

# NEC

Authentic series

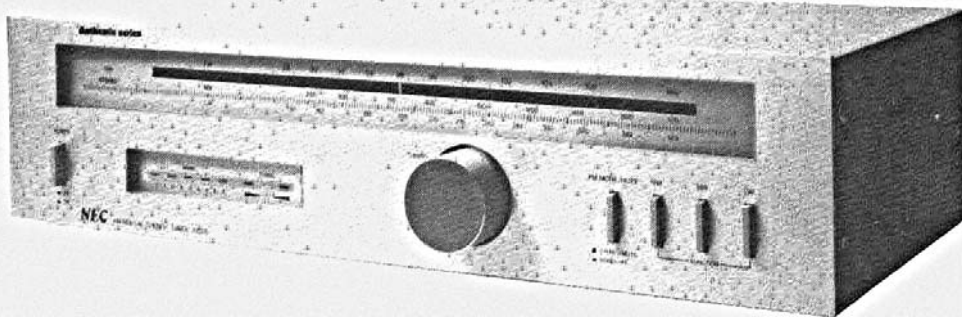
MODEL T330E(SG)

## STEREO TUNER SERVICE MANUAL

SER. NO. 4043



Better Service  
Better Reputation  
Better Profit



### SPECIFICATIONS

FM SECTION	NOMINAL VALUE
Tuning Frequency Range . . . . .	87.5 ~ 108 MHz
Usable Sensitivity . . . . .	10.8 dBf (1.9 $\mu$ V)
50 dB Quieting Sensitivity	
Monaural . . . . .	18.3 dBf (4.5 $\mu$ V)
Stereo . . . . .	38.2 dBf (48 $\mu$ V)
Signal to Noise Ratio	
Monaural . . . . .	76 dB (Mono)
Stereo . . . . .	72 dB
Capture Ratio . . . . .	1.2 dB
Alternate Channel Selectivity . . . . .	60 dB
Image Rejection Ratio . . . . .	45 dB
I.F. Rejection Ratio . . . . .	90 dB
Spurious Response Ratio . . . . .	75 dB
Total Harmonic Distortion	
Monaural . . . . .	0.1 %
Stereo . . . . .	0.2 %
Stereo Separation . . . . .	45 dB at 1 kHz

MW SECTION	NOMINAL VALUE
Tuning Frequency Range . . . . .	525 ~ 1,605 kHz
Usable Sensitivity . . . . .	300 $\mu$ V/m
Signal to Noise Ratio . . . . .	50 dB
Image Rejection Ratio . . . . .	40 dB
Selectivity . . . . .	35 dB

LW SECTION	NOMINAL VALUE
Tuning Frequency Range . . . . .	150 kHz ~ 340 kHz
Usable Sensitivity (S/N 20 dB) . . . . .	500 $\mu$ V/m

### OTHER SPECIFICATIONS

Output Level	
FM 1 kHz $\pm$ 75 kHz Dev. . . . .	650 mV
AM 400 Hz, 30 % Mod. . . . .	200 mV
Power Requirements . . . . .	AC110/120/220/240V, 50/60 Hz
Dimensions . . . . .	430(W) x 100(H) x 210(D) mm
Weight . . . . .	Approximately 2.8 kgs.

Nippon Electric Co., Ltd.

TOKYO, JAPAN

# DISASSEMBLY

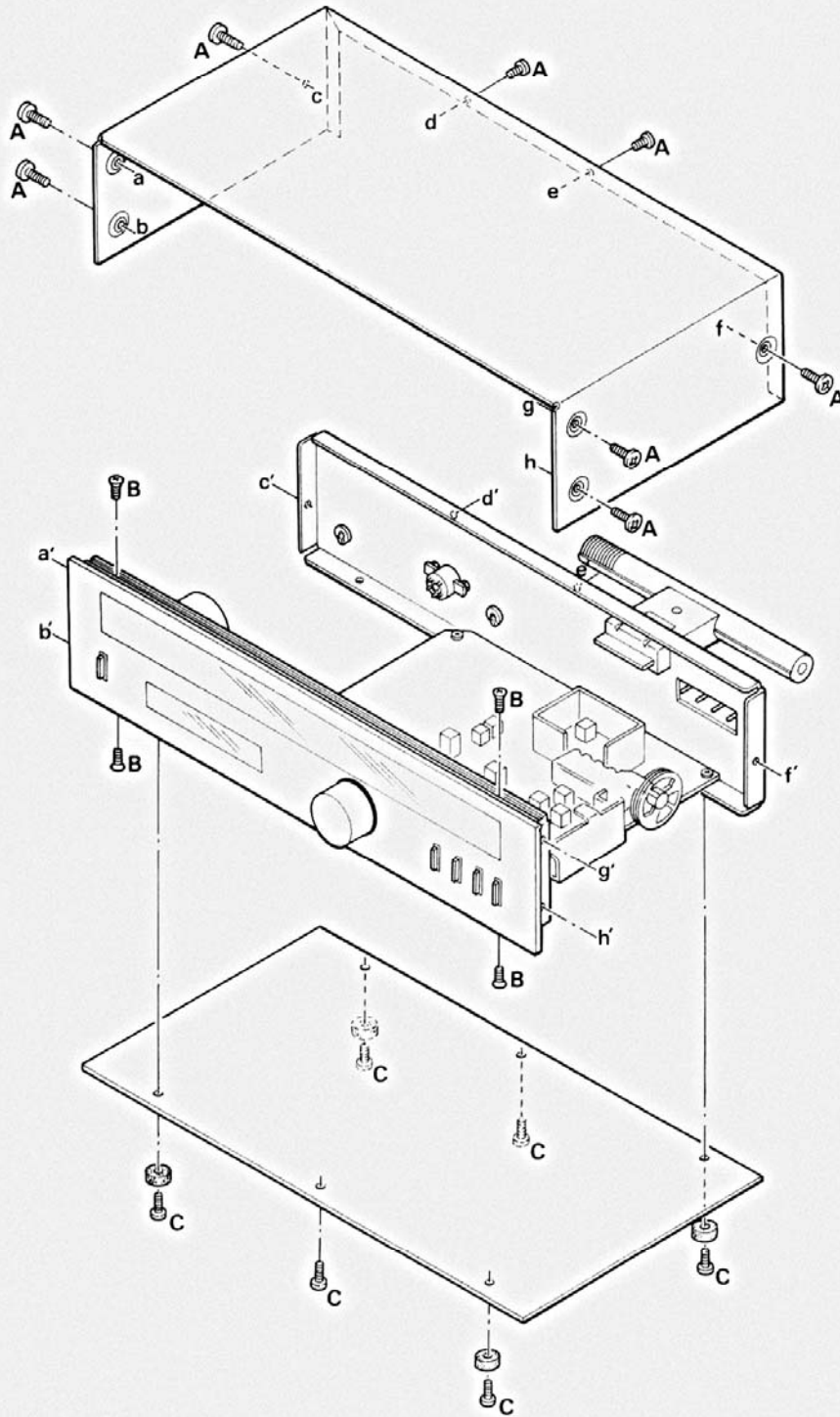


Fig. 1

## EXTERNAL VIEW

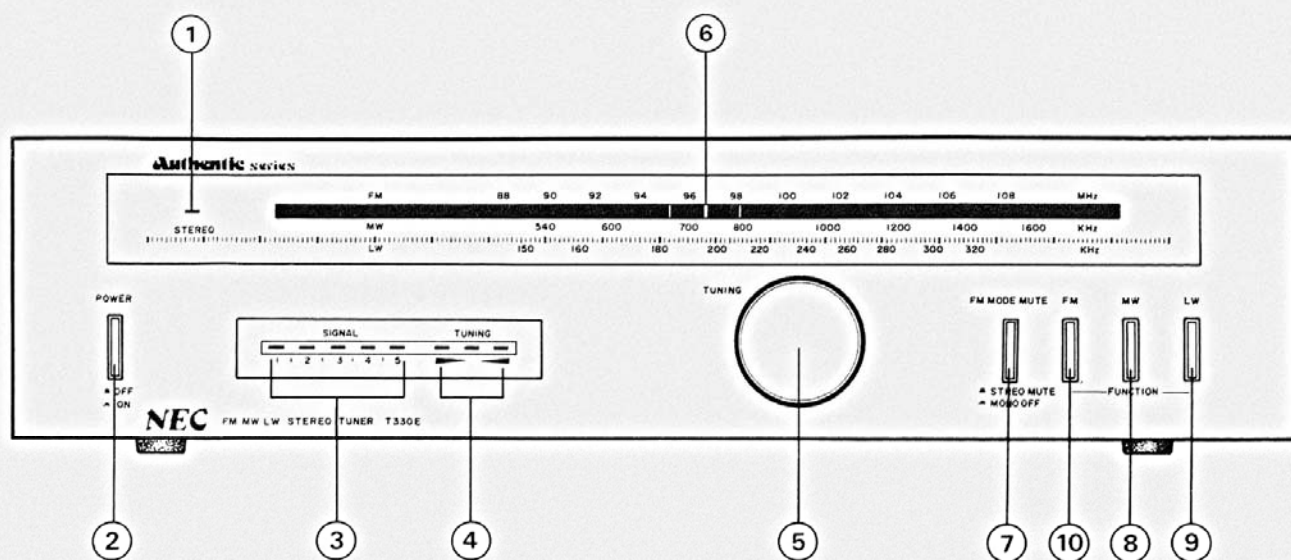


Fig. 2

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>1. FM STEREO Indicator</li> <li>2. POWER Switch</li> <li>3. SIGNAL Indicator</li> <li>4. TUNING Indicator</li> <li>5. TUNING control</li> </ul> | <ul style="list-style-type: none"> <li>6. DIAL POINTER (LED)</li> <li>7. FM MODE &amp; MUTE switch</li> <li>8. AM (MW) switch</li> <li>9. LW switch</li> <li>10. FM switch</li> </ul> |
|--|---|

## ALIGNMENT METHOD

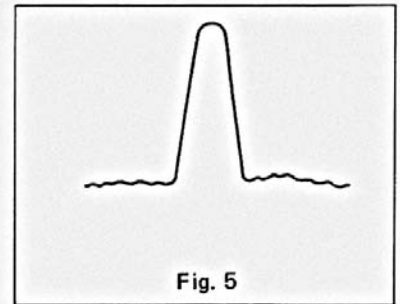
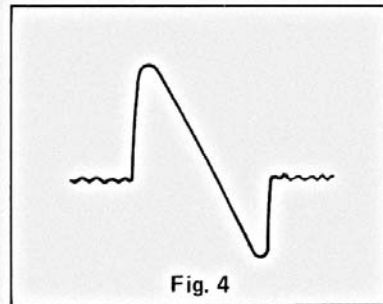
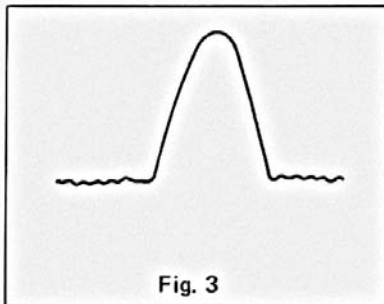
### EQUIPMENT REQUIRED

- Signal Generator (FM and AM)
- Sweep Generator
- VTVM
- Frequency Counter
- DC Voltmeter
- Oscilloscope
- Dummy Antenna (FM and AM)

### IF ALIGNMENT

- Refer to Fig. 6, Fig. 7 and Fig. 8 for Alignment.

Circuit Alignment	Equipment Connection		Alignment Points	Adjustments
	Input	Output		
FM IF (U-Curve)	<ul style="list-style-type: none"> <li>• C105</li> <li>• Shield Case (GND)</li> </ul>	<ul style="list-style-type: none"> <li>• TP1</li> <li>• TP7 (GND)</li> </ul>	T101	Adjust for maximum output. (Weak signal fed condition) Fig. 3
FM IF (S-Curve)	<ul style="list-style-type: none"> <li>• C105</li> <li>• Shield Case (GND)</li> </ul>	<ul style="list-style-type: none"> <li>• TP4</li> <li>• TP9 (GND)</li> </ul>	T102, T103	Adjust for symmetrical S-Curve. (Weak signal fed condition) Fig. 4
	No signal	<ul style="list-style-type: none"> <li>• TP2</li> <li>• TP3</li> </ul>	T102	Set pointer to OV of DC voltmeter.
AM IF	Bar Antenna	<ul style="list-style-type: none"> <li>• TP5</li> <li>• TP9 (GND)</li> </ul>	T104, T105	Adjust for maximum output. (Weak signal fed condition) Fig. 5



### RF ALIGNMENT

- Refer to Fig. 6, Fig. 7 and Fig. 8 for Alignment.

Circuit Alignment	VC Position	SG Frequency	Input Level	Alignemnt Point	Adjustments
FM Frequency Range	C max. C min.	87.40 MHz 109.00 MHz	< 5 $\mu$ V < 5 $\mu$ V	L104 TC105	Maximum output Maximum output
FM Tracking	90 MHz 106 MHz	90 MHz 106 MHz	< 5 $\mu$ V < 5 $\mu$ V	L101, 102 TC101, 103	Maximum output Maximum output
MW Frequency Range	C max. C min.	510 kHz 1630 kHz	< 500 $\mu$ V/m < 500 $\mu$ V/m	L105 TC104	Maximum output Maximum output
MW Tracking	600 kHz 1400 kHz	600 kHz 1400 kHz	< 500 $\mu$ V/m < 500 $\mu$ V/m	Bar Antenna TC102	Maximum output Maximum output
LW Frequency Range	C max. C min.	145 kHz 345 kHz	< 1 mV/m < 1 mV/m	L106 TC107	Maximum output Maximum output
LW Tracking	160 kHz 320 kHz	160 kHz 320 kHz	< 1 mV/m < 1 mV/m	Bar Antenna TC106	Maximum output Maximum output

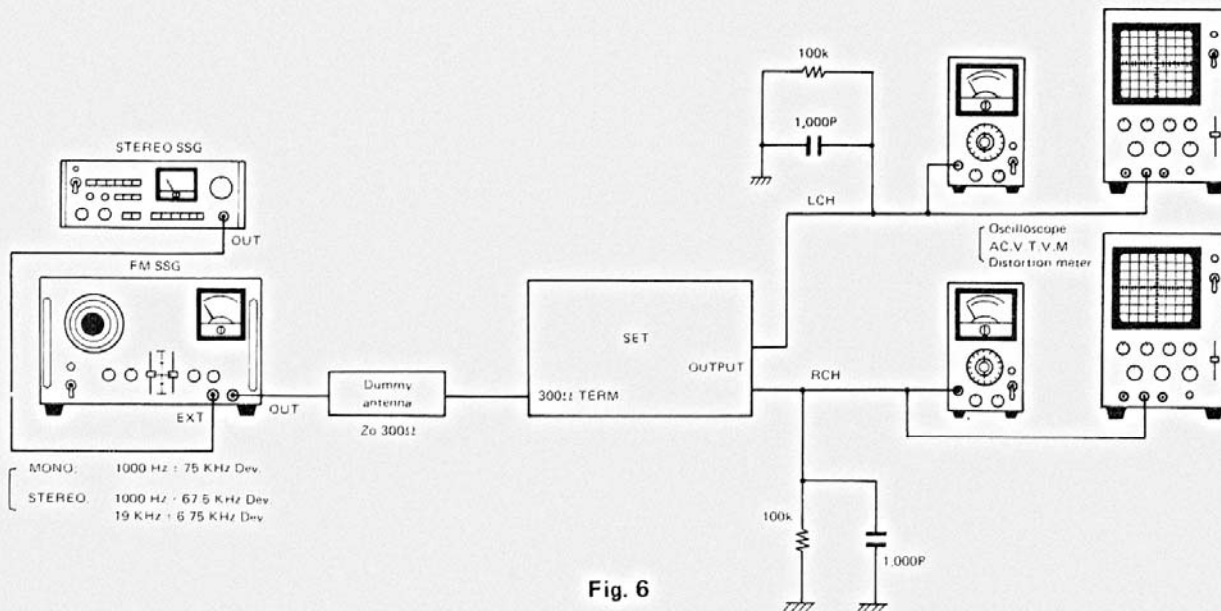
## FM ALIGNMENT

- Refer to Fig. 6 and Fig. 8 for Alignment.

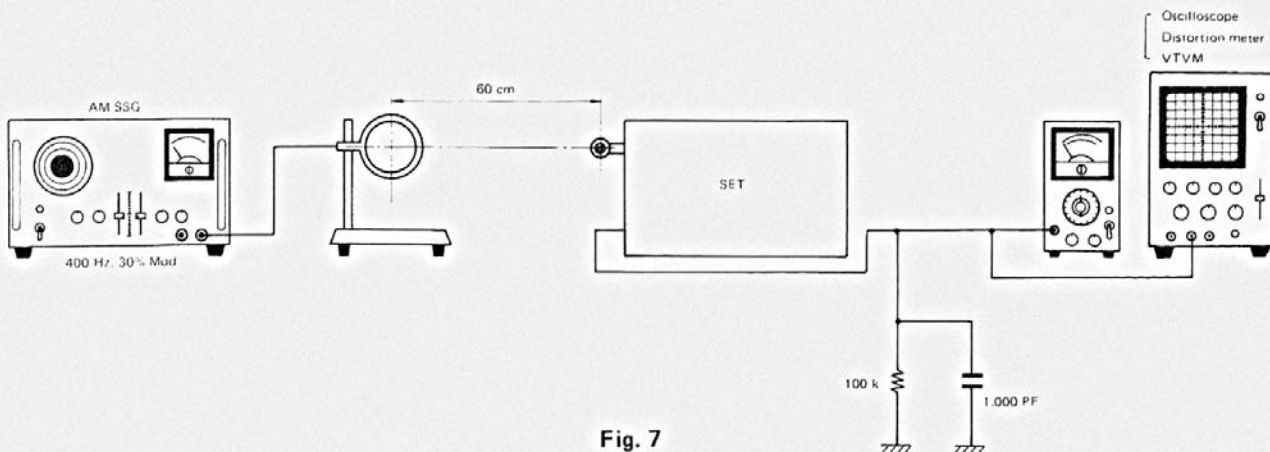
Circuit Alignment	VC Position	SG Frequency	Input Level	Alignment Point	Adjustments
Distortion	98 MHz	98 MHz	1 mV	T103	Minimum Distortion
VCO	98 MHz	98 MHz (No modulation)	1 mV	VR101	76 kHz
Separation	98 MHz	98 MHz (Stereo)	1 mV	VR102	Minimum Crosstalk

NOTE: Muting switch: Stereo position. (VCO, Separation)

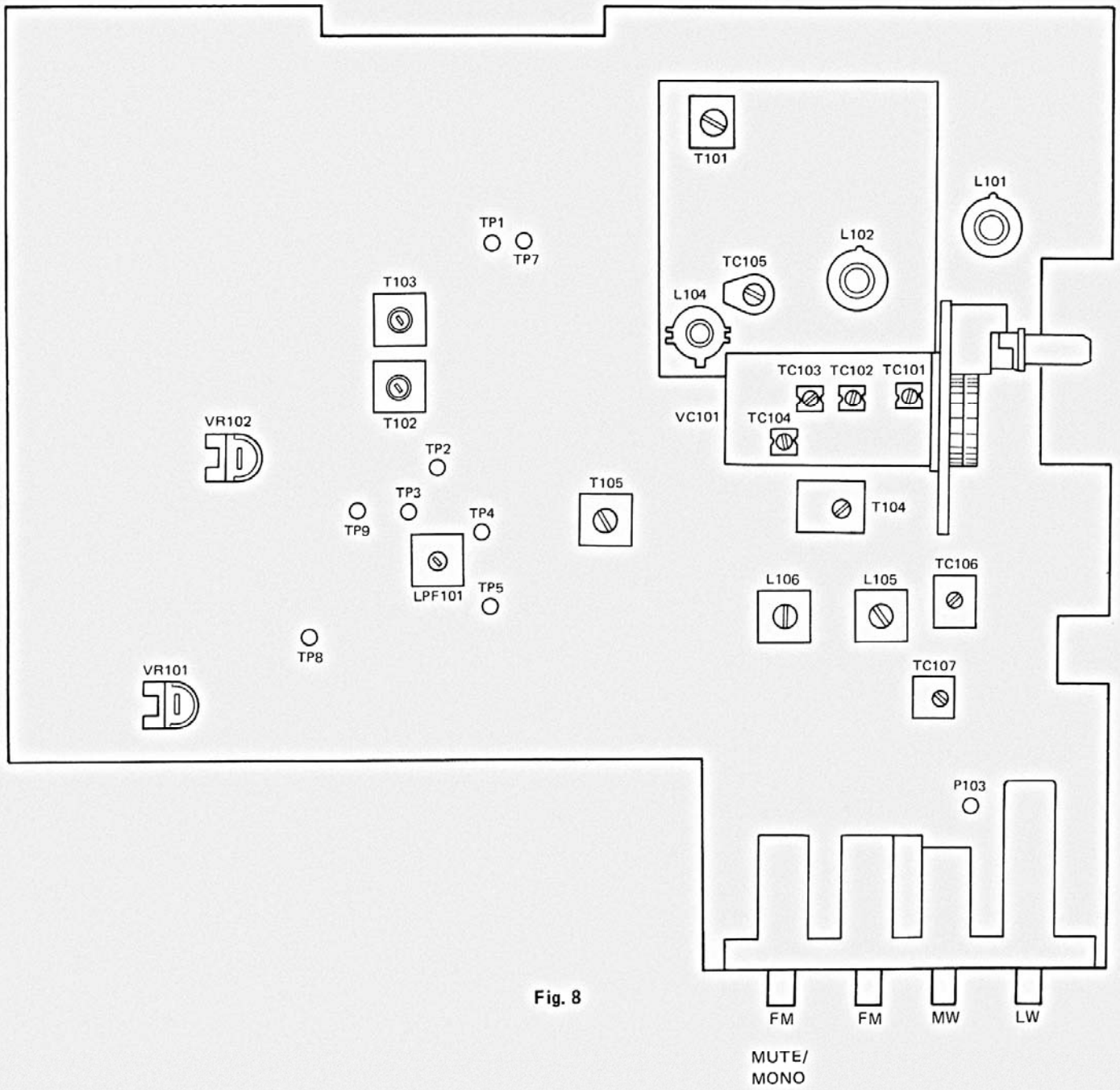
## FM EQUIPMENT CONNECTION DIAGRAMS



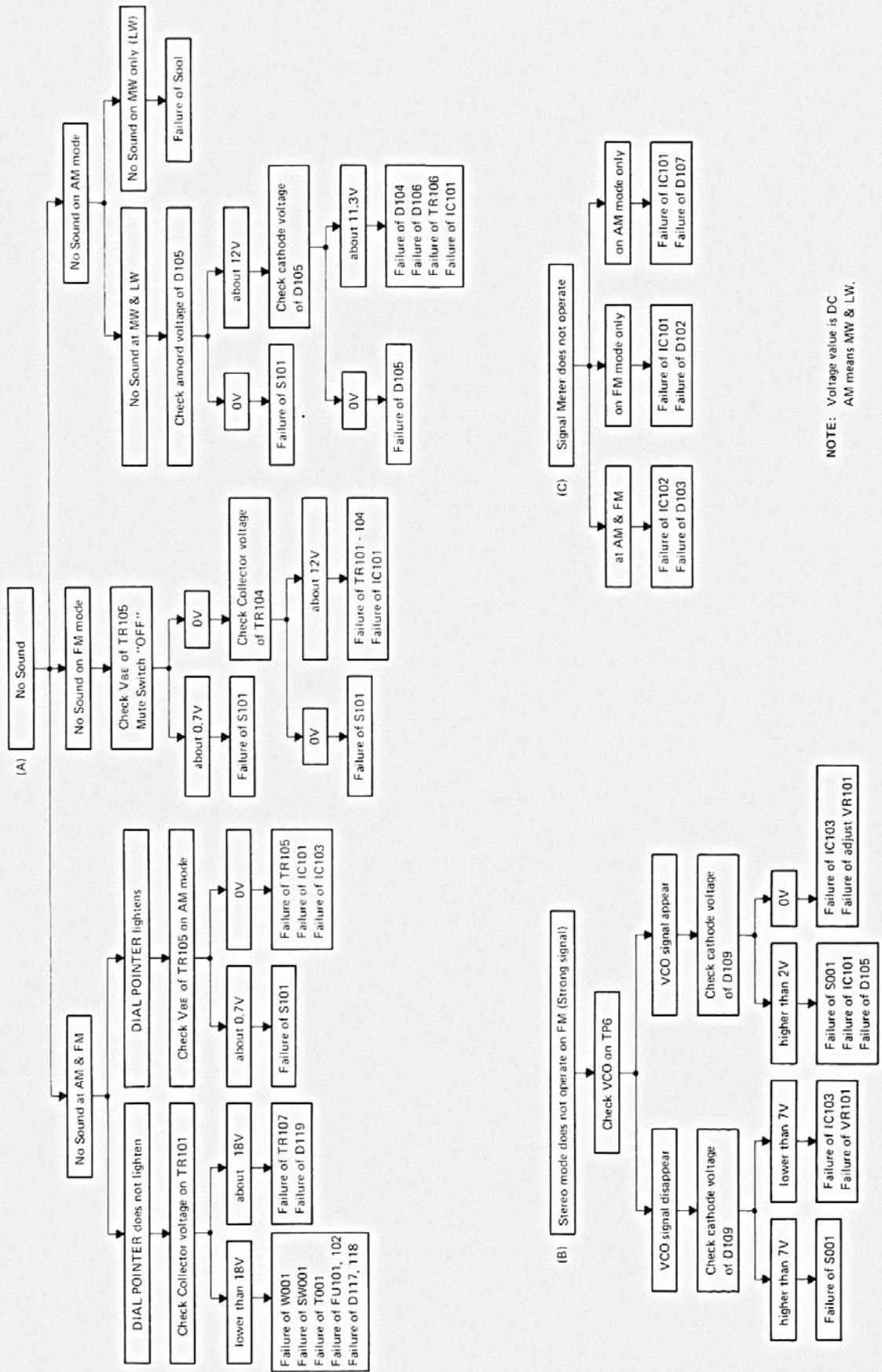
## AM EQUIPMENT CONNECTION DIAGRAMS



# ALIGNMENT POINT DIAGRAMS

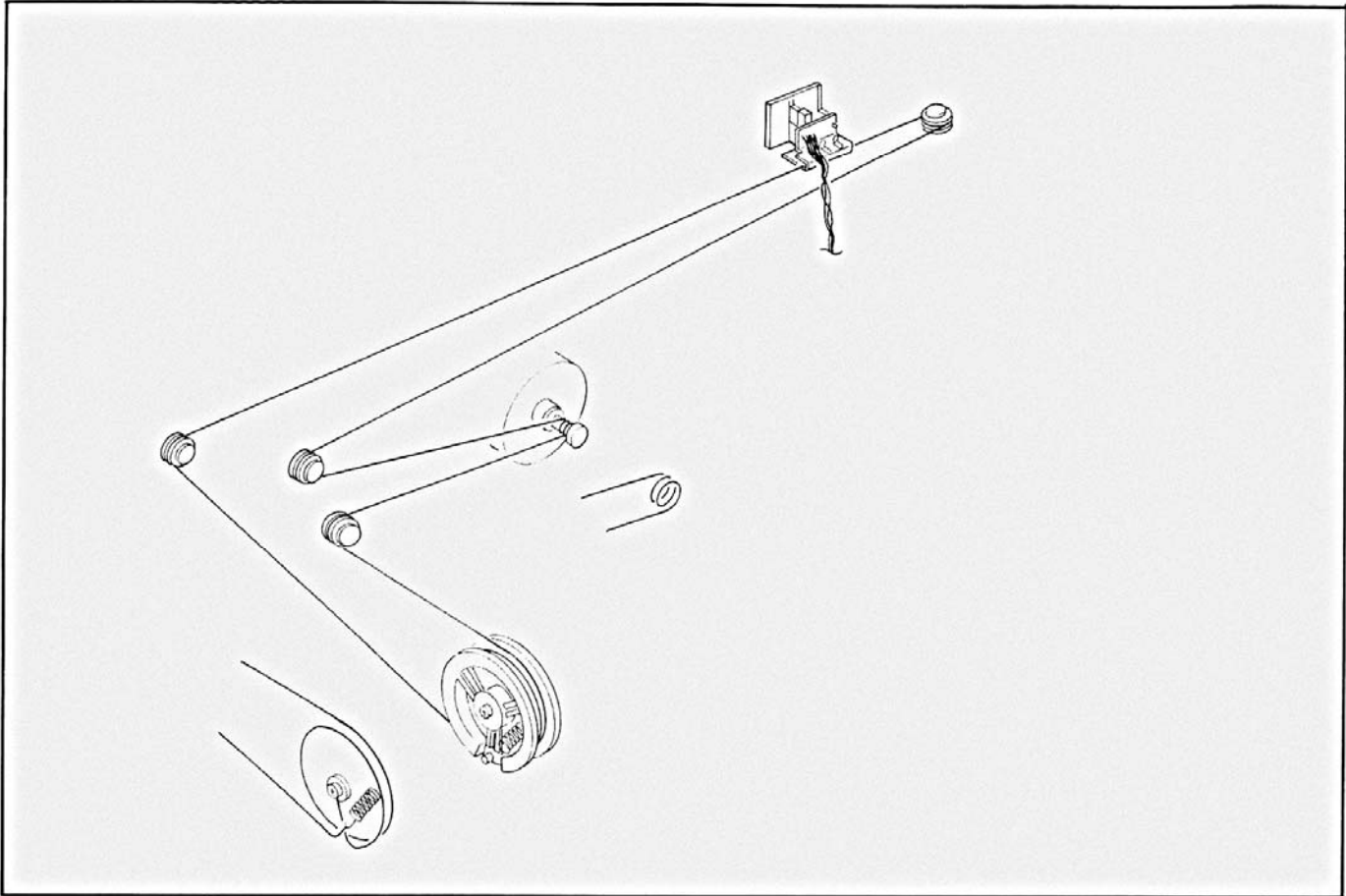


# TROUBLESHOOTING



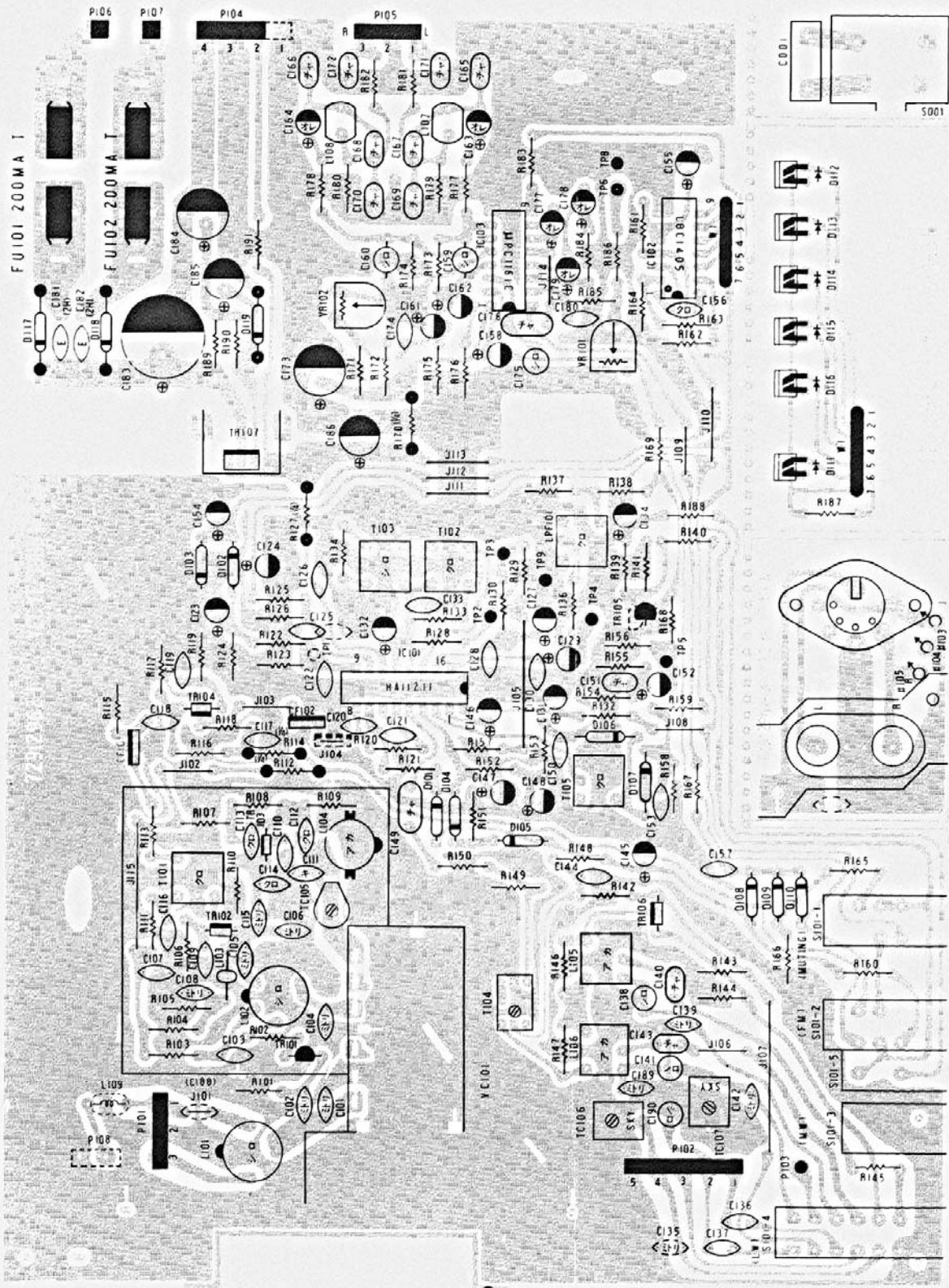
NOTE: Voltage value is DC  
AM means MW & LW.

DIAL STRINGING

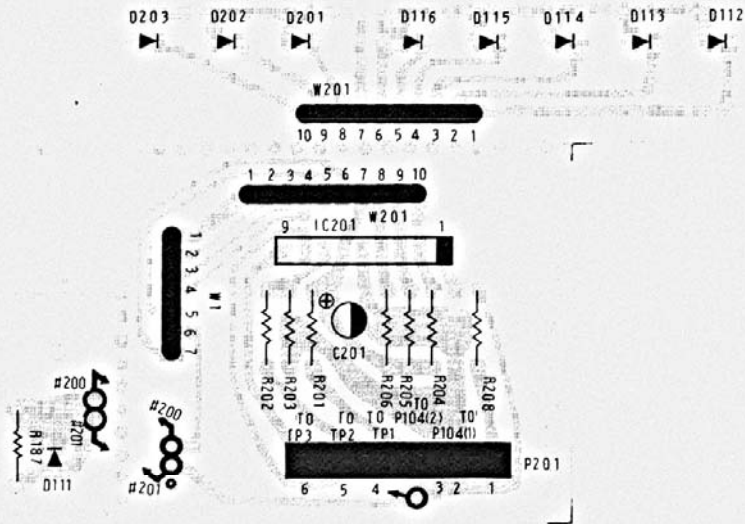




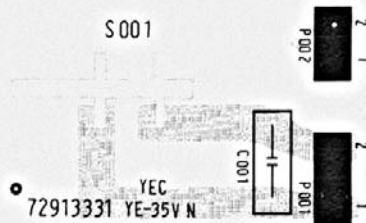
# TUNER PWB ASS'Y (Solder Side)



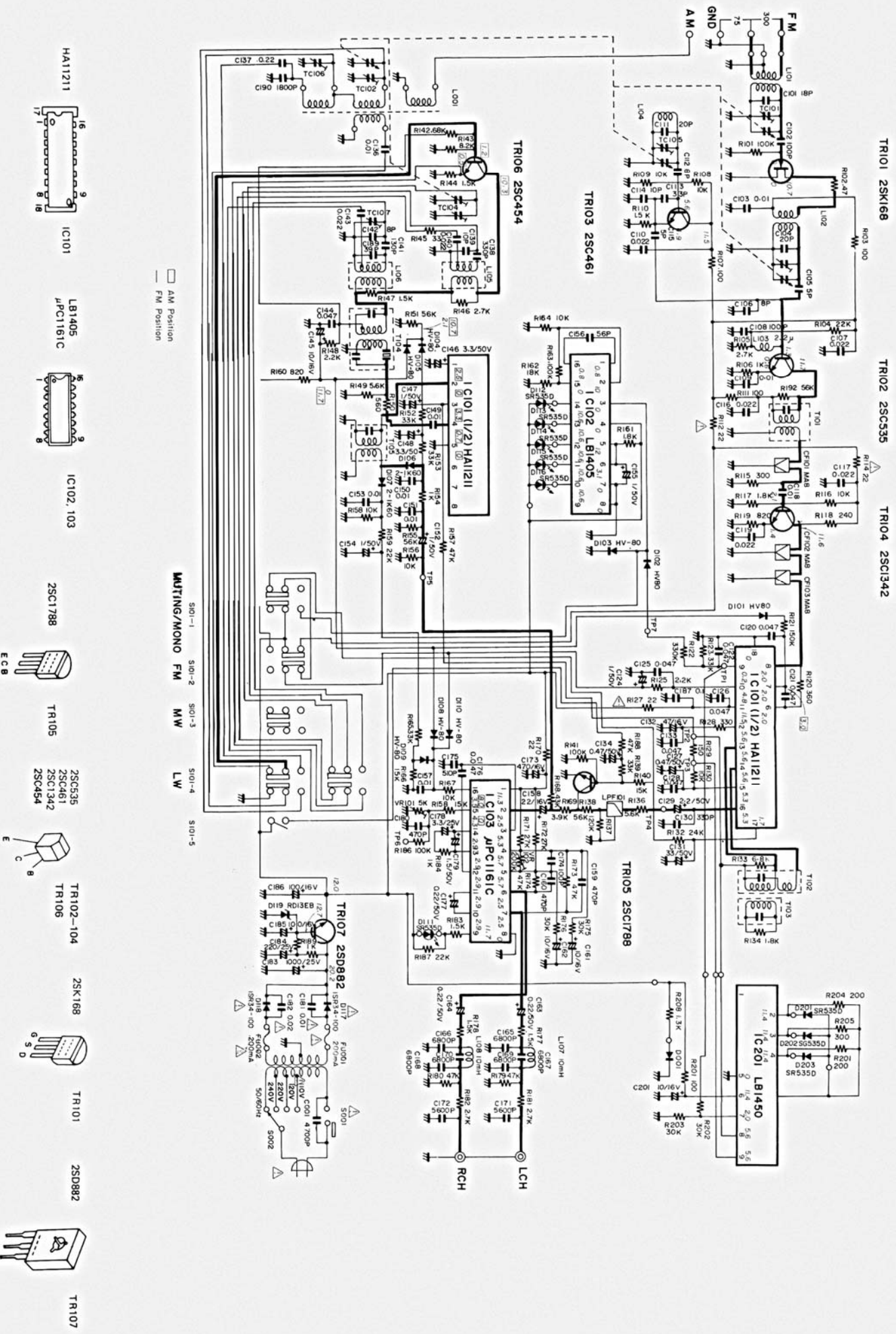
LED PWB ASS'Y (Solder Side)



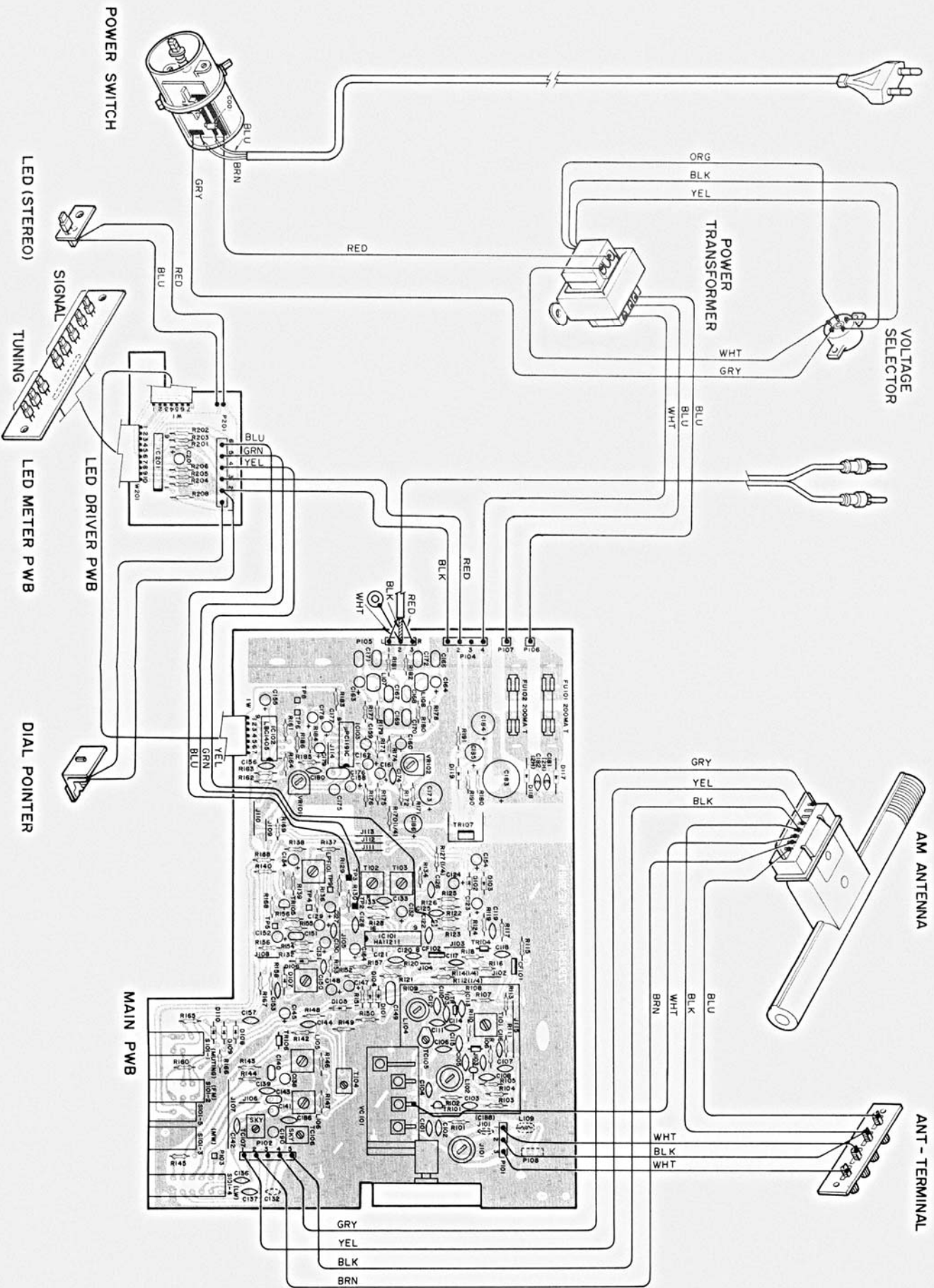
POWER SWITCH PWB ASS'Y (Solder Side)



SCHEMATIC DIAGRAM



WIRING DIAGRAM



POWER SWITCH

LED (STEREO)

SIGNAL TUNING

LED METER PWB

LED DRIVER PWB

DIAL POINTER

MAIN PWB

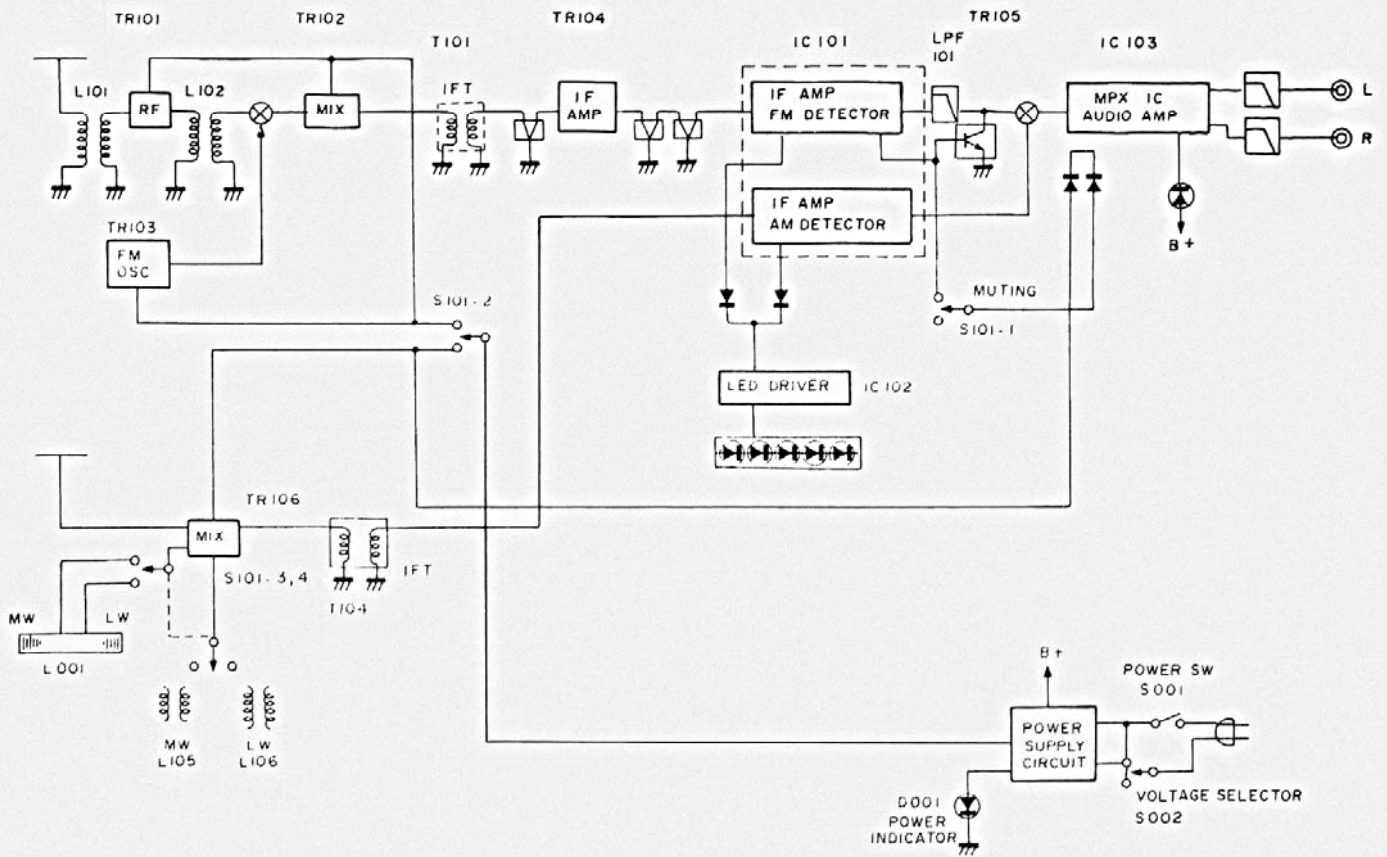
POWER TRANSFORMER

VOLTAGE SELECTOR

AM ANTENNA

ANT - TERMINAL

# BLOCK DIAGRAM



REF. No.	PART No.	DESCRIPTION	Q'TY	REMARKS
R120	409H2662	R, Carbon 360Ω 5% ¼W	1	
R150	409H2667	R, Carbon 560Ω 5% ¼W	1	
R119, 160	409H2671	R, Carbon 820Ω 5% ¼W	2	
R106, 154, 184, 189	409H2673	R, Carbon 1.0kΩ 5% ¼W	4	
R190	409H2675	R, Carbon 1.2kΩ 5% ¼W	1	
R110, 144, 147, 177, 178, 183	409H2677	R, Carbon 1.5kΩ 5% ¼W	6	
R117, 134, 161	409H2679	R, Carbon 1.8kΩ 5% ¼W	3	
R125, 148, 187	409H2681	R, Carbon 2.2kΩ 5% ¼W	3	
R105, 146, 181, 182	409H2683	R, Carbon 2.7kΩ 5% ¼W	4	
R129	409H2685	R, Carbon 3.3kΩ 5% ¼W	1	
R169	409H2687	R, Carbon 3.9kΩ 5% ¼W	1	
R188	409H2689	R, Carbon 4.7kΩ 5% ¼W	1	
R136, 149	409H2691	R, Carbon 5.6kΩ 5% ¼W	2	
R133	409H2693	R, Carbon 6.8kΩ 5% ¼W	1	
R130, 143	409H2695	R, Carbon 8.2kΩ 5% ¼W	2	
R108, 109, 116, 156, 158, 164, 167	409H2697	R, Carbon 10kΩ 5% ¼W	7	
R166, 185	409H2701	R, Carbon 15kΩ 5% ¼W	2	
R162	409H2703	R, Carbon 18kΩ 5% ¼W	1	
R104, 159	409H2705	R, Carbon 22kΩ 5% ¼W	2	
R132	409H2706	R, Carbon 24kΩ 5% ¼W	1	
R171, 172	409H2707	R, Carbon 27kΩ 5% ¼W	2	
R175, 176	409H2708	R, Carbon 30kΩ 5% ¼W	2	
R123, 139, 140, 152, 153, 165	409H2709	R, Carbon 33kΩ 5% ¼W	6	
R168	409H2712	R, Carbon 43kΩ 5% ¼W	1	
R157, 173, 174, 179, 180,	409H2713	R, Carbon 47kΩ 5% ¼W	5	
R138, 151, 155	409H2715	R, Carbon 56kΩ 5% ¼W	3	
R142	409H2717	R, Carbon 68kΩ 5% ¼W	1	
R101, 141, 163, 186	409H2721	R, Carbon 100kΩ 5% ¼W	4	
R137	409H2723	R, Carbon 120kΩ 5% ¼W	1	
R121	409H2725	R, Carbon 150kΩ 5% ¼W	1	
R122	409H2733	R, Carbon 330kΩ 5% ¼W	1	

#### CONTROLS

VR101	41951027	Semi-Fixed Resistor 5kΩ	1	
VR102	41951033	Semi-Fixed Resistor 200kΩ	1	

#### CAPACITORS

C181, 182	42019575	C, Ceramic 500V 0.01μF	2	
C153	42110425	C, Ceramic 50V 0.01μF	1	
C120, 121, 122, 125, 126, 128, 133, 144	42110933	C, Ceramic 50V 0.047μF	8	
C187	42110937	C, Ceramic 50V 0.1μF	1	
C103, 118, 119, 136, 150, 157	421A0425	C, Ceramic 50V 10000pF	6	
C107, 109, 110, 116, 117, 137	421A0429	C, Ceramic 50V 22000pF	6	
C112	42332013	C, Ceramic 50V 8pF	1	
C114	42332015	C, Ceramic 50V 10pF	1	
C113	42332033	C, Ceramic 50V 33pF	1	
C105, 115	42333010	C, Ceramic 50V 3pF	2	
C139	42333017	C, Ceramic 50V 10pF	1	
C106	42333025	C, Ceramic 50V 12pF	1	
C108	42333047	C, Ceramic 50V 100pF	1	
C111	42334028	C, Ceramic 50V 20pF	1	
C174	423A1033	C, Ceramic 50V 33pF	1	

REF. No.	PART No.	DESCRIPTION	Q'TY	REMARKS
C130	423A1057	C, Ceramic 50V 330pF	1	
C156	423A2039	C, Ceramic 50V 56pF	1	
C101	423A3025	C, Ceramic 50V 12pF	1	
C142	423A3027	C, Ceramic 50V 15pF 15	1	
C104	423A3029	C, Ceramic 50V 18pF	1	
C189	423A3037	C, Ceramic 50V 39pF	1	
C102	423A3047	C, Ceramic 50V 100pF	1	
C001	42606011	C, MP 250V 4700pF	1	
C149, 151	42754063	C, Mylar 50V 0.022 $\mu$ F	1	
C140	42754067	C, Mylar 50V 0.022 $\mu$ F	1	
C141	42972004	C, Poly 125V 130pF	1	
C138	42972013	C, Poly 125V 330pF	1	
C180	42972017	C, Poly 125V 470pF	1	
C190	42972031	C, Poly 125V 1800pF	1	
C159, 160	42972417	C, Poly 50V 470pF	2	
C175	42972418	C, Poly 50V 510pF	1	
C165, 166, 167, 170	42974015	C, Poly 50V 6800pF	4	
C176	42974022	C, Poly 50V 47000pF	1	
C171, 172	429G4014	C, Poly 50V 5600pF	2	
C168, 169	429G4015	C, Poly 50V 6800pF	2	
C143	429G4065	C, Poly 50V 22000pF	1	
C161, 201	43993024	C, Elec. 16V 10 $\mu$ F	2	
C173	43993031	C, Elec. 16V 470 $\mu$ F	1	
C184	43993042	C, Elec. 25V 220 $\mu$ F	1	
C183	43993045	C, Elec. 25V 1000 $\mu$ F	1	
C129	43993061	C, Elec. 50V 2.2 $\mu$ F	1	
C148	43993062	C, Elec. 50V 3.3 $\mu$ F	1	
C178	439H0027	C, Elec. 25V 3.3 $\mu$ F	1	
C163, 164, 177	439H0049	C, Elec. 50V 0.22 $\mu$ F	3	
C179	439H0054	C, Elec. 50V 1.5 $\mu$ F	1	
C158	439J3038	C, Elec. 25V 22 $\mu$ F	1	
C132	439J3040	C, Elec. 25V 47 $\mu$ F	1	
C185, 186	439J3041	C, Elec. 25V 100 $\mu$ F	2	
C127	439J3059	C, Elec. 50V 0.47 $\mu$ F	1	
C124, 134, 147, 152, 154, 155	439J3060	C, Elec. 50V 1.0 $\mu$ F	6	
C131, 146	439J3062	C, Elec. 50V 3.3 $\mu$ F	2	
C145, 162	439J3064	C, Elec. 50V 10 $\mu$ F	2	
VC101	44113004	Variable Capacitor	1	
TC105	44208002	Trimmer Capacitor	1	
TC106, 107	44930006	Trimmer Capacitor 20pF	2	

#### COILS, TRANSFORMERS & FILTERS

T105	60802007	IFT, 455kHz	1	
L103	61052047	Coil, Filter 2.2 $\mu$ H	1	
T101	61902024	IFT 10.7MHz	1	
T102	61902063	FM DET Coil	1	
T103	61902064	FM DET Coil	1	
L001	61903039	AM Bar Antenna Coil	1	
L104	61904284	FM OSC Coil	1	
L106	61904387	LW OSC Coil	1	
L105	61904388	MW OSC Coil	1	
L101	61904420	FM Antenna Coil	1	
L102	61904424	FM RF Coil	1	
L107, 108	61911121	Coil RC-103	2	

REF. No.	PART No.	DESCRIPTION	Q'TY	REMARKS
CF101, 102, 103 T104	61919005	Ceramic Filter 10.7MHz (RED)	3	
	61919026	Coil, Filter 455kHz	1	

**MISCELLANEOUS PARTS**

1	18714961	Front Panel	1	
2	18462821	Knob Ass'y, Tunning	1	
3	18462841	Push Button S	4	
4	18462851	Push Button L	1	
5	18404741	Collar	5	
6	18404761	LED Filter	1	
7	18404781	Dial Filter	1	
8	18403681	LED Holder	1	
9	18714991	Dial Scale	1	
10	18519071	Sub Chassis	1	
11	18286011	Pulley	4	
12	18604601	Insulation Plate	1	
13	18289551	Cord Clamper	1	
14	18517711	Tuning Shaft	1	
15	67920019	Dial Pointer Ass'y with LED	1	
16	18518051	Channel	2	
17	18516322	Bracket, PWB	1	
18	18604632	Holder, Pointer Lead	1	
19	18517821	Heat Sink	1	
20	18518101	Shield Case	1	
21	18518151	Spring	1	
22	18290301	Dial Drum	1	
23	18519081	Bracket	1	
24	18519101	Rear Panel	1	
25	24280261	Cord Clamper	2	
26	18356461	Cabinet	1	
27	18604611	Sheet, Cabinet	1	
28	18356471	Bottom Board	1	
29	18290731	Foot	4	
101	18854311	Special Screw	6	
102	18854321	Special Screw	2	
103	91303051	Screw, #2CFTS 3x8x15BF	2	
104	91283031	Screw, #2CFTS 3x6x15BF	2	
105	18852641	Screw	2	
106	23850871	Screw	4	
107	24851551	Screw, FT 3x8x15BF	8	
108	18850871	Push Rivet	5	
109	24851801	Push Rivet	3	
110	18854171	Special Nut	1	
111	24850201	Special Screw	1	
112	24852441	Screw, PT 3x8x15BF	3	
113	23350971	Screw	1	
114	23850861	Special Washer	1	
115	91430301	AHEXIN 3x15BF	4	
116	18852731	Special Screw, M3x8	2	
117	18852741	Special Screw, M3x8	1	
118	18852251	Special Screw, M3x8	1	
119	24851561	Screw, FT 3x10x15BF	4	
120	91013086	Screw, CPIMS 3x14x3kF	2	



REF. No.	PART No.	DESCRIPTION	Q'TY	REMARKS
121	18513901	Stud	2	
201	87B28101	Tuner PWB Ass'y	1	
202	87B28231	LED PWB Ass'y	1	
203	71905079	4P Terminal	1	
204	45026069	Power Transformer	1	
205	79759123	Power Cord	1	
206	70906058	Pin Plug Cord	1	
207	61903039	AM Bar Antenna Coil	1	
208	65901039	Voltage Selector Switch	1	
	18282841	Combination Band	5	
	18604621	Sheet	1	
	18714981	Ornamental Plate, LED	1	
	18715001	Filter, Dial Window	1	
	62910012	FM Antenna	1	
	65904156	Push Switch	1	
	65904183	Power Switch	1	
	66901035	Fuse 200mAT SEMKO	2	
	70599056	Power Adaptor	1	
	71903045	Fuse Holder	4	
	78912971	Instruction Booklet	1	

#### PACKING MATERIALS

	19800561	Bag, Polyethylene	1	
	19800672	Bag B, Polyethylene	2	
	19805131	Bag B, Polyethylene	1	
	18807361	Filler, Carton	2	
	18807351	Carton Box	1	