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## PROPRIETARY INFORMATION

THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION OF BOSE® CORPORATION WHICH IS BEING FURNISHED ONLY FOR THE PURPOSE OF SERVICING THE IDENTIFIED BOSE PRODUCT BY AN AUTHORIZED BOSE SERVICE CENTER OR OWNER OF THE BOSE PRODUCT, AND SHALL NOT BE REPRODUCED OR USED FOR ANY OTHER PURPOSE.

# SAFETY INFORMATION

1. Parts that have special safety characteristics are identified by the  symbol on schematics or by special notes on the parts list. Use only replacement parts that have critical characteristics recommended by the manufacturer.
2. Make leakage current or resistance measurements to determine that exposed parts are acceptably insulated from the supply circuit before returning the unit to the customer. Use the following checks to perform these measurements:

**A. Leakage Current Hot Check**-With the unit completely reassembled, plug the AC line cord directly into a 120V AC outlet. (Do not use an isolation transformer during this test.) Use a leakage current tester or a metering system that complies with American National Standards Institute (ANSI) C101.1 "Leakage Current for Appliances" and Underwriters Laboratories (UL) 1492 (71). With the unit AC switch first in the ON position, then in the OFF position, measure from a known earth ground (metal water pipe, conduit, etc.) to all exposed metal parts of the unit (antennas, handle bracket, metal cabinet, screwheads, metallic overlays, control shafts, etc.), especially any exposed metal parts that offer an electrical return path to the chassis. Any current measured must not exceed 0.5 milliamp. Reverse the unit power cord plug in the outlet and repeat test. **ANY MEASUREMENTS NOT WITHIN THE LIMITS SPECIFIED HEREIN INDICATE A POTENTIAL SHOCK HAZARD THAT MUST BE ELIMINATED BEFORE RETURNING THE UNIT TO THE CUSTOMER.**

**B. Insulation Resistance Test Cold Check**-(1) Unplug the power supply and connect a jumper wire between the two prongs of the plug. (2) Turn on the power switch of the unit. (3) Measure the resistance with an ohmmeter between the jumpered AC plug and each exposed metallic cabinet part on the unit. When the exposed metallic part has a return path to the chassis, the reading should be between 1 and 5.2 Megohms. When there is no return path to the chassis, the reading must be "infinite". If it is not within the limits specified, there is the possibility of a shock hazard, and the unit must be repaired and re-checked before it is returned to the customer.

## 901<sup>®</sup> SPEAKER SPECIFICATIONS

<b>Transducer Complement:</b>	Nine 4.5" Helical Voice Coil drivers per enclosure
<b>Enclosure:</b>	14-element Acoustic Matrix™ with three Reactive Air Columns
<b>Energy Distribution:</b>	89% by reflection, 11% by direct radiation
<b>Nominal Impedance:</b>	8Ω
<b>Amplifier Power Requirements:</b>	Minimum: 10 watts per channel Maximum: Unlimited in non-commercial applications
<b>Recommended Fusing:</b>	3A quick acting fuse (3AGC or equivalent)
<b>Cabinet:</b>	Waxed rubbed walnut, oak or teak veneers and black gloss finish
<b>Dimensions:</b>	21"W x 12 5/8"H x 13"D (533 x 320 x 330mm)
<b>Shipping Weight:</b>	37lbs (16.78kg) per enclosure

## 901 EQUALIZER SPECIFICATIONS

<b>Input Impedance:</b>	47kΩ
<b>Output Impedance:</b>	1kΩ
<b>Usable Dynamic Range:</b>	106dB at 35Hz
<b>Noise:</b>	≥ 90dB below 1Vrms (A-Weighted)
<b>Distortion:</b>	≤ 0.09% THD at 1kHz, 1Vrms input
<b>Compensation Controls:</b>	Mid-Bass, ±6dB at 225Hz Mid-Treble, ±3dB at 3kHz Bass Switch, -6dB at 35Hz
<b>Power Requirements:</b>	USA, 120Vac, 60Hz, 2.5W Euro, 220Vac, 50/60Hz Japan, 100Vac, 50/60Hz
<b>Cabinet:</b>	Black anodized aluminum
<b>Dimensions:</b>	2 3/4"H x 13"W x 4 15/16"D (70 x 330 x 125mm)
<b>Shipping Weight:</b>	4.75 lb. (2.15 kg)
<b>Unit Weight:</b>	3.4 lb. (1.5 kg)

# SPEAKER DISASSEMBLY/ASSEMBLY PROCEDURES

**Note:** Numbers in parenthesis correspond to item call outs in Figure 5.

## 1. Rear Grille Removal

**1.1** To release the grille (4) from the slots on the edges of the cabinet, grasp the left or right edge of the grille and pull it toward the center of the speaker.

**1.2** To release the grille from the double stick tape, continue to pull the grille off by the edges.

## 2. Grille Replacement

**2.1** Line up the grille (4) with the slot on the edge of the cabinet.

**2.2** Press the grille into place, allowing the grille to be secured by the double stick tape and the slots on the left and right side of the cabinet.

## 3. Front Grille Removal

**Note:** The front grille (3) is secured with staples to the cabinet. Figure 1 shows how to make a tool to remove the staples.

**3.1** Remove five staples on one side of the cabinet and the three staples located on the front of the opposite side, to gain access to the front driver. Plastic backed grilles only used two staples on each side. For plastic backed grilles it is only necessary to remove two staples, to gain access to the front driver. See Figure 2 for the staple locations.

**3.2** Pull the grille up to release it from the retaining slots on the edges of the cabinet. This will expose the front driver.

## 4. Front Grille Replacement

**4.1** Place the grille (3) back into the retaining slots on the edges of the cabinet.

**4.2** Use dark staples or small nails to attach the grille to the cabinet. See Figure 2 for the staple locations.

## 5. Driver Removal

**5.1** Perform procedure 1 to remove any of the eight drivers located in the rear and procedure 3 to remove the driver located in the front.

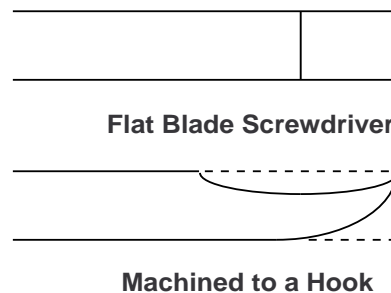
**5.2** Remove the three screws (14) that secure the driver (1) to the cabinet.

**5.3** Lift the driver out of the cabinet and cut the wires as close as possible to the driver terminal.

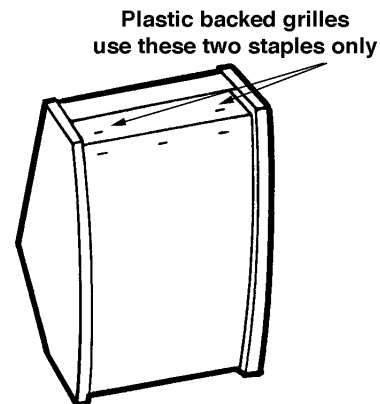
## 6. Driver Replacement

**6.1** Attach the wires to the replacement driver (1). See Figure 3 for wiring configuration.

**6.2** Replace the three screws (14) that secure the driver to the cabinet.



**Figure 1. Grille Removal Tool**



**Figure 2. Staple Location**

# SPEAKER TEST PROCEDURES

## 1. Phase Test

**1.1** Apply **13Vdc** to the speaker input terminal. Observe Polarity.

**1.2** The drivers should move outward. If one or more moves inward, check the wiring of the driver.

## 2. Air Leak Test

**2.1** Apply a **26Vrms, 40Hz** signal to the speaker input terminal.

**2.2** Listen for air leaks located around the cabinet and drivers. Repair any that are found.

## 3. Rub and Tick Test

**3.1** Apply a **26Vrms, 10Hz** signal to the speaker input terminal.

**3.2** No extraneous noise such as rubbing, scraping or ticking should be heard.

**Note:** To distinguish between normal suspension noise and rubs or ticks, displace the cone of the driver slightly with your fingers. If the noise can be made to go away or get worse, it's a rub or tick and the driver should be replaced. If the noise stays the same, it's normal suspension noise and it will not be heard with program material.

## 4. Sweep Test

**4.1** Apply a **13Vrms, 10Hz** signal to the speaker input terminal. Sweep the speaker from **10Hz to 75Hz**.

**4.2** Reduce the applied signal to **3Vrms**. Sweep the speaker from **75Hz to 5kHz**.

**4.3** Listen for any buzzes or rattles. Tighten any screw or replace any driver that causes a rattle or buzz. Redress any wires that buzz.

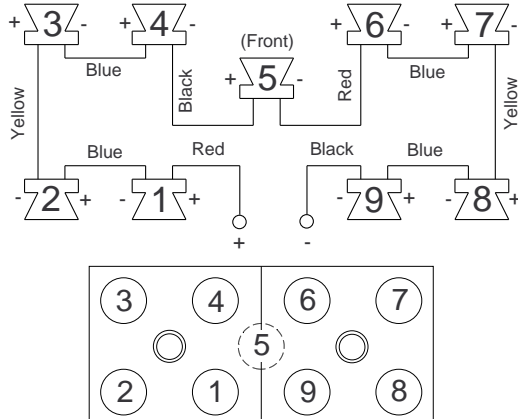
## 5. Intermittent Output Test

**Note:** If a customer complains of an intermittent output from the speaker, the problem could be an intermittent connection at the tinsel crimp. Perform the following procedures only if the customer complains of an intermittent output.

**5.1** Apply a **25Vrms, 40Hz** signal to the speaker input terminal until the speaker's output drops or cuts out which is usually about five minutes.

**5.2** Check the temperature of each driver's black insulating material. If a driver's black insulating material is found to be hot, replace that driver.

**Note:** In some occasions, the resistance at the intermittent connection causes enough heat to visually affect the black insulating material. Visually check each driver's black insulation for heat damage.



**Figure 3. Schematic and Driver Location**



**Figure 4. Driver Insulation**