

# ICF-M300L

## SERVICE MANUAL

AEP Model  
UK Model  
E Model



### SPECIFICATIONS

	FM	MW	LW
Frequency range	87.5 - 108 MHz	531 - 1,602 kHz	153 - 281 kHz
Tuning interval	50 kHz	9 kHz	2 kHz → 7 kHz

Antennas	FM: Telescopic antenna MW/LW: Built-in ferrite bar antenna
Speaker	Approx. 7.7 cm (3 <sup>1</sup> / <sub>8</sub> inches) dia.
Power output	280 mW (at 10% harmonic distortion)
Output	Earphone jack (minijack) for 8-ohm earphone
Power requirements	4.5 V DC Three R6 (size AA) batteries DC IN 4.5 V jack accepts: Sony AC-D3M AC power adaptor (optional) Sony DCC-127A car battery cord (optional) for use with 12 V car battery
Battery life	Approx. 18 hours of listening for four hours a day at a normal volume using Sony batteries SUM-3 (NS)
Dimensions	Approx. 32 × 101 × 181 mm (w/h/d) (1 <sup>1</sup> / <sub>8</sub> × 4 × 7 <sup>1</sup> / <sub>8</sub> inches) not incl. projecting parts and controls
Weight	Approx. 490 g (17.3 oz) incl. batteries
Supplied accessory	Earphone (1)

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FM/MW/LW 3 BAND  
PLL SYNTHESIZED RECEIVER

**SONY**®



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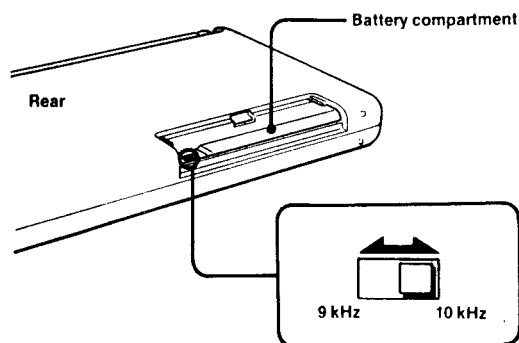
## SECTION 1 GENERAL

### Features

- A quartz-controlled PLL (Phase Locked Loop) synthesizer system using a microcomputer for easy pinpoint tuning. The tuned-in frequency is digitally displayed.
- Up to 7 stations in each band can be preset.
- Two alarm modes available: radio or buzzer
- Digital clock built-in. The current time and alarm time are digitally displayed.
- A sleep timer turns the radio off automatically at the preset time.

### To Change the MW Channel Step

The MW CH STEP is preset at the factory to 9 kHz to match the frequency allocation system of most countries. If you use the radio where the frequency allocation system is based on a 10 kHz interval, such as in the U.S.A. and Canada, set the MW CH STEP selector to 10 kHz.



- 1 Remove the batteries and wait until all the figures and indicators in the display window disappear.
- 2 Change the channel step.

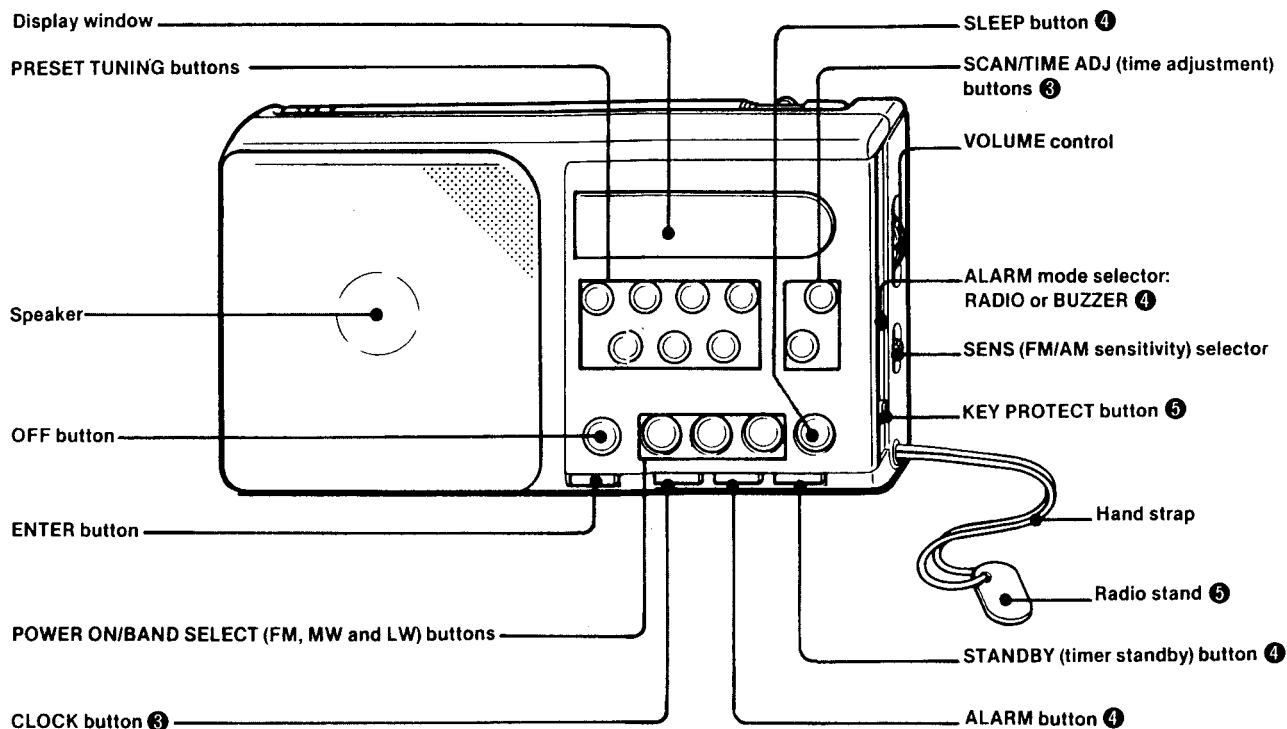
#### Note

When the channel step is set to 10 kHz, the MW frequency range changes from "531 - 1,602 kHz" to "530 - 1,670 kHz".

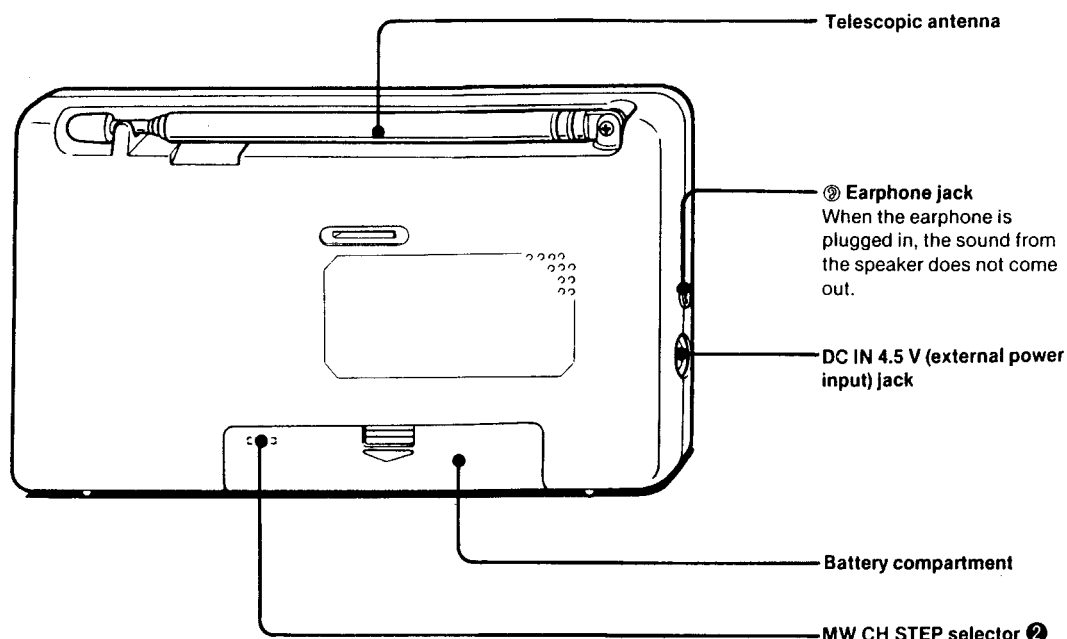
### Location and Function of Controls

Refer to the page indicated in ● for details.

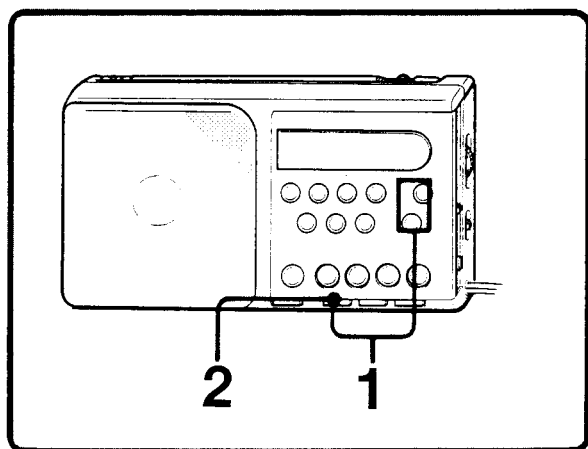
#### Front panel



## Rear panel



## To Set the Current Time

**1 While keeping CLOCK pressed, press TIME ADJ + or - button repeatedly.**

When the + or - button is kept pressed, the digits are rapidly advanced.

**2 Release CLOCK.**

The clock will begin to operate.

- The current time can be set even when the radio is ON.
- The current time is displayed when the radio is OFF.

**For UK, E model**

The time is displayed in the 12-hour system.

Be sure to check the AM/PM indication.

AM 12:00 = midnight

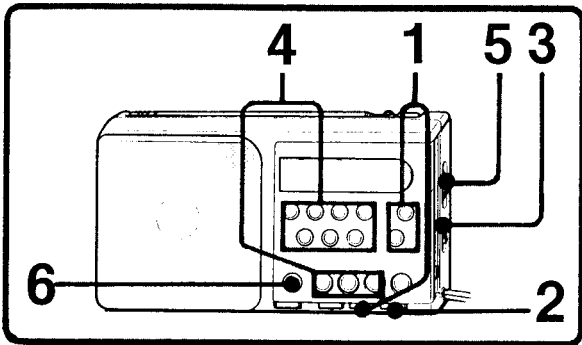
PM 12:00 = noon

To set the time exactly to the second with a telephone time signal

**Example: to set to 7:15 to the second**

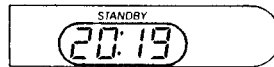
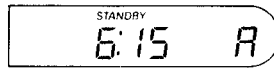
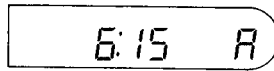
- 1 Set the time to 7:15 and keep the CLOCK button pressed.
- 2 Release CLOCK simultaneously with the telephone time signal.

## To Set the Alarm Time



RADIO ALARM (6 steps)	BUZZER ALARM (3 steps)
<b>1</b> Set the alarm time. While keeping <b>ALARM</b> pressed, press <b>TIME ADJ</b> buttons + or -.	
<b>2</b> Press <b>STANDBY</b> so that the <b>STANDBY</b> indicator is displayed. The unit will be in the alarm standby mode.	
<b>3</b> Set the <b>ALARM</b> mode selector to <b>RADIO</b> .	<b>3</b> Set the <b>ALARM</b> mode selector to <b>BUZZER</b> . The buzzer alarm comes on even when the radio is ON. The radio will be turned off.
<b>4</b> Tune in the desired station.	
<b>5</b> Adjust volume.	
<b>6</b> Press <b>OFF</b> .	

Example: To set to 6:15




Current time or tuned-in station frequency

### To cancel the alarm before the preset time

Press the **STANDBY** button so that the **STANDBY** indicator disappears.

### To prevent accidental release of the standby mode

Press the **KEY PROTECT** button so that the  mark is displayed.

The alarm will come on at the preset time and the "key protect" function will be released.

### To check the alarm preset time

Press the **ALARM** button.

When the button is released, the previous display will resume.

### Notes

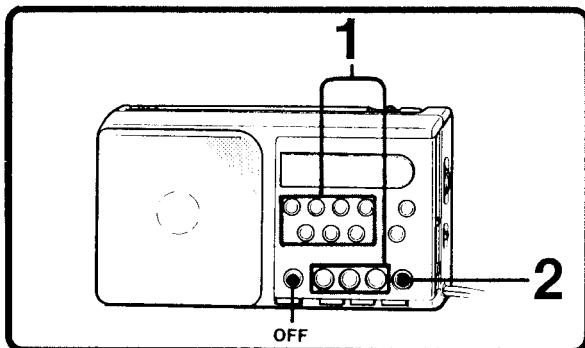
- Be sure not to forget pressing the **STANDBY** button, or the alarm sound will not come on.
- The buzzer alarm level is fixed, and has no relation to the **VOLUME** control setting.

The radio or buzzer alarm will automatically come on at the preset time, and turn itself off after about 60 minutes.

### To stop the radio or buzzer alarm

Press the **OFF** button. The alarm sound will come on again at the same time next day.

## To Turn Off the Radio Automatically at the Preset Time—sleep timer

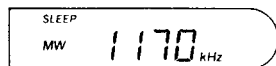
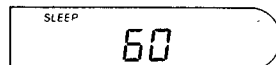
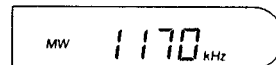


**1** Tune in the desired station.

**2** Select the sleep timer 90, 60 or 30 minutes, by pressing **SLEEP**.

The radio will be turned off automatically after a preset time.


Example: to set the timer to 60 minutes



### To turn off the radio before the preset time


Press the **OFF** button.

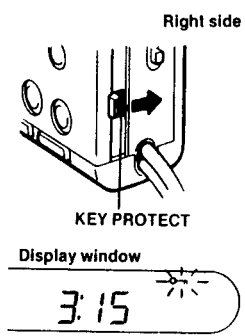
### To prevent accidental release of the sleep timer

Press the **KEY PROTECT** button so that the  mark is displayed.


The radio will be turned off at the preset time and the "key protect" function will be released.

**To Prevent Accidental Change of the Receiving Station**

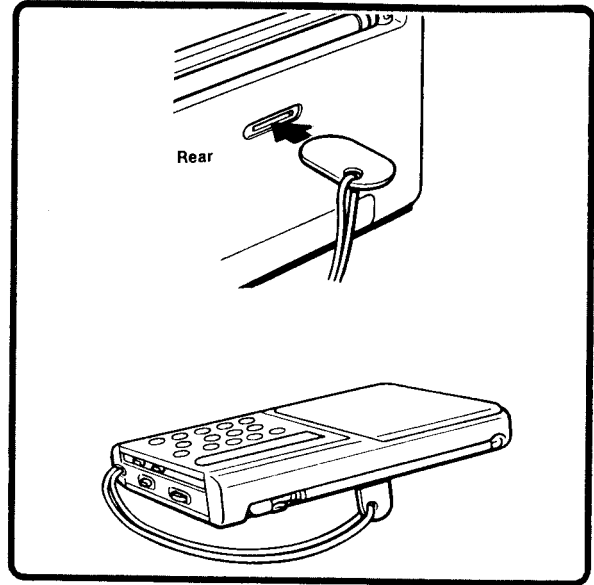
Press the KEY PROTECT button in the direction of the arrow. The  mark will be displayed, indicating that the front panel buttons cannot be operated. This prevents accidental operation when the unit is being carried.



**Right side**  
KEY PROTECT  
Display window  
3:15

**To release this function, press the KEY PROTECT button again so that the  mark will disappear.**

**How to use the radio stand**

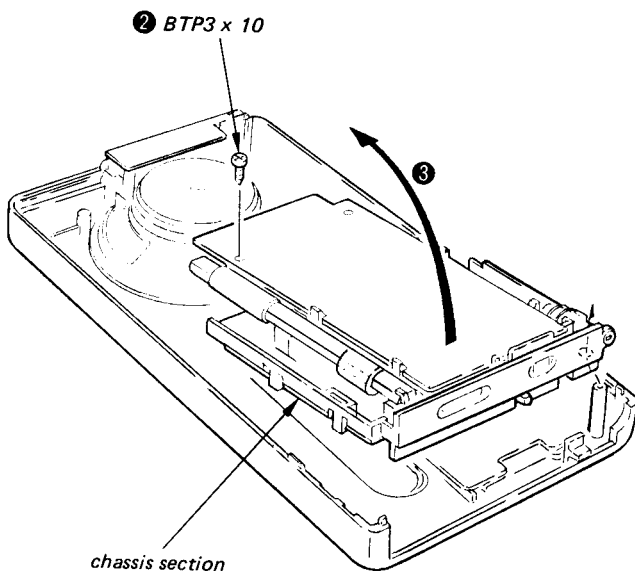


**SECTION 2  
DISASSEMBLY**

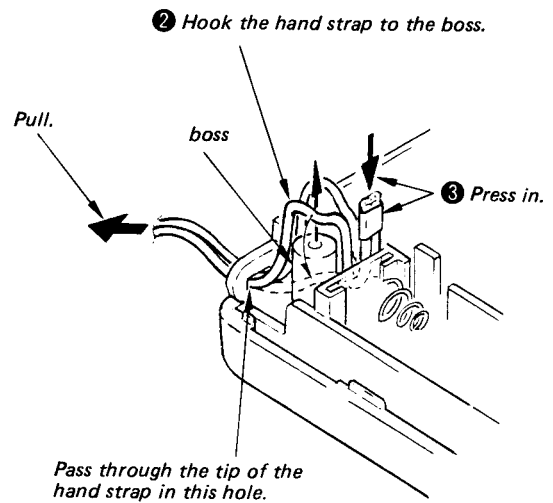
**Note:** Follow the disassembly procedure in the numerical order given.

**CHASSIS SECTION REMOVAL**

❶ Remove the hand strap.



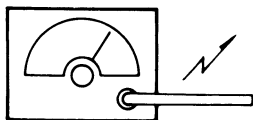
**— Hand Strap Installation —**



## SECTION 3 ADJUSTMENTS

### AM Section

AM RF signal generator

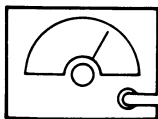


Put the lead-wire antenna close to the set.

400 Hz, 30% AM modulation  
Output level: as low as possible

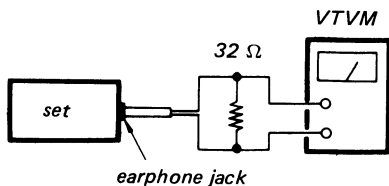
### FM Section

FM RF signal generator

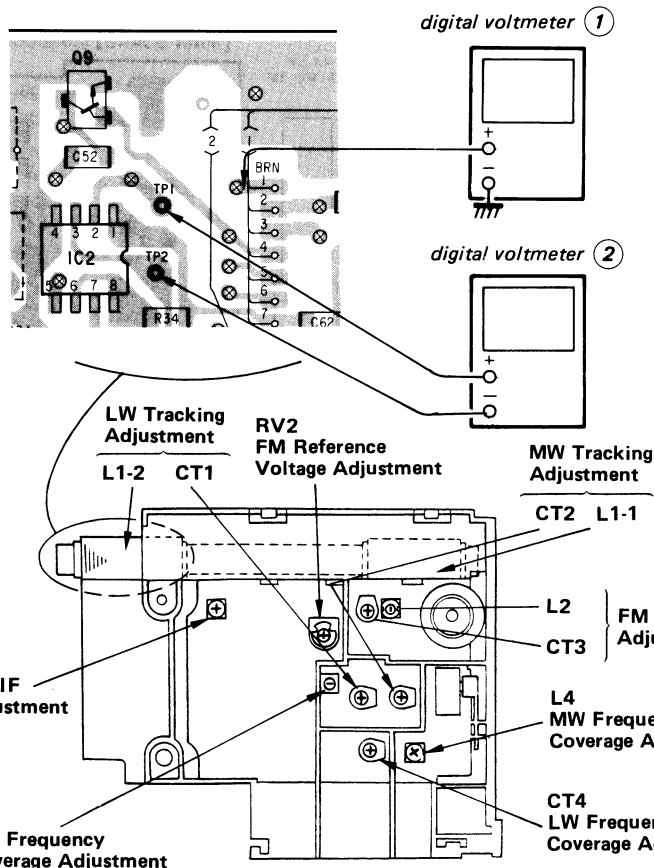


telescopic antenna input lead-wire

400 Hz, 30% FM modulation  
frequency deviation  $\pm 22.5$  kHz  
Output level: as low as possible



- Repeat the procedures in each adjustment several times, and the tracking adjustments should be finally done by the trimmer capacitors.



AM IF ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
T1	450 kHz

MW FREQUENCY COVERAGE ADJUSTMENT		
Adjustment Part	Frequency Display	Reading on Digital Voltmeter ①.
L4	1,602 kHz	$8 \pm 0.1$ V

Note: Not use the AM rf signal generator in this adjustment.

MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L1-1	621 kHz
CT2	1,395 kHz

LW FREQUENCY COVERAGE ADJUSTMENT		
Adjustment Part	Frequency Display	Reading on Digital Voltmeter ①.
CT4	281 kHz	$7 \pm 0.1$ V

Note: Not use the AM rf signal generator in this adjustment.

LW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L1-2	171 kHz
CT1	252 kHz

FM FREQUENCY COVERAGE ADJUSTMENT		
Adjustment Part	Frequency Display	Reading on Digital Voltmeter ①.
L3	108 MHz	$10 \pm 0.1$ V

Note: Not use the FM rf signal generator in this adjustment.

FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L2	87.5 MHz
CT3	108 MHz

FM REFERENCE VOLTAGE ADJUSTMENT		
FM rf signal generator	Modulation	no modulation
	Carrier frequency	97.025 MHz
	Output level	0.32 mV (54 dB)
Adjustment Part	Frequency Display	Reading on Digital Voltmeter ②.
RV2	97.00 MHz	0 V

SECTION 4  
DIAGRAMS

4-1. PRINTED WIRING BOARDS

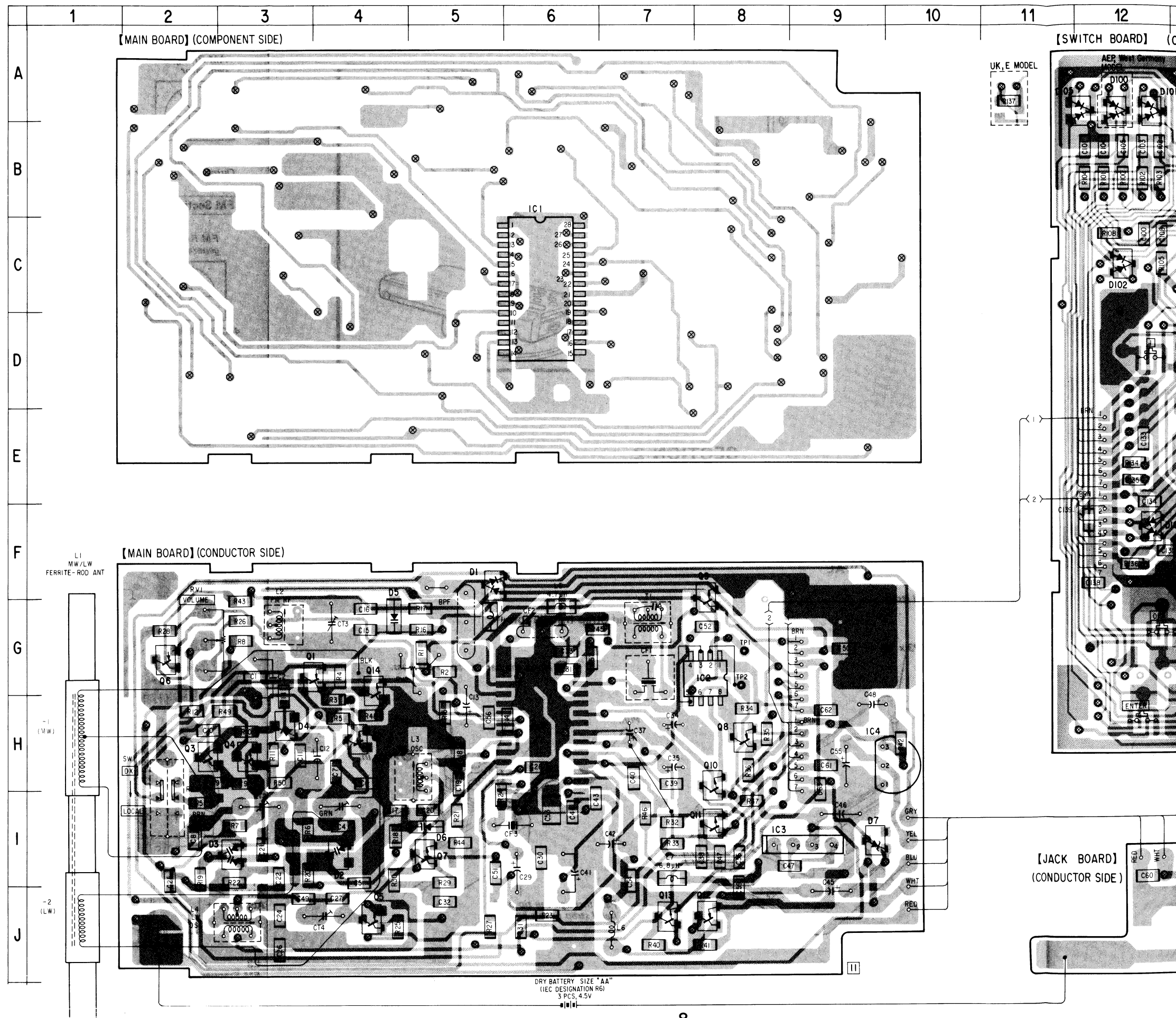
• See page 14 for Semiconductor Lead Layouts.

• Semiconductor Location

Ref. No.	Location
D1	F-5
D2	I-4
D3	I-3
D4	H-3
D5	G-4
D6	I-5
D7	I-9
D8	J-13
D100	A-12
D101	A-12
D102	C-12
D103	B-14
D104	B-13
D105	A-12
D106	C-17
D107	F-12
IC1	C-6
IC2	G-8
IC3	I-8
IC4	H-9
IC100	B-22
IC101	B-16
Q1	G-3
Q2	H-4
Q3	H-2
Q4	H-3
Q5	J-4
Q6	G-2
Q7	I-5
Q8	H-8
Q9	F-8
Q10	H-8
Q11	I-8
Q12	J-8
Q13	J-7
Q14	G-4
Q100	B-14
Q101	C-14
Q102	B-15
Q103	B-15
Q104	B-15

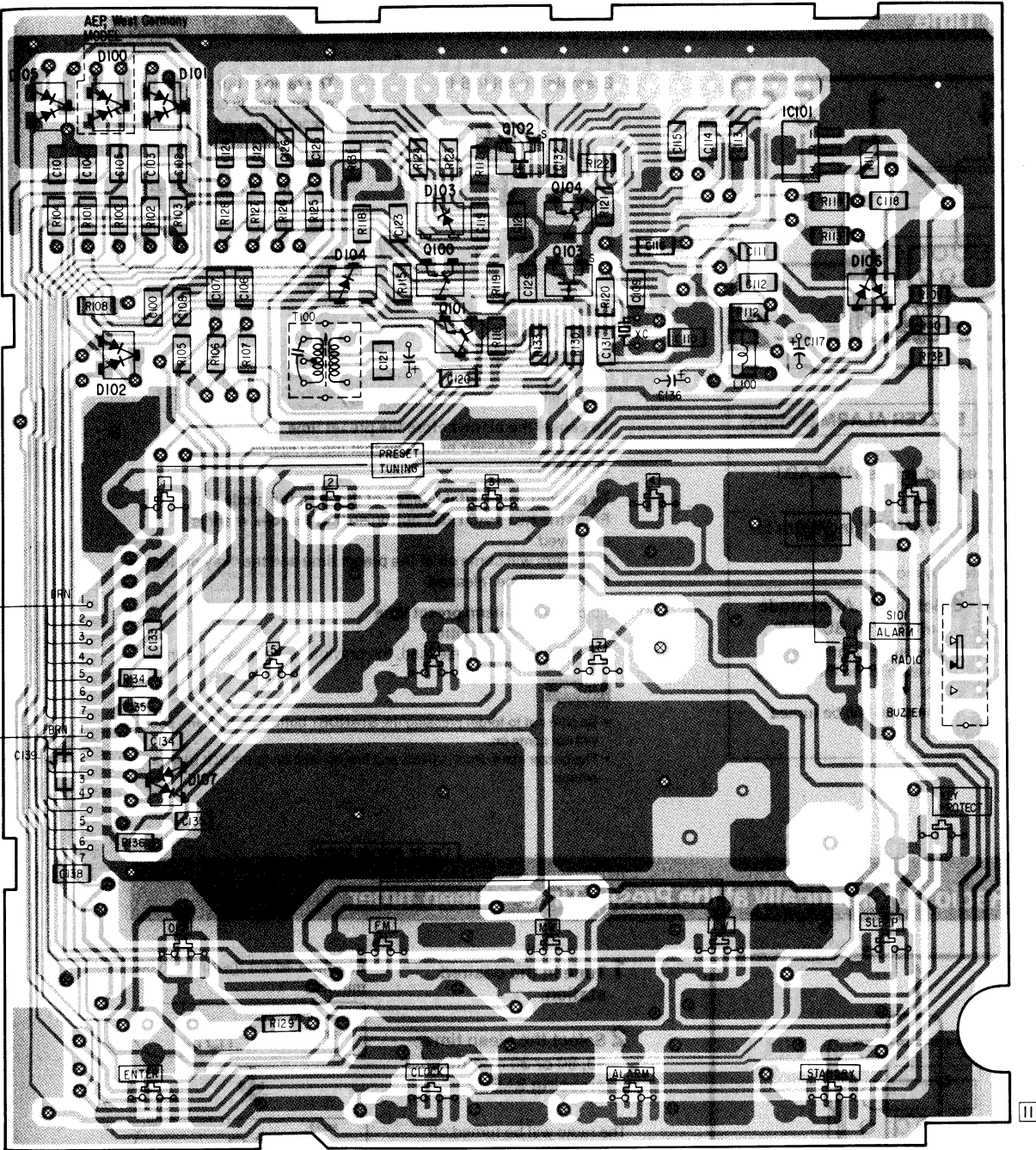
Note:

- : parts extracted from the component side.
- : parts extracted from the conductor side.
- ⊗ : Through hole.
- ▨ : Pattern on the side which is seen.
- ▩ : Pattern of the rear side.

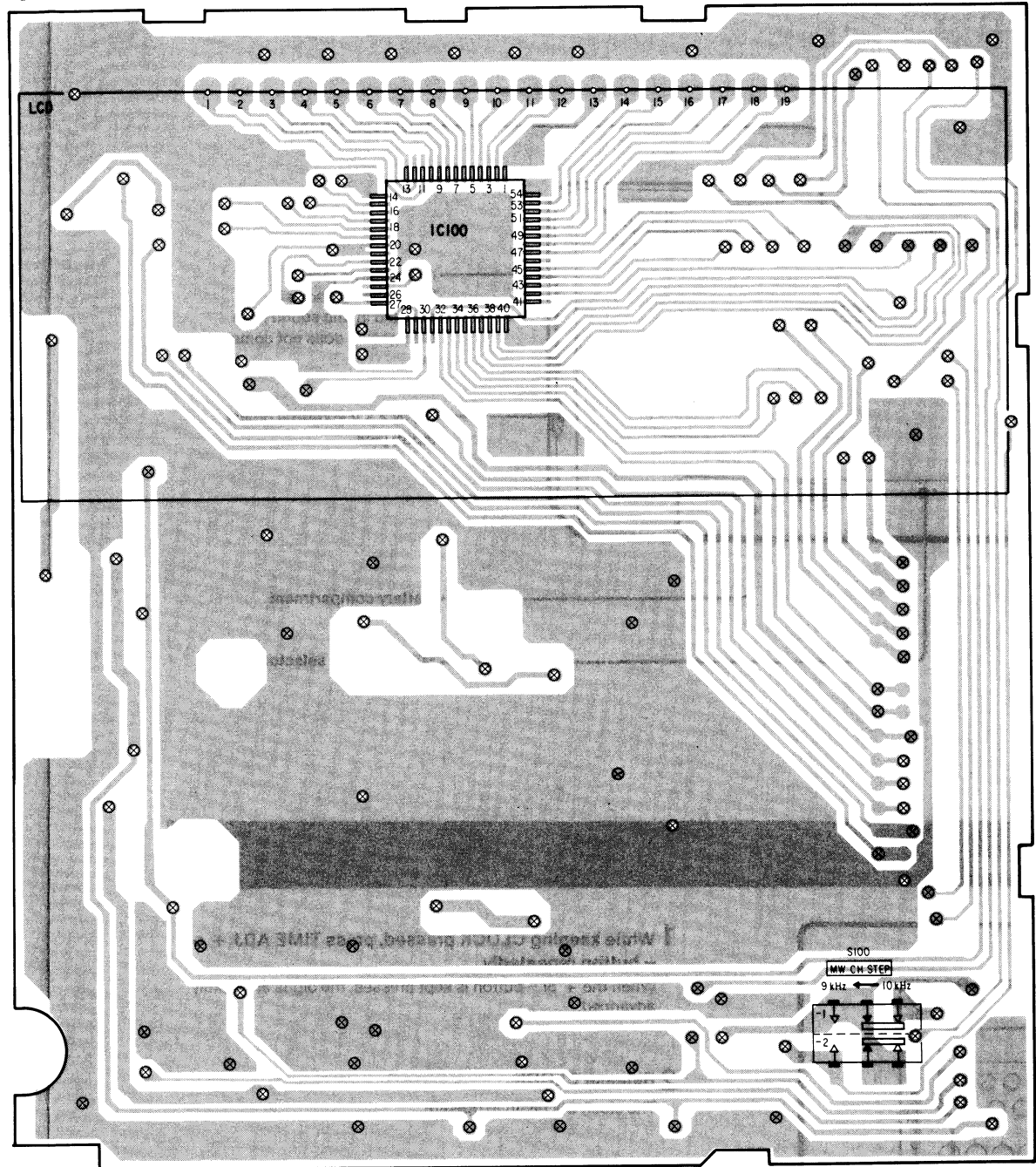


11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

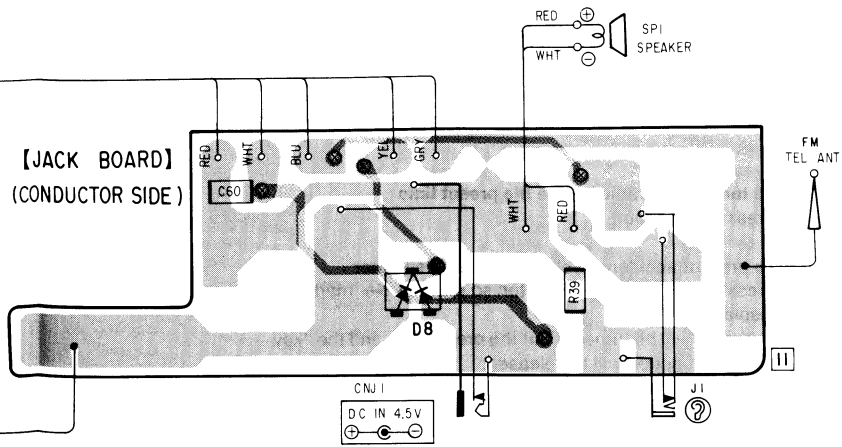
[SWITCH BOARD] (CONDUCTOR SIDE)



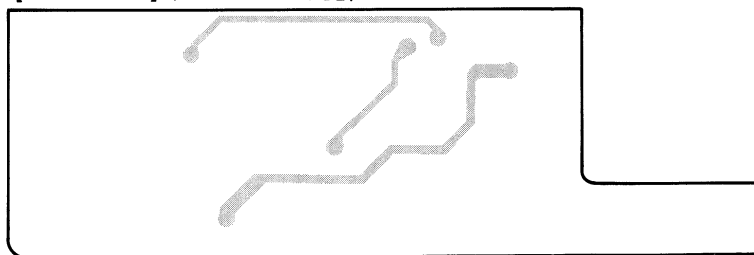
[SWITCH BOARD] (COMPONENT SIDE)



[JACK BOARD] (CONDUCTOR SIDE)

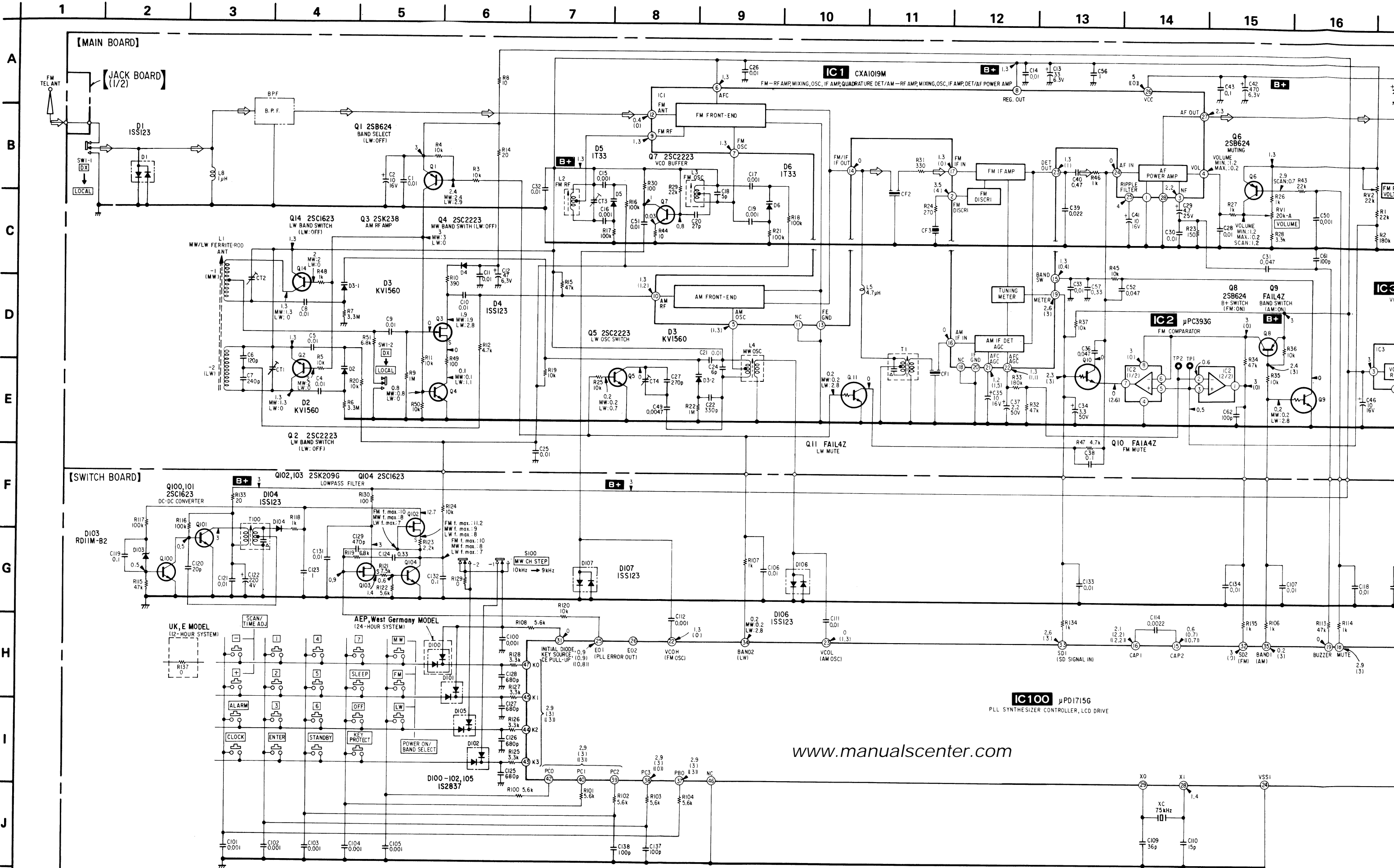


[JACK BOARD] (COMPONENT SIDE)

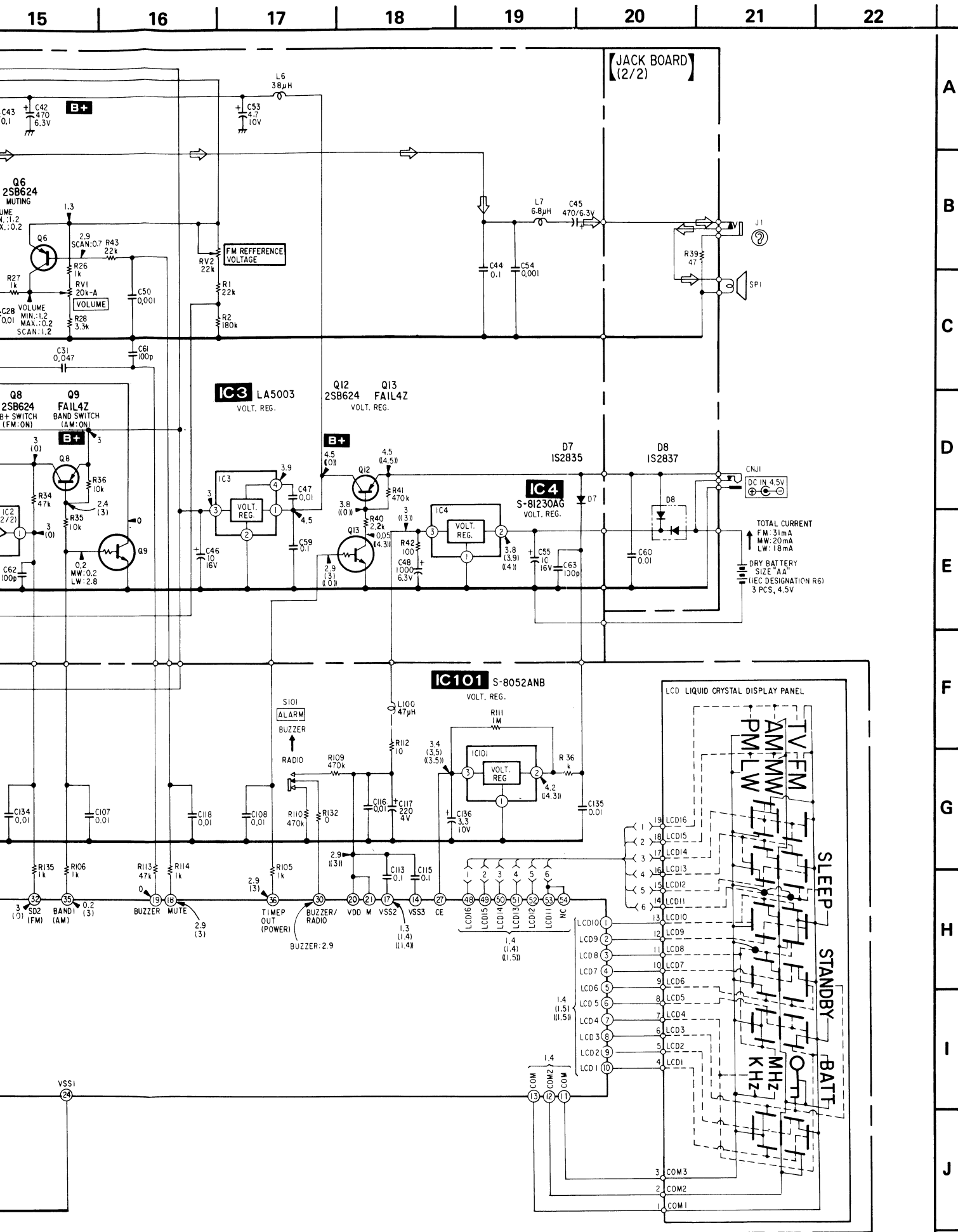


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A  
B  
C  
D  
E  
F  
G  
H  
I  
J

**Note:**

- All capacitors are in  $\mu\text{F}$  unless otherwise noted. pF:  $\mu\mu\text{F}$  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in  $\Omega$  and  $\frac{1}{4}\text{W}$  or less unless otherwise specified.
- $\triangle$ : internal component.
- $\square$ : adjustment for repair.
- Power voltage is dc 4.5 V and fed with regulated dc power supply from external power voltage jack.  
no mark: FM mode  
( ): AM mode  
( ( ) ): OFF mode
- Voltages are taken with a VOM (50 k $\Omega$ /V).  
Voltage variations may be noted due to normal production tolerances.
- Signal path.  
 $\Rightarrow$ : FM
- Switch

Ref. No.	Switch	Position
SW1	DX/LOCAL	DX
SW100	MW CH STEP	10 kHz
SW101	ALARM	RADIO

TOTAL CURRENT  
FM: 31mA  
MW: 20mA  
LW: 18mA  
DRY BATTERY  
SIZE: "AA"  
(IEC DESIGNATION R6)  
3 PCS, 4.5V

• Semiconductor Lead Layouts

<p><b>CXA1019M</b></p> <p>(Top view)</p>	<p><b>2SK209G</b></p>
<p><b>LA5003</b></p>	<p><b>2SK238-K16</b></p> <p>1. Drain 2. Gate 3. Source</p>
<p><b>S-8052ANB-NE-S</b></p> <p>OUT IN GND</p>	<p><b>1S2835</b></p> <p>anode cathode</p>
<p><b>S-81230AG</b></p> <p>Ground Input Output</p>	<p><b>1S2837 KV1560</b></p> <p>cathode anode</p>
<p><b>TA7358FN-1 <math>\mu\text{PB558G}</math> <math>\mu\text{PC393G2}</math></b></p> <p>(TOP VIEW)</p>	<p><b>1SS123</b></p> <p>3 2 2 3 1</p>
<p><b><math>\mu\text{PD1715G-551-22}</math></b></p> <p>MARKING SIDE VIEW</p>	<p><b>1T32-2 1T33</b></p>
<p><b>2SB624-BV4 2SC1623 2SC2223-F13 FA1L4Z-L62 FA1L4Z-L68</b></p> <p>C B E</p>	<p><b>RD11M-B2</b></p> <p>3 2 1</p>

4-3.  $\mu$ PD1715-551 (IC100)

Pin No.	Symbol	Naming	Description	Active
1   10 48   53	LCD10   LCD1 LCD16   LCD11	LCD SEGMENT SIGNALS	• Segment signal output pins to LCD	—
11   13	COM3   COM1	LCD COMMON SIGNAL	• Common signal output pin to LCD	—
14 15 16 17	VSS3 CAP2 CAP1 VSS2	CAPACITOR CONNECTION PIN FOR TABULAR	• Capacitor connection pins for tabular circuit to make LCD drive voltage	—
18	MUTE	MUTE PIN	• Mute signal output pin to mute noises encountered in the unlocked condition of the PLL and key-scan noises	Low
19	BUZZER	BUZZER OUTPUT PIN	• Output pin of standby alarm sound, range-out beep sound, and scan beep sound	—
20, 46	VDD	POWER SUPPLY INPUT PIN	• Power supply input pin for device • The power-on reset circuit of device starts to operate at the instance this pin receives a voltage of 0 (zero) to 2.0 VDC, and the program starts from the location 0 (zero).	—
21	M	CONTROL SIGNAL INPUT PIN FOR DIVIDER	• Determines the dividing ratio of the fixed-division prescaler. (Only when the VCOH pin is used in VCO input) • A 1/4 dividing ratio is made when this terminal is held at "High" and a 1/2 divider is made when held at "Low".	—
22	VCOH	FM LOCAL OSC SIGNAL INPUT PIN	• This pin inputs VCO signal when receiving FM bands.	—
23	VCOL	AM LOCAL OSC SIGNAL INPUT PIN	• This pin inputs VCO signal when receiving AM bands.	—
24	VSS1	GROUND PIN	• Ground pin of device	—
25, 26	EO	ERROR OUTPUT PIN	• Error output pin of the PLL	—
27	CE	VOLTAGE DECREASE DETECTION PIN	• Voltage decrease detection pin of the set • Becomes tuner off and clock mode in LOW level.	—
28 29	Xi Xo	CRYSTAL OSCILLATOR CONNECTION PIN	• An external quartz-crystal oscillator connects to these pins to obtain 75 kHz signal generator.	—
30	BUZZER/RADIO	BUZZER/RADIO SELECT SW PIN	• Select switch of standby ON "High": BUZZER OUTPUT "Low": RADIO ON	Hi

Pin No.	Symbol	Naming	Description	Active															
31	INITIAL DIODE, KEY SOURCE, AND CE PULL-UP PIN	INITIAL DIODE, KEY SOURCE, AND CE PULL-UP PIN	<ul style="list-style-type: none"> <li>Used as key source of initial diode. (VDD = "Low" → "High")</li> <li>Output "High" for 125–250 msec to prevent voltage of CE from decreasing during TIMER OUT output ("Low" → "High").</li> </ul>	Hi															
32 33	SD2 SD1	SD SIGNAL INPUT PIN	<ul style="list-style-type: none"> <li>Input pin of SD (station detection) signal from the tuner</li> </ul>	Low															
34 35	BAND2 BAND1	BAND DATA OUTPUT PIN	<ul style="list-style-type: none"> <li>These pins output band information to the tuner.</li> </ul> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Receiving band</th> <th>BAND1</th> <th>BAND2</th> </tr> </thead> <tbody> <tr> <td>MW</td> <td>H</td> <td>L</td> </tr> <tr> <td>LW</td> <td>H</td> <td>H</td> </tr> <tr> <td>FM</td> <td>L</td> <td>L</td> </tr> <tr> <td>Tuner OFF</td> <td>L</td> <td>L</td> </tr> </tbody> </table>	Receiving band	BAND1	BAND2	MW	H	L	LW	H	H	FM	L	L	Tuner OFF	L	L	Hi
Receiving band	BAND1	BAND2																	
MW	H	L																	
LW	H	H																	
FM	L	L																	
Tuner OFF	L	L																	
36	TIMER OUT	TIMER-OUT (POWER) OUTPUT PIN	<ul style="list-style-type: none"> <li>Timer-out (power) output pin of the tuner</li> <li>Outputs "High" during BUZZER output.</li> </ul>	Hi															
37 38 39 40 42	PB0 PC3 PC2 PC1 PC0	MOMENTARY KEY SOURCE OUTPUT PIN	<ul style="list-style-type: none"> <li>Key source output pin of momentary key</li> </ul>	Hi															
43 44 45 47	K3 K2 K1 K0	KEY RETURN SIGNAL INPUT PIN	<ul style="list-style-type: none"> <li>Key return signal input pin of momentary key and diode switch</li> </ul>	Hi															
41	NC	NO CONNECTION PIN	<ul style="list-style-type: none"> <li>This is a free terminal and is not connected to the internal circuits, and this terminal can be used as a junction land.</li> </ul>																

● Key Matrix

Matrix table of momentary key and diode sw

Input Output	④③ K3	④④ K2	④⑤ K1	④⑦ K0	
③⑦ PB0	CLOCK	ALARM	UP	DOWN	} momentary key
③⑧ PC3	ENTER	3	2	1	
③⑨ PC2	STAND-BY	6	5	4	
④① PC1	KEY PROTECT	OFF	SLEEP	7	
④② PC0	————	LW	FM	AM	
③① PA2	A3	A2	A1	A0	} diode SW

Slide SW (SW100)

SW Position Input	VDD	GND
30 PA3	BUZZER	RADIO

SECTION 5  
EXPLODED VIEWS

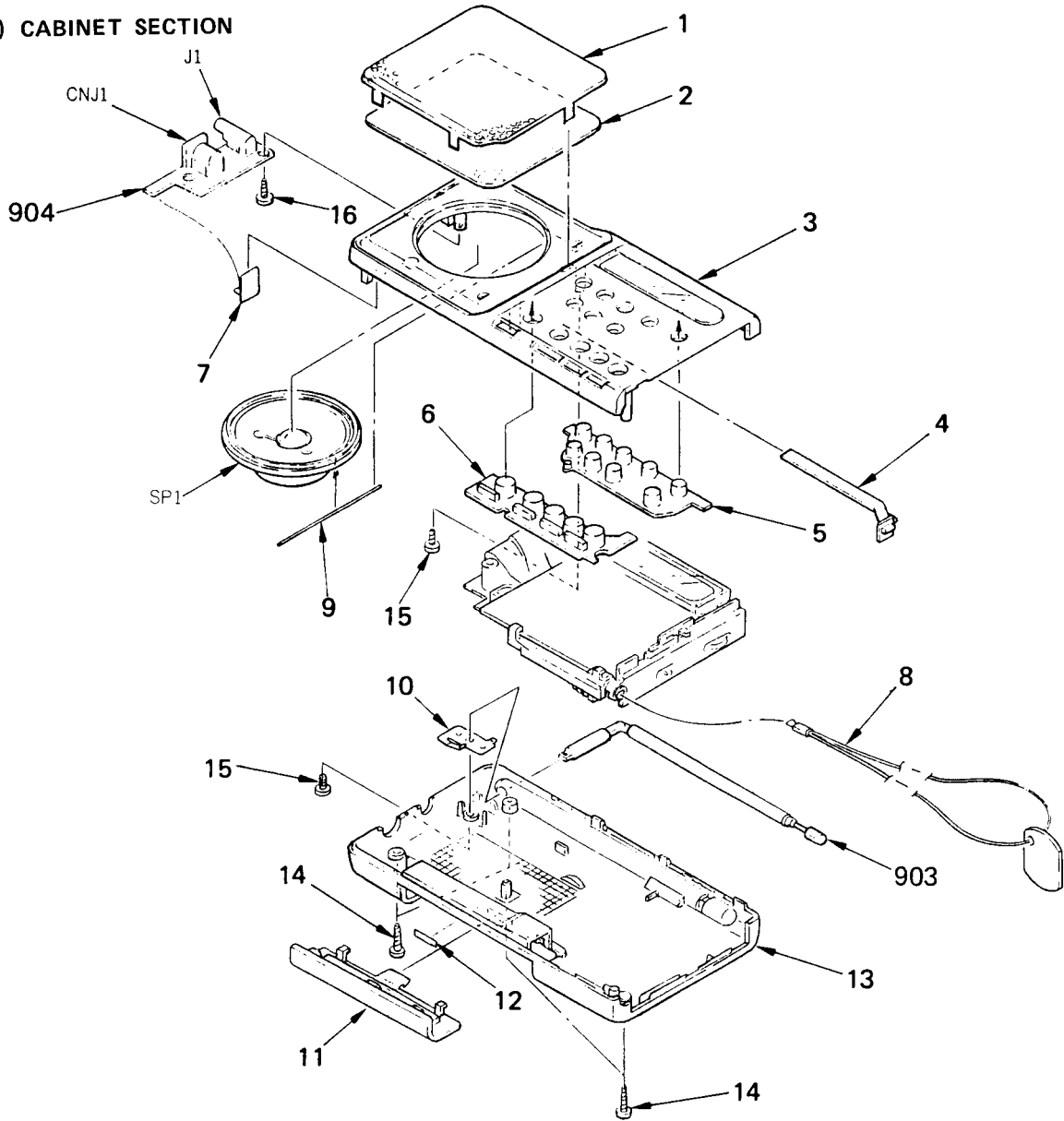
NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.

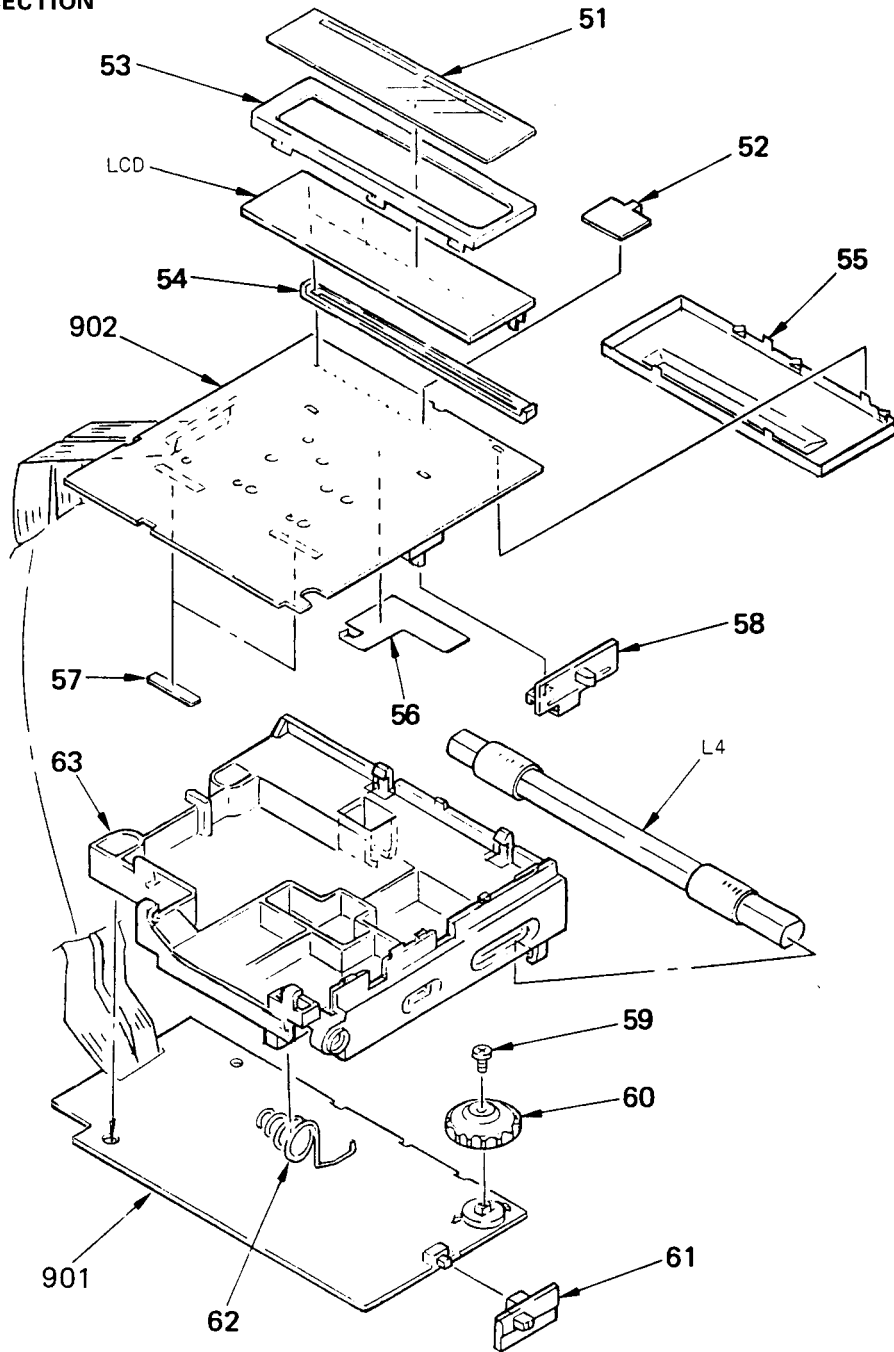
- Color Indication of Appearance Parts  
Example:  
(RED) ... KNOB, BALANCE (WHITE)  
↑ Cabinet's Color          ↑ Parts Color

(1) CABINET SECTION



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
1	3-899-913-01	NET, SPEAKER		12	3-703-264-11	LABEL (B), SERIAL NO	
2	3-899-914-01	SHEET, SPEAKER		13	3-899-924-21	CABINET (REAR)	
3	X-3896-636-1	CABINET ASSY, FRONT		14	7-685-549-14	SCREW +BTP 3X14 TYPE2 N-S	
4	3-899-909-01	KNOB (A)		15	7-682-147-15	SCREW +P 3X6	
5	1-571-351-11	SWITCH, RUBBER KEY (PRESET)		16	7-685-646-79	SCREW +P 3X8 TYPE2 NON-SLIT	
6	1-571-454-11	SWITCH, RUBBER KEY (BAND SELECT)		903	1-501-407-11	ANTENNA, TELESCOPIC	
7	3-899-919-01	TERMINAL (PLUS), BATTERY		904	*1-625-847-11	PC BOARD, JACK	
8	3-899-926-01	STRAP, HAND		CNJ1	1-507-954-11	JACK, EXTERNAL POWER	
9	3-899-923-01	SPRING		J1	1-563-836-11	JACK (EARPHONE)	
10	*3-899-922-01	PLATE, CONTACT, ANTENNA		SP1	1-503-937-11	SPEAKER	
11	3-899-907-01	LID, BATTERY CASE					

(2) CHASSIS SECTION



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
51	*3-899-927-01	SHEET, SHIELD		61	3-899-912-01	KNOB (D) (DX/LOCAL)	
52	*3-899-934-01	FOIL (G), SHIELD		62	3-899-918-01	SPRING (MINUS)	
53	*3-899-915-01	PLATE (A), SHIELD		63	*3-899-908-01	CHASSIS	
54	*3-899-920-01	SPACER (A)		901	A-3660-753-A	MOUNTED PCB, MAIN	
55	*3-899-916-01	PLATE (B), SHIELD		902	A-3681-235-A	(AEP, West Germany)...MOUNTED PCB, SWITCH	
56	*3-899-917-01	PLATE (C), SHIELD			A-3681-236-A	(UK,E).....MOUNTED PCB, SWITCH	
57	*3-899-921-01	SPACER (B)		L1	1-402-364-11	ANTENNA, FERRITE-ROD (MW/LW)	
58	3-899-911-01	KNOB (C) (RADIO/BUZZER)		LCD	1-808-341-11	DISPLAY PANEL, LIQUID CRYSTAL	
59	3-880-990-00	SCREW (1.7X3), FLAT, (+) SPECIAL					
60	3-899-910-01	KNOB (B) (VOLUME)					

## SECTION 6 ELECTRICAL PARTS LIST

**NOTE:**

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

**CAPACITORS:**

MF:  $\mu$ F, PF:  $\mu$  $\mu$ F.

**RESISTORS**

- All resistors are in ohms.
- F: nonflammable

**COILS**

- MMH: mH, UH:  $\mu$ H

**SEMICONDUCTORS**

In each case, U:  $\mu$ , for example:  
 UA....:  $\mu$ A..., UPA....:  $\mu$ PA...,  
 UPC....:  $\mu$ PC, UPD....:  $\mu$ PD...

Ref.No.	Part No.	Description						
901	A-3660-753-A	MOUNTED PCB, MAIN						
902	A-3681-235-A	(AEP, West Germany)						
		...MOUNTED PCB, SWITCH						
	A-3681-236-A	(UK,E).....MOUNTED PCB, SWITCH						
903	1-501-407-11	ANTENNA, TELESCOPIC						
904	*1-625-847-11	PC BOARD, JACK						
BPF	1-235-171-00	FILTER, BAND PASS						
C1	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V				
C2	1-124-462-00	ELECT 10MF	20%	16V				
C4	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V				
C5	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V				
C6	1-163-119-00	CERAMIC CHIP 120PF	5%	50V				
C7	1-163-126-00	CERAMIC CHIP 240PF	5%	50V				
C8	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V				
C9	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V				
C10	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V				
C11	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V				
C12	1-124-224-00	ELECT 47MF	20%	6.3V				
C13	1-124-229-00	ELECT 33MF	20%	6.3V				
C14	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V				
C15	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V				
C16	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V				
C17	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V				
C18	1-163-092-00	CERAMIC CHIP 9PF	0.25PF	50V				
C19	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V				
C20	1-163-103-00	CERAMIC CHIP 27PF	5%	50V				
C21	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V				
C22	1-163-129-00	CERAMIC CHIP 330PF	5%	50V				
C24	1-163-089-00	CERAMIC CHIP 6PF	0.25PF	50V				
C25	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V				
C26	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V				
C27	1-163-127-00	CERAMIC CHIP 270PF	5%	50V				
C28	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V				
C29	1-124-245-00	ELECT 4.7MF	20%	25V				
C30	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V				
C31	1-163-035-00	CERAMIC CHIP 0.047MF	10%	25V				
C32	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V				
C33	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V				
C34	1-124-258-00	ELECT 3.3MF	20%	35V				
C35	1-124-462-00	ELECT 10MF	20%	16V				
C36	1-163-035-00	CERAMIC CHIP 0.047MF	10%	25V				
C37	1-124-257-00	ELECT 2.2MF	20%	50V				
C38	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V				
C39	1-163-033-00	CERAMIC CHIP 0.022MF	10%	25V				
C40	1-162-637-11	CERAMIC CHIP 0.47MF		16V				
C41	1-124-462-00	ELECT 10MF	20%	16V				
C42	1-124-472-11	ELECT 470MF	20%	6.3V				
C43	1-163-077-00	CERAMIC CHIP 0.1MF	10%	25V				
C44	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V				
C45	1-124-472-11	ELECT 470MF	20%	6.3V				
C46	1-124-462-00	ELECT 10MF	20%	16V				
C47	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V				
C48	1-124-471-00	ELECT 1000MF	20%	6.3V				
C49	1-136-017-00	CERAMIC CHIP 0.0047MF		50V				
C50	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V				
C51	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V				
C52	1-163-035-00	CERAMIC CHIP 0.047MF	10%	25V				
C53	1-135-096-21	TANTAL. CHIP 4.7MF	20%	10V				
C54	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V				
C55	1-124-462-00	ELECT 10MF	20%	16V				
C56	1-162-638-11	CERAMIC CHIP 1MF		16V				
C57	1-162-568-11	CERAMIC CHIP 0.33MF		25V				
C59	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V				
C60	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V				
C61	1-163-117-00	CERAMIC CHIP 100PF	5%	50V				
C62	1-163-117-00	CERAMIC CHIP 100PF	5%	50V				
C63	1-163-117-00	CERAMIC CHIP 100PF	5%	50V				
C100	1-163-009-00	CERAMIC CHIP 0.001MF	5%	50V				
C101	1-163-009-00	CERAMIC CHIP 0.001MF	5%	50V				
C102	1-163-009-00	CERAMIC CHIP 0.001MF	5%	50V				
C103	1-163-009-00	CERAMIC CHIP 0.001MF	5%	50V				
C104	1-163-009-00	CERAMIC CHIP 0.001MF	5%	50V				
C105	1-163-009-00	CERAMIC CHIP 0.001MF	5%	50V				
C106	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V				
C107	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V				
C108	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V				
C109	1-163-106-00	CERAMIC CHIP 36PF	5%	50V				
C110	1-163-097-00	CERAMIC CHIP 15PF	5%	50V				
C111	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V				
C112	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V				
C113	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V				
C114	1-163-013-00	CERAMIC CHIP 0.0022MF	10%	50V				
C115	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V				
C116	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V				
C117	1-123-827-00	ELECT 220MF	20%	4V				
C118	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V				
C119	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V				
C120	1-163-100-00	CERAMIC CHIP 20PF	5%	50V				

Ref.No.	Part No.	Description				Ref.No.	Part No.	Description			
C121	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	IC4	8-759-937-61	IC S-81230AG			
C122	1-123-827-00	ELECT	220MF	20%	4V	IC100	8-759-141-46	IC UPD1715G-551-22			
C123	1-162-638-11	CERAMIC CHIP	1MF		16V	IC101	8-759-945-21	IC S-8052ANB-NE			
C124	1-164-006-11	CERAMIC CHIP	0.33MF	10%	16V	J1	1-563-836-11	JACK (EARPHONE)			
C125	1-163-137-00	CERAMIC CHIP	680PF	10%	50V	L1	1-402-364-11	ANTENNA, FERRITE-ROD (MW/LW)			
C126	1-163-137-00	CERAMIC CHIP	680PF	10%	50V	L2	1-459-838-11	COIL (WITH CORE), FM RF			
C127	1-163-137-00	CERAMIC CHIP	680PF	10%	50V	L3	1-459-837-11	COIL (WITH CORE), FM OSC			
C128	1-163-137-00	CERAMIC CHIP	680PF	10%	50V	L4	1-406-269-11	COIL (OSC), MW OSC			
C129	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	L5	1-410-200-31	INDUCTOR CHIP 4.7UH			
C131	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	L6	1-410-294-11	INDUCTOR, MICRO 38UH			
C132	1-164-004-11	CERAMIC CHIP	0.1MF	10%	50V	L7	1-410-202-51	INDUCTOR CHIP 6.8UH			
C133	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	L8	1-410-192-51	INDUCTOR CHIP 1UH			
C134	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	L100	1-410-212-51	INDUCTOR CHIP 47UH			
C135	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	LCD	1-808-341-11	DISPLAY PANEL, LIQUID CRYSTAL			
C136	1-131-368-00	TANTALUM	3.3MF	10%	10V	Q1	8-729-162-44	TRANSISTOR 2SB624-BV4			
C137	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	Q2	8-729-102-07	TRANSISTOR 2SC2223-F13			
C138	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	Q3	8-729-123-86	TRANSISTOR 2SK238-K16			
CF1	1-567-919-11	FILTER, CERAMIC				Q4	8-729-102-07	TRANSISTOR 2SC2223-F13			
CF2	1-567-685-81	FILTER, CERAMIC				Q5	8-729-102-07	TRANSISTOR 2SC2223-F13			
CF3	1-567-685-81	FILTER, CERAMIC				Q6	8-729-162-44	TRANSISTOR 2SB624-BV4			
CNJ1	1-507-954-11	JACK, EXTERNAL POWER				Q7	8-729-102-07	TRANSISTOR 2SC2223-F13			
CT1	1-141-245-00	TRIMMER, CERAMIC				Q8	8-729-162-44	TRANSISTOR 2SB624-BV4			
CT2	1-141-229-00	CAP, TRIMMER				Q9	8-729-114-35	TRANSISTOR FALL4Z-L62			
CT3	1-141-229-00	CAP, TRIMMER				Q10	8-729-114-35	TRANSISTOR FALL4Z-L62			
CT4	1-141-260-00	TRIMMER, CERAMIC				Q11	8-729-114-35	TRANSISTOR FALL4Z-L62			
D1	8-719-101-23	DIODE 1SS123				Q12	8-729-162-44	TRANSISTOR 2SB624-BV4			
D2	8-719-951-05	DIODE KV1560				Q13	8-729-114-35	TRANSISTOR FALL4Z-L62			
D3	8-719-951-05	DIODE KV1560				Q14	8-729-100-66	TRANSISTOR 2SC1623			
D4	8-719-101-23	DIODE 1SS123				Q100	8-729-100-66	TRANSISTOR 2SC1623			
D5	8-719-300-00	DIODE 1T33				Q101	8-729-100-66	TRANSISTOR 2SC1623			
D6	8-719-300-00	DIODE 1T33				Q102	8-729-220-93	TRANSISTOR 2SK209G			
D7	8-719-100-03	DIODE 1S2835				Q103	8-729-220-93	TRANSISTOR 2SK209G			
D8	8-719-100-05	DIODE 1S2837				Q104	8-729-100-66	TRANSISTOR 2SC1623			
D100	8-719-100-05	(AEP, West Germany)...DIODE 1S2837				R1	1-216-081-00	METAL GLAZE 22K 5%	1/10W		
D101	8-719-100-05	DIODE 1S2837				R2	1-216-103-00	METAL GLAZE 180K 5%	1/10W		
D102	8-719-100-05	DIODE 1S2837				R3	1-216-073-00	METAL GLAZE 10K 5%	1/10W		
D103	8-719-106-62	DIODE RD11M-B2				R4	1-216-073-00	METAL GLAZE 10K 5%	1/10W		
D104	8-719-101-23	DIODE 1SS123				R5	1-216-073-00	METAL GLAZE 10K 5%	1/10W		
D105	8-719-100-05	DIODE 1S2837				R6	1-216-133-00	METAL GLAZE 3.3M 5%	1/10W		
D106	8-719-101-23	DIODE 1SS123				R7	1-216-133-00	METAL GLAZE 3.3M 5%	1/10W		
D107	8-719-101-23	DIODE 1SS123				R8	1-216-001-00	METAL GLAZE 10 5%	1/10W		
IC1	8-752-030-15	IC CXA1019M				R9	1-216-121-00	METAL GLAZE 1M 5%	1/10W		
IC2	8-759-100-93	IC UPC393G2				R10	1-216-039-00	METAL GLAZE 390 5%	1/10W		
IC3	8-759-800-27	IC LA5003				R11	1-216-073-00	METAL GLAZE 10K 5%	1/10W		
						R12	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W		
						R13	1-216-017-00	METAL GLAZE 47K 5%	1/10W		



Ref.No.	Part No.	Description			
R14	1-216-008-11	METAL GLAZE	20	5%	1/10W
R15	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R16	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R17	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R18	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R19	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R20	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R21	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R22	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R23	1-216-029-00	METAL GLAZE	150	5%	1/10W
R24	1-216-035-00	METAL GLAZE	270	5%	1/10W
R25	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R26	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R27	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R28	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R29	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R30	1-216-025-00	METAL GLAZE	100	5%	1/10W
R31	1-216-037-00	METAL GLAZE	330	5%	1/10W
R32	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R33	1-216-103-00	METAL GLAZE	180K	5%	1/10W
R34	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R35	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R36	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R37	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R39	1-216-017-00	METAL GLAZE	47	5%	1/10W
R40	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R41	1-216-113-00	METAL GLAZE	470K	5%	1/10W
R42	1-216-025-00	METAL GLAZE	100	5%	1/10W
R43	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R44	1-216-001-00	METAL GLAZE	10	5%	1/10W
R45	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R46	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R47	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R48	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R49	1-216-025-00	METAL GLAZE	100	5%	1/10W
R50	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R51	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R100	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R101	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R102	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R103	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R104	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R105	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R106	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R107	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R108	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R109	1-216-113-00	METAL GLAZE	470K	5%	1/10W
R110	1-216-113-00	METAL GLAZE	470K	5%	1/10W

Ref.No.	Part No.	Description			
R111	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R112	1-216-001-00	METAL GLAZE	10	5%	1/10W
R113	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R114	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R115	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R116	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R117	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R118	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R119	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R120	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R121	1-216-070-00	METAL GLAZE	7.5K	5%	1/10W
R122	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R123	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R124	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R125	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R126	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R127	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R128	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R129	1-216-295-00	METAL GLAZE	0	5%	1/10W
R130	1-216-025-00	METAL GLAZE	100	5%	1/10W
R131	1-216-295-00	METAL GLAZE	0	5%	1/10W
R132	1-216-295-00	METAL GLAZE	0	5%	1/10W
R133	1-216-008-11	METAL GLAZE	20	5%	1/10W
R134	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R135	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R136	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R137	1-216-295-00	(UK,E)...METAL GLAZE	0	5%	1/10W
RV1	1-238-107-11	RES, VAR, CARBON 20K (VOLUME)			
RV2	1-228-995-00	RES, ADJ, CARBON 22K			
SP1	1-503-937-11	SPEAKER			
SW1	1-554-123-00	SWITCH, SLIDE (DX/LOCAL)			
SW100	1-571-249-11	SWITCH, SLIDE (MW CH STEP)			
SW101	1-570-331-11	SWITCH, SLIDE (ALARM)			
T1	1-404-789-11	TRANSFORMER, IF			
T100	1-449-138-11	TRANSFORMER, DC-DC CONVERTER			
XC	1-577-028-11	VIBRATOR, CRYSTAL			
ACCESSORY & PACKING MATERIAL					
	1-504-059-11	MAGNETIC EARPHONE (ME-20H)			
	*3-896-699-01	CUSHION			
	3-898-361-01	SHEET, PROTECTION			
	*3-899-903-01	INDIVIDUAL CARTON			
	3-990-148-11	(EXCEPT West Germany)...MANUAL, INSTRUCTION			
	3-990-148-41	(AEP, West Germany).....MANUAL, INSTRUCTION			
	3-990-148-51	(E).....MANUAL, INSTRUCTION			

