

# NEC

Authentic series

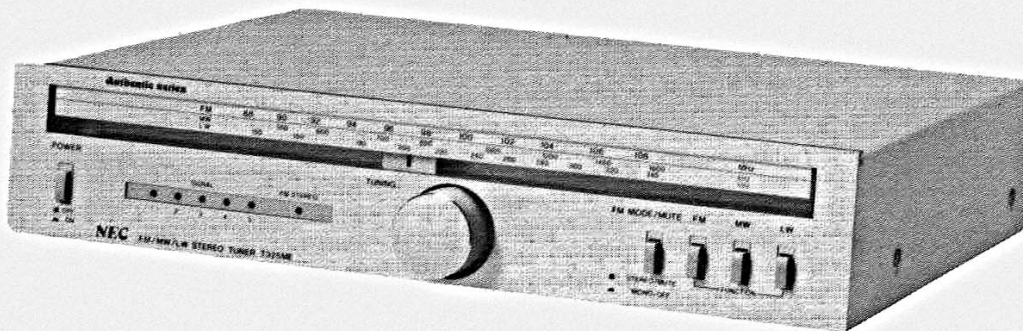
MODEL T325ME

## STEREO TUNER SERVICE MANUAL

SER. 3055



Better Service  
Better Reputation  
Better Profit



### SPECIFICATIONS

FM SECTION	NOMINAL VALUE
Tuning Frequency Range . . . . .	87.5 ~ 109 MHz
Usable Sensitivity . . . . .	10.8 dBf
50 dB Quieting Sensitivity	
Monaural . . . . .	18.3 dBf
Stereo . . . . .	38.3 dBf
Signal to Noise Ratio	
Monaural . . . . .	76 dB
Stereo . . . . .	72 dB
Capture Ratio . . . . .	1.0 dB
Alternate Channel Selectivity . . . . .	60 dB
Image Rejection Ratio . . . . .	45 dB
I.F. Rejection Ratio . . . . .	85 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 . . . . .	30 dB

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

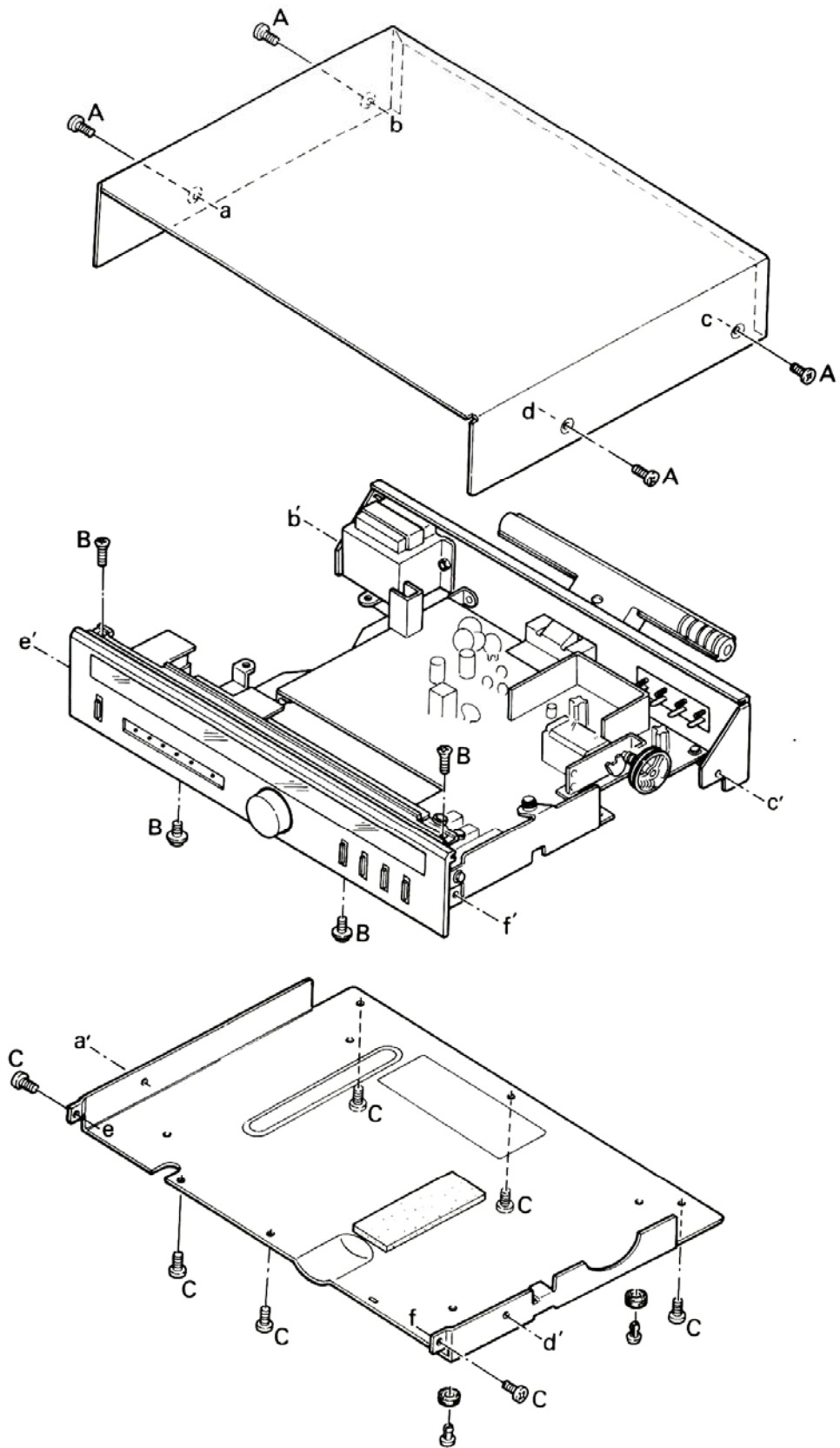
### OTHER SPECIFICATIONS

Output Level	
FM 1 kHz $\pm$ 75 kHz Dev. . . . .	650 mV
AM 400 Hz, 30 % Mod. . . . .	200 mV
Power Requirements . . . . .	AC115V/230V, 50/60 Hz
Dimensions . . . . .	300(W) x 58(H) x 230(D) mm
Weight. . . . .	Approximately 2.8 kgs.

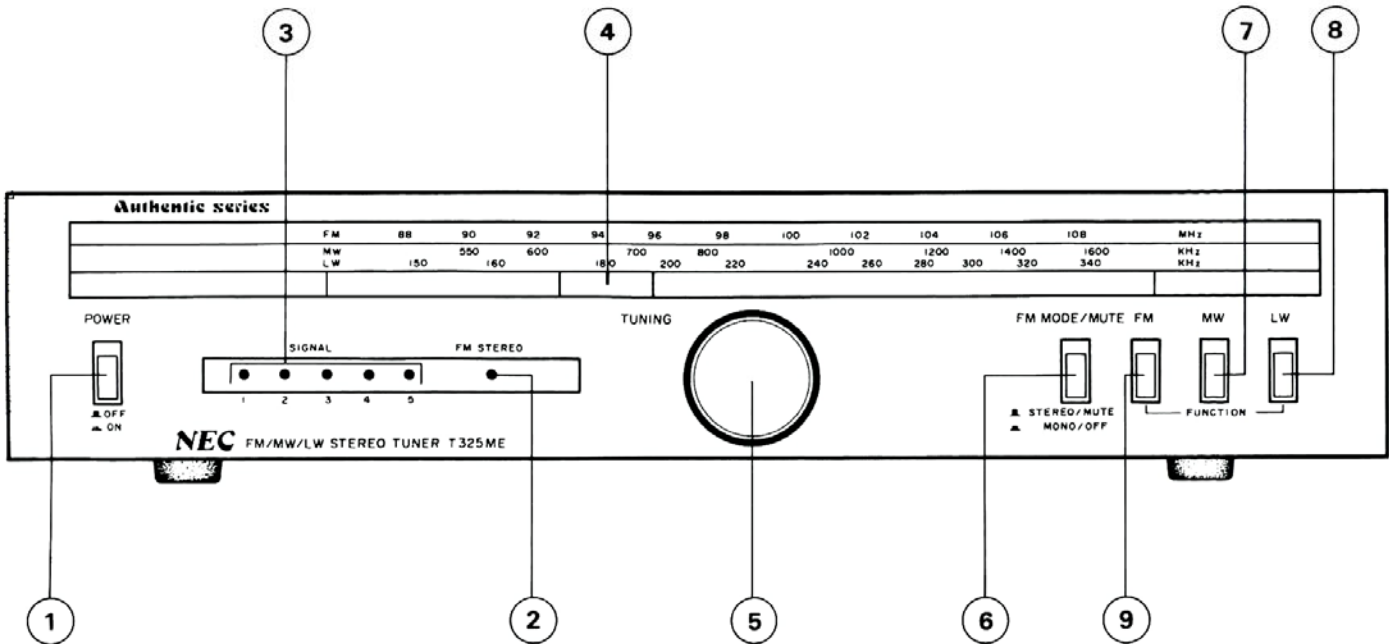
Nippon Electric Co., Ltd.

TOKYO, JAPAN

# DISASSEMBLY



## EXTERNAL VIEW



- |                        |                          |
|------------------------|--------------------------|
| 1. POWER SWITCH        | 6. FM MODE & MUTE SWITCH |
| 2. FM STEREO INDICATOR | 7. MW SWITCH             |
| 3. SIGNAL INDICATOR    | 8. LW SWITCH             |
| 4. DIAL POINTER LED    | 9. FM SWITCH             |
| 5. TUNING CONTROL      |                          |



## ALIGNMENT METHOD

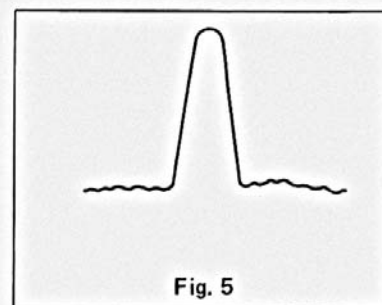
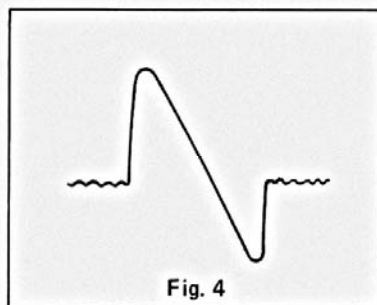
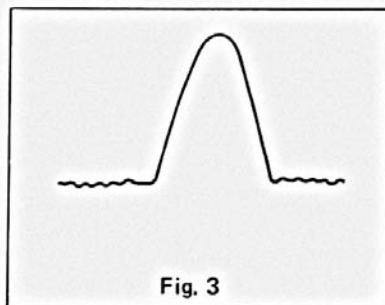
### EQUIPMENT REQUIRED

- 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 0V 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

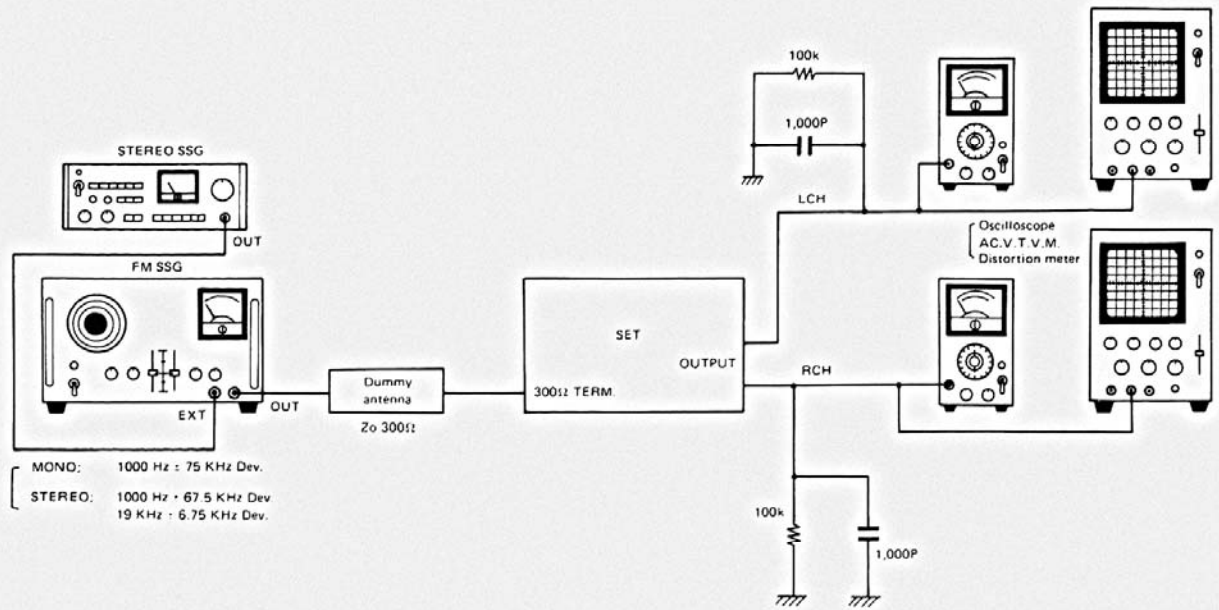


Fig. 6

## AM EQUIPMENT CONNECTION DIAGRAMS

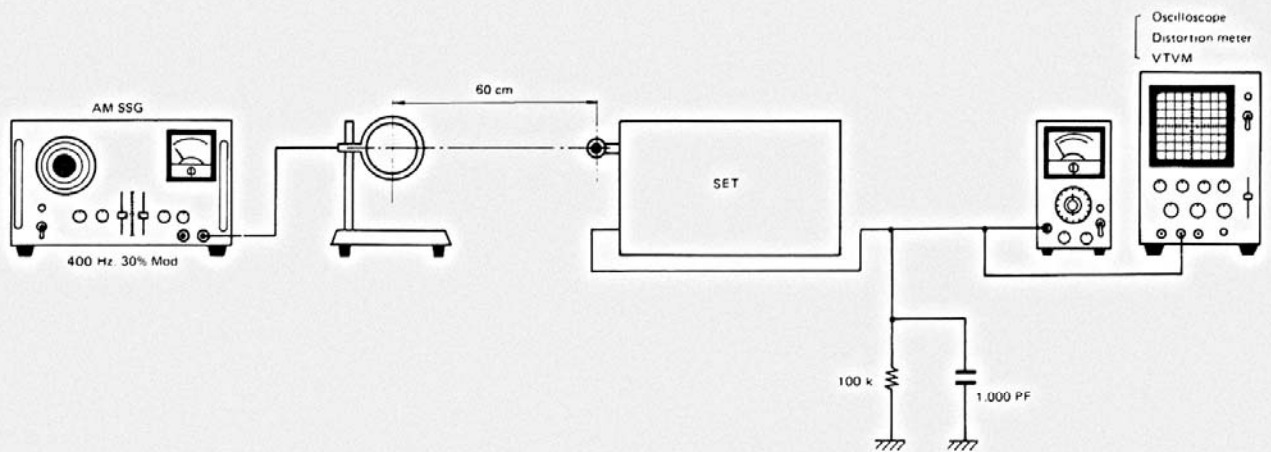


Fig. 7

# ALIGNMENT POINT DIAGRAMS

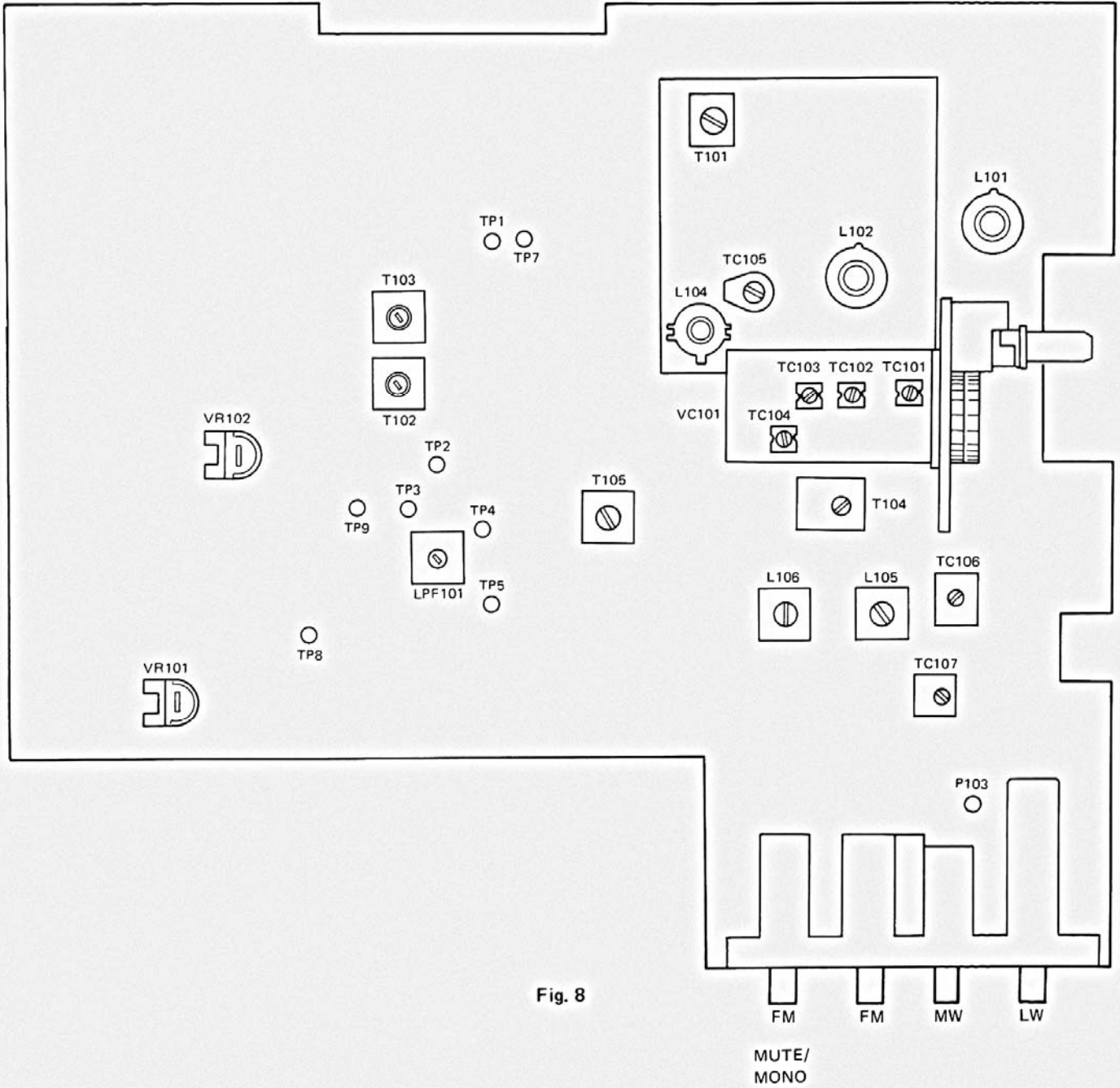


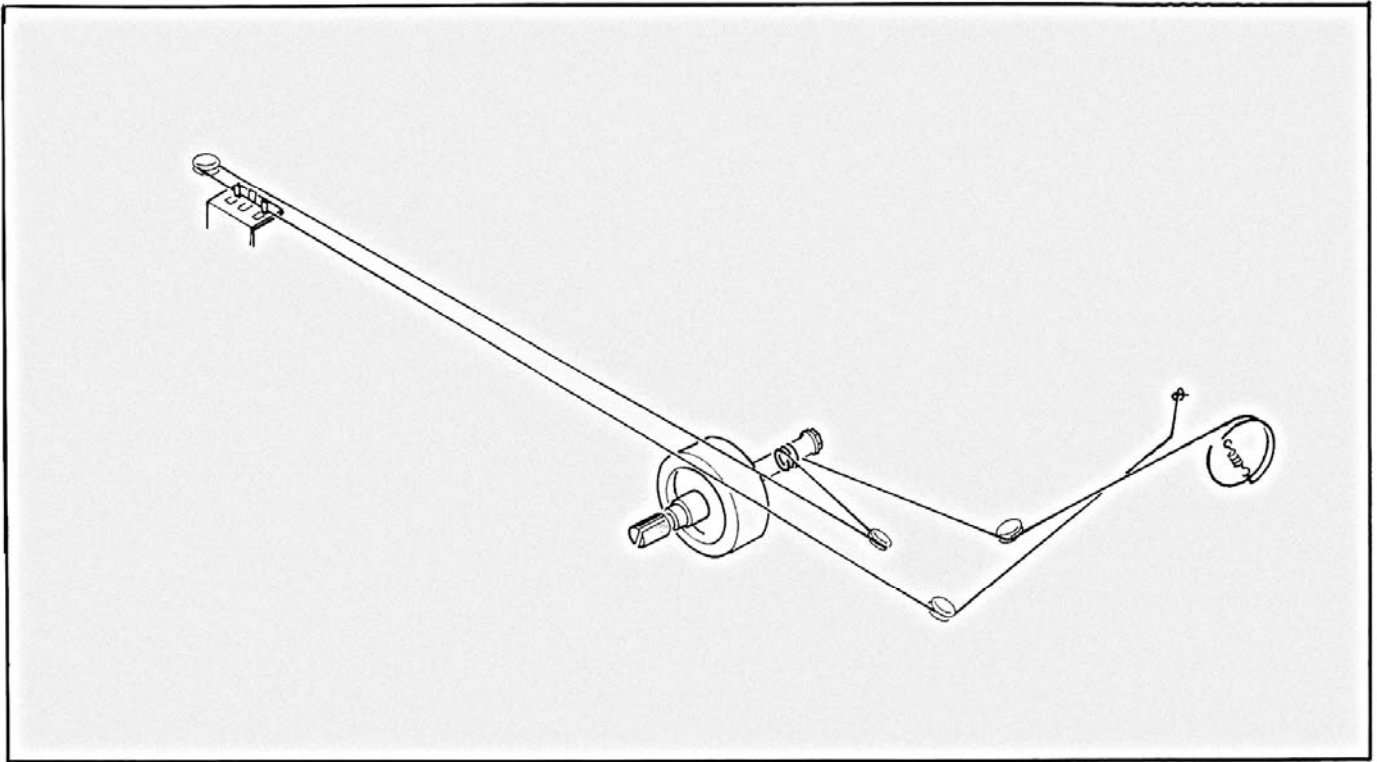
Fig. 8



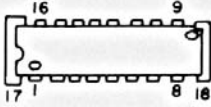
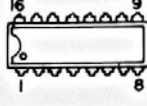
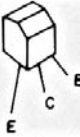







# DIAL STRINGING



## TRANSISTOR & IC LEAD IDENTIFICATION

IC101	HA11211	
IC102, 103	LB1405 μPC1161C	
TR102-104 TR106	2SC535 2SC461 2SC1342 2SC454	
TR105	2SC1788	
TR101	2SK168	
TR107	2SD882	

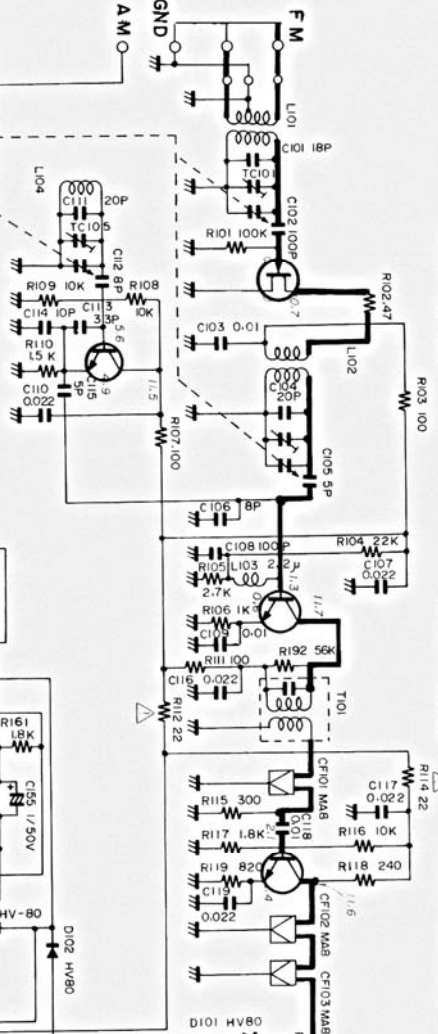


SCHEMATIC DIAGRAM

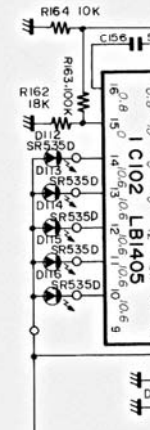
TR101 2SK168

TR102 2SC535

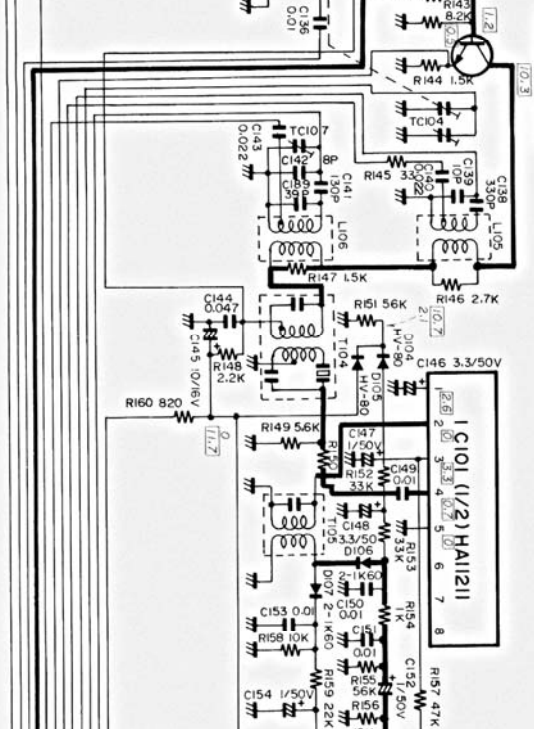
TR104 2SC1342



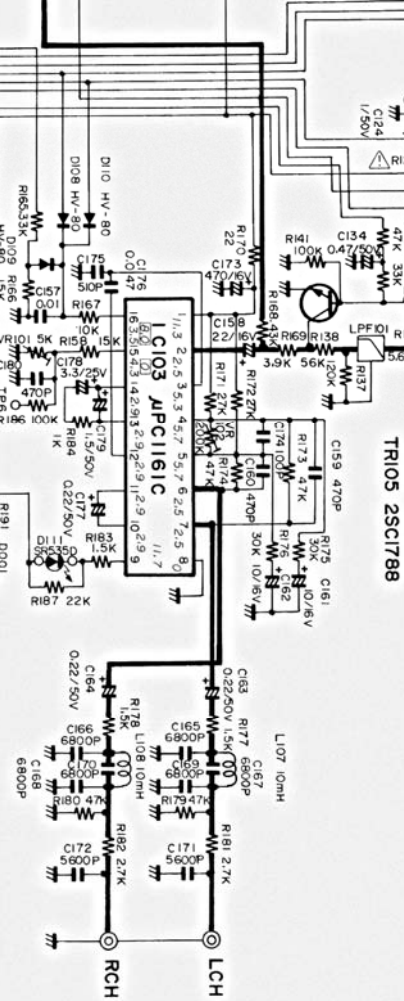
TR103 2SC461



TR106 2SC454

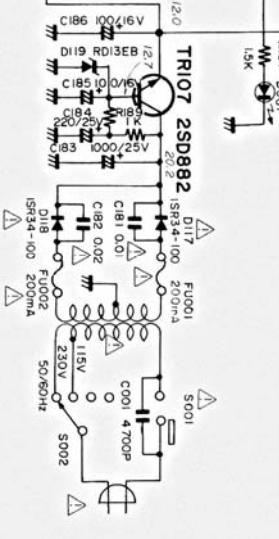


TR105 2SC1788



MUTING/MONO FM MW LW

S101-1 S101-2 S101-3 S101-4 S101-5

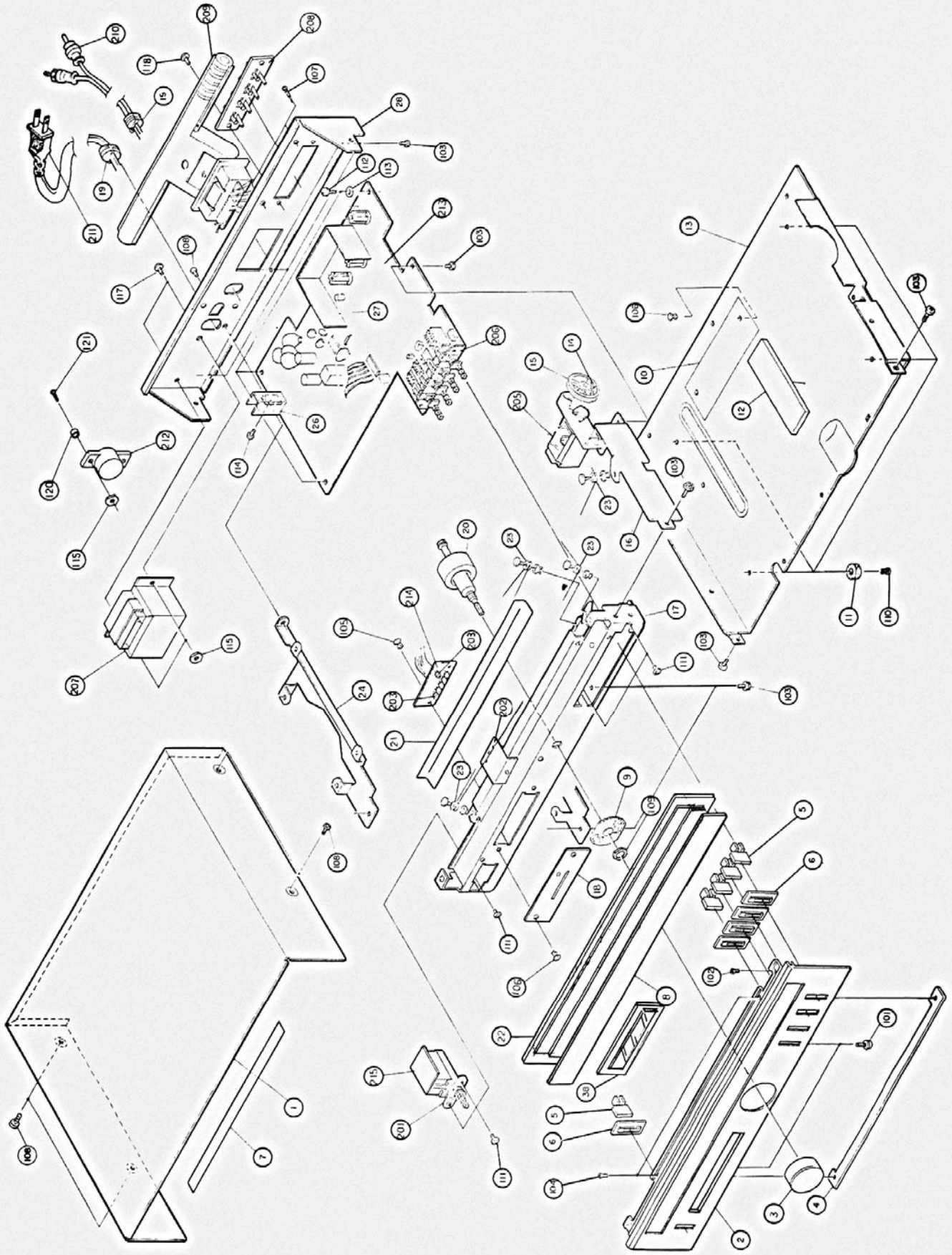


□ AM Position  
— FM Position





# EXPLODED VIEW





## REPLACEMENT PART LIST

EXPLODED VIEW NO.	SYMBOL NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
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### Transistors

	TR103	35944402	Transistor, 2SC461B	1	
	TR102	35944502	Transistor, 2SC535B	1	
	TR104	35946702	Transistor, 2SC1342B	1	
	TR106	35946802	Transistor, 2SC454B	1	
	TR105	35948117	Transistor, 2SC1788Q	1	
	TR107	35964117	Transistor, 2SD882Q	1	
	TR101	35991004	FET, 2SK168D	1	

### Diodes

203	D106, 107	36002515	Diode, 2-1K60	2	
	D117, 118	36902064	Rectifier, DS135E	2	
	D201,202,203,204,205,206	36904077	LED, GL2PR1	6	
	D119	36905071	Zener, RD13E	1	
	D101, 102, 103, 104, 105, 108, 109, 110	369K1024	Diode, HV80AT	8	

### ICs

	IC101	37902019	IC, HA11211	1	
	IC103	37902027	IC, $\mu$ PC1161C	1	
	IC102	37903094	IC, LB1405	1	

### Resistors

	R112, 114, 127, 170	40913133	R, Carbon 22 $\Omega$ 5% 1/4W	4	
	R192	40982215	R, Carbon 56K $\Omega$ 5% 1/4W	1	
	R145	409H2637	R, Carbon 33 $\Omega$ 5% 1/4W	1	
	R102	409H2641	R, Carbon 47 $\Omega$ 5% 1/4W	1	
	R103, 107, 111	409H2649	R, Carbon 100 $\Omega$ 5% 1/4W	3	



EXPLODED VIEW NO.	SYMBOL NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
	R129	409H2653	R, Carbon 150Ω 5% ¼W	1	
	R118	409H2658	R, Carbon 240Ω 5% ¼W	1	
	R115	409H2660	R, Carbon 300Ω 5% ¼W	1	
	R128	409H2661	R, Carbon 330Ω 5% ¼W	1	
	R120	409H2662	R, Carbon 360Ω 5% ¼W	1	
	R150	409H2667	R, Carbon 560Ω 5% ¼W	1	
	R119, 160	409H2671	R, Carbon 820Ω 5% ¼W	1	
	R106, 154, 184, 189	409H2673	R, Carbon 1KΩ 5% ¼W	4	
	R190	409H2675	R, Carbon 1.2KΩ 5% ¼W	1	
	R110, 144, 147, 177, 178, 183 191	409H2677	R, Carbon 1.5KΩ 5% ¼W	7	
	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	
	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	1	
	R133	409H2693	R, Carbon 6.8KΩ 5% ¼W	1	
	R143	409H2695	R, Carbon 8.2KΩ 5% ¼W	1	
	R108, 109, 116, 130, 156, 158, 164, 167	409H2697	R, Carbon 10KΩ 5% ¼W	8	
	R140, 166, 185	409H2701	R, Carbon 15KΩ 5% ¼W	3	
	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, 152, 153, 165	409H2709	R, Carbon 33KΩ 5% ¼W	5	
	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	
	VR101	41951027	R, Semi-Fixed 5KΩB	1	
	VR102	41951033	R, Semi-Fixed 200KΩB	1	

EXPLODED VIEW NO.	SYMBOL NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
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**Capacitors**

	C181, 182	42019575	C, Ceramic 500V	0.01 $\mu$ F	2	
	C150, 153, 157	42110425	C, Ceramic 50V	0.01 $\mu$ F	3	
	C103, 118, 119, 136	42110925	C, Ceramic 50V	0.01 $\mu$ F	4	
	C107, 109, 110, 116, 117, 137	42110929	C, Ceramic 50V	0.022 $\mu$ F	6	
	C120, 121, 122, 125, 126, 128, 133, 144	42110933	C, Ceramic 50V	0.047 $\mu$ F	8	
	C174	42331045	C, Ceramic 50V	100pF	1	
	C130	42331075	C, Ceramic 50V	330pF	1	
	C112	42332013	C, Ceramic 50V	8pF	1	
	C114	42332015	C, Ceramic 50V	10pF	1	
	C113	42332033	C, Ceramic 50V	33pF	1	
	C156	42332039	C, Ceramic 50V	56pF	1	
	C105, 115	42333012	C, Ceramic 50V	5pF	2	
	C106, 142	42333015	C, Ceramic 50V	8pF	2	
	C139	42333017	C, Ceramic 50V	10pF	1	
	C101	42333029	C, Ceramic 50V	18pF	1	
	C104	42333030	C, Ceramic 50V	20pF	1	
	C189	42333037	C, Ceramic 50V	39pF	1	
	C102, 108	42333047	C, Ceramic 50V	100pF	2	
	C111	42334028	C, Ceramic 50V	20pF	1	
	C001	42606011	C, MP 250V	4700pF	1	
	C149, 151	42754063	C, Mylar 50V	0.01 $\mu$ F	2	
	C140, 143	42754067	C, Mylar 50V	0.022 $\mu$ F	2	
	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	
	C171, 172	42974014	C, Poly 50V	5600pF	2	
	C165, 166, 167, 168, 169, 170	42974015	C, Poly 50V	6800pF	6	
	C176	32974022	C, Poly 50V	47000pF	1	
	C178	43980027	C, Elec. 25V	3.3 $\mu$ F	1	
	C163, 164, 177	43980049	C, Elec. 50V	0.22 $\mu$ F	3	
	C179	43980054	C, Elec. 50V	1.5 $\mu$ F	1	
	C145, 161, 162	43993024	C, Elec. 16V	10 $\mu$ F	3	
	C158	43993025	C, Elec. 16V	22 $\mu$ F	1	
	C132	43993027	C, Elec. 16V	40 $\mu$ F	1	
	C185, 186	43993028	C, Elec. 16V	100 $\mu$ F	2	



EXPLODED VIEW NO.	SYMBOL NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
205	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	
	C127, 134	43993059	C, Elec. 50V 0.47 $\mu$ F	2	
	C124, 147, 152, 154, 155	43993060	C, Elec. 50V 1 $\mu$ F	5	
	C129	43993061	C, Elec. 50V 2.2 $\mu$ F	1	
	C131, 146, 148	43993062	C, Elec. 50V 3.3 $\mu$ F	3	
	VC101	44113003	Variable Capacitor 5-gang	1	
	TC105	44208002	C, Trimmer	1	
	TC106, 107	44930006	C, Trimmer 20pF	1	

#### Electrical Parts

207	T001	45026070	Power Transformer T320ME	1		
	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 Coil, Bar Antenna	1		
	L104	61904284	FM OSC Coil	1		
	L106	61904387	LW OSC Coil	1		
	L105	61904388	MW OSC Coil	1		
	L101	61904420	FM ANT Coil	1		
	L102	61904424	Coil, FM RF	1		
	L107, 108	61911121	Coil, RC-103	2		
	CF101A, 102A, 103A	61919005	Ceramic Filter 10.7MHz	3		
	T104	61919026	Coil, Filter 455KHz	1		
	LPF101	39907008	Filter 114KHz	1		
	212		65901053	Switch, Voltage Selector	1	
	206	S101	65904155	Push Switch	1	
201	SW001	65904183	Power Switch SEMKO	1		
	FU101, 102	66901035	Fuse 200mAT	2		
213		87B39131	Tuner PWB Ass'y	1		
214		87C28161	LED PWB Ass'y	1		
215		72913331	Power Switch PWB	1		

#### Miscellaneous Parts

1		18356581	Cabinet	1	
2		18715931	Front Panel	1	
3		18463331	Tuning Knob Ass'y	1	



EXPLODED VIEW NO.	SYMBOL NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
4		18517851	Bracket	1	
5		18461891	Knob, Push	5	
6		18404501	Collar, Knob	5	
7		18604611	Sheet	1	
8		18715941	Dial Scale	1	
9		18604722	Cover DIA 36	1	
10		18604752	Plastic Sheet	1	
11		18290642	Foot	4	
12		18604852	Spring B	1	
13		18519701	Bottom Cover	1	
14		18518851	Spring Coil	1	
15		18290151	Dial Drum	1	
16		18517781	Bracket B	1	
17		18519711	Sub Chassis Ass'y	1	
19		24280261	Wire Clamper	2	
20		18517791	Tuning Shaft	1	
21		18515291	Plate, Dial Back up	1	
22		18405001	Dial Filter	1	
23		18287711	Pulley DIA 7	4	
24		18157761	Center Frame	1	
26		18517821	Heat Sink	1	
27		18517831	Cover, Shield	1	
28		18520381	Rear Panel	1	
38		18405011	LED Holder	1	
101		23850891	Special Screw	2	
102		91053022	Screw, CFIMS 3 x 5 x 15CF	2	
103		24851541	Screw, FT 3 x 6 x 15BF	8	
104		91053012	Screw, CFIMS 3 x 4 x 15CF	2	
105		24851801	Push Rivet	2	
106		18850871	Push Rivet	2	
107		18852741	Special Screw	2	
108		18853791	Special Screw	1	
109		18854171	Special Nut	1	
110		23850741	Push Rivet	4	
111		23850871	Special Screw	4	
112		24852441	Screw, PT 3 x 8 x 15BF	3	
113		91510351	Screw, PIWA 3.5 x 15BF	3	
114		24850201	Washed Screw	1	
115		91430302	Nut, AHEXIN 3 x 15CF	4	
117		18852731	Special Screw	2	

EXPLODED VIEW NO.	SYMBOL NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
118		18852251	Special Screw	2	
120		18513901	Stud	2	
121		91063086	Screw, CPIMS 3 x 14 x 3K	2	
202		67920024	Dial Pointer Base	1	
208		71905079	4P Screw Terminal	1	
209		61903039	AM Coil, Bar Antenna	1	
210		70906075	Pin Plug Cable	1	
211		70803014	Line Cord CENELEC	1	

**Packing Materials**

		18801032	Bag, Polyehylene (1/12)	1	
		18803991	Bag, Polyethylene	1	
		18806502	Filler, Carton	2	
		18806531	Bag, Polyehylene	1	
		18808341	Individual Carton	1	
		18808351	Master Carton	1	
		78912911	Instruction Book	1	