



Shown with grille removed

DESCRIPTION

The ALTEC LANSING 9812-8A Loudspeaker is a two-way, factory assembled system capable of producing large acoustic outputs efficiently from a small package. It is ideal for high level sound reproduction in churches, schools, meeting rooms, night clubs, or for reinforcement installations in any small to medium size hall.

The 9812-8A consists of a 1.4 inch (3.6 cm) throat compression driver coupled to a Mantaray® constant directivity horn which projects its sound in a controlled 90° horizontal pattern over the entire band from 500 Hz up, and a controlled 40° vertical pattern from 1.5 kHz up. Below 500 Hz, the 9812-8A reproduces sound with a 16 inch (40.6 cm) direct radiator operating in a 6.5 cubic foot (184 l) vented enclosure. Smooth transition at crossover from the woofer to the horn is accomplished with a special dividing network, which provides mid frequency equalization and selectable high frequency attenuation. Close physical placement of the woofer and horn, a low crossover frequency, equalization, and a controlled dispersion of frequencies insure a very uniform response both on and off axis of the speaker system.

The enclosure is sturdily constructed of ¾ inch (1.9 cm) birch plywood including internal front to back braces and a front baffle stiffener. In addition, convenient threaded insert mounting points are provided to aid in hanging the system in a permanent installation. The removable grille is securely fastened with machine screws to the baffle. The enclosure is finished in a gray, texture surface, polyurethane paint with a black grille cloth.

Loudspeaker system connection is made via 5 way binding posts on the crossover network panel at the rear of the enclosure, along with the high frequency attenuation switch. Easy service is assured by the front mounting of the components, and also by the placement of one of the three vents on the back panel immediately behind the rear cover of the compression driver.

The 9812-8A reproduces sound in a controlled, wide angle pattern for maximum uniformity of tonal quality at all listening positions. It provides smooth response and excellent linearity throughout the audio band.

SPECIFICATIONS

System Type: Two-way, vented, full range loudspeaker system

Pressure Sensitivity: 100 db SPL (1W, 1m, 500Hz-3kHz, re: 20 μ Pa, see Note 2)

Frequency Response: 60Hz-13 kHz (see Figure 1, Note 3)

Power Handling: 200 watts, 60Hz-13 kHz (see Note 4)

Maximum Long-Term Output: 123 dB SPL (1m, re: 20 μ Pa, see Note 5)

Impedance: 5 Ω minimum, maximum inductive phase angle = 53 $^\circ$ at 800 Hz, maximum capacitive phase angle = 48 $^\circ$ at 40 Hz, (see Figures 3 and 4, Note 11)

Distribution Pattern: 90 $^\circ$ horizontally by 40 $^\circ$ vertically (see Figure 8)

Components: Model 3156 low frequency loudspeaker
Model 906-8A high frequency driver
Model MR11 594A Mantaray[®] horn

Crossover Network: Part number 56-06-025795, at 500 Hz, with choice of high frequency attenuation
12 dB/Octave Slope, on L.F. Section
6 dB/Octave Slope, on H.F. Section

Hardware Kit: Part number (28-13-027813)

Enclosure: Vented type for optimum response, built of 3/4" (1.9 cm) birch plywood with appropriate bracing and stiffeners, lined with glass wool, includes tee nut mounting points on each side and a removable grille

Input Connection: Red and black five way binding posts

Replacement H.F. Diaphragm: Model 25626

L.F. Recone Kit: Model R-3156

Replacement Grille: Model RG-9812

Dimensions: 33" (83.8 cm) high
26.5" (67.3 cm) wide
17.5" (44.5 cm) deep

Net Weight: 94 lbs. (42.7 kg)

Shipping Weight: 98 lbs. (44.5 kg)

Finish: Gray, texture finish, polyurethane paint, black grille cloth

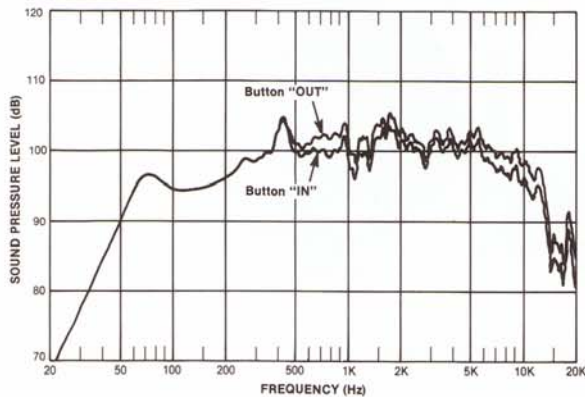


Figure 1. Frequency Response (See Notes 1 and 3)

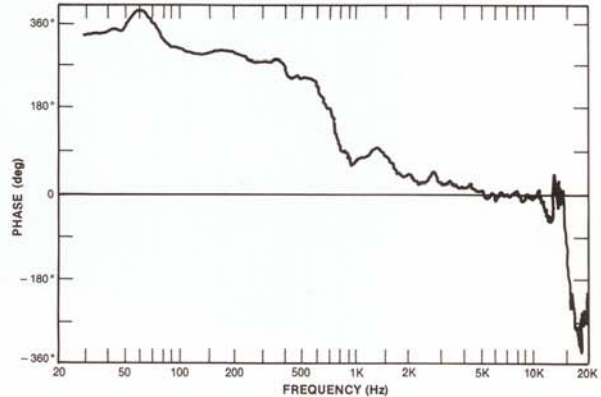


Figure 2. Phase Response (See Note 6)

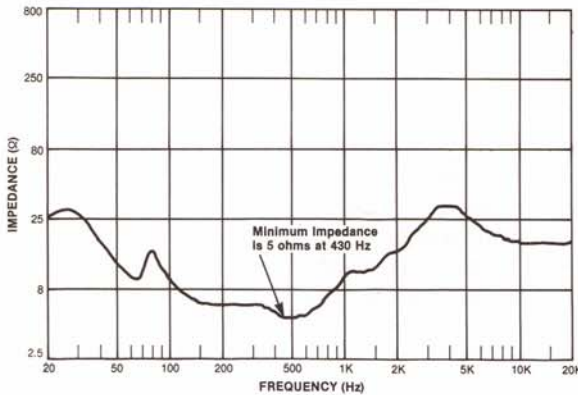


Figure 3. Magnitude of Impedance

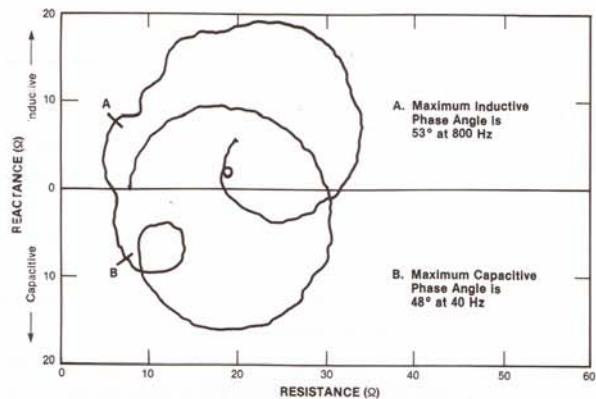


Figure 4. Complex Impedance

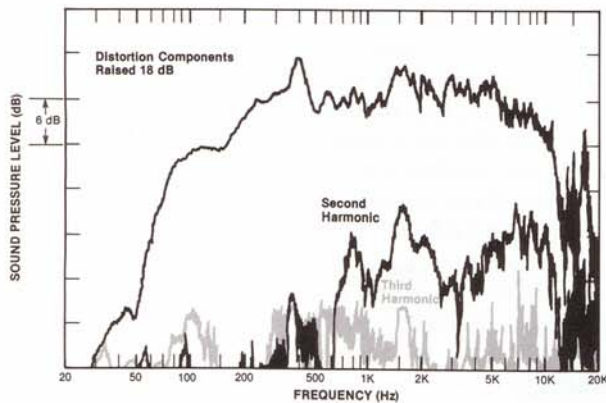


Figure 5. Harmonic Distortion at 0.01 Rated Power (2 watts, See Note 7)

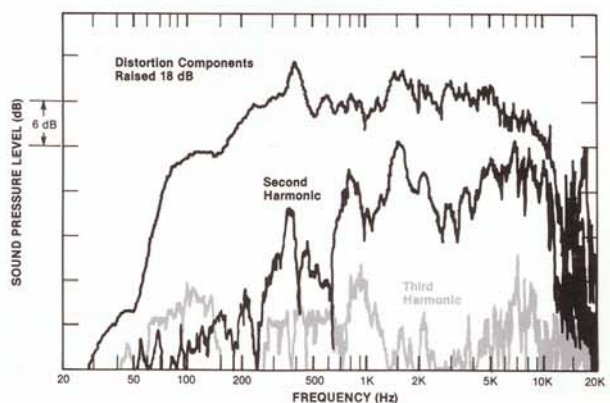


Figure 6. Harmonic Distortion at 0.1 Rated Power (20 watts, See Note 7)

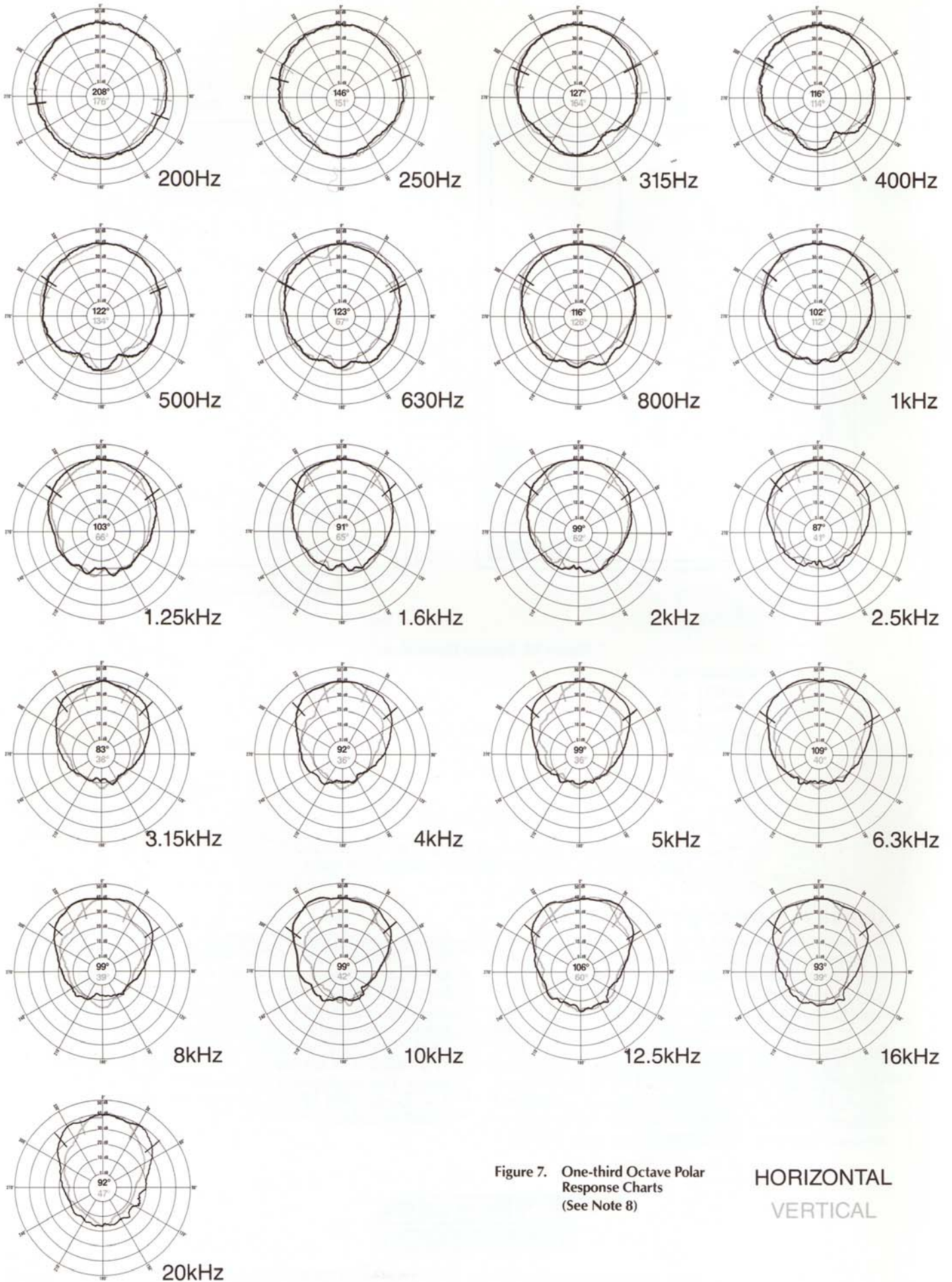


Figure 7. One-third Octave Polar Response Charts (See Note 8)

HORIZONTAL
VERTICAL

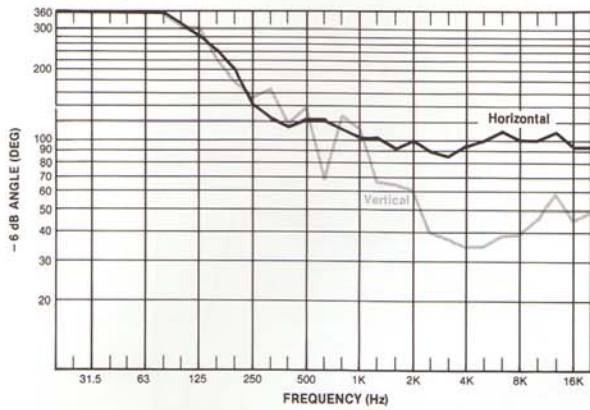


Figure 8. Coverage Angle

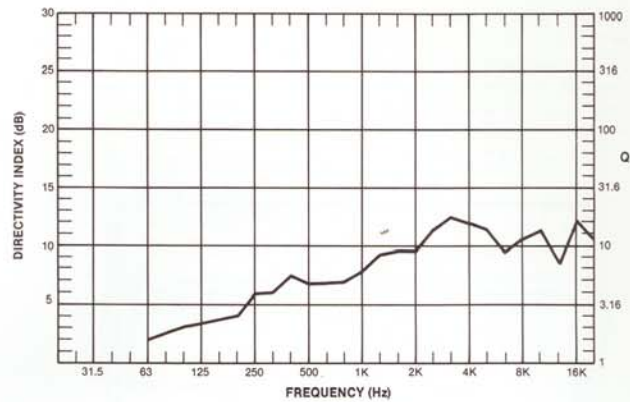


Figure 9. Q and DI

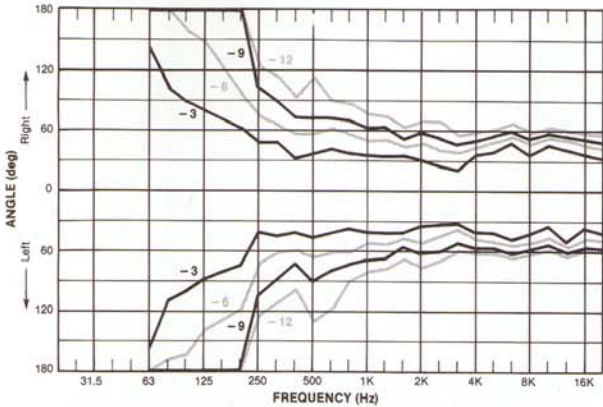


Figure 10. Horizontal Off-Axis Response Contours

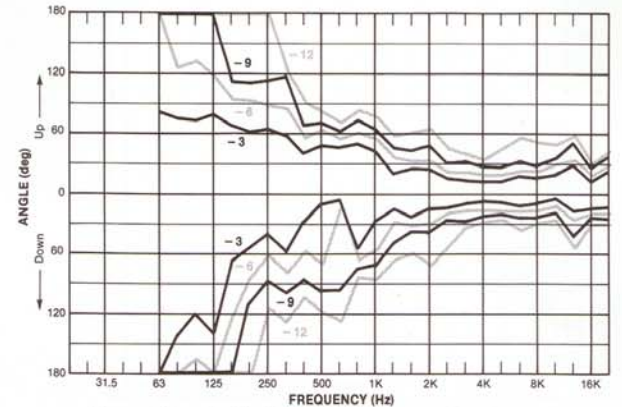


Figure 11. Vertical Off-Axis Response Contours

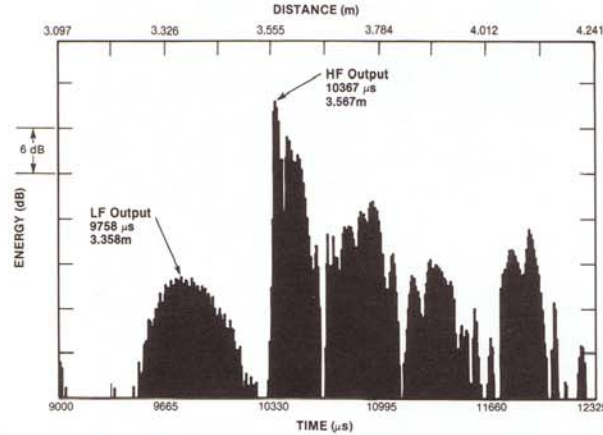


Figure 12. Energy Time Curve (See Note 9)

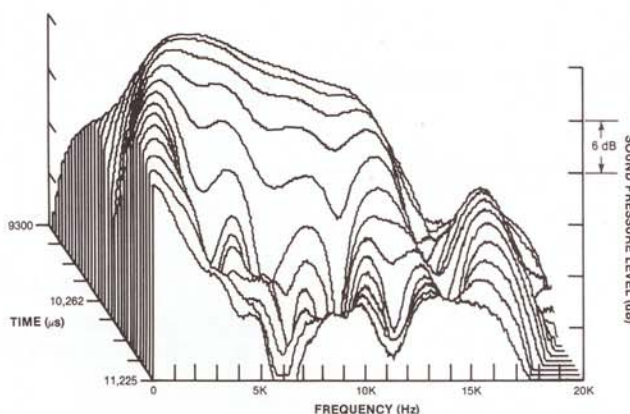


Figure 13. Time Energy Frequency Curve (See Note 10)

NOTES ON MEASUREMENT CONDITIONS

1. Figure 1 shows the effect of the high frequency attenuation switch. Measurements for all other figures taken with the button positioned "IN."
2. Pink noise signal, one watt calculated using E^2/Z_{min} , 3.16 meter measurement distance referred to one meter.
3. 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.
4. This system rating patterned after the AES method for individual drivers, where the test signal is pink noise with 6 dB crest factor over the bandwidth of the system, with power calculated using to E^2/Z_{min} , for two hours.
5. 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.
6. Phase response of the system measured at a time corresponding to the energy arrival of the high frequency component, as noted on Figure 12.

7. Distortion components invalid above 10 kHz. The percentage distortion at any given frequency may be found by graphically taking the difference between the fundamental and harmonic, adding 18 dB, and applying the formula: percentage distortion = $100 \times 10^{-\frac{dB \text{ change}}{20}}$
8. The axis of rotation for all polar plots is the apparent apex of the high frequency horn. Plots below 200 Hz have not been shown because of their lack of pertinent information.
9. The time window has been chosen to resolve the arrival times of the low and high frequency components. Frequency bandwidth of measurement, 0 Hz-30 kHz.
10. Response decay of the system. Time window is the same as used in Figure 12, Energy Time Curve.
11. The loudspeaker system should be connected to the eight ohm tap of amplifiers using transformer coupled output sections.

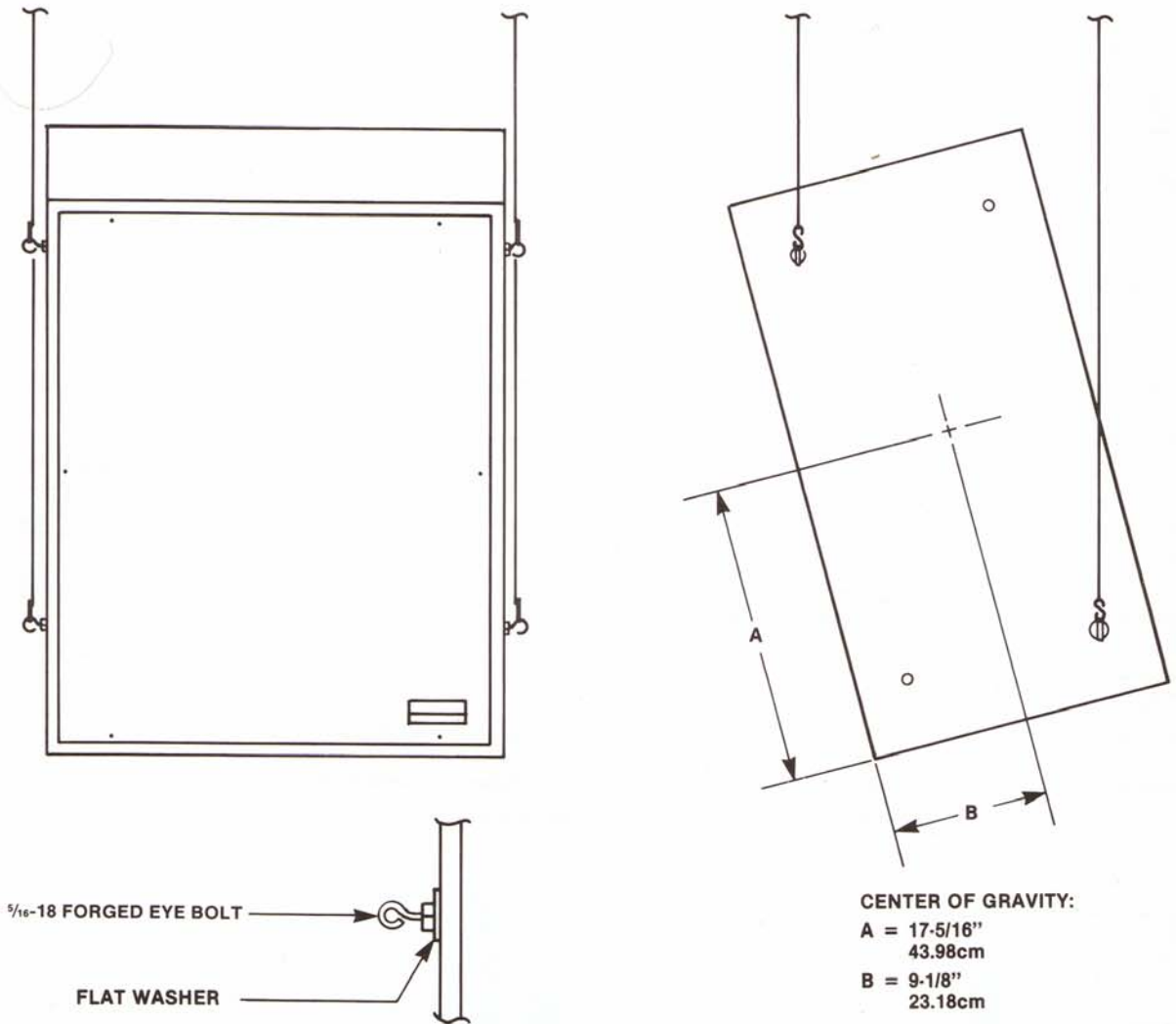


Figure 14. Mounting Data

**LOUDSPEAKER SYSTEM IS SHOWN SUSPENDED WITH
 LOW FREQUENCY DRIVER TOWARD THE BOTTOM.**

MOUNTING INFORMATION FOR FIXED INSTALLATION

The loudspeaker system is supplied with 5/16-18 threaded inserts which allow vertical suspension mounting in either the upright or the inverted mounting positions. The user should *only* use forged steel eyebolts supplied with the systems. (P.N. 28-13-027813).

The eyebolt should be screwed into the T-nut until the washer is in firm contact with the cabinet for maximum hanging security.

The user must supply fasteners, cables or chains (see Figure 14 above).

The grille is retained by six machine screws and is easily removed if desired.

The nameplate may be rotated for proper orientation in the inverted mounting position by removing the plastic "O"-ring retainer from the rear of the nameplate assembly, separating the components, rotating the nameplate 180°, and reassembling.

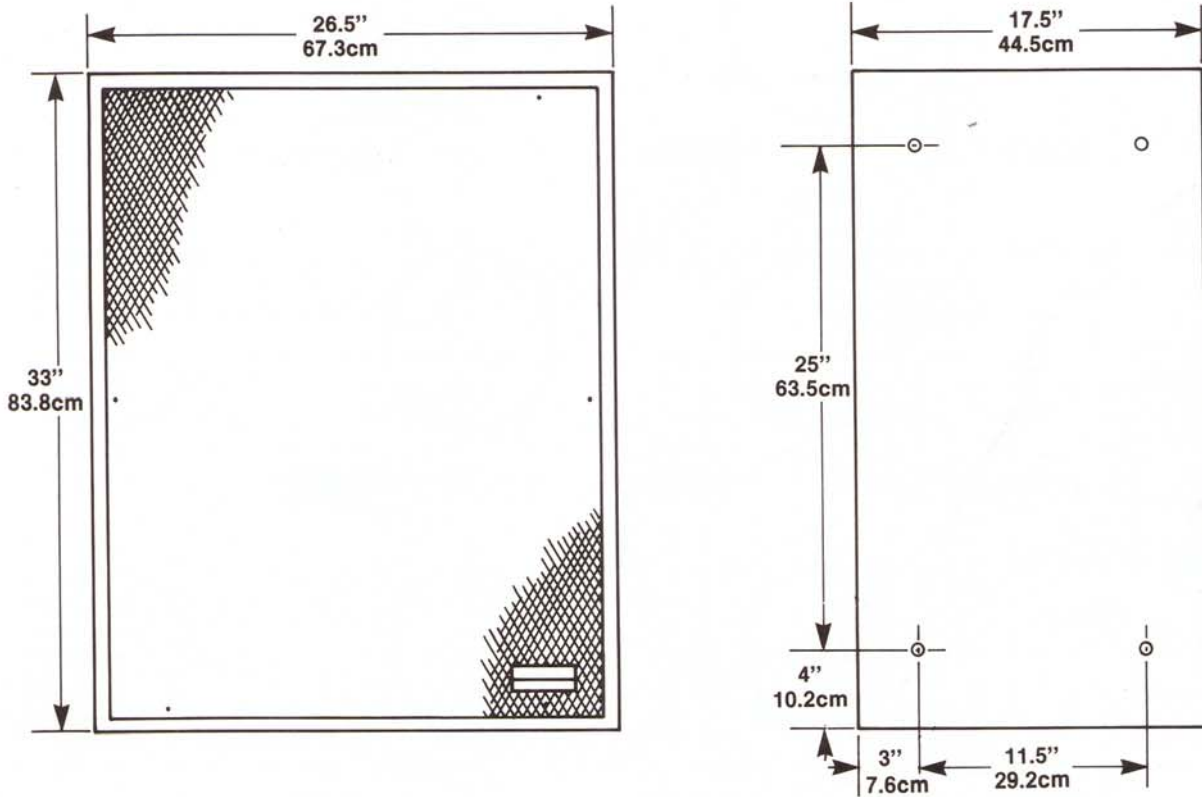


Figure 15. System Dimensions

ARCHITECT'S AND ENGINEER'S SPECIFICATIONS

The loudspeaker system shall be of the two-way bass reflex type, consisting of a 16" (40.6 cm) low-frequency loudspeaker, front loaded on a ported baffle, a high frequency compression driver loaded with an injection molded constant directivity horn, and a dividing network having a crossover frequency of 500 Hz and selectable high-frequency attenuation. The loudspeaker system shall meet the following performance criteria. Power rating, 200 W (average) of continuous pink noise, band-limited from 60 Hz to 13 kHz. Frequency response, smooth and uniformly usable at high levels from 60 Hz to 13 kHz. Pressure sensitivity, 100 dB-SPL at one watt, 500 Hz-3

kHz, measured from one meter on axis. Impedance, 5 ohms, minimum. Distribution pattern, 90° horizontally by 40° vertically. The enclosure shall be of the ported bass reflex type, constructed of heavily braced 3/4" (1.9 cm) birch plywood damped with sound absorbent glass wool. The finish shall be gray spatter-finish polyurethane paint. The dimensions shall be 33" high by 26.5" wide by 17.5" deep (83.8 cm high by 67.3 cm wide by 44.5 cm deep). The loudspeaker shall weigh 94 lbs. (42.7 kg). The loudspeaker system shall be the Altec Lansing model 9812-8A.



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