. **Impedance:** 8 ohms. Matte finish walnut enclosure with natural linen-grille cloth. **Size:** 23 1/2" w. x 11 1/2" d. x 14 1/2" h.

**Bozak Model B-211 Bookshelf System—Net Each. . . \$97.50**

## MODELS B-312 AND B-313 LIMITED SPACE SYSTEMS (FIG. E)

Slightly larger than bookshelf size these speaker systems provide the utmost in listening pleasure. Model B-312 consists of one B-199A for bass, and one B-200Y for treble. Model B-313 uses one B-199A for bass, one B-209B for midrange frequencies and one B-200Y for the highs. Each system is designed for amplifiers delivering 20 watts or more of output. **Frequency Response:** 40-20,000 cps. **LC Network:** Model B-312, 4 µF. Model B-313 contains the N-10102A convertible crossover network. **Impedance:** 8 ohms. Both systems are housed in beautiful matte finish walnut cabinets with natural linen-grille cloth. **Size:** 24 1/2" w. x 12 1/2" d. x 17 1/2" h.

**Bozak Model B-312 Limited Space System—Net Ea. . \$147.50**

**Bozak Model B-313 Limited Space System—Net Ea. . 197.50**

## ENCLOSURE CABINETS AND KITS

**Bozak Model E-300 Urban Enclosure—Net Each. . . \$ 85.50**

**Bozak Model E-300 Italian Provincial Enclosure—Net Each. . . . . 105.00**

**Bozak Model E-410 Concert Grand—Net Each. . . . . 297.50**

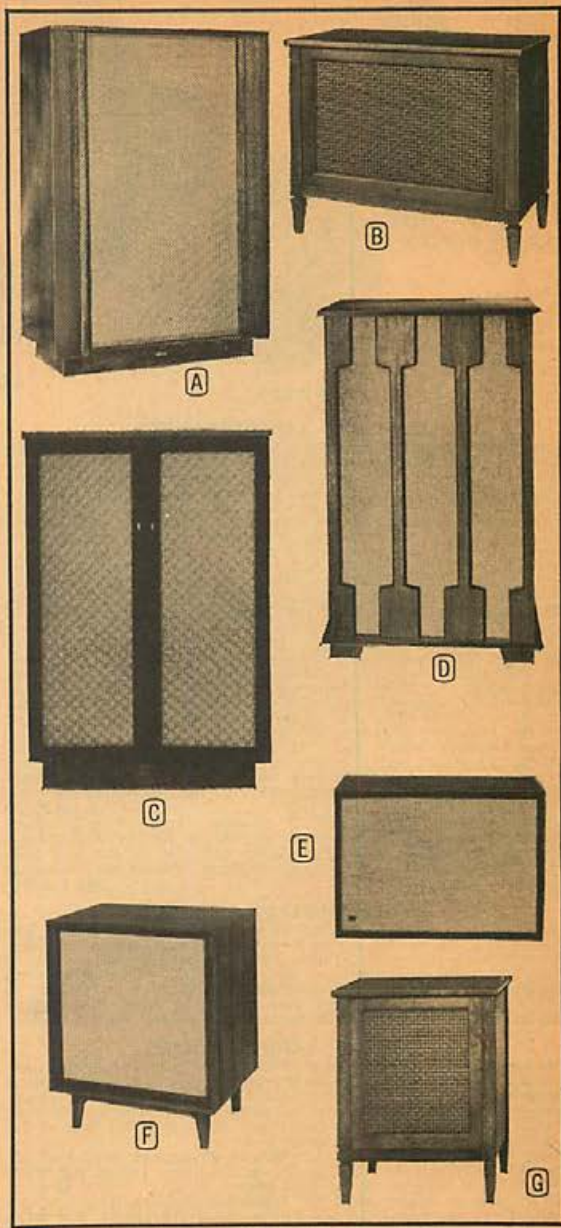
**Bozak Model E-4000 Symphony No. 1—Net Each. . . 170.00**

**Bozak Model E-300KC Contemporary Cabinet Kit (Unfinished)—Net Each. . . . . \$42.50**

**Bozak Model E-300KU Urban Cabinet Kit (Unfinished)—Net Each. . . . . \$54.50**

**Bozak Model E-300KA Early American Cabinet Kit (Unfinished)—Net Each. . . . . \$54.50**

**Bozak Model E-4000K Symphony No. 1 Cabinet Kit (Unfinished)—Net Each. . . . . \$94.50**



## ECONOMY SPEAKER SYSTEMS

### MODEL B-302A THREE-WAY SYSTEM

B-302A three-way system outperforms many costlier and larger loudspeakers. Ideal for small listening rooms, or in pairs for stereo. Uses one each B-199A, B-209B, B-200Y, N-10102A. **Frequency Response:** 40-20,000 cps. Crossovers, 6 db/octave at 800 and 2500 cps. **Impedance:** 8 ohms. **Power Rating:** 20 watts or more.

**Bozak Model B-302A Urban (Fig. F)—Size: 24" w. x 20" d. x 30 1/4" h. Net Each. . . . . \$261.50**

**Bozak Model B-302A Italian Provincial (Fig. G)—Size: 24" w. x 18 1/2" d. x 31" h. Net Each. . . . . \$281.50**

**Bozak Model P-302AP Panel Mounted System—Same as above, but mounted on panel. Net Each. . . . . \$182.50**

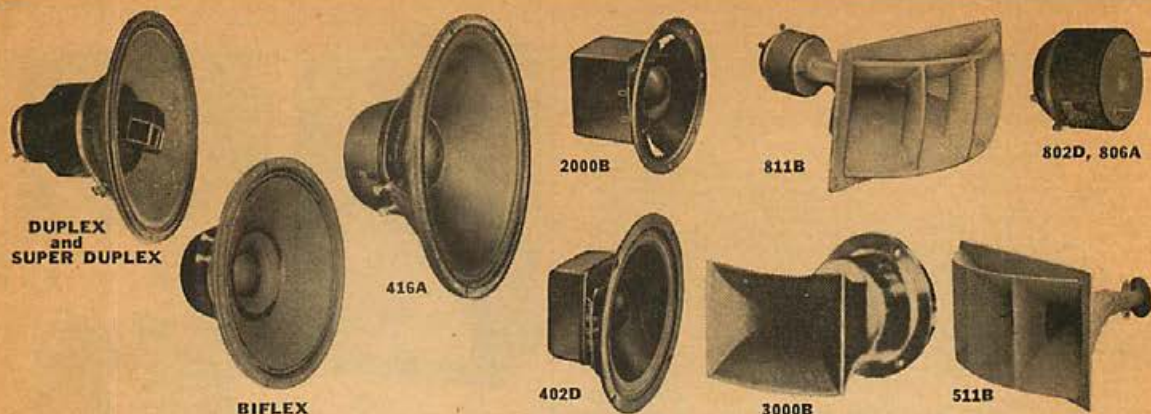
### B-300 TWO-WAY SYSTEM

System uses same enclosures as B-302A, but with B-199A bass and B-200Y treble speakers; with 4-µ/µF condenser. Converts to Model B-302A by addition of one B-209B mid-range speaker and one N-10102A crossover. Built-in provision for addition of B-209B speaker.

**Bozak Model B-300 Urban (Fig. F)—Size: 24" w. x 20" d. x 30 1/4" h. Net Each. . . . . \$179.50**

**Bozak Model B-300 Italian Provincial (Fig. G)—Size: 24" w. x 18 1/2" d. x 30" h. Net Each. . . . . \$199.50**





**DUPLEX and SUPER DUPLEX**

**BIFLEX**

### DUPLEX® LOUDSPEAKERS

Fine coaxial speakers, combining two speakers mounted on a single frame for compactness, point source relation and simplified installation. Permanent viscous compliance damping on bass cone prevents standing waves; driven by edge-wound, double insulated ribbon bass voice coil with extremely deep magnetic gap for high flux density and efficiency throughout its excursion. Design utilizes a heavy Alnico V ring magnet for bass; an edge-wound aluminum voice coil; and a multi-cellular horn for fatigue-resistant, high frequency compliance. A massive dividing network provides smooth 12 db per octave attenuation. External variable frequency shelving control permits balancing speaker to room characteristics.

**Altec Lansing Model 605B 15" Duplex**—Precisely engineered speaker with unusually smooth response in the high frequencies and extremely high linearity in the low frequencies. Imped., 8 or 16 ohms. Power: 35 watts; 50 watts peak. Frequency Response: 20-22,000 cps. Resonance, 25 cps. Voice coil diameter, 3" (low frequency); 1 3/4" (high frequency). Distribution, 90° horizontal; 40° vertical. Magnet Weight: 2 1/2 lbs. (low frequency); 1/2 lb. (high frequency). Size: 15 3/4" dia. x 10" d. Shipping Weight, \$168.00 36 lbs., including network. Net Each.....

**Altec Lansing Model 602C 15" Duplex**—Frequency Response: 20-22,000 cps. 25 watts power, 35 watts peak; 8 ohms impedance; resonance at 28 cps. Voice coil dia., 3" low, 3/4" high frequency. Size: 15 3/4" dia. x 7 3/4" d. Shpg. Wt., 21 lbs., including network. Net Each..... \$132.00

**Altec Lansing Model 601C 12" Duplex**—Impedance, 8 ohms. Power: 20 watts; 30 watts peak. Frequency Response: 30-22,000 cps with resonance at 39 cps. Voice coil dia., 3" low, 3/4" high frequency. Size: 12 1/2" dia. x 5 3/8" d. Shpg. Wt., 18 lbs., including network. Net Each..... \$114.00

### SUPER DUPLEX 15" 604E

Most efficient speaker offered to the home music market. The best in Duplex. Features pure mid-range, exceptional attack time, distortionless response through entire frequency range. With a dual magnetic structure that weighs 26 lbs., 13 oz. **Power: 35 watts; 50 watts peak. Shpg. Wt., 40 lbs. \$199.00**

**Altec Lansing Model 604E 15" Super Duplex**—Net Ea.

### BIFLEX® LOUDSPEAKERS

Feature efficient range far greater than any other type single voice-coil speaker. Unusual compliance design serves as a mechanical crossover in viscous damped concentric mid-cone for better propagation of both lows and highs; driven by an edge-wound aluminum ribbon voice coil with extra deep gap of regular flux density for maximum efficiency. Impedance, 8 ohms.

**Altec Lansing Model 415C 15" Biflex**—Frequency Response: 25-14,000 cps; resonance at 27 cps. Power: 25 watts. Depth, \$67.50 7". Shipping Weight, 19 lbs. Net Each.....

**Altec Lansing Model 412C 12" Biflex**—Frequency Response: 30-15,000 cps; resonance, 36 cps. Power: 20 watts. Depth, \$57.00 5 3/4". Shipping Weight, 16 lbs. Net Each.....

### 755C "PANCAKE" WIDE-RANGE SPEAKER

Extended range 8" speaker offers higher quality performance than similar units of the same size. Frequency range, 40-15,000 cps. Ideal for low cost hi-fi systems, as auxiliary speaker for existing hi-fi systems, or as extension speaker in multi-room systems. "Pancake" design provides smooth, wide-angle 90° distribution. Narrow depth permits mounting in limited space locations, even in walls or ceilings. Shipping Weight, 7 lbs. \$32.25

**Altec Lansing Model 755C**—Net Each.....

### 2000B TWEETER

Rugged, direct radiating tweeter. Gap suspension protects against low frequency signal damage; aluminum dome and free paper cone for best distribution. Sturdy tweeter construction permits use of a capacitor as crossover network instead of a more expensive network. **Frequency Response: 1,500-18,000 cps. Impedance: 8 ohms. Power: 14 watts. Voice coil diameter, 1". Magnet weight, 1/2 lb. Depth, 3 3/4". Weight, 2 lbs. \$22.50**

**Altec Lansing Model 2000B**—With crossover network. Net Each.....

### 416A WOOFER

The 15" woofer selected for the "Voice of the Theatre" System. Has edge-wound copper ribbon voice coil. **Frequency Response: 20-1,600 cps. Impedance: 16 ohms. Power: 30 watts. Voice coil, 3" dia. Size: 15 3/4" dia. x 7" d. Weight, 19 lbs. \$63.00**

**Altec Lansing Model 416A**—Net Each.....

2000B

811B

802D, 806A

416A

402D

3000B

511B

### 414A WOOFER

Similar to 416A, but 12" version for use in full-size two-way systems. Exceptional linearity with high compliance, low distortion and high power capacity. **Frequency Response: 30-4,000 cps. Resonance: 30 cps. Impedance: 16 ohms. Power: 25 watts. Depth: 5 3/4". Weight, 16 lbs. \$54.00**

**Altec Lansing Model 414A**—Net Each.....

### 402D 8" WOOFER

Incorporates controlled linear excursion principle and stress free assembly for greatly increased bass response. Provides big speaker sound at moderate cost. **Frequency Response: 40-10,000 cps. Impedance: 16 ohms. Resonant Frequency: 55 cps. Power: 14 watts. Voice coil dia., 1". Magnet, 1/2 lb. Wt., 3 lbs. \$19.50**

**Altec Lansing Model 402D**—Net Each.....

### 3000B TWEETER AND N-3000E NETWORK

#### 3000B TWEETER

Combines newly designed sectoral horn and 20-watt efficient driver in one compact unit. For use with N-3000E network to extend the range of single-cone speakers (415 or 412, etc.), 40° vertical and 90° horizontal distribution. **Frequency Response: 3,000-22,000 cps. Impedance: 8 ohms. Size: 4 3/4" w. x 4 1/4" d. x 3 3/4" h. Shipping Weight, 2 lbs. \$37.50**

**Altec Lansing Model 3000B**—Net Each.....

#### N-3000E NETWORK

Provides crossover at 3,000 cps. Continuously variable high frequency shelving control, externally mounted, provides 10 db attenuation. **Impedance: 8 ohms. Size: 4 3/4" w. x 2 3/4" d. x 2 3/4" h. Shipping Weight, 2 lbs. \$21.00**

**Altec Lansing Model N-3000E**—Net Each.....

### HIGH FREQUENCY DRIVERS AND HORNS

#### 802D HIGH FREQUENCY DRIVER

The finest in high frequency drivers, meets broadcast studio standards. For use with 511B or 811B horns. Diaphragm and field coil unit replaceable without special tools. Smooth, peak-free response beyond audibility. **Frequency Response: 500-22,000 cps. Impedance: 16 ohms. Power: 30 watts. Used with N-800E or N-500D crossovers. Size: 4 1/2" dia. x 3 11/16" h. Wt., 9 lbs. \$75.00**

**Altec Lansing Model 802D**—Net Each.....

#### 806A HIGH FREQUENCY DRIVER

Identical to Model 802D except has a 1.2 lbs. magnet with a gap flux of 14,000 gauss for 2 db more efficiency. **\$57.00**

**Altec Lansing Model 806A**—Net Each.....

#### 811B HORN

Cast aluminum sectoral horn, designed for use with 802D, 806A drivers. 40° vertical and 90° horizontal distribution pattern. **Frequency Response: 800 cps (cutoff) to 22,000 cps. Must be used with N-800E network. Size: 18 3/4" w. x 14" d. x 8 3/4" h. Weight, 11 lbs. \$24.00**

**Altec Lansing Model 811B**—Net Each.....

#### 511B HORN

For use with 802D, 806A drivers and N-500D network. **Frequency Response: 500 cps (cut off) to 22,000 cps. Distribution similar to 811B. Size: 23 3/4" w. x 18 1/2" d. x 10 3/8" h. Shipping Weight, 18 lbs. \$36.00**

**Altec Lansing Model 511B**—Net Each.....

### DIVIDING NETWORKS

Use with 802D, 806A on 811B to provide 800 cps crossover in a two-way hi-fi system. Smooth 12 db/octave slope; detented high frequency shelving control, externally mounted, provides four steps of 1 1/2 db each. **Impedance: 16 ohms. Size: 6" w. x 2 3/4" d. x 3 3/4" h. Shipping Weight, 5 lbs. \$46.50**

**Altec Lansing Model N-800E**—Net Each.....

For use with 802D, 806A on 511B: 4 steps, 1 1/2 db each. **Size: 8" w. x 2 3/4" d. x 5 3/4" h. Shpg. Wt., 8 lbs. Net Each..... \$52.50**





A7



843A



841B



846A



838B, 837B



845A

## A7 "VOICE OF THE THEATRE®" TWO-WAY SPEAKER SYSTEM

Used in more motion picture theatres than any other system; also highly regarded as the best buy in high fidelity today. Exclusive Altec enclosure features a direct radiating exponential horn combined with a modified bass reflex principle for smoothest response across the entire audible frequency range. Design provides a 90° distribution angle for best sound radiation for theatres up to 1000 seats; also has fine sound in the smallest of Hi-Fi rooms. **Frequency Response:** 35 to 22,000 cps. **Power:** 30 watts continuous. System incorporates: One 416A 15" woofer for rich bass tones; one 806A high frequency driver mounted on a straight exponential horn of die cast aluminum provides uniform coverage of 90° horizontal, 40° vertical. One N-800E crossover network with stepped high frequency attenuator for exact adjustment. Designed so that drivers are placed in same vertical plane to achieve exact time phasing and prevent distortion. Magnets are ring-type Alnico V, eliminating stray magnetic fields. **Size:** 30" w. x 24" d. x 54 1/4" h., overall. **Shipping Weight, 154 lbs.**

Altec Lansing A-7 "Voice of the Theatre®" System—\$28800 Utility, Net Each.

Altec Lansing A7-500 "Voice of the Theatre"—Same as A-7, but 802D high frequency driver with 511B horn. With N-500D, crossover is at 500 cps; adjustable in four 1.5 db steps. Other specifications same as A-7. **Shipping Weight, 160 lbs. Net Each. \$315.00**

Altec Lansing A7-W "Voice of the Theatre" System—Same as A7 but has hand rubbed, beautifully finished walnut cabinet. **Net Each. \$372.00**

Altec Lansing A7-500W "Voice of the Theatre" System—Same as A7-500 but has hand rubbed, beautifully finished walnut cabinet. **Net Each. \$399.75**

## 838B CARMEL SPEAKER SYSTEM

Embodies the perfect balance of size, appearance and audio quality to please the most discriminating user. Practical for any size living room, yet provides concert-hall realism with amazing presence and naturalness. Exceptional mid-range quality provided with professional-type, two-way bass reflex system. Two high-compliance 414A woofers assure clean, boom-free low frequency response. Altec 806A driver mounted on 811B horn covers highs to 22,000 cps. Model N-800E network provides crossover. **Frequency Response:** 30-22,000 cps. **Impedance:** 8 or 16 ohms. **Power:** 30 watts. **Size:** 35" w. x 17 1/4" d. x 25 1/4" h. **Shpg. Wt., 117 lbs.** Altec Lansing Model 838B Carmel System—\$346.50 Walnut finish, Net Each.

Altec Lansing Model 858A Carmel Enclosure—Walnut enclosure only. **Shipping Weight, 80 lbs. Net Each. \$114.00**

## 843A MALIBU SPEAKER SYSTEM

Contains the same speaker components as 838B "Carmel"—a pair of low resonance 414 type bass speakers (12" dia.), a cast aluminum sectoral horn powered by 806A high frequency driver and a two section dividing network. Professional quality in every respect with a bright, new styling for use in the home. Requires a floor space of only about 3 square feet for the full-size sound. **Impedance:** 8 or 16 ohms. **Power:** 30 watts. **Size:** 25" w. x 18" d. x 40" h. **Shpg. Wt., 120 lbs.**

Altec Lansing Model 843A Malibu System—Walnut \$35700 finish, Net Each.

Altec Lansing Model 855A Enclosure—Walnut cabinet only. **Shipping Weight, 80 lbs. Net Each. \$126.00**

## NEW 846A VALENCIA SPEAKER SYSTEM

Incorporates all of the components of the famous A-7 "Voice of the Theatre" system in a space-saving 27 1/2" x 19" x 29 1/4" enclosure. Delivers the no-distortion sound without compromise that only a full-size speaker system can offer, even in an average-size room. Includes Models 416A 15" woofer, 811B sectoral horn driven by an 806A high frequency driver, and 800-cps crossover network. Handsome fretwork grille design. **Frequency Response:** 30 to 22,000 cps. **Power:** 30 watts. **Size:** 27 1/2" w. x 19" d. x 29 1/4" h. **Shipping Weight, 100 lbs.**

Altec Lansing Model 846A Valencia System—Walnut \$33300 finish, Net Each.

Altec Lansing Model 859A Enclosure—Walnut cabinet only. **Shipping Weight, 75 lbs. Net Each. \$147.00**

## NEW 845A VERDE SPEAKER SYSTEM

Designed especially for the music lover who lacks space for a full-size system, the modestly priced Verde offers a richness of sound never before possible in a speaker of its size. For excellent bass without sacrificing midrange, uses extreme low-resonance bass speaker mounted in heavily damped air spring-modified reflex enclosure. Highs of 18,000 cps are achieved with a Model 2000B speaker with special gap-suspended radiator. Built in crossover network, 2000 cps. **Frequency Response:** 45 to 18,000 cps. **Impedance:** 8 ohms. **Power:** 20 watts. **Size:** 23" w. x 11 1/4" d. x 11 1/4" h. **Shipping Weight, 30 lbs.**

Altec Lansing Model 845A Verde System—Hand rubbed \$9600 walnut finish, Net Each.

## 836A LIDO SYSTEM

Newest bookcase system offers dramatic new dimensions in listening pleasure. Acoustical elements used give truer balance between the high and low frequencies than found in any other system of comparable price. System employs matched speakers tuned to the enclosure. Extra high efficiency, extended range and wide (76 sq. in.) radiating area for amazing fidelity. **Size:** 12 3/4" h. x 26" w. x 12 1/4" d. **Shipping Weight, 40 lbs.**

Altec Lansing Model 836A Lido System—Walnut \$11250 finish, Net Each.

## 837B AVALON SPEAKER SYSTEM

More economical system employs the same cabinet as Model 838B, but houses a single 414A woofer with 806A driver and 811B horn. Response is virtually the same as in 838B, but with slightly less power on the low end. **Impedance and power rating same as Model 838B. Size:** 35" w. x 17 1/4" d. x 29 1/4" h. **Shpg. Wt., 107 lbs.** Altec Lansing Model 837B Avalon System—Walnut \$29700 finish, Net Each.

## 841B CORONADO SYSTEM

Combines "big system" performance in modestly sized, modern enclosure. Ideal for small rooms, apartments, as an extension or even as "middle" speaker in larger stereo systems. Includes Models 414 woofer, 3000 horn and driver, and N-3000 network. **Frequency Response:** 40-22,000 cps. **Power:** 20 watts max. **Size:** 26" h. x 19" w. x 14" d. **Shipping Weight, 58 lbs., approx.**

Altec Lansing Model 841B Coronado System—\$21450 Walnut finish, Net Each.





# High Fidelity Speaker Systems

## PR-50A COMPACT 2-WAY SYSTEM

A beautifully performing, full-range hi-fi speaker system in a 3/4 cu.-ft. enclosure. Amazingly small woofer with heavy SYNTAX-6 magnet in special cast housing hits a solid 40 cps note with no sound level reduction. The E-100 SONO-DOME ultra-tweeter is remarkably smooth to beyond 20,000 cps. Hand-some oiled walnut enclosure has highly attractive grille fabric.

### SPECIFICATIONS

**Components:** Special 5 1/4" FLEXAIR woofer in cast housing and E-100 SONO-DOME ultra-tweeter. **Frequency Range:** 40-20,000 cps. **Crossover:** 2,000 cps. **Speaker Power Rating:** 20 watts. **Impedance:** 8 ohms. **Control:** H-F balance (on rear). **Size:** 18 1/4" w. x 7 3/4" d. x 9 3/4" h. **Shipping Weight:** 17 1/2 lbs. **\$69.50**  
**Jensen PR-50A Oiled Walnut—Net Each.....**

## X-11A 2-WAY ULTRA-COMPACT SYSTEM

Really ideal for extension speaker applications! Provides full room volume with amplifiers of low power rating, and H-F response up to 14,000 cps. Comes with adjustable volume control and built-in hangers for easy wall mounting. Oiled walnut cabinet with subtly textured grille fabric.

### SPECIFICATIONS

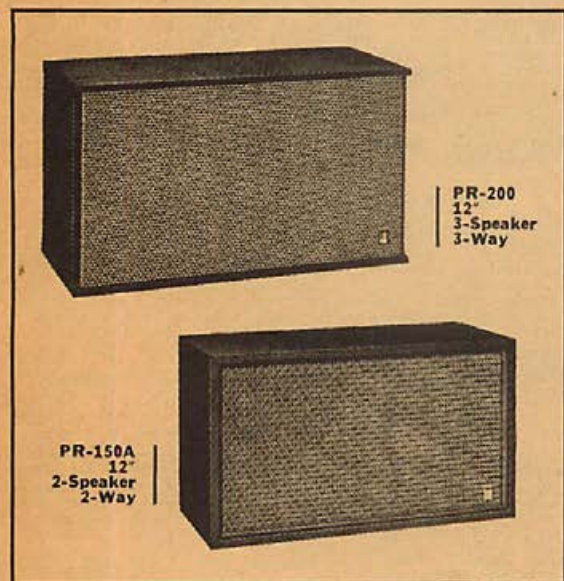
**Impedance:** 8 ohms. May be used with amplifiers having 4, 8 or 16 ohm outputs. **Control:** Volume control on side. **Speaker Power Rating:** 6 watts. **Size:** 13 1/4" w. x 4" d. x 6 3/4" h. **Shipping Weight:** 7 lbs. **\$35.50**  
**Jensen X-11A Oiled Walnut—Net Each.....**

## X-20 2-WAY SLIM COMPACT SYSTEM

Sound quality and placement flexibility are just two of the outstanding features of this modestly priced, slim compact system. Three speakers—a woofer and two tweeters—give wide-range sound. The two-tone harmonizing grille fabric blends nicely with the walnut veneer cabinet in oil finish. Unit's built-in hangers make wall mounting fast and easy.

### SPECIFICATIONS

**Impedance:** 8 ohms. May be used with amplifiers having 4, 8 or 16 ohm outputs. **Control:** Volume control on side. **Speaker Power Rating:** 6 watts. **Size:** 15 3/4" w. x 2 3/4" d. x 12 3/4" h. **Shipping Weight:** 10 1/2 lbs. **\$49.95**  
**Jensen X-20 Oiled Walnut—Net Each.....**



PR-200  
12"  
3-Speaker  
3-Way

PR-150A  
12"  
2-Speaker  
2-Way

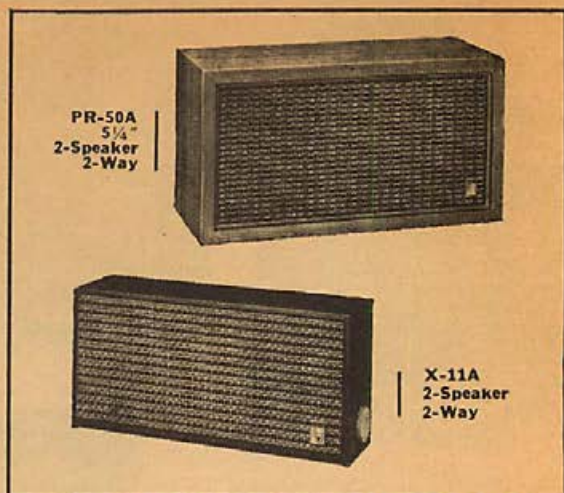
## PR-400 3-WAY CUSTOM CONSOLE SYSTEM

Here is perfectionist's performance and efficiency in a beautifully designed console enclosure. This is a 15" three-way system with response that is flat, true and wide. Just a few watts of amplifier power is all that's needed to make an impression on the listener, even in a large room. This superlative system is featured in a 5 cubic-ft. enclosure made of selected hand-rubbed, genuine walnut panels. The textured grille fabric must be seen to be appreciated. If you're looking for perfection in performance and styling, you've found it in the PR-400.

### SPECIFICATIONS

**Components:** 15" FLEXAIR woofer, MH-400 Aspheric SONO-DOME midrange, and E-100 SONO-DOME ultra-tweeter. **Frequency Range:** 20-20,000 cps. **Crossovers:** 1,000 and 5,000 cps. **Speaker Power Rating:** 40 watts. **Impedance:** 8 ohms. **Controls:** M-F and H-F balance (on rear). **Size:** 34" w. x 14 1/4" d. x 29 1/4" h. **Shipping Weight:** 89 lbs. **\$315.50**  
**Jensen PR-400 Oiled Walnut—Net Each.....**

490



PR-50A  
5 1/4"  
2-Speaker  
2-Way

X-11A  
2-Speaker  
2-Way

## TF-3A 4-SPEAKER 3-WAY SHELF SYSTEM

Incorporates special engineering improvements for greater efficiency and performance quality. Employs Jensen FLEXAIR woofer to give low distortion response down to 25 cps in the BASS-SUPERFLEX enclosure. Two special midrange units are delightfully smooth and free from coloration. The high end is extended cleanly to extreme limits by the SONO-DOME ultra-tweeter. Choice of oiled walnut or unfinished gum hardwood cabinetry.

### SPECIFICATIONS

**Components:** 10" special woofer with 1 1/4 lb. SYNTAX-6 magnet, two special 3 1/2" midrange units, and SONO-DOME ultra-tweeter. **Frequency Range:** 25-20,000 cps. **Crossover:** 2,000 and 10,000 cps. **Speaker Power Rating:** 25 watts. **Impedance:** 8 ohms. **Control:** H-F balance (on rear). **Size:** 23 3/4" w. x 11 3/4" d. x 13 1/2" h. **Shipping Weight:** 40 lbs. **\$115.50**  
**Jensen TF-3A Oiled Walnut—Net Each.....**  
**Jensen TF-3A Unfinished—Gum hardwood. Net Each. \$99.50**

## PR-200 3-WAY BOOKSHELF SYSTEM

A "big" bookshelf loudspeaker system, the PR-200 employs a 12" FLEXAIR woofer, MH-400 Aspheric SONO-DOME midrange and E-100 ultra-tweeter. Controls on the rear of the cabinet permit adjustment of both the mid-frequencies and high-frequencies. The cabinet is walnut veneer hardwood with an oil finish. The contemporary wrap-around grille fabric of textured rattan complements this finely styled cabinet. A truly high fidelity system in a handsome, acoustically engineered cabinet.

### SPECIFICATIONS

**Components:** 12" FLEXAIR woofer, MH-400 SONO-DOME midrange, and E-100 ultra-tweeter. **Frequency Range:** 25-20,000 cps. **Crossover:** 1,000 and 5,000 cps. **Speaker Power Rating:** 35 watts. **Impedance:** 8 ohms. **Controls:** M-F and H-F balance (on rear). **Size:** 25" w. x 10 1/4" d. x 14" h. **Shipping Weight:** 43 1/2 lbs. **\$179.50**  
**Jensen PR-200 Oiled Walnut—Net Each.....**

## PR-150A 2-WAY SYSTEM

A dramatically improved reproducer utilizing Jensen's exclusive 12" FLEXAIR subsonic woofer with a massive magnet structure and the MH-400 Aspheric SONO-DOME midrange/VHF unit. You are assured of smooth and clear sound reproduction from 25 to 20,000 cps. Choice of oiled walnut or unfinished gum hardwood enclosures of heavy construction for optimum acoustical results. Decor-complementing textured rattan fabric on grille.

### SPECIFICATIONS

**Components:** 12" FLEXAIR woofer and MH-400 Aspheric SONO-DOME midrange/VHF unit. **Frequency Range:** 25-20,000 cps. **Crossover:** 2,000 cps. **Speaker Power Rating:** 35 watts. **Impedance:** 8 ohms. **Control:** H-F balance (on rear). **Size:** 25" w. x 11 1/4" d. x 14" h. **Shipping Weight:** 40 1/2 lbs. **\$149.50**  
**Jensen PR-150A Oiled Walnut—Net Each.....**  
**Jensen PR-150A Unfinished—Gum hardwood. Net. \$129.50**

## 600-XL 4-WAY SUPER-BOOKSHELF SYSTEM

Truly one of the finest bookshelf loudspeaker systems ever developed anywhere! A full 12" half-roll FLEXAIR woofer with a 3 1/2 lb. Alnico-5 magnet, a super-tweeter, ultra-tweeter and horn-loaded midrange make up this "super" bookshelf. The cabinet is finished in genuine oiled walnut veneer and construction is 3/4" throughout for ruggedness and ultimate acoustical performance. The complementary grille fabric of richly tailored rattan with its perimeter shadow line creates an interesting floating baffle effect. Here is unequalled performance and enviable styling in a bookshelf reproducer.

### SPECIFICATIONS

**Components:** 12" FLEXAIR woofer, horn-loaded PD-500 midrange, RP-302A super-tweeter, E-100 SONO-DOME ultra-tweeter. **Frequency Range:** 20-20,000 cps. **Crossover:** 600, 4,000 and 10,000 cps. **Speaker Power Rating:** 40 watts. **Impedance:** 8 ohms. **Controls:** M-F and H-F balance (on rear). **Size:** 25 3/4" w. x 11 3/4" d. x 16 3/4" h. **Shipping Weight:** 59 lbs. **\$269.50**  
**Jensen 600-XL Oiled Walnut—Net Each.....**

Consult Our Experts on All Your Stereo Hi-Fi Problems



# WOLVERINE® HI-FI LOUDSPEAKERS

by Electro-Voice

## WOLVERINE® FULL RANGE LOUDSPEAKERS

Perfect for Stereo—Realistic stereo performance demands high-quality loudspeakers having crisp, wide-range response. These Wolverine speakers meet this demand at a price so reasonable that two complete systems for stereo can be purchased for the price of many single competitive systems.

- **Heavy-Duty Diecast Frames**—The hallmark of fine loudspeakers. Many popular-priced loudspeakers have frames of stamped sheet metal, bend easily... allow the speaker cone and delicate voice coil to shift position. Heavy duty Wolverine speakers guarantee permanent centering of all elements.
  - **Radax® Construction**—Two cones divide the sound, one for maximum bass reproduction and a second, smaller cone for efficient high-frequency performance.
  - **Glass Coil Form**—The voice coil is wound on a fiberglass form into a rigid, concentric assembly.
  - **Long-Throw Voice Coil**—Wolverine speakers contain deep, medium diameter voice coils. Conductor remains in the air gap even on longest excursions, preventing nonlinear operation characteristic of wide diameter, short-throw coils.
  - **Low Silhouette Frame**—Wolverine speaker frames are shallow, for easy mounting in walls or ceilings. Ideal for building in "sound conditioning" the entire home.
- Other Quality Features**—Wolverine cones are fungi-proofed, treated to prevent moisture absorption in areas of high humidity. Specialized thermosetting adhesives produce the lightest, most rigid moving mechanisms possible.

\*Electro-Voice Trademark.

### MODEL LS15 FULL RANGE 15" SPEAKER

Wide range response with amazing economy. Can be used with most medium-powered amplifiers. **Frequency Response:** 35-14,000 cps. **Program Capacity:** 20 watts; 40 watts peak power. **Resonance:** 50 cps in free air. **Sensitivity Rating:** 47 db, EIA. **Crossover:** Mechanical, at 4500 cps. **Impedance:** 8 ohms. **Mounting:** Four  $\frac{1}{8}$ " holes equally spaced on  $14\frac{1}{2}$ " circle; fits  $13\frac{3}{4}$ " baffle opening. **Size:**  $15\frac{3}{4}$ " dia. x  $6\frac{1}{2}$ " deep behind panel. **Net Weight,** 9 lbs. **Shipping Weight,** 10 lbs.

Wolverine Model LS15—Net Each.....\$28.00

### MODEL LS12 FULL RANGE 12" SPEAKER

Gives limited space systems full range capability at a modest price. **Frequency Response:** 40-14,000 cps. **Program Capacity:** 20 watts; 40 watts peak power. **Resonance:** 60 cps in free air. **Sensitivity Rating:** 45 db, EIA. **Crossover:** Mechanical, at 4500 cps. **Impedance:** 8 ohms. **Mounting:** Four  $\frac{1}{4}$ " holes equally spaced on  $11\frac{1}{2}$ " circle. Fits  $11"$  baffle opening. **Size:**  $12\frac{3}{4}$ " dia. x  $3\frac{1}{2}$ " deep behind panel. **Net Wt.,**  $5\frac{1}{2}$  lbs. **Shipping Weight,** 7 lbs.

Wolverine Model LS12—Net Each.....\$21.00

### MODEL LS8 FULL RANGE 8" SPEAKER

A top performer in small package. **Frequency Response:** 45-14,000 cps. **Program Capacity:** 20 watts; 40 watts peak power. **Resonance:** 75 cps in free air. **Sensitivity Rating:** 43 db, EIA. **Crossover:** Mechanical, at 4500 cps. **Impedance:** 8 ohms. **Mounting:** Four  $\frac{1}{4}$ " holes equally spaced on  $7\frac{3}{4}$ " circle. Fits  $7\frac{1}{2}"$  baffle opening. **Size:**  $8\frac{3}{4}"$  dia. x  $3\frac{1}{2}"$  deep behind panel. **Net Wt.,**  $3\frac{3}{4}$  lbs. **Shipping Weight,**  $4\frac{1}{4}$  lbs.

Wolverine Model LS8—Net Each.....\$20.00

### MODEL LT8 THREE-WAY 8" SPEAKER

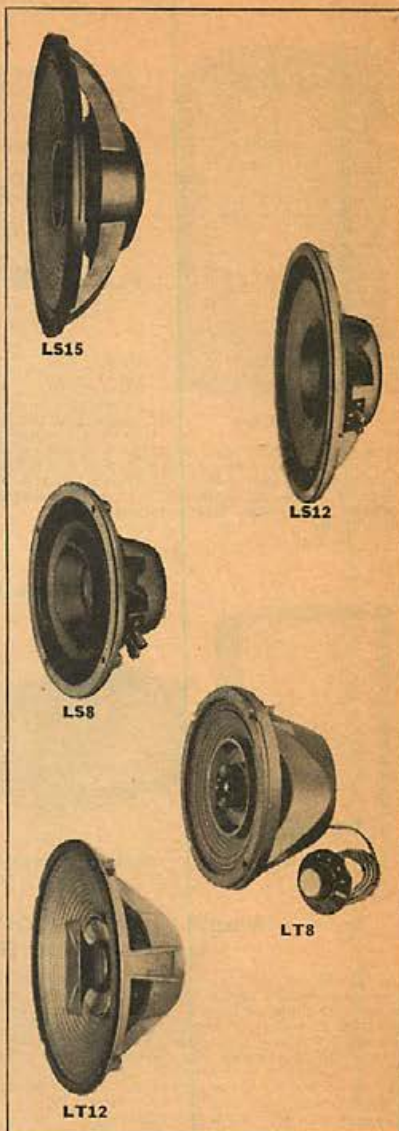
A new measure of value in 8" speakers, features three separate radiating elements: 8" woofer cone, 4" mid-range cone, and an entirely new VHF driver. Unique ring diaphragm tweeter eliminates the breakup distortion common in dome designs. **Frequency Response:** 45-18,000 cps. **Resonance:** 65 cps, nominal. **Crossover:** 2000 cps, mechanical; 5000 cps, electrical. **Size:**  $8\frac{1}{4}"$  dia. x  $3\frac{1}{4}"$  deep behind panel. Fits baffle opening  $7"$  dia. **Net Weight,**  $6\frac{1}{2}$  lbs.

Wolverine Model LT8—Net Each.....\$30.00

### MODEL LT12 THREE-WAY 12" SPEAKER

High quality, three-way speaker priced for the budget minded; gives extra wide response coverage. Combines the design features of Wolverine full-range speakers, plus "deep-dish" cone and HF1 tweeter. Built-in crossover and 3-position tonal balance switch. **Frequency Response:** 40-18,000 cps. **Program Capacity:** 20 watts. **Resonance:** 60 cps in free air. **Sensitivity Rating:** 47 db, EIA. **Crossover:** Mechanical at 2000 cps; electrical at 4000 cps. **Impedance:** 8 ohms. **Size:**  $12\frac{3}{4}"$  dia. x  $5\frac{1}{4}"$  deep behind panel. **Shipping Weight,** 9 lbs.

Wolverine Model LT12—Net Each.....\$36.00



## WOLVERINE® STEP-UP KITS

Permit expansion of full-range speakers to a two- or three-way system, one economical step at a time, without obsoleting existing units. Mid-range and high frequency drivers feature Sonophase throat design for extended response; 180° dispersion. Self-supporting, lightweight voice coils for accurate tracing of delicate highs.

**Model HF1 High-Frequency Step-Up Kit**—Can be added to any Wolverine full-range speaker above. Extends high-frequency performance beyond audible limit with silky, precise definition. Consists of TW35 VHF driver, CR35 crossover-level control, wiring, mounting hardware and instructions for 5-minute installation. TW35 size: horn,  $5\frac{1}{4}"$  x  $2"$ , pot dia,  $2\frac{1}{4}"$ , overall depth  $2\frac{3}{4}"$ . Baffle opening  $1\frac{1}{4}"$  x  $4\frac{1}{2}"$ . HF1 shipping weight 3 lbs. **Net Each.....\$26.50**

**Model MF1 Mid-Range Step-Up Kit**—For addition to all Wolverine speakers after the HF1 step-up kit is installed. Completes your 3-way speaker system and spreads mid-range sound evenly throughout the room; has increased output in the vital "presence" range, and smooth, peak-free frequency response. Consists of MR10 treble driver, CR10 crossover-level control, wiring, mounting hardware and instructions for 5-minute installation. MR10 size: horn  $4"$  x  $10\frac{1}{4}"$ , pot dia,  $2\frac{3}{4}"$ , overall depth  $9\frac{3}{4}"$ . Baffle opening  $12\frac{3}{4}"$  x  $2\frac{3}{4}"$ . MF1 shpg. wt., 5 lbs. **Net Each.....\$28.50**

## MICHIGAN 8-INCH LOUDSPEAKER

Outstanding performance in a budget-priced speaker. Includes all the features normally found in costly deluxe reproducers: Rigid die-cast frame, ceramic magnet, dual-cone Radax design. Slim, modern styling permits installation anywhere. Truly a top value. **Frequency Response:** 50-13,000 cps. **Program Capacity:** 12 watts; 24 watts peak. **Resonance:** 75 cps, nominal. **Sensitivity Rating:** 46 db, EIA. **Crossover:** Mechanical, at 8000 cps. **Impedance:** 8 ohms. **Mounting:** Four  $\frac{1}{4}"$  holes equally spaced on  $7\frac{3}{4}"$  dia. circle; fits  $7"$  dia. baffle opening. **Size:**  $8\frac{1}{4}"$  dia. x  $3\frac{1}{4}"$  d. behind panel. **Net Weight,** 4 lbs. **Shipping Weight,** 5 lbs.

Model MC8—Net Each.....\$14.00



"... a patient search for extremely high quality"

All KLH speaker systems are guaranteed against defective workmanship or materials for a period of 2 years.

## MODEL SIX 2-WAY SPEAKER SYSTEM

Famous speaker system that featured, for the first time, integrated design of all its components: Woofer, tweeter and crossover. The result, unprecedented smoothness and flawless continuity from the lowest bass through the mid-range to the peak-free treble that were never before possible at or near this price. Components include an acoustic suspension 12" woofer, small cone-type direct radiator tweeter and an LCR crossover that complements the exact response of the drivers octave through octave. A switch permits 5 db adjustment of the high frequency level for matching the system to differing room acoustics. For top stereo performance, the response of any two Model Sixes, regardless of age, will match within 1.5 db. Handsome modern enclosure fits into any decor; available in several finishes. Enclosed Volume: 1.5 cu. ft. Impedance: 8 ohms. Size: 12 3/4" w. x 11 7/8" d. x 23 1/2" h.

KLH Model Six—Oiled walnut. Net Each. **\$134.00**

## MODEL FOUR 2-WAY SPEAKER SYSTEM

Rated "Best" by a leading consumer organization. System comprised of 12" acoustic suspension woofer capable of the lowest and most distortion-free bass response; plus two small cone direct radiator tweeters providing ultra smooth, peak free, wide dispersion of mid-range and treble response. Two switches on the integrally designed LCR crossover network permit independent adjustment over 5 db range above 1500 and 6000 cps without causing acoustical "shelving". Provision is also made for separate connections to the high and low frequency sections. Available in several finishes for vertical or horizontal placement. All Model Fours match within 1.5 db making them ideal for stereo applications. Enclosed Volume: 1.7 cu. ft. Impedance: 16 ohms. Size: 25" w. x 12" d. x 13 3/4" h.

**\$231.00**



Model Six

Net Each.



Model Four

## MODEL FOURTEEN COMPACT SPEAKER SYSTEMS

Compact, full range systems incorporate a variation of the frequency-contoured technique developed in Models Eleven and Fifteen phono systems. Extended range, wide treble dispersion, low distortion and octave-to-octave musical balance are characteristic of the bigger KLH systems. Two small high compliance, full-range direct radiators and a passive electronic network tailor the power output of any amplifier to match exactly the low-frequency power required by the speakers. Delivers more bass power at lower frequencies with less distortion than any other speaker of comparable size and cost. Drivers 3" dia. have maximum excursion of 3/8"; are controlled by the highest ratio of magnet power to cone mass ever engineered in a speaker. Choice of two, ported enclosure shapes for greatest installation flexibility. May be used with amplifiers rated 12 watts and up. Nominal Impedance, 8 ohms. Weight, 14 lbs.

KLH Model Fourteen-S—Slimline style, 14" w. x 3 3/4" d. x 18" h. Oiled walnut finish. Net Each. **\$49.50**

KLH Model Fourteen-B—Bookshelf style, 14" w. x 8 1/4" d. x 8" h. Oiled walnut finish. Net Each. **\$49.50**



Model Fourteen-S



Model Fourteen-B

## MODEL NINE STEREOPHONIC FULL-RANGE ELECTROSTATIC SPEAKER SYSTEM

A complete stereophonic loudspeaker system that uses the electrostatic principle to reproduce the entire audio range. Provides the unobtrusiveness and smoothness of response that is attained only in well-designed electrostatic transducers. To insure adequate reproduction of very low frequencies, a total radiating area of 28 square feet is used; 14 square feet in front and 14 square feet in the rear; radiation front and back is equal. Each Model Nine loudspeaker system consists of two complete full-range loudspeakers with built-in power supplies and step-up transformers. Recommended amplifier power per section: 40 to 75 watts. Impedance: Primary resistive in the audio range—maximum, 30 ohms; minimum, 16 ohms. The two sections can be joined at an angle (as shown in the illustration) or can be separated completely for use in stereo systems. The solid hardwood frames are less than three inches deep. The grille cloth is made of unobtrusive natural boucle.

Size: (Each section) 23 1/2" w. x 2 3/4" d. x 70" h.

KLH Model Nine—In oiled walnut. Net Each. **\$1140.00**

Support Plates for Model Nine—Net Each Set. **\$30.00**

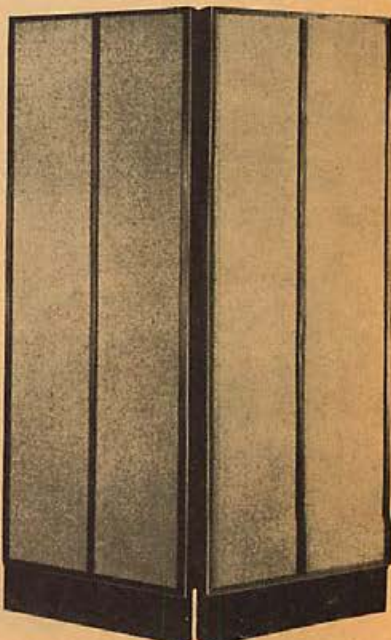


Model Seventeen

## MODEL SEVENTEEN 2-WAY SYSTEM

Distinctive, high performance, full range system engineered to achieve maximum sound reproduction quality at modest cost. Carefully integrated components give the inherent smoothness and balance characteristic of more costly KLH systems. Features extra low harmonic distortion, superior transient response and wide high-frequency dispersion. Woofer is 10" acoustic suspension design capable of extremely long excursion for extended low frequency response. An 1 1/4" direct radiator tweeter with peak-free characteristics provides excellent dispersion and lack of coloration; elastic suspension yields good mid-frequency performance; eliminates need for a mid-range speaker. Built-in three-position switch permits maximum 5 db change in high frequency levels for matching system to room acoustics. Handsome, compact enclosure is veneered on four sides in oiled walnut to permit horizontal or vertical placement; snap-on grille cloth panel permits easy access to drivers, and changing of grille cloth to match any decor. System may be driven with as little as 12 watts, yet handles nearly any power safely. Impedance: 8 ohms. Size: 11 3/4" w. x 9" d. x 23 1/4" h.

KLH Model Seventeen—Oiled walnut. Net Each. **\$69.95**



Model Nine

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We Specialize in Broadcast Equipment—See the Yellow Pages



# STEREO PHONO SYSTEMS, STEREO COMPONENTS

## KLH STEREO PHONOGRAPH SYSTEMS



Model Eleven

Model Fifteen

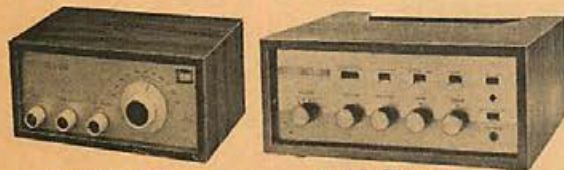
Model Nineteen

### MODEL TWENTY STEREO MUSIC SYSTEM

The culminating product in the KLH family of fine quality compact music systems compares favorably with any home music system regardless of size and up to three times its cost. Master stereo control center has: KLH designed and built all transistor integrated control amplifier that can deliver 100 watts of transient peak power; complete control facilities include Loudness, Volume, Balance, Bass, Treble, Input Selector (Phono, FM, Aux 1, Aux 2), Mono-Stereo Switch and Power On-Off. Outputs are provided for stereo headphones and tape recorder. Highly sensitive, drift-free, transistorized FM multiplex tuner has zero-center meter and stereo indicator light; attachable antenna plus provision for external 300-ohm antenna. Built-in KLH four-speed automatic turntable made by Garrard; plays records of any size or speed, has intermix feature and automatically shuts off amplifier after last record has been played; precision, low-mass tone arm prevents skipping and protects records from accidental damage—supplied with Pickering V-15 pickup and precision diamond stylus for unmatched performance. Each two-way speaker system comprises a 10" high compliance, acoustic suspension woofer and a 1 1/4" tweeter with elastomeric suspension. Handsome enclosures have removable grille cloth panel for easy cleaning or grille cloth replacement. **Size:** Control center, 18 1/4" w. x 14" d. x 4" h.; speakers, 23 1/2" w. x 9" d. x 11 3/4" h., each. **\$399<sup>95</sup>**

**KLH Model Twenty**—Oiled walnut finish. Net Each. . . . .  
**Cover for Model Twenty Control Center**—Matching wood and smoked plexiglass dust cover. Net Each. . . . . **\$24.95**

## KLH ALL-TRANSISTOR STEREO COMPONENTS



Model Eighteen

Model Sixteen

### MODEL EIGHTEEN FM MULTIPLEX TUNER

Highly sensitive, drift-free stereo tuner employs fully transistorized circuit for the best possible stereo reception. Simple control system assures operating ease. Very compact design fits well in limited space or as accessory to Models Eleven, Eleven-W and Fifteen phono systems. Special front-end design incorporates selective antenna input circuit that avoids the cross-modulation problems in transistorized instruments. All solid state construction holds power drain to a minimum; assures long, trouble free life; permits instant sound without warmup. Accurately calibrated tuning dial has vernier planetary drive for high accuracy; zero center tuning meter for exact station centering. Two sets of stereo outputs provided: One set adjustable by volume control; the other with fixed level output; both may be used simultaneously for tape recording plus playback. Comes with short wire antenna and dipole which are adequate for most areas; terminals permit connection to other 300-ohm antenna. **Controls:** On-Off/Volume; Mono-Stereo Switch (bypasses multiplex decoder for best mono-phonetic reception); SCA Filter Switch (for best multiplex reception). **Size:** 9" w. x 5 3/4" d. x 4 1/4" h. in oiled walnut finish cabinet. **KLH Model Eighteen**—Net Each. . . . . **\$116<sup>95</sup>**

### MODEL ELEVEN FAMILY OF STEREO PHONOS

Outstanding phono system rivals medium-priced component arrangements in performance. All-transistor stereo amplifier, custom tailored to speakers, plays instantly without warm-up. Unprecedented sound quality features smooth bass response from a single, frequency-contoured speaker for each channel. Long-excursion, heavy magnet, wide treble dispersion speaker in sealed enclosure gives flawless sound quality. Four-speed KLH automatic turntable, made by Garrard, features four-pole motor, low-mass arm, and special suspension to eliminate groove jumping; amplifier shuts off automatically after last record plays. Supplied with Pickering V-15 magnetic pickup and precision diamond stylus. Auxiliary input jacks permit tape recorder, AM, FM or FM stereo to be played through the system. Controls give full range adjustment for bass, treble, balance and volume. Comes with 40-ft. cable to permit wide flexibility in speaker placement.

**KLH Model Eleven Portable**—Available in lightweight, scuff-proof "Contourlite" vinyl-clad case (gray or pearl white). Speakers attach to center section for easy 1-unit portability. **\$199<sup>95</sup>**  
Weight, only 28 lbs. Net Each. . . . .

**KLH Model Eleven-W**—Supplied in three, handsomely-styled oiled walnut cabinets for home music applications. Net Each. . . . . **\$199.95**

### MODEL FIFTEEN STEREO PHONOGRAPH

Sophisticated version of the Model Eleven-W. Features unusual versatility—headphone jack plus tape recording outputs) and more elaborate speaker systems (two high-compliance speakers in each of the two ducted-port enclosures) for improved and more extended low frequency response, yet is still extremely compact. Output curve of the amplifier is carefully matched to the low frequency requirement of the speakers for an unusually flat response. Enclosures may be separated up to 40 feet with cables supplied. **Size:** Control center, 18" w. x 14" d. x 4" h.; enclosures, 14" w. x 8 1/4" d. x 8" h. **\$229<sup>95</sup>**

**KLH Model Fifteen**—Oiled walnut cabinetry. Net. . . . .  
**Cover for Model Eleven-W or Fifteen**—Wood and smoked plexiglass dust cover for control center of above home music systems. Optional accessory. Net Each. . . . . **\$24.95**

### MODEL NINETEEN STEREO MUSIC SYSTEM

Offers the basic circuitry of Model Fifteen plus a sensitive, all-transistor stereo FM multiplex tuner built in. In addition to all the features of Model Fifteen, Model Nineteen has a three-position Selector Switch (Phono, FM, Aux); a vernier planetary-drive FM tuning knob, FM stereo indicator light, antenna terminals for a 300-ohm antenna, and stereo tape recording outputs. **Size:** Control center, 18" w. x 14" d. x 4" h.; enclosures, 14" w. x 8 1/4" d. x 8" h. **KLH Model Nineteen**—Oiled walnut cabinetry. **\$299<sup>95</sup>**  
Net Each. . . . .



Model Twenty

### MODEL SIXTEEN 70-WATT INTEGRATED AMPLIFIER

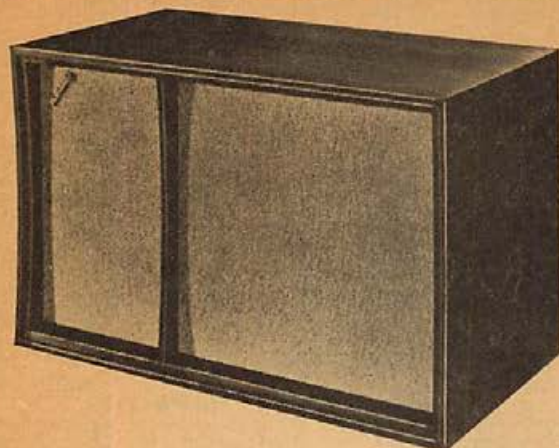
Stereo combination amplifier/preamplifier delivers well over 100 watts (IHF music power) with reliability and control ease. Special protective circuit in output stages eliminates possibility of damage from shorts across speaker output terminals; protects against damage from operation at full power with no load. **Controls:** Program Selector (Phono, Tuner, Aux 1, Aux 2); Volume; Balance; Treble; Bass; Three-position Loudness; Power On-Off; Speakers On-Off. Phono level on rear panel adjusts input to any magnetic cartridge; AUX 1 level switch adjusts amplifier sensitivity for any high level program source. **Outputs:** Record, Speakers and Headphone (on front panel). **Power Output:** 70 watts rms +0, -1 db, 25-20,000 cps both channels driven into 8 ohms; 43 watts per channel at less than 1% total harmonic distortion; over 100 watts IHF music power. **Distortion:** Less than 2% harmonic, 25-20,000 cps at 35 watts per channel; less than 0.5% midband at full power. Response intentionally rolled-off below 25 cps to prevent speaker overloads. **Size:** 11 3/4" w. x 10 1/2" d. (including knobs) x 4 1/2" h., chassis. **\$219<sup>95</sup>**  
**KLH Model Sixteen**—Chassis only. Net Each. . . . .  
**Oiled Walnut Case for Model Sixteen**—Net Each. . . . . **\$19.95**

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SOLD BY MAIL**

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HEAR THEM IN OUR SHOWROOMS**



# Wharfedale Achromatic\* Systems



## MODEL W60 FULL-RANGE TWO-SPEAKER ACHROMATIC SYSTEM

The original Achromatic system, which has established a new standard for all speaker systems, regardless of size or price. This superb system achieves a truly unique musical quality unexcelled by other systems, regardless of program material. **The Enclosure:** Exclusive, sand-filled panel is completely non-resonant for optimum bass response, down to 20 cps. Unusually handsome cabinet features a distinctive front molding and grille. Finished on all four sides, the system performs excellently horizontally or vertically. **The Speakers:** Specifically designed for the system, both speakers are carefully matched and tuned to the enclosure. Superlative bass response achieved by 12 1/4" speaker with extra-heavy cone compounded of long-fibre wool and soft pulp for enduring resiliency; surround is exclusive rolled-rim design for soft suspension and long linear excursions. Rigid basket combines with special magnet of advanced material (Feroba) with sulphur fill for close tolerance and maximum low-power efficiency. Tuned port combines with low frequency speaker for smooth, natural sound. The high frequency speaker, 5" cone type, is installed in a felt-sealed isolating compartment preventing mechanical crossover and interference. It employs a low mass aluminum voice coil with tuned ultrasonic timing to guarantee the coils for full speaker life. Full LC network gives exact 1500 cps crossover frequency; provided with 0-100% treble attenuator to adjust high frequencies to room acoustics. Neat, decorator styling employs fine veneers with neutral champagne boucle fabric to fit any decor; installs either vertically or horizontally. **Power Required:** 5 watts or more. **Impedance:** 8 ohms. **Size:** 14 1/2" x 24" x 13" deep. Shipping Weight, 50 lbs. including sand.

Weight, 50 lbs. including sand.

**Wharfedale Model W60**—Specify polished walnut or oiled walnut finish. Net. **\$122.50**

**Wharfedale Model W60 Utility**—Sanded birch hardwood with plain flat molding. Net Each. **\$108.50**

## ACHROMATIC . . . WHAT IT IS . . .

An advanced development in speaker systems with an exclusive sand-filled panel. Such a panel becomes inert, damping all vibrations and eliminating cabinet resonances that often color the sound.

\*ACHROMATIC: Pure; non-colored by extraneous modulations (Dictionary).

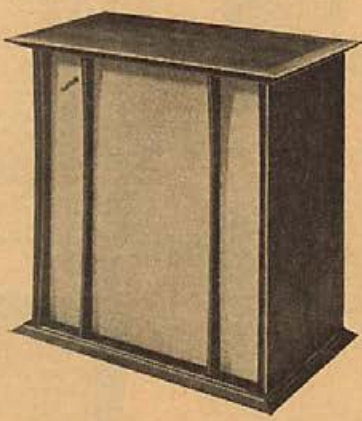


## MODEL W40 TWO-WAY ACHROMATIC SPEAKER SYSTEM

Ultra-compact, "little brother" to the Model W60 offers outstanding reproduction at a modest cost. Despite modest cabinet size, bass response is excellent, combining with non-strident high frequency performance that matches much larger systems. Such fine response permits use in pairs for limited space stereo arrangements; or, can be used as remote or extra speakers in a system. Sand-filled non-resonant cabinet finished in gleaming veneers on all four sides for vertical or horizontal placement; complimentary champagne boucle grille harmonizes with any room. Speakers include the same fine 5" high frequency driver employed in Model W60, plus a special 10 1/4" low frequency driver with extremely high flux density magnet. An LC network provides 1500 cps crossover. Built-in L-pad is precision wire-wound type permitting 0-100% treble attenuation to tune system to room acoustics. **Power Required:** 5 watts or more. **Impedance:** 8 ohms. **Size:** 12 1/4" x 23 1/4" x 10 1/4" deep. Shipping Weight, 37 lbs. including sand.

**Wharfedale Model W40**—Specify oiled walnut or polished walnut. **\$83.50**

**Wharfedale Model W40 Utility**—Sanded birch hardwood with flat molding. Net Each. **\$72.50**

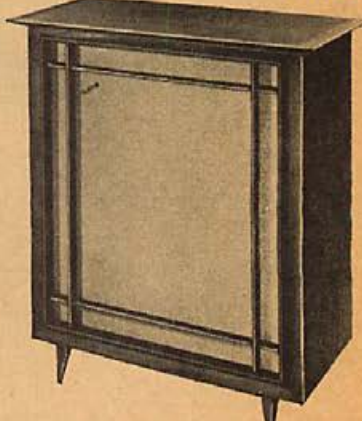


## MODEL W70 THREE- SPEAKER ACHROMATIC SYSTEM

This great system is, in truth, a fine musical instrument. Its reproduction is to be compared only to live performances. A magnificent system, it offers outstanding performance throughout the entire frequency spectrum. The handsome cabinet will enhance any decor. Engineered around a great 12 1/4" speaker especially designed for the Achromatic series, the system incorporates two additional speakers to reproduce every nuance of any program material: A special mid-range speaker with edge-treated cone for exceptional smoothness; and the incomparable Wharfedale Super 3 treble speaker, the finest tweeter ever made. Genuine hardwood veneers combine with its neutral champagne boucle grille, is compatible with any room styling. Built-in L-pad permits 0-100% treble attenuation. LC network provides 1500 and 600 cps crossover points. **Power Required:** 6 watts or more. **Impedance:** 8 ohms. **Size:** 23 3/4" x 24" x 14 1/4" deep. Shipping Weight, 65 lbs. including sand.

**Wharfedale Model W70**—Specify oiled walnut or polished walnut finish. **\$172.50**

**Wharfedale Model W70 Utility**—Sanded birch without curved molding, decorative dividers, or extended top and base; may be used horizontally if desired. Net Each. **\$153.50**



## MODEL W90 SIX- SPEAKER ACHROMATIC SYSTEM

Superb instrument employs six carefully integrated speakers matched to a magnificent sand-filled enclosure. Neither compact nor large, this versatile system meets nearly every space requirement while delivering the finest, natural sound available. **Woofers:** Two matched 12 1/4" drivers provide 94 sq. in. of cone area in the 20-500 cps range. Assure highest efficiency and excellent transient response even at lowest volume levels. Full 9 1/2 lb. magnets give fundamental free-air resonance at 25 cps. **Mid-Range:** Dual 5 1/4" specially-matched speakers cover the vital 500-6000 cps range with superior resolution and clarity. Heavy magnets and special cone structures for clean transients and freedom from breakup. **Tweeters:** Two 3" top performers complete the speaker complement. They are the famous Wharfedale "Super 3" design providing power and response to suit the most sensitive ear. **Cabinet:** Clean, modern design employs sand baffle principle for finest response. Separate tuned chambers accommodate each woofer, isolated from mid-range and tweeter arrays. Isolation provided for tweeters in rear-mounting arrangement; special baffle for mid-range units. Finished in fine furniture veneer and neutral champagne boucle grille to match any decor. **Power Required:** 12 watts or more. **Impedance:** 8 ohms. **Controls:** Separate 0-100% attenuation by L-pads for treble and mid-range balance to room acoustics. **Size:** 32 1/4" x 30 3/4" x 14 1/4" deep. Shpg. Wt., 130 lbs. including sand.

**Wharfedale Model W90**—Specify oiled walnut or polished walnut. **\$272.50**

**Wharfedale Model W90 Utility**—Sanded birch without molding, dividers or extended top; may be used horizontally if desired. Net Each. **\$256.50**

## MODEL B67 UNIVERSAL MOUNTING BASE

Two-leg assembly offers an ingenious, inexpensive mounting base for W60, W70 and W90 systems. Use the same base for either vertical or horizontal mounting by simply shortening the connecting dowel to any desired length. Available in polished walnut, oiled walnut or unfinished to match your cabinet.

**Wharfedale Model B67**—Specify mahogany, oiled walnut or polished walnut. Net Each. **\$10.50**

**Wharfedale Model B67 Utility**—Sanded Birch. Net. **\$9.50**





# Wharfedale Speakers, Crossovers

## FULL RANGE, COMPONENT SPEAKERS

### SPECIAL WHARFEDALE FEATURES

**New Roll Surround:** Permits response below the main cone resonance with minimum doubling at normal input levels. Maximum bass is attainable in small enclosures.

**Low Cone Resonances:** Fundamental resonances are kept as low as is consistent with reliability. On 10" and 12" units resonance is below 40 cps and 15" below 30 cps.

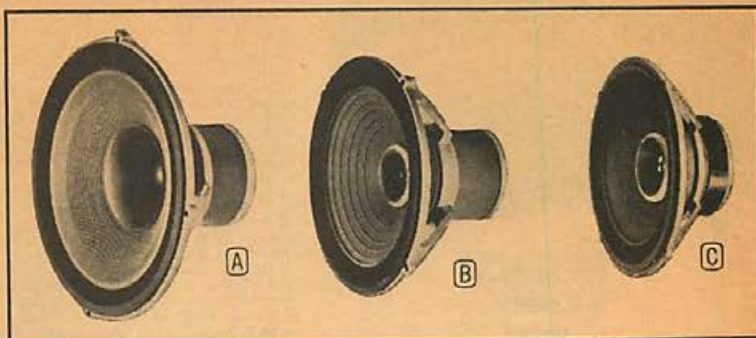
**Aluminum Voice Coils:** Used on several models for maximum high frequency efficiency. Tuned ultrasonic tinning results in voice coils which are guaranteed 12 months of the year in all climates.

**Die-Cast Chassis:** Open die-cast chassis are used on all models for maximum rigidity and minimum resonance.

**Ample Power Handling Capacity:** Wattage ratings shown apply to open baffle operation only. Properly loaded, all units will safely handle peak output from high wattage amplifiers on normal program material at domestic volume levels.

### SUPER 12 RS/DD FULL RANGE SPEAKER (FIG. A)

The finest full-range Wharfedale. Features roll suspension and one of the most powerful magnet systems available. Performs smoothly over a very wide range with extremely high sensitivity and excellent damping. Transient distortion is reduced to minimum; and, the irritating "boom" associated with stiffly suspended cones is eliminated. Carefully wound, aluminum voice coil achieves amazingly clear highs, without peaks in the upper-middle register. Uniform high quality is maintained easily, since the speaker does not rely on subsidiary diaphragm resonances which create intermodulation distortion.



**Bass Resonance:** 26-36 cps. **Flux Density:** 17,000 gauss. **Input:** 40 watts peak. **Total Flux:** 190,000 gauss. **Impedance:** 12-15 ohms. **Size:** 7" deep for 10 1/4" baffle opening. Mounting holes on 12 1/4" dia. Shpg. Wt., 22 lbs.

**Wharfedale Super 12 RS/DD—\$8950**  
Net Each.....

### SUPER 10 RS/DD FULL RANGE SPEAKER (FIG. B)

Despite its modest cost, this superbly balanced unit is considered one of the finest wide range speakers available today. Ideal for average size rooms where loud volume is often unsuitable. Requires little power to produce its refined sound quality. May also be used as a treble speaker in multi-speaker systems. High flux density and aluminum center dome make for improved high frequency response. **Bass Resonance:** 38-43 cps. **Flux Density:** 16,000 gauss. **Input:** 20 watts peak. **Total Flux:** 85,000 gauss. **Impedance:** 10-15 ohms. **Size:** 5 1/4"

deep for 8 1/2" baffle opening. Mounting holes on 9 3/4" dia. Shipping Weight, 11 lbs.  
**Wharfedale Super 10 RS/DD—\$4750**  
Net Each.....

### SUPER 8 RS/DD FULL RANGE SPEAKER (FIG. C)

Outstanding, moderate sized speaker of excellent quality; outperforms larger units in many high fidelity applications. Produces a rich, full bodied sound when enclosed in a bass reflex or other suitable cabinet. Recommended for use with a crossover in the region of 800 cps, as a two-way system. Excellent as a mid-range speaker in a three-way system. **Bass Resonance:** 50-60 cps. **Flux Density:** 14,500 gauss. **Input:** 20 watts peak. **Total Flux:** 60,000 gauss. **Impedance:** 10-15 ohms. **Size:** 3" deep for 7" baffle opening. Mounting holes on 7 3/4" dia. Shipping Weight, 5 lbs.  
**Wharfedale Super 8 RS/DD—\$2650**  
Net Each.....

## WOOFERS, TWEETERS AND CROSSOVERS



### SUPER 3 TWEETER (FIG. F)

Highly efficient treble unit for frequencies above 3,000 cps. Small cone, and absence of conventional centering device results in smooth response extending to 20,000 cps. May be added to any existing speaker system to reinforce extreme "top". **Flux Density:**

14,500 gauss. **Impedance:** 8 ohms. **Power:** 20 watts peak, treble only. **Size:** 2 1/4" deep for 3" baffle opening. Mounting holes on 3 1/2" dia. Shipping Weight, 4 1/2 lbs.  
**Wharfedale Super 3—Net Each.....\$2650**

### W15/RS BASS WOOFER (FIG. D)

Massive speaker with heavy, rigid cone and extra large voice coil is the ideal low frequency unit; achieves smooth response over the entire bass spectrum, 25-3,000 cps. Reproduces bass tones without distortion. Ideal for reflex cabinet. **Frequency Response:** 25-3,000 cps. **Cone Resonance:** 26-32 cps. **Flux Density:** 13,500 gauss. **Impedance:** 15 ohms. **Input:** 50 watts peak. **Size:** 7 1/2" deep for 12 1/2" baffle opening. Mounting holes on 14 1/2" dia. Shipping Weight, 22 lbs.  
**Wharfedale Model W15/RS—Net Each.....\$8950**

### W12/RS BASS WOOFER (FIG. E)

Ideal woofer for two- and three-way systems. Features low cone resonance and smooth response. Similar to Model W15/RS, but only 12" diameter. **Cone Resonance:** 26-34 cps. **Flux Density:** 13,000 gauss. **Impedance:** 12-15 ohms. **Input:** 40 watts peak. **Size:** 6 1/2" deep for 10 3/4" baffle opening. Mounting holes on 12 3/4" dia. Shipping Weight, 16 1/2 lbs.  
**Wharfedale Model W12/RS—Net Each.....\$5250**

### CROSSOVER NETWORKS (FIG. G)

Divide bass and treble between speakers and drivers, to provide each unit with a specific frequency range. Provide 6-9 db attenuation per octave outside passband, except 3-speaker type, which is 12 db. **Impedance:** 7-16 ohms, both units. Shipping Weight, 1 1/4 lbs.  
**Wharfedale 300-Cycle Crossover—Net Each.....\$1650**  
**Wharfedale 3-Speaker Crossover—400 and 3000 cps crossovers.** Mid-range and treble level controls. Shpg. Wt., 3 lbs. Net **\$3250**

## RECOMMENDED COMBINATION SYSTEMS

A two-way system with plenty of power in the low register can be started with a full range Super 8 and enhanced by the addition of a 12" woofer along with an 800-cycle crossover network.

A classic two-way system with one Super 3 tweeter and one Super 12 full-range speaker with an adequate high pass filter and L-pad. If both speakers are mounted in the same cabinet, an air tight box should be built around the tweeter.

The Super 10 full range speaker, in concert with a 15" woofer in a suitable large enclosure, makes a remarkable two-way system. An 800-cycle crossover should be used with this combination.

Excellent three-way system is the massive 15" woofer, Super 3 tweeter, full range Super 8 speaker and a three-speaker crossover network.



# EMI Hi-Fi Speaker Systems



## MODEL 711A THREE-WAY SYSTEM

Finest quality, compact speaker system for use in professional or home reproducing systems. Four specially-designed speakers, with carefully engineered capacitive/inductive network, combined with rigid construction, lined cabinet built to prevent standing waves and other spurious reflective effects. A special feature of the system is a four-pushbutton switch permitting adjustment of the system to room acoustics: Flat position gives an essentially flat response for the entire frequency range for average room acoustics; mid-range position attenuates middle frequencies -4 db for highly sound-absorbent rooms; for high frequencies, -4 db and +4 db tweeter positions are supplied. **The system woofer** is a hand-made, 13 1/2" x 8 3/4" elliptical speaker with patented aluminum center cone, exclusive polyvinyl chloride suspension, 1 1/2" dia. voice coil, and extra-heavy ceramic magnet (equivalent to 7-lb. conventional types). The mid-range speaker is also elliptical, 10 3/4" x 6 3/4", with high flux ceramic magnet, patented aluminum center cone and exclusive polyvinyl chloride suspension. Twin-curvature diaphragm, 3 3/4" dia. tweeters complete the system. Frequency range extends down to 35 cps at the low end; up to 20,000 cps at the high end. Crossover operates at 1200 cps and 6000 cps; adjustable at cabinet rear with pushbutton system described above. Cabinet is heavily lined with sound absorbent material; finished in figured walnut veneer on all five sides permitting either horizontal or vertical placement. An adjustable pedestal base, supplied, is easily secured with two wood screws, fitting either horizontal or vertical system placement. **Impedance:** 8 ohms. **Size:** 28 3/8" w. x 15" d. x 14 1/2" h. Shipping Weight, 65 lbs.

**E.M.I. Model 711A Three-Way System—Net Each.....\$249.00**

## MODEL 901 "DANGEROUS" PROFESSIONAL SYSTEM

Provides professional studio sound for the home: Smooth, wide range response with high order transients and effortless projection. Employs the largest elliptical (19" x 14") woofer in the world for resonance at 20 cps. Ceramic 7 3/4" dia. magnet delivers 16,000 gauss on 2" dia. pole piece; slightly flared diaphragm is extra rigid for high power capability and special edge suspension to prevent resonances. Four specially-damped 3 3/4" cone tweeters provide smooth middle and ultra-high response; are mounted within the center of the elliptical bass unit. Crossover is provided at 1800 cps. Mid-range and ultra-high controls provide attenuation to match room acoustics. Infinite baffle has removable bottom panel for bass reflex operation if desired. Walnut cabinet is hand-rubbed oil on all five sides; contrasting woven metal grille. **Frequency Response:** Substantially flat, 28-20,000 cps. **Impedance:** 8 ohms. **Size:** 28" w. x 19 3/4" d. x 34" h. Shpg. Wt., 145 lbs.

**E.M.I. Model 901 "Dangerous" System—Net Each.....\$395.00**

**Speaker Components Only—Less cabinet, Net Each..... 285.00**

## MODEL DLS-529 "DANGEROUS" BOOKSHELF SPEAKER SYSTEM

The only bookshelf speaker that leaves no clue to the actual size of the enclosure. The performance is of such wide range and smoothness, 40-15,000 cps, and transient characteristics of such high order that the effortlessly sweet sound is projected into the room as though "floating on air". This constitutes a total breakthrough in bookshelf speaker system design and requires a reappraisal of previously accepted standards of excellence. Actually, this E.M.I. Bookshelf Speaker System is a highly ingenious adaptation of an even greater, but incomparably more expensive system, the Professional Studio Monitor, designed by Dr. G. F. Dutton, a renowned electro-acoustic authority. **The Woofer:** Exclusive hand-made 13 1/2" x 8 3/4" elliptical driver with aluminum cone and special plastic suspension. (The same speaker used in the Professional Studio monitor.) **Tweeters:** Two 3 3/4" tweeters exhibit smooth, rewarding high frequencies; specially designed for the Bookshelf System. High precision crossover network operates from 4,500 cps. **Enclosure:** Both tweeters are completely and separately enclosed in a chamber with 3/4" reinforced walls and specially treated interior surfaces to damp out all standing waves or other parasitic vibrations. There are absolutely no acoustic gimmicks. Sleek, modern design of the enclosure is achieved by using genuine, figured walnut veneer. The grille, superbly practical as well as beautiful, is of long-lived, easy-to-clean metal. Cabinetry is hand-rubbed finished in oil stain on all sides and back. **Impedance:** 4 ohms. **Size:** 24" w. x 12 3/4" d. x 13 3/4" h. Shipping Weight, 45 lbs.

**E.M.I. Model DLS-529 Speaker System—Oil-stained walnut finish, Net Each. \$159.00**

**E.M.I. Model 1 Baffle System—Same as DLS-529, but without cabinetry. Components mounted and wired on 22 3/8" w. x 11 3/4" h. baffle. For best results, install in heavily padded, air-tight enclosure with 1 3/4" cu. ft. minimum interior. For specifications, see Model DLS-529 above. Shipping Weight, 17 lbs. Net Each.....\$115.00**

## MODEL 319 BOOKSHELF SYSTEM

Completely outclasses all other systems in its price category with sound quality close to that of the Model DLS-529. Special elliptical woofer, 13 1/2" x 8 3/4", employs a patented aluminum center cone and high compliance suspension molded of special grade, polyvinyl chloride; provides exceptionally low bass resonance, smooth mid-range response and remarkable transient burst characteristics. Tweeter is 3 3/4" cone type with ceramic magnet for ultra-high response, superior to many heavier, costlier units. Carefully designed dividing network critically matches speaker to speaker, assuring a substantially flat response, 50-15,000 cps. Fully enclosed, heavily damped cabinet with woven metal grille completes the system. **Impedance:** 8 ohms. **Size:** 23" w. x 10 3/4" d. x 11 1/2" h. Shipping Weight, 35 lbs.

**E.M.I. Model 319 Speaker System—Oil-stained walnut finish, Net Each. \$99.75**

**Speaker Components Only—Less cabinet, Net Each..... 66.00**

## MODEL 630 ECONOMY BOOKSHELF SYSTEM

High quality system, small enough to fit any bookshelf, offers sound quality worthy of the E.M.I. name. Outperforms many costlier speakers. Elliptical woofer, 10 3/4" x 6 3/4", has patented aluminum center cone and high compliance suspension of polyvinyl chloride for low bass resonance and smooth mid-range performance. Tweeter is 3 3/4" cone type with ceramic magnet for ultra-high response. Carefully matched crossover network completes the components for a smooth response, 60-15,000 cps. Heavily damped, 3/4" wall, cabinet has exclusive woven metal grille; measures 11" w. x 9 3/4" d. x 20 3/2" h. **Impedance:** 8 ohms. Shipping Weight, 25 lbs.

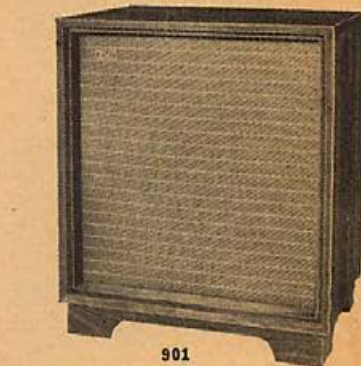
**E.M.I. Model 630 Speaker System—Oil-stained walnut finish, Net Each. \$69.75**

**Speaker Components Only—Less cabinet, Net Each..... 43.00**

## MODEL 812 COMPACT SPEAKER SYSTEM

Efficient, clean response at a modest cost. Balanced, robust transducer gives full range performance at low or high volumes. Woofer is 6 1/2" cone type with ceramic magnet and high compliance suspension; features low resonance, tight transient burst and superior mid-range characteristics. Damped 3 3/4" cone tweeter has ceramic magnet for smooth response; low-loss crossover at 4,500 cps. Fully enclosed, heavily damped cabinetry in oil walnut with woven metal grille. **Frequency Response:** Substantially flat, 80-15,000 cps. **Impedance:** 8 ohms. **Size:** 10 1/2" x 8" x 14 3/4". Shpg. Wt., 14 lbs.

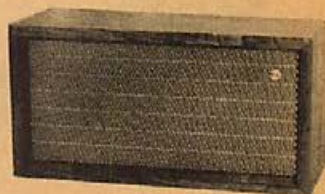
**E.M.I. Model 812 Compact System—Net Each.....\$49.95**



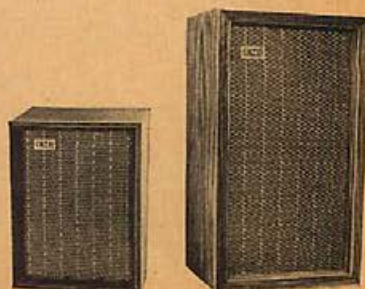
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DLS-529



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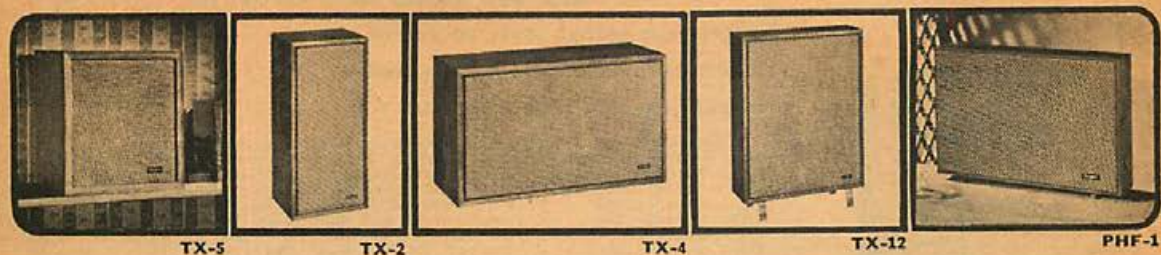
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630



# Speakers, Equipment Cabinets

## ARGOS HIGH FIDELITY SPEAKER SYSTEMS, KITS



### TWO-WAY SYSTEMS AND ASSEMBLED ENCLOSURES

#### TX-5 8" SYSTEM

A 12 $\frac{3}{4}$ " x 13 $\frac{3}{4}$ " x 10" d. modular system with Jensen 8" woofer, 3 $\frac{1}{2}$ " tweeter and crossover network. Impedance, 8 ohms. Overall response, 50-17,000 cps. Has sound fidelity normally associated with more costly, far-larger systems. Oiled, hand-rubbed walnut enclosure, cane grille.

Argos TX-5—Shipping Weight, 16 lbs. Net Each..... \$32.50  
Argos TX-5 Stereo Pair—Net per Pair..... \$59.00

#### TX-1 8" BOOKSHELF SYSTEM AND ENCLOSURE

Unequaled for pure value. Has Jensen 8", 45-cycle woofer, 3 $\frac{1}{2}$ " tweeter and crossover network. Overall response, 45-17,000 cps. Impedance, 8 ohms. Enclosure is bookshelf-size 24" x 11" x 9" d. with walnut wood-grain vinyl finish and cane grille. Used vertically or horizontally.

Argos TX-1—Shipping Weight, 18 lbs. Net Each..... \$29.95  
Argos TX-1 Stereo Pair—Net per Pair..... \$54.00  
Argos TX-1E Enclosure Only—Speakers not supplied. Shipping Weight, 16 lbs. Net Each..... \$19.95  
Argos TX-1E Stereo Pair Enclosures—Speakers not supplied. Net per Pair..... \$37.00

#### TX-2 8" DELUXE BOOKSHELF SYSTEM, ENCLOSURE

Same as TX-1 except enclosure is hand-rubbed, oiled American walnut.

Argos TX-2—Shipping Weight, 23 lbs. Net Each..... \$44.50  
Argos TX-2 Stereo Pair—Net per Pair..... \$79.55  
Argos TX-2E Enclosure Only—Speakers not supplied. Shipping Weight, 19 $\frac{1}{2}$  lbs. Net Each..... \$29.95  
Argos TX-2E Stereo Pair Enclosures—Speakers not supplied. Net per Pair..... \$54.00

#### TX-3 12" SYSTEM, ENCLOSURE

Big system sound at modest price. Has Jensen 12" woofer, 3 $\frac{1}{2}$ " tweeter and crossover network. Response, 50-17,000 cps. Impedance, 8 ohms. Size, 25" x 14 $\frac{3}{4}$ " x 9" d. Walnut wood-grain vinyl finish.

Argos TX-3—Shipping Weight, 23 lbs. Net Each..... \$39.95  
Argos TX-3 Stereo Pair—Net per Pair..... \$72.00  
Argos TX-3E Enclosure Only—Speakers not supplied. Shipping Weight, 19 lbs. Net Each..... \$24.95  
Argos TX-3E Stereo Pair Enclosures—Speakers not supplied. Net per Pair..... \$45.95

#### PHF "PETITE" HI-FI SPEAKER SYSTEM

Slim 18" x 12" x 3 $\frac{1}{4}$ " d. system outperforms basic reproducers many times larger and more expensive. Overall response, 50-17,000 cps. High compliance Jensen woofer, separate tweeter matched with balanced crossover network. Impedance, 8 ohms. Recessed volume control. Walnut enclosure, oiled and hand-rubbed. Brass legs optional.

Argos PHF-1—Shipping Weight, 8 $\frac{1}{2}$  lbs. Net Each..... \$29.95  
Argos PHF-1 Stereo Pair—Net per Pair..... \$54.00

### THREE-WAY SYSTEMS

#### TX-4 12" DELUXE SYSTEM

A superb system with luxurious 25" x 14 $\frac{3}{4}$ " x 9" d. hand-rubbed oiled American walnut enclosure, Jensen 12" woofer, 8" solid back midrange, 3 $\frac{1}{2}$ " direct radiator tweeter and crossover network. Overall response, 35-17,000 cps. Impedance, 8 ohms.

Argos TX-4—Shipping Weight, 29 lbs. Net Each..... \$ 79.95  
Argos TX-4 Stereo Pair—Net per Pair..... 145.00

#### TX-12 12" CONSOLE SYSTEM

A classic beauty in size, look and sound. Hand-rubbed, oiled American walnut enclosure measures 24" x 19" x 5 $\frac{1}{4}$ " d. Graceful brass legs. Has Jensen 12" woofer, 8" solid back midrange, 3 $\frac{1}{2}$ " tweeter and crossover network for smooth 40-17,000 cps response. Impedance, 8 ohms.

Argos TX-12—Shipping Weight, 25 lbs. Net Each..... \$54.95  
Argos TX-12 Stereo Pair—Net per Pair..... 99.95

## AUDIO ORIGINALS HIGH FIDELITY CABINETS



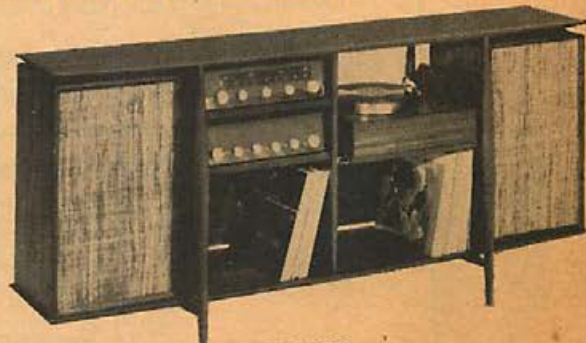
Model 202B

Three unusual cabinet designs offer an original concept in hi-fi, stereo equipment containment. Transforms your components into elegant cabinetry, high lighting and accenting your hi-fi center. Each cabinet is carefully crafted from genuine hardwoods and finished in rich oiled walnut. Designed for compact stereo systems, space is provided for well-separated enclosures, tuner, amplifier, changer, tape recorder and record storage. Shipped knocked-down, each cabinet assembles in minutes.

### MODEL 202B CONTEMPORARY

Modern beauty combined with function. Practical, economical cabinet has adjustable 2-position equipment shelf 33" wide x 15" deep; adjusts at 5 $\frac{1}{2}$ " or 7 $\frac{1}{2}$ " from top. Space below equipment shelf can be used for turntable, changer or tape recorder; or, holds over 100 records. Space for speaker installation measures 14 $\frac{1}{2}$ " w. x 15" d. x 25 $\frac{3}{4}$ " h. Overall Size: 65" w. x 15" d. x 32 $\frac{1}{2}$ " h. Shipping Weight, 65 lbs.

Audio Originals Model 202B—Oiled walnut finish. \$79.50  
Net Each.....



Model 303

### MODEL 303 DANISH

Handsomely designed in the Danish manner; blends with any period furniture; assures a practical function in housing stereo components. Two component shelves 17 $\frac{3}{4}$ " wide x 15" deep are adjustable 5 $\frac{1}{2}$ " or 7 $\frac{1}{2}$ " from each other and top for widest versatility. Changer or turntable shelf is sliding design 17 $\frac{3}{4}$ " w. x 15" deep; offers plenty of space for big turntables plus pull-out convenience. Balance of space, under components, is ideal for record storage or tape deck. Speaker compartments are 25 $\frac{1}{4}$ " h. x 16 $\frac{3}{4}$ " w.; well separated for perfect stereo. Overall Size: 72 $\frac{1}{2}$ " long x 32 $\frac{1}{2}$ " high x 16" deep. Shpg. Wt., 85 lbs.

Audio Originals Model 303—In oiled walnut finish. \$134.50  
Net Each.....  
Audio Originals Model 303D—A longer (77"), deeper (18") version of the 303, featuring king-size component shelves (20 $\frac{3}{4}$ " w. x 15" d.) and the convenience of fold-open doors with \$174.50 continuous hinges. Net Each.....  
Audio Originals Series 303 Additional Equipment Shelf—With supports. Net Each..... \$5.00  
Audio Originals Series 303 Additional Changer/Turntable Shelf—Includes slides and hardware. Net Each..... \$8.50



## AMPEX STEREO TAPE RECORDERS

### NEW 800 SERIES TAPE RECORDERS

- ACCURATE RECORD LEVEL VU METERS
- INSTANT-ON SOLID STATE ELECTRONICS
- MAXIMUM APPLICATION VERSATILITY



860

The Ampex 800 Series is designed to outperform all other stereo tape recorders in its price class. A complete tape library can be built; recordings can be made from any audio device. No bothersome warm-up time is required with the Series 800 solid state circuitry. Tantalum capacitors are used for increased reliability; housed in rugged die-cast aluminum frame to withstand the abuse of portability. Also, an Ampex exclusive, dual-capstan drive for perfect recordings and playbacks; and, elimination of pressure pads. Automatic shut-off switch; automatic tape lifters; automatic digital counter; top-mounted mike inputs; muting switch for monitoring; push-pull bass attenuator (excluding 850); safety record. Comes complete with two 701 microphones for live, stereo or monophonic recording. **Tape Speeds:** 7 1/2 ips; 3 3/4 ips; 1 3/4 ips. **Frequency Response:** 15-15,000 cps at 7 1/2 ips; 50-7,500 cps at 3 3/4 ips. **Flutter and Wow:** .15% at 7 1/2 ips. **Signal-to-Noise Ratio:** 46 db. **Power Output:** 16-watt power amplifier; 4 watts rms per channel guaranteed. **Reel Size:** 7" max. **Functions:** Record and play; stereo and monophonic. **Power Required:** 110-120 VAC, 60 cps.

**Ampex Model 890 Portable Tape Recorder**—With preamplifiers, 16-watt power amplifier and two 701 microphones; but, no speakers. Finger-tip reverse for bi-directional play. Vinyl-clad, beige, reinforced wood carrying case with fold-down handle. Net. **\$369.00**

**Ampex Model 865 Tape Recorder**—Same as 890, but without finger-tip reverse, bi-directional operation. With oiled walnut cabinet. Net Each. **\$309.00**

**Ampex Model 860 Portable Tape Recorder**—Same as 865, but with vinyl-clad beige, reinforced wood carrying case with fold-down handles. Net Each. **\$289.00**

**Ampex Model 850 Tape Deck**—With preamplifiers only. Uncased. Net Each. **269.00**

### MODEL 1070 TAPE RECORDER

- BUILT-IN SPEAKERS
- LIFETIME DEEP-GAP HEADS
- SPLIT LEVEL NEON RECORD METERS



1070

Moderately-priced unit combines superb performance with operating ease. Simplified, straight-line threading loads faster than a phono. Finger-tip reverse for playing both directions without switching reels; up to 9 hours of music, uninterrupted. Utilized controls grouped for easiest operation; interlocked controls eliminate tape breakage; two-way muting switch for record monitoring; automatic silencing of internal speakers when external speakers are in use. Automatic shut-off; tape lifters; digital counter; constant-speed, hysteresis motor unaffected by line variations. Positive-action, dual capstan drive uses one for motion and the other for hold-back tension; assures uniform speed and tension with top performance; eliminates pressure pads. Professional quality record and playback heads are unequalled in performance and quality. **Tape Speeds:** 1 3/4"/sec., 3 3/4"/sec. and 7 1/2"/sec.; 1200 ft. in 115 sec. avg., rewind. **Preamp Frequency Response:** +2 db, 30-18,000 cps avg. at 7 1/2 ips; +3 db, 40-12,000 cps avg. at 3 3/4 ips; +3 db, 40-6,000 cps avg. at 1 3/4 ips. **Flutter and Wow:** 0.12% avg. at 7 1/2 ips; 0.15% at 3 3/4 ips; 0.25% at 1 3/4 ips. **Preamp Signal-to-Noise Ratio:** 52 db avg. at 7 1/2 ips; 48 db, 3 3/4 ips; 43 db, 1 3/4 ips. **Power Output:** 8 watts avg. continuous rms per channel (40 watts peak, channels combined). **Reel Size:** 7" max. **Functions:** Record and play 4-track stereo and monophonic, play full-track and 1/2-track monophonic.

**Ampex Model 1070 Portable**—With preamplifiers, solid state amplifiers and speakers built-in. Black vinyl-clad case and beige dust cover. With 2001 mike. Net. **\$409.00**

### NEW 1100 SERIES STEREO RECORDER

- AUTOMATIC BI-DIRECTIONAL PLAY
- TWO SECOND AUTOMATIC THREADING
- RUGGED DIE-CAST ALUMINUM CONSTRUCTION



1160

Solid state circuitry combines with automatic "magic slot" tape loader, electronic reversing and utilized controls for easy operations. Silicon transistors, anodized aluminum heat sink and tantalum capacitors are used in the construction of this quality stereo record/playback unit. Automatic reverse at either end; manual reverse at any point on tape; automatic shut-off or continuous playing; automatic tape lifter; digital counter; interlock controls; friction-loaded volume controls; monitor switch. Separate VU meters for each channel assure desired record level. Precise dual-capstan drive maintains constant speed and ends need for "headwearing" pressure pads. All models are equipped with special long-life, deep-gap heads. Up to nine hours of stereophonic play (18 hours mono) on 7" reel. **Tape Speeds:** 7 1/2 ips; 3 3/4 ips; 1 3/4 ips. **Flutter and Wow:** Inaudible at slowest speed. **Power Output:** 16-watt power amplifier; 4 watts rms per channel. **Reel Size:** 7" max. **Functions:** Record and play; stereo or monophonic (up to 4-track).

**Ampex Model 1165 Portable Tape Recorder**—With preamplifiers and power amplifiers. Includes Ampex 2001 microphone. Housed in oiled walnut cabinet. Net Each. **\$469.00**

**Ampex Model 1160 Portable Tape Recorder**—Same as the 1165, but with vinyl-clad beige, reinforced-wood carrying case with fold-down handles. Net Each. **\$449.00**

**Ampex Model 1150 Tape Deck**—With preamplifiers only. Net Each. **399.00**

### AMPEX ACCESSORIES

**Ampex Model 2001 Mike**—High impedance, omnidirectional dynamic for 50-15,000 cps response. Net Each. **\$34.95**

**Ampex Model 815 Matched Pair Speakers**—Designed to perform perfectly with the 800 Series. Contains 6" woofer and 3" tweeter; infinitely baffled for full response. Beige grille cloth and fiberglass filled. **Size:** 9" w. x 13 1/2" h. x 7 1/2" d. Net per Pair. **\$65.00**

**Ampex Model 813 Matched Pair Speakers**—Each enclosure contains one 6" x 9" extended-range speaker. Frequency Response, 100-10,000 cps. Slides onto any Ampex tape recorder. Comes with 15' cord and molded jack connection; inserts directly into recorder speaker outlet. Light tan plastic with dark brown grille. Net per Pair. **\$29.95**

**Ampex Model 2010 (Charcoal) or 2011 (Cane) Speaker**—Matches 2000 series or Model 1070. Has 8" extended range and 3 1/2" tweeter; 2000 cps crossover network. Fiberglass filled cabinet with 15-ft. cord; HF attenuator switch. Net Each. **\$79.00**

**Ampex Model 1015 (Charcoal) or 1016 (Cane) Matched Pair Speakers**—Economy version of 2010, 2011; 5 1/2" woofer, 5 1/2" wide-range and 2 1/2" tweeter; 4000 cps crossover; with wall mounting brackets. Net per Pair. **\$89.00**

**Ampex Model 1113 Matched Pair Speakers**—Designed to mate with any Ampex tape recorder; each enclosure has an extended range speaker system. Net per Pair. **\$55.00**



## 2000 SERIES TAPE RECORDERS

### ● HYSTERESIS SYNCHRONOUS MOTOR

### ● DUAL CAPSTAN DRIVE

### ● CUSTOM-DESIGNED AMPLIFIERS

Contain all the features of the 1000 Series, plus 2-second automatic threading and fully automatic reverse. Inaudible signal at tape end changes direction permitting continuous play (reverse and re-reverse repeatedly, if desired); manual reverse also supplied. Optional automatic slide projector actuator available; uses inaudible signal to key tape to projector advance. **Tape Speeds:** 1 1/4"/sec., 3 3/4"/sec. and 7 1/2"/sec.; 1200 ft. in 115 sec. avg., 40-12,000 cps avg. at 3 3/4"/sec.; 40-6,000 cps avg. at 1 1/4"/sec. **Flutter and Wow:** 0.08% at 7 1/2"/sec.; 0.12% at 3 3/4"/sec.; 0.2% at 1 1/4"/sec. **Preamp Signal-to-Noise Ratio:** 52 db avg. at 7 1/2"/sec.; 48 db avg. at 3 3/4"/sec.; 43 db avg. at 1 1/4"/sec. **Power Output:** 8 watts avg. continuous rms per channel (40 watts peak, channels combined). **Model 2070, Reel Size:** 7" max. **Functions:** Record and play 4-track stereo and monophonic; play full-track and 1/2-track monophonic.

**Ampex Model 2070 Portable**—With preamplifiers, amplifiers and speakers built-in. Black reinforced wood case with handle and dust cover. With high impedance (No. 2001) mike. Net Each. **\$529.00**

**Ampex Model 2075 Portable**—Same as 2070 but encased in handsome oiled walnut cabinet. Net Each. **\$559.00**

**Ampex Model 2050 Tape Deck**—Transport with preamplifiers; for use with external amplifiers and speakers. Custom installation with "picture-frame" mtg. Net. **\$479.00**

**Ampex Model 2080 Tape Deck**—Same as 2050, but with oiled walnut base and beige vinyl-clad dust cover. Net Each. **\$499.00**

**Ampex Model 100 Slide Synchronizer**—Net Each. **12.95**



2070



2044

### MODEL 2044 SPEAKER/AMPLIFIER

Designed for use with Ampex tape recorders. Consists of a powerful 10-watt amplifier, 8" speaker and a tweeter with crossover network. In compact, portable case. Full control facilities and selectable inputs. **Frequency Response:** Essentially flat, 70-13,000 cps, or more, overall. **Power Output:** 10 watts with no audible

harmonic distortion; speaker can use full power. **Signal-to-Noise Ratio:** Amplifier, 70 db below rated output. **Controls:** Volume; Concentric Bass and Treble; Input Selector (four positions)/Power Off. **Size:** 14" w. x 17 1/2" h. x 9 3/4" d. **Weight,** 26 lbs. **Ampex Model 2044 Speaker/Amplifier**—Net Each. **\$199.00**

### MODEL 510 FM MULTIPLEX ADAPTER

Designed for easy, remote installation in all Ampex console systems (Signature, Crescendo, Concerto and Custom models) as well as other leading FM tuners with multiplex connection facility. Assures the finest reception of FM multiplex broadcasts through your present FM tuner. Completely remote, this unit does not require panel space in consoles or component systems. Gives excellent reception without adjustment problems; automatic adjustment provides full AGC control of pilot carrier. Quality components used throughout for extreme stability and long, trouble-free performance. Simply installed; all connections are made externally with phono cords; mounts in any available space as far as cable, supplied, will permit. **Separation:** More than 30 db at 100 cps; 20 db at 50 cps and 15 kc. **Distortion:** Less than 1% at standard levels. **Signal-to-Noise Ratio:** -60 db at 90% modulation. **Input Signal Level:** Must be within .24 to 2.4 volts. **Tubes:** 4-12AX7 plus selenium rectifier. **Power Required:** 17.5 VA, 105-120 VAC, 60 cps. **Size:** 5" w. x 12 1/2" d. x 4 1/2" h. With cables and hardware.

**Ampex Model 510 FM Multiplex Adapter**—Net Each. **\$99.95**

### TAPE RECORDER ACCESSORIES

Ampex Model	Description	Net Each
89-0098	Operator's guide for Model 2044 Amp./Speaker	\$ 0.75
801	Omnidirectional, hi-Z dynamic mike; satin chrome finish with holder (no stand)	45.00
887	Desk stand for microphone	7.95
805	Deluxe tape splicer	9.95
820	Tape head demagnetizer	9.95
825	4 oz. can head cleaner	1.50
823	Approved lubricating oil, plastic bottle	.95
830	Full track, 7 1/2"/sec. alignment tape	21.95
831	Full track, 3 3/4"/sec. alignment tape	21.95
835	Tracks 1 & 3, 4-track, 7 1/2"/sec. alignment tape	21.95
895	Home recorder accessory kit, includes: Head demagnetizer, splicer & tape, leader, oil, and head cleaner with swabs	22.50

## AMPEX MAGNETIC RECORDING TAPE

Assures the finest performance for all recording on tape. Gives reproduction matching the full potential of the finest recorders. Precise width uniformity assures smooth response and smooth passage by heads. Uniformly dense, ferric oxide coating permanently bonded to the base; holds wear to a minimum, assures uniform performance and keeps tape heads clean. Ferro-Sheen process finish eliminates roughness for optimum performance and maximum frequency response. Tough Mylar base resists shock, breakage, warping, distortion and chance of tearing. Lasts longer, without brittling from heat or humidity.

### 500 SERIES RECORDING TAPE

Most advanced Mylar tape available. Smartly boxed and available with new 4" hub for uniform speed, faster rewind and safety against reel warpage.

#### REGULAR OXIDE MYLAR\*

Ampex Number	Thick-ness	Lgth., Ft.	Size, In.		List Price	Net Each
			Reel	Hub		
531-13	1.5 mil	600	5	2 1/4	\$2.65	\$1.59
531-15	1.5 mil	1200	7	2 1/4	4.25	2.55
541-13	1.0 mil	900	5	2 1/4	3.40	2.04
541-15	1.0 mil	1800	7	2 1/4	6.20	3.72
541-15M	1.0 mil	1200	7	4	3.50	2.10
551-13	0.5 mil	1200	5	2 1/4	5.45	3.27
551-15	0.5 mil	2400	7	2 1/4	9.50	5.70

#### STANDARD OXIDE ACETATE

Ampex Number	Thick-ness	Lgth., Ft.	Reel	Hub	List Price	Net Each
511-13	1.5 mil	600	5	2 1/4	\$2.25	\$1.35
511-15	1.5 mil	1200	7	2 1/4	3.50	2.10
521-13	1.0 mil	900	5	2 1/4	3.50	2.10
521-15	1.0 mil	1800	7	2 1/4	5.50	3.30

#### SLO SPEED OXIDE MYLAR\*

Especially designed for 1 1/4"/sec and 3 3/4"/sec recording.

Ampex Number	Thick-ness	Lgth., Ft.	Reel	Hub	List Price	Net Each
536-15	1.5 mil	1200	7	2 1/4	\$ 4.75	\$2.85
546-15	1.0 mil	1800	7	2 1/4	6.90	4.14
546-15M	1.0 mil	1200	7	4	3.95	2.37
556-15	0.5 mil	2400	7	2 1/4	10.75	6.45

### 900 SERIES RECORDING TAPE

Economical acetate or Mylar base tape. Each reel comes in book-like box with leatherette binding and gold foil for labeling to dress up tape libraries.

#### STANDARD OXIDE ACETATE

Ampex Number	Thick-ness	Lgth., Ft.	Size, In.		List Price	Net Each
			Reel	Hub		
911-11	1.5 mil	150	3	2 1/4	\$0.65	\$0.39
911-13	1.5 mil	600	5	2 1/4	1.75	1.05
911-15	1.5 mil	1200	7	2 1/4	2.95	1.77
921-11	1.0 mil	225	3	2 1/4	.80	.48
921-13	1.0 mil	900	5	2 1/4	2.50	1.50
921-15	1.0 mil	1800	7	2 1/4	4.25	2.55

#### STANDARD OXIDE MYLAR\*

Ampex Number	Thick-ness	Lgth., Ft.	Reel	Hub	List Price	Net Each
931-13	1.5 mil	600	5	2 1/4	\$2.25	\$1.35
931-15	1.5 mil	1200	7	2 1/4	3.65	2.19
941-11	1.0 mil	225	3	2 1/4	1.00	.60
941-13	1.0 mil	900	5	2 1/4	2.85	1.71
941-15	1.0 mil	1800	7	2 1/4	4.95	2.97
951-11	0.5 mil	300	3	2 1/4	1.35	.81
951-13	0.5 mil	1200	5	2 1/4	4.50	2.70
951-15	0.5 mil	2400	7	2 1/4	7.95	4.77

\*Registered DuPont trademark.

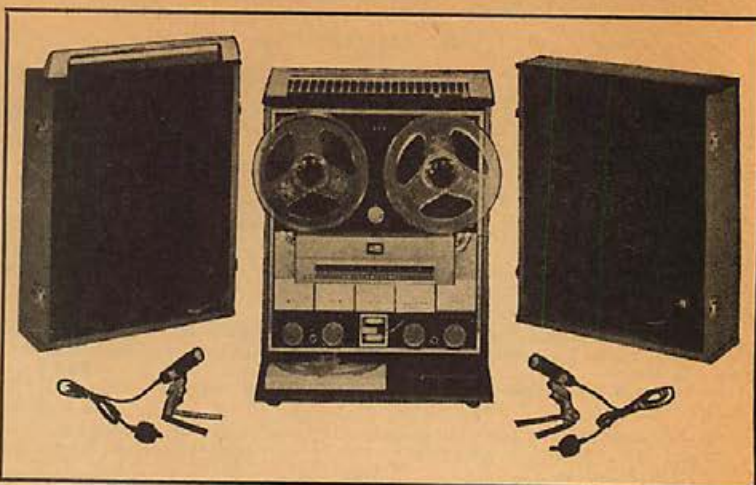
WE ALSO CARRY THE NEW LINE OF  
AMPEX PRE-RECORDED TAPES.  
PLEASE WRITE OR PHONE  
FOR COMPLETE INFORMATION.



# Professional Stereo Equipment

## CONCERTONE REVERSE-O-MATIC® STEREO/MONOPHONIC TAPE RECORDERS

- AUTOMATIC RECORD AND PLAY IN BOTH DIRECTIONS
- CENTER CAPSTAN DRIVE SYSTEM
- THREE HEADS ON EACH SIDE FOR SYMMETRIC BI-DIRECTIONAL OPERATION
- PUSHBUTTON OPERATION
- DIGITAL INDEXING AND DUAL VU METERS
- SAFETY CUT-OFF IN CASE OF TAPE BREAKAGE
- STRAIGHT-LINE THREADING
- INSTANTANEOUS START AND DIRECTION SELECTION
- BUILT-IN MONITOR SPEAKER/AMPLIFIER, PLUS OUTPUT JACKS FOR SEPARATE SOUND SYSTEMS



Professional quality, stereo 1/4-track tape recorder provides automatic operation in both directions. Center capstan drive system combines with three heads on each side for symmetric operation in either direction. Pivotal operation pushbutton provides instantaneous start and direction selection. Tape compliance arm also serves as safety cut-off in case of tape breakage. Straight-line tape loading makes threading easy. Pull-down tape gate holds head wear to a minimum during fast wind function. Digital indicator for easy tape indexing. Dual VU meters for constant monitoring of record level. Built-in monitor speaker-amplifier provided with tone control; output jacks provided for extension speakers and for playing through separate sound systems. Special facilities provide for add-on sound and echo effects. Transistorized record and play preamplifiers assure hi-fi performance standards and long life. **Speeds:** 3 3/4 and 7 1/2"/sec. **Tape Heads:** Separate erase, record and play 1/4-track (stereo or monophonic) for each direction (6 heads total). **Frequency Response:** 40-16,000 cps at 7 1/2"/sec.; 40-8,000

cps at 3 3/4"/sec. **Wow and Flutter:** Less than 0.2% rms at 7 1/2"/sec.; 0.3% at 3 3/4"/sec. **Bias Frequency:** 70 kc, nominal. **Signal-to-Noise:** -50 db. **Output Level:** 1.0 volt. **Motors:** Two reeling motors and capstan drive motor. **Rewind Time:** Less than 45 sec. for 1200 ft. **Inputs:** Two mike and two line. **Monitor Output:** Dual, 5 watts. **Input Impedance:** High. **Power Required:** 180 watts, 115 v. AC, 60 cps. **Size:** 14 1/4" w. x 8 3/4" d. x 19 1/4" h. Weight, 47 lbs.

- Concertone Model 801A**—Bi-directional 1/4-track stereo recorder/reproducer. Net Each. . . . . \$499.95
- Concertone Model 802A**—Same as above, but without portable cases and speaker/amplifier monitor; for custom installation. Net Each. . . . . \$429.95
- Concertone Model 5K-800 Extension Speaker Assembly**—In matching carrying case. Net Each. . . . . \$89.95

## MAGNECORD PROFESSIONAL RECORDER/REPRODUCERS

### MODEL 1028

Built to give lasting, dependable service, this recorder matches the finest professional gear in technical excellence. Advanced circuit design utilizes the latest tube types and printed wiring to insure uniform high performance from recorder to recorder. All components are top line quality and installed with care and precision for long life and high reliability. Advanced design heads attain superior performance; optically aligned with the tape gate on a precision comparator before the head assembly casting is installed. Solenoid-operated tape gate provides precision alignment of the tape centerline with the head centerline. **Other Features:** Interlocked pushbutton controls prevent accidental erasure or tape damage. VU meters are mounted to permit an easy check of levels and channel balance at a glance. Die cast main frame insures permanent mechanical stability; head mount is also die cast to guarantee accurate, permanent alignment. Alternate, plug-in input and output transformers provide convenient change to suit users needs. Non-glare vinyl finish in neutral blue-gray harmonizes into any installation; scratch-resistant and cleans like new with a damp cloth. **Tape Speeds:** 7 1/2"/sec. and 15"/sec.; rewind time less than 100 secs. for 2400 feet. **Heads:** Selectable erase, two-channel record and two-channel play; accessory 1/4-track playback head available at extra cost. **Frequency Response:** ±2 db, 35-10,000 cps at 7 1/2"/sec.; ±2 db, 35-18,000 cps at 15"/sec. **Flutter and Wow:** 0.15% at 7 1/2"/sec.; 0.1% at 15"/sec. **Timing Accuracy:** ±0.2%. **Reel Size:** 6", 7" and 10 1/2". **Signal-to-Noise Ratio:** 55 db per channel. **Input Sensitivity:** -90 dbm to -30 dbm. **Inputs:** Hi-Z mike and hi-Z unbalanced bridge per channel. Lo-Z mike and hi-Z balanced bridge with optional input transformer. **Outputs:** Cathode follower, 2.0 volts; 150/600-ohm balanced, +4 dbm with output transformer (not supplied). **Size:** 17 3/4" w. x 11 3/4" d. x 12 3/4" h. (14 3/4" h., enclosed). Weight, 50 lbs. (60 lbs., cased). **\$995.00**  
Magnecord Model 1028-2X—Net Each. . . . .

### MODEL 1048

Identical to Model 1028, except tape speeds of 7 1/2"/sec. and 3 3/4"/sec. Features include Micro-Optic heads for two-channel operation (1/4-track head available); easily removable head-covers for cleaning and degaussing; capstan drive with hysteresis synchronous motor. All features and specifications same as Model 1028 except: **Tape Speeds:** 7 1/2"/sec. and 3 3/4"/sec.; rewind time less than 100 secs. for 2400 ft. **Frequency Response:** ±2 db, 40-16,000 cps at 7 1/2"/sec.; ±2 db, 50-7,500 cps at 3 3/4"/sec. **Flutter and Wow:** 0.15% at 7 1/2"/sec.; 0.25% at 3 3/4"/sec. **Signal-to-Noise Ratio:** 52 db. **Input Sensitivity:** -90 dbm to -35 dbm. **Outputs:** Cathode follower, 2.5 volts (±5 V), 150/600 ohms balanced, +3 dbm with output transformers. Weight, 50 lbs. (60 lbs., cased). **\$995.00**  
Magnecord Model 1048—Net Each. . . . .



1028 and 1048

- SEPARATE 1/2-TRACK RECORD, PLAY AND ERASE HEADS WITH SPACE FOR 1/4-TRACK PLAY (1/4-TRACK HEAD CONFIGURATION AVAILABLE ON ORDER)
- CATHODE FOLLOWER OUTPUT AND CHOICE OF LO-Z INPUTS AND OUTPUTS WITH PLUG-IN TRANSFORMERS

### ACCESSORIES

- Magnecord Model 32A33 Input Transformer\***—50 or 250 ohms. Net Each. . . . . \$26.25
- Magnecord Model 32B90 Output Transformer\***—Cathode follower to balanced 150/600-ohm line. Net Each. . . . . \$26.25
- Magnecord Model 91C2959 Rack Adapter Panel**—19" w. x 14" h. for adapting 1028 recorder to rack mounting. Net Each. . . \$19.00
- Magnecord Model 91X3168 Carrying Case**—Net Each. . . \$50.00
- Magnecord Model 66X152 Transformer Hold-down†**—Net Each. . . . . .81
- Magnecord Model A95C939-1 1/4-Track Play Head**—Net **84.50**

\*One required per channel. †One required per transformer.





# Magnecord Tape Recorders

## MODEL 1021X TRANSISTORIZED PROFESSIONAL RECORDER/REPRODUCER

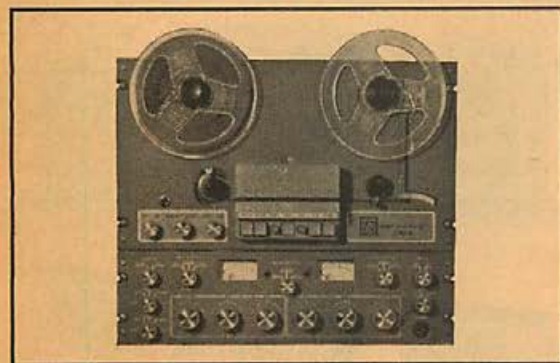
Built to broadcasters' specifications, this fine monophonic instrument gives the ultimate in smooth tape handling and braking. Other exceptional provisions include a built-in cuing speaker with separate volume control and amplifier to drive an external speaker; one-hand "cue" button lifts tape to heads, releases brakes and puts a low, even torque on the reels. Remote start-stop operation in pre-set mode using only a SPST switch. Fully transistorized with regulated power supply. **Control Features:** Switchable (NAB standard) equalization. Simultaneous record and playback facility. Front panel input selector; includes mixing auxiliary input. Monitoring from tape or source, with earphones. VU meter for record and playback level measurements. Local-remote front panel switch; signal switching available at remote. Pushbutton transport controls; record safety interlock. **Construction Features:** Handles 1/2-mil tape safely, without stretching, through superior tape guiding. Take-up and pay-out compliance arms; tape break shut-off; solenoid-operated tape gate, brakes and pressure roller. Double flywheel capstan drive with motor-stop when tape runs out. Ball bearing inertial stabilizer. Hardened stainless steel capstan driven by two-speed hysteresis synchronous motor; separate reel drive motors. Military type differential band brakes. Broadcast standard input and output connectors. Components and transistors are standard types, readily available. Built-in input and output transformers with adjustable impedance. Rugged, die-cast transport top plate. Finished in brushed aluminum; easy to clean, easy on the eye. **Tape Speeds:** 3 3/4"/sec. and 7 1/2"/sec.; rewind time 1200 ft. in 80 seconds. **Heads:** Full-track erase, and record; 1/2-track play, provision for fourth head available. **Frequency Response:** ±2 db; 35-8,000 cps at 3 3/4"/sec.; ±2 db, 45-18,000 cps at 7 1/2"/sec. **Wow and Flutter:** ±0.25% at 3 3/4"/sec.; 0.2% at 7 1/2"/sec. **Timing Accuracy:** ±0.2%. **Reel Size:** 5", 7" and 8" EIA hubs. **Signal-**



**to-Noise Ratio:** 53 db, both speeds. **Inputs:** Lo-Z mike, balanced bridge, unbalanced bridge, mixing bridge and aux bridge. **Outputs:** 150/600-ohm balanced, unbalanced, aux A and aux B (+4 dbm). **Size:** 19" w. x 12" d. x 15 3/4" h. Wt., 47 lbs., uncased. **\$708.00**  
**Magnecord Model 1021X—Net Each.**  
**Magnecord Model 1021RX—Same as above but includes full relay control. Net Each. \$883.00**

## MODEL 1022X TRANSISTORIZED STEREO RECORDER/REPRODUCER

Stereo 1/2-track record and play plus 1/4-track playback recorder/reproducer features reliable, cool, solid-state electronics with regulated power supply. Gives unmatched performance with simplified control facilities. Superb tape handling mechanism prevents tape breakage or stretching even with the thinnest of tapes. **Control Features:** Controls include pushbutton transport controls, record safety interlock, "cue" transport control, front-panel input selectors, remote "start-stop" control with local-remote front panel



switch, signal switching available at remote. NAB standard switchable equalization, separate channel gain controls separately arranged for record and playback functions, and large "operator" type knobs used throughout. Earphone monitoring is switchable for stereo or monophonic. VU meters for record-playback level of each channel. Monitoring accomplished from tape or source. Simultaneous record and playback functions. Channel tally lights in record mode. **Construction Features:** Superior tape guiding system combines with take-up compliance arm, pay-out compliance arm and tape break shut-off for smooth tape handling. Large, rugged, hardened stainless steel capstan on double flywheel drive; capstan motor stops when tape runs out. Motor is two-speed hysteresis synchronous type. Ball-bearing inertial stabilizer; individual reel drive motors; military-type differential band brakes; solenoid operated tape gate, brakes and pressure roller. Built-in input and output transformers, auxiliary unbalanced inputs and outputs; connectors are standard broadcast type. Modular construction employs standard, readily available transistors and components. Solid, die-cast transport top plate. Durable, brushed aluminum top panel. **Tape Speeds:** 7 1/2"/sec. and 15"/sec.; rewind time 1200 ft. in 80 seconds. **Heads:** Separate selectable two-channel erase, record and play plus 1/4-track play. **Frequency Response:** ±2 db, 30-16,000 cps at 7 1/2"/sec.; ±2 db, 35-22,000 cps at 15"/sec. **Flutter and Wow:** 0.17% at 7 1/2"/sec.; 0.15% at 15"/sec. **Timing Accuracy:** ±0.2%. **Reel Size:** 5", 7" and 8" EIA hubs. **Signal-to-Noise Ratio:** 53 db, both speeds. **Inputs:** Lo-Z mike, balanced bridge, unbalanced bridge and aux bridge each channel. **Outputs:** 150/600-ohm balanced, aux A and aux B unbalanced (+4 dbm) each channel. **Size:** 19" w. x 12" d. x 15 3/4" h. Weight, 47 lbs. **\$788.00**  
**Magnecord Model 1022X—Net Each.**  
**Magnecord Model 1022RX—Same as above but includes full relay control. Net Each. \$963.00**

## MODEL 1024X TRANSISTORIZED STEREO RECORDER/REPRODUCER

Straight-forward design employs the best engineering features developed during the last twenty years. Low heat, high efficiency, high reliability solid state circuitry. All replacement parts are readily available. Provides all 1/2-track stereo functions with simplified ease while handling 1/2-mil tapes gently, smoothly and quietly; optional two-channel playback head available for installation in fourth (empty) head position. **Control Features:** Large "operator" type knobs for easy handling, VU meter for each channel, earphone monitor jack and mike jacks on front panel give exceptional convenience. Simultaneous record and playback functions with front-panel mode switch and tally lights; monitoring from tape or source. Pushbutton transport controls plus "cue" control; remote start-stop operation with signal switching available at remote socket; local-remote switch on front panel. Separate channel monitor and output switches. Front-panel earphone switch selects stereo or monophonic listening. Switchable equalization. Record safety interlock. **Construction Features:** Smooth, quiet, safe tape handling system employs separate reel drive motors, hysteresis synchronous metering capstan drive and solenoid-operated tape gate, brakes and pressure roller. Capstan motor stops when tape runs out. Double flywheel capstan drive employs hardened, stainless steel capstan; ball-bearing inertial stabilizer flywheel. Take-up and pay-out compliance arms, plus tape-break shut-off. Military-type differential brakes. Regulated power supply handles line voltage changes with ease. Emitter follower outputs for each channel, plus auxiliary. Auxiliary high impedance inputs; mixing inputs for high-level line. Standard hi-Z connectors for convenience. Sturdy die-cast main plate. Brushed aluminum finish; easy on the eye, easy to clean. **Tape Speeds:** 3 3/4"/sec. and 7 1/2"/sec.; rewind time 1200 ft. in 80 seconds. **Heads:** Selectable 1/2-track erase, record and play; space provided for optional 1/4-track play head. **Frequency Response:** ±2 - 3 db, 35-10,000 cps at 3 3/4"/sec.; ±2 db, 45-18,000 cps at 7 1/2"/sec. **Flutter and Wow:** 0.25% at 3 3/4"/sec.; 0.2% at 7 1/2"/sec. **Timing Accuracy:** ±0.2%. **Reel Size:** 5", 7" and 8" EIA hubs. **Signal-to-Noise Ratio:** 47 db at 3 3/4"/sec.; 50 at 7 1/2"/sec. **Inputs:**



**Mike,** 50K ohms nominal; hi-Z mixing bridge; aux bridge each channel. **Outputs:** Emitter follower and aux emitter follower (0.5 v. loaded) each channel. **Size:** Transport, 19" w. x 7 1/4" d. x 10 1/2" h.; amplifier, 19" w. x 12" d. x 5 3/4" h. Transport reel overhang, 1 3/4". Weight, 47 lbs. **\$648.00**  
**Magnecord Model 1024X—Net Each.**  
**Magnecord Model 1024RX—Same as above but includes full relay control. Net Each. \$823.00**  
**Optional 1/2-Track Playback Head—Net Each. 25.00**  
**Transport Carrying Case—Net Each. 30.00**  
**Amplifier Carrying Case—Net Each. 30.00**  
**\$883.00**





Model 777



Model 600

**SERIES 777 PROFESSIONAL TRANSISTORIZED STERECORDER®**  
 Designed for the discriminating home user, broadcast station and recording studio, all-transistorized stereo and monophonic recorder is available for either four-track or two-track operation. Exclusive, patented Electro Bi-Lateral head, a Sony engineering innovation, achieves four-track and two-track stereo or monophonic playback with absolutely no head shifting, track width or alignment compromise. Fabricating both the 1/4-track and 1/2-track stereo cores within a single head unit, the sum total of four separate heads is placed within the space normally required for three heads. Special features include facility for sound-on-sound, tape/source comparison monitoring and mike or line mixing. Three motors include a two-speed hysteresis-synchronous drive. Complete pushbutton solenoid-activated operation with relay-activated pause control. Remote control provided for all modes of operation. Military-type modular plug-in transistorized electronic circuitry assures highest reliability with repair ease. Automatic tape lifters permit ease of operation. Two, easy-to-read VU meters give instant reading of recording level on each channel. Comes complete with portable case and remote control. **Tape Speeds:** 7 1/2 ips and 3 3/4 ips. **Frequency Response:** ±2 db, 50-15,000 cps at 7 ips. **Flutter and Wow:** 0.12% rms at 7 1/2 ips; 0.18% rms at 3 3/4 ips. **Signal-to-Noise Ratio:** 50 db. **Distortion:** Less than 1% harmonic at normal max. recording level. **Controls:** Separate Record and Playback Level, each channel; Pushbutton Record, Play and Speed; Output Impedance and Track Selection; two VU meters. **Input Impedance:** Microphone 250 ohms balanced each channel; line 100K ohms unbalanced, each channel. **Output Impedance:** Line (switchable) 600 ohms unbalanced, 10K ohms unbalanced, each channel; binaural monitor 10K ohms unbalanced. **Power Required:** 85 watts, 117 VAC, 60 cps; 50 cps available. **Size:** 16" w. x 17 3/4" h. x 9" d. **Weight:** 43 lbs.  
**Sony Model 777-S2 Stereorecorder**—Two-track stereo record and erase; two-track and four-track playback. Less than ..... **\$695.00**  
**Sony Model 777-S4 Stereorecorder**—Four-track stereo and monophonic record and erase; two-track and four-track playback. Less than ..... **\$695.00**  
**Sony Model MX-777 Stereo Mixer**—Transistorized, six-channel mixer has balanced mike inputs, recorder outputs. Individual level controls and channel selector switch for each input. Less than ..... **\$175.00**

**MODEL 600 STERECORDER**

Professional-quality tape recorder offers four-track stereo recording and playback unmatched by comparably priced units. Features three-head operation with tape and source monitoring, sound-on-sound, and vertical or horizontal operation. Hysteresis-synchronous drive motor, two VU meters, line and mike mixing, separate monitor level controls, cathode follower outputs, automatic shut-off and special phono input for direct stereo disc copying from magnetic cartridge are some of the exceptional features provided. **Tape Speeds:** 7 1/2 ips and 3 3/4 ips. **Frequency Response:** 30-18,000 cps at 7 1/2 ips. **Signal-to-Noise Ratio:** 50 db or better. **Flutter and Wow:** Less than 0.17% at 7 1/2 ips. Rugged, professional portable case has decorative aluminum trim and special support stand for vertical operation. Complete with two Sony F-96 dynamic cardfold microphones. **Size:** 16 3/4" w. x 18 1/4" h. x 9" d. **Weight:** 44 lbs.  
**Sony Model 600 Stereorecorder**—Net Each ..... **\$299.50**

**MODEL 500-A STERECORDER SYSTEM**

Portable 4-track stereo system with two full range speaker systems integrated into the lid. Speakers may be separated and placed up to 15 feet apart for optimum stereo effect. Also supplied are two Sony F-96 cardfold dynamic mikes. The tape recorder features provisions for sound-on-sound, two VU meters, hysteresis-synchronous drive motor, pause control, automatic shut-off, tape lifters, built-in mixing facilities, FM stereo recording inputs and preamplifier outputs. For user convenience, the tape recorder may be operated in both horizontal and vertical positions. Professional carrying case has decorative aluminum trim. **Tape Speeds:** 7 1/2 ips and 3 3/4 ips. **Frequency Response:** 30-18,000 cps at 7 1/2 ips. **Signal-to-Noise Ratio:** 50 db or better. **Flutter and Wow:** Less than 0.17% at 7 1/2 ips. **Size:** 16 1/4" w. x 9" d. x 18 3/4" h., vertical placement. **Weight:** 62 lbs.  
**Sony Model 500-A Stereorecorder**—Less than ..... **\$399.50**

**MODEL 200 STERECORDER SYSTEM**

Top performance in its price range; provides four-track stereo and monophonic recording and playback. Carrying case lid, when opened, separates into two complete, full range speaker systems for placement up to 15 feet apart; handsomely styled in black and ivory. Built-in amplifiers and stereo speakers also serve as PA system when desired. System complete with two Sony F-96 dynamic mikes. Tape recorder features include two VU meters, tape counter, pause control, FM multiplex recording inputs, playback tone control, facility for sound-on-sound, automatic tape lifters. **Tape Speed:** 7 1/2 ips and 3 3/4 ips. **Frequency Response:** 50-14,000 cps at 7 1/2 ips. **Signal-to-Noise Ratio:** 45 db or better. **Flutter and Wow:** Less than 0.19% at 7 1/2 ips. **Size:** 15" w. x 16" d. x 9" h., overall. **Weight:** 27 lbs.  
**Sony Model 200 Stereorecorder**—Less than ..... **\$199.50**



Model 200

Model 500-A

**MODEL 900 BATTERY-POWERED SONY-MATIC**

Compact, solid state portable. Sensitive enough to reproduce the slightest whisper. The lightweight Sony 900 makes a perfect traveling or home companion. Operating portably on four flashlight batteries, it can instantly switch to household current with no adapters needed. Automatic Volume Control instantly adjusts recording levels without touching a knob. Features two-speed capstan drive, tone control and 3 3/4" reel capacity for up to two hours on a single reel. Dynamic microphone with remote stop-start switch. **Tape Speeds:** 3 3/4 ips and 1 1/2 ips. **Frequency Response:** 90-9,500 cps at 3 3/4 ips; 90-5,000 cps at 1 1/2 ips. **Flutter and Wow:** 0.25% at 3 3/4 ips; 0.35% at 1 1/2 ips. **Size:** 8 3/4" w. x 8 1/2" d. x 3 3/4" h. **Weight:** 5 1/2 lbs. with batteries.  
**Sony Model 900 Sony-Matic**—Complete with vinyl carrying case. Net Each ..... **\$67.50**

**MODEL 801-A BATTERY-POWERED TAPE RECORDER**

Transistorized and battery operated, this portable tape recorder offers the utmost precision and quality for two-speed, monophonic recording and playback. Provides up to 50 hours of continuous operation on six standard flashlight batteries. Pushbutton controls for easy operation. Self-storing microphone and speaker. VU meter for recording level and instant indication of battery condition. Variable back-spacing lever permits correction or repetition of a word or phrase. With pause control and start-stop remote control. Other accessories available are foot control, AC and car battery converter, conference mike mixer and telephone pickup. Full 5 1/2" reel capacity. **Tape Speeds:** 3 3/4 ips and 1 1/2 ips. **Frequency Response:** 90-9,500 cps at 3 3/4 ips. **Size:** 12 1/2" w. x 10 1/2" d. x 3 3/4" h. **Weight:** 13 lbs.  
**Sony Model 801-A Battery-Operated Tape Recorder**—Less than ..... **\$250.00**  
**Leather Carrying Case**—Less than ..... **10.00**  
**Sony Model FS-4 Foot Switch**—Attaches easily to Model 801-A backspace lever for foot-activated control of pause and variable backspacing functions. Less than ..... **\$19.50**  
**Sony Model DCC-3 Car Battery Converter**—Connects to cigarette lighter receptacle for 12-volt battery operation in automobile. Integrated voltage stabilizer has magnet surface for holding to underside of dashboard. Less than ..... **\$19.50**  
**Sony Model AC-91 AC Converter**—For using 801-A with AC power. Less than ..... **24.50**  
**Sony Model TP-4S Telephone Pickup**—For recording a transcript of important phone conversations. Less than ..... **\$3.50**



Model 900

Model 801-A



# SONY SUPERSCOPE *The tapeway to Stereo* Recorders



**MODEL 260 SOLID STATE STERECORDER®**  
Complete four-track stereo system, with speakers and amplifiers, in leather-grained, black and satin-chromed carrying case. Features two professional VU meters; automatic shut-off switch and tape lifters; inputs for FM stereo recording. Vertical or horizontal operating position. **Frequency Response:** =2 db, 50-15,000 cps. **Tape Speeds:** 7½ ips and 3¾ ips. **Flutter and Wow:** Less than 0.17%. **Signal-to-Noise Ratio:** 50 db or better. **Power Output:** 20 W total music power, 8 ohms. **Size:** 21½" w. x 15¼" d. x 7" h. **Weight,** 31¾ lbs.  
**Sony Model 260 Solid State Sterecorder—Less than...\$239.50**

**MODEL 250A SOLID STATE STERECORDER**  
All-transistor, stereo four-track, take deck with self-contained preamplifiers. Designed for custom installation in stereo component systems. **Frequency Response:** 50-14,000 cps at 7½ ips. **Signal-to-Noise Ratio:** 50 db or better. **Flutter and Wow:** 0.19% per channel at 7½ ips; 0.25% at 3¾ ips. **Inputs:** Mike and line. **Outputs:** High level, each channel. **Power Required:** 115 VAC, 60 cps; 50 cps optional.  
**Sony Model 250A Sterecorder—With walnut base. Net.\$129.50**

**MODEL 263-E STEREO TAPE DECK**  
Precision, belt-free mechanism utilizes three heads for complete recording and playback facilities. With built-in stereo playback preamplifier; use Model SRA-3 amplifier for stereo recording. Horizontal or vertical placement. All heads are wired to input and output jacks for instant external connection. Features include tape counter, automatic tape lifters, pause control and automatic shut-off. **Tape Speeds:** 7½ ips and 3¾ ips. **Frequency Response:** 30-18,000 cps, governed by associated electronics. **Flutter and Wow:** Less than 0.17% at 7½ ips. **Size:** 13" w. x 10¼" d. x 5" h. **Weight,** 12 lbs. With walnut base.  
**Sony Model 263-E Stereo Tape Deck—Less than...\$129.50**

**MODEL SRA-3 STEREO RECORDING AMPLIFIER**  
Designed for use with Model 263-E for a complete four-track stereo and mono recording and playback system. With two studio-type VU meters; inputs for mike and high level for each channel; selector switch and record safety interlock. **Frequency Response:** 30-18,000 cps, used with Model 263-E. **Bias Frequency:** 100 kc obtained from push-pull oscillator circuit. **Recording Curve:** NAB standard. **Power Required:** 40 watts, 110-117 VAC, 60 cps. **Size:** 12¾" w. x 8¾" d. x 4" h. **Weight,** 12¾ lbs.  
**Sony Model SRA-3 Stereo Amplifier—Less than...\$109.50**



**MODEL 905-A "VOICE COMMAND" RECORDER**  
Two-in-one recorder provides voice-activated mechanism with transistorized computer-type electronic switching for instantaneous recording at sound of user's voice. Automatic gain control for volume balance compensation. Eliminates necessity for manual manipulation of any control. Consists of two units: Upper one serving as battery-operated portable recorder when detached from bottom unit, a matching AC powered amplifier-speaker. Battery life is nearly unlimited with automatic battery charger contained in base. **Tape Speeds:** 3¾ ips and 1½ ips. **Reel Size:** Up to 3¼" (provides over 1 hour recording time). **Frequency Response:** 90-9,500 cps. **Inputs:** Mike and aux. **Outputs:** Monitor and external speaker. **Power Required:** Recorder, four AA batteries; speaker-amplifier, 115 VAC, 50/60 cps. **Size:** 8¾" w. x 6¼" d. x 6¼" h., complete unit. **Weight,** 7¾ lbs.  
**Sony Model 905-A Battery-Operated Recorder—With leather carrying case and 4 nickel-cadmium batteries. Net Ea. \$129.50**

**MODEL 102 MONOPHONIC TAPECORDER**  
Dual track, two-speed monophonic recording and playback unit has built-in speaker and amplifier; also serves as a PA system. Features include VU meter, automatic tape lifters, pause control, tape counter, mike and line mixing controls, line and external speaker output and 7" reel capacity. With F-96 dynamic mike and carrying case. **Tape Speeds:** 7½ ips and 3¾ ips. **Frequency Response:** 50-12,000 cps at 7½ ips. **Signal-to-Noise Ratio:** 45 db or better. **Flutter and Wow:** Less than 0.2% at 7½ ips. **Size:** 13¾" w. x 10¼" d. x 7½" h. **Weight,** 18 lbs.  
**Sony Model 102 Tapedecorder—Less than...\$129.50**

**MODEL 135 SONY-MATIC TAPECORDER**  
Sony-Matic operation for instant recording: Flick on-off switch **No. 1;** press button **No. 2** for record function; slide lever **No. 3** to start transport and you are ready to record. Automatic volume control adjusts level for perfectly-balanced recordings every time without setting knob. Two-speed transport (3¾ and 1½ ips) takes reels up to 5" for a maximum of 2 hours recording time. Dictating pause control, automatic tape lifters, radio/TV inputs, external speaker output and dynamic mike. Operates on 117 VAC.  
**Sony Model 135 Sony-Matic Tapedecorder—Net Each...\$59.50**

**MODEL 123 TAPE:MATES DUAL RECORDERS**  
Two, handsomely matched Sony tape recorders; one for you, the other in a ready-to-go package for the person you love. Send and receive talking letters, keeping each other in touch. "Talk" for a brief note or a 2-hour letter on a single reusable reel. Same Sony-Matic 1-2-3 recording and AVC features as Model 135, plus record interlock to prevent accidental erasure, monitor output and solid state design amplifier. **Speeds:** 3¾ and 1½ ips. **Circuitry:** 6-transistor amplifier. **Size:** 8" w. x 7½" d. x 4" h. **Weight,** 4 lbs.  
**Sony Model 123 Tape:Mates—Two, matched tape recorders each with microphone. One is smart gray and white; the other, coral and white. Net per Pair...\$79.50**

**MODEL 211-TS "SLIDE-SYNC" TAPECORDER**  
Compact, versatile unit serves the photo fan with exclusive built-in, automatic electronic "Slide-Sync", plus tape-teaching facilities for the language or music student. With built-in power supply and speaker, this AC-powered two-speed recorder can be programmed automatically to activate a slide projector in synchronization with recorded narration using the built-in sync pulse generator. Other features include student/teacher comparison switch, dictating pause control, neon recording level indicator, automatic tape lifters and speaker on-off switch. Portable case and lid in coral and white. Microphone supplied. **Tape Speeds:** 3¾ ips and 1½ ips. **Size:** 10" w. x 8¾" d. x 5" h. **Wt.,** 10 lbs.  
**Sony Model 211-TS "Slide-Sync"—Net Each...\$89.50**

**TAPE RECORDER ACCESSORIES**  
**Sony Model 55A-3 Bookshelf Sound Center—**Walnut-grained formica bookshelf unit has full-range, two-way speaker system acoustically matched to a 20-watt all-transistor preamplifier and power amplifier. Permits direct connection to any music source: Mike, record changer, tape deck, or tuner. Ideal for conversion of monophonic to stereo. Has separate tone controls, inputs for phono cartridge, tape head, high level and aux. **Frequency response,** 20-20,000 cps. **Amplifier power,** 20 watts. **Size,** 23¼" w. x 11¼" d. x 11¼" h. **Less than...\$199.50**  
**Sony Model MX-10K Microphone Mixer—**Versatile accessory permits use of three mikes or high-level sources with each channel. Ideal for recording large instrumental or vocal groups, etc. Use with Models 801-A, 500-A and SRA-3. **Less than...\$22.50**  
**Sony Model MX-600 Microphone Mixer—**Same as above, but for Models 102, 200 and 600 tape recorders. **Less than...\$22.50**  
**Sony Model DR-1A Dynamic Stereo Headset—**Provides full-range response for private stereo listening or monitoring while recording. Adjustable headband; soft, velvet-covered, foam ear cushions and connecting cord with binaural phone plug. **Impedance,** 8 ohms. **Less than...\$17.50**  
**Sony Model DR-1C Stereo Headset—**Same as DR-1A, but 10K ohms impedance. **Less than...\$22.50**  
**Sony Model F-87 Cardioid Dynamic Microphone—**High impedance dynamic mike with cardioid sensitivity pattern ideal for stereo recording. Built-in table stand and floor stand adapter insert. With cord and connecting plug. **Less than...\$22.50**  
**Sony Model F-81 Cardioid Dynamic Microphone—**Premium quality high impedance mike offers exceptionally smooth response curve. Cardioid sensitivity pattern. Gray metal case with satin aluminum trim. Swivel-mount desk stand, floor stand adapter insert and phone plug terminated cord. **Less than...\$29.50**  
**Sony Model F-32 Dynamic Mike—**Omnidirectional pattern and bass-cut switch. Essentially flat response when switched to "music"; on "voice", attenuated 8 db at 50 cps and 6 db at 100 cps for voice or PA use. **Less than...\$27.50**  
**Sony Model F-86 Dynamic Mike—**Wide range, high impedance design to complement the quality of any home recorder. Thin tapered shape and unique, removable stand. With cord and connecting plug. **Less than...\$17.50**





# Tape Recorders, Accessories

## "88 STEREO-COMPACT" RECORDERS

Redesigned version of the "86-Compact". Hyperbolic contour heads (erase, record and playback) are laminated, metal face construction; require no pressure pads. Revised brake design permits use of dissimilar reel sizes (up to 7") without danger of tape spillage. Use of silicon planar transistors in critical stages assure low noise performance. Independent playback preamplifier circuitry permits off-the-tape monitoring; A-B comparison switch built in. Automatic equalization incorporated in speed selector. "Protect" record interlock permits noiseless start and stop during recording. Special features include for sound-on-sound and multiple recording effects. Built-in FM multiplex filter prevents interaction of recording bias with 38 kc carrier used in FM-MX broadcasts.

**Tape Speeds:** 3 1/2"/sec., 7 1/2"/sec., fast forward and rewind.

**Frequency Response:** 30-18,000 cps, record and play at 7 1/2"/sec. **Flutter and Wow:** Less than 0.2% rms. **Equalization:** NAB, automatically selected on speed switch. **Inputs:** High level RCA plug on back; mike and tape head on front panel. **Controls:** Two VU Meters; Record Level each channel; Play Level each channel; Off/Play/Record/Sound-on-Sound Switch; Stereo MX/Mono Switch; Source/Tape Switch; Digital Index Counter; Cue/Neutral/Play Selector; Fast Forward/Rewind; Headshift Control. Automatic shut-off provided at end of reel. **Power Required:** 125 watts, 110-115 VAC, 60 cps. Shpg. Wt., 25 lbs.

**Viking Model RMQ "88 Stereo-Compact"**—Quarter-track record and play. Net Each ..... \$339.95

**Viking Model ERQ "88 Stereo-Compact"**—Half-track record and quarter-track play. Net Each ..... \$347.95

**Viking Model RMQ "880"**—In case. Net Each ..... 425.00

**Viking Model ERQ "880"**—In case. Net Each ..... 433.00



"88 Stereo-Compact"



"Retro-Matic 220" in Portable Case



RP83 Preamplifier



"Auto-Tape 500"

## "87" SERIES TAPE TRANSPORTS

Designed for true connoisseurs of full fidelity stereo music. Same transport mechanism as used in "88 Stereo-Compact". Hyperbolic contour heads (erase, record and playback) are laminated, metal face construction. Revised brake design permits use of dissimilar reel sizes (up to 7") without tape spillage. **Features:** "Erase-Protect" safety interlock prevents accidental erasure. Automatic run-out switch stops tape at end of reel or upon tape breakage. Digital tape counter. Flutter-filter belt drive with 2 lb., non-magnetic and dynamically balanced capstan wheel. Two speed. Oil impregnated bearings need no lubrication. Convenient head shift control. Concentric control for fast forward, rewind, neutral, play or cue. May be mounted vertically or horizontally. **Frequency Response:** 3 db, 30-18,000 cps using Viking amplifiers and preamplifiers. **Tape Speeds:** 7 1/2"/sec. and 3 1/2"/sec. **Flutter and Wow:** Less than 0.2% rms. **Power Required:** 110-115 VAC, 60 cps.

Model	Description	Net Each
87P	1/2-tr. mono playback	\$138.00
87R	1/2-tr. stereo and mono record and playback	144.00
87RQ	1/2-tr. mono record; 1/4- and 1/2-tr. stereo and mono playback	165.25
87Q	1/4- and 1/2-tr. stereo and mono playback	141.05
87ES	1/2-tr. stereo and mono record and playback; two heads	157.85
87ESM	1/2-tr. stereo and mono record and playback; three heads	185.50
87ERQ	1/2-tr. stereo and mono record; 1/4- and 1/2-tr. stereo and mono playback	178.65
87RMQ	1/4-tr. stereo and mono record; 1/4- and 1/2-tr. stereo and mono playback	170.30

## "AUTO-TAPE 500" CAR, HOME AND MARINE TAPE CARTRIDGE PLAYERS

Fully transistorized, stereo tape cartridge player, for all mobile applications. May be installed in any 12 volt system. Consists of cartridge deck and 10-transistor amplifier. Output sufficient to drive up to four speakers. Stereo controls for volume, tone and speaker balance provide "sound center" control. Easily installed with only one power lead and one lead to each speaker. Accepts Viking M4, M6 and M8 cartridges. **Frequency Response:** 3 db, 60-10,000 cps. **Signal-to-Noise Ratio:** 50 db. **Wow and Flutter:** 0.3% rms. **Distortion:** 2%. **Power Output:** 2 watts per channel. **Output Impedance:** 3-4 ohms. **Power Required:** 11-14.5 VDC, 1 amp maximum, negative ground. **Size:** 9 3/4" w. x 9" d. x 3 1/2" h. (10 1/2" w. x 9" d. x 4" h. with mounting hardware). Wt., 10 1/2 lbs.

**Viking Model 500B**—Auto-Tape only in charcoal black finish. Net Each ..... \$133.95

**Viking Model 500B-Kit**—Two wide range speakers with chrome grille, stereo cartridge, hardware, instructions and tape catalog included. Net Each ..... \$149.95

**Viking Model 500S**—Auto-Tape only in stainless steel satin finish. Net Each ..... \$140.95

**Viking Model 500S-Kit**—With extras included in 500B-Kit. Net Each ..... \$159.95

**Viking Kit 423**—Two additional speakers with grilles and hardware. Net Each ..... \$13.95

**Viking Model 500-H**—Stereo-Mate 500, 110 VAC, player in walnut case. Net Each ..... \$159.95

## TAPE CARTRIDGES

**Viking Model M4 Tape Cartridge**—Lightweight drawn aluminum case with clear plastic cover. Max. tape length, 400 feet single coated, 300 feet double coated. Net Each ..... \$4.25

**Viking Model M6 Tape Cartridge**—Lightweight drawn aluminum case with clear plastic cover. Max. tape length, 850 feet single coated; 600 feet double coated. Net Each ..... \$6.75

**Viking Model M8 Tape Cartridge**—Lightweight drawn aluminum case with clear plastic cover. Max. tape length, 1550 feet single coated; 1200 feet double coated. Net Each ..... \$7.25

M4, M6 and M8 cartridges are available loaded with single coated tape in standard loop or double coated tape in megalob loop in various lengths. Write for information and prices. Pre-recorded half-track monaural tapes for 3 1/2"/sec. playback in M8 cartridges available; ask for Catalog 2040. Pre-recorded quarter-track stereo tapes in M4 cartridges also available; ask for Catalog 2046.

## "RETRO-MATIC 220" STEREO RECORDER

Entirely new design in stereo recorders with wide frequency response and many new features. Two-directional playback with lined stereo sensing device that detects end of program, automatically reverses reels and switches heads and adjusts threshold, automatic or pushbutton operated. Simultaneous recording and playback. Silent, "feather-touch" pushbutton operation. Receptacles provided for remote control center. Four hyperbolic, laminated metal face heads with low impedance for extended response; no pressure pads required. Includes photoelectric runout sensor plus digital counter, illuminated VU meters. Integrated amplifier delivers six watts per channel. Low noise, solid state preamplifiers include adjustable playback equalization; automatically adjust to tape speed. High efficiency, direct-coupled solid state monitor power amplifiers. Independent controls and record indicator lights for each channel. Provision for reverb, plus switch to compare live programs with playback. Two-speed hysteresis synchronous capstan motor with integral flywheel, plus two shaded four-pole induction torque reel drive motors. Flutter-filter multiple belt drive. Fail-safe, solenoid-controlled differential braking.

**Speeds:** 7 1/2" and 3 1/2"/sec., electronically selected. **Frequency Response:** 3 db, 20-25,000 cps at 7 1/2"/sec., 20-15,000 cps at 3 1/2"/sec. **Wow and Flutter:** Less than 0.2% rms at 7 1/2"/sec. **Signal-to-Noise Ratio:** 55 db peak. **Distortion:** 1% at zero VU, 12 db below saturation. **Input Sensitivity:** Low level, 1 mV; high level, 100 mV. **Equalization:** NAB standard, automatically selected to correspond to tape speed. **Output:** Music, 1 volt per channel, low-Z; monitor, 6 watts undistorted per channel to 4 or 8 ohm speakers, 4 to 600 ohm phones. **Power Required:** 175 watts, 110-120 VAC, 60 cps. **Size:** 16" w. x 7 1/4" d. x 15" h. Weight, 45 lbs.

**Viking "Retro-Matic 220"**—For vertical or horizontal mounting, less enclosure. Net Each ..... \$860.00

**Viking Remote Control Center**—With 6 ft. cable. Net ..... 59.95

**Viking Walnut Enclosure**—Net Each ..... 31.95

**Viking Portable Case**—Net Each ..... 55.75

## AMPLIFIERS

**Viking Model PA82 Playback Amplifier**—Extremely compact, low power, high fidelity amplifier. Transformer type power supply with solid-state rectifiers. Frequency response, 1 db, 30-25,000 cps. Signal-to-noise ratio, 70 db. Output impedance, 4, 8 and 16 ohms. Power output, 2 watts per channel. THM at 2% total harmonic distortion. Power required, 110-120 VAC, 50/60 cps, 25 watts. Size, 5 1/4" w. x 4 1/4" d. x 3 3/4" h. Shpg. Wt., 4 lbs. Net Each ..... \$49.75

**Viking Model PA82B**—220-volt version. Net Each ..... 51.75

**Viking Model PA94B Playback Amplifier**—Compact, low heat, solid-state power amplifier. Perfect for background music and high fidelity use. Tape and mike inputs. Separate tape and mike volume controls. Frequency response, 2 db, 50-16,000 cps. Signal-to-noise ratio, 60 db; 50 db tape. Output impedance, 4 and 8 ohms (screw terminals); 8-ohm and 70 V (3-pin socket). Power required, 110-120 VAC, 50/60 cps, 30 watts max. Size, 8 3/4" w. x 6 3/4" d. x 2 3/4" h. Shpg. Wt., 7 lbs. Net Each ..... \$84.95

**Viking Model PA94E**—220-volt version. Net Each ..... 84.95

**Viking Model RA72 Recording Amplifier**—For use with RQ, ESQ, RMQ or any 3-head decks for recording. Use with systems already having playback facilities. Two units provide for stereo. "Erase-Protect" switch for decks with "push-to-record" safety switch. Size, 6 1/2" w. x 8 3/4" d. x 3 1/2" h. including panel flange. Weight, 6 lbs. Net Each ..... \$74.50

## PREAMPLIFIERS

**Viking Model PB70 Playback Preamp**—NAB equalized with control for non-standard tape equalization. Compensation range permits use with either half-track or quarter-track heads. Signal-to-noise ratio, 60 db. Power output, 1 volt. Power required, 115 VAC, 50/60 cps. Size, 3" w. x 6 1/2" d. x 2" h. Shipping Weight, 3 lbs. Net Each ..... \$33.50

**Viking Model RP83 Record/Playback Preamplifier**—Monophonic or stereo; VU meter; mike and phone monitoring jacks. Independent controls for professional mixing. For tape speeds of 3 1/2" and 7 1/2" ips. Frequency response, 25-16,000 cps (50 kc bias). Signal-to-noise ratio, 55-60 db. Distortion, less than 2%. Size, 13" w. x 2 1/4" h. x 5 1/4" d. behind panel. Weight, 8 1/2 lbs. Net Each ..... \$92.50

**Viking Model RP83D**—220-volt version. Net Each ..... 92.50

**Viking Model RP83-3**—Third lead for 3-head decks. Net ..... 94.00

**Viking Model RP83D-3**—220-volt version. Net Each ..... 97.00





# SOLID STATE PROFESSIONAL RECORDERS

All Crown quality professional recorders are designed to fit equally well in commercial, industrial, educational, recreational institutional and religious applications. Engineering simplicity and dependability are the standards for this durable and rugged professional series. All-aluminum construction provides lightweight units with above average strength. Solid state circuitry

utilized in all models. Large, easy-to-read VU meters for quick-glance audio frequency, power level indications. Hysteresis motors are used throughout the series for constant operating speed; plug-in, printed circuit modules for each circuit function. All Crown recorders and players feature operational flexibility for professional quality performance.

## SX700 SERIES STEREO RECORDERS

Two speed, solid state stereo recorder features new simplified electronics. Accommodates reels up to 10 1/2" size; exclusive patented electromagnetic braking system. Available with either four-track or two-track capacity and features pushbutton solenoid operation, straight line threading, hysteresis synchronous motor, two Hi-Z inputs per channel, A-B monitor switch, separate output control for each channel and two illuminated 5" VU meters. Stop and operate modes may be controlled remotely. **Frequency Response:** ±2 db, 30-20,000 cps at 7 1/2 lps; ±2 db, 30-10,000 cps at 3 3/4 lps. **Signal-to-Noise Ratio:** 54 db at 7 1/2 lps; 50 db at 3 3/4 lps. **Flutter and Wow:** NAB standards, 0.09% rms at 7 1/2 lps; 0.18% rms at 3 3/4 lps. **Timing Accuracy:** ±0.2% at 7 1/2 lps. **Tape and Reel Size:** 1 or 1 1/2 mil tape in 5"-10 1/2" reels. **Inputs:** Two 100,000-ohm mike or line inputs per channel; -66 db or -25 db sensitivities. **Outputs:** +10 dbm into 600-ohm unbalanced load; two front panel stereo jacks. **Power Required:** 117 VAC, 60 cps, 140 watts. **Size:** 19" w. x 8" d. x 15 3/4" h. (rack space). Weight: 42 lbs. unmounted; 53 lbs. portable.

**Crown Model SX724**—Four-track stereo. Net Each... **\$895.00**  
**Crown Model SX722**—Two-track stereo. Net Each... **895.00**

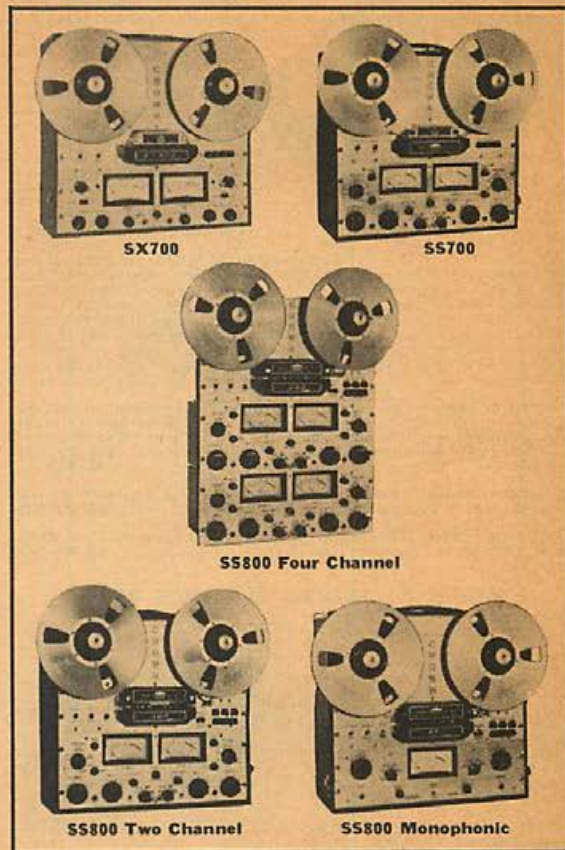
## SS700 SERIES TAPE RECORDERS

Three speed, monophonic or stereo recorders and players. Non-magnetic capstan drive and three-motor, electromagnetic braking system. Pushbutton transport can be removed for Stop and Operate modes. Two unbalanced line inputs per channel may be extended to two mike inputs per channel by adding SS-2 microphone preamplifiers. Treble and bass equalization controls for each channel for special effects. Switch to monitor; Source, tape, output or source plus tape function. Separate output control, front panel bias adjust and interlocked play-record and bias switch for each channel. Dual, 5" VU meters. **Frequency Response:** ±2 db, 50-25,000 cps at 7 1/2 lps; ±2 db, 50-15,000 cps at 3 3/4 lps; ±3 db, 50-10,000 cps at 1 1/2 lps. **Signal-to-Noise Ratio:** 55 db at 7 1/2 lps; 50 db at 3 3/4 lps; 45 db at 1 1/2 lps. **Flutter and Wow:** NAB standards, .09% at 7 1/2 lps; .18% at 3 3/4 lps; .36% at 1 1/2 lps. **Timing Accuracy:** Within ±0.2% at 7 1/2 lps. **Tape and Reel Size:** 1 or 1 1/2 mil tape in 5"-10 1/2" reels. **Inputs:** 5,000 ohms, 10 dbm line inputs; with SS-2 added, 100,000-ohm mike inputs; or, with Cannon connector strip, 50-250 ohm balanced mike inputs. **Outputs:** 5,000 ohms unbalanced; with addition of SS-6 amplifier, up to +12 dbm output unbalanced; or, with Cannon connector strip 600 ohms balanced. **Power Required:** 117 VAC, 60 cps, 160 watts. **Size:** 15 3/4" monophonic; 17 1/2" stereo; 12 1/2" players (rack space). Weight: 50 lbs. unmounted; 60 lbs. portable.

**Crown Model SS702 Recorder**—Monophonic. Net Ea. **\$795.00**  
**Crown Model SS722 Recorder**—Two-track stereo. Net. **995.00**  
**Crown Model SS724 Recorder**—Four-track stereo. Net. **995.00**  
**Crown Model SP701 Player**—Full-track mono. Net Ea. **425.00**  
**Crown Model SP702 Player**—Half-track mono. Net Ea. **405.00**  
**Crown Model SP722 Player**—Two-track stereo. Net... **495.00**  
**Crown Model SP724 Player**—Four-track stereo. Net... **495.00**

## SS800 SERIES STUDIO RECORDERS

For laboratory and recording studios. Precision, solid state circuitry provides the user with top-quality professional equipment. All relay-controlled operations; can be remotely controlled. Has push-pull, front panel speed shift. Patented electromagnetic braking system is complemented by photocell automatic stop mechanism. Front panel bias adjust, one for each channel, for maximum distortion reduction. Straight line threading is standard. Non-magnetic capstan drive extends tape life; hysteresis synchronous motor system for constant speeds. Each circuit function is a separate plug-in module. Monitor with meter switch for each



channel includes: A Source, B Tape, Tape Output, combined Indicator and Tape, Aux. Line, Mike and RIAA recording curve selector on stereo models. Separate bass and treble adjustments for each channel on two- and four-channel models; none on monophonic model. Illuminated 5" VU meter for each channel; switch for Play, Record and Read Bias. Power switch is not integrated with Operate switch, enabling preadjustment of controls to maintain settings between usage. Other features are cueing switch, 3-way interlock for record and engraved lettering.

### MONOPHONIC MODELS

**Frequency Response:** ±2 db, 50-30,000 cps at 15 lps; ±2 db, 30-20,000 cps at 7 1/2 lps; ±2 db, 30-10,000 cps at 3 3/4 lps. **Signal-to-Noise Ratio:** 57 db at 15 lps; 56 db at 7 1/2 lps; 50 db at 3 3/4 lps. **Wow and Flutter:** .06% at 15 lps; .09% at 7 1/2 lps; .18% at 3 3/4 lps. **Inputs:** 5,000 ohms unbalanced bridging. With plug-in accessories: Balanced bridging, Hi-Z mike, 50-250 ohm mike. Also has front panel input. **Outputs:** 5,000 ohms unbalanced; or, with addition of SS-6 amplifier, up to +12 dbm output, 600 ohms balanced. **Size:** 19" w. x 15 3/4" h. (rack space).

**Crown Model SS801 Recorder**—Full track. Net Ea. **\$1,020.00**  
**Crown Model SS802 Recorder**—Half track. Net Ea. **990.00**  
**Crown Model SP801 Player**—Full track. Net Each. **680.00**  
**Crown Model SP802 Player**—Half track. Net Each. **660.00**

### SL800 SERIES LOGGERS

All Logger Models are members of the famous 800 Studio Series and feature an automatic scanning device (logger) which allows twenty-four hour continuous recording at 0.33 lps. **Frequency Response:** ±3 db, 250-2,200 cps. **Signal-to-Noise Ratio:** Better than 30 db.

**Crown Model SL802 Logger**—Half-track, mono. Net. **\$1,095.00**  
**Crown Model SL824 Logger**—Two channel. Net Ea. **1,425.00**  
**Crown Model SL844 Logger**—Four channel. Net Ea. **2,200.00**

**BROCHURE AVAILABLE WITH COMPLETE  
CROWN RECORDER/PLAYER LINE AND  
ACCESSORIES. WRITE FOR INFORMATION.**

### FOUR-CHANNEL, FOUR-TRACK STEREO MODEL

**Frequency Response:** ±2 db, 50-25,000 cps at 7 1/2 lps; ±3 db, 50-15,000 cps at 3 3/4 lps; ±3 db, 100-9,000 cps at 1 1/2 lps. **Signal-to-Noise Ratio:** 50 db at 7 1/2 lps; 40 db at 3 3/4 lps; 45 db at 1 1/2 lps. **Wow and Flutter:** .09% at 7 1/2 lps; .18% at 3 3/4 lps; .36% at 1 1/2 lps. **Inputs:** Same per channel as two-channel models. **Outputs:** Same per channel as two-channel models. **Size:** 19" w. x 24 3/4" h. (rack space).

**Crown Model SS844 Recorder**—Four track. Net Ea. **\$2,200.00**

### TWO-CHANNEL STEREO MODELS

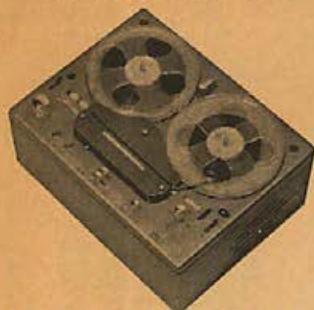
**Frequency Response:** ±2 db, 50-30,000 cps at 15 lps; ±2 db, 30-30,000 cps at 7 1/2 lps; ±2 db, 30-15,000 cps at 3 3/4 lps. **Signal-to-Noise Ratio:** 57 db at 15 lps; 56 db at 7 1/2 lps; 51 db at 3 3/4 lps. **Wow and Flutter:** .06% at 15 lps; .09% at 7 1/2 lps; .09% at 3 3/4 lps. (Above specifications are for four-track model; two-track stereo specifications same as monophonic units.) **Inputs:** Two 5,000 ohm unbalanced inputs per channel. With SS-2 preamplifier, Hi-Z mike. With Cannon connector strip, 50-250 ohm balanced mike inputs. **Outputs:** 5,000 ohms unbal. With addition of plug-in SS-6 amplifier, up to +12 dbm unbalanced. With Cannon connector strip, 600-ohm balanced. **Size:** 19" w. x 17 1/2" h. (rack space); 19 3/4" h. with fourth head.

**Crown Model SS822 Recorder**—Two track. Net Ea. **\$1,295.00**  
**Crown Model SS822-P4 Recorder**—Two track play. Net Each. **\$1,460.00**  
**Crown Model SS824 Recorder**—Four track. Net Ea. **1,295.00**  
**Crown Model SP822 Player**—Two track. Net Each. **770.00**  
**Crown Model SP822-P4 Player**—Two and four track. Net Each. **995.00**  
**Crown Model SP824 Player**—Four track. Net Ea. **770.00**



# Tandberg Stereo Tape Recorders

## MODEL 74B STEREO RECORDER/PLAYBACK



Self-contained stereo home music system with sound-on-sound feature. Four-track stereo and mono record/playback with output amplifiers and speakers. Precision laminated head; selective erase head. Fast forward and rewind feature, free position, automatic tape stop, pause control. Four-digit tape program indicator; record level indicators. Two 7" x 4" speakers.

**Speeds:** 7 1/2, 3 3/4 and 1 3/4"/sec. **Frequency Response:** ±2 db, 30-16,000 cps at 7 1/2"/sec.; 40-10,000 cps at 3 3/4"/sec.; 55-5,000 cps at 1 3/4"/sec. **Wow and Flutter:** 0.15% at 7 1/2"/sec.; 0.2%,

3 3/4"/sec.; 0.3%, 1 3/4"/sec. **Signal-to-Noise Ratio:** At least 55 db. **Crosstalk Rejection:** Better than 60 db. **Sensitivity:** .00125 V rms, mike; adjustable .007 to 7 V line. Includes two built-in cathode follower outputs, center-channel headphone output, built-in FM multiplex filter. **Speaker Selection:** Five positions: Internal; Internal and external; external; channel 2 external, channel 1 internal; channel 1 external, channel 2 internal. Permits synchronization with slide projector. **Power Required:** 117 VAC, 60 cps. **Motor:** Asynchronous. Net Weight, 27 lbs.; 32 1/2 lbs. with case.

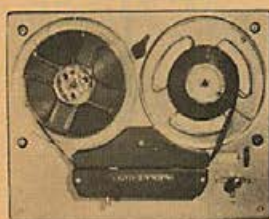
**Tandberg Model 74B**—Complete with hand-rubbed teakwood cabinet, input-output cords, built-in mike jacks and external speaker jacks. Instruction manual, take-up reel and TC-57B carrying case. CM-6 microphone optional (see accessories). **\$449.50**  
Net Each.

**Tandberg Model 74B-SP**—Same as Model 74B, but with Model CX266 speaker system additionally. Net Each. **\$597.50**

**Tandberg Model 72B**—Same as Model 74B, but with 1/4-track heads instead of 1/2-track. Net Each. **\$449.50**

## MODEL 65 STEREO PLAYBACK DECK

Proud addition to the Tandberg line offers superb frequency response. Designed exclusively for installation into new or existing high fidelity systems with their own electronics. Precision crafted instrument is adaptable for language laboratory and industrial use as well. Features include playback head for two- and four-track stereo or monophonic tapes; start-stop button operation; two outputs for plug-in preamplifiers; facilities for adding erase and record heads.



**Tape Speeds:** 7 1/2"/sec., 3 3/4"/sec., and 1 3/4"/sec. **Frequency Response:** ±2 db, 30-16,000 cps at 7 1/2"/sec.; ±2 db, 40-11,000 cps at 3 3/4"/sec.; ±2 db, 50-5,500 cps at 1 3/4"/sec. **Controls:** Selector Lever Knob for Playback, Fast Forward, and Fast Reverse; four-digit revolving counter. **Power Required:** 110 VAC, 60 cps. Unit complete with hysteresis synchronous motor and complete mechanical drive. **Size:** 16" w. x 12" d. x 6" h., with mounting brackets. Weight, 16 lbs. **\$199.50**

**Tandberg Model 65**—Net Each.

## SERIES 8 PORTABLE MONOPHONIC RECORDERS



Operating lever incorporates easier tape threading feature for independent movement of the two turntables. Lever switch permits instantaneous switching from playback to PA for programs from mike, radio, or phono inputs. Semivariable input control avoids overloading when signals are too strong. Provision for mono playback of stereo tapes. Spring attached pressure pad for even pressure

and better alignment across the heads. Improved smoother stop action design and screw adjustable clutches. **Tape Speeds:** 3 3/4 and 1 3/4"/sec. **Speed Accuracy:** ±0.2% or 3.6 seconds in 30 minutes. **Frequency Response:** 3 3/4"/sec., 20-13,000 cps (±2 db, 40-10,000 cps); 1 3/4"/sec., 20-8,000 cps (±2 db, 40-5,500 cps). **Wow and Flutter:** 3 3/4"/sec., 0.2%; 1 3/4"/sec., 0.3%. **Signal-to-Noise Ratio:** 3 3/4"/sec., -50 db. **Heads:** Special ferrite half-track or quarter-track erase heads and combination record/playback heads. **Power Required:** 50 watts, 117 V, AC, 60 cps. **Size:** 15" w. x 11 1/2" d. x 6 3/4" h. Weight: 21 lbs.; with carrying case 23 lbs. Complete with built-in 7" x 4" speaker, and four-digit lighted counter.

**Tandberg Model 821**—Two-speed, half-track recorder, \$219.50 less carrying case and microphone. Net Each.

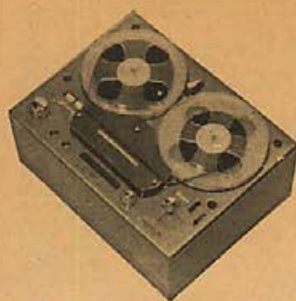
**Tandberg Model 821-F**—Same as above but built-in solenoids and foot pedal. Net Each. **\$294.50**

**Tandberg Model 841**—Two-speed, quarter-track recorder, less carrying case and microphone. Track selection switch permits choice of four different track combinations: 1 and 3, 2 and 4, 1 and 4, 3 and 2. Net Each. **\$237.50**

**Tandberg Model 841-F**—Same as above, but built-in solenoids and foot pedal. Net Each. **\$312.50**

## MODEL 64

### STEREO TAPE DECK



Maximum versatility in a stereo tape recorder utilizing three separate heads, one each for record, playback and erase. Simple pushbutton control insures ease of operation and maximum versatility for sound-on-sound, echo effects and direct monitor; remote control with the foot pedal. Unit installs into existing high fidelity music systems or may be used as a complete portable recorder. Incorporates a hysteresis synchronous drive

motor, printed circuitry for reliability and hermetically sealed tolerance capacitors. Power transformer has special toroid-type windings to provide self-cancellation of any stray magnetic fields that would otherwise cause annoying hum problems. Electronic stabilizers permit instantaneous reading of electronic recording level eyes without compensation. Four separate preamplifiers are built-in, two for recording and two for playback. The pause control feature permits no-slip pick up on stop-and-go record or playback without annoying clicks. **Tape Speeds:** 1 3/4"/sec., 3 3/4"/sec., 7 1/2"/sec. **Wow and Flutter:** 1% rms at 7 1/2"/sec.; 2% rms at 3 3/4"/sec.; 25% rms at 1 3/4"/sec. **Frequency Response:** ±2 db, 30-16,000 cps at 7 1/2"/sec.; 40-11,000 cps at 3 3/4"/sec.; 50-5,500 cps at 1 3/4"/sec. **Bias and Erase Frequency:** 78 kc common bias supply to each recording channel. **Crosstalk Rejection:** Better than 60 db. **Sensitivity:** Mike, .00125 V rms; high level, .05 V rms; low level, .005 V rms. **Inputs and Impedance:** 2 mike, 5 mags.; 2 high level, 1 meg.; FM, 2 multiplex inputs. **Outputs:** 1.5 V cathode follower, 1 each channel. **Power Required:** 117 VAC, 60 cps. **Size:** 16" w. x 12" d. x 6" h. Weight, 25 lbs.; with carrying case, 30 lbs.

**Tandberg Model 64**—With one take-up reel. Net Each. **\$498.00**

**Tandberg Model 64-1**—Same as Model 64, except has carrying case. Net Each. **\$519.00**

**Tandberg Model 64-2**—Same as Model 64-1 but with two Model CM-6 mikes, two Model 6-36 Input/output cables, and one Model 6-6 Input/output cable. Net Each. **\$539.00**

**Tandberg Model 62**—Same as Model 64, but with 1/4-track heads instead of 1/2-track. Net Each. **\$498.00**

## MODEL 92 MONOPHONIC RECORDER

Three-speed, two-track recorder provides fine quality monophonic record and playback facilities at a modest cost. Complete with built-in power amplifier and 4" x 7" oval speaker in wooden cabinet, the system is easily portable; carrying case available at extra cost. Convenient control design includes T-switch for fast forward, rewind, record, play and loading functions; other controls are speed change switch, record-play lever control, speaker selector switch and reset-type four-digit counter. Electronic eye for record level indication. Combination record-play head is narrow gap, .00012" type; erase head is high efficiency, low loss design. Slide switch arrangement for start, stop or pause while unit is operating; bass switch gives 12 db boost at 70 cps for playback. **Speeds:** 1 3/4, 3 3/4 and 7 1/2"/sec. **Frequency Response:** ±2 db, 30-16,000 cps at 7 1/2"/sec.; 40-10,000 cps at 3 3/4"/sec.; 55-5,000 cps at 1 3/4"/sec. **Wow and Flutter:** 0.15% at 7 1/2"/sec.; 0.2%, 3 3/4"/sec.; 0.3%, 1 3/4"/sec. **Signal-to-Noise Ratio:** 55 db. **Playback Output:** 3 watts. **Inputs:** Mike (1 meg); hi-Z radio, phono, TV and aux (1/2 meg). **Motor:** Asynchronous. **Power Required:** 117 VAC, 60 cps. **Size:** 15" w. x 11 3/4" d. x 6 3/4" h. Net Wt., 22 lbs. **\$269.50**

**Tandberg Model 92**—In wooden cabinet. Net Each.

**Tandberg Model 92-F**—Same, but with built-in solenoids and foot pedal for remote control. Net Each. **\$344.50**

## TAPE RECORDER ACCESSORIES

**Tandberg Model CM-6 Crystal Microphone**—Achieves optimum quality used with any Tandberg tape recorder. Frequency response, 30-12,000 cps. With 12 ft. cable and desk stand. Net Ea. **\$15.00**

**Tandberg Model DP-4 Dynamic Microphone**—For professional recording. High, low or medium impedance. Complete with 18 ft. cable and desk stand. Net Each. **\$49.50**

**Tandberg Model DP-4H**—Same, but high impedance only, 50K ohms. Response, 50-15,000 cps. With stand and cable. Net Each. **\$49.50**

**Tandberg Model CX266 Speaker System**—Enclosed bookshelf type, teakwood finish. With 8" coaxial speaker installed. Frequency response, 60-18,000 cps. Net Each. **\$89.50**

**Tandberg Model DC Dustcover**—Clear flexible plastic cover for Models 64 and 74B. Net Each. **\$7.50**

**Tandberg Model TC-57B Transport Case**—For Model 64 or 74B. Attractive leather-like case. Durable, lightweight. With brass locks and key. Net Each. **\$24.50**

**Tandberg Model TC-58**—Carrying case for Models 92, 92-F, 821, 821-F, 841 and 841-F. Net Each. **\$24.50**

**Tandberg Model 22FP Foot Pedal Control**—Permits control of tape recorder with a touch of your foot. Start, stop, forward or reverse functions. With 6 ft. cable. Net Each. **\$18.00**

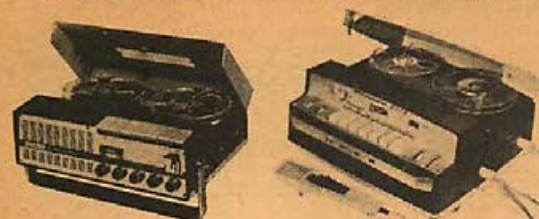
**Tandberg Model MO-12 Headset**—Comfortable foamset, monophonic type for dictation, monitoring and private listening. Net Each. **\$15.00**

**Tandberg Model ST-12 Stereo Headphones**—For direct monitor, add-a-track and other stereo applications. Comfortable and lightweight. Net Each. **\$15.75**



# Recorders and Tapes

## UHER STEREO TAPE RECORDERS



"4000S Mark III"

"Universal 5000"

### "4000S MARK III" PORTABLE

Combines the recording quality of built-in component recorders with battery-powered portability. Includes advanced electronics and a novel drive system for four-speed operation. Simple control system has piano keyboard selection of rewind, start/play, pause, stop, record and fast forward. Built-in speaker for monitoring and playback listening. Pull-out tone control. Illuminated VU meter. Pull the record-volume control and meter reads the battery condition. Selector for phono, radio, or mike inputs. Special "Dryfit" Accumulator battery supply operates the recorder for 10 hours; rechargeable from house current or auto lighter socket, even when recorder is in use. **Tape Speeds:** 1 1/2, 3 3/4 and 7 1/2 ips. **Frequency Resp.:** +3 db 40-22,000 cps at 7 1/2 ips; 40-17,000 cps at 3 3/4 ips; 40-10,000 cps at 1 1/2 ips; 40-4,500 cps at 1 1/4 ips. **Signal-to-Noise Ratio:** 60 db or better at 7 1/2 ips. **Wow and Flutter:** 0.15% at 7 1/2 ips. **Inputs:** Mike, radio and phono. **Outputs:** 4 ohms external speaker; 15K ohms external amp; remote control and external power connections. Modern metal case. **Size:** 11" x 8" x 3". **Weight:** 9 lbs. with Accumulator.

Uher "4000S Mark III"—Recorder with remote control lock-switch microphone. Net Each... **\$319.95**

Uher "4000S Mark III-M"—Same, but with remote control hi-fi mike with music/speech switch and built-in wind screen. Net Each... **\$339.95**

Uher "4000S Mark IV"—Same as Mark III, but with leather case, Accumulator battery pack, AC power supply and charger. Net Each... **\$399.95**

Uher "4000S Mark IV-M"—Same as Mark III-M, but with leather case, Accumulator battery pack, AC power supply and charger. Net Each... **\$419.95**

Uher No. 533 Rechargeable Cells—Set of 5 ni-cad. Net... **39.95**

Uher No. 861 Case—Leather for any 4000S model. Net... **29.95**

Uher No. 1026 Case—Attache hard shell style. Net Ea... **21.95**

Uher No. 850 AC Power Supply—Net Each... **30.10**

Uher No. 881 (6-volt) or 882 (12-volt) Charger—Net... **24.95**

Uher No. USK-662 Battery Cable—For 6-12 volts. Net... **12.95**

Uher No. USK-663 Battery Cable—For 24 volts. Net... **19.95**

### "UNIVERSAL 5000"

#### MULTI-PURPOSE TRANSISTORIZED PORTABLE

Fully transistorized, versatile tape recorder for business, home, school and industry. Easy to operate. Single button operation right on the microphone permits you to dictate, stop, listen, correct errors and rewind. Foot or typewriter remote control transcribing features stop, start and rewind without tape breakage. Records all programs including high fidelity music with a frequency response up to 16,000 cps. Synchronizes slides with any automatic slide projector. Ideal for conference, training, advertising sales aids, message repeating and automatic background music system. Will run the equivalent of 10-hour working day without reel change. Starts to play or record instantly, no warm up or waiting period. Other features include: All-transistor AC operation; two tracks to international standard; jam-proof pushbutton control; full remote control of tape motion including backspace; automatic recording level control; external-rotor motor for noiseless operation; high speed forward and rewind; automatic rewind; automatic stop with metalized leaders; safety clutches for smooth tape handling; playing time up to 16 hours; digital counter with pushbutton reset; individual controls for recording level, volume and monitoring level; provision for automatic slide projector control; VU meter for recording level indication; low impedance input permits long microphone extension cable; push-pull power stage; inputs for radio, phono, mixer, telephone pick-up; loudspeaker and earphones; plays back through microphone or internal speaker; connections for sound operated control (Akustomat). **Tape Speeds:** 3 3/4, 1 1/2 and 1 1/4"/sec. **Reel Size:** Up to 6". **Frequency Response:** 40-16,000 cps, 3 3/4"/sec.; 40-8,000 cps, 1 1/2"/sec.; 40-4,000 cps, 1 1/4"/sec. **Signal to Noise:** 50db. **Wow and Flutter:** +0.2% at 3 3/4"/sec. **Output:** 2 watts. **Transistors and Diodes:** Ten transistors and two diodes. **Power Required:** 110, 125, 160, 220, 240 VAC, selectable, 60 cps. **Size:** 12" w. x 10" d. x 6" h. **Weight:** 16 lbs., approximately.

Uher "Universal 5000"—Recorder only, less microphone. Net Each... **\$299.95**

## SOUNDCRAFT RECORDING TAPE



### MAGNETIC RECORDING TAPES WITH FREQUENCY-ADJUSTED FORMULATION

Soundcraft's newly developed oxide coating and DuPont's "Mylar" polyester film base combined make this lifetime tape. Both are absolutely plasticizer-free. Will maintain its strength, flexibility and dimensional stability virtually forever. Micro-

Polished®—High precision polishing eliminates the minute nodules common to all oxide coating. This means perfect head contact and insures perfect transfer of signal and uniform HF response.

### MYLAR BASE RECORDING TAPES

#### 1 1/2-MIL "LIFETIME" TAPE

Reeves Type	Length Feet	Reel Size	Std. Pkg.	Cons. Net:	Net Each	
					B.P.*	S.P.†
L-1	150	3"	12	\$ 0.75	\$0.50	\$0.45
L-6	600	5"	12	2.65	1.77	1.59
L-12	1200	7"	12	4.25	2.83	2.55
L-25RM‡	2500	10 1/2"	12	11.20	7.47	6.72

#### 1-MIL "PLUS-50" TAPE

Gives 50% extra playing time. Half again as much tape on a reel. Backed with DuPont "Mylar", a third thinner than standard acetate. A perfect long-playing tape with no compromise in strength or quality.

PL-2	225	3"	12	\$ 1.00	\$0.67	\$0.60
PL-9	900	5"	12	3.40	2.27	2.04
PL-18	1800	7"	12	5.80	3.87	3.48
PL-36RM‡	3600	10 1/2"	12	13.75	9.17	8.25

#### 1/2-MIL "PLUS-100X" TAPE

"Plus-100X" tape has a Mylar base which has been tensilized by DuPont to make it extremely strong and stretch resistant. Gives twice the playing time plus outstanding durability.

XP-3X	300	3"	12	\$ 1.60	\$ 1.07	\$ 0.96
XP-18X	1800	5 3/4"	12	7.48	4.99	4.49
XP-24X	2400	7"	12	9.50	6.33	5.70
XP-48XRM‡	4800	10 1/2"	12	22.00	14.67	13.20

#### 1/2-MIL "TRIPLE-PLAY" TAPE

Provides three times the playing time of ordinary tapes and 50% more than regular double-play tapes. Unlike other triple-play tapes, Soundcraft's highly active magnetic oxide gives excellent frequency response with no compromise in sensitivity.

TP-6	600	3 3/4"	12	\$ 2.29	\$1.53	\$1.37
TP-18	1800	5"	12	5.10	3.40	3.08
TP-24	2400	5 3/4"	12	6.96	4.64	4.18
TP-36	3600	7"	12	10.00	6.67	6.40

#### 1-MIL TAPE IN RCA-TYPE CARTRIDGE

CM-6	600	12	\$4.50	\$3.00	\$2.70
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### ACETATE BASE RECORDING TAPES

#### 1 1/2-MIL "STANDARD S" TAPE

A durable, high performance tape that is the accepted standard for professional recording applications, as well as for the perfection-minded home recordist.

Reeves Type	Length Feet	Reel Size	Std. Pkg.	Cons. Net:	Net Each	
					B.P.*	S.P.†
S-1	150	3"	12	\$ 0.70	\$0.47	\$0.42
S-6	600	5"	12	2.10	1.40	1.26
S-9	900	5 3/4"	12	2.73	1.82	1.64
S-12	1200	7"	12	3.50	2.33	2.10
S-25H	2500	Hub	12	8.00	5.33	4.80
S-25RM‡	2500	10 1/2"	12	10.25	6.83	6.15

#### 1-MIL "STANDARD-50" TAPE

For long play (50% more time) and economy. Wide response.

S5-2	225	3"	12	\$ 0.90	\$0.60	\$0.54
S5-9	900	5"	12	3.29	2.19	1.97
S5-18	1800	7"	12	5.17	3.45	3.10
S5-36RM‡	3600	10 1/2"	12	12.04	8.03	7.22

\*Broken pkg. †Standard pkg. ‡Suggested Consumer Net. §Metal reel.

### "GOLDEN TONE" RECORDING TAPE

Precision-made tape recommended for recordists whose discerning ears and exacting equipment cannot be satisfied by ordinary magnetic sound reproduction. Its magnetic properties offer 25% more output in the high frequencies than standard tapes. A signal-to-noise ratio at least 7 db higher gives recordings great dynamic range. **Reel size, 7". Standard package, 12.**

Reeves Type	Description	Lgth., Feet	Cons. Net:	Net Each	
				B.P.*	S.P.†
GTA-12	1 1/2-mil Acetate	1200	\$ 4.70	\$3.13	\$2.82
GTM-18T	1-mil Tensilized Mylar	1800	7.50	5.00	4.50
GTM-24T	1/2-mil Tensilized Mylar	2400	11.40	7.60	6.84

\*Broken pkg. †Standard pkg. ‡Suggested Consumer Net.

## CONCORD TAPE RECORDER/PLAYER

### MODEL 330 AUTOMATIC PORTABLE RECORDER-PLAYER

Voice-operated transistorized portable with high fidelity tone. Automatic features include: VOX operation; automatic stop-start with special sensing tape; slide projector advancer; sound movie synchronizer; tape threader. VU meter and battery condition indicator. **Tape Speeds:** 1 1/2 and 3 3/4 ips. **Reel Size:** 5". **Frequency Response:** 50-10,000 cps. **Power Source:** 6 "D" batteries (over 10 hours battery life), or optional external AC. **Size:** 12" w. x 8 3/4" d. x 3 3/4" h. **Weight:** 6 lbs.

Model 330 Portable Recorder-Player—Net Each... **\$129.50**

Model 320 Dual Power Portable Recorder-Player—Same as Model 330, but without automatic features. Net Each... **\$99.50**



330, 320



# audiotape Tape and Accessories

Trade Mark



## AUDIOTAPE AND ACCESSORIES

Supplied on 5-inch and 7-inch four spoke "C-Slot" plastic reels for standard recorders. Unique design for threading eliminates kinks and twists; makes threading easier. All reels are self-locking. Reels packed in sturdy, scuff-resistant color coded boxes for instant identification. Audiotape supplied on colored reels, 5-inch and 7-inch size, at no increase in price. Specify: RR-red; YR-yellow; GR-green or BR-blue. Example: 1231TYR means 1200 feet of "Tempered" Mylar® Tape on a 5-inch yellow reel.



### MASTER RECORDING "LOWPRINT" TAPE

"Print-through", the transfer of magnetization from one layer of tape to an adjacent layer, causes irritating background noises. This new tape virtually eliminates it, cutting "print-through" by 8 db without changing performance characteristics. Completely interchangeable with ordinary tape.

#### MASTER RECORDING ON 1 1/2-MIL PLASTIC

Audio-tape No.	Description	Std. Qty.	List Price	Net Each	
				Less than Std. Qty.	Std. Qty.
651-M	600' 5" Plastic	10	\$ 2.75	\$ 1.83	\$ 1.65
1251-M	1200' 7" Plastic	10	4.30	2.86	2.58
2551H-M	2500' NAB Hub	5	9.25	6.17	6.05
2551R-M	2500' 10 1/2" Al. Reel	5	12.20	8.14	7.32
2551FS-M	2500' 10 1/2"†	5	12.20	8.14	7.32
5051H-M	5000' NAB Hub	5	16.95	11.30	10.17
5051R-M	5000' 14" Al. Reel	5	23.90	15.93	14.34

†10 1/2" Fiberglass reel (EIA) with solid hub and 3/8" center hole.

#### MASTER RECORDING ON 1 1/2-MIL MYLAR

Audio-tape No.	Description	Std. Qty.	List Price	Net Each	
				Less than Std. Qty.	Std. Qty.
671-M	600' 5" Plastic	10	\$ 3.20	\$ 2.13	\$ 1.92
1271-M	1200' 7" Plastic	10	5.10	3.40	3.06
2571H-M	2500' NAB Hub	10	10.00	6.67	6.00
2571R-M	2500' 10 1/2" Al. Reel	10	13.50	9.00	8.10
2571FS-M	2500' 10 1/2"†	10	13.50	9.00	8.10

†10 1/2" Fiberglass reel (EIA) with solid hub and 3/8" center hole.

#### STANDARD RECORDING ON 1 1/2-MIL MYLAR

High-strength, super-durable. Withstands extreme temperatures, is virtually immune to humidity, gives maximum tape life.

Audio-tape No.	Description	Std. Qty.	List Price	Net Each	
				Less than Std. Qty.	Std. Qty.
671	600' 5" Plastic	10	\$ 2.65	\$ 1.77	\$ 1.59
1271	1200' 7" Plastic	10	4.25	2.83	2.55
2571H	2500' NAB Hub	10	8.30	5.53	4.98
2571R	2500' 10 1/2" Al. Reel	10	11.20	7.47	6.72
2571FS	2500' 10 1/2"†	10	11.20	7.47	6.72
5071H	5000' NAB Hub	10	16.65	11.10	9.99
5071R	5000' 14" Al. Reel	10	24.50	16.33	14.70

†10 1/2" Fiberglass reel (EIA) with solid hub and 3/8" center hole.

#### STANDARD RECORDING ON PLASTIC BASE

Maximum fidelity, uniformity, frequency response and freedom from noise and distortion. Base is 1 1/2 mil acetate.

Audio-tape No.	Description	Std. Qty.	List Price	Net Each	
				Less than Std. Qty.	Std. Qty.
151*	150' 3" Plastic	10	\$ 0.70	\$ 0.47	\$ 0.42
351	300' 4" Plastic	10	1.35	.90	.81
651	600' 5" Plastic	10	2.25	1.50	1.35
851	850' 5 3/4" Plastic	10	2.95	1.97	1.77
1251	1200' 7" Plastic	10	3.50	2.34	2.10
2551H	2500' NAB Hub	5	7.85	5.23	4.71
2551R	2500' 10 1/2" Al. Reel	5	10.80	7.20	6.48
2551FS	2500' 10 1/2"†	5	10.80	7.20	6.48
5051H	5000' NAB Hub	5	14.40	9.60	8.64
5051R	5000' 14" Al. Reel	5	21.35	14.23	12.81

†10 1/2" Fiberglass reel (EIA) with solid hub and 3/8" center hole.

\*Add suffix MB for 3" plastic reel in mailing box, same price.

#### LONGER RECORDING ON PLASTIC BASE

50% more recording time per reel on low-cost 1-mil cellulose acetate base, affording maximum economy.

Audio-tape No.	Description	Std. Qty.	List Price	Net Each	
				Less than Std. Qty.	Std. Qty.
941	900' 5" Plastic	10	\$ 3.50	\$ 2.34	\$ 2.10
1241	1200' 5 3/4" Plastic	10	3.75	2.50	2.25
1841	1800' 7" Plastic	10	5.50	3.67	3.30
3641H	3600' NAB Hub	5	9.85	6.57	5.91
3641R	3600' 10 1/2" Al. Reel	5	12.80	8.53	7.68
3641FS	3600' 10 1/2"†	5	12.80	8.53	7.68
7241H	7200' NAB Hub	5	18.40	12.27	11.04
7241R	7200' 14" Al. Reel	5	25.35	16.90	15.21

†10 1/2" Fiberglass reel (EIA) with solid hub and 3/8" center hole.

#### LONGER RECORDING ON MYLAR

On 1-mil Mylar polyester film, provides 50% more recording time per reel. Exceptional strength, durability and storage life.

Audio-tape No.	Description	Std. Qty.	List Price	Net Each	
				Less than Std. Qty.	Std. Qty.
261	225' 3" Plastic*	10	\$ 1.00	\$ 0.67	\$ 0.60
961	900' 5" Plastic	10	3.60	2.40	2.16
1261	1200' 5 3/4" Plastic	10	4.15	2.77	2.49
1861	1800' 7" Plastic	10	6.20	4.13	3.72
3661H	3600' NAB Hub	5	11.40	7.60	6.84
3661R	3600' 10 1/2" Al. Reel	5	14.35	9.57	8.61
3661FS	3600' 10 1/2"†	5	14.35	9.57	8.61
7261H	7200' NAB Hub	5	24.00	16.00	14.40
7261R	7200' 14" Al. Reel	5	30.00	20.00	18.00

†10 1/2" Fiberglass reel (EIA) with solid hub and 3/8" center hole.

\*3" plastic reel in self-mail package.

### DOUBLE RECORDING "TEMPERED" MYLAR

Tempered 1/2-mil Mylar for extra long life. In 10 1/2" reel (4,800 ft.) size for longer recording time (at 7 1/2 ips).

Audio-tape No.	Description	Std. Qty.	List Price	Net Each	
				Less than Std. Qty.	Std. Qty.
331T	300' 3" Plastic*	10	\$ 1.60	\$ 1.07	\$ 0.96
1231T	1200' 5" Plastic	10	5.45	3.63	3.27
1831T	1800' 5 3/4" Plastic	10	6.75	4.50	4.05
2431T	2400' 7" Plastic	10	9.50	6.33	5.70
4831T-R	4800' 10 1/2" Al. Reel	10	22.00	14.67	13.20
4831T-FS	4800' 10 1/2"†	10	22.00	14.67	13.20

\*In self-mail package. †Fiberglass (EIA); solid hub, 3/8" hole.

### DOUBLE RECORDING ON 1/2-MIL MYLAR

Made of 1/2-mil Mylar, gives twice as much recording time per reel. For extended play where tape tension is not excessive.

Audio-tape No.	Description	Std. Qty.	List Price	Net Each	
				Less than Std. Qty.	Std. Qty.
331	300' 3" Plastic	10	\$1.37	\$0.91	\$0.82
1231	1200' 5" Plastic	10	3.50	2.34	2.10
1831	1800' 5 3/4" Plastic	10	5.00	3.33	3.00
2431	2400' 7" Plastic	10	6.50	4.33	3.90

### TRIPLE RECORDING "TEMPERED" MYLAR

Three times as much recording time per reel as standard tape.

Audio-tape No.	Description	Std. Qty.	List Price	Net Each	
				Less than Std. Qty.	Std. Qty.
633T	600' 3 1/4" Plastic*	10	\$ 2.95	\$ 1.97	\$ 1.77
1833T	1800' 5" Plastic	10	6.35	4.64	4.17
3633T	3600' 7" Plastic	10	11.95	7.97	7.17

### LOW NOISE 1 1/2-MIL PLASTIC BASE

High signal-to-noise ratio; extra low hiss level.

Audio-tape No.	Description	Std. Qty.	List Price	Net Each	
				Less than Std. Qty.	Std. Qty.
1257	1200' 7" Plastic	10	\$ 4.30	\$ 2.86	\$ 2.58
2557H	2500' NAB Hub	5	9.25	6.27	5.55
2557R	2500' 10 1/2" Al. Reel	5	12.20	8.14	7.32

### SNAP-LOAD CARTRIDGE

Super-durable 1-mil Mylar polyester film wound on twin hubs in dust-resistant plastic magazine. Easy loading and handling. 500-foot tape.

Audio No. C560—List Price \$4.50; Net Each, 1-9. \$3.00; 10. \$2.70

### REELS, BOXES, LEADER TAPE

Audio No.	Description	Std. Qty.	List Price	Net Each	Net Ea. Std. Qty.
3PB	3" plastic reel in box	10	\$0.25	\$0.17	\$0.15
4PB	4" plastic reel in box	10	.45	.30	.27
5PB	5" plastic reel in box	10	.60	.40	.36
7PB	7" plastic reel in box	10	.75	.50	.45
10RB	10 1/2" aluminum reel in box	5	4.00	2.67	2.40
10FB	10 1/2" Fiberglass EIA, box	5	4.00	2.67	2.40
14RB	14" aluminum reel in box	5	7.40	4.93	4.44
10H	NAB metal hub	5	.70	.47	.42
5PB	Red	10	.60	.40	.36
5PBY	Yellow	10	.60	.40	.36
5PBG	Green	10	.60	.40	.36
5PBB	Blue	10	.60	.40	.36
7PB	Red	10	.75	.50	.45
7PBY	Yellow	10	.75	.50	.45
7PBG	Green	10	.75	.50	.45
7PBB	Blue	10	.75	.50	.45
3B	Empty box for 3" reel	10	.15	.10	.09
4B	Empty box for 4" reel	10	.20	.13	.11
5B	Empty box for 5" reel	10	.20	.13	.11
7B	Empty box for 7" reel	10	.20	.13	.11
10B	Empty box for 10 1/2" reel	5	.75	.50	.45
14B	Empty box for 14" reel	5	1.00	.67	.60
5M	Corrugated mailing box, 5"	10	.15	.10	.09
7M	Corrugated mailing box, 7"	10	.20	.13	.11
10M	Corrugated mailing box, 10 1/2"	10	.30	.20	.18
3L	Self-timing leader tape, 100'	10	.55	.37	.33
30AL	30. 2" x 1 1/2" adhesive labels	10	.20	.13	.12

### DEMAGNETIZER NO. 400



An AC magnet assembly provided with extended pole pieces. Will remove any permanent magnetism accumulated in recording head. 110-115 v., 60 cps. Audio No. 400—Net... \$6.00

### ALIGNMENT TAPE NO. 200

Pre-recorded at 2 kc, 10 kc and 15 kc for precise alignment of magnetic recording heads. Recorded at 15' per second. 300-ft. tape wound on 4" reel. Audio No. 200—Net Each... \$6.00

### TAPE RECORDER HANDBOOK

"How to Make Good Tape Recordings" contains up-to-the-minute data of interest and practical value for everyone. Diagrams, charts and photographs assist for easy understanding. 150 pages. Audio No. 15P—Paper bound. Price Each... \$1.50

### RECORDING HEAD CLEANER

Liquid designed specifically for cleaning recording heads; superior to carbon tetrachloride. Comes in one-ounce bottle with brush. Audio No. 2HC—Net Each... 67¢

®Trademark; Mylar of DuPont; Fiberglass of Owens-Corning.



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