

# ICF-C102L

## SERVICE MANUAL

*AEP Model  
UK Model*



Photo: GRAY Type

<b>SPECIFICATIONS</b>	
Frequency range	FM : 87.6 – 107.5MHz AM (MW) : 531 – 1602kHz LW : 153 – 255kHz
Intermediate frequency	FM : 10.7MHz, AM : 455kHz
Antenna	FM : FM wire antenna AM (MW) / LW : Built-in ferrite bar antenna
Speaker	Approx. 6.6cm (2½ inches) dia.
Power output	150mW (at 10% harmonic distortion)
Power requirement	220 – 230V AC, 50Hz (AEP) 240V AC, 50Hz (UK) For the power back-up function : 9V DC, one 6F22 battery
Battery life	Approx. 80 hours, using Sony battery S-006P (U)
Dimensions	Approx. 121 × 122 × 102mm (w/h/d) (4⅞ × 4⅞ × 4⅞ inches) incl. projecting parts and controls
Weight	Approx. 680g (1 lb 8 oz) not incl. battery

Design and specifications subject to change without notice.

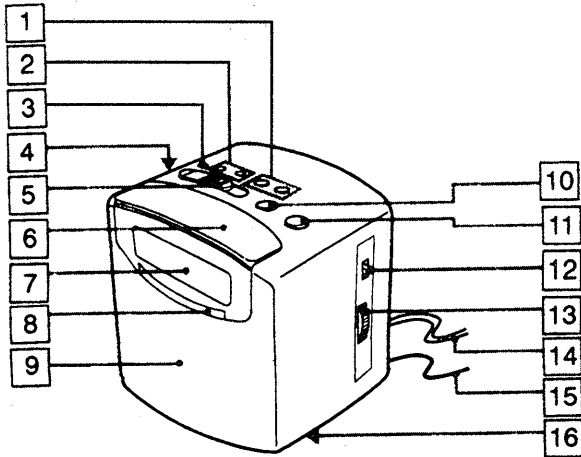
### FEATURES

- Dual alarm digital clock radio.
- Choice of awakening to radio alarm, buzzer alarm, or dual alarm : Alarm **A** (radio) and Alarm **B** (buzzer).
- Easy-to-read green LED display.
- Power back-up function to keep the clock operating during a power interruption, using a 6F22 battery (not supplied).
- REPEAT ALARM/SLEEP OFF bar : feather-light touch to operate, and having functions : snooze alarm, and sleep timer off.

**FM/MW/LW DIGITAL CLOCK RADIO**  
**SONY®**

## SECTION 1 GENERAL

### 1-1. LOCATION AND FUNCTION OF CONTROLS

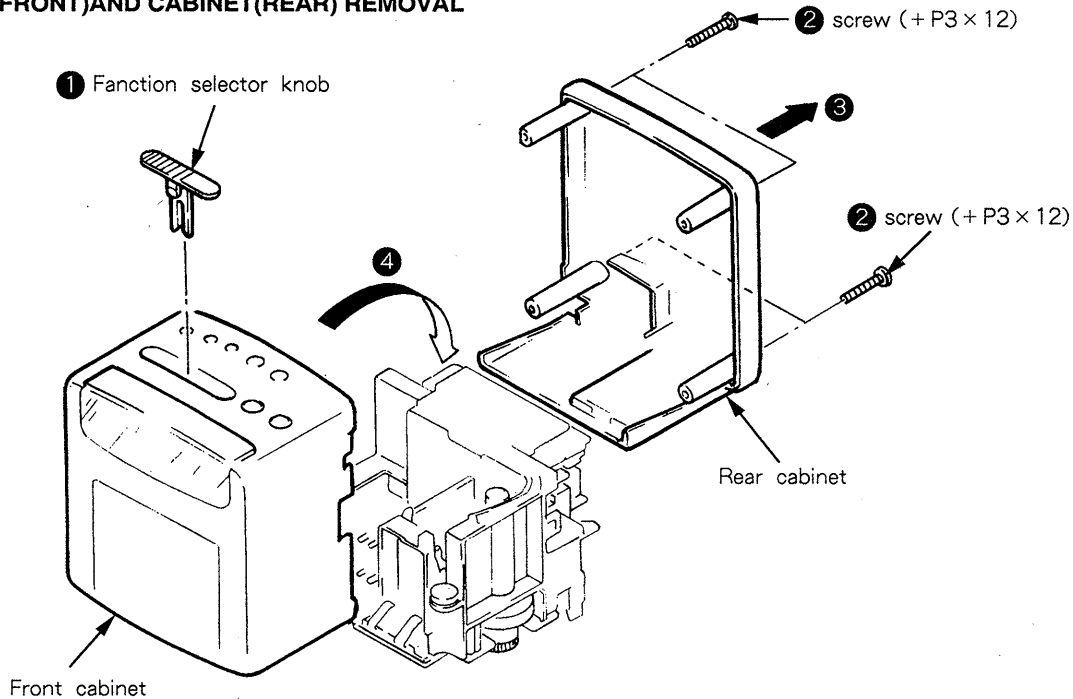


- 1 ALARM set buttons **A** RADIO , **B** BUZZER
- 2 TIME SET buttons (H/M)
- 3 CLOCK set button
- 4 VOL (volume) control (left side)
- 5 Function selector  
(OFF, RADIO ON, SINGLE ALARM **A** RADIO , **B** BUZZER ,  
DUAL ALARM **A** RADIO , **B** BUZZER )
- 6 REPEAT ALARM/SLEEP OFF bar
- 7 Time display
- 8 Dial scale
- 9 Speaker
- 10 SLEEP button
- 11 ALARM RESET button
- 12 BAND selector (FM/MW/LW)
- 13 TUNING control
- 14 AC power cord
- 15 FM wire antenna
- 16 Power back-up battery compartment (bottom)

## SECTION 2 DISASSEMBLY

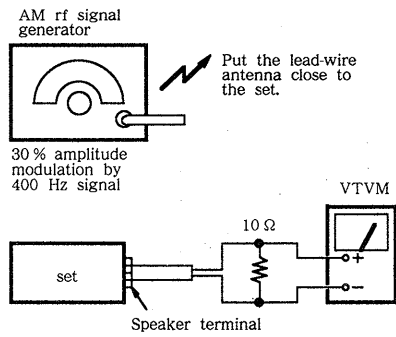
**Note :** Follow the disassembly procedure in the numerical order given.

### 2-1. CABINET(FRONT)AND CABINET(REAR) REMOVAL



### SECTION 3 ADJUSTMENTS

**AM**

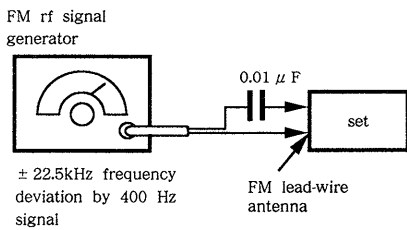


AM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM	
L6	CT-4
520 kHz	1,650 kHz

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

**FM**

BAND selector : FM



AM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM	
L3-2	CT-1
780 kHz	1,360 kHz

FM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM	
L5	CT-3
87.35 MHz	108.25 MHz

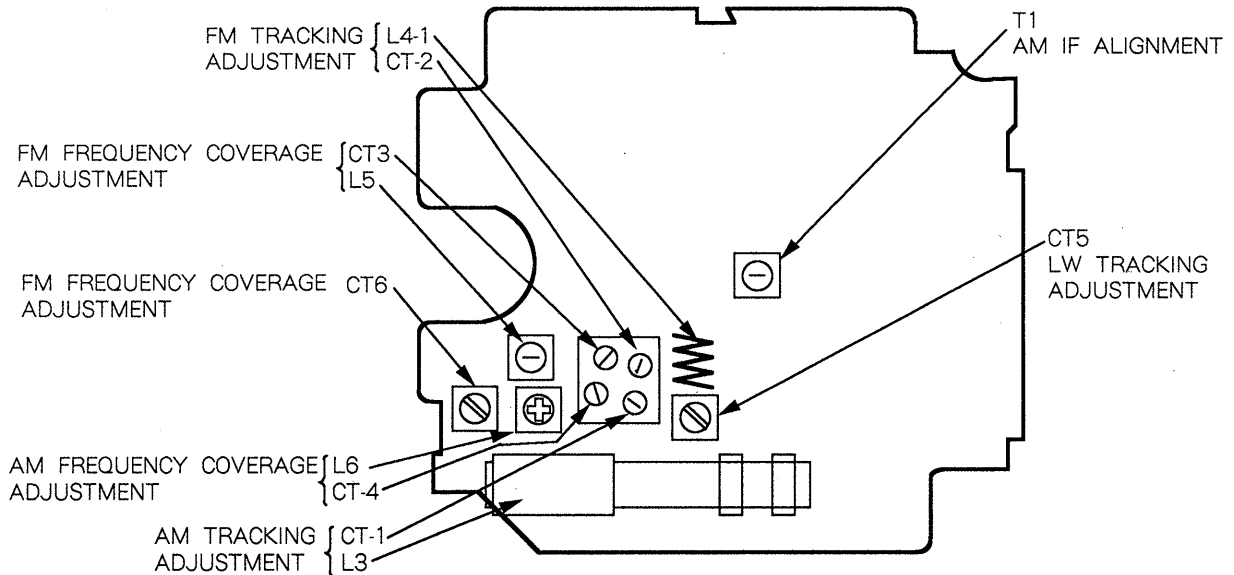
FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM	
L4-1	CT-2
87.35 MHz	108.25 MHz

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

LW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM	
CT-6	265 kHz

LW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM	
L3-1	CT-5
160 kHz	240 kHz

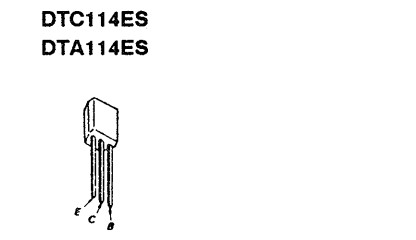
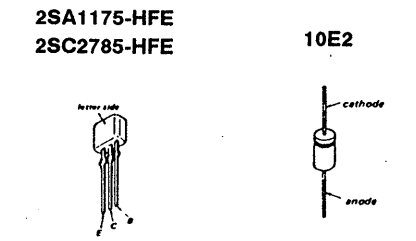
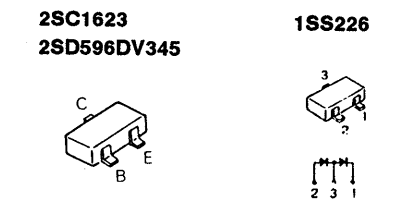
#### ADJUSTMENT PARTS LOCATION DIAGRAM (RADIO Board)



SECTION 4  
DIAGRAM

4-1. MOUNTING DIAGRAM

● Semiconductor Lead Layouts

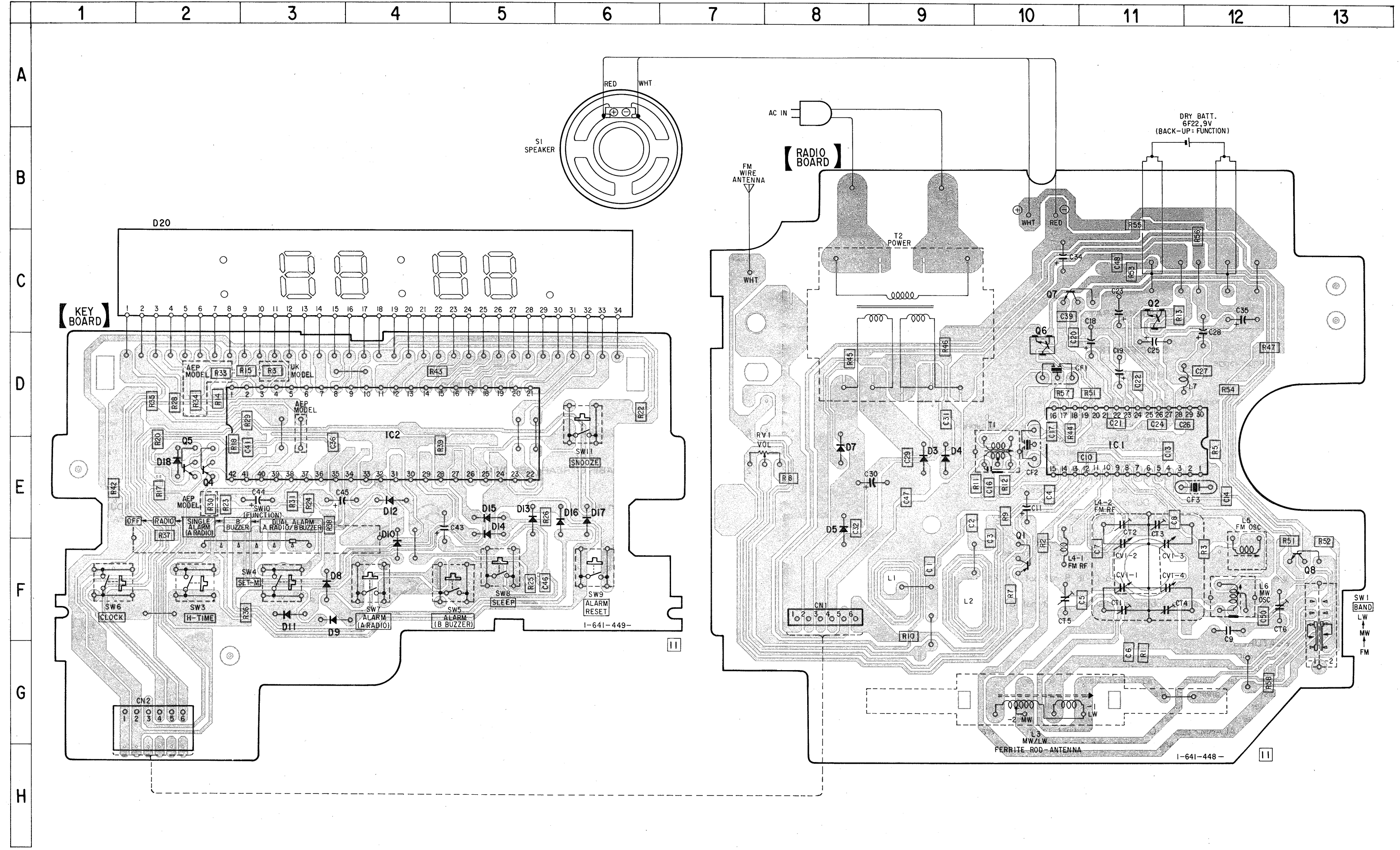


● SEMICONDUCTOR LOCATION

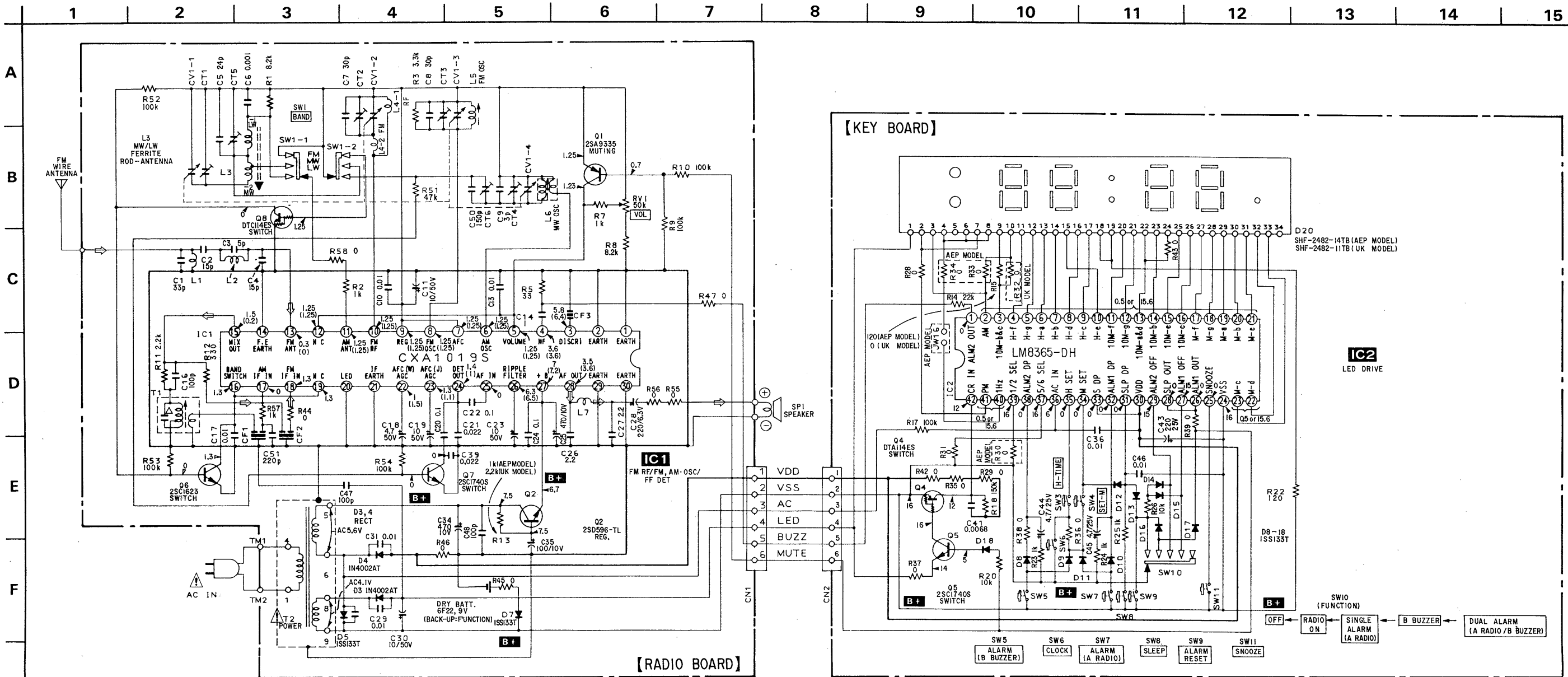
Ref. No.	Location
D3	E-9
D4	E-9
D5	E-8
D7	E-8
D8	F-3
D9	F-3
D10	F-4
D11	F-3
D12	E-4
D13	E-5
D14	E-5
D15	E-5
D16	E-6
D17	E-6
D18	E-2
IC1	E-11
IC2	D-4
Q1	F-10
Q2	C-11
Q4	E-2
Q5	E-2
Q6	D-10
Q7	C-10
Q8	F-13

Note:

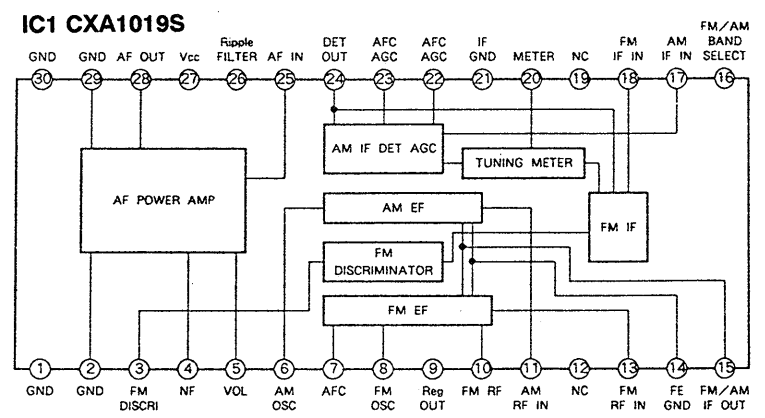
- : parts extracted from the component side.
- : indicates side identified with part number.
- ▨ : Pattern on the side which is seen.
- : Chip components extracted from the rear side.



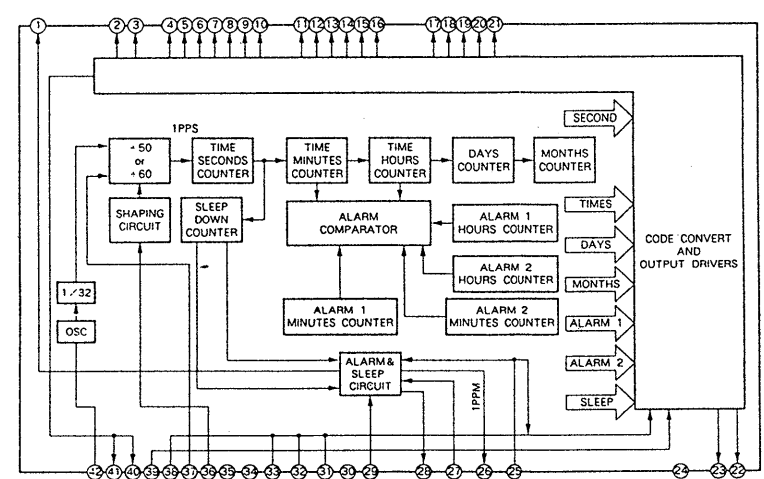
4-2. SCHEMATIC DIAGRAM



IC BLOCK DIAGRAM



IC2 LM8365-DH



1	ALARM 2 OUTPUT	22	MINS-d
2	PM OUTPUT	23	MINS-c
3	10HRS b&c	24	Vss
4	HRS-f	25	SNOOZE INPUT
5	HRS-g	26	ALARM 1 OUTPUT
6	HRS-a	27	ALARM 1 OFF INPUT
7	HRS-b	28	SLEEP OUTPUT
8	HRS-d	29	ALARM 2 OFF INPUT
9	HRS-c	30	Vdd
10	HRS-e	31	SLEEP DISPLAY INPUT
11	10 MINS-f	32	ALARM 1 DISPLAY INPUT
12	10 MINS-g	33	SECONDS DISPLAY INPUT
13	10 MINS a&d	34	LOWER SET INPUT
14	10 MINS-b	35	UPPER SET INPUT
15	10 MINS-e	36	50/60Hz INPUT
16	10 MINS-c	37	50/60Hz SELECT
17	MINS-f	38	ALARM 2 DISPLAY INPUT
18	MINS-g	39	24/12HR SELECT
19	MINS-a	40	1Hz OUTPUT
20	MINS-b	41	PM OUTPUT
21	MINS-e	42	CR INPUT

Note:

- All capacitors are in  $\mu F$  unless otherwise noted.  $pF$ :  $\mu\mu F$
- 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in  $\Omega$  and  $\frac{1}{10}W$ ,  $\frac{1}{8}W$  or less unless otherwise specified.
- $\Delta$ : internal component.

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

- B+**: B+ Line
- $\square$ : adjustment for repair.
- Power voltage is dc 9V and fed with regulated dc power supply from external power voltage jack.
- Voltage are dc with respect to ground under no-signal (detuned) conditions.
- no mark: FM
- ( ): AM
- Voltages are taken with a VOM (Input impedance 10M $\Omega$ ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
- $\Rightarrow$ : FM

## SECTION 5 EXPLODED VIEW

**NOTE:**

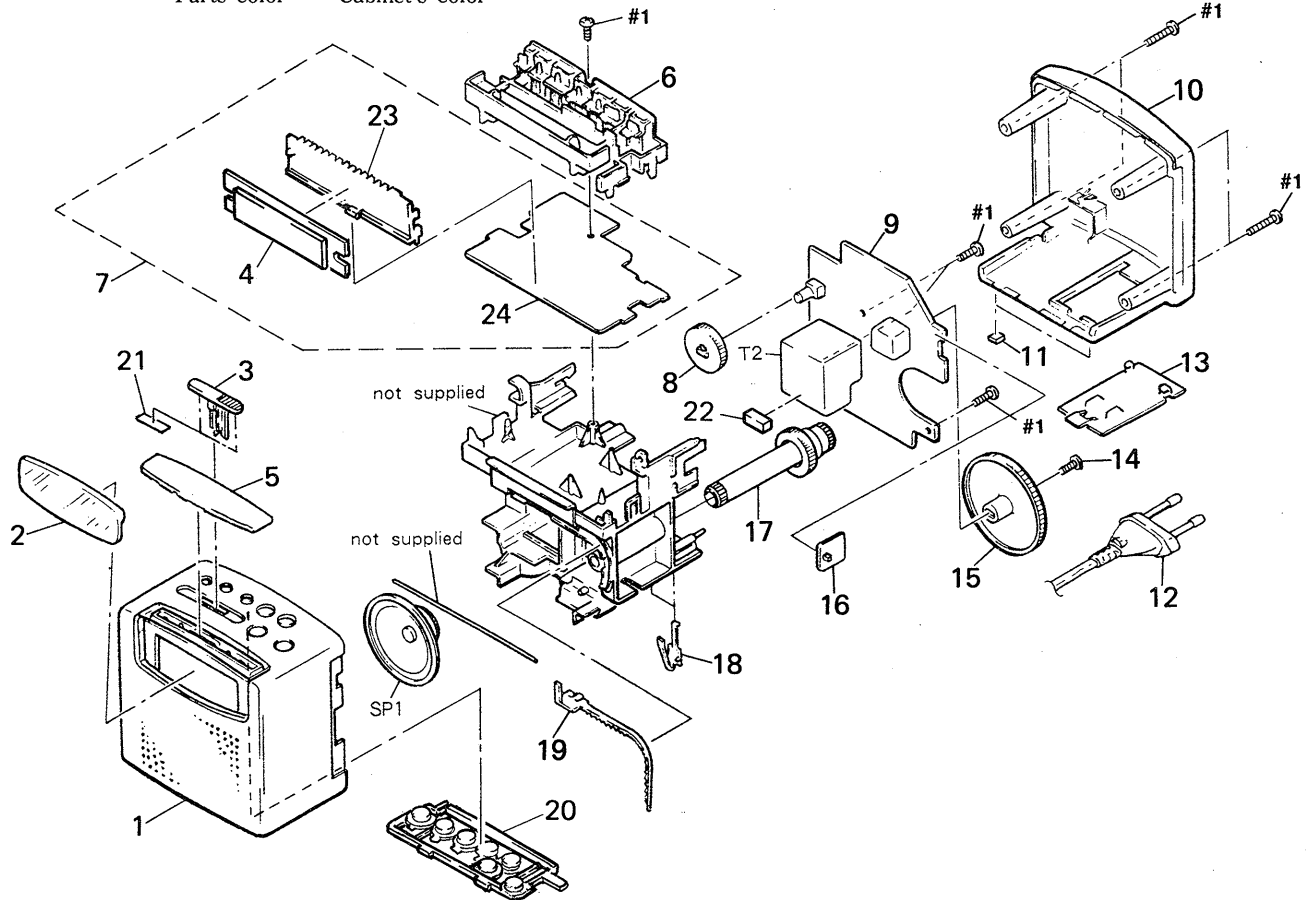
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Color indication of Appearance Parts Example:  
KNOB, BALANCE (WHITE).... (RED)

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 **A** or dotted line with mark **A** 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
1	X-3365-039-1	CABINET (FRONT) (WHT)	
1	X-3365-039-2	CABINET (FRONT) (GRY)	
1	X-3365-039-3	CABINET (FRONT) (BLK)	
2	3-371-128-01	PANEL (AEP)	
2	3-371-128-11	PANEL (UK)	
3	3-371-117-31	KNOB (F) (WHT)	
3	3-371-117-41	KNOB (F) (GRY)	
3	3-371-117-51	KNOB (F) (BLK)	
4	A-3635-613-A	LED ASSY (AEP)	
4	A-3635-631-A	LED ASSY (UK)	
5	3-371-131-01	CAP (S) (BLK)	
6	3-371-133-01	FRAME, BOTTON	
7	A-3661-424-A	MOUNTED PCB (HAND), CLOCK (UK)	
8	3-371-118-01	KNOB (V) (WHT)	
8	3-371-118-11	KNOB (V) (GRY)	
* 9	A-3661-450-A	MOUNTED PCB (HAND), RADIO (AEP)	
* 9	A-3679-309-A	RADIO BOARD, COMPLETE (UK)	
10	3-371-135-51	CABINET (REAR) (WHT)	
10	3-371-135-61	CABINET (REAR) (GRY)	
10	3-371-135-71	CABINET (REAR) (BLK)	
11	3-368-852-01	FOOT	

Ref. No.	Part No.	Description	Remark
A 12	1-555-795-00	COARD, POWER (AEP)	
A 12	1-556-035-00	CORD, POWER (2 CORE)	
13	3-369-135-11	LID, BATTERY CASE	
14	3-364-941-11	SCREW (+B) (2.6X5), NYLON	
15	3-371-121-01	GEAR (VC)	
16	3-371-119-31	KNOB (B) (WHT)	
16	3-371-119-41	KNOB (B) (GRY)	
16	3-371-119-51	KNOB (B) (BLK)	
17	3-371-130-01	KNOB (T) (WIT)	
17	3-371-130-11	KNOB (T) (GRY)	
17	3-371-130-21	KNOB (T) (BLK)	
18	3-371-122-01	TERMINAL, BATTERY	
19	3-371-120-01	POINTER	
20	3-371-129-21	BUTTON (MAIN) (BLK)	
21	3-831-441-XX	CUSHION	
22	9-910-999-31	CUSHION	
23	X-3363-641-1	HOLDER (LED)	
24	1-641-449-11	KEY BOARD	
A T2	1-450-549-11	TRANSFRMER, POWER	
SP1	1-503-082-00	SPEAKER	

## SECTION 6 ELECTRICAL PARTS LIST

**CLOCK**

**KEY**

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

The components identified by mark **A** or dotted line with mark **A** 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		
*	A-3661-424-A	CLOCK BOARD, COMPLETE (UK) *****			
*	1-641-449-11	KEY BOARD *****			
	3-371-133-01	FRAME, BUTTON			
		< CAPACITOR >			
C36	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C41	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C43	1-128-483-91	ELECT	220uF	20%	25V
C44	1-126-163-11	ELECT	4.7uF	20%	50V
C45	1-126-163-11	ELECT	4.7uF	20%	50V
C46	1-163-031-11	CERAMIC CHIP	0.01uF		50V
		< CONNECTOR >			
* CN2	1-563-463-11	SOCKET, CONNECTOR 6P			
		< DIODE >			
D8	8-719-800-76	DIODE 1SS226			
D9	8-719-800-76	DIODE 1SS226			
D10	8-719-800-76	DIODE 1SS226			
D11	8-719-800-76	DIODE 1SS226			
D12	8-719-800-76	DIODE 1SS226			
D13	8-719-800-76	DIODE 1SS226			
D14	8-719-800-76	DIODE 1SS226			
D15	8-719-800-76	DIODE 1SS226			
D16	8-719-800-76	DIODE 1SS226			
D17	8-719-800-76	DIODE 1SS226			
D18	8-719-800-76	DIODE 1SS226			
D20	1-809-494-11	DIODE SHF-2482-11TB (UK)			

Ref.No.	Part No.	Description	Remark		
		< IC >			
IC2	8-759-822-81	IC LM8365DH			
		< TRANSISTOR >			
Q4	8-729-900-61	TRANSISTOR DTA114ES			
Q5	8-729-119-78	TRANSISTOR 2SC2785-HFE			
		< RESISTOR >			
R14	1-216-081-00	METAL CHIP	22K	5%	1/10W
R15	1-216-027-00	METAL CHIP	120	5%	1/10W (AEP)
R15	1-216-295-00	METAL CHIP	0	5%	1/10W (UK)
R17	1-216-097-00	METAL CHIP	100K	5%	1/10W
R18	1-216-101-00	METAL CHIP	150K	5%	1/10W
R20	1-216-073-00	METAL CHIP	10K	5%	1/10W
R22	1-216-027-00	METAL CHIP	120	5%	1/10W
R23	1-216-049-00	METAL CHIP	1K	5%	1/10W
R24	1-216-049-00	METAL CHIP	1K	5%	1/10W
R25	1-216-049-00	METAL CHIP	1K	5%	1/10W
R26	1-216-073-00	METAL CHIP	10K	5%	1/10W
R28	1-216-295-00	METAL CHIP	0	5%	1/10W
R29	1-216-295-00	METAL CHIP	0	5%	1/10W
R30	1-216-295-00	METAL CHIP	0	5%	1/10W (AEP)
R31	1-216-295-00	METAL CHIP	0	5%	1/10W
R32	1-216-295-00	METAL CHIP	0	5%	1/10W (UK)
R33	1-216-295-00	METAL CHIP	0	5%	1/10W (AEP)
R34	1-216-296-00	METAL CHIP	0	5%	1/8W (AEP)
R35	1-216-296-00	METAL CHIP	0	5%	1/8W
R36	1-216-296-00	METAL CHIP	0	5%	1/8W
R37	1-216-296-00	METAL CHIP	0	5%	1/8W
R38	1-216-296-00	METAL CHIP	0	5%	1/8W
R39	1-216-296-00	METAL CHIP	0	5%	1/8W
R42	1-216-295-00	METAL CHIP	0	5%	1/10W
R43	1-216-295-00	METAL CHIP	0	5%	1/10W

## CLOCK

## KEY

## RADIO

Ref.No.	Part No.	Description	Remark
		< SWITCH >	
SW3	1-572-198-11	SWITCH, KEY BOARD (H-TIME)	
SW4	1-572-198-11	SWITCH, KEY BOARD (SET-M)	
SW5	1-572-198-11	SWITCH, KEY BOARD (ALARM(B BUZZER))	
SW6	1-572-198-11	SWITCH, KEY BOARD (CLOCK)	
SW7	1-572-198-11	SWITCH, KEY BOARD (ALARM(A RADIO))	
SW8	1-572-198-11	SWITCH, KEY BOARD (SLEEP)	
SW9	1-572-198-11	SWITCH, KEY BOARD (ASLARM RESET)	
SW10	1-572-872-11	SWITCH, SLIDE (FUNSTION SELECTOR)	
SW11	1-572-198-11	SWITCH, KEY BOARD (SNOOZE)	
*****			
*	A-3679-309-A	RADIO BOARD, COMPLETE (UK)	
		*****	
*	A-3661-450-A	RADIO BOARD, COMPLETE (AEP)	
		*****	
△	1-428-223-11	COIL, AIR-CORE	
	1-555-795-00	CORD, POWER (AEP)	
	3-364-941-11	SCREW (+B) (2.6X5), NYLON	
	3-371-118-01	KNOB (V) (WHT)	
	3-371-118-11	KNOB (V) (GRY)	
	3-371-121-01	GEAR (VC)	
		< CAPACITOR >	
C1	1-163-105-00	CERAMIC CHIP 33PF	5% 50V
C2	1-163-101-00	CERAMIC CHIP 22PF	5% 50V
C3	1-163-092-00	CERAMIC CHIP 9PF	0.25PF 50V
C4	1-163-093-00	CERAMIC CHIP 10PF	5% 50V
C5	1-163-102-00	CERAMIC CHIP 24PF	5% 50V
C6	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
C7	1-163-104-00	CERAMIC CHIP 30PF	5% 50V
C8	1-163-104-00	CERAMIC CHIP 30PF	5% 50V
C9	1-164-039-11	CERAMIC 3PF	5% 50V
C10	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C11	1-124-907-11	ELECT 10uF	20% 50V
C13	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C14	1-164-346-11	CERAMIC CHIP 1uF	16V
C16	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
C17	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C18	1-124-927-11	ELECT 4.7uF	20% 100V
C19	1-124-907-11	ELECT 10uF	20% 50V
C20	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
C21	1-163-037-11	CERAMIC CHIP 0.022uF	10% 25V
C22	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
C23	1-124-907-11	ELECT 10uF	20% 50V
C24	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
C25	1-126-925-11	ELECT 470uF	20% 10V

Ref.No.	Part No.	Description	Remark
C26	1-164-337-11	CERAMIC CHIP 2.2uF	16V
C27	1-164-337-11	CERAMIC CHIP 2.2uF	16V
C28	1-126-176-11	ELECT 220uF	20% 10V
C29	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C30	1-124-126-00	ELECT 47uF	20% 10V
C31	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C32	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C34	1-126-925-11	ELECT 470uF	20% 10V
C35	1-124-443-00	ELECT 100uF	20% 10V
C39	1-163-037-11	CERAMIC CHIP 0.022uF	10% 25V
C47	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
C48	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
C50	1-163-121-00	CERAMIC CHIP 150PF	5% 50V
C51	1-163-125-00	CERAMIC CHIP 220PF	5% 50V
		< FILTER >	
CF1	1-578-677-11	FILTER, CRYSTAL (455KHz)	
CF2	1-567-097-61	FILTER, CERAMIC (10.7MHz)	
CF3	1-567-097-61	FILTER, CERAMIC (10.7MHz)	
		< CONNECTOR >	
* CN1	1-506-980-11	PIN, CONNECTOR 6P	
		< TRIMMER >	
CT5	1-141-245-00	CAP, TRIMMER 30PF	
CT6	1-141-245-00	CAP, TRIMMER 30PF	
		< CAP, VARIABLE >	
CV1	1-151-628-11	CAP, VARIABLE	
		< DIODE >	
D3	8-719-200-02	DIODE 10E2	
D4	8-719-200-02	DIODE 10E2	
D5	8-719-800-76	DIODE 1SS226	
D7	8-719-800-76	DIODE 1SS226	
		< IC >	
IC1	8-752-035-29	IC CXA1019S	
		< COIL >	
L3	1-402-584-11	ANTENNA, FERRITE-ROD (WM/LW)	
L5	1-406-425-11	COIL	
L6	1-406-028-00	COIL, OSC (MW)	
L7	1-410-294-11	INDUCTOR, MICRO	

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



**RADIO**

Ref.No.	Part No.	Description	Remark
< TRANSISTOR >			
Q1	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q2	8-729-141-75	TRANSISTOR 2SD596DV345	
Q6	8-729-100-66	TRANSISTOR 2SC1623	
Q7	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q8	8-729-900-80	TRANSISTOR DTC114ES	
< RESISTOR >			
R1	1-216-071-00	METAL CHIP	8.2K 5% 1/10W
R2	1-216-049-00	METAL CHIP	1K 5% 1/10W
R3	1-216-061-00	METAL CHIP	3.3K 5% 1/10W
R5	1-216-013-00	METAL CHIP	33 5% 1/10W
R7	1-216-049-00	METAL CHIP	1K 5% 1/10W
R8	1-216-071-00	METAL CHIP	8.2K 5% 1/10W
R9	1-216-097-00	METAL CHIP	100K 5% 1/10W
R10	1-216-097-00	METAL CHIP	100K 5% 1/10W
R11	1-216-057-00	METAL CHIP	2.2K 5% 1/10W
R12	1-216-037-00	METAL CHIP	330 5% 1/10W
R13	1-216-049-00	METAL CHIP	1K 5% 1/10W (AEP)
R13	1-216-057-00	METAL CHIP	2.2K 5% 1/10W (UK)
R44	1-216-295-00	METAL CHIP	0 5% 1/10W
R45	1-216-295-00	METAL CHIP	0 5% 1/10W
R46	1-216-296-00	METAL CHIP	0 5% 1/8W
R47	1-216-296-00	METAL CHIP	0 5% 1/8W
R51	1-216-089-00	METAL CHIP	47K 5% 1/10W
R52	1-216-097-00	METAL CHIP	100K 5% 1/10W
R53	1-216-097-00	METAL CHIP	100K 5% 1/10W
R54	1-216-097-00	METAL CHIP	100K 5% 1/10W
R55	1-216-296-00	METAL CHIP	0 5% 1/8W
R56	1-216-296-00	METAL CHIP	0 5% 1/8W
R57	1-216-049-00	METAL CHIP	1K 5% 1/10W
R58	1-216-296-00	METAL CHIP	0 5% 1/8W
< VARIABLE RESISTOR >			
RV1	1-241-586-11	RES, VAR, CARBON 50K (VOLUME)	
< SWITCH >			
SW1	1-572-949-11	SWITCH, SLIDE (BAND)	
< TRANSFORMER >			
T1	1-404-902-11	TRANSFORMER, IF	
△ T2	1-450-549-11	TRANSFORMER, POWER	
< TERMINAL >			
* TM1	1-535-771-11	TERMINAL	
* TM2	1-535-771-11	TERMINAL	

Ref.No.	Part No.	Description	Remark
MISCELLANEOUS *****			
△ 12	1-556-035-00	CORD, POWER (2 CORE)	
SP1	1-503-082-00	SPEAKER	

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## ACCESSORIES &amp; PACKING MATERIALS

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*	3-373-074-01	LABEL, MODEL NUMBER (AEP)	
*	3-373-256-01	LABEL, MODEL NUMBER (UK)	
*	3-373-473-01	INDIVIDUAL CARTON	
	3-753-801-11	MANUAL, INSTRUCTION	
		(ENGLISH, FRENCH, GERMAN, DUTCH, ITALIAN)	

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**HARDWARE LIST**

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#1	7-685-648-79	SCREW +P	3X12 TYPE2 NON-SLIT
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Note: The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.