

### TECHNICAL INSTRUCTIONS

#### DIAPHRAGM AND VOICE COIL REPLACEMENT PREVENTION OF STATIC AND RF CHARGE

#### DIAPHRAGM AND VOICE COIL ASSEMBLY REPLACEMENT FOR DRIVERS

The diaphragm and voice coil assembly in HF drivers is extremely delicate and must be handled with care. Prior to starting the replacement procedure, select a work area that is clean and free from iron dust or chips. Cover the surface with a few layers of clean paper. The area must be free from drafts to prevent iron dust particles in the air from being magnetically attracted to and lodged in the voice coil gap of the HF driver. Replace the diaphragm and voice coil assembly in accordance with the following procedures.

1. Remove leads from external binding posts (see Figure 1). Note electrical phasing (polarity) as leads are removed.

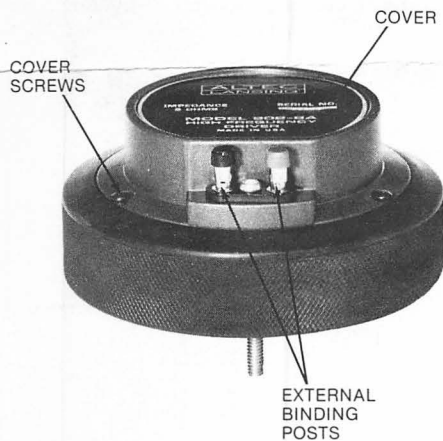


Figure 1. Typical Driver

2. As appropriate to the installation, remove driver loudspeaker and/or horn from enclosure or mounting, and take removed assembly to prepared work area.

#### NOTE

Where easy access to the driver is available, the replacement procedure may be completed without removing the driver loudspeaker and/or horn.

3. Remove screws securing driver cover (see Figure 1).
4. Lift cover from driver and remove two leads from internal binding posts; set cover aside. Note that Model 902-8T is equipped with an acoustical loading cap (Figure 2); Models 902-8A, 902-16A and 908-8A are provided with an acoustical absorbent felt disc (Figure 3), instead of a loading cap.

#### CAUTION

The diaphragm is extremely delicate. Use care to prevent damage. Avoid physical contact with diaphragm. Keep screwdriver away, as strong magnetic field may attract screwdriver into diaphragm.

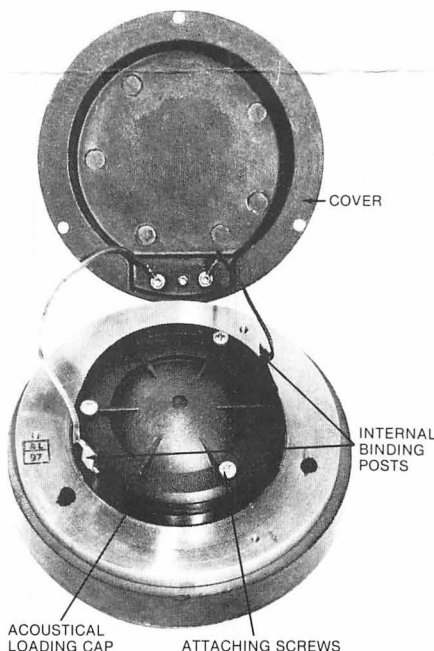


Figure 2. Model 902-8T Driver

5. Remove three screws securing acoustical loading cap (Figure 2), or diaphragm and voice coil assembly (Figure 3). For Model 902-8T, set aside loading cap.

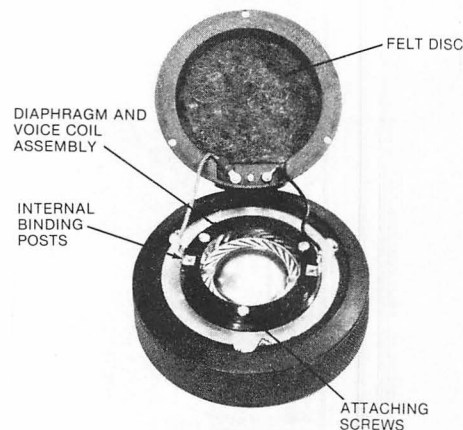


Figure 3. Models 902-8A and 902-16A

6. Carefully work diaphragm and voice coil assembly free. Remove assembly (see Figure 4).

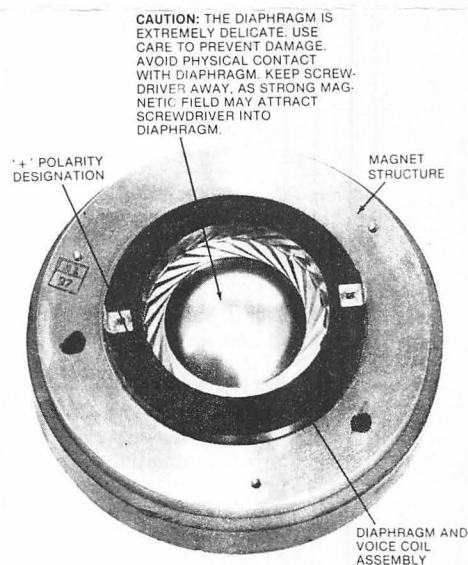


Figure 4. Diaphragm and Voice Coil Assembly

7. Clean foreign material from voice coil gap with a short strip of masking tape one-inch wide. Fold tape back to form a strip with adhesive exposed on both

sides. Insert edges of folded tape into voice coil gap to full depth, and wipe clean completely around circular perimeter of tangerine phasing plug® and top plate (see Figure 5). Repeat cleaning procedure several times with fresh tape until tape is clean when withdrawn.

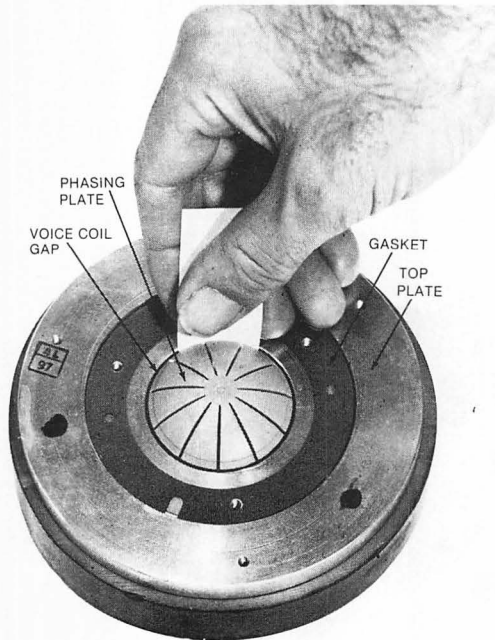


Figure 5. Cleaning Voice Coil Gap

- Carefully place new diaphragm and voice coil assembly in proper position to align screw holes. Use care to avoid damaging edge and sides of voice coil while positioning it in voice coil gap. Be sure voice coil/diaphragm assembly is fully seated.
- For Models 902-8A and 902-16A, install screws removed in Step 5. Tighten screws securely.

For Model 902-8T, install acoustical loading cap, using screws removed in Step 5. Tighten screws securely.

**CAUTION**

If new screws are required to secure the acoustical loading cap and/or the voice coil/diaphragm assembly, use brass screws *only*.

- Connect two leads of driver cover to internal binding posts. Connect red lead to post designated +, and black lead to opposite post. Tighten screws securely.

- Install cover of driver, securing with screws removed in Step 3.
- Return driver to service; connect external leads to binding posts. Take care to maintain electrical phasing (polarity) as originally wired.

**Prevention of Possible Speaker Damage from RF and Static Charges**

The 70-volt lines leading to outdoor speaker installations may develop a substantial voltage to ground at radio frequencies, owing to the proximity of high power radio and radar transmitting stations. Un-grounded speaker lines are also subject to accumulated static charges under atmospheric conditions. A discharge in the voice coil gap, from either of these causes, may be prevented by the following means; such means are recommended whenever the speakers are mounted on an insulated support (e.g., a telephone pole or wooden tower).

- When the 70-volt line is 'floating' (i.e., no ground connection exists at either side of the amplifier output to the speaker line):

A 0.005  $\mu$ F, 200-volt ceramic capacitor should be connected from each side of the 70-volt transformer primary to the frame of the horn or driver, to bypass the 70-volt speaker line (see Figure 6).

Each speaker line should be bypassed in this manner at one speaker of the

array. A wire, 12 gauge or larger, should be connected between the horn frames or driver housings of all horns. After all horns are interconnected in this manner, a single wire, 12 gauge or larger, is run from one horn or driver housing to ground (earth — by means of a suitable driven ground; water pipe, etc.). A 10,000-ohm resistor is then connected between one of the 70-volt output terminals and ground at the amplifier location (see Figure 7).

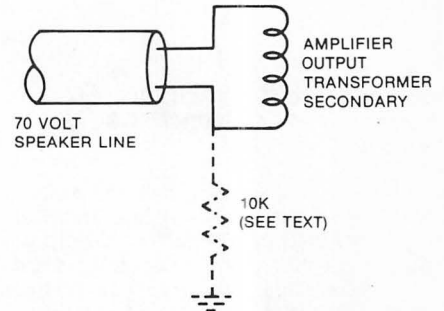


Figure 7. Grounding 70-Volt Output Terminal

- When the 70-volt speaker line is already grounded at the amplifier output:

The preceding instructions continue to apply, with regard to the RF bypass within the speaker housing itself and the grounding of the horn frame or driver housing of each horn; however, the 10,000-ohm resistor at the amplifier location may be omitted.

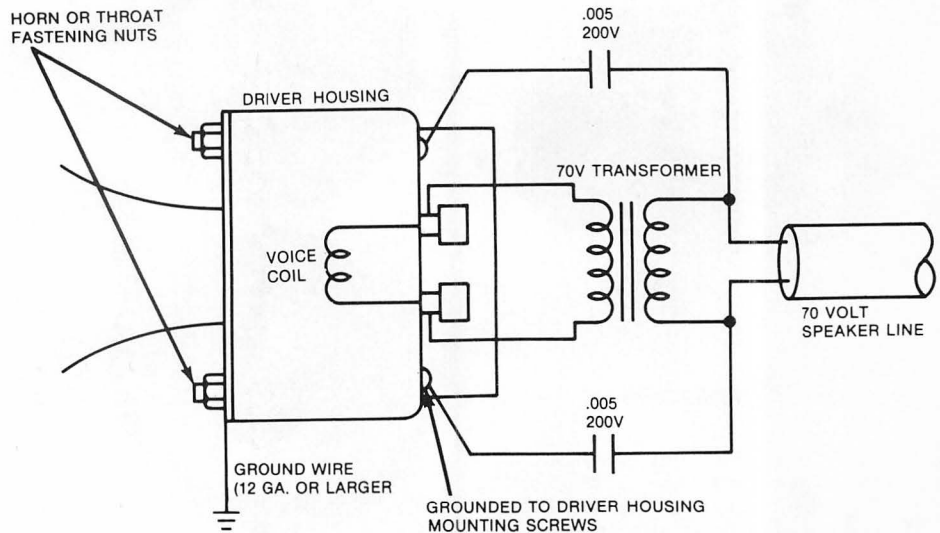


Figure 6. Preventing Damage from RF and Static Charges