ICF-C2W/C25W

SERVICE MANUAL

US Model
AEP Model
ICF-C2W

Canadian Model
ICF-C2W/C25W

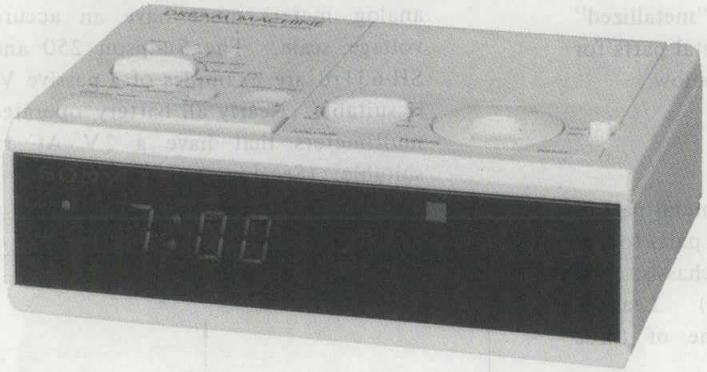


Photo: ICF-C2W (White type)

SPECIFICATIONS

Frequency range	US, Canadian model: FM: 87.6–108MHz AM: 530–1,605kHz AEP, WG model: FM: 87.6–107,5MHz AM: 531–1,602kHz
Antennas	FM: AC power cord antenna, AM: Built-in ferrite bar antenna
Speaker	Approx. 6.6 cm (2½ inches) dia.
Power output	200 mW (at 10% harmonic distortion)
Power requirements	US, Canadian model: 120V AC, 60Hz AEP, WG model: 220V AC, 50Hz
Power consumption	6 W AC (3 W AC when only the clock is in operation)
Dimensions (incl. projecting parts and controls)	Approx. 192 × 66 × 131 mm (w/h/d) (7⅝ × 2⅞ × 5¼ inches)
Weight	Approx. 800 g (1 lb 13 oz)

WG model : West Germany model

FEATURES

- Electronic digital alarm clock and sleep timer are combined.
- Two wake-up modes available: radio or buzzer alarm.
- DREAM BAR (REPEAT ALARM bar), operable with a feather-light touch, offers three functions: snooze alarm, sleep timer turn off, and instant alarm time readout.

Time Display	
12 hours:	US, Canadian model
24 hours:	AEP, WG model

MICROFILM

FM/AM DIGITAL CLOCK RADIO

SONY®

Published in Heiloo, Holland.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer:
Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

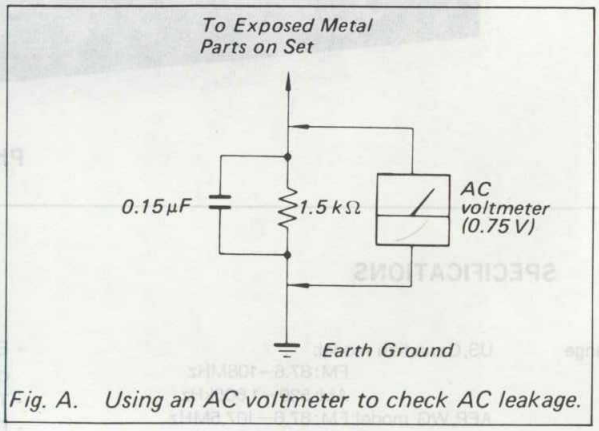


Fig. A. Using an AC voltmeter to check AC leakage.

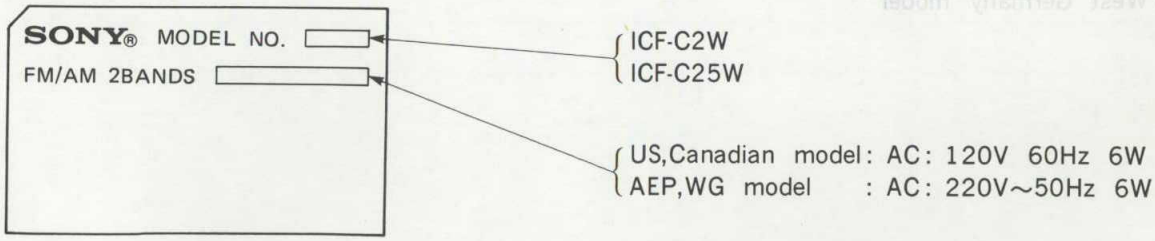
MODEL IDENTIFICATION

—Model Number Label—

WG model: West Germany model

ICF-C2W (US,Canadian model) : Carved on lower cabinet

ICF-C2W (AEP,WG model)
ICF-C25W (Canadian model) } Model number ladel



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.

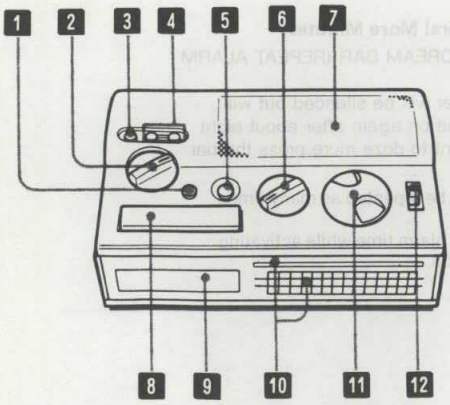
ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

Published in Heiloo, Holland.

SECTION 1
GENERAL

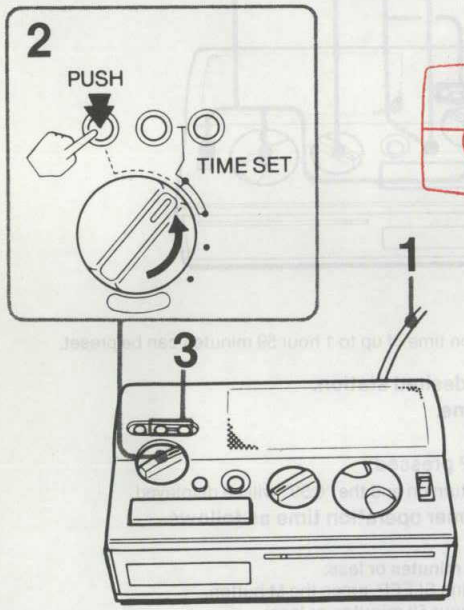
1-1. PARTS IDENTIFICATION



1 **SLEEP button**
2 **Function selector**
3 **PUSH button :Used for the current time setting.**
4 **Time set buttons :H(hour) and M(minute)**
5 **ALARM RESET button**
6 **VOLUME control**
7 **Speaker**
8 **REPEAT ALARM bar (AEP, WG model)**
DREAM BAR (US, Canadian model)
9 **Time display:** Changes each time these clock functions are activated.
- Current time
- Sleep timer sequence
- Alarm time

10 **Dial pointer and dial scale**
11 **TUNING knob**
12 **BAND selector**

1-2. SETTING THE CURRENT TIME

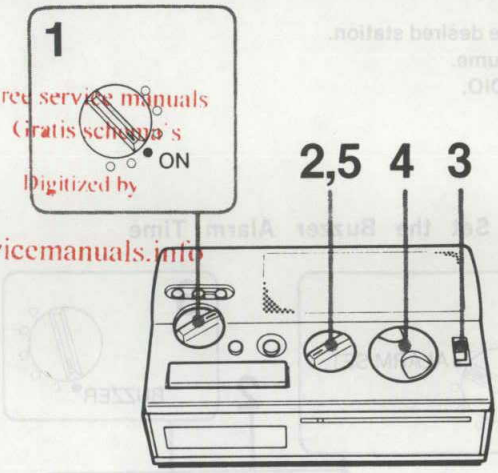


1 Connect to a wall outlet.
2 While pressing PUSH, set the function selector to TIME SET.
3 Adjust the clock to the current time by pressing the H (hour) and M (minute) buttons.

Zero second adjustment
Example: To set to 7:15 to the second
1 Adjust the time to 7:14 as previously described.
2 Press SLEEP and DREAM BAR (REPEAT ALARM bar) at the same time, and then release only DREAM BAR (REPEAT ALARM bar). The time will be displayed in minutes and seconds.
3 While pressing SLEEP:
- **Keep the H button pressed** when the seconds display is 30 or more.
The minutes display will advance by one and "5:00" (5 minutes 00 second) will be displayed.
- When the seconds display is 29 or less, wait until the seconds display advances to 30, and then **keep the H button pressed.**

4 Release the H button and SLEEP simultaneously with the radio or telephone time signal. The time indication will return to hour and minute display.

1-3. RADIO OPERATION



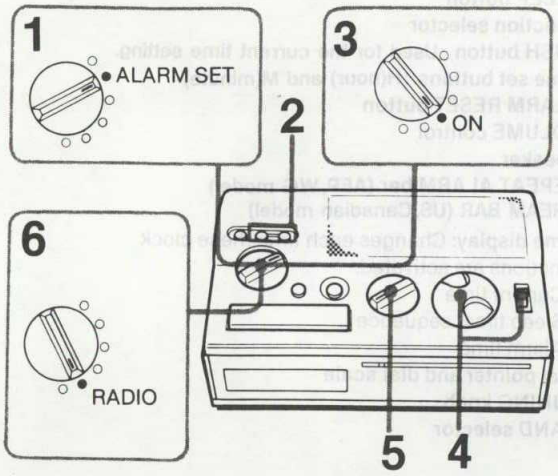
1 Set to ON.
2 Turn a little to get sound.
3 Choose the desired band, FM or AM.
4 Tune in the desired station.
5 Adjust volume.
To turn off the radio, set the function selector to OFF.

To Improve Receiving Condition

FM: Since the AC power cord serves as an FM antenna, extend it for better reception.
AM: Since the reception is affected by the direction of the radio, rotate the radio horizontally for optimum reception.

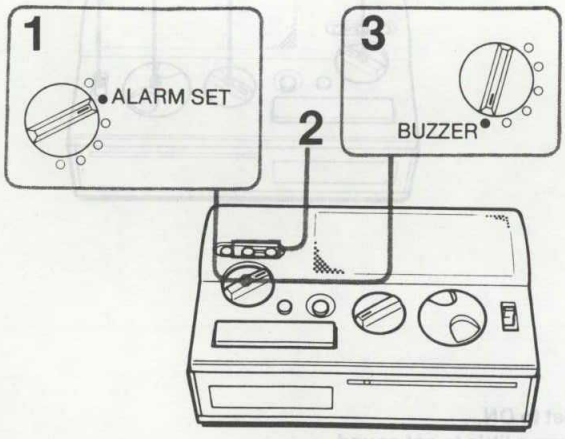
1-4. SETTING THE ALARM TIME

1-4-1. To Set the Radio Alarm Time



1 **Set to ALARM SET.**
2 **Adjust the clock to the desired alarm time.**
3 **Set to ON.**
4 **Tune in the desired station.**
5 **Adjust volume.**
6 **Set to RADIO.**

1-4-2. To Set the Buzzer Alarm Time



1 **Set to ALARM SET.**
2 **Adjust the clock to the desired alarm time.**
3 **Set to BUZZER.**

The radio or buzzer will automatically sound at the preset time, and automatically turn itself off after about two hours.

- **To turn off the alarm sound manually,** press ALARM RESET.
  When the function selector is set to RADIO or BUZZER, the alarm sound will come on again at the same time the next day.
- **To cancel the alarm before the preset time,** set the function selector to OFF.
- **To read out instantly the alarm preset time,** press DREAM BAR (REPAT ALARM bar).

Note

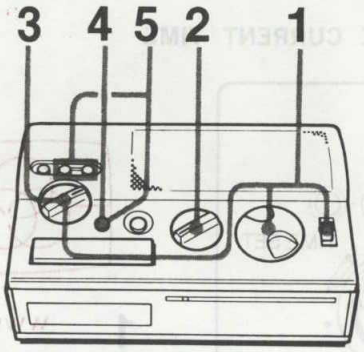
The buzzer sound level is fixed, and independent of the VOLUME control setting.

To Doze for Several More Minutes

Just lightly press DREAM BAR (REPEAT ALARM bar).
The radio or buzzer will be silenced but will automatically come on again after about eight minutes. If you want to doze more, press the bar again.

- This function can be repeated as many times as you like.
- You can reset the alarm time while activating the snooze function.

1-5. TURNING OFF THE RADIO AUTOMATICALLY AFTER A PRESET TIME—Sleep Timer



The timer operation time of up to 1 hour 59 minutes can be preset.

1 **Tune in the desired station.**
2 **Adjust volume.**
3 **Set to OFF.**
4 **Keep SLEEP pressed.**
The radio will turn on and the "0:59" will be displayed.
5 **Select the timer operation time as follows.**

- **To set to 59 minutes or less:**
  While pressing SLEEP, press the M button.
- **To set to 1 hour 59 minutes or less:**
  While pressing SLEEP, press the H button once and press the M button.

Release the M button and SLEEP when your desired time appears. The time indication will return to the current time. The time indication changes to 1:59 after reaching 0:00.

To turn off the radio before the preset time, press REPEAT ALARM bar (which cancels the "sleep timer" function).

Notes

- When the sleep timer is operating, do not set the function selector to ALARM SET. Otherwise the sleep timer will be cancelled.
- Do not release the SLEEP button while setting the sleep timer. Doing so will have the time indication return to the current time.

To Use Both Sleep Timer and Alarm Function

You can fall asleep to radio and you will be awakened by the radio/buzzer alarm at the preset time.
1 Set the alarm time.
2 Set the function selector to RADIO or BUZZER for alarm.
3 Set the sleep timer.

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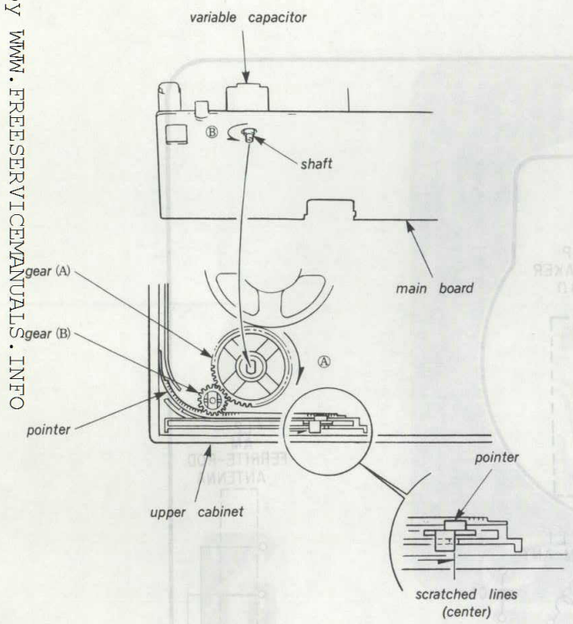
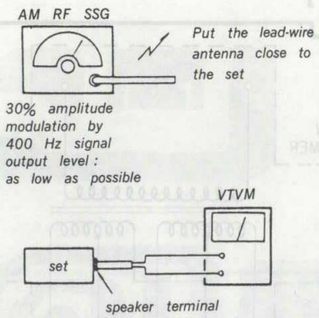
SECTION 2
POINTER SETTING



1. Turn gear (A) fully in the direction of the arrow Ⓐ.
2. Set the pointer to the center of three scratched lines as illustrated.
3. Turn variable capacitor shaft fully in the direction of the arrow Ⓑ.
4. Align variable capacitor shaft with the hole of gear (A) and then install main board.

SECTION 3
ELECTRICAL ADJUSTMENTS

3-1. AM SECTION



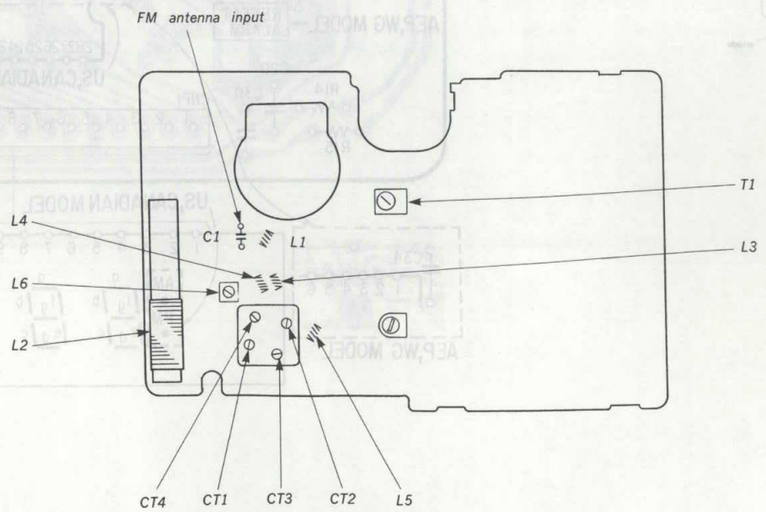
• Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

AM IF ALIGNMENT	
Adjust for a maximum reading on VTVM.	
T1	455 (450) kHz

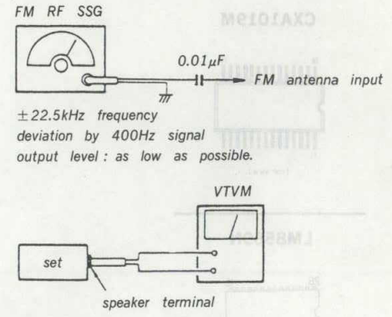
AM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L6	520kHz
CT4	1650kHz

AM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L2	600kHz
CT1	1400kHz

Adjustment Location : main board (component side)



3-2. FM SECTION



• 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	
Adjust for a maximum reading on VTVM.	
L5	86.5(87.35)MHz
CT3	109.5(108.05)MHz

FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L3	86.5(87.35)MHz
L4	
CT2	109.5(108.05)MHz

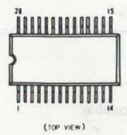
( ): AEP, West Germany model

SECTION 4 DIAGRAMS

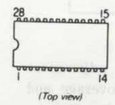
4-1. PRINTED WIRING BOARDS

Semiconductor Lead Layouts

CXA1019M

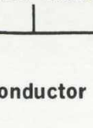


LM8569N



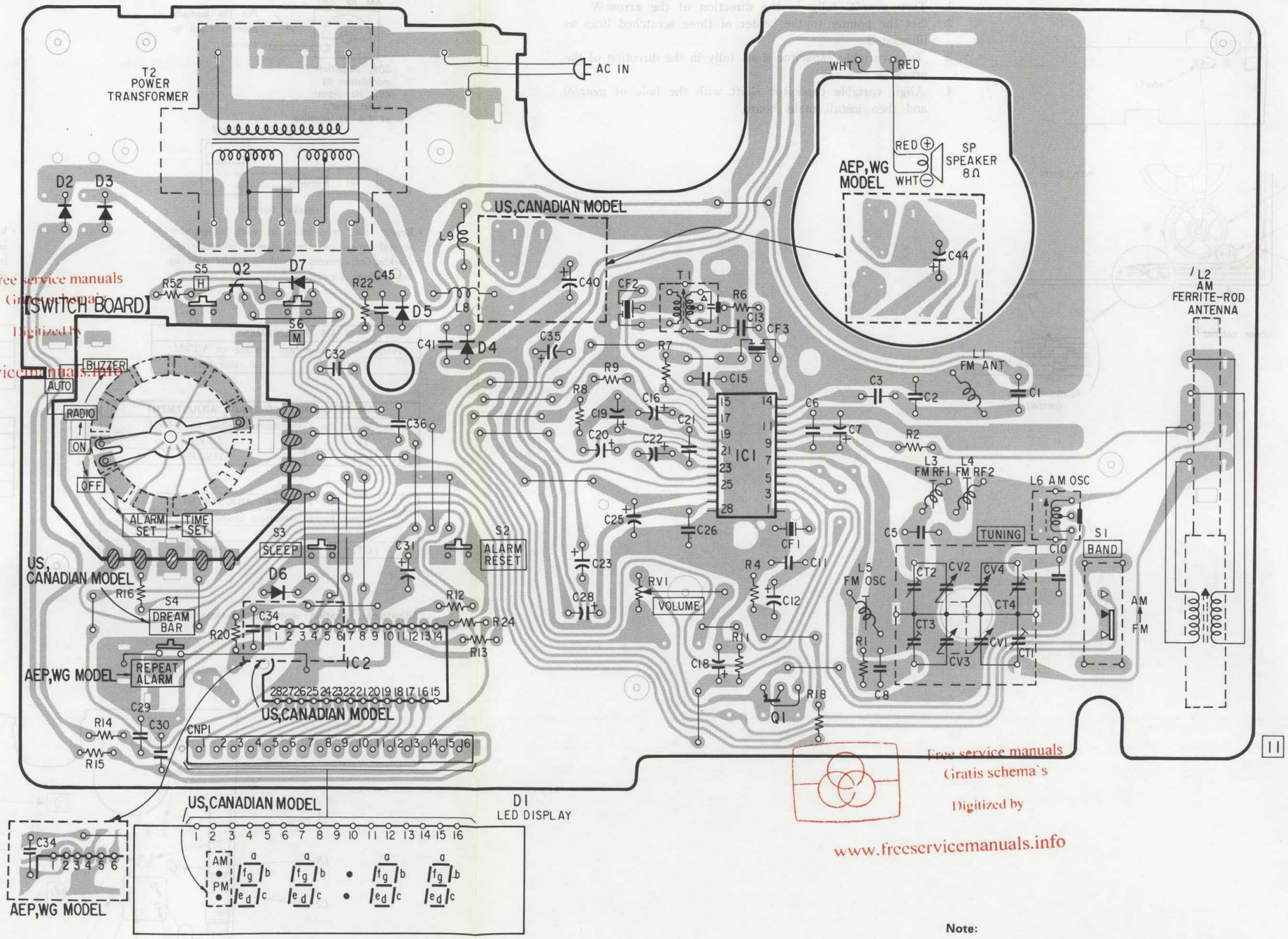
2SA733-P

1SS133



10E2

【MAIN BOARD】



Note:

- ○—— : parts extracted from the component side.
- [ ]— indicates side identified with part number.
- WG model: West Germany model

4-2. SCHEMATIC DIAGRAM

【MAIN BOARD】

	US,CANADIAN MODEL	AEP,WG MODEL
C5	20p	24p
C8	24p	27p
R1	2.2k	3.3k

【SWITCH BOARD】

IC1 CXA1019M RADIO

IC2 LM8569N CLOCK

Q1 2SA733 RADIO ON/OFF

Q2 2SA733 SWITCHING

D6,7 1SS133

D1 SL-1042-78T(US,CANADIAN MODEL)
D1 SL-1042-79T(AEP,WG MODEL)
LED DISPLAY

D2-5 10E2 RECT

T2 POWER TRANSFORMER

Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ : internal component.
- B+ : B+ Line
- B− : B− Line
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark: FM
  ( ): AM
- Voltages are taken with a VOM (50 kΩ/V).
  Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM
- WG model: West Germany model

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

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ICF-C2W/C25W

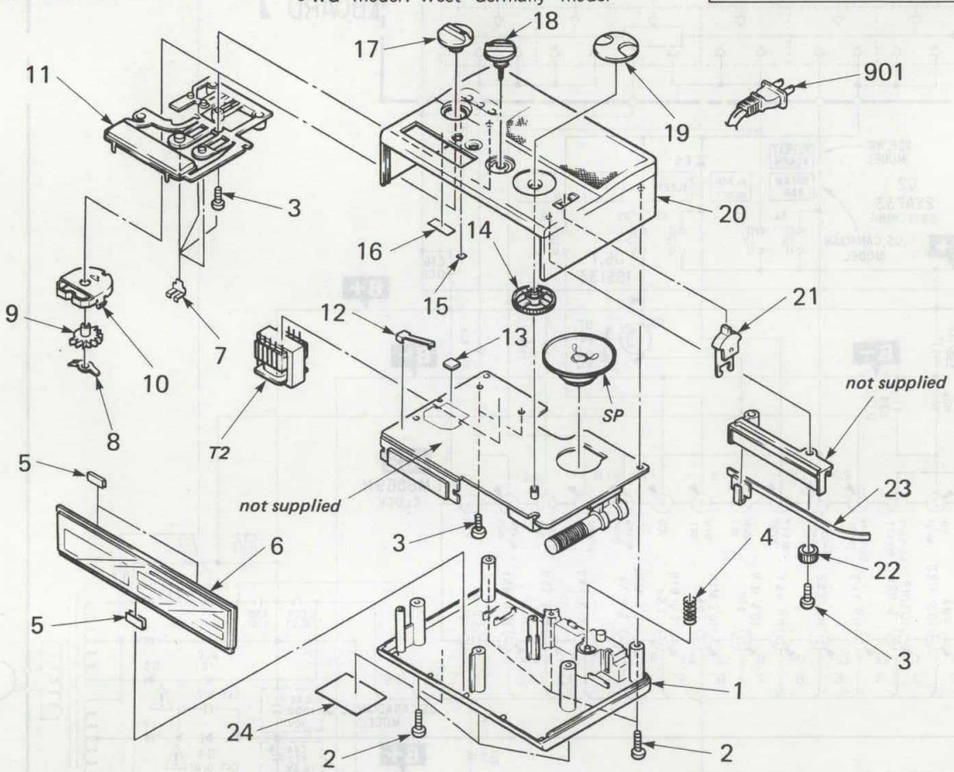
SECTION 5
EXPLODED VIEW

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
- WG model: West Germany model

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

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.



Ref.No	Part No.	Description	Remarks
1	*3-899-612-01	(BEIGE)....CABINET (LOWER)	
1	*3-899-612-11	(GRAY)....CABINET (LOWER)	
1	*3-899-612-21	(WHITE)....CABINET (LOWER)	
1	*3-899-612-31	(BLACK)....CABINET (LOWER)	
2	7-685-149-11	SCREW +P 3X14 TYPE2 NON-SLIT	
3	7-685-647-79	SCREW +P 3X10 TYPE2 NON-SLIT	
4	3-885-103-00	SPRING	
5	3-831-441-XX	CUSHION,CABINET UPPER 10X7X0.3	
6	3-899-607-01	(US, Canadian)....PLATE, TRANSPARENT	
6	3-899-607-21	(AEP, WG)....PLATE, TRANSPARENT	
7	3-893-610-01	SPRING (S2, 3, 5, 6)	
8	3-888-207-00	PLATE, CONTACT	
9	3-888-206-00	SHAFT, CLICK	
10	3-888-205-00	HOLDER, FUNCTION	
11	3-899-610-01	(BEIGE)....BUTTON, CONTROL	
11	3-899-610-11	(GRAY)....BUTTON, CONTROL	
11	3-899-610-21	(WHITE)....BUTTON, CONTROL	
11	3-899-610-31	(BLACK)....BUTTON, CONTROL	
12	3-888-208-11	PLATE, CONTACT (S4)	
13	9-911-840-XX	CUSHION (t=3)	
14	*3-899-606-01	GEAR (A)	
15	3-831-441-XX	SHEET (1) (t=0.5)	
16	3-831-441-11	CUSHION (t=0.5)	
17	3-899-625-01	(BEIGE)....KNOB, FUNCTION	
17	3-899-625-11	(GRAY)....KNOB, FUNCTION	
17	3-899-625-21	(WHITE)....KNOB, FUNCTION	
17	3-899-625-31	(BLACK)....KNOB, FUNCTION	
18	3-899-626-01	(BEIGE)....KNOB, VOLUME	
18	3-899-626-11	(GRAY)....KNOB, VOLUME	
18	3-899-626-21	(WHITE)....KNOB, VOLUME	
18	3-899-626-31	(BLACK)....KNOB, VOLUME	
19	3-899-623-01	(BEIGE)....KNOB, TUNING	
19	3-899-623-11	(GRAY)....KNOB, TUNING	
19	3-899-623-21	(WHITE)....KNOB, TUNING	
19	3-899-623-31	(BLACK)....KNOB, TUNING	
20	3-899-611-01	(US, Canadian; BEIGE)....CABINET (UPPER)	
20	3-899-611-11	(US, Canadian; GRAY)....CABINET (UPPER)	
20	3-899-611-21	(US, Canadian; WHITE)....CABINET (UPPER)	
20	3-899-611-31	(US, Canadian; BLACK)....CABINET (UPPER)	
20	3-899-611-41	(AEP, WG; WHITE)....CABINET (UPPER)	
20	3-899-611-51	(AEP, WG; BLACK)....CABINET (UPPER)	
21	3-899-624-01	(BEIGE)....KNOB, BAND	
21	3-899-624-11	(GRAY)....KNOB, BAND	
21	3-899-624-21	(WHITE)....KNOB, BAND	
21	3-899-624-31	(BLACK)....KNOB, BAND	
22	*3-899-605-01	GEAR (B)	
23	3-899-608-01	POINTER (RACK)	
24	*3-899-642-01	(AEP, WG)....LABEL, MODEL NUMBER	
24	*3-898-679-01	(ICF-C25W)....LABEL, MODEL NUMBER	
901	⚠1-555-795-00	(AEP, WG)....CORD, POWER	
901	⚠1-558-566-21	(US, Canadian)....CORD, POWER	
T2	⚠1-449-147-11	(US)....TRANSFORMER, POWER	
T2	⚠1-449-148-11	(Canadian)....TRANSFORMER, POWER	
T2	⚠1-449-281-11	(AEP, WG)....TRANSFORMER, POWER	
SP	1-503-940-21	SPEAKER	

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.
- 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: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA..., UPC...: μPC, UPD...: μPD...

- WG model: West Germany model

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

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No	Part No.	Description			
901	⚠1-555-795-00	(AEP, WG)....CORD, POWER			
901	⚠1-558-566-21	(US, Canadian)....CORD, POWER			
		CAPACITOR			
C1	1-102-958-00	CERAMIC	20PF	5%	50V
C2	1-102-966-00	CERAMIC	43PF	5%	50V
C3	1-102-958-00	CERAMIC	20PF	5%	50V
C5	1-102-958-00	(US, Canadian) ....CERAMIC	20PF	5%	50V
C5	1-102-960-00	(AEP, WG) ....CERAMIC	24PF	5%	50V
C6	1-101-004-00	CERAMIC	0.01MF		50V
C7	1-123-356-00	ELECT	10MF	20%	16V
C8	1-102-960-00	(US, Canadian) ....CERAMIC	24PF	5%	50V
C8	1-102-961-00	(AEP, WG) ....CERAMIC	27PF	5%	50V
C10	1-101-998-00	CERAMIC	6PF	0.5PF	50V
C11	1-101-004-00	CERAMIC	0.01MF		50V
C12	1-123-379-00	ELECT	0.47MF	20%	50V
C13	1-102-966-00	CERAMIC	43PF	5%	50V
C15	1-101-004-00	CERAMIC	0.01MF		50V
C16	1-123-356-00	ELECT	10MF	20%	16V
C18	1-123-330-00	ELECT	22MF	20%	16V
C19	1-126-094-11	ELECT	4.7MF	20%	25V
C20	1-123-356-00	ELECT	10MF	20%	16V
C21	1-161-056-00	CERAMIC	0.027MF	10%	25V
C22	1-123-379-00	ELECT	0.47MF	20%	50V
C23	1-123-306-00	ELECT	47MF	20%	10V
C25	1-124-559-51	(US, Canadian) ....ELECT	1000MF	20%	10V
C25	1-124-893-11	(AEP, WG) ....ELECT	2200MF	20%	10V
C26	1-161-023-00	CERAMIC	0.068MF	10%	25V
C28	1-126-335-11	ELECT	220MF	20%	10V
C29	1-101-004-00	CERAMIC	0.01MF		50V
C30	1-101-004-00	CERAMIC	0.01MF		50V
C31	1-124-036-00	ELECT	330MF	20%	16V
C32	1-101-004-00	CERAMIC	0.01MF		50V
C34	1-130-485-00	MYLAR	0.015MF	5%	50V
C35	1-123-379-00	ELECT	0.47MF	20%	50V
C36	1-101-004-00	CERAMIC	0.01MF		50V
C40	1-124-559-51	(US, Canadian) ....ELECT	1000MF	20%	10V
C41	1-101-004-00	CERAMIC	0.01MF		50V
C44	1-124-472-11	(AEP, WG) ....ELECT	470MF	20%	6.3V
C45	1-101-004-00	CERAMIC	0.01MF		50V
CF1, CF3	1-567-734-71	FILTER, CERAMIC, 10.7MHz			
CF2	1-577-072-11	(US, Canadian)....FILTER, CERAMIC, 455kHz			
CF2	1-577-072-21	(AEP, WG)....FILTER, CERAMIC, 450kHz			
CT1-4, CV1-4	1-151-478-11	CAP, TUNING, POLYETHYLENE			

Ref.No	Part No.	Description			
D1	1-808-342-11	(US, Canadian)....LED BLOCK SL-1042-78T			
D1	1-808-344-11	(AEP, WG)....LED BLOCK SL-1042-79T			
D2	⚠8-719-200-02	DIODE 10E2			
D3	⚠8-719-200-02	DIODE 10E2			
D4	⚠8-719-200-02	DIODE 10E2			
D5	⚠8-719-200-02	DIODE 10E2			
D6	8-719-901-33	DIODE 1SS133			
D7	8-719-901-33	DIODE 1SS133			
IC1	8-752-030-15	IC CXA1019M			
IC2	1-808-349-11	IC LM8569N			
L1	*1-422-130-00	COIL, FM ANT			
L2	1-402-366-21	ANTENNA, FERRITE-ROD (AM)			
L3	*1-422-291-11	COIL, AIR-CORE (FM RF1)			
L4	*1-422-291-11	COIL, AIR-CORE (FM RF2)			
L5	*1-405-962-00	(AEP, WG)....COIL, FM OSC			
L5	*1-422-130-00	(US, Canadian)....COIL, FM OSC			
L6	1-406-150-11	COIL, AM OSC			
L8	*1-422-229-11	COIL, AIR-CORE			
L9	*1-422-229-11	COIL, AIR-CORE			
Q1	8-729-173-37	TRANSISTOR 2SA733-P			
Q2	8-729-173-37	TRANSISTOR 2SA733-P			
		RESISTOR			
R1	1-249-421-11	(US,Canadian) ....CARBON	2.2K	5%	1/4W
R1	1-249-423-11	(AEP, WG) ....CARBON	3.3K	5%	1/4W
R2	1-249-402-11	CARBON	56	5%	1/4W
R4	1-249-415-11	CARBON	680	5%	1/4W
R6	1-249-421-11	CARBON	2.2K	5%	1/4W
R7	1-249-421-11	CARBON	2.2K	5%	1/4W
R8	1-249-429-11	CARBON	10K	5%	1/4W
R9	1-249-429-11	CARBON	10K	5%	1/4W
R11	1-249-435-11	CARBON	33K	5%	1/4W
R12	1-247-880-11	CARBON	110K	5%	1/4W
R13	1-249-440-11	CARBON	82K	5%	1/4W
R14	1-249-393-11	CARBON	10	5%	1/4W
R15	1-249-393-11	CARBON	10	5%	1/4W
R16	1-247-880-11	CARBON	110K	5%	1/4W
R18	1-249-435-11	CARBON	33K	5%	1/4W
R20	1-247-880-11	CARBON	110K	5%	1/4W
R22	1-247-880-11	CARBON	110K	5%	1/4W
R24	1-249-402-11	CARBON	56	5%	1/4W
R25	1-247-894-11	CARBON	430K	5%	1/4W
RV1	1-238-148-11	RES, VAR, CARBON 50K (VOLUME)			
S1	1-554-694-00	SWITCH, SLIDE (BAND)			
SP	1-503-940-21	SPEAKER			
T1	1-404-790-11	TRANSFORMER, IF			
T2	⚠1-449-147-11	(US)....TRANSFORMER, POWER			
T2	⚠1-449-148-11	(Canadian)....TRANSFORMER, POWER			
T2	⚠1-449-281-11	(AEP, WG)....TRANSFORMER, POWER			

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