

Service Manual

Radio

RF-B65D

FM-LW-MW-SW ALL BAND RECEIVER



Color

(K) Black Type

Area

Country Code	Area	Color
(EG)	F.R. Germany	(K)
(G)	Asia, Latin America, Middle Near East, Africa and Oseania.	

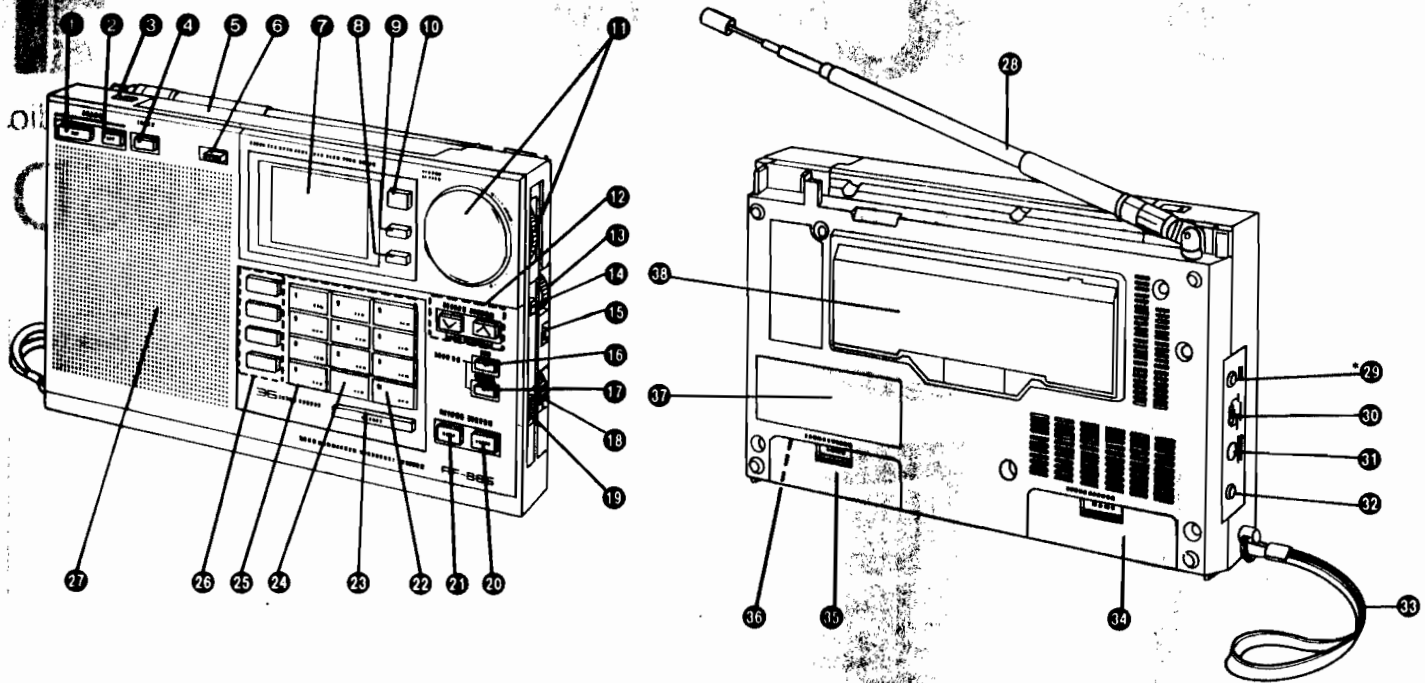
■ SPECIFICATIONS

- Frequency Range:**
 FM; 87.5~108 MHz
 LW; 153~519 kHz
 MW; 522~1611 kHz (at 9 kHz step)
 520~1610 kHz (at 10 kHz step)
 SW; 1,615~29,999 kHzFor (G) area
 1,615~26.1 kHzFor (EG) area
- Intermediate Frequency:**
 FM; 10.7 MHz
 AM 1st; 55,843 MHz
 AM 2nd; 450 kHzFor (G) area
 459 kHzFor (EG) area
- Sensitivity:**
 FM; 4 μ V/50 mW output (-3 dB Limit Sens.)
 LW; 500 mV/m/50 mW output
 MW; 300 μ V/50 mW output
 SW; 16 μ V/50 mW output
- Power Source:**
 Battery; 6 V (four UM-3 batteries for radio)
 3 V (two UM-3 batteries for memory back-up)
 AC; with included AC adaptor
 110~127/220~240 V, 50/60 Hz For (G) area
 220 V, 50 Hz For (EG) area
- Power Consumption:**
 5 W (with included AC adaptor)
- Speaker:**
 8 cm PM dynamic speaker, 8 Ω
- Power Output:**
 550 mW (RMS Max.)
- Jacks:**
 Earphone; 8 Ω , \varnothing 3.5
 EXT. ANT. (LW/MW/SW); \varnothing 3.5
 DC IN; 6 V
- Dimensions:**
 204.5 (W) \times 119 (H) \times 36.5 (D) mm
- Weight:**
 625 g without batteries

Design and specifications are subject to change without notice.

RF-B65D

LOCATION OF CONTROLS AND COMPONENTS



- 1 Power On Key (ON)...(G)**
Operation On Key (ON)...(EG)
- 2 Power Off Key (OFF)...(G)**
Operation Off Key (Off)...(EG)
- 3 Station Reminder Open Switch**
Use the switch to open the Station Reminder cover.
- 4 Sleep Key (SLEEP)**
Press the key to turn the radio off automatically in 60 minutes.
- 5 Station Reminder (STATION REMINDER)**
Attach the included Memory Channel Sheets to the Station Reminder. It is useful for Memory Tuning.
- 6 AM Mode Selector (AM MODE)**
When receiving the SSB (Single Side-Band), set to "SSB". For others, set to "NORMAL".
- 7 LCD Multi-Information Display**
- 8 Time Set Key (TIME SET)**
Press the key when setting a clock time.
- 9 Dual Time Set Key (DUAL TIME)**
This unit enables the dual clock time besides the normal clock time to be set. Press the key when setting the dual clock time, or selecting the display of the normal or dual clock time.
- 10 Display Select Key (CLOCK/FREQ)**
Press the key to select the frequency display or the clock display.
- 11 Rotary Tuning Control (ROTARY TUNING)**
- 12 Up and Down Keys (∨ • ∧)**
Press the Up Key (∧) or Down Key (∨) to make the frequency change up or down during Manual Tuning and Auto Scan Tuning. Or press to stop Auto Scan Tuning.
- 13 Fine Tuning Control (FINE TUNE)**
When receiving the SSB, use this control for more precise tuning.
- 14 Rotary Tuning Step Selector**
For Rotary Tuning, set the selector to "FAST" or "SLOW" to make the frequency change at your desired tuning steps. In "LOCK" position, Rotary Tuning cannot operate. So, the frequency being received will be locked, and cannot be drifted accidentally.
- 15 Tone Selector (TONE)**
- 16 Standby Time Set Key (SET)**
Press the key to set the time you want to turn the radio on automatically.
- 17 Standby Time Cancel Key (CANCEL)**
Press the key to cancel the standby time.
- 18 Volume Control (VOLUME)**
- 19 Hold Switch**
Usually set the switch to the opposite direction of the arrow. When it is set to the direction of the arrow, the operation of all the keys and the Rotary Tuning Control will be locked. It is effective during both the radio-on and off.
- 20 Meter Band Direct Access Key (METER)**
Press the key before calling the lowest frequency of the SW meter band including your desired station.
- 21 Frequency Direct Access Key (FREQ)**
When you know the frequency of your desired station, press the key before entering the frequency number.
- 22 Memory/Meter Band Key**
Use the key first when you preset the desired stations into each of the memory channels. This key also functions as the Meter Band Key, which can call the lowest frequency of a SW meter band.
- 23 Enter Key (ENTER)**
After entering the frequency number of your desired station or the number of a clock time, press the key to begin receiving the broadcast of the station or to complete the time setting.
- 24 Decimal Point/Meter Band Key**
For Frequency Direct Access Tuning, use the key to enter the decimal point of the frequency. This key also functions as the Meter Band Key.

24 Number/Memory Channel/Meter Band Keys

Press the keys in the following ways.

- In Frequency Direct Access Tuning, to enter the frequency number of your desired stations.
- In Memory Tuning, to preset and call the stations.
- In Meter Band Direct Access Tuning, to call the lowest frequency of a SW meter band.

25 Band Select Keys

27 Speaker (8 cm, 8Ω)

28 External Antenna Jack (EXT ANT)

*28 is not equipped with the model for F.R. Germany.

30 Sensitivity Selector (SENS)

Normally set to "DX". When the reception is impaired or interfered by powerful station, set to "LOCAL".
The selector cannot operate for FM reception.

31 DC Input Jack (DC IN 6 V ⊖ ⊕)

32 Earphone Jack (Ⓞ)

Connect the included earphone to the jack.
• Adjust the volume to lower level so as not to injure your ear.

33 Carrying Strap

34 Radio Battery Compartment (RADIO BATTERY)

35 Memory Back-up Battery Compartment (BACK-UP BATTERY)

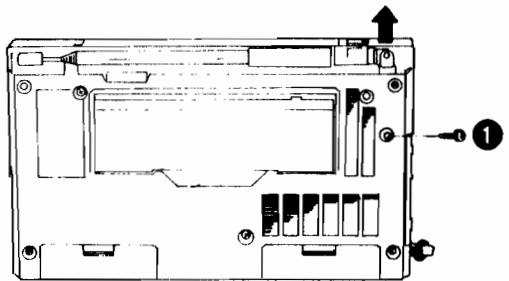
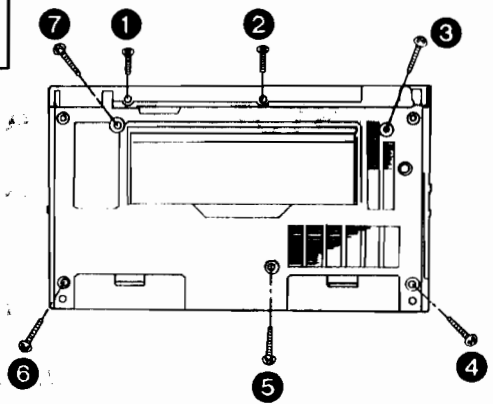
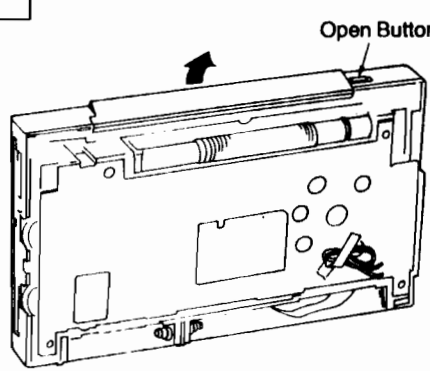
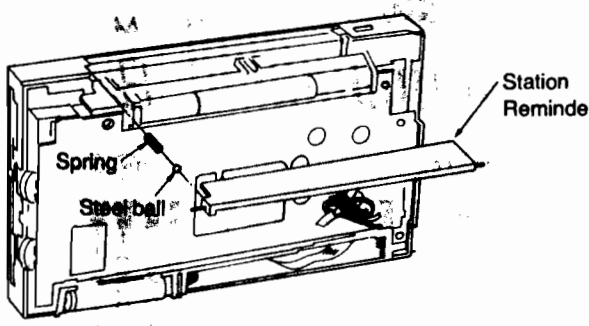
36 MW Frequency Step Selector (In the Memory Back-up Battery Compartment)

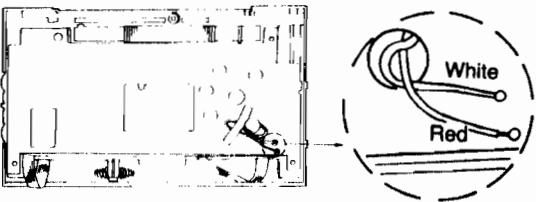
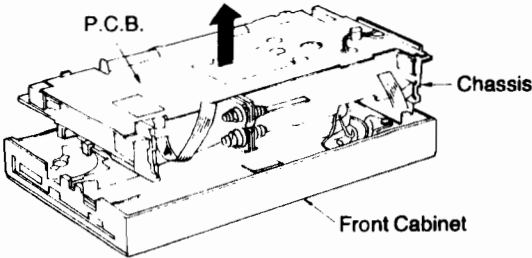
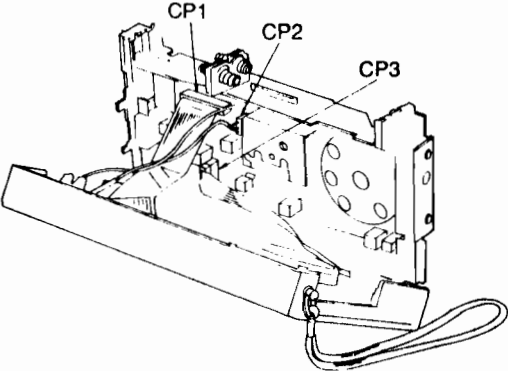
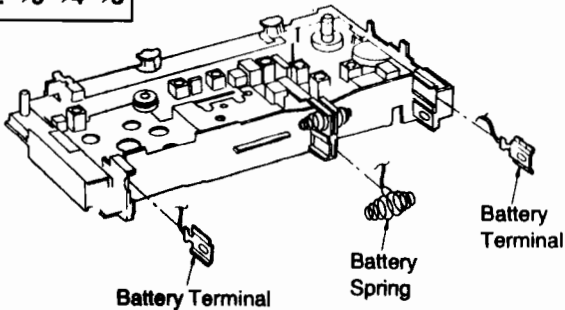
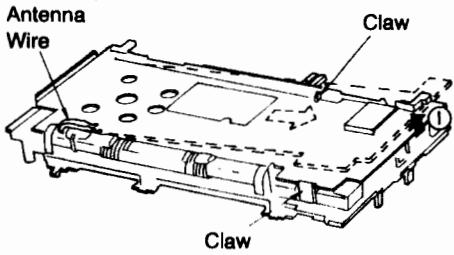
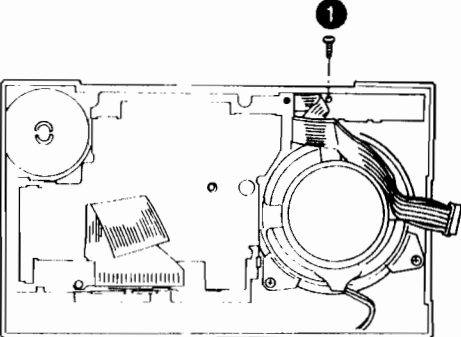
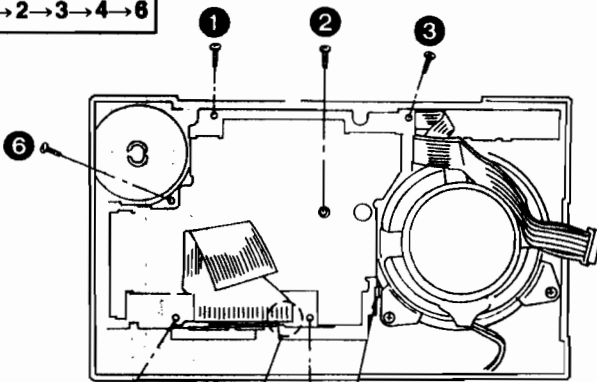
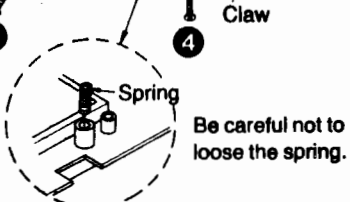
Before use, check that the selector is set to the frequency step corresponding to your area.
If not so, set the selector to the correct position.

37 World Time Table

38 Stand/Short Wave Frequency Allocation

DISASSEMBLY INSTRUCTIONS

<p>Ref. No. 1</p>	<p>Removal of the Telescopic Antenna</p>	<p>Ref. No. 2</p>	<p>Removal of the Rear Cabinet</p>
<p>Procedure 1</p>	 <p>1. Remove the screw ①. 2. Remove the Telescopic Antenna in the direction of the arrow.</p>	<p>Procedure 1→2</p>  <p>1. Remove the 2 screws (①, ②). 2. Remove the 5 screws (③-⑦).</p>	
<p>Ref. No. 3</p>	<p>Removal of the Station Reminder</p>		
<p>Procedure 1→2→3</p>	 <p>1. Open the Station Reminder.</p>	 <p>2. Remove the Station Reminder. Be careful not to loose the steel ball and the spring.</p>	

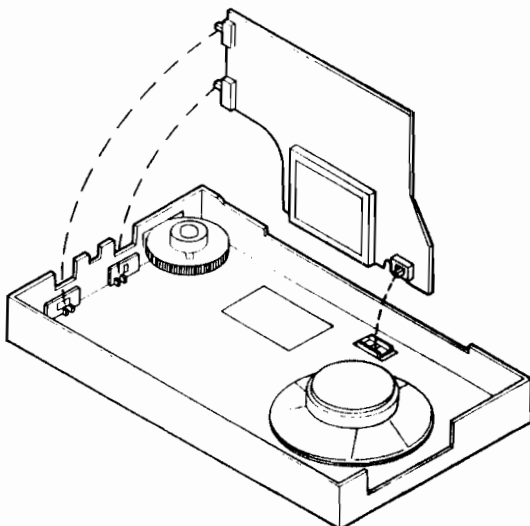
<p>Ref. No. 4</p>	<p>Removal of the Chassis</p>	<p>Ref. No. 5</p>	<p>Removal of the Main P.C.B.</p>
<p>Procedure 1→2→3→4</p>	 <p>1. Remove the solder from speaker terminal.</p>  <p>2. Remove the chassis and P.C.B.</p>  <p>3. Remove the connector (CP1, CP2, CP3).</p>	<p>Procedure 1→2→3→4→5</p>	 <p>1. Remove the 2 battery terminals and battery spring.</p>  <p>2. Remove the 2 claws and then remove the Main P.C.B. in the direction of the arrow.</p>
<p>Ref. No. 7</p>	<p>Removal of the Power Switch P.C.B.</p>	<p>Ref. No. 6</p>	<p>Removal of the L.C.D. P.C.B.</p>
<p>Procedure 1→2→3→4→7</p>	 <p>● Remove the screw (1).</p>	<p>Procedure 1→2→3→4→6</p>	  <p>1. Remove the 6 screws (1~6).</p> <p>2. Remove the claw.</p>

Ref. No. 8	Removal of the Buttons and Knobs
Procedure 1→2→3→4→6 →8	<ol style="list-style-type: none"> 1. Remove the claws in the direction of the arrow ①. 2. Remove the button or knob in the direction of the arrow ②.

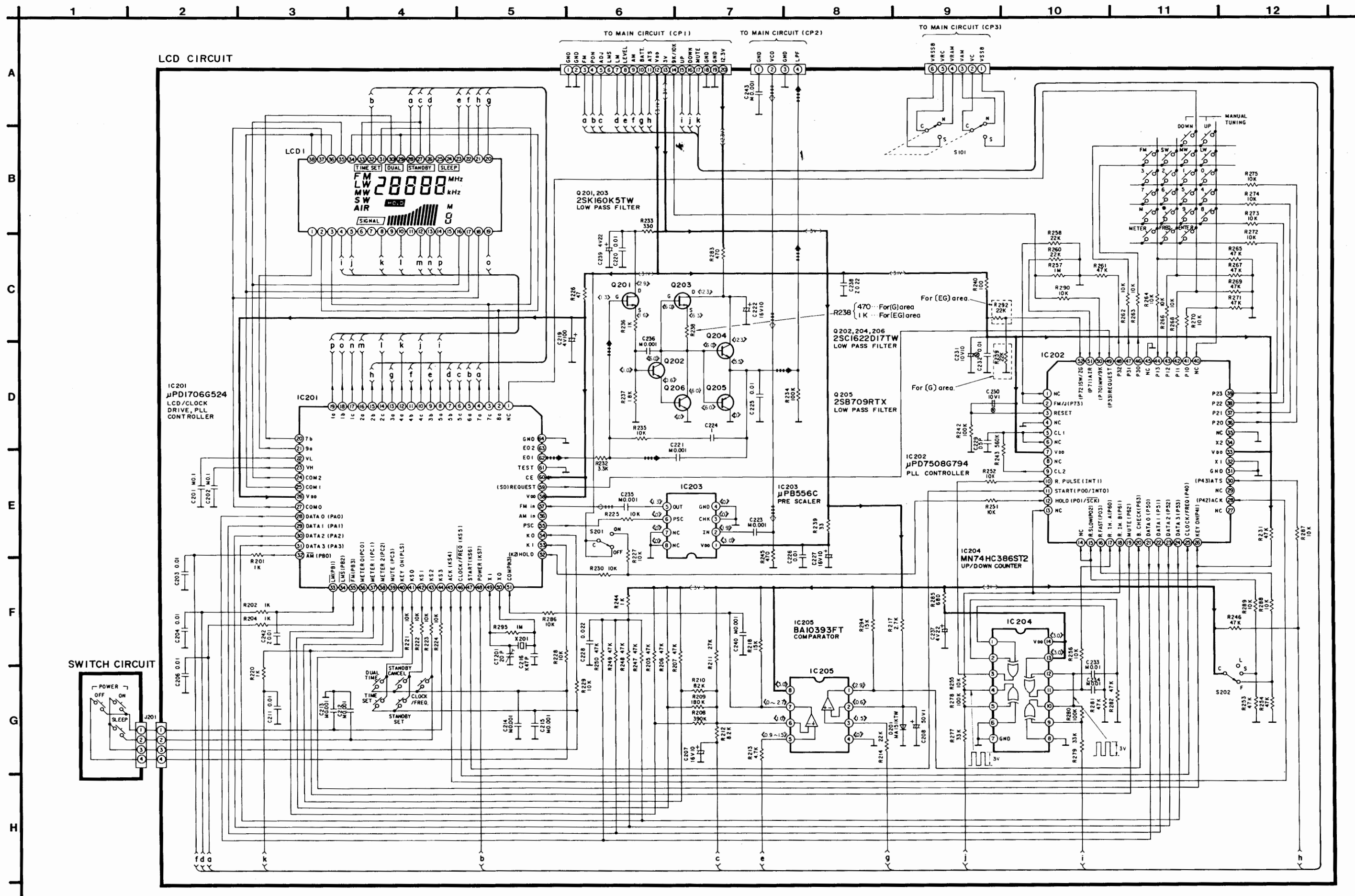
Ref. No. 9	Removal of the Speaker
Procedure 1→2→3→4→9	<p>● Remove the 2 screws (①, ②).</p>

Ref. No. 10	Removal of the Tuning Knob
Procedure 1→2→3→4→10	<ol style="list-style-type: none"> 1. Remove the 2 claws in the direction of the arrow. 2. Remove the Tuning Knob in the direction of the arrow.

■ L.C.D. P.C.B. Assembly



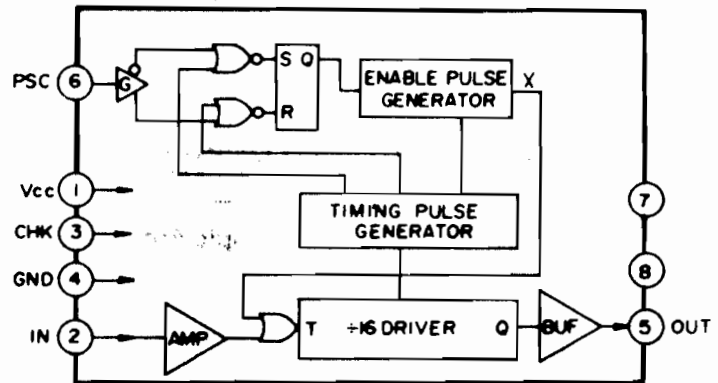
SCHEMATIC DIAGRAM (for LCD Circuit Section and Switch Circuit Section)



Notes:

1. S101: AM mode select switch in "NORMAL" position.
(N...NORMAL, S...SSB)
 2. S201: Hold switch.
 3. S202: Rotary tuning step select switch in "FAST" position.
(L...LOCK, S...SLOW, F...FAST)
 4. DC voltage measurement are taken with electronics voltmeter from negative terminal of battery.
 << >> ...SW position
- The supply parts number is described alone in the replacement parts list.
 - This schematic diagram may be modified at any time with the development of new technology.

IC203 RVIUPB556C



- ➔ +B Voltage Line
- ◻ FM, LW, MW, SW VCO In Line
- ◻ FM, LW, MW, SW Vcap Out Line

LIQUID CRYSTAL DISPLAY (LCD)

1) The LCD and IC201 are connected in the following way:

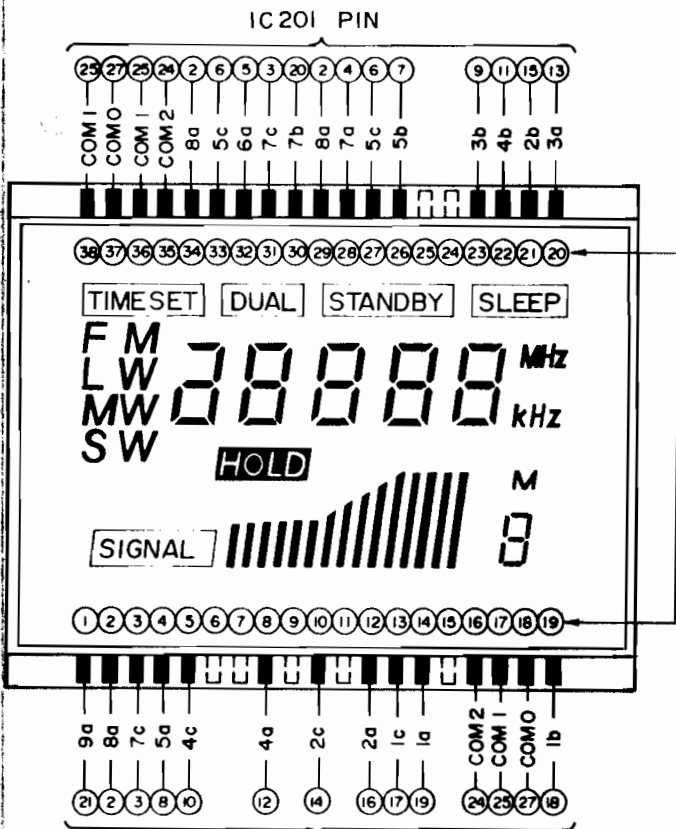


Fig. 1

2) The common and segment terminals of the LCD are connected in the following way:

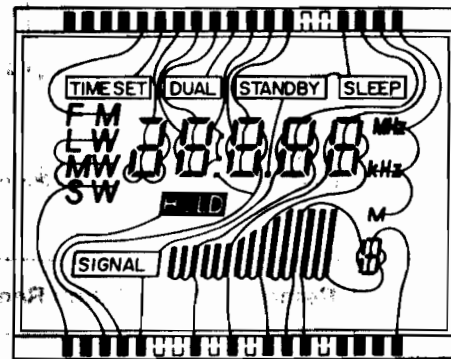


Fig. 2 (Segment)

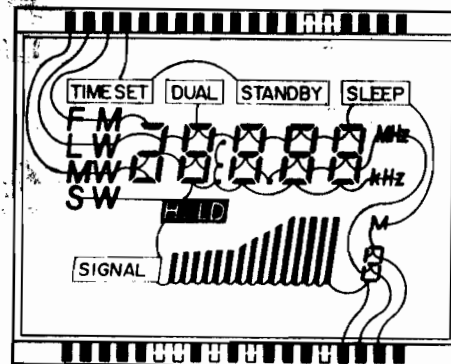
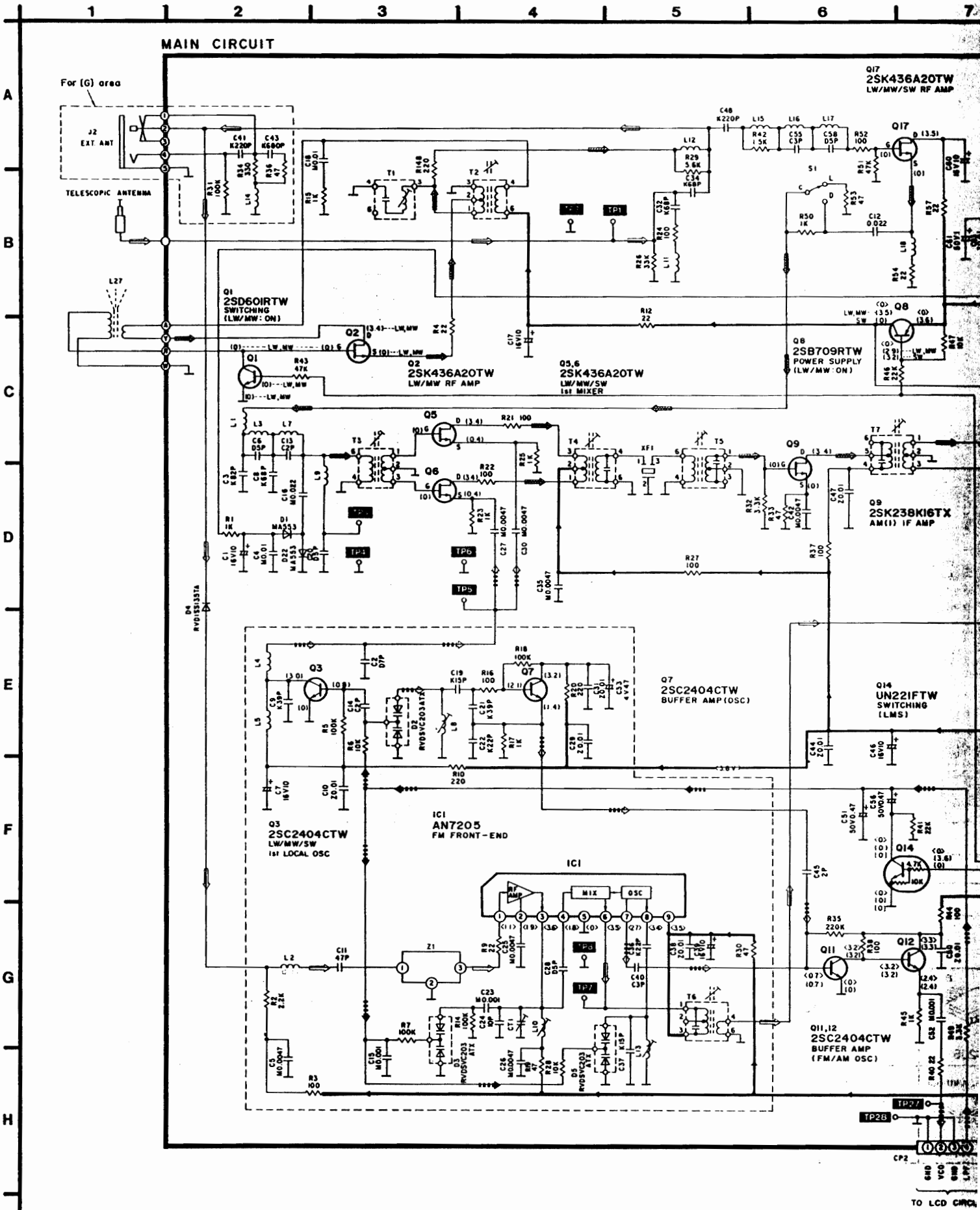
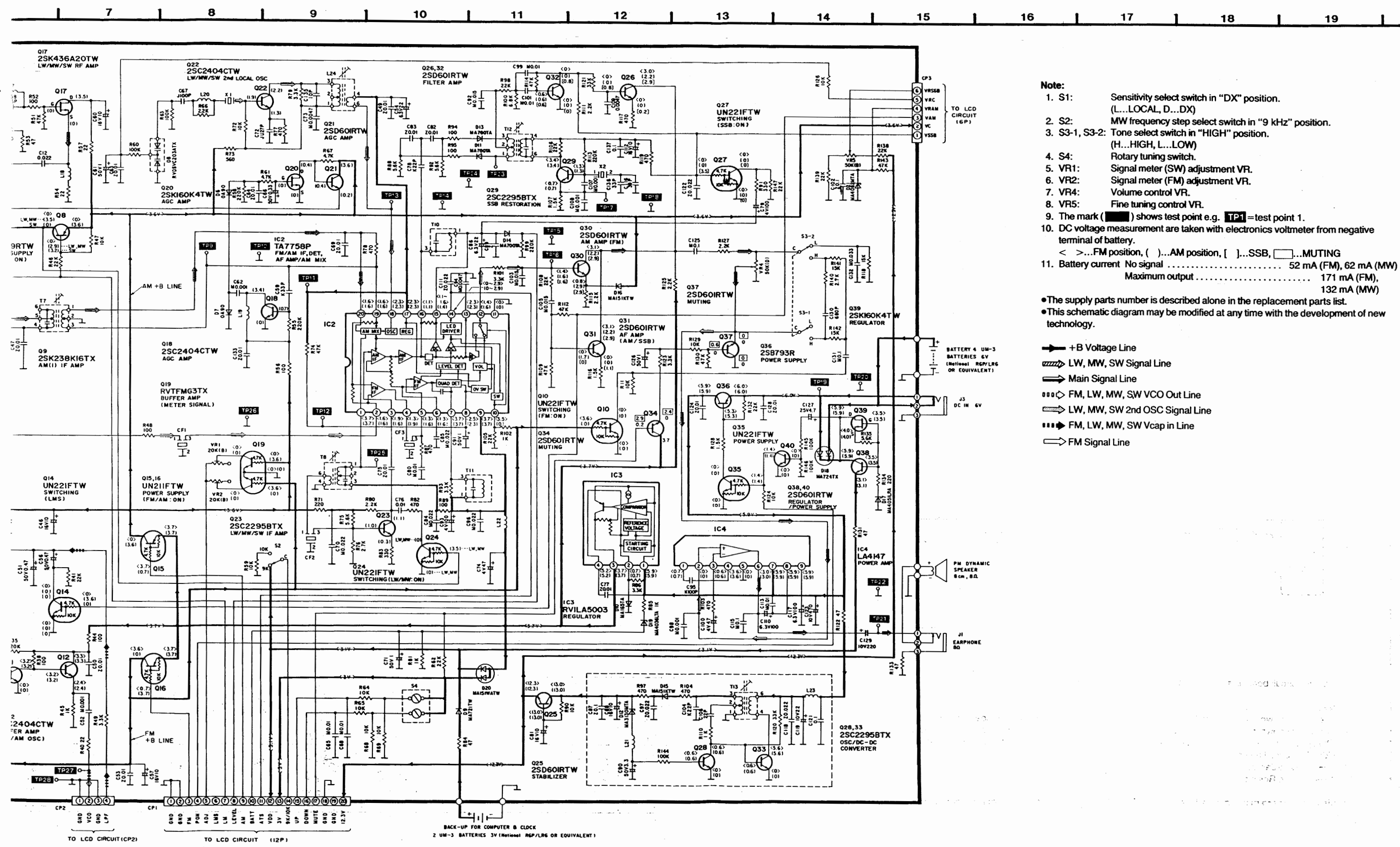


Fig. 3 (Common)

SCHEMATIC DIAGRAM (for Main Circuit Section)

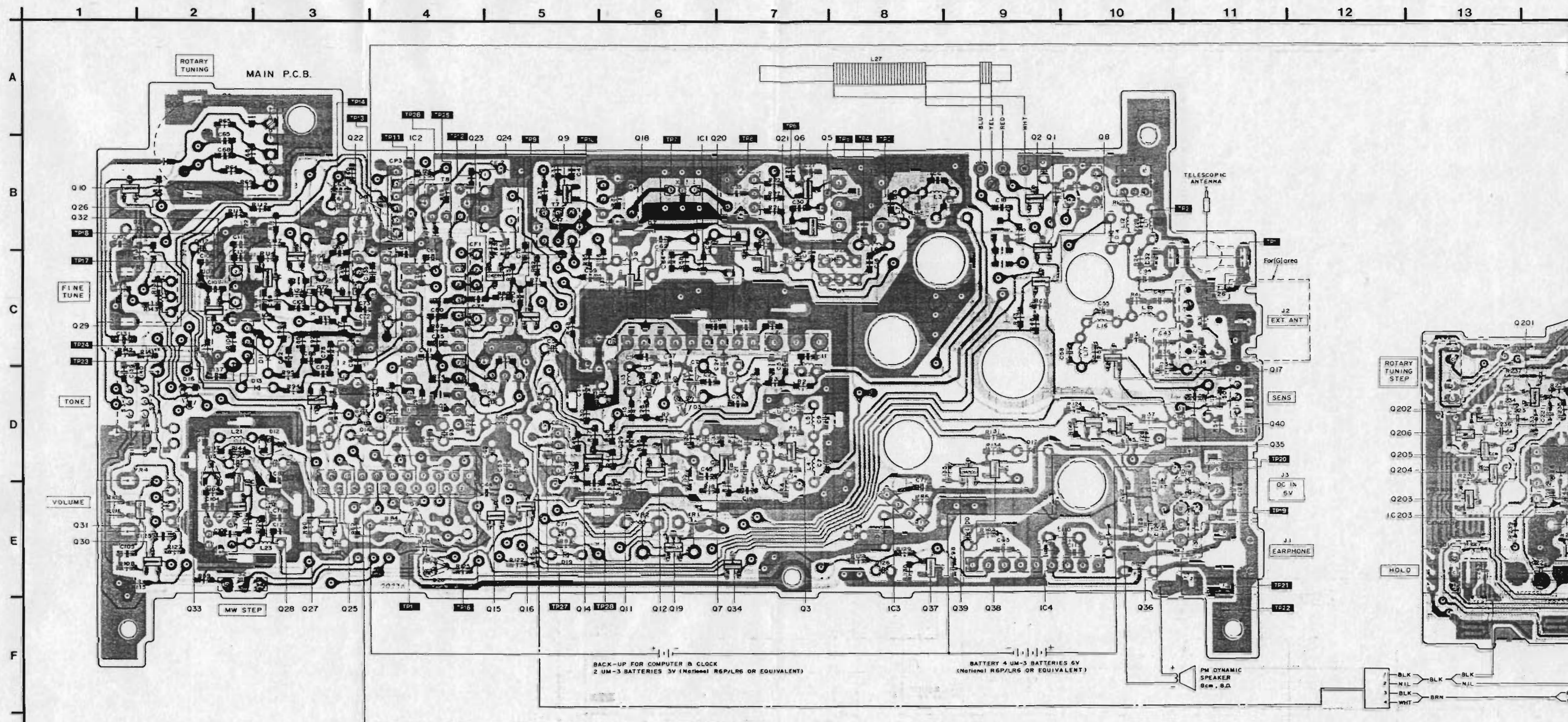




- Note:**
- S1: Sensitivity select switch in "DX" position. (L...LOCAL, D...DX)
 - S2: MW frequency step select switch in "9 kHz" position.
 - S3-1, S3-2: Tone select switch in "HIGH" position. (H...HIGH, L...LOW)
 - S4: Rotary tuning switch.
 - VR1: Signal meter (SW) adjustment VR.
 - VR2: Signal meter (FM) adjustment VR.
 - VR4: Volume control VR.
 - VR5: Fine tuning control VR.
 - The mark (■) shows test point e.g. TP1 = test point 1.
 - DC voltage measurement are taken with electronics voltmeter from negative terminal of battery.
 < >...FM position, ()...AM position, []...SSB, □...MUTING
 - Battery current No signal 52 mA (FM), 62 mA (MW)
 Maximum output 171 mA (FM), 132 mA (MW)
- The supply parts number is described alone in the replacement parts list.
 •This schematic diagram may be modified at any time with the development of new technology.

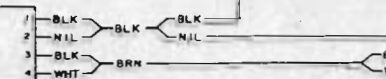
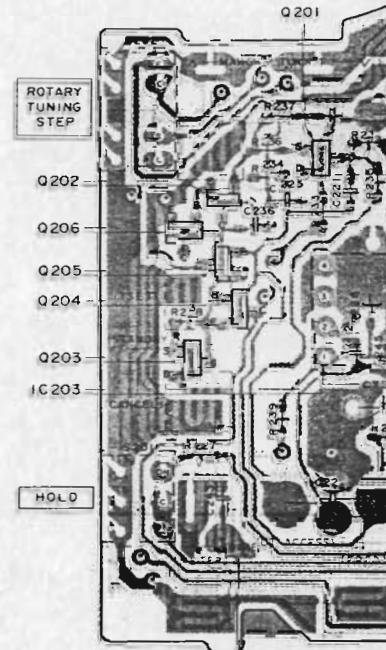
- ➔ +B Voltage Line
- ⚡ LW, MW, SW Signal Line
- ➔ Main Signal Line
- ⦿ FM, LW, MW, SW VCO Out Line
- ⚡ LW, MW, SW 2nd OSC Signal Line
- ⦿ FM, LW, MW, SW Vcap in Line
- ➔ FM Signal Line

CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM



BACK-UP FOR COMPUTER & CLOCK
2 UM-3 BATTERIES 3V (National R6P/LR6 OR EQUIVALENT)

BATTERY 4 UM-3 BATTERIES 6V
(National R6P/LR6 OR EQUIVALENT)

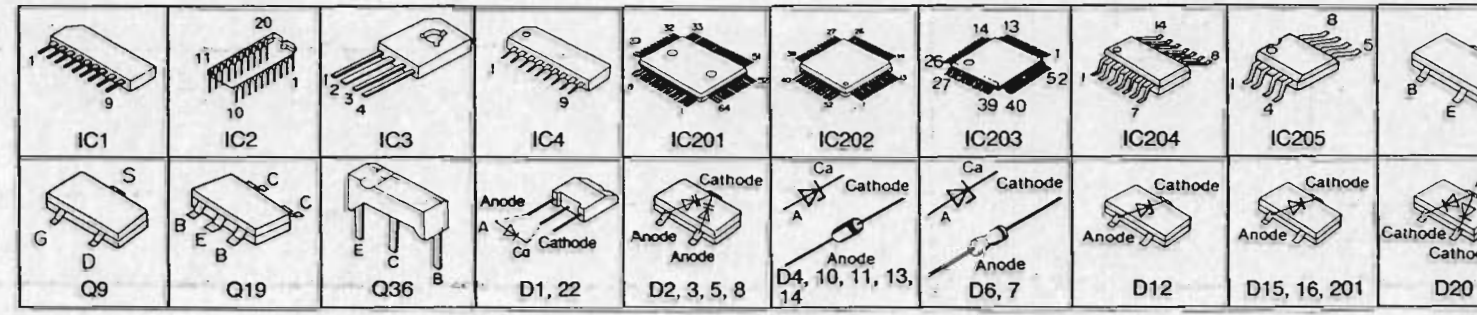


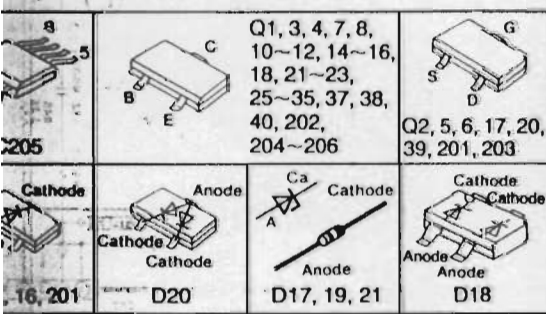
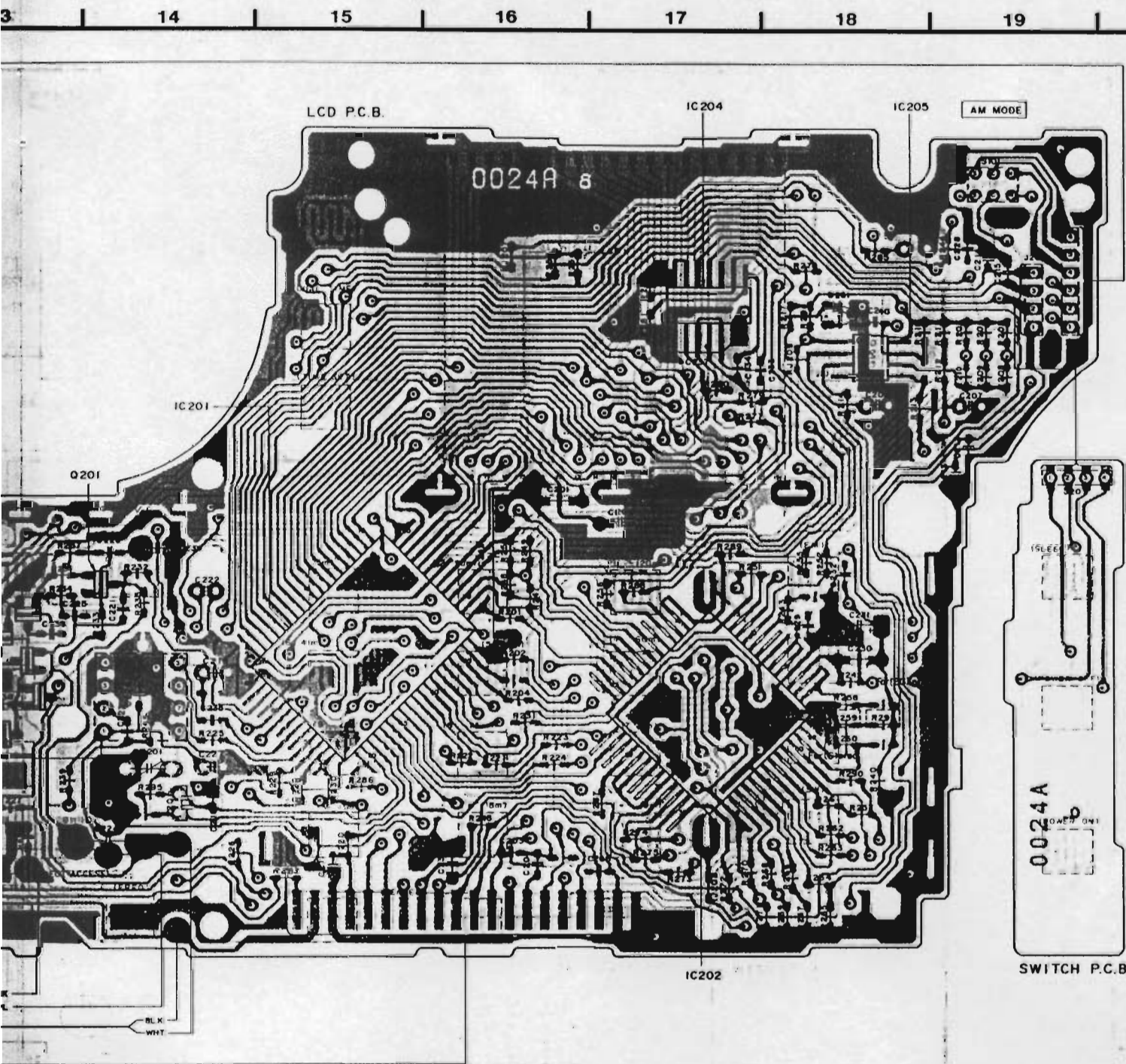
This printed circuit board is shown from the back side of chip parts.

Notes:

1. The circuit shown in () on the conductor indicates printed circuit on the back side of the printed circuit board.
2. The circuit shown in () on the conductor indicates printed circuit on the front side of the printed circuit board.
3. The symbols (●) shown in the circuit board indicate connection points between conductors on the front side and back side of the circuit board.
4. ● : Chip Jamper.
5. ● : Chip Resistor.

•This circuit board diagram may be modified at any time with the development of new technology.





- NOTES:**
- BLK Black
 - BLU Blue
 - BRN Brown
 - GRY Gray
 - GRN Green
 - L.BLU Light Blue
 - ORG Orange
 - PNK Pink
 - RED Red
 - SLD Shield Wire
 - VLT Violet
 - WHT White
 - YEL Yellow

MEASUREMENTS AND ADJUSTMENTS

■ ALIGNMENT INSTRUCTIONS

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Note:

- | | | |
|--|---|---------------------|
| 1. Set power on switch to ON. | 9. Set SSB switch to OFF or ON. | |
| 2. Set display select switch to FREQUENCY. | 10. Set power source voltage to 6 V DC. | |
| 3. Set volume control to MAXIMUM. | 11. Memorize the following frequency. | |
| 4. Set tone select switch to HIGH. | FM CH1...87.5 MHz | LW CH1...155 kHz |
| 5. Set hold switch to OFF. | CH2...90.0 MHz | CH2...450 kHz |
| 6. Set sens switch to DX. | CH3...98.0 MHz | CH3...459 kHz |
| 7. Set MW frequency step select switch to 9 kHz. | CH4...106.0 MHz | MW CH1...605 kHz |
| 8. Set band switch to LW, MW, SW or FM. | CH5...108.0 MHz | SW CH1...10,000 MHz |
| | CH6...94.0 MHz | CH2...15,000 MHz |
| | | CH3...29,999 MHz |

EQUIPMENT REQUIRED

- | | |
|-----------------------------------|--------------------------|
| 1. Frequency counter. | 4. DC digital voltmeter. |
| 2. Oscilloscope (Dual dimension). | 5. Ampere meter. |
| 3. RF voltmeter. | 6. Signal generator. |

■ FM VCO, SW VCO, SW 2nd LOCAL OSC ALIGNMENT

BAND	FREQUENCY DISPLAY SETTING	DC DIGITAL VOLTMETER	FREQUENCY COUNTER	ADJUSTMENT (Refer to Fig. 1)	REMARKS
FM VCO ALIGNMENT					
(1) FM	108.00 MHz (CH5)	TP27 ...(+) TP28 ...(-)	—	L13	Adjust L13 for 9.00 ±0.1 V reading on DC digital voltmeter.
SW VCO ALIGNMENT					
(2) SW	29,999 MHz (CH3)	"	—	L8	Adjust L8 for 10.00 ±0.1 V reading on DC digital voltmeter.
SW 2nd LOCAL OSC ALIGNMENT					
(3) SW	10,000 MHz (CH1)	—	TP13 ...(+) TP14 ...(-)	L24	Adjust L24 for 55,395 MHz (EG...55,386 MHz) ±100 Hz reading on frequency counter.

■ SSB ALIGNMENT

BAND	FREQUENCY DISPLAY SETTING	INDICATOR (ELECTRONICS VOLTMETER or OSCILLOSCOPE)	ADJUSTMENT (Refer to Fig. 1)	REMARKS
(4) SW	—	TP23 ...(+) TP24 ...(-)	T12	Adjust for maximum output.

■ FM IF, RF, AUTO STOP ZERO VOLTAGE ALIGNMENT

BAND	SIGNAL GENERATOR or SWEEP GENERATOR		FREQUENCY DISPLAY SETTING	INDICATOR (ELECTRONICS VOLTMETER or OSCILLOSCOPE)	ADJUSTMENT (Refer to Fig. 1)	REMARKS
	CONNECTIONS	FREQUENCY				
FM-IF ALIGNMENT						
(5) FM	Connect to test point TP7 through 0.001 μF. Negative side to test point TP8	10.7 MHz (400 Hz SWP.)	Point of non-interference. (on/about 90 MHz)	Connect vert. amp. of scope to test point TP16. Negative side to test point TP15.	T6 (FM 1st IFT)	Adjust of maximum amplitude. (Refer to fig. 2.)
(6) FM	"	"	"	"	T11 (FM 2nd IFT)	Adjust for maximum amplitude. (Refer to fig. 3.)

RF-B65D

BAND	SIGNAL GENERATOR or SWEEP GENERATOR		FREQUENCY DISPLAY SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT (Refer to Fig. 1)	REMARKS
	CONNECTIONS	FREQUENCY				
FM-RF ALIGNMENT						
(7) FM	Connect to test point TP1 through FM dummy antenna. Negative side to test point TP2 .	90.00 MHz	90.00 MHz (CH2)	Connect vert. amp. of scope to test point TP21 . Negative side to test point TP22 .	L10	Adjust for maximum output.
(8) FM	"	106.00 MHz	106.00 MHz (CH4)	"	CT1	Adjust for maximum output. Repeat steps (6), (7).
FM-AUTO STOP ZERO VOLTAGE ALIGNMENT						
(9) FM	Connect to test point TP1 through FM dummy antenna. Negative side to test point TP2 .	98.00 MHz (40 dB DEMOD.)	98.00 MHz (CH3)	Connect vert. amp. of scope to test point TP11 . Negative side to test point TP12 .	T11	Adjust T9 for 0 ± 0.05 V electronics voltmeter reading.

■ SW IF, LW IF TRAP ALIGNMENT

BAND	SIGNAL GENERATOR or SWEEP GENERATOR		FREQUENCY DISPLAY SETTING	INDICATOR (ELECTRONICS VOLTMETER or OSCILLOSCOPE)	ADJUSTMENT (Refer to Fig. 1)	REMARKS
	CONNECTIONS	FREQUENCY				
SW-IF (1st) ALIGNMENT						
(10) SW	TP3 ... (+) TP4 ... (-)	55,843 MHz 95 dB, 4% Mod. with 1 kHz (Frequ. Mod.)	10,000 MHz (CH1)	Connect vert. amp. of scope to test point TP9 . Negative side to test point TP10 .	T4 T5 T7	Adjust for flat and maximum output. (Refer to Fig. 4)
(11) SW	"	10,000 MHz 30% Mod. with 400 Hz (Ampli. Mod.)	10,000 MHz (CH1)	Output meter across Voice coil.	T7	Adjust for maximum output.
SW-IF (2nd) ALIGNMENT						
(12) SW	TP25 ... (+) TP26 ... (-)	450 kHz... (G) 459 kHz... (EG) 30% Mod. with 400 Hz.	Point of noninterference. (on/about 600 kHz).	Connect vert. amp. of scope to test point TP16 . Negative side to test point TP15 .	T8 T10	Adjust for maximum output.
LW-IF TRAP ALIGNMENT						
(13) LW	Fashion loof of several turns of wire and radiate signal into loop of receiver.	450 kHz... (G) 459 kHz... (EG) 40 dB, 30% Mod. with 400 Hz	450 kHz... (G) 459 kHz... (EG) (CH2)	Output meter across Voice coil.	T1 (Trap Coil)	Adjust for maximum output.

■ SIGNAL METER ALIGNMENT

BAND	SIGNAL GENERATOR or SWEEP GENERATOR		FREQUENCY DISPLAY SETTING	ADJUSTMENT (Refer to Fig. 1)	REMARKS
	CONNECTIONS	FREQUENCY			
(14) FM	Fashion loof of several turns of wire and radiate signal into loop of receiver.	94.00 MHz (30 dB)	94.00 MHz (CH6)	VR2	●Adjust VR2 50 that the all signal indicator appears. (Refer to Fig. 6)
(15) SW	"	15,000 MHz (45 dB)	15,000 MHz (CH2)	VR1	●Adjust VR1 so that the all signal indicator appears. (Refer to Fig. 6)

■ CLOCK ALIGNMENT

BAND	FREQUENCY DISPLAY SETTING	FREQUENCY COUNTER	ADJUSTMENT (Refer to Fig. 5)	REMARKS																							
(16) SW	29,999 MHz...(G) 26,100 MHz...(EG)	TP5...(+) TP6...(-)	CT201	Adjust the frequencies according to room temperature. <table border="1"> <thead> <tr> <th>Room Temperature</th> <th>Area</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td rowspan="2">8°C ≤ 1 < 22°C</td> <td>(EG)</td> <td>81,845000 MHz ± 300 Hz</td> </tr> <tr> <td>(G)</td> <td>85,844000 MHz ± 300 Hz</td> </tr> <tr> <td rowspan="2">22°C ≤ 1 < 26°C</td> <td>(EG)</td> <td>81,944800 MHz ± 300 Hz</td> </tr> <tr> <td>(G)</td> <td>85,843800 MHz ± 300 Hz</td> </tr> <tr> <td rowspan="2">26°C ≤ 1 < 30°C</td> <td>(EG)</td> <td>81,944500 MHz ± 300 Hz</td> </tr> <tr> <td>(G)</td> <td>85,843500 MHz ± 300 Hz</td> </tr> <tr> <td rowspan="2">30°C ≤ 1 < 33°C</td> <td>(EG)</td> <td>81,944100 MHz ± 300 Hz</td> </tr> <tr> <td>(G)</td> <td>85,843100 MHz ± 300 Hz</td> </tr> </tbody> </table>	Room Temperature	Area	Frequency	8°C ≤ 1 < 22°C	(EG)	81,845000 MHz ± 300 Hz	(G)	85,844000 MHz ± 300 Hz	22°C ≤ 1 < 26°C	(EG)	81,944800 MHz ± 300 Hz	(G)	85,843800 MHz ± 300 Hz	26°C ≤ 1 < 30°C	(EG)	81,944500 MHz ± 300 Hz	(G)	85,843500 MHz ± 300 Hz	30°C ≤ 1 < 33°C	(EG)	81,944100 MHz ± 300 Hz	(G)	85,843100 MHz ± 300 Hz
Room Temperature	Area	Frequency																									
8°C ≤ 1 < 22°C	(EG)	81,845000 MHz ± 300 Hz																									
	(G)	85,844000 MHz ± 300 Hz																									
22°C ≤ 1 < 26°C	(EG)	81,944800 MHz ± 300 Hz																									
	(G)	85,843800 MHz ± 300 Hz																									
26°C ≤ 1 < 30°C	(EG)	81,944500 MHz ± 300 Hz																									
	(G)	85,843500 MHz ± 300 Hz																									
30°C ≤ 1 < 33°C	(EG)	81,944100 MHz ± 300 Hz																									
	(G)	85,843100 MHz ± 300 Hz																									

■ ALIGNMENT POINT

● Please refer to Circuit Board and Wiring Connection Diagram for test point locations.

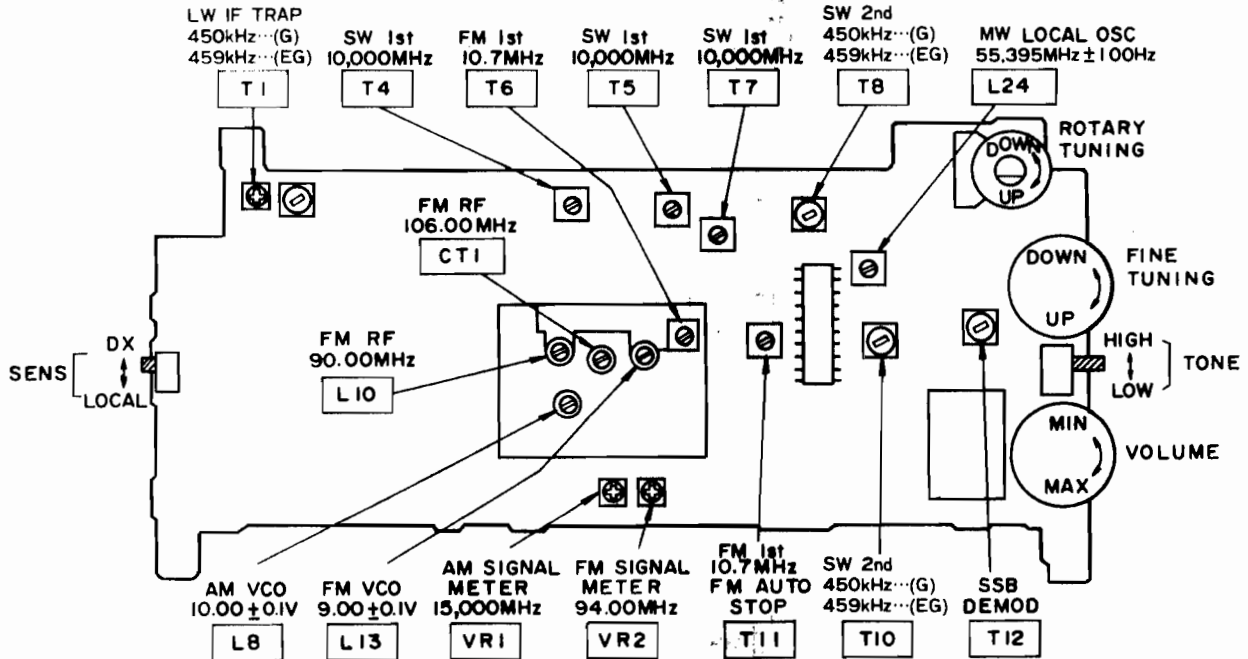


Fig. 1

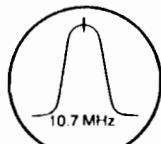


Fig. 2



Fig. 3

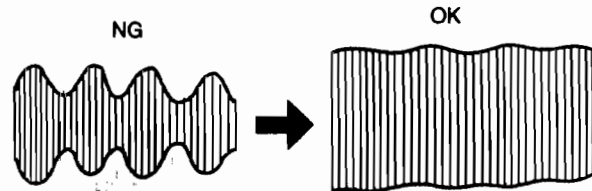


Fig. 4

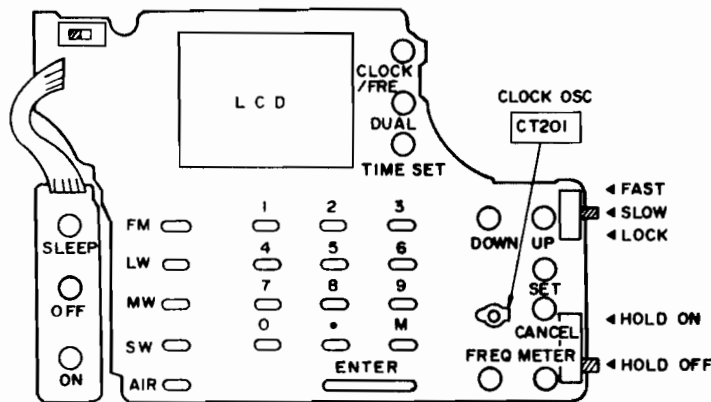
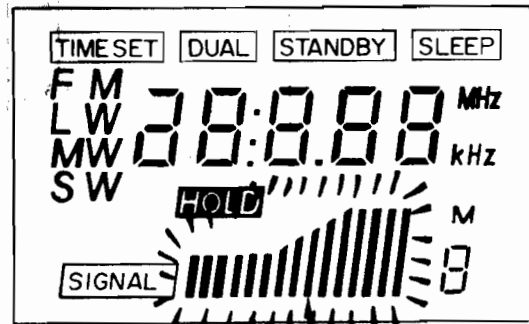


Fig. 5



Signal Indicator

Fig. 6

RF-B65D

IC TERMINAL FUNCTION

■ IC201 (UPD1706G524)

1) Terminal view

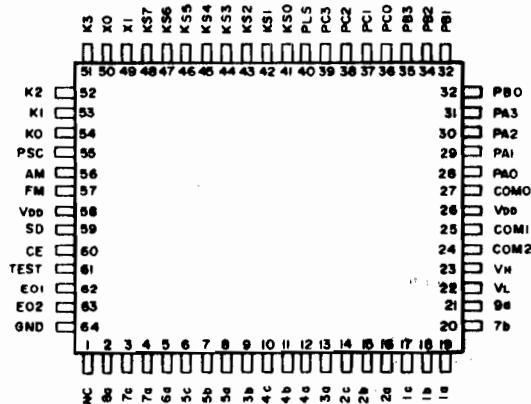


Fig. 1

2) Block diagram

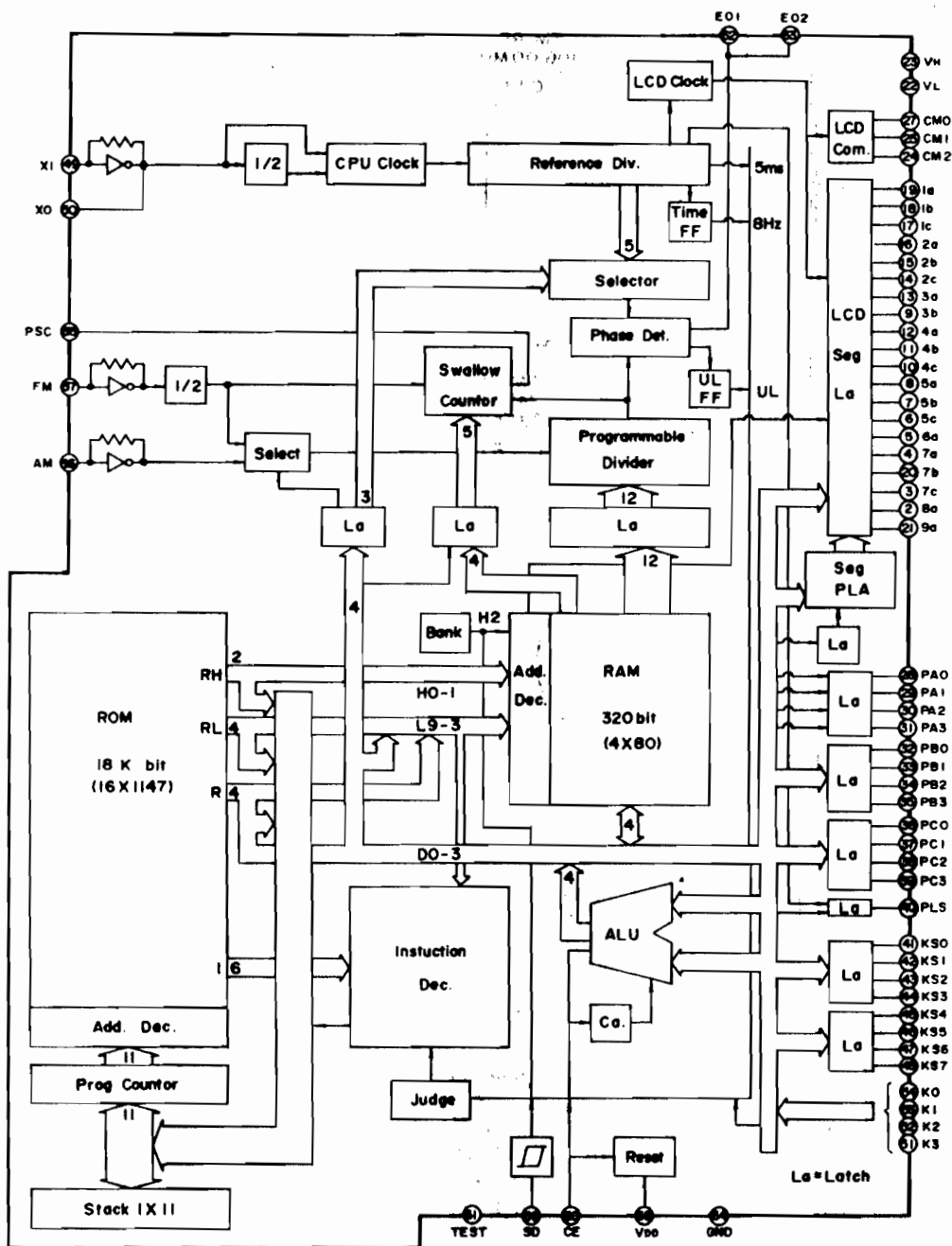
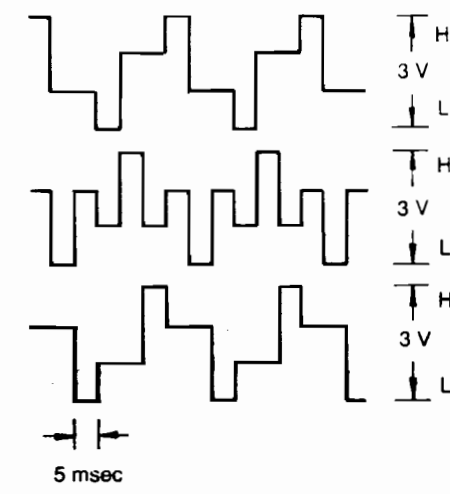
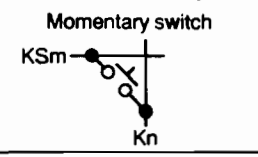
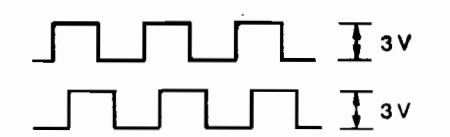


Fig. 2

3) Explanation of each terminal

Pin. No.	Symbol	Description
2~21	1a~9a, 1b~5b, 7b 1c, 2c, 4c, 5c, 7c	Output terminals for LCD segment signals. (1/2 duty and 1/4 bias LCD drive.) Refer to Fig. 3 for output waveforms.
22 23	V _L V _H	Intermediate voltage output terminals for LCD. In this model, a 0.1 μF capacitor is connected to stabilize the intermediate voltage.
24 25 27	COM2 COM1 COMφ	Terminals for LCD common signal output. 
26, 58	V _{cc}	A voltage of 3 V ± 10% supply to this terminal during device.
28~31	PA0~PA3	Data signal output terminal.
32 33 34 35	PBφ PB1 PB2 PB3	Band select output terminals. Outputs a low signal during LW, MW and SW. Outputs a low signal during LW and MW. Outputs a low signal during LW, MW and SW. Outputs a low signal during FM.
36 37 38	PCφ PC1 PC2	Level meter comparator output terminals.
39	PC3	Muting output terminal. The noise generated from the speaker when the power is turned on and off is muted.
40	PLS	Key on terminal. Outputs a low when a key on the IC201 side is pressed.
41~44	KSφ~KS3	Key return signal source output terminals for momentary switch on the key matrix. 
45 59	KS4 SD	Accept signal output terminal for data to IC202. High during operation. Transfer request signal output terminal or data to IC202. High during operation. 

Pin. No.	Symbol	Description
46	KS5	Status control output terminal for IC202. High during time setting.
47	KS6	Automatic control output terminal for IC202. High when power is on and during times setting.
48	KS7	Radio power on/off output terminal. High when radio is on.
49 50	X1 Xφ	Terminals used for connecting a quartz oscillator. Connects a 150 kHz quartz oscillator.
51	K3	Level meter comparator input terminal.
52	K2	Hold signal input terminal.
53 54	K1 Kφ	Terminals for key matrix key return signal input.
55	PSC	Select signal output terminal for prescaler divider ratio. This terminal generates pulses at the leading edge of the signal applied to the FM terminal (pin 57) and continues to do so until the contents of the internal swallow counter are 0. At this time, the divider ratio of the prescaler is 1/17. When the contents of the swallow counter become 0, this terminal goes low and the divider ratio of the prescaler becomes 1/16.
57	FM	Input terminal for the FM local oscillator (VCO) output divided by 1/16 or 1/17 by the prescaler.
60	CE	Device select signal input terminal. Set the terminal high to select a device and low to deselect a device.
61	TEST	Terminal to test the device. Normally connected to "GND".
62	E02	PLL error output terminal. The output signal is output to the LPF (Q201~Q206). If the divided oscillation frequency is higher than the standard frequency, a high signal is output. If lower, a low signal is output. If the same, the terminal floats.
64	GND	Ground terminal.

4) Output signal waveforms of LCD segment

These output signal waveforms are produced when the frequency is SW 15,000 MHz, waveforms of the segments vary with frequency.

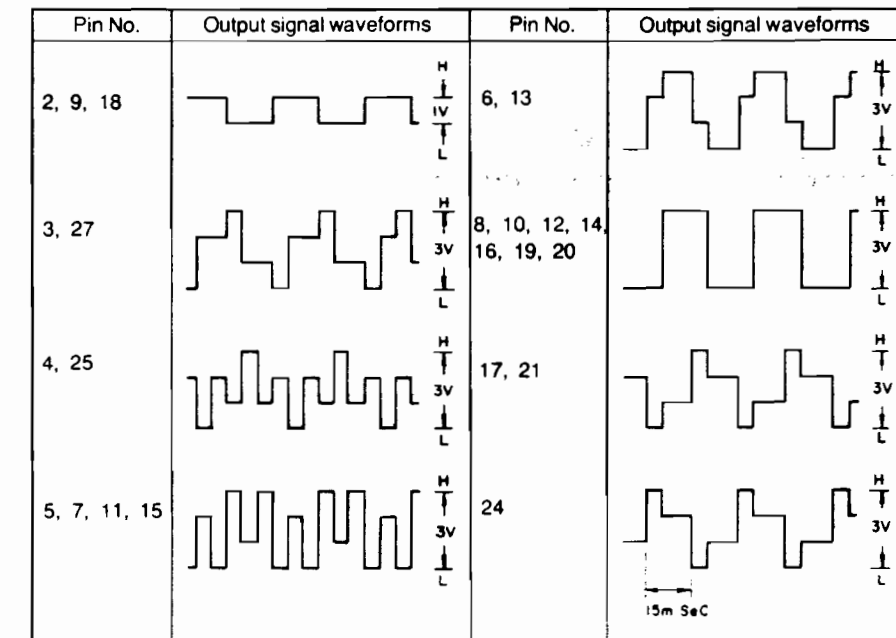


Fig. 3

■ IC202 (UPD7508G794)

1) Terminal view
 μPD7508G732 (IC202)

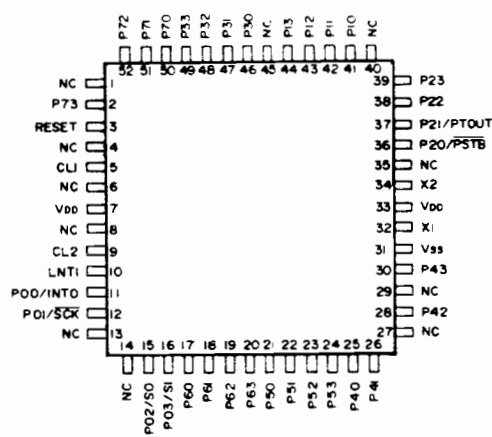


Fig. 4

2) Block diagram

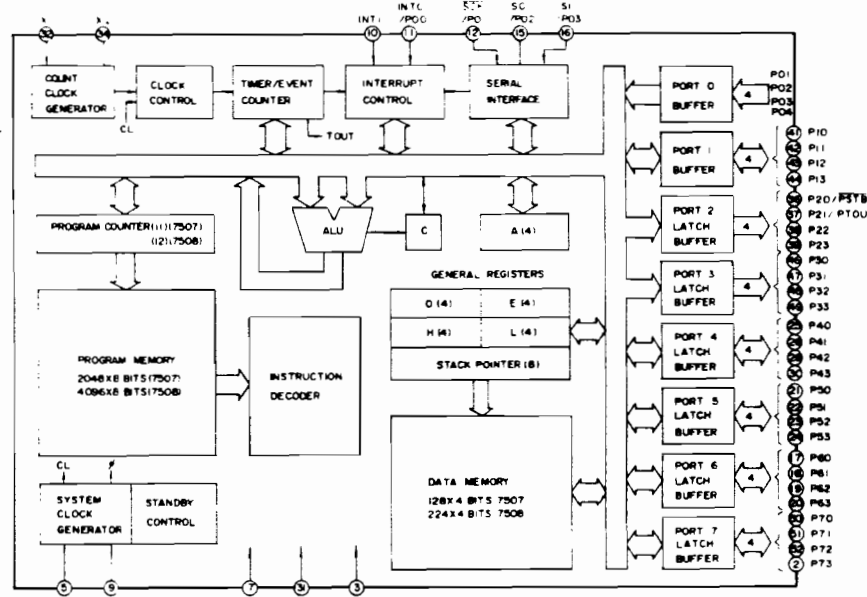


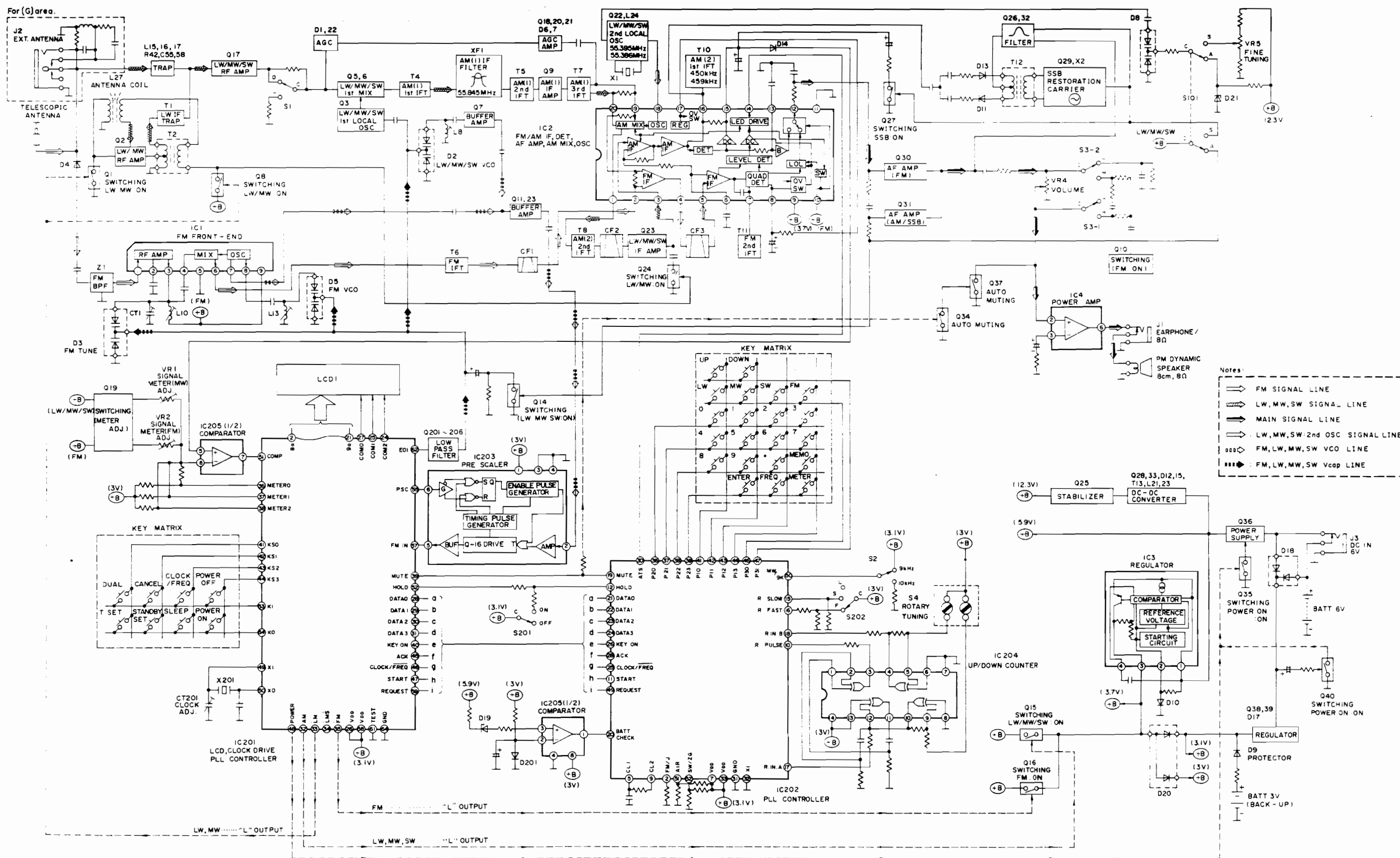
Fig. 5

3) Explanation of each terminal

Pin No.	Symbol	Description
2	P73	FM receiving frequency select terminal. Low=87.5-108.0 MHz (for main unit) High=76.0-108.0 MHz
3	REST	Reset signal input terminal.
5	CL1	Clock signal input terminal.
7, 33	V ₀₀	A voltage of 3 V ± 10% supply to this terminal during device.
9	CL2	Clock signal output terminal.
10 17 18	INT1 P60 P61	Trigger pulse input terminal for rotary tuning. Data input terminal for rotary tuning. Data input terminal for rotary tuning. During the down mode (leading edge of the rotary pulse, ROTARY INPUT A=ROTARY INPUT B):
10	Pin (ROTARY PULSE)	
17	Pin (ROTARY IN. A)	
18	Pin (ROTARY IN. B)	
		max. 85 μs
		During the up mode (leading edge of the rotary pulse, ROTARY INPUT A=ROTARY INPUT B):
10	Pin (ROTARY PULSE)	
17	Pin (ROTARY IN. A)	
18	Pin (ROTARY IN. B)	

Pin No.	Symbol	Description
11	PO0/INTO	Start signal input terminal.
12	PO1/SCK	Hold input terminal. A high signal sets the key lock mode.
15	PO2/S0	Rotary tuning speed select input terminal. High for slow and low for lock.
16	PO3/S1	Rotary tuning speed select input terminal. High for fast and low for lock.
19	P62	Tuning output terminal. During rotary tuning or manual tuning (up or down), a high signal is output from this terminal.
20	P63	Battery 4 V check input terminal. Monitors in intervals of 100 μs. If low for 3 consecutive times, a flashing "E" is displayed and 7 seconds later the power is switched off.
21-24	P50-P53	Data signal output terminal.
25	P40	CLOCK/FREQ display input terminal. High for "CLOCK" display and low for "FREQ" display.
26	P41	Key on terminal. Low when a key on the IC201 side is pressed.
28 49	P42 P33	Accept signal input terminal for data from IC201. High during operation. Transfer request signal input terminal for data from IC201. High during operation.
30	P43	ATS (Auto scan stop) input terminal. If a low signal is input during auto scan for 118 msec or longer, the scan stops.
31	GND	Ground terminal.
32	X1	Ground terminal.
36-39 46 47	PSTB/P20-P23 P30 P31	Key return signal source output terminals for the momentary switches in the key matrix.
41-44	P10-P13	Terminals for key matrix key return signal input.
50	P70	MW 9/10 kHz select terminal. High for 9 kHz and low for 10 kHz.
51	P71	Air band country select terminal. High for Japan and low for other countries.
52	P72	SW band country select terminal. High for Germany and low for other countries.

BLOCK DIAGRAM



RF-B65D

RF-B65D

Notes : * Important safety notice:
 Components identified by Δ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
 * Bracketed indications in Ref.No. columns specify the area. (Refer to the first page for area.)
 Parts without these indications can be used for all areas.

Ref.No.	Part No.	Part Name & Description	Remarks	Ref.No.	Part No.	Part Name & Description	Remarks
INTEGRATED CIRCUITS							
IC1	AN7205	IC, FRONT END		Q35	UN221FTW	TRANSISTOR	
IC2	TA7758P	IC, FM/AM IF, DET, etc		Q36	2SB793R	TRANSISTOR	
IC3	RV1LA5003	IC, REGULATOR		Q37	2SD601RTW	TRANSISTOR	
IC4	LA4147	IC, POWER AMP		Q38	2SD601RTW	TRANSISTOR	
IC201	UPD1706G524	IC, LCD/CLOCK DRIVE, PLL		Q39	2SK160K4TW	TRANSISTOR	
IC202	UPD7508G794	IC, PLL COUNTER		Q40	2SD601RTW	TRANSISTOR	
IC203	RV1UPB556C	IC, PRE SCALER		Q201	2SK160K5TW	TRANSISTOR	
IC204	MN74HC386ST2	IC, UP/DOWN COUNTER		Q202	2SC1622D17TW	TRANSISTOR	
IC205	BA10393FT	IC, COMPARATOR		Q203	2SK160K5TW	TRANSISTOR	
TRANSISTORS							
Q1	2SD601RTW	TRANSISTOR		Q204	2SK160K5TW	TRANSISTOR	
Q2	2SK436A20TW	TRANSISTOR		Q205	2SB798TX	TRANSISTOR	
Q3	2SC2404CTW	TRANSISTOR		Q206	2SC1622D17TW	TRANSISTOR	
Q5	2SK436A20TW	TRANSISTOR		DIODES			
Q6	2SK436A20TW	TRANSISTOR		D1	MA553	DIODE	
Q7	2SC2404CTW	TRANSISTOR		D2	RVDSVC203ATX	DIODE	
Q8	2SB709RTW	TRANSISTOR		D3	RVDSVC203ATX	DIODE	
Q9	2SK238K16TX	TRANSISTOR		D4	RV1SSI35TA	DIODE	
Q10	UN221FTW	TRANSISTOR		D5	RVDSVC203ATX	DIODE	
Q11	2SC2404CTW	TRANSISTOR		D6	0A90	DIODE	
Q12	2SC2404CTW	TRANSISTOR		D7	0A90	DIODE	
Q14	UN221FTW	TRANSISTOR		D8	RVDSVC203ATX	DIODE	
Q15	UN211FTW	TRANSISTOR		D9	MA721TW	DIODE	
Q16	UN211FTW	TRANSISTOR		D10	MA165TA	DIODE	
Q17	2SK436A20TW	TRANSISTOR		D11	MA700TA	DIODE	
Q18	2SC2404CTW	TRANSISTOR		D12	MA3130MTW	DIODE	
Q19	RVTFMG3TX	TRANSISTOR		D13	MA700TA	DIODE	
Q20	2SK160K4TW	TRANSISTOR		D14	MA700TA	DIODE	
Q21	2SD601RTW	TRANSISTOR		D15	MA151KTW	DIODE	
Q22	2SC2404CTW	TRANSISTOR		D16	MA151KTW	DIODE	
Q23	2SC2295BTX	TRANSISTOR		D17	MA4051LRA	DIODE	
Q24	UN221FTW	TRANSISTOR		D18	MA724TX	DIODE	
Q25	2SD601RTW	TRANSISTOR		D19	MA4036LTA	DIODE	
Q26	2SD601RTW	TRANSISTOR		D20	MA151WATW	DIODE	
Q27	UN221FTW	TRANSISTOR		D21	MA4062MTA	DIODE	
Q28	2SC2295BTX	TRANSISTOR		D22	MA553	DIODE	
Q29	2SC2295BTX	TRANSISTOR		D201	MA151KTW	DIODE	
Q30	2SD601RTW	TRANSISTOR		VARIABLE RESISTORS			
Q31	2SD601RTW	TRANSISTOR		VR1	EVND4AA00B24	V. RESISTOR, SIGNAL METER	
Q32	2SD601RTW	TRANSISTOR		VR2	EVND4AA00B24	V. RESISTOR, SIGNAL METER	
Q33	2SC2295BTX	TRANSISTOR		VR4	EVUJ05T02B54	V. RESISTOR, VOLUME	
Q34	2SD601RTW	TRANSISTOR		VR5	EVUJ05T02B54	V. RESISTOR, BATT ERROR ADJ.	
COMPONENT COMBINATIONS							

Ref.No.	Part No.	Part Name & Description	Remarks	Ref.No.	Part No.	Part Name & Description	Remarks
Z1	RXAB7MB8L	COMPONENT COMBINATION	#Z	OSCILLATORS			
COILS							
L1	RLQZPR47MT-Y	COIL		X1	RSXB55M4W01	OSCILLATOR	<G>
L2	RLQY25SS-0	COIL		X1	RSXB55M3W01	OSCILLATOR	<EG>
L3	RLQZP1R0MT-Y	COIL		X2	RSX2450H001	OSCILLATOR	<G>
L4	RLQZPR220T-Y	COIL		X2	RSX2459H001	OSCILLATOR	<EG>
L5	RLQZPR56MT-Y	COIL		X201	RSXD150K501	OSCILLATOR	
L7	RLQZP1R6MT-Y	COIL		JUMPER			
L8	RL04N253-0	COIL		RJ1	RRD18X0000V	CHIP JUMPER	
L9	RLQZP1R0MT-Y	COIL		RJ2	RRD18X0000V	CHIP JUMPER	
L10	RL04N125-0	COIL		RJ4	RRJ6GCJ000TE	CHIP JUMPER	
L11	RLQZP181KT-Y	COIL		RJ5	RRD18X0000V	CHIP JUMPER	
L12	RLQZP680KT-Y	COIL		RJ6	RRJ6GCJ000TE	CHIP JUMPER	
L13	RL04N125-0	COIL		RJ7	RRJ6GCJ000TE	CHIP JUMPER	
L14	RLQZP220KT-Y	COIL	<G>	RJ8	RRJ6GCJ000TE	CHIP JUMPER	
L15	RLQZP680KT-Y	COIL		RJ207	RRJ6GCJ000TE	CHIP JUMPER	
L16	RLQZP1R0MT-Y	COIL		RJ208	RRJ6GCJ000TE	CHIP JUMPER	
L17	RLQZPR47MT-Y	COIL		RJ209	RRJ6GCJ000TE	CHIP JUMPER	
L18	RLQZP221KT-Y	COIL		TRIMMER CAPACITORS			
L19	RLQZPR47MT-Y	COIL		CT1	RCV10AF1-S	TRIMMER CAPACITOR	
L20	RLQY1565-0	COIL		CT201	RCV20AF1-S	TRIMMER CAPACITOR	
L21	RLQZP101KT-Y	COIL		SWITCHES			
L22	RLQZP470KT-Y	COIL		S1	RSS2B43YA-M	SM, DX-LOCAL	
L23	RLQZP101KT-Y	COIL		S2	QSS1228A	SM, 9K/10K	
L24	RL03A001-T	COIL		S3	RSS2B004-Q	SM, TONE	
L27	RLF6019-0	ANT COIL		S4	EVQMHF1025B	SM, ENCODER	
TRANSFORMERS							
T1	RL12A004-T	TRANSFORMER		S101	RSS2B362A-M	SM, SSB	
T2	RLA6C1-T	TRANSFORMER		S201	RSS2B402A-Q	SM, HLD	
T3	RLA3Z11-0	TRANSFORMER		S202	RSS3B322A-A	SM, SLOW/FAST	
T4	RL13A4-M	TRANSFORMER		TERMINALS			
T5	RL13A4-M	TRANSFORMER		J1	RJJD3M82A-C	JACK, EARPHONES	
T6	RL14A4-M	TRANSFORMER		J2	RJJD5M22A-H	JACK, EXT ANT	<G>
T7	RL13A3-T	TRANSFORMER		J3	RJJB1B12-C	JACK, DC IN	
T8	RL12A35-T	TRANSFORMER		DISPLAYS			
T10	RL12A002-T	TRANSFORMER		LCD1	HLCS340	LCD	
T11	RL14A33-T	TRANSFORMER		FILTERS			
T12	RL12A003-M	TRANSFORMER		CF1	RVFSFE107MAR	CERAMIC FILTER	
T13	RL09A11-T	TRANSFORMER		CF2	RVFSFR45011	CERAMIC FILTER	<G>
FILTERS							
CF1	RVFSFE107MAR	CERAMIC FILTER		CF2	RLFASFRA5911	CERAMIC FILTER	<EG>
CF2	RVFSFR45011	CERAMIC FILTER	<G>	CF3	RVFSFE107MAR	CERAMIC FILTER	
CF3	RVFSFE107MAR	CERAMIC FILTER		XF1	RVXS5M845A	FILTER	

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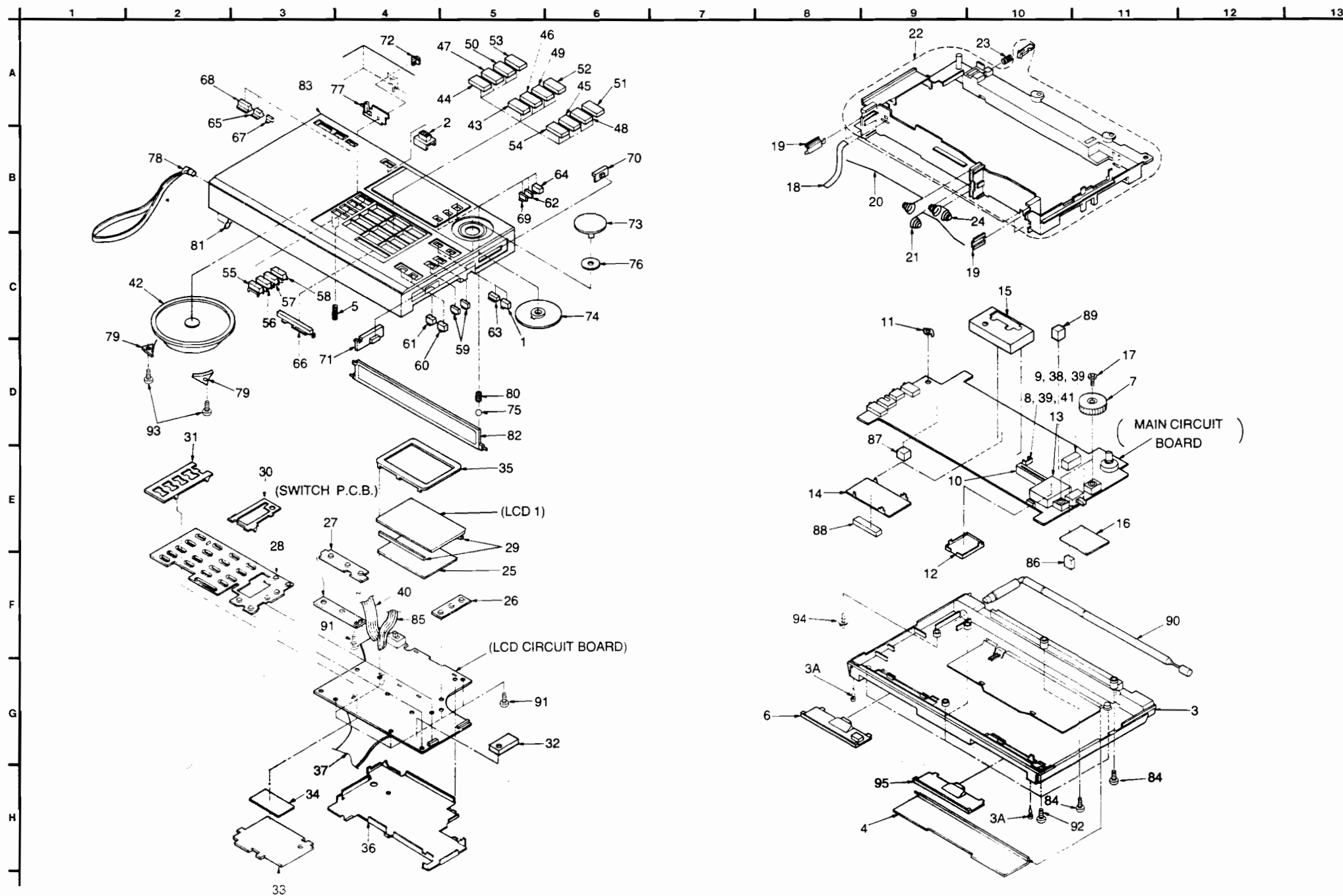
Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
CABINET AND CHASSIS							
1	RBC10292B-0	BUTTON, MANUAL TUNING (UP)		42	EASBP24S	SPEAKER	
2	RGV0011-K	KNOB, SSB		43	RBC1023PA-0	BUTTON, ()	
3	RYFFB65DG	REAR CABINET ASS'Y	<G>	44	RBC1023QA-0	BUTTON, (0)	
3	RYFFB65DEG	REAR CABINET ASS'Y	<EG>	45	RBC1023RA-0	BUTTON, (9)	
3A	RHG3842A-0	RUBBER		46	RBC1023SA-0	BUTTON, (8)	
4	RKL302A	STAND		47	RBC1023TA-0	BUTTON, (7)	
5	RLQ52ZA	SPRING		48	RBC1023UA-0	BUTTON, (6)	
6	RYNF865DG	BATTERY COMPARTMENT		49	RBC1023VA-0	BUTTON, (5)	
7	RB2602A-0	KNOB, FINE/VOL		50	RBC1023WA-0	BUTTON, (4)	
8	RJ24G182A	CONNECTOR		51	RBC1023XA-0	BUTTON, (3)	
9	RJPSG182A	CONNECTOR		52	RBC1023YA-0	BUTTON, (2)	
10	RJS20Q52A	CONNECTOR		53	RBC1023ZA-0	BUTTON, (1)	
11	RJT10732A	ANT. TERMINAL		54	RBC10230A-0	BUTTON, (0)	
12	RSC0018	SHIELD PLATE		55	RBC1024WB-0	BUTTON, BAND (SW)	
13	RSC0019	SHIELD PLATE		56	RBC1024XB-0	BUTTON, BAND (MW)	
14	RSC0020	SHIELD PLATE		57	RBC1024YB-0	BUTTON, BAND (LW)	
15	RSC0021	SHIELD PLATE		58	RBC1024ZB-0	BUTTON, BAND (FM)	
16	RSC0036	SHIELD PLATE		59	RBC1025ZA-0	BUTTON, STAND BY	
17	XSHR17-2FZ	SCREW		60	RBC1026YB-0	BUTTON, ACCESS (METER)	
18	RHS32ZA	TAPE		61	RBC1026ZB-0	BUTTON, ACCESS (FREQ.)	
19	RJC3F00102C	TERMINAL		62	RBC1027ZA-0	BUTTON, DIAL TIME	
20	RJC70012ZA	BATT. SPRING		63	RBC1028ZB-0	BUTTON, MANUAL TUNING	
21	RJC70013ZA	BATT. SPRING		64	RBC1030ZA-0	BUTTON, CLOCK/FREQ.	
22	RMD002Z-K	CHASSIS	<G>	65	RBC1031ZB-0	BUTTON, POWER OFF	
22	RMD022A-K	CHASSIS	<EG>	66	RBC1032ZB-0	BUTTON, ENTER	
23	RLQ52ZA	SPRING		67	RBC1033ZA-0	BUTTON, SLEEP	
24	RJC70014ZA	BATT. SPRING		68	RBC1034ZB-0	BUTTON, POWER ON	
25	RDX1659ZA-0	PLATE		69	RBC10412A-0	BUTTON, TIME SET	
26	RHG5043ZA	RUBBER		70	RBD429ZA-0	KNOB, SLOW FAST	
27	RHG5044ZA	RUBBER		71	RBD430ZA-0	KNOB, HOLD	
28	RHG5045ZA	RUBBER		72	RBD431ZA-0	KNOB, OPEN	
29	RHG5047ZA	RUBBER		73	RBN754ZA-0	KNOB, ROTARY TUNING	
30	RMC1099ZA	SHIELD PLATE		74	RB284ZA-0	KNOB, ROTARY TUNING	
31	RMC1100ZA	SHIELD PLATE		75	RMI56ZA	STEEL BALL	
32	RMC1101ZA	SHIELD PLATE		76	RMR2110ZA	SPACER	
33	RMC1105ZA	SHIELD PLATE		77	RMR3102ZA-0	LEVER	
34	RMC1115ZA	SHIELD PLATE		78	RKH146ZA-0	CARRING STRAP	
35	RSC0017	LCD HOLDER		79	RMS12B	HOLDER	
36	RSC0037	SHIELD PLATE		80	RLQ53ZA	SPRING	
37	RJP2118ZAM	F. P. C		81	RLJCJFY-V	C. RING	
38	RJS614ZA	CONNECTOR (6P)		82	RYFFB65DG	STATION REMINDER	
39	RJT8072B-X	TERMINAL		83	RYMFB65DG	FRONT CABINET ASS'Y	<G>
40	WB66GB-14	FLAT CABLE WIRE		83	RYMFB65DEG	FRONT CABINET ASS'Y	<EG>
41	RJSS4142A-X	SOCKET		84	RHS128ZA	SCREW	
				85	WB84GB-6	FLAT CABLE	
				86	RHG1041ZA	RUBBER	
				87	RHG1115ZA	RUBBER	

Ref. No.	Part No.	Part Name & Description	Remarks
88	RHG1175ZA	RUBBER	
89	RHG2119ZA	RUBBER	
90	XEARS147GA-Y	TELESCOPIC ANTENNA	
91	XTR2+5C	SCREW	
92	XTR26+14JFZ	SCREW	
93	XTR26+8C	SCREW	
94	XYN3-C8FZ	SCREW	
95	RKX319ZA-0	BATTERY COMPARTMENT	
ACCESSORIES			
A1	RD9496XR	AC ADAPTOR	<G> Δ
A1	RD9496S6GR	AC ADAPTOR	<EG> Δ
A2	RFC0003	SHOLDER BAG	<G>
A2	RFC0004	SHOLDER BAG	<EG>
A3	RJPI20ZDS-K	PLUG	<G> Δ
A4	RQT0046G	INSTRUCTION MANUAL	<G>
A4	RQT0046B	INSTRUCTION MANUAL	<EG>
A5	RQX9412ZA	MEMORY CHANNEL SHEET	<G>
A5	RQX9436YA	MEMORY CHANNEL SHEET	<EG>
A6	RQX9454ZA	SHORT WAVE GUIDE	
A7	RS40002	EXTERNAL ANTENNA LEAD	<G>
A8	XEHLA1-X	EARPHONE	
PACKING MATERIAL			
P1	RP682ZA	COVER	
P2	RPH54ZA	POLYETHYLENE COVER	
P3	RPMD030	SLEEVE	<G>
P3	RPMD032	SLEEVE	<EG>
P4	RPW131ZA	PAD (SET)	
P5	RPW360ZA	PAD (AC ADAPTOR)	

RF-B65D

RF-B65D

CABINET PARTS LOCATION



RF-B65D

RF-B65D

Ref. No.	Part No.	Part Name & Description	Remarks
R218	RRJ6GCJ153TE	RESISTOR 1/10 W 15K	
R220	RRJ6GCJ102TE	RESISTOR 1/10 W 1K	
R221	RRJ6GCJ103TE	RESISTOR 1/10 W 10K	
R222	RRJ6GCJ103TE	RESISTOR 1/10 W 10K	
R223	RRJ6GCJ103TE	RESISTOR 1/10 W 10K	
R224	RRJ6GCJ103TE	RESISTOR 1/10 W 10K	
R225	RRJ6GCJ103TE	RESISTOR 1/10 W 10K	
R226	RRJ6GCJ470TE	RESISTOR 1/10 W 47	
R227	RRJ6GCJ103TE	RESISTOR 1/10 W 10K	
R228	RRJ6GCJ103TE	RESISTOR 1/10 W 10K	
R228	RRJ6GCJ103TE	RESISTOR 1/10 W 10K	
R229	RRJ6GCJ103TE	RESISTOR 1/10 W 10K	
R230	RRJ6GCJ103TE	RESISTOR 1/10 W 10K	
R231	RRJ6GCJ473TE	RESISTOR 1/10 W 47K	
R232	RRJ6GCJ332TE	RESISTOR 1/10 W 3.3K	
R233	RRJ6GCJ331TE	RESISTOR 1/10 W 330	
R234	RRJ6GCJ104TE	RESISTOR 1/10 W 100K	
R235	RRJ6GCJ103TE	RESISTOR 1/10 W 10K	
R236	RRJ6GCJ102TE	RESISTOR 1/10 W 1K	
R237	RRJ6GCJ182TE	RESISTOR 1/10 W 1.8K	
R238	RRJ6GCJ102TE	RESISTOR 1/10 W 1K	
R239	RRJ6GCJ330TE	RESISTOR 1/10 W 33	
R240	RRJ6GCJ101TE	RESISTOR 1/10 W 100	
R242	RRJ6GCJ104TE	RESISTOR 1/10 W 100K	
R243	RRJ6GCJ564TE	RESISTOR 1/10 W 560K	
R244	RRJ6GCJ102TE	RESISTOR 1/10 W 1K	
R245	RRJ6GCJ471TE	RESISTOR 1/10 W 470	
R246	RRJ6GCJ473TE	RESISTOR 1/10 W 47K	
R247	RRJ6GCJ473TE	RESISTOR 1/10 W 47K	
R248	RRJ6GCJ473TE	RESISTOR 1/10 W 47K	
R249	RRJ6GCJ473TE	RESISTOR 1/10 W 47K	
R250	RRJ6GCJ473TE	RESISTOR 1/10 W 47K	
R251	RRJ6GCJ103TE	RESISTOR 1/10 W 10K	
R252	RRJ6GCJ103TE	RESISTOR 1/10 W 10K	
R253	RRJ6GCJ473TE	RESISTOR 1/10 W 47K	
R254	RRJ6GCJ473TE	RESISTOR 1/10 W 47K	
R255	RRJ6GCJ103TE	RESISTOR 1/10 W 10K	
R255	RRJ6GCJ103TE	RESISTOR 1/10 W 10K	
R257	RRJ6GCJ105TE	RESISTOR 1/10 W 10K	
R258	RRJ6GCJ223TE	RESISTOR 1/10 W 22K	
R259	RRJ6GCJ223TE	RESISTOR 1/10 W 22K	
R260	RRJ6GCJ223TE	RESISTOR 1/10 W 22K	
R261	RRJ6GCJ473TE	RESISTOR 1/10 W 47K	
R262	RRJ6GCJ103TE	RESISTOR 1/10 W 10K	
R263	RRJ6GCJ103TE	RESISTOR 1/10 W 10K	
R264	RRJ6GCJ103TE	RESISTOR 1/10 W 10K	
R265	RRJ6GCJ473TE	RESISTOR 1/10 W 47K	
R266	RRJ6GCJ103TE	RESISTOR 1/10 W 10K	
R267	RRJ6GCJ473TE	RESISTOR 1/10 W 47K	
R268	RRJ6GCJ103TE	RESISTOR 1/10 W 10K	
R269	RRJ6GCJ473TE	RESISTOR 1/10 W 47K	
R270	RRJ6GCJ103TE	RESISTOR 1/10 W 10K	
R271	RRJ6GCJ473TE	RESISTOR 1/10 W 47K	

Ref. No.	Part No.	Part Name & Description	Remarks
R272	RRJ6GCJ103TE	RESISTOR 1/10 W 10K	
R273	RRJ6GCJ103TE	RESISTOR 1/10 W 10K	
R274	RRJ6GCJ103TE	RESISTOR 1/10 W 10K	
R275	RRJ6GCJ103TE	RESISTOR 1/10 W 10K	
R277	RRJ6GCJ333TE	RESISTOR 1/10 W 33K	
R278	RRJ6GCJ104TE	RESISTOR 1/10 W 100K	
R279	RRJ6GCJ333TE	RESISTOR 1/10 W 33K	
R280	RRJ6GCJ104TE	RESISTOR 1/10 W 100K	
R281	RRJ6GCJ473TE	RESISTOR 1/10 W 47K	
R282	RRJ6GCJ473TE	RESISTOR 1/10 W 47K	
R283	RRJ6GCJ471TE	RESISTOR 1/10 W 470	
R285	RRJ6GCJ681TE	RESISTOR 1/10 W 680	
R286	RRJ6GCJ103TE	RESISTOR 1/10 W 10K	
R287	RRJ6GCJ103TE	RESISTOR 1/10 W 10K	
R288	RRJ6GCJ103TE	RESISTOR 1/10 W 10K	
R289	RRJ6GCJ103TE	RESISTOR 1/10 W 10K	
R290	RRJ6GCJ103TE	RESISTOR 1/10 W 10K	
R292	RRJ6GCJ223TE	RESISTOR 1/10 W 22K	EG
R294	RRJ6GCJ153TE	RESISTOR 1/10 W 15K	
R295	RRJ6GCJ105TE	RESISTOR 1/10 W 10K	
		CAPACITOR	
C1	ECEA1CK1001	CAPACITOR 16 V 10	
C2	RCUV1H070DC	CAPACITOR 50 V 7P	
C3	RCUV1H20DC	CAPACITOR 50 V 2P	
C4	RCUV1E103MD	CAPACITOR 25 V 0.01	
C5	RCUV1H472MD	CAPACITOR 50 V 0.0047	
C6	RCUV1H050DC	CAPACITOR 50 V 5P	
C7	ECEA1CK1001	CAPACITOR 16 V 10	
C8	RCUV1H680KC	CAPACITOR 50 V 68P	
C9	RCUV1H290KC	ECEA1HK10101 CAPACITOR 50 V 3P	
C10	RCUV1H103ZF	CAPACITOR 50 V 0.01	
C11	RCUV1H103ZF	CAPACITOR 50 V 0.01	
C12	RCUV1E223MD	CAPACITOR 25 V 0.022	
C13	RCUV1H020CC	CAPACITOR 50 V 2P	
C14	RCUV1H200CC	CAPACITOR 50 V 2P	
C15	RCUV1H102MC	CAPACITOR 50 V 0.001	
C16	RCUV1E223MD	CAPACITOR 25 V 0.022	
C17	ECEA1CK1001	CAPACITOR 16 V 10	
C18	RCUV1E103MD	CAPACITOR 25 V 0.01	
C19	RCUV1H150KC	CAPACITOR 50 V 15P	
C20	RCUV1H050DC	CAPACITOR 50 V 5P	
C21	RCUV1H390KC	CAPACITOR 50 V 39P	
C22	RCUV1H230KC	CAPACITOR 50 V 23P	
C23	RCUV1H102MD	CAPACITOR 50 V 0.001	
C24	RCUV1H100KC	CAPACITOR 50 V 10P	
C25	RCUV1H472MD	CAPACITOR 50 V 0.0047	
C26	RCUV1H472MD	CAPACITOR 50 V 0.0047	
C27	RCUV1H472MD	CAPACITOR 50 V 0.0047	
C28	RCUV1H050DC	CAPACITOR 50 V 5P	
C29	RCUV1H032F	CAPACITOR 50 V 0.01	
C30	RCUV1H472MD	CAPACITOR 50 V 0.0047	
C31	RCUV1E103MD	CAPACITOR 25 V 0.01	
C32	RCUV1H680KC	CAPACITOR 50 V 68P	
C33	ECEA0GK4701	CAPACITOR 4 V 47	
C34	RCUV1H680KC	CAPACITOR 50 V 68P	
C35	RCUV1H472MD	CAPACITOR 50 V 0.0047	
C36	RCUV1H230KC	CAPACITOR 50 V 23P	
C37	RCUV1H150KC	CAPACITOR 50 V 15P	
C38	RCUV1H1032F	CAPACITOR 50 V 0.01	
C39	ECEA1HK1001	CAPACITOR 16 V 10	
C40	RCUV1H030CC	CAPACITOR 50 V 3P	
C41	RCUV1H221K	CAPACITOR 50 V 220P <G>	
C42	RCUV1H472MD	CAPACITOR 50 V 0.0047	
C43	RCUV1H681K	CAPACITOR 50 V 680P <G>	
C44	RCUV1H1032F	CAPACITOR 50 V 0.001	
C45	RCUV1H020CC	CAPACITOR 50 V 2P	
C46	ECEA1CK1001	CAPACITOR 16 V 10	
C47	RCUV1H1032F	CAPACITOR 50 V 0.01	
C48	RCUV1H221K	CAPACITOR 50 V 220	
C49	RCUV1H1032F	CAPACITOR 50 V 0.01	
C50	RCUV1H1032F	CAPACITOR 50 V 0.01	
C51	ECEA1HR0471	CAPACITOR 50 V 0.47	
C52	RCUV1H102MD	CAPACITOR 50 V 0.001	
C53	RCUV1E103MD	CAPACITOR 25 V 0.01	
C54	ECEA0JK2201	CAPACITOR 6.3V 22	
C55	RCUV1H030CC	CAPACITOR 50 V 3P	
C56	ECEA1HR0471	CAPACITOR 50 V 0.47	
C57	ECEA1CK1001	CAPACITOR 16 V 10	
C58	RCUV1H050DC	CAPACITOR 50 V 5P	
C59	RCUV1H330KC	CAPACITOR 50 V 33P	
C60	ECEA1CK1001	CAPACITOR 16 V 10	
C61	RCUV1H030KC	ECEA1HK10101 CAPACITOR 50 V 1	
C62	RCUV1H102MD	CAPACITOR 50 V 0.001	
C63	RCUV1H1032F	CAPACITOR 50 V 0.01	
C64	RCUV1H1032F	CAPACITOR 50 V 0.01	
C65	RCUV1E103MD	CAPACITOR 25 V 0.01	
C66	ECEA1HR0331	CAPACITOR 25 V 0.33	
C67	RCUV1H101K	CAPACITOR 50 V 100P	
C68	RCUV1E103MD	CAPACITOR 25 V 0.01	
C69	RCUV1H1032F	CAPACITOR 50 V 0.01	
C70	RCUV1E223MD	CAPACITOR 25 V 0.022	
C71	ECEA1HK10101	CAPACITOR 50 V 1	
C72	RCUV1H270JU	CAPACITOR 50 V 27P	
C73	RCUV1H472MD	CAPACITOR 50 V 0.0047	
C74	ECEA0GK4701	CAPACITOR 4 V 47	
C75	RCUV1H1032F	CAPACITOR 50 V 0.01	
C76	RCUV1E103MD	CAPACITOR 25 V 0.01	
C77	RCUV1H1032F	CAPACITOR 50 V 0.01	
C78	RCUV1H220KC	CAPACITOR 50 V 22P	
C79	ECEA0GK3011	CAPACITOR 4 V 100	
C80	RCUV1E103MD	CAPACITOR 25 V 0.01	
C81	ECEA1CK1001	CAPACITOR 16 V 10	
C82	RCUV1H1032F	CAPACITOR 50 V 0.01	
C83	RCUV1H1032F	CAPACITOR 50 V 0.01	
C84	RCUV1E223MD	CAPACITOR 25 V 0.022	
C85	RCUV1E223MD	CAPACITOR 25 V 0.022	
C86	ECEA0JK2201	CAPACITOR 6.3V 22	
C87	RCUV1E1042F	CAPACITOR 25 V 0.1	
C88	ECEA1KKS1001	CAPACITOR 16 V 10	
C89	ECUV1C1052F	CAPACITOR 16 V 1	
C90	ECEA1HKS3R31	CAPACITOR 50 V 3.3	
C91	ECEA1HK10101	CAPACITOR 50 V 1	
C92	RCUV1E153MD	CAPACITOR 25 V 0.015	
C93	ECEA0GK1011	CAPACITOR 4 V 100	
C94	RCUV1H472MD	CAPACITOR 50 V 0.0047	
C95	RCUV1H101K	CAPACITOR 50 V 100P	
C96	RCUV1E223MD	CAPACITOR 25 V 0.022	
C97	RCUV1E223MD	CAPACITOR 25 V 0.022	
C98	RCUV1H102MD	CAPACITOR 50 V 0.001	
C99	RCUV1E103MD	CAPACITOR 25 V 0.01	
C100	ECEA0GK4701	CAPACITOR 4 V 47	
C101	RCUV1E103MD	CAPACITOR 25 V 0.01	
C102	RCUV1E1042F	CAPACITOR 25 V 0.1	
C103	RCUV1E153MD	CAPACITOR 25 V 0.015	
C104	RCUV1H230KC	CAPACITOR 50 V 22	
C105	RCUV1E153MD	CAPACITOR 25 V 0.015	
C106	RCUV1H220KC	CAPACITOR 50 V 22P	
C107	RCUV1H102MD	CAPACITOR 50 V 0.001	
C108	RCUV1H102MD	CAPACITOR 50 V 0.001	
C109	RCUV1H472MD	CAPACITOR 50 V 0.0047	
C110	ECEA0JU101E	CAPACITOR 6.3V 100	
C111	RCUV1E223MD	CAPACITOR 25 V 0.022	
C112	ECEA1CK1001	CAPACITOR 16 V 10	
C113	RCUV1E103MD	CAPACITOR 25 V 0.01	
C115	ECUV1E104MD	CAPACITOR 25 V 0.1	
C116	RCUV1H390KC	CAPACITOR 50 V 39P	
C117	ECEA0JU101E	CAPACITOR 6.3V 100	
C118	RCUV1E223MD	CAPACITOR 25 V 0.022	
C119	ECEA1AKS2201	CAPACITOR 10 V 22	
C121	RCUV1E1042F	CAPACITOR 25 V 0.1	
C122	RCUV1E223MD	CAPACITOR 25 V 0.022	
C123	ECEA1AJ471E	CAPACITOR 10 V 470	
C124	RCUV1H1032F	CAPACITOR 50 V 0.01	
C125	ECUV1E104MD	CAPACITOR 25 V 0.1	
C126	ECEA1HK10101	CAPACITOR 50 V 1	
C127	ECEA1EX4R71	CAPACITOR 25 V 4.7	
C128	RCUV1H1032F	CAPACITOR 50 V 0.01	
C129	ECEA1AJ221E	CAPACITOR 10 V 220	
C130	RCUV1H681K	CAPACITOR 50 V 680P	
C131	ECUV1E104MD	CAPACITOR 25 V 0.1	
C132	ECUV1E333MD	CAPACITOR 25 V 0.033	
C133	RCUV1H1032F	CAPACITOR 50 V 0.01	
C135	RCUV1H100DC	CAPACITOR 50 V 10P	
C13E	RCUV1H330KC	CAPACITOR 50 V 33P	

Ref. No.	Part No.	Part Name & Description	Remarks
C137	RCUV1E104ZF	CAPACITOR 25 V 0.1	
C201	ECUV1E104MD	CAPACITOR 25 V 0.1	
C202	ECUV1E104MD	CAPACITOR 25 V 0.1	
C203	RCUV1H103ZF	CAPACITOR 50 V 0.01	
C204	RCUV1H103ZF	CAPACITOR 50 V 0.01	
C206	RCUV1H103ZF	CAPACITOR 50 V 0.01	
C207	ECEA1CKS100	CAPACITOR 16 V 10	
C208	ECEA1CKS100	CAPACITOR 16 V 10	
C211	RCUV1H103ZF	CAPACITOR 50 V 0.01	
C212	RCUV1H102MD	CAPACITOR 50 V 0.001	
C213	RCUV1H102MD	CAPACITOR 50 V 0.001	
C214	RCUV1H102MD	CAPACITOR 50 V 0.001	
C215	RCUV1H102MD	CAPACITOR 50 V 0.001	
C216	RCUV1H470KC	CAPACITOR 50 V 47P	
C219	ECEA0GK101	CAPACITOR 4 V 100	
C220	RCUV1H103ZF	CAPACITOR 50 V 0.01	
C221	RCUV1H102MC	CAPACITOR 50 V 0.001	
C222	ECEA1CKS100	CAPACITOR 16 V 10	
C223	RCUV1H102MD	CAPACITOR 50 V 0.001	
C224	ECQV1H105JZ	CAPACITOR 50 V 0.1	
C225	RCUV1E103MD	CAPACITOR 25 V 0.01	
C226	RCUV1H103ZF	CAPACITOR 50 V 0.01	
C227	ECEA1CKS100	CAPACITOR 16 V 10	
C228	RCUV1E223ZF	CAPACITOR 25 V 0.022	
C229	RCUV1H050DC	CAPACITOR 50 V 5P	
C230	ECST1A1105BR	CAPACITOR 10 V 1	
C231	ECST1AC106R	CAPACITOR 10 V 10	
C232	RCUV1H103ZF	CAPACITOR 50 V 0.01	
C233	RCUV1E103MD	CAPACITOR 25 V 0.01	
C234	RCUV1E103MD	CAPACITOR 25 V 0.01	
C235	RCUV1H102MD	CAPACITOR 50 V 0.001	
C236	RCUV1H102MD	CAPACITOR 50 V 0.001	
C237	ECEA0GK220	CAPACITOR 4 V 22	
C238	ECUV1E224ZF	CAPACITOR 25 V 0.22	
C239	ECEA0GK220	CAPACITOR 4 V 22	
C240	RCUV1H102MD	CAPACITOR 50 V 0.001	
C242	RCBC1C103MY	CAPACITOR 16 V 0.01	
C243	RCUV1H102MD	CAPACITOR 50 V 0.001	