

# ICF-C111

## SERVICE MANUAL

*E Model*

Ver 1.0 2001.03



### SPECIFICATIONS

**Time display**

24-hour system

**Frequency range**

FM: 87.5 - 108 MHz

AM: 530 - 1710 kHz

**Speaker**

Approx. 6.6 cm (2 5/8 inches) dia., 8 ohm

**Power output**

100 mW (at 10% harmonic distortion)

**Power requirements**

120 V AC, 60 Hz (E model)

220 - 230 V AC, 50 Hz (Singapore model)

For the power back-up function: 9 V DC, one 6F22 battery

**Battery life**

Approx. 60 hours, using Sony S-006P (6F22) battery

**Dimensions**

Approx. 146.5 × 100.5 × 123 mm (w/h/d)

(5 7/8 × 4 × 4 7/8 inches) incl. projecting parts and controls

**Mass**

Approx. 580 g (1 lb 4.4 oz) not incl. battery

Design and specifications are subject to change without notice.

## FM/AM CLOCK RADIO

9-873-094-11  
2001C0400-1  
© 2001.3

**Sony Corporation**  
Audio Entertainment Group  
General Engineering Dept.

# SONY®

## Notes on Chip Component Replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

## TABLE OF CONTENTS

### 1. SERVICING NOTES

1-1. Cord Dressing (Power Cord) .....	3
1-2. Pointer Alignment .....	3

### 2. GENERAL

Setting the Clock .....	4
Operating the Radio .....	4
Setting the Alarm .....	4
Setting the Sleep Timer .....	4

### 3. DISASSEMBLY

3-1. Panel (Front) .....	5
3-2. Cabinet (Upper) Assy .....	6
3-3. Chassis Section .....	6
3-4. Main Board .....	7

### 4. ELECTRICAL ADJUSTMENTS .....

### 5. DIAGRAMS

5-1. Block Diagram .....	11
5-2. Printed Wiring Board .....	12
5-3. Schematic Diagram .....	13

### 6. EXPLODED VIEWS

6-1. Cabinet (Upper) Section .....	14
6-2. Cabinet (Lower) Section .....	15

### 7. ELECTRICAL PARTS LIST .....

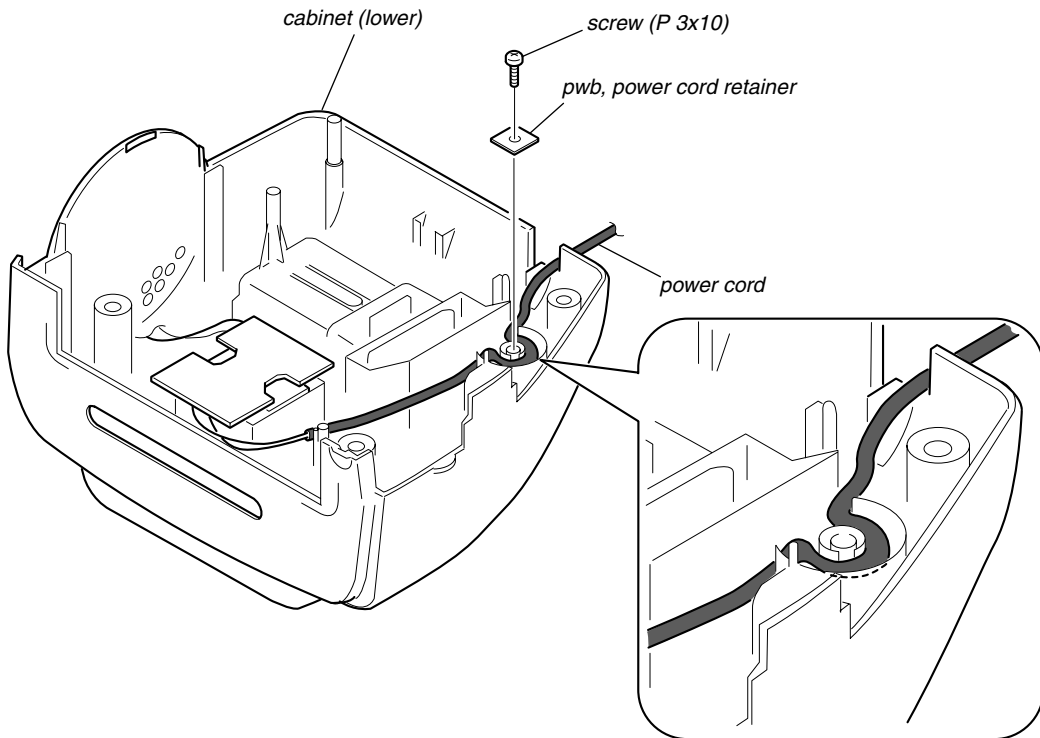
#### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  $\triangle$  OR DOTTED LINE WITH MARK  $\triangle$  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

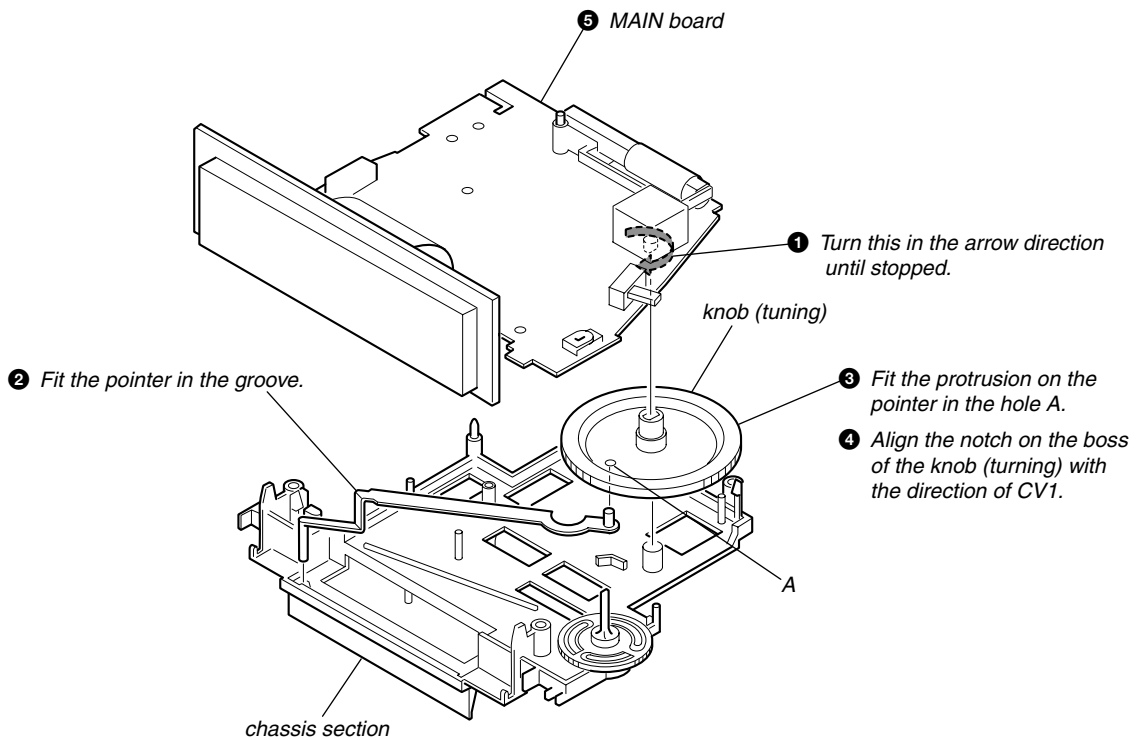
## SECTION 1 SERVICING NOTES

### 1-1. CORD DRESSING (POWER CORD)

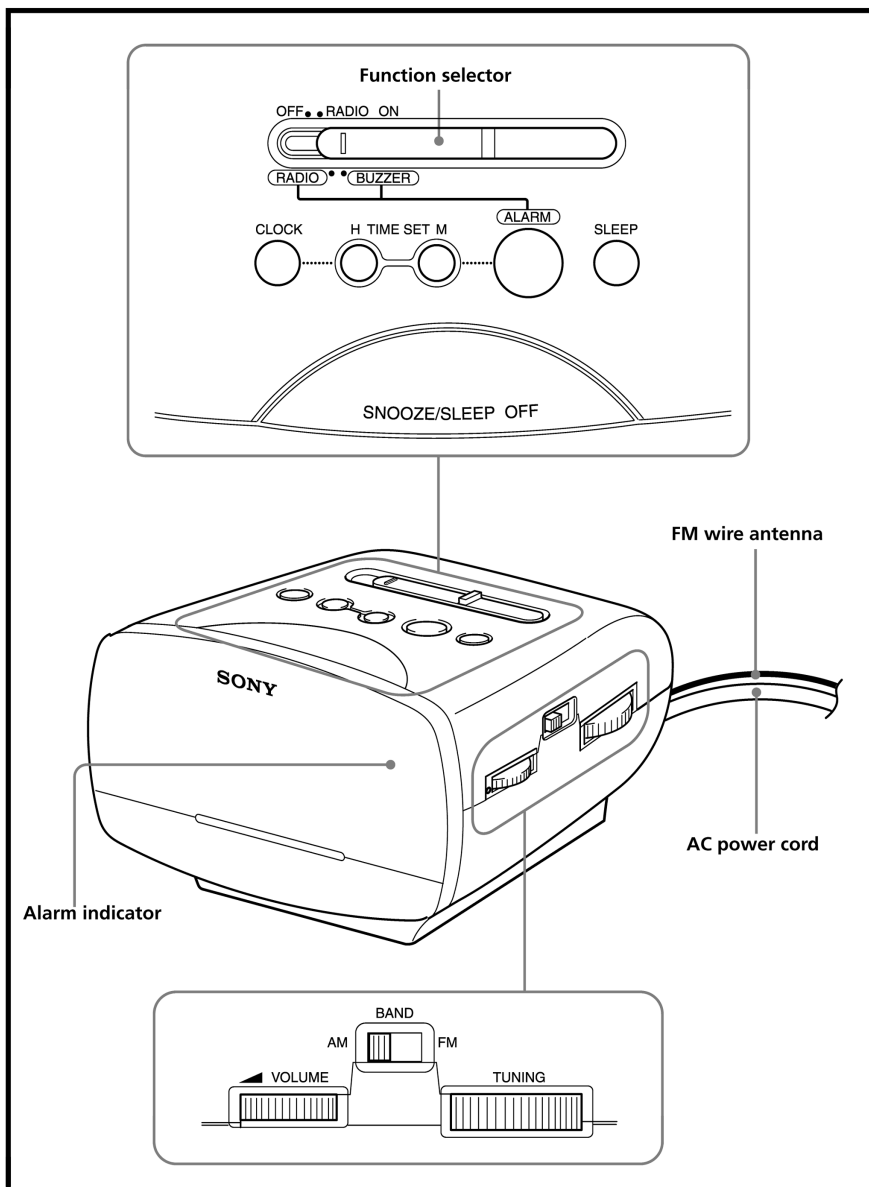
- 1) Connect the power cord as shown in the figure.
  - 2) Mount the chassis with screws (P 3 × 10).
- Note: Tighten completely the screws (P 3 × 10).



### 1-2. POINTER ALIGNMENT



This section is extracted  
from instruction manual.



## Setting the Alarm

To set the radio alarm, first tune in to a station and adjust the volume.

- 1 To set the hour for alarm, while holding down **ALARM**, press **TIME SET H**. When the desired hour appears in the display, release **ALARM**.
- 2 To set the minute for alarm, while holding down **ALARM**, press **TIME SET M**. When the desired minute appears in the display, release **ALARM**.
- 3 Set the function selector to **RADIO** or **BUZZER**.  
The alarm indicator will light up. The alarm will come on at the preset time, and the alarm indicator will stay lit. The alarm will be turned off automatically after about 119 minutes.

- To shut off the alarm, set the function selector to **OFF**.  
To sound the alarm at the preset time the next day, set the function selector to **RADIO** or **BUZZER** again.
- To cancel either alarm, set the function selector to **OFF**.  
The alarm indicator will be turned off.
- To doze a few more minutes, press **SNOOZE/SLEEP OFF**.  
The alarm will be turned off but will come on again after about 9 minutes (While the snooze function is operating, the alarm indicator stays lit. When the alarm comes on again, the alarm indicator will stay lit). You can repeat this process as many times as you like.
- To adjust the radio alarm volume, turn **VOLUME**.  
The buzzer volume is fixed.
- To check the preset time, press **ALARM**.

## Setting the Sleep Timer

Enjoy falling asleep to the radio using the built-in sleep timer that shuts off the radio automatically.

- 1 While listening to the radio, set the function selector to **OFF**.
- 2 Press **SLEEP**.  
The radio turns on. It will go off after 59 minutes.

- To turn off the radio before the preset time, press **SNOOZE/SLEEP OFF**.
- Every time you press **SLEEP**, the sleep timer is reset to 59 minutes.
- When you set the function selector to **RADIO** or **BUZZER**, if the preset alarm time comes while the sleep timer is operating, the radio or buzzer sounds depending on which you set.

## Setting the Clock

- 1 Plug in the unit.  
The display will flash "AM 12:00" or "0:00".
- 2 To set the hour, while holding down **CLOCK**, press **TIME SET H**. When the correct hour appears in the display, release **CLOCK**.
- 3 To set the minute, while holding down **CLOCK**, press **TIME SET M**. When the correct minute appears in the display, release **CLOCK**. The clock will begin to operate when you release **TIME SET M**.

- The clock system varies depending on the model you own.  
12-hour system: "AM 12:00" = midnight  
24-hour system: "0:00" = midnight
- Each press on **TIME SET H** or **TIME SET M** advances the displayed number by one.
- The minute digits advance to "00" after "59". The hour digits do not advance by pressing **TIME SET M**.
- To adjust the time exactly to the second, press **TIME SET M** simultaneously with the time signal.

## Operating the Radio

- 1 Set the function selector to **RADIO ON** to turn on the radio and adjust **VOLUME**.
- 2 Select **BAND** and tune in to a station using **TUNING**.  
**FM/AM**: ICF-C111 only  
**FM/MW/LW**: ICF-C111L only

- To turn off the radio, set the function selector to **OFF**.
- To improve radio reception  
**FM**: Extend the FM wire antenna fully to improve reception.  
**AM(MW)/LW**: Rotate the unit horizontally for optimum reception. A ferrite bar antenna is built into the unit.

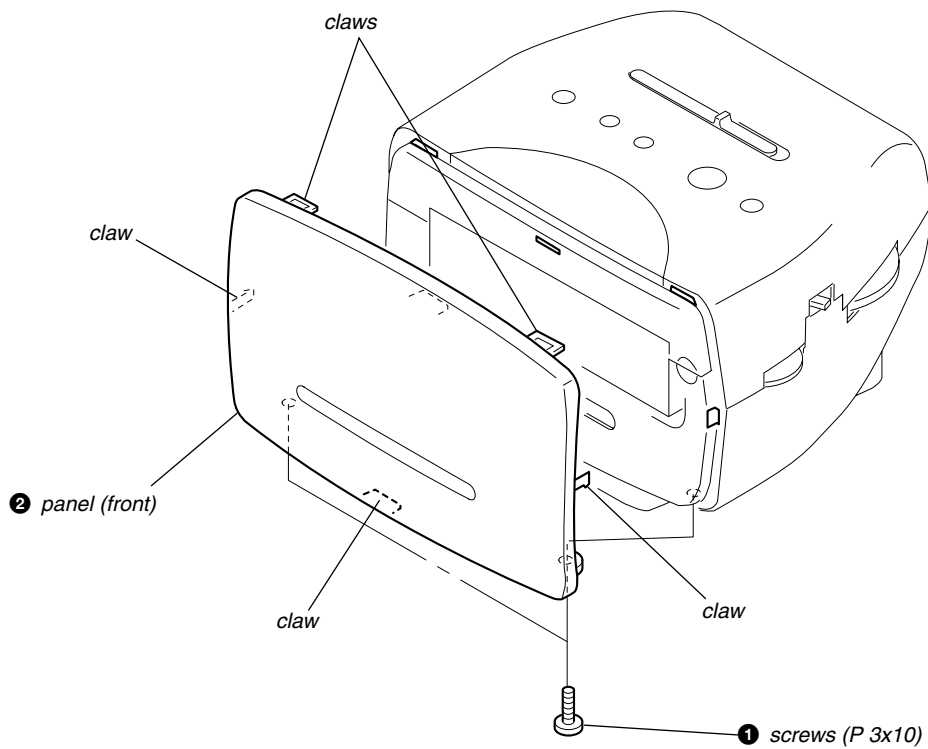
## SECTION 3 DISASSEMBLY

- The equipment can be removed using the following procedure.

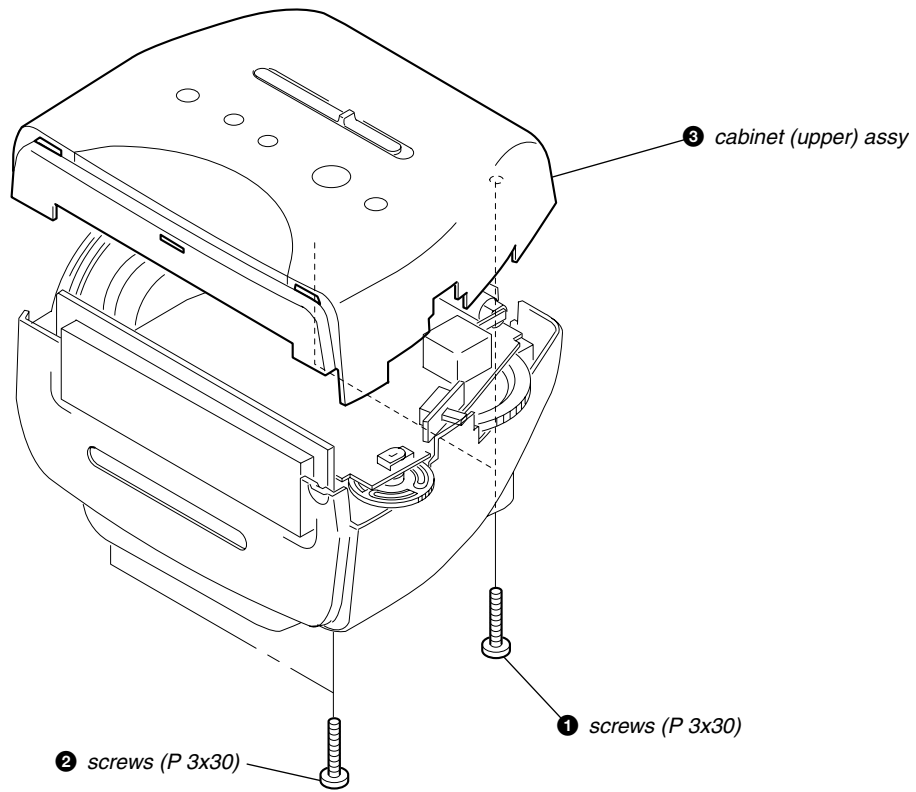
Set → Panel (Front) → Cabinet (Upper) Assy → Chassis Section → Main Board

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

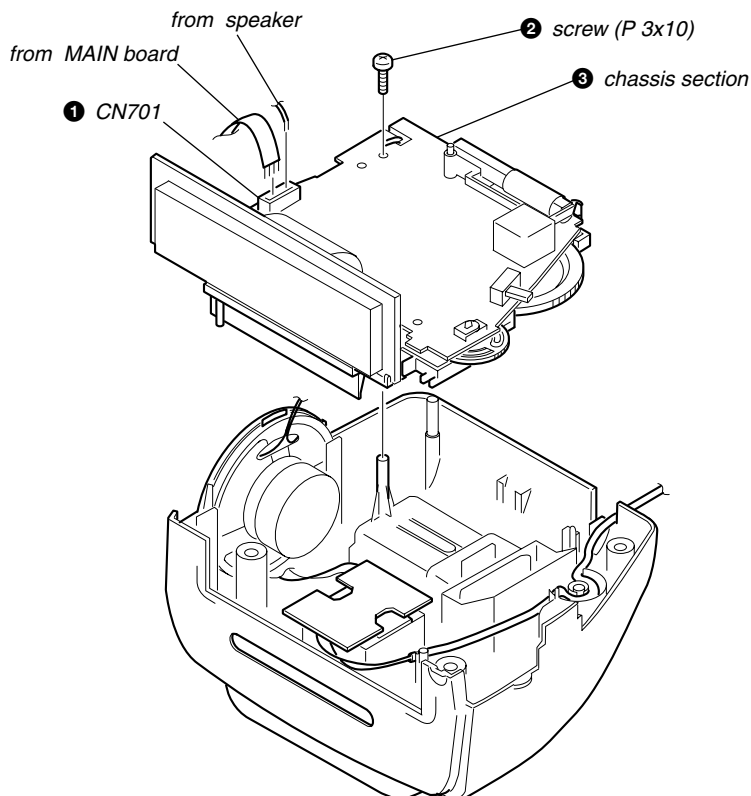
### 3-1. PANEL (FRONT)



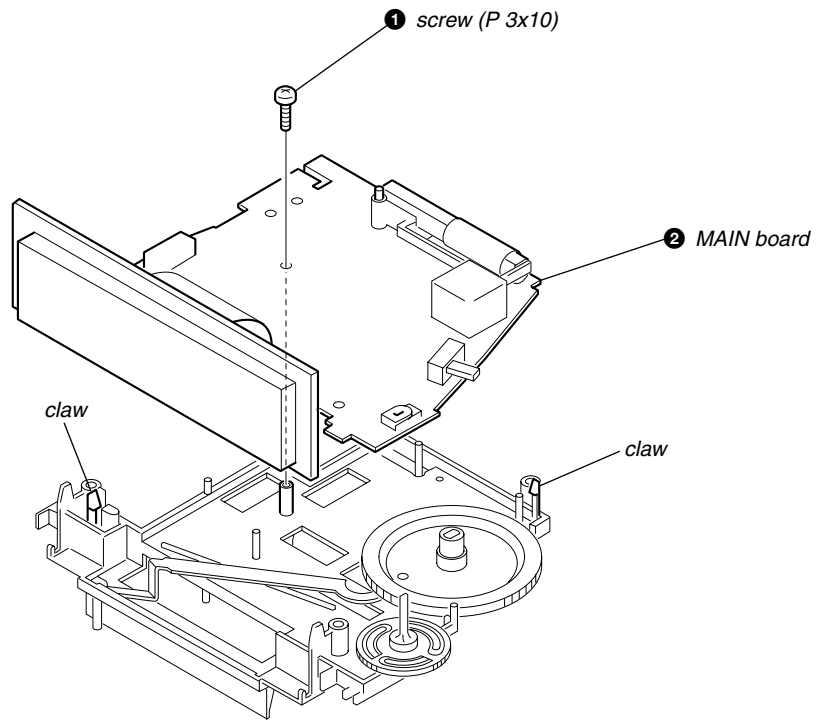
3-2. CABINET (UPPER) ASSY



3-3. CHASSIS SECTION



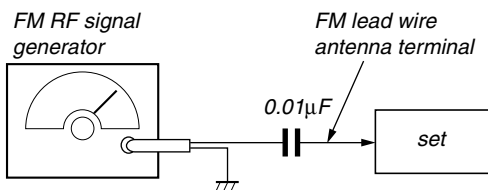
3-4. MAIN BOARD



## SECTION 4 ELECTRICAL ADJUSTMENTS

**FM SECTION**    **0 dB = 1 μV**

**Setting:**  
BAND switch: FM  
VOLUME switch: MIN



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

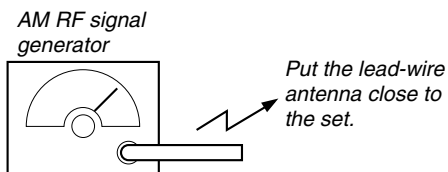
FM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L4	CT4
86.5 MHz	109.5 MHz

FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L3	CT3
86.5 MHz	109.5 MHz

AM IF ADJUSTMENT	
Adjust for a maximum reading on level meter.	
T1	
455 kHz	

**AM SECTION**

**Setting:**  
BAND switch: AM  
VOLUME switch: MIN



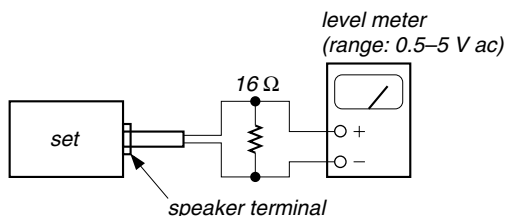
400Hz, 30%  
AM modulation  
Output level: as low as possible

AM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L2	CT2
520 kHz	1,750 kHz

AM TRACKING ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L1	CT1
600 kHz	1,400 kHz

**Adjustment Location:** See page 9.

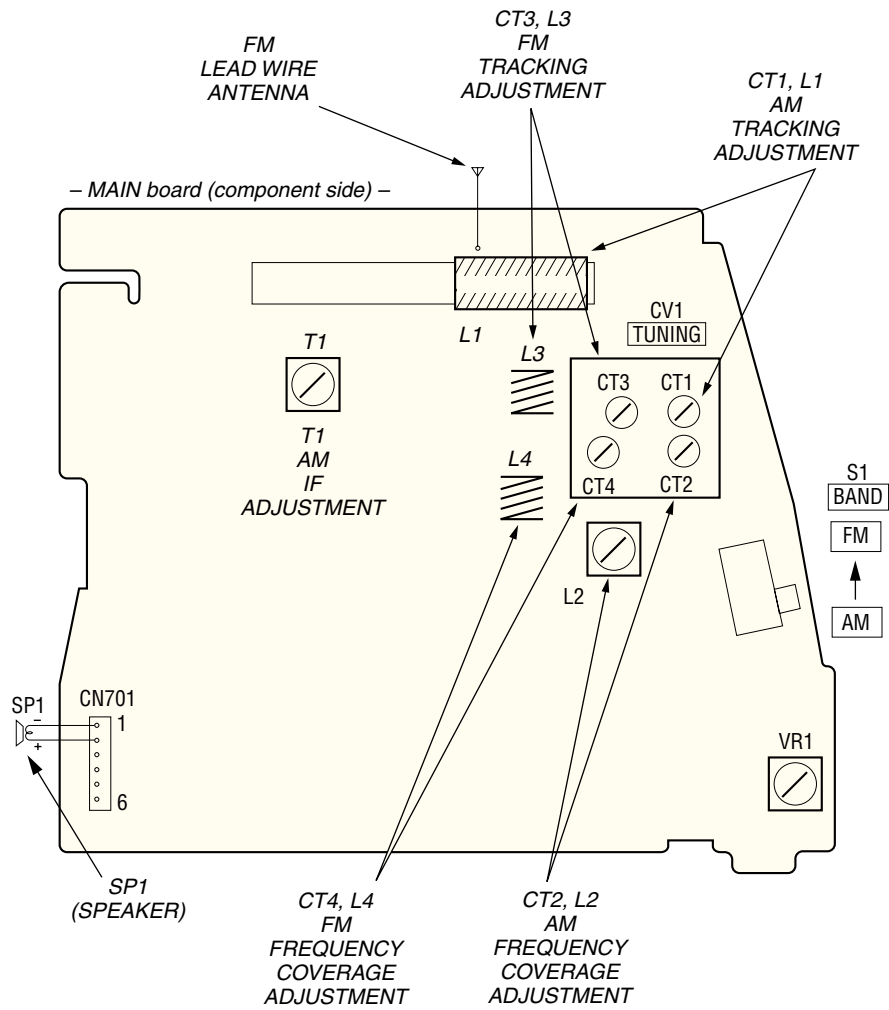
• **Connecting Level Meter (FM and AM)**



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




Adjustment Location:








## SECTION 5 DIAGRAMS

### THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.




#### Common Note on Schematic Diagram:

- All capacitors are in  $\mu\text{F}$  unless otherwise noted. pF:  $\mu\text{pF}$   
50 WV or less are not indicated except for electrolytics  
and tantalums.
- All resistors are in  $\Omega$  and  $1/4\text{ W}$  or less unless otherwise  
specified.
- $\triangle$  : internal component.
-  : panel designation.

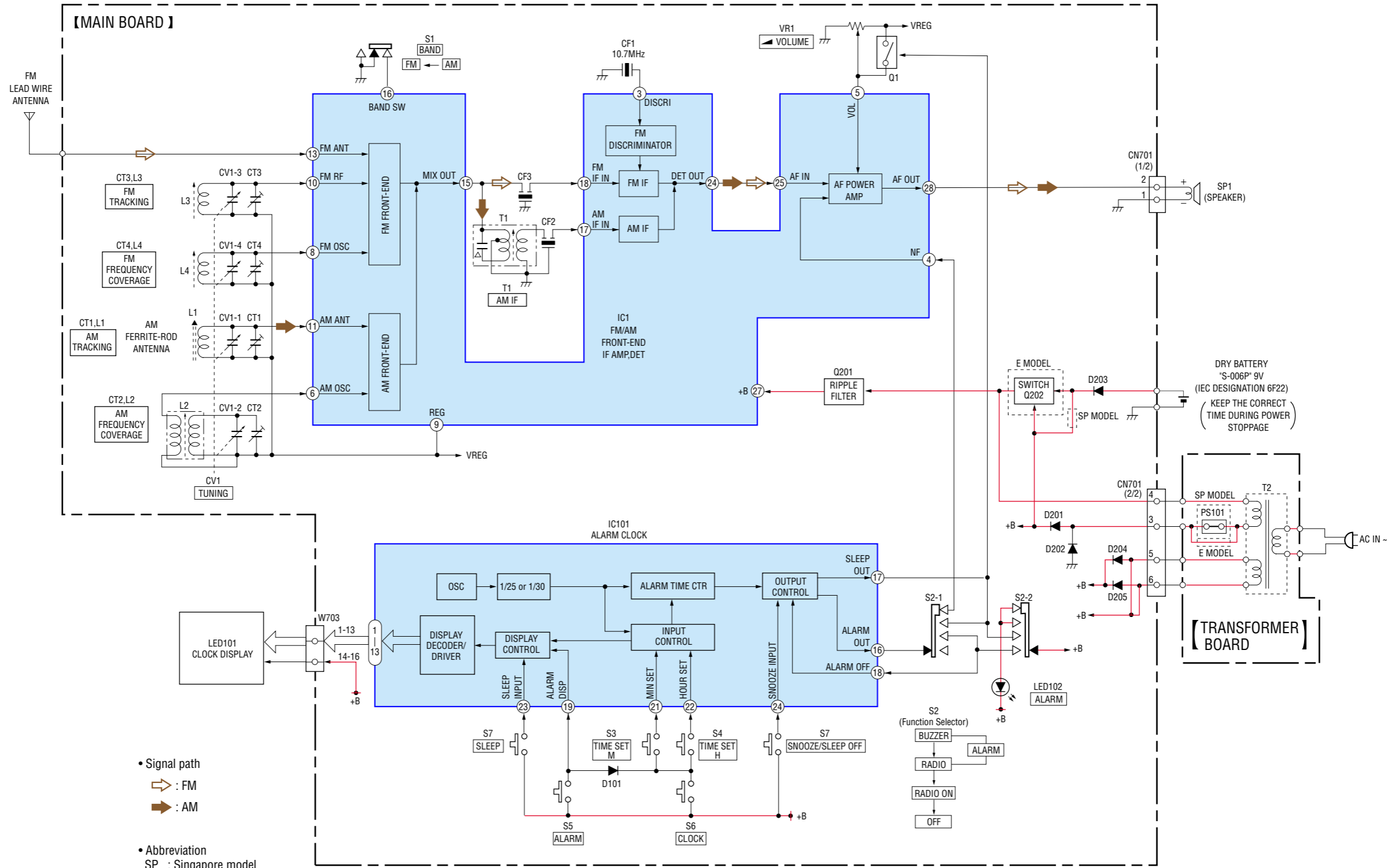
**Note:** The components identified by mark  $\triangle$  or dotted line  
with mark  $\triangle$  are critical for safety.  
Replace only with part number specified.

-  : B+ Line.
-  : adjustment for repair.
- Total current is measured.
- Power voltage is dc 9V and fed with regulated dc power  
supply from battery terminal.
- Voltage is dc with respect to ground under no-signal  
(detuned) condition.  
no mark : FM  
(  ) : AM
- Voltages are taken with a VOM (Input impedance  $10\text{ M}\Omega$ ).  
Voltage variations may be noted due to normal produc-  
tion tolerances.
- Waveforms are taken with a oscilloscope.  
Voltage variations may be noted due to normal produc-  
tion tolerances.
- Signal path.  
 : FM  
 : AM
- Abbreviation  
SP : Singapore model.

#### Common Note on Printed Wiring Boards:

-  : parts extracted from the component side.
-  : parts extracted from the conductor side.
- $\triangle$  : internal component.
-  : Pattern from the side which enables seeing.
- Abbreviation  
SP : Singapore model.

5-1. BLOCK DIAGRAM



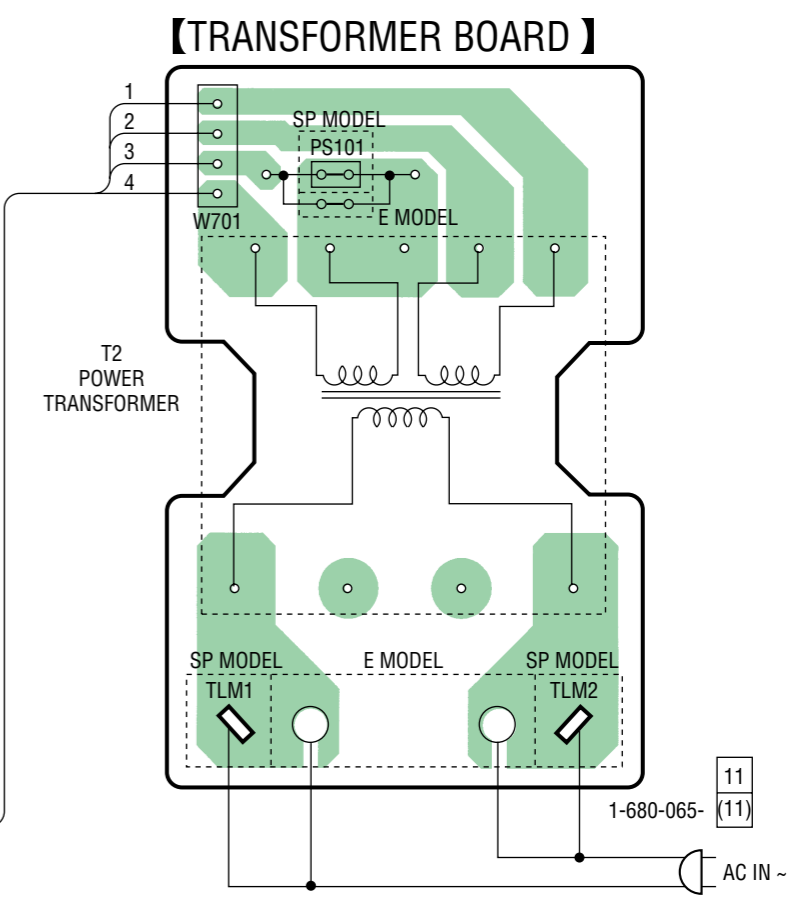
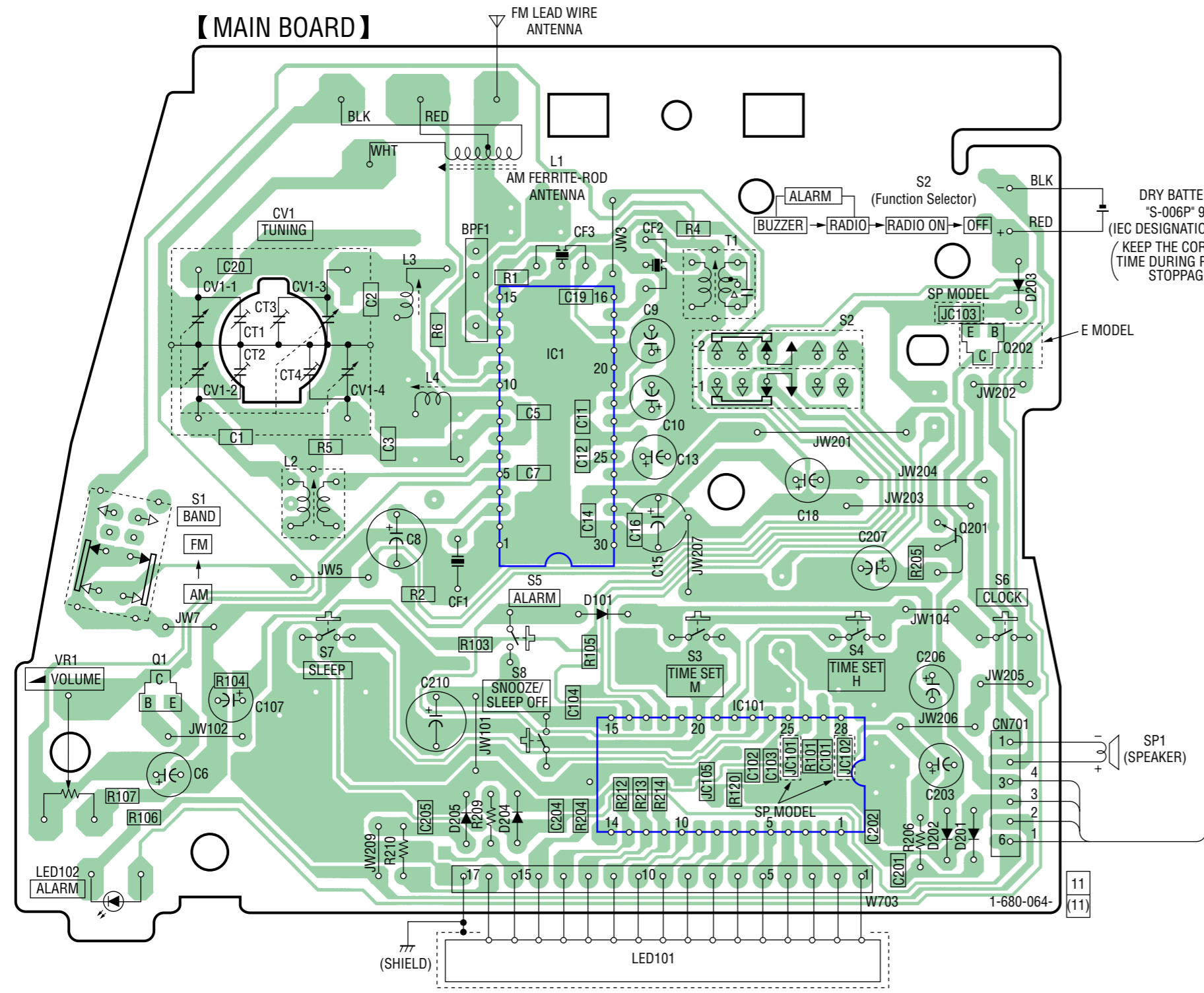
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

A  
B  
C  
D  
E  
F  
G  
H  
I  
J

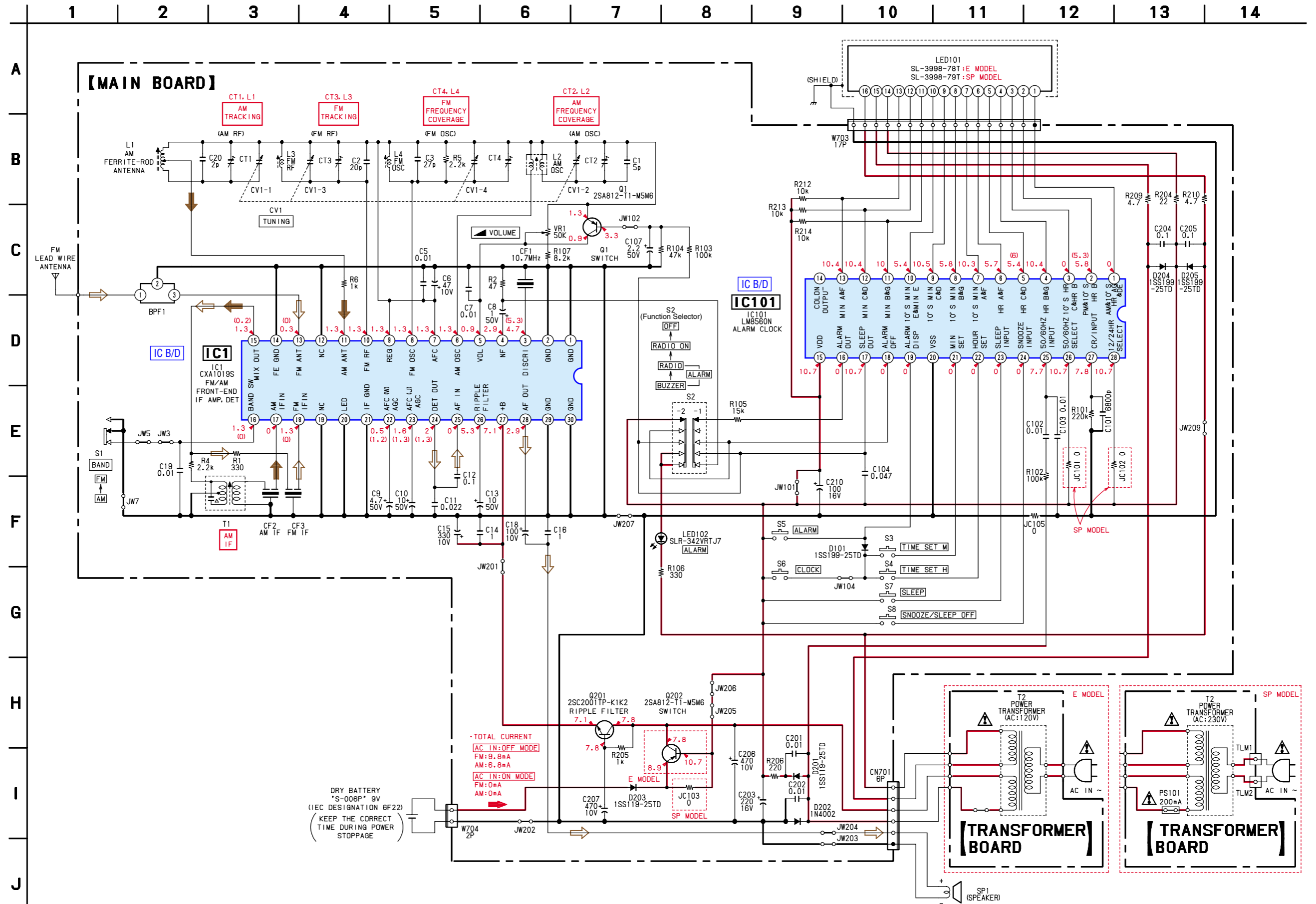
• Semiconductor Location

Ref. No.	Location
D101	F-6
D201	H-9
D202	H-9
D203	D-9
D204	H-5
D205	H-5
IC1	D-5
IC101	H-7
LED101	I-6
LED102	I-2
Q1	G-2
Q201	F-9
(Q202)	D-9

( ) : E MODEL

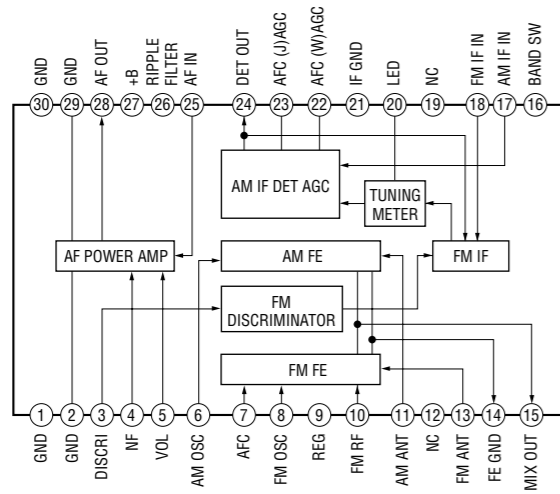


5-3. SCHEMATIC DIAGRAM • Refer to page 10 for Common Note on Schematic Diagram and page 14 for IC Block Diagrams.

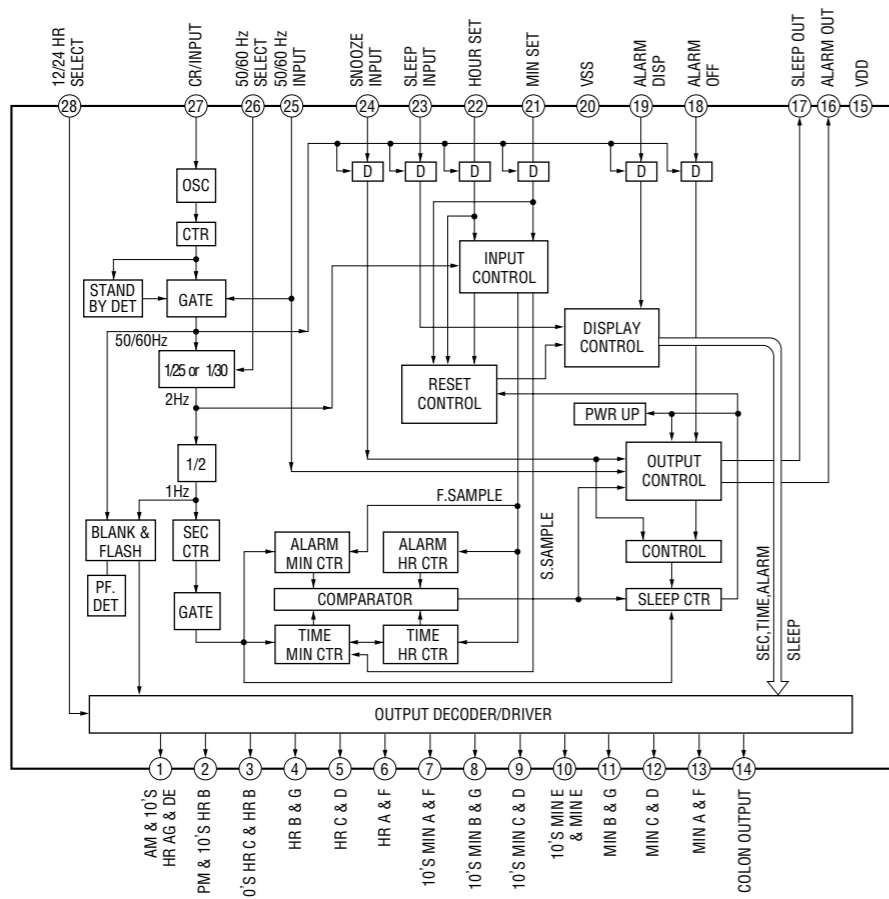


• IC Block Diagrams

IC1 CXA1019S



IC101 LM8560N



SECTION 6  
EXPLODED VIEWS

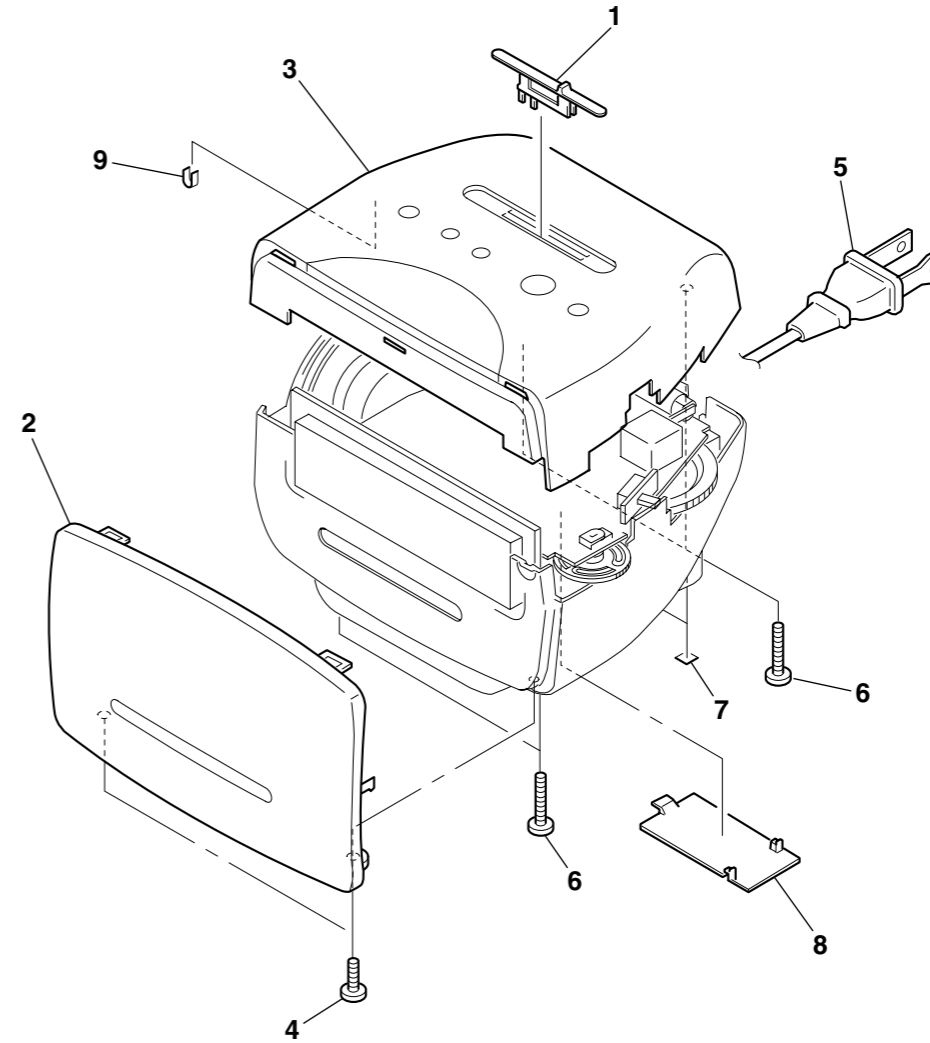
NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Abbreviation  
SP : Singapore model

- Color Indication of Appearance Parts  
Example :  
KNOB, BALANCE (WHITE) ... (RED)  
Parts Color Cabinet's Color
- Accessories and packing materials are given in the last of this parts list.

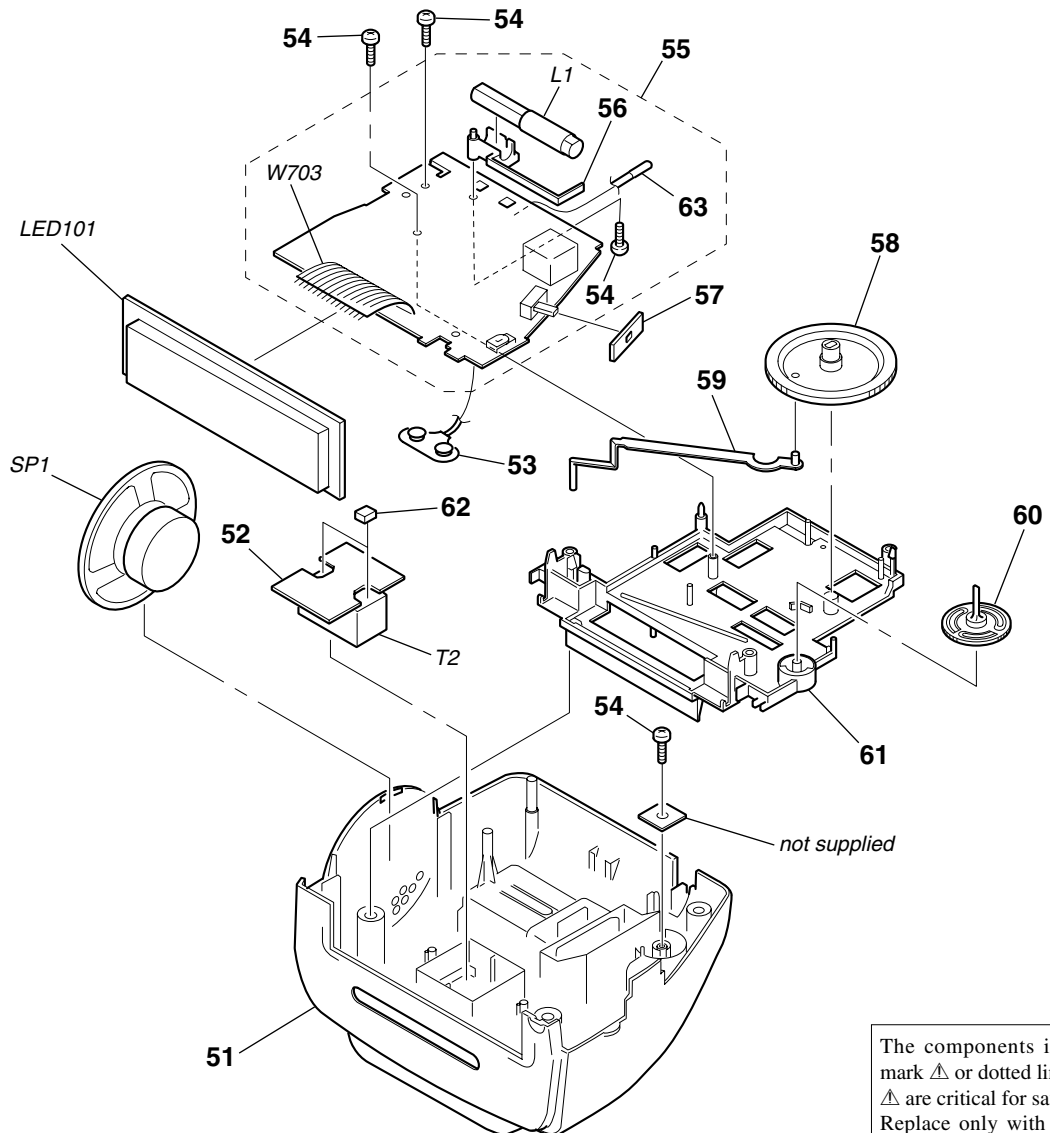
The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

6-1. CABINET (UPPER) SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	3-226-587-01	KNOB (FUNCTION) (BLACK)		4	7-685-647-79	SCREW +P 3X10 TYPE2 NON-SLIT	
1	3-226-587-11	KNOB (FUNCTION) (WHITE)		$\Delta$ 5	1-555-795-00	CORD, POWER (SP)	
2	3-226-584-01	PANEL (FRONT) (E)		$\Delta$ 5	1-769-339-22	CORD, POWER (E)	
2	3-226-584-11	PANEL (FRONT) (SP)		6	7-685-153-19	SCREW +P 3X30 TYPE2 NON-SLIT	
3	X-3380-019-1	UPPER ASSY, CABINET (BLACK) (E)		7	3-368-852-01	FOOT	
3	X-3380-019-2	UPPER ASSY, CABINET (WHITE) (E)		8	3-369-135-21	LID, BATTERY CASE	
3	X-3380-020-1	UPPER ASSY, CABINET (BLACK) (SP)		9	3-515-102-31	CUSHION	
3	X-3380-020-2	UPPER ASSY, CABINET (WHITE) (SP)					

6-2. CABINET (LOWER) SECTION



The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	3-226-583-01	CABINET (LOWER) (BLACK) (E)		59	3-226-589-01	POINTER	
51	3-226-583-11	CABINET (LOWER) (WHITE) (E)		60	3-919-268-01	KNOB (VOL) (BLACK)	
51	3-226-583-21	CABINET (LOWER) (BLACK) (SP)		60	3-919-268-11	KNOB (VOL) (WHITE)	
51	3-226-583-31	CABINET (LOWER) (WHITE) (SP)		61	3-226-585-01	CHASSIS (E)	
* 52	1-680-065-11	TRANSFORMER BOARD		62	3-553-567-00	CUSHION	
53	1-535-804-21	SNAP, BATTERY		63	1-754-135-11	ANTENNA (WIRE)	
54	7-685-647-79	SCREW +P 3X10 TYPE2 NON-SLIT		LED101	8-749-016-86	LED SL-3998-78T (E)	
* 55	1-680-064-11	MAIN BOARD		LED101	8-749-016-87	LED SL-3998-79T (SP)	
56	3-226-590-01	HOLDER (ANTENNA)		SP1	1-529-456-11	SPEAKER (6.6cm)	
57	3-933-547-01	SHEET (BAND)		$\Delta$ T2	1-433-573-11	TRANSFORMER, POWER (E)	
58	3-226-588-01	KNOB (TUNING) (BLACK)		$\Delta$ T2	1-433-574-21	TRANSFORMER, POWER (SP)	
58	3-226-588-11	KNOB (TUNING) (WHITE)		W703	1-757-686-11	CORD, CONNECTION (17 CORE)	

SECTION 7  
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.
- RESISTORS  
All resistors are in ohms.  
METAL: Metal-film resistor.  
METAL OXIDE: Metal oxide-film resistor.  
F: nonflammable

- Items marked “\*\*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS  
In each case, u :  $\mu$ , for example:  
uA.. :  $\mu$ A.. uPA.. :  $\mu$ PA..  
uPB.. :  $\mu$ PB.. uPC.. :  $\mu$ PC.. uPD.. :  $\mu$ PD..
- CAPACITORS  
uF :  $\mu$ F
- COILS  
uH :  $\mu$ H

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board.

- Abbreviation  
SP : Singapore model

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
*	1-680-064-11	MAIN BOARD *****				< FILTER >	
	1-535-804-21	SNAP, BATTERY		CF1	1-781-861-71	FILTER, CERAMIC (COMBINATION)	
	1-754-135-11	ANTENNA (WIRE)		CF2	1-781-790-11	FILTER, AM CERAMIC	
	3-226-590-01	HOLDER (ANTENNA)		CF3	1-781-861-71	FILTER, CERAMIC (COMBINATION)	
	7-685-647-79	SCREW +P 3X10 TYPE2 NON-SLIT				< CONNECTOR >	
		< BPF >		* CN701	1-568-272-11	SOCKET, CONNECTOR 6P	
BPF1	1-236-022-11	FILTER, BAND PASS				< VARIABLE CAPACITOR >	
		< CAPACITOR >		CT1-4	1-141-522-11	CAP, VAR	
C1	1-162-936-11	CERAMIC CHIP	5PF 0.25PF 50V	CV1	1-141-522-11	CAP, VAR (TUNING)	
C2	1-164-160-11	CERAMIC CHIP	20PF 5% 50V			< DIODE >	
C3	1-164-405-11	CERAMIC CHIP	27PF 5% 50V	D101	8-719-911-19	DIODE 1SS119-25	
C5	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	D201	8-719-911-19	DIODE 1SS119-25	
C6	1-104-664-11	ELECT	47uF 20% 10V	D202	8-719-052-88	DIODE 1N4002	
				D203	8-719-911-19	DIODE 1SS119-25	
C7	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	D204	8-719-911-19	DIODE 1SS119-25	
C8	1-126-960-11	ELECT	1uF 20% 50V	D205	8-719-911-19	DIODE 1SS119-25	
C9	1-126-963-11	ELECT	4.7uF 20% 50V			< IC >	
C10	1-126-964-11	ELECT	10uF 20% 50V	IC1	8-752-037-02	IC CXA1019S	
C11	1-164-227-11	CERAMIC CHIP	0.022uF 10% 25V	IC101	8-759-821-46	IC LM8560N	
						< JUMPER RESISTOR >	
C12	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V	JC101	1-216-864-11	SHORT 0	(SP)
C13	1-126-964-11	ELECT	10uF 20% 50V	JC102	1-216-864-11	SHORT 0	(SP)
C14	1-109-982-11	CERAMIC CHIP	1uF 10% 10V	JC103	1-216-864-11	SHORT 0	(SP)
C15	1-126-924-11	ELECT	330uF 20% 10V	JC105	1-216-864-11	SHORT 0	
C16	1-109-982-11	CERAMIC CHIP	1uF 10% 10V			< COIL >	
				L1	1-419-532-11	COIL, FERRITE-ROD ANTENNA (AM)	
C18	1-104-665-11	ELECT	100uF 20% 10V	L2	1-419-533-11	COIL, OSCILLATION (AM)	
C19	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	* L3	1-422-320-11	COIL, AIR-CORE	
C20	1-162-907-11	CERAMIC CHIP	2PF 0.25PF 50V	L4	1-422-131-00	COIL, FM OSCILLATION	
C101	1-162-969-11	CERAMIC CHIP	0.0068uF 10% 25V			< DIODE >	
C102	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	LED101	8-749-016-86	LED SL-3998-78T (E)	
				LED101	8-749-016-87	LED SL-3998-79T (SP)	
C103	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	LED102	8-719-054-61	LED SLR-342VRTJ7 (ALARM)	
C104	1-164-361-11	CERAMIC CHIP	0.047uF 16V			< TRANSISTOR >	
C107	1-126-961-11	ELECT	2.2uF 20% 50V	Q1	8-729-216-22	TRANSISTOR 2SA1162-G	
C201	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V				
C202	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V				
C203	1-126-934-11	ELECT	220uF 20% 16V				
C204	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V				
C205	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V				
C206	1-126-935-11	ELECT	470uF 20% 10V				
C207	1-126-935-11	ELECT	470uF 20% 10V				
C210	1-126-933-11	ELECT	100uF 20% 16V				



**MAIN**

**TRANSFORMER**

Ref. No.	Part No.	Description	Remark
Q201	8-729-011-92	TRANSISTOR 2SC2001TP-K1K2	
Q202	8-729-216-22	TRANSISTOR 2SA1162-G (E)	
< RESISTOR >			
R1	1-216-815-11	METAL CHIP 330 5%	1/16W
R2	1-216-805-11	METAL CHIP 47 5%	1/16W
R4	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R5	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R6	1-216-821-11	METAL CHIP 1K 5%	1/16W
R101	1-216-849-11	METAL CHIP 220K 5%	1/16W
R102	1-216-845-11	METAL CHIP 100K 5%	1/16W
R103	1-216-845-11	METAL CHIP 100K 5%	1/16W
R104	1-216-841-11	METAL CHIP 47K 5%	1/16W
R105	1-216-835-11	METAL CHIP 15K 5%	1/16W
R106	1-216-815-11	METAL CHIP 330 5%	1/16W
R107	1-216-832-11	METAL CHIP 8.2K 5%	1/16W
R204	1-216-801-11	METAL CHIP 22 5%	1/16W
R205	1-216-821-11	METAL CHIP 1K 5%	1/16W
R206	1-249-409-11	CARBON 220 5%	1/4W
R209	1-249-389-11	CARBON 4.7 5%	1/4W
R210	1-249-389-11	CARBON 4.7 5%	1/4W
R212	1-216-833-11	METAL CHIP 10K 5%	1/16W
R213	1-216-833-11	METAL CHIP 10K 5%	1/16W
R214	1-216-833-11	METAL CHIP 10K 5%	1/16W
< SWITCH >			
S1	1-692-181-21	SWITCH, SLIDE (BAND)	
S2	1-771-904-11	SWITCH, SLIDE (Function selector)	
S3	1-692-014-11	SWITCH, KEYBOARD (TIME SET M)	
S4	1-692-014-11	SWITCH, KEYBOARD (TIME SET H)	
S5	1-692-014-11	SWITCH, KEYBOARD (ALARM)	
S6	1-692-014-11	SWITCH, KEYBOARD (CLOCK)	
S7	1-692-014-11	SWITCH, KEYBOARD (SLEEP)	
S8	1-692-014-11	SWITCH, KEYBOARD (SNOOZE/SLEEP OFF)	
< TRANSFORMER >			
T1	1-435-399-11	TRANSFORMER, IF	
< VARIABLE RESISTOR >			
VR1	1-228-790-00	RES, VAR, CARBON 50K (VOLUME)	
< CONNECTION CORD >			
W703	1-757-686-11	CORD, CONNECTION (17 CORE)	

\*\*\*\*\*

Ref. No.	Part No.	Description	Remark
*	1-680-065-11	TRANSFORMER BOARD *****	
△	1-555-795-00	CORD, POWER (SP)	
△	1-769-339-22	CORD, POWER (E)	
< IC LINK >			
△ PS101	1-533-971-11	LINK, IC (200mA) (SP)	
< TRANSFORMER >			
△ T2	1-433-573-11	TRANSFORMER, POWER (E)	
△ T2	1-433-574-21	TRANSFORMER, POWER (SP)	
< TERMINAL >			
* TLM1	1-535-771-11	TERMINAL (SP)	
* TLM2	1-535-771-11	TERMINAL (SP)	
*****			
MISCELLANEOUS *****			
△ 5	1-555-795-00	CORD, POWER (SP)	
△ 5	1-769-339-22	CORD, POWER (E)	
53	1-535-804-21	SNAP, BATTERY	
SP1	1-529-456-11	SPEAKER (6.6cm)	
*****			
ACCESSORIES & PACKING MATERIALS *****			
3-227-320-01		SHEET (BLIND) (BLACK) (E)	
3-227-320-11		SHEET (BLIND) (WHITE) (E)	
3-227-587-11		MANUAL, INSTRUCTION (ENGLISH,FRENCH, GERMAN,SPANISH,DUTCH,ITALIAN) (E)	
3-227-587-41		MANUAL, INSTRUCTION (ENGLISH, SIMPLIFIED CHINESE,POLISH,CZECH, HUNGARIAN,SLOVAKIAN) (SP)	

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

