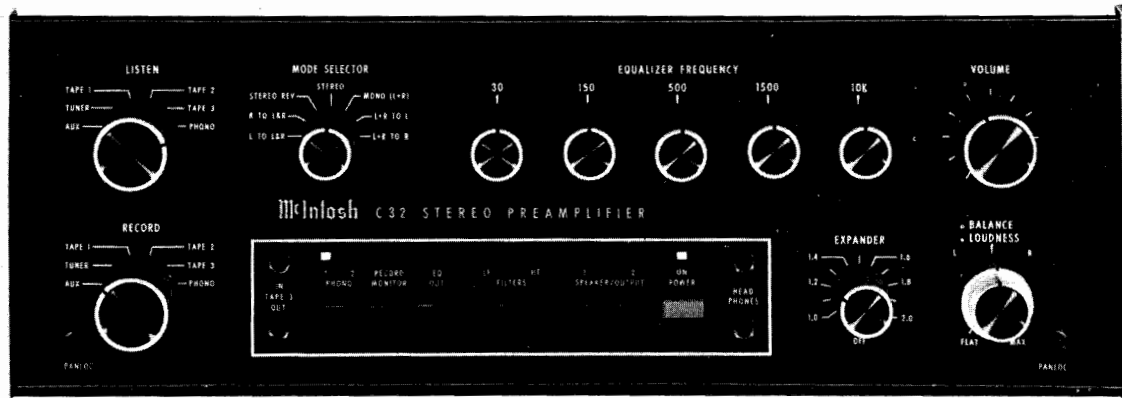


# McIntosh

## C 32 PREAMPLIFIER



## SERVICE INFORMATION

STARTING WITH SERIAL NO. AY1001

McINTOSH LABORATORY INC. BINGHAMTON, NEW YORK 13903

039-075

## PERFORMANCE LIMITS

## FREQUENCY RESPONSE

+0 to -.5dB from 20Hz to 20,000Hz

Equalizer Out: +0 to -1dB from 10Hz to 100,000Hz

## DISTORTION

.05% maximum at rated output level, 20Hz to 20,000Hz

## INPUT SENSITIVITY AND IMPEDANCE

Phono 1 & 2: 2 millivolts at 47K $\Omega$  65pF

Auxiliary: Tuner, tape 1, tape 2 & tape 3:  
250 millivolts at 50K $\Omega$

## HUM AND NOISE

Auxiliary, Tuner, tape 1, tape 2 and tape 3-  
1HF 100dB; unweighted -90dB

Phono 1 & 2: 1HF 90dB; unweighted 80dB below  
10 millivolt input or equivalent to less  
than 1 microvolt at the input terminals.

## OUTPUT LEVEL AND IMPEDANCE

Main Output: 2.5 volts with rated input to  
operate into 5,000 ohm or greater load.  
Output Source Impedance 220 ohms.

Tape Output: 250 millivolts with rated input  
to operate into 5,000 ohms or greater  
load.

Monitor, Headphone, Line Output: 12 watts per  
channel continuous into 8 $\Omega$  @ less than  
.1% total harmonic distortion 20Hz to  
20,000Hz or 5 volts RMS into 600 $\Omega$  line-  
level controls provided.

## PROGRAM EQUALIZER

12dB of boost or cut at 30, 150, 500, 1500 and  
10,000Hz

## VOLTAGE AMPLIFICATION

In Decibels with all equalizers and filters  
flat.

Input	Main	Tape 1,2,3	Monitor Amp	Headphone Jack
Aux., Tuner	20dB	0 dB	30dB	30dB
Tape 1, 2 or 3	20dB	0 dB	30dB	30dB
Phono 1	62dB	42dB	72dB	72dB
Phono 2	62dB	42dB	72dB	72dB

## SEMICONDUCTOR COMPLEMENT

67 Transistors

35 Integrated Circuits

62 Diodes

2 Field Effect Transistors

1 Silicon Controlled Rectifier (SCR)

## POWER REQUIREMENT

120 volts, 50/60Hz, 25 to 85 watts

## MECHANICAL INFORMATION

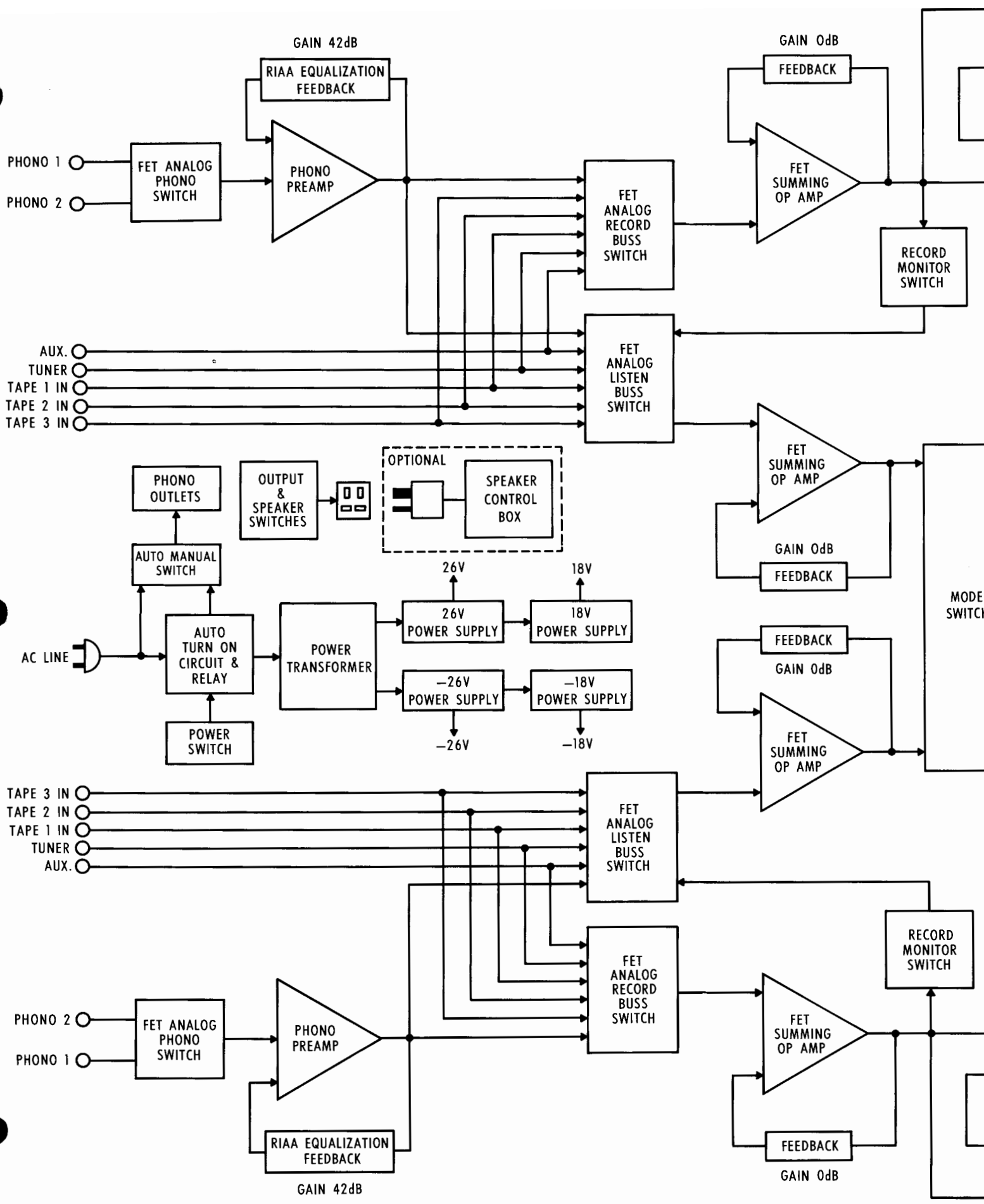
Size: Front panel measures 16 inches wide  
(40.64 cm) by 5-7/16 inches deep  
(13.81 cm). Chassis measures 15 inches  
wide (38.1 cm) by 5 inches high (12.7 cm)  
by 13 inches deep (33.02 cm), including  
PANLOC shelf and back panel connectors.  
Knob clearance required is 1-1/2 inches  
(3.81 cm) in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

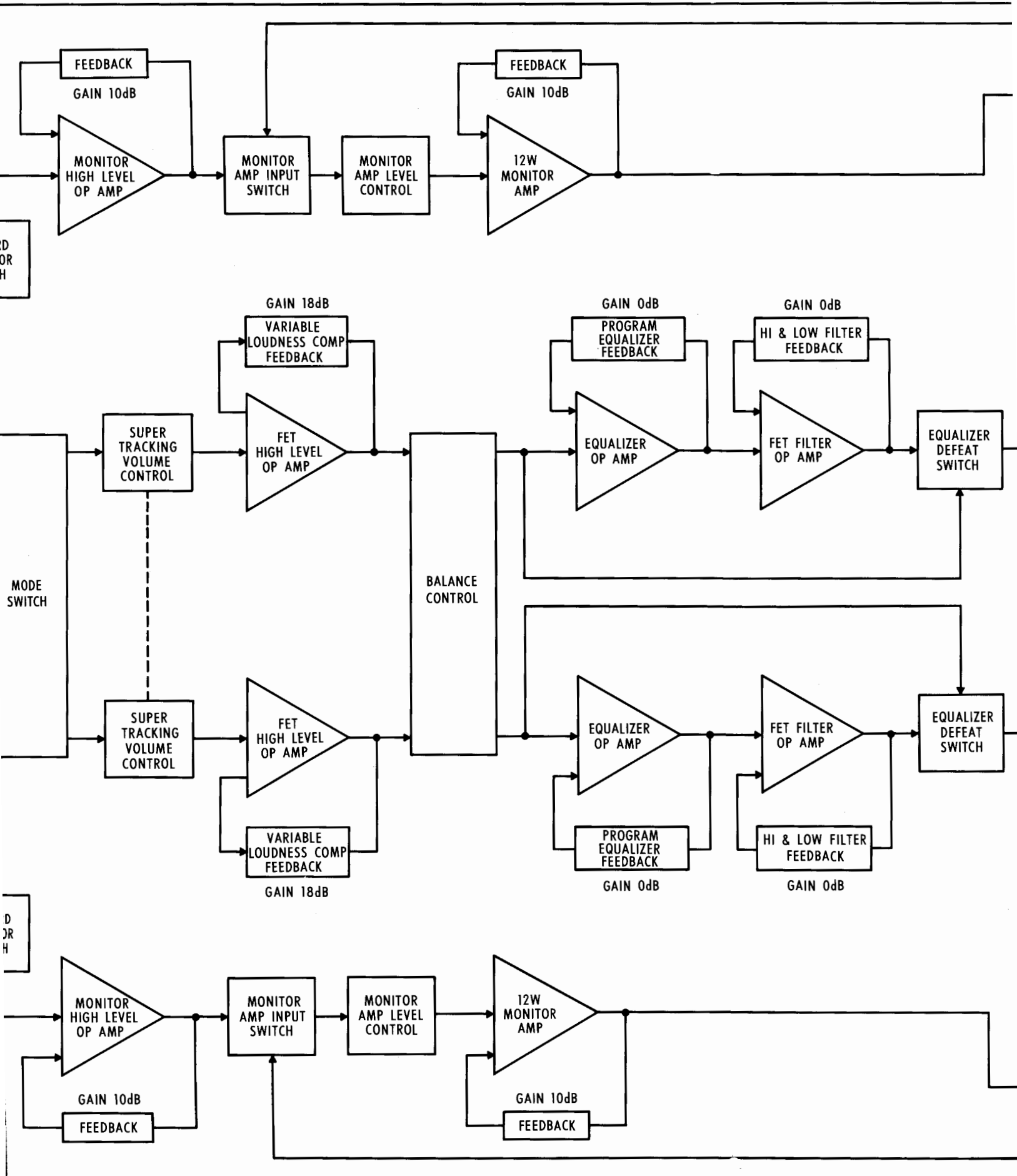
Finish: Front panel is anodized gold and black  
with special gold/teal nomenclature illum-  
ination. Chassis is black.

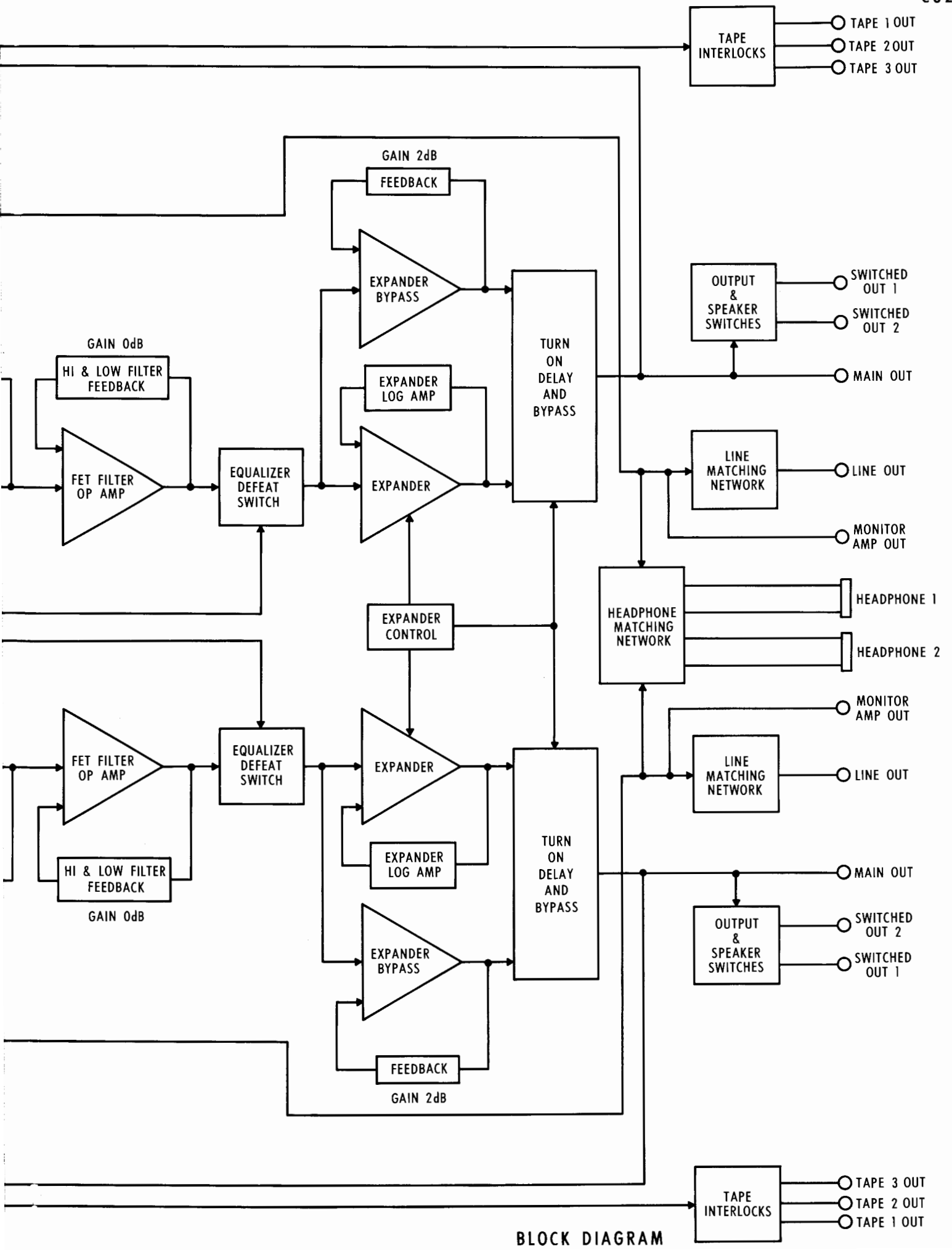
Mounting: Exclusive McIntosh developed profes-  
sional PANLOC

Weight: 26 pounds (11.8 kg) net, 36 pounds  
(17.2 kg) in shipping carton.

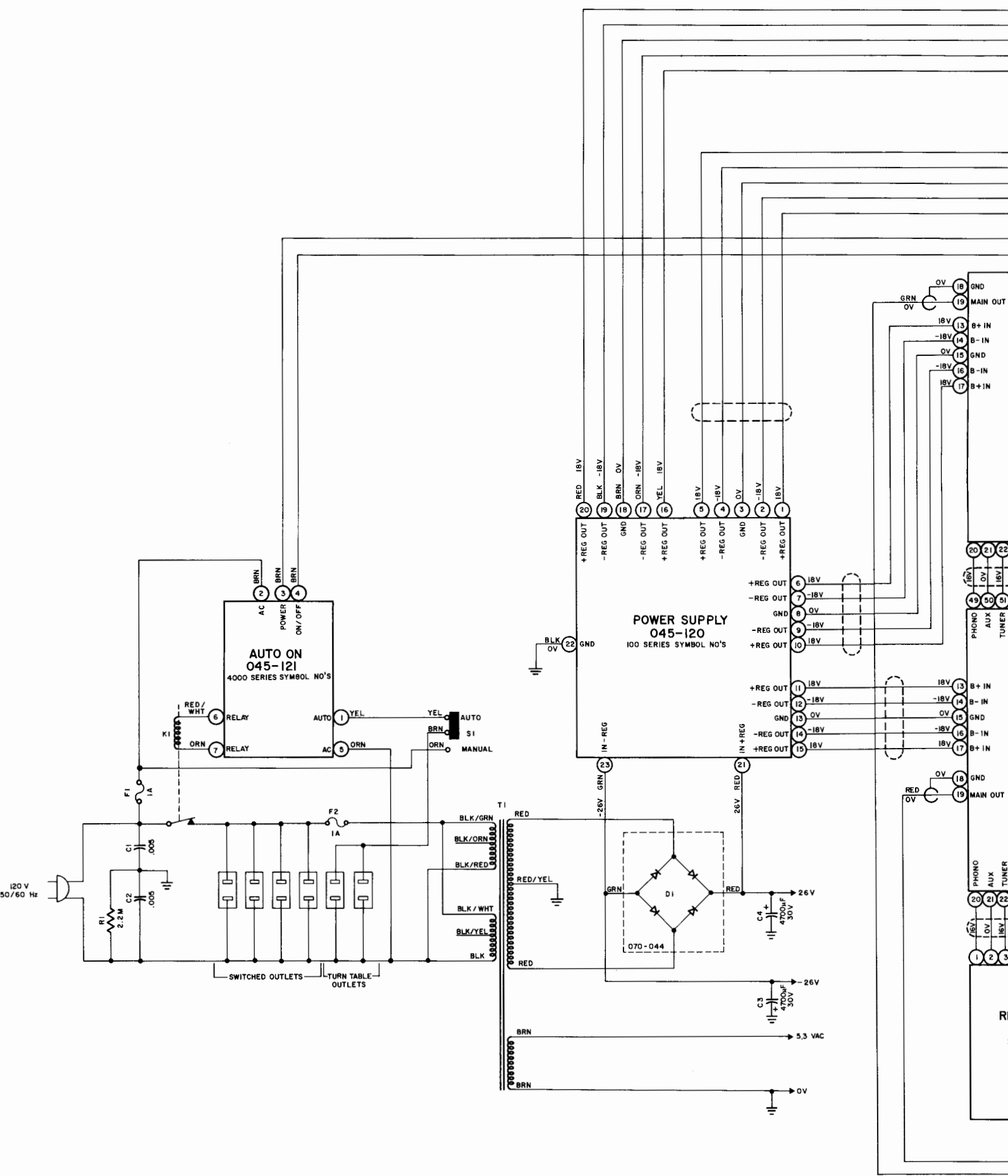
Shipping Carton Size: 21" x 21" x 11"

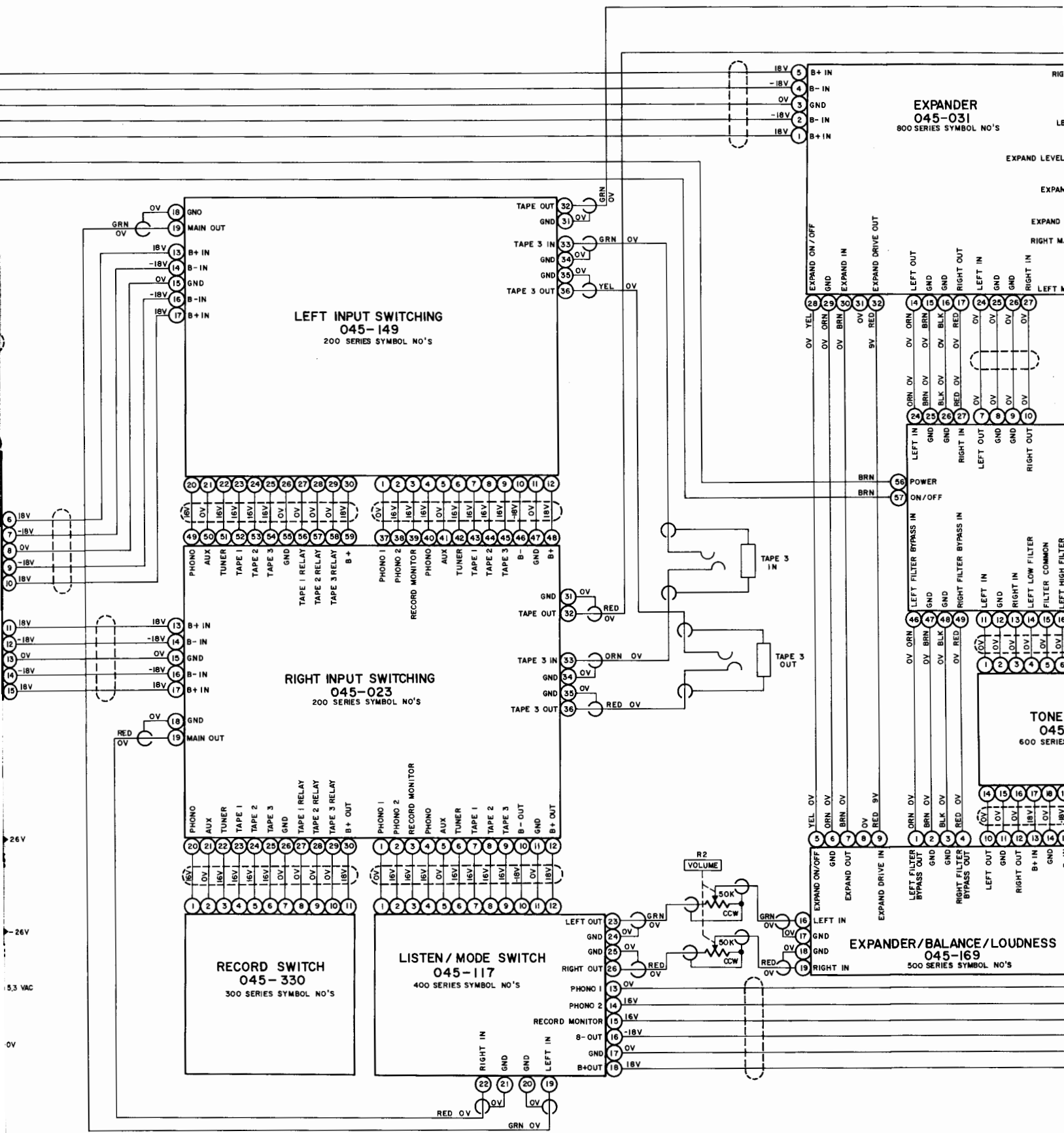


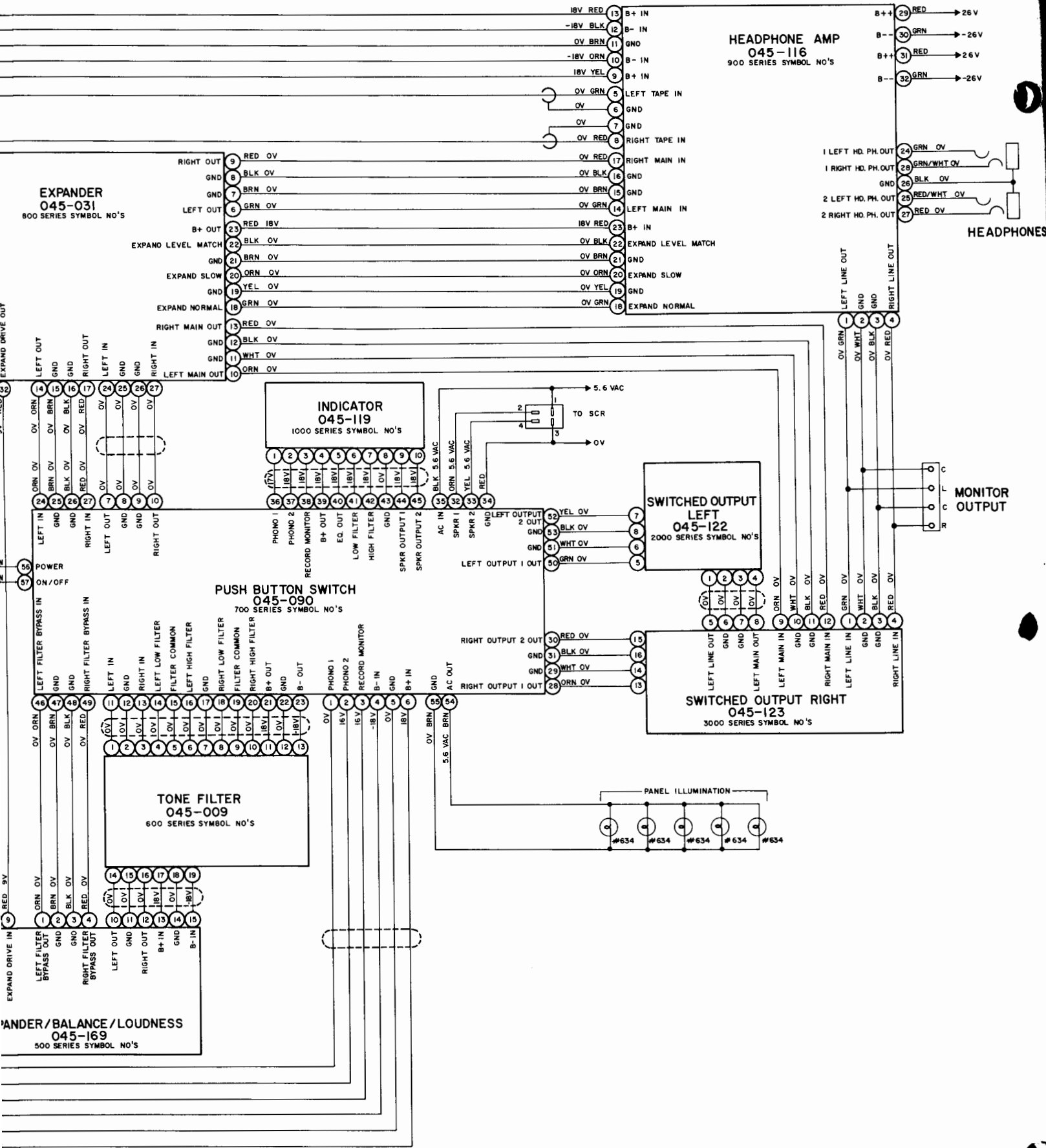




BLOCK DIAGRAM







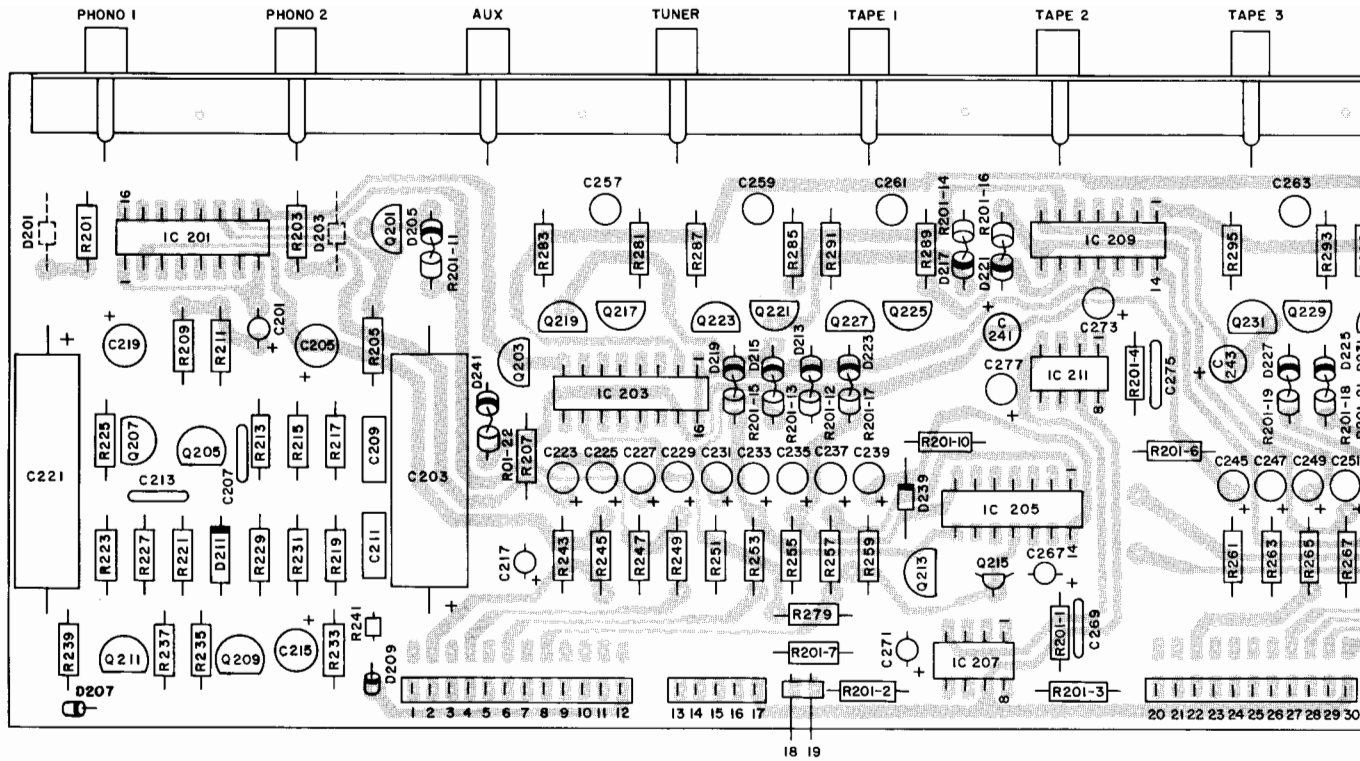


1. Unless otherwise specified: Resistance values are in ohms, 1/4 watt, and 5% tolerance; capacitance values smaller than 1 are in microfarads ( $\mu\text{F}$ ); capacitance values greater than 1 are in picofarads (pF); inductors are in microhenries ( $\mu\text{H}$ ).
2. Printed circuit board components 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. The heavy dash lines on the schematics denote a secondary 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.
  - e. Front panel controls at:

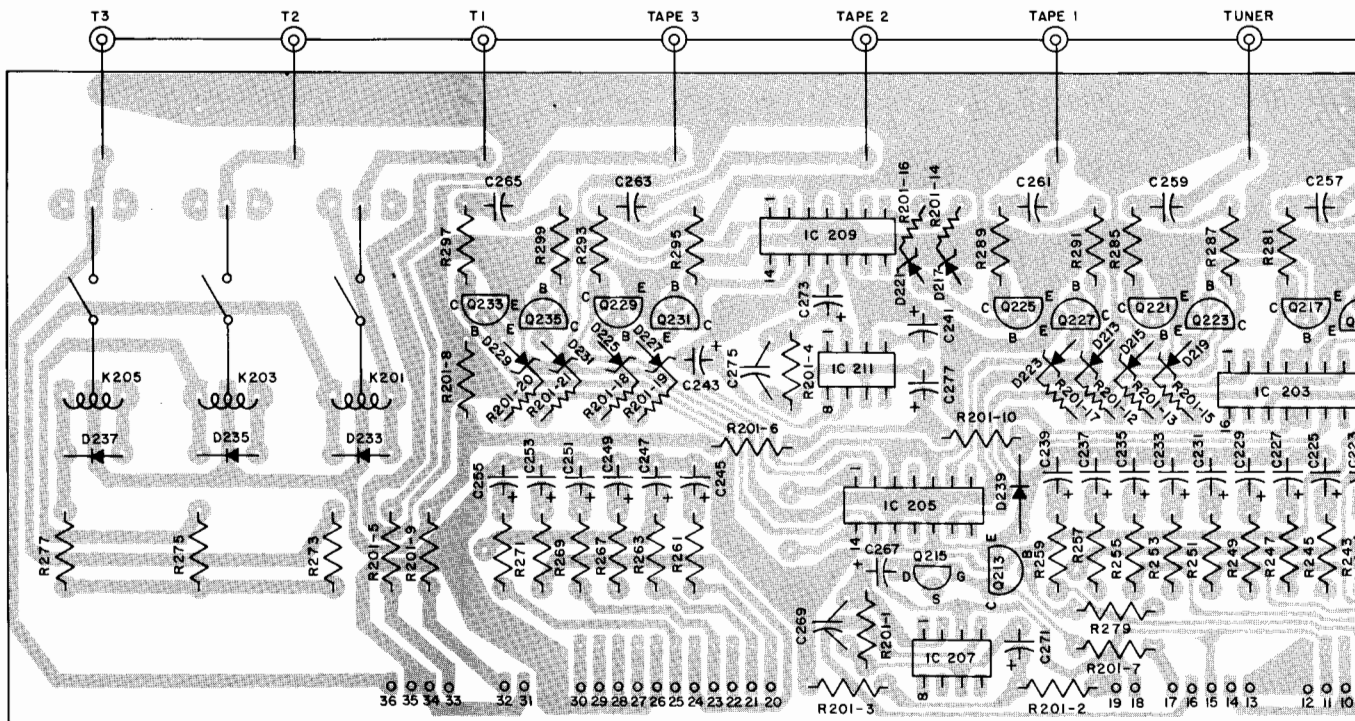
Listen	Aux
Record	Aux
Mode Selector	Stereo
Equalizer Freq.	Center Detent
Volume	CCW
Expander	Off
Balance	Center Detent
Loudness	Flat
Push Switches	Out
Power Switch	On

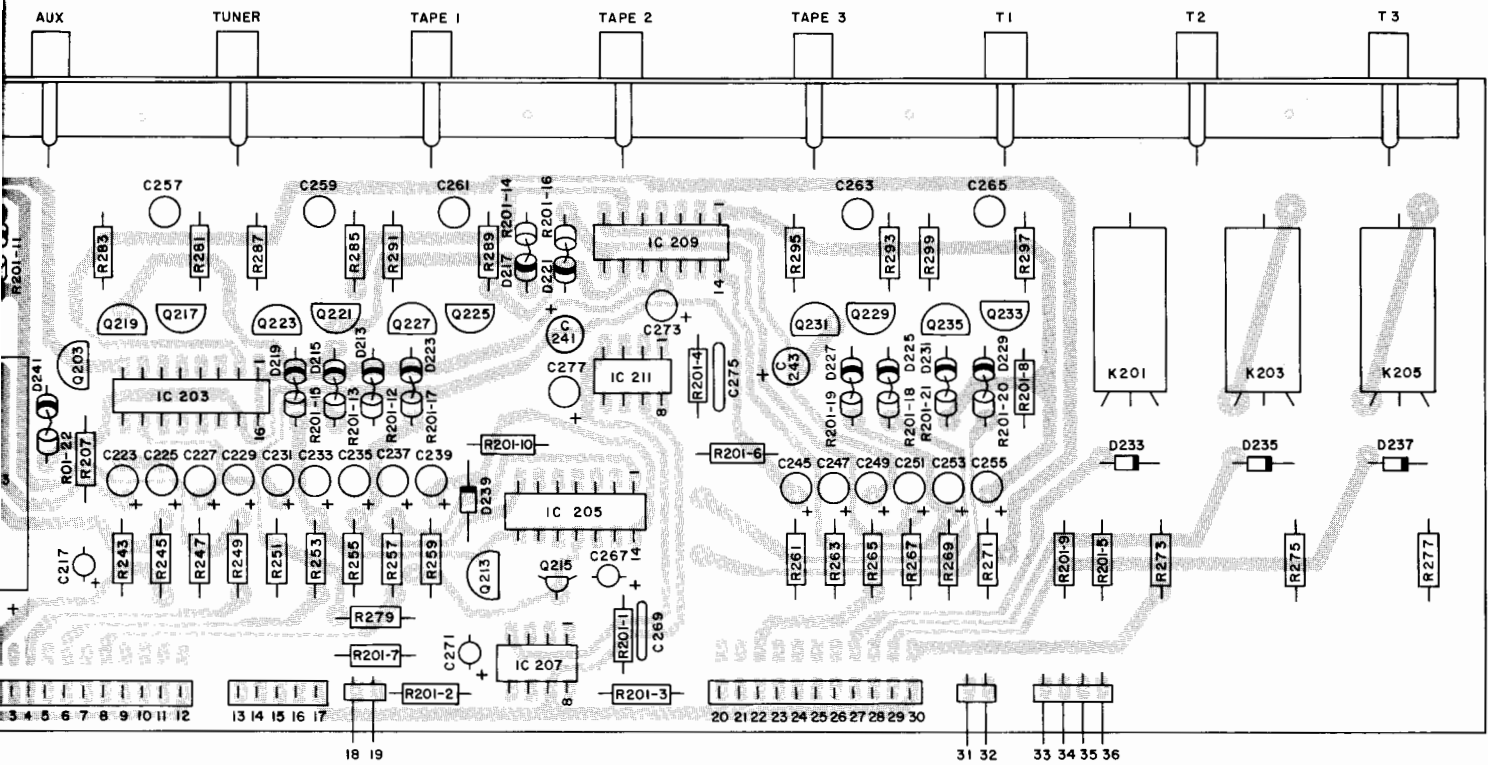
All other controls at normal positions.

6. In units with Serial No's below AY2076 D200, D201, D202, & D203 are used.
7. In units with Serial No's below AY1295 R943 and R944 are not used.
8. In units with Serial No's below AY3000 R813, R814, R821 and R822 are  $560\Omega$ .
9. In units with Serial No's below AY3000: C649 and C650 are  $.003\mu\text{F}$ ; C631, C632, C633 and C634 are  $.047\mu\text{F}$  and C637 and C638 are used.
10. In units with Serial No's below AY3000: R509, R510, R513 and R514 are 68K; R507 and R508 are 680K and R511 and R512 are 6.8K.
11. In units with Serial No's below AY2076: D301, D302, D303, C301, C302, and C303 are not used.
12. In units with Serial No's Below AY3000: R310, R311 and R312 are not used.
13. In units with Serial No's below AY3000: R913 and R914 are 15K; R925 and R926 are  $330\Omega$ ; C911 & C912 are  $47\mu\text{F}$ ; C915 and C916 are  $220\mu\text{F}$  and R927 and R928 are used.
14. In units with Serial No's below AY2289 C4002 is not used.

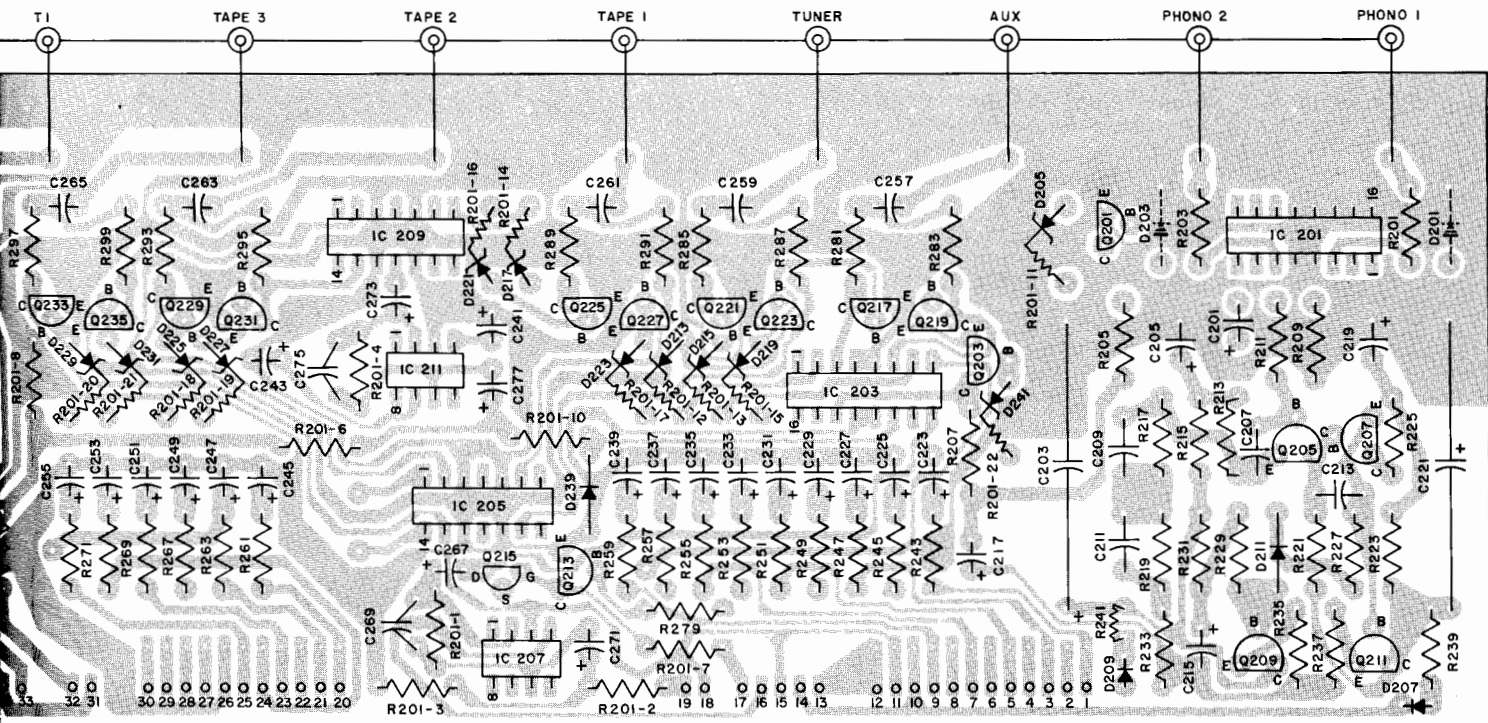


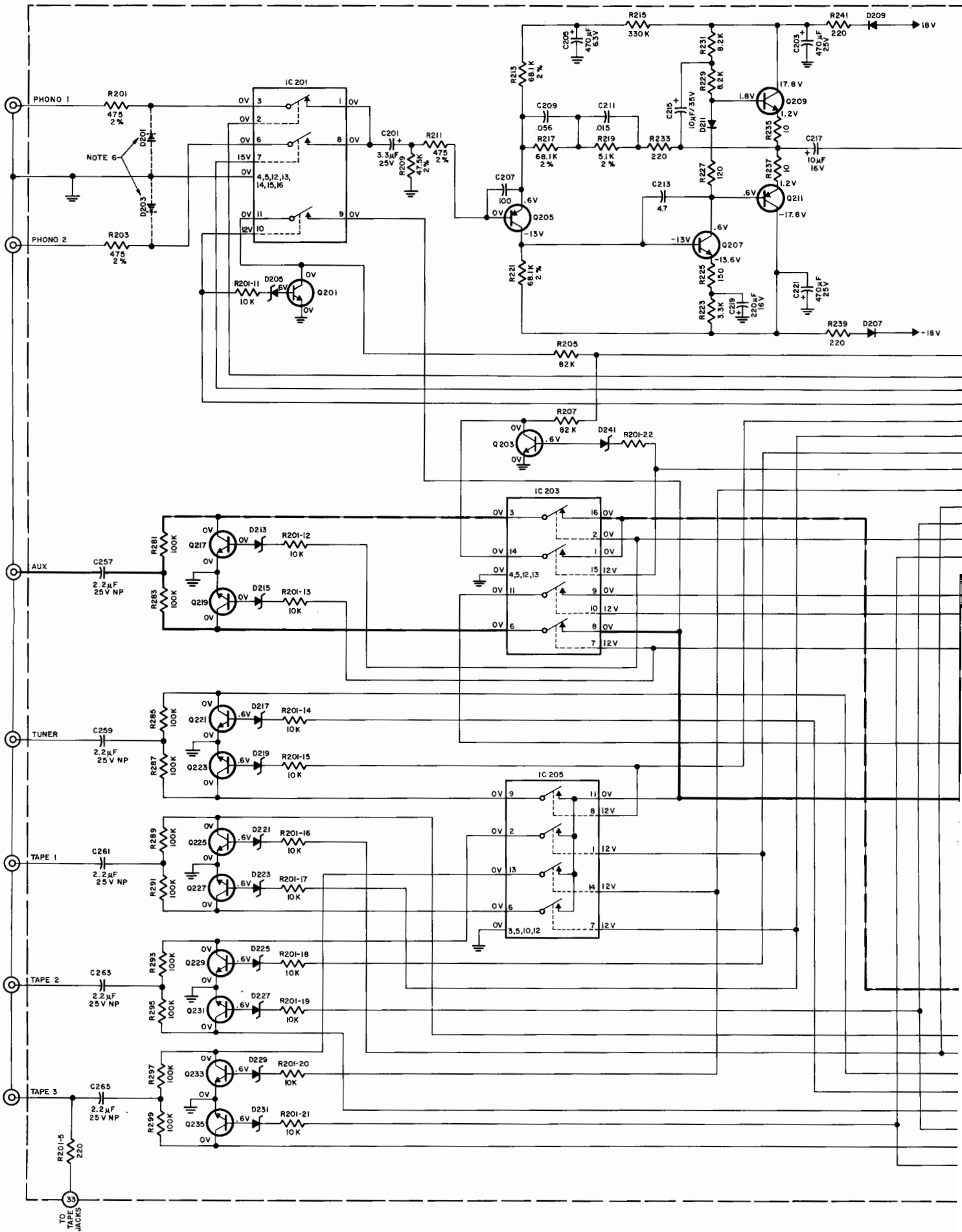
LEFT INPUT SWITCHING  
045-149

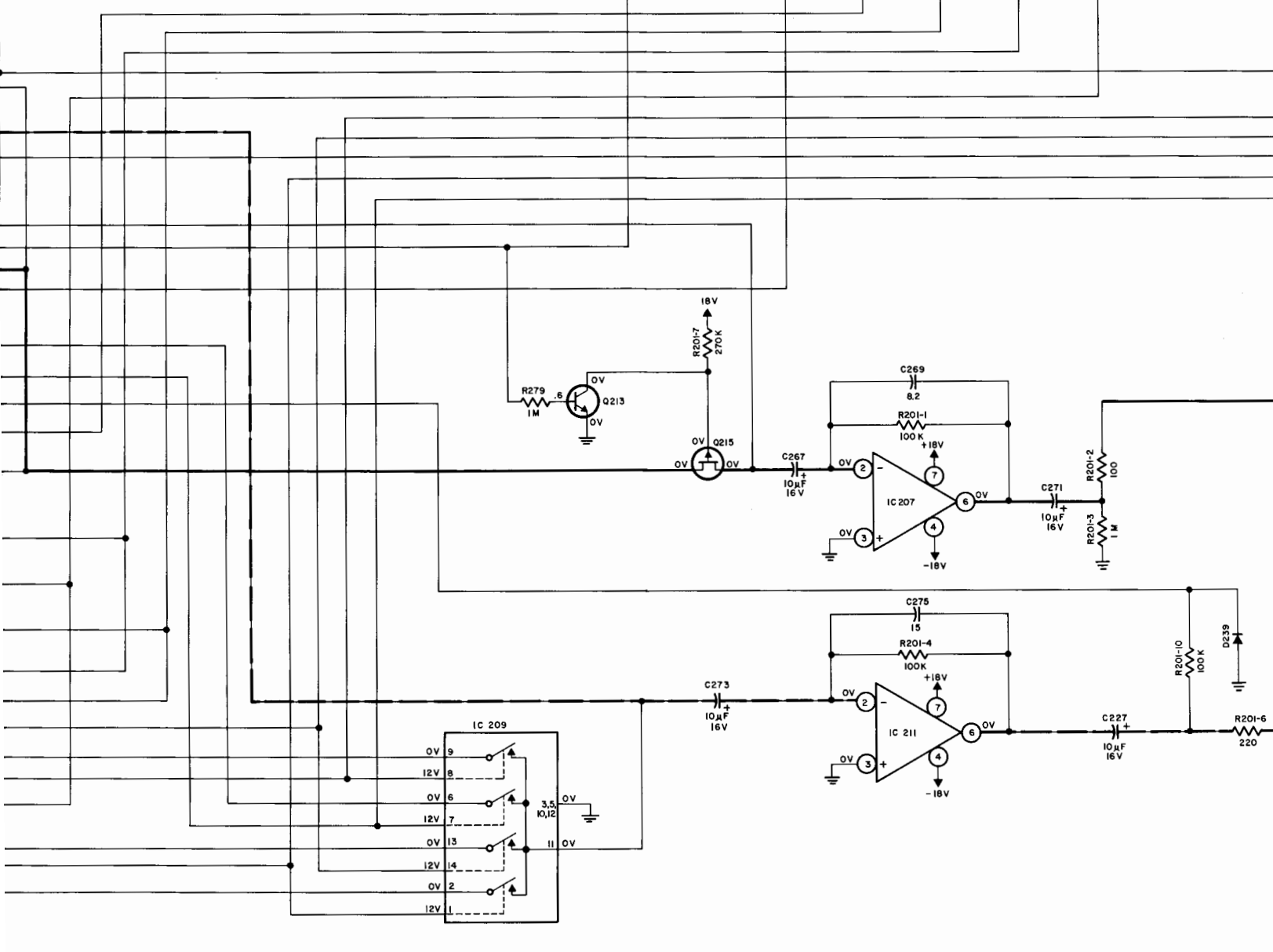
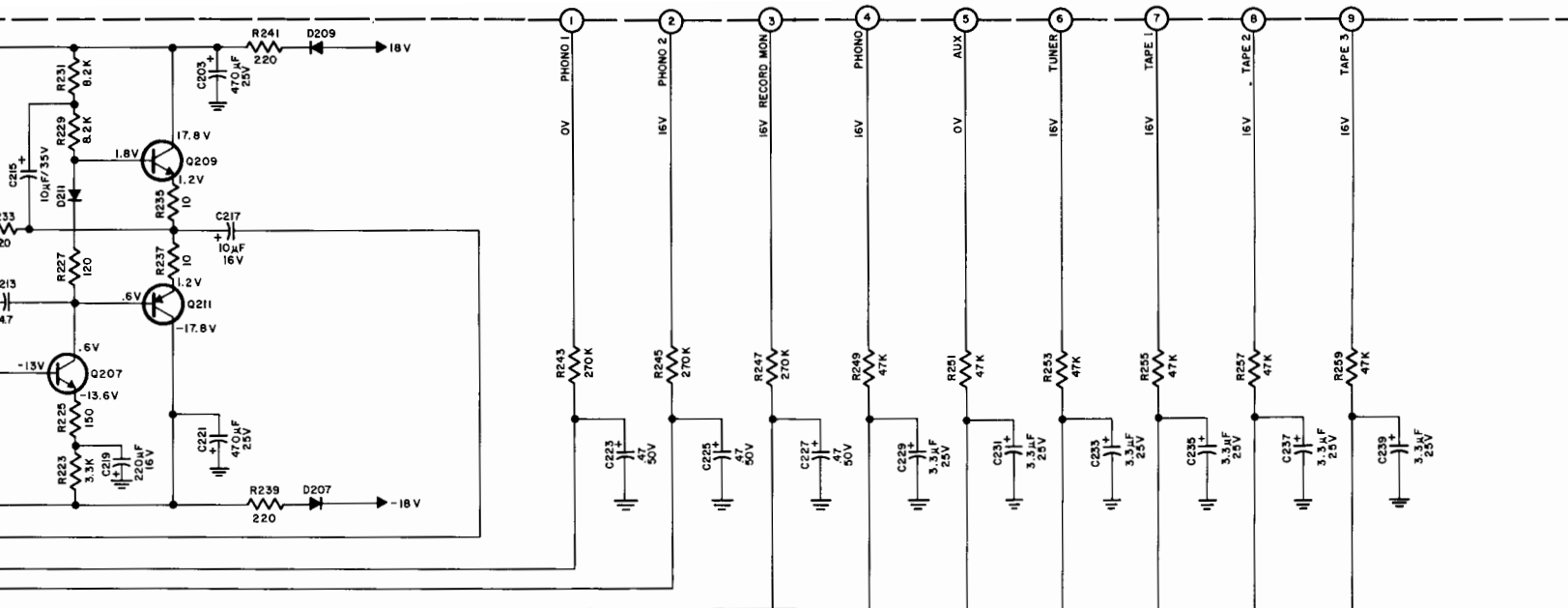


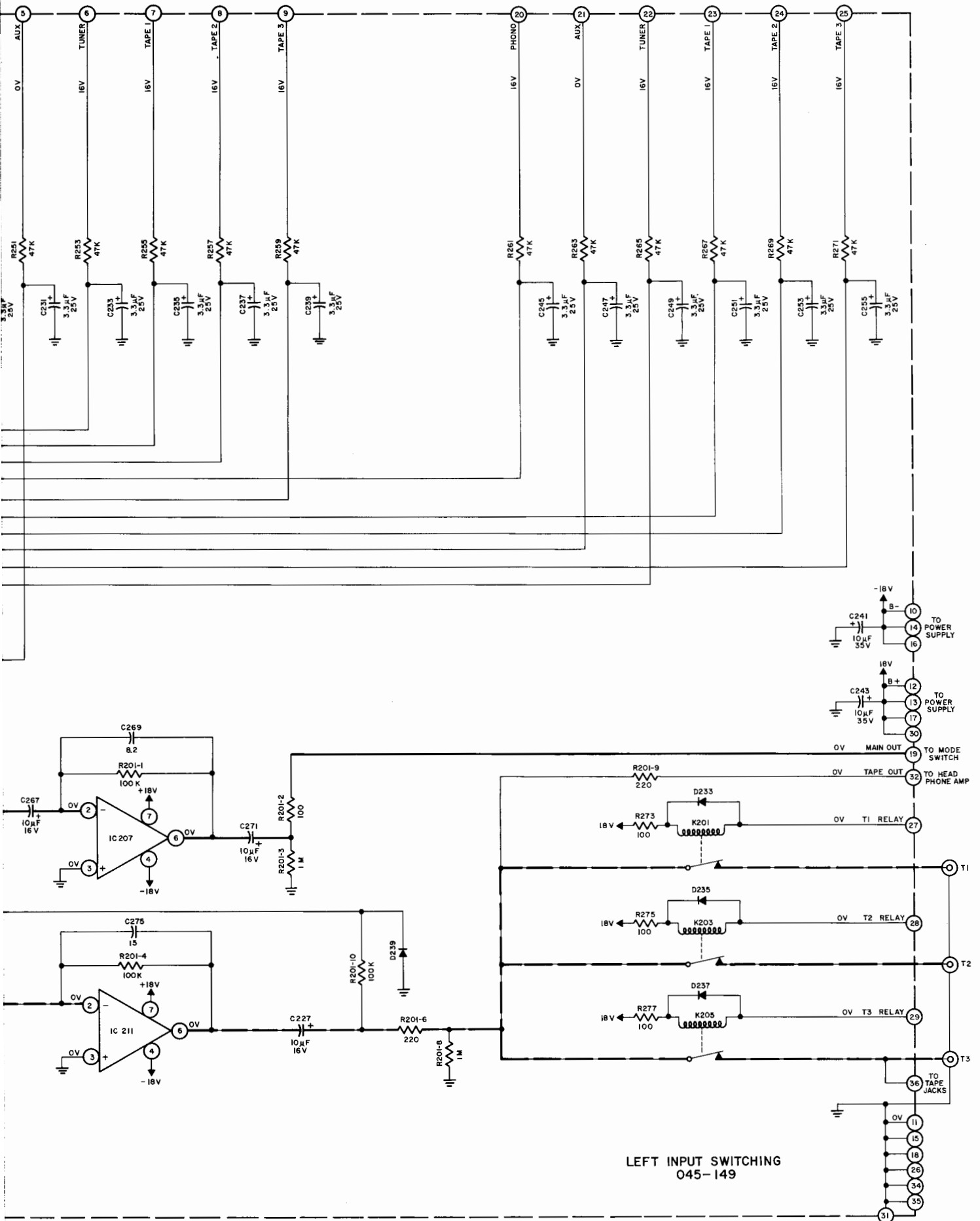


LEFT INPUT SWITCHING  
 045-149

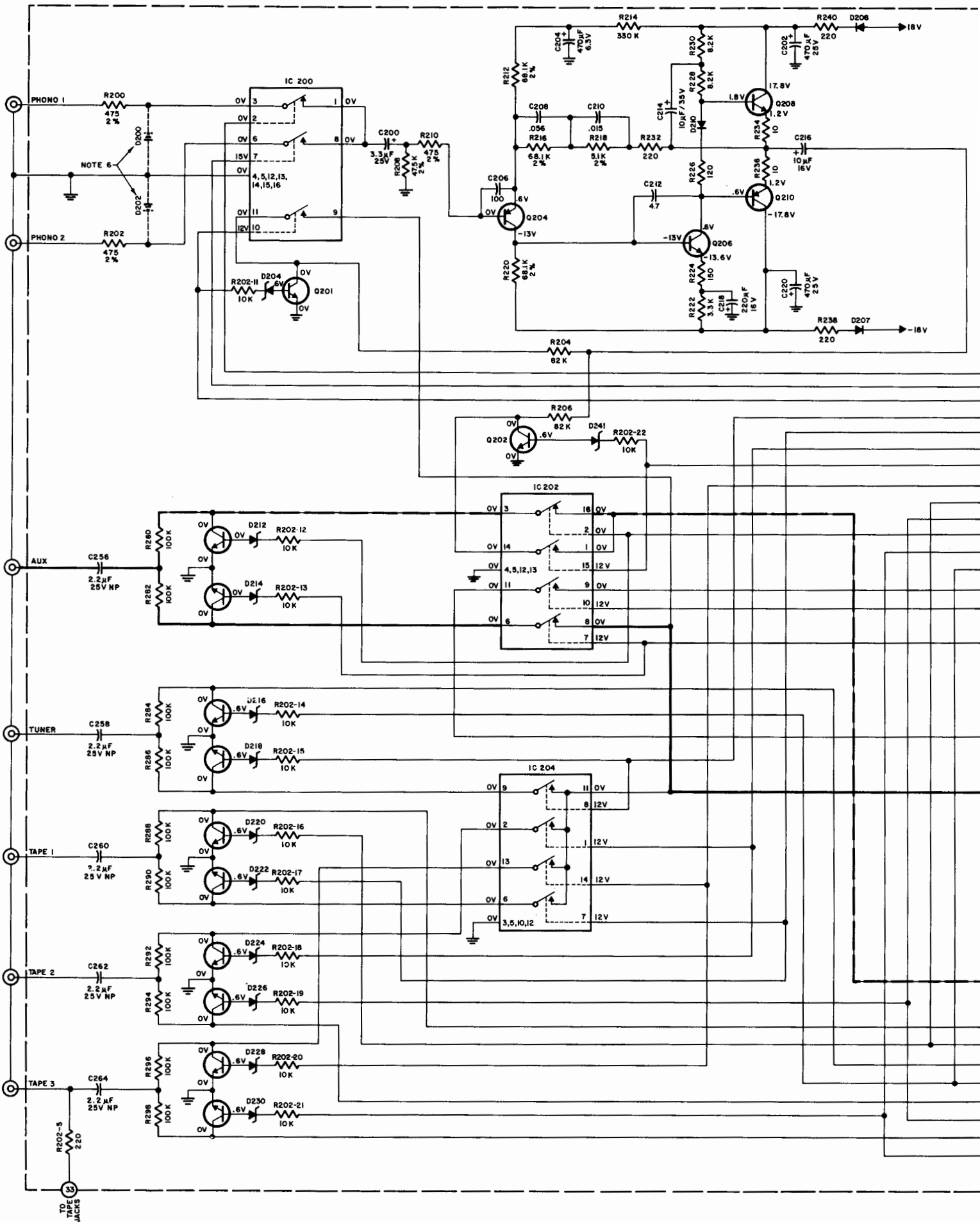




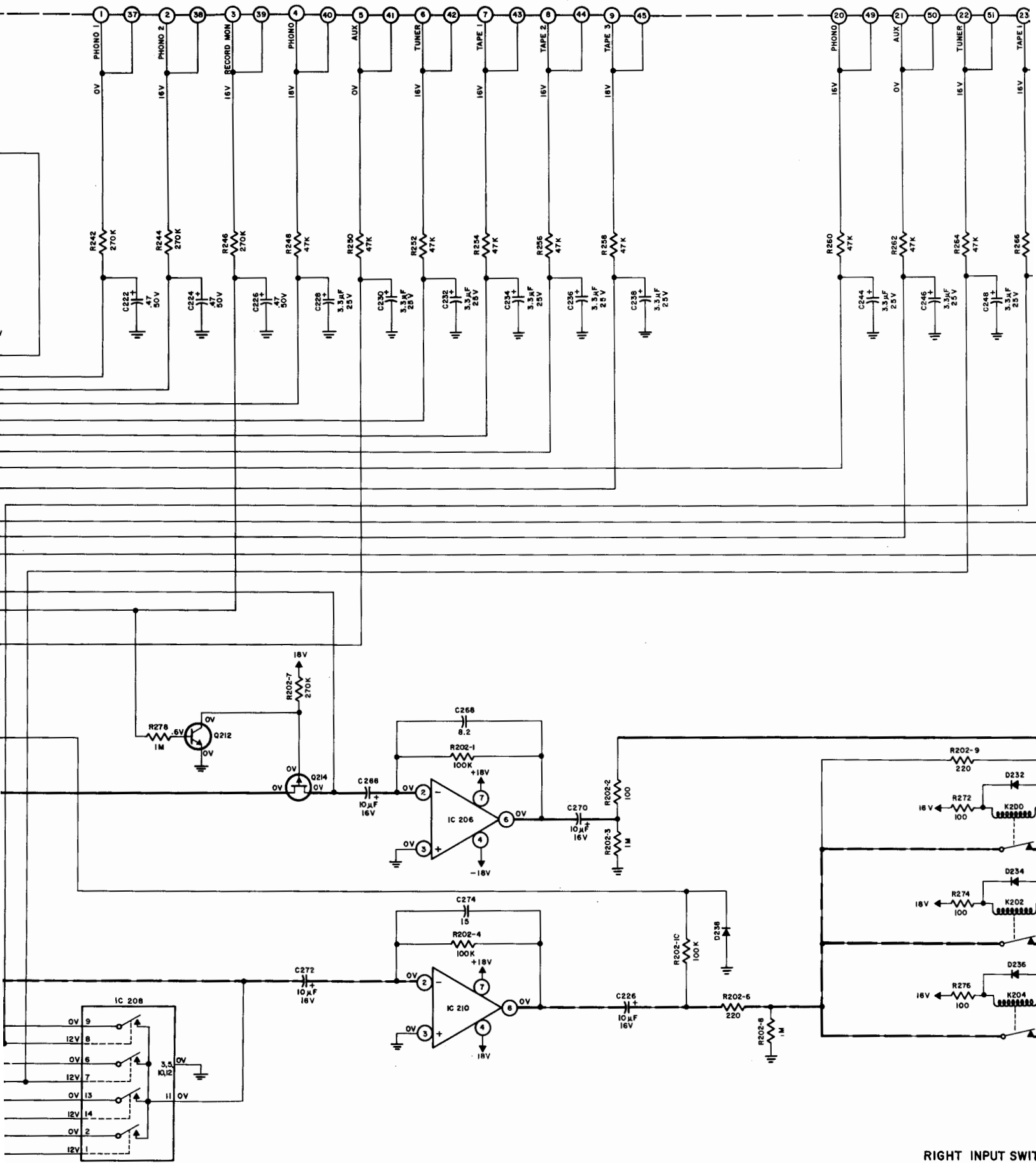




LEFT INPUT SWITCHING  
045-149



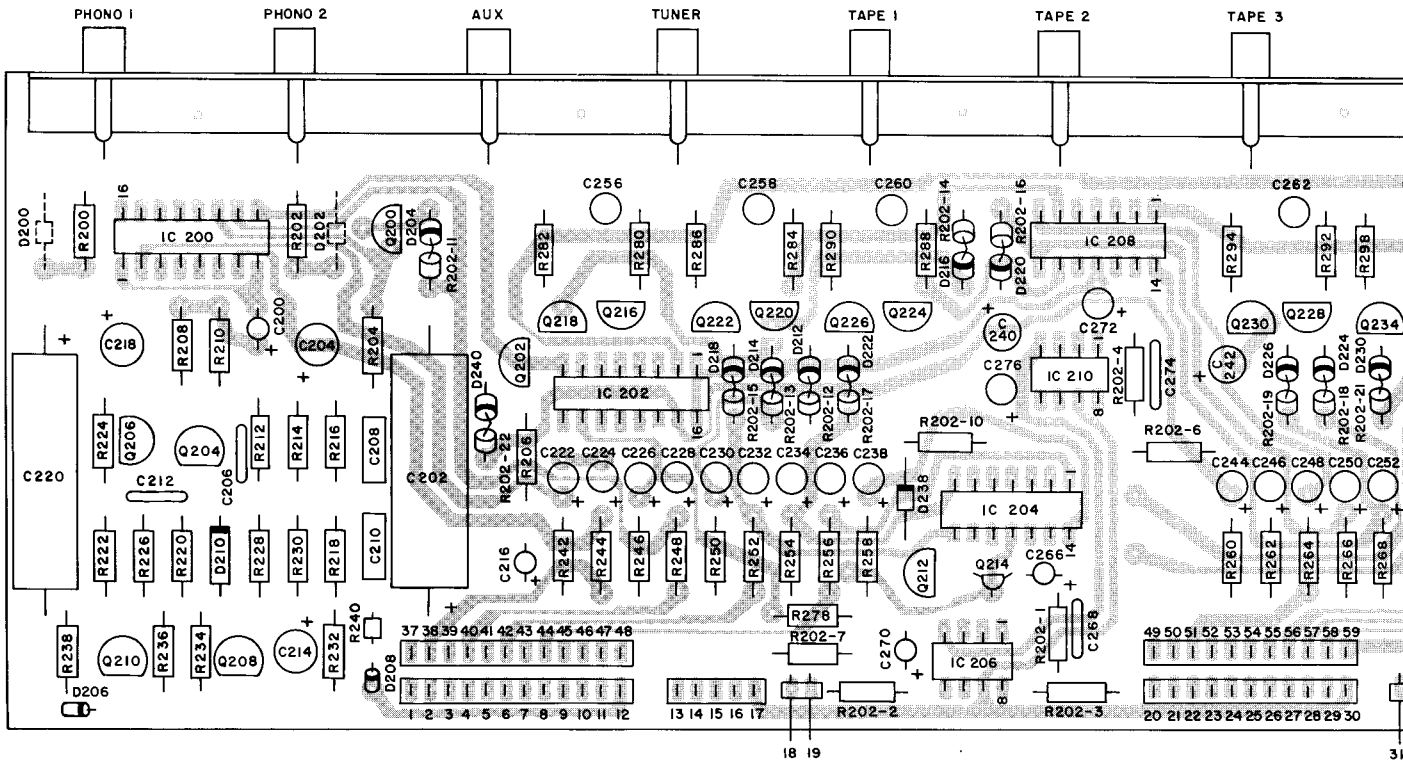
RIGHT INPUT SWITCHING



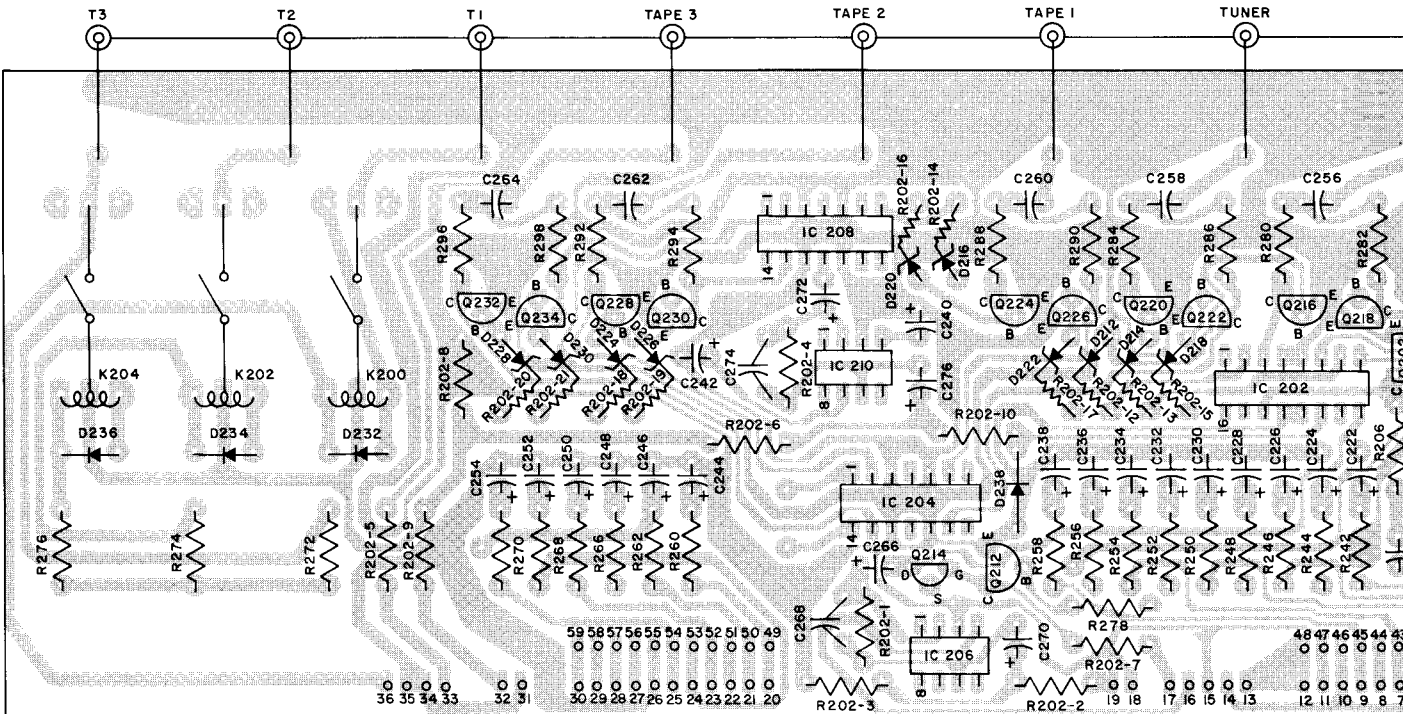
RIGHT INPUT SWITCH  
045-023



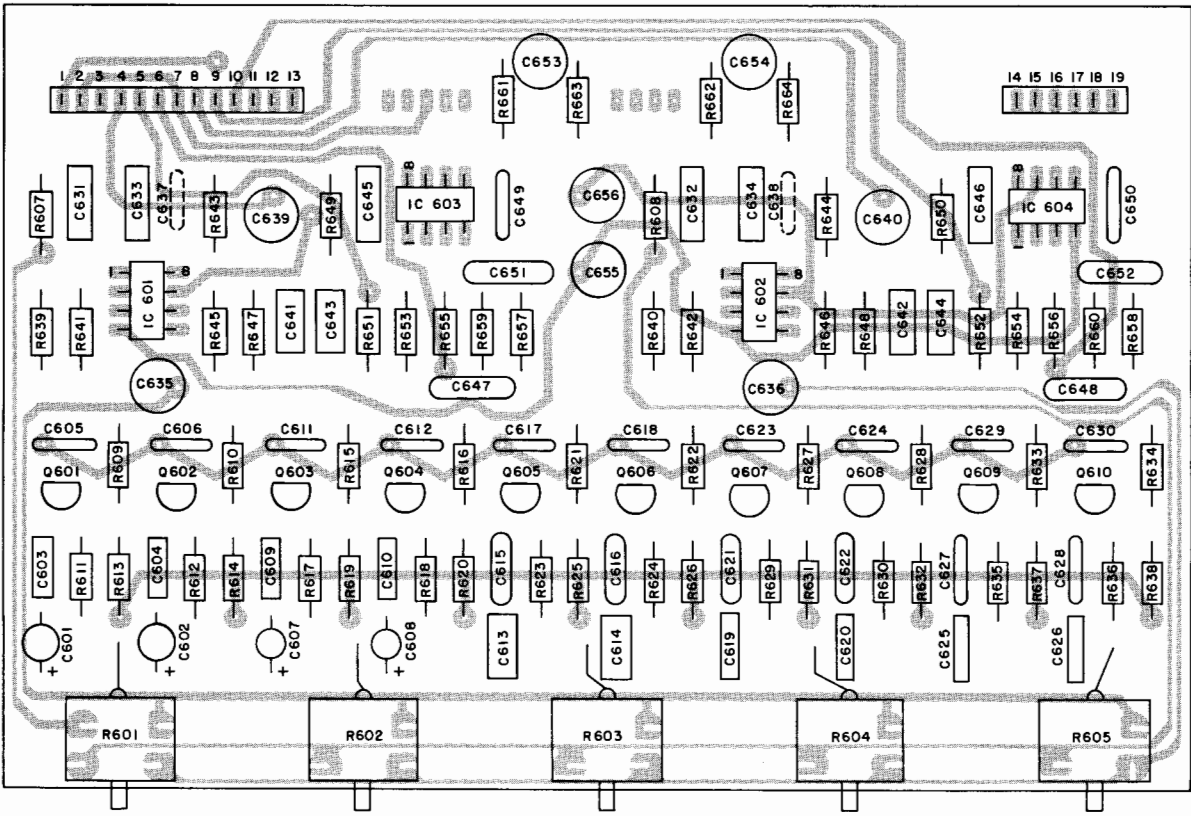




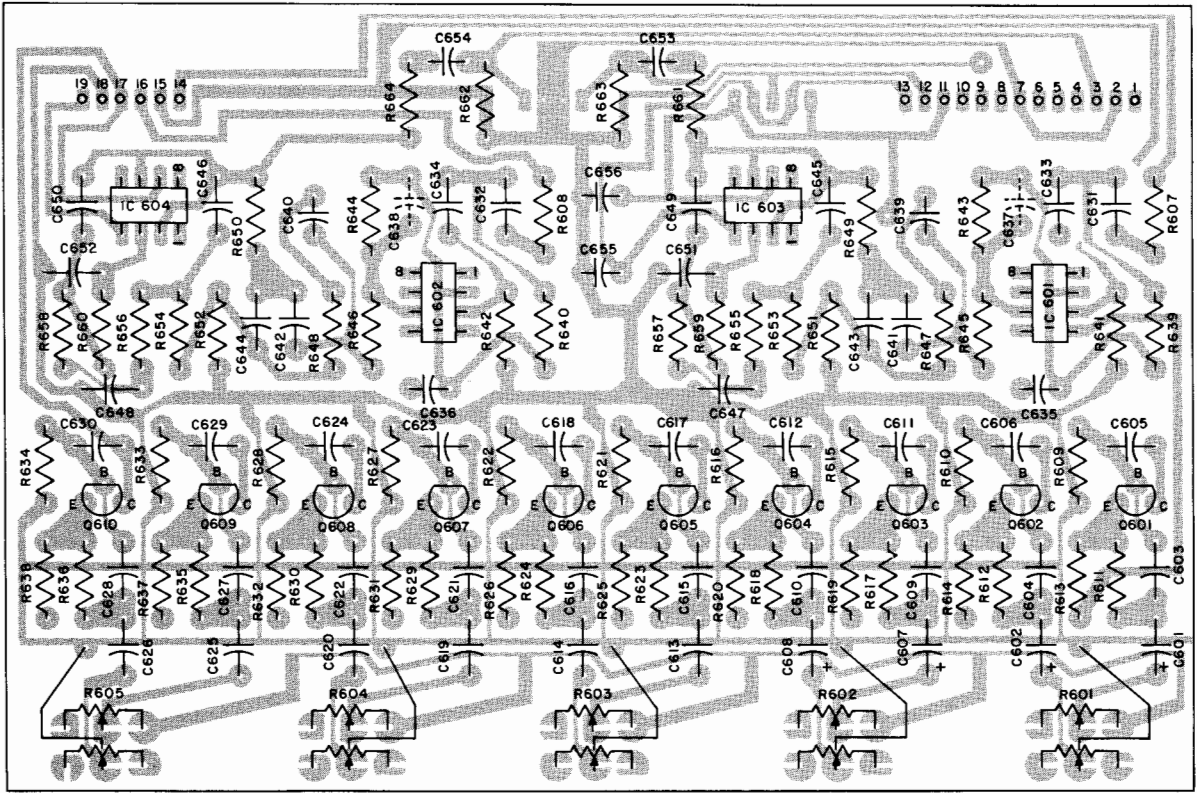
RIGHT INPUT SWITCHING  
045-023

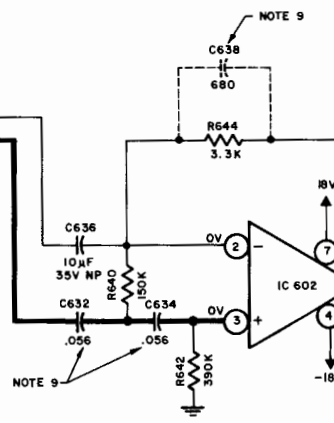
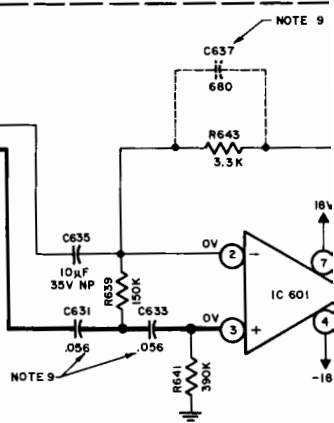
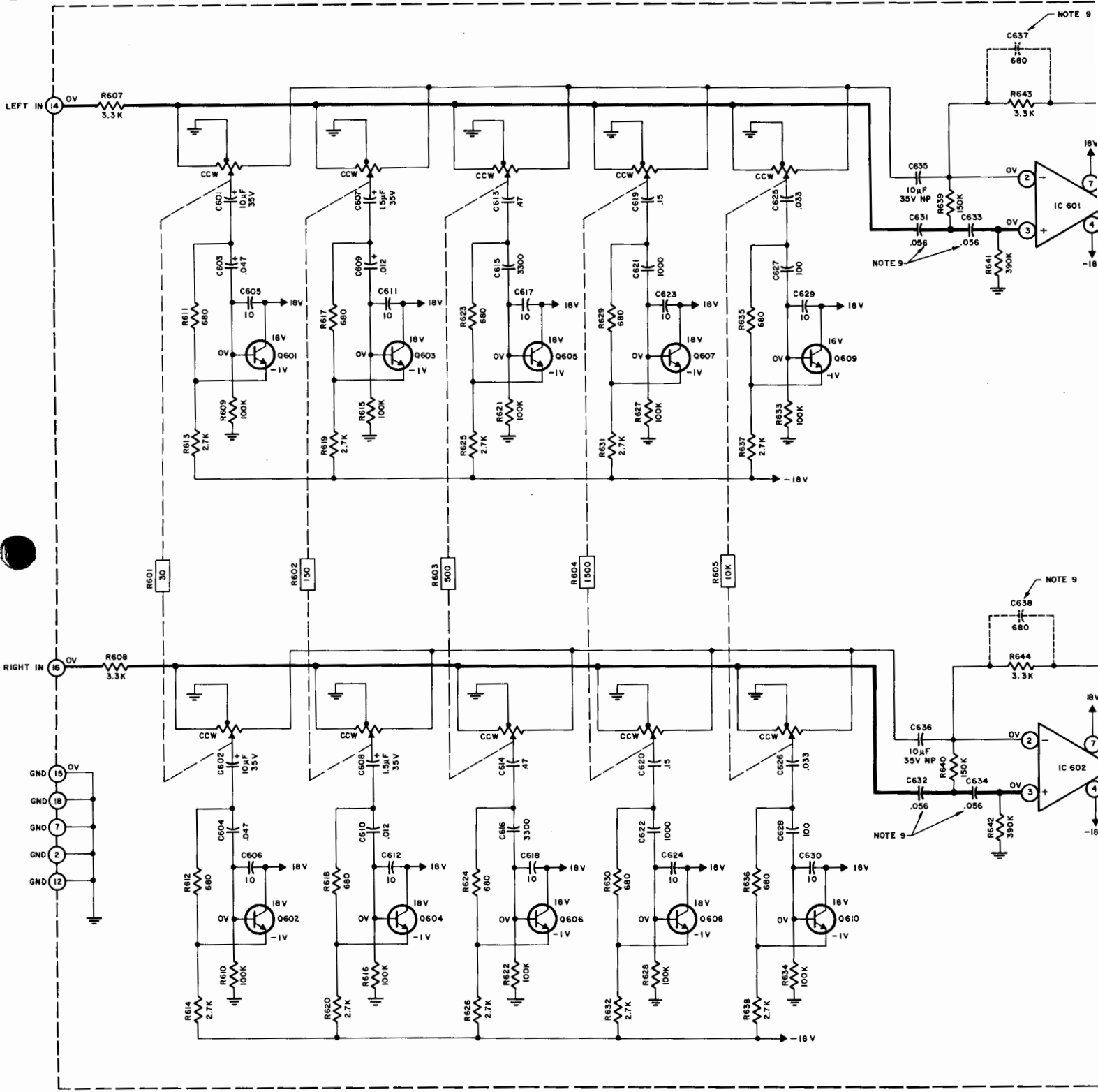




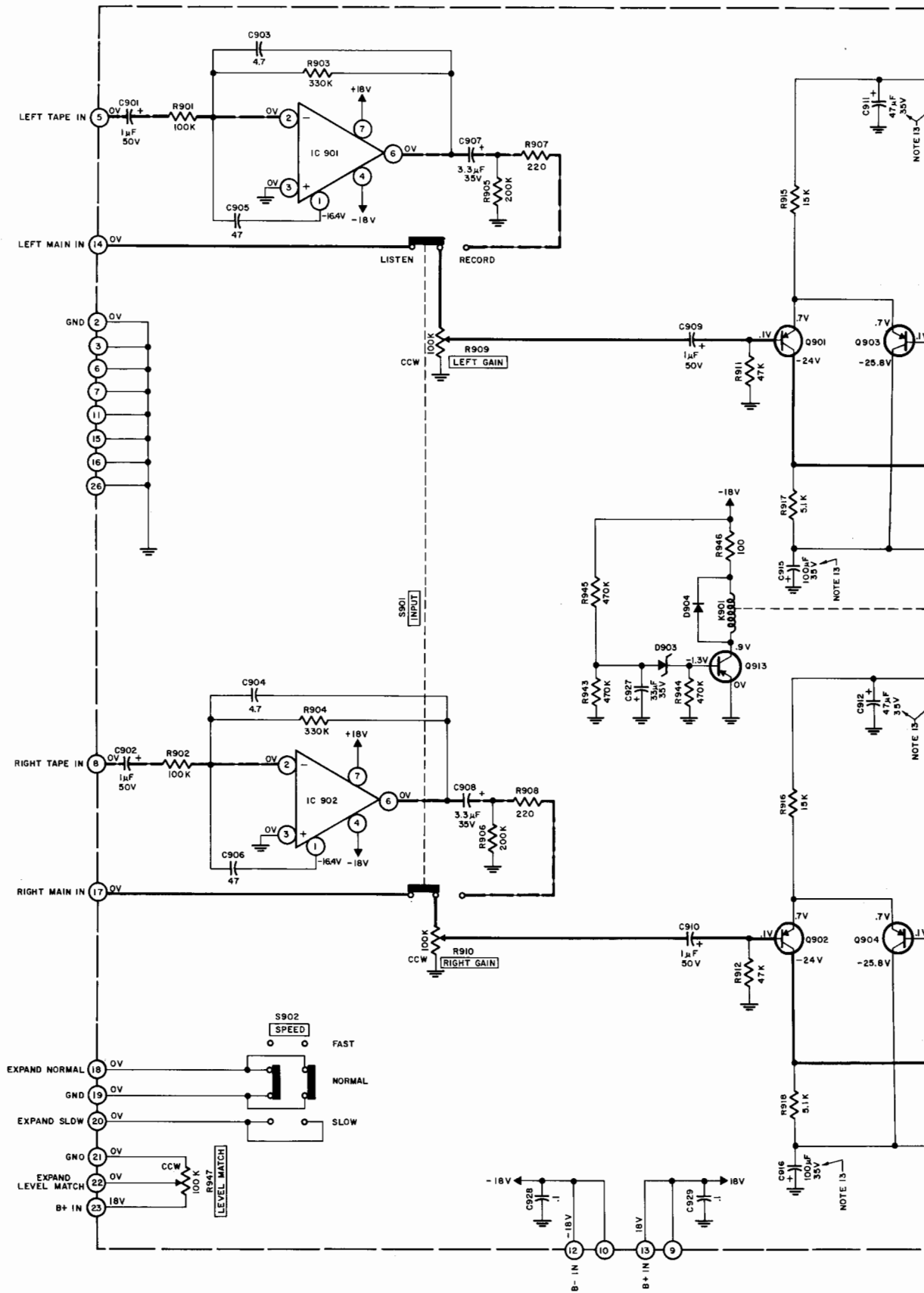


TONE FILTER PC BOARD  
045-009

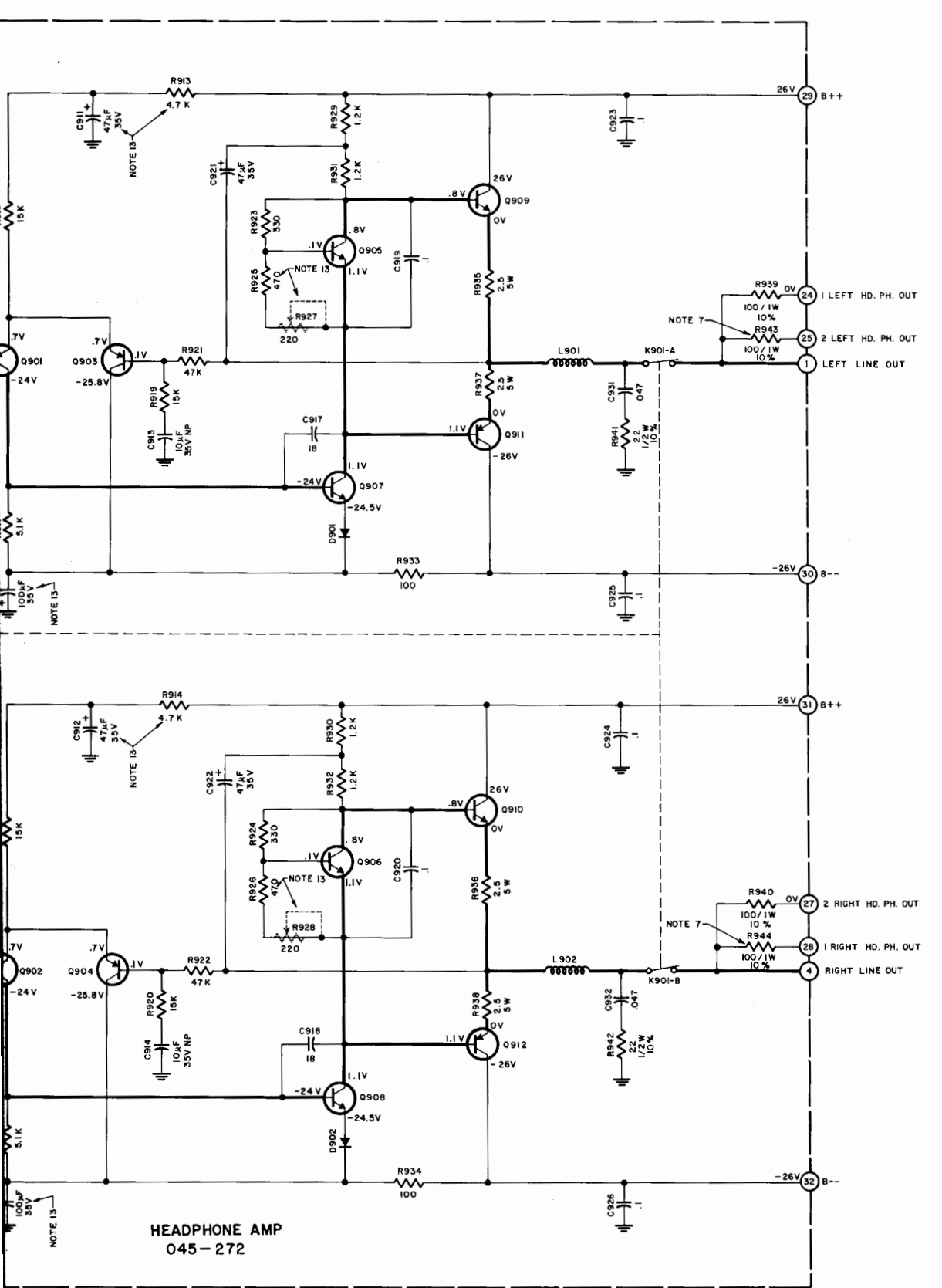






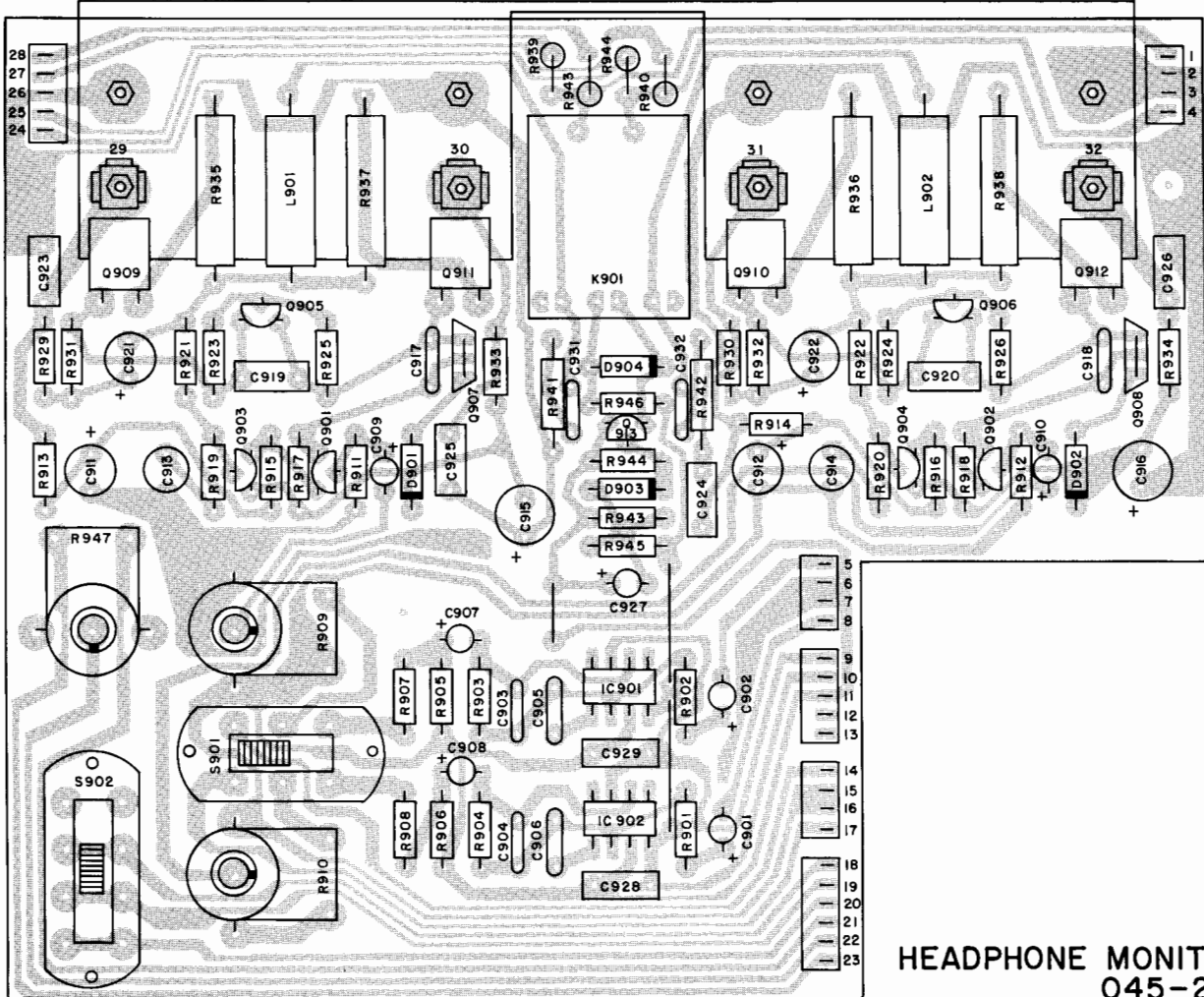


HEADPHONE AMP.

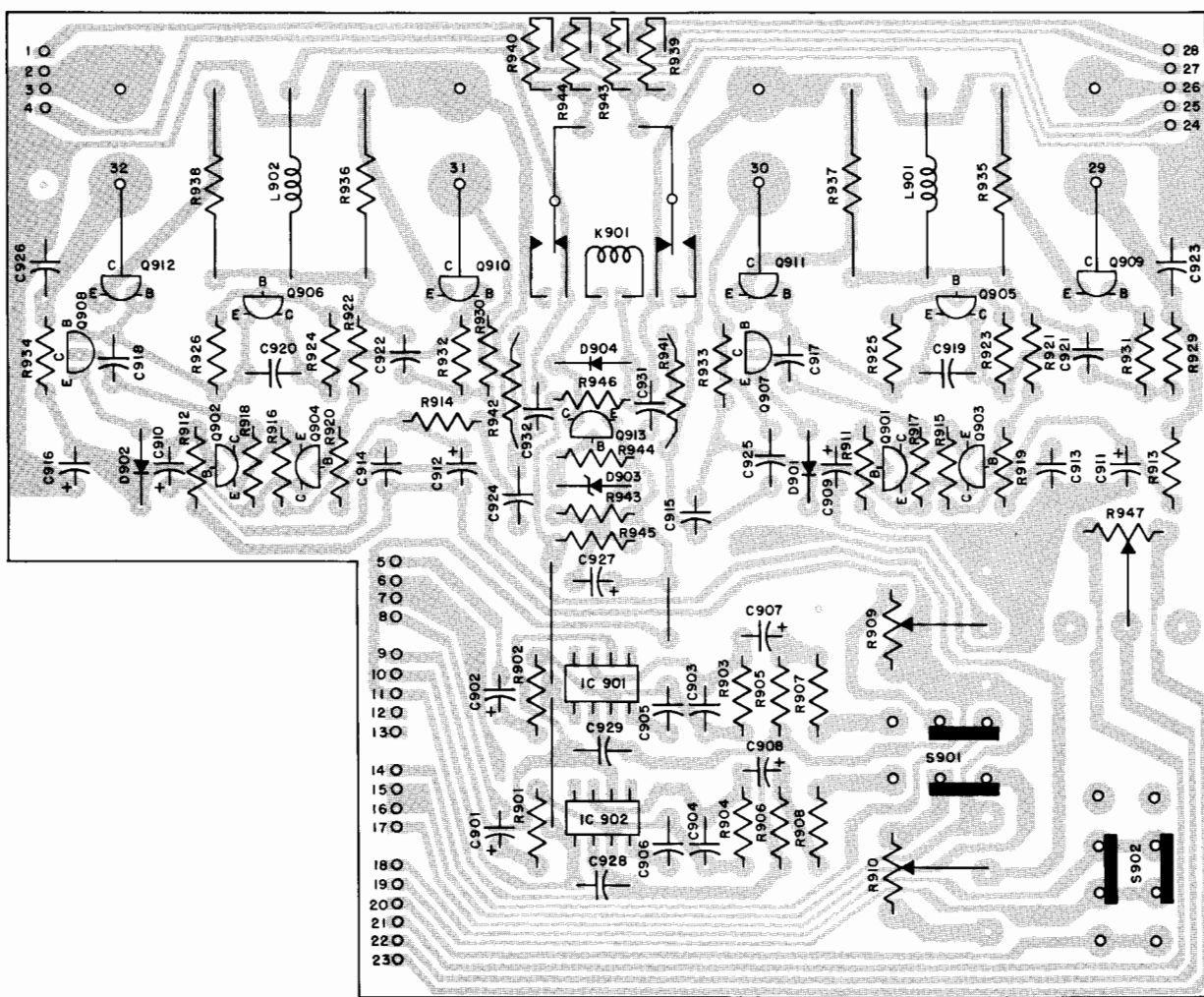


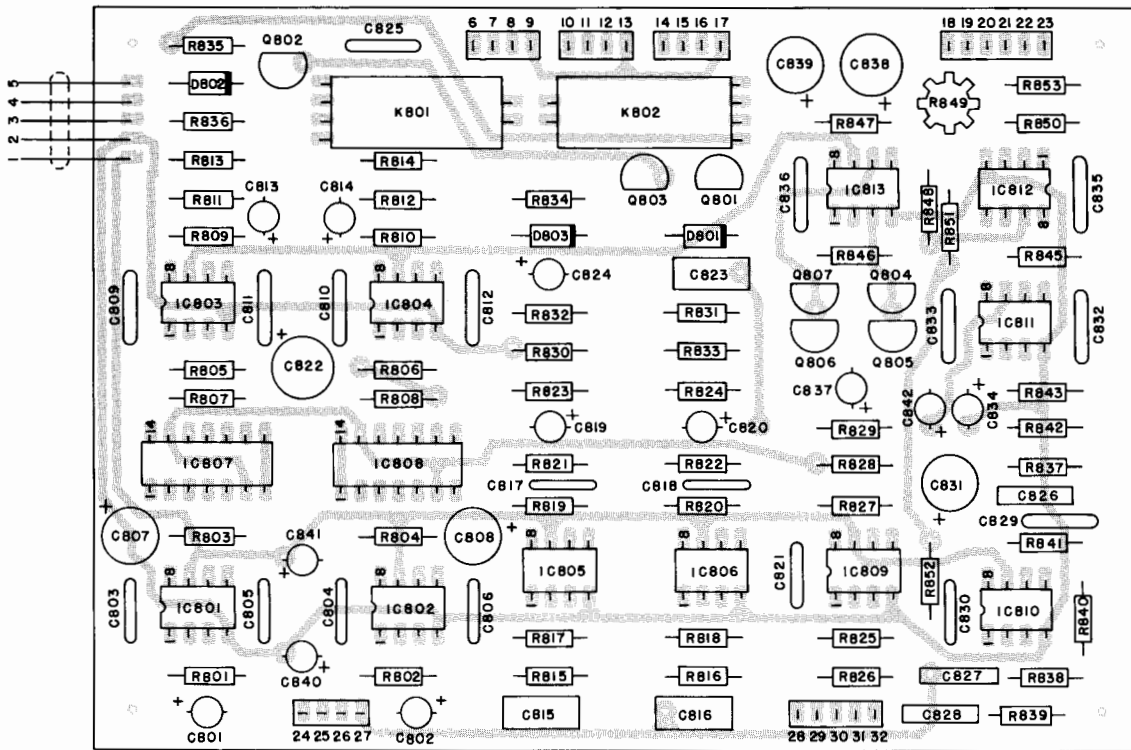
HEADPHONE AMP  
O45-272



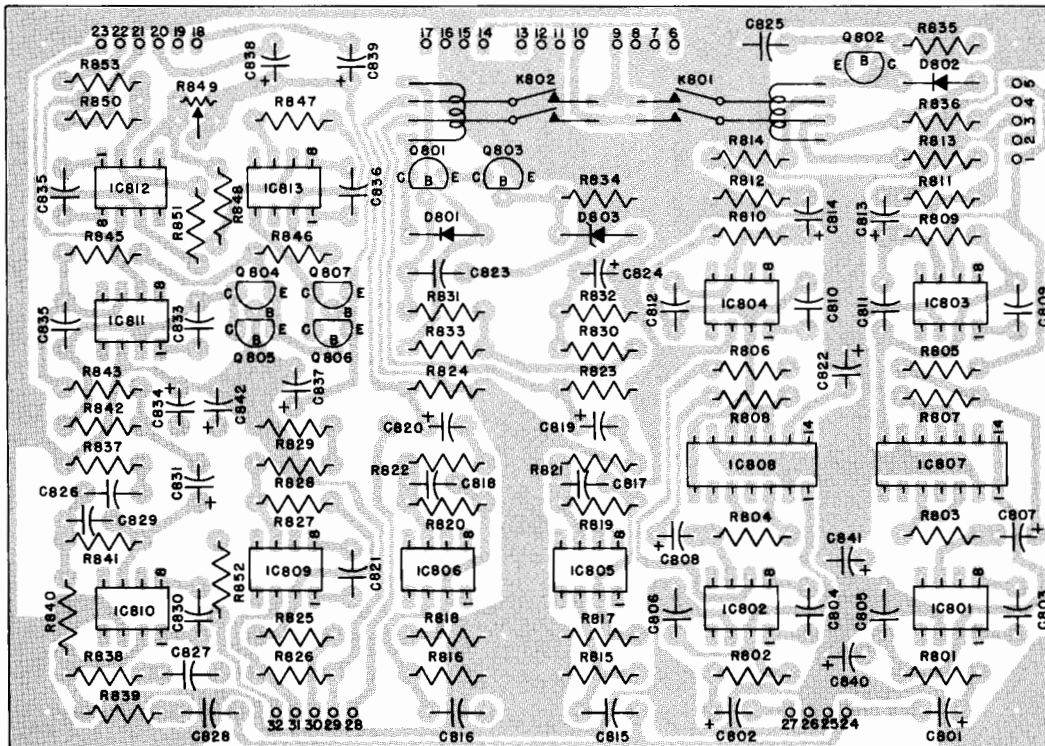


HEADPHONE MONITOR PC BOARD  
045-272

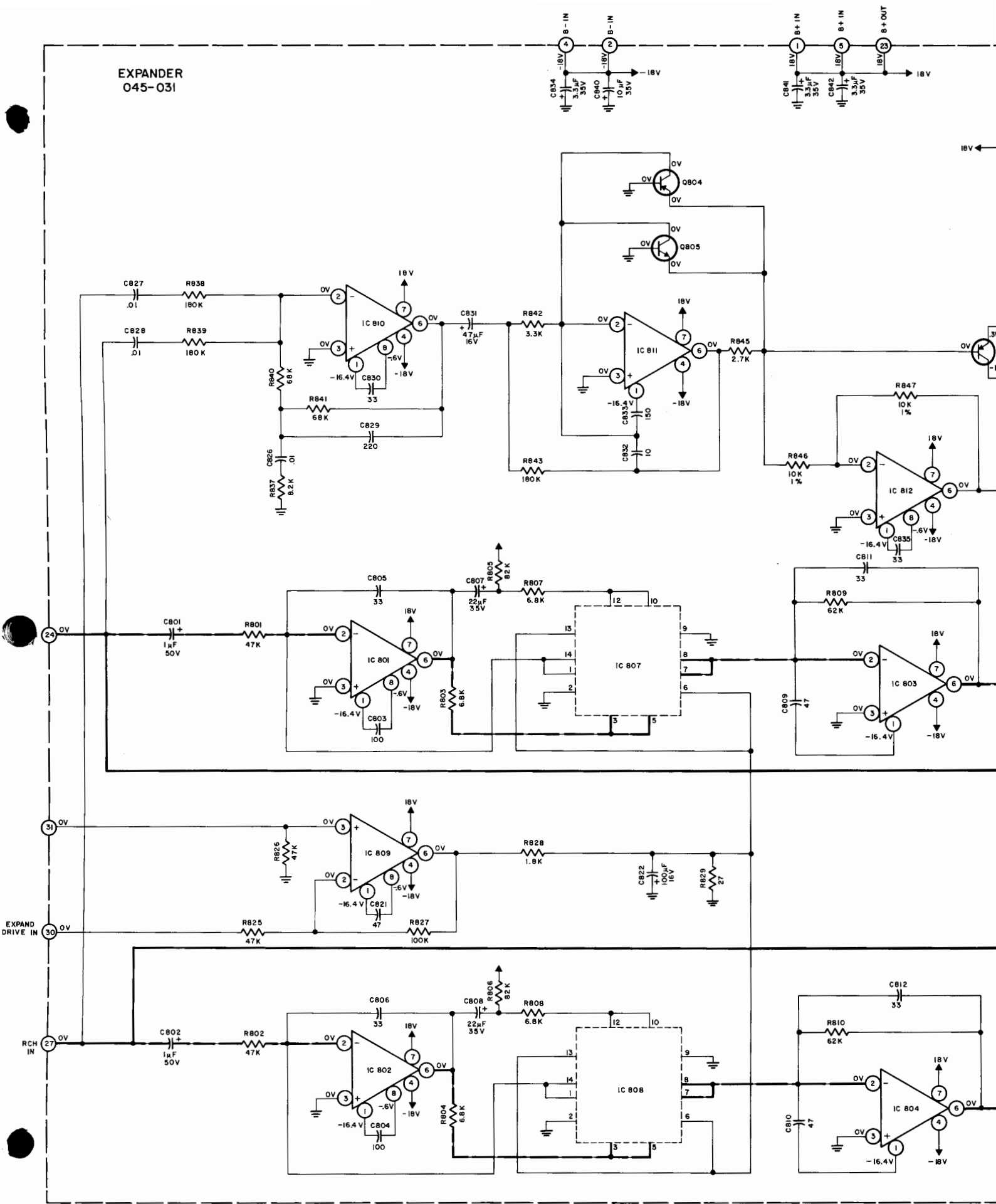


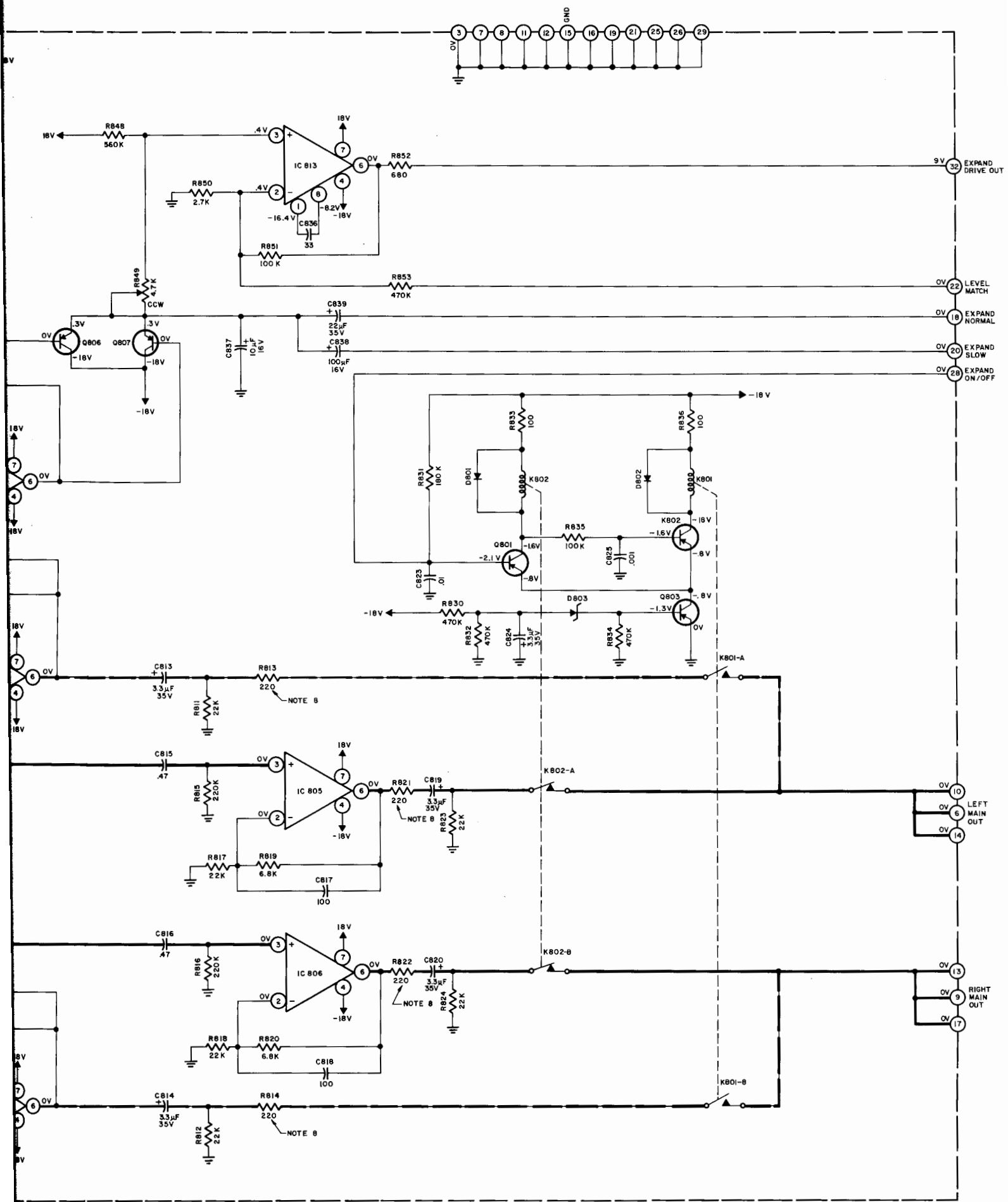


EXPANDER PC BOARD  
045031

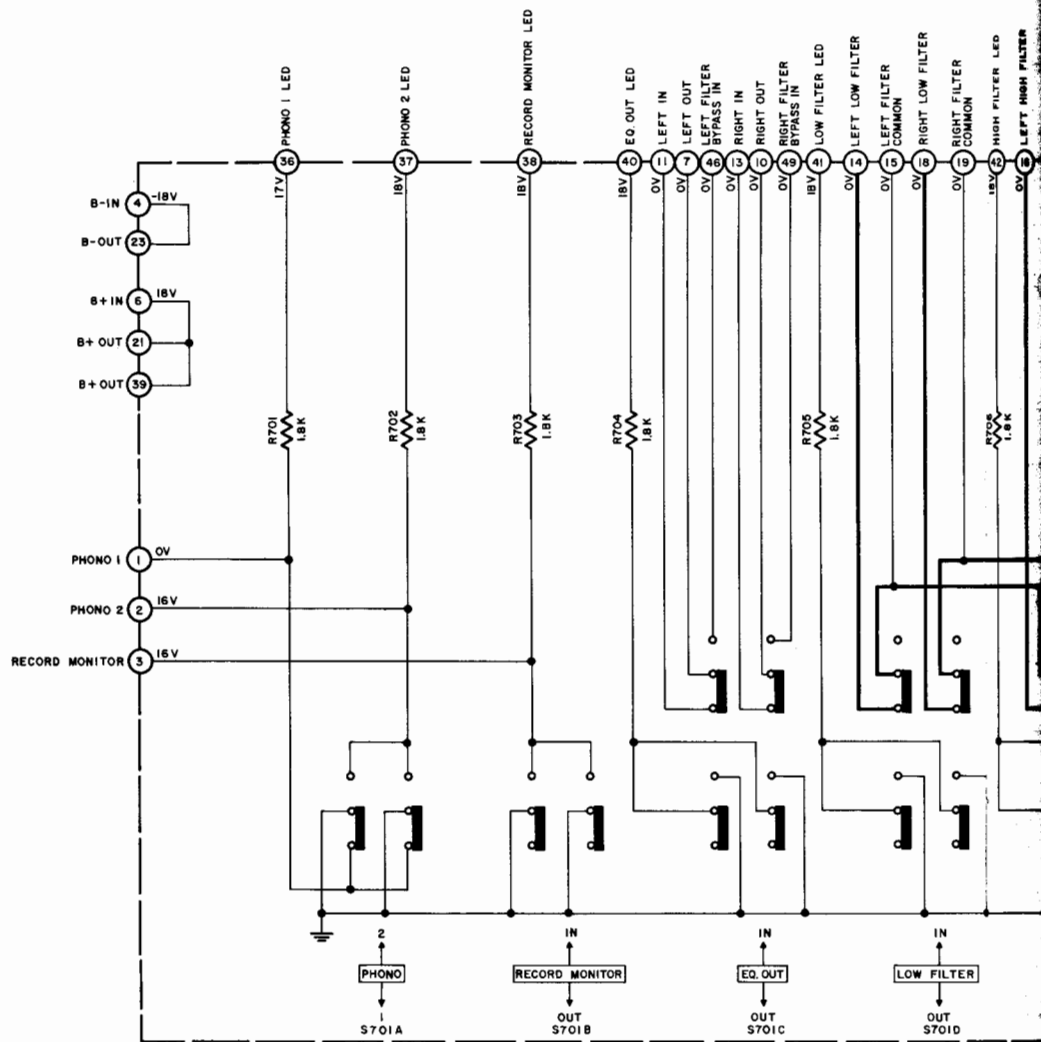


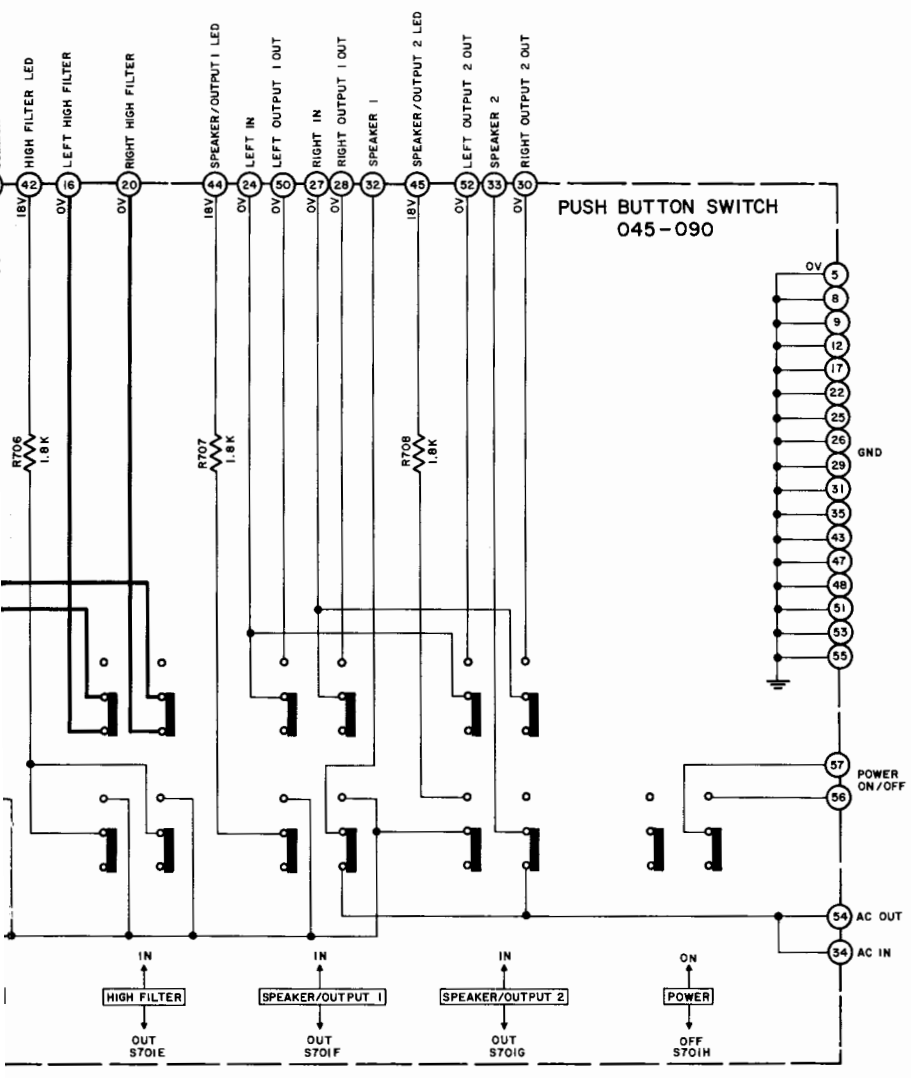
EXPANDER  
O45-031

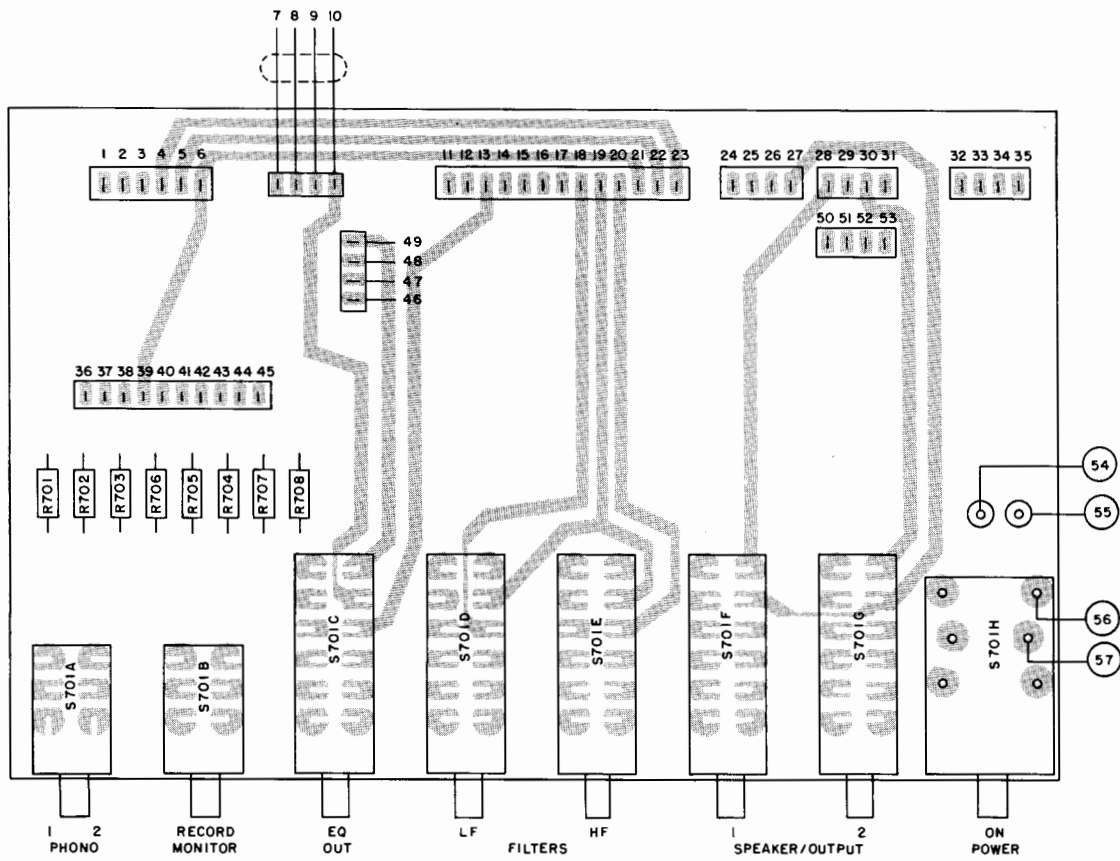




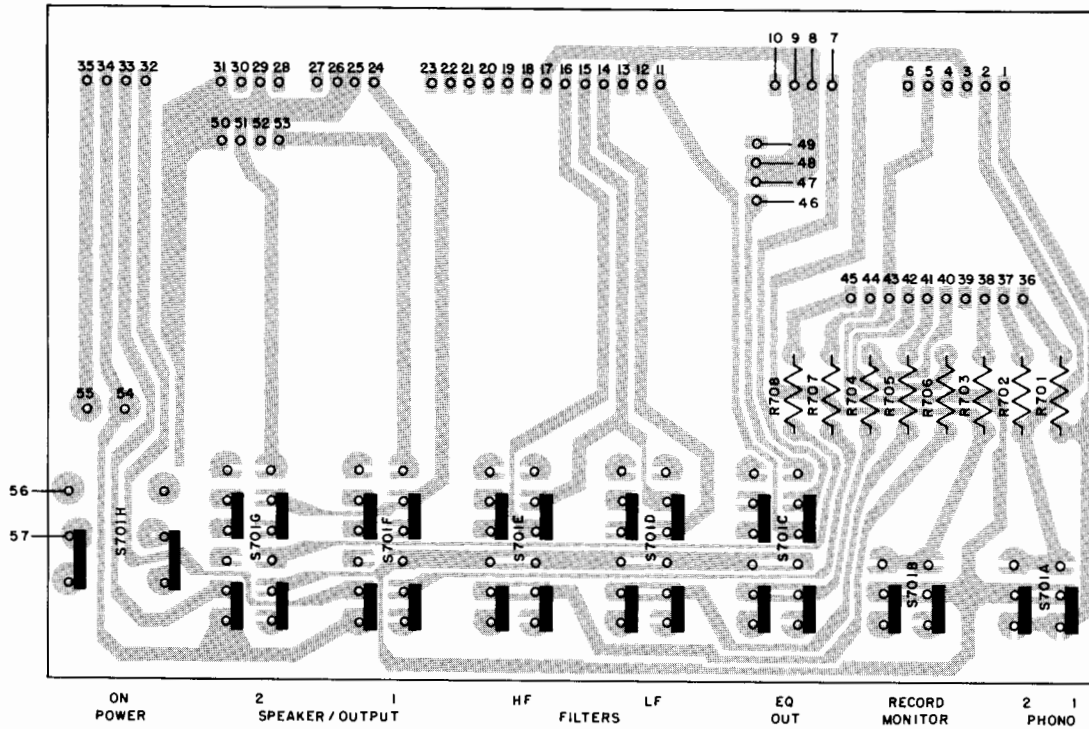
EXPANDER

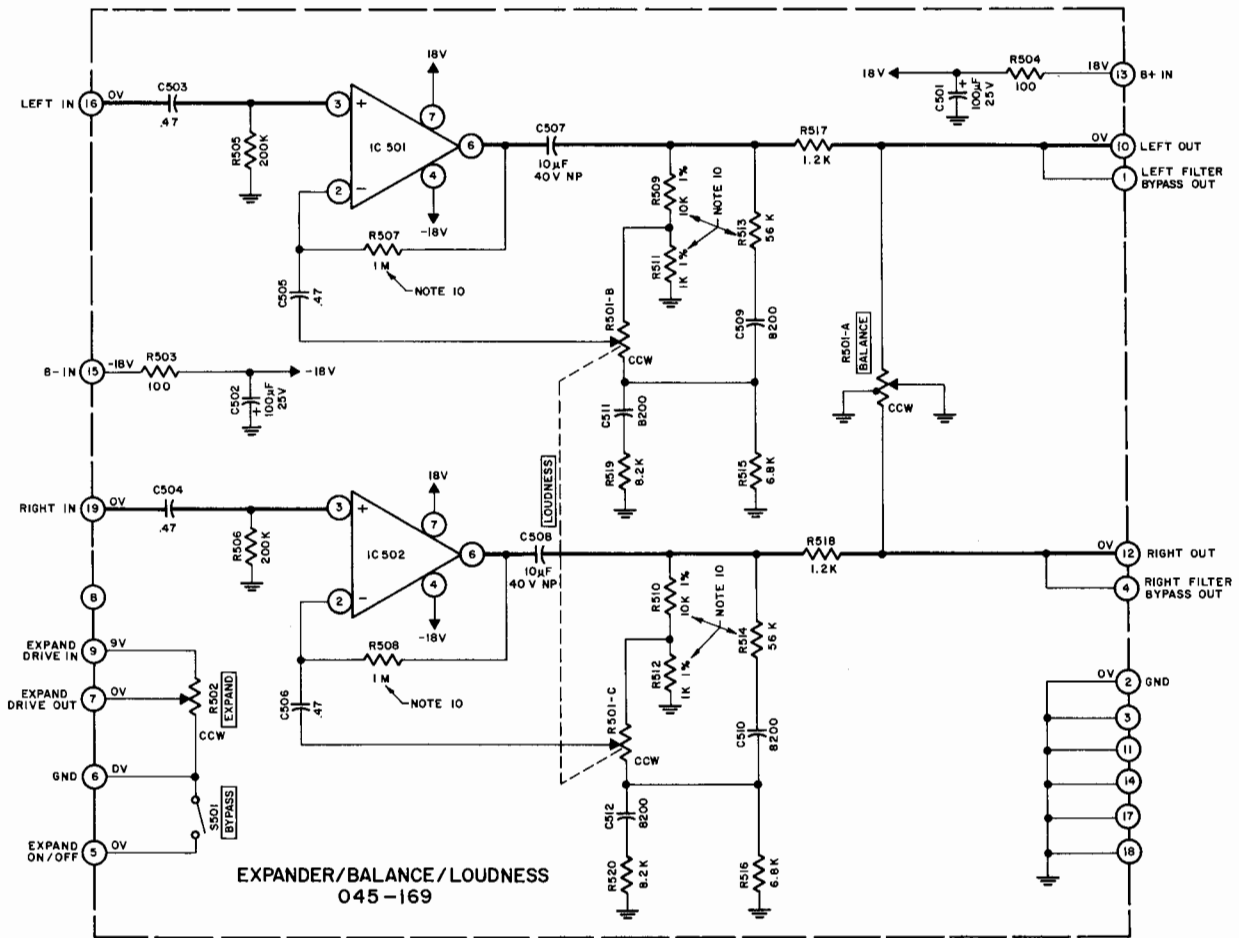




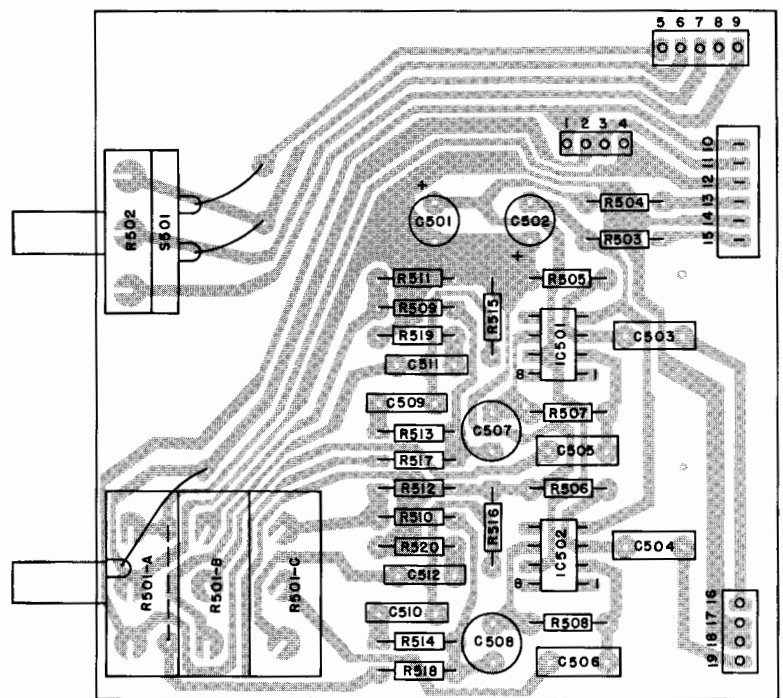


PUSH BUTTON SWITCH PC BOARD  
045-090

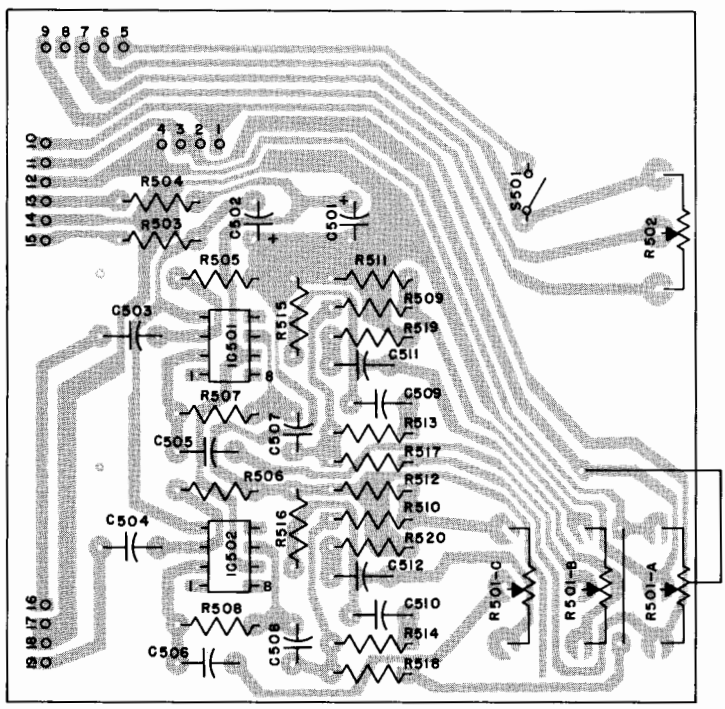


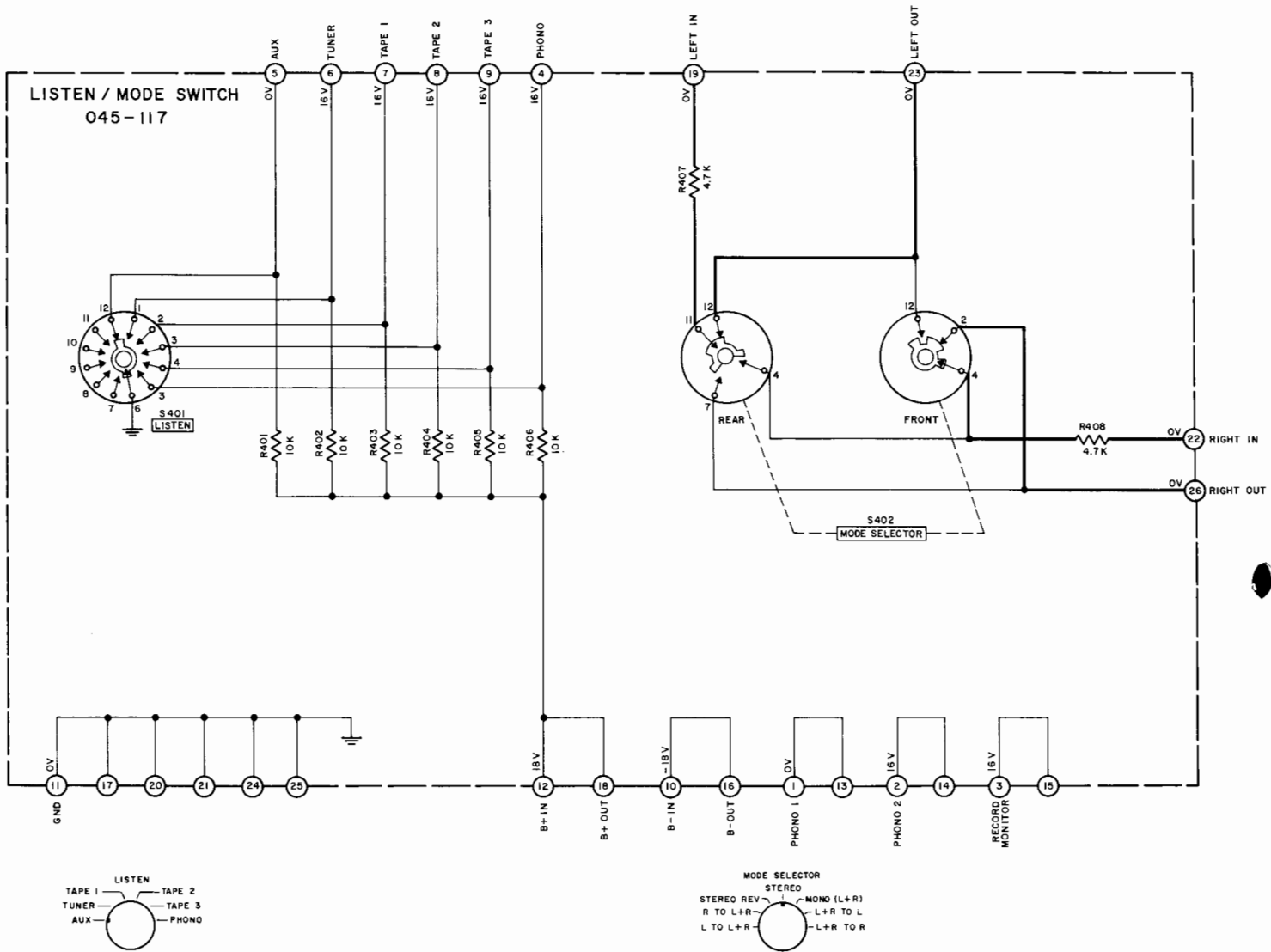




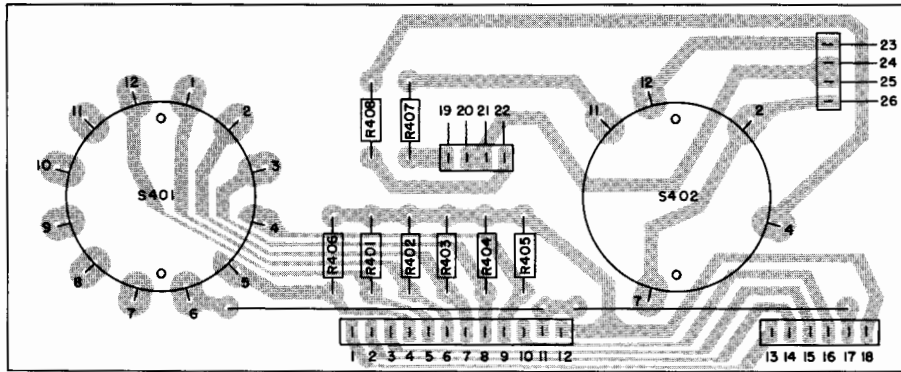


EXPANDER, BALANCE & LOUDNESS PC BOARD  
045-169

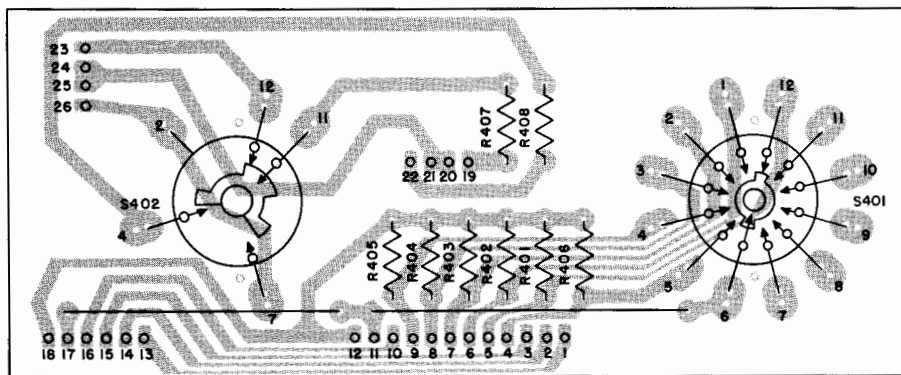


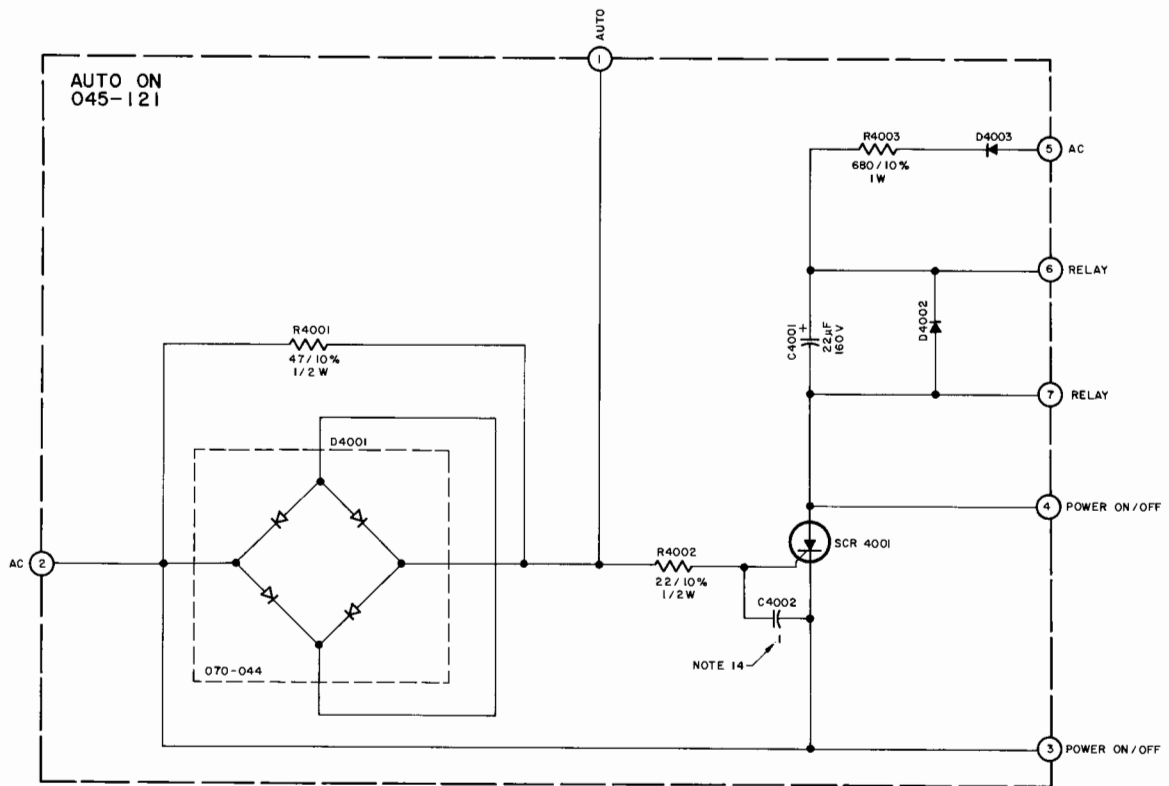


LISTEN/MODE SWITCH

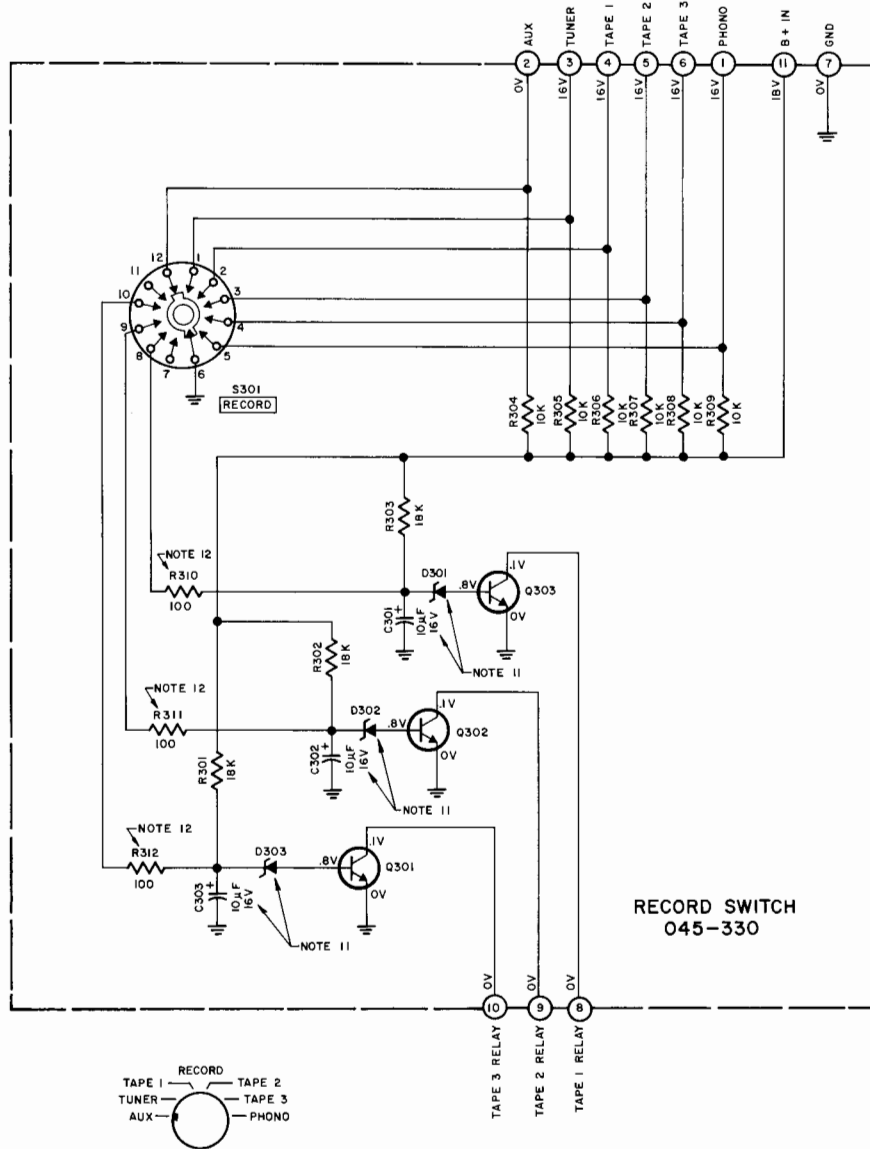


LISTEN-MODE SWITCH PC BOARD  
045-117

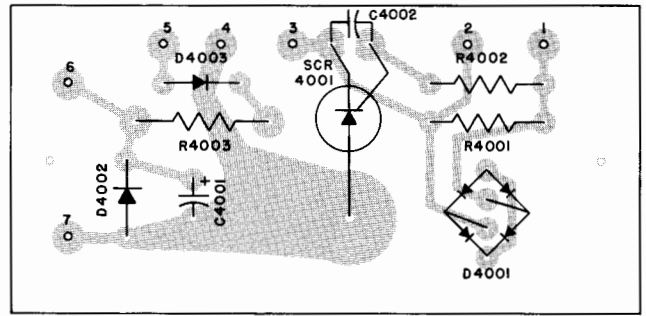
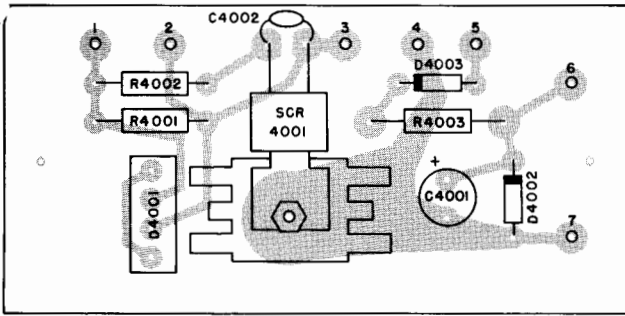




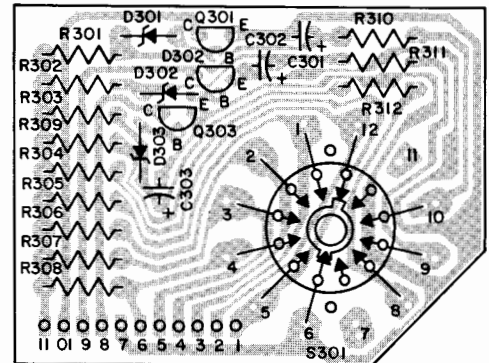
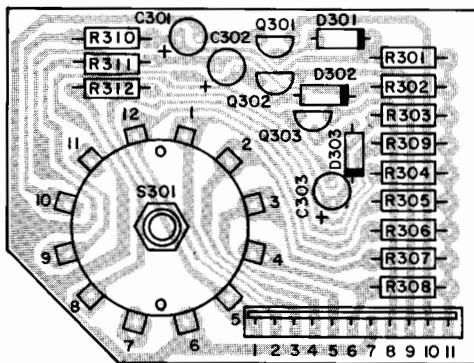
**AUTO TURN ON**



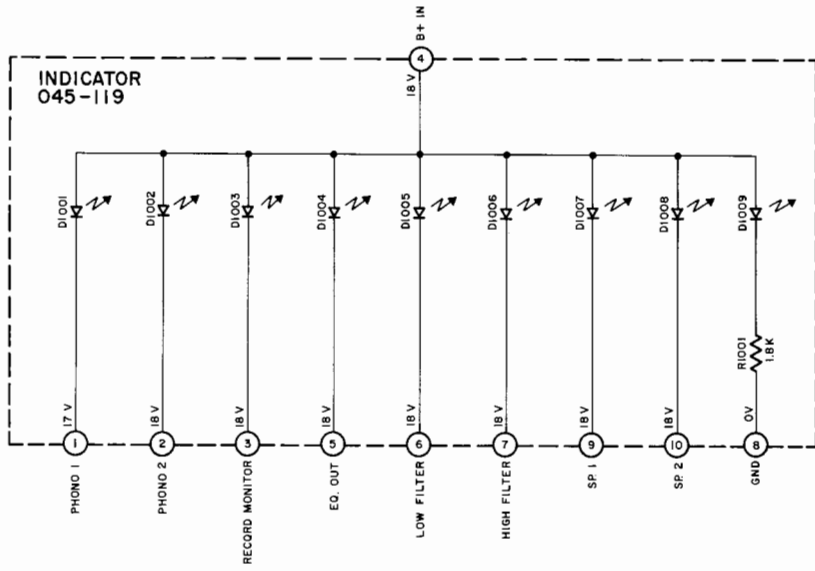
**RECORD SWITCH**



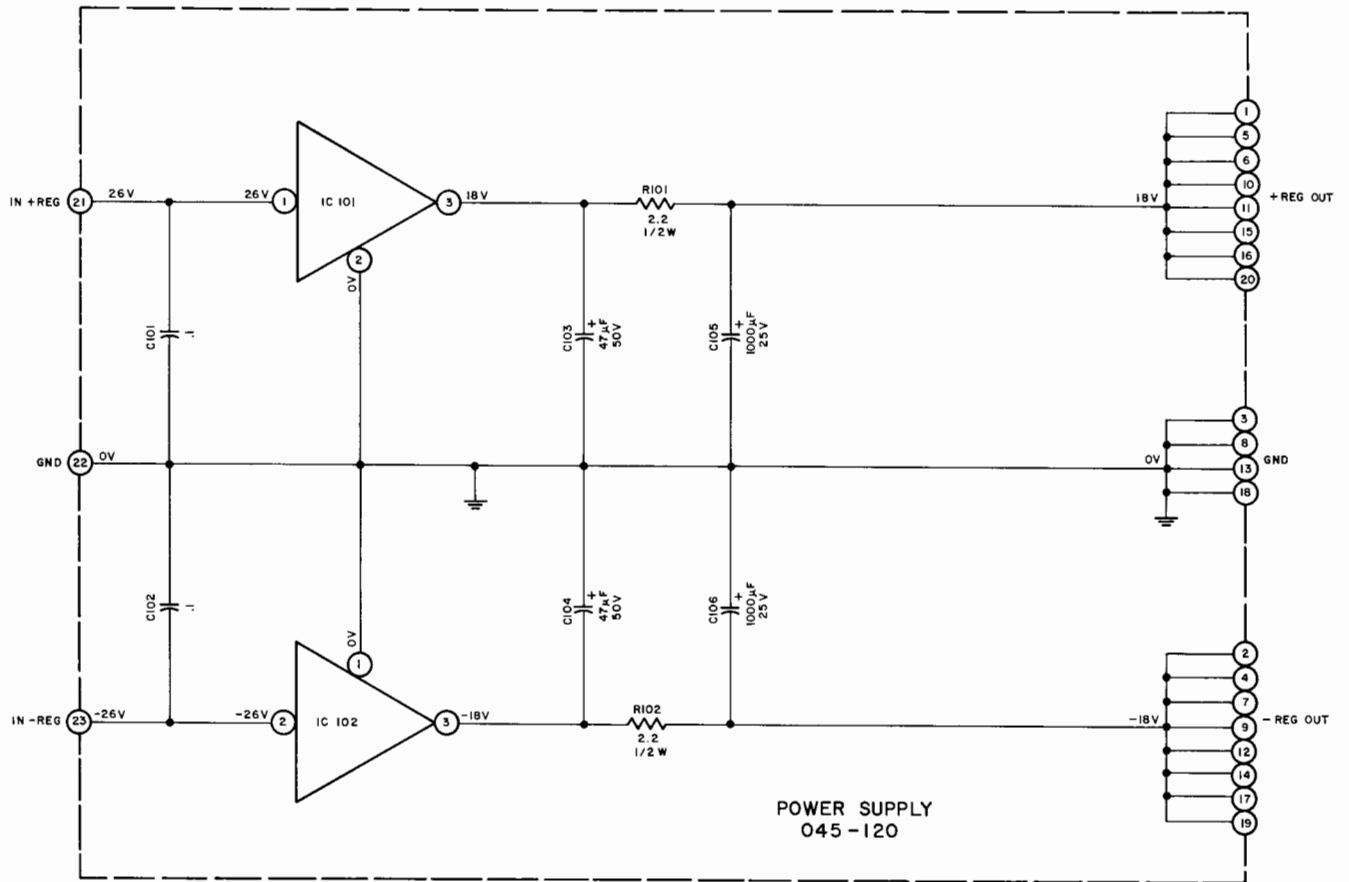
AUTO-ON PC BOARD  
045-121



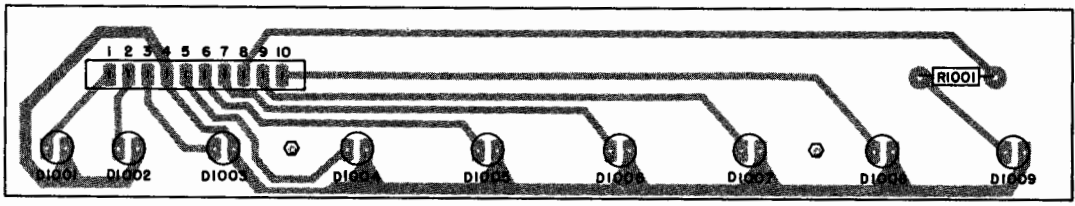
RECORD SWITCH PC BOARD  
045-330



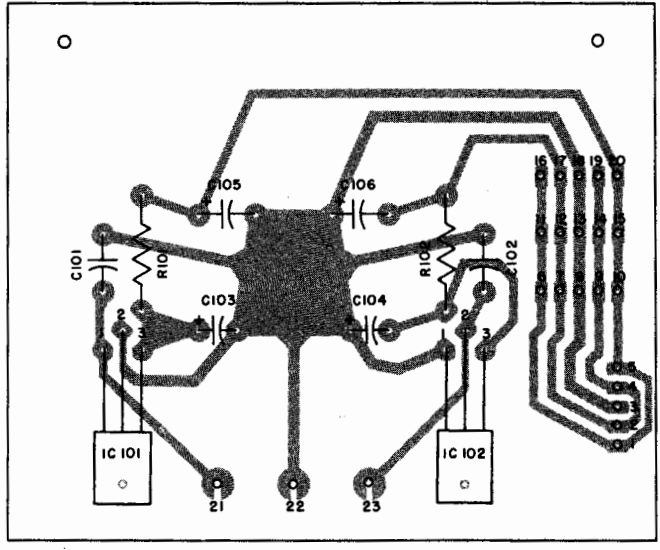
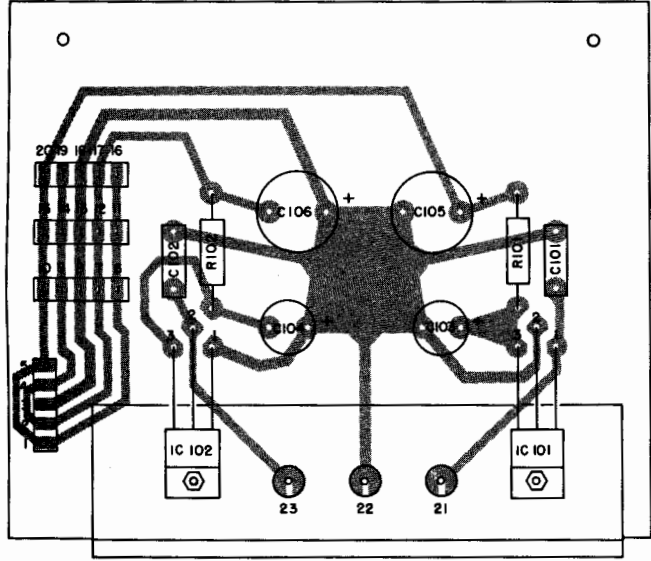
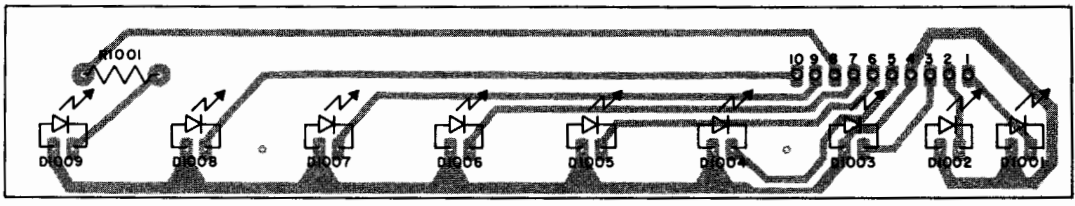
INDICATOR



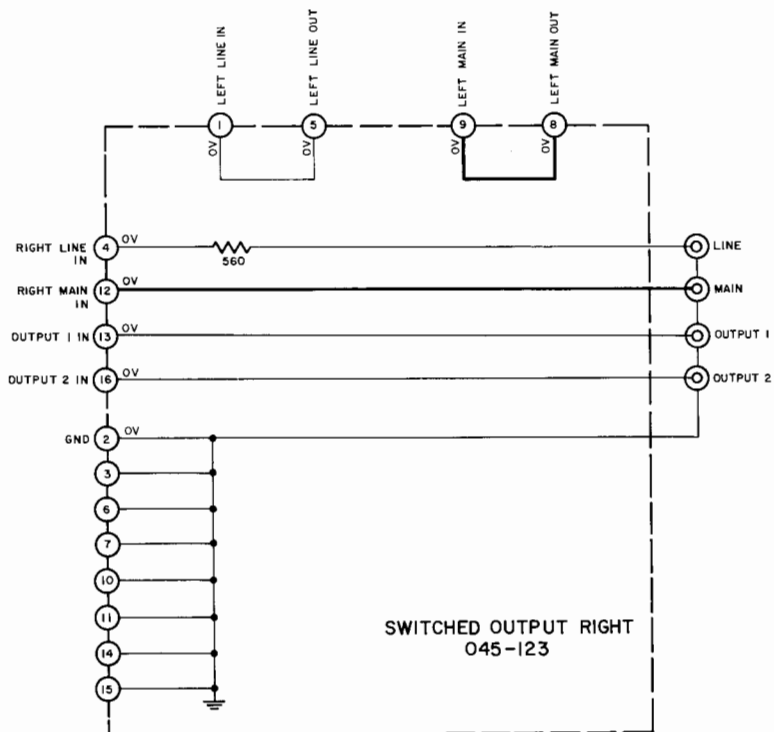
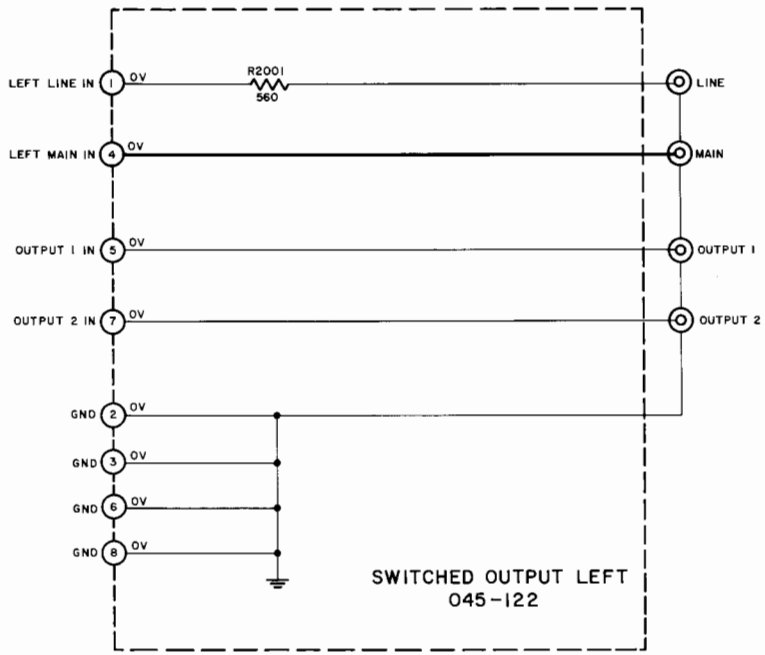
POWER SUPPLY



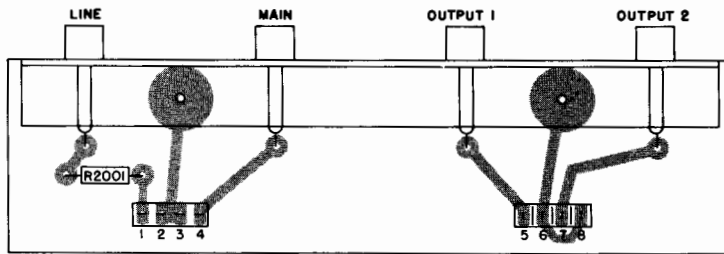
PUSH BUTTON SW. IND. PC BOARD  
045-119



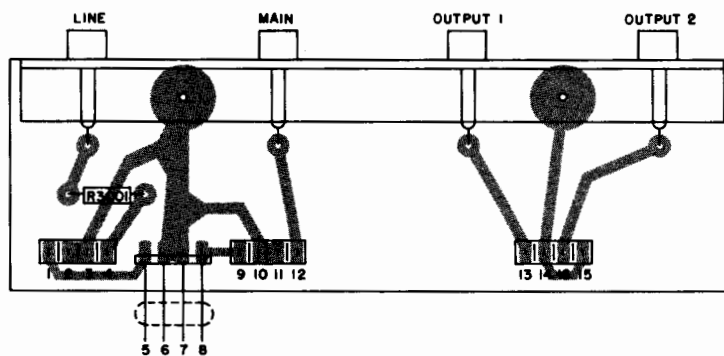
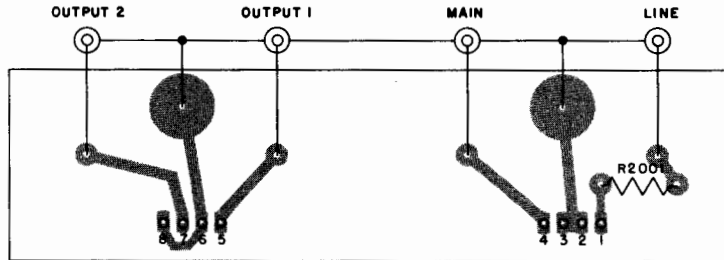
POWER SUPPLY PC BOARD  
045-120



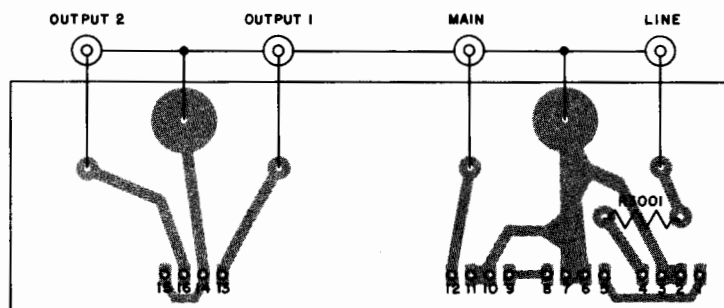




LEFT SWITCH OUTPUT PC BOARD  
045-122



RIGHT SWITCH OUTPUT PC BOARD  
045-123



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)

Symbol Number	DIODES Description	Part Number
D1	Bridge	070-044
D204,205	Zener 12V	070-099
D206,207	Si. signal diode	070-047
D208,209	Si. signal diode	070-047
D210,211	Si. signal diode	070-096
D212,213	Zener 12V	070-099
D214,215	Zener 12V	070-099
D216,217	Zener 12V	070-099
D218,219	Zener 12V	070-099
D220,221	Zener 12V	070-099
D222,223	Zener 12V	070-099
D224,225	Zener 12V	070-099
D226,227	Zener 12V	070-099
D228,229	Zener 12V	070-099
D230,231	Zener 12V	070-099
D232,233	Si. signal diode	070-047
D234,235	Si. signal diode	070-047
D236,237	Si. signal diode	070-047
D238,239	Si. signal diode	070-047
D240,241	Zener 12V	070-099
D301,302	Zener 6.2V	070-085
D303	Zener 6.2V	070-085
D801,802	Si. signal diode	070-047
D803	Zener 6.2V	070-085
D901,902	Si. signal diode	070-046
D903	Zener 6.2V	070-085
D901,902	Si. signal diode	070-046
D903	Zener 6.2V	070-085
D904	Si. signal diode	070-047
D1001,1002	LED lamp	070-093
D1003,1004	LED lamp	070-093
D1005,1006	LED lamp	070-093
D1007,1008	LED lamp	070-093
D1009	LED lamp	070-093

D4001	Bridge Rectifier	070-044
D4002	Si. Rectifier	070-031
D4003	Si. Rectifier	070-059
SCR4001	SCR	131-008

## TRANSISTORS

Q200,201	NPN Si Transistor	132-093
Q202,203	NPN Si Transistor	132-093
Q204,205	PNP Si Transistor	132-096
Q206,207	NPN Si Transistor	132-094
Q208,209	NPN Si Transistor	132-094
Q210,211	PNP Si Transistor	132-096
Q212,213	NPN Si Transistor	132-094
Q214,215	Junction FET	132-170
Q216,217	NPN Si Transistor	132-093
Q218,219	NPN Si Transistor	132-093
Q220,221	NPN Si Transistor	132-093
Q222,223	NPN Si Transistor	132-093
Q224,225	NPN Si Transistor	132-093
Q226,227	NPN Si Transistor	132-093
Q228,229	NPN Si Transistor	132-093
Q230,231	NPN Si Transistor	132-093
Q232,233	NPN Si Transistor	132-093
Q234,235	NPN Si Transistor	132-093
Q236,237	NPN Si Transistor	132-093
Q301,302	NPN Si Transistor	132-093
Q303	NPN Si Transistor	132-093
Q601,602	Si NPN Darlington	132-090
Q603,604	Si NPN Darlington	132-090
Q605,606	Si NPN Darlington	132-090
Q607,608	Si NPN Darlington	132-090
Q609,610	Si NPN Darlington	132-090
Q801,802	Si PNP Darlington	132-182
Q803	Si PNP Darlington	132-182
Q804	Si PNP Transistor	132-096
Q805	Si NPN Transistor	132-093
Q806,807	Si PNP Transistor	132-096
Q901,902	Si PNP Transistor	132-056
Q903,904	Si PNP Transistor	132-056
Q905,906	Si NPN Darlington	132-090
Q907,908	Si NPN Transistor	132-149
Q909,910	NPN Power Transistor	132-167
Q911,912	PNP Power Transistor	132-166
Q913	Si PNP Darlington	132-182

INTEGRATED CIRCUITS

IC101	Regulator + 18V	133-045	S301
IC102	Regulator - 18V	133-044	S401
IC200,201	Integrated Circuit	133-042	S402
IC202,203	Integrated Circuit	133-042	S501
IC204,205	Integrated Circuit	133-051	S701
IC206,207	Integrated Circuit	133-043	
IC208,209	Integrated Circuit	133-051	
IC210,211	Integrated Circuit	133-043	F1,2
IC501,502	Integrated Circuit	133-066	
IC601,602	Integrated Circuit	133-043	T1
IC603,604	Integrated Circuit	133-043	
IC801,802	Integrated Circuit	133-068	
IC803,804	Integrated Circuit	133-068	
IC805,806	Integrated Circuit	133-043	
IC807,808	Integrated Circuit	133-040	
IC809,810	Integrated Circuit	133-068	
IC811,812	Integrated Circuit	133-068	
IC813	Integrated Circuit	133-068	
IC901,902	Integrated Circuit	133-068	

SWITCHES

Record Switch	146-187
Listen Switch	146-187
Mode Selector	146-186
Bypass Switch	134-310
Pushbutton Switch	150-024

FUSES

Fuse 1A Norm Blo	089-002
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TRANSFORMERS

Power Transformer	045-342
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LAMPS

Front Panel #634	058-043
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FRONT PANEL & TRIM

Front Panel Glass	016-153
End Caps	018-160
Knob-Listen	090-156
Knob-Record	090-156
Knob-Mode	090-159
Knob-Volume	090-170
Knob-Eq. Frequency	090-171
Knob-Expander	090-171
Knob-Balance	090-187
Knob-Loudness	090-186

CAPACITORS

C3,4	Elect 4700µF 30V	066-276
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RELAYS

K1	Relay SPST	087-020
K201,202	Reed Relay	087-023
K203,204	Reed Relay	087-023
K205,206	Reed Relay	087-023
K801,802	Reed Relay	087-024
K901	Reed Relay	087-029

POTENTIOMETERS

R2	Volume Control	134-305
R501	Balance/Loudness	134-312
R502	Expand	134-313
R601,602	Equalizer Freq.	134-316
R603,604	Equalizer Freq.	134-316
R605	Equalizer Freq.	134-316
R909,910	Right/Left Gain	134-306
R947	Level Match	134-306

CAPACITORS

C3,4	Elect 4700µF 30V	066-276
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CORRECT POSSIBLE SHORTING CONDITION

MODEL: C 32 Preamplifier Serial No.: Below AY1295

PURPOSE OF MODIFICATION: To correct the condition where by the pre-amplifier's headphone amplifier channels are shorted together when plugging headphones into the top headphone jack.

WHEN MODIFICATION SHOULD BE MADE: When any other service is performed on the unit.

McINTOSH MODIFICATION KIT NO.: No kit available.

PARTS REQUIRED:

QUANTITY	PART NUMBER	DESCRIPTION
2	136453	Res. = 100Ω, 10%, 1W R943,944

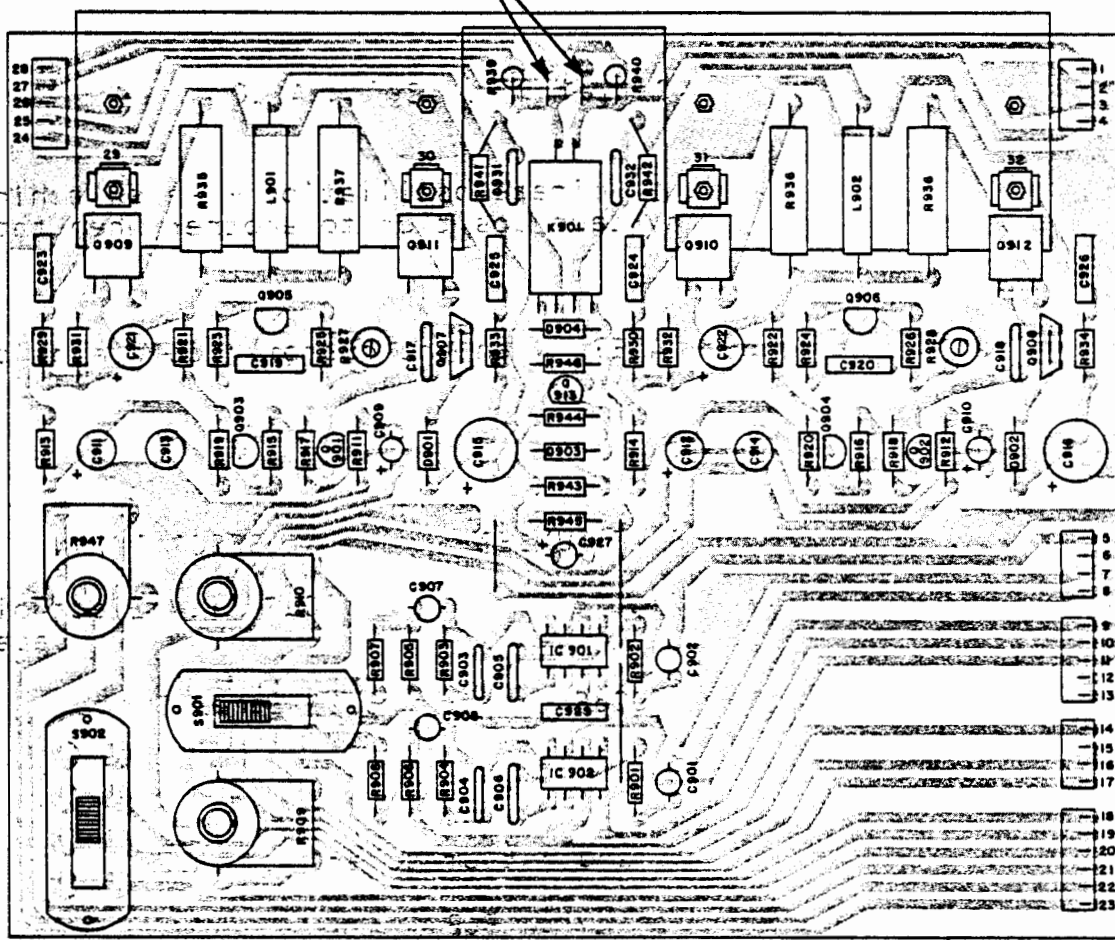
PROCEDURE:

1. Remove top cover.
2. Make a sketch of the connectors connections to the headphone monitor PC boards.
3. Remove the connectors from headphone monitor PC board and remove headphone monitor PC board from the chassis.
4. Replace jump wire that jumps K901 to connector pin 28 with a 136453 100Ω 10% 1W resistor.
5. Replace jump wire that jumps K901 to connector pin 24 with a 136453 100Ω 10% 1W resistor.
6. Reinstall the headphone monitor PC board and replace top cover.

(OVER)

28 3  
04 1.5.7

REMOVE JUMPERS AND REPLACE  
WITH 100Ω 10% 1W RESISTORS.



HEADPHONE MONITOR PC BOARD  
045-116

039-061A

McIntosh

# SERVICE BULLETIN

QUALITY CONTROL DIVISION  
280 WEST 17TH STREET  
NEW YORK, N.Y. 10011

## ELIMINATION OF FEEDBACK FROM TAPE OUTPUTS

MODEL: C 32 Preamplifier Serial No.: Below AY2076

PURPOSE OF MODIFICATION: To eliminate oscillation when switching the record switch from any tape position to another when tape outputs are in use.

WHEN MODIFICATION SHOULD BE MADE: When the customer complains of the oscillation.

### PARTS REQUIRED:

QUANTITY	PART NUMBER	DESCRIPTION
3	066216	10 $\mu$ F, 16V Electrolytic Capacitor
3	070085	6.2V Zener Diode

### PROCEDURE:

1. Remove front panel and bottom cover.
2. Remove record switch with PCB.
3. Lift the base leg of each transistor (Q301, Q302, and Q303) off the PCB.
4. Insert banded end of zener diode into holes on component side of PCB and solder other end to the transistor's base leg.
5. Solder the capacitors from zener to emitter of each transistor on the foil side of PCB. Connect (+) terminal of capacitor to zener.
6. Install record switch. Insert and tape ribbon cable.
7. Replace front panel and bottom cover.

039-066A



# SERVICE BULLETIN

## PREVENT FALSE TURN ON OF PREAMP

MODEL: C 32 Preamplifier

PURPOSE OF MODIFICATION: To prevent false turn on of preamp by auto "ON" circuit.

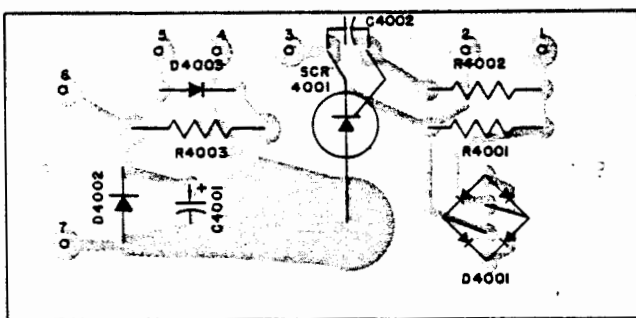
WHAT UNITS ARE AFFECTED: All units with Serial No's. below AY2289

WHEN MODIFICATION SHOULD BE MADE: When any other service is performed on the unit.

### PARTS REQUIRED:

QUANTITY	PART NUMBER	DESCRIPTION
1	061113	Disc. Cap. 0.1μF 100V +80 -20% (Dual)

- PROCEDURE:
1. Remove bottom cover.
  2. Locate the 045121 - Auto-On PC board.
  3. As indicated, solder disc. capacitor on to the foil-side of the PC board, between the cathode and gate of SCR 4001.
  4. Replace bottom cover.
  5. Check unit for normal operation



**AUTO-ON PC BOARD  
045-121**