



**FM/AM CAR RADIO**  
**MODEL KM-1583HC**  
**SERVICE MANUAL**

No. 776

1975

**SPECIFICATIONS**

CIRCUIT SYSTEM.....FM/AM Superheterodyne system	POWER SUPPLY.....DC : 12V negative ground (use car battery)
TUNING RANGE.....FM : 87.5~108.5 MHz	CURRENT CONSUMPTION ...1A (with maximum output)
AM : 535~1,605 KHz	0.35 A (with no signal)
INTERMEDIATE FREQUENCY...FM : 10.7 MHz	ANTENNA.....Telescopic antenna for car use (RO-261)
AM : 455 KHz	SENSITIVITY.....FM: 0 dB (Max.)
SEMICONDUCTOR	10 dB (S/N=30 dB) (practical)
IC.....3	AM: 10 dB (Max.)
TRANSISTORS.....3	25 dB (S/N=20 dB) (practical)
DIODES .....6	DIMENSIONS .....1-31/32" (H) X 6-15/16" (W) X 5/32" (D)
ZENER DIODE.....1	(5 X 16 X 8cm)
SPEAKER.....4-3/4" (12cm)	WEIGHT.....2 lbs. (0.9kg)
AUDIO OUTPUT.....5.5W (Max.)	
3.8W (Distortionless)	

**CONTROLS**

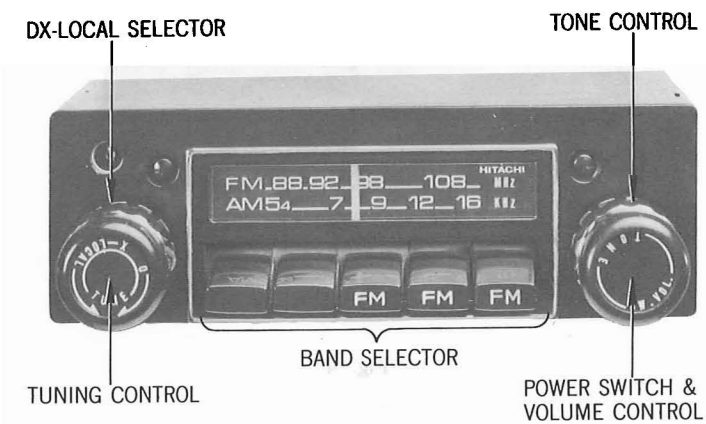


Fig. 1

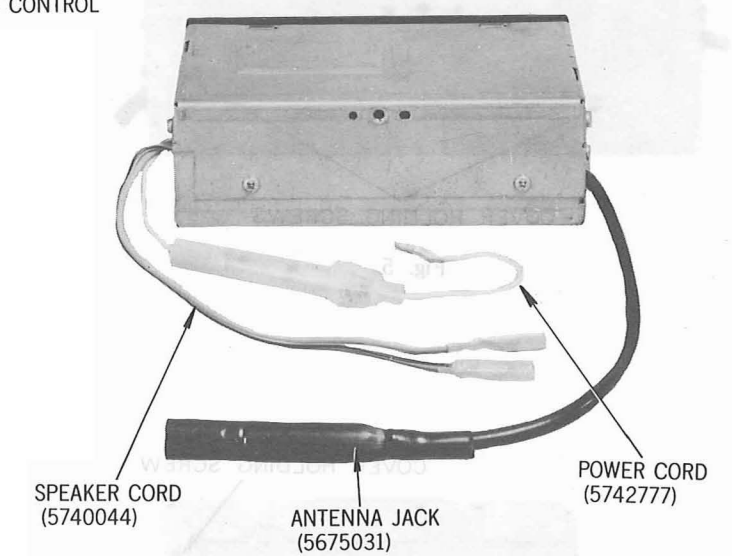


Fig. 2

**BLOCK DIAGRAM**

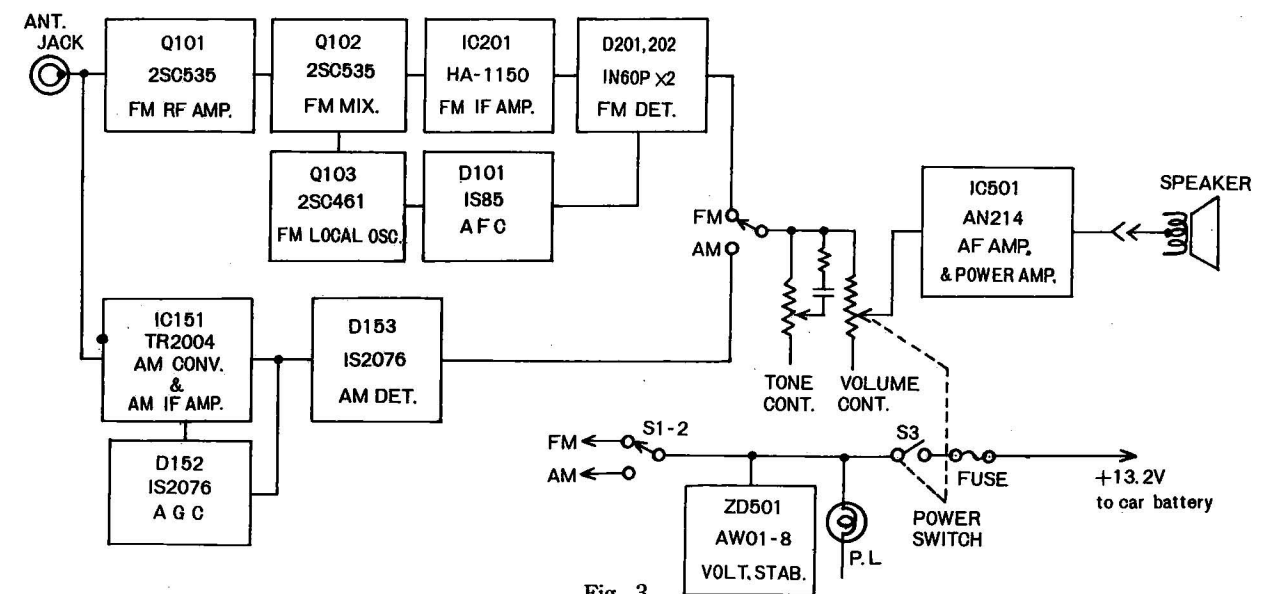
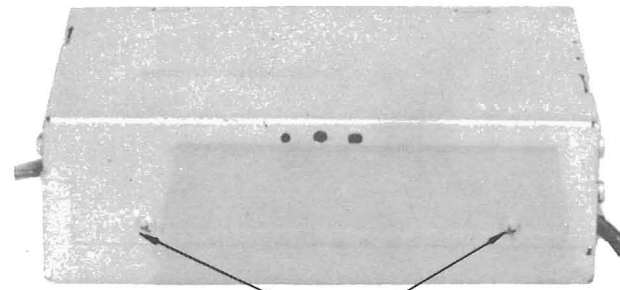


Fig. 3

## DISASSEMBLY

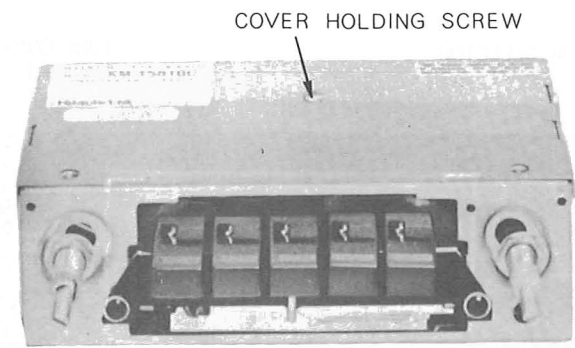
### 1. Removal of cover

Remove five screws holding cover as shown in Figs. 4, 5, 6 and 7.



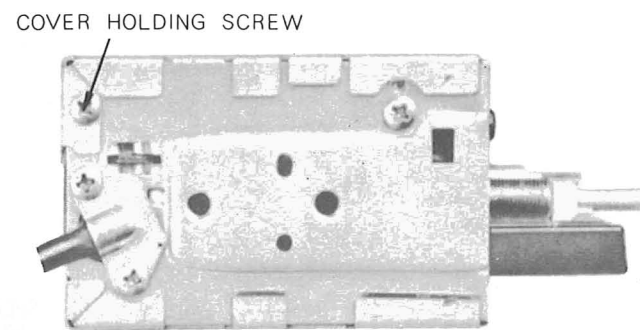
COVER HOLDING SCREWS

Fig. 5



COVER HOLDING SCREW

Fig. 4



COVER HOLDING SCREW

Fig. 6



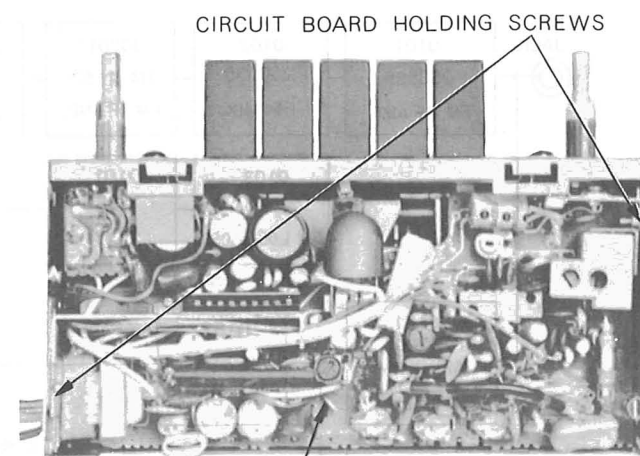
COVER HOLDING SCREW

Fig. 7

### 2. Removal of circuit board

Remove two screws and loosen claw holding circuit board as shown in Fig. 8.

Open a circuit board as shown in Fig. 9 and then repair or check.



CIRCUIT BOARD HOLDING SCREWS

CIRCUIT BOARD HOLDING CLAW

Fig. 8

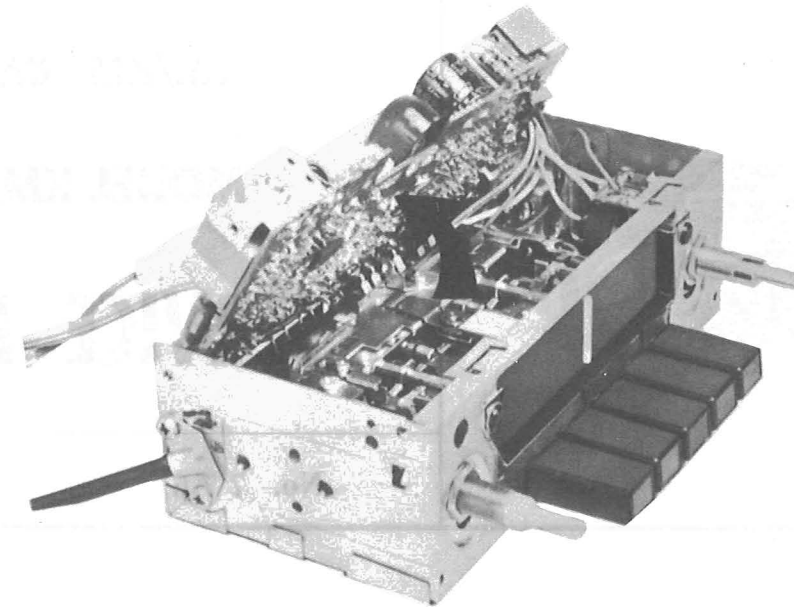


Fig. 9

## ALIGNMENT PROCEDURE

### Instrument Required

- Oscilloscope
- Sweep Generator (Centered 10.7 MHz, Sweep width  $\pm 1$  MHz)
- Signal Generator (FM, AM)
- V.T.V.M (with AC 3V or less scale)

### General Preparation

1. When the radio is turned on with no signal, the voltage should be kept in 13.2 V.

2. Turn the volume control knob fully clockwise.

NOTE : During FM-IF and FM-DISC. alignment, turn the volume control knob to minimum.

3. During AM alignment, connect output of signal generator (modulated by 400 or 1,000 Hz 30%) to such a dummy antenna as shown in Fig. 11.

4. During FM-RF alignment, connect output of signal generator to such a dummy antenna as shown in Fig. 10.

5. Adjust with an insulated screw driver to prevent body effect.

6. Adjust the output of signal generator so that the reading on the V.T.V.M may drop to minimum adjustable, as it rises according to adjustment.

7. The order of adjustment is shown below.

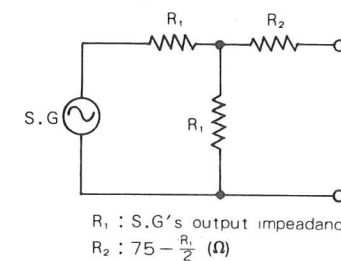


Fig. 10

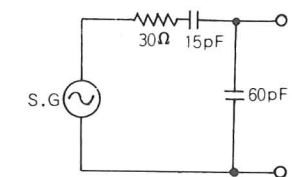


Fig. 11

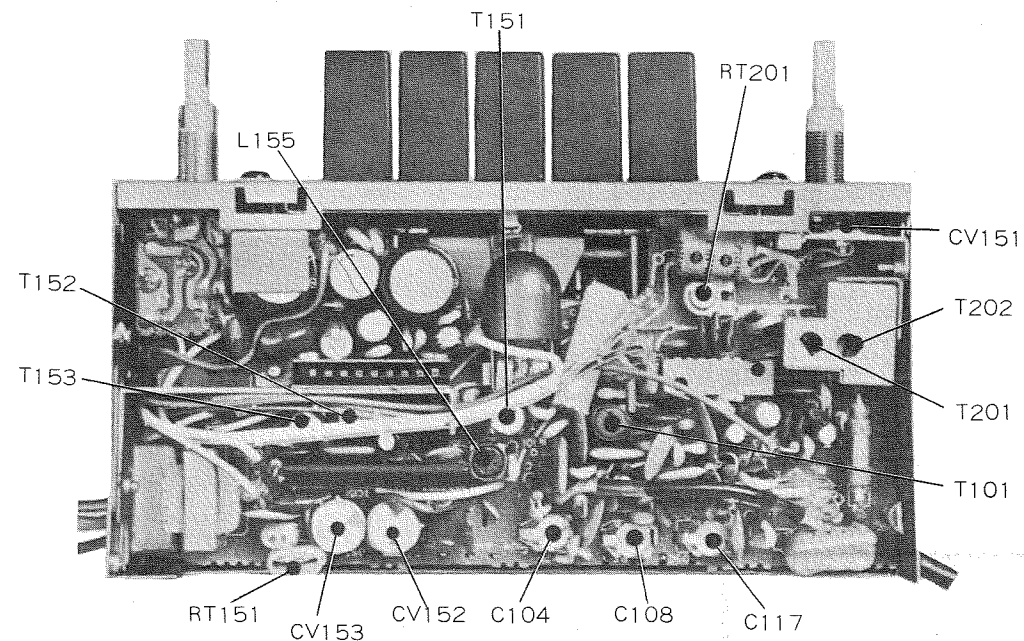


Fig. 12

**FM-IF Alignment**

- Oscilloscope.....Connect VERT. terminal of oscilloscope to R213 .
- Sweep Generator ..... Connect to R104 through 0.001 $\mu$ F coupling capacitor.
- Adjust as indicated until the wave form shown in Fig. 13. is obtained.

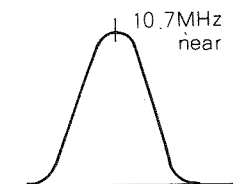


Fig. 13

Step	Dial Pointer Setting	Sig. Gen. Output	Adjustment for Max. Output
①	High freq. end	10.7 MHz $\pm$ 1MHz sweep	Detune T202 and then adjust T201 and T101
②	Repeat step ①		

**FM-DISC. Alignment**

- Oscilloscope } .....Same as FM-IF alignment.
- Sweep Generator }
- Adjust as indicated until the waveform shown in Fig. 14 is obtained.

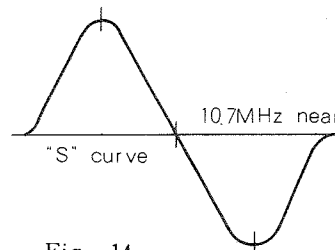


Fig. 14

Step	Dial Pointer Setting	Sig. Gen. Output	Adjustment for Max. Output
①	High freq. end	10.7 MHz $\pm$ 1MHz sweep	*S* curve is obtained with T202 and maximum curve is obtained with T201
②	Repeat step ①		

**FM-RF Alignment**

- Signal Generator.....Connect to antenna jack through a dummy antenna as shown in Fig. 10.
- V.T.V.M.....Connect AC probe to speaker terminal.
- Adjust as indicated for maximum reading on V.T.V.M.

Step	Dial Pointer Setting	Sig. Gen. Output	Adjustment for Max. Output
①	Low freq. end	87 MHz	C117
②	Repeat step ①		
③	98 MHz	98 MHz	C104, C108
④	Repeat step ③		

**AM-IF Alignment**

- Signal Generator.....Connect to antenna jack through a dummy antenna as shown in Fig. 11.
- V.T.V.M..... Connect AC probe to speaker terminal.
- Adjust as indicated for maximum reading on V.T.V.M.

Step	Dial Pointer Setting	Sig. Gen. Output	Adjustment for Max. Output
①	High freq. end	455 kHz	T151, T152, T153
②	Repeat step ①		

**AM-RF Alignment**

- Signal Generator } ..... Same as AM-IF alignment.
- V.T.V.M }
- Adjustment as indicated for maximum reading on V.T.V.M.

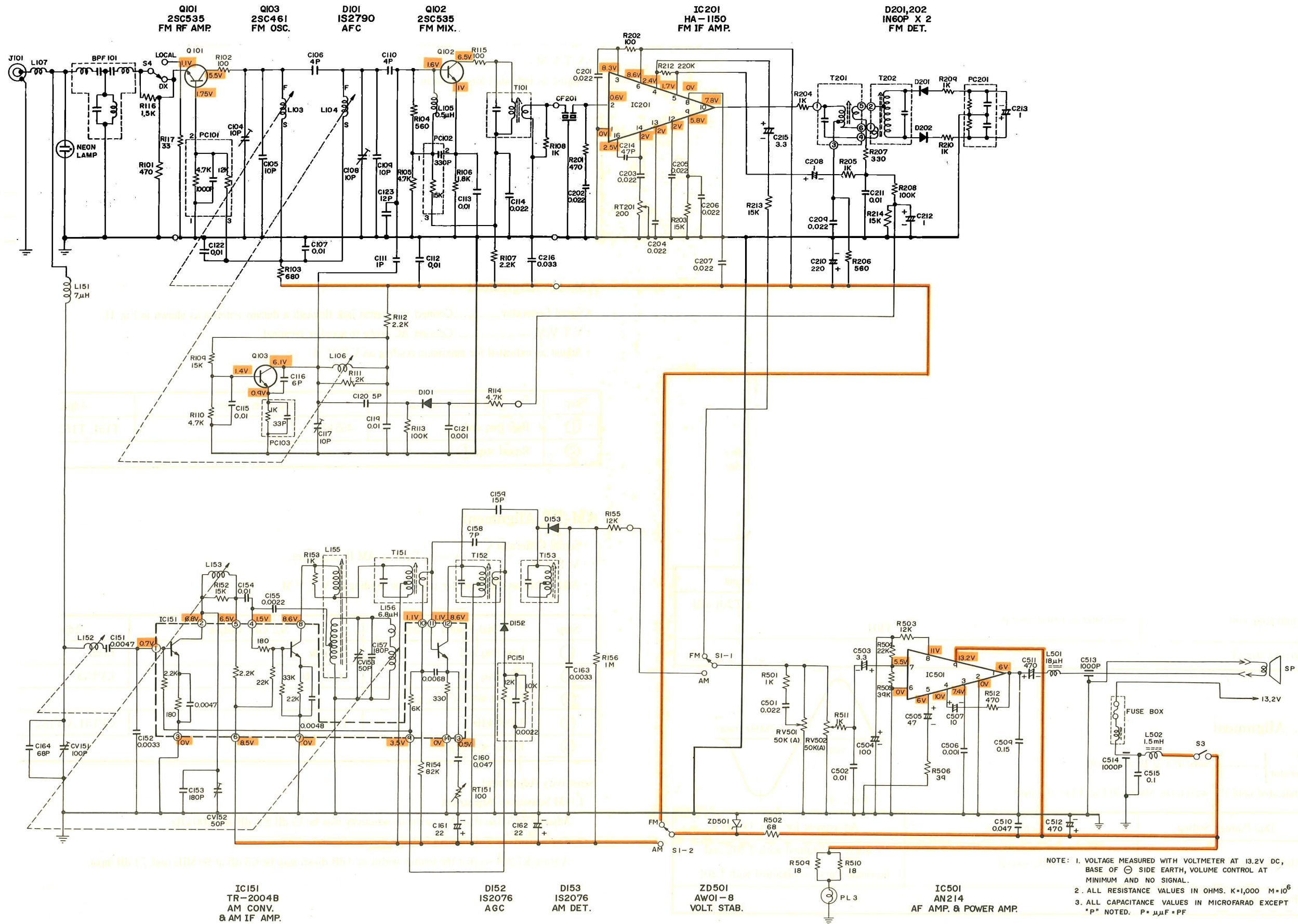
Step	Dial Pointer Setting	Sig. Gen. Output	Adjustment for Max. Output
①	Low freq. end	520 kHz	L155
②	High freq. end	1,650 kHz	CV153
③	Repeat steps ① and ②		
④	1,000 kHz	1,000 kHz	CV151, CV152
⑤	Repeat step ④		

**Sensitivity Adjustment**

1. AM Sensitivity Adjustment  
Adjust RT151 so that the maximum sensitivity may be 15 dB  $\pm$  2 dB at 1,000 kHz.
2. FM Sensitivity Adjustment  
Adjust RT201 so that the limiter width in 3 dB down may be 65 dB at 98 MHz and 74 dB input.



# SCHEMATIC DIAGRAM



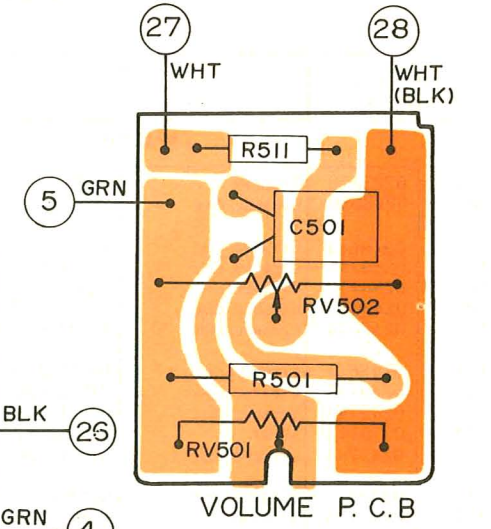
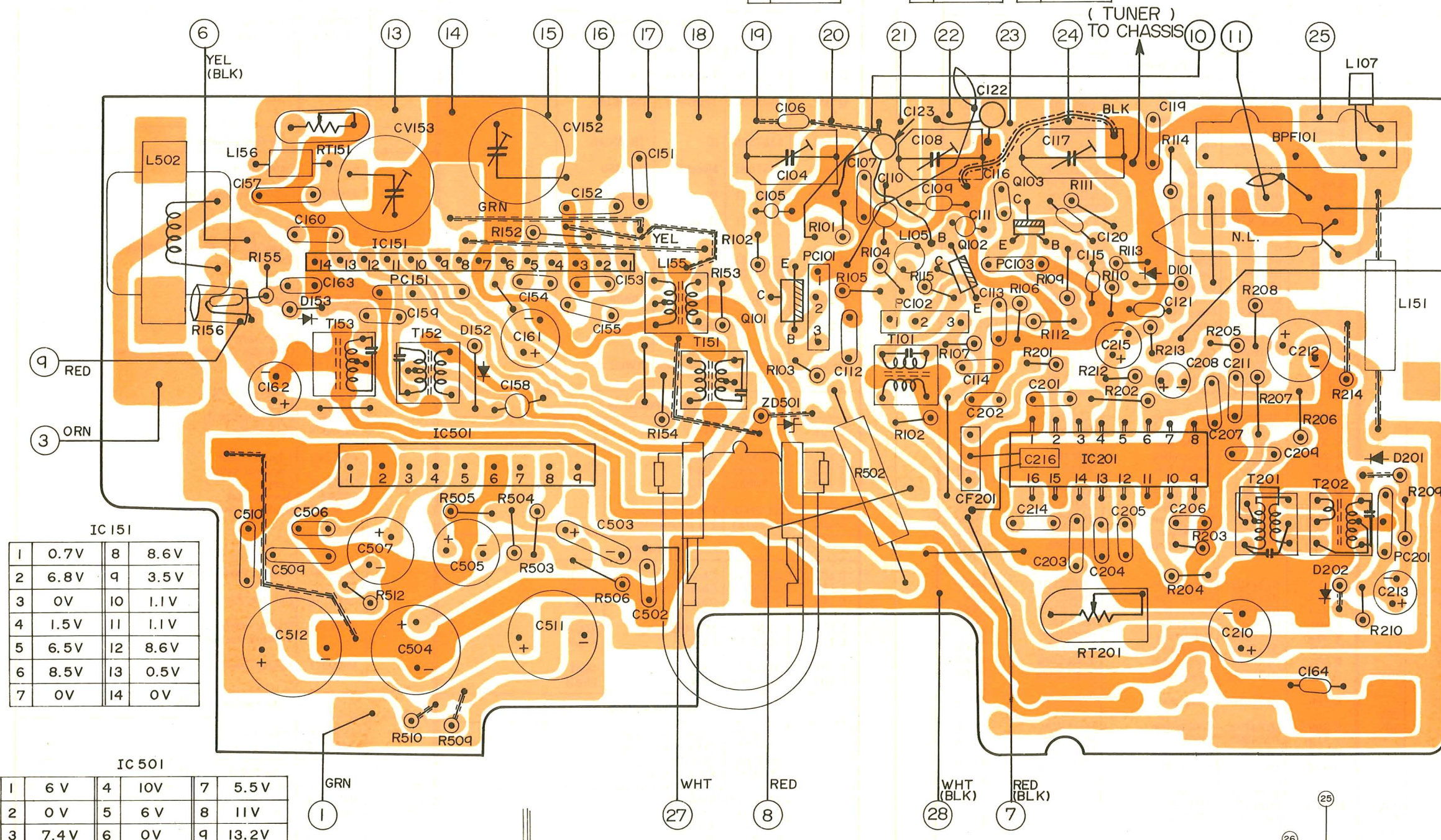


# CIRCUIT BOARD DIAGRAM

Q101	
E	1.1V
B	1.75V
C	5.5V

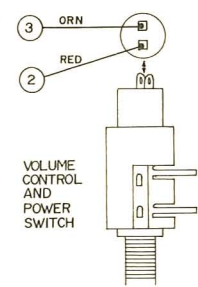
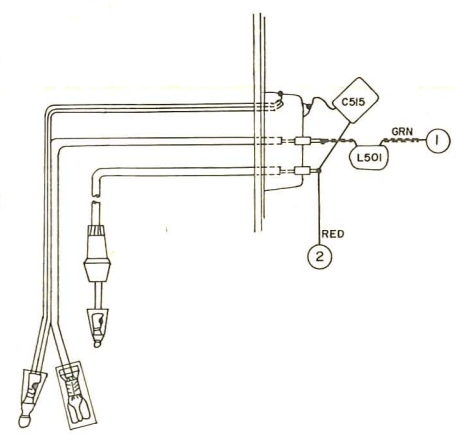
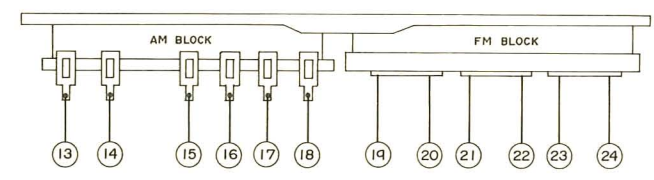
Q102	
E	1V
B	1.6V
C	6.5V

Q103	
E	0.9V
B	1.4V
C	6.1V

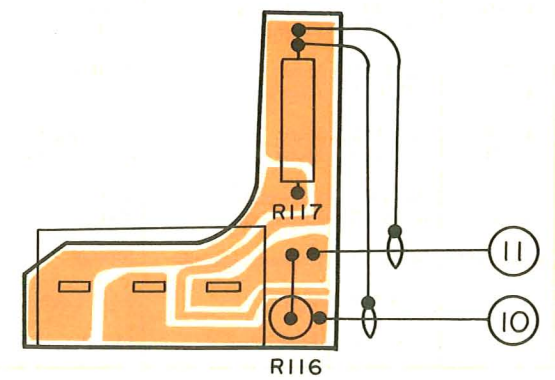
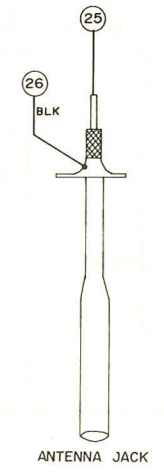
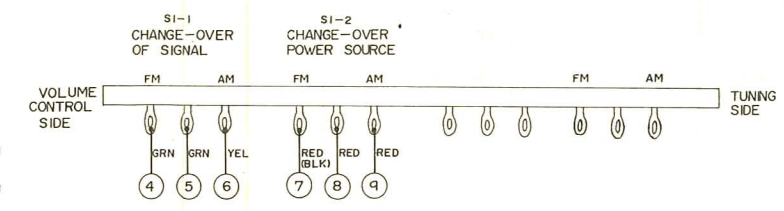


**IC 201**

1	0V	9	5.8V
2	0.6V	10	7.8V
3	8.3V	11	—
4	2.4V	12	2V
5	1.7V	13	2V
6	8.6V	14	2V
7	—	15	—
8	0V	16	2.5V



## MAIN P.C.B.





REPLACEMENT PARTS

Symbol No.	Stock No.	Description	Symbol No.	Stock No.	Description
<b>CAPACITORS :</b>			CV 152	0283104	Trimmer 50pF
			CV 153	0283104	Trimmer 50pF
C 104	0283113	Trimmer	<b>RESISTORS :</b>		
C 105	0248650	Ceramic, disc	R 101	0137809	Carbon film 470Ω±5% ¼SD
C 106	0248644	Ceramic, disc	R 102	0137801	Carbon film 100Ω±5% ¼SD
C 107	0249744	Ceramic, disc	R 103	0131659	Composition 680Ω±10% ¼GF
C 108	0283113	Trimmer	R 104	0114450	Carbon film 560Ω±5% ¼P
C 109	0248650	Ceramic, disc	R 105	0131699	Composition 4.7kΩ±10% ¼GF
C 110	0248644	Ceramic, disc	R 106	0131694	Composition 1.8kΩ±10% ¼GF
C 111	0248631	Ceramic, disc	R 107	0131695	Composition 2.2kΩ±10% ¼GF
C 112	0249744	Ceramic, disc	R 108	0131691	Composition 1kΩ±10% ¼GF
C 113	0249744	Ceramic, disc	R 109	0137903	Carbon film 15kΩ±5% ¼SD
C 114	0275113	Mylar	R 110	0137859	Carbon film 4.7kΩ±5% ¼SD
C 115	0249744	Ceramic, disc	R 111	0137852	Carbon film 1.2kΩ±5% ¼SD
C 116	0248476	Ceramic, disc	R 112	0131695	Composition 2.2kΩ±10% ¼GF
C 117	0243113	Trimmer	R 113	0131801	Composition 100kΩ±10% ¼GF
C 119	0249744	Ceramic, disc	R 114	0131699	Composition 4.7kΩ±10% ¼GF
C 120	0248475	Ceramic, disc	R 115	0137801	Carbon film 100Ω±5% ¼SD
C 121	0249738	Ceramic, disc	R 116	0131693	Composition 1.5kΩ±10% ¼GF
C 122	0249744	Ceramic, disc	R 117	0131609	Composition 33Ω±10% ¼GF
C 123	0248702	Ceramic, disc	R 152	0137903	Carbon film 15kΩ±5% ¼SD
C 151	0274115	Mylar	R 153	0131691	Composition 1kΩ±10% ¼GF
C 152	0274114	Mylar	R 154	0131744	Composition 82kΩ±10% ¼GF
C 153	0248730	Ceramic, disc	R 155	0114522	Carbon film 12kΩ±5% ¼P
C 154	0275111	Mylar	R 156	0122904	Carbon film 1MΩ±5% ¼L
C 155	0274113	Mylar	R 201	0131657	Composition 470Ω±10% ¼GF
C 157	0249535	Ceramic, disc	R 202	0131649	Composition 100Ω±10% ¼GF
C 158	0246427	Ceramic, disc	R 203	0131735	Composition 15kΩ±10% ¼GF
C 159	0248704	Ceramic, disc	R 204	0131691	Composition 1kΩ±10% ¼GF
C 160	0275115	Mylar	R 205	0137851	Carbon film 1kΩ±5% ¼SD
C 161	0252322	Electrolytic	R 206	0131658	Composition 560Ω±5% ¼GF
C 162	0252322	Electrolytic	R 207	0137807	Carbon film 330Ω±5% ¼SD
C 163	0274114	Mylar	R 208	0131801	Composition 100kΩ±10% ¼GF
C 164	0248720	Ceramic, disc	R 209	0131691	Composition 1kΩ±10% ¼GF
C 164	0248720	Ceramic, disc	R 210	0131691	Composition 1kΩ±10% ¼GF
C 201	0275113	Mylar	R 212	0131805	Composition 220kΩ±10% ¼GF
C 202	0275113	Mylar	R 213	0114523	Carbon film 15kΩ±5% ¼P
C 203	0275113	Mylar	R 214	0137903	Carbon film 15kΩ±10% ¼SD
C 204	0275113	Mylar	R 501	0114461	Carbon film 1kΩ±5% ¼P
C 205	0275113	Mylar	R 502	0111229	Metal oxide 68Ω±10% ¼GF
C 206	0275113	Mylar	R 503	0131734	Composition 12kΩ±10% ¼GF
C 207	0275113	Mylar	R 504	0131737	Composition 22kΩ±10% ¼GF
C 208	0252811	Electrolytic	R 505	0131740	Composition 39kΩ±10% ¼GF
C 209	0275113	Mylar	R 506	0131610	Composition 39Ω±10% ¼GF
C 210	0252332	Electrolytic	R 509	0134292	Composition 18Ω±10% ¼GF
C 211	0275111	Mylar	R 510	0134292	Composition 18Ω±10% ¼GF
C 212	0252611	Electrolytic	R 511	0122952	Carbon film 1kΩ±5% ¼P
C 213	0252811	Electrolytic	R 512	0137809	Carbon film 470Ω±5% ¼SD
C 214	0248716	Ceramic, disc	PC 101	0186431	CR Pack
C 215	0252613	Electrolytic	PC 102	0186413	CR Pack
C 216	0275114	Mylar	PC 103	0186391	CR Pack
C 501	0275113	Mylar	PC 151	0186438	CR Pack
C 502	0275111	Mylar	PC 201	0186357	CR Pack
C 503	0252613	Electrolytic	RT 151	0151858	Semi variable 100Ω (B)
C 504	0252331	Electrolytic	RT 201	0151815	Semi variable 200Ω
C 505	0252525	Electrolytic	RV501,502	0156933	Variable 50kΩ (A)
C 506	0274111	Mylar	CF 201	5160213	Ceramic filter
C 507	0252621	Electrolytic			
C 509	0276112	Mylar			
C 510	0275115	Mylar			
C 511	0256083	Electrolytic			
C 512	0256083	Electrolytic			
C513, 514	5070073	Ceramic, assembly			
C 515	0276111	Mylar			
CV 151	0283580	Trimmer			

Symbol No.	Stock No.	Description	Symbol No.	Stock No.	Description
<b>SEMI-CONDUCTORS :</b>				7400002	Set bracket
Q 101	0573510	Transistor 2SC535B		7277981	Set bracket
Q 102	0573510	Transistor 2SC535B	<b>for Case assembly</b>		
Q 103	0573507	Transistor 2SC461B		6141111	Under cover
IC 151	5357503	IC TR-2004B		6142731	Upper cover assembly
IC 201	5351081	Monolithic IC HA-1150		6714216	Nylon rivet (2 req'd) for scale plate mounting
IC 501	5350231	IC AN-214		6480971	Back plate
D 101	5330661	Diode 1S2790		6399141	Pointer A
D 152	5330131	Diode 1S2076		6399131	Pointer (B)
D 153	5330131	Diode 1S2076		6793132	Lamp cover
D 201	0575019	Diode 1N60P		5742777	Power cord
D 202	0575019	Diode 1N60P		5740044	Cord with relay terminal for speaker
ZD 501	5330052	Zener diode AW01-8		0591167	Fuse (1A)
<b>TRANSFORMERS :</b>				7584071	Shaft for tuning
T 101	5140017	FM IF		7278211	Cord guide
T 151	5130031	AM IF		6252074	Push button (FM)
T 152	5130032	AM IF		6252078	Push button
T 153	5130032	AM IF		5583162	5 Button tuner without button
T 201	5148035	FM Discriminator		5767051	Lamp
T 202	5148034	FM Discriminator		5675031	Antenna jack
<b>COILS :</b>				7166201	Holder for antenna jack
L 105	5150141	Choke 0.5μH		0629187	Washer-9mmφ (2 req'd)
L 107	5150013	Choke 0.24μH		0643135	Nut-9mmφ (2 req'd)
L 151	5150067	Choke 7μH		7761221	Stopper washer for knob mounting
L 155	5120271	MW Oscillator 200μH		6560071	Rubber 7mmφ×4mm
L 156	5152012	Choke 6.8μH			
L 501	5152123	Choke 18μH	<b>for Final assembly</b>		
L 502	5220001	Choke 1.5mH		6241401	Escutcheon assembly
<b>for Final assembly</b>				7087723	Telescopic antenna
	6241401	Escutcheon assembly		0643135	Nut-9mmφ
	7087723	Telescopic antenna		0629187	Washer-9mmφ
	0643135	Nut-9mmφ			(2 req'd) for escutcheon mounting
	0629187	Washer-9mmφ	NL	0594094	Neon lamp
	6270352	Knob (L)	BFF 101	5161532	Filter block
	6294101	Knob (L)			
	6272585	Knob (TONE)			
	6272584	Knob (switch-volume)			