

CDP-213/313

SERVICE MANUAL

Canadian Model
AEP Model
UK Model
E Model
CDP-213/313
Australian Model
CDP-213

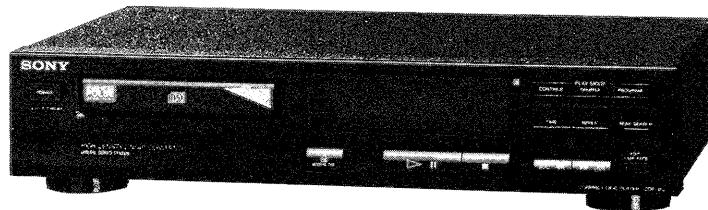


Photo : CDP-313

Model Name Using Similar Mechanism	CDP-212/312
CD Mechanism Type	CDM14-5BD10
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 \pm 0.5 dB
Signal-to-noise ratio	More than 97 dB
Dynamic range	More than 95 dB
Harmonic distortion	Less than 0.005%
Channel separation	More than 93 dB

Outputs

	Jack type	Maximum output level	Load impedance
LINE OUT (VARIABLE) (CDP-313)	Phono jacks	2 V (at 50 kilohms)	Over 10 kilohms
LINE OUT (CDP-213)	Phono jacks	2 V (at 50 kilohms)	Over 10 kilohms

General

Power requirements

Where purchased	Power requirements
Continental Europe	220 V - 230 V AC, 50/60 Hz
Canada	120 V AC, 60 Hz
Australia	240 V AC, 50 Hz
Other countries	110 V - 120 V or 220 V - 240 V AC, adjustable, 50/60 Hz

Power consumption	10 W
Dimensions (approx.) (w/h/d)	430 x 100 x 295 mm (17 x 4 x 11 5/8 in.) incl. projecting parts
Mass (approx.)	3.0 kg (6 lbs 10 oz)

Supplied accessories

Audio cord (2 phono plugs - 2 phono plugs) (1)
Remote commander (remote) (CDP-313 only) (1)
Sony SUM-3 (NS) batteries (CDP-313 only) (2)

Design and specifications are subject to change without notice.

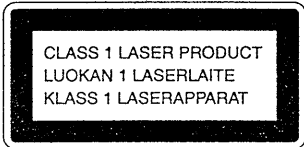


COMPACT DISC PLAYER
SONY®

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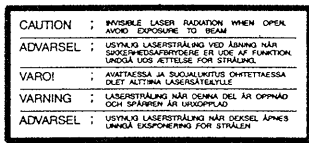
CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

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



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 of the unit.

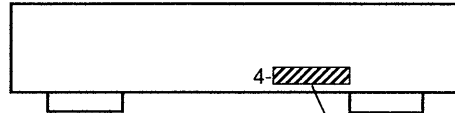


- Notes on chip component replacement
- Never reuse a disconnected chip component.
 - Notice that the minus side of a tantalum capacitor may be damaged by heat.

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MODEL IDENTIFICATION

— BACK PANEL —



- | | |
|--------------------------|--------------|
| CDP-213 | |
| Canadian Model | : 969-754-0□ |
| AEP Model | : 969-743-5□ |
| (made in FRANCE) | |
| AEP Model | : 969-754-1□ |
| (made in CHINA) | |
| UK Model | : 969-743-7□ |
| German Model | : 969-743-6□ |
| E Model | : 969-754-5□ |
| Australian Model | : 969-754-4□ |
| CDP-313 | |
| Canadian Model | : 969-747-5□ |
| AEP, East European Model | : 969-743-2□ |
| (made in FRANCE) | |
| AEP Model | : 969-747-6□ |
| (made in CHINA) | |
| UK Model | : 969-743-4□ |
| German Model | : 971-521-0□ |
| E Model | : 969-747-8□ |
| E Model | : 969-747-9□ |
| (made in CHINA) | |

SECTION 1 SERVICING NOTE

SAFETY CHECK-OUT

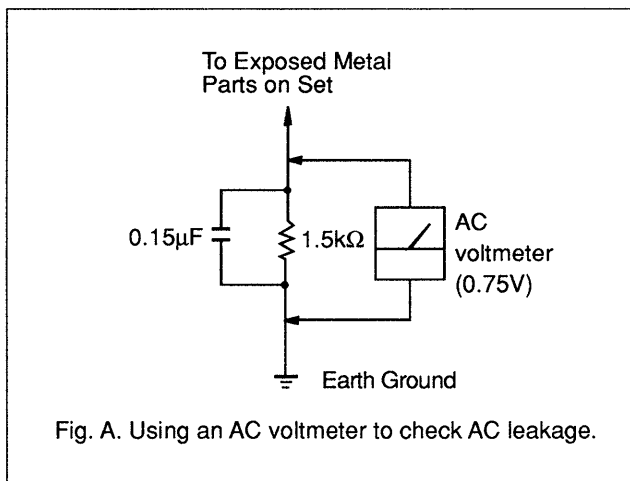
After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

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 microamperes). 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)



SAFETY-RELATED COMPONENT WARNING !!
COMPONENTS IDENTIFIED BY MARK Δ OR DOTTED LINE WITH MARK Δ 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.

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 repair parts.

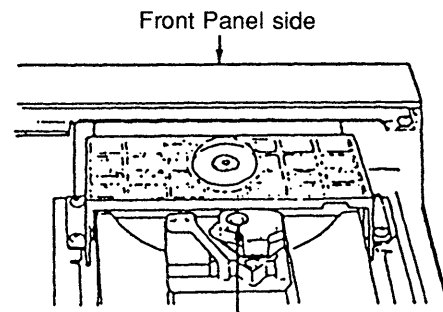
The flexible board is easily damaged and should be handled with care.

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.



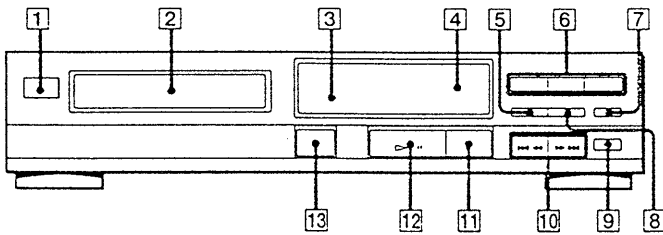
- ① Confirm that laser beam is spread.
- ② Up and down motion of the objective lens. (3 times)

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

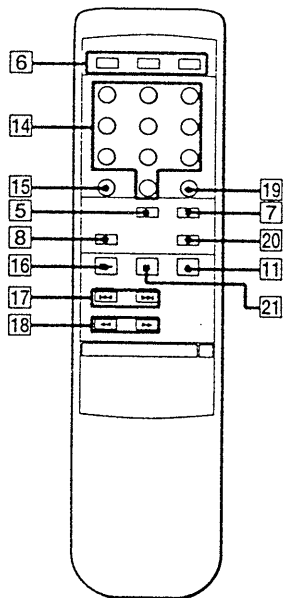
ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!!
LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE Δ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SECTION 2 GENERAL

CDP-213/313



RM-D420



(only for CDP-313)

Identifying the Parts

Refer to the pages indicated in parenthesis for details.

Front Panel / Remote Commander

- 1 POWER switch
- 2 Disc tray
- 3 Display
- 4 Remote sensor (only for CDP-313)
- 5 TIME button
- 6 PLAY MODE buttons
CONTINUE button
SHUFFLE button
PROGRAM button
- 7 CHECK (program check) button
- 8 REPEAT button
- 9 EDIT/TIME FADE button
- 10 <<< << / >> >>> (AMS*/manual search) buttons
- 11 ■ (stop) button
- 12 ▷|| (play/pause) button
- 13 ≡ OPEN/CLOSE button
- 14 Numeric buttons**
- 15 10 (over 10) button**
- 16 ▶ (play) button**
- 17 <<< / >>> (AMS*) buttons**
- 18 << / >> (manual search) buttons**
- 19 CLEAR (program clear) button**
- 20 FADER button**
- 21 || (pause) button**

* AMS is the abbreviation of Automatic Music Sensor.

** only on the remote commander

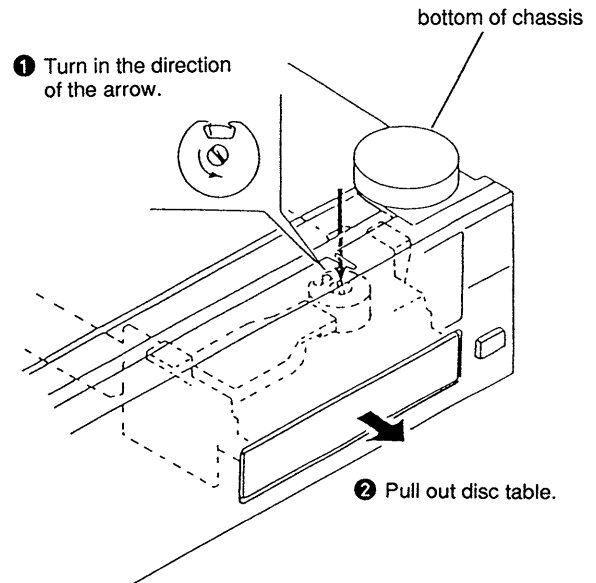
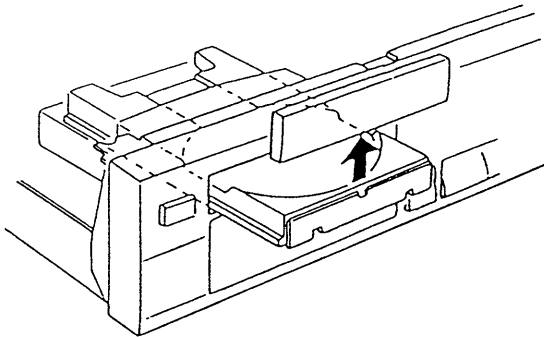
SECTION 3 DISASSEMBLY

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

3-1. 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.

③ Remove loading panel in the arrow direction.



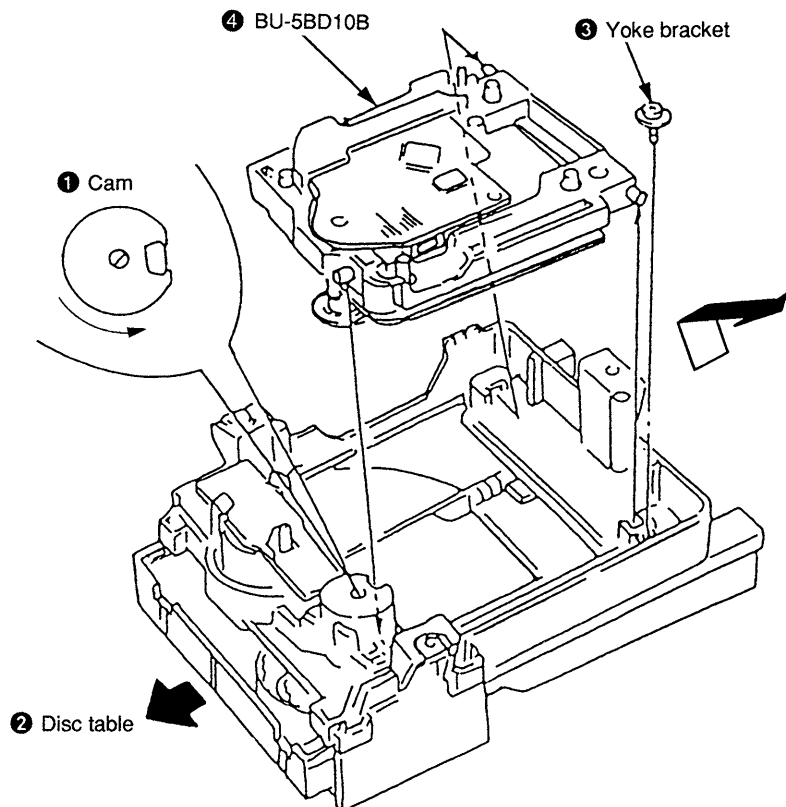
3-2. BASE UNIT BLOCK

① Turn the cam to the direction of arrow (Counter clock wise) by minus screw driver.

② Take off the disc table.

③ Remove the yoke bracket.

④ Remove the MD (BU-5BD10B) to the direction of arrow.



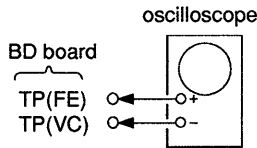
SECTION 4

ELECTRICAL BLOCK CHECKING

Note :

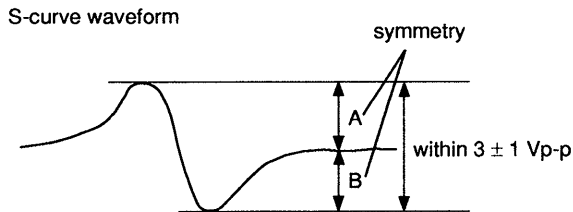
1. CD Block is basically designed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use an oscilloscope with more than 10MΩ impedance.
4. Clean the object lens using an applicator with neutral detergent when the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

S Curve Check



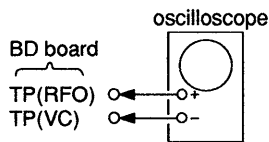
Procedure :

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. Turn Power switch on.
4. Put disc (YEDS-18) in and turn Power switch on again and actuate the focus search. (actuate the focus search when disc table is moving in and out.)
5. Check if 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 measure several times to make sure than the ratio of A : B or B : A is more than 10 : 7.
 - Set sweep time as long as possible and set the brightness to obtain best waveform.

RF Level Check



Procedure :

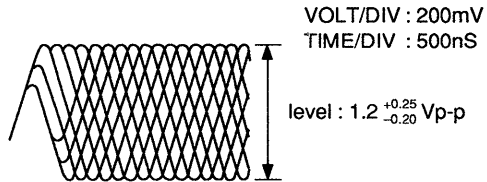
1. Connect oscilloscope to test point TP (RFO) on BD board.
2. Turn Power switch on.

3. Put disc (YEDS-18) in and playback.
4. Confirm that oscilloscope waveform is clear and check if RF signal level is correct or not.

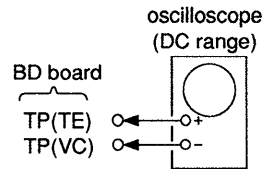
Note :

A clear RF signal waveform means that the shape “◇” can be clearly distinguished at the center of the waveform.

RF signal waveform

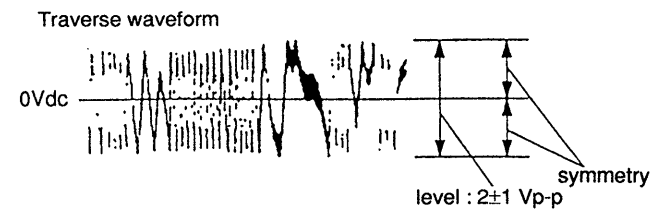


E-F Balance Check



Procedure :

1. Connect test point TP (ADJ) on MAIN board to ground and TP(TEI) to TP (VC) with a lead wire.
2. Connect oscilloscope to test point TP (TE) on BD board.
3. Turn 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 0V, and check this level.

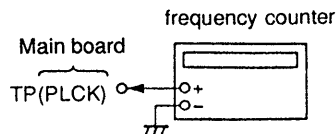


6. Remove the lead wire connected in step 1.

RF PLL Free-run Frequency Check

Procedure :

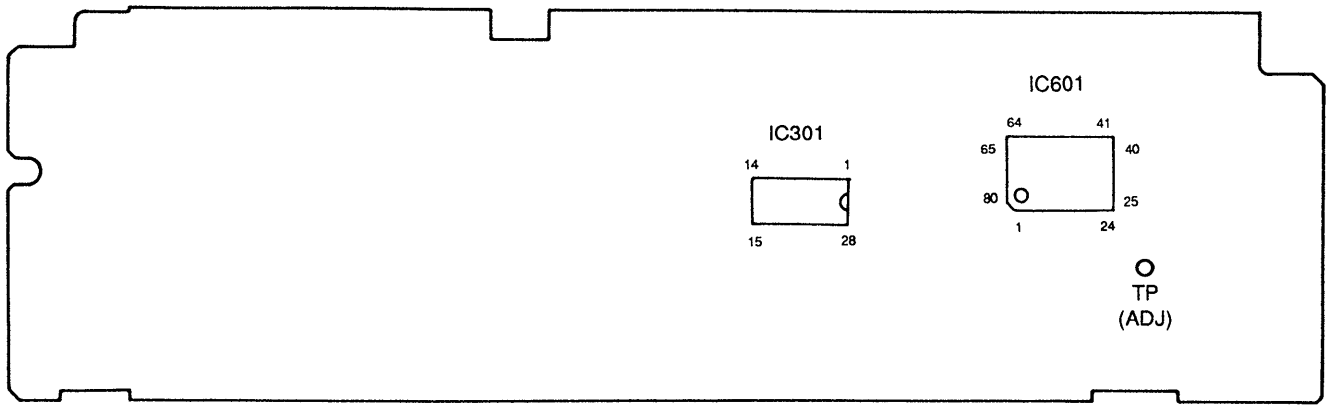
1. Connect frequency counter to test point (PLCK) with lead wire.



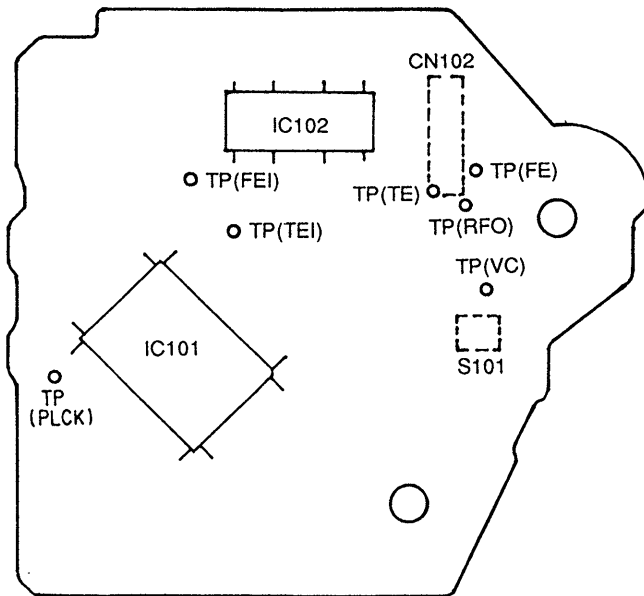
2. Turn Power switch on.
3. Confirm that reading on frequency counter is 4.3218MHz.

Adjustment Location :

[BD BOARD] — Conductor Side —



[MAIN 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	VCK1	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 compare voltage input
39	ASYO	O	EFM full swing output
40	AVD1	—	Analog power supply

Pin No.	Pin Name	I/O	Function
41	DVDD	–	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. GTOF 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. XRAOF 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	DVss	–	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

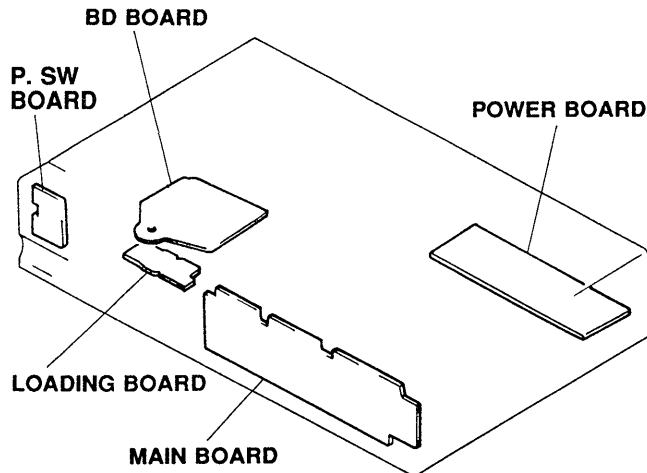
• IC301 (CXD2565AM)

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

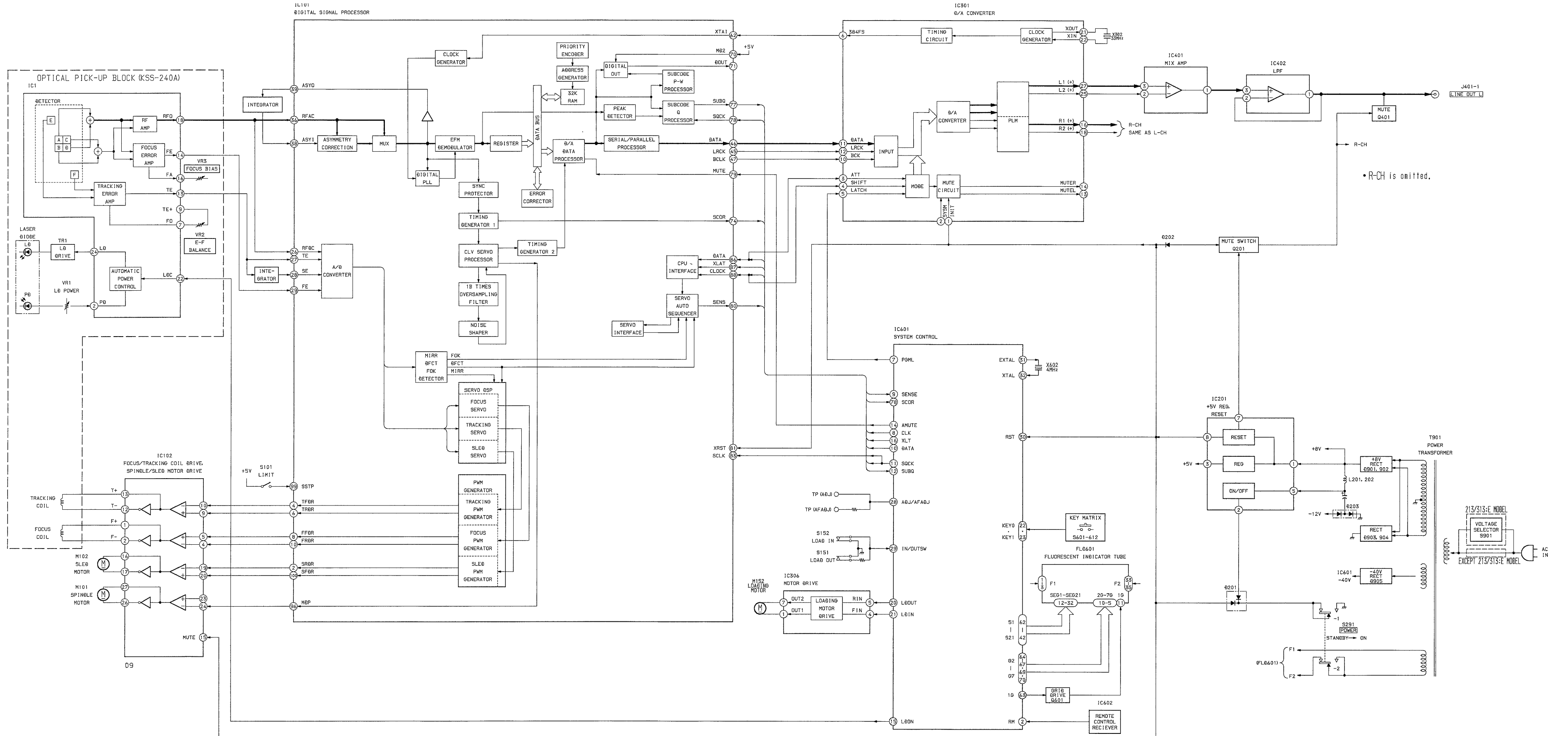
• IC601 (CXP82612-007Q)

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	V _{ss}	—	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. CIRCUIT BOARDS LOCATIONS

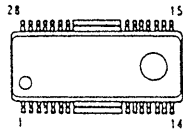


5-3. BLOCK DIAGRAM

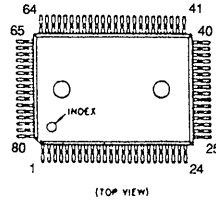


5-4. SEMICONDUCTOR LEAD LAYOUTS

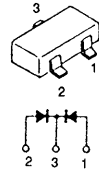
BA6297AFP



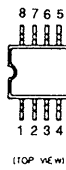
CXP82612-007Q



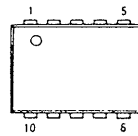
DAN202U



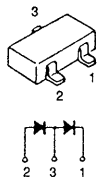
**BA6287F
RC4558PS
μPC4558G2**



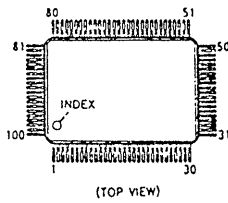
LA5601



DA204K



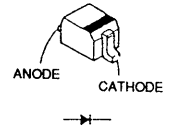
CXD2515Q



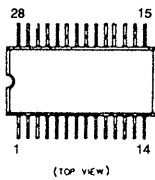
M5293L



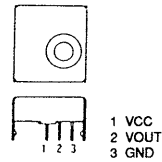
DTZ10B



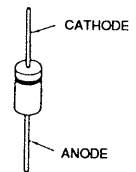
CXD2565AM



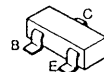
SBX1610-59



11ES2



**DTA144EKA
DTA144WK
DTC114EKA
2SA1162-G
2SA1179-M5M6
2SC3398
2SD2114K**

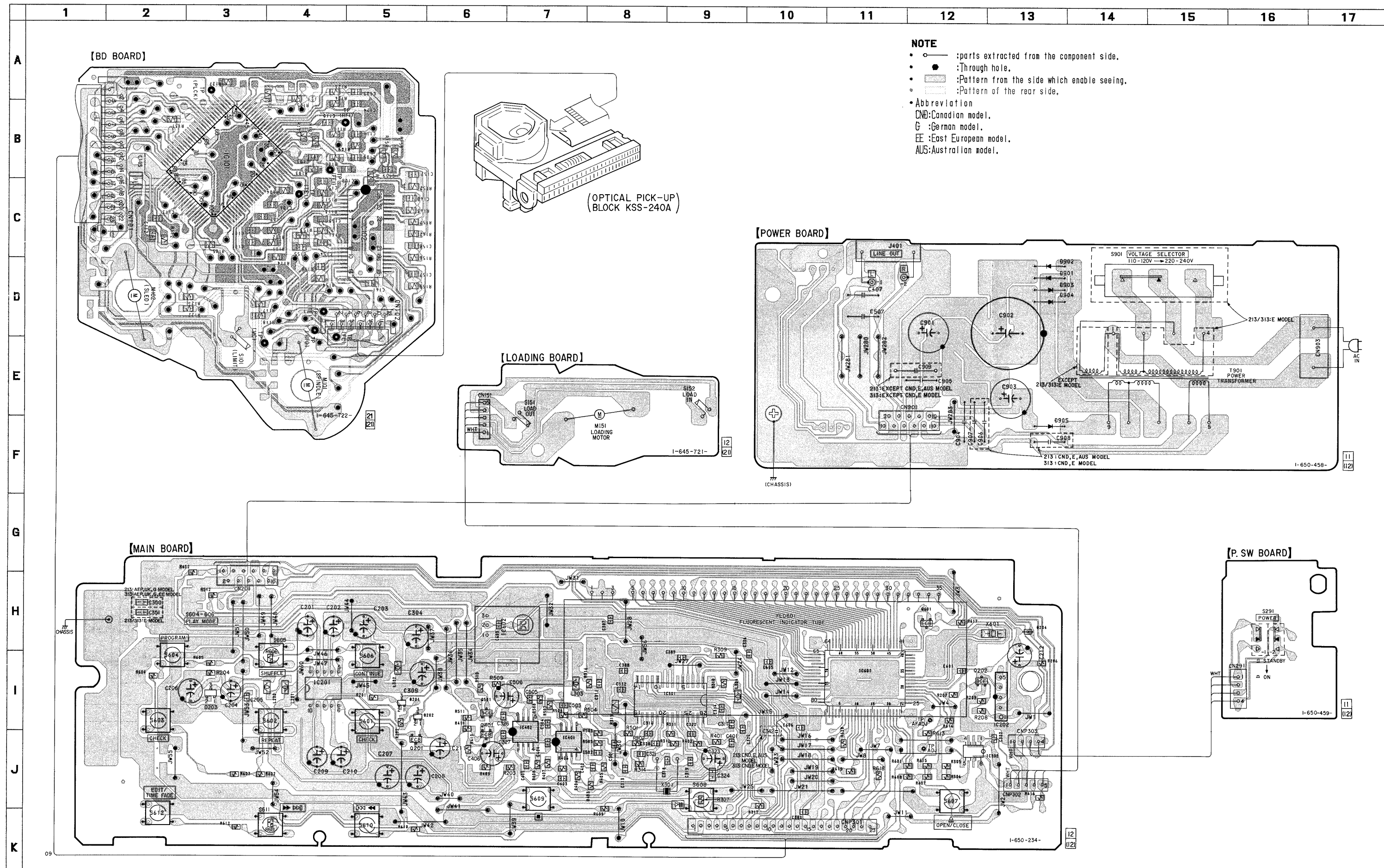


5-5. PRINTED WIRING BOARDS

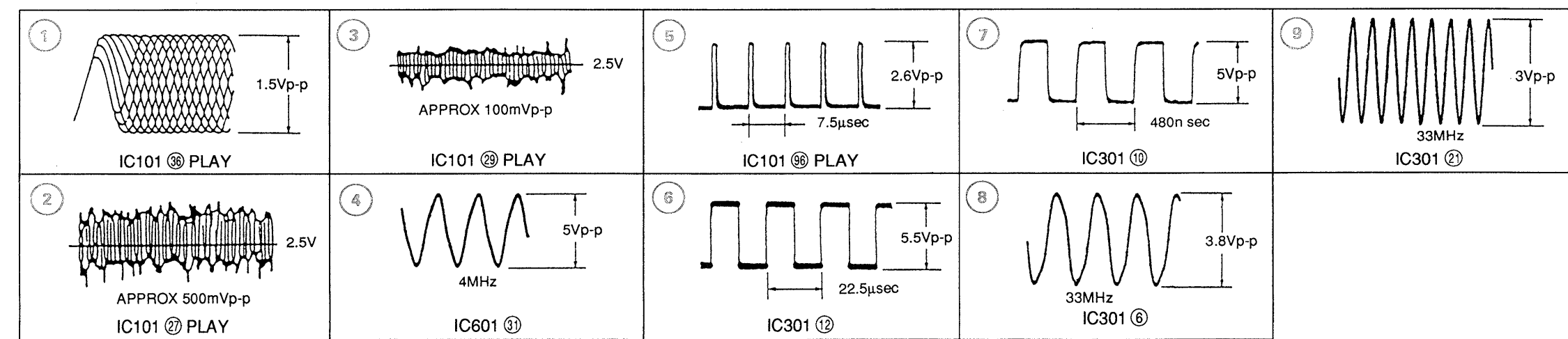
• See page 12 for Circuit Boards Location.

• Semiconductor Location

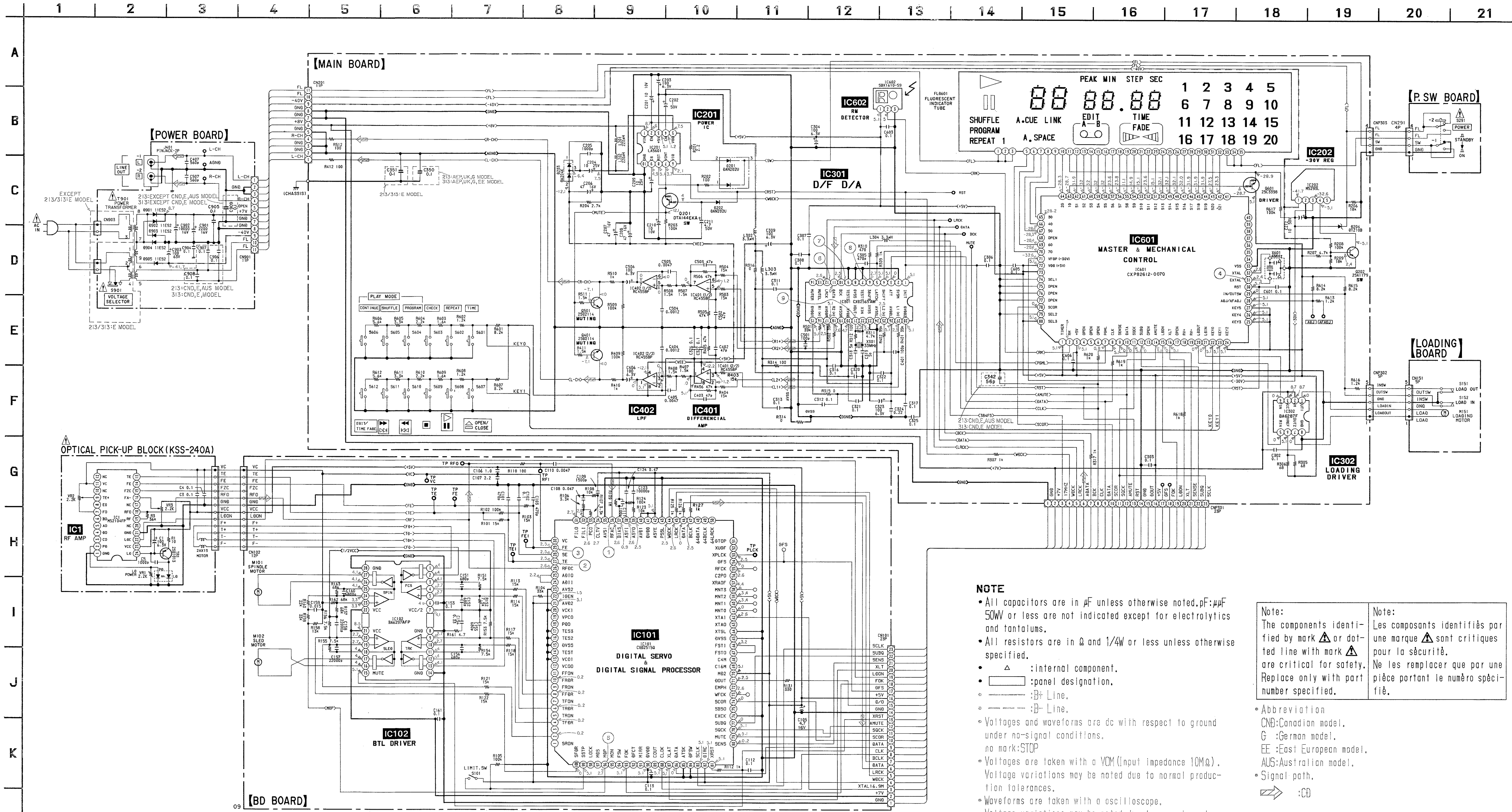
Ref. No.	Location
D201	I-5
D202	I-6
D203	I-3
D204	H-13
D901	D-13
D902	D-13
D903	D-13
D904	D-13
D905	E-13
IC101	B-3
IC102	C-5
IC201	I-4
IC202	I-13
IC301	I-9
IC302	J-13
IC401	J-7
IC402	I-7
IC601	I-11
IC602	H-6
Q201	J-5
Q202	I-12
Q401	I-6
Q501	I-6
Q601	H-12



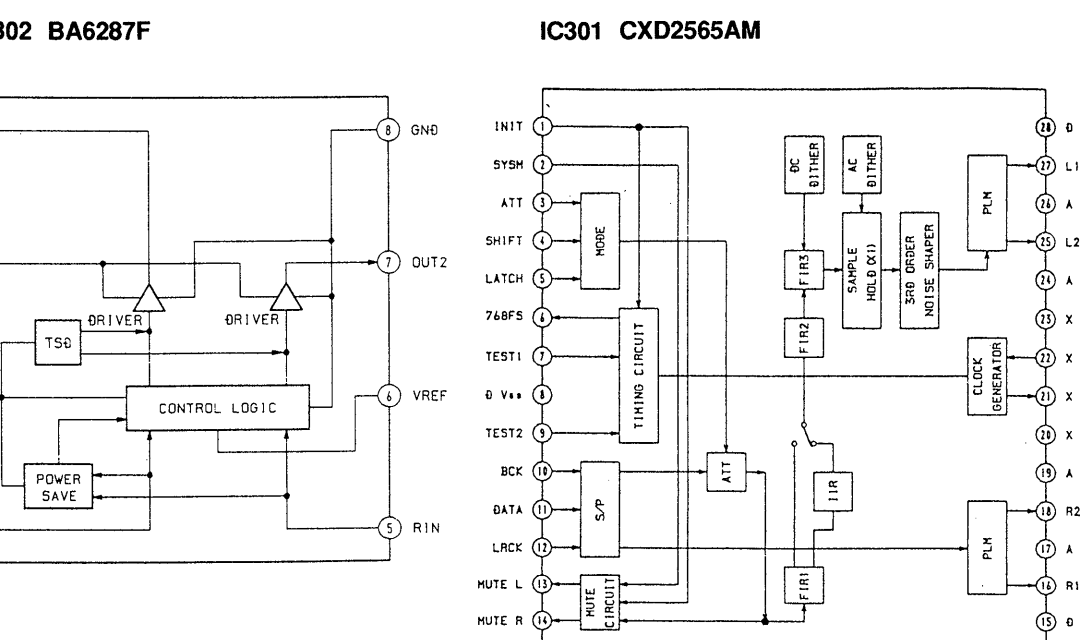
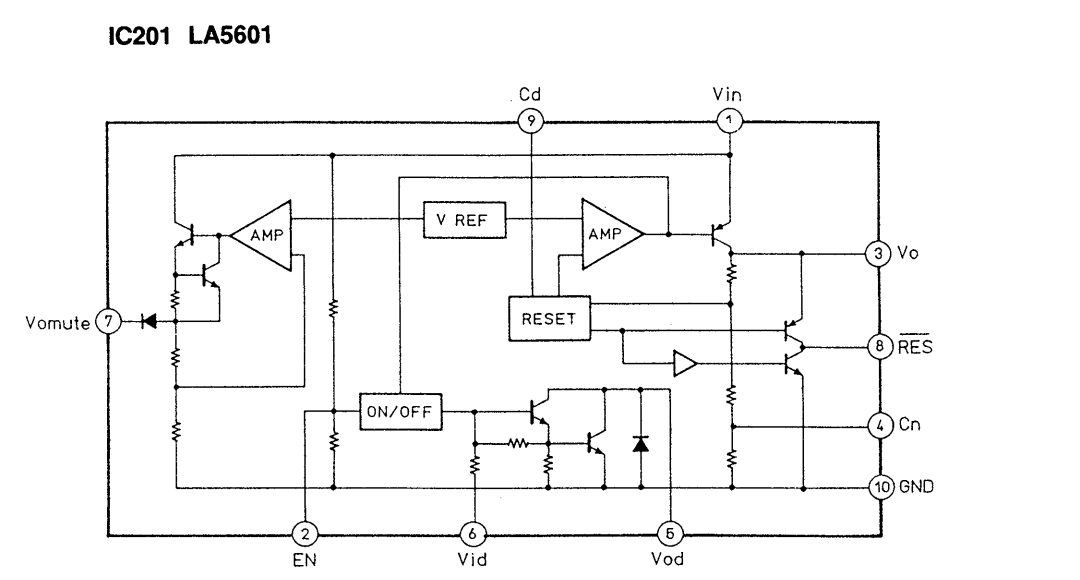
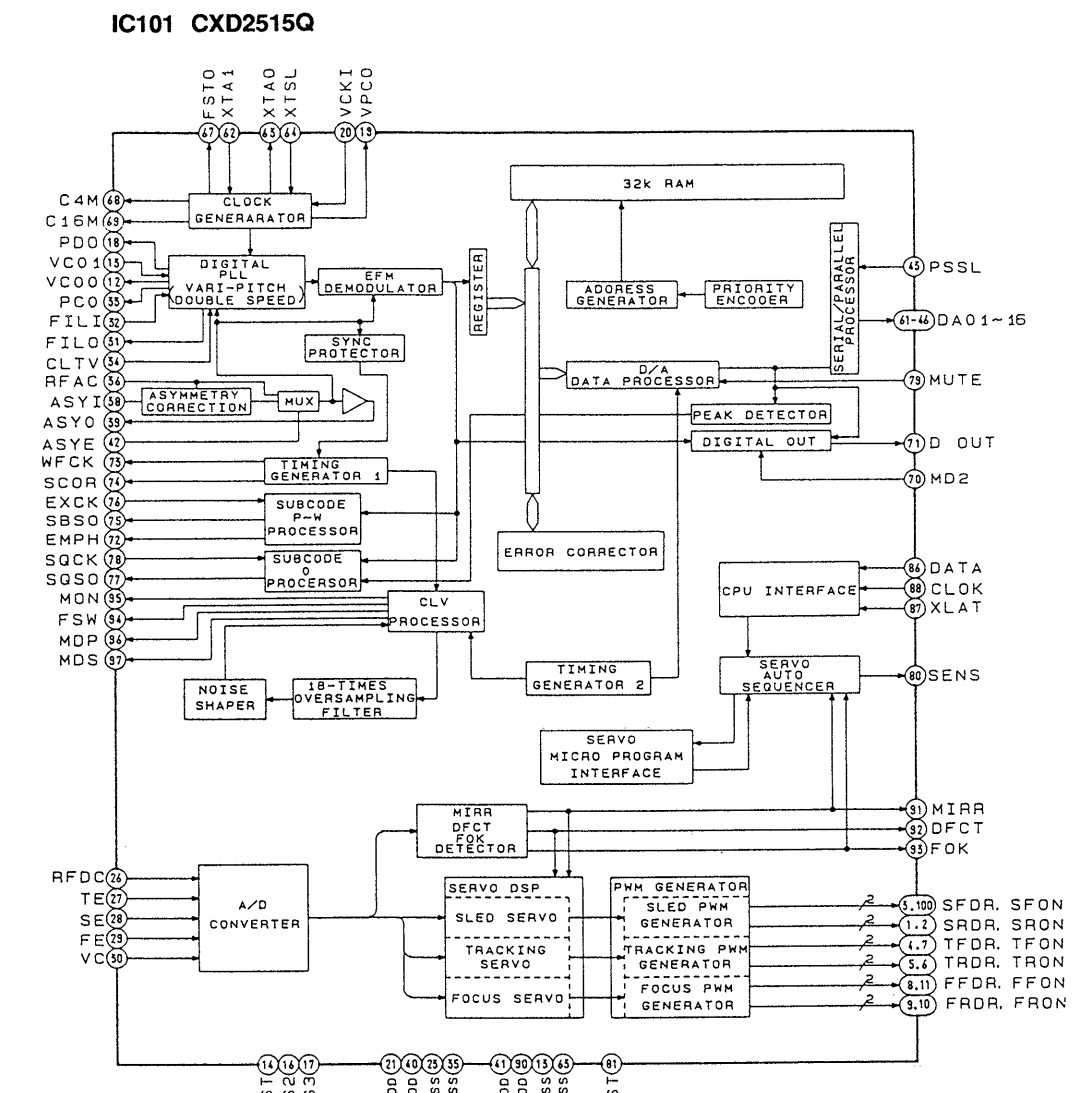
Waveforms



5-6. SCHEMATIC DIAGRAM
• See page 8 for IC Pin Functions. (IC101, IC301, IC601)



IC Block Diagrams



NOTE

- All capacitors are in μF unless otherwise noted, pF: μF 50W or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $1/4W$ or less unless otherwise specified.
- Δ : internal component.
- \square : ponel designation.
- \ominus : B+ Line.
- \ominus : B- Line.
- Voltages and waveforms are dc with respect to ground under no-signal conditions, no mark: STOP.
- Voltages are taken with a VOM (Input impedance $10M\Omega$). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with an oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.

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

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

• Abbreviation
CND: Canadian model,
G: German model,
EE: East European model,
AUS: Australian model,
• Signal path,
 \Rightarrow : CD

SECTION 6

EXPLODED VIEWS

NOTE:

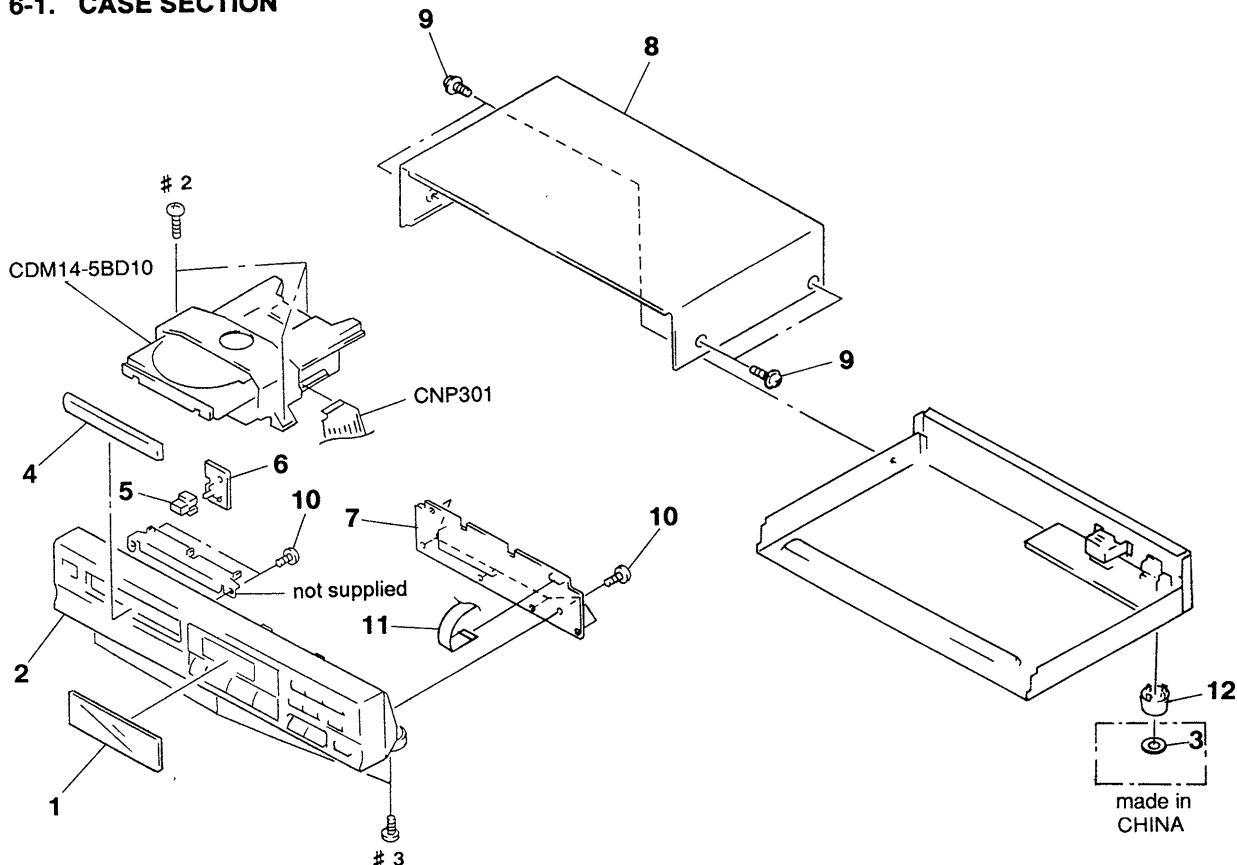
- Items marked “ * ” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

- Abbreviation
 CND : Canadian model
 G : German model
 EE : East European model
 AUS : Australian model

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

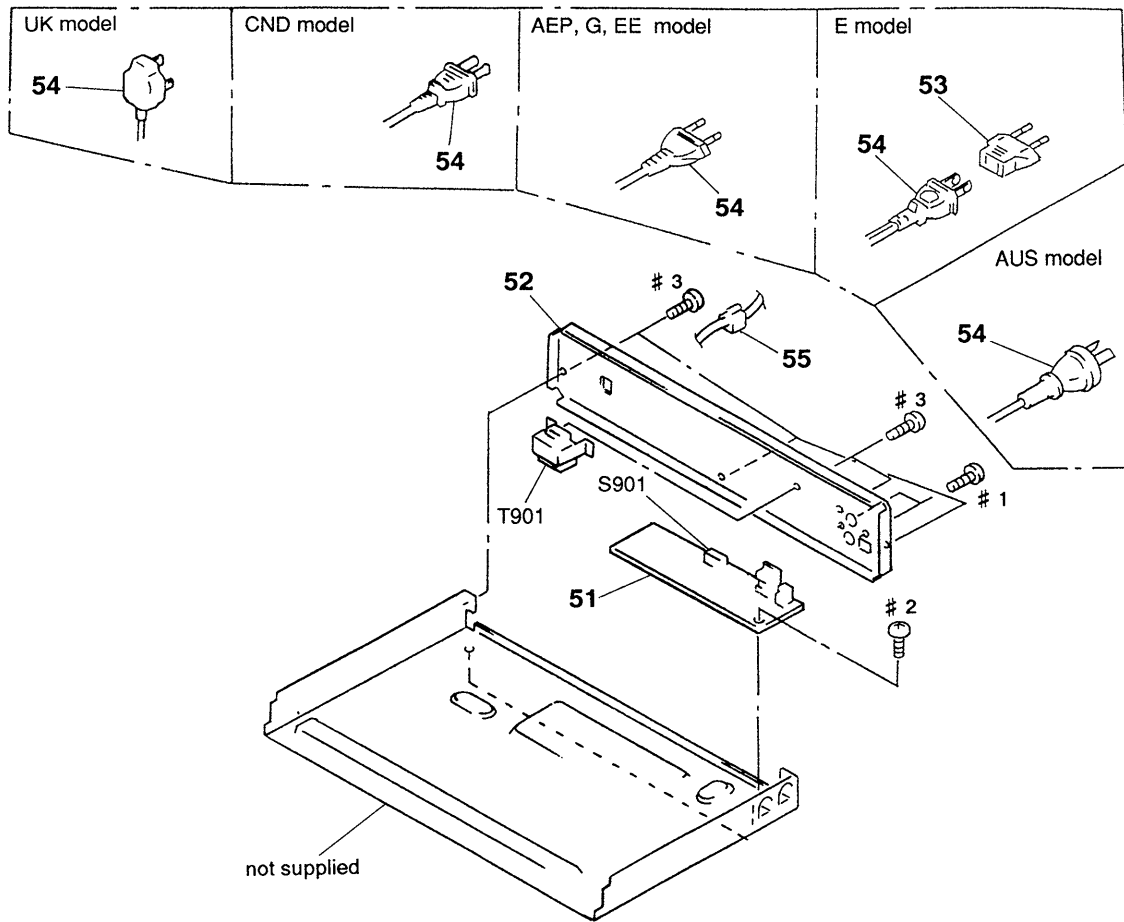
Les composants identifiés par une marque \triangle sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

6-1. CASE SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	4-962-270-01	PLATE, INDICATION		5	4-947-034-01	BUTTON (POWER)	
2	X-4945-303-1	PANEL ASSY, FRONT (made in FRANCE)		* 6	1-650-459-11	P. SW BOARD	
2	X-4945-304-1	PANEL ASSY, FRONT (made in FRANCE)	(313:AEP, UK, G, EE)	* 7	A-4673-259-A	MAIN BOARD, COMPLETE	(213:CND, AUS/313:CND)
2	X-4945-305-1	PANEL ASSY, FRONT (made in CHINA)	(213:AEP, UK, G)	* 7	A-4673-312-A	MAIN BOARD, COMPLETE (E)	
2	X-4945-306-1	PANEL ASSY, FRONT (made in CHINA)	(313:CND)	* 7	A-4673-316-A	MAIN BOARD, COMPLETE	(213:AEP, UK, G/313:AEP, UK, G, EE)
2	X-4945-307-1	PANEL ASSY, FRONT (made in CHINA)	(213:CND)	* 8	4-929-035-31	CASE (BAP SUMI)	
2	X-4945-308-1	PANEL ASSY, FORNT (made in CHINA)	(213:AEP, E, AUS)	9	3-363-099-01	SCREW (CASE 3 TP2) (made in FRANCE)	(213:AEP, UK, G/313:AEP, UK, G, EE)
3	4-964-668-01	CUSHION (DIA. 16) (made in CHINA)	(213:CND, AEP, E, AUS/313:CND, AEP, E)	9	3-704-366-31	SCREW (CASE) (M3X6) (made in CHINA)	(CND, AEP, E)
4	4-969-744-01	PANEL, LOADING (made in FRANCE)	(313:AEP, UK, G, EE)	10	4-951-620-01	SCREW (2. 6X8), +BVTP	
4	4-969-744-11	PANEL, LOADING (made in FRANCE)	(213:AEP, UK, G)	11	1-765-065-11	WIRE (FLAT TYPE) (11 CORE)	(made in FRANCE) (213:AEP, UK, G/313:AEP, UK, G, EE)
4	4-969-750-01	PANEL, LOADING (made in CHINA)	(313:CND, AEP, E)	11	1-765-169-11	WIRE (FLAT TYPE) (11 CORE) (made in CHINA)	(213:CND, AEP, E, AUS/313:CND, AEP, E)
4	4-969-750-11	PANEL, LOADING (made in CHINA)	(213:CND, AEP, E, AUS)	12	4-964-090-01	FOOT (F22175H-M)	
				CNP301	1-537-472-11	JUMPER, FILM (WITH TERMINAL) 23P	(213:CND, E, AUS/313:CND, E)
				CNP301	1-537-472-21	JUMPER, FILM (WITH TERMINAL)	(213:AEP, UK, G/313:AEP, UK, G, EE)

6-2. BACK PANEL SECTION

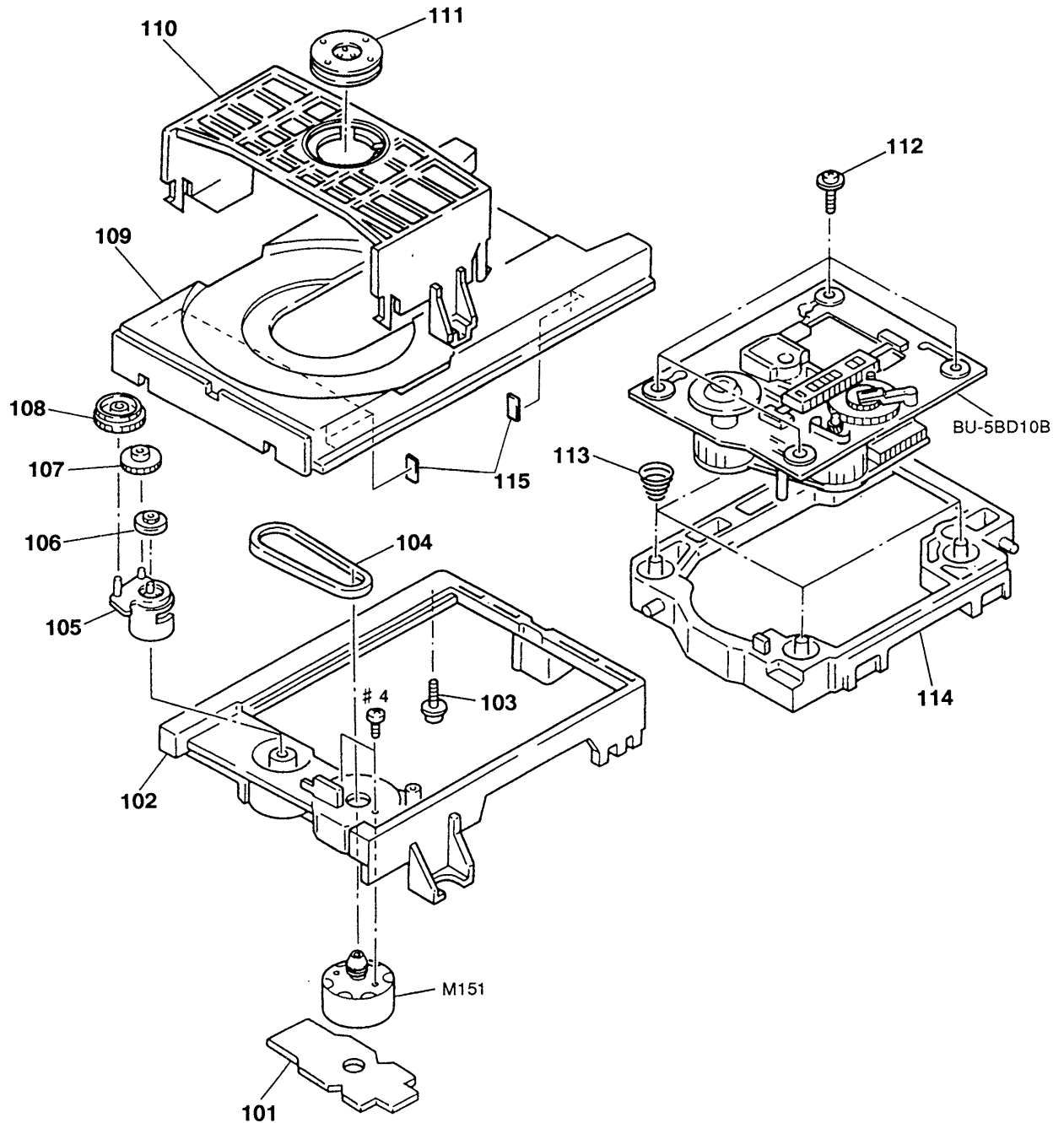


The components identified by mark \triangle or dotted line with mark \triangle are critical for safety.
Replace only with part number specified.

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

Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
* 51	1-650-458-11	POWER BOARD		\triangle 53	1-569-007-11	ADAPTER, CONVERSION 2P (E)	
* 52	4-969-743-21	PANEL, BACK (made in FRANCE) (313:AEP, EE)		\triangle 54	1-558-943-61	CORD, POWER (E)	
* 52	4-969-743-41	PANEL, BACK (313:UK)		\triangle 54	1-575-651-21	CORD, POWER (213:AEP, G/313:AEP, G, EE)	
* 52	4-969-743-51	PANEL, BACK (made in FRANCE) (213:AEP)		\triangle 54	1-590-926-11	CORD, POWER (CND)	
* 52	4-969-743-61	PANEL, BACK (213:G)		\triangle 54	1-696-907-11	CORD, POWER (UK)	
* 52	4-969-743-72	PANEL, BACK (213:UK)		\triangle 54	1-696-845-11	CORD, POWER (213:AUS)	
* 52	4-969-747-51	PANEL, BACK (313:CND)		* 55	3-703-244-00	BUSHING (2104), CORD (EXCEPT E)	
* 52	4-969-747-61	PANEL, BACK (made in CHINA) (313:AEP)		* 55	3-703-571-11	BUSHING (S) (4516), CORD (E)	
* 52	4-969-747-81	PANEL, BACK (313:E)		\triangle S901	1-572-675-11	SWITCH, POWER VOLTAGE CHANGE (VOLTAGE SELECTOR) (E)	
* 52	4-969-747-91	PANEL, BACK (made in CHINA) (313:E)		\triangle T901	1-426-621-11	TRANSFORMER, POWER (CND)	
* 52	4-969-754-01	PANEL, BACK (213:CND)		\triangle T901	1-423-979-11	TRANSFORMER, POWER (213:AEP, UK, G, AUS/313:AEP, UK, G, EE)	
* 52	4-969-754-11	PANEL, BACK (made in CHINA) (213:AEP)		\triangle T901	1-426-622-11	TRANSFORMER, POWER (E)	
* 52	4-969-754-51	PANEL, BACK (213:E)					
* 52	4-971-521-01	PANEL, BACK (313:G)					
* 52	4-969-754-41	PANEL, BACK (213:AUS)					

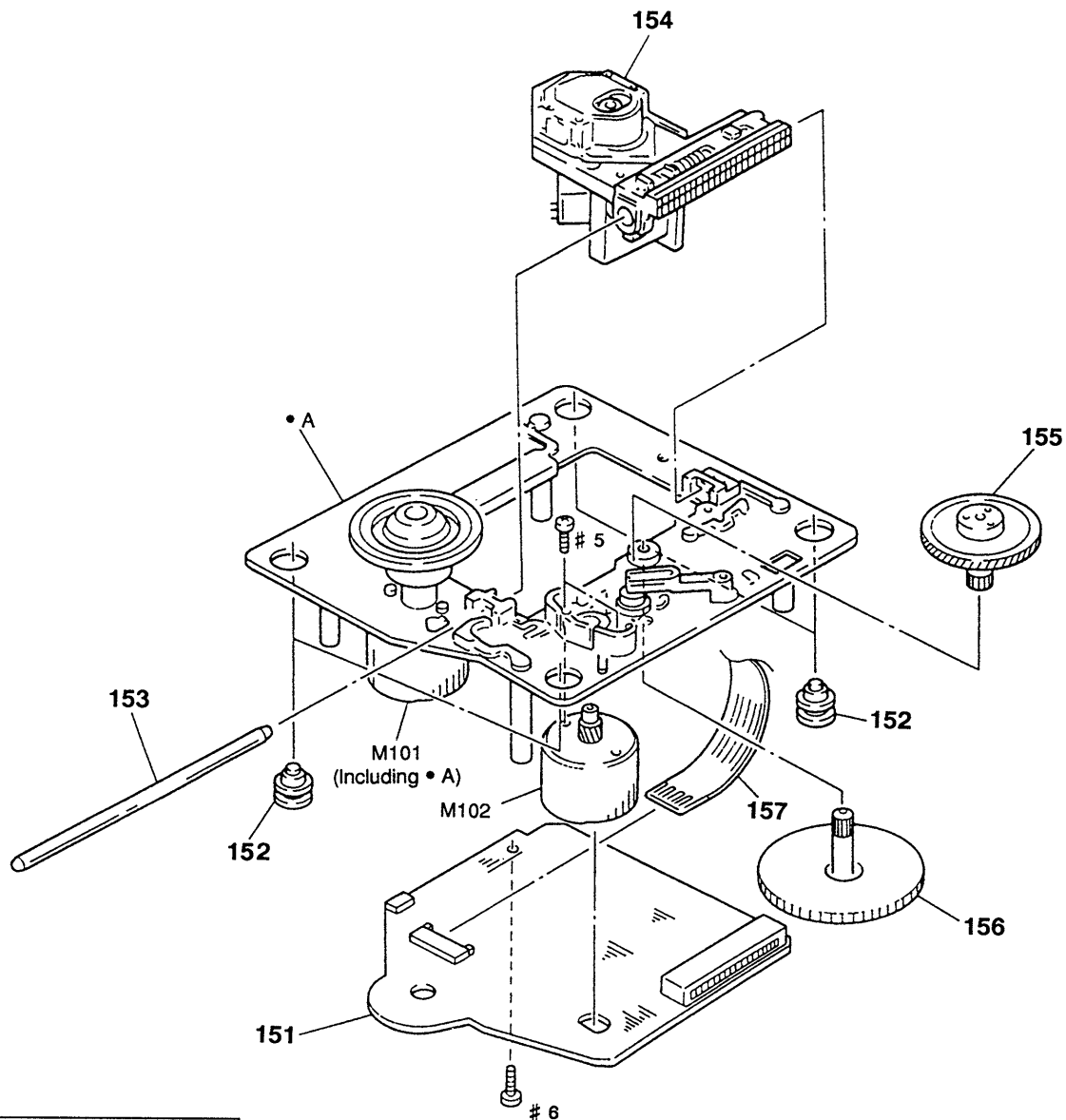
6-3. CD MECHANISM SECTION (CDM14-5BD10)



Ref. No.	Part No.	Description
101	1-645-721-11	LOADING BOARD
102	4-933-111-11	CHASSIS (MD)
* 103	4-917-583-21	BRACKET, YOKE
104	4-927-649-01	BELT
105	4-933-109-01	CAM
106	4-927-651-01	PULLEY (S)
107	4-967-268-01	GEAR (C)
108	4-933-107-01	GEAR (PL)
109	4-933-112-11	TABLE, DISC

Remark	Ref. No.	Part No.	Description	Remark
	110	4-933-110-01	HOLDER (MG)	
	* 111	1-452-538-11	MAGNET	
	112	4-933-134-01	SCREW (+PTPWH M2.6X6)	
	113	4-959-996-01	SPRING (932), COMPRESSION	
	114	4-933-129-01	HOLDER (BU)	
	115	4-925-315-31	DAMPER	
	M151	A-4604-363-A	MOTOR (L) ASSY (LOADING)	

6-4. BASE UNIT SECTION (BU-5BD10B)



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

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

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
* 151	A-4649-430-A	BD BOARD, COMPLETE (213:AEP, UK, G/313:AEP, UK, G, EE)		155	4-917-567-21	GEAR (M)	
* 151	A-4649-946-A	BD BOARD, COMPLETE (213:CND, E, AUS/313:CND, E)		156	4-917-564-01	GEAR (P), FLATNESS	
152	4-951-940-11	INSULATOR (BU)		157	1-575-001-11	WIRE, FLAT TYPE (12 CORE)	
153	4-917-565-01	SHAFT, SLED		M101	X-4917-523-3	MOTOR ASSY (SPINDLE)	
\triangle 154	8-848-144-11	OPTICAL PICK-UP BLOCK KSS-240A		M102	X-4917-504-1	MOTOR ASSY (SLED)	

SECTION 7

ELECTRICAL PARTS LIST

BD

NOTE:

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

Les composants identifiés par une marque Δ sont critiques pour la sécurité.
Ne les remplacer que par une pièce 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.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
All resistors are in ohms
METAL: Metal-film resistor

- SEMICONDUCTORS
In each case, u: μ , for example:
uA...: μ A..., uPA...: μ PA..., uPB...: μ PB...,
uPC...: μ PC..., uPD...: μ PD...
- CAPACITORS
uF: μ F
- COILS
uH: μ H
- Abbreviation
CND : Canadian model
G : German model
EE : East European model
AUS : Australian model

Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
*	A-4649-430-A	BD BOARD, COMPLETE ***** (213:AEP, UK, G/313:AEP, UK, G, EE)				< MOTOR >	
				M101	X-4917-523-3	MOTOR ASSY (SPINDLE)	
				M102	X-4917-504-1	MOTOR ASSY (SLED)	
*	A-4649-946-A	BD BOARD, COMPLETE ***** (213:CND, E, AUS/313:CND, E)				< RESISTOR >	
		< CAPACITOR >		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	1-216-025-91	METAL CHIP 100 5%	1/10W
				R112	1-216-049-91	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	1-216-049-91	METAL CHIP 1K 5%	1/10W
				R126	1-216-049-91	METAL CHIP 1K 5%	1/10W
				R127	1-216-049-91	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
		< CONNECTOR >					
*	CN101	1-568-865-11 SOCKET, CONNECTOR 23P					
	CN102	1-568-795-11 SOCKET, CONNECTOR 12P					
		< IC >					
	IC101	8-752-351-94 IC CXD2515Q					
	IC102	8-759-071-79 IC BA6297AFP					

BD**LOADING****MAIN**

Ref.No.	Part No.	Description	Remark
		< SWITCH >	
S101	1-572-085-11	SWITCH, LEAF (LIMIT)	

	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-4673-259-A	MAIN BOARD, COMPLETE	

		(213:CND, AUS/313:CND)	
*	A-4673-312-A	MAIN BOARD, COMPLETE (E)	

*	A-4673-316-A	MAIN BOARD, COMPLETE	

		(213:AEP, UK, G/313:AEP, UK, G, EE)	
		< 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
		(213:CND, E, AUS/313:CND, E)	
C203	1-126-177-11	ELECT	100uF 20% 10V
		(213:AEP, UK, G/313:AEP, UK, G, EE)	
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	1-163-038-91	CERAMIC CHIP	0.1uF 25V
C303	1-163-038-91	CERAMIC CHIP	0.1uF 25V
C304	1-124-584-00	ELECT	100uF 20% 10V
		(213:CND, E, AUS/313:CND, E)	

Ref.No.	Part No.	Description	Remark
C304	1-126-177-11	ELECT	100uF 20% 10V
		(213:AEP, UK, G/313:AEP, UK, G, EE)	
C305	1-163-133-00	CERAMIC CHIP	470PF 5% 50V
C306	1-163-038-91	CERAMIC CHIP	0.1uF 25V
C307	1-163-038-91	CERAMIC CHIP	0.1uF 25V
C308	1-163-038-91	CERAMIC CHIP	0.1uF 25V
C309	1-124-584-00	ELECT	100uF 20% 10V
		(213:CND, E, AUS/313:CND, E)	
C309	1-126-177-11	ELECT	100uF 20% 10V
		(213:AEP, UK, G/313:AEP, UK, G, EE)	
C311	1-163-038-91	CERAMIC CHIP	0.1uF 25V
C312	1-163-038-91	CERAMIC CHIP	0.1uF 25V
C313	1-163-038-91	CERAMIC CHIP	0.1uF 25V
C314	1-216-295-00	METAL CHIP	0 5% 1/10W
C316	1-163-038-91	CERAMIC CHIP	0.1uF 25V
C317	1-163-038-91	CERAMIC CHIP	0.1uF 25V
C318	1-163-088-00	CERAMIC CHIP	5PF 50V
C319	1-163-088-00	CERAMIC CHIP	5PF 50V
C320	1-163-038-91	CERAMIC CHIP	0.1uF 25V
C321	1-163-038-91	CERAMIC CHIP	0.1uF 25V
C322	1-163-038-91	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	1-163-038-91	CERAMIC CHIP	0.1uF 25V
C326	1-163-038-91	CERAMIC CHIP	0.1uF 25V
C327	1-163-038-91	CERAMIC CHIP	0.1uF 25V
C342	1-101-884-00	CERAMIC	56PF 5% 50V
		(213:CND, E, AUS/313:CND, E)	
C350	1-163-038-91	CERAMIC CHIP	0.1uF 25V
		(213:AEP, UK, G/313:AEP, UK, G, EE)	
C351	1-163-038-91	CERAMIC CHIP	0.1uF 25V
		(E)	
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
		(213:CND, E, AUS/313:CND, E)	
C506	1-126-177-11	ELECT	100uF 20% 10V
		(213:AEP, UK, G/313:AEP, UK, G, EE)	
C601	1-163-038-91	CERAMIC CHIP	0.1uF 25V
C603	1-163-038-91	CERAMIC CHIP	0.1uF 25V
C605	1-163-038-91	CERAMIC CHIP	0.1uF 25V
C606	1-163-038-91	CERAMIC CHIP	0.1uF 25V

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
		< CONNECTOR >		R202	1-216-025-91	METAL CHIP	100 5% 1/10W
* CN201	1-568-830-11	SOCKET, CONNECTOR 11P		R203	1-216-097-00	METAL CHIP	100K 5% 1/10W
		< JUMPER >		R204	1-216-059-00	METAL CHIP	2.7K 5% 1/10W
CNP301	1-537-472-11	JUMPER, FILM (WITH TERMINAL) 23P (213:CND, E, AUS/313:CND, E)		R206	1-216-079-00	METAL CHIP	18K 5% 1/10W
CNP301	1-537-472-21	JUMPER, FILM (WITH TERMINAL) (213:AEP, UK, G/313:AEP, UK, G, EE)		R207	1-216-065-00	METAL CHIP	4.7K 5% 1/10W
		< DIODE >		R208	1-216-097-00	METAL CHIP	100K 5% 1/10W
D201	8-719-941-86	DIODE DAN202U		R209	1-216-079-00	METAL CHIP	18K 5% 1/10W
D202	8-719-941-86	DIODE DAN202U		R305	1-216-021-00	METAL CHIP	68 5% 1/10W
D203	8-719-914-42	DIODE DA204K		R306	1-216-021-00	METAL CHIP	68 5% 1/10W
D204	8-719-977-28	DIODE DTZ10B		R307	1-216-049-91	METAL CHIP	1K 5% 1/10W
		< FLUORESCENT INDICATOR >		R309	1-216-049-91	METAL CHIP	1K 5% 1/10W
FLD601	1-519-752-11	INDICATOR TUBE, FLUORESCENT		R310	1-216-041-00	METAL CHIP	470 5% 1/10W
		< IC >		R311	1-216-065-00	METAL CHIP	4.7K 5% 1/10W
IC201	8-759-821-93	IC LA5601		R312	1-216-025-91	METAL CHIP	100 5% 1/10W
IC202	8-759-633-42	IC M5293L		R314	1-216-025-91	METAL CHIP	100 5% 1/10W
IC301	8-752-367-61	IC CXD2565AM		R315	1-216-296-00	METAL CHIP	0 5% 1/8W
IC302	8-759-040-83	IC BA6287F		R316	1-216-295-00	METAL CHIP	0 5% 1/10W
IC401	8-759-996-43	IC RC4558PS		R317	1-216-049-91	METAL CHIP	1K 5% 1/10W
IC402	8-759-996-43	IC RC4558PS		R401	1-216-689-11	METAL CHIP	39K 0.5% 1/10W
IC601	8-752-858-69	IC CXP82612-007Q		R402	1-216-689-11	METAL CHIP	39K 0.5% 1/10W
IC602	8-741-810-59	IC SBX1610-59 (R)		R403	1-216-077-00	METAL CHIP	15K 5% 1/10W
		< COIL >		R404	1-216-077-00	METAL CHIP	15K 5% 1/10W
L201	1-410-658-31	INDUCTOR CHIP 220uH		R405	1-216-089-00	METAL CHIP	47K 5% 1/10W
L202	1-410-658-31	INDUCTOR CHIP 220uH		R406	1-216-089-00	METAL CHIP	47K 5% 1/10W
L302	1-410-375-11	INDUCTOR CHIP 3.3uH		R407	1-216-053-00	METAL CHIP	1.5K 5% 1/10W
L303	1-410-375-11	INDUCTOR CHIP 3.3uH		R408	1-216-053-00	METAL CHIP	1.5K 5% 1/10W
L304	1-410-375-11	INDUCTOR CHIP 3.3uH		R409	1-216-097-00	METAL CHIP	100K 5% 1/10W
		< TRANSISTOR >		R410	1-216-049-91	METAL CHIP	1K 5% 1/10W
Q201	8-729-027-38	TRANSISTOR DTA144EKA		R411	1-216-053-00	METAL CHIP	1.5K 5% 1/10W
Q202	8-729-216-22	TRANSISTOR 2SA1162-G (213:AEP, UK, G/313:AEP, UK, G, EE)		R412	1-216-025-91	METAL CHIP	100 5% 1/10W
Q202	8-729-820-76	TRANSISTOR 2SA1179-M5M6 (213:CND, E, AUS/313:CND, E)		R501	1-216-689-11	METAL CHIP	39K 0.5% 1/10W
Q401	8-729-023-22	TRANSISTOR 2SD2114K		R502	1-216-689-11	METAL CHIP	39K 0.5% 1/10W
Q501	8-729-023-22	TRANSISTOR 2SD2114K		R503	1-216-077-00	METAL CHIP	15K 5% 1/10W
Q601	8-729-027-43	TRANSISTOR DTC114EKA (213:AEP, UK, G/313:AEP, UK, G, EE)		R504	1-216-077-00	METAL CHIP	15K 5% 1/10W
Q601	8-729-805-41	TRANSISTOR 2SC3398 (213:CND, E, AUS/313:CND, E)		R505	1-216-089-00	METAL CHIP	47K 5% 1/10W
		< RESISTOR >		R506	1-216-089-00	METAL CHIP	47K 5% 1/10W
R201	1-216-298-00	METAL CHIP 2.2 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
				R510	1-216-049-91	METAL CHIP	1K 5% 1/10W
				R511	1-216-053-00	METAL CHIP	1.5K 5% 1/10W
				R512	1-216-025-91	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 CHIP	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

MAIN

P. SW

POWER

Ref.No.	Part No.	Description	Remark
R609	1-216-054-00	METAL CHIP	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	1-216-049-91	METAL CHIP	1K 5% 1/10W
R619	1-216-049-91	METAL CHIP	1K 5% 1/10W
R620	1-216-049-91	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, PLAY MODE)	
S605	1-554-303-21	SWITCH, TACTILE (SHUFFLE, PLAY MODE)	
S606	1-554-303-21	SWITCH, TACTILE (CONTINUE, PLAY MODE)	
S607	1-554-303-21	SWITCH, TACTILE (△ OPEN/CLOSE)	
S608	1-554-303-21	SWITCH, TACTILE (▷)	
S609	1-554-303-21	SWITCH, TACTILE (■)	
S610	1-554-303-21	SWITCH, TACTILE (◀◀, ◀◀)	
S611	1-554-303-21	SWITCH, TACTILE (▶▶, ▶▶)	
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	
< 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

Ref.No.	Part No.	Description	Remark
C902	1-126-939-11	ELECT	10000uF 20% 16V
C903	1-124-572-11	ELECT	100uF 20% 63V (213:CND, E, AUS/313:CND, E)
C903	1-128-576-11	ELECT	100uF 20% 63V (213:AEP, UK, G/313:AEP, UK, G, EE)
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 (213:CND, E, AUS/313:CND, E)
C907	1-164-159-11	CERAMIC	0.1uF 50V (213:CND, E, AUS/313:CND, E)
C908	1-164-159-11	CERAMIC	0.1uF 50V (213:CND, E, AUS/313:CND, E)
C909	1-164-159-11	CERAMIC	0.1uF 50V (213:AEP, UK, G/313:AEP, UK, G, EE)
< 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)	
< TRANSFORMER >			
△T901	1-423-979-11	TRANSFORMER, POWER (213:AEP, UK, G, AUS/313:AEP, UK, G, EE)	
△T901	1-426-621-11	TRANSFORMER, POWER (CND)	
△T901	1-426-622-11	TRANSFORMER, POWER (E)	
< SWITCH >			
△S901	1-572-675-11	SWITCH, POWER VOLTAGE CHANGE (VOLTAGE SELECTOR) (E)	

MISCELLANEOUS			

11	1-765-065-11	WIRE (FLAT TYPE) (11 CORE) (made in FRANCE) (213:AEP, UK, G/313:AEP, UK, G, EE)	
11	1-765-169-11	WIRE (FLAT TYPE) (11 CORE) (made in CHINA) (213:CND, AEP, E, AUS/313:CND, AEP, E)	
△53	1-569-007-11	ADAPTER, CONVERSION 2P (E)	
△54	1-558-943-61	CORD, POWER (E)	
△54	1-575-651-21	CORD, POWER (213:AEP, G/313:AEP, G, EE)	

<p>The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.</p>	<p>Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.</p>
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Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
△54	1-590-926-11	CORD, POWER (CND)				*****	
△54	1-696-907-11	CORD, POWER (UK)				HARDWARE LIST	
△54	1-696-845-11	CORD, POWER (213:AUS)				*****	
* 111	1-452-538-11	MAGNET					
△154	8-848-144-11	OPTICAL PICK-UP BLOCK KSS-240A		#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
157	1-575-001-11	WIRE, FLAT TYPE (12 CORE)		#2	7-685-871-01	SCREW +BVTT 3X6 (S)	
CNP301	1-537-472-11	JUMPER, FILM (WITH TERMINAL) 23P (213:CND, E, AUS/313:CND, E)		#3	7-682-548-04	SCREW +BVTT 3X8 (S)	
CNP301	1-537-472-21	JUMPER, FILM (WITH TERMINAL) (213:AEP, UK, G/313:AEP, UK, G, EE)		#4	7-621-775-10	SCREW +B 2.6X4	
M151	A-4604-363-A	MOTOR (L) ASSY (LOADING)		#5	7-621-255-15	SCREW +P 2X3	
M101	X-4917-523-3	MOTOR ASSY (SPINDLE)		#6	7-685-134-19	SCREW +BTP 2.6X8 TYPE2 N-S	
M102	X-4917-504-1	MOTOR ASSY (SLED)					
△S901	1-572-675-11	SWITCH, POWER VOLTAGE CHANGE (VOLTAGE SELECTOR) (E)					
△T901	1-426-621-11	TRANSFORMER, POWER (CND)					
△T901	1-423-979-11	TRANSFORMER, POWER (213:AEP, UK, G, AUS/313:AEP, UK, G, EE)					
△T901	1-426-622-11	TRANSFORMER, POWER (E)					

ACCESSORIES & PACKING MATERIALS							

	1-467-880-11	REMOTE COMMANDER (RM-D420) (313)					
	1-558-271-11	CORD, CONNECTION					
	3-759-484-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH, CHINESE) (213:CND, AEP, E, AUS/313:CND, AEP)					
	3-759-484-51	MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH) (AEP, UK)					
	3-759-484-61	MANUAL, INSTRUCTION (GERMAN, DUTCH, ITALIAN, PORTUGUESE) (AEP)					
	3-759-484-71	MANUAL, INSTRUCTION (GERMAN) (G)					
	3-759-484-81	MANUAL, INSTRUCTION (ENGLISH, RUSSIAN, POLISH) (313:EE)					
	3-759-484-91	MANUAL, INSTRUCTION (SWEDISH, FINNISH) (AEP)					
*	4-925-389-11	CUSHION (made in CHINA) (213:CND, AEP, E)					
*	4-929-506-01	CUSHION (made in FRANCE) (213:AEP, UK, G/313:AEP, UK, G, EE)					
	4-962-615-01	COVER, BATTERY (for RM-D420)					
*	4-969-745-11	INDIVIDUAL CARTON (made in FRANCE) (313:AEP, UK, G, EE)					
*	4-969-745-21	INDIVIDUAL CARTON (213:UK, G)					
*	4-969-748-51	INDIVIDUAL CARTON (313:CND, E)					
*	4-969-748-61	INDIVIDUAL CARTON (made in CHINA) (313:AEP)					
*	4-969-748-71	INDIVIDUAL CARTON (made in CHINA) (313:E)					
*	4-969-748-81	INDIVIDUAL CARTON (213:CND, E, AUS)					
*	4-969-748-91	INDIVIDUAL CARTON (213:AEP)					
*	4-969-893-01	INDIVIDUAL CARTON (made in CHINA) (213:E)					

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
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CDP-213/313

SONY® SERVICE MANUAL

*Canadian Model
AEP Model
UK Model
E Model
Australian Model
Chinese Model*

SUPPLEMENT-1

File this supplement with the service manual.

Subject : 1. MODEL IDENTIFICATION CHANGED
2. PARTS CHANGED
3. MODEL ADDITION
(CDP-213/313 : Chinese model, CDP-313 : Australian model)
4. BD BOARD CHANGED
5. ELECTRICAL BLOCK CHECKING (for BU-5BD20)

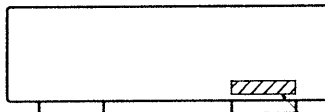
(ECN-CD500187)

- The two of base unit BU-5BD10 and BU-5BD20 in the CD section are used for this model.
Refer to this service manual supplement-1 for the BD board of a set used BU-5BD20, and to the service manual is issued previously for the BD board of a set used BU-5BD10.

1. MODEL IDENTIFICATION CHANGED

MODEL IDENTIFICATION

— BACK PANEL —



CDP-213

Destination	Product country	Part No.
Canadian	CHINA	4-976-051-8□
		4-969-754-0□
AEP	CHINA	4-976-051-9□
		4-969-754-1□
	FRANCE	4-969-743-5□
UK	FRANCE	4-969-743-7□
E	CHINA	4-976-052-1□
		4-969-754-5□
Australian	CHINA	4-976-052-0□
		4-969-754-4□
German	FRANCE	4-969-743-6□
Chinese	CHINA	4-976-052-5□
		4-973-614-3□

CDP-313

Destination	Product country	Part No.
Canadian	CHINA	4-976-051-4□
		4-969-747-5□
AEP	CHINA	4-976-051-5□
		4-969-747-6□
AEP, East European	FRANCE	4-969-743-2□
UK	FRANCE	4-969-743-4□
E	CHINA	4-969-747-9□
		4-976-051-7□
		4-969-747-8□
Australian	CHINA	4-976-051-6□
		4-969-747-7□
German	FRANCE	4-971-521-0□
Chinese	CHINA	4-976-052-4□
		4-973-614-2□

- Abbreviation
CND : Canadian model
AUS : Australian model

2. PARTS CHANGED

Page	FORMER			NEW		
	Ref.No	Part No	Description	Ref.No	Part No	Description
24	** EXPLODED VIEWS **			** EXPLODED VIEWS **		
	* 52	4-969-747-51	PANEL, BACK (Made in CHINA) (313:CND)	* 52	4-976-051-41	PANEL, BACK (Made in CHINA) (313:CND)
	* 52	4-969-747-61	PANEL, BACK (Made in CHINA) (313:AEP)	* 52	4-976-051-51	PANEL, BACK (Made in CHINA) (313:AEP)
	* 52	4-969-747-81	PANEL, BACK (Made in CHINA) (313:E)	* 52	4-976-051-71	PANEL, BACK (Made in CHINA) (313:E)
	* 52	4-969-754-01	PANEL, BACK (Made in CHINA) (213:CND)	* 52	4-976-051-81	PANEL, BACK (Made in CHINA) (213:CND)
	* 52	4-969-754-11	PANEL, BACK (Made in CHINA) (213:AEP)	* 52	4-976-051-91	PANEL, BACK (Made in CHINA) (213:AEP)
	* 52	4-969-754-51	PANEL, BACK (Made in CHINA) (213:E)	* 52	4-976-052-11	PANEL, BACK (Made in CHINA) (213:E)
	* 52	4-969-754-41	PANEL, BACK (Made in CHINA) (213:AUS)	* 52	4-976-052-01	PANEL, BACK (Made in CHINA) (213:AUS)
29	** MAIN BOARD **			** MAIN BOARD **		
	IC601	8-752-858-69	IC CXP82612-007Q	IC601	8-752-867-49	IC CXP82612-017Q

3. MODEL ADDITION (CDP-213/313: Chinese model, CDP-313: Australian model)

CDP-213 (Chinese model), CDP-313 (Chinese model), CDP-313 (Australian model) ADDITION.

For detailed CDP-213 (Chinese model), refer to CDP-213 (E model).

DIFFERENCE TABLE

Page	CDP-213 (E model)			CDP-213 (Chinese model)		
	Ref.No	Part No	Description	Ref.No	Part No	Description
24	** EXPLODED VIEWS **			** EXPLODED VIEWS **		
	* 52	4-976-052-11	PANEL, BACK (Made in CHINA)	* 52	4-976-052-51	PANEL, BACK (Made in CHINA)
	* 52	4-969-754-51	PANEL, BACK (Made in CHINA)	* 52	4-973-614-31	PANEL, BACK (Made in CHINA)
	△53	1-569-007-11	ADAPTER, CONVERSION 2P (Made in CHINA)	△53	1-569-008-11	ADAPTER, CONVERSION 2P (Made in CHINA)
	△54	1-558-943-61	CORD, POWER (Made in CHINA)	△54	1-575-651-21	CORD, POWER (Made in CHINA)
	* 55	3-703-571-11	BUSHING (S) (4516), CORD (Made in CHINA)	* 55	3-703-244-00	BUSHING (2104), CORD (Made in CHINA)
	△S901	1-572-675-11	SWITCH, POWER VOLTAGE CHANGE (VOLTAGE SELECTOR) (Made in CHINA)			
	△T901	1-426-622-11	TRANSFORMER, POWER (Made in CHINA)	△T901	1-423-979-11	TRANSFORMER, POWER (Made in CHINA)
30	** MISCELLANEOUS **			** MISCELLANEOUS **		
	△53	1-569-007-11	ADAPTER, CONVERSION 2P (Made in CHINA)	△53	1-569-008-11	ADAPTER, CONVERSION 2P (Made in CHINA)
	△54	1-558-943-61	CORD, POWER (Made in CHINA)	△54	1-575-651-21	CORD, POWER (Made in CHINA)
	△S901	1-572-675-11	SWITCH, POWER VOLTAGE CHANGE (VOLTAGE SELECTOR) (Made in CHINA)			
	△T901	1-426-622-11	TRANSFORMER, POWER (Made in CHINA)	△T901	1-423-979-11	TRANSFORMER, POWER (Made in CHINA)
31	** ACCESSORIES & PACKING MATERIALS **			** ACCESSORIES & PACKING MATERIALS **		
	*	4-969-748-81	INDIVIDUAL CARTON (Made in CHINA)	*	4-969-748-81	INDIVIDUAL CARTON (Made in CHINA)

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.

**For detailed CDP-313 (Chinese model), refer to CDP-313 (E model).
DIFFERENCE TABLE**

Page	CDP-313 (E model)			CDP-313 (Chinese model)		
	Ref.No	Part No	Description	Ref.No	Part No	Description
24	** EXPLODED VIEWS **			** EXPLODED VIEWS **		
	* 52	4-976-051-71	PANEL, BACK (Made in CHINA)	* 52	4-976-052-41	PANEL, BACK (Made in CHINA)
	* 52	4-969-747-81	PANEL, BACK (Made in CHINA)	* 52	4-973-614-21	PANEL, BACK (Made in CHINA)
	* 52	4-969-747-91	PANEL, BACK (Made in CHINA)			
	△53	1-569-007-11	ADAPTER, CONVERSION 2P (Made in CHINA)	△53	1-569-008-11	ADAPTER, CONVERSION 2P (Made in CHINA)
	△54	1-558-943-61	CORD, POWER (Made in CHINA)	△54	1-575-651-21	CORD, POWER (Made in CHINA)
	* 55	3-703-571-11	BUSHING (S) (4516), CORD (Made in CHINA)	* 55	3-703-244-00	BUSHING (2104), CORD (Made in CHINA)
	△S901	1-572-675-11	SWITCH, POWER VOLTAGE CHANGE (VOLTAGE SELECTOR) (Made in CHINA)			
	△T901	1-426-622-11	TRANSFORMER, POWER (Made in CHINA)	△T901	1-423-979-11	TRANSFORMER, POWER (Made in CHINA)
30	** MISCELLANEOUS **			** MISCELLANEOUS **		
	△53	1-569-007-11	ADAPTER, CONVERSION 2P (Made in CHINA)	△53	1-569-008-11	ADAPTER, CONVERSION 2P (Made in CHINA)
	△54	1-558-943-61	CORD, POWER (Made in CHINA)	△54	1-575-651-21	CORD, POWER (Made in CHINA)
	△S901	1-572-675-11	SWITCH, POWER VOLTAGE CHANGE (VOLTAGE SELECTOR) (Made in CHINA)			
	△T901	1-426-622-11	TRANSFORMER, POWER (Made in CHINA)	△T901	1-423-979-11	TRANSFORMER, POWER (Made in CHINA)

**For detailed CDP-313 (Australian model), refer to CDP-313 (E model).
DIFFERENCE TABLE**

Page	CDP-313 (E model)			CDP-313 (Australian model)		
	Ref.No	Part No	Description	Ref.No	Part No	Description
23	** EXPLODED VIEWS **			** EXPLODED VIEWS **		
	* 7	A-4673-312-A	MAIN BOARD, COMPLETE (Made in CHINA)	* 7	A-4673-259-A	MAIN BOARD, COMPLETE (Made in CHINA)
24	* 52	4-976-051-71	PANEL, BACK (Made in CHINA)	* 52	4-976-051-61	PANEL, BACK (Made in CHINA)
	* 52	4-969-747-81	PANEL, BACK (Made in CHINA)	* 52	4-969-747-71	PANEL, BACK (Made in CHINA)
	* 52	4-969-747-91	PANEL, BACK (Made in CHINA)			
	△53	1-569-007-11	ADAPTER, CONVERSION 2P (Made in CHINA)			
	△54	1-558-943-61	CORD, POWER (Made in CHINA)	△54	1-696-845-11	CORD, POWER (Made in CHINA)
	* 55	3-703-571-11	BUSHING (S) (4516), CORD (Made in CHINA)	* 55	3-703-244-00	BUSHING (2104), CORD (Made in CHINA)
	△S901	1-572-675-11	SWITCH, POWER VOLTAGE CHANGE (VOLTAGE SELECTOR) (Made in CHINA)			
△T901	1-426-622-11	TRANSFORMER, POWER (Made in CHINA)	△T901	1-423-979-11	TRANSFORMER, POWER (Made in CHINA)	
30	** MISCELLANEOUS **			** MISCELLANEOUS **		
	△53	1-569-007-11	ADAPTER, CONVERSION 2P (Made in CHINA)			
	△54	1-558-943-61	CORD, POWER (Made in CHINA)	△54	1-696-845-11	CORD, POWER (Made in CHINA)
	△S901	1-572-675-11	SWITCH, POWER VOLTAGE CHANGE (VOLTAGE SELECTOR) (Made in CHINA)			
	△T901	1-426-622-11	TRANSFORMER, POWER (Made in CHINA)	△T901	1-423-979-11	TRANSFORMER, POWER (Made in CHINA)

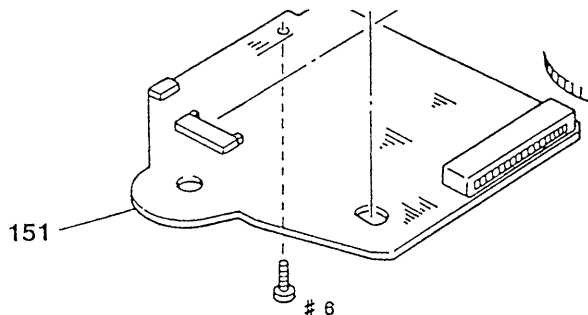
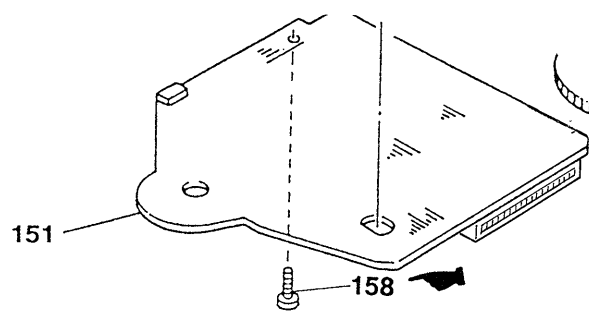
The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

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

4. BD BOARD CHANGED

- The BD board has two kinds of production, French and Chinese.
Therefore, the producing district can be found in "MODEL IDENTIFICATION" on page 2.

BU-5BD20 DIFFERENCE TABLE : CHANGED PORTION

Page	BU-5BD10B	BU-5BD20
26	<p>** EXPLODED VIEWS **</p> <p>* 151 A-4649-946-A BD BOARD, COMPLETE (Made in CHINA) * 151 A-4649-430-A BD BOARD, COMPLETE (Made in FRANCE) 152 4-951-940-11 INSULATOR (BU) △154 8-848-144-11 OPTICAL PICK-UP KSS-240A 157 1-575-001-11 WIRE, FLAT TYPE (12 CORE) #6 7-685-134-19 SCREW +BTP 2.6X8 TYPE 2 N-S</p> 	<p>** EXPLODED VIEWS **</p> <p>* 151 A-4673-509-A BD BOARD, COMPLETE (Made in CHINA) * 151 A-4673-511-A BD BOARD, COMPLETE (Made in FRANCE) 152 4-951-940-01 INSULATOR (BU) △154 8-848-367-11 OPTICAL PICK-UP KSS-213B/K-N 157 1-769-069-11 WIRE (FLAT TYPE) (16 CORE) 158 4-951-620-01 SCREW (2.6X8), +BVTP (Made in CHINA)</p> 
30	<p>** MISCELLANEOUS **</p> <p>△154 8-848-144-11 OPTICAL PICK-UP KSS-240A 157 1-575-001-11 WIRE, FLAT TYPE (12 CORE)</p>	<p>** MISCELLANEOUS **</p> <p>△154 8-848-367-11 OPTICAL PICK-UP KSS-213B/K-N 157 1-769-069-11 WIRE (FLAT TYPE) (16 CORE)</p>

• Base Unit Change

As the base unit BU-5BD10 has changed to BU-5BD20, IC601 of the MAIN BOARD has changed.
The interchangeability between IC601 and BD BOARD is as below:

		MAIN BOARD IC601	
		FORMER	NEW
		8-752-858-69 CXP82612-007Q	8-752-867-49 CXP82612-017Q
Base Unit Type	BU-5BD10	○	○
	BU-5BD20	×	○

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

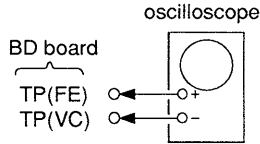
Les composants identifiés par une marque △ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

5. ELECTRICAL BLOCK CHECKING (for BU-5BD20)

Note :

1. CD Block is basically designed 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 an oscilloscope with more than 10MΩ impedance.
4. Clean the object lens using an applicator with neutral detergent when the signal level is low than specified value with the following checks.

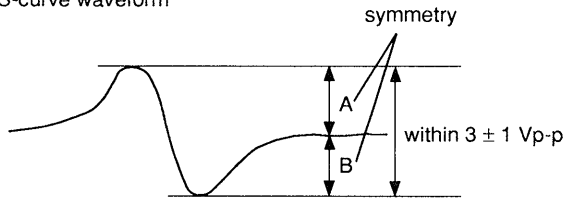
S Curve Check



Procedure :

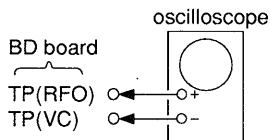
1. Connect oscilloscope to test point TP (FE) on BD board.
2. Connect between test point TP (FEI) and TP (VC) by lead wire.
3. Turn Power switch on.
4. Put disc (YEDS-18) in and turn Power switch on again and actuate the focus search. (actuate the focus search when disc table is moving in and out.)
5.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

S-curve waveform



6. After check, remove the lead wire connected in step 2.
- Note :**
- Try to measure several times to make sure than the ratio of A : B or B : A is more than 10 : 7.
 - Set sweep time as long as possible and set the brightness to obtain best waveform.

RF Level Check



Procedure :

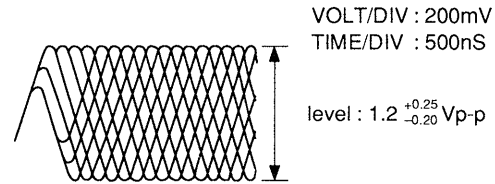
1. Connect oscilloscope to test point TP (RF) on BD board.
2. Turn Power switch on.

3. Put disc (YEDS-18) in and playback.
4. Confirm that oscilloscope waveform is clear and check if RF signal level is correct or not.

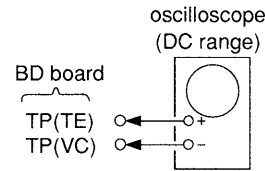
Note :

A clear RF signal waveform means that the shape “◇” can be clearly distinguished at the center of the waveform.

RF signal waveform



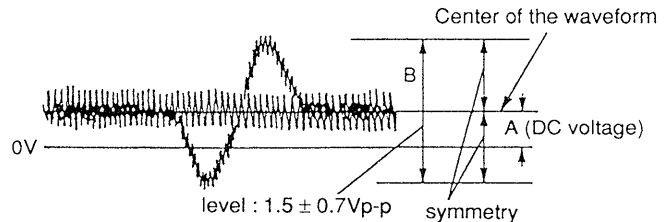
E-F Balance (1 Track Jump) Check



Procedure :

1. Connect oscilloscope to test point TP (TE) on BD board.
2. Turned Power switch on.
3. Put disc (YEDS-18) in to play the number five track.
4. Press the “|| (pause)” button. (Becomes the 1 track jump mode)
5. Check the level B of the oscilloscope’s waveform and the A (DC voltage) of the center of the Traverse waveform. Confirm the following : $A/B \times 100 = \text{less than } \pm 20\%$.

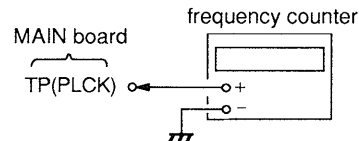
1 track jump waveform



RF PLL Free-run Frequency Check

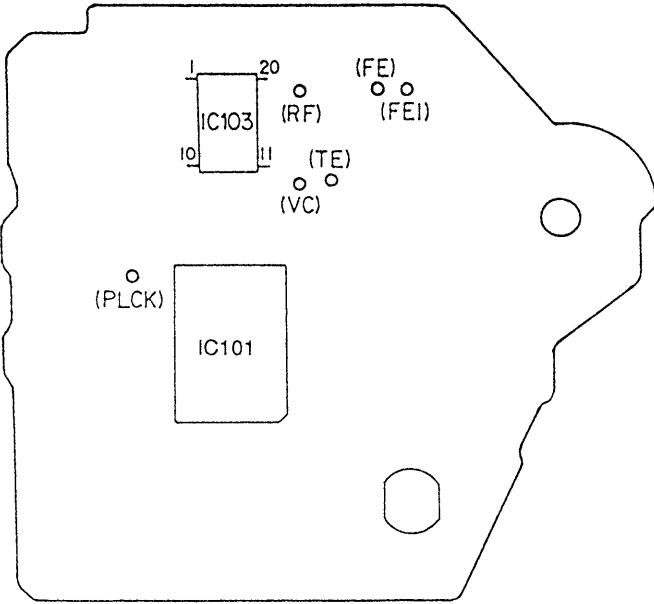
Procedure :

1. Connect frequency counter to test point (PCLK) with lead wire.



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

[BD BOARD] — Conductor Side —



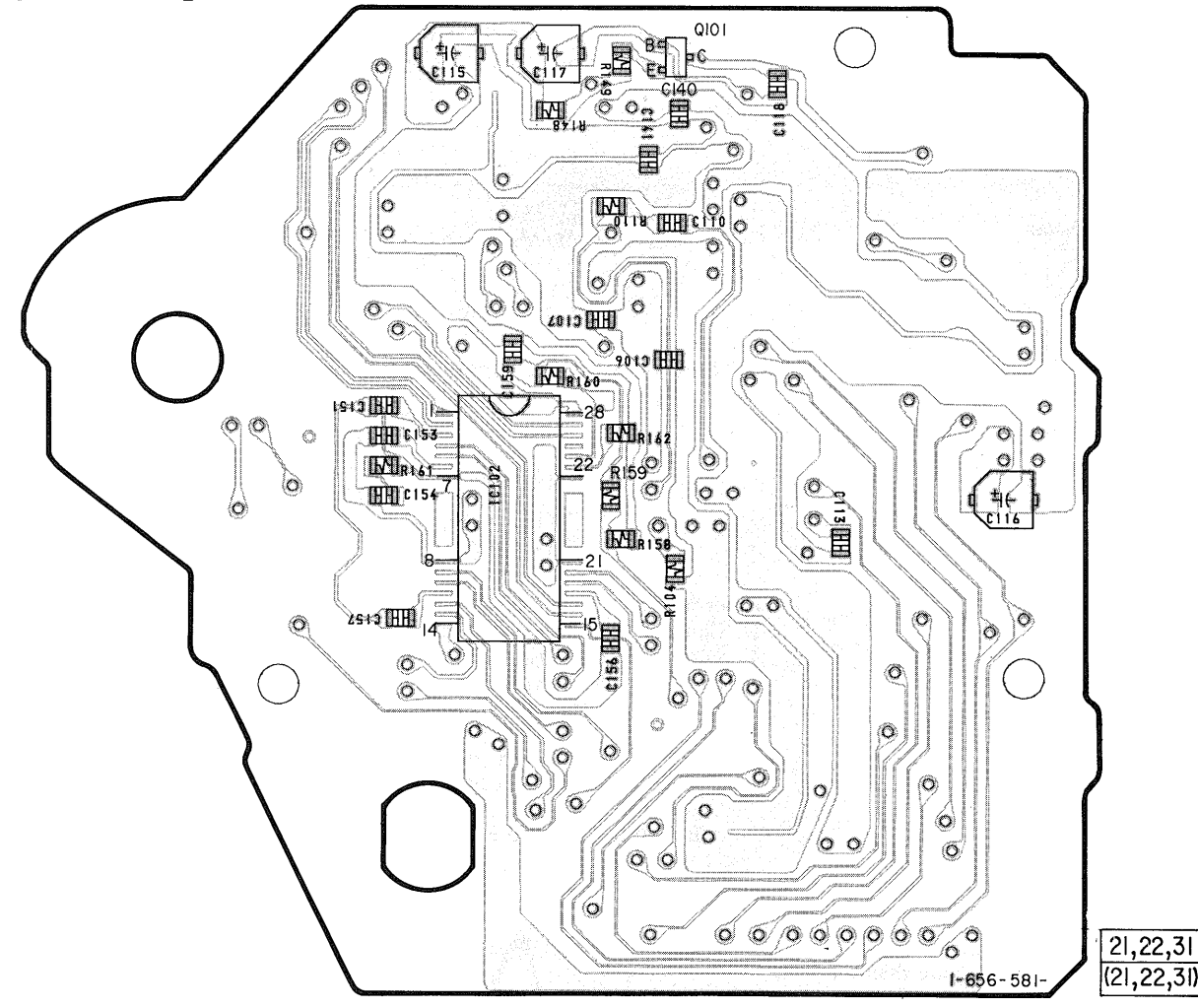
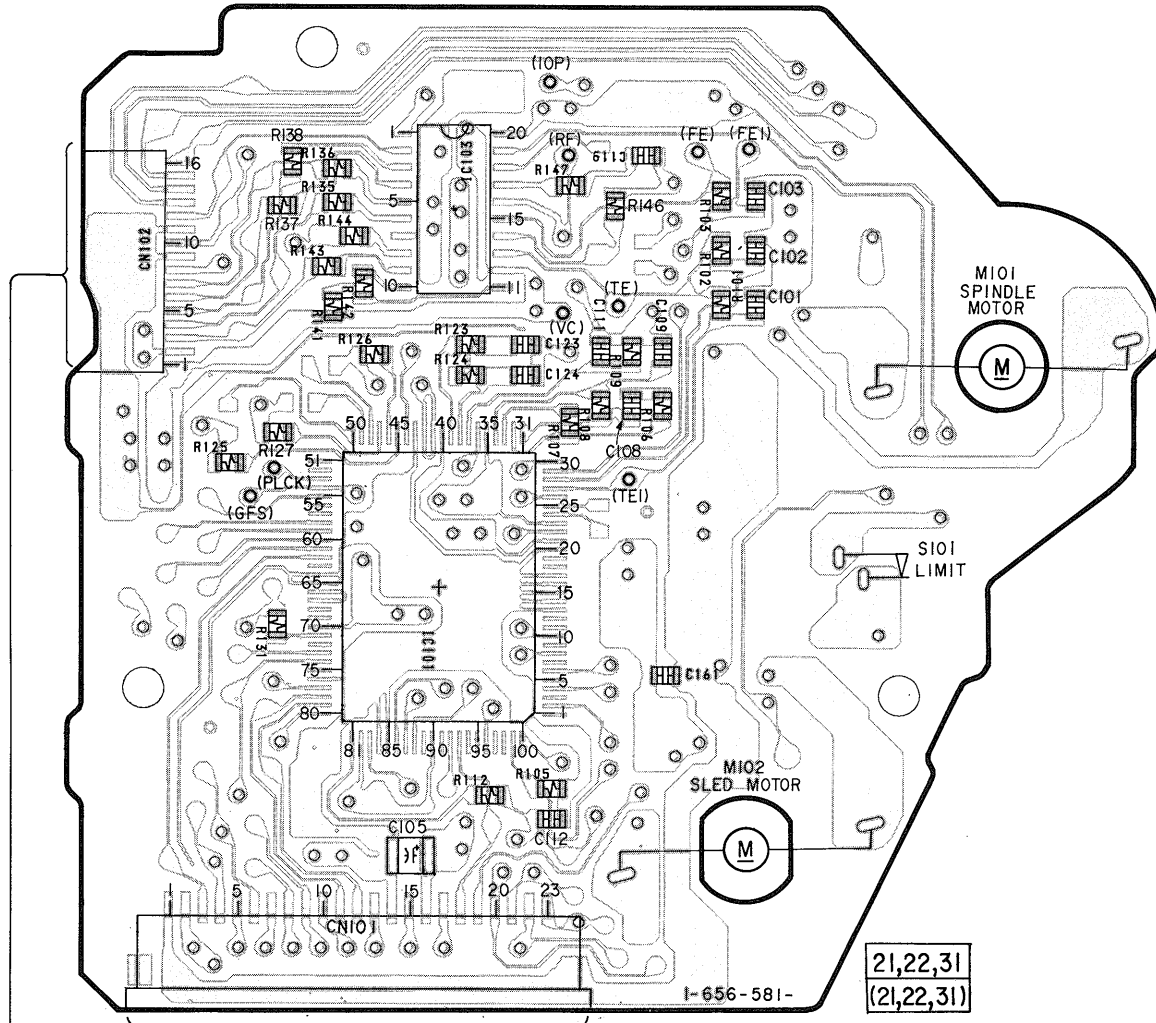
PRINTED WIRING BOARD — BD SECTION —

1 2 3 4 5 6 7 8 9

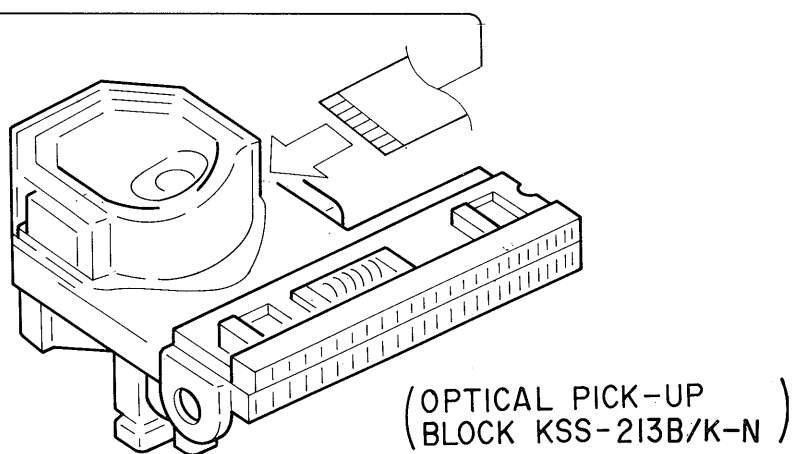
A
B
C
D
E
F

【BD BOARD】(SIDE A)

【BD BOARD】(SIDE B)



MAIN BOARD CN301



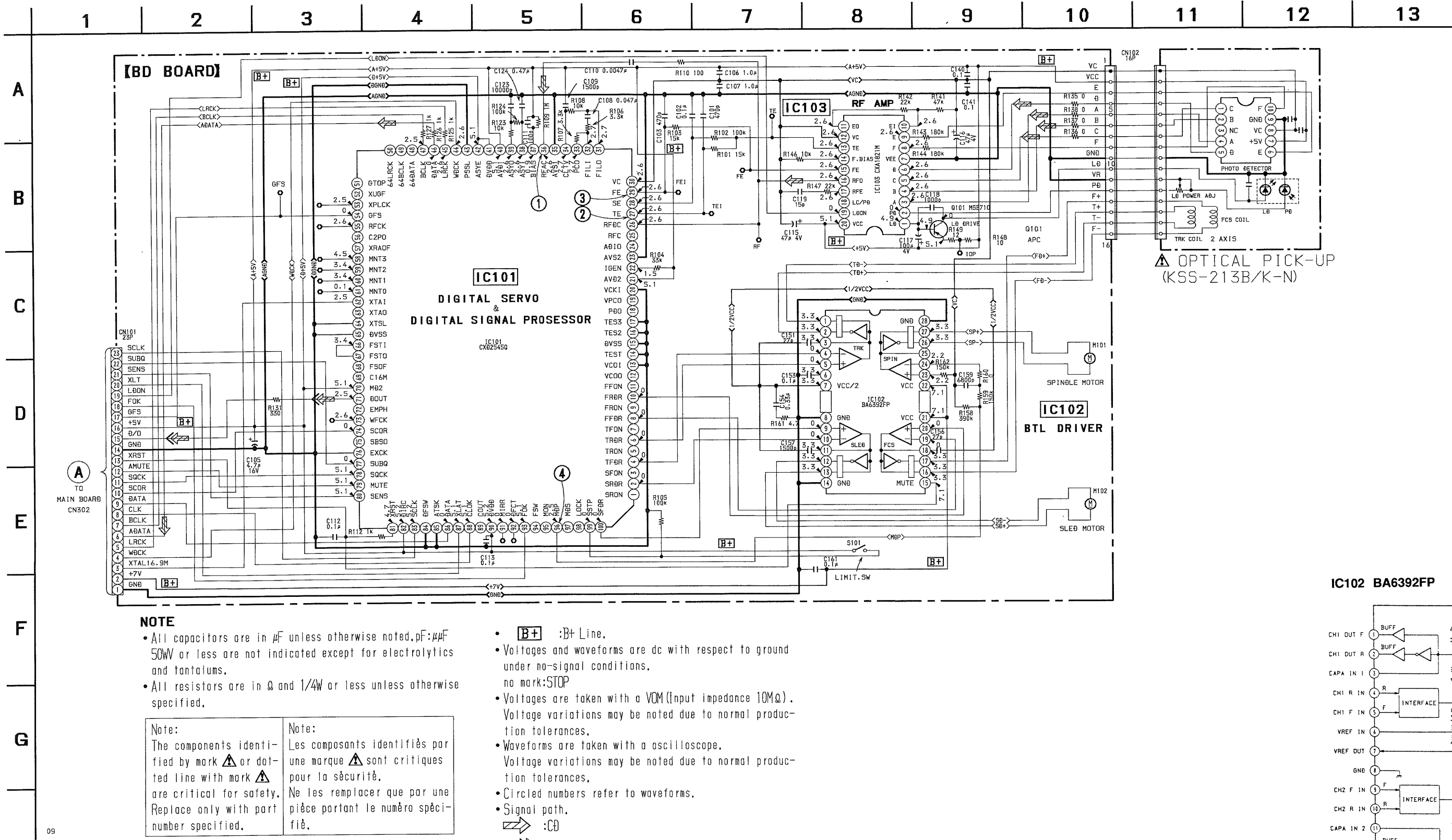
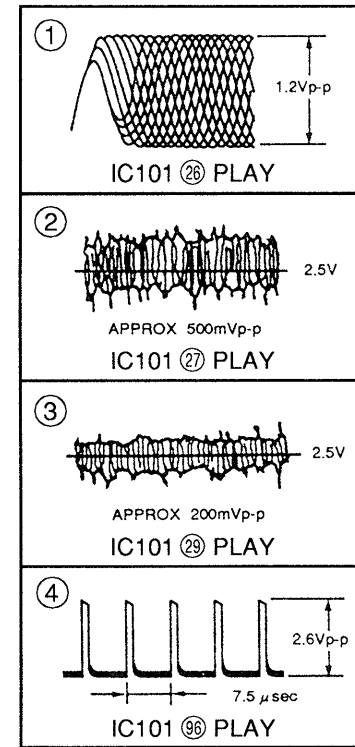
• Semiconductor Location

Ref. No.	Location
IC101	C-2
IC102	C-7
IC103	B-2
Q101	A-8

- Note:
- : parts extracted from the component side.
 - : parts extracted from the conductor side.
 - : Through hole.
 - : Pattern from the side which enable seeing. (The other layer's patterns are not indicated.)

SCHEMATIC DIAGRAM — BD SECTION —

Waveforms



NOTE

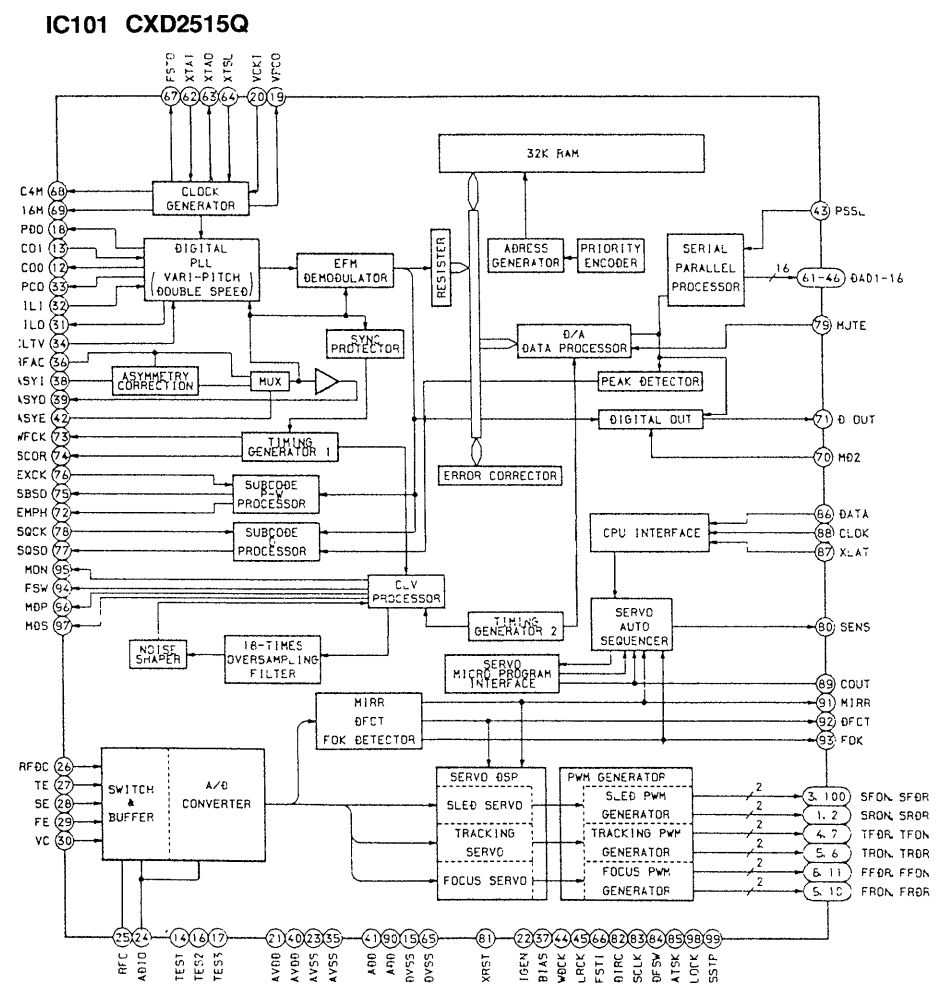
- All capacitors are in μF unless otherwise noted, $\text{pF} = \mu\text{F} / 100$ or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $1/4\text{W}$ or less unless otherwise specified.

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

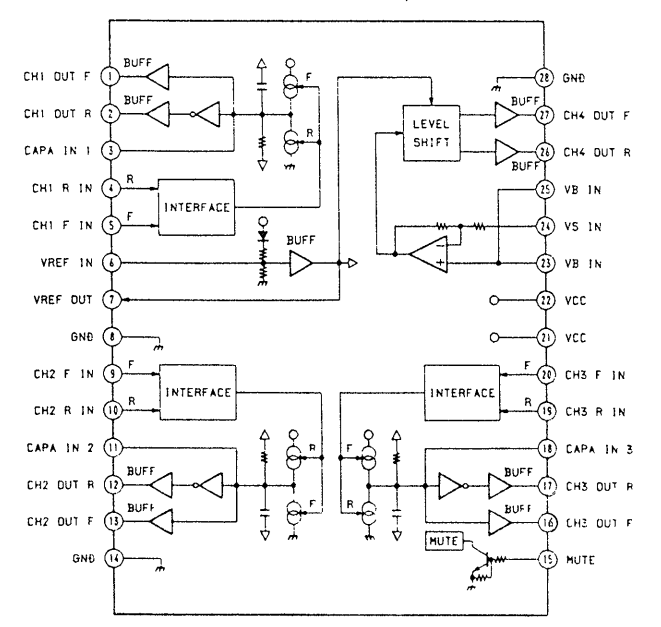
Note: Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- B+ :B+ Line.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
- Voltages are taken with a VOM (Input impedance $10\text{M}\Omega$). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with an oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Signal path.
- \Rightarrow :CD
- \Rightarrow :digital out

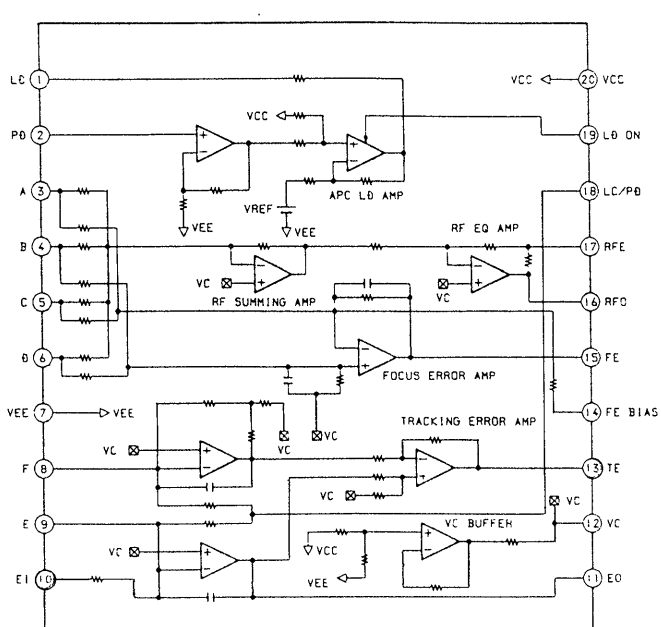
IC Block Diagrams



IC102 BA6392FP



IC103 CXA1821M



IC PIN FUNCTIONS

• IC101 (CXD2545Q)

Pin No.	Pin Name	I/O	Function
1	SRON	O	Sled drive output (Not used)
2	SRDR	O	Sled drive output
3	SFON	O	Sled drive output (Not used)
4	TFDR	O	Tracking drive output
5	TRON	O	Tracking drive output (Not used)
6	TRDR	O	Tracking drive output
7	TFON	O	Tracking drive output (Not used)
8	FFDR	O	Focus drive output
9	FRON	O	Focus drive output (Not used)
10	FRDR	O	Focus drive output
11	FFON	O	Focus drive output (Not used)
12	VCOO	O	VCO output for analog EFM PLL (Not used)
13	VCOI	I	VCO output for analog EFM PLL (GND)
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 (Not used)
19	VPCO	O	Charge-pump output for variable pitch PLL (Not used)
20	VCKI	I	Clock input from variable pitch external VCO (GND)
21	AVD2	—	Analog power supply
22	IGEN	I	Power supply pin for operational amplifiers
23	AVS2	—	Analog GND
24	ADIO	I	(Not used)
25	RFC	O	(Not used)
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 compare voltage input
39	ASYO	O	EFM full swing output
40	AVD1	—	Analog power supply

Pin No.	Pin Name	I/O	Function
41	DVDD	–	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 (Not used)
49	64BCLK	O	DA 13 output when PSSL=1. 64-bit slot data when PSSL=0 (Not used)
50	64LRCK	O	DA 12 output when PSSL=1. 64-bit slot data when PSSL=0 (Not used)
51	GTOP	O	DA 11 output when PSSL=1. GTOP output when PSSL=0 (Not used)
52	XUGF	O	DA 10 output when PSSL=1. XUGF output when PSSL=0 (Not used)
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 (Not used)
57	XRAOF	O	DA 05 output when PSSL=1. XRAOF 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 (Not used)
64	XTSL	I	X'tal selection input pin (GND)
65	DVss	–	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	FSOF	O	(Not used)
69	C16M	O	16.9344 MHz output (Not used)
70	MD2	I	Digital-out ON/OFF control pin (+5V)
71	DOUT	O	Digital-out output pin
72	EMPH	O	Playback disc output in emphasis mode (Not used)
73	WFCK	O	WFCK output
74	SCOR	O	Sub-code sync output
75	SBSO	O	Sub-P through Sub-W serial output (Not used)
76	EXCK	I	Clock input for SBS0 read-out (GND)
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 (+5V)
83	SCLK	I	SENS serial data read-out clock
84	DFSW	I	DFCT selection pin (GND)
85	ATSK	I	Input pin for anti-shock (GND)

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	CLOCK	I	Serial data transfer clock input, supplied from CPU
89	COUT	O	Numbers of track counted signal output (Not used)
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 (Not used)
95	MON	O	Output to control ON/OFF of spindle motor (Not used)
96	MDP	O	Output to control spindle motor servo
97	MDS	O	Output to control spindle motor servo (Not used)
98	LOCK	O	GFS is sampled by 460 Hz. H when GFS is H (Not used)
99	SSTP	I	Input signal to detect disc inner most track
100	SFDR	O	Sled drive output

ELECTRICAL PARTS LIST

NOTE:

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

Les composants identifiés par une marque Δ sont critiques pour la sécurité.
 Ne les remplacer que par une pièce 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.
- RESISTORS
 All resistors are in ohms
 METAL: Metal-film resistor
 METAL OXIDE: Metal Oxide-film resistor
 F : nonflammable
- CAPACITORS
 uF : μ F

Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
*	A-4673-509-A	BD BOARD, COMPLETE (Made in CHINA) *****		IC102	8-759-176-09	IC BA6392FP	
				IC103	8-752-072-45	IC CXA1821M-T6	
*	A-4673-511-A	BD BOARD, COMPLETE (Made in FRANCE) *****				< MOTOR >	
		< CAPACITOR >		M101	X-4917-523-4	BASE (OUTSERT) ASSY (SPINDLE)	
				M102	X-4917-504-1	MOTOR ASSY (SLED)	
C101	1-163-005-11	CERAMIC CHIP 470PF 10% 50V				< TRANSISTOR >	
C102	1-163-038-91	CERAMIC CHIP 0.1uF 25V					
C103	1-163-005-11	CERAMIC CHIP 470PF 10% 50V		Q101	8-729-010-08	TRANSISTOR MSB710-R	
C105	1-135-155-21	TANTALUM CHIP 4.7uF 10% 16V				< RESISTOR >	
C106	1-164-346-11	CERAMIC CHIP 1uF 16V		R101	1-216-077-00	METAL CHIP 15K 5% 1/10W	
C107	1-164-346-11	CERAMIC CHIP 1uF 16V		R102	1-216-097-91	METAL GLAZE 100K 5% 1/10W	
C108	1-163-035-00	CERAMIC CHIP 0.047uF 50V		R103	1-216-077-00	METAL CHIP 15K 5% 1/10W	
C109	1-163-145-00	CERAMIC CHIP 0.0015uF 5% 50V		R104	1-216-085-00	METAL CHIP 33K 5% 1/10W	
C110	1-163-017-00	CERAMIC CHIP 0.0047uF 5% 50V		R105	1-216-097-91	METAL GLAZE 100K 5% 1/10W	
C111	1-163-251-11	CERAMIC CHIP 100PF 5% 50V		R106	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
C112	1-163-038-91	CERAMIC CHIP 0.1uF 25V		R107	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
C113	1-163-038-91	CERAMIC CHIP 0.1uF 25V		R108	1-216-073-00	METAL CHIP 10K 5% 1/10W	
C115	1-126-607-11	ELECT CHIP 47uF 20% 4V		R109	1-216-121-91	METAL GLAZE 1M 5% 1/10W	
C116	1-126-607-11	ELECT CHIP 47uF 20% 4V		R110	1-216-025-91	METAL GLAZE 100 5% 1/10W	
C117	1-126-209-11	ELECT 100uF 20% 4V		R112	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
C118	1-163-275-11	CERAMIC CHIP 0.001uF 5% 50V		R123	1-216-073-00	METAL CHIP 10K 5% 1/10W	
C119	1-163-231-11	CERAMIC CHIP 15PF 5% 50V		R124	1-216-097-91	METAL GLAZE 100K 5% 1/10W	
C123	1-164-232-11	CERAMIC CHIP 0.01uF 50V		R125	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
C124	1-164-005-11	CERAMIC CHIP 0.47uF 25V		R126	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
C140	1-163-038-91	CERAMIC CHIP 0.1uF 25V		R127	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
C141	1-163-038-91	CERAMIC CHIP 0.1uF 25V		R131	1-216-037-00	METAL CHIP 330 5% 1/10W	
C151	1-163-237-11	CERAMIC CHIP 27PF 5% 50V		R135	1-216-295-91	CONDUCTOR, CHIP (2012)	
C153	1-163-038-91	CERAMIC CHIP 0.1uF 25V		R136	1-216-295-91	CONDUCTOR, CHIP (2012)	
C154	1-164-336-11	CERAMIC CHIP 0.33uF 25V		R137	1-216-295-91	CONDUCTOR, CHIP (2012)	
C156	1-163-237-11	CERAMIC CHIP 27PF 5% 50V		R138	1-216-295-91	CONDUCTOR, CHIP (2012)	
C157	1-163-145-00	CERAMIC CHIP 0.0015uF 5% 50V		R141	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
C159	1-163-019-00	CERAMIC CHIP 0.0068uF 10% 50V		R142	1-216-081-00	METAL CHIP 22K 5% 1/10W	
C161	1-163-038-91	CERAMIC CHIP 0.1uF 25V		R143	1-216-103-00	METAL CHIP 180K 5% 1/10W	
		< CONNECTOR >		R144	1-216-103-00	METAL CHIP 180K 5% 1/10W	
CN101	1-770-072-12	CONNECTOR, FFC 23P		R146	1-216-073-00	METAL CHIP 10K 5% 1/10W	
CN102	1-770-014-11	CONNECTOR, FFC/FPC 16P		R147	1-216-081-00	METAL CHIP 22K 5% 1/10W	
		< IC >		R148	1-216-001-00	METAL CHIP 10 5% 1/10W	
IC101	8-752-369-78	IC CXD2545Q		R149	1-216-003-11	METAL GLAZE 12 5% 1/10W	
				R158	1-216-111-91	METAL GLAZE 390K 5% 1/10W	

BD

Ref. No.	Part No.	Description	Remark
R159	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R160	1-216-295-91	CONDUCTOR, CHIP (2012)	
R161	1-216-308-00	METAL CHIP 4.7 5% 1/10W	
R162	1-216-101-00	METAL CHIP 150K 5% 1/10W	
< SWITCH >			
S101	1-572-085-11	SWITCH, LEAF (LIMIT)	

MISCELLANEOUS			

△154	8-848-367-11	OPTICAL PICK-UP KSS-213B/K-N	
M101	X-4917-523-4	BASE (OUTSERT) ASSY (SPINDLE)	
M102	X-4917-504-1	MOTOR ASSY (SLED)	

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