

ICF-C102

SERVICE MANUAL

Germany Model

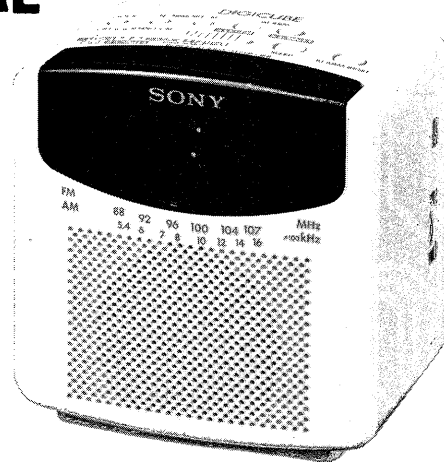


Photo : White Type

SPECIFICATIONS	
Frequency rang	FM : 87.6 – 107.5MHz AM : 531 – 1602kHz
Intermediate frequency	FM : 10.7MHz, AM : 455kHz
Antenna	FM : FM wire antenna AM : Built-in ferrite bar antenna
Speaker	Approx. 6.6cm (2 $\frac{5}{8}$ inches) dia.
Power output	150mW (at 10% harmonic distortion)
Power requirement	220 – 230V AC, 50Hz 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) (4 $\frac{7}{8}$ × 4 $\frac{7}{8}$ × 4 $\frac{1}{8}$ inches) incl. projecting parts and controls
Weight	Approx. 680g (1 lb 8 oz) not incl. battery

Design and specifications subject to change without notice.

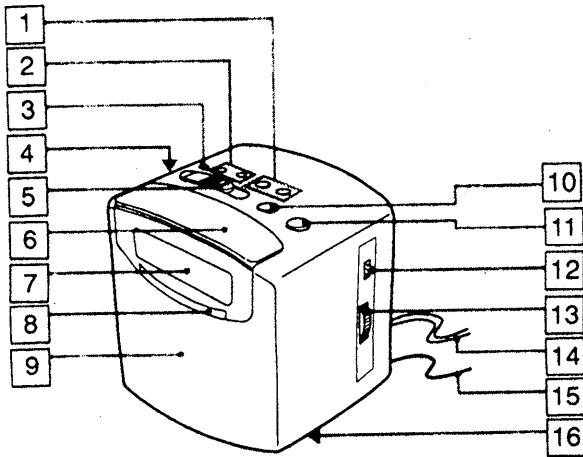
FEATURES

- 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/AM DIGITAL CLOCK RADIO
SONY®

SECTION 1 GENERAL

1-1. LOCATION AND FUNCTION OF CONTROLS

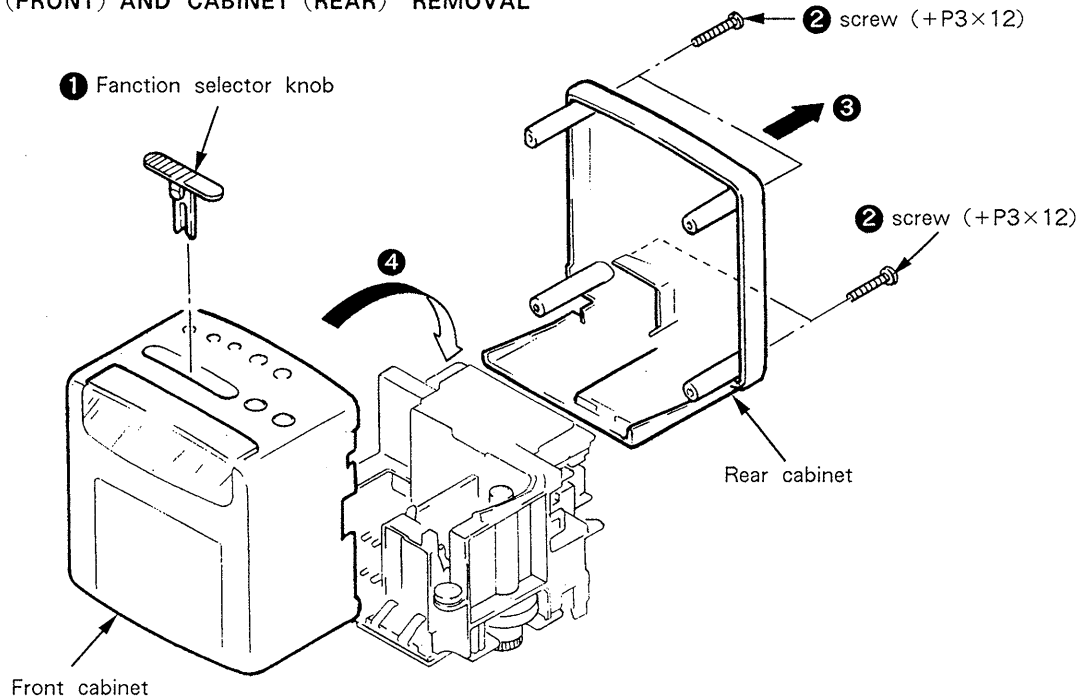


- 1 ALARM set buttons **A** RADIO , **B** BUZZER
- 2 TIME SET buttons (H/M)
- 3 CLOCK set button
- 4 VOL (volume) control (left side)
- 5 Function selector
(OFF, RADIO ON, SINGLE ALARM **A** RADIO , **B** BUZZER ,
DUAL ALARM **A** RADIO , **B** BUZZER)
- 6 REPEAT ALARM/SLEEP OFF bar
- 7 Time display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

SECTION 2 DISASSEMBLY

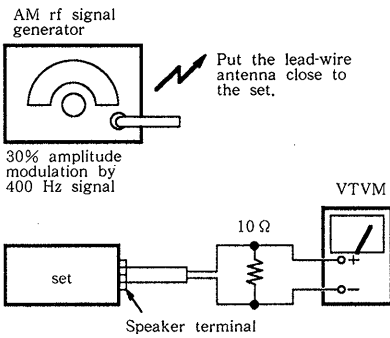
Note : Follow the disassembly procedure in the numerical order given.

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



SECTION 3 ADJUSTMENTS

AM

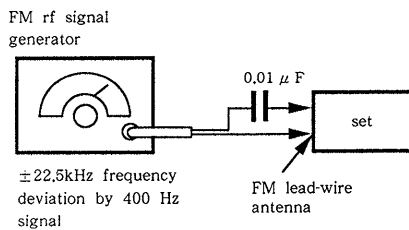


AM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM	
L6	CT-4
520 kHz	1,650 kHz

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

FM

BAND selector : FM



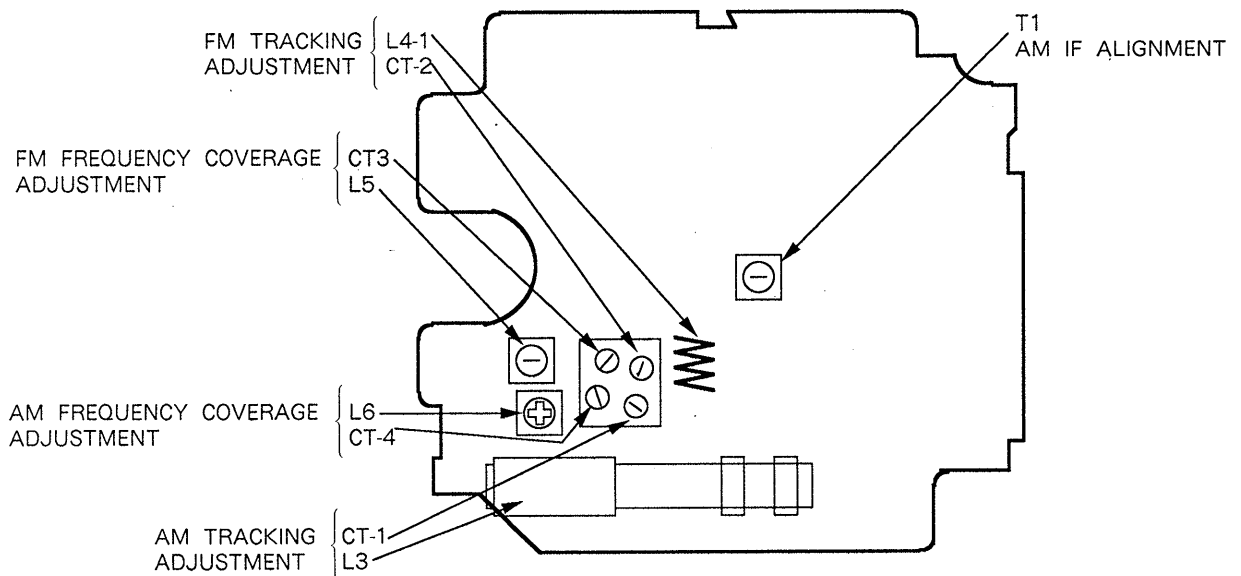
AM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM	
L3	CT-1
780 kHz	1,360 kHz

FM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM	
L5	CT-3
87.35 MHz	107.9 MHz

FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM	
L4-1	CT-2
87.35 MHz	107.9 MHz

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

ADJUSTMENT PARTS LOCATION DIAGRAM (RADIO Board)



SECTION 4
DIAGRAM

• SEMICONDUCTOR LOCATION

Ref. No.	Location
IC1	E-15
IC2	E-5
Q1	G-14
Q2	D-16
Q4	F-3
Q5	F-3
D3	E-13
D4	E-13
D5	F-12
D7	C-15
D8	G-5
D9	H-5
D10	G-6
D11	H-4
D12	F-6
D13	F-7
D14	G-7
D15	F-7
D16	F-8
D17	F-8
D18	F-3

● Semiconductor Lead Layouts

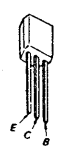
2SA933S-Q3 1SS226
2SC2001



2SC2785-HFE 10E2



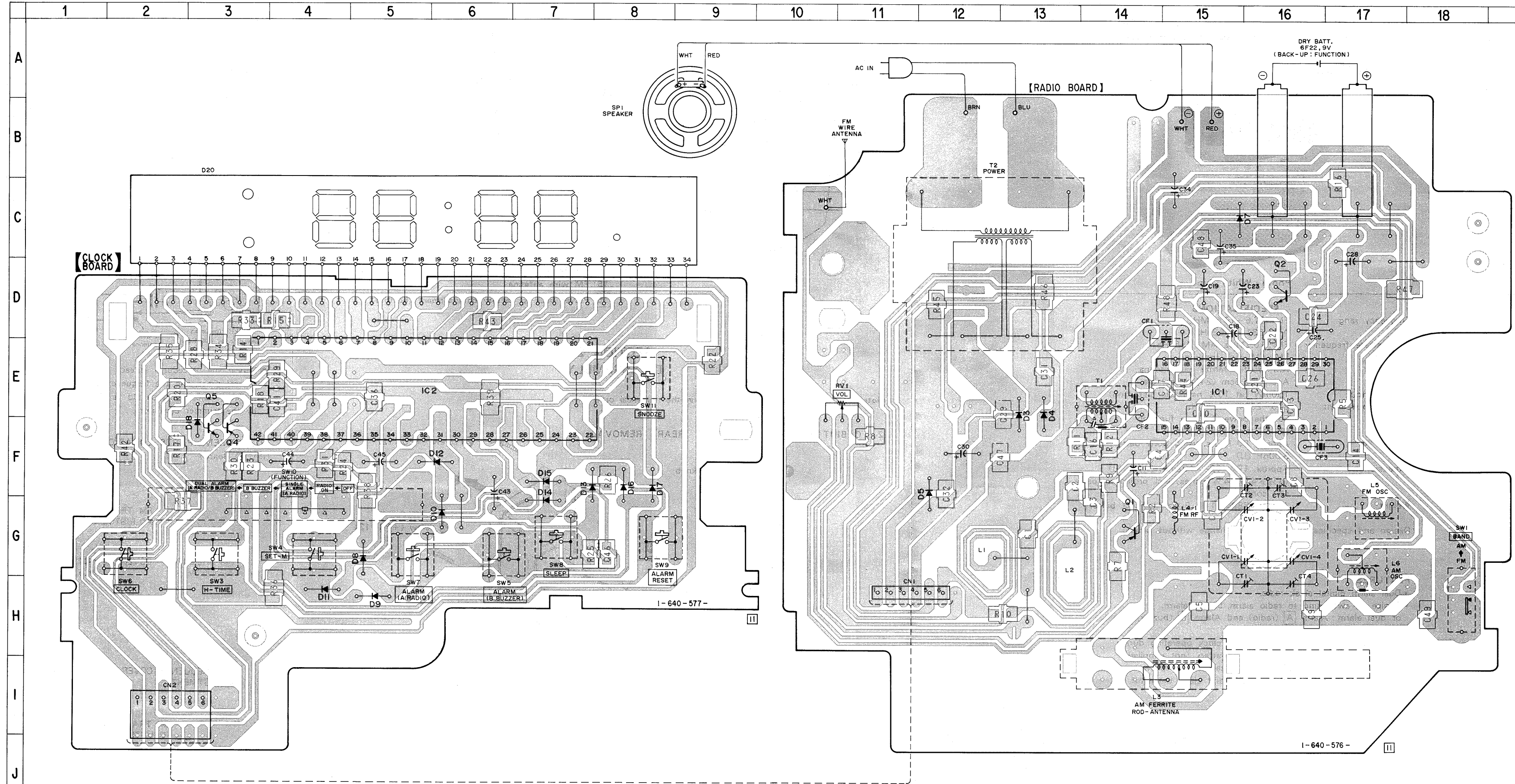
DTA114ES

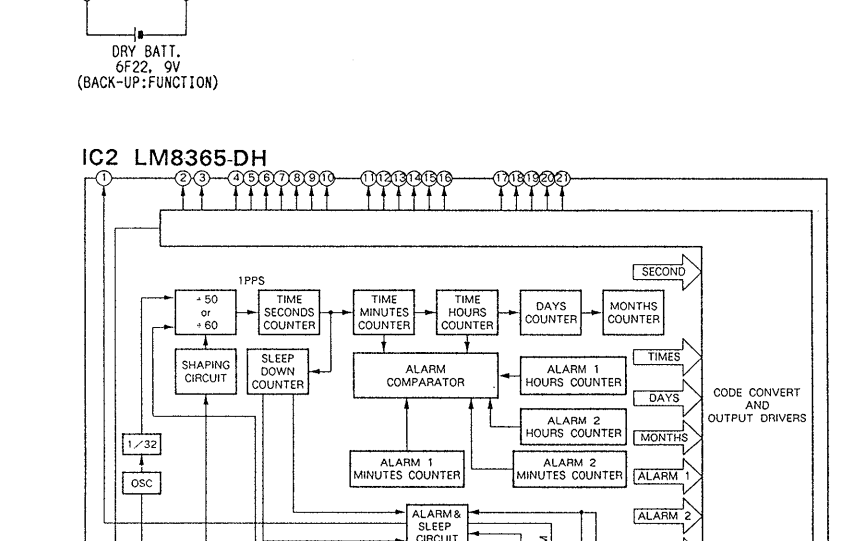
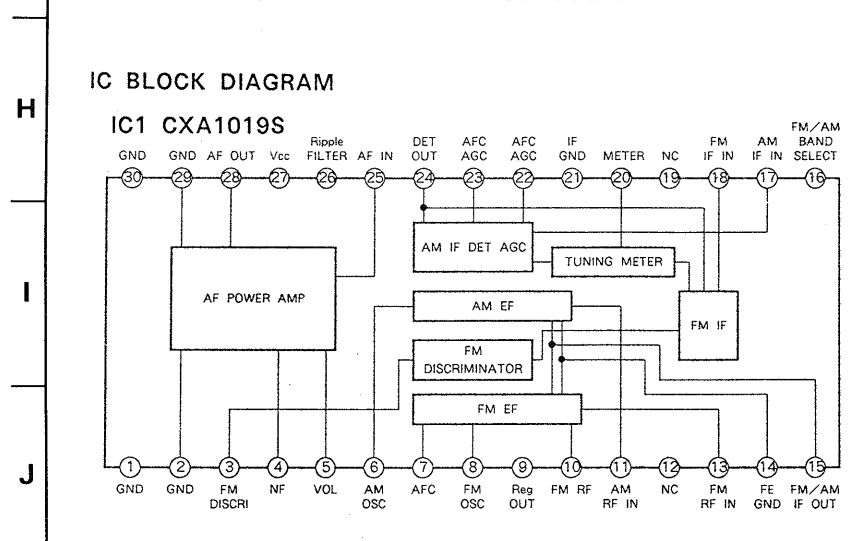
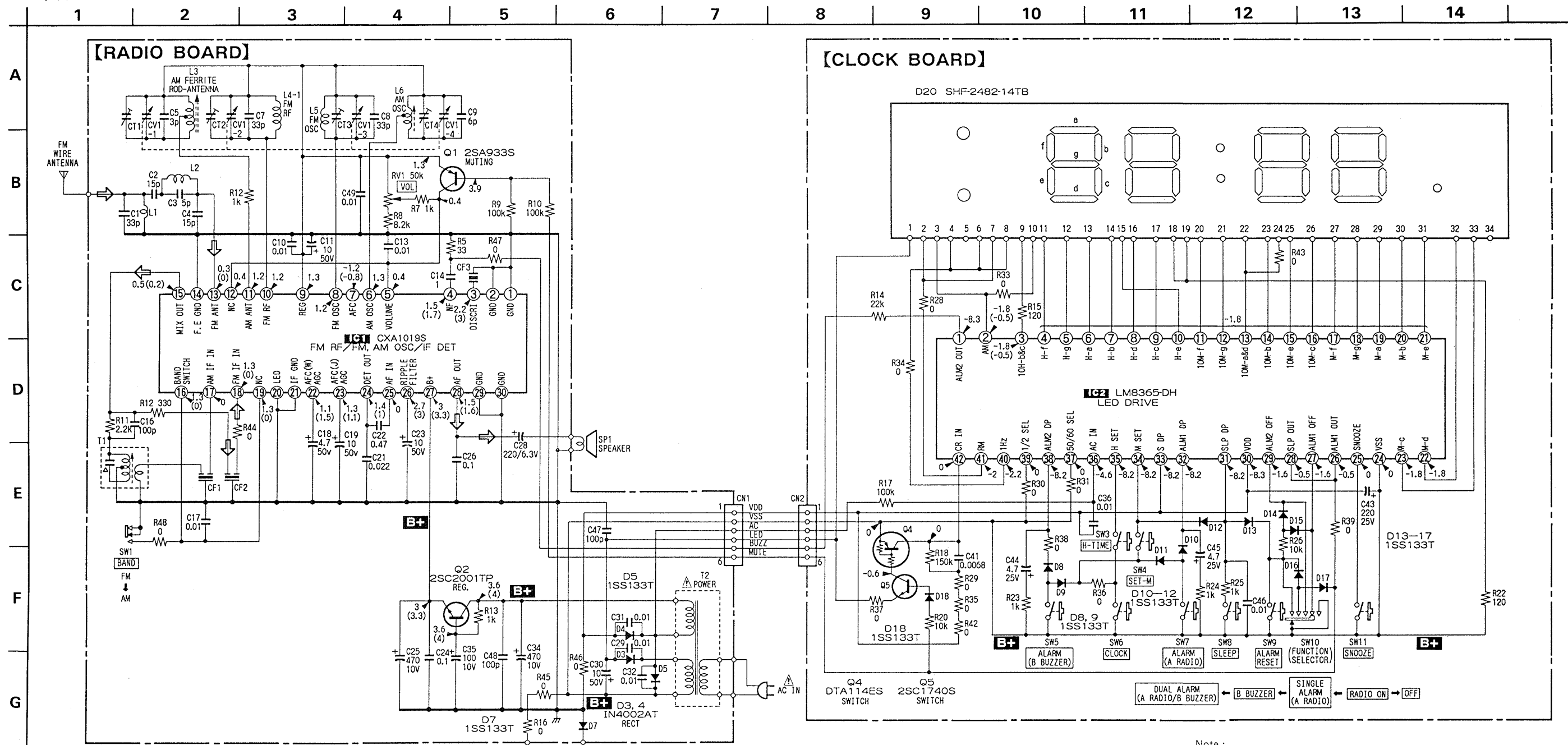


Note :

- : 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.

4.1. MOUNTING DIAGRAM





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 μF unless otherwise noted. $pF : \mu \mu F$
- 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $\frac{1}{10}W, \frac{1}{8}W$ 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
- \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
- Voltagess are taken with a VOM (Input impedance 10M Ω). Voltage variations may be noted due to normal production tolerances.
- Signal path.
- \rightarrow : FM

SECTION 6 ELECTRICAL PARTS LIST

CLOCK

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: 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 or dotted line with mark 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
	* 1-640-577-11	CLOCK BOARD *****				< TRANSISTOR >	
	3-371-133-01	FRAME, BUTTON		Q4	8-729-900-61	TRANSISTOR DTA114ES	
		< CAPACITOR >		Q5	8-729-119-78	TRANSISTOR 2SC2785-HFE	
C36	1-163-031-11	CERAMIC CHIP 0.01uF	50V			< RESISTOR >	
C41	1-163-019-00	CERAMIC CHIP 0.0068uF	10% 50V	R14	1-216-081-00	METAL CHIP 22K 5% 1/10W	
C43	1-124-120-11	ELECT 220uF	20% 25V	R15	1-216-027-00	METAL CHIP 120 5% 1/10W	
C44	1-126-163-11	ELECT 4.7uF	20% 50V	R17	1-216-097-00	METAL CHIP 100K 5% 1/10W	
C45	1-126-163-11	ELECT 4.7uF	20% 50V	R18	1-216-101-00	METAL CHIP 150K 5% 1/10W	
C46	1-163-031-11	CERAMIC CHIP 0.01uF	50V	R20	1-216-073-00	METAL CHIP 10K 5% 1/10W	
		< CONNECTOR >		R22	1-216-027-00	METAL CHIP 120 5% 1/10W	
CN2	* 1-563-463-11	SOCKET, CONNECTOR 6P		R23	1-216-049-00	METAL CHIP 1K 5% 1/10W	
		< DIODE >		R24	1-216-049-00	METAL CHIP 1K 5% 1/10W	
D8	8-719-800-76	DIODE 1SS226		R25	1-216-049-00	METAL CHIP 1K 5% 1/10W	
D9	8-719-800-76	DIODE 1SS226		R26	1-216-073-00	METAL CHIP 10K 5% 1/10W	
D10	8-719-800-76	DIODE 1SS226					
D11	8-719-800-76	DIODE 1SS226		R28	1-216-295-00	METAL CHIP 0 5% 1/10W	
D12	8-719-800-76	DIODE 1SS226		R29	1-216-295-00	METAL CHIP 0 5% 1/10W	
		< IC >		R30	1-216-295-00	METAL CHIP 0 5% 1/10W	
D13	8-719-800-76	DIODE 1SS226		R31	1-216-295-00	METAL CHIP 0 5% 1/10W	
D14	8-719-800-76	DIODE 1SS226		R33	1-216-295-00	METAL CHIP 0 5% 1/10W	
D15	8-719-800-76	DIODE 1SS226					
D16	8-719-800-76	DIODE 1SS226		R34	1-216-296-00	METAL CHIP 0 5% 1/8W	
D17	8-719-800-76	DIODE 1SS226		R35	1-216-296-00	METAL CHIP 0 5% 1/8W	
D18	8-719-800-76	DIODE 1SS226		R36	1-216-296-00	METAL CHIP 0 5% 1/8W	
				R37	1-216-296-00	METAL CHIP 0 5% 1/8W	
IC2	8-759-822-81	IC LM8365DH		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	
						< 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))	

CLOCK

RADIO

Ref. No.	Part No.	Description	Remark
SW8	1-572-198-11	SWITCH, KEY BOARD (SLEEP)	
SW9	1-572-198-11	SWITCH, KEY BOARD (ALARM RESET)	
SW10	1-572-872-11	SWITCH, SLIDE (FUNCTION SELECTOR)	
SW11	1-572-198-11	SWITCH, KEY BOARD (SNOOZE)	

	A-3661-374-A	RADIO BOARD, COMPLETE	

△	1-555-795-00	CORD, POWER	
	3-364-941-11	SCREW (+B) (2.6X5), NYLOK	
	3-371-118-01	KNOB (V)	
	3-371-118-11	KNOB (V)	
	3-371-121-01	GEAR (VC)	
< CAPACITOR >			
C1	1-163-105-00	CERAMIC CHIP 33PF	5% 50V
C2	1-163-097-00	CERAMIC CHIP 15PF	5% 50V
C3	1-163-088-00	CERAMIC CHIP 5PF	50V
C4	1-163-097-00	CERAMIC CHIP 15PF	5% 50V
C5	1-163-086-00	CERAMIC CHIP 3PF	50V
C7	1-163-105-00	CERAMIC CHIP 33PF	5% 50V
C8	1-163-105-00	CERAMIC CHIP 33PF	5% 50V
C9	1-163-089-00	CERAMIC CHIP 6PF	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
C21	1-163-037-11	CERAMIC CHIP 0.022uF	10% 25V
C22	1-164-005-11	CERAMIC CHIP 0.47uF	25V
C23	1-124-907-11	ELECT 10uF	20% 50V
C24	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
C25	1-124-472-11	ELECT 470uF	20% 10V
C26	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
C28	1-126-176-11	ELECT 220uF	20% 10V
C29	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C30	1-124-907-11	ELECT 10uF	20% 50V
C31	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C32	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C34	1-124-472-11	ELECT 470uF	20% 10V
C35	1-124-443-00	ELECT 100uF	20% 10V
C47	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
C48	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
C49	1-164-232-11	CERAMIC CHIP 0.01uF	50V

Ref. No.	Part No.	Description	Remark
< FILTER >			
CF1	1-577-072-11	FILTER, CERAMIC (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	
< 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	1-402-413-21	ANTENNA, FERRITE-ROD (MM)	
L4	1-428-223-11	COIL, AIR-CORE	
L5	1-406-425-11	COIL	
L6	1-406-028-00	COIL, OSC (MM)	
< TRANSISTOR >			
Q1	8-729-920-68	TRANSISTOR 2SA933S-QR	
Q2	8-729-100-13	TRANSISTOR 2SC2001	
< RESISTOR >			
R2	1-216-049-00	METAL CHIP 1K 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
R16	1-216-295-00	METAL CHIP 0 5%	1/10W
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
R48	1-216-296-00	METAL CHIP 0 5%	1/8W

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

RADIO

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

RV1	1-241-586-11	RES. VAR. CARBON 50K (VOLUME)	
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< SWITCH >

S1	1-571-478-11	SWITCH, SLIDE (BAND)	
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< TRANSFORMER >

T1	1-404-341-00	TRANSFORMER, IF	
T2	△ 1-450-549-11	TRANSFORMER, POWER	

< TERMINAL >

TM1	* 1-535-771-11	TERMINAL	
TM2	* 1-535-771-11	TERMINAL	

MISCELLANEOUS

SP1	1-503-082-00	SPEAKER	
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ACCESSORIES & PACKING MATERIALS

* 3-371-060-01 CUSHION
* 3-372-284-01 INDIVIDUAL CARTON
3-753-801-11 MANUAL, INSTRUCTION (ENGLISH, FRENCH,
GERMAN, DUTCH, ITALIAN)

HARDWARE LIST

#1	7-685-648-79	SCREW +P 3X12 TYPE2 NON-SLIT
#2	7-685-650-79	SCREW +P 3X16 TYPE2 NON-SLIT

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