

604-16X/604-168X DUPLEX LOUDSPEAKER SYSTEMS — PRELIMINARY



DESCRIPTION

The 604-16X and 604-168X are new members of Altec's 604 family. These two-way coaxial loudspeakers are designed for biamplification or triamplification at high sound levels, and are packed with the features needed for today's performance-oriented sound systems.

Two Models. The 604-16X and 604-168X are identical except for low frequency impedance. The 604-16X has a 16-ohm LF section; the 604-168X has an 8-ohm LF section. Both models have 16-ohm HF sections.

The 8-ohm LF section of the 604-168X assures maximum power transfer from today's modern solid state power amplifiers. However, the 16-ohm LF section of the 604-16X has special advantages. Up to four '16X LF sections may be paralleled on each channel of an Altec 9440A Power Amplifier, providing 100 watts to each loudspeaker (eight woofers on one amplifier at 100 watts per woofer). Alternately, one '16X LF section may be coupled to a single Model 2275 Power Amplifier in Altec's Incremental Power System (75 watts per woofer).

Duplex™ Construction. Mounting the woofer and tweeter on a single frame results in an extremely compact loudspeaker system with superior acoustic wavefront reconstruction.

Biamplification/Triamplification.* A typical biamplification system with the 604-16X or 604-168X is crossed over at 1500 Hz at 18 dB per octave.

A typical triamplified system uses the 604-16X or 604-168X for the LF and HF sections, with an Altec MR94 Mantaray or 311-90 sectoral horn (with either Model 291-16K or 288-16K high frequency compression drivers) used for midrange. Recommended crossover points are 800 Hz and 5000 Hz at 12 dB or 18 dB per octave.

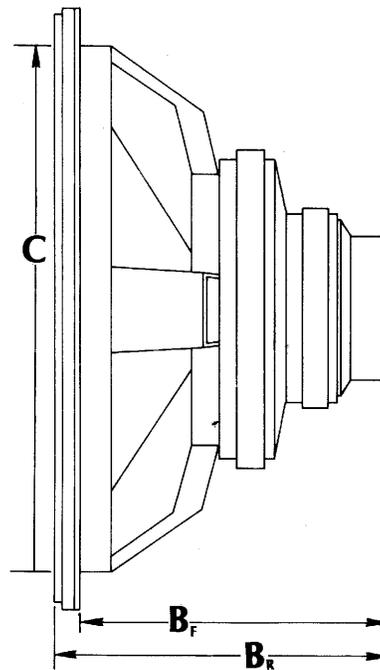
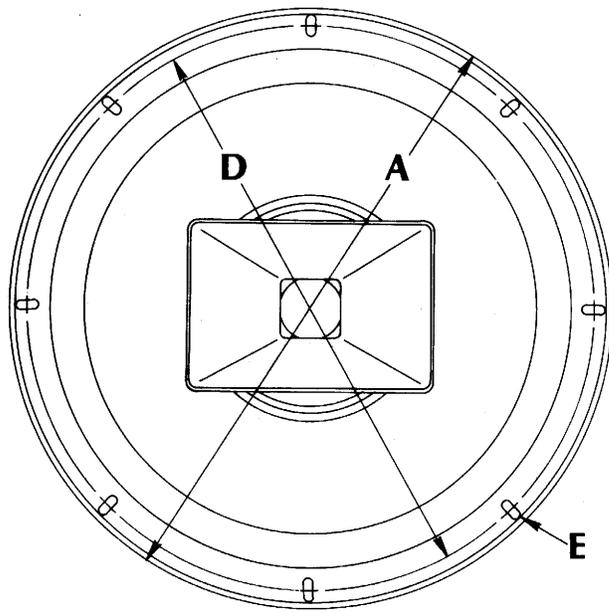
Multiple Enclosures. The 604-16X or 604-168X may be used in the Altec 620B enclosure (bass reflex) or in the Altec 817A horn loaded enclosure. These loudspeakers may be installed in the Altec 816A or 828C enclosures, allowing conversion of older Altec two-way Musical Sound Systems to three-way triamplified systems. These horn-loaded woofer enclosures do not degrade the performance of the high-frequency Mantaray on the 604-16X or 604-168X.

Both loudspeaker models include Altec's Mantaray™ Constant Directivity Horn, Tangerine™ phase plug, low-mass aluminum diaphragm, high-power, edge-wound voice coils, new ferrite magnet structures and a die-cast aluminum frame suitable for front or rear mounting.

SPECIFICATIONS:

Type:	Duplex coaxial loudspeaker system
Power Rating:	
LF—	100 watts continuous pink noise (50 Hz - 1500 Hz)
HF—	10 watts continuous pink noise (1500 Hz - 20 kHz) 15 watts continuous pink noise (5000 Hz - 20 kHz)
Frequency Response:	
LF—	Uniform 50 Hz - 4 kHz
HF—	Uniform 1500 Hz - 20 kHz
Pressure Sensitivity:	
LF—	97 dB SPL at 4 feet with 1 watt input of band-limited pink noise from 250 Hz - 1 kHz in Altec 620B enclosure
HF—	105 dB SPL at 4 feet with 1 watt input of band-limited pink noise from 2 kHz - 10 kHz in Altec 620B enclosure
Impedance:	
LF—	16 ohms nominal (604-16X) 8 ohms nominal (604-168X)
HF—	16 ohms nominal
*Recommended Crossover Frequency:	800 Hz and 5000 Hz at 12 dB or 18 dB per octave
Nominal Free-Air LF Cone Resonance:	30 Hz
Distribution Pattern:	Constant directivity Mantaray Horn 60° H x 40° V
Voice Coils:	
LF—	3" diameter, edge-wound copper ribbon
HF—	1¾" diameter, edge-wound aluminum ribbon
Magnets:	
LF—	5.6 lbs. (2.55 kg) ferrite 13,000 gauss
HF—	2.5 lbs. (1.14 kg) ferrite 15,500 gauss
Frame:	Die-cast aluminum
Dimensions:	16" (40.64 cm) diameter x 8¾" (22.38 cm) deep
Weight:	32 lbs. (14.55 kg)
Finish:	Dark grey enamel
Mounting Data:	
Baffle Opening—	14⅞" (35.87 cm) diameter
Mounting Bolt Centers—	8 mounting bolts 45° apart on 15" (38.1 cm) diameter circle
Recommended Enclosure:	ALTEC 620B, 816A, 817A, 828C

*Since 604-16X/604-168X Duplex Loudspeaker Systems are designed for biamplification and triamplification, no crossover network is provided.



LOUDSPEAKER MOUNTING DIMENSIONS

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|-------------------|--|-----|--|
| (A) | LOUDSPEAKER DIAMETER:
16" (40.64 cm) | (C) | BAFFLE OPENING
DIAMETER: 14 $\frac{1}{8}$ " (35.87 cm) |
| (B _f) | DEPTH WHEN FRONT
MOUNTED: 8" (20.32 cm) | (D) | BOLT CIRCLE DIAMETER:
15" (38.1 cm) |
| (B _r) | DEPTH WHEN REAR
MOUNTED: 8 $\frac{7}{8}$ " (22.30 cm) | (E) | BOLT HOLE SLOTS:
1/4" (0.64 cm) x 3/4" (2.02 cm);
(8 slots spaced 45° apart) |

ARCHITECT'S AND ENGINEER'S SPECIFICATIONS

The Loudspeaker shall be a two-way coaxial, with a separate magnet structure for each section. The HF section shall have an aluminum diaphragm and shall be loaded with a constant directivity horn. The loudspeaker shall meet the following criteria. Power rating: LF, 100 watts continuous pink noise from 50 Hz to 1500 Hz; HF, 15 watts continuous pink noise from 1500 Hz to 20,000 Hz. Frequency response: LF, uniform from 50 Hz to 4000 Hz; HF, uniform from 1500 Hz to 20,000 Hz. Pressure sensitivity: LF, 97 dB SPL at 4 feet with 1 watt input of band-limited pink noise from 250 Hz to 1000 Hz in Altec 620B enclosure; HF, 105 dB SPL at 4 feet with 1 watt input of band-limited pink noise from 2000 Hz to 10,000 Hz in Altec 620B enclosure. Nominal free-air LF cone resonance, 30 Hz. Distribution pattern, 40° vertical x 60° horizontal.

Crossover frequency, 1500 Hz with 12 dB/octave slope (LF) and 18 dB/octave slope (HF). The LF voice coil shall be 3" in diameter of edge-wound copper ribbon, driven by a 5.6 pound ferrite magnet having a flux density of 13,000 gauss. The HF voice coil shall be 1 $\frac{3}{4}$ " in diameter of edge-wound aluminum ribbon, driven by a 2.5 pound ferrite magnet having a flux density of 15,500 gauss. Dimensions, 16" diameter x 8 $\frac{3}{8}$ " deep. Weight, 32 pounds.

The loudspeaker with a nominal LF impedance of 16 ohms and a nominal HF impedance of 16 ohms shall be the ALTEC Model 604-16X.

The loudspeaker with a nominal LF impedance of 8 ohms and a nominal HF impedance of 16 ohms shall be the ALTEC Model 604-168X.



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