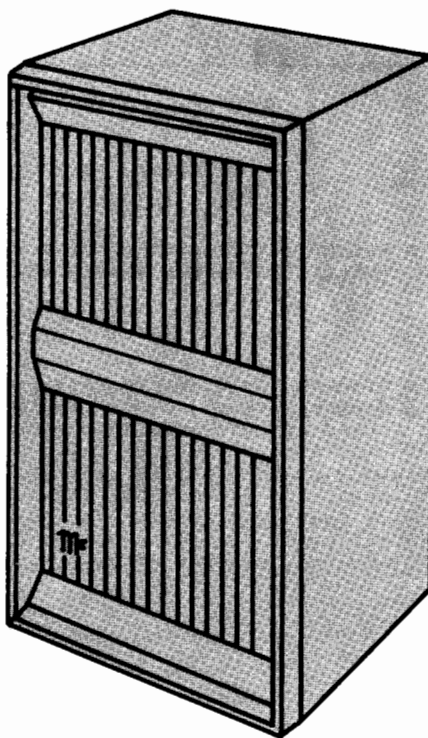


# McIntosh

## ML 1C LOUDSPEAKER SYSTEM



### SERVICE INFORMATION

SERIAL NO. N1A001 AND ABOVE

038-841

# SPECIFICATIONS

## SPEAKER SIZE

Woofer 12" dia. frame size (10" dia. radiator)  
Low mid-range 8" dia. frame size (5" dia. radiator)  
Upper mid-range 1-1/2" dia. dome radiator  
Tweeter 1-5/8" dia. coaxial super radiator

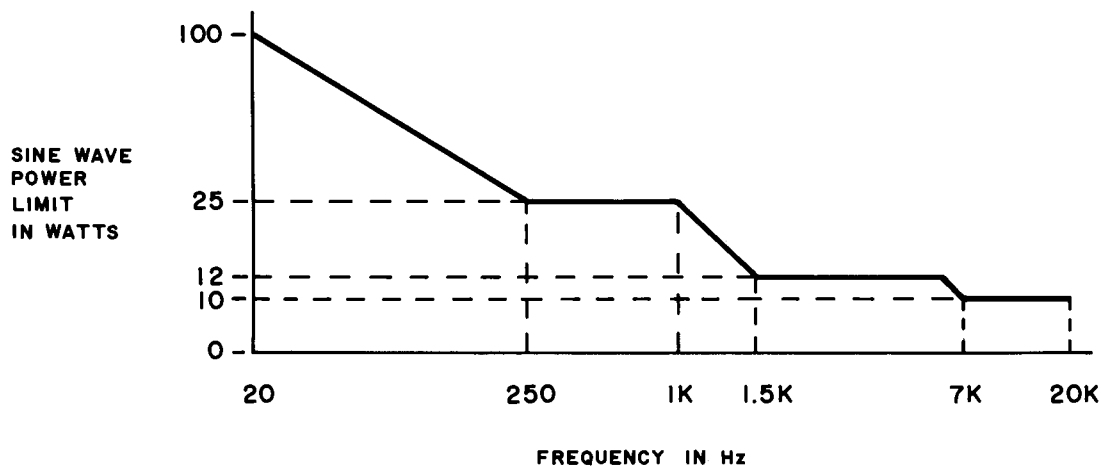
## CROSSOVER FREQUENCIES

250Hz, 1.5kHz, & 7kHz

## IMPEDANCE

8 $\Omega$  Nominal

## POWER HANDLING: Sine wave steady state



Avoid operating the speaker system with sustained sine wave signals at power levels greater than the indicated limits. Permanent damage may result.

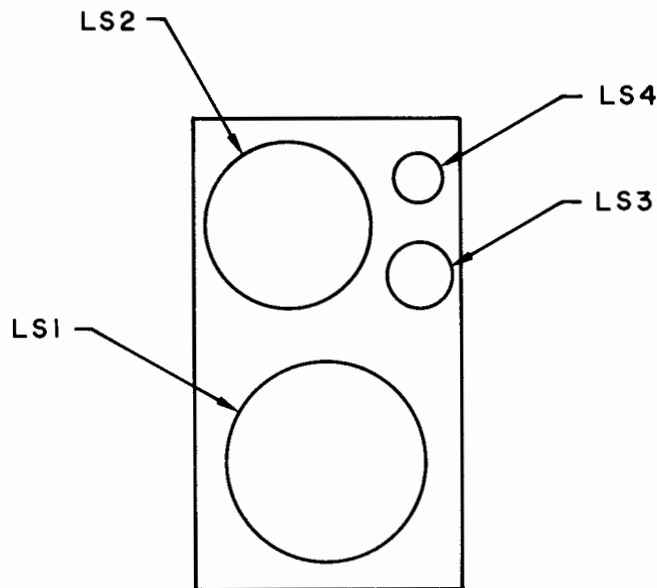
## POWER HANDLING: Program Material

High energy peaks normal to orchestral music are easily and faithfully reproduced by the speaker system. These peaks are of relatively short duration and do not produce the heating effect caused by sustained tone operation. The ML-4 speaker system will handle up to 300 watts of orchestral music program material. Care must be taken, however, to use a power amplifier that has an adequate power rating. If a low power amplifier is used, the loudest passages may be "clipped" by the amplifier. This clipping will cause the speaker to sound distorted. The large harmonic content of a badly "clipped" signal can cause excessive heating and resulting damage to the high frequency speaker elements and crossover network.

## OUTPUT LEVEL

In a reverberant room the system will nominally produce an 89dB sound pressure level when driven at a one watt level referred to 8 $\Omega$ .

# SPEAKER LOCATION

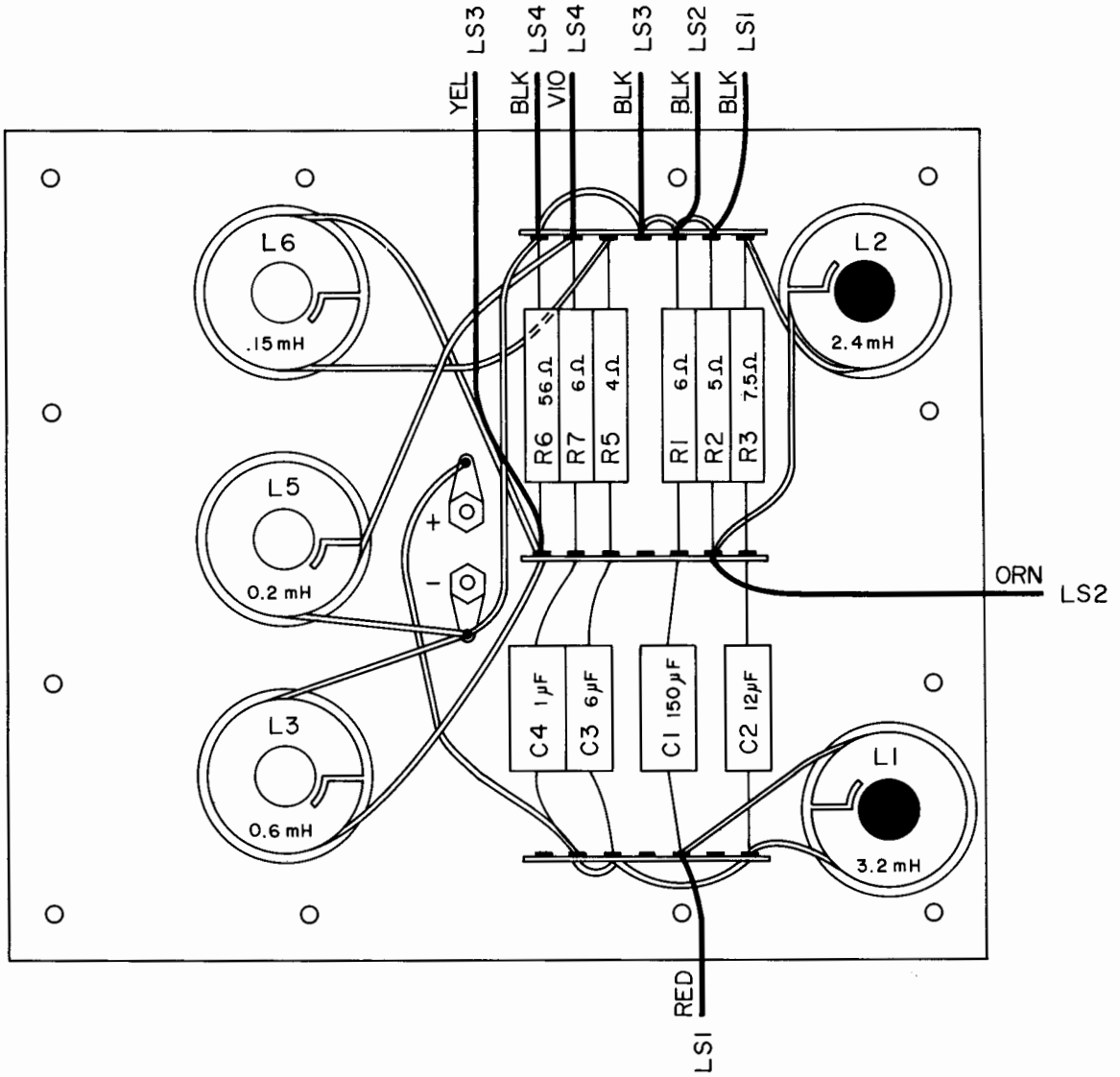


REMOVE LS1 TO SERVICE CROSSOVER NETWORK

## SCHEMATIC NOTES

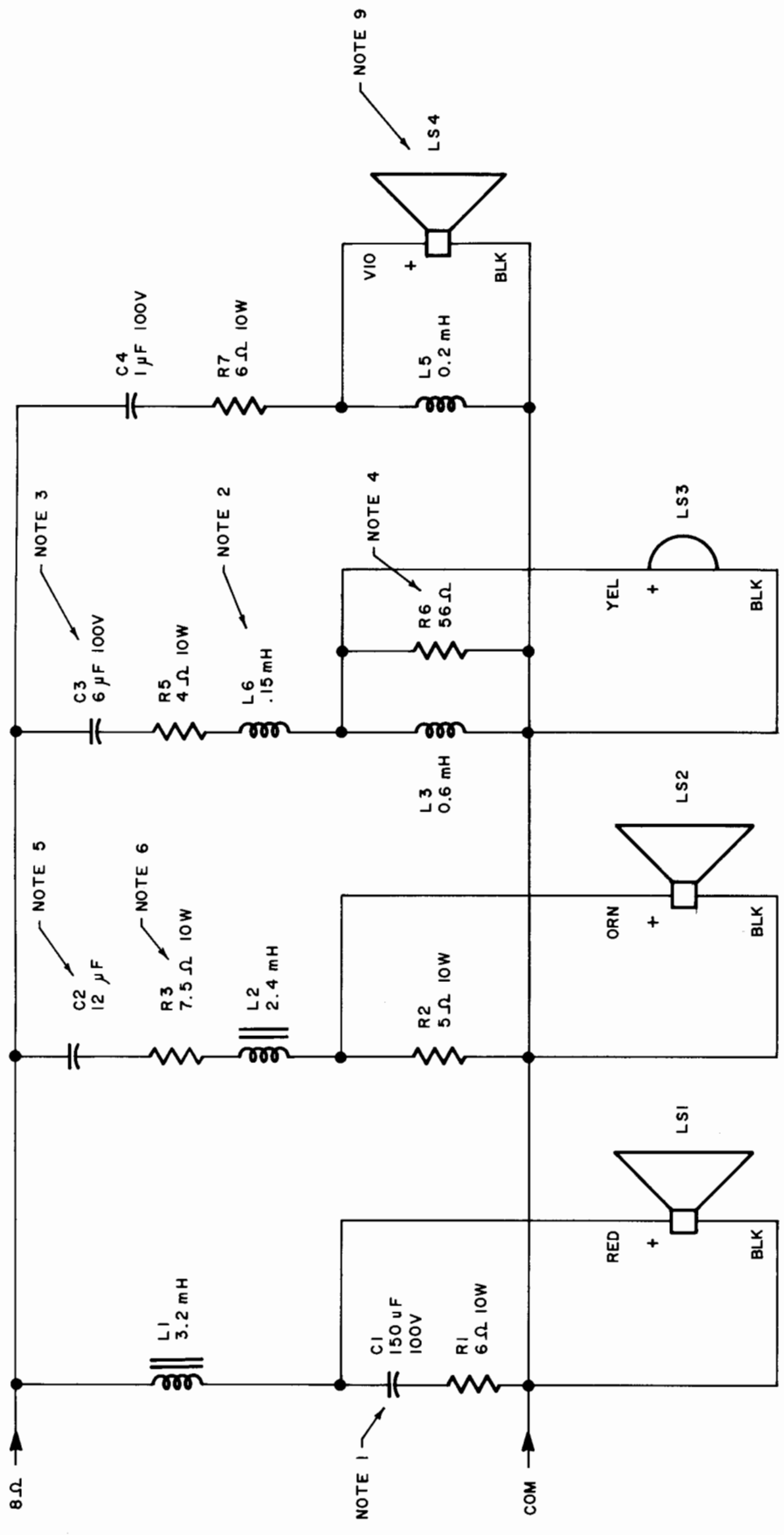
1. In some units C1 may be one single 150 $\mu$ F 100V capacitor.
2. In early units L6 .15mH choke is not used. Refer to ML-1C Service Bulletin No. 2 when replacing Dome Loudspeaker.
3. In early units C3 is two 12 $\mu$ F capacitors connected in series.
4. In early units R6 was 62 $\Omega$  5% 5W.
5. In some units C2 may be two 25 $\mu$ F in series.
6. In early units R3 is 10 $\Omega$ . See ML-1C SB No. 1 when replacing 8" loudspeaker.
7. In early units components may be located in different positions on the crossover network board.
8. Numbers that appear on coils are not always inductance values.
9. In early units LS4 is 036-005 16 $\Omega$  impedance. LS4 can be replaced with 036-012 8 $\Omega$  impedance. Acoustic output will be the same.
10. In some early models dome wires run through the front panel. See ML-1C SB No. 2.

# CROSSOVER NETWORK



ASSEMBLY 044-215

NOTE 7



SYSTEM SCHEMATIC

# SERVICE NOTES

Speaker element failure can be quickly located by using FM hiss at a low power level. Listen at each speaker to verify if all the speakers are at least working. A low power (1-5 watt) sine wave sweep 20-20kHz can be used as a quick check for distortion. A speaker element with obvious distortion must be replaced.

To determine if the speaker element is dead, remove the speaker and momentarily connect a 1.5 to 6V battery across the terminals. If no sound is heard, the speaker element must be replaced.

The crossover network must be inspected when burned out speaker elements are replaced. The network must also be inspected if a speaker element produces sound with the battery test but does not play when connected in the system. The woofer must be removed to get to the crossover. Check for bad connections, broken wires, etc. Be sure to check the resistors mounted on the plate underneath the printed circuit board. A broken lead on these resistors can also be the cause of intermittent or partial failure of the system.

When a system has been driven excessively hard by a "clipped" amplifier for long periods of time, the dome mid-range may appear to have weak or no output. In addition to a burned out mid-range, the 7 $\mu$ F capacitor may also be damaged. This will be evident if a new mid-range has been installed and also appears to have weak or no output.

Use only McIntosh replacement capacitors. These have been specially selected for low ESR.

Use RTV silicone rubber under replacement parts mounted on the printed circuit board. In addition to the solder connections, this insures a vibration free bond to the board.

The solid colored wire (other than black) always goes to the red marked terminal on the speaker. This is the positive terminal. If the polarity of a speaker is unknown, momentarily connect a 1.5 to 6V battery to the terminals. When the cone moves away from the magnet, it means the + terminal of the battery is connected to the + terminal of the speaker.

When installing speakers or crossover network in the cabinet, care must be taken to insure a tight air seal to the cabinet. Replace the black caulking material or foam gasket if necessary. Mortite caulking compound or equivalent could be substituted but care must be taken that it will not be visible after the part is installed.

If a woofer screw strips out in the wood of the cabinet, the speaker can be rotated and new mounting holes drilled.

After the system is reassembled, it must be checked for air leaks. This can be done by putting a 20Hz sine wave into the system at 50 watts (20 volts). By listening around the speakers closely for hissing sounds, areas can be located that must be sealed. The system must also be swept from 20Hz to 250Hz at 25 watts (14 volts) to insure there are no vibrations due to wires hitting the woofer cone, etc.

All defective parts must be packed well and returned to McIntosh Laboratory Loudspeaker Division.

# REPLACEMENT PARTS

All parts not listed are common items obtainable from radio parts jobbers.

Replacement parts may be obtained when ordered by PART NUMBER from:

McIntosh Laboratory, Inc.  
Customer Service Department  
2 Chambers Street  
Binghamton, New York 13903  
(telephone 607-723-3512)

## CAPACITORS

Symbol Number	Description	Part Number
C1	Elect. 150 $\mu$ F 100V	066-194
C2	Elect. 12 $\mu$ F 100V	066-193
C3	Elect. 6 $\mu$ F 100V	066-186
C4	Mylar 1 $\mu$ F 250V	064-104

## CHOKES

L1	Choke 3.2mH	122-136
L2	Choke 2.4mH	122-125
L3	Choke .6mH	122-168
L5	Choke .2mH	122-158
L6	Choke .15mH	122-167

## RESISTORS

R1	Wirewound 6 $\Omega$ 10W	139-087
R2	Wirewound 5 $\Omega$ 10W	139-082
R3	Wirewound 7.5 $\Omega$ 10W	139-090
R5	Wirewound 4 $\Omega$ 10W	139-086
R6	Wirewound 56 $\Omega$ 10W	139-091
R7	Wirewound 6 $\Omega$ 10W	139-087

## LOUDSPEAKERS

LS1	12" Woofer	036-001
LS2	8" Midrange	036-025
LS3	1-1/2" Dome Midrange	036-016
LS4	2-1/4" Tweeter	036-012

## MISCELLANEOUS ITEMS

Terminal Red	084-086
Terminal Black	084-087
Shipping Carton	033-135
Grille	030-008
Front Panel Assy.	044-339
Speaker Gasket 12" Woofer	094-092
Speaker Gasket 2-1/4" Tweeter	094-096
Speaker Gasket 1-1/2" Dome	094-100
Speaker Gasket 8" Midrange	094-094
Network Gasket	094-106

**McIntosh**

**McINTOSH LOUDSPEAKER DIVISION**

2 CHAMBERS ST., BINGHAMTON, N. Y. 13903



# McIntosh SERVICE BULLETIN

## REPLACEMENT OF 8" LOUDSPEAKER 036-002

MODEL: ML-1C

PURPOSE OF MODIFICATION: To maintain the same acoustic output.

WHAT UNITS ARE AFFECTED: Serial No. N1A001 through N2A539.  
Serial No. L2A540 through L4A686.

WHEN MODIFICATION SHOULD BE MADE: When replacing defective  
036-002 8" loudspeaker.

McINTOSH MODIFICATION KIT: No kit available.

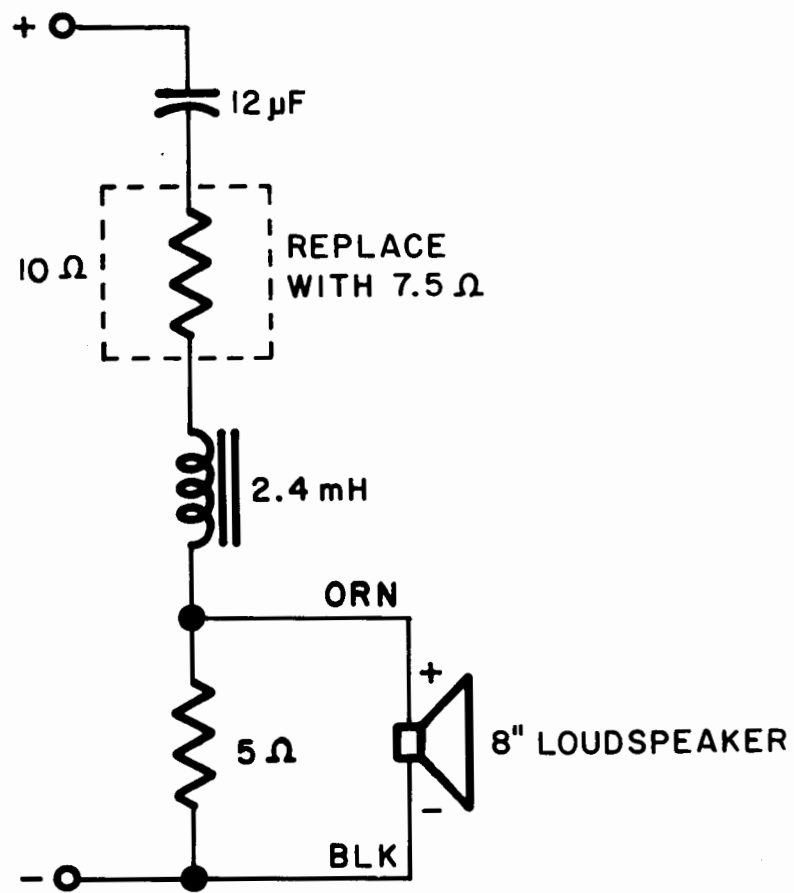
### PARTS REQUIRED:

QUANTITY	PART NUMBER	DESCRIPTION
1	139-090	Wirewound Resistor: 7.5Ω, 10W
1	036-025	8" loudspeaker

### PROCEDURE:

- Step 1 Remove 12" woofer and fiberglass exposing crossover.
- Step 2 Locate 10Ω, 10 watt resistor in series with the 8" loudspeaker. Remove and replace with 7.5Ω, 10 watt resistor.
- Step 3 Replace fiberglass and 12" woofer. Be sure a tight caulking seal is made between the 12" woofer and the cabinet.

(over)



# McIntosh SERVICE BULLETIN

## REPLACEMENT OF 1-1/2" DOME LOUDSPEAKER 036-003

MODEL: ML-1C

PURPOSE OF MODIFICATION: To maintain the same acoustic output.

WHAT UNITS ARE AFFECTED: Serial No. N1A001 through N2A539.  
Serial No. L2A540 through L3A540.

WHEN MODIFICATION SHOULD BE MADE: When replacing defective  
036-003 1-1/2" dome loudspeaker.

McINTOSH MODIFICATION KIT: No kit available.

### PARTS REQUIRED:

QUANTITY	PART NUMBER	DESCRIPTION
1	036-016	1-1/2" Dome Loudspeaker
1	122-128	.15mH Choke

### PROCEDURE:

- Step 1 Remove 12" woofer and fiberglass exposing crossover.
- Step 2 Locate the series capacitor. If it reads 6 $\mu$ F/50V NP, remove and replace with a 6 $\mu$ F/100V NP capacitor.
- Step 3 Connect .15mH coil in series with the dome crossover. Pull yellow and black wires through hole to rear of mounting panel. Seal hole. Connect wires to dome speaker.
- Step 4 Replace fiberglass and 12" woofer. Be sure a tight caulking seal is made between the 12" woofer and the cabinet.

(over)

