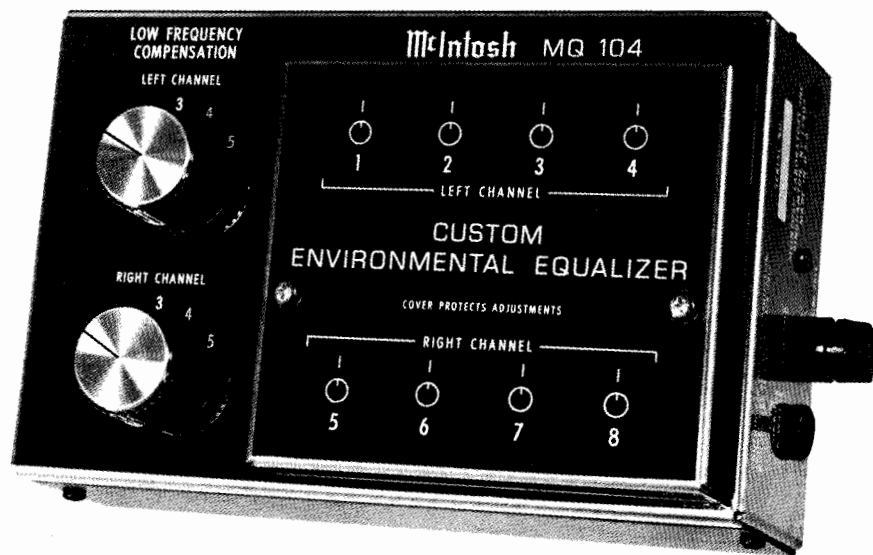


# McIntosh

## MQ 104 CUSTOM ENVIRONMENTAL EQUALIZER



## SERVICE INFORMATION

SERIAL NO. AM1001 TO AM1999

## PERFORMANCE LIMITS &amp; RATINGS

## FREQUENCY RESPONSE

20Hz to 20,000Hz,  $\pm 0.5\text{dB}$  (with equalization set flat)

## HUM AND NOISE

Flat response, 90dB (79 $\mu\text{V}$ ) below rated output (2.5 V)  
Worst case setting, 85dB (140 $\mu\text{V}$ ) below rated output (2.5 V)

## HARMONIC DISTORTION

Does not exceed .1% at rated output level (2.5 V), 20Hz to 20KHz.

## INTERMODULATION DISTORTION

Does not exceed .1% at rated output level (2.5 V), 20Hz to 20KHz.

## EQUALIZATION

$\pm 12\text{dB}$  at one-third octave frequency centers, from 20Hz to 1kHz. Bandwidth selectable: Narrow (approx. 1/3 octave)  
Wide (approx. 1 octave)

## LOW FREQUENCY COMPENSATION

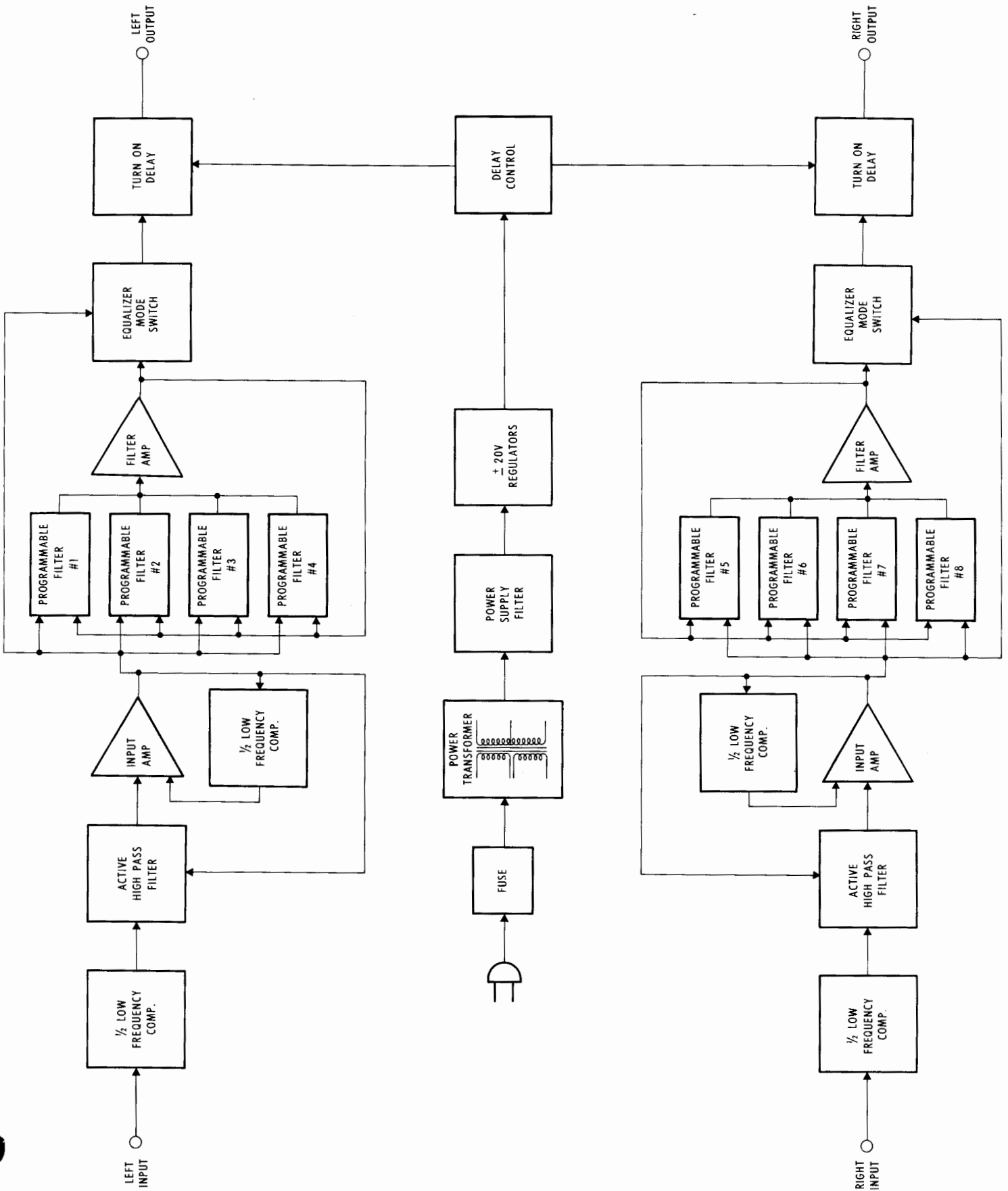
Five steps of low frequency compensation are included for McIntosh speakers, allowing 0 to + 17dB at 20Hz.

## INPUT IMPEDANCE

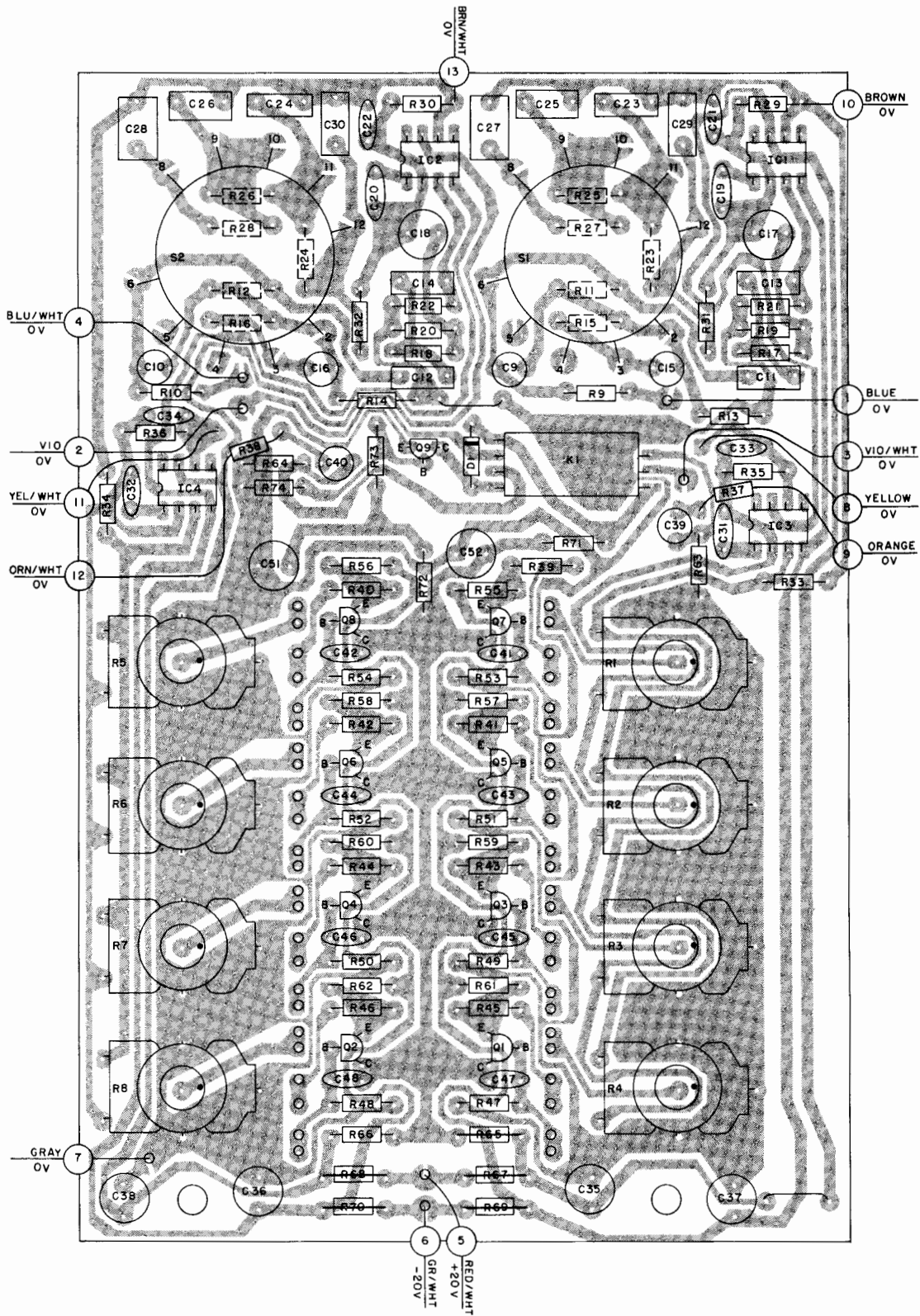
27k $\Omega$

## OUTPUT IMPEDANCE

600 $\Omega$ ; to operate into 10k $\Omega$  load or greater

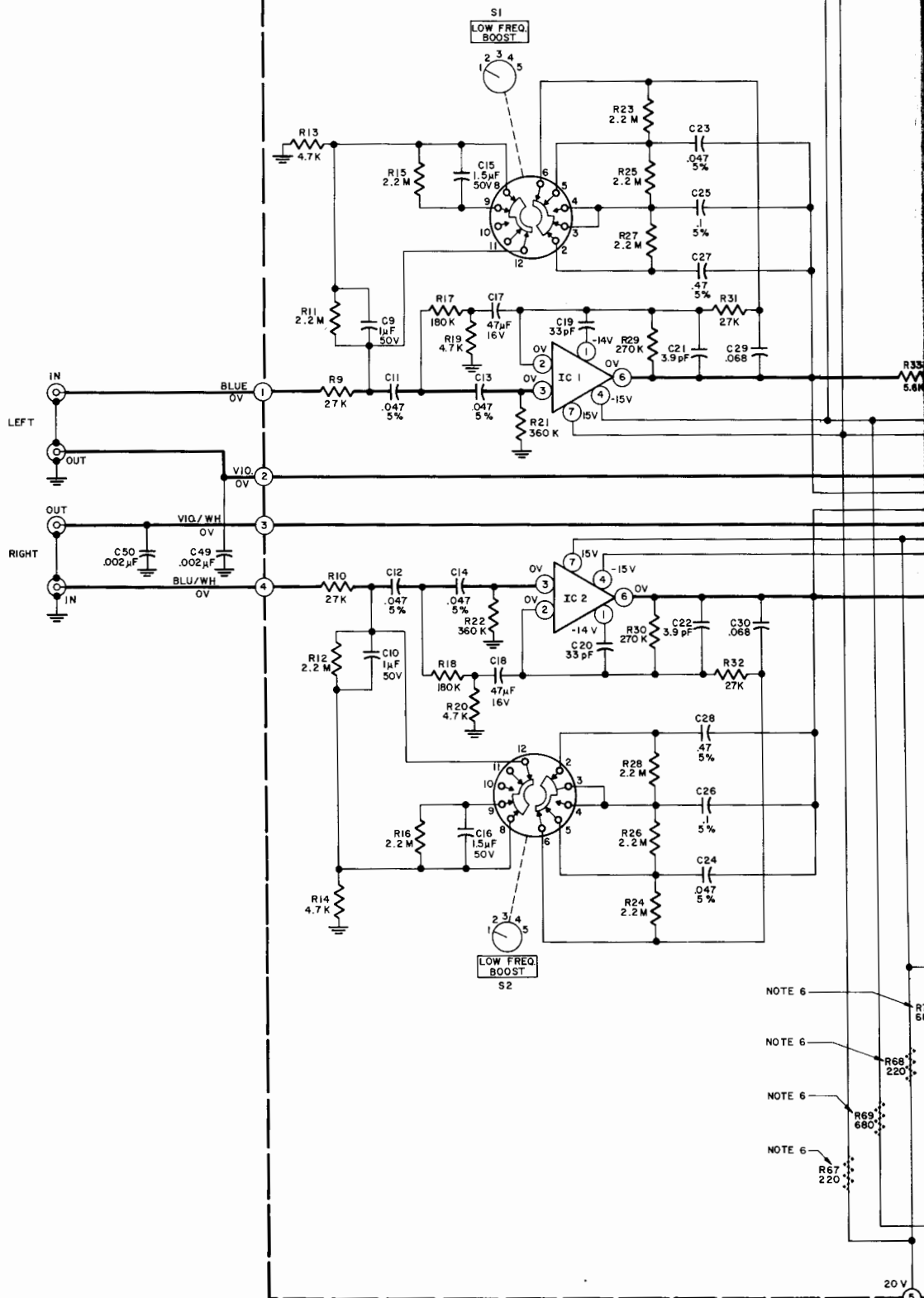


BLOCK DIAGRAM

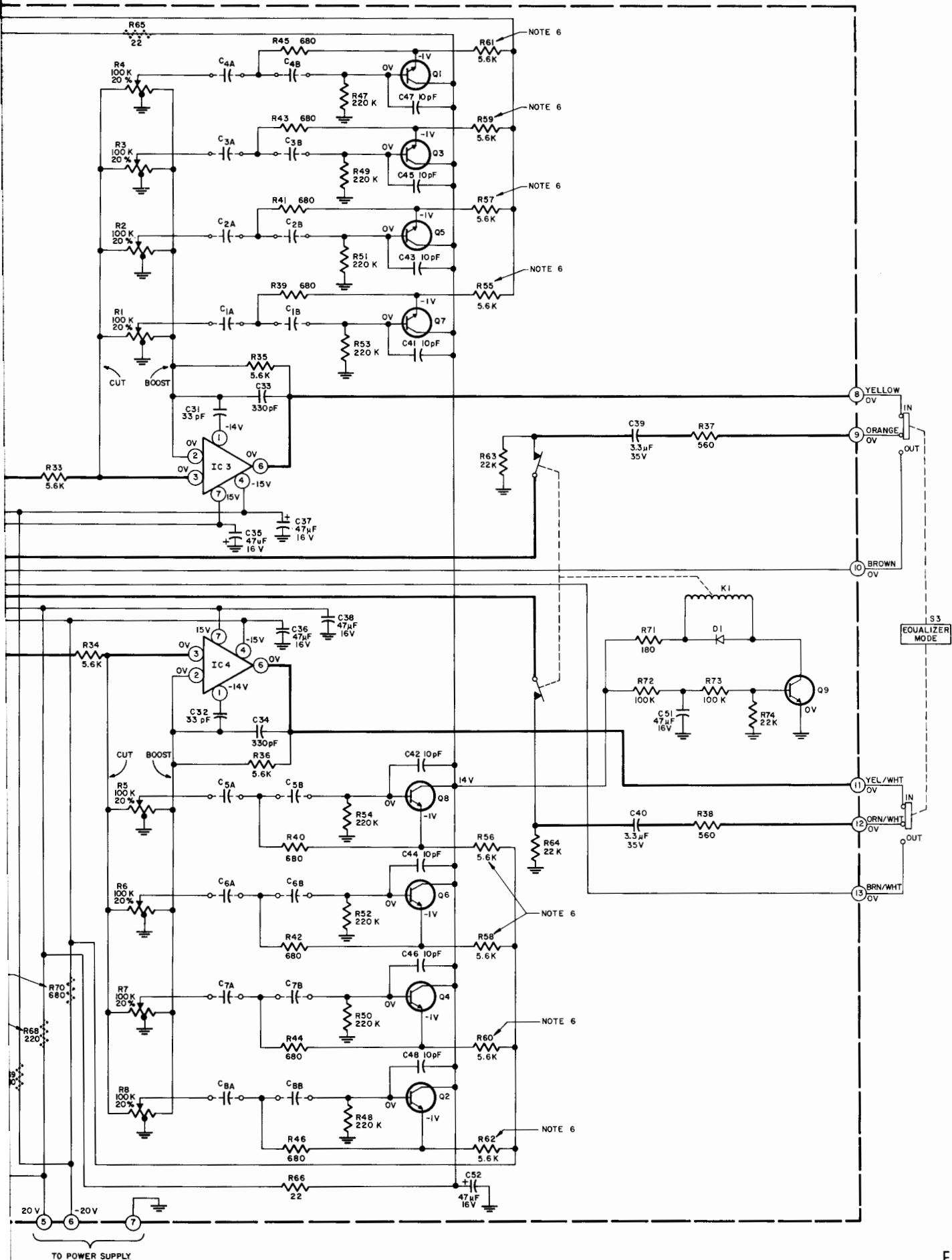


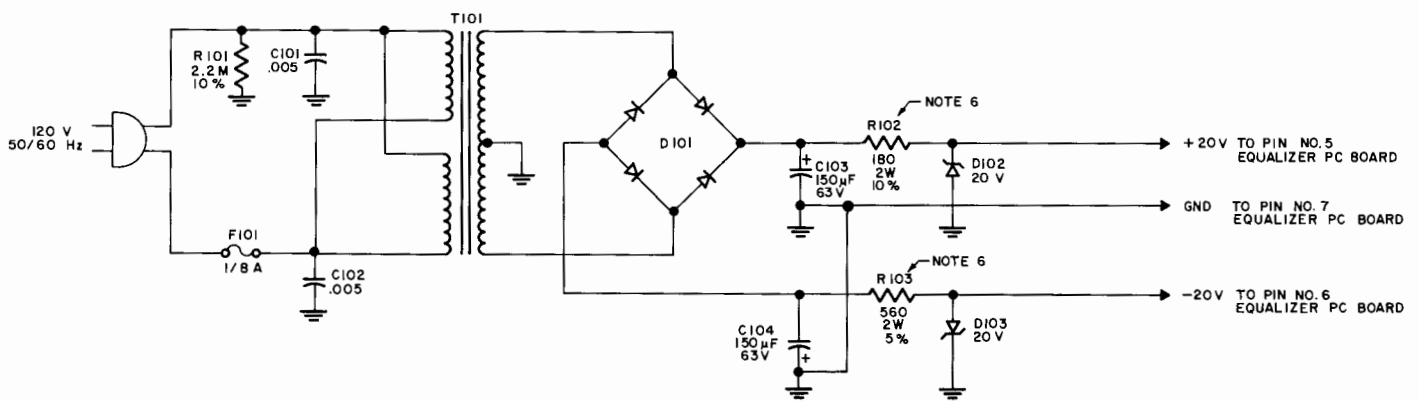
EQUALIZER PC BOARD  
045-082

# EQUALIZER P C BOARD 045-082



- NOTE 6 - R70 680
- NOTE 6 - R68 220
- NOTE 6 - R69 680
- NOTE 6 - R67 220





## SCHEMATIC NOTES

1. Unless otherwise specified: Resistance values are in ohms, 1/4 watt, and 5% tolerance; capacitance values smaller than 1 are in microfarads ( $\mu\text{F}$ ); capacitance values greater than 1 are in picofarads (pF).
2. Printed circuit board components are outlined on the schematics by dotted lines. The circled numbers around the dotted lines correspond to the numbers on the PC Board layouts.
3. The heavy lines on the schematics denote the primary signal path.
4. The terminal numbering of rotary switches is for reference only.
5. All voltages indicated on the schematics are measured under the following conditions:
  - a. Use of an 11 megohm input impedance VTVM.
  - b. All voltages  $\pm 10\%$  with respect to chassis ground.
  - c. No signal at input terminals.
  - d. AC input at 120 volts, 50/60 Hz.
6. In units with Serial No's below AM 1202 R55 thru R62 are 15K 5% 1/2W resistors, also R65, R67, R68, R69, and R70 are used. In the power supply section R102 is 560 $\Omega$  1W 10% and R103 is 1.8K 1W 10%.



# 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
C9,10	Elect. 1 $\mu$ F 50V	066-269
C11,12	Mylar .047 $\mu$ F 100V	064-182
C13,14	Mylar .047 $\mu$ F 100V	064-182
C15,16	Elect. 1.5 $\mu$ F 50V	066-271
C23,24	Mylar .047 $\mu$ F 100V	064-182
C25,26	Mylar .1 $\mu$ F 100V	064-186
C27,28	Mylar .47 $\mu$ F 100V	064-194
C29,30	Mylar .068 $\mu$ F 100V	064-184
C39,40	Elect. 3.3 $\mu$ F 35V	066-238
C17,18	Elect. 47 $\mu$ F 16V	066-182
C35,36	Elect. 47 $\mu$ F 16V	066-182
C37,38	Elect. 47 $\mu$ F 16V	066-215
C51,52	Elect. 47 $\mu$ F 16V	066-215
C103,104	Elect. 150 $\mu$ F 63V	066-205

## DIODES

D1	Si Sig. Diode	070-047
D101	Bridge 400V 2A	070-044
D102,103	Zener Diode 16V	070-089

## RELAYS

K1	Reed Relay	087-024
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## TRANSISTORS

Q1,2	Si NPN transistor	132-090
Q3,4	Si NPN transistor	132-090
Q5,6	Si NPN transistor	132-090
Q7,8	Si NPN transistor	132-090
Q9	Si NPN transistor	132-090

## INTEGRATED CIRCUITS

IC1,2	Integrated circuit	133-054
IC3,4	Integrated circuit	133-054

## TRANSFORMERS

T101	Power transformer	159-134
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## POTENTIOMETERS

R1,2	100K	134-302
R3,4	100K	134-302
R5,6	100K	134-302
R7,8	100K	134-302

## SWITCHES

S1,2	L.F. Equalization	146-150
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## RESISTORS

R9,10	Film Res. 27K 5% 1/4W	141-082
R11,12	Film Res. 2.2M 5% 1/4W	141-124
R13,14	Film Res. 4.7K 5% 1/4W	141-064
R15,16	Film Res. 2.2M 5% 1/4W	141-124
R17,18	Film Res. 180K 5% 1/4W	141-102
R19,20	Film Res. 4.7K 5% 1/4W	141-064
R21,22	Film Res. 360K 5% 1/4W	141-109
R23,24	Film Res. 2.2M 5% 1/4W	141-124
R25,26	Film Res. 2.2M 5% 1/4W	141-124
R27,28	Film Res. 2.2M 5% 1/4W	141-124
R29,30	Film Res. 270K 5% 1/4W	141-106
R31,32	Film Res. 27K 5% 1/4W	141-082
R33,34	Film Res. 5.6K 5% 1/4W	141-066
R35,36	Film Res. 5.6K 5% 1/4W	141-066
R37,38	Film Res. 560 $\Omega$ 5% 1/4W	141-043
R39,40	Film Res. 680 $\Omega$ 5% 1/4W	141-045
R41,42	Film Res. 680 $\Omega$ 5% 1/4W	141-045
R43,44	Film Res. 680 $\Omega$ 5% 1/4W	141-045
R45,46	Film Res. 680 $\Omega$ 5% 1/4W	141-045
R47,48	Film Res. 220K 5% 1/4W	141-104
R49,50	Film Res. 220K 5% 1/4W	141-104
R51,52	Film Res. 220K 5% 1/4W	141-104
R53,54	Film Res. 220K 5% 1/4W	141-104
R55,56	Film Res. 5.6K 5% 1/4W	141-066
R57,58	Film Res. 5.6K 5% 1/4W	141-066
R59,60	Film Res. 5.6K 5% 1/4W	141-066
R61,62	Film Res. 5.6K 5% 1/4W	141-066
R63,64	Film Res. 22K 5% 1/4W	141-080
R71	Film Res. 180 5% 1/4W	141-031
R72,73	Film Res. 100K 5% 1/4W	141-096
R74	Film Res. 22K 5% 1/4W	141-080

## MISCELLANEOUS ITEMS

F101	Fuse 1/8A Normal Blo	089-035
	Knob, Equal., L.F. (2)	090-076
	AC Power Cord	170-021
	Fuseholder	178-099
	Shipping Carton	033-227
	Capacitor Box Assy.	045-145
	Audio Cable	170-015
	Owners Manual	039-059