

# **INSTRUCTION MANUAL**

**McINTOSH MODEL C108**

**AUDIO COMPENSATOR**



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McINTOSH MODEL C-108

AUDIO COMPENSATOR

The McIntosh Audio Compensator is a complete control unit for professional and home entertainment systems. Five input channels are provided; three which produce constant amplification over the audio spectrum of 20 cycles to 20,000 cycles, and two which are equalized for use with magnetic phonograph cartridges.

The C-108 Audio Compensator requires an external power source. A McIntosh 50W-2, 20W-2, or A-116 Power Amplifier, or D-101 power supply may be used for this purpose.

PHYSICAL SPECIFICATIONS

UNIT	DIMENSIONS	WEIGHT
C-108	10" x 3-1/2" x 7-1/2"	6 lbs.
C-108a (C-108 in wooden enclosure)	11-1/2" x 4-1/4" x 8"	7 lbs.
C-108h (C-108 with cabinet mounting panel 11" x 4-1/4")	10" x 3-1/2" x 7-1/2"	6 lbs.

INSTALLATION WITH McINTOSH AMPLIFIERS

1. Connect speaker to output of amplifier.
2. Insert Power Amplifier line cord into socket labeled "PWR AMP" on C-108.
3. Insert inter-unit cable of C-108 into socket labeled "PRE-AMP" on power amplifier.

4. Turn the power amplifier volume control (50W-2 or 20W-2) to full volume setting. The volume control on the A-116, 30 watt power amplifier, is inoperative when the pre-amp socket is used and this step may be disregarded when using this amplifier.
5. Turn the volume control on the C-108 to "OFF".
6. Insert the power cord of the C-108 into a 117 V.A.C. power outlet.
7. Turn the selector switch of the C-108 to "5" and bass fully clockwise.
8. Turn the volume control on the C-108 clockwise until the power switch is activated.
9. Allow thirty seconds for warm-up, then advance the volume control to full volume.
10. Adjust the hum centering potentiometer on the power amplifier for minimum hum.
11. Turn the volume control of the C-108 to a minimum and all other controls to the desired settings.
12. Insert inputs into their proper jacks at the rear of the C-108.

#### INSTALLATION WITH McINTOSH D-101 POWER SUPPLY

1. Connect speaker to power amplifier.
2. Insert power amplifier power cord in socket labeled "PWR AMP" on D-101.
3. Insert D-101 power cord into socket labeled "PWR AMP" of the C-108.
4. Insert inter-unit cable of C-108 into socket labeled "PRE-AMP" of the D-101.
5. Connect "OUTPUT" of D-101 to the input of power amplifier (socket labeled "PRE-AMP" on McIntosh Power Amplifier). J-107 series cables may be used for this purpose.

6. Follow steps 4 through 9 above.
7. Adjust the hum centering potentiometer on the D-101 for minimum hum.
8. Follow steps 11 and 12 above.

INPUT CONNECTING PROCEDURE

The inherent hum and noise voltages applied to the input of the C-108 is -110 DBM, or less than 3 microvolts. To avoid lowering the signal to hum ratio of the C-108 by adding hum voltages to the input, extreme care must be taken in its installation. We offer the following recommendations as a guide to installation:

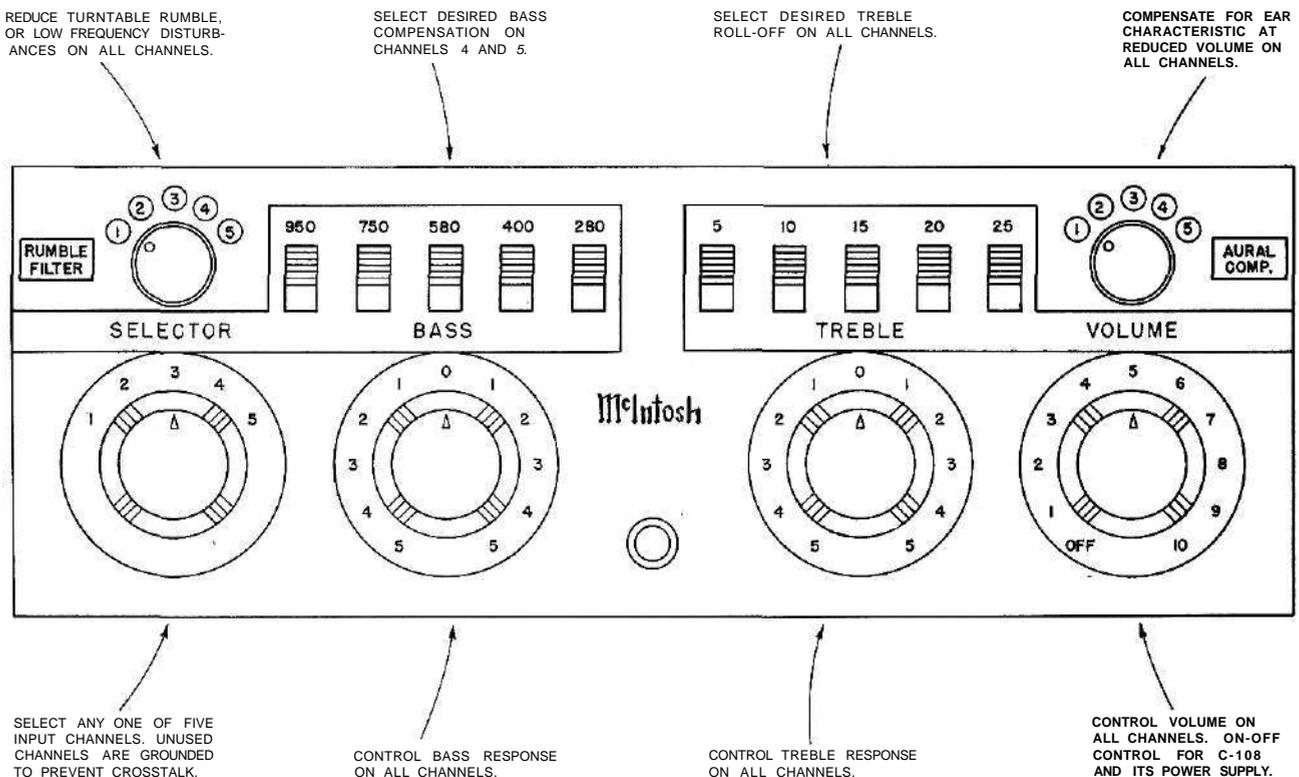
1. Connect input to C -108 as outlined on the table below.

CHANNEL	FOR USE WITH	INPUT (For 3 v. output)		GAIN	FREQUENCY RESPONSE (20-20,000 cps.)	REMARKS
		Min.	Max.			
1 & 2	AM-FM Tuner Wire Reproducer Tape Reproducer Crystal Pickup Crystal Microphone	.1 V	20 V.	30db	+.25 db	Input levels in excess of .1V should be reduced by potentiometer on back panel.
3	Low Impedance Microphone	12 MV.	60 MV.	48db	+.25 db	Input not to exceed 60 MV.
4	High Level Magnetic cartridges. (Terminated for Pickering Cartridge)	30 MV.	.15 V.	40 db from Turn-over to 20,000 cps.	Rises at the rate of 6 db per octave below turn-over frequency to 20 cps.	Cartridge of other manufacturers may be used but input must be terminated as recommended by manufacturer. Alter R6 & R7 or R8.
5	Low Level magnetic cartridges. (Terminated for Audax polyphase cartridge and Weathers FM cartridge.)	12 MV.	60 MV.	48 db from Turn-over to 20,000 cps.		

2. The C-108 and magnetic phonograph cartridges should be mounted at least two feet from power transformers.
3. Inter-unit cables provide a complete ground system. Alternate ground wires create ground loops which will usually increase hum level.
4. The heaters of the 12AX7 tubes used in the C-108 are returned to ground through a hum balancing potentiometer in the power amplifier (or D-101 power supply if used). This control requires an initial adjustment for minimum hum, and should be readjusted each time one or more tubes are replaced.
5. Grounding the turntable motor frame to the C-108 chassis near the input jacks may reduce the hum level on the phonograph channels.

The output stage of the C-108 is a cathode follower. The generator resistance of this tube is 600 ohms, but should not be loaded with a capacitive reactance of less than 10,000 ohms at 20,000 cycles. This is the reactance presented by 750 micromicrofarads, and is equal to that of a cable 30 feet long and having a capacity of 25 mmf per foot. Under special circumstances where the C-108 must be connected to the power amplifier by a longer cable, either lower capacity must be employed, or the output must be reduced.

### OPERATION



#### Channels 1 and 2:

Channels 1 and 2 are each terminated by a potentiometer. These potentiometers are screw driver adjustments on the back panel and should be used to reduce signal input to these channels if in excess of .1 volts. Correct adjustment occurs when the sound level of channels 1 and 2 is equivalent to that of channels 4 or 5. High impedance sources, such as crystal microphones and the detector output of tuners, may be connected directly to these channels since they have an input impedance of 660,000 ohms.

#### Channel 3:

Channel 3 is a high gain microphone channel having an input impedance of 100,000 ohms. The input to this channel should not exceed 60 MV. Low impedance microphones in conjunction with an input transformer, such as the McIntosh M-107 (ATI-1), may be used on this channel.

Channels 1, 2 and 3 provide flat amplification from 20 cycles to 20,000 cycles with the bass and treble controls in their central position, and the treble compensation switches in the up position. These controls may be used to alter the response of these channels as shown on page 9.

#### Channels 4 and 5:

Channels 4 and 5 are equalized for use with magnetic phonograph cartridges. The degree of equalization may be varied with the bass and treble compensation switches as shown on pages 8 and 9. The bass and treble tone controls may be used to supplement these compensation switches.

The inputs of channels 4 and 5 have been terminated to give flat response from the Pickering and Audax Polyphase cartridges respectively. If cartridges of other manufacturers are used, the terminating resistors should be replaced by values recommended by the manufacturer. For example, the 47,000 ohm terminating resistance of channel 5 should be replaced by 12,000 ohms if the G.E. reluctance cartridge is used. If it is desirable not to alter the C-108 an 18,000 ohm resistor may be connected across the G.E. cartridge in the line to the cartridge.

The Aural Compensator may be used to compensate for the response characteristic of the ear as loudness is adjusted. The response of this control is plotted on page 9. This control should not be used until all other adjustments have been made.

The Rumble Filter may be used to eliminate turntable rumble and other low frequency disturbances. The response of this control is plotted on page 9.

An additional output jack has been provided at the rear of the C-108. This jack may be used for recording tape while the signal is being monitored by the power amplifier. The selector switch, rumble filter, and bass compensation switches are effective at the auxiliary output.

### GUARANTEE

We guarantee the performance of the C-108 and the mechanical and electrical workmanship to be free of serious defects for a period of 90 days with the exception that we do not guarantee the tubes and filter capacitor beyond that of their manufacturers.

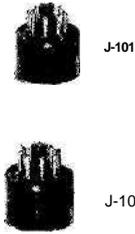
McINTOSH LABORATORY, INC

320 Water Street

Binghamton, New York

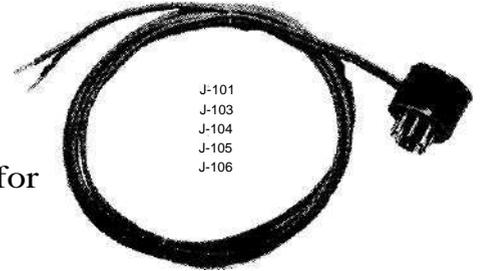
For convenience of installation, we have made the following connectors and cables available from your dealer.

- J-100 Output Plug
- J-101 Input plug
- \*J-102 J-100 Output plug fitted with 6 foot length of two conductor cable, connected for 4 ohm output of McIntosh 50W-2 or 20W-2.
- \*J-103 Same as J-102, but connected for 8 ohms.
- \*J-104 Same as J-102, but connected for 16 ohms.
- \*J-105 Same as J-102, but connected for 32 ohms.



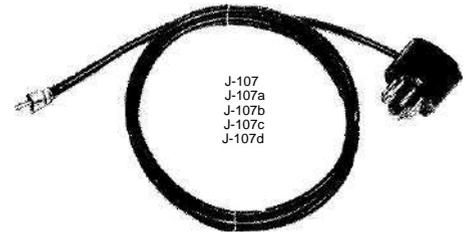
\* For use with 20W-2 or 50W-2 Amplifiers only.

- J-109 J-100 output plug fitted with 6 foot length of two conductor cable connected for 4 ohm output of McIntosh A-116.
- J-110 Same as J-109, but connected for 8 ohms.
- J-111 Same as J-109, but connected for 16 ohms.
- J-106 Same as J-102, but connected for 600 ohms, for use with 50W-2, 20W-2 or A-116.

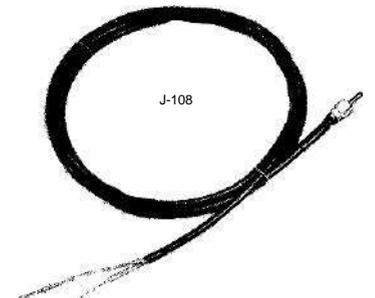


- J-107 J-101 input plug fitted with 6 feet of 25 MMF capacity per foot cable and phono pin jack. For 2.5V input of 50W-2, 20W-2, or A-116.

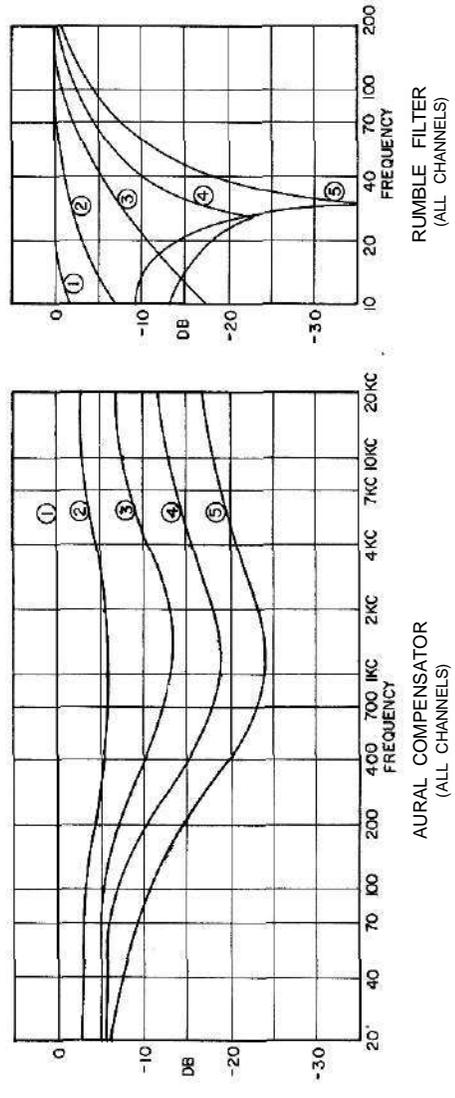
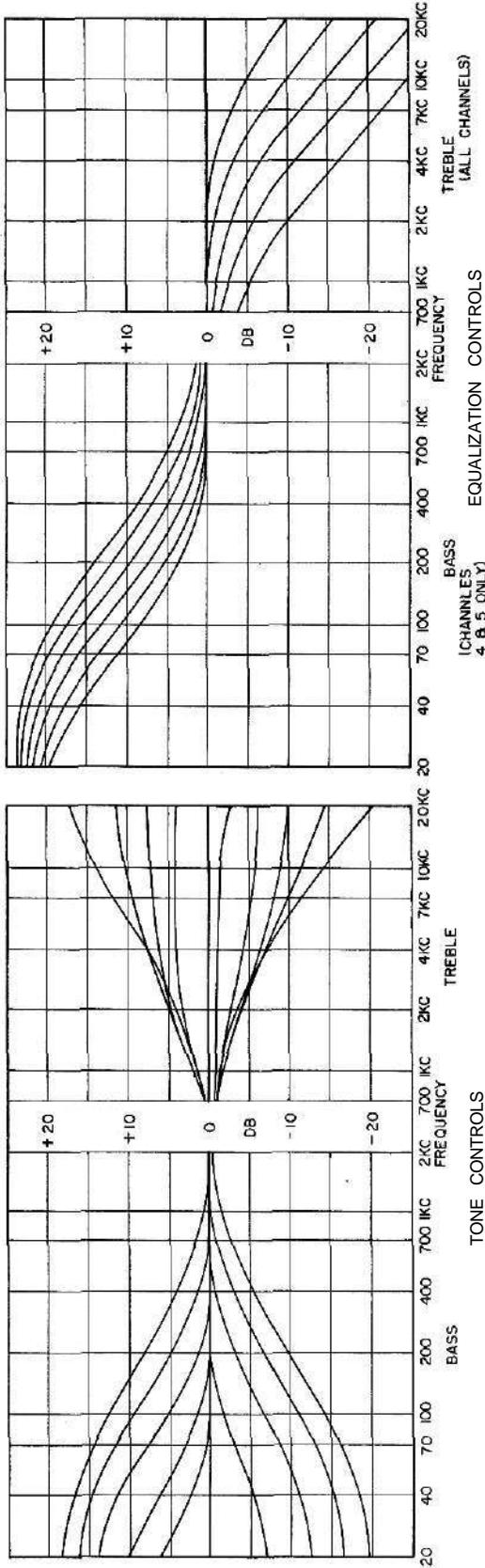
- J-107a Same as J-107, but 12 ft. long.
- J-107b Same as J-107, but 18 ft. long.
- J-107c Same as J-107, but 24 ft. long.
- J-107d Same as J-107, but 30 ft. long.
- J-108 Phono pin jack fitted with 6 feet of 25 MMF capacity per foot cable, with shield and center conductor stripped and tinned.



- J-112 Input plug fitted with 6 feet of 25 MMF capacity per foot cable and phono pin jack. For .5V input of A-116.



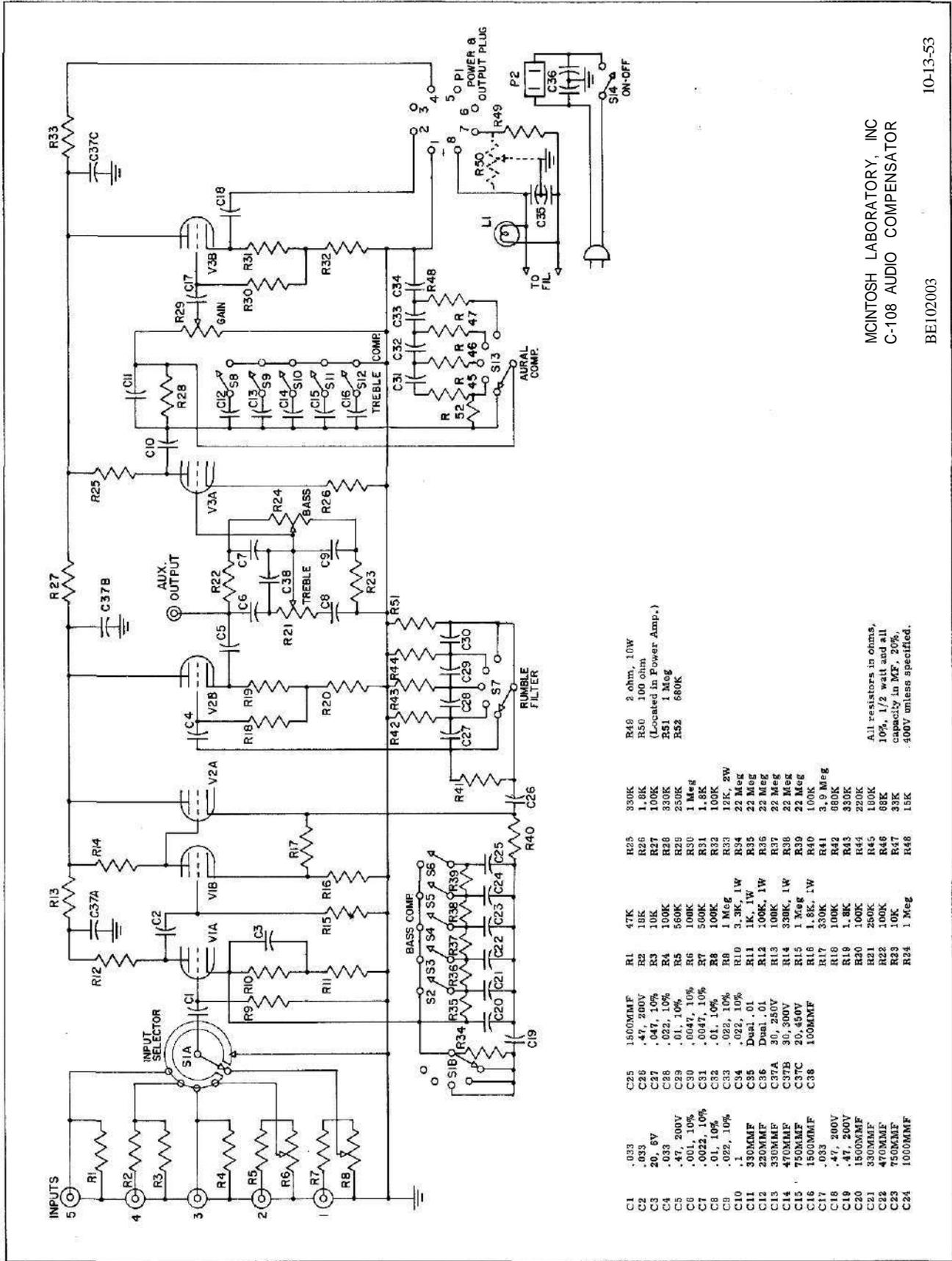




CONTROL CURVES FOR MODEL C-108  
AUDIO COMPENSATOR

③ CONTROL POSITION

MCINTOSH LABORATORY, INC.



- C1 .033
- C2 .025
- C3 20.9V
- C4 .033
- C5 .47, 200V
- C6 .001, 10%
- C7 .0022, 10%
- C8 .01, 10%
- C9 .022, 10%
- C10 .1
- C11 330MMF
- C12 220MMF
- C13 330MMF
- C14 470MMF
- C15 750MMF
- C16 1500MMF
- C17 .033
- C18 .47, 200V
- C19 .47, 200V
- C20 1500MMF
- C21 330MMF
- C22 470MMF
- C23 750MMF
- C24 1000MMF
- C25 1500MMF
- C26 330K
- C27 1.8K
- C28 100K
- C29 330K
- C30 250K
- C31 1Meg
- C32 1.8K
- C33 100K
- C34 12K, 2W
- C35 Dual .01
- C36 Dual .01
- C37A 30, 250V
- C37B 30, 300V
- C37C 20, 450V
- C38 100MMF
- C39 3.9 Meg
- C40 680K
- C41 330K
- C42 680K
- C43 330K
- C44 220K
- C45 100K
- C46 68K
- C47 33K
- C48 15K
- R1 47K
- R2 18K
- R3 10K
- R4 100K
- R5 560K
- R6 100K
- R7 560K
- R8 100K
- R9 1Meg
- R10 1Meg
- R11 3.3K, 1W
- R12 1K, 1W
- R13 100K, 1W
- R14 330K, 1W
- R15 1Meg
- R16 1.8K, 1W
- R17 330K
- R18 100K
- R19 1.8K
- R20 100K
- R21 250K
- R22 100K
- R23 10K
- R24 1Meg
- R25 330K
- R26 1.8K
- R27 100K
- R28 330K
- R29 250K
- R30 1Meg
- R31 1.8K
- R32 100K
- R33 12K, 2W
- R34 22 Meg
- R35 22 Meg
- R36 22 Meg
- R37 22 Meg
- R38 22 Meg
- R39 22 Meg
- R40 100K
- R41 3.9 Meg
- R42 680K
- R43 330K
- R44 220K
- R45 100K
- R46 68K
- R47 33K
- R48 15K
- R49 2 ohm, 10W
- R50 100 ohm
- R51 1 Meg
- R52 680K

MCINTOSH LABORATORY, INC  
C-108 AUDIO COMPENSATOR

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BE102003

All resistors in ohms, 10%, 1/2 watt and all capacity in MF, 20%, 400V unless specified.