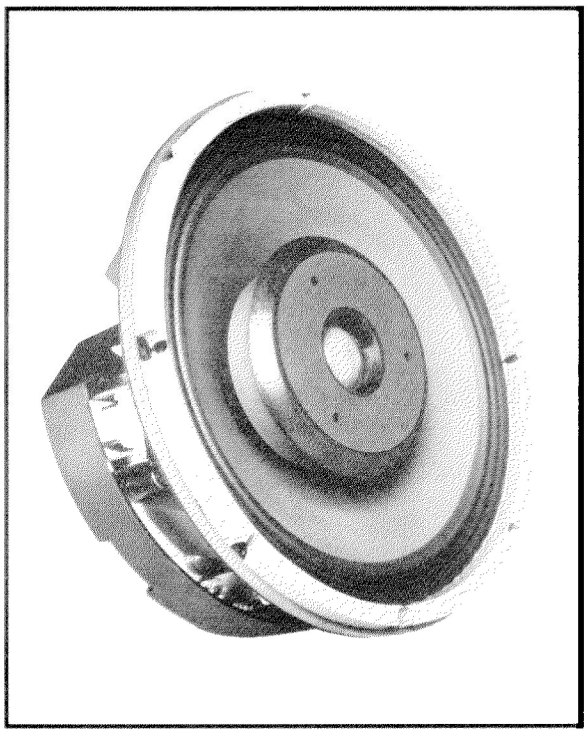
ALTEC LANSING®

920-8B
12" Duplex® Loudspeaker System



KEY FEATURES

- ★ **Dual-Section Crossover Network, Centered at 1500 Hz**
- ★ **High-Efficiency**
- ★ **Wide-Dispersion**
- ★ **Dual Magnet Construction**

KEY SPECIFICATIONS

System Type:	Two-way, full range, Duplex® loudspeaker system.
Pressure Sensitivity: (1 w, 500 Hz to 3 kHz, re: 20 μPa, see Note 1).	98 dB SPL.
Frequency Response: (see Figure 2, Note 2)	70 Hz to 15 kHz.
Power Handling: (70 Hz to 15 kHz, see Note 3).	125 watts, AES method. 250 watts, continuous program. 500 watts, peak power.
Maximum Long-Term Output: (125 watts input, 1 m, re: 20 μPa, see Note 4)	118.8 dB SPL.
Impedance:	5.1 ohms minimum at 6 kHz. 8.0 ohms nominal.
Components:	12.0 inch (30.5 cm), high-efficiency, low frequency driver with a coaxially mounted, 1.5 inch (3.8 cm) high power-handling dome tweeter.
Crossover Network:	Two-way at 1500 Hz with 12 dB per octave slopes.
Input Terminals:	0.21 inch (0.53 cm) push-on type connectors.

DESCRIPTION

The **920-8B** Duplex® loudspeaker system is a two-way loudspeaker with a 12.0 inch (30.5 cm) low frequency cone and high temperature voice-coil assembly coaxially mounted with a wide-dispersion dome radiator tweeter. The **920-8B** utilizes a dual-section crossover network, centered at 1500 Hz and providing 12 dB of attenuation for each element outside its operating range. Clear, intelligible speech and fine music reproduction are ensured by the extended 70 Hz to 15 kHz frequency response.

Mounting holes are provided on the rear of the woofer magnet to mount an Altec **15716** (16 watt) or **15732** (32 watt) matching transformer to operate the loudspeaker from 70.7V distribution lines. The **920-8B**'s frame also allows the loudspeaker to be front- or rear-mounted.

Altec Lansing offers enclosures and accessories to accommodate mounting the loudspeaker. These components are designed to work as a complete system offering a convenient and attractive in-ceiling or in-wall package.

The **920-8B** is the ideal loudspeaker when a high-efficiency, wide-dispersion, easily mounted, full range loudspeaker is required for in-ceiling or in-wall installations.

SPECIFICATIONS (continued)

Replacement VC/Dome Assembly: Model 25456, field replaceable.

Low Frequency Recone Kit: Model R-920-8.

Dimensions:

Loudspeaker Diameter:	12.3 inches (31.2 cm).
Bolt Circle Diameter:	11.6 inches (29.5 cm).
Baffle Opening:	11.1 inches (28.2 cm).
Bolt Hole Slots:	0.25 inches (0.6 cm).
(8 slots spaced 45° apart)	by 0.34 inches (0.9 cm).
Depth Front-Mounted:	4.0 inches (10.2 cm).
Depth Rear-Mounted:	5.0 inches (12.7 cm).

Weight:

Net:	16.4 lbs. (7.4 kg)..
Shipping:	17.6 lbs. (8.0 kg).

Finish: Dark grey polyurethane.

Accessories:

Transformers:	15716, 15732.
Grilles:	5283-WM, 5290-WM.
Enclosures:	5185-XM, 5186-X, 5190-XM.

Altec Lansing continually strives to improve products and performance. Therefore, specifications are subject to change without notice.

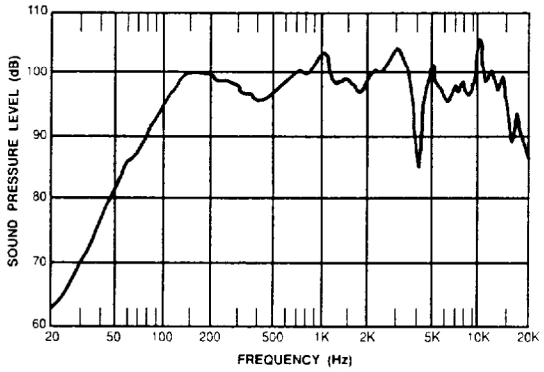


Figure 2.

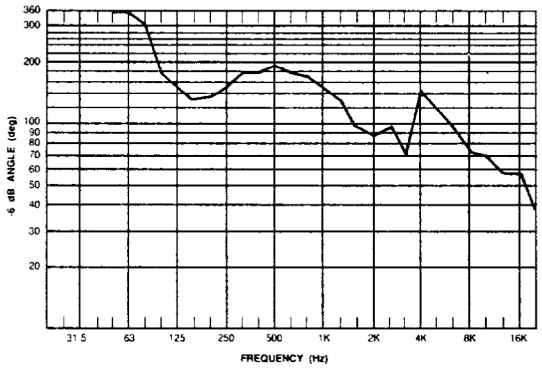


Figure 3.

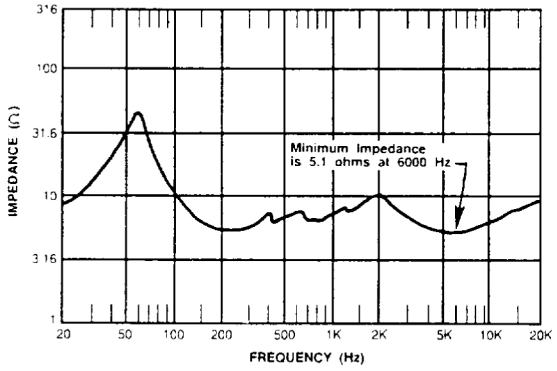


Figure 4.

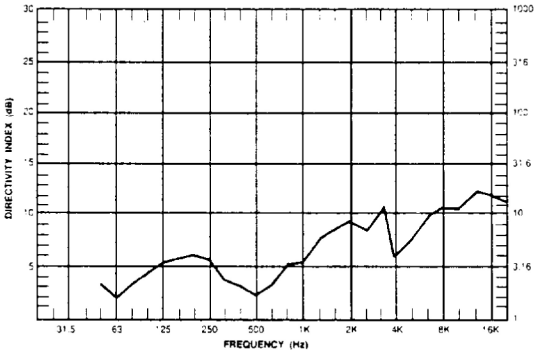


Figure 5.

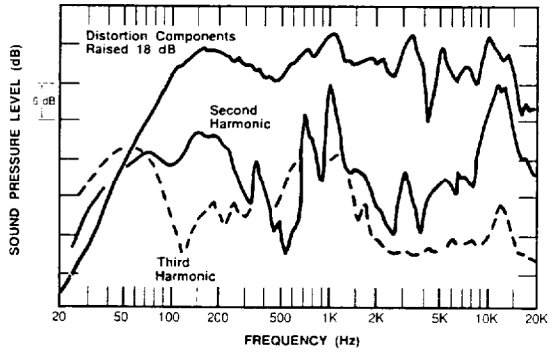


Figure 6.

THEILE-SMALL PARAMETERS

Free Air Resonance, fs:	48 Hz.
Equivalent Volume Compliance, Vas:	3.0 ft^3 (84.9 L).
Total Q, Qts:	0.36.
Electrical Q, Qes:	0.42.
Mechanical Q, Qms:	2.6.
Reference Efficiency:	2.3%.
Volume Displacement, Vd:	3.9 in^3.

NOTES ON MEASUREMENT CONDITIONS

1. Pink noise signal, one Watt calculated using $E^2/Zmin$, 3.16 meter-measurement distance referred to one meter.
2. On-axis, one watt calculated using $E^2/Zmin$, 3.16 meter-measurement distance referred to one meter, low frequencies corrected for anechoic chamber error.
3. This system rating patterned after the AES method for individual driver, where the test signal is pink noise with a 6 dB crest factor over the bandwidth of the system, with power calculated using the $E^2/Zmin$, 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 10 kHz. 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:

   % distortion = $100 \times 10^{(\text{difference in dB}/20)}$

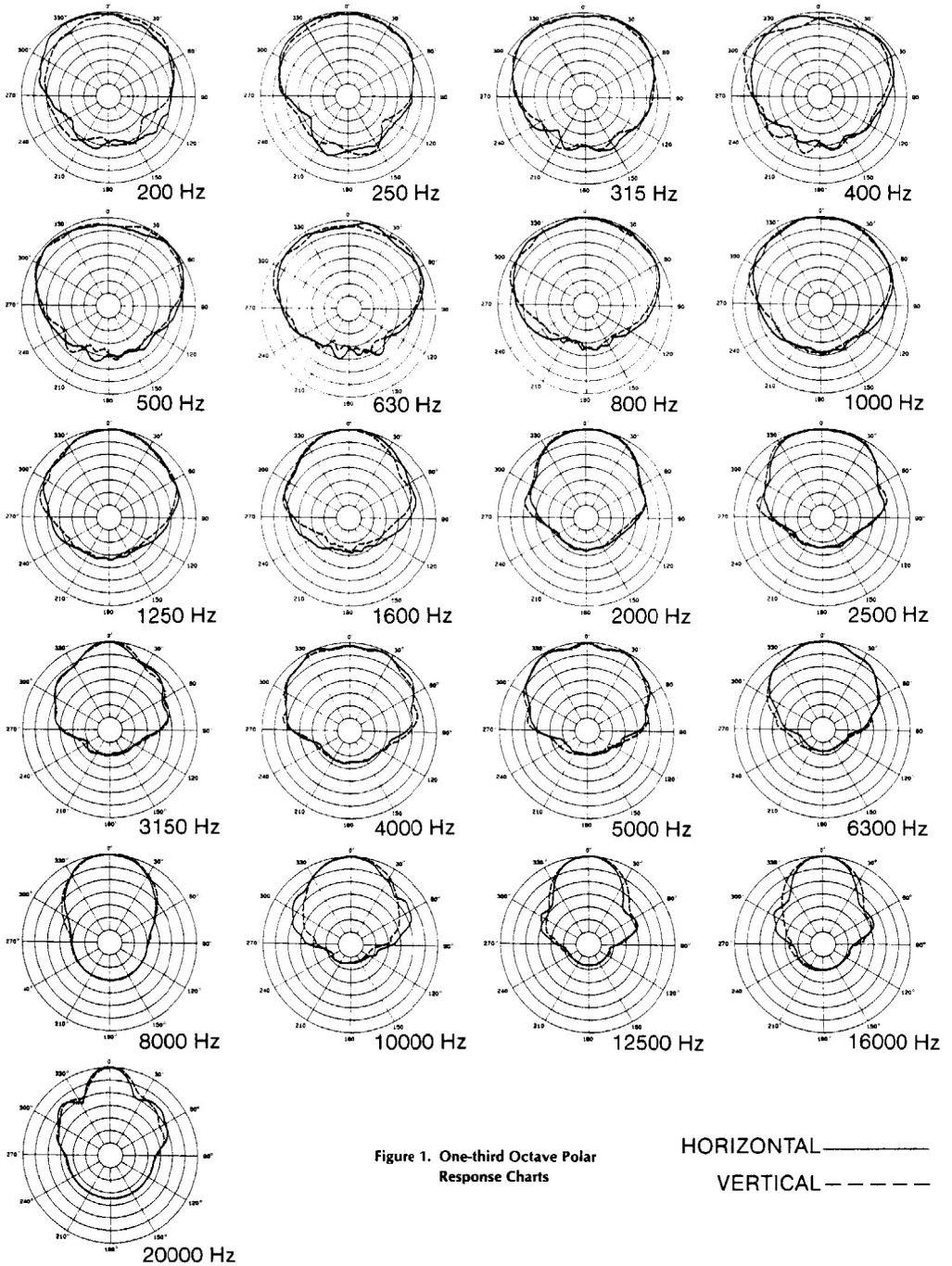
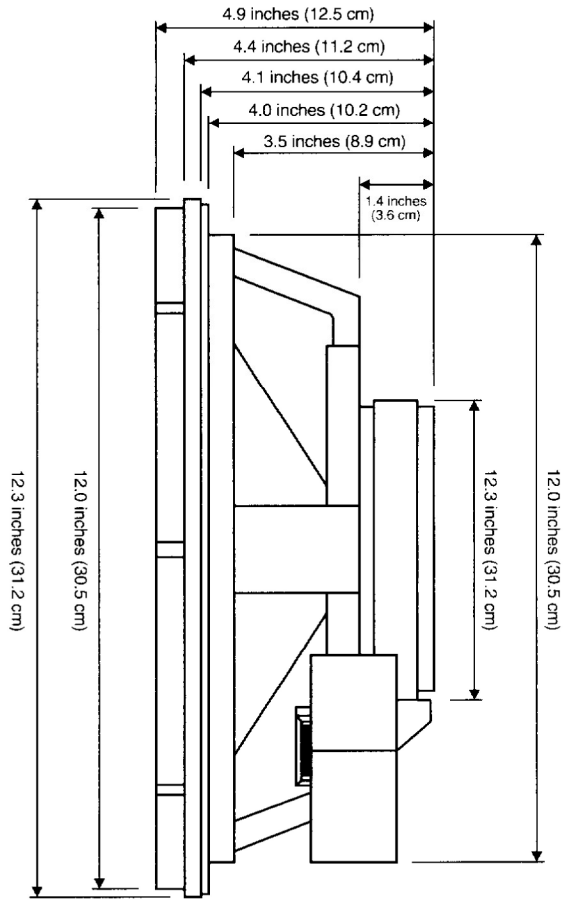
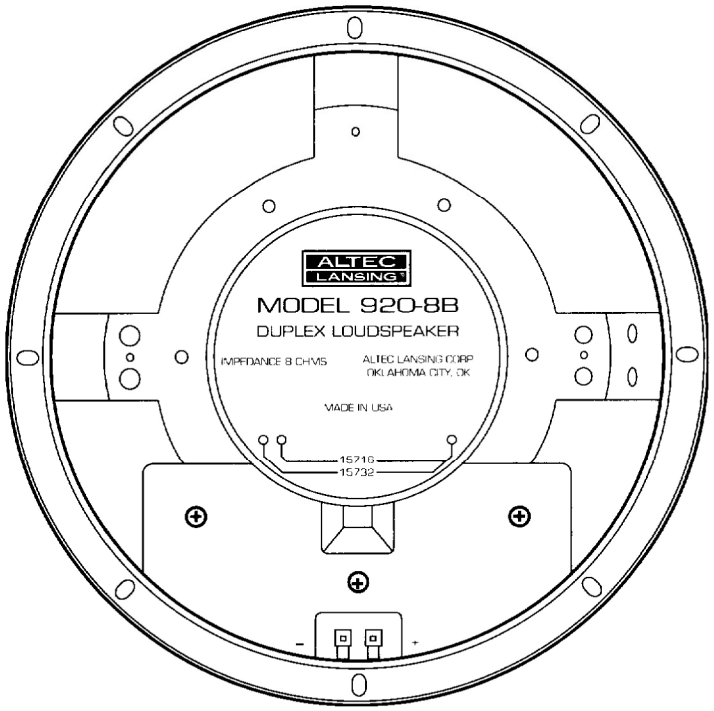


Figure 1. One-third Octave Polar Response Charts

HORIZONTAL ————

VERTICAL – – – –





ARCHITECT'S AND ENGINEER'S SPECIFICATIONS

The loudspeaker shall be a Duplex® type with a 12.0 inch (30.5 cm) low-frequency cone and a high-temperature voice coil assembly coaxially mounted with a wide dispersion dome radiator tweeter. The Duplex loudspeaker shall meet the following criteria: AES power rating shall be 125 watts of band limited pink noise (70 Hz to 15 kHz, 6 dB crest factor). Frequency response, uniform from 70 Hz to 15 kHz. Pressure sensitivity, 98 dB SPL at 1 meter (96 dB at 4 feet) on axis with one watt of band-limited pink noise from 500 Hz to 3 kHz (ref. 20 µpa). Minimum impedance, 5.1 ohms. The voice coils shall be LF - 2.0 inches (5.1 cm) and HF - 1.5 inches (3.8 cm) in diameter, driven by ferrite magnets having flux densities of 1.15 Tesla (LF) and 1.6 Tesla (HF). The loudspeaker shall be 12.3 inches (31.2 cm) in diameter and 5.0 inches (12.7 cm) deep. The weight shall be 16.4 lbs. (7.4 kg).

The duplex loudspeaker shall be the Altec Lansing model 920-8B.

ALTEC LANSING®

a MARK IV company

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ALTEC LANSING

REPLACEMENT DIAPHRAGM ASSEMBLY KIT

REPAIR INSTRUCTIONS

For: 920-8A

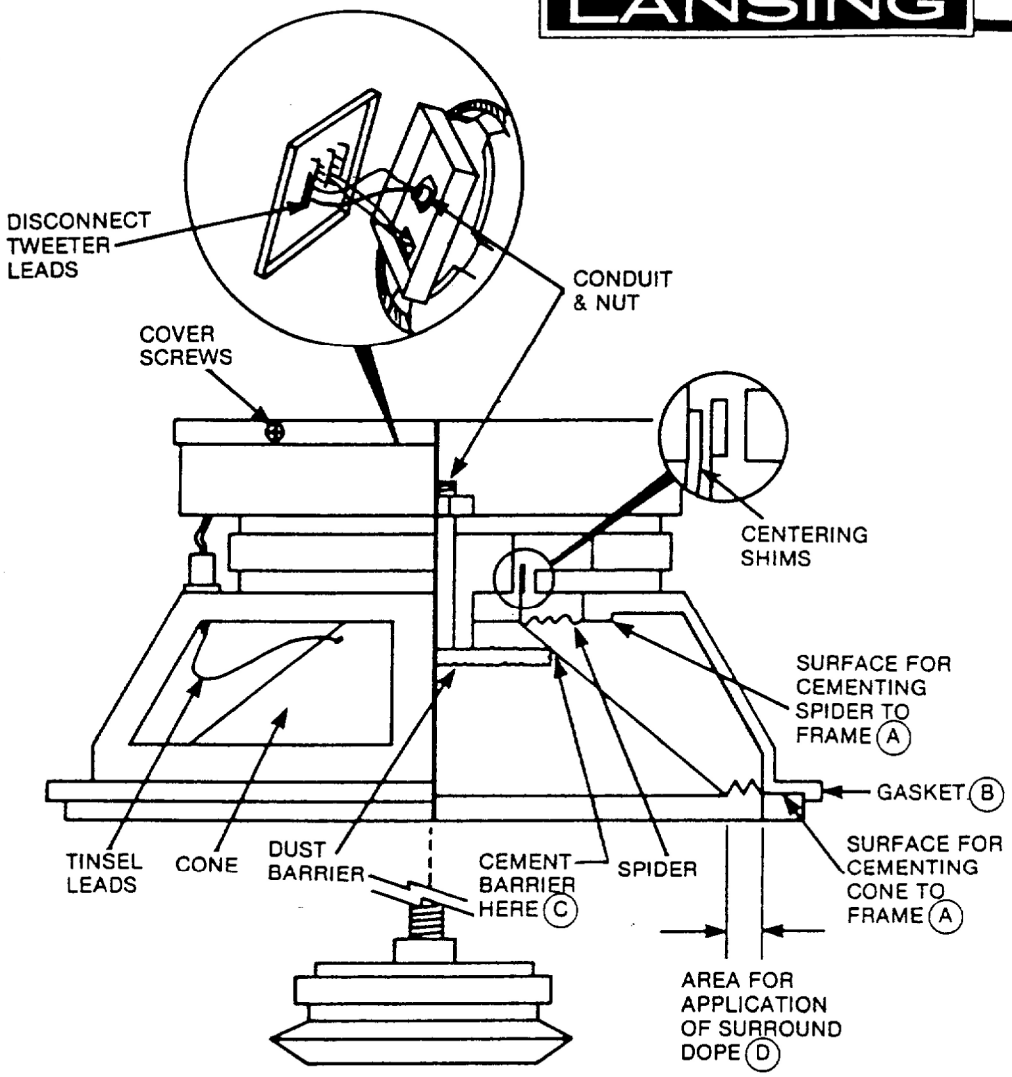

Figure 1. 920-8A Assembly

LOW FREQUENCY RE-CONING

1. Remove speaker from enclosure or mounting baffle and take it to the work area.

2. Remove rear network cover by removing the eight cover screws. Desolder or disconnect the two tweeter wires (red and black) from the terminal strip. These are easily recognized as the wires that are routed through the center conduit tube.

3. Loosen and remove the large nut from the conduit tube (pliers will work well for this). The tweeter assembly is now held to the woofer structure only by magnetic attraction and should now be removed. Do this by pulling tweeter with both hands, slowly, away from the woofer.

NOTE

If the center conduit tube binds, do not attempt to twist the tweeter assembly; this will damage the tweeter.

4. Disconnect or unplug tinsel leads from terminals on inner side of woofer frame.

5. Remove front gasket ring (or gasket ring segments), cone, spider, and voice coil assembly. Use methyl ethyl ketone (MEK) or acetone to loosen gaskets, surround, and spider from the basket.

6. Cover the voice-coil gap with masking tape to prevent debris from entering gap.

7. Remove old cement and debris from mounting surfaces of spider and cone. Use a single edge razor blade or a razor-type knife to lift cement from the mounting surface. If necessary, scrape residue and/or clean surfaces with MEK or acetone.

8. Remove masking tape from voice-coil gap.

9. Clean foreign material from the voice-coil gap with a short strip of 1-inch-wide masking tape. Fold tape back to form a strip with adhesive exposed on both sides. Insert edges of folded tape into the voice-coil gap to full depth, and wipe clean completely around the circular perimeter. Repeat this cleaning procedure several times with fresh tape until tape remains clean when withdrawn.

10. Apply proper cement to surfaces of speaker frame where spider and cone rest (see Table of Cement Applicability and speaker illustration).

11. Without delay, place new type R920-8A cone assembly loosely in position and insert centering shims between pole piece and voice-coil as shown in the illustration detail. Carefully center voice-coil.

12. Fasten spider by pressing it down against cemented surface of speaker frame, completely around perimeter of speaker.

13. Fasten outer edge of cone by pressing it down against cemented surface of speaker frame, completely around perimeter of cone.

14. Cement gasket segments in place. Allow at least 4 hours for cement to set.

15. Remove centering shims and verify that no foreign material is in the voice-coil gap.

16. Plug in tinsel lugs to inner side terminals on woofer frame.

17. Place dust barrier in position so hole is well aligned with the hole in the pole piece. The outside edge of the dust barrier should rest firmly on the cone body. To aid in holding it down during the gluing process, rest a light circular object about 2.5 inches in diameter (such as a lid from a pint can of glue or paint) on the dust barrier. Apply proper cement (see cement applicability table and speaker illustration) to bond barrier to cone. (The center will clamp and requires no glue.)

18. Apply one coat of water-based dope on cone surround as indicated on the illustration using the Cement Applicability Table.

NOTE

Use a stiff acid-proof brush or suitable bristled brush.

19. Allow 24 hours for all adhesives to dry.

TABLE OF CEMENT APPLICABILITY

WHERE USED	PART NUMBER	DESCRIPTION	QUANTITY
A	124137	3065 cement	
B	124067	3055 cement	0.5 & 1 pt
C	114162	3521 cement	
D	124078	510 dope	0.5 & 1 pt

20. Re-install high frequency section and reattach all wires removed in Step 2.

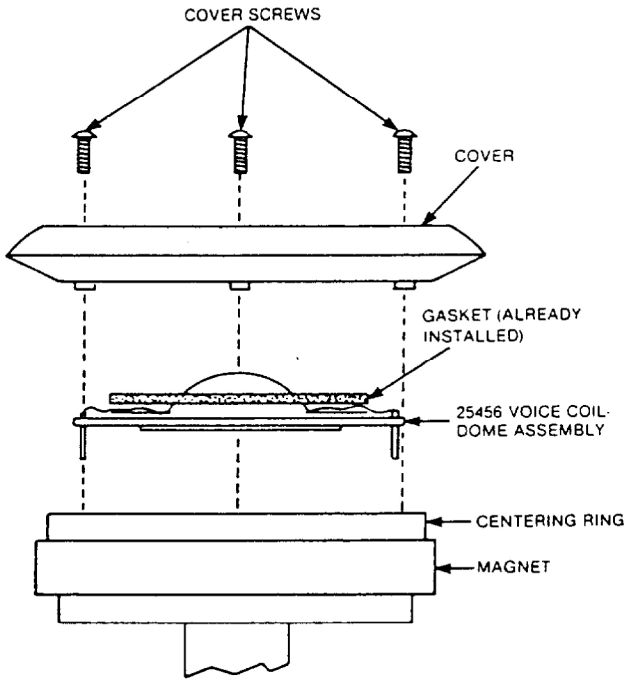

Figure 2. High-Frequency Assembly

REPLACEMENT OF HIGH-FREQUENCY VOICE COIL-DOME ASSEMBLY

1. Remove grille from enclosure for access to front of loudspeaker. It is not necessary to remove loudspeaker from enclosure.

2. Remove three cover screws from front of loudspeaker. Remove doughnut-shaped cover.

3. Carefully remove voice-coil dome assembly from the front of the loudspeaker by twisting a screwdriver in the slots in the gray centering ring behind the dome assembly. Work out the assembly carefully, evenly, and a bit at a time.