CDP-212/312

SERVICE MANUAL

US Model
CDP-212
Canadian Model
AEP Model
UK Model
E Model
Australian Model
CDP-212/312

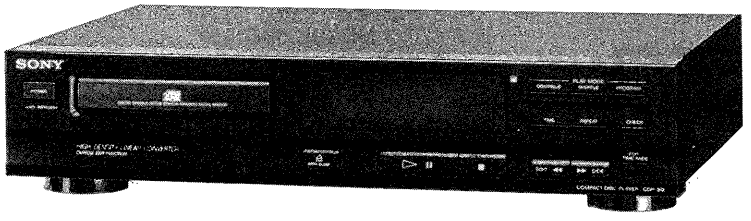


Photo : CDP-312

Model Name Using Similer Mechanism	CDP-H7900
CD Mechanism Type	CDM14-5BD10 or CDM14C-5BD10
Base Unit Type	BU-5BD10B
Optical Pick-up Type	KSS-240A

SPECIFICATIONS

Compact disc player

Laser	Semiconductor laser
Wavelength	780 – 790 nm
Frequency response	2 Hz to 20 kHz ±0.5 dB
Signal-to-noise ratio	More than 97 dB
Dynamic range	More than 95 dB
Harmonic distortion	Less than 0.0050 %
Channel separation	More than 93 dB

Outputs

LINE OUT (phono jacks)	Output level 2 V (at 50 kilohms) Load impedance over 10 kilohms

General

Power requirements	US, Canadian model : 120 V AC, 60 Hz European model : 220 – 230 V AC, 50/60 Hz Australian model : 240 V AC, 60 Hz Models for other coutries : 110 – 120/220 – 240 AC, adjustable, 50/60 Hz
Power consumption	10 W
Dimensions (approx., including projections)	430 x 100 x 295 mm (w/h/d) (17 x 4 x 11 $^{5}/_{8}$ inches)
Mass (approx.)	3.0 kg (6 lbs 10 oz)

Remote commander (only for CDP-312)

Remote control system	Infrared control
Power requirements	3 V DC with two size AA (R6) batteries
Dimensions (approx., including projections)	44 x 21 x 185 mm (w/h/d) (1 $^{3}/_{4}$ x $^{7}/_{8}$ x 7 $^{3}/_{8}$ inches)
Mass (approx.)	100 g (4 oz)

Supplied accessories

Audio cord	(1) (2 phono plugs – 2 phono plugs)
Remote commander (only for CDP-312)	(1)
Sony SUM-3 (NS) batteries (only for CDP-312)	(2)

Design and specifications are subject to change without notice.

使用時に添付資料も参照のこと
Refer to the additional documents.

COMPACT DISC PLAYER

SONY

Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

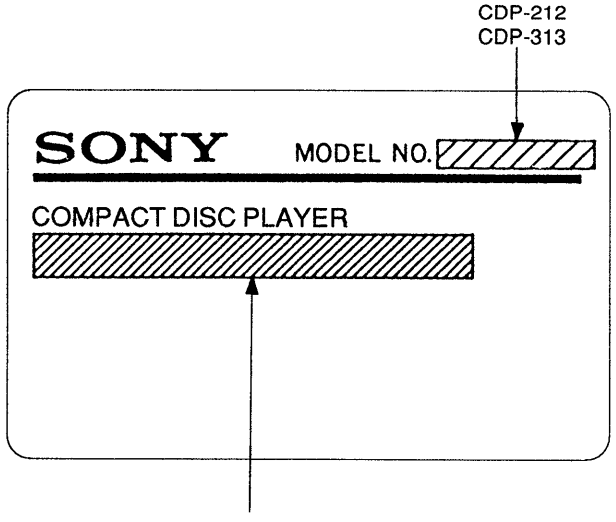
The following caution label is located inside the unit.

CAUTION	:	INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
ADVARSEL	:	USYNLIG LASERSTRALING VED ABNING NAR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGAUDS ÆTTELSE FOR STRANING.
VAROI	:	AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA LASERSÄTEILYLLE.
VARNING	:	LASERSTRALING NAR DENNA DEL AR OPPNAD OCH SPARREN ÄR URXOPPLAD.
ADVARSEL	:	USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES UNNGA EKSPONERING FOR STRÅLEN.

TABLE OF CONTENTS

Section	Title	Page
1.	SERVICING NOTE	3
2.	GENERAL	
	Identifying the Parts	4
3.	DISASSEMBLY	
	Front Panel	5
	MD (BU-5BD10B)	5
4.	ELECTRICAL BLOCK CHECKING	6
5.	DIAGRAMS	
5-1.	IC Pin Functions	
	• IC101 (CXD2515Q)	8
	• IC301 (CXD2565AM)	10
	• IC601 (CXP82316-037Q)	11
5-2.	Block Diagram	12
5-3.	Semiconductor Lead Layouts	15
5-4.	Printed Wiring Boards	16
5-5.	Schematic Diagram	19
6.	EXPLODED VIEWS	
6-1.	Front Panel Section	23
6-2.	CD Mechanism Section (CDM14-5BD10 or CDM14C-5BD10)	24
6-3.	Optical Pick-up Block (BU-5BD10B)	25
7.	ELECTRICAL PARTS LIST	26

MODEL IDENTIFICATION
— Specification Label —



US, Canadian model : 120V AC, 60Hz, 10W
AEP, UK, German model : 220 – 230V AC, 50/60Hz, 10W
Australian model : 240V AC, 50Hz 10W
E, Saudi Arabia model : 110 – 120/220 – 240V AC, 50/60 Hz 10W

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks 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

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 2V AC range are suitable. (See Fig. A)

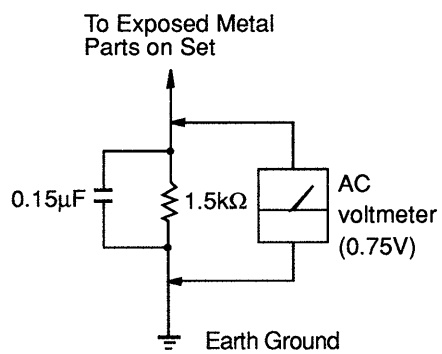


Fig. A. Using an AC voltmeter to check AC leakage.

SECTION 1
SERVICING NOTE

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

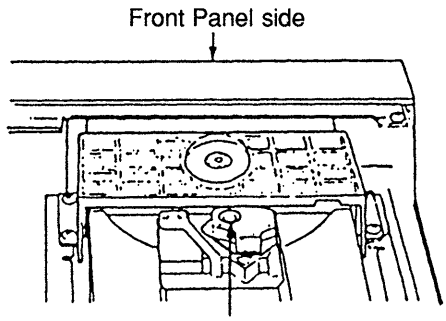
The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter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

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

LASER DIODE AND FOCUS SEARCH OPERATION CHECK

1. Make POWER switch on with no disc inserted and disc table closed.
2. Confirm that the following operation is performed while observing the objective lens.



❶ Confirm that laser beam is spread.
❷ Up and down motion of the objective lens. (3 times)

How to open the DISC TRAY when POWER SWITCH turns off See page 5 for SECTION 3 DISASSEMBLY.

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.

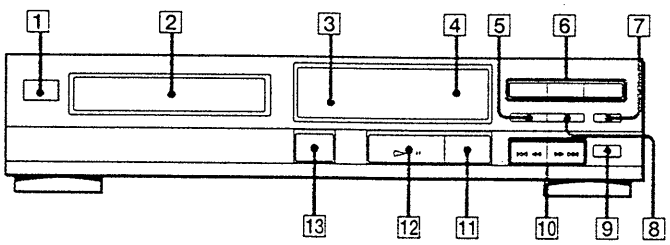
SECTION 2
GENERAL

This section is extracted from instruction manual.

Identifying the Parts

Refer to the pages indicated in parenthesis for details.

CDP-312/212

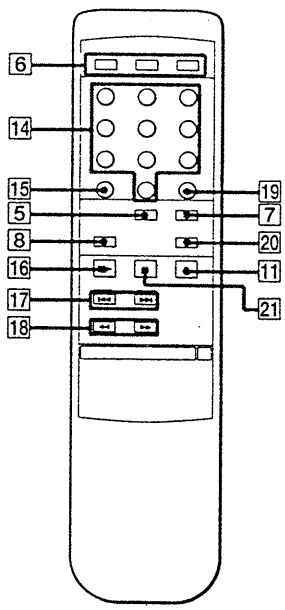


Front Panel / Remote Commander

1 POWER switch (7)
2 Disc tray (7)
3 Display
4 Remote sensor
5 TIME button (8)
6 PLAY MODE buttons
CONTINUE button (10, 12, 16)
SHUFFLE button (10, 12, 16)
PROGRAM button (11)
7 CHECK (program check) button (12, 13)
8 REPEAT button (14)
9 EDIT/TIME FADE button (15, 16, 17)
10 ⏮ ◀◀/▶▶ ⏭ (AMS*/manual search) buttons (9, 11, 15, 17)
11 ■ (stop) button (7)
12 ▷II (play/pause) button (7)
13 ⏏ OPEN/CLOSE button (7)
14 Numeric buttons** (9, 11, 13, 15, 17)
15 >10 (over 10) button** (9)
16 ▶ (play) button** (7)
17 ⏮/⏭ (AMS*) buttons** (9, 11)
18 ◀◀/▶▶ (manual search) buttons** (9)
19 CLEAR (program clear) button** (13)
20 FADER button** (8)
21 II (pause) button** (7)

* AMS is the abbreviation of Automatic Music Sensor.
** only on the remote commander

RM-D320



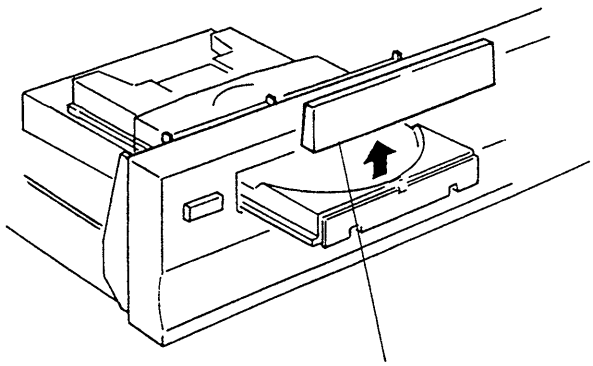
(only for CDP-312)

SECTION 3
DISASSEMBLY

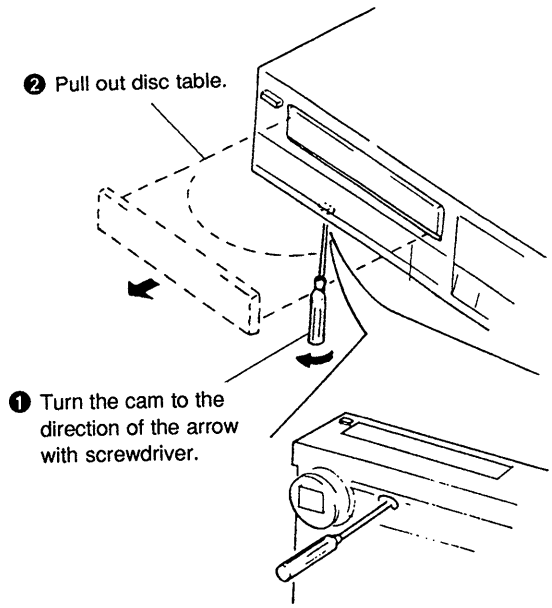
Note : Foollow the disassembly procedure in the numerical order given.

FRONT PANEL

When removing the front panel assembly on electric power failure, first open the loading block by turning cam with a screwdriver as shown in the figure, next pull out the loading block with hand, and remove the loading panel as shown in the figure. Then remove the front panel assembly.



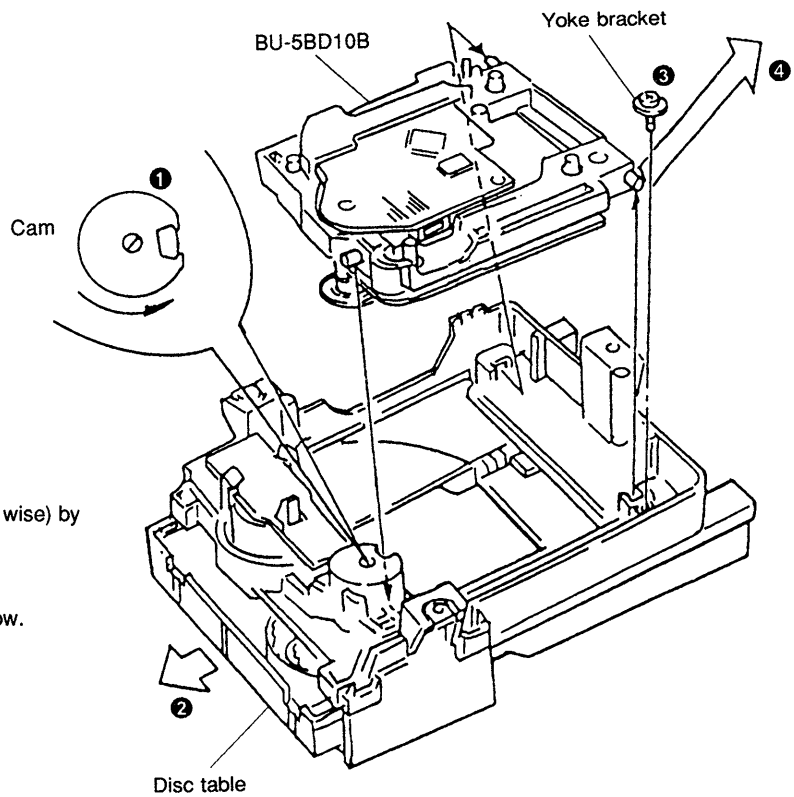
❸ Remove loading panel to the direction of arrow.



Note : Keep the set horizontal

MD (BU-5BD10B)

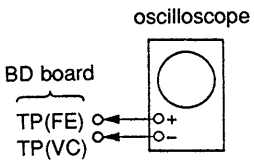
❶ Turn the cam to the direction of arrow (Counter clock wise) by minus screw driver.
❷ Take off the disc table.
❸ Remove the yoke bracket.
❹ Remove the MD (BU-5BD10B) to the direction of arrow.



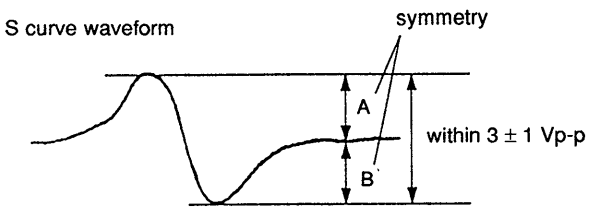
SECTION 4
ELECTRICAL BLOCK CHECKING

Note :
1. CD Block basically constructed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use the oscilloscope with more than 10MΩ impedance.
4. Clean an object lens by an applicator with neutral detergent when the signal lever is low than specified value with the following checks.

S Curve Check



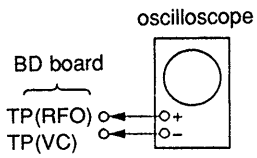
Procedure :
1. Connect oscilloscope to test point TP (FE) on BD board.
2. Connect between test point TP (FEI) and TP (VC) by lead wire.
3. Turned Power switch on.
4. Put disc (YEDS-18) in and turned Power switch on again and actuate the focus search. (actuate the focus search when disc table is moving in and out.)
5. Check the oscilloscope waveform (S curve) is symmetrical between A and B. And confirm peak to peak level within 3±1 Vp-p.



6. After check, remove the lead wire connected in step 2.

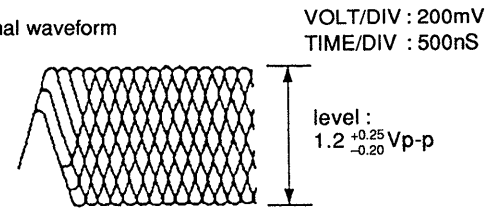
Note :
- Try to mesure several times to make sure than the ratio of A : B or B : A is more than 10 : 7.
- Take sweep time as long as possible and light up the brightness to obtain best waveform.

RF Level Check

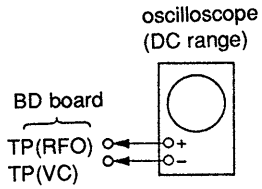


Procedure :
1. Connect oscilloscope to test point TP (RFO) on BD board.
2. Turned Power switch on.
3. Put disc (YEDS-18) in and playback.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

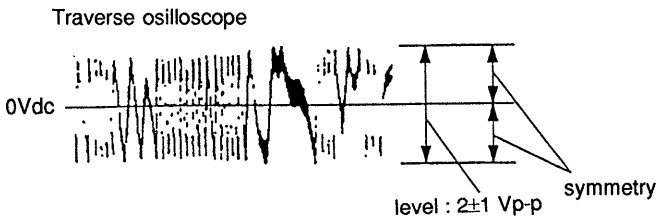
Note :
Clear RF signal waveform means that the shape "◇" can be clearly distinguished at the center of the waveform.



E-F Balance Check



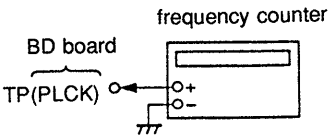
Procedure :
1. Connect test point TP (ADJ) on MAIN board to ground and TP(TEI) to TP (VC) with lead wire.
2. Connect oscilloscpe to test point TP (TE) on BD board.
3. Turned Power switch on.
4. Put disc (YEDS-18) in and playback.
5. Confirm that the oscilloscope waveform is symmetrical on the top and bottom in relation to 0Vdc, and check this level.



6. Remove the lead wire connected in step 1.

RF Free-run Frequency Check

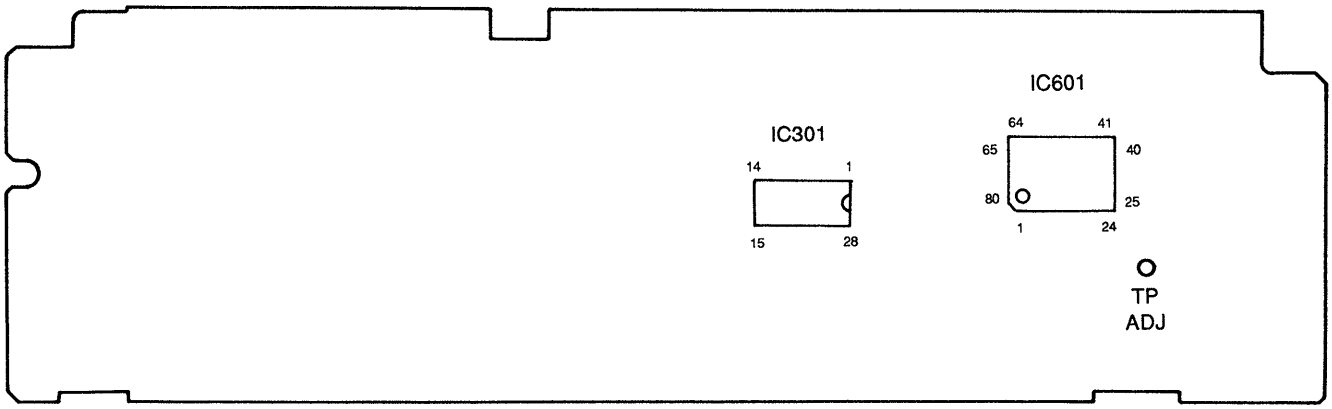
Procedure :
1. Connect frequency counter to test point (PLCK) with lead wire.



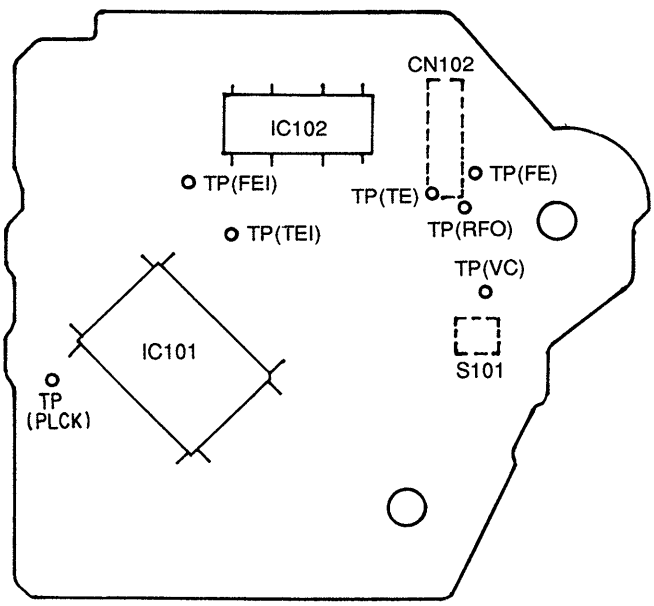
2. Turned Power switch on.
3. Confirm that reading on frequency counter is 4.3218MHz.

Adjustment Location :

[MAIN BOARD] — Conductor Side —



[BD BOARD] — Conductor Side —



SECTION 5
DIAGRAMS

5-1. IC PIN FUNCTIONS

- **IC101 (CXD2515Q)**

Pin No.	Pin Name	I/O	Function
1	SRON	O	Sled drive output
2	SRDR	O	Sled drive output
3	SFON	O	Sled drive output
4	TFDR	O	Tracking drive output
5	TRON	O	Tracking drive output
6	TRDR	O	Tracking drive output
7	TFON	O	Tracking drive output
8	FFDR	O	Focus drive output
9	FRON	O	Focus drive output
10	FRDR	O	Focus drive output
11	FFON	O	Focus drive output
12	VCOO	O	VCO output for analog EFM PLL
13	VCOI	I	VCO output for analog EFM PLL
14	TEST	I	TEST pin connected normally to GND
15	DVss	–	Digital GND
16	TES2	I	TEST pin connected normally to GND
17	TES3	I	TEST pin connected normally to GND
18	PDO	O	Charge-pump output for analog EFM PLL
19	VPCO	O	Charge-pump output for variable pitch PLL
20	VCKI	I	Clock input from variable pitch external VCO
21	AVD2	–	Analog power supply
22	IGEN	I	Power supply pin for operational amplifiers
23	AVS2	–	Analog GND
24	ADII	I	Input pin for A/D converter
25	ADIO	O	Operational amplifier output pin
26	RFDC	I	RF signal input
27	TE	I	Tracking error signal input
28	SE	I	Sled error signal input
29	FE	I	Focus error signal input
30	VC	I	Center voltage input pin
31	FILO	O	Filter output for master PLL
32	FILI	I	Filter input for master PLL
33	PCO	O	Charge-pump output for master PLL
34	CLTV	I	Control voltage input for master VCO
35	AVS1	–	Analog GND
36	RFAC	I	EFM signal input
37	BIAS	I	Asymmetry circuit constant current input
38	ASYI	I	Asymmetry comparate voltage input
39	ASYO	O	EFM full swing output
40	AVD1	–	Analog power supply

Pin No.	Pin Name	I/O	Function
41	DV_{DD}	–	Digital power supply
42	ASYE	I	Asymmetry circuit ON/OFF
43	PSSL	I	Audio data output mode selection input
44	WDCK	O	48-bit slot D/A interface. Word clock
45	LRCK	O	48-bit slot D/A interface. LR clock
46	DATA	O	DA 16 output when PSSL=1. 48-bit slot serial data when PSSL=0
47	BCLK	O	DA 15 output when PSSL=1. 48-bit slot data when PSSL=0
48	64DATA	O	DA 14 output when PSSL=1. 64-bit slot data when PSSL=0
49	64BCLK	O	DA 13 output when PSSL=1. 64-bit slot data when PSSL=0
50	64LRCK	O	DA 12 output when PSSL=1. 64-bit slot data when PSSL=0
51	GTOP	O	DA 11 output when PSSL=1. GTOP output when PSSL=0
52	XUGF	O	DA 10 output when PSSL=1. XUGF output when PSSL=0
53	XPLCK	O	DA 09 output when PSSL=1. XPLCK output when PSSL=0
54	GFS	O	DA 08 output when PSSL=1. GFS output when PSSL=0
55	PFCK	O	DA 07 output when PSSL=1. RFCK output when PSSL=0
56	C2PO	O	DA 06 output when PSSL=1. C2PO output when PSSL=0
57	XRAOF	O	DA 05 output when PSSL=1. XRA0F output when PSSL=0
58	MNT3	O	DA 04 output when PSSL=1. MNT3 output when PSSL=0
59	MNT2	O	DA 03 output when PSSL=1. MNT2 output when PSSL=0
60	MNT1	O	DA 02 output when PSSL=1. MNT1 output when PSSL=0
61	MNT0	O	DA 01 output when PSSL=1. MNT0 output when PSSL=0
62	XTAI	I	X'tal oscillator circuit input
63	XTAO	O	X'tal oscillator circuit output
64	XTSL	I	X'tal selection input pin
65	DV_{SS}	–	Digital GND
66	FSTI	I	2/3 divider output of pins 62, 63
67	FSTO	O	2/3 divider output of pins 62, 63
68	C4M	O	4.2336 MHz output
69	C16M	O	16.9344 MHz output
70	MD2	I	Digital-out ON/OFF control pin
71	DOUT	O	Digital-out output pin
72	EMPH	O	Playback disc output in emphasis mode
73	WFCK	O	WFCK output
74	SCOR	O	Sub-code sync output
75	SBSO	O	Sub-P through Sub-W serial output
76	EXCK	I	Clock input for SBS0 read-out
77	SUBQ	O	Sub-Q 80-bit output
78	SQCK	I	Clock input for SQS0 read-out
79	MUTE	I	Muting selection pin
80	SENS	O	SENS output
81	XRST	I	System reset
82	DIRC	I	Used in 1-track jump mode
83	SCLK	I	SENS serial data read-out clock
84	DFSW	I	DFCT selection pin
85	ATSK	I	Input pin for anti-shock

Pin No.	Pin Name	I/O	Function
86	DATA	I	Serial data input, supplied from CPU
87	XLAT	I	Latch input, supplied from CPU
88	CLOK	I	Serial data transfer clock input, supplied from CPU
89	COUT	O	Numbers of track counted signal output
90	DVDD	–	Digital power supply
91	MIRR	O	Mirror signal output
92	DFCT	O	Defect signal output
93	FOK	O	Focus OK output
94	FSW	O	Output to select spindle motor output filter
95	MON	O	Output to control ON/OFF of spindle motor
96	MDP	O	Output to control spindle motor servo
97	MDS	O	Output to control spindle motor servo
98	LOCK	O	GFS is sampled by 460 Hz. H when GFS is H
99	SSTP	I	Input signal to detect disc inner most track
100	SFDR	O	Sled drive output

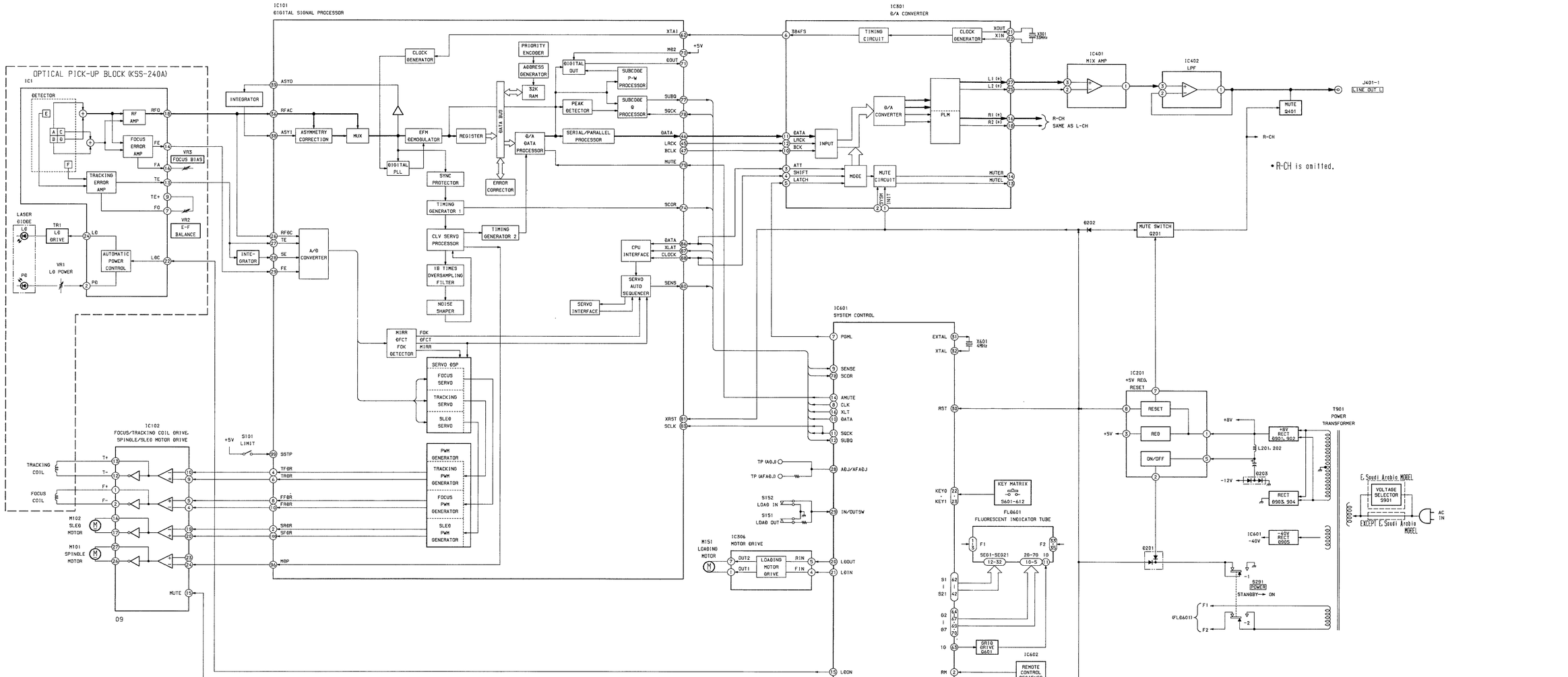
- **IC301 (CXD2565AM)**

Pin No.	Pin Name	I/O	Function
1	INIT	I	Re-synchronizing at rise-up edge of this signal
2	SYSM	–	Connected to GND
3	ATT	I	Attenuation data input
4	SHIFT	I	Shift clock input
5	LATCH	I	Latch clock input
6	384FS	O	384FS clock output
7	TEST1	–	Connected to GND
8	DVss	–	Digital GND
9	TEST2	–	Connected to GND
10	BCK	I	BCK input
11	DATA	I	Data input
12	LRCK	I	LRCK input
13	MUTEL	O	Not used
14	MUTER	O	Not used
15	DVDD1	–	Digital power supply
16	R1 (+)	O	R-ch PLM output-1 (positive phase)
17	AVDDR	–	L-ch analog power supply
18	R2 (+)	O	R-ch PLM output-2 (positive phase)
19	AVssR	–	L-ch analog GND
20	XVDD	–	Master clock power supply
21	XOUT	O	X'tal oscillator output (33.8 MHz)
22	XIN	I	X'tal oscillator input (33.8 MHz)
23	XVss	–	Master clock GND
24	AVssL	–	L-ch analog GND
25	L2 (+)	O	L-ch PLM output-2 (positive phase)
26	AVDDL	–	L-ch analog power supply
27	L1 (+)	O	L-ch PLM output-1 (positive phase)
28	DVDD2	–	Digital power supply

- **IC601 (CXP82316-037Q)**

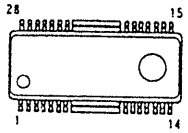
Pin No.	Pin Name	I/O	Function
1	TIMER	–	Connected to +5V.
2	RM	I	Audio bus input.
3	+5V	–	Connected to +5V.
4	OPEN	–	Not used. (open).
5	OPEN	–	
6	OPEN	–	
7	PGML	O	Latch signal output to digital filter (IC301).
8	CLK	O	Serial clock output.
9	SENSE	I	SENSE signal input.
10	DATA	O	Serial data output.
11	SQCK	O	Read out clock output for subcode Q data.
12	SUBQ	I	Subcode Q data input.
13	OPEN	–	Not used. (open)
14	AMUTE	O	Analog muting control signal output.
15	LDON	O	Optical pickup laser diode control output.
16	XLT	O	Serial data latch signal output.
17	OPEN	–	Not used. (open).
18	RV+	–	
19	RV–	–	
20	LDOUT	O	Loading motor control signal output.
21	LDIN	O	
22, 23	KEY0, KEY1	I	Key input. (S601 to S612)
24 to 27	KEY2 to KEY5	–	Connected to +5V.
28	ADJ/AFADJ	–	ADJ, AFJ test pin.
29	IN/OUTSW	I	Loading IN/OUT switch input.
30	RST	I	Reset signal input.
31	EXTAL	I	Clock input. (4 MHz)
32	XTAL	O	Clock output. (4 MHz)
33	Vss	–	GND
34 to 41	OPEN	–	Not used. (open)
42 to 62	S1 to S21	O	FL segment output.
63 to 70	1G to 7G	O	FL grid output.
71	VFDP (–30V)	–	–30V pin for FL display tube.
72	V_{DD} (+5V)	–	+5V pin.
73	——	–	
74	SEL1	–	Connected to GND.
75	OPEN	–	
76	OPEN	–	
77	OPEN	–	
78	SCOR	I	Read out timing signal input for subcode Q data.
79	SEL2	–	Connected to GND.
80	SEL3	–	Connected to +5V.

5-2. BLOCK DIAGRAM

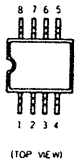


5-3. SEMICONDUCTOR LEAD LAYOUTS

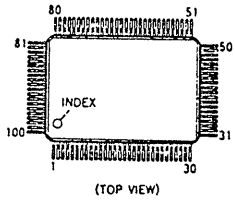
BA6297AFP



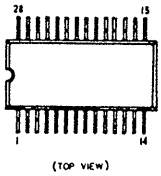
BA6287F



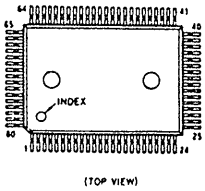
CXD2515Q



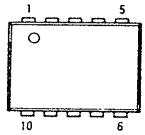
CXD2565AM



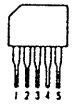
CXP82316-037Q



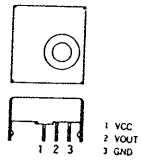
LA5601



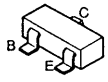
M5293L



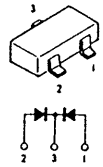
SBX1610-59



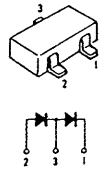
DTA114EK
DTC114EK
2SA1179-M5M6
2SC3398
2SD2114K



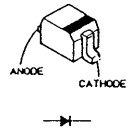
DAN202U



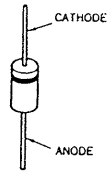
DA204K



DTZ10B



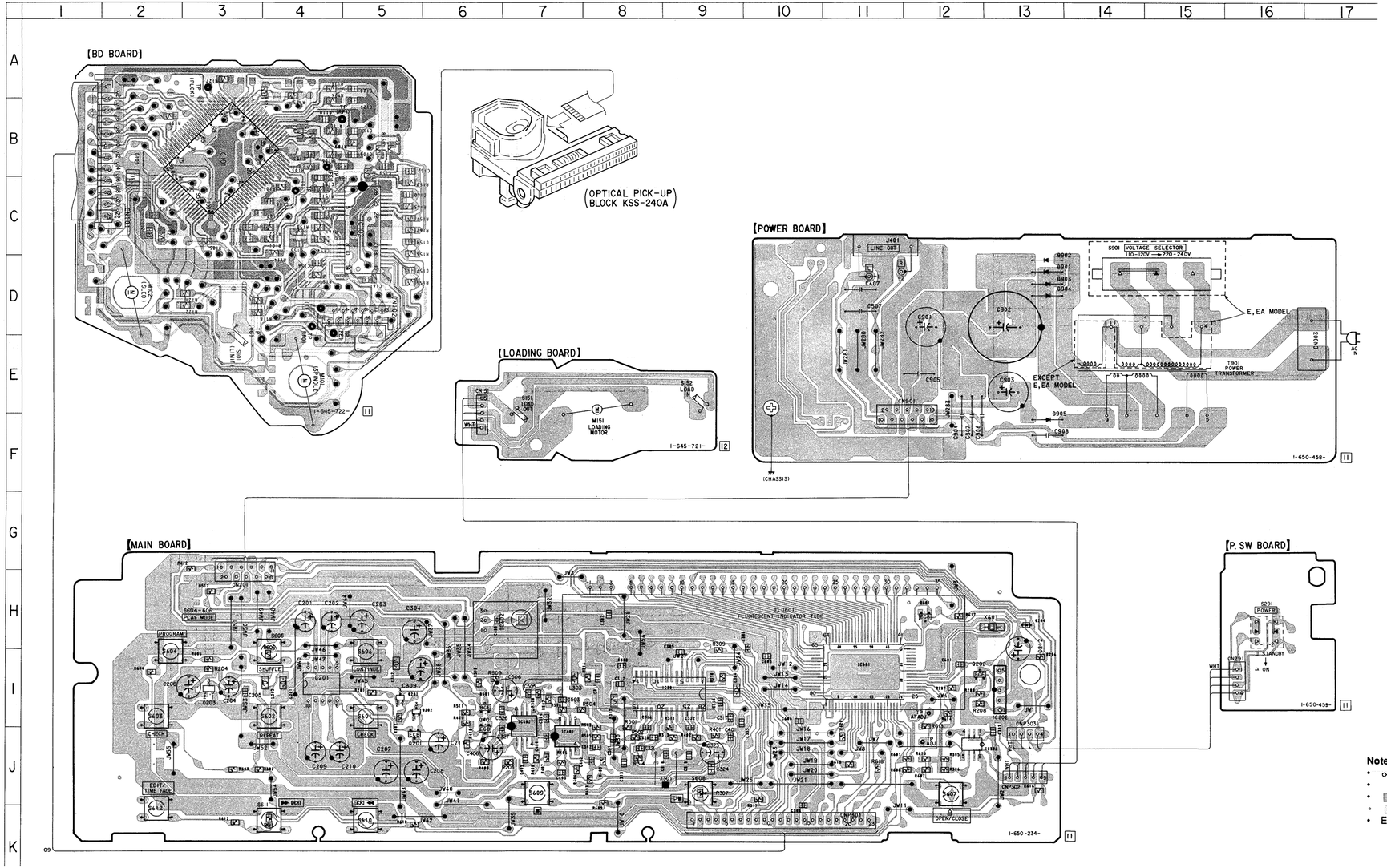
11ES2



5-4. PRINTED WIRING BOARDS

- **Semiconductor Location**

Ref. No.	Location
D201	I-5
D202	I-6
D203	I-3
D204	H-13
D901	D-13
D902	D-13
D903	D-13
D904	D-13
D905	E-13
IC101	B-3
IC102	C-5
IC201	I-4
IC202	I-13
IC301	I-9
IC302	J-13
IC401	J-7
IC402	I-7
IC601	I-11
IC602	H-6
Q201	J-5
Q202	I-12
Q401	I-6
Q501	I-6
Q601	H-12



Note:

- ⟜ : parts extracted from the component side.
- ● : Through hole.
- ▒ : Pattern from the side which enable seeing.
- ▒ : Pattern of the rear side.
- EA : Saudi Arabia model.

5-5. SCHEMATIC DIAGRAM

• See page 8 to 11 for IC Pin Functions. (IC101, IC301, IC601)

• Waveforms

① 1.5Vp-p IC101 ㊱ PLAY	③ 2.5V APPROX 100mVp-p IC101 ㉙ PLAY	⑤ 2.6Vp-p 7.5µsec IC101 ㊴ PLAY	⑦ 5Vp-p 480n sec IC301 ⑩	⑨ 3Vp-p 33MHz IC301 ㉑
② 2.5V APPROX 500mVp-p IC101 ㉗ PLAY	④ 5Vp-p 4MHz IC601 ㉛	⑥ 5.5Vp-p 22.5µsec IC301 ⑫	⑧ 3.8Vp-p 33MHz IC301 ⑥	

【MAIN BOARD】
【POWER BOARD】
【BD BOARD】
【P.SW BOARD】
【LOADING BOARD】
OPTICAL PICK-UP BLOCK(KSS-240A)
IC1 RF AMP
IC101 DIGITAL SERVO & DIGITAL SIGNAL PROCESSOR
IC102 BTL DRIVER
IC201 POWER IC
IC202 -30V REG
IC301 D/F D/A
IC302 LOADING DRIVER
IC401 DIFFERENTIAL AMP
IC402 LPF
IC601 MASTER & MECHANICAL CONTROL
IC602 RX DETECTOR
FL601 FLUORESCENT INDICATOR TUBE
SHUFFLE
PROGRAM
REPEAT 1
A.CUE LINK
A.SPACE
EDIT A-B
TIME FADE
PEAK MIN STEP SEC
1 2 3 4 5
6 7 8 9 10
11 12 13 14 15
16 17 18 19 20
PLAY MODE
CONTINUE SHUFFLE PROGRAM CHECK REPEAT TIME
EXCEPT E,EA MODEL
E, EA MODEL
VOLTAGE SELECTOR
LINE OUT
AC IN
OPEN/CLOSE
M101 SPINDLE MOTOR
M102 SLED MOTOR
LIMIT SW S101
LOAD OUT S151
LOAD IN S152
M151 LOADING MOTOR

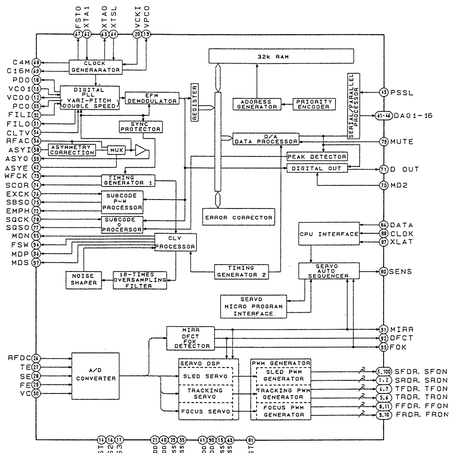
Note:
- All capacitors are in µF unless otherwise noted. pF:µµF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ : internal component.
- ▭ : panel designation.

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.

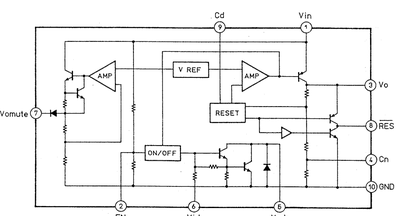
- ═══ : B+ Line
- ═══ : B− Line
- Voltage and waveforms are dc with respect to ground under no-signal conditions. no mark : STOP
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path. ⇨ : CD
- EA : Saudi Arabia model.

• IC Block Diagrams

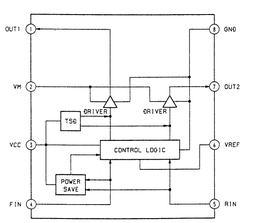
IC101 CXD2515Q



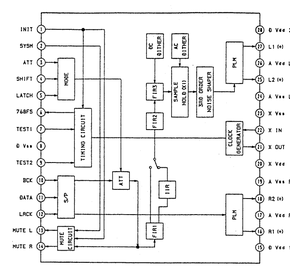
IC201 LA5601



IC302 BA6287F



IC301 CXD2565AM



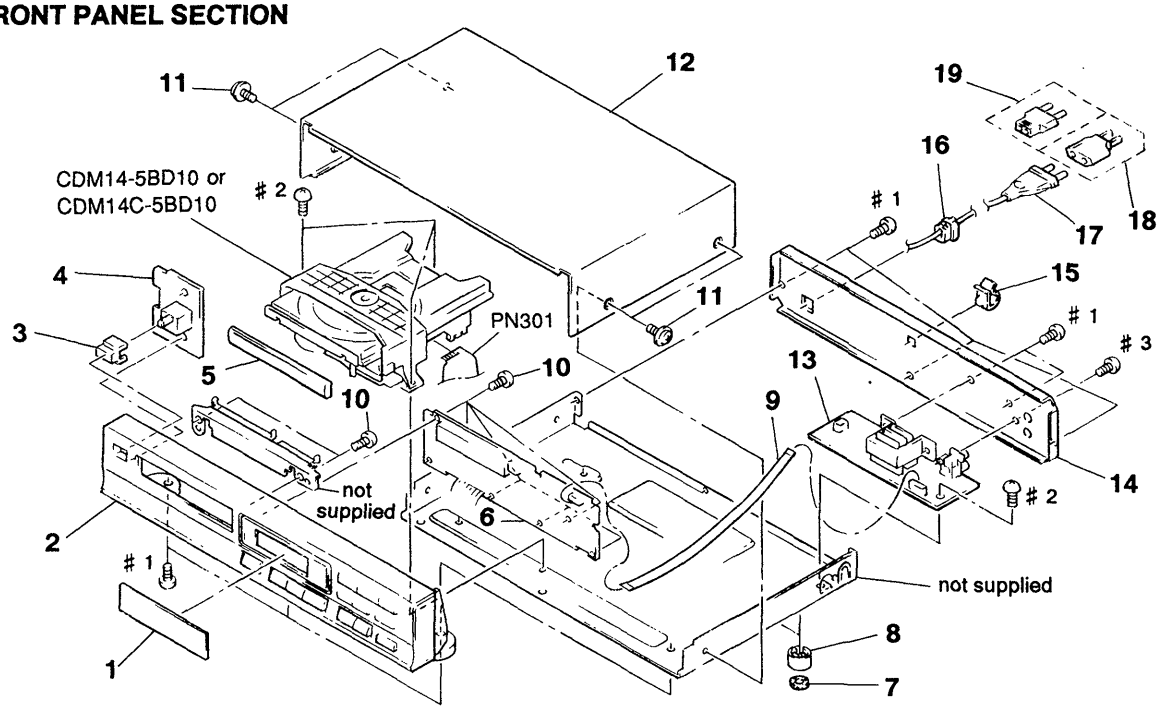
SECTION 6
EXPLODED VIEWS

NOTE:
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts color Cabinet's color
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- CND : Canadian model
- G : German model
- EA : Saudi Arabia model
- AUS : Australilan model

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

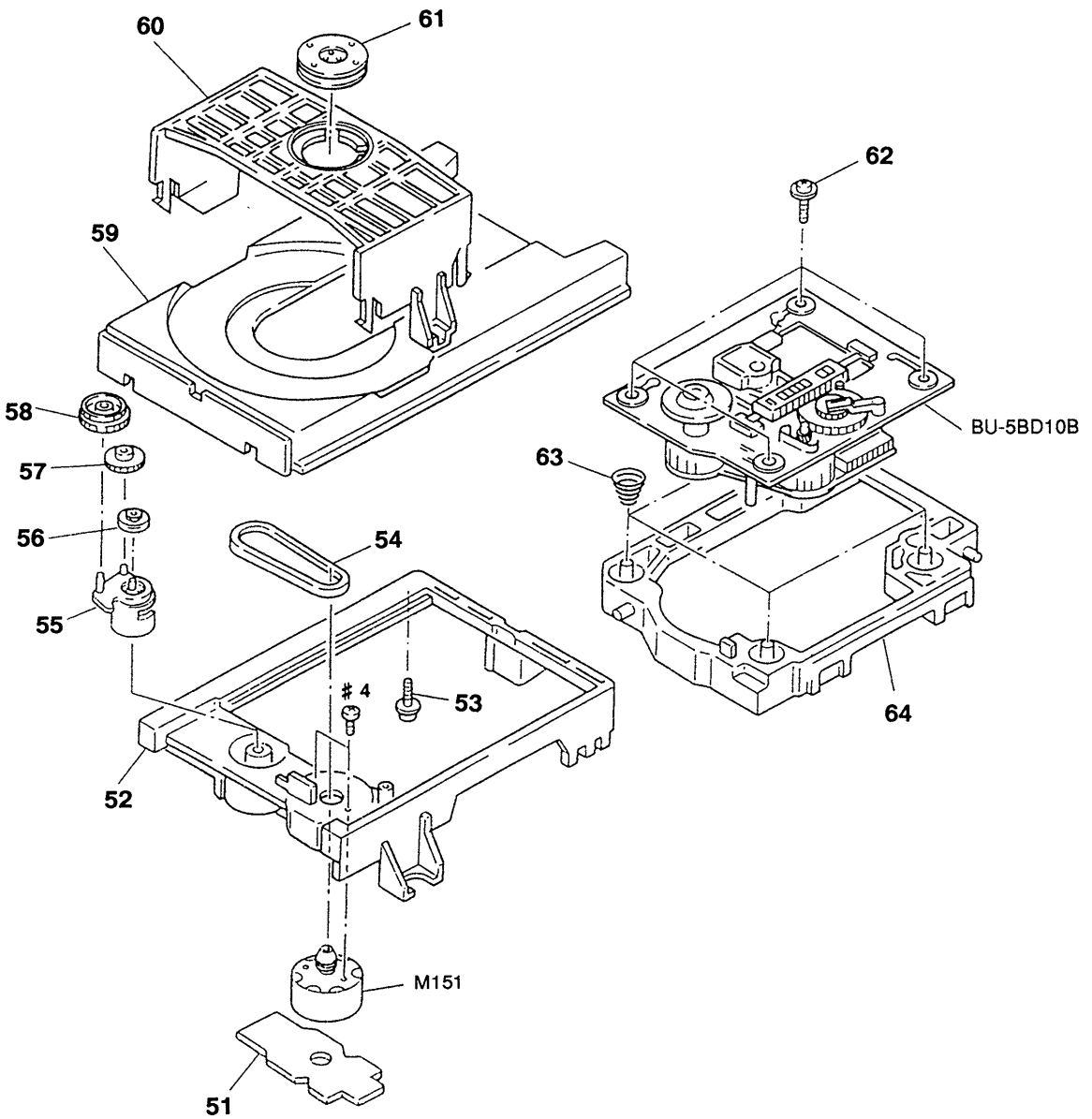
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

6-1. FRONT PANEL SECTION



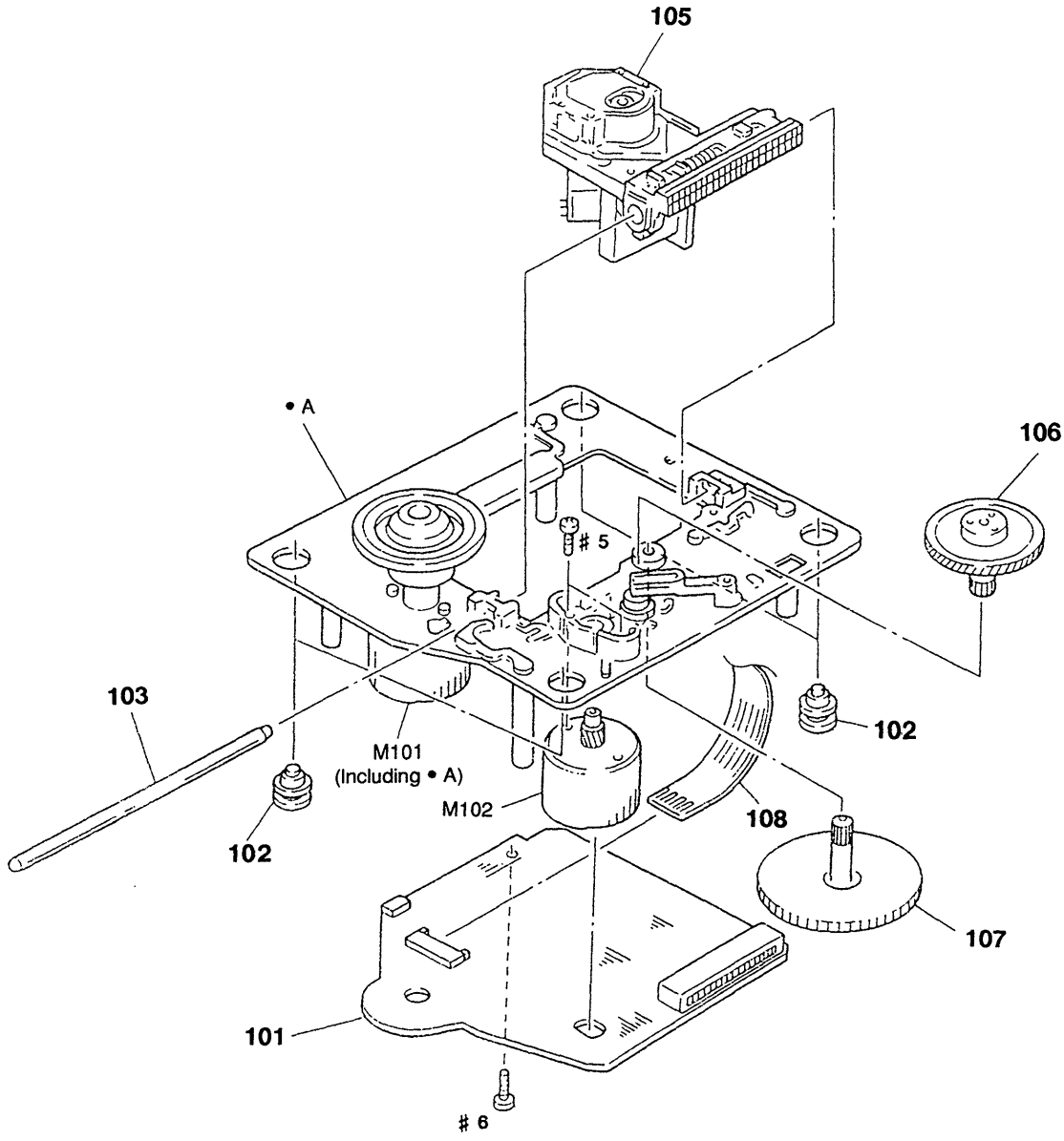
Ref. No.	Part No.	Description	Remark
1	4-962-270-01	PLATE, INDICATION	
2	X-4944-472-1	PANEL ASSY, FRONT (312:CND, UK, G)	
2	X-4944-473-1	PANEL ASSY, FRONT (312:AEP, E, AUS, EA)	
2	X-4944-474-1	PANEL ASSY, FRONT (212:US, CND, UK, G)	
2	X-4944-475-1	PANEL ASSY, FRONT (212:AEP, E, AUS, EA)	
3	4-947-034-01	BUTTON (POWER)	
* 4	1-650-459-11	P. SW BOARD	
5	4-962-897-21	PANEL, LOADING (312:UK, G)	
5	4-962-897-31	PANEL, LOADING (212:UK, G)	
5	4-962-897-81	PANEL, LOADING (312:CND, AEP, E, AUS, EA)	
5	4-962-897-91	PANEL, LOADING (212:US, CND, AEP, E, AUS, EA)	
* 6	A-4673-036-A	MAIN BOARD, COMPLETE	
7	4-964-668-01	CUSHION (DIA. 16) (212:US, CND, AEP, E, AUS, EA/312:CND, AEP, E, AUS, EA)	
8	4-930-848-01	FOOT (212:UK, G/312:UK, G)	
8	4-964-090-01	FOOT (F22175H-M) (212:US, CND, AEP, E, AUS, EA/312:CND, AEP, E, AUS, EA)	
9	1-765-065-11	WIRE (FLAT TYPE) (11 CORE) (212:UK, G/312:UK, G)	
9	1-765-169-11	WIRE (FLAT TYPE) (11 CORE) (212:US, CND, AEP, E, AUS, EA/312:CND, AEP, E, AUS, EA)	
10	4-951-620-01	SCREW (2.6X8), +BVTP	
11	3-363-099-01	SCREW (CASE 3 TP2) (212:UK, G/312:UK, G)	
11	3-704-366-31	SCREW (CASE) (M3X6) (212:US, CND, AEP, E, AUS, EA/312:CND, AEP, E, AUS, EA)	
12	4-929-035-31	CASE (AFTER BAP)	
* 13	1-650-458-11	POWER BOARD	
14	4-962-093-42	PANEL, BACK (312:G)	
14	4-962-093-52	PANEL, BACK (312:UK)	
14	4-962-093-61	PANEL, BACK (212:G)	
14	4-962-093-72	PANEL, BACK (212:UK)	
14	4-964-718-12	PANEL, BACK (312:CND)	
14	4-964-718-22	PANEL, BACK (312:AEP)	
14	4-964-718-32	PANEL, BACK (312:E, EA)	
14	4-964-718-41	PANEL, BACK (312:AUS)	
14	4-964-718-51	PANEL, BACK (212:US)	
14	4-964-718-62	PANEL, BACK (212:CND)	
14	4-964-718-72	PANEL, BACK (212:AEP)	
14	4-964-718-82	PANEL, BACK (212:E, EA)	
14	4-964-718-91	PANEL, BACK (212:AUS)	
* 15	4-949-235-01	HOOK	
* 16	3-703-244-00	BUSHING (2104), CORD (212:US, CND, AEP, AUS, EA, UK, G/312:CND, AEP, AUS, EA, E)	
* 16	3-703-571-11	BUSHING (S) (4516), CORD (212:E/312:E)	
⚠17	1-558-943-61	CORD, POWER (212:E/312:E)	
⚠17	1-575-651-21	CORD, POWER (212:AEP, EA, G/312:AEP, EA, G)	
⚠17	1-590-926-11	CORD, POWER (212:US, CND/312:CND)	
⚠17	1-696-845-11	CORD, POWER (212:AUS/312:AUS)	
⚠17	1-696-907-11	CORD, POWER (212:UK/312:UK)	
⚠18	1-569-008-11	ADAPTER, CONVERSION 2P (212:EA/312:EA)	
⚠19	1-569-007-11	ADAPTER, CONVERSION 2P (212:E/312:E)	
CNP301	1-537-472-11	JUMPER, FILM (WITH TERMINAL)	

6-2. CD MECHANISM SECTION (CDM14-5BD10 or CDM14C-5BD10)



Ref. No.	Part No.	Description	Remark
* 51	1-645-721-11	LOADING BOARD	
52	4-933-111-01	CHASSIS (MD) (212:US, CND, AEP, E, AUS, EA/312:CND, AEP, E, AUS, EA)	
52	4-933-111-11	CHASSIS (MD) (212:UK, G/312:UK, G)	
* 53	4-917-583-21	BRACKET, YOKE	
54	4-927-649-01	BELT	
55	4-933-109-01	CAM	
56	4-927-651-01	PULLEY (S)	
57	4-927-628-01	GEAR (C)	
58	4-933-107-01	GEAR (PL)	
59	4-933-112-01	TABLE, DISK (212:US, CND, AEP, E, AUS, EA/312:CND, AEP, E, AUS, EA)	
59	4-933-112-11	TABLE, DISK (212:UK, G/312:UK, G)	
60	4-933-110-01	HOLDER (MG) (212:US, CND, AEP, E, AUS, EA/312:CND, AEP, E, AUS, EA)	
60	4-933-110-11	HOLDER (MG) (212:UK, G/312:UK, G)	
* 61	1-452-538-11	MAGNET	
62	4-933-134-01	SCREW (+PTPWH M2.6X6)	
63	4-959-996-01	SPRING (932), COMPRESSION	
64	4-933-129-01	HOLDER (BU)	
M151	A-4604-363-A	MOTOR (L) ASSY (LOADING)	
*	4-604-764-01	PACK, SEAL (CDM TRANSPORT ONLY) (212:US, CND, AEP, E, AUS, EA/312:CND, AEP, E, AUS, EA)	

6-3. OPTICAL PICK-UP SECTION (BU-5BD10B)



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 piéce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
* 101	A-4649-432-A	BD BOARD, COMPLETE	
102	4-951-940-01	INSULATOR (BU)	
103	4-917-565-01	SHAFT, SLED	
⚠105	8-848-144-11	OPTICAL PICK-UP BLOCK (KSS-240A)	
106	4-917-567-01	GEAR (M)	
107	4-917-564-01	GEAR (P), FLATNESS	
108	1-575-001-11	WIRE, FLAT TYPE (12 CORE)	
M101	X-4917-523-3	MOTOR ASSY (SPINDLE)	
M102	X-4917-504-1	MOTOR ASSY (SLED)	

BD

SECTION 7
ELECTRICAL PARTS LIST

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 piéce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

- 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.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts color Cabinet's color
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- SEMICONDUCTORS
  In each case, u: μ , for example:
  uA...: μA..., uPA...: μPA..., uPB...: μPB..., uPC...: μPC..., uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH
- CND : Canadian model
- G : German model
- EA : Saudi Arabia model
- AUS : Australilan model

Ref.No.	Part No.	Description			Remark
*	A-4649-432-A	BD BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C101	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C102	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C103	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C105	1-135-155-21	TANTALUM CHIP	4.7uF	10%	16V
C106	1-164-346-11	CERAMIC CHIP	1uF		16V
C107	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C108	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C109	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C110	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C111	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C112	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C113	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C123	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C124	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C151	1-163-007-11	CERAMIC CHIP	680PF	10%	50V
C152	1-163-007-11	CERAMIC CHIP	680PF	10%	50V
C153	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C154	1-164-336-11	CERAMIC CHIP	0.33uF		25V
C155	1-163-007-11	CERAMIC CHIP	680PF	10%	50V
C156	1-163-007-11	CERAMIC CHIP	680PF	10%	50V
C157	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C158	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C159	1-163-023-00	CERAMIC CHIP	0.015uF	5%	50V
C160	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C161	1-163-038-00	CERAMIC CHIP	0.1uF		25V
		< CONNECTOR >			
* CN101	1-568-865-11	SOCKET, CONNECTOR 23P			
CN102	1-568-795-11	SOCKET, CONNECTOR 12P			
		< IC >			
IC101	8-752-361-90	IC CXD2515Q			
IC102	8-759-071-79	IC BA6297AFP			
		< MOTOR >			
M101	X-4917-523-3	MOTOR ASSY (SPINDLE)			
M102	X-4917-504-1	MOTOR ASSY (SLED)			

Ref.No.	Part No.	Description			Remark
		< RESISTOR >			
R101	1-216-077-00	METAL CHIP	15K	5%	1/10W
R102	1-216-097-00	METAL CHIP	100K	5%	1/10W
R103	1-216-077-00	METAL CHIP	15K	5%	1/10W
R104	1-216-085-00	METAL CHIP	33K	5%	1/10W
R105	1-216-097-00	METAL CHIP	100K	5%	1/10W
R106	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R107	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R108	1-216-073-00	METAL CHIP	10K	5%	1/10W
R109	1-216-121-00	METAL CHIP	1M	5%	1/10W
R110	1-216-025-00	METAL CHIP	100	5%	1/10W
R112	1-216-049-00	METAL CHIP	1K	5%	1/10W
R113	1-216-077-00	METAL CHIP	15K	5%	1/10W
R114	1-216-077-00	METAL CHIP	15K	5%	1/10W
R117	1-216-077-00	METAL CHIP	15K	5%	1/10W
R118	1-216-077-00	METAL CHIP	15K	5%	1/10W
R121	1-216-077-00	METAL CHIP	15K	5%	1/10W
R122	1-216-077-00	METAL CHIP	15K	5%	1/10W
R123	1-216-073-00	METAL CHIP	10K	5%	1/10W
R124	1-216-097-00	METAL CHIP	100K	5%	1/10W
R125	1-216-049-00	METAL CHIP	1K	5%	1/10W
R126	1-216-049-00	METAL CHIP	1K	5%	1/10W
R127	1-216-049-00	METAL CHIP	1K	5%	1/10W
R131	1-216-037-00	METAL CHIP	330	5%	1/10W
R151	1-216-070-00	METAL CHIP	7.5K	5%	1/10W
R152	1-216-070-00	METAL CHIP	7.5K	5%	1/10W
R153	1-216-070-00	METAL CHIP	7.5K	5%	1/10W
R154	1-216-070-00	METAL CHIP	7.5K	5%	1/10W
R155	1-216-070-00	METAL CHIP	7.5K	5%	1/10W
R156	1-216-070-00	METAL CHIP	7.5K	5%	1/10W
R157	1-216-093-00	METAL CHIP	68K	5%	1/10W
R158	1-216-076-00	METAL CHIP	13K	5%	1/10W
R159	1-216-085-00	METAL CHIP	33K	5%	1/10W
R160	1-216-081-00	METAL CHIP	22K	5%	1/10W
R161	1-216-308-00	METAL CHIP	4.7	5%	1/10W
R162	1-216-093-00	METAL CHIP	68K	5%	1/10W
R163	1-216-093-00	METAL CHIP	68K	5%	1/10W
		< SWITCH >			
S101	1-572-085-11	SWITCH, LEAF (LIMIT)			

Ref.No.	Part No.	Description			Remark
**********					
*	1-645-721-11	LOADING BOARD			
		**********			
		< CONNECTOR >			
* CN151	1-568-943-11	PIN, CONNECTOR 5P			
		< MOTOR >			
M151	A-4604-363-A	MOTOR (L) ASSY (LOADING)			
		< SWITCH >			
S151	1-572-086-11	SWITCH, LEAF (LOAD OUT)			
S152	1-572-086-11	SWITCH, LEAF (LOAD IN)			
**********					
*	A-4673-036-A	MAIN BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C201	1-126-157-11	ELECT	10uF	20%	16V
C202	1-126-160-11	ELECT	1uF	20%	50V
C203	1-124-584-00	ELECT	100uF	20%	10V
C204	1-126-096-11	ELECT	10uF	20%	35V
C205	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C206	1-124-589-11	ELECT	47uF	20%	16V
C207	1-124-589-11	ELECT	47uF	20%	16V
C208	1-124-589-11	ELECT	47uF	20%	16V
C209	1-126-096-11	ELECT	10uF	20%	35V
C210	1-126-157-11	ELECT	10uF	20%	16V
C211	1-126-163-11	ELECT	4.7uF	20%	50V
C212	1-124-261-00	ELECT	10uF	20%	50V
C302	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C303	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C304	1-124-584-00	ELECT	100uF	20%	10V
C305	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C306	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C307	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C308	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C309	1-124-584-00	ELECT	100uF	20%	10V
C311	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C312	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C313	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C314	1-216-295-00	METAL CHIP	0	5% 1/10W	
C316	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C317	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C318	1-163-088-00	CERAMIC CHIP	5PF		50V
C319	1-163-088-00	CERAMIC CHIP	5PF		50V
C320	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C321	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C322	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C323	1-124-584-00	ELECT	100uF	20%	10V
C324	1-163-081-00	CERAMIC CHIP	0.22uF		25V
C325	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C326	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C327	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C401	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C402	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C403	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C404	1-163-143-00	CERAMIC CHIP	0.0012uF	5%	50V
C405	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C406	1-124-584-00	ELECT	100uF	20%	10V
C501	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C502	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C503	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C504	1-163-143-00	CERAMIC CHIP	0.0012uF	5%	50V
C505	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C506	1-124-584-00	ELECT	100uF	20%	10V
C601	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C603	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C605	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C606	1-163-038-00	CERAMIC CHIP	0.1uF		25V
		< CONNECTOR >			
* CN201	1-568-830-11	SOCKET, CONNECTOR 11P			
CNP301	1-537-472-11	JUMPER, FILM (WITH TERMINAL)			
		< DIODE >			
D201	8-719-941-86	DIODE DAN202U			
D202	8-719-941-86	DIODE DAN202U			
D203	8-719-914-42	DIODE DA204K			
D204	8-719-977-28	DIODE DTZ10B			
		< FLUORESCENT INDICATOR >			
FLD601	1-519-752-11	INDICATOR TUBE, FLUORESCENT			
		< IC >			
IC201	8-759-821-93	IC LA5601			
IC202	8-759-633-42	IC M5293L			
IC301	8-752-367-61	IC CXD2565AM			
IC302	8-759-040-83	IC BA6287F			
IC401	8-759-996-43	IC RC4558PS			
IC402	8-759-996-43	IC RC4558PS			
IC601	8-752-851-82	IC CXP82316-037Q			
IC602	8-741-100-48	IC SBX1610-59			
		< COIL >			
L201	1-410-658-31	INDUCTOR CHIP	220uH		
L202	1-410-658-31	INDUCTOR CHIP	220uH		
L302	1-410-375-11	INDUCTOR CHIP	3.3uH		

MAIN P.SW

Ref.No.	Part No.	Description			Remark
L303	1-410-375-11	INDUCTOR CHIP	3.3uH		
L304	1-410-375-11	INDUCTOR CHIP	3.3uH		
		< TRANSISTOR >			
Q201	8-729-901-06	TRANSISTOR	DTA144EK		
Q202	8-729-820-76	TRANSISTOR	2SA1179-M5M6		
Q401	8-729-023-22	TRANSISTOR	2SD2114K		
Q501	8-729-023-22	TRANSISTOR	2SD2114K		
Q601	8-729-805-41	TRANSISTOR	2SC3398		
		< RESISTOR >			
R201	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R202	1-216-025-00	METAL CHIP	100	5%	1/10W
R203	1-216-097-00	METAL CHIP	100K	5%	1/10W
R204	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R206	1-216-079-00	METAL CHIP	18K	5%	1/10W
R207	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R208	1-216-097-00	METAL CHIP	100K	5%	1/10W
R209	1-216-079-00	METAL CHIP	18K	5%	1/10W
R305	1-216-021-00	METAL CHIP	68	5%	1/10W
R306	1-216-021-00	METAL CHIP	68	5%	1/10W
R307	1-216-049-00	METAL CHIP	1K	5%	1/10W
R309	1-216-049-00	METAL CHIP	1K	5%	1/10W
R310	1-216-041-00	METAL CHIP	470	5%	1/10W
R311	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R312	1-216-025-00	METAL CHIP	100	5%	1/10W
R314	1-216-025-00	METAL CHIP	100	5%	1/10W
R315	1-216-296-91	METAL GLAZE	0	5%	1/8W
R316	1-216-295-00	METAL CHIP	0	5%	1/10W
R317	1-216-049-00	METAL CHIP	1K	5%	1/10W
R401	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R402	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R403	1-216-077-00	METAL CHIP	15K	5%	1/10W
R404	1-216-077-00	METAL CHIP	15K	5%	1/10W
R405	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R406	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R407	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R408	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R409	1-216-097-00	METAL CHIP	100K	5%	1/10W
R410	1-216-049-00	METAL CHIP	1K	5%	1/10W
R411	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R412	1-216-025-00	METAL CHIP	100	5%	1/10W
R501	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R502	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R503	1-216-077-00	METAL CHIP	15K	5%	1/10W
R504	1-216-077-00	METAL CHIP	15K	5%	1/10W
R505	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R506	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R507	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R508	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R509	1-216-097-00	METAL CHIP	100K	5%	1/10W

Ref.No.	Part No.	Description			Remark
R510	1-216-049-00	METAL CHIP	1K	5%	1/10W
R511	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R512	1-216-025-00	METAL CHIP	100	5%	1/10W
R601	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R602	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R603	1-216-054-00	METAL GLAZE	1.6K	5%	1/10W
R604	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R605	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R606	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R607	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R608	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R609	1-216-054-00	METAL GLAZE	1.6K	5%	1/10W
R610	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R611	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R612	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R613	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R614	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R615	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R616	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R617	1-216-097-00	METAL CHIP	100K	5%	1/10W
R618	1-216-049-00	METAL CHIP	1K	5%	1/10W
R619	1-216-049-00	METAL CHIP	1K	5%	1/10W
R620	1-216-049-00	METAL CHIP	1K	5%	1/10W
		< SWITCH >			
S601	1-554-303-21	SWITCH, TACTILE (TIME)			
S602	1-554-303-21	SWITCH, TACTILE (REPEAT)			
S603	1-554-303-21	SWITCH, TACTILE (CHECK)			
S604	1-554-303-21	SWITCH, TACTILE (PROGRAM)			
S605	1-554-303-21	SWITCH, TACTILE (SHUFFLE)			
S606	1-554-303-21	SWITCH, TACTILE (CONTINUE)			
S607	1-554-303-21	SWITCH, TACTILE (⏏ OPEN/CLOSE)			
S608	1-554-303-21	SWITCH, TACTILE (▷II)			
S609	1-554-303-21	SWITCH, TACTILE (■)			
S610	1-554-303-21	SWITCH, TACTILE (◀◀, I◁◁)			
S611	1-554-303-21	SWITCH, TACTILE (▶▶, ▷▷I)			
S612	1-554-303-21	SWITCH, TACTILE (EDIT/TIME FADE)			
		< VIBRATOR >			
X301	1-579-833-21	VIBRATOR, CRYSTAL (33MHz)			
X601	1-577-082-11	VIBRATOR, CERAMIC (4MHz)			
**********					
*	1-650-459-11	P.SW BOARD			
		**********			
		< CONNECTOR >			
CN291	1-506-469-11	PIN, CONNECTOR 4P			

Ref. No.	Part No.	Description			Remark
		< SWITCH >			
S291	1-554-118-00	SWITCH, PUSH (1 KEY) (POWER)			
**********					
*	1-650-458-11	POWER BOARD			
		**********			
		< CAPACITOR >			
C407	1-162-291-31	CERAMIC	560PF	10%	50V
C507	1-162-291-31	CERAMIC	560PF	10%	50V
C901	1-126-768-11	ELECT	2200uF	20%	16V
C902	1-126-939-11	ELECT	10000uF	20%	16V
C903	1-124-572-11	ELECT	100uF	20%	63V
C904	1-164-159-11	CERAMIC	0.1uF		50V
C905	1-164-159-11	CERAMIC	0.1uF		50V
C906	1-164-159-11	CERAMIC	0.1uF		50V
C907	1-164-159-11	CERAMIC	0.1uF		50V
C908	1-164-159-11	CERAMIC	0.1uF		50V
		< CONNECTOR >			
* CN901	1-568-830-11	SOCKET, CONNECTOR 11P			
CN903	1-580-230-11	PIN, CONNECTOR (PC BOARD) 3P			
		< DIODE >			
D901	8-719-200-82	DIODE 11ES2			
D902	8-719-200-82	DIODE 11ES2			
D903	8-719-200-82	DIODE 11ES2			
D904	8-719-200-82	DIODE 11ES2			
D905	8-719-200-82	DIODE 11ES2			
		< JACK >			
J401	1-750-679-21	JACK, PIN 2P (LINE OUT)			
		< SWITCH >			
⚠S901	1-572-675-11	SWITCH, POWER VOLTAGE CHANGE (VOLTAGE SELECTOR) (212:E, EA/312:E, EA)			
		< TRANSFORMER >			
⚠T901	1-423-979-11	TRANSFORMER, POWER (212:AEP, UK, G, AUS/312:AEP, UK, G, AUS)			
⚠T901	1-426-621-11	TRANSFORMER, POWER (212:US, CND/312:CND)			
⚠T901	1-426-622-11	TRANSFORMER, POWER (212:E, EA/312:E, EA)			
**********					
		MISCELLANEOUS			
		**********			
9	1-765-065-11	WIRE (FLAT TYPE) (11 CORE)			
9	1-765-169-11	WIRE (FLAT TYPE) (11 CORE)			
⚠17	1-558-943-61	CORD, POWER (212:E/312:E)			

Ref. No.	Part No.	Description	Remark
⚠17	1-575-651-21	CORD, POWER (212:AEP, EA, G/312:AEP, EA, G)	
⚠17	1-590-926-11	CORD, POWER (212:US, CND/312:CND)	
⚠17	1-696-845-11	CORD, POWER (212:AUS/312:AUS)	
⚠17	1-696-907-11	CORD, POWER (212:UK/312:UK)	
⚠18	1-569-008-11	ADAPTER, CONVERSION 2P (212:EA/312:EA)	
⚠19	1-569-007-11	ADAPTER, CONVERSION 2P (212:E/312:E)	
* 61	1-452-538-11	MAGNET	
⚠105	8-848-144-11	OPTICAL PICK-UP BLOCK (KSS-240A)	
108	1-575-001-11	WIRE, FLAT TYPE (12 CORE)	
CNP301	1-537-472-11	JUMPER, FILM (WITH TERMINAL)	
M101	X-4917-523-3	MOTOR ASSY (SPINDLE)	
M102	X-4917-504-1	MOTOR ASSY (SLED)	
M151	A-4604-363-A	MOTOR (L) ASSY (LOADING)	
**********			
		ACCESSORIES & PACKING MATERIALS	
		**********	
	1-467-316-11	REMOTE COMMANDER (RM-D320) (312)	
	1-558-271-11	CORD, CONNECTION (AUDIO 108cm)	
	3-757-992-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH, SWEDISH) (212:CND, AEP, E, AUS, EA/312:CND, AEP, E, AUS, EA)	
	3-757-992-21	MANUAL, INSTRUCTION (ENGLISH) (212:US)	
	3-757-992-41	MANUAL, INSTRUCTION (GERMAN, ITALIAN, DUTCH, PORTUGUESE) (212:AEP/312:AEP)	
	3-757-992-51	MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH, DANISH) (212:AEP, UK/312:AEP, UK)	
	3-757-992-61	MANUAL, INSTRUCTION (GERMAN, ITALIAN, DUTCH, PORTUGUESE) (212:AEP/312:AEP)	
	3-757-992-71	MANUAL, INSTRUCTION (GERMAN) (212:G/312:G)	
	3-757-992-81	MANUAL, INSTRUCTION (CHINESE) (212:E, EA/312:E, EA)	
*	4-925-389-11	CUSHION (212:US, CND, AEP, E, AUS, EA/312:CND, AEP, E, AUS, EA)	
*	4-929-506-01	CUSHION (212:AEP, UK, G/312:AEP, UK, G)	
	4-962-615-01	COVER, BATTERY (for RM-D320) (312)	
*	4-964-737-41	INDIVIDUAL CARTON (312:CND, E, AUS, EA)	
*	4-964-737-51	INDIVIDUAL CARTON (312:AEP)	
*	4-964-737-61	INDIVIDUAL CARTON (212:US, CND, E, AUS, EA)	
*	4-964-737-71	INDIVIDUAL CARTON (212:AEP)	
*	4-964-925-01	INDIVIDUAL CARTON (212:UK, G)	
*	4-964-925-11	INDIVIDUAL CARTON (312:UK, G)	
**********			

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 piéce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
		********** HARDWARE LIST **********	
#1	7-682-548-04	SCREW +BVTT 3X8 (S)	
#2	7-682-547-09	SCREW +BVTT 3X6 (S)	
#3	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#4	7-621-775-10	SCREW +B 2.6X4	
#5	7-621-255-15	SCREW +P 2X3	
#6	7-685-134-19	SCREW +BTP 2.6X8 TYPE2 N-S	

9-959-402-11

Sony Corporation
Audio Group

English
94C09101-1
Printed in Japan
© 1994.3
Published by Audio Sector Quality Assurance Dept.

CDP-212/312

SONY

SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model
E model
Australian Model

SUPPLEMENT-1

File this supplement with the service manual.

Subject : 1. CORRECTION
2. PARTS CHANGED
3. BOARD CHANGED
4. MODEL ADDITION (CDP-312: US model)

(ECN-CD400569)

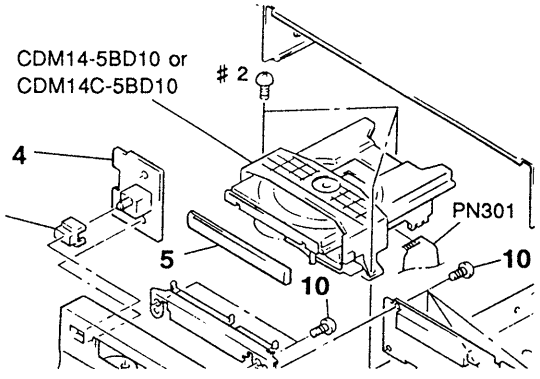
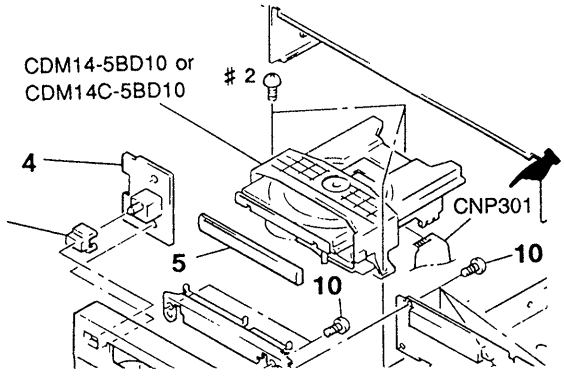
1. CORRECTION

• The base unit is corrected as shown in the table below.

INCORRECT	CORRECT
BU-5BD10B	BU-5BD10

• Correct your service manual as shown below.

☛ : Indicates corrected portion.

Page	INCORRECT				CORRECT			
	Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
23	*** EXPLODED VIEWS ***				*** EXPLODED VIEWS ***			
								
24	*	4-604-764-01	PACK, SEAL (CDM TRANSPORT ONLY) (212: US, CND, AEP, E, AUS, EA/312: CND, AEP, E, AUS, EA)		———			

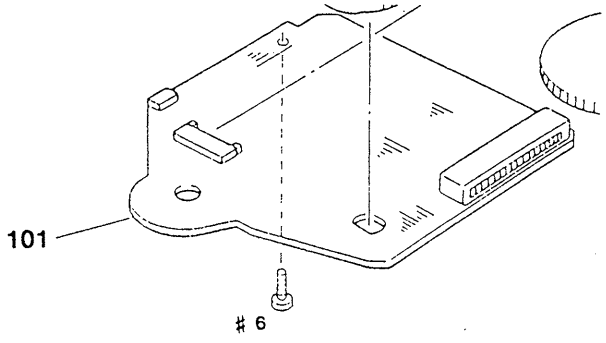
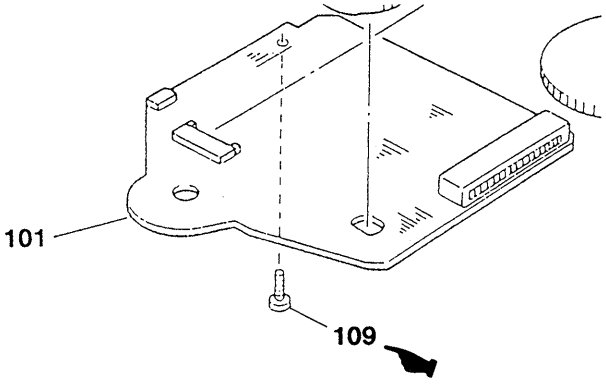
2. PARTS CHANGED

☛ : Changed portion.

Page	FORMER				NEW			
	Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
23	*** EXPLODED VIEWS ***				*** EXPLODED VIEWS ***			
	*6	A-4673-036-A	MAIN BOARD, COMPLETE		*6	A-4673-330-A	MAIN BOARD, COMPLETE	
24	57	4-927-628-01	GEAR (C)		57	4-967-268-01	GEAR (C)	
	60	4-933-110-01	HOLDER (MG) (212: US, CND, AEP, E, AUS, EA/312: CND, AEP, E, AUS, EA)		60	4-933-110-41	HOLDER (MG)	
	60	4-933-110-11	HOLDER (MG) (212: UK, G/312: UK, G)		———			

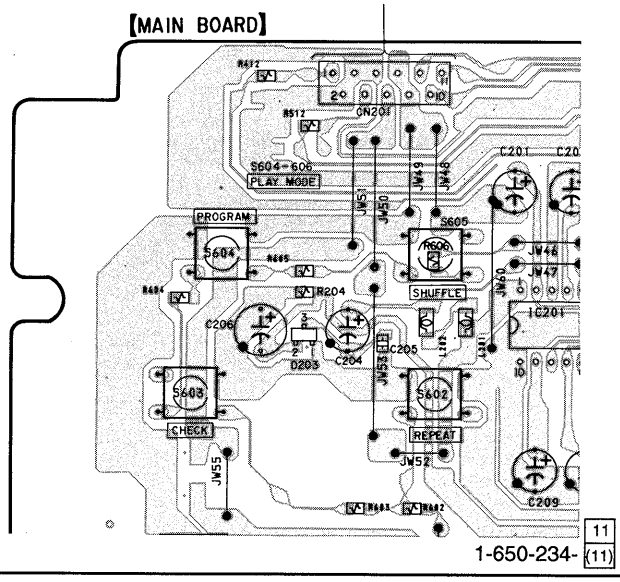
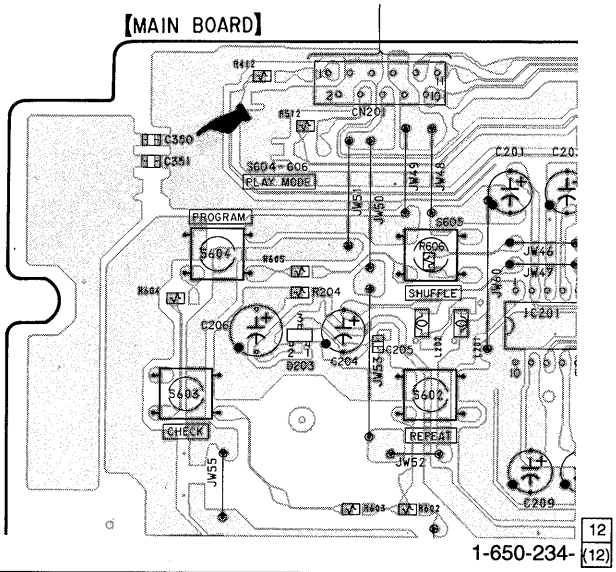
NOTE:

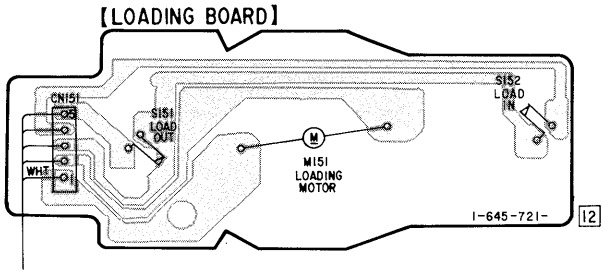
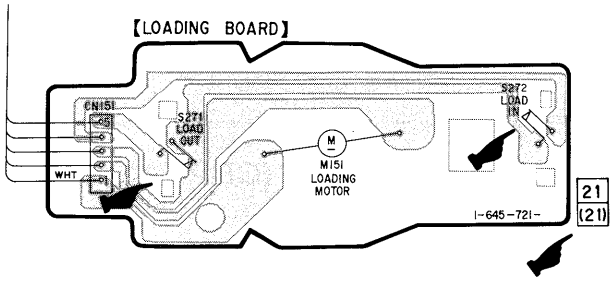
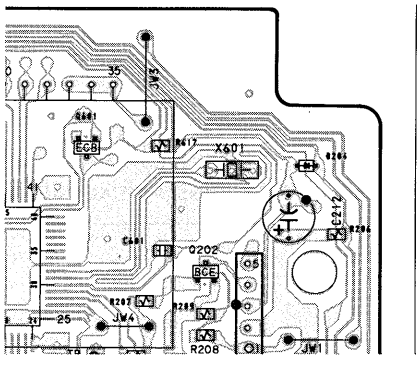
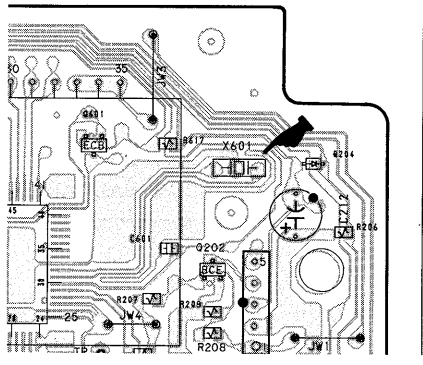
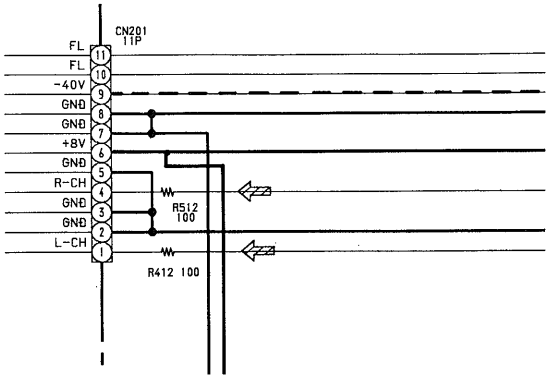
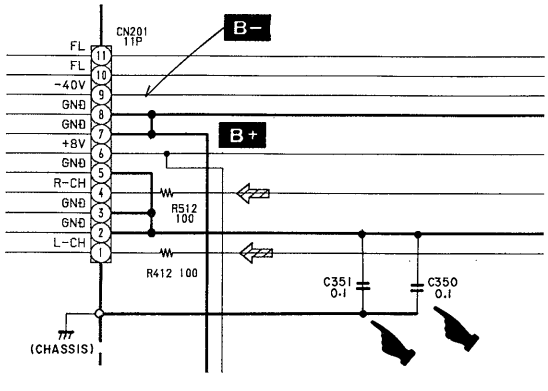
- Abbreviation
  - CND : Canadian model
  - G : German model
  - EA : Saudi Arabia model
  - AUS : Australian model

Page	FORMER	NEW
25	Ref. No. Part No. Description Remark *101 A-4649-432-A BD BOARD, COMPLETE  	Ref. No. Part No. Description Remark *101 A-4649-946-A BD BOARD, COMPLETE 109 4-951-620-01 SCREW (2.6X8, +BVTP) 
26	*** ELECTRICAL PARTS LIST *** * A-4649-432-A BD BOARD, COMPLETE IC101 8-752-361-90 IC CXD2515Q	*** ELECTRICAL PARTS LIST *** * A-4649-946-A BD BOARD, COMPLETE IC101 8-752-351-94 IC CXD2515Q
27	* A-4673-036-A MAIN BOARD, COMPLETE C318 1-163-088-00 CERAMIC CHIP 5PF 50V C319 1-163-088-00 CERAMIC CHIP 5PF 50V IC601 8-752-851-82 IC CXP82316-037Q IC602 8-741-100-48 IC SBX1610-59	* A-4673-330-A MAIN BOARD, COMPLETE C318 1-163-222-11 CERAMIC CHIP 5PF 0.25PF 50V C319 1-163-222-11 CERAMIC CHIP 5PF 0.25PF 50V IC601 8-752-861-37 IC CXP82316-046Q IC602 8-741-810-59 IC SBX1610-59
30	*** HARDWARE LIST *** #2 7-682-547-09 SCREW +BVTT 3X6 (S) #6 7-685-134-19 SCREW +BVTP 2.6X8 TYPE2 N-S	*** HARDWARE LIST *** #2 7-682-871-01 SCREW +BVTT 3X6 (S)

3. BOARD CHANGED

☛ : Indicates changed portion.

Page	FORMER	NEW
16	**[MAIN BOARD]** Location: G-J, 1-4  	**[MAIN BOARD]** Location: G-J, 1-4 

Page	FORMER	NEW
17	**[LOADING BOARD]** Location: E-F, 6-9 	**[LOADING BOARD]** Location: E-F, 6-9 
18	**[MAIN BOARD]** Location: H-I, 12-14 	**[MAIN BOARD]** Location: H-I, 12-14 
19	**[MAIN BOARD]** Location: C-5 	**[MAIN BOARD]** Location: C-5 

Page	FORMER				NEW			
	Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
			LOADING					
27	*	1-645-721-11	LOADING BOARD		*	1-645-721-21	LOADING BOARD	
	S151	1-572-086-11	SWITCH, LEAF (LOAD OUT)		S271	1-572-086-11	SWITCH, LEAF (LOAD OUT)	
	S152	1-572-086-11	SWITCH, LEAF (LOAD IN)		S272	1-572-086-11	SWITCH, LEAF (LOAD IN)	
			MAIN					
			———		C350	1-163-038-00	CERAMIC CHIP 0.1uF	25V
			———		C351	1-163-038-00	CERAMIC CHIP 0.1uF	25V

4. MODEL ADDITION (CDP-312: US model)

• For detailed CDP-312: US model, refer to CDP-212: US model.

Difference table

Page	212: US model				312: US model			
	Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
23			*** EXPLODED VIEWS ***				*** EXPLODED VIEWS ***	
	2	X-4944-474-1	PANEL ASSY, FRONT		2	X-4944-472-1	PANEL ASSY, FRONT	
	5	4-962-897-91	PANEL, LOADING		5	4-962-897-81	PANEL, LOADING	
	12	4-929-035-31	CASE (AFTER BAP)		12	4-929-035-71	CASE (AFTER BAP)	
	*14	4-964-718-51	PANEL, BACK		*14	4-964-718-01	PANEL, BACK	
			*** ACCESSORIES & PACKING MATERIALS ***				*** ACCESSORIES & PACKING MATERIALS ***	
			———			1-467-316-11	REMOTE COMMANDER (RM-D320)	
			———			4-962-615-01	COVER, BATTERY (for RM-D320)	
	*	4-964-737-61	INDIVIDUAL CARTON		*	4-964-737-41	INDIVIDUAL CARTON	

9-959-402-81

Sony Corporation
Home A&V Products Company

English
96G0987-1
Printed in Japan
© 1996.7
Published by Quality Engineering Dept.
(Shibaura)