

ICF-A7/A7L

SERVICE MANUAL

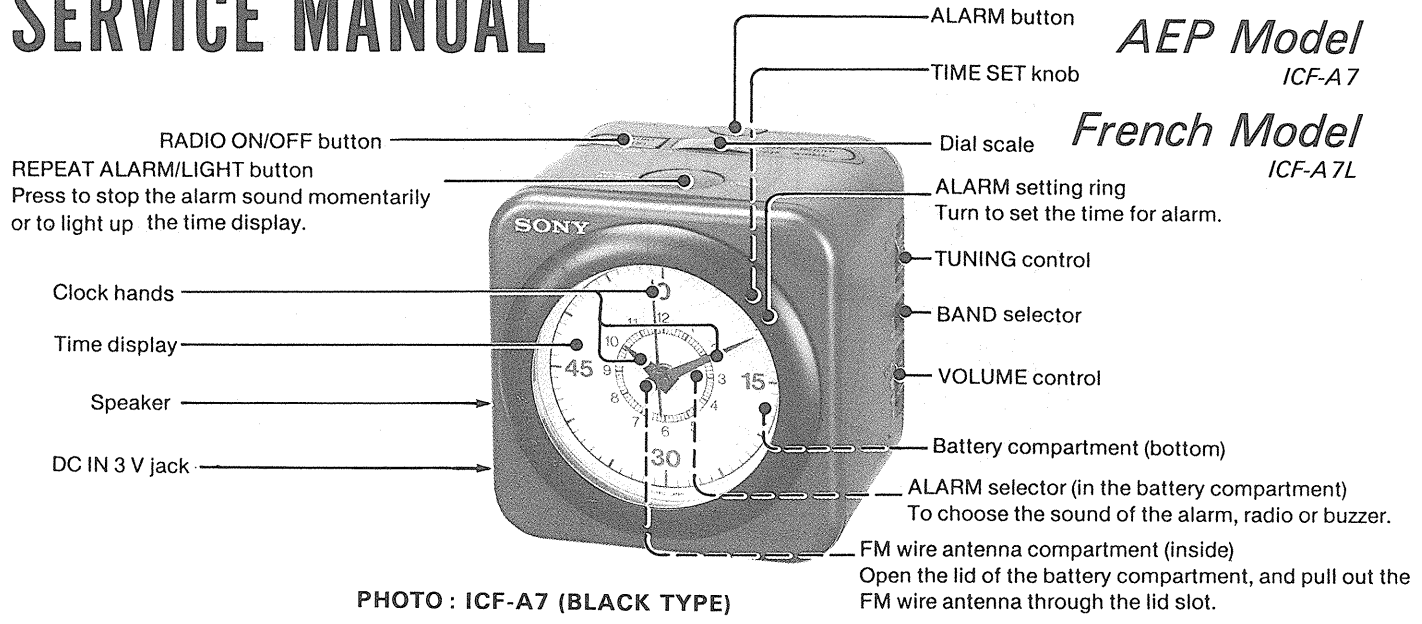


PHOTO : ICF-A7 (BLACK TYPE)

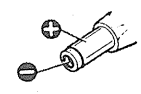
SPECIFICATIONS

Frequency range	FM: 87.6 - 107.5 MHz AM: 531 - 1,602 kHz (ICF-A7) LW: 153-279kHz(ICF-A7L)
Antenna	FM: FM wire antenna AM,LW: Built-in ferrite bar antenna
Speaker	Approx. 5.7 cm (2 1/4 inches) dia. 8Ω
Power output	100 mW (at 10% harmonic distortion)
Power requirement	Radio: DC 3 V, Two R6 (size AA) batteries DC IN 3 V jack: optional AC power adaptor can be connected to AC outlet.
Battery life	Clock: DC 1.5 V, One R6 (size AA) battery Using Sony battery SUM-3 (NS) Radio: Approx. 35 hours Clock: Approx. 1 year
RADIO AUTO OFF function	More than 80 minutes later
Dimensions	Approx. 94 × 97 × 86 mm (w/h/d) (3 1/4 × 3 7/8 × 3 1/2 inches) incl. projecting parts and controls
Weight	Approx. 390 g (13.8 oz) incl. batteries
Optional accessory	AC power adaptor AC-D2M

Design and specifications subject to change without notice.

Note:

Use only the optional AC power adaptor or the recommended cord manufactured by Sony, because the polarity of the plugs of other manufacturers may be different.



Polarity of the Sony plug

FEATURES

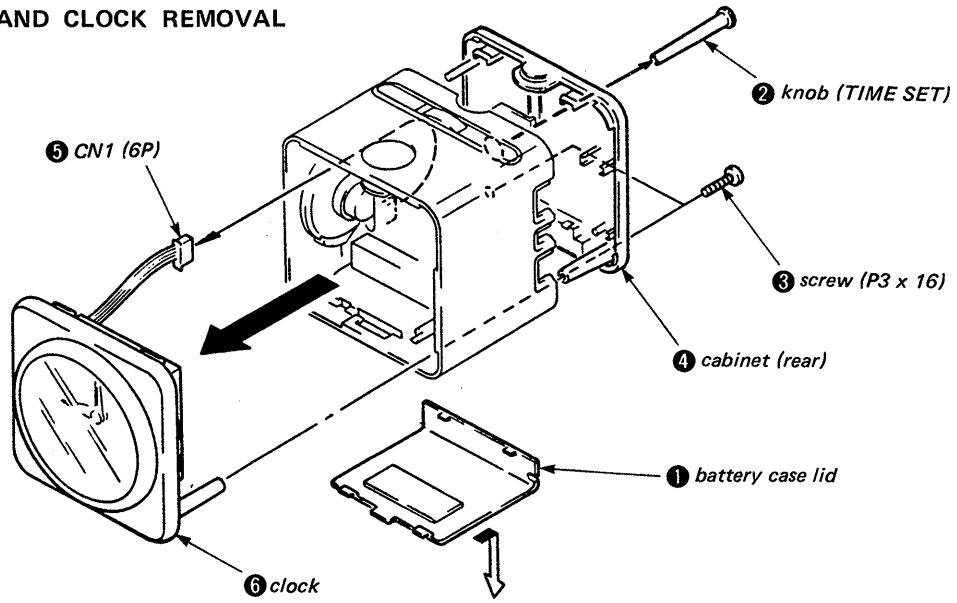
- Easy-to-read analogue time display.
- Easy-to-operate alarm setting. Turn the alarm setting ring.
- Choice of awakening to radio or buzzer alarm.
- Repeat alarm function.
- Auto-off function to prevent battery drain.

ICF-A7:FM/AM QUARTZ CLOCK RADIO
ICF-A7L:FM/LW QUARTZ CLOCK RADIO
SONY®

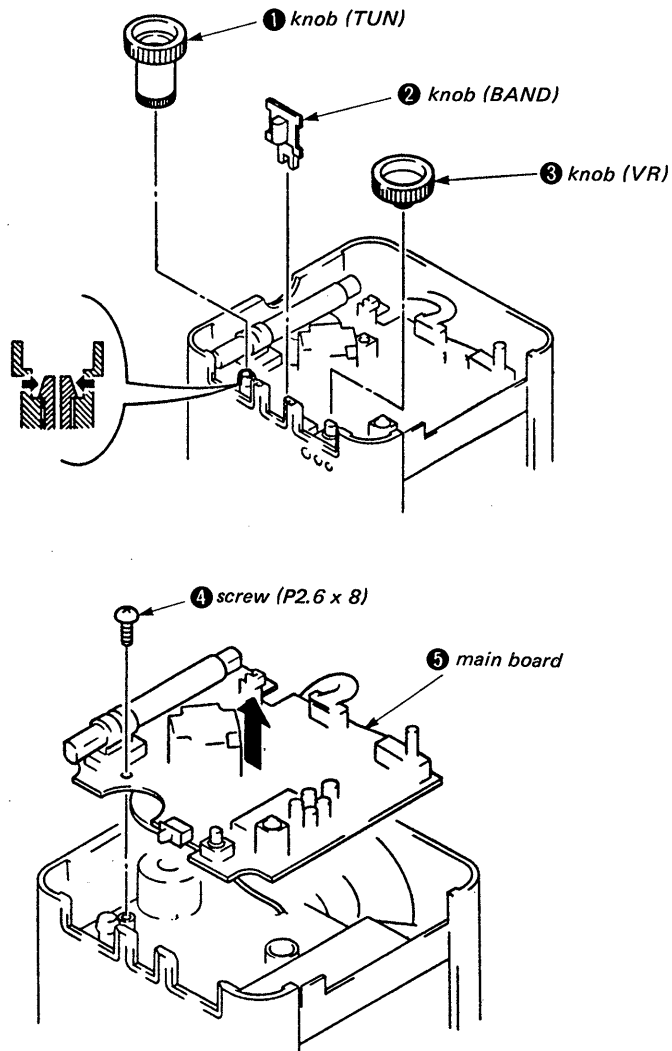
SECTION 1 DISASSEMBLY

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

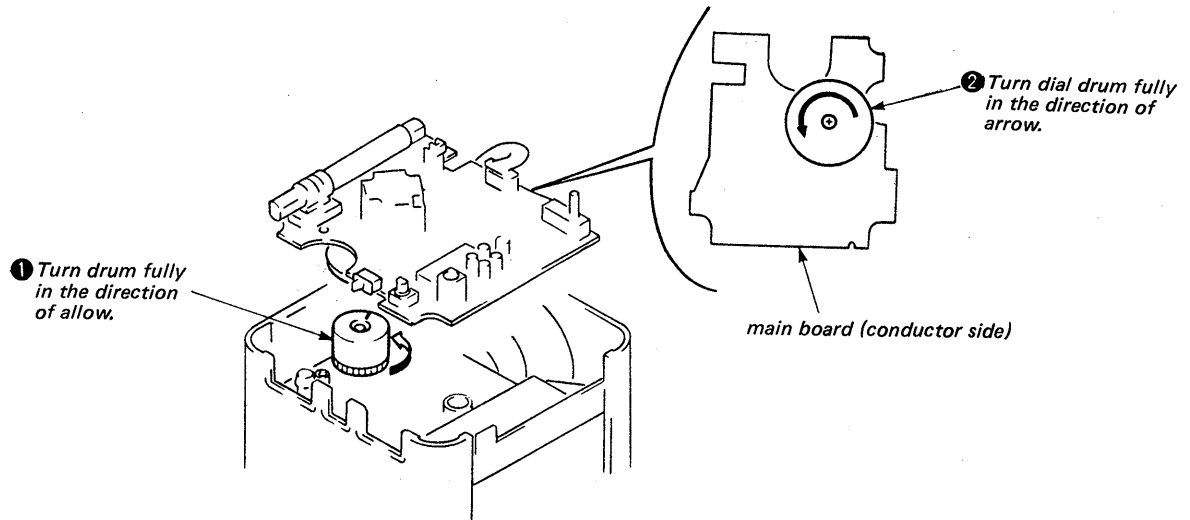
CABINET (REAR) AND CLOCK REMOVAL



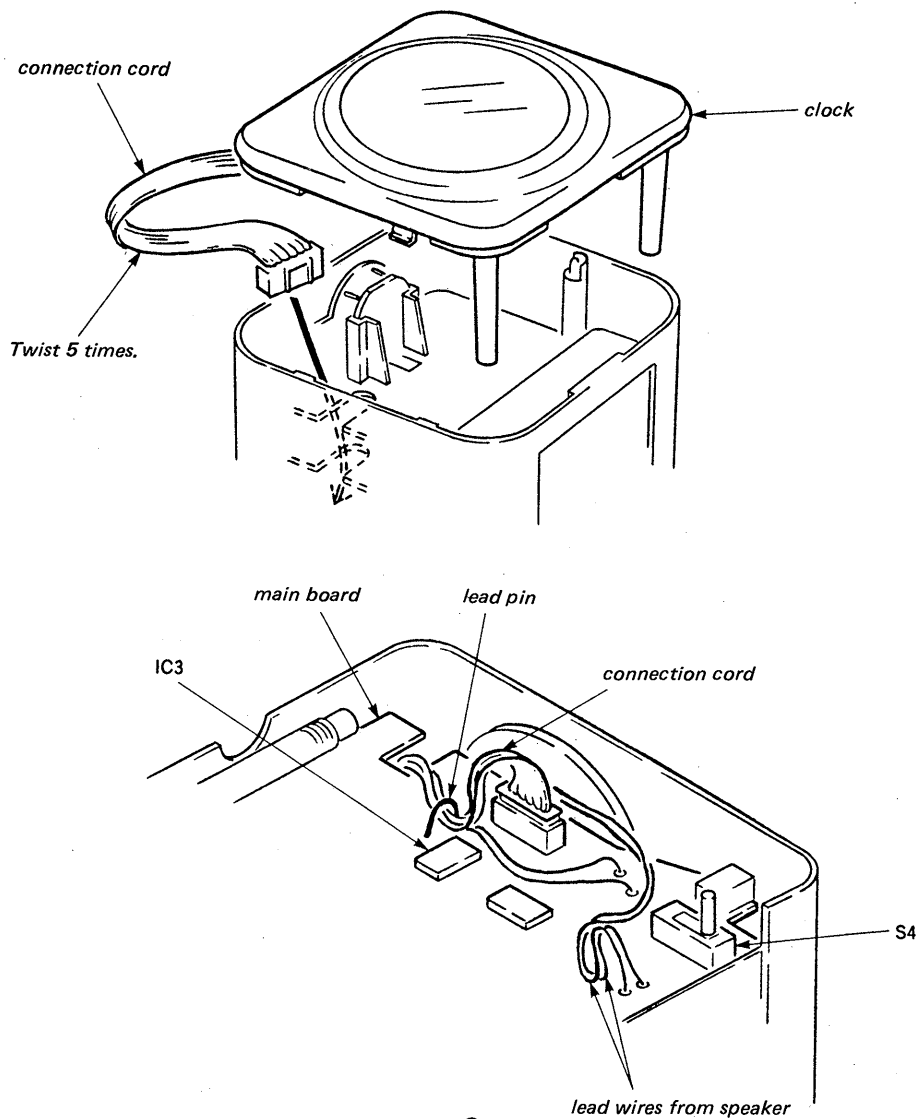
MAIN BOARD REMOVAL



POINTER SETTING



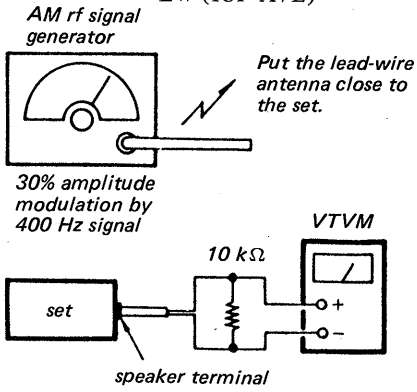
NOTE ON INSTALLING CONNECTION CORD



SECTION 2 ADJUSTMENTS

AM, LW

BAND selector: AM (ICF-A7)
LW (ICF-A7L)



AM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L5	CT1-4
520 kHz	1,650 kHz

AM IF ALIGNMENT
Adjust for a maximum reading on VTVM.
T1
455 kHz

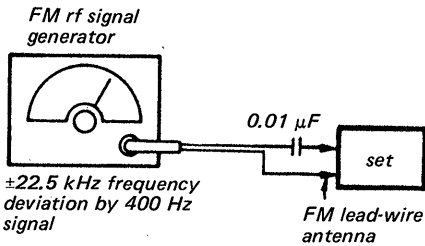
AM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L2	CT1-1
620 kHz	1,400 kHz

LW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L5	CT3
145 kHz	300 kHz

FM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L4	CT1-3
87.35 MHz	108.05 MHz

FM

BAND selector: FM

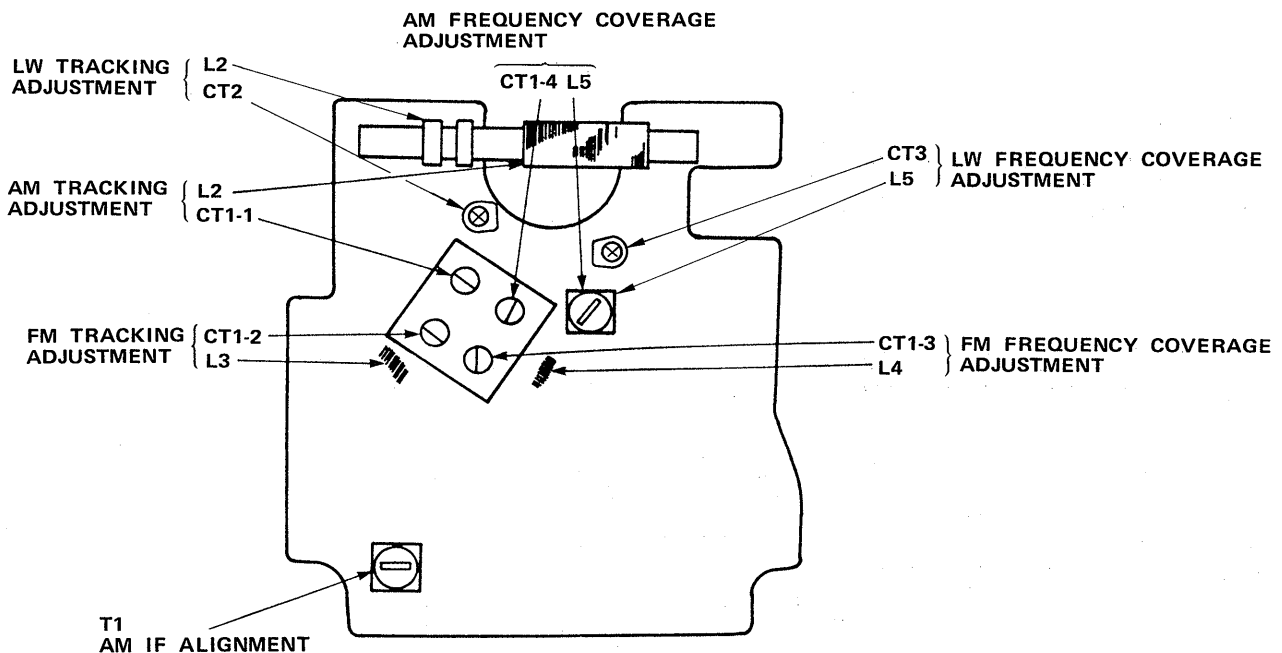


LW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L2	CT2
165 kHz	270 kHz

FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L3	CT1-2
87.35 MHz	108.05 MHz

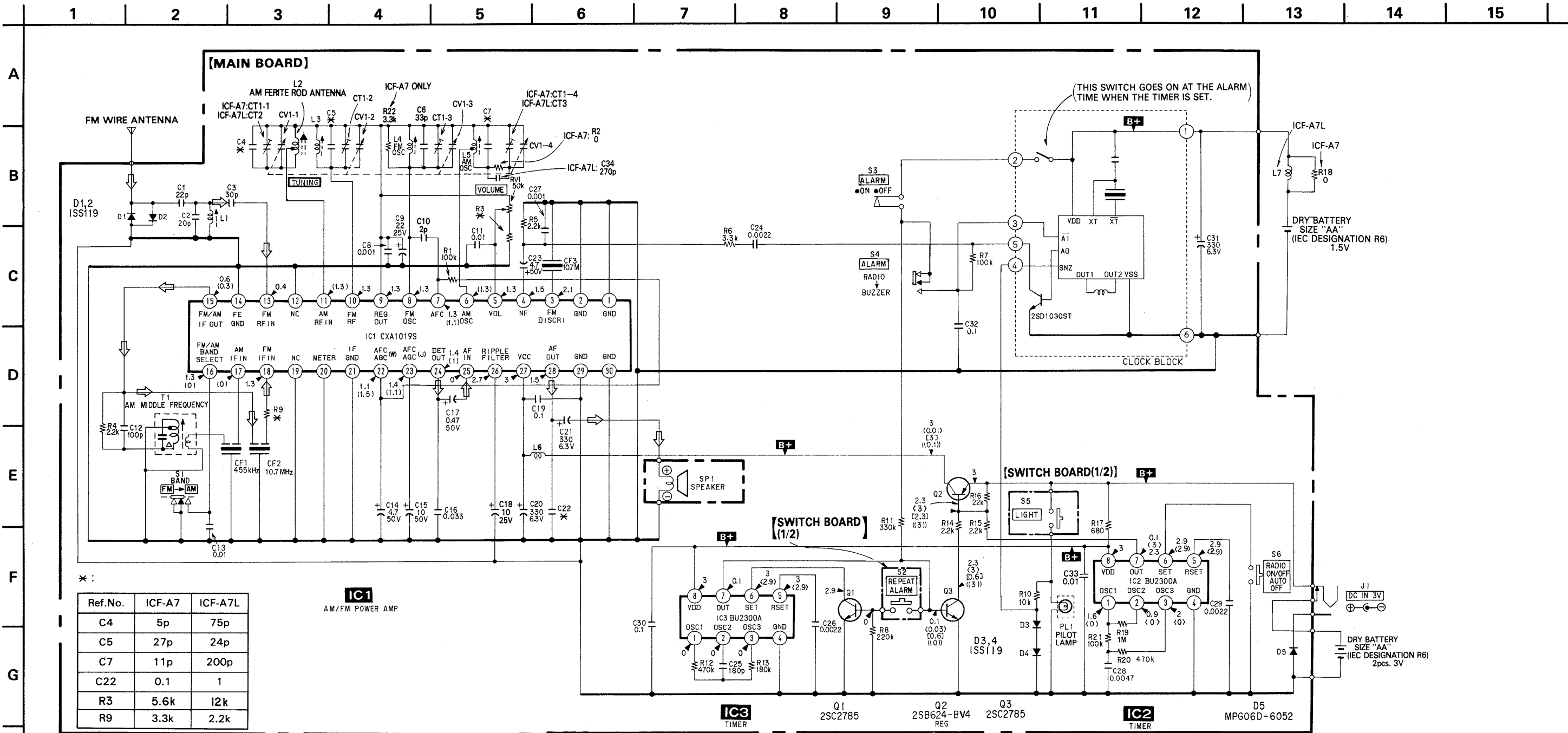
AM : ICF-A7
LW : ICF-A7L

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



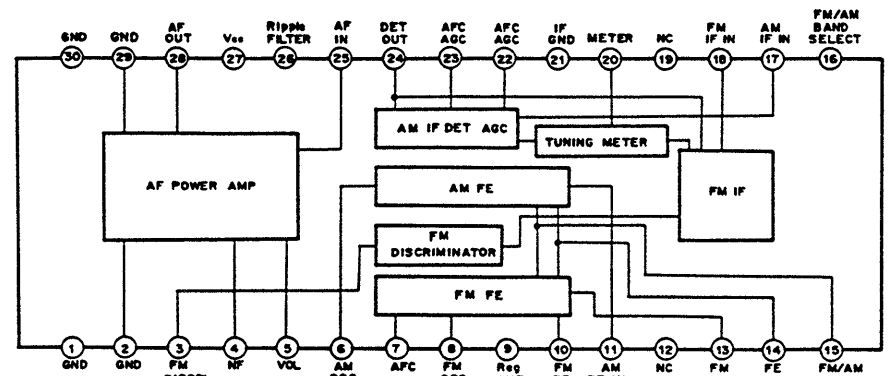
SECTION 3 DIAGRAMS

3-1. SCHEMATIC DIAGRAM

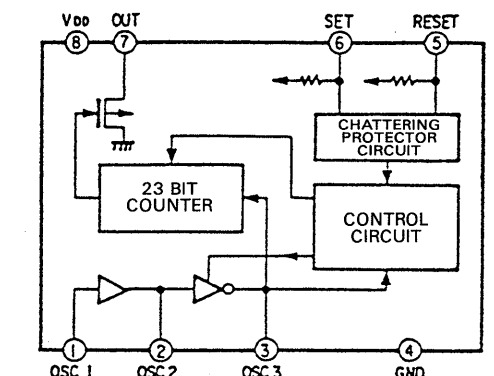


IC BLOCK DIAGRAM

IC1 CXA1019S



IC2,3 BU2300A

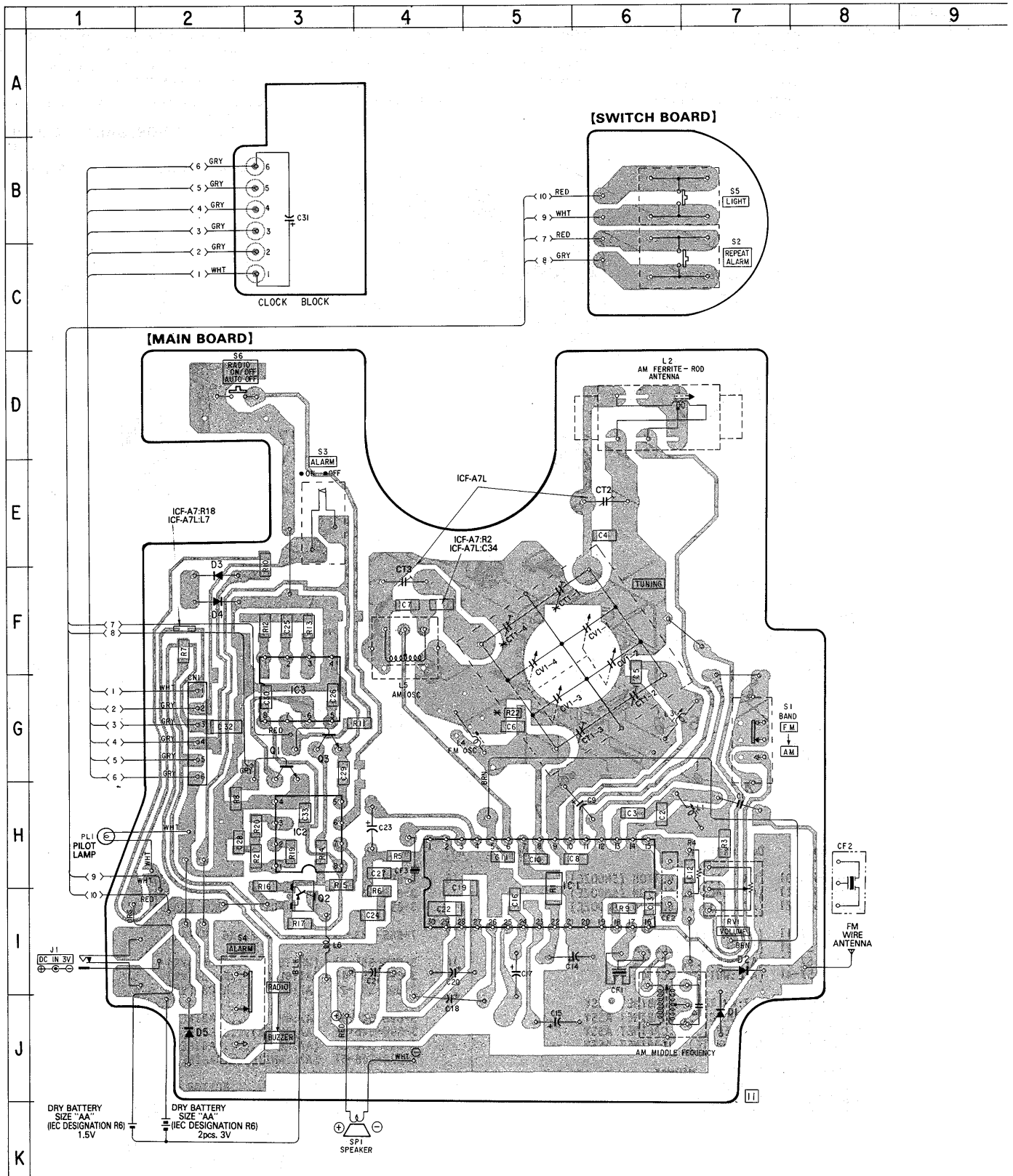


● Semiconductor Location

Ref No.	Location
D1	J-7
D2	I-7
D3	F-2
D4	F-2
D5	J-2
IC1	H-5
IC2	H-3
IC3	G-3
Q1	G-3
Q2	I-3
Q3	G-3

- Note:**
- All capacitors are in μF unless otherwise noted. $\text{pF} = \mu\text{M}\text{F}$. 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.
 - Power voltage is dc 3V and fed with regulated dc power supply from battery terminal.
 - Voltage and waveforms are dc with respect to ground under no-signal conditions.
 - Voltages are taken with a VOM (50 $\text{k}\Omega/\text{V}$). Voltage variations may be noted due to normal production tolerances.
 - Signal path.
 - \Rightarrow : FM

3-2. MOUNTING DIAGRAM

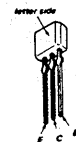


Note:

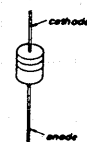
- — : parts extracted from the component side.
- ⊗ : ICF-A7 only.

● Semiconductor Lead Layouts

2SC2785



MPG06D-6052
1SS119



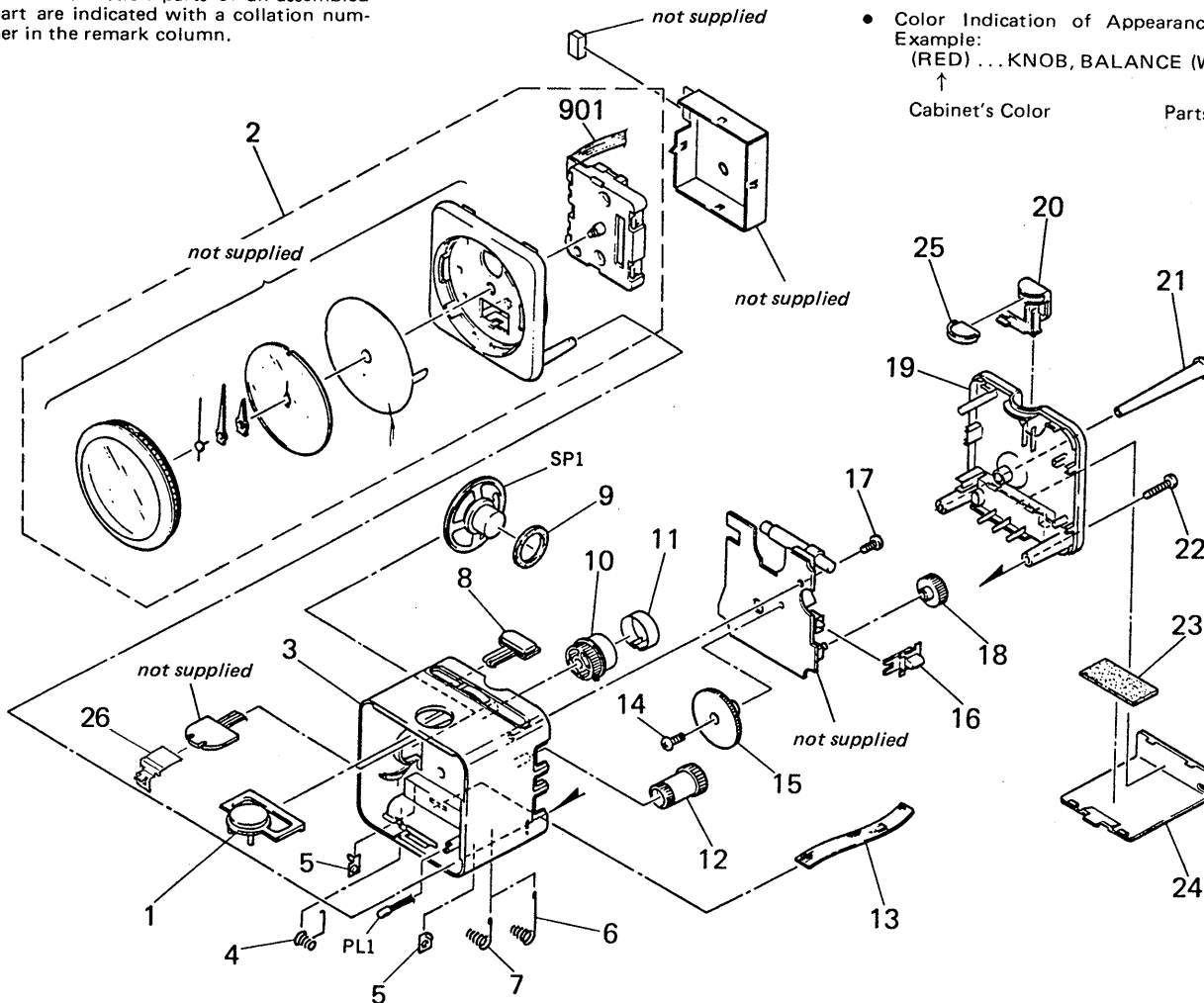
SECTION 4 EXPLODED VIEW

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts
Example:
(RED) ... KNOB, BALANCE (WHITE)
↑ Cabinet's Color ↑ Parts Color



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
1	3-898-553-01 3-898-553-11 3-898-553-21	(WHITE).....BUTTON (SNOOZE) (A7:BLACK)...BUTTON (SNOOZE) (A7:RED).....BUTTON (SNOOZE)		16	3-898-552-01 3-898-552-11 3-898-552-21	(WHITE).....KNOB (BAND) (A7:BLACK)...KNOB (BAND) (A7:RED).....KNOB (BAND)	
2	1-548-157-11 1-548-157-21 1-548-157-31 1-548-157-41	(A7:WHITE)....CLOCK (A7:BLACK)...CLOCK (A7:RED).....CLOCK (A7L:WHITE)...CLOCK		17	7-685-133-19	SCREW +P 2.6X6 TYPE1	
3	X-3896-546-1 X-3896-547-1 X-3896-548-1 X-3896-549-1	(A7:WHITE)....CABINET ASSY (A7:BLACK)...CABINET ASSY (A7:RED).....CABINET ASSY (A7L:WHITE)...CABINET ASSY		18	3-898-551-01 3-898-551-11 3-898-551-21	(WHITE).....KNOB (VR) (A7:BLACK)...KNOB (VR) (A7:RED).....KNOB (VR)	
4	3-898-562-01	TERMINAL, MIDWAY		19	3-898-546-31 3-898-546-41 3-898-546-51 3-898-546-61	(A7:WHITE)....CABINET (REAR) (A7:BLACK)...CABINET (REAR) (A7:RED).....CABINET (REAR) (A7L:WHITE)...CABINET (REAR)	
5	3-898-561-01	TERMINAL, BATTERY		20	3-898-554-01 3-898-554-11 3-898-554-21	(WHITE).....BUTTON (ALARM) (A7:BLACK)...BUTTON (ALARM) (A7:RED).....BUTTON (ALARM)	
6	3-898-563-01	SPRING (A)		21	3-898-558-01 3-898-558-11 3-898-558-21	(WHITE).....KNOB (TIME SET) (A7:BLACK)...KNOB (TIME SET) (A7:RED).....KNOB (TIME SET)	
7	3-898-564-01	SPRING (B)		22	7-685-650-79	SCREW +P 3X16 TYPE2 NON-SLIT	
8	3-898-556-01 3-898-556-11	(A7).....BUTTON (POWER) (A7L).....BUTTON (POWER)		23	9-911-849-XX	CUSHION (BATTERY CASE LID)	
9	3-898-566-01	CUSHION (SPEAKER)		24	3-898-547-01 3-898-547-11 3-898-547-21	(WHITE).....LID, BATTERY CASE (A7:BLACK)...LID, BATTERY CASE (A7:RED).....LID, BATTERY CASE	
10	*3-898-557-01	★DRUM		25	3-898-555-01	★ESCUTCHEON (ALARM)	
11	3-898-568-21 3-898-568-31	(A7L)...PLATE, DIAL (A7)....PLATE, DIAL		26	3-898-576-01	★SPRING	
12	3-898-550-01 3-898-550-11 3-898-550-21	(WHITE).....KNOB (TUN) (A7:BLACK)...KNOB (TUN) (A7:RED).....KNOB (TUN)		901	1-574-766-11	★CORD, CONNECTION	
13	*3-898-567-01	★RIBBON, BATTERY		PL1	1-518-613-21	★LAMP, PILOT	
14	7-627-556-38	SCREW +P 2.6X4.0		SP1	1-544-125-11	★SPEAKER	
15	*3-898-559-01 *3-898-583-01	(A7).....DRUM, DIAL (A7L).....DRUM, DIAL					

SECTION 5

ELECTRICAL PARTS LIST

NOTE:

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

CAPACITORS:MF: μ F, PF: μ μ F**RESISTORS**

- All resistors are in ohms.
- F: nonflammable

COILS

- MMH: mH, UH: μ H

SEMICONDUCTORSIn each case, U: μ , for example:UA....: μ A...., UPA....: μ PA....,
UPC....: μ PC, UPD....: μ PD....

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
901	1-574-766-11	CORD, CONNECTION	CN1	*1-564-708-11	PIN, CONNECTOR (SMALL TYPE) 6P
C1	1-162-207-31	CERAMIC 22PF 5% 50V	CT1	1-151-405-00	(A7L)...CAP, TUNING, POLYETHYLENE
C2	1-163-100-00	CERAMIC CHIP 20PF 5% 50V	CV1		
C3	1-163-104-00	CERAMIC CHIP 30PF 5% 50V	CT1	1-151-614-11	(A7)...CAP VARIABLE
C4	1-163-088-00	(A7)...CERAMIC CHIP 5PF 0.25PF 50V	CV1		
C4	1-163-114-00	(A7L)...CERAMIC CHIP 75PF 5% 50V	CT2	1-141-245-00	(A7L)...CAP, TRIMMER
C5	1-163-102-00	(A7L)...CERAMIC CHIP 24PF 5% 50V	CT3	1-141-227-00	(A7L)...CAP, CERAMIC TRIMMER
C5	1-163-103-00	(A7)...CERAMIC CHIP 27PF 5% 50V	D1	8-719-911-19	DIODE 1SS119
C6	1-163-105-00	CERAMIC CHIP 33PF 5% 50V	D2	8-719-911-19	DIODE 1SS119
C7	1-163-094-00	(A7)...CERAMIC CHIP 11PF 5% 50V	D3	8-719-911-19	DIODE 1SS119
C7	1-163-734-91	(A7L)...CERAMIC CHIP 200PF 5% 50V	D4	8-719-911-19	DIODE 1SS119
C8	1-163-141-00	CERAMIC CHIP 0.001MF 5% 50V	D5	8-719-950-59	DIODE MPG06D-6052
C9	1-126-233-11	ELECT 22MF 20% 25V	IC1	8-752-035-29	IC CXA1019S
C10	1-163-085-00	CERAMIC CHIP 2PF 0.25PF 50V	IC2	8-759-945-79	IC BU2300A
C11	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	IC3	8-759-945-79	IC BU2300A
C12	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	J1	1-568-420-11	JACK 1P
C13	1-163-021-00	CERAMIC CHIP 0.01MF 10% 50V	L1	1-401-228-00	ANTENNA COIL
C14	1-124-927-11	ELECT 4.7MF 20% 50V	L2	1-402-460-11	(A7)...ANTENNA, FERRITE-ROD
C15	1-123-875-11	ELECT 10MF 20% 50V	L2	1-402-461-11	(A7L)...ANTENNA, FERRITE-ROD
C16	1-163-989-11	CERAMIC CHIP 0.033MF 10% 25V	L3	*1-422-624-11	COIL, AIR CORE
C17	1-124-902-00	ELECT 0.47MF 20% 50V	L4	*1-422-294-11	COIL, AIR-CORE
C18	1-126-096-11	ELECT 10MF 20% 25V	L5	1-406-040-00	(A7)...COIL (OSC)
C19	1-163-077-00	CERAMIC CHIP 0.1MF 10% 25V	L5	1-406-360-11	(A7L)...COIL (OSC)
C20	1-124-442-00	ELECT 330MF 20% 6.3V	L6	1-410-294-11	(A7L)...INDUCTOR, MICRO
C21	1-124-442-00	ELECT 330MF 20% 6.3V	L6	1-410-396-41	(A7)...FERRITE BEAD INDUCTOR
C22	1-162-638-11	(A7L)...CERAMIC CHIP 1MF 16V	L7	1-412-006-31	(A7L)...INDUCTOR CHIP 10UH
C22	1-163-077-00	(A7)...CERAMIC CHIP 0.1MF 10% 25V	PL1	1-518-613-21	LAMP, PILOT
C23	1-124-927-11	ELECT 4.7MF 20% 50V	Q1	8-729-119-78	TRANSISTOR 2SC2785HFE
C24	1-164-161-11	CERAMIC CHIP 0.0022MF 10% 50V	Q2	8-729-162-44	TRANSISTOR 2SB624-BV4
C25	1-163-123-00	CERAMIC CHIP 180PF 5% 50V	Q3	8-729-119-78	TRANSISTOR 2SC2785HFE
C26	1-164-161-11	CERAMIC CHIP 0.0022MF 10% 50V	R1	1-216-246-00	METAL GLAZE 100K 5% 1/8W
C27	1-163-009-11	CERAMIC CHIP 0.001MF 10% 50V	R2	1-216-295-00	(A7)...METAL GLAZE 0 5% 1/10W
C28	1-163-017-00	CERAMIC CHIP 0.0047MF 5% 50V	R3	1-216-067-00	(A7)...METAL GLAZE 5.6K 5% 1/10W
C29	1-164-161-11	CERAMIC CHIP 0.0022MF 10% 50V	R3	1-216-075-00	(A7L)...METAL GLAZE 12K 5% 1/10W
C30	1-163-038-00	CERAMIC CHIP 0.1MF 25V	R4	1-249-421-11	CARBON 2.2K 5% 1/4W
C31	1-124-442-00	CAP, ELECT 330MF 20% 6.3V	R5	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
C32	1-163-077-00	CERAMIC CHIP 0.1MF 50V	R6	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W
C33	1-163-021-00	CERAMIC CHIP 0.01MF 50V	R7	1-216-097-00	METAL GLAZE 100K 5% 1/10W
C34	1-163-127-00	(A7L)...CERAMIC CHIP 270PF 5% 50V	R8	1-216-105-00	METAL GLAZE 220K 5% 1/10W
CF1	1-577-072-11	FILTER, CERAMIC	R9	1-216-057-00	(A7L)...METAL GLAZE 2.2K 5% 1/10W
CF2	1-577-215-71	FILTER, CERAMIC	R9	1-216-061-00	(A7)...METAL GLAZE 3.3K 5% 1/10W
CF3	1-577-215-71	FILTER, CERAMIC			

<u>Ref.No.</u>	<u>Part No.</u>	<u>Description</u>
R10	1-216-073-00	METAL GLAZE 10K 5% 1/10W
R11	1-216-109-00	METAL GLAZE 330K 5% 1/10W
R12	1-216-113-00	METAL GLAZE 470K 5% 1/10W
R13	1-216-103-00	METAL GLAZE 180K 5% 1/10W
R14	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R15	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R16	1-216-081-00	METAL GLAZE 22K 5% 1/10W
R17	1-216-045-00	METAL GLAZE 680 5% 1/10W
R18	1-216-295-00	(A7)...METAL GLAZE 0 5% 1/10W
R19	1-216-121-00	METAL GLAZE 1M 5% 1/10W
R20	1-216-113-00	METAL GLAZE 470K 5% 1/10W
R21	1-216-097-00	METAL GLAZE 100K 5% 1/10W
R22	1-216-061-00	(A7)...METAL GLAZE 3.3K 5% 1/10W
RV1	1-238-555-11	RES, VAR, CARBON 50K (VOLUME)
S1	1-571-478-11	SWITCH, SLIDE (BAND)
S2	1-554-303-21	SWITCH, KEY BOARD (REPEAT ALARM)
S3	1-571-274-11	SWITCH, LEAF (ALARM)
S4	1-571-906-11	SWITCH, SLIDE (ALARM)
S5	1-554-303-21	SWITCH, KEY BOARD (LIGHT)
S6	1-554-088-00	SWITCH, KEY BOARD
SP1	1-544-125-11	SPEAKER
T1	1-404-858-11	TRANSFORMER, IF

ACCESSORY & PACKING MATERIAL

3-570-631-81	BAG, PROTECTION
3-750-278-11	(A7)...MANUAL, INSTRUCTION (ENGLISH,FRENCH,PORTUGUESE)
3-750-278-41	(A7)...MANUAL, INSTRUCTION (GERMAN,DUTCH,SWEDISH)
3-750-278-61	(A7L)...MANUAL, INSTRUCTION (FRENCH)
*3-898-573-01	CUSHION
*3-898-578-01	(A7L)...INDIVIDUAL CARTON
*3-898-579-01	(A7)...INDIVIDUAL CARTON