

KEY FEATURES

- ★ Offers Controlled Dispersion, High Efficiency
- ★ Includes Dual Section Crossover, Centered at 1500 Hz, with Dual Equalization Networks
- ★ Dual Magnet Construction

The Altec Lansing **604-8K** Duplex® loudspeaker system consists of a two-way coaxial loudspeaker and a dividing network with dual equalization (mid and high frequency). The loudspeaker features a 16-inch low-frequency cone and a coaxially mounted 902 high-frequency compression driver. The dual magnet construction allows each speaker to be structurally, magnetically, electrically and mechanically independent of the other. The **604-8K** utilizes a dual section crossover network, centered at 1500Hz and providing 12dB of attenuation for the low-frequencies and 18dB for the high-frequencies.

The low-frequency cone driver features a 3.0-inch diameter edge-wound copper ribbon voice-coil and a 5.6lb ferrite magnet that produces a gap flux density of 1.3T. The high-frequency compression driver features a 1.75-inch diameter edge-wound aluminum ribbon voice-coil and a 2.5lb ferrite magnet that produces a gap flux density of 1.6T. The high-

PRIMARY SPECIFICATIONS

- System Type:** Two-way, full range, Duplex® loudspeaker system employing compression driver and horn.
- Pressure sensitivity:** 98.5 dB SPL (1W, 500Hz - 3kHz, re: 20µPa, see note 1).
- Frequency Response:** 60 Hz - 20 kHz (see Figure 1, Note 2)
- Power Handling:** 75 watts, 60 Hz - 20 kHz, AES method (see note 3).
- Maximum Long Term Output:** 116.8 dB SPL (75 watts input, 1m, re: 20µPa, see note 4).
- Impedance:** 8.5 ohms minimum. 8.0 ohms nominal.
- Components:** 16 inch, high efficiency, low frequency driver with a coaxially mounted, 1.0-inch, compression driver and Mantaray® horn.

DESCRIPTION

frequency driver feeds through the low-frequency magnetic structure into a 60° by 40° Mantaray® constant directivity horn that provides tight control of frequencies above 1500Hz.

The **5191-X** enclosure is available as an accessory, and provides an internal volume of 6 ft³. The enclosure is a vented (or reflex) design and is tuned to provide optimum performance when used with the **604-8K**. The **5191-X** (including grille assembly) is constructed from heavy-gauge, rugged cold rolled steel, reinforced by formed ribs, under-coated to prevent panel resonance, and finished with rust-inhibiting paint. In addition the interior is lined with glass wool blankets.

The **604-8K** provides high acoustical power output capability while maintaining smooth response, wide bandwidth and constant directivity control of the critical mid and high-frequencies.

Crossover Network: Two-way at 1500 Hz with a 12 dB per octave slope for the low-frequencies and 18dB for high-frequencies.

Input Terminals: 250-inch spade type terminals.

Accessories: 5191-X Enclosure and Grille assembly

Replacement Diaphragm

Assembly: 34647

LF Cone Kit: R-604-8K

Dimensions,

Diameter: 16.0in (40.64cm)

Depth: 18.2in (22.38cm)

Net Weight: 34.0 lbs (15.4 kg), includes network.

Shipping Weight: 42.0 lbs (19.0 kg), includes network.

Finish: Dark grey enamel.

SPECIFICATION - 5191-X ENCLOSURE

Construction Material: Reinforced, 18 gauge cold rolled steel.

Coating: Undercoated for panel resonance damping.

Glass Wool Lining: 1.5in (3.7cm) glass wool blankets.

Volume: 6 ft³ (169.8 litres)

Dimensions: 29.5in (74.9cm)L,
23.0in (58.4cm)W,
15.0in (38.1cm)D.

Weight: 60 lbs (27.2 kg)

Grille: 20.0in (50.8cm) square, white finish.

NOTES ON MEASUREMENT CONDITIONS

11. Pink noise signal, one Watt calculated using E^2/Z_{min} , 3.16 measurement distance referred to one meter.
2. On-axis, one Watt calculated using E^2/Z_{min} , 3.16 meter measurement distance referred to one meter, low frequencies corrected for anechoic chamber error.
3. This system rating patterned after the A.E.S method for individual driver, where the test signal is pink noise with a 6dB crest factor over the bandwidth of the system, with power calculated using the E^2/Z_{min} , for two hours.
4. This measurement made under the same conditions as Pressure Sensitivity, but at rated power, and takes into account any power compression effects due to non-linearities in the system.
5. Distortion components invalid above 10kHz. The distortion at any given frequency may be found by graphically taking the difference between the fundamental and harmonic, and adding the number of Decibels which the harmonic has been raised on the graph and apply the formula:
percent distortion = $100 \times 10^{-(\text{difference in dB}/20)}$

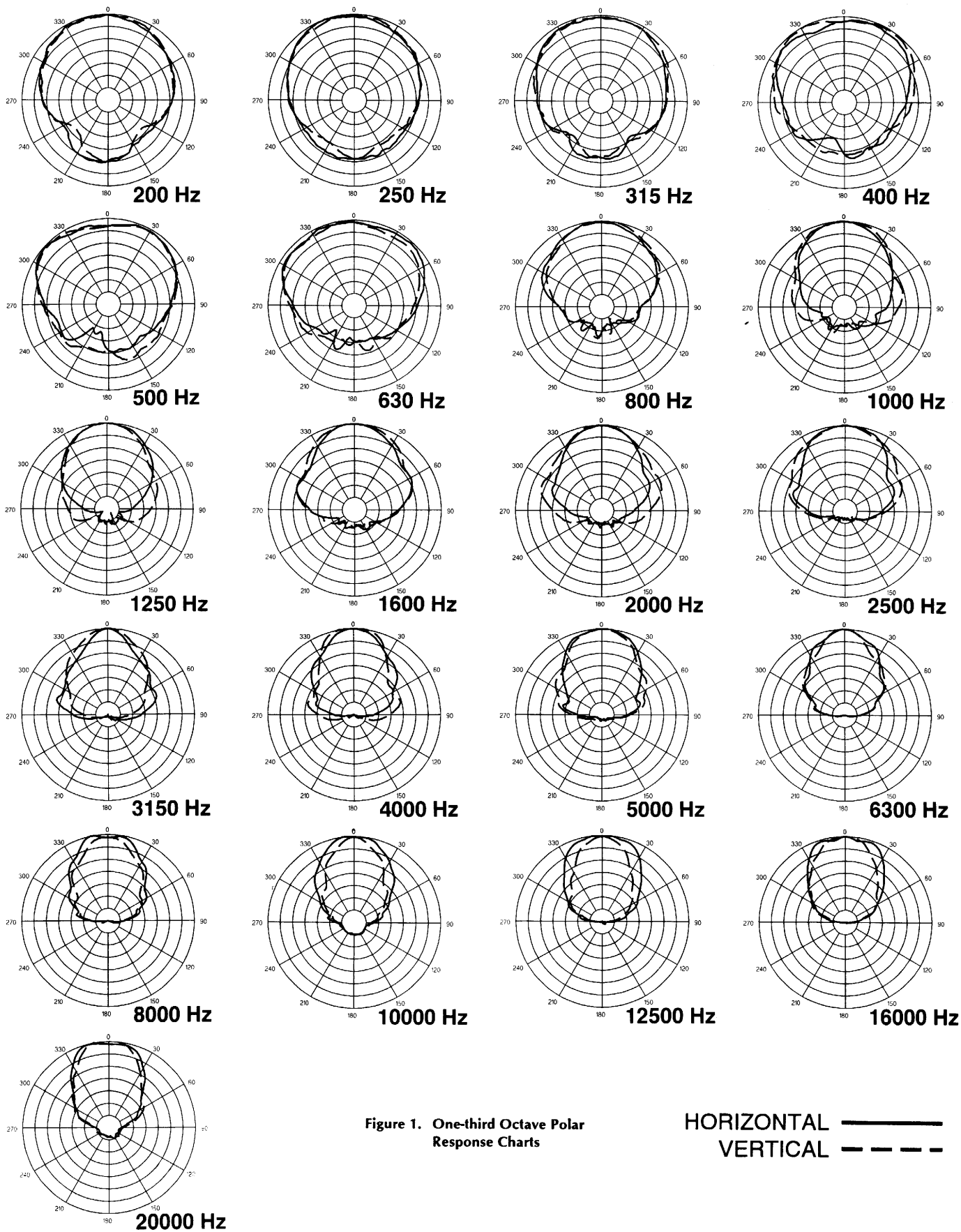


Figure 1. One-third Octave Polar Response Charts

HORIZONTAL ———
 VERTICAL - - - -

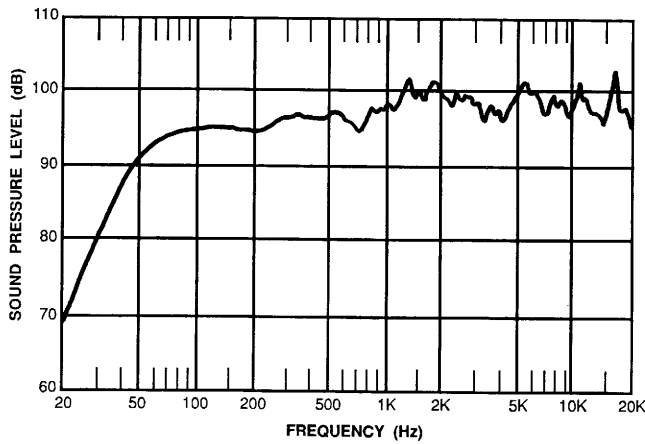


Figure 2. Amplitude Response

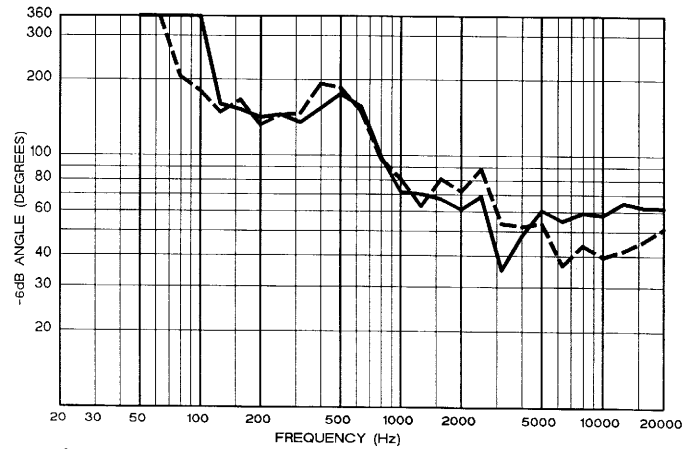


Figure 3. Beamwidth vs. Frequency

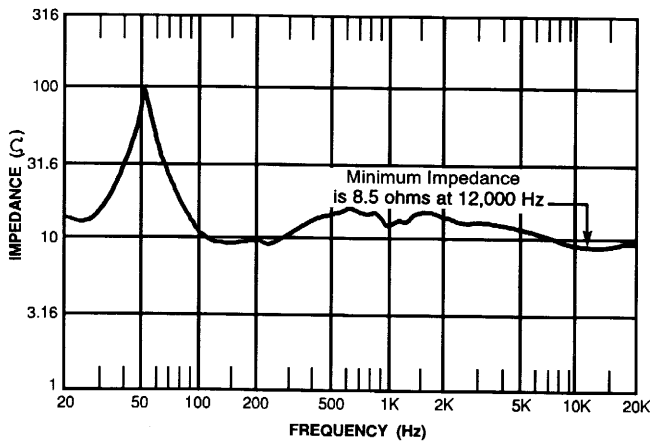


Figure 4. Impedance Response

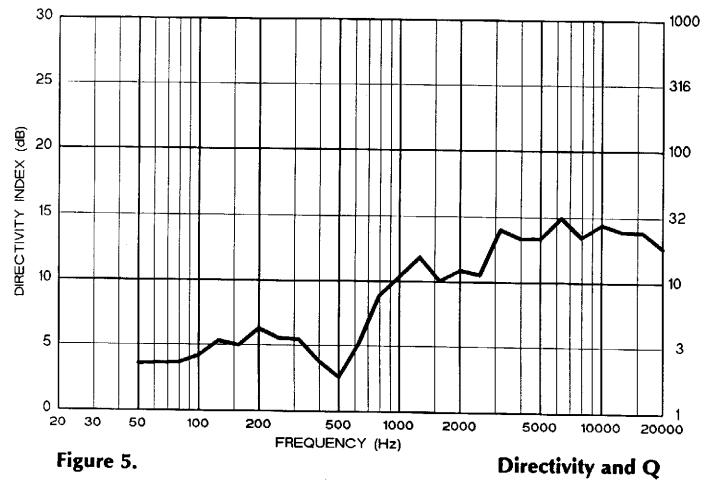


Figure 5. Directivity and Q

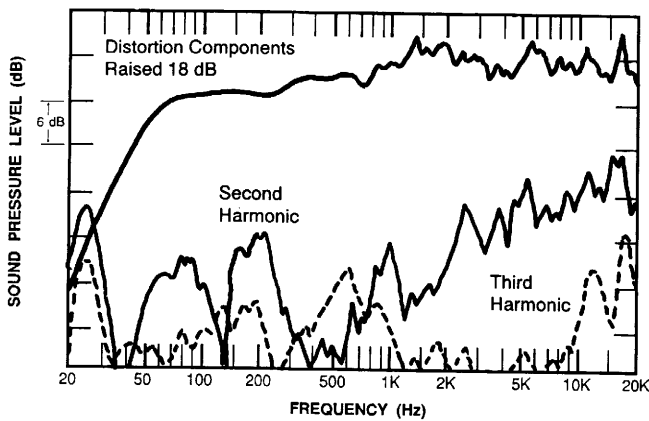


Figure 6. Distortion Response

604-8K - THEILE-SMALL PARAMETERS

Free Air Resonance, f_s :	24 Hz
Equivalent Volume Compliance, V_{as} :	18.0 ft. ³
Total Q, Q_{ts} :	0.9287
Electrical Q, Q_{es} :	0.299
Mechanical Q, Q_{ms} :	7.07
Volume Displacement, V_D :	19.2 in. ³
Reference Efficiency:	2.13%

NOTE: MEASUREMENTS WERE MADE IN A 6 FT³ VENTED ENCLOSURE

NETWORK INSTALLATION

Networks are installed with T-nuts and bolt to a surface having a cutout of the dimensions shown in Figure 7. Use the template given at the end of these instructions to facilitate installation.

To make the cutout, first fix the template to the surface where the network is to be mounted. Use a 7/32" (0.218) drill to bore four holes to accept shafts of 8-32 T-nuts. A recommended method to make the cutout is to cut slightly undersize and use a wood rasp or file to finish the edges to exact size. Remove all

debris from the holes, from the cut edges, and from within the enclosure. Insert four T-nuts in mounting holes, from the inner side of the enclosure. Gently hammer each T-nut in place, until the faces of the T-nuts are flush with the surface. Insert the network in the cutout and secure with four 8-32 bolts. Prior to inserting the network, it may be desirable to connect system wiring to the terminals; refer to wiring diagram of Figure 10.

LOUDSPEAKER INSTALLATION

The loudspeaker is installed with T-nuts and bolts to a baffle having a cutout and mounting bolt pattern as listed in the table of specifications.

The loudspeaker may be front or rear mounted. Front mounting is recommended for best performance. A baffle of 3/4" particle board or plywood which is free of voids is recommended. Secure the loudspeaker to the baffle with eight bolts, with the loudspeaker oriented so that the Mantaray® designation reads horizontally. If only four mounting bolts are used, they should secure the loudspeaker at the mounting holes nearest the frame members.

To make the loudspeaker cutout, locate and scribe circles for the loudspeaker hole and the mounting bolts. See table of specifications for dimensions. Cut out the smaller circle (loudspeaker hole). A recommended method is to make the cut very slightly undersize and use a wood rasp or file to finish the

edge to exact size. Set loudspeaker over smaller hole so that mounting bolt circle is centered in the loudspeaker mounting holes. Be sure loudspeaker is rotated to exact orientation desired. Carefully mark location of each bolt hole and remove loudspeaker. Be sure to mark all eight hole positions. Use an appropriate drill to bore holes to accept shafts of appropriate size T-nuts:

T-nut Size	Drill Size
1/4"-20	5/16" (0.312)

Remove all debris from holes, edges and enclosure. Insert all 8 T-nuts in mounting holes, according to front or rear loudspeaker mounting option (see Figures 8 and 9). Gently hammer each T-nut in place until face of T-nut is flush with baffle surface. Install loudspeaker and secure with 8 bolts, observing CAUTION mentioned above.

CROSSOVER NETWORK CONTROLS

To use the network as a high frequency attenuator, press the EQ pushbutton to the 'out' position (push to release). The lower control (H.F. ATTN.) then operates as a high frequency attenuator. Maximum attenuation of high frequency is at the full counter clockwise position. The upper control has no

influence on the frequency response in this mode of operation.

To use the network as a dual equalizer, press the EQ pushbutton to the 'in' position. The upper control affects the high frequency range, and the lower control affects the mid frequency range.

ARCHITECT'S AND ENGINEER'S SPECIFICATIONS

604-8K DUPLEX® LOUDSPEAKERS

The loudspeaker shall be a Duplex® type with a 16-inch low-frequency cone driver coaxially mounted with a 1.0-inch high-frequency compression driver and 60° by 40° Mantaray® constant directivity horn. The Duplex® loudspeaker shall meet the following criteria. AES power rating shall be 75 watts of band limited pink noise (60 Hz to 20 kHz, 6 dB crest factor). Frequency response, uniform from 60 Hz to

20 kHz. Pressure sensitivity, 98.5 dB SPL at 1 meter on axis with one watt of band-limited pink noise from 500 Hz to 3 kHz (ref. 20 μPa). Minimum impedance, 8.5 ohms. The loudspeaker shall be 16.0 in (40.64 cm) in diameter and 18.2 in (22.38 cm) deep and shall weigh 34.0 lbs (15.4 kg) [including the crossover network].

The Duplex® loudspeakers shall be the Altec Lansing model **604-8K**.

NETWORK INSTALLATION FIGURES

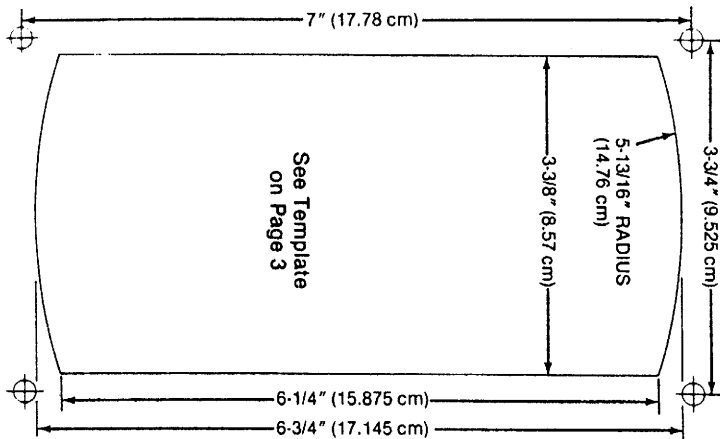


Figure 7 Cutout Dimensions for Network

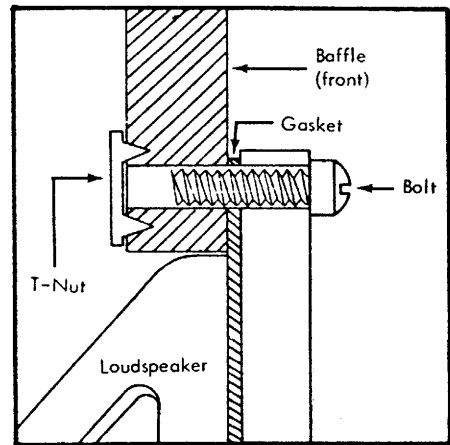


Figure 8 Front Mounted Loudspeaker

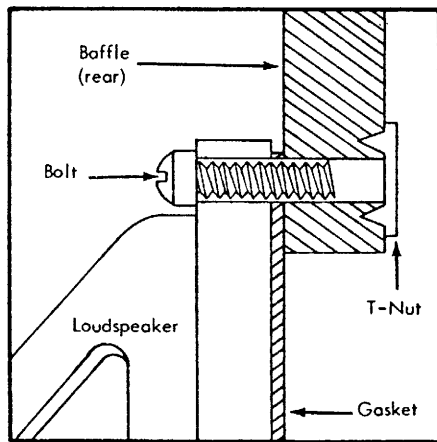


Figure 9 Rear Mounted Loudspeaker

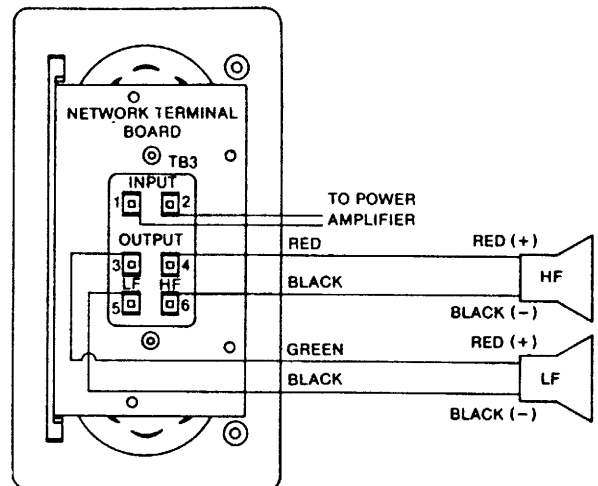


Figure 10 Wiring of 604-8K Duplex Loudspeaker System



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