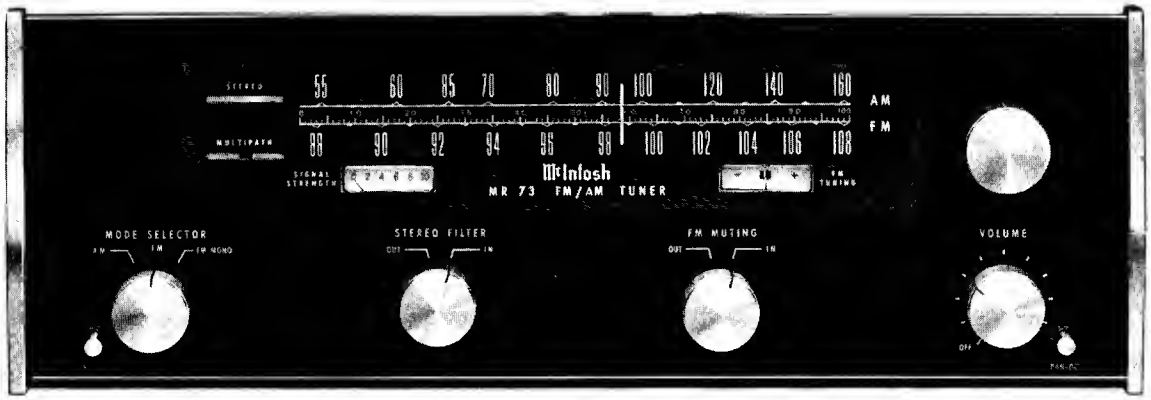
McIntosh

MR 73

FM/AM TUNER



SERVICE INFORMATION

STARTING WITH SERIAL NO. 10T01

McINTOSH LABORATORY INC. 2 CHAMBERS STREET BINGHAMTON, NEW YORK

ELECTRICAL SPECIFICATIONS

FM TUNER SECTION

USEABLE SENSITIVITY

Better than 2.5μV (IHF useable sensitivity)

SIGNAL TO NOISE RATIO

Better than 70dB

HARMONIC DISTORTION

Mono, less than 0.3%. Stereo, less than 0.7%.

FREQUENCY RESPONSE

Flat from 20Hz to 20kHz with standard de-emphasis and 19kHz pilot filter

CAPTURE RATIO

Better than 1.5dB

SPURIOUS REJECTION

90dB or greater

IMAGE REJECTION

75dB or greater (at 100MHz)

STEREO SEPARATION

Better than 35dB at 1kHz.

SCA FILTER

Better than 50 dB rejection from 67kHz to 74KHz

AM TUNER SECTION

SENSITIVITY

Better than 12μV at 1000kHz (using external antenna input)

SIGNAL TO NOISE RATIO

Better than 55dB

HARMONIC DISTORTION

Less than 1% at 30% modulation

FREQUENCY RESPONSE

Down 6dB at 5kHz

SELECTIVITY

-30dB at 10kHz

IMAGE REJECTION

60dB or greater at 1000kHz

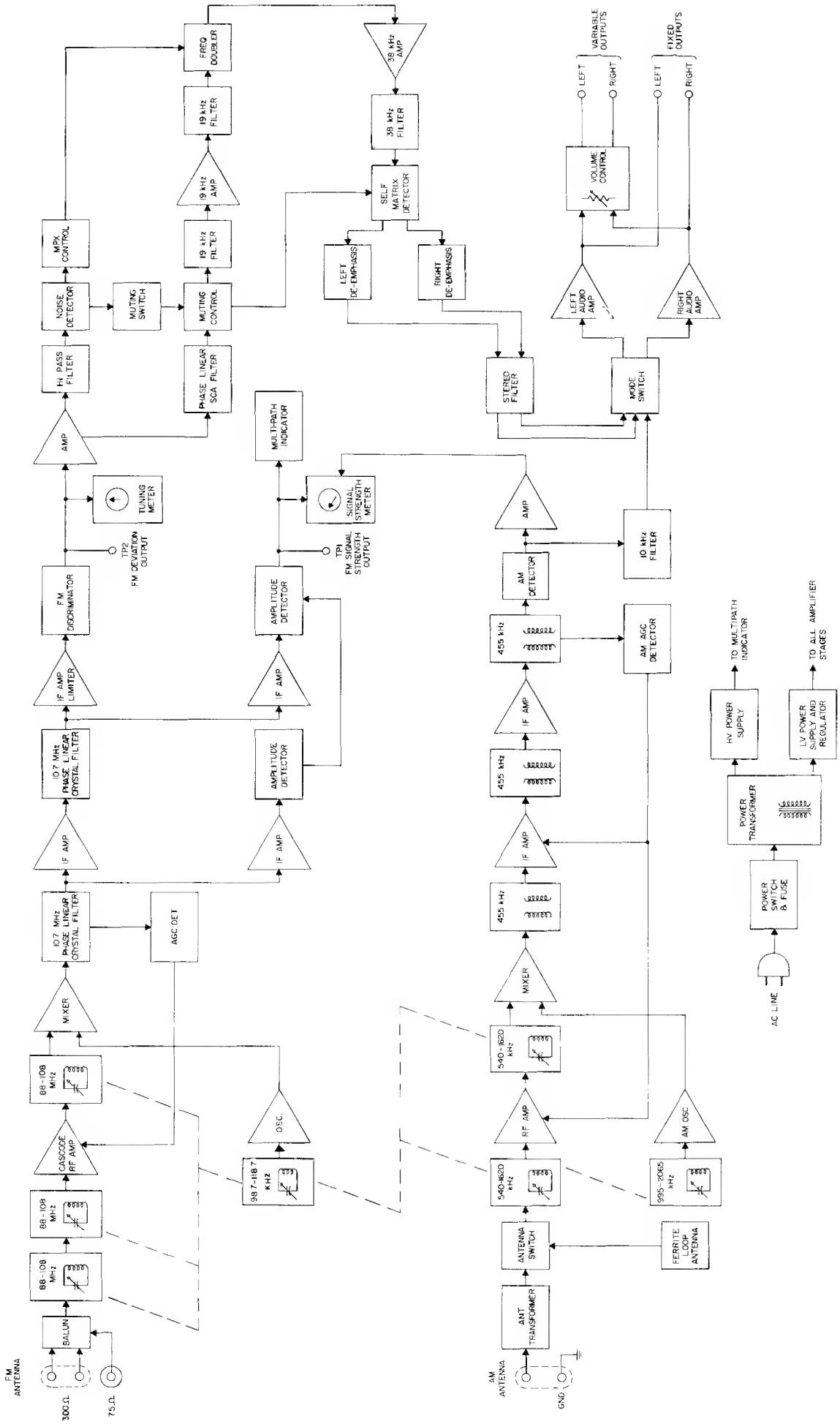
GENERAL

OUTPUT LEVEL

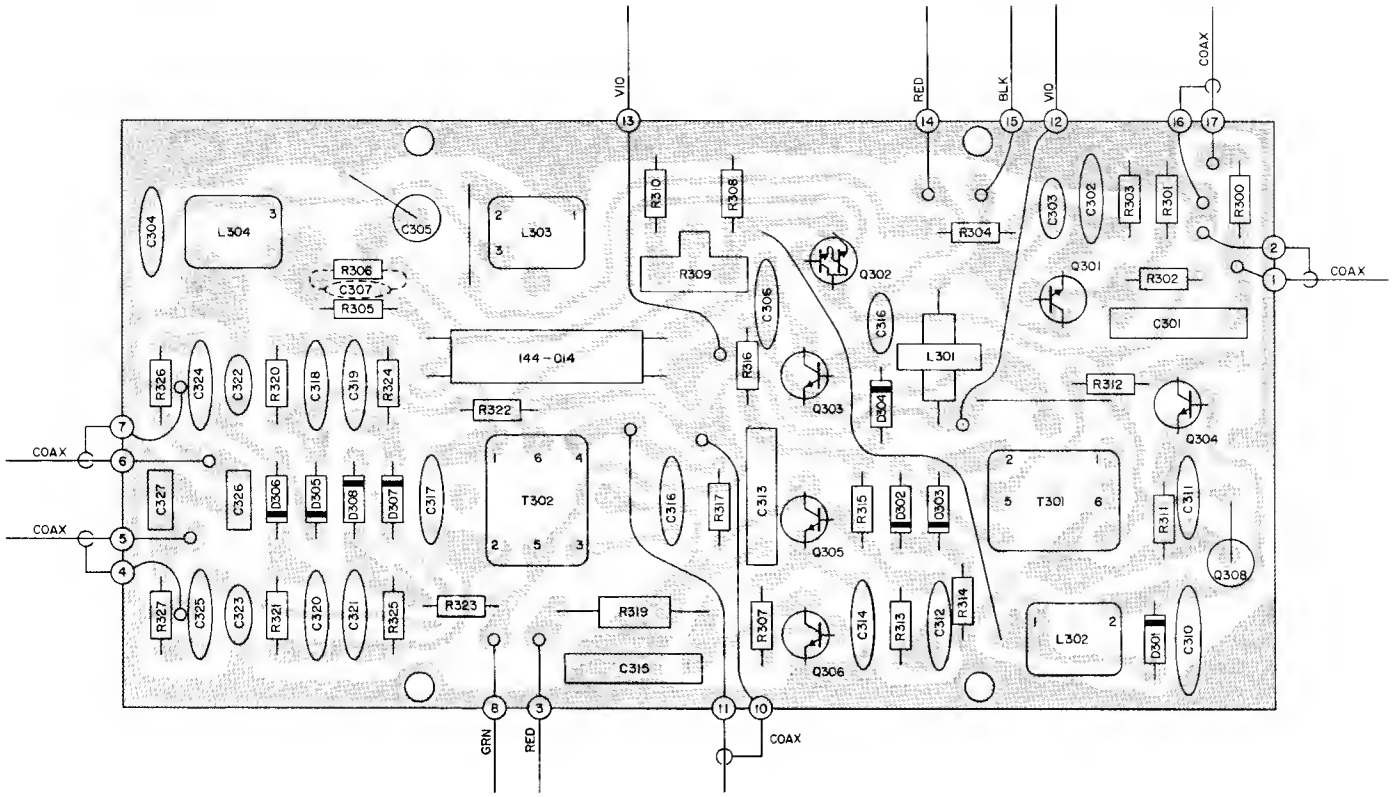
Fixed output, 2.5 volts
Variable output, 0 to 2.5 volts

POWER REQUIREMENTS

117 volts AC 50-60Hz, 20 watts

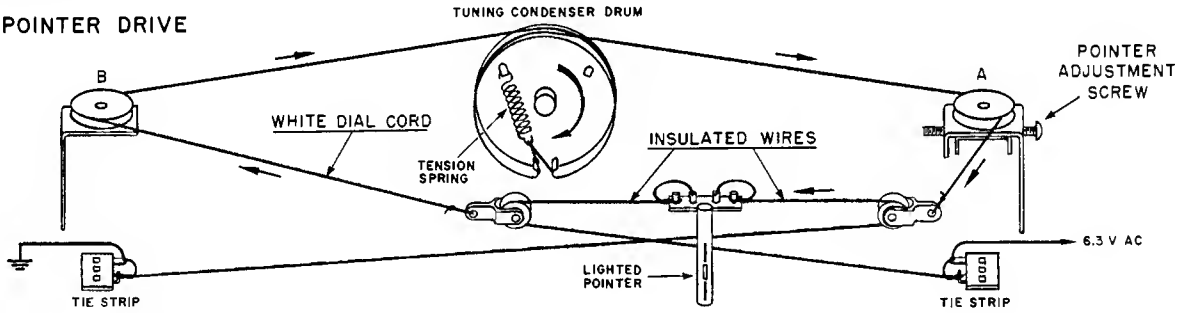


MR 73 BLOCK DIAGRAM



MPX PRINTED CIRCUIT BOARD 044-072

POINTER DRIVE



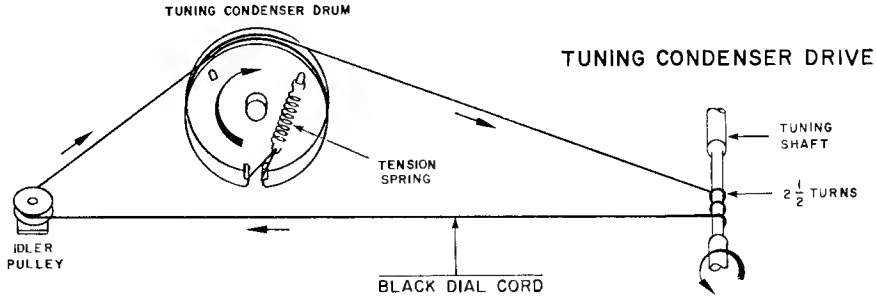
Step 1 Before stringing unit, turn pointer adjustment screw until pulley "A" is in the center of its travel.

Step 2 String unit as shown.

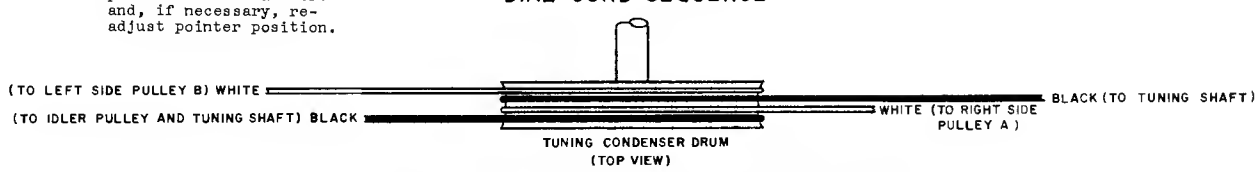
Step 3 After stringing unit, turn tuning shaft until pointer is as far to the left as it will go. Turn the pointer adjustment screw until the pointer coincides with the zero bar of the logging scale.

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.

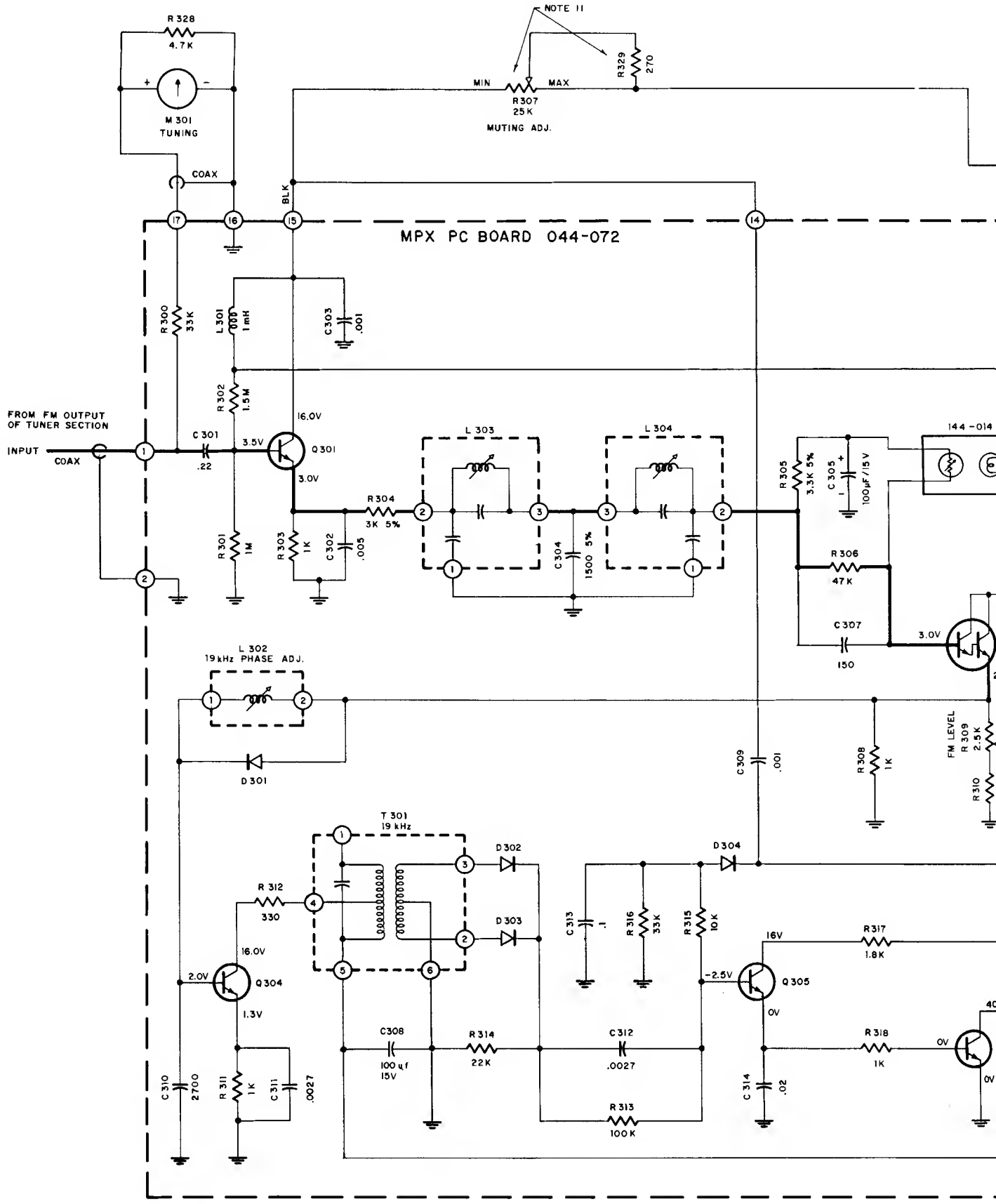
TUNING CONDENSER DRIVE



DIAL CORD SEQUENCE

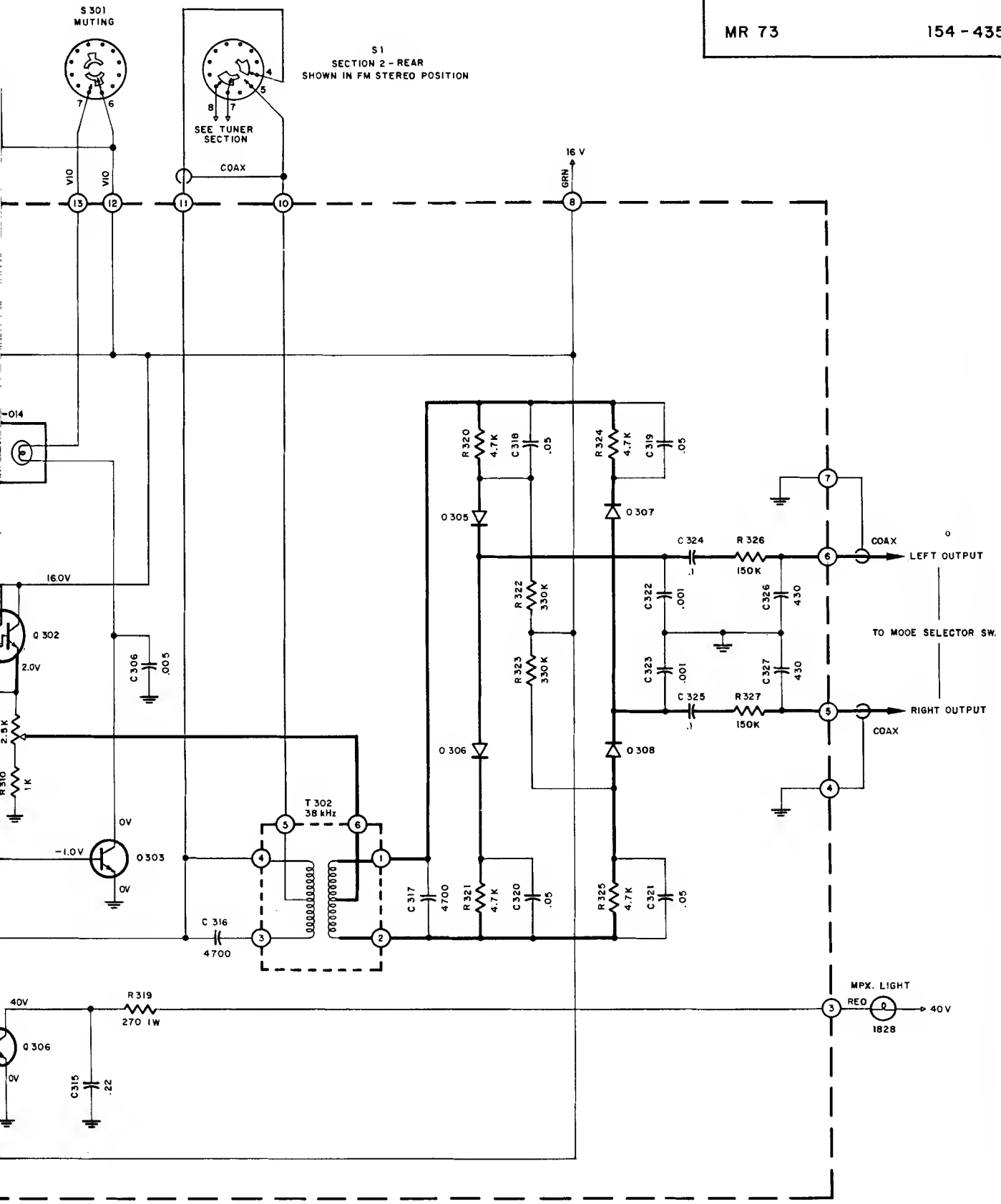


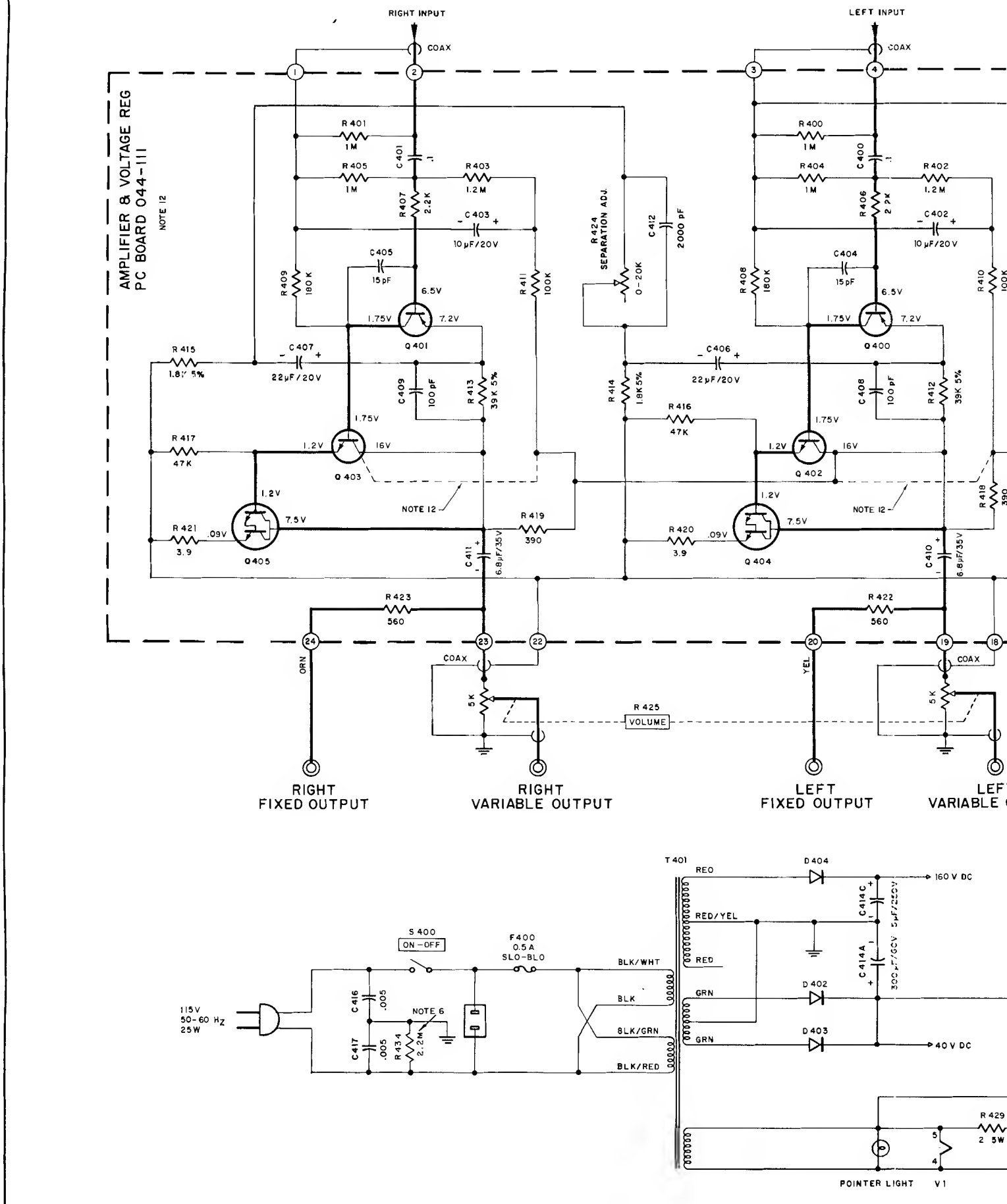
POINTER DIAL STRINGING

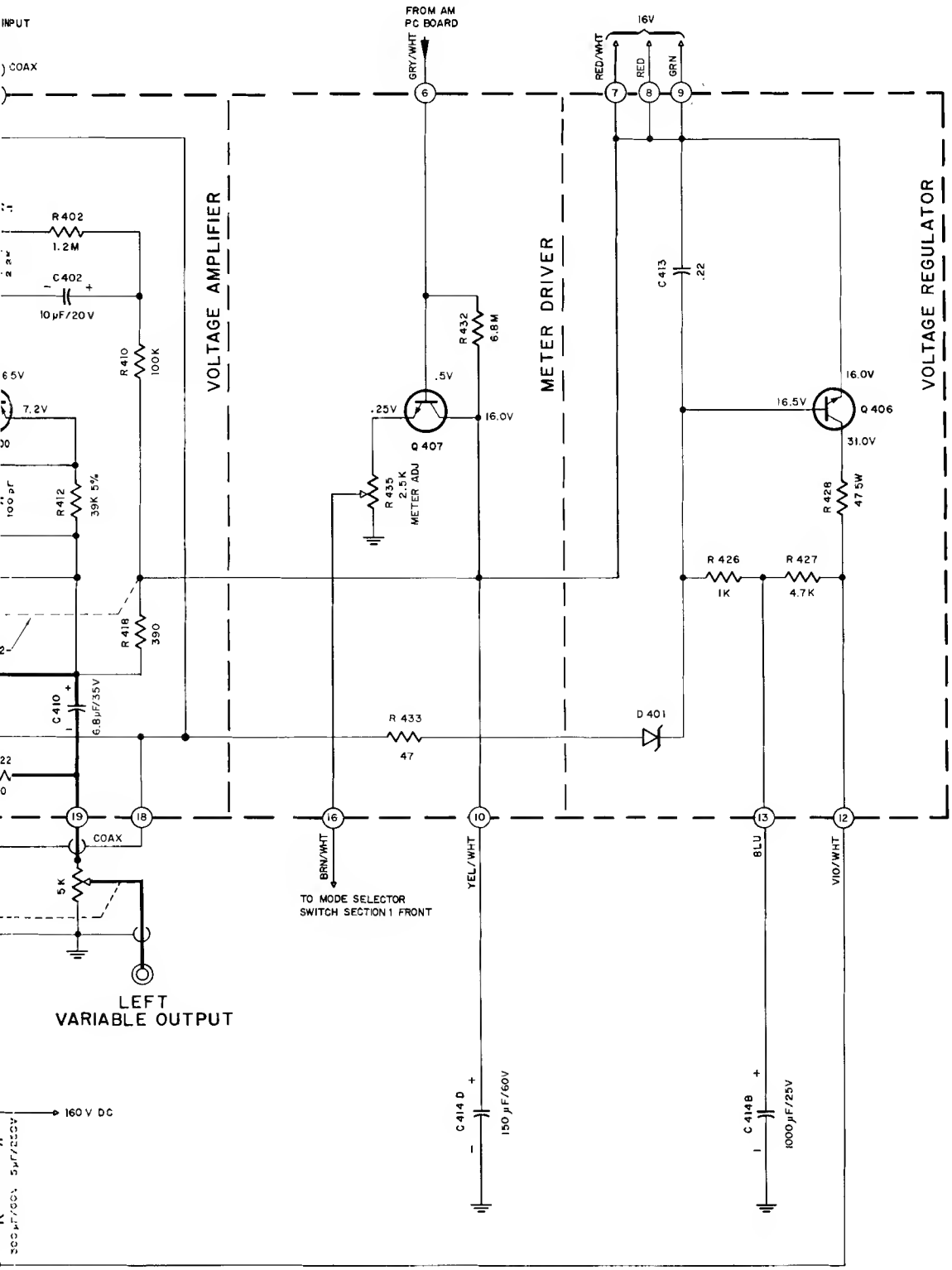

NOTE 11
R 328
4.7K
M 301
TUNING
MIN
MAX
R307
25K
MUTING ADJ.
R329
270
COAX
BLK
MPX PC BOARD 044-072
R300
33K
L 301
1 mH
C303
.001
R302
1.5M
FROM FM OUTPUT
OF TUNER SECTION
INPUT
COAX
C 301
.22
16.0V
3.5V
Q 301
3.0V
R304
3K 5%
L 303
L 304
R305
3.3K 5%
C 305
100µF/15 V
144-014
R306
47K
C307
150
3.0V
R301
1M
R303
1K
C302
.005
C304
1500 5%
L 302
19kHz PHASE ADJ.
D 301
C309
.001
R308
1K
FM LEVEL
R 309
2.5K
R310
T 301
19 kHz
D302
D303
D304
R 312
330
16.0V
2.0V
Q 304
1.3V
C313
.1
R316
33K
R315
10K
16V
R317
1.8K
-2.5V
Q 305
0V
C308
100 µf
15V
R314
22K
C312
.0027
R318
1K
C 310
2700
R 311
1K
C311
.0027
R313
100K
C 314
.02

MPX SECTION

MR 73 154-435




AMPLIFIER & VOLTAGE REG
P.C. BOARD 044-111
NOTE 12
RIGHT INPUT
LEFT INPUT
COAX
R401 1M
R405 1M
R403 1.2M
R407 2.2K
C401 .1
C403 10µF/20V
C405 15pF
R409 180K
R411 100K
R424 SEPARATION ADJ. 0-20K
C412 2000 pF
R400 1M
R404 1M
R402 1.2M
R406 2.2K
C400 .1
C402 10µF/20V
C404 15pF
R408 180K
R410 100K
6.5V
1.75V
7.2V
Q401
Q400
R415 1.8K 5%
C407 22µF/20V
C409 100 pF
R413 39K 5%
R414 1.8K 5%
C406 22µF/20V
C408 100 pF
R412 39K 5%
R416 47K
R417 47K
1.2V
16V
Q403
Q402
NOTE 12
R418 390
R421 3.9
.09V
7.5V
Q405
R419 390
C411 6.8µF/35V
R420 3.9
Q404
C410 6.8µF/35V
R423 560
R422 560
24
23
22
20
19
18
ORN
YEL
5K
R425 VOLUME
RIGHT FIXED OUTPUT
RIGHT VARIABLE OUTPUT
LEFT FIXED OUTPUT
LEFT VARIABLE
T401
RED
RED/YEL
GRN
D404
D402
D403
160 V DC
40 V DC
C414C
C414A
S400 ON-OFF
F400 0.5A SLO-BLO
BLK/WHT
BLK
BLK/GRN
BLK/RED
115V 50-60 Hz 25W
C416 .005
C417 .005
R434 2.2M
NOTE 6
R429 2 5W
POINTER LIGHT V1



AMPLIFIER AND POWER SUPPLY SECTION

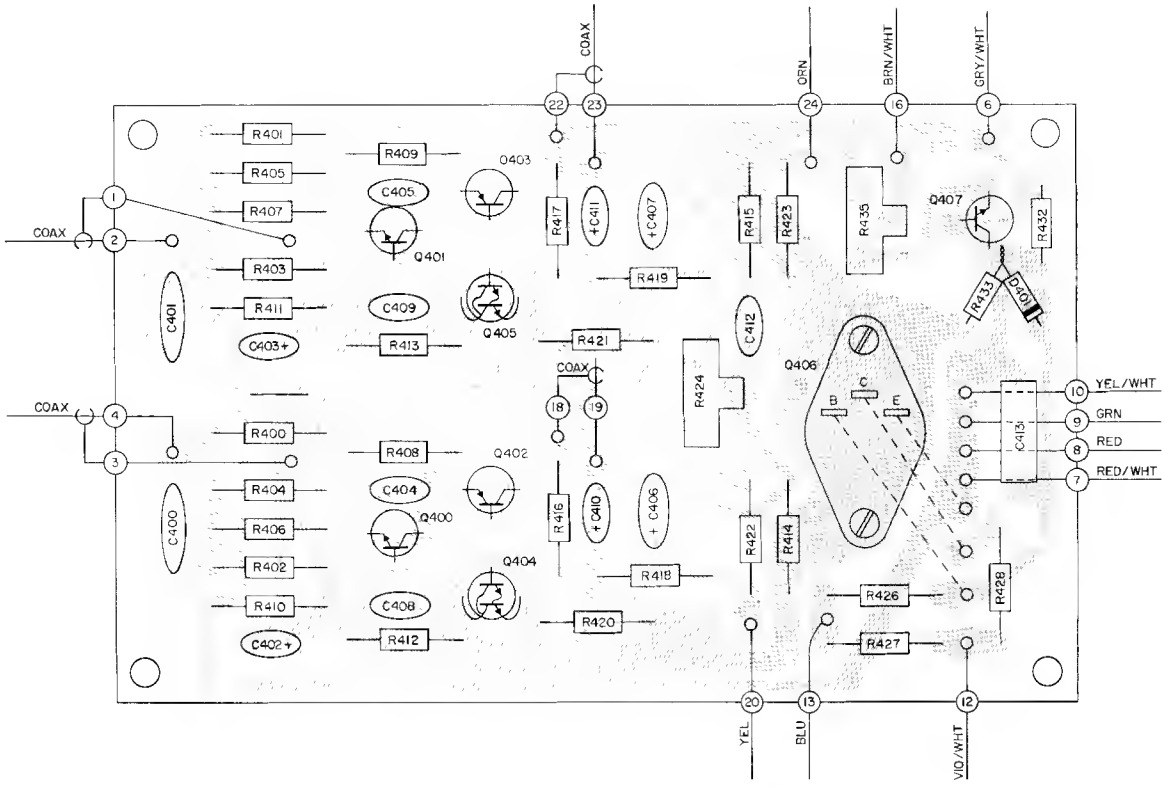
MR 73 154-437

SCHEMATIC NOTES

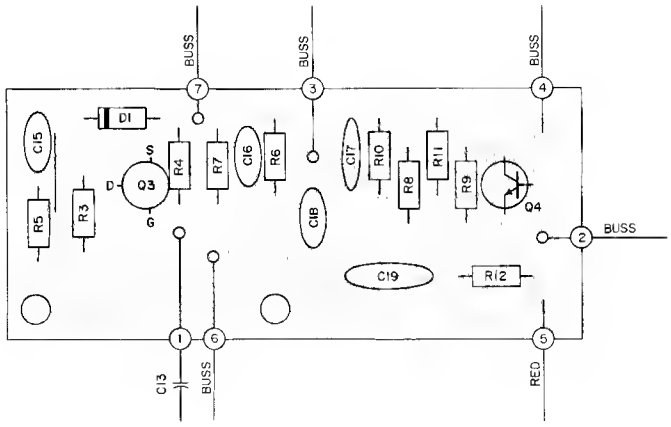
1. Unless otherwise specified: Resistance values are in ohms, 1/4 watt, and 10% tolerance; capacitance values smaller than 1 are in microfarads (μF); capacitance values greater than 1 are in picofarads (pF); inductors are in microhenries (μH).
2. Printed circuit board components are outlined on the schematics by dotted lines. The circled numbers around the dotted lines correspond to the numbers on the PC Board layouts.
3. The heavy lines on the schematics denote the primary signal path.
4. The terminal numbering of rotary switches is for reference only.
5. All voltages indicated on the schematics are measured under the following conditions:
   a. Use of an 11 megohm input impedance VTVM.
   b. All voltages ±10% with respect to chassis ground.
   c. No signal at input or antenna terminals.
   d. AC input at 117 volts, 50/60 Hz.
   e. Front panel controls at:

Tuning indicator	100MHz (no signal)	Mode	AM (to measure AM section)
Volume	Fully CW		Stereo (to measure FM section)
H. F. Filter	Out	Muting Adj.	MAX
Muting	Out	Panel Lights	Bright

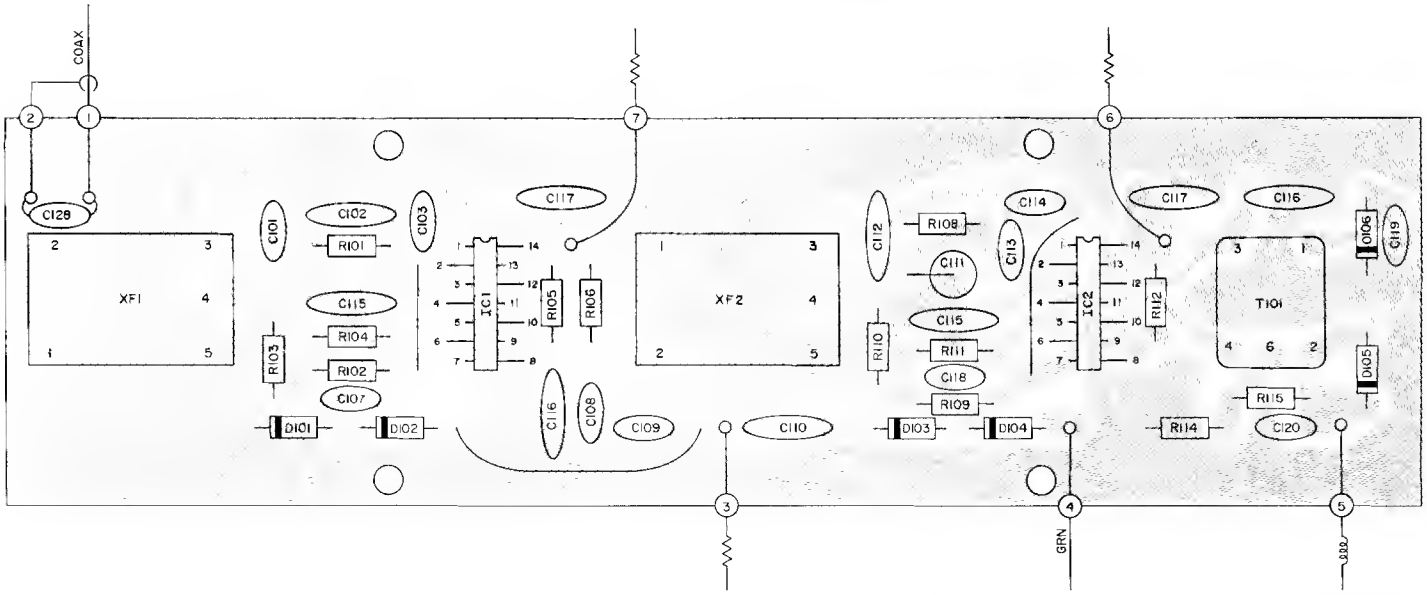
6. In units with Serial No's below 15T33: R434 is not used.
7. In units with Serial No's below 15T74: R112 is 3.3k; R20 and C33 are used; R15 is connected as shown by dotted lines and center terminal of AM sensitivity switch (S2) is connected to ground as shown by dotted line.
8. In units with Serial No's from 24T00 to 33T50: C109 and C113 are not used; R106 is 680Ω and XF-2 is McIntosh Part No. 044-045A.
9. In units with Serial No's below 33T50: R105 is 10k; R107 & R113 are 100Ω 10%; C4 is 1.2pF and L5 is 1.2μH.
10. In units with Serial No's below 27T84: R21 is not used.
11. In units with Serial No's below 33T50: R329 is not used; R307 is 200k; there is no connection from R307 to Pin 12 of MPX PC board and Pin 14 of MPX PC board is connected to the arm of R307 only.
12. In units with Serial No's below 33T50, PC board 043-975 is used. It connects the collector of Q402 and Q403 as shown by dotted line.



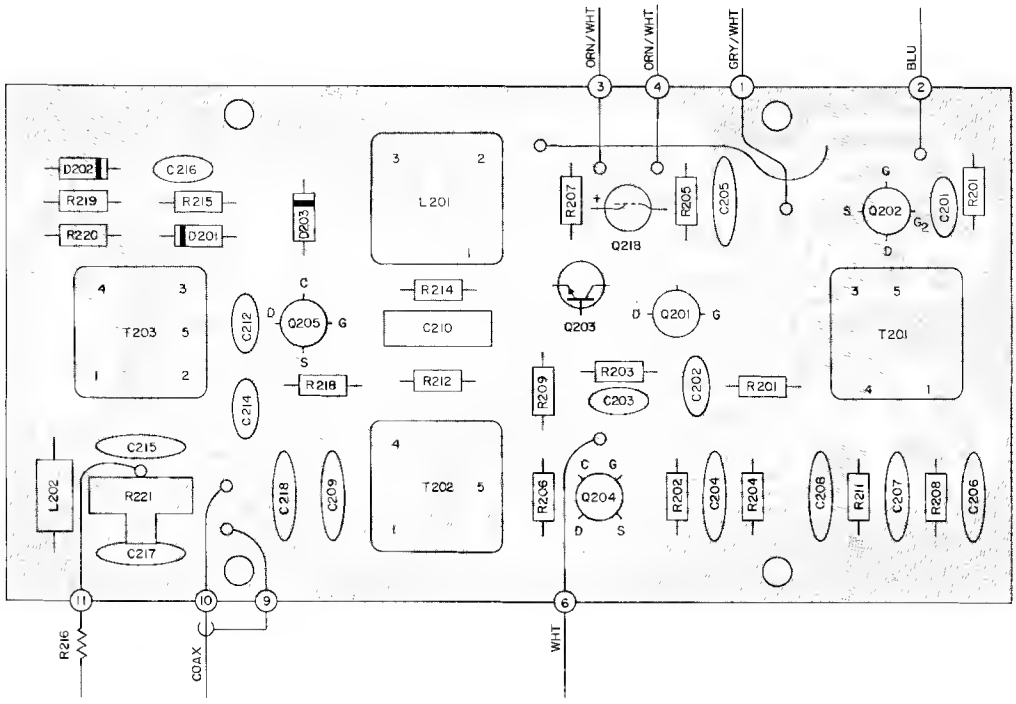
AMPLIFIER & VOLTAGE REG P.C. BOARD 044-111



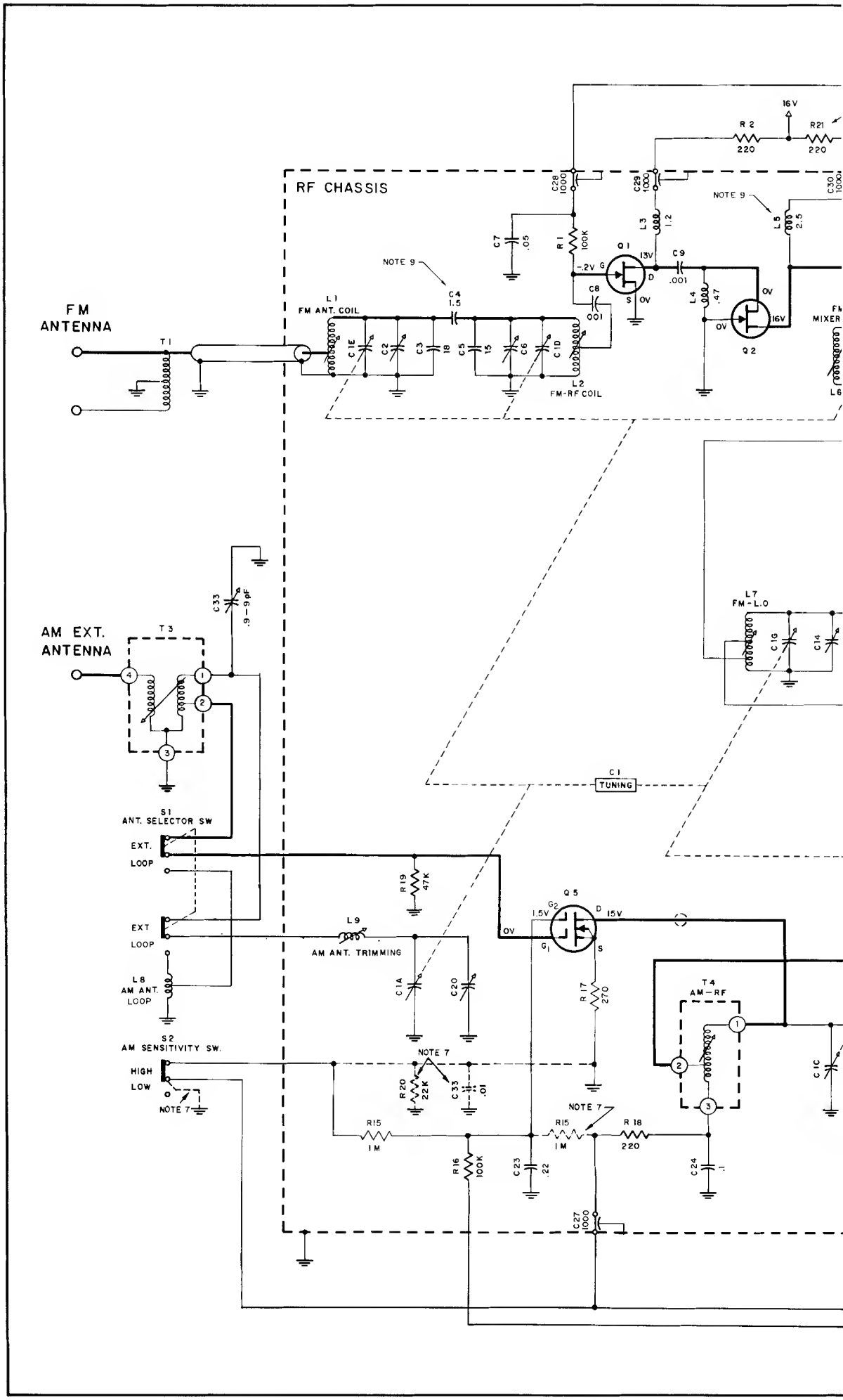
MIXER & LOCAL OSCILLATOR PC BOARD 044-038

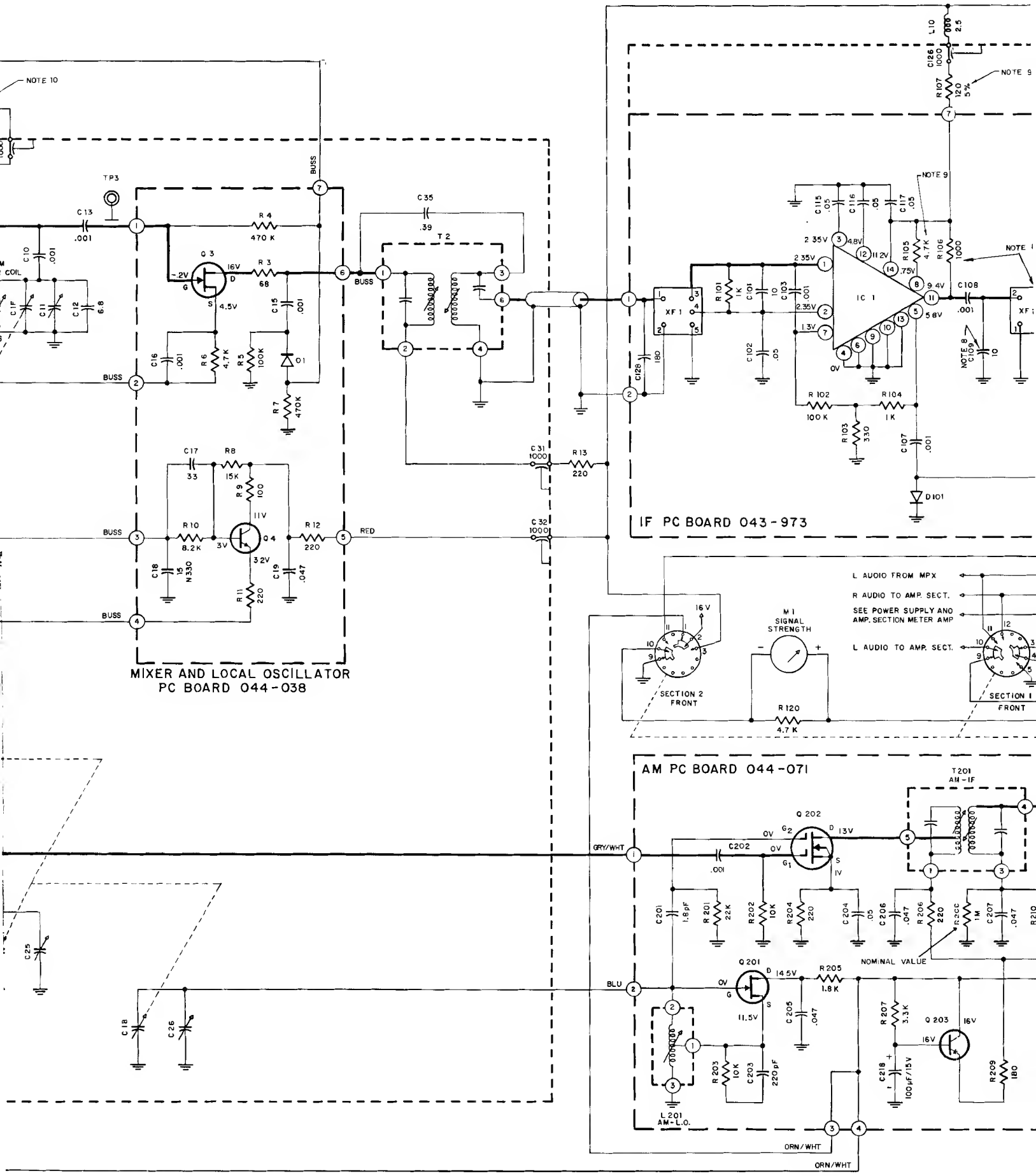


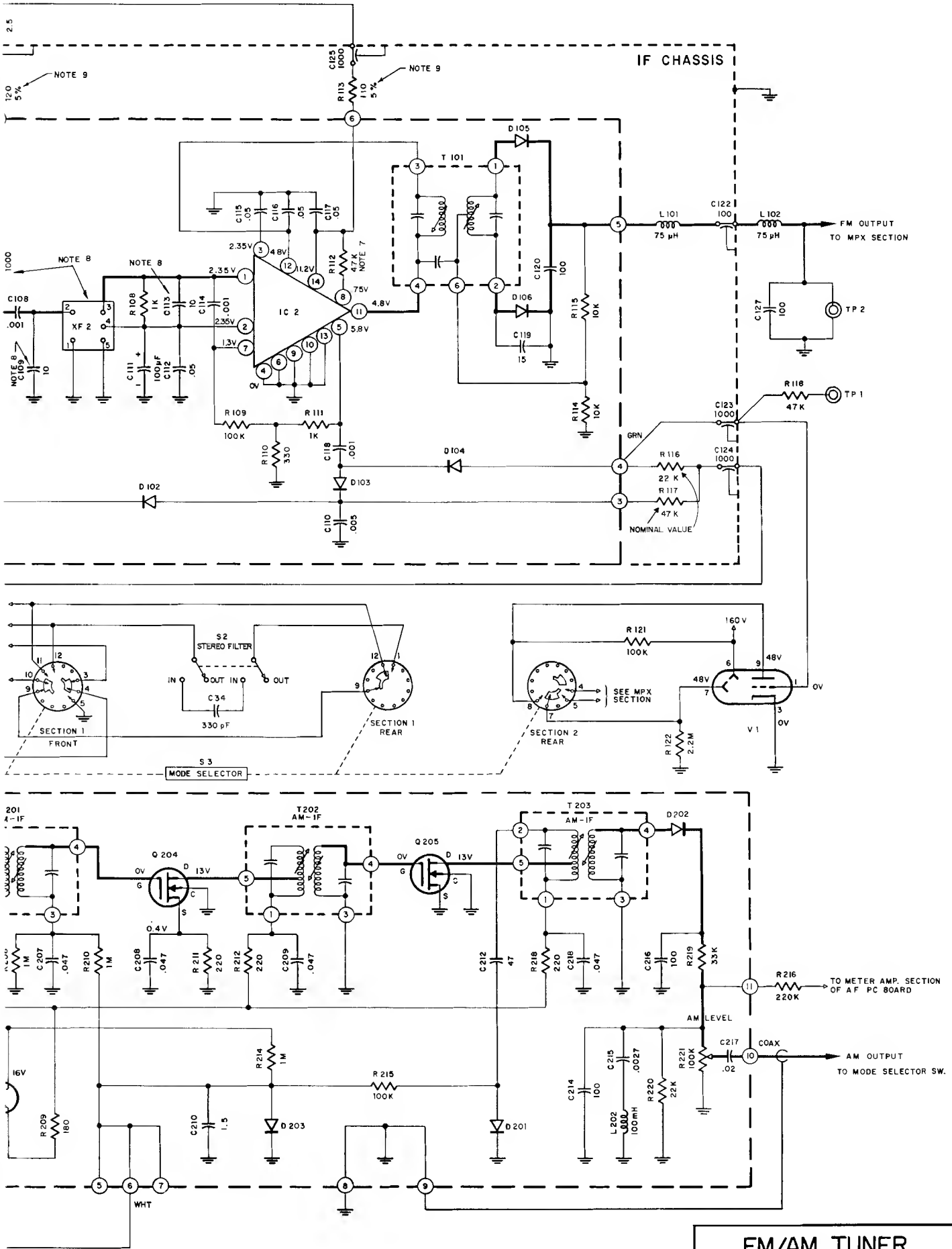
IF PRINTED CIRCUIT BOARD 043-973



AM PRINTED CIRCUIT BOARD 044-071


RF CHASSIS
FM ANTENNA
T1
L1
FM ANT. COIL
L2
FM-RF COIL
C1E
C2
C3
18
C4
1.5
C5
15
C6
C10
C7
.05
R1
100K
NOTE 9
Q1
-.2V
13V
C8
.001
C9
.001
L3
1.2
L4
.47
L5
2.5
Q2
16V
0V
R2
220
R21
220
16V
C38
1000
C29
1000
C30
1000
L6
L7
FM-L.O
C16
C14
C1
TUNING
AM EXT.
ANTENNA
T3
C33
.9-9pF
S1
ANT. SELECTOR SW
EXT.
LOOP
EXT
LOOP
L8
AM ANT.
LOOP
L9
AM ANT. TRIMMING
S2
AM SENSITIVITY SW.
HIGH
LOW
NOTE 7
R19
47K
Q5
1.5V
15V
0V
C1A
C20
R17
270
T4
AM-RF
C1C
R20
22K
C33
.01
R15
1M
R16
100K
C23
.22
R18
220
C24
.1
C27
1000


NOTE 10
TP3
C13
.001
R 4
470 K
Q 3
16V
-2V
R 3
68
4.5V
C15
.001
C16
.001
R6
4.7K
R5
100K
D1
R7
470K
BUSS
C35
.39
T2
C31
1000
R13
220
C32
1000
C17
33
R8
15K
R9
100
11V
R10
8.2K
3V
Q4
R12
220
RED
3.2V
C18
15
N330
C19
.047
R11
220
MIXER AND LOCAL OSCILLATOR
PC BOARD 044-038
C25
C18
C26
C128
180
XF1
R101
1K
C101
10
C103
.001
C102
.05
IC 1
2.35V
4.8V
11.2V
.75V
9.4V
5.8V
1.3V
0V
R105
4.7K
R106
1000
C115
.05
C116
.05
C117
.05
C108
.001
C109
10
NOTE 8
R102
100 K
R104
1K
R103
330
C107
.001
D101
C126
1000
L10
2.5
R107
120
5%
NOTE 9
IF PC BOARD 043-973
L AUDIO FROM MPX
R AUDIO TO AMP. SECT.
SEE POWER SUPPLY AND
AMP. SECTION METER AMP
L AUDIO TO AMP. SECT.
M1
SIGNAL
STRENGTH
R120
4.7 K
SECTION 2
FRONT
SECTION 1
FRONT
AM PC BOARD 044-071
T201
AM-IF
Q 202
0V
13V
1V
GRY/WHT
C202
.001
C201
1.8pF
R 201
22K
R202
10K
R204
220
C204
.05
C206
.047
R 206
220
R 207
1M
C207
.047
NOMINAL VALUE
Q 201
14.5V
R205
1.8K
BLU
11.5V
C 205
.047
R 207
3.3K
Q 203
16V
C218
100µF/15V
R209
180
R 203
10K
C203
220pF
L 201
AM-L.O.
ORN/WHT
ORN/WHT



FM/AM TUNER SECTION

MR73 154-436

LAMP AND METER REPLACEMENT

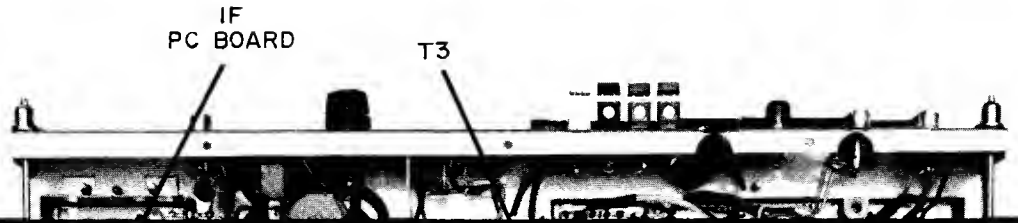
To Replace Panel Lights
1. Remove bottom cover.

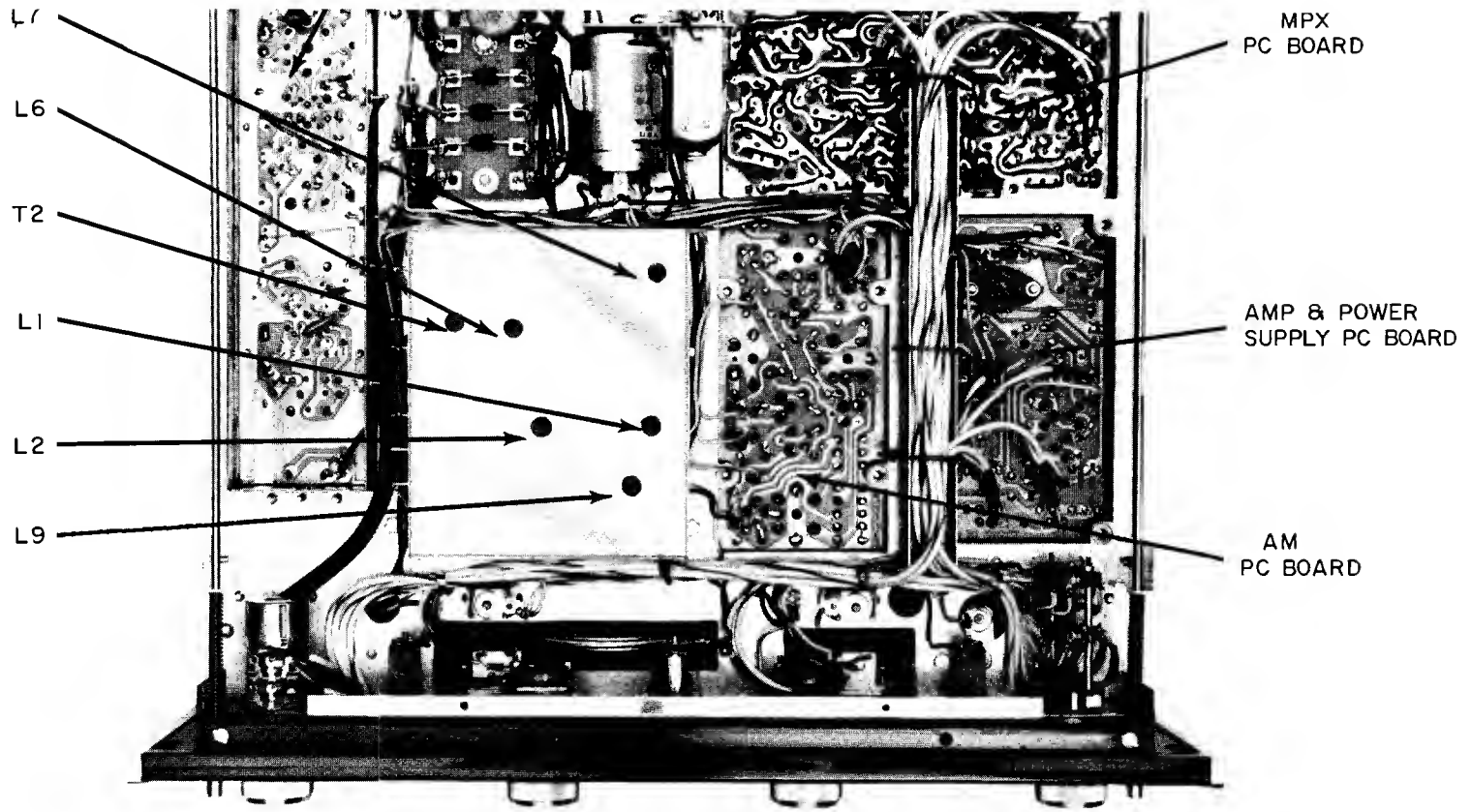
To Replace Dial Panel Lights
1. Remove knobs & front panel.

To Replace Stereo Light
1. Remove dust cover.

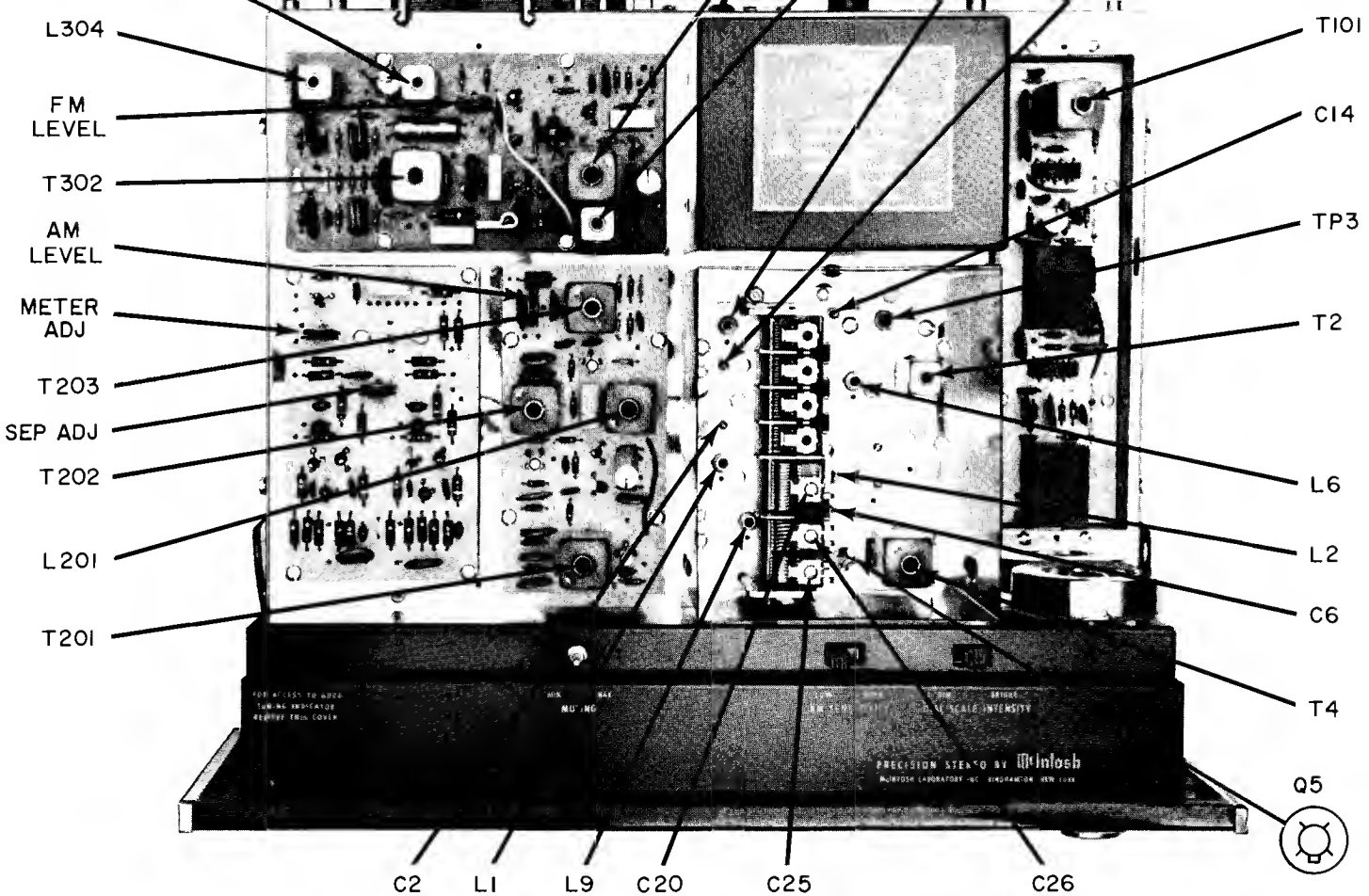
To Replace Multipath Light
1. Remove knobs & front panel.

To Replace Meters
1. Remove knobs & front panel.
2. Remove dial panel screws.
3. Tilt forward dial panel sliding off pointer.
4. Loosen meter screws & remove.




L7
L6
T2
L1
L2
L9
MPX
PC BOARD
AMP & POWER
SUPPLY PC BOARD
AM
PC BOARD


T301
L302
L7
C11
L303



MR 73 ALIGNMENT INSTRUCTIONS

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

After extensive operation, or servicing, it may be desirable to realign the tuner circuits for best performance. The charts below give complete information on the circuit realignment procedure for the MR 73.

The test equipment listed (or its equivalent) is necessary to properly align an MR 73. 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 In., 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 (Measurements 188 or equivalent)
2. AM Signal Generator (Measurements 65B or equivalent)
3. VTVM (RCA WV96C)
4. Multiplex Generator (Radiometer SMG1)
5. 10.7MHz Generator (preferably crystal controlled)
6. Oscilloscope (Hewlett-Packard 120B or equivalent)
7. 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	600kHz	455kHz	Through external .01 µF capacitor to junction of C202 and T4 pin 2.	CW	VTVM	Pin 11 on AM circuit board.	Top (pri) & bottom (sec) cores of T201, T202, and T203.	Maximum possible positive voltage	Connect stator of OSC. Tuning capacitor (CIB) to ground with a jumper wire to make AM local oscillator inoperative. As the tuner output increases, attenuate generator output to keep voltage at VTVM below 0.5 volt.
2	600kHz	600kHz	Through a 200pF capacitor to ant. terminals. Antenna switch in loop antenna position.	CW	Same	Same	L201 (oscillator coil.)	Same	Same as step 1 except remove jumper from osc. section. Use a large signal from the signal generator because there is no direct connection from the generator to the loop antenna.
3	1400kHz	1400kHz	Same	Same	Same	Same	C26 (oscillator trimmer)	Same	Repeat steps 2 & 3 until dial calibration is accurate.
4	600kHz	600kHz	Same	Same	Same	Same	L9(AM antenna trimming coil) & T4 (AM-RF)	Same	Same as step 2 except adjust generator so that output signal is just above the noise level.
5	1400kHz	1400kHz	Same	Same	Same	Same	C20 (AM antenna trimmer) & C25 (AM RF trimmer).	Same	Repeat steps 4 & 5 until output is as high as possible.
6	600kHz	600kHz	Same. Throw antenna switch to external antenna.	Same	Same	Same	T3 (external AM antenna transformer)	Same	Reduce output of signal generator to a very low level to hold voltage at VTVM below 0.5 volt.
7	1400 kHz	1400kHz	Same	Same	Same	Same	C33 (external) AM antenna transformer trimmer)	Same	Same
8	1000kHz	1000kHz	Same	30% @ 400Hz	Distortion Analyzer	L or R output		With a distortion analyzer, the following measurements can be performed: 1. With a 1mV input signal adjust "AM Level" control (R49) for 0.8 volts of audio output at tape-outputs. This will correspond to 2.5 volts 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 20 microvolts for - 20dB of 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	TO TP-3	FM ±200kHz sweep at 60 Hz rate	Oscilloscope	TP # 1	Top (primary) and bottom (secondary) cores of T2	Optimum symetry about 10.7 Mhz and 10.7Mhz ±	Connect scope for IF response display. Hold the signal generator output to a low level such that the DC voltage at TP #1 is about -0.5 volts.

STEP	DIAL SETTING	SIGNAL GENERATOR			INDICATOR		ADJUST	TEST LIMITS	REMARKS
		FREQ.	COUPLING	MODULATION	TYPE	CONNECTED TO			
1	Point of no interference or signal	10.7MHz	TO TP-3	FM ±200kHz sweep at 60 Hz rate	Oscilloscope	TP # 1	Top (primary) and bottom (secondary) cores of T2	Optimum symetry about 10.7 Mhz and 10.7MHz ± 75kHz markers.	Connect scope for IF response display. Hold the signal generator output to a low level such that the DC voltage at TP #1 is about -0.5 volts.
2	Same	10.7MHz	Same	CW	VTVM	Pin 6 of T101 through 1 meg. resistor.	T101 primary bottom core	Maximum possible negative voltage	
3	Same	Same	Same	Same	Same	TP #2	T101 secondary top core	Adj. for 0 volts	
4	105MHz	105 MHz	300 ohm antenna terminals w/*matching network	400Hz 75kHz deviation	VTVM connected to TP# 1 and scope connected to L or R audio output		Oscillator Trimmer, C14	Maximum negative voltage	
5	90MHz	90MHz	Same	Same	Same		Oscillator Coil, L7	Same	Same. Repeat Steps 4 and 5 until dial is accurate.
6	105 MHz	105MHz	Same	Same	Same		Mixer-Trimmer, RF Trimmer & Antenna-Trimmer C11, C6, C2	Same	As the circuits align reduce this input signal to hold the voltage at TP#1 to-2 volts or less.
7	90MHz	90MHz	Same	Same	Same		Mixer, RF and antenna tuning cores L6, L2, L1	Same	Same. Repeat Steps 6 and 7 until TP #1 is as high as possible at both alignment frequencies.
8	90MHz	90MHz	Same	Same	Harmonic Distortion Analyzer connected to L or R output.		T101 primary bottom core.	Adj. for minimum distortion	Apply 1 MV Input signal. Adjust T101 bottom core for minimum distortion. Should be less than 0.3% .
9	90MHz	90 MHz	Same	10kHz, 75kHz, deviation	Same		T2 top and bottom	Adj. for minimum distortion	Readjust very slightly (less than 1/8 turn) T2 top and bottom cores for minimum distortion. If further adjustment seems necessary, recheck step # 1.
10	90 MHz	90 MHz	Same	400 Hz 75 kHz deviation	Same		R307 muting control		Apply 5 μV input signal. Place front panel muting switch in "IN" position. Adjust R307 muting control from CCW position until the audio output drops 2 dB. Return muting switch in "OUT" position.
11	90MHz	90MHz	Same	Same	Same				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 maximum usable sensitivity and should be less than 2.5μV.

MULTIPLEX DECODER ALIGNMENT

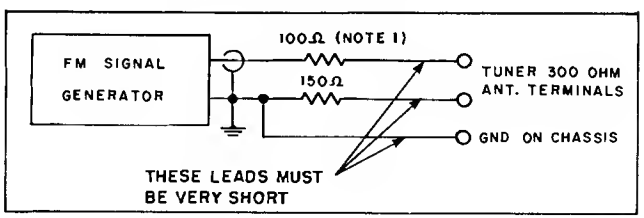
STEP	TUNER DIAL SETTING	SIGNAL GENERATOR			INDICATOR		ADJUST	TEST LIMITS	REMARKS
		FREQ.	COUPLING	MODULATION	TYPE	CONNECTED TO			
1	100MHz	100MHz	300Ω antenna terminals W/ approx. 1000 microvolts signal W/* matching network	75kHz Deviation @ 67kHz	AC-VTVM	L or R output jack	L303 and L304 (SCA adj.)	Minimum output @ L or R output jack.	Adjust for minimum output with 67kHz modulation.
2	100MHz	100MHz	Same	19kHz stereo pilot	AC-VTVM or oscilloscope W/very low cap.	T301, pin 2 or 3.	L302 (19kHz phase adj.) & T301 (19 kHz doubler)	Adjust for maximum AC voltage	Decrease pilot level, if necessary, so that 19kHz circuits do not limit or saturate.

11	90MHz	90MHz	Same	Same	Same			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 maximum 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	L or R output jack	L303 and L304 (SCA adj.)	Minimum output @ L or R output jack.	Adjust for minimum output with 67kHz modulation.
2	100MHz	100MHz	Same	19kHz stereo pilot	AC-VTVM or oscilloscope W/very low cap. probe.	T301, pin 2 or 3.	L302 (19kHz phase adj.) & T301 (19 kHz doubler)	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	T302, Pin1 or 2.	T302 (Pri) & bottom (Sec) tuning slugs	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.	Same	L or R output jack	T302, Bottom (Sec.) tuning slug. Also adj. R424	35dB seperation or more	First, set R424 to MAX resistance. Modulate left channel and measure right channel output. Adjust T302 bottom - tuning slug (Sec.) for minimum right channel output. (maximum separation). Then adjust R424 for maximum separation. Repeat the adjustment of T302 bottom and R424 until maximum seperation is obtained. Then, reverse channels and measure left channel separation. For this adjustment and measurement, no test lead should be connected to TP#2.
5	100MHz	100MHz	Same	1kHz (100% modulation) L or R only, pilot on	AC-VTVM	L or R output jack		Less than 25mV volts of residual	Adjust "FM-Level" control (R307) for 2.5 volts of audio output at fixed output jacks. Then, turn off the modulation and measure the residual of the 19kHz and 38kHz frequencies.

* ANTENNA MATCHING NETWORK



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
C23	Mylar	22μF	200V	064-087
C24	Mylar	.1μF	250V	064-086
C111	Elect.	100μF	15V	066-127
C210	Tant. Elect.	1.5μF	35V	066-092
C218	Elect.	100μF	15V	066-127
C301	Mylar	.22μF	50V	064-068
C305	Elect.	100μF	15V	066-127
C308	Elect.	100μF	15V	066-127
C313	Mylar	.1μF	250V	064-067
C315	Mylar	.22μF	250V	064-068
C402,403	Elect.	10μF	20V	066-149
C406,407	Elect.	22μF	20V	066-148
C410,411	Elect.	6.8μF	35V	066-146
C413	Mylar	.22μF	250V	064-068
C414	Elect.	5/300/150/1000 250/60/60/25		066-145

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	070-022
D201	Ge. signal diode	070-003
D202,203	Ge. signal diode	070-003
D301	Bias diode	070-046
D302,303	Si. signal diode	070-022
D304	Si. signal diode	070-022
D305,306	Ge. signal diode	070-003
D307,308	Ge. signal diode	070-003
D401	Zener diode 16V	070-048
D402,403	Si. rectifier	070-031
D404	Si. rectifier	070-031

FUSES

F200	Fuse	.5A Slo-Blo	089-020

CHOKES

L1	FM antenna coil	122-069
L2	FM RF coil	122-070
L3	Choke 1.2μH	122-011
L4	Choke .47μH	122-010
L5	Choke 2.5μH	122-033
L6	FM mixer coil	122-071
L7	FM local oscillator coil	122-072
L8	AM Loop antenna	122-074
L9	AM antenna trimming coil	122-073
L10	Choke 2.5μH	122-033
L101,102	Choke 75μH	122-013
L201	AM oscillator coil	122-066
L202	Choke 100MH	122-004
L301	Choke 1mH	122-065
L302	Filter coil (19kHz phase)	122-080
L303,304	Filter coil (SCA)	122-079

TRANSISTORS

Q1,2	Si. junction F.E.T.	132-049
Q3	Si. junction F.E.T.	132-049
Q4	Si. NPN transistor	132-015
Q5	Si. M.O.S. F.E.T.	132-064
Q201	Si. junction F.E.T.	132-049
Q202	Si. M.O.S. F.E.T.	132-064
Q203	Si. NPN transistor	132-041
Q204,205	Si. M.O.S. F.E.T.	132-061
Q301	Si. NPN transistor	132-057
Q302	Si. NPN transistor	132-052
Q303,304	Si. NPN transistor	132-057
Q305	Si. NPN transistor	132-057
Q306	Si. NPN transistor	132-042
Q400,401	Si. PNP transistor	132-056
Q402,403	Si. NPN transistor	132-041
Q404,405	Si. NPN transistor	132-052
Q406	Si. NPN transistor	132-072
Q407	Si. NPN transistor	132-041

POTENTIOMETERS

R221	AM level control	134-177
R244	Volume control	134-217
R307	Muting control	134-216
R309	FM level control	134-197
R424	Separation adjust	134-212
R435	Meter adjust	134-197

MR 73

	CHOKES	
FM antenna coil		122-069
FM RF coil		122-070
Choke 1.2µH		122-011
Choke .47µH		122-010
Choke 2.5µH		122-033
FM mixer coil		122-071
FM local oscillator coil		122-072
AM Loop antenna		122-074
AM antenna trimming coil		122-073
Choke 2.5µH		122-033
Choke 75µH		122-013
AM oscillator coil		122-066
Choke 100MH		122-004
Choke 1mH		122-065
Filter coil (19kHz phase)		122-080
Filter coil (SCA)		122-079
	TRANSISTORS	
Si. junction F.E.T.		132-049
Si. junction F.E.T.		132-049
Si. NPN transistor		132-015
Si. M.O.S. F.E.T.		132-064
Si. junction F.E.T.		132-049
Si. M.O.S. F.E.T.		132-064
Si. NPN transistor		132-041
Si. M.O.S. F.E.T.		132-061
Si. NPN transistor		132-057
Si. NPN transistor		132-052
Si. NPN transistor		132-057
Si. NPN transistor		132-057
Si. NPN transistor		132-042
Si. PNP transistor		132-056
Si. NPN transistor		132-041
Si. NPN transistor		132-052
Si. NPN transistor		132-072
Si. NPN transistor		132-041
	POTENTIOMETERS	
AM level control		134-177
Volume control		134-217
Muting control		134-216
FM level control		134-197
Separation adjust		134-212
Meter adjust		134-197

	RESISTORS	
R428	Wirewound 47Ω 5W	139-045
R429	Wirewound 2Ω 5W	139-005
R430	Wirewound 2.7Ω 1W	139-002
	SWITCHES	
S1	Antenna selector	148-019
S2	AM sensitivity	148-023
S3	Mode selector	146-135
S301	Muting switch	146-136
S302	H.F. filter switch	146-136
S401	Dial scale intensity	148-023
	TRANSFORMERS	
T1	Balun	043-226
T2	FM IF transformer	162-042
T3	AM antenna matching trans.	162-043
T4	AM RF transformer	162-033
T101	FM discriminator	162-036
T201	AM IF transformer	162-038
T202	AM IF transformer	162-038
T203	AM IF transformer	162-038
T301	RF transformer (19kHz)	162-031
T302	RF transformer (38kHz)	162-039
T401	Power transformer	043-865
	TUBES	
V1	6HU6	165-025
	INTEGRATED CIRCUITS	
IC1,2	Integrated circuit	133-002
	METERS	
M1	Signal strength meter	124-005
M301	Tuning Meter	124-006
	CRYSTAL FILTERS	
XF-1	Crystal filter	044-045
XF-2	Crystal filter	044-045A
	LAMPS	
	#1847 (meter lamp)	058-008
	#1866 (front panel)	058-014
	#1828 (MPX lamp)	058-027
	Festoon lamp (dial glass)	058-032
	FRONT PANEL & TRIM	
	Front panel	043-971
	Front panel end caps	018-120
	Tuning knob	043-272
	Volume control knob	043-253
	Mode selector knob	043-253
	Muting knob	043-253

H.F.
Muti
Shel
Shel
Mour
Harc
FM c
Dial
Poir
Dial
Fuse
AC p
Ship
Owne
Plas
Push
Aud
LDR

H.F. filter knob	043-253
Muting adj. knob	090-010
MOUNTING SYSTEM	
Shelf bracket (right)	043-592
Shelf bracket (left)	043-593
Mounting template #100	038-179
Hardware package	043-446
MISCELLANEOUS ITEMS	
FM dipole antenna	170-033
Dial glass	044-079
Pointer	043-876
Dial cord (complete)	043-891
Fuseholder	178-001
AC power cord	170-021
Shipping carton	043-988
Owners manual	038-448
Plastic feet	017-041
Push terminal (antenna)	074-032
Audio cable (6')	170-015
LDR network	144-013

SERVICE BULLETIN

FM-RF AMPLIFIER MODIFICATION

MODEL: MR73 FM/AM Tuner

PURPOSE OF MODIFICATION: To decrease power dissipation in transistor Q2

WHAT UNITS ARE AFFECTED: Serial No. 10T01 to 27T84 Only.

WHEN MODIFICATION SHOULD BE MADE: When the customer complains that FM sensitivity has decreased or FM tuner has become noisy.

McINTOSH MODIFICATION KIT NO.: 044-175

PARTS REQUIRED: (Supplied in Kit)

QUANTITY	PART NUMBER	DESCRIPTION
1	132-049	FET transistor (RS USE 132-097 @)
1	136-396	220Ω 10% 1/4W resistor

PROCEDURE: (Refer to the diagram on reverse side)

Step 1 Remove bottom cover and bottom cover of RF front end.

Step 2 Replace transistor Q2. Be sure leads are of same length and have same positioning as used on original transistor.

Step 3 Counting from the front of the tuner, locate the fourth feed-thru capacitor on the left side of the RF front end. Remove the red lead and connect it to the unused second feed-thru capacitor. Remove the 220Ω 10% 1/4W resistor (R2) connecting between feed-thru capacitors 3 and 4, and connect this resistor between feed-thru capacitors 2 and 3. Connect the new 220Ω 10% 1/4W resistor (R21) between feed-thru capacitors 2 and 4.

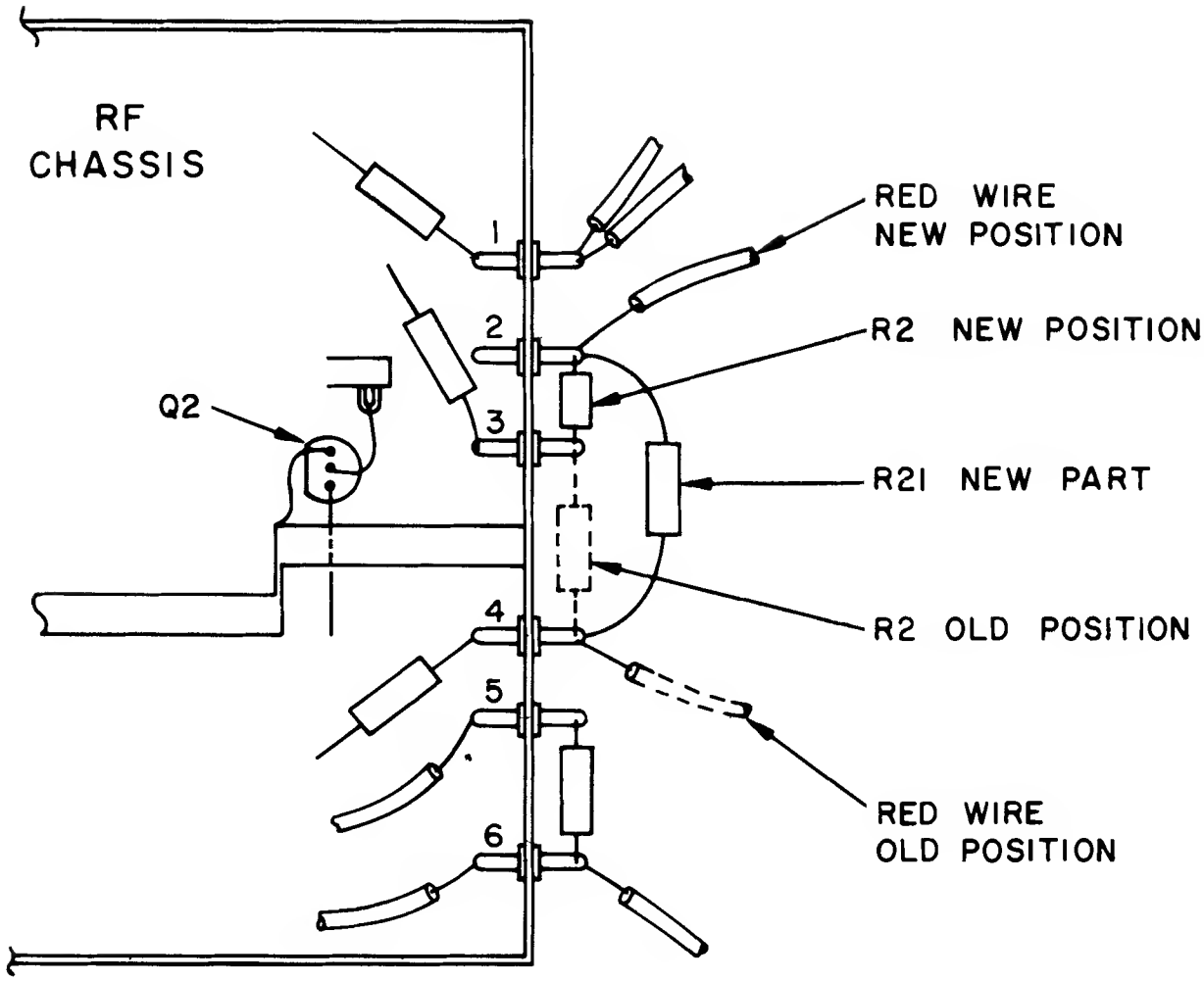
Step 4 Replace both covers.

Step 5 Check performance of tuner. Perform alignment steps 6 and 7 as in Service Manual if necessary to meet performance specifications. To perform alignment remove the cover from the top of the RF front end.

(over)

MR73
S.B. No. 1

FRONT OF UNIT



BOTTOM VIEW

038-436

McIntosh SERVICE BULLETIN

AM NOISE REDUCTION MODIFICATION

MODEL: MR 73 FM/AM Tuner

PURPOSE OF MODIFICATION: To improve AM signal to noise ratio.

WHAT UNITS ARE AFFECTED: Serial No. 10T01 to 35T90 Only.

WHEN MODIFICATION SHOULD BE MADE: When customer complains that AM is noisy on local stations or that sensitivity is poor.

McINTOSH MODIFICATION KIT NO.: No kit.

PARTS REQUIRED:

QUANTITY	PART NUMBER	DESCRIPTION
1	061-043	.01μF +80-20% Disc capacitor

PROCEDURE:

Step 1 Remove Multiplex-AM top and bottom covers. Remove capacitors C204 and C208 on AM PC board. See service manual for exact location.

Step 2 Remove bottom cover of RF front end. Connect the .01μF disc capacitor across R17, a 270Ω 1/4W resistor. (One end of R17 is connected to Q5). Replace covers.

Step 3 Check performance. If dial calibration is off at high end of the band, perform AM alignment steps 3, 5, and 7 as in service manual. The top cover of the RF front end is removed for access to the alignment trimmers.

MR 73
S.B. No. 2

McIntosh Laboratory Incorporated 2 Chambers Street Binghamton, New York 13903 Phone: Area Code 607-723-3512