

ICF-C303L

SERVICE MANUAL

AEP Model
UK Model



SPECIFICATIONS

Frequency range	FM: 87.5 – 108 MHz MW: 531 – 1,602 kHz LW: 153 – 279 kHz
Scan step	FM: 0.05* MHz MW: 9 kHz LW: 2 kHz ⇄ 7 kHz • The frequency display is raised or lowered by steps of 0.1 MHz. (Example: Frequency 88.05 MHz is displayed as "88.0 MHz".)
Antennas	FM: FM wire antenna MW/LW: Built-in ferrite bar antenna
Speaker	Approx. 6.6 cm (2 5/8 inches) dia.
Power output	200 mW (at 10% harmonic distortion)
Power requirements	UK mode: 240V AC, 50Hz AEP, FR model: 220 – 230 V AC, 50 Hz
Dimensions	Approx. 201 x 61.5 x 156 mm (w/h/d) (8 x 2 1/2 x 6 1/4 inches) incl. projecting parts and controls
Weight	Approx. 700 g (12 oz)
Accessory supplied	FM antenna coupler (1) (Switzerland and Belgium only)

Design and specifications subject to change without notice.

Note

This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

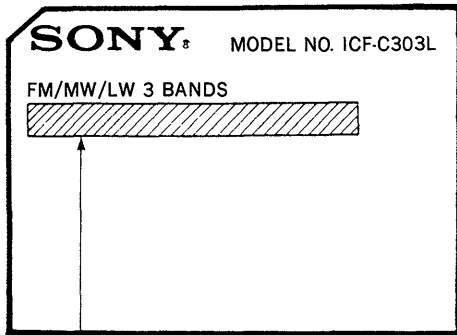
• FR: French model

FEATURES

- Dual alarm FM/MW/LW PLL (phase locked loop) synthesized clock radio.
- Choice of radio alarm or buzzer alarm for both ALARM **A** and **B**.
- You can wake up by two different stations on ALARM **A** and **B**.
- You can cancel the alarm for selected days of the week, using the ALARM CANCEL button.
- REPEAT ALARM/DATE bar offers you to enjoy not only the snooze alarm function but also enables you to check the month, day, and day of the week.
- Choice of four durations for sleep timer: 90, 60, 30 or 15 minutes.
- You can preset 7 FM/MW/LW stations for easier tuning.
- LCD display with backlight.
- Self power backup:
The built-in capacitor enables the unit to keep the memorized time and frequency for six hours without battery.

DUAL ALARM FM/MW/LW PLL
SYNTHESIZED CLOCK RADIO
SONY®

MODEL IDENTIFICATION
—Specification Label—



AEP, FR model: AC: 220—230V~50Hz 3W
UK model : AC: 240V~50Hz 3W

• FR: French model

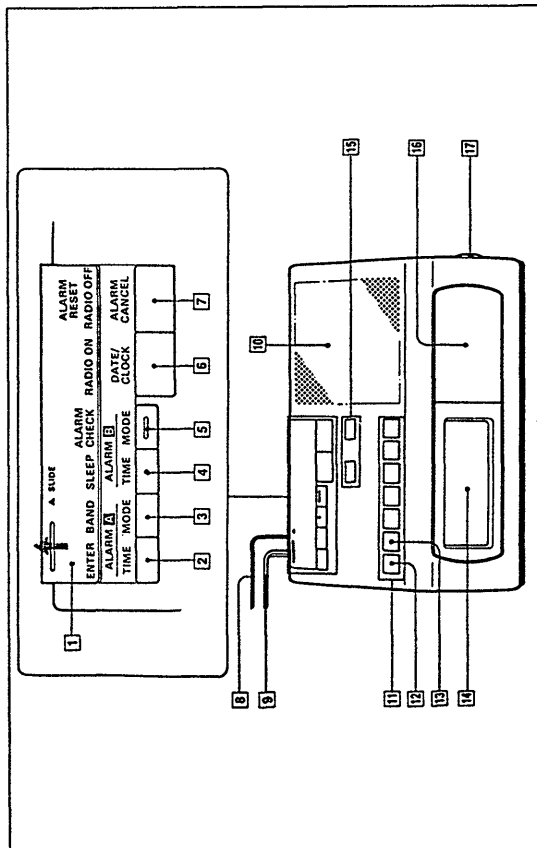
SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK OR DOTTED LINE WITH MARK 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
GENERAL

This section is extracted from instruction manual.

Location of Controls

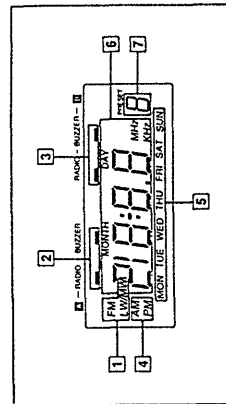


1 SLIDE cover
The function of the buttons listed in the following table is different when the SLIDE cover is closed and when it is open.

2 ENTER button	SLIDE cover closed	SLIDE cover open
3 BAND button	ALARM A TIME button	ALARM A TIME button
4 SLEEP button	ALARM B TIME button	ALARM B TIME button
5 ALARM CHECK button	ALARM B MODE button	ALARM B MODE button
6 RADIO ON button	DATE/CLOCK button	DATE/CLOCK button
7 RADIO OFF/ALARM RESET button	ALARM CANCEL button	ALARM CANCEL button

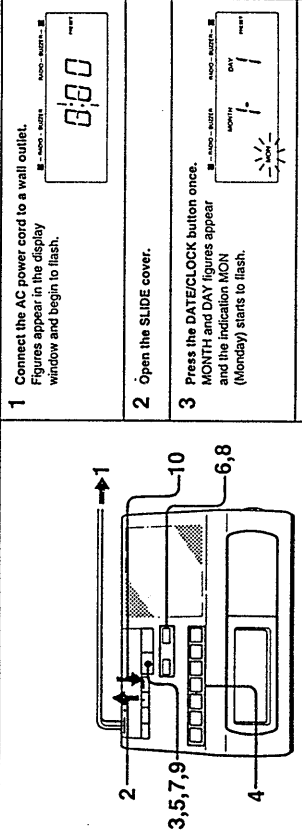
- 8** FM wire antenna
- 9** AC power cord
- 10** Speaker
- 11** Stationday preset buttons
- 12** WAKE UP-STATION button (ALARM **A**)
- 13** WAKE UP-STATION button (ALARM **B**)
- 14** Display window
- 15** TUNETIME SET buttons
- 16** REPEAT ALARIM/DATE bar
- 17** VOL (volume) control

Display Section



- 1** Band indication
- 2** ALARM **A** mode indication
- 3** ALARM **B** mode indication
- 4** AM/PM Indication (U.K. model only)
- 5** Days of the week indication
- 6** Time/frequency/date indication
- 7** Preset number indication

How to Set the Date and Time

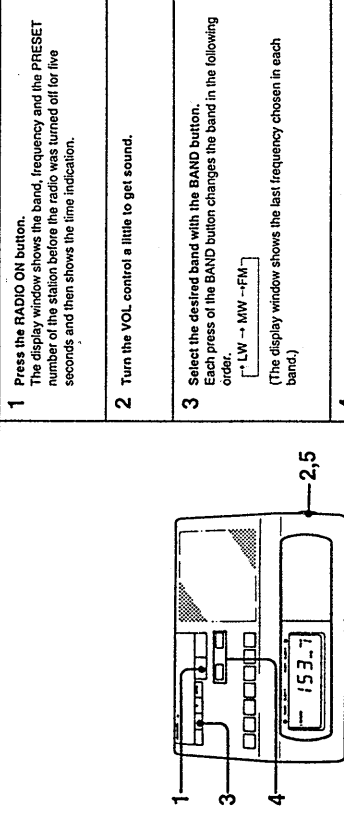


- Connect the AC power cord to a wall outlet. Figures appear in the display window and begin to flash.
- Open the SLIDE cover.
- Press the DATE/CLOCK button once. MONTH and DAY figures appear and the indication MON (Monday) starts to flash.
- Press the appropriate station/day preset button (MON - SUN) to set the day of the week. You can also set the day of the week by pressing the TUNE/TIME SET + or - button. The + button advances the day and the - button reverses the day.
- Press the DATE/CLOCK button a second time. The day of the week indication stops to flash and the MONTH-DAY indication starts to flash.

24-hour system (U.K. model)	0:00 = midnight 12:00 = noon
24-hour system (Continental European model)	0:00 = midnight 12:00 = noon

(The illustrations of the time indication in this manual are for models with 24-hour system.)

Radio Operation (Manual Tuning)



- Press the RADIO ON button. The display window shows the band, frequency and the PRESET number of the station before the radio was turned off for five seconds and then shows the time indication.
- Turn the VOL control a little to get sound.
- Select the desired band with the BAND button. Each press of the BAND button changes the band in the following order.
[→ LW → MW → FM]
(The display window shows the last frequency chosen in each band.)
- Tune in the desired station with the TUNE/TIME SET + or - button. The FM tuning interval is set to 0.05 MHz and the MW tuning interval is set to 9 kHz. (The FM frequency indication changes every 0.1 MHz.) The LW tuning interval alternates between 2 kHz and 7 kHz.
- Adjust volume.

- Press the TUNE/TIME SET + or - button to set the date. The + button advances the month and day digits and the - button reverses them. Keep the TUNE/TIME SET + or - button pressed to advance or reverse the month and day digits rapidly.
- Press the DATE/CLOCK button a third time. The MONTH/DAY indication disappears and the time indication appears.
- Adjust the clock to the current time with the TUNE/TIME SET + or - button. The + button advances the hour and minute digits and the - button reverses them. Keep the + or - button pressed to advance or reverse the hour/minute digits rapidly.
- Press the DATE/CLOCK button again. You hear two beeps. The day of the week, month, day and time have been set and only the time indication remains in the display window.
- Close the SLIDE cover.

Zero second adjustment

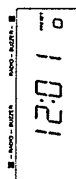
Example: To set to 8:15

- Follow the steps as previously described in 2 to 7.
- Adjust the time to 8:15.
- Press the DATE/CLOCK button with the radio or telephone time signal.

To check the day of the week and the date Press the REPEAT ALARM/DATE bar. The day of the week and the date indication appears in the display window.

Notes

- The display window shows the band and frequency for five seconds after the radio is turned on and after you have changed the frequency. Then it goes back to the time indication.
- The PRESET number in the display window shows 0 (out) when the radio is tuned to a frequency other than the preset ones by pressing the TUNE/TIME SET + or - button.

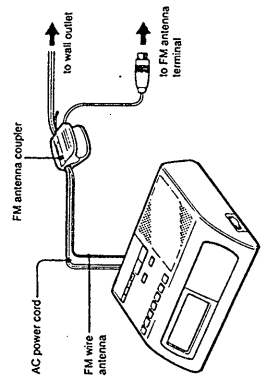


To turn off the radio Press the RADIO OFF/ALARM RESET button.

For improved reception

FM : Extend the FM wire antenna fully to increase the FM sensitivity.
MW/LW : Since the reception is affected by the position of the radio, rotate the unit horizontally for optimum reception.

For the customers supplied with an FM antenna coupler Pinch the FM wire antenna and the AC power cord together with the coupler supplied and connect it to a wall FM antenna terminal for optimum FM reception.



How to Set the Alarm

To Set the ALARM A (time/mode)

- 1 Open the SLIDE cover.
- 2 Press the ALARM A TIME button. The following indication appears in the window.
- 3 Set the ALARM A TIME with the TUNE/TIME SET + or - button. The + button advances the hour and minute digits and the - button reverses them. ALARM A TIME is set to 7:00 at the factory.
- 4 Press the ALARM A TIME button again. You hear two beeps and the alarm A time has been set.

To Set the ALARM B (time/mode)

Follow the steps 2 to 5 described in "To Set the ALARM A (time/mode)", using the ALARM B TIME and ALARM B MODE buttons. The ALARM B TIME is set to 7:30 at the factory. When you choose the ALARM B RADIO MODE, you will hear the station preset for the WAKE UP STATION B button at the preset time.

The radio or buzzer will automatically sound at the preset time, and automatically turn itself off after 59 minutes, unless it is turned off manually.

Radio Operation (Preset Tuning)

You can preset up to 7 FM/AM/LW stations (one station for each 1-7 button).

How to Preset

Example: To set MW 1260 kHz for button 2

- 1 Press the RADIO ON button. The display window shows the band, frequency and the PRESET number of the station before the radio was turned off.
- 2 Turn the VOL control a little to get sound.
- 3 Tune in the desired station with the BAND and TUNE/TIME SET + or - buttons.
- 4 Press the ENTER button. The PRESET indication "P" flashes.

To Tune in a Preset Station

- 1 Press the RADIO ON button.
- 2 Press one of the station/day preset buttons 1 - 7. The desired station will be received. The band and frequency will be displayed for five seconds and the PRESET number will remain in the display window.

To turn off the radio Press the RADIO OFF/ALARM RESET button.

To check the band and frequency of the station you are listening to Press one of the following buttons: RADIO ON button or the station/day preset button of the station you are listening to. The display window shows the band and frequency for five seconds.

- 5 Press the desired station/day preset button (2). You hear two beeps and the station being received will be stored for that PRESET number. The display window shows the band and frequency for five seconds and goes back to the PRESET indication. However, the PRESET number stays in the window.

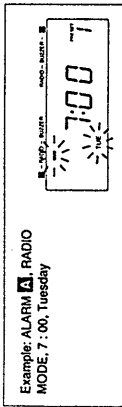
- 6 Adjust volume.

To change the preset station
Preset a new station for the desired button, following the steps 3 to 5.

Note
The station set for button 1 will be the station of ALARM A RADIO MODE. Preset another station for button 2 for ALARM B RADIO MODE. (For details on alarm, see "How to Set the Alarm".)

When the ALARM is on

The following indication appears in the window.



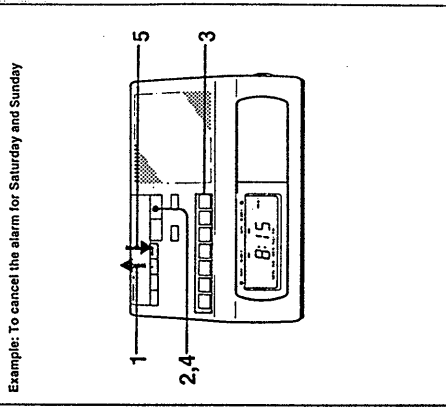
Notes

- When ALARM **A** (ALARM **A**) comes on while ALARM **A** (ALARM **A**) is still on, the alarm switches to ALARM **B** (ALARM **B**).
- The buzzer sound level is fixed, and independent of the VOL control.
- The ALARM **A** BUZZER sound and ALARM **B** BUZZER sound are different.
- The interval of the BUZZER ALARM is long at the beginning and gradually becomes shorter.

To turn off the alarm manually
Press the RADIO/OFF/ALARM RESET button. (Make sure that the SLIDE cover is closed.)

To Cancel the Day When You Don't

You can cancel the days when you don't want to be awoken by the alarm with the ALARM CANCEL button. Otherwise the alarm turns on at the same time every day.



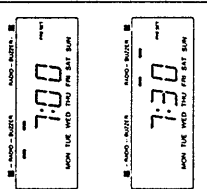
Example: To cancel the alarm for Saturday and Sunday

Want the Alarm

- 1 Open the SLIDE cover.
- 2 Press the ALARM CANCEL button.
Days of the week indication starts to flash.
- 3 Press the station/day preset button of the day on which you do not want to be awoken, (SAT and SUN)
The indication of the day disappears.
You can cancel other days of the week by pressing the desired station/day preset buttons.
- 4 Press the ALARM CANCEL button again.
You hear two beeps.
The alarm will not be turned on on the days whose indication has disappeared.
- 5 Close the SLIDE cover.

To check the alarm preset time

Press the ALARM CHECK button.
When you press the button once, the ALARM **A** TIME appears in the display window.



When you press the button again, the ALARM **B** TIME appears in the window.

Snooze Alarm Function

If you awake to the radio or buzzer but want to doze for a few more minutes, just lightly press the REPEAT ALARM/DATE bar. The radio or buzzer will be silenced but will automatically come on again after about eight minutes. If you want to doze some more, press the bar again.

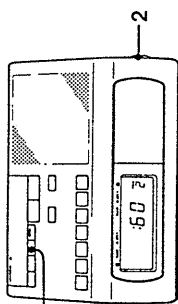
Notes

- If you press the REPEAT ALARM/DATE bar an hour after the alarm comes on, the alarm will not sound again.
- To cancel the alarm before the alarm time, open the SLIDE cover and press the ALARM **A** MODE and/or ALARM **B** MODE buttons so that the indicators under the ALARM **A** RADIO/BUZZER and the ALARM **B** RADIO/BUZZER indication disappear.

How to Use the Sleep Timer

You can fall asleep to the radio sound knowing that the radio will turn itself off after the preset time period has elapsed.

- 1 Tune in the desired station manually or with the station/day preset buttons. (See "Radio Operation".)
- 2 Adjust volume.
- 3 Press the SLEEP button to set the sleep timer operation time. Each time you press the button, the operation time will be reduced.
The operation time appears in the display window for a second and then the current time appears.



To Use Both Sleep Timer and Alarm Function

- 1 Set the alarm. (See "How to Set the Alarm".)
- 2 Set the sleep timer. (See "How to Use the Sleep Timer".)

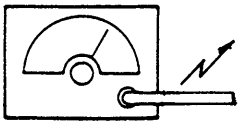
You can fall asleep to the radio sound and you will be awoken by the radio/buzzer alarm at the preset time.

Press SLEEP:	Operation time	Display
once	90 minutes	:90
twice	60 minutes	:60
three times	30 minutes	:30
four times	15 minutes	:15
five times	0 (Radio off)	OFF

SECTION 2 ELECTRICAL ADJUSTMENTS

MW/LW Section

AM RF signal generator



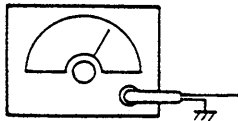
Put the lead-wire antenna close to the set.

30 % amplitude modulation by 400Hz signal

Output level: as low as possible

FM Section

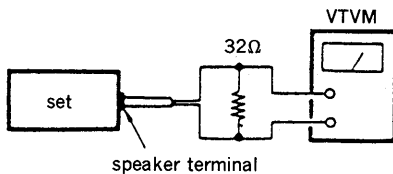
FM RF signal generator



FM ANT terminal

±22.5kHz frequency deviation by 400Hz signal

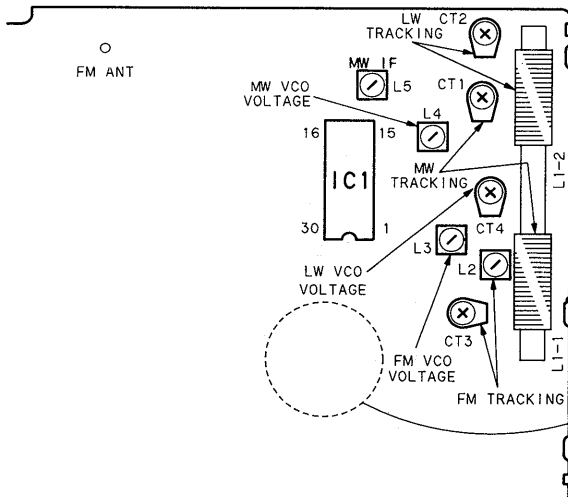
Output level: as low as possible



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

Adjustment Location :

【MAIN BOARD】 -COMPONENT SIDE-



MW IF ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L5	450kHz

MW VCO VOLTAGE ADJUSTMENT		
Adjustment Part	Frequency Display	Reading on Digital voltmeter
L4	1,602kHz	9.5V
(confirmation)	531kHz	1.2V (check)

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

MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
CT1	L1-1
1,404kHz	621kHz

LW VCO VOLTAGE ADJUSTMENT		
Adjustment Part	Frequency Display	Reading on Digital voltmeter
CT4	279kHz	7.0V
(confirmation)	153kHz	1.2V (check)

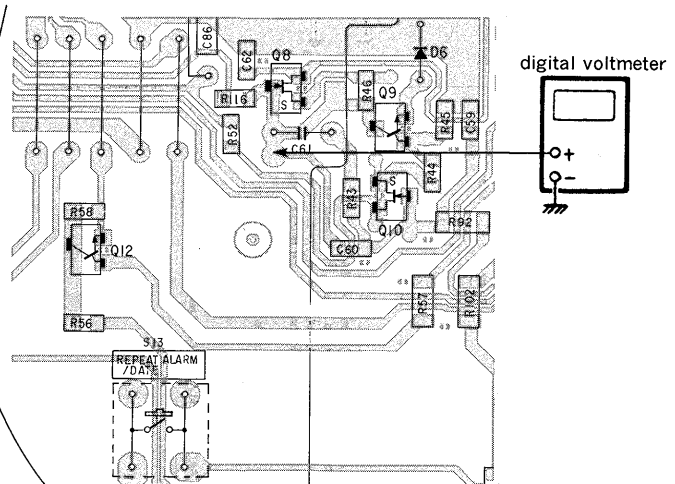
Note : Not use the AM signal generator in this adjustment.

LW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
CT2	L1-2
279kHz	153kHz

FM VCO VOLTAGE ADJUSTMENT		
Adjustment Part	Frequency Display	Reading on Digital voltmeter
L3	108MHz	10V
(confirmation)	87.5MHz	1.2V (check)

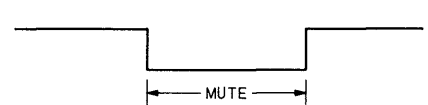
Note : Not use the FM signal generator in this adjustment.

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



SECTION 3 PIN DESCRIPTION

IC2 μ PD1724GB-551-1A7

Pin No.	Pin Name	Signal Name	I/O	Description
1-10	LCD10-LCD1	LCD10-LCD1	O	LCD drive
11	NC		—	
12-14	COM3-COM1	COM3-COM1	I	LCD common
15	VSS3		—	Pin for doubler circuit capacitor connection to develop LCD drive voltage
16	CAP2			
17	CAP1			
18	VSS2			
19	VDP	MUTE	O	<p>Audio signal mute. Active : Low. LOW when MUTE ON.</p> 
20	CGP	BEEP	O	Activates buzzer. (1 kHz)
21	NC		—	
22	VDD		—	5V power supply input terminal
23	VHF		I	Unused pin
24	HF	FM VCO	I	FM VCO input
25	AM	LW/MW VCO	I	LW/MW VCO input
26	VSS1		—	GND
27	EO1		O	PLL error output pin
28	EO2			
29	CE	CE	I	<p>Detects power supply line status.</p> <p>Power supply line OFF : Low</p> <p>Power supply line ON : High</p>
30	XO		O	Crystal oscillator connection pin
31	XI		I	
32	VSS4		—	Pin for regulator circuit capacitor connection to attain stable drive voltage of the oscillator
33	PA3	ALARM OUT	O	ALARM OUT
34	PA2	CST IN	I	Cassette control input. (Unused pin)
35	PA1	MODE IN	I	<p>MODE select input</p> <p>A Mode/B Mode select signal input to switch the function of the keys</p> <p>Low : A Mode High : B Mode</p>
36	PA0	CST OUT	O	Cassette control output. (Unused pin)
37	PB3	INIT OUT	O	<p>INITIALIZE OUT</p> <p>Generates INITIALIZE pulse to conduct BAND 12H/24H setting immediately following cold start.</p> <p>ON : High</p>
38	PB2	POWER OUT	O	<p>POWER OUT output</p> <p>Radio power supply control output</p> <p>POWER OFF : Low</p> <p>POWER ON : High (Unused pin)</p>
39	PB1	AM/FM	O	<p>AM/FM select</p> <p>FM : Low AM : High</p>
40	PB0	LW/MW	O	<p>LW/MW select output</p> <p>LW : High MW : Low</p>

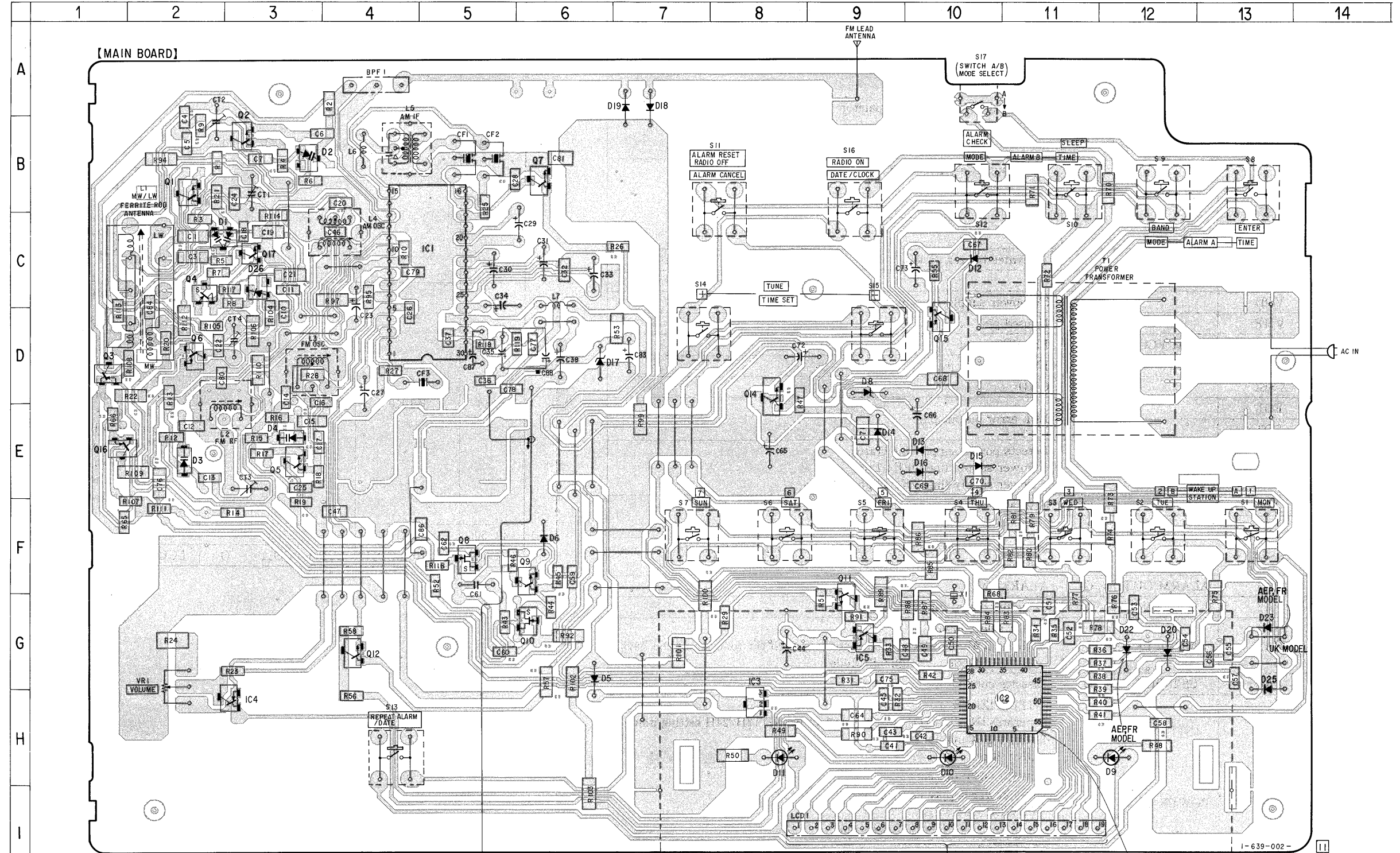
Pin No.	Pin Name	Signal Name	I/O	Description
41-44	PC3-PC0	KEY SOURCE	O	<p>Conducts Key Scan. Timing chart When the PC3 line key is pressed.</p> <p>The pressed key is detected. key scan stop</p> <p>Key is pressed.</p>
45-48	K3-K0	KEY RETURN	I	<p>Key Return input Key Scan</p> <ol style="list-style-type: none"> ① Set PC0, PC1, PC2 and PC3 to "High". ② When no of the 15 keys is pressed, PC0-PC3 will be set to "Low". ③ Each port is set to "High" (Key scan) in the following order PC0 → PC1 → PC2 → PC3 to determine the pressed key. <p>K0-K3 input condition The figure in the right indicates that the key following PC1 is pressed.</p> <p>* When the initial key is pressed and held down while the next key is pressed, the second key input will not be accepted until the initial key is released (for +, - keys only). Release the initial key and press the next key so that the second key input will be accepted.</p>
49, 50	NC		—	
51-56	LCD16-LCD11	LCD16-LCD11	O	LCD drive

SECTION 4
DIAGRAMS

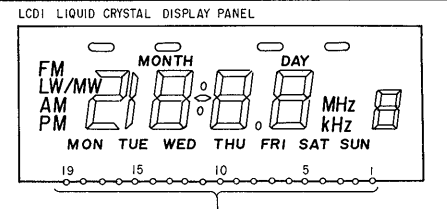
• Semiconductor Location

Ref. No.	Location
D1	C-2
D2	B-3
D3	E-2
D4	E-3
D5	G-6
D6	F-6
D8	D-9
D9	H-12
D10	H-10
D11	H-8
D12	C-10
D13	E-10
D14	E-9
D15	E-10
D16	E-10
D17	D-6
D18	A-7
D19	A-7
D20	G-12
D22	G-12
D23	G-13
D25	G-13
D26	C-3
IC1	C-5
IC2	H-11
IC3	H-8
IC4	H-3
IC5	G-9
Q1	B-2
Q2	B-3
Q3	D-1
Q4	C-2
Q5	E-3
Q6	D-2
Q7	B-6
Q8	F-5
Q9	F-6
Q10	G-6
Q11	F-9
Q12	G-4
Q14	D-8
Q15	D-10
Q16	E-1
Q17	C-3

4-1. PRINTED WIRING BOARD • Refer to page 14 for Semiconductor Lead Layouts.

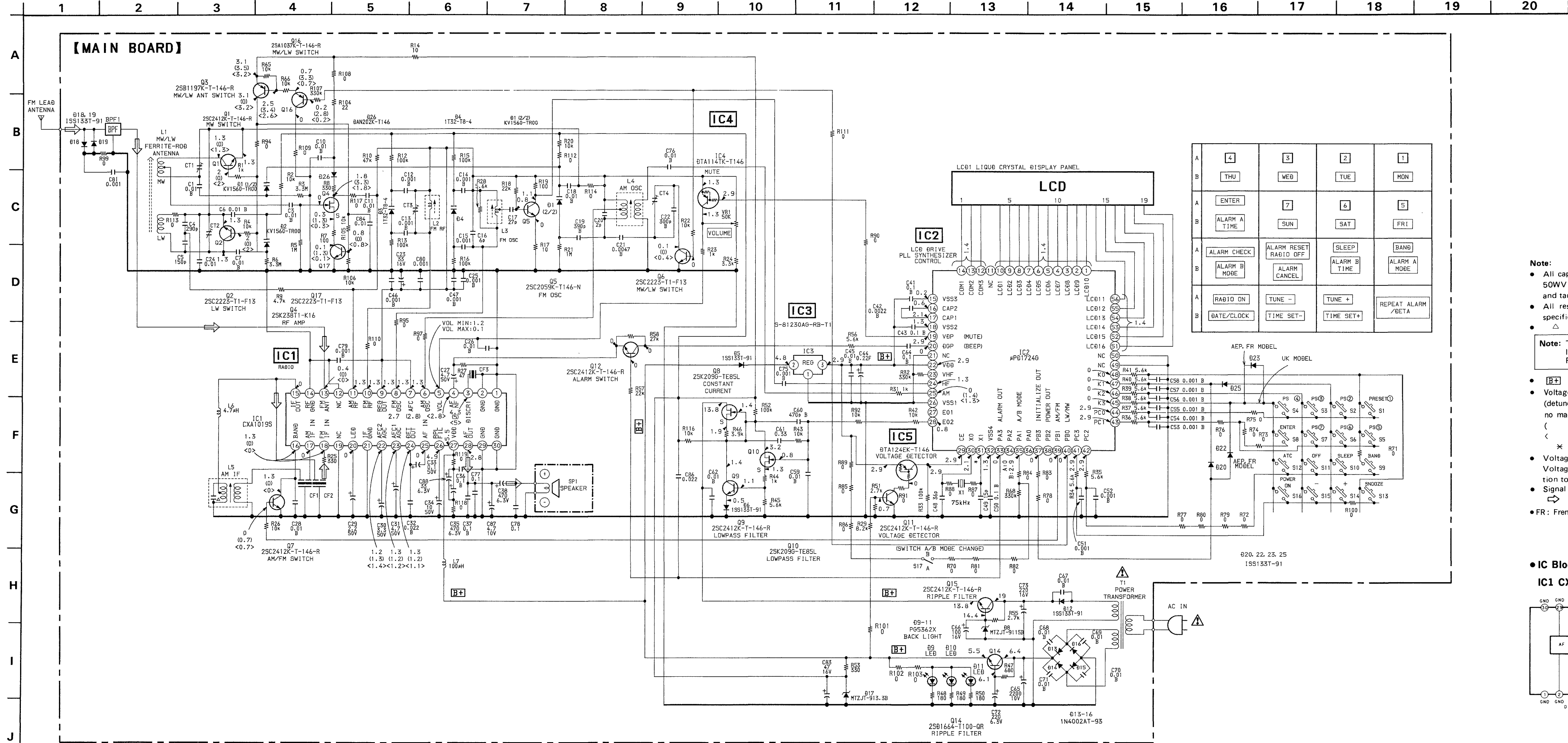


Note:
 • ○ — : parts extracted from the component side.
 • ■ — : parts mounted on the conductor side.
 • FR : French model



NOTE: TO MOUNT UPSIDE DOWN THE MARKING SIDE OF IC 2.

4-2. SCHEMATIC DIAGRAM

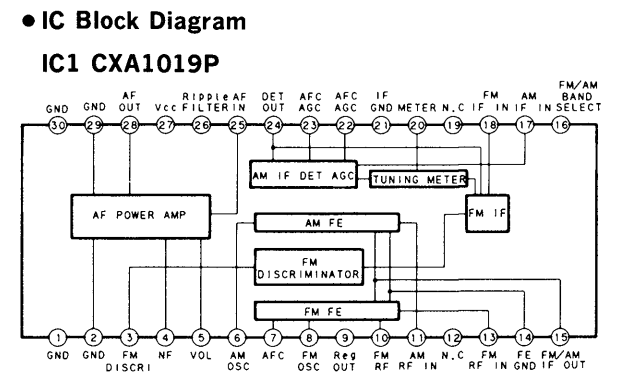


Note:

- All capacitors are in μF unless otherwise noted. pF : μF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $\frac{1}{4}\text{W}$ or less unless otherwise specified.
- Δ : internal component.

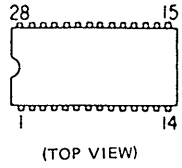
Note: The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

- B+ : B+ Line
- Voltage are dc with respect to ground under no-signal (detuned) conditions.
- no mark: MW
- (): FM
- < >: LW
- \times : Impossible measure point
- Voltages are taken with a VOM (Input Impedance $10\text{M}\Omega$). Voltage variations may be noted due to normal production tolerances.
- Signal path.
- \curvearrowright : FM
- FR: French model

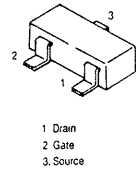


4-3. SEMICONDUCTOR LEAD LAYOUTS

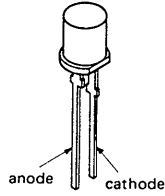
CXA1019S



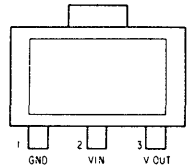
2SK238-K16



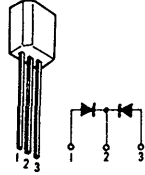
PG5362X



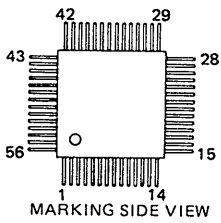
S-81230AG-RB-S



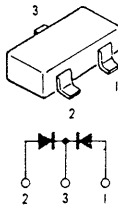
KV1560



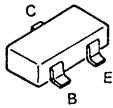
μ PD1724GB-551-1A7



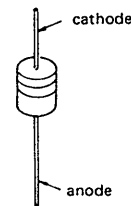
MA152WK



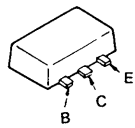
DTA114TK
DTA124EK
2SA1162-G
2SB1197K-R
2SC1623-L5L6
2SC2059K-N
2SC2223-F13



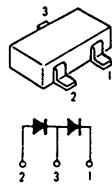
RD15ES-L3
RD3.3ES-L1



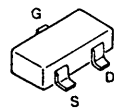
2SD1664-QR



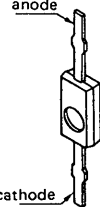
1SS226



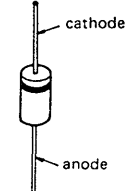
2SK209-G



1T32



10E2



SECTION 5 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.

- -XX, -X mean standardized parts, so they may have some differences from the original one.

- Color Indication of Appearance Parts
Example:

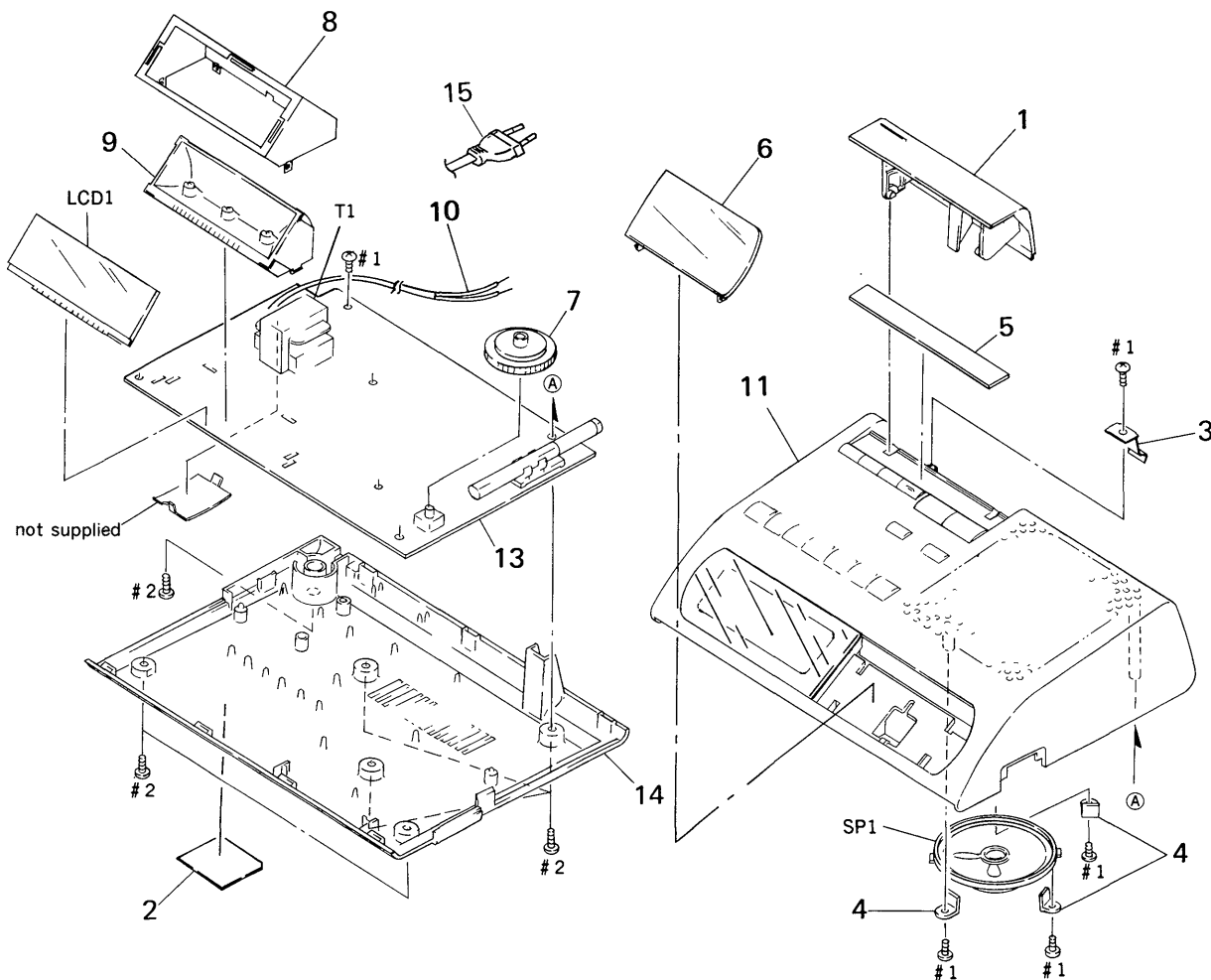
KNOB, BALANCE (WHITE)...(RED)

Parts Color Cabinet's Color

- FR: French model

- Hardware(# mark) list is given in the last of this parts list.

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



Ref. No.	Part No.	Description	Remark
1	3-367-641-01	PANEL (LID) (AEP, UK)	
1	3-367-641-21	PANEL (LID) (FR)	
2	* 3-371-734-01	LABEL, MODEL NUMBER (AEP, FR)	
2	* 3-371-738-02	LABEL, MODEL NUMBER (UK1) (UK)	
3	3-368-547-01	SPRING, LEAF	
4	3-593-019-00	CLAW, SPEAKER	
5	3-368-551-01	PLATE, INDICATION	
6	3-367-640-21	BUTTON (SNOOZE)	
7	3-367-639-01	KNOB (VOLUME) (AEP, UK)	
7	3-367-639-11	KNOB (VOLUME) (FR)	
8	* 3-368-553-01	CASE (LCD), SHIELD	
9	3-367-642-01	FRAME, REFLECTION	

Ref. No.	Part No.	Description	Remark
10	Δ . 1-556-035-00	CORD, POWER (2 CORE) (UK)	
11	X-3363-579-1	CABINET (UPPER) ASSY (FR)	
11	X-3363-581-1	CABINET (UPPER) ASSY (AEP, UK)	
13	* A-3661-397-A	MAIN BOARD, COMPLETE (AEP, FR)	
13	* A-3661-405-A	MAIN BOARD, COMPLETE (UK)	
14	3-367-646-21	CABINET (LOWER) (AEP, UK)	
14	3-367-646-31	CABINET (LOWER) (FR)	
15	Δ . 1-555-795-00	CORD, POWER (AEP, FR)	
T1	Δ . 1-450-674-11	TRANSFORMER, POWER	
SP1	1-544-504-11	SPEAKER	
LCD1	1-809-403-11	DISPLAY PANEL, LIQUID CRYSTAL	

SECTION 6 ELECTRICAL PARTS LIST

MAIN

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.
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- CAPACITORS
uF: μ F

- RESISTORS
All resistors are in ohms
METAL: Metal-film resistor
METAL OXIDE: Metal Oxide-film resistor
F: nonflammable
- COILS
uH: μ H
- SEMICONDUCTORS
In each case, u: μ , for example:
uA...: μ A..., uPA...: μ PA...,
uPB...: μ PB..., uPC...: μ PC...,
uPD...: μ PD....
- FR: French model

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

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

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
	* A-3661-397-A	MAIN BOARD, COMPLETE (AEP, FR)		C25	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
	* A-3661-405-A	MAIN BOARD, COMPLETE (UK)		C26	1-164-232-11	CERAMIC CHIP 0.01uF	50V
		*****		C27	1-124-927-11	ELECT 4.7uF	20% 100V
	* 1-535-771-11	TERMINAL		C28	1-164-232-11	CERAMIC CHIP 0.01uF	50V
	3-367-642-01	FRAME, REFLECTION		C29	1-124-925-11	ELECT 2.2uF	20% 100V
	* 3-368-553-01	CASE (LCD), SHIELD		C30	1-123-382-00	ELECT 3.3uF	20% 100V
		< BAND PASS >		C31	1-124-927-11	ELECT 4.7uF	20% 100V
BPF1	1-235-171-00	FILTER, BAND PASS		C32	1-163-989-11	CERAMIC CHIP 0.033uF	10% 25V
		< CAPACITOR >		C33	1-124-463-00	ELECT 0.1uF	20% 50V
C1	1-163-059-00	CERAMIC CHIP 0.01uF	10% 50V	C34	1-124-907-11	ELECT 10uF	20% 50V
C3	1-163-059-00	CERAMIC CHIP 0.01uF	10% 50V	C35	1-124-472-11	ELECT 470uF	20% 10V
C4	1-163-127-00	CERAMIC CHIP 270PF	5% 50V	C36	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
C5	1-163-121-00	CERAMIC CHIP 150PF	5% 50V	C37	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
C6	1-164-232-11	CERAMIC CHIP 0.01uF	50V	C38	1-124-472-11	ELECT 470uF	20% 10V
C7	1-164-232-11	CERAMIC CHIP 0.01uF	50V	C41	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
C10	1-164-232-11	CERAMIC CHIP 0.01uF	50V	C42	1-164-161-11	CERAMIC CHIP 0.0022uF	10% 100V
C11	1-164-232-11	CERAMIC CHIP 0.01uF	50V	C43	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
C12	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V	C44	1-125-623-11	CAP, DOUBLE LAYERS 0.22F	
C13	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V	C45	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C14	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V	C46	1-163-205-00	CERAMIC CHIP 0.001uF	5% 50V
C15	1-163-205-00	CERAMIC CHIP 0.001uF	5% 50V	C47	1-163-205-00	CERAMIC CHIP 0.001uF	5% 50V
C16	1-163-089-00	CERAMIC CHIP 6PF	50V	C48	1-163-106-00	CERAMIC CHIP 36PF	5% 50V
C17	1-163-103-00	CERAMIC CHIP 27PF	5% 50V	C49	1-163-161-00	CERAMIC CHIP 15PF	5% 50V
C18	1-164-232-11	CERAMIC CHIP 0.01uF	50V	C50	1-163-077-00	CERAMIC CHIP 0.1uF	10% 25V
C19	1-163-131-11	CERAMIC CHIP 390PF	5% 50V	C51	1-163-205-00	CERAMIC CHIP 0.001uF	5% 50V
C20	1-163-085-00	CERAMIC CHIP 2PF	50V	C52	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
C21	1-163-017-00	CERAMIC CHIP 0.0047uF	5% 50V	C53	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
C22	1-163-128-11	CERAMIC CHIP 300PF	5% 50V	C54	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
C23	1-124-034-51	ELECT 33uF	20% 16V	C55	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
C24	1-164-232-11	CERAMIC CHIP 0.01uF	50V	C56	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
				C57	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
				C58	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
				C59	1-164-232-11	CERAMIC CHIP 0.01uF	50V

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C60	1-163-005-11	CERAMIC CHIP	470PF	10%	50V		
C61	1-130-774-00	FILM	0.33uF	10%	63V		
C62	1-164-232-11	CERAMIC CHIP	0.01uF		50V		
C64	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V		
C65	1-124-893-11	ELECT	2200uF	20%	10V		
C66	1-126-101-11	ELECT	100uF	20%	16V		
C67	1-164-232-11	CERAMIC CHIP	0.01uF		50V		
C68	1-163-059-00	CERAMIC CHIP	0.01uF	10%	50V		
C69	1-164-232-11	CERAMIC CHIP	0.01uF		50V		
C70	1-164-232-11	CERAMIC CHIP	0.01uF		50V		
C71	1-163-059-00	CERAMIC CHIP	0.01uF	10%	50V		
C72	1-126-176-11	ELECT	220uF	20%	10V		
C73	1-124-120-11	ELECT	220uF	20%	25V		
C75	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V		
C76	1-164-232-11	CERAMIC CHIP	0.01uF		50V		
C77	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V		
C78	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V		
C79	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V		
C80	1-163-205-00	CERAMIC CHIP	0.001uF	5%	50V		
C81	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V		
C83	1-124-477-11	ELECT	47uF	20%	25V		
C84	1-163-059-00	CERAMIC CHIP	0.01uF	10%	50V		
C86	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V		
C87	1-131-375-00	ELECT	4.7uF	20%	10V		
C88	1-131-374-00	ELECT	33uF	20%	6.3V		
< FILTER >							
CF1	1-577-319-11	FILTER, CERAMIC					
CF2	1-577-324-11	FILTER, CERAMIC					
CF3	1-577-324-11	FILTER, CERAMIC					
< TRIMMER >							
CT1	* 1-141-227-00	CAP, TRIMMER	20PF				
CT2	1-141-254-11	CAP, CERAMIC TRIMMER					
CT3	1-141-299-11	CAP, CERAMIC TRIMMER					
CT4	1-141-260-00	CAP, CERAMIC TRIMMER					
< DIODE >							
D1	8-719-951-05	DIODE	KV1560				
D2	8-719-951-05	DIODE	KV1560				
D3	8-719-949-46	DIODE	1T32				
D4	8-719-949-46	DIODE	1T32				
D5	8-719-800-76	DIODE	1SS226				
D6	8-719-800-76	DIODE	1SS226				
D8	8-719-121-88	DIODE	RD15ESL3				
D9	8-719-990-84	DIODE	PG5362X				
D10	8-719-990-84	DIODE	PG5362X				
D11	8-719-990-84	DIODE	PG5362X				
D12	8-719-800-76	DIODE	1SS226				
D13	8-719-200-02	DIODE	10E2				
D14	8-719-200-02	DIODE	10E2				
D15	8-719-200-02	DIODE	10E2				
D16	8-719-200-02	DIODE	10E2				
D17	8-719-119-78	DIODE	RD3.3ESL1				
D18	8-719-800-76	DIODE	1SS226				
D19	8-719-800-76	DIODE	1SS226				
D20	8-719-800-76	DIODE	1SS226				
D22	8-719-800-76	DIODE	1SS226 (AEP, FR)				
D23	8-719-800-76	DIODE	1SS226 (AEP, FR)				
D25	8-719-800-76	DIODE	1SS226				
D26	8-719-400-18	DIODE	MA152WK				
< IC >							
IC1	8-752-035-29	IC	CXA1019S				
IC2	8-759-154-63	IC	uPD1724GB-551-1A7				
IC3	8-759-939-41	IC	S-81230AG-RB-S				
IC4	8-729-900-51	TRANSISTOR	DTA114TK				
IC5	8-729-901-05	TRANSISTOR	DTA124EK				
< COIL >							
L1	1-402-580-11	ANTENNA, FERRITE-ROD					
L2	1-426-558-11	COIL (RF)					
L3	1-426-557-11	COIL (RF)					
L4	1-426-556-11	COIL (RF)					
L5	1-404-790-11	TRANSFORMER, IF					
L6	1-410-969-11	INDUCTOR	4.7uH				
L7	1-414-041-11	INDUCTOR	100uH				
< LCD >							
LCD1	1-809-403-11	DISPLAY PANEL, LIQUID CRYSTAL					
< TRANSISTOR >							
Q1	8-729-120-28	TRANSISTOR	2SC1623-L5L6				
Q2	8-729-102-07	TRANSISTOR	2SC2223-F13				
Q3	8-729-904-87	TRANSISTOR	2SB1197K-R				
Q4	8-729-123-86	TRANSISTOR	2SK238-K16				
Q5	8-729-920-38	TRANSISTOR	2SC2059K-N				
Q6	8-729-102-07	TRANSISTOR	2SC2223-F13				
Q7	8-729-120-28	TRANSISTOR	2SC1623-L5L6				
Q8	8-729-220-93	TRANSISTOR	2SK209-G				
Q9	8-729-120-28	TRANSISTOR	2SC1623-L5L6				
Q10	8-729-220-93	TRANSISTOR	2SK209-G				
Q11	8-729-120-28	TRANSISTOR	2SC1623-L5L6				
Q12	8-729-120-28	TRANSISTOR	2SC1623-L5L6				
Q14	8-729-920-85	TRANSISTOR	2SD1664-QR				
Q15	8-729-120-28	TRANSISTOR	2SC1623-L5L6				
Q16	8-729-216-22	TRANSISTOR	2SA1162-G				

MAIN

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
Q17	8-729-102-07	TRANSISTOR	2SC2223-F13	R48	1-216-180-00	METAL GLAZE	180 5% 1/8W
		< RESISTOR >		R49	1-216-180-00	METAL GLAZE	180 5% 1/8W
R1	1-216-049-00	METAL CHIP	1K 5% 1/10W	R50	1-216-180-00	METAL GLAZE	180 5% 1/8W
R2	1-216-073-00	METAL CHIP	10K 5% 1/10W	R51	1-216-059-00	METAL CHIP	2.7K 5% 1/10W
R3	1-216-133-00	METAL CHIP	3.3M 5% 1/10W	R52	1-216-025-00	METAL CHIP	100 5% 1/10W
R4	1-216-073-00	METAL CHIP	10K 5% 1/10W	R53	1-216-186-00	METAL GLAZE	330 5% 1/8W
R5	1-216-121-00	METAL CHIP	1M 5% 1/10W	R55	1-216-059-00	METAL CHIP	2.7K 5% 1/10W
R6	1-216-133-00	METAL CHIP	3.3M 5% 1/10W	R56	1-216-067-00	METAL CHIP	5.6K 5% 1/10W
R7	1-216-025-00	METAL CHIP	100 5% 1/10W	R57	1-216-230-00	METAL GLAZE	22K 5% 1/8W
R8	1-216-037-00	METAL CHIP	330 5% 1/10W	R58	1-216-083-00	METAL CHIP	27K 5% 1/10W
R9	1-216-065-00	METAL CHIP	4.7K 5% 1/10W	R65	1-216-073-00	METAL CHIP	10K 5% 1/10W
R10	1-216-089-00	METAL CHIP	47K 5% 1/10W	R66	1-216-073-00	METAL CHIP	10K 5% 1/10W
R12	1-216-097-00	METAL CHIP	100K 5% 1/10W	R68	1-216-109-00	METAL CHIP	330K 5% 1/10W
R13	1-216-097-00	METAL CHIP	100K 5% 1/10W	R70	1-216-296-00	METAL CHIP	0 5% 1/8W
R14	1-216-001-00	METAL CHIP	10 5% 1/10W	R71	1-216-296-00	METAL CHIP	0 5% 1/8W
R15	1-216-097-00	METAL CHIP	100K 5% 1/10W	R72	1-216-295-00	METAL CHIP	0 5% 1/10W
R16	1-216-097-00	METAL CHIP	100K 5% 1/10W	R73	1-216-296-00	METAL CHIP	0 5% 1/8W
R17	1-216-001-00	METAL CHIP	10 5% 1/10W	R74	1-216-295-00	METAL CHIP	0 5% 1/10W
R18	1-216-081-00	METAL CHIP	22K 5% 1/10W	R75	1-216-296-00	METAL CHIP	0 5% 1/8W
R19	1-216-025-00	METAL CHIP	100 5% 1/10W	R76	1-216-296-00	METAL CHIP	0 5% 1/8W
R20	1-216-073-00	METAL CHIP	10K 5% 1/10W	R77	1-216-296-00	METAL CHIP	0 5% 1/8W
R21	1-216-121-00	METAL CHIP	1M 5% 1/10W	R78	1-216-296-00	METAL CHIP	0 5% 1/8W
R22	1-216-222-00	METAL GLAZE	10K 5% 1/8W	R79	1-216-296-00	METAL CHIP	0 5% 1/8W
R23	1-216-049-00	METAL CHIP	1K 5% 1/10W	R80	1-216-296-00	METAL CHIP	0 5% 1/8W
R24	1-216-061-00	METAL CHIP	3.3K 5% 1/10W	R81	1-216-296-00	METAL CHIP	0 5% 1/8W
R25	1-216-037-00	METAL CHIP	330 5% 1/10W	R82	1-216-296-00	METAL CHIP	0 5% 1/8W
R26	1-216-073-00	METAL CHIP	10K 5% 1/10W	R83	1-216-296-00	METAL CHIP	0 5% 1/8W
R27	1-216-017-00	METAL CHIP	47 5% 1/10W	R84	1-216-296-00	METAL CHIP	0 5% 1/8W
R28	1-216-067-00	METAL CHIP	5.6K 5% 1/10W	R85	1-216-296-00	METAL CHIP	0 5% 1/8W
R29	1-216-071-00	METAL CHIP	8.2K 5% 1/10W	R86	1-216-296-00	METAL CHIP	0 5% 1/8W
R31	1-216-049-00	METAL CHIP	1K 5% 1/10W	R87	1-216-296-00	METAL CHIP	0 5% 1/8W
R32	1-216-109-00	METAL CHIP	330K 5% 1/10W	R88	1-216-296-00	METAL CHIP	0 5% 1/8W
R33	1-216-097-00	METAL CHIP	100K 5% 1/10W	R89	1-216-296-00	METAL CHIP	0 5% 1/8W
R34	1-216-067-00	METAL CHIP	5.6K 5% 1/10W	R90	1-216-296-00	METAL CHIP	0 5% 1/8W
R35	1-216-067-00	METAL CHIP	5.6K 5% 1/10W	R91	1-216-295-00	METAL CHIP	0 5% 1/10W
R36	1-216-067-00	METAL CHIP	5.6K 5% 1/10W	R92	1-216-296-00	METAL CHIP	0 5% 1/8W
R37	1-216-067-00	METAL CHIP	5.6K 5% 1/10W	R94	1-216-296-00	METAL CHIP	0 5% 1/8W
R38	1-216-067-00	METAL CHIP	5.6K 5% 1/10W	R95	1-216-296-00	METAL CHIP	0 5% 1/8W
R39	1-216-067-00	METAL CHIP	5.6K 5% 1/10W	R97	1-216-295-00	METAL CHIP	0 5% 1/10W
R40	1-216-067-00	METAL CHIP	5.6K 5% 1/10W	R99	1-216-296-00	METAL CHIP	0 5% 1/8W
R41	1-216-067-00	METAL CHIP	5.6K 5% 1/10W	R100	1-216-296-00	METAL CHIP	0 5% 1/8W
R42	1-216-073-00	METAL CHIP	10K 5% 1/10W	R101	1-216-296-00	METAL CHIP	0 5% 1/8W
R43	1-216-073-00	METAL CHIP	10K 5% 1/10W	R102	1-216-296-00	METAL CHIP	0 5% 1/8W
R44	1-216-049-00	METAL CHIP	1K 5% 1/10W	R103	1-216-296-00	METAL CHIP	0 5% 1/8W
R45	1-216-067-00	METAL CHIP	5.6K 5% 1/10W	R104	1-216-009-00	METAL CHIP	22 5% 1/10W
R46	1-216-063-00	METAL CHIP	3.9K 5% 1/10W	R105	1-216-073-00	METAL CHIP	10K 5% 1/10W
R47	1-216-045-00	METAL CHIP	680 5% 1/10W	R106	1-216-073-00	METAL CHIP	10K 5% 1/10W
				R107	1-216-109-00	METAL CHIP	330K 5% 1/10W
				R108	1-216-295-00	METAL CHIP	0 5% 1/10W

MAIN

Ref. No.	Part No.	Description	Remark
R109	1-216-296-00	METAL CHIP	0 5% 1/8W
R110	1-216-296-00	METAL CHIP	0 5% 1/8W
R111	1-216-295-00	METAL CHIP	0 5% 1/10W
R112	1-216-296-00	METAL CHIP	0 5% 1/8W
R113	1-216-295-00	METAL CHIP	0 5% 1/10W
R114	1-216-296-00	METAL CHIP	0 5% 1/8W
R116	1-216-073-00	METAL CHIP	10K 5% 1/10W
R117	1-216-295-00	METAL CHIP	0 5% 1/10W
R118	1-216-295-00	METAL CHIP	0 5% 1/10W
R119	1-216-295-00	METAL CHIP	0 5% 1/10W

< SWITCH >

S1	1-554-303-21	SWITCH, TACTILE (1, MON)
S2	1-554-303-21	SWITCH, TACTILE (2, TUE)
S3	1-554-303-21	SWITCH, TACTILE (3, WED)
S4	1-554-303-21	SWITCH, TACTILE (4, THU)
S5	1-554-303-21	SWITCH, TACTILE (5, FRI)
S6	1-554-303-21	SWITCH, TACTILE (6, SAT)
S7	1-554-303-21	SWITCH, TACTILE (7, SUN)
S8	1-554-303-21	SWITCH, TACTILE (ENTER, ALARM A TIME)
S9	1-554-303-21	SWITCH, TACTILE (BAND, ALARM A MODE)
S10	1-554-303-21	SWITCH, TACTILE (SLEEP, ALARM B TIME)
S11	1-554-303-21	SWITCH, TACTILE (ALARM RESET RADIO OFF, ALARM CANCEL)
S12	1-554-303-21	SWITCH, TACTILE (ALARM CHECK, ALARM B MODE)
S13	1-554-303-21	SWITCH, TACTILE (REPEAT ALARM/DATE)
S14	1-554-303-21	SWITCH, TACTILE (TUNE+, TIME SET+)
S15	1-554-303-21	SWITCH, TACTILE (TUNE-, TIME SET-)
S16	1-554-303-21	SWITCH, TACTILE (RADIO ON, DATE/CLOCK)
S17	1-571-958-11	SWITCH, PUSH (1 KEY) (SWITCH A/B MODE CHANGE)

< VARIABLE RESISTOR >

VR1	1-241-532-11	RES. VAR, CARBON 50K (VOLUME)
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< CRYSTAL >

X1	1-567-769-11	VIBRATOR, CRYSTAL (75KHz)
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MISCELLANEOUS



10	△ . 1-556-035-00	CORD, POWER (2 CORE) (UK)
15	△ . 1-555-795-00	CORD, POWER (AEP, FR)
SP1	1-544-504-11	SPEAKER
T1	△ . 1-450-674-11	TRANSFORMER, POWER

Ref. No.	Part No.	Description	Remark
		ACCESSORIES & PACKING MATERIALS	

	* 3-370-752-01	INDIVIDUAL CARTON	
	* 3-704-282-01	BAG (STANDARD), PROTECTION	
	3-753-307-51	MANUAL, INSTRUCTION (ENGLISH, FRENCH, GERMAN, ITALIAN, DUTCH)	

HARDWARE LIST

#1	7-685-546-14	SCREW +BTP	3X8	TYPE2	N-S
#2	7-685-648-79	SCREW +BTP	3X12	TYPE2	N-S

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

