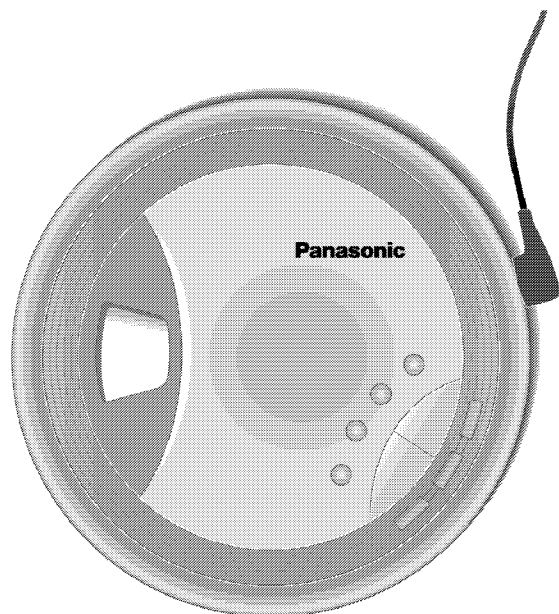


Service Manual

Portable CD Player



SL-SX325EB
SL-SX325EG
SL-SX325E2
SL-SX325GN
SL-SX330EB

Colours

(S).....Silver Type

Specification

●Audio

Sampling frequency: 44.1 kHz
 No. of channels: 2 (left and right, stereo)
 Headphone output level: RMS max. 6mW+6mW/ 16Ω (adjustable)
 Frequency response: 20 Hz to 20,000 Hz (+0dB to -7dB)

●Pickup

Light source: Semiconductor laser
 Wavelength: 780 nm

●General

Power supply:
 DC input: DC 4.5V
 AC adaptor input; (SL-SX330) EB: AC 220V - 240V 50/60Hz
 Power consumption: (SL-SX330)
 Using AC adaptor: EB: 0.8W
 Recharging: EB: 3.2W

Play time:

Using on a flat stable surface at 25°C°, EQ is off, Hold is on, Anti-skip is on POS 1.

Play times are in hours and approximate.

2 optional alkaline batteries: 50 hours

2 optional rechargeable batteries: 25 hours

Recharging time:

About 4 to 5 hours

- The play time maybe less depending on the operating conditions.
- Play time will be considerably reduced when playing CD-RW.

Dimensions (WxHxD):

135x27.7x135mm

Mass:

213g (with batteries)
 168g (without batteries)

Operational temperature range:

0°C-40°C

Rechargeable temperature range:

5°C-40°C

Note:

Specifications are subject to change without notice.

Mass and dimensions are approximate.

Note on CD-R and CD-RW:

Panasonic

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This unit can play CD-DA format audio CD-R and CD-RW that have been finalized* upon completion of recording. It may not be able to play some CD-R or CD-RW due to the condition of the recording.

*Finalizing is a process that enables CD-R/CD-RW players to play audio CD-R and CD-RW.

WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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1 Precaution of Laser Diode

CAUTION:

This unit utilizes a class 1 laser. Invisible laser radiation is emitted from the pickup lens when the unit is turned on:

1. Do not look directly into the pickup lens.
2. Do not use optical instruments to look at the pickup lens.
3. Do not adjust the preset variable resistor on the optical pickup.
4. Do not disassemble the optical pickup unit.
5. If the optical pickup is replaced, use the manufacturer's specified replacement pickup only.
6. Use of control or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

CAUTION:

This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pickup lens.

Wave length: 780nm

Maximum output radiation power from pickup: 100 μ W/VDE

Laser radiation from the pickup lens is at safety level, but be sure the followings:

1. Do not disassemble the optical pickup unit, since radiation from exposed laser diode is dangerous.
2. Do not adjust the variable resistor on the pickup unit. It was already adjusted.
3. Do not look at the focus lens using optical instruments.
4. Recommend not to look at pickup lens for a long time.

ACHTUNG:

Dieses Produkt enthält eine Laserdiode. Im eingeschalteten Zustand wird unsichtbare Laserstrahlung von der Lasereinheit abgestrahlt.

Wellenlänge: 780nm

Maximale Strahlungsleistung der Lasereinheit: 100 μ W/VDE

Die Strahlung der Lasereinheit ist ungefährlich, wenn folgende Punkte beachtet werden:

1. Die Lasereinheit nicht zerlegen, da die Strahlung an der freigelegten Laserdiode gefährlich ist.
2. Den werkseitig justierten Einstellregler der Lasereinheit nicht verstellen.
3. Nicht mit optischen Instrumenten in die Fokussierlinse blicken.

4 Handling Precautions for Traverse Deck

The laser diode in the traverse deck (optical pickup) may break down due to potential difference caused by static electricity of clothes or human body.

So, be careful of electrostatic breakdown during repair of the traverse deck (optical pickup).

4.1. Handling the traverse deck (optical pickup)

1. The traverse deck (optical pickup) is an extremely high-precision construction and must not be subjected to impact, excessive vibration, or other types of rough handling.
2. To protect the laser diode against electrostatic breakdown, be sure that the short land A and B of the flexible board (FFC board) should be short-circuit by solder before pulling out the FFC. Then inserting a short pin or similar object into the tip of the flexible board.
(Refer to **Fig. 1**)
3. Handle the flexible circuit boards with care; excessive force could cause them to be broken.
4. Do not turn the pre-set variable resistor (for adjustment of the laser power); it has been adjusted at the factory.
(as shown in **Fig. 1**)

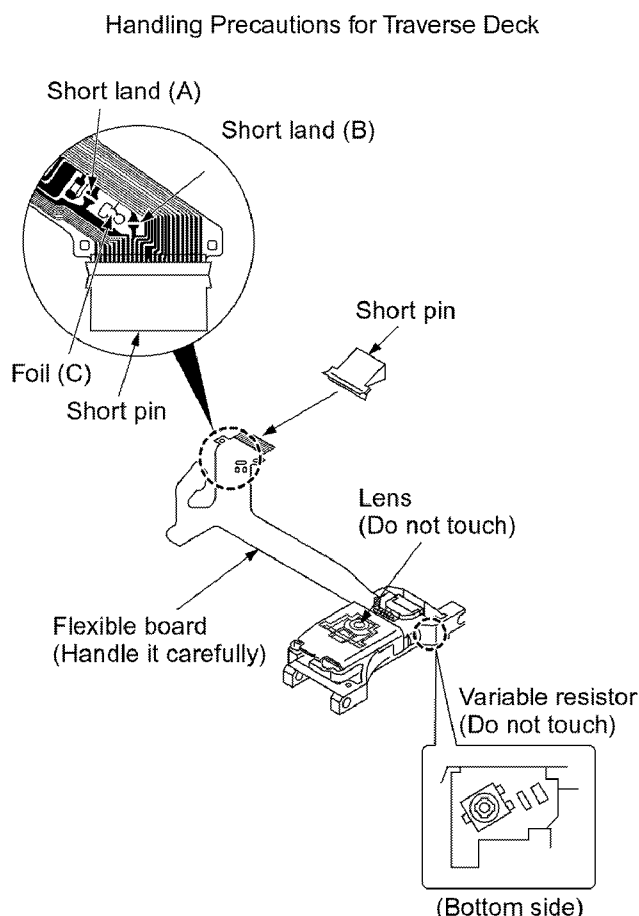


Fig. 1

4.2. Caution when replacing traverse deck

The new traverse deck short-circuits by the short pin, the foil (C) and short lands to protect the laser diode against electrostatic breakdown. Be sure to replace to new one following procedures.

1. Remove the short pin from the FFC, and then connect it to

the connector.

2. Cut the foil (C). (Refer to **Fig. 1**) (Take care not to make contact with cutting point each other.)
3. Unsolder the short lands. (Refer to **Fig. 1**)

4.3. Grounding for electrostatic breakdown prevention

1. Human body grounding

Use the anti-static wrist strap to discharge the static electricity from your body. (as shown in **Fig. 2**)

2. Work table grounding

Put a conductive material (sheet) or steel sheet on the area where the optical pickup is placed, and ground the sheet.
(as shown in **Fig. 3**)

Caution

The static electricity of your clothes will not be grounded through the wrist strap.

So, take care not to let your clothes touch the traverse deck (optical pickup).

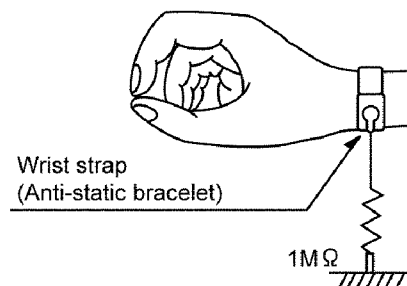


Fig. 2

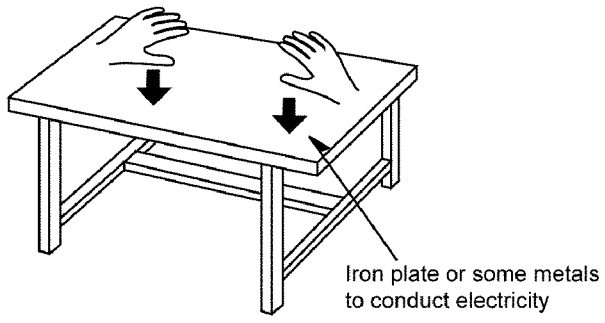


Fig. 3

5 Operation Checks and Component Replacement Procedures

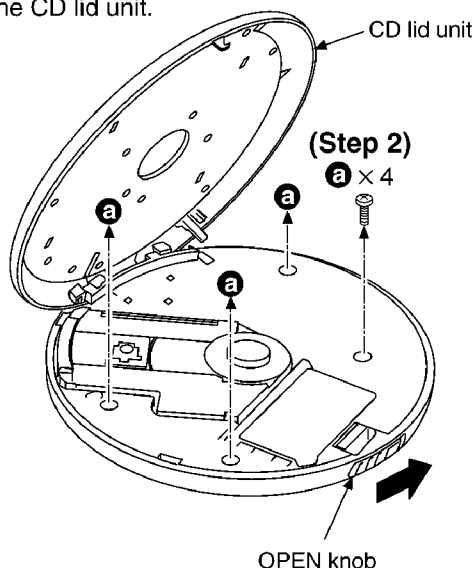
- This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.
- For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.

5.1. Checking for the P.C.B. ass'y

5.1.1. Checking for the P.C.B. ass'y (A side)

(Step 1)

Sliding the OPEN knob to right, open the CD lid unit.

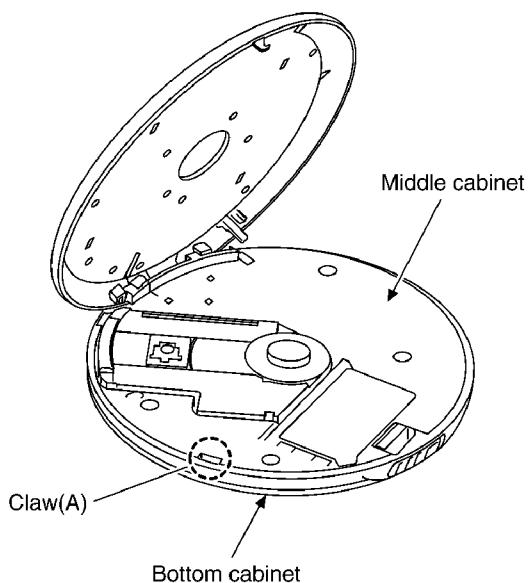


(Step 2)

a × 4

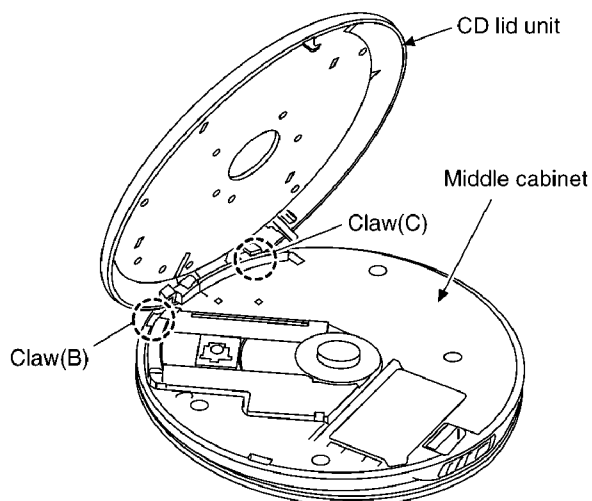
(Step 3)

Release the claw (A), and then spread the clearance between the bottom cabinet and middle cabinet manually.



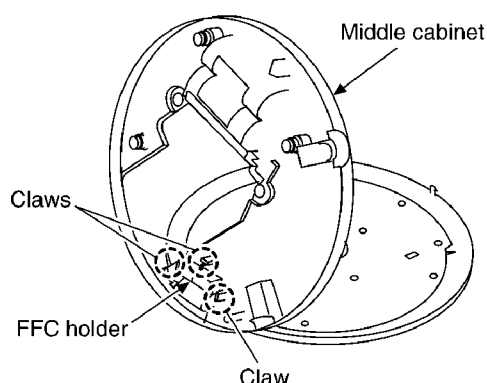
(Step 4)

Release the claw (B) and (C), and then remove the middle cabinet and CD lid unit.



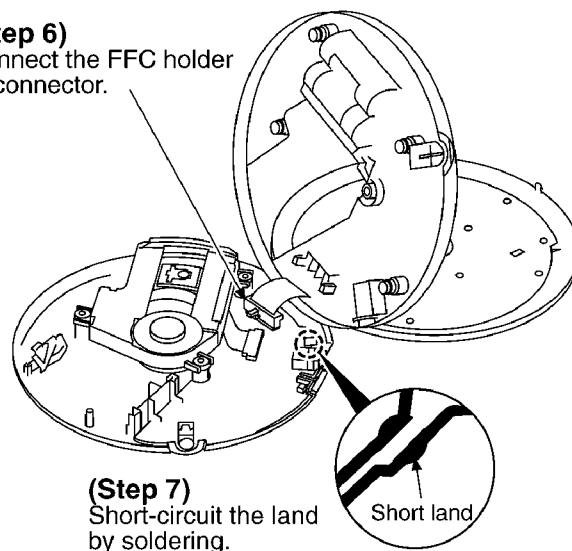
(Step 5)

Release the 3 claws, and then remove the FFC holder.



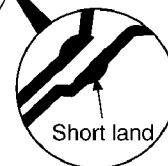
(Step 6)

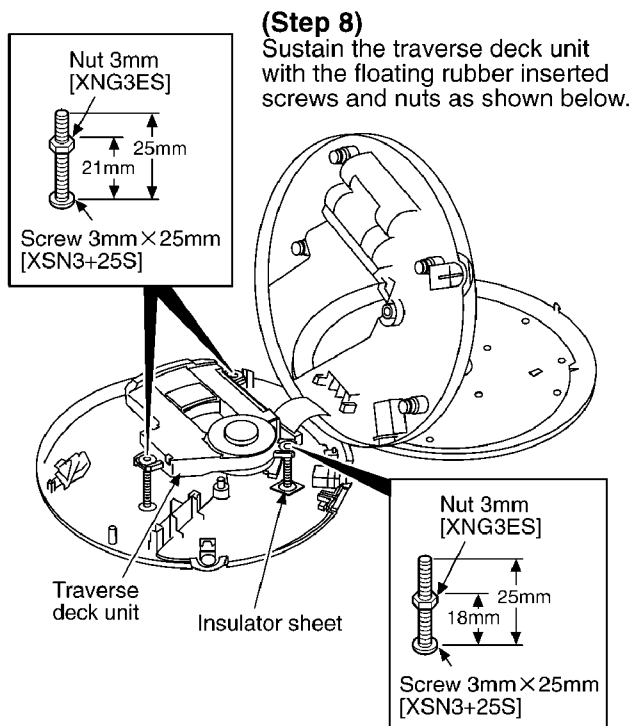
Connect the FFC holder to connector.



(Step 7)

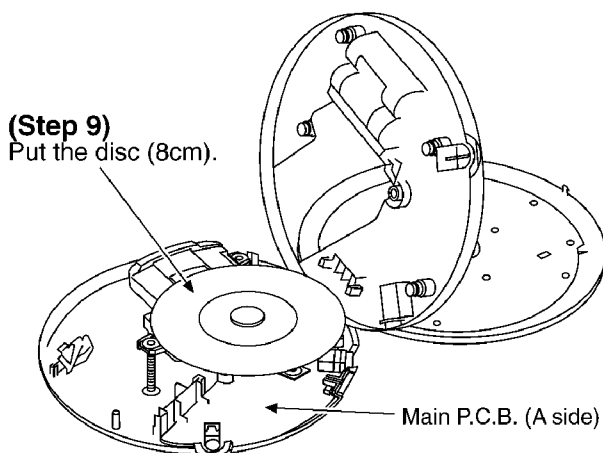
Short-circuit the land by soldering.



**NOTE:**

- The tip of screw must not protrude more than 4mm above the floating rubber.
- To keep insulation, place the insulator sheet (paper etc.) between the main P.C.B. and the head of screws.

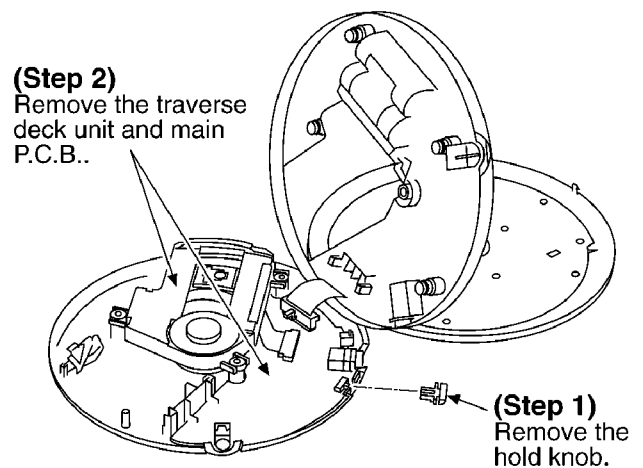
- Check the P.C.B. ass'y (A side) as shown below.

**NOTE:**

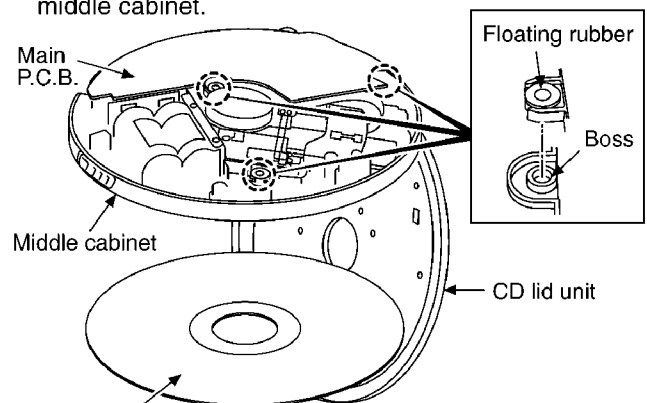
After checking, unsolder the short land to open circuit.

5.1.2. Checking for the P.C.B. ass'y (B side)

- Follow the (Step1)-(Step7) of item 5.1.1.

**(Step 3)**

Align the floating rubbers with bosses, and then locate the traverse deck unit and main P.C.B. on the middle cabinet.

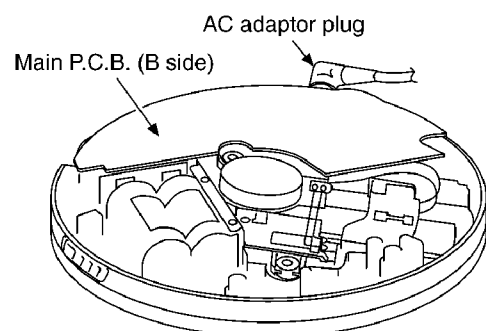
**(Step 4)**

Put the test disc, and then close the CD lid unit.

- Check the P.C.B. ass'y (B side) as shown below.

(Step 5)

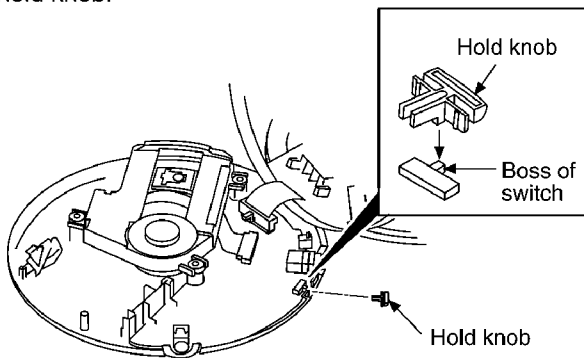
Insert the AC adaptor plug into the DC IN jack, and then apply the power.

**NOTE:**

After checking, unsolder the short land to open circuit.

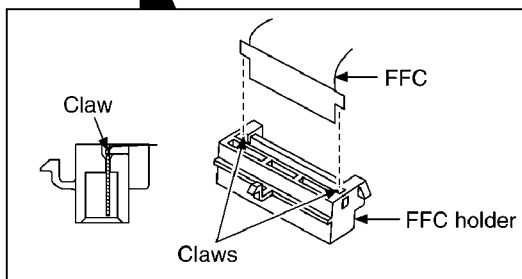
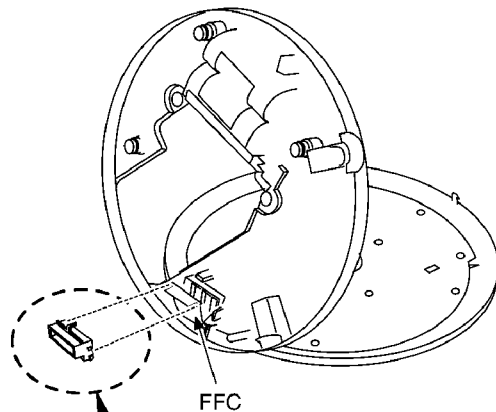
Notice for installation of hold knob

- Make sure the boss of switch is fit in the hold knob.



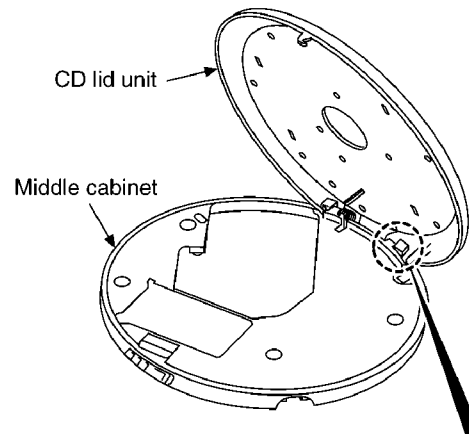
5.2. Replacement for the CD lid unit and open spring

- Follow the (Step1)-(Step5) of item 5.1.1.



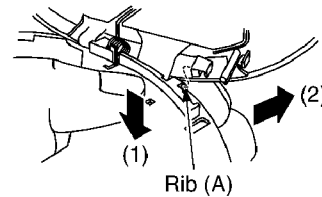
(Step 1)

Release the 2 claws, and then remove the FFC from FFC holder.



(Step 2)

Push the middle cabinet direction of arrow (1), and then remove the CD lid unit from rib (A).

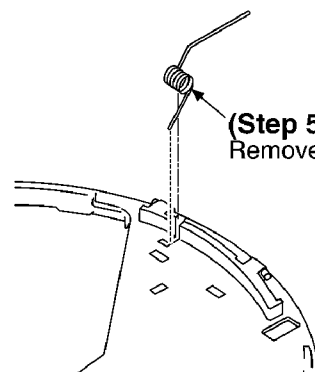
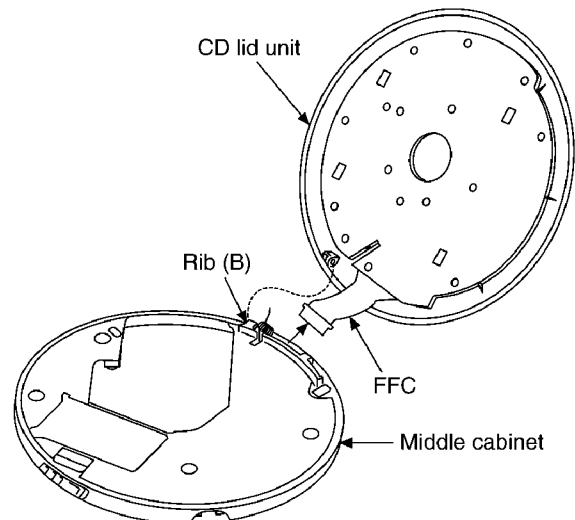


(Step 3)

Remove the CD lid unit from rib (B).

(Step 4)

Draw the FFC from the middle cabinet. (Take care not to damage the FFC.)

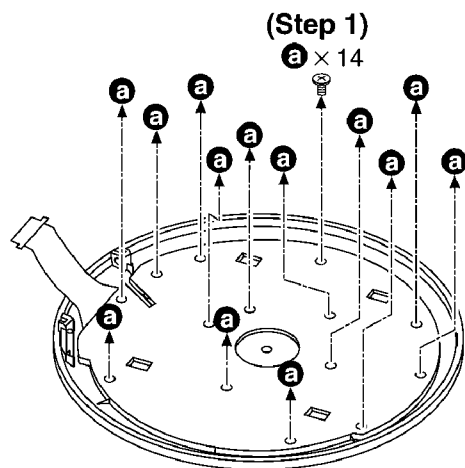


(Step 5)

Remove the open spring.

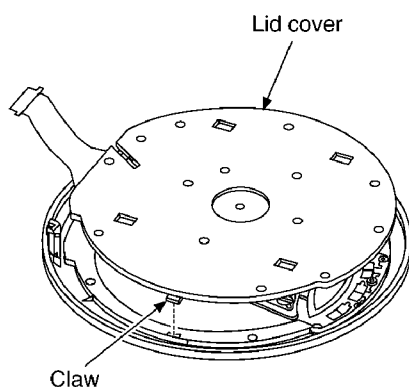
5.3. Replacement for the LCD, operation button A, operation button B, ornament ring and multi button SW unit

- Follow the (Step1)-(Step5) of item 5.1.1.
- Follow the (Step1)-(Step4) of item 5.2.



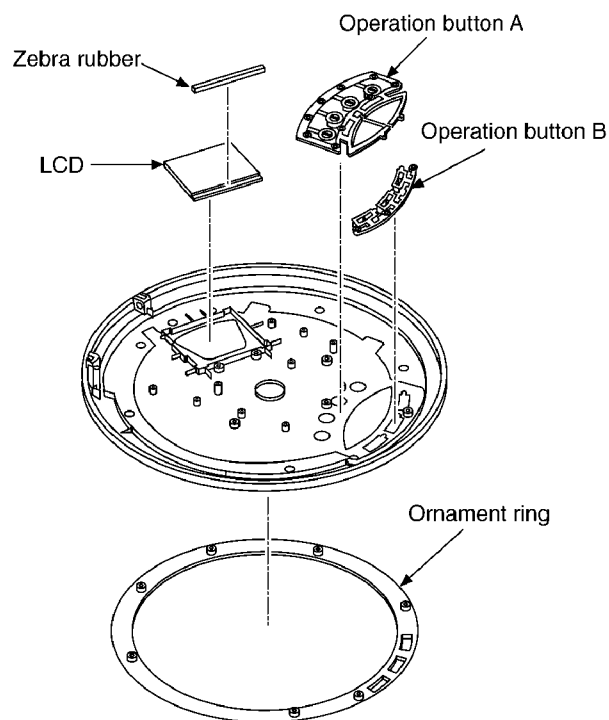
(Step 2)

Release the claw, and then remove the lid cover.



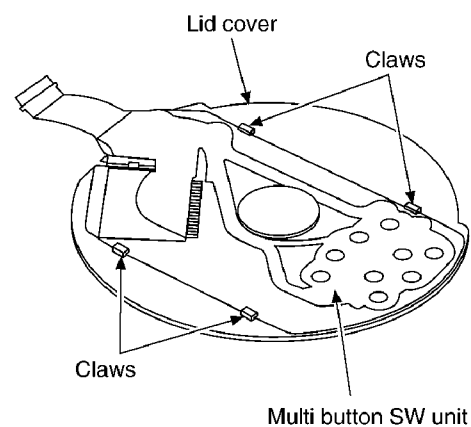
(Step 3)

The parts illustrated below will be free.



(Step 4)

Release the 4 claws, and then remove the multi button SW unit.



5.4. Replacement for the traverse motor

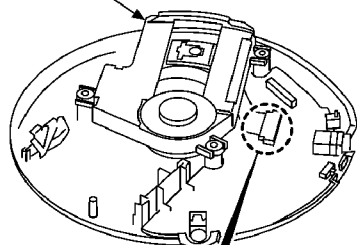
- Follow the (Step1)-(Step4) of item 5.1.1.

NOTE:

Be sure to confirm the item 4 "Handling Precautions for Traverse Deck" before removing the traverse deck unit.

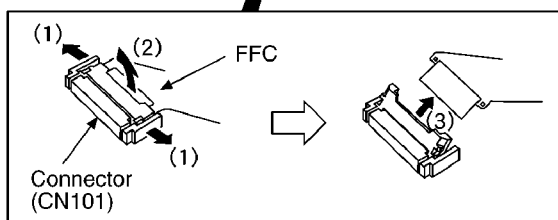
(Step 2)

Remove the traverse deck unit.



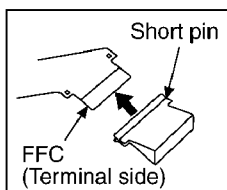
(Step 1)

Pull out the FFC from connector (CN101).



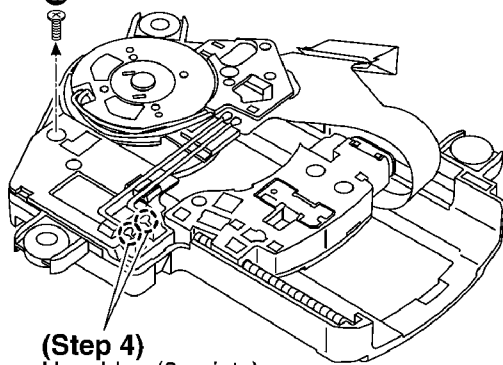
NOTE:

Insert a short pin into the traverse deck's FFC (Terminal side). (Refer to "Handling Precautions for Traverse Deck".)



(Step 3)

a

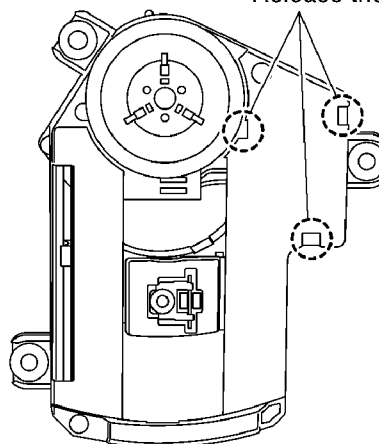


(Step 4)

Unsolder. (2 points)

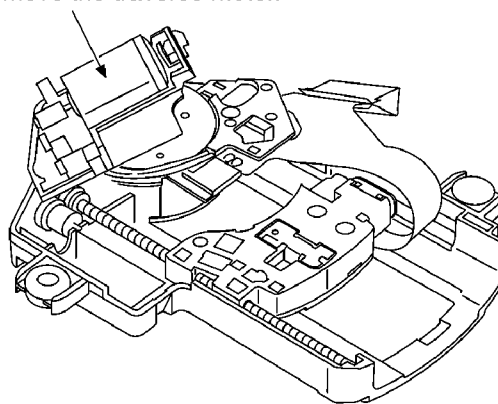
(Step 5)

Release the 3 claws.



(Step 6)

Remove the traverse motor.

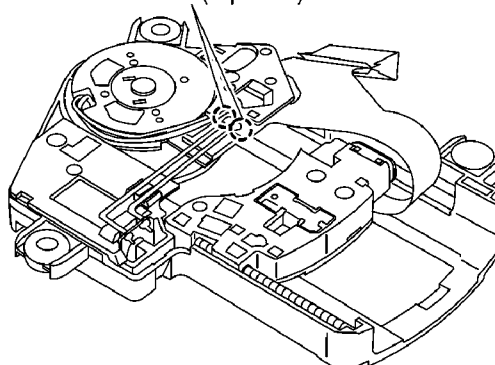


5.5. Replacement for the optical pick-up

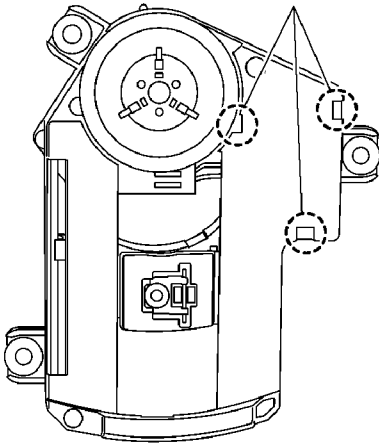
- Follow the (Step1)-(Step4) of item 5.1.1.
- Follow the (Step1)-(Step3) of item 5.4.

(Step 1)

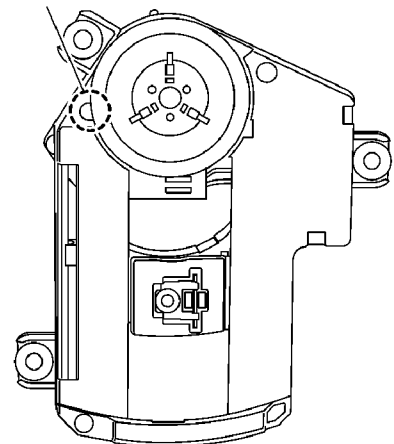
Unsolder. (2 points)



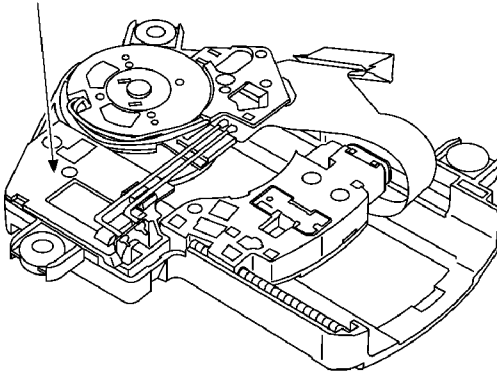
(Step 2)
Release the 3 claws.



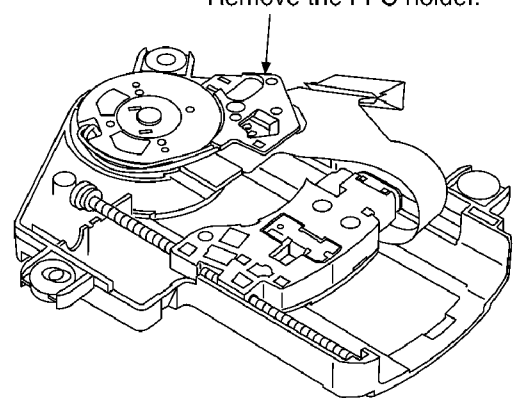
(Step 7)
Release the claw.



(Step 3)
Remove the holder and traverse motor.



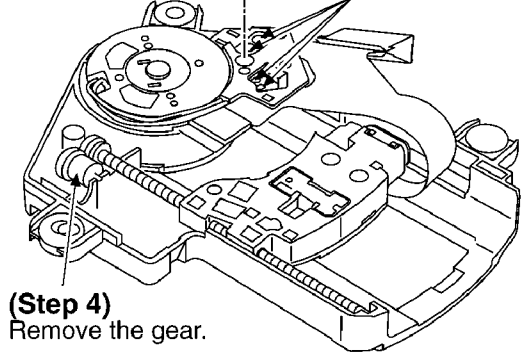
(Step 8)
Remove the FFC holder.



(Step 6)

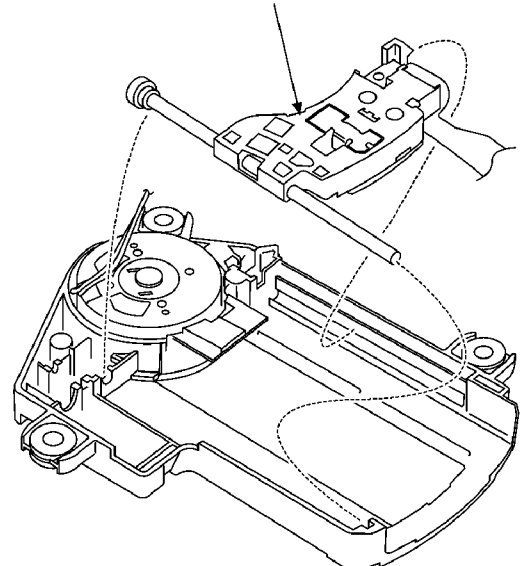
a

(Step 5)
Unsolder. (4 points)



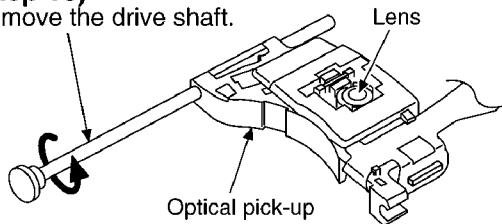
(Step 4)
Remove the gear.

(Step 9)
Remove the optical pick-up ass'y.



(Step 10)

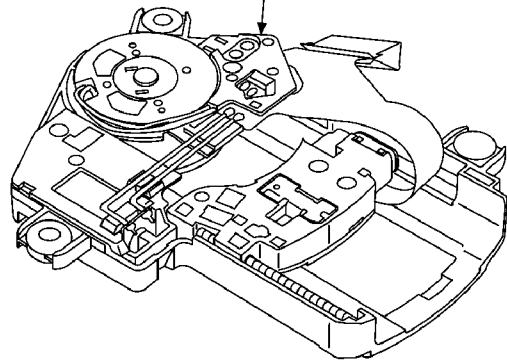
Remove the drive shaft.

**NOTE:**

1. Use care to prevent damage the optical pick-up, due to the precision construction.
2. Do not apply the grease on the lens of optical pick-up.
3. Do not touch the lens of the optical pick-up.

(Step 4)

Remove the FFC holder.



5.6. Replacement for the rest switch

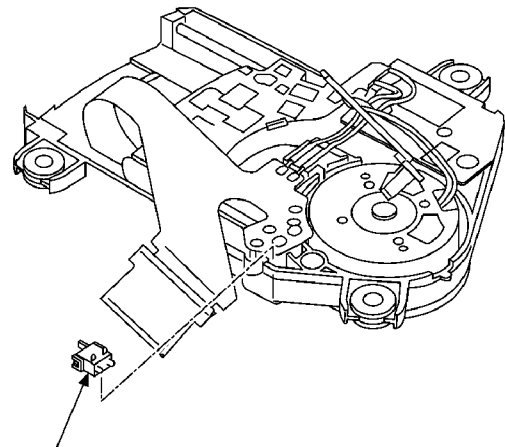
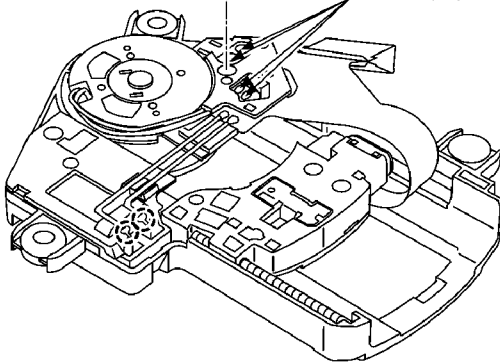
- Follow the (Step1)-(Step4) of item 5.1.1.
- Follow the (Step1), (Step2) of item 5.4.

(Step 1)

⑥

(Step 2)

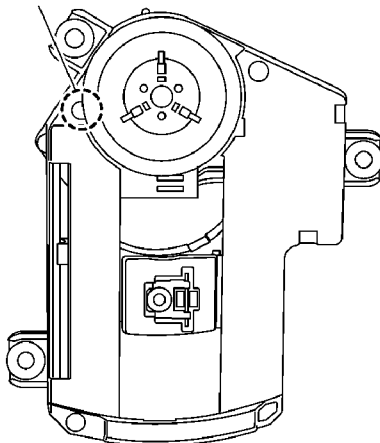
Unsolder. (4 points)

**(Step 5)**

Remove the rest switch.

(Step 3)

Release the claw.



6 Checking the Operation Problems on the Traverse Deck (Optical Pickup)

Make sure to follow the procedures below to check the operation problems of the traverse deck (optical pickup) before replacing it.

Replace the traverse deck only after the problem is identified.

(Procedure No.)	(Checking Points)	(Cause)	(Testing Procedure)
	Starting the reading operation (TOC)		
1.	Is focus search executed? (Check if lens moves up and down)	Broken or shorted focus coil.	Check if conductance on both ends of coil with the tester at about 8 ohms. (The lens will slightly move up and down during the checking.)
2.	Does the laser turn on? (If it does, the turntable will rotate)	LD deterioration, or the position of the turntable is very low and make contact with the motor.	- RF signal at the RF test point is over 0.8 Vp-p. - Check if the position of the turntable is not very low and does not made contact with the motor.
3.	Tracking ON.	Broken or shorted tracking coil.	Check if conductance on both ends of coil with the tester at about 8 ohms. (The lens will slightly move to the right or left during the checking.)
4.	Confirm RF signal output.	Faulty PD. (PHOTO DETECTOR)	Check if the output is minimum 0.8 Vp-p at the test point.
	YES YES YES YES		
	NO NO NO NO		
	Traverse deck (optical pickup) is normal.	Traverse deck (optical pickup) is faulty.	

✱ Replace the traverse deck.

- Check electrical circuit.
- Check for flaws on disc or if it is warped or not centered.

●Check the operations described below on the traverse deck after replacing it.

*Checking Skip Search

1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

*Checking Manual Search

1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

*Checking Playability

1. Play the 0.7 mm black dot and the 0.7 mm wedge on the playability test disc (SZZP1054C) and verify that no sound skip or noise occurs.
2. Play the middle tracks of the uneven test disc (SZZP1056C) and verify that no sound skip or noise occurs.

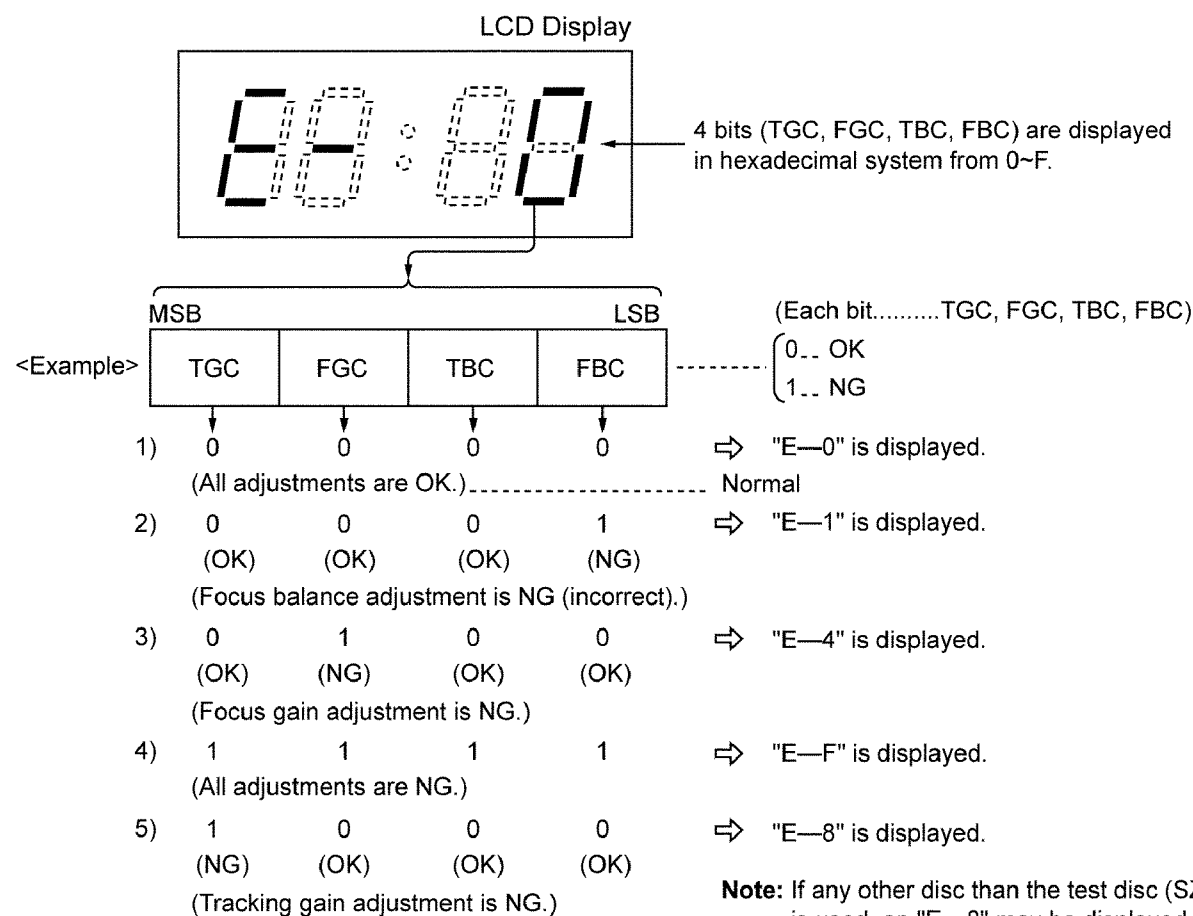
7 Automatic Adjustment Results Display Function (Self-check Function)

On these units (SL-SX325/SL-SX330), each automatic adjustment results are displayed on the LCD. This function is convenient to check or identify which automatic adjustment circuit is incorrect. The followings are the contents of the automatic adjustment results displays (self-check function).

7.1. How to display automatic adjustment results

1. Load the test disc (SZZP1054C).
2. Press the ◀◀ (SKIP/SEARCH) and ▶▶ (SKIP/SEARCH) Buttons simultaneously and hold them, and additionally press the ▶ / || (PLAY/PAUSE) Button.
3. Press the ■ (Stop/operation off) Button once.
4. An automatic adjustment result is displayed on the LCD.

7.2. Display of automatic adjustment results (self-check function)



<Example>

Follow the below steps when "E-1" is displayed.

(Cause: Focus balance (FBC) is set beyond the limit.)

● Check if

1. the waveform or voltage of the focus servo circuit is correct. (check the waveform or voltage.)
2. the optical pickup returns to the normal state by exchanging the traverse deck.

Follow the below steps when "E-4" is displayed.

(Cause: Focus gain (FGC) is set beyond the limit.)

● Check if

1. the waveform or voltage of the focus servo circuit is

correct. (check the waveform or voltage.)

2. the focus coil of the optical pickup is correct (around 8 ohms).
3. the optical pickup returns to the normal state by exchanging the traverse deck.

Follow the below steps when "E-F" is displayed.

(Cause: All adjustments (TGC, FGC, TBC, FBC) are set beyond the limit.)

● Check if

1. the optical pickup returns to the normal state by exchanging the traverse deck.
2. the waveform or voltage of the servo IC's are correct.

(check the waveform or voltage.)

Note:

It is not always necessary to exchange the traverse deck when an error message is displayed.

Be sure to check if the circuit is defective or not before

exchanging the traverse deck.

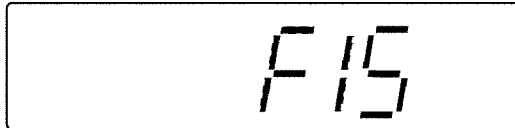
Note:

If any other disc than the test disc (SZZP1054C) is used, an error message may be displayed. This is not a malfunction.

8 Display of Self-Diagnostic Function

This model is equipped with a self-diagnosis function and shows, when necessary, the following indication in the LCD section of the set.

LCD display

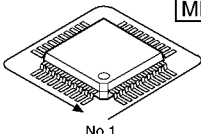
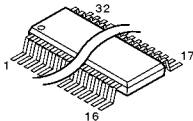
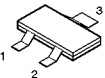
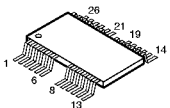
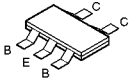
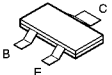
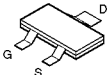
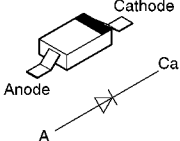


(Press PLAY and STOP button. After 15 seconds, it is displayed for 2 seconds.)

“F15”---This indication appears when the Down switch fails to turn ON since the magnetic head fails to move up/down normally (Due to trouble of the magnetic head or trouble of the magnetic head up/down motor) or the magnetic head P.C.B. is out of position or a foreign matter has mixed in or for some other reason.

In such a case, check the peripheral parts of the magnetic head, repair or replace defective parts with normal ones.

9 Type Illustration of IC's, Transistors and Diodes

 No.1	<table><tr><td>AN41507A-VB</td><td>48PIN</td></tr><tr><td>C2BBFD000493</td><td>80PIN</td></tr><tr><td>MN662788SD</td><td>100PIN</td></tr></table>	AN41507A-VB	48PIN	C2BBFD000493	80PIN	MN662788SD	100PIN				
AN41507A-VB	48PIN										
C2BBFD000493	80PIN										
MN662788SD	100PIN										
B1GFGCAA0001	B1BDND000001	 UNR511400L UNR521L00L UNR521300L UNR521500L UNR511300L 2SB0709A0L			B1ABMD000004						
MA2J11100L											

10 Schematic Diagram Notes

Note:

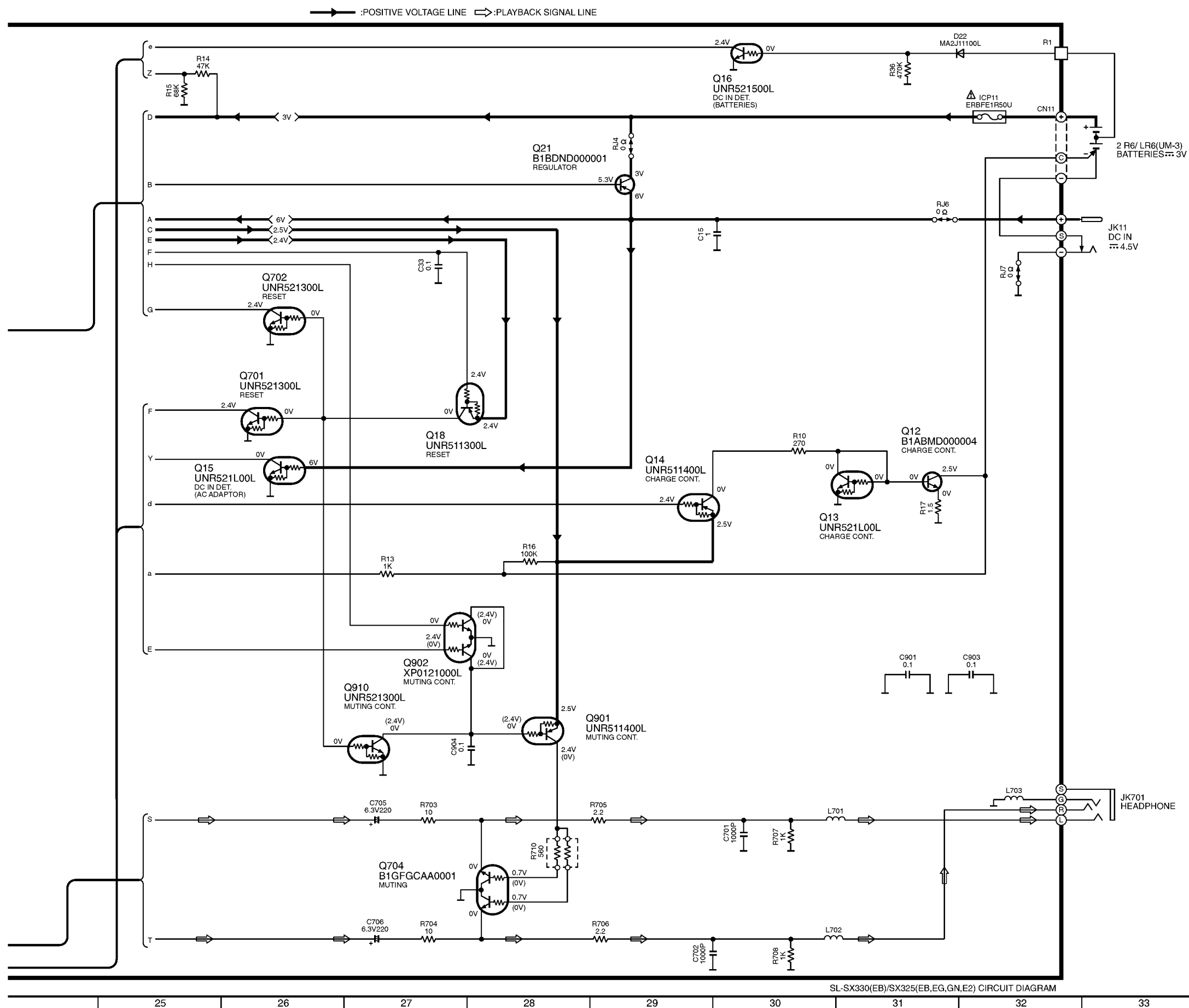
- S201: Laser ON/OFF switch in "ON" position.
(It turns "ON" with CD Lid.)
- S202: Rest switch in "OFF" position.
(It turns "ON" when optical pickup comes to innermost periphery.)
- S310: Hold (HOLD) switch in "OFF" position.
- S801: Stop/Turn off (■) switch.
- S802, 805: Volume control (VOL+,VOL -) switch.
- S803, 804: Skip/search (◀◀ , ▶▶) switch.
- S806: Sound quality selection (EQ) switch.
- S807: Memory/ Recall/ AB repeat/ Anti-skip mode selection (MEMO) switch.
- S808: Play mode selection (MODE) switch.
- S809: Play/pause (▶ / ||) switch.
- Components identified by △ mark have special characteristics important for safety.
- When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.
- The supply part number is described alone in the replacement parts.
- Signal line
-  : Positive voltage line.
-  : Playback signal line.
- The voltage value and waveforms are the reference voltage of this measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of GND terminal (DC IN Jack). Accordingly, there may arise some errors in the voltage values and waveforms depending upon the internal impedance of the tester or measuring unit.
- Measurement conditions:
- *().....CD playback mode (Test disc 1kHz, L+R, 0dB)
- *No mark.....CD stop mode

Caution!!

- IC and LSI are sensitive to static electricity.
- Secondary trouble can be prevented by taking care during repair.
- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the pins of IC or LSI with fingers directly.







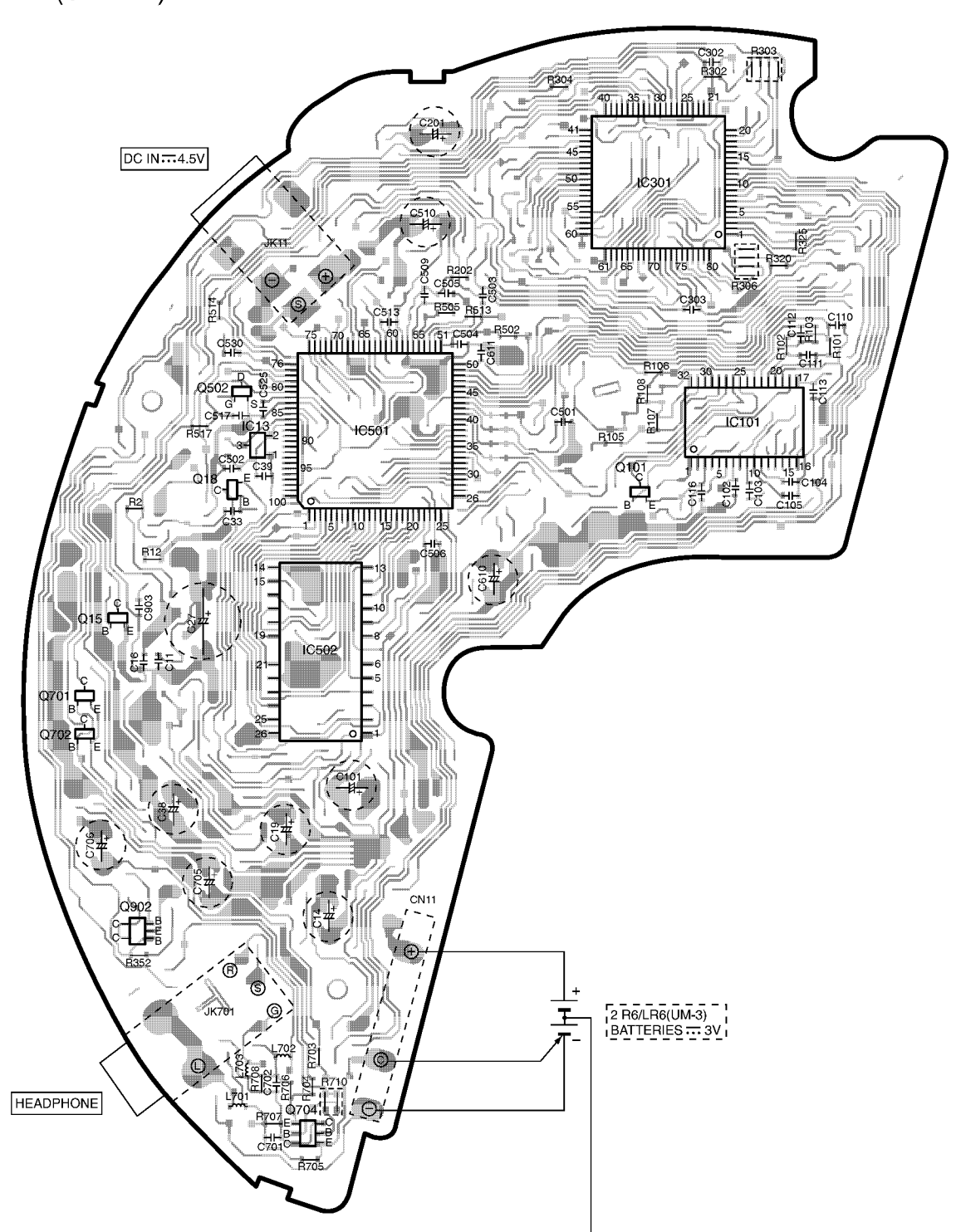
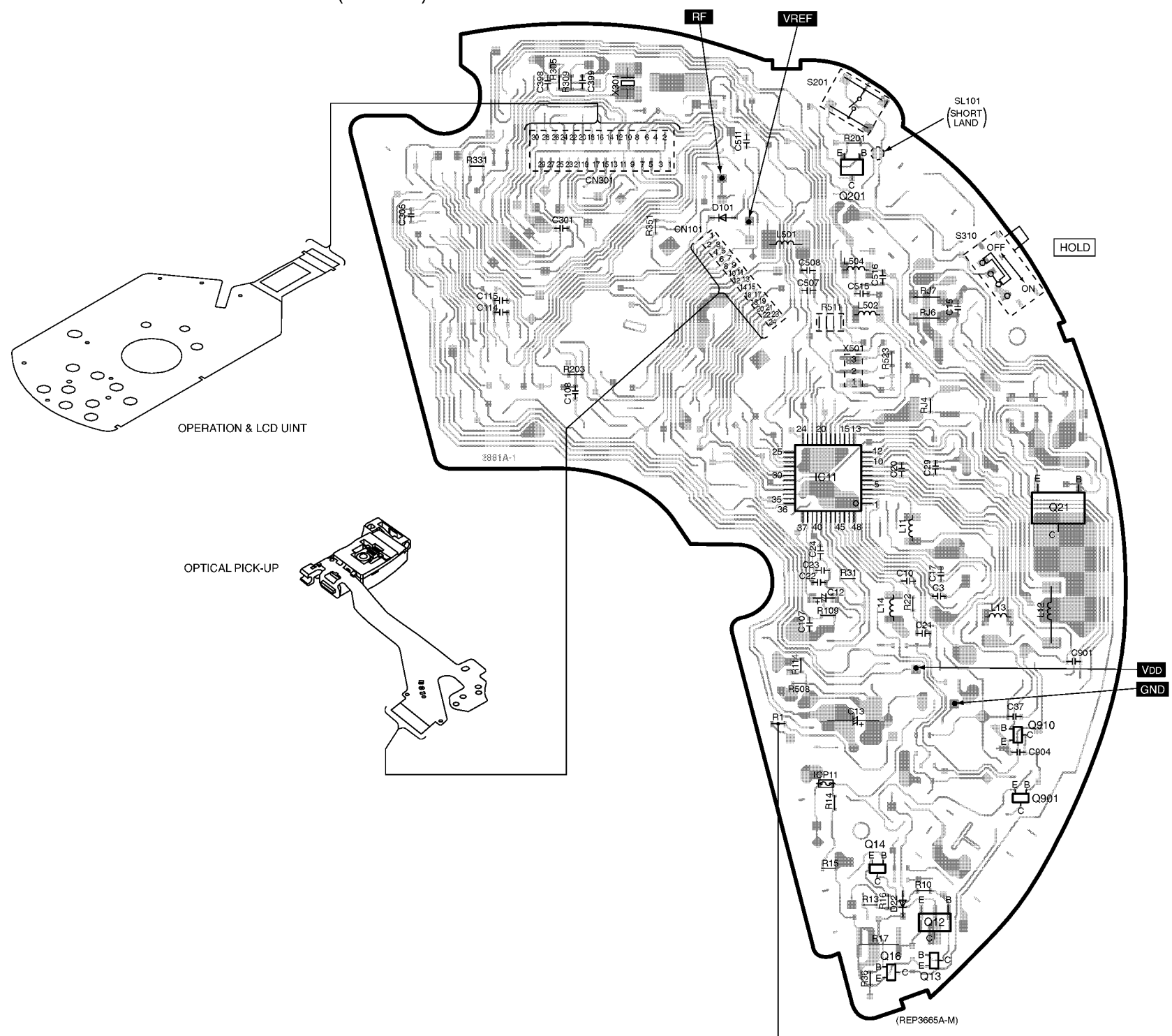
12 Printed Circuit Board and Wiring Connection Diagram

Note: This printed circuit board diagram may be modified at any time with the development of new technology.

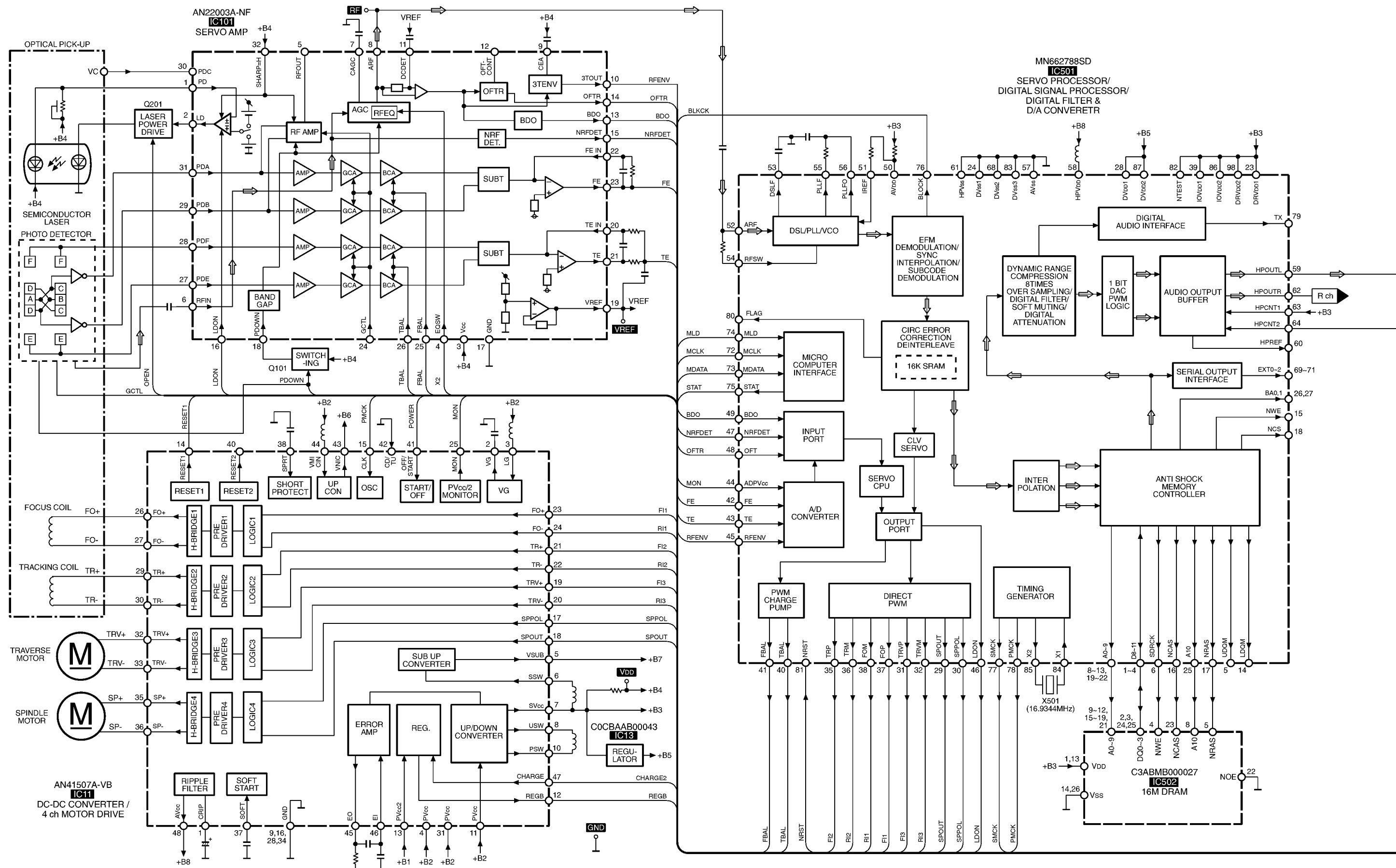
H
G
F
E
D
C
B
A

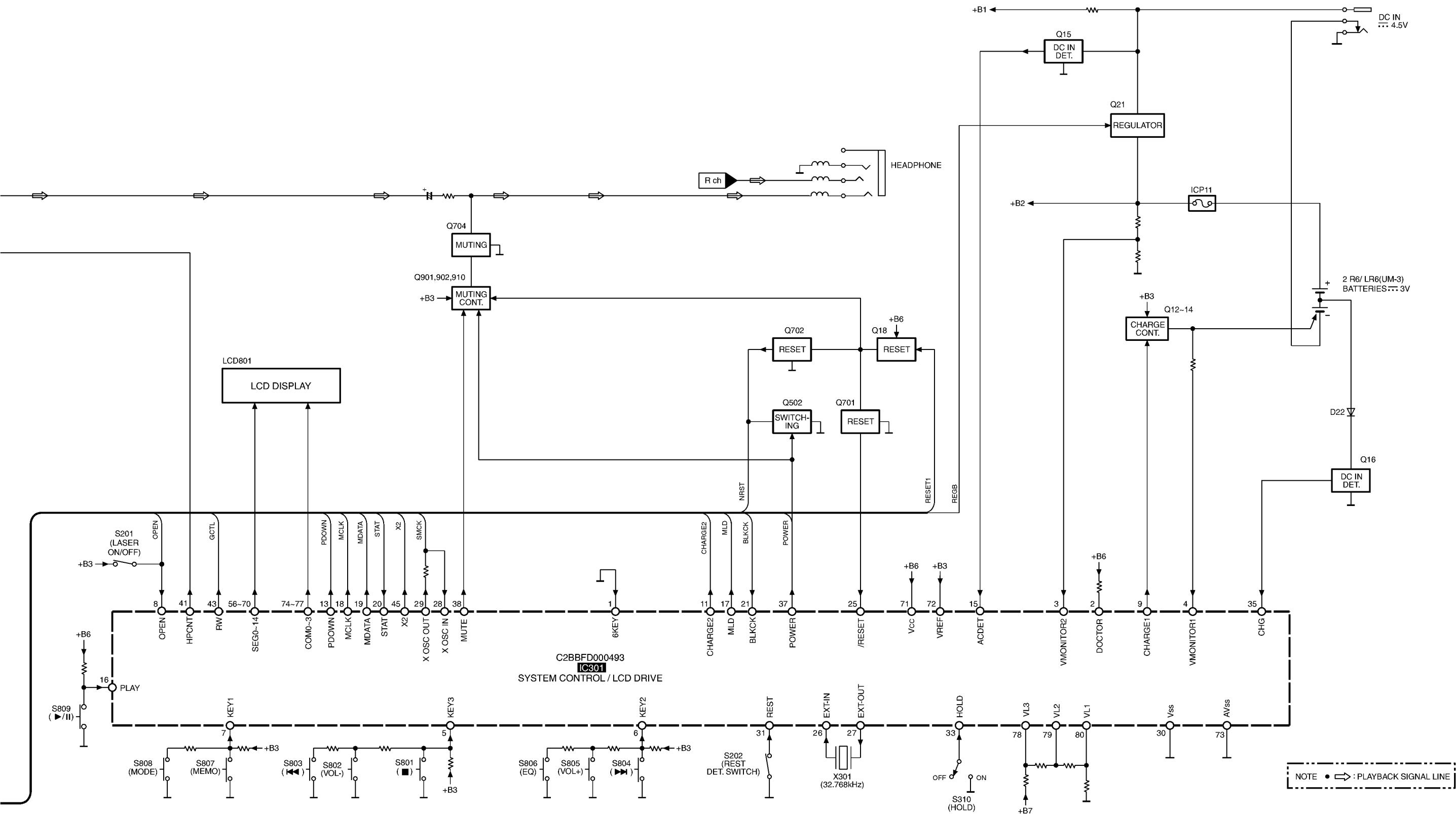
(SIDE: A)

(SIDE: B)



13 Block Diagram





SL-SX330(EB)/SX325(EB,EG,GN,E2) BLOCK DIAGRAM

14 Terminal Function of ICs

14.1. IC101(AN22003A-NF): Servo Amplifier

Pin No.	Terminal Name	I/O	Function
1	PD	I	APC amplifier input terminal
2	LD	O	Laser power drive signal output
3	V _{CC}	I	Power supply terminal
4	EQSW	I	EQ characteristic drive signal input
5	RFOUT	-	Not used, open
6	RF IN	I	RF signal input terminal
7	CAGC	-	AGC loop filter capacity connection terminal
8	ARF	O	RF signal output terminal
9	CEA	I	H.P.F. Capacitor connection terminal
10	3TOUT	O	RF envelope signal output terminal
11	DCDET	I	The H.P.F. capacitor connection terminal for detection systems
12	OFTCONT	-	Not used, open
13	BDO	O	Dropout signal output terminal
14	OFTR	O	Off-track signal output terminal
15	NRFDET	O	RF detection signal output terminal
16	LDON=H	I	Laser ON signal input terminal
17	GND	-	GND
18	PDOWN=H	I	Reduced voltage detection signal input
19	VREF	O	Reference voltage output terminal
20	TEIN	I	Tracking error amplifier input terminal
21	TE	O	Tracking error amplifier output terminal
22	FEIN	I	Focus error amplifier input terminal
23	FE	O	Focus error amplifier output terminal
24	GCTL	-	Not used, open
25	FBAL	I	Focus balance signal input terminal
26	TBAL	I	Tracking balance signal input terminal
27	PDE	I	Tracking signal input terminal
28	PDF	I	Tracking signal input terminal
29	PDB	I	Focus signal input terminal
30	PDC	I	RF addition amplifier input terminal
31	PDA	I	Focus signal input terminal
32	SHARP=H	I	LD reference voltage input terminal

14.2. IC301(C2BBFD000493): System Control / LCD Drive

Pin No.	Terminal Name	I/O	Function
1	6KEY	I	6Key Remote control key signal input
2	DOCTOR	I	Doctor mode select signal input
3	VMONITO R2	I	Battery remaining measurement/battery shorting detect signal input
4	VMONITO R1	I	Rechargeable battery/alkaline battery voltage signal input
5	KEY3	I	Operation key signal input
6	KEY2	I	Operation key signal input
7	KEY1	I	Operation key signal input
8	OPEN	I	CD cover open detect signal input
9	CHARGE1	O	Charge control signal output
10	BUZ	-	Not used, open
11	CHARGE2	O	PVCC1 voltage up signal output
12	NC	-	Not used, open
13	PDOWN	O	Headamp. off signal output
14	NC	-	Not used, open
15	ACDET	I	AC Power supply detect signal input
16	PLAY	I	PLAY key signal input
17	MLD	O	Serial command latch output
18	MCLK	O	Serial command clock output

Pin No.	Terminal Name	I/O	Function
19	MDATA	O	Serial command data output
20	STAT	I	Status signal input
21	BLKCK	I	Block clock signal input
22	WLSRCN	-	Not used, open
23	NC	-	Not used, open
24	TYPESEL2	I	Model selection input
25	/RESET	I	Reset detect signal input
26	EXT-IN	I	Oscillator connected terminal (F=32.7 kHz)
27	EXT-OUT	O	
28	XOSCIN	I	System clock signal
29	XOSCOUT	O	
30	V _{SS}	-	GND
31	REST	I	Rest detect switch signal input
32	A.SHOCK	-	Not used, open
33	HOLD	I	HOLD switch signal input
34	MECASEL	-	Not used, open
35	CHG	I	Alkaline battery detect signal input
36	NC	-	Not used, open
37	POWER	O	Power supply control signal output
38	MUTE	O	MUTE signal output
39	NC	-	Not used, open
40	NC	-	Not used, open
41	HPCNT	O	Super1ch headphone out control signal output
42	ZAN/JUDG E	-	Not used, open
43	RW	O	Output for CD-RW
44	NC	-	Not used, open
45	X2	O	RF equalizer twice speed signal output
46	NC	-	Not used, open
47	CHGSEL2	-	Not used, open
48	TYPESEL	-	Not used, open
49	CHGSEL	-	Not used, open
50	CHGSEL3	-	Not used, open
51	PMSEL	-	Not used, open
52	XBSLPSEL	I	XBS LPF Setting select signal input
53	SOUNDSE L	-	Not used, open
54	NC	-	Not used, open
55	SEG15	-	Not used, open
56 70	SEG14 SEG0	O	LCD segment signal output
71	V _{CC}	I	Power supply terminal
72	VREF	I	Reference voltage input terminal
73	AV _{SS}	-	GND
74 77	COM3 COM0	O	LCD common signal output terminal
78	VL3	I	Power supply terminal
79	VL2	I	Power supply terminal (LCD drive bias)
80	VL1	I	Power supply terminal (LCD drive bias)

14.3. IC501(MN662788SD): Servo Processor, Digital Signal Processor, Digital Filter & D/A Converter

Pin No.	Terminal Name	I/O	Function
1 4	D11 D8	I/O	DRAM data I/O signal 11 - 8
5	UDQM	-	Not use, open

Pin No.	Terminal Name	I/O	Function
6	SDRCK	O	SDRAM clock signal input
7	A11	-	Not used, open
8 13	A9 A4	O	DRAM address signal output 9 - 4
14	LDQM	-	Not used, open
15	NWE	-	Not used, open
16	NCAS	O	DRAM CAS control signal output
17	NRAS	O	DRAM RAS control signal output
18	NCS	-	Not used, open
19 22	A3 A0	O	DRAM address signal output 3 - 0
23	DRV _{DD} 1	I	Power supply 1 for DRAM interface
24	DV _{SS} 1	-	GND1 for digital circuits
25	A10	O	DRAM address signal output 10
26	BA1	-	Not used, open
27	BA0	-	Not used, open
28	DV _{DD} 1	I	Power supply 1 for digital circuits
29	SPOUT	O	Spindle motor drive signal output
30	SPPOL	O	Spindle motor drive signal output
31	TRVP	O	Traverse drive signal output (+)
32	TRVM	O	Traverse drive signal output (-)
33	GOUT3 /CKBM	-	Not used, open
34	GOUT4 /TLOCK	-	Not used, open
35	TRP	O	Tracking drive signal output (+)
36	TRM	O	Tracking drive signal output (-)
37	FOP	O	Focus drive signal output (+)
38	FOM	O	Focus drive signal output (-)
39	IOV _{DD} 1	I	Power supply1 for digital I/O
40	TBAL	O	Tracking balance adjustment output
41	FBAL	O	Focus balance adjustment output
42	FE	I	Focus error signal input
43	TE	I	Tracking error signal input
44	ADPV _{CC}	I	Voltage input for supply voltage monitor
45	RFENV	I	RF envelope signal input
46	LDON	O	Laser ON signal output
47	NRFDET	I	RF detection signal input
48	OFT	I	Off-track signal input
49	BDO	I	Dropout signal input
50	AV _{DD}	I	Power supply for analog circuits
51	IREF	I	Reference current input for analog
52	ARF	I	RF signal input
53	DSLIF	O	DSL loop filter
54	RFSW	I	DSL loop filter
55	PLLIF	O	PLL loop filter
56	PLLFO	O	PLL loop filter
57	AV _{SS}	-	GND for analog circuits
58	HPV _{DD}	I	Power supply for headphone out
59	HPOUTL	O	L-ch audio output
60	HPREF	-	Not used, open
61	HPV _{SS}	-	GND for headphone out
62	HPOUTR	O	R-ch audio output
63	HPCNT1	I	Headphone out control signal input1
64	HPCNT2	I	Headphone out control signal input2
65	GOUT2 /PCK	-	Not used, open
66	GOUT1 /IPFLAG2	-	Not used, open
67	GOUT0 /RESY	-	Not used, open
68	DV _{SS} 2	-	GND2 for digital circuits
69	EXT0 /VDET	-	Not used, open
70	EXT1 /CLUS	-	Not used, open

Pin No.	Terminal Name	I/O	Function
71	EXT2/CRC	-	Not used, open
72	MCLK	I	Microcontroller command clock signal output
73	MDATA	I	Microcontroller command data signal output
74	MLD	I	Microcontroller command load signal output
75	STAT	O	Status signal output
76	BLOCK	O	Sub-code block clock signal output
77	SMCK	O	Clock signal output
78	PMCK	O	Clock signal output (F=88.2kHz)
79	TX	-	Not used, open
80	FLAG	-	Not used, open
81	NRST	I	LSI reset signal input
82	NTEST	I	Test input pin
83	DV _{SS} 3	-	GND3 for digital circuits
84	X1	I	Crystal oscillator connected (F=16.9 MHz)
85	X2	O	
86	IOV _{DD} 2	I	Power supply2 for digital I/O
87	DV _{DD} 2	I	Power supply2 for digital circuits
88	D2	-	Not used, open
89	D1	-	Not used, open
90	D0	-	Not used, open
91 95	D3 D7	-	Not used, open
96	D15	-	Not used, open
97	D14	-	Not used, open
98	DRV _{DD} 2	I	Power supply2 for DRAM interface I/O
99	D13	-	Not used, open
100	D12	-	Not used, open

15 Replacement Parts List

Notes:

*Important safety notice:

Components identified by $\triangle$ mark have special characteristics important for safety.

*Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.

*When replacing any of components, be sure to use only manufactures specified parts shown in the parts list.

*The parenthesized indications in the Remarks columns specify the product.

(325EB): SL-SX325EB

(325EG): SL-SX325EG

(325E2): SL-SX325E2

(325GN): SL-SX325GN

(330EB): SL-SX330EB

Parts without these indications can be used for all products.

*Warning: This product uses a laser diode. Refer to caution statements.

*Capacity values are in microfarads (μ F) unless specified otherwise, P=Pico-farads (pF), F=Farads (F).

*Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM), 1M=1,000k (OHM).

*The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, it will no longer be available.

*All parts are supplied by ASPC.

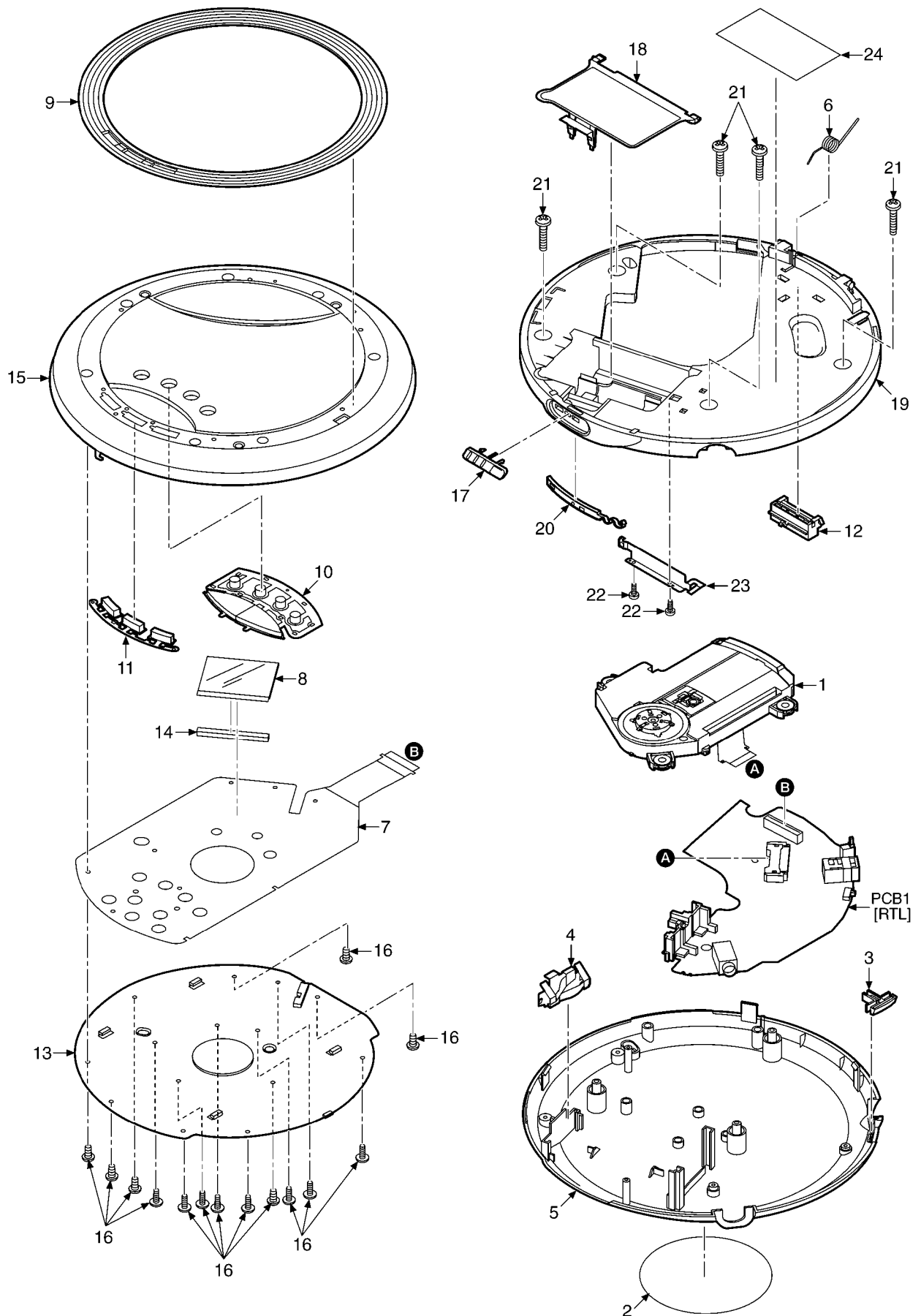
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
1	RAE0242Z-X	TRAVERSE DECK UNIT	1	$\triangle$
1-1	RMG0605-K	FLOATING RUBBER	3	
1-2	RAF0241A	OPTICAL PICK-UP	1	$\triangle$
1-3	RDG0554	GEAR 1	1	
1-4	RDG0555	GEAR 2	1	
1-5	RMQ1125	MOTOR HOLDER	1	
1-6	RMS0782-1	SHAFT	1	
1-7	XQN17+BG45	SCREW	1	
1-8	RXQ0971-4	MOTOR ASS'Y	1	
2	RGN2637-H	NAME PLATE	1	(325EB)
2	RGN2636-H	NAME PLATE	1	(325EG) (325E2)
2	RGN2719-H	NAME PLATE	1	(325GN)
2	RGN2632-H2	NAME PLATE	1	(330EB)
3	RGV0317-H1	KNOB, HOLD	1	
4	RJC93038-3	BATTERY TERMINAL	1	
5	RKS0376-A	BOTTOM CAB	1	
6	RME0405	OPEN SPRING	1	
7	K0RE00900025	MULTI BUTTON SW UNIT	1	
8	L5ACACC00011	LCD (LCD801)	1	
9	RGK1734-1A	ORNAMENT RING	1	(325EB) (325EG) (325E2) (325GN)
9	RGK1734-A	ORNAMENT RING	1	(330EB)
10	RGU2259-A	OPERATION BUTTON A	1	(325EB) (325EG) (325E2) (325GN)
10	RGU2259-S	OPERATION BUTTON A	1	(330EB)
11	RGU2260-1A	OPERATION BUTTON B	1	(325EB) (325EG) (325E2) (325GN)
11	RGU2260-A	OPERATION BUTTON B	1	(330EB)

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
12	RMRI514-K	FFC HOLDER	1	
13	RMRI599-H	LID COVER	1	
14	RSQ0100	ZEBRA RUBBER	1	
15	RYF0699A-S	CD LID UNIT	1	(325EB) (325EG) (325E2) (325GN)
15	RYF0699-S	CD LID UNIT	1	(330EB)
16	XQN14+BG3FC	SCREW	14	
17	RGV0318-H2	KNOB, OPEN	1	
18	RKK0171-A	BATTERY LID	1	
19	RKM0482A-A	MIDDLE CABINET	1	
20	RMRI412-K1	LOCK PLATE	1	
21	XTN17+6GFZ	SCREW	4	
22	RHQ0088-K	SCREW	2	
23	RMC0537	DETECTION TERMINAL	1	
24	RQLS0244	LASER LABEL	1	
A1	RFEA435B-S	AC ADAPTOR	1	(330EB)
A3	L0BAB0000182	STEREO EARPHONES	1	
A4	RQT7181-1B	O/I BOOK	1	(325EB) (325GN) (330EB) English
A5	RQT7180-1E	O/I BOOK	1	(325EG) (325E2) English French German Spanish Netherlands Swedish Danish Italian Portuguese Russian Czecho Polish
C3	ECUV1C104KBV	16V 0.1U	1	
C10	ECUV1H271KBV	50V 270P	1	
C11	ECUV1A105KBV	10V 1U	1	
C12	F3F0J226A004	6.3V 22U	1	
C13	F3H1A476A001	10V 47U	1	
C14	F2A0J2210012	6.3V 220U	1	
C15-17	ECUV1A105ZFV	10V 1U	3	
C19	ECA1CAK220XH	16V 22U	1	
C20	ECUV1A105KBV	10V 1U	1	
C21	ECUV1H103KBV	50V 0.01U	1	
C22	ECUV1C104ZFV	16V 0.1U	1	
C23	ECUV1A105KBV	10V 1U	1	
C24	ECUV1H391KBV	50V 390P	1	
C27	F2A0J102A130	6.3V 1000U	1	
C29	ECUV1A105KBV	10V 1U	1	
C33	ECUV1C104KBV	16V 0.1U	1	
C37	ECUV1A105ZFV	10V 1U	1	
C38	ECA1CAK220XH	16V 22U	1	
C39	ECUV1A105KBV	10V 1U	1	
C101	ECEA0JKA331I	6.3V 330U	1	
C102	ECUV1A105ZFV	10V 1U	1	
C103	ECUV1E223KBV	25V 0.022U	1	
C104	ECUV1A105ZFV	10V 1U	1	
C105	ECUV1E223KBV	25V 0.022U	1	
C107	ECUV1A105KBV	10V 1U	1	
C108	ECUV1H332KBV	50V 3300P	1	
C110	ECUV1H332KBV	50V 3300P	1	
C111,12	ECUV1H561KBV	50V 560P	2	
C113	ECUV1A105KBV	10V 1U	1	
C114,15	ECUV1E223KBV	25V 0.022U	2	
C116	ECUV1A105KBV	10V 1U	1	
C201	ECA0JAK470XH	6.3V 47U	1	
C301	ECUV1A105KBV	10V 1U	1	
C302,03	ECUV1A105ZFV	10V 1U	2	
C305	ERJ3GEY0R00V	1/10W 0	1	

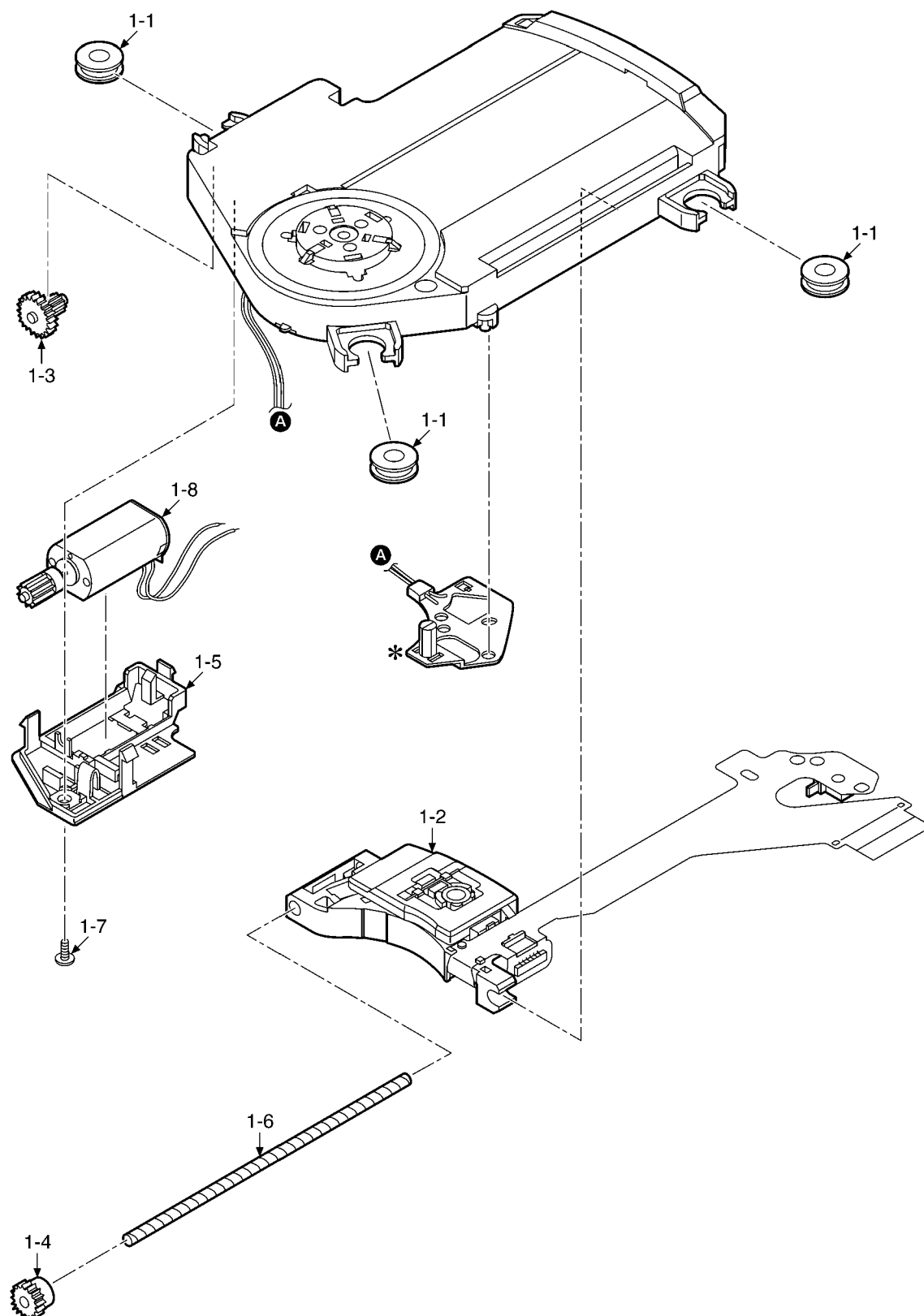
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C398,99	ECUV1H120JCV	50V 12P	2	
C501,02	ECUV1C104ZFB	16V 0.1U	2	
C503	ECUV1H391KBV	50V 390P	1	
C504	ECUV1C104ZFB	16V 0.1U	1	
C505	ECUV1E223KBV	25V 0.022U	1	
C506	ECUV1A105ZFB	10V 1U	1	
C507-09	ECUV1C104KBV	16V 0.1U	3	
C510	ECEA0GKA471I	4V 470U	1	
C511	ECUV1H103KBV	50V 0.01U	1	
C513	ECUV1A105KBV	10V 1U	1	
C515,16	ECUV1C104KBV	16V 0.1U	2	
C517	ECUV1A105ZFB	10V 1U	1	
C525	ECUV1C104ZFB	16V 0.1U	1	
C530	ECUV1H330JCV	50V 33P	1	
C610	ECA0JAK470XH	6.3V 47U	1	
C611	ECUV1A105KBV	10V 1U	1	
C701,02	ECUV1H102KBV	50V 1000P	2	
C705,06	F2A0J2210012	6.3V 220U	2	
C901	ECUV1C104KBV	16V 0.1U	1	
C903	ECUV1C104KBV	16V 0.1U	1	
C904	ECUV1C104ZFB	16V 0.1U	1	
CN11	K4BC03B00014	BATTERY TERMINAL	1	
CN101	K1MN24B00108	CONNECTOR (24P)	1	
CN301	K1MN30A00061	CONNECTOR (30P)	1	
D22	MA2J11100L	DIODE	1	
D101	MA2J11100L	DIODE	1	
IC11	AN41507A-VB	IC	1	
IC13	C0CBAAB00043	IC	1	
IC101	AN22003A-NF	IC	1	
IC301	C2BBFD000493	IC	1	
IC501	MN662788SD	IC	1	
IC502	C3ABMB000027	IC	1	
ICP11	ERBF1R50U	IC PROTECTOR	1	△
JK11	K2EB2B000006	JACK,DC IN	1	
JK701	K2HC104B0013	JACK,HEADPHONE	1	
L11	GLC331K00008	COIL	1	
L12	GLA101D00009	COIL	1	
L13	GLC221K00012	COIL	1	
L14	GLC101K00008	COIL	1	
L501	GLC471K00007	COIL	1	
L502	GLC101K00008	COIL	1	
L504	GLC101K00008	COIL	1	
L701,02	J0JBC0000014	COIL	2	
L703	J0JCC0000181	COIL	1	
P1	RPN1695	TRAY 1	1	(325EB) (325EG) (330EB)
P2	RPN1696	TRAY 2	1	(325EB) (325EG) (330EB)
P3	RPQ1699	SHEET 1	1	(330EB)
P4	RPQ1730	SHEET 2	1	(325EB) (325EG) (330EB)
P5	RPF0111-2	PROTECTION BAG	1	(325E2) (325GN)
P6	RPK2148	GIFT BOX	1	(325E2) (325GN)
P7	RPQ1700	SHEET 1	1	(325EB)
P8	RPQ1718	PAD	1	(325E2) (325GN)
P9	RPQ1765	SHEET 1	1	(325EG)
PCB1	REP3665B-M	P.C.B. ASS'Y	1	[RTL]
Q12	B1ABMD000004	TRANSISTOR	1	
Q13	UNR521L00L	TRANSISTOR	1	
Q14	UNR511400L	TRANSISTOR	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
Q15	UNR521L00L	TRANSISTOR	1	
Q16	UNR521500L	TRANSISTOR	1	
Q18	UNR511300L	TRANSISTOR	1	
Q21	B1BDND000001	TRANSISTOR	1	
Q101	UNR511300L	TRANSISTOR	1	
Q201	2SB0709A0L	TRANSISTOR	1	
Q502	B1CFHA000001	TRANSISTOR	1	
Q701,02	UNR521300L	TRANSISTOR	2	
Q704	B1GFGCAA0001	TRANSISTOR	1	
Q901	UNR511400L	TRANSISTOR	1	
Q902	XP0121000L	TRANSISTOR	1	
Q910	UNR521300L	TRANSISTOR	1	
R1	D0YBR0000010	0 CHIP RING	1	
R2	ERJ3GEYJ101V	1/10W 100	1	
R10	ERJ3GEYJ271V	1/10W 270	1	
R12	ERJ3GEYJ100V	1/10W 10	1	
R13	ERJ3GEYJ102V	1/10W 1K	1	
R14	ERJ3RBD473V	1/16W 47K	1	
R15	ERJ3RBD683V	1/16W 68K	1	
R16	ERJ3GEYJ104V	1/10W 100K	1	
R17	ERJ12YJ1R5U	1/2W 1.5	1	
R22	ERJ3GEYJ223V	1/10W 22K	1	
R31	ERJ3GEYJ473V	1/10W 47K	1	
R36	ERJ3GEYJ474V	1/10W 470K	1	
R101	ERJ3GEYJ393V	1/10W 39K	1	
R102	ERJ3GEYJ332V	1/10W 3.3K	1	
R103	ERJ3GEYJ473V	1/10W 47K	1	
R105,06	ERJ3GEYJ222V	1/10W 2.2K	2	
R107,08	ERJ3GEYJ103V	1/10W 10K	2	
R109	ERJ3GEYJ104V	1/10W 100K	1	
R114	ERJ3GEYJ100V	1/10W 10	1	
R201	ERJ3GEYJ2R2V	1/10W 2.2	1	
R202	ERJ3GEYJ223V	1/10W 22K	1	
R203	ERJ3GEYJ2R2V	1/10W 2.2	1	
R302	ERJ3GEYJ104V	1/10W 100K	1	
R303	EXBV8V104JV	1/16W 100K	1	
R304	ERJ3GEYJ105V	1/10W 1M	1	
R305	ERJ3GEYJ335V	1/10W 3.3M	1	
R306	EXBV8V472JV	1/16W 4.7K	1	
R309	ERJ3GEYJ104V	1/10W 100K	1	
R320	ERJ3GEYJ122V	1/10W 1.2K	1	
R325	ERJ3GEYJ333V	1/10W 33K	1	
R331	ERJ3GEYJ102V	1/10W 1K	1	
R351	ERJ3GEYJ102V	1/10W 1K	1	
R352	ERJ3GEYJ104V	1/10W 100K	1	
R502	ERJ3GEYJ683V	1/10W 68K	1	
R505	ERJ3GEYJ561V	1/10W 560	1	
R508	ERJ3GEYJ100V	1/10W 10	1	
R511	EXBV8V222JV	1/16W 2.2K	1	
R513	ERJ3GEYJ154V	1/10W 150K	1	
R514	ERJ3GEYJ331V	1/10W 330	1	
R517	ERJ3GEYJ104V	1/10W 100K	1	
R523	ERJ3GEYJ104V	1/10W 100K	1	
R703,04	ERJ3GEYJ100V	1/10W 10	2	
R705,06	ERJ3GEYJ2R2V	1/10W 2.2	2	
R707,08	ERJ3GEYJ102V	1/10W 1K	2	
R710	EXBV4V561JV	1/32W 560	1	
RJ4	ERJ3GEY0R00V	1/10W 0	1	
RJ6,J7	ERJ8GEY0R00V	1/4W 0	2	
S201	ESE11MV9T	SW,LASER ON/OFF	1	
S202	K0L1BB000025	SW,REST DET.	1	
S310	K0D112B000071	SW,HOLD	1	
X301	H0A327200081	OSCILLATOR	1	
X501	H2D169500027	OSCILLATOR	1	

16 Cabinet Parts Location



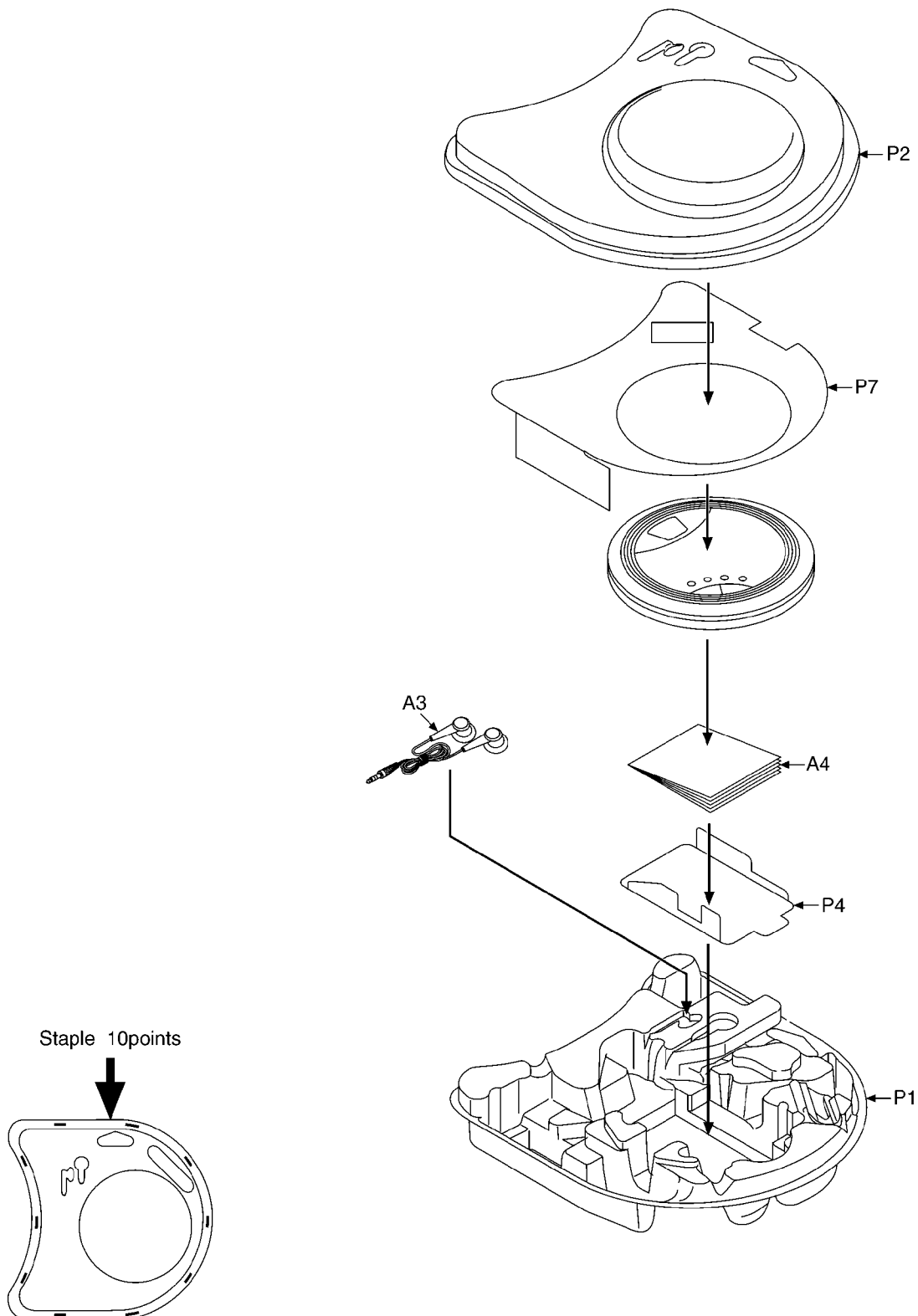
17 Traverse Parts Location



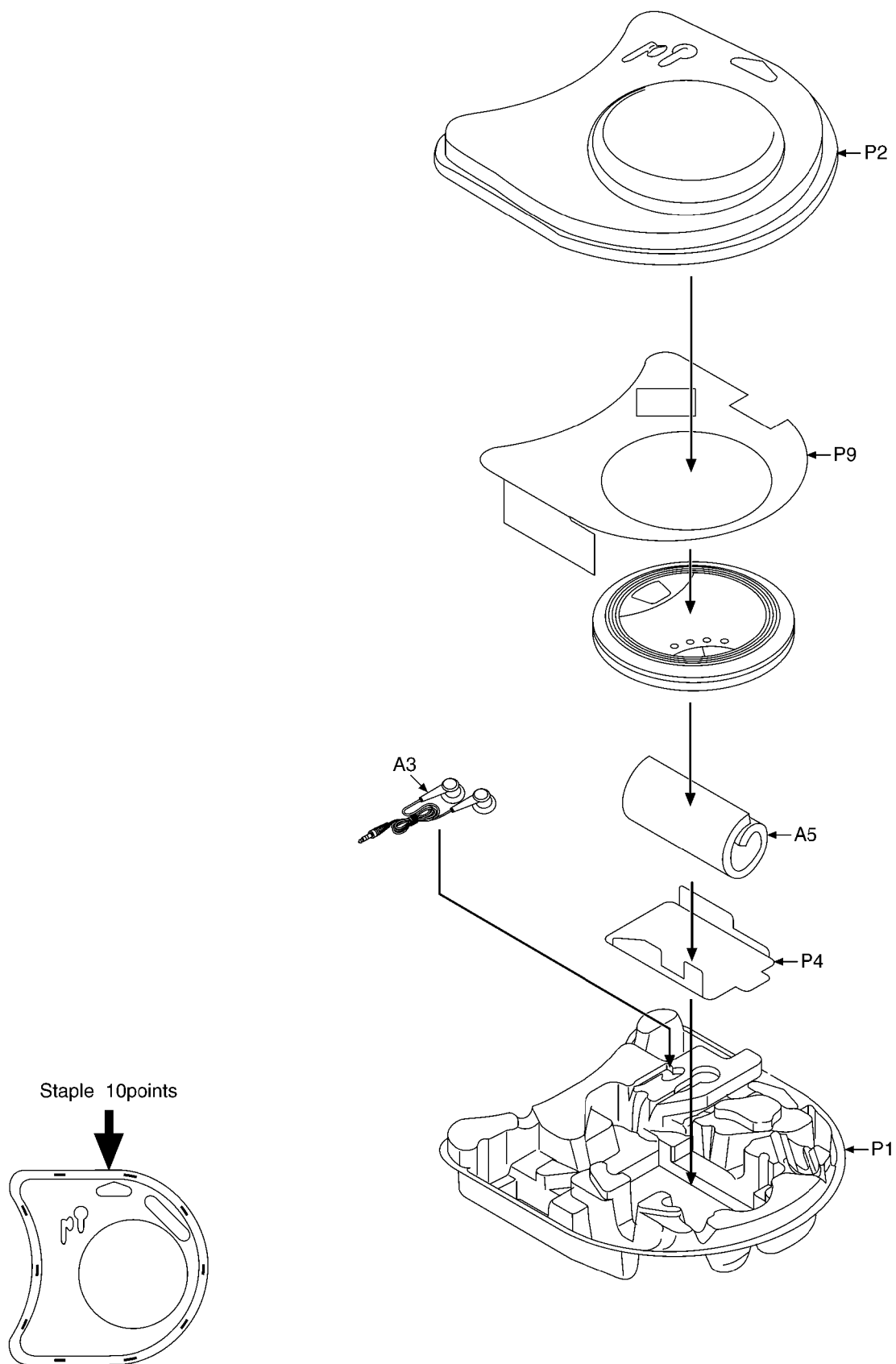
Note : We do not supply those items of parts marked *.

18 Packaging

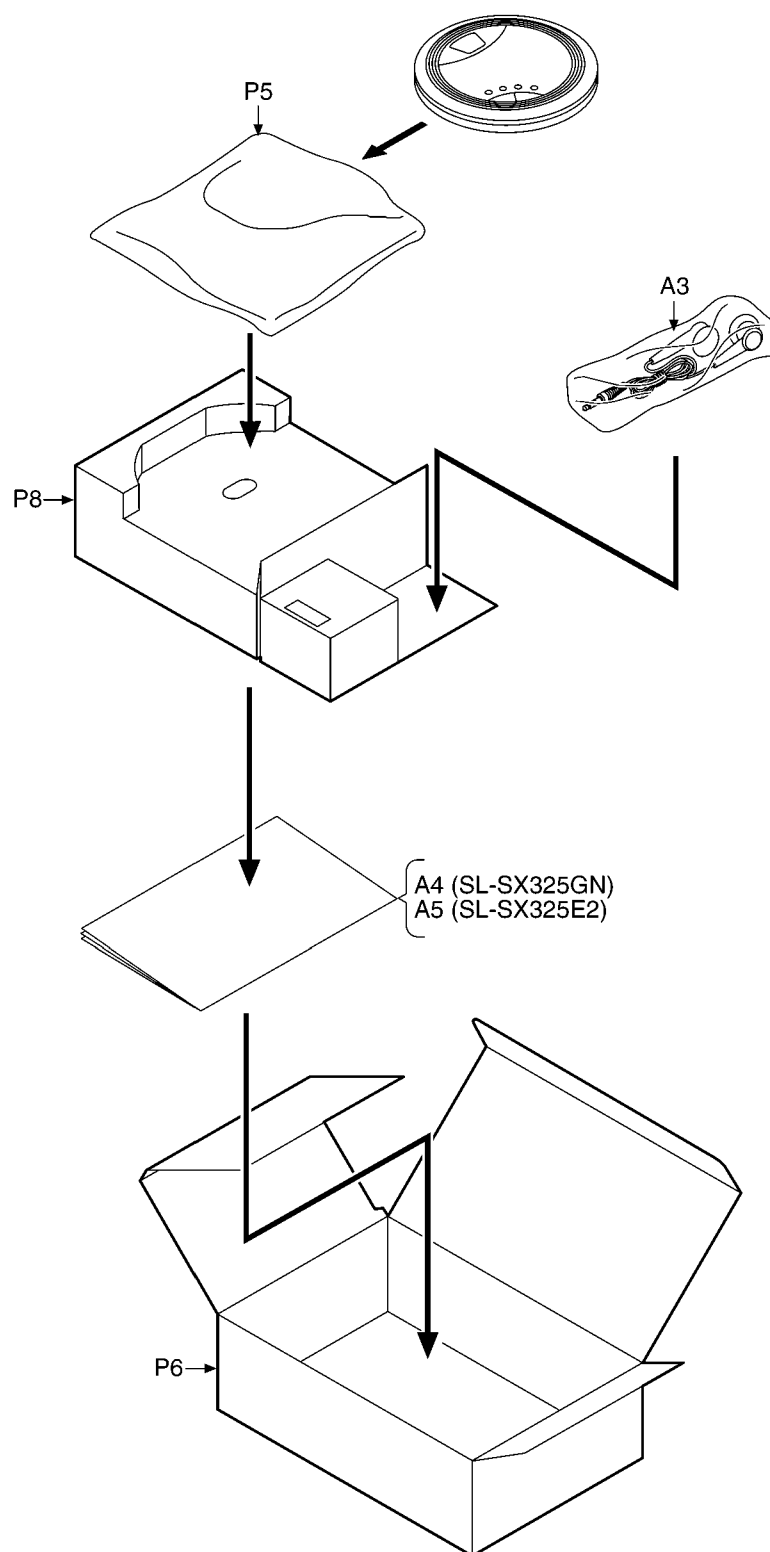
18.1. SL-SX325EB



18.2. SL-SX325EG



18.3. SL-SX325E2/GN



18.4. SL-SX330EB

