

ICF-C790

SERVICE MANUAL

AEP Model



SPECIFICATIONS

Frequency range

Model for	Band	ICF-C790
Italy	FM	87.5 - 108 MHz
	AM	526.5 - 1606.5 kHz
Other countries	FM	87.6 - 107.5 MHz
	AM(MW)	531 - 1602 kHz
	LW	—

Intermediate frequency

FM: 10.7 MHz, AM: 455 kHz

Antennas

FM: AC power cord

AM(MW)/LW: Built-in ferrite bar antenna

Speaker

Approx. 6.6 cm (2⁵/₈ inches) dia.

Power output

130 mW (at 10% harmonic distortion)

Power requirements

Model for	ICF-C790
UK	—
Other countries	220 - 230 V AC, 50 Hz

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

Battery life

Approx. 24 hours, using Sony battery S-006P (U)

Dimensions

Approx. 180 × 69.2 mm (dia./h)

(7¹/₈ × 2³/₄ inches)

incl. projecting parts and controls

Weight

Approx. 640 g (1 lb. 7 oz.)

not incl. battery

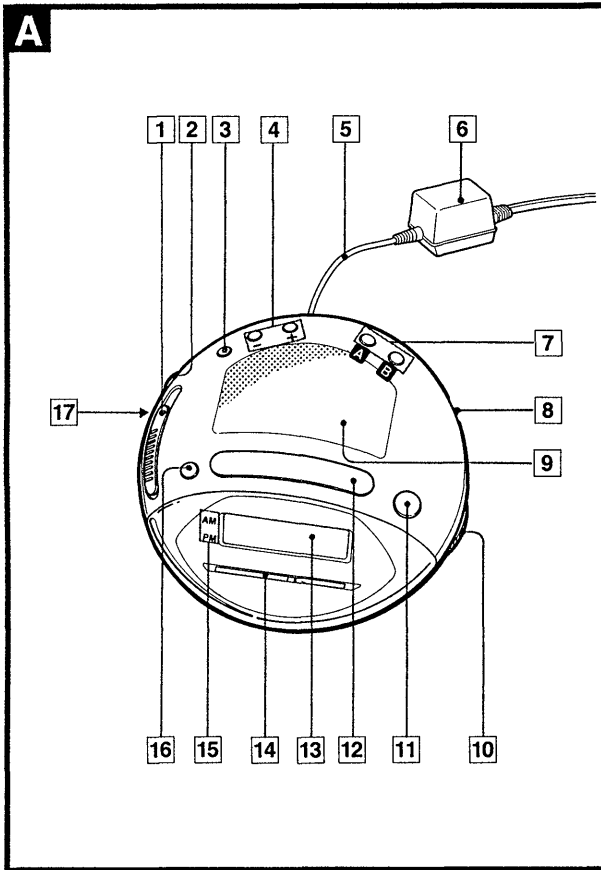
Design and specifications subject to change without notice.

Note

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

FM/AM DIGITAL CLOCK RADIO
SONY[®]

SECTION 1 GENERAL



A Location of Controls

- | | |
|---|--|
| <ul style="list-style-type: none"> 1 Function selector (OFF, RADIO ON, Single alarm RADIO [A] or BUZZER [B], Dual alarm RADIO/BUZZER [A/B]) 2 VOL (volume) control 3 CLOCK set button 4 TIME SET buttons (+/-) 5 AC power cord (FM antenna) 6 AC power adaptor 7 ALARM set buttons ([A]/[B]) 8 BAND selector (FM/AM: ICF-C790, FM/MW/LW: ICF-C790L) | <ul style="list-style-type: none"> 9 Speaker 10 TUNE (tuning) control 11 ALARM RESET/SLEEP OFF button 12 REPEAT ALARM bar 13 Time display 14 Dial scale 15 AM/PM indication (for UK model only) 16 SLEEP button 17 Power back-up battery compartment (bottom) |
|---|--|

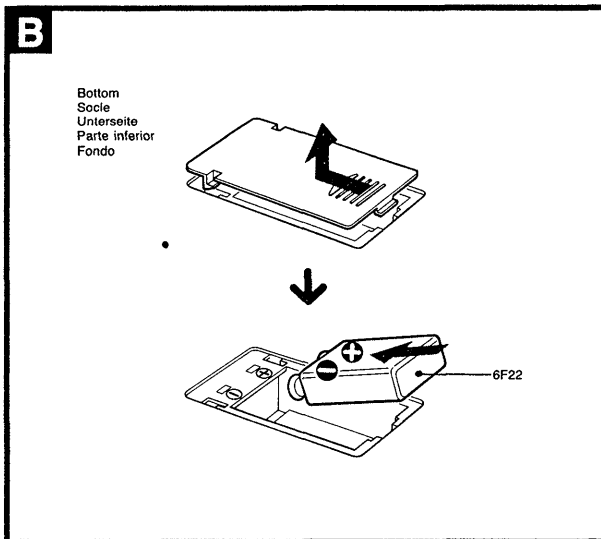
B Power Back-up during Power Interruption

Be sure to install a 6F22 battery (not supplied) for the power back-up function. If the AC power supply is interrupted, the battery supplies power to keep the clock operating and to hold the alarm time setting.



- During power interruption, the clock function is maintained although the indicator light goes out and the alarm does not sound.
- After a power interruption, the displayed time may not be correct (it may gain or lose a maximum of ten minutes per hour).
- This battery is only for clock operation and alarm memory during power interruption. You cannot listen to the radio with this battery.

When to replace the battery
To check the battery condition, unplug the AC 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. For battery life, see "Specifications".

- Notes**
- Be sure to install the battery before disconnecting the AC power cord.
 - When the unit is left unplugged for a long time, remove the battery to avoid undue battery discharge and unit damage from battery leakage.

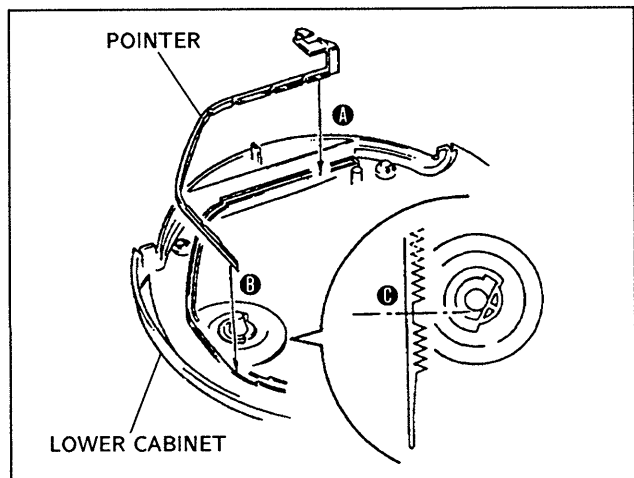


SAFETY-RELATED COMPONENT WARNING!!

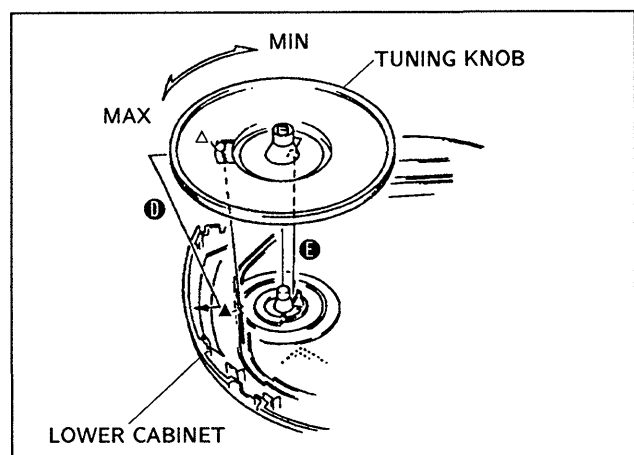
COMPONENTS IDENTIFIED BY MARK  OR DOTTED LINE WITH MARK  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SECTION 2 DISASSEMBLY

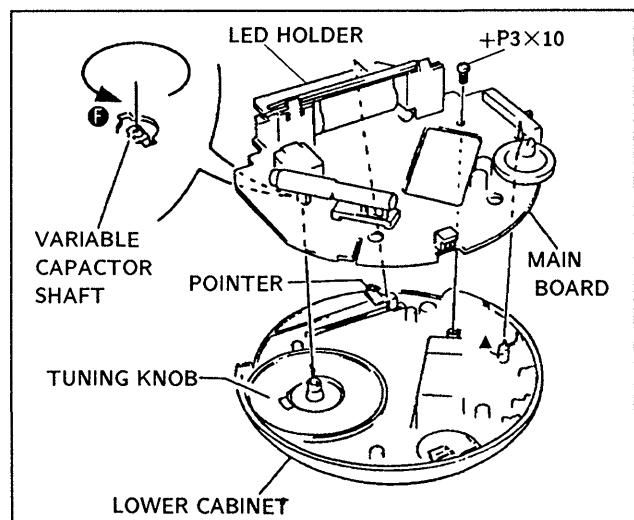
DIAL POINTER SETTING



- ① Set the pointer into groove of the lower cabinet in alphabetical order **A** and **B** as shown in the drawing.
- ② Move the pointer and set the position of **C** as shown in left drawing.



- ③ Set the tuning knob in alphabetical order **D** and **E** as shown in the drawing.
(Note that the marked Δ of the tuning knob gear should fit the marked \blacktriangle of the pointer gear as shown in drawing.)
- ④ Turn the tuning knob toward minimum or maximum direction several times and confirm that the tuning knob move smoothly.
Then, set the tuning knob to minimum position.



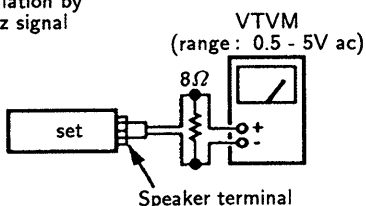
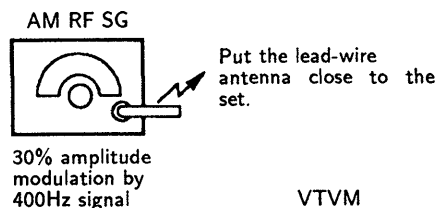
- ⑤ Turn the variable capacitor shaft toward arrow direction fully as shown in drawing **F**.
- ⑥ Hook the pointer and LED holder first, and then fit the marked \blacktriangle of the boss to the hole of the main mounted board.
Mounted the variable tuning shaft in the hole of the tuning knob.

SECTION 3 ADJUSTMENTS

Radio Section

AM SECTION

BAND switch : AM



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

AM IF Adjustment

SG and set frequency	Adjustment part	Reading on VTVM
455kHz	T1	maximum

AM Frequency Coverage Adjustment

Pointer position	SG frequency	Adjustment part	Reading on VTVM
f minimum	520kHz [516.5kHz]	L4	maximum
f maximum	1,650kHz [1,631.5kHz]	CT4	

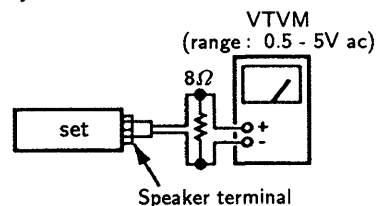
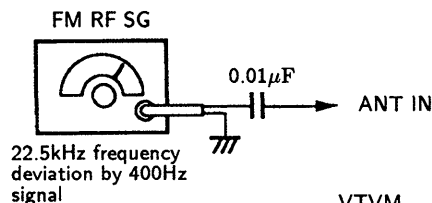
[] : Italian model

AM Tracking Adjustment

SG and set frequency	Adjustment part	Reading on VTVM
680kHz	L1	maximum
1,320kHz	CT1	

FM SECTION

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.

FM Frequency Coverage Adjustment

Pointer position	SG frequency	Adjustment part	Reading on VTVM
f minimum	87.35MHz [87.35MHz]	L3	maximum
f maximum	108.05MHz [108.25MHz]	CT3	

[] : Italian model

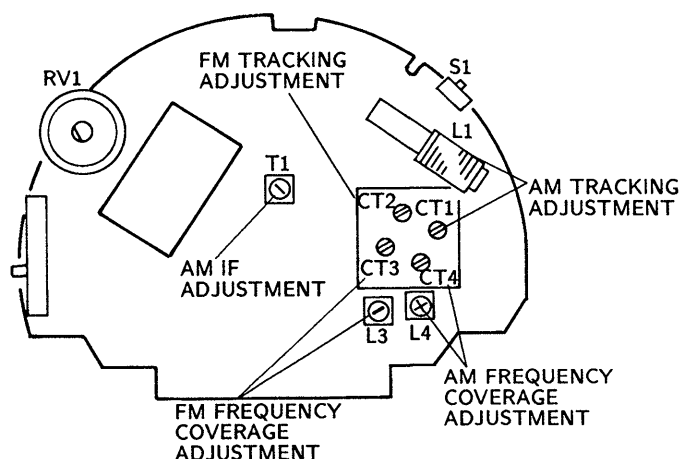
FM Tracking Adjustment

SG and set frequency	Adjustment part	Reading on VTVM
108.05MHz [108.25MHz]	CT2	maximum

[] : Italian model

Adjustment Location :

[MAIN BOARD]
— COMPONENT SIDE —



SECTION 4
DIAGRAMS

• SEMICONDUCTOR LOCATION

Ref. No.	Location
D1	E-3
D2	D-7
D3	E-5
D4	B-5
D5	B-6
D6	E-6
D7	D-6
D8	F-5
D9	G-4
IC1	D-3
IC2	F-4
Q3	E-2
Q5	F-3
Q6	F-3
Q7	D-4

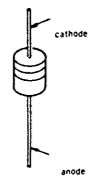
• PRINTED WIRING BOARD

• SEMICONDUCTOR LEAD LAYOUTS

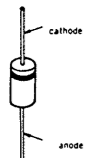
MA152WK



2SA1162
2SC1623



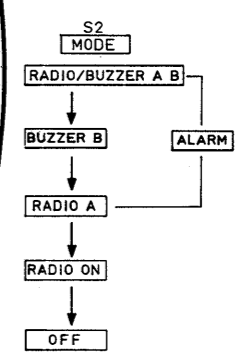
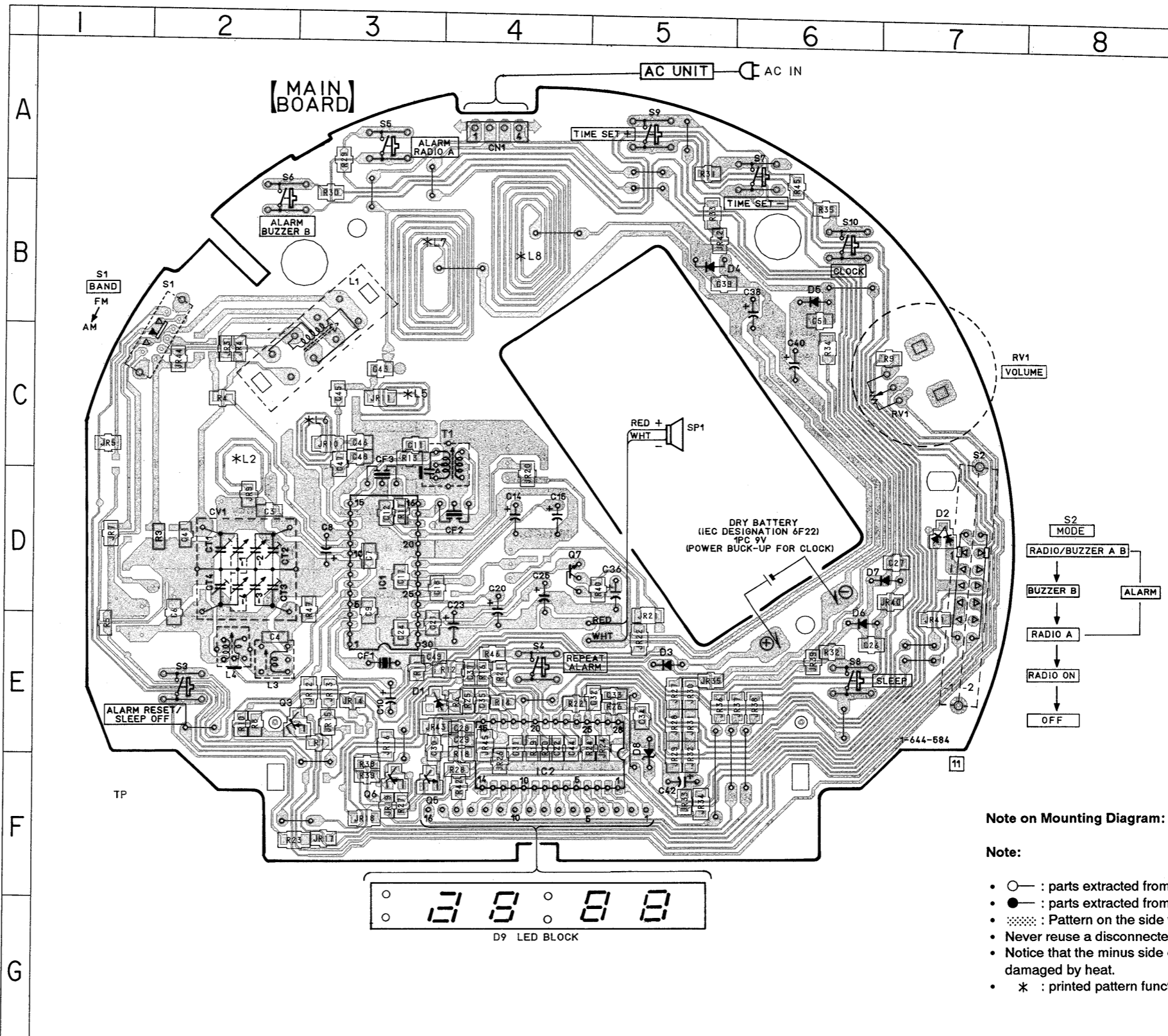
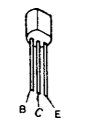
1SS119
RD15ES-B1



2SC2001-LK



10E2



Note on Mounting Diagram:

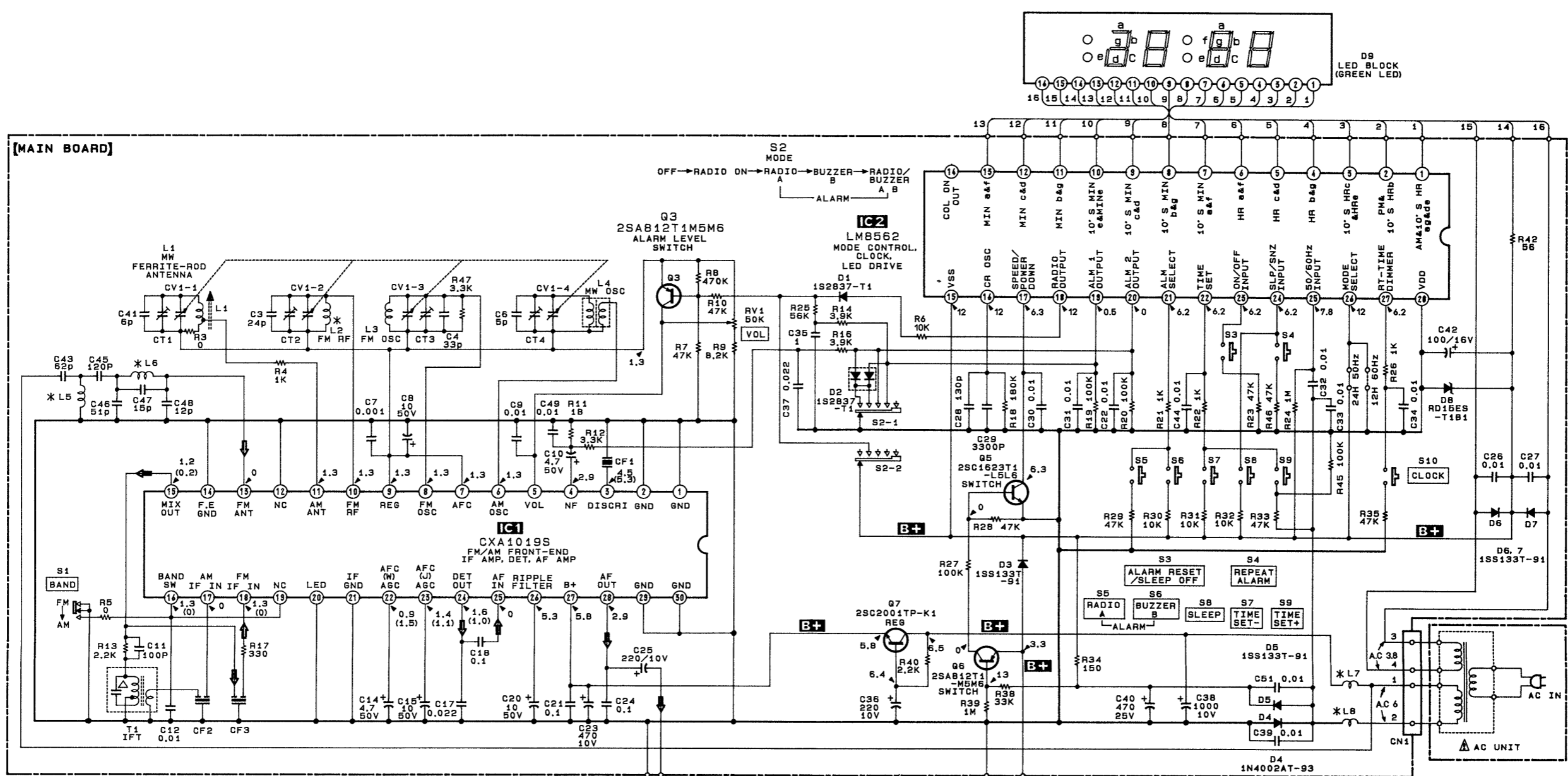
Note:

- : parts extracted from the component side.
- : parts extracted from the conductor side.
- ⋯ : Pattern on the side which is seen.
- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.
- * : printed pattern functions as a kind of coil.

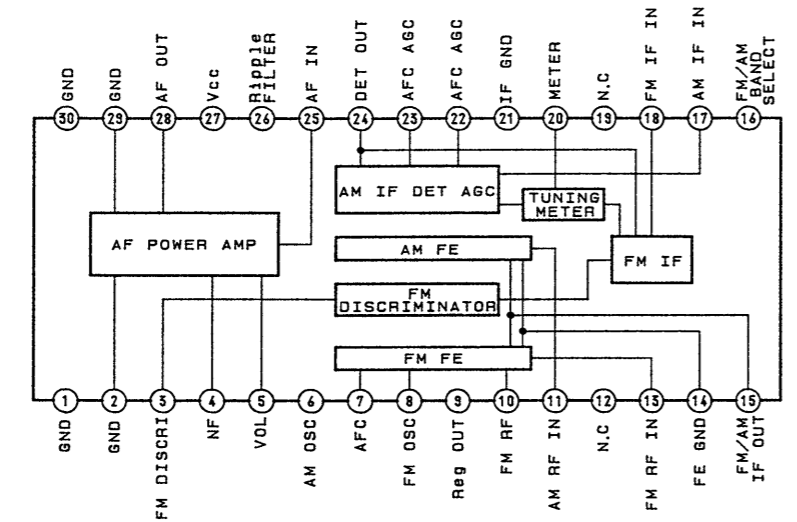
SCHEMATIC DIAGRAM

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



IC1 CXA1019S



Note on Schematic Diagram:

Note:

- All capacitors are in μF unless otherwise noted. pF: $\mu\mu\text{F}$ 50VV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- Δ : internal component.
- **B+**: B+ Line.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- no mark: FM
- (): MW

- Voltages are taken with a VOM (50 k Ω V). Voltage variations may be noted due to normal production tolerances.
- Signal path. \Rightarrow : FM
- *: printed pattern functions as a kind of coil.

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

SECTION 5 EXPLODED VIEW

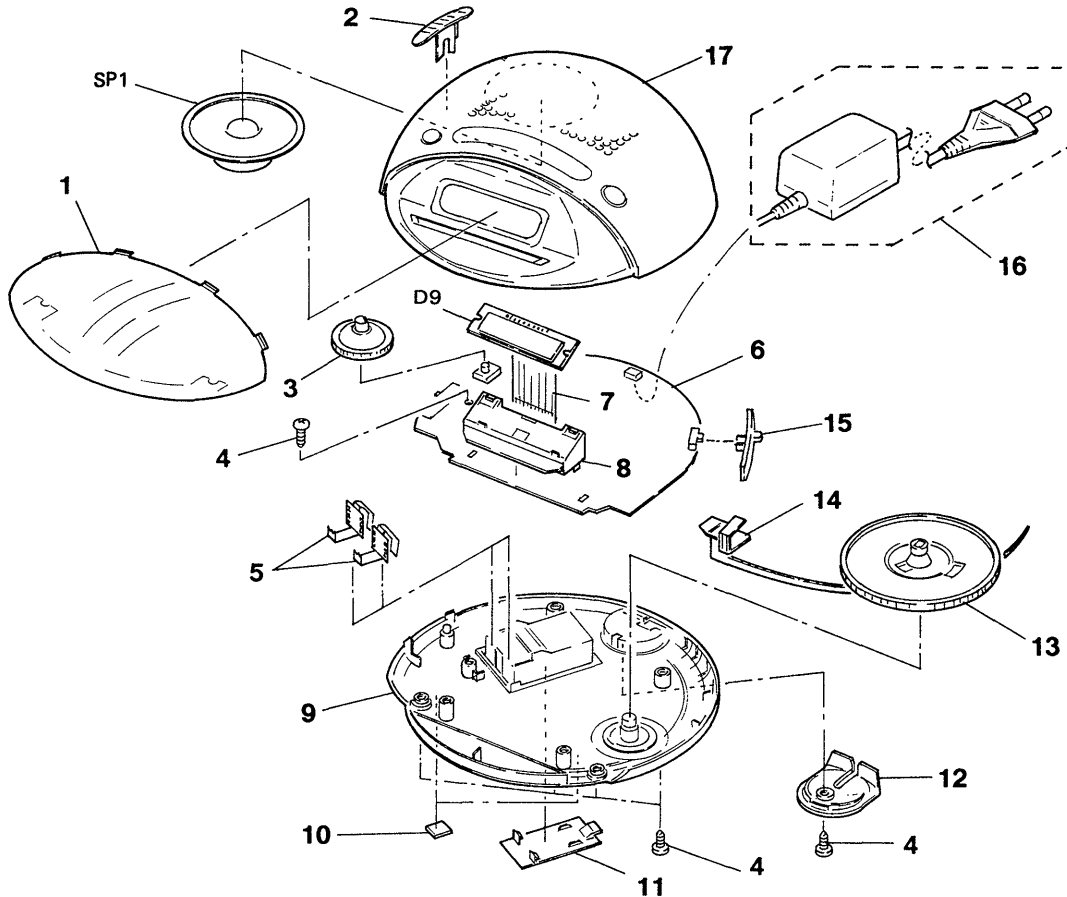
NOTE:

- -XX, -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

- 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 is given in the last of this parts list.

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



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	3-382-185-01	WINDOW, TRANSPARENT		13	3-382-181-01	KNOB (T) (GRAY)	
2	3-382-179-01	KNOB (F) (GRAY)		13	3-382-181-11	KNOB (T) (WHITE) (EXCEPT Italian)	
2	3-382-179-11	KNOB (F) (WHITE) (EXCEPT Italian)		14	3-382-182-01	POINTER	
3	3-382-175-01	KNOB (V) (GRAY)		15	3-382-178-01	KNOB (B) (GRAY)	
3	3-382-175-11	KNOB (V) (WHITE) (EXCEPT Italian)		15	3-382-178-11	KNOB (B) (WHITE) (EXCEPT Italian)	
4	7-685-547-11	SCREW +BTP 3X10 TYPE2 N-S			1-466-789-11	AC UNIT	
5	3-382-177-01	TERMINAL, BATTERY		17	X-3365-556-1	CABINET (UPPER) ASSY (GRAY) (EXCEPT Italian)	
* 6	A-3661-633-A	MOUNTED PCB (HAND), MAIN		17	X-3365-557-1	CABINET (UPPER) ASSY (WHITE) (EXCEPT Italian)	
* 7	1-575-159-91	CORD, CONNECTION		17	X-3365-558-1	CABINET (UPPER) ASSY (GRAY) (Italian)	
* 8	3-382-184-01	HOLDER, LED		* D9	1-575-159-91	CORD, CONNECTION	
9	3-382-188-01	CABINET (LOWER) (GRAY)		SP1	1-503-082-00	SPEAKER	
9	3-382-188-11	CABINET (LOWER) (WHITE) (EXCEPT Italian)					
10	3-368-852-01	FOOT					
11	3-369-135-01	LID, BATTERY CASE					
12	3-382-180-01	STOPPER, CORD (GRAY)					
12	3-382-180-11	STOPPER, CORD (WHITE) (EXCEPT Italian)					

MAIN

**SECTION 6
ELECTRICAL PARTS LIST**

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -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

- 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: μ , for example:
uA . . : μ A. . uPA . . : μ PA.
uPB . . : μ PB. . uPC . . : μ PC. . uPD . . : μ PD.
- CAPACITORS
uF: μ F
- COILS
uH: μ H

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.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
*	A-3661-633-A	MOUNTED PCB (HAND), MAIN *****		C42	1-126-101-11	ELECT 100uF 20%	16V
*	1-575-159-91	CORD, CONNECTION		C43	1-163-112-00	CERAMIC CHIP 62PF	5% 50V
*	3-382-184-01	HOLDER, LED		C44	1-163-031-11	CERAMIC CHIP 0.01uF	50V
		< CAPACITOR >		C45	1-163-119-00	CERAMIC CHIP 120PF	5% 50V
C3	1-163-102-00	CERAMIC CHIP 24PF	5% 50V	C46	1-163-110-00	CERAMIC CHIP 51PF	5% 50V
C4	1-163-105-00	CERAMIC CHIP 33PF	5% 50V	C47	1-163-097-00	CERAMIC CHIP 15PF	5% 50V
C6	1-163-088-00	CERAMIC CHIP 5PF	50V	C48	1-163-095-00	CERAMIC CHIP 12PF	5% 50V
C7	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V	C49	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C8	1-124-907-11	ELECT 10uF	20% 50V	C51	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C9	1-163-031-11	CERAMIC CHIP 0.01uF	50V			< FILTER >	
C10	1-124-927-11	ELECT 4.7uF	20% 100V	CF1	1-567-097-61	FILTER, CERAMIC	
C11	1-163-117-00	CERAMIC CHIP 100PF	5% 50V	CF2	1-577-072-11	FILTER, CERAMIC	
C12	1-164-232-11	CERAMIC CHIP 0.01uF	50V	CF3	1-567-097-61	FILTER, CERAMIC	
C14	1-124-927-11	ELECT 4.7uF	20% 100V			< CONNECTOR >	
C15	1-124-907-11	ELECT 10uF	20% 50V	CN1	1-508-913-00	PIN, CONNECTOR, 4P	
C17	1-163-037-11	CERAMIC CHIP 0.022uF	10% 25V			< VARIABLE CAPACITOR >	
C18	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V	CV1	1-151-628-11	CAP, VARIABLE	
C20	1-124-907-11	ELECT 10uF	20% 50V	(CT1-4)			
C21	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V			< DIODE >	
C22	1-163-031-11	CERAMIC CHIP 0.01uF	50V	D1	8-719-400-18	DIODE MA152WK	
C23	1-124-472-11	ELECT 470uF	20% 10V	D2	8-719-400-18	DIODE MA152WK	
C24	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V	D3	8-719-911-19	DIODE 1SS119	
C25	1-126-176-11	ELECT 220uF	20% 10V	D4	8-719-200-02	DIODE 10E2	
C26	1-163-031-11	CERAMIC CHIP 0.01uF	50V	D5	8-719-911-19	DIODE 1SS119	
C27	1-163-031-11	CERAMIC CHIP 0.01uF	50V	D6	8-719-911-19	DIODE 1SS119	
C28	1-163-120-00	CERAMIC CHIP 130PF	5% 50V	D7	8-719-911-19	DIODE 1SS119	
C29	1-164-182-11	CERAMIC CHIP 0.0033uF	10% 50V	D8	8-719-110-39	DIODE RD15ES-B1	
C30	1-163-031-11	CERAMIC CHIP 0.01uF	50V	D9	1-808-653-21	LED BLOCK (GREEN LED)	
C31	1-163-031-11	CERAMIC CHIP 0.01uF	50V			< IC >	
C32	1-164-232-11	CERAMIC CHIP 0.01uF	50V	IC1	8-752-035-29	IC CXA1019S	
C33	1-163-031-11	CERAMIC CHIP 0.01uF	50V	IC2	8-759-823-50	IC LM8562	
C34	1-163-031-11	CERAMIC CHIP 0.01uF	50V				
C35	1-164-346-11	CERAMIC CHIP 1uF	16V				
C36	1-126-176-11	ELECT 220uF	20% 10V				
C37	1-163-037-11	CERAMIC CHIP 0.022uF	10% 25V				
C38	1-124-473-11	ELECT 1000uF	20% 10V				
C39	1-163-031-11	CERAMIC CHIP 0.01uF	50V				
C40	1-124-480-11	ELECT 470uF	20% 25V				
C41	1-163-089-00	CERAMIC CHIP 6PF	50V				

MAIN

Ref. No.	Part No.	Description	Remark
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< JUMPER RESISTOR >

JR3	1-216-295-00	METAL CHIP	0 5% 1/10W
JR4	1-216-295-00	METAL CHIP	0 5% 1/10W
JR5	1-216-295-00	METAL CHIP	0 5% 1/10W
JR7	1-216-295-00	METAL CHIP	0 5% 1/10W
JR9	1-216-295-00	METAL CHIP	0 5% 1/10W

JR10	1-216-296-00	METAL CHIP	0 5% 1/8W
JR11	1-216-296-00	METAL CHIP	0 5% 1/8W
JR12	1-216-296-00	METAL CHIP	0 5% 1/8W
JR13	1-216-296-00	METAL CHIP	0 5% 1/8W
JR14	1-216-295-00	METAL CHIP	0 5% 1/10W

JR15	1-216-295-00	METAL CHIP	0 5% 1/10W
JR16	1-216-296-00	METAL CHIP	0 5% 1/8W
JR17	1-216-295-00	METAL CHIP	0 5% 1/10W
JR18	1-216-296-00	METAL CHIP	0 5% 1/8W
JR19	1-216-295-00	METAL CHIP	0 5% 1/10W

JR20	1-216-295-00	METAL CHIP	0 5% 1/10W
JR21	1-216-296-00	METAL CHIP	0 5% 1/8W
JR22	1-216-296-00	METAL CHIP	0 5% 1/8W
JR24	1-216-295-00	METAL CHIP	0 5% 1/10W
JR26	1-216-295-00	METAL CHIP	0 5% 1/10W

JR27	1-216-296-00	METAL CHIP	0 5% 1/8W
JR28	1-216-296-00	METAL CHIP	0 5% 1/8W
JR29	1-216-296-00	METAL CHIP	0 5% 1/8W
JR30	1-216-296-00	METAL CHIP	0 5% 1/8W
JR31	1-216-296-00	METAL CHIP	0 5% 1/8W

JR32	1-216-296-00	METAL CHIP	0 5% 1/8W
JR33	1-216-295-00	METAL CHIP	0 5% 1/10W
JR34	1-216-296-00	METAL CHIP	0 5% 1/8W
JR35	1-216-295-00	METAL CHIP	0 5% 1/10W
JR36	1-216-296-00	METAL CHIP	0 5% 1/8W

JR37	1-216-296-00	METAL CHIP	0 5% 1/8W
JR38	1-216-296-00	METAL CHIP	0 5% 1/8W
JR39	1-216-295-00	METAL CHIP	0 5% 1/10W
JR40	1-216-295-00	METAL CHIP	0 5% 1/10W
JR41	1-216-296-00	METAL CHIP	0 5% 1/8W

JR42	1-216-295-00	METAL CHIP	0 5% 1/10W
JR43	1-216-296-00	METAL CHIP	0 5% 1/8W
JR44	1-216-295-00	METAL CHIP	0 5% 1/10W
JR45	1-216-296-00	METAL CHIP	0 5% 1/8W

< COIL >

L1	1-402-413-21	ANTENNA, FERRITE-ROD (MW)	
L3	1-406-425-11	COIL (FM OSC)	
L4	1-406-255-11	COIL (OSC) (MW OSC)	

Ref. No.	Part No.	Description	Remark
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< TRANSISTOR >

Q3	8-729-216-22	TRANSISTOR	2SA1162
Q5	8-729-100-66	TRANSISTOR	2SC1623
Q6	8-729-216-22	TRANSISTOR	2SA1162
Q7	8-729-142-46	TRANSISTOR	2SC2001-LK

< RESISTOR >

R3	1-216-295-00	METAL CHIP	0 5% 1/10W
R4	1-216-049-00	METAL CHIP	1K 5% 1/10W
R5	1-216-295-00	METAL CHIP	0 5% 1/10W
R6	1-216-073-00	METAL CHIP	10K 5% 1/10W
R7	1-216-089-00	METAL CHIP	47K 5% 1/10W

R8	1-216-113-00	METAL CHIP	470K 5% 1/10W
R9	1-216-071-00	METAL CHIP	8.2K 5% 1/10W
R10	1-216-089-00	METAL CHIP	47K 5% 1/10W
R11	1-216-007-00	METAL CHIP	18 5% 1/10W
R12	1-216-210-00	METAL GLAZE	3.3K 5% 1/8W

R13	1-216-057-00	METAL CHIP	2.2K 5% 1/10W
R14	1-216-063-00	METAL CHIP	3.9K 5% 1/10W
R16	1-216-063-00	METAL CHIP	3.9K 5% 1/10W
R17	1-216-037-00	METAL CHIP	330 5% 1/10W
R18	1-216-103-00	METAL CHIP	180K 5% 1/10W

R19	1-216-097-00	METAL CHIP	100K 5% 1/10W
R20	1-216-097-00	METAL CHIP	100K 5% 1/10W
R21	1-216-049-00	METAL CHIP	1K 5% 1/10W
R22	1-216-049-00	METAL CHIP	1K 5% 1/10W
R23	1-216-238-00	METAL GLAZE	47K 5% 1/8W

R24	1-216-121-00	METAL CHIP	1M 5% 1/10W
R25	1-216-091-00	METAL CHIP	56K 5% 1/10W
R26	1-216-049-00	METAL CHIP	1K 5% 1/10W
R27	1-216-097-00	METAL CHIP	100K 5% 1/10W
R28	1-216-089-00	METAL CHIP	47K 5% 1/10W

R29	1-216-089-00	METAL CHIP	47K 5% 1/10W
R30	1-216-073-00	METAL CHIP	10K 5% 1/10W
R31	1-216-073-00	METAL CHIP	10K 5% 1/10W
R32	1-216-073-00	METAL CHIP	10K 5% 1/10W
R33	1-216-238-00	METAL GLAZE	47K 5% 1/8W

R34	1-216-178-00	METAL GLAZE	150 5% 1/8W
R35	1-216-089-00	METAL CHIP	47K 5% 1/10W
R38	1-216-085-00	METAL CHIP	33K 5% 1/10W
R39	1-216-121-00	METAL CHIP	1M 5% 1/10W
R40	1-216-057-00	METAL CHIP	2.2K 5% 1/10W

R42	1-216-019-00	METAL CHIP	56 5% 1/10W
R45	1-216-097-00	METAL CHIP	100K 5% 1/10W
R46	1-216-089-00	METAL CHIP	47K 5% 1/10W
R47	1-216-061-00	METAL CHIP	3.3K 5% 1/10W

MAIN

Ref. No.	Part No.	Description	Remark
		< VARIABLE RESISTOR >	
RV1	1-241-586-11	RES, VAR, CARBON 50K (VOL)	
		< SWITCH >	
S1	1-571-478-11	SWITCH, SLIDE (BAND)	
S2	1-572-371-11	SWITCH, SLIDE (MODE)	
S3	1-554-937-11	SWITCH, KEY BOARD (ALARM RESET/SLEEP OFF)	
S4	1-554-937-11	SWITCH, KEY BOARD (REPEAT ALARM)	
S5	1-554-937-11	SWITCH, KEY BOARD (RADIO A ALARM)	
S6	1-554-937-11	SWITCH, KEY BOARD (BUZZER B ALARM)	
S7	1-554-937-11	SWITCH, KEY BOARD (TIME SET -)	
S8	1-554-937-11	SWITCH, KEY BOARD (SLEEP)	
S9	1-554-937-11	SWITCH, KEY BOARD (TIME SET +)	
S10	1-554-937-11	SWITCH, KEY BOARD (CLOCK)	
		< TRANSFORMER >	
T1	1-404-341-00	TRANSFORMER, IF	

MISCELLANEOUS *****			
△16	1-466-789-11	AC UNIT	
SP1	1-503-082-00	SPEAKER	

ACCESSORIES & PACKING MATERIALS *****			
*	3-378-671-01	INDIVIDUAL CARTON (EXCEPT Holland)	
*	3-378-678-01	INDIVIDUAL CARTON (Holland)	
	3-755-523-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH/ GERMAN/SPANISH/ITALIAN) (Germany, Spain, Italian)	
	3-755-523-41	MANUAL, INSTRUCTION (PORTUGUESE/DUTCH SWEDISH) (Holland, Portugal)	

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