

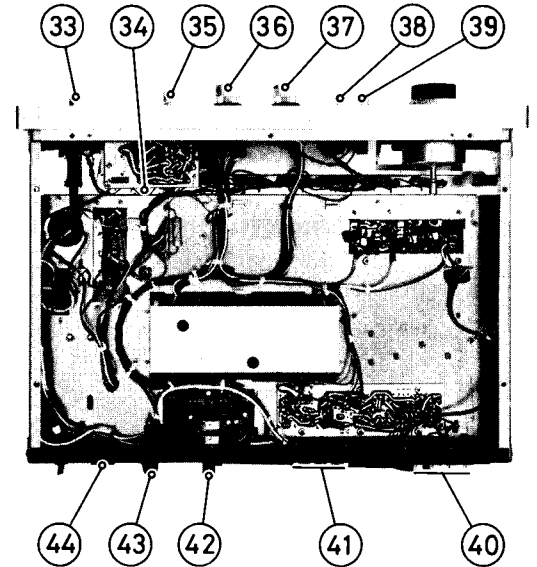
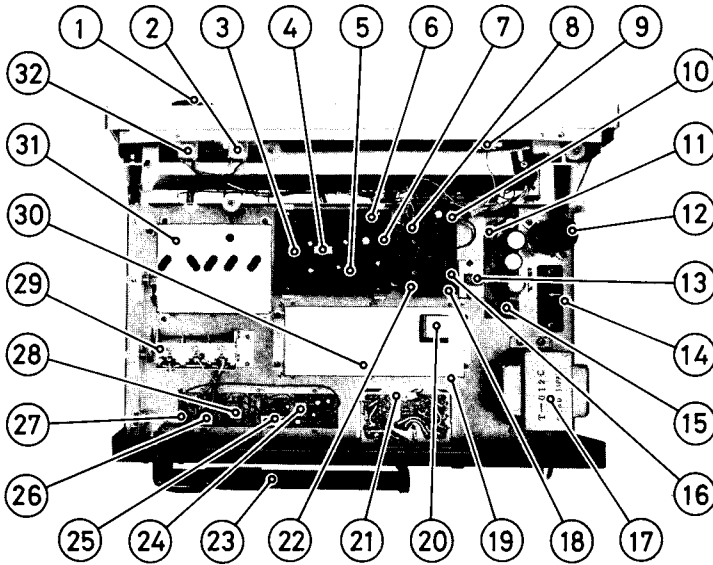
technical manual

TABLE OF CONTENTS

CHASSIS LAYOUT	2	DIAL STRINGING DIAGRAM.....	10
PRECAUTIONS	2	FM FRONT END SCHEMATIC DIAGRAM	11
AM ALIGNMENT PROCEDURE	3	FM IF AMPLIFIER CIRCUIT BOARD DIAGRAM	12
FM ALIGNMENT PROCEDURE	4	AM CIRCUIT BOARD DIAGRAM	13
FM-STEREO (MPX) ALIGNMENT PROCEDURE	5	FM STEREO (MPX) CIRCUIT BOARD DIAGRAM	14
FM MONO-STEREO AUTOMATIC SWITCHING		RECTIFIER CIRCUIT BOARD DIAGRAM	15
LEVEL ADJUSTMENT PROCEDURE	6	MUTING CIRCUIT BOARD DIAGRAM	15
FM MUTING & FM SIGNAL METER		PHONO AMPLIFIER CIRCUIT BOARD DIAGRAM	16
LEVEL ADJUSTMENTS	6	AUDIO AMPLIFIER CIRCUIT BOARD DIAGRAM	16
GAIN DIAGRAM	7	SCHEMATIC CIRCUIT DIAGRAM	17
TROUBLE SHOOTING	7	PARTS LIST	20

CHASSIS LAYOUT

- | | | |
|-------------------------------------|--|----------------------------------|
| 1. Tuning Knob | 16. Muting Coil, L801 | 31. FM Front End |
| 2. FM Tuning Meter, M001 | 17. Power Transformer, T001 | 32. Signal Meter, M002 |
| 3. MPX 38KHz Filter, L302 | 18. Muting Circuit Board | 33. Power Switch, S-1 |
| 4. De-emphasis Switch, S-2 | 19. FM IF Amp. Circuit Board | 34. Headphone Amp. Circuit Board |
| 5. MPX Coil 19KHz/38KHz Tune, L301 | 20. FM IFT, Ratio Detector, T101 | 35. Phones Level Control, VR401 |
| 6. FM MPX Circuit Board | 21. Audio Amp. Circuit Board | 36. Selector Switch, S-5 |
| 7. FM Stereo Separation Adj., VR301 | 22. Muting Level Adj., VR803 | 37. Muting Switch, S-6 |
| 8. Muting Level Adj., VR802 | 23. AM Antenna Coil. L003 | 38. Dimmer Switch, S-4 |
| 9. Dial Pointer | 24. AM IFT, T204 | 39. MPX Filter Switch, S-3 |
| 10. Signal Meter Level Adj., VR801 | 25. AM Bandpass Filter, T203 | 40. Antenna Terminal Strip |
| 11. Rectifier Circuit Board | 26. AM RF Coil, T201 | 41. Output Jack |
| 12. Ripple Filter Capacitor, C005 | 27. AM Conv. and IF Amp. Circuit Board | 42. Output Level Control, VR501 |
| 13. Stabilizer Transistor, Q901 | 28. AM Oscillator Coil. T202 | 43. Fuse Holder |
| 14. Voltage Selector | 29. AM Variable Capacitor | 44. AC Outlet |
| 15. Rectifier, D902 | 30. FM Mono-Stereo Switching Level Adj., VR101 | |



PRECAUTIONS

1. Always disconnect the chassis from power line when soldering. Turning the power switch OFF is not enough. Power line leakage passing through the heating element may destroy the transistors and IC.
2. Never attempt to do any work on the transistor amplifiers without first disconnecting the AC line cord and waiting until the power supply filter capacitors have discharged.

AM ALIGNMENT PROCEDURE

Instruments: AM Signal Generator, AC VTVM and Harmonics Distortion Analyzer.

NOTES: Set Selector switch to AM.

Input signal must be kept as low as possible to avoid AVC action, except Step 5.

Step	Generator		Tuning Dial Setting	Output Indicator Connected to	Adjust	Adjust for
	Coupling	Frequency				
1	VC2 (Hot end) through a 0.01 mfd capacitor. See Fig. 1	455KHz (400Hz 30% Mod.)	Non interfering at low end of scale.	AC VTVM to OUTPUT jack (Left or Right)	T204 and T203 (on AM IF board)	Maximum reading on VTVM.
2	Connect to short loop of wire. Radiate signal into ferrite loop-stick antenna.	600KHz (400Hz 30% Mod.)	600KHz		T202 (OSC) T201 (RF) (on AM IF board) and L003 (ANT)	
3		1400KHz (400Hz 30% Mod.)	1400KHz		CT3 (OSC) CT2 (RF) and CT1 (ANT) (on AMVC)	
4	Repeat steps 2 and 3 until no further improvement is noticed.					
5	Same as in Step 2. Antenna Input level 5mV.	1000KHz (400Hz 30% Mod.)	1000KHz	Distortion Analyzer to OUTPUT jack	T204	Minimum Distortion.

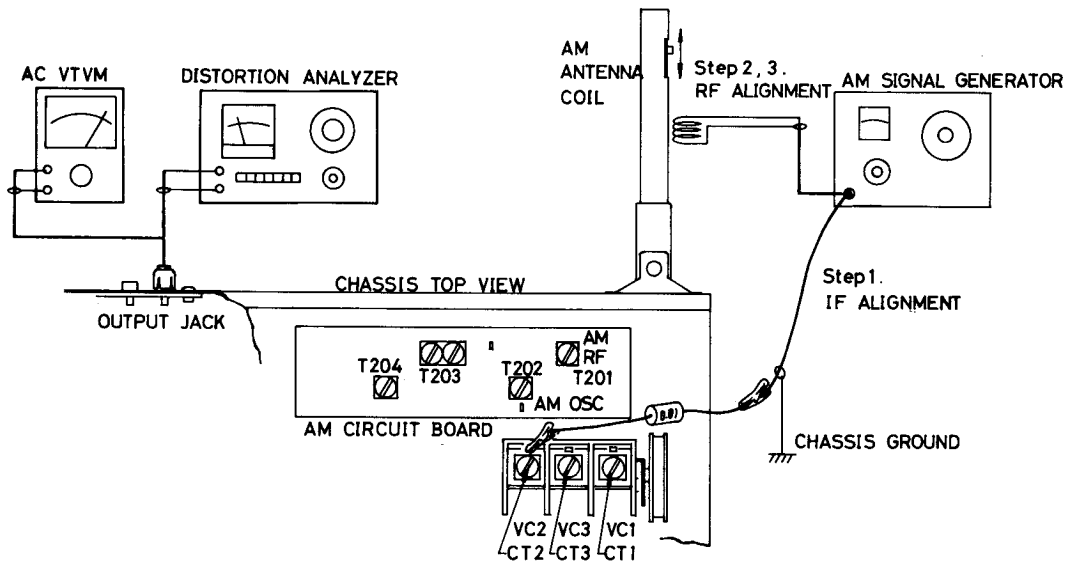


Figure 1. AM Alignment Hook-up

FM ALIGNMENT PROCEDURE

Instruments: FM Signal Generator, Oscilloscope and Distortion Analyzer.

Set Selector switch to FM MONO, Muting switch to OFF and Noise Filter switch to OFF position.

Connect FM Signal Generator to FM antenna terminals.

Connect Oscilloscope and Distortion Analyzer to OUTPUT jack.

Step	Generator		Tuning Dial Setting	Adjust	Adjust for
	Sig. Strength	Frequency			
1	No signal input.		Quiet point on band.	T101 (on FM IF board) Top	Center of FM Tuning Meter (zero point on for Tuning Meter)
2	1 mV	98 MHz (400 Hz 100% Mod.)	Tune for Center of for Tuning Meter	T101 Bottom	Minimum reading on Distortion Analyzer (minimum distortion).
3	1 mV → 0			T1 (on Front end) Top and Bottom.	
4	Repeat steps 2 and 3 until no further improvement is noticed.				
5	Signal strength must be kept -3db of limiter saturation.	90 MHz (400 Hz 100% Mod.)	90 MHz	LO (FM OSC), LR3, LR2, LR1 and LA coil (on Front end)	Maximum output and maximum I.H.F. sensitivity.
6		106 MHz (400 Hz 100% Mod.)	106 MHz	TC0 (FM OSC), TCR3, TCR2, TCR1 (FM RF) and TCA (FM ANT) trimmer (on Front end)	
7	Repeat steps 5 and 6 until no further improvement is noticed.				

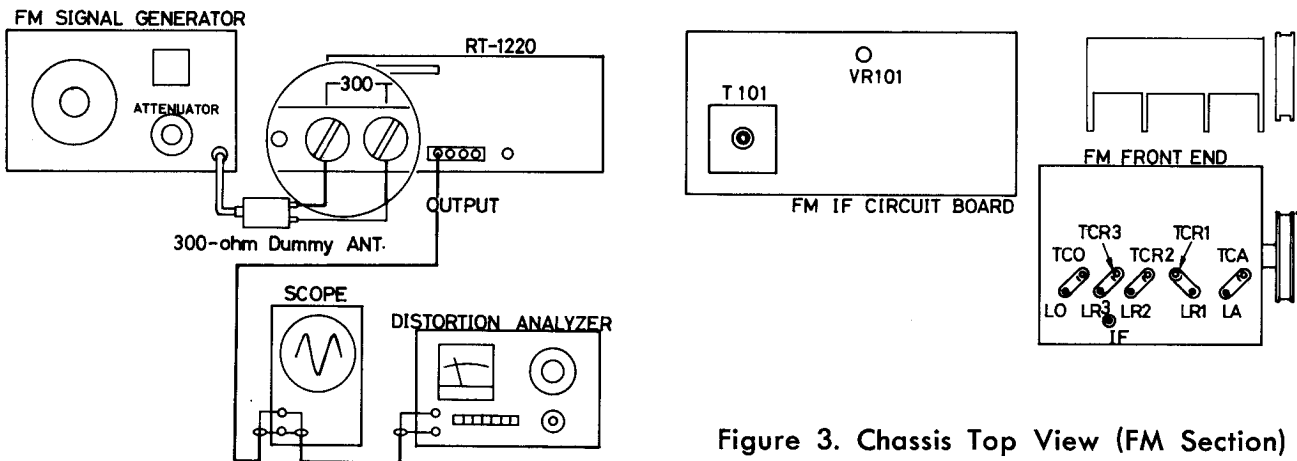


Figure 2. FM Alignment Hook-up

Figure 3. Chassis Top View (FM Section)

FM-STEREO (MPX) ALIGNMENT PROCEDURE

NOTE: The FM IF Alignment must be completed before attempting this FM-MPX Alignment. Poor IF alignment will result in poor FM-SMPX Alignment.

Set Selector switch to FM AUTO, and MPX Filter switch to OFF position.

Connect FM Stereo Generator to FM antenna Terminals.

Set Separation Adj. VR301 (on MPX board) to mid-position before starting this procedure.

Step	Stereo Generator		Output Indicator Connected to	Adjust	Adjust for
	Modulation	RF Deviation			
1	19 KHz Pilot only	1 – 2%	VTVM & Oscilloscope to T.P. (See Fig. 4)	L301, 38KHz 19KHz (yellow and Black)	Maximum reading on VTVM.
2	Composite 1 KHz signal to Left channel only.	Pilot 10% Signal 70%	VTVM & Oscilloscope to Left channel OUTPUT	L301 (Black)	Maximum and undistorted sine wave on scope.
3	Composite 1 KHz signal to Right channel only.			VR301	Minimum reading on VTVM.
4	Same as in Step 2		VTVM & Oscilloscope to Right channel OUTPUT		
5	Repeat steps 3 and 4 until no further improvement is noticed.				

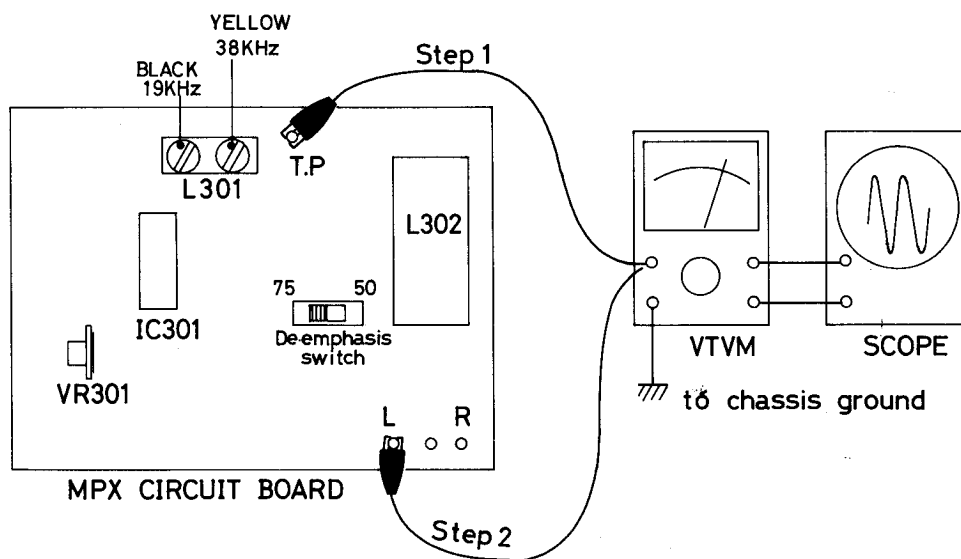


Figure 4. MPX Alignment Hook-up

FM MONO-STEREO AUTOMATIC SWITCHING LEVEL ADJUSTMENT PROCEDURE

1. Connect a VTVM and Oscilloscope to the OUTPUT jack (Left or Right).
2. Feed the FM signal whose MPX has been varied into the FM ANT terminals.
MPX variation Pilot 10%
Audio Frequency 1,000Hz (Left or Right chan.) 90%
3. Set the frequency at 98 MHz (when there are disrupting signal, choose another setting).
4. Set the FUNCTION switch to FM Auto.
5. Turn CCW the MONO – STEREO Auto-switching Level Adj. VR101 (on FM IF board): this is a condition in which Auto-switching does not function.
6. Adjust the FM MPX so that the distortion and separation will be best.
7. Adjust the VR101 so that when the antenna input level is $30\mu\text{V}$ or more, Stereo will switch in and when the input is below the $30\mu\text{V}$ level, Mono will switch in.
8. After adjustment, check to make sure that, indeed, when the antenna input level exceeds $30\mu\text{V}$, Stereo will switch in.

FM MUTING AND FM SIGNAL METER LEVEL ADJUSTMENTS

TEST EQUIPMENTS: FM SIGNAL GENERATOR & OSCILLOSCOPE

1. Connect FM Signal Generator to FM antenna terminals. Set Signal Generator frequency to 90MHz and adjust Signal Generator attenuator to obtain the antenna input level of 1mV (terminal voltage). Then fine tune to 90MHz by turning the tuning knob (Set the minimum distortion to zero on FM tuning meter). Temporarily adjust VR-801 so that oscillation on signal meter stays in the range of 6 to 8. Adjust oscillation on signal meter to the minimum point by turning the muting coil L801. See figure 5.
When it is difficult to get the minimum point of oscillation on signal meter, adjust it by slightly decreasing the antenna input level (approximately 50 dB).
2. Connect oscilloscope to the tuner output terminal, then set the antenna input level to "10 μV " position and adjust VR802 until the waveform on oscilloscope vanishes. See figure 6a.

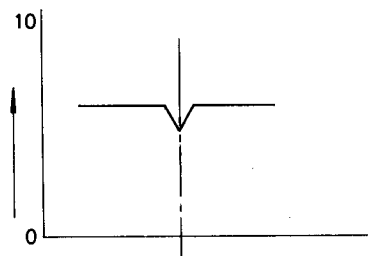


Figure 5. Muting Coil Adjustment

3. Make sure that the waveform vanishes when the antenna input level is increased to 60dB and signal generator frequency is detuned to $\pm 100\text{KHz}$.
When the waveform vanishing point is extremely unbalanced, fine tune L801 to balance it. It is necessary that the waveform vanishes in the range of $\pm 20\text{KHz}$ from detuning point of 100KHz. Also after readjusting step2 make sure that the waveform vanishes at the input of $10\mu\text{V}$ after increasing the antenna input level and slowly decreasing it.
4. Change the muting switch to "30 μV " position. Set the antenna input level to 30 V and adjust VR803 until the waveform vanishes at the input of $30\mu\text{V}$ after increasing the antenna input level and slowly decreasing it.

This adjustment should be done after completing muting adjustment. Set the antenna input level to 1mV (60dB) and adjust VR801 until deflection on signal meter is at the point "8".

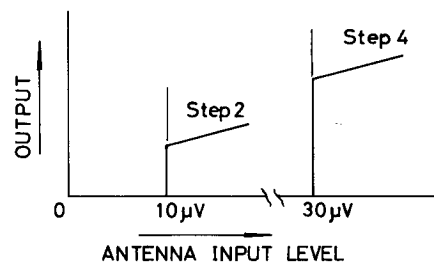
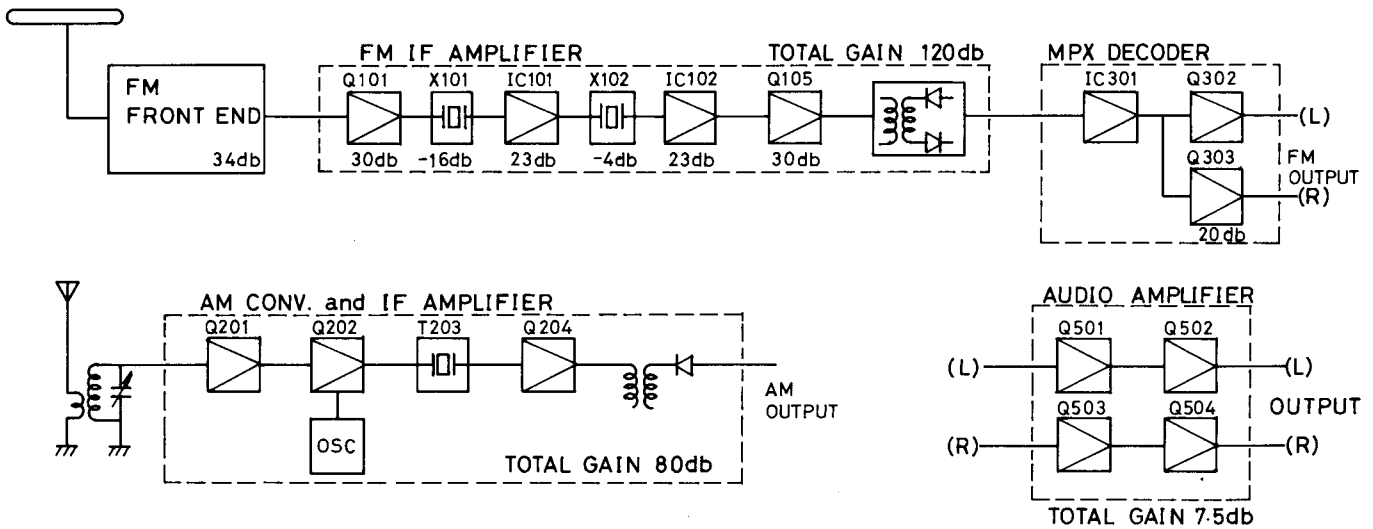


Figure 6. Muting Level Adjustment

GAIN DIAGRAM



TROUBLE SHOOTING

CHART 1.

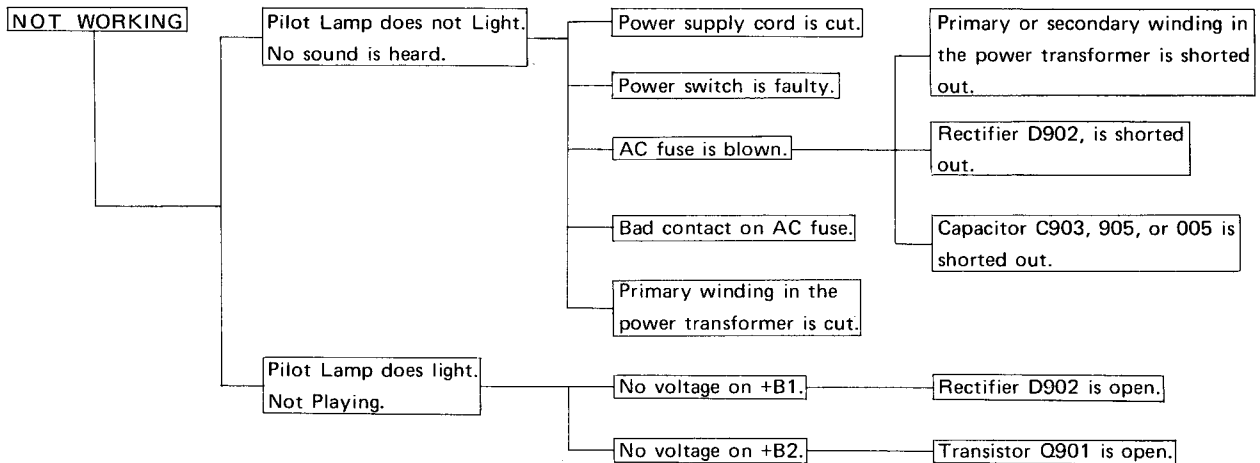


CHART 2.

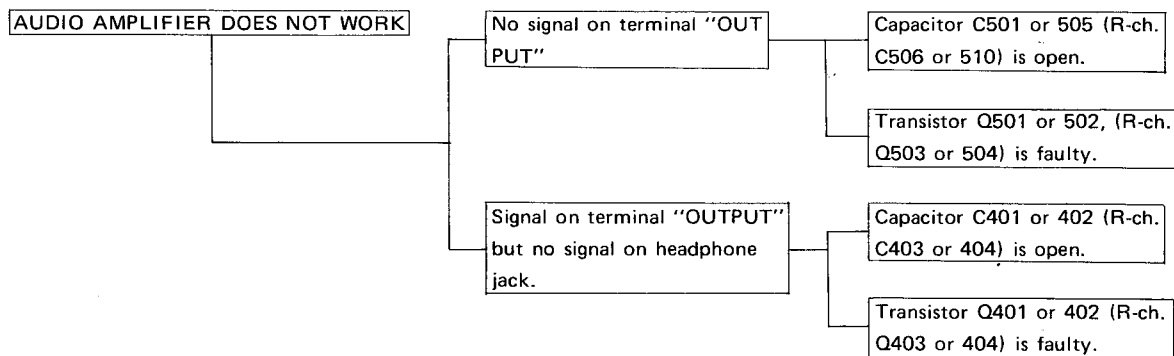


CHART 3.

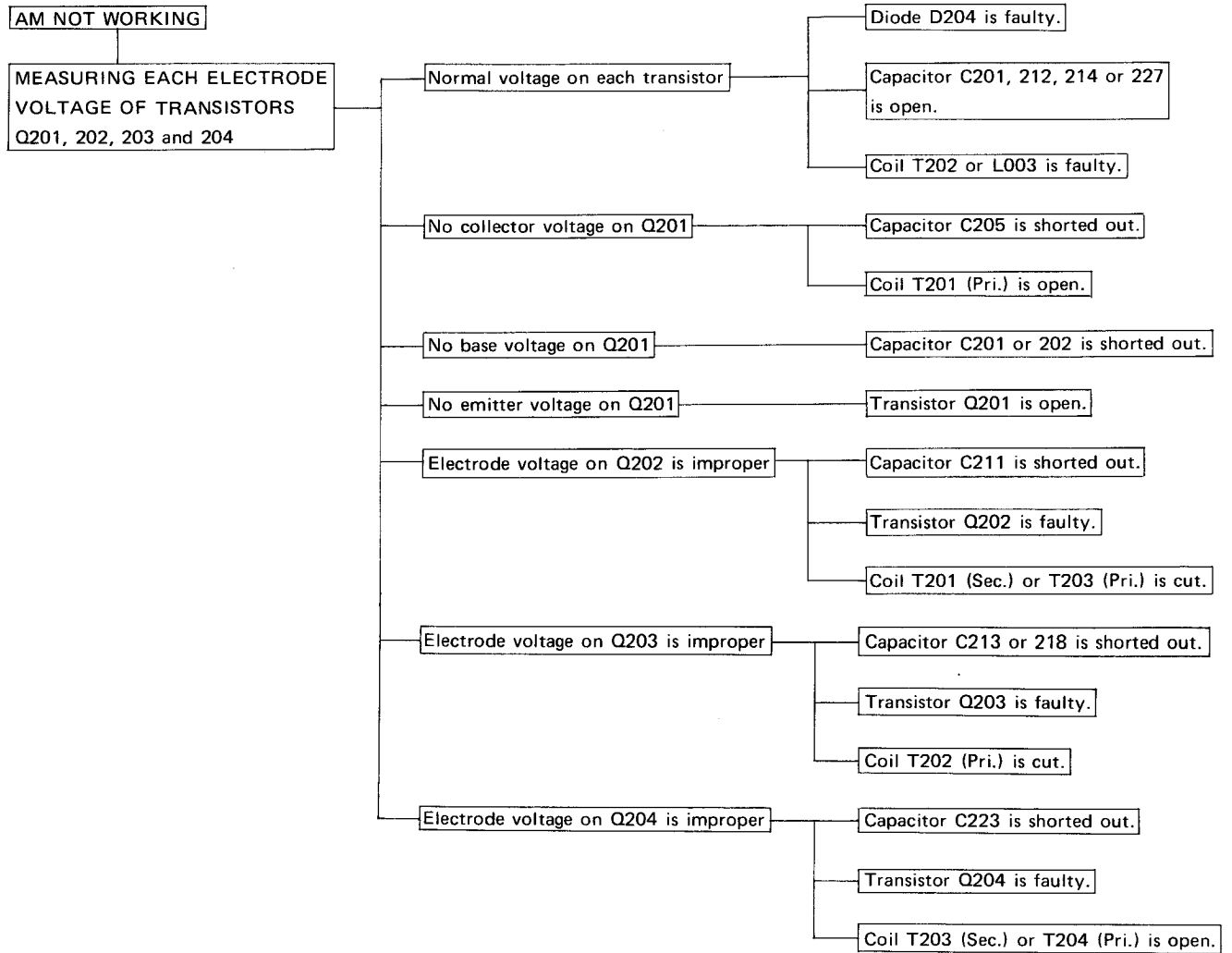


CHART 4.

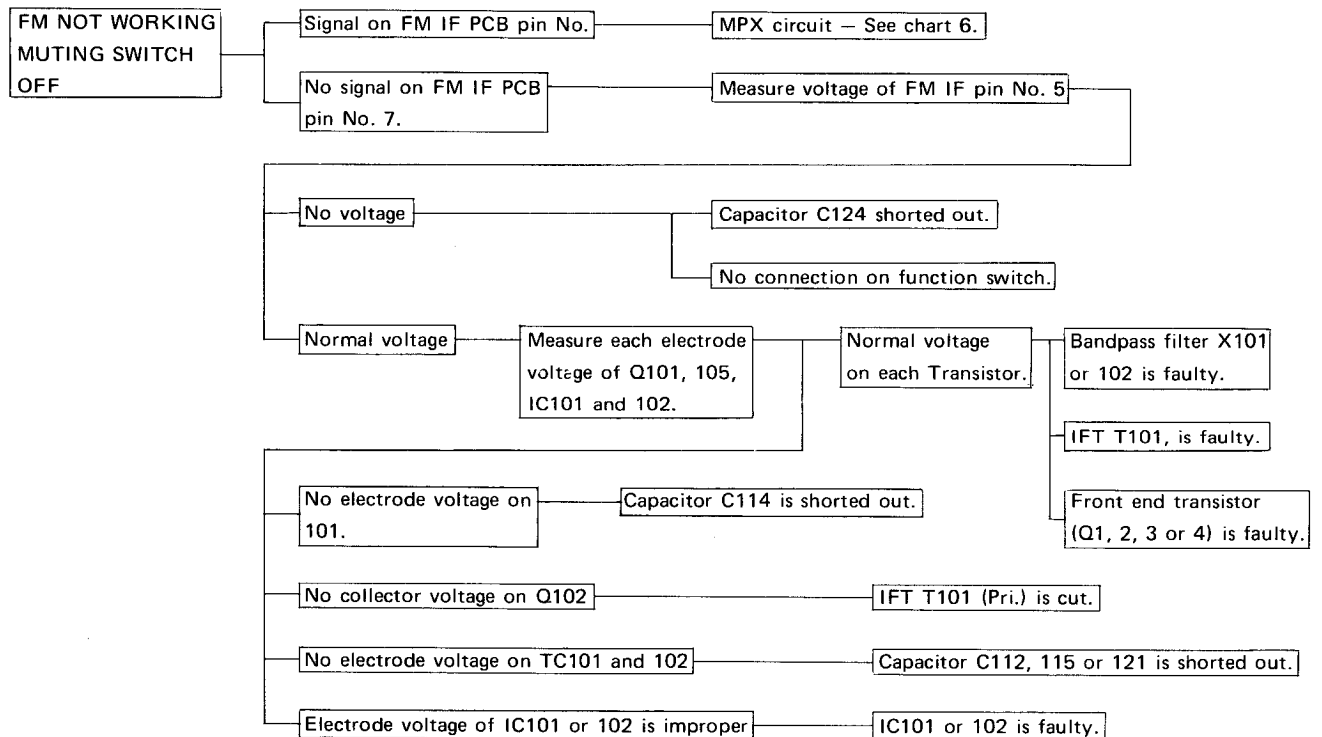


CHART 5.

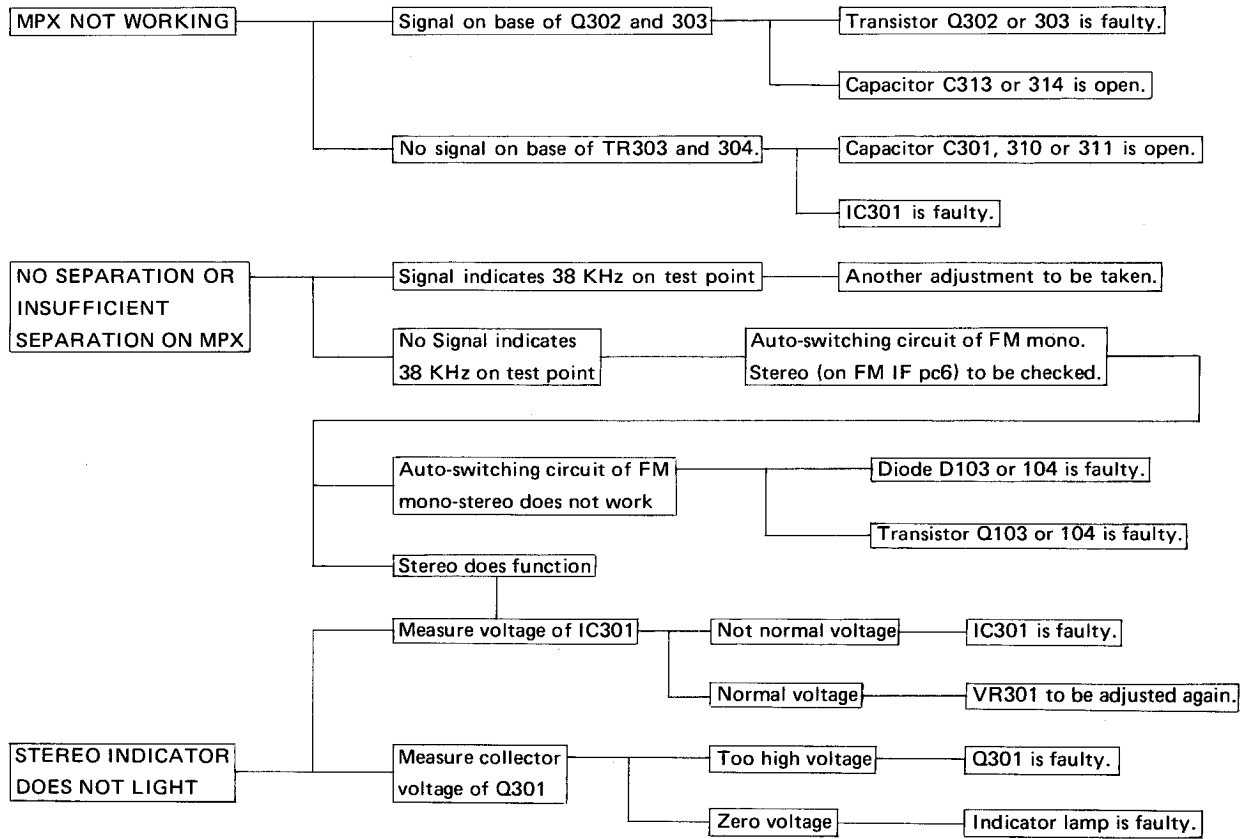
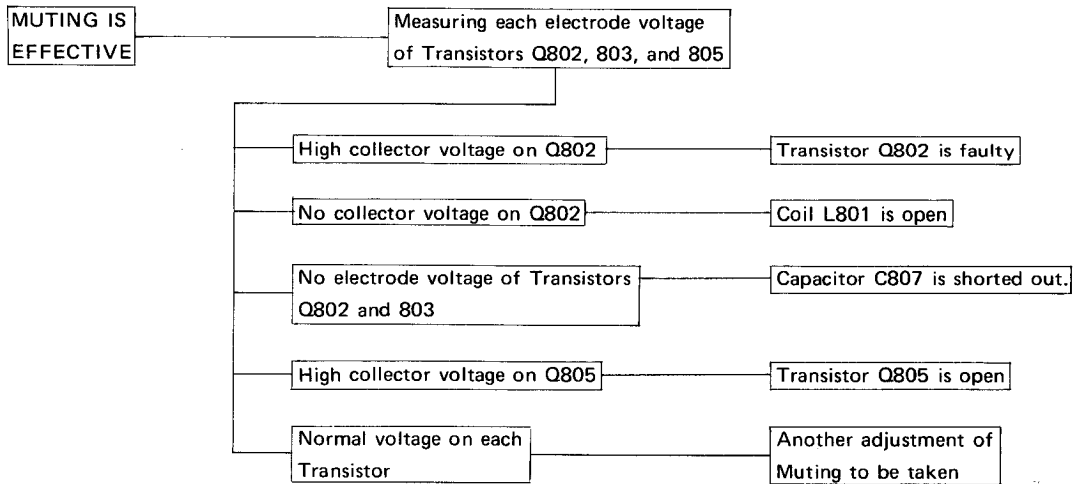


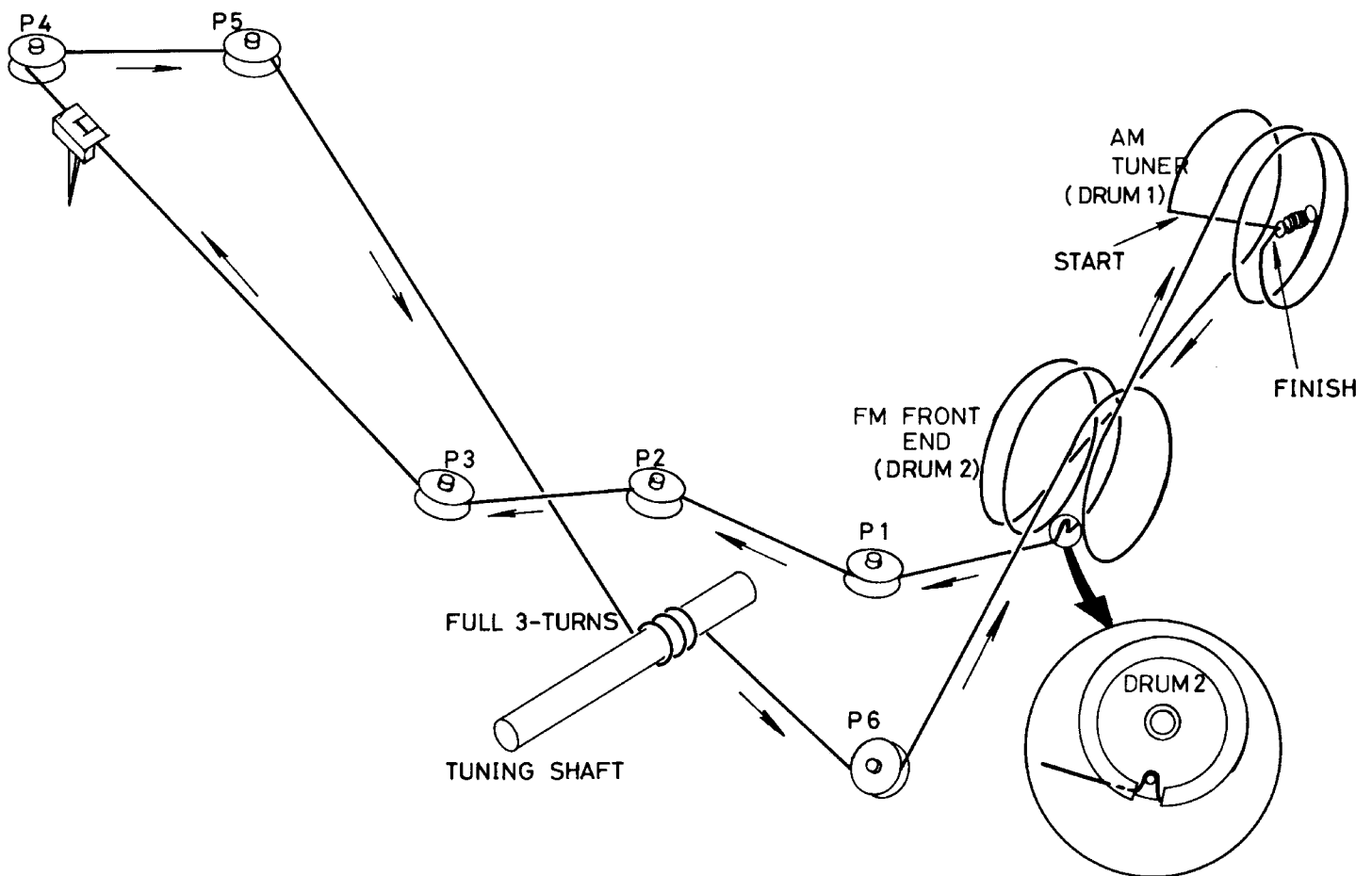
CHART 6.



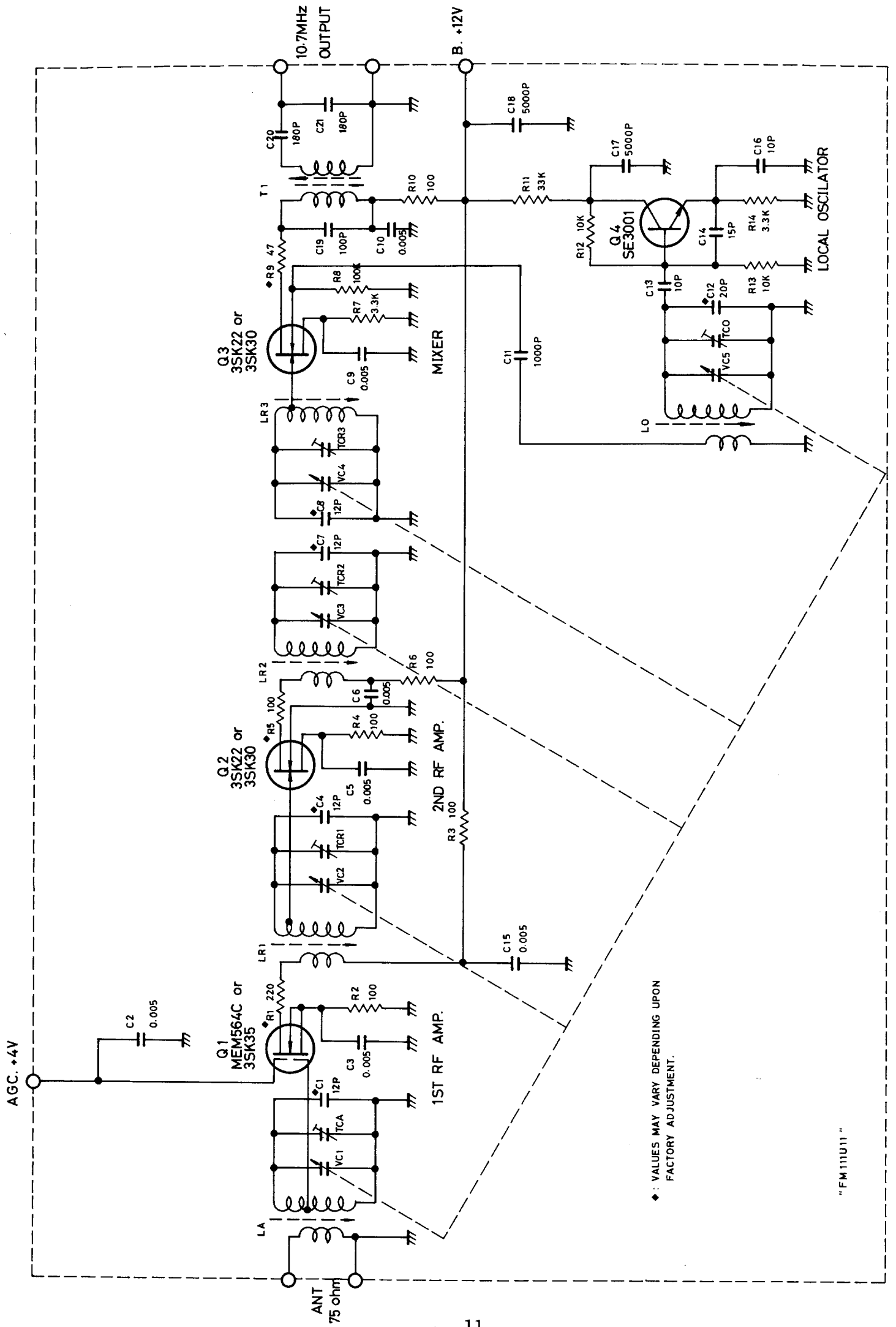
DIAL STRING DIAGRAM

DIAL STRINGING PROCEDURES

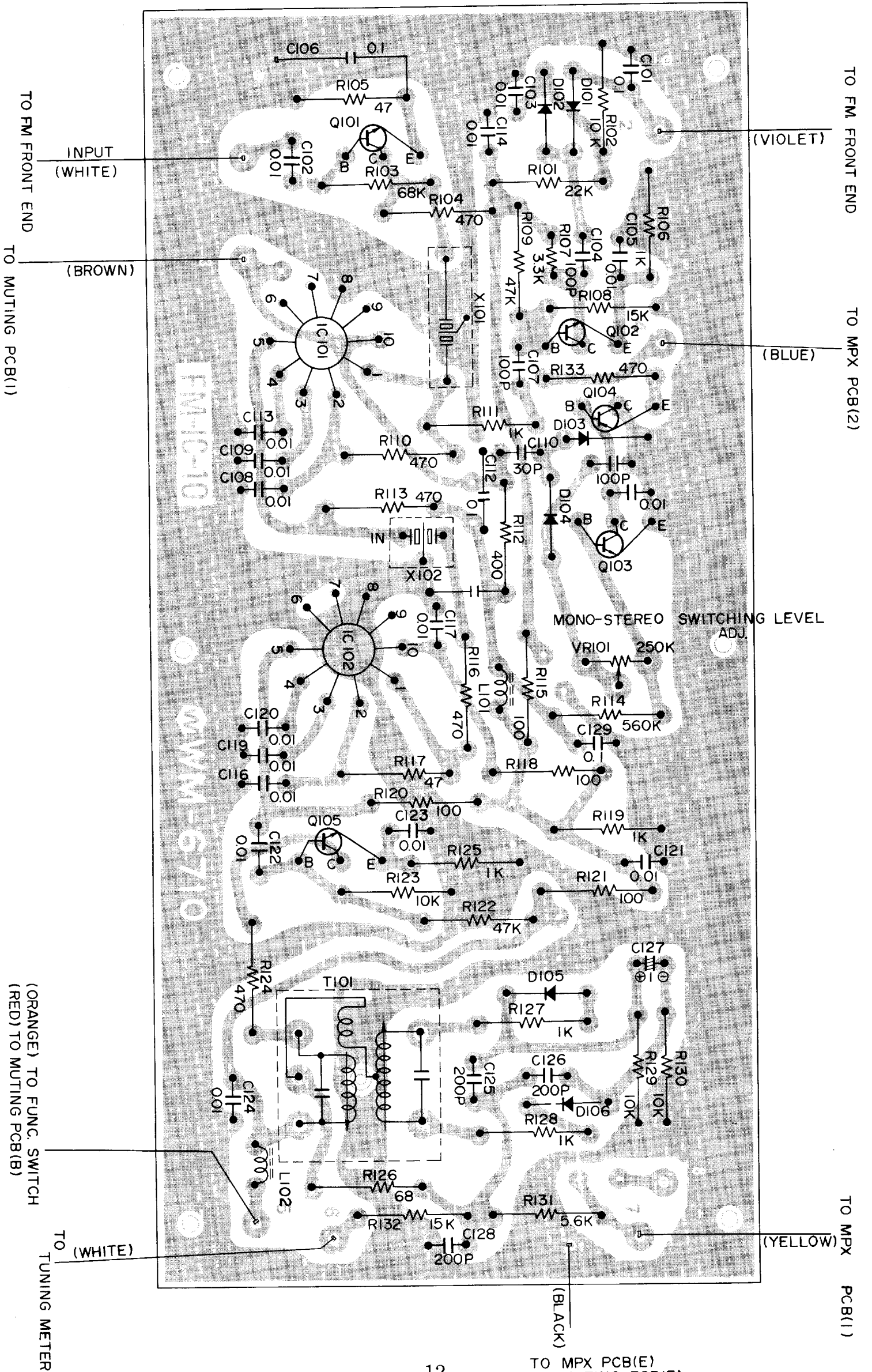
1. In order to place both AM and FM variable capacitors (Front End) at common positions, turn DRUM 1 and DRUM 2 fully clockwise until stop.
2. Begin the stringing by winding a string once around DRUM 1 clockwise and to DRUM 2, at which make 2 windings before going onto the idler pulley P1. Be sure to hook the string on the protrusion inside DRUM 2 as illustrated.
3. After winding through the idler pulleys P1, P2, P3, P4 and P5 as shown, the string should be wound 3 full turns around Tuning Shaft.
4. After winding through P6, string should be wound 1 full turn around DRUM 2 and then 2 full turns around DRUM 1. Finally, fix the string onto the spring at the same place as where the starting end is attached.



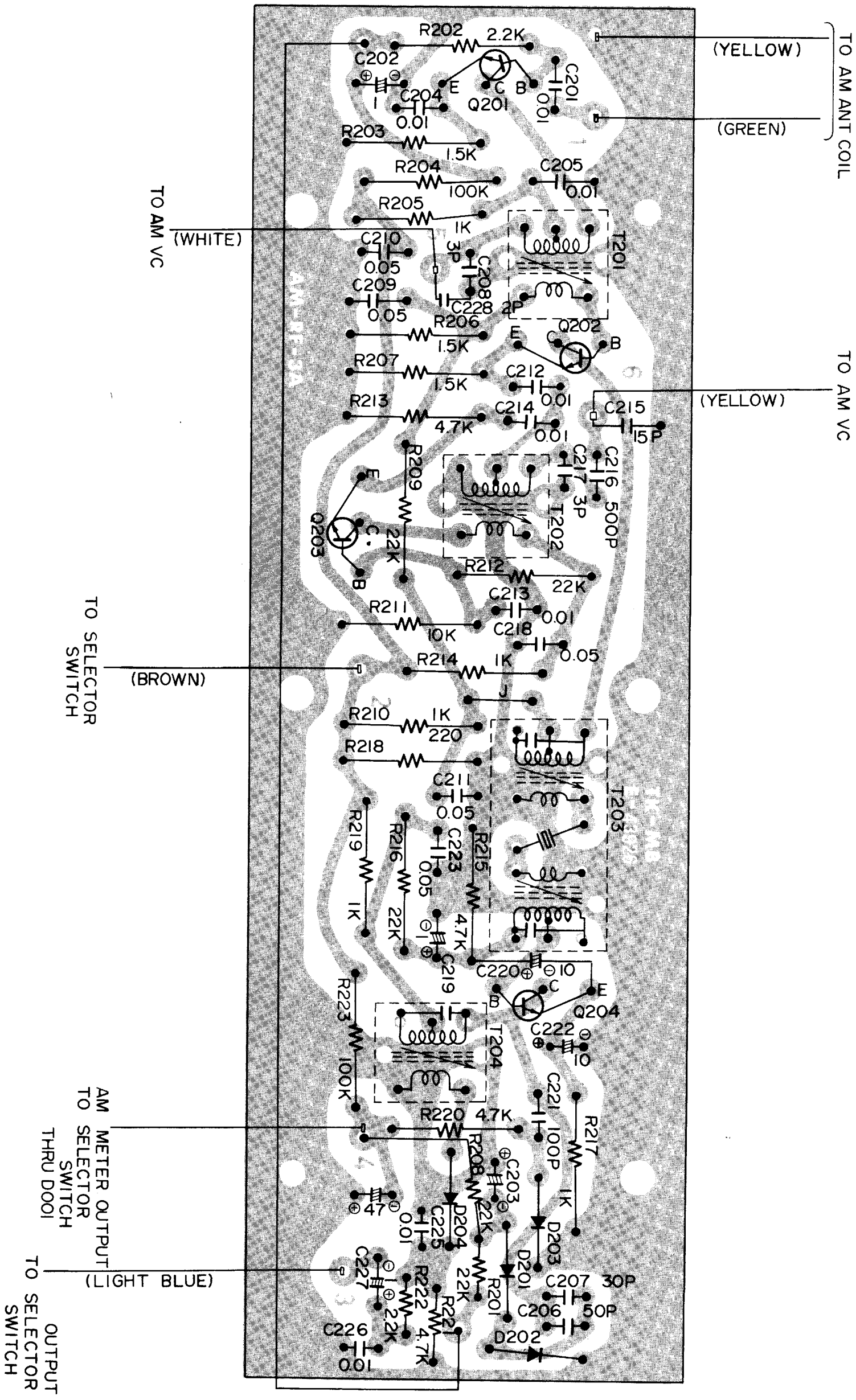
FM FRONT END SCHEMATIC DIAGRAM



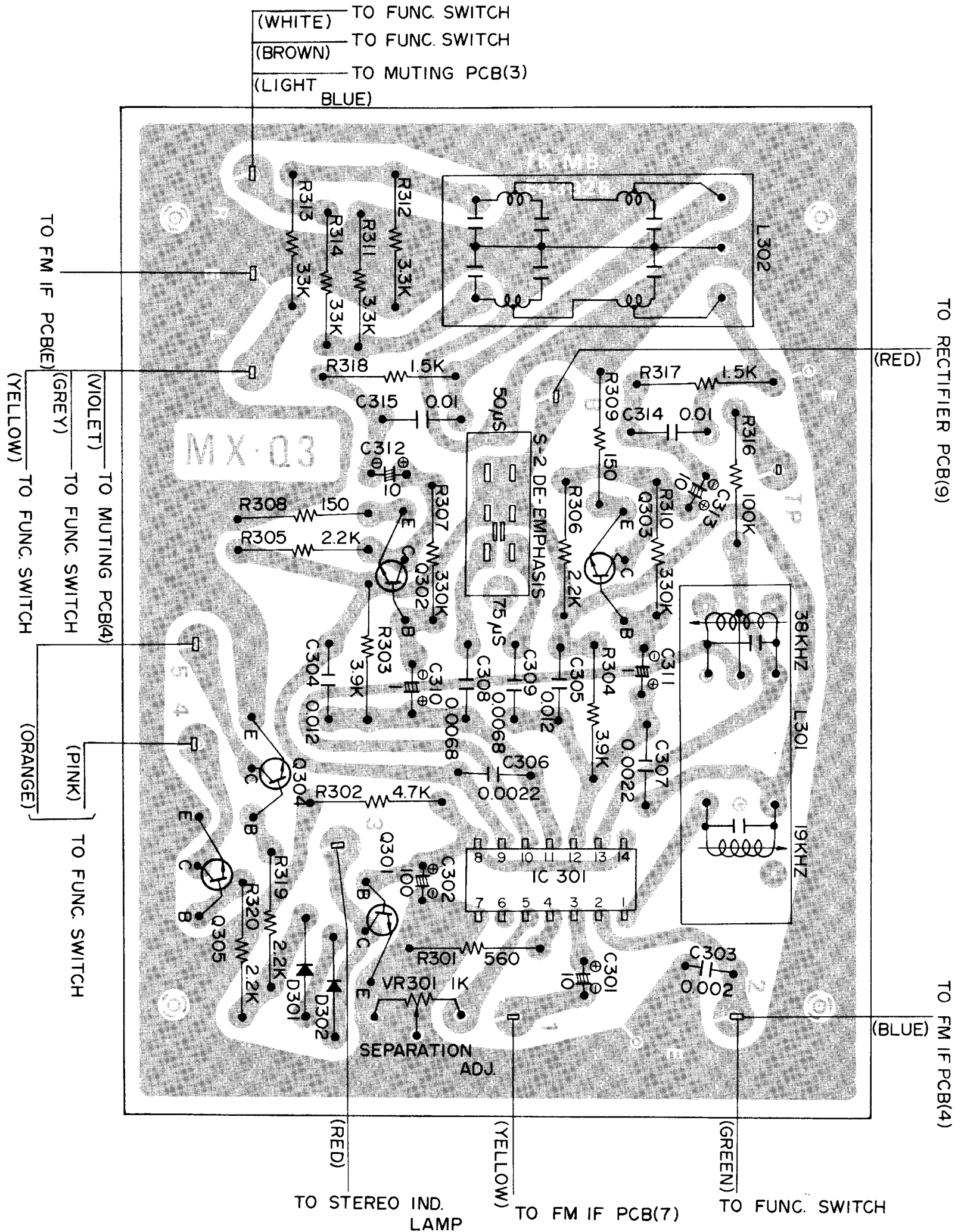
FM IF AMPLIFIER CIRCUIT BOARD DIAGRAM



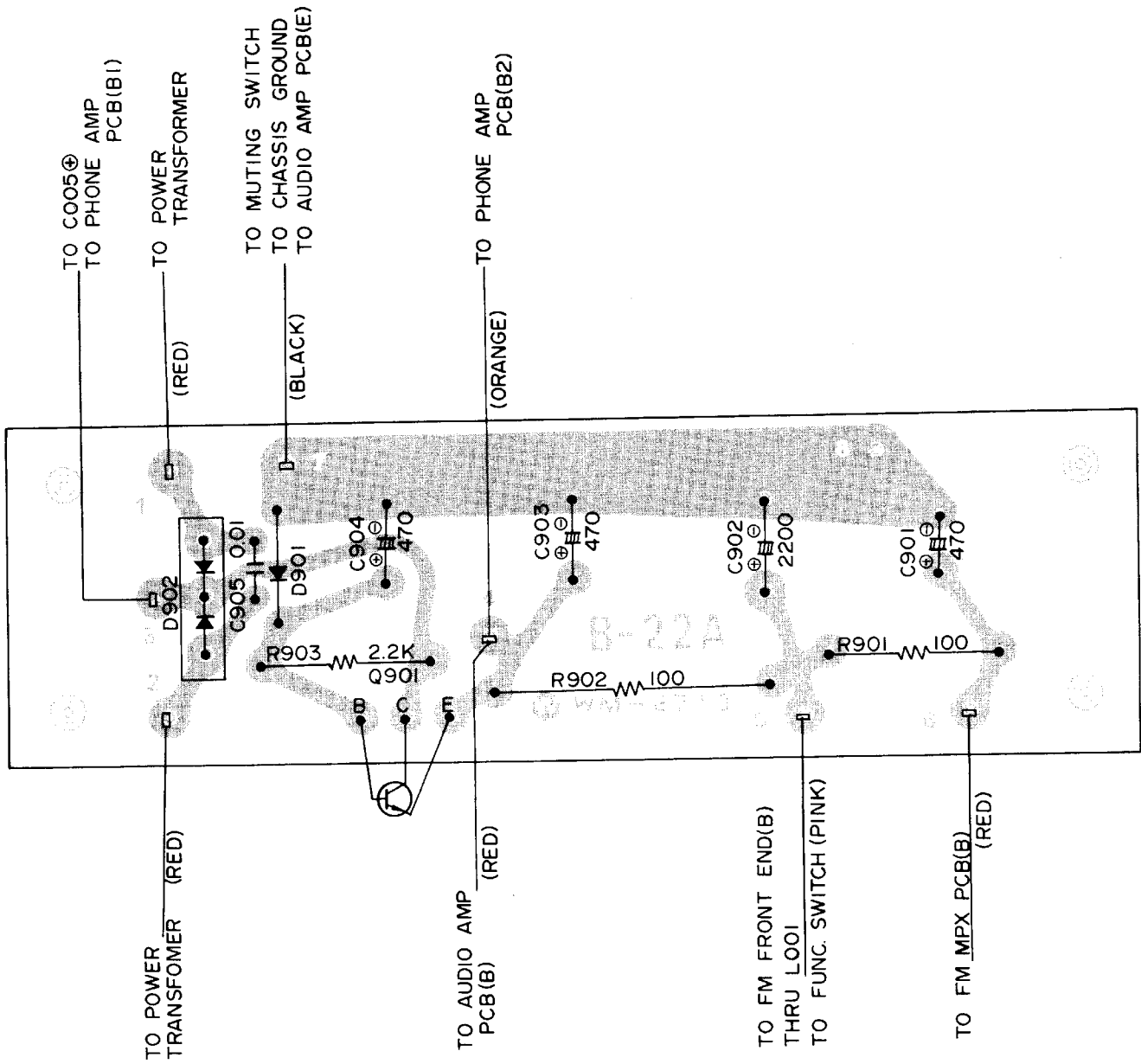
AM CIRCUIT BOARD DIAGRAM



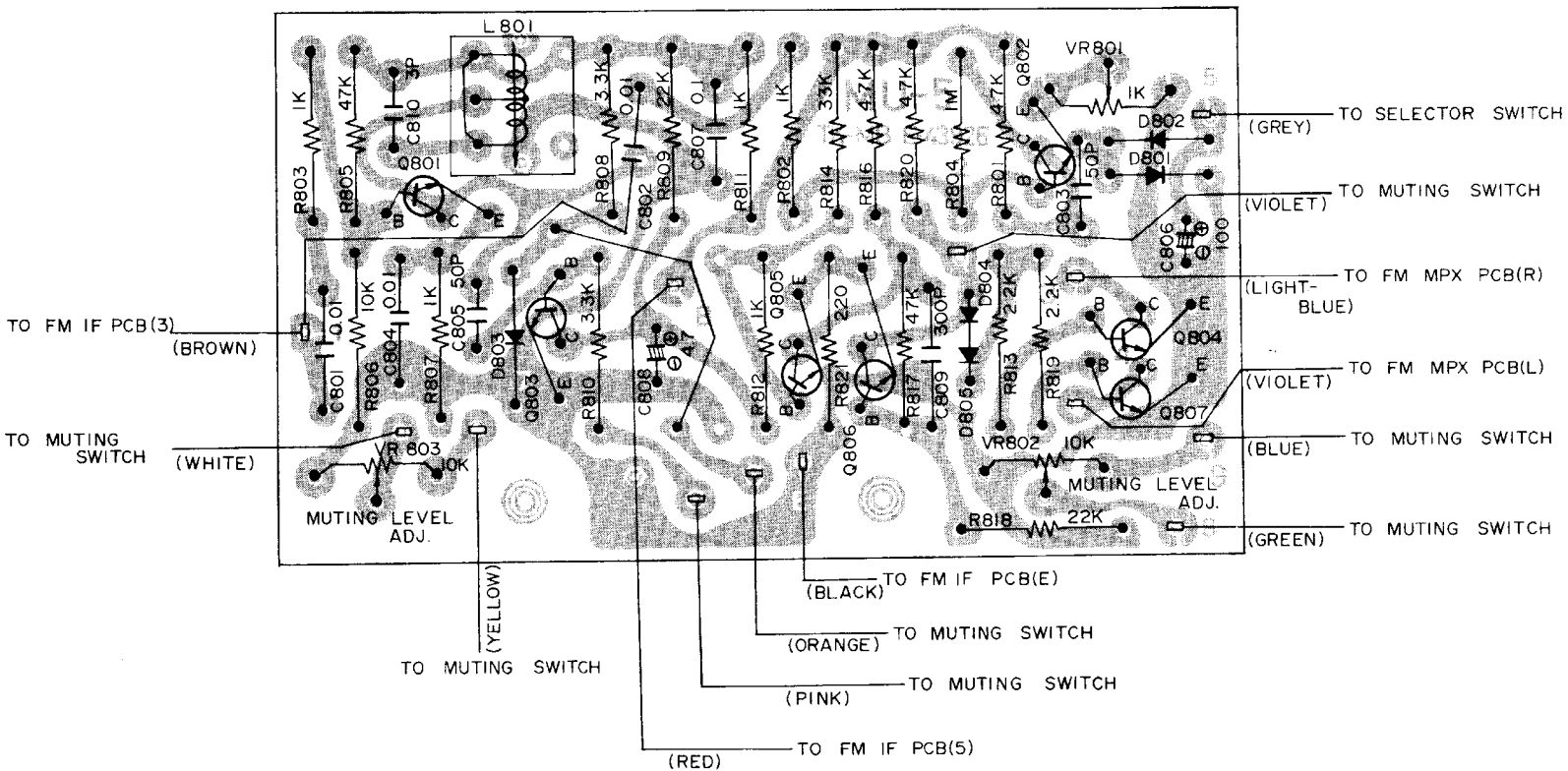
FM-STEREO (MPX) CIRCUIT BOARD DIAGRAM



RECTIFIER CIRCUIT BOARD DIAGRAM



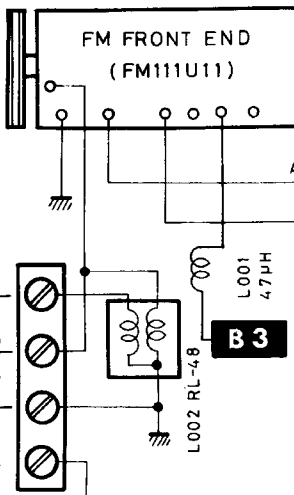
MUTING CIRCUIT BOARD DIAGRAM



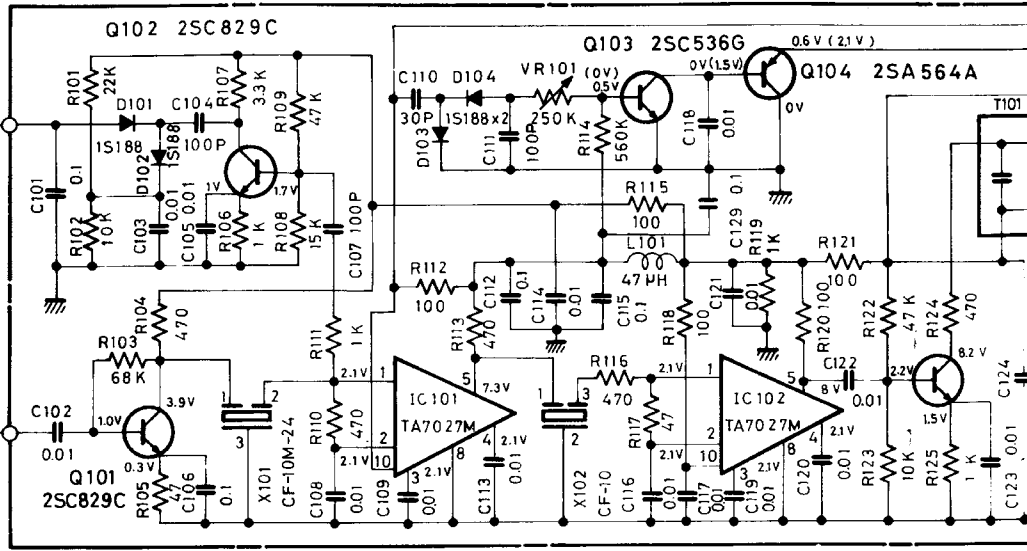
ANTENNA

GND FM

AM 75Ω-300Ω

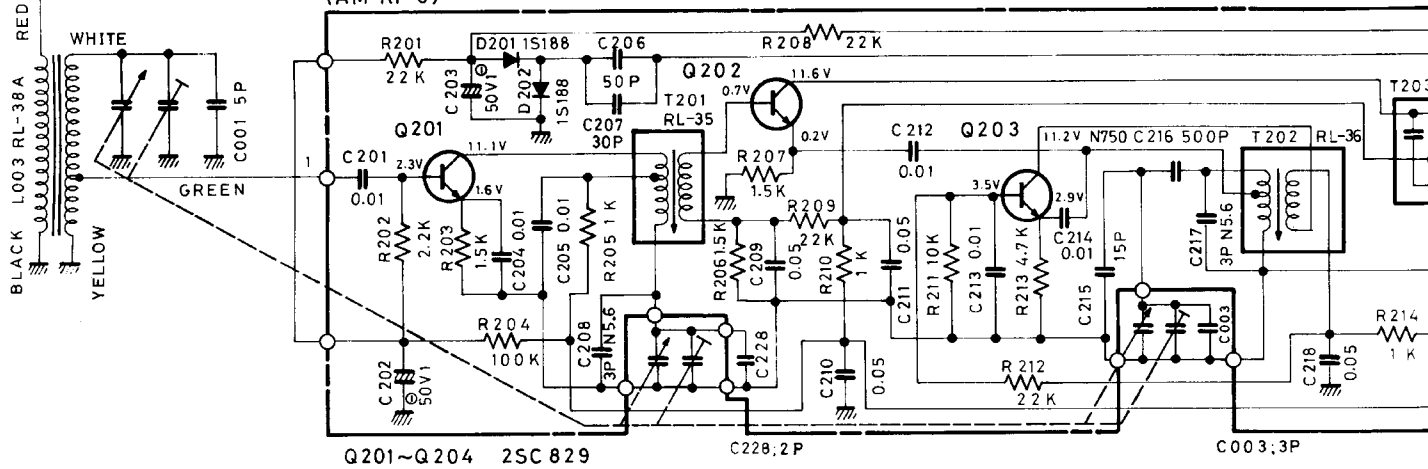


AGC



(FM-IC-10)

(AM-RF-3)



Q201~Q204 2SC829

C228:2P

C003:3P

(RESISTORS)

5% TOLERANCE UNLESS OTHERWISE NOTED.
 K--KILO OHM.
 M--MEGA OHM.
 ▽--COMPOSITION RESISTORS 1/2 WATT.
 NON MARK---LOW NOISE TYPE CARBON RESISTOR 1/4 WATT.

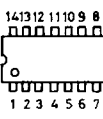
(CAPACITORS)

MY--MYLAR FILM CAPACITORS.
 T--TANTALUM CAPACITORS.
 LN--LOW NOISE TYPE ELECTROLYTIC CAPACITORS.

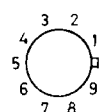
NON MARK---CERAMIC CAPACITORS.
 UNLESS OTHERWISE NOTED IN SCHEMATIC ALL CAPACITOR
 VALUES ARE EXPRESSED IN MFD.

VOLTAGE READING WITH VTVM FROM THE POINT SHOWN
 TO THE CHASSIS GROUND (LINE VOLTAGE 120 VOLT).
 VOLTAGE READING MAY VARY ±20%.

A 3300

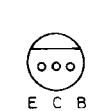


TA7027M



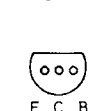
(TOP VIEW)

2SC536G



E C B

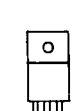
2SA564A
 2SC1384
 2SC829C
 2SC828
 2SC644



(BOTTOM VIEW)

E C B

2SD137



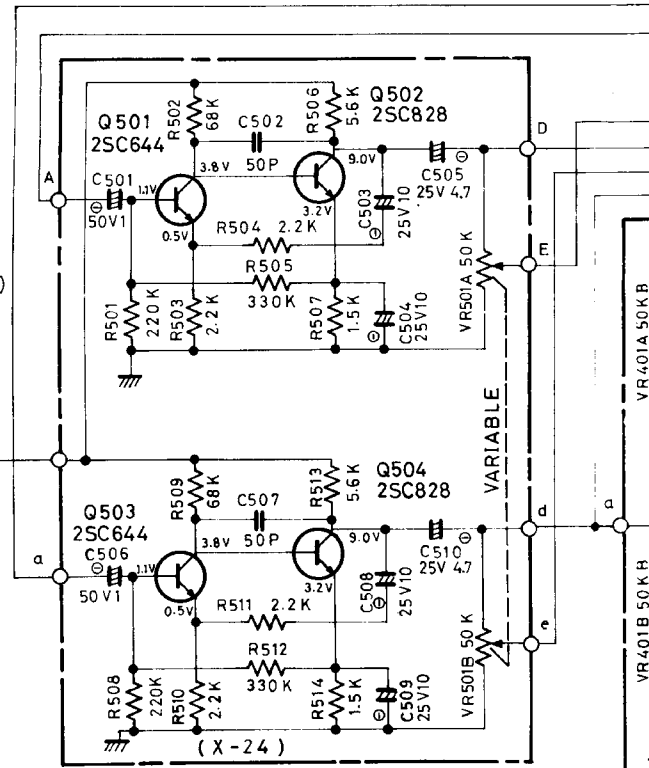
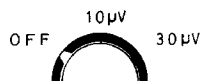
B C E

BCE

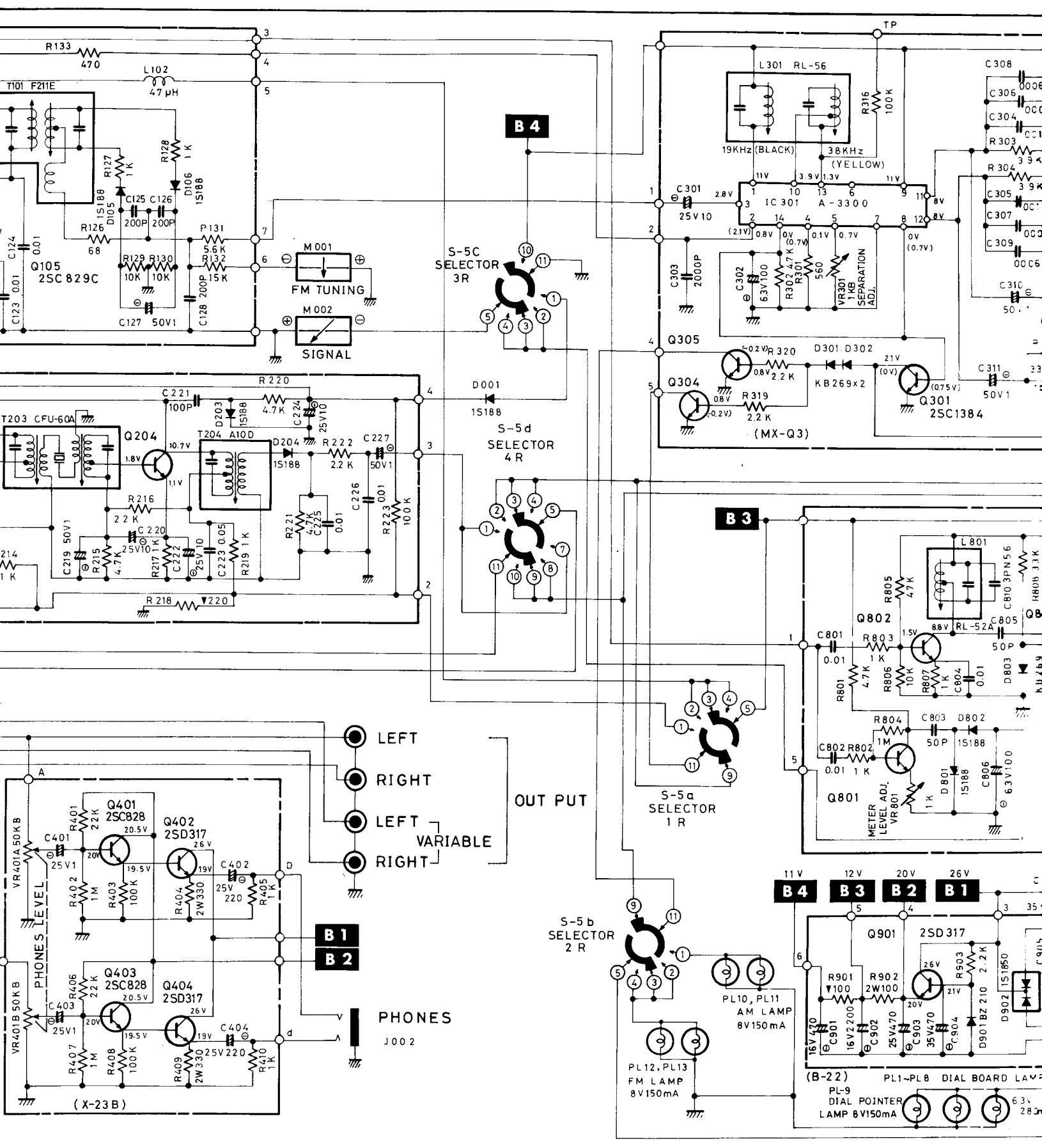
SELECTOR

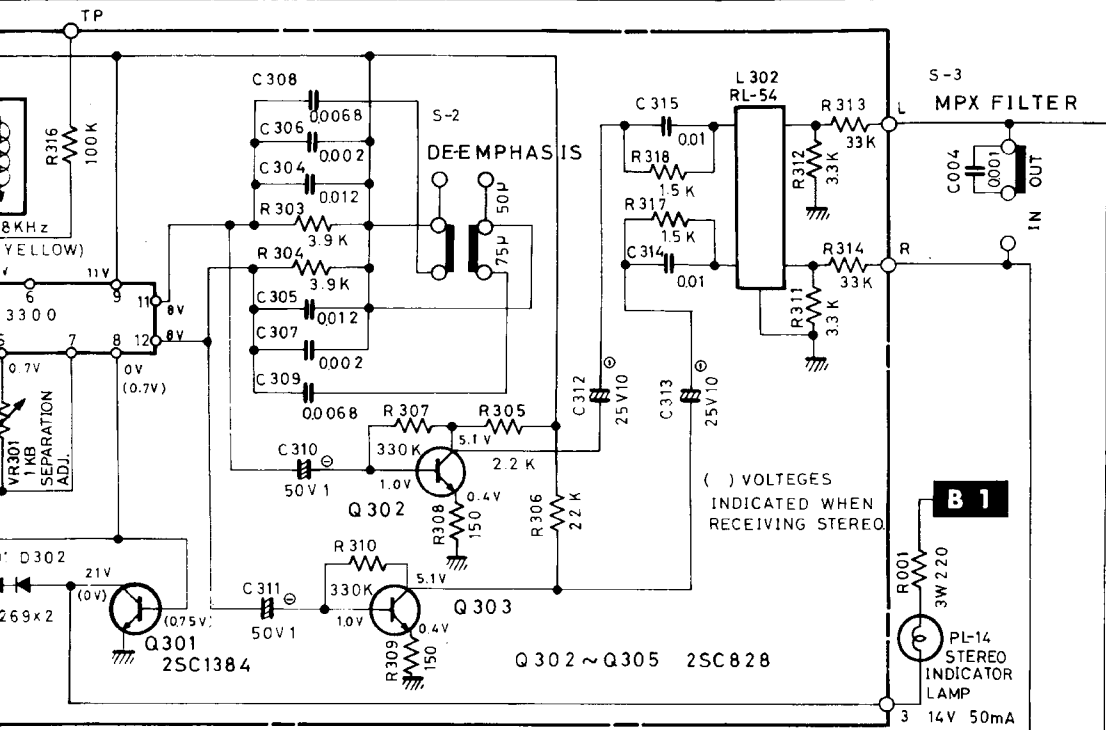


MUTING



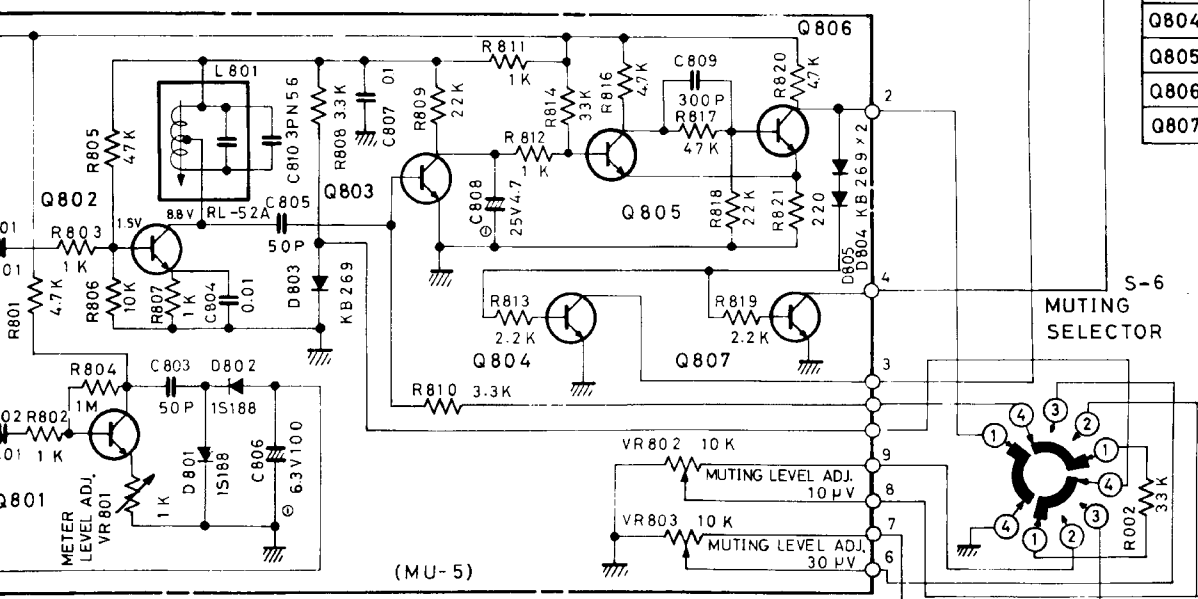
(X-24)



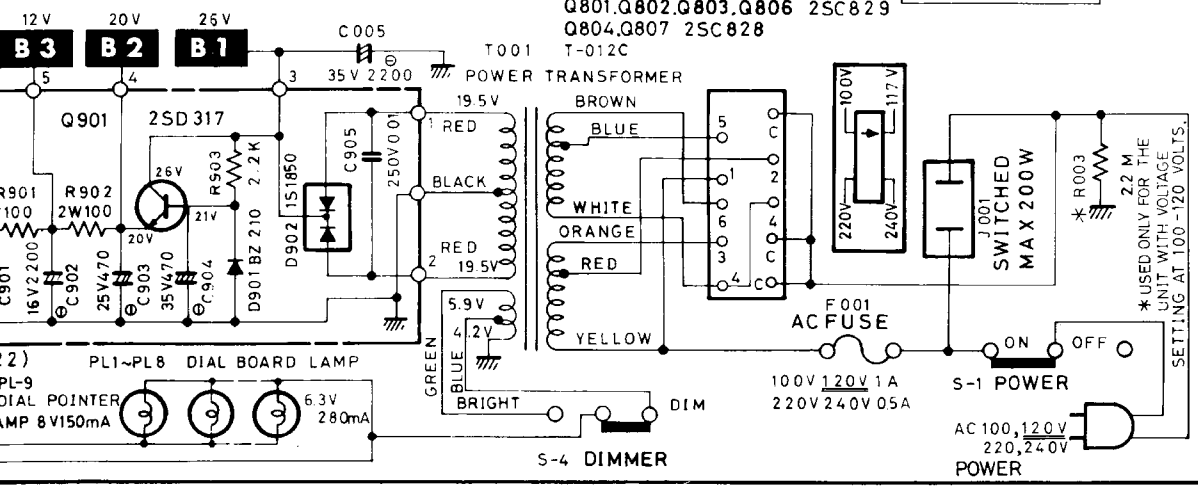


FM-IC-10	C	129
	R	132
AM-RF-3	C	228
	R	223
MX-Q 3	C	315
	R	320
X-23B	C	404
	R	410
X-24	C	510
	R	514
MU-5	C	810
	R	820
B-22	C	905
	R	903

	MUTING OFF			MUTING SWITCH ON WITH SIGNAL			MUTING SWITCH ON WITH NO SIGNAL		
	C	B	E	C	B	E	C	B	E
Q801	75V	09V	0.3V	—	—	—	—	—	—
Q802	88V	1.5V	0.85V	—	—	—	—	—	—
Q803	11V	0.4V	—	0.8V	—	—	—	—	—
Q804	0V	—	—	-0.2V	—	—	0.75V	—	—
Q805	11.2V	0.49V	0V	11.2V	0.5V	0.6V	0.7V	1.35V	0.65V
Q806	0V	0.7V	—	0.6V	1.3V	—	5V	0.2V	—
Q807	0V	—	—	-0.2V	—	—	0.75V	—	—



Q801, Q802, Q803, Q806 2SC829
Q804, Q807 2SC828



* USED ONLY FOR THE UNIT WITH VOLTAGE SETTING AT 100-120 VOLTS.

PARTS LIST

FM IF AMPLIFIER CIRCUIT BOARD

Schematic				
Location	Part No.	Description		
RESISTORS				
R101	552022322	Carbon Film, 22K ±5%, 1/4W		
R102, 123, R129, 130	552010322	Carbon Film, 10K ±5%, 1/4W		
R103			552068322	Carbon Film, 68K ±5%, 1/4W
R104, 110, R113, 116, R124, 133	552047122	Carbon Film, 470 ±5%, 1/4W		
R105, 117			552047022	Carbon Film, 47 ±5%, 1/4W
R106, 111, R119, 125, R127, 128			552010222	Carbon Film, 1K ±5%, 1/4W
R107	552033222	Carbon Film, 3.3K ±5%, 1/4W		
R108, 132	552015322	Carbon Film, 15K ±5%, 1/4W		
R109, 122	552047322	Carbon Film, 47K ±5%, 1/4W		
R112, 115, R118, 120, R121	552010122	Carbon Film, 100 ±5%, 1/4W		
R114			552056422	Carbon Film, 560K ±5%, 1/4W
R126			552068022	Carbon Film, 68 ±5%, 1/4W
R131	552056222	Carbon Film, 5.6K ±5%, 1/4W		
VR101	510502127	Potentiometer, 250K		
CAPACITORS				
C101, 106, C112, 115, C129	440100835	Ceramic, 0.1mfd, 50V		
C102, 103, C105, 108, C109, 113, C114, 116, C117, 118, C119, 120, C121, 122, C123, 124			440100985	Ceramic, 0.01mfd, 250V

Schematic				
Location	Part No.	Description		
C104, 107, C111	440101183	Ceramic, 100pF ±10%, 250V		
C110			440301283	Ceramic, 30pF ±10%, 250V
C125, 126, C128	440201183	Ceramic, 200pF ±10%, 250V		
C127			402100749	Electrolytic, 1mfd, 50V
TRANSISTORS				
Q101, 102, Q105	301201117	2SC829C		
Q103			301201112	2SC536G
Q104	301001117	2SA564A		
IC101, 102,	303452141	TA7027M		
DIODES				
D101, 102, D103, 104, D105, 106	300111008	1S188		
L101, 102			220001121	Coil, RF choke, 47μH
T101			225501113	IFT, FM Ratio Det.
X101	229101127	Bandpass Filter, 10.70MHz (Red)		
X102	229101125	Bandpass Filter, 10.70MHz (Red)		
	770101223	Pin, Terminal		
	140200122	Printed Circuit Board, "FM-IC-8"		
	141210141	FM IF Amp. Circuit Assembly		

AM CONV. AND IF AMPLIFIER CIRCUIT BOARD

Schematic				
Location	Part No.	Description		
RESISTORS				
R201, 208, R209, 212, R216	552022322	Carbon Film, 22K ±5%, 1/4W		
R202, 222			552022222	Carbon Film, 2.2K ±5%, 1/4W
R203, 206, R207			552015222	Carbon Film, 1.5K ±5%, 1/4W

Schematic				
Location	Part No.	Description		
R204, 223	552010422	Carbon Film, 100K ±5%, 1/4W		
R205, 210, R214, 217, R219	552010222	Carbon Film, 1K ±5%, 1/4W		
R211			552010322	Carbon Film, 10K ±5%, 1/4W
R213, 215, R220, 221			552047222	Carbon Film, 4.7K ±5%, 1/4W
R218	551022133	Composition, 220 ±10%, 1/2W		

Schematic				
Location	Part No.	Description		
CAPACITORS				
C201, 204, C205, 212, C213, 214, C225, 226	440100985	Ceramic, 0.01mfd, 250V		
C202, 203, C219, 227			402100749	Electrolytic, 1mfd, 50V
C206				
C207			440301283	Ceramic, 30pF ±10%, 250V
C208, 217	441301336	Ceramic, 3pF (N5.6), 50V		
C209, 210, C211, 218, C223	440500935	Ceramic, 0.05mfd, 50V		
C215			440101283	Ceramic, 15pF ±10%, 250V
C216				
C220, 222, C224	402100629	Electrolytic, 10mfd, 25V		
C221			440101183	Ceramic, 100pV ±10%, 250V

Schematic		
Location	Part No.	Description
C228	440201388	Ceramic, 2pF ±0.5pF, 250V
TRANSISTORS		
Q201, 202, Q203, 204	301201117	2SC829C
DIODES		
D201, 202, D203, 204	300111008	1S188
T201		
T202	223301123	Coil, AM Local Oscillator
T203	229101129	Bandpass Filter, 455KHz
T204	225301124	IFT, AM Det.
	770101223	Pin, Terminal
	140100123	Printed Circuit Board, "AM-RF-3"
	141110132	AM Conv. and IF Amp. Circuit Assembly

FM MPX CIRCUIT BOARD

Schematic		
Location	Part No.	Description
RESISTORS		
R301	552056122	Carbon Film, 560 ±5%, 1/4W
R302	552047222	Carbon Film, 4.7K ±5%, 1/4W
R303, 304	552039222	Carbon Film, 3.9K ±5%, 1/4W
R305, 306 R319, 320	552022222	Carbon Film, 2.2K ±5%, 1/4W
R307, 310		
R308, 309	552015122	Carbon Film, 150 ±5%, 1/4W
R311, 312	552033222	Carbon Film, 3.3K ±5%, 1/4W
R313, 314	552033322	Carbon Film, 33K ±5%, 1/4W
R316	552010422	Carbon Film, 100K ±5%, 1/4W
R317, 318	552015222	Carbon Film, 1.5K ±5%, 1/4W
VR301	510502119	Potentiometer, 1K
CAPACITORS		
C301, 312, C313	402100629	Electrolytic, 10mfd, 25V
C302		
C303	450201033	Mylar Film, 0.002mfd ±10%, 50V

Schematic		
Location	Part No.	Description
C304, 305	452120932	Mylar Film, 0.012mfd ±5%, 50V
C306, 307	452221032	Mylar Film, 0.0022mfd ±5%, 50V
C308, 309	452681032	Mylar Film, 0.0068mfd ±5%, 50V
C310, 311	402100749	Electrolytic, 1mfd, 50V
C314, 315	452100932	Mylar Film, 0.01mfd ±5%, 50V
TRANSISTORS		
Q301	301201132	2SC1384
Q302, 303, Q304, 305	301201115	2SC828
IC301		
D301, 302	300212004	Diode, KB-269
L301	225601129	Coil, MPX, 19KHz/38KHz Tune
L302	228641113	Coil, 38KHz Filter
S2	613000024	Switch, De-emphasis Selector
	770101223	Pin, Terminal
	140400445	Printed Circuit Board, "MX-Q3"
	141411431	FM MPX Circuit Assembly

AUDIO AMPLIFIER CIRCUIT BOARD

Schematic		
Location	Part No.	Description
RESISTORS		
R501, 508	552022422	Carbon Film, 220K ±5%, 1/4W
R502, 509	552068322	Carbon Film, 68K ±5%, 1/4W
R503, 504, R510, 511	552022222	Carbon Film, 2.2K ±5%, 1/4W
R505, 512	552033422	Carbon Film, 330K ±5%, 1/4W
R506, 513	552056222	Carbon Film, 5.6K ±5%, 1/4W
R507, 514	552015222	Carbon Film, 1.5K ±5%, 1/4W
VR501	525101111	Variable, 50K x 2, Output Level Control
CAPACITORS		
C501, 506	402100749	Electrolytic, 1mfd, 50V

Schematic		
Location	Part No.	Description
C502, 507	440501283	Ceramic, 50pF ±10%, 250V
C503, 504, C508, 509	402100629	Electrolytic, 10mfd, 25V
C505, 510	402470729	Electrolytic, 4.7mfd, 25V
TRANSISTORS		
Q501, 503	301201114	2SC644
Q502, 504	301201115	2SC828
	770101223	Pin, Terminal
	140800154	Printed Circuit Board, "X-24"
	141810560	Audio Amplifier Circuit Assembly

HEADPHONE AMPLIFIER CIRCUIT BOARD

Schematic		
Location	Part No.	Description
RESISTORS		
R401, 406	552022322	Carbon Film, 22K ±5%, 1/4W
R402, 407	552010522	Carbon Film, 1M ±5%, 1/4W
R403, 408	552010422	Carbon Film, 100K ±5%, 1/4W
R404, 409	553133153	Metal Oxide, 330 ±10%, 2W
R405, 410	552010222	Carbon Film, 1K ±5%, 1/4W
VR401	525101117	Variable, 50KB x2
CAPACITORS		
C401, 403	402100749	Electrolytic, 1mfd, 50V

Schematic		
Location	Part No.	Description
C402, 404	402220529	Electrolytic, 220mfd, 25V
TRANSISTORS		
Q401, 403	301201115	2SC828
Q402, 404	301301122	2SD317
	770101223	Pin, Terminal
	140800153	Printed Circuit Board, "X-23"
	141810559	Headphone Amp. Circuit Assembly

FM MUTING CIRCUIT BOARD

Schematic		
Location	Part No.	Description
RESISTORS		
R801, 816, R820	552047222	Carbon Film, 4.7K ±5%, 1/4W
R802, 803, R807, 812	552010222	Carbon Film, 1K ±5%, 1/4W
R804	552010522	Carbon Film, 1M ±5%, 1/4W
R805, 817	552047322	Carbon Film, 47K ±5%, 1/4W
R806	552010322	Carbon Film, 10K ±5%, 1/4W

Schematic		
Location	Part No.	Description
R808, 810, R811	552033222	Carbon Film, 3.3K ±5%, 1/4W
R809, 818	552022322	Carbon Film, 22K ±5%, 1/4W
R813, 819	552022222	Carbon Film, 2.2K ±5%, 1/4W
R814	552033322	Carbon Film, 33K ±5%, 1/4W
R821	552022122	Carbon Film, 220 ±5%, 1/4W
VR801	510502119	Potentiometer, 1K
VR802, 803	510502125	Potentiometer, 10K

Schematic		
Location	Part No.	Description
CAPACITORS		
C801, 802, C804	440100985	Ceramic, 0.01mfd, 250V
C803, 805		
C806	440501283	Ceramic, 50pF ±10%, 250V
C807	402100509	Electrolytic, 100mfd, 6.3V
C808	440100835	Ceramic, 0.1mfd, 50V
C809	402470729	Electrolytic, 4.7mfd, 25V
C810	440301183	Ceramic, 300pF ±10%, 250V
	441301336	Ceramic, 3pF (N5.6), 50V
TRANSISTORS		
Q801, 802, Q803, 806	301201117	2SC829C

Schematic		
Location	Part No.	Description
Q804, 807	301201115	2SC828
DIODES		
D801, 802	300111008	1S188
D803, 804, D805	300212004	KB-269
L801	226501115	Coil, Muting, 10.7MHz Tune
	770101223	Pin, Terminal
	140800151	Printed Circuit Board, "MU-5"
	141810557	FM Muting Circuit Assembly

RECTIFIER CIRCUIT BOARD

Schematic		
Location	Part No.	Description
RESISTORS		
R901	551010133	Composition, 100 ±10%, 1/2W
R902	553110153	Metal Oxide, 100 ±10%, 2W
R903	551022233	Composition, 2.2K ±10%, 1/2W
CAPACITORS		
C901	402470519	Electrolytic, 470mfd, 16V
C902	402220419	Electrolytic, 2200mfd, 16V

Schematic		
Location	Part No.	Description
C903	402470529	Electrolytic, 470mfd, 25V
C904	402470539	Electrolytic, 470mfd, 35V
C905	440100985	Ceramic, 0.01mfd, 250V
Q901	301301122	Transistor, 2SD317
D901	300313007	Diode, BZ-210, Zener
D902	300919005	Diode, 1S1850, Rectifier
	770101223	Pin, Terminal
	140800152	Printed Circuit Board, "B-22"
	141810558	Rectifier Circuit Assembly

CHASSIS PARTS

Schematic		
Location	Part No.	Description
RESISTORS		
R001	553122163	Metal Oxide, 220 ±10%, 3W
R002	552033322	Carbon Film, 33K ±5%, 1/4W
R003*	551022533	Composition, 2.2M ±10%, 1/2W
		*used only for the unit with voltage setting at 100 – 120V
CAPACITORS		
C001	440501388	Ceramic, 5pF ±0.5pF, 250V
C002		Not used
C003	440301388	Ceramic, 3pF ±0.5pF, 250V

Schematic		
Location	Part No.	Description
C004	442101033	Ceramic, 0.001mfd ±10%, 50V
C005	400220439	Electrolytic, 2200mfd, 35V
MISCELLANEOUS		
D001	300111008	Diode, 1S188
L001	220001121	Coil, RF choke, 47μH
L002	226501111	Coil, FM Ant. Matching
L003	222391119	Coil, AM Ant.
T001	205001333	Transformer, Power Supply
	321304367	FM Front end
	322420012	Variable Capacitor, AM
M001	231310022	Meter, FM Tuning

Schematic		
Location	Part No.	Description
M002	231310023	Meter, Signal Strength
S1	614010103	Switch, Power Supply
S3, 4 (1set)	614020402	Switch, Dimmer and MPX Filter
S5	601011242	Switch, Selector
S6	601011243	Switch, Muting
PL1, 2, 3, 4, PL5, 6, 7, 8	352063028	Lamp, 6.3V, 0.28A, Dial Light

Schematic		
Location	Part No.	Description
PL9, 10, 11, PL12, 13	351080015	Lamp, 8V, 0.15A, Indicator Light
PL14	351140005	Lamp, 14V, 50mA, FM ST. Ind. Light
F001	341220010	Fuse, 1A-3AG, (0.5A-3AG=
	341220005=	when voltage setting at
		220 - 240V)
	151691117	Dial Pointer w/lamp

Roland Electronics Co., Ltd.

Main Office:

1-36-8 Ohokayama, Meguro-ku, Tokyo, Japan

Chofu Plant:

3-60-3 Kamiishihara, Chofu-shi, Tokyo, Japan

Rotel Electronics Co., Ltd.

Office & Plant:

310, Sec. 5, Nanking E. Road, Taipei, Taiwan

Rotel of America Inc.

Main Office:

2642 Central Ave., Yonkers, New York 10710, U.S.A.