ORDER No.AD0402011C8

Service Manual

Portable CD Player

COMPACT disc DIGITAL AUDIO

SL-SX330EG
SL-SX330GC
SL-SX332EB
SL-SX332EG

Colours

(S).....Silver Type

(A).....Blue Type (SL-SX330 only)

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;	EG: AC 220V - 230V 50/60Hz
	EB: AC 220V - 240V 50/60Hz
	GC: AC 110V - 127V / 220V - 240V 50/60Hz

Power condumption:

Using AC adaptor;	EB and EG: 0.8W
	GC: 3.6W
Recharging;	EB andEG: 3.2W
	GC: 6.1W

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

2optional 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

Panasonic

Note:

Specifications are subject to change without notice.

Mss and dimensions are approximate.

Note on CD-R and CD-RW:

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.
*Finalizingisa 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.

CONTENTS

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 manufactures specified replacement pickup only.
6. Use of control or adjustments or performance of procedures other than those specified herin may result in hazardous radiation exposure.

CAUTION:

This product utilizes a liser diode with the unit turned “on”, invisible laser radiation is emitted from the pickup lens.
Wave length: 780nm
Maximum output wadiation power from pickup: 100 µW/VDE
Laserradiationfromthepickup lens is 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.

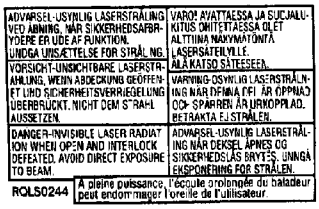
ACHTUNG:

Dieses Produkt enthalt eine Laserdiode. Im eingeschalteten Zustand Wird unsichtbare Leserstrahlung von der Lasereinheit abgestrahlt.
Wellenlage: 780nm
Maximale Strahlungsleistung der Lasereinheit: 100 µW/VDE
Die StrahlungasderLasereinheitist ungefahrlich, wenn folgende Punkte beachtet werden:

1. Die Lasereinheit nicht zeriegen, de die Strahlung an der freigelegten Laserdiode gefahrlich ist.
2. Denwerkseitig Justierten Einstellregler der Lasereinhit nicht verstellen.

3. Nicht mit optischen Instrumenten in die Fokussierlines blicken.
4. Nicht uber langere Zeit in die Fokussierlines blicken.

(Bottom of product)



(Inside of product)

2 Accessories

SL-SX330

For all area:

- Stereo earphones.....1 pc.
  (L0BAB0000182)

For EG area:

- AC adaptor.....1 pc.
  (RFEA431E-S)

For GC area:

- AC adaptor.....1 pc.
  (N0JDCE000001)
- AC plug adaptor.....1 pc.
  (K2DA42E00001)

SL-SX332

For all area:

- Stereo earphones.....1 pc.
  (L0BAB0000183)
- Wired remote control.....1 pc.
  (N2QCBD000010)

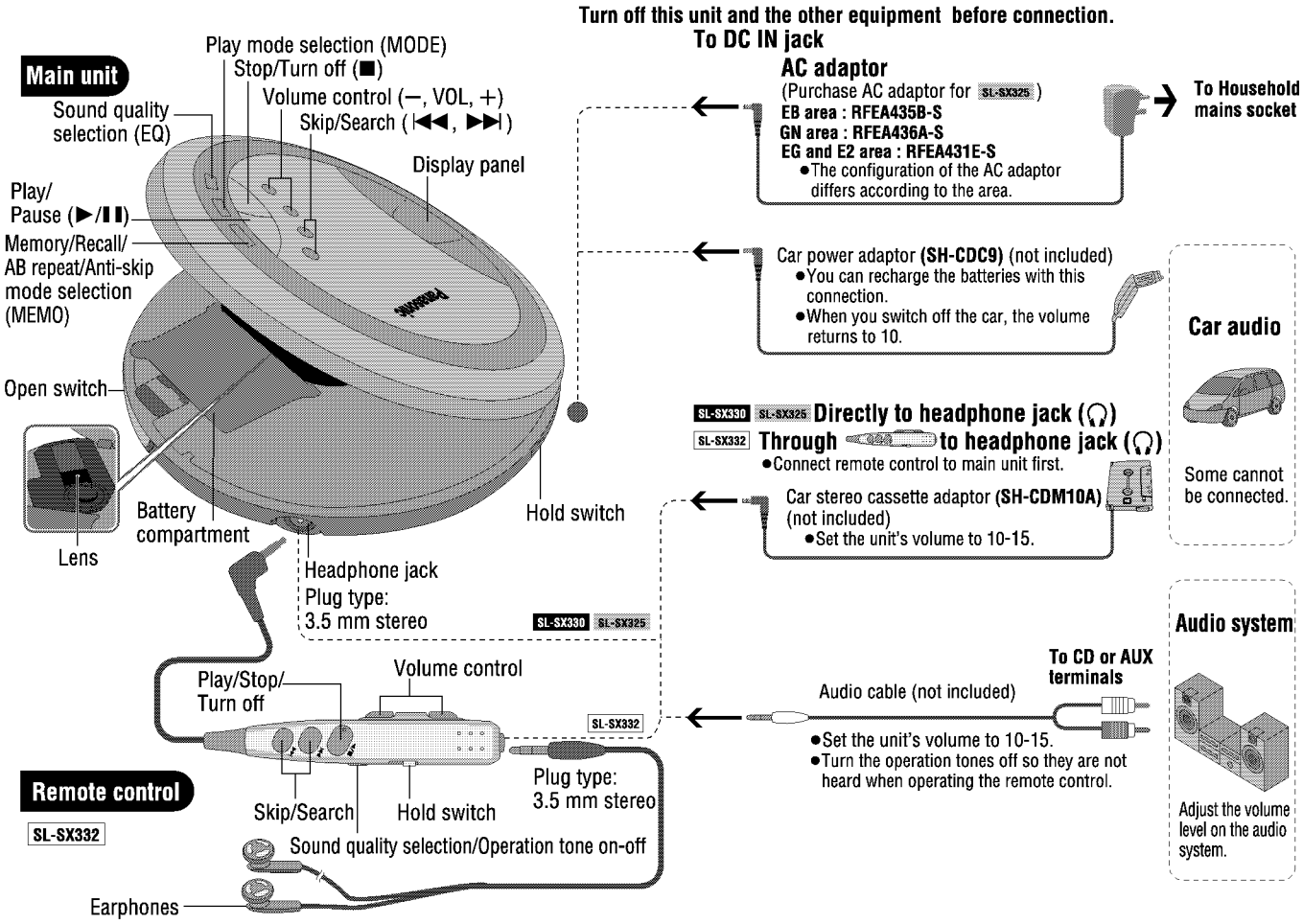
For EB area:

- AC adaptor.....1 pc.
  (RFEA435B-S)

For EG area:

- AC adaptor.....1 pc.
  (RFEA431E-S)

3 Location of Controls / Connection to other equipment



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 intothetipofthe 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**)

Handling Precautions for Traverse Deck

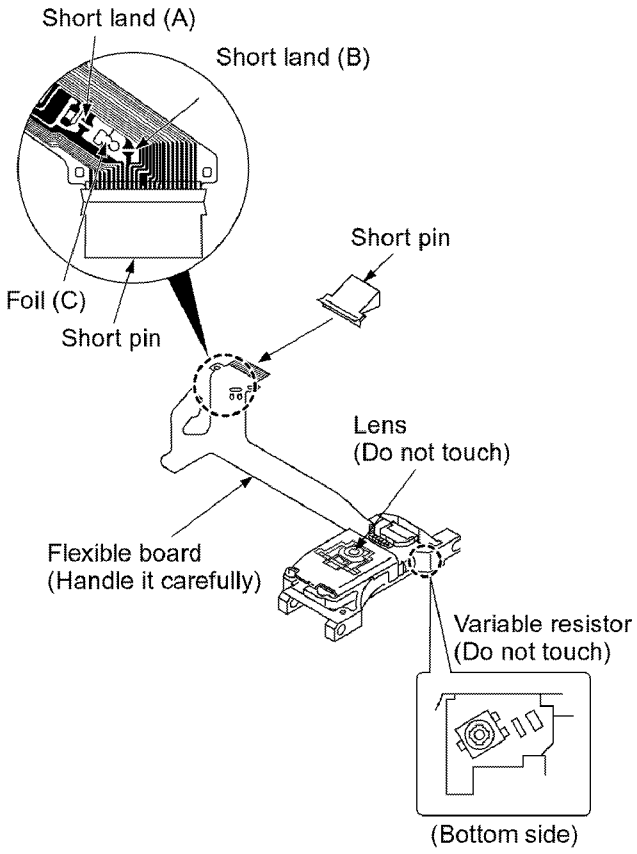


Fig. 1

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 fround 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).

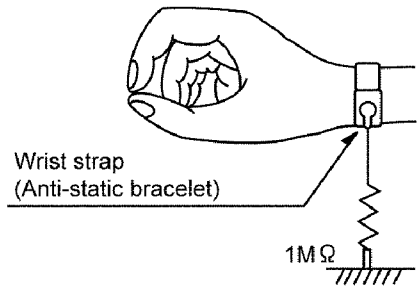


Fig. 2

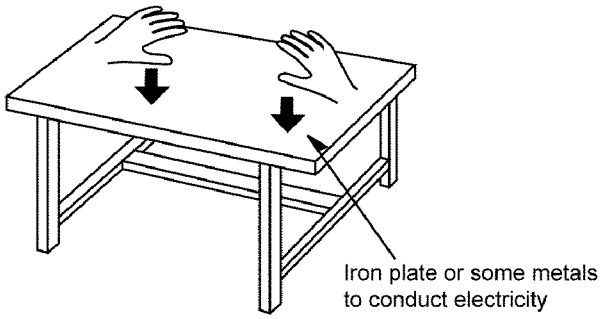


Fig. 3

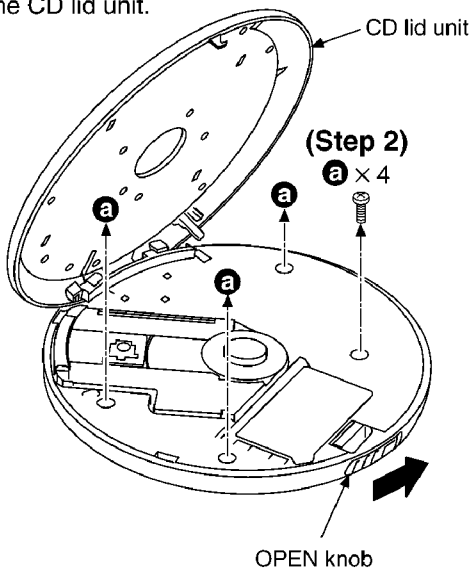
5 Operation Checks and Component Replacement Procedures

- **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.**

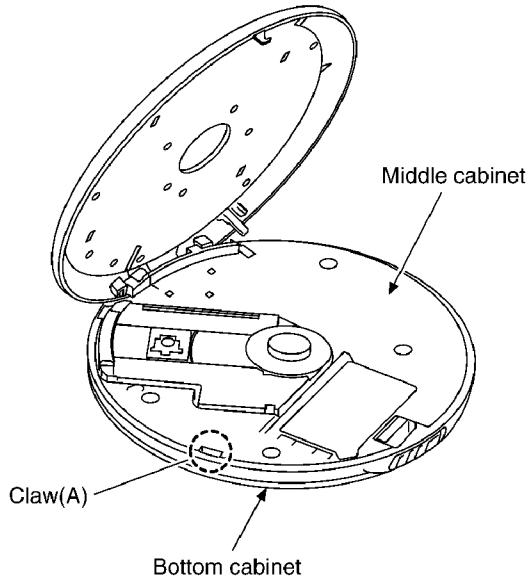
5.1. Checking for the P.C.B. ass'y

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

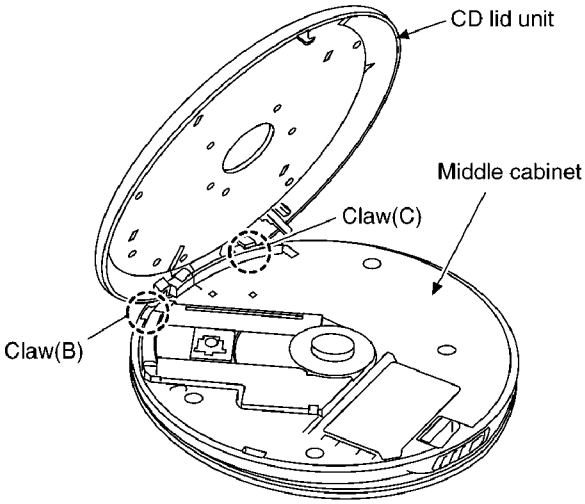
(Step 1)
Sliding the OPEN knob to right, open the CD lid unit.



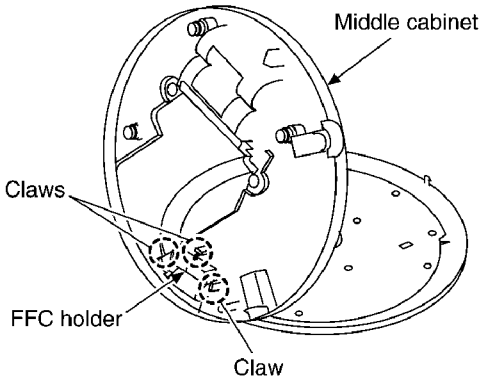
(Step 3)
Release the claw (A), and then spread the clearance between the bottom cabinet and middle cabinet manually.



(Step 4)
Release the claw (B) and (C), and then remove the middle cabinet and CD lid unit.

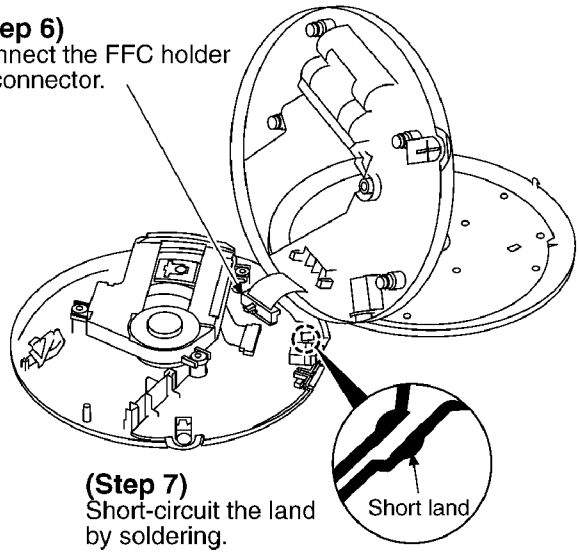


(Step 5)
Release the 3 claws, and then remove the FFC holder.

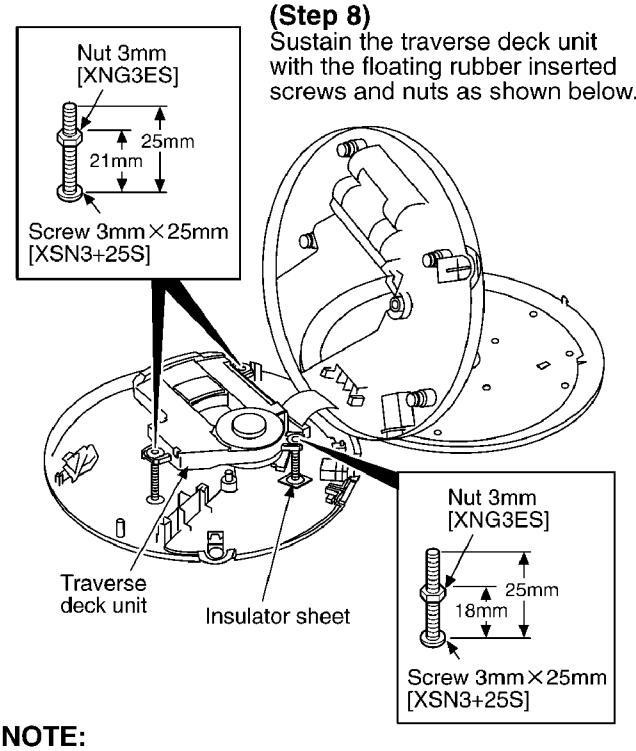


(Step 6)
Connect the FFC holder to connector.

(Step 7)
Short-circuit the land by soldering.



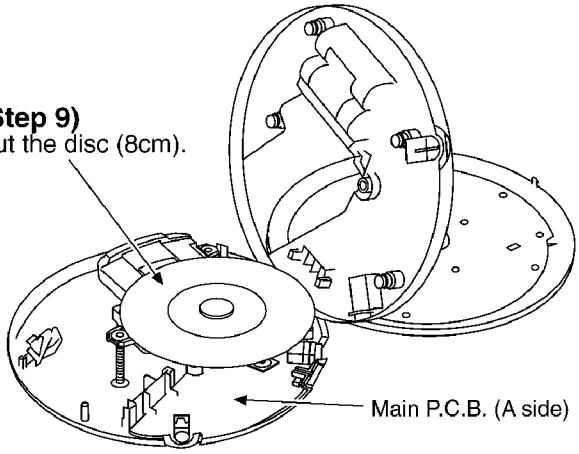
(Step 8)
Sustain the traverse deck unit with the floating rubber inserted screws and nuts as shown below.



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.

(Step 9)
Put the disc (8cm).



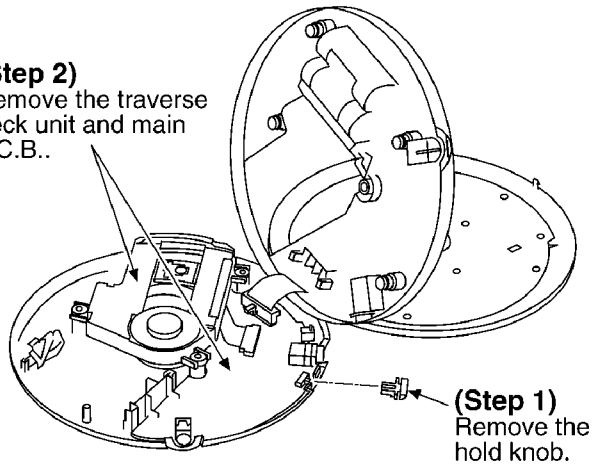
NOTE:
After checking, unsolder the short land to open circuit.

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

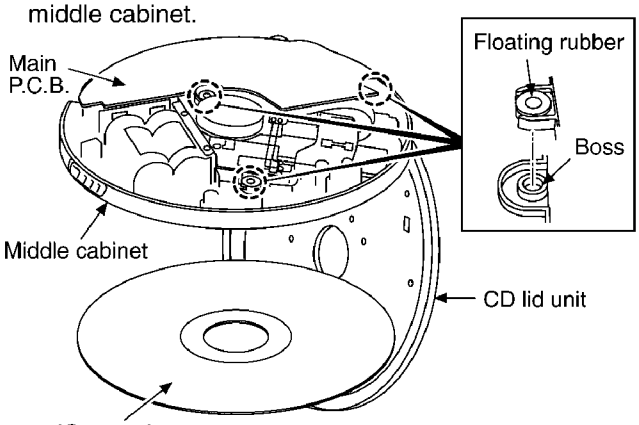
• Follow the (Step1)-(Step7) of item 5.1.1.

(Step 2)
Remove the traverse deck unit and main P.C.B..

(Step 1)
Remove the hold knob.



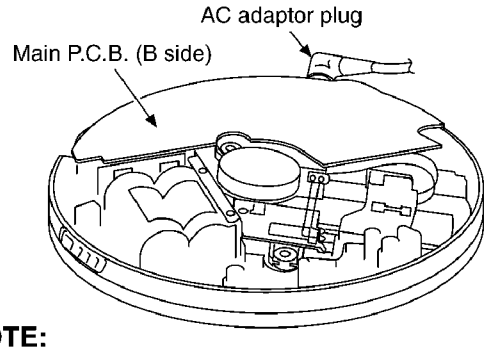
(Step 3)
Align the floating rubbers with bosses, and then locate the traverse deck unit and main P.C.B. on the middle cabinet.



(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.

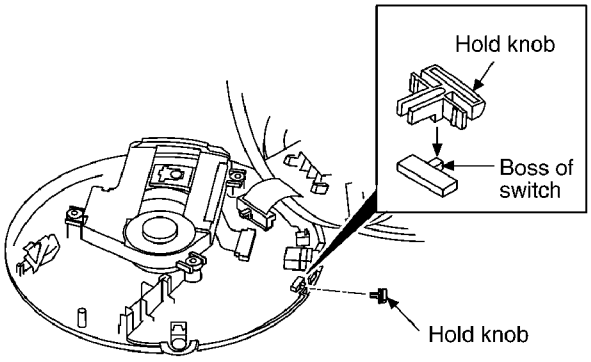
(Step 5)
Insert the AC adaptor plug into the DC IN jack, and then apply the power.



NOTE:
After checking, unsolder the short land to open circuit.

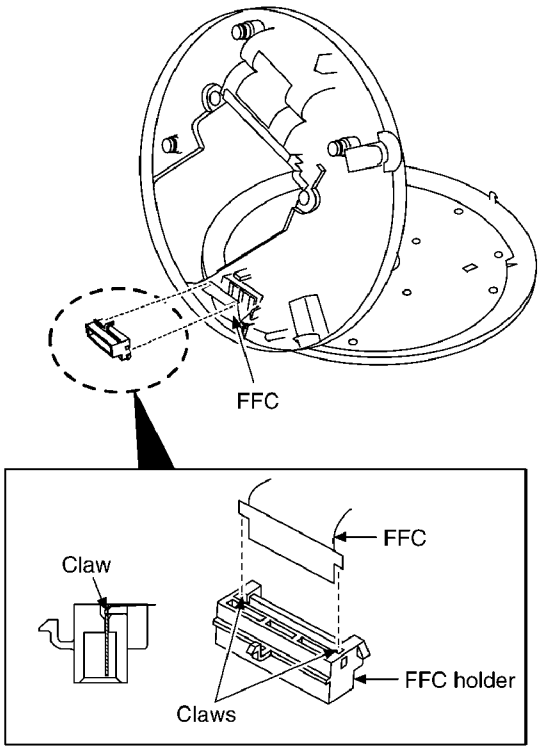
Notice for installation of hold knob

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

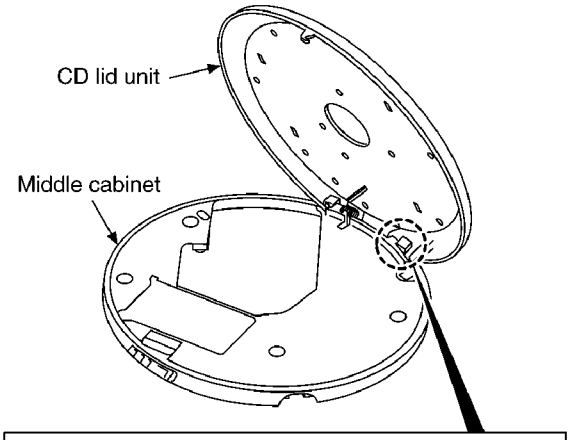


5.2. Replacement for the CD lid unit and open spring

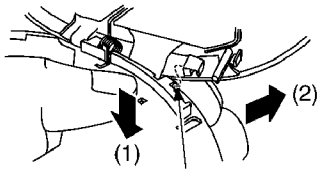
- Follow the (Step1)-(Step5) of item 5.1.1.



(Step 1)
Release the 2 claws, and then remove the FFC from FFC holder.

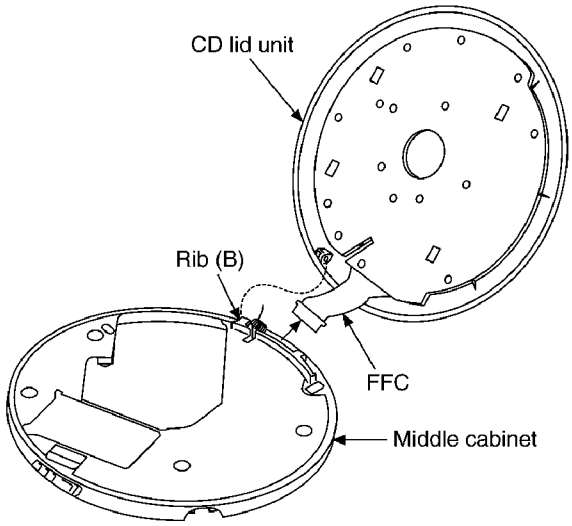


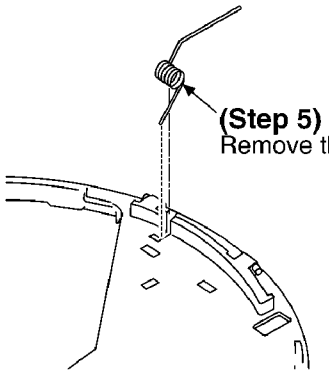
(Step 2)
Push the middle cabinet direction of arrow (1), and then remove the CD lid unit from rib (A).



(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.)



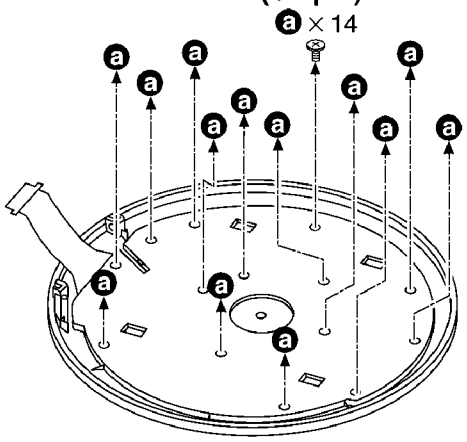


(Step 5)
Remove the open spring.

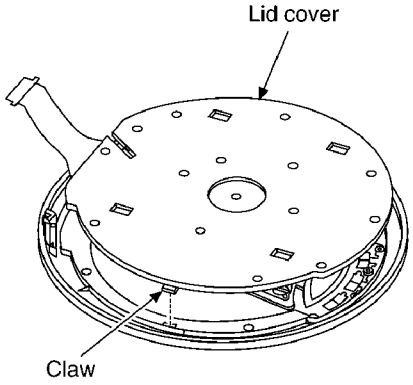
5.3. Replacement for the LCD, operation button A, operation button B, ornament ring and multi button SW unit

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

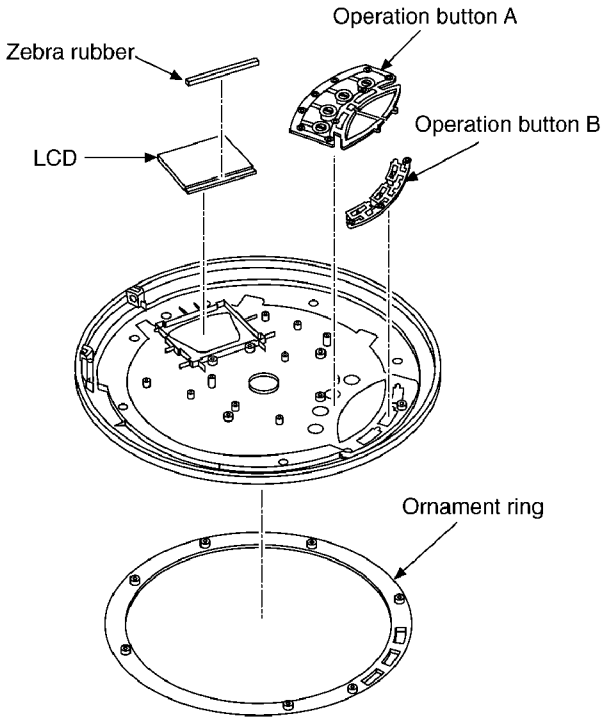
(Step 1)



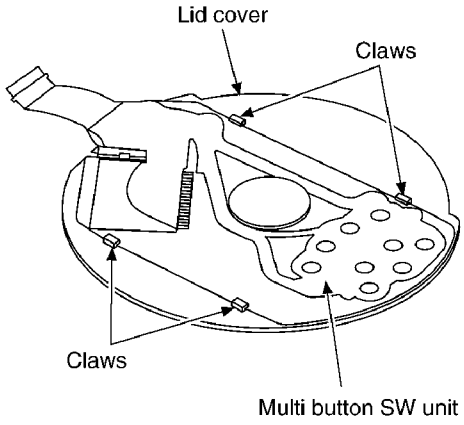
(Step 2)
Release the claw, and then remove the lid cover.



(Step 3)
The parts illustrated below will be free.



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



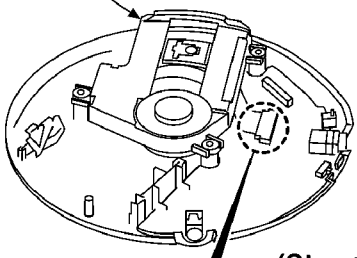
5.4. Replacement for the traverse motor

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

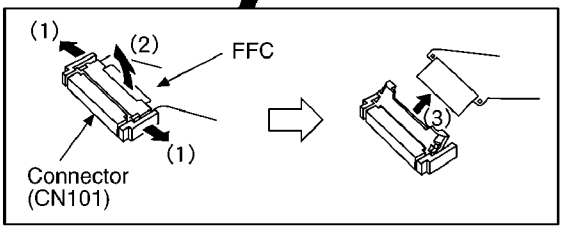
NOTE:

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

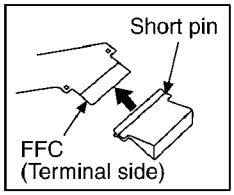
(Step 2)
Remove the traverse deck unit.



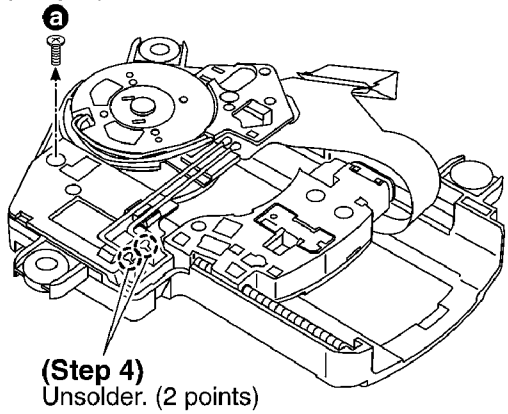
(Step 1)
Pull out the FFC from connector (CN101).



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

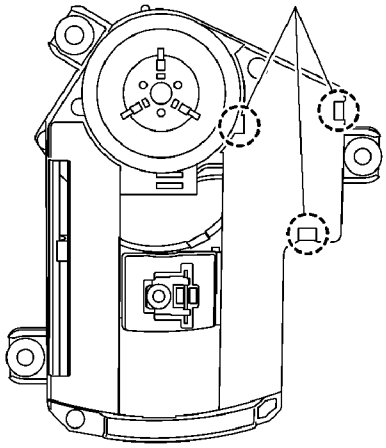


(Step 3)

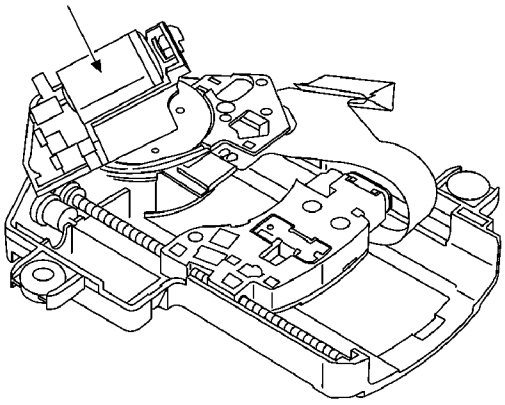


(Step 4)
Unsolder. (2 points)

(Step 5)
Release the 3 claws.



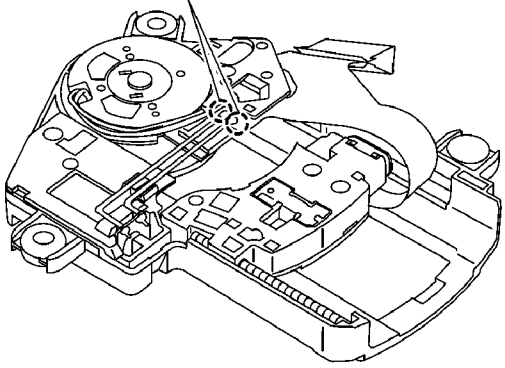
(Step 6)
Remove the traverse motor.



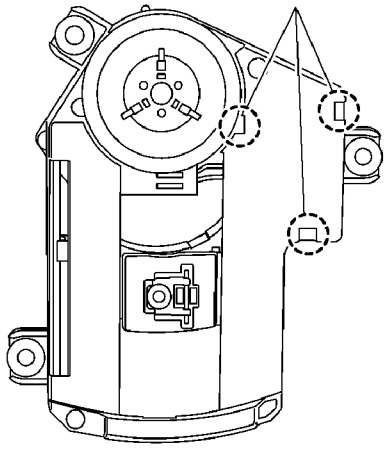
5.5. Replacement for the optical pick-up

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

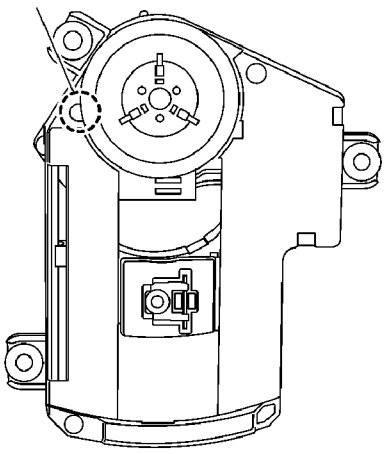
(Step 1)
Unsolder. (2 points)



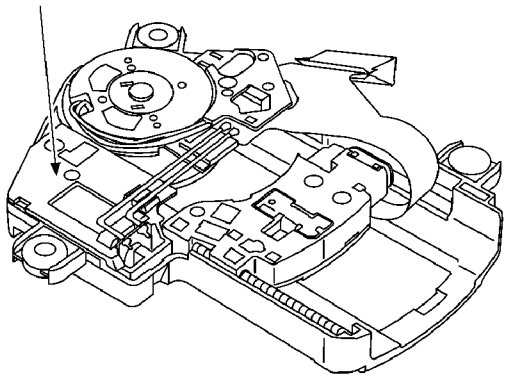
(Step 2)
Release the 3 claws.



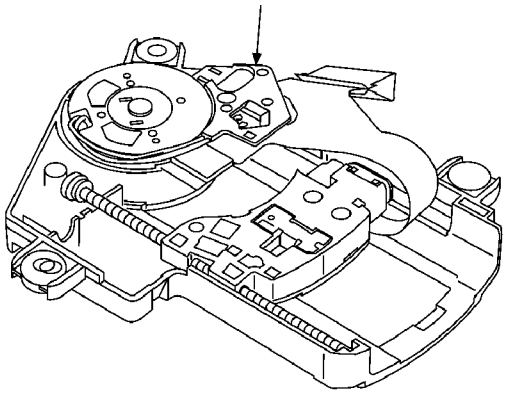
(Step 7)
Release the claw.



(Step 3)
Remove the holder and traverse motor.

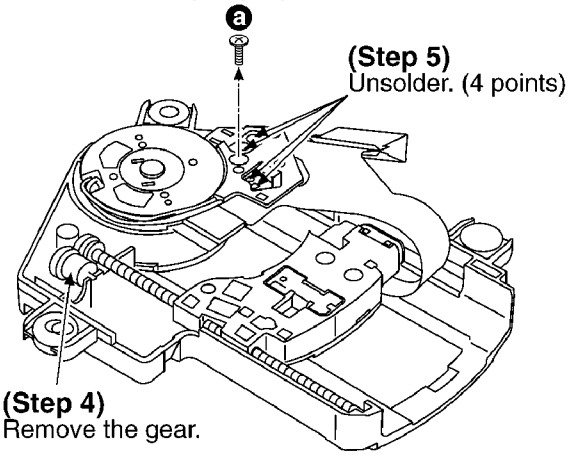


(Step 8)
Remove the FFC holder.



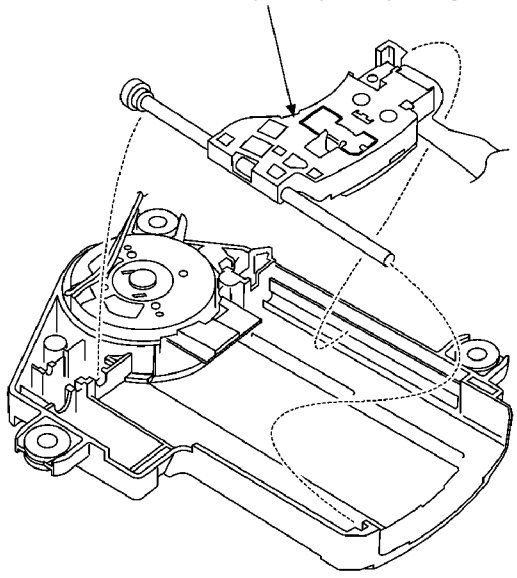
(Step 6)
ⓐ

(Step 5)
Unsolder. (4 points)

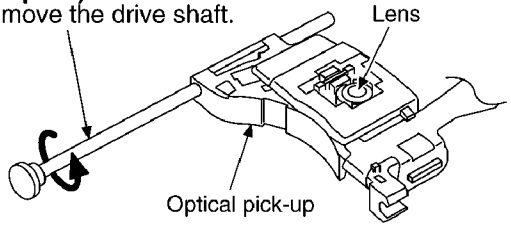


(Step 4)
Remove the gear.

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



(Step 10)
Remove the drive shaft.



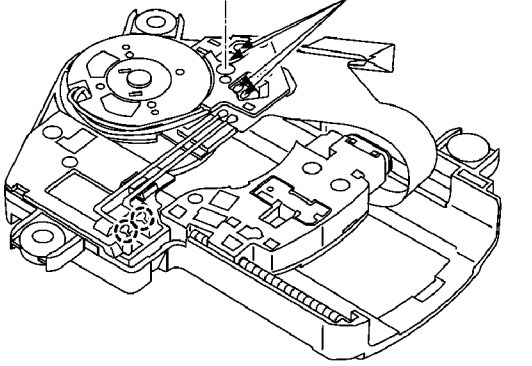
NOTE:
1. Use care to prevent damage the optical pick-up, due to the precision construction.
2. Do not apply the grease on the lens of optical pick-up.
3. Do not touch the lens of the optical pick-up.

5.6. Replacement for the rest switch

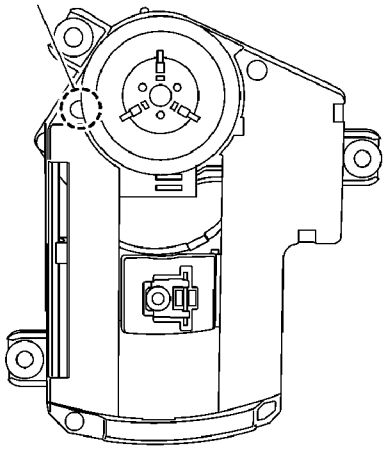
- Follow the (Step1)-(Step4) of item 5.1.1.
- Follow the (Step1), (Step2) of item 5.4.

(Step 1)
ⓐ

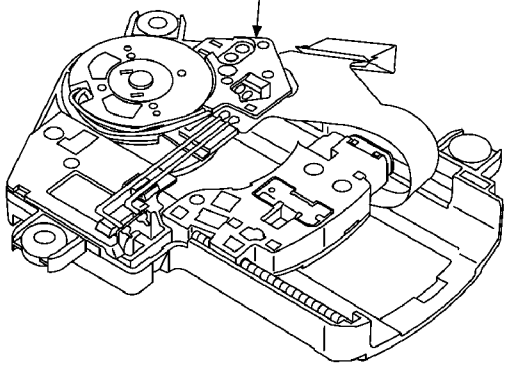
(Step 2)
Unsolder. (4 points)

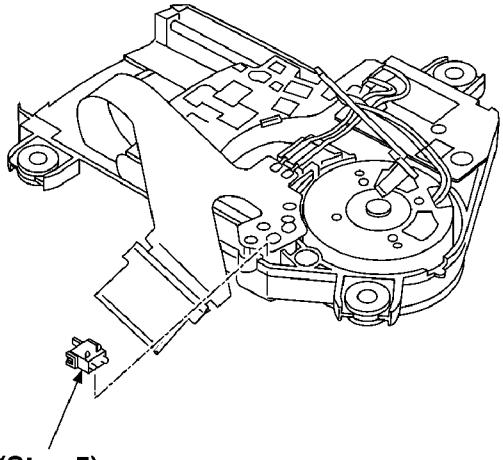


(Step 3)
Release the claw.



(Step 4)
Remove the FFC holder.





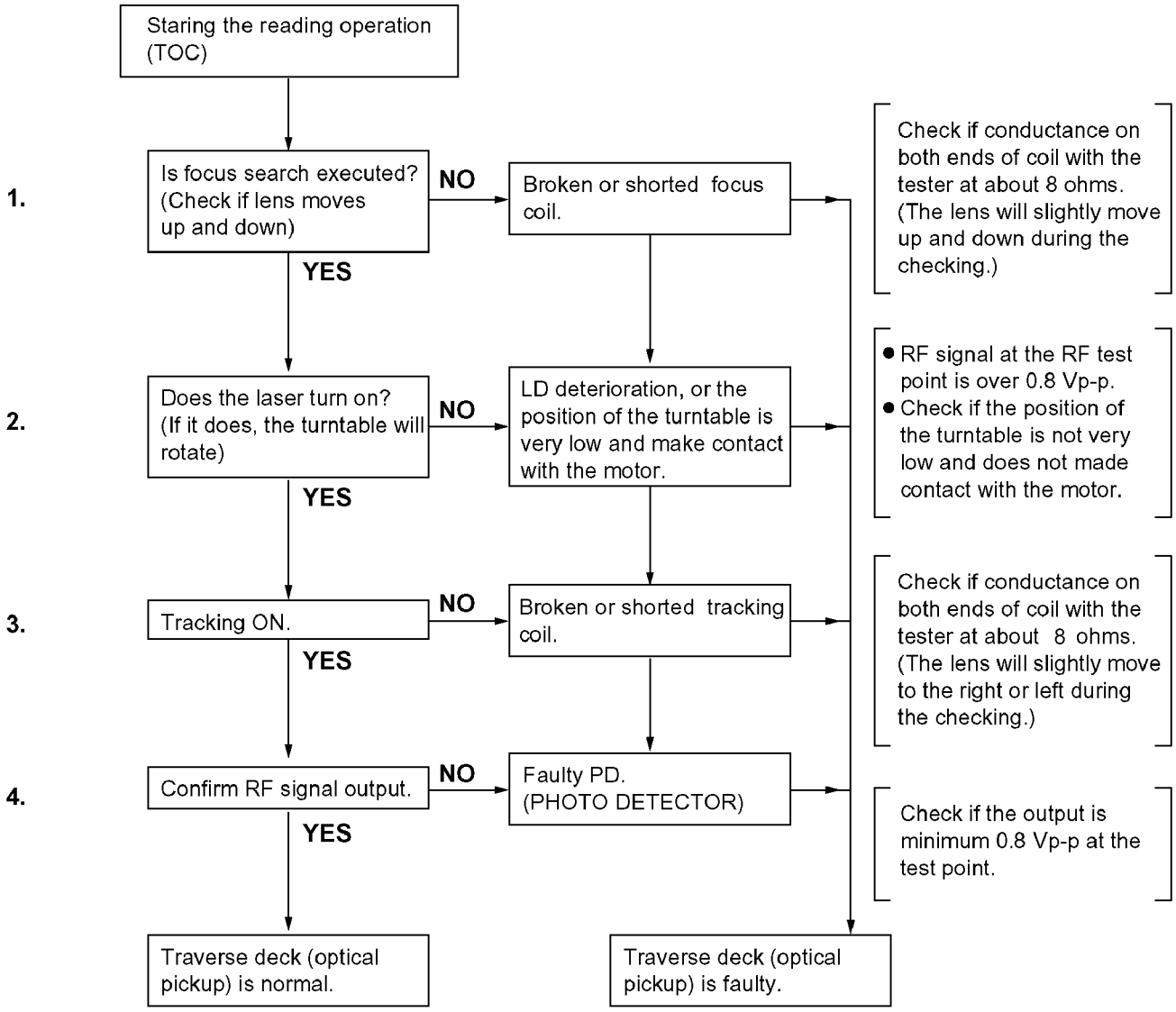
(Step 5)
Remove the rest switch.

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)**



※Replace the traverse deck.

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

●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.

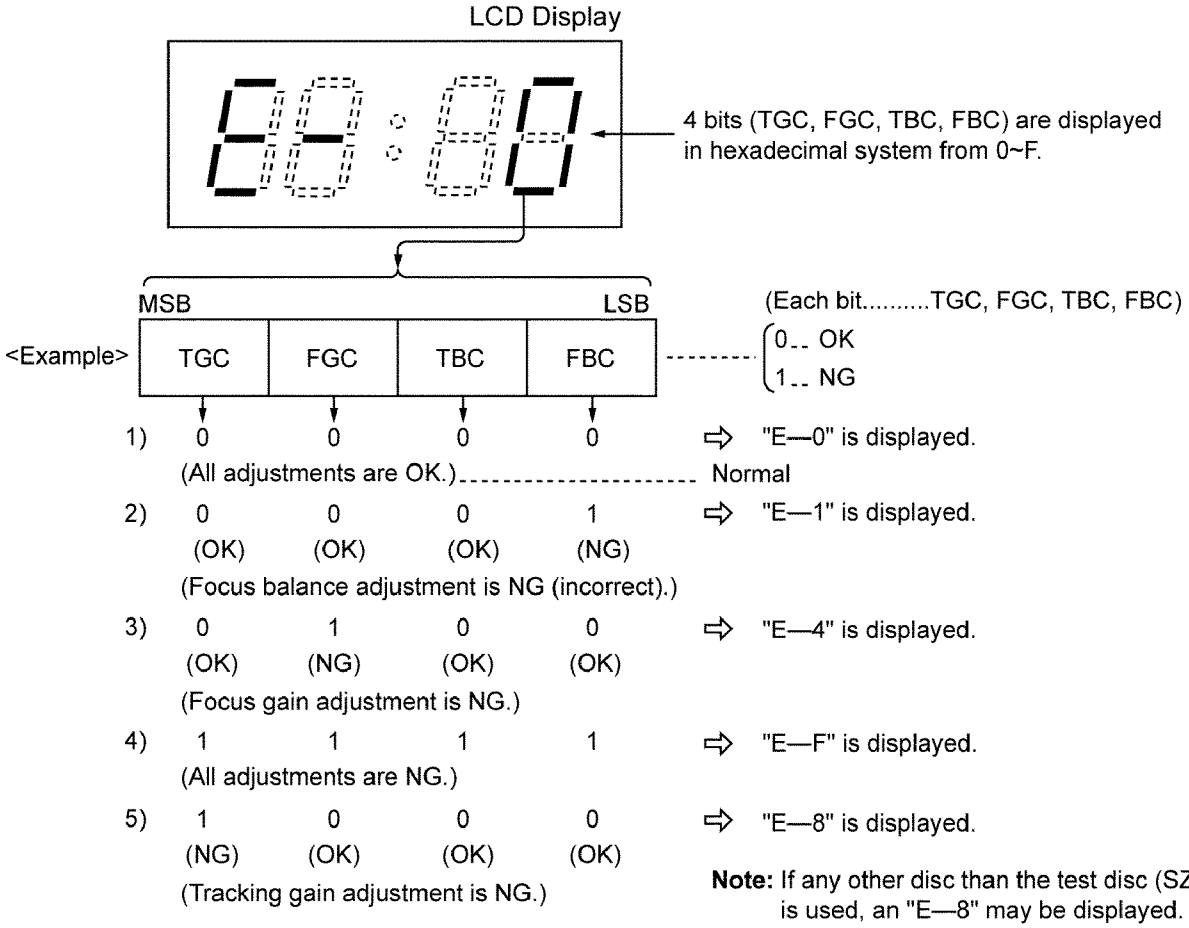
7 Automatic Adjustment Results Display Function (Self-check Function)

On these units (SL-SX330/SL-SX332), 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 thecontentsof the automaticadjustmentresultdisplays (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 pressthe ▶ / ⏸ (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)



Note: If any other disc than the test disc (SZZP1054C) is used, an "E—8" may be displayed.

<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.

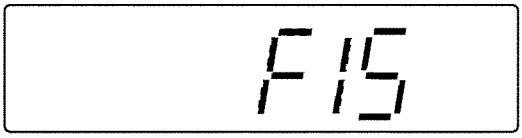
Note:

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

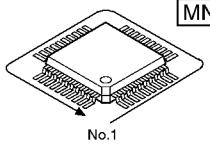
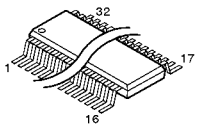
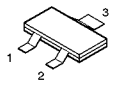
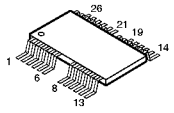
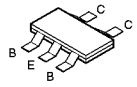
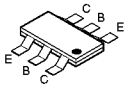
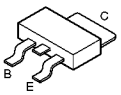
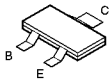
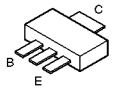
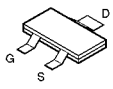
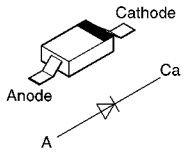


(Press PLAY and STOP button. After 15 seconds,it is displayed for 2 seconds.)

"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)orthemagnetichead 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

AN41507A-VB 48PIN C2BBFD000493 80PIN MN662788SD 100PIN 	AN22003A-NF 	C0CBAAB00043 	C3ABMB000027 	XP0121000L 	
B1GFGCAA0001 	2SB1182TLPQR 	2SB709ATX UN5113TX UN5114TX UN5213TX UN5215TX UN521LTX 	B1ABMD000004 	2SK1958T1 B1CHGD000004 	MA111TX 

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 valuesandwaveformsdepending upon the internal impedance of the tester or measuring unit.

  Measurement conditions:

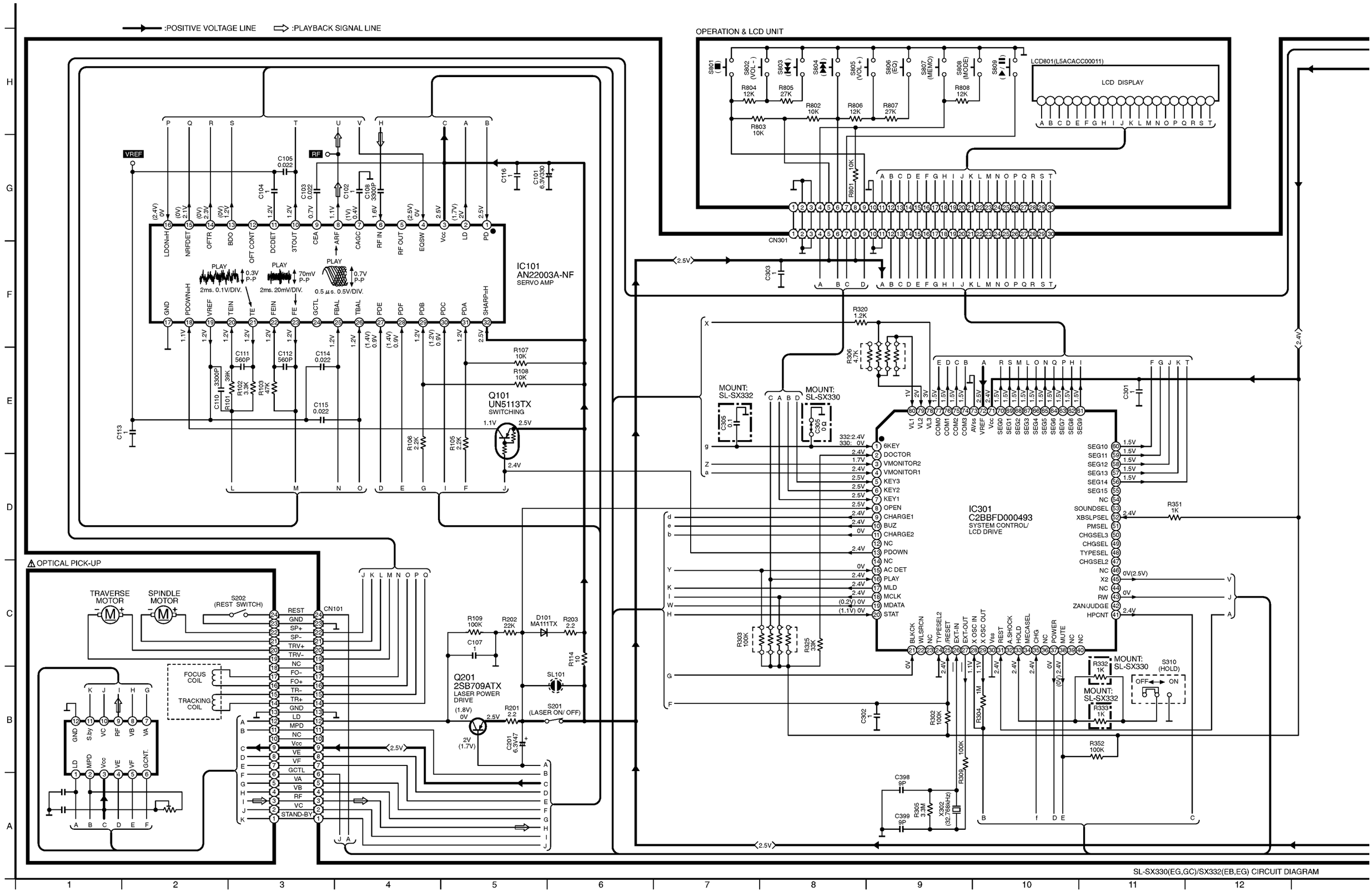
  *( ).....CD playback mode (Test disc 1kHz, L+R, 0dB)

  *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.

11 Schematic Diagram



:POSITIVE VOLTAGE LINE :PLAYBACK SIGNAL LINE

IC501
MN662788SD
SERVO PROCESSOR/
DIGITAL SIGNAL PROCESSOR/
DIGITAL FILTER &
D/A CONVERTER

IC11
AN41507A-VB
DC-DC CONV./
4ch MOTOR DRIVE

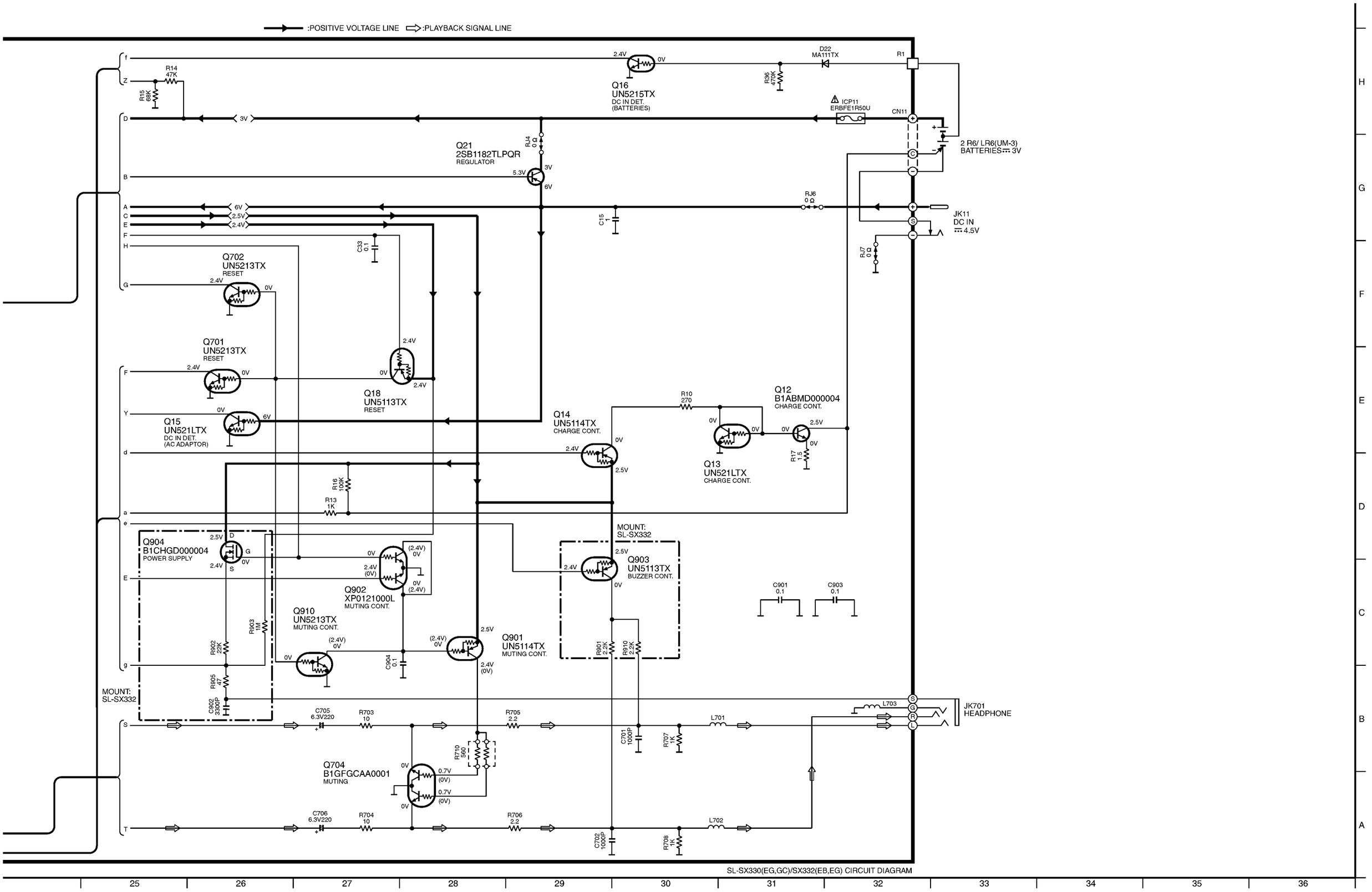
IC13
C0CBAAB00043
REGULATOR

IC502
C3ABMB000027
16M DRAM

Q502
2SK1958T1
SWITCHING

X501
(16.9344MHz)

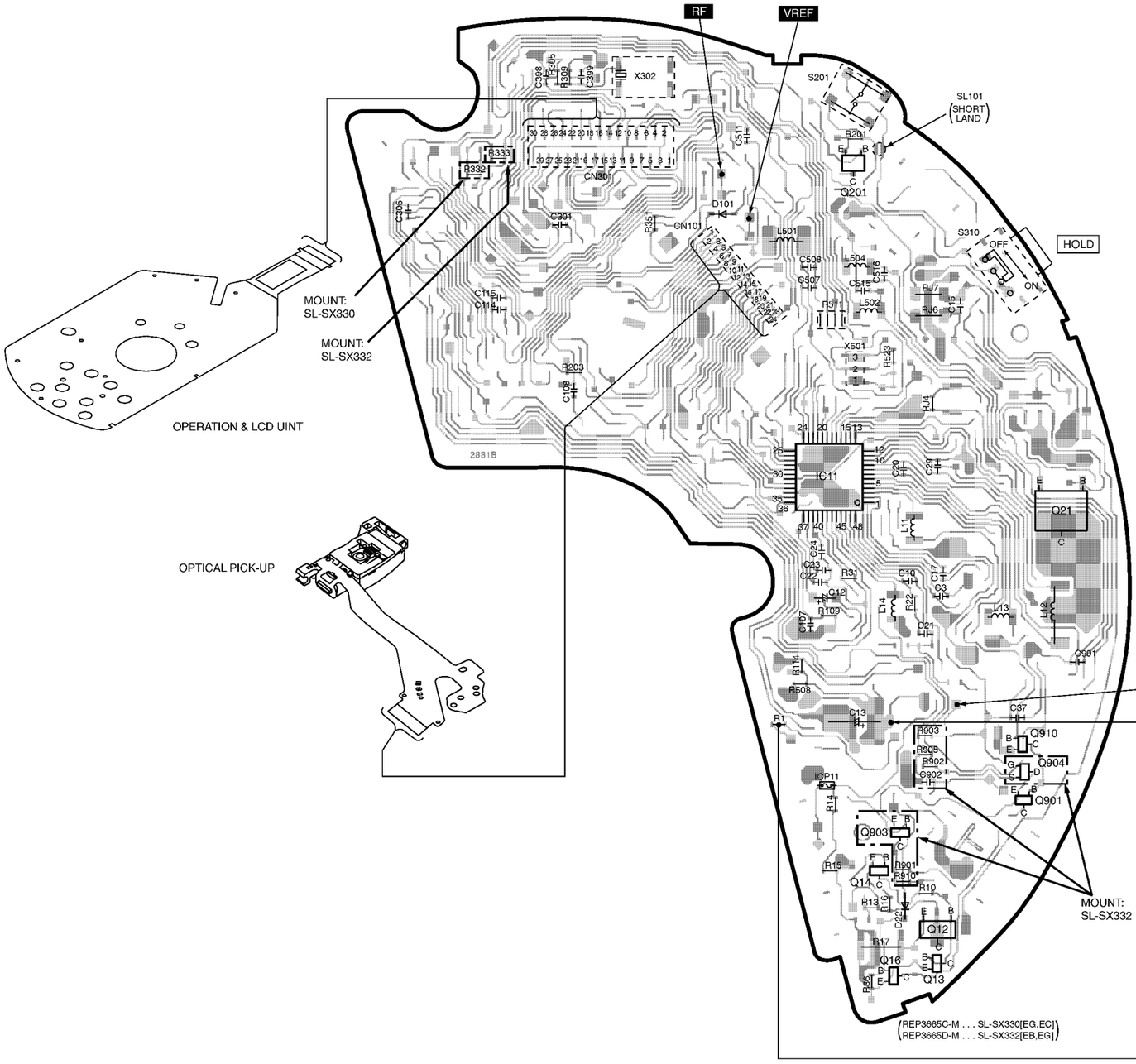
SL-SX330(EG,GC)/SX332(EB,EG) CIRCUIT DIAGRAM


:POSITIVE VOLTAGE LINE
:PLAYBACK SIGNAL LINE
Q16
UN5215TX
DC IN DET.
(BATTERIES)
D22
MA111TX
R1
R14
47K
R15
68K
R36
470K
ICP11
ERBFE1R50U
CN11
2 R6/ LR6(UM-3)
BATTERIES 3V
Q21
2SB1182TLPQR
REGULATOR
RJ4
0 Ω
RJ6
0 Ω
RJ7
0 Ω
C15
1
JK11
DC IN
4.5V
C33
0.1
Q702
UN5213TX
RESET
Q701
UN5213TX
RESET
Q18
UN5113TX
RESET
Q15
UN521LTX
DC IN DET.
(AC ADAPTOR)
Q14
UN5114TX
CHARGE CONT.
R10
270
Q12
B1ABMD000004
CHARGE CONT.
Q13
UN521LTX
CHARGE CONT.
R17
1.5
R16
100K
R13
1K
MOUNT:
SL-SX332
Q904
B1CHGD000004
POWER SUPPLY
Q902
XP0121000L
MUTING CONT.
Q910
UN5213TX
MUTING CONT.
Q901
UN5114TX
MUTING CONT.
Q903
UN5113TX
BUZZER CONT.
C901
0.1
C903
0.1
R903
1M
R902
22K
R905
47
C902
3300P
C904
0.1
R901
2.2K
R910
2.2K
C705
6.3V220
R703
10
R705
2.2
L703
JK701
HEADPHONE
L701
C701
1000P
R707
1K
R710
560
Q704
B1GFGCAA0001
MUTING
C706
6.3V220
R704
10
R706
2.2
L702
C702
1000P
R708
1K
SL-SX330(EG,GC)/SX332(EB,EG) CIRCUIT DIAGRAM

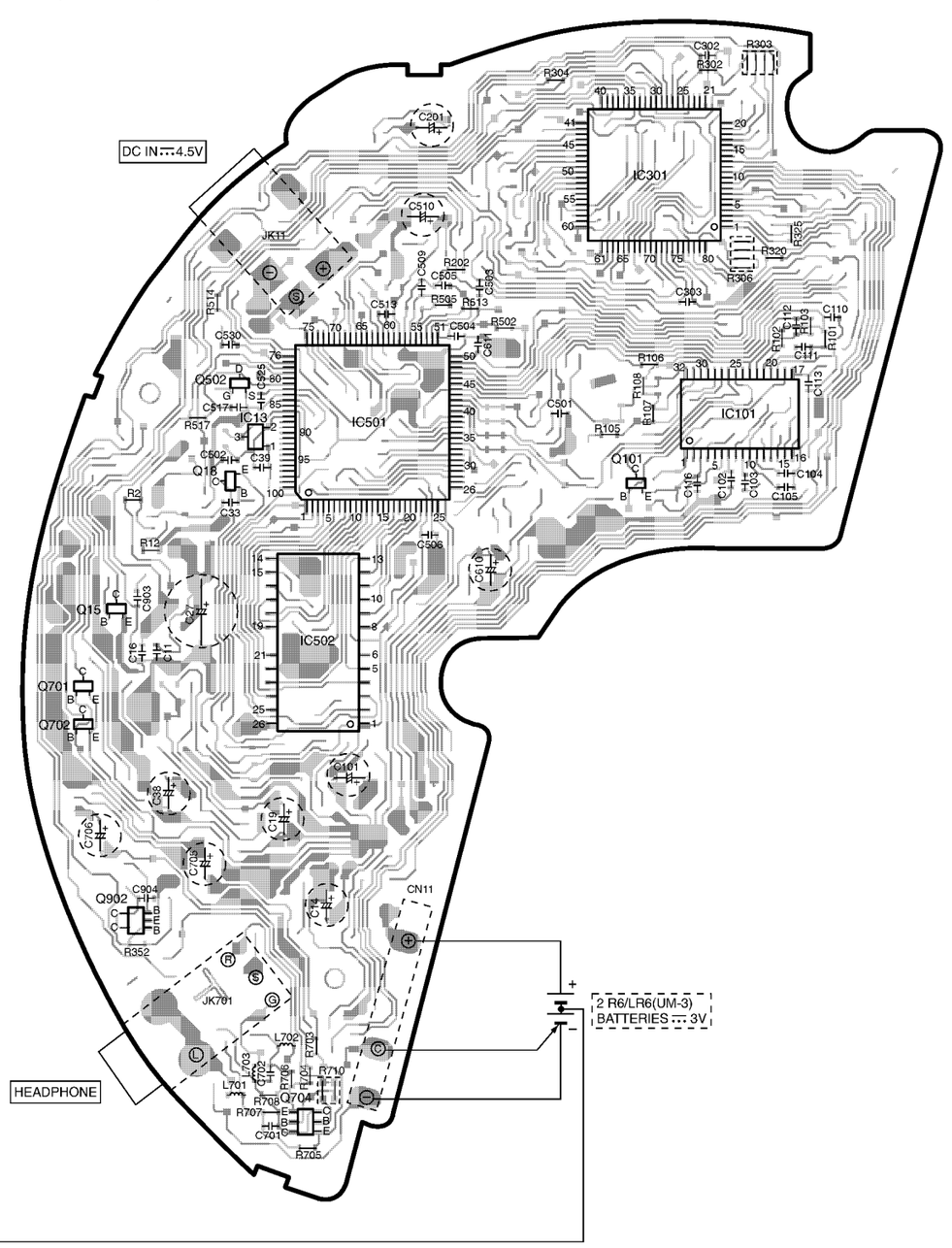
12 Printed Circuit Board and Wiring Connection Diagram

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

(SIDE: A)

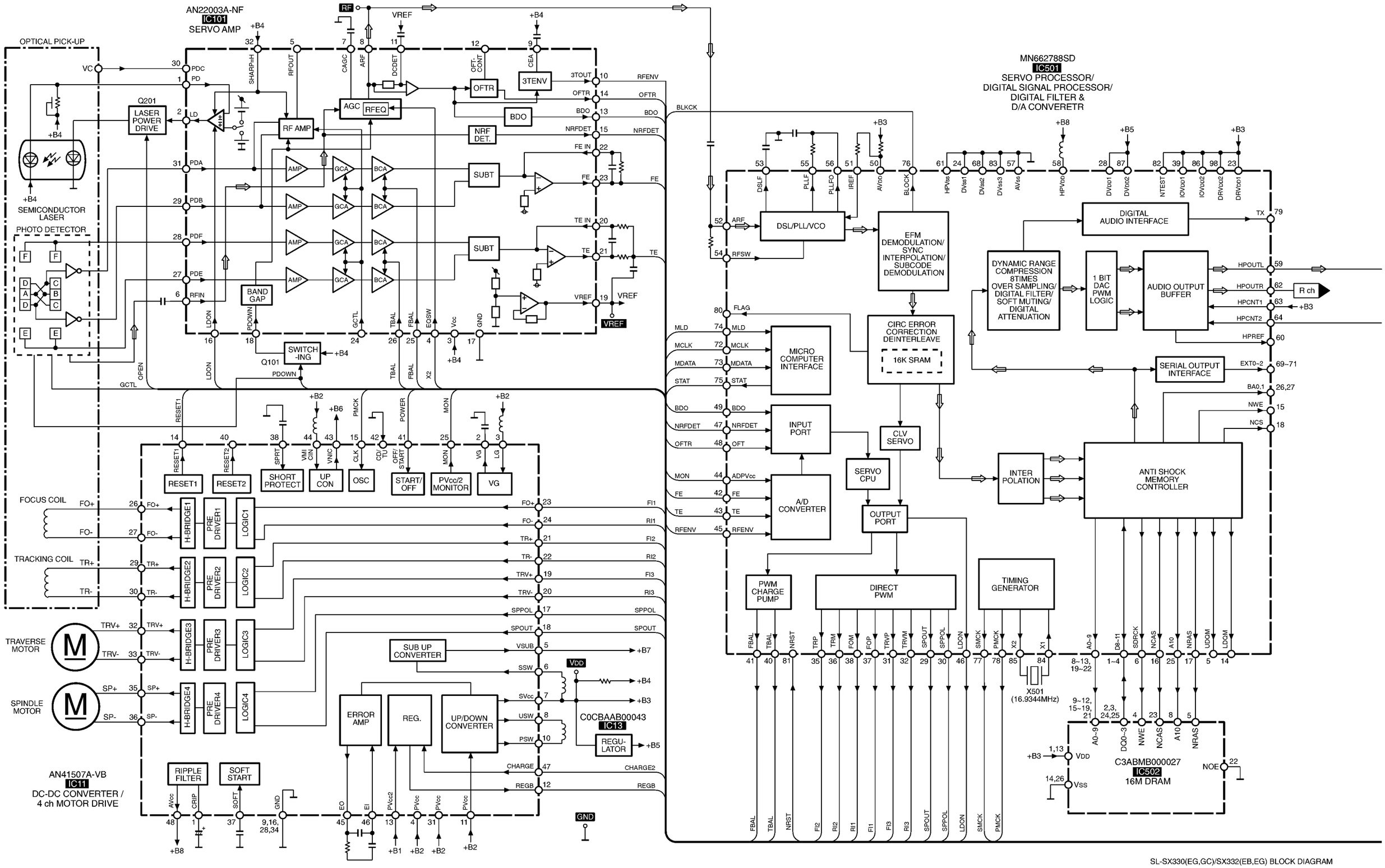


(SIDE: B)

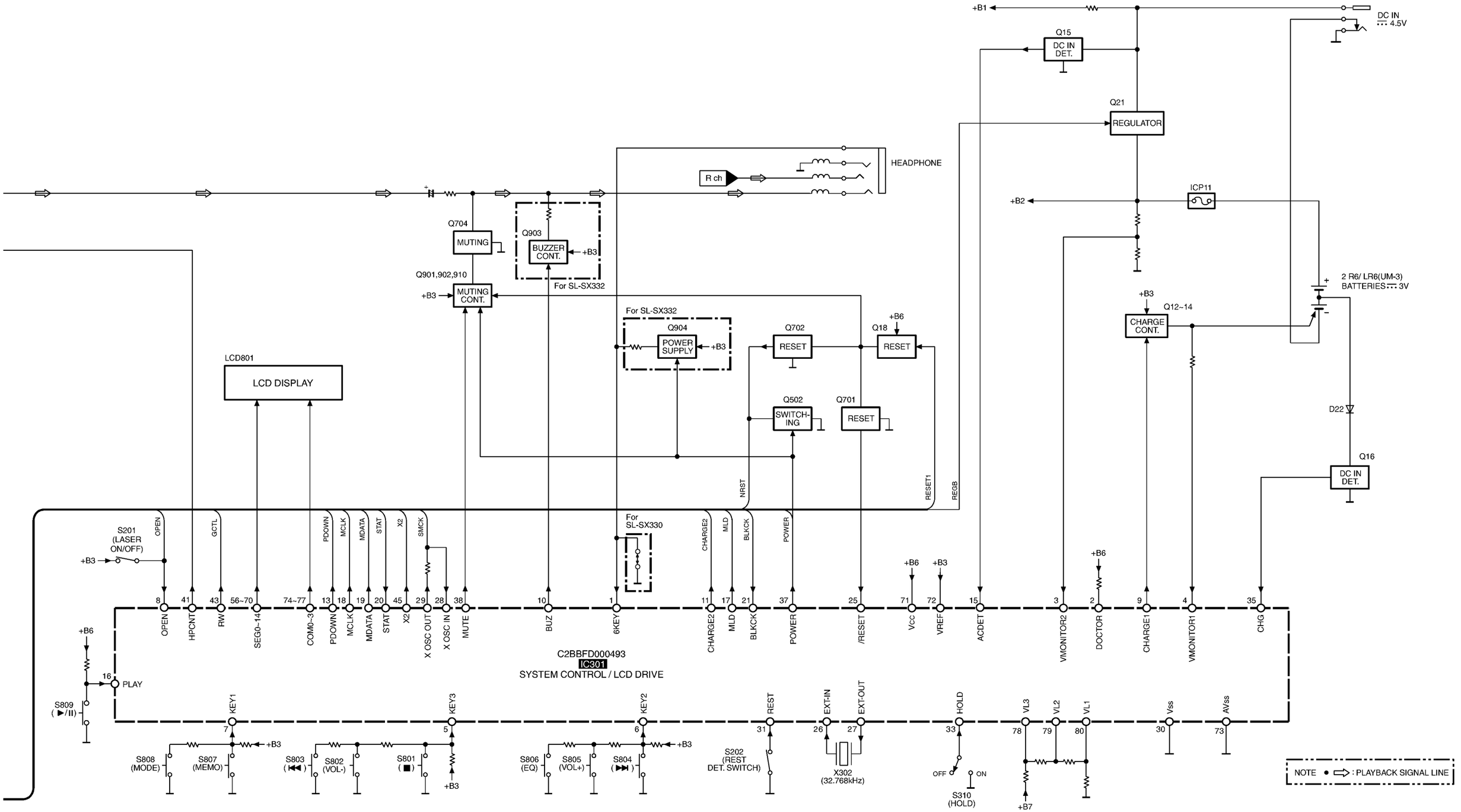


SL-SX330(EG,GC)/SX332(EB,EG) P.C.B.

13 Block Diagram



SL-SX330(EG,GC)/SX332(EB,EG) BLOCK DIAGRAM



SL-SX330(EG,GC)/SX332(EB,EG) 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	VMONITOR2	I	Battery remaining measurement/battery shorting detect signal input
4	VMONITOR1	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	O	Buzzer control output terminal
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
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/JUDGE	-	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	SOUNDSEL	-	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	DSLF	O	DSL loop filter
54	RFSW	I	DSL loop filter
55	PLLF	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 ⚠ 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.
(330EGA): SL-SX330EG-A
(330EGS): SL-SX330EG-S
(330GCA): SL-SX330GC-A
(330GCS): SL-SX330GC-S
(332EBS): SL-SX332EB-S
(332EGS): SL-SX332EG-S

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 (μF) 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 SPC.

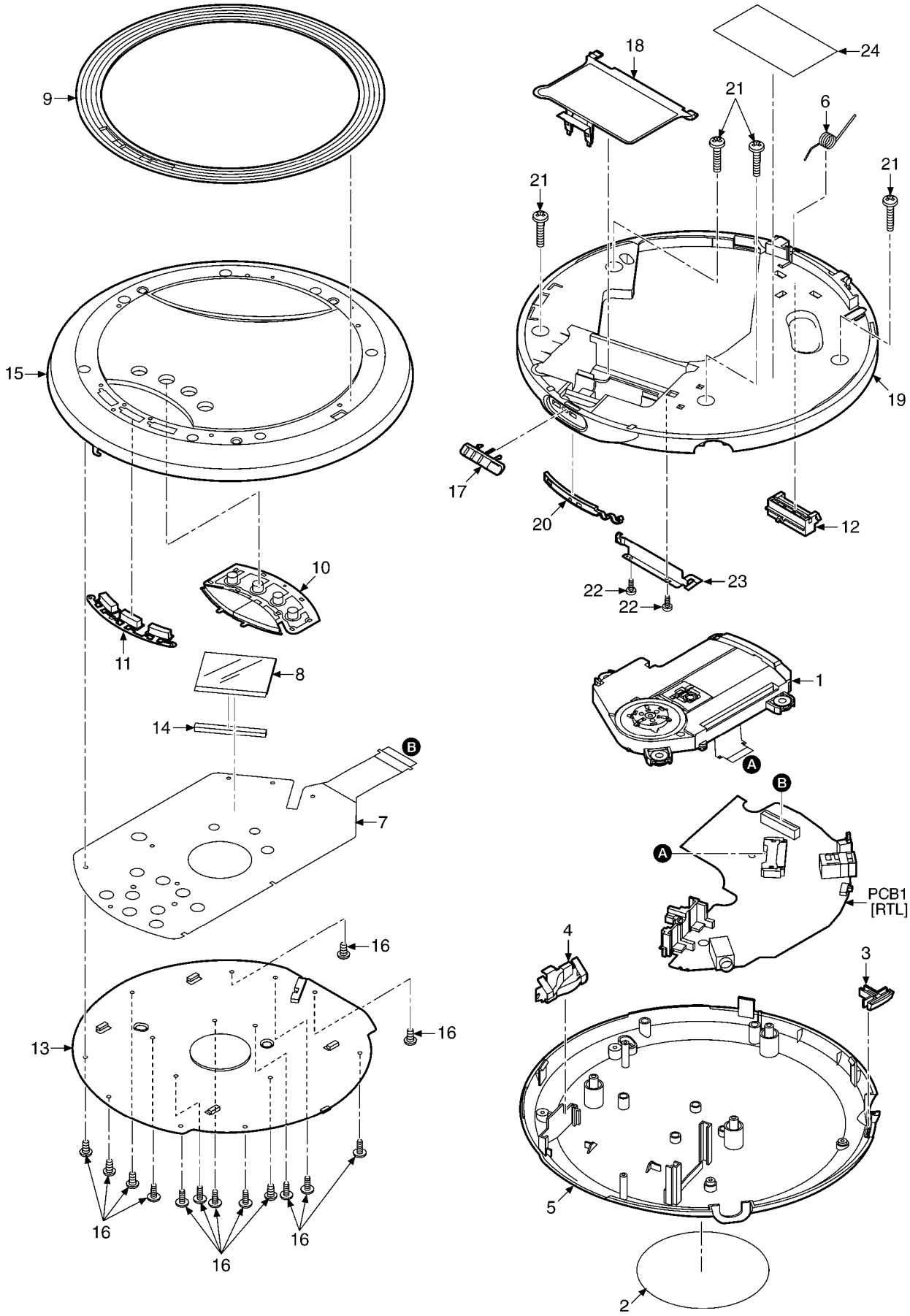
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
1	RAE0242Z-M	TRAVERSE DECK UNIT	1	⚠
1-1	RMG0605-K1	FLOATING RUBBER	3	
1-2	RAF0241A	OPTICAL PICK-UP	1	⚠
1-3	RDG0554	GEAR 1	1	
1-4	RDG0555	GEAR 2	1	
1-5	RMQ1125-1	MOTOR HOLDER	1	
1-6	RMS0782	SHAFT	1	
1-7	XQN17+BG45	SCREW	1	
1-8	RXQ0971-3	TRV MOTOR ASS'Y	1	
2	RGN2631-H1	NAME PLATE	1	(330EGA) (330EGS) ⚠
2	RGN2633-H	NAME PLATE	1	(330GCA) (330GCS) ⚠
2	RGN2639-H	NAME PLATE	1	(332EBS) ⚠
2	RGN2638-H	NAME PLATE	1	(332EGS) ⚠
3	RGV0317-H1	KNOB,HOLD	1	
4	RJC93038-3	BATTERY TERMINAL	1	
5	RKS0376-A	BOTTOM CABINET	1	
6	RME0405	OPEN SPRING	1	
7	K0RE00900025	MULTI BUTTON SW UNIT	1	
8	L5ACACC00011	LCD(LCD801)	1	
9	RGK1734-2A	ORNAMENT RING	1	(330EGA) (330GCA)
9	RGK1734-A	ORNAMENT RING	1	(330EGS) (330GCS)
9	RGK1734-S	ORNAMENT RING	1	(332EBS) (332EGS)
10	RGU2259-1A	OPERATION BUTTON A	1	(330EGA) (330GCA)
10	RGU2259-S	OPERATION BUTTON A	1	(330EGS) (330GCS) (332EBS) (332EGS)
11	RGU2260-2A	OPERATION BUTTON B	1	(330EGA) (330GCA)
11	RGU2260-A	OPERATION BUTTON B	1	(330EGS) (330GCS)
11	RGU2260-S	OPERATION BUTTON B	1	(332EBS) (332EGS)
12	RMR1514-K	FFC HOLDER	1	
13	RMR1599-A	LID COVER	1	(330EGA) (330GCA)
13	RMR1599-H	LID COVER	1	(330EGS) (330GCS) (332EBS) (332EGS)
14	RSQ0100	ZEBRA RUBBER	1	
15	RYF0699-A	CD LID UNIT	1	(330EGA) (330GCA)
15	RYF0699-1S	CD LID UNIT	1	(330EGS) (330GCS)
15	RYF0699B-S	CD LID UNIT	1	(332EBS) (332EGS)
16	XQN14+BG3FC	SCREW	14	
17	RGV0318-H2	KNOB,OPEN	1	
18	RKK0171-A	BATTERY LID	1	
19	RKM0482A-A	MIDDLE CABINET	1	
20	RMR1412-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	L0BAB0000182	STEREO EARPHONES	1	(330EGA) (330EGS) (330GCA) (330GCS)
A2	RFEA431E-S	AC ADAPTOR	1	(330EGA) (330EGS) (332EGS) ⚠
A3	RQT7180-E	O/I BOOK	1	(330EGA) (330EGS) (332EGS) English French German Spanish Netherlands Swedish Danish Italian Portuguese Russian Czeco Polish
A4	K2DA42E00001	AC PLUG ADAPTOR	1	(330GCA) (330GCS)
A5	N0JDCE000001	AC ADAPTOR	1	(330GCA) (330GCS) ⚠
A6	RQT7181-B	O/I BOOK	1	(330GCA) (330GCS) (332EBS) English
A7	RQT7182-K	O/I BOOK	1	(330GCA) (330GCS) Chinese
A8	RQT7183-A	O/I BOOK	1	(330GCA) (330GCS) Arabic
A9	L0BAB0000183	STEREO EARPHONES	1	(332EBS) (332EGS)
A10	N2QCBD000010	WIRED REMOTE CONTROL	1	(332EBS) (332EGS)
A11	RFEA435B-S	AC ADAPTOR	1	(332EBS) ⚠
C3	ECJ1VB1C104K	16V 0.1U	1	
C10	F1H1H271A736	50V 270P	1	
C11	F1H1A105A025	10V 1U	1	
C12	F3F0J226A004	6.3V 22U	1	
C13	F3H1A476A001	10V 47U	1	
C14	ECEA0GKS221	4V 220U	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C15-17	ECJ1XF1A105Z	10V 1U	3	F1H1A1050002
C19	ECA1CAK220XH	16V 22U	1	
C20	F1H1A105A025	10V 1U	1	
C21	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C22	ECJ1VF1C104Z	16V 0.1U	1	
C23	F1H1A105A025	10V 1U	1	
C24	ECJ1VB1H391K	50V 390P	1	
C27	F2A0J102A130	6.3V 1000U	1	
C29	F1H1A105A025	10V 1U	1	
C33	ECJ1VB1C104K	16V 0.1U	1	
C37	ECJ1XF1A105Z	10V 1U	1	F1H1A1050002
C38	ECA1CAK220XH	16V 22U	1	
C39	F1H1A105A025	10V 1U	1	
C101	ECEA0JKS331	6.3V 330U	1	
C102	ECJ1XF1A105Z	10V 1U	1	F1H1A1050002
C103	ECJ1VB1E223K	25V 0.022U	1	
C104	ECJ1XF1A105Z	10V 1U	1	F1H1A1050002
C105	ECJ1VB1E223K	25V 0.022U	1	
C107	F1H1A105A025	10V 1U	1	
C108	ECUX1H332KBV	50V 3300P	1	
C110	ECUX1H332KBV	50V 3300P	1	
C111,12	ECJ1VB1H561K	50V 560P	2	
C113	F1H1A105A025	10V 1U	1	
C114,15	ECJ1VB1E223K	25V 0.022U	2	
C116	F1H1A105A025	10V 1U	1	
C201	ECA0JAK470XH	6.3V 47U	1	
C301	F1H1A105A025	10V 1U	1	
C302,03	ECJ1XF1A105Z	10V 1U	2	F1H1A1050002
C305	ECUZNC104ZFV	16V 0.1U	1	F1H1C1040008 (332EBS) (332EGS)
C305	ERJ3GEY0R00V	1/10W 0	1	(330EGA) (330EGS) (330GCA) (330GCS)
C398,99	ECUV1H090DCV	50V 9P	2	F1H1H9R0A244
C501,02	ECJ1VF1C104Z	16V 0.1U	2	
C503	ECJ1VB1H391K	50V 390P	1	
C504	ECJ1VF1C104Z	16V 0.1U	1	
C505	ECJ1VB1E223K	25V 0.022U	1	
C506	ECJ1XF1A105Z	10V 1U	1	F1H1A1050002
C507-09	ECJ1VB1C104K	16V 0.1U	3	
C510	ECEA0GKS471	4V 470U	1	
C511	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C513	F1H1A105A025	10V 1U	1	
C515,16	ECJ1VB1C104K	16V 0.1U	2	
C517	ECJ1XF1A105Z	10V 1U	1	F1H1A1050002
C525	ECJ1VF1C104Z	16V 0.1U	1	
C530	ECJ1VC1H330J	50V 33P	1	
C610	ECA0JAK470XH	6.3V 47U	1	
C611	F1H1A105A025	10V 1U	1	
C701,02	ECJ1VB1H102K	50V 1000P	2	
C705,06	ECEA0JKA221	6.3V 220U	2	F2A0J2210012
C901	ECJ1VB1C104K	16V 0.1U	1	
C902	ECJ1VB1H332K	50V 3300P	1	(332EBS) (332EGS)
C903	ECJ1VB1C104K	16V 0.1U	1	
C904	ECJ1VF1C104Z	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	ERBFE1R50U	IC PROTECTOR	1	⚠ ;

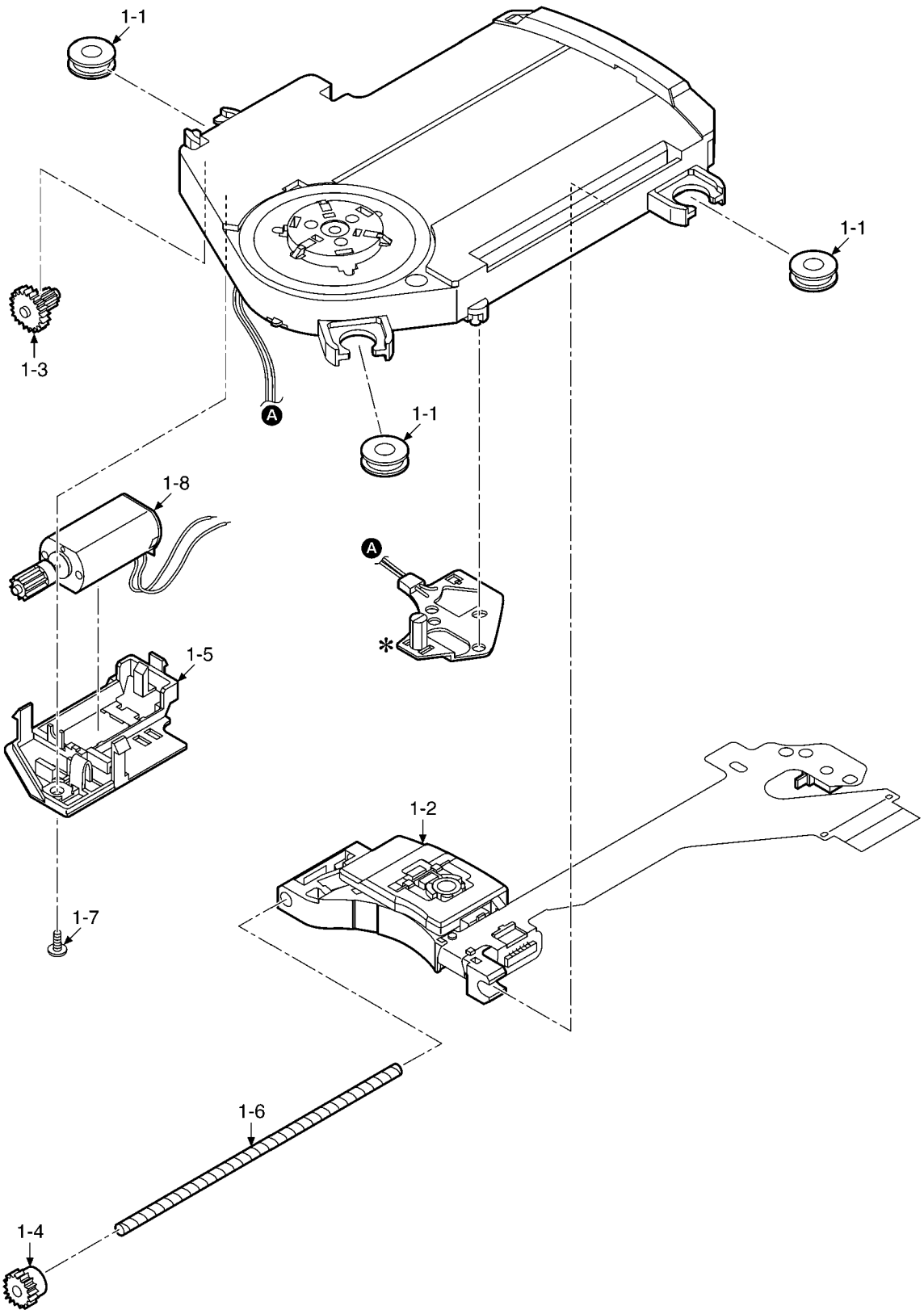
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
JK11	RJJ43K09-C	JACK,DC IN	1	K2EB2B000006
JK701	K2HC104B0013	JACK,HEADPHONE	1	
L11	G1C331K00008	COIL	1	
L12	G1A101D00009	COIL	1	
L13	G1C221K00012	COIL	1	
L14	RLQU101KT-W	COIL	1	G1C101K00008
L501	G1C471K00007	COIL	1	
L502	RLQU101KT-W	COIL	1	G1C101K00008
L504	RLQU101KT-W	COIL	1	G1C101K00008
L701,02	RLBV102V-Y	COIL	2	J0JBC0000014
L703	J0JCC0000181	COIL	1	
P1	RPF0111-2	PROTECTION BAG	1	(330EGA) (330EGS) (330GCA) (330GCS) (332EGS)
P2	RPK2133	GIFT BOX	1	(330EGA) (330GCA)
P3	RPQ1663	PAD	1	(330EGA) (330EGS) (332EGS)
P4	RPQ1664	PAD	1	(330GCA) (330GCS)
P5	RPN1695	TRAY 1	1	(332EBS)
P6	RPN1696	TRAY 2	1	(332EBS)
P7	RPQ1701	SHEET 1	1	(332EBS)
P8	RPQ1730	SHEET 2	1	(332EBS)
P9	RPK2072	GIFT BOX	1	(332EGS)
P10	RPK2070	GIFT BOX	1	(330EGS) (330GCS)
P11	RPH0246	PAD	1	(332EBS)
PCB1	REP3665C-M	P.C.B. ASS'Y	1	[RTL] (330EGA) (330EGS) (330GCA) (330GCS)
PCB1	REP3665D-M	P.C.B. ASS'Y	1	[RTL] (332EBS) (332EGS)
Q12	B1ABMD000004	TRANSISTOR	1	
Q13	UNR521L00L	TRANSISTOR	1	
Q14	UNR511400L	TRANSISTOR	1	
Q15	UNR521L00L	TRANSISTOR	1	
Q16	UN5215TX	TRANSISTOR	1	UNR521500L
Q18	UN5113TW	TRANSISTOR	1	
Q21	2SB1182TLPQR	TRANSISTOR	1	B1BDND000001
Q101	UN5113TW	TRANSISTOR	1	
Q201	2SB0709ARL	TRANSISTOR	1	
Q502	B1CFHA000001	TRANSISTOR	1	
Q701,02	UN5213TX	TRANSISTOR	2	UNR521300L
Q704	B1GFGCAA0001	TRANSISTOR	1	
Q901	UNR511400L	TRANSISTOR	1	
Q902	XP0121000L	TRANSISTOR	1	
Q903	UN5113TW	TRANSISTOR	1	(332EBS) (332EGS)
Q904	B1CHGD000004	TRANSISTOR	1	(332EBS) (332EGS)
Q910	UN5213TX	TRANSISTOR	1	UNR521300L
R1	D0YBR0000010	0	1	
R2	ERJ3GEYJ101	1/10W 100	1	D0GB101JA002
R10	ERJ3GEYJ271V	1/10W 270	1	
R12	ERJ3GEYJ100	1/10W 10	1	
R13	ERJ3GEYJ102V	1/10W 1K	1	
R14	ERJ3RBD473	1/16W 47K	1	
R15	ERJ3RBD683V	1/16W 68K	1	
R16	ERJ3GEYJ104	1/10W 100K	1	
R17	ERJ12YJ1R5U	1/2W 1.5	1	
R22	ERJ3GEYJ223V	1/10W 22K	1	D0GB223JA002
R31	ERJ3GEYJ473V	1/10W 47K	1	D0GB473JA002
R36	ERJ3GEYJ474V	1/10W 470K	1	
R101	ERJ3GEYJ393V	1/10W 39K	1	D0GB393JA002
R102	ERJ3GEYJ332V	1/10W 3.3K	1	D0GB332JA002

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R103	ERJ3GEYJ473V	1/10W 47K	1	D0GB473JA002
R105,06	ERJ3GEYJ222V	1/10W 2.2K	2	
R107,08	ERJ3GEYJ103V	1/10W 10K	2	D0GB103JA002
R109	ERJ3GEYJ104	1/10W 100K	1	
R114	ERJ3GEYJ100	1/10W 10	1	
R201	ERJ3GEYJ2R2V	1/10W 2.2	1	D0GB2R2JA002
R202	ERJ3GEYJ223V	1/10W 22K	1	D0GB223JA002
R203	ERJ3GEYJ2R2V	1/10W 2.2	1	D0GB2R2JA002
R302	ERJ3GEYJ104	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	ERJ3GEYJ104	1/10W 100K	1	
R320	ERJ3GEYJ122	1/10W 1.2K	1	
R325	ERJ3GEYJ333V	1/10W 33K	1	D0GB333JA002
R332	ERJ3GEYJ102V	1/10W 1K	1	(330EGA) (330EGS) (330GCA) (330GCS)
R333	ERJ3GEYJ102V	1/10W 1K	1	(332EBS) (332EGS)
R351	ERJ3GEYJ102V	1/10W 1K	1	
R352	ERJ3GEYJ104	1/10W 100K	1	
R502	ERJ3GEYJ683V	1/10W 68K	1	D0GB683JA002
R505	MCR03PZHJ561	1/16W 560	1	
R508	ERJ3GEYJ100	1/10W 10	1	
R511	EXBV8V222J	1/16W 2.2K	1	
R513	ERJ3GEYJ154V	1/10W 150K	1	
R514	ERJ3GEYJ331V	1/10W 330	1	
R517	ERJ3GEYJ104	1/10W 100K	1	
R523	ERJ3GEYJ104	1/10W 100K	1	
R703,04	ERJ3GEYJ100	1/10W 10	2	
R705,06	ERJ3GEYJ2R2V	1/10W 2.2	2	D0GB2R2JA002
R707,08	ERJ3GEYJ102V	1/10W 1K	2	
R710	EXBV4V561JV	1/32W 560	1	
R901	ERJ3GEYJ222V	1/10W 2.2K	1	(332EBS) (332EGS)
R902	ERJ3GEYJ223V	1/10W 22K	1	D0GB223JA002 (332EBS) (332EGS)
R903	ERJ3GEYJ105V	1/10W 1M	1	(332EBS) (332EGS)
R905	ERJ3GEYJ470V	1/10W 47	1	(332EBS) (332EGS)
R910	ERJ3GEYJ222V	1/10W 2.2K	1	(332EBS) (332EGS)
RJ4	ERJ3GEY0R00V	1/10W 0	1	
RJ6,J7	ERJ8GEY0R00V	1/4W 0	2	D0YFR0000002
S201	ESE11MV9T	SW,LASER ON/OFF	1	
S202	K0L1BB000025	SW,REST DET.	1	
S310	RSS2A010-1A	SW,HOLD	1	K0D112B00071
X302	H0J327200097	OSCILLATOR	1	
X501	H2D169500027	OSCILLATOR	1	

16 Cabinet Parts Location



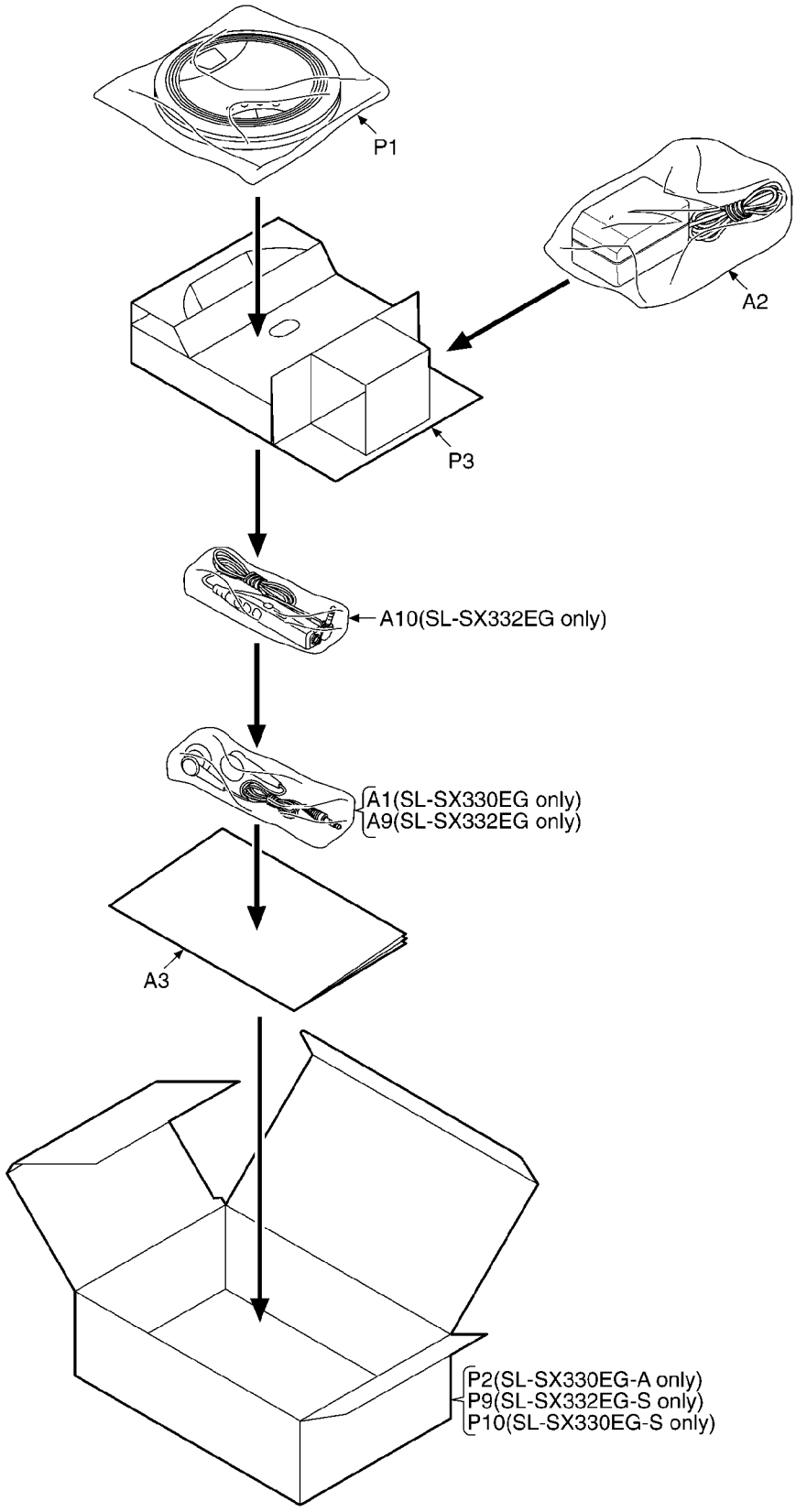
17 Traverse Parts Location



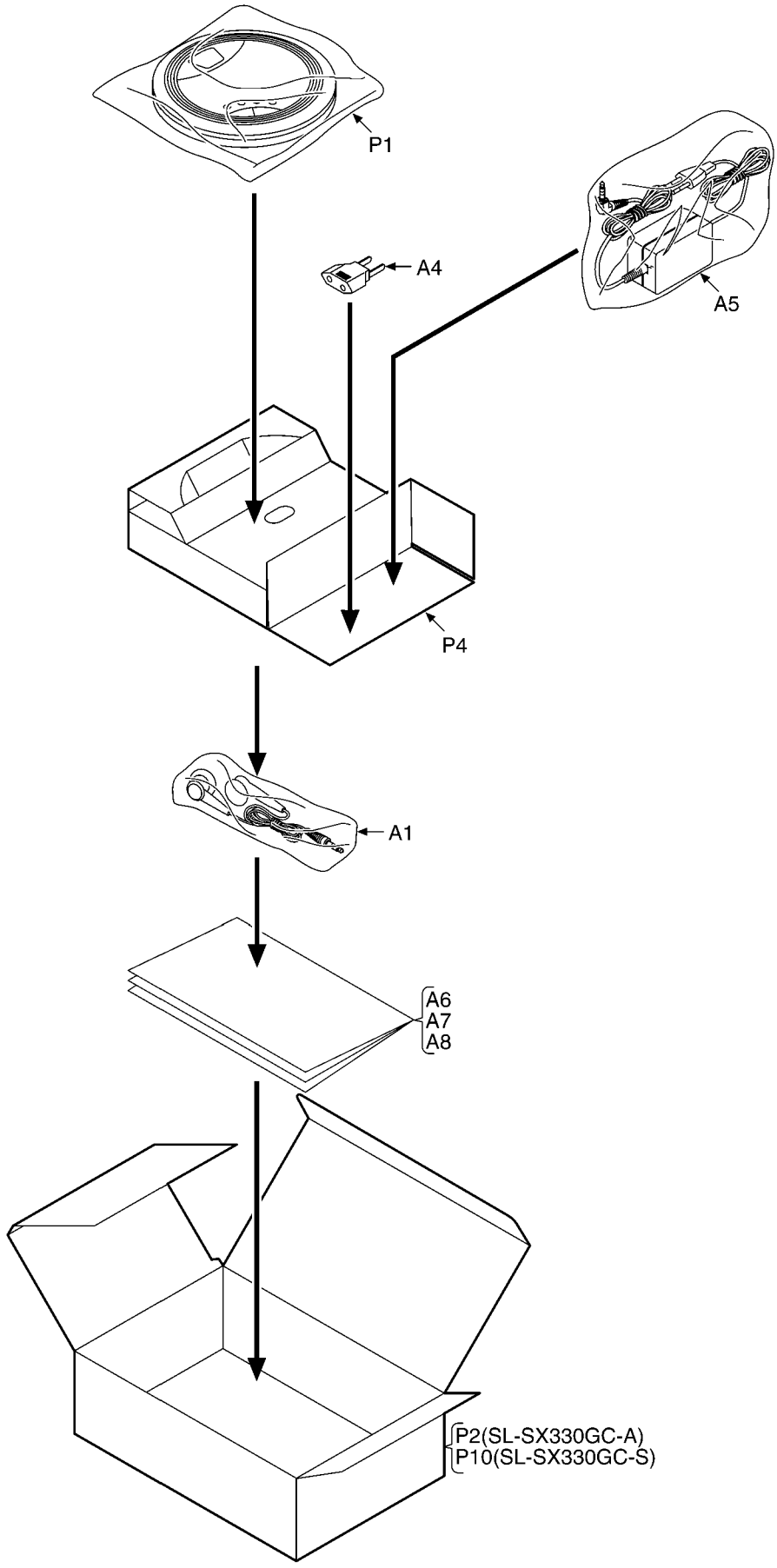
Note : We do not supply those items of parts marked ✻.

18 Packaging

18.1. SL-SX330EG / SL-SX332EG



18.2. SL-SX330GC



18.3. SL-SX332EB