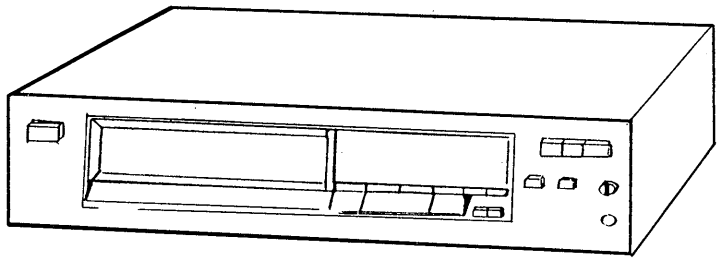
CDP-M26/M27/M47

SERVICE MANUAL

Canadian Model
AEP Model
E Model
Australian Model
CDP-M27
AEP Model
UK Model
CDP-M26/M47



CDP-M27

SPECIFICATIONS

System	Compact disc digital audio system
Laser	Semiconductor laser (λ=780nm)
Emission duration	Continuous
Frequency resphonse	2Hz–20,000Hz (±1dB)
Signal-to-noise ratio	More than 90dB
Harmonic distortion	Less than 0.09%
Wow and flutter	Below measurable limit
Output	LINE OUT (phono jacks) Output level 2V (at 50kilohms) Load impedance over 10kilohms
Channel separation	More than 95dB (1kHz)
General	
Power requirement	AEP model (CDP-M26/M27/M47) Australian model (CDP-M27) 220V AC, 50/60Hz UK model (CDP-M26/M47) 240V AC, 50/60Hz Canadian model (CDP-M27) 120V AC, 60Hz E, Saudi Arabla model (CDP-M27) 110–120V or 220–240V, adjustable, 50/60Hz
Power consumption	10W, 12W (Canadian model)
Dimensions	approx. 355x80x275mm (w/h/d) (14x3¼x10 inches) including projecting parts and controls
Weight	approx. 3.0kg (6 lbs 10oz) (net)

Supplied accessories

Audio signal connecting cord (2 phono plugs–2 phono plugs) (1)
For CDP-M47 only:
Remote commander (1), Sony SUM-3 (MS) batteries (2)
For CDP-M26/M27/M47:
AC power cord (1)

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COMPACT DISC PLAYER

SONY®

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.

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs a laser. Therefore, be sure to follow carefully the instructions below when servicing.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

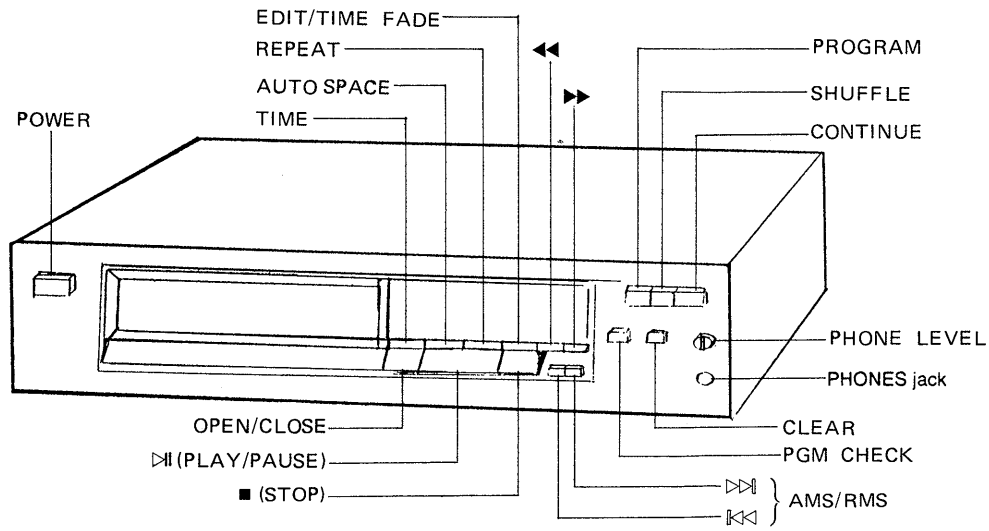
1. Laser Diode Properties
   - Material: GaAlAs
   - Wavelength: 780 nm
   - Emission Duration: continuous
   - Laser Output: max. 44.6 μW*

     * This output is the value measured at a distance of about 200 mm from the objective lens surface on the Optical Pick-up Block.

2. During service, do not take the Optical Pick-up Block apart, and do not adjust the APC circuit. If there is a breakdown in the APC circuit (including laser diode), replace the entire Optiocal Pick-up Block (including APC borad).

SECTION 1
GENERAL

1-1. LOCATION AND FUNCTION OF CONTROLS



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)

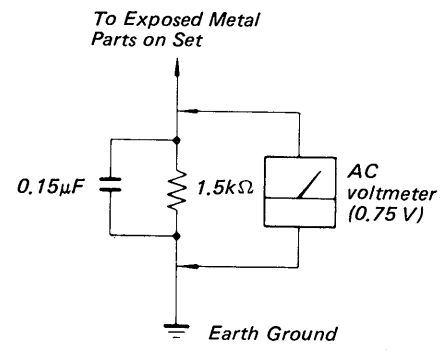


Fig. A. Using an AC voltmeter to check AC leakage.

1-2. DESCRIPTION OF IC6 (MSC6458) SYSTEM CONTROL MICROCOMPUTER

IC6 has the following functions:

- Digital signal output to operation key
- Sub Q signal loading and processing
- Fluorescent display (FLD) control
- Servo circuit control

Pin Function of IC6

Pin no.	Pin name	I/O	Description
1	PLL SW	O	"L" in play mode and "H" in search mode.
2	CLK	O	Command transfer of clock to SSP (IC3) and DSP (IC7).
3	DATA	O	Command transfer of data to SSP (IC3) and DSP (IC7).
4	XLK	O	Command transfer of latch to SSP (IC3) and DSP (IC7).
5	PRGL	O	Command transfer of latch to DFIL (IC9).
6	SYNC OUT	O	No connector (NC).
7	SENSE	I	SSP (IC2) and DSP (IC3) sense information.
8	SYNC ON	I	Sync REC ("L" in REC mode).
9	SIRCS	I	Remote control signal input.
10	SCOR	I	Q code read timing.
11	AF ADJ	I	No connection (NC)
12	ADJ	I	"L" in test mode.
13	AMUTE	O	ALL muting. Output to DSP (IC3) MUTG.
14	EMPS	O	No connection (NC)
15	SUBQ	I	Subcode data.
16	SQCLK	O	Subcode data read clock.
17	GFS	I	"H" when CLV is locked.
18	FOK	I	"H" when focus is on.
19	KEY0	I	Key matrix input, "H" active.
20	KEY1	I	Key matrix input, "H" active.
21	KEY2	I	Key matrix input, "H" active.
22	KEY3	I	Key matrix input, "H" active.
23	KEY4	I	Key matrix input, "H" active.
24	KEY5	I	Key matrix input, "H" active.
25	INSW	I	Loading IN SW.
26	LDON	O	Laser on / off.
27	OUTSW	I/O	Loading OUT SW.
28	LODOUT	O	Loading motor control.
29	LODIN	O	Loading motor control.
30	OSC1	I	Oscillator input terminal (4 MHz).
31	OSC0	I	Oscillator input terminal (4 MHz).

Pin No.	Pin name	I/O	Descriprion
32	GND	—	GND terminal.
33	RESET	I	Reset input terminal. Input when power is turned on.
34	TEST	—	No connection (NC).
35	VL DOWN	—	No connection (NC).
36	VL UP	O	Volume up.
37	TIMER	O	No connection (NC).
38	LED	O	Volume indicator.
39	8G	O	FLD timing output.
40	7G	O	FLD timing output.
41	6G	O	FLD timing output.
42	5G	O	FLD timing output.
43	4G	O	FLD timing output.
44	3G	O	FLD timing output.
45	2G	O	FLD timing output.
46	1G	O	FLD timing output.
47	NC	—	No connection (NC).
48	o	O	FLD segment output.
49	n	O	FLD segment output.
50	m	O	FLD segment output.
51	+ 30V	—	+ 30V
52	l	O	FLD segment output.
53	k	O	FLD segment output.
54	j	O	FLD segment output.
55	i	O	FLD segment output.
56	h	O	FLD segment output.
57	g	O	FLD segment output.
58	f	O	FLD segment output.
59	e	O	FLD segment output.
60	d	O	FLD segment output.
61	c	O	FLD segment output.
62	b	O	FLD segment output.
63	a	O	FLD segment output.
64	VDD	—	positive(+) power supply (5V)

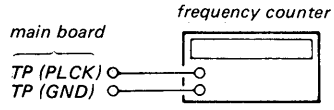
SECTION 2
ADJUSTMENTS

ELECTRICAL ADJUSTMENTS

1. Perform adjustments in the order given.
2. Use YEDS-18 (Part No. 3-702-101-01) disc unless otherwise indicated.
3. Use the oscilloscope with more than 10MΩ impedance.

RF PLL Frequency Adjustment/Lock Frequency Check

Procedure:

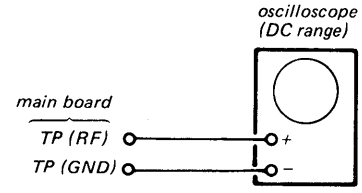


1. Ground test point TP (ASY).
2. Connect the frequency counter to the test points TP (PCK) and TP (GND).
3. Turn POWER switch on.
4. Adjust RV4 so that the reading on the frequency counter is 4.3218MHz.
   ... (RF PLL frequency adjustment)
5. Remove the grounding wire from TP (ASY).
6. Put the disc (YEDS-18) in and press ▷ button.
7. Confirm that the reading on the frequency counter is locked at 4.3218 MHz.

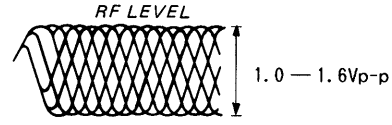
Focus Bias Adjustment

This adjustment should be made after replacing the Optical Pick-up Block.

Procedure:



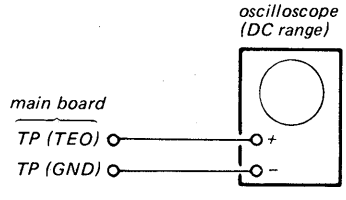
1. Connect oscilloscope to the test points TP (RF) and TP (GND).
2. Turn POWER switch on.
3. Put the disc (YEDS-18) in and press ▷ button.
4. Adjust RV2 for an optimum waveform eye pattern. Optimum eye pattern means that shape "◇" can be clearly distinguished at the center of the waveform.



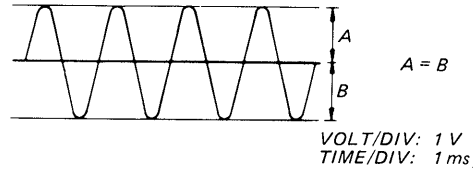
E-F Balance Adjustment

This adjustment should be made after replacing the Optical Pick-up Block.

Procedure:



1. Connect the oscilloscope to the test points TP (TEO) and TP (GND).
2. Ground TP (ADJ) to set an adjustment mode.
3. Turn POWER switch on.
4. Put the disc (YEDS-18) in and press ▷ button.
5. Adjust RV1 so that the traverse waveform is symmetrical above and below.
6. After adjustment, cancel the adjustment mode.



REFERENCE

Focus/Tracking Gain Adjustment

A frequency response analyzer is necessary in order to perform this adjustment exactly.

However, this gain has a margine, so even if it is slightly off, there is no problem. Therefore, this adjustment is not recomended generally to be performed.

Focus/tracking gains determine the pick-up follow-up (vertical and horizontal) relative to mechanical noise and mechanical shock when the 2-axis device operate.

However, as these reciprocate, the adjustment is at the point where both are satisfied.

- When gain is raised, the noise when the 2-axis device operates increases.
- When gain is lowered, it is more susceptible to mechanical shock and skipping occurs more easily.
- When gain adjustment is off, the symptoms below appear.

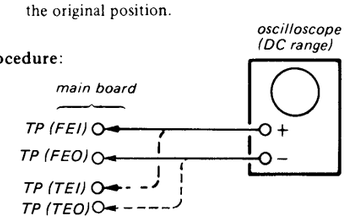
Symptoms \ Gain	Focus	Tracking
• The time until music starts becomes longer for STOP →▷PLAY or automatic selection (⏮ ⏭buttons pressed. (Normally takes about 2 seconds.)	low	low or high
• Music does not start and disc continues to rotate for STOP→▷PLAY or automatic selection (⏮ ⏭buttons pressed.)		low
• Disc table opens shortly after STOP→▷PLAY.	low or high	
• Sound is interrupted during PLAY. Or time counter display stops progressing.		low
• More poise during 2-axis device operation.	high	high

The following is a simple adjustment method.

– Simple Adjustment –

Note: Since exact adjustment cannot be performed, remember the positions of the controls before performing the adjustment. If the positions after the simple adjustment are only a little different, return the controls to the original position.

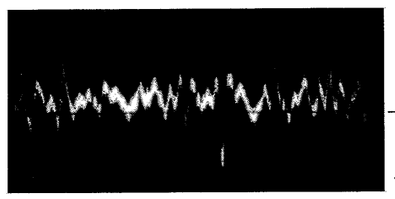
Procedure:



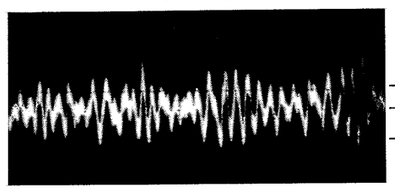
1. Keep the set flat.
   If the set is not horizontal, this adjustment cannot be performed due to the gravity against the 2 axis device.
2. Insert the disc (YEDS-18) and press ▷ PLAY button.
3. Connect the oscilloscope to TP (FEI) and TP (FEO).
4. Adjustment RV3 so that the waveform is as shown in the picture below. (focus gain adjustment)

- Incorrent Examples (DC level is quite different from the adjusted waveform) (below)

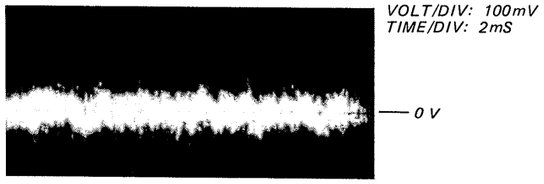
low focus gain



high focus gain

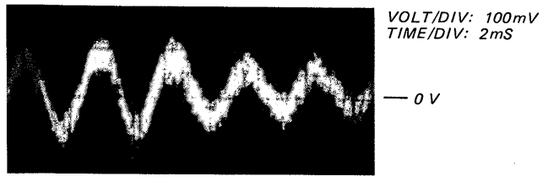


5. Connect the oscilloscope to TP (TEI), TP (TEO).
6. Adjust RV4 so that the waveform is as shown in the picture below. (tracking gain adjustment)

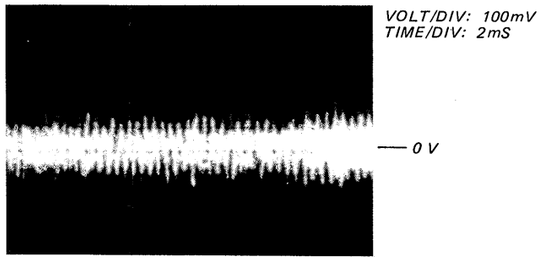


- Incorrect Examples (fundamental wave appears)

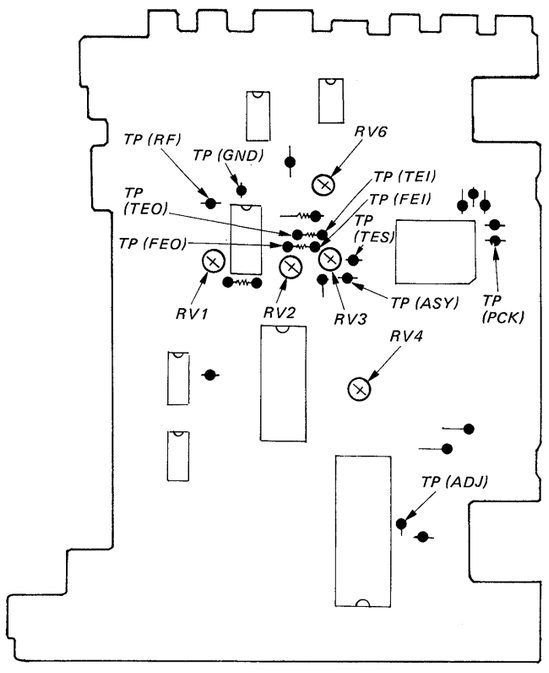
low tracking gain



high tracking gain
(higher frequency of the fundamental wave than above)



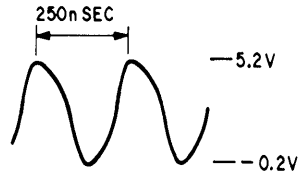
Adjustment Location: main board



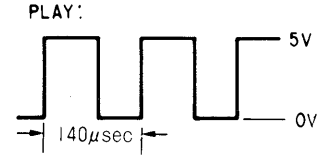
SECTION 3
DIAGRAMS

3-1. WAVEFORMS

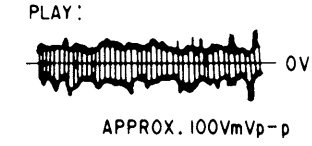
① OSC I



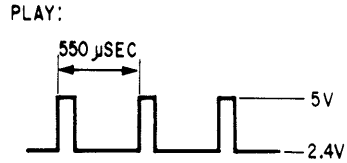
⑤ MDS



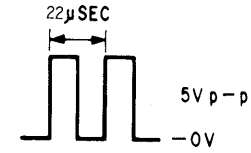
⑨ FE



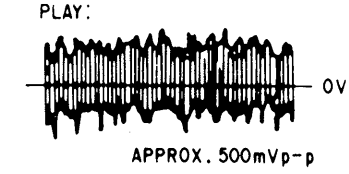
② MDP



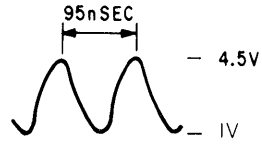
⑥ WDCK



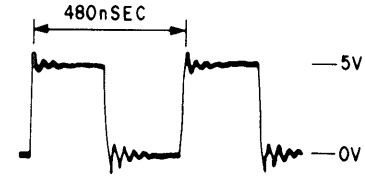
⑩ TE



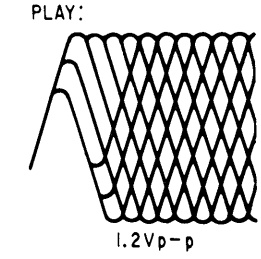
③ VCO I



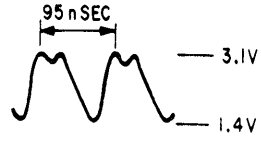
⑦ $\overline{C210}$



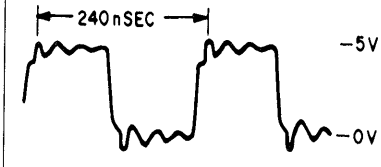
⑪ RF



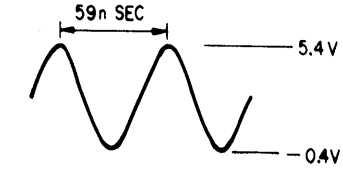
④ VCO O



⑧ BCK



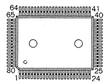
⑫ XTAL



3-2. SEMICONDUCTOR LEAD LAYOUTS

CXA1081S

CXD1125Q



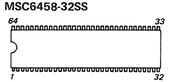
M5294P

2SB1013

CXA1082BS

CXD2550P

MSC6458-32SS



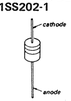
2SK381C

CXA-1291P

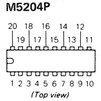
CXK5816M-12L

GP1U52

HZS6.8ES-B2
1SS202-1



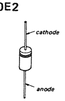
CXD1161P-3
M5204P



M5231TL

DTC114ES
DTC144ES

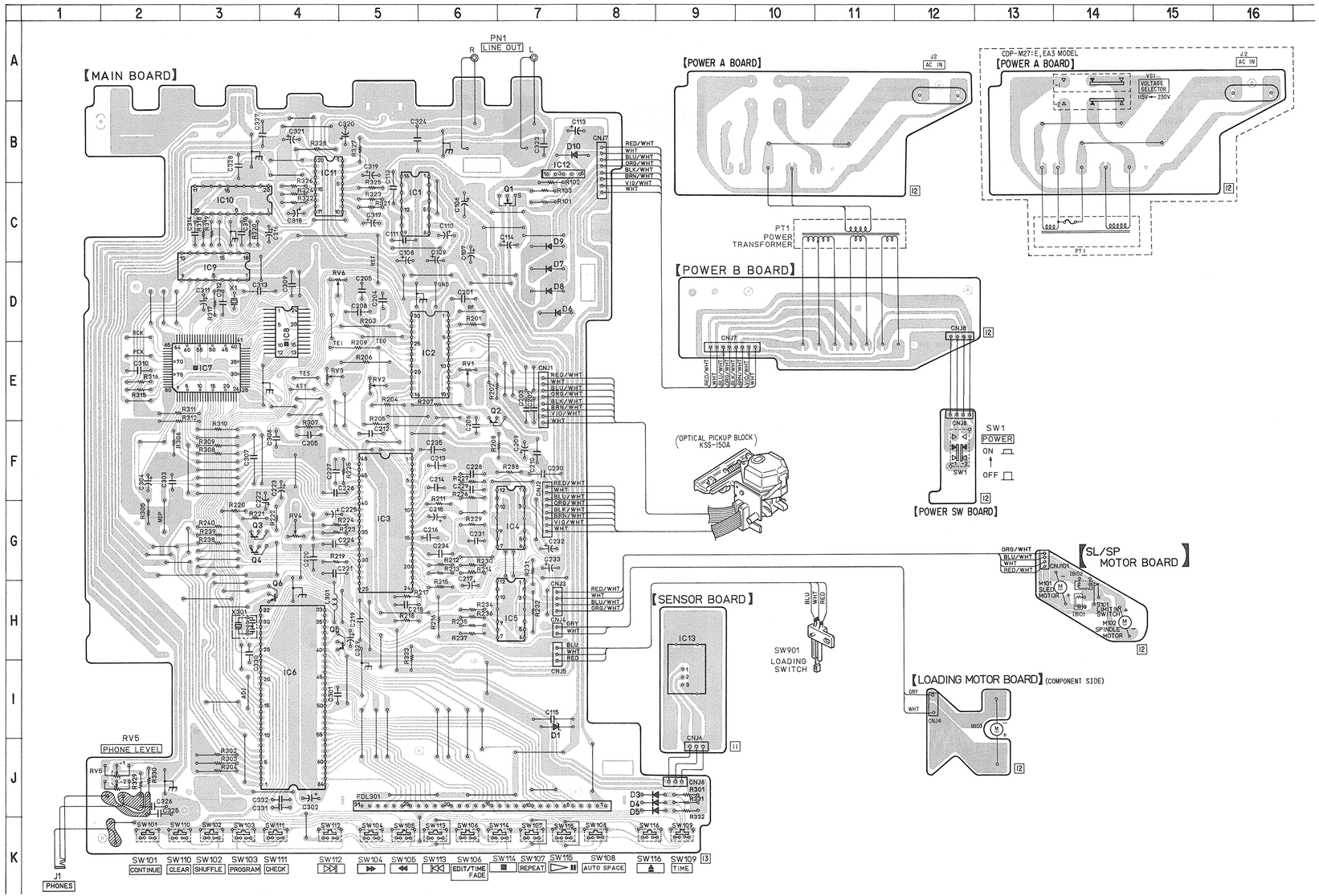
10E2

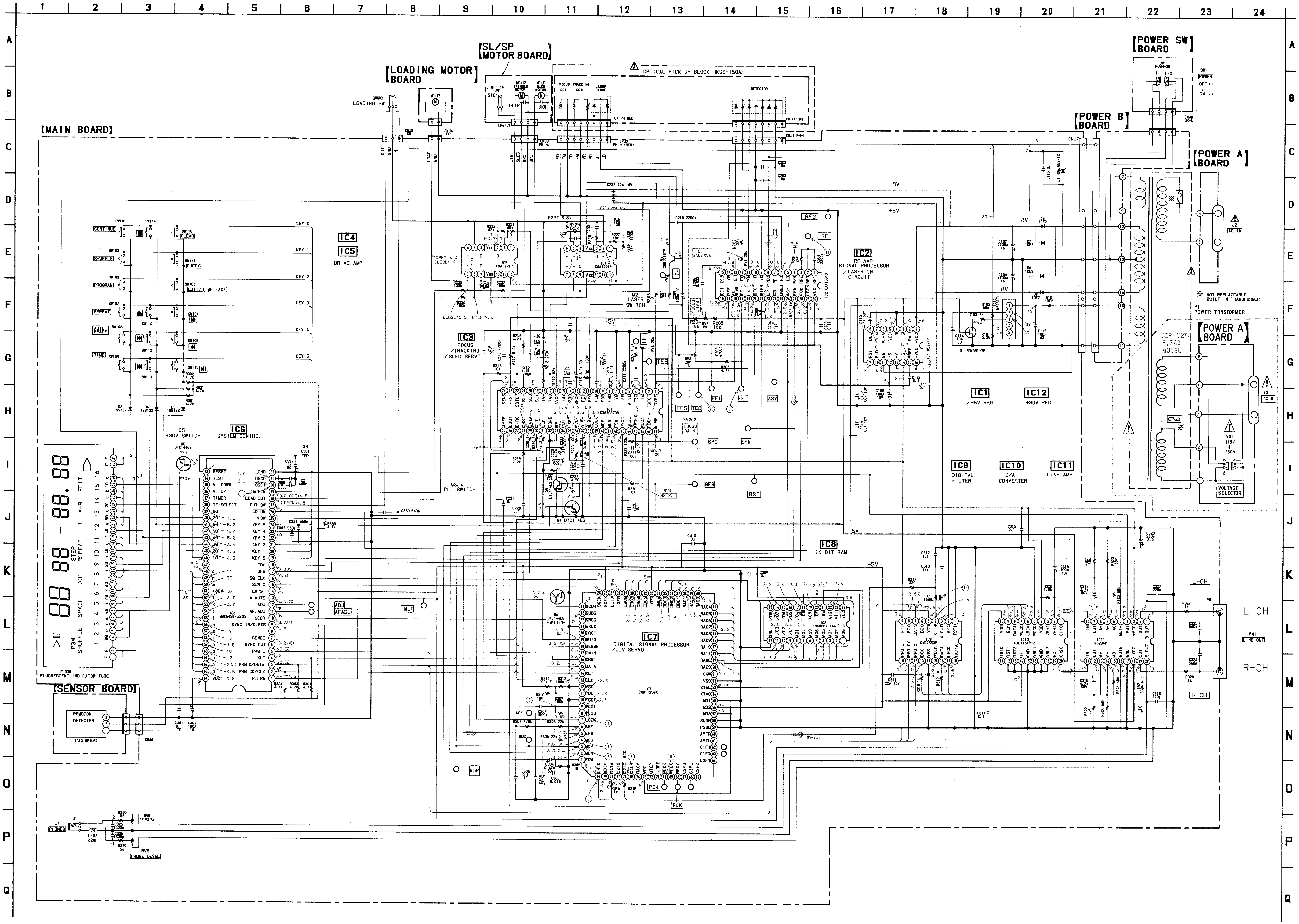


• SEMICONDUCTOR LOCATION

Ref. No.	Location	Ref. No.	Location
D1	I-7	IC6	I-4
D3	J-8	■IC7	E-3
D4	J-8	■IC8	D-4
D5	J-8	IC9	D-3
D6	D-7	IC10	C-3
D7	D-7	IC11	B-4
D8	D-7	IC12	B-7
D9	C-7	IC13	H-9
D10	B-7		
		Q1	C-7
IC1	C-5	Q2	E-6
IC2	E-6	Q3	G-3
IC3	G-5	Q4	G-3
IC4	G-7	Q5	H-4
IC5	H-7	Q6	H-4

Note:
- ● ○— : parts extracted from the component side.
- ● ●— : parts extracted from the conductor side.
- ● ○—○ : Jumper wire connected to the ground pattern on the component side.





[SL/SP MOTOR BOARD]
[LOADING MOTOR BOARD]
OPTICAL PICK UP BLOCK (KSS-150A)
[POWER SW] BOARD
[POWER B] BOARD
[POWER A] BOARD
[MAIN BOARD]
IC4
IC5
DRIVE AMP
IC2
RF AMP
SIGNAL PROCESSOR
/LASER ON CIRCUIT
IC3
FOCUS
/TRACKING
/SLED SERVO
Q2
LASER SWITCH
IC6
SYSTEM CONTROL
Q5
+30V SWITCH
Q3,4
PLL SWITCH
IC1
+/-5V REG
IC12
+30V REG
IC9
DIGITAL FILTER
IC10
D/A CONVERTER
IC11
LINE AMP
IC8
16 BIT RAM
IC7
DIGITAL SIGNAL PROCESSOR
/CLV SERVO
Q6
DTC144ES
SWITCH
FLD301
FLUORESCENT INDICATOR TUBE
[SENSOR BOARD]
REMOCON DETECTER
IC13 SBX1610-52
NOT REPLACEABLE
BUILT IN TRANSFORMER
PT1
POWER TRNSFORMER
CDP-M27:
E,EA3
MODEL
VOLTAGE SELECTOR
L-CH
R-CH
LINE OUT
PHONES
PHONE LEVEL
CONTINUE
SHUFFLE
PROGRAM
REPEAT
AUTO SPACE
TIME
CLEAR
CHECK
EDIT/TIME FADE
-8V
+8V
+5V
-5V

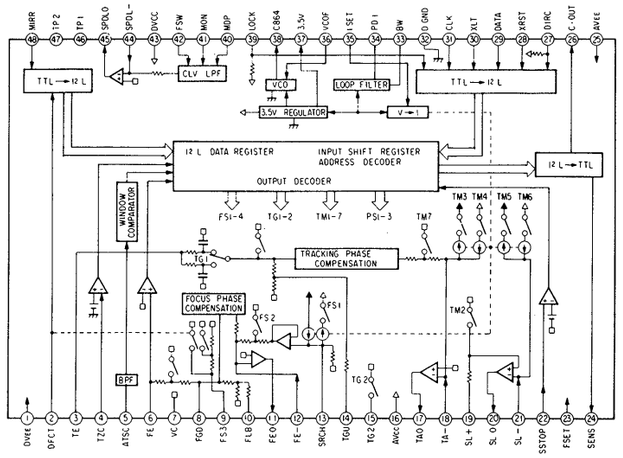
3-5. IC BLOCK DIAGRAMS

Note on Schematic Diagram:

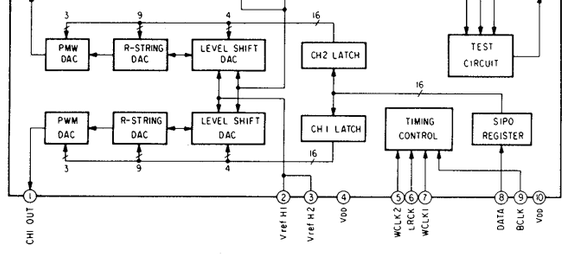
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistores are in Ω and ¼W or less unless otherwise specified.
- Δ : internal component.
- ▭▭▭ : B +line
- ▭▭▭ : B −line
- ▭ : adjustment for repair
- Signal path.
  ▨ : CD
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark: STOP Mode
  ( ): PLAY
- Voltages are taken with a VOM (50kΩ/V).
  Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.

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

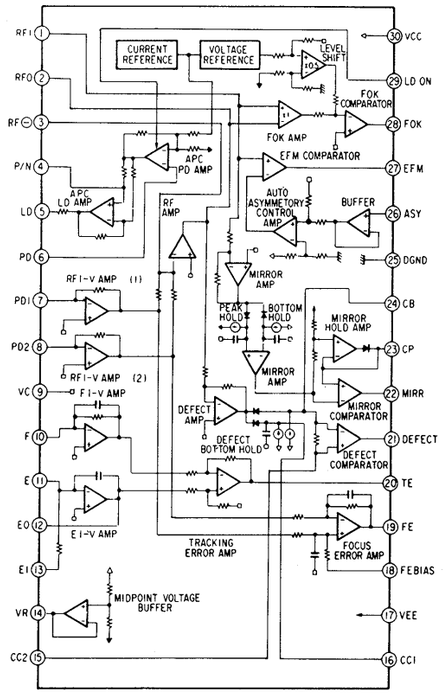
IC3 CXA1082BS



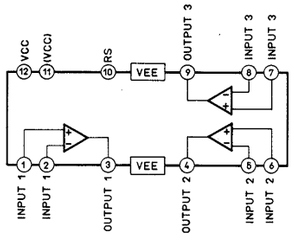
IC10 CXD1161P-2



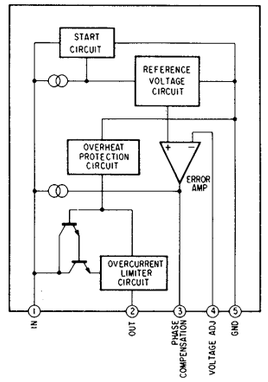
IC2 CXA1081S



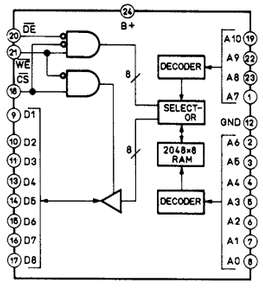
IC4, 5 CXA1291P



IC12 M5231TL



IC8 CXK5816M-10L



SECTION 4
EXPLODED VIEWS

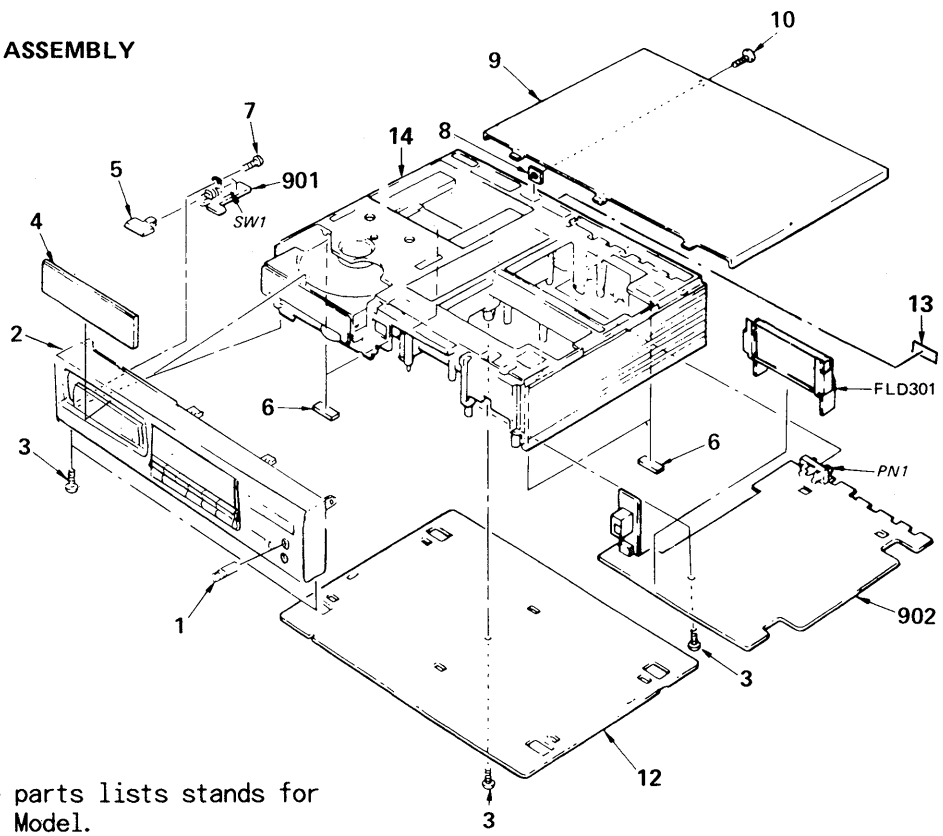
NOTE:

- 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

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 spécifé.

(1). CABINET ASSEMBLY

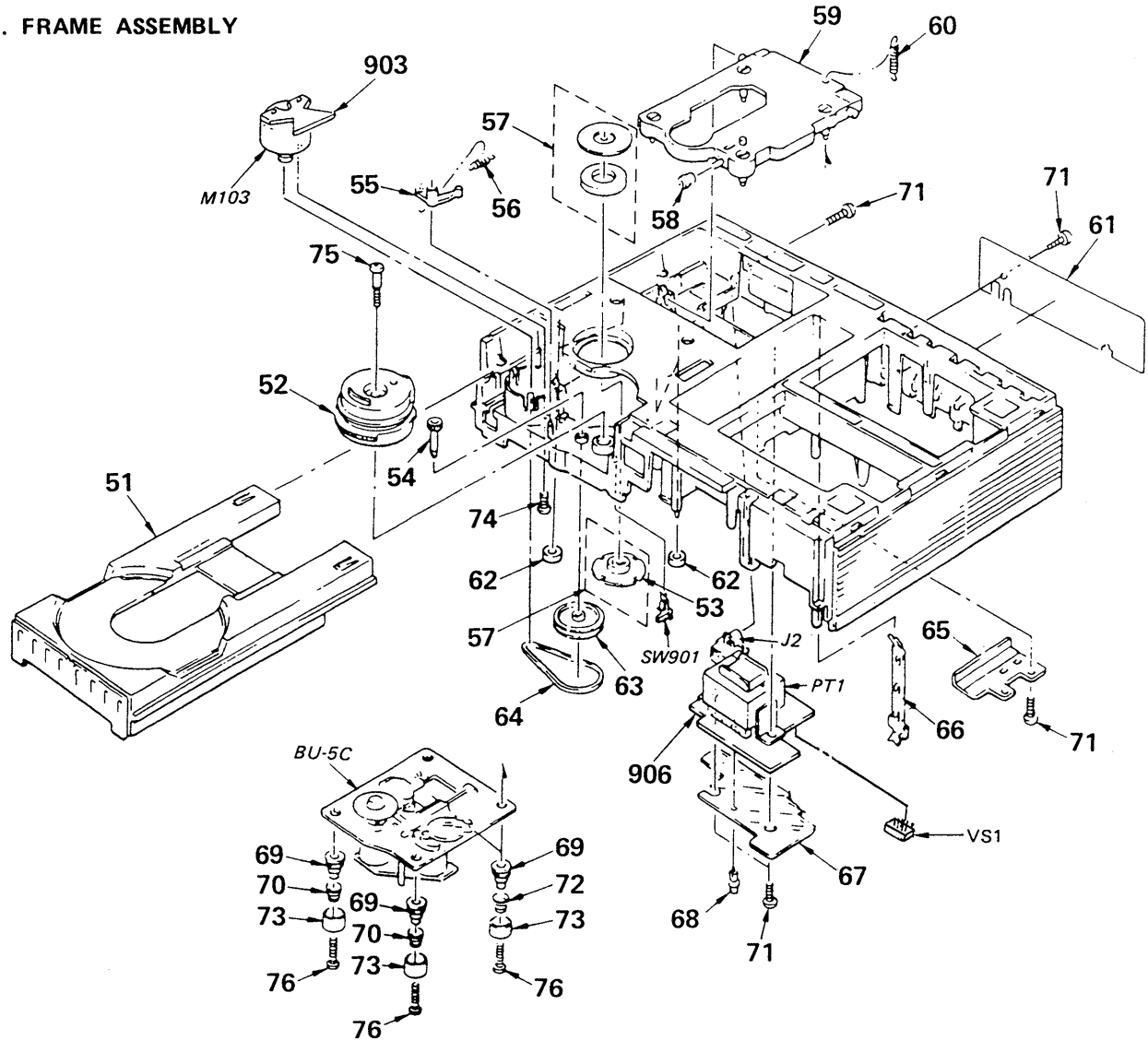


· "EA3" in the parts lists stands for Saudi Arabia Model.

No.	Part No.	Description	Remarks
1	4-923-522-12	(M27:AEP, E/M47:AEP, UK)(BLACK)	
		.....KNOB (B. TYPE), LOV (PHONE LEVEL)	
	4-923-522-21	(M27:E, EA3)(GRAY)	
		.....KNOB (B. TYPE), LOV (PHONE LEVEL)	
2	X-4917-559-1	(M27:AEP, E)(BLACK).....PANEL ASSY, FRONT	
	X-4917-560-1	(M27:EA3, E)(GRAY).....PANEL ASSY, FRONT	
	X-4917-561-1	(M47:AEP, UK)(BLACK)....PANEL ASSY, FRONT	
	X-4917-562-1	(M26:UK)(GRAY).....PANEL ASSY, FRONT	
	X-4917-563-1	(M27:Canadian)(BLACK)...PANEL ASSY, FRONT	
	X-4917-573-1	(M26:AEP, UK-WHT).....PANEL ASSY, FRONT	
3	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
4	4-922-665-11	(M47:AEP, UK)(BLACK).....PANEL, LOADING	
	4-922-665-21	(M27:AEP, Canadian)(BLACK)	
		.....PANEL, LOADING	
	4-922-665-41	(M27:E, AUS)(BLACK).....PANEL, LOADING	
	4-922-665-51	(M26:UK-GRY/M27:EA3, E)(GRAY)	
		.....PANEL, LOADING	
	4-922-665-61	(M26:AEP, UK-WHT).....PANEL, LOADING	
5	4-922-660-01	(M27:AEP, E/M47:AEP, UK)(BLACK)	
		.....BUTTON (POWER)	
	4-922-660-11	(M26:UK-GRY/M27:EA3, E)(GRAY)	
		.....BUTTON (POWER)	
	4-922-660-21	(M26:AEP).....BUTTON (POWER)	

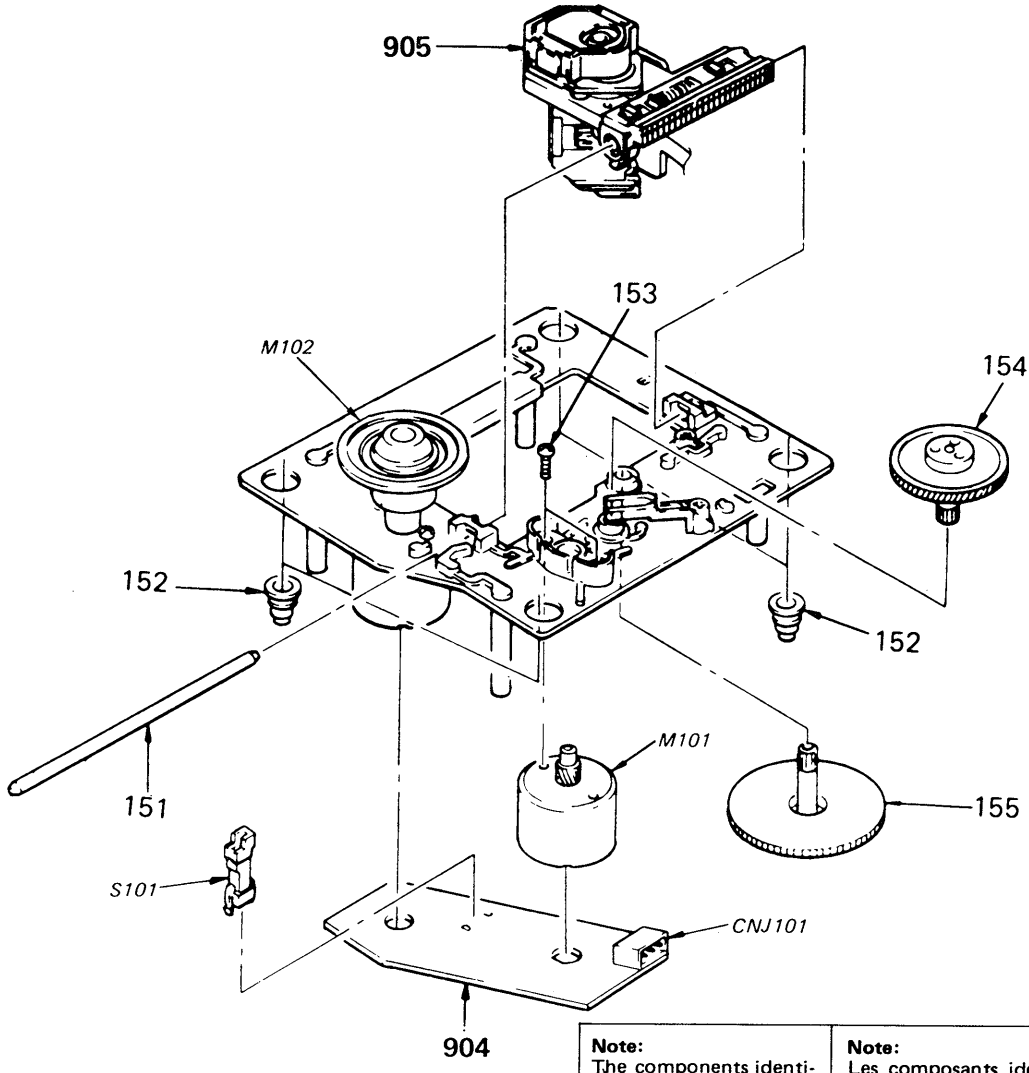
No.	Part No.	Description	Remarks
6	4-917-524-01	FELT, FOOT	
7	7-685-533-11	SCREW +BTP 2.6X6 TYPE2 N-S	
8	*4-918-670-01	SUPPORT, GROUND	
9	4-917-536-01	(M27:AEP, E/M47:AEP, UK)(BLACK).....CASE	
	4-917-536-31	(M26:UK/M27:EA3, E)(GLAY).....CASE	
	4-917-536-41	(M26:AEP).....CASE	
10	3-703-685-21	SCREW (+BV 3X8)	
12	*4-917-535-01	PLATE, BOTTOM	
13	*4-885-838-00	LABEL, CLASS 1	
14	X-4917-534-3	(M26:UK/M27/M47)...FRAME ASSY	
	X-4917-544-1	(M26:AEP).....FRAME ASSY	
901	*1-628-128-11	PC BOARD, POWER SW	
902	*A-4651-234-A	(M27/M47).....MOUNTED PCB, MAIN	
	*A-4651-238-A	(M26).....MOUNTED PCB, MAIN	
FLD301	1-519-479-21	INDICATOR TUBE, FLUORESCENT	
PN1	*1-562-999-21	JACK, PIN 2P (LINE OUT)	
SW1	1-552-928-00	SWITCH (POWER)	

(2). FRAME ASSEMBLY



No.	Part No.	Description	Remarks
51	*4-922-604-01	TABLE, DISK	
52	4-917-534-01	GEAR (A), LOADING	
53	*4-918-679-04	PULLEY, PRESS	
54	4-917-516-01	GEAR (B), LOADING	
55	4-917-519-01	LEVER, SET	
56	4-917-514-01	SPRING, TENSION	
57	A-4665-024-A	MAGNET ASSY	
58	4-917-515-01	ROLLER	
59	4-917-537-01	BASE, FLOATING	
60	4-917-526-01	SPRING, TENSION	
61	*4-922-685-01	(M47:AEP).....PLATE, INDICATION	
	*4-922-687-01	(M27:Canadian).....PLATE, INDICATION	
	*4-922-688-01	(M27:AEP).....PLATE, INDICATION	
	*4-922-689-01	(M47:E, EA3).....PLATE, INDICATION	
	*4-922-695-01	(M26:UK).....PLATE, INDICATION	
	*4-922-696-01	(M47:UK).....PLATE, INDICATION	
	4-927-314-01	(M26:AEP) .....PLATE (O/P TERMINAL), INDICATION	
	*4-927-380-01	(M27:AUS).....PLATE, INDICATION	
62	*3-576-990-01	CUSHION	
63	4-917-521-01	PULLEY, LOADING	
64	4-917-522-02	BELT	
65	*4-917-517-01	GUIDE, LEAD	
66	*4-917-511-01	PLATE, GROUND	
67	4-917-510-01	SHEET, INSULATING	
68	3-531-576-11	RIVET	
69	4-917-562-01	INSULATOR	
70	4-917-541-01	SPRING (B)	
71	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
72	4-917-507-01	SPRING (H)	
73	4-917-508-01	HOLDER, SP	
74	7-628-254-00	SCREW +PSW, 2.6X5	
75	4-923-597-01	SCREW, STEP	
76	7-685-535-11	SCREW +BTP 2.6X10 TYPE2 N-S	
903	*1-628-127-11	PC BOARD, ROADING	
906	*1-628-457-11	PC BOARD, POWER	
J2	1-526-929-11	(M27:E, EA3).....INLET, AC	
J2	1-526-930-11	(M27:Canadian).....INLET, AC	
J2	1-526-931-11	(M26/M27:AEP/M47:AEP, UK)...INLET, AC	
M103	A-4608-330-A	MOTOR ASSY (LOADING)	
SW901	1-570-203-11	SWITCH, LEAF	
PT1	⚠1-449-024-11	(M27:Canadian).....TRANSFORMER, POWER	
PT1	⚠1-449-025-11	(M26/M27:AEP/M47:AEP, UK) .....TRANSFORMER, POWER	
PT1	⚠1-449-026-11	(M27:E, EA3).....TRANSFORMER, POWER	
VS1	⚠1-570-046-11	(M27:E, EA3).....SWITCH, VOLTAGE CHANGE	

(3). BU-5C



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.

No.	Part No.	Description	Remarks
151	4-917-565-01	SHAFT, SLED	
152	4-917-562-01	INSULATOR	
153	7-621-255-15	SCREW +P 2X3	
154	4-917-567-01	GEAR (M)	
155	4-917-564-01	GEAR (P), FLATNESS	

No.	Part No.	Description	Remarks
904	*1-620-097-11	PC BOARD, SL/SP MOTOR	
905	⚠ 8-848-062-01	DEVICE, OPTICAL KSS-150A (RP)	
CNJ101	*1-564-720-11	PIN, CONNECTOR (SMALL TYPE) 4P	
M101	X-4917-504-1	ASSY, MOTOR (SLED)	
M102	X-4917-523-1	ASSY, MOTOR (SPINDLE)	
S101	1-571-274-11	SWITCH, LEAF (LIMIT IN)	

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: 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...

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	*1-628-128-11	PC BOARD, POWER SW			
902	*A-4651-234-A	(M27/M47).... MOUNTED PCB, MAIN			
	*A-4651-238-A	(M26)..... MOUNTED PCB, MAIN			
903	*1-628-127-11	PC BOARD, LOADING			
904	*1-626-304-11	PC BOARD, SL/SP MOTOR			
905	⚠8-848-062-01	DEVICE, OPTICAL KSS-150A(RP)			
906	*1-628-457-11	PC BOARD, POWER			
C106	1-124-898-11	ELECT	4700MF	20%	16V
C107	1-124-556-11	ELECT	2200MF	20%	16V
C108	1-124-443-00	ELECT	100MF	20%	10V
C109	1-124-443-00	ELECT	100MF	20%	10V
C110	1-124-927-11	ELECT	4.7MF	20%	50V
C111	1-164-159-11	CERAMIC	0.1MF		50V
C112	1-164-159-11	CERAMIC	0.1MF		50V
C113	1-124-572-11	ELECT	100MF	20%	63V
C114	1-123-875-11	ELECT	10MF	20%	50V
C115	1-164-159-11	CERAMIC	0.1MF		50V
C201	1-161-375-00	CERAMIC	0.0022MF	20%	16V
C202	1-162-199-31	CERAMIC	10PF	5%	50V
C203	1-162-199-31	CERAMIC	10PF	5%	50V
C204	1-136-153-00	FILM	0.01MF	5%	50V
C205	1-136-153-00	FILM	0.01MF	5%	50V
C206	1-136-159-00	FILM	0.033MF	5%	50V
C208	1-161-377-00	CERAMIC	0.0047MF	20%	16V
C209	1-124-443-00	ELECT	100MF	20%	10V
C210	1-161-375-00	CERAMIC	0.0022MF	20%	16V
C212	1-161-375-00	CERAMIC	0.0022MF	20%	16V
C213	1-136-165-00	FILM	0.1MF	5%	50V
C214	1-136-159-00	FILM	0.033MF	5%	50V
C215	1-123-382-00	ELECT	3.3MF	20%	50V
C216	1-136-165-00	FILM	0.1MF	5%	50V
C217	1-123-875-11	ELECT	10MF	20%	50V
C218	1-161-377-00	CERAMIC	0.0047MF	20%	16V
C219	1-164-159-11	CERAMIC	0.1MF		50V
C220	1-164-159-11	CERAMIC	0.1MF		50V
C221	1-164-159-11	CERAMIC	0.1MF		50V
C222	1-124-499-11	ELECT	1MF	20%	50V
C223	1-124-927-11	ELECT	4.7MF	20%	50V
C224	1-161-377-00	CERAMIC	0.0047MF	20%	16V
C225	1-124-443-00	ELECT	100MF	20%	10V
C226	1-164-159-11	CERAMIC	0.1MF		50V
C227	1-162-282-31	CERAMIC	100PF	10%	50V
C228	1-161-375-00	CERAMIC	0.0022MF	20%	16V
C229	1-162-291-31	CERAMIC	560PF	10%	50V
C230	1-164-159-11	CERAMIC	0.1MF		50V
C231	1-136-165-00	FILM	0.1MF	5%	50V
C232	1-124-234-00	ELECT	22MF	20%	16V
C233	1-124-234-00	ELECT	22MF	20%	16V
C234	1-164-159-11	CERAMIC	0.1MF		50V
C235	1-164-159-11	CERAMIC	0.1MF		50V
C301	1-136-165-00	FILM	0.1MF	5%	50V
C302	1-124-443-00	ELECT	100MF	20%	10V
C303	1-136-159-00	FILM	0.033MF	5%	50V
C304	1-124-902-00	ELECT	0.47MF	20%	50V
C305	1-161-377-00	CERAMIC	0.0047MF	20%	16V
C306	1-136-165-00	FILM	0.1MF	5%	50V
C307	1-161-374-11	CERAMIC	0.0015MF	20%	16V
C309	1-164-159-11	CERAMIC	0.1MF		50V
C310	1-164-159-11	CERAMIC	0.1MF		50V
C311	1-124-234-00	ELECT	22MF	20%	16V
C312	1-162-203-31	CERAMIC	15PF	5%	50V
C313	1-162-203-31	CERAMIC	15PF	5%	50V
C314	1-164-159-11	CERAMIC	0.1MF		50V
C315	1-164-159-11	CERAMIC	0.1MF		50V
C316	1-124-443-00	ELECT	100MF	20%	10V
C317	1-124-927-11	ELECT	4.7MF	20%	50V
C318	1-124-927-11	ELECT	4.7MF	20%	50V
C319	1-124-443-00	ELECT	100MF	20%	10V
C320	1-124-442-00	ELECT	330MF	20%	6.3V
C321	1-124-442-00	ELECT	330MF	20%	6.3V
C323	1-162-291-31	CERAMIC	560PF	10%	50V
C324	1-162-291-31	CERAMIC	560PF	10%	50V
C325	1-161-374-11	CERAMIC	0.0015MF	20%	16V
C326	1-161-374-11	CERAMIC	0.0015MF	20%	16V
C327	1-162-286-31	(M27/M47)...CERAMIC 220PF		10%	50V
C328	1-162-286-31	(M27/M47)...CERAMIC 220PF		10%	50V
C329	1-124-499-11	ELECT	1MF	20%	50V
C330	1-162-291-31	CERAMIC	560PF	10%	50V
C331	1-162-291-31	CERAMIC	560PF	10%	50V
C332	1-162-291-31	CERAMIC	560PF	10%	50V
CNJ1	*1-564-724-11	PIN, CONNECTOR (SMALL TYPE) 8P			
CNJ2	*1-564-724-11	PIN, CONNECTOR (SMALL TYPE) 8P			
CNJ3	*1-564-720-11	PIN, CONNECTOR (SMALL TYPE) 4P			
CNJ4	*1-564-336-00	PIN, CONNECTOR 2P			
CNJ5	*1-564-337-00	PIN, CONNECTOR 3P			
CNJ6	*1-566-165-11	CONNECTOR, BOARD TO BOARD 3P			
CNJ7	*1-564-710-11	PIN, CONNECTOR (SMALL TYPE) 8P			
CNJ8	*1-566-779-11	PIN, CONNECTOR (PC BOARD) 4P			
CNJ101	*1-564-720-11	PIN, CONNECTOR (SMALL TYPE) 4P			
D1	8-719-109-97	DIODE HZS6.8ES-B2			
D3	8-719-107-94	DIODE 1SS202-1			
D4	8-719-107-94	DIODE 1SS202-1			

Ref.No.	Part No.	Description
D5	8-719-107-94	DIODE 1SS202-1
D6	8-719-200-02	DIODE 10E2
D7	8-719-200-02	DIODE 10E2
D8	8-719-200-02	DIODE 10E2
D9	8-719-200-02	DIODE 10E2
D10	8-719-200-02	DIODE 10E2
FLD301	1-519-479-21	INDICATOR TUBE, FLUORESCENT
IC1	8-759-631-40	IC M5294P
IC2	8-752-034-00	IC CXA1081S
IC3	8-752-032-30	IC CXA1082BS
IC4	8-752-035-28	IC CXA-1291P
IC5	8-752-035-28	IC CXA-1291P
IC6	8-759-978-34	IC MSC6458-32SS
IC7	8-752-328-62	IC CXD1125Q
IC8	8-752-323-64	IC CXK5816M-12L
IC9	8-752-328-72	IC CXD2550P
IC10	8-759-805-36	IC CXD1161P-3
IC11	8-759-631-39	IC M5204P
IC12	8-759-605-43	IC M5231TL
IC13	8-749-920-03	IC GP1U52
IB101	1-233-171-11	COMPOSITION CIRCUIT BLOCK
IB102	1-233-171-11	COMPOSITION CIRCUIT BLOCK
J1	1-566-936-41	(M27/M47)..JACK, LARGE TYPE (PHONES)
J2	1-526-929-11	(M27:E, EA3).....INLET, AC
J2	1-526-930-11	(M27:Canadian).....INLET, AC
J2	1-526-931-11	(M27:AEP/M47:AEP, UK/M26)..INLET, AC
L301	*1-410-858-11	INDUCTOR 0UH
L303	1-410-973-11	(M27/M47).....INDUCTOR 22UH
M101	X-4917-504-1	ASSY, MOTOR (SLED)
M102	X-4917-523-1	ASSY, MOTOR (SPINDLE)
M103	A-4608-330-A	MOTOR ASSY (LOADING)
PN1	*1-562-999-21	JACK, PIN 2P (LINE OUT)
PT1	⚠.1-449-024-11	(M27:Canadian)...TRANSFORMER, POWER
PT1	⚠.1-449-025-11	(M27:AEP/M47:AEP,UK) ...TRANSFORMER, POWER
PT1	⚠.1-449-026-11	(M27:E,EA3).....TRANSFORMER, POWER
Q1	8-729-600-94	TRANSISTOR 2SK381
Q2	8-729-801-83	TRANSISTOR 2SB1013
Q3	8-729-900-80	TRANSISTOR DTC114ES
Q4	8-729-900-89	TRANSISTOR DTC144ES
Q5	8-729-900-89	TRANSISTOR DTC144ES
Q6	8-729-900-89	TRANSISTOR DTC144ES
R101	1-249-423-11	CARBON 3.3K 5% 1/4W
R102	1-249-439-11	CARBON 68K 5% 1/4W
R103	1-249-417-11	CARBON 1K 5% 1/4W

Ref.No.	Part No.	Description			
R201	1-247-864-11	CARBON	24K	5%	1/4W
R202	1-249-433-11	CARBON	22K	5%	1/4W
R203	1-249-417-11	CARBON	1K	5%	1/4W
R204	1-249-432-11	CARBON	18K	5%	1/4W
R205	1-249-432-11	CARBON	18K	5%	1/4W
R206	1-249-425-11	CARBON	4.7K	5%	1/4W
R207	1-249-397-11	CARBON	22	5%	1/4W
R208	1-247-806-11	CARBON	91	5%	1/4W
R209	1-249-425-11	CARBON	4.7K	5%	1/4W
R211	1-247-882-11	CARBON	130K	5%	1/4W
R212	1-249-440-11	CARBON	82K	5%	1/4W
R213	1-247-889-00	CARBON	270K	5%	1/4W
R214	1-249-435-11	CARBON	33K	5%	1/4W
R215	1-249-423-11	CARBON	3.3K	5%	1/4W
R216	1-249-425-11	CARBON	4.7K	5%	1/4W
R217	1-247-896-11	CARBON	510K	5%	1/4W
R218	1-249-429-11	CARBON	10K	5%	1/4W
R219	1-249-421-11	CARBON	2.2K	5%	1/4W
R220	1-249-429-11	CARBON	10K	5%	1/4W
R221	1-249-433-11	CARBON	22K	5%	1/4W
R222	1-249-414-11	CARBON	560	5%	1/4W
R223	1-249-441-11	CARBON	100K	5%	1/4W
R224	1-215-434-00	METAL	3.6K	1%	1/6W
R225	1-249-441-11	CARBON	100K	5%	1/4W
R226	1-249-432-11	CARBON	18K	5%	1/4W
R227	1-249-432-11	CARBON	18K	5%	1/4W
R228	1-249-393-11	CARBON	10	5%	1/4W
R229	1-247-881-00	CARBON	120K	5%	1/4W
R230	1-249-427-11	CARBON	6.8K	5%	1/4W
R231	1-249-439-11	CARBON	68K	5%	1/4W
R232	1-249-437-11	CARBON	47K	5%	1/4W
R234	1-249-440-11	CARBON	82K	5%	1/4W
R235	1-249-441-11	CARBON	100K	5%	1/4W
R236	1-249-441-11	CARBON	100K	5%	1/4W
R237	1-249-441-11	CARBON	100K	5%	1/4W
R238	1-249-417-11	CARBON	1K	5%	1/4W
R239	1-249-417-11	CARBON	1K	5%	1/4W
R240	1-249-417-11	CARBON	1K	5%	1/4W
R301	1-249-425-11	CARBON	4.7K	5%	1/4W
R302	1-249-425-11	CARBON	4.7K	5%	1/4W
R303	1-249-425-11	CARBON	4.7K	5%	1/4W
R304	1-249-425-11	CARBON	4.7K	5%	1/4W
R305	1-247-903-00	CARBON	1M	5%	1/4W
R306	1-249-433-11	CARBON	22K	5%	1/4W
R307	1-247-895-00	CARBON	470K	5%	1/4W

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

Note:
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			
R308	1-249-433-11	CARBON	22K	5%	1/4W
R309	1-249-441-11	CARBON	100K	5%	1/4W
R310	1-249-429-11	CARBON	10K	5%	1/4W
R311	1-215-469-00	METAL	100K	1%	1/6W
R312	1-215-469-00	METAL	100K	1%	1/6W
R315	1-249-417-11	CARBON	1K	5%	1/4W
R316	1-249-417-11	CARBON	1K	5%	1/4W
R317	1-249-411-11	CARBON	330	5%	1/4W
R318	1-249-417-11	CARBON	1K	5%	1/4W
R319	1-249-417-11	CARBON	1K	5%	1/4W
R320	1-249-419-11	CARBON	1.5K	5%	1/4W
R321	1-249-435-11	CARBON	33K	5%	1/4W
R322	1-249-435-11	CARBON	33K	5%	1/4W
R323	1-249-439-11	CARBON	68K	5%	1/4W
R324	1-249-439-11	CARBON	68K	5%	1/4W
R325	1-249-439-11	CARBON	68K	5%	1/4W
R326	1-249-439-11	CARBON	68K	5%	1/4W
R327	1-249-417-11	CARBON	1K	5%	1/4W
R328	1-249-417-11	CARBON	1K	5%	1/4W
R329	1-249-402-11	(M27/M47)...CARBON	56	5%	1/4W
R330	1-249-402-11	(M27/M47)...CARBON	56	5%	1/4W
R331	1-249-425-11	CARBON	4.7K	5%	1/4W
R332	1-249-425-11	CARBON	4.7K	5%	1/4W
R333	1-249-425-11	CARBON	4.7K	5%	1/4W
RV1	1-228-995-00	RES, ADJ, CARBON 20K			
RV2	1-228-993-00	RES, ADJ, CARBON 5K			
RV3	1-228-995-00	RES, ADJ, CARBON 20K			
RV4	1-228-990-00	RES, ADJ, METAL GLAZE 1K			
RV5	1-238-307-11	(M27/M47)...RES, VAR, CARBON 1K/1K (PHONE LEVEL)			
RV6	1-228-995-00	RES, ADJ, CARBON 20K			
S101	1-571-274-11	SWITCH, LEAF (LIMIT IN)			
SW1	1-552-928-00	SWITCH (POWER)			
SW101	1-571-685-11	SWITCH, KEY BOARD (CONTINUE)			
SW102	1-571-685-11	SWITCH, KEY BOARD (SHUFFLE)			
SW103	1-571-685-11	SWITCH, KEY BOARD (PROGRAM)			
SW104	1-571-685-11	SWITCH, KEY BOARD (▶▶)			
SW105	1-571-685-11	SWITCH, KEY BOARD (◀◀)			
SW106	1-571-685-11	SWITCH, KEY BOARD (EDIT/TIME FADE)			
SW107	1-571-685-11	SWITCH, KEY BOARD (REPEAT)			
SW108	1-571-685-11	SWITCH, KEY BOARD (AUTO SPACE)			
SW109	1-571-685-11	SWITCH, KEY BOARD (TIME)			
SW110	1-571-686-11	SWITCH, KEY BOARD (CLEAR)			
SW111	1-571-686-11	SWITCH, KEY BOARD (CHECK)			
SW112	1-571-686-11	SWITCH, KEY BOARD (▶▶|)			
SW113	1-571-686-11	SWITCH, KEY BOARD (|◀◀)			
SW114	1-571-686-11	SWITCH, KEY BOARD (■)			

Ref.No.	Part No.	Description
SW115	1-571-686-11	SWITCH, KEY BOARD (▶II)
SW116	1-571-686-11	SWITCH, KEY BOARD (▲)
SW901	1-570-203-11	SWITCH, LEAF
VS1	1-570-046-11	(M27:E,EA3)...SWITCH, VOLTAGE CHANGE
X1	1-567-908-21	VIBRATOR, CRYSTAL (16.9MHz)
X2	1-577-082-11	VIBRATOR, CERAMIC (4MHz)

ACCESSORY & PACKING MATERIAL

	1-465-050-11	(M47:AEP,UK)...REMOTE COMMANDER (RM-D170)
⚠	1-506-401-00	(M27:EA3)...ADAPTOR, CONVERSION
⚠	1-526-565-00	(M27:E).....AC PLUG ADAPTOR
⚠	1-555-074-00	(M27:AUS).....CORD, POWER
⚠	1-556-280-00	(M27:E).....CORD, POWER
⚠	1-558-032-11	(M26:UK/M47:UK).....CORD, POWER
⚠	1-558-834-11	(M27:Canadian)....CORD, POWER
⚠	1-558-835-11	(M26:AEP/M27:EA3,AEP/M47:AEP)..CORD, POWER
	1-558-543-11	CORD, CONNECTION
	1-559-533-11	CORD, CONNECTION
	3-750-022-11	(M27:E/M47:UK)...MANUAL, INSTRUCTION
	3-750-022-21	(M27:Canadian)...MANUAL, INSTRUCTION
	3-750-022-31	(M27:Canadian)...MANUAL, INSTRUCTION
	3-750-022-41	(M27/M47:AEP)....MANUAL, INSTRUCTION
*	3-795-629-11	(M27/M47:AEP)...INSTRUCTION
*	4-885-838-00	LABEL, CLASS 1
*	4-922-672-21	(M47)....INDIVIDUAL CARTON
*	4-922-672-31	(M27)....INDIVIDUAL CARTON
*	4-922-673-01	CUSHION
	7-632-650-75	SHEET, PROTECTION (500MM)

Note:
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Replace only with part number specified.

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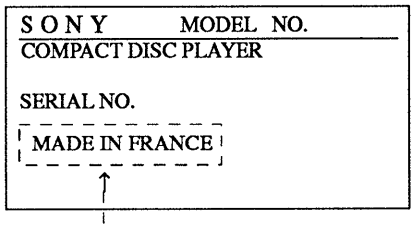
Ne les remplacer que par une pièce portant le numéro spécifié.

SUPPLEMENT-1

This SUPPLEMENT is for the model made in France.

[MODEL INDENTIFICATION]



Identify the set with the indication of "MADE IN FRANCE" here.

EXPLODED VIEWS

Page	No.	Part No.	INDICATOR
18	1	4-923-522-21	(M27).....KNOB (B.TYPE), LOV (PHONE LEVEL) (GRAY)
	2	X-4917-560-1	(M27).....PANEL ASSY, FRONT (GRAY)
	4	4-922-665-31	(M27).....PANEL, LOADING (GRAY)
	5	4-922-660-11	(M27).....BUTTON (POWER) (GRAY)
	9	4-917-536-31	(M26, M27)..CASE (GRAY)
19	61	*4-918-695-01	PLATE (B), INDICATION, TERMINAL
	74	7-628-254-10	+ PSW, 2.6X6

ELECTRICAL PARTS LIST

*A-4651-230-A	(M26).....MOUNTED PCB, MAIN
*A-4651-231-A	(M27, M47)....MOUNTED PCB, MAIN
*1-630-377-11	PC BOARD, POWER SW
*1-630-379-11	PC BOARD, POWER (S)
*1-630-380-11	PC BOARD, REMOTE CONTROL
*1-630-376-11	PC BOARD, LOADING
*1-626-304-11	PC BOARD, SL/SP MOTOR
*1-630-378-11	PC BOARD, POWER (P)

MAIN BOARD

Page	Ref (No.)	Part No.	Description
21	C204, 205	1-130-483-00	MYLAR 0.01MF 5% 50V
	C206, 214, 303	1-130-489-00	MYLAR 0.033MF 5% 50V
	CNJ5	*1-564-719-11	PIN, CONNECTOR (SMALL TYPE) 3P
22	IC4, 5	8-759-508-18	IC LA6520
	IC6	8-759-988-85	IC MSC6458-38SS
	IC10	8-759-821-24	IC LC7881-C
	SW101-109	1-554-088-00	SWITCH, KEY BOARD
23	X1	1-577-328-11	VIBRATOR, CRYSTAL
	X2	1-567-686-11	OSCILLATOR, CERAMIC

LOADING MOTOR BOARD

Page	Ref (No.)	Part No.	Description
21	CNJ4	*1-564-718-11	PIN, CONNECTOR (SMALL TYPE) 2P

POWER SW BOARD

Page	Ref (No.)	Part No.	Description
21	CNJ8	*1-564-720-11	PIN, CONNECTOR (SMALL TYPE) 4P

SL/SP MOTOR BOARD

Page	Ref (No.)	Part No.	Description
	IB101 → C101	1-233-171-11	COMPOSITION CIRCUIT BLOCK
22	IB102 → C102	1-233-171-11	COMPOSITION CIRCUIT BLOCK

POWER A BOARD

Page	Ref (No.)	Part No.	Description
22	J2	⚠ 1-526-931-11	INLET, AC

ACCESSORY & PACKING MATERIAL

Page	Part No.	Description
23	3-750-022-51	(M27, M47)...MANUAL, INSTRUCTION
	3-750-022-61	(M27, M47)...MANUAL, INSTRUCTION
	*4-922-680-01	(M47).....LABEL, MODEL NUMBER (AE)
	*4-922-682-01	(M27).....LABEL, MODEL NUMBER (AE)
	*4-922-699-01	(M26).....LABEL, MODEL NUMBER (AE)
	*4-927-312-01	(M47).....INDIVIDUAL CARTON
	*4-927-312-11	(M27).....INDIVIDUAL CARTON
	*4-927-312-21	(M26).....INDIVIDUAL CARTON
	*4-927-313-01	CUSHION

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

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Ne les remplacer que par une pièce portant le numéro spécifié.

9-955-911-11

Including 9-953-665-11
9-953-665-81
9-953-665-82
9-953-696-11
9-953-696-81
9-953-696-82

Sony Corporation
Audio Group

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