McIntosh

C 27

PREAMPLIFIER

SERVICE INFORMATION

STARTING WITH SERIAL NO. BV1001

McINTOSH LABORATORY INC. BINGHAMTON, NEW YORK 13903

039-032

PERFORMANCE LIMITS

FREQUENCY RESPONSE

+0 -0.5 dB 20Hz to 20,000 Hz

DISTORTION

Will not exceed 0.05% at rated output level, 20 Hz to 20,000 Hz.

INPUT SENSITIVITY AND IMPEDANCE

AUXILIARY 1 and 2, TUNER,,TAPE 1 and 2: 250 millivolts at 100 000 ohms

PHONO 1 and 2: 2 millivolts at 47K ohms and 100pF

HUM AND NOISE

AUXILIARY 1 and 2, TUNER, TAPE 1 and 2: 85 dB unweighted; 90 dB IHF "A" weighted.

PHONO 1 and 2: 80 dB below 10 mV input, unweighted; 85 dB IHF "A" weighted.

OUTPUT LEVEL AND IMPEDANCE

MAIN OUTPUT 2.5 volts with rated input, less than 1K ohms source impedance, to operate into 22K ohms load or higher. Maximum output is greater than 10 volts.

TAPE OUTPUT 0.25 volts with rated input, less than 1.5K ohms source impedance, to operate into 22K ohms load or higher. Maximum output is greater than 10 volts.

CENTER CHANNEL OUTPUT (L+R) 2.5 volts with rated input to both channels, less than 1.2K ohms source impedance, to operate into 22K ohms load or higher.

VOLTAGE AMPLIFICATION IN DECIBELS

AUXILIARLY 1 and 2, TUNER, TAPE 1 and 2 to MAIN OUTPUT 20 dB, to TAPE OUTPUT 0 dB

PHONO 1 and 2 to MAIN OUTPUT 62 dB, to TAPE OUTPUT 42 dB

POWER REQUIREMENT

120 volts, 50/60 Hz, 15 watts

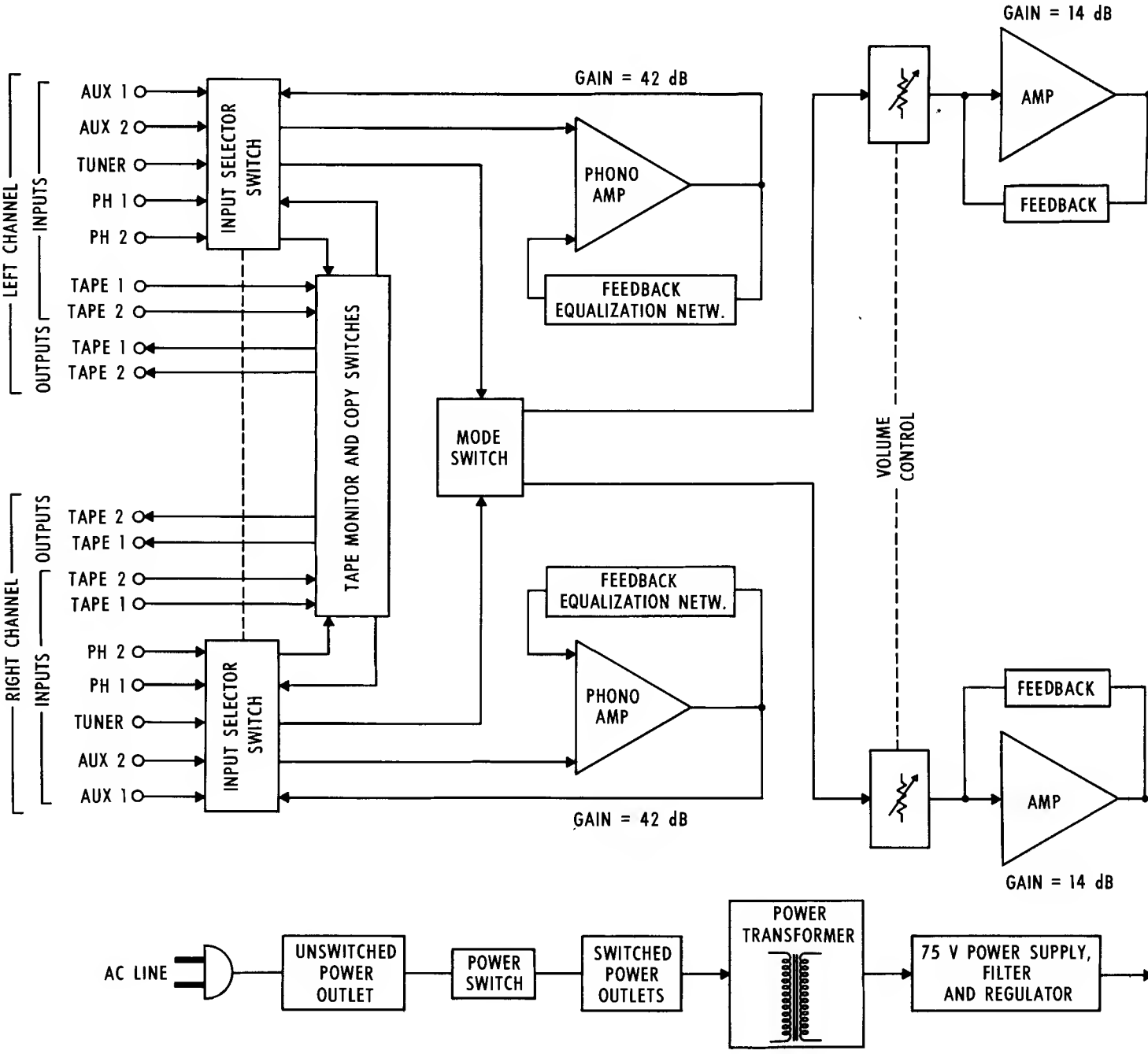
MECHANICAL INFORMATION

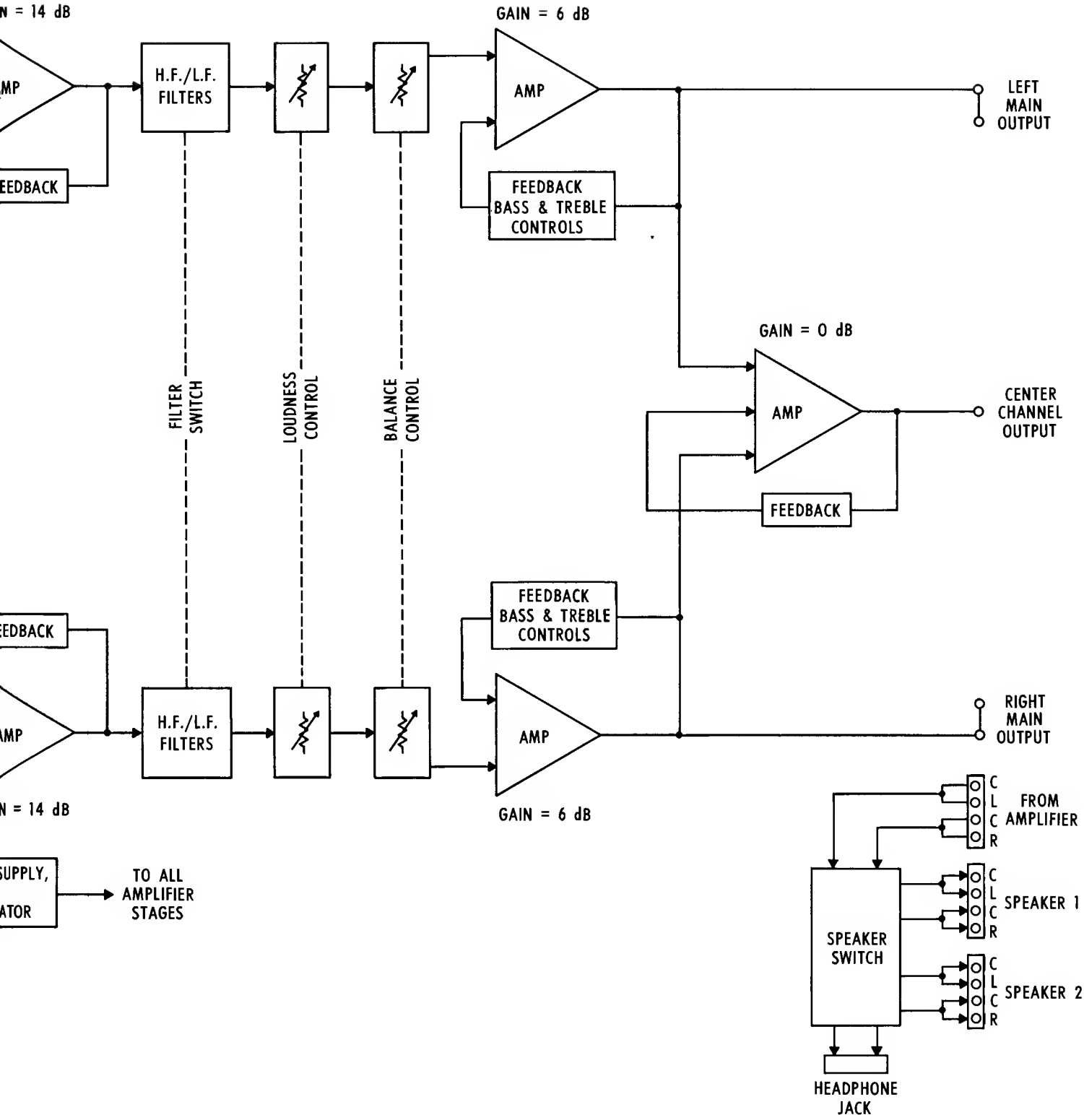
SIZE: Front panel measures 16 inches wide (40.64 cm) by 5-7/16 inches high (13.81 cm). Chassis measures 15 inches wide (38.1 cm) by 5 inches high (12.7 cm) by 13 inches deep (33.02 cm), including PANLOC shelf and back panel connectors. Knob clearance required is 1-1/2 inches (3.81 cm) in front of the mounting panel.

FINISH: Front panel is anodized gold and black with special McIntosh gold/teal panel nomenclature illumination. Chassis is black

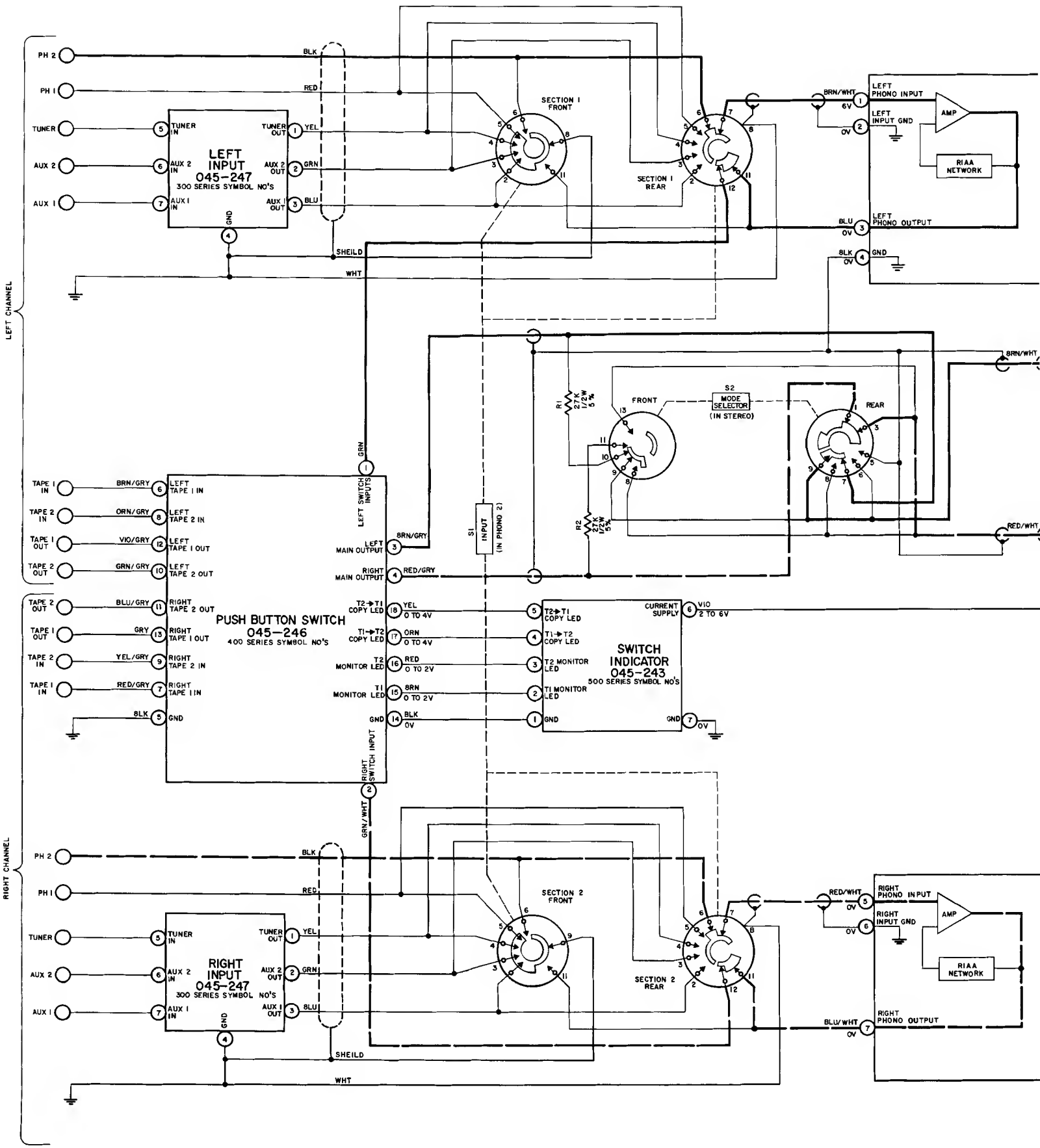
MOUNTING: Exclusive McIntosh developed professional PANLOC.

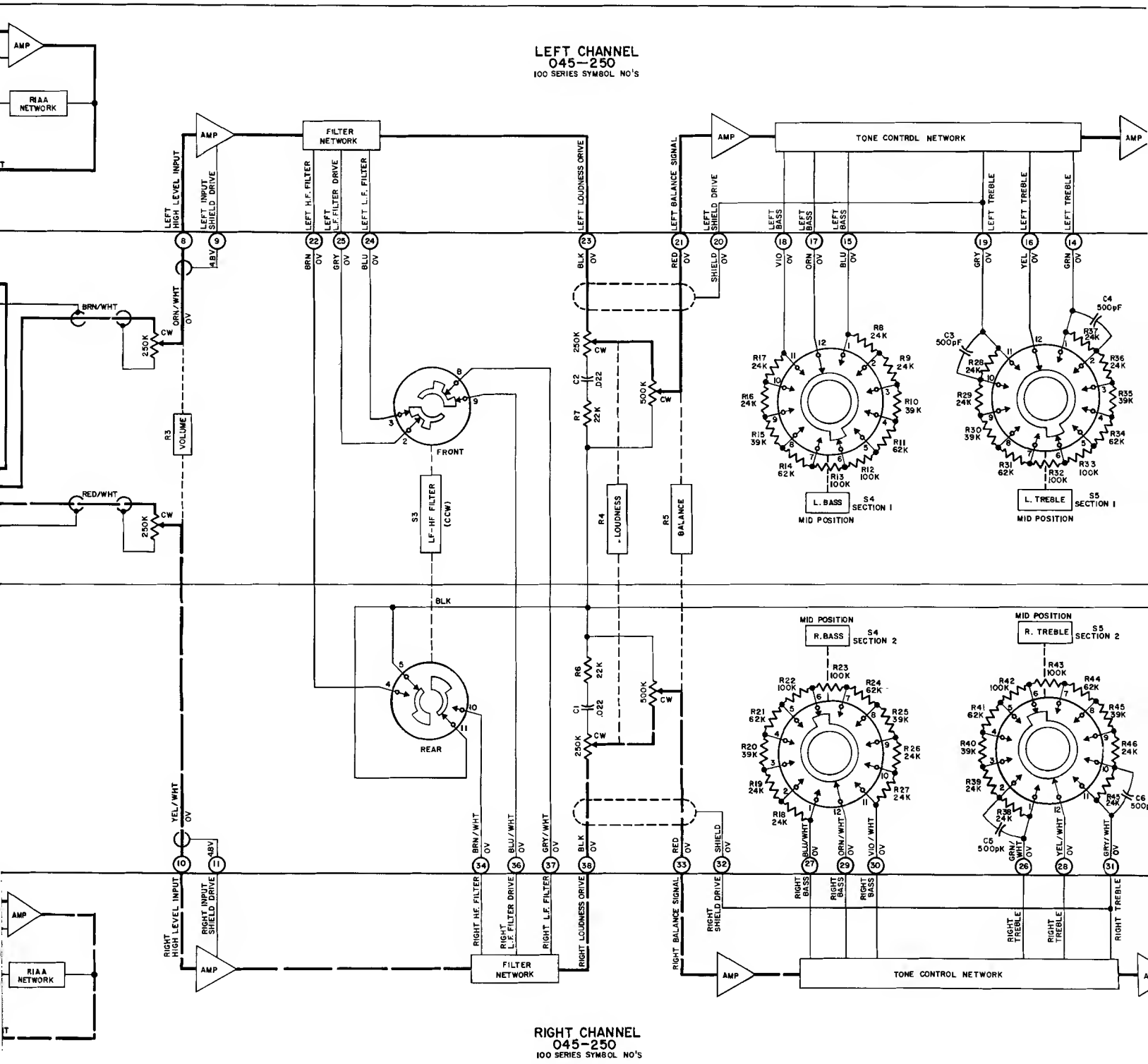
WEIGHT: 18 pounds (8.2 kg) net, 33 pounds (15.0 kg) in shipping carton

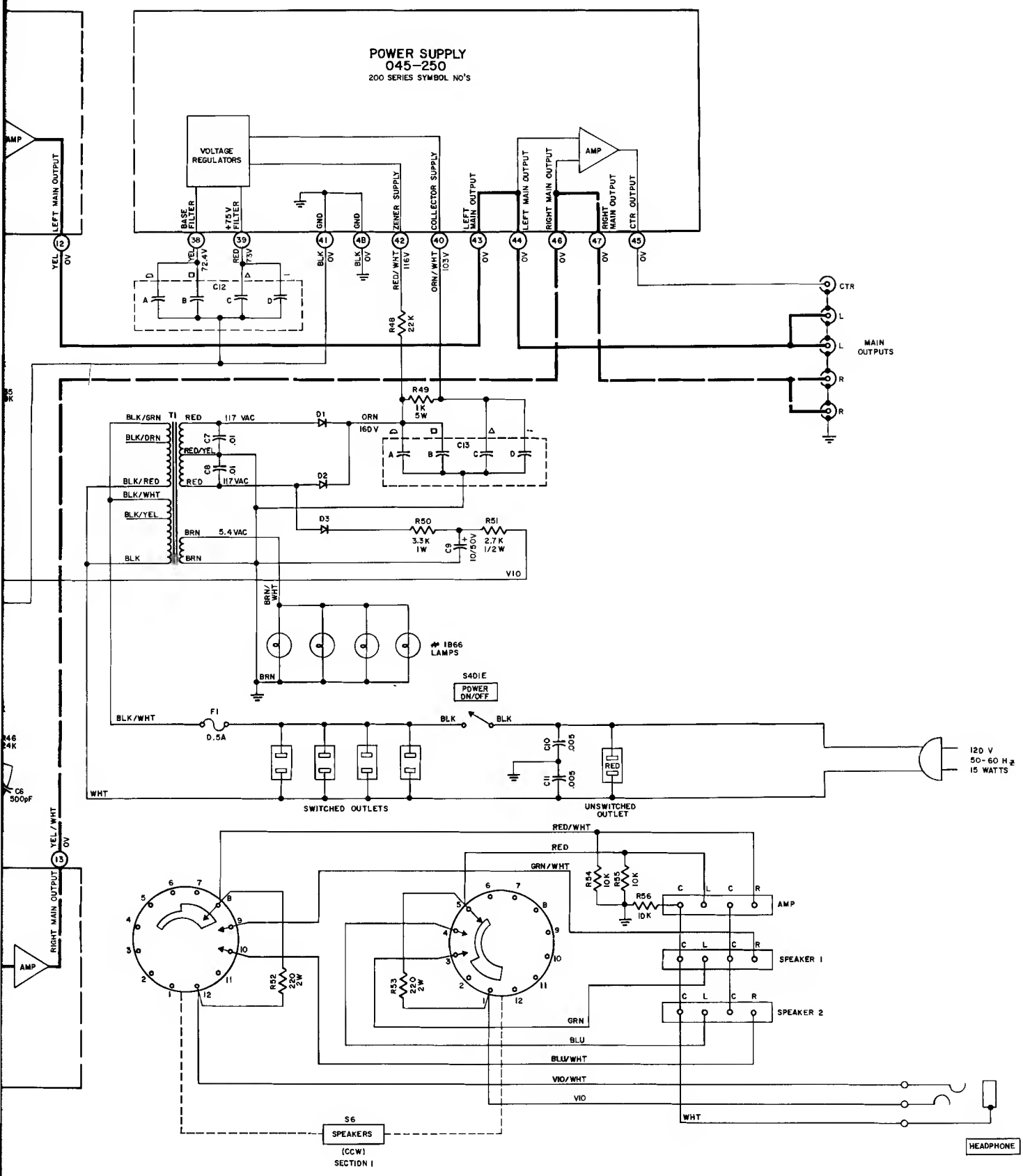

GAIN = 14 dB
GAIN = 42 dB
LEFT CHANNEL
INPUTS
OUTPUTS
AUX 1
AUX 2
TUNER
PH 1
PH 2
TAPE 1
TAPE 2
TAPE 1
TAPE 2
INPUT SELECTOR SWITCH
TAPE MONITOR AND COPY SWITCHES
PHONO AMP
FEEDBACK EQUALIZATION NETW.
MODE SWITCH
VOLUME CONTROL
AMP
FEEDBACK
RIGHT CHANNEL
OUTPUTS
INPUTS
TAPE 2
TAPE 1
TAPE 2
TAPE 1
PH 2
PH 1
TUNER
AUX 2
AUX 1
INPUT SELECTOR SWITCH
FEEDBACK EQUALIZATION NETW.
PHONO AMP
FEEDBACK
AMP
GAIN = 42 dB
GAIN = 14 dB
AC LINE
UNSWITCHED POWER OUTLET
POWER SWITCH
SWITCHED POWER OUTLETS
POWER TRANSFORMER
75 V POWER SUPPLY, FILTER AND REGULATOR



BLOCK DIAGRAM


LEFT CHANNEL
RIGHT CHANNEL
PH 2
PH 1
TUNER
AUX 2
AUX 1
LEFT INPUT 045-247
300 SERIES SYMBOL NO'S
TUNER IN
TUNER OUT
AUX 2 IN
AUX 2 OUT
AUX 1 IN
AUX 1 OUT
GND
BLK
RED
YEL
GRN
BLU
SHEILD
WHT
SECTION 1 FRONT
SECTION 1 REAR
LEFT PHONO INPUT
LEFT INPUT GND
AMP
RIAA NETWORK
LEFT PHONO OUTPUT
BRN/WHT
6V
0V
BLU
GND
R1 27K 1/2W 5%
R2 27K 1/2W 5%
FRONT
REAR
S2
MODE SELECTOR
(IN STEREO)
S1
INPUT
(IN PHONO 2)
TAPE 1 IN
TAPE 2 IN
TAPE 1 OUT
TAPE 2 OUT
BRN/GRY
ORN/GRY
VIO/GRY
GRN/GRY
LEFT TAPE 1 IN
LEFT TAPE 2 IN
LEFT TAPE 1 OUT
LEFT TAPE 2 OUT
LEFT SWITCH INPUTS
LEFT MAIN OUTPUT
RIGHT MAIN OUTPUT
8RN/GRY
RED/GRY
BLU/GRY
GRY
YEL/GRY
RED/GRY
RIGHT TAPE 2 OUT
RIGHT TAPE 1 OUT
RIGHT TAPE 2 IN
RIGHT TAPE 1 IN
PUSH BUTTON SWITCH
045-246
400 SERIES SYMBOL NO'S
T2→T1 COPY LED
T1→T2 COPY LED
T2 MONITOR LED
T1 MONITOR LED
YEL
ORN
RED
8RN
0 TO 4V
0 TO 2V
SWITCH INDICATOR
045-243
500 SERIES SYMBOL NO'S
CURRENT SUPPLY
VIO
2 TO 6V
RIGHT SWITCH INPUT
GRN/WHT
RIGHT INPUT 045-247
300 SERIES SYMBOL NO'S
SECTION 2 FRONT
SECTION 2 REAR
RIGHT PHONO INPUT
RIGHT INPUT GND
RIGHT PHONO OUTPUT
RED/WHT
BLU/WHT


LEFT CHANNEL
045-250
100 SERIES SYMBOL NO'S
AMP
RIAA NETWORK
FILTER NETWORK
TONE CONTRDL NETWORK
LEFT HIGH LEVEL INPUT
LEFT INPUT SHIELD DRIVE
LEFT H.F. FILTER
LEFT L.F. FILTER DRIVE
LEFT L.F. FILTER
LEFT LOUDNESS DRIVE
LEFT BALANCE SIGNAL
LEFT SHIELD DRIVE
LEFT BASS
LEFT TREBLE
BRN/WHT
ORN/WHT
250K CW
R3 VOLUME
RED/WHT
FRONT
REAR
S3 LF-HF FILTER (CCW)
R4 LOUDNESS
R5 BALANCE
500K CW
C1 .022
C2 .022
R7 22K
R6 22K
C3 500pF
C4 500pF
C5 500pF
C6 500pF
L. BASS
L. TREBLE
R. BASS
R. TREBLE
S4 SECTION 1
S5 SECTION 1
S4 SECTION 2
S5 SECTION 2
MID POSITION
YEL/WHT
BLK
RIGHT HIGH LEVEL INPUT
RIGHT INPUT SHIELD DRIVE
RIGHT H.F. FILTER
RIGHT L.F. FILTER DRIVE
RIGHT L.F. FILTER
RIGHT LOUDNESS DRIVE
RIGHT BALANCE SIGNAL
RIGHT SHIELD DRIVE
RIGHT BASS
RIGHT TREBLE
TONE CONTROL NETWORK
RIGHT CHANNEL
045-250
100 SERIES SYMBOL NO'S


POWER SUPPLY
045-250
200 SERIES SYMBOL NO'S
VOLTAGE REGULATORS
BASE FILTER
+75V FILTER
GND
GND
ZENER SUPPLY
COLLECTOR SUPPLY
LEFT MAIN OUTPUT
LEFT MAIN OUTPUT
RIGHT MAIN OUTPUT
RIGHT MAIN OUTPUT
CTR OUTPUT
AMP
AMP
LEFT MAIN OUTPUT
RIGHT MAIN OUTPUT
YEL 72.4V
RED 73V
BLK 0V
BLK 0V
RED/WHT 116V
ORN/WHT 103V
0V
C12
R48 22K
R49 1K 5W
CTR
L
L
R
R
MAIN OUTPUTS
BLK/GRN
BLK/ORN
RED/YEL
BLK/RED
BLK/WHT
BLK/YEL
BRN
BLK
T1
RED 117 VAC
RED 117 VAC
BRN 5.4 VAC
C7 .01
C8 .01
D1
D2
D3
ORN 160V
C13
R50 3.3K 1W
R51 2.7K 1/2W
C9 10/50V
V10
BRN/WHT
#1866 LAMPS
BRN
S4DIE
POWER ON/OFF
BLK/WHT
F1 0.5A
BLK
BLK
C10 .005
C11 .005
RED
WHT
SWITCHED OUTLETS
UNSWITCHED OUTLET
120 V 50-60 Hz 15 WATTS
RED/WHT
RED
GRN/WHT
R54 10K
R55 10K
R56 10K
C L C R
AMP
SPEAKER 1
SPEAKER 2
R52 220 2W
R53 220 2W
GRN
BLU
BLU/WHT
V10/WHT
V10
WHT
S6
SPEAKERS
(CCW)
SECTION 1
HEADPHONE
YEL/WHT
0V
RIGHT MAIN OUTPUT
AMP
LEFT MAIN OUTPUT
AMP
C6 500pF

1. Unless otherwise specified: Resistance values are in ohms, 1/4 watt, and 5% tolerance; capacitance values smaller than 1 are in microfarads (μF); capacitance values greater than 1 are in picofarads (pF): inductors are in microhenries (μH).

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 left channel primary signal path. The heavy dash lines on the schematics denote the right channel 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 ±10% with respect to chassis ground.

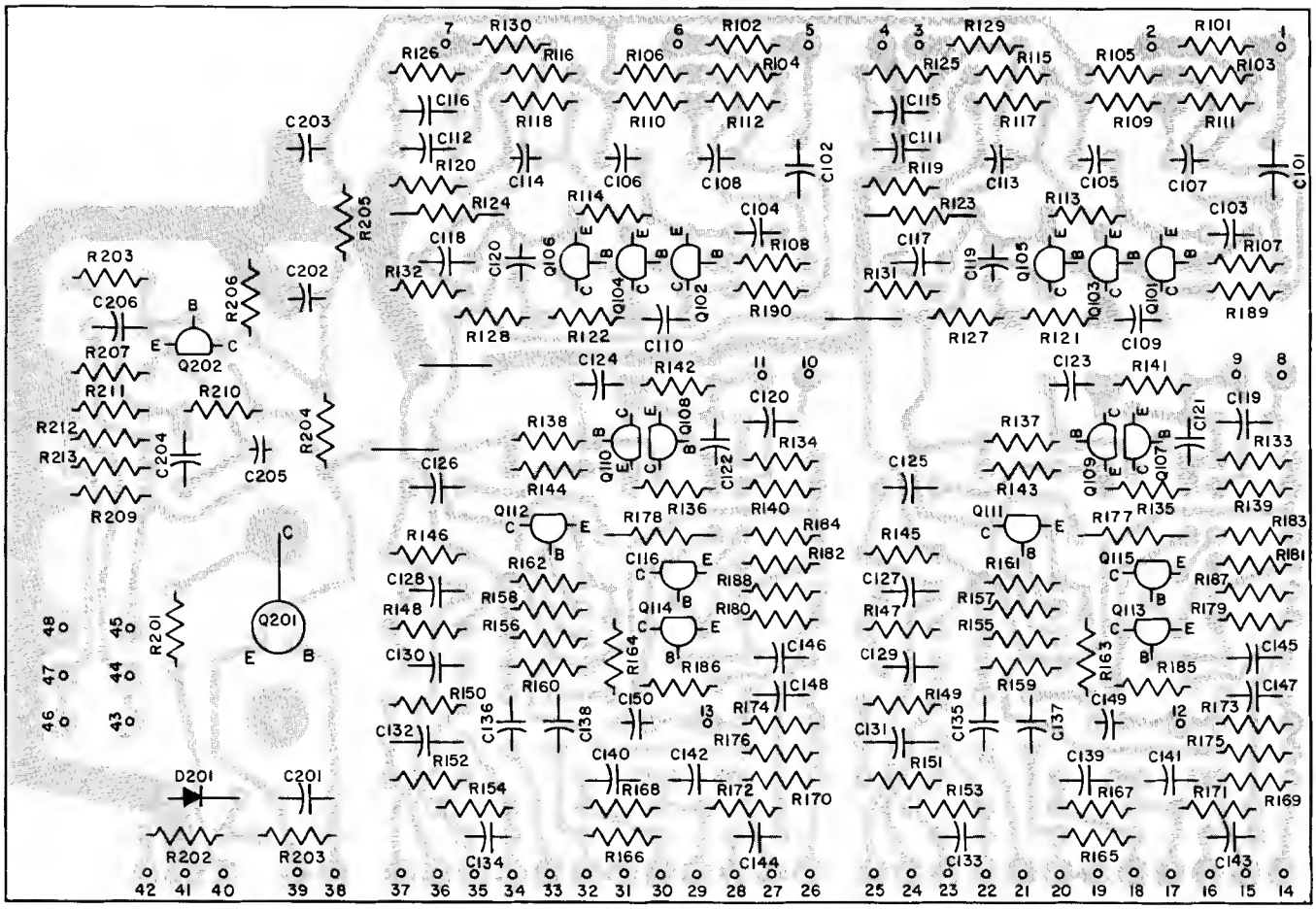
   c. No signal at input terminals.

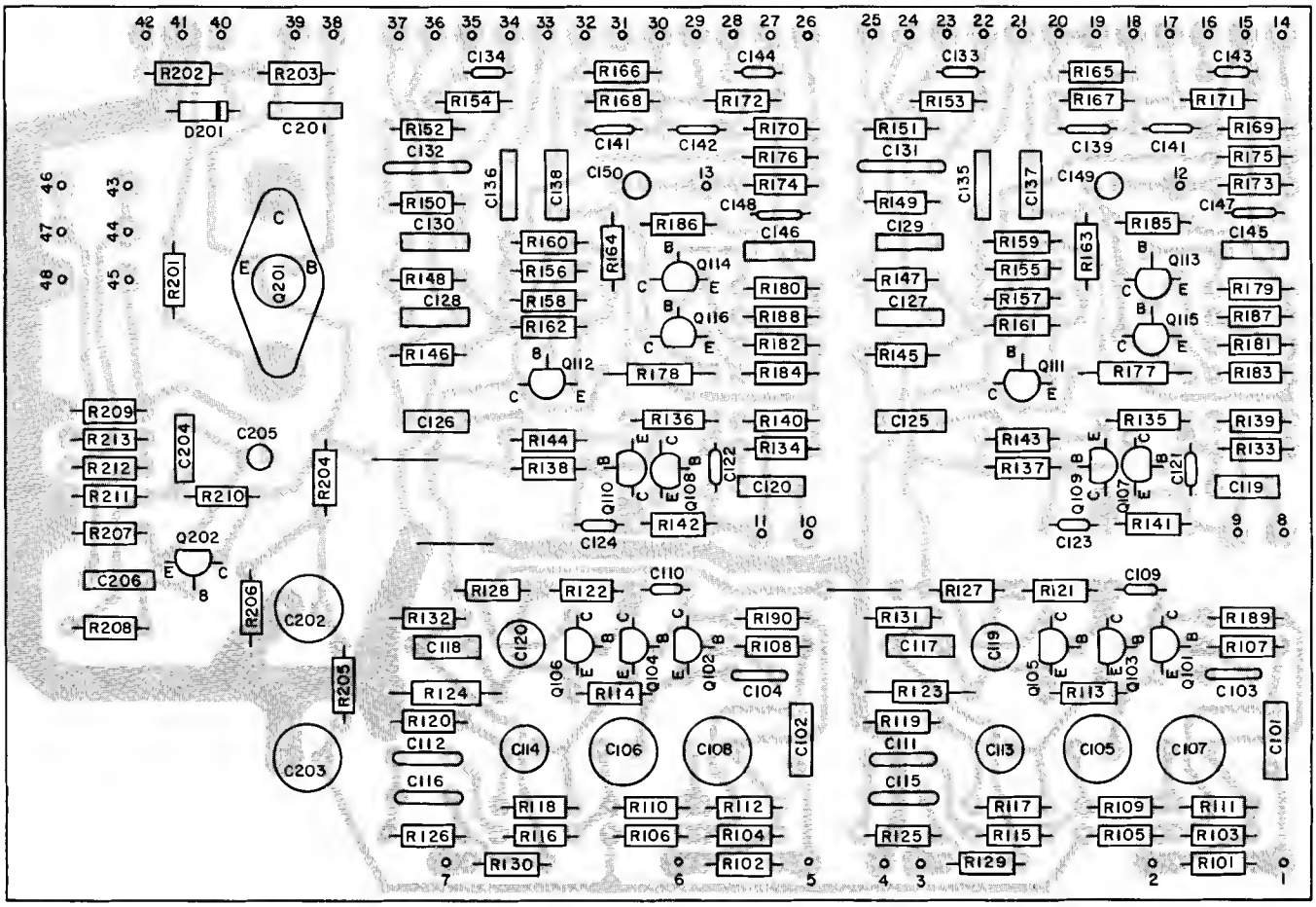
   d. AC input at 120 volts, 50/60 Hz.

   e. Front panel controls at:

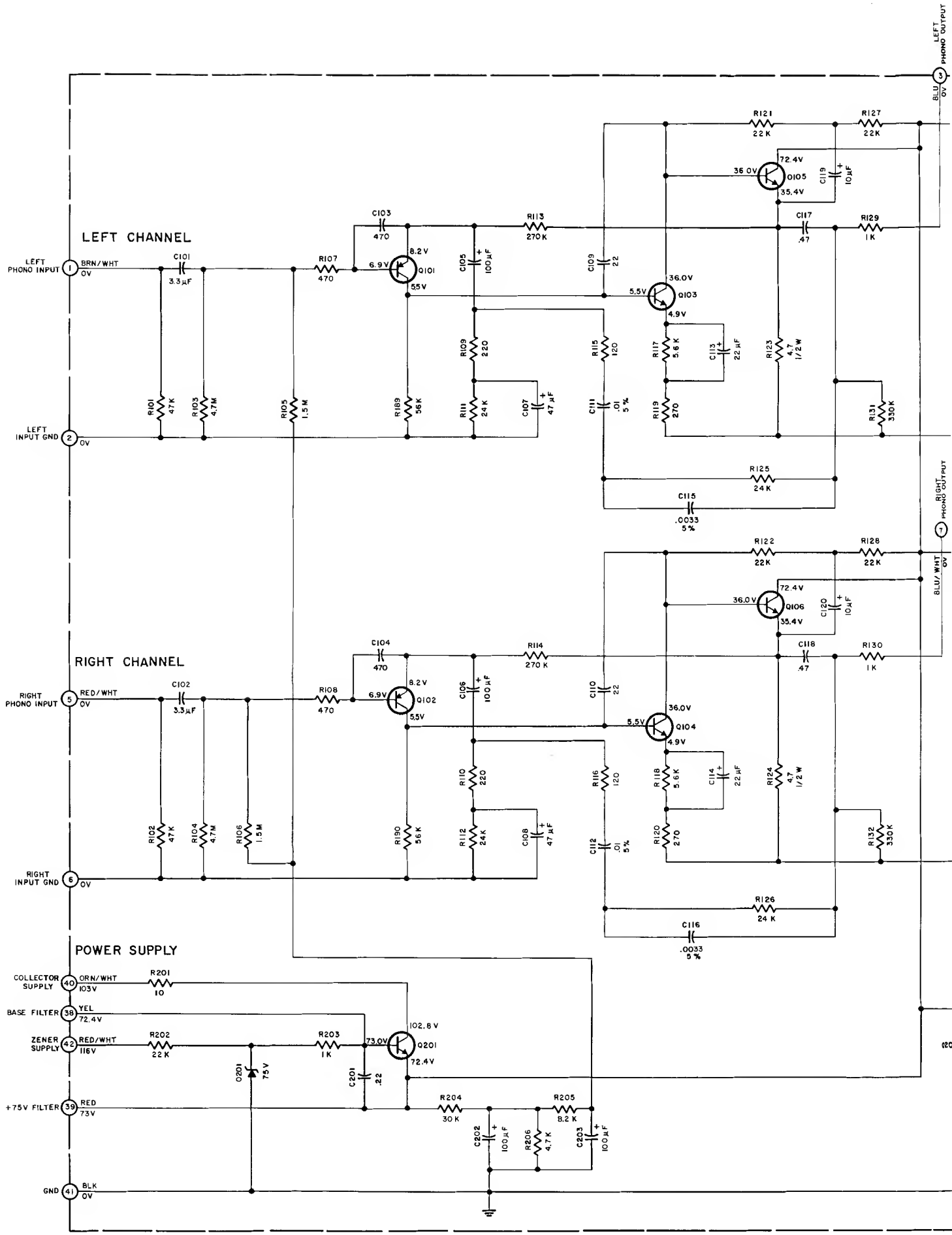
Speaker	Off
Filter	Out
Input Selector	Phono 1
Mode Selector	Stereo
Treble	Flat
Bass	Flat
Volume	ccw
Balance	Center Detent
Loudness	Flat
Push Switches	Out
Power Switch	On

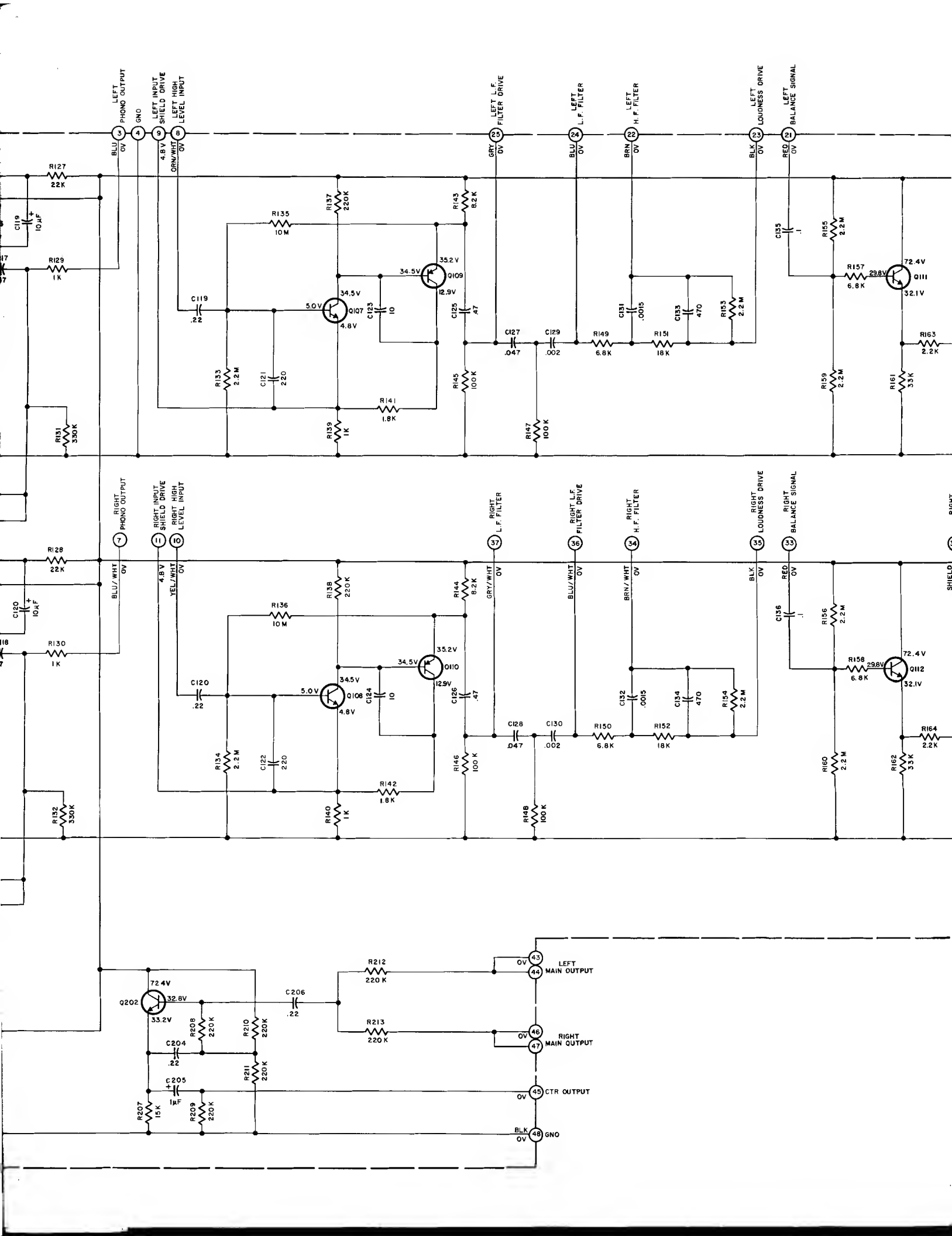
All other controls at normal positions

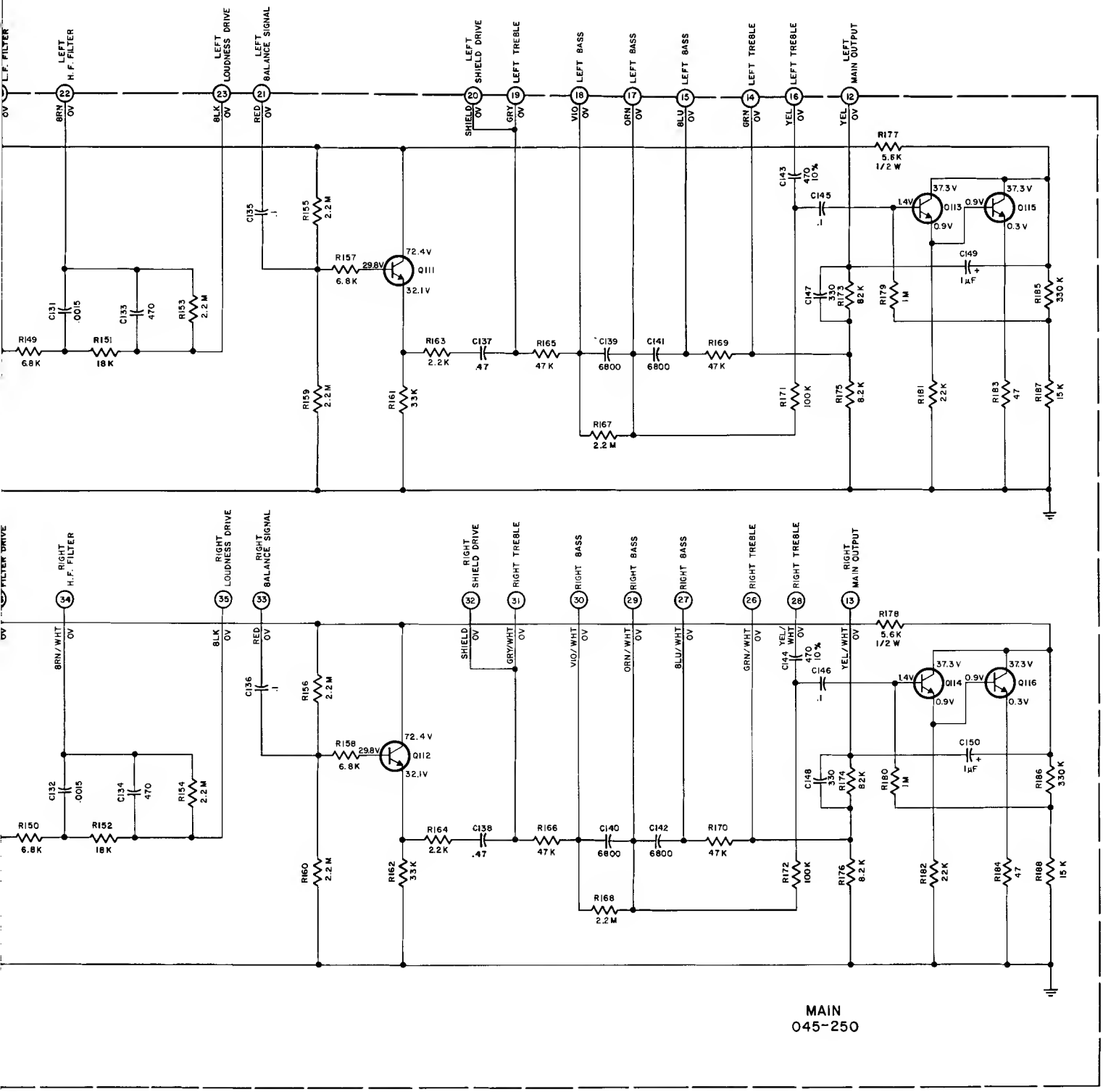




MAIN PC BOARD 045250


LEFT CHANNEL
LEFT PHONO INPUT
1
BRN/WHT
0V
LEFT INPUT GND
2
0V
C101
3.3 µF
C103
470
R107
470
8.2 V
6.9 V
Q101
5.5V
C105
100 µF
R113
270 K
C109
22
36.0V
5.5V
Q103
4.9V
R109
220
R115
120
R117
5.6 K
C113
22 µF
R123
4.7
1/2 W
R101
47 K
R103
4.7M
R105
1.5 M
R189
56 K
R111
24 K
C107
47 µF
C111
.01
5 %
R119
270
R131
330 K
R121
22 K
R127
22 K
72.4V
36.0V
Q105
35.4V
C119
10 µF
C117
.47
R129
1 K
R125
24 K
C115
.0033
5 %
LEFT PHONO OUTPUT
3
BLU
0V
RIGHT CHANNEL
RIGHT PHONO INPUT
5
RED/WHT
0V
RIGHT INPUT GND
6
0V
C102
3.3 µF
C104
470
R108
470
8.2 V
6.9V
Q102
5.5V
C106
100 µF
R114
270 K
C110
22
36.0V
5.5V
Q104
4.9V
R110
220
R116
120
R118
5.6 K
C114
22 µF
R124
4.7
1/2 W
R102
47 K
R104
4.7M
R106
1.5 M
R190
56 K
R112
24 K
C108
47 µF
C112
.01
5 %
R120
270
R132
330 K
R122
22 K
R128
22 K
72.4V
36.0V
Q106
35.4V
C120
10 µF
C118
.47
R130
1 K
R126
24 K
C116
.0033
5 %
RIGHT PHONO OUTPUT
7
BLU/WHT
0V
POWER SUPPLY
COLLECTOR SUPPLY
40
ORN/WHT
103V
R201
10
BASE FILTER
38
YEL
72.4V
ZENER SUPPLY
42
RED/WHT
116V
R202
22 K
R203
1 K
102.8 V
73.0V
Q201
72.4V
D201
75V
C201
.22
+75V FILTER
39
RED
73V
R204
30 K
R205
8.2 K
C202
100 µF
R206
4.7 K
C203
100 µF
GND
41
BLK
0V


LEFT PHONO OUTPUT
GND
LEFT INPUT SHIELD DRIVE
LEFT HIGH LEVEL INPUT
LEFT L.F. FILTER DRIVE
LEFT L.F. FILTER
LEFT H.F. FILTER
LEFT LOUDNESS DRIVE
LEFT BALANCE SIGNAL
RIGHT PHONO OUTPUT
RIGHT INPUT SHIELD DRIVE
RIGHT HIGH LEVEL INPUT
RIGHT L.F. FILTER
RIGHT L.F. FILTER DRIVE
RIGHT H.F. FILTER
RIGHT LOUDNESS DRIVE
RIGHT BALANCE SIGNAL
Q107
Q108
Q109
Q110
Q111
Q112
Q202
LEFT MAIN OUTPUT
RIGHT MAIN OUTPUT
CTR OUTPUT
GND

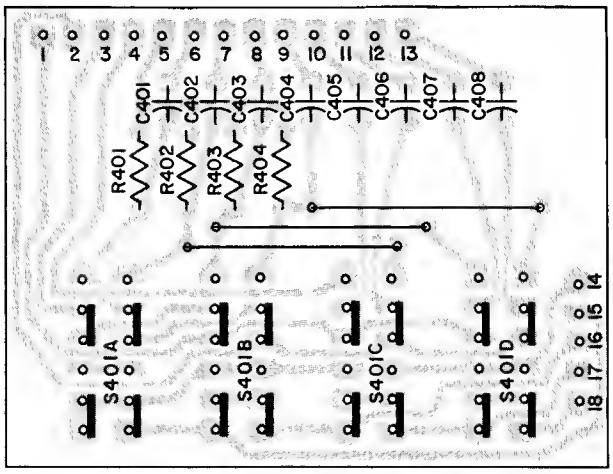


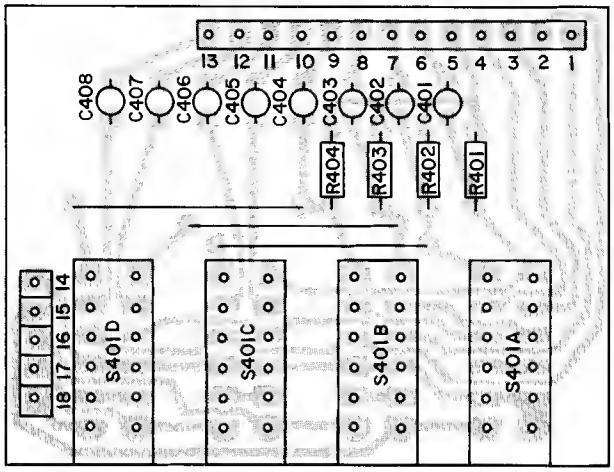
MAIN
045-250

PUT

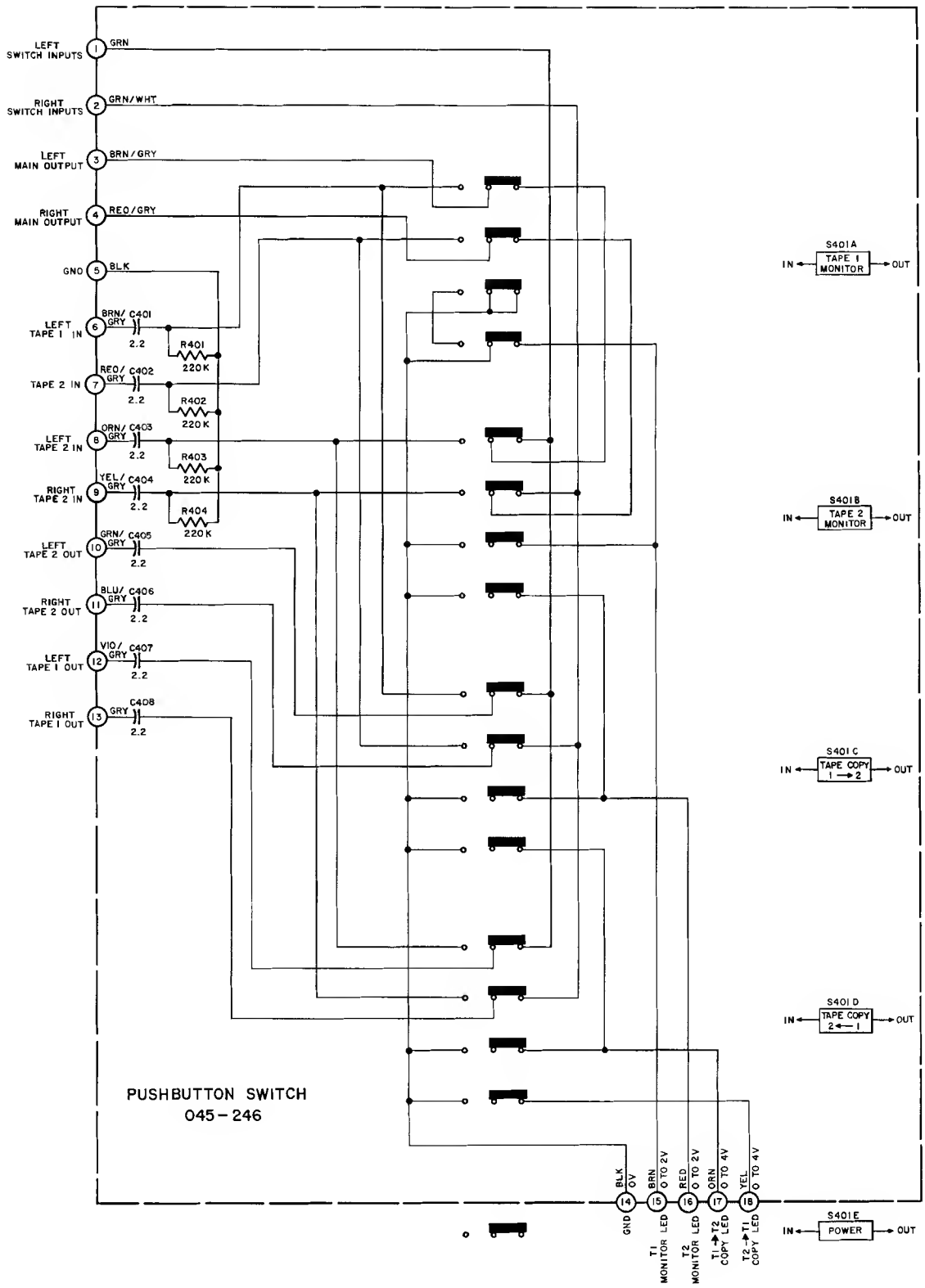
PUT

UT

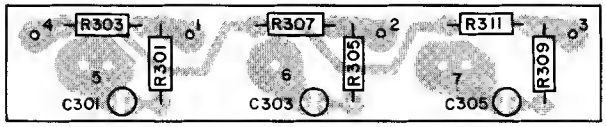


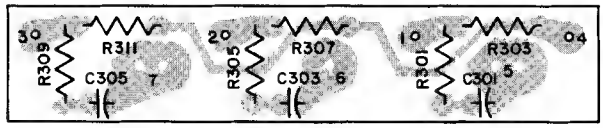


PUSHBUTTON SWITCH PC BOARD
045-246

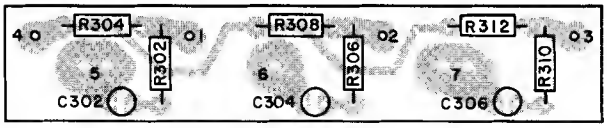


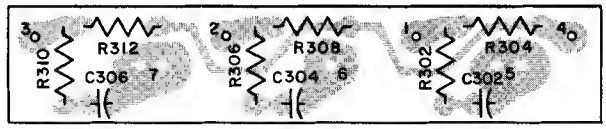
PUSHBUTTON SWITCH



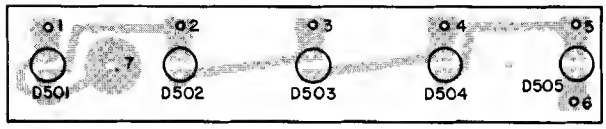


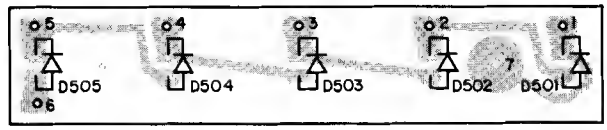
LEFT INPUT TERMINAL PC BOARD
045-247



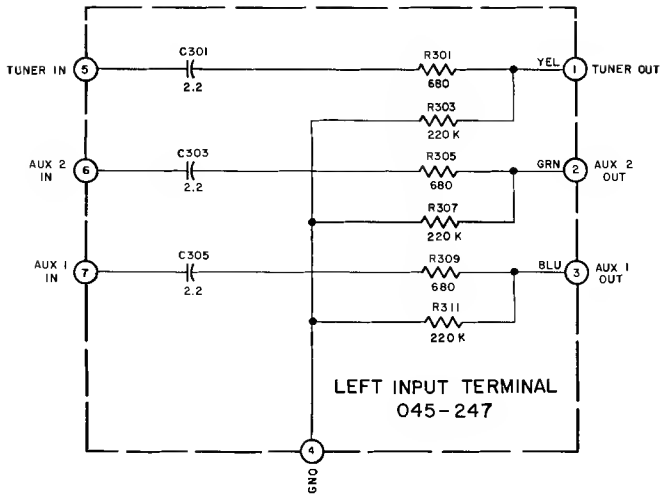


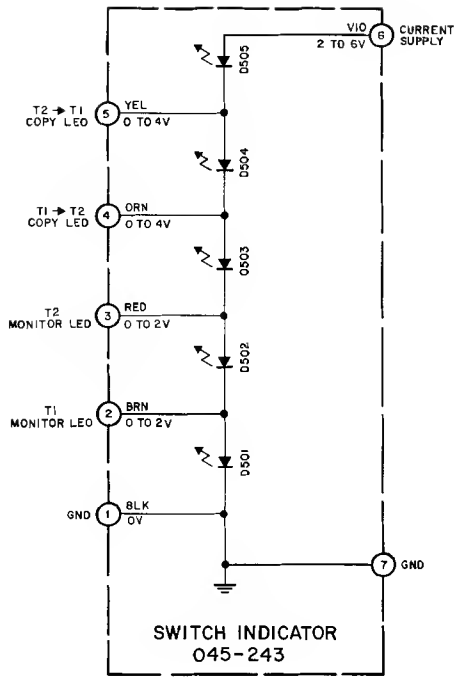
RIGHT INPUT TERMINAL PC BOARD
045-247

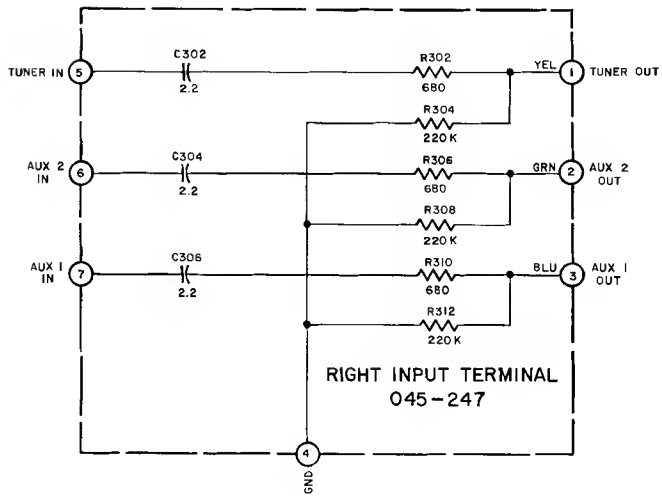




SWITCH INDICATOR PC BOARD
045-243


TUNER IN
5
C301
2.2
R301
680
YEL
1
TUNER OUT
R303
220 K
AUX 2 IN
6
C303
2.2
R305
680
GRN
2
AUX 2 OUT
R307
220 K
AUX 1 IN
7
C305
2.2
R309
680
BLU
3
AUX 1 OUT
R311
220 K
LEFT INPUT TERMINAL
045-247
4
GND


VIO
2 TO 6V
6
CURRENT SUPPLY
D505
T2 → T1 COPY LED
5
YEL
0 TO 4V
D504
T1 → T2 COPY LED
4
ORN
0 TO 4V
D503
T2 MONITOR LED
3
RED
0 TO 2V
D502
T1 MONITOR LED
2
BRN
0 TO 2V
D501
GND
1
BLK
0V
7
GND
SWITCH INDICATOR
045-243


TUNER IN
5
C302
2.2
R302
680
YEL
1
TUNER OUT
R304
220 K
AUX 2 IN
6
C304
2.2
R306
680
GRN
2
AUX 2 OUT
R308
220 K
AUX 1 IN
7
C306
2.2
R310
680
BLU
3
AUX 1 OUT
R312
220 K
RIGHT INPUT TERMINAL
045-247
4
GND

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	Elect. 10µF 50V	066-221
C13	Elect. 80/80/150/150µF	066-095

DIODES

D1,2	Si. Signal diode	070-031
D3	Si. Signal Diode	070-031
D201	Zener 75V	070-025
D501,502	LED Lamp	070-093
D503,504	LED Lamp	070-093
D505	LED Lamp	070-093

FUSES

F1	Fuse 0.5A Norm Blo	089-009

TRANSISTORS

Q101,102	Si. PNP Transistor	132-176
Q103,104	Si. NPN Transistor	132-175
Q105,106	Si. NPN Transistor	132-175
Q107,108	Si. NPN Transistor	132-175
Q109,110	Si. PNP Transistor	132-176
Q111,112	Si. NPN Transistor	132-175
Q113,114	Si. NPN Transistor	132-175
Q115,116	Si. NPN Transistor	132-175
Q201	NPN Power Transistor	132-028
Q202	Si NPN Transistor	132-175

POTENTIOMETERS

R3	Volume Control	134-319
R4,5	Bal./Loudness Control	134-320

SWITCHES

S1	Input Selector	146-193
S2	Mode Selector	146-196
S3	LF-HF Filter	146-194
S4	Bass Switch	146-195
S5	Treble Switch	146-195
S6	Speaker Filter Switch	146-194
S401	Pushbutton Switch	150-026

TRANSFORMERS

T1	Power Transformer	045-217

FRONT PANEL & TRIM

Front Panle Glass	016-165
End Caps	018-160
Knob - Volume	090-017
Knob - Mode	090-156
Knob - Input	090-156
Knob - Filters	090-200
Knob - Speakers	090-201
Knob - Loudness	090-186
Knob - Balance	090-187
Knob - Bass Right	090-200
Knob - Bass Left	090-201
Knob - Treble Right	090-200
Knob - Treble Left	090-201

MISCELLANEOUS

Shipping Carton	045-338
Mounting Temp #100	038-178
Hardware Package	045-142
Fuseholder	178-099
Line Cord	170-019
Audio Cable	170-015
Owners Manual	039-033
Shorting Phono Plug	127-021

McIntosh SERVICE BULLETIN

REDUCE RFI & ELIMINATE OSCILLATION

MODEL: C 27 Preamplifier

PURPOSE OF MODIFICATION: To reduce sensitivity to RF interference and to eliminate oscillation when using a moving coil phono cartridge.

WHEN MODIFICATION SHOULD BE MADE: Whenever customer is complaining of:

A. Undersired reception of CB, ham apparatus and man made noise in the phono mode.

B. Oscillations, when a moving coil cartridge is used.

PARTS REQUIRED:

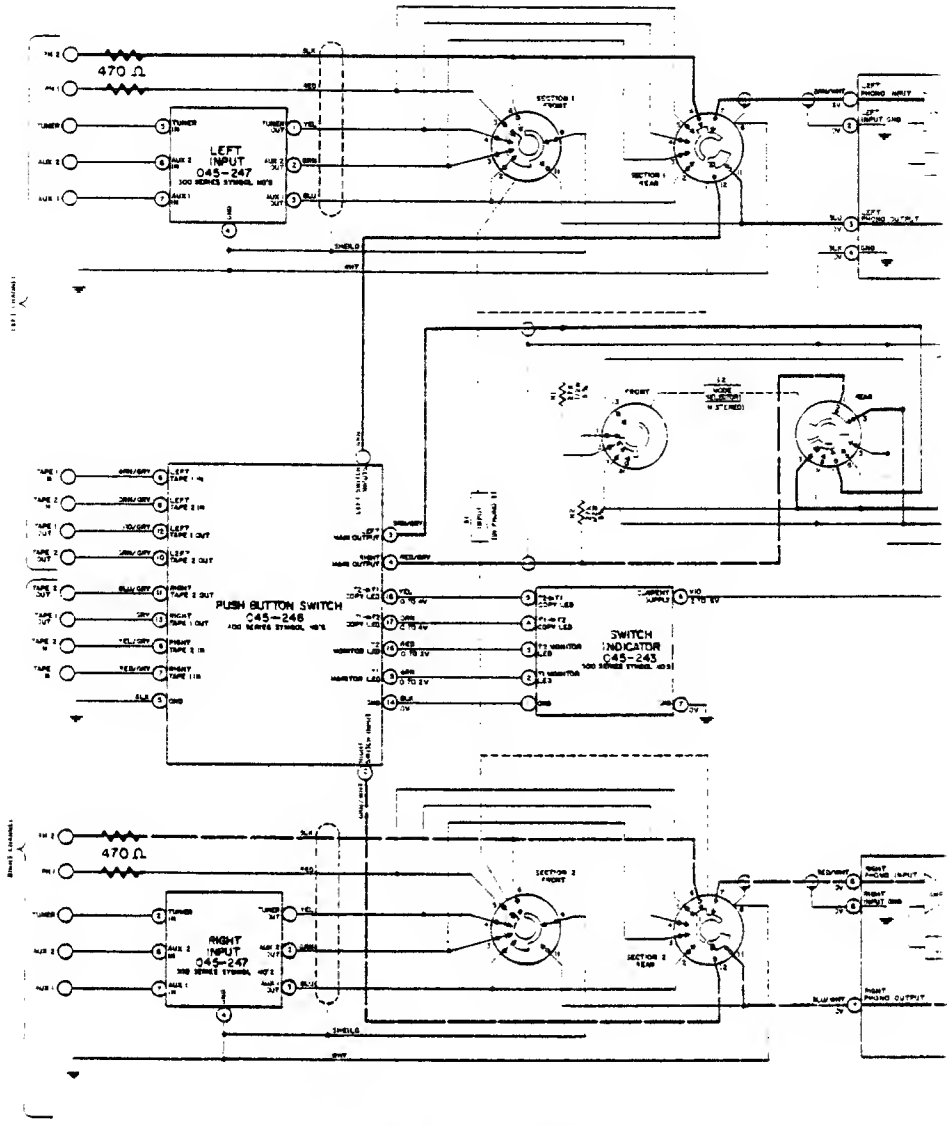
QUANTITY	PART NUMBER	DESCRIPTION
2	061039	Disc. cap. .003µF, 20% C103, 104
2	141090	Film res. 56K, 5%, 1/4W
4	141041	Film res. 470Ω, 5%, 1/4W

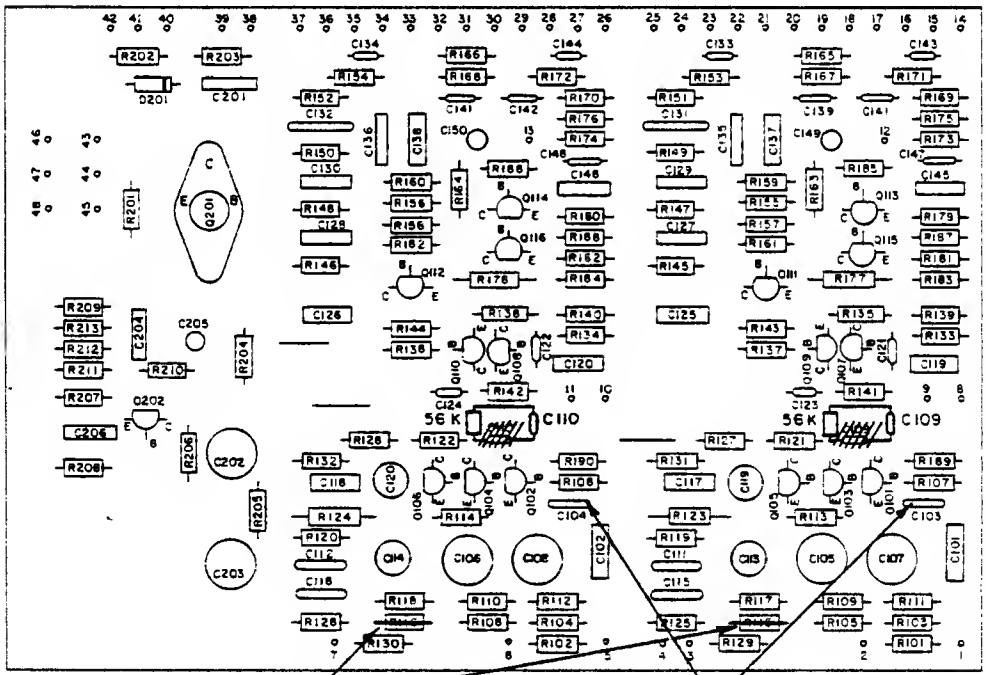
PROCEDURE: All changes are on the main PC board (045250), except step 4.

1. Change C103 and C104 from 470pF 10% to .003µF 20%
2. Remove and replace R115 and R116, 120Ω, 5%, 1/4W with wire jumpers.
3. Locate capacitor C109, Disconnect the lead on C109 that connects to R121. Connect a 56K, 5%, 1/4W resistor in series with the disconnected C109 lead and the circuit board where the C109 lead formerly connected. Do likewise for capacitor C110.
4. Connect right at the phono jacks a film resistor = 470Ω, 5%, 1/4W in series with the leads connected to these phono jacks.

(OVER)

C 27
S.B. No. 1





REPLACE WITH JUMPERS

MAIN PC BOARD 045250

REPLACE WITH .003 µf, 20%, DISCAPS