

# ICF-C470/C470L

## SERVICE MANUAL

Ver 1.1 1999.06  
With SUPPLEMENT 1  
(9-926-981-81)

US Model  
Canadian Model  
E Model  
Australian Model  
ICF-C470

AEP Model  
ICF-C470/C470L

UK Model  
ICF-C470L



Photo: ICF-C470

### SPECIFICATIONS

#### Time display

North and South America, UK and Australia:

12-hour system

Other countries: 24-hour system

#### Frequency range

	Band	ICF-C470	ICF-C470L
North and South America	FM	87.5-108 MHz	-
	AM	530-1,710 kHz	-
Italy	FM	87.5-108 MHz	-
	AM	526.5-1,606.5 kHz	-
Other countries	FM	87.5-108 MHz	87.5-108 MHz
	AM(MW)	530-1,605 kHz	530-1,605 kHz
	LW	-	153-255 kHz

#### Speaker

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

#### Power output

100 mW (at 10% harmonic distortion)

#### Power requirements

North America: 120 V AC, 60 Hz

South America: 220-230 V AC, 50/60 Hz

Other countries: 220-230 V AC, 50 Hz

For power backup: 9V DC, one 6F22 battery

#### Battery life

Approx. 35 hours (for clock backup) using the S-006P (U) battery

#### Dimensions

Approx. 200 × 77 × 150 mm (w/h/d) (7 7/8 × 3 1/8 × 6 inches) incl. projecting parts and controls

#### Mass

UK model: Approx. 700g (1 lb 9 oz) not incl. battery

Other models: Approx. 650g (1 lb 7 oz) not incl. battery

Design and specifications are subject to change without notice.

ICF-C470

FM/AM CLOCK RADIO

ICF-C470L

FM/MW/LW 3 BAND CLOCK RADIO



# SONY®

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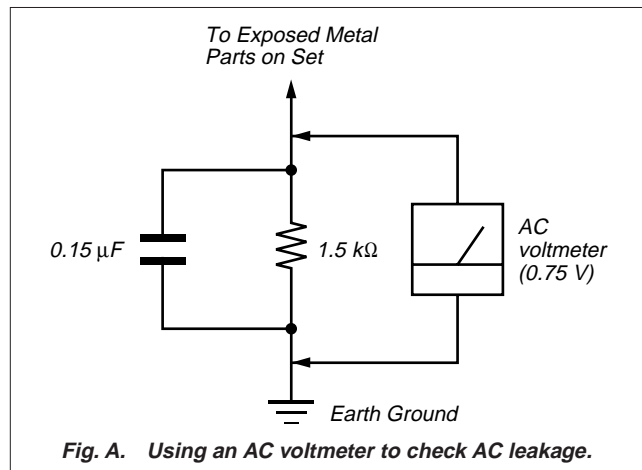
## SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer: Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

## LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamps.). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)



### 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.

### ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE  $\triangle$  SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

## HOW TO CHANGED THE CERAMIC FILTERS

This model is used two ceramic filters of CF2 and CF3.

You must used same type of color marked ceramic filters in order to meet same specifications.

Therefore, the ceramic filter must changed two pieces together since it's supply two pieces in one package as a spare parts.

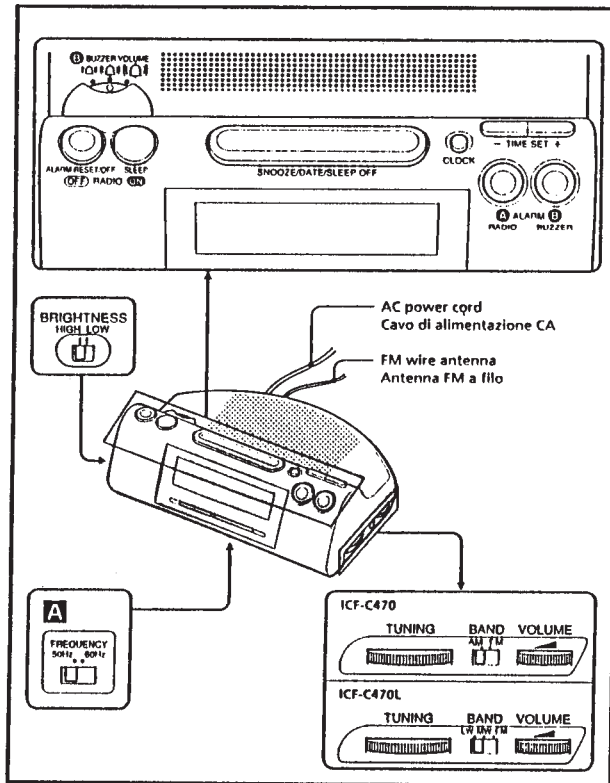
Mark	Center frequency
red	10.70 MHz
blue	10.67 MHz
orange	10.73 MHz
black	10.64 MHz
white	10.76 MHz

## 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.

# SECTION 1 GENERAL

This section is extracted from instruction manual.



## Before You Begin

Thank you for choosing the Sony Dream Machine! The Dream Machine will give you many hours of reliable service and listening pleasure. Before operating the Dream Machine, please read these instructions thoroughly and retain them for future reference.

These instructions cover two models: the ICF-C470 and ICF-C470L. The band for each model and the area where the model is available are shown below.

North and South America	ICF-C470	FM/AM
Other countries	ICF-C470	FM/AM
	ICF-C470L	FM/MW/LW

## Features

- Dual alarm
- Date display
- Forward/reverse time setting
- Full power backup to keep the clock and the alarm (radio and buzzer) operating during a power interruption with a 6F22 battery (not supplied) installed. (For models other than the North American model, the power backup is only for the clock.)
- Alarm BUZZER volume control (small, medium, big)
- Brightness control (Low, High)
- AM wide band

## Installing the Battery

To keep good time, your Dream Machine needs one 6F22 battery (not supplied), in addition to house current. The battery keeps the clock operating in the event of a power interruption. Before setting the time on your Dream Machine, open the lid at the bottom of the unit, install the battery with correct polarity and then close the lid.

- After a power interruption, the displayed time may not be always correct (it may gain or lose about 10 minutes per hour).

**Knowing When To Replace the Battery**  
To check the battery power, unplug the power cord from the wall outlet and plug it in again after a few minutes. If the displayed time is incorrect, replace the battery with a new one.

## Adapting to the Local Power Line

(See Fig. A)

For South American countries, this model is equipped with a frequency selector (220-230V, AC 50/60 Hz), located at the bottom of this unit. If your unit has a frequency selector, make sure that it is set correctly to match your local power supply. If necessary, switch the selector with a thin bladed object such as a screwdriver.

## Setting the Clock and the Date

### Setting the Clock

- 1 Plug in the unit.  
The display will flash "AM 12:00" or "0:00"
- 2 While holding down **CLOCK**, press **TIME SET +** or **-** till the correct time appears in the display.  
When you release **CLOCK**, the clock begins to operate.

- The clock system varies depending on the model you own.  
12-hour system: "AM 12:00" = midnight  
24-hour system: "0:00" = midnight
- To set the current time rapidly, keep pressing **TIME SET +** or **-** while holding down **CLOCK**.

### Setting the Date

- 1 While holding down **SNOOZE/DATE/SLEEP OFF**, press **TIME SET +** or **-** till the correct date appears in the display.  
Then, release **SNOOZE/DATE/SLEEP OFF**
- To display the date, press **SNOOZE/DATE/SLEEP OFF**. The display returns to the current time when you release **SNOOZE/DATE/SLEEP OFF**. When **SNOOZE/DATE/SLEEP OFF** is pressed while the **SNOOZE** function is operating, the year and date will not appear in the display.

## Operating the Radio

- 1 Press **RADIO ON/SLEEP** to turn on the radio and adjust **VOLUME** (volume).
- 2 Select **FM**, **AM(MW)**, or **LW** and tune in to a station using **TUNING**.

### Adjusting the brightness of the clock display

Set **BRIGHTNESS** to the position which gives you the desired display visibility (**HIGH** or **LOW**).

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

## Setting the Alarm

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

- 1 While holding down **ALARM A** or **RADIO** (for the radio) or **B** **BUZZER** (for the buzzer), press **TIME SET +** or **-** till the desired time appears in the display.  
When you release **ALARM A** or **B**, the **ALARM A** or **B** indicator stops flashing and lights up, and the current time appears in the display.  
The alarm will come on at the preset time and will automatically turn itself off after 59 minutes.

### Adjusting the Alarm Level (BUZZER VOLUME)

Adjust the loudness of the alarm by setting **B** **BUZZER VOLUME** to **small** (small), **medium** (medium), or **big** (big).

- If you set **ALARM A** and **ALARM B** to the same time, only **ALARM A** will work.
- The **B** **BUZZER VOLUME** switch affects only the loudness of the buzzer alarm. Use **VOLUME** to adjust the volume of the radio alarm.
- To shut off the alarm, press **RADIO OFF/ALARM RESET/OFF**.  
The alarm will come on at the preset time the next day.
- To cancel either alarm, press **RADIO OFF/ALARM RESET/OFF** while holding down **ALARM A** or **B**.
- To doze for a few more minutes, press **SNOOZE/DATE/SLEEP OFF**.  
The alarm will shut off, but will come on again after about 6 minutes. You can repeat this process as many times as you like.
- To check the preset time, press **ALARM A** or **B**.

## Setting the Sleep Timer

Enjoy falling asleep to the radio using the built-in sleep timer.

- 1 Press **RADIO ON/SLEEP**.  
The radio turns on.
- 2 Press **RADIO ON/SLEEP** repeatedly until the desired preset time appears on the display (90, 60, 45, 30 or 15 minutes).  
Every push changes the display as follows:

Current time → On → 90 → 60  
15 ← 30 ← 45 ←

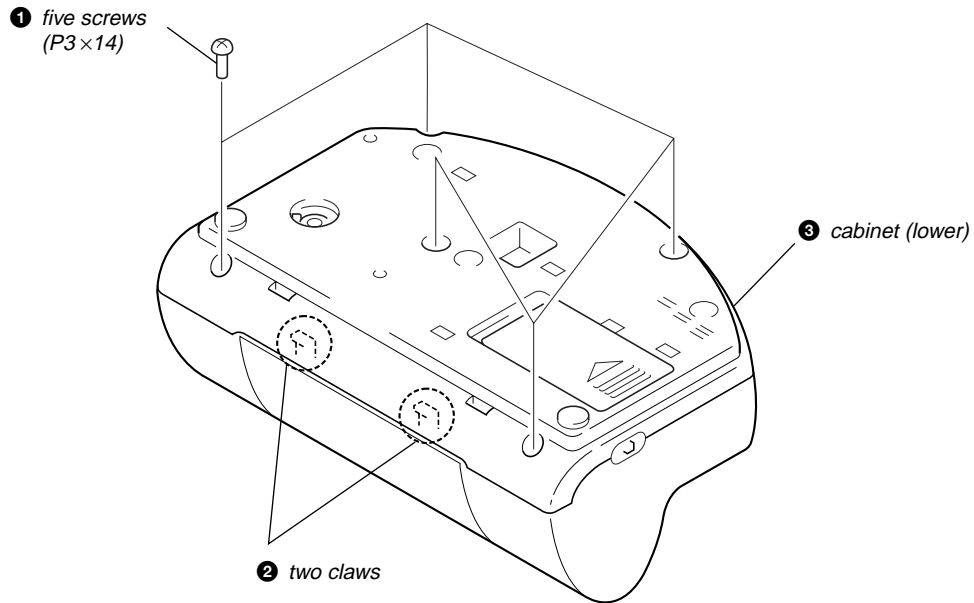
The radio will play for the duration you have set, and will then turn off automatically.

- To turn off the radio before the preset time, press **SNOOZE/DATE/SLEEP OFF**.

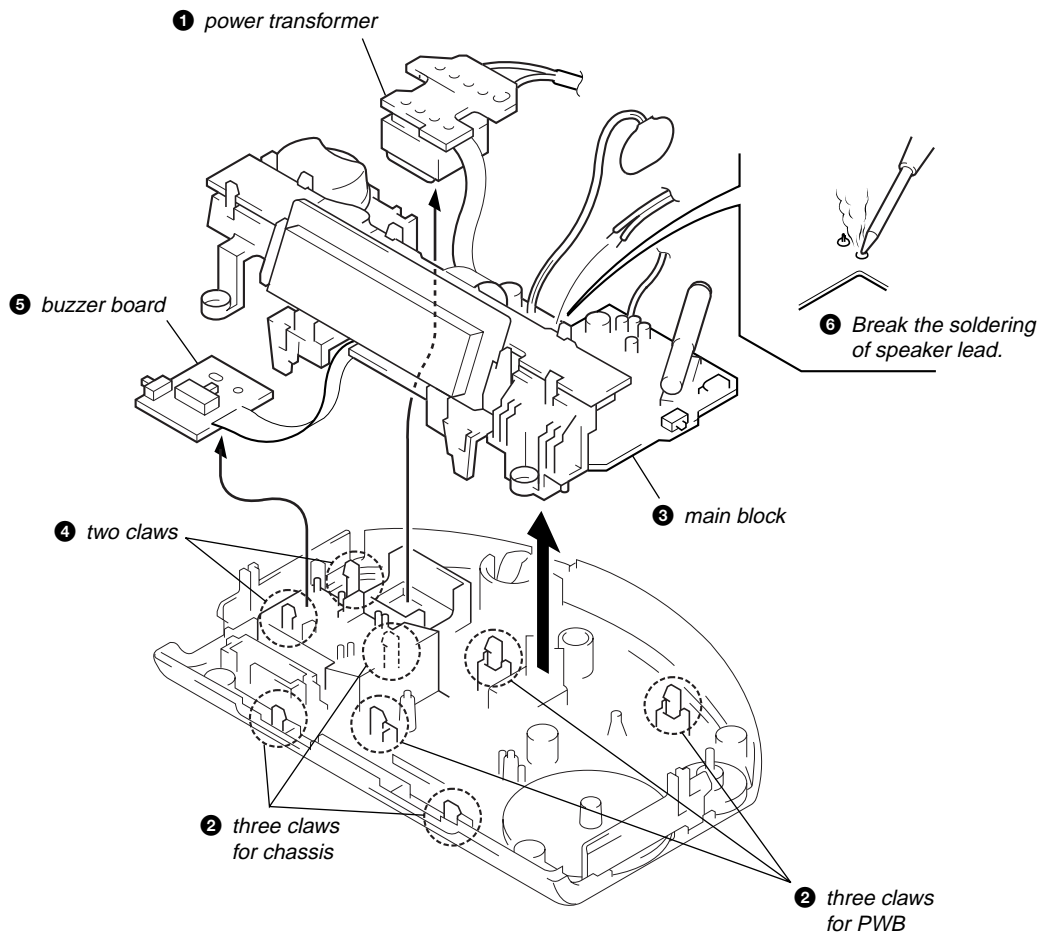
## SECTION 2 DISASSEMBLY

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

### CABINET (LOWER)

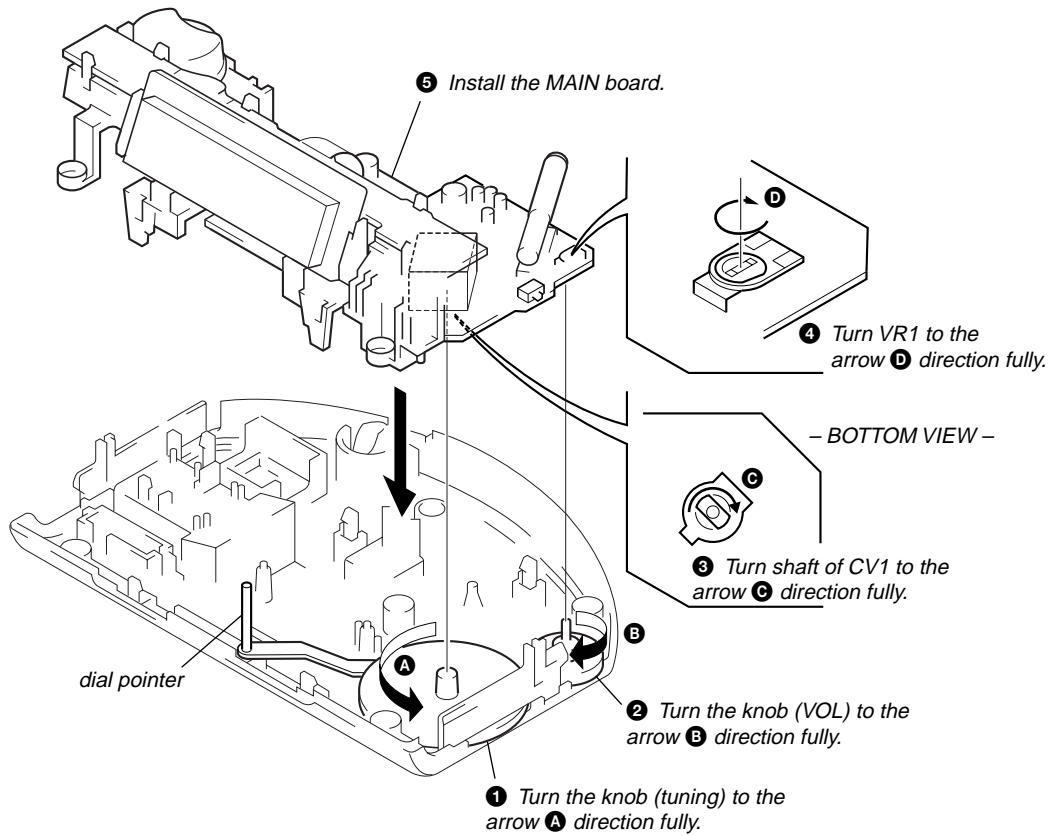


### MAIN BLOCK



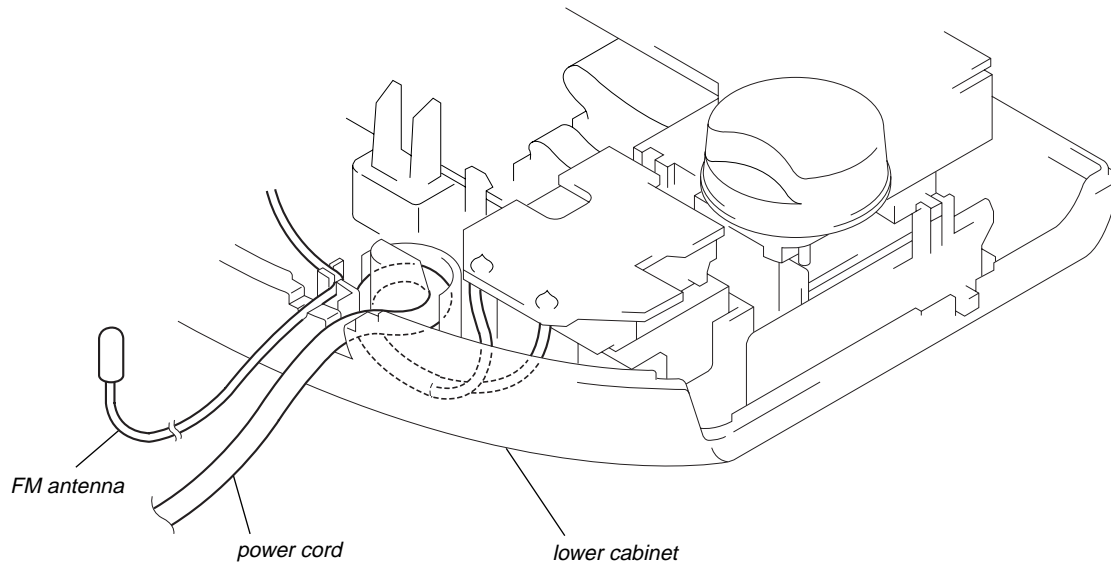
## SECTION 3 DIAL POINTER SETTING

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



## SECTION 4 POWER CORD SETTING

*Set the power cord as illustrated below,  
then install the lower cabinet.*



## SECTION 5 ELECTRICAL ADJUSTMENTS

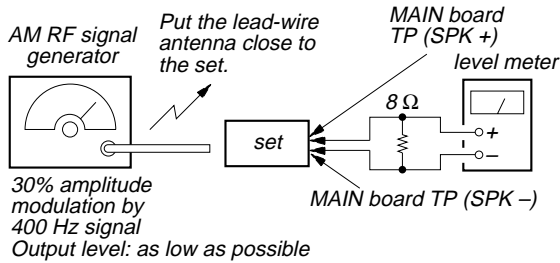
0 dB = 1  $\mu$ V

### [AM (MW/LW)\*]

\* AM : ICF-C470  
MW/LW : ICF-C470L

#### Setting:

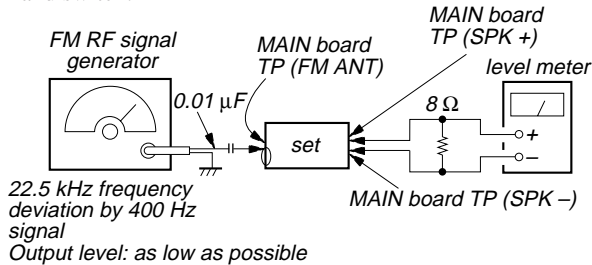
Band switch: AM (MW/LW)



### [FM]

#### Setting:

Band switch: FM



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

**Adjustment Location:** Main Board (See page 8)

#### AM IF ADJUSTMENT

Adjust for a maximum reading on level meter

T1	455 kHz
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#### AM (MW \*2) FREQUENCY COVERAGE ADJUSTMENT

Adjust for a maximum reading on level meter

L4	520 kHz
CT1-3	1,750 kHz (1,650 kHz *1)

#### AM (MW \*2) TRACKING ADJUSTMENT

Adjust for a maximum reading on level meter

L1 (L1-1 *2)	600 kHz
CT1-4	1,400 kHz

#### LW FREQUENCY COVERAGE ADJUSTMENT \*2

Adjust for a maximum reading on level meter

CT6	145 kHz
-----	---------

#### LW TRACKING ADJUSTMENT \*2

Adjust for a maximum reading on level meter

L1-2	160 kHz
CT5	240 kHz

#### FM FREQUENCY COVERAGE ADJUSTMENT

Adjust for a maximum reading on level meter

L2	86.5 MHz
CT1-1	109.5 MHz

#### FM TRACKING ADJUSTMENT

Adjust for a maximum reading on level meter

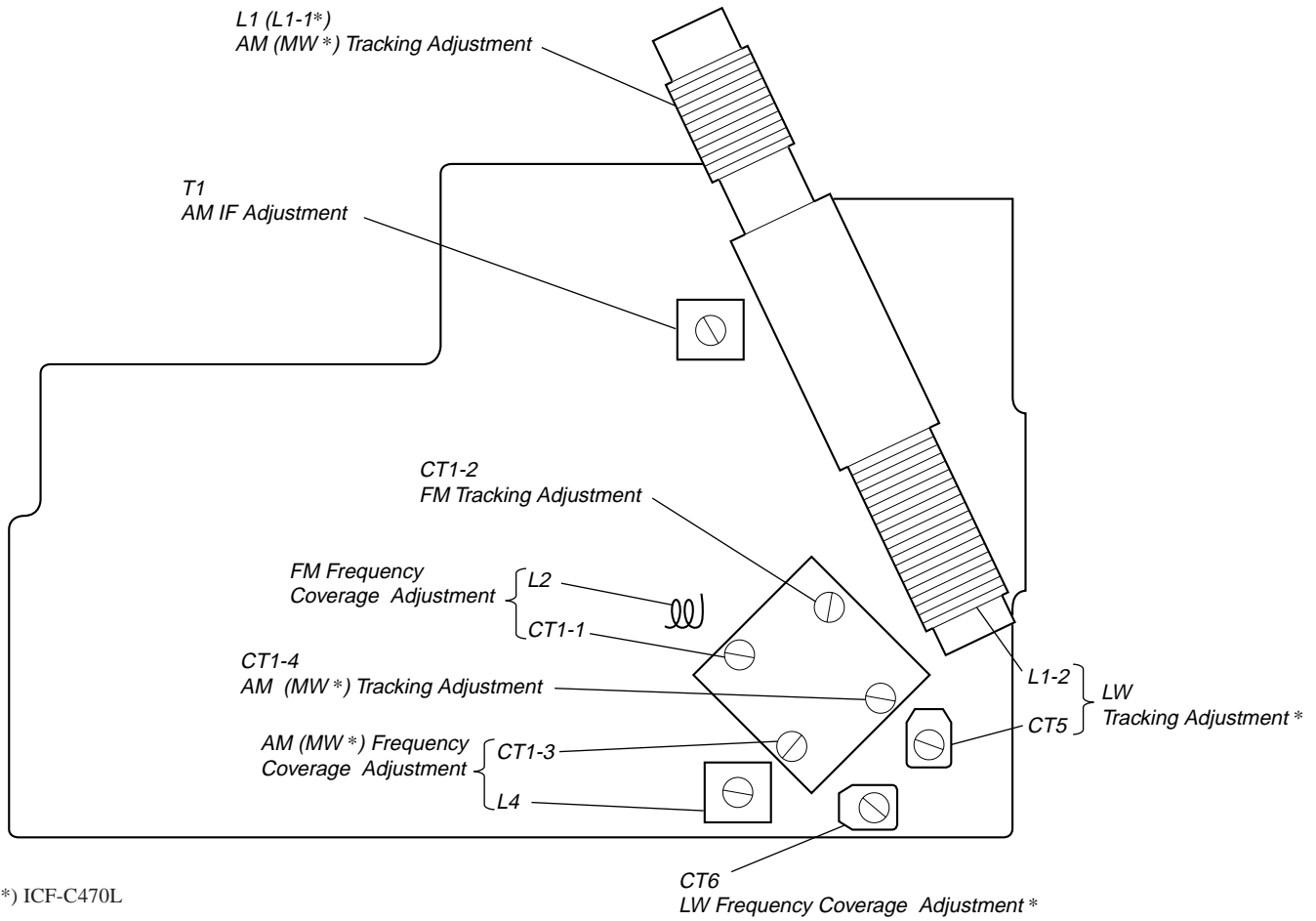
CT1-2	109.5 MHz
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\*1) Except US, Canadian models

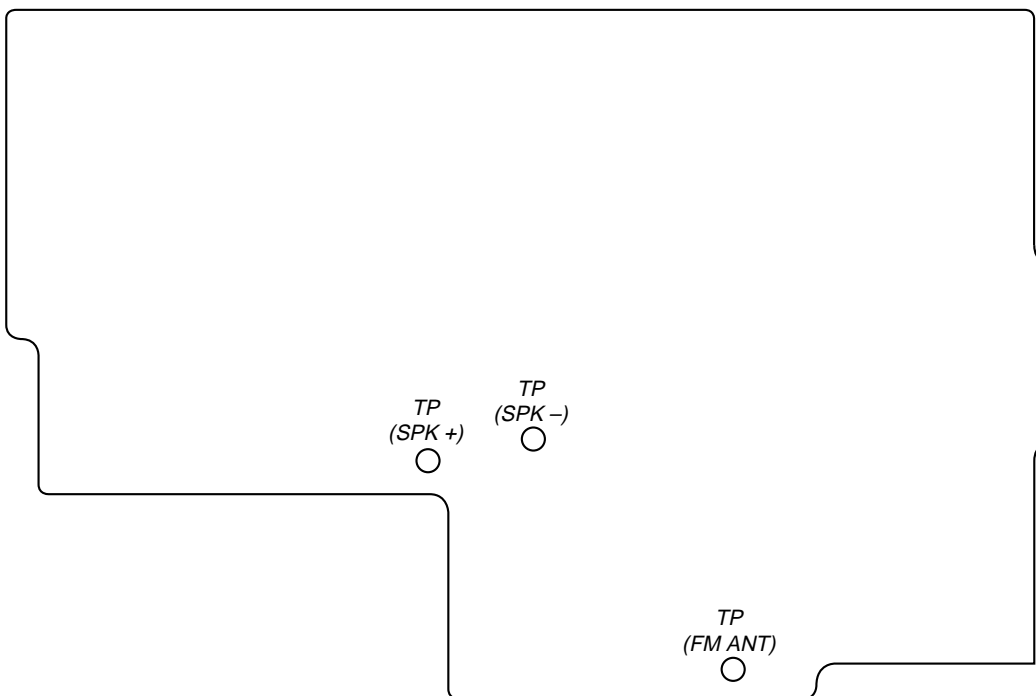
\*2) ICF-C470L

**Adjustment Location:**

**– MAIN BOARD (Component Side) –**



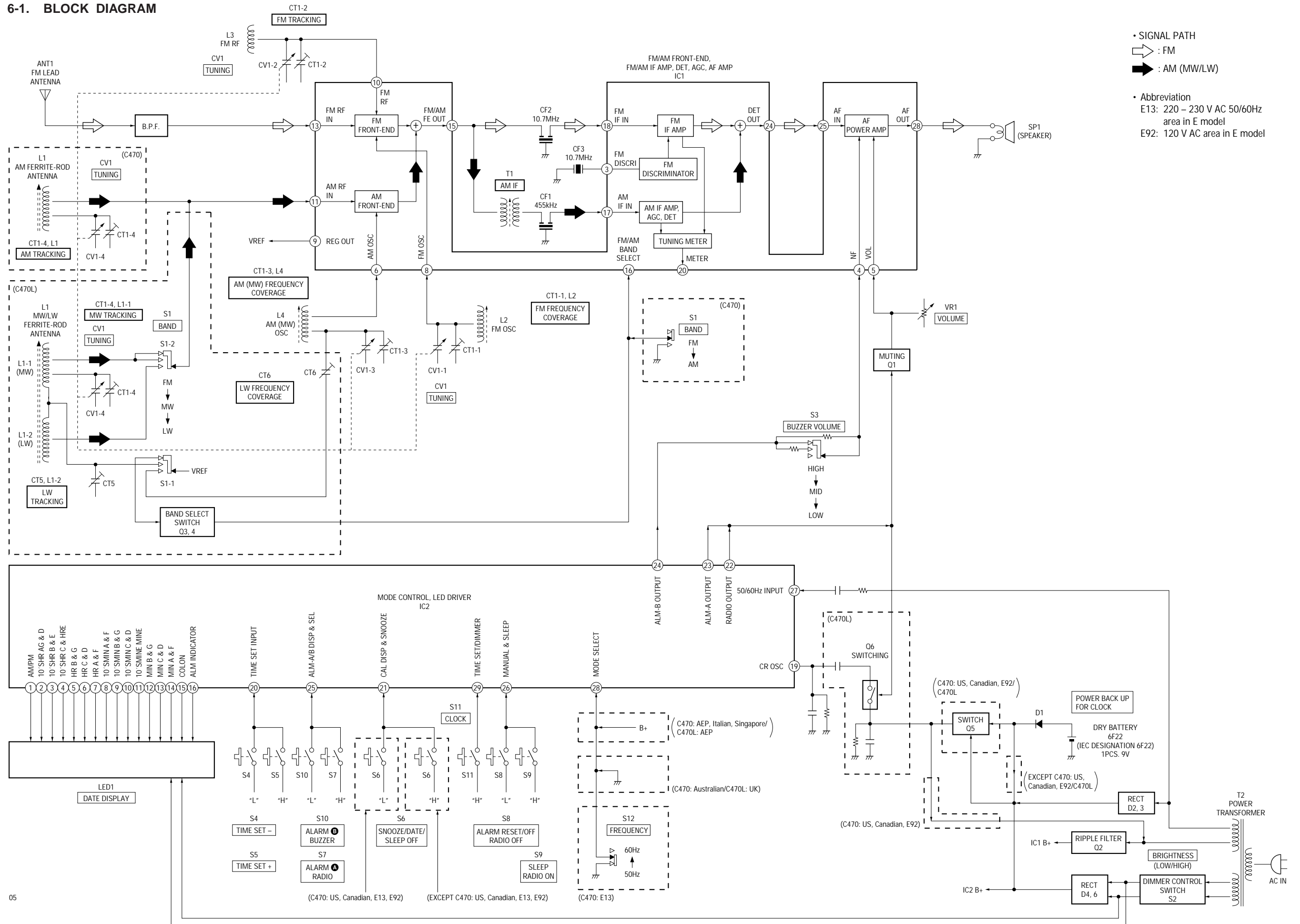
**– MAIN BOARD (Conductor Side) –**





SECTION 6  
DIAGRAMS

6-1. BLOCK DIAGRAM

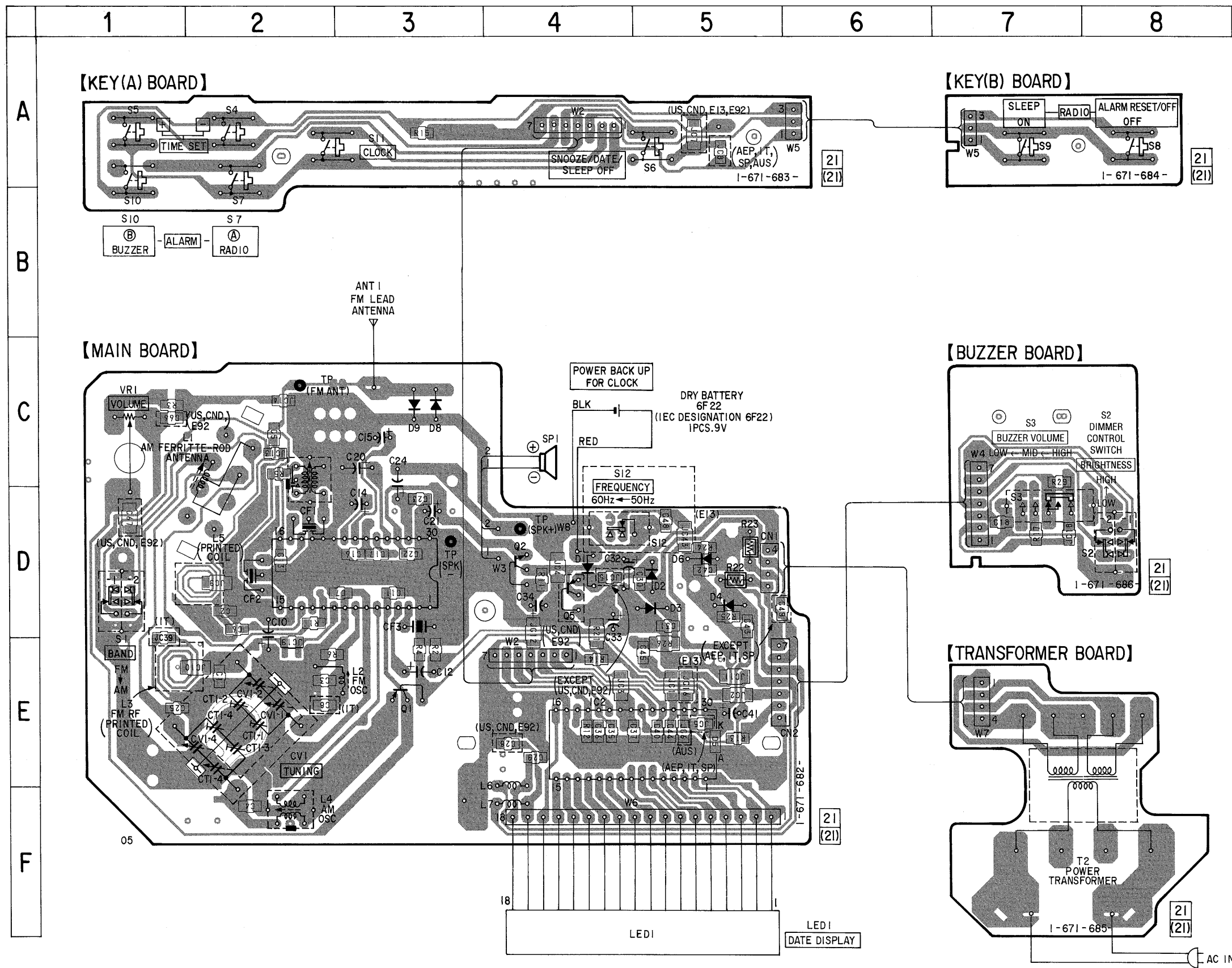


- SIGNAL PATH
  - ➡ : FM
  - ➡ : AM (MW/LW)
- Abbreviation
  - E13: 220 - 230 V AC 50/60Hz area in E model
  - E92: 120 V AC area in E model

6-2. PRINTED WIRING BOARDS (ICF-C470)

• Semiconductor Location

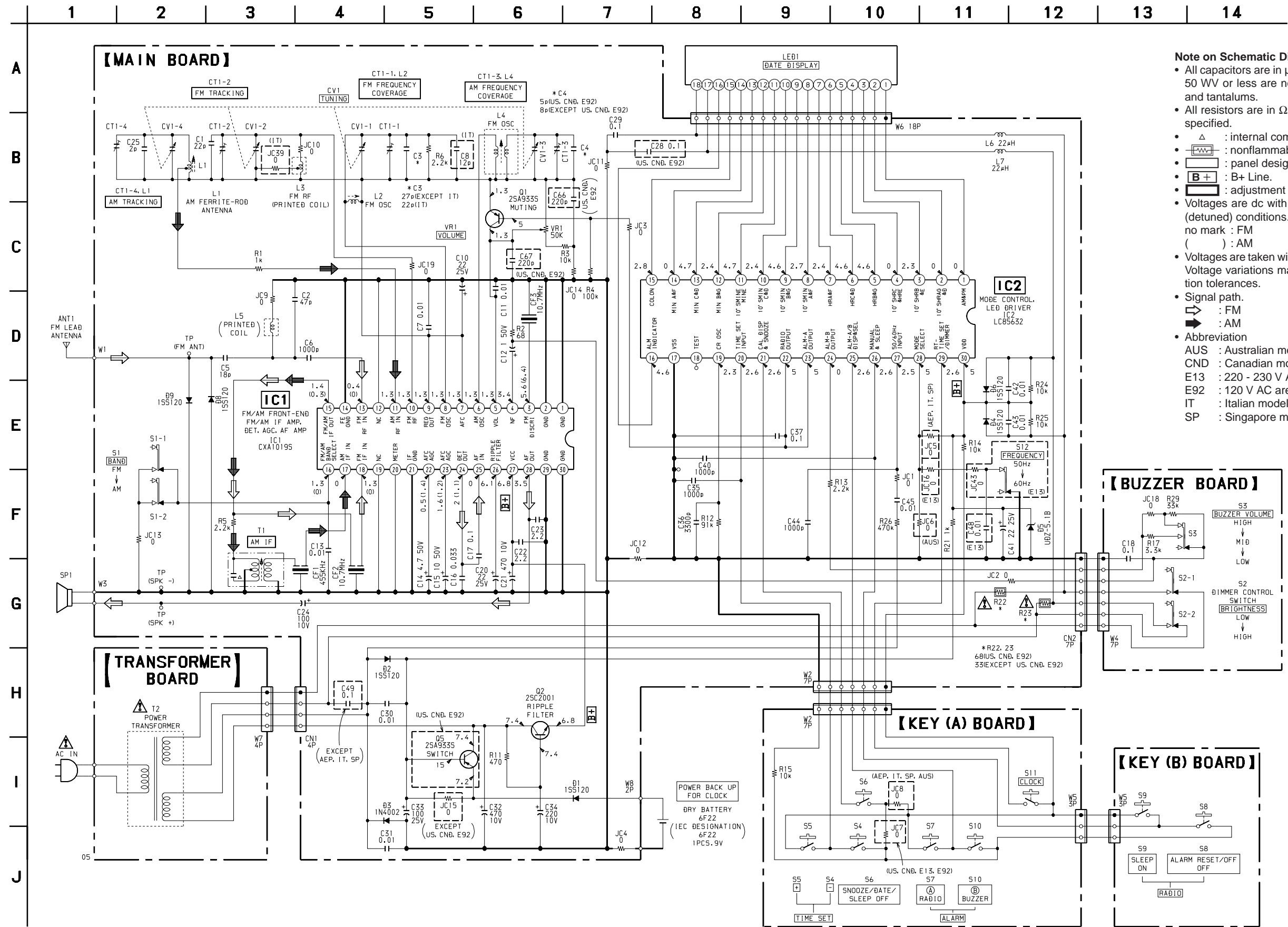
Ref. No.	Location
D1	D-4
D2	D-5
D3	D-5
D4	D-5
D5	E-5
D6	D-5
D8	C-3
D9	C-3
IC1	D-3
IC2	E-4
Q1	E-3
Q2	D-4
Q5	D-4



Note on Printed Wiring Boards:

- ○ : parts extracted from the component side.
- □ : indicates side identified with part number.
- △ : internal component.
- ▨ : Pattern from the side which enables seeing.
- Abbreviation
  - AUS : Australian model
  - CND : Canadian model
  - E13 : 220 - 230 V AC 50/60 Hz area in E model
  - E92 : 120 V AC area in E model
  - IT : Italian model
  - SP : Singapore model

6-3. SCHEMATIC DIAGRAM (ICF-C470) • See page 19 for IC Block Diagrams.



**Note on Schematic Diagram:**

- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF}$ :  $\mu\text{F}$  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.
- $\square$  : nonflammable resistor.
- $\square$  : panel designation
- $\text{B}+$  : B+ Line.
- $\square$  : adjustment for repair.
- Voltages are dc with respect to ground under no-signal (detuned) conditions.
- no mark : FM
- ( ) : AM
- Voltages are taken with a VOM (Input impedance  $10\text{ M}\Omega$ ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
- $\rightarrow$  : FM
- $\rightarrow$  : AM
- Abbreviation
- AUS : Australian model
- CND : Canadian model
- E13 : 220 - 230 V AC 50/60 Hz area in E model
- E92 : 120 V AC area in E model
- IT : Italian model
- SP : Singapore model

**Note:**

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

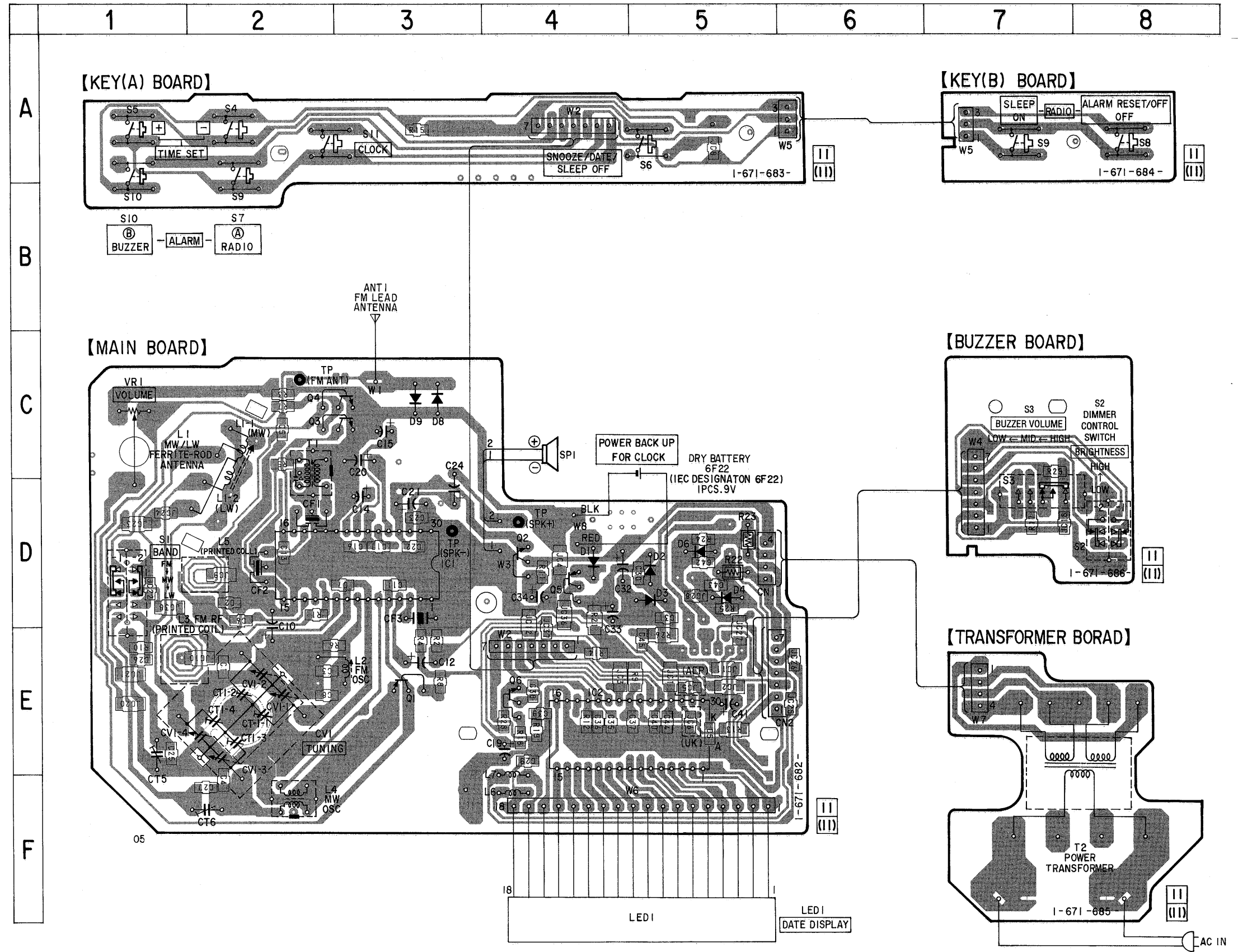
**Note:**

Les composants identifiés par une marque  $\triangle$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

6-4. PRINTED WIRING BOARDS (ICF-C470L)

• Semiconductor Location

Ref. No.	Location
D1	D-4
D2	D-5
D3	D-5
D4	D-5
D5	E-5
D6	D-5
D8	C-3
D9	C-3
IC1	D-3
IC2	E-4
Q1	E-3
Q2	D-4
Q3	C-2
Q4	C-2
Q5	D-4
Q6	E-4

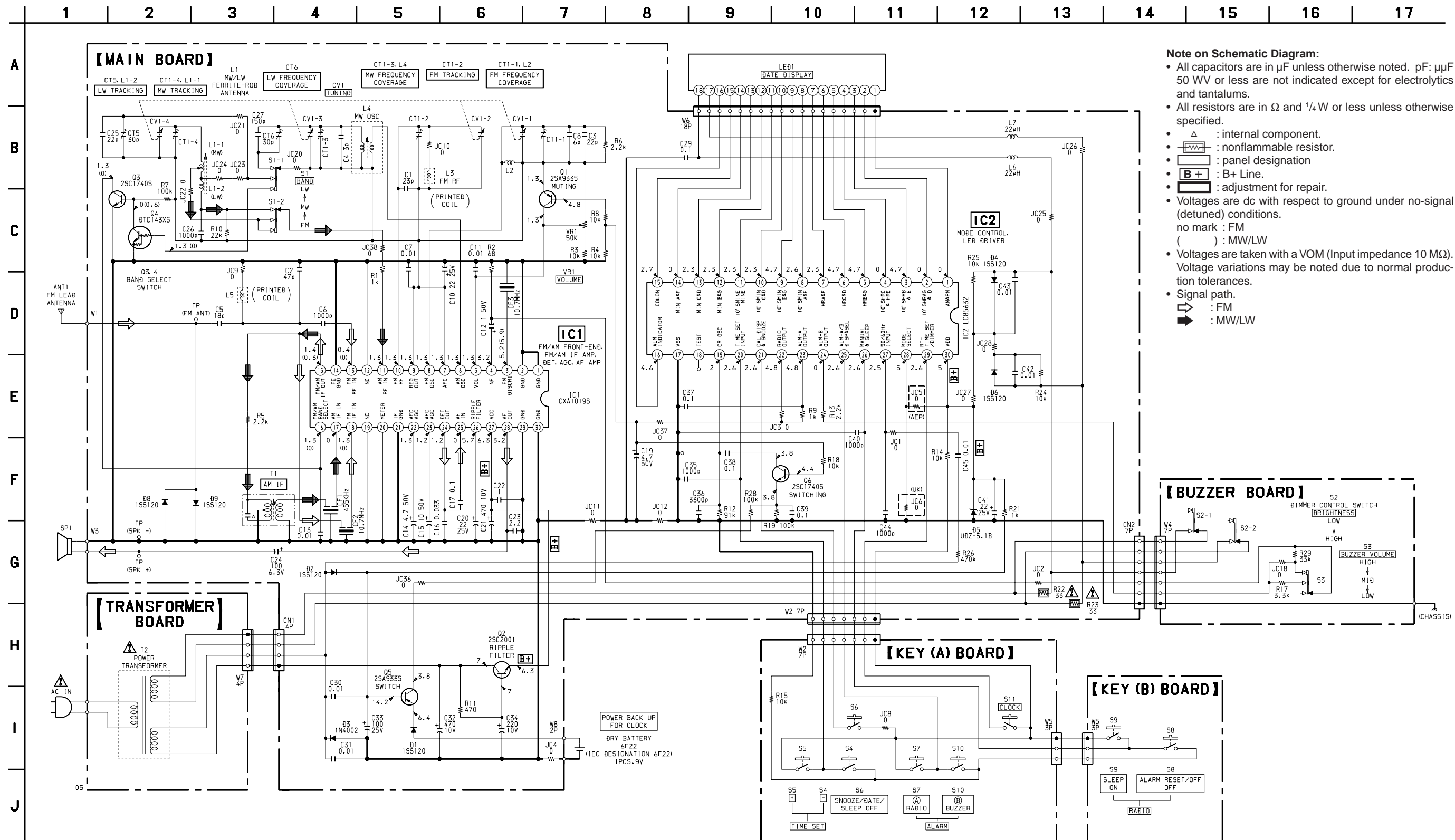


Note on Printed Wiring Boards:

- : parts extracted from the component side.
- : indicates side identified with part number.
- △ : internal component.
- ▨ : Pattern from the side which enables seeing.



6-5. SCHEMATIC DIAGRAM (ICF-C470L) • See page 19 for IC Block Diagrams.



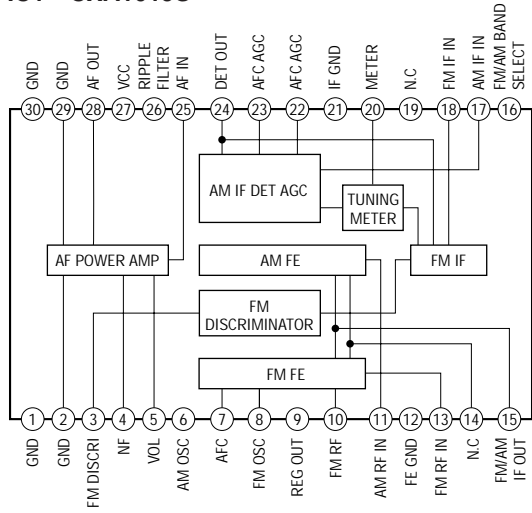
- Note on Schematic Diagram:**
- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF}$ :  $\mu\text{F}$
  - 50 WV or less are not indicated except for electrolytics and tantalums.
  - All resistors are in  $\Omega$  and  $\frac{1}{4}\text{W}$  or less unless otherwise specified.
  - $\triangle$  : internal component.
  - $\square$  : nonflammable resistor.
  - $\square$  : panel designation
  - $\text{B}+$  : B+ Line.
  - $\square$  : adjustment for repair.
  - Voltages are dc with respect to ground under no-signal (detuned) conditions.
  - no mark : FM
  - ( ) : MW/LW
  - Voltages are taken with a VOM (Input impedance  $10\text{M}\Omega$ ). Voltage variations may be noted due to normal production tolerances.
  - Signal path.
    - $\rightarrow$  : FM
    - $\rightarrow$  : MW/LW

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

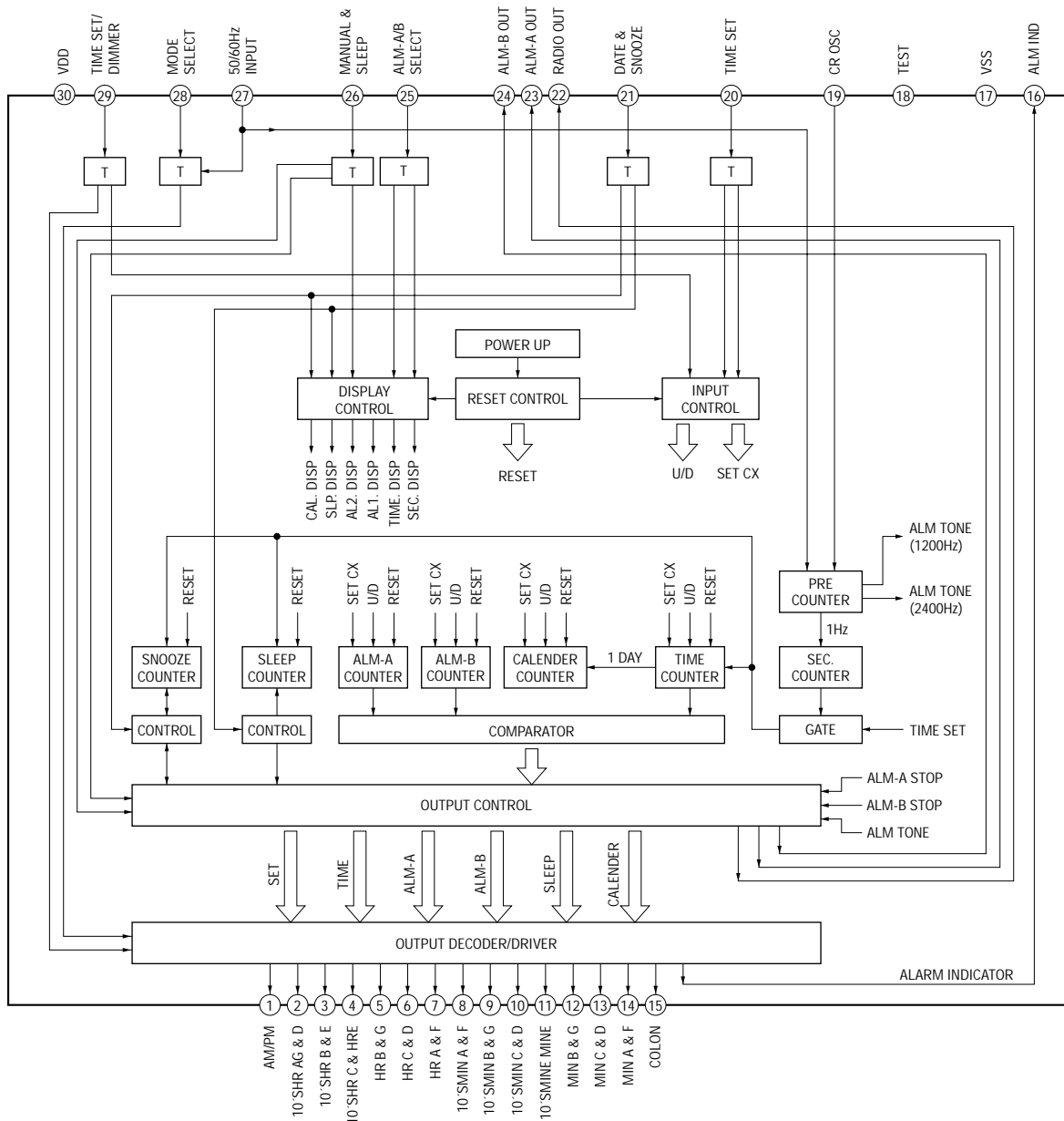
**Note:**  
Les composants identifiés par une marque  $\triangle$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

• IC Block Diagrams  
- MAIN BOARD -

IC1 CXA1019S



IC2 LC85632



SECTION 7  
EXPLODED VIEWS

NOTE:

- XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts  
Example:  
KNOB, BALANCE (WHITE) . . . (RED)  
Parts Color    Cabinet's Color
- Abbreviation  
AUS : Australian model  
CND : Canadian model  
E13 : 220 - 230 V AC 50/60 Hz area in E model

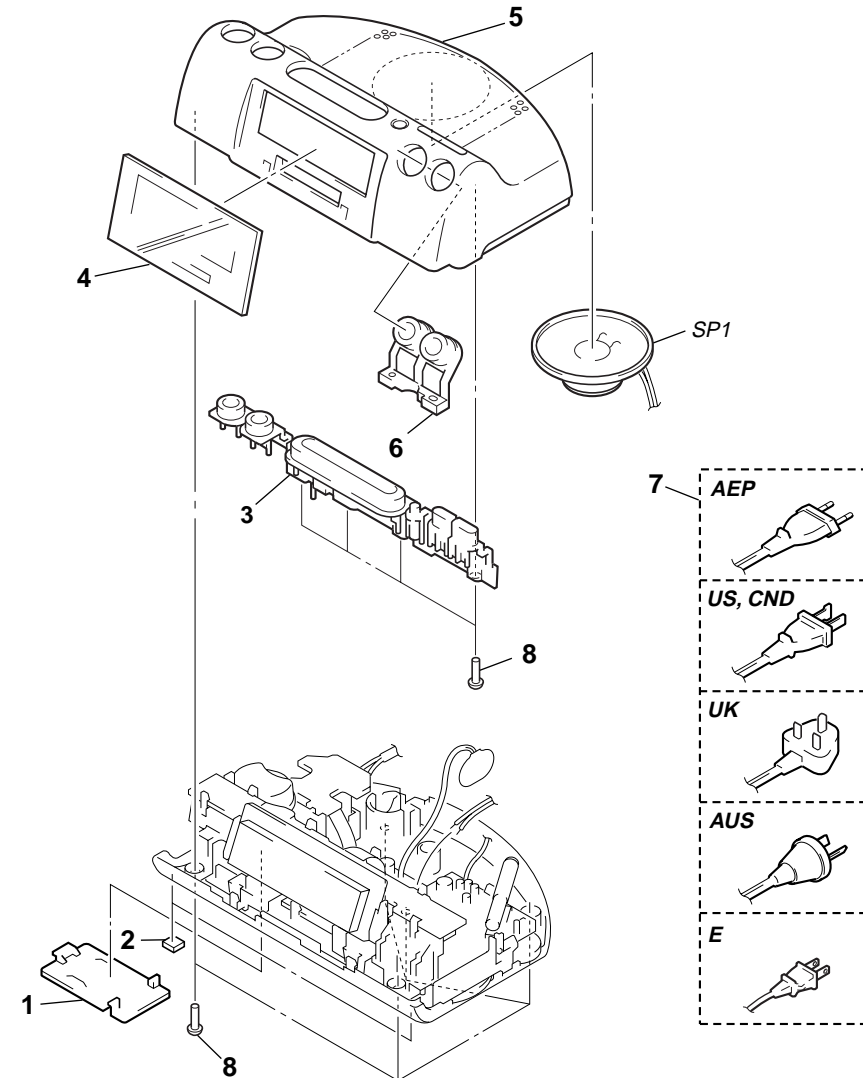
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of the electrical parts list.

- E92 : 120 V AC area in E model
- IT : Italian model
- SP : Singapore model

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

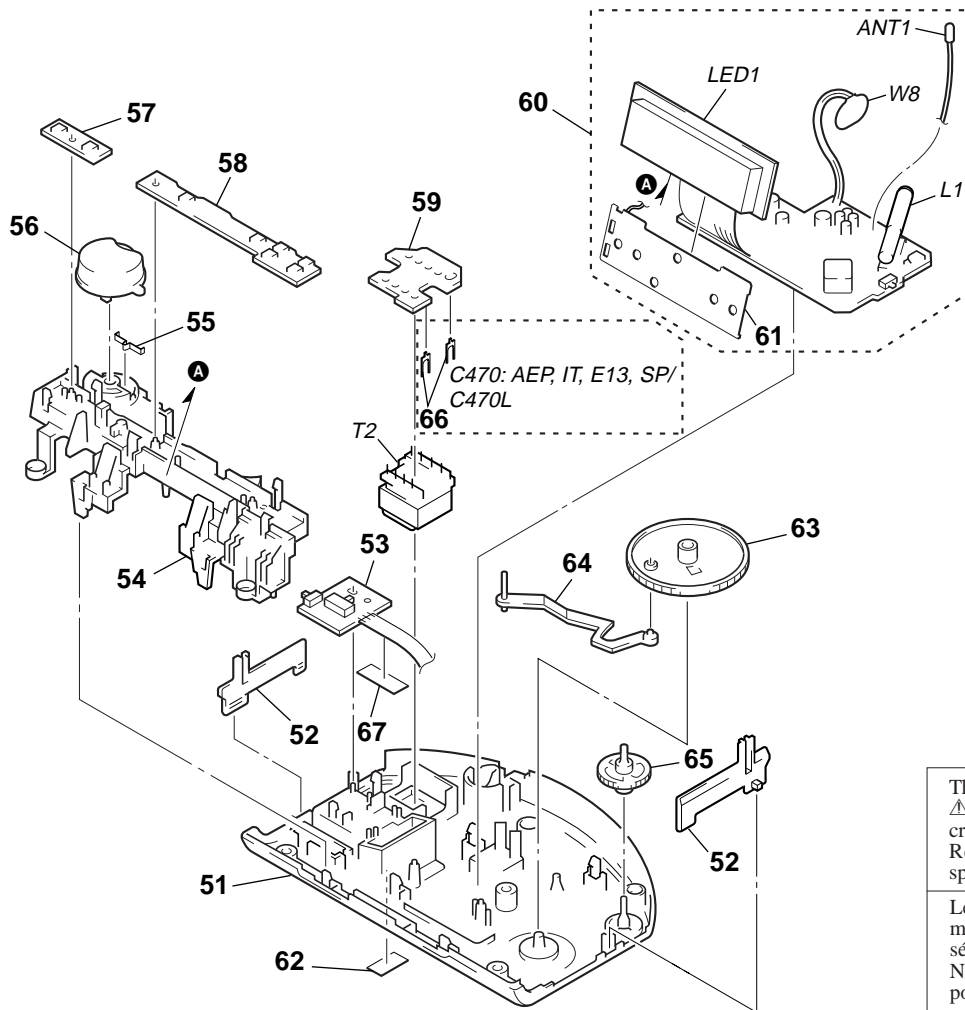
Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

(1) CABINET SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	3-369-135-21	LID, BATTERY CASE		5	3-030-213-11	CABINET (UPPER) (C470L)	
2	3-368-852-01	FOOT		5	3-030-213-31	CABINET (UPPER) (C470: AEP, IT)	
3	3-030-215-01	BUTTON (MAIN) (C470: US, CND, E13, E92, SP, AUS)		6	3-030-216-01	BUTTON (ALARM) (C470: US, CND, E13, E92, SP, AUS)	
3	3-030-215-11	BUTTON (MAIN) (C470: AEP, IT/C470L)		6	3-030-216-11	BUTTON (ALARM) (C470: AEP, IT/C470L)	
4	3-032-104-01	SCALE, DIAL (C470: US, CND, E92)		SP1	1-504-748-21	SPEAKER (6.6cm)	
4	3-032-104-11	SCALE, DIAL (C470: AEP, SP)		Δ 7	1-555-795-00	CORD, POWER (C470: AEP, IT, E13, SP/C470L: AEP)	
4	3-032-104-21	SCALE, DIAL (C470: E13, AUS)		Δ 7	1-696-572-21	CORD, POWER (C470L: UK)	
4	3-032-104-31	SCALE, DIAL (C470: IT)		Δ 7	1-769-339-22	CORD, POWER (C470: E92)	
4	3-032-104-41	SCALE, DIAL (C470L: AEP)		Δ 7	1-783-817-11	CORD, POWER (C470: US, CND)	
4	3-032-104-51	SCALE, DIAL (C470L: UK)		Δ 7	1-790-431-11	CORD, POWER (C470: AUS)	
5	3-030-213-01	CABINET (UPPER) (C470: US, CND, E13, E92, SP, AUS)		8	7-685-649-79	SCREW +P 3X14 TYPE2 NON-SLIT	

## (2) CHASSIS SECTION



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

Les composants identifiés par une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	3-030-214-01	CABINET (LOWER) (C470: US, CND, E92)		* 61	3-034-959-01	PLATE (LED), SHIELD	
51	3-030-214-11	CABINET (LOWER) (C470: AEP, IT, SP, AUS)		62	3-846-067-01	SPACER	
51	3-030-214-21	CABINET (LOWER) (C470: E13)		63	3-030-219-01	KNOB (TUNING)	
51	3-030-214-31	CABINET (LOWER) (C470L)		64	3-030-221-01	POINTER	
52	3-030-220-01	KNOB (BAND)		65	3-919-268-01	KNOB (VOL)	
* 53	1-671-686-11	BUZZER BOARD (C470L)		66	1-535-771-11	TERMINAL	
* 53	1-671-686-21	BUZZER BOARD (C470)				(C470: AEP, IT, E13, SP, AUS/C470L)	
54	3-030-218-01	CHASSIS		67	3-034-961-01	SHEET, BLIND	
55	3-032-106-01	SPRING (ALARM)		$\Delta$ T2	1-433-573-11	TRANSFORMER, POWER	
56	3-030-217-01	KNOB (ALARM)				(C470: US, CND, E92)	
		(C470: US, CND, E13, E92, SP, AUS)		$\Delta$ T2	1-433-574-11	TRANSFORMER, POWER	
56	3-030-217-11	KNOB (ALARM) (C470: AEP, IT/C470L)				(C470: AEP, IT, E13, SP, AUS/C470L)	
* 57	1-671-684-11	KEY (B) BOARD (C470L)		W8	1-535-804-11	SNAP, BATTERY	
* 57	1-671-684-21	KEY (B) BOARD (C470)		ANT1	1-501-907-21	ANTENNA, FM WIRE	
* 58	1-671-683-11	KEY (A) BOARD (C470L)		L1	1-501-976-11	ANTENNA, FERRITE-ROD (MW/LW) (C470L)	
* 58	1-671-683-21	KEY (A) BOARD (C470)		L1	1-402-413-21	ANTENNA, FERRITE-ROD (AM)	
		(C470: US, CND, E92)				(C470: US, CND, E92)	
* 59	1-671-685-11	TRANSFORMER BOARD (C470L)		L1	1-402-472-31	ANTENNA, FERRITE-ROD (AM)	
* 59	1-671-685-21	TRANSFORMER BOARD (C470)				(C470: AEP, IT, E13, SP, AUS)	
* 60	A-3683-025-A	MAIN BOARD, COMPLETE		LED1	8-749-015-49	LED SL-1906-54T (DATE DISPLAY)	
		(C470: US, CND, E92)				(C470: US, CND, E92)	
* 60	A-3683-057-A	MAIN BOARD, COMPLETE (C470: AEP, SP)		LED1	8-749-015-50	LED SL-3906-54T (DATE DISPLAY)	
* 60	A-3683-059-A	MAIN BOARD, COMPLETE (C470: IT)				(C470: E13)	
* 60	A-3683-060-A	MAIN BOARD, COMPLETE (C470: E13)		LED1	8-749-015-51	LED SL-3906-55T (DATE DISPLAY)	
* 60	A-3683-061-A	MAIN BOARD, COMPLETE (C470: AUS)				(C470: AEP, IT, SP, AUS/C470L)	
* 60	A-3683-063-A	MAIN BOARD, COMPLETE (C470L: AEP)					
* 60	A-3683-065-A	MAIN BOARD, COMPLETE (C470L: UK)					

## SECTION 8 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.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS  
All resistors are in ohms.  
METAL: Metal-film resistor.  
METAL OXIDE: Metal oxide-film resistor.  
F: nonflammable
- Abbreviation  
AUS : Australian model  
CND : Canadian model  
E13 : 220 - 230 V AC 50/60 Hz area in E model

- 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  
E92 : 120 V AC area in E model  
IT : Italian model  
SP : Singapore model

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

Les composants identifiés par une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

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

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
*	1-671-686-11	BUZZER BOARD (C470L)		S9	1-762-233-11	SWITCH, KEYBOARD (SLEEP, RADIO ON)	
*	1-671-686-21	BUZZER BOARD (C470)		*****			
		< CAPACITOR >		*	A-3683-025-A	MAIN BOARD, COMPLETE	(C470: US, CND, E92)
C18	1-163-038-00	CERAMIC CHIP    0.1uF	25V (C470)	*	A-3683-057-A	MAIN BOARD, COMPLETE (C470: AEP, SP)	
		< RESISTOR >		*	A-3683-059-A	MAIN BOARD, COMPLETE (C470: IT)	
JC18	1-216-295-00	SHORT            0		*	A-3683-060-A	MAIN BOARD, COMPLETE (C470: E13)	
R17	1-216-061-00	METAL CHIP      3.3K    5%    1/10W		*	A-3683-061-A	MAIN BOARD, COMPLETE (C470: AUS)	
R29	1-216-085-00	METAL CHIP      33K    5%    1/10W		*	A-3683-063-A	MAIN BOARD, COMPLETE (C470L: AEP)	
		< SWITCH >		*	A-3683-065-A	MAIN BOARD, COMPLETE (C470L: UK)	*****
S2	1-762-231-11	SWITCH, SLIDE (BRIGHTNESS)		*	3-034-959-01	PLATE (LED), SHIELD	
S3	1-572-949-11	SWITCH, SLIDE (BUZZER VOLUME)				< ANTENNA >	
*****				ANT1	1-501-907-21	ANTENNA, FM WIRE	
		< CAPACITOR >				< CAPACITOR >	
*	1-671-683-11	KEY (A) BOARD (C470L)		C1	1-163-235-11	CERAMIC CHIP    22PF    5%    50V	
*	1-671-683-21	KEY (A) BOARD (C470)		C2	1-163-243-11	CERAMIC CHIP    47PF    5%    50V	
		< RESISTOR >		C3	1-163-101-00	CERAMIC CHIP    22PF    5%    50V	(C470: IT/C470L)
JC7	1-216-296-00	SHORT            0 (C470: US, CND, E13, E92)		C3	1-163-103-00	CERAMIC CHIP    27PF    5%    50V	(C470: US, CND, AEP, E13, E92, SP, AUS)
JC8	1-216-295-00	SHORT            0		C4	1-163-086-00	CERAMIC CHIP    3PF     50V	(C470L)
R15	1-216-073-00	METAL CHIP      10K    5%    1/10W		C4	1-163-088-00	CERAMIC CHIP    5PF     50V	(C470: US, CND, E92)
		< SWITCH >		C4	1-163-091-00	CERAMIC CHIP    8PF     50V	(C470: AEP, IT, E13, SP, AUS)
S4	1-762-233-11	SWITCH, KEYBOARD (-, TIME SET)		C5	1-163-233-11	CERAMIC CHIP    18PF    5%    50V	
S5	1-762-233-11	SWITCH, KEYBOARD (+, TIME SET)		C6	1-163-009-11	CERAMIC CHIP    0.001uF 10%   50V	
S6	1-762-233-11	SWITCH, KEYBOARD (SNOOZE/DATE/SLEEP OFF)		C7	1-163-021-11	CERAMIC CHIP    0.01uF 10%   50V	
S7	1-762-233-11	SWITCH, KEYBOARD (A RADIO, ALARM)		C8	1-163-089-00	CERAMIC CHIP    6PF     50V	(C470L)
S10	1-762-233-11	SWITCH, KEYBOARD (B BUZZER, ALARM)		C8	1-163-095-00	CERAMIC CHIP    12PF    5%    50V	(C470: IT)
S11	1-762-233-11	SWITCH, KEYBOARD (CLOCK)		C10	1-128-551-11	ELECT            22uF    20%   25V	
*****				C11	1-163-021-11	CERAMIC CHIP    0.01uF 10%   50V	
*	1-671-684-11	KEY (B) BOARD (C470L)		C12	1-126-960-11	ELECT            1uF     20%   50V	
*	1-671-684-21	KEY (B) BOARD (C470)		C13	1-163-021-11	CERAMIC CHIP    0.01uF 10%   50V	
		< SWITCH >		C14	1-126-963-11	ELECT            4.7uF   20%   50V	
S8	1-762-233-11	SWITCH, KEYBOARD (ALARM RESET/OFF, RADIO OFF)		C15	1-126-964-11	ELECT            10uF    20%   50V	
				C16	1-163-989-11	CERAMIC CHIP    0.033uF 10%   25V	
				C17	1-164-004-11	CERAMIC CHIP    0.1uF   10%   25V	



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C19	1-126-963-11	ELECT	4.7uF 20% 50V (C470L)			< TRIMMER >	
C20	1-128-551-11	ELECT	22uF 20% 25V	CT1	1-141-529-11	CAP, VARIABLE (C470: AEP, IT, E13, SP, AUS/C470L)	
C21	1-126-925-11	ELECT	470uF 20% 10V	CT1	1-151-628-11	CAP, VARIABLE (C470: US, CND, E92)	
C22	1-109-982-11	CERAMIC CHIP	1uF 10% 10V (C470L)	CT5	1-141-604-11	CAP, ADJ (C470L)	
C22	1-164-505-11	CERAMIC CHIP	2.2uF 16V (C470)	CT6	1-141-604-11	CAP, ADJ (C470L)	
C23	1-164-505-11	CERAMIC CHIP	2.2uF 16V			< VARIABLE CAPACITOR >	
C24	1-104-665-11	ELECT	100uF 20% 10V (C470)	CV1	1-141-529-11	CAP, VARIABLE (TUNING) (C470: AEP, IT, E13, SP, AUS/C470L)	
C24	1-126-382-11	ELECT	100uF 20% 6.3V (C470L)	CV1	1-151-628-11	CAP, VARIABLE (TUNING) (C470: US, CND, E92)	
C25	1-163-085-00	CERAMIC CHIP	2PF 50V (C470)			< DIODE >	
C25	1-163-235-11	CERAMIC CHIP	22PF 5% 50V (C470L)	D1	8-719-074-44	DIODE 1SS120RX	
C26	1-163-009-11	CERAMIC CHIP	0.001uF 10% 50V (C470L)	D2	8-719-074-44	DIODE 1SS120RX	
C27	1-163-121-00	CERAMIC CHIP	150PF 5% 50V (C470L)	D3	8-719-052-88	DIODE 1N4002	
C28	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V (C470: US, CND, E92)	D4	8-719-074-44	DIODE 1SS120RX	
C29	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V	D5	8-719-976-99	DIODE DTZ5.1B	
C30	1-163-021-11	CERAMIC CHIP	0.01uF 10% 50V	D6	8-719-074-44	DIODE 1SS120RX	
C31	1-163-021-11	CERAMIC CHIP	0.01uF 10% 50V	D8	8-719-074-44	DIODE 1SS120RX	
C32	1-126-925-11	ELECT	470uF 20% 10V	D9	8-719-074-44	DIODE 1SS120RX	
C33	1-104-665-11	ELECT	100uF 20% 25V			< IC >	
C34	1-126-934-11	ELECT	220uF 20% 10V	IC1	8-752-037-02	IC CXA1019S	
C35	1-163-009-11	CERAMIC CHIP	0.001uF 10% 50V	IC2	8-759-193-05	IC LC85632	
C36	1-164-182-11	CERAMIC CHIP	0.0033uF 10% 50V			< SHORT >	
C37	1-163-038-00	CERAMIC CHIP	0.1uF 25V	JC1	1-216-296-00	SHORT 0	
C38	1-163-038-00	CERAMIC CHIP	0.1uF 25V (C470L)	JC2	1-216-296-00	SHORT 0	
C39	1-163-038-00	CERAMIC CHIP	0.1uF 25V (C470L)	JC3	1-216-296-00	SHORT 0	
C40	1-163-009-11	CERAMIC CHIP	0.001uF 10% 50V	JC4	1-216-296-00	SHORT 0	
C41	1-128-551-11	ELECT	22uF 20% 25V	JC5	1-216-295-00	SHORT 0 (C470: AEP, IT, SP/C470L: AEP)	
C42	1-163-021-11	CERAMIC CHIP	0.01uF 10% 50V	JC6	1-216-295-00	SHORT 0 (C470: AUS/C470L: UK)	
C43	1-163-021-11	CERAMIC CHIP	0.01uF 10% 50V	JC9	1-216-296-00	SHORT 0	
C44	1-163-009-11	CERAMIC CHIP	0.001uF 10% 50V	JC10	1-216-296-00	SHORT 0	
C45	1-163-021-11	CERAMIC CHIP	0.01uF 10% 50V	JC11	1-216-296-00	SHORT 0	
C48	1-163-021-11	CERAMIC CHIP	0.01uF 10% 50V (C470: E13)	JC12	1-216-296-00	SHORT 0	
C49	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V (C470: US, CND, E13, E92, AUS)	JC13	1-216-295-00	SHORT 0 (C470)	
C66	1-163-125-00	CERAMIC CHIP	220PF 5% 50V (C470: US, CND, E92)	JC14	1-216-295-00	SHORT 0 (C470)	
C67	1-163-189-00	CERAMIC CHIP	220PF 5% 50V (C470: US, CND, E92)	JC15	1-216-295-00	SHORT 0 (C470: AEP, IT, E13, SP, AUS)	
		< FILTER >		JC16	1-216-296-00	SHORT 0 (C470: E13)	
CF1	1-577-072-11	FILTER, CERAMIC (C470)		JC19	1-216-295-00	SHORT 0 (C470)	
CF1	1-578-677-11	FILTER, CRYSTAL (C470L)		JC20	1-216-296-00	SHORT 0 (C470L)	
CF2	1-577-324-11	FILTER, CERAMIC		JC21	1-216-296-00	SHORT 0 (C470L)	
CF3	1-577-324-11	FILTER, CERAMIC		JC22	1-216-295-00	SHORT 0 (C470L)	
		< CONNECTOR >		JC23	1-216-296-00	SHORT 0 (C470L)	
* CN1	1-568-270-11	SOCKET, CONNECTOR 4P		JC24	1-216-295-00	SHORT 0 (C470L)	
* CN2	1-568-273-11	SOCKET, CONNECTOR 7P		JC25	1-216-295-00	SHORT 0 (C470L)	
				JC26	1-216-295-00	SHORT 0 (C470L)	
				JC27	1-216-296-00	SHORT 0 (C470L)	
				JC28	1-216-295-00	SHORT 0 (C470L)	
				JC36	1-216-296-00	SHORT 0 (C470L)	
				JC37	1-216-295-00	SHORT 0 (C470L)	
				JC38	1-216-296-00	SHORT 0 (C470L)	
				JC39	1-216-295-00	SHORT 0 (C470: IT)	

**MAIN**

**TRANSFORMER**

Ref. No.	Part No.	Description	Remark
JC43	1-216-296-00	SHORT 0 (C470: E13)	
		< LED >	
LED1	8-749-015-49	LED SL-1906-54T (DATE DISPLAY) (C470: US, CND, E92)	
LED1	8-749-015-50	LED SL-3906-54T (DATE DISPLAY) (C470: E13)	
LED1	8-749-015-51	LED SL-3906-55T (DATE DISPLAY) (C470: AEP, IT, SP, AUS/C470L)	
		< COIL >	
L1	1-402-413-21	ANTENNA, FERRITE-ROD (AM) (C470: US, CND, E92)	
L1	1-402-472-31	ANTENNA, FERRITE-ROD (AM) (C470: AEP, IT, E13, SP, AUS)	
L1	1-501-976-11	ANTENNA, FERRITE-ROD (MW/LW) (C470L)	
L2	1-428-229-11	COIL, AIR-CORE (C470: US, CND, AEP, E13, E92, SP, AUS/C470L)	
L2	1-406-425-11	COIL (C470: IT)	
L4	1-406-028-00	COIL, OSC (MW)	
L6	1-410-513-11	INDUCTOR 22uH	
L7	1-410-513-11	INDUCTOR 22uH	
		< TRANSISTOR >	
Q1	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q2	8-729-011-92	TRANSISTOR 2SC2001TP-K1K2	
Q3	8-729-119-78	TRANSISTOR 2SC403SP-51 (C470L)	
Q4	8-729-029-96	TRANSISTOR DTC143XSA (C470L)	
Q5	8-729-119-76	TRANSISTOR 2SA1175-HFE (C470: US, CND, E92/C470L)	
Q6	8-729-119-78	TRANSISTOR 2SC403SP-51 (C470L)	
		< RESISTOR >	
R1	1-216-049-11	RES, CHIP 1K 5% 1/10W	
R2	1-216-021-00	METAL CHIP 68 5% 1/10W	
R3	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R4	1-216-073-00	METAL CHIP 10K 5% 1/10W (C470L)	
R4	1-216-097-00	RES, CHIP 100K 5% 1/10W (C470)	
R5	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R6	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R7	1-216-097-00	RES, CHIP 100K 5% 1/10W (C470L)	
R8	1-216-073-00	METAL CHIP 10K 5% 1/10W (C470L)	
R9	1-216-198-00	RES, CHIP 1K 5% 1/8W (C470L)	
R10	1-216-081-00	METAL CHIP 22K 5% 1/10W (C470L)	
R11	1-216-041-00	METAL CHIP 470 5% 1/10W	
R12	1-216-096-00	RES, CHIP 91K 5% 1/10W	
R13	1-216-057-00	METAL CHIP 2.2K 5% 1/10W (C470)	
R13	1-216-206-00	RES, CHIP 2.2K 5% 1/8W (C470L)	
R14	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R18	1-216-073-00	METAL CHIP 10K 5% 1/10W (C470L)	

Ref. No.	Part No.	Description	Remark
R19	1-216-097-00	RES, CHIP 100K 5% 1/10W (C470L)	
R21	1-216-198-00	RES, CHIP 1K 5% 1/8W	
△R22	1-249-399-11	CARBON 33 5% 1/4W F (C470: AEP, IT, E13, SP, AUS/C470L)	
△R22	1-249-403-11	CARBON 68 5% 1/4W F (C470: US, CND, E92)	
△R23	1-249-399-11	CARBON 33 5% 1/4W F (C470: AEP, IT, E13, SP, AUS/C470L)	
△R23	1-249-403-11	CARBON 68 5% 1/4W F (C470: US, CND, E92)	
R24	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R25	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R26	1-216-262-00	RES, CHIP 470K 5% 1/8W	
R28	1-216-097-00	RES, CHIP 100K 5% 1/10W (C470L)	
		< SWITCH >	
S1	1-572-949-11	SWITCH, SLIDE (BAND) (C470L)	
S1	1-762-231-11	SWITCH, SLIDE (BAND) (C470)	
S12	1-762-231-11	SWITCH, SLIDE (FREQUENCY) (C470: E13)	
		< TRANSFORMER >	
T1	1-404-790-11	TRANSFORMER, IF (C470)	
T1	1-404-902-21	TRANSFORMER, IF (C470L)	
		< VARIABLE RESISTOR >	
VR1	1-228-790-00	RES, VAR, CARBON 50K (VOLUME)	
		< CONNECTION CORD >	
W6	1-790-663-11	CORD, CONNECTION	
		< BATTERY SNAP >	
W8	1-535-804-11	SNAP, BATTERY	
		*****	
*	1-671-685-11	TRANSFORMER BOARD (C470L)	
*	1-671-685-21	TRANSFORMER BOARD (C470) *****	
*	1-535-771-11	TERMINAL (C470: AEP, IT, E13, SP, AUS/C470L)	
		< TRANSFORMER >	
△T2	1-433-573-11	TRANSFORMER, POWER (C470: US, CND, E92)	
△T2	1-433-574-11	TRANSFORMER, POWER (C470: AEP, IT, E13, SP, AUS/C470L)	
		*****	

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
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Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS *****	
△ 7	1-555-795-00	CORD, POWER (C470: AEP, IT, E13, SP/C470L: AEP)	
△ 7	1-696-572-21	CORD, POWER (C470L: UK)	
△ 7	1-769-339-22	CORD, POWER (C470: E92)	
△ 7	1-783-817-11	CORD, POWER (C470: US, CND)	
△ 7	1-790-431-11	CORD, POWER (C470: AUS)	
ANT1	1-501-907-21	ANTENNA, FM WIRE	
SP1	1-504-748-21	SPEAKER (6.6cm)	
W8	1-535-804-11	SNAP, BATTERY	

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ACCESSORIES & PACKING MATERIALS

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3-865-470-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, GERMAN, SWEDISH) (C470: CND, AEP, AUS/C470L)
3-865-470-21	MANUAL, INSTRUCTION (ENGLISH) (C470: US)
3-865-470-31	MANUAL, INSTRUCTION (ENGLISH, ITALIAN, SPANISH, PORTUGUESE) (C470: AEP, IT, E/C470L: AEP)
3-865-470-51	MANUAL, INSTRUCTION (ENGLISH, FINNISH, DANISH, CHINESE) (C470: AEP, SP)

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The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
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# ICF-C470/C470L

**SONY®**

## SERVICE MANUAL

1999. 06

*US Model*  
*Canadian Model*  
*E Model*  
*Australian Model*  
*ICF-C470*

*AEP Model*  
*ICF-C470/C470L*

*UK Model*  
*ICF-C470L*

## SUPPLEMENT-1

File this supplement with the service manual.

**Subject: Addition of East Europe, Russia Model (ICF-C470L)**

(ENG-99007)

### • DIFFERENCE PARTS LIST ACCESSORIES & PACKING MATERIAL

Page	Before change				After change			
	Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
25						3-865-470-42	MANUAL, INSTRUCTION (RUSSIAN, POLISH, CZECH, HUNGARIAN) (East Europe, Russia)	