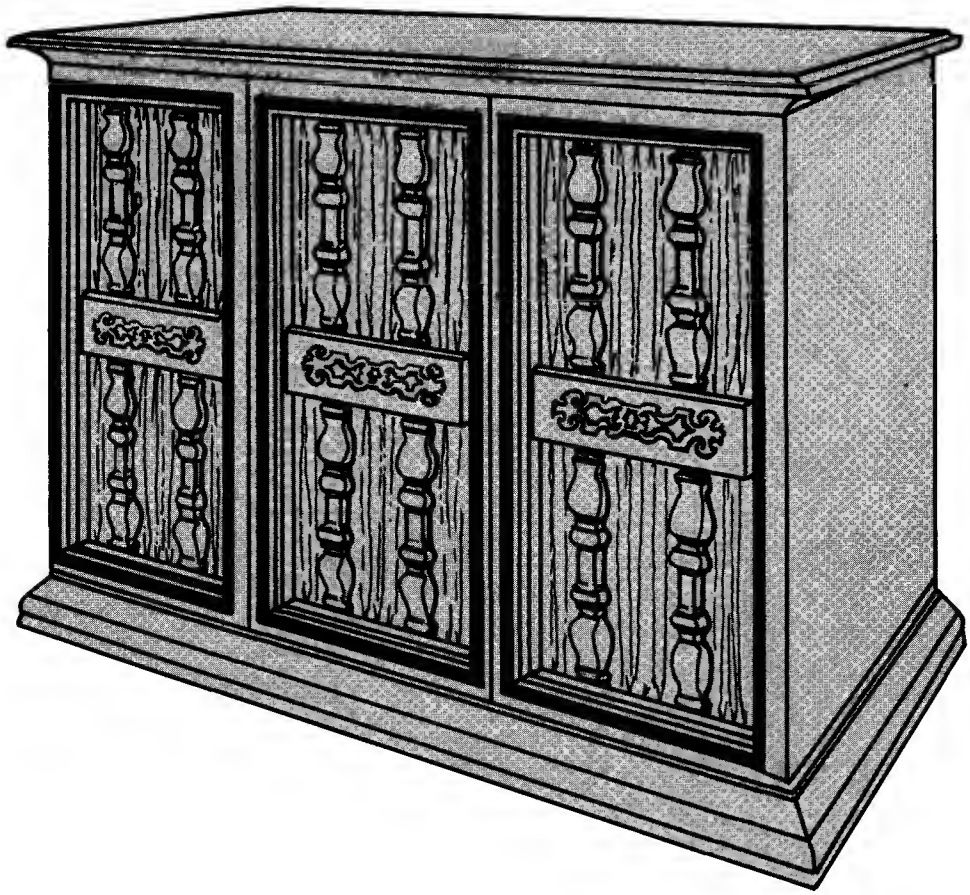
McIntosh

ML 4M

LOUDSPEAKER SYSTEM



SERVICE INFORMATION

SERIAL NO. L1F001 AND ABOVE

038-847

SPECIFICATIONS

SPEAKER SIZE

Woofers four 12" dia. frame size (10" dia. radiators)
Low mid-range 8" dia. frame size (5" dia. radiator)
Mid mid-ranges two 1-1/2" dia. dome radiators
High mid-ranges two 1-1/2" dia. dome radiators
Tweeters two 1-5/8" dia. coaxial super radiators

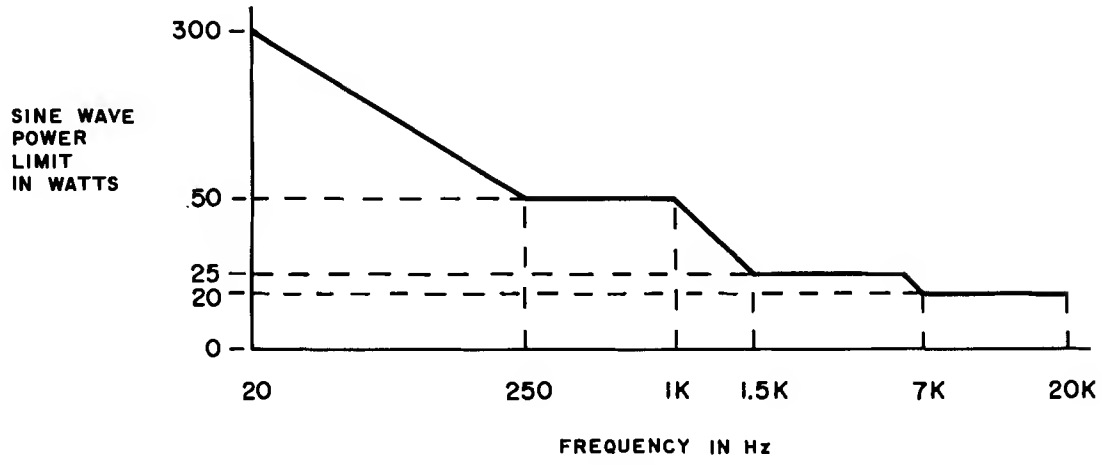
CROSSOVER FREQUENCIES

250Hz, 1.5kHz, 3kHz, & 7kHz

IMPEDANCE

8Ω 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.

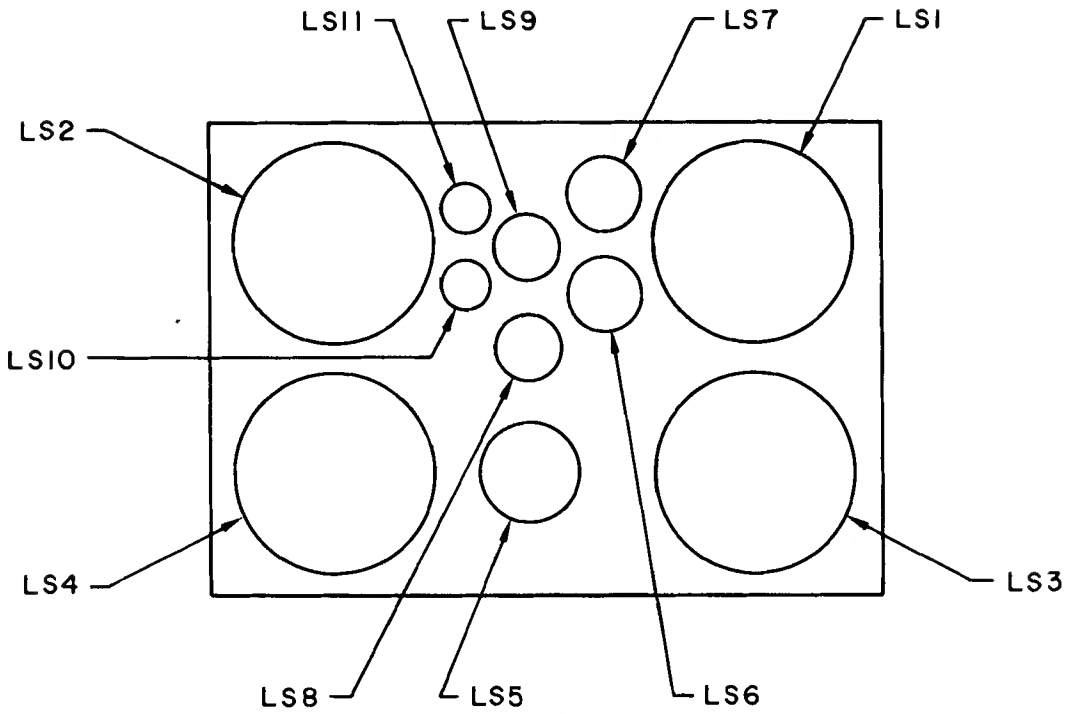
POWER HANDLING: Program Material

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 8Ω.

SPEAKER LOCATION

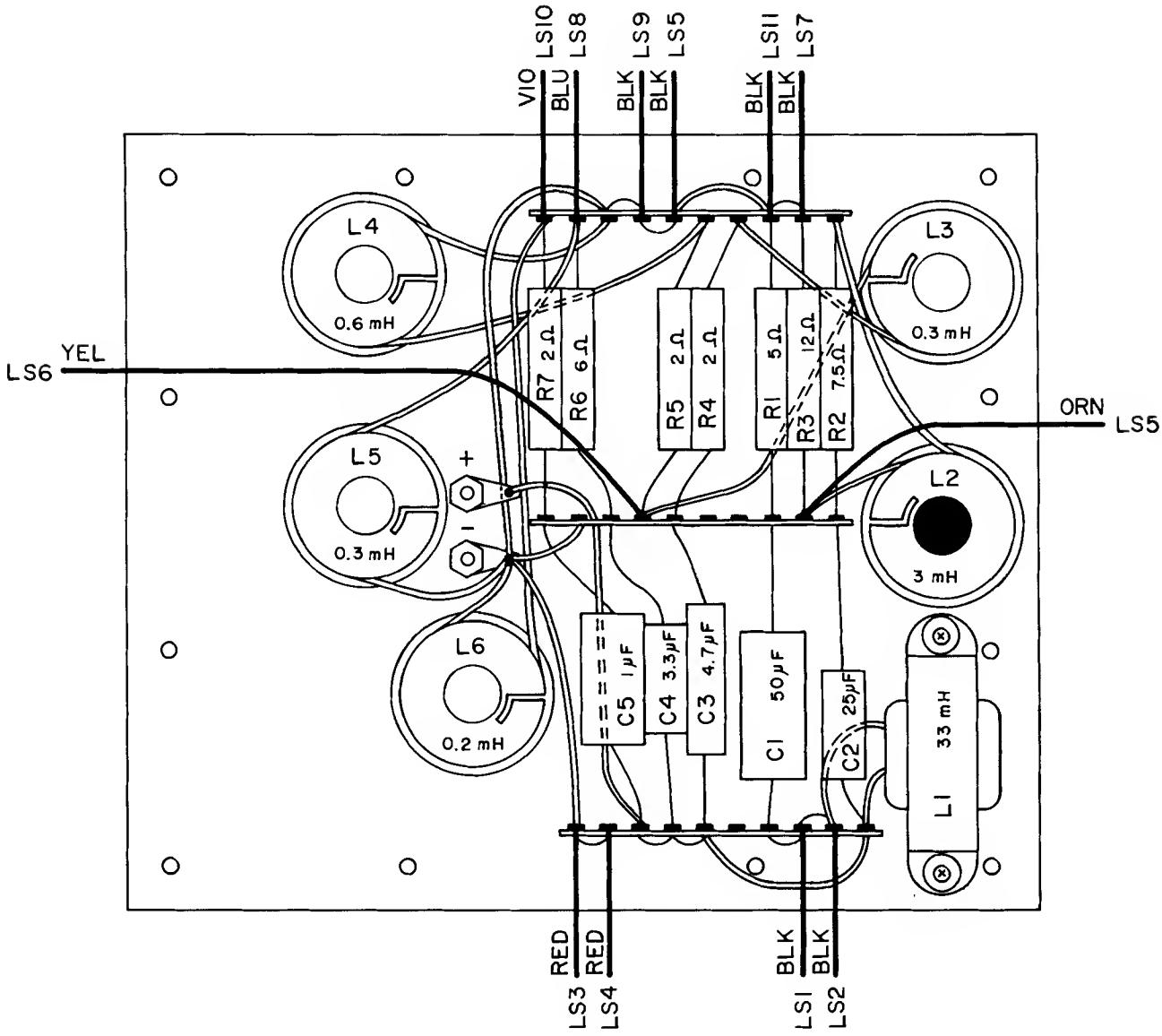


REMOVE REAR PANEL TO SERVICE CROSSOVER NETWORK

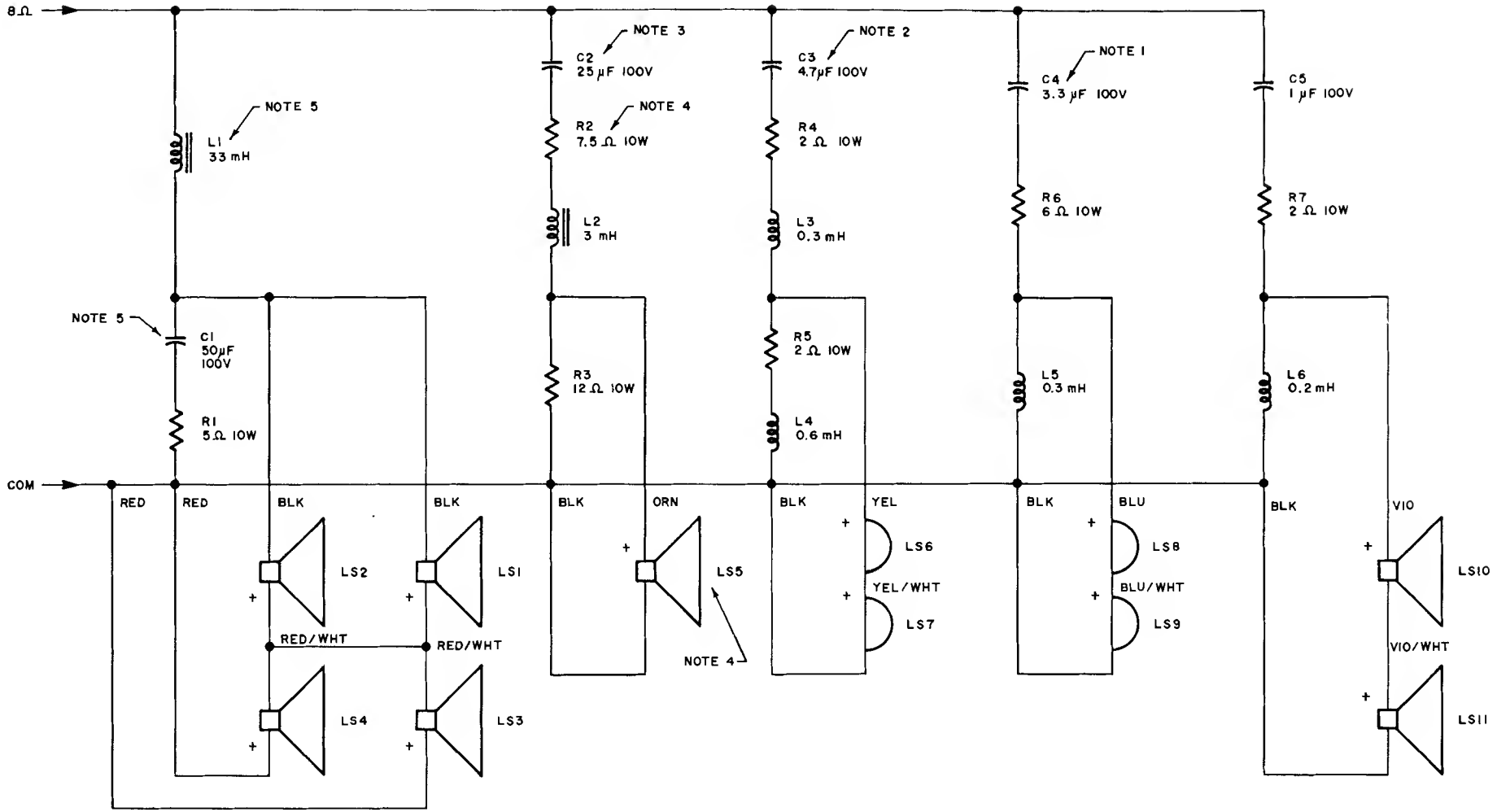
SCHEMATIC NOTES

1. In some units C4 is 3μF.
2. In some units C3 is 5μF.
3. In some units C2 is two 50μF capacitors in series.
4. In units with Serial No's Below L1E189 R2 is 10Ω (Part #139-089). Refer to ML-4C/ML-4M S. B. No. 1 when replacing 8" loudspeaker.
5. In units with Serial No's. Below L2E318 L1 is 8mH (Part #122-119) and C1 is 150μF (Part #066-194). Refer to ML-4C/ML-4M S. B. No. 2.

CROSSOVER NETWORK



ASSEMBLY 044-223
NOTE 7



SYSTEM SCHEMATIC

SERVICE NOTES

Speaker element failure can be quickly located by using FM hiss at a low 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. Short circuiting individual domes may help to locate a defective one.

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 back must be removed to get to the crossover, check for burned resistors, bad connections, broken wires, etc.

When a system has been driven excessively hard by a "clipped" amplifier for long periods of time, the 8" and/or dome mid-ranges may appear to have weak or no output. In addition to burned out speaker elements, the 25µF, 4.7µF, or 3.3µF capacitors may also be damaged. This will be evident if a new 8" or new dome mid-ranges have been installed and also appear 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 when mounting on the crossover board. In addition to the solder connections. This will insure 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 in the cabinet, care must be taken to insure a tight air seal. 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 (20V). 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 50 watts to insure there are no vibrations due to wires hitting the woofer core, etc.

All defective parts must be packed well and returned to the 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.	50μF	100V	066-192
C2	Elect.	25μF	100V	066-189
C3	Mylar	4.7μF	250V	064-107
C4	Mylar	3.3μF	100V	064-117
C5	Mylar	1μF	250V	064-104

CHOKES

L2	Choke	3mH		122-120
L3	Choke	.3mH		122-164
L4	Choke	.6mH		122-168
L5	Choke	.3mH		122-164
L6	Choke	.2mH		122-163

LOUDSPEAKERS

LS1,2	12" Woofer	036-001
LS3,4	12" Woofer	036-001
LS5	8" Midrange	036-025
LS6,7	1-1/2" Dome Midrange	036-016
LS8,9	1-1/2" Dome Midrange	036-017
LS10,11	2-1/4" Tweeter	036-012

RESISTORS

R2	Wirewound	7.5Ω	10W	139-090
R3	Wirewound	12Ω	10W	139-088
R4,5	Wirewound	2Ω	10W	139-085
R6	Wirewound	6Ω	10W	139-087
R7	Wirewound	2Ω	10W	139-085
R8	Wirewound	3Ω	10W	139-083

MISCELLANEOUS ITEMS

Terminal Red	084-086
Terminal Black	084-087
Shipping Carton	033-169
Grille Cloth	031-002
Front Panel Assy.	044-362
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-4C and ML-4M Loudspeakers.

PURPOSE OF MODIFICATION: To maintain the same acoustic output.

WHAT UNITS ARE AFFECTED: ML-4C Serial No. L1E001 through L1E189.
ML-4M Serial No. L1F001 through L1F052.

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:

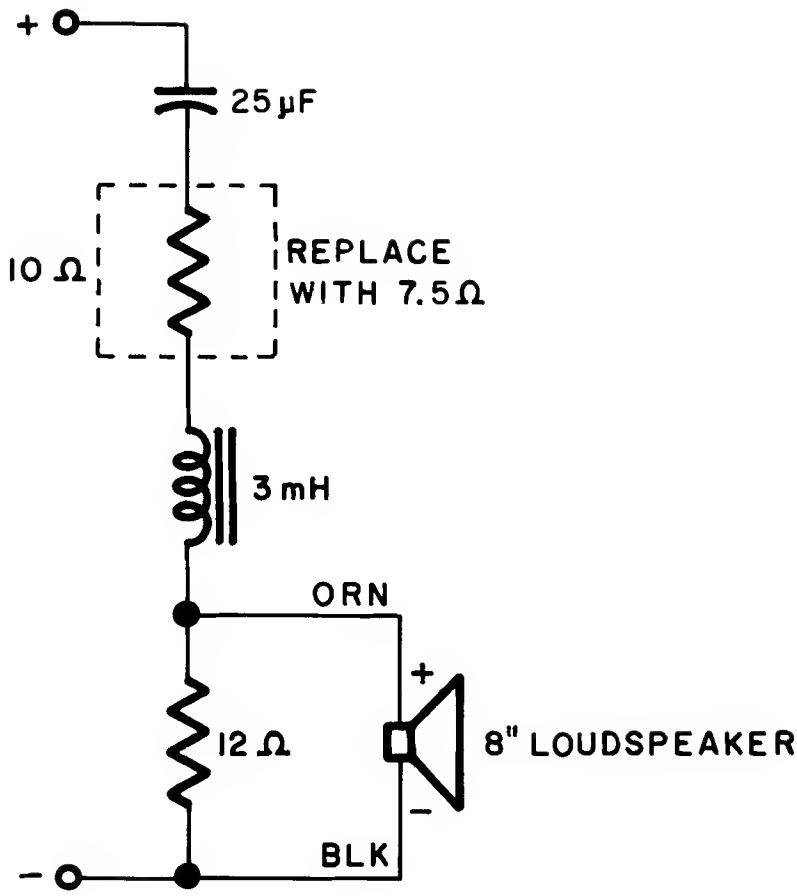
Step 1 Remove rear panel.

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 rear panel.

(over)

S.B. No. 1



038-588

McIntosh **SERVICE BULLETIN**

REDUCE UPPER BASS RESPONSE

MODEL: ML-4C and ML-4M Loudspeakers.

PURPOSE OF MODIFICATION: To provide smoother response in some listening rooms.

WHAT UNITS ARE AFFECTED: ML-4C Serial No. L2E318 & Above.
ML-4M Serial No. L1F171 & Above.

WHEN MODIFICATION SHOULD BE MADE: When customer complains about excessive upper bass.

McINTOSH MODIFICATION KIT: No kit available.

PARTS REQUIRED:

QUANTITY	PART NUMBER	DESCRIPTION
1	122-116	Choke: 33mH
1	066-188	Capacitor: 50μF
2	101-040	Wood Screws: #6 x 1/2"

PROCEDURE: (Refer to Fig. 1)

Step 1 Remove rear panel of speaker cabinet.

Step 2 Locate 8mH choke (the largest coil with an iron core) and the 150μF capacitor. These parts are to be removed and replaced with the 33mH choke and 50μF capacitor.

Step 3 Mount the 33mH choke as illustrated.

NOTE: In some early units the terminal connections may not be as illustrated. Proceed in the same manner as described.

(over)

McIntosh Laboratory Incorporated 2 Chambers Street Binghamton, New York 13903 Phone: Area Code 607-723-3512

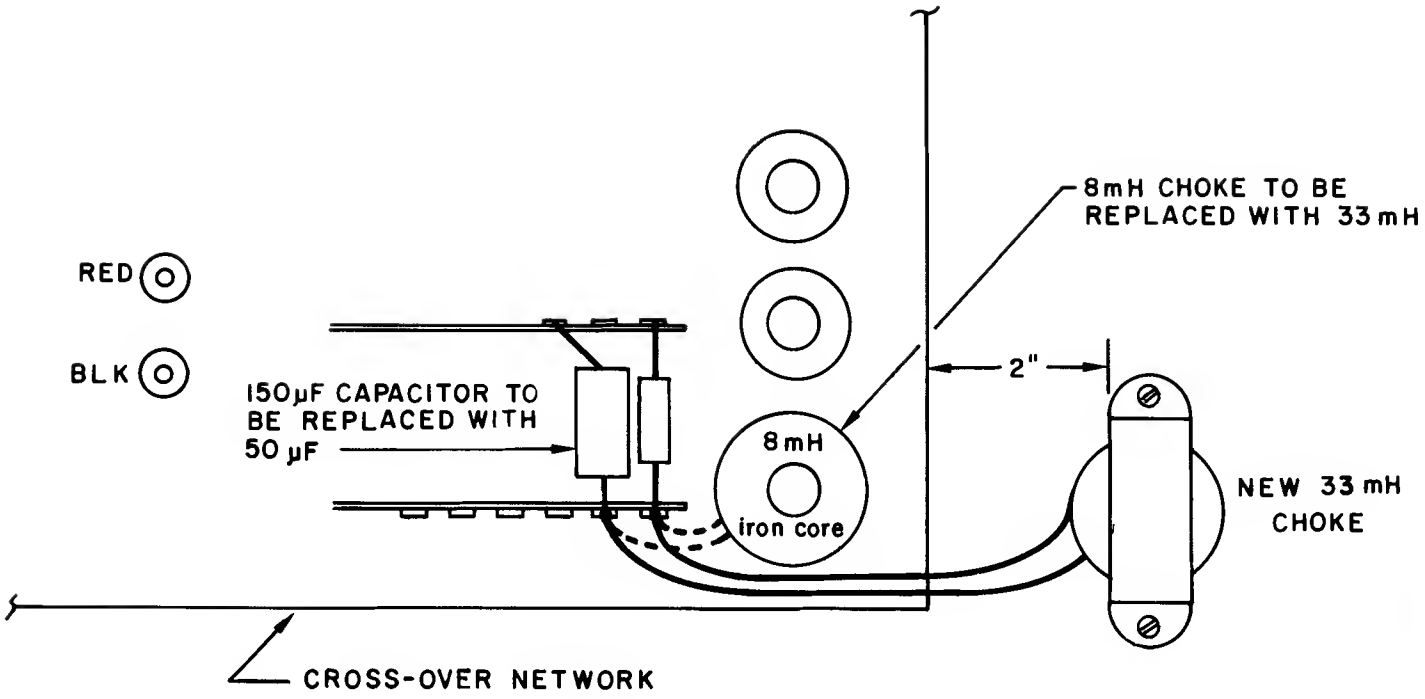
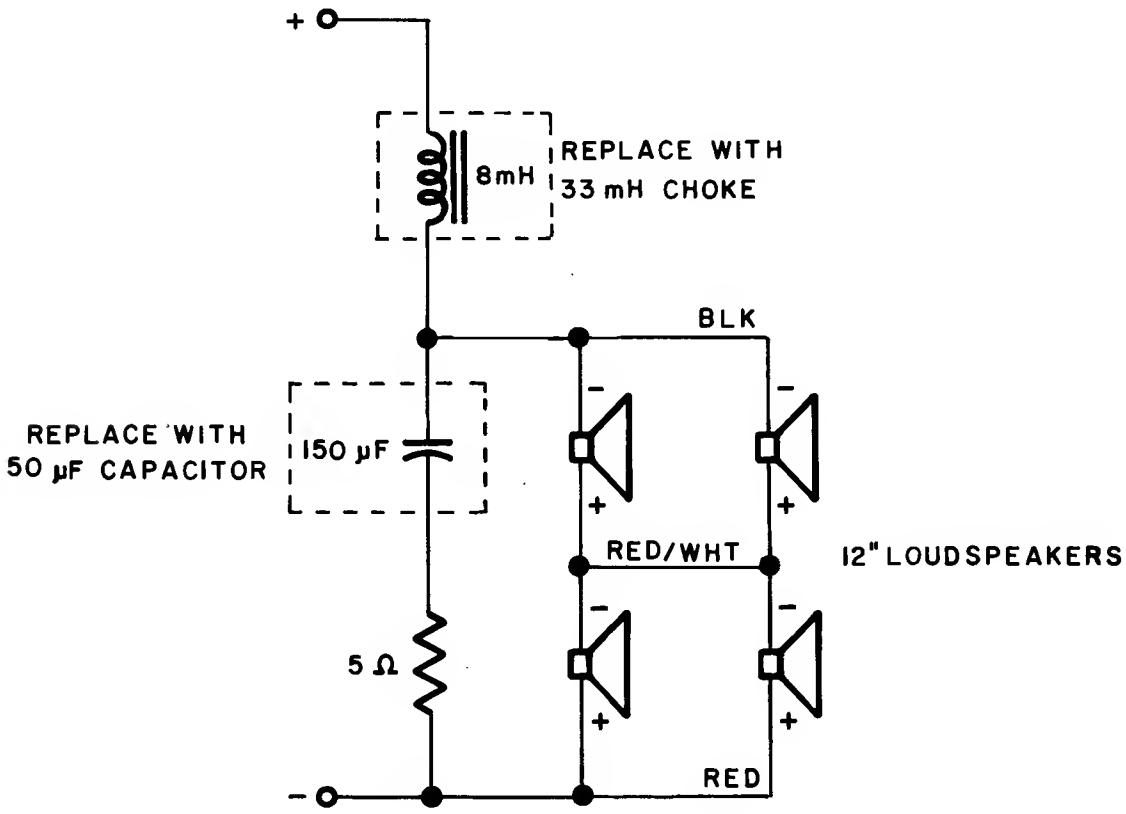

RED
BLK
150μF CAPACITOR TO
BE REPLACED WITH
50 μF
8mH CHOKE TO BE
REPLACED WITH 33mH
2"
8mH
iron core
NEW 33 mH
CHOKE
CROSS-OVER NETWORK

FIG. 1


+
8mH
REPLACE WITH
33 mH CHOKE
BLK
REPLACE WITH
50 μF CAPACITOR
150 μF
RED/WHT
12" LOUDSPEAKERS
5 Ω
RED
−