AD0311175C3

Service Manual

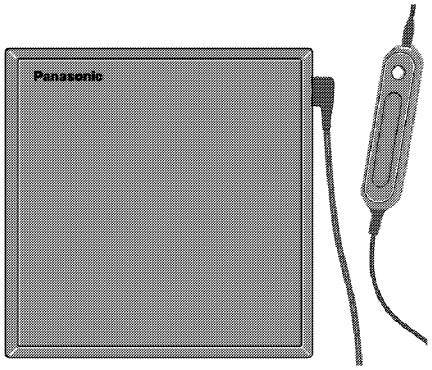
Portable CD Player

COMPACT disc DIGITAL AUDIO

SL-J905GC
SL-J905GD

Colour

(S).....Silver Type



Specifications

Audio (CD-DA)
Sampling frequency: 44.1 kHz
No. of channels: 2 channels (left and right, stereo)
D/A converter: 1 bit, MASH
Headphones output level: RMS max. 6 mW+6 mW/16 Ω (adjustable)
Speaker output level: RMS max. 190 mW+190 mW
Frequency response: 20 to 20,000 Hz (+0 dB to –7 dB)

Pickup
Light source: Semiconductor laser
Wavelength: 780 nm

MP3
Supported bit-rates: 32 kbps to 320 kbps (128 kbps is recommended)
Supported sampling frequency: 48 kHz/44.1 kHz/32 kHz
Maximum number of items (sum of albums and tracks): 999
Maximum album levels: 100

General
Operational temperature range: 0 – 40 degree
Rechargeable temperature range: 5 – 40 degree
Power supply:
DC input (via included AC adaptor); DC 4.5 V
AC adaptor input;
SL-J905GC; AC 110 - 127/220 - 240 V, 50/60 Hz
SL-J905GD; AC 220 V, 60 Hz
Power consumption:
Using AC adaptor (MP3/CD-DA);
Using earphones;
SL-J905GC; 2.8 W/2.8 W
SL-J905GD; 0.8 W/0.8 W
Using speakers;
SL-J905GC; 5.3 W/5.3 W
SL-J905GD; 3.2 W/3.1 W
Recharging;
SL-J905GC; 5.6 W
SL-J905GD; 3.3 W

Play time:
[Using on a flat stable surface at 25 degree, EQ is off, Hold is on, Anti-skip is on POS 1 (CD-DA), recommended bit rate (MP3:128 kbps), and the Digital Re-master is off (MP3).Play times are in hours and approximate.]
Batteries used: Earphone*1/Speaker*1/Earphone*2/Speaker*2
2 Optional alkaline batteries (LR6); Approx. 80/14/40/10 h
2 Supplied rechargeable batteries; Approx. 35/7/20/5 h
2 Supplied rechargeable and 2 alkaline batteries; Approx. 115/21/60/15 h
• The play time may be less depending on the operating conditions.
• Play time will be considerably reduced when playing CD-RW.
Recharging time: Approx. 3 to 4 h
Dimensions (W × H × D):
CD player; 126 × 14.7 × 126 mm
Speaker; 126 × 14.7 × 22 mm
Mass:
CD player; 218 g (with batteries)
172 g (without batteries)
Speaker; 27 g

Notes: Specifications are subject to change without notice.
Mass and dimensions are approximate.
*1: MP3 disc, *2: CD-DA disc

Note on CD-R and CD-RW
This unit can play CD-R and CD-RW recorded with CD-DA or MP3.
Use an audio recording disc for CD-DA and finalize* it when you finish recording. The unit may not be able to play some discs due to the condition of the recording.
* A process performed after recording that enables CD-R/CD-RW players to play audio CD-R and CD-RW.

Panasonic

⚠ WARNING

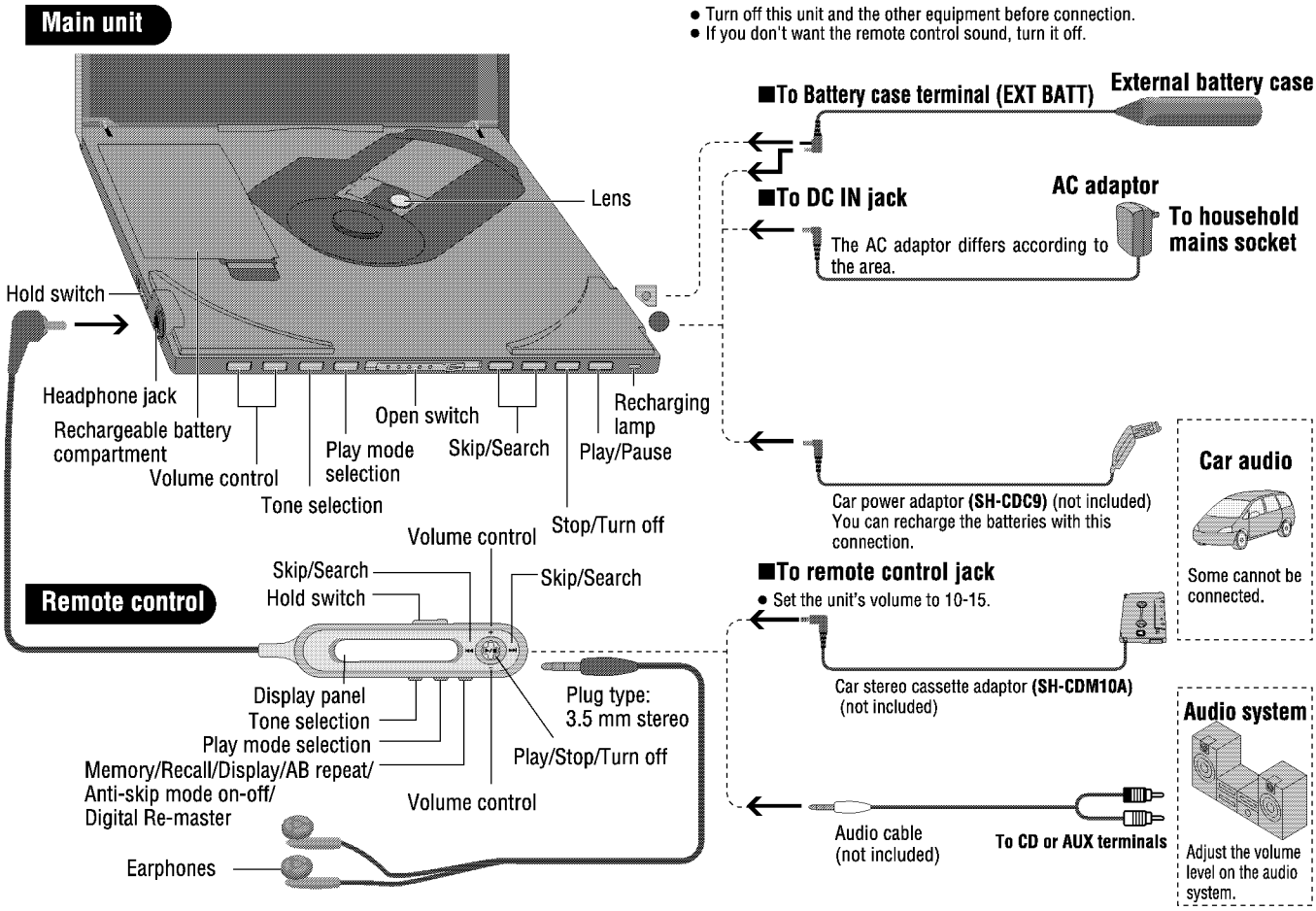
This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should 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 Accessories

- AC adaptor for SL-J905GC (N0JDCE000001).....1 pc.
- AC adaptor for SL-J905GD (RFEA438Q-S).....1 pc.
- Stereo earphones (L0BAB0000176).....1 pc.
- Wired remote control (N2QCBD000037).....1 pc.
- External battery case (RFA1821-H).....1 pc.
- Active speaker system for SL-J905GC (RFE0146).....1 pc.
- Active speaker system for SL-J905GD (RFE0149).....1 pc.
- Rechargeable batteries (with case) (RFKFHFAZ09EM).....2 pcs.
- Power plug adaptor for SL-J905GC only (K2DA42E00001).....1 pc.

2 Location of Controls and Connection to Other Equipment



3 Precaution of Laser Diode

Caution:

This product utilizes a laser diode with the unit turned on, invisible laser radiation is emitted from the pick-up lens.

Wavelength: 780 nm

Maximum output radiation power from pick-up: 100 µW/VDE

Laser radiation from the pick-up lens is safety level, but be sure the followings:

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

4 Handling Precautions for Traverse Deck

The laser diode in the traverse deck (optical pick-up) 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 pick-up).

4.1. Handling of traverse deck (optical pick-up)

1. Do not subject the optical pick-up to static electricity as it is extremely sensitive to electrical shock.
2. To protect the laser diode against electrostatic breakdown, be sure that the short land of the flexible board (FFC board) should be short-circuit by solder before inserting a short pin or similar object into the tip of the flexible board. (Referto Fig. 4-1.)
3. Take care not to apply excessive stress to the flexible board (FFC board).
4. Do not turn the variable resistor (laser power adjustment). It has already been adjusted. (Refer to Fig. 4-1.)

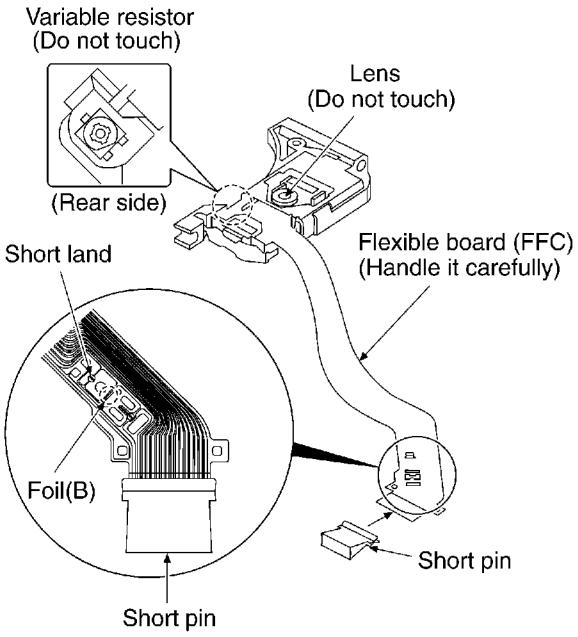


Fig. 4-1.

4.2. Caution when replacing traverse deck

The traverse deck short-circuits the foil (B) to protect the laser diode against electrostatic breakdown. Be sure to cut the foil (B) before making connection. Take care not to make contact with cutting point each other. (Refer to Fig. 4-1.)

4.3. Grounding for electrostatic breakdown prevention

4.3.1. Human body grounding

Use the anti-static wrist strap to discharge the static electricity from your body. (Refer to Fig. 4-2.)

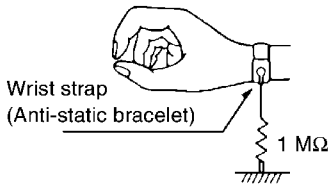


Fig. 4-2.

4.3.2. Work table grounding

Put a conductive material (sheet) or steel sheet on the area where the traverse deck (optical pick-up) is placed, and ground the sheet. (Refer to Fig. 4-3.)

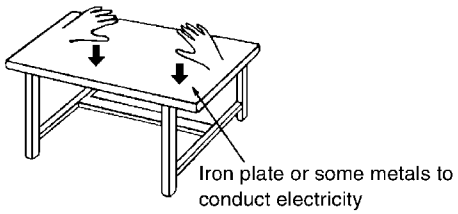


Fig. 4-3.

Caution:

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

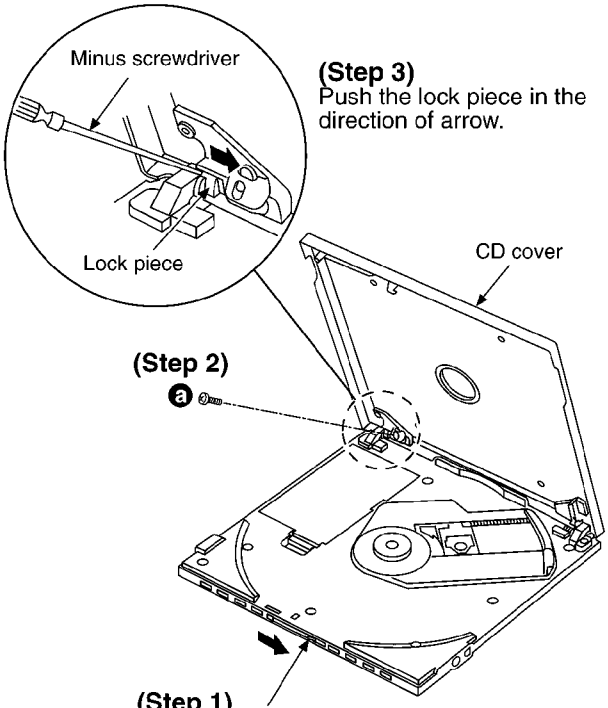
So take care not to let your clothes touch the traverse deck (optical pick-up).

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.**

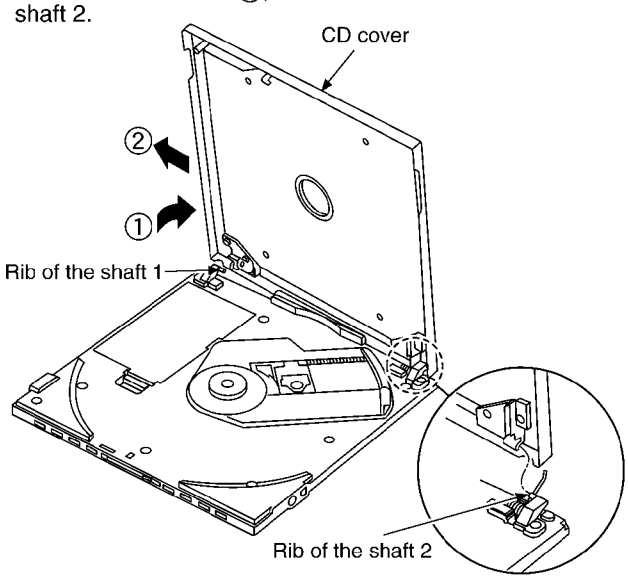
5.1. Checking for the main P.C.B.

5.1.1. Checking for the main P.C.B. (A side)

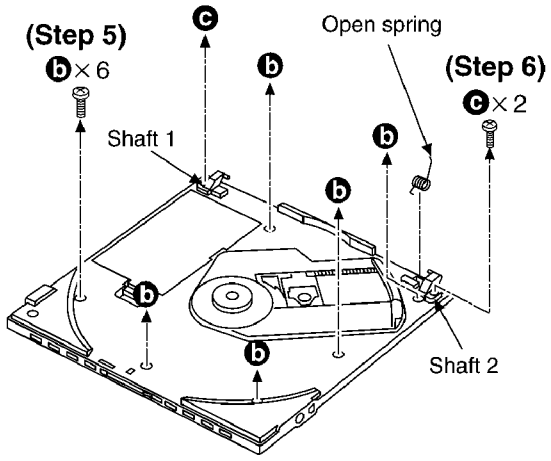


(Step 3)
Push the lock piece in the direction of arrow.

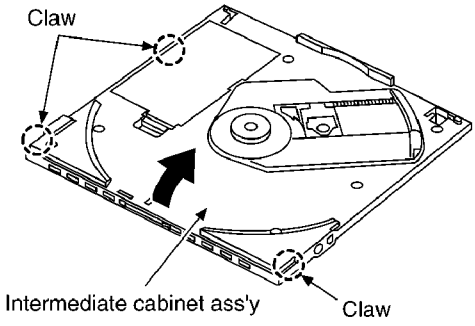
(Step 4)
Shift the CD cover in the direction of arrow①, release it from the rib of the shaft 1. Then pull the CD cover in the direction of arrow②, release it from the rib of the shaft 2.



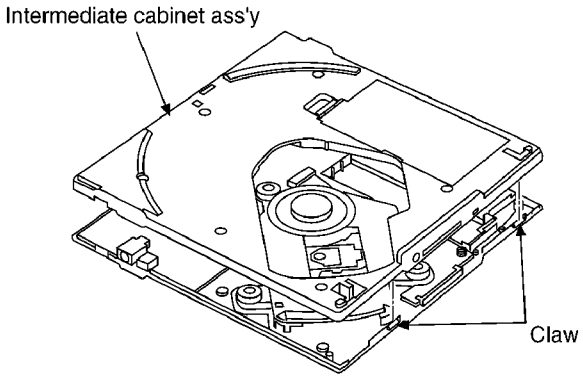
(Step 7)
Remove the open spring, shaft 1 and shaft 2.



(Step 8)
Release the 3 claws , and then lift up the front side of intermediate cabinet ass'y.

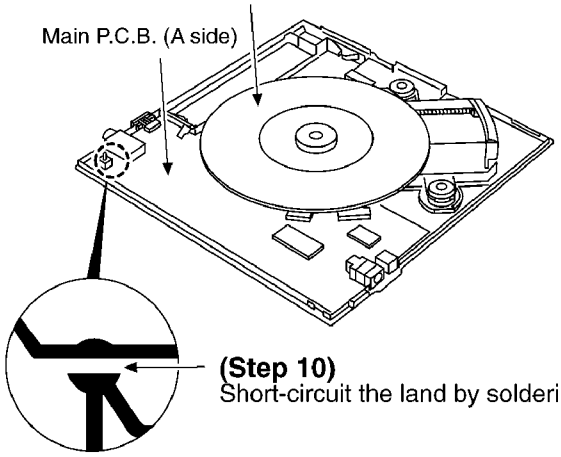


(Step 9)
Release the 2 claws , and then remove the intermediate cabinet ass'y.



• **Check the main P.C.B. (A side) as shown below.**

(Step 11)
Put the test disc (8cm).



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

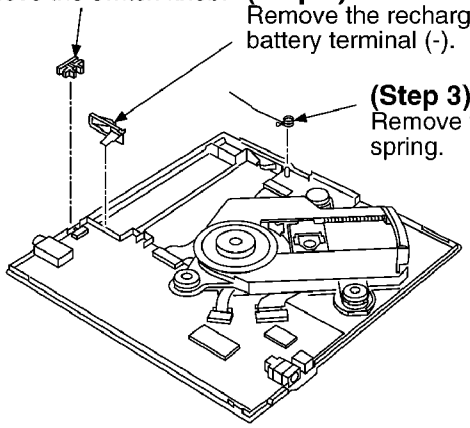
5.1.2. Checking for the main P.C.B. (B side)

• Follow the **(Step 1)** - **(Step 10)** of item 5.1.1.

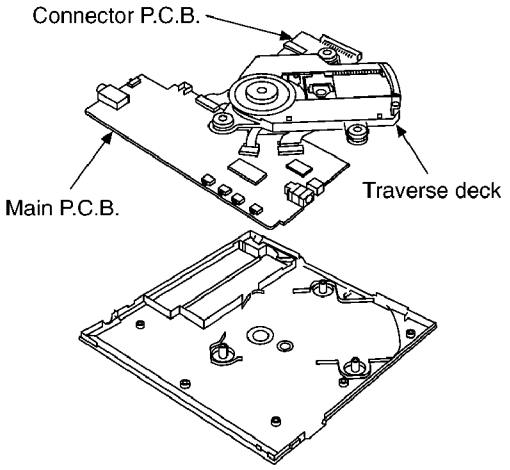
(Step 1)
Remove the switch knob.

(Step 2)
Remove the rechargeable battery terminal (-).

(Step 3)
Remove the earth spring.

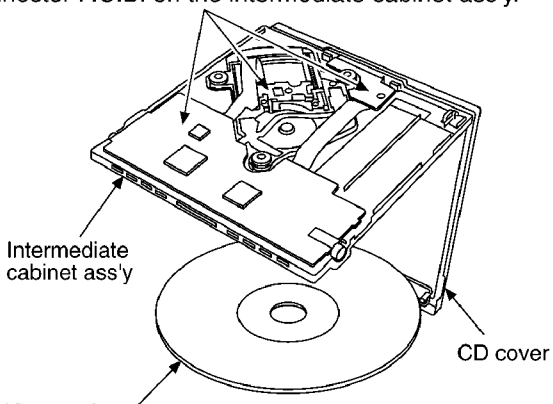


(Step 4)
Remove the traverse deck, main P.C.B. and connector P.C.B..

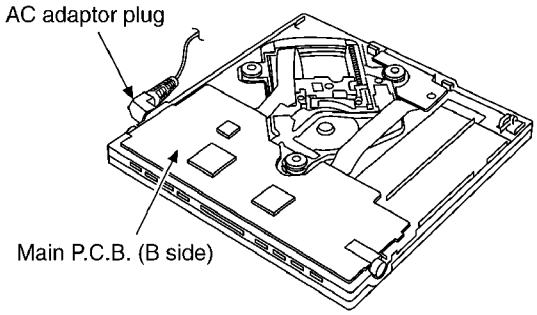


• **Check the main P.C.B. (B side) as shown below.**

(Step 5)
Locate the traverse deck ass'y, main P.C.B. and connector P.C.B. on the intermediate cabinet ass'y.



(Step 6)
Put the test disc, and then close the CD cover.

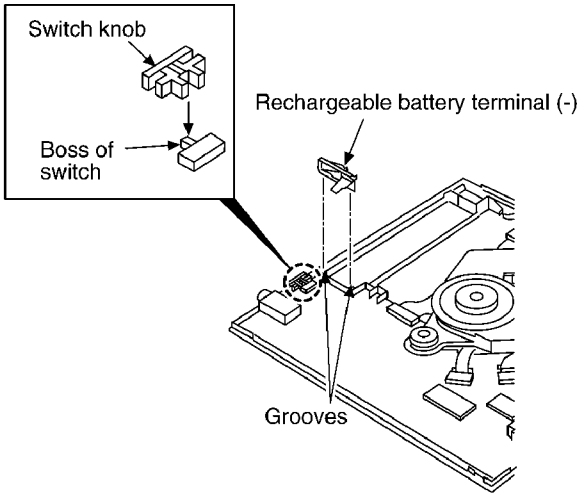


(Step 7)
Insert the AC adaptor plug into the DC IN jack, and then apply the power.

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

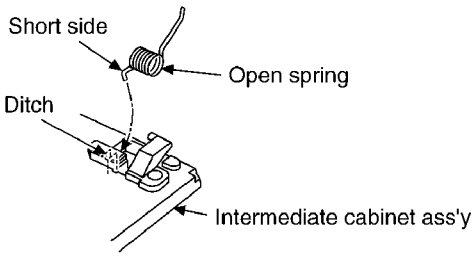
Notice for installation of switch knob and Rechargeable battery terminal (-)

1. Make sure the boss of switch is fitted in the switch knob.
2. Make sure the rechargeable battery terminal (-) is fitted in the gooves.

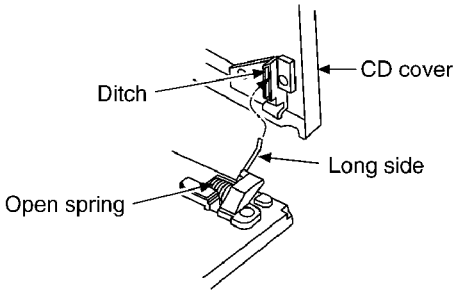


Notice for installation of open spring

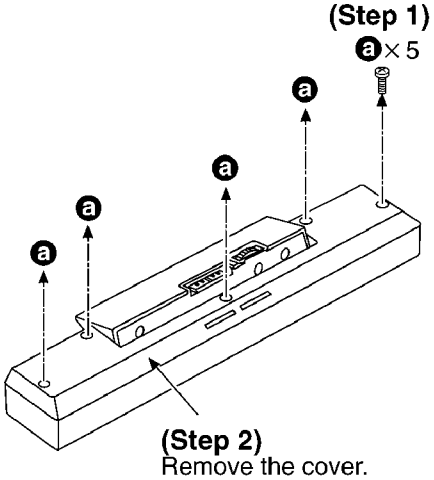
1. Install the short side of open spring to the ditch of intermediate cabinet ass'y.



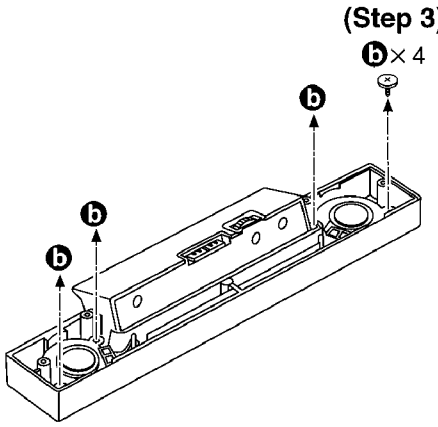
2. When the CD cover Install, insert the long side of open spring to the ditch of it.



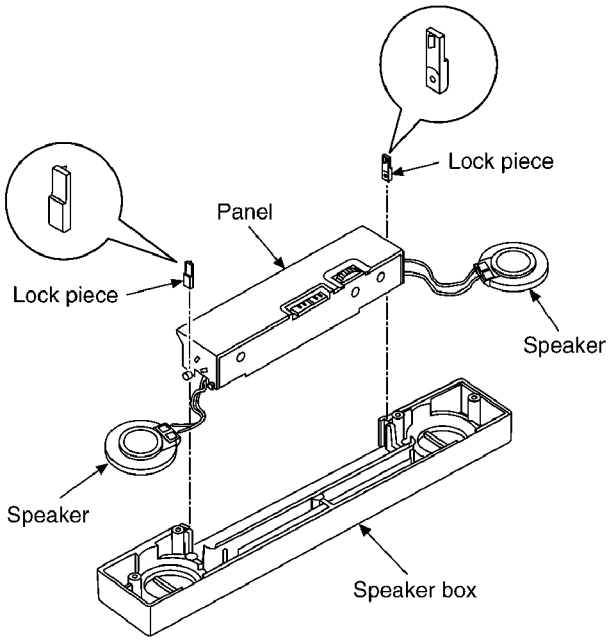
5.2. Checking for the speaker P.C.B.

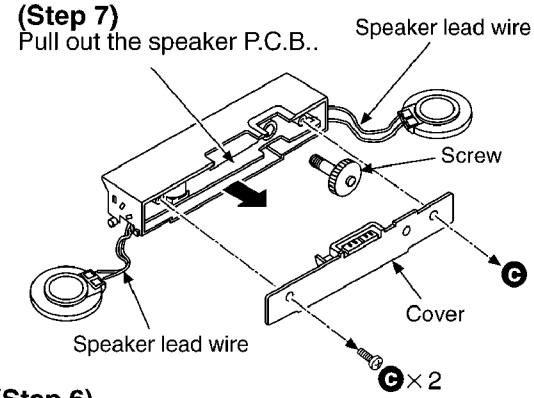


(Step 2)
Remove the cover.



(Step 4)
Remove the panel, lock piece and speaker.



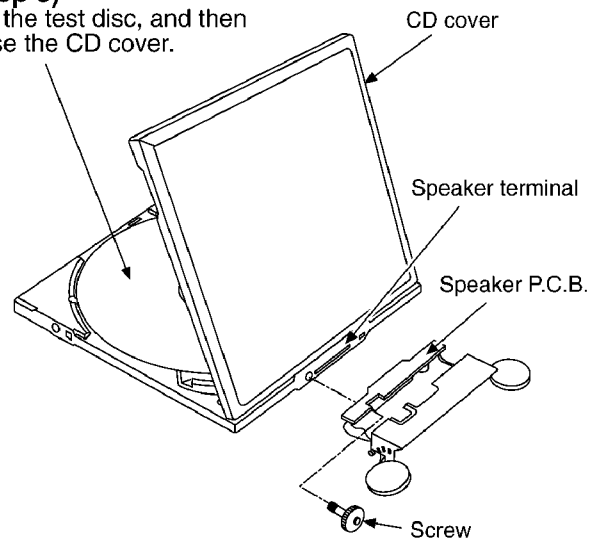


(Step 6)
Remove the cover and screw.

(Step 5)

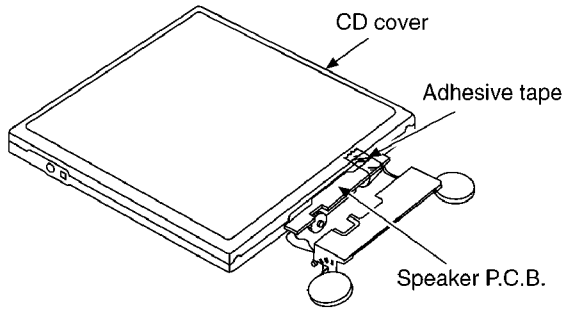
NOTE:
When the speaker P.C.B. pull out, be careful not to break the speaker lead wire.

(Step 8)
Put the test disc, and then close the CD cover.



(Step 9)
Install the speaker P.C.B. to the speaker terminal and screw down it.

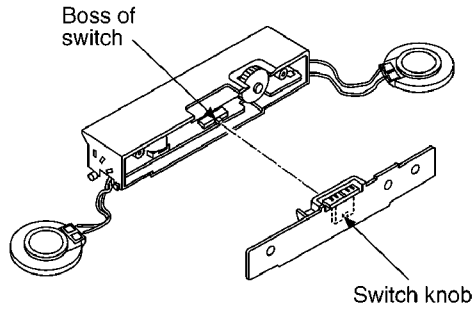
- **Check the speaker P.C.B. as shown below.**



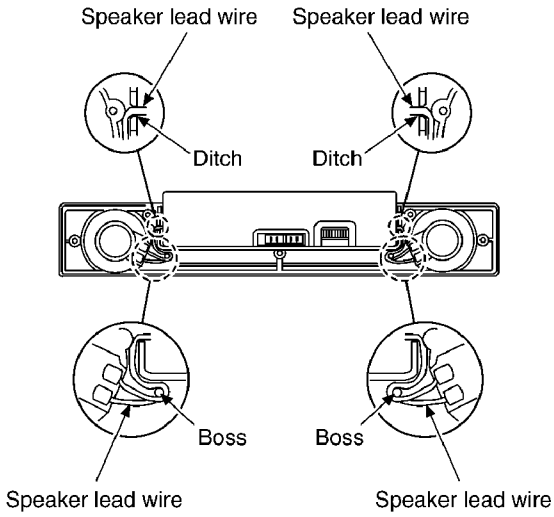
(Step 10)
Then, stick a adhesive tape on the edge of speaker P.C.B. and fit it to the CD cover.

Notice for installation of switch knob

1. Make sure the boss of switch is fitted in the switch knob.



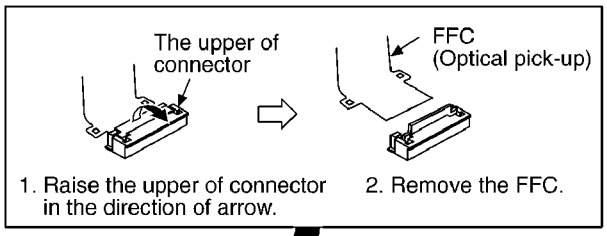
Arrangement of speaker lead wire

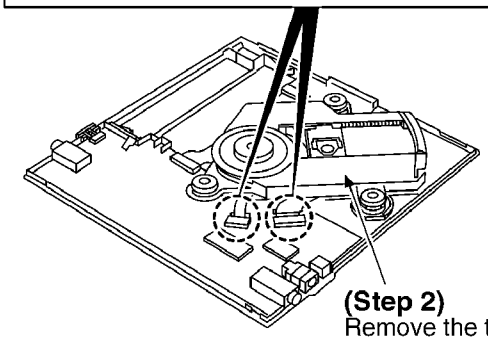


5.3. Replacement for the traverse motor and optical pick-up

- Follow the **(Step 1)** - **(Step 9)** of item 5.1.1.

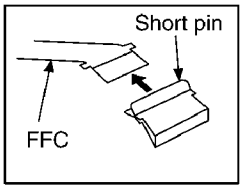
(Step 1)
Pull out the FFC from connector (2 points).



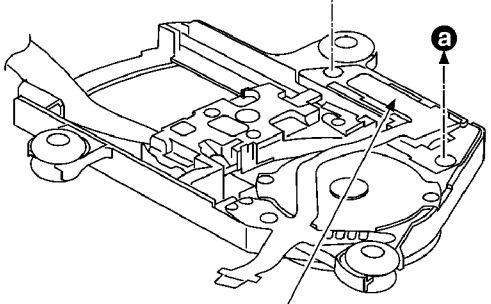


(Step 2)
Remove the traverse deck ass'y.

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

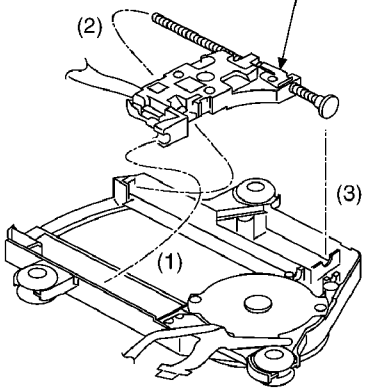


(Step 3)
ⓐ × 2

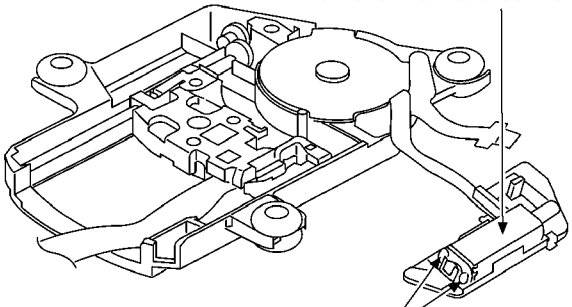


(Step 4)
Remove the holder and traverse motor.

(Step 8)
Remove the optical pick-up ass'y.



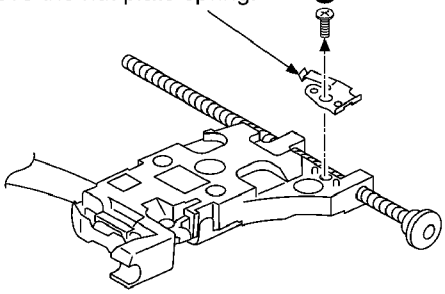
(Step 6)
Remove the traverse motor.



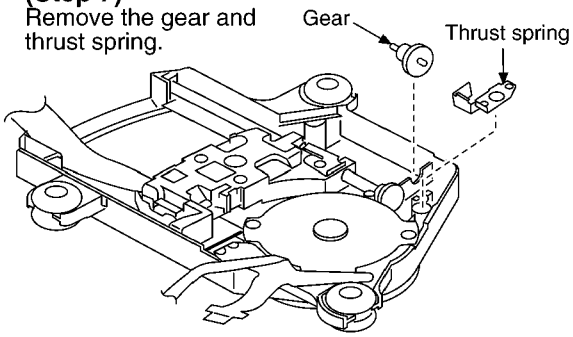
(Step 5)
Unsolder (2 points).

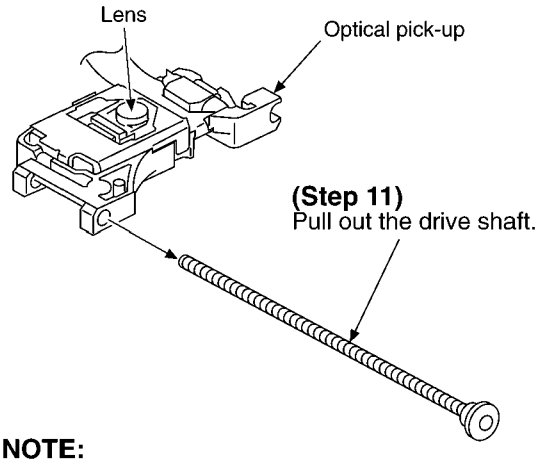
(Step 10)
Remove the nut plate spring.

(Step 9)
ⓑ



(Step 7)
Remove the gear and thrust spring.



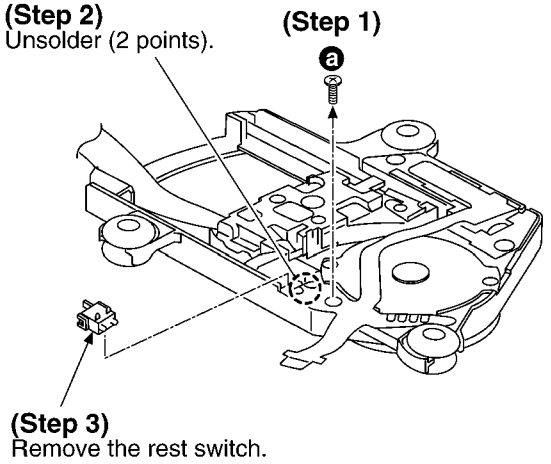


(Step 11)
Pull out the drive shaft.

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.

5.4. Replacement for the rest switch

- Follow the **(Step 1)** - **(Step 9)** of item 5.1.1.
- Follow the **(Step 1)** , **(Step 2)** of item 5.3.



6 Display of Self-Diagnostic Function

This unit (SL-J905) has self-diagnostic function. It may display below-mentioned on the remote control display.

- The substance of self-diagnostic display.

  Remote control display

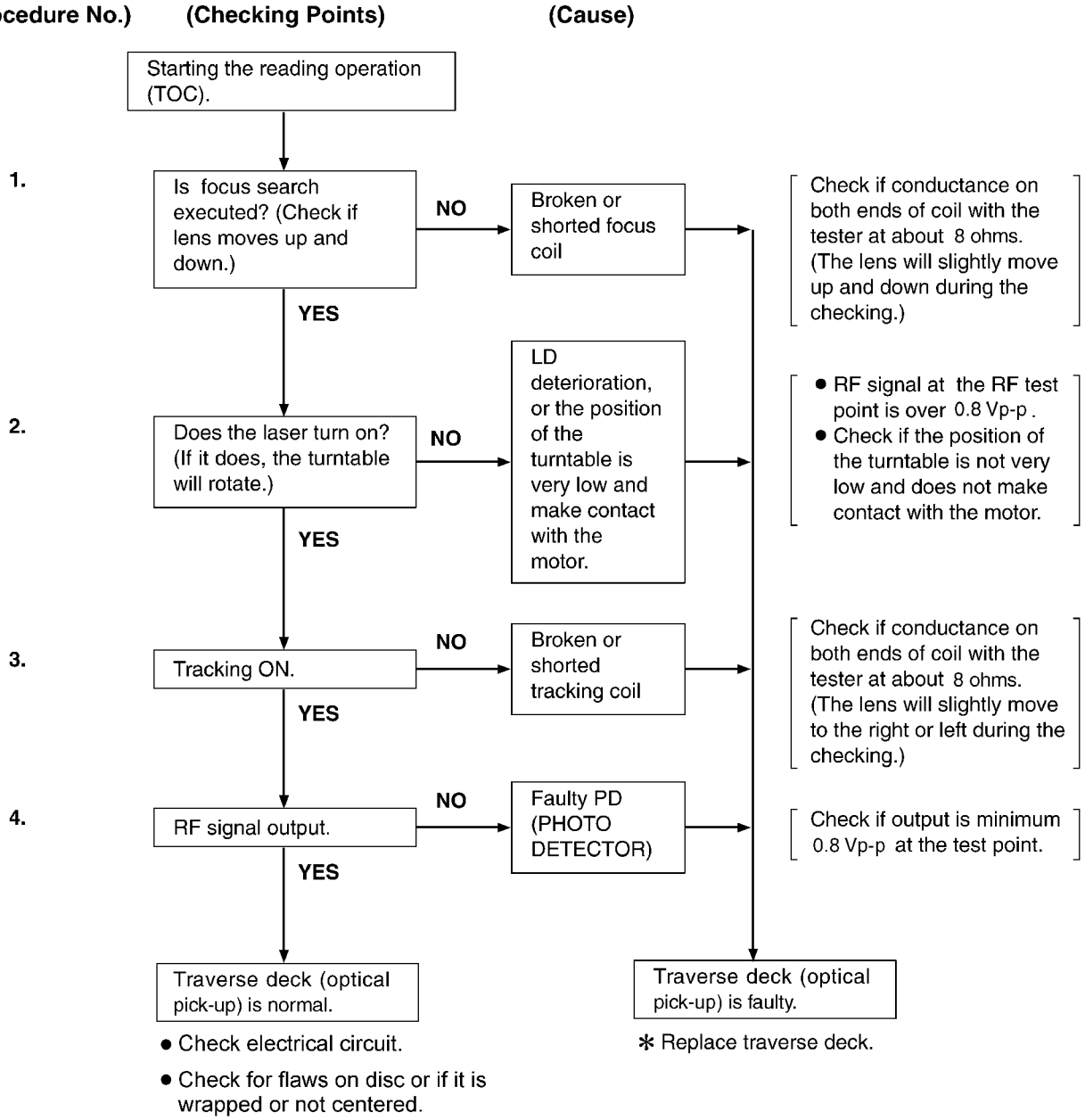
  (Press PLAY and STOP button. After 15 seconds, it is displayed for 2 seconds.)

In case of this display, it may be causing for abnormally movements of traverse deck, touching failure of REST detect switch and coming off or cutting off the flexible P.C.B.. It is necessary for confirmation or repair and replacement each parts.

7 Checking the Operation Problems on the Traverse Deck (Optical Pick-up)

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

Replace the traverse deck only after the problem is identified.



7.1. Check the operations described below on the traverse deck after replacing

7.1.1. 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).

7.1.2. Checking manual search

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

7.1.3. 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.

8 Automatic Adjustment Results Display Function (Self-Check Function)

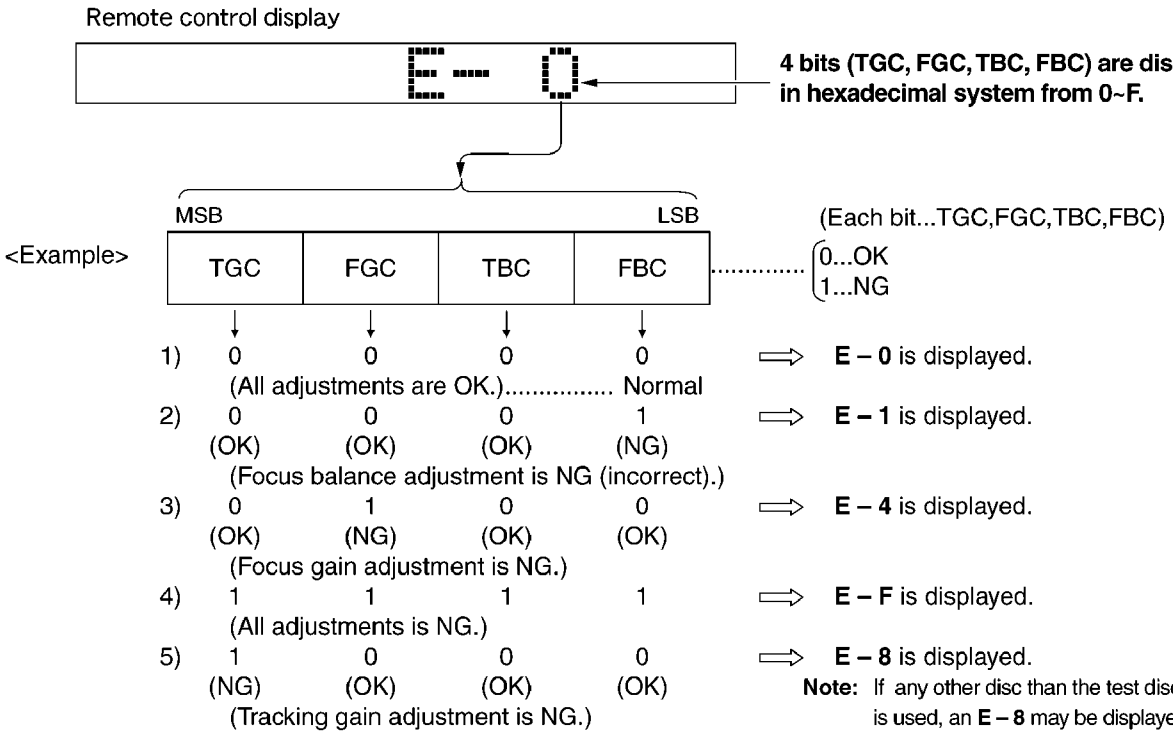
On the unit (SL-J905), each automatic adjustment result are displayed on the remote control display. This function is convenient to check or identify which automatic adjustment circuit is incorrect.

The followings are the contents of the automatic adjustment result displays (Self-Check Function).

8.1. How to display automatic adjustment results

1. Load the test disc (SZZP1054C).
2. Press the I◄◄ (SKIP/SEARCH) and ►►I (SKIP/SEARCH) buttons simultaneously and hold them, and additionallypress the ►/II (PLAY/PAUSE) button.
3. Press the ■ (STOP/TURN OFF) button once.
4. An automatic adjustment result is displayed on the remote control display.

8.2. 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, and
  2. the optical pick-up 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,
  2. the focus coil of the optical pick-up is correct (around 8 ohms), and
  3. the optical pick-up 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 pick-up returns to the normal state by exchanging the traverse deck, and
  2. the waveform or voltage of the servo ICs are correct.

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.

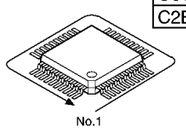
Note:

If any other disc than the test disc (SZZP1054C) is used, an error message may be displayed.

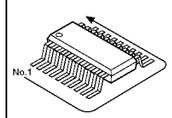
This is not a malfunction.

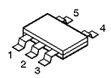
9 Type Illustration of IC ' s, Transistors and Diodes

MN6627935CJ	100PIN
C0GBF0000017	48PIN
C2BBGE000721	80PIN



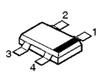
C3EBCG000096	8PIN
AN22003A-NF	32PIN
C3ABMG000103	50PIN
C0ABZA000033	8PIN



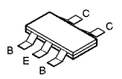


C0DBAFA00023
C0DBAFB00016
C0CBZAZ00001
C0CBZBZ00001
C0CBABZ00004
C0DBAFZ00035

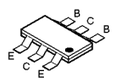
C0EBD0000150
C0EBC0000087



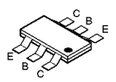
XP1501TX



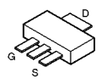
XN0F261TX



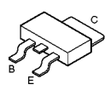
B1GFGCAA0001



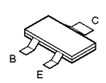
XP161A1355PR



2SB1182TLPQR

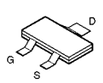


2SB1218TX
2SD1819ATX

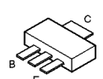


2SB709ATX
DTA114YUA106
UN521MTX
UN5113TX
UN5213TX
UN5214TX
UNR521000L

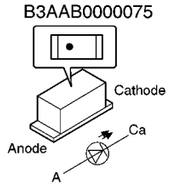
2SK1958T1
B1CHMC000001
B1CFNC000001
B1CHGD000004



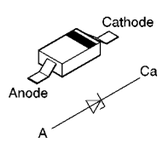
B1ABMD000004

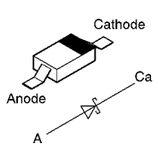


B3AAB0000075



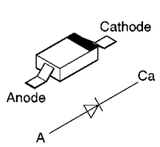
MA8056MTX



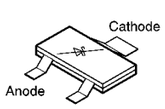


MA1070400L
MA729TX
B0JCMC000006
B0JCME000012

MA111TX



SB00703QTL



10 Schematic Diagram Notes

- **This schematic diagram may be modified at any time with the development of new technology.**

Notes:

S201:	Laser ON/OFF switch in ON position (It turns ON with disc holder closed.)
S202:	Rest detector switch in OFF position (It turns ON when optical pick-up comes to innermost periphery.)
S301:	Play/pause (▶/❚❚) switch
S302:	Stop/turn off (■) switch
S303:	R.skip/search (I◀◀) switch
S304:	Volume control switch (VOL+)
S305:	Volume control switch (VOL-)
S306:	Tone selection switch (EQ)
S307:	Play mode selection switch (MODE)
S308:	F.skip/search (▶▶I) switch
S310:	Hold (HOLD) switch in OFF position

- 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 manufacturer's specified parts shown in the parts list.

- The supply part number is described alone in the replacement parts list.

- Voltage and signal line

  ⟶ : Positive voltage line

  ⇨ : Playback signal line

- The voltage values and waveforms are the reference voltage of this measured by the 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 valuesand waveforms depending upon the internal impedance of the tester or measuring unit.

  Measurement conditions:

  – AC adaptor is used for power supply.

  – Set the hold switch to ON.

  – The parenthesized is the voltage for test disc (1 kHz, L+R, 0 dB) in play mode, and the other, for no disc in 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.

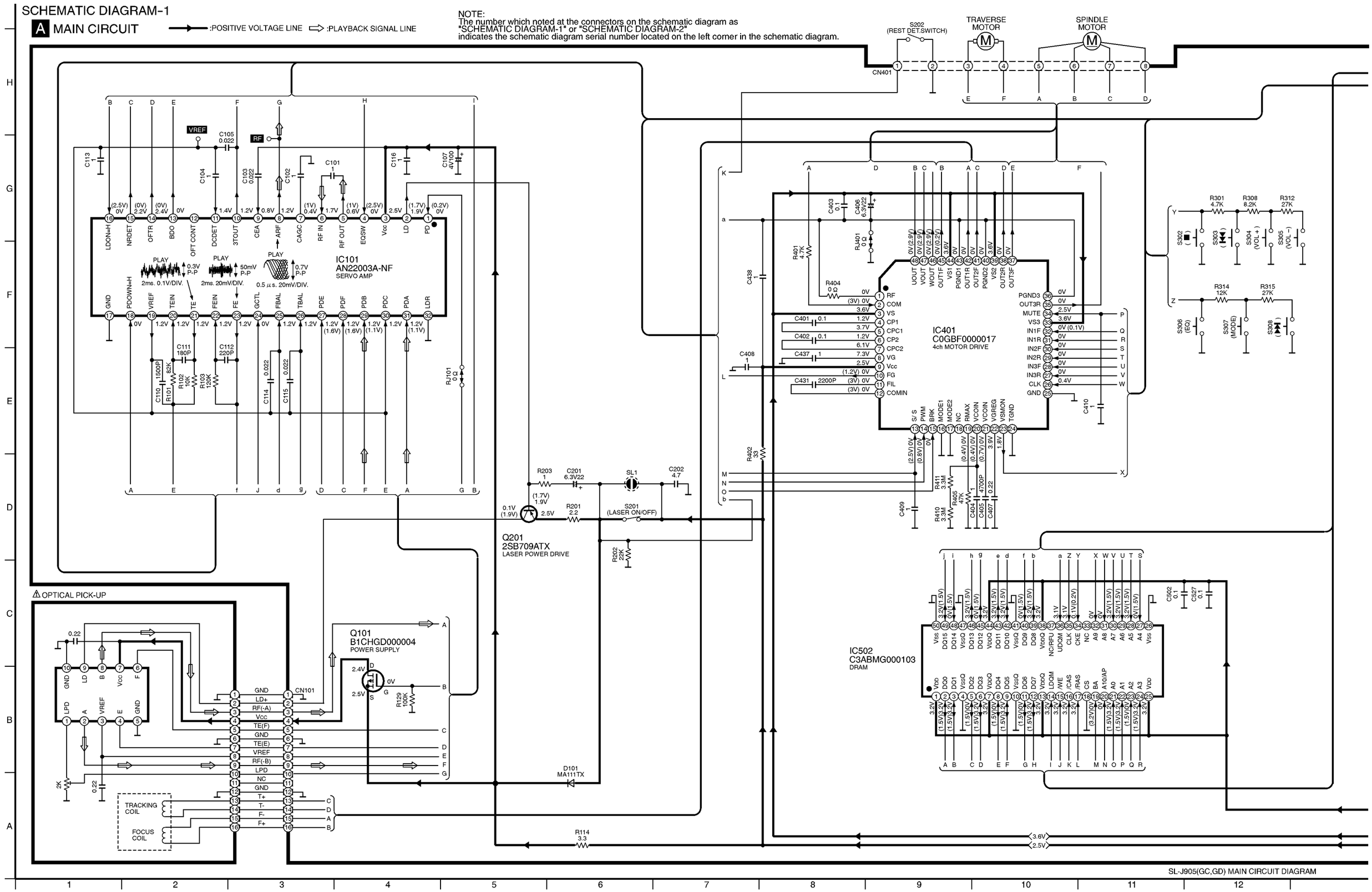
Do not touch the legs of IC or LSI with the fingers directly.

11 Schematic Diagram

SCHEMATIC DIAGRAM-1

A MAIN CIRCUIT ——▶ :POSITIVE VOLTAGE LINE ⇨ :PLAYBACK SIGNAL LINE

NOTE:
The number which noted at the connectors on the schematic diagram as "SCHEMATIC DIAGRAM-1" or "SCHEMATIC DIAGRAM-2" indicates the schematic diagram serial number located on the left corner in the schematic diagram.



SL-J905(GC,GD) MAIN CIRCUIT DIAGRAM

SCHEMATIC DIAGRAM-2

A MAIN CIRCUIT :POSITIVE VOLTAGE LINE :PLAYBACK SIGNAL LINE

IC301
C2BBGE000721
SYSTEM CONTROL

IC302
C3EBCG000096
EE PROM

IC501
MN6627935CJ
SERVO PROCESSOR/
DIGITAL SIGNAL PROCESSOR/
DIGITAL FILTER &
D/A CONVERTER

Q303
DTA114YUA106
INTERFACE

Q304
UN521MTX
LED DRIVE

Q502
2SK1958T1
SWITCHING

X301 (32.768kHz)

X502 (16.9344MHz)

SL-J905(GC,GD) MAIN CIRCUIT DIAGRAM

SCHEMATIC DIAGRAM-3

A MAIN CIRCUIT

:POSITIVE VOLTAGE LINE :PLAYBACK SIGNAL LINE

Q604 2SB1218TX POWER SUPPLY
Q605 XP1501TX POWER SUPPLY
Q14 2SD1819ATX RESET
Q15 B1CHGD000004 SWITCHING
Q501 B1CHMC000001 POWER SUPPLY
Q301 B1CHGD000004 SWITCHING
Q61 B1CHMC000001 REGULATOR
IC61 C0DBAFB00016 REGULATOR
IC91 C0CBAZ00001 REGULATOR
IC13 C0EBC0000087 RESET
IC92 C0DBAFA00023 REGULATOR
IC11 C0EBD0000150 RESET
IC41 C0CBZBZ00001 REGULATOR
Q21 B1CHMC000001 REGULATOR
Q12 B1CFNC000001 SWITCHING
Q45 2SD1819ATX SWITCHING
Q51 XP161A1355PR SWITCHING
IC51 C0DBAFZ00035 REGULATOR
IC71 C0CBABZ00004 REGULATOR
Q302 DTA114YUA106 SWITCHING (CHARGE)
Q81 2SD1819ATX SWITCHING (CHARGE)
Q42 B1ABMD000004 SWITCHING(CHARGE)
Q41 2SB1182TLPQR REGULATOR
Q602 DTA114YUA106 MUTING CONT.
Q601 XN0F261TX MUTING
Q905 UN5214TX MUTING CONT.
Q902 UNR521000L MUTING CONT.
Q901 DTA114YUA106 MUTING CONT.
Q903 UN5113TX BUZZER DRIVE
Q305 2SK1958T1 SWITCHING (SP. IN)
Q704 B1GFGCAA0001 MUTING

D11 B0JCMC000006
D51 B0JCME000012
D41 MA1070400L
D901 MA8056MTX
D601 MA111TX
D21 MA729TX
D61 MA729TX
D71 MA729TX

L11 RL09U028T-T
L21 33μH
L51 33μH
L61 100μH
L71 330μH
L701 RLBV102V-Y
L702 RLBV102V-Y
LB604 RLBV102V-Y
LB605 RLBV102V-Y
LB606 J0JCC0000181
L901 RLBV102V-Y
LB703 J0JCC0000181

ICP11 K5H1522A0018
ICP41 ERY32SB075VA

CN11
CN301
CN302
CN303

2 RECHARGEABLE BATTERIES 2.4V

JK12 EXT BATT
JK11 DC IN 4.5V
JK701 HEADPHONE

To C SPEAKER AMP CIRCUIT(P601) on SCHEMATIC DIAGRAM-4

CN303: SP IN, SVcc, DRV GND, MUTEA, PVcc1, Rch, A GND, A GND, A GND, Lch, SW, REM GND, Vcc, D GND

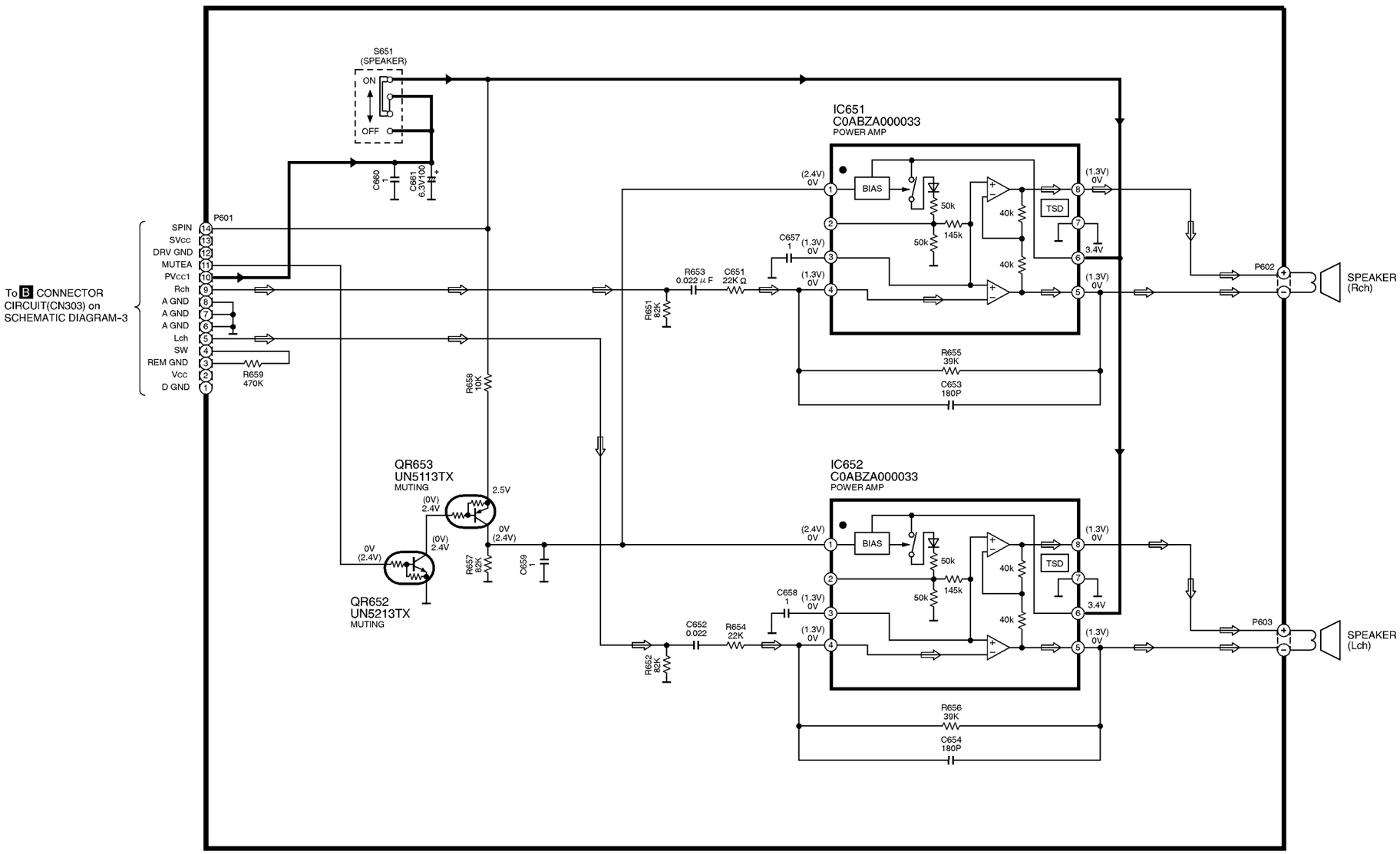
B CONNECTOR CIRCUIT

SL-J905(GC,GD) MAIN, CONNECTOR CIRCUIT DIAGRAM

SCHEMATIC DIAGRAM-4

C SPEAKER AMP CIRCUIT

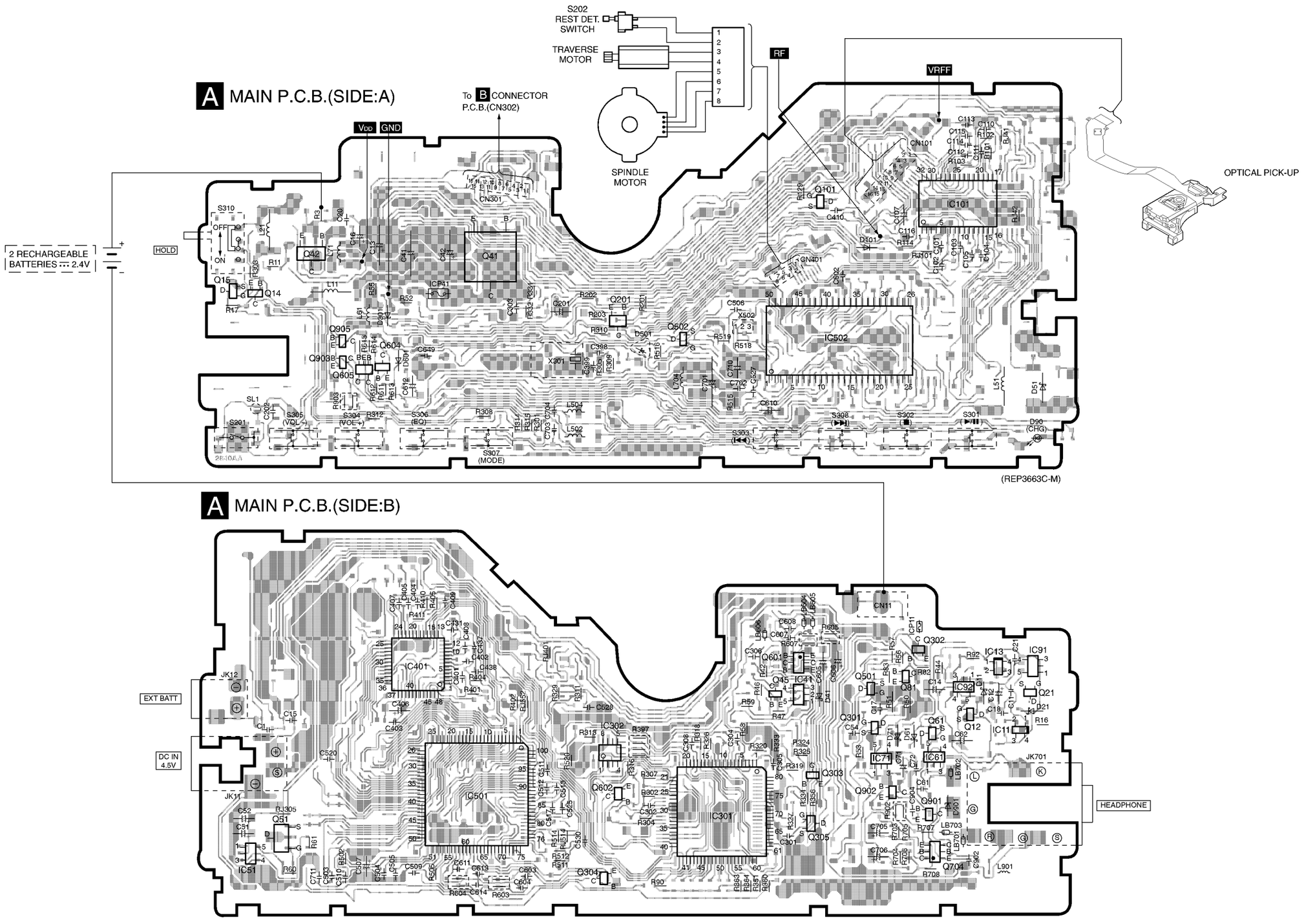
:POSITIVE VOLTAGE LINE :PLAYBACK SIGNAL LINE



SL-J905(GC,GD) SPEAKER AMP 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.



SL-J905(GC,GD) MAIN P.C.B.

H

G

F

E

D

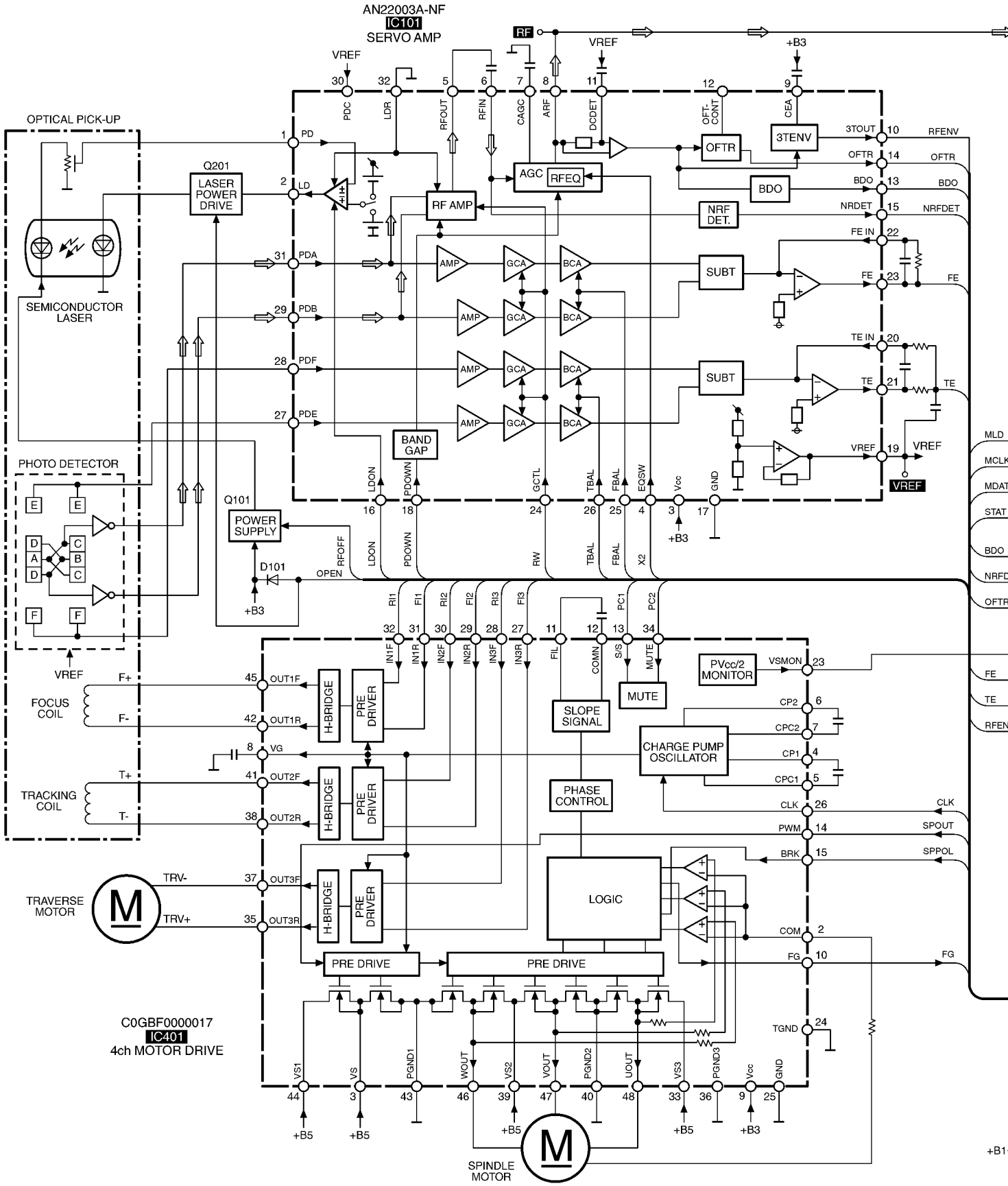
C

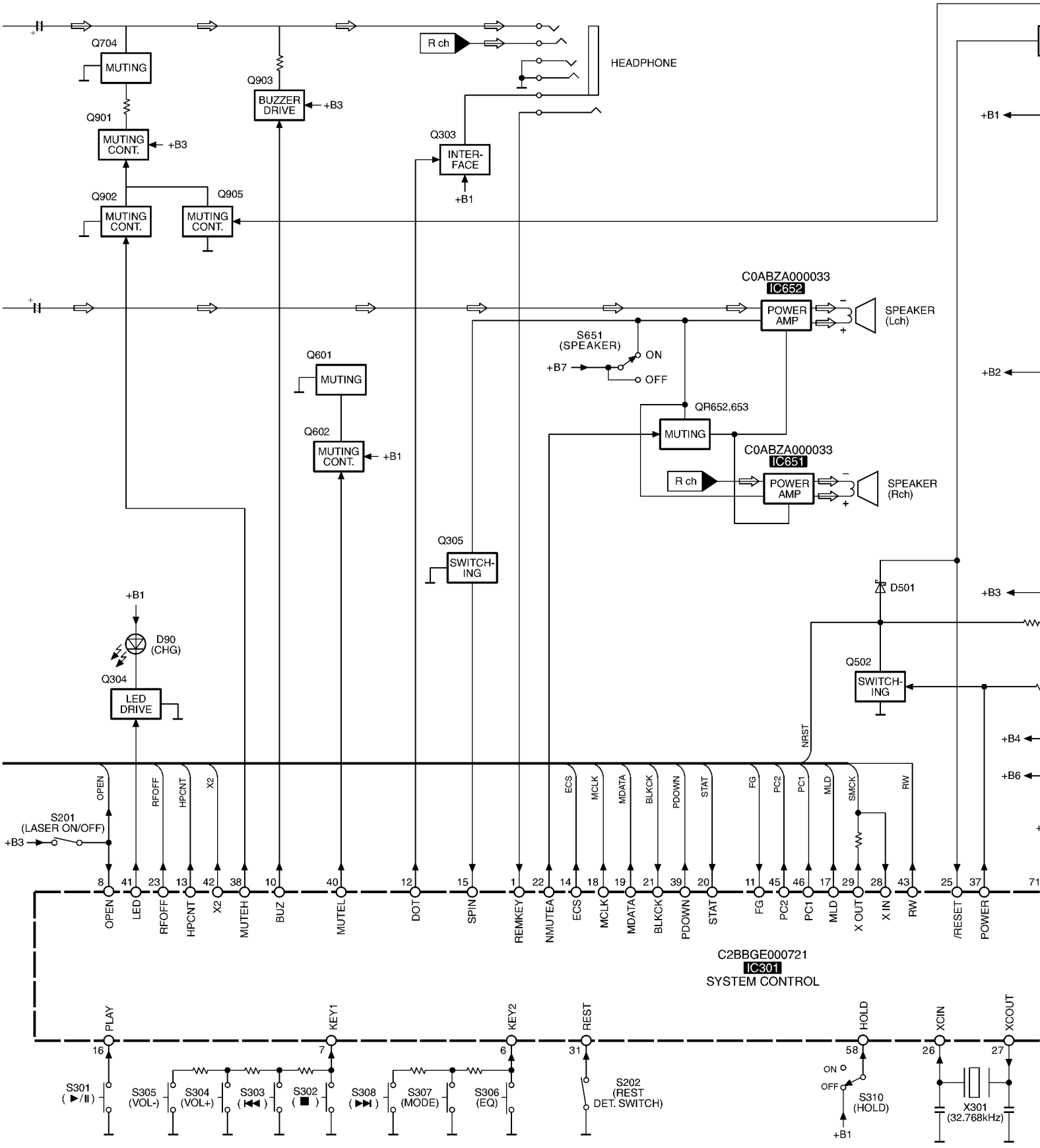
B

A

1 2 3 4 5 6 7 8 9 10 11 12 13

13 Block Diagram




Q704
MUTING
Q903
BUZZER DRIVE
+B3
Q901
MUTING CONT.
+B3
Q902
MUTING CONT.
Q905
MUTING CONT.
R ch
HEADPHONE
Q303
INTER-FACE
+B1
C0ABZA000033
IC652
POWER AMP
SPEAKER (Lch)
S651 (SPEAKER)
+B7
ON
OFF
Q601
MUTING
Q602
MUTING CONT.
+B1
QR652,653
MUTING
C0ABZA000033
IC651
R ch
POWER AMP
SPEAKER (Rch)
Q305
SWITCH-ING
+B1
D90 (CHG)
Q304
LED DRIVE
D501
Q502
SWITCH-ING
+B1
+B2
+B3
+B4
+B6
NPRST
S201 (LASER ON/OFF)
+B3
OPEN
RFOFF
HPCNT
X2
ECS
MCLK
MDATA
BLKCK
PDOWN
STAT
FG
PC2
PC1
MLD
SMCK
RW
8 OPEN
41 LED
23 RFOFF
13 HPCNT
42 X2
38 MUTEH
10 BUZ
40 MUTEL
12 DOT
15 SPIN
1 REMKEY
22 NMUTEA
14 ECS
18 MCLK
19 MDATA
21 BLKCK
39 PDOWN
20 STAT
11 FG
45 PC2
46 PC1
17 MLD
29 X OUT
28 X IN
43 RW
25 /RESET
37 POWER
71
C2BBGE000721
IC301
SYSTEM CONTROL
16 PLAY
7 KEY1
6 KEY2
31 REST
58 HOLD
26 XCIN
27 XCOUT
S301 (▶/II)
S305 (VOL-)
S304 (VOL+)
S303 (⏮)
S302 (■)
S308 (⏭)
S307 (MODE)
S306 (EQ)
S202 (REST DET. SWITCH)
ON
OFF
S310 (HOLD)
+B1
X301 (32.768kHz)

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	APC amplifier output terminal
3	V_{CC}	I	Power supply terminal
4	EQSW	I	EQ characteristic drive signal input
5	RF OUT	O	RF addition amp output
6	RF IN	I	AGC signal input
7	CAGC	-	AGC loop filter capacitance connect terminal
8	ARF	O	RF signal output
9	CEA	-	Capacitor for H.P.F. connected terminal
10	3TOUT	O	RF envelope signal output
11	DC DET	-	Capacitor for H.P.F. connected terminal
12	OFTCONT	-	Not used, open
13	BDO	O	Dropout signal output
14	OFTR	O	Off-track signal output
15	NRFDET	O	RF detection signal output
16	LDON=H	I	Laser ON signal input
17	GND	-	GND
18	PDOWN =H	I	Headamp power OFF signal input
19	VREF	O	Reference voltage output terminal
20	TE IN	I	Tracking error amplifier input terminal
21	TE	O	Tracking error amplifier output terminal
22	FE IN	I	Focus error amplifier input terminal
23	FE	O	Focus error amplifier output terminal
24	GCTL	I	Input for CD-RW
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 input terminal
31	PDA	I	Focus signal input terminal
32	LDR	-	Connected to GND

14.2. IC301(C2BBGE000721): System Control

Pin No.	Terminal Name	I/O	Function
1	REMKEY	I	Remote control key signal input
2	DOCTOR	I	Connected to power supply though resistor
3	VMONI TOR2	I	Battery remaining measurement/battery shorting detect signal
4	VMONI TOR1	I	Rechargeable battery voltage signal input
5	SW	I	Operation key for speaker signal input
6	KEY2	I	Operation key signal input
7	KEY1		
8	OPEN	I	CD cover open detect signal input
9	CHARGE1	O	Charging ON signal output
10	BUZ	O	Buzzer control output terminal
11	FG	I	Pulse input terminal for spindle motor rotating measurement
12	DOT	O	Communication signal output for LCD driver/Remote control power off output
13	HPCNT	O	Headphone output control signal
14	ECS	O	EEPROM communication signal output
15	SPIN	I	Speaker ON/OFF input
16	PLAY	I	PLAY key signal input
17	MLD	O	Serial command latch output
18	MCLK	O	Serial command clock output/EEPROM clock signal output
19	MDATA	O	Serial command data output/EEPROM data signal input/output
20	STAT	I	Status signal input
21	BLKCK	I	Sub code block clock signal input
22	MUTEA	O	Mute signal output for speaker/battery charger
23	RF-OFF	O	Hologram laser power off output
24	TYPESEL	I	Not used, connected to GND via resistor
25	/RESET	I	Reset detect signal input
26	XCIN	I	Oscillator connected terminal (F=32.7 kHz)
27	XCOUT	O	
28	XIN	I	System clock signal
29	XOUT	O	
30	V_{SS}	-	GND
31	REST	I	Rest detect switch signal input
32	NC	-	Not used, open
33	ZAN2	-	Not used, open
34	ZAN	-	Not used, open
35	JLED	O	Not used, connected to GND
36	NC	-	Not used, open
37	POWER	O	Power supply detect signal output
38	MUTEH	O	Headphone amp muting signal output
39	PDOWN	I	Headamp power OFF signal input
40	MUTEL	O	Line out muting signal output
41	LED	O	LED for recharging output select signal
42	X2	O	RF equalizer twice speed signal output
43	RW	O	Output for CD-RW
44	JUDGE	-	Not used, open
45	PC2	O	Driver (3 ch) OFF signal output
46	PC1	O	Driver (1 ch) OFF signal output
47	TYPSEL3	-	Not used, open
48	TYPSEL	-	Not used, open
49	CHGSEL	-	Not used, open
50	PMSEL2	-	Not used, open
51	PMSEL	-	Not used, open
52	RAMSEL	-	Not used, open
53	KANASEL	-	Not used, open
54	NC	-	Not used, open
55	NC	-	Not used, connected to GND
56	A.SHOCK SEL	-	Not used, connected to GND
57	A.SHOCK	-	Not used, connected to GND
58	HOLD	I	HOLD switch signal input
59 | 70	SEG11 | SEG0	-	Not used, open
71	V_{CC}	I	Power supply terminal
72	VREF	I	Reference voltage input terminal
73	AV_{SS}	-	GND
74 | 77	COM3 | COM0	-	Not used, open
78	VL3	-	Not used, open
79	VL2	-	Not used, open
80	VL1	-	Not used, open

14.3. IC501(MN6627935CJ): 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 input/output signal
5	UDQM	O	High byte data mask signal output
6	SDRCK	O	Clock signal output
7	A11	-	Not used, open
8 | 13	A9 | A4	O	DRAM address signal output
14	LDQM	O	Low byte data mask signal output
15	NWE	O	Write enable signal output
16	NCAS	O	CAS control signal output
17	NRAS	O	RAS control signal output
18	NCS	O	Chip select signal output
19 | 22	A3 | A0	O	DRAM address signal output
23	$DRV_{DD}1$	I	Power supply terminal
24	$DV_{SS}1$	-	GND
25	A10	O	DRAM address signal output
26	BA1	-	Not used, open
27	BA0	O	Bank select signal output
28	$DV_{DD}1$	I	Power supply terminal
29	SPOUT	O	Spindle motor drive output terminal
30	SPPOL	O	Spindle motor drive output terminal
31	TRVP	O	Traverse drive (+) output terminal
32	TRVM	O	Traverse drive (-) output terminal
33	IPFLAG2	-	Not used, open
34	GOUT4	-	Not used, connected to GND
35	TRP	O	Tracking coil drive (+) output terminal
36	TRM	O	Tracking coil drive (-) output terminal
37	FOP	O	Focus coil drive (+) output terminal
38	FOM	O	Focus coil drive (-) output terminal
39	$IOV_{DD}1$	I	Power supply terminal
40	TBAL	O	Tracking balance adjustment signal output
41	FBAL	O	Focus balance adjustment signal output
42	FE	I	Focus error signal input terminal
43	TE	I	Tracking error signal input terminal
44	$ADPV_{CC}$	I	A/D convertor reference voltage input
45	RFENV	I	RF envelope signal input terminal
46	LDON	O	Laser ON signal output
47	NRFDET	I	RF detection signal input terminal
48	OFT	I	Off-track signal input terminal
49	BDO	I	Dropout signal input terminal
50	AV_{DD}	I	Power supply terminal
51	IREF	I	Reference current input terminal
52	ARF	I	RF signal input terminal
53	DSLF	O	DSL loop filter
54	PWMSEL	I	PWM output mode select signal
55	PLLF	O	PLL loop filter
56	PLLFO	O	PLL loop filter
57	AV_{SS}	-	GND
58	LOOUTL	O	L ch for line out audio output
59	LOV_{SS}	-	GND
60	LOOUTR	O	R ch for line out audio output
61	LOV_{DD}	I	Power supply terminal
62	HPCNT	I	Headphone output control signal
63	HPOUTR	O	R ch for headphone signal output
64	HPV_{DD}	I	Power supply terminal
65	HPV_{SS}	-	GND
66	HPOUTL	O	L ch for headphone signal output
67	$DV_{DD}3$	I	Power supply terminal
68	$DV_{SS}2$	-	GND
69	EXT0	-	Not used, open
70	EXT1	-	Not used, open
71	EXT2	-	Not used, open
72	MCLK	I	Serial command clock input
73	MDATA	I	Serial command data input
74	MLD	I	Serial command latch input
75	STAT	O	Status signal output terminal
76	BLKCK	O	Sub-code block clock signal output
77	SMCK	O	System clock signal output
78	CLVS	-	Not used, open
79	TX	-	Not used, open
80	FLAG0	-	Not used, open
81	NRST	I	Reset signal input
82	NTEST	I	Test signal
83	$DV_{SS}3$	-	GND
84	X1	I	Oscillator connected (F=16.9 MHz)
85	X2	O	
86	$IOV_{DD}2$	I	Power supply terminal
87	$DV_{DD}2$	I	Power supply terminal
88	D2	I/O	DRAM data signal input/output
89	D1	I/O	DRAM data signal input/output
90	D0	I/O	DRAM data signal input/output
91 | 95	D3 | D7	I/O	DRAM data signal input/output
96	D15	I/O	DRAM data signal input/output
97	D14	I/O	DRAM data signal input/output
98	$DRV_{DD}2$	I	Power supply terminal
99	D13	I/O	DRAM data signal input/output
100	D12	I/O	DRAM data signal input/output

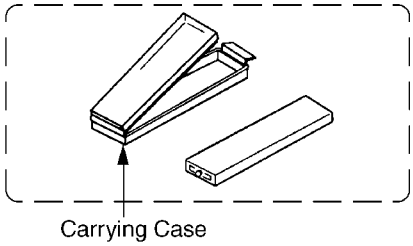
15 Supply of Rechargeable Battery as Replacement Parts

Please take note of the following points relating to Carrying Case to be used for protection of Rechargeable Battery from shorting.

Replacement Parts:

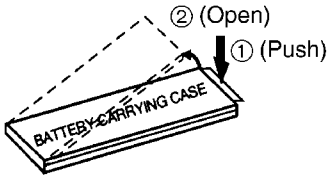
- Rechargeable Battery (RFKFHFAZ09EM) to be supplied will be provided with Carrying Case.
- The rechargeable batteries for accessories are contained a pair of two batteries, however, for replacement parts, that is supplied one by one.
- No replacement parts will be supplied for Rechargeable Battery without Carrying Case.
- Replacement parts will be supplied for Carrying Case (RFC0062-X) without Rechargeable Battery.
- To your customers, delivery Rechargeable Battery together with Carrying Case to prevent shorting accidents that may occur when Rechargeable Battery is carried about without Carrying Case.

RFKFHFAZ09EM
(Rechargeable Battery with Carrying Case)



16 Caution in use of Rechargeable Battery

- Take Rechargeable Battery out of Carrying Case and use it.
- Be sure to carry Rechargeable Battery in this Carrying Case.
  If not, may either heat or ignite by shorting with a metal.



17 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 Remarks columns specify the areas.

  (GC): SL-J905GC

  (GD): SL-J905GD

- The marking [RTL] indicates that 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	RAE0223Z-M	TRAVERSE DECK UNIT	1	⚠
1-1	RMG0503-K1	FLOATING RUBBER	3	
1-2	RXQ0798	MOTOR ASS´Y	1	
1-3	RAF0223A	OPTICAL PICK-UP	1	⚠
1-4	RDG0554	GEAR 1	1	
1-5	RDG0555	GEAR 2	1	
1-6	RHD14092-K	SCREW	1	
1-7	RJB2447A-1	FFC	1	
1-8	RMC0451-1	SPRING PLATE	1	
1-9	RMC0452	SPRING	1	
1-10	RMS0782	SHAFT	1	
1-11	XQN17+BG45	SCREW	3	
2	RGV0308-H	KNOB,HOLD	1	
3	RJC99048	BATTERY TERMINAL(-)	1	
4	RMC0536	EARTH SPRING	1	
5	RHE5079YA	SCREW	1	
6	XTN17+6GFZ	SCREW	6	
7	REZ1476	FFC	1	
8	RJC99049	BATTERY TERMINAL(+)	1	
9	RKS0367B-S	BOTTOM CABINET	1	
10	RMQ1270	SHAFT 1	1	
11	RMB0776	SPRING	1	
12	RMQ1289	SPACER	2	
13	RYF0691-S	CD LID	1	
14	RGU2147-S1	BUTTON,	2	
15	RGV0307-S1	KNOB,OPEN	1	
16	RKK0167A-S2	BATTERY COVER	1	
17	RKM0472A-S	MIDDLE CABINET	1	
18	RKW0700-Q	ILLUMINATION PIECE	1	
19	RMB0723	SPRING	1	
20	RMV0248	HEAT SHEET	1	
21	RGN2581-H	NAME PLATE	1	(GC)
21	RGN2585-H	NAME PLATE	1	(GD)
22	XQN14+CG6FC	SCREW	2	
23	RMQ1269	SHAFT 2	1	
24	RQLS0244	LASER LABEL	1	(GC)
31	L0AC18A00001	SPEAKER	2	
32	RGN2606-S	NAME PLATE	1	
33	RHD14120-K	SCREW	4	
34	RMQ1264	COVER	1	
35	RMR1583-S	LOCK PIECE	2	
36	RQLA0808	CAUTION LABEL	1	(GC)
37	XQN14+CG5FC	SCREW	7	
38	RYQ0474-S	SP BOX	1	
39	RHD10002	SCREW	1	
40	RGV0251-H	KNOB,SP ON/OFF	1	
41	RGK1722-S	COVER	1	
42	RGP1041-S	PANEL	1	
A1	RFKFHFAZ09EM	RECHARGEABLE BATT. ASS´Y	2	
A2	K2DA42E00001	POWER PLUG ADAPTOR	1	(GC) ⚠
A3	L0BAB0000176	STEREO EARPHONES	1	
A4	N0JDCE000001	AC ADAPTOR	1	(GC) ⚠
A4	RFEA438Q-S	AC ADAPTOR	1	(GD) ⚠
A5	N2QCBD000037	REMOTE CONTROL	1	
A6	RFA1821-H	EXTERNAL BATTERY CASE	1	
A7	RFC0071A-C	SOFT CASE	1	
A8	RQT7225-K	OPERATING INSTRUCTIONS	1	(GC)CHAINESE
A8	RQT7226-A	OPERATING INSTRUCTIONS	1	(GC)ARABIC
A8	RQT7224-B	OPERATING INSTRUCTIONS	1	(GC)ENGLISH
A8	RQT7228-Z	OPERATING INSTRUCTIONS	1	(GD)KOREAN
A9	RFE0146	ACTIVE SPEAKER SYSTEM	1	(GC)
A9	RFE0149	ACTIVE SPEAKER SYSTEM	1	(GD)
A10	RFC0062-X	BATTERY CARRYING CASE	1	
C1	ECJ1VB1H332K	50V 3300P	1	
C11	ECJ1VC1H101K	50V 100	1	
C12	ECST0JY226R	6.3V 22U	1	
C13	F3H1A476A001	10V 47U	1	
C14	F3G0G1070001	4V 100U	1	
C15	ECJ1VF1C104Z	16V 0.1U	1	
C16	RCST0GY476RG	4V 47U	1	F3F0G4760001
C17,18	F1H1A105A025	10V 1U	2	
C20	F1H1A105A025	10V 1U	1	
C21	ECJ1VC1H101K	50V 100	1	
C41,42	F3H1A227A011	10V 220U	2	
C51,52	F3F0J4760003	6.3V 47U	2	
C54	F1H1C104A056	16V 0.1U	1	
C61	ECJ1VC1H101K	50V 100	1	
C62	RCSX0GY226RE	4V 22U	1	F3F0G226A001
C71	ECST0JY226R	6.3V 22U	1	
C72	F1H1C104A008	16V 0.1U	1	
C101	F1H1A105A025	10V 1U	1	
C102	ECJ1VF1A105Z	10V 1U	1	
C103	ECJ1VB1E223K	25V 0.022U	1	
C104	ECJ1VF1A105Z	10V 1U	1	
C105	ECJ1VB1E223K	25V 0.022U	1	
C107	F3G0G1070001	4V 100U	1	
C110	ECJ1VB1H152K	50V 1500P	1	
C111	ECJ1VC1H181J	50V 180P	1	
C112	ECJ1VB1H221K	50V 220P	1	
C113	F1H1A105A025	10V 1U	1	
C114,15	ECJ1VB1E223K	25V 0.022U	2	
C116	F1H1A105A025	10V 1U	1	
C201	ECST0JY226R	6.3V 22U	1	
C202	ECUVNJ475MBN	6.3V 4.7U	1	F1J0J4750002
C301,02	ECJ1VF1A105Z	10V 1U	2	
C303-05	F1H1H472A219	50V 4700P	3	
C306	F1H1C104A008	16V 0.1U	1	
C308	F1H1C104A008	16V 0.1U	1	
C398,99	ECUV1H100DCV	50V 10P	2	ECJ1VC1H100D
C401-03	F1H1C104A056	16V 0.1U	3	
C404	ECJ1VF1A105Z	10V 1U	1	
C405	F1H1H472A219	50V 4700P	1	
C406	ECST0JY226R	6.3V 22U	1	
C407	F1H1A224A028	10V 0.22U	1	
C408-10	F1H1A105A025	10V 1U	3	
C431	ECJ1VB1H222K	50V 2200P	1	
C437	ECJ1VF1A105Z	10V 1U	1	

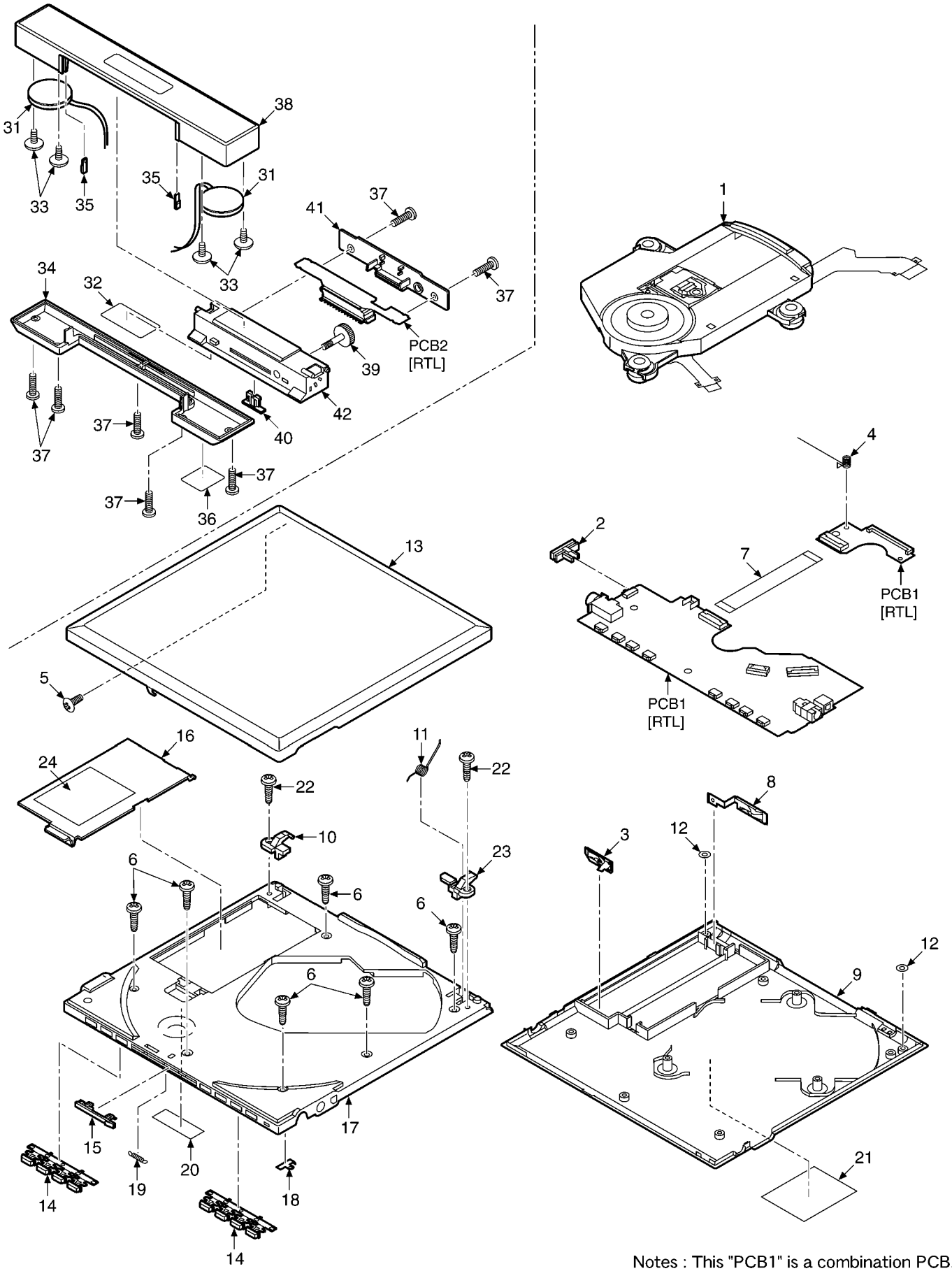
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C438	F1H1A105A025	10V 1U	1	
C502	F1H1C104A008	16V 0.1U	1	
C503	ECJ1VC1H391J	50V 390P	1	
C504	F1H1C104A008	16V 0.1U	1	
C505	ECJ1VB1E223K	25V 0.022U	1	
C506	ECJ1VF1A105Z	10V 1U	1	
C507	F3G0G1070001	4V 100U	1	
C509	F1H1C104A056	16V 0.1U	1	
C510-13	F1H1C104A008	16V 0.1U	4	
C517	ECJ1VF1A105Z	10V 1U	1	
C520	F1H1C104A008	16V 0.1U	1	
C525	F1H1A105A025	10V 1U	1	
C527	F1H1C104A008	16V 0.1U	1	
C528	ECJ1VB1H102K	50V 1000P	1	
C530	ECJ1VC1H330J	50V 33P	1	
C603,04	ECJ1VB1H682K	50V 6800P	2	
C605,06	F3F1A1060002	10V 10U	2	
C607,08	ECJ1VB1H681K	50V 680P	2	
C610	RCST0GY476RG	4V 47U	1	F3F0G4760001
C611	F1H1C104A056	16V 0.1U	1	
C612	RCSX0GY226RE	4V 22U	1	F3F0G226A001
C613,14	ECJ1VB1H222K	50V 2200P	2	
C649	F1H1C104A008	16V 0.1U	1	
C651,52	ECUV1C223KBV	16V 0.022U	2	ECJ1VB1C223K
C653,54	ECJ1VC1H181J	50V 180P	2	
C657-59	F1H1A105A028	10V 1U	3	
C660	ECJ1VF1A105Z	10V 1U	1	F1H1A105A030
C661	EEEHB0J101P	6.3V 100	1	
C701	F3H1A227A011	10V 220U	1	
C702	F1H1A105A025	10V 1U	1	
C703,04	F1H1C104A056	16V 0.1U	2	
C705,06	F3G0E1570001	2.5V 150U	2	
C710	F3F0J4760003	6.3V 47U	1	
C711	ECJ1VB1H102K	50V 1000P	1	
C902	F1H1C104A056	16V 0.1U	1	
C904	F1H1C104A008	16V 0.1U	1	
C997	ECUV1H100CCV	50V 10P	1	F1H1H100A722
CN11	RJC99042-1	BATT.TERMINAL	1	
CN101	RJS2A4616T	CONNECTOR(16P)	1	K1MN16B00063
CN301,02	RJS2A4616T	CONNECTOR(16P)	2	K1MN16B00063
CN303	K4BZ14E00001	CONNECTOR(14P)	1	
CN401	K1MN08B00063	CONNECTOR(8P)	1	
P601	K4BZ14E00002	CONNECTOR(14P)	1	
D11	B0JCMC000006	DIODE	1	
D21	MA2J72900L	DIODE	1	
D41	MA1070400L	DIODE	1	MA2J70400L
D51	B0JCME000012	DIODE	1	
D61	MA2J72900L	DIODE	1	
D71	MA2J72900L	DIODE	1	
D90	B3AAB0000075	LED	1	
D101	MA2J11100L	DIODE	1	
D301	MAZ80560ML	DIODE	1	
D501	SB00703QTL	DIODE	1	B0JCBD000002
D601	MA2J11100L	DIODE	1	
D901	MAZ80560ML	DIODE	1	
IC11	C0EBD0000150	IC	1	
IC13	C0EBC0000087	IC	1	
IC41	C0CBZBZ00001	IC	1	
IC51	C0DBAFZ00035	IC	1	
IC61	C0DBAFB00016	IC	1	
IC71	C0CBABZ00004	IC	1	
IC91	C0CBZAZ00001	IC	1	
IC92	C0DBAFA00023	IC	1	
IC101	AN22003A-NF	IC	1	
IC301	C2BBGE000721	IC	1	
IC302	C3EBCG000096	IC	1	
IC401	C0GBF0000017	IC	1	
IC501	MN6627935CJ	IC	1	
IC502	C3ABMG000103	IC	1	
IC651,52	C0ABZA000033	IC	2	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
ICP11	K5H1522A0018	IC PROTECTOR	1	⚠
ICP41	ERY32SB075VA	IC PROTECTOR	1	⚠
JK11	K2FB3B000003	JK,DC IN	1	
JK12	K2FB2B000003	JK,EXT BATT.	1	
JK701	K2HC106B0008	JK,HEADPHONE	1	
L11	RL09U028T-T	COIL	1	G1C470MA0011
L21	G1C330MA0035	COIL	1	
L51	G1C330MA0035	COIL	1	
L61	RLQU101KT-W	COIL	1	G1C101K00008
L71	G1C331MA0031	COIL	1	G1C331MA0030
L502	RLQU101KT-W	COIL	1	G1C101K00008
L504	RLQU101KT-W	COIL	1	G1C101K00008
L704	G1C471K00007	COIL	1	
L901	RLBV102V-Y	COIL	1	J0JBC0000014
LB604,05	RLBV102V-Y	COIL	2	J0JBC0000014
LB606	J0JCC0000181	COIL	1	
LB701,02	RLBV102V-Y	COIL	2	J0JBC0000014
LB703	J0JCC0000181	COIL	1	
P1	RPK2044	GIFT BOX	1	
P2	RPQ1709	PAD 1	1	(GC)
P2	RPQ1708	PAD 1	1	(GD)
P3	RPF0111-2	PROTECTION BAG	1	
P4	XZB10X20A04Z	POLYETHYLENE COVER	1	
PCB1	REP3663C-M	MAIN P.C.B.	1	[RTL]
PCB2	REP3627A-T	SP P.C.B.	1	[RTL]
Q12	B1CFNC000001	TRANSISTOR	1	
Q14	2SD1819A0L	TRANSISTOR	1	
Q15	B1CHGD000004	TRANSISTOR	1	
Q21	B1CHMC000001	TRANSISTOR	1	
Q41	2SB1182TLPQR	TRANSISTOR	1	B1BDND000001
Q42	B1ABMD000004	TRANSISTOR	1	
Q45	2SD1819A0L	TRANSISTOR	1	
Q51	B1DFDC000003	TRANSISTOR	1	
Q61	B1CHMC000001	TRANSISTOR	1	
Q81	2SD1819A0L	TRANSISTOR	1	
Q101	B1CHGD000004	TRANSISTOR	1	
Q201	2SB709A	TRANSISTOR	1	2SB0709A
Q301	B1CHGD000004	TRANSISTOR	1	
Q302,03	B1GDCFJN0011	TRANSISTOR	2	
Q304	UN521MTX	TRANSISTOR	1	UNR521M00L
Q305	B1CFHA000001	TRANSISTOR	1	
Q501	B1CHMC000001	TRANSISTOR	1	
Q502	B1CFHA000001	TRANSISTOR	1	
Q601	XN0F26100L	TRANSISTOR	1	
Q602	B1GDCFJN0011	TRANSISTOR	1	
Q604	2SB1218A	TRANSISTOR	1	
Q605	XP1501TX	TRANSISTOR	1	XP0150100L
Q704	B1GFGCAA0001	TRANSISTOR	1	
Q901	B1GDCFJN0011	TRANSISTOR	1	
Q902	UN5210TW	TRANSISTOR	1	UNR521000L
Q903	UN5113TW	TRANSISTOR	1	
Q905	UN5214TX	TRANSISTOR	1	UNR521400L
QR652	UN5213TX	TRANSISTOR	1	UNR521300L
QR653	UN5113TW	TRANSISTOR	1	
R3	D0YBR0000010	10K	1	
R11	ERJ3GEYJ472V	1/10W 4.7K	1	
R16	ERJ3GEYJ105V	1/10W 1M	1	
R17	ERJ3GEYJ104	1/10W 100K	1	
R42	ERJ3GEYJ4R7V	1/10W 4.7	1	
R44	ERJ3GEYJ271V	1/10W 270	1	
R46	ERJ3GEYJ473V	1/10W 47K	1	D0GB473JA002
R47	ERJ3GEYJ223V	1/10W 22K	1	D0GB223JA002
R50	ERJ8GEYJ2R2V	1/4W 2.2	1	
R51	ERJ8GEYJ2R7V	1/4W 2.7	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R52	ERJ3GEYJ105V	1/10W 1M	1	
R53	ERJ3GEYJ104	1/10W 100K	1	
R55,56	ERJ3GEYJ104	1/10W 100K	2	
R57	ERJ3GEYJ102V	1/10W 1K	1	
R58	ERJ3RBD473	1/16W 47K	1	
R59	ERJ3RBD683V	1/16W 68K	1	
R60,61	ERJ3GEY0R00V	1/10W 0	2	
R82,83	ERJ3GEYJ123V	1/10W 12K	2	
R90	ERJ3GEYJ181V	1/10W 180	1	
R92	ERJ3GEYJ105V	1/10W 1M	1	
R101	ERJ3GEYJ823V	1/10W 82K	1	D0GB823JA002
R102	ERJ3GEYJ103V	1/10W 10K	1	D0GB103JA002
R103	ERJ3GEYJ124V	1/10W 120K	1	D0GB124JA002
R114	ERJ3GEYJ3R3V	1/10W 3.3	1	
R129	ERJ3GEYJ104	1/10W 100K	1	
R201	ERJ3GEYJ2R2V	1/10W 2.2	1	D0GB2R2JA002
R202	ERJ3GEYJ223V	1/10W 22K	1	D0GB223JA002
R203	ERJ3GEYJ1R0V	1/10W 1	1	
R301	ERJ3GEYJ472V	1/10W 4.7K	1	
R302	ERJ3GEYJ104	1/10W 100K	1	
R303	ERJ3GEYJ102V	1/10W 1K	1	
R304	ERJ3GEYJ105V	1/10W 1M	1	
R305	ERJ3GEYJ335V	1/10W 3.3M	1	
R307	ERJ3GEYJ104	1/10W 100K	1	
R308	ERJ3GEYJ822V	1/10W 8.2K	1	D0GB822JA002
R309	ERJ3GEYJ104	1/10W 100K	1	
R310,11	ERJ3GEYJ102V	1/10W 1K	2	
R312	ERJ3GEYJ273V	1/10W 27K	1	D0GB273JA002
R313	ERJ3GEYJ102V	1/10W 1K	1	
R314	ERJ3GEYJ123V	1/10W 12K	1	
R315	ERJ3GEYJ273V	1/10W 27K	1	D0GB273JA002
R316	ERJ3GEYJ102V	1/10W 1K	1	
R318	ERJ3GEYJ104	1/10W 100K	1	
R319,20	ERJ3GEYJ102V	1/10W 1K	2	
R324	ERJ3RBD273V	1/16W 27K	1	
R325	ERJ3GEYJ333V	1/10W 33K	1	D0GB333JA002
R326	ERJ3GEYJ104	1/10W 100K	1	
R327	ERJ3GEYJ105V	1/10W 1M	1	
R329	ERJ3GEYJ104	1/10W 100K	1	
R331,32	ERJ3GEYJ103V	1/10W 10K	2	D0GB103JA002
R333	ERJ3RBD223	1/16W 47K	1	
R334	ERJ3GEYJ104	1/10W 100K	1	
R351	ERJ3GEYJ104	1/10W 100K	1	
R356	ERJ3GEYJ104	1/10W 100K	1	
R360	ERJ3GEYJ104	1/10W 100K	1	
R363,64	ERJ3GEYJ104	1/10W 100K	2	
R397	EXBV8V104JV	1/16W 100K	1	
R401	ERJ3GEYJ472V	1/10W 4.7K	1	
R402	ERJ3GEYJ330V	1/10W 33	1	D0GB330JA002
R404	ERJ3GEY0R00V	1/10W 0	1	
R405	ERJ3GEYJ473V	1/10W 47K	1	D0GB473JA002
R410,11	ERJ3GEYJ335V	1/10W 3.3M	2	
R502	ERJ3GEYJ683V	1/10W 68K	1	D0GB683JA002
R505	MCR03PZHJ561	1/16W 560	1	
R511,12	ERJ3GEYJ222V	1/10W 2.2K	2	
R514	ERJ3GEYJ681V	1/10W 680	1	D0GB681JA002
R515	ERJ3GEYJ150V	1/10W 15	1	
R516	ERJ3GEYJ104	1/10W 100K	1	
R518	ERJ3GEYJ105V	1/10W 1M	1	
R519	ERJ3GEYJ471V	1/10W 470	1	
R520	ERJ3GEYJ222V	1/10W 2.2K	1	
R603,04	EXBV4V271JV	1/16W 270	2	
R605	EXBV4V473JV	1/32W 47K	1	
R607	EXBV4V102JV	1/32W 1K	1	
R611,12	ERJ3GEYJ682V	1/10W 6.8K	2	D0GB682JA002
R613	ERJ3GEYJ222V	1/10W 2.2K	1	
R614	ERJ3GEYJ224V	1/10W 220K	1	D0GB224JA002
R615	ERJ3GEYJ103V	1/10W 10K	1	D0GB103JA002
R651,52	ERJ3GEYJ823V	1/10W 82K	2	D0GB823JA002
R653,54	ERJ3GEYJ223V	1/10W 22K	2	D0GB223JA002
R655,56	ERJ3GEYJ393V	1/10W 39K	2	D0GB393JA002
R657	ERJ3GEYJ823V	1/10W 82K	1	D0GB823JA002
R658	ERJ3GEYJ103V	1/10W 10K	1	D0GB103JA002

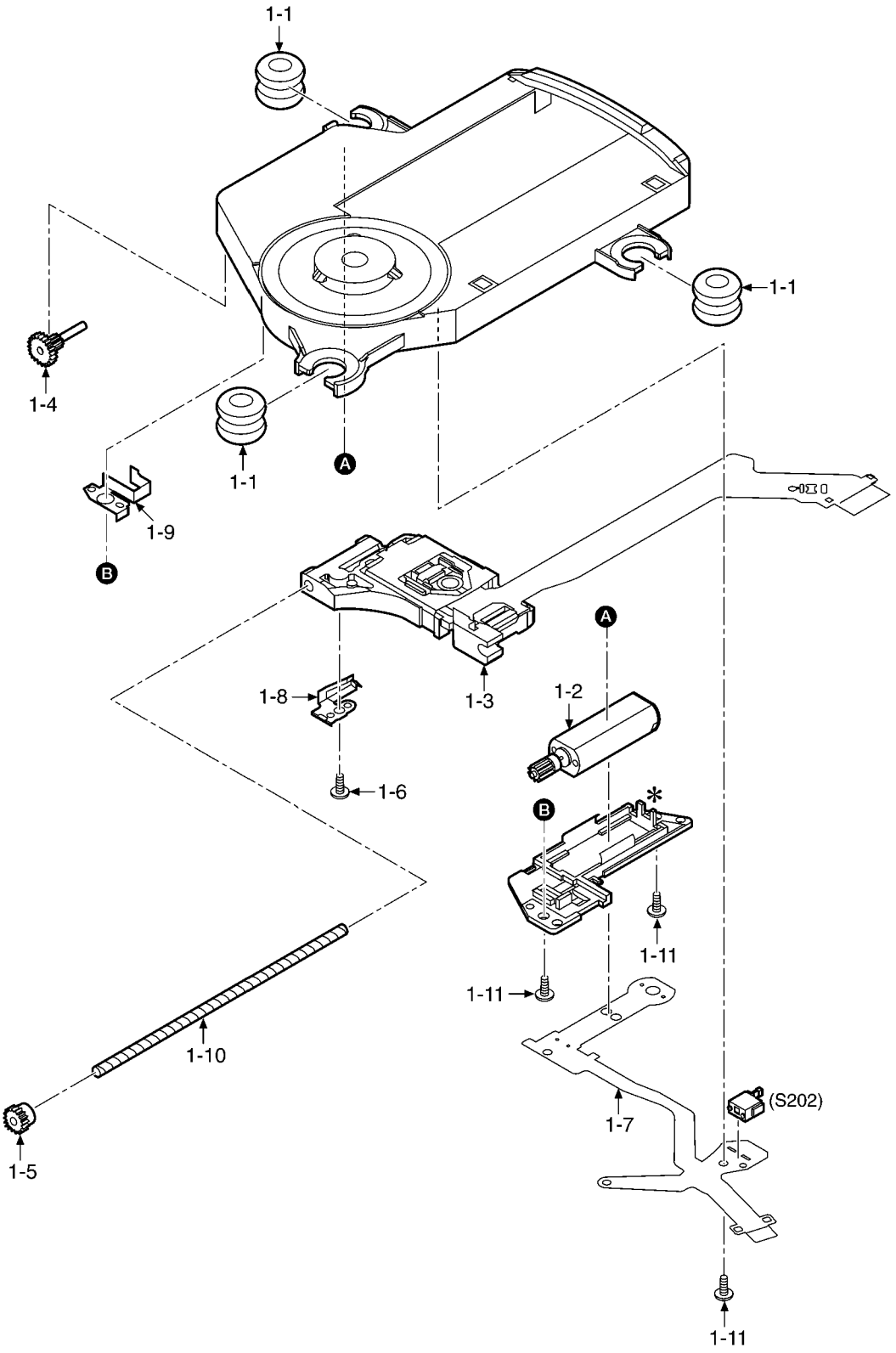
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R659	ERJ3RED474	1/16W 470K	1	
R703,04	ERJ3GEYJ4R7V	1/10W 4.7	2	
R705,06	ERJ3GEYJ3R3V	1/10W 3.3	2	
R707,08	ERJ3GEYJ102V	1/10W 1K	2	
R902	EXBV4V821JV	1/32W 820	1	
R903	EXBV4V102JV	1/32W 1K	1	
RJ41,42	ERJ3GEY0R00V	1/10W 0	2	
RJ101	ERJ3GEY0R00V	1/10W 0	1	
RJ305	ERJ3GEY0R00V	1/10W 0	1	
RJ401	ERJ3GEY0R00V	1/10W 0	1	
RJ514	ERJ3GEY0R00V	1/10W 0	1	
RJ552	ERJ3GEY0R00V	1/10W 0	1	
S201	RSH1A039-A	SW,LASER ON/OFF	1	K0L1BA000037
S202	RSP1A024-A	SW,REST DET.	1	K0L1BA000029
S301-08	EVQ1PG02K	SW,OPERATION	8	
S310	RSS2A010-1A	SW,HOLD	1	K0D112B00071
S651	RSS2A010-1A	SW,SP ON/OFF	1	K0D112B00071
X301	H0J327200097	OSCILLATOR	1	
X502	H2D169500017	OSCILLATOR	1	

18 Cabinet Parts Location



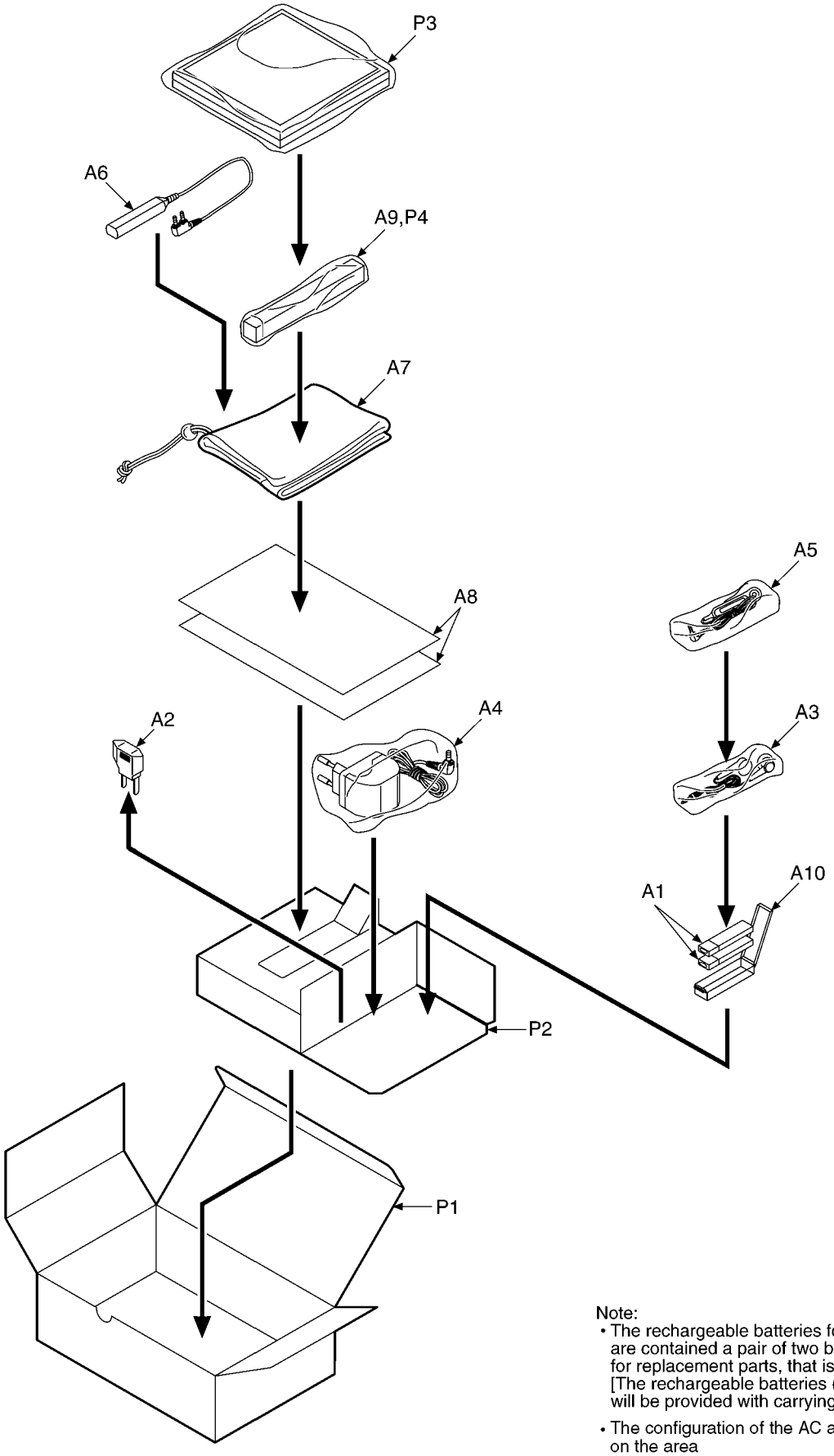
Notes : This "PCB1" is a combination PCB.

19 Traverse Unit Parts Location



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

20 Packaging



Note:
- The rechargeable batteries for accessories are contained a pair of two batteries , however, for replacement parts, that is supplied one by one. [The rechargeable batteries (A1) to be supplied will be provided with carrying case.]
- The configuration of the AC adaptor (A4) depends on the area