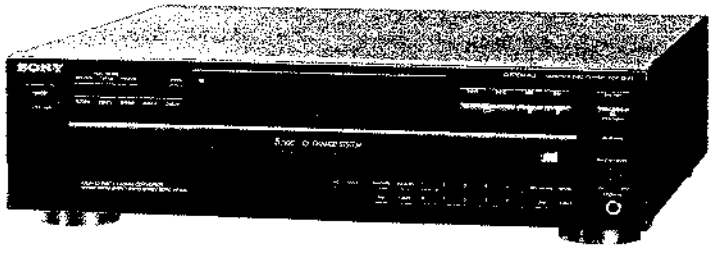
CDP-C445

SERVICE MANUAL

US Model
Canadian Model



Model Name Using Similer Mechanism	CDP-C435
CD Mechanism Type	CDM16G1-5BD3
Base Unit Type	BU-5BD10B
Optical Pick-up Type	KSS-240A

SPECIFICATIONS

Compact Disc Player

System	Compact disc digital audio system
Laser	Semiconductor laser
Wavelength	780–790 nm
Frequency response	2 Hz–20 kHz (±0.5 dB)
Signal to noise ratio	More than 107 dB
Dynamic range	More than 98 dB
Harmonic distortion	Less than 0.0035%
Channel separation	More than 100 dB

Outputs

LINE OUT (phono jacks)	Output level 2 V Load impedance over 10 kilohms
DIGITAL OUT (OPTICAL) (optical output connector)	Wave length 660 nm Output level –18 dBm
PHONES (stereo phone jack)	Output level max. 10 mW Load impedance 32 ohms

General

Power requirements	120 V AC, 60 Hz
Power consumption	14 W
Dimensions (approx.)	430 × 125 × 385 mm (w/h/d) (17 × 5 × 15 1/4 inches) Including projecting parts and controls
Mass (approx.)	5.7 kg , net (12 lbs 10oz)

Remote Commander RM-D335

Remote control system	Infrared control
Power requirements	3 V DC with two size AA batteries (IEC designation R6)
Dimensions	45 × 20 × 185 mm (w/h/d) (1 13/16 × 13/16 × 7 3/8 inches)
Mass	100 g (3.5 oz) including batteries

Design and specifications are subject to change without notice.

COMPACT DISC PLAYER

SONY

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.

For the Customers in Canada

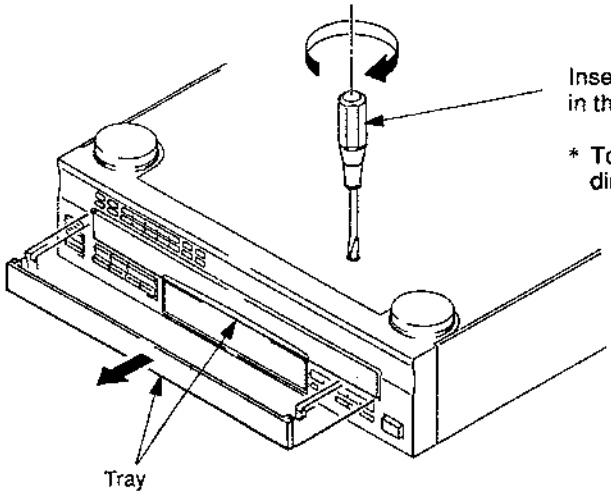
CAUTION

TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED AC PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

This apparatus complies with the Class B limits for radio noise emissisons set out in Radio Interference Regulations.

TABLE OF CONTENTS

HOW TO OPEN THE DISC TRAY WHEN POWER SWITCH TURNS OFF



Insert a tapering driver into the aperture of the unit bottom, and turn in the direction of arrow (to OUT direction).

* To close the disc tray, turn the driver in the reverse direction (to IN direction).

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.

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.

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)

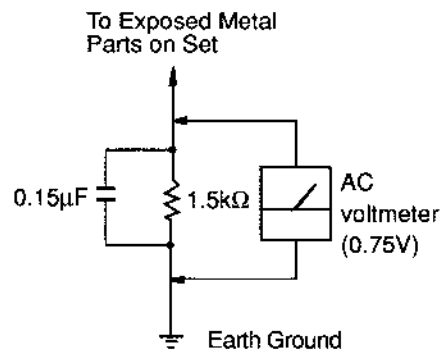
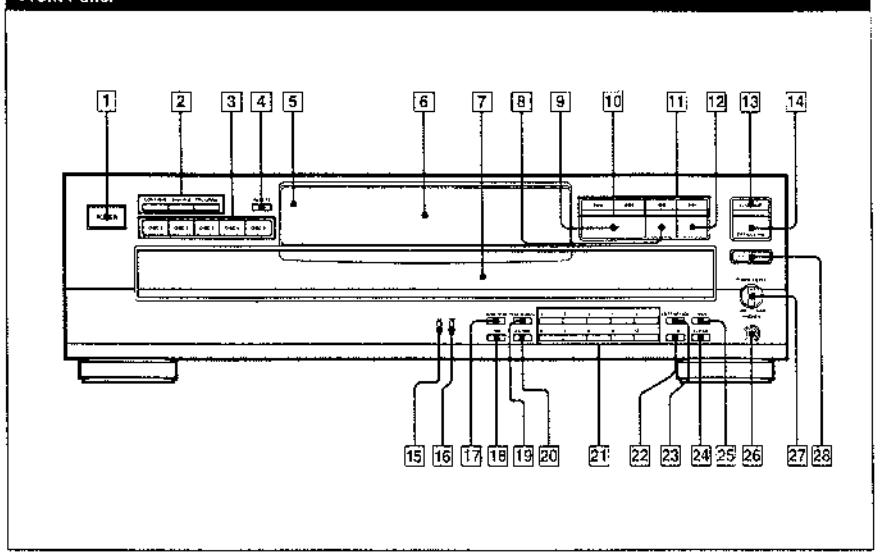


Fig. A. Using an AC voltmeter to check AC leakage.

Identifying the Parts

Front Panel

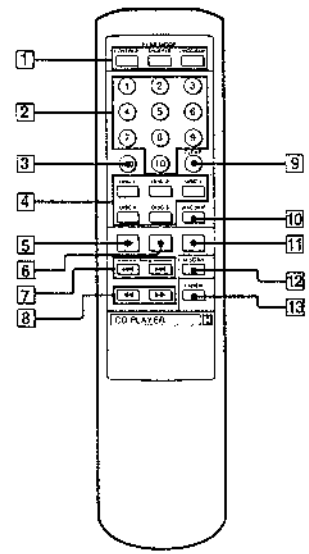


See the pages indicated in ( ) for details.

1 POWER switch (8)
2 PLAY MODE buttons
  CONTINUE button (8)
  SHUFFLE button (13)
  PROGRAM button (14)
3 DISC 1-5 buttons (8)
4 REPEAT button (18)
5 Remote sensor (4)
6 Display window (8)
7 Disc tray (8)
8 II (pause) button (8)
9 ▶ (play) button (8)
10 I◀◀/▶▶I (AMS*) buttons (10)
11 ◀◀/▶▶ (manual search) buttons (10)
12 ■ (stop) button (8)
13 DISC SKIP button (8)
14 ≙ OPEN/CLOSE button (8)
15 FILE button (23)
16 ERASE button (24)
17 MUSIC SCAN button (17)
18 TIME button (9)
19 PEAK SEARCH button (19)
20 FADER button (12)
21 Numeric buttons (10)
22 >10 (over 10) button (10)
23 EDIT/TIME FADE button (20)
24 CLEAR button (14)
25 CHECK button (16)
26 PHONES jack (9)
27 PHONE LEVEL control (9)
28 EX-CHANGE button (11)

* AMS is the abbreviation for Automatic Music Sensor.

Remote Commander



See the pages indicated in ( ) for details.

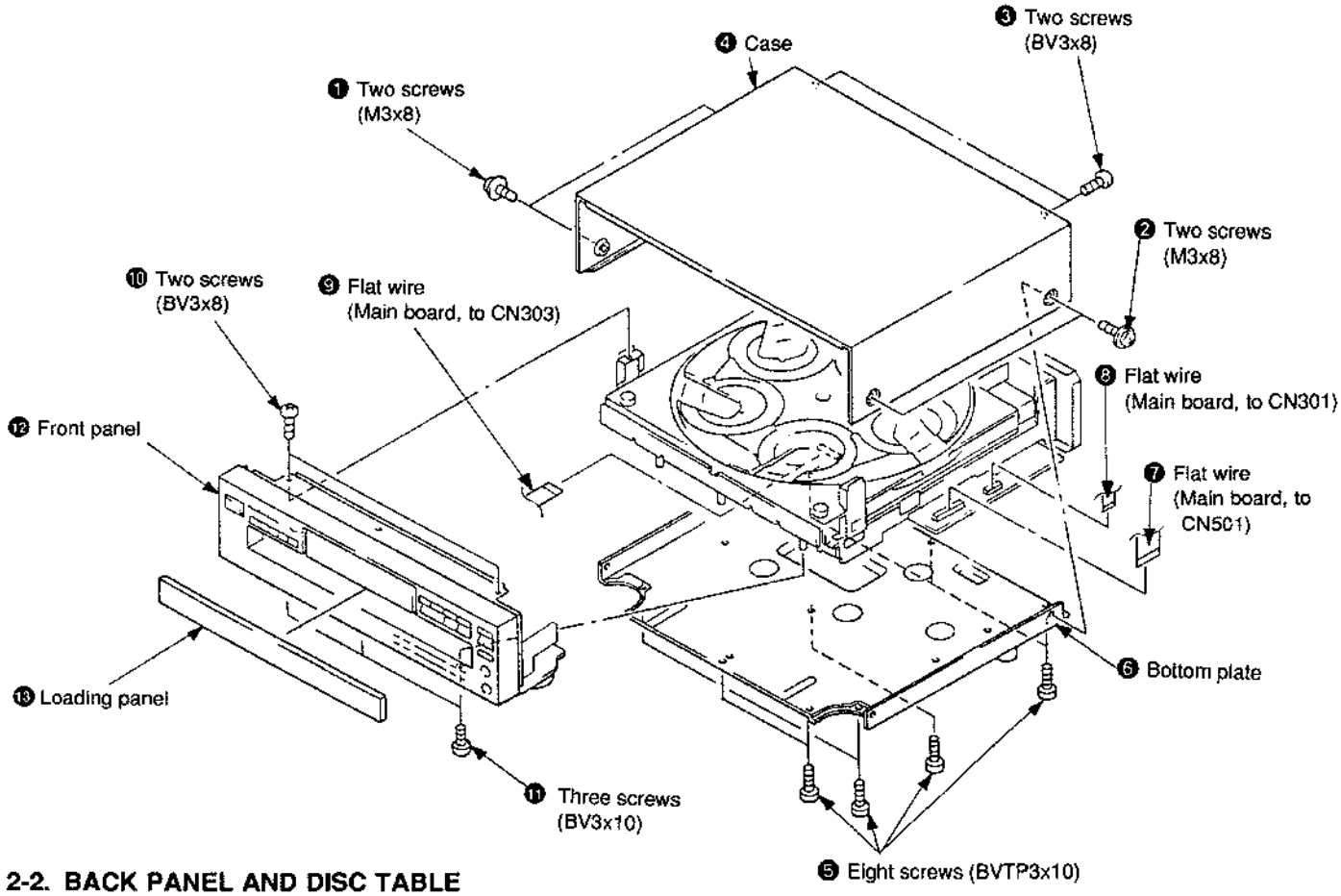
1 PLAY MODE buttons
  CONTINUE button (8)
  SHUFFLE button (13)
  PROGRAM button (14)
2 Numeric buttons (10)
3 >10 (over 10) button (10)
4 DISC 1-5 buttons (8)
5 ▶ (play) button (8)
6 II (pause) button (8)
7 I◀◀/▶▶I (AMS) buttons (10)
8 ◀◀/▶▶ (manual search) buttons (10)
9 CLEAR button (14)
10 DISC SKIP button (8)
11 ■ (stop) button (8)
12 M. SCAN (MUSIC SCAN) button (17)
13 FADER button (12)

SECTION 1
GENERAL

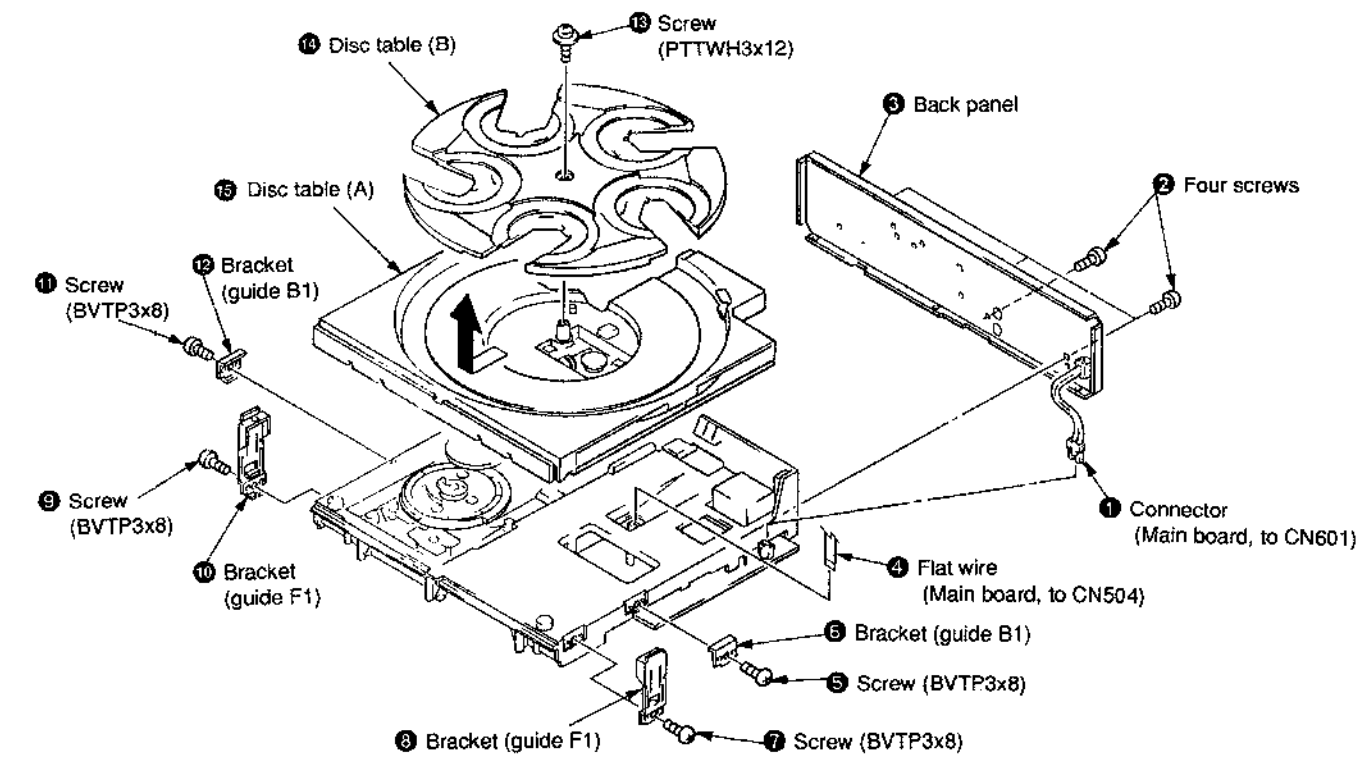
This section is extracted from instruction manual.

SECTION 2
DISASSEMBLY

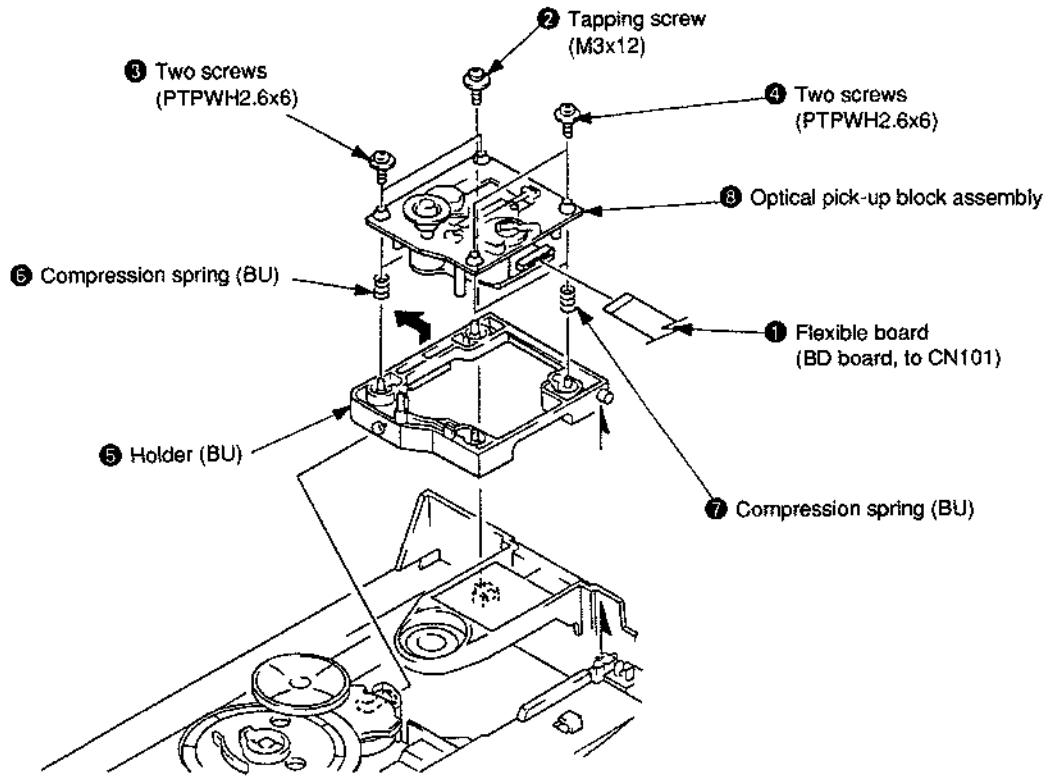
2-1. CASE, BOTTOM PLATE AND FRONT PANEL



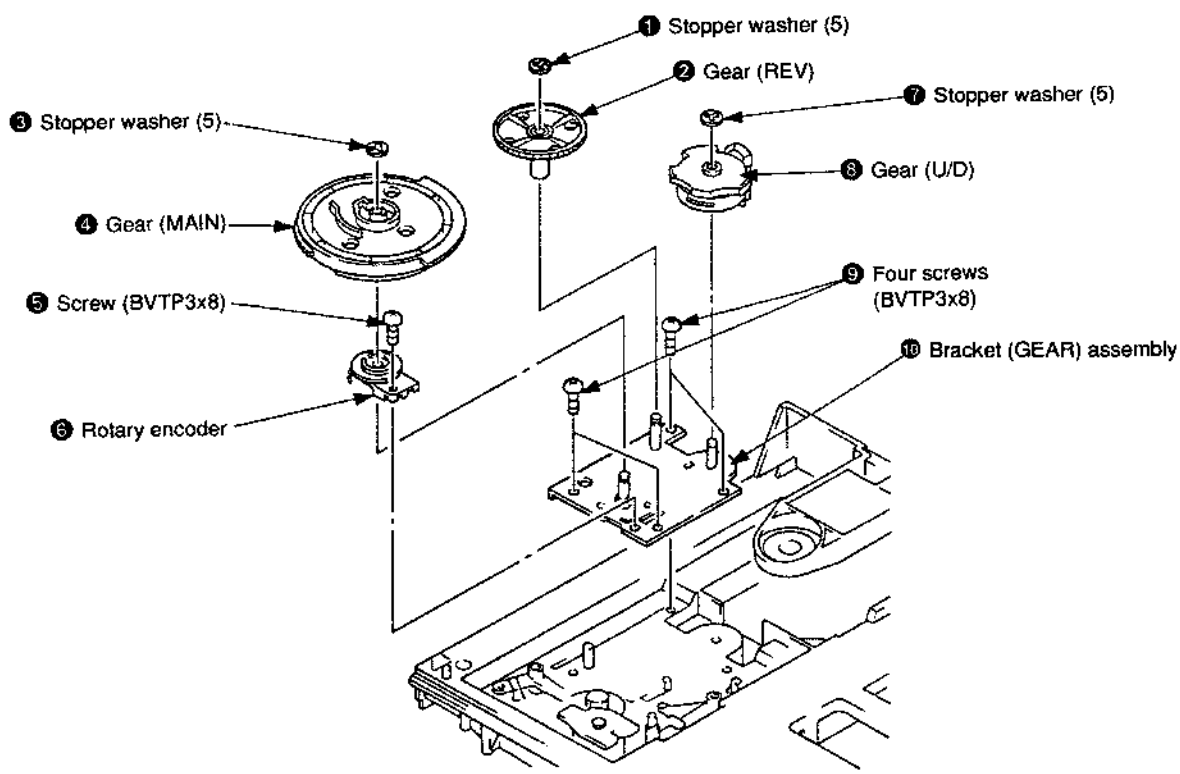
2-2. BACK PANEL AND DISC TABLE



2-3. OPTICAL PICK-UP BLOCK ASSEMBLY

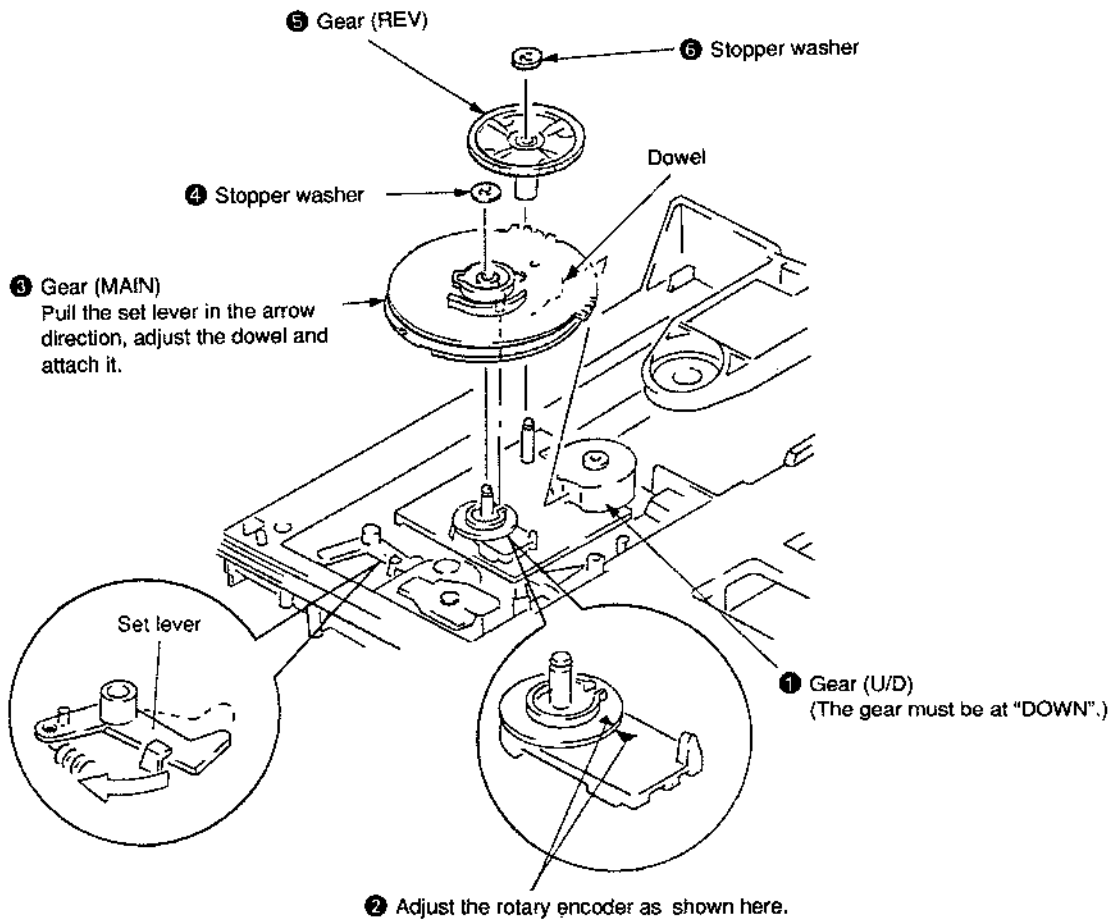


2-4. BRACKET (GEAR) ASSEMBLY



2-5. POSITIONING THE ENCODER WHEN ATTACHING THE GEAR (MAIN)

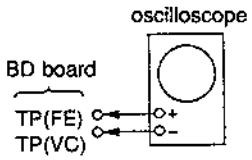
The position of the rotary encoder must be adjusted when attaching the gear (MAIN). If its position is not adjusted properly, problem may occur afterwards during operation.



SECTION 3
ELECTRICAL BLOCK CHECKING

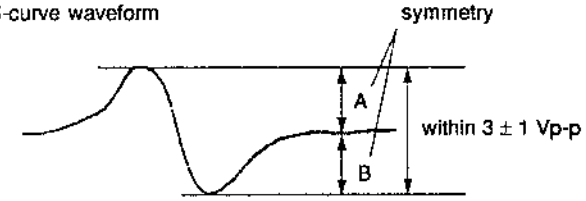
Note :
1. CD Block basically constructed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use the oscilloscope with more than 10MΩ impedance.
4. Clean an object lens by an applicator with neutral detergent when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

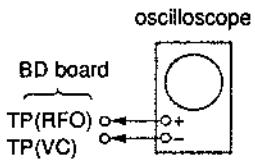
S-curve waveform



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 loge as possible and light up the brightness to obtain best waveform.

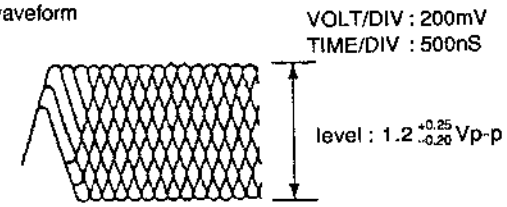
RF Level Check



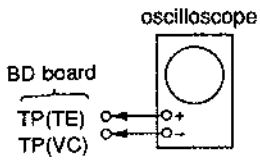
Procedure :
1. Connect oscilloscope to test point TP (RFO) on BD board.
2. Turned Power switch on.
3. Put disc (YEDS-18) in and playback.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

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

RF signal waveform

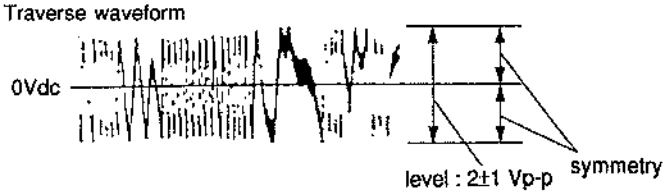


E-F Balance Check



Procedure :
1. Connect test point TP (ADJ) on MAIN board to ground and TP(TEI) to TP (VC) with 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.

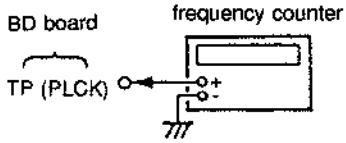
Traverse waveform



6. Remove the lead wire connected in step 1.

RF Free-run Frequency Check

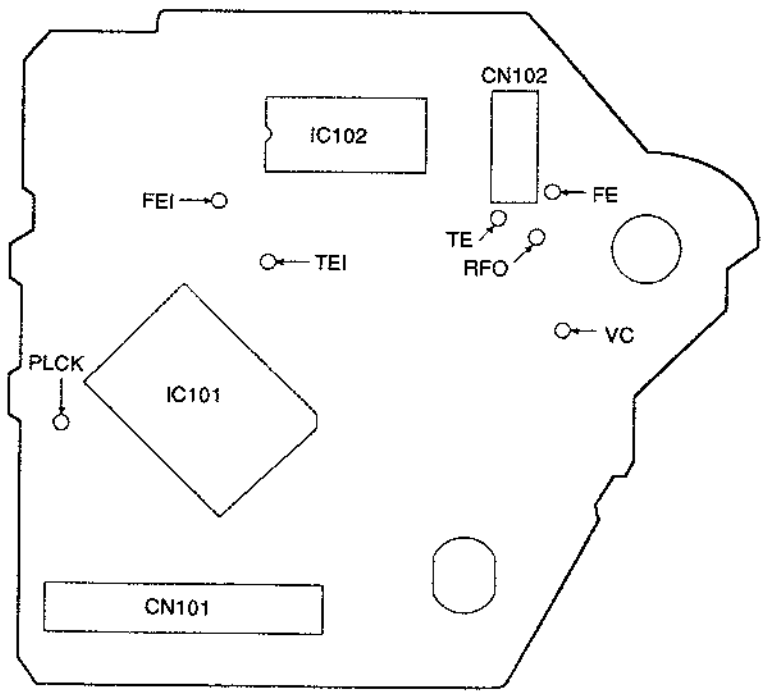
Procedure :
1. Connect frequency counter to test point (PLCK) with lead wire.



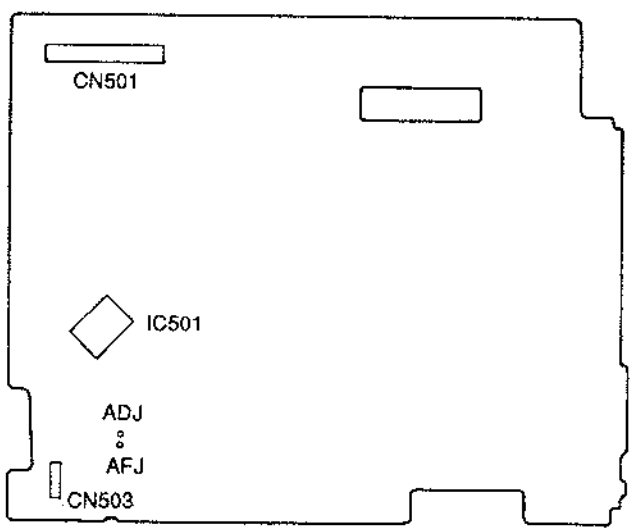
2. Turned Power switch on.
3. Confirm that reading on frequency counter is 4.3218MHz.

Adjustment Location :

[BD BOARD] — Conductor Side —



[MAIN BOARD] — Conductor Side —



SECTION 4
DIAGRAMS

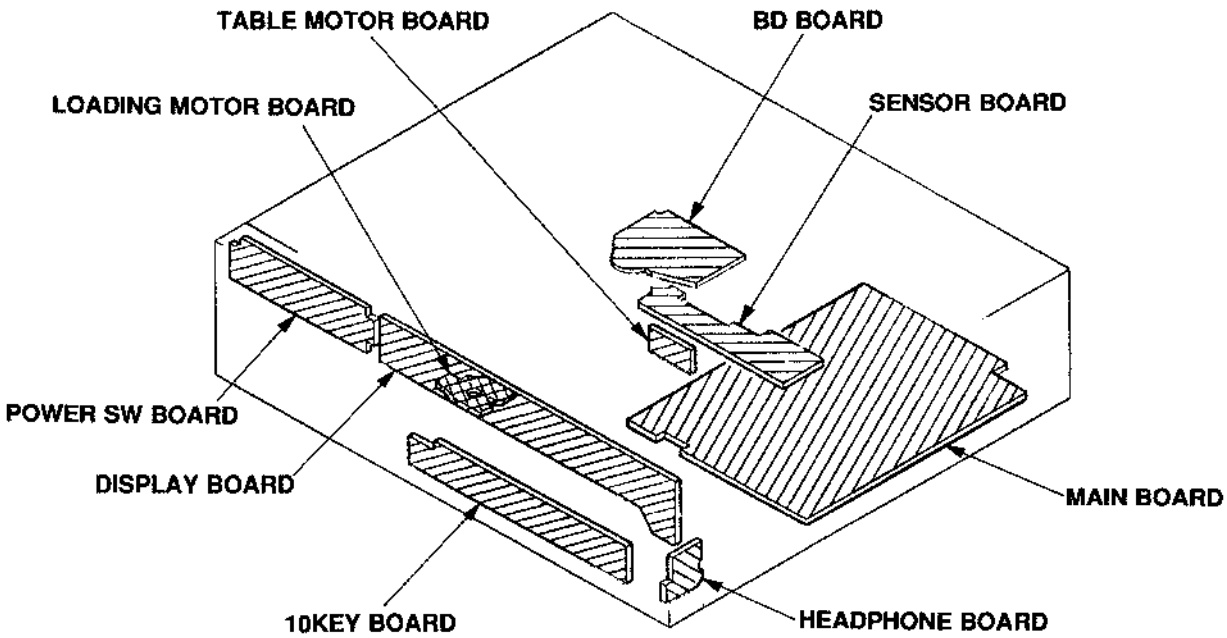
4-1. IC PIN FUNCTIONS

CXP82220-018Q (IC501) PIN FUNCTIONS

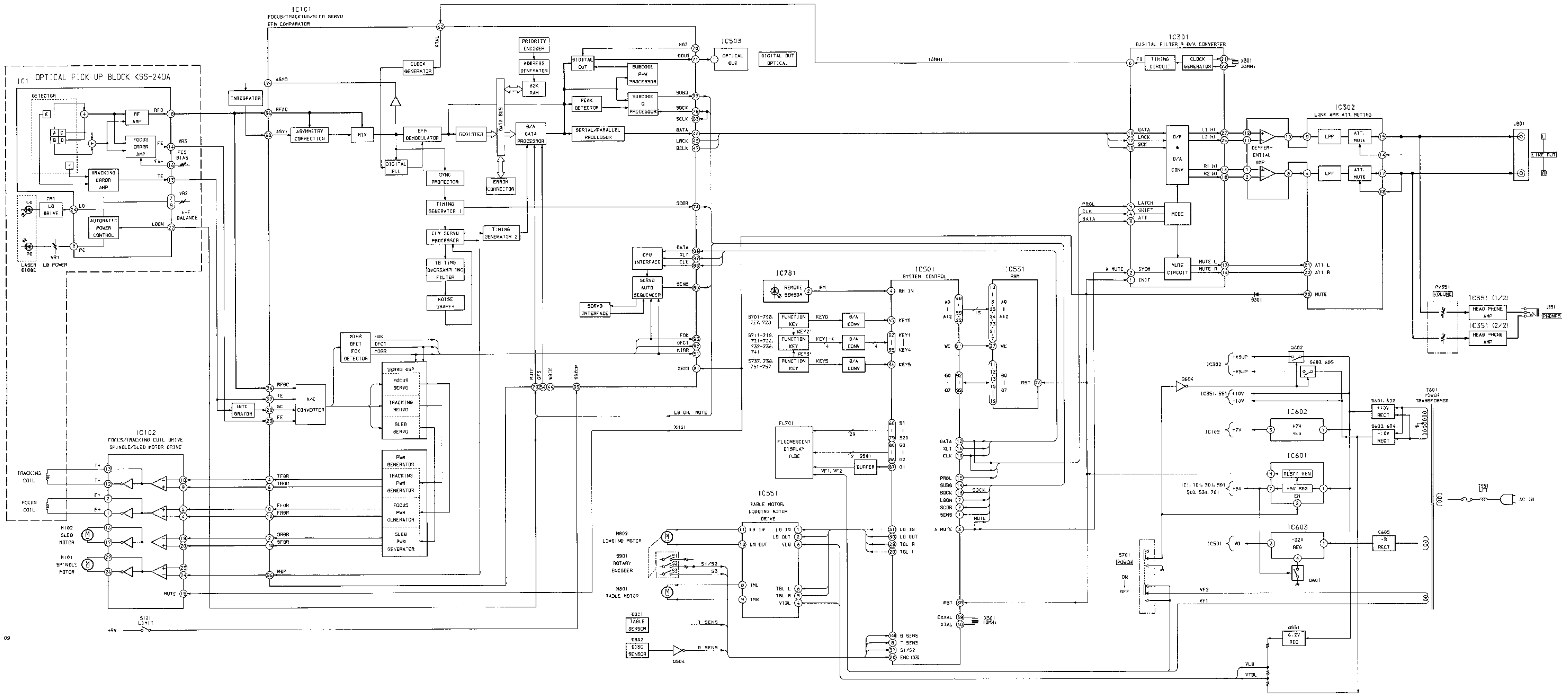
PIN No.	PIN NAME	I/O	FUNCTION
1	SENSE	I	SENSE signal input pin.
2	SCOR	I	Subcode Q data readout timing signal input pin.
3	AF ADJ	I	Test mode pin. Normally: "H"
4	RM IN	I	Remote control signal input pin.
5	ADJ	I	Test mode pin. Normally: "H"
6	A MUTE	O	Analog muting control signal output pin.
7	LDON	O	Optical pick-up laser diode control pin. ON: "H"
8	T.SENS	I	Slit sensor of disc table input pin.
9	—	—	Not used.
10	CLK	O	Serial clock output pin to BD.
11	XLT	O	Serial data latch signal output pin.
12	DATA	O	Serial data output pin.
13	SQCK	O	Subcode Q data readout clock output pin.
14	SUBQ	I	Subcode Q data input pin.
15	PRGL	O	Latch signal output pin to digital filter IC.
16	LED/	O	Not used.
17	LED1	O	
18	LED2	O	
19	LED3	O	
20	ENC (S3)	I	Loading encoder input pin. (S3)
21	WE	O	Read/write timing output pin.
22	A12	O	S-RAM address control output pin.
23	—	—	Not used.
24	—	—	
25	—	—	
26	—	—	
27	—	—	
28	TBLL	O	Table motor control pin.
29	TBLR	O	
30	LDOUT	O	Loading motor control pin.
31	LDIN	O	
32 to 36	KEY1 to KEY5	I	Key input pin. (A/D)
37	S1/2	I	Loading encoder input pin. (S1/S2)
38	RST	I	Reset signal input pin.
39	EXTAL	I	10MHz clock input pin.
40	XTAL	O	10MHz clock output pin.
41	Vss	—	GND
42	TX	—	Not used.
43	TEX	—	
44	V-LEVEL	I	Volume level input pin. (Not used.)
45	KEY0	I	Key input pin. (A/D)

PIN No.	PIN NAME	I/O	FUNCTION
46	AVREF	I	Reference voltage input pin of A/D conversion.
47	AVss	–	GND
48 to 59	A0 to A11	O	S-RAM address control output pin.
60 to 79	S1 to S20	O	FL segment output pin.
80 to 87	G1 to G8	O	FL timing output pin.
88	VFDP	I	FL drive voltage input pin.
89	VDD	–	Power supply pin.
90	NC	–	Connected to VDD.
91	Vss	–	GND
92 to 99	D0 to D7	I/O	S-RAM data bus.
100	DSENS	I	Disc sensor input pin.

4-2. CIRCUIT BOARDS LOCATION



4-3. BLOCK DIAGRAM



4-4. PRINTED WIRING BOARD — BD SECTION —

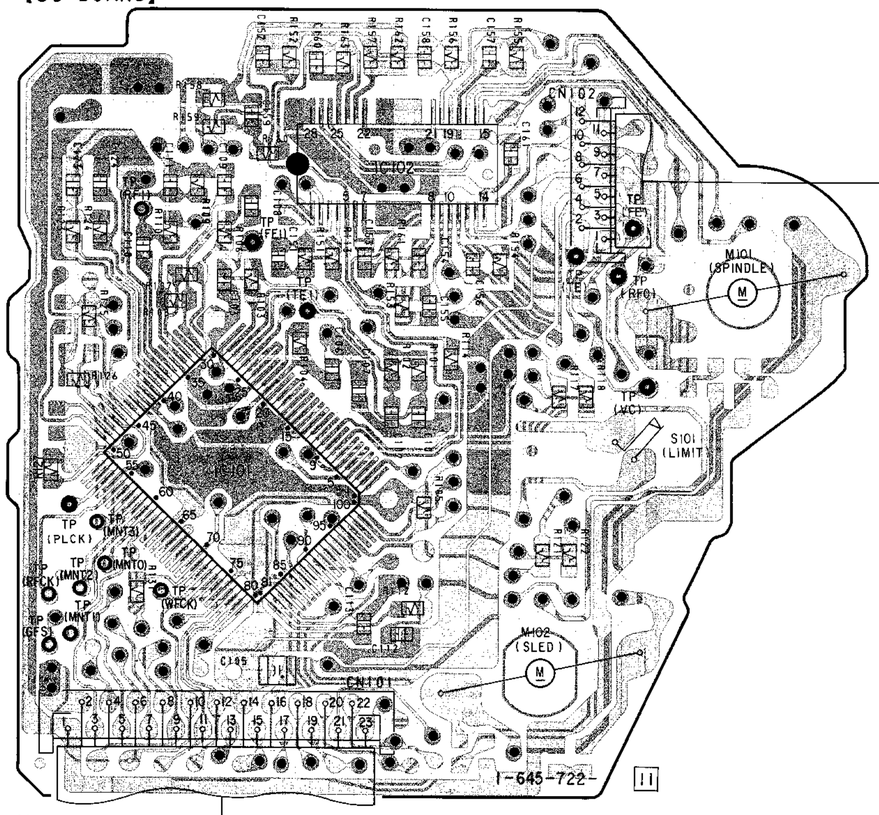
• See page 12 for Circuit Boards Location.
• See page 31 for Semiconductor Lead Layouts.

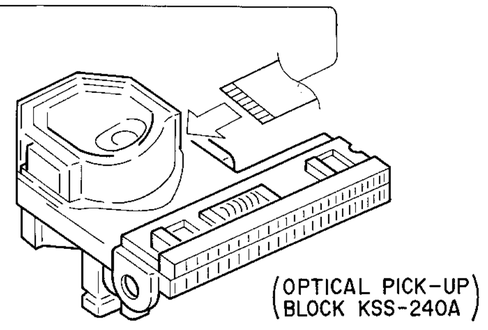
• Semiconductor Location

Ref. No.	Location
IC101	D-2
IC102	B-3

Note:
- ○—— : parts extracted from the component side.
- ● : Through hole.
- ▨ : Pattern from the side which enable seeing.
- ▨ : Pattern of the rear side.

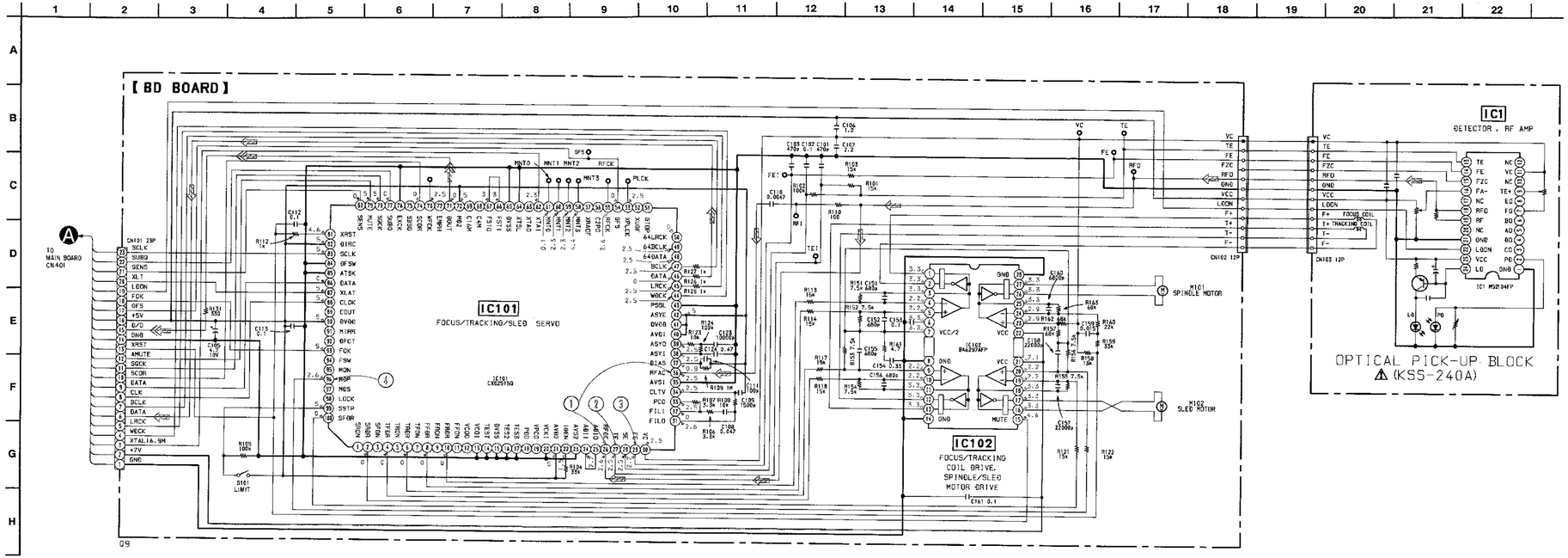
【BD BOARD】





(OPTICAL PICK-UP BLOCK KSS-240A)

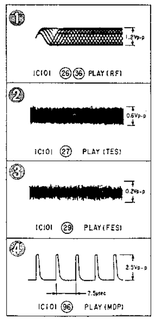
4-5. SCHEMATIC DIAGRAM
— BD SECTION —
• See page 32, 33 for IC Block Diagrams.



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.

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
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
- 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
  : digital out



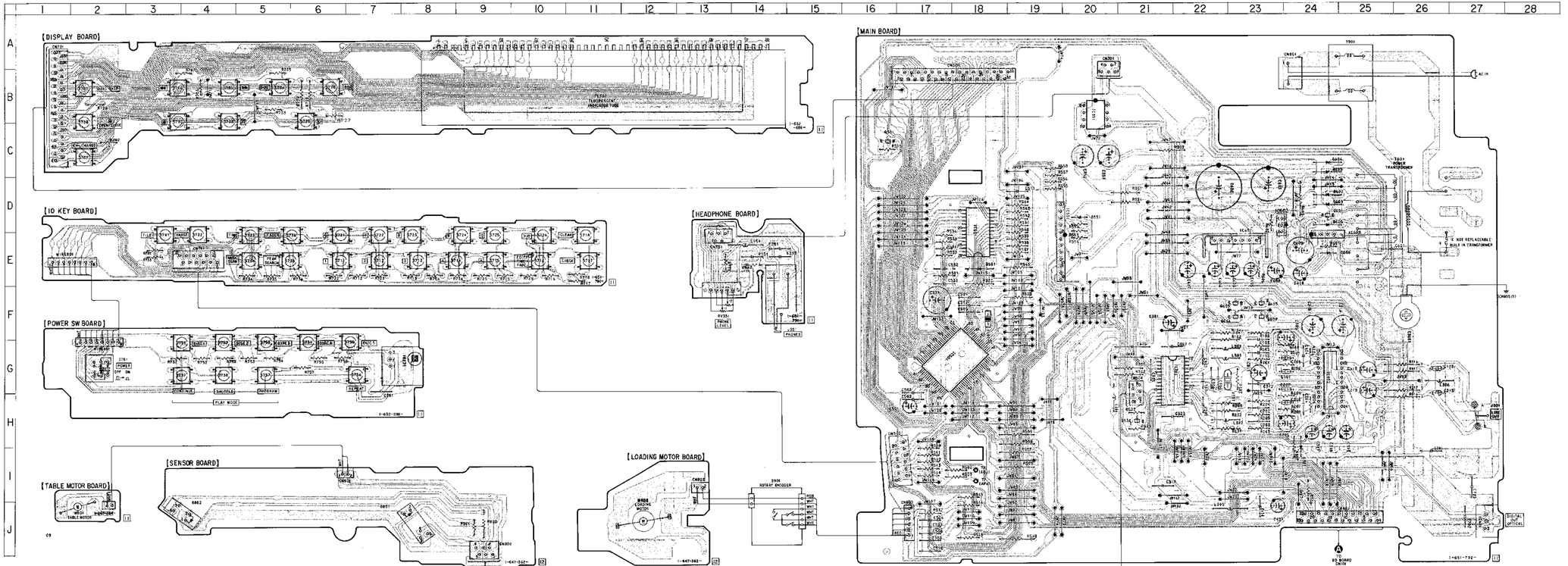
4-6. PRINTED WIRING BOARDS
— MAIN SECTION —

- See page 12 for Circuit Boards Location.
- See page 31 for Semiconductor Lead Layouts.

- **Semiconductor Location**

Ref. No.	Location
D301	I-24
D531	E-18
D551	D-20
D601	D-24
D602	D-24
D603	D-24
D604	D-24
D605	D-24
D606	E-24
D801	J-8
D802	J-4
IC301	G-22
IC302	G-24
IC351	C-20
IC401	J-27
IC501	G-18
IC531	E-18
IC551	E-20
IC601	E-23
IC602	D-24
IC603	E-24
IC781	G-8
Q501	C-16
Q504	H-21
Q601	D-24
Q602	F-23
Q603	F-23
Q604	F-23
Q605	F-23

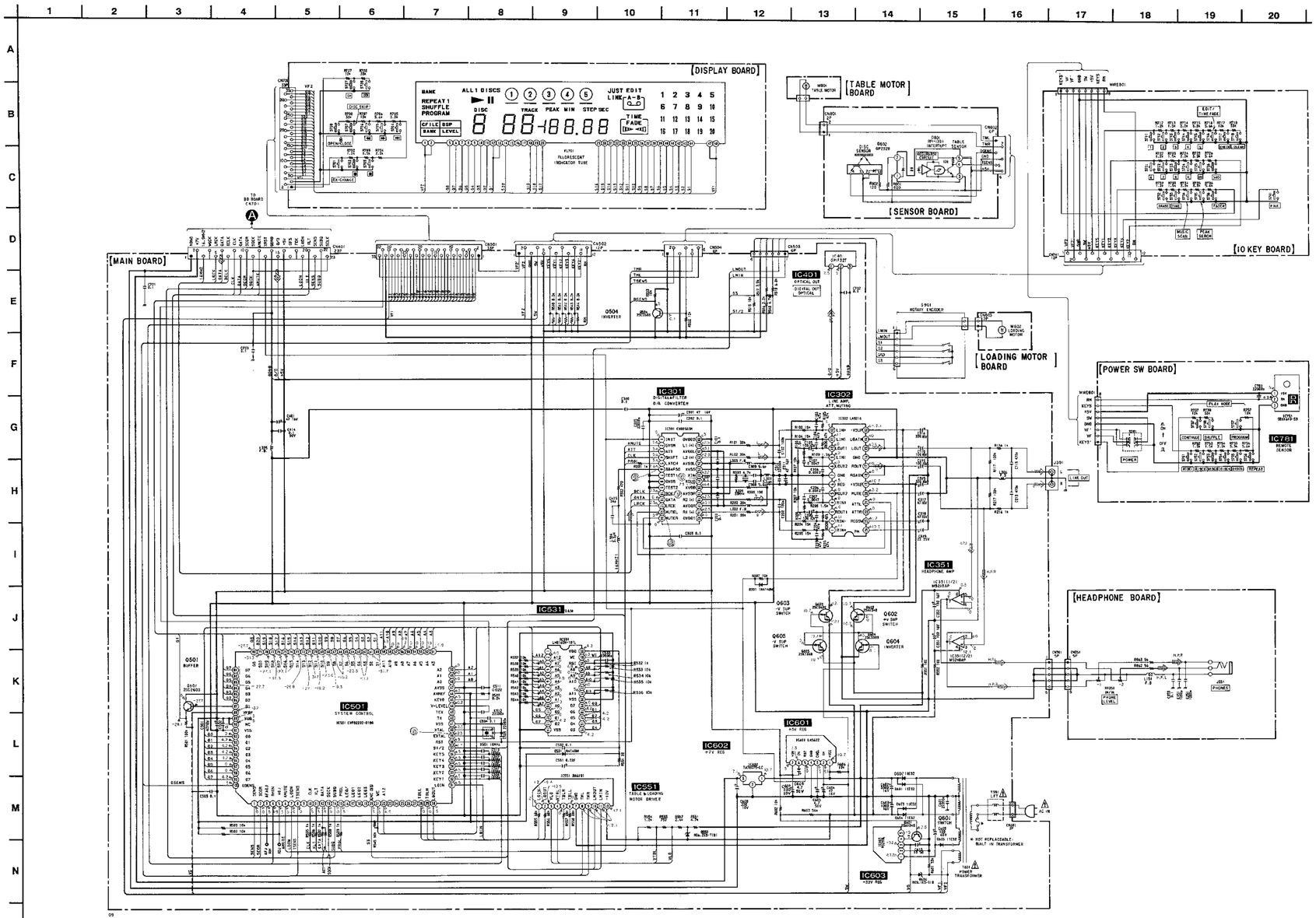
Note:
- ○—— : parts extracted from the component side.
- ▨ : Pattern from the side which enable seeing.



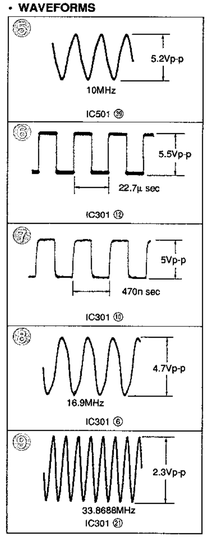
4-7. SCHEMATIC DIAGRAM

— MAIN SECTION —

- See page 10, 11 for IC Pin Functions. (IC501)
- See page 32, 33 for IC Block Diagrams.



• WAVEFORMS



Note:

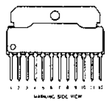
- All capacitors are in µF unless otherwise noted. pF:µµF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ : internal component.
- ▭ : panel designation.

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.

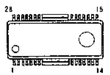
- ▱▱▱▱ : B+ Line
- ▱▱▱▱ : B− Line
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  - ⇒ : CD
  - ⇒ : digital out

4-8. SEMICONDUCTOR LEAD LAYOUTS

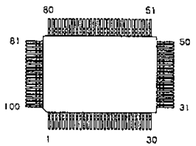
BA6191



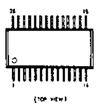
BA6297AFP



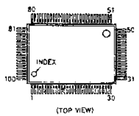
CXD2515Q



CXD2565M-1



CXP82220-018Q

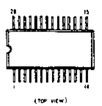


GP1F32T

LA5602

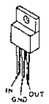
LA9216

LH5160N-10L



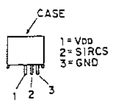
M5293L

M5F78M07L



M5218AP

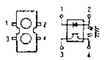
SBX1610-59



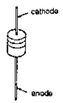
2SA1175-HFE

DTA114ES
DTC114ES
DTC144ES
2SC2603-EF

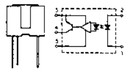
GP2S28



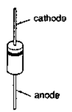
RD6.2ES-B1
RD9.1ES-L
UZ-6.2BSA-TA
11ES2



RPI-1391

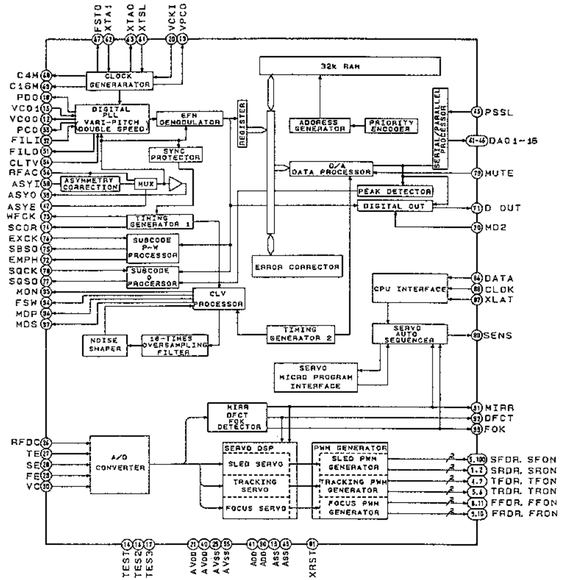


1N4148M

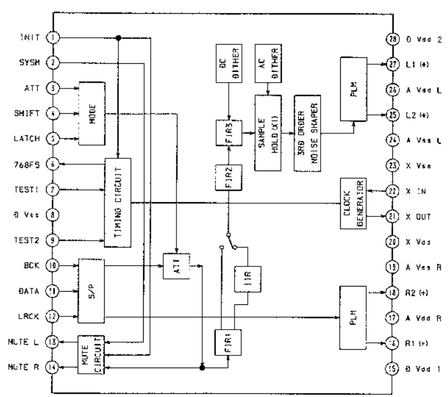


4-9. IC BLOCK DIAGRAMS

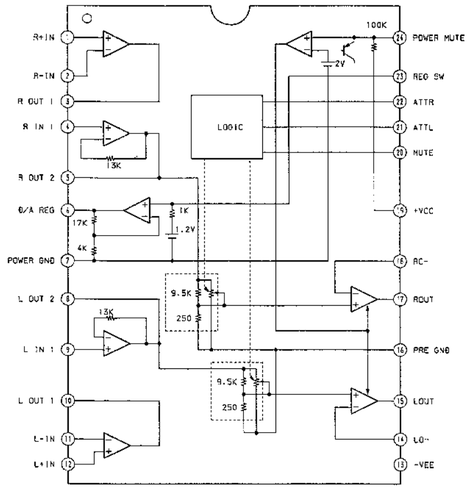
IC101 CXD2515Q



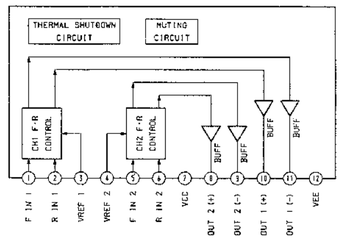
IC301 CXD2565M-1



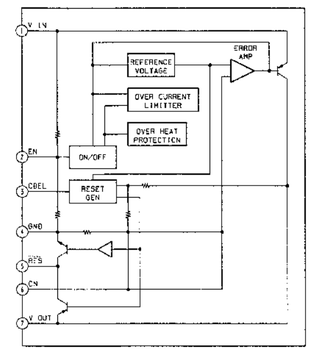
IC302 LA9216



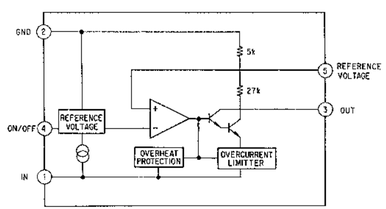
IC551 BA6191



IC601 LA5602



IC603 M5293L



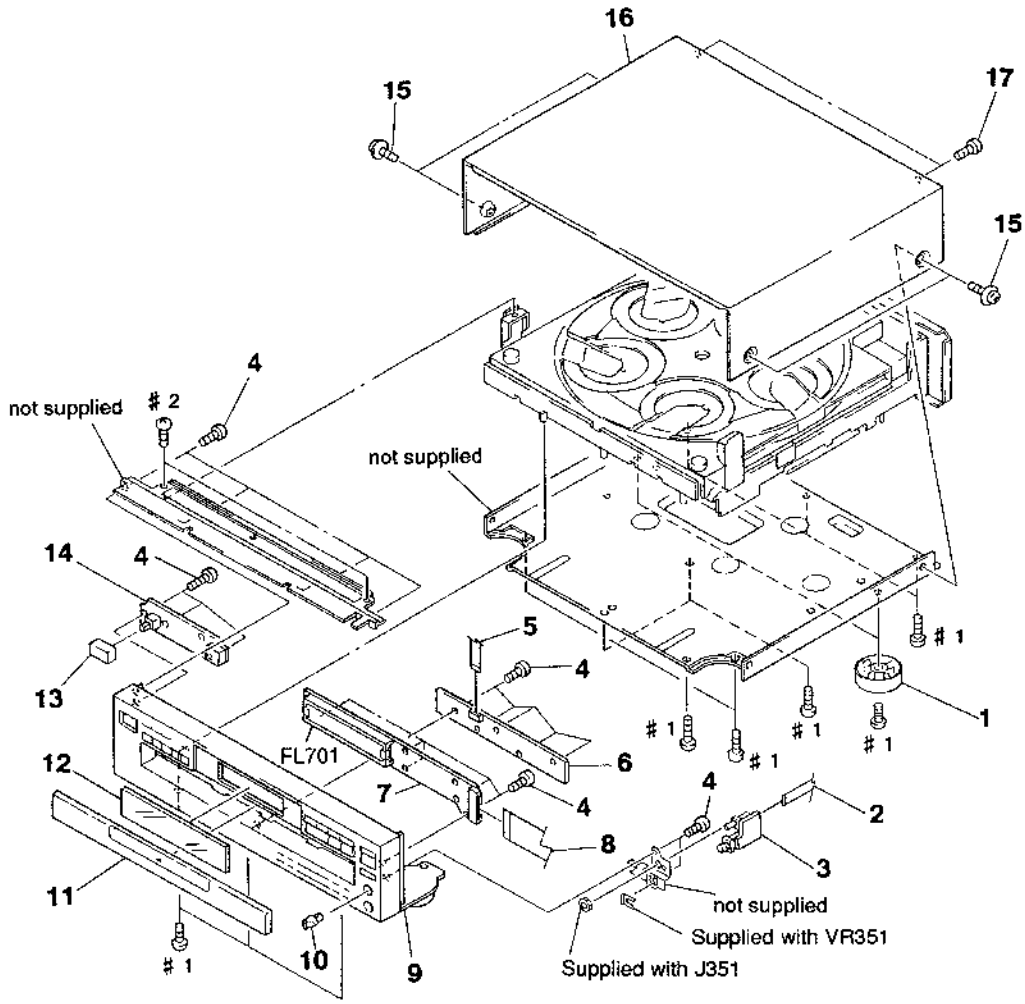
SECTION 5
EXPLODED VIEWS

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.

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

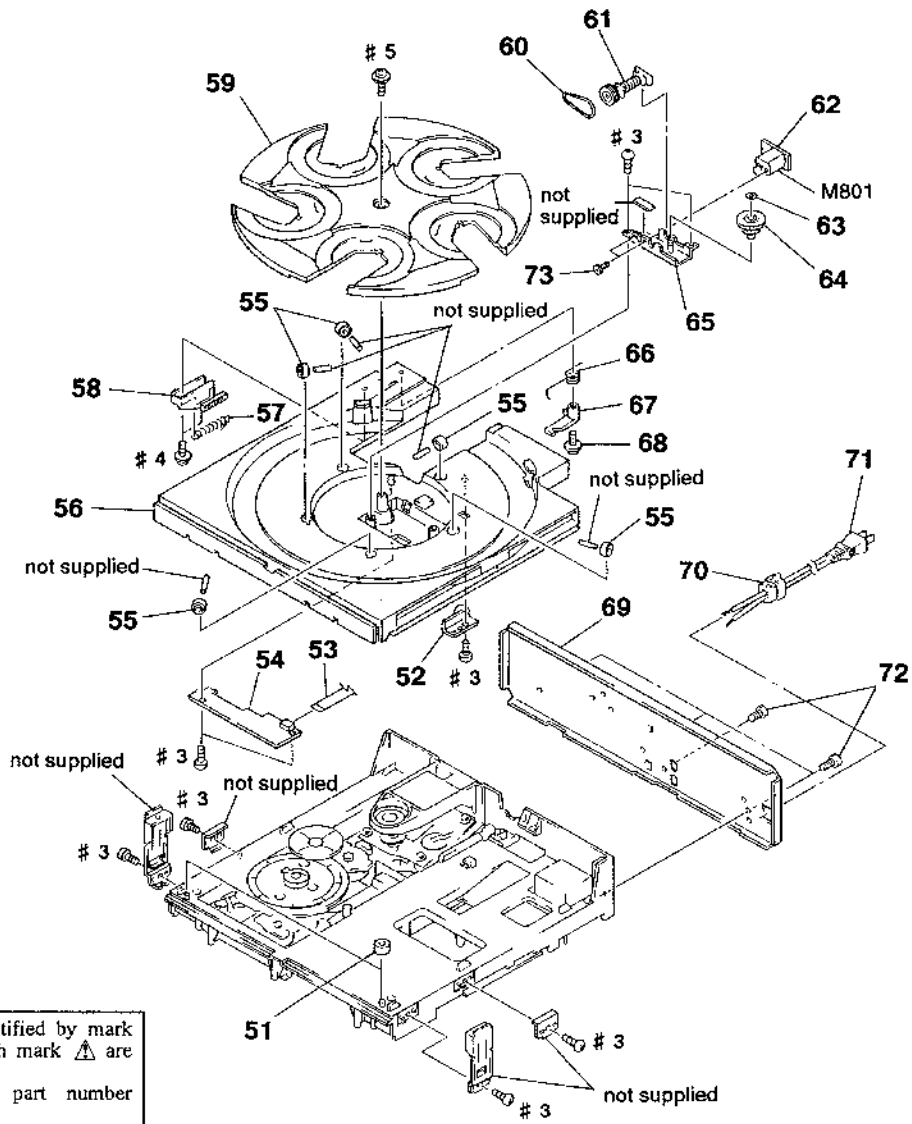
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

5-1. FRONT PANEL AND CASE ASSEMBLIES



Ref. No.	Part No.	Description	Remark
1	X-4942-197-1	FOOT ASSY	
2	1-765-078-11	WIRE (FLAT TYPE) (5 CORE)	
* 3	1-651-791-11	HEADPHONE BOARD	
4	4-951-620-01	SCREW (2.6X8), +BVTP	
5	1-751-121-11	WIRE (FLAT TYPE) (12 CORE)	
* 6	A-4673-071-A	10 KEY BOARD, COMPLETE	
* 7	A-4673-074-A	DISPLAY BOARD, COMPLETE	
8	1-751-119-11	WIRE (FLAT TYPE) (33 CORE)	
9	X-4944-687-1	PANEL ASSY, FRONT	
10	4-950-189-01	KNOB (A) (VOL)	
11	4-964-694-01	PANEL, LOADING	
12	4-957-548-01	PLATE (FL), INDICATION	
13	4-922-921-01	BUTTON (POWER)	
14	1-652-688-11	POWER SW BOARD	
15	3-704-366-01	SCREW (CASE) (M3X8)	
16	4-944-153-51	CASE	
17	3-703-685-21	SCREW (+BV 3X8)	
FL701	1-517-164-11	INDICATOR TUBE, FLUORESCENT	

5-2. BACK PANEL AND DISC TABLE ASSEMBLIES

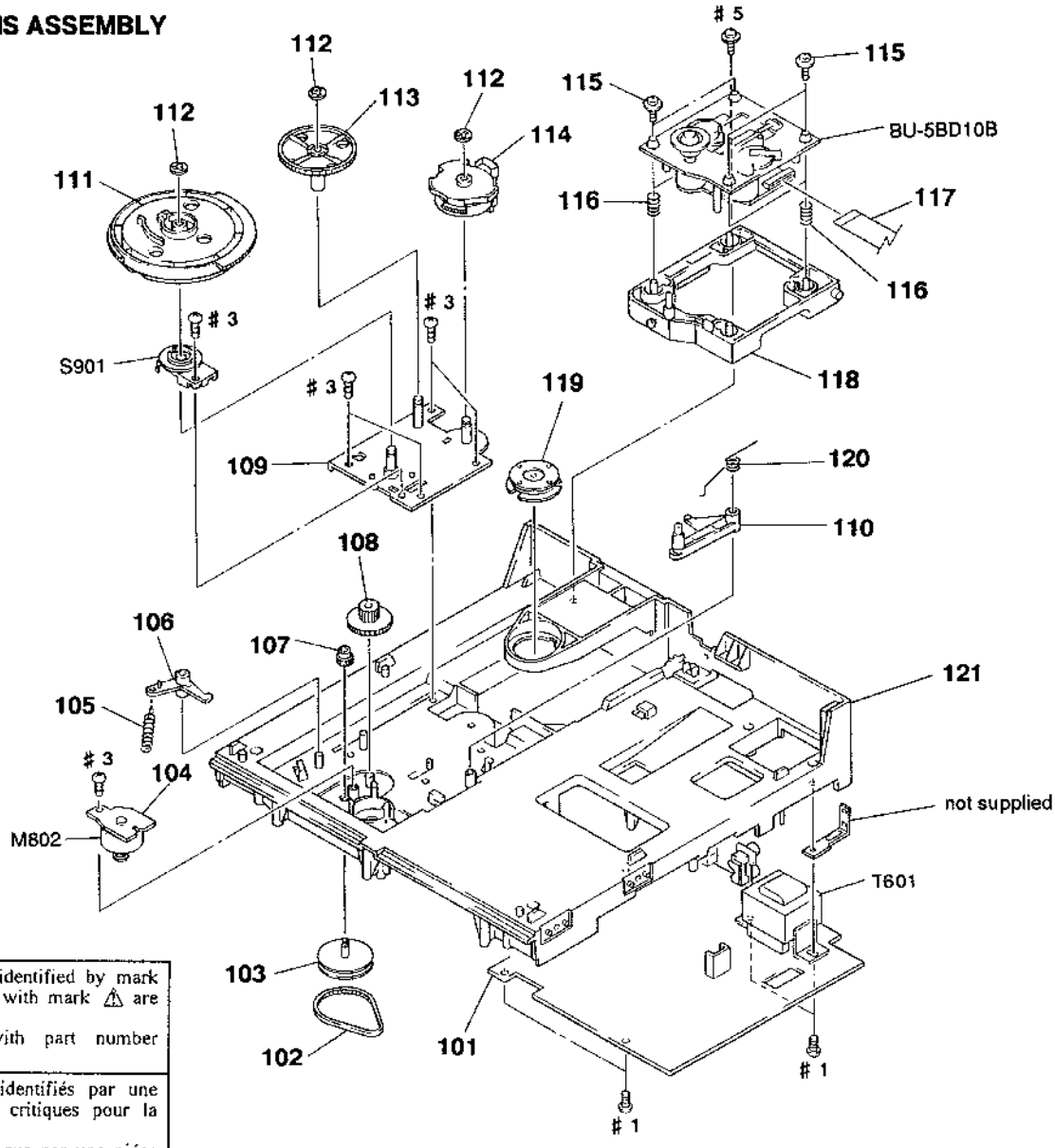


The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

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
* 51	4-951-619-01	CUSHION (A)	
52	X-4943-480-1	BRACKET (ROLLER D) ASSY	
53	1-751-052-11	WIRE (FLAT TYPE) (6 CORE)	
* 54	1-647-362-11	SENSOR BOARD	
55	X-4924-457-1	ROLLER ASSY	
* 56	4-957-298-01	TABLE (A), DISK	
57	4-957-294-01	SPRING (D.T), TENSION	
58	4-957-292-01	SLIDER (RACK)	
59	4-957-299-01	TABLE (B), DISK	
60	4-957-304-01	BELT (RM)	
61	X-4943-479-1	GEAR (ROTARY A) ASSY	
* 62	1-647-364-11	TABLE MOTOR BOARD	
63	3-325-697-01	WASHER	
64	4-957-284-01	GEAR (LOTARY B)	
65	X-4943-477-1	BRACKET (RM) ASSY	
66	4-957-293-01	SPRING (RACK RELEASE)	
67	4-957-291-01	LEVER (RACK RELEASE)	
68	4-957-868-01	SCREW (+PTPWH 2.6X20)	
* 69	4-964-324-81	PANEL, BACK	
* 70	3-703-244-00	BUSHING (2104), CORD	
⚠71	1-590-836-11	CORD, POWER	
72	3-704-515-21	SCREW (BV/RING)	
73	4-965-659-01	SCREW (+B 2X2.2)	
M801	A-4660-322-A	MOTOR ASSY, ROTARY (TABLE)	

5-3. CHASSIS ASSEMBLY

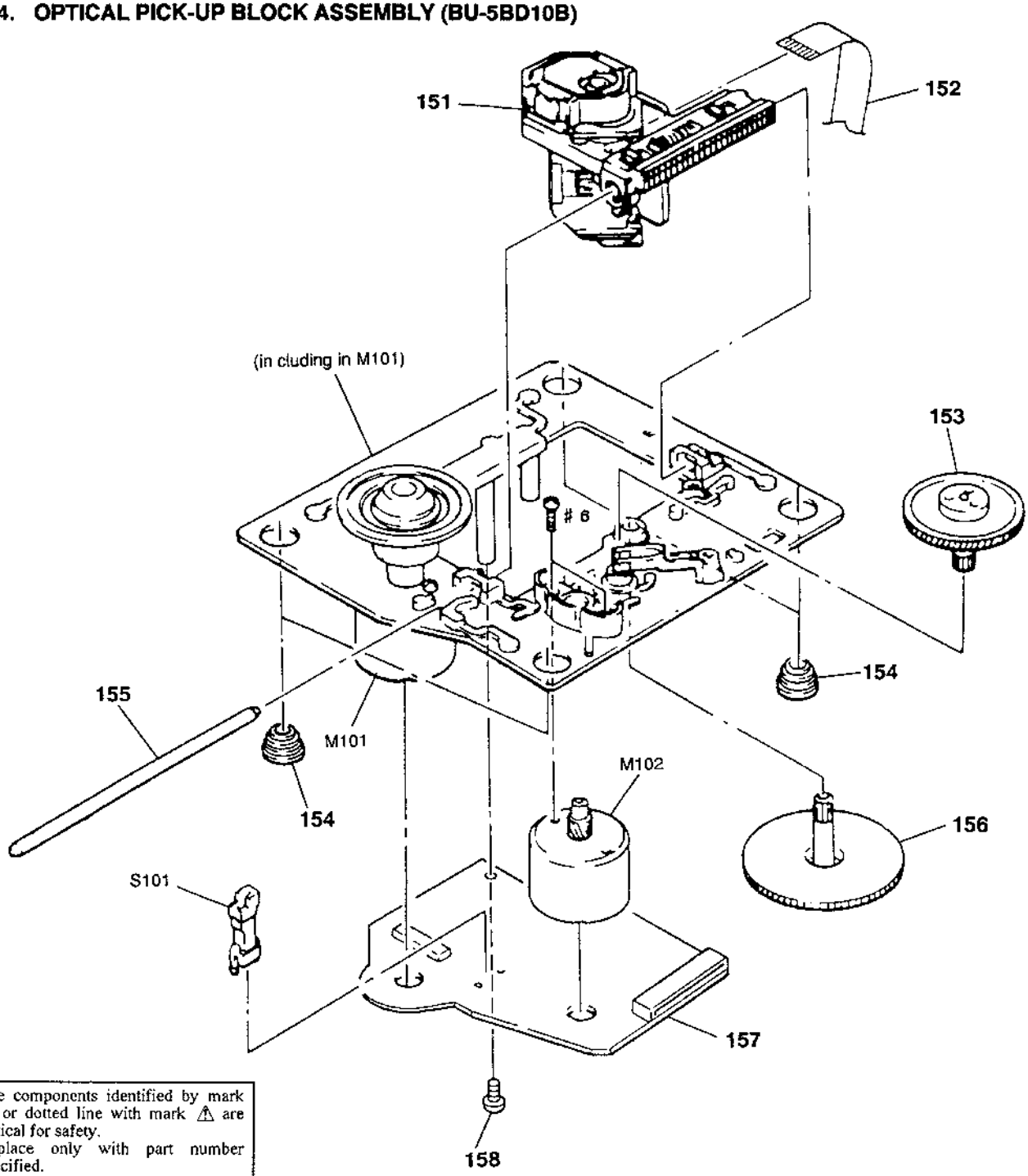


The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

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-4673-075-A	MAIN BOARD, COMPLETE	
102	4-944-490-01	BELT (TIMING)	
103	X-4941-529-1	PULLEY ASSY	
104	1-647-363-11	LOADING MOTOR BOARD	
105	4-962-087-01	SPRING (S), TENSION	
106	4-957-285-01	LEVER, SET	
107	4-934-375-01	GEAR (LOADING B)	
108	4-957-303-01	GEAR (LOADING C)	
109	X-4943-478-1	BRACKET (GEAR) ASSY	
110	4-957-279-01	LEVER, LOCK	
111	4-957-288-01	GEAR (MAIN)	
112	4-957-283-01	WASHER (5), STOPPER	
113	4-957-287-01	GEAR (REV)	
114	4-957-286-01	GEAR (U/D)	
115	4-933-134-01	SCREW (+PTPWH M2.6X6)	
116	4-948-503-01	SPRING (BU), COMPRESSION	
117	1-765-443-11	WIRE (FLAT TYPE) (23 CORE)	
* 118	4-957-289-01	HOLDER (BU)	
* 119	1-452-538-11	MAGNET	
120	4-957-281-01	SPRING (LOCK LEVER)	
* 121	4-957-300-03	CHASSIS	
M802	A-4604-834-A	MOTOR ASSY, LOADING	
S901	1-466-996-11	ENCODER, ROTARY	
⚠T601	1-423-553-11	TRANSFORMER, POWER	

5-4. OPTICAL PICK-UP BLOCK ASSEMBLY (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
⚠151	8-848-144-11	OPTICAL PICK-UP BLOCK (KSS-240A)	
152	1-575-001-11	WIRE, FLAT TYPE (12 CORE)	
153	4-917-567-01	GEAR (M)	
154	4-951-940-01	INSULATOR (BU)	
155	4-917-565-01	SHAFT, SLED	
156	4-917-564-01	GEAR (P), FLATNESS	
* 157	A-4649-432-A	BD BOARD, COMPLETE	
158	4-951-620-01	SCREW (2.6X8), +BVTP	
M101	X-4917-523-3	BASE (OUTSERT) ASSY (SPINDLE)	
M102	X-4917-504-1	MOTOR ASSY (SLED)	
S101	1-572-085-11	SWITCH, LEAF (LIMIT)	

10 KEY **BD**

SECTION 6
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

Ref.No.	Part No.	Description				Remark
*	A-4673-071-A	10 KEY BOARD, COMPLETE				
		**********				
		< CONNECTOR >				
CN741	1-568-855-11	SOCKET, CONNECTOR 12P				
		< RESISTOR >				
R712	1-249-418-11	CARBON	1.2K	5%	1/4W	F
R713	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R714	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R715	1-249-423-11	CARBON	3.3K	5%	1/4W	F
R716	1-249-426-11	CARBON	5.6K	5%	1/4W	
R717	1-249-430-11	CARBON	12K	5%	1/4W	
R718	1-249-435-11	CARBON	33K	5%	1/4W	
R722	1-249-418-11	CARBON	1.2K	5%	1/4W	F
R723	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R724	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R725	1-249-423-11	CARBON	3.3K	5%	1/4W	F
R726	1-249-426-11	CARBON	5.6K	5%	1/4W	
R732	1-249-418-11	CARBON	1.2K	5%	1/4W	F
R733	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R734	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R735	1-249-423-11	CARBON	3.3K	5%	1/4W	F
R736	1-249-426-11	CARBON	5.6K	5%	1/4W	
		< SWITCH >				
S711	1-554-303-21	SWITCH, TACTILE (1)				
S712	1-554-303-21	SWITCH, TACTILE (2)				
S713	1-554-303-21	SWITCH, TACTILE (3)				
S714	1-554-303-21	SWITCH, TACTILE (4)				
S715	1-554-303-21	SWITCH, TACTILE (5)				
S716	1-554-303-21	SWITCH, TACTILE (EDIT/TIME FADE)				
S717	1-554-303-21	SWITCH, TACTILE (CHECK)				
S718	1-554-303-21	SWITCH, TACTILE (CLEAR)				
S721	1-554-303-21	SWITCH, TACTILE (6)				
S722	1-554-303-21	SWITCH, TACTILE (7)				
S723	1-554-303-21	SWITCH, TACTILE (8)				
S724	1-554-303-21	SWITCH, TACTILE (9)				
S725	1-554-303-21	SWITCH, TACTILE (10)				
S726	1-554-303-21	SWITCH, TACTILE (>10)				
S732	1-554-303-21	SWITCH, TACTILE (ERASE)				
S733	1-554-303-21	SWITCH, TACTILE (TIME)				
S734	1-554-303-21	SWITCH, TACTILE (MUSIC SCAN)				
S735	1-554-303-21	SWITCH, TACTILE (PEAK SEARCH)				
S736	1-554-303-21	SWITCH, TACTILE (FADER)				
S741	1-554-303-21	SWITCH, TACTILE (FILE)				
*	A-4649-432-A	BD BOARD, COMPLETE				
		**********				
		< CAPACITOR >				
C101	1-163-005-11	CERAMIC CHIP	470PF	10%	50V	
C102	1-163-038-11	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	1-163-038-11	CERAMIC CHIP	0.1uF		25V	
C113	1-163-038-11	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	1-163-038-11	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	1-163-038-11	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				

Ref.No.	Part No.	Description				Remark
		< MOTOR >				
M101	X-4917-523-3	MOTOR ASSY (SPINDLE)				
M102	X-4917-504-1	MOTOR ASSY (SLED)				
		< 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
*	A-4673-074-A	DISPLAY BOARD, COMPLETE				
		**********				
		< CONNECTOR >				
CN701	1-750-237-11	CONNECTOR, FFC/FPC 33P				
		< FLUORESCENT INDICATOR >				
FL701	1-517-164-11	INDICATOR TUBE, FLUORESCENT				
		< RESISTOR >				
R702	1-249-418-11	CARBON	1.2K	5%	1/4W	F
R703	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R704	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R705	1-249-423-11	CARBON	3.3K	5%	1/4W	F
R706	1-249-426-11	CARBON	5.6K	5%	1/4W	
R707	1-249-430-11	CARBON	12K	5%	1/4W	
R708	1-249-435-11	CARBON	33K	5%	1/4W	
R727	1-249-430-11	CARBON	12K	5%	1/4W	
R728	1-249-435-11	CARBON	33K	5%	1/4W	
		< SWITCH >				
S701	1-554-303-21	SWITCH, TACTILE (EX-CHANGE)				
S702	1-554-303-21	SWITCH, TACTILE (■)				
S703	1-554-303-21	SWITCH, TACTILE (▮▮)				
S704	1-554-303-21	SWITCH, TACTILE (⏮)				
S705	1-554-303-21	SWITCH, TACTILE (⏭)				
S706	1-554-303-21	SWITCH, TACTILE (◀◀)				
S707	1-554-303-21	SWITCH, TACTILE (DISC SKIP)				
S708	1-554-303-21	SWITCH, TACTILE (⏏ OPEN/CLOSE)				
S727	1-554-303-21	SWITCH, TACTILE (▷)				
S728	1-554-303-21	SWITCH, TACTILE (▷▷|)				

****

Ref.No.	Part No.	Description				Remark
*	1-651-791-11	HEADPHONE BOARD				
		**********				
		< CAPACITOR >				
C151	1-162-294-31	CERAMIC	0.001uF	10%	50V	
C251	1-162-294-31	CERAMIC	0.001uF	10%	50V	
C353	1-164-159-11	CERAMIC	0.1uF		50V	
		< CONNECTOR >				
CN351	1-750-737-11	CONNECTOR, FFC/FPC 5P				
		< JACK >				
J351	1-750-162-41	JACK (LARGE TYPE) (PHONES)				
		< COIL >				
L151	1-412-473-21	INDUCTOR	0uH			

HEADPHONE | LOADING MOTOR | MAIN

Ref.No.	Part No.	Description			Remark
		< RESISTOR >			
R862	1-249-402-11	CARBON	56	5% 1/4W F	
R863	1-249-402-11	CARBON	56	5% 1/4W F	
		< VARIABLE RESISTOR >			
RV351	1-223-359-11	RES, VAR, CARBON 1K/1K (PHONE VOLUME)			
**********					
*	1-647-363-11	LOADING MOTOR BOARD			
		**********			
		< MOTOR >			
M802	A-4604-834-A	MOTOR ASSY, LOADING			
**********					
*	A-4673-075-A	MAIN BOARD, COMPLETE			
		**********			
	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S			
		< CAPACITOR >			
C101	1-164-159-11	CERAMIC	0.1uF		50V
C102	1-162-282-31	CERAMIC	100PF	10%	50V
C103	1-162-215-31	CERAMIC	47PF	5%	50V
C104	1-162-215-31	CERAMIC	47PF	5%	50V
C105	1-124-994-11	ELECT	100uF	20%	10V
C106	1-130-472-00	MYLAR	0.0012uF	5%	50V
C107	1-106-359-00	MYLAR	4700PF	5%	200V
C110	1-124-994-11	ELECT	100uF	20%	10V
C113	1-130-467-00	MYLAR	470PF	5%	50V
C201	1-164-159-11	CERAMIC	0.1uF		50V
C202	1-162-282-31	CERAMIC	100PF	10%	50V
C203	1-162-215-31	CERAMIC	47PF	5%	50V
C204	1-162-215-31	CERAMIC	47PF	5%	50V
C205	1-124-994-11	ELECT	100uF	20%	10V
C206	1-130-472-00	MYLAR	0.0012uF	5%	50V
C207	1-106-359-00	MYLAR	4700PF	5%	200V
C210	1-124-994-11	ELECT	100uF	20%	10V
C213	1-130-467-00	MYLAR	470PF	5%	50V
C301	1-126-022-11	ELECT	47uF	20%	16V
C302	1-164-159-11	CERAMIC	0.1uF		50V
C303	1-164-159-11	CERAMIC	0.1uF		50V
C305	1-161-494-00	CERAMIC	0.022uF		25V
C307	1-164-159-11	CERAMIC	0.1uF		50V
C308	1-162-196-31	CERAMIC	5.6PF	10%	50V
C309	1-162-196-31	CERAMIC	5.6PF	10%	50V
C310	1-164-159-11	CERAMIC	0.1uF		50V
C311	1-126-022-11	ELECT	47uF	20%	16V
C312	1-161-494-00	CERAMIC	0.022uF		25V
C315	1-126-025-11	ELECT	330uF	20%	16V
C316	1-126-025-11	ELECT	330uF	20%	16V
C317	1-126-022-11	ELECT	47uF	20%	16V
C318	1-126-022-11	ELECT	47uF	20%	16V
C319	1-126-049-11	ELECT	22uF	20%	25V
C351	1-126-023-11	ELECT	100uF	20%	16V
C352	1-126-023-11	ELECT	100uF	20%	16V
C401	1-126-022-11	ELECT	47uF	20%	16V
C414	1-164-159-11	CERAMIC	0.1uF		50V
C415	1-162-208-31	CERAMIC	24PF	5%	50V
C501	1-126-022-11	ELECT	47uF	20%	16V
C502	1-164-159-11	CERAMIC	0.1uF		50V
C503	1-164-159-11	CERAMIC	0.1uF		50V
C504	1-164-159-11	CERAMIC	0.1uF		50V
C505	1-161-494-00	CERAMIC	0.022uF		25V
C506	1-162-294-31	CERAMIC	0.001uF	10%	50V
C507	1-162-294-31	CERAMIC	0.001uF	10%	50V
C508	1-162-294-31	CERAMIC	0.001uF	10%	50V
C509	1-162-294-31	CERAMIC	0.001uF	10%	50V
C510	1-162-294-31	CERAMIC	0.001uF	10%	50V
C511	1-161-494-00	CERAMIC	0.022uF		25V
C512	1-161-494-00	CERAMIC	0.022uF		25V
C531	1-104-905-11	CAP, DOUBLE LAYERS 0.22F			
C532	1-164-159-11	CERAMIC	0.1uF		50V
C533	1-161-494-00	CERAMIC	0.022uF		25V
C601	1-161-494-00	CERAMIC	0.022uF		25V
C602	1-124-887-00	ELECT	3300uF	20%	16V
C603	1-124-360-00	ELECT	1000uF	20%	16V
C604	1-126-022-11	ELECT	47uF	20%	16V
C605	1-126-163-11	ELECT	4.7uF	20%	50V
C606	1-126-163-11	ELECT	4.7uF	20%	50V
C607	1-126-101-11	ELECT	100uF	20%	16V
C608	1-126-101-11	ELECT	100uF	20%	16V
C609	1-124-572-11	ELECT	100uF	20%	63V
C610	1-126-059-11	ELECT	10uF	20%	50V
C701	1-164-159-11	CERAMIC	0.1uF		50V
C702	1-164-159-11	CERAMIC	0.1uF		50V
C703	1-164-159-11	CERAMIC	0.1uF		50V
		< CONNECTOR >			
CN301	1-750-997-11	CONNECTOR, FFC/FPC 5P			
CN401	1-750-640-11	CONNECTOR, FFC/FPC 23P			
CN501	1-695-218-11	SOCKET, CONNECTOR 33P			
CN502	1-568-855-11	SOCKET, CONNECTOR 12P			
CN504	1-750-223-11	CONNECTOR, FFC/FPC 6P			
CN601	1-580-230-11	PIN, CONNECTOR (PC BOARD) 2P			
		< DIODE >			
D301	8-719-987-63	DIODE 1N4148M			

Ref.No.	Part No.	Description	Remark
D531	8-719-987-63	DIODE 1N4148M	
D551	8-719-109-92	DIODE RD6.2ES-B1	
D601	8-719-200-82	DIODE 11ES2	
D602	8-719-200-82	DIODE 11ES2	
D603	8-719-200-82	DIODE 11ES2	
D604	8-719-200-82	DIODE 11ES2	
D605	8-719-200-82	DIODE 11ES2	
D606	8-719-121-24	DIODE RD9.1ES-L	
		< GROUND PLATE >	
* EB601	4-870-539-00	PLATE, GROUND	
		< IC >	
IC301	8-752-360-60	IC CXD2565M-1	
IC302	8-759-160-55	IC LA9216	
IC351	8-759-634-51	IC M5218AP	
IC401	8-749-921-12	IC GP1F32T	
IC501	8-752-854-46	IC CXP82220-018Q	
IC531	8-759-512-81	IC LH5160N-10L	
IC551	8-759-172-31	IC BA6191	
IC601	8-759-061-65	IC LA5602	
IC602	8-759-605-00	IC M5F78M07L	
IC603	8-759-633-42	IC M5293L	
		< JACK >	
J301	1-750-679-11	JACK, PIN 2P (LINE OUT)	
		< COIL >	
L301	1-412-297-11	INDUCTOR 3.3uH	
L302	1-412-473-21	INDUCTOR 0uH	
L303	1-412-473-21	INDUCTOR 0uH	
L304	1-412-297-11	INDUCTOR 3.3uH	
L305	1-412-473-21	INDUCTOR 0uH	
L306	1-412-473-21	INDUCTOR 0uH	
		< TRANSISTOR >	
Q501	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q504	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q601	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q602	8-729-900-61	TRANSISTOR DTA114ES	
Q603	8-729-900-80	TRANSISTOR DTC114ES	
Q604	8-729-900-89	TRANSISTOR DTC144ES	
Q605	8-729-900-61	TRANSISTOR DTA114ES	
		< RESISTOR >	
R101	1-249-436-11	CARBON 39K 5% 1/4W	
R102	1-249-436-11	CARBON 39K 5% 1/4W	
R103	1-249-431-11	CARBON 15K 5% 1/4W	
R104	1-249-431-11	CARBON 15K 5% 1/4W	
R105	1-249-437-11	CARBON 47K 5% 1/4W	
R106	1-249-437-11	CARBON 47K 5% 1/4W	
R107	1-249-429-11	CARBON 10K 5% 1/4W	
R108	1-249-419-11	CARBON 1.5K 5% 1/4W	F
R109	1-249-419-11	CARBON 1.5K 5% 1/4W	F
R116	1-249-417-11	CARBON 1K 5% 1/4W	F
R117	1-249-441-11	CARBON 100K 5% 1/4W	
R201	1-249-436-11	CARBON 39K 5% 1/4W	
R202	1-249-436-11	CARBON 39K 5% 1/4W	
R203	1-249-431-11	CARBON 15K 5% 1/4W	
R204	1-249-431-11	CARBON 15K 5% 1/4W	
R205	1-249-437-11	CARBON 47K 5% 1/4W	
R206	1-249-437-11	CARBON 47K 5% 1/4W	
R207	1-249-429-11	CARBON 10K 5% 1/4W	
R208	1-249-419-11	CARBON 1.5K 5% 1/4W	F
R209	1-249-419-11	CARBON 1.5K 5% 1/4W	F
R216	1-249-417-11	CARBON 1K 5% 1/4W	F
R217	1-249-441-11	CARBON 100K 5% 1/4W	
R301	1-249-417-11	CARBON 1K 5% 1/4W	F
R302	1-249-413-11	CARBON 470 5% 1/4W	F
R303	1-249-425-11	CARBON 4.7K 5% 1/4W	F
R307	1-249-429-11	CARBON 10K 5% 1/4W	
R309	1-247-807-31	CARBON 100 5% 1/4W	
R351	1-247-807-31	CARBON 100 5% 1/4W	
R352	1-247-807-31	CARBON 100 5% 1/4W	
R501	1-249-441-11	CARBON 100K 5% 1/4W	
R502	1-249-429-11	CARBON 10K 5% 1/4W	
R503	1-249-429-11	CARBON 10K 5% 1/4W	
R505	1-249-417-11	CARBON 1K 5% 1/4W	F
R506	1-249-417-11	CARBON 1K 5% 1/4W	F
R507	1-249-417-11	CARBON 1K 5% 1/4W	F
R508	1-249-417-11	CARBON 1K 5% 1/4W	F
R509	1-249-417-11	CARBON 1K 5% 1/4W	F
R510	1-249-428-11	CARBON 8.2K 5% 1/4W	F
R511	1-249-428-11	CARBON 8.2K 5% 1/4W	F
R512	1-249-428-11	CARBON 8.2K 5% 1/4W	F
R513	1-249-428-11	CARBON 8.2K 5% 1/4W	F
R514	1-249-428-11	CARBON 8.2K 5% 1/4W	F
R515	1-249-429-11	CARBON 10K 5% 1/4W	
R516	1-249-421-11	CARBON 2.2K 5% 1/4W	F
R517	1-249-424-11	CARBON 3.9K 5% 1/4W	F
R518	1-249-425-11	CARBON 4.7K 5% 1/4W	F
R519	1-249-427-11	CARBON 6.8K 5% 1/4W	F
R520	1-249-428-11	CARBON 8.2K 5% 1/4W	F
R522	1-249-430-11	CARBON 12K 5% 1/4W	
R523	1-249-429-11	CARBON 10K 5% 1/4W	
R531	1-249-399-11	CARBON 33 5% 1/4W	F
R532	1-249-417-11	CARBON 1K 5% 1/4W	F
R533	1-249-429-11	CARBON 10K 5% 1/4W	
R534	1-249-429-11	CARBON 10K 5% 1/4W	
R535	1-249-429-11	CARBON 10K 5% 1/4W	

MAIN | POWER SW | SENSOR | TABLE MOTOR

Ref. No.	Part No.	Description				Remark
R536	1-249-429-11	CARBON	10K	5%	1/4W	
R537	1-249-429-11	CARBON	10K	5%	1/4W	
R538	1-249-429-11	CARBON	10K	5%	1/4W	
R539	1-249-429-11	CARBON	10K	5%	1/4W	
R540	1-249-429-11	CARBON	10K	5%	1/4W	
R541	1-249-429-11	CARBON	10K	5%	1/4W	
R542	1-249-429-11	CARBON	10K	5%	1/4W	
R543	1-249-429-11	CARBON	10K	5%	1/4W	
R544	1-249-429-11	CARBON	10K	5%	1/4W	
R545	1-249-429-11	CARBON	10K	5%	1/4W	
R551	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R552	1-247-840-00	CARBON	2.4K	5%	1/4W	
R553	1-247-828-11	CARBON	750	5%	1/4W	
R554	1-249-418-11	CARBON	1.2K	5%	1/4W	F
R555	1-249-439-11	CARBON	68K	5%	1/4W	
R556	1-249-439-11	CARBON	68K	5%	1/4W	
R557	1-249-439-11	CARBON	68K	5%	1/4W	
R558	1-249-439-11	CARBON	68K	5%	1/4W	
R601	1-249-435-11	CARBON	33K	5%	1/4W	
R602	1-249-429-11	CARBON	10K	5%	1/4W	
R603	1-249-438-11	CARBON	56K	5%	1/4W	
R606	1-249-429-11	CARBON	10K	5%	1/4W	
		< TRANSFORMER >				
⚠T601	1-423-553-11	TRANSFORMER, POWER				
⚠T991	1-421-915-11	COIL, LINE FILTER				
		< VIBRATOR >				
X301	1-579-834-11	VIBRATOR, CRYSTAL (33MHz)				
X501	1-579-175-11	VIBRATOR, CERAMIC (10MHz)				
**********						
*	1-652-688-11	POWER SW BOARD				
		**********				
		< CAPACITOR >				
C781	1-161-494-00	CERAMIC	0.022uF		25V	
		< IC >				
IC781	8-741-100-48	IC SBX1610-59				
		< RESISTOR >				
R737	1-249-430-11	CARBON	12K	5%	1/4W	
R738	1-249-435-11	CARBON	33K	5%	1/4W	
R752	1-249-418-11	CARBON	1.2K	5%	1/4W	F
R753	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R754	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R755	1-249-423-11	CARBON	3.3K	5%	1/4W	F
R756	1-249-426-11	CARBON	5.6K	5%	1/4W	

Ref. No.	Part No.	Description				Remark
R757	1-249-430-11	CARBON	12K	5%	1/4W	
		< SWITCH >				
S737	1-554-303-21	SWITCH, TACTILE (CONTINUE)				
S738	1-554-303-21	SWITCH, TACTILE (SHUFFLE)				
S751	1-554-303-21	SWITCH, TACTILE (DISC 1)				
S752	1-554-303-21	SWITCH, TACTILE (DISC 2)				
S753	1-554-303-21	SWITCH, TACTILE (DISC 3)				
S754	1-554-303-21	SWITCH, TACTILE (DISC 4)				
S755	1-554-303-21	SWITCH, TACTILE (DISC 5)				
S756	1-554-303-21	SWITCH, TACTILE (REPEAT)				
S757	1-554-303-21	SWITCH, TACTILE (PROGRAM)				
S781	1-572-714-11	SWITCH, PUSH (POWER)				
**********						
*	1-647-362-11	SENSOR BOARD				
		**********				
		< CONNECTOR >				
CN801	1-573-383-11	PIN, CONNECTOR (PC BOARD) 2P				
CN802	1-750-243-11	SOCKET, CONNECTOR 6P				
		< DIODE >				
D801	8-749-924-18	DIODE RPI-1391				
D802	8-749-924-30	DIODE GP2S28				
		< RESISTOR >				
R801	1-249-416-11	CARBON	820	5%	1/4W	F
R802	1-249-406-11	CARBON	120	5%	1/4W	F
**********						
*	1-647-364-11	TABLE MOTOR BOARD				
		**********				
		< MOTOR >				
M801	A-4660-322-A	MOTOR ASSY, ROTARY (TABLE)				
**********						

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
		MISCELLANEOUS	
		**********	
2	1-765-078-11	WIRE (FLAT TYPE) (5 CORE)	
5	1-751-121-11	WIRE (FLAT TYPE) (12 CORE)	
8	1-751-119-11	WIRE (FLAT TYPE) (33 CORE)	
53	1-751-052-11	WIRE (FLAT TYPE) (6 CORE)	
⚠71	1-590-836-11	CORD, POWER	
117	1-765-443-11	WIRE (FLAT TYPE) (23 CORE)	
* 119	1-452-538-11	MAGNET	
⚠151	8-848-144-11	OPTICAL PICK-UP BLOCK (KSS-240A)	
152	1-575-001-11	WIRE, FLAT TYPE (12 CORE)	
FL701	1-517-164-11	INDICATOR TUBE, FLUORESCENT	
M101	X-4917-523-3	BASE (OUTSERT) ASSY (SPINDLE)	
M102	X-4917-504-1	MOTOR ASSY (SLED)	
M801	A-4660-322-A	MOTOR ASSY, ROTARY (TABLE)	
M802	A-4604-834-A	MOTOR ASSY, LOADING	
S101	1-572-085-11	SWITCH, LEAF (LIMIT)	
S901	1-466-996-11	ENCODER, ROTARY	
⚠T601	1-423-553-11	TRANSFORMER, POWER	
		ACCESSORIES & PACKING MATERIALS	
		**********	
	1-467-123-11	REMOTE COMMANDER (RM-D335)	
	1-558-271-11	CORD, CONNECTION (AUDIO 108CM)	
	3-758-300-21	MANUAL, INSTRUCTION (ENGLISH)	
	3-758-300-31	MANUAL, INSTRUCTION (FRENCH) (CND)	
*	4-949-235-01	HOOK	
	4-959-044-01	COVER, BATTERY (for RM-D335)	
*	4-965-248-01	INDIVIDUAL CARTON	
*	4-965-971-01	CUSHION (FRONT)	
*	4-965-972-01	CUSHION (REAR)	
		**********	
		HARDWARE LIST	
		**********	
#1	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
#2	7-682-548-04	SCREW +BVTT 3X8 (S)	
#3	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#4	7-685-134-19	SCREW +PTPWH 2.6X8 (TYPE2)	
#5	7-685-648-79	SCREW (M3X12), TAPPING	
#6	7-621-255-15	SCREW +P 2X3	

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.

9-959-388-11

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CDP-C445

SONY
SERVICE MANUAL

US Model
Canadian Model

SUPPLEMENT-1

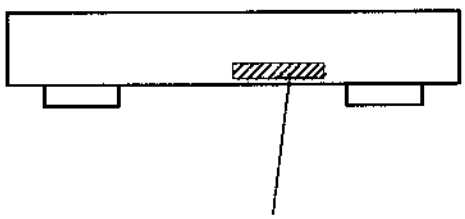
File this supplement with the service manual.

Subject : 1. Service parts changed (For Japan production)
2. Malaysia production model
3. Addition of the BU-5BD20
(Malaysia production model only)

(ENG-95015)

• How to identify production which made in Malaysia.

— BACK PANEL —



Made in Malaysia : 4-975-544-0□
Made in Japan : 4-964-324-8□

• Canadian model is produced at Japan only. Therfore, these informations are not related for Canadian model.

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.
- RESISTORS
  All resistors are in ohms
  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

1. SERVICE PARTS CHANGED (For Japan production)

Change of parts for Japan production. (Exploded view)

Page	FORMER			NEW		
	Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
35	72	3-704-515-21	SCREW (BV/RING)			

Change of parts for Japan production. (Complete board)

Page	FORMER			NEW		
	Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
40			** MAIN BOARD **			** MAIN BOARD **
	C602	1-124-887-00	ELECT 3300uF 20% 16V	C602	1-128-489-11	ELECT 3300uF 20% 16V
	J301	1-750-679-21	JACK, PIN 2P (LINE OUT)	J301	1-750-679-11	JACK, PIN 2P (LINE OUT)
41	IC531	8-759-512-81	IC LH5160N-10L	IC531	8-759-336-84	IC LC3564SM-10
	L301	1-412-297-11	INDUCTOR 3.3uH	L301	1-410-503-11	INDUCTOR 3.3uH
	L304	1-412-297-11	INDUCTOR 3.3uH	L304	1-410-503-11	INDUCTOR 3.3uH
42			** POWER BOARD **			** POWER BOARD **
	IC781	8-741-100-48	IC SBX1610-59	IC781	8-741-810-59	IC SBX1810-59

2. Malaysia production model

- There is no changeability between the following boards which made in Japan and Malaysia.
  Referring to "How to identify production ..." (page 1), use the appropriate boards.
  Therefore, see the service manual (9-959-388-11) for the other informations which is not contained in this service manual.

Difference between productions made in Japan and Malaysia

BOARD	Made in Japan	Made in Malaysia
10 KEY	* A-4673-071-A	* A-4673-606-A
BD	* A-4649-432-A	* A-4673-510-A
DISPLAY	* A-4673-074-A	* A-4673-609-A
MAIN	* A-4673-075-A	* A-4673-611-A

- The followings parts shows differences between made in Japan and Malaysia. Referring to "How to identify production ..." (Page 1), use the appropriate parts.

EXPLODED VIEWS

Page	Made in Japan			Made in Malaysia		
	Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
34	1	X-4942-197-1	FOOT ASSY	1	X-4942-199-1	FOOT ASSY
	* 6	A-4673-071-A	10 KEY BOARD, COMPLETE	* 6	A-4673-606-A	10 KEY BOARD, COMPLETE
	* 7	A-4673-074-A	DISPLAY BOARD, COMPLETE	* 7	A-4673-609-A	DISPLAY BOARD, COMPLETE
	9	X-4944-687-1	PANEL ASSY, FRONT	9	X-4946-260-1	PANEL ASSY, FRONT
	11	4-964-694-01	PANEL, LOADING	11	4-964-694-11	PANEL, LOADING
	13	4-922-921-01	BUTTON (POWER)	13	4-922-921-31	BUTTON (POWER)
35	52	X-4943-480-1	BRACKET (ROLLER D) ASSY	52	X-4944-129-1	BRACKET (ROLLER D) ASSY
	57	4-957-294-01	SPRING (D.T), TENSION	57	4-957-294-11	SPRING (D.T), TENSION
	58	4-957-292-01	SLIDER (RACK)	58	4-957-292-11	SLIDER (RACK)
	59	4-957-299-01	TABLE (B), DISK	* 59	4-957-299-11	TABLE (B), DISK
	65	X-4943-477-1	BRACKET (RM) ASSY	65	X-4944-128-1	BRACKET (RM) ASSY
	66	4-957-293-01	SPRING (RACK RELEASE)	66	4-957-293-11	SPRING (RACK RELEASE)
	67	4-957-291-01	LEVER (RACK RELEASE)	67	4-957-291-11	LEVER (RACK RELEASE)
	68	4-957-868-01	SCREW (+PTPWH 2.6X20)	68	4-957-868-11	SCREW (+PTPWH 2.6X20)
	* 69	4-964-324-81	PANEL, BACK	* 69	4-975-544-01	PANEL, BACK
	⚠71	1-590-836-11	CORD, POWER	⚠71	1-575-042-21	CORD, POWER
	M801	A-4660-322-A	MOTOR ASSY, ROTARY	M801	A-4660-525-A	MOTOR ASSY, ROTARY
36	* 101	A-4673-075-A	MAIN BOARD, COMPLETE	* 101	A-4673-611-A	MAIN BOARD, COMPLETE
	106	4-957-285-01	LEVER, SET	106	4-957-285-11	LEVER, SET
	109	X-4943-478-1	BRACKET (GEAR) ASSY	109	X-4944-127-1	BRACKET (GEAR) ASSY
	110	4-957-279-01	LEVER, LOCK	110	4-957-279-11	LEVER, LOCK
	112	4-957-283-01	WASHER (5), STOPPER	112	4-957-283-11	WASHER (5), STOPPER
	* 118	4-957-289-01	HOLDER (BU)	* 118	4-957-289-12	HOLDER (BU)
	120	4-957-281-01	SPRING (LOCK LEVER)	120	4-957-281-11	SPRING (LOCK LEVER)
	M802	A-4604-834-A	MOTOR ASSY, LOADING	M802	A-4604-847-A	MOTOR ASSY, LOADING
	⚠T601	1-423-553-11	TRANSFORMER, POWER	⚠T601	1-423-872-11	TRANSFORMER, POWER

ELECTRICAL PARTS LIST

Page	Made in Japan							Made in Malaysia						
	Ref. No.	Part No.	Description					Ref. No.	Part No.	Description				
38	*	A-4673-071-A	10 KEY BOARD, COMPLETE					*	A-4673-606-A	10 KEY BOARD, COMPLETE				
			**********							**********				
	R712	1-249-418-11	CARBON	1.2K	5%	1/4W	F	R712	1-249-415-11	CARBON	680	5%	1/4W	F
	R713	1-249-419-11	CARBON	1.5K	5%	1/4W	F	R713	1-249-417-11	CARBON	1K	5%	1/4W	F
	R714	1-249-421-11	CARBON	2.2K	5%	1/4W	F	R714	1-249-419-11	CARBON	1.5K	5%	1/4W	F
	R715	1-249-423-11	CARBON	3.3K	5%	1/4W	F	R715	1-249-421-11	CARBON	2.2K	5%	1/4W	F
	R716	1-249-426-11	CARBON	5.6K	5%	1/4W		R716	1-249-423-11	CARBON	3.3K	5%	1/4W	F
	R717	1-249-430-11	CARBON	12K	5%	1/4W		R717	1-249-427-11	CARBON	6.8K	5%	1/4W	F
	R718	1-249-435-11	CARBON	33K	5%	1/4W		R718	1-249-431-11	CARBON	15K	5%	1/4W	
	R722	1-249-418-11	CARBON	1.2K	5%	1/4W	F	R722	1-249-415-11	CARBON	680	5%	1/4W	F
	R723	1-249-419-11	CARBON	1.5K	5%	1/4W	F	R723	1-249-417-11	CARBON	1K	5%	1/4W	F
	R724	1-249-421-11	CARBON	2.2K	5%	1/4W	F	R724	1-249-419-11	CARBON	1.5K	5%	1/4W	F
	R725	1-249-423-11	CARBON	3.3K	5%	1/4W	F	R725	1-249-421-11	CARBON	2.2K	5%	1/4W	F
	R726	1-249-426-11	CARBON	5.6K	5%	1/4W		R726	1-249-423-11	CARBON	3.3K	5%	1/4W	F
	R732	1-249-418-11	CARBON	1.2K	5%	1/4W	F	R732	1-249-415-11	CARBON	680	5%	1/4W	F
	R733	1-249-419-11	CARBON	1.5K	5%	1/4W	F	R733	1-249-417-11	CARBON	1K	5%	1/4W	F
	R734	1-249-421-11	CARBON	2.2K	5%	1/4W	F	R734	1-249-419-11	CARBON	1.5K	5%	1/4W	F
	R735	1-249-423-11	CARBON	3.3K	5%	1/4W	F	R735	1-249-421-11	CARBON	2.2K	5%	1/4W	F
	R736	1-249-426-11	CARBON	5.6K	5%	1/4W		R736	1-249-423-11	CARBON	3.3K	5%	1/4W	F
39	*	A-4673-074-A	DISPLAY BOARD, COMPLETE					*	A-4673-609-A	DISPLAY BOARD, COMPLETE				
			**********							**********				
	R702	1-249-418-11	CARBON	1.2K	5%	1/4W	F	R702	1-249-415-11	CARBON	680	5%	1/4W	F
	R703	1-249-419-11	CARBON	1.5K	5%	1/4W	F	R703	1-249-417-11	CARBON	1K	5%	1/4W	F
	R704	1-249-421-11	CARBON	2.2K	5%	1/4W	F	R704	1-249-419-11	CARBON	1.5K	5%	1/4W	F
	R705	1-249-423-11	CARBON	3.3K	5%	1/4W	F	R705	1-249-421-11	CARBON	2.2K	5%	1/4W	F
	R706	1-249-426-11	CARBON	5.6K	5%	1/4W		R706	1-249-423-11	CARBON	3.3K	5%	1/4W	F
	R707	1-249-430-11	CARBON	12K	5%	1/4W		R707	1-249-427-11	CARBON	6.8K	5%	1/4W	F
	R708	1-249-435-11	CARBON	33K	5%	1/4W		R708	1-249-431-11	CARBON	15K	5%	1/4W	
	R727	1-249-430-11	CARBON	12K	5%	1/4W		R727	1-249-427-11	CARBON	6.8K	5%	1/4W	F
	R728	1-249-435-11	CARBON	33K	5%	1/4W		R728	1-249-431-11	CARBON	15K	5%	1/4W	
			** HEADPHONE BOARD **							** HEADPHONE BOARD **				
	C353	1-164-159-21	CERAMIC	0.1uF			50V	C353	1-164-159-11	CERAMIC	0.1uF			50V
	L151	1-412-473-41	INDUCTOR	0uH				L151	1-412-473-21	INDUCTOR	0uH			
40	*	A-4673-075-A	MAIN BOARD, COMPLETE					*	A-4673-611-A	MAIN BOARD, COMPLETE				
			**********							**********				
		7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S						7-685-871-01	SCREW +BVTT 3X6 (S)				
	CN504	1-750-223-11	CONNECTOR, FFC/FPC 6P					* CN504	1-568-825-11	SOCKET, CONNECTOR 6P				

Page	Made in Japan						Made in Malaysia					
	Ref.No.	Part No.	Description				Ref.No.	Part No.	Description			
41	D601	8-719-200-82	DIODE	1ES2			D601	8-719-024-99	DIODE	1ES2-NTA2B		
	D602	8-719-200-82	DIODE	1ES2			D602	8-719-024-99	DIODE	1ES2-NTA2B		
	D603	8-719-200-82	DIODE	1ES2			D603	8-719-024-99	DIODE	1ES2-NTA2B		
	D604	8-719-200-82	DIODE	1ES2			D604	8-719-024-99	DIODE	1ES2-NTA2B		
	D605	8-719-200-82	DIODE	1ES2			D605	8-719-024-99	DIODE	1ES2-NTA2B		
	D606	8-719-121-24	DIODE	RD9.1ES-L			D606	8-719-110-13	DIODE	RD9.1ESB2		
	IC501	8-752-854-46	IC	CXP82220-018Q			IC501	8-752-867-55	IC	CXP82220-036Q		
	R510	1-249-428-11	CARBON	8.2K	5%	1/4W F	R510	1-249-427-11	CARBON	6.8K	5%	1/4W F
	R511	1-249-428-11	CARBON	8.2K	5%	1/4W F	R511	1-249-427-11	CARBON	6.8K	5%	1/4W F
	R512	1-249-428-11	CARBON	8.2K	5%	1/4W F	R512	1-249-427-11	CARBON	6.8K	5%	1/4W F
	R513	1-249-428-11	CARBON	8.2K	5%	1/4W F	R513	1-249-427-11	CARBON	6.8K	5%	1/4W F
	R514	1-249-428-11	CARBON	8.2K	5%	1/4W F	R514	1-249-427-11	CARBON	6.8K	5%	1/4W F
42			** POWER SW BOARD **						** POWER SW BOARD **			
	R737	1-249-430-11	CARBON	12K	5%	1/4W	R737	1-249-427-11	CARBON	6.8K	5%	1/4W F
	R738	1-249-435-11	CARBON	33K	5%	1/4W	R738	1-249-431-11	CARBON	15K	5%	1/4W
	R752	1-249-418-11	CARBON	1.2K	5%	1/4W F	R752	1-249-415-11	CARBON	680	5%	1/4W F
	R753	1-249-419-11	CARBON	1.5K	5%	1/4W F	R753	1-249-417-11	CARBON	1K	5%	1/4W F
	R754	1-249-421-11	CARBON	2.2K	5%	1/4W F	R754	1-249-419-11	CARBON	1.5K	5%	1/4W F
	R755	1-249-423-11	CARBON	3.3K	5%	1/4W F	R755	1-249-421-11	CARBON	2.2K	5%	1/4W F
	R756	1-249-426-11	CARBON	5.6K	5%	1/4W	R756	1-249-423-11	CARBON	3.3K	5%	1/4W F
	R757	1-249-430-11	CARBON	12K	5%	1/4W	R757	1-249-427-11	CARBON	6.8K	5%	1/4W F
	*	1-647-314-11	TABLE MOTOR BOARD				*	1-650-082-11	TABLE MOTOR BOARD			
			**********						**********			
43			MISCELLANEOUS						MISCELLANEOUS			
			**********						**********			
	⚠71	1-575-042-21	CORD, POWER				⚠71	1-590-836-11	CORD, POWER			
	⚠T601	1-423-553-11	TRANSFORMER, POWER				⚠T601	1-423-872-11	TRANSFORMER, POWER			
			ACCESSORIES & PACKING MATERIALS						ACCESSORIES & PACKING MATERIALS			
			**********						**********			
		1-558-271-11	CORD, CONNECTION					1-551-734-11	CORD, CONNECTION			
		3-758-300-21	MANUAL, INSTRUCTION (ENGLISH)					3-758-300-61	MANUAL, INSTRUCTION(FRENCH)			
	*	4-965-248-01	INDIVIDUAL CARTON				*	4-975-945-01	INDIVIDUAL CARTON			
	*	4-965-971-01	CUSHION (FRONT)				*	4-965-249-01	CUSHION (FRONT)			
	*	4-965-972-01	CUSHION (REAR)				*	4-965-250-01	CUSHION (REAR)			

3. Addition of the BU-5BD20 (Malaysia production model only)

- **Difference of the CD Base unit**

  As for productions which made in Malaysia, BU-5BD20 is used for CD base unit.
  The boards, circuits and adjustments are different from BU-5BD10B which made in Japan.
  Therefore, the productions which made in Malaysia are mentioned in this Service Manual Supplement-1.
  Refer to the circuit, boartds, adjustments and parts list.

BU-5BD20 DIFFERENCE TABLE

Page	BU-5BD10B			BU-5BD20		
	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
37	⚠151	8-848-144-11	OPTICAL PICK-UP BLOCK (KSS-240A)	⚠151	8-848-376-01	OPTICAL PICK-UP BLOCK (KSS-213B/S-N)
	152	1-575-001-11	WIRE FLAT TYPE (12 CORE)	152	1-769-069-11	WIRE FLAT TYPE (16 CORE)
	* 157	A-4649-432-A	BD BOARD, COMPLETE	* 157	A-4673-510-A	BD BOARD, COMPLETE

- **Base Unit Change**

  As the base unit BU-5BD10B has changed to BU-5BD20, IC501 of the MAIN BOARD has changed.
  The interchangeability between IC501 and BD BOARD is as below:

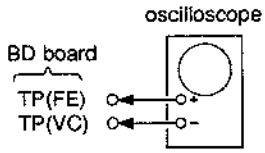
		MAIN BOARD IC501	
		FORMER	NEW
		8-752-854-46 CXP82220-018Q	8-752-867-55 CXP82220-036Q
Base Unit Type	BU-5BD10B	○	○
	BU-5BD20	×	○

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 by an applicator with neutral detergent when the signal level is low than specified value with the following checks.

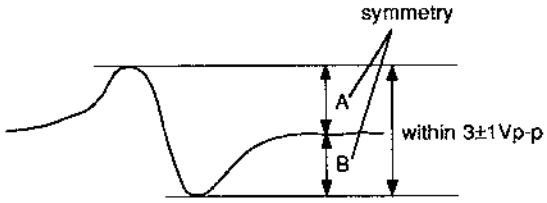
S Curve Check



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. 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±1Vp-p.

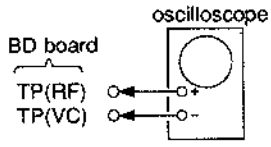
S-curve waveform



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.
• Take sweep time as long as possible and light up the brightness to obtain best waveform.

RF Level Check



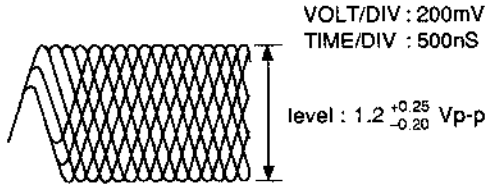
Procedure :

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

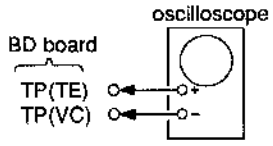
Note :

A clear RF signal waveform means that the shape "◊" can be clearly distinguished at the center of the waveform.

RF signal waveform



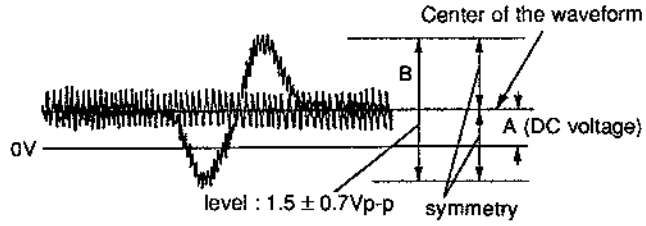
E-F Balance (1 Track Jump) Check



Procedure :

1. Connect oscilloscpe 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 "II (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 x 100 = less than ± 20%.

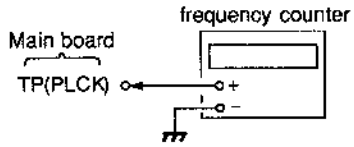
1 track jump waveform



RF PLL Free-run Frequency Check

Procedure :

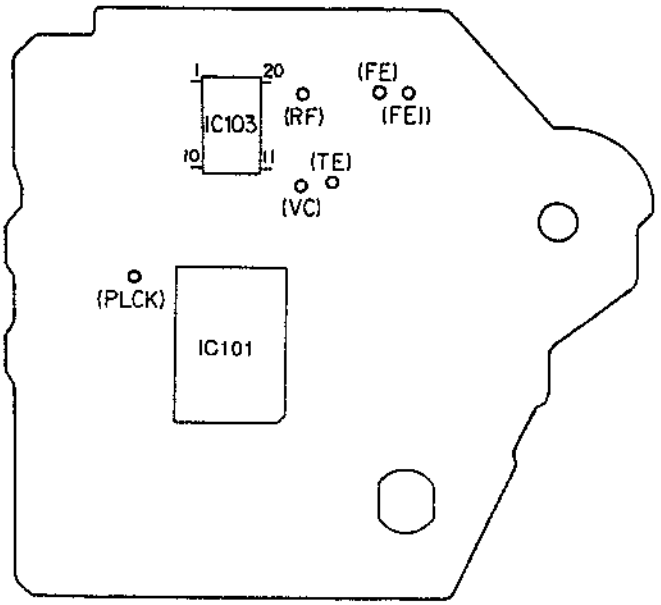
1. Connect frequency counter to test point (PLCK) with lead wire.



2. Turned Power switch on.
3. Put the disc (YEDS-18) in to play the number five track. Confirm that reading on frequency counter is 4.3218MHz.

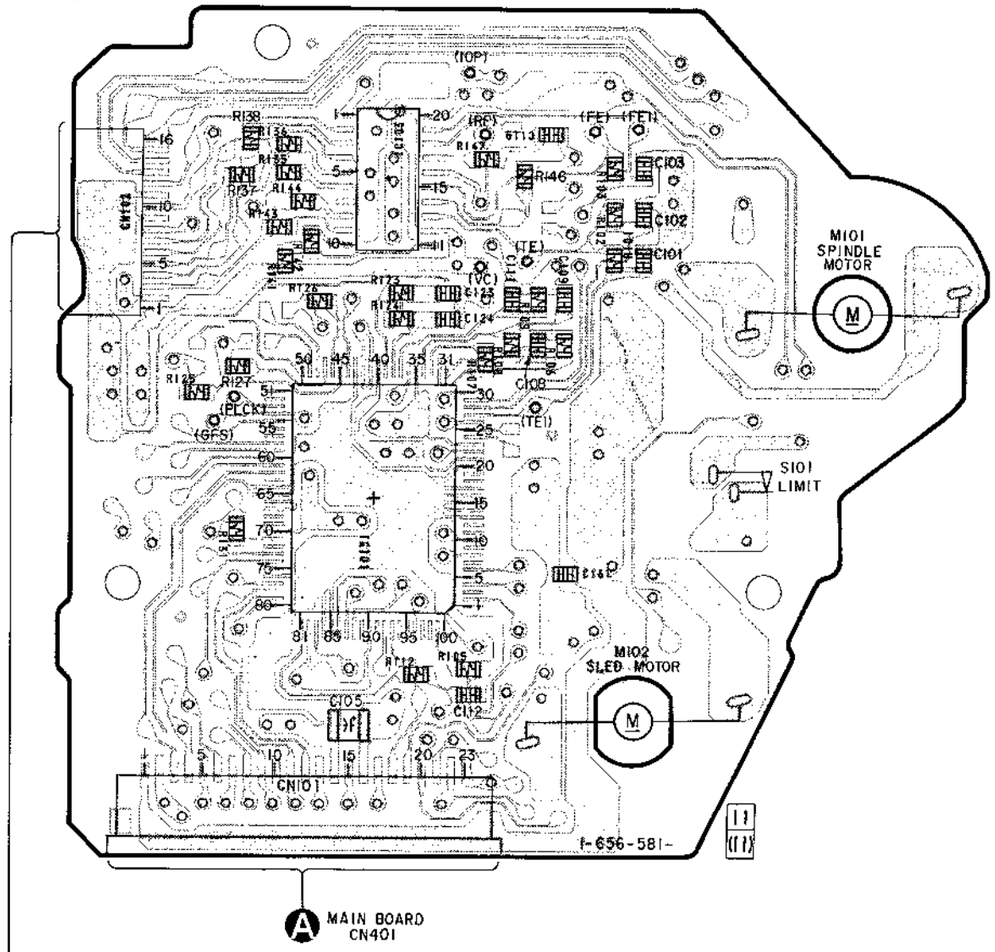
Adjustment Location :

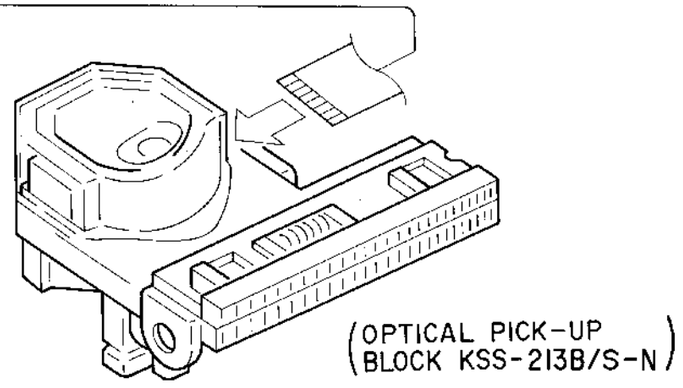
[BD BOARD] — SIDE A —



PRINTED WIRING BOARD — BD SECTION —

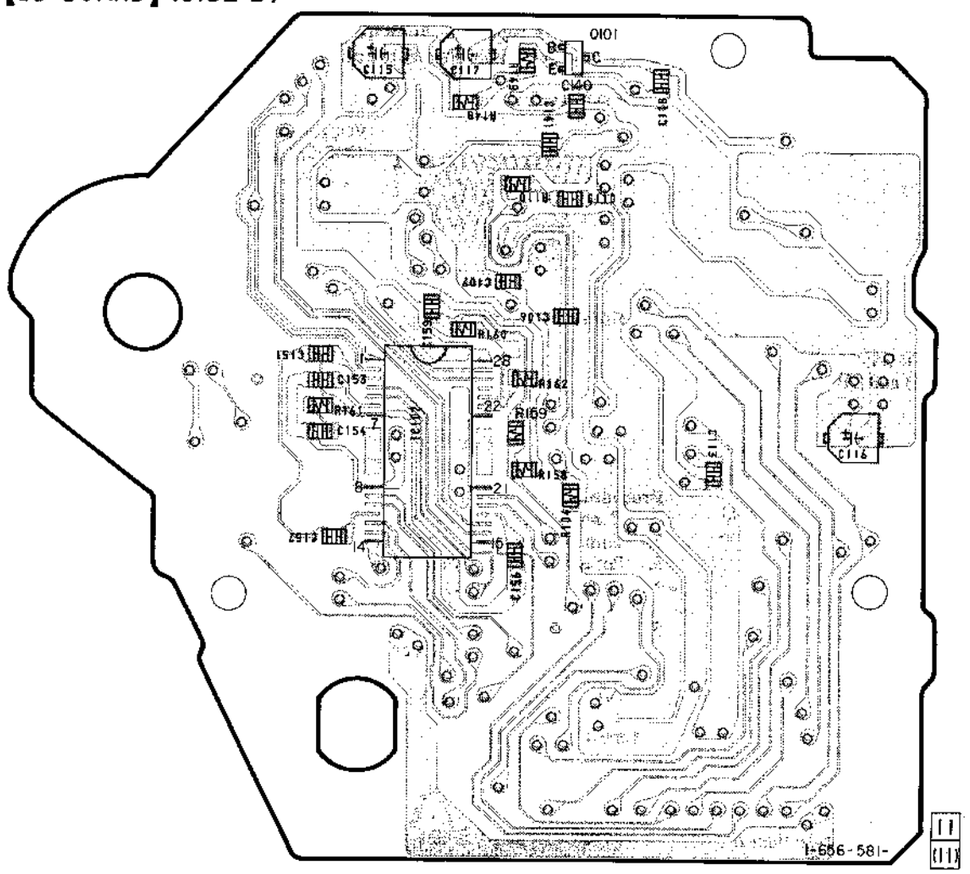
【BD BOARD】(SIDE A)





(OPTICAL PICK-UP
BLOCK KSS-213B/S-N)

【BD BOARD】(SIDE B)



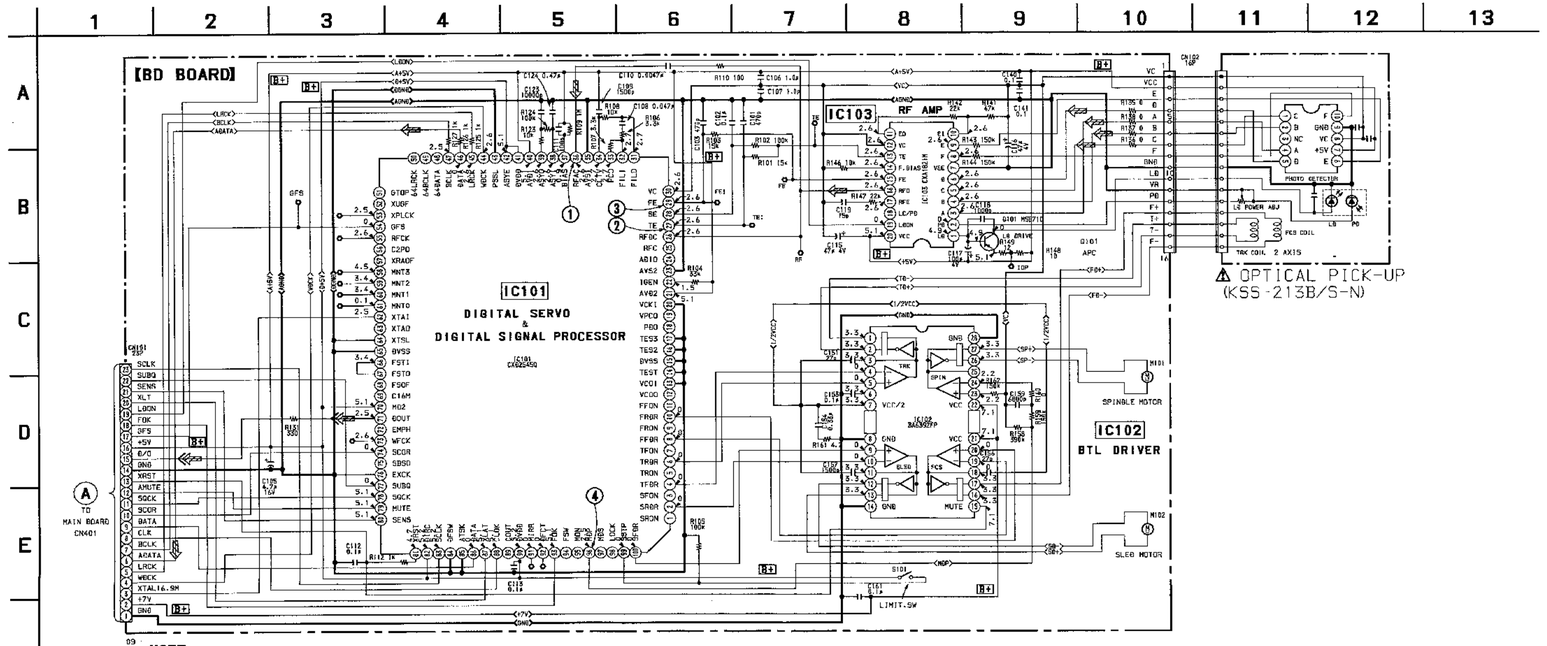
• **Semiconductor Location**

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

Note:

- ○—— : parts extracted from the components 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 —



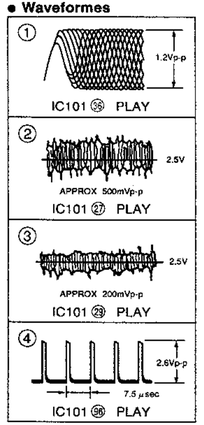
NOTE

- 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.

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.

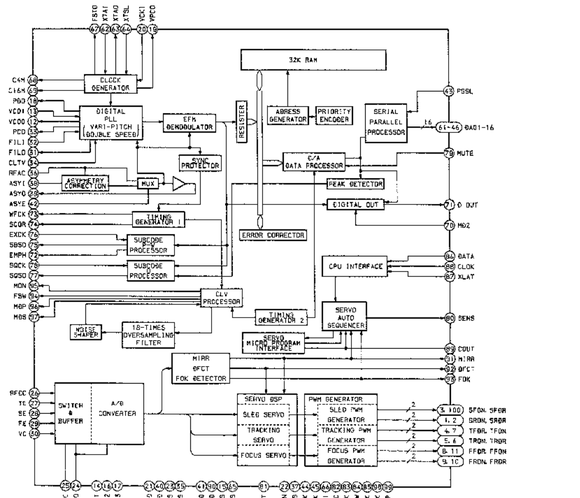
- B+ :B+ Line.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark:STOP
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may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

● Waveformes

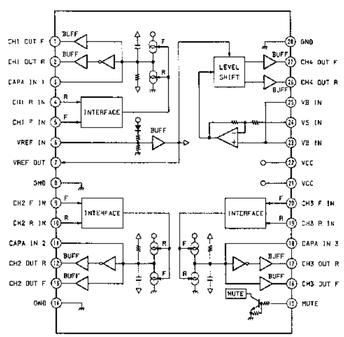


• IC Block Diagrams

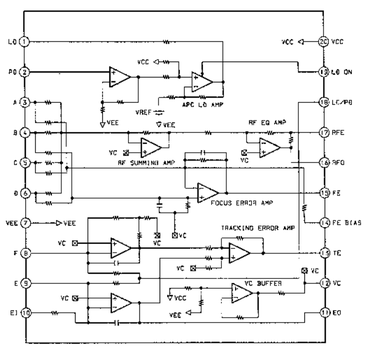
IC101 CXD2545Q



IC102 BA6392FP



IC103 CXA1821M



IC PIN FUNCTION

- **IC101 (CXD2545Q)**

Pin No.	Pin Name	I/O	Function
1	SRON	O	Sled drive output (Not used)
2	SRDR	O	Sled drive output
3	SPON	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 comparate 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 (GND)
44	WDCK	O	48-bit slot D/A interface. Word clock (Not used)
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	RFCK	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. XRA0F output when PSSL=0 (Not used)
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 (+5V)
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	CLOK	I	Serial data transfer clock input, supplied from CPU
89	COUT	O	Numbers of track counted signal output (Not used)
90	DV_{DD}	–	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

BD

NOTE:

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
  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

Ref.No.	Part No.	Description			Remark
*	A-4673-510-A	BD BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C101	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C102	1-163-038-91	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	1-164-346-11	CERAMIC CHIP	1uF		16V
C108	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C109	1-163-145-00	CERAMIC CHIP	0.0015uF	5%	50V
C110	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C111	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C112	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C113	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C115	1-126-607-11	ELECT CHIP	47uF	20%	4V
C116	1-126-607-11	ELECT CHIP	47uF	20%	4V
C117	1-126-209-11	ELECT	100uF	20%	4V
C118	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C119	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C123	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C124	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C140	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C141	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C151	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C153	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C154	1-164-336-11	CERAMIC CHIP	0.33uF		25V
C156	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C157	1-163-145-00	CERAMIC CHIP	0.0015uF	5%	50V
C159	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C161	1-163-038-91	CERAMIC CHIP	0.1uF		25V
		< CONNECTOR >			
CN101	1-770-072-11	CONNECTOR (FFC) 23P			
CN102	1-770-014-11	CONNECTOR, FFC/FPC 16P			
		< IC >			
IC101	8-752-369-78	IC CXD2545Q			
IC102	8-759-176-09	IC BA6392FP			
IC103	8-752-072-45	IC CXA1821M-T6			

Ref.No.	Part No.	Description			Remark
		< MOTOR >			
M101	X-4917-504-1	MOTOR ASSY (SLED)			
M102	X-4917-523-4	BASE (OUTSERT) ASSY (SPINDLE MOTOR)			
		< TRANSISTOR >			
Q101	8-729-010-08	TRANSISTOR MSB710-R			
		< RESISTOR >			
R101	1-216-077-00	METAL CHIP	15K	5%	1/10W
R102	1-216-097-91	METAL GLAZE	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	1-216-097-91	METAL GLAZE	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	1-216-121-91	METAL GLAZE	1M	5%	1/10W
R110	1-216-025-91	METAL GLAZE	100	5%	1/10W
R112	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R123	1-216-073-00	METAL CHIP	10K	5%	1/10W
R124	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R125	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R126	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R127	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R131	1-216-037-00	METAL CHIP	330	5%	1/10W
R135	1-216-295-91	CONDUCTOR, CHIP (2012)			
R136	1-216-295-91	CONDUCTOR, CHIP (2012)			
R137	1-216-295-91	CONDUCTOR, CHIP (2012)			
R138	1-216-295-91	CONDUCTOR, CHIP (2012)			
R141	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R142	1-216-081-00	METAL CHIP	22K	5%	1/10W
R143	1-216-101-00	METAL CHIP	150K	5%	1/10W
R144	1-216-101-00	METAL CHIP	150K	5%	1/10W
R146	1-216-073-00	METAL CHIP	10K	5%	1/10W
R147	1-216-081-00	METAL CHIP	22K	5%	1/10W
R148	1-216-001-00	METAL CHIP	10	5%	1/10W
R149	1-216-003-11	METAL GLAZE	12	5%	1/10W
R158	1-216-111-91	METAL GLAZE	390K	5%	1/10W
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

BD

Ref. No.	Part No.	Description	Remark
R162	1-216-101-00	METAL CHIP 150K 5% 1/10W	
		< SWITCH >	
S101	1-572-085-11	SWITCH, LEAF (LIMIT)	

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