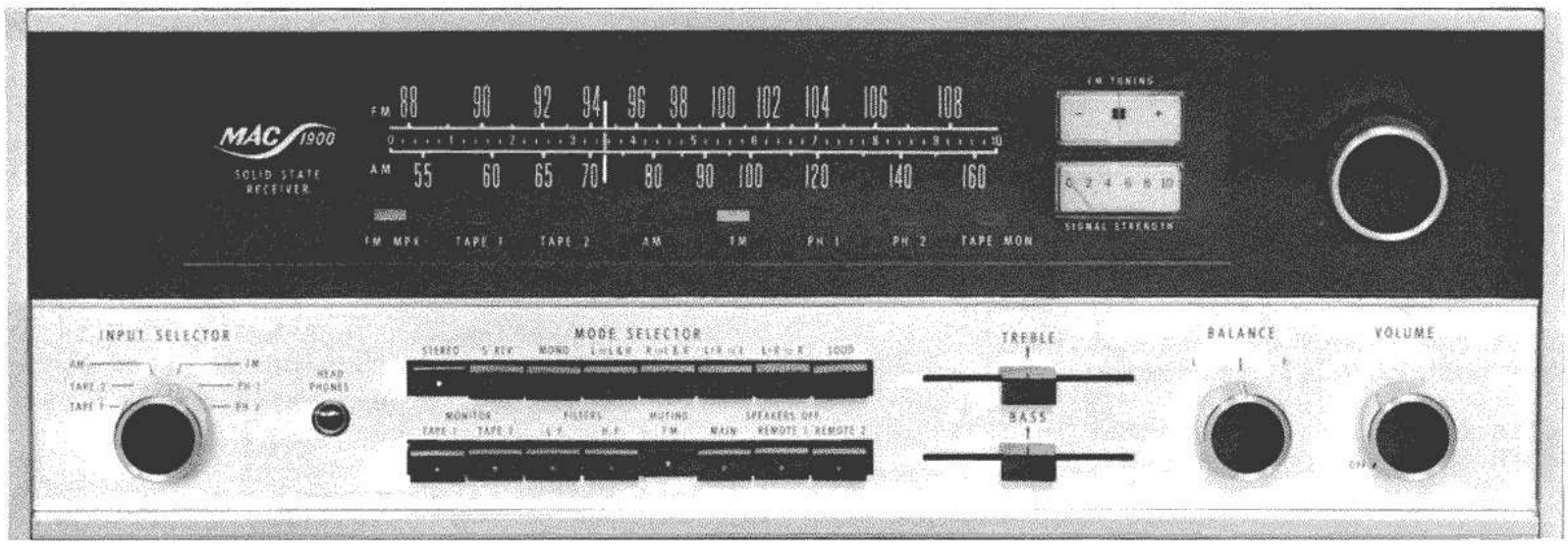
McIntosh

MAC 1900

AM/FM SOLID STATE STEREO RECEIVER



SERVICE INFORMATION

STARTING WITH SERIAL NO. 4X230

McINTOSH AUDIO DIVISION, 2 CHAMBERS STREET BINGHAMTON, NEW YORK

MAC 1900

MAC 1900

PERFORMANCE LIMITS

AM TUNER SECTION

SENSITIVITY

75µV IHF (external ant.)

SIGNAL TO NOISE RATIO

45dB IHF minimum; 55dB at 100% modulation.

HARMONIC DISTORTION

Does not exceed 1% at 30% modulation.

ADJACENT CHANNEL SELECTIVITY

30dB minimum IHF.

IMAGE REJECTION

65dB minimum, 540kHz - 1600kHz.

FM TUNER SECTION

USEABLE SENSITIVITY

2.5 microvolts at 100% modulation (±75kHz deviation) for 3% total noise and harmonic distortion IHF.

SIGNAL TO NOISE RATIO

70dB below 100% modulation.

HARMONIC DISTORTION

Mono: Does not exceed 0.3% at 100% modulation ±75kHz deviation.

Stereo: Does not exceed 0.7%.

AUDIO FREQUENCY RESPONSE

±1dB 20Hz to 15,000Hz with standard de-emphasis (75µsec.) and 19,000Hz pilot filter.

SELECTIVITY

55dB alternate channel selectivity IHF minimum.

SPURIOUS REJECTION

90dB IHF minimum.

IMAGE REJECTION

80dB minimum.

STEREO SEPARATION

35dB at 1,000Hz.

SCA FILTER

50dB rejection from 67kHz to 74kHz. 275dB per octave slope.

PREAMPLIFIER AND POWER AMPLIFIER SECTION

POWER OUTPUT

55 RMS watts continuous per channel into 4 or 8 ohms both channels operating.

30 RMS watts continuous per channel into 16 ohms both channels operating.

HARMONIC DISTORTION

Does not exceed 0.20% at rated power output from 20Hz to 20,000Hz with both channels operating. Typical performance is less than 0.1% at rated power. Distortion decreases as output power is reduced.

INTERMODULATION DISTORTION

Does not exceed 0.20% if instantaneous peak power output is twice rated power or less per channel with both channels operating for any combination of frequencies 20Hz to 20,000Hz.

DAMPING FACTOR

50 with 8 ohm load.

FREQUENCY RESPONSE

±0.5dB 20Hz through 20,000Hz.

INPUT SENSITIVITY AND IMPEDANCE

Phono 1 and Phono 2: 2.0mV, 47k ohms.
Tape 1 and Tape 2: 250mV, 250k ohms.
Power Amplifier: 2.5 volts, 100k ohms.

TOTAL NOISE

Phono Input: 76dB below 10mV input.
Tape Input: 90dB below rated output.
Power Amplifier: 95dB below rated output.

TAPE OUTPUT

Tuner: 1.0 volt.
Tape: 250mV with rated input from low level inputs.
Phono: 1.2 volts with 10mV input at 1,000Hz.

BASS CONTROLS

±16dB at 20Hz.

TREBLE CONTROLS

±16dB at 20,000Hz.

L.F. FILTER

Active filter, 12dB per octave roll off below 50Hz, down 18dB at 20Hz.

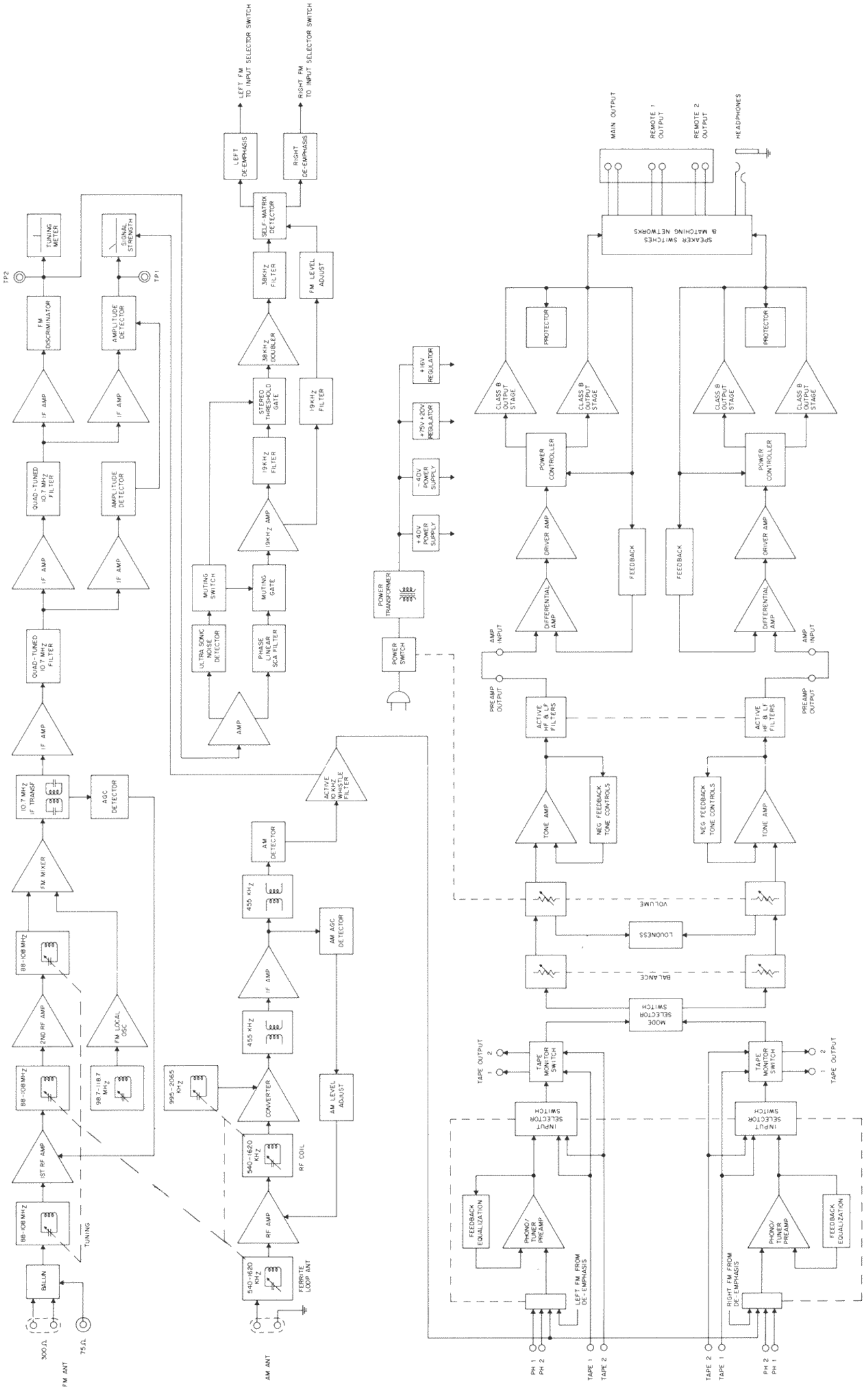
H.F. FILTER

Active filter, 12dB per octave roll off above 7,000Hz, down 18dB at 20,000Hz.

POWER REQUIREMENT

120 volts, 50-60Hz, AC, 40 watts at zero signal output - 300 watts at rated power output.

MAC 1900 BLOCK DIAGRAM



SCHEMATIC NOTES

1. Printed circuit board components 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 10% tolerance; resistance values in the Power Output and Power Supply sections are in ohms, 1/2 watt, 10% 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. All voltages indicated on the schematics are measured under the following conditions:

   Use of an 11 megohm input impedance VTVM. All voltages ±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:

Stereo switch	In	Muting	Out
Speaker switches	Out	Filters	Out
Volume control	Max	Loudness	Out
Balance control	Zero	Tape Monitors	Out
Tone controls	Flat	Tuning Indicator	100MHz (no signal)
Input selector	FM (to measure FM section) AM (to measure AM section)		

7. In units with Serial No.'s below 4X673: R224 is 7.5k; R321 and R322 is 1M; R323 and R324 is 560k; R399-7 and R399-8 are not used and C337 and C338 are 1.2pF.

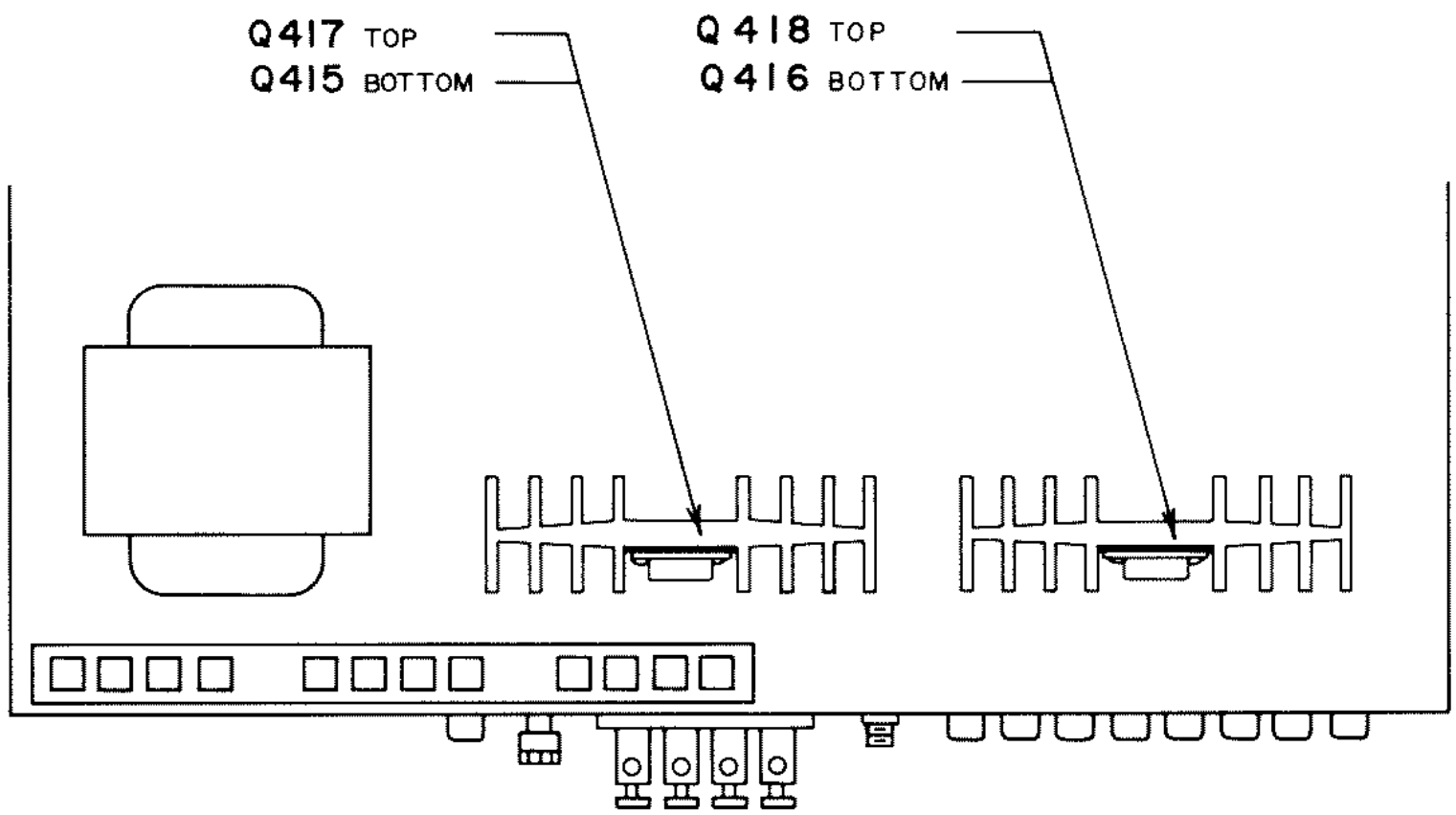
8. In units with Serial No.'s below 5X424: R425 and R426 are 220Ω; R427 and R428 are 180Ω; R429, 430, 447 and 448 are 47Ω and R304 and R305 are 47k.

9. In units with Serial No.'s below 6X182, C517 a dual .01µF capacitor is not used. Two .005uF capacitors may be used in place of the .01µF dual in some units.

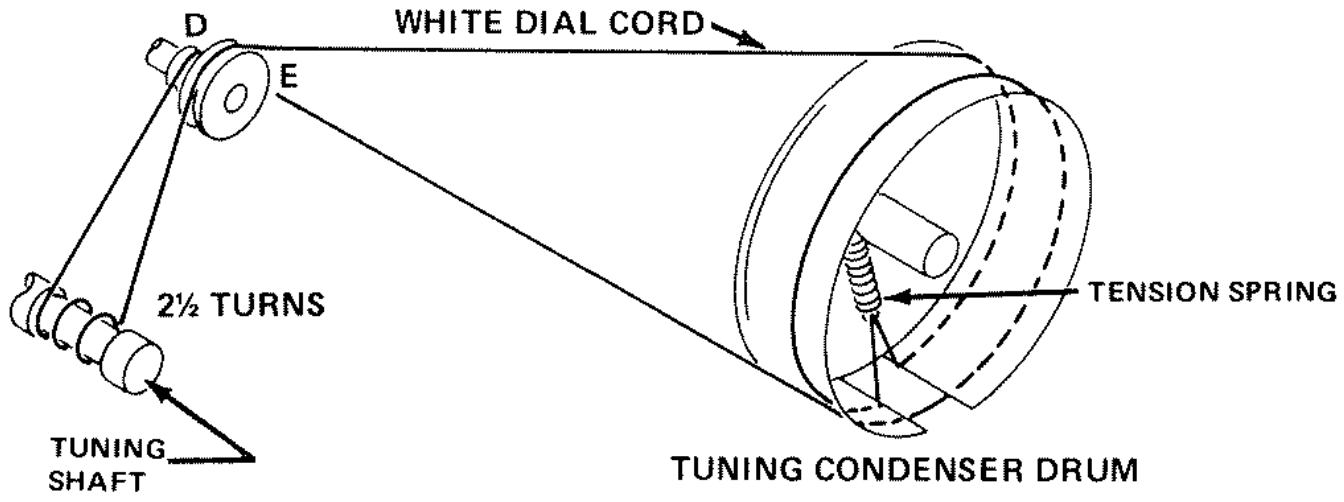
10. In units with Serial No.'s below 5X690: R135, R138, R139 and R142 are 39k.

11. In units with Serial No.'s below 5X970, R149 is not used.

12. In units with Serial No.'s below 5X369: C407 and C408 are 470pF; C413, C414, C415 and C416 are 1000pF and D413 and D414 are not used.



LOCATION OF TRANSISTORS NOT ON PC BOARD



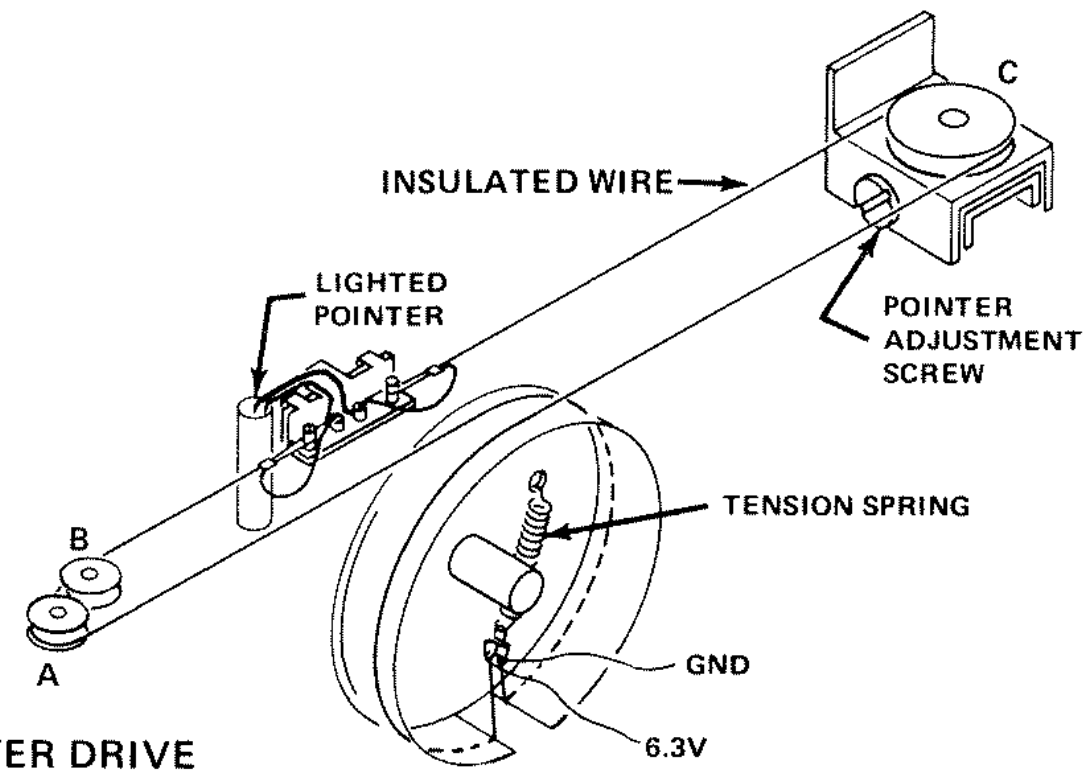
TUNING CONDENSER DRIVE

Step 1 Before stringing unit, turn pointer adjustment screw until pulley "C" is in the center of its travel.

Step 2 String unit as shown.

Step 3 After stringing unit, turn tuning shaft until pointer is as far to the left as it will go. Turn the pointer adjustment screw until the pointer coincides with the zero bar of the logging scale.

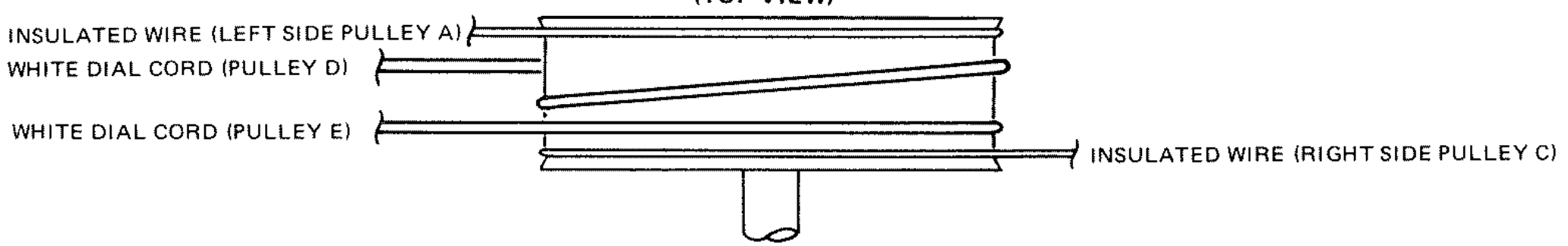
Step 4 Turn the tuning knob making the pointer move back and forth from one end of the dial scale to the other. Return pointer to the far left and, if necessary, re-adjust pointer position.



POINTER DRIVE

TUNING CONDENSER DRUM

TUNING CONDENSER DRUM
(TOP VIEW)

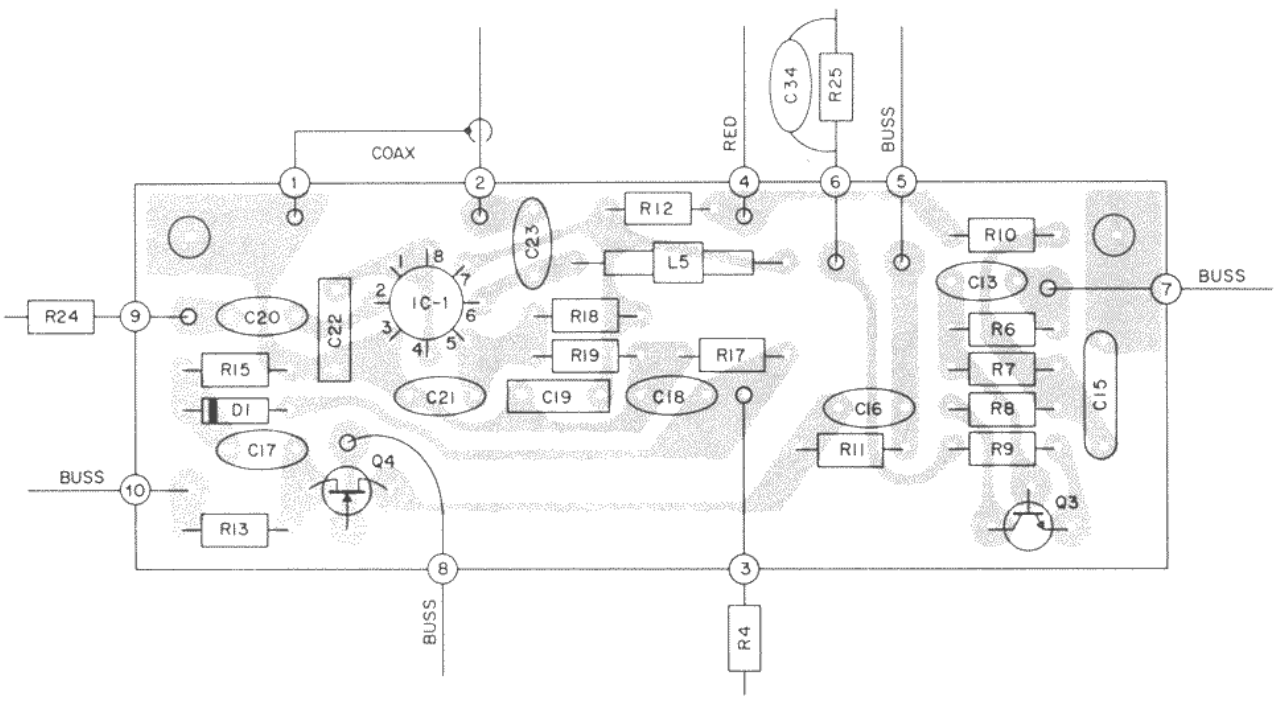


DIAL CORD SEQUENCE

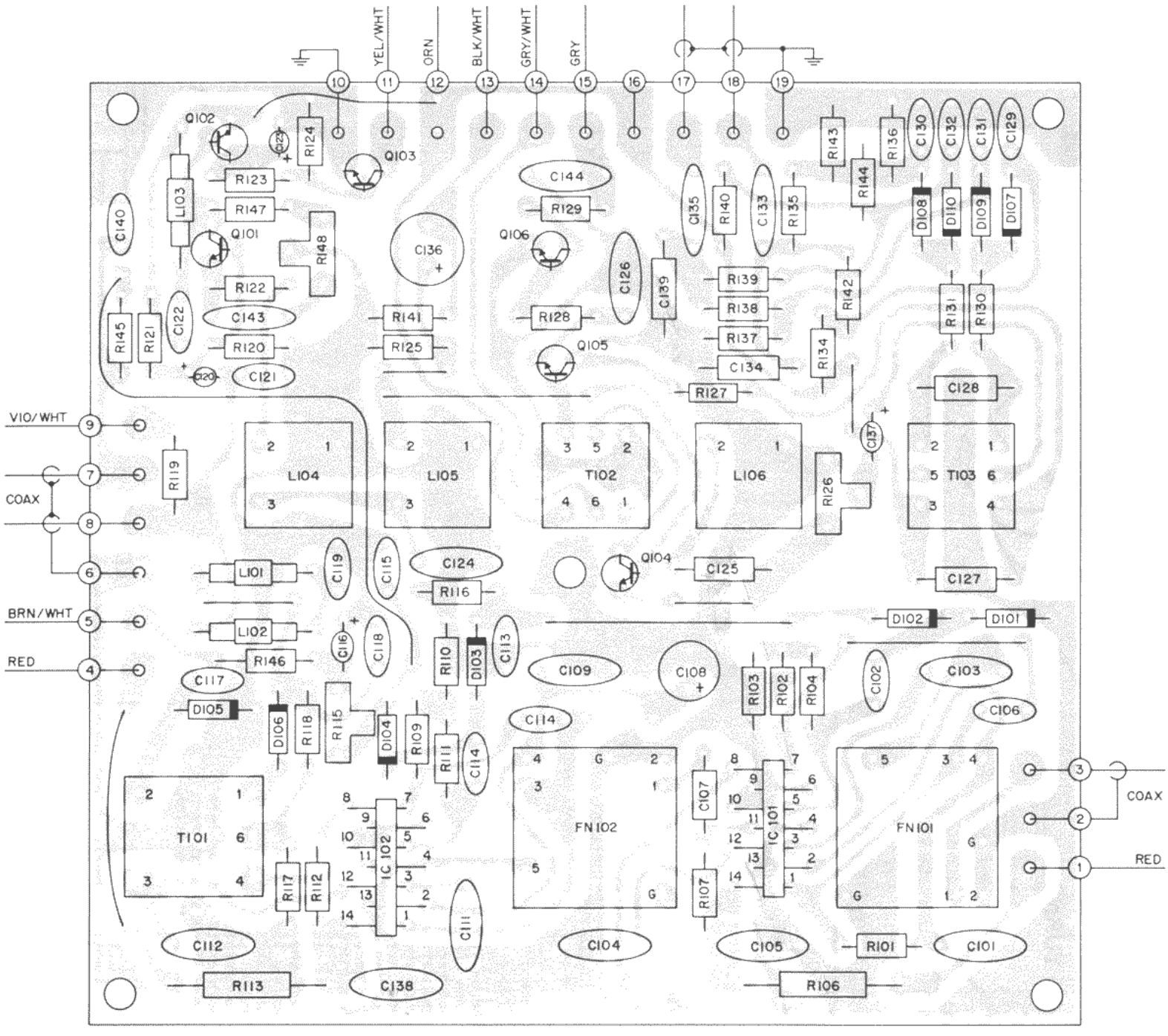
DIAL STRINGING

MAC 1900

MIXER & L.O. PC BOARD 044-367



IF & MPX PC BOARD 044-343



FM – RF – CHASSIS

FM ANTENNA

300 Ω

75 Ω

T1

C36 100

L1 1ST RF COIL

C1A

C2

C3 12/10

C4 .001

22

-0.1V

8V

Q1

13.5V

0V

R21 100

C32 1000

R22 100K

R1 100K

R23 100K

C24 1000

-0.1V

R2 100K

C26 1000

13.5V

R3 100

L2 2ND RF COIL

C1B

C6

C7 12/10

22

C5 47

13.5V

Q2

0V

0V

R26 470

L3 MIXER COIL

C1C

C8

C9 12/10

C27 1000

FM IF-MPX P.C. BOARD 044 – 343

NOTE 11

I.F INPUT FROM OUTPUT OF RF CHASSIS

COAX

0V

0V

R149 1K

10.7 MHz I.F. FILTER 180-008

FN101

R101 680

C141 .05

C101 .05

C102 100

C103 .05

C104 .05

C105 .05

IC101

2.6V

5.4V

12.4V

0.7V

10.6V

1.4V

2.6V

5.4V

0V

R102 100K

R103 330

R104 1K

C106 .001

R106 1.2K 1W

R107 2.2K

C107 4.7

10.7 MHz I.F. FILTER 180-008

FN102

C108

22μF/35V

C109 .05

R145 680 1W

40V RED

D102

D101

TO PIN 7 S301-4 REAR (PREAMP SECTION)

L.O. & MIXER P.C. BOARD 044-367

R F CHASSIS

FM LOCAL OSC COIL

L4

IC101

IC102

Q101

Q102

Q103

Q104

Q3

Q4

T101

T2

D101

D103

D104

D105

D106

TP1

TP2

M101 TUNING

MUTING ADJ R148

TO PIN 1 S301-4 REAR (PREAMP SECTION)

COAX

FM & MPX SECTION

MAC 1900 154-612

L5 75

C23 001

9V

COAX

I F OUTPUT
TO INPUT OF I F - MPX PC BOARD

MODE SELECTOR (S303)
PC BOARD 044-255

BRN/WHT 11
YEL/WHT 10
GRN/WHT 9

TO PIN 12 POWER SUPPLY PC BOARD

TO RIGHT FM INPUT (PREAMP SECTION)

TO LEFT FM INPUT (PREAMP SECTION)

IN
MUTING
OUT
S303E

GRY
15 40V
16 16V
17 0V
18 0V
19 0V

C144 05

T103

C127 4700

C128 4700

R130 1.5K

D107

R134 220K

R142 33K 5%

C133 1

C129 001

NOTE 10

C130 001

R131 1.5K

D108

R135 33K 5%

C134 .0033

C135 1

R136 220K

R137 220K

D109

R138 33K 5%

C131 001

NOTE 10

C132 001

D110

R139 33K 5%

R140 220K

C139 0033

T102

R127 6.8K

16V

Q105

0V

R129 10K

39V

R128 1K

Q106

C126 05

16V

Q104

1.7V

FM LEVEL

C137 1μF/35V

C125 2700

R126 2.5K

L106

PREAMP SECTION

MAC 1900 154-579

LEFT INPUTS

TAPE 1

TAPE 2

PH 1

PH 2

RIGHT INPUTS

TAPE 1

TAPE 2

PH 1

PH 2

AM INPUT FROM PIN 6 AM PC BOARD

LEFT FM INPUT FROM PIN 18 IF-MPX PC BOARD

RIGHT FM INPUT FROM PIN 17 IF-MPX PC BOARD

R399-3 47K 5%

R399-4 47K 5%

S301 INPUT SELECTOR

S301-5 FRONT

S301-5 REAR

S301-4 FRONT

S301-4 REAR

S301-2 FRONT

S301-2 REAR

S301-3 FRONT

S301-3 REAR

S301-1 REAR

R301 15K

R300 470

R302 5.6K

C355 .033

C356 10uF/35V

R303 15K

6.3V

16V

TO PIN 9 AM PC BOARD

40V

PIN 1 FM IF-MPX PC BOARD

TO PIN 5 IF-MPX PC BOARD

TO PIN 8 AM PC BOARD

RIGHT TAPE OUTPUTS

LEFT TAPE OUTPUTS

TAPE 1

TAPE 2

TAPE MONITOR IN OUT

C359 .22

TAPE MON #1835

-39V

S303A

S303B

R318 2.2K

M301 SIGNAL STRENGTH

20V

NOTE 7

R321 4.7M

R329 220K

C361 470

C301 47

R325 1.8K

7.5V

6.6V

Q301

6.0V

Q

R319 2.2M

R323 4.7M

R327 470K 1/2W

OV

R322 4.7M

R330

C360 470

C302 47

R326 1.8K

Q302

R320 2.2M

R324 4.7M

R328 470K 1/2W

LEFT CHANNEL PREAMP
PC BOARD 044-410

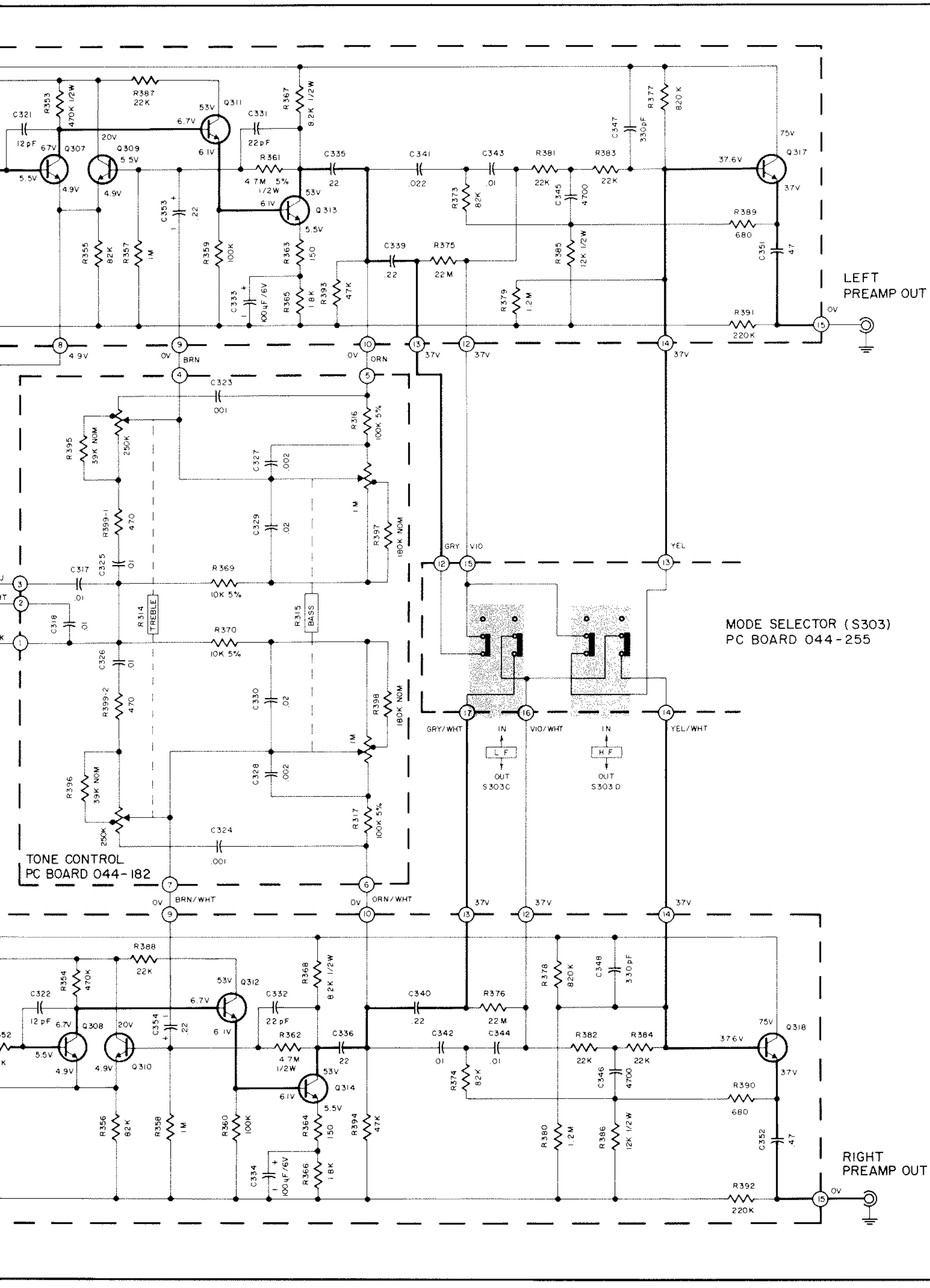
MODE SELECTOR (S303)
PC BOARD 044-255

MODE SELECTOR PC BOARD 044-254
(S302)

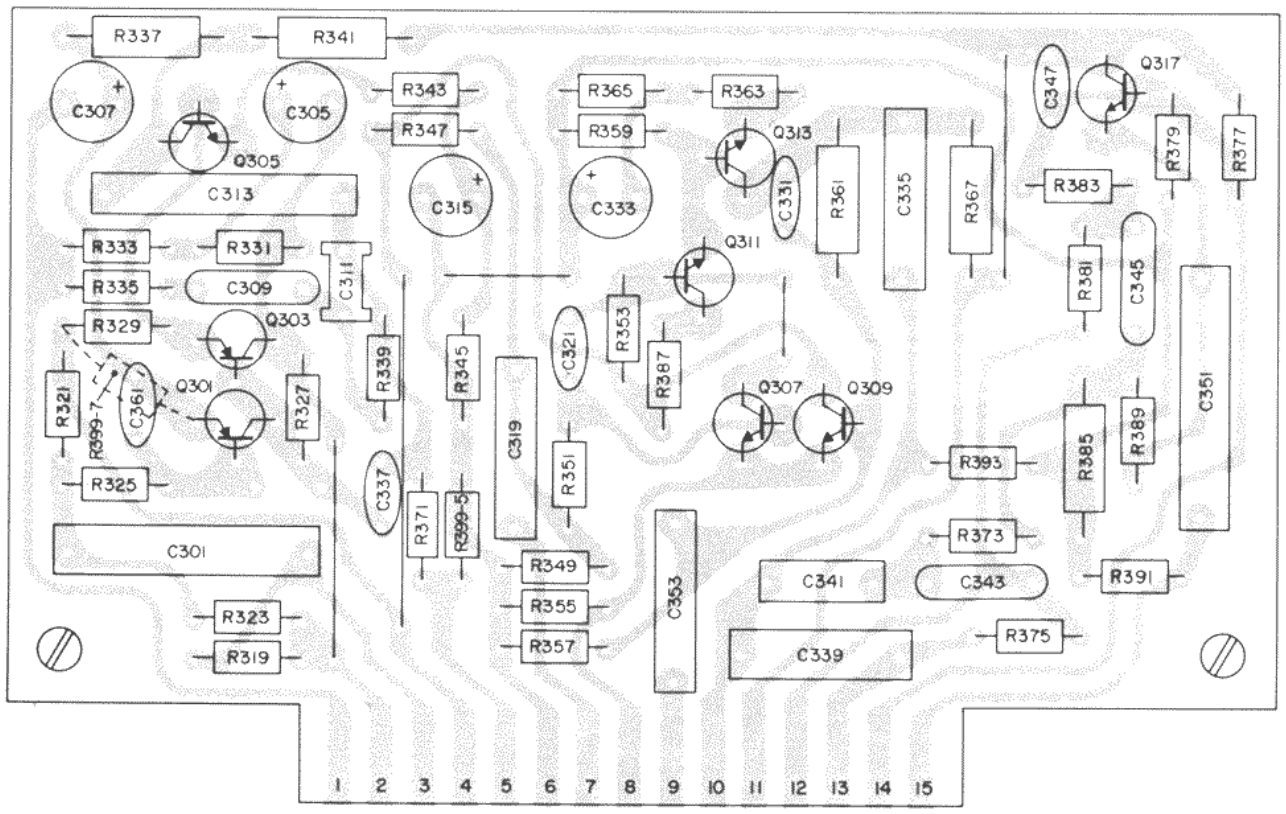
RIGHT CHANNEL PREAMP
PC BOARD 044-410

S302A STEREO
S302B STEREO REV
S302C MONO
S302D L TO L&R
S302E R TO L&R
S302F L+R TO L
S302G L+R TO R
S302H LOUDNESS

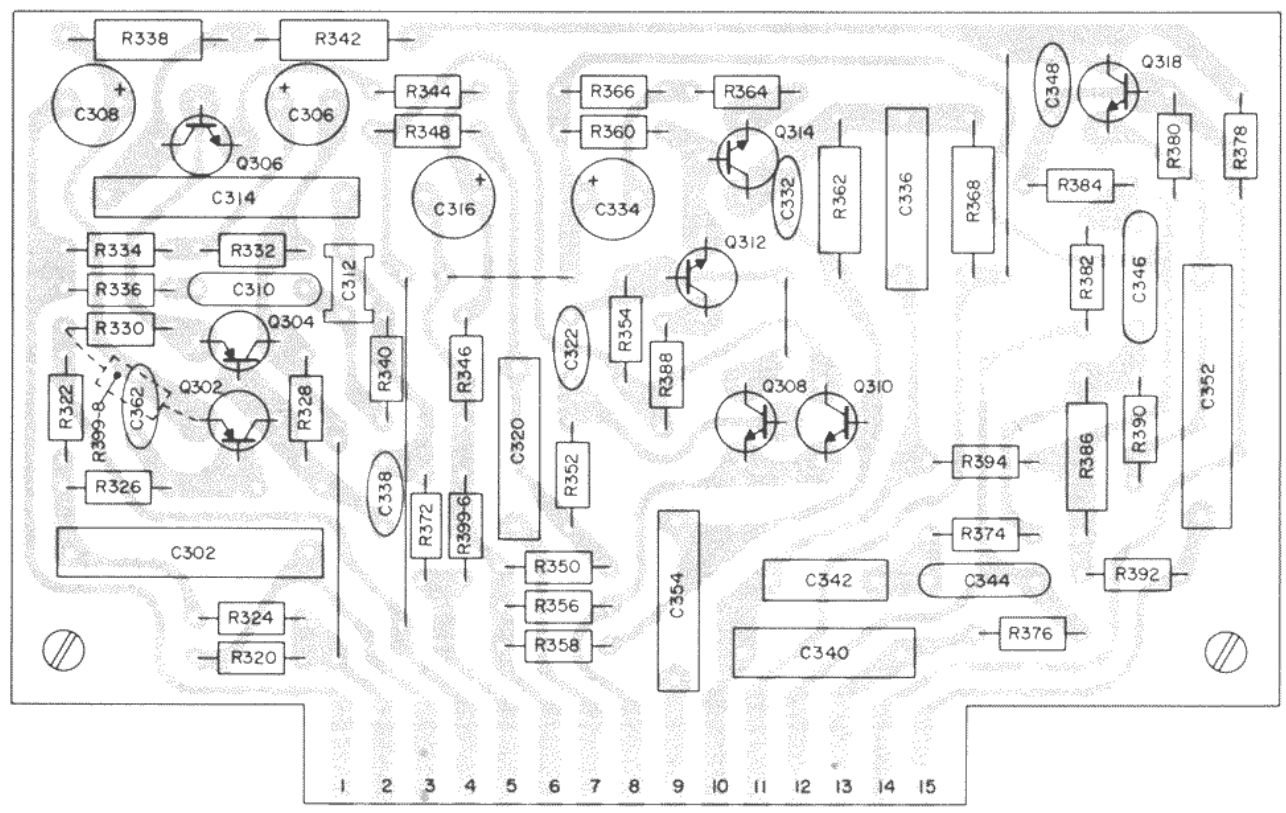
TO PC

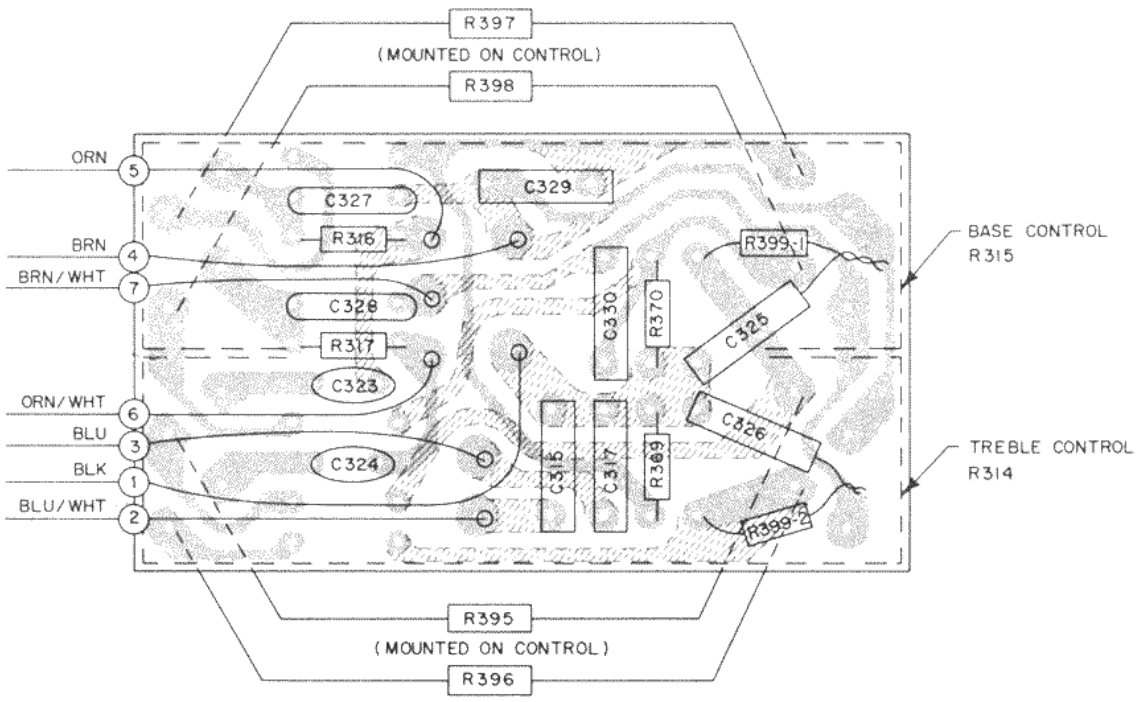

R387 22K
R353 470K 1/2W
C321 12pF
Q307 6.7V 5.5V
Q309 20V 5.5V 4.9V
Q311 53V 6.7V 6.1V
C331 22pF
R367 8.2K 1/2W
R361 4.7M 5% 1/2W
C335 22
C341 .022
C343 .01
R381 22K
R383 22K
C347 330pF
R377 820K
Q317 75V 37.6V 37V
Q313 53V 6.1V 5.5V
C353 .22
R355 82K
R357 1M
R359 100K
R363 150
R365 1.8K
C333 100µF/6V
R393 47K
C339 .22
R375 22M
R373 82K
C345 4700
R385 12K 1/2W
R379 1.2M
R389 680
C351 .47
R391 220K
LEFT PREAMP OUT
8 4.9V
9 0V BRN
10 0V ORN
13 37V
12 37V
14 37V
15 0V
4
5
C323 .001
R316 100K 5%
R395 39K NOM
250K
C327 .002
R399-1 470
C325 .01
C329 .02
1M
R397 180K NOM
C317 .01
R369 10K 5%
3
2
C318 .01
R314 TREBLE
R315 BASS
R370 10K 5%
C326 .01
R399-2 470
C330 .02
R398 180K NOM
1M
R396 39K NOM
250K
C328 .002
R317 100K 5%
C324 .001
TONE CONTROL
PC BOARD 044-182
7 0V BRN/WHT
6 0V ORN/WHT
GRY VIO
YEL
12 15 13
MODE SELECTOR (S303)
PC BOARD 044-255
17 16 14
GRY/WHT
IN
L F
OUT
S303C
VIO/WHT
IN
H F
OUT
S303D
YEL/WHT
13 37V
12 37V
14 37V
R388 22K
R354 470K
C322 12pF
Q308 6.7V 5.5V 4.9V
Q310 20V 4.9V
C354 .22
Q312 53V 6.7V 6.1V
R368 8.2K 1/2W
C332 22pF
R362 4.7M 1/2W
C336 22
Q314 53V 6.1V 5.5V
C340 .22
R376 22M
C342 .01
C344 .01
R374 82K
R378 820K
C348 330pF
R382 22K
R384 22K
C346 4700
Q318 75V 37.6V 37V
R390 680
C352 .47
R356 82K
R358 1M
R360 100K
R364 150
R366 1.8K
C334 100µF/6V
R394 47K
R380 1.2M
R386 12K 1/2W
R392 220K
RIGHT PREAMP OUT
15 0V

LEFT CHANNEL PREAMP PC BOARD 044-410

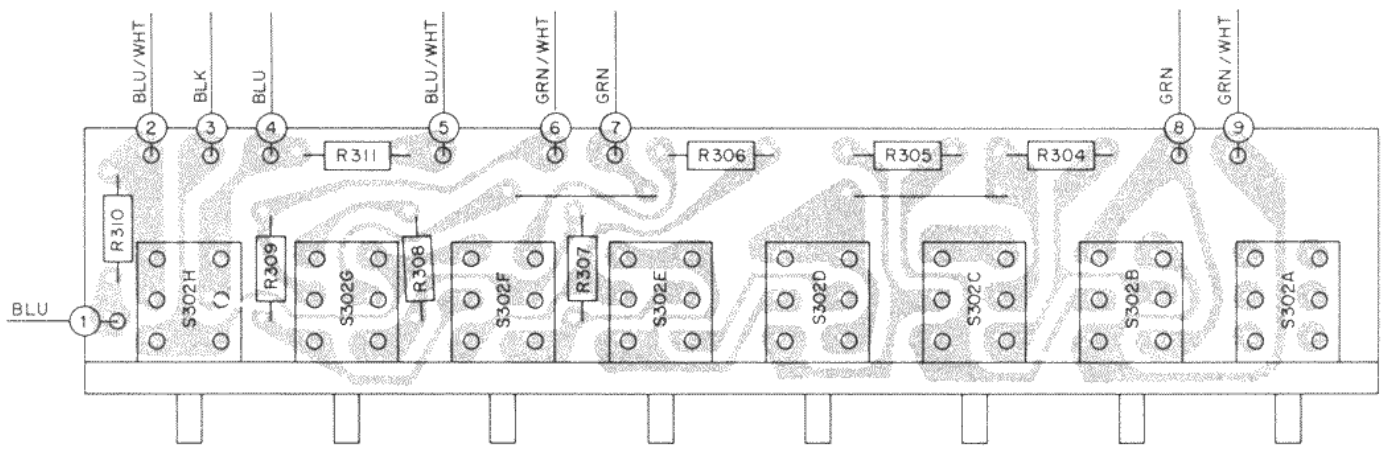


RIGHT CHANNEL PREAMP PC BOARD 044-410

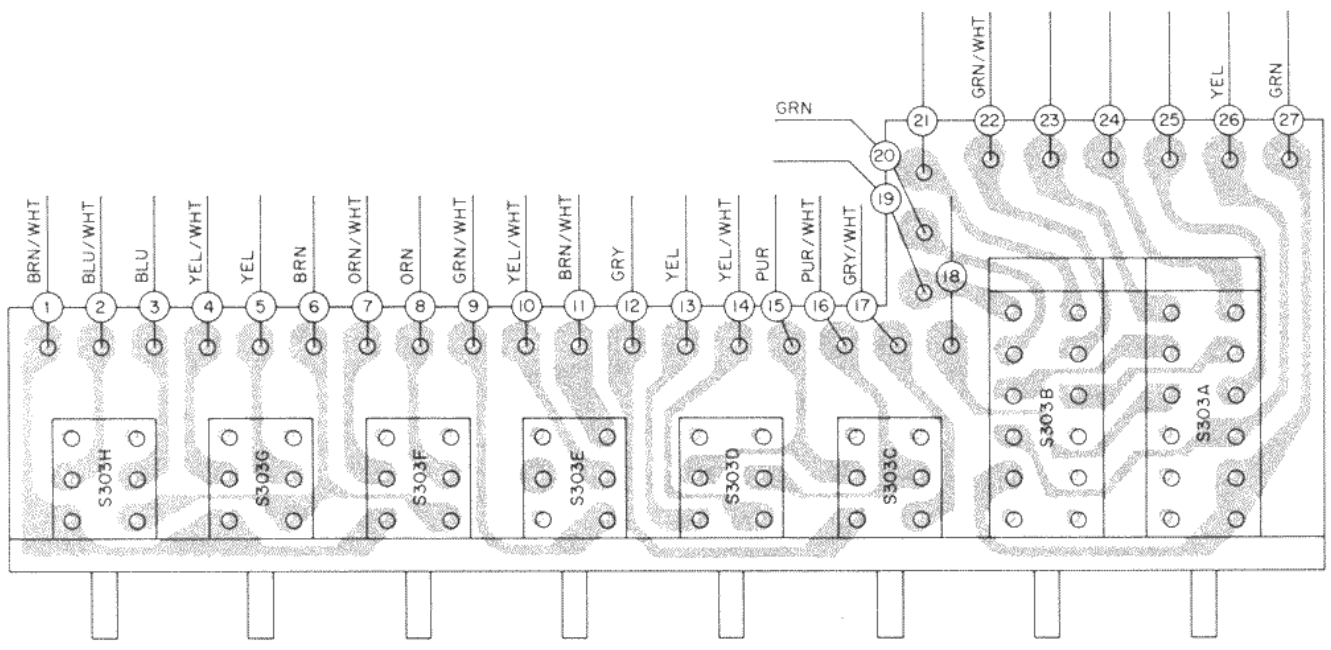




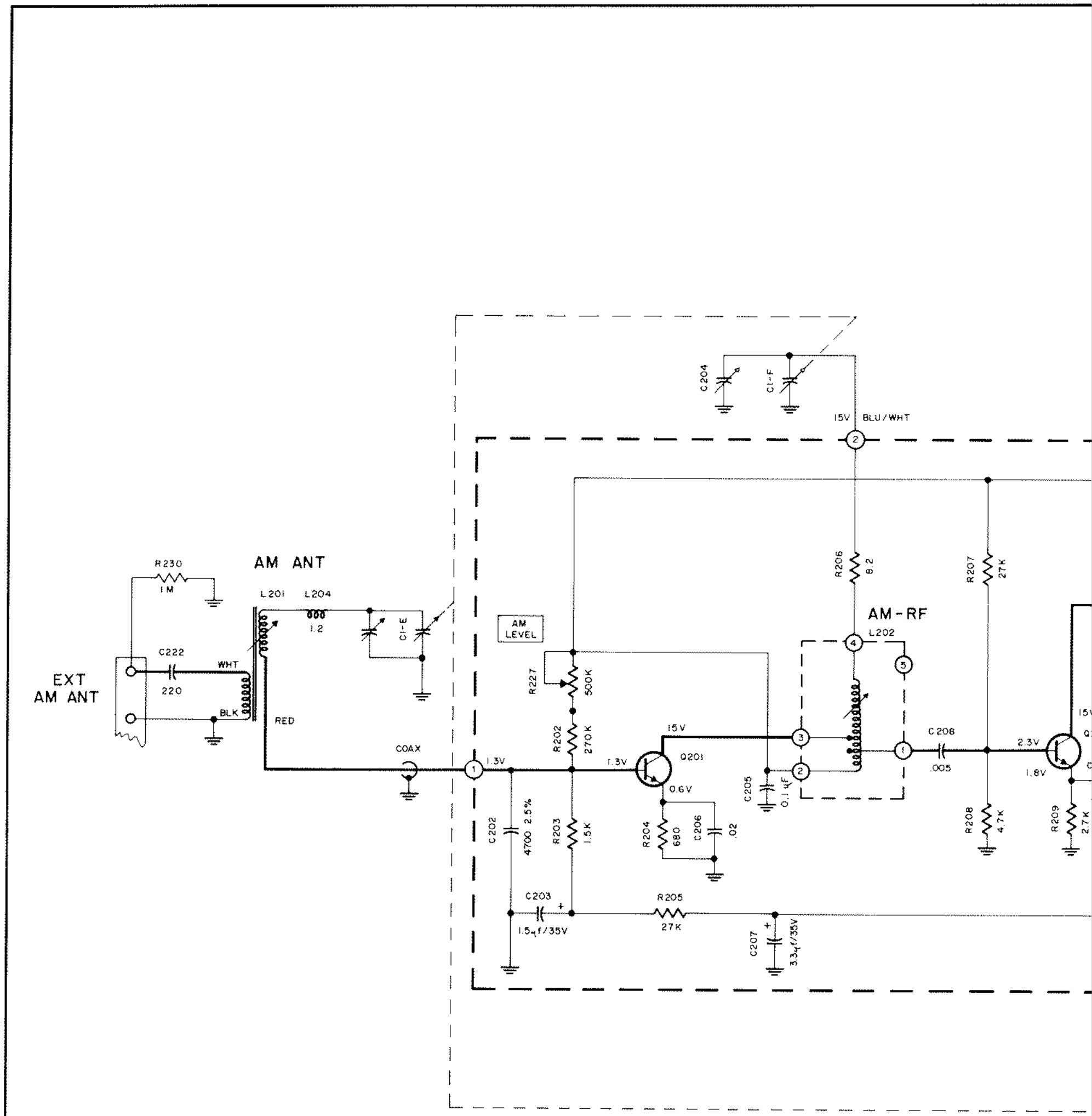
TONE CONTROL PC BOARD 044-182



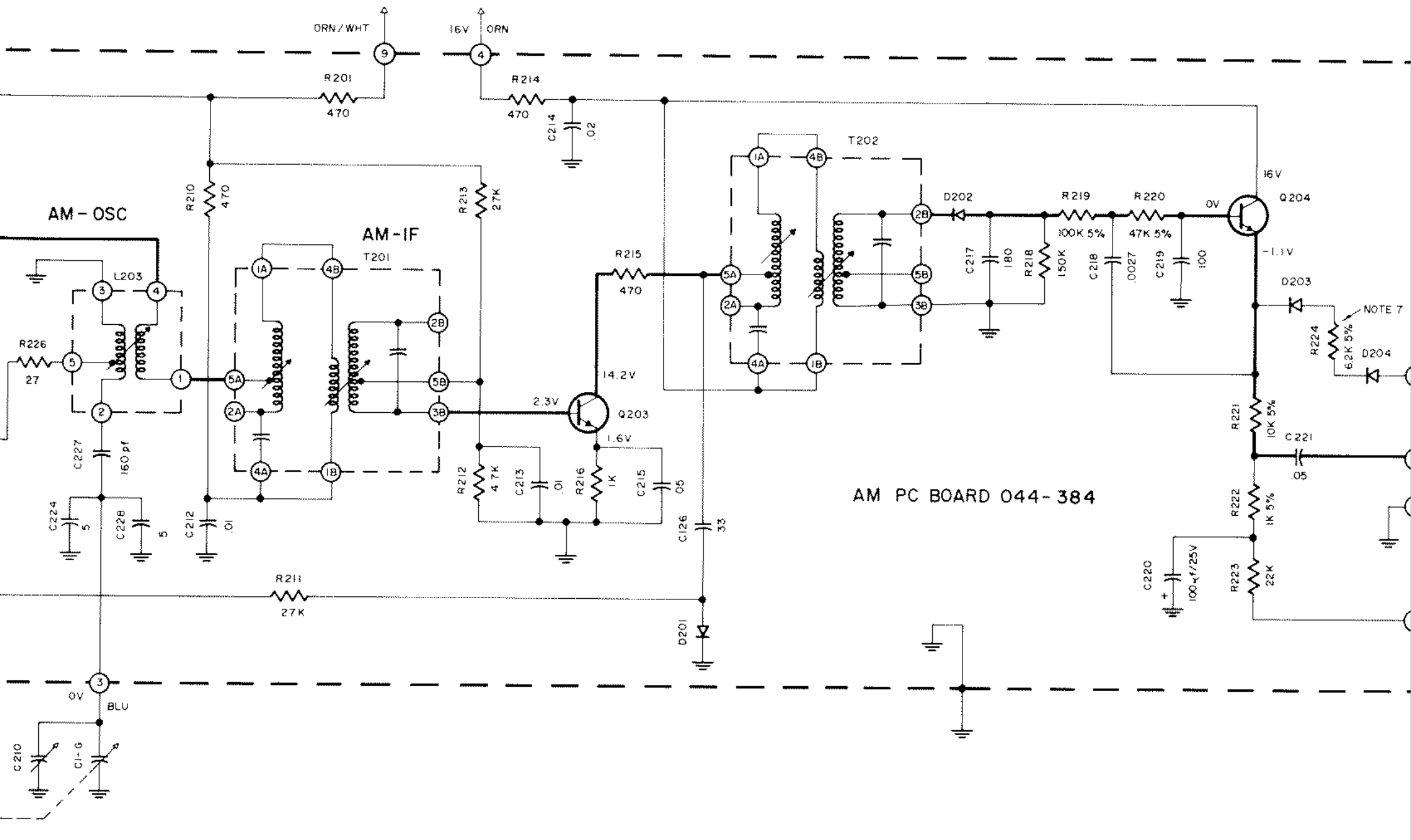
MODE SELECTOR (S302) PC BOARD 044-255



MODE SELECTOR (S303) PC BOARD 044-255

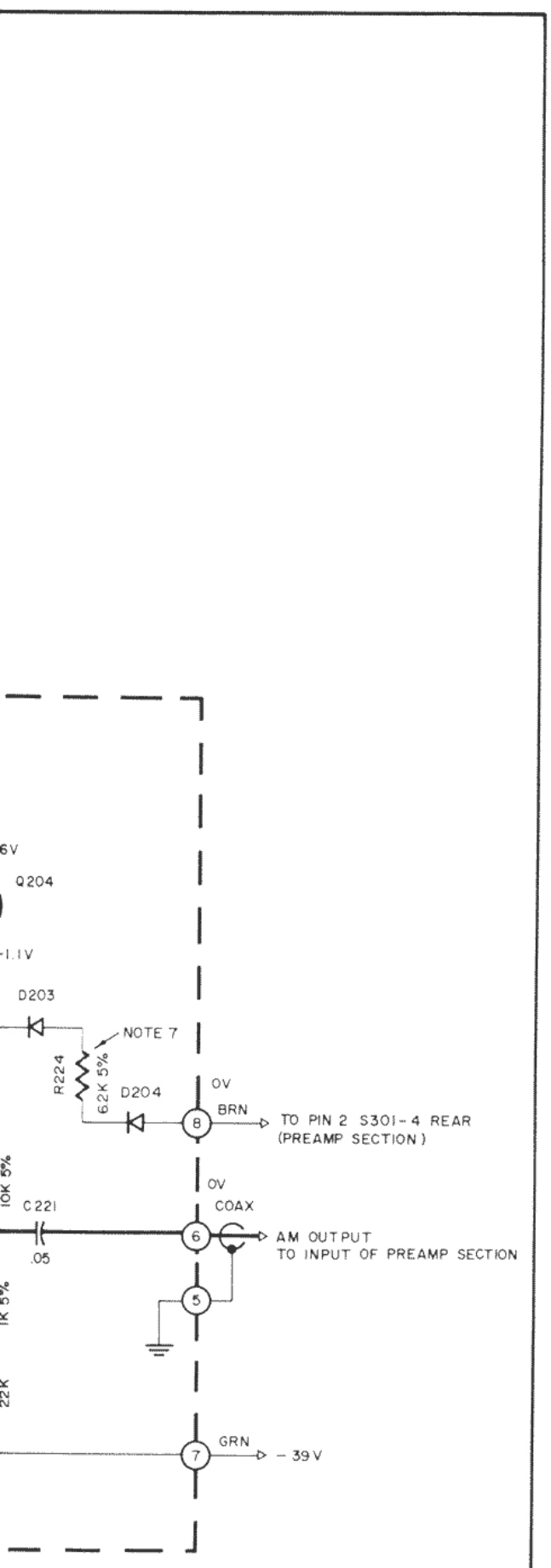

C204
C1-F
15V
BLU/WHT
2
AM ANT
R230
1M
L201
L204
1.2
C1-E
C222
220
WHT
BLK
RED
EXT
AM ANT
COAX
AM
LEVEL
R227
500K
R202
270K
1.3V
Q201
15V
0.6V
C205
0.1μF
R206
8.2
R207
27K
AM-RF
L202
C208
.005
2.3V
1.8V
R208
4.7K
R209
2.7K
C202
4700 2.5%
R203
1.5K
R204
680
C206
.02
C203
1.5μf/35V
R205
27K
C207
3.3μf/35V

TO PIN 5
S301-1 REAR
(PREAMP SECTION)



AM SE

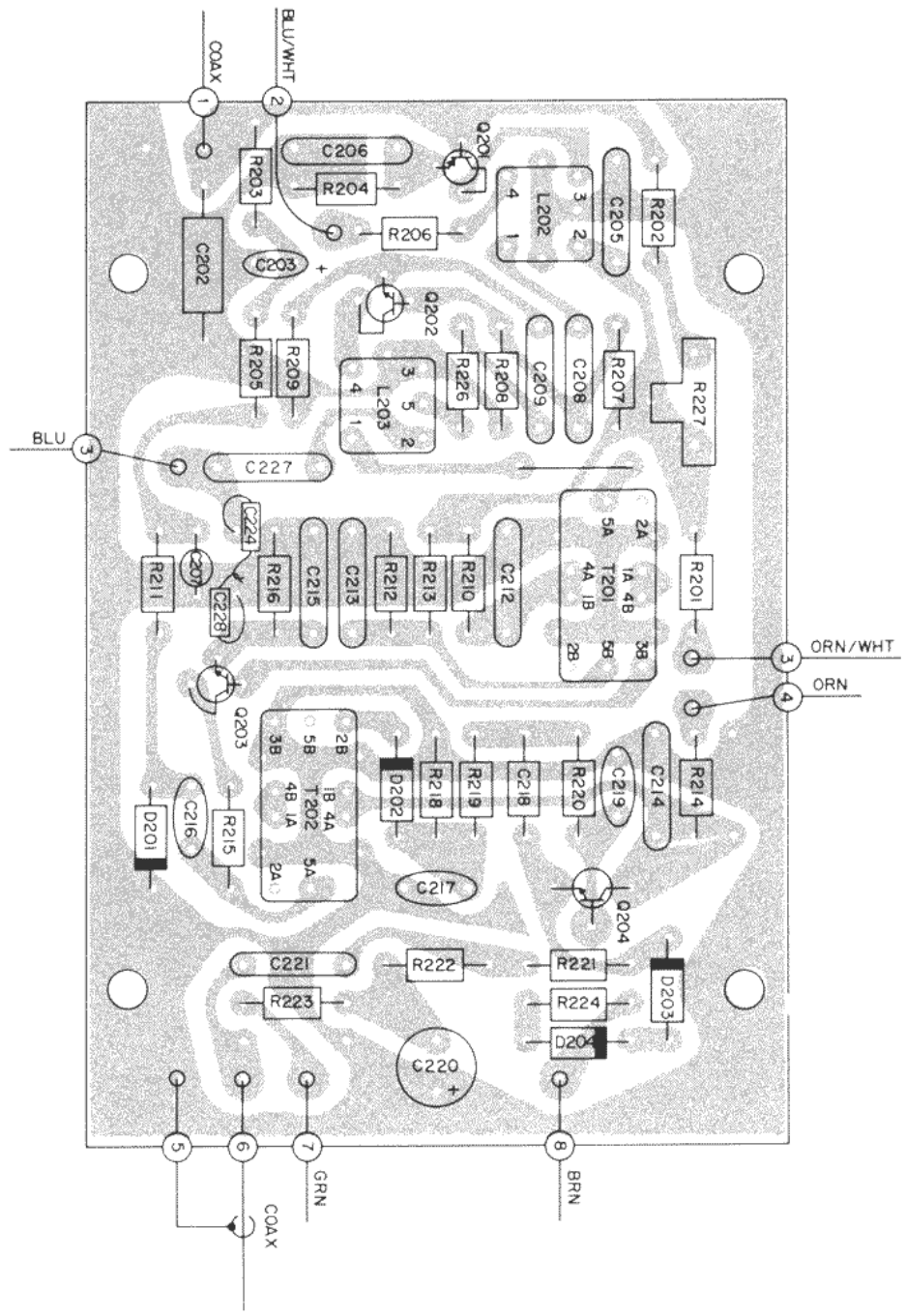
MAC 1900

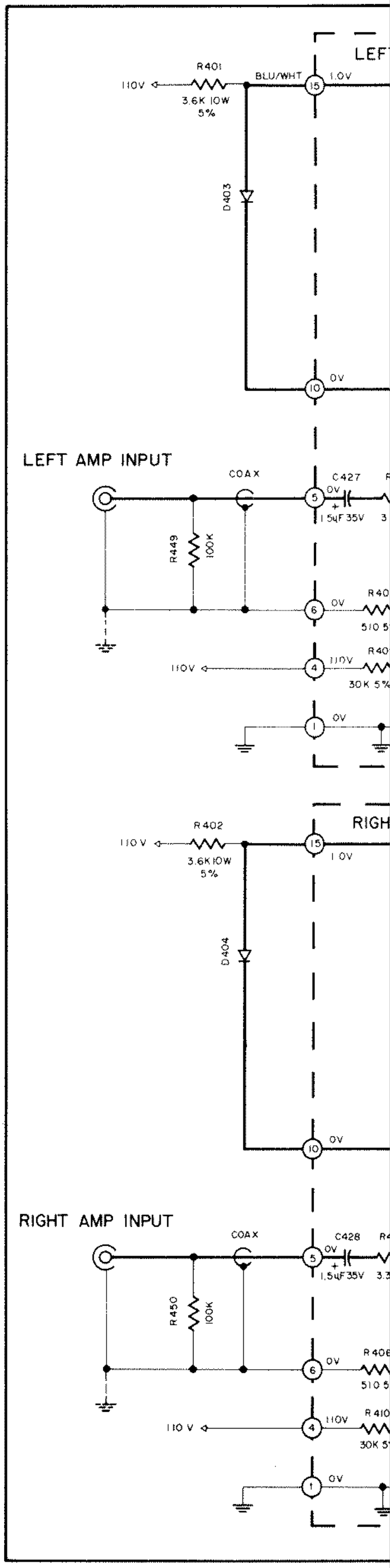


AM SECTION

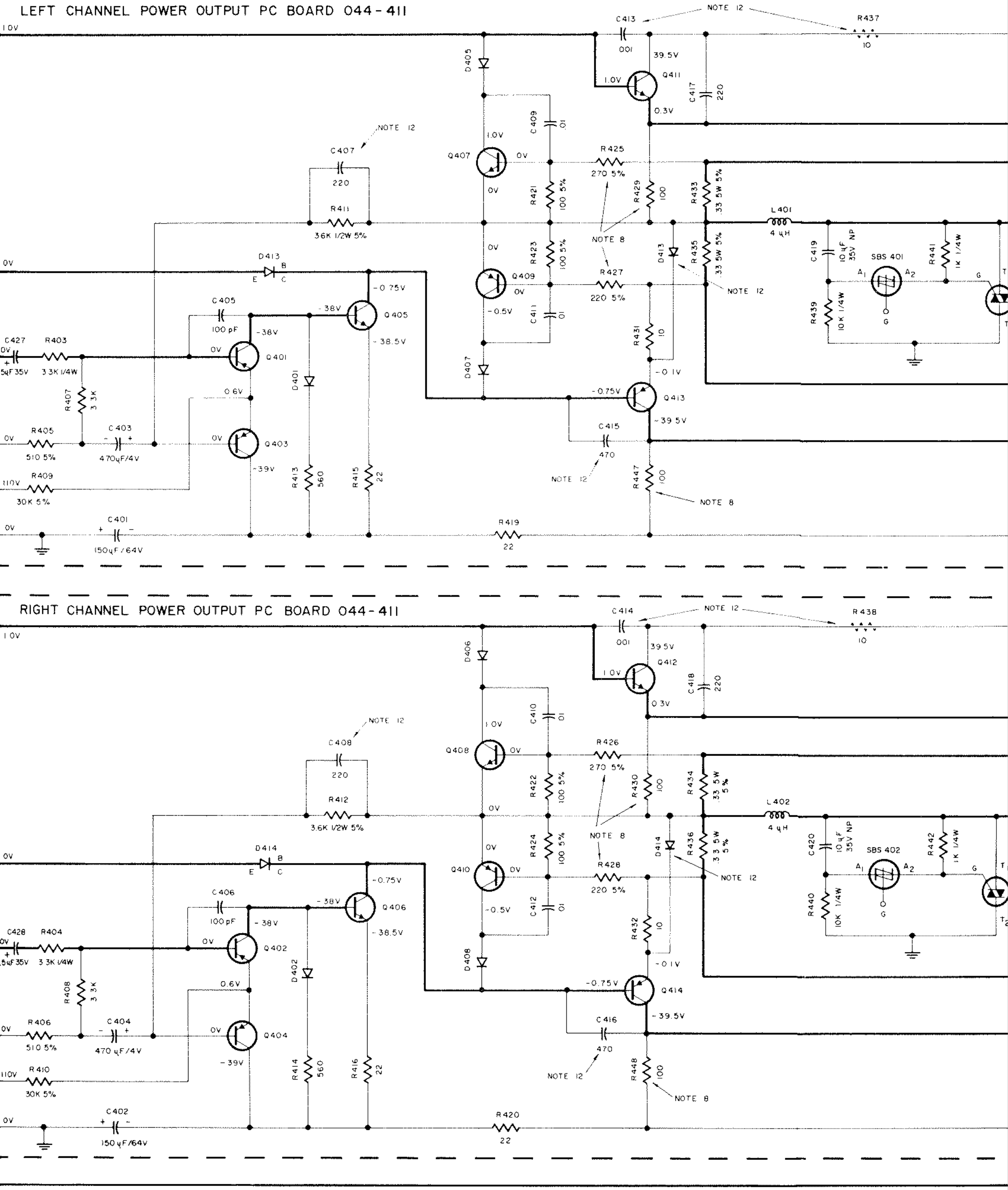
0 154-580

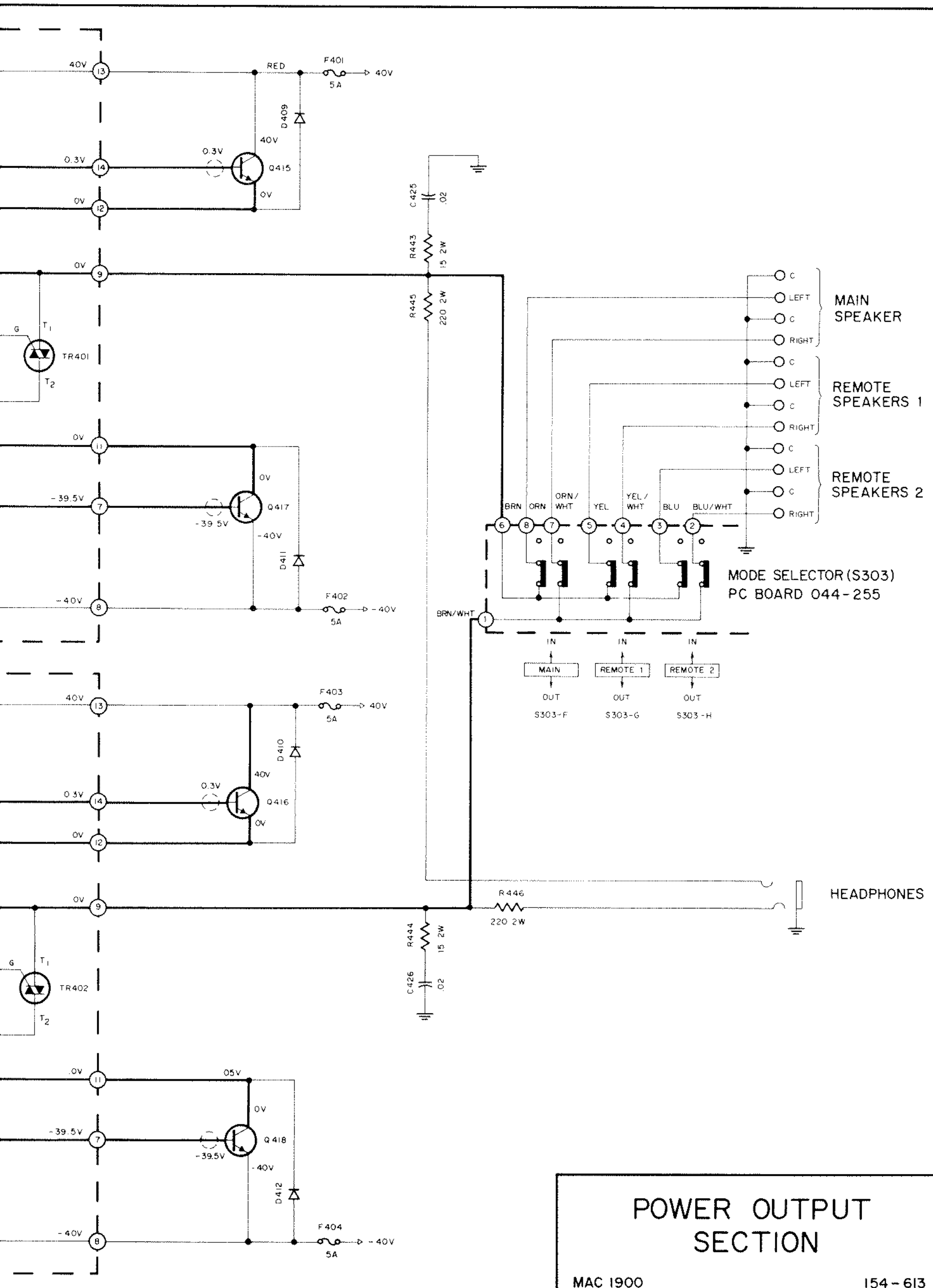
AM PC BOARD 044-384




LEFT AMP INPUT
R401
110V
3.6K 10W
5%
BLU/WHT
15
1.0V
D403
10
0V
COAX
C427
5
0V
1.5μF 35V
R449
100K
6
0V
4
110V
30K 5%
1
0V
RIGHT AMP INPUT
R402
110V
3.6K 10W
5%
15
1.0V
D404
10
0V
COAX
C428
5
0V
1.5μF 35V
R450
100K
6
0V
110V
4
110V
1
0V

LEFT CHANNEL POWER OUTPUT PC BOARD 044-411

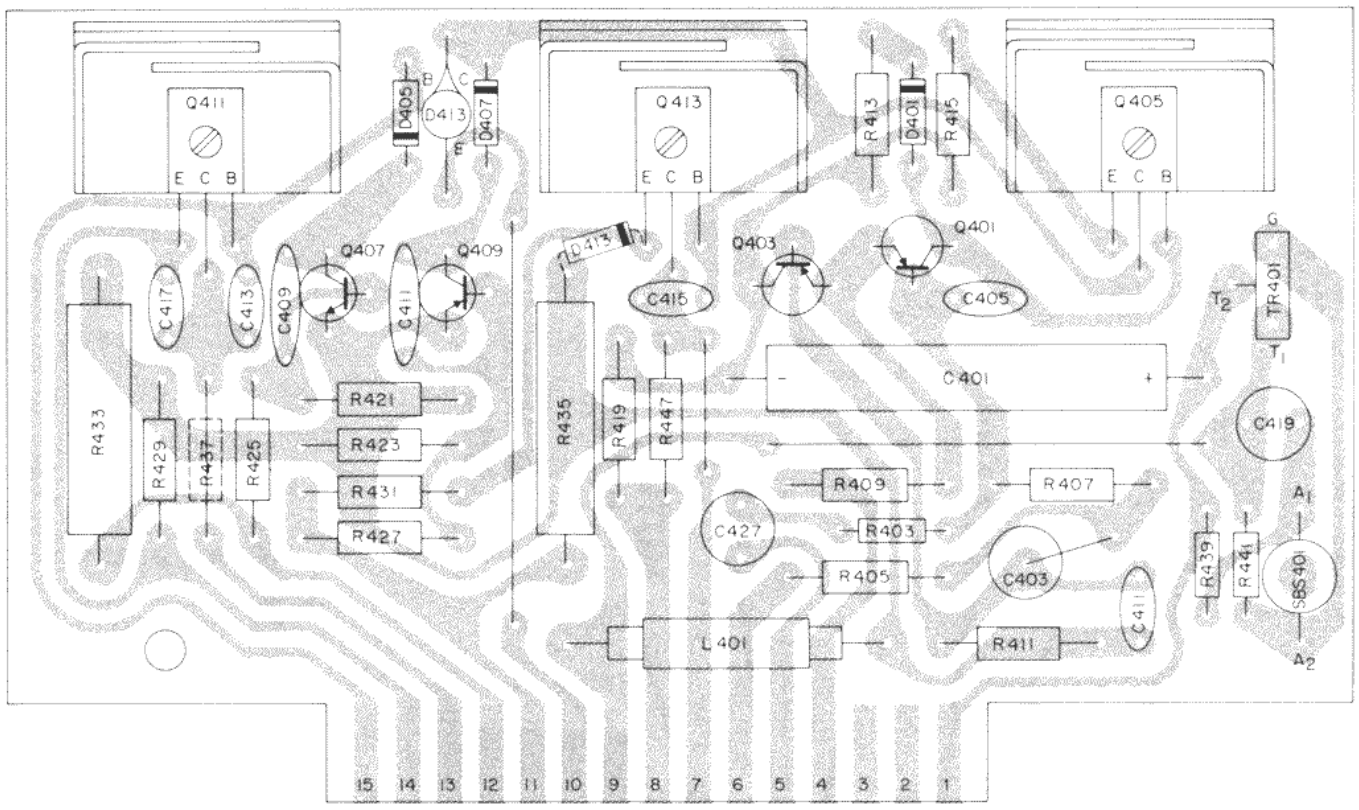




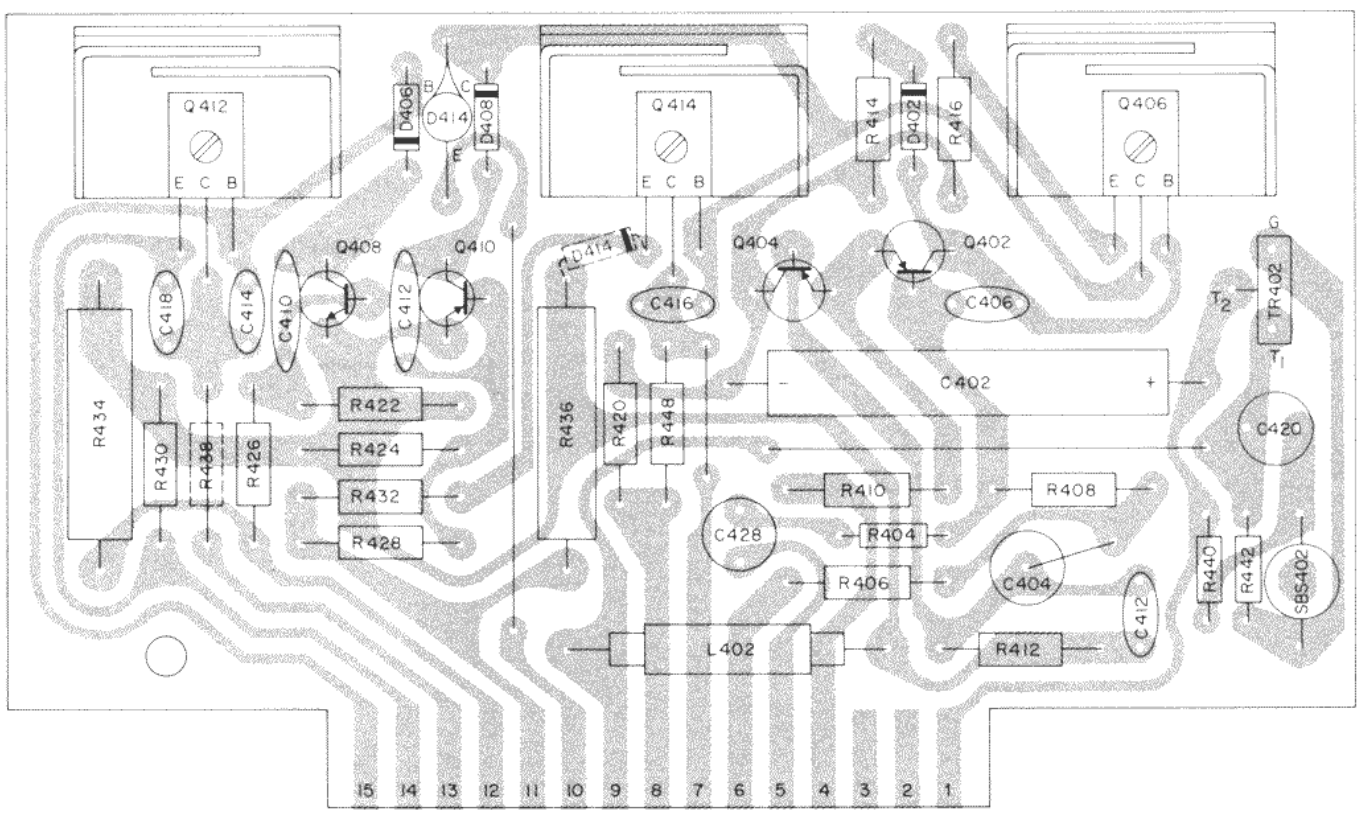
POWER OUTPUT SECTION

MAC 1900

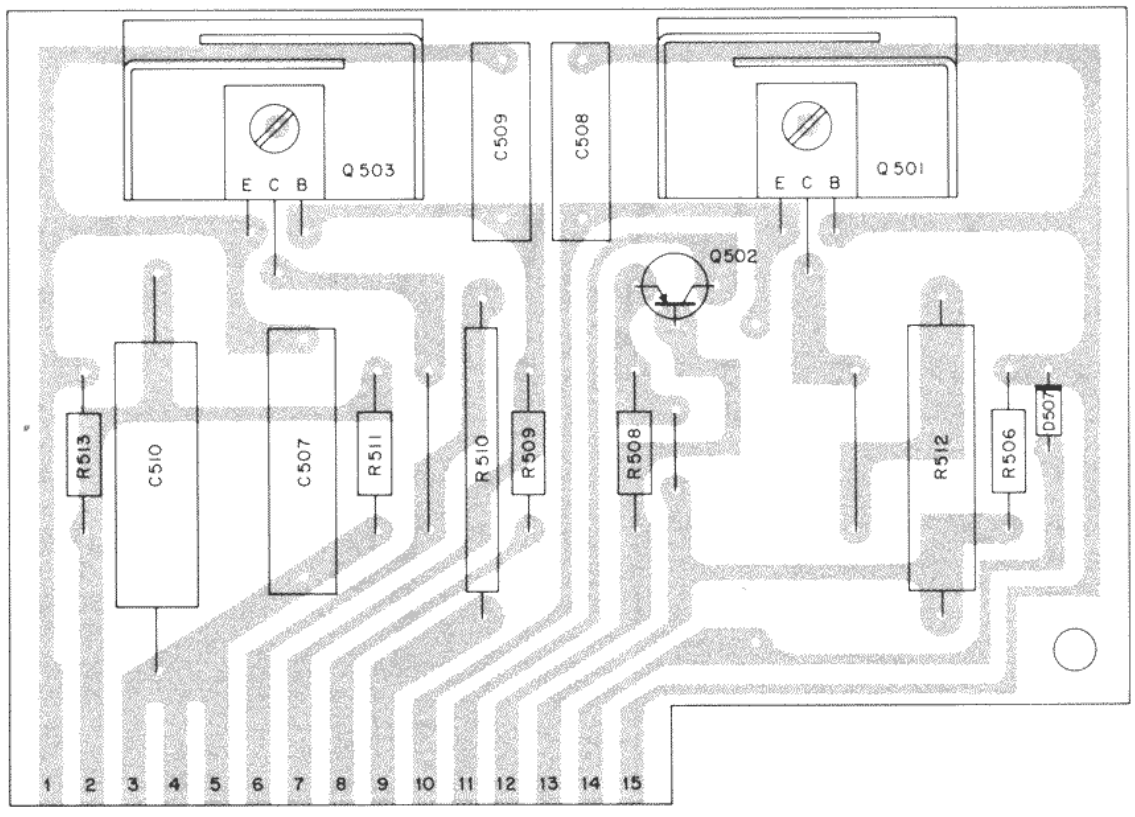
154-613



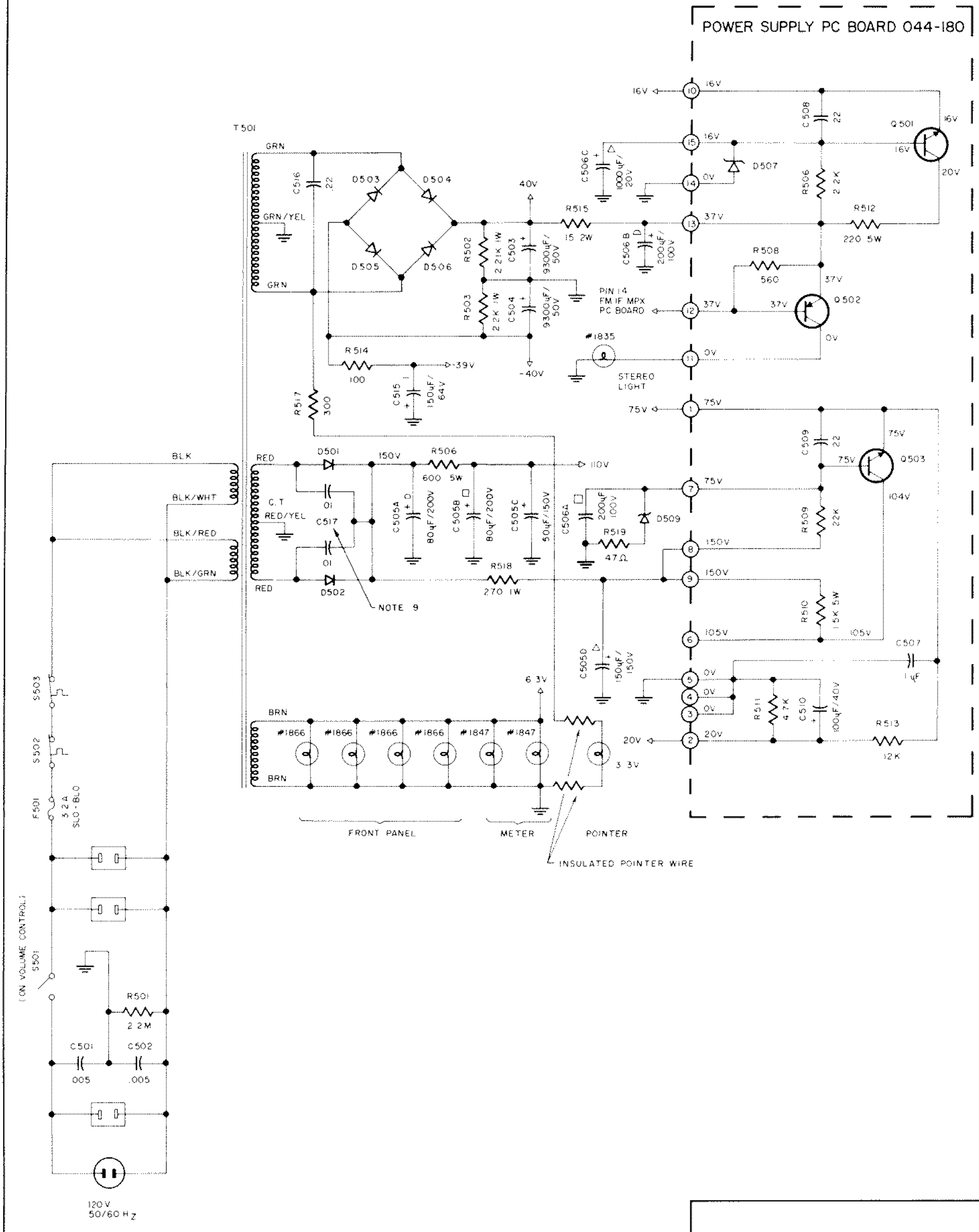
LEFT CHANNEL
POWER OUTPUT
PC BOARD 044-411



RIGHT CHANNEL
POWER OUTPUT
PC BOARD 044-411

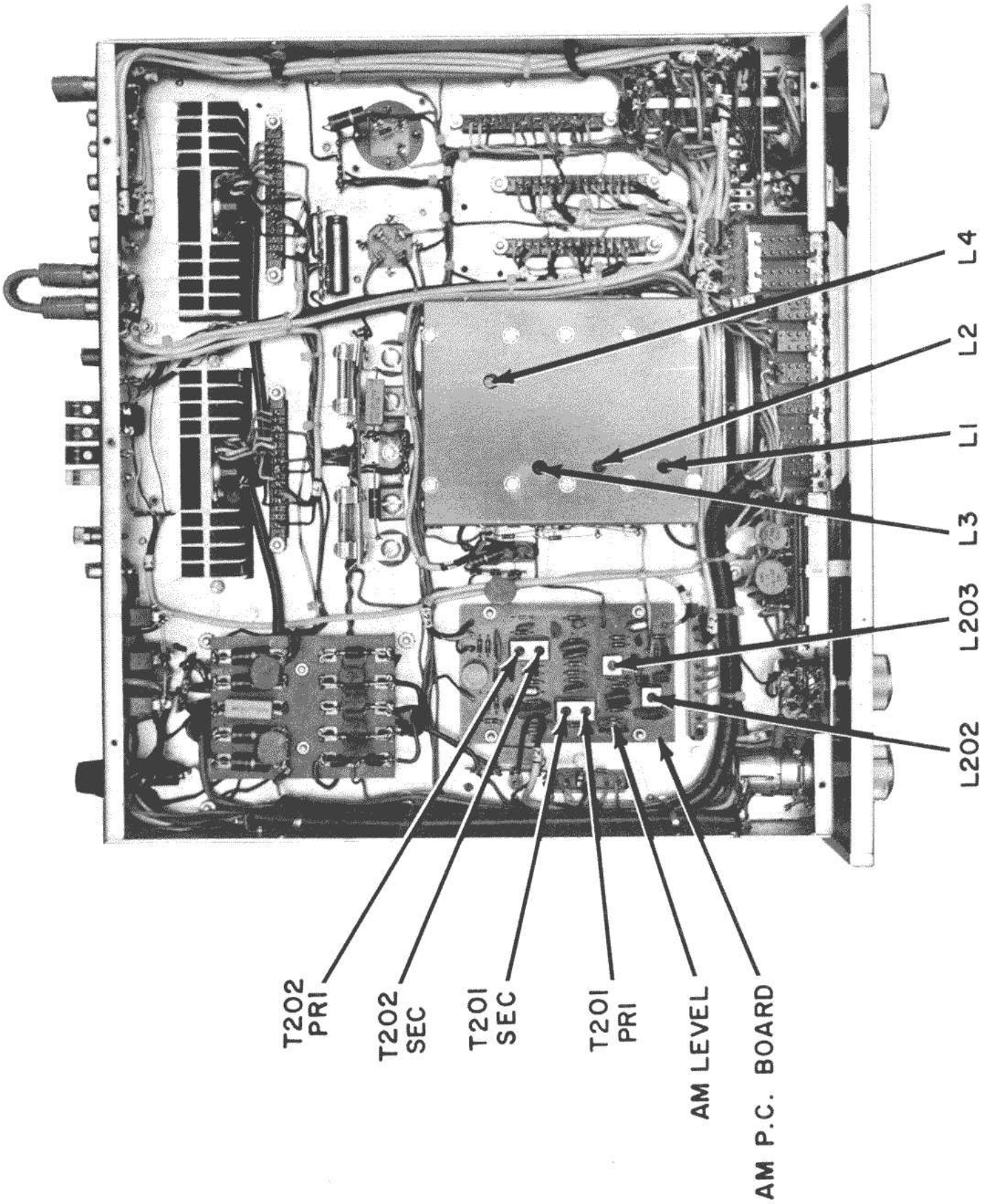


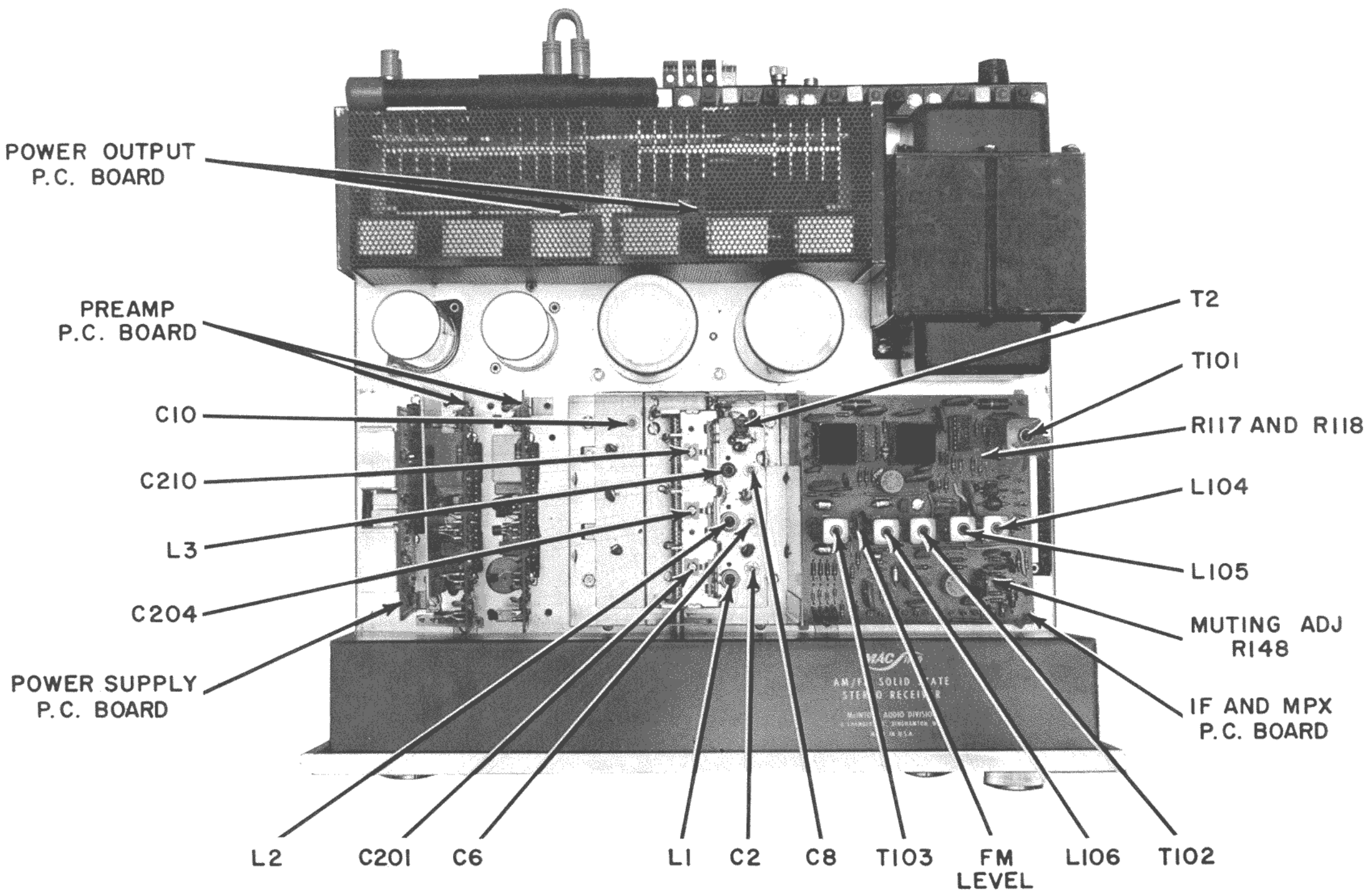
POWER SUPPLY
PC BOARD
044-180



POWER SUPPLY SECTION

MAC 1900 154-614


L4
L2
L1
L3
L203
L202
T202 PRI
T202 SEC
T201 SEC
T201 PRI
AM LEVEL
AM P.C. BOARD



MAC 1900 ALIGNMENT INSTRUCTIONS

All McIntosh receivers are carefully aligned and tested at the factory using the finest available test equipment. All McIntosh receivers will meet their published specifications when shipped from the factory.

After extensive operation, or servicing, it may be desirable to realign the receiver circuits for best performance. The charts below give complete information on the circuit realignment procedure for the MAC 1900.

The test equipment listed (or its equivalent) is necessary to properly align an MAC 1900. The accuracy of the alignment will be directly related to the accuracy and calibration of the test equipment used.

If the necessary test equipment is not available, alignment should not be attempted. For additional information, contact Customer Service Department, McIntosh Laboratory, Inc., 2 Chambers Street, Binghamton, New York 13903 (telephone 607-723-3512).

Alignment should be done in the following order: AM-FM-MPX.

TEST EQUIPMENT REQUIRED

1. FM Signal Generator (Measurement 188 or Sound Technology 1000A).
2. VTVM (RCA WV96C).
3. Multiplex Generator (Radiometer SMG1) or Sound Technology 1000A.
4. 10.7MHz Generator (preferably crystal controlled).
5. Oscilloscope (Hewlett-Packard 120B or equivalent).
6. Harmonic Distortion Analyzer (Hewlett-Packard 333A or equivalent).

AM ALIGNMENT

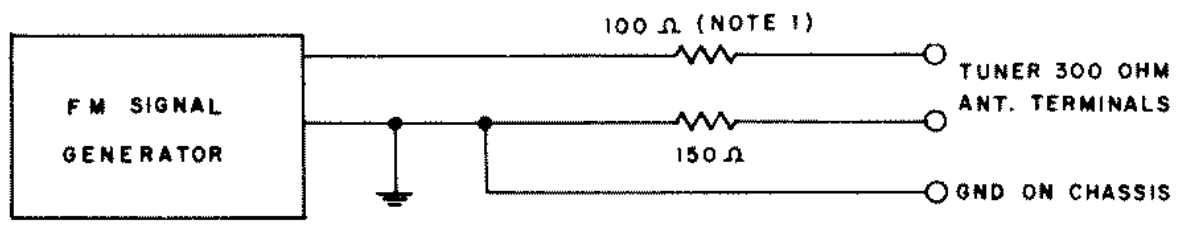
STEP	TUNER DIAL SETTING	SIGNAL GENERATOR			INDICATOR		ADJUST	TEST LIMITS	REMARKS
		FREQ.	COUPLING	MODULATION	TYPE	CONNECTED TO			
1	Point of no interference or signal.	455kHz	Through external .01µF capacitor to Pin 2 on AM circuit board	CW	Signal strength meter.	Normal.	Pri. & Sec. cores of T201 & T202.	Maximum possible indication.	As the tuner output increases, attenuate generator output to keep meter indication below 4.
2	600kHz	600kHz	Through a 200pF capacitor to ant. terminals.	Same	Same	Same	L203 (oscillator coil.)	Same	Same as Step 1.
3	1400kHz	1400kHz	Same	Same	Same	Same	C210 (oscillator trimmer)	Same	Repeat Steps 2 & 3 until dial calibration is accurate.
4	600kHz	600kHz	Same	Same	Same	Same	L201 (AM antenna rod) & L202 (AM-RF)	Same	Same as Step 1 except adjust generator so that output signal is just above the noise level. Position antenna rod away from chassis and nearby objects.
5	1400kHz	1400kHz	Same	Same	Same	Same	C201 (AM antenna trimmer) & C204 (AM-RF trimmer).	Same	Repeat Steps 4 & 5 until output is as high as possible.
6	1000kHz	1000kHz	Same	30% @ 400Hz	Distortion Analyzer.	L or R output.		With a distortion analyzer, the following measurements can be performed: 1. With a 10mV input signal adjust "AM Level" control for 0.3 volts of audio output at tape-outputs. This will correspond to 1.0 volt audio output for a 100% modulated signal. 2. With a 1mV input signal, harmonic distortion, whistle filter attenuation at 10kHz modulating frequency and signal to noise ratio may be measured. 3. IHFM sensitivity of 75 microvolts for 20dB signal to noise ratio. (This measurement is only possible in the absence of man-made interference, as fluorescent lamps, etc.)	

FM ALIGNMENT

STEP	TUNER DIAL SETTING	SIGNAL GENERATOR			INDICATOR		ADJUST	TEST LIMITS	REMARKS
		FREQ.	COUPLING	MODULATION	TYPE	CONNECTED TO			
1	Point of no interference or signal	10.7MHz	Through external .01uF capacitor to Pin #3 of FM-IF-MPX PC Board.	CW	VTVM	TP #2.	Top (Sec.) Core of T101.	Adjust for zero volt.	Turn muting off for alignment tests.
2	Same	Same	Same	Same	Same	Junction of R117-118.	Bottom (Pri.) core of T101.	Maximum possible negative voltage.	If a distortion analyzer is available, omit this step. Adjust T102 Primary after Step 5. At that time, use a 1mV signal from an FM generator, modulate 100 ↔ 400Hz. Adjust primary of T102 for minimum distortion. Should be less than 0.3 .
3	105MHz	105MHz	300Ω antenna terminals w/* matching network.	100 ↔ 400Hz.	VTVM connected to TP 1 and oscilloscope connected to L or R tape output.		Oscillator trimmer C10.	Maximum negative voltage at TP#1.	As TP#1 voltage increases, reduce output of signal generator to keep TP#1 voltage at a low level (less than -.75 volt).
4	90MHz	90MHz	Same	Same	Same		Oscillator Coil L4.	Same	Repeat Steps 3 and 4 until dial calibration is accurate.
5	Same	Same	Same	FM ±300kHz sweep at 60Hz rate.	Oscilloscope.	TP #1.	Top (Pri.) and Bottom (Sec.) cores of T2.	Optimum symmetry about 10.7 MHz.	Connect scope for overall response display. Hold the signal generator output to a low level such that the DC voltage at TP #1 is less than -0.5 volt.
6	105MHz	105MHz	Same	100 ↔ 400Hz.	VTVM connected to TP #1 and scope connected to L or R tape output.		Mixer, RF-2, RF-1 trimmers C8-6-2.	Maximum negative voltage at TP#1.	Same as Step 3.
7	90MHz	90MHz	Same	Same	Same		Mixer, RF-2, and RF-1; coils L3, 2,1.	Same	Same as Step 3. Then repeat Steps 6 and 7 until TP#1 voltage is as high as possible for the least signal input at both alignment frequencies.
8	Same	Same	Same	Same	VTVM connected to TP#1 and a harmonic distortion analyzer to L or R output.				This step is an overall sensitivity check. Reduce input signal to the point where total noise and distortion reads 3% (-30dB). The input signal will then be the usable sensitivity and should be less than 2.5μV.

MULTIPLEX DECODER ALIGNMENT

STEP	TUNER DIAL SETTING	SIGNAL GENERATOR			INDICATOR		ADJUST	TEST LIMITS	REMARKS
		FREQ.	COUPLING	MODULATION	TYPE	CONNECTED TO			
1	100MHz	100MHz	300Ω antenna terminals w/ approx. 1000 microvolts signal w/* matching network.	75kHz deviation = 67kHz.	AC-VTVM or oscilloscope w/very low cap. probe.	Pin 13 on MPX/IF PC Board.	L104 and L105 (SCA adj.)	Minimum output = L or R output jack.	Adjust for minimum 67kHz output.
2	Same	Same	Same	19kHz stereo pilot.	Same	Pin 14 on MPX/IF PC Board	L106 (19kHz phase adj.) & T102 (19 kHz transformer.)	Adjust for maximum AC voltage.	Decrease pilot level, if necessary, so that 19kHz circuits do not limit or saturate.
3	Same	Same	Same	Same	Same	T103, Pin 1 or 2.	T103 top (Pri.) & bottom(Sec.) tuning cores	Adj. for maximum AC voltage.	Decrease pilot level so that 19kHz and 38kHz circuits do not limit. Mode switch must be in stereo position.
4	Same	Same	Same	1kHz (100% modulation) L or R only, pilot level normal and on.	AC-VTVM	L or R output jack.	T103, Bottom (Sec.) tuning cores.	35dB separation or more.	Modulate left channel and measure right channel output. Adjust bottom tuning core (Sec.) for minimum right channel output (maximum separation). Then, reverse channels and measure left channel separation. For this adjustment and measurement, no test lead should be connected to TP #2.
5	Same	Same	Same	Same	Same	Same		Less than 15mV of residual.	Adjust "FM Level" control (R126) for 1 volt of audio output at tape output jacks. Then, turn off the modulation and measure the residual of the 19kHz and 38kHz frequencies.



Note 1: If signal generator has other than 50 ohm internal impedance, use a resistor of 150 ohms less internal generator impedance.

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
C19	Mylar	0.1µF	100V	064-098
C22	Mylar	0.1µF	100V	064-098
C108	Elect.	22µF	35V	066-179
C116	Ta. Elect.	1µF	35V	066-147
C120	Ta. Elect.	1µF	35V	066-147
C123	Ta. Elect.	3.3µF	35V	066-170
C125	Polystyrene	2700pF	63V	064-093
C127,128	Polystyrene	4700pF	63V	064-091
C134	Polystyrene	3300pF		064-090
C136	Elect.	100µF	25V	066-161
C137	Ta. Elect.	1µF	35V	066-147
C139	Polystyrene	3300pF		064-090
C202	Polystyrene	4700pF	63V	064-091
C203	Ta. Elect.	1.5µF	35V	066-158
C207	Ta. Elect.	3.3µF	35V	066-170
C218	Polystyrene	2700pF	63V	064-093
C220	Elect.	100µF	25V	066-161
C301,302	Mylar	0.47µF	250V	064-069
C305,306	Ta. Elect.	10µF	20V	066-149
C307,308	Ta. Elect.	10µF	20V	066-149
C313,314	Mylar	0.47µF	250V	064-069
C315,316	Ta. Elect.	100µF	10V	066-165
C317,318	Polyester	0.01µF	250V	064-101
C319,320	Mylar	0.47µF	250V	064-069
C325,326	Polyester	0.01µF	250V	064-101
C329,330	Polyester	0.022µF	250V	064-102
C333,334	Ta. Elect.	100µF	10V	066-165
C335,336	Mylar	0.22µF		064-068
C337,338	Mylar	0.047µF		064-066
C339,340	Mylar	0.22µF		064-068
C341,342	Mylar	0.01µF	250V	064-040
C343,344	Mylar	0.01µF	250V	064-040
C351,352	Mylar	0.47µF	250V	064-069
C353,354	Ta. Elect.	0.47µF	50V	066-174
C356	Ta. Elect.	1µF	35V	066-147
C357,358	Mylar	0.22µF	250V	064-043
C359,360	Mylar	0.22µF	250V	064-043
C401,402	Elect.	150µF	63V	066-205
C403,404	Elect.	470µF	4V	066-136
C419,420	Elect.	10µF	35V	066-173
C427,428	Ta. Elect.	1.5µF	35V	066-158
C503,504	Elect.	9300µF	50V	066-162
C505	Elect.	80/80/50/150µF 200/200/150/150V		066-095
C506	Elect	200/200/1000µF 100/100/20V		066-172
C507	Mylar	1µF	250V	064-088
C508,509	Mylar	0.22µF		064-096
C510	Elect.	100µF	40V	066-176
C515	Elect.	150µF	63V	066-205

DIODES

D1	Ge. signal diode	070-003
D101,102	Ge. signal diode	070-003
D103,104	Ge. signal diode	070-003
D105,106	Si. signal diode	070-047
D107,108	Si. signal diode	070-047
D109,110	Si. signal diode	070-047
D201	Si. signal diode	070-047
D202	Ge. signal diode	070-003
D203	Si. signal diode	070-046
D401,402	Si. signal diode	070-047
D403,404	Si. diode	070-046
D405,406	Si. signal diode	070-047
D407,408	Si. signal diode	070-047
D409,410	Si. diode	070-031
D411,412	Si. diode	070-031
D413,414	Ge. PNP transistor	132-098
D501,502	Si. diode	070-031
D503,504	Si. diode	070-041
D505,506	Si. diode	070-041
D507	Zener diode 16V	070-048
D509	Zener diode 75V	070-025

CHOKE & COILS

L1	1st RF coil	122-109
L2	2nd RF coil	122-108
L3	Mixer coil	122-107
L4	Oscillator coil	122-106
L5	Choke 75µH	122-013
L8	Choke 0.47µH	122-010

L101,102	Choke	75µH	122-013
L103	Choke	1MH	122-092
L104,105	Filter coil (SCA)		122-093
L106	Filter coil (19kHz)		122-094
L201	AM antenna		122-110
L202	AM RF coil		122-086
L203	AM oscillator coil		122-085
L204	Choke	1.2µH	122-001
L401,402	Choke	4µH	122-105

TRANSISTORS

Q1	Si. M.O.S. F.E.T.	132-088
Q2	Si. Junction F.E.T.	132-049
Q3	Si. NPN transistor	132-015
Q4	Si. Junction F.E.T.	132-049
Q101	Si. NPN transistor	132-077
Q102	Si. PNP transistor	132-074
Q103,104	Si. NPN transistor	132-077
Q105	Si. NPN transistor	132-077
Q106	Si. NPN transistor	132-075
Q201,202	Si. NPN transistor	132-082
Q203	Si. NPN transistor	132-082
Q204	Si. NPN transistor	132-090
Q301,302	Si. PNP transistor	132-096
Q303,304	Si. PNP transistor	132-096
Q305,306	Si. NPN transistor	132-095
Q307,308	Si. NPN transistor	132-093
Q309,310	Si. NPN transistor	132-093
Q311,312	Si. NPN transistor	132-093
Q313,314	Si. NPN transistor	132-095
Q315,316	Si. NPN transistor	132-095
Q317,318	Si. NPN transistor	132-095
Q401,402	Si. PNP transistor	132-096
Q403,404	Si. PNP transistor	132-096
Q405,406	Si. NPN transistor	132-081
Q407,408	Si. NPN transistor	132-021
Q409,410	Si. PNP transistor	132-032
Q411,412	Si. NPN transistor	132-080
Q413,414	Si. PNP transistor	132-079
Q415,416	Si. NPN transistor	132-070
Q417,418	Si. NPN transistor	132-070
Q501	Si. NPN transistor	132-078
Q502	Si. PNP transistor	132-032
Q503	Si. NPN transistor	132-078

FUSES

F401,402	Fuse	5A	089-014
F403,404	Fuse	5A	089-014
F501	Fuse	3.2A slo-blo	089-006

POTENTIOMETERS

R312	Balance control	134-230
R313	Volume control	134-229
R314	Treble control	044-270
R315	Bass control	044-269

RESISTORS

R401,402	Wirewound	3.6k	10W	139-047
R433,434	Wirewound	0.33Ω	5W	139-080
R435,436	Wirewound	0.33Ω	5W	139-080
R504	Wirewound	600Ω	5W	139-043
R510	Wirewound	1.5k	5W	139-079
R512	Wirewound	220Ω	5W	139-009
R517	Wirewound	300Ω	5W	139-098

SWITCHES

S301	Input selector switch	146-149
S302	Mode selector switch	150-008
S303	Mode selector switch	150-007
S502,503	Thermo cut-out switch	153-007

TRANSFORMERS

T1	Balun	043-226
T2	FM IF input	162-057
T101	Discriminator	162-036
T102	RF (19kHz)	162-055
T103	RF (38kHz)	162-054
T201,202	AM IF transformer	162-050
T501	Power transformer	159-093

THYRISTORS & TRIGGERS

TR401,402	Triac	131-005
SBS401,402	Bilateral switch	131-004

METERS

M301	Signal strength meter	124-017
M101	Tuning meter	124-016

MAC 1900

	INTEGRATED CIRCUITS	
IC1	Integrated circuit	133-005
IC101,102	Integrated circuit	133-002
	FILTERS	
FN101,102	IF filter (10.7MHz)	180-008
	LAMPS	
	#51 (Inputs)	058-021
	#1835 (Tape mon) (Stereo)	058-037
	#1866 (Front panel)	058-014
	#1847 (Meter)	058-008
	FRONT PANEL & TRIM	
	Front panel	044-197
	Dial glass	044-284
	Tuning knob	044-199
	Volume knob	044-370
	Balance knob	044-370
	Input selector knob	044-370
	Bass knob	017-153
	Treble knob	017-153
	Pushbutton	090-105
	Pushbutton w/blue dot	090-107
	Pushbutton w/orn dot	090-108
	Pushbutton w/grn dot	090-109
	Pushbutton w/yel dot	090-110
	Pushbutton w/red dot	090-111
	Pushbutton w/wht dot	090-112
	MISCELLANEOUS ITEMS	
	Plastic feet	017-041
	Tuning shaft	021-075
	Shipping carton	044-526
	Push terminal (antenna)	074-032
	Push terminal (speaker connections)	074-030
	Owners manual	038-674
	Mounting template #200	038-180
	Shelf template #250	038-504
	Dial cord	044-286
	Dial pointer	044-285
	Shorting plug	127-021
	AC line cord	170-021
	FM dipole antenna	170-033
	Fuse holder	178-001
	Hardware package	044-257
	Jumper cable	170-066
	Pointer	044-311

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MAC 1900 SCHEMATIC PART NO. 038—726

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