ORDER No.AD0003048A2

Service Manual

Portable CD Player

SL-CT470

Traverse Deck: RAE0220Z Mechanism Series

Colours

(S).....Silver Type

(A).....Blue Type

Areas

EB.....Great Britain.

EG.....Europe and Russia.

Please file and use this manual together with the service manual for Model No.SL-CT470, Order No.AD0002033C1.

Specification

●Audio (Anti-shock off)

No. of channels:	2 channels (left and right, stereo)
Frequency response:	20 to 20,000 Hz (+0.5dB, -1.5dB)
Output voltage:	0.6 V (50kΩ)
S/N:	more than 96 dB*
Wow and flutter:	Below measurable limit
D/A converter:	1 bit, MASH
Headphones output level:	Max. 9mW+9mW/ 16Ω (adjustable)

●Pickup

Light source:	Semiconductor laser
Wavelength:	780 nm

●General

Operational temperature range:	0°C-40°C
Rechargeable temperature range:	5°C-40°C
Power supply	DC 4.5V

●Power consumption

Power source	**ANTI-SHOCK MEMORY 4.0 OFF/ ON**
AC adaptor	3.0W/ 3.0W
Battery (DC 3V)	0.47W/ 0.52W
When recharging:	5.6W
When OPR OFF:	1.8W

●Play time

[When used in hold mode, at 25°C (77°F) temperature and on flat and stable surface]

Batteries used	**ANTI-SHOCK MEMORY 4.0 OFF/ ON**
2 "AA" (LR6) alkaline batteries	About 24h/ 30h
2 "AAA" (LR03) alkaline batteries	About 10h/ 13h
Rechargeable batteries (recharhging time)	6h/ 8h (3h)
4 alkaline batteries	About 38h/ 50h
2 rechargeable and 2 alkaline (recharging time)	About 30h/ 38h (3h)

The play time may be less depending on the operating conditions.

Dimensions (WxHxD) 128x20.7x131mm

Weight: 188g (with batteries)
166g (without batteries)

Notes:

Specifications are subject to change without notice.

Weight and dimensions are approximate.

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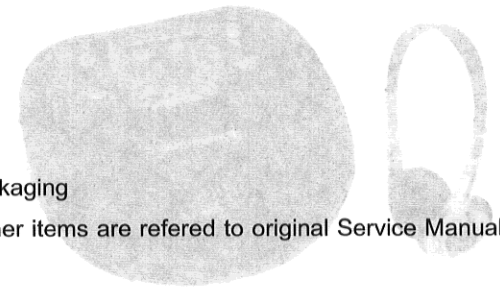
⚠ WARNING

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 Simplified Guide

This manual mentions the revisions of original Service Manual SL-CT470(P).

- Replacement Parts List
- Packaging

The other items are refered to original Service Manual.

2 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 areas. (Refer to the cover page for area.) Parts without these indications can be used for all areas.

*The parenthesized indications in the Remarks columns specify the colours. (Refer to the cover page for colour.) Parts without these indications can be used for all colours.

*"<IA>, <IB>, <IC>" marks in Remarks indicate languages of instruction manuals.

[<IA>:English,
<IB>:English/Spanish/French/German/Italian/Swedish,
<IC>:Russian/Polish/Czech/Danish/Netherlands]

2.1. Except Accessories and Packing Materials

(Refer to pages 31, 32 of original Service Manual.)

Note:

*Mentioned in this parts list is only those different from Model No. SL-CT470 (P).

All other parts are the same as for SL-CT470 (P).

Ref. No.	Change of Part No.		Part Name & Description	Remarks
	SL-CT470(P)	**SL-CT470EB/EG)**		
CABINET AND CHASSIS				
1	RGN1805-K	**RGN1895-K1**	NAME PLATE	(EB)
		RGN1894-K	NAME PLATE	(EG)
2	RFKJCT470PA	**RFKJCT470EGA**	BOTTOM CABINET ASS'Y	(A)
	RFKJCT570PS	**RFKJCT470EBS**	BOTTOM CABINET ASS'Y	(S)

2.2. Accessories and Packing Materials

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
A1	RFKFHHR4AHBA	RECHARGEABLE BATT.ASS´Y	1	(EG)
A1-1	RFE0059	SPACER	1	(EG)
A1-2	RXQ0449	RECHARGEABLE BATTERY CASE	1	(EG)
A2	RFA1139-H	BATTERY CASE	1	
A3	RFEA403B-S	AC ADAPTOR	1	(EB) ⚠
A3	RFEA418E-S	AC ADAPTOR	1	(EG) ⚠
A4	RFEV033P-SS	REMOTE CONTROLLER	1	
A5	RFEV335P-KS	STEREO EARPHONES	1	
A6	RQA0117	WARRANTY CARD	1	
A7	RQCB0169	SERVICE CENTER LIST	1	
A8	RQT5348-B	INSTRUCTION MANUAL	1	(EB)<IA>

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
A8	RQT5346-E	INSTRUCTION MANUAL	1	(EG)<IB>
A8	RQT5347-H	INSTRUCTION MANUAL	1	(EG)<IC>
P1	RPK1389	PACKING CASE	1	(A)
P1	RPK1388	PACKING CASE	1	(S)
P2	RPQ0924	PAD	1	
P3	RPQ0966	PAD	1	
P4	RPF0046	PROTECTION BAG(F.B.)	1	(EG)
P5	RPF0111	PROTECTION BAG(UNIT)	1	

ORDER No. AD0002033C1
A6

Service Manual

Portable CD Player

COMPACT disc DIGITAL AUDIO MASH multi-stagenoiseshaping

SL-CT470
SL-CT476J

Traverse Deck: RAE0220Z Mechanism Series

Colours

(S).....Silver Type [SL-CT470(P), SL-CT476J(P)]

(A).....Blue Type (SL-CT470 only)

Areas

P.....U.S.A..

PC.....Canada. (SL-CT470 only)

Specification

●Audio (Anti-shock off)

No. of channels:	2 channels (left and right, stereo)
Frequency response:	20 to 20,000 Hz (+0.5dB, -1.5dB)
Output voltage:	0.6 V (50kΩ)
S/N:	more than 96 dB*
Wow and flutter:	Below measurable limit
D/A converter:	1 bit, MASH
Headphones output level:	Max. 9mW+9mW/ 16Ω (adjustable)

●Pickup

Light source:	Semiconductor laser
Wavelength:	780 nm

●General

Operational temperature range:	0°C-40°C
Rechargeable temperature range:	5°C-40°C
Power supply	DC 4.5V

●Power consumption

Power source	**ANTI-SHOCK MEMORY 4.0 OFF/ ON**
AC adaptor	2.3W/ 2.3W
Battery (DC 3V)	0.47W/ 0.52W
When recharging:	5.0W
When OPR OFF:	1.8W

●Play time

[When used in hold mode, at 25°C (77°F) temperature and on flat and stable surface]

Batteries used	**ANTI-SHOCK MEMORY 4.0 OFF/ ON**
2 "AA" (LR6) alkaline batteries	About 24h/ 30h
2 "AAA" (LR03) alkaline batteries	About 10h/ 13h
Rechargeable batteries (recharhging time)	6h/ 8h (3h)
4 alkaline batteries	About 38h/ 50h
2 rechargeable and 2 alkaline (recharging time)	About 30h/ 38h (3h)

The play time may be less depending on the operating conditions.

Dimensions (WxHxD)	128x20.7x131mm (5 1/16" x 13/16" x 5 3/16")
Weight:	188g (6.6oz.) (with batteries) 166g (5.9oz.) (without batteries)

Notes:

Specifications are subject to change without notice.

Weight and dimensions are approximate.

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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.

2 Accessories

SL-CT470

- AC adaptor.....1 pc.
  (RFEA415C-1S)
- Battery case.....1 pc.
  (RFA1139-H)

For U.S.A.

- Stereo headphones.....1 pc.
  (RFEV715P-SS)

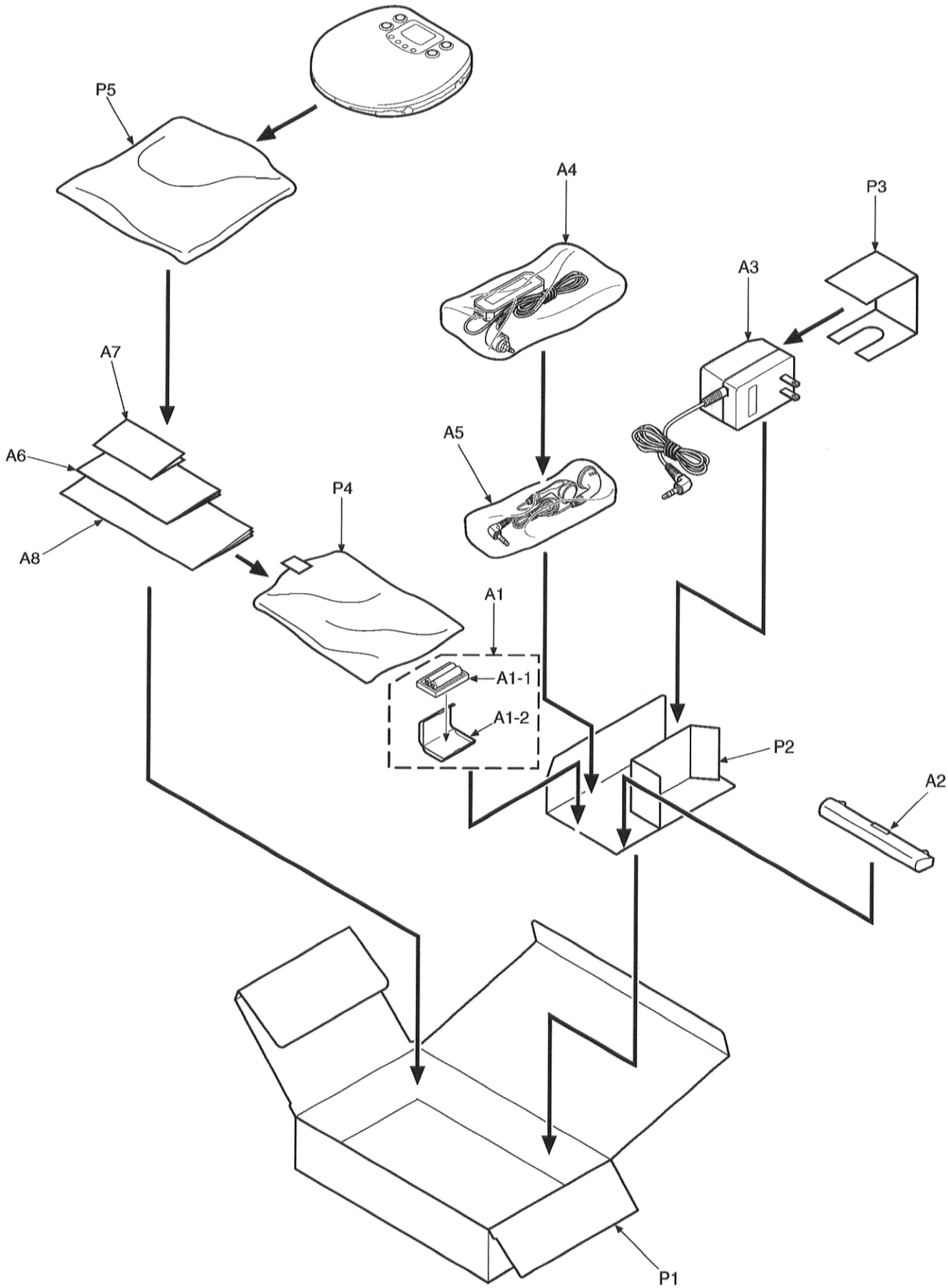
For Canada

- Stereo earphones.....1 pc.
  (RFEV334P-KS)

SL-CT476J

- AC adaptor.....1 pc.
  (RFEA415C-1S)
- Wired remote control.....1 pc.
  (RFEV033P-SS)
- Jog poach.....1 pc.
  (RFC0060-K)

3 Packaging

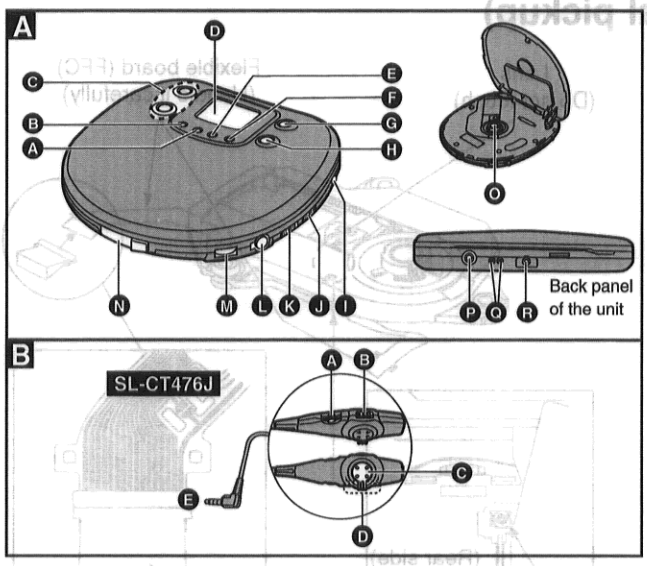


Printed in Japan
H000306300 SW/HH

• Battery case.....1 pc.
(RFA1139-H)

• Stereo headphones.....1 pc.
(RFEV716P-SS)

3 Operating Instructions



Portable CD player A

- Ⓐ Memory/recall button (MEMORY/RECALL)
- Ⓑ EQ button (EQ)
- Ⓒ Skip/search buttons (⏮, ⏭, ◀◀, ▶▶)
- Ⓓ Display
- Ⓔ Repeat button (↻)
- Ⓕ Anti-shock button (A. SHOCK)
- Ⓖ Play/pause button (▶II)
- Ⓗ Stop/operation off button (■, OPR OFF)
- Ⓘ Out jack (OUT)
- Ⓙ Hold switch (HOLD)
- Ⓚ Play mode selector (RESUME, RANDOM, NORMAL)
- Ⓛ Headphone jack (🎧)
- Ⓜ Headphone volume control (VOLUME)
- Ⓝ Open switch (OPEN)
- Ⓞ CD release button (PUSH)
- Ⓟ DC IN jack (⊖-⊂-⊕ DC IN 4.5 V)
- Ⓠ Connection terminal for external battery case
- Ⓡ Hole for car insulator mounting screw/external battery case

Wired remote control SL-CT476J B

- Ⓐ Volume control (VOLUME)
- Ⓑ Hold switch (HOLD)
- Ⓒ Play/stop/off button (PUSH)
- Ⓓ Skip/search selector (+,–)
- Ⓔ Plug

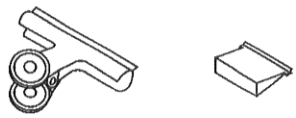
4 Handling Precautions for Traverse Deck

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. In order to prevent static electricity damage to the laser diode, use a short pin or similar tool to short the optical pickup's flexible circuit boards after they have been disconnected from the main circuit board. (as shown in **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. 2**)



Clip or short-pin

Fig.1

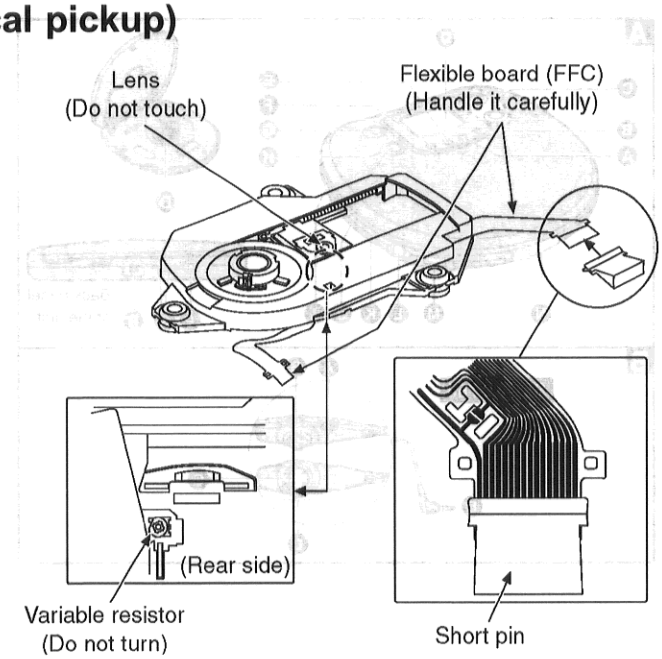


Fig.2

4.2. 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.3**)

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.4**)

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).

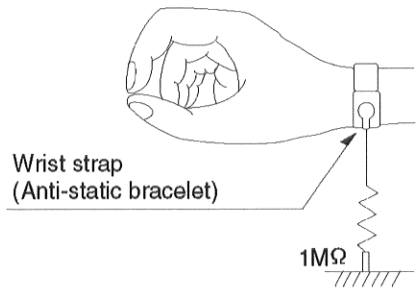


Fig.3

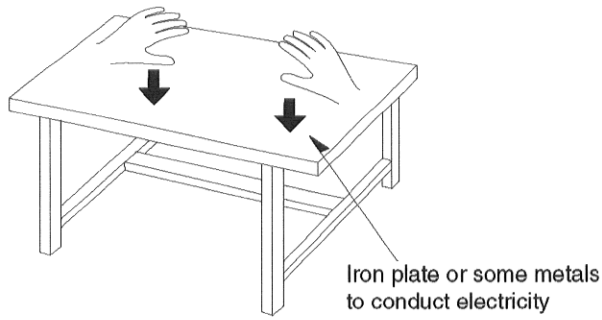


Fig.4

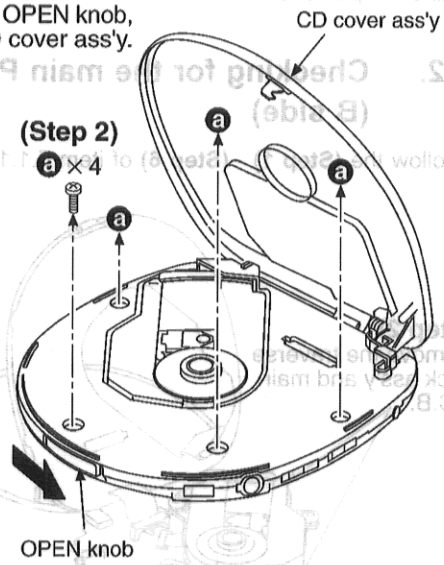
5 Operation Checks and Component Replacement Procedures

- **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.**

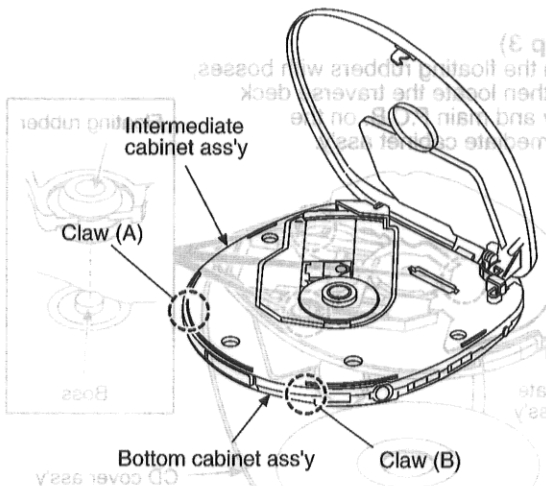
5.1. Checking for the main P.C.B.

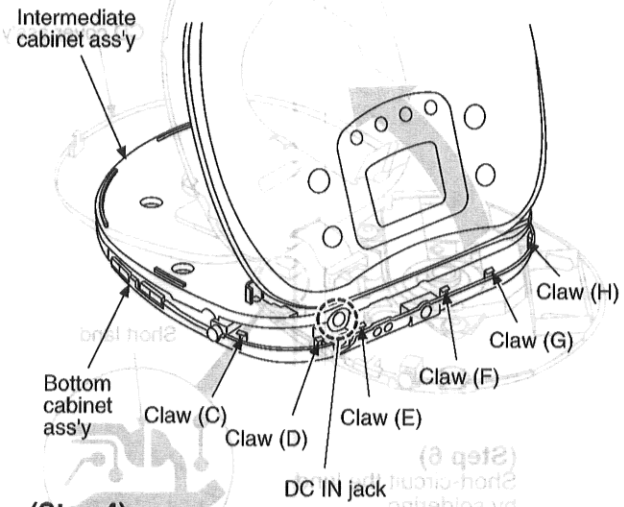
5.1.1. Checking for the main P.C.B. (A side)

(Step 1)
Pressing the OPEN knob, open the CD cover ass'y.



(Step 3)
Spread the clearance between the bottom cabinet ass'y and intermediate cabinet ass'y manually.



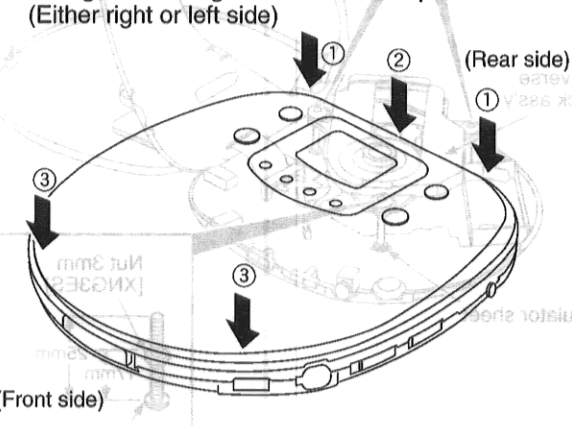


(Step 4)
Open the clearance between the bottom cabinet ass'y and intermediate cabinet ass'y, and then release the claw (C) to claw (H) in turn.

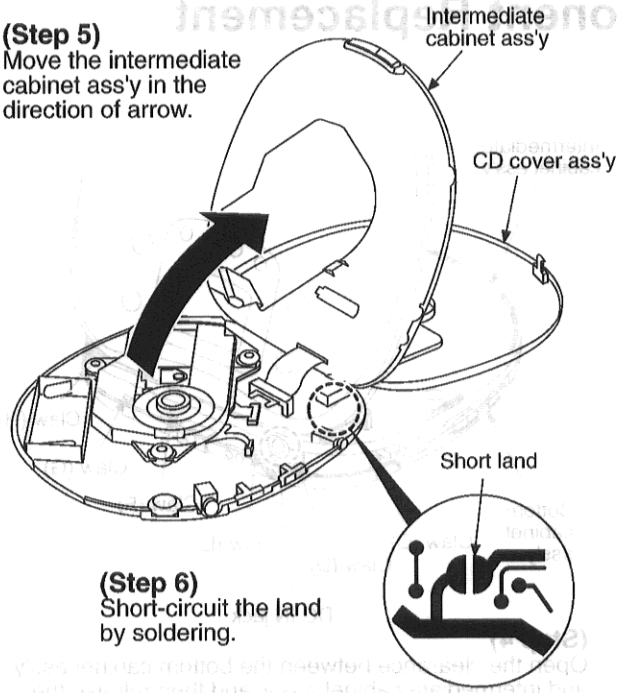
NOTE:
Take care not to break the DC IN Jack provided with intermediate cabinet.

■ CD cover ass'y and intermediate reassembly procedure

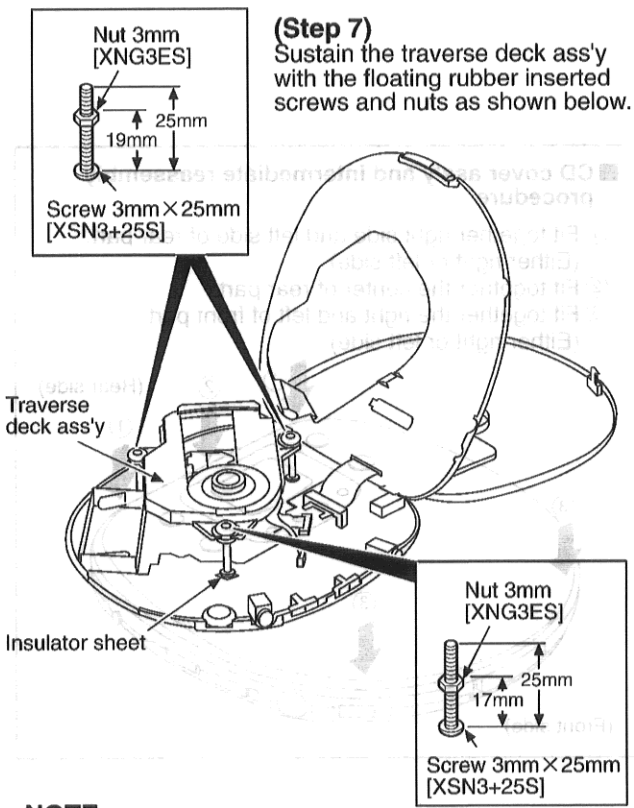
① Fit together right side and left side of rear part. (Either right or left side)
② Fit together the center of rear part.
③ Fit together the right and left of front part. (Either right or left side)



(Step 5)
Move the intermediate cabinet ass'y in the direction of arrow.



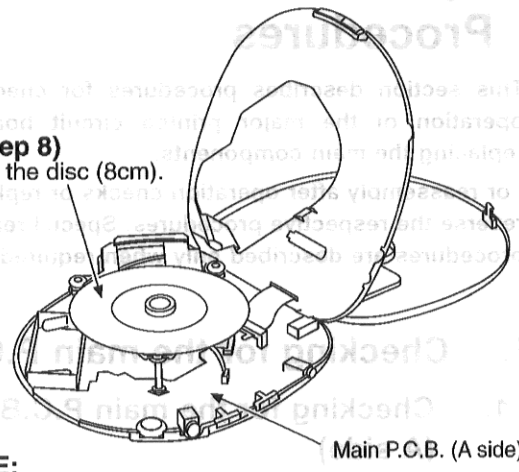
(Step 6)
Short-circuit the land by soldering.



(Step 7)
Sustain the traverse deck ass'y with the floating rubber inserted screws and nuts as shown below.

NOTE:
- The tip of screw must not protrude more than 2 mm above the floating rubber.
- To keep insulation, place the insulator sheet (paper etc.) between the P.C.B. and the head of screws.

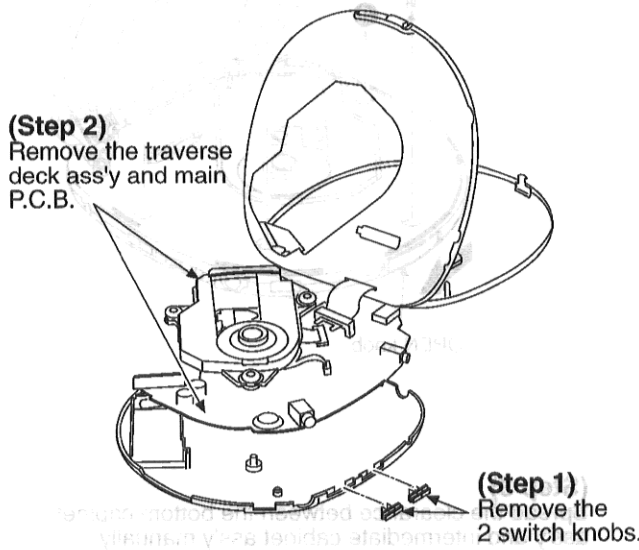
- **Check the main P.C.B. (A side) as shown below.**



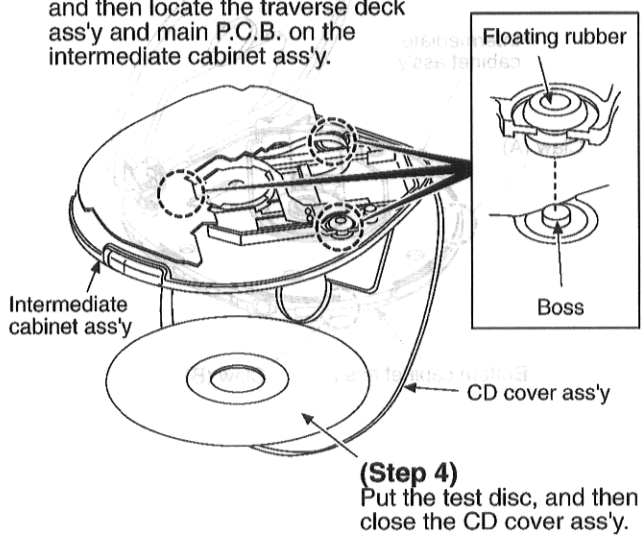
NOTE:
After checking, unsolder the short land to open circuit.

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

- Follow the **(Step 1)** - **(Step 6)** of item 5.1.1.

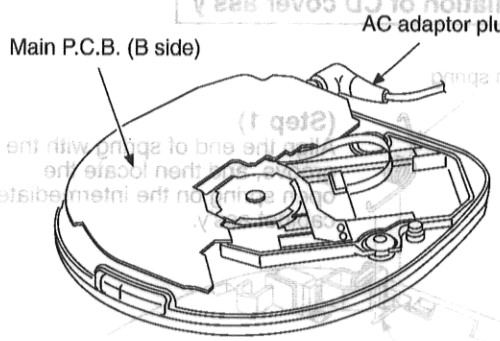


(Step 3)
Align the floating rubbers with bosses, and then locate the traverse deck ass'y and main P.C.B. on the intermediate cabinet ass'y.



(Step 4)
Put the test disc, and then close the CD cover ass'y.

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

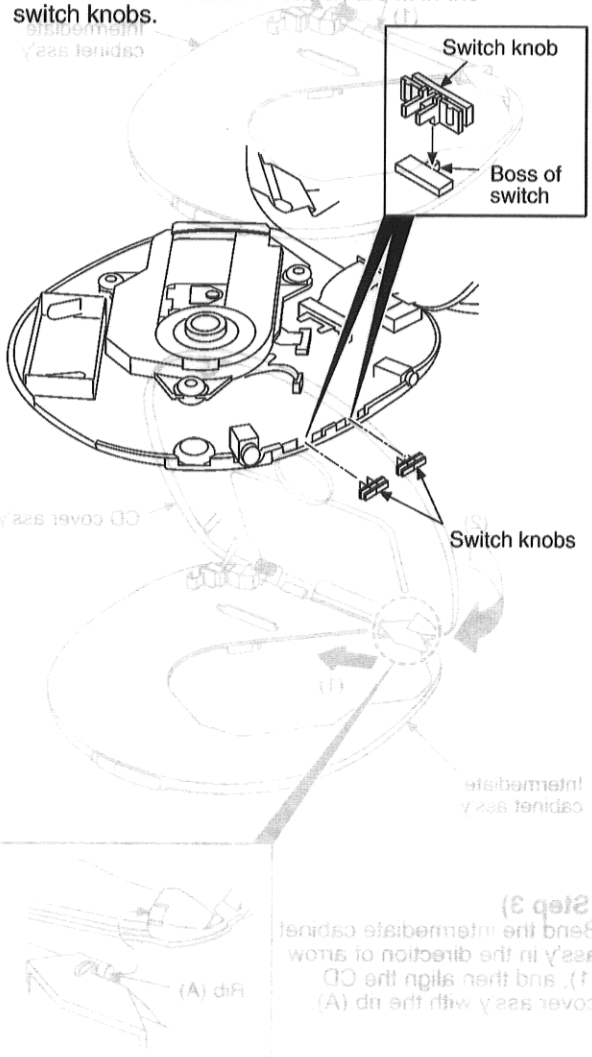


(Step 5)
Insert the AC adaptor plug into the DC IN jack, and then apply the power.

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

Notice for installation of switch knobs

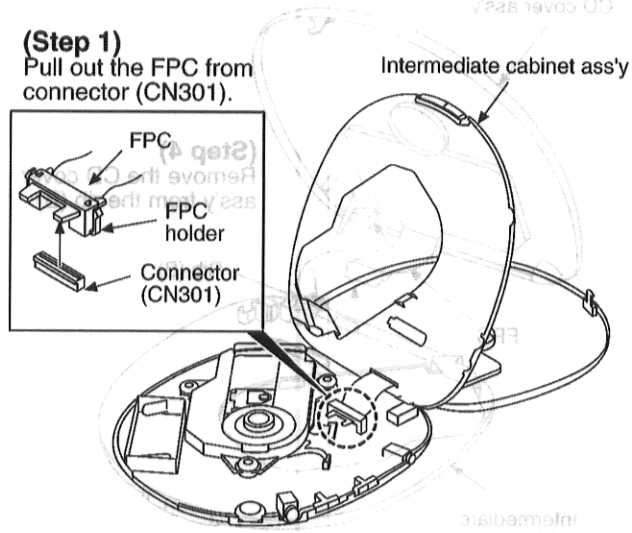
- Make sure the bosses of switch are fit in the switch knobs.

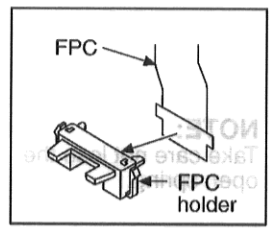


5.2. Replacement for the CD cover ass'y and LCD

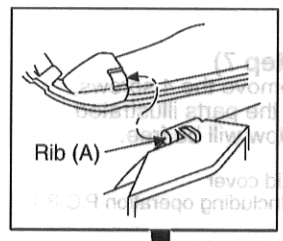
- Follow the **(Step 1)** - **(Step 5)** of item 5.1.1.

(Step 1)
Pull out the FPC from connector (CN301).

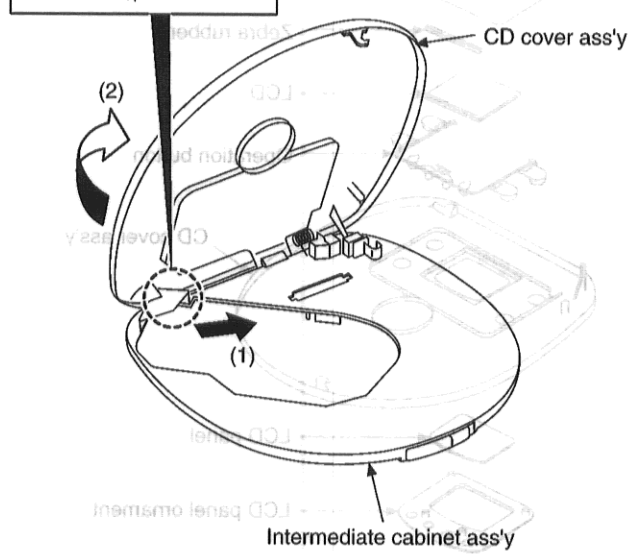




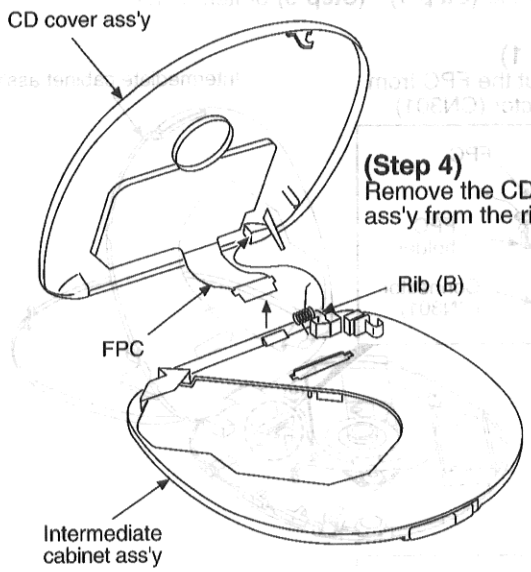
(Step 2)
Remove the FPC holder from FPC.



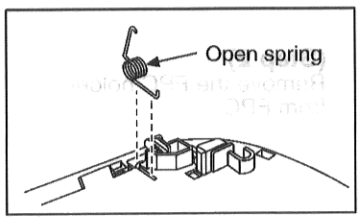
(Step 3)
Bend the intermediate cabinet ass'y in the direction of arrow (1), and then release the CD cover ass'y from the rib (A).



(Step 5)
Draw the FPC from the intermediate cabinet ass'y.
(Take care not to damage the FPC.)

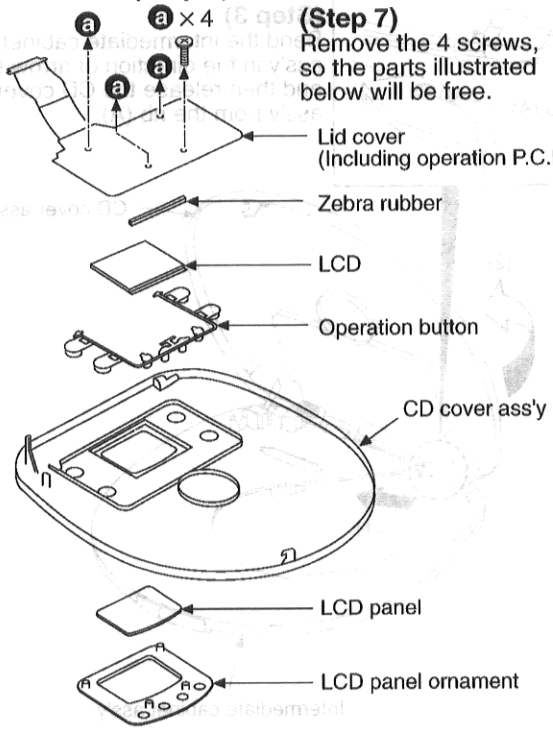


(Step 4)
Remove the CD cover ass'y from the rib (B).



NOTE:
Take care not lose the open spring.

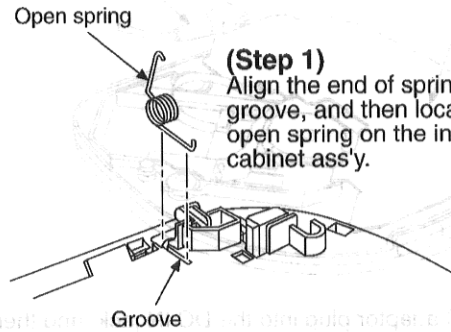
(Step 6)



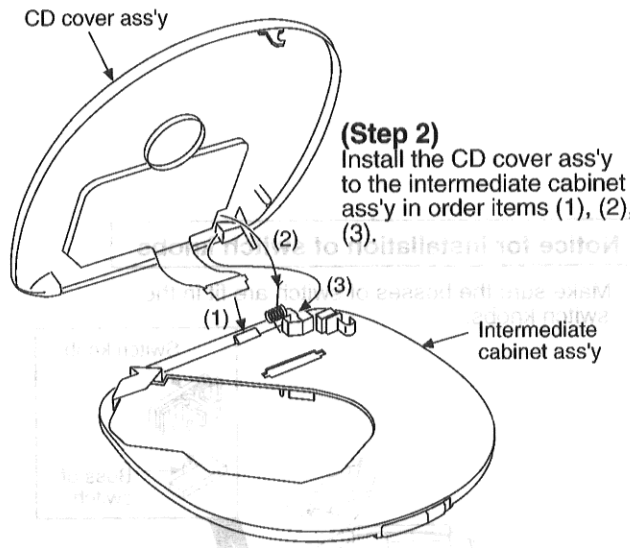
(Step 7)
Remove the 4 screws, so the parts illustrated below will be free.

NOTE:
Be careful not to be applied the dust or smudge on the surface rubber.

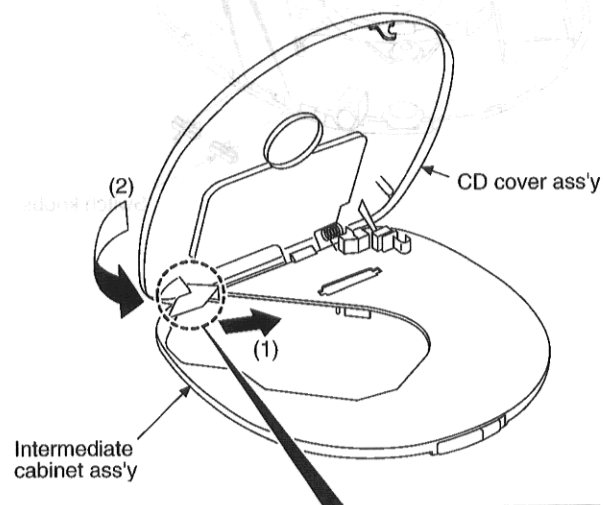
Installation of CD cover ass'y

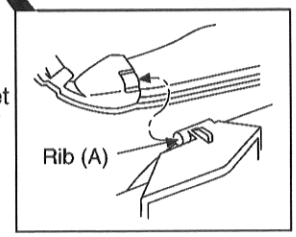


(Step 1)
Align the end of spring with the groove, and then locate the open spring on the intermediate cabinet ass'y.



(Step 2)
Install the CD cover ass'y to the intermediate cabinet ass'y in order items (1), (2), (3).

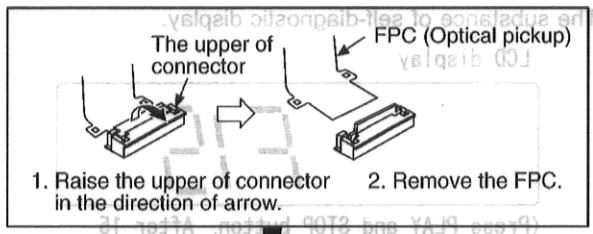




(Step 3)
Bend the intermediate cabinet ass'y in the direction of arrow (1), and then align the CD cover ass'y with the rib (A).

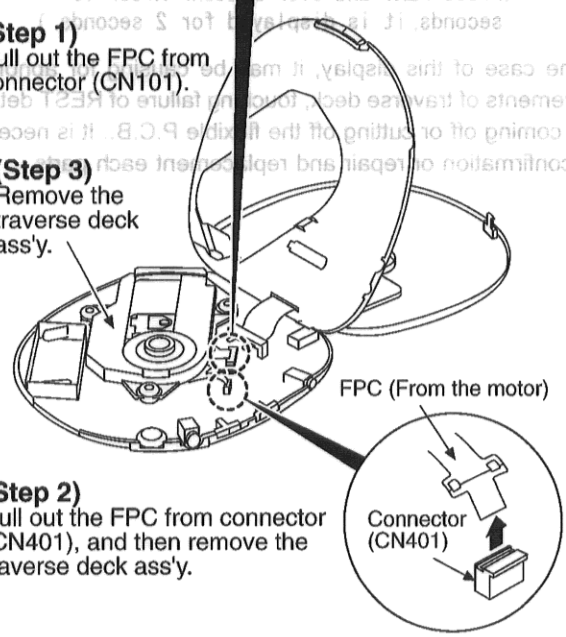
5.3. Replacement for the traverse motor and optical pickup

- Follow the **(Step 1)** - **(Step 5)** of item 5.1.1.



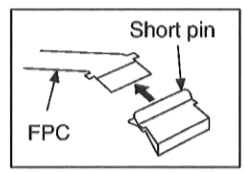
(Step 1)
Pull out the FPC from connector (CN101).

(Step 3)
Remove the traverse deck ass'y.

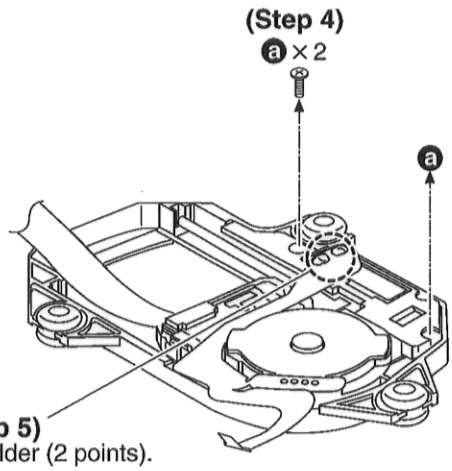


(Step 2)
Pull out the FPC from connector (CN401), and then remove the traverse deck ass'y.

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

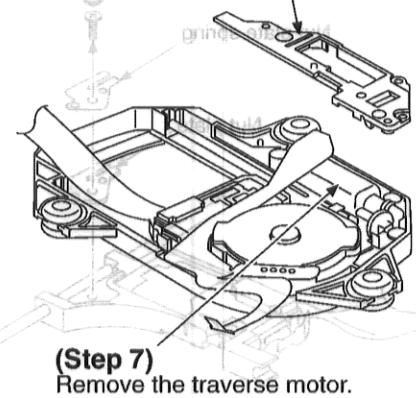


(Step 4)
ⓐ × 2



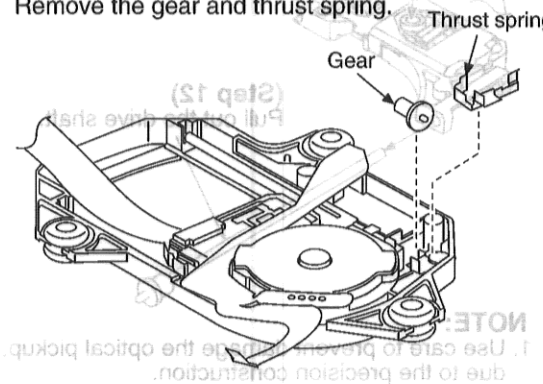
(Step 5)
Unsolder (2 points).

(Step 6)
Remove the holder.

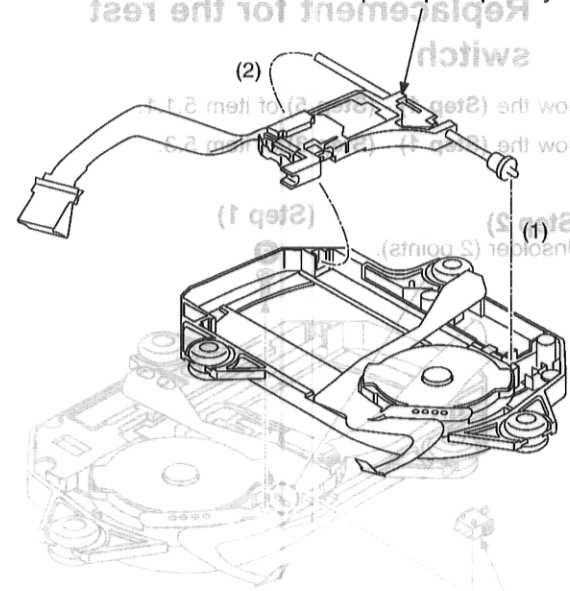


(Step 7)
Remove the traverse motor.

(Step 8)
Remove the gear and thrust spring.

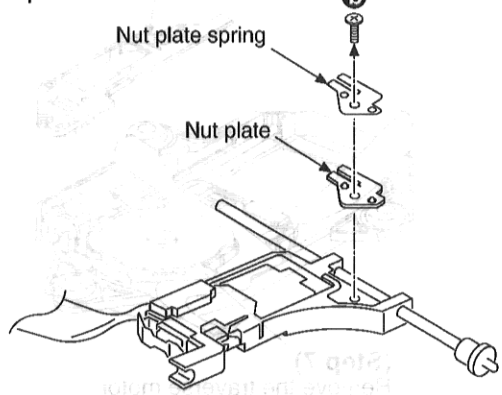


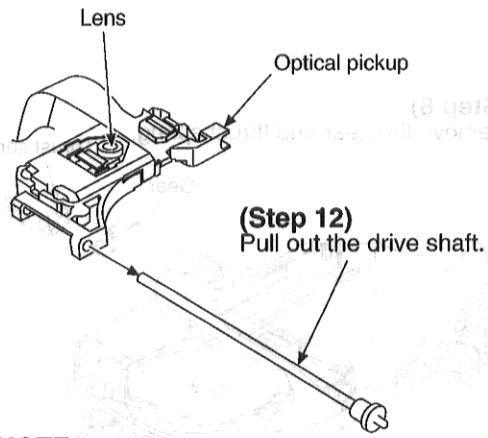
(Step 9)
Remove the optical pickup ass'y.



(Step 11)
Remove the nut plate spring and nut plate.

(Step 10)





(Step 12)
Pull out the drive shaft.

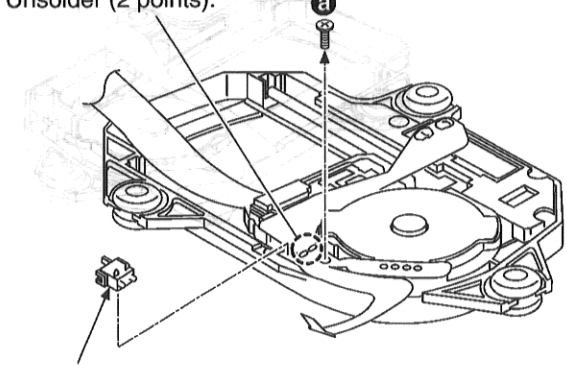
NOTE:
1. Use care to prevent damage the optical pickup, due to the precision construction.
2. Do not apply the grease on the lens of optical pickup.
3. Do not touch the lens of the optical pickup.

5.4. Replacement for the rest switch

- Follow the **(Step 1)** - **(Step 5)** of item 5.1.1.
- Follow the **(Step 1)** - **(Step 3)** of item 5.3.

(Step 2)
Unsolder (2 points).

(Step 1)



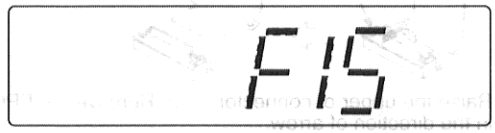
(Step 3)
Remove the rest switch.

6 Display of Self-Diagnostic Function

This unit (SL-CT470/CT476J) has self-diagnostic function, it may display below-mentioned on the LCD of this unit.

- The substance of self-diagnostic display.

LCD display



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

In the case of this display, it may be causing for abnormally movements of traverse deck, touching failure of REST det. SW. 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 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)
	Staring the reading operation (TOC)		
1.	Is focus search executed? (Check if lens moves up and down)	NO: Broken or shorted focus coil.	Check if conductance on both ends of coil with the tester at about 8 ohms. (The lens will slightly move up and down during the checking.)
	YES		
2.	Does the laser turn on? (If it does, the turntable will rotate)	NO: LD deterioration, or the position of the turntable is very low and make contact with the motor.	• RF signal at the RF test point is over 0.8 Vp-p. • Check if the position of the turntable is not very low and does not made contact with the motor.
	YES		
3.	Tracking ON.	NO: Broken or shorted tracking coil.	Check if conductance on both ends of coil with the tester at about 15 ohms. (The lens will slightly move to the right or left during the checking.)
	YES		
4.	Confirm RF signal output.	NO: Faulty PD. (PHOTO DETECTOR)	Check if the output is minimum 0.7 Vp-p at the test point.
	YES		
	Traverse deck (optical pickup) is normal.	Traverse deck (optical pickup) is faulty.	

※Replace the traverse deck.

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

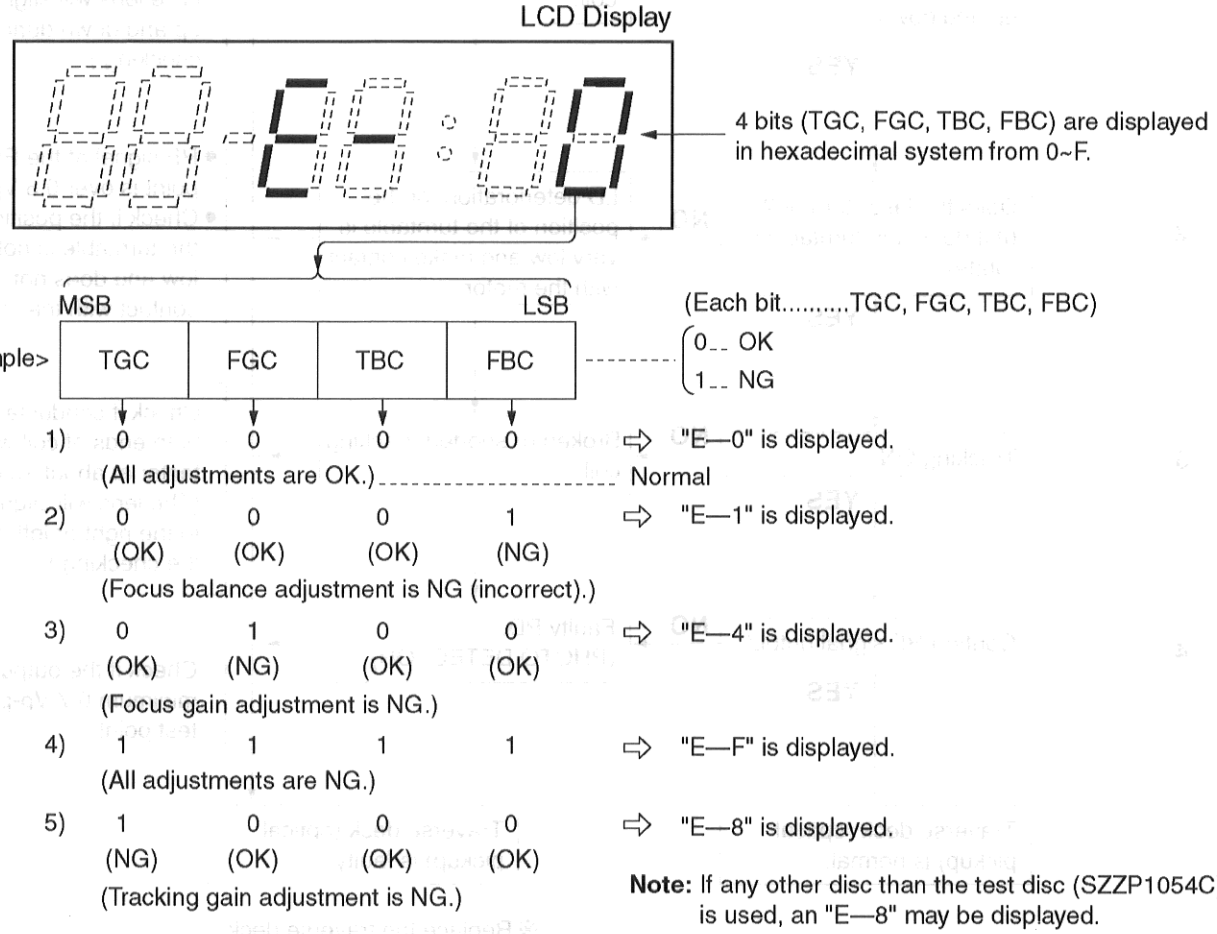
8 Automatic Adjustment Results Display Function (Self-check Function)

On this unit (SL-SX270), each automatic adjustment results are displayed on the LCD. This function is convenient to check or identify which automatic adjustment circuit is incorrect. The followings are the contents of the automatic adjustment result displays (self-check function). (Using the new Servo IC: MN662784SA)

8.1. How to display automatic adjustment results

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

8.2. 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 15 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.

9 Measurements and Adjustments

Warning:

This product uses a laser diode. Refer to caution statements.

● **Measuring instruments and special tools**

- **Test discs**
  1. Playability test disc (SZZP1054C)
  2. Uneven test disc (SZZP1056C)
- Musical program disc (ordinary)
- DC voltmeter
- Lead wire (for test points)

● **Test short land**

Short-circuit the lands of the laser ON/OFF swtch (S201) by soldering them. It turns "ON" position. (Refer to printed circuit board and wiring connection diagram for short land location)

Note: Remove the solders from the short lands after adjustment.

● **Adjustment point**

Notes:

1. Please refer to the printed circuit board and wiring connection diagram for test point locations.
2. Take care to connect CN101 and CN401. (as shown in **Fig.5**)

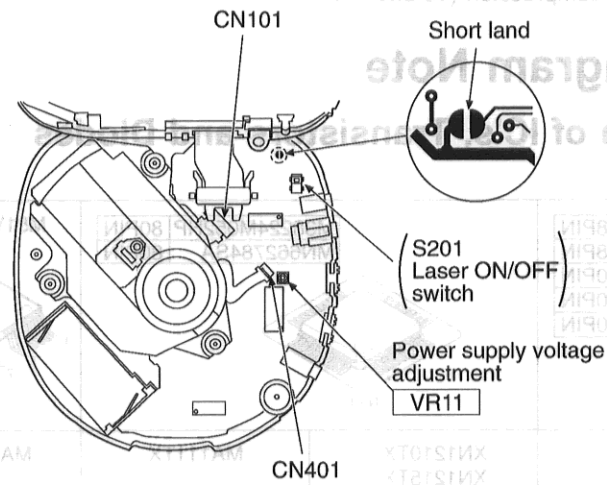


Fig. 5

9.1. Check of Play Operation

***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 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.

10 Outline of 40-Second Sound Keeper Technique Used for Prevention of Sound from Skipping

10.1. Conventional Shockproofing Technique

Input information read out of the CD at double speed is demodulated, stored in the memory, and while sound-marking signal is supplied at normal speed from the memory to the D/A converter, the residual data is accumulated in the memory.

If reaccess to the break point is accomplished before the memory becomes empty, apparent playback sound is entirely kept free from breaking even when information pauses due to vibration, etc. It was necessary to use the 16M bit memory for securing the accumulation time of about 40 seconds.

10.2. Compression-shockproofing [Outline]

Fig. 6 is a block diagram showing the compression-shockproofing mechanism, the difference of which from the conventional mechanism is as follows: Input information read out at double speed undergoes data compression (16 bits -- 4 bits) by the encoder in the ADPCM (Adaptive Difference PCM) and stored in the external memory; the stored memory information undergoes data elongation (4 bits -- 16 bits) by the decoder in the ADPCM and supplied at normal speed to the D/A converter.

The data compression technique has conduced to reduction of required memory capacity from 16M bits to 4M bits for securing the accumulation time equivalent to the conventional.

All-inclusive Block Diagram

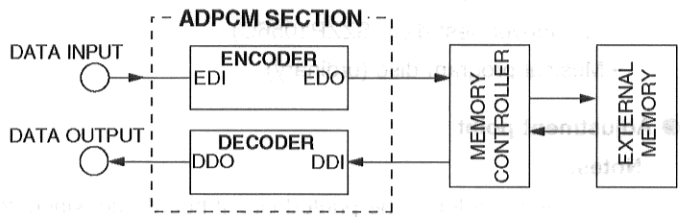
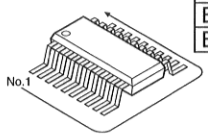


Fig.6

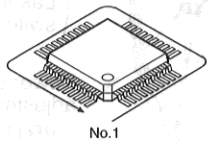
11 Schematic Diagram Note

11.1. Type Illustration of IC's, Transistors and Diodes

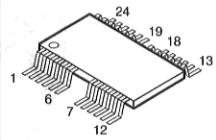
NJU7082BVTE1	8PIN
AN8839NSBE1	28PIN
RS10003E2	40PIN
BH6522FVE2	40PIN
BA6966FVE2	20PIN



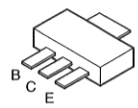
M38224M052HP	80PIN
MN662784SA	80PIN



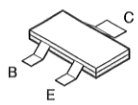
M51V7400D1FS



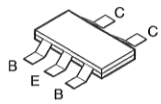
2SB1132T100



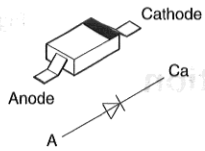
2SB709ATX
2SD1328TX
2SD1819ATX
DTA114YUA106
DTA144EUA106
DTC144TUA106



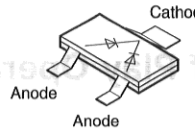
XN1210TX
XN1215TX



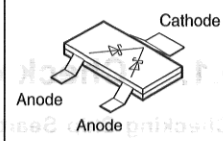
MA111TX



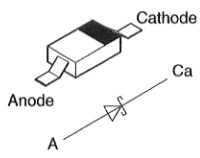
MA142WKTX



MA741WKTX



MA1070400L



11.2. Schematic Diagram Notes

Notes:

- S201: Laser ON/OFF switch in "OFF" position.
  (It turns "ON" with disc holder closed.)
- S202: Rest detector in "OFF" position.
  (It turns "ON" when optical pickup comes to innermost periphery.)
- S309: Play mode selector (MODE) in "NORMAL" position.
  (RESUME ⟺ RANDOM ⟺ NORMAL)
- S310: Hold (HOLD) switch in "OFF" position.
- S801: Play/pause (▶II) switch.
- S802: Stop/power off (■ /OPR OFF) switch.
- S803: Repeat (↻)switch.
- S804: Anti-shock (A.SHOCK) switch in "OFF" position.
- S805: EQ (EQ) switch in "OFF" position.
- S806: Memory/recall (MEMORY/RECALL) switch.
- S807, 808: Skip/search (|◀◀ / ◀◀ , ▶▶ / ▶▶|) switch.
- VR11: Power supply voltage adj. V.R..
- VR701-1,2: Headphones (earphones) volume (VOLUME) control.
- 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.
  ⟹ : CD playback signal line.
- The voltage value and waveforms are the reference voltage of this measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of GND terminal (DC IN Jack). Accordingly, there may arise some errors in the voltage values and waveforms depending upon the internal impedance of the tester or measuring unit.

  Measurement conditions:

  *AC adaptor is used for power supply.

  *Set the headphones (earphones) VR(VR701) to center position(No.5).

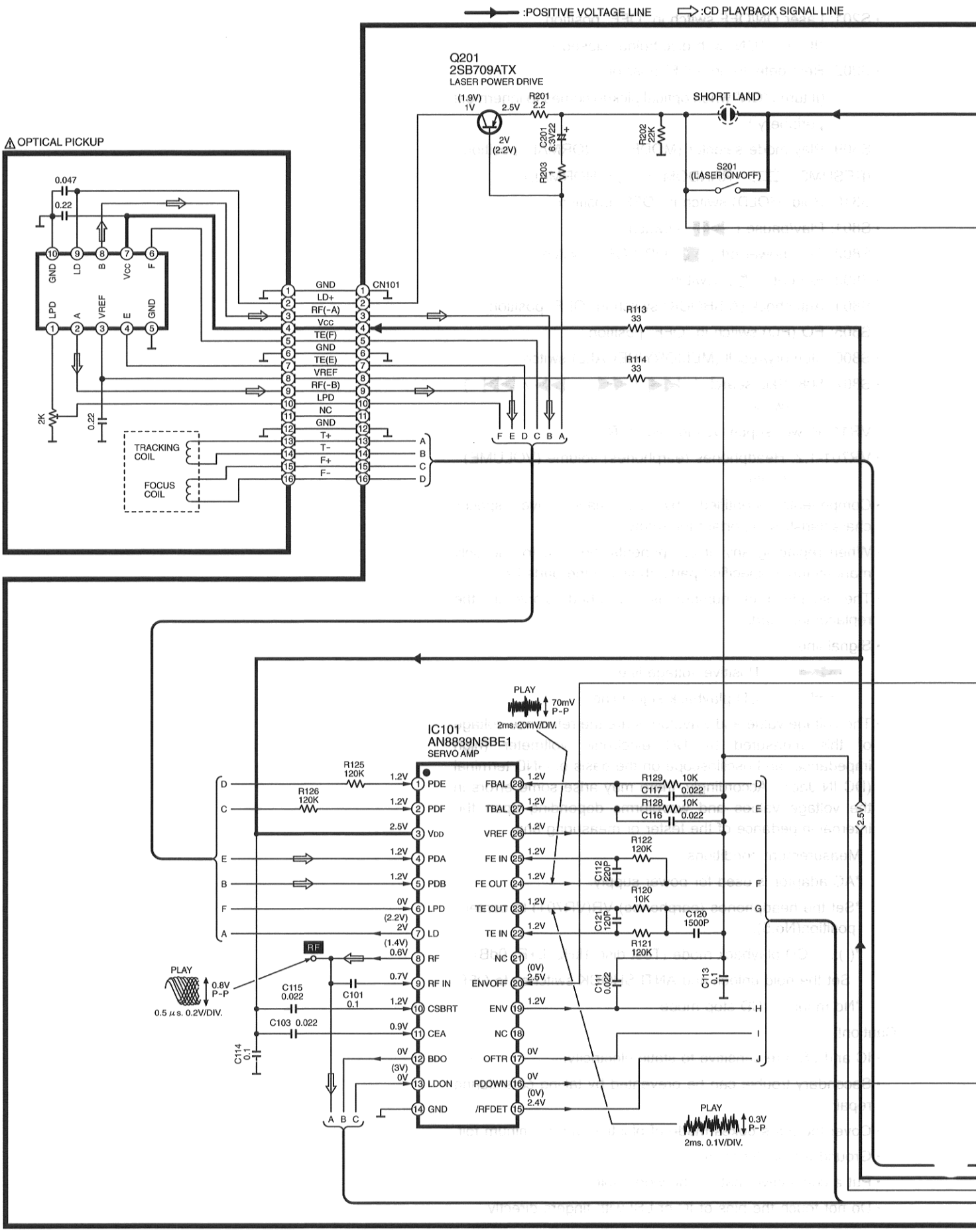
  *( ).....CD playback mode (Test disc 1kHz, L+R, 0dB)
  Set the hold unlock and ANTI-SHOCK switches to OFF.

  *No mark.....CD stop mode

Caution!!

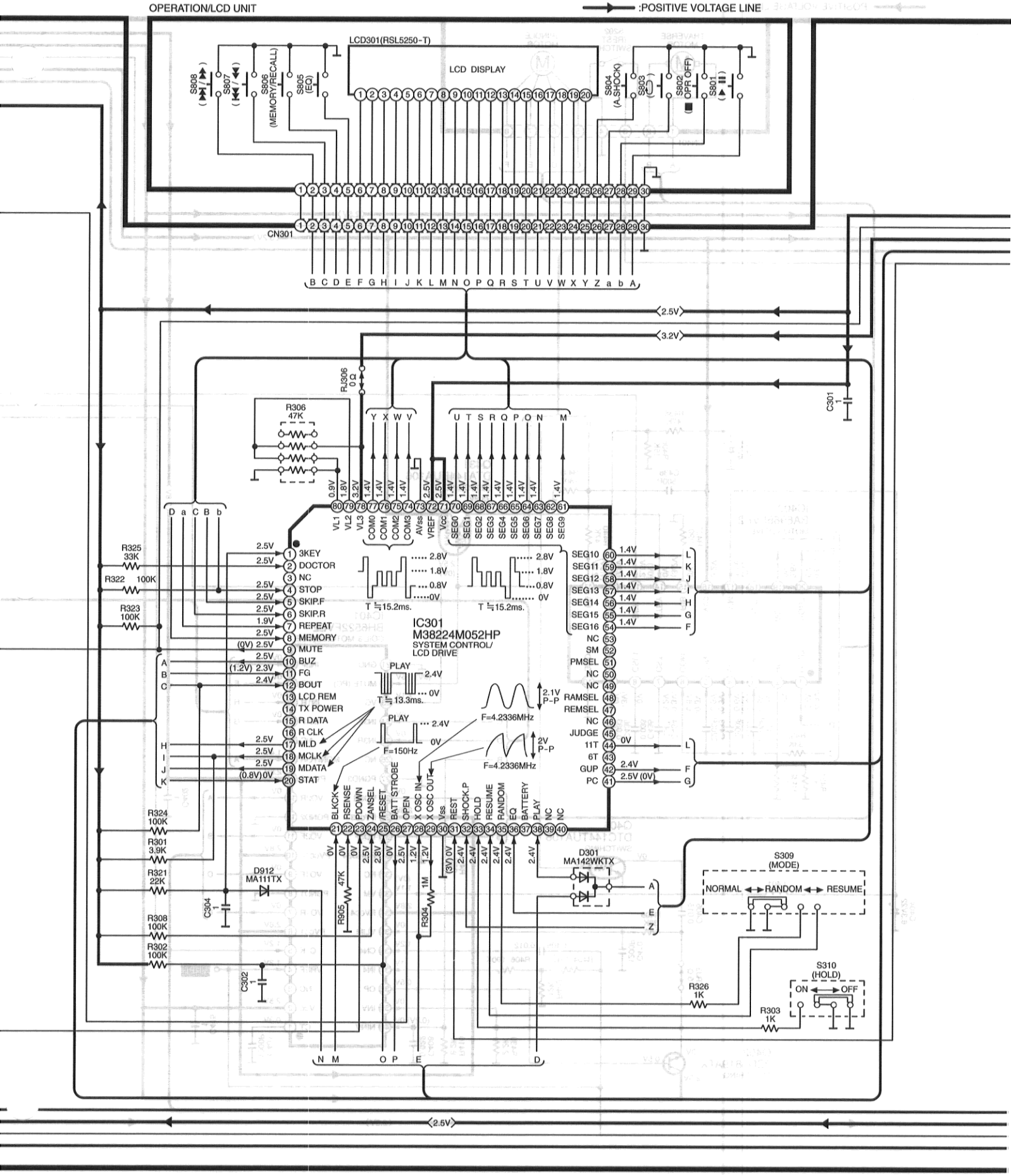
- IC and LSI are sensitive to static electricity.
- Secondary trouble can be prevented by taking care during repair.
- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the pins of IC or LSI with fingers directly.

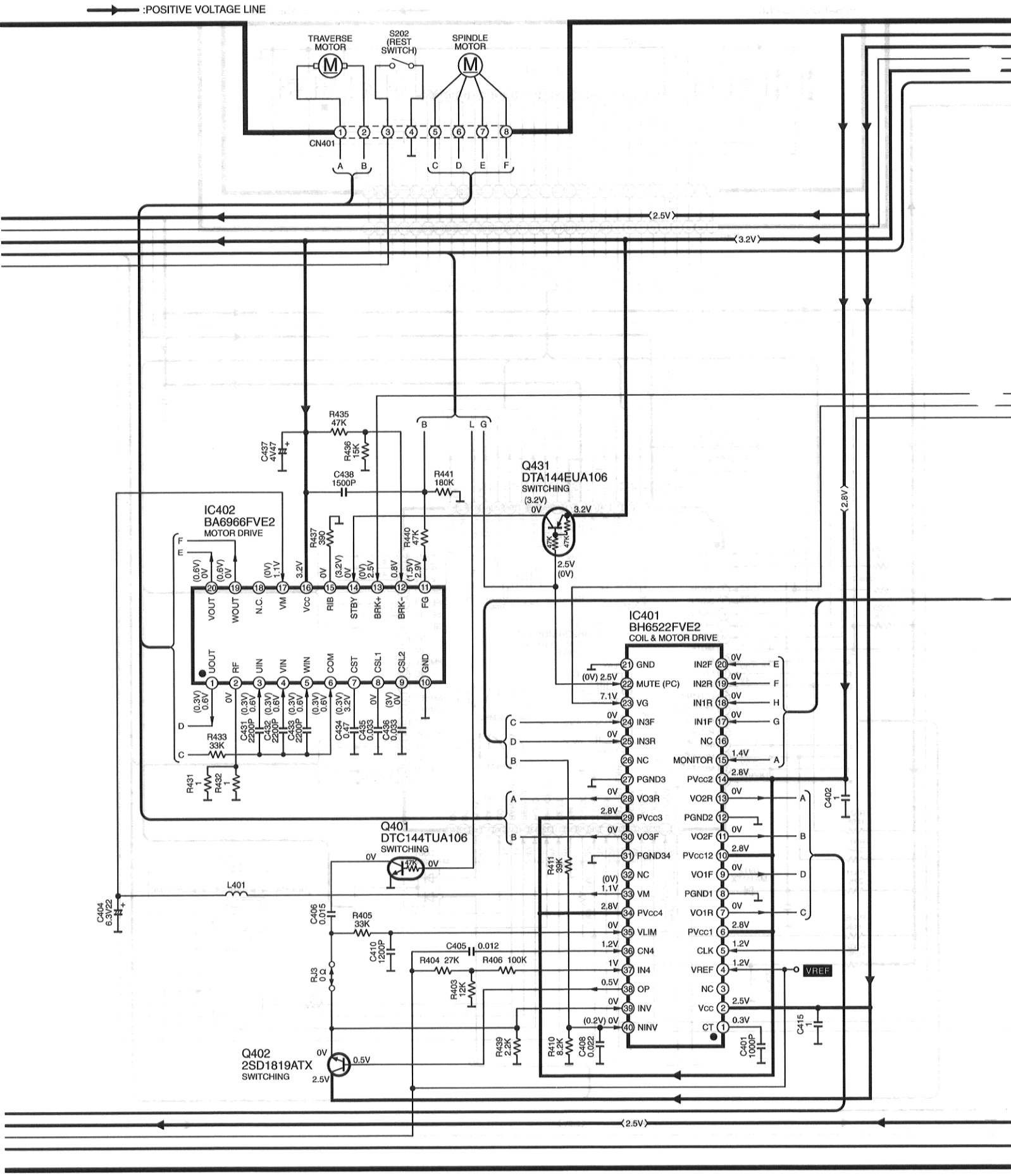
12 Schematic Diagram

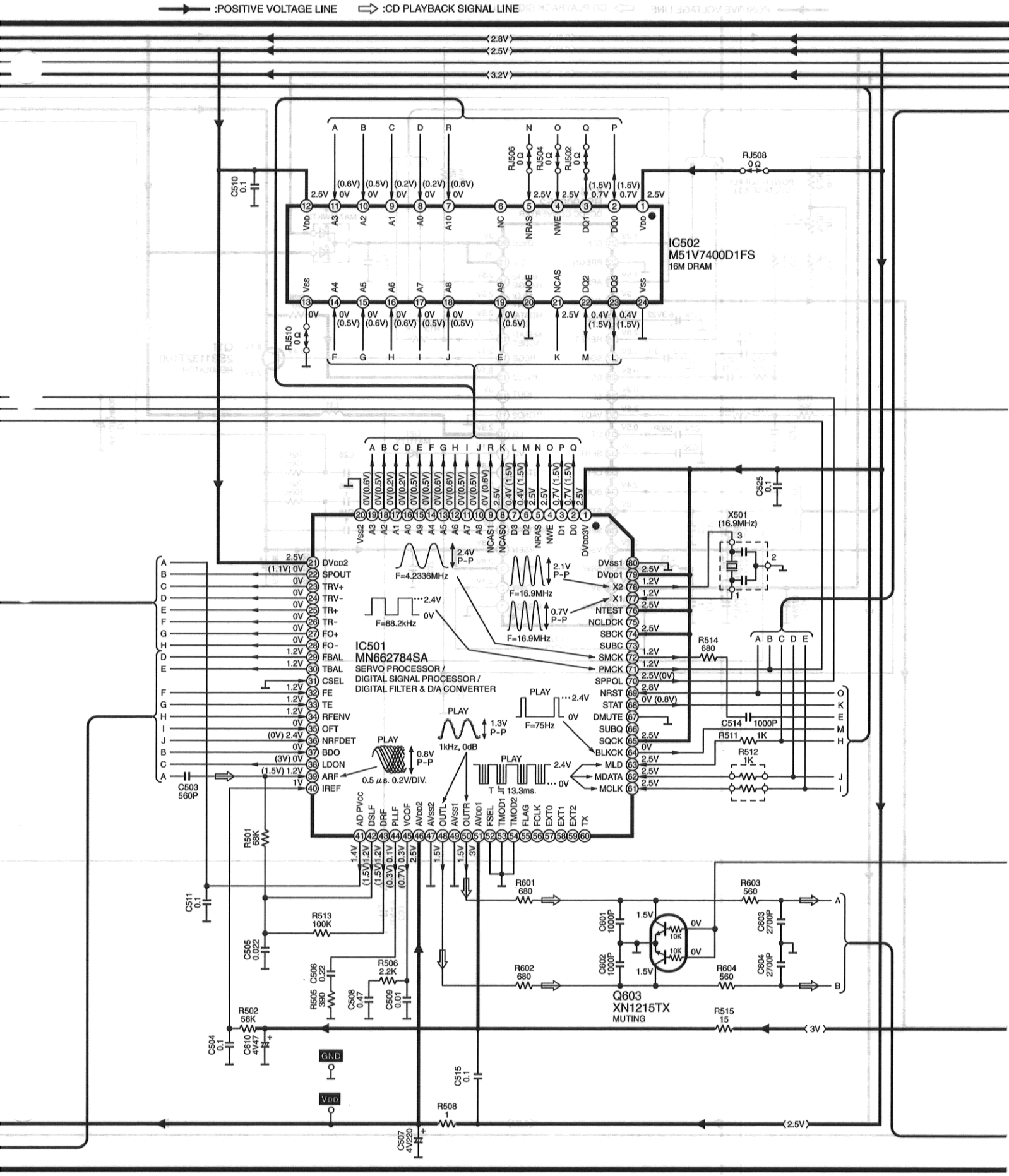


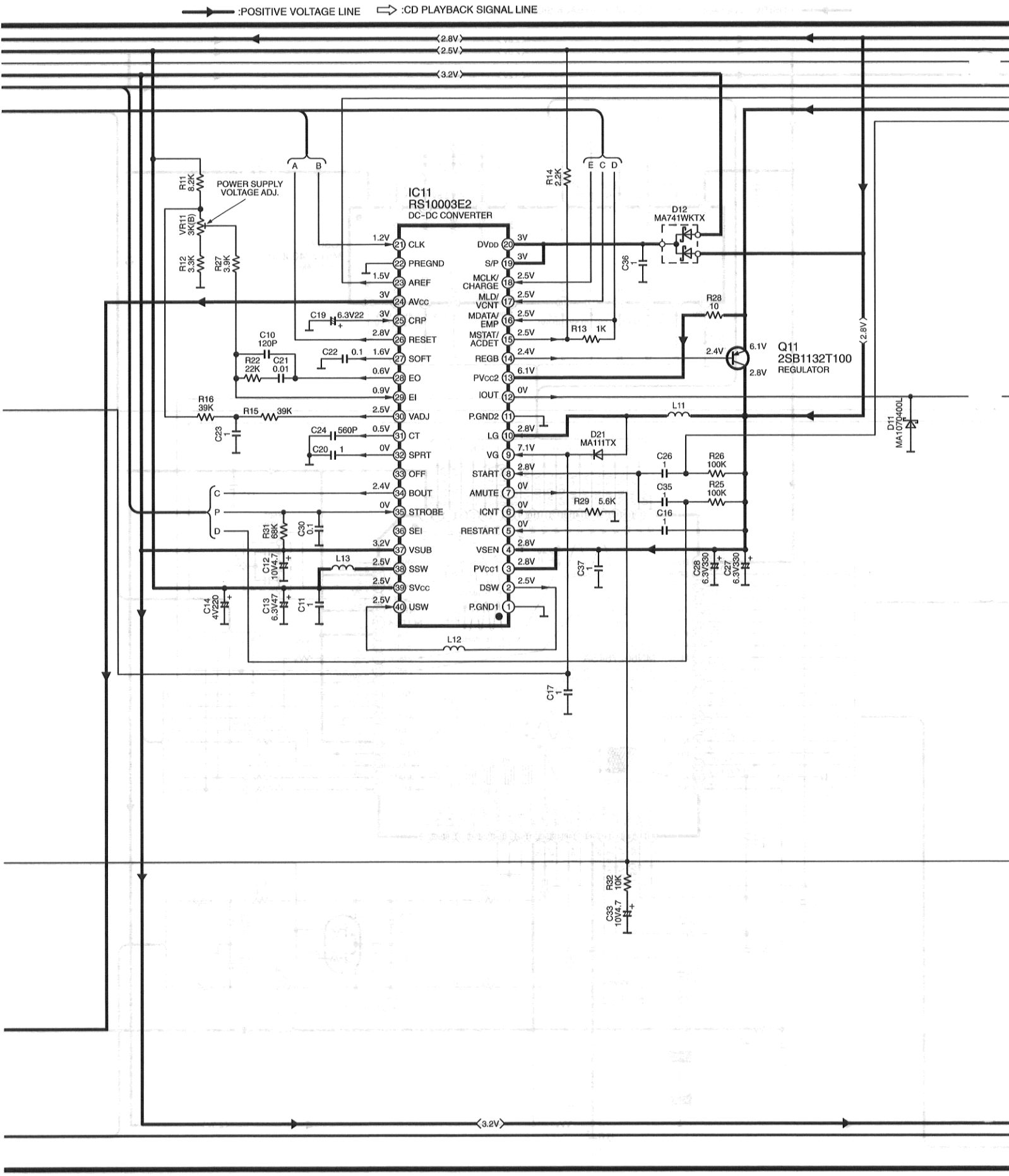
OPERATION/LCD UNIT

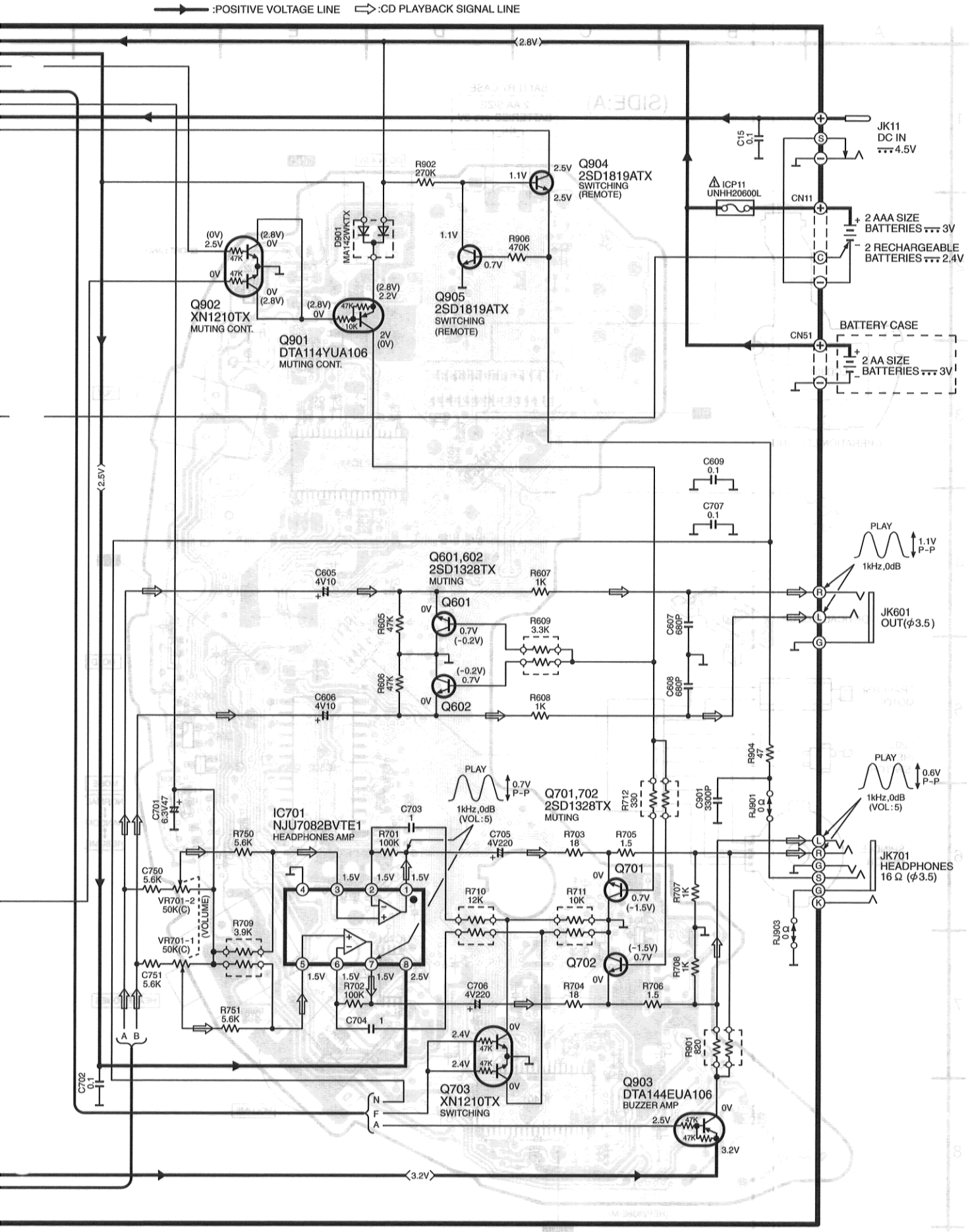
:POSITIVE VOLTAGE LINE



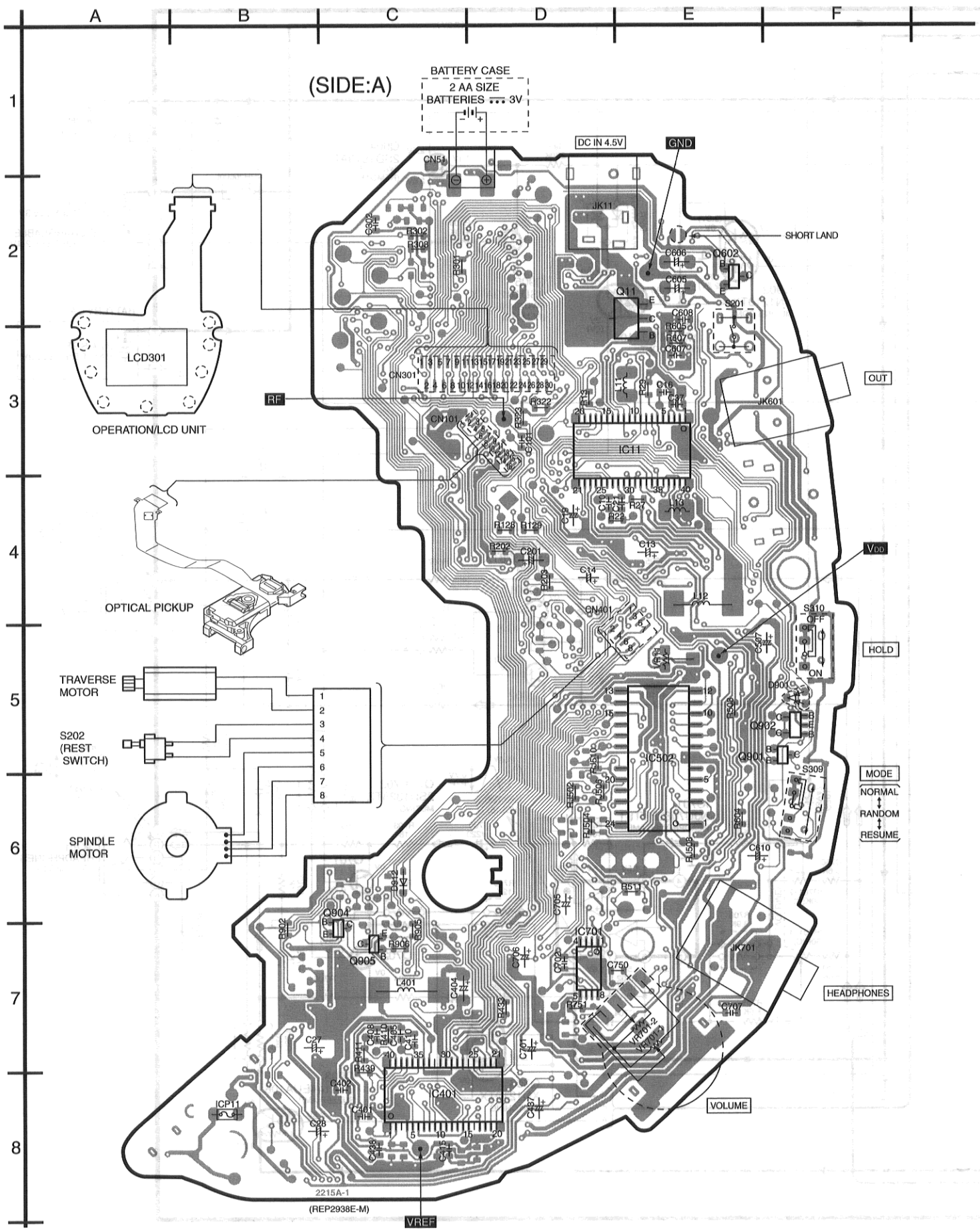

:POSITIVE VOLTAGE LINE
TRAVERSE MOTOR
S202 (REST SWITCH)
SPINDLE MOTOR
CN401
A B C D E F
2.5V
3.2V
2.8V
R435 47K
C437 4V47
R436 15K
C438 1500P
R441 180K
B L G
Q431 DTA144EUA106 SWITCHING
IC402 BA6966FVE2 MOTOR DRIVE
VOUT WOUT N.C. VM Vcc RIB STBY BRK+ BRK- FG
UOUT RF UIN VIN WIN COM CST CSL1 CSL2 GND
R433 33K
R431 1
R432 1
C431 2200P
C432 2200P
C433 2200P
C434 0.47
C435 0.033
C436 0.033
R437 390
R440 47K
IC401 BH6522FVE2 COIL & MOTOR DRIVE
GND MUTE (PC) VG IN3F IN3R NC PGND3 VO3R PVcc3 VO3F PGND34 NC VM PVcc4 VLIM CN4 IN4 OP INV NINV
IN2F IN2R IN1R IN1F NC MONITOR PVcc2 VO2R PGND2 VO2F PVcc12 VO1F PGND1 VO1R PVcc1 CLK VREF NC Vcc CT
Q401 DTC144TUA106 SWITCHING
47K
L401
C404 6.3V22
C406 0.015
R405 33K
C410 1200P
C405 0.012
R404 27K
R406 100K
R403 12K
RJ3 0 Ω
R411 39K
R410 8.2K
C408 0.022
R439 2.2K
C401 1000P
C402 1
C415 1
VREF
Q402 2SD1819ATX SWITCHING
0.5V


:POSITIVE VOLTAGE LINE
:CD PLAYBACK SIGNAL LINE
2.8V
2.5V
3.2V
IC502
M51V7400D1FS
16M DRAM
IC501
MN662784SA
SERVO PROCESSOR /
DIGITAL SIGNAL PROCESSOR /
DIGITAL FILTER & D/A CONVERTER
X501
(16.9MHz)
F=4.2336MHz
F=88.2kHz
F=16.9MHz
F=75Hz
1kHz, 0dB
0.5 μs. 0.2V/DIV.
T = 13.3ms.
Q603
XN1215TX
MUTING
GND
VDD


:POSITIVE VOLTAGE LINE
:CD PLAYBACK SIGNAL LINE
2.8V
2.5V
3.2V
IC11
RS10003E2
DC-DC CONVERTER
POWER SUPPLY VOLTAGE ADJ.
R11 8.2K
VR11 3K(B)
R12 3.3K
R27 3.9K
R14 2.2K
D12 MA741WKTX
C36 1
R28 10
R13 1K
Q11 2SB1132T100 REGULATOR
D11 MA1070400L
L11
D21 MA111TX
C10 120P
R22 22K
C21 0.01
C22 0.1
C19 6.3V22
R16 39K
R15 39K
C23 1
C24 560P
C20 1
C26 1
R26 100K
C35 1
R25 100K
C16 1
R29 5.6K
R31 68K
C30 0.1
C12 10V4.7
L13
C14 4V220
C13 6.3V47
C11 1
C37 1
C28 6.3V330
C27 6.3V330
L12
C17 1
R32 10K
C33 10V4.7
1.2V CLK
PREGND
1.5V AREF
3V AVCC
3V CRP
2.8V RESET
1.6V SOFT
0.6V EO
0.9V EI
2.5V VADJ
0.5V CT
0V SPRT
OFF
2.4V BOUT
0V STROBE
SEI
3.2V VSUB
2.5V SSW
2.5V SVCC
2.5V USW
DVDD 3V
S/P 3V
MCLK/ CHARGE 2.5V
MLD/ VCNT 2.5V
MDATA/ EMP 2.5V
MSTAT/ ACDET 2.5V
REGB 2.4V
PVCC2 6.1V
IOUT 0V
P.GND2
LG 2.8V
VG 7.1V
START 2.8V
AMUTE 0V
ICNT 0V
RESTART 0V
VSEN 2.8V
PVCC1 2.8V
DSW 2.5V
P.GND1
A
B
C
D
E
C
D
2.4V
6.1V
2.8V

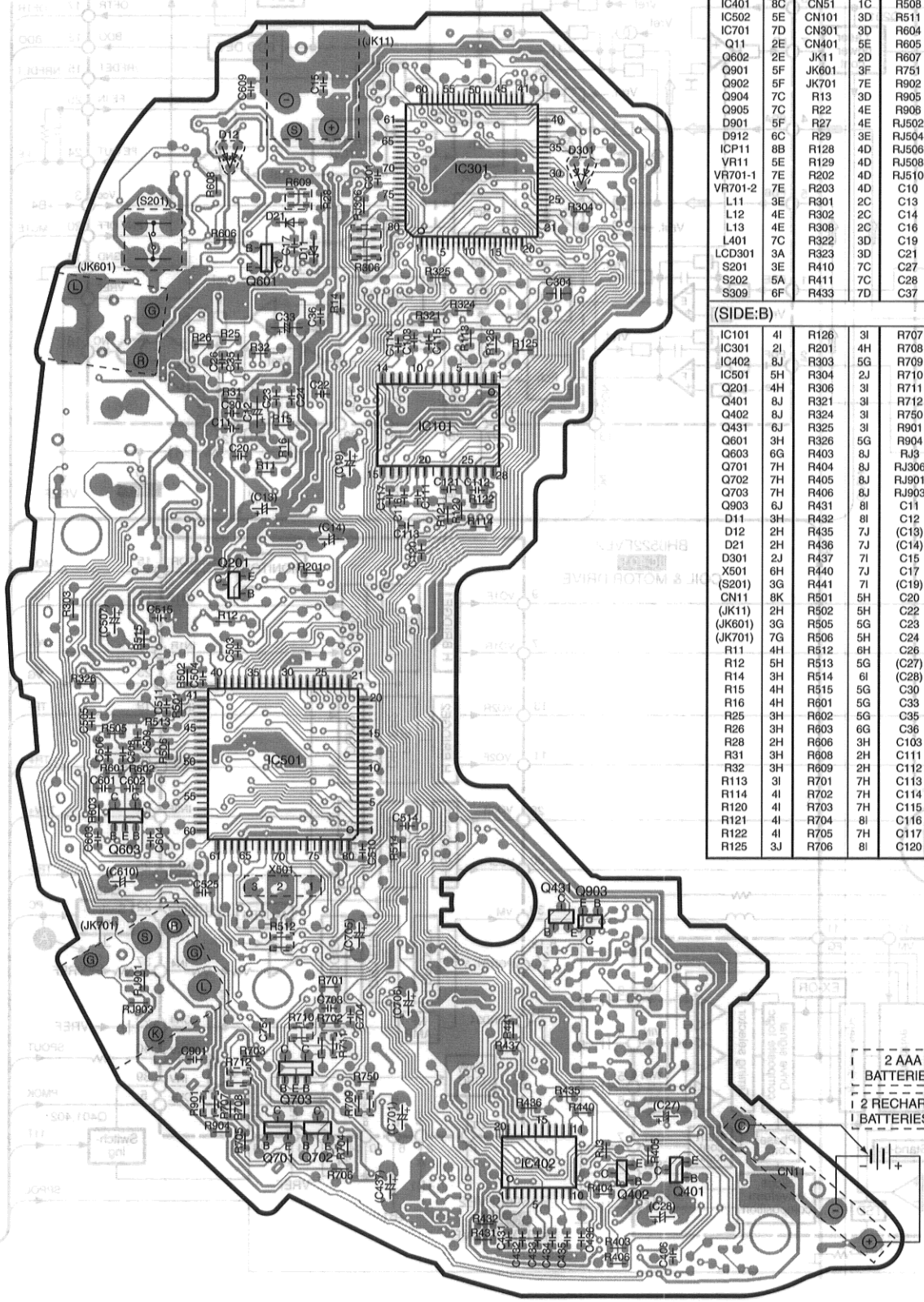

:POSITIVE VOLTAGE LINE
:CD PLAYBACK SIGNAL LINE
(2.8V)
JK11
DC IN
4.5V
C15
0.1
ICP11
UNHH20600L
CN11
2 AAA SIZE
BATTERIES 3V
2 RECHARGEABLE
BATTERIES 2.4V
BATTERY CASE
CN51
2 AA SIZE
BATTERIES 3V
R902
270K
Q904
2SD1819ATX
SWITCHING
(REMOTE)
D901
MA142WKTX
R906
470K
Q905
2SD1819ATX
SWITCHING
(REMOTE)
Q902
XN1210TX
MUTING CONT.
Q901
DTA114YUA106
MUTING CONT.
C609
0.1
C707
0.1
(2.5V)
Q601,602
2SD1328TX
MUTING
C605
4V10
C606
4V10
R607
1K
R608
1K
R605
47K
R606
47K
R609
3.3K
Q601
Q602
C607
680P
C608
680P
PLAY
1.1V
P-P
1kHz,0dB
JK601
OUT(φ3.5)
C701
6.3V47
IC701
NJU7082BVTE1
HEADPHONES AMP
C703
1
R701
100K
R702
100K
C704
1
C705
4V220
C706
4V220
R703
18
R704
18
R705
1.5
R706
1.5
Q701
Q702
R710
12K
R711
10K
R707
1K
R708
1K
R750
5.6K
R751
5.6K
C750
5.6K
C751
5.6K
VR701-2
50K(C)
VR701-1
50K(C)
(VOLUME)
R709
3.9K
PLAY
0.7V
P-P
1kHz,0dB
(VOL:5)
Q701,702
2SD1328TX
MUTING
R712
330
C301
3300P
R904
47
RJ901
0Ω
RJ903
0Ω
PLAY
0.6V
P-P
1kHz,0dB
(VOL:5)
JK701
HEADPHONES
16Ω (φ3.5)
R901
820
Q703
XN1210TX
SWITCHING
Q903
DTA144EUA106
BUZZER AMP
C702
0.1
A B
N
F
A
(3.2V)

13 Printed Circuit Board and Wiring Connection Diagram



(SIDE:B)

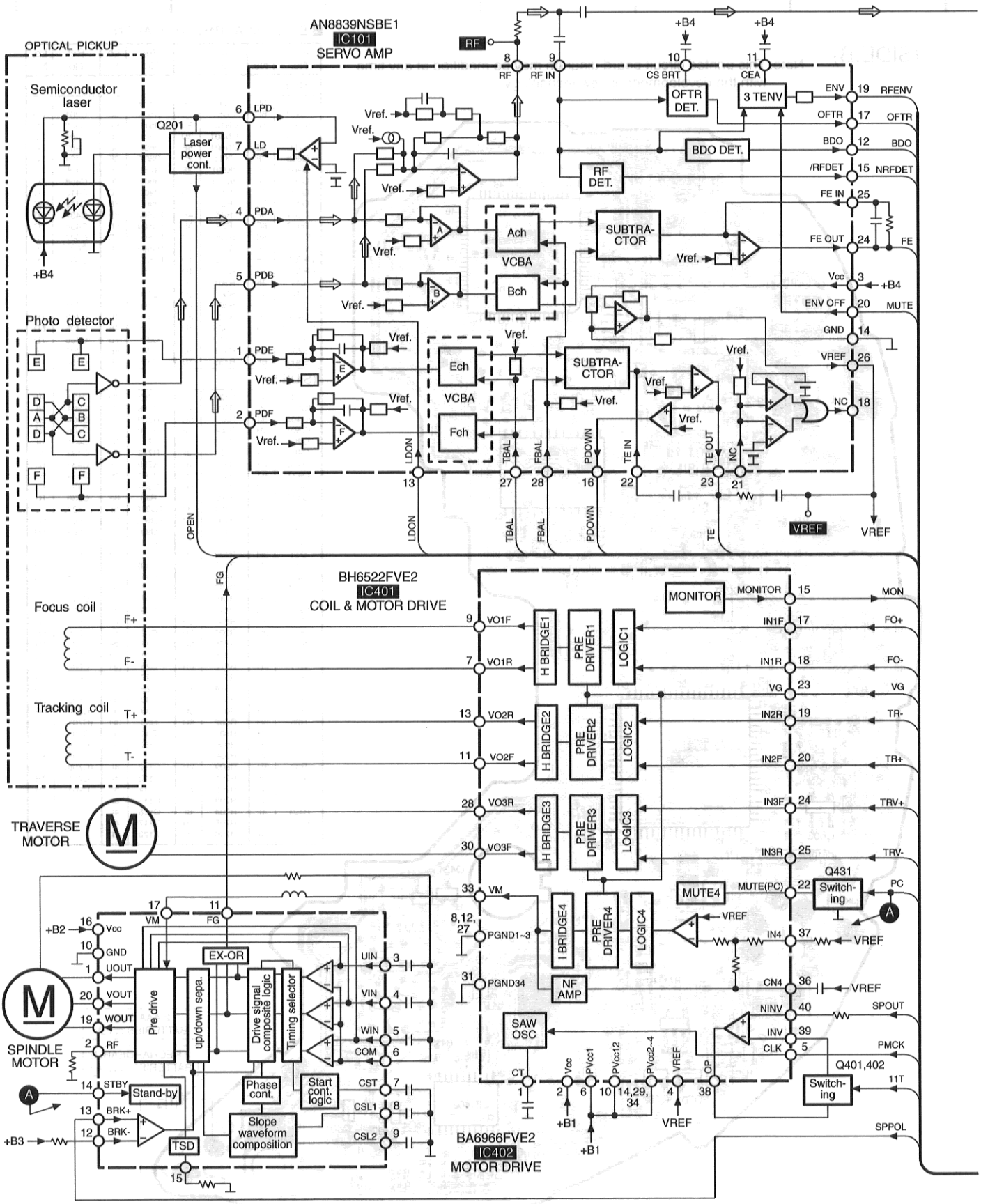
Note: This printed circuit board diagram may be modified at any time with the development of new technology.



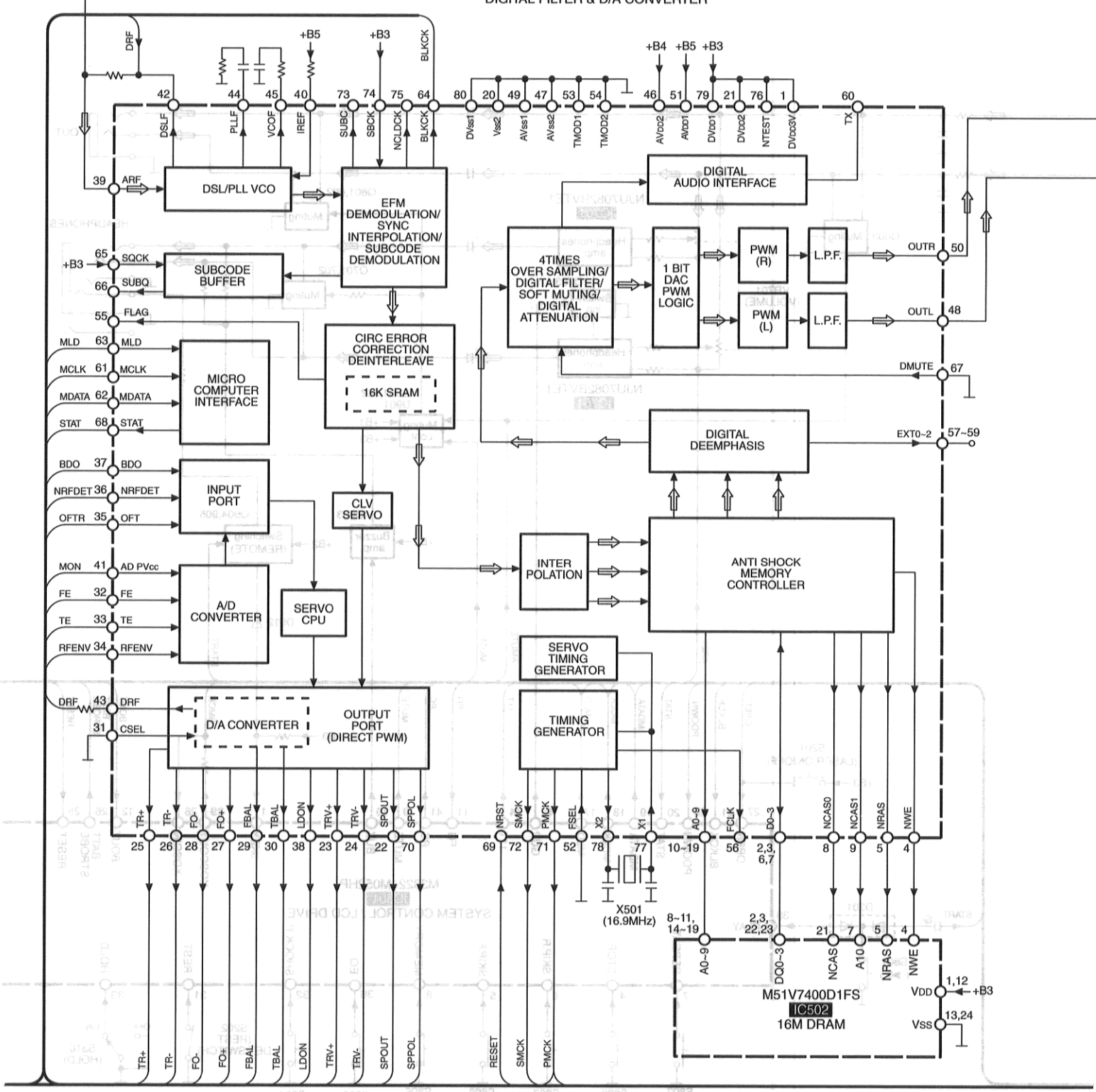
■ ELECTRICAL PARTS LOCATION

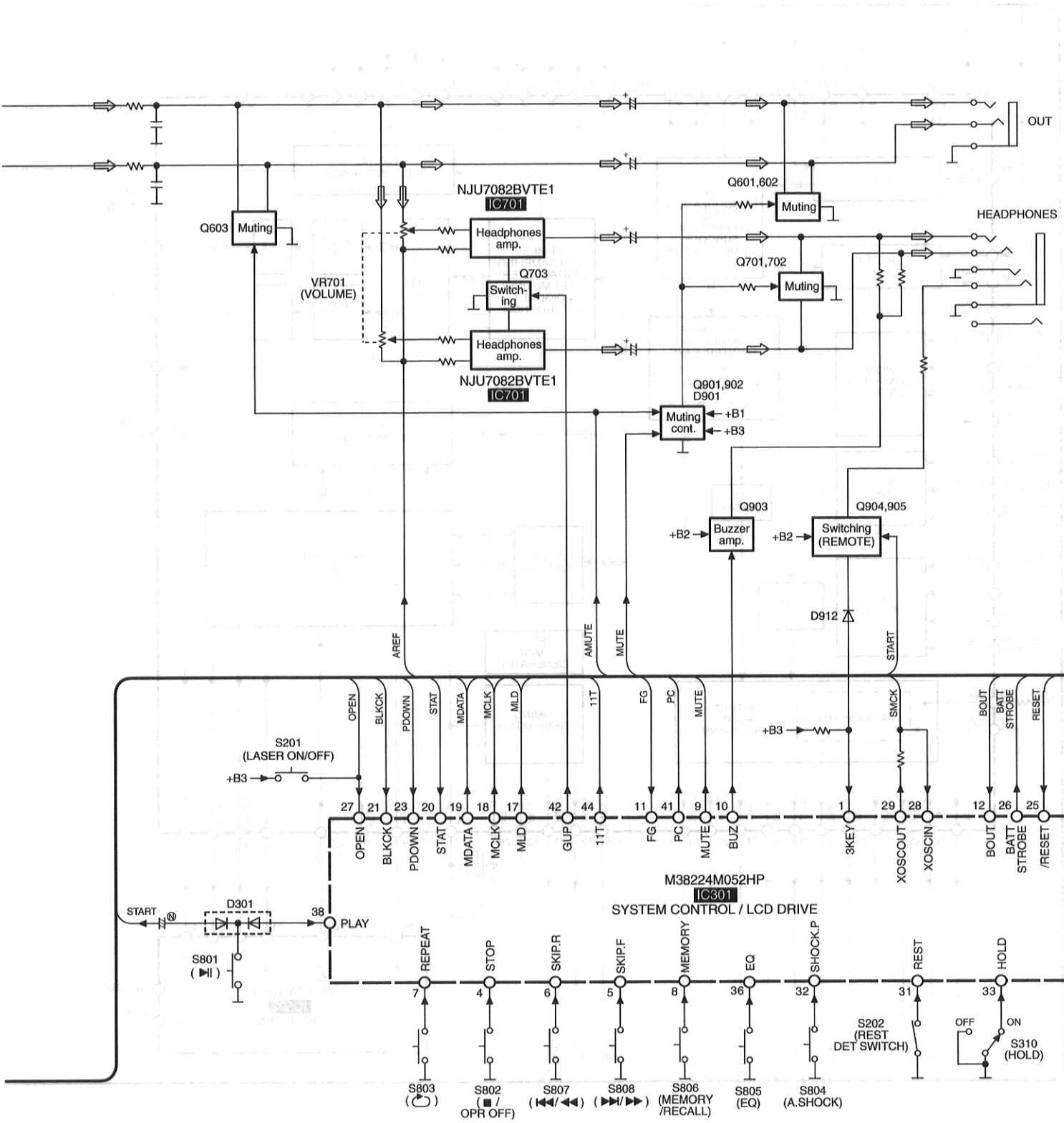
Ref. No.	Lo. No.	Ref. No.	Lo. No.	Ref. No.	Lo. No.	Ref. No.	Lo. No.
(SIDE:A)							
IC11	3E	S310	5F	R439	7C	C101	3D
IC401	8C	CN51	1C	R508	5E	C201	4D
IC502	5E	CN101	3D	R511	6E	C302	2C
IC701	7D	CN301	3D	R604	6E	C401	8C
Q11	2E	CN401	5E	R605	3E	C402	8C
Q602	2E	JK11	2D	R607	3E	C404	7C
Q901	5F	JK601	3F	R751	7D	C405	7C
Q902	5F	JK701	7E	R902	7B	C408	7C
Q904	7C	R13	3D	R905	7C	C410	7C
Q905	7C	R22	4E	R906	7C	C415	8C
D901	5F	R27	4E	RJ502	6D	C437	8D
D912	6C	R29	3E	RJ504	6D	C438	8C
ICP11	8B	R128	4D	RJ506	6D	C507	5E
VR11	5E	R129	4D	RJ508	6E	C605	2E
VR701-1	7E	R202	4D	RJ510	5D	C606	2E
VR701-2	7E	R203	4D	C10	4D	C607	3E
L11	3E	R301	2C	C13	4E	C608	2E
L12	4E	R302	2C	C14	4D	C610	6E
L13	4E	R308	2C	C16	3E	C701	7D
L401	7C	R322	3D	C19	4D	C702	7D
LCD301	3A	R323	3D	C21	4E	C705	6D
S201	3E	R410	7C	C27	7B	C706	7D
S202	5A	R411	7C	C28	8B	C707	7E
S309	6F	R433	7D	C37	3E	C750	7D
(SIDE:B)							
IC101	4I	R126	3I	R707	7H	C121	4I
IC301	2I	R201	4H	R708	7H	C301	2I
IC402	8J	R303	5G	R709	7I	C304	3J
IC501	5H	R304	2J	R710	7H	C406	8J
Q201	4H	R306	3I	R711	7H	C431	8I
Q401	8J	R321	3I	R712	7H	C432	8I
Q402	8J	R324	3I	R750	7I	C433	8J
Q431	6J	R325	3I	R901	7H	C434	8J
Q601	3H	R326	5G	R904	7H	C435	8J
Q603	6G	R403	8J	RJ3	8J	C436	8J
Q701	7H	R404	8J	RJ306	2I	(C437)	8I
Q702	7H	R405	8J	RJ901	7G	C503	5H
Q703	7H	R406	8J	RJ903	7G	C504	5H
Q903	6J	R431	8I	C11	4H	C505	5G
D11	3H	R432	8I	C12	3H	C506	5G
D12	2H	R435	7J	(C13)	4H	(C507)	5G
D21	2H	R436	7J	(C14)	4H	C508	5G
D301	2J	R437	7I	C15	2H	C509	5G
X501	6H	R440	7J	C17	3H	C510	6I
(S201)	3G	R441	7I	(C19)	4I	C511	5H
CN11	8K	R501	5H	C20	4H	C514	6I
(JK11)	2H	R502	5H	C22	3H	C515	5H
(JK601)	3G	R505	5G	C23	3H	C525	6H
(JK701)	7G	R506	5H	C24	3H	C601	6G
R11	4H	R512	6H	C26	3H	C602	6G
R12	5H	R513	5G	(C27)	7J	C603	6G
R14	3H	R514	6I	(C28)	8J	C604	6G
R15	4H	R515	5G	C30	3H	C609	2H
R16	4H	R601	5G	C33	3H	(C610)	6G
R25	3H	R602	5G	C35	3H	(C701)	7I
R26	3H	R603	6G	C36	3H	C703	7H
R28	2H	R606	3H	C103	3I	C704	7I
R31	3H	R608	2H	C111	4I	(C705)	6I
R32	3H	R609	2H	C112	4I	(C706)	7I
R113	3I	R701	7H	C113	4I	C751	7H
R114	4I	R702	7H	C114	3I	C901	7H
R120	4I	R703	7H	C115	3I		
R121	4I	R704	8I	C116	4I		
R122	4I	R705	7H	C117	4I		
R125	3J	R706	8I	C120	4I		

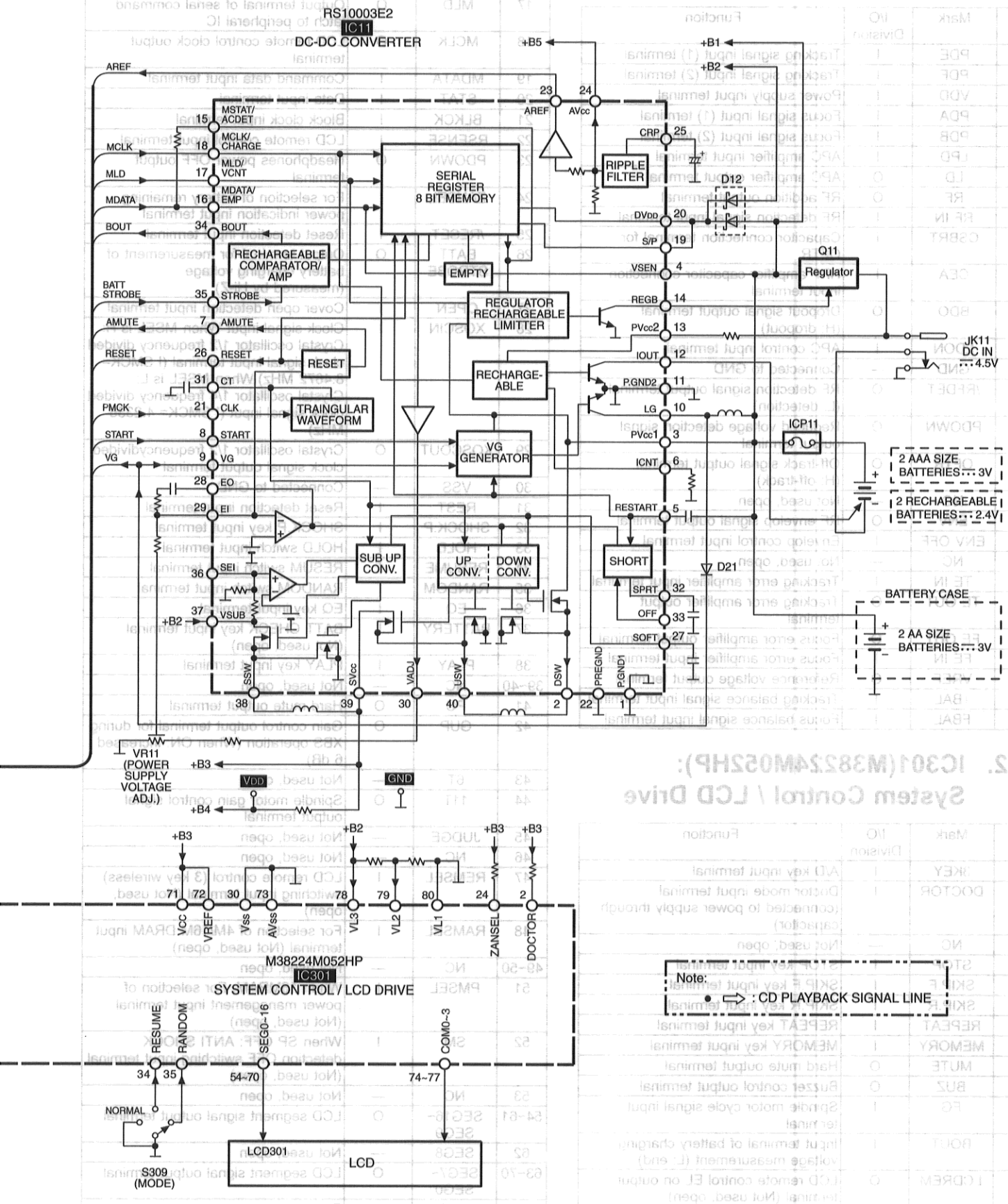
14 Block Diagram



MN662784SA
IC501
SERVO PROCESSOR / DIGITAL SIGNAL PROCESSOR
DIGITAL FILTER & D/A CONVERTER




OUT
HEADPHONES
NJU7082BVTE1
IC701
Q603
Muting
Headphones amp.
Switch-ing
Q703
VR701 (VOLUME)
Q601,602
Q701,702
Q901,902
D901
Muting cont.
+B1
+B3
+B2
Buzzer amp.
Switching (REMOTE)
Q903
Q904,905
D912
AREF
AMUTE
MUTE
START
S201 (LASER ON/OFF)
OPEN
BLKCK
PDOWN
STAT
MDATA
MCLK
MLD
GUP
11T
FG
PC
MUTE
BUZ
3KEY
SMCK
XOSCOUT
XOSCIN
BOUT
BATT STROBE
RESET
M38224M052HP
IC301
SYSTEM CONTROL / LCD DRIVE
D301
S801
PLAY
REPEAT
STOP
SKIP.R
SKIP.F
MEMORY
EQ
SHOCK.P
REST
HOLD
S202 (REST DET SWITCH)
S310 (HOLD)
OFF
ON
S803
S802 (■ / OPR OFF)
S807 (⏮/◀◀)
S808 (▶▶⏭)
S806 (MEMORY /RECALL)
S805 (EQ)
S804 (A.SHOCK)


RS10003E2
IC11
DC-DC CONVERTER
AREF
MCLK
MLD
MDATA
BOUT
BATT STROBE
AMUTE
RESET
PMCK
START
VG
+B2
+B3
+B4
+B5
+B1
MSTAT/ ACDET
MCLK/ CHARGE
MLD/ VCNT
MDATA/ EMP
BOUT
STROBE
AMUTE
RESET
CT
CLK
START
VG
EO
EI
SEI
VSUB
SERIAL REGISTER 8 BIT MEMORY
RECHARGEABLE COMPARATOR/ AMP
EMPTY
REGULATOR RECHARGEABLE LIMITTER
RESET
TRAINGULAR WAVEFORM
VG GENERATOR
SUB UP CONV.
UP CONV.
DOWN CONV.
RECHARGE-ABLE
RIPPLE FILTER
SHORT
AVcc
CRP
DVDD
S/P
VSEN
REGB
PVcc2
IOUT
P.GND2
LG
PVcc1
ICNT
RESTART
SPRT
OFF
SOFT
SSW
SVcc
VADJ
USW
DSW
PREGND
P.GND1
D12
D21
Q11
Regulator
JK11
DC IN 4.5V
ICP11
2 AAA SIZE BATTERIES 3V
2 RECHARGEABLE BATTERIES 2.4V
BATTERY CASE
2 AA SIZE BATTERIES 3V
VR11 (POWER SUPPLY VOLTAGE ADJ.)
VDD
GND
M38224M052HP
IC301
SYSTEM CONTROL / LCD DRIVE
Vcc
VREF
Vss
AVss
VL3
VL2
VL1
ZANSEL
DOCTOR
RESUME
RANDOM
SEG0~16
COM0~3
NORMAL
S309 (MODE)
LCD301
LCD
Note:
: CD PLAYBACK SIGNAL LINE

15 Terminal Function of IC's

15.1. IC101(AN8839NSBE1): Servo Amplifier

Pin No.	Mark	I/O Division	Function
1	PDE	I	Tracking signal input (1) terminal
2	PDF	I	Tracking signal input (2) terminal
3	VDD	I	Power supply input terminal
4	PDA	I	Focus signal input (1) terminal
5	PDB	I	Focus signal input (2) terminal
6	LPD	I	APC amplifier input terminal
7	LD	O	APC amplifier output terminal
8	RF	O	RF addition output terminal
9	RF IN	I	RF detection signal input terminal
10	CSBRT	I	Capacitor connection terminal for OFTR
11	CEA	I	HPF amplifier capacitor connection input terminal
12	BDO	O	Dropout signal output terminal (H: dropout)
13	LDON	I	APC control input terminal
14	GND	—	Connected to GND
15	/RFDET	O	RF detection signal output terminal (L: detection)
16	PDOWN	O	Reduced voltage detection signal output terminal
17	OFTR	O	Off-track signal output terminal (H: off-track)
18	NC	—	Not used, open
19	ENV	O	RF envelop signal output terminal
20	ENV OFF	I	Envelop control input terminal
21	NC	—	Not used, open
22	TE IN	I	Tracking error amplifier input terminal
23	TE OUT	O	Tracking error amplifier output terminal
24	FE OUT	O	Focus error amplifier output terminal
25	FE IN	I	Focus error amplifier input terminal
26	VREF	O	Reference voltage output terminal
27	TBAL	I	Tracking balance signal input terminal
28	FBAL	I	Focus balance signal input terminal

15.2. IC301(M38224M052HP): System Control / LCD Drive

Pin No.	Mark	I/O Division	Function
1	3KEY	I	A/D key input terminal
2	DOCTOR	I	Doctor mode input terminal (connected to power supply through capacitor)
3	NC	—	Not used, open
4	STOP	I	STOP key input terminal
5	SKIP.F	I	SKIP.F key input terminal
6	SKIP.R	I	SKIP.R key input terminal
7	REPEAT	I	REPEAT key input terminal
8	MEMORY	I	MEMORY key input terminal
9	MUTE	O	Hard mute output terminal
10	BUZ	O	Buzzer control output terminal
11	FG	I	Spindle motor cycle signal input terminal
12	BOUT	I	Input terminal of battery charging voltage measurement (L: end)
13	LCDREM	O	LCD remote control EL on output terminal (Not used, open)
14	TXPOWER	O	Optical output ON signal output terminal (Not used, open)
15	RDATA	O	Output terminal to LCD remote control (Not used, open)
16	RCLK	O	LCD remote control clock output terminal (Not used, open)
17	MLD	O	Output terminal of serial command latch to peripheral IC
18	MCLK	O	LCD remote control clock output terminal
19	MDATA	I	Command data input terminal
20	STAT	I	Data input terminal
21	BLKCK	I	Block clock input terminal
22	RSENSE	I	LCD remote control input terminal
23	PDOWN	O	Headphones power OFF output terminal
24	ZANSEL	I	For selection of battery remaining power indication input terminal
25	/RESET	I	Reset detection input terminal
26	BATT STROBE	O	Output terminal for measurement of battery charging voltage (measured by Hi-Z)
27	OPEN	I	Cover open detection input terminal
28	XOSCIN	I	Clock signal input When MSEL is H: Crystal oscillator 1/2 frequency divided clock signal input terminal (I SMCK= 8.4672 MHz) When MSEL is L: Crystal oscillator 1/4 frequency divided clock signal input (I SMCK= 4.2336 MHz)
29	XOSCOUT	O	Crystal oscillator 1/2 frequencydivided clock signal output terminal
30	VSS	—	Connected to GND
31	REST	I	Reset detection input terminal
32	SHOCK.P	I	SHOCK.P key input terminal
33	HOLD	I	HOLD switch input terminal
34	RESUME	I	RESUM switch input terminal
35	RANDOM	I	RANDOM switch input terminal
36	EQ	I	EQ key input terminal
37	BATTERY	I	BATT CHECK key input terminal (Not used, open)
38	PLAY	I	PLAY key input terminal
39~40	NC	—	Not used, open
41	PC	O	Hard mute output terminal
42	GUP	O	Gain control output terminal for during XBS operation (When ON: increased 6 dB)
43	6T	—	Not used, open
44	11T	O	Spindle motor gain control signal output terminal
45	JUDGE	—	Not used, open
46	NC	—	Not used, open
47	REMSEL	I	LCD remote control (3 key wireless) switching input terminal (Not used, open)
48	RAMSEL	I	For selection of 4M/16M DRAM input terminal (Not used, open)
49~50	NC	—	Not used, open
51	PMSEL	I	When 16MRAM: For selection of power management input terminal (Not used, open)
52	SM	I	When SP OFF: ANTI SHOCK detection OFF switching input terminal (Not used, open)
53	NC	—	Not used, open
54~61	SEG16~ SEG9	O	LCD segment signal output terminal
62	SEG8	—	Not used, open
63~70	SEG7~ SEG0	O	LCD segment signal output terminal
71	VCC	I	Power sopply input terminal
72	VREF	—	Not used, connected to GND
73	AVSS	—	Not used, connected to GND

Pin No.	Mark	I/O Division	Function
74~77	COM3~ COM0	O	LCD segment signal output terminal
78	VL3	I	Power supply input terminal
79~80	VL2~VL1	I	Power supply input terminal (LCD drive bias)

15.3. IC401(BH6522FVE2): Coil and Motor Drive

Pin No.	Mark	I/O Division	Function
1	CT	—	Triangular wave output terminal (Connected to GND through capacitor)
2	VCC	I	Power supply input terminal
3	NC	—	Not used, open
4	VREF	I	Reference voltage input terminal
5	CLK	I	External clock input terminal
6	PVCC1	I	Power supply input terminal
7	VO1R	O	Focus coil drive signal output terminal
8	PGND1	—	Connected to GND
9	VO1F	O	Focus coil drive signal output terminal
10	PVCC12	I	Power supply input terminal
11	VO2F	O	Tracking coil drive signal output terminal
12	PGND2	—	Connected to GND
13	VO2R	O	Tracking coil drive signal output terminal
14	PVCC2	I	Power supply input terminal
15	MONITOR	I	A/D reference voltage monitor input terminal
16	NC	—	Not used, open
17	IN1F	I	Focus coil drive signal input terminal
18	IN1R	I	Focus coil drive signal input terminal
19	IN2R	I	Tracking coil drive signal input terminal
20	IN2F	I	Tracking coil drive signal input terminal
21	GND	—	Connected to GND
22	MUTE(PC)	I	Hard mute input terminal
23	VG	I	Power supply input terminal
24	IN3F	I	Traverse motor drive signal input terminal
25	IN3R	I	Traverse motor drive signal input terminal
26	NC	—	Not used, open
27	PGND3	—	Connected to GND
28	VO3R	O	Traverse motor drive signal output terminal
29	PVCC3	I	Power supply input terminal
30	VO3F	O	Traverse motor drive signal output terminal
31	PGND34	—	Connected to GND
32	NC	—	Not used, open
33	VM	O	Power supply output terminal for spindle motor drive
34	PVCC4	I	Power supply input terminal
35	VLIM	I	Spindle motor gain control signal input terminal
36	CN4	I	Channel 4 filter terminal (Connected to VREF through capacitor)
37	IN4	I	Reference voltage input terminal
38	OP	O	Spindle motor control signal amplifier output terminal
39	INV	I	Spindle motor control signal reverse input terminal
40	NINV	I	Spindle motor drive input terminal

15.4. IC11(RS10003E2): DC/DC Converter

Pin No.	Mark	I/O Division	Function
1	PGND1	—	GND terminal
2	DSW	O	DC/DC converter coil drive output terminal
3	PVCC1	I	Power supply input terminal
4	VSEN	I	Empty detection input terminal (connected to power supply)
5	RESTART	I	DC/DC converter drive input terminal
6	ICNT	I	Setting of charging current input terminal (Connected to GND through resister)
7	AMUTE	O	Muting signal output terminal
8	START	I	Starting of DC/DC converter input terminal
9	VG	I	Power supply input terminal
10	LG	I	Coil drive input terminal for VG voltage increase (connected to power supply)
11	PGND2	—	GND terminal
12	IOUT	O	Charging signal and charging feedback output terminal
13	PVCC2	I	Power supply input terminal
14	REGB	O	Regulator drive signal output terminal
15	MSTAT/ACDET	O	DC jack detection output terminal
16	MDATA/EMP	I	Power drop detection input terminal
17	MLD/VCNT	I	Regulator voltage switching input terminal
18	MCLK/CHARGE	I	Charging ON/OFF input terminal
19	S/P	I	Serial/parallel switching input terminal (connected to power supply)
20	DVDD	I	Power supply input terminal
21	CLK	I	DC/DC converter external clock input terminal
22	PREGND	—	GND terminal
23	AREF	O	Audio reference output terminal
24	AVCC	O	Ripple filter output terminal
25	CRP	I	Ripple filter smoothing capacitor connection terminal (Connected to GND through capacitor)
26	RESET	O	Reset detection output terminal
27	SOFT	O	Soft start setting output terminal (Connected GND through capacitor)
28	EO	O	DC/DC converter error amplifier output terminal
29	EI	I	DC/DC converter error amplifier input terminal
30	VADJ	O	Output for varying DC/DC converter output terminal
31	CT	O	Triangular wave output terminal (connected GND through capacitor)
32	SPRT	O	Output terminal for setting of constants anti-power OFF (connected to GND through capacitor)
33	OFF	—	DC/DC converter OFF(Not used, open)
34	BOUT	O	Amplifier output terminal
35	STROBE	I	Strobe input terminal
36	SEI	—	Sub DC/DC converter error amplifier input terminal (Not used, open)
37	VSUB	I	Power supply input terminal
38	SSW		
39	SVCC		
40	USW	I	DC/DC converter coil drive input terminal

15.5. IC501(MN662784SA): Servoprocessor / Digital Signal Processor / Digital Filter and D/A Converter

Pin No.	Mark	I/O Division	Function
1	DVDD3V	I	Power supply input terminal for DRAM
2	D0	I/O	Data input/output terminal for DRAM
3	D1		
4	NWE	O	Write enable output terminal for DRAM
5	NRAS	O	RAS control signal output terminal for DRAM
6	D2	I/O	Data 2/3 input/output terminal for DRAM
7	D3		
8	NCAS0	O	CAS control 0 signal output terminal for DRAM
9	NCAS1	O	CAS control 1 signal output terminal for DRAM
10~14	A8~4	O	Addresses 8-4 output terminal for DRAM
15	A9	O	Address 9 output terminal for DRAM
16~19	A0~A3	O	Addresses 0-3 output terminal for DRAM
20	VSS2	—	GND terminal
21	DVDD2	I	Power supply input terminal for digital circuits
22	SPOUT	O	Spindle motor drive output terminal
23	TRV+	O	Traverse motot drive(+) output terminal
24	TRV-	O	Traverse motot drive (-) output terminal
25	TR+	O	Tracking coil drive (+) output terminal
26	TR-	O	Tracking coil drive (-) output terminal
27	FO+	O	Focus coil drive (+) output terminal
28	FO-	O	Focus coil drive (-) output terminal
29	FBAL	O	Focus balance adjustment output terminal
30	TBAL	O	Tracking balance adjustment output terminal
31	CSEL	—	Connected to GND
32	FE	I	Focus error signal input terminal (analog input)
33	TE	I	Tracking error signal input terminal (analog input)
34	RFENV	I	RF envelope signal input terminal (analog input)
35	OFT	I	Off-track signal input terminal (H: off-track)
36	NRFDET	I	RF detection signal input terminal (L: detection)
37	BDO	I	Dropout signal input terminal (H: dropout)
38	LDON	O	Laser ON signal output terminal(H: ON)
39	ARF	I	RF signal input terminal
40	IREF	I	Reference current input terminal
41	AD PVCC	O	A/D reference voltage output terminal
42	DSLF	O	Loop filter output terminal for DSL
43	DRF	O	Bias output terminal for DSL
44	PLLF	O	Loop filter output terminal for PLL
45	VCOF	O	Loop filter output terminal for jitter-free VCO
46	AVDD2	I	Power supply input terminal for analog circuits
47	AVSS2	—	Connected to GND
48	OUTL	O	Left channel audio signal output terminal
49	AVSS1	—	Connected to GND
50	OUTR	O	Right channel audio signal output terminal
51	AVDD1	I	Power supply input terminal for analog circuits
52	FSEL	I	Noise filter ON/OFF switching input (L: ON) (Connected to GND)
53	TMOD1	I	Terminal mode switching input 1 (L: normal) (Connected to GND)
54	TMOD2	I	Terminal mode switching input 2 (L: normal) (Connected to GND)
55	FLAG	—	Flag signal output (Not used, open)
56	FCLK	—	LCD frame click signal output (Not used, open)
57~58	EXT0 ~EXT2	I	Not used, open
60	TX	O	Digital audio interface signal output terminal (Not used, open)
61	MCLK	I	Microprocessor command clock signal input terminal (detected at leading edge)
62	MDATA	I	Microprocessor command data signal input terminal
63	MLD	I	Microprocessor command control signal input terminal (L: load)
64	BLKCK	O	Sub-code block clock signal output terminal (I=75Hz)
65	SQCK	I	External clock input terminal for sub-code Q resistor
66	SUBQ	O	Sub-code Q data output terminal (Not used, open)
67	DMUTE	I	Mute input terminal (H: mute) (Not used, connected GND)
68	STAT	O	Status signal output terminal
69	NRST	I	Reset signal input terminal (H: reset)
70	SPPOL	O	Spindle motor drive signal output terminal
71	PMCK	O	Clock signal output terminal
72	SMCK	O	System clock signal output terminal
73	SUBC	O	Sub-code output terminal (Not used, open)
74	SBCK	I	Clock input terminal for sub-code output terminal
75	NCLDCK	O	Sub-code frame clock signal output terminal (Not used, open)
76	NTEST	I	Test terminal (normal: H) (Connected to power supply))
77	X1	I	Crystal oscillator circuit input terminal (F=16.9MHz)
78	X2	O	Crystal oscillator circuit output terminal (F=16.9MHz)
79	DVDD1	I	Power supply input terminal for digital circuits
80	DVSS1	—	Connected to GND

16 Replacement Parts List

Notes:

*Inportant 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 areas. (Refer to the cover page for area.)

Parts without these indications can be used for all areas.

*The parenthesized indications in the Remarks columns specify the colours. (Refer to the cover page for colour.)

Parts without these indications can be used for all colours.

*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, the item will continue to be available for a specific period of time. The retention period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.

*"<IA>,<IB>" marks in Remarks indicate languages of instruction manuals.

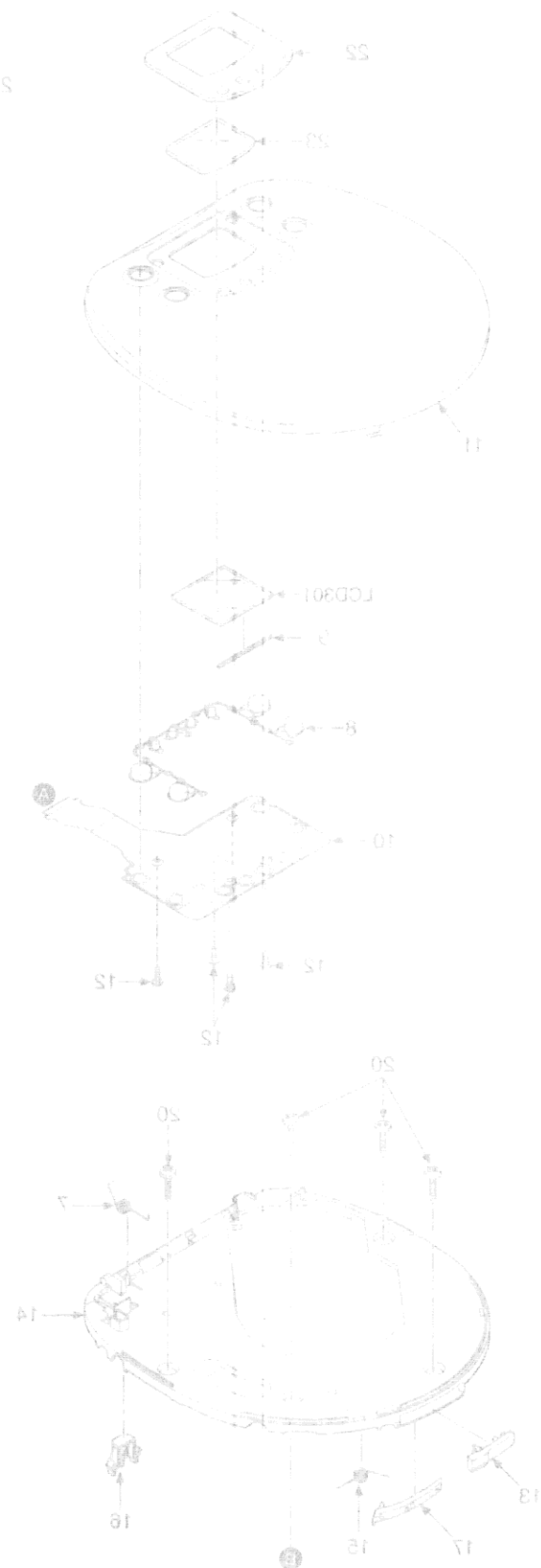
[<IA>: English, <IB>: Canadian French]

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
1	RGN1805-K	NAME PLATE	1	SL-CT470
1	RGN188-K	NAME PLATE	1	SL-CT476J
2	RFKJCT470PA	BOTTOM CABINET ASS'Y	1	(A)
2	RFKJCT570PS	BOTTOM CABINET ASS'Y	1	(S)
2-1	RKA0063-K	FOOT	2	
4	RGV0200-H	SWITCH KNOB	2	
5	RJC93030	BATTERY TERMINAL	1	
6	RMA0677	REAR ORNAMENT PLATE	1	
7	RMB0642	OPEN SPRING	1	
8	RGU1860-S	OPERATION BUTTON	1	
9	RSQ0069	ZEBRA RUBBER	1	
10	RXA0182	OPERATION P.C.B.	1	
11	RFKLLCT470PA	CD COVER ASS'Y	1	SL-CT470(A)
11	RFKLLCT470PS	CD COVER ASS'Y	1	SL-CT470(S)
11	RFKLLCT476JP	CD COVER ASS'Y	1	SL-CT476J
12	XQN14+BG3FC	SCREW	8	
13	RGV0239-H1	OPEN KNOB	1	
14	RKM0383-4H	INTERMEDIATE CABINET	1	
15	RME0265	SPRING	1	
16	RMR1143-K	STOPPER	1	
17	RMR1186-K	LOCK PLATE	1	
19	RFKMLCT570-A	BATTERY COVER	1	(A)
19	RFKMLCT570-S	BATTERY COVER	1	(S)
20	XTN17+6GFZ	SCREW	4	
21	RAE0220Z	TRAVERSE DECK ASS'Y	1	⚠
21-1	RDG0443	GEAR	1	
21-2	RDG0444	GEAR	1	
21-3	RJB2025A	FPC(16P)	1	
21-4	RMG0503-K	FLOATING RUBBER	3	
21-5	RMS0644	SHAFT	1	
21-6	RMC0366-1	SPRING	1	
21-7	RXQ0613	NET PLATE ASS'Y	1	
21-8	VED0431	OPTICAL PICKUP	1	⚠
21-9	RXQ0611	TRAVERSE MOTOR	1	
21-10	XQN14+BG4FZ	SCREW	1	
21-11	XQN17+CG45	SCREW	5	
22	RGK1239-A	LCD PANEL ORNAMENT	1	
23	RGP0787-X	LCD PANEL	1	
A1	RFKFHHR4AHBA	RECHARGEABLE BATT.ASS'Y	1	SL-CT470(P)
A1-1	RFE0059	SPACER	1	SL-CT470(P)
A1-2	RXQ0449	RECHARGEABLE BATTERY CASE	1	SL-CT470(P)
A2	RFA1139-H	BATTERY CASE	1	SL-CT470(P)
A3	RFEA415C-1S	AC ADAPTOR	1	SL-CT470(P) ⚠
A5	RFEV715P-SS	STEREO HEADPHONES	1	SL-CT470(P)
A5-1	STE31H-K3	EAR PAD	2	SL-CT470(P)
A6	RQT5350-P	INSTRUCTION MANUAL	1	SL-CT470(P) <IA>
A11	RFKFHHR4AHBA	RECHARGEABLE BATT.ASS'Y	2	SL-CT470(PC)
A11-1	RFE0059	SPACER	1	SL-CT470(PC)
A11-2	RXQ0449	RECHARGEABLE BATTERY CASE	1	SL-CT470(PC)
A12	RFA1139-H	BATTERY CASE	1	SL-CT470(PC)
A13	RFEA415C-1S	AC ADAPTOR	1	SL-CT470(PC) ⚠
A15	RFEV334P-KS	STEREO INSIDEPHONES	1	SL-CT470(PC)
A16	RQA0178	WARRANTY CARD	1	SL-CT470(PC)
A17	RQT5350-P	INSTRUCTION MANUAL	1	SL-CT470(PC) <IA>
A17	RQT5351-C	INSTRUCTION MANUAL	1	SL-CT470(PC) <IB>
A21	RFKFHHR4AHBA	RECHARGEABLE BATT.ASS'Y	1	SL-CT476J
A21-1	RFE0059	SPACER	1	SL-CT476J
A21-2	RXQ0449	RECHARGEABLE BATTERY CASE	1	SL-CT476J
A22	RFA1139-H	BATTERY CASE	1	SL-CT476J
A23	RFEA415C-1S	AC ADAPTOR	1	SL-CT476J ⚠
A25	RFEV716P-SS	STEREO HEADPHONES	1	SL-CT476J
A25-1	STE31H-K3	EAR PAD	2	SL-CT476J
A26	RQT5350-P	INSTRUCTION MANUAL	1	SL-CT476J <IA>
A27	RFC0060-K	JOG POACH	1	SL-CT476J
A28	RFEV033P-SS	WIRED REMOTE CONTROLLER	1	SL-CT476J
C10	ECUV1H121KCV	50V 120P	1	
C11	ECUVNA105ZFV	10V 1U	1	
C12	RCST1AY475RG	10V 4.7U	1	
C13	RCE0JSL470IX	6.3V 47U	1	
C14	RCE0GKS221IG	4V 220U	1	
C15	ECUZNC104ZFV	16V 0.1U	1	
C16,17	ECUVNA105ZFV	10V 1U	2	
C19	ECEA0JKS220	6.3V 22U	1	
C20	ECUVNA105ZFV	10V 1U	1	
C21	ECUVNH103KBV	50V 0.01U	1	
C22	ECUZNC104ZFV	16V 0.1U	1	
C23	ECUVNA105ZFV	10V 1U	1	

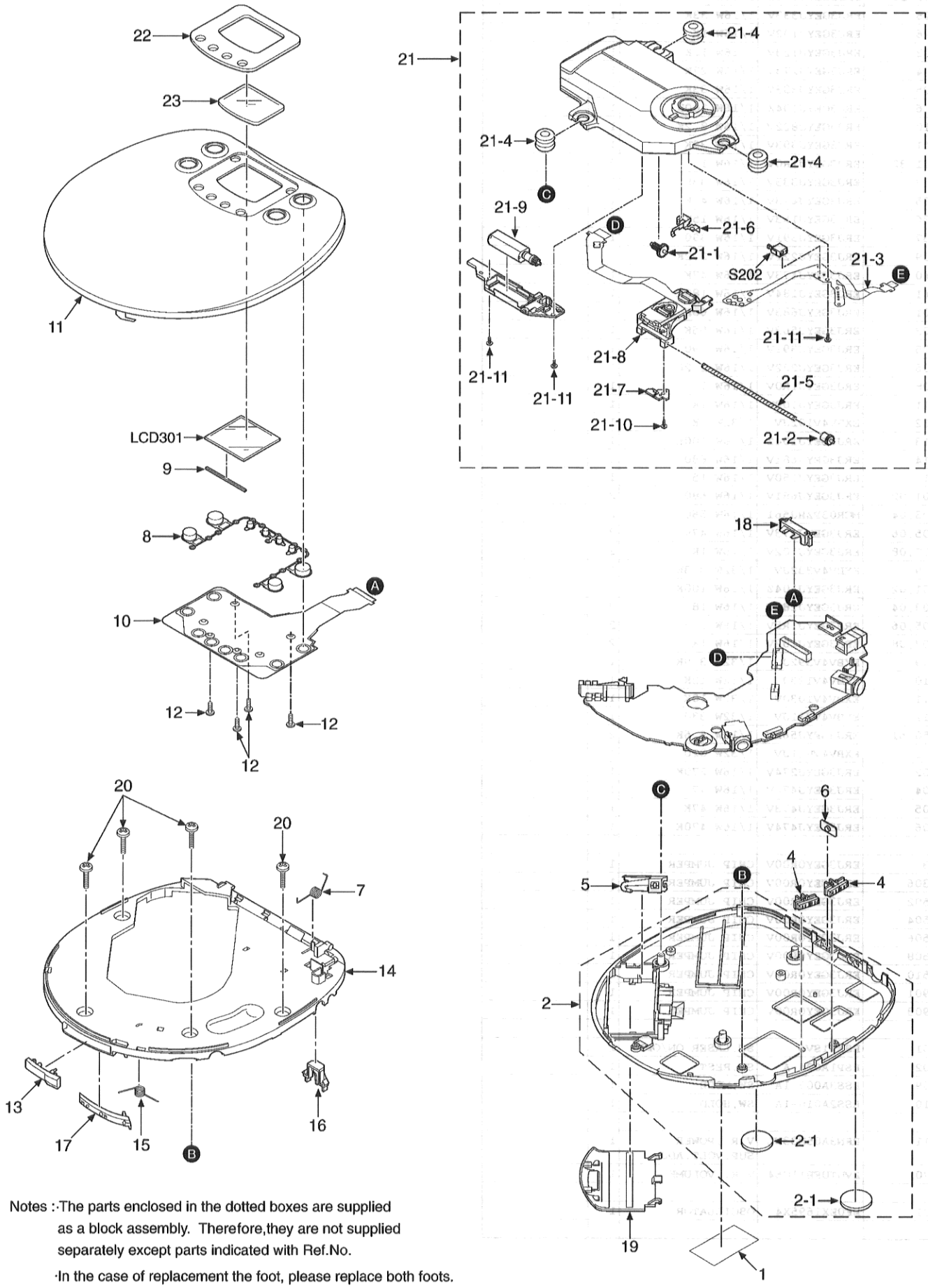
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C24	ECUV1H561KBV	50V 560P	1	
C26	ECUVNJ105KBV	63V 1U	1	
C27,28	ECEA0JKS331	6.3V 330U	2	
C30	ECUVNC104KBV	16V 0.1U	1	
C33	RCST1AY475RG	10V 4.7U	1	
C35	ECUVNJ105KBV	63V 1U	1	
C36,37	ECUVNA105ZFV	10V 1U	2	
C101	ECUVNC104KBV	16V 0.1U	1	
C103	ECUVNE223KBV	25V 0.022U	1	
C111	ECUVNE223KBV	25V 0.022U	1	
C112	ECUV1H221KBV	50V 220P	1	
C113,14	ECUZNC104ZFV	16V 0.1U	2	
C115-17	ECUVNE223KBV	25V 0.022U	3	
C120	ECUV1H152KBV	50V 1500P	1	
C121	ECUV1H121KCV	50V 120P	1	
C201	RCST0JY226RG	6.3V 22U	1	
C301,02	ECUVNA105ZFV	10V 1U	2	
C304	ECUVNA105KBN	10V 1U	1	
C401	ECUV1H102KBV	50V 1000P	1	
C402	ECUVNA105ZFV	10V 1U	1	
C404	RCST0JY226RG	6.3V 22U	1	
C405	ECUV1E123KBV	25V 0.012U	1	
C406	ECUVNE153KBV	25V 0.015U	1	
C408	ECUVNE223KBV	25V 0.022U	1	
C410	ECUV1H122KBV	50V 1200P	1	
C415	ECUVNA105ZFV	10V 1U	1	
C431-33	ECUV1H222KBV	50V 2200P	3	
C434	ECUV0J474KBV	6.3V 0.47U	1	
C435,36	ECUVNC333KBV	16V 0.033U	2	
C437	RCE0GKS470IV	4V 47U	1	
C438	ECUV1H152KBV	50V 1500P	1	
C503	ECUV1H561KBV	50V 560P	1	
C504	ECUZNC104ZFV	16V 0.1U	1	
C505	ECUVNE223KBV	25V 0.022U	1	
C506	ECUVNA224KBV	10V 0.22U	1	
C507	RCE0GKS221IG	4V 220U	1	
C508	ECUV0J474KBV	6.3V 0.47U	1	
C509	ECUVNH103KBV	50V 0.01U	1	
C510,11	ECUZNC104ZFV	16V 0.1U	2	
C514	ECUV1H102KBV	50V 1000P	1	
C515	ECUZNC104ZFV	16V 0.1U	1	
C525	ECUZNC104ZFV	16V 0.1U	1	
C601,02	ECUV1H102KBV	50V 1000P	2	
C603,04	ECUV1H272KBV	50V 2700P	2	
C605,06	RCST0GY106RG	4V 10U	2	
C607,08	ECUV1H681KBV	50V 680P	2	
C609	ECUZNC104ZFV	16V 0.1U	1	
C610	RCE0GKS470IV	4V 47U	1	
C701	ECA0JAD470XI	6.3V 47U	1	
C702	ECUZNC104ZFV	16V 0.1U	1	
C703,04	ECUVNJ105KBV	63V 1U	2	
C705,06	ECEA0GKS221	4V 220U	2	
C707	ECUZNC104ZFV	16V 0.1U	1	
C750,51	ERJ3GEYJ562V	1/16W 5.6K	2	
C901	ECUV1H332KBV	50V 3300P	1	
CN11	RJH8302	BATT.TERMINAL	1	
CN51	RJH9209-1	BATT.CASE CONNECT.TERMINA	1	
CN101	RJS2A4616T	CONNECTOR(16P)	1	
CN301	RJS2A6130T	CONNECTOR(30P)	1	
CN401	RJS2A6108T	CONNECTOR(8P)	1	
D11	MA1070400L	DIODE	1	
D12	MA741WKTX	DIODE	1	
D21	MA111TX	DIODE	1	
D301	MA142WKTX	DIODE	1	
D901	MA142WKTX	DIODE	1	
D912	MA111TX	DIODE	1	
IC11	RS10003E2	IC	1	
IC101	AN8839NSBE2	IC	1	
IC301	M38224M052HP	IC	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
IC401	BH6522FVE2	IC	1	
IC402	BA6966FVE2	IC	1	
IC501	MN662784SA	IC	1	
IC502	M51V7400D1FS	IC	1	
IC701	NJU7082BVTE1	IC	1	
ICP11	UNHH20600L	IC PROTECTOR	1	⚠
JK11	RJJ43K09-C	JACK,DC IN	1	
JK601	RJJD3S5ZB-C	JACK,AUDIO OUT	1	
JK701	RJJ36T02-C	JACK,HEADPHONES	1	
L11	RLQU331KT-W	COIL	1	
L12	RLQS101KT1-T	COIL	1	
L13	RLQU331KT-W	COIL	1	
L401	RLQS330KT1-T	COIL	1	
LCD301	RSL5250-T	LCD	1	
P1	RPN1257	TRAY	1	SL-CT470(P)
P2	RPN1258	LID	1	SL-CT470(P)
P3	RPQ1033	PAD	1	SL-CT470(P)
P3	RPQ1035	PAD	1	SL-CT470(P)
P12	RPK1339	PACKING CASE	1	SL-CT470(PC)
P13	RPQ0926	PAD	1	SL-CT470(PC)
P14	RPF0046	PROTECTION BAG(F.B.)	1	SL-CT470(PC)
P21	RPN1273	TRAY	1	SL-CT476J
P22	RPN1274	LID	1	SL-CT476J
P23	RPQ1060	PAD	1	SL-CT476J
PCB1	REP2938E-M	MAIN P.C.B.	1	(RTL)
Q11	2SB1132T100	TRANSISTOR	1	
Q201	2SB709ATX	TRANSISTOR	1	
Q401	DTC144TUA106	TRANSISTOR	1	
Q402	2SD1819ATX	TRANSISTOR	1	
Q431	UN5113TX	TRANSISTOR	1	
Q601,02	2SD1328QRSTX	TRANSISTOR	2	
Q603	XN1215TX	TRANSISTOR	1	
Q701,02	2SD1328QRSTX	TRANSISTOR	2	
Q703	XN1210TX	TRANSISTOR	1	
Q901	DTA114YUA106	TRANSISTOR	1	
Q902	XN1210TX	TRANSISTOR	1	
Q903	UN5113TX	TRANSISTOR	1	
Q904,05	2SD1819ATX	TRANSISTOR	2	
R11	ERJ3GEYJ822V	1/16W 8.2K	1	
R12	ERJ3GEYJ332V	1/16W 3.3K	1	
R13	ERJ3GEYJ102V	1/16W 1K	1	
R14	ERJ3GEYJ222V	1/16W 2.2K	1	
R15,16	ERJ3GEYJ393V	1/16W 39K	2	
R22	ERJ3GEYJ223V	1/16W 22K	1	
R25,26	ERJ3GEYJ104Z	1/16W 100K	2	
R27	ERJ3GEYJ392V	1/16W 3.9K	1	
R28	ERJ3GEYJ100V	1/16W 10	1	
R29	ERJ3GEYJ562V	1/16W 5.6K	1	
R31	ERJ3GEYJ683V	1/16W 68K	1	
R32	ERJ3GEYJ103Z	1/16W 10K	1	
R113,14	ERJ3GEYJ330V	1/16W 33	2	
R120	ERJ3GEYJ103Z	1/16W 10K	1	
R121,22	ERJ3GEYJ124V	1/16W 120K	2	
R125,26	ERJ3GEYJ124V	1/16W 120K	2	
R128,29	ERJ3GEYJ103Z	1/16W 10K	2	
R201	ERJ3GEYJ2R2V	1/16W 2.2	1	
R202	ERJ3GEYJ223V	1/16W 22K	1	
R203	ERJ3GEYJ1R0V	1/16W 1	1	
R301	ERJ3GEYJ392V	1/16W 3.9K	1	
R302	ERJ3GEYJ104Z	1/16W 100K	1	
R303	ERJ3GEYJ102V	1/16W 1K	1	
R304	ERJ3GEYJ105V	1/16W 1M	1	
R306	EXBV8V473JV	1/16W 47K	1	
R308	ERJ3GEYJ104Z	1/16W 100K	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R321	ERJ3GEYJ223V	1/16W 22K	1	
R322-24	ERJ3GEYJ104Z	1/16W 100K	3	
R325	ERJ3GEYJ333V	1/16W 33K	1	
R326	ERJ3GEYJ102V	1/16W 1K	1	
R403	ERJ3GEYJ123V	1/16W 12K	1	
R404	ERJ3GEYJ273V	1/16W 27K	1	
R405	ERJ3GEYJ333V	1/16W 33K	1	
R406	ERJ3GEYJ104Z	1/16W 100K	1	
R410	ERJ3GEYJ822V	1/16W 8.2K	1	
R411	ERJ3GEYJ393V	1/16W 39K	1	
R431,32	ERJ3GEYJ1R0V	1/16W 1	2	
R433	ERJ3GEYJ333V	1/16W 33K	1	
R435	ERJ3GEYJ473V	1/16W 47K	1	
R436	ERJ3GEYJ153V	1/16W 15K	1	
R437	ERJ3GEYJ391V	1/16W 390	1	
R439	ERJ3GEYJ222V	1/16W 2.2K	1	
R440	ERJ3GEYJ473V	1/16W 47K	1	
R441	ERJ3GEYJ184V	1/16W 180K	1	
R501	ERJ3GEYJ683V	1/16W 68K	1	
R502	ERJ3GEYJ563V	1/16W 56K	1	
R505	ERJ3GEYJ391V	1/16W 390	1	
R506	ERJ3GEYJ222V	1/16W 2.2K	1	
R508	ERJ3GEYJ1R0V	1/16W 1	1	
R511	ERJ3GEYJ102V	1/16W 1K	1	
R512	EXBV4V102JV	1/32W 1K	1	
R513	ERJ3GEYJ104Z	1/16W 100K	1	
R514	ERJ3GEYJ681V	1/16W 680	1	
R515	ERJ3GEYJ150V	1/16W 15	1	
R601,02	ERJ3GEYJ681V	1/16W 680	2	
R603,04	MCR03PZHJ561	1/16W 560	2	
R605,06	ERJ3GEYJ473V	1/16W 47K	2	
R607,08	ERJ3GEYJ102V	1/16W 1K	2	
R609	EXBV4V332JV	1/32W 3.3K	1	
R701,02	ERJ3GEYJ104Z	1/16W 100K	2	
R703,04	ERJ3GEYJ180V	1/16W 18	2	
R705,06	ERJ3GEYJ1R5V	1/16W 1.5	2	
R707,08	ERJ3GEYJ102V	1/16W 1K	2	
R709	EXBV4V392J	1/32W 3.9K	1	
R710	EXBV4V123J	1/32W 12K	1	
R711	EXBV4V103JV	1/32W 10K	1	
R712	EXBV4V331JV	1/32W 330	1	
R750,51	ERJ3GEYJ562V	1/16W 5.6K	2	
R901	EXBV4V821JV	1/32W 820	1	
R902	ERJ3GEYJ274V	1/16W 270K	1	
R904	ERJ3GEYJ470V	1/16W 47	1	
R905	ERJ3GEYJ473V	1/16W 47K	1	
R906	ERJ3GEYJ474V	1/16W 470K	1	
RJ3	ERJ3GEY0R00V	CHIP JUMPER	1	
RJ306	ERJ3GEY0R00V	CHIP JUMPER	1	
RJ502	ERJ3GEY0R00V	CHIP JUMPER	1	
RJ504	ERJ3GEY0R00V	CHIP JUMPER	1	
RJ506	ERJ3GEY0R00V	CHIP JUMPER	1	
RJ508	ERJ3GEY0R00V	CHIP JUMPER	1	
RJ510	ERJ3GEY0R00V	CHIP JUMPER	1	
RJ901	ERJ3GEY0R00V	CHIP JUMPER	1	
RJ903	ERJ3GEY0R00V	CHIP JUMPER	1	
S201	ESE11SV6	SW,LASER ON/OFF	1	
S202	RSP1A024-A	SW,REST	1	
S309	RSS3A007-1A	SW,MODE	1	
S310	RSS2A010-1A	SW,HOLD	1	
VR11	RRN3A05B33WL	V.R.,POWER SUP.VOLT.ADJ.	1	
VR701	EVUTUFB11C54	V.R.,VOLUME	1	
X501	EF0EX1695X4	OSCILLATOR	1	



17 Cabinet Parts Location

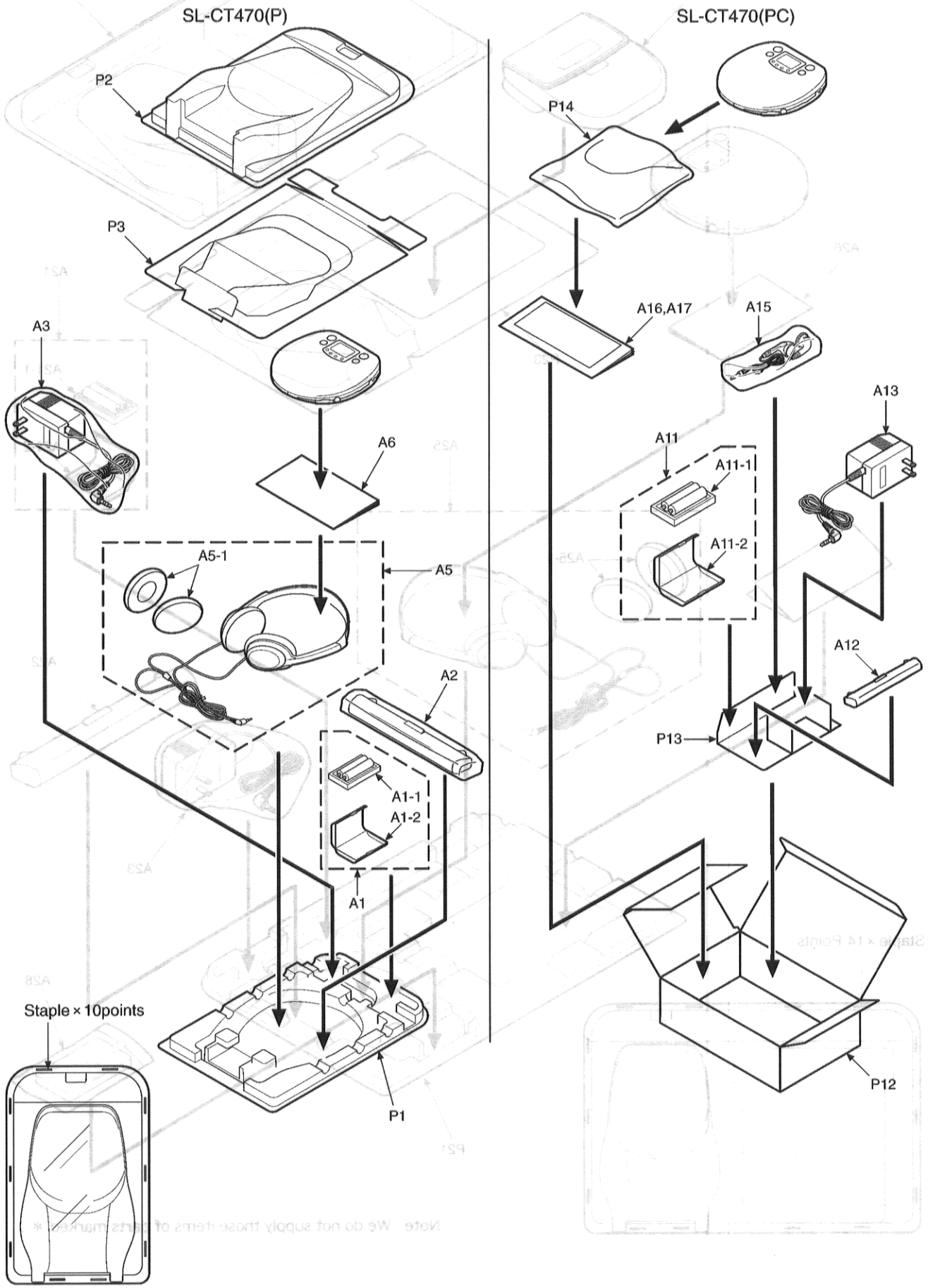


Notes :·The parts enclosed in the dotted boxes are supplied as a block assembly. Therefore,they are not supplied separately except parts indicated with Ref.No.

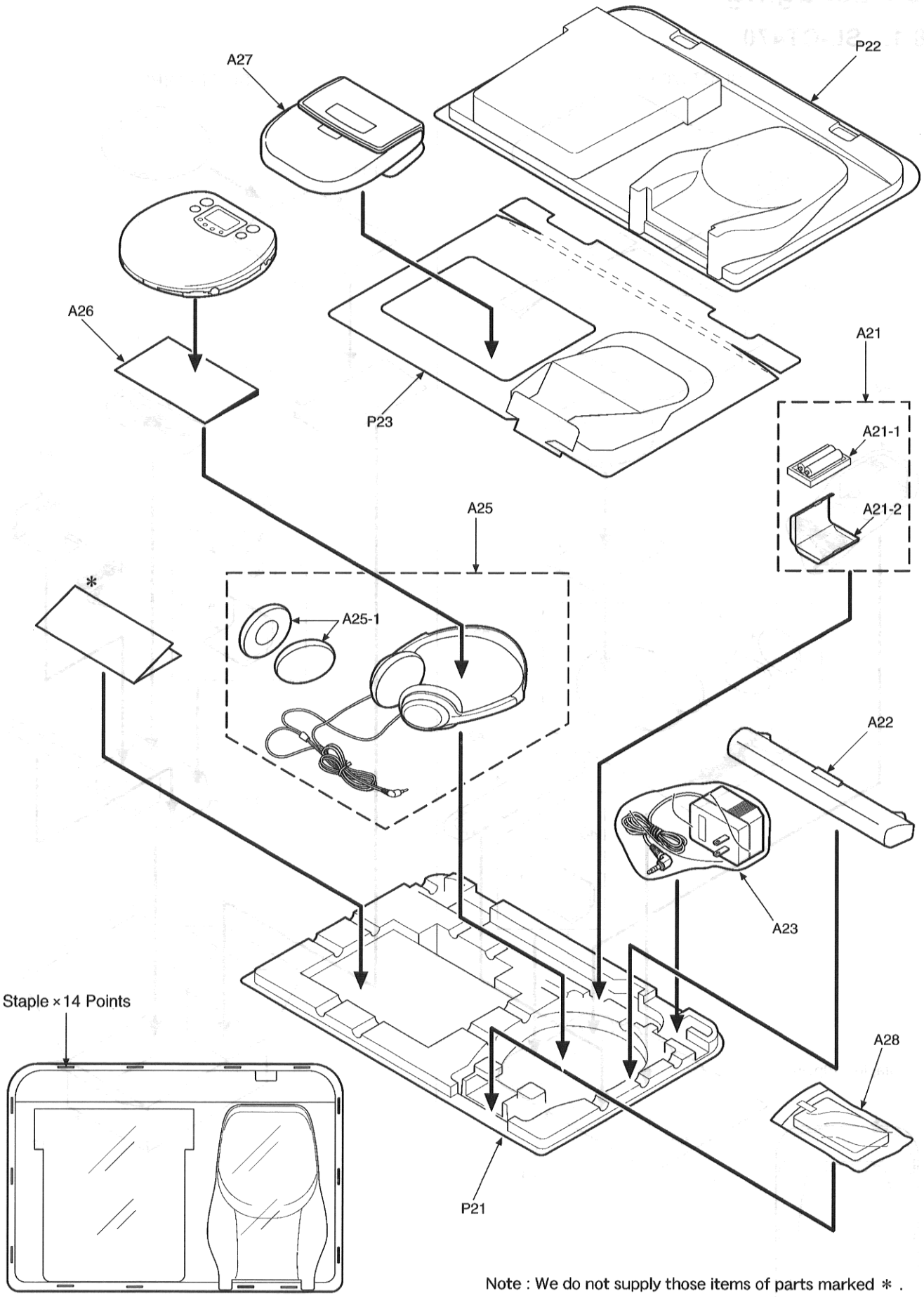
·In the case of replacement the foot, please replace both foots.

18 Packaging

18.1. SL-CT470



18.2. SL-CT476J



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

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