

Service Manual

Radio

RF-4800LBS

10-BAND
COMMUNICATION RECEIVER



SPECIFICATIONS

Frequency Range:	FM	87.5~108 MHz
	LW	145~410 kHz (2060~732m)
	MW	520~1610 kHz (577~186m)
	SW ₁	1.6~3 MHz (187~100m)
	SW ₂	3~7 MHz (100~42.9m)
	SW ₃	7~11 MHz (42.9~27.3m)
	SW ₄	11~15 MHz (27.3~20m)
	SW ₅	15~19 MHz (20~15.8m)
	SW ₆	19~23 MHz (15.8~14.7m)
	SW ₇	23~27.3 MHz (14.7~11m)
Intermediate Frequency:	FM	10.7 MHz
	LW/MW/SW ₁	455 kHz
	SW ₂ ~	1st IF 2 MHz 2nd IF 455 kHz
Sensitivity:	FM	6 μ V (S/N 26 dB)
	LW	100 μ V/m (S/N 10 dB)
	MW	60 μ V/m (S/N 10 dB)
	SW ₁	1 μ V (S/N 10 dB)
	SW ₂	1.3 μ V (S/N 10 dB)
	SW ₃	0.8 μ V (S/N 10 dB)
	SW ₄	1.2 μ V (S/N 10 dB)
	SW ₅	1.2 μ V (S/N 10 dB)
	SW ₆	1.2 μ V (S/N 10 dB)
	SW ₇	1.3 μ V (S/N 10 dB)

Power Output:	DC Max. 3W (60% Mod. 400 Hz)
Power Source:	AC 110-125/220-240V 50/60 Hz or 12V (Eight "D" Size Flash-light Batteries) (National UM-1 or equivalent)
Power Consumption:	10W (AC Only)
Speaker:	10 cm (4") PM Dynamic Speaker
Dimensions:	18 $\frac{1}{2}$ (Wide) x 7 $\frac{1}{2}$ (High) x 13 $\frac{1}{2}$ (Deep) (462 x 200 x 354 mm)
Weight:	8 kg (17 lb 10 oz) without batteries
Impedance:	Speaker 16 Ω (4 Ω) AUX Jack Din Type 500 Ω (50mV) Miniature Type 300 Ω (20mV) REC OUT Jack Din Type 80 Ω (100mV) Miniature Type 4 Ω (400mV) Earphone Jack 4~8 Ω FM EXT ANT 300 Ω SW ₁ /LW/MW 75 Ω SW ₂ ~ 75 Ω

Specifications are subject to change without notice for further improvement.

National Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka, Japan

■ TO REMOVE CABINET COVER

1. Remove the four (4) covers for the handle in the direction of arrow, as shown in fig. 1.
2. Remove the six (6) screws (nos. 1~6) for the handle and cabinet cover, as shown in fig. 2.
3. Remove the six (6) screws (nos. 1~6) for the handle and cabinet cover, as shown in fig. 3.
4. Remove the eight (8) screws (nos. 1~8) for the cabinet cover, as shown in fig. 4.
5. Remove the nine (9) screws (nos. 1~9) for the cabinet cover, as shown in fig. 5.
6. Remove the cabinet cover.
7. To reassemble, reverse the above procedure.

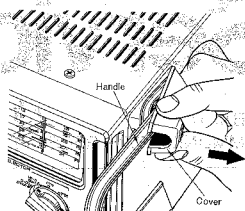
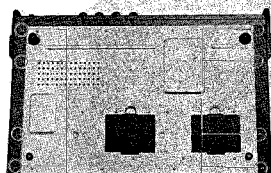
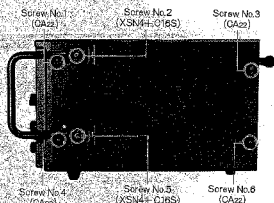


Fig. 1



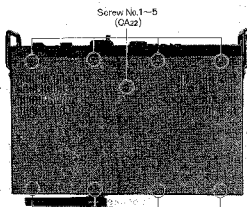
Screw No.1~4
(XYN3+C8S)
Screw No.5~8
(XYN3+C8S)

Fig. 4



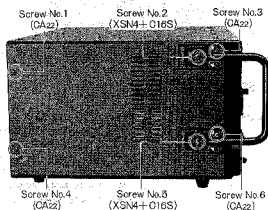
Screw No.1
(CA22)
Screw No.2
(XSN4+C16S)
Screw No.3
(CA22)
Screw No.4
(CA22)
Screw No.5
(XSN4+C16S)
Screw No.6
(CA22)

Fig. 2



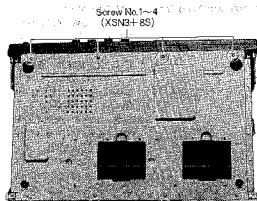
Screw No.1~5
(CA22)
Screw No.6~9
(CA22)

Fig. 5



Screw No.1
(CA22)
Screw No.2
(XSN4+C16S)
Screw No.3
(CA22)
Screw No.4
(CA22)
Screw No.5
(XSN4+C16S)
Screw No.6
(CA22)

Fig. 3



Screw No.1~4
(XSN3+8S)
Screw No.5~8
(XSN3+8S)

Fig. 6

■ TO REMOVE BOTTOM COVER

1. Remove the cabinet cover. (Refer to cabinet cover removal instruction.)
2. Remove the eight (8) screws (nos. 1~8) for the bottom cover as shown in fig. 6.
3. Remove the bottom cover.
4. Remove the socket from power source PC board.
5. To reassemble, reverse the above procedure.

■ TO REMOVE FREQUENCY COUNTER

1. Remove the cabinet cover. (Refer to cabinet cover removal instruction.)
2. Remove the socket from PC board.
3. Remove the three (3) screws (nos. 1~3) for the frequency counter, as shown in fig. 7.
4. Remove the frequency counter.
5. To reassemble, reverse the above procedure.



Screw No.3
(XTW3+6L)

Fig. 7

■ TO REMOVE PC BOARD (Frequency Counter)

1. Remove the frequency counter.
2. Remove the two (2) screws (nos. 1 & 2) for the shield cover, as shown in fig. 8.
3. Remove the two (2) screws (nos. 1 & 2) for the PC board, as shown in fig. 9.
4. Remove the PC board.
5. To reassemble, reverse the above procedure.

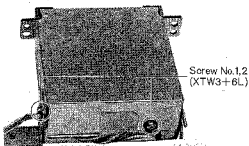


Fig. 8

■ TO REMOVE PC BOARD (VFO Circuit)

1. Remove the bottom cover. (Refer to bottom cover removal instruction.)
2. Loosen the two (2) screws (nos. 1 & 2) for the tuning capacitor shaft, as shown in fig. 10.
3. Remove the one (1) screw for the PC board, as shown in fig. 11.
4. Remove the three (3) screws (nos. 1~3) for the PC board, as shown in fig. 12.
5. To remove PC board completely unsolder lead wires from the other PC-board.
6. To reassemble, reverse the above procedure and read the following notes:

Notes:

1. Set tuning capacitor to maximum capacity.
2. Turn tuning shaft fully counter-clockwise.

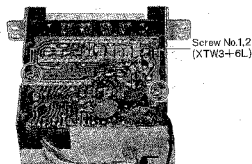


Fig. 9

■ TO REMOVE FERRITE ANTENNA

1. Remove the bottom cover. (Refer to the bottom cover removal instruction.)
2. Unsolder lead wires from PC board.
3. Push the catches in the direction of arrows, as shown in fig. 13 and remove the holder.
4. Push the holder in the direction of arrows ① and ② and open the holder in the direction of arrow ③ and ④, as shown in fig. 14.
5. Remove the ferrite antenna.
6. To reassemble, reverse the above procedure and read the following note.

Note:

1. Insert the lead wires in the slit of holder, as shown in fig. 15.



Fig. 10



Fig. 11

■ TO REMOVE FRONT PANEL

1. Remove the bottom cover. (Refer to the bottom cover removal instruction.)
2. Pull out sockets from speaker.
3. Pull out socket from PC board.
4. Remove the eleven (11) knobs.
5. Remove the three (3) red screws (nos. 1~3) for the front panel, as shown in fig. 16.
6. Remove the three (3) red screws (nos. 1~3) for the front panel, as shown in fig. 17.
7. To reassemble, reverse the above procedure.



Fig. 12

■ TO REMOVE BAND SWITCH SHAFT

(SW₂ ~ 7, SW₁, MW, FM, LW)

1. Remove the front panel. (Refer to the front panel removal instruction.)
2. Set band switch to "SW₂~7" position.
3. Remove the switch wire in the direction of arrow, as shown in fig. 18.
4. Remove the one (1) nut for the switch shaft, as shown in fig. 19.
5. To reassemble, reverse the above procedure and read the following note.

Note:

1. Turn switch shaft fully counter-clockwise.

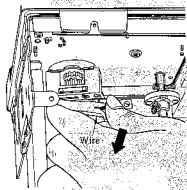


Fig. 18



Fig. 19

Screw No.1~4
(XXAR3H6S)

Screw No.5~8
(XXAR3H6S)



Fig. 20

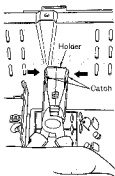


Fig. 13

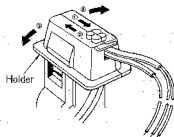


Fig. 14

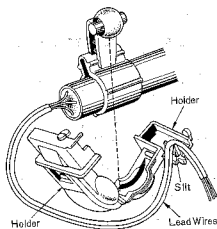


Fig. 15



Fig. 16

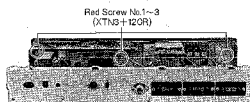


Fig. 17

■ TO REMOVE BAND SWITCH SHAFT (SW₂ ~ 7)

1. Remove the frequency counter. (Refer to the frequency counter removal instruction.)
2. Loosen the four (4) screws (nos. 1~4) for the joint, as shown in fig. 20.
3. Slide the joint in the direction of arrow, as shown in fig. 20.
4. Remove the six (6) screws (nos. 1~6) for the shaft, as shown in fig. 21.
5. Remove the shaft.
6. To reassemble, reverse the above procedure and read the following notes.

Notes:

1. Turn switch shaft fully counter-clockwise.
2. Set the switch lever at the position, as shown in fig. 23.

■ TO REMOVE PC BOARD (FM, LW, MW RF Circuit)

1. Remove the frequency counter. (Refer to the frequency counter removal instruction.)
2. Remove the front panel. (Refer to the front panel removal instruction.)
3. Remove the dial scale.
4. Remove the dial cord.
5. Turn dial drum fully counter-clockwise.
6. Loosen the four (4) screws (nos. 5~8) for the joint, as shown in fig. 20.
7. Remove the dial drum.
8. Set the band switch to "SW₂~7" position.
9. Remove the switch wire in the direction of arrow, as shown in fig. 22.
10. Remove the six (6) screws (nos. 7~12) for the PC board, as shown in fig. 21.
11. Remove the PC board.
12. To reassemble, reverse the above procedure and read the following notes.

Notes:

1. Set the tuning capacitor to maximum capacity.
2. Set the dial drum at the position, as shown in fig. 24.
3. Set the switch lever at the position, as shown in fig. 25.
4. Refer to dial cord installation (SW₁/MW/LW/FM).

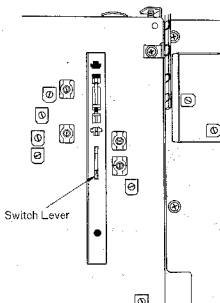


Fig. 25

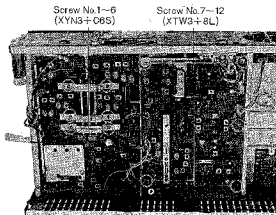


Fig. 21

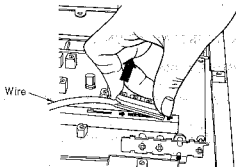


Fig. 22

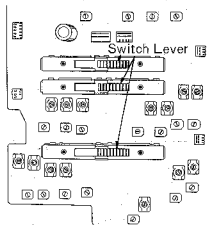


Fig. 23

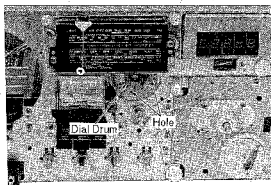


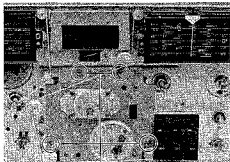
Fig. 24

■ TO REMOVE DIAL MECHANISM

1. Remove the front panel. (Refer to the front panel removal instruction.)
2. Remove the PC board (VFO circuit). (Refer to PC board removal instruction.)
3. Remove the dial cord.
4. Remove the four (4) screws (nos. 1~4) for the dial mechanism, as shown in fig. 26.
5. Remove the dial mechanism.
6. To reassemble, reverse the above procedure and read the following notes.

Note:

1. Refer to dial cord installation (SW₂~7).



Screw No.1~4
(X7/16 x .063)

Fig. 26

■ DIAL CORD INSTALLATION GUIDE

• SW₁ /MW/LW/FM

1. Remove the front panel. (Refer to the front panel removal instruction.)
2. Remove the dial scale.
3. Turn the dial drum fully counter-clockwise.
4. Cord length is 90 cm (35 3/8").
5. Arrows (1~10) indicate correct order and direction of cord installation, as shown in fig. 27.
6. Cement cord ends.
7. Turn tuning shaft fully counter-clockwise.
8. Attach pointer to cord.
9. Set pointer to "0" point of dial scale.

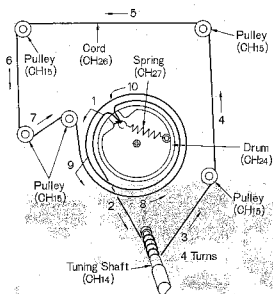


Fig. 27

• SW₂ ~SW₇

1. Remove the front panel. (Refer to the front panel removal instruction.)
2. Turn tuning shaft fully clockwise.
3. Cord length is 115 cm (47 1/8").
4. Arrows (1~8) indicate correct order and direction of cord installation, as shown in fig. 28.
5. Turn tuning shaft fully counter-clockwise.
6. Attach pointer to cord.
7. Set pointer to start point of dial scale.

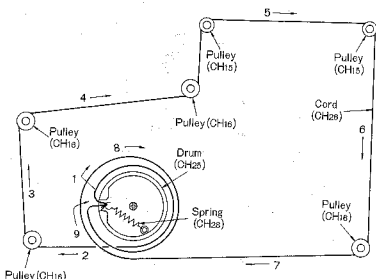
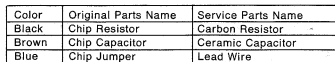


Fig. 28

1. Remove solder for chip completely.
2. Remove chip by nippers, as shown in fig. 29.
3. Use tube for service parts as shown in fig. 30 and solder service parts according to following table. (please refer to Circuit Board Wiring View for the value of resistor and capacitor).

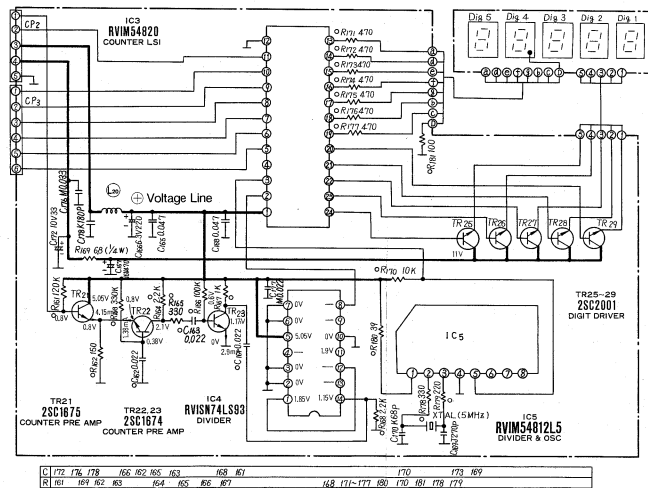


This exploded view diagram illustrates the internal structure and mounting components of the Sony CEA-100 car stereo. The main unit is shown with various internal parts like the tuner, amplifier, and cassette deck. Surrounding the unit are numerous mounting brackets (e.g., GA-1, GA-2, GA-3, GA-4, GA-5, GA-6, GA-7, GA-8, GA-9, GA-10, GA-11, GA-12, GA-13, GA-14, GA-15, GA-16, GA-17, GA-18, GA-19, GA-20, GA-21, GA-22, GA-23, GA-24, GA-25, GA-26, GA-27, GA-28, GA-29, GA-30, GA-31, GA-32, GA-33, GA-34, GA-35, GA-36, GA-37, GA-38, GA-39, GA-40, GA-41, GA-42, GA-43, GA-44, GA-45, GA-46, GA-47, GA-48, GA-49, GA-50, GA-51, GA-52, GA-53, GA-54, GA-55, GA-56, GA-57, GA-58, GA-59, GA-60, GA-61, GA-62, GA-63, GA-64, GA-65, GA-66, GA-67, GA-68, GA-69, GA-70, GA-71, GA-72, GA-73, GA-74, GA-75, GA-76, GA-77, GA-78, GA-79, GA-80, GA-81, GA-82, GA-83, GA-84, GA-85, GA-86, GA-87, GA-88, GA-89, GA-90, GA-91, GA-92, GA-93, GA-94, GA-95, GA-96, GA-97, GA-98, GA-99, GA-100) and screws (e.g., GA-1, GA-2, GA-3, GA-4, GA-5, GA-6, GA-7, GA-8, GA-9, GA-10, GA-11, GA-12, GA-13, GA-14, GA-15, GA-16, GA-17, GA-18, GA-19, GA-20, GA-21, GA-22, GA-23, GA-24, GA-25, GA-26, GA-27, GA-28, GA-29, GA-30, GA-31, GA-32, GA-33, GA-34, GA-35, GA-36, GA-37, GA-38, GA-39, GA-40, GA-41, GA-42, GA-43, GA-44, GA-45, GA-46, GA-47, GA-48, GA-49, GA-50, GA-51, GA-52, GA-53, GA-54, GA-55, GA-56, GA-57, GA-58, GA-59, GA-60, GA-61, GA-62, GA-63, GA-64, GA-65, GA-66, GA-67, GA-68, GA-69, GA-70, GA-71, GA-72, GA-73, GA-74, GA-75, GA-76, GA-77, GA-78, GA-79, GA-80, GA-81, GA-82, GA-83, GA-84, GA-85, GA-86, GA-87, GA-88, GA-89, GA-90, GA-91, GA-92, GA-93, GA-94, GA-95, GA-96, GA-97, GA-98, GA-99, GA-100) used for installation. The diagram also shows the front panel with its controls and the rear panel with its connectors.

Fig. 31

[illegible]

Schematic Diagram (Counter Circuit)-Model RF-4800LBS



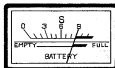
■ TUNE/BATT METER ADJUSTMENT

1. RADIO RECEIVER SETTING

- Set band switch to MW.
- Set volume control MIN.
- Set indicator switch to BATT.
- Set AM mode switch to AM.
- Set power source voltage to 7.2 volts DC.

2. REMARKS

- Adjust R₂₇₄ so that the pointer of meter stays as shown in figure right.



■ ALIGNMENT INSTRUCTIONS

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

- Notes:**
1. Set power switch to ON.
 2. Set volume control to MAX.
 3. Set bass and treble control to center.
 4. Set band switch to MW, LW, SW₁~SW₇ or FM.
 5. Set SW cal control to center.
 6. Set AM RF gain control to DX.
 7. Set FM AFC/Band width switch to WIDE or OFF (FM).
 8. Set light switch to OFF.
 9. Set AM ANL switch to OFF.
 10. Set BFO pitch control to center.
 11. Set digital display switch to OFF.
 12. Set AM mode switch to AM or SSB/CW.
 13. Set indicator switch to signal.
 14. Set ANT trim control to center.
 15. Set radio-phonograph switch to RADIO.
 16. Output of signal generator should be no higher than necessary to obtain an output reading.

■ MW, SW, LW ALIGNMENT

BAND	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (VTVM or SCOPE)	ADJUSTMENT	REMARKS
	CONNECTIONS	FREQUENCY				
AM-IF ALIGNMENT						
MW	Fashion loop of several turns of wire and radiate signal into loop of receiver.	455 kHz 30% Mod. at 400 Hz	Point of non-interference.	Output meter across voice coil.	T ₄ (AM 1st IFT) T ₅ (AM 2nd IFT) T ₆ (AM 3rd IFT) T ₁₀ (AM 4th IFT) T ₆ (AM 5th IFT)	Adjust for maximum output.
BFO ALIGNMENT Note: Set band width switch to "Narrow".						
MW	"	600 kHz	Tune to signal.	Audio output from speaker.	L ₂₂ (BFO OSC Coil)	1. Cut off modulation after tune signal. 2. Set AM mode switch to CW/SSB. 3. Adjust for zero beat.
SW-1st IF and 2nd OSC ALIGNMENT						
SW2	Connect EXT ANT (SW ₂ ~) terminal.	2 MHz	Point of non-interference.	Output meter across voice coil.	L ₂₂ (SW 2nd OSC Coil) T ₁ (SW 1st IFT) T ₂ (SW 1st IFT)	Adjust for maximum output.
SW3	"	"	"	"	L ₂₂ (SW 2nd OSC Coil)	"
MW-RF ALIGNMENT						
MW	Fashion loop of several turns of wire and radiate signal into loop of receiver.	550 kHz	550 kHz 2.4 mm ($\frac{3}{32}$ ")	Output meter across voice coil	L ₂₂ (MW OSC Coil) L ₂₃ (MW ANT Coil)	Adjust for maximum output.
MW	"	1500 kHz	1500 kHz 57 mm (2 $\frac{1}{4}$ ")	"	C ₂₂₂ (MW OSC Trimmer) C ₂₀₁ (MW ANT Trimmer)	Adjust for maximum output. Repeat steps (4) and (5).
LW-RF ALIGNMENT						
LW	"	145 kHz	145 kHz 2.4 mm ($\frac{3}{32}$ ")	"	L ₂₄ (LW OSC Coil) L ₂₅ (LW ANT Coil)	Adjust for maximum output.
LW	"	400 kHz	Tune to signal	"	C ₅₀₁ (LW ANT Trimmer)	"
LW	"	415 kHz	Variable capacitor fully open.	"	C ₅₀₄ (LW OSC Coil)	Adjust for maximum output. Repeat steps (6)~(7).

■ SW4~7 X' tal ALIGNMENT **Note:** Pull out socket [CP₂].

BAND	CONNECTIONS	ADJUSTMENT	REMARKS
SW4	Connect RF voltmeter: ⊖ side to [TP ₁] ⊕ side to [E]	C ₁₀₁ (Trimmer) L ₂₉ (39 MHz Coil)	1. Turn C ₁₀₁ to its center position. 2. Adjust L ₂₉ (Turn to upper) until 25 mV ± 1 mV is read on RF voltmeter.
SW4	Connect frequency counter: ⊖ side to [TP ₁] ⊕ side to [E]	C ₁₀₁ (Trimmer)	Adjust C ₁₀₁ until 39, 100 MHz ± 100 Hz is read on RF voltmeter.
SW4	Connect RF voltmeter: ⊖ side to [TP ₁] ⊕ side to [E]	L ₂₉ (31 MHz Coil)	Adjust L ₂₉ (Turn to upper) until 30 mV ± 1 mV is read on RF voltmeter.
SW5	"	L ₂₁ (27 MHz Coil)	Adjust L ₂₁ (Turn to upper) until 30 mV ± 1 mV is read on RF voltmeter.
SW7	"	L ₂₂ (19 MHz Coil)	Adjust L ₂₂ (Turn to upper) until 30 mV ± 1 mV is read on RF voltmeter.

■ 44~48 MHz BPF ALIGNMENT **Note:** Pull out socket [CP₂].

BAND	SWEEP GENERATOR		SWEEP SCOPE	ADJUSTMENT	REMARKS
	CONNECTIONS	FREQUENCY			
SW4	Connect to test point [TP ₁] through ceramic capacitor (0.01 μF) negative side to point [E]	44.48 MHz	Connect to test point [TP ₂] negative side to point [E]	L ₂₆ (BPF Coil) L ₂₇ (BPF Coil) L ₂₇ (BPF Coil)	1. Turn L ₂₆ to lower before adjustment. 2. Adjust L ₂₆ and L ₂₇ for maximum amplitude.

■ TRAP ALIGNMENT **Note:** Pull out socket [CP₂].

BAND	CONNECTIONS	ADJUSTMENT	REMARKS
SW4	Connect RF voltmeter: ⊖ side to [TP ₁] ⊕ side to [E]	L ₂₈ (Trap Coil)	Adjust L ₂₈ for minimum RF voltmeter reading.
SW5	Connect RF voltmeter: ⊖ side to [TP ₁] ⊕ side to [E]	L ₂₈ (Trap Coil)	Adjust L ₂₈ for minimum RF voltmeter reading.
SW7	"	L ₂₈ (Trap Coil)	Adjust L ₂₈ for minimum RF voltmeter reading.

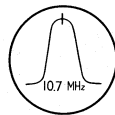


Fig. 32



Fig. 33

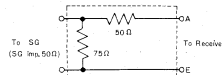
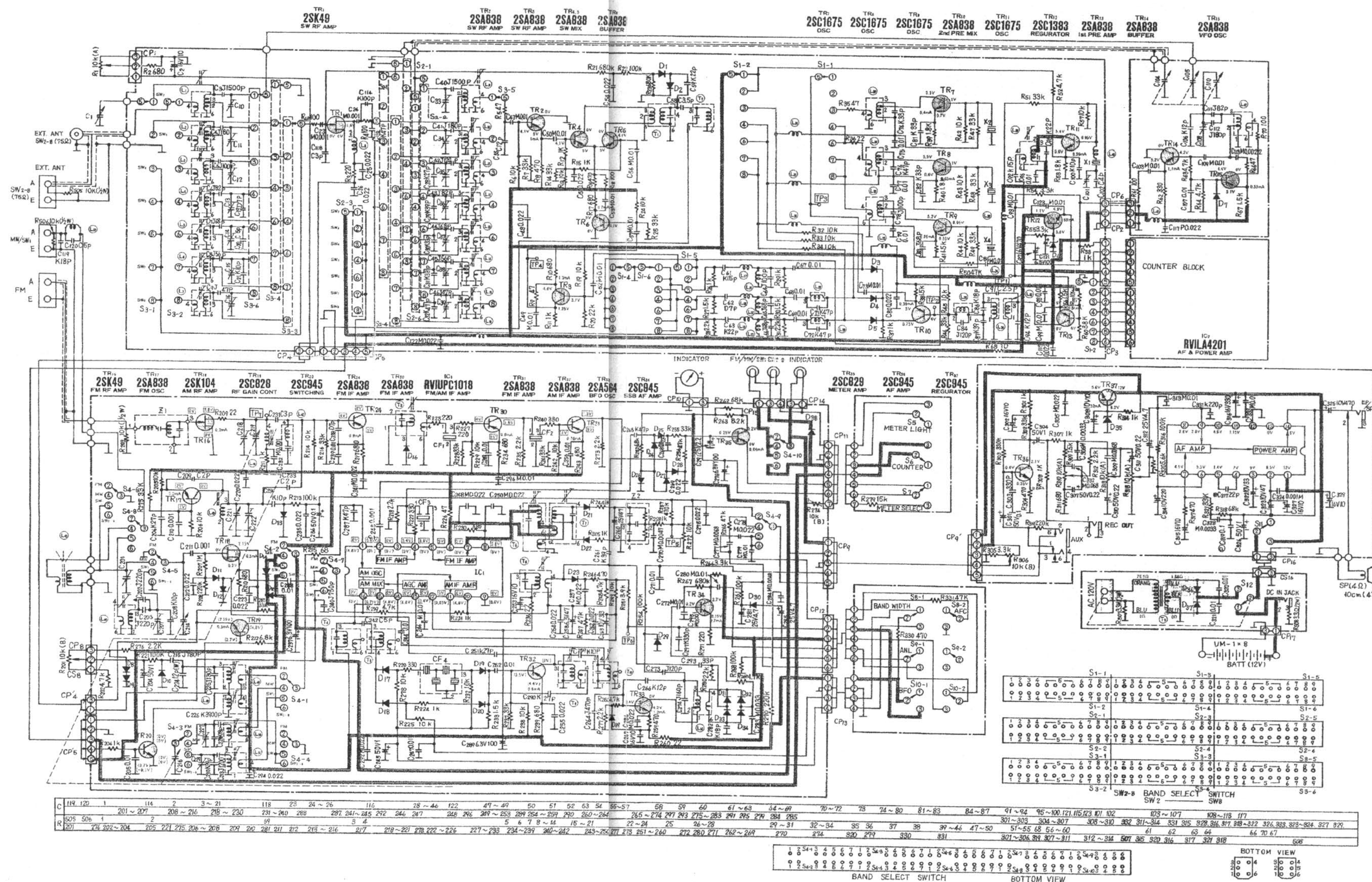
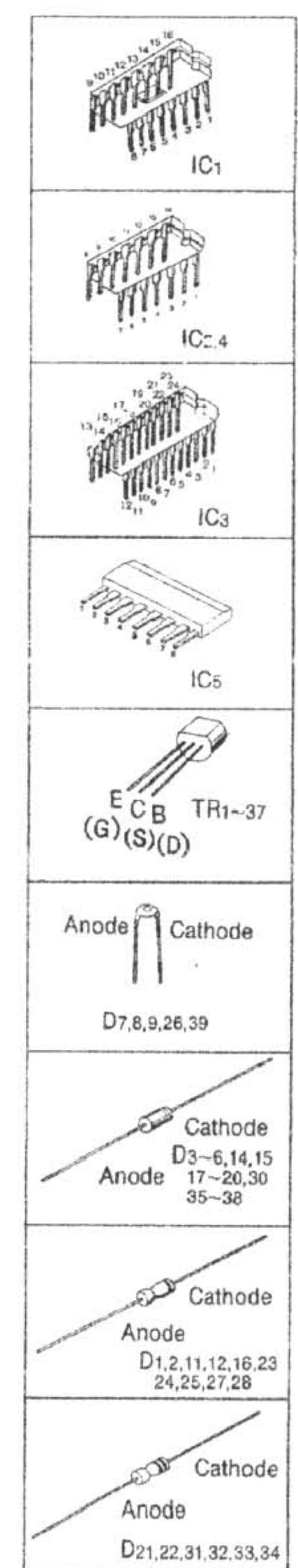


Fig. 34 FM Dummy Antenna

Schematic Diagram—Model RF-4800



Notes:

1. S₁₋₁~S₁₋₆: Band switch (SW₂₋₆) in "SW₂" position.
2. S₁₋₇~S₁₋₁₀: Band switch (SW₂₋₆, SW₁, MW, FM) in "FM" position.
3. S₂: Light switch in "OFF" position.
4. S₃: Digital display switch in "OFF" position.
5. S₄: Indicator switch in "SIGNAL" position.
6. S₅₋₁, S₅₋₂: FM AFC/Band Width switch in "NARROW" "OFF" position.
7. S₆: AM ANL switch in "OFF" position.
8. S₁₀₋₁, S₁₀₋₂: AM mode switch in "AM" position.
9. S₁₁: Power switch in "OFF" position.
10. S₁₂: DC-BATTERY selector in "BATTERY" position.
11. S₁₃: AC voltage measurements are taken with circuit tester 10kΩ/V from negative side of batteries.
12. Battery current: No signal 45mA

---IMPORTANT SAFETY NOTICE---

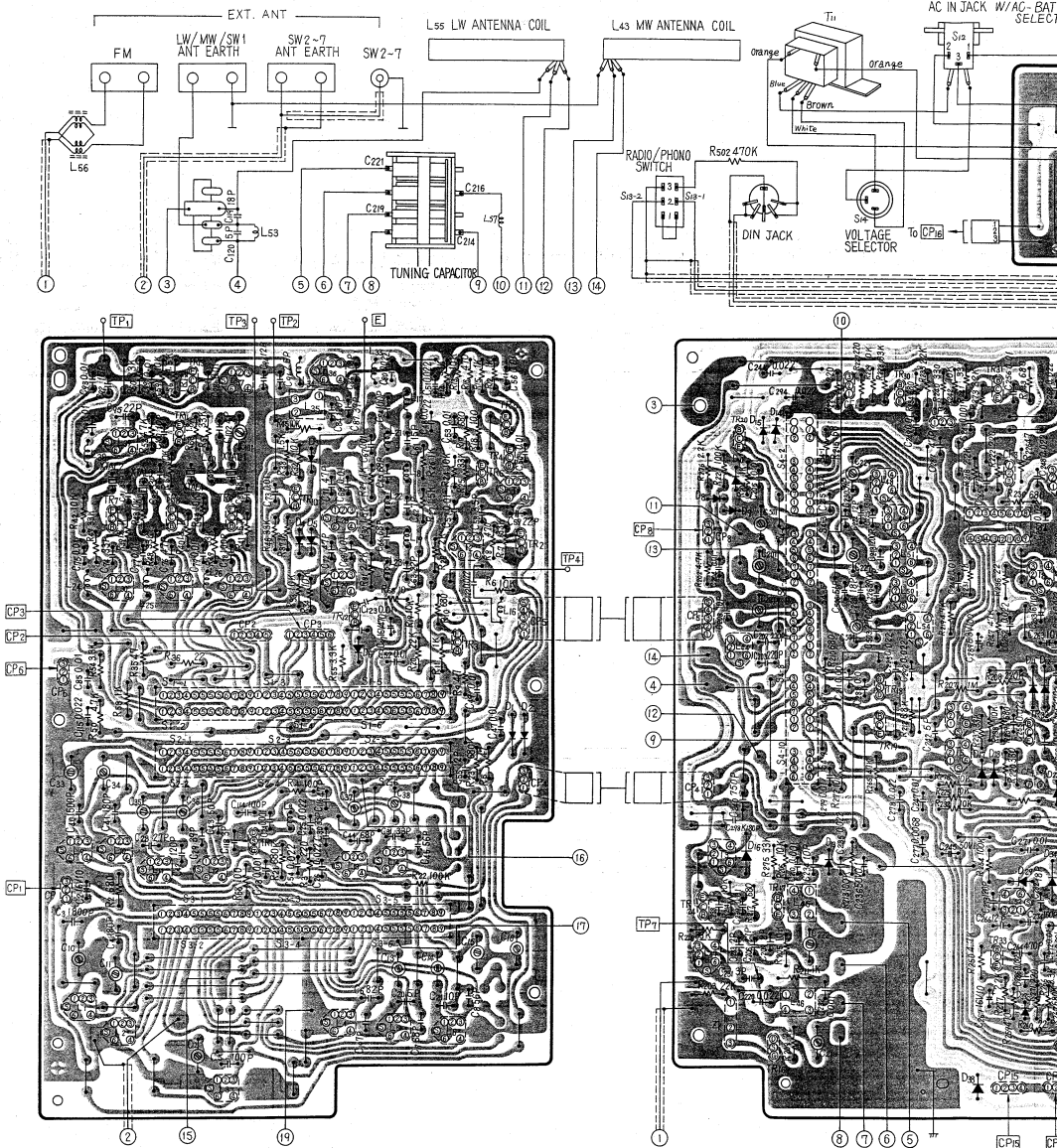
THE SHADED AREA IN THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR SAFETY. WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTURER'S SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SHADED AREAS OF THE SCHEMATIC.

D _{1,2}	QA90	SW AGC
D _{2~6}	MA150	SWITCHING
D ₆	RVDEQ106RF	ZENER
D ₇	RVQVD1251M	AOC
D _{8,9}	RVQVD1252L	AOC
D ₁₀	RVQSD113	COUNT ADJUST
D _{11,12}	QA90	AM AGC
D ₁₃	RVQSD113	FM AFC

D _{14,15}	MA150	SWITCHING
D ₁₆	OA90	FM AGC
D _{17~20}	MA150	SWITCHING
D _{21,22}	2-OA90	FM DET
D _{23~26}	OA90	AM METER RECT
D ₂₆	RVDVD1150L	AOC
D _{27,28}	OA90	FM METER RECT
D ₂₉	RVDSD113	BFO DET

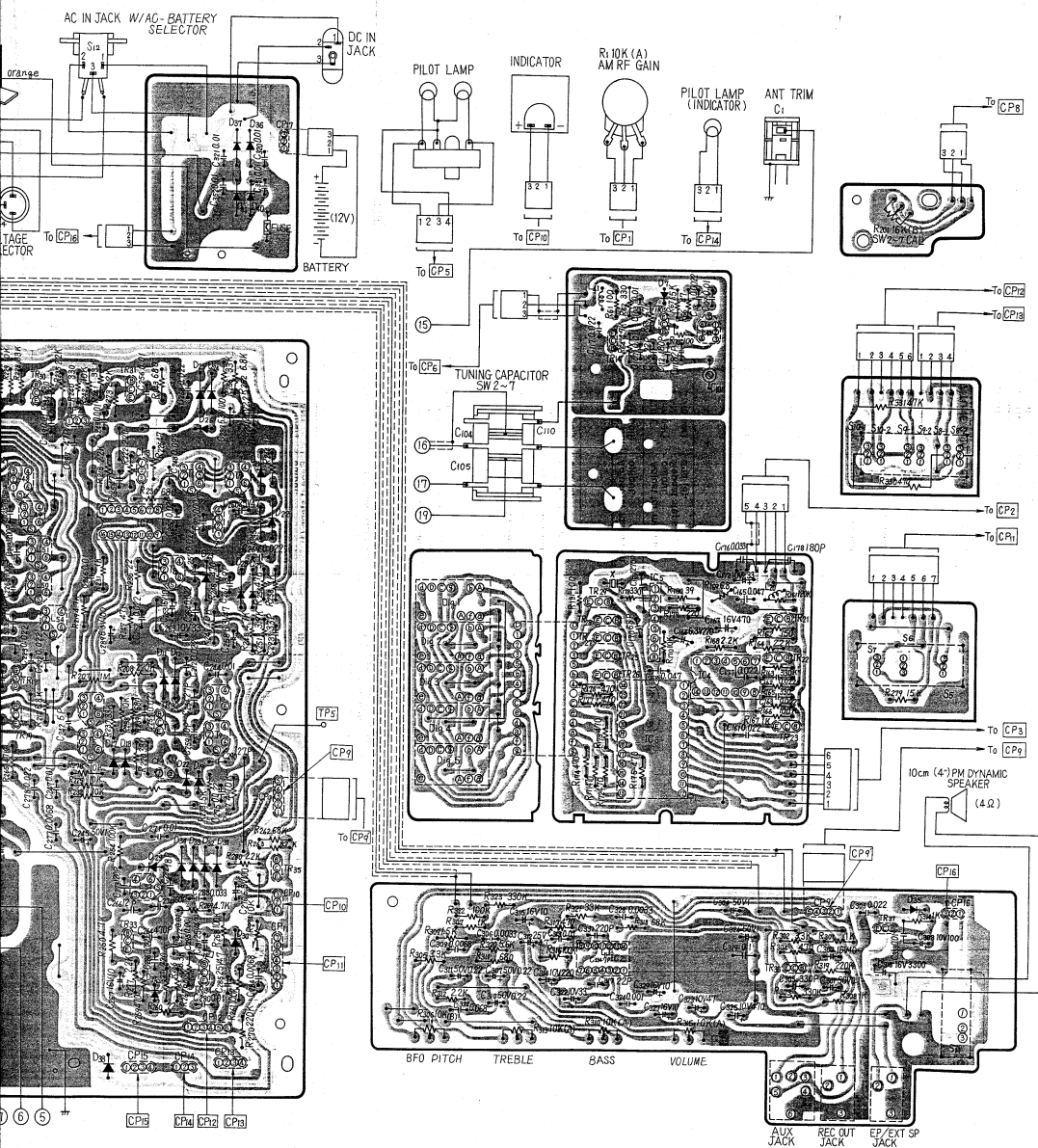
D ₃₀	MA150	ANL
D _{31~34}	2-OA90	BFO DET
D ₃₅	RVDMZ206	Zener
D _{36,37}	RYD10E1LF	RECT
D ₃₈	MA150	SWITCHING
D ₃₉	RYD1251M	AOC

Circuit Board Wiring View-M



TR, D&C	TR7	TR8 TR11 TR13	TR9	TR10 D&C D3 TR12 D6	TR3 TR6 TR4 TR5 TR12	D8 D9 D10 TR20 D&C D4	TR 30	TR31 IC1	D&C
T & L	L56 L38 L39 L40 L25 L31	L26 L32 L53	L34 L35 L36 L37 L38 L39 L40 L41 L42 L43 L44 L45 L46 L47 L48 L49 L50 L51 L52 L53 L54 L55 L56 L57 L58 L59 L60 L61 L62 L63 L64 L65 L66 L67 L68 L69 L70 L71 L72 L73 L74 L75 L76 L77 L78 L79 L80 L81 L82 L83 L84 L85 L86 L87 L88 L89 L90 L91 L92 L93 L94 L95 L96 L97 L98 L99 L100	L43	L47 T3	L44 T1	L46 L45	T5 T4	L52

Hard Wiring View-Model RF-4800LBS

[illegible]

SW RF ALIGNMENT

	BAND	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (VTVM or SCOPE)	ADJUSTMENT	REMARKS
		CONNECTIONS	FREQUENCY				
SW1-RF ALIGNMENT							
(1)	SW1	Connect to EXT ANT (LW/MW/SW1) terminal.	1.6 MHz	1.6 MHz 3 mm ($\frac{1}{8}$ ")	Output meter across voice coil.	L ₁₁ (SW1 OSC Coil) L ₁₂ (SW1 ANT Coil)	Adjust for maximum output.
(2)	SW1	"	3 MHz	3 MHz 58.7mm($2\frac{3}{4}$ ")	"	C ₂₂₉ (SW1 OSC Trimmer) C ₂₀₇ (SW1 ANT Trimmer)	Adjust for maximum output. Repeat steps (1) and (2).
SW2-RF ALIGNMENT							
(3)	SW2	Connect to EXT ANT (SW2~SW7) terminal.	3 MHz	3 MHz 3mm ($\frac{1}{8}$ ")	"	L ₁₂ (SW2 OSC Coil) L ₁₃ (SW2 TUNE Coil) L ₁₄ (SW2 ANT Coil)	Adjust for maximum output.
(4)	SW2	"	7 MHz	7 MHz 60.5mm($2\frac{3}{8}$ ")	"	C ₁₀₄ (SW2 OSC Trimmer) C ₂₃₁ (SW2 TUNE Trimmer) C ₁₁₀ (SW2 ANT Trimmer)	Adjust for maximum output. Repeat steps (3) and (4).
SW3-RF ALIGNMENT							
(5)	SW3	"	7 MHz	7 MHz 3mm ($\frac{1}{8}$ ")	"	L ₁₁ (SW3 TUNE Coil) L ₁₂ (SW3 ANT Coil)	Adjust for maximum output.
(6)	SW3	"	11.01 MHz	11.01 MHz 60.5mm ($2\frac{3}{8}$ ")	"	C ₂₃₄ (SW2 TUNE Trimmer) C ₁₁₁ (SW2 ANT Trimmer)	Adjust for maximum output. Repeat steps (5) and (6).
SW4-RF ALIGNMENT							
(7)	SW4	"	11.01 MHz	11.01 MHz 3mm ($\frac{1}{8}$ ")	"	L ₁₁ (SW4 TUNE Coil) L ₁₃ (SW4 ANT Coil)	Adjust for maximum output.
(8)	SW4	"	15.01 MHz	15.01 MHz 60.5mm ($2\frac{3}{8}$ ")	"	C ₂₃₅ (SW4 TUNE Trimmer) C ₁₁₂ (SW4 ANT Trimmer)	Adjust for maximum output. Repeat steps (7) and (8).
SW5-RF ALIGNMENT							
(9)	SW5	"	15.01 MHz	15.01 MHz 3mm ($\frac{1}{8}$ ")	"	L ₁₂ (SW5 TUNE Coil) L ₁₄ (SW5 ANT Coil)	Adjust for maximum output.
(10)	SW5	"	19.01 MHz	19.01 MHz 60.5mm ($2\frac{3}{8}$ ")	"	C ₂₃₆ (SW6 TUNE Trimmer) C ₁₁₃ (SW5 ANT Trimmer)	Adjust for maximum output. Repeat steps (9) and (10).
SW6-RF ALIGNMENT							
(11)	SW6	"	19.01 MHz	19.01 MHz 3mm ($\frac{1}{8}$ ")	"	L ₁₂ (SW6 TUNE Coil) L ₁₄ (SW6 ANT Coil)	Adjust for maximum output.
(12)	SW6	"	23.01 MHz	23.01 MHz 60.05mm ($2\frac{3}{8}$ ")	"	C ₂₃₇ (SW6 TUNE Trimmer) C ₁₁₄ (SW6 ANT Trimmer)	Adjust for maximum output. Repeat steps (11) and (12).
SW7-RF ALIGNMENT							
(13)	SW7	"	23.01 MHz	23.01 MHz 3mm ($\frac{1}{8}$ ")	"	L ₁₄ (SW7 TUNE Coil) L ₁₆ (SW7 ANT Coil)	Adjust for maximum output.
(14)	SW7	"	27.01 MHz	27.01 MHz 60.5mm ($2\frac{3}{8}$ ")	"	C ₂₃₈ (SW7 TUNE Trimmer) C ₁₁₅ (SW7 ANT Trimmer)	Adjust for maximum output. Repeat steps (13) and (14).

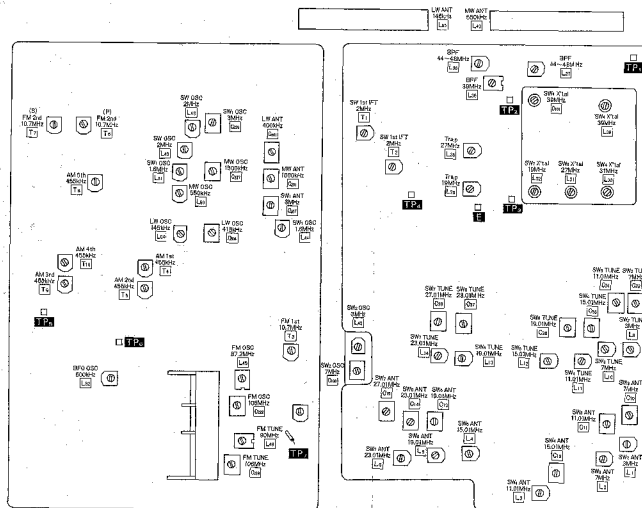
RF-4800LBS 13

FM ALIGNMENT

	SIGNAL GENERATOR or SWEEP GENERATOR	RADIO DIAL SETTING (DISTANCE)	INDICATOR (VTVM or SCOPE)	ADJUSTMENT	REMARKS
	CONNECTIONS				
FM-IF ALIGNMENT					
(1)	High side thru. 0.001 μ F to point [TP ₁]. Negative side to point [E].	10.7 MHz (400 kHz SWP.)	Point of non-interference. (on/about 90 MHz).	Connect vert. amp. of scope to point [TP ₁]. Negative side to point [E].	T ₃ (FM 1st IFT) T ₆ (FM 2nd IFT) (Primary) Adjust for maximum amplitude. (Refer to fig. 32).
(2)	"	"	"	"	T ₇ (FM 2nd IFT) (Secondary) Adjust for maximum amplitude. (Refer to fig. 33).
FM-RF ALIGNMENT					
(3)	Connect to EXT ANT (FM) terminal through FM dummy antenna. (Refer to fig. 34).	87.2 MHz	Variable capacitor fully closed.	Output meter across voice coil.	L ₄₅ (FM OSC Coil) (*) Adjust for maximum output.
(4)	"	90 MHz	Tune to signal.	"	L ₄₆ (FM TUNE Coil) (*) Adjust for maximum output.
(5)	"	106 MHz	106 MHz 53.1mm (2 $\frac{1}{8}$ ")	"	C ₂₃₂ (FM OSC Trimmer) C ₂₁₈ (FM TUNE Trimmer) (*) Adjust for maximum output. Repeat steps (3)~(5).
(*) Three output responses will be present; proper tuning is the center frequency.					

(*) Three output responses will be present; proper tuning is the center frequency.

ALIGNMENT POINTS



■ BLOCK DIAGRAM

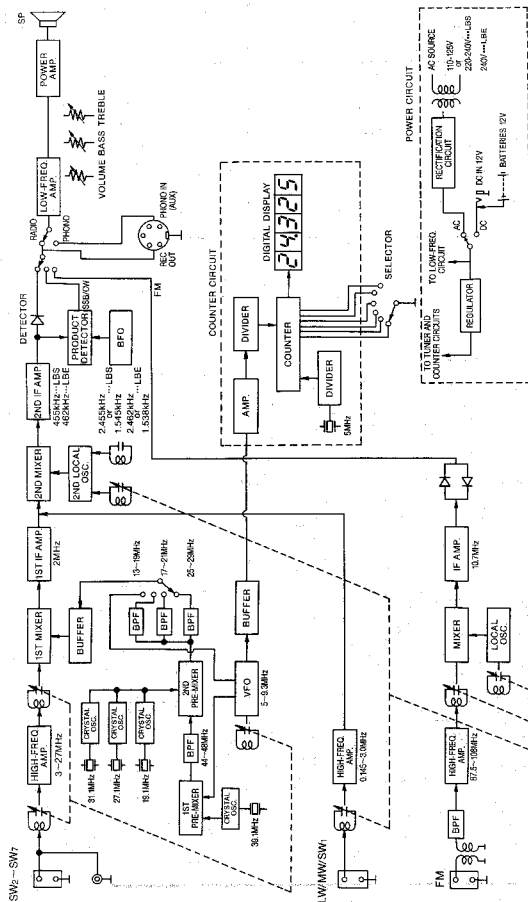


Fig. 36

■ IC3 (RVIM54820) BLOCK DIAGRAM

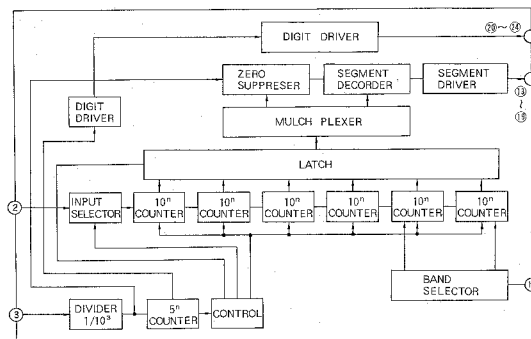


Fig. 37

■ CHASSIS PARTS LOCATIONS

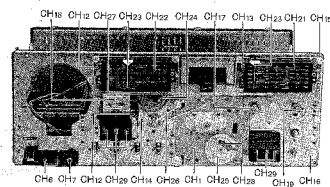


Fig. 38

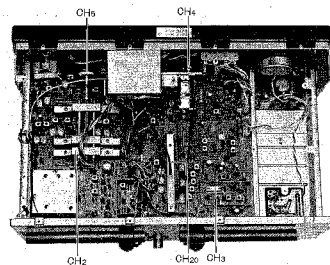


Fig. 39

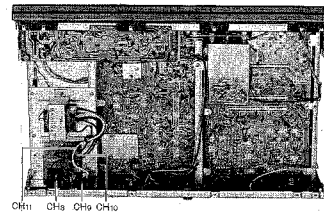


Fig. 40

REPLACEMENT PARTS LIST..... Model RF-4800LBS (RD7708-1488)

NOTES: 1. Part numbers are indicated on most mechanical parts.
Please use this part number for parts orders.
2. X-Z rank: X rank parts will cover 80% of repair needs.
X-Y rank parts will cover 95% of repair needs.
Z rank parts are less necessary.
3. Components identified by shaded area have special characteristic important for safety. When replacing any of these components use only manufacturer's specified parts.
4. Part numbers shown in bold letters are service standard parts and may differ from production parts.
5. The O mark is used by the manufacturing plant only.

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
INTEGRATED CIRCUITS, TRANSISTORS AND DIODES				
IO1	RV1UP01018	IC, FM/AM IF Amp.	1	X
IO2	RV1LA4201	IC, AF & Power Amp.	1	OX
IO3	RV1M54820	IC, Counter LSI	1	X
IO4	RV1SN74LS93	IC, Divider	1	X
IO5	RV1M54812L5	IC, Divider & Oscillator	1	X
TR1,16	2SK49	Transistor(SU), SW RF Asp., FM RF Asp.	2	X
TR2,3,4,5,6, 10,13,14, 15,17,24, 30,31,32	2SA838	Transistor(Ge), SW RF Amp, SW Mixer, Buffer, 2nd Pre Mix, 1st Pre Mix, VFO Oscillator, FM Oscillator, FM IF Amp, AM IF Amp.	14	X
TR7,8,9,11	2SC1675	Transistor(SU), Oscillator	4	X
TR12	2SC1383	Transistor(SU), Regulator	1	X
TR18	2SK104	Transistor(SU), AM RF Amp.	1	X
TR19	2SC828	Transistor(SU), RF Gain Control	1	X
TR20,34,36, 37	2SC945	Transistor(SU), Switching, SSB AF Asp., AF Amp., Regulator	4	X
TR21	2SC1675	Transistor(SU), Counter Pre Amp.	1	X
TR22,23	2SC1674	Transistor(SU), Counter Pre Amp.	2	X
TR25,26,27, 28,29	2SC2001	Transistor(SU), Digit Driver	5	X
TR33	2SA584	Transistor(Ge), BFO Oscillator	1	X
TR35	2SC829	Transistor(SU), Meter Amp.	1	X
D1,2,11,12,16, 23,24,25,27, 28	OA90	Diode(Ge), SW AGC, AM AGC, FM AGC, AM Meter Rectifier	10	X
D3,4,5,14,15, 17,18,19,20, 30,38	MA150	Diode(SU), Switching, ANL	3	X
D6	RVDEQA0106RP	Diode(SU), Zener	1	X
D8,9	RVDDVD125L	Diode(SU), AOC	2	X
D10,15,29	RVDS113	Diode(SU), Count Adjust, FM AFC, BFO Detector	3	X
D21,22,31,32, 33,34	2-OA90	Diode(Ge), FM Detector, BFO Detector	6	X
D25	RVDDVD1150L	Diode(SU), AOC	1	X
D35	RVDMZ206	Diode(SU), Zener	1	X
D36,37,40,41	RVDD10E11P	Diode(SU), Rectifier	4	X

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
D7,39	RVDDVD1251M	Diode(SU), AOC	2	X
CERAMIC FILTERS, COILS AND TRANSFORMERS				
CP1,2,3	RVFL107MFR	Ceramic Filter	3	X
CP4	RVFL1FB4	Ceramic Filter	1	OX
L1,9	RLA3M32	Antenna Coil or Detector Coil, SW2	2	OX
L2,10	RLA3M33	Antenna Coil or Detector Coil, SW3	2	OX
L3,11	RLA3M34	Antenna Coil or Detector Coil, SW4	2	OX
L4,12,29	RLA3M35	Antenna Coil or Detector Coil, SW5	3	OX
L5,14,28	RLA3M37	Antenna Coil, SW6	3	OX
L6	RLA3M38	Detector Coil, SW7	1	OX
L13	RLA3M36	Detector Coil, SW6	1	OX
L56	RLA424	Boron Coil, FM	1	OX
L50,31,32,35, 37,39	RLC9M7	Oscillator Coil, Xtal BPF Coil	8	OX
L35	RLD4M5	Coil, Trap	1	OX
L42	RLC3M52	Oscillator Coil, SW2	1	OX
L45	RLP2E41	Antenna Coil, MW	1	OX
L44	RLA3M31	Antenna Coil, SW	1	OX
L45	RLD4M1	Oscillator Coil, FM	1	X
L46	RLD4M3	Antenna Coil, FM	1	X
L47	RLI4M103	Coil, Trap	1	X
L48,51	RLC3M51	Oscillator Coil, 2nd Local & SW2	2	OX
L49	RLC3M5	Oscillator Coil, 2nd Local	1	OX
L50	RLC2M16	Oscillator Coil, MW	1	OX
L52	RLC9M8	Oscillator Coil, BFO	1	OX
L54	RLC1M6	Oscillator Coil, LW	1	OX
L55	RLF1E1	Antenna Coil, LW	1	OX
T1	RLI9M5	IPT, SW 1st	1	X
T2	RLI9M4	IPT, SW 1st	1	X
T3	RLI4M101	IPT, FM 1st	1	X
T4,9,10	RLI2M212	IPT, AM 1st, 3rd, 4th	3	OX
T6	RLI2M208	IPT, AM 2nd	1	X
T8	RLI4M504	IPT, FM 2nd(Primary)	1	X
T7	RLI4M505	IPT, FM 2nd(Secondary)	1	X
T9	RLI2M402	IPT, AM 5th	1	X
TR1,2,3,4,5,6, 7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93,94,95,96,97,98,99,100	RVH8SA029B14	Variable Resistor, 10K(Ω), RF Gain Control	1	OX
R1	EVH8SA029B14	Variable Resistor, 10K(Ω), RF Gain Control	1	OX
R201	EVLDBAT12B14	Variable Resistor, 10K(Ω), SW2-8 CAL	1	X
R274	EVLTOAAC00B14	Variable Resistor, 10K(Ω), Preset, Meter Control	1	Y
R306	EVH8SA029B14	Variable Resistor, 10K(Ω), BFO Pitch	1	OX
R310,313,316	EVH8SA029A14	Variable Resistor, 10K(Ω), Bass, Treble & Volume Control	3	OX

VARIABLE RESISTORS

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
VARIABLE CAPACITORS				
G1	RCVCS21A192	Tuning Capacitor	1	OX
G10,201,218,501	RCV1PX10AG	Trimmer Capacitor	4	Y
G11-15,35-38,108,207,222,227,229,504	RCV1PX20AG	Trimmer Capacitor	17	Y
G214,216,219,221	RCVQV45D112	Tuning Capacitor	1	X
G104,105,110	RCVQV35D112	Tuning Capacitor	1	OX
COMPONENT COMBINATIONS AND CRYSTAL				
Z1	RXABPMF1	Component Combination, Coils & Capacitors	1	OY
Z2	WXA5DL040	Component Combination, 330PF×3, 4.7KΩ×2	1	Y
X1	RVCX39100N3R	Crystal	1	OX
X2	RVCX31100N3R	Crystal	1	OX
X3	RVCX27100N3R	Crystal	1	OX
X4	RVCX19100N3R	Crystal	1	OX
X5	RVCX5000N5Z	Crystal, 5MHz	1	OX
SPEAKER				
SP	EAS10P72S	Speaker, Imp.4Ω, 10cm(4"), PM Dynamic	1	OX
SWITCHES				
S1-1-S3-6	BSRK68S1	Switch, Band (SW2~7)	3	X
S4-1-S4-10	BSA12LA410	Switch, Band (LW/FM/MW/SW1/SW2~7)	1	OX
S5-S7, S8-1, S8-2, S9, S10-1, S10-2	BSTX008Y-A	Switch, Light, Digital Display, Indicator, FM AFC/Band Width, MW	2	X
S11	BST51Y8-H	ANL or AM Mode	1	X
S12-S13-S14	BSA14Z	Switch, Power	1	X
	BSR2A01Z-H	Switch, Radio/Phone	1	X
		Switch, Voltage Selector	1	X
RESISTORS				
R7,14,25,46,47,48,51,60,216,228,237,271,265,275,281,321	ERD25TJ333	33KΩ, 1/4Watt, ±5%, Carbon	16	Z
R6,13,19,24,32,33,54,42,45,44,45,57,59,170,205,206,214,225,229,235,242,249,272,276,332	ERD25TJ103	10KΩ, 1/4Watt, ±5%, Carbon	25	Z
R38,41,56,87,233,309	ERD25TJ152	1.5KΩ, 1/4Watt, ±5%, Carbon	6	Z

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
R8,16,171,172,173,174,175,176,177,246,259,304,317	ERD25TJ471	470Ω, 1/4Watt, ±5%, Carbon	13	Z
R11,12,15,37,58,167,204,211,224,231,244,245,258,301,307,308,314	ERD25TJ102	1KΩ, 1/4Watt, ±5%, Carbon	17	Z
R50,52,63,64,202,219,248,250,269	ERD25TJ472	4.7KΩ, 1/4Watt, ±5%, Carbon	9	Z
R59,40,53	ERD25TJ182	1.8KΩ, 1/4Watt, ±5%, Carbon	3	Z
R2,10,17,210,217,220,234,236,243,311	ERD25TJ681	680Ω, 1/4Watt, ±5%, Carbon	10	Z
R4,18,61,89,90,181	ERD25TJ101	100Ω, 1/4Watt, ±5%, Carbon	6	Z
R28,31,164,168,218,235,273,276,277,280,312	ERD25TJ222	2.2KΩ, 1/4Watt, ±5%, Carbon	11	Z
R5,9,35,226	ERD25TJ470	47Ω, 1/4Watt, ±5%, Carbon	4	Z
R36,209,236,260	ERD25TJ220	22Ω, 1/4Watt, ±5%, Carbon	4	Z
R54,55,266,302,505	ERD25TJ332	3.3KΩ, 1/4Watt, ±5%, Carbon	5	Z
R20,203	ERD25TJ223	22KΩ, 1/4Watt, ±5%, Carbon	2	Z
R21,23,287	ERD25TJ684	680KΩ, 1/4Watt, ±5%, Carbon	3	Z
R3,179,222,223,227,271	ERD25TJ221	220Ω, 1/4Watt, ±5%, Carbon	6	Z
R22,166,213,221,234,261	ERD25TJ104	100KΩ, 1/4Watt, ±5%, Carbon	9	Z
R62,165,178,220,240	ERD25TJ331	330Ω, 1/4Watt, ±5%, Carbon	5	Z
R212,252	ERD25TJ682	6.8KΩ, 1/4Watt, ±5%, Carbon	2	Z
R215	ERD25TJ680	68Ω, 1/4Watt, ±5%, Carbon	1	Z
R247,256,265,331	ERD25TJ473	47KΩ, 1/4Watt, ±5%, Carbon	4	Z
R207	ERD25TJ105	1MΩ, 1/4Watt, ±5%, Carbon	1	Z
R208,270,319	ERD25TJ224	220KΩ, 1/4Watt, ±5%, Carbon	3	Z
R257	ERD25TJ474	470KΩ, 1/4Watt, ±5%, Carbon	1	Z
R262,318	ERD25TJ683	68KΩ, 1/4Watt, ±5%, Carbon	2	Z
R263	ERD25TJ822	8.2KΩ, 1/4Watt, ±5%, Carbon	1	Z
R163,303,322	ERD25TJ334	330KΩ, 1/4Watt, ±5%, Carbon	3	Z
R251	ERD25TJ392	3.9KΩ, 1/4Watt, ±5%, Carbon	1	Z
R520	ERD25TJ562	5.6KΩ, 1/4Watt, ±5%, Carbon	1	Z
R279	ERD25TJ153	15KΩ, 1/4Watt, ±5%, Carbon	1	Z
R66	ERD25TJ470	47Ω, 1/4Watt, ±5%, Carbon	1	Z
R180	ERD25TJ390	39Ω, 1/4Watt, ±5%, Carbon	1	Z
R161	ERD25TJ124	120KΩ, 1/4Watt, ±5%, Carbon	1	Z
R162	ERD25TJ151	150Ω, 1/4Watt, ±5%, Carbon	1	Z
R169	ERD25TJ688	6.8Ω, 1/4Watt, ±5%, Carbon	1	Z
R68	ERX1ANJ100	10Ω, 1Watt, ±5%, Metal Oxide	1	Z

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
CAPACITORS				
C81,92	ECOD1H150K0	15PF, 50WV, $\pm 10\%$, Ceramic	2	Z
C85,94,106,226	ECOD1H20K0	12PF, 50WV, $\pm 10\%$, Ceramic	4	Z
C91	ECOD1H2R50	2.5PF, 50WV, ± 0.25 PF, Ceramic	1	Z
C86,119,228,252	ECOD1H180K0	18PF, 50WV, $\pm 10\%$, Ceramic	4	Z
C29,87	ECOD1H390K0	39PF, 50WV, $\pm 10\%$, Ceramic	2	Z
C89,93,95,317	ECOD1H220K0	22PF, 50WV, $\pm 10\%$, Ceramic	4	Z
C28,206,251,260	ECOD1H270K0	27PF, 50WV, $\pm 10\%$, Ceramic	4	Z
C21,100,206,217,234,259	ECOD1H100K0	10PF, 50WV, $\pm 10\%$, Ceramic	6	Z
C20,120,242	ECOD1H050G0	5PF, 50WV, ± 0.25 PF, Ceramic	3	Z
C102	ECOD1H040G	4PF, 50WV, ± 0.25 PF, Ceramic	1	Z
C118,231	ECOD1H030G	3PF, 50WV, ± 0.25 PF, Ceramic	2	Z
C30,31,74,81,82,293	ECOD1H330K0	33PF, 50WV, $\pm 10\%$, Ceramic	6	Z
C71,72,116,285,297	ECOD1H470K0	47PF, 50WV, $\pm 10\%$, Ceramic	5	Z
C19,62,238,334	ECOD1H070D0	7PF, 50WV, ± 0.5 PF, Ceramic	4	Z
C88	ECOD1H3R50	3.5PF, 50WV, ± 0.25 PF, Ceramic	1	Z
C114	ECOD1H101K	100PF, 50WV, $\pm 10\%$, Ceramic	1	Z
C806	ECOD1H560K0	56PF, 50WV, $\pm 10\%$, Ceramic	1	Z
C230,261	ECOD1H390K0	39PF, 50WV, $\pm 10\%$, Ceramic	2	Z
C284	ECOD1H120K0	12PF, 50WV, $\pm 10\%$, Ceramic	1	Z
C209,233	ECOD1H020G	2PF, 50WV, ± 0.25 PF, Ceramic	2	Z
C297,303	ECOD1H331K	330PF, 50WV, $\pm 10\%$, Ceramic	2	Z
C381	ECOD1H221K	220PF, 50WV, $\pm 10\%$, Ceramic	1	Z
C161,162,163	ECOD1H223PF	0.022 μ F, 50WV, $\pm 10\%$, Ceramic	3	Z
C170	ECOD1H660K	66PF, 50WV, $\pm 10\%$, Ceramic	1	Z
C198,298	ECOD1H181K	180PF, 50WV, $\pm 10\%$, Ceramic	2	Z
C47,49,50,52,55,56,57,75,85,93,99,109,103,246,280,279,296,333	ECOD1H103MD	0.01 μ F, 50WV, $\pm 20\%$, Ceramic	18	Z
C67,68,69,75,77,79,96,98,107,205,239,244,247,249,252,256,271,288,320,321,331,352	ECOD1H103PF	0.01 μ F, 50WV, $\pm 10\%$, Ceramic	22	Z
C25,26,48,51,54,80,116,117,212,220,223,235,254,255,262,269,269,275,292,294	ECOD1H223PF	0.022 μ F, 50WV, $\pm 10\%$, Ceramic	2	OZ
C23,24,232,295,324	ECOD1H102MD	0.001 μ F, 50WV, $\pm 20\%$, Ceramic	5	Z

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
C122,177,210	ECOD1H223MD	0.022 μ F, 50WV, $\pm 20\%$, Ceramic	5	Z
C123	ECOD1H103MD	0.01 μ F, 50WV, $\pm 20\%$, Ceramic	1	Z
C211,243	ECOD1H102PF	0.001 μ F, 50WV, $\pm 10\%$, Ceramic	2	Z
C270	ECOD1H472MD	0.0047 μ F, 50WV, $\pm 20\%$, Ceramic	1	Z
C277,284,309	ECOD1H682MD	0.0068 μ F, 50WV, $\pm 20\%$, Ceramic	3	Z
C113	ECOD1H222MD	0.0022 μ F, 50WV, $\pm 20\%$, Ceramic	1	Z
C306,328	ECOD1H332MD	0.0033 μ F, 50WV, $\pm 20\%$, Ceramic	2	Z
C42,84,273	ECMS05121JH	120PF, 50WV, $\pm 5\%$, Mica	3	Z
C5,64,78	ECMS05101JH	100PF, 50WV, $\pm 5\%$, Mica	3	Z
C76	ECMS05470JH	47PF, 50WV, $\pm 5\%$, Mica	1	Z
C4,41,112	ECMS05181JH	180PF, 50WV, $\pm 5\%$, Mica	3	Z
C6,43,111	ECMS05820JH	82PF, 50WV, $\pm 5\%$, Mica	3	Z
C7,44,53,65,83	ECMS05680JH	68PF, 50WV, $\pm 5\%$, Mica	5	Z
C8,45	ECMS05560JH	56PF, 50WV, $\pm 5\%$, Mica	2	Z
C274	ECMS05161JH	160PF, 50WV, $\pm 5\%$, Mica	1	Z
C3,40	ECQS05182JZ	1800PF, 50WV, $\pm 5\%$, Styrol	2	Z
C503	ECQS05271KE	270PF, 50WV, $\pm 10\%$, Styrol	1	Z
C213	ECQS05122JZ	1200PF, 50WV, $\pm 5\%$, Styrol	1	Z
C226	ECQS05392KZ	3900PF, 50WV, $\pm 10\%$, Styrol	1	Z
C202,203	ECQS05221JZ	220PF, 50WV, $\pm 5\%$, Styrol	2	Z
C264	ECQS05471JZ	470PF, 50WV, $\pm 5\%$, Styrol	1	Z
C169	ECQS05271JZ	270PF, 50WV, $\pm 5\%$, Styrol	1	Z
C176,283	ECFVD333MD	0.033 μ F, 25WV, $\pm 20\%$, Semi-Conductor	2	Z
C241,248,250,257,278,288,305	ECFVD223MD	0.022 μ F, 25WV, $\pm 20\%$, Semi-Conductor	7	Z
C272,313	ECFVD103MD	0.01 μ F, 25WV, $\pm 20\%$, Semi-Conductor	2	Z
C332	ECFVD683MD	0.068 μ F, 25WV, $\pm 20\%$, Semi-Conductor	1	Z
C319	ECFVD104MD	0.1 μ F, 25WV, $\pm 20\%$, Semi-Conductor	1	Z
C165,168	ECFVD473MD	0.047 μ F, 25WV, $\pm 20\%$, Semi-Conductor	2	Z
C316	ECBT18R3500S	3500 μ F, 16WV, Electrolytic	1	Y
C2,253,257,302,315,327,329	ECEA16V10	10 μ F, 16WV, Electrolytic	7	Y
C121,237,276,289,308	ECEA10V100	100 μ F, 10WV, Electrolytic	5	Y
C97,187,325	ECEA16V470	470 μ F, 16WV, Electrolytic	3	Y
C281	ECEA50V2R2	2.2 μ F, 50WV, Electrolytic	1	Y
C236,301	ECEA50Z1H	0.1 μ F, 50WV, Electrolytic	2	Y
C260,281,285,312	ECEA35V4R7	4.7 μ F, 35WV, Electrolytic	4	Y
C204,245,304,326	ECEA50V1	1 μ F, 50WV, Electrolytic	4	Y
C259,323	ECEA16V47	47 μ F, 16WV, Electrolytic	2	Z
C172,253,322	ECEA16V33	33 μ F, 16WV, Electrolytic	3	Y
C314	ECEA16V220	220 μ F, 16WV, Electrolytic	1	Y
C307,310,311	ECEA50Z2R2	0.22 μ F, 50WV, Electrolytic	3	Y
C168	ECEA8V220	220 μ F, 6.3WV, Electrolytic	1	Y
CABINET				
CA1	RYFF4800LSBX	Front Panel Assembly	1	OX
CA2	RYBJX4800N	Indicating Plate Assembly	1	OX
	RWBXJ4800N	Battery Case Assembly	1	OX

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
	RJC605Z	Terminal Spring, Battery ⊖ Side	4	Y
	RJT308A	Connecting Pipe, Terminal Spring	4	Z
	RJC111A	Terminal, Battery ⊕ Side	4	Y
CA3	RYT1JX4800N	Knob Assembly, SW2~7 Tuning	1	OX
CA4	RYT2JX4800N	Knob Assembly, SW1/MW/FM/LW Tuning	1	OX
CA5	RKF367Z	Cabinet Cover	1	OY
CA6	RKH5076Z	Handle, Cabinet	2	OZ
CA7	RKX125Z	Cover, Handle	4	OZ
	RHG886Z	Rubber Cushion, Speaker	1	OZ
CA8	RBS103ZK	Knob, Band Selector	2	OY
CA9	RBE15Y	Knob, Power	1	OY
CA10	RBN381Z	Knob, Volume, Bass, Treble, BFO Pitch Ant. Trim & AM RF Gain	6	OY
CA11	RAU267YS	Rear Panel	1	OZ
CA12	RGT676Y	Name Plate	1	OZ
CA12	RGT676Y	Name Plate, for Italy	1	OZ
CA13	RHG309C	Rubber Leg (Large), Cabinet	2	Z
CA14	RHG325Z	Rubber Leg (Small), Cabinet	2	Z
CA15	RKH92Z	Cover, Battery Compartment	2	Y
CA16	RJS35A	Socket, FM Ant.	1	Y
CA17	RJS136Z-H	Socket, SW Ant.	2	Y
CA18	RJS258Y-R	Socket, SW Ant.	1	Y
CA19	RJS31-1	Socket, Din	1	Y
CA20	SMA205	Holder, Core Antenna	2	OY
CA21	SMA207	Holder, Core Antenna	2	OY
	RBE4Y	Knob, SW2~7 Cal	1	Y
	RHE5005A	Screw, Knob M'tg	1	Z
CA22	XSE3+8BV8	Screw, Cabinet Cover M'tg	17	Z

CHASSIS

CH1	RSQ92S	Dial Mechanism Assembly	1	OX
CH2	ESRK68S1	Shaft, Switch (SW2~7)	1	OZ
CH3	RM0171Y	Shield Plate, IC1	1	Z
CH4	RRE37Z	Joint, Tuning Capacitor	1	OZ
CH5	RDE752S	Joint, Switch Shaft	1	Z
	XXAR3H6S	Screw, Joint M'tg	8	Z
CH6	RJJ87Y-C	Jack, Rec. Out & EXT. EP, SP.	2	Y
CH7	RJJ82Z-C	Jack, Aux	1	Y
CH8	RJJ152Z-H	Jack, AC IN	1	Y
CH9	RJJ104Z-C	Jack, DC IN	1	Y
CH10	LYAR321HC	Bracket, Tuning Knob	1	Z
CH11	SWR448100A	Resistor, Tuning Knob	1	Z
CH12	XAMR485100A	Pilot Lamp, 12V, 40mA	2	OX
CH13	XAMR488250A	Pilot Lamp, 12V, 40mA	1	OX
CH14	RDT9091Z	Shaft, Tuning	1	OZ
	RUM39Z	Bracket, Dial Scale	2	OZ
	RUM40Z	Bracket, Dial Scale	2	OZ
CH15	RDR20-3	Pulley (Small), Dial	7	Z
CH16	RDR25-1	Pulley (Large), Dial	4	Z
	RNW150-2	Washer, Pulley	11	Z
CH17	RDF803Z-K	Shaft, SW2~7 Switch	1	OY
CH18	RSM2617Z-K	Meter, Tune/Battery	1	OX
CH19	B8A23406	Shaft, Switch	1	OY

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
CH20	B8A20303B	Wire, Switch	1	OY
CH21	RKD458Y	Scale, SW2~7	1	OY
CH22	RKD459Y	Scale, SW1/MW/FM/LW	1	OY
CH23	RDP170Z	Pointer, Dial	2	OY
CH24	RDD4012Z	Drum, Dial (SW1/MW/FM/FM/LW)	1	OZ
CH25	RDD441Z	Drum, Dial (SW2~7)	1	Z
CH26	RDZ05Z	Cord, Dial	1 Roll	Z
CH27	RD84060A	Spring, Drum (RDD4012Z)	1	Z
CH28	RDS3060A	Spring, Drum (RDD441Z)	1	Z
CH29	RBE17Z	Knob, Switch	6	Y
	XN99FZ	Nut, SW Switch Shaft & Ant. Trim M'tg	2	Z
	XNS8	Nut, Volume, Bass, Treble & etc. M'tg	7	Z

ACCESSORIES

A1	QFC106Z	Power Cord, AC	1	Y
A2	RS2404Z-M	FM Antenna	1	OY
A3	XEH15A1-B	Magnetic Earphone	1	Y
A4	RJP97Z	Plug, SW2~7 Antenna	1	OY
A5	RXEP4800LBSX	Antenna Plug Assembly	1	OY

PACKING MATERIALS

P1	RPN9245Z	Pad Complete	1	OZ
P2	(Not Available, Order)	Pad, Left Side	(1)	
		Pad, Right Side	(1)	
P3	RPQ1788Z	Packing Case	1	OZ
P3	RPQ1811Z	Packing Case, for Italy	1	OZ
P4	RQX6133Z	Instruction Book	1	OY

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PACKING MATERIALS & ACCESSORIES

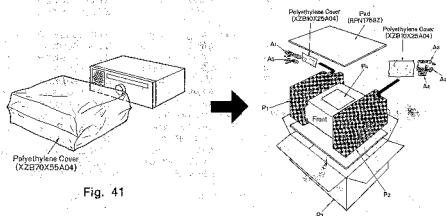


Fig. 41

Fig. 42