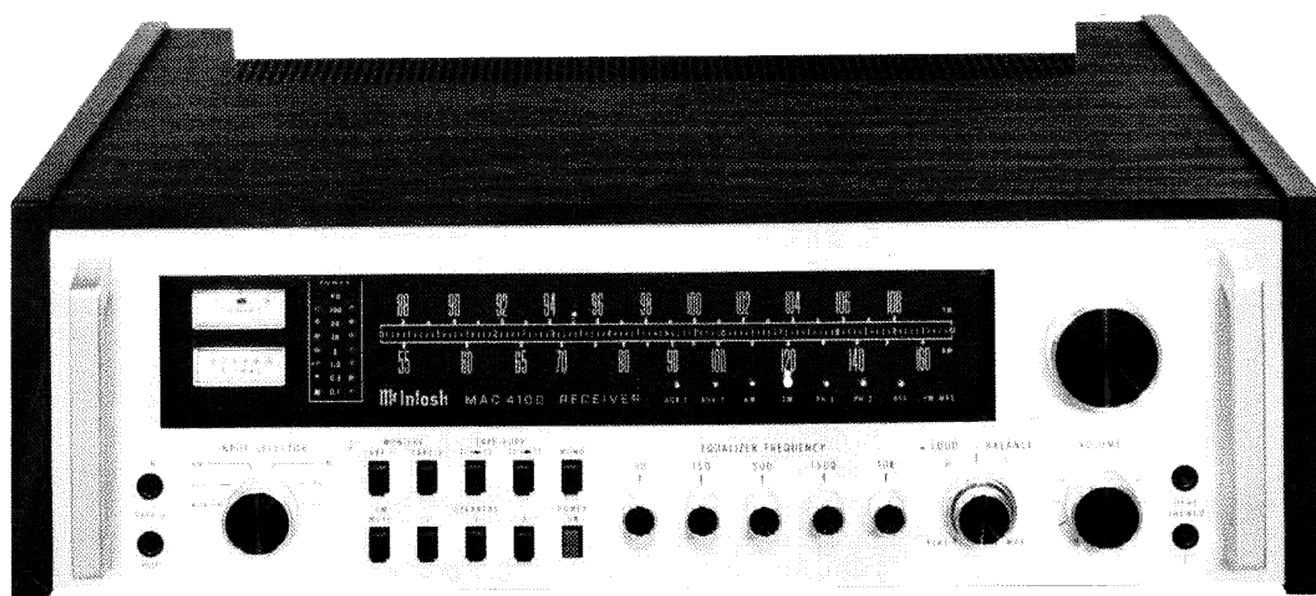


McIntosh

MAC 4100 AM/FM RECEIVER



SERVICE INFORMATION

SERIAL NO. BY1001 AND ABOVE

PERFORMANCE LIMITS

POWER OUTPUT

100 watts minimum sine wave continuous average power output, per channel, both channels operating into 4 ohms 20 Hz to 20 kHz, with no more than .05% total harmonic distortion.

75 watts minimum sine wave continuous average power output, per channel, both channels operating into 8 ohms 20 Hz to 20 kHz, with no more than .05% total harmonic distortion.

OUTPUT LOAD IMPEDANCE

4 ohms, 8 ohms

RATED POWER BAND

20 Hz to 20 kHz

TOTAL HARMONIC DISTORTION

From phono input to speaker output, .05% maximum at any power level from 250 milliwatts to rated power per channel, 20 Hz to 20 kHz, both channels operating.

INTERMODULATION DISTORTION

.05% maximum if instantaneous peak power is twice rated continuous average power or less per channel with both channels operating for any combination of frequencies 20 Hz to 20 kHz.

FREQUENCY RESPONSE

20 Hz to 20 kHz + 0, - 0.5 dB at rated power

HUM AND NOISE

Power Amp: IHFA 100 dB, unweighted, 95 dB below rated output

TAPE AND AUX INPUT: IHFA 95 dB, unweighted,

Tape and Aux Input: IHFA 95 dB, unweighted, 90 dB below rated output

Phono input: IHFA 90, unweighted, 80 dB below 10 mV input

DAMPING FACTOR

Greater than 30

INPUT SENSITIVITY AND IMPEDANCE

Power Amp: 2.5V; 22,000 ohms
Tape and Aux: 250mV; 100,000 ohms
Phono: 2mV; 47,000 ohms; 87 pF

TAPE OUTPUT

Tuner: 1.0V at 100% modulation (FM)
Tape: 250 mV with rated input
Phono: 250mV with rated input

PROGRAM EQUALIZER

± 12 dB at 30, 150, 500, 1500, and 10,000 Hz

AM SECTION

SENSITIVITY

75 μ V IHF (External antenna)

SIGNAL TO NOISE RATIO

45 dB minimum IHF, 55 dB at 100% modulation

HARMONIC DISTORTION

1% maximum at 30% modulation

FREQUENCY RESPONSE

3500 Hz @ -6 dB

ADJACENT CHANNEL SELECTIVITY

30 dB minimum IHF

IMAGE REJECTION

65 dB minimum, 540 kHz to 1600 kHz

FM SECTION

SENSITIVITY

2.5 μ V (13 dBf) IHF minimum

SIGNAL TO NOISE RATIO

70 dB IHF minimum

HARMONIC DISTORTION

Mono: 0.18% IHF maximum
Stereo: 0.38% IHF maximum

FREQUENCY RESPONSE

20 Hz to 15 kHz + 0, -1 dB

CAPTURE RATIO

1.8 dB

SELECTIVITY

75 dB IHF minimum

SPURIOUS REJECTION

90 dB IHF minimum

IMAGE REJECTION

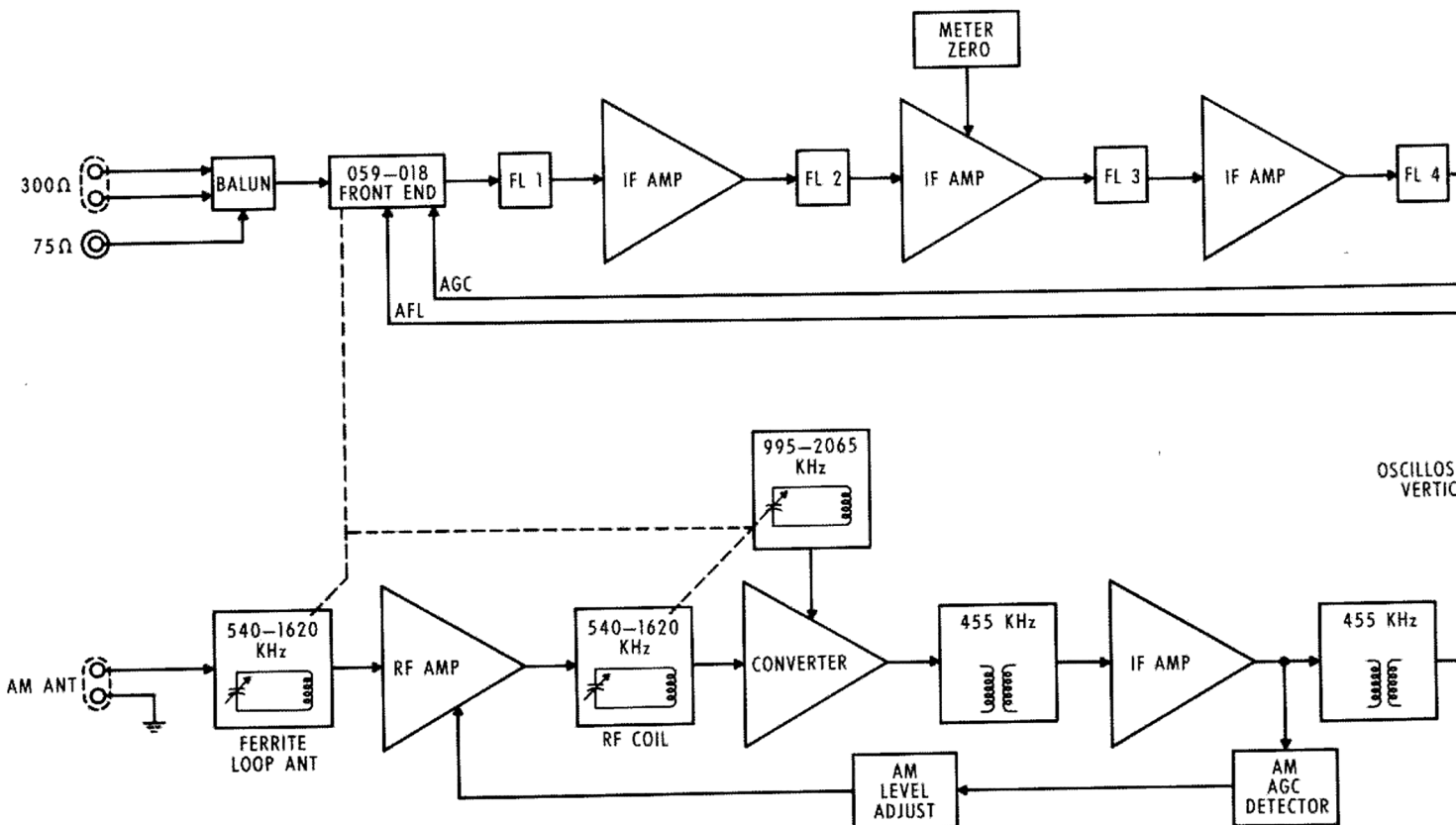
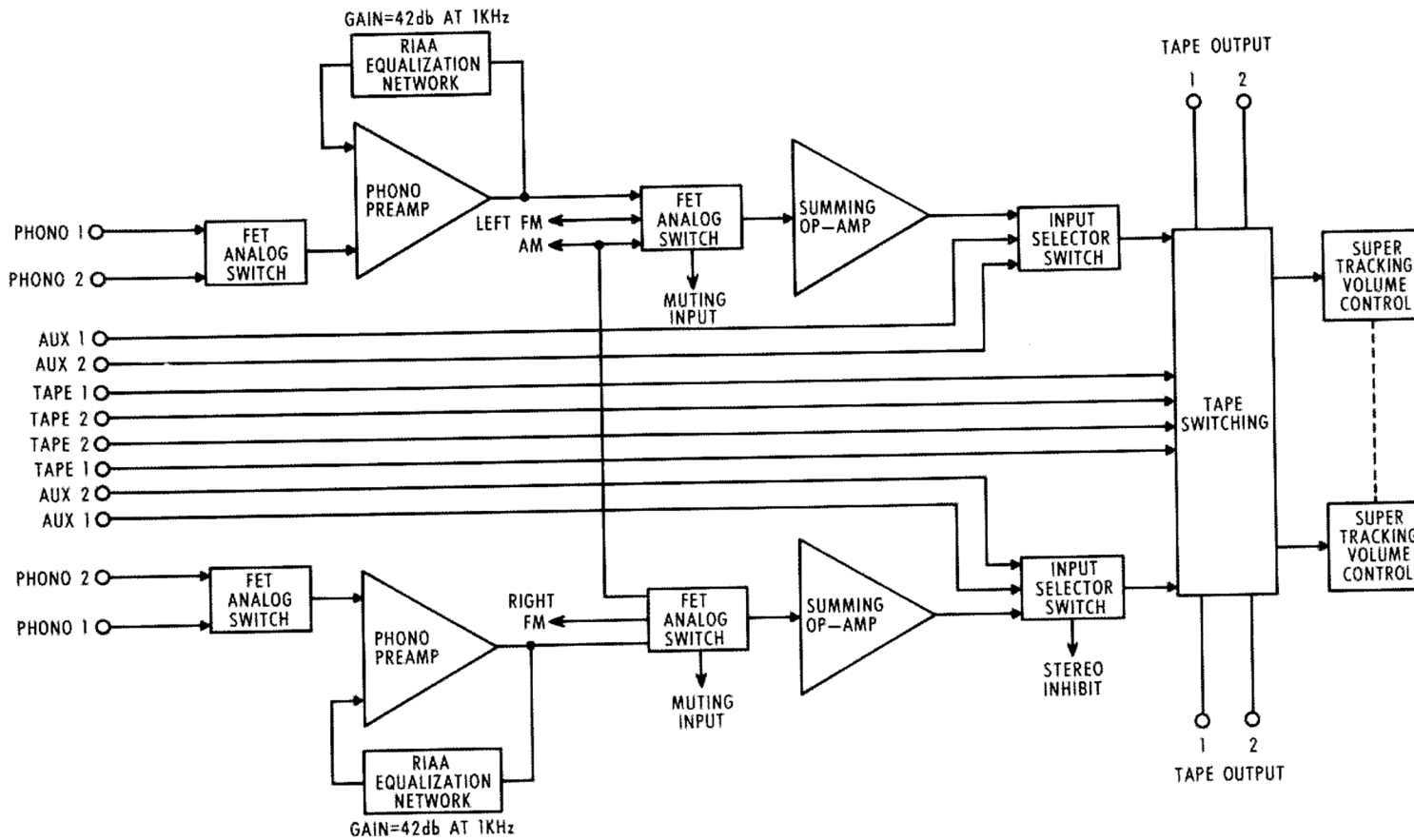
80 dB IHF minimum

STEREO SEPARATION

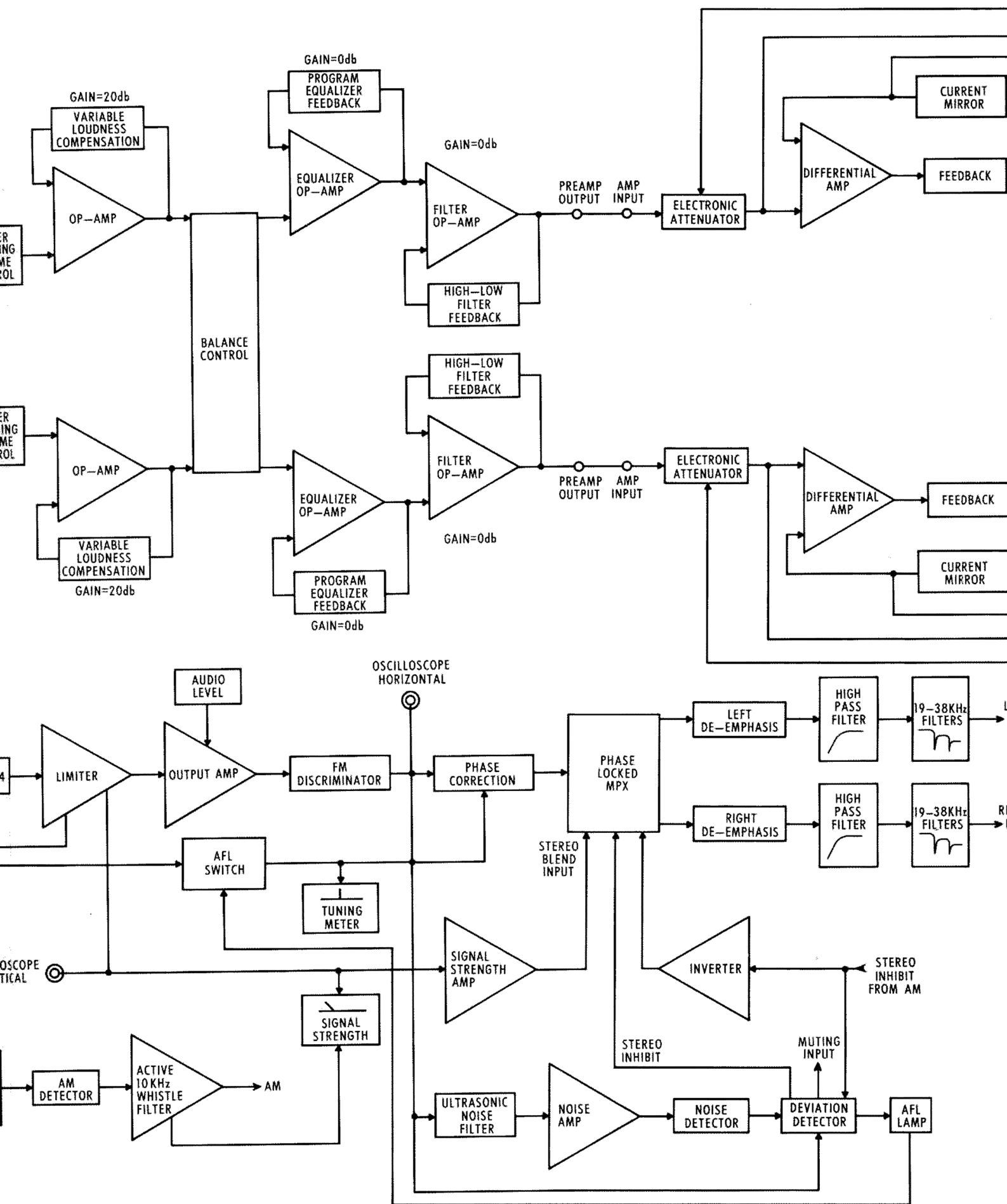
45 dB minimum at 1 kHz

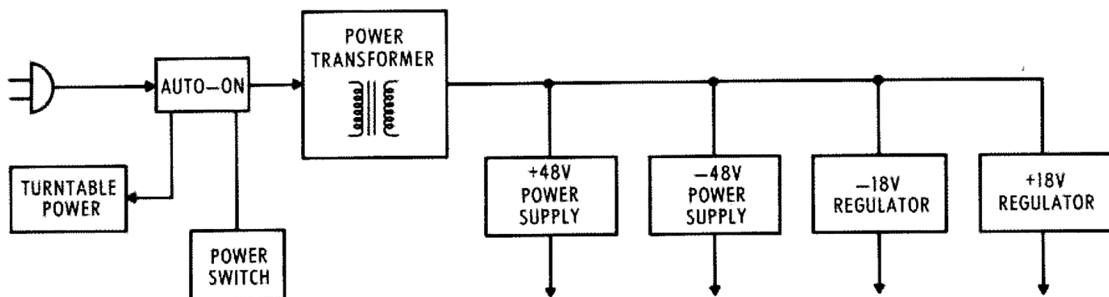
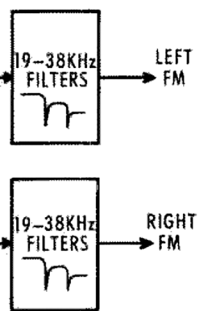
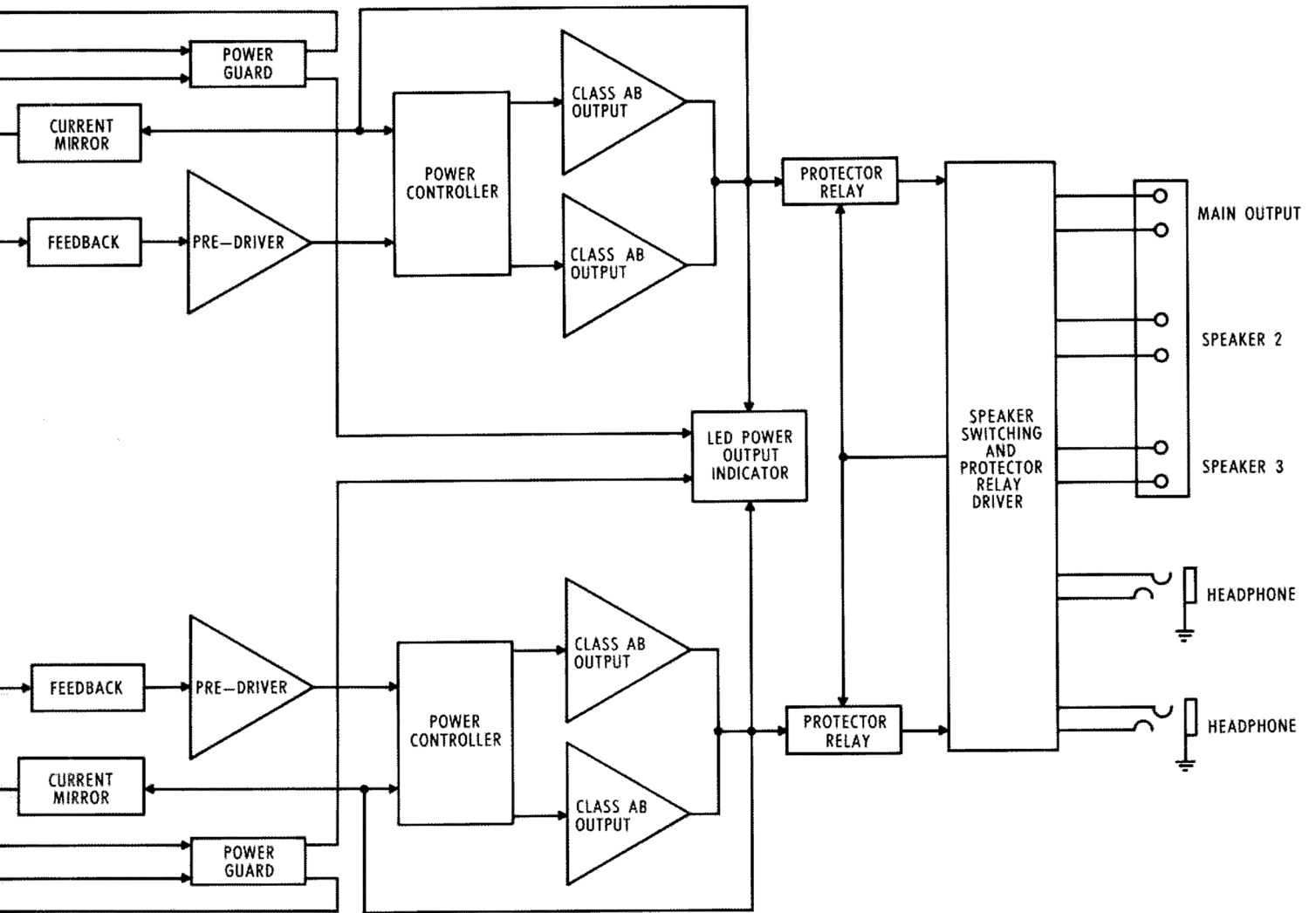
SCA REJECTION

60 dB minimum



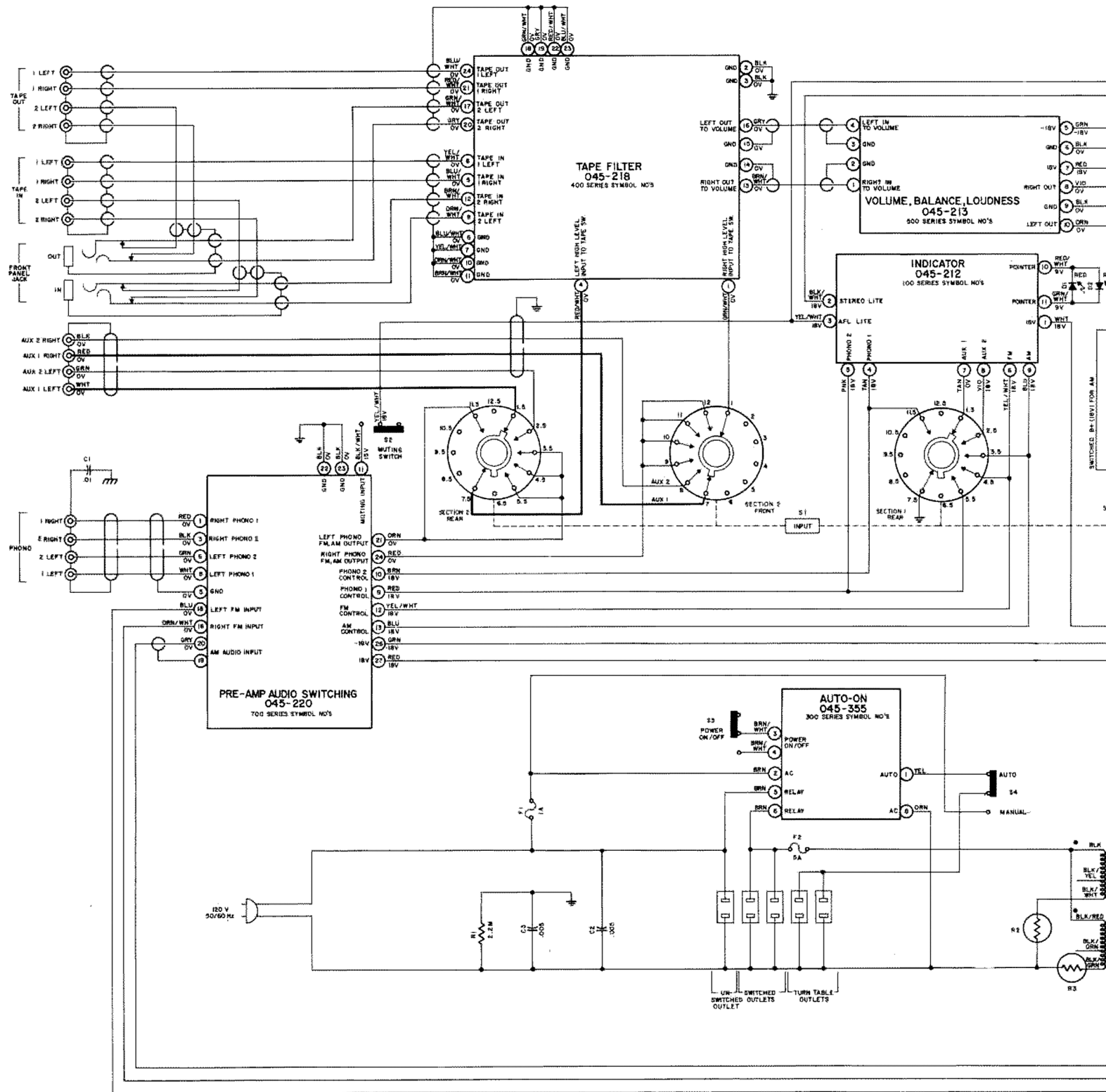
BLOCK DIAGRAM

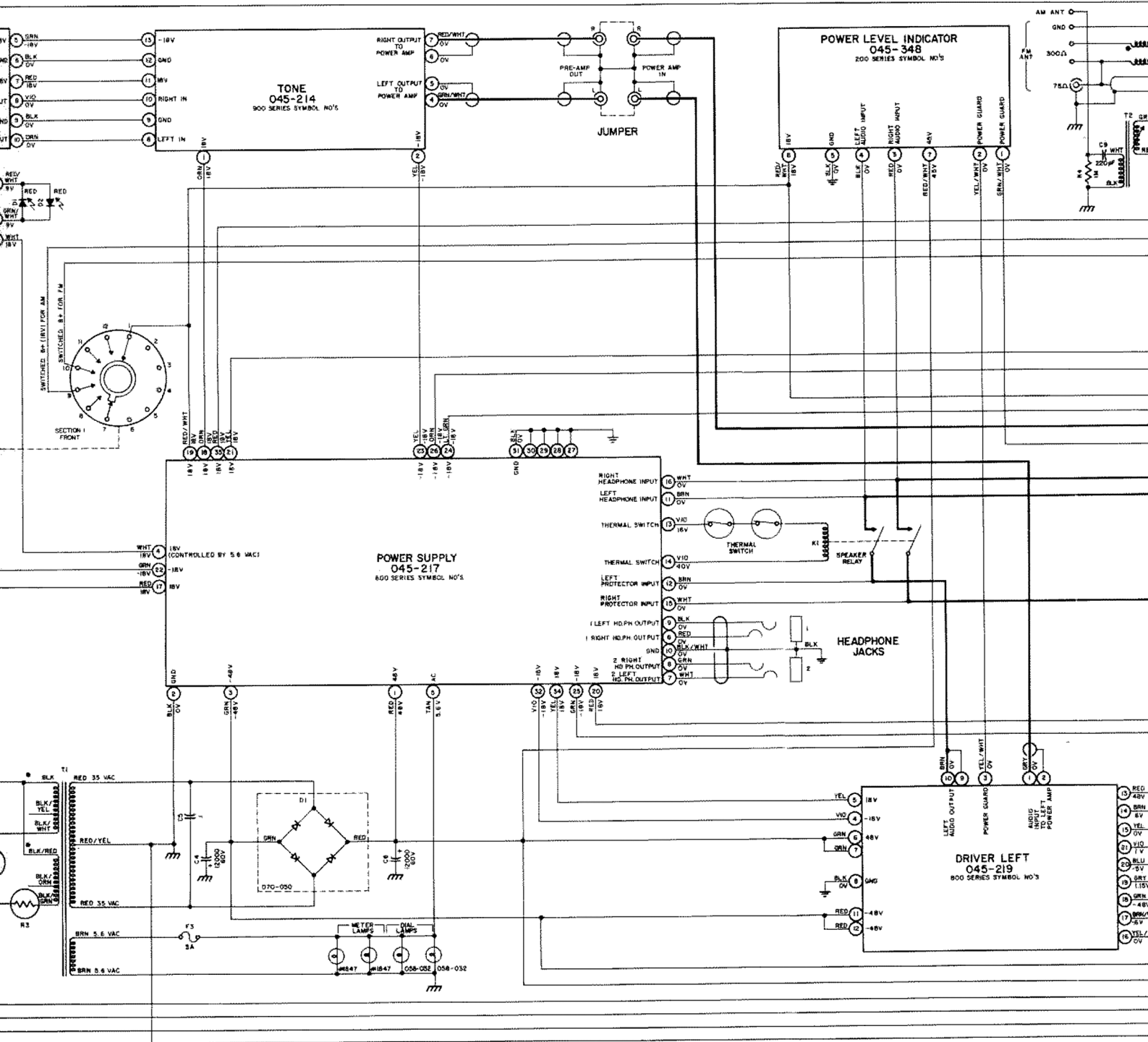


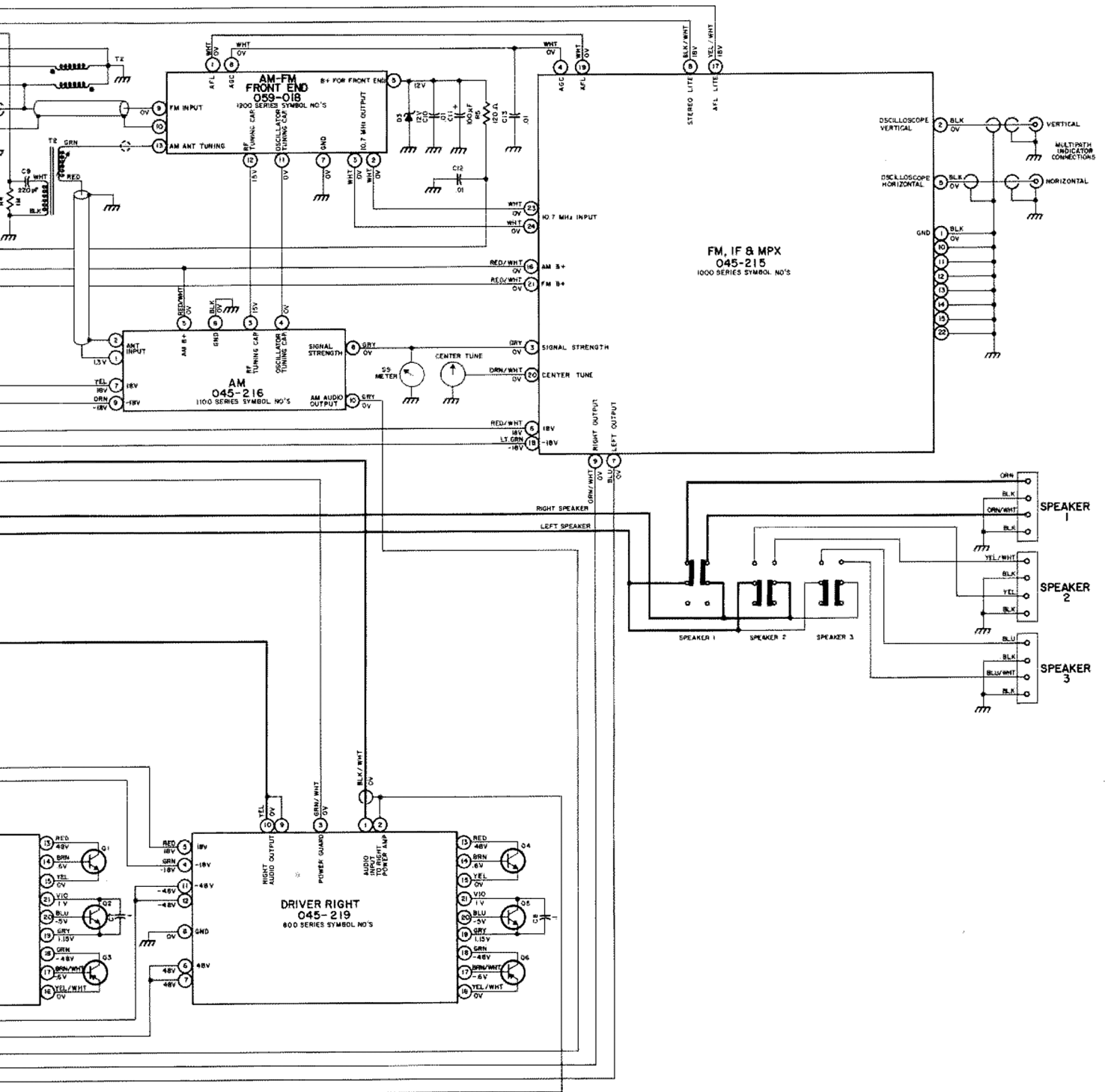


EQ
IT
AMP

AF
AMP







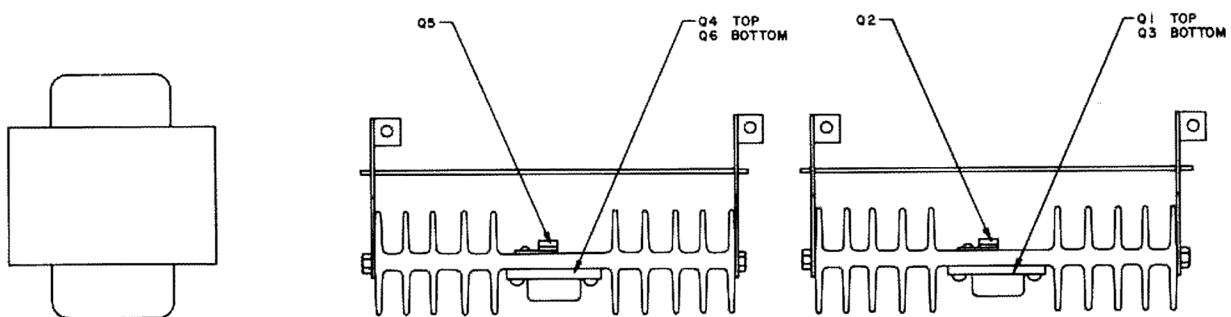
SCHEMATIC NOTES

1. Printed circuit board assemblies are outlined on the schematics by dotted lines. The circled numbers on the dotted lines correspond to the numbers on the printed circuit board layouts.
2. The heavy lines on the schematics denote the primary signal path.
3. The terminal numbering of rotary switches is for reference only.
4. A dot on the rotor of a rotary switch indicates that there is an electrical connection between the front and rear rotor section.
5. Unless otherwise specified: Resistance values in the AM, FM & MPX, and Preamp sections are in ohms, 1/4 watt, and 5% tolerance; resistance values in the Power Output and Power Supply sections are in ohms, 1/4 watt, 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).
6. To align power supply connect voltmeter to terminal 17 on the power supply PC board and adjust "+18V voltage control" (R622) for between + 17.1 to 18.0 volts.
7. All voltages indicated on the schematics are measured under the following conditions:
 Use of an 11 megohm input impedance VTVM. All voltages $\pm 10\%$ with respect to ground.
 No signal at antenna or other input terminals. AC input at 120 volts, 50/60 Hz.

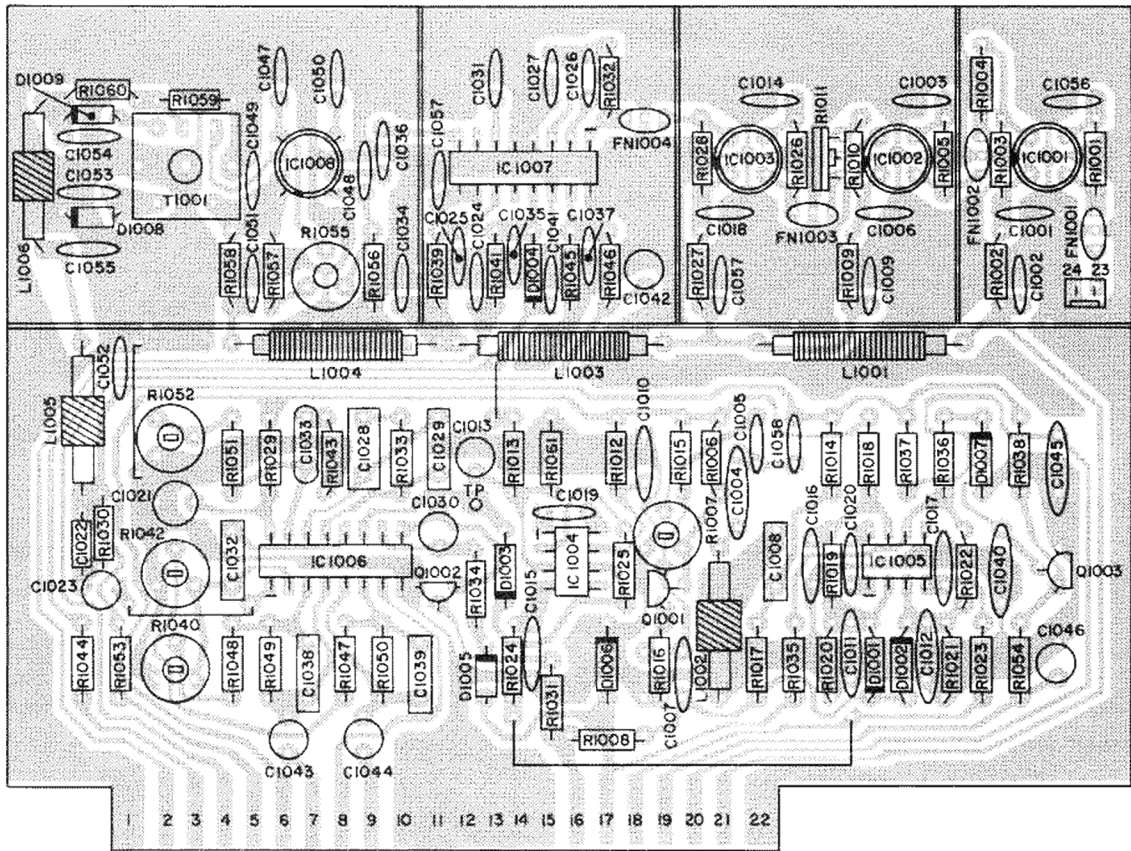
Front panel controls at:

Mono/Stereo switch	Out	Muting	Out
Speaker switches	Out	Loudness	ccw
Volume control	Min	Tape Monitors	Out
Balance control	Middle	Tape 1 2	Out
Tone controls	Flat	Tape 2 1	Out
Input selector	Aux 1 FM (to measure FM section) AM (to measure AM section)	Tuning Indicator	Out (no signal)

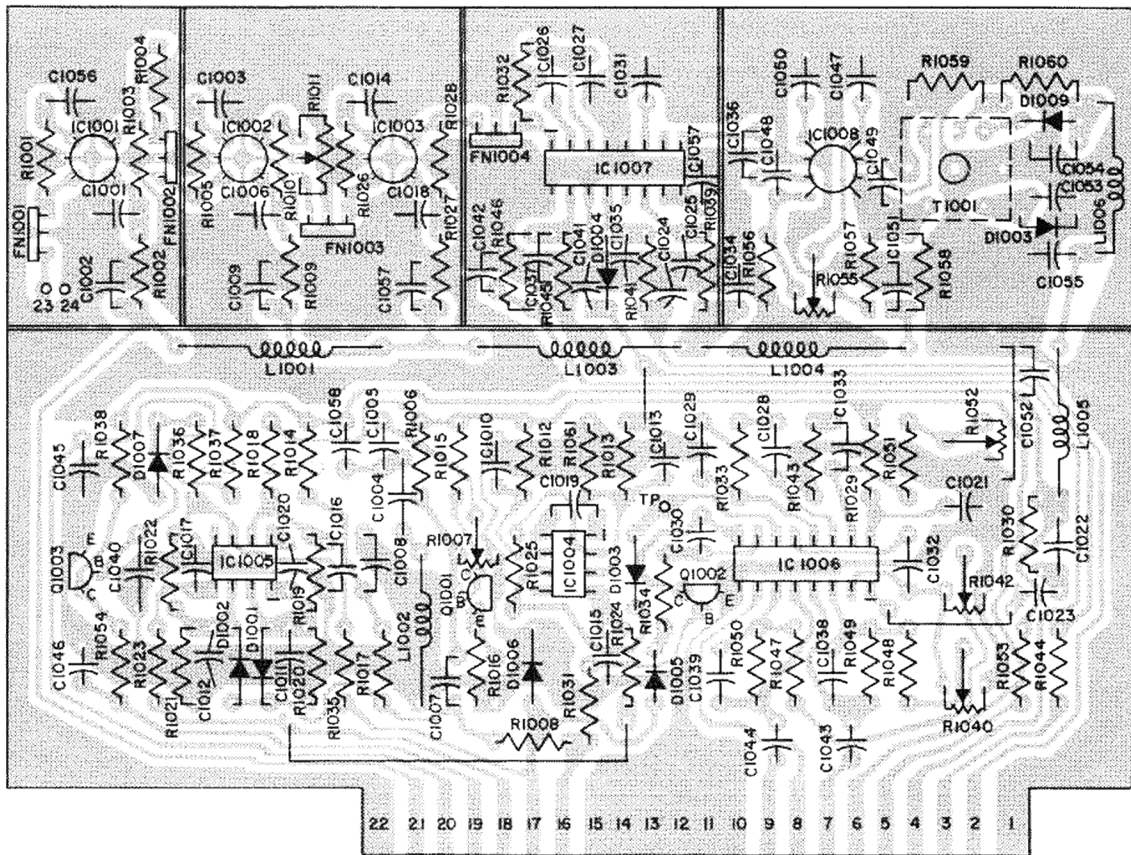
8. To adjust output stage bias operate the MAC 4100 at 120 volts line input with no input signal. Measure the AC line input power (approximately 40 watts) or current (approximately .3A). The bias potentiometer R851 and R852 are located on the power output PC boards.
 - a. Turn both bias potentiometers full counterclockwise.
 - b. Rotate bias adjustment clockwise to the point where the line input power or current begins to increase then back off slightly to the point where the line input just reaches its lowest value.
 - c. Repeat step b for each channel independently.



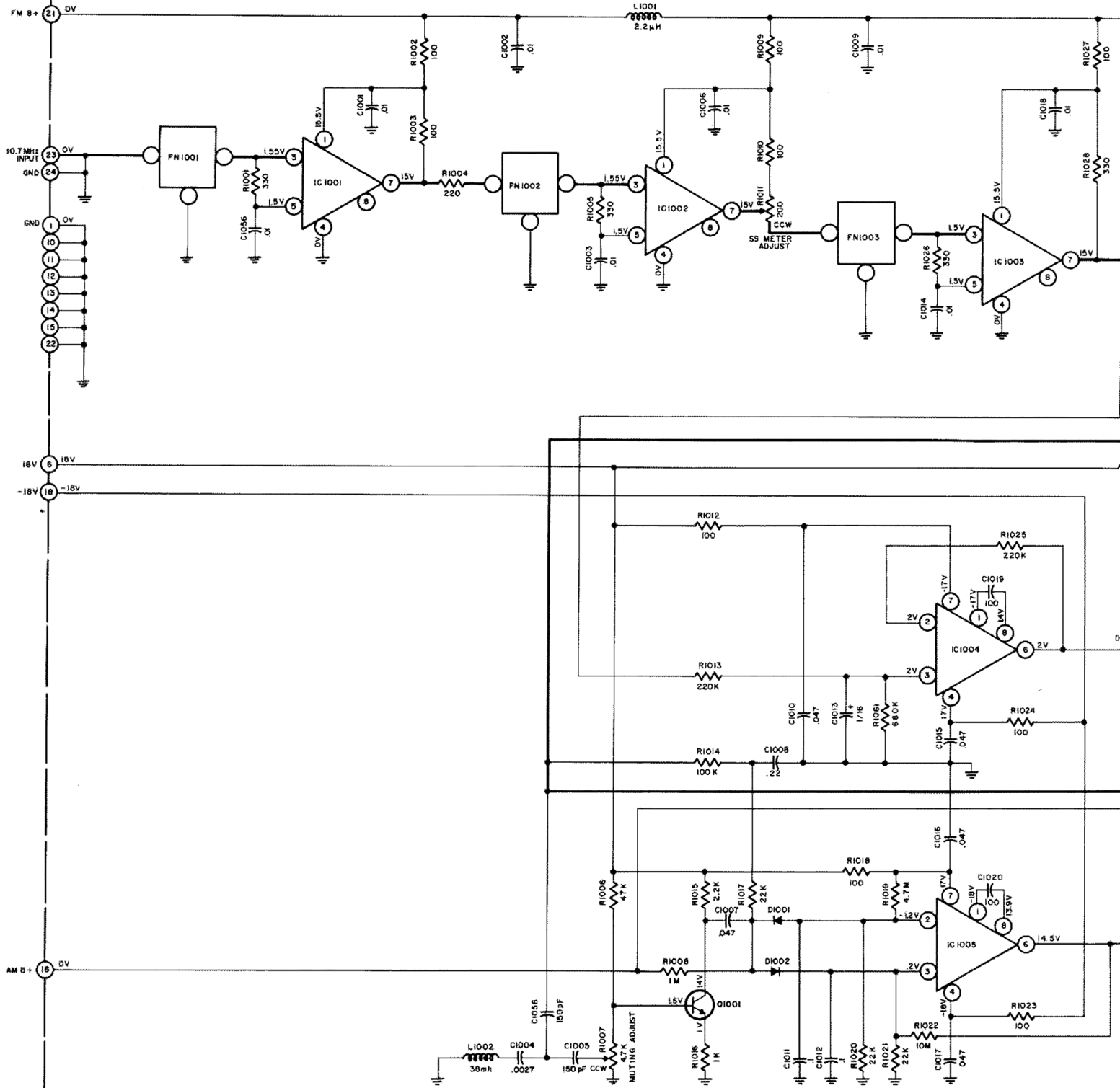
TOP-REAR
LOCATION OF TRANSISTORS NOT ON PC BOARDS

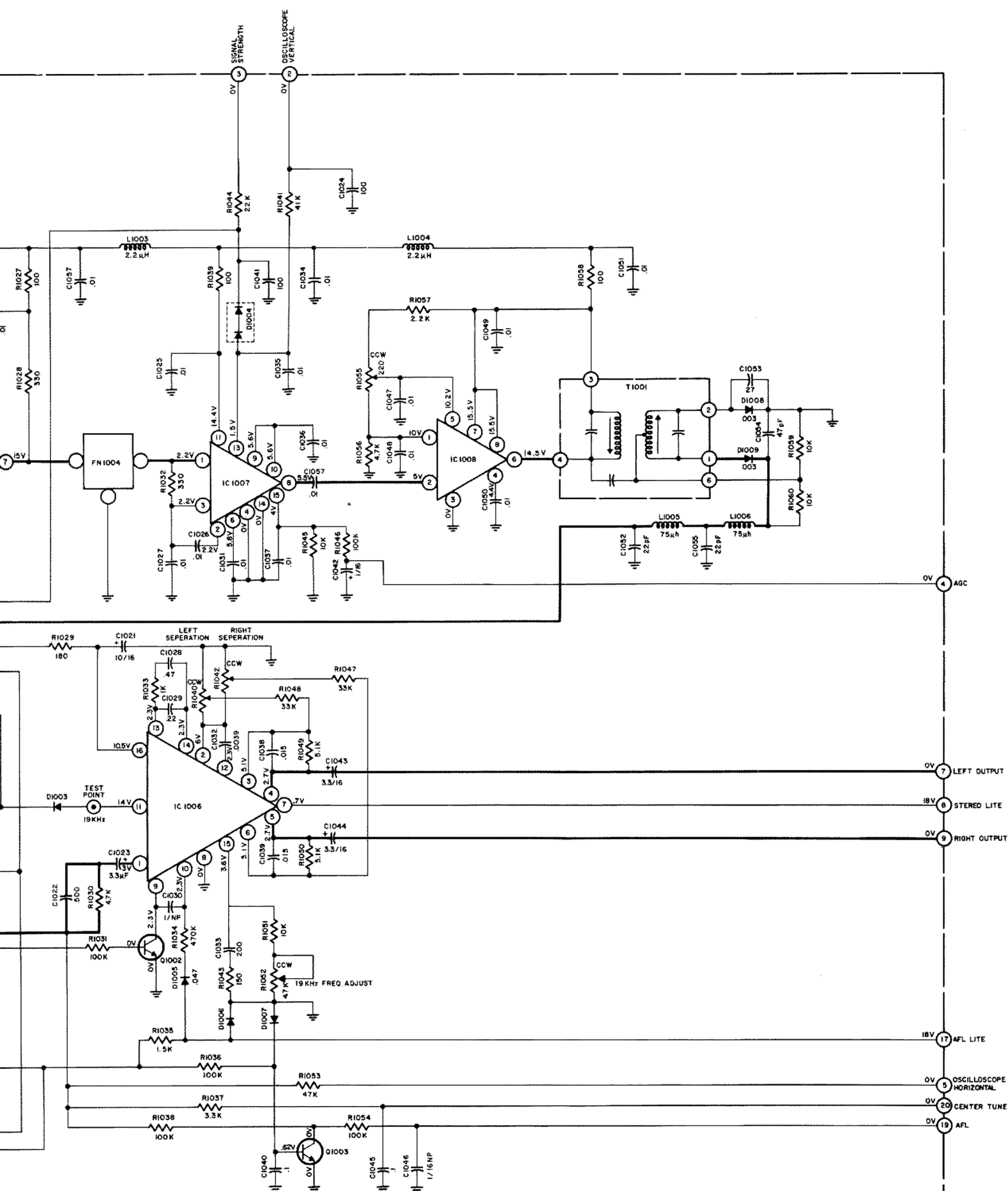


FM, IF, MPX PC BOARD
045215

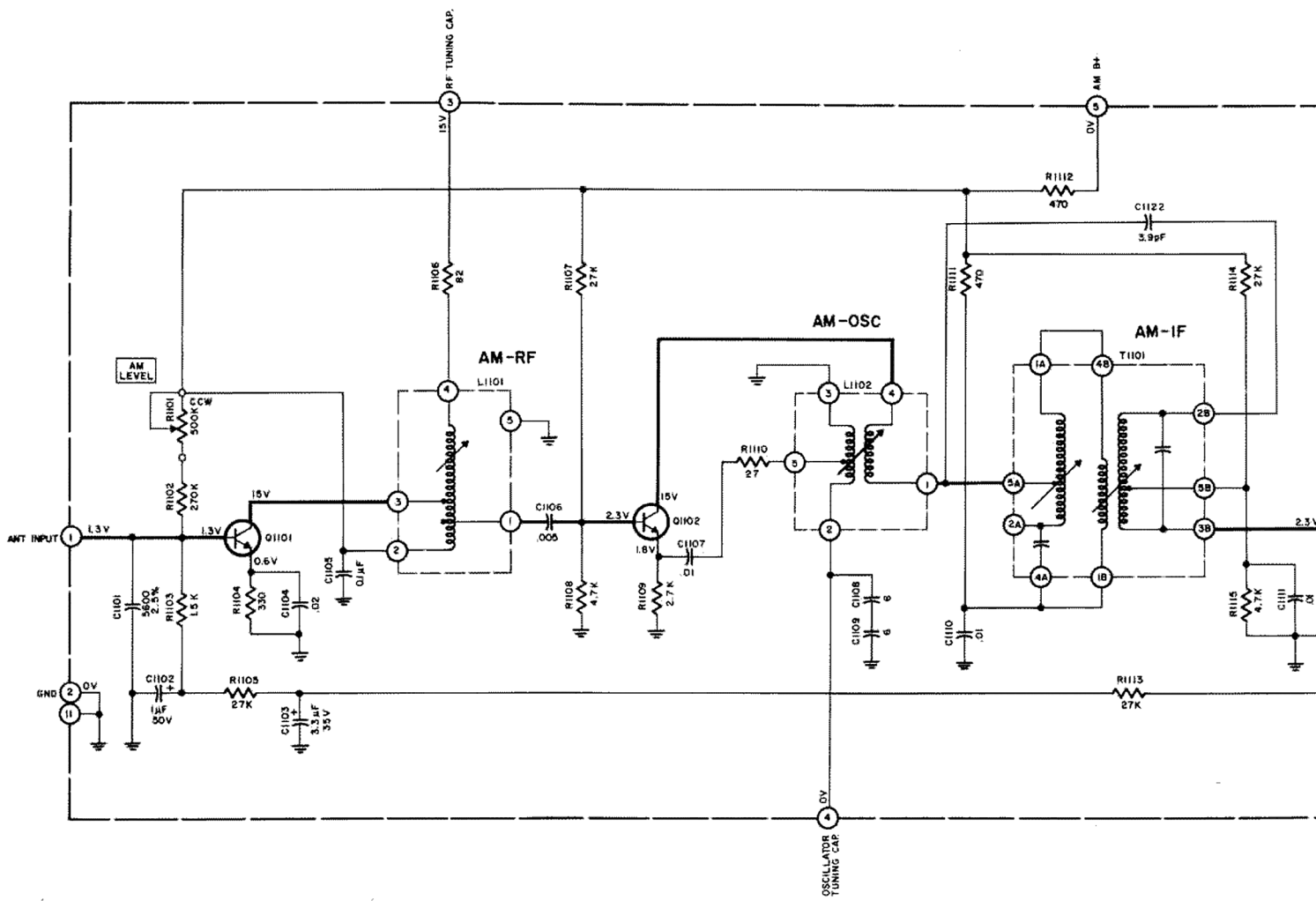


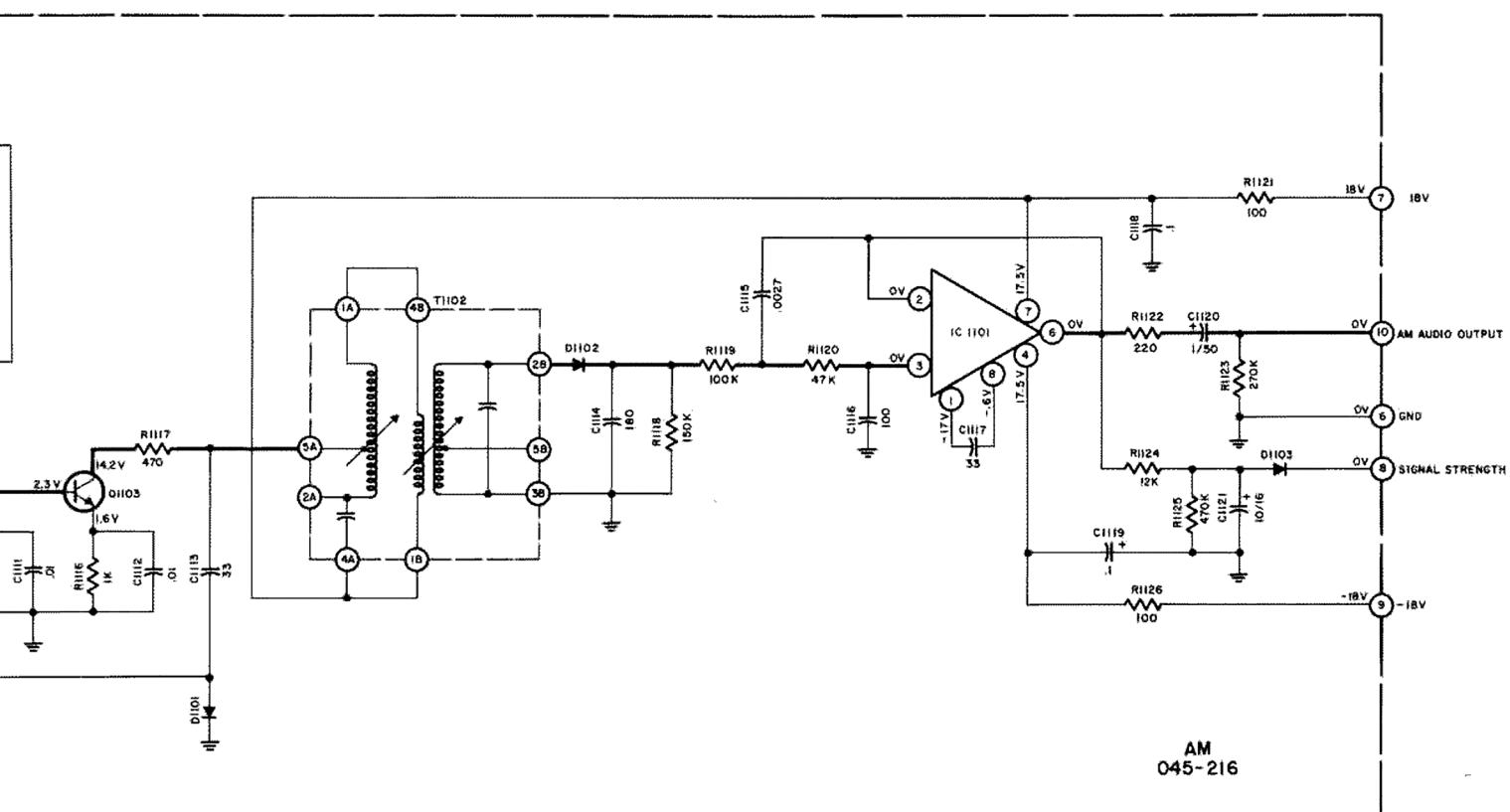
FM, IF, MPX
045-215

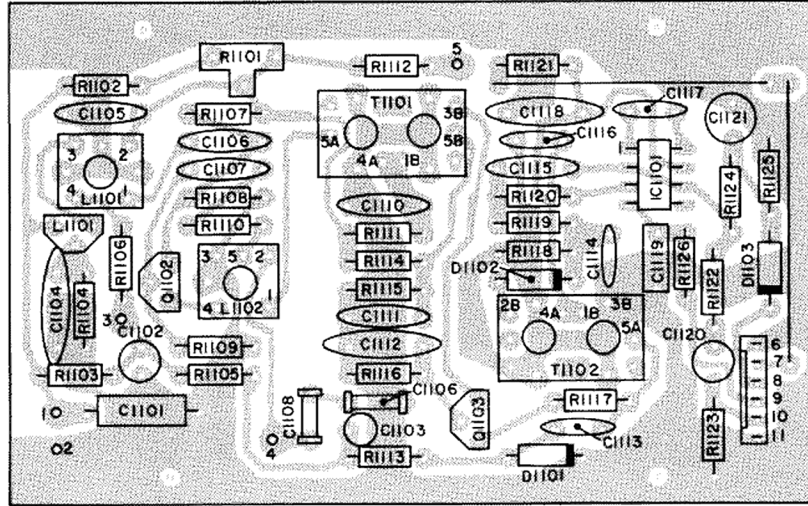




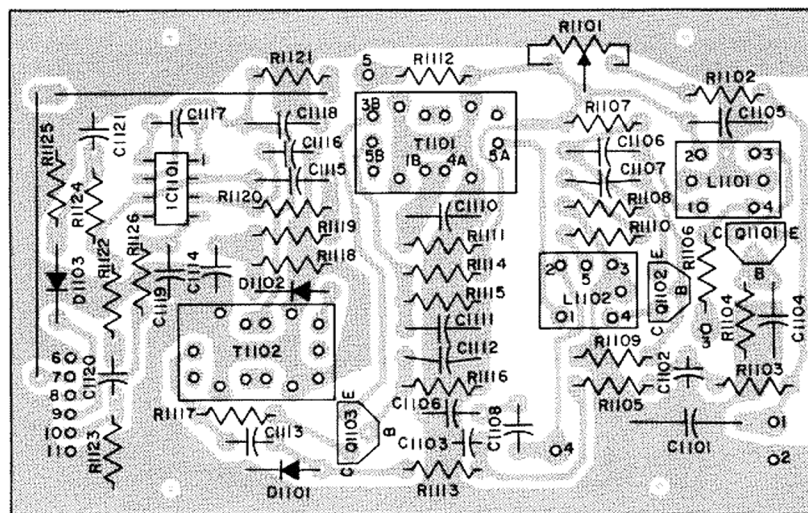
FM, IF & MPX.

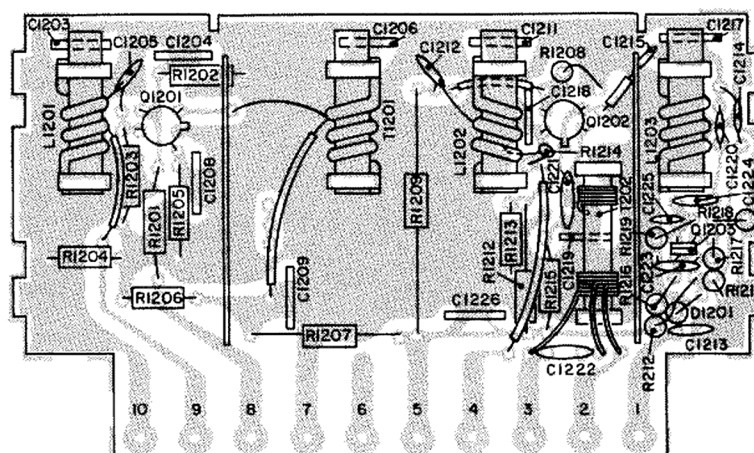




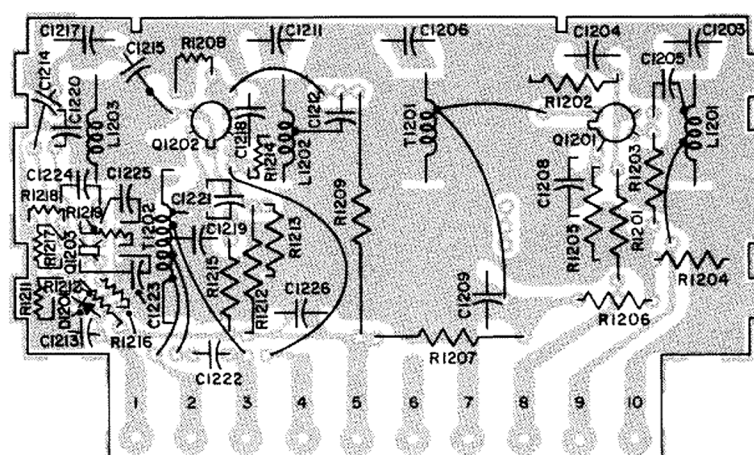


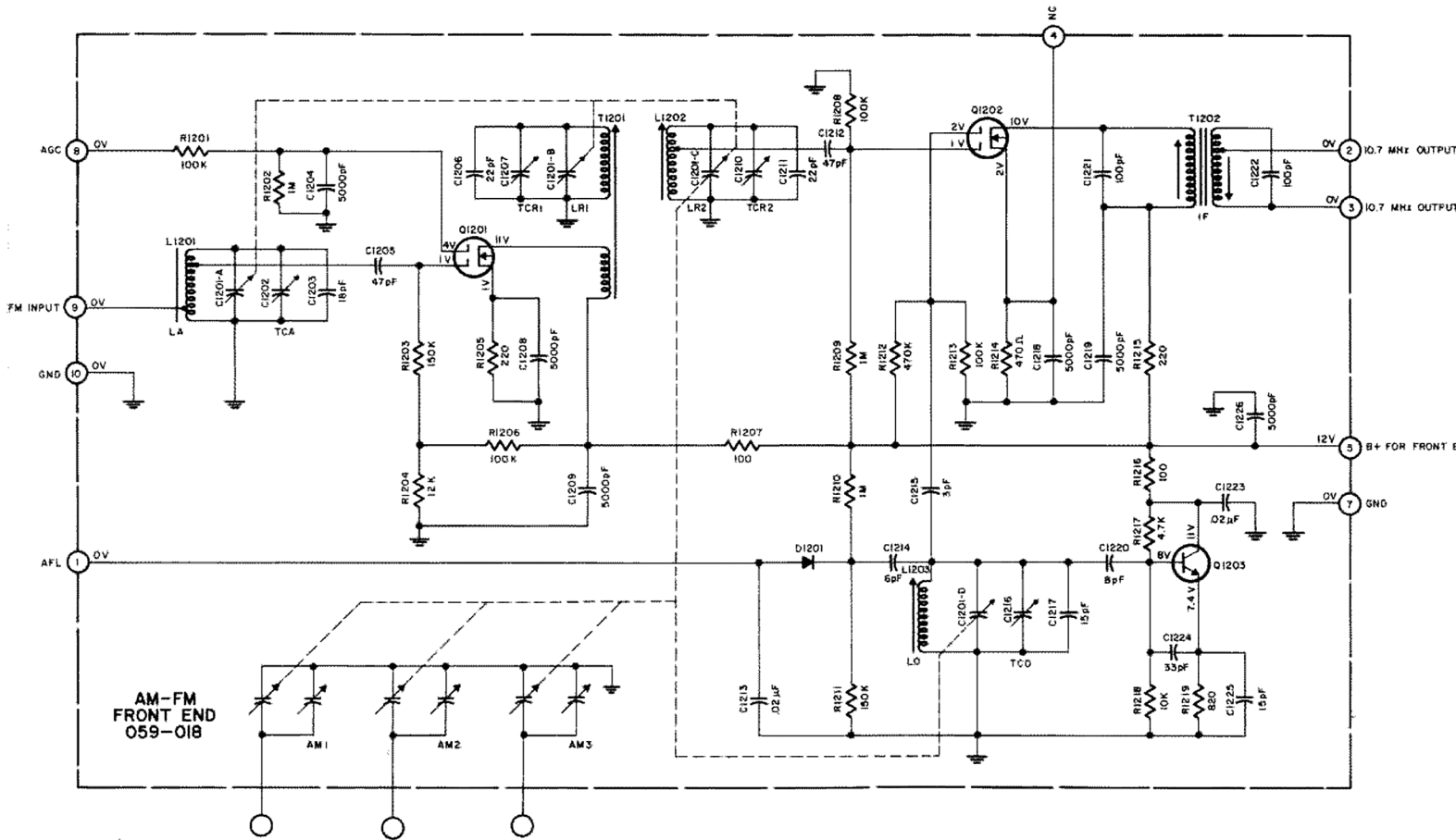
AM PC BOARD
045216

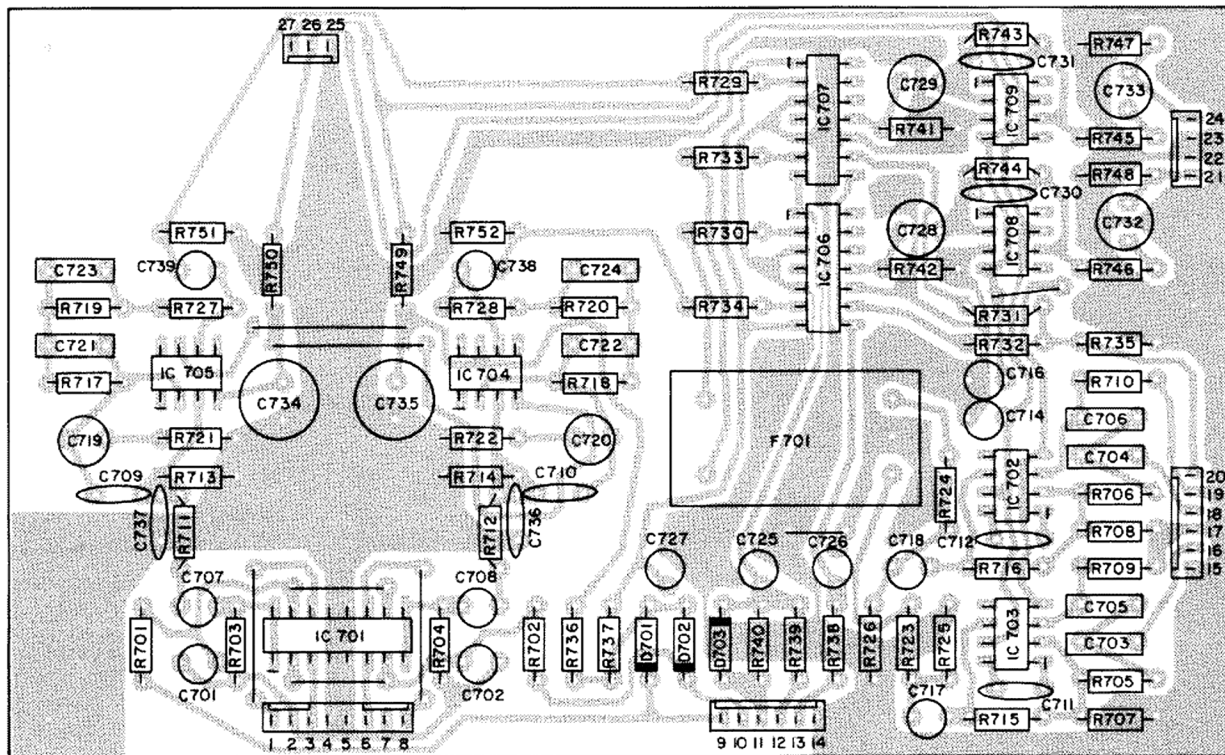




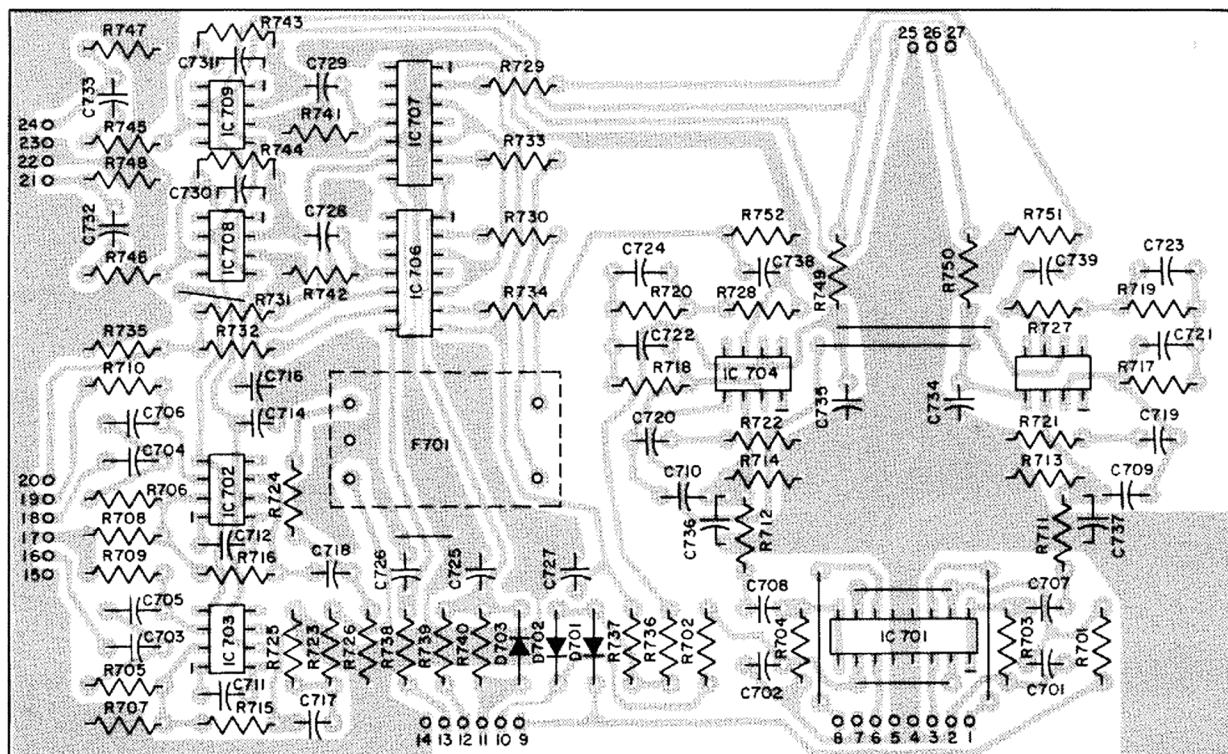
AM-FM
FRONT END PC BOARD
059-018

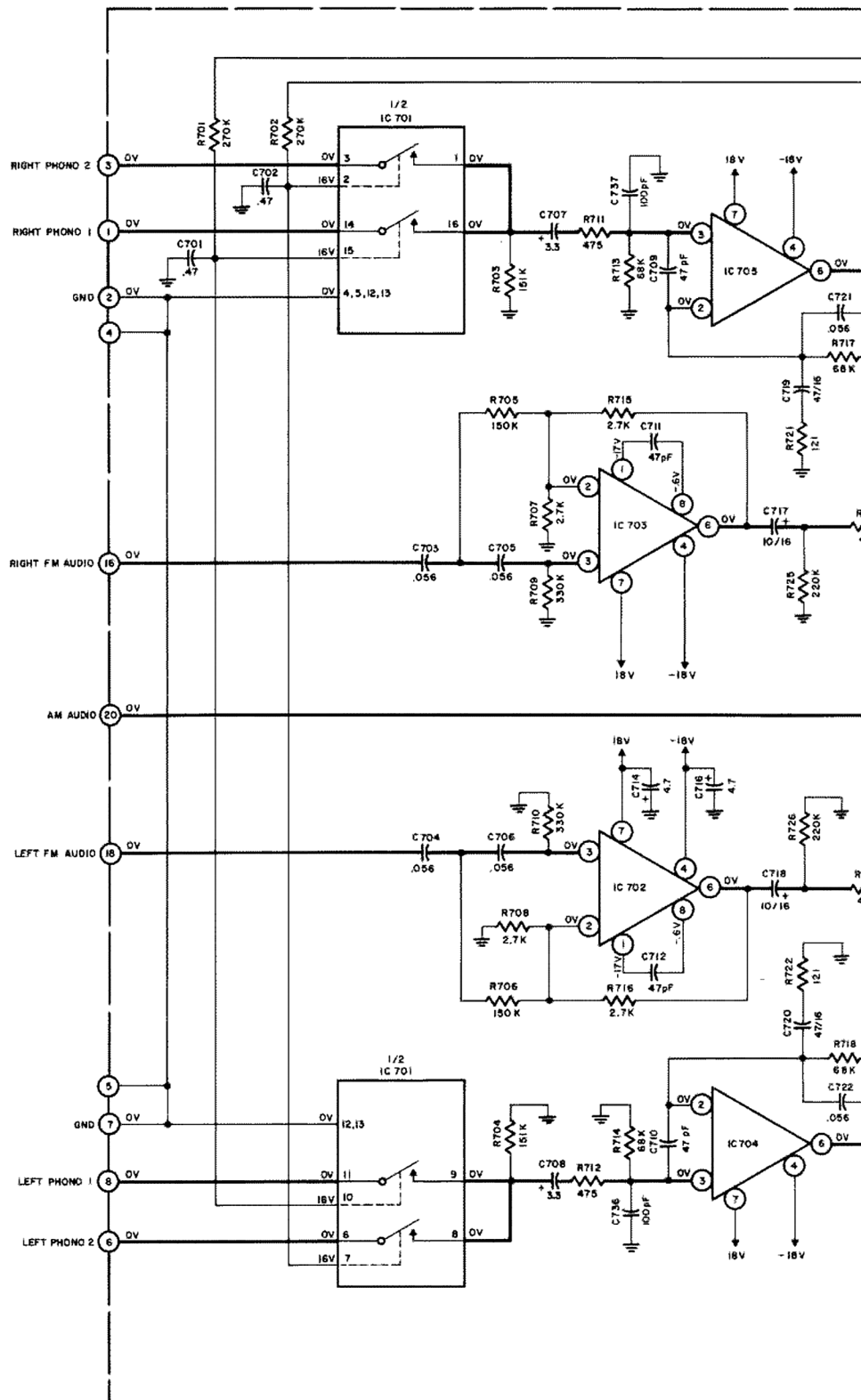


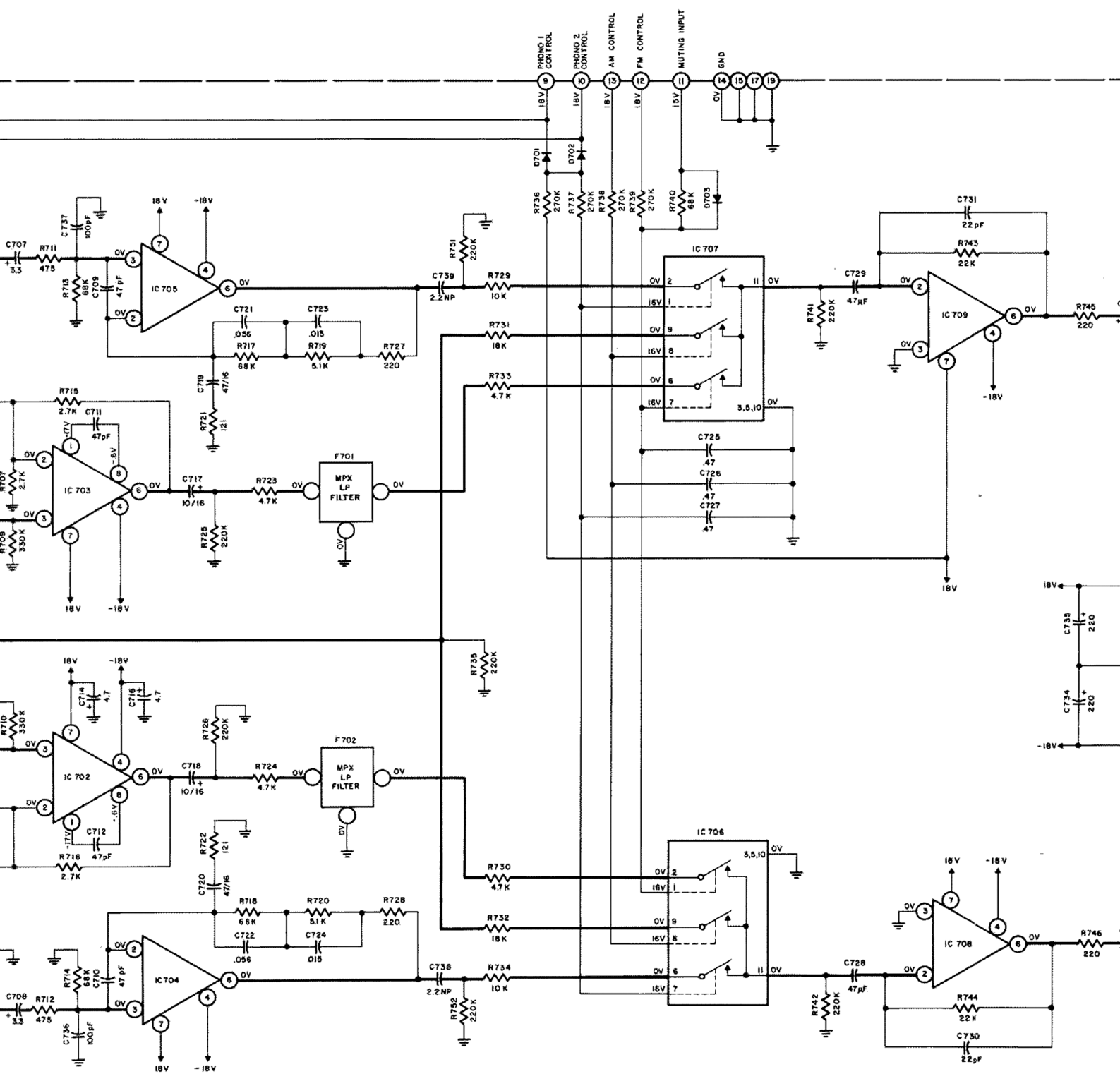




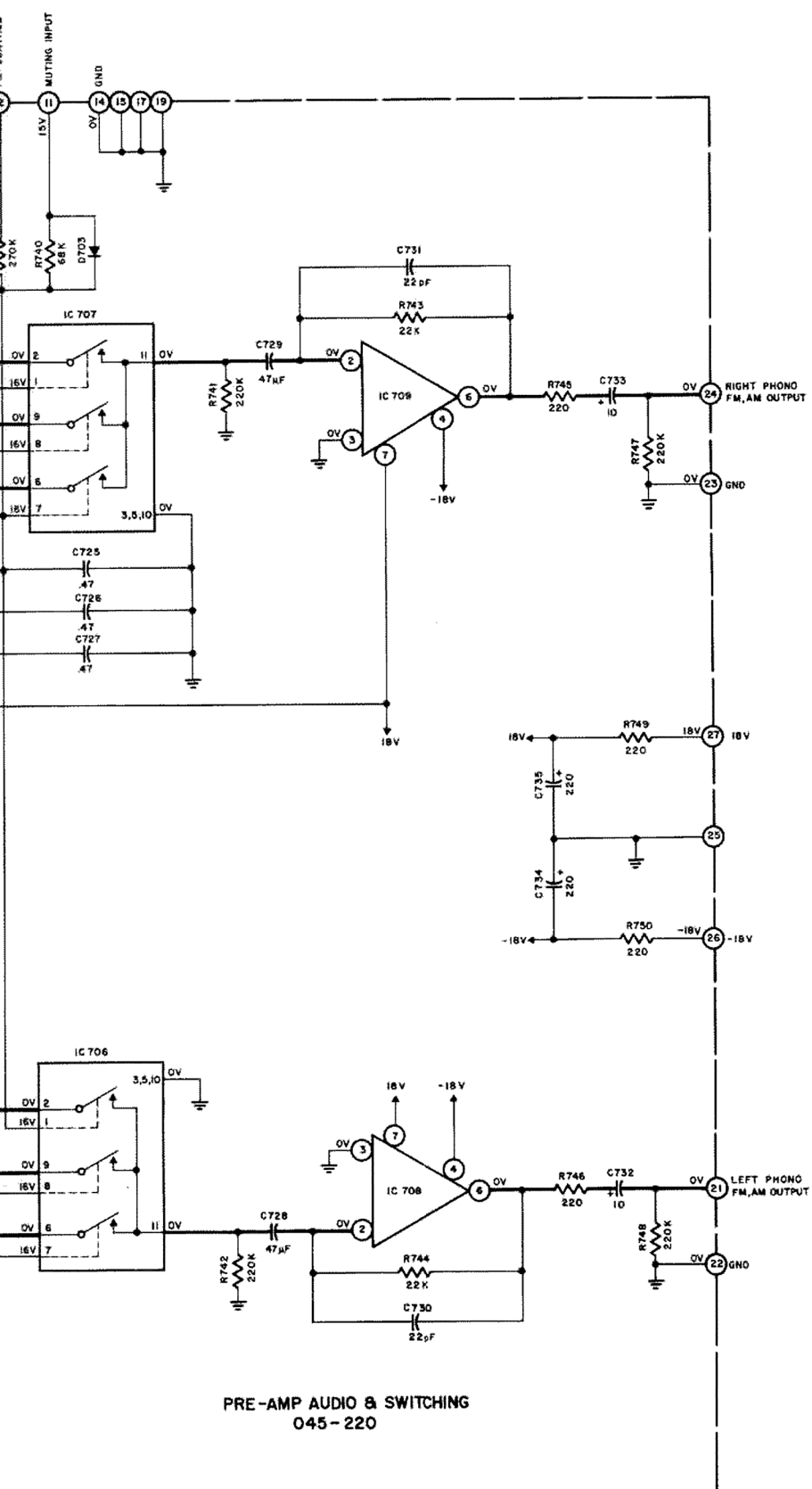
PRE-AMP AUDIO SWITCHING PC BOARD
045220

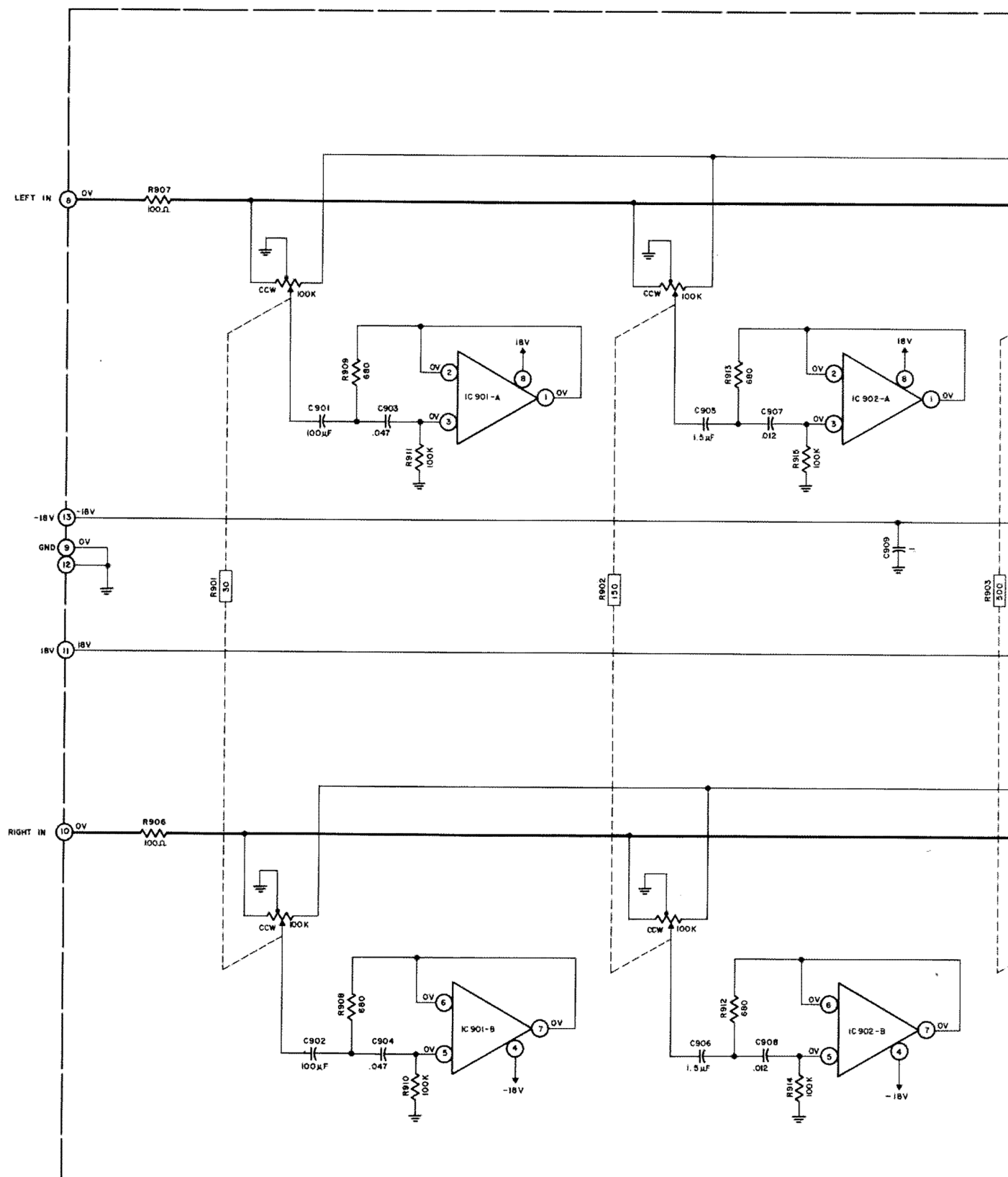


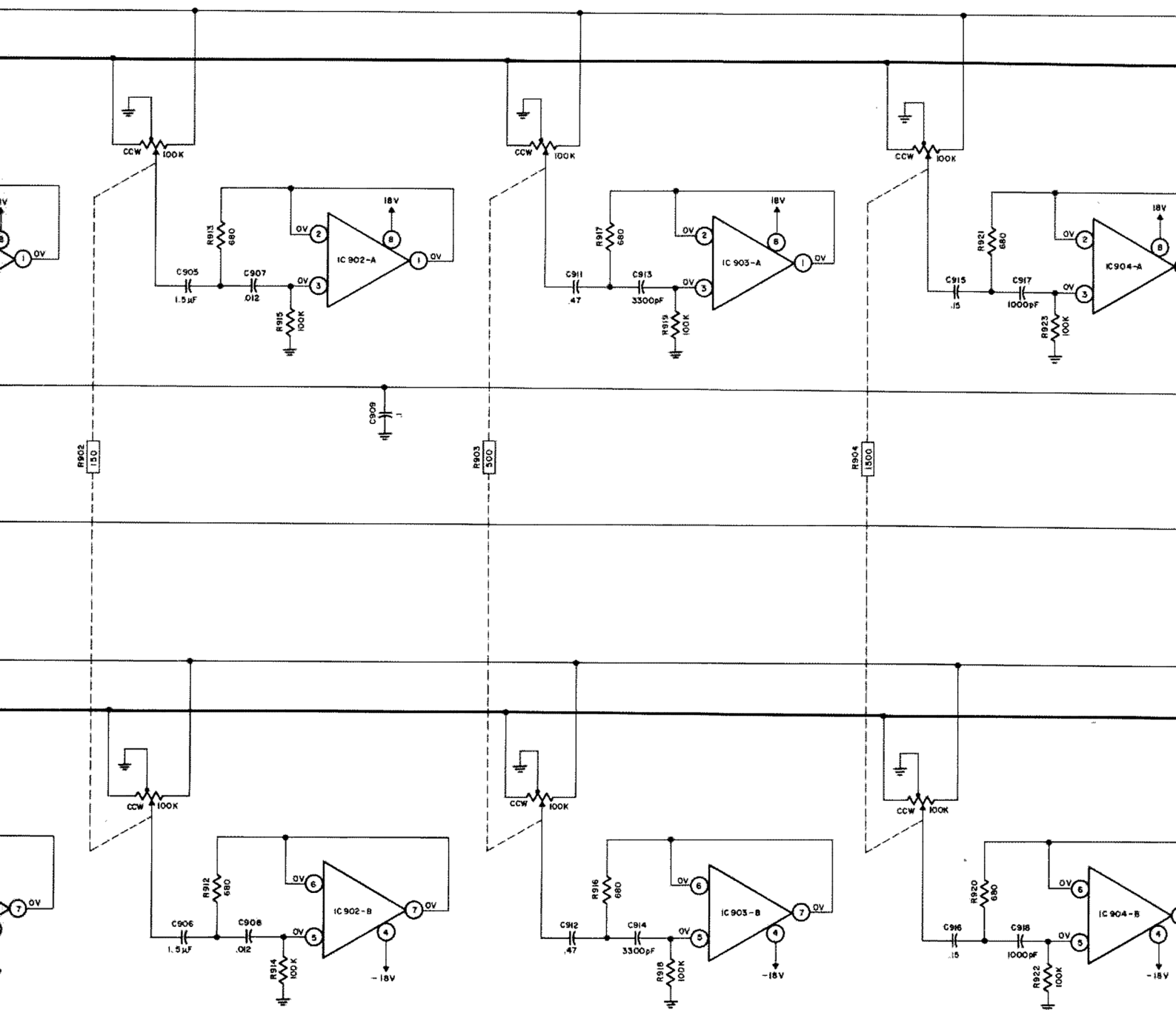


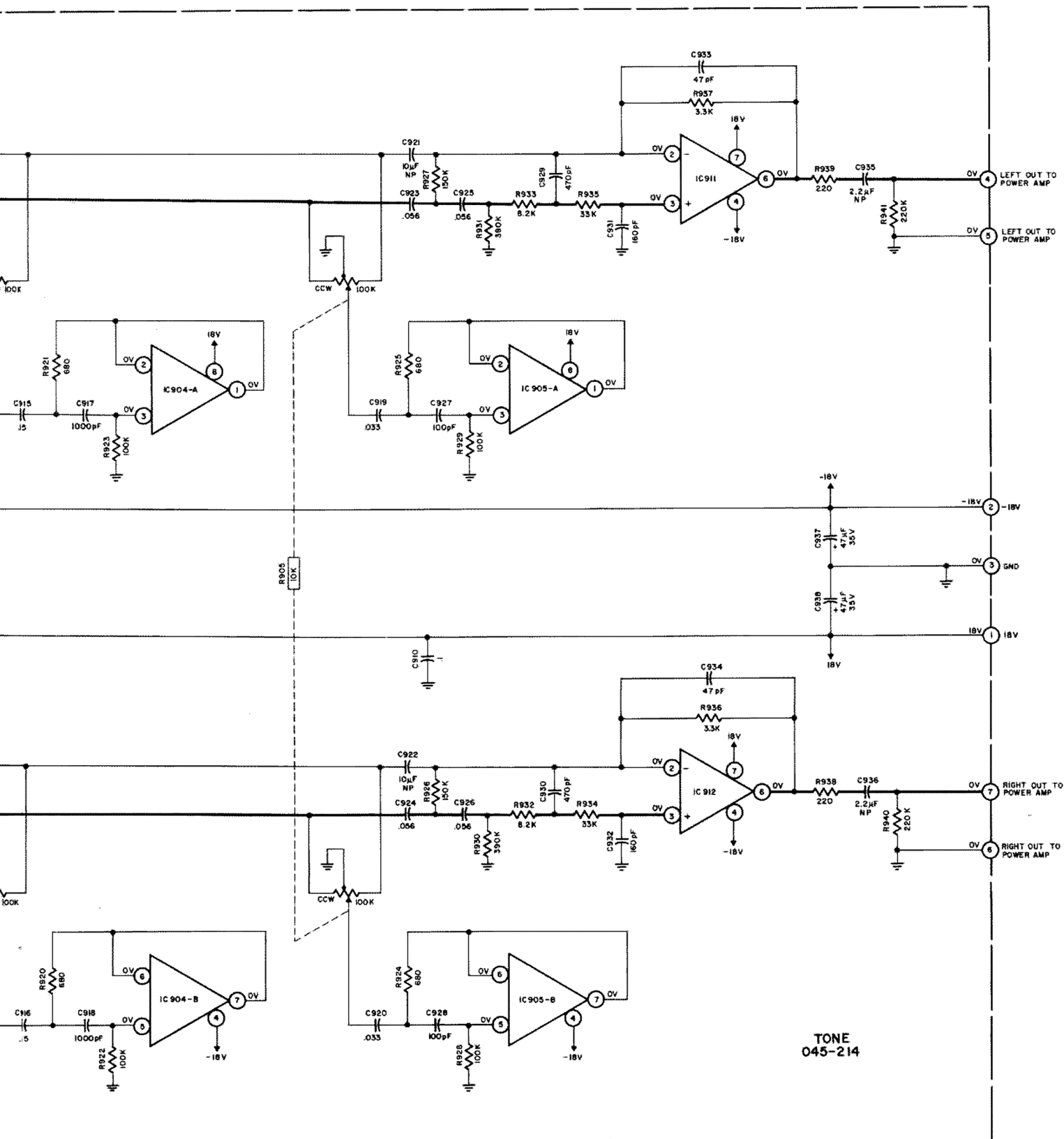


PRE-AMP AUDIO & SWITCHING
045-220

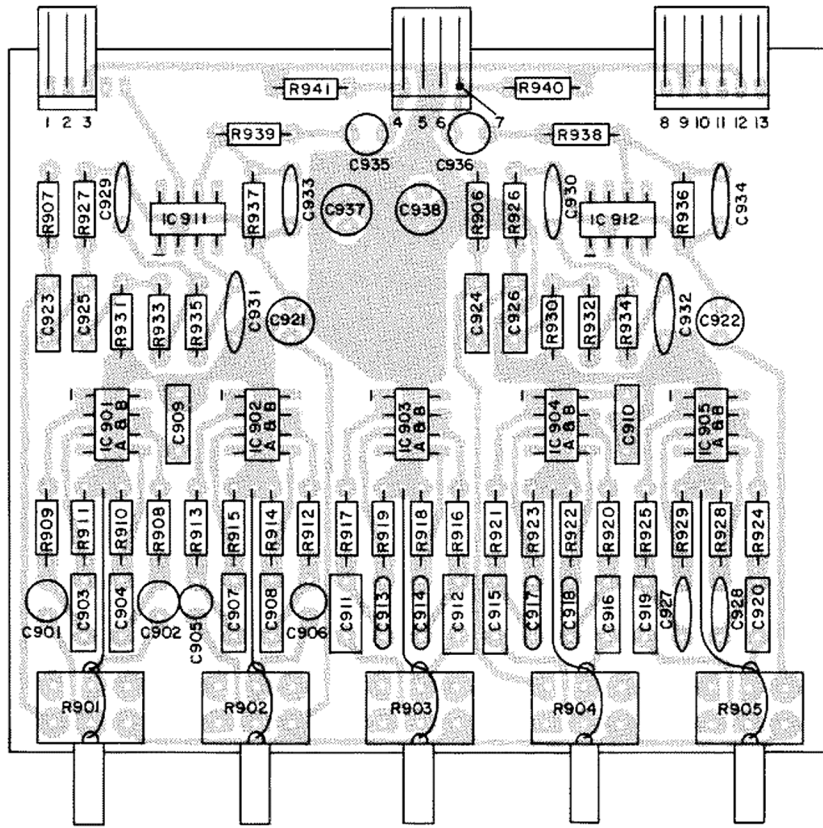




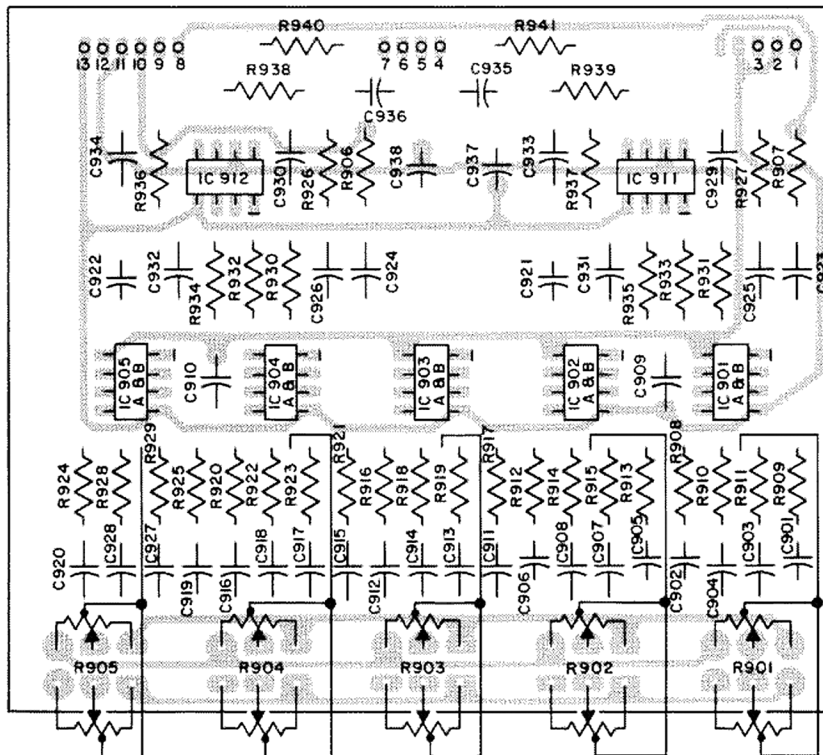


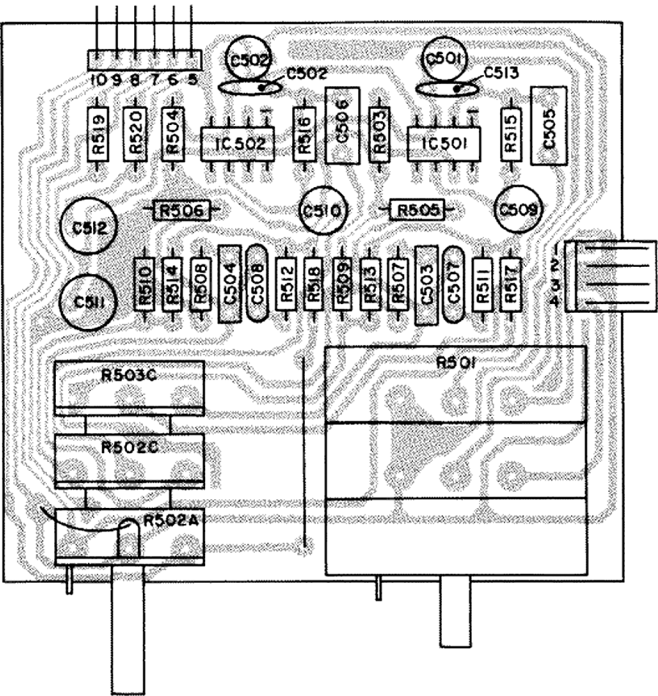


TONE
045-214

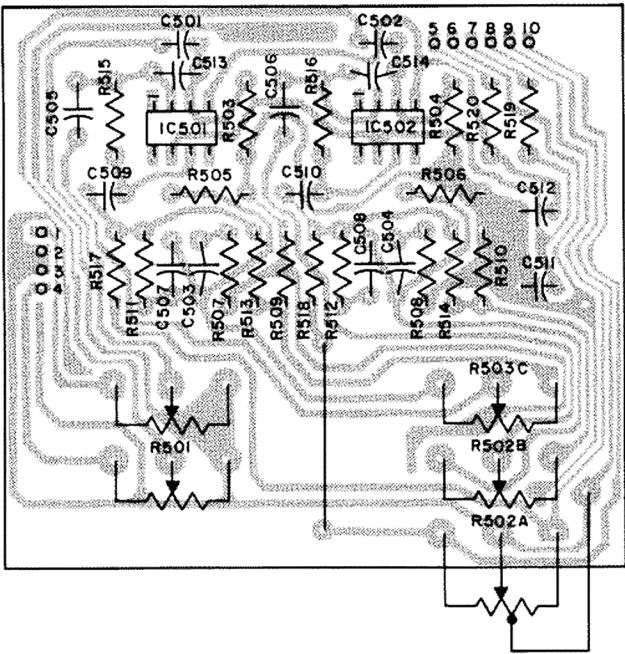


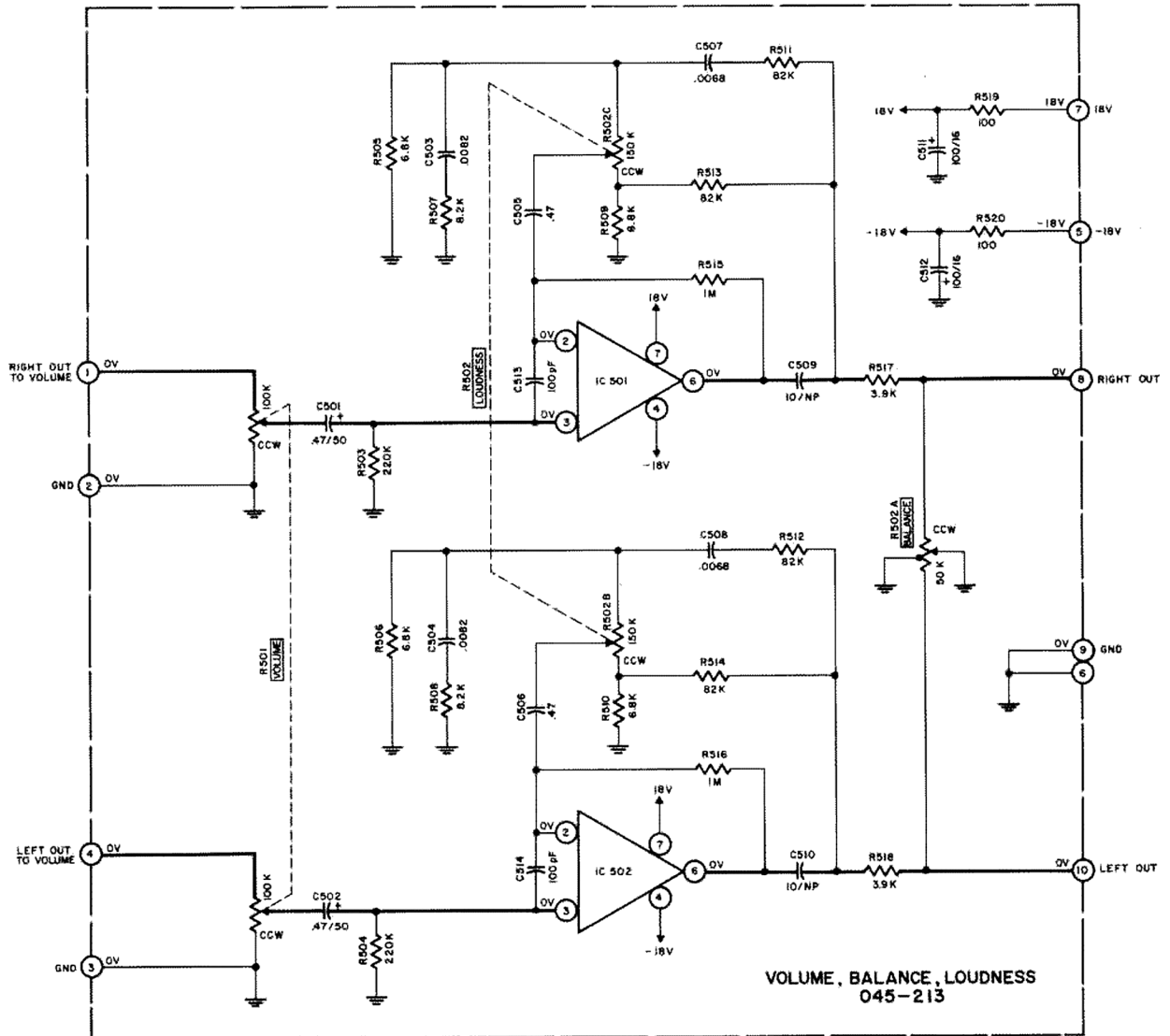
TONE PC BOARD
045214

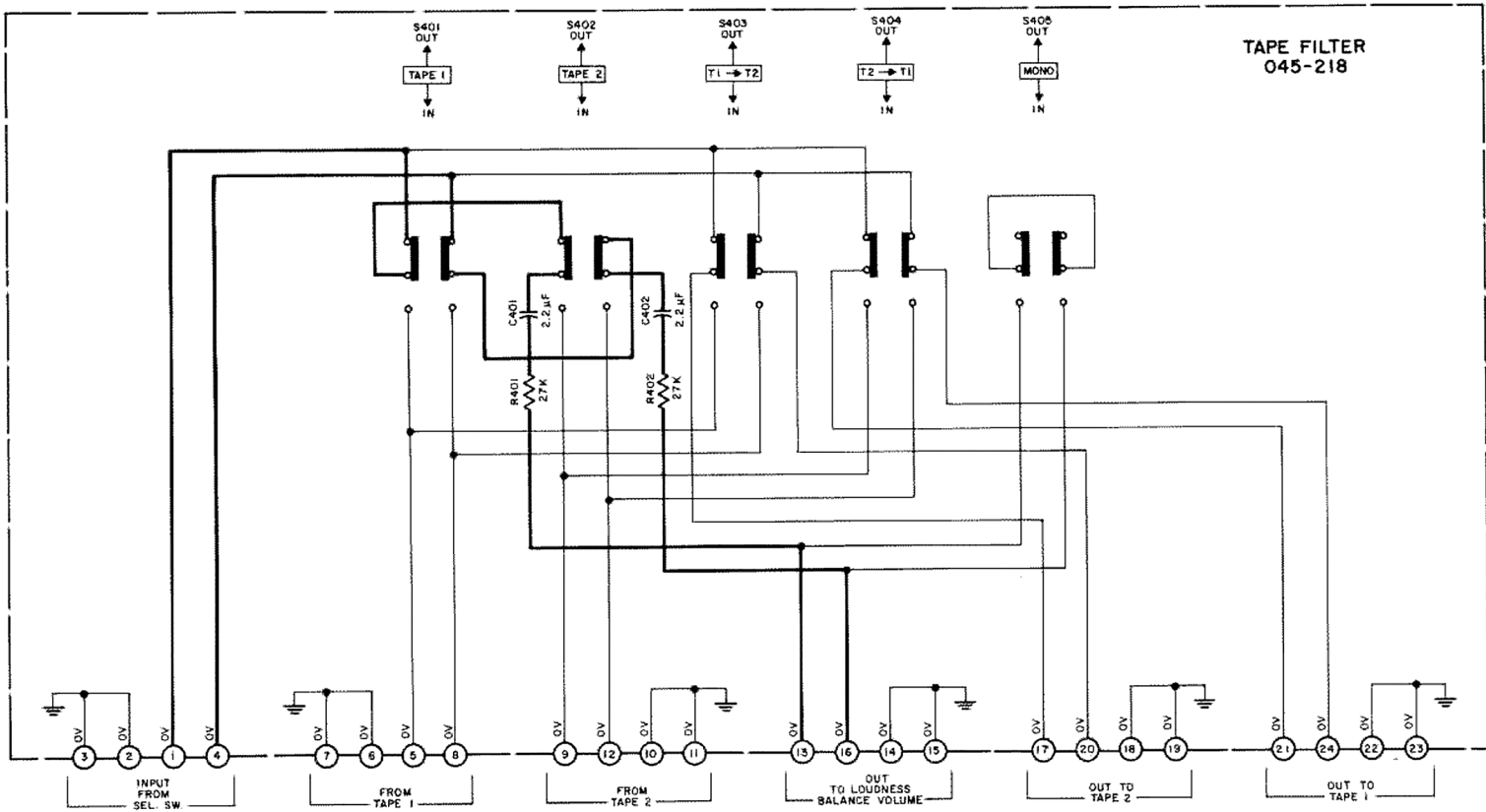


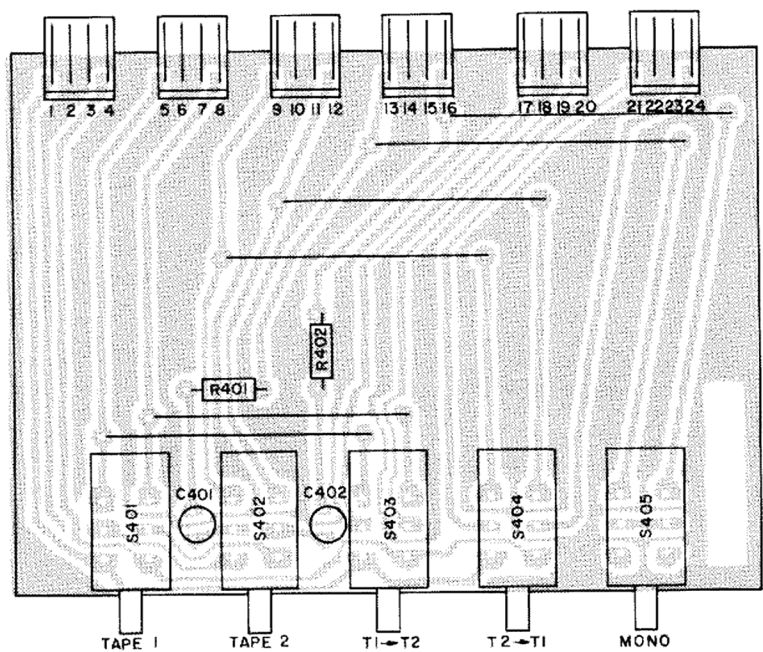


VOLUME,BALANCE,LOUDNESS PC BOARD
045213

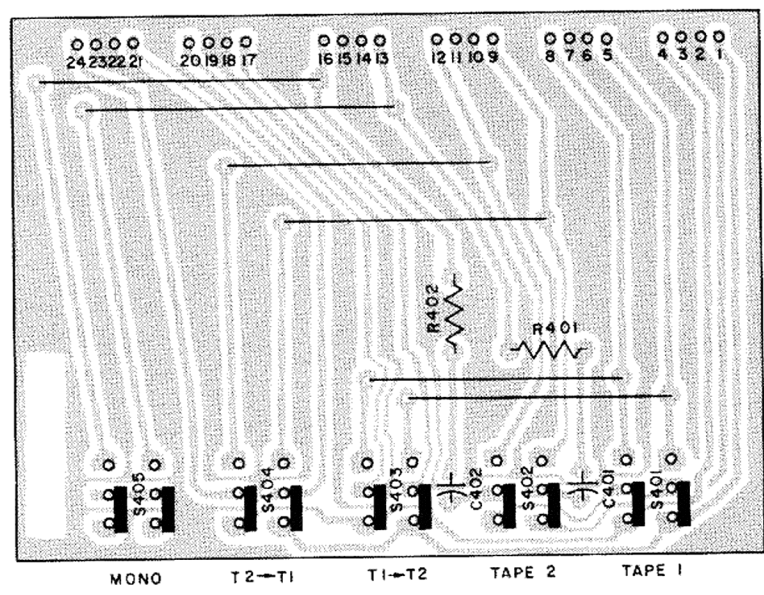


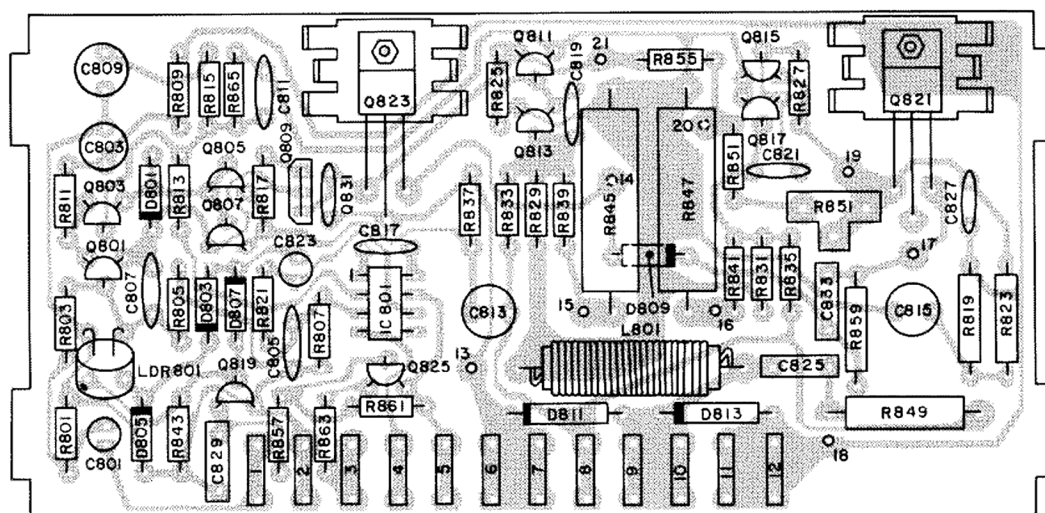




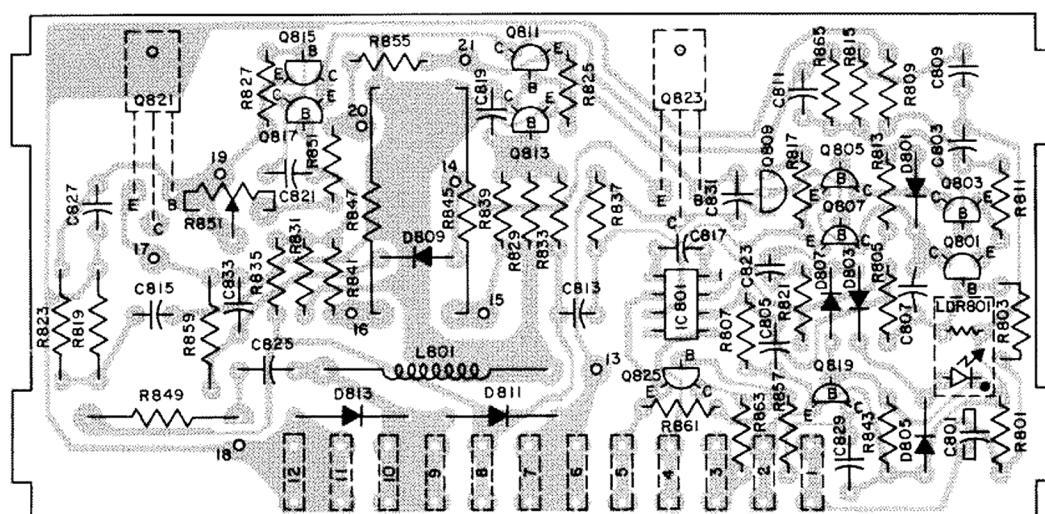


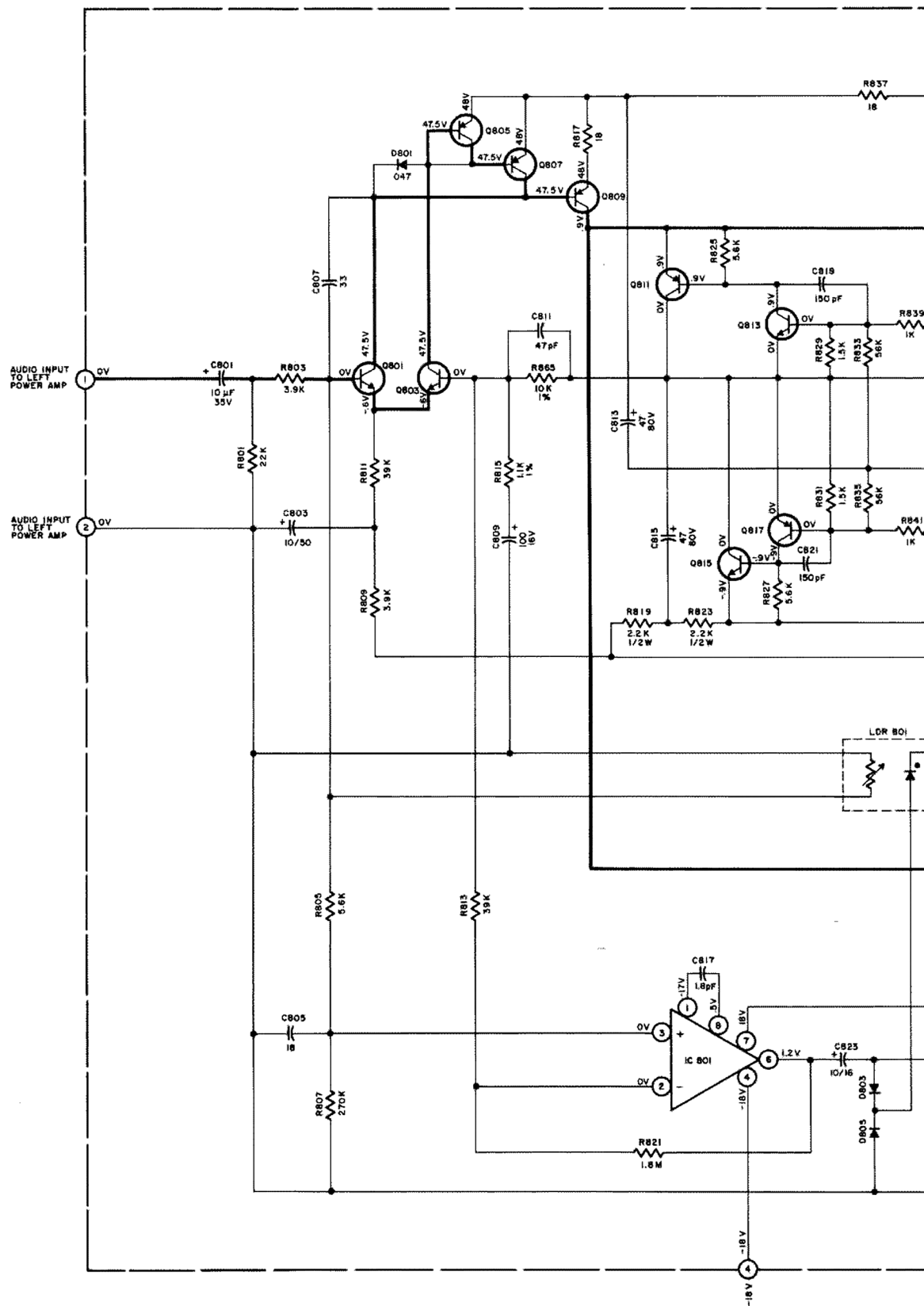
TAPE FILTER PC BOARD
045218

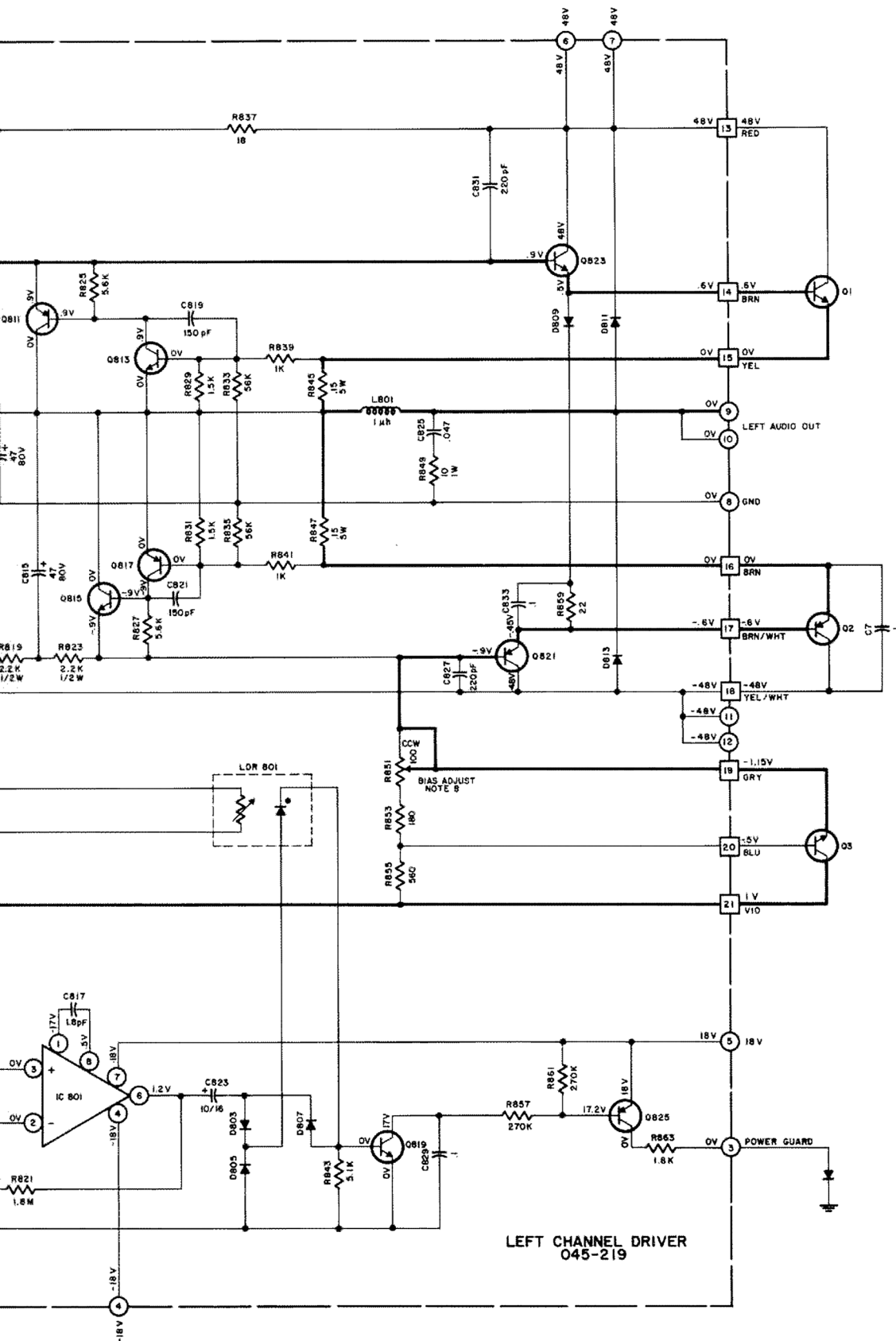


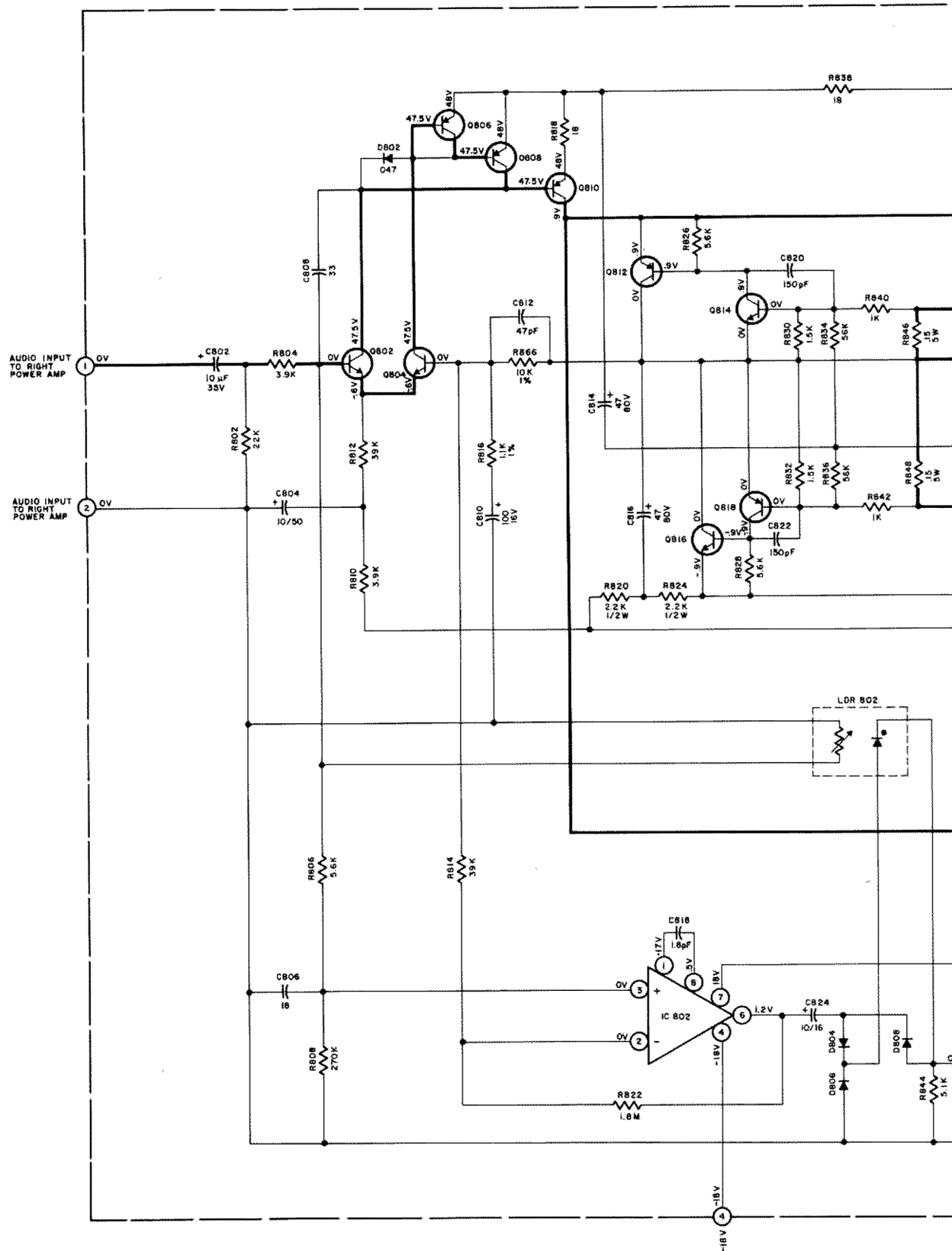


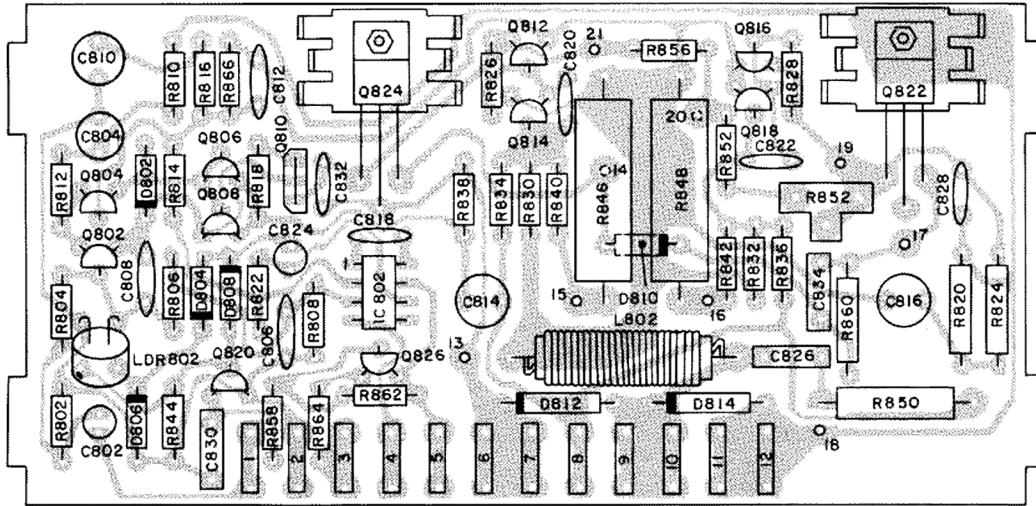
LEFT CHANNEL DRIVER
045219



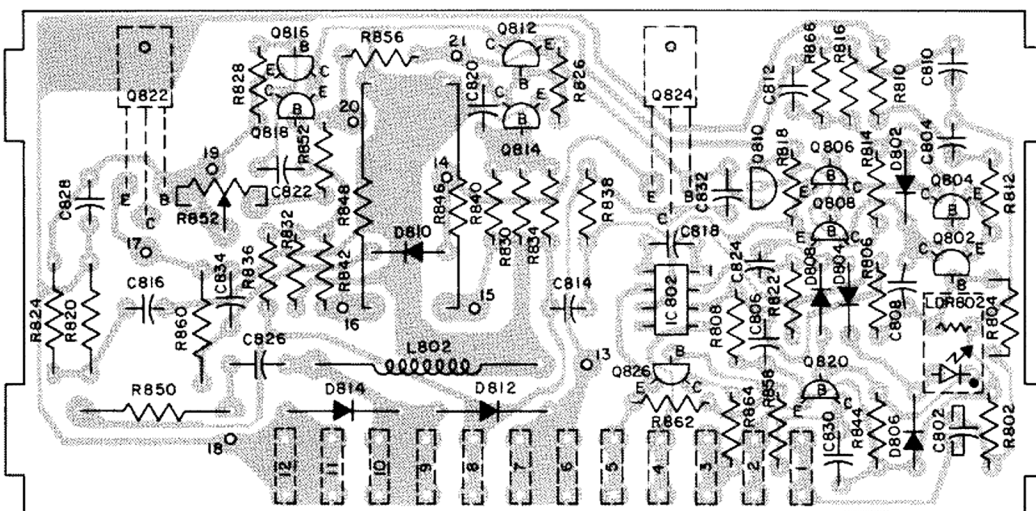


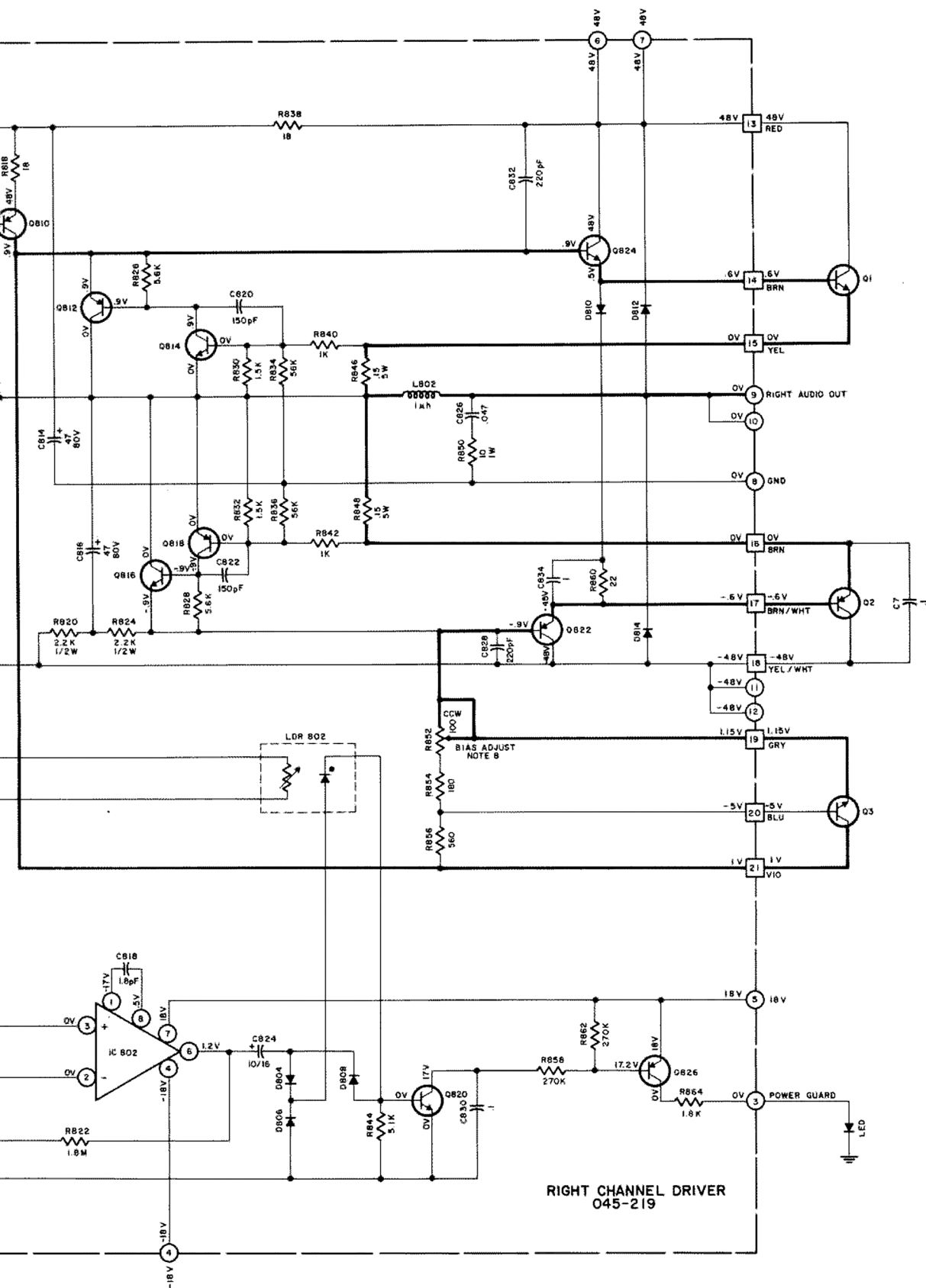


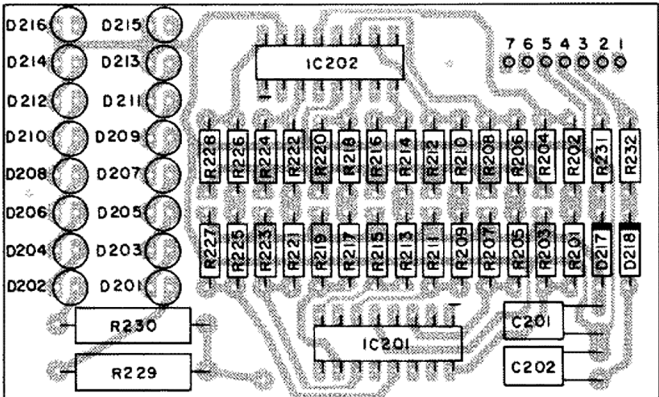




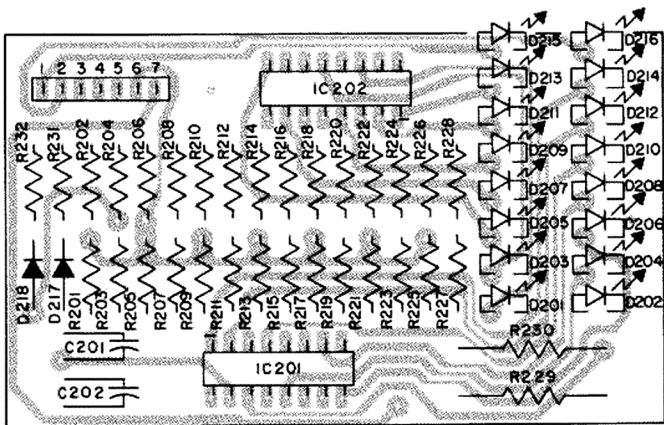
RIGHT CHANNEL DRIVER
045219

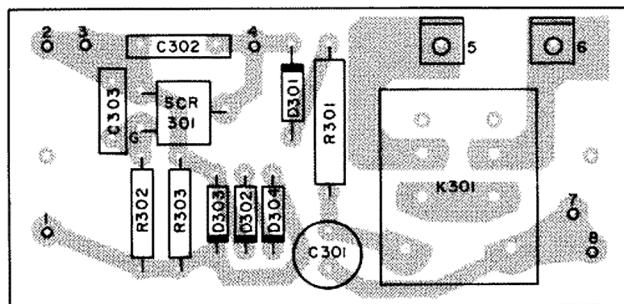




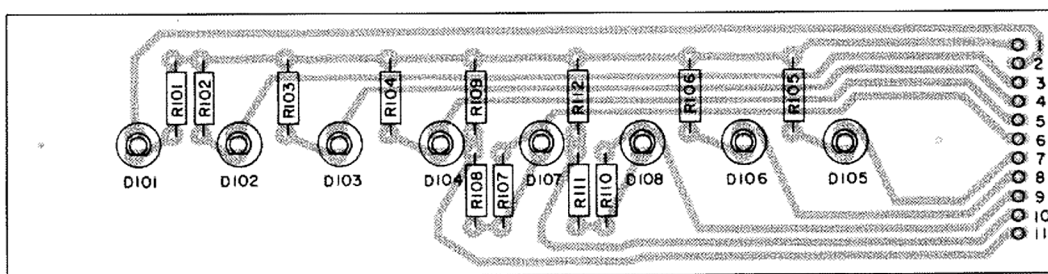
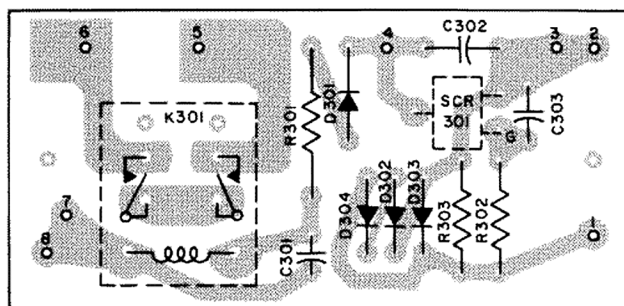


POWER LEVEL INDICATOR
045348

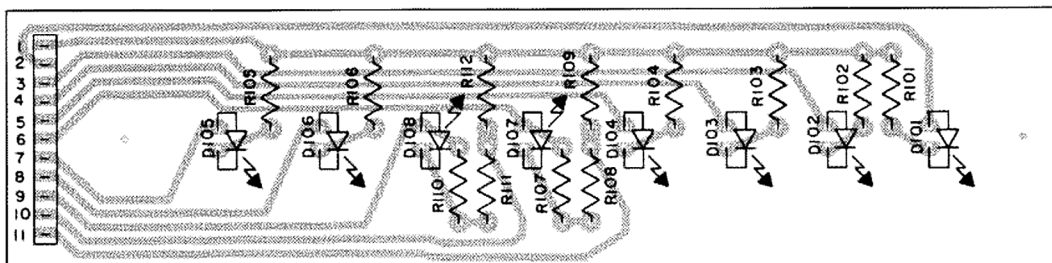


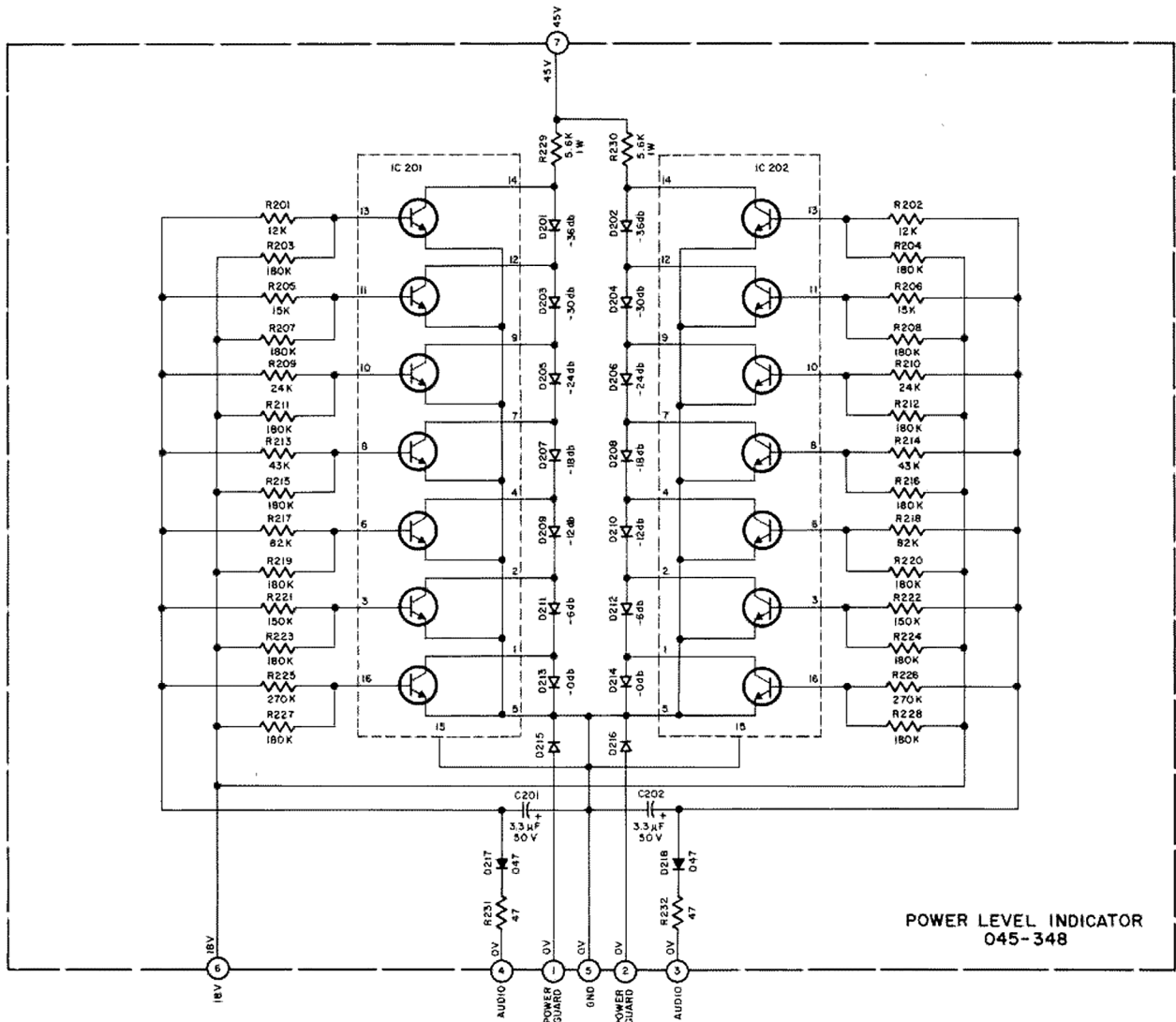


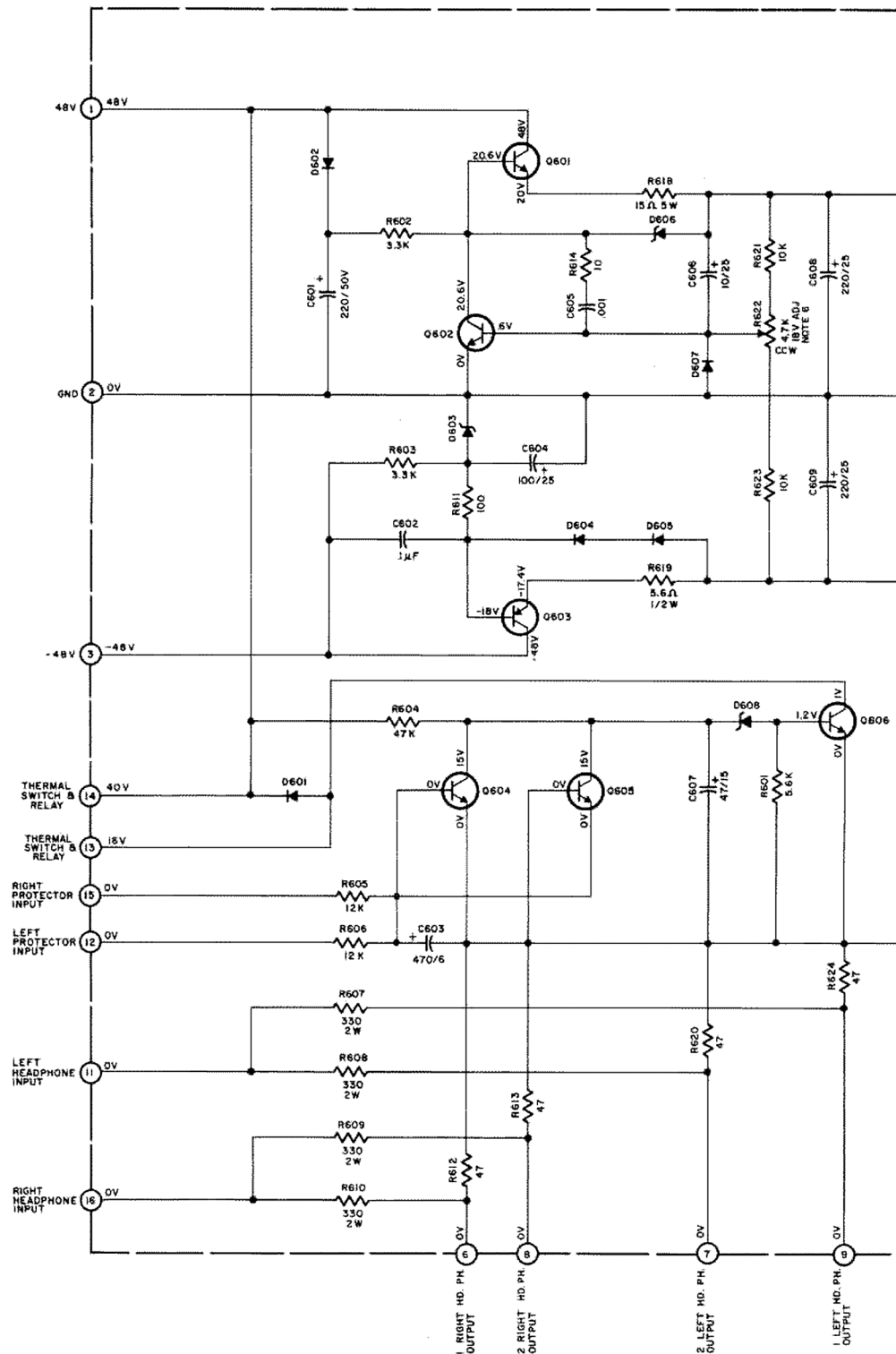
AUTO-ON PC BOARD
045355

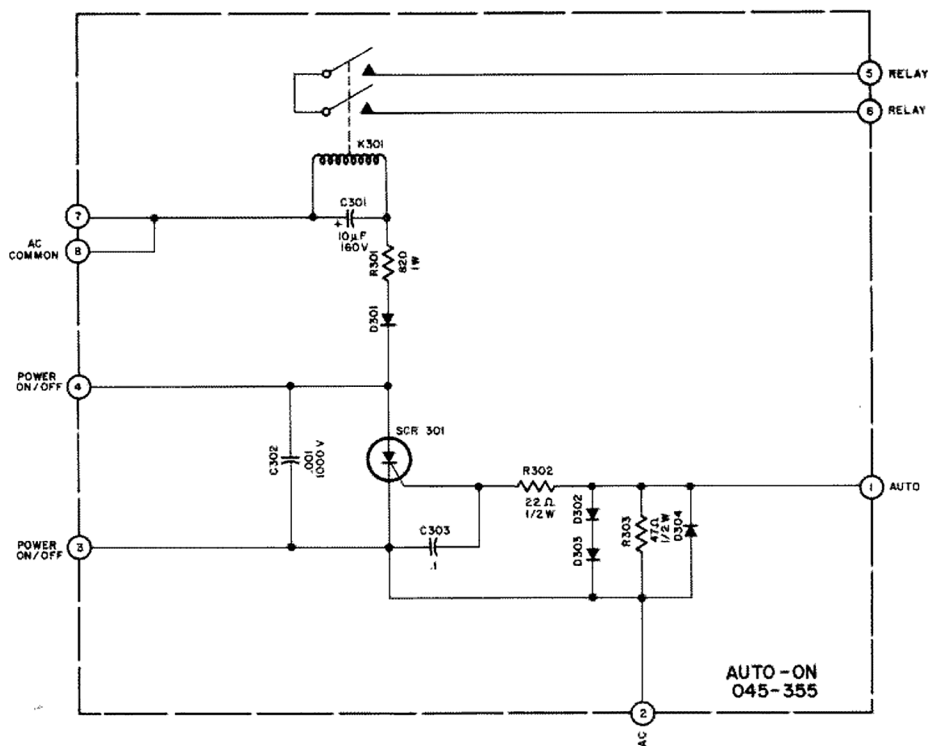


INDICATOR PC BOARD
045212

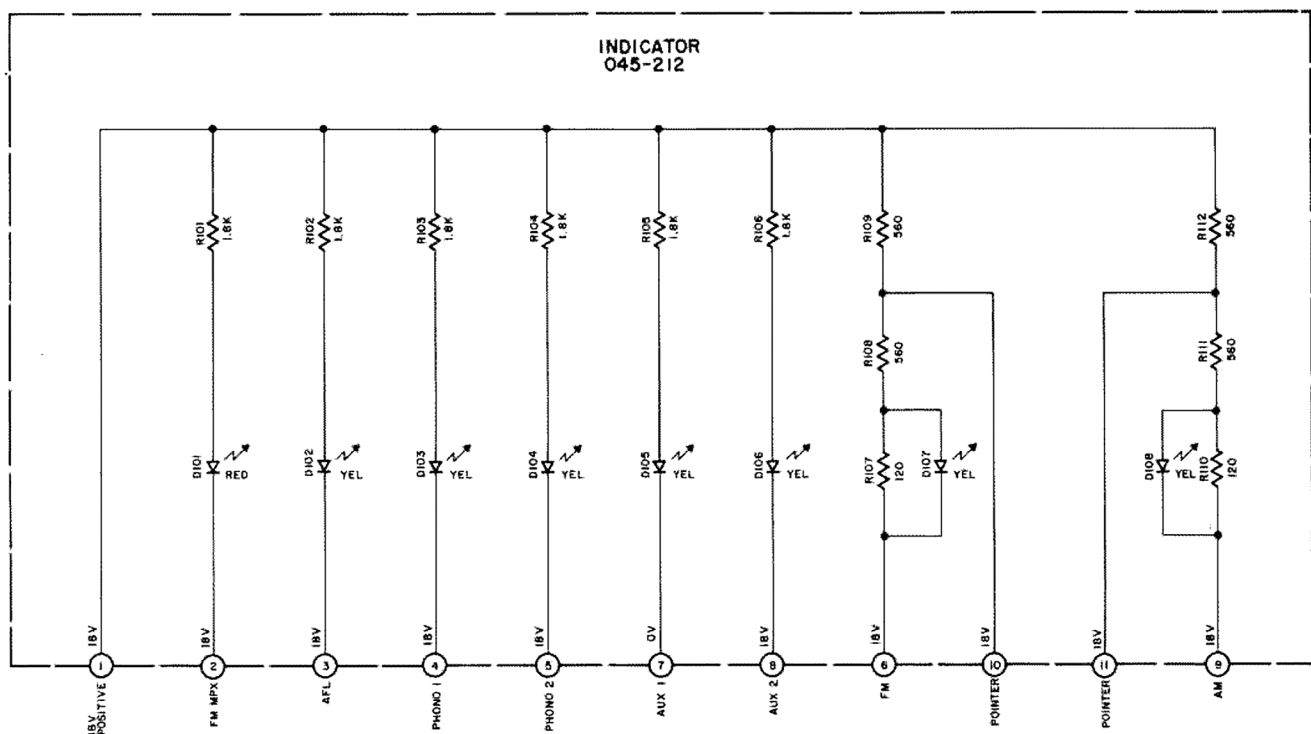




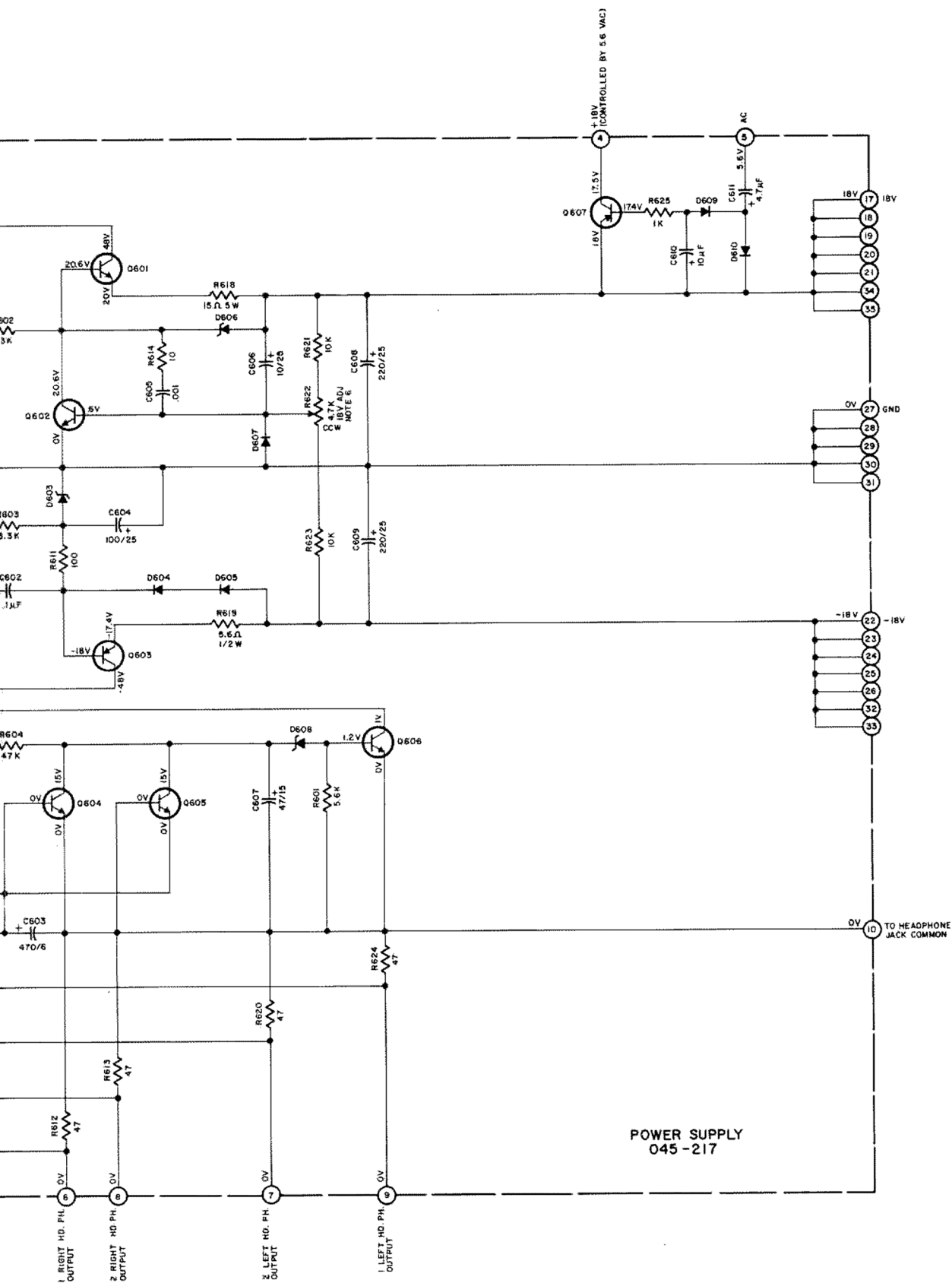


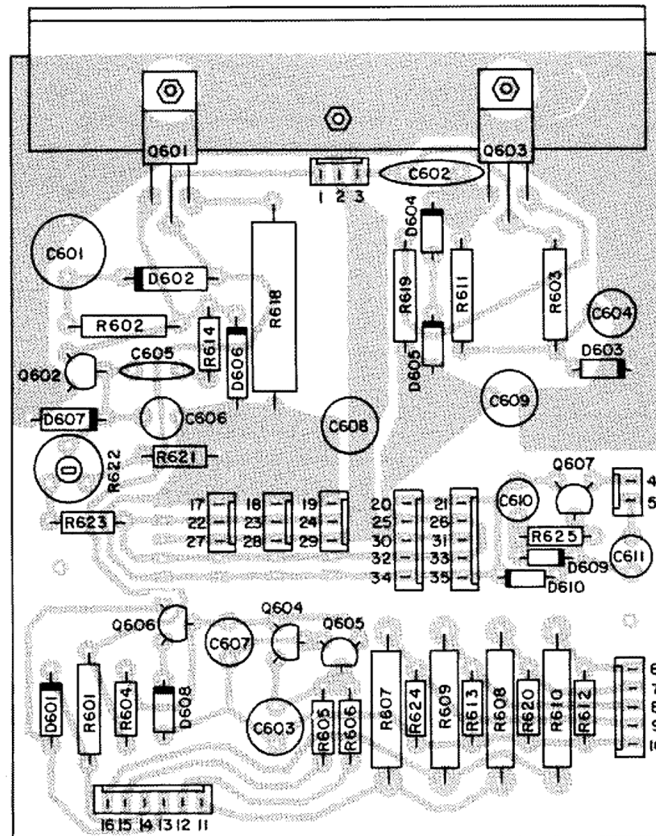


AUTO-ON

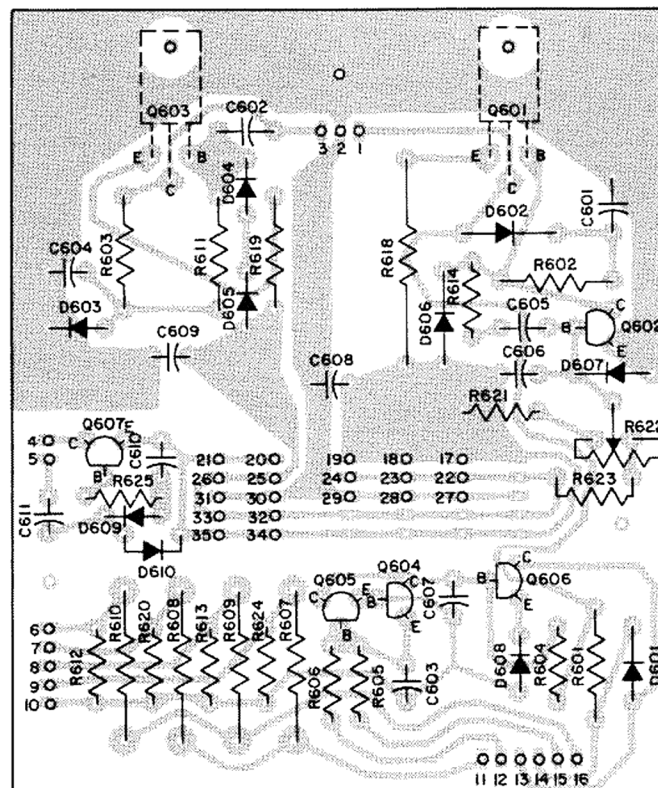


INDICATOR

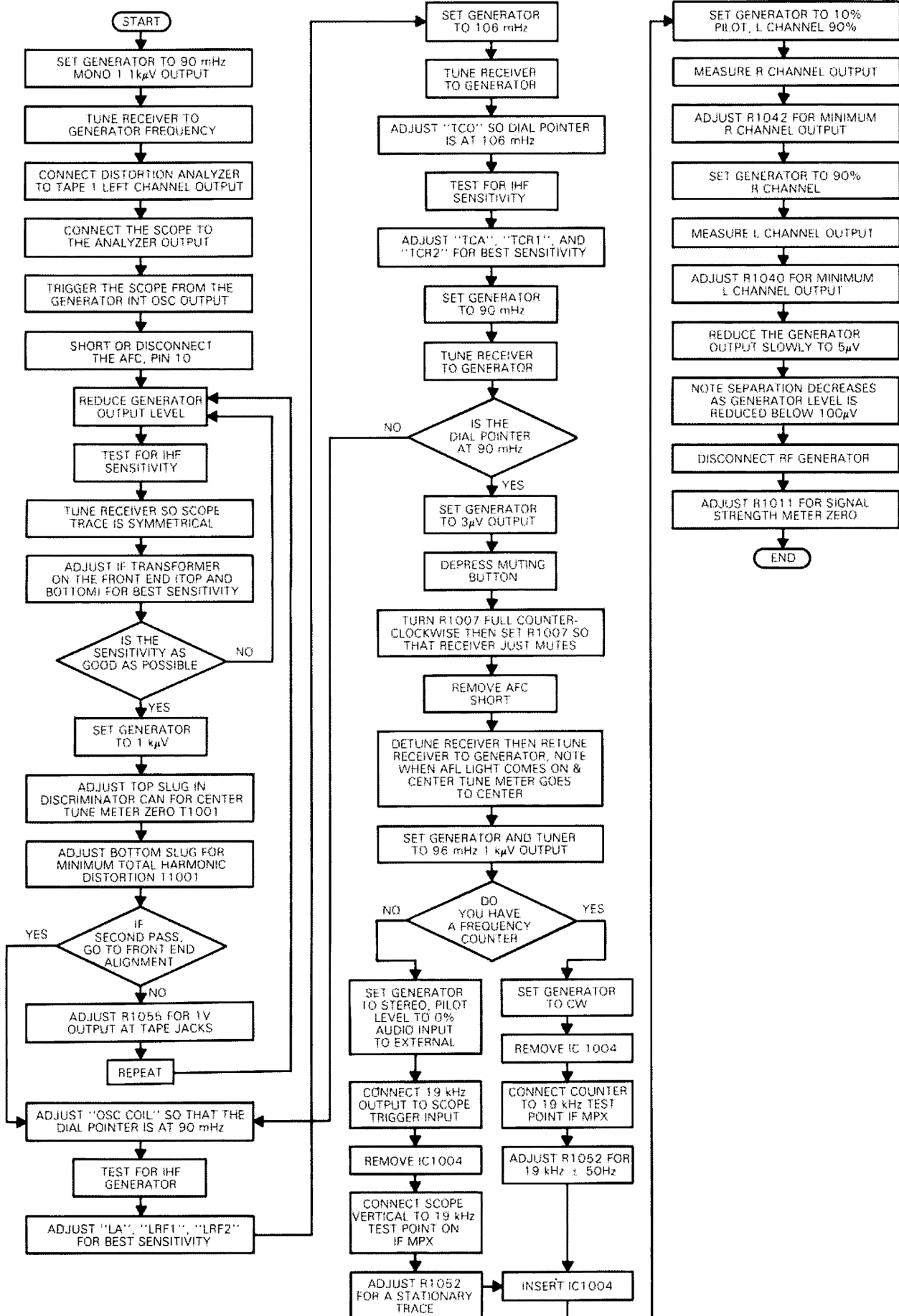




POWER SUPPLY PC BOARD
045217

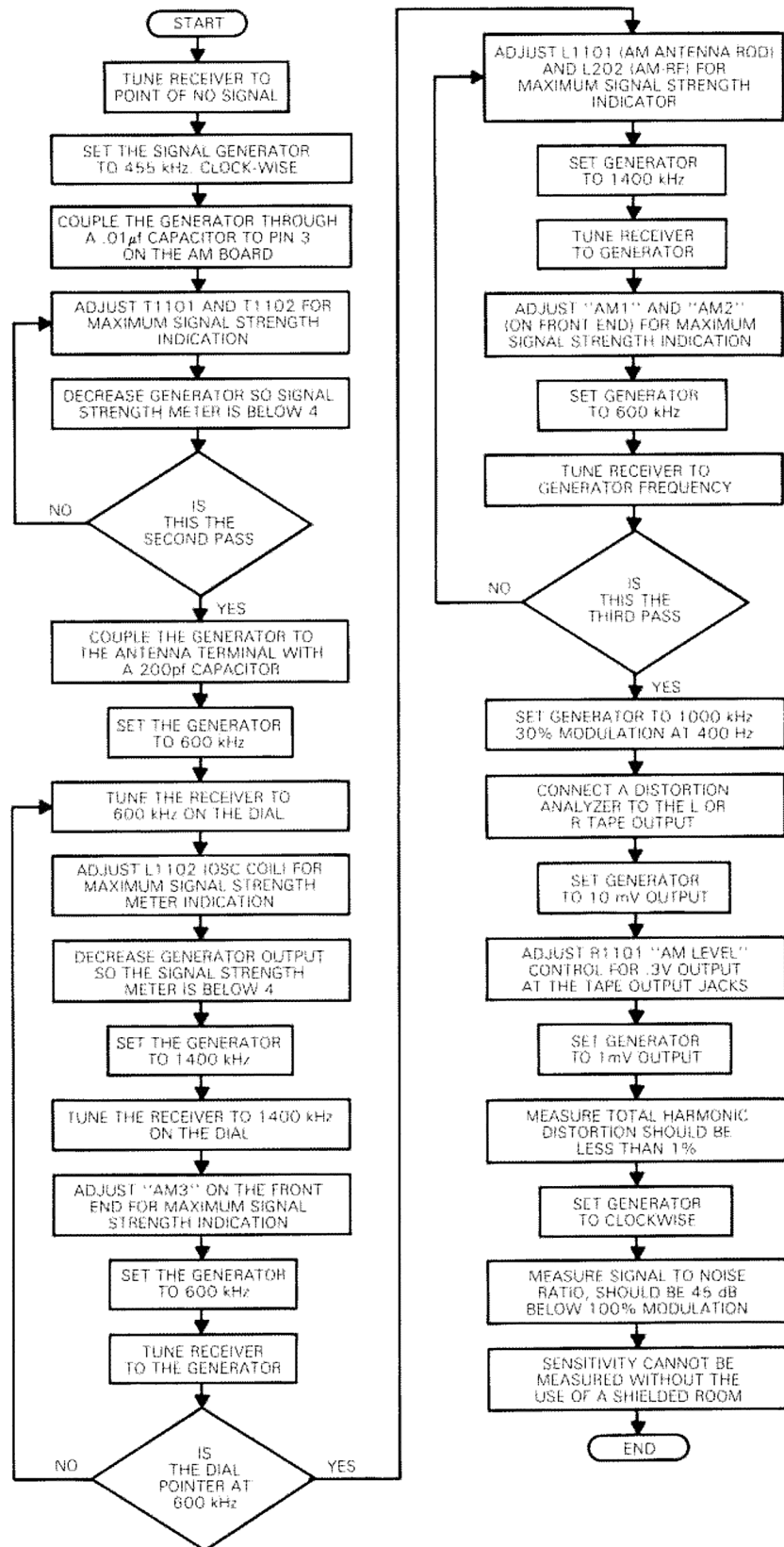


FM ALIGNMENT

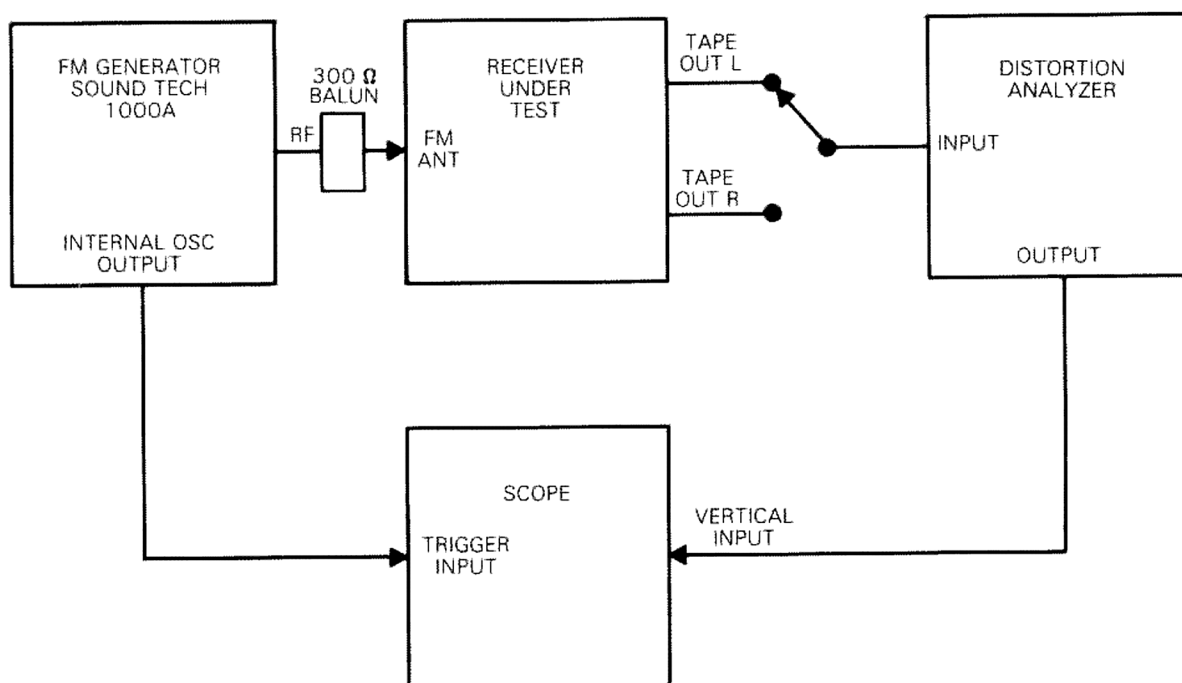
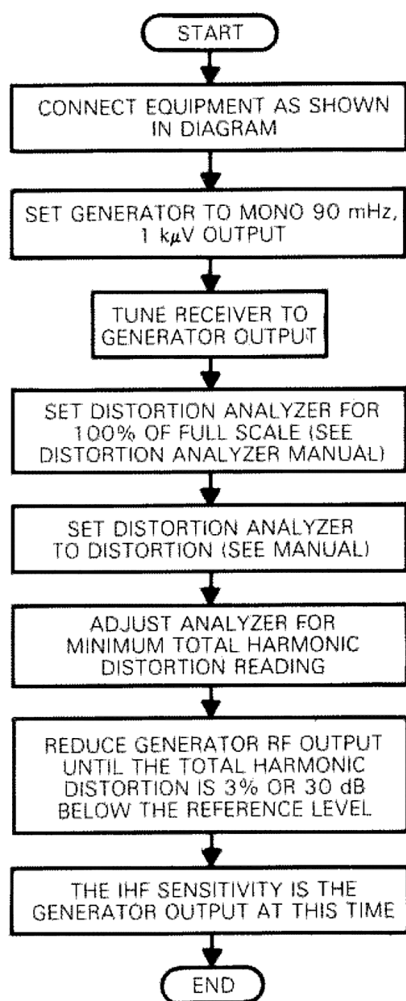


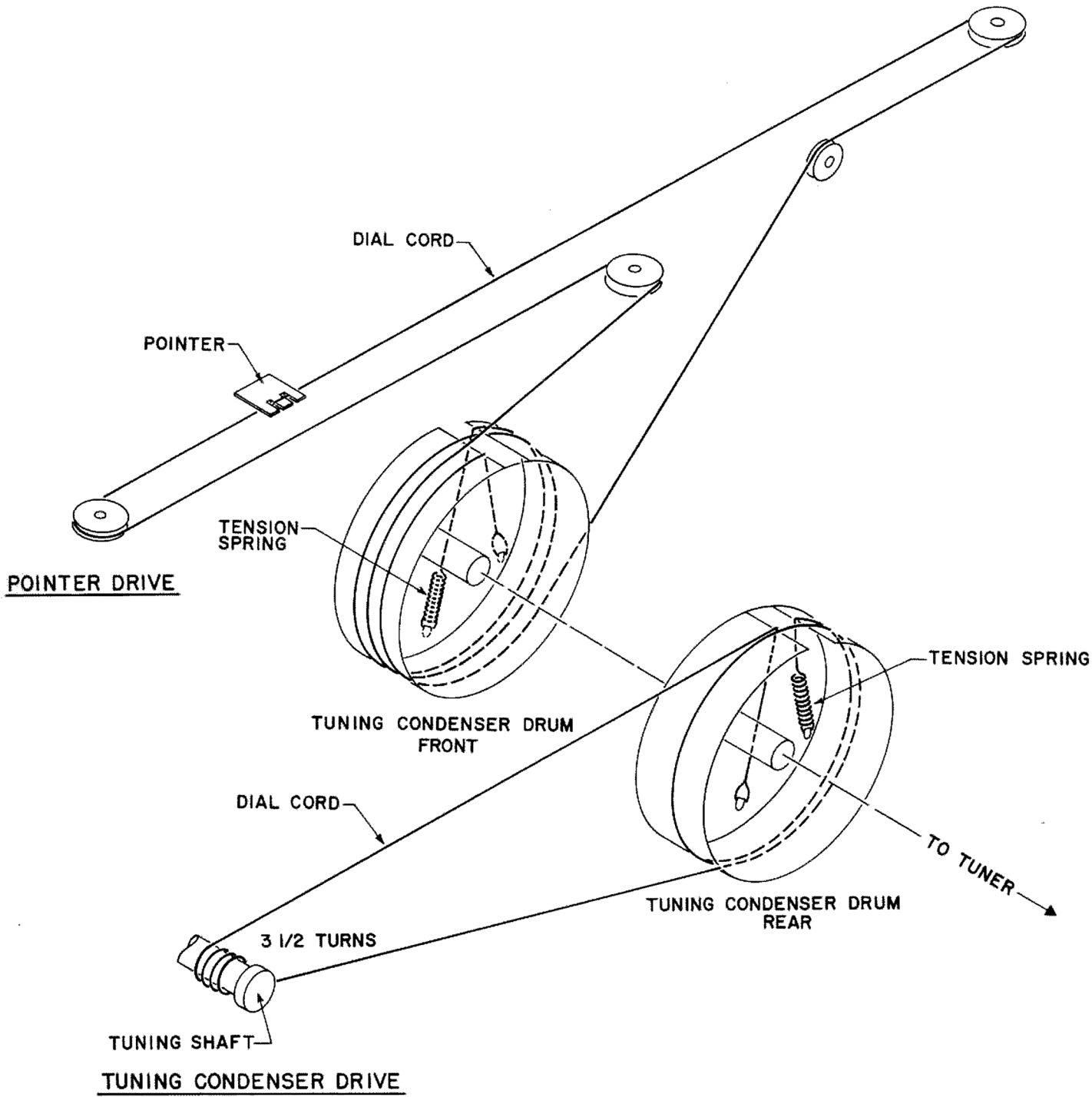
AM ALIGNMENT

MAC4100



IHF SENSITIVITY MEASUREMENTS





MAC4100

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)

DIODES		
Symbol Number	Description	Part Number
D101	LED lamp red	070-108
D102,103	LED lamp yellow	070-109
D104,105	LED lamp yellow	070-109
D106,107	LED lamp yellow	070-109
D108	LED lamp yellow	070-109
D201,202	LED lamp yellow	070-109
D203,204	LED lamp yellow	070-109
D205,206	LED lamp yellow	070-109
D207,208	LED lamp yellow	070-109
D209,210	LED lamp yellow	070-109
D211,212	LED lamp yellow	070-109
D213,214	LED lamp yellow	070-109
D215,216	LED lamp red	070-108
D217,218	Si. signal diode	070-047
D301,302	Si. Rectifier	070-031
D303,304	Si. Rectifier	070-031
SCR301	Rectifier	131-010
D601,602	Si. Rectifier	070-031
D603	Zener 18V	070-103
D604,605	Si. signal diode	070-047
D606,607	Si. signal diode	070-047
D608	Zener 15V	070-061
D609,610	Si. signal diode	070-047
D701,702	Si. signal diode	070-047
D703	Si. signal diode	070-047
D801,802	Si. signal diode	070-047
D803,804	Si. signal diode	070-047
D805,806	Si. signal diode	070-047
D807,808	Si. signal diode	070-047
D809,810	Si. signal diode	070-098
D811,812	Si. rectifier	070-031
D813,814	Si. rectifier	070-031
D1001,1002	Si. signal diode	070-003
D1003	Si. signal diode	070-003
D1004	Si. signal diode	070-046
D1005	Si. signal diode	070-047

D1007	Si. signal diode	070-047
D1008,1009	Si. signal diode	070-003
D1102	Si. signal diode	070-003
D1103	Si. signal diode	070-047

INTEGRATED CIRCUITS

IC201,202	Integrated Circuit	133-069
IC501,502	Integrated Circuit	133-066
IC701	Integrated Circuit	133-042
IC702,703	Integrated Circuit	133-037
IC704,705	Integrated Circuit	133-067
IC706,707	Integrated Circuit	133-051
IC708,709	Integrated Circuit	133-066
IC801,802	Integrated Circuit	133-068
IC901,902	Integrated Circuit	133-028
IC903,904	Integrated Circuit	133-028
IC905	Integrated Circuit	133-028
IC911,912	Integrated Circuit	133-066
IC1001,1002	Integrated circuit	133-031
IC1003	Integrated circuit	133-031
IC1004,1005	Integrated circuit	133-037
IC1006	Integrated circuit	133-056
IC1007	Integrated circuit	133-029
IC1008	Integrated circuit	133-005
IC1101	Integrated circuit	133-037

TRANSISTORS

Q601	Si NPN Power Transistor	132-173
Q602	Si NPN Transistor	132-171
Q603	Si PNP Power Transistor	132-174
Q604,605	Si NPN Transistor	132-143
Q606	Si NPN Transistor	132-171
Q607	Si PNP Transistor	132-150
Q801,802	Si NPN Transistor	132-185
Q803,804	Si NPN Transistor	132-185
Q805,806	Si PNP Transistor	132-096
Q807,808	Si PNP Transistor	132-096
Q809,810	Si PNP Transistor	132-187
Q811,812	Si PNP Transistor	132-150
Q813,814	Si NPN Transistor	132-143
Q815,816	Si NPN Transistor	132-143
Q817,818	Si PNP Transistor	132-150
Q819,820	Si NPN Transistor	132-092
Q821,822	PNP Medium Power	132-184
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