ICF-C33W

US Model
Canadian Model
E Model
AEP Model

FM/AM DIGITAL CLOCK RADIO

SPECIFICATIONS

GENERAL

Frequecny Range: FM 87.5 – 108 MHz
AM 530 – 1,605 kHz

Antennas: FM: Wire antenna
AM: Built-in ferrite rod antenna

Speaker: Approx. 7.7 cm (3 inches) dia.

Power Output: 400 mW (at 10% harmonic distortion) (US, Canadian model)
350 mW (at 10% harmonic distortion) (AEP, E model)

Output Jack: Earphone (mini jack)
for 8 Ω earphone or load impedance 10 kΩ or higher

Power Requirements: 120 V ac, 60 Hz (US, Canadian, E2 model)
220 V ac, 50 Hz (AEP model)
110–120, 220–240 V ac adjustable, 50/60 Hz (E1 model)
for the Power Backup Function: 3 V dc, two batteries size AA (IEC designation R6)

Power Consumption: 6 W ac (3.5 W ac when only the clock is in operation)

Dimensions: Approx. 280 (w) x 102 (h) x 86 (d) mm
11 (w) x 4 (h) x 3 3/8 (d) inches
including projecting parts and controls

Weight: Approx. 1.3 kg, 2 lb 14 oz, including batteries

CLOCK SECTION

Clock: Liquid crystal digital quartz clock

Accuracy: Within 15 sec. per month at 24°C (76°F)

Displays: Present time (AM/PM hours and minutes with seconds indicated by the blinking of the colon)
Date (month, day and day of week)
Alarm time (AM/PM hours and minutes)
Daylight Saving Time Indicator (US, Canadian, AEP model)

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS 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.

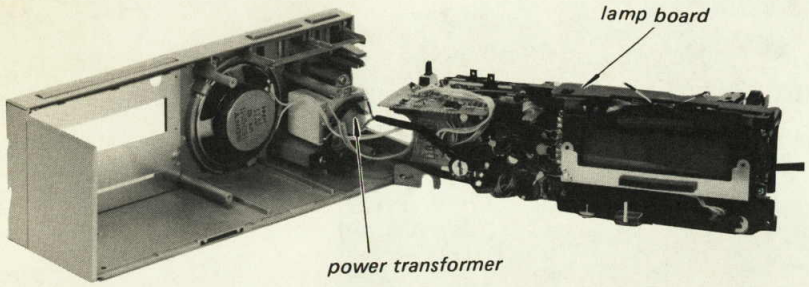
ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES, LES VUES EXPLOSÉES 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.

SONY®
SERVICE MANUAL

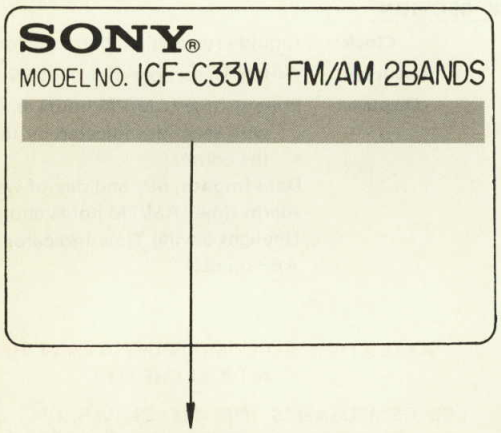
SERVICE PRECATUTION

High voltage of 340V ac is supplied to the fluorescent lamp used in the LCD light. When servicing, pay close attention to the primary side of the power transformer and to the lamp board.



MODEL IDENTIFICATION

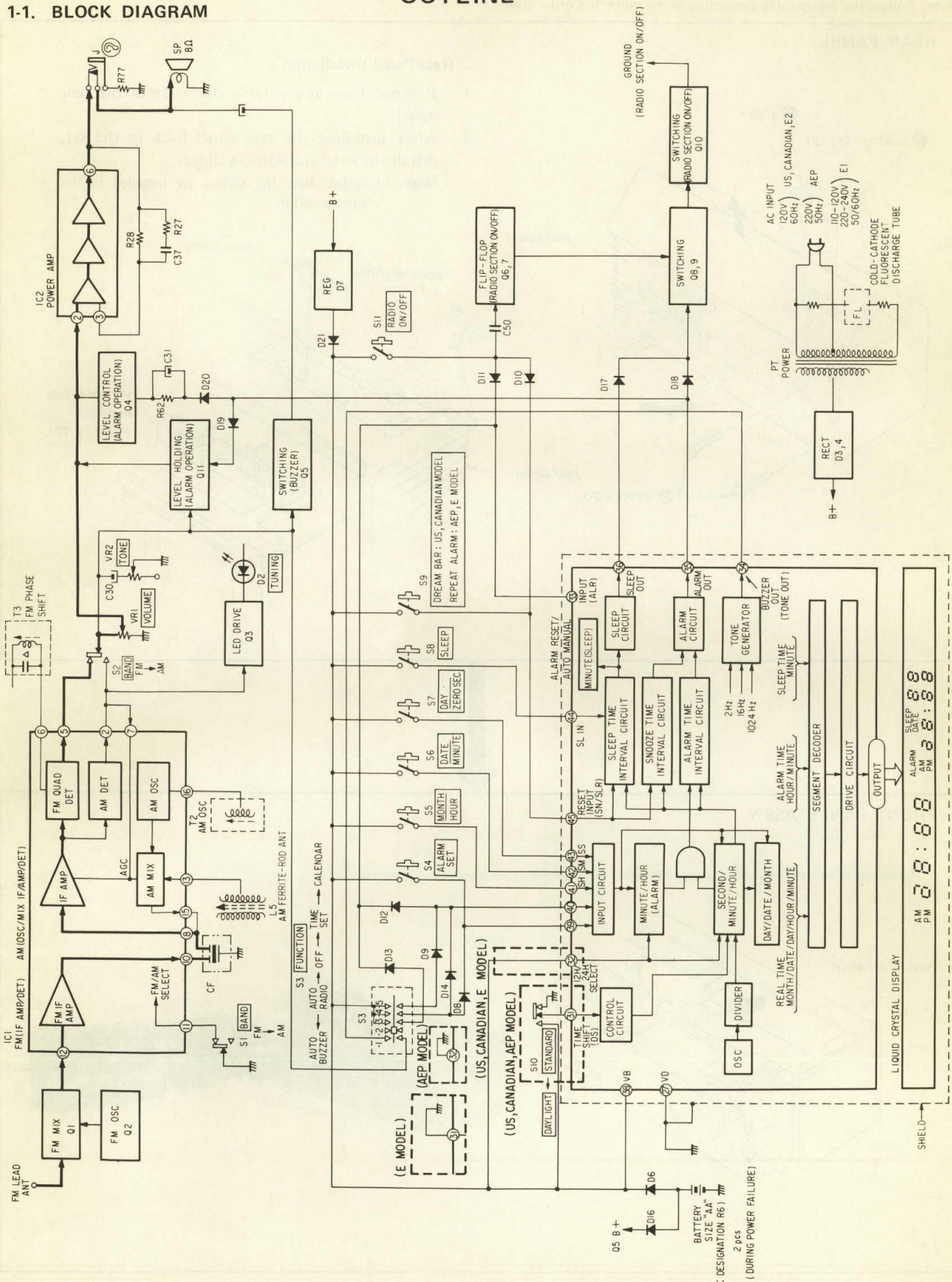
– Specification Label –



US, Canadian model:	*120V*	*60Hz*	*6W*
AEP model:	*220V*	*50Hz*	*6W*
E1 model:	*110–120V/220–240V*	*50/60Hz*	*6W*
E2 model:	*120V*	*60Hz*	*6W*

SECTION 1
OUTLINE

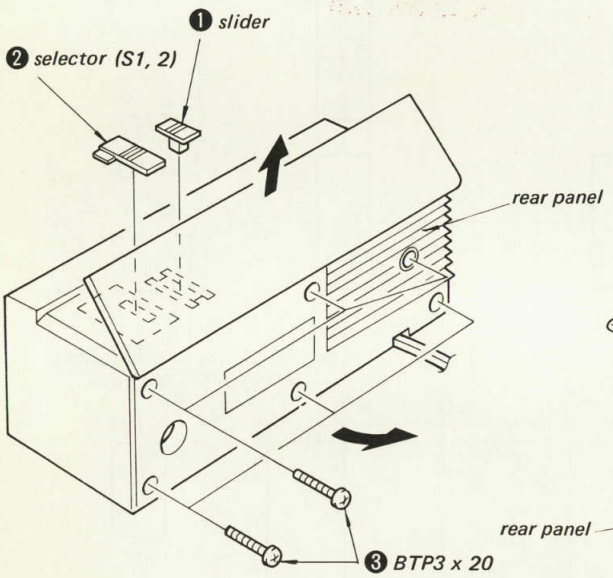
1-1. BLOCK DIAGRAM



SECTION 2
DISASSEMBLY

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

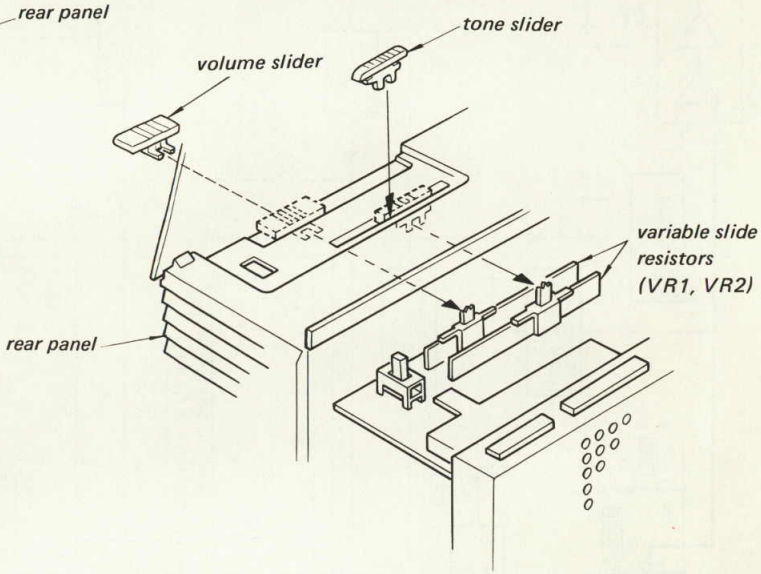
REAR PANEL



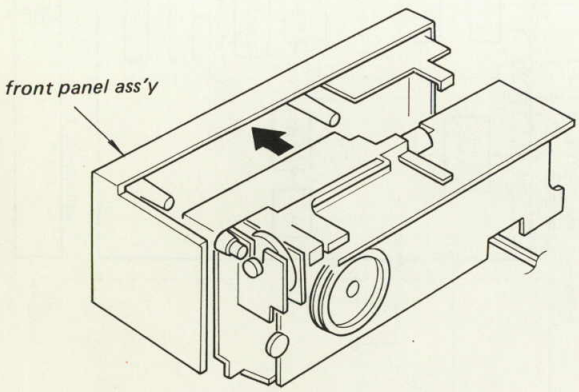
– Rear Panel Installation –

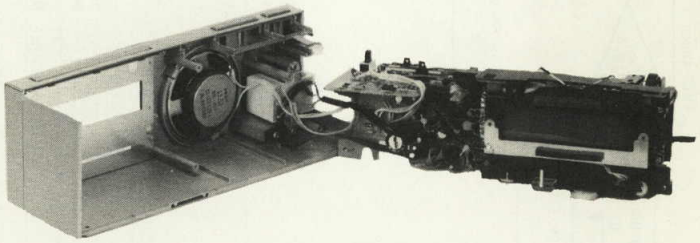
1. Remove tone and volume sliders from the rear panel.
2. After installing the rear panel back to the set, install the tone and volume silders.

   Note: Confirm that the sliders are installed in the proper position.



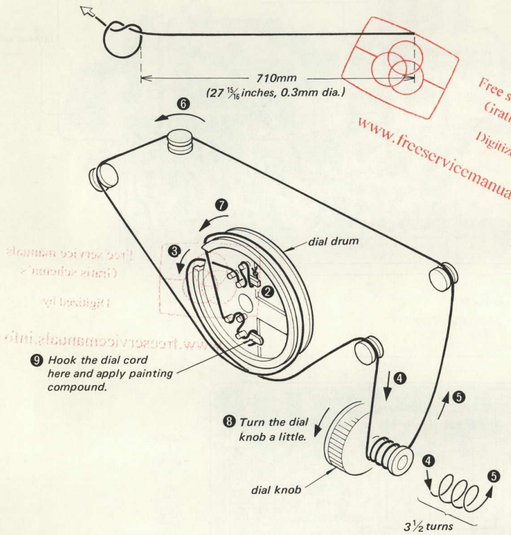
FRONT PANEL ASS'Y



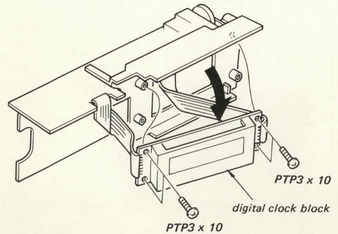


DIAL CORD STRINGING

❶ *Turn the dial drum fully counterclockwise and hook the knob of the dial cord in* ❷.



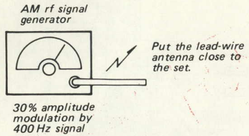
DIGITAL CLOCK BLOCK

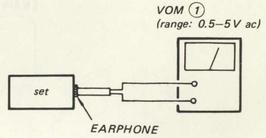


SECTION 3
ADJUSTMENTS

3-1. ELECTRICAL ADJUSTMENT

AM SECTION

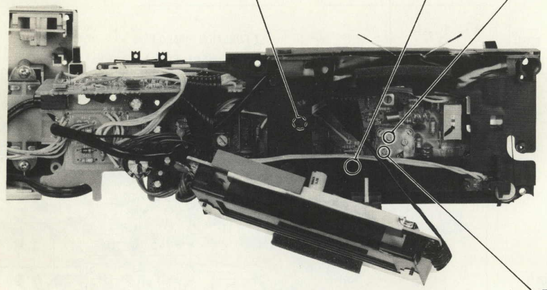




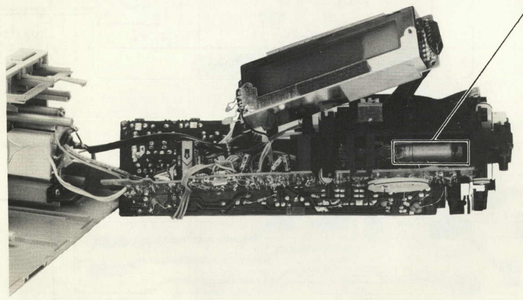
- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

AM IF ALIGNMENT
Adjustment : not necessary
CFZ

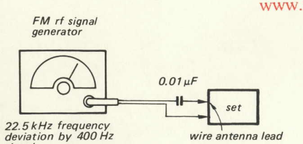
AM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VOM ①.	
520kHz	1,680kHz
T2	CT4

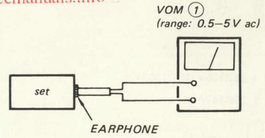


CT3	1,400kHz
L5	620kHz
Adjust for a maximum reading on VOM ①.	
AM TRACKING ADJUSTMENT	



FM SECTION

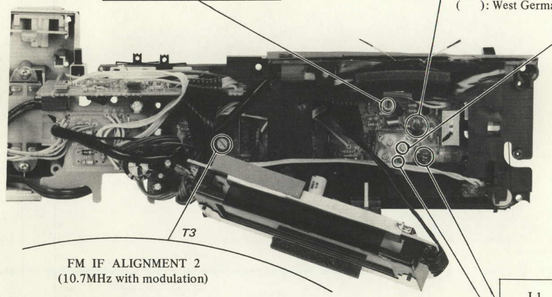




FM IF ALIGNMENT 1 (10.7MHz with modulation)
Adjust for a maximum reading on VOM ①.
T1

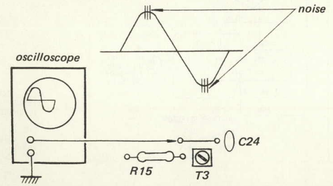
FM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VOM ①.	
86.5MHz (87.5MHz)	109.5MHz (108MHz)
L3	CT2

( ): West Germany



FM IF ALIGNMENT 2
(10.7MHz with modulation)

1. Adjust T3 to obtain the same noise level on the both peaks of a waveform.
   [Set the output level of a rf signal generator as low as possible.]



L1	87.1MHz (87.5MHz)
CT1	108.5MHz (108MHz)
Adjust for a maximum reading on VOM ①.	
FM TRACKING ADJUSTMENT	

( ): West Germany

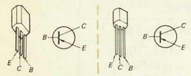
ICF-C33W ICF-C33W

Replacement Semiconductors
For replacement, use semiconductors except in ( ).

Q1, 2: 2SC930 (2SC930D)

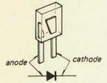
Q3–5, Q8, 9, 11 : 2SC1364 (2SC1363)
Q10 : 2SC1474

Q6, 7: 2SA1027R (2SA733)

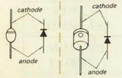


D1 : 1S1555
D6 : 1T261
D7 : RD4.3E (RD4.3EB)
D8–22 : 1S1555

D2: GL9PR20



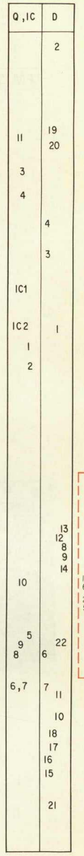
D3, 4: U05G (GP08B)

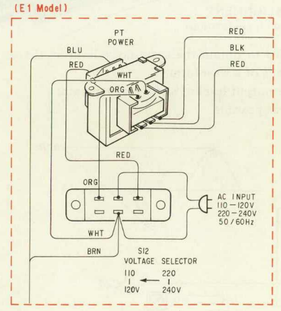


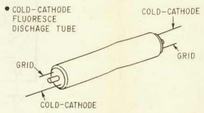
IC1: TA7614P

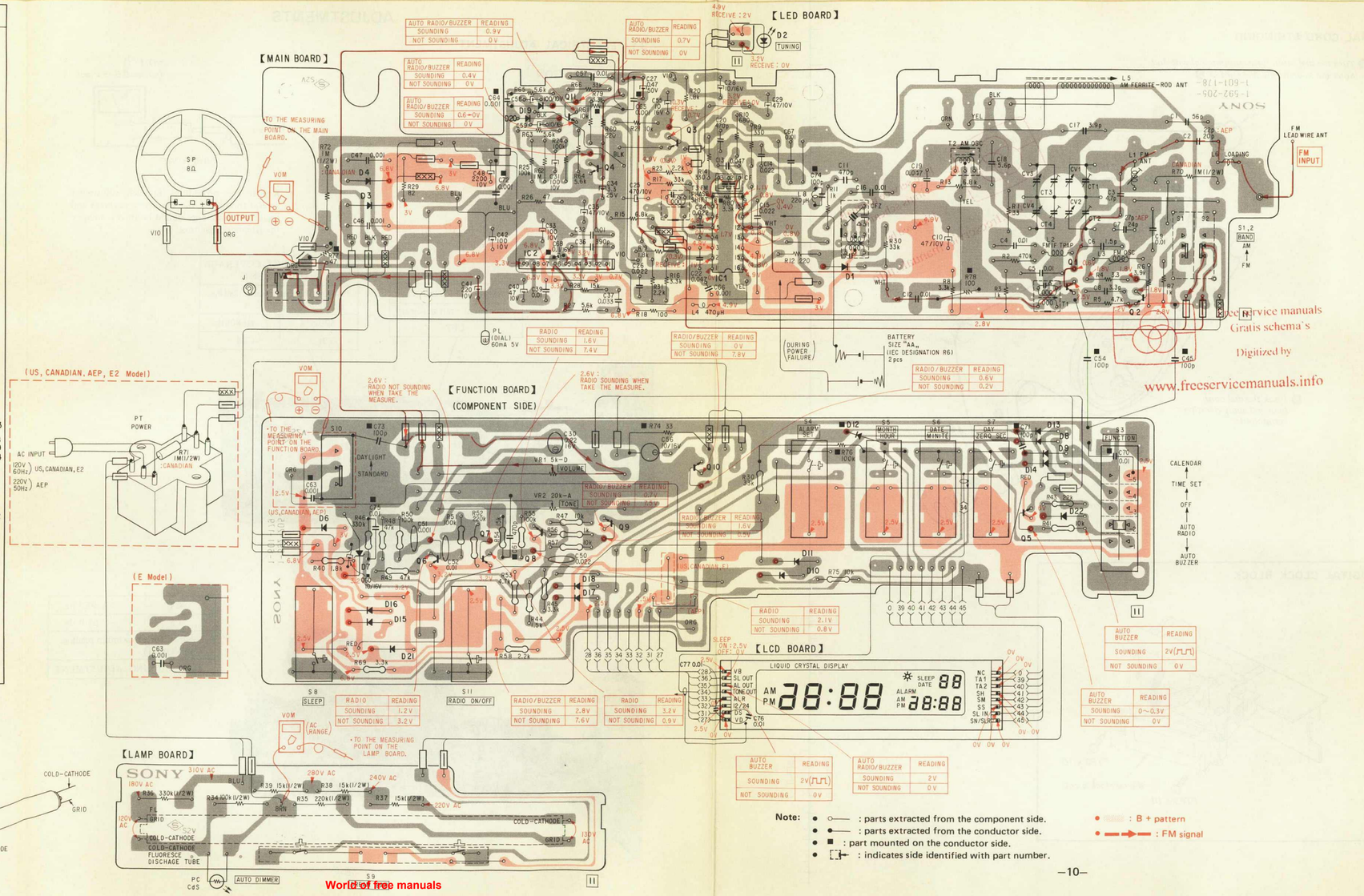
IC2: LA4140

4-1. MOUNTING DIAGRAM
– Conductor Side –



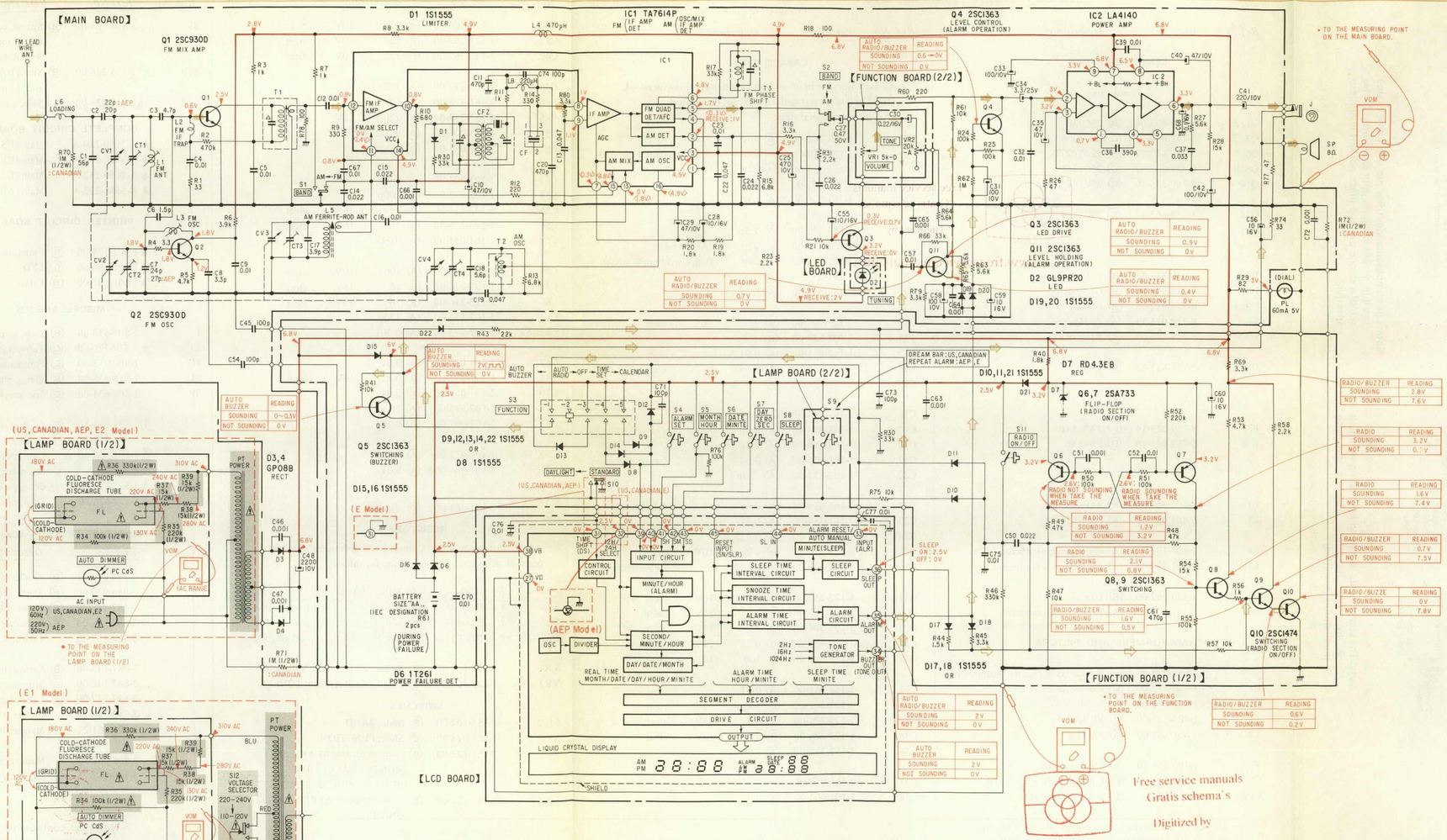






Note:
- ● ○— : parts extracted from the component side.
- ● ●— : parts extracted from the conductor side.
- ● ■ : part mounted on the conductor side.
- ● ⊡← : indicates side identified with part number.
- ● : B + pattern
- ● ▬▶ : FM signal

4-2. SCHEMATIC DIAGRAM



Note:

- : FM signal
- : ALARM signal (VOLUME: minimum)
- : Under AUTO /AUTO RADIO/ BUZZER condition, B+
- : Under AUTO BUZZER condition

- All capacitors are in μF unless otherwise noted. pF = μμF 50WV or less are not indicated except for electrolytics and tantalum.
- All resistors are in ohms, ¼W unless otherwise noted. kΩ = 1000Ω, MΩ = 1000kΩ
- △ : internal component.
- : panel designation.
- : B+ bus.
- Readings are taken under detuned conditions with a VOM (20kΩ/V).
  < >: AM
  no mark: FM
- Switch

Ref. No.	Switch	Position
S1, 2	BAND (FM/AM)	FM
S3	FUNCTION (AUTO BUZZER / AUTO RADIO / OFF / TIME SET / CALENDAR)	AUTO RADIO
S4	ALARM SET	
S5	MONTH/HOUR	
S6	DATE/MINITE	
S7	DAY/ZERO SEC	
S8	SLEEP	
S9	(REPEAT ALARM: AEP, E model / DREAM BAR: US, Canadian model	
S10	DAYLIGHT/STANDARD (US, Canadian, AEP model)	STANDARD
S11	RADIO ON/OFF	
S12	VOLTAGE SELECTOR (E model) (110–120/220–240V)	220–240Vac

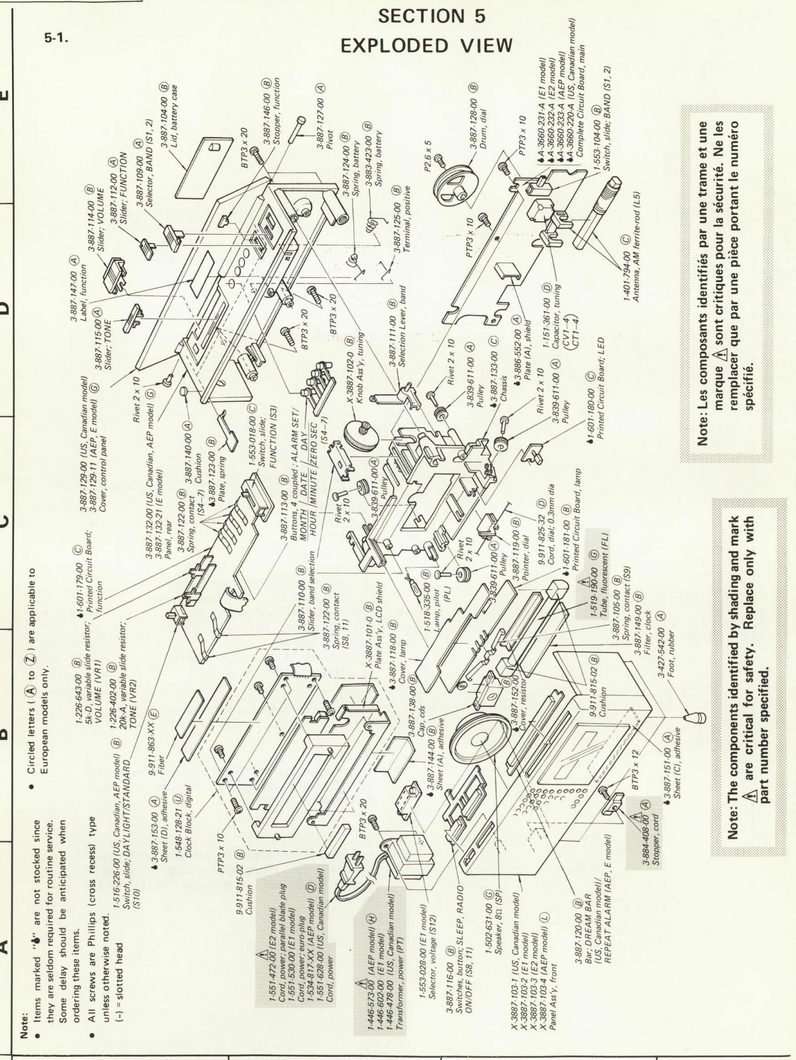
- : patterns are connected by the shield case.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

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

SECTION 5
EXPLODED VIEW

5-1.



Note:
- Items marked "✱" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Philips (cross recess) type unless otherwise noted.
  (+) – slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

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

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

SECTION 6
ELECTRICAL PARTS LIST

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Ref. No.	Part No.		Description
			SEMICONDUCTORS
			Transistors
⇒ Q1, 2	8-729-803-04	Ⓑ	2SC930
⇒ Q3–5	8-729-663-47	Ⓒ	2SC1364
⇒ Q6, 7	8-729-612-77	Ⓑ	2SA1027R
⇒ Q8, 9	8-729-663-47	Ⓒ	2SC1364
Q10	8-760-335-10	Ⓑ	2SC1474
⇒ Q11	8-729-663-47	Ⓒ	2SC1364
			Diodes
D1	8-719-815-55	Ⓑ	1S1555
D2	8-719-900-92	Ⓑ	GL9PR20
⇒ D3, 4	8-719-911-55	Ⓑ	U05G
D6	8-719-026-11	Ⓐ	1T261
⇒ D7	8-719-143-07	Ⓑ	RD4.3E
D8–22	8-719-815-55	Ⓑ	1S1555
			ICs
IC1	8-759-276-14	Ⓕ	TA7614P
IC2	8-759-841-40	Ⓓ	LA4140
			COILS
L1	1-401-454-00	Ⓐ	Antenna, FM
L2	1-401-454-00	Ⓐ	FM IF Trap
L4	1-407-177-XX	Ⓑ	470μH, microinductor
L5	1-401-794-00	Ⓒ	Antenna, AM ferrite-rod
L6	1-420-869-00	Ⓑ	Loading
L8	1-407-173-XX	Ⓑ	220μH, microinductor
			TRANSFORMERS AND FILTERS
PT	⚠1-446-478-00		Power (US, Canadian, E2 model)
	⚠1-446-573-00	Ⓗ	Power (AEP model)
	⚠1-446-602-00		Power (E1 model)
T1	1-404-162-00	Ⓑ	FM IFT
T2	1-405-868-00	Ⓑ	AM Osc
T3	1-403-557-00	Ⓑ	FM Phase Shift
CF	1-527-184-XX	Ⓑ	Filter, ceramic (10.7MHz)
CFZ	1-403-163-00	Ⓒ	AM IFT (455kHz)

⇒: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.		Description		
			CAPACITORS		
			All capacitors are in μF and ceramic unless otherwise noted. 50WV or less are not indicated except for electrolytics. p : μμF, elect : electrolytic		
C1	1-161-268-00	Ⓐ	56p		
C2	1-102-959-00		20p		(US, Canadian, E model)
	1-161-263-00	Ⓐ	22p		(AEP model)
C3	1-161-255-00	Ⓐ	4.7p		
C4, 5	1-161-330-00	Ⓐ	0.01		
C6	1-161-249-00	Ⓐ	1.5p		
C7	1-102-516-00	Ⓐ	27p		(AEP model)
	1-102-515-00		24p		(US, Canadian, E model)
C8	1-161-253-00	Ⓐ	3.3p		
C9	1-161-051-00	Ⓐ	0.01		
C10	1-123-306-00	Ⓑ	47	10V	elect
C11	1-102-824-00	Ⓐ	470p		
C12	1-161-051-00	Ⓐ	0.01		
C13	1-161-036-00	Ⓐ	0.047		(semiconductor)
C14, 15	1-161-494-00	Ⓐ	0.022		
C16	1-161-051-00	Ⓐ	0.01		
C17	1-161-254-00	Ⓐ	3.9p		
C18	1-161-256-00	Ⓐ	5.6p		
C19	1-161-036-00	Ⓐ	0.047		(semiconductor)
C20	1-102-824-00	Ⓐ	470p		
C22	1-161-036-00	Ⓐ	0.047		(semiconductor)
C23	1-161-439-00	Ⓐ	0.01		
C24	1-161-034-00	Ⓐ	0.022		(semiconductor)
C25	1-123-310-00	Ⓑ	470	10V	elect
C26	1-161-034-00	Ⓐ	0.022		(semiconductor)
C27	1-123-351-00	Ⓑ	0.47	50V	elect
C28	1-123-316-00	Ⓑ	10	16V	elect
C29	1-123-306-00	Ⓑ	47	10V	elect
C30	1-131-453-00	Ⓑ	0.22	16V	tantalum
C31	1-123-307-00	Ⓑ	100	10V	elect
C32	1-161-051-00	Ⓐ	0.01		
C33	1-123-307-00	Ⓑ	100	10V	elect
C34	1-123-392-00	Ⓑ	3.3	25V	elect
C35	1-123-306-00	Ⓑ	47	10V	elect
C36	1-161-318-00	Ⓐ	390p		
C37	1-161-019-00	Ⓐ	0.033		
C39	1-101-004-00	Ⓐ	0.01		

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

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

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Ref. No.	Part No.		Description		
C40	1-123-306-00	Ⓑ	47	10V	elect
C41	1-123-308-00	Ⓐ	220	10V	elect
C42	1-123-307-00	Ⓑ	100	10V	elect
C45	1-102-973-00	Ⓐ	100p		
C46, 47	1-161-323-00	Ⓐ	0.001		
C48	1-123-312-00	Ⓑ	2200	10V	elect
C50	1-101-005-00	Ⓐ	0.022		
C51	1-101-001-00	Ⓐ	0.001		
C52	1-101-004-00	Ⓐ	0.01		
C54	1-102-973-00	Ⓐ	100p		
C55	1-123-316-00	Ⓑ	10	16V	elect
C56	1-123-316-00	Ⓑ	10	16V	elect
C57	1-161-051-00	Ⓐ	0.01		
C58	1-123-307-00	Ⓑ	100	10V	elect
C59	1-123-316-00	Ⓑ	10	16V	elect
C60	1-123-316-00	Ⓑ	10	16V	elect
C61	1-102-114-00	Ⓐ	470p		
C63–66	1-102-973-00	Ⓐ	0.001		
C67	1-161-051-00	Ⓐ	0.01		
C68	1-131-451-00	Ⓑ	0.1	16V	elect
C70	1-101-004-00	Ⓐ	0.01		
C71	1-102-973-00	Ⓐ	100p		
C72	1-101-001-00	Ⓐ	0.001		
C73, 74	1-102-973-00	Ⓐ	100p		
C75–77	1-101-004-00	Ⓐ	0.01		
CV1–4, CT1–4	1-151-361-00	Ⓓ	Tuning		

RESISTORS

All resistors are in ohms. Common ¼W carbon resistors are omitted. Check schematic diagram for values.

R34	⚠1-202-603-00	Ⓐ	100k	½W	composition
R35	⚠1-202-629-00	Ⓐ	220	½W	composition
R36	⚠1-202-633-00	Ⓐ	330	½W	composition
R37–39	⚠1-202-601-00	Ⓐ	15k	½W	composition
VR1	1-226-643-00	Ⓑ	5k-D, variable; slide; VOLUME		
VR2	1-226-402-00	Ⓑ	20k-A, variable; slide; TONE		

SWITCHES

S1, 2	1-553-104-00	Ⓑ	Slide; BAND
S3	1-553-018-00	Ⓒ	Slide; FUNCTION
S4–7	3-887-122-00	Ⓑ	Contact Spring; ALARM SET/ MONTH / DATE / DAY HOUR / MINUTE / ZERO SEC (S4–7)
S8, 11	3-887-122-00	Ⓑ	Contact Spring; SLEEP, RADIO ON/OFF

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.		Description
S9	3-887-105-00	Ⓑ	Spring, contact; DREAM BAR (US, Canadian model)/REPEAT ALARM (AEP, E model)
S10	1-516-226-00	Ⓑ	Slide; DAYLIGHT/STANDARD (US, Canadian, AEP model)
S12	⚠1-553-028-00		Selector, voltage (E1 model)
			COMPLETE CIRCUIT BOARDS
	✱ A-3660-220-A		Main (US, Canadian model)
	✱ A-3660-231-A		Main (E1 model)
	✱ A-3660-232-A		Main (E2 model)
	✱ A-3660-233-A		Main (AEP model)
			PRINTED CIRCUIT BOARDS
	✱ 1-601-179-00	Ⓒ	Function
	✱ 1-601-180-00	Ⓒ	LED
	✱ 1-601-181-00	Ⓑ	Lamp
			MISCELLANEOUS
J	1-507-578-00	Ⓑ	Jack, earphone
FL	⚠1-519-190-00	Ⓖ	Tube, fluorescent
PC	1-800-953-00	Ⓒ	Photoconductive Cell; AUTO DIMMER
PL	1-518-335-00	Ⓑ	Lamp, pilot
SP	1-502-631-00	Ⓖ	Speaker; 8Ω
	⚠1-534-817-XX	Ⓓ	Cord, power (AEP model)
	1-548-128-21	Ⓤ	Clock Block, digital
	⚠1-551-472-00		Cord, power; parallel blade plug (E2 model)
	⚠1-551-530-00		Cord, power; euro-plug (E1 model)
	⚠1-551-628-00		Cord, power (US, Canadian model)

ACCESSORIES AND PACKING MATERIALS

Part No.		Description
3-794-233-21	Ⓑ	Leaflet
3-885-030-00	Ⓑ	Sheet, protection
3-887-135-00	Ⓑ	Cushion (right)
3-887-136-00	Ⓑ	Cushion (left)
3-887-137-00		Carton, individual (US, Canadian model)
3-887-143-00	Ⓑ	Carton, individual (AEP, E model)
3-887-146-00	Ⓑ	Stopper, function
3-887-147-00	Ⓐ	Label, function
3-993-206-31		Leaflet, French (Canadian model)
3-995-861-21		Manual, instruction (US, Canadian model)
3-995-861-51		Manual, instruction (E model)
3-995-861-71	Ⓑ	Manual, instruction (AEP model)

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

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Sony Corporation

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