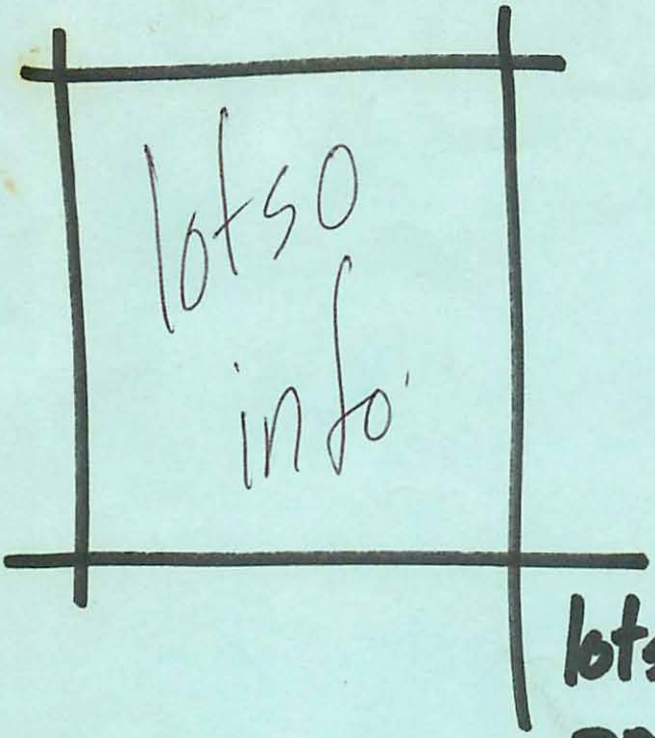
Otari



lots of info
parts etc
various model
otari tape
machines

GUIDE TO PART NUMBER PREFIX LETTERS

These are the first one, two or three characters of an 8-digit OTARI part number such as PB-75TA-. Generally, if the part number contains a hyphen (dash) in the third position, it indicates that the part ia a complete assembly. In the case of PB-75TA-, the part number indicates that it is a complete Printed Circuit Board assembly (stuffed with parts). If the part number were PB9A123A, it would indicate that the part is a bare printed circuit board (no parts). These prefixes apply to new series part numbers only.

PREFIX	USED TO DESIGNATE
AS	AIR POTS, AIR CYLINDERS, FANS, AIR COUPLERS, HOSES, CHASSIS PANELS, PANEL ESCUTCHEONS
BA1	NON FLANGED BEARINGS
BA2	FLANGED BEARINGS
BA3	LINEAR BEARINGS
BA6	OILITE BEARINGS
BE	BELTS
C	CAPACITORS
CA	CAPACITORS
CB	PANELS, MOUNTING BRACKETS, AND ACRYLIC COVERS
CB-	REMOTE CONTROL BOXES, CONTROL ASSEMBLIES
CC THRU CM	CAPACITORS
CN	CONNECTORS
CP	CAPACITORS
CW	CAPACITORS
CX	CAPACITORS
CY	FEET, HANDLES (GRIPS), LATCHES, CASTERS
CZ	CAPACITORS
DS-	POWER SUPPLY ASSEMBLIES
DS	POWER SUPPLY PARTS
FH-	FUSE HOLDERS
FH	FUSES
F	SCREWS AND NUTS (INFREQUENTLY USED), PINS, LOCK RINGS
GH	HEADS
GP	SOLENOIDS
GR-	GUIDE ROLLER ASSEMBLIES
GR	GUIDE ROLLER PARTS
GS	SPRINGS
I	INTEGRATED CIRCUITS
I-	INTEGRATED CIRCUITS
IA	INTEGRATED CIRCUITS
IC	REGULATORS
ID	REGULATORS
IE	REGULATORS
IF	INTEGRATED CIRCUITS
IG	INTEGRATED CIRCUITS
IH	INTEGRATED CIRCUITS
II	INTEGRATED CIRCUITS
IJ	INTEGRATED CIRCUITS
IK	INTEGRATED CIRCUITS
IL	INTEGRATED CIRCUITS

PREFIX	USED TO DESIGNATE
IM	INTEGRATED CIRCUITS
IN	INDUCTORS
IP	INTEGRATED CIRCUITS
IQ	INTEGRATED CIRCUITS
IR	INTEGRATED CIRCUITS
IS	REGULATORS
IZ	INTEGRATED CIRCUITS
KA-	TENSION ASSEMBLIES, MAGNET ASSEMBLIES
KA	TENSION ASSEMBLY PARTS
KC-	CAPSTAN ASSEMBLIES
KC	CAPSTAN PARTS
KG	TAPE GUIDES, GUIDE SHAFTS
KH-	HEAD ASSEMBLIES
KH	HEAD ASSEMBLY PARTS
KI-	IMPEDANCE ROLLER ASSEMBLIES
KI	IMPEDANCE ROLLER PARTS
KN	KNOBS, SWITCH COVERS
KP-	PINCH ROLLER ASSEMBLIES
KP	PINCH ROLLERS WITH BEARINGS, PINCH ROLLER PARTS
KR-	TAPE LIFTER ASSEMBLIES
KR	TAPE LIFTER PARTS
KW-	REEL ASSEMBLIES
KW	REEL ASSEMBLY PARTS
KZ	HEAT SINKS, SOLENOID STOPPERS, BRACKETS, ASST. ANGLES, SOLENOID PINS, DECORATIVE WASHERS, NYLON WASHERS, NUTS, STUDS, COLLARS
K	CHASSIS FRAMES, CASE PANELS, CASES, MACHINE PACKING
LU	LAMPS
ME	METERS
MR	MOTORS
OS	MANUALS
PB-	PRINTED CIRCUIT BOARD ASSEMBLIES
PB	PRINTED CIRCUIT BOARDS (EMPTY) PCB FACE PLATES, CONNECTORS (INFREQUENTLY USED)
PN	DIODES
PT	LOGOS, NAME PLATES
PZ	FELT CUSHIONS, GEARS, COUPLERS, JOINTS, DAMPERS, BUSHINGS, ESCUTCHEONS, HEAT SINKS, CLOTH COVERS, POWER CORDS
QA THRU QD	TRANSISTORS
QMJ	TRANSISTORS
QN	TRANSISTORS
Q2J	TRANSISTORS
Q2SK	TRANSISTORS
RV	TRIMPOTS, VARIABLE RESISTORS
RY	RELAYS
R1 THRU R9	RESISTORS
SR-	COUNTER ASSEMBLIES, PHOTO ASSEMBLIES
SR	COUNTER ASSEMBLY PARTS
TC	CAPSTAN PARTS (INFREQUENTLY USED)

PREFIX	USED TO DESIGNATE
TD	PANELS, SHAFTS (INFREQUENTLY USED)
TF	TRANSFORMERS
T	SPLICE BLOCKS, PANELS, BRACKETS, ANGLES, LINKS, DECK PLATES, RAILS
WH	SWITCHES, SWITCH COVERS
Y	VIDEO LOADER PARTS, ASST DTR PARTS
ZA-	ACCESSORY BOXES, INPUT AND OUTPUT TRANSFORMERS, REELS, CABLE ASSEMBLIES
ZA	DP LINE TAPE GUIDES, GLASS DOORS, BOBBINS, BRACKETS

CORRECTIONS TO PARTS LISTS

OTARI SERVICE ACCESSORIES

Part No.

Stubby Driver should be YZA52H03

HEAD AND HEAD ASSEMBLY REFERENCE GUIDE FOR OTARI PRODUCTS

HEAD ASSY PART NUMBER	APPLICABLE MODEL	ERASE HEAD	RECORD HEAD	REPRO HEAD	REPRO HEAD
		MTR-20			
KH-42CA	S		GH4R132		
	T		GH4R132		
		MTR-10/12			
KH-41JA	2, 2L		GH4R132	GH4P133	
KH-41JA	C, CL		GH4R132	GH4P133	
KH-41WA	CT		GH4R132	GH4P133	
KH-2M-A	I, IL			GH2P016B	
		MX			
KH-1G	MX-70,8CH	GH1E020B			
KH-2H-B	MKIII-8	GH2E009B			
KH-2H-B	8SD	GH2E009A			
KH-6G	MX-80,24CH	GH6E021A			
		DP-4050			
KH-41UA	OM			GH4P051A	GH4P052A
KH-4A-A	OCF		GH8R046 (slave)	GH4P053A	GH4P054A

DP-1310

Q2	GH4P055A

DP-1610

Q8	GH4P060A GH4P061
C4	GH8C009A GH8C009B

OTARI PINCH ROLLER CROSS REFERENCE LIST

NEW ASSEMBLY NUMBER	OLD PART NUMBER	APPLICABLE MODEL
KP0A002S	KP-4A-A	DP-4050 OCF(OM),DP-1310,VL-15
KP0A023S	KP-2F-A	DP-7300C, DP-7000
KP0A024S	KP-8G-A	DP-7500C,DP-77W,DP-85C,E DP-80 Slave
KP0A028S	KP-2G-A,SERIES I PRE 'H' LOT	
KP0A028S	KP-2G-A,SERIES I&II POST 'H' LOT	

CHANGE THESE NEW ASSEMBLY NUMBERS KP0A028S TO KP0A029S

KP0A030S	KP-2I-A	DP-83C,DP-80 Master

ADD THESE NEW ASSEMBLY NUMBERS AND APPLICABLE MODELS:

KP0A032	MTR-20 1/4"
KP0A033	MTR-20 1/2"
KP0A034	MX-70 1"
KP0A034S	MX-70 1" with Bearing
KP-4S-A	MX-55

OTARI REMOTE CONTROL AND AUTO LOCATOR REFERENCE LIST

PART NUMBER	DESCRIPTION	CABLE PART NUMBER
CB-116	MK-III (16- & 34-PIN) LOCATOR	ZA-64I

CB-119	MX-70 LOCATOR	ZA-66S
	DP-4050-C2 (MASTER) DP-4050-OM (SLAVE)	ZA-61X
	DP-4050-C2 (SLAVE) DP-4050-Z3 (SLAVE)	ZA-61W

EXTENSION PRINTED CIRCUIT BOARDS

ADD THE FOLLOWING NEW INFORMATION:

PART NUMBER	DESCRIPTION	APPLICABLE MODEL
PB-16EB	AUDIO	BII,MKIII-2
PB-16EB	RECORD AMP	BII
PB-16XA	AUDIO	MX-70
PB-7BLA	EXTENDER	MX-70, MTR-20
PB-19JA	AUDIO	MX-80
PB-7JEA	EXTENDER	MX-80
PB-16KA	AUDIO	MTR-90II
PB-78A	EXTENDER	MTR-90II
PB-73H	POWER SUPPLY	MTR-90I,MTR-90II,MX-7800
PB-74K		MTR-90
PB-46X	REEL CONTROL	MTR-90
PB-15K	AUDIO	MTR-90II (PRE 'D' LOT)
PB-7QPA	AUDIO, TIME	MX-55N,MX-55TM
PB-7QQA	MIC, MONITOR	MX-55
PB-14XAE	AUDIO (HIGH SPEED)	MTR-10/12
PB-14XAF	MONO AUDIO (HIGH SPEED)	MTR-10/12
PB-14XAH	AUDIO (HIGH SPEED)	MTR-10/12 1/2" 2-TRACK
PB-14XB	AUDIO (LO SPEED)	MTR-10/12 1/2" 4-TRACK
PB-14XBA	MONO AUDIO (LO SPEED)	MTR-10/12

PB-14XBLX	AUDIO (LX VERSION)	MTR-10/12
PB-81VOA	AUDIO	DP-4050-C2
PB-14XAC	AUDIO (HIGH SPEED)	MTR-10/12 1/2" 4-TRACK
PB-14XBB	AUDIO (LO SPEED)	MTR-10/12 1/4" 2&4-TRK.
PB-76X	AUDIO	MTR-10/12
PB-14XA	AUDIO (HIGH SPEED)	MTR-10
PB-14XB	AUDIO (LO SPEED)	MTR-10
PB-44TA	TRANSPORT	MTR-10/12
PB-62L	POWER SUPPLY	MTR-10/12
PB-74Z		CB-107

NO EXTENDER CIRCUIT BOARD FOR THE MX-50 AT THIS TIME

VU METER AND VU METER LAMP REFERENCE GUIDE

ADD THE FOLLOWING NEW INFORMATION:

PART NO. (METER)	PART NO. (LAMP)	APPLICABLE MODEL
ME19008	LU4015 (RED) LU4044 (GREEN)	DTR-900
ME11020	LU2057	CTM-10

OTARI CONNECTOR CROSS REFERENCE LIST

IL TYPE SERIES (BROWN COLOR)

FEMALE SOCKET

CN7B-263

EI SERIES CONNECTORS (WHITE COLOR)

NO. OF CONTACTS	MALE HEADER	MALE HEADER	FEMALE HOUSING
10		CN410059	CN410068

HEAD AND HEAD ASSEMBLY REFERENCE GUIDE FOR OTARI PROUCTS

HEAD ASSY PART NUMBER	APPLICABLE MODEL	ERASE HEAD	RECORD HEAD	RECORD HEAD	REPRO HEAD	REPRO HEAD
			MTR-20			
KH-2T-A	H	GH2E046A	GH2R053		GH2P052	
KH-2S-A	Q	GH2E047A	GH2R034A		GH2P016A	
KH-42CA	S	GH4E004	GH4R070A		GH4P071A	
	T	GH4E004	GH4R070A	GH4D102 T/C	GH4P071A	
			MTR-10/12			
KH-41JA	2, 2L	GH4E004	GH4R070A		GH4P071A	
KH-41JA	C, CL	GH4E004	GH4R070A		GH4P071A	
KH-41WA	CT	GH4E004	GH4R070A	GH4D102 T/C	GH4P071A	
KH-2N-B	G	GH2E046A	GH2R053		GH2P052	
KH-2N-B	H	GH2E046A	GH2R053		GH2P052	
KH-2M-A	4, 4L	GH2E047A	GH2R034A		GH2P016B	
KH-2M-A	I, IL	GH2E047A	GH2R034A		GH2P016A	
KH-41LA	F	GH4E012	GH4R111		GH4P112	
			MTR-90II			
KH-1D-A	8 CH	GH1E020A	GH1R019A		GH1P016A	
KH-6B-A	16 CH	GH6E001B	GH6R003A		GH6P005A	
KH-6B-B	24 CH	GH6E002B	GH6R004A		GH6P006A	

HEAD ASSY PART NUMBER	APPLICABLE MODEL	ERASE HEAD	RECORD HEAD	RECORD HEAD	REPRO HEAD	REPRO HEAD
			MX			
KH-1G	MX-70,8CH	GH1E020A	GH1R015A		GH1P023A	
KH-1F	MX-70,16CH	GH1E021A	GH1RO17A		GH1P018A	
KH-41IA	BII2, MKIII-2	GH4E082A	GH4R005		GH4P027	GH4P069
KH-41OA	BIIF, MKIII FULL TK	GH4E012	GH4R111		GH4P112	GH4P027
KH-41TA	BII4, MKIII 1/4 TK	GH4E058A	GH4R033		GH4P069	GH4P027
KH-4Y-B	BQII	GH4E058A	GH4R034		GH4P011	GH4P027
KH-2K-A	MKIII-4, L	GH2E036	GH2R037		GH2P038	
KH-2H-B	MKIII-8	GH2E009	GH2R010B		GH2P011B	
KH-4K-A	B2HD	GH4E004	GH4R005		GH4P027	GH4P069
KH-4R-A	B 1/4"	GH4E058A	GH4R033		GH4P069	GH4P027
KH-4Q-A	BF	GH4E012A	GH4R111		GH4P027	GH4P112
KH-4C-B	2SD	GH4E004	GH4R005		GH4P006	GH4P069
KH-4G-A	FLT	GH4E092	GH4R086		GH4P089	
KH-4E-B	QXD	GH4E009	GH4R034		GH4P011	
KH-4F-A	MKII-2	GH4E004	GH4R005		GH4P027	GH4P069
KH-2C-A	MKII-4	GH2E014	GH2R015A		GH2P016A	
KH-4N-A	4S	GH4E009	GH4R033		GH4P069	GH4P006
KH-2H-B	8SD	GH2E009	GH2R010A		GH2P011A	
KH-1B	7800	GH1E007A	GH1R008		GH1P009	
KH-6C	MX-80,32CH	GH6E013A	GH6R016A		GH6P015A	
KH-6G	MX-80,24CH	GH6E014A	GH6R017A		GH6P009A	
KH-6E-A	MX-80,16CH	GH6E020A	GH6R019A		GH6P012B	

HEAD ASSY PART NUMBER	APPLICABLE MODEL	ERASE HEAD	RECORD HEAD	RECORD HEAD	REPRO HEAD	REPRO HEAD
			ARS-1000			
KH-4D-B	DC, DM, DS				GH4P006	
KH-41EA	2 TK MONO				GH4P071A	
KH-41BA	4 TK MONO				GH4P072	
			BGM-1000			
					GH4P068	
			EC-401			
KH-41X	FM	GH4E004	GH4R070A		GH4P071A	GH4C110A
KH-41Y	MONO	GH4E004	GH4R070A		GH4P071A	GH4C109A
KH-41Z	COMBO				GH4P071A, GH4P112	GH4C109A, & GH4C110A
			DP-4050			
KH-41UA	OM				GH4P051	GH4P052
	CCF		GH8R046		GH8P045	
	C2		GH8R046		GH8P045	
	Z3		GH8R046			
	C1		GH8R046		GH8P045	
	C1M		GH8R035		GH8P036	
	Z3M		GH8R035			
KH-4A-A	OCF				GH4P053	GH4P054

HEAD ASSY PART NUMBER	APPLICABLE MODEL	ERASE HEAD	RECORD HEAD	RECORD HEAD	REPRO HEAD	REPRO HEAD
			DP-1310			
	Q4				GH4P051A	GH4P052A
	Q2				GH4P055	
			DP-1510			
	Q4		GH4R115		GH4P014	
	Q2		GH4R043			
	C4		GH8R012		GH4P014	
	Q8		GH4R031			
			DP-1610			
	Q8				GH4P060	GH4P061
	C4				GH8C009	
			DP-5600A			
					GH4P044	GH4P047
			DP-1700E			
	E				GH8P008	
	EC				GH8P008	
	AH				GH8P008	
			DP-77W			
					GH8P008	
			T-1500			
					GH8P008	

HEAD ASSY PART NUMBER	APPLICABLE MODEL	ERASE HEAD	RECORD HEAD	RECORD HEAD	REPRO HEAD	REPRO HEAD
			T-1501			
					GH8P008	
			VL			
	500				GH2P049	
	600				GH2P049	

OTARI PINCH ROLLER CROSS REFERENCE LIST

NEW ASSEMBLY NUMBER	OLD PART NUMBER	APPLICABLE MODEL
KP0A001S	KP-8A-A	DP-1700A, DP-1700B, DP-2600R
KP0A002S	KP-4A-A	DP-4050 OCF(M), DP-1310, VL-15
KP-8B-A	-------	DP-4050 CCF, C2, Z3, OCF(S)
KP0A004S	KP-8C-A	DP-600C, E
KP0A005S	KP-2A-A	DP-6300C
KP0A006S	KP-1A-A	DP-6300E
KP0A007	-------	MX-5050 (1/4")
KP0A008S	KP-4D-A	BL-1310, DP-1510, DP-1610, BGM-1000, ARS-1000
KP0A009S	KP-2B-A	MX-5050 (1/2")
KP0A010S	KP-8E-B	DP-1700BH, DP-2700
KP0A018S	-------	MX-7800
KP0A002S	KP-4J-A	MX-7000, DP-5600,
KP0A021S	-------	MX-7308
KP0A023S	KP-2F-A	DP-7300C
KP0A024S	KP-8G-A	DP-7500C, DP-77W, DP-85C, E
KP0A009S	KP-2B-B	MX-7400, 7200, 7100
KP0A028S	KP-4M-A SERIES I, PRE 'H' LOT	MTR-10/12 I, 1/4"
KP0A028S	KP-4M-C, SERIES I&II, POST 'H' LOT	MTR-10/12 I&II 1/4"
KP0A028S	KP-2G-A, SERIES I, PRE 'H' LOT	MTR-10/12 I, 1/2"
KP0A028S	KP-2G-B, SERIES I&II, POST 'H' LOT	MTR-10/12 I&II, 1/2"
KP0A029S	KP-2G-A SERIES I, PRE 'H' LOT	MTR-10, 10II, 12, 12II, 1/2"
KP0A030S	KP-2I-A	DP-83C

PINCH ROLLER CROSS REFERENCE LIST CONTINUED

KP0A031S	KP-1C-A	DP-83E
KP0A034S	-------	MX-70 1"
KP-2K-A	-------	MTR-20 1/2"
KP-4Q-B	-------	MTR-20 1/4"
KP0A037		MX-80
KP0A038		CIM-10

OTARI REMOTE CONTROL AND AUTO LOCATOR REFERENCE LIST

PART NUMBER	DESCRIPTION	CABLE PART NUMBER
CB-102	MX-5050 REMOTE	N/A
CB-104	MTR-90I LOCATOR	ZA-62D (POWER) ZA-61P (TO AMP) 2 PCS. ZA-61Q (TO DECK)
CB-107	MTR-90I LOCATOR	ZA-62C
CB-109	MTR-10/12 LOCATOR	ZA-62L
CB-110	MK-III SERIES REMOTE	ZA-62L
CB-111	MTR-10/12 REMOTE	N/A
CB-113	MTR-90II REMOTE	ZA-63B (TO AMP) 2 PCS. ZA-63C (TO DECK)
CB-114	MTR-10/12 REMOTE	N/A
CB-115	MTR-90II LOCATOR	ZA-63E
CB-116	BQII, MK-III (16 PIN) LOCATOR	ZA-64D
CB-116	MK-III (34 PIN) LOCATOR	ZA-64I
CB-117	MX-70 REMOTE	ZA-62L 2PCS.
CB-118	MX-70 REMOTE	ZA-62L 2PCS.
CB-119	MX-70 LOCATOR	ZA-66T
CB-120	MTR, MX-70, MX-80 LOCATOR	TBA
CB-121	EC-101 REMOTE	PZ9D102
CB-123/124	MX-80 REMOTE	ZA-6EM AUX POWER ZA-6EL REMOTE

EXTENSION PRINTED CIRCUIT BOARDS

PART NUMBER	DESCRIPTION	APPLICABLE MODEL
PB-76T	AMP CONTROL	MKIII-4
PB-76U	AUDIO	BQII, MKIII-4, MKIII-8
PB-76V	AMP CONTROL	MKIII-8
PB-77X	PB-76T&PB-76U	BQII, MKIII-4
PB-77Y	PB-76U&PB-76V	MKIII-8
PB-76X	AUDIO	MTR10/12
PB-7BLA	AUDIO	MX-70, MTR-20
PB-7BMA	POWER SUPPLY	MTR-20
PB-7JEA	AUDIO	MX-80
PB-7KFA	POWER SUPPLY	CTM-10
PB-7KDA	BIAS	CTM-10
PB-7KEA	CONTROL P	CTM-10
PB-73H	POWER SUPPLY	MTR-90II
PB-78A	AUDIO, CONTROL	MTR-90II, DTR-900
PB-7FJA	FOR ALL PCBs WITH WHITE CONNECTORS	DTR-900
PB-7FKA	FOR ALL PCBs WITH BLUE CONNECTORS	DTR-900
PB-7HEA	WRITE AMP	DTR-900

VU METER AND VU METER LAMP REFERENCE GUIDE

PART NO. (METER)	PART NO. (LAMP)	APPLICABLE MODEL
ME11003	LU2049	OLD MX-5050 SERIES W/OUT HOOD
ME11004	LU2049	OLD MX-5050 SERIES WITH HOOD
ME11005	LU2049	MX-5050 BII-2, MKIII-2, MTR-10/12
ME11007	LU2049	MX-7100, 7200, 7400, 7800
ME11009	LU2049	MTR-90
ME11010	LU2057	MX-5050 BQII, MKIII-4
ME11011	LU2037	MX-5050 MKIII-8
ME11012	LU2049	MTR-90II
ME11016	LU2065	MX-70, MX-80
ME11017	LU2057	DP-4050 C1
ME19002	LU2027	DP-4050 OCF, CCF, OM, C2, 1010, 1610
ME19008	LU2027	DP-6000, 7000, 80C
ME19015		DP-83E
ME31002		DP-1010 (BIAS)
ME31003		DP-6300 (BIAS)
ME49001		
ME51001		DP-7300, 7300 (VOLTAGE)
ME51002		DP-6300, 7300 (CURRENT)
ME51003		
ME59005		

OTARI PART NUMBERS FOR HONDA MR SERIES CONNECTORS

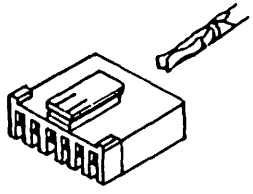
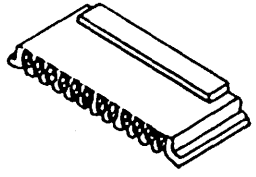
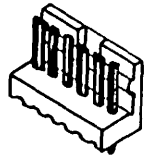
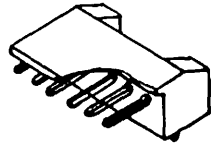
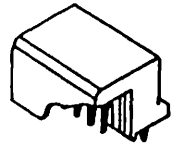
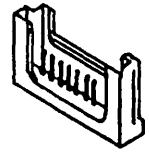
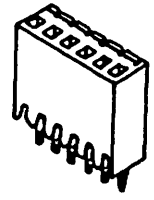
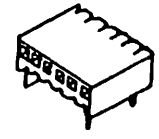
MALE CONNECTOR	8 PIN	CN208131	MALE CONNECTOR W/COVER	8 PIN	CN208132
	16 PIN	CN216127		16 PIN	CN216213
	20 PIN	CN220134		20 PIN	CN220214
	25 PIN	CN225135		25 PIN	CN225215
	34 PIN	CN234129		34 PIN	CN234216
	50 PIN	CN250137		50 PIN	CN250217
	60 PIN	CN260138		60 PIN	CN260218
FEMALE CONNECTOR	8 PIN	CN208199	FEMALE CONECTOR W/COVER	8 PIN	CN208133
	16 PIN	CN216128		16 PIN	CN216219
	20 PIN	CN220200		20 PIN	CN220220
	25 PIN	CN225136		25 PIN	CN225221
	34 PIN	CN234130		34 PIN	CN234222
	50 PIN	CN250201		50 PIN	CN250223
	60 PIN	CN260202		60 PIN	CN260224

COVERS ONLY

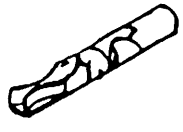
8 PIN	CN7B-073
16 PIN	CN7B-074
20 PIN	CN7B-075
25 PIN	CN7B-076
34 PIN	CN7B-077
50 PIN	CN7B-078
60 PIN	CN7B-079

OTARI CONNECTOR CROSS REFERENCE LIST

IL TYPE SERIES (BROWN COLOR)

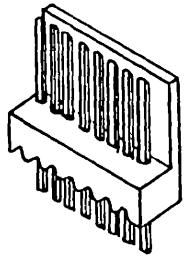









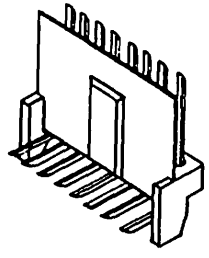
NO. OF CONTACTS	FEMALE HOUSING (IN LINE MATING)		MALE HEADER (PCB MOUNT)				FEMALE HOUSING (PCB MOUNT)	
2	CN402389		CN402350	CN402359	CN402369		CN402339	CN402328
3	CN403390		CN403351	CN403360	CN403370		CN403340	CN403329
4	CN404391		CN404352	CN404361	CN404371		CN404341	CN404330
5	CN405392		CN405353	CN405362	CN405372		CN405342	CN405331
6	CN406393		CN406354	CN406363	CN406373		CN406343	CN406332
7	CN407394		CN407355	CN407364	CN407374		CN407344	CN407333
8	CN408395		CN408356	CN408365	CN408375		CN408345	CN408334
9	CN409396		CN409357	CN409366	CN409376		CN409346	CN409335
10	CN410397		CN410358	CN410367	CN410377		CN410347	CN410336
11	N/A	CN411398				CN411379	CN411348	CN411337
12	CN412408	CN412399	CN412409	CN412368	CN412378	CN412380	CN412349	CN412338
13		CN413400				CN413381		
14		CN414401				CN414382		
15		CN415402				CN415383		
16		CN416403				CN416384		
17		CN417404				CN417385		
18		CN418405				CN418386		
19		CN419406				CN419387		
20		CN420407				CN420388		

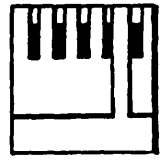


FEMALE SOCKET

EI SERIES CONNECTORS (WHITE COLOR)



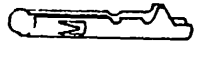




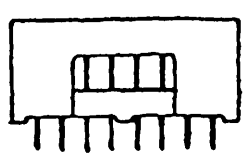
NO. OF CONTACTS	MALE HEADER	MALE HEADER	FEMALE HOUSING
2	CN402213	CN402214	CN402211
3	CN403043	CN403052	CN403061
4	CN404044	CN404053	CN404062
5	CN405045	CN405054	CN405063
6	CN406046	CN406055	CN406064
7	CN407047	CN407056	CN407065
8	CN408048	CN408057	CN408066
9	CN409049	CN409058	CN409067
10	CN410050	CN403059	CN403068
12	CN412051	CN412060	CN412069

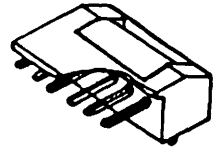
FEMALE SOCKET

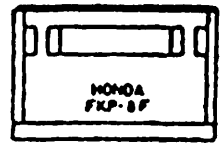
CN7B-053



PKP SERIES (BLACK COLOR)





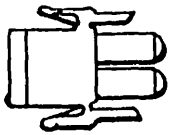


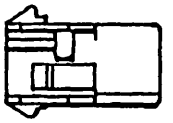
NO. OF CONTACTS	MALE HEADER	MALE HEADER	FEMALE HOUSING
3	CN403225	CN403230	CN403235
5	CN405226	CN405231	CN405236
8	CN408227	CN408232	CN408237
10	CN410228	CN410233	CN410238
15	CN415229	CN415234	CN415239

FEMALE SOCKET

CN7B-183

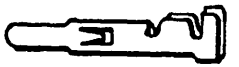
UNIVERSAL SERIES CONNECTOR (LARGE WHITE COLOR)



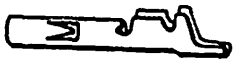


NO. OF CONTACTS	FEMALE HOUSING	MALE HOUSING
1	CN401072	CN401073
2	CN402030	CN402029
3	CN403032	CN403031
4	CN404034	CN404033
5	CN405071	CN405070
6	CN406036	CN406035
9	CN409038	CN409037
12	CN412040	CN412039
15	CN415042	CN415041

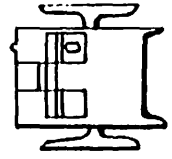
MALE PIN: CN7B-041 OR CN7B-043 — CN7B-041 OR CN7B-043

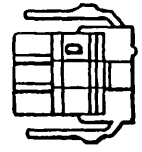


FEMALE SOCKET: CN7B-042 OR CN7B-044 — CN7B-042 OR CN7B-044



AMP SERIES CONNECTORS (MINIATURE RECTANGULAR)



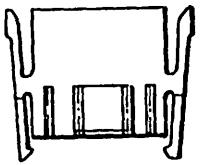


NO. OF CONTACTS	FEMALE HOUSING	MALE HOUSING
2	CN402215	CN402192
3	CN403216	CN403193
4	CN404217	CN404194
6	CN406218	CN406195
9	CN409219	CN409196
12	CN412220	CN412197
15	CN415221	CN415198
20	CN420222	CN420199
24	CN424223	CN424200
36	CN436224	CN436201

APPLICABLE PIN: CN7B-005

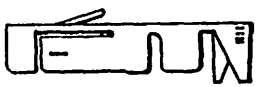
APPLICABLE SOCKET: CN7B-006

HNC SERIES CONNECTORS (BLACK COLOR)



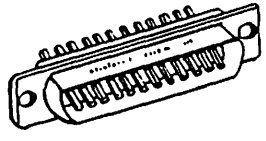
NO. OF CONTACTS	FEMALE HOUSING
2	CN402265
3	CN403266
4	CN404267
5	CN405268
6	CN406269
7	CN407270
8	CN408271
10	CN410272
12	CN412273
15	CN415274

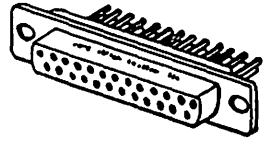
FEMALE SOCKET: CN7B-214 OR CN7B-215



'D' TYPE SERIES CONNECTOR

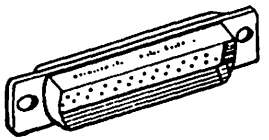
SOLDER TYPE

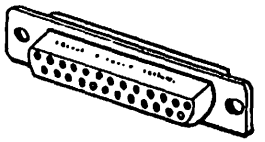




NO. OF CONTACTS	MALE PART NUMBER	FEMALE PART NUMBER
9	CN209325	CN209324
15	CN215389	CN215390
25	CN225103	CN225322
37	CN237323	CN237326
50	CN250385	CN250384

CRIMP TYPE CONNECTORS



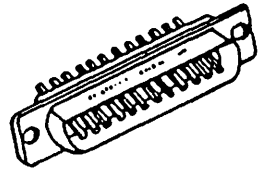


	MALE	FEMALE
NO. OF CONTACTS	PART NUMBER	PART NUMBER
9	CN209362	CN209363
15	CN215364	CN215365
25	CN225105	CN225104
37	CN237366	CN237367
50	CN250368	CN250369

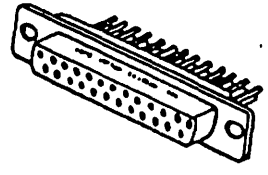
APPLICABLE PIN:	APPLICABLE SOCKET:
CN7B-120	CN7B-122

'D' TYPE SERIES CONTINUED

PCB TYPE MOUNT



MALE



FEMALE

NO. OF CONTACTS	PART NUMBER	PART NUMBER
9	CN209370	CN209371
15	CN215372	CN215373
25	CN225374	CN225375
37	CN237376	CN237377
50	CN250378	CN250379

'D' TYPE COVERS

NO. OF CONTACTS	PART NUMBER
9	CN7B-191
15	CN7B-192
25	CN7B-193
37	CN7B-194
5Ø	CN7B-195

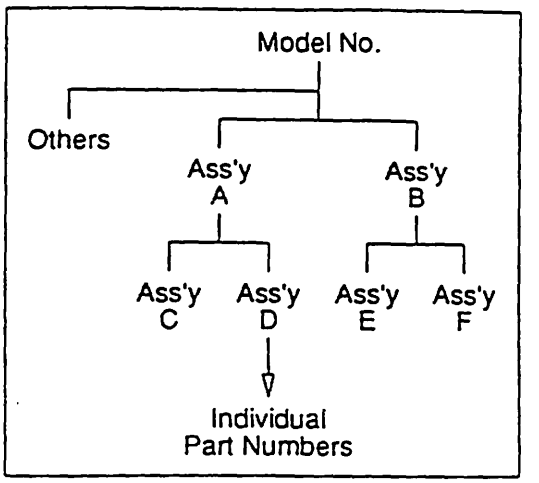
CONNECTOR LOCKS

CN7B-189	16.2 MM
CN7B-212	14.8 MM

8. PART NUMBER FOR OTARI PRODUCTS

OTARI REFERENCE NUMBER

A:	Amplifier	PB:	PCB
BA:	Bearing	PN:	Diode
C:	Capacitor	Q:	Transistor
I:	IC	R:	Resister
LU:	Lamp	WH:	Switch
ME:	Meter		



PART NUMBERS FOR PCB

PB9○○○○ : PCB without Components

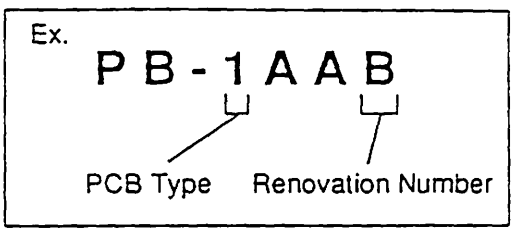
PB-1 (or 4, 6, 7)○○○○ : PCB with Components

PB-1○○○○ : Amplifier PCB Assembly

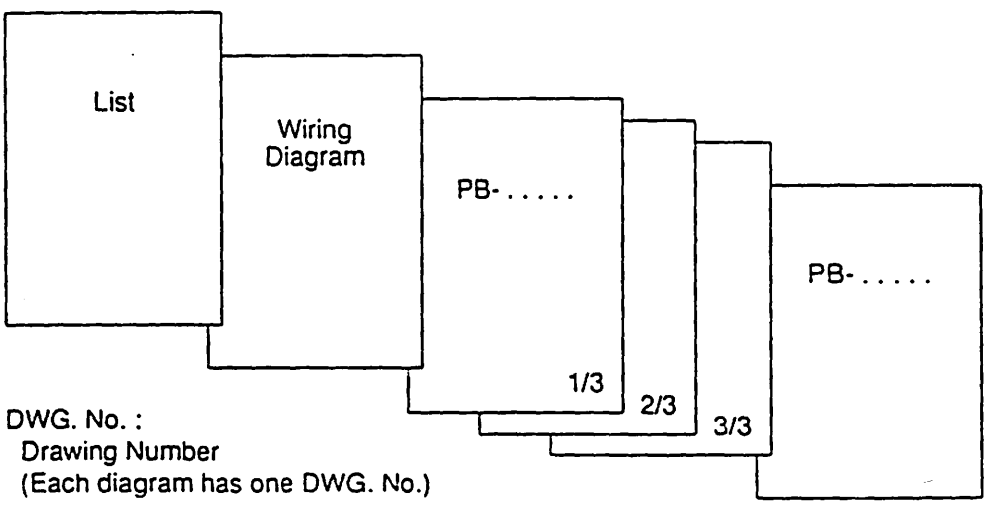
PB-4○○○○ : Control PCB Assembly

PB-6○○○○ : Power Supply PCB Assembly

PB-7○○○○ : Extension PCB Assembly

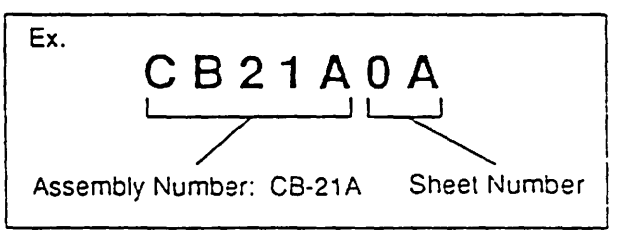


9. OTARI CIRCUIT DIAGRAMS



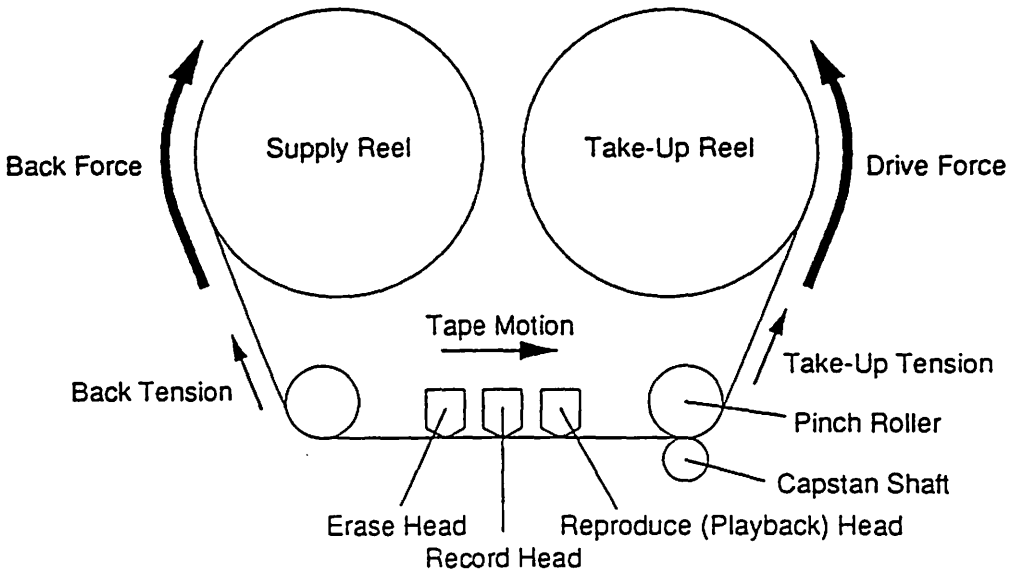
DWG. No. :
Drawing Number
(Each diagram has one DWG. No.)

PART No. :

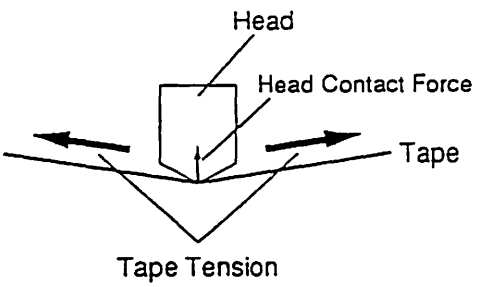


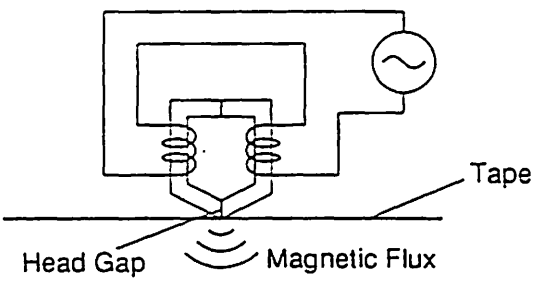
BASIC TECHNICAL CONCEPTS FOR TAPE RECORDERS

1. TAPE TENSION

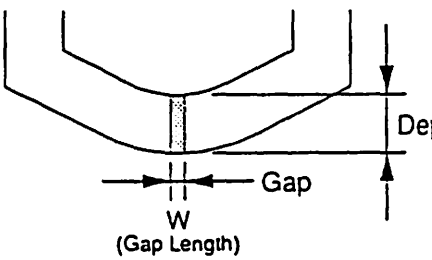


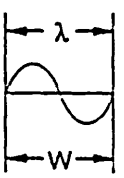
2. HEAD CONTACT FORCE



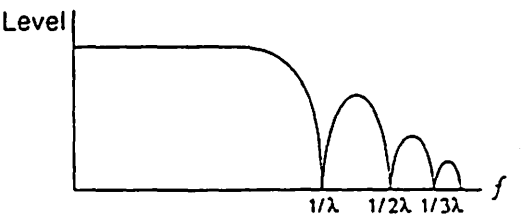


3. HEAD GAP AND DEPTH





→ OUTPUT = 0



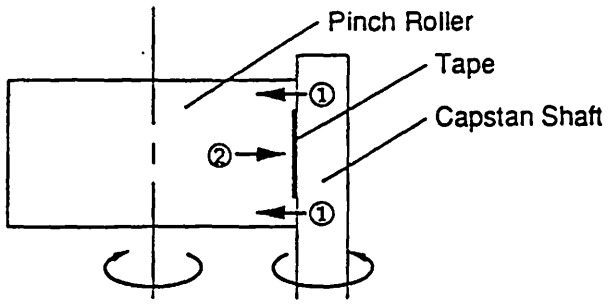
$$\lambda \text{ (Wave Length)} = \frac{\text{Tape Speed}}{f} \text{ (mm)}$$

Ex.: f = 25 kHz, Tape Speed = 38 cm/s

$$\frac{38 \times 10}{25 \times 10^3} = 15.2 \times 10^{-3} \text{ mm} = 15.2\,\mu\text{m}$$

4. TAPE DRIVE SYSTEMS

A. PINCH ROLLER SYSTEM



Drive Force

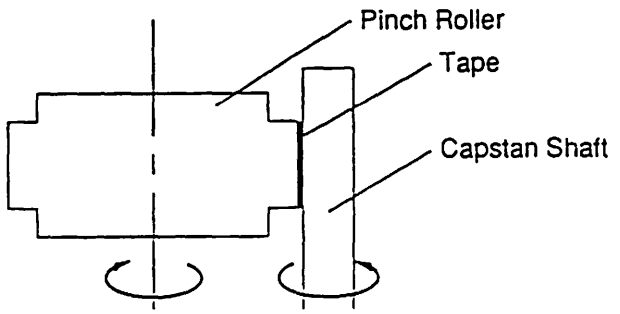
① Capstan Shaft → Pinch Roller

② Pinch Roller → Tape

Since the force is transmitted through elastic material, the tape tension tends to be unstable.

More Drive Power

B. PINCH ROLLER SYSTEM



Drive Force

Capstan Shaft → Tape → Pinch Roller

Since the force is not transmitted through elastic material, the tape tension is stable.

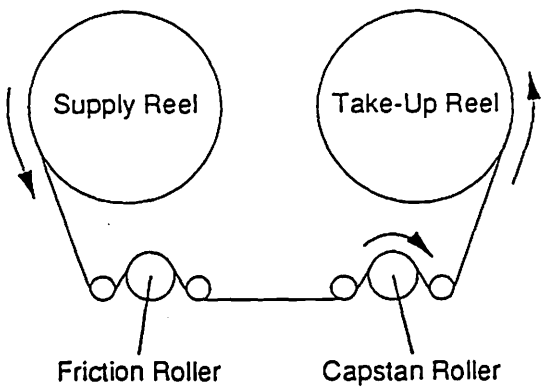
Less Drive Power

Back Coating Tape

Tension Servo System

→ MTR-10, BTR-10, etc.

C. PINCH ROLLERLESS SYSTEM



Direct Drive Capstan Roller

Tension Servo System

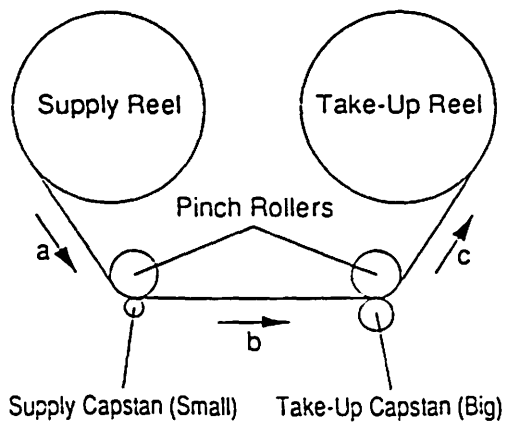
High Accuracy Transport

→ MTR-90 series, MTR-100A, DTR-900 series

Same tape path for PLAY, FF, RWD

→ Quick Response

D. DOUBLE CAPSTAN SYSTEM



Tension: a > b > c

Reel Tape Tension does not effect Head Tension.

→ Stable Head Tension

Since tension servo technology has progressed, this system is not used much.

Servo Control

1. Reel Motor

- Tension Control
  - Open Loop Servo
    - Single Direction
    - Bidirection
  - Closed Loop Servo
- Winding Speed Control
  - Fast Winding
  - Controlled Pack (Winding)

2. Capstan Motor

- Speed Control
  - PLL (Phase Locked Loop) Servo
  - Voltage Servo
- Drive mode
  - Pinch Roller type
  - Friction Drive type
- Reference
  - Internal
    - AC Line
    - Voltage
    - Quartz
  - External (for Synchronizer)
    - Voltage
    - Frequency

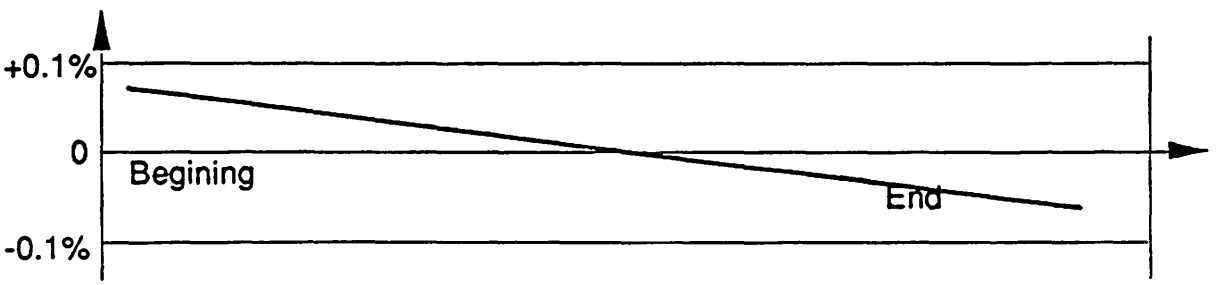
3. Speed Accuracy

* Absolute Speed Accuracy

with Tension Servo: +/-0.05%
without Tension Servo: +/-0.1%

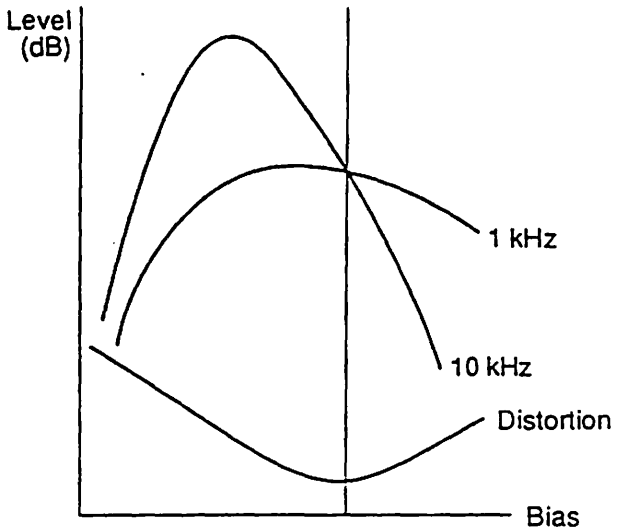
* Speed variation from begining to the end of reel

with Tension Servo: 0.05%
without Tension Servo: 0.1%



5. RECORDING BIAS

BIAS CHARACTERISTICS

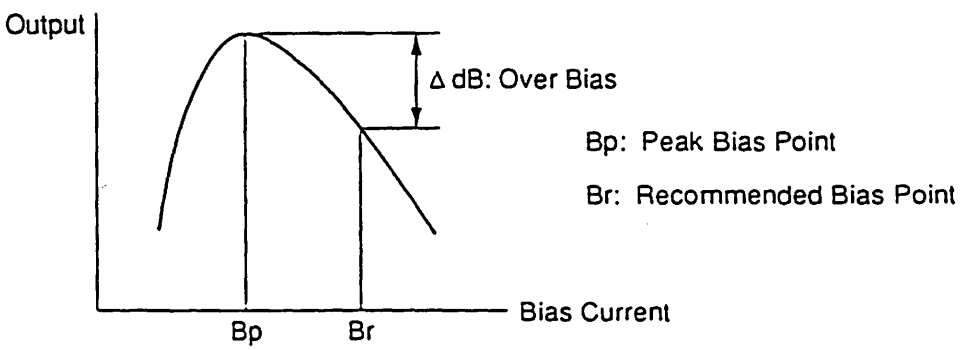


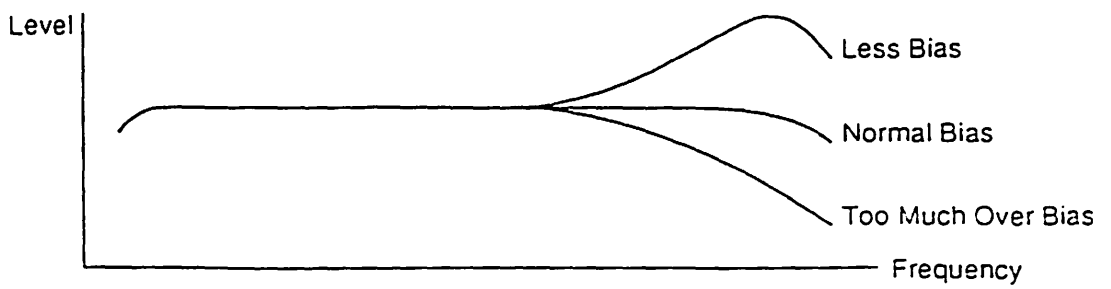
EXAMPLE OF RECOMMENDED OVER BIAS

MX-55N

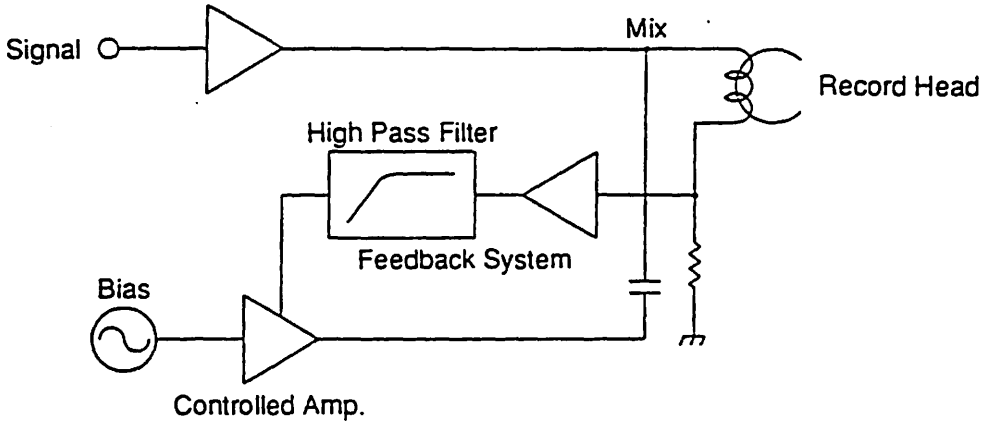
Tape Speed (ips) Frequency (Hz)	3.75 10 k	7.5 10 k	15 10 k
AGFA PEM 469	8.0	5.0	3.0
AGFA PEM 468	8.0	5.5	3.5
AMPEX 406/407	7.0	4.5	2.7
AMPEX 456	8.0	5.5	3.0
BASF LGR50P	7.5	5.5	3.5
BASF SPR50LH/50LHL			
BASF SM911	8.0	5.0	3.0
SCOTCH 206/207	7.0	4.5	2.7
SCOTCH 226/227	8.0	4.0	3.5
SCOTCH 250			

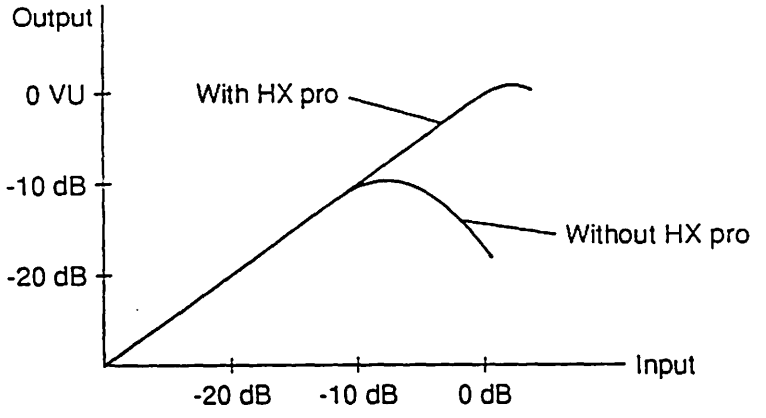
(Unit: dB)



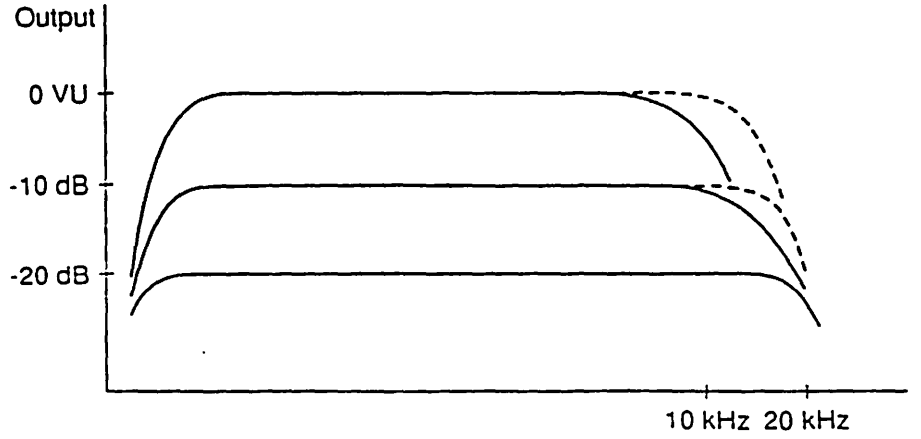


6. Dolby HX pro® HEADROOM EXTENSION SYSTEM





at 3.75 ips
10 kHz



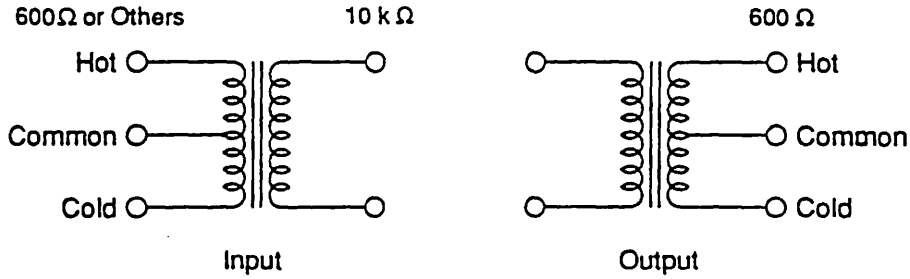
at 3.75 ips

——— Without HX pro

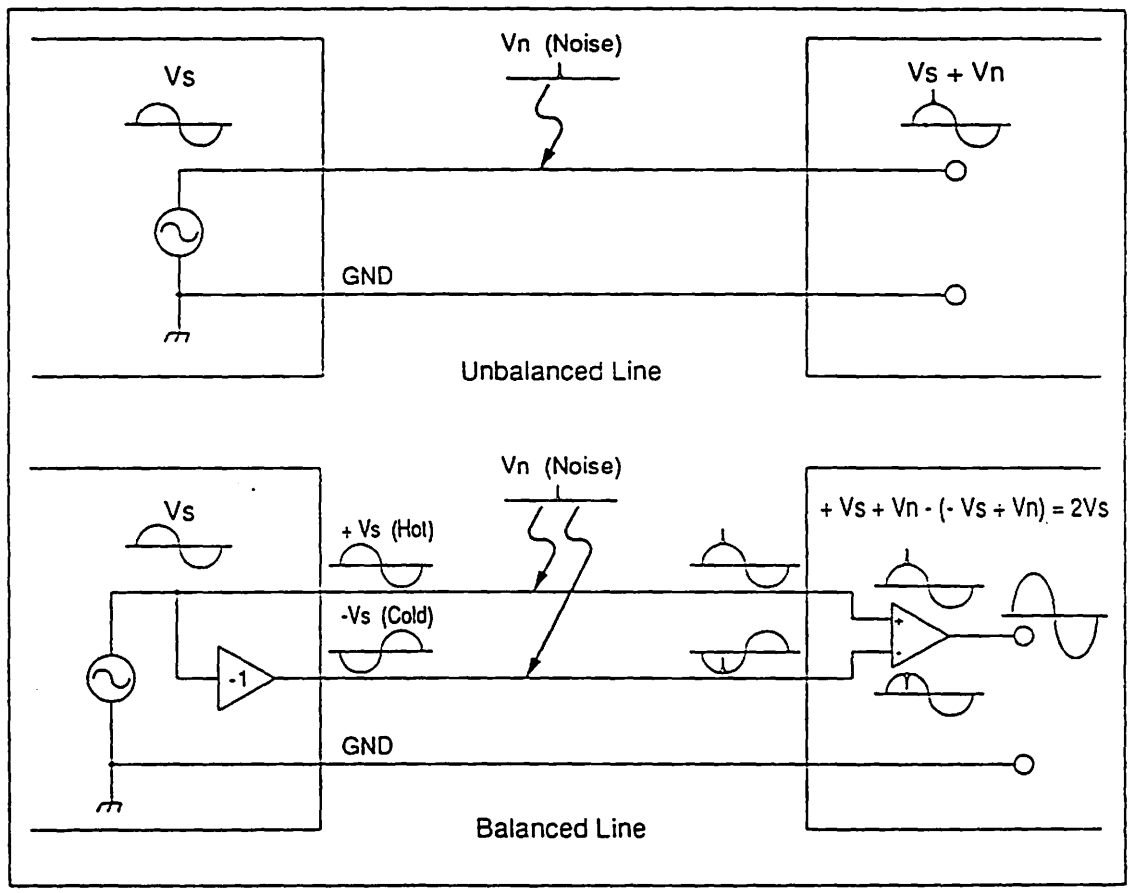
----- With HX pro

7. BALANCED LINE AND ACTIVE BALANCED LINE

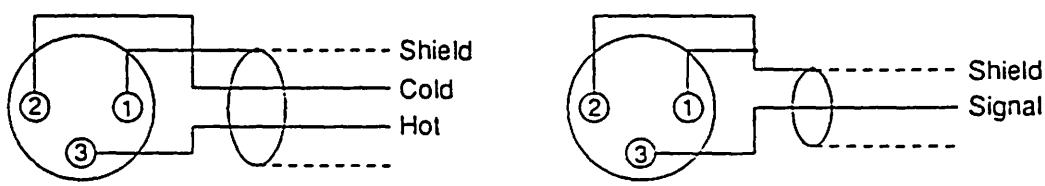
A. BALANCED INPUT/OUTPUT



UNBALANCED LINE AND BALANCED LINE

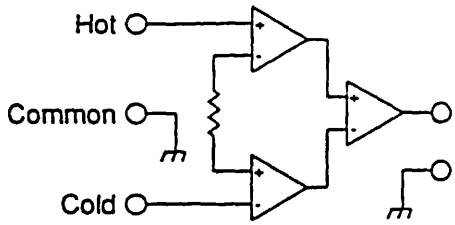


XLR CONNECTOR

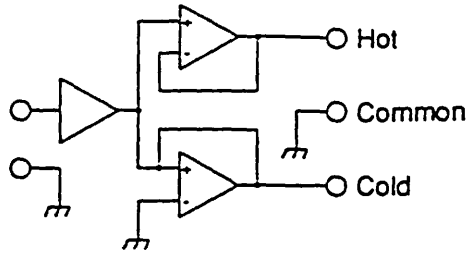


Some standards assign Pin 2 as Hot, Pin 3 as Cold.
(CAUTION: If the connection is mixed in one system, some problems might occur.)

B. ACTIVE BALANCED INPUT/OUTPUT



Input



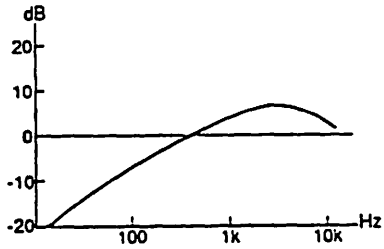
Output

Advantages

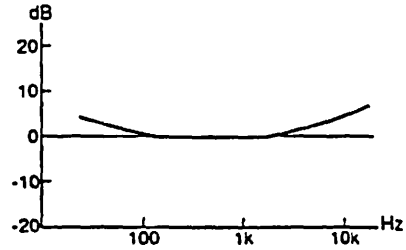
- ❊ Wide Band Frequency Responce
- ❊ Compact Size
- ❊ Low Cost
- ❊ High Impedance Input (10 kΩ - 1 MΩ) / Low Inpedance Output (1Ω - 5Ω)

PLAYBACK AND RECORD EQUALIZATION

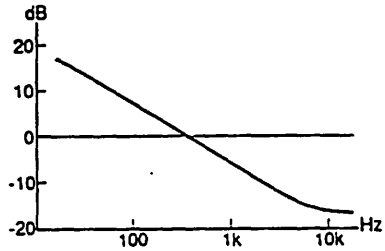
Theory of Equalization



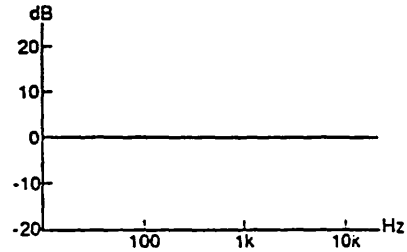
(a) No EQ Playback



(b) Rec EQ



(c) Playback EQ

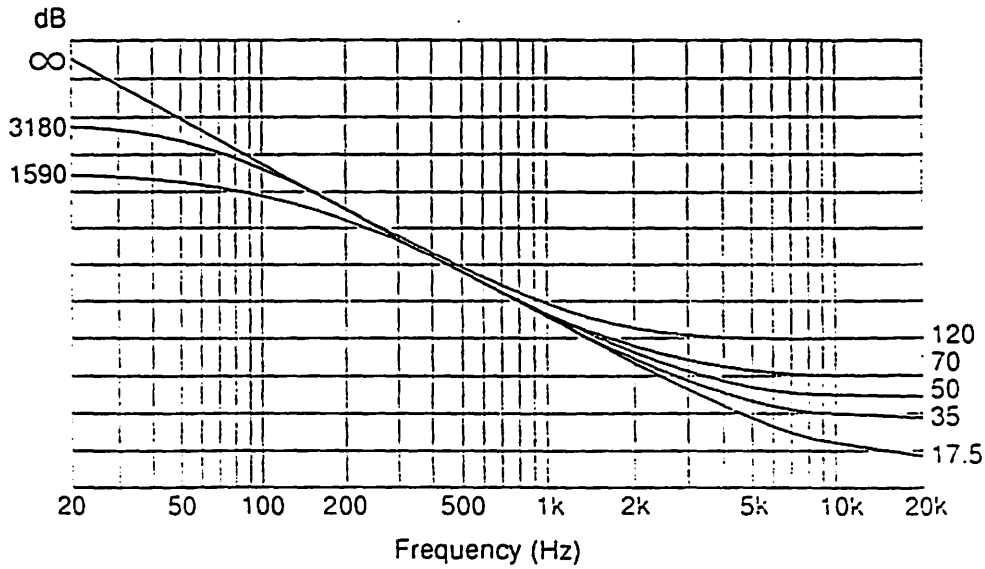


(d) Overall Response

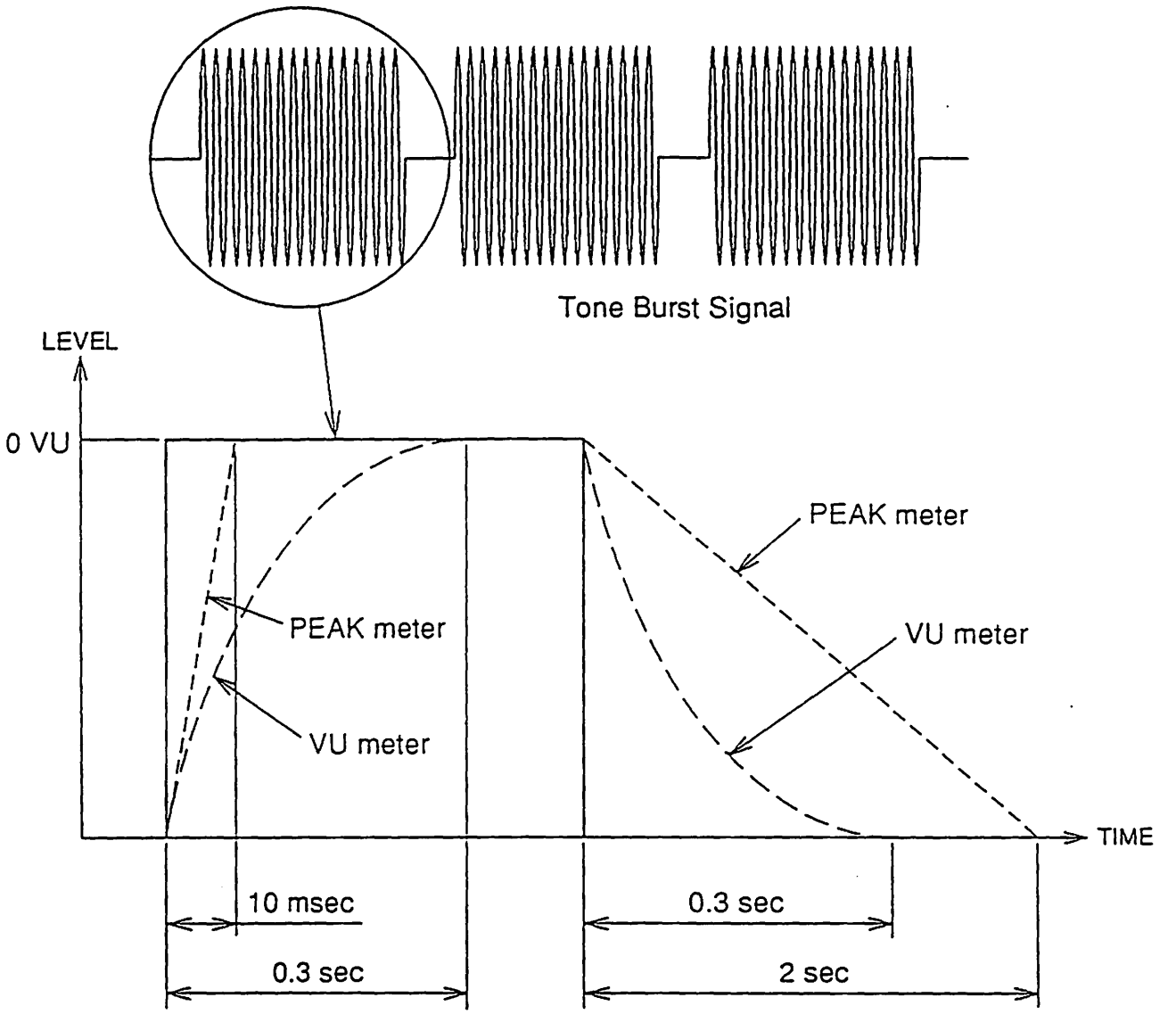
Constants of Playback Equalization

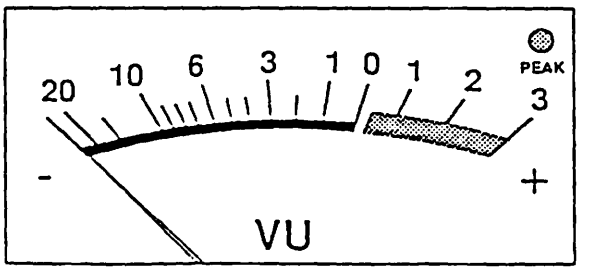
EQ Standard	TAPE SPEED (cm/sec)				
	76	38	19	9.5	4.8
AES	17.5	-	-	-	-
CCIR	-	35	35	-	-
DIN	-	35	70(DIN19S) 50+3180	90+3180	120+3180
IEC 1	35	35	70	90+3180	120+3180
IEC 2	17.5	50+3180	50+3180	-	-
NAB	-	50+3180	50+3180	90+3180	90+3180
BTS.NABJ	-	35+3180	50+3180	-	-
JIS	-	-	50+3180	90+3180	120+3180

Playback Equalization Curves

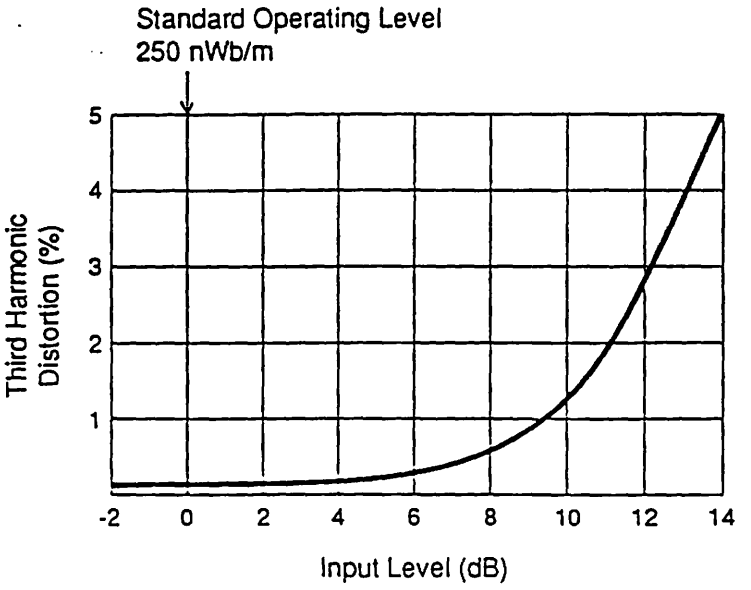


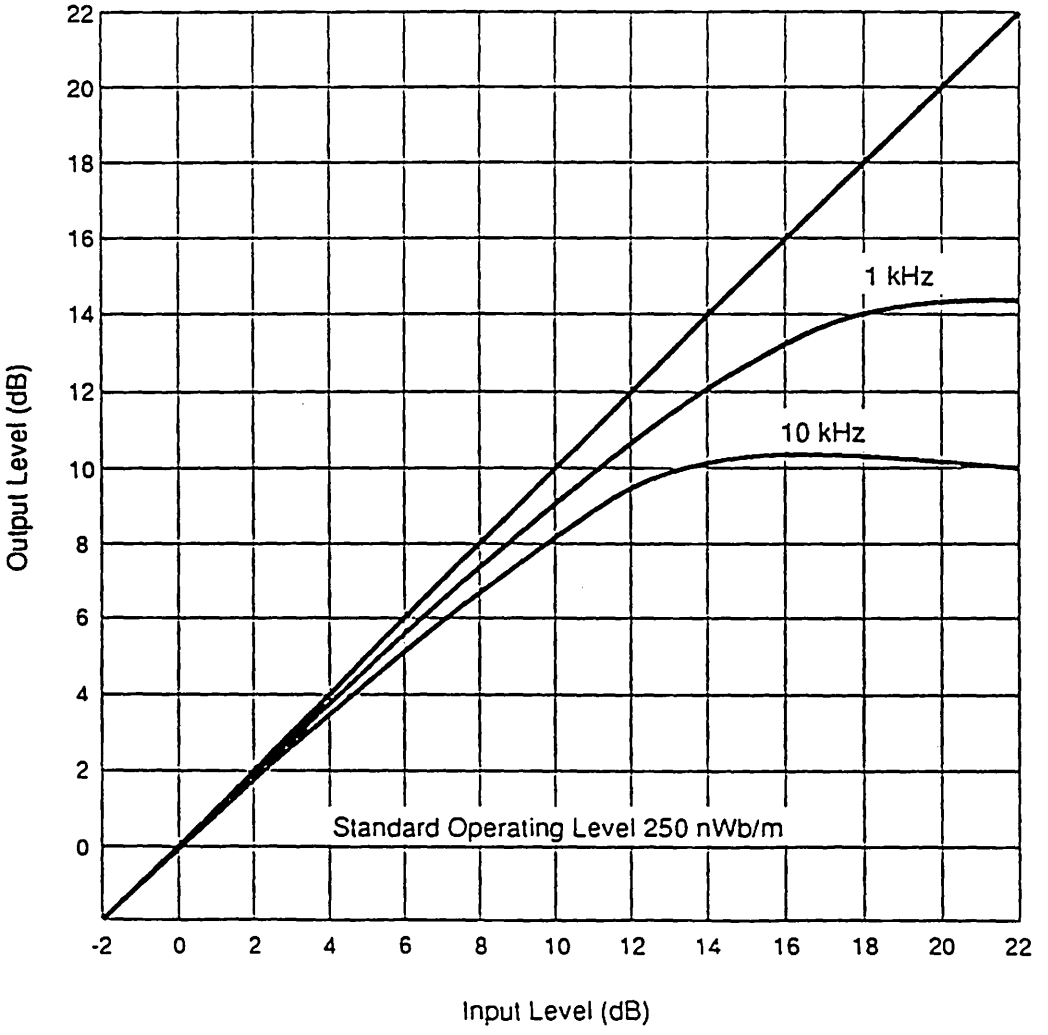
METER RESPONSE CURVES



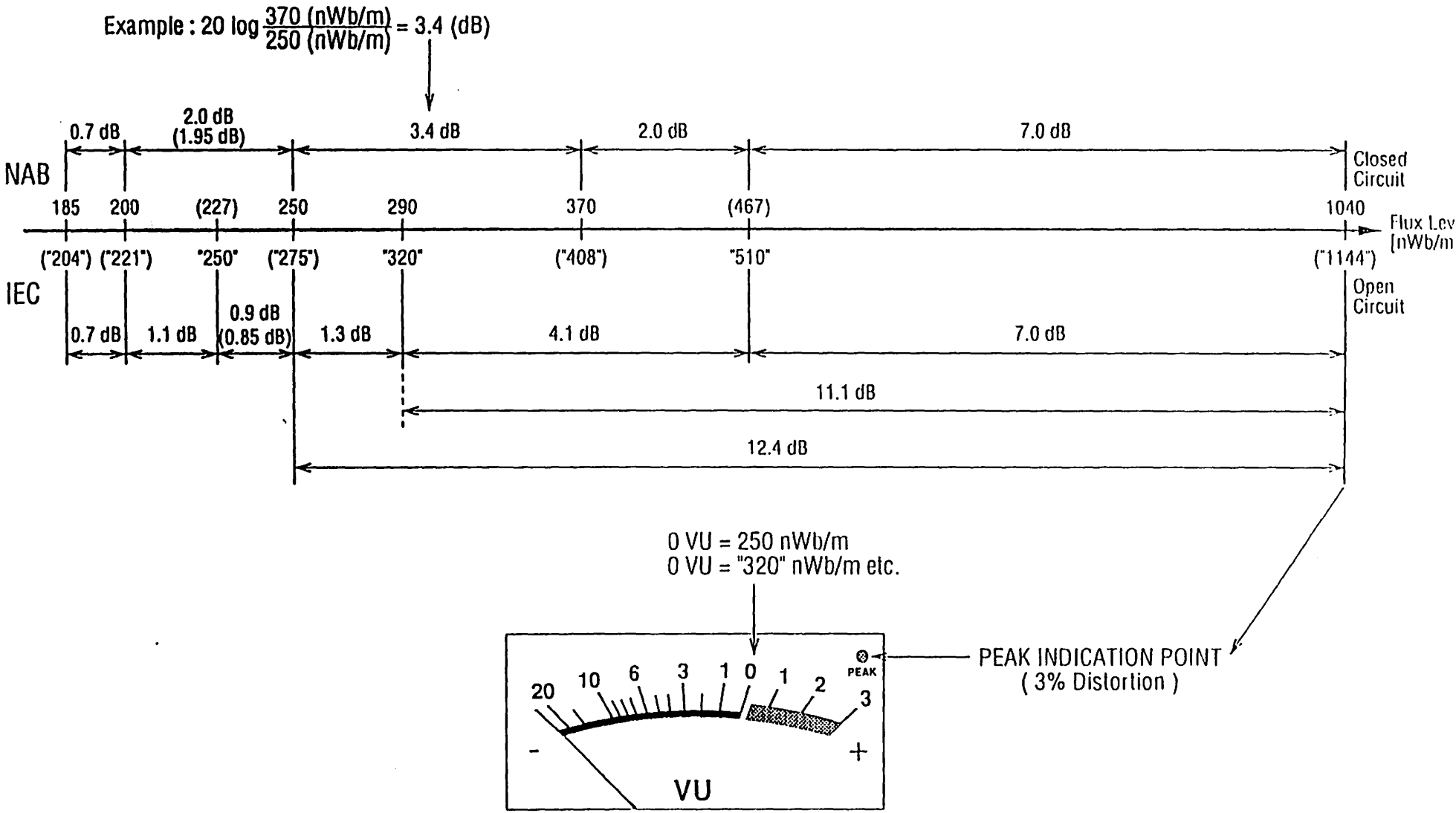


TAPE CHARACTERISTICS

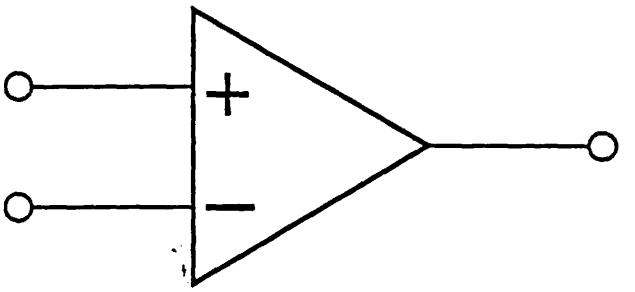




TAPE FLUX LEVEL

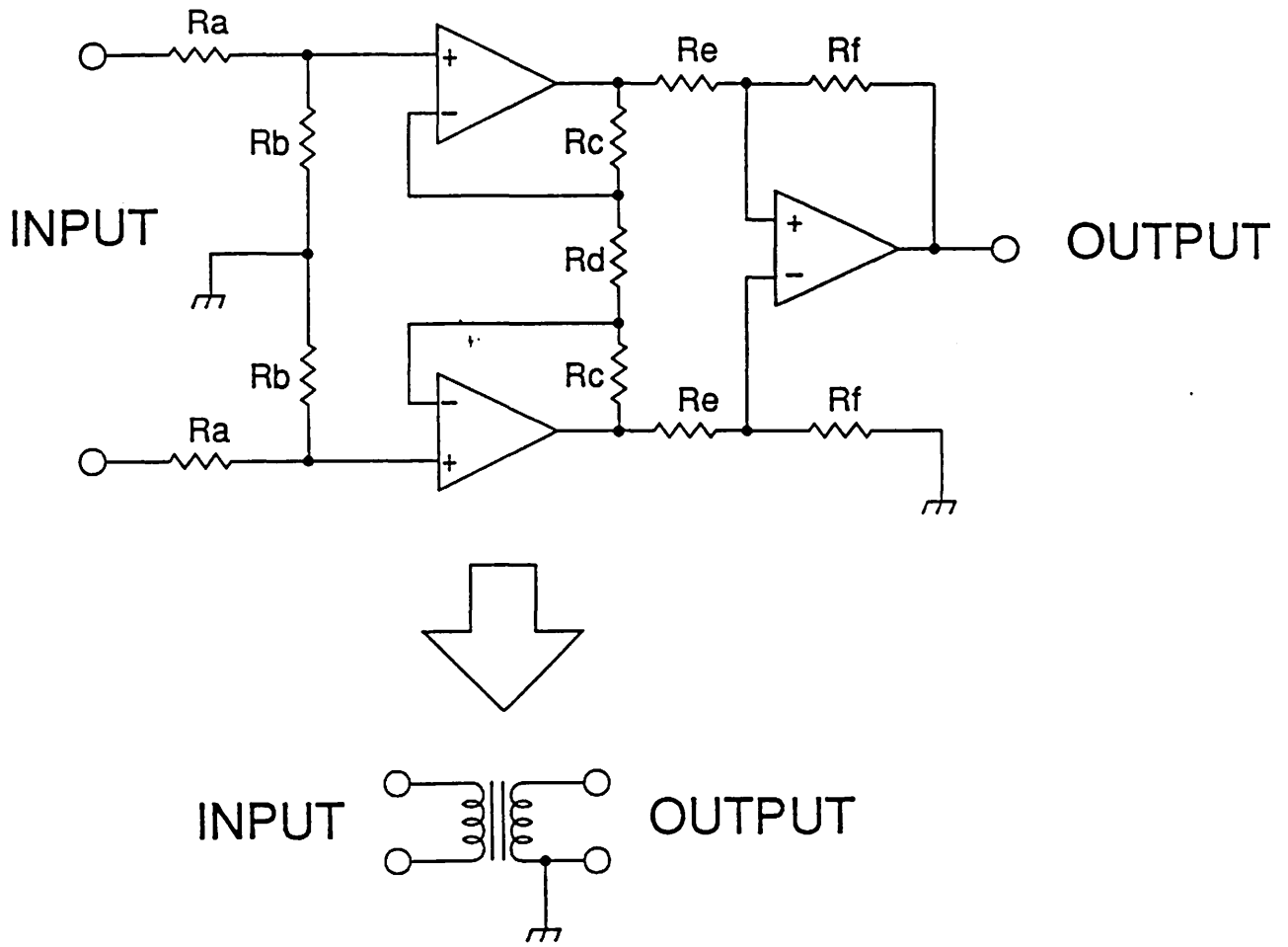


Ideal Operational Amplifier

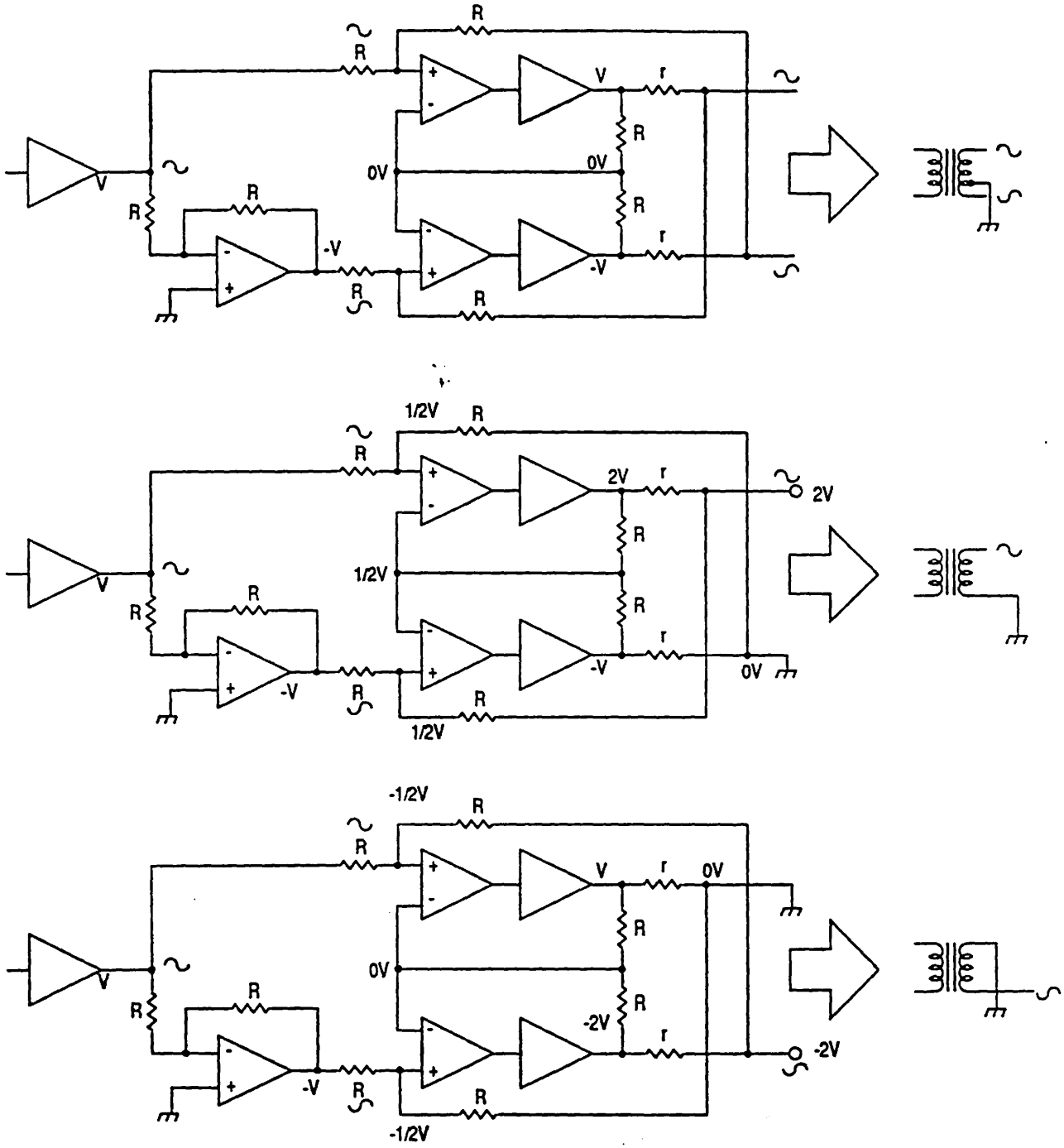


Open Loop Gain	: ∞	(Infinit)
Imput Impedance	: ∞	(Infinit)
Output Impedance	: 0	(Zero)
Band Width	: ∞	(Infinit)
Noise	: 0	(Zero)
Slewing Rate	: ∞	(Infinit)

Active Balanced Line Input



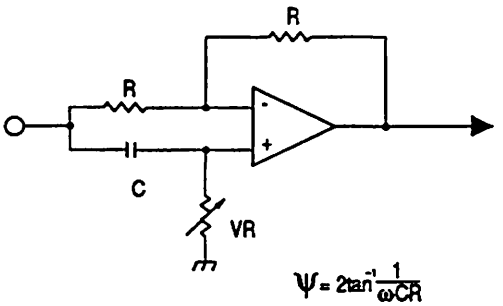
Active Balanced Output

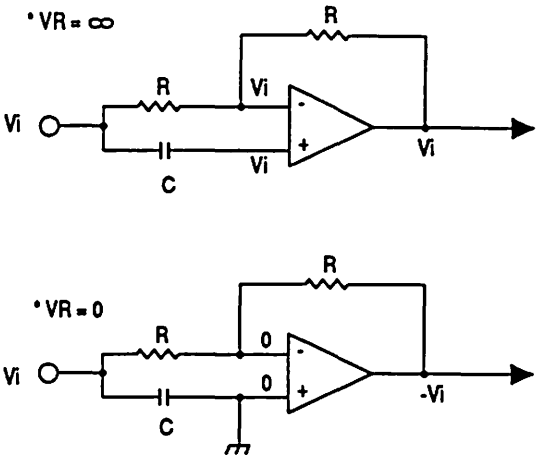


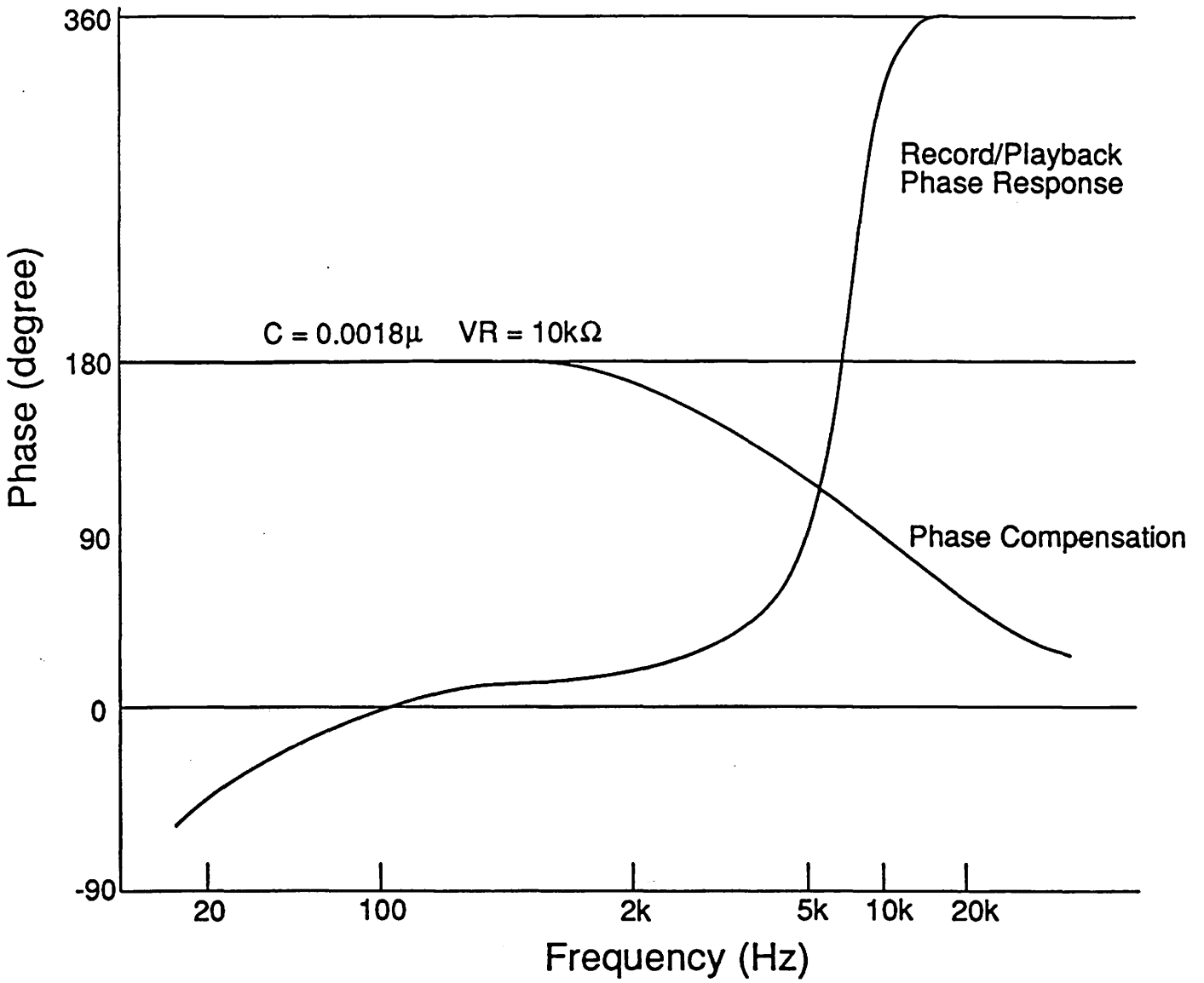
Advantages

* Harmonic distortion
* Phase modulation distortion
* Radiated stray-field
* Common mode rejection ratio
* Frequency responce

Phase Shifter

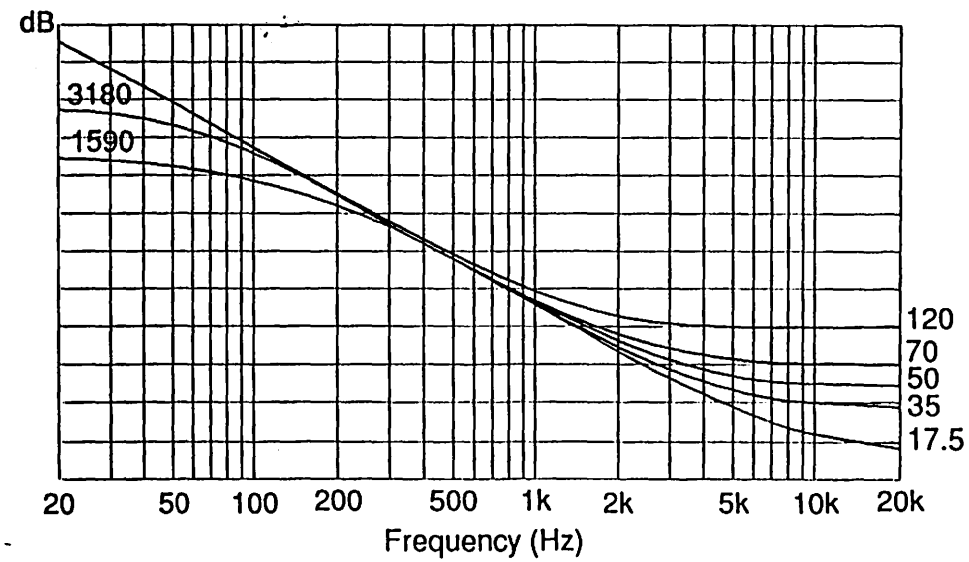






Standard Reproduce Time Constants

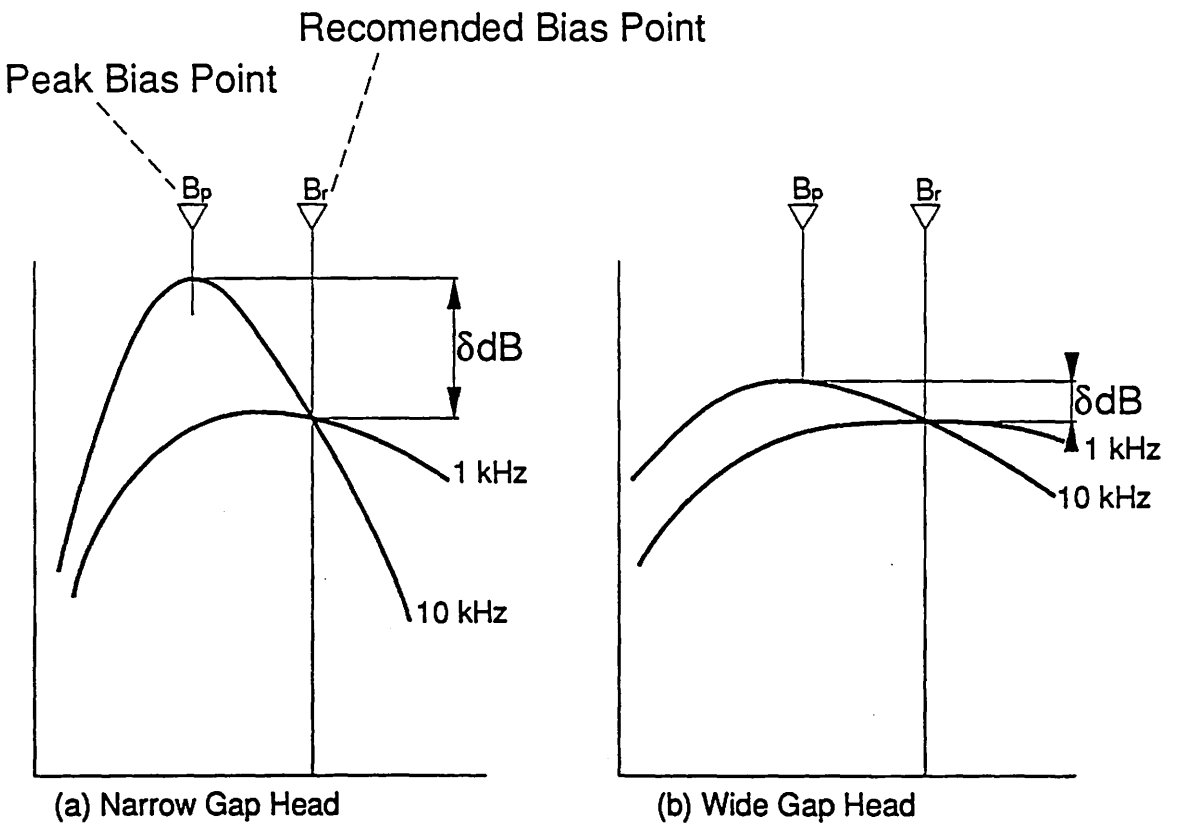
Tape Speed (ips, cm/s)	Time Constant (μs)	Standard
30 ips (76 cm/s)	17.5	AES, IEC 2
30 (76)	35	IEC 1
15 (38)	35	IEC 1, CCIR, DIN
15 (38)	50+3180	IEC 2, NAB
7.5 (19)	70	IEC 1, CCIR, DIN studio
7.5 (19)	50+3180	IEC 2, NAB, DIN home
7.5 (19)	50	NAB cartridge
3.75 (9.5)	90+3180	IEC, NAB, DIN
1.875 (4.75)	90+3180	IEC, NAB, DIN
1.875 (4.75)	120+3180	Cassette (ferric oxide)
1.875 (4.75)	70+3180	Cassette (chrome & metal)



Influence of Record Bias Depth

* Distortion
* Frequency Responce
* Dynamic Range (Linearity)
* Signal to Noise Ratio

Sound Quality

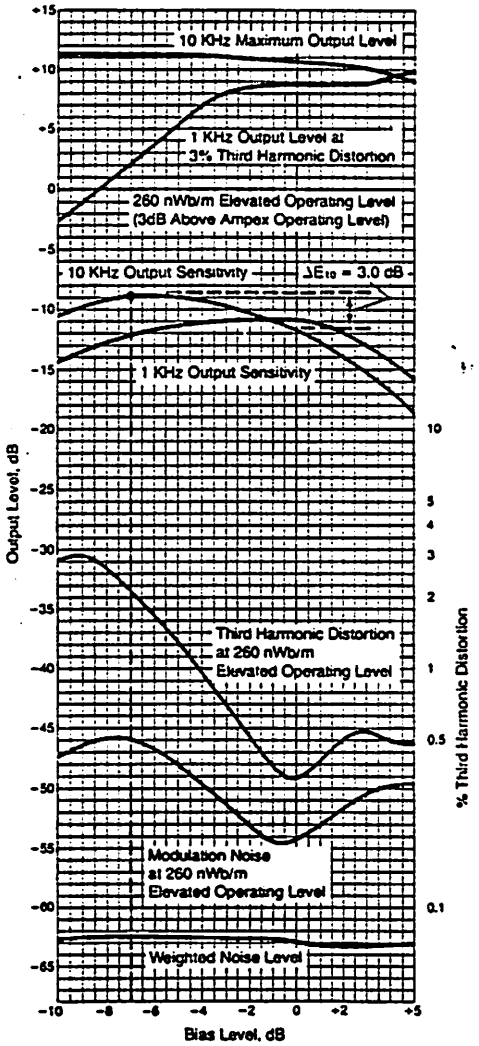


Gap Width VS Bias Characteristic

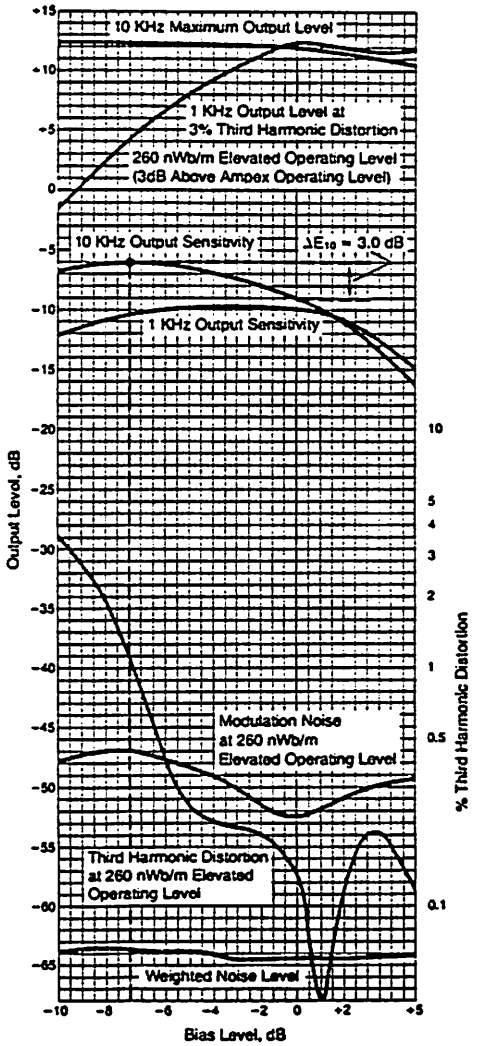
Electrical Performance Characteristics

Effect of Bias On Recording Parameters

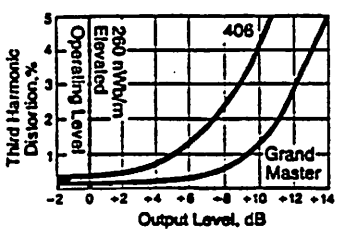
406/407



Grand Master

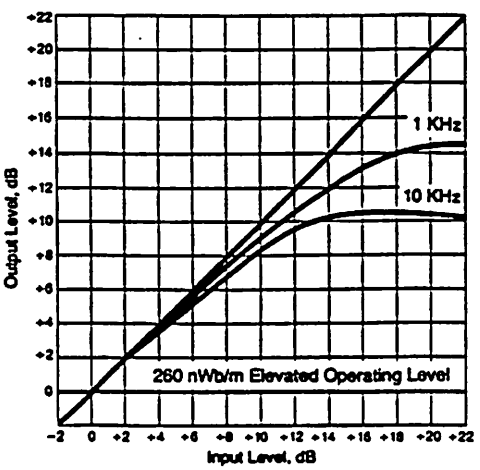


Distortion vs. Output

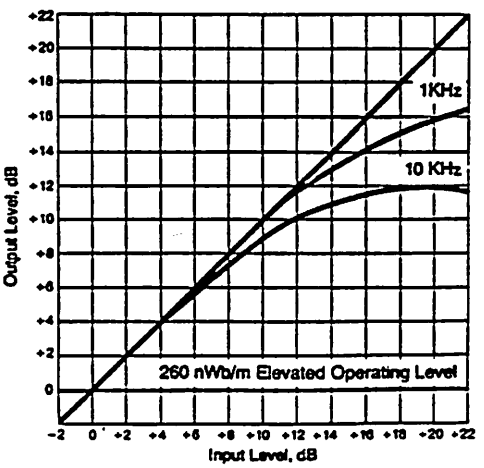


Input-Output Characteristics

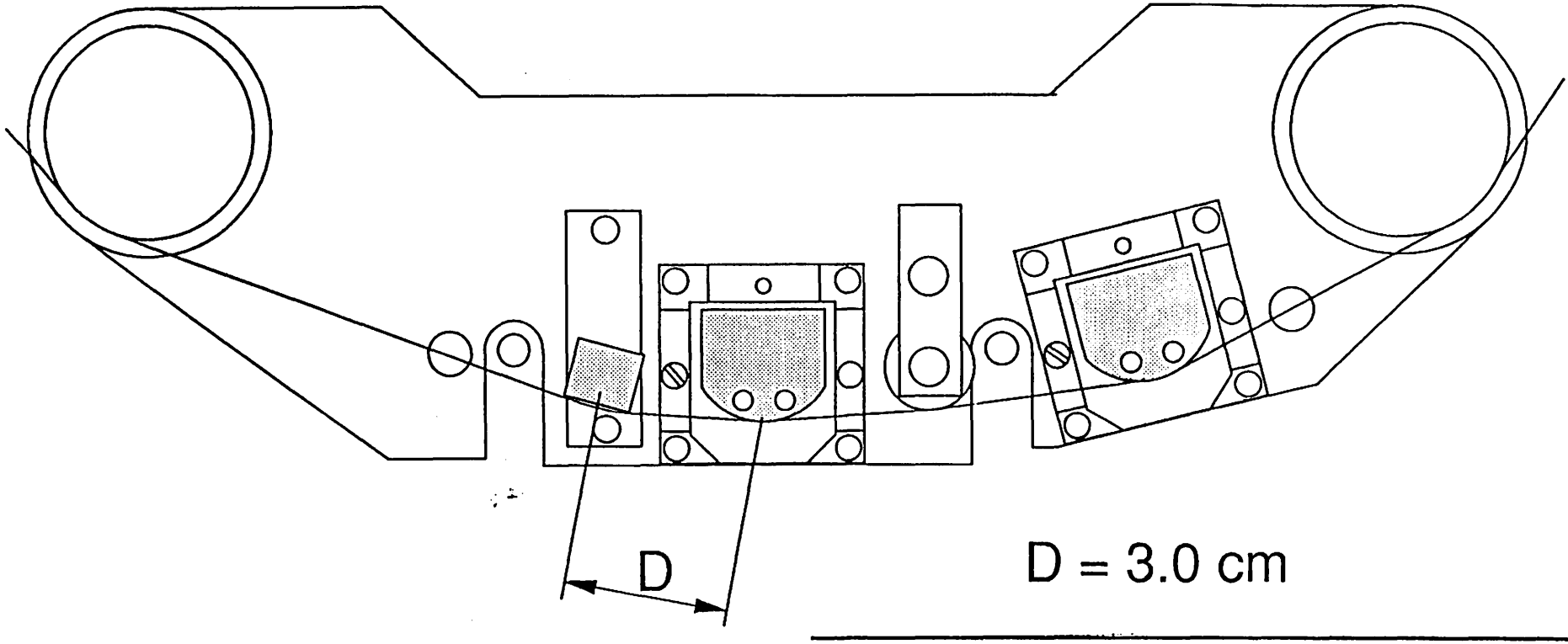
406/407



Grand Master



Gapless/Seamless Recording

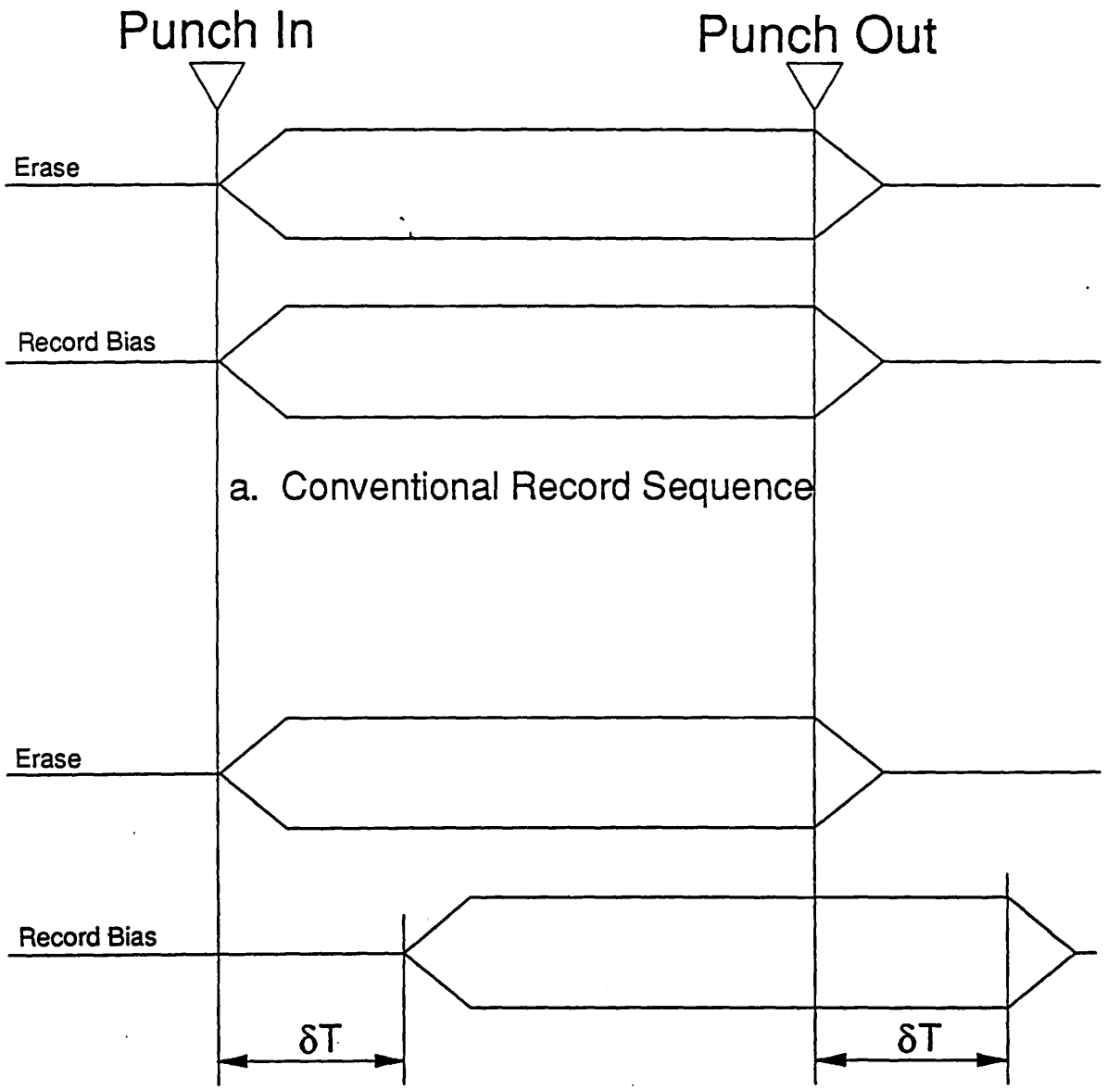


D = 3.0 cm

$$\delta T = \frac{D\ (cm)}{Tape\ Speed\ (cm/s)}$$

Tape Speed	δT
30 ips (76.2 cm)	39 ms
15 ips (38.1 cm/s)	79 ms
7.5 ips (19.05 cm/s)	157 ms

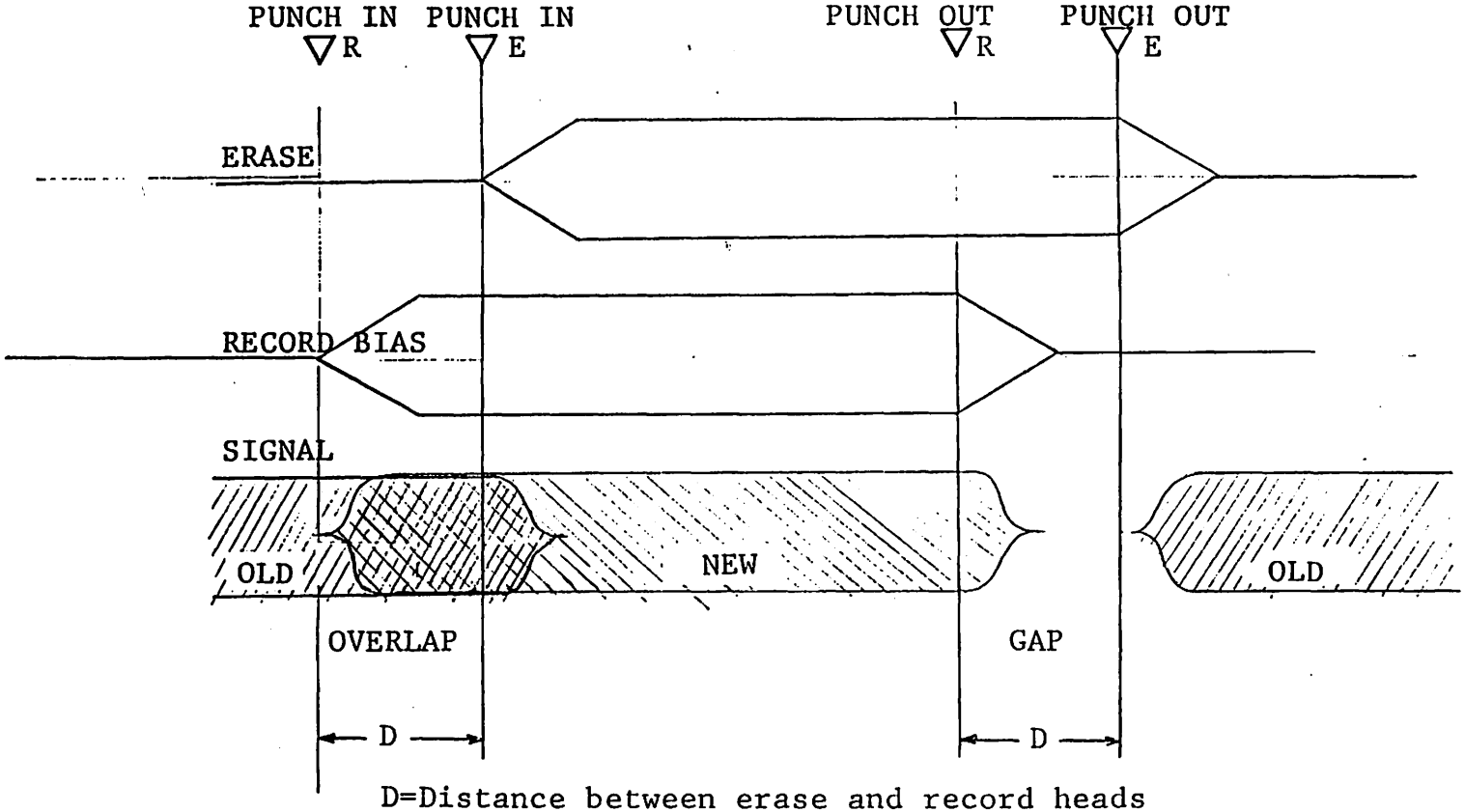
Erase & Record Bias Timing Chart



a. Conventional Record Sequence

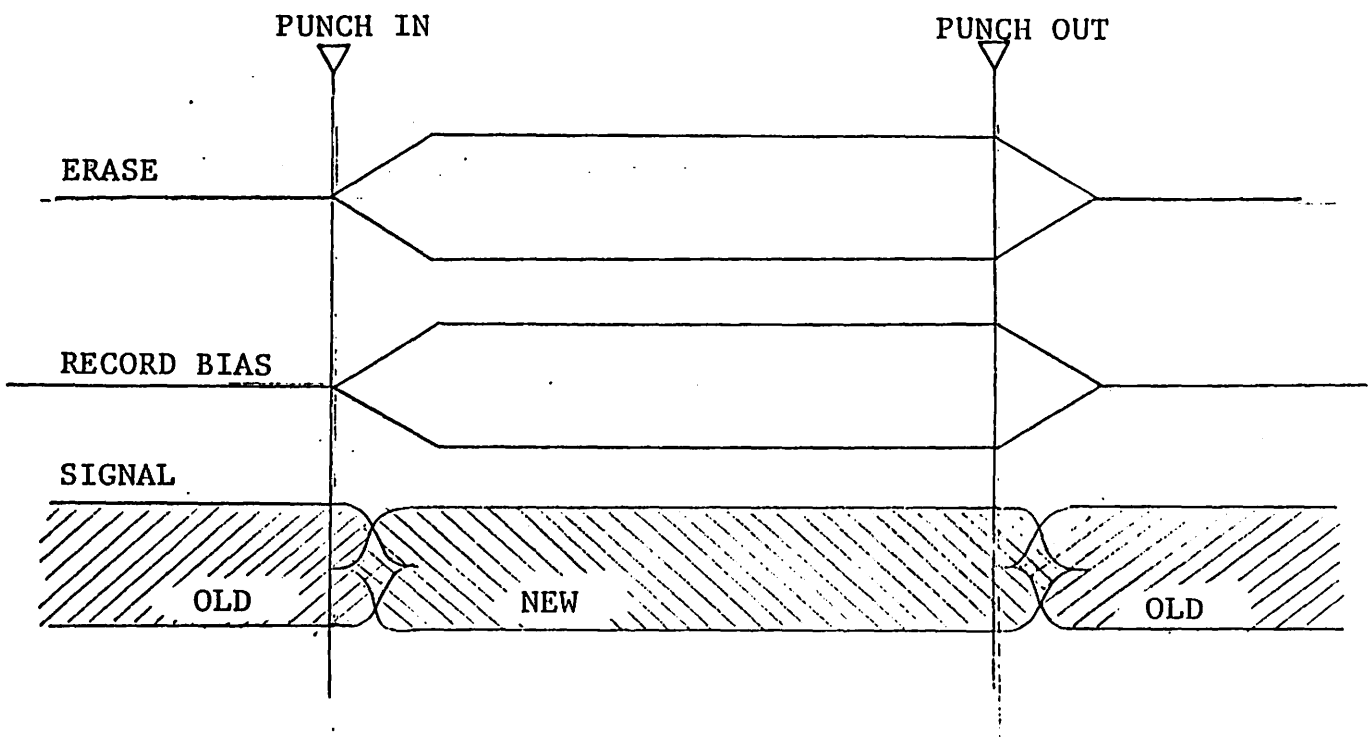
$$\delta T = \frac{\text{Distance Between Erase and Record Heads (cm)}}{\text{Tape Speed (cm/s)}}$$

b. Gapless/Seamless Record Sequence



D=Distance between erase and record heads

RECORDED SIGNAL PATTERN ON THE TAPE (I)
(CONVENTIONAL RECORD SEQUENCE)



RECORDED SIGNAL PATTERN ON THE TAPE (II)

(GAPLESS/SEAMLESS RECORD SEQUENCE)

Parallel I/O Connector Pin Assignments

No	Description	Level	In/Out	Function
1	RECORD SW	Low	In	RECORD switch
2	PLAY SW	Low	In	PLAY switch
3	STOP SW	Low	In	STOP switch
4	FF SW	Low	In	F. Fwd switch
5	REW SW	Low	In	Rewind switch
6	Lifter Defeat	Low	In	Lifter Defeat
7	2nd FUNC SW	Low	In	2nd Function Sw
8				
9	Shut Off	Low	Out	Safety Sw Tally
10	REC Tally	Low	Out	Record tally
11	PLAY Tally	Low	Out	Play tally
12	STOP Tally	Low	Out	Stop tally
13	FF Tally	Low	Out	F.Fwd tally
14	REW Tally	Low	Out	Rewind Tally
15	2nd FUNC Tally	Low	Out	2nd Func Tally
16	Signal Ground			
17	Tach Out		Out	Tach Pulse[1]
18	Rev/Fwd	H/L	Out	Tape Direction*
19	9.6 kHz Out		Out	Capstan Clk out
20	Capstan Clk IN		In	Speed Control[2]
21	Speed A	H/L	Out	Tape Speed[3]
22	Speed B	H/L	Out	Tape Speed[3]
23	Pitch Enable	Low	In	External Pitch Cont Enable
24	Pitch Tally	Low	Out	External Pitch Control Tally
25	Rec Ready	Low	Out	Rec Ready Tally
26				
27				
28	Speed Ref Volt.	0-15V	In	Fast Wind Speed Control Voltage
29	Speed Ref Enable	Low	In	Fast Wind Speed Control Enable
30	TC Cue	Low	In	TC Track Repro Enable
31				
32	REHEARSE	Low	In	Rehearse Switch
33	+5 VDC Regulated	+/- 10%	Out	Max 150 mA
34	Aux Power		Out	Unregulated
35	Aux Power		Out	24-40V 500mA Max
36	Power Ground			
37	Power Ground			

NOTES:

1: Tach Pulse Rate (Pulses per Second)

Speed	SMPTE	EBU
7.5 ips	60	50
15 ips	120	100
30 ips	240	200

2: Capstan Speed Control - 9.600 kHz = rated speed

3: Tape Speed A and Tape Speed B

Speed	Speed A	Speed B
7.5 ips	Low	High
15 ips	High	Low
30 ips	High	High

*: Direction - Forward = Low

Mating Connector: 37 pin D-type Male

Output Signals (Tallies):

Output Type	- Open Collector
Vol	0 - 0.5 V
Iol	20 mA max.
Vil	TTL Level
Leakage Current	- 20 uA
Pull Up	- 10 kOhm terminated to + 5V
Voh (high level)	- + 30 V max

Input Signal (Switch Commands):

Fan-In = 1.5
Vil = 0 - 0.5 V (-2.4 mA)
Vih = 2.5 - 5.25 V (60 uA)

Maximum Cable Length: 10 meters (32 feet)

Input Command Pulse Width : 100 mSec minimum

Tach Pulse Width: 100 uSec

Capstan Clock Duty Cycle: 40 - 60%

Analog vs Digital

Analog Tape Recorder		Digital Tape Recorder
many adjustment points	**Adjustments**	fewer adjustment points
narrow	**Dynamic Range**	wide
high	**Tape Compativility**	low
warm and ritch	**Sound Quality**	neutral or natural (hi-fi)
Reverse Play, 50 Vari Pitch	**Special Functions**	na

ERROR LIST (TRANSPORT ERROR)	MX-80	MX-70	MX-55	MTR-100
ROM CHECK SUM	00	00	00	00
RAM READ/WRITE	01	01	01	01
BACK UP RAM				02
POWER SUPPLY				
WATCH DOG TIMER	CPU Err	CPU Err		03
PPI (8255)	02 04	02 04	02	04 - 09
PPI (8254)				
TIMER IC (I-0112) READ			04	
CAPSTAN LOCK				
TAPE DIRECTION				
REC KOLD				16
FADER I/O MIS CONNECT				
FADER I/O NO CONNECT				
INTERNAL SERIAL EMERGENCY				
SLAVE CPU N COMMUNICATION (TIME OUT)	70 72			
TAPE SPEED NO SELECT				
TAPE SPEED SELECT				
AUTO ALIGNMENT				
ALIGNMENT DATA				
OVER REPEAT AREA	20		20	OP ERR 1
REPEAT ENTRY (SAME POINT)	21		21	OP ERR 2
REPEAT ENTRY (POINT NOTHING)				
REPEAT POINT UNDEFINE				
MULTI CUE POINT CLEAR				

ERROR LIST (TRANSPORT ERROR)	MX-80	MX-70	MX-55	MTR-100
CANNOT DISPLAY MODE			05	05
PCA NOT INSTALLED	05			
REHEARSE, B.REC, B.ERASE				OP ERR 3

ERROR LIST (SERIAL)	MX-80	MX-70	MX-55	MTR-100
INITIAL COMMUNICATION	90			
RET. MESSAGE TIME OUT	91			
UNDEFINED MESSAGE RECEAVED	92			
"NAK" RECEAVED	94			
UNDEFINED "STX"	99			
PARITY	95			
OVER RUN	96			
FRAMING	97			
TXD BUFFER FULL (NOTE: UART ERROR)	98			
CHECK SUM	93			

Serial Interface ESbus

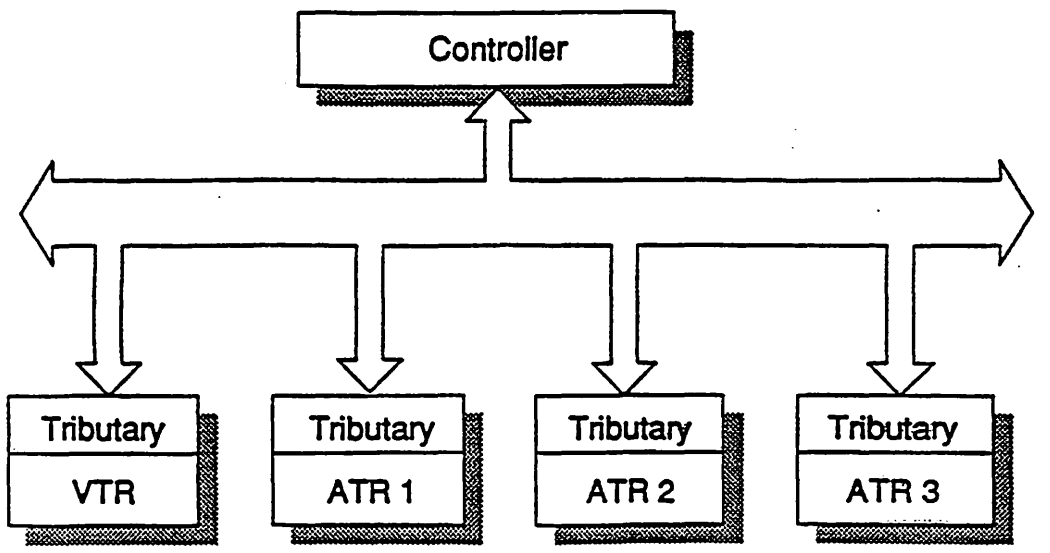
ESbus is a serial interface bus based upon EBU (European Broadcasting Union) standard Tech 3245-E "Remote Control Systems for Television Production Equipment", and ratified by SMPTE (Society of Motion Pictures and Television Engineers) of USA.

Hardware: RS-422A
Baud Rate: 38.4 kHz
D-sub 9 pin (female) connector

Commands of Otari Serial Control Protocol

A. System service commands
B. Transport control commands
C. Locator commands
D. Tape speed commands
E. Synchronizer commands
F. Timer commands
G. Amplifier control commands
H. Time code generator commands

System Example



max. 32 tributaries

WORKSHOP EVALUATION FORM

WORKSHOP TITLE: _____

We would appreciate your evaluation of this workshop to help us in planning future Training Programs.

Please complete and return to the instructor at the end of the workshop.

On a scale of 0 to 10 (with 0 being Unsatisfactory and 10 being Excellent) please rate the following items:

1. What is your overall evaluation of this workshop? _____
2. How well did the workshop meet your expectations? _____
3. Please rate the instructors.

Name	Content	Presentation	Preparation

4. What did you like most about the workshop? _____
5. Do you think that more time should have been spent on: Lecture: _____
   Hands-On: _____
6. What would you like to see changed in future workshops?
7. What specific topics would you like to see included in this workshop?
8. How were your hotel accomodations?
9. Additional Comments (use second page)