AD0304028C2

Service Manual

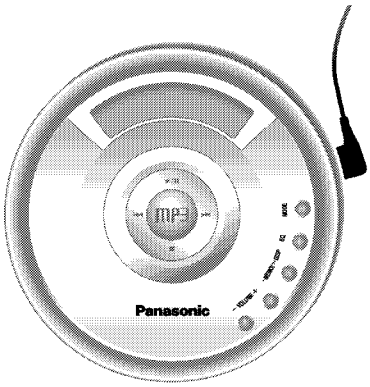
Portable CD Player

*1

SL-MP80EB
SL-MP80EG

Colour

(S).....Silver Type



Specifications

Audio (CD-DA)
No. of channels: 2 channels (left and right, stereo)
Frequency response: 20 to 20,000 Hz (+0.5 dB to −10 dB)
DA converter: 1 bit, MASH
Headphones output level: RMS max. 8 mW+8 mW/16 Ω (adjustable)

Pickup
Light source: Semiconductor laser
Wavelength: 780 nm

WMA/MP3
Supported bit-rates:
WMA; 32 kbps to 192 kbps (96 kbps is recommended)
MP3; 32 kbps to 320 kbps (128 kbps is recommended)
Supported sampling frequencies: 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 inclued AC adaptor); DC 4.5 V
AC adaptor input:
SL-MP80EB; AC230–240 V, 50/60 Hz
SL-MP80EG; AC220–230 V, 50/60 Hz
Power consumption:
Using AC adaptor (WMA/MP3/CD-DA); 3.6 W/3.6 W/3.4 W
Recharging; 5.9 W

Play time:
Approximate operating time in hours, playing WMA/MP3 at the recommended bit-rate (WMA: 96 kbps, MP3: 128 kbps), with HOLD on and EQ canceled, at 25 degree on a flat, stable surface.
Batteries used: WMA disc/MP3 disc/CD-DA disc
2 optional alkaline batteries (LR6); Approx. 45/48/37 h
2 optional rechargeable batteries; Approx. 20/23/15h
• The play time may be less depending on the operating conditions.
• Play time will be considerably reduced when playing CD-RW.
Recharging time: Approx. 5 to 6 h
Dimensions (W × H × D): 135 × 28 × 135 mm
Mass: 230 g (with batteries)
184 g (without batteries)

Notes: Specifications are subject to change without notice.
Mass and dimensions are approximate.
***1:** Windows Media, and the Windows logo are trademarks, or registered trademarks of Microsoft Corporation in the United States and/or other countries.
WMA is a compression format developed by Microsoft Corporation. It achieves the same sound quality as MP3 with a file size that is smaller than that of MP3.

Note on CD-R and CD-RW
This unit can play CD-R and CD-RW recorded with CD-DA or WMA/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.

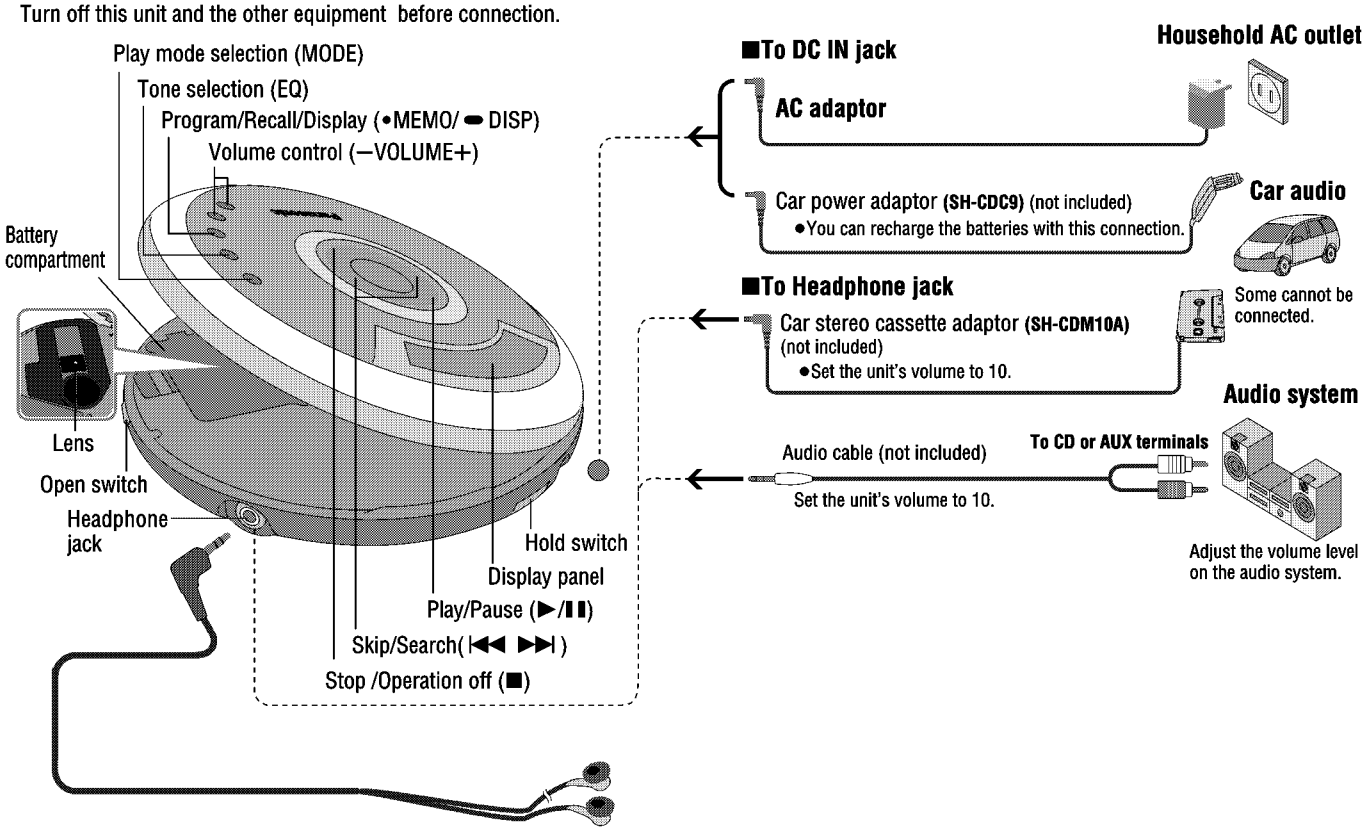
CONTENTS

1 Accessories

- AC adaptor for SL-MP80EB (N0JCCE00004).....1 pc.
- AC adaptor for SL-MP80EG (RFEA419E-M).....1 pc.
- Stereo earphones (L0BAB0000123).....1 pc.

2 Location of Controls and Connection to Other Equipment

Turn off this unit and the other equipment before connection.



3 Precaution of Laser Diode

CAUTION:
THIS PRODUCT UTILIZES A LASER.
USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

CAUTION: This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pick-up lens.
Wave length: 780 nm
Maximum output radiation power from pick-up: 100 µW/VDE

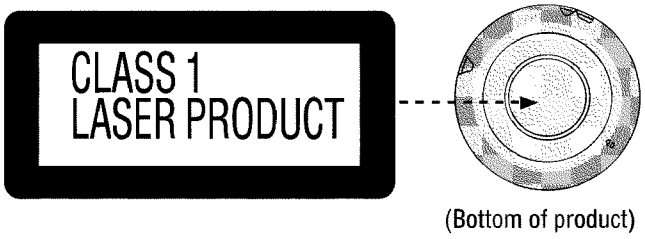
Laser radiation from the pick-up unit is safety level, but be sure the followings:

1. Do not disassemble the 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.

ACHTUNG: Dieses Produkt enthält eine Laserdiode. Im eingeschalteten Zustand wird unsichtbare Laserstrahlung von der Lasereinheit adgestrahit.
Wellenlänge: 780 nm
Maximale Strahlungsleistung der Lasereinheit: 100 µW/VDE

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

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



(Bottom of product)

(Inside of product)

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 pulling out the FFC. Then inserting a short pin or similar object into the tipof the flexible board.
   (Refer to 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.)

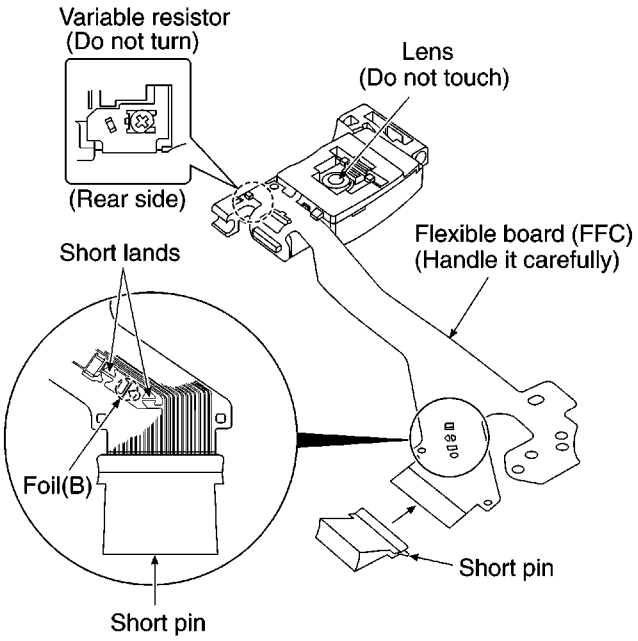


Fig. 4-1.

4.2. Caution when replacing traverse deck

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

1. Remove the short pin from the FFC, and then connect it to the connector.
2. Cut the foil (B). (Refer to Fig. 4-1.) (Take care not to make contact with cutting point each other.)
3. Unsolder the short lands. (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.)

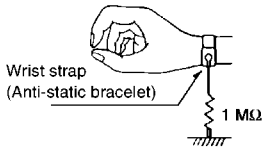


Fig. 4-2.

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.)

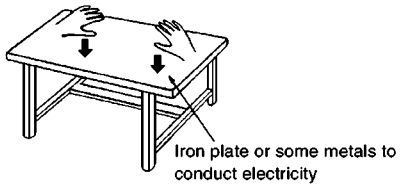


Fig. 4-3.

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).

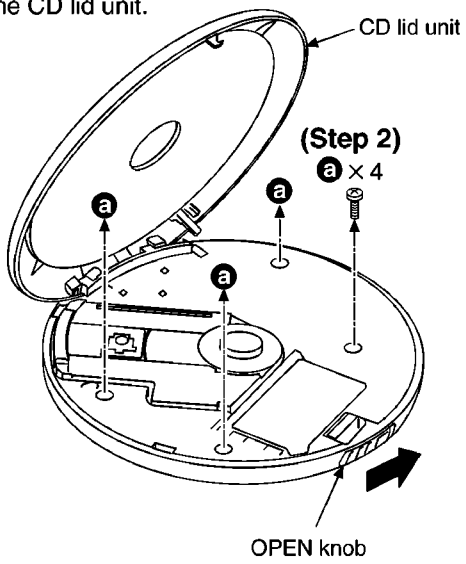
5 Operation Checks and Component Replacement Procedures

- **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.**

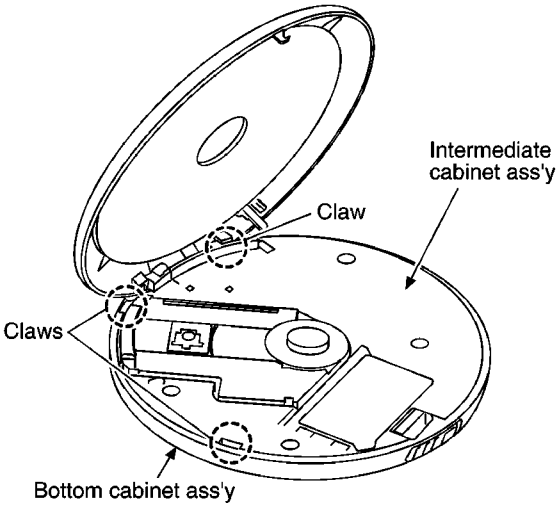
5.1. Checking for the main P.C.B.

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

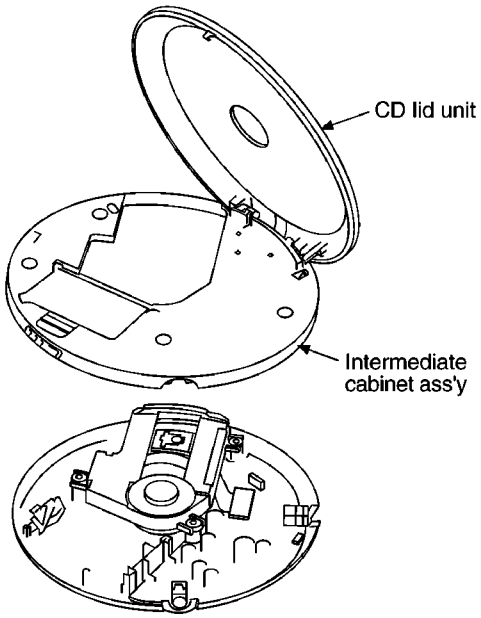
(Step 1)
Sliding the OPEN knob to right, open the CD lid unit.



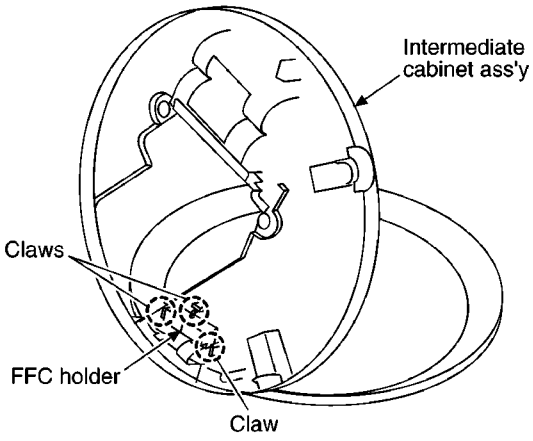
(Step 3)
Spread the clearance between the bottom cabinet ass'y and intermediate cabinet ass'y manually.

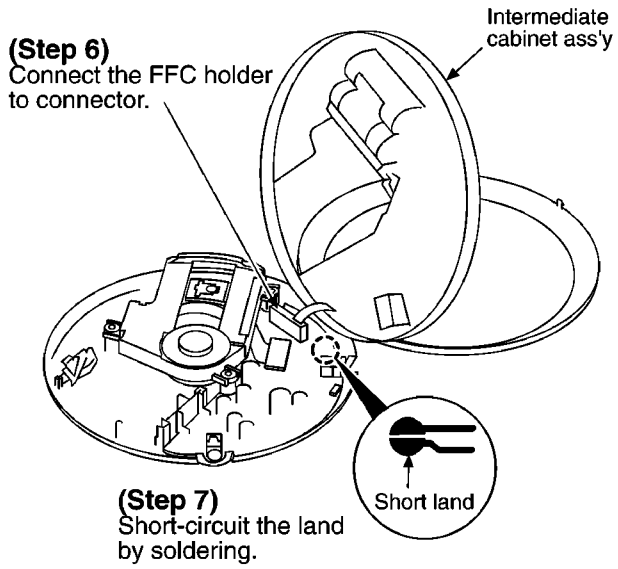


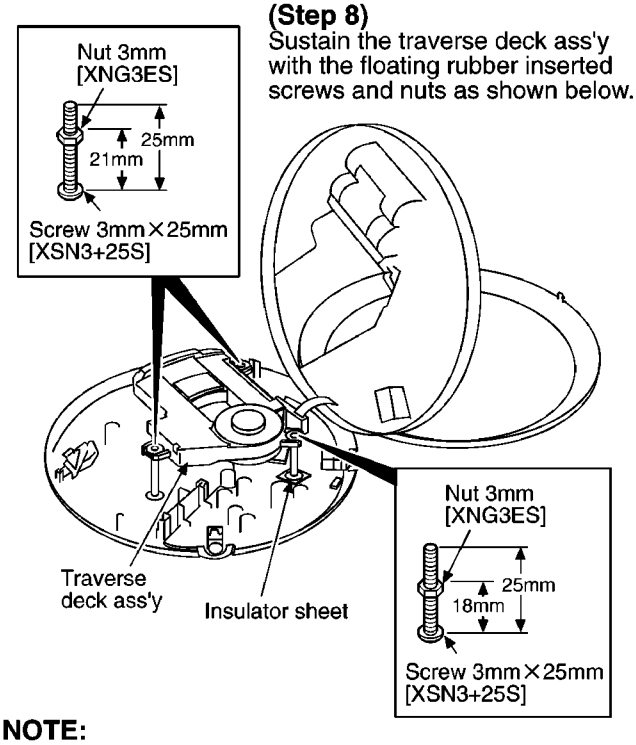
(Step 4)
Remove the intermediate cabinet ass'y and CD lid unit



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



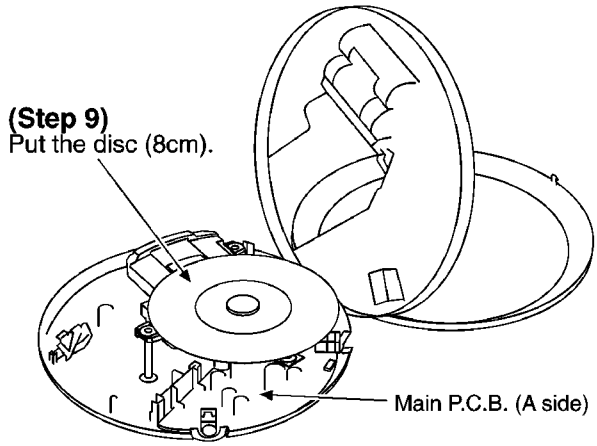




NOTE:

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

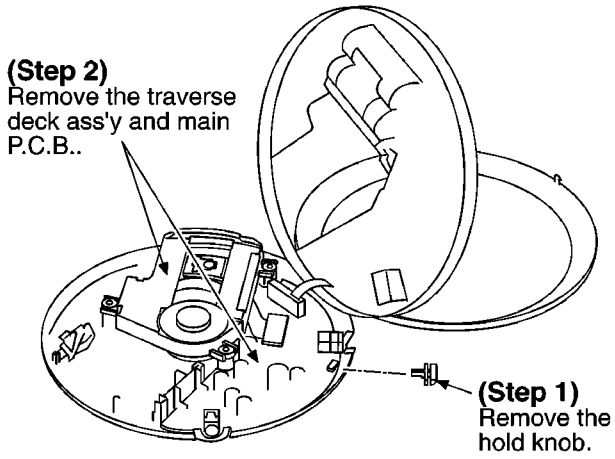
- **Check the main P.C.B. (A side) as shown below.**



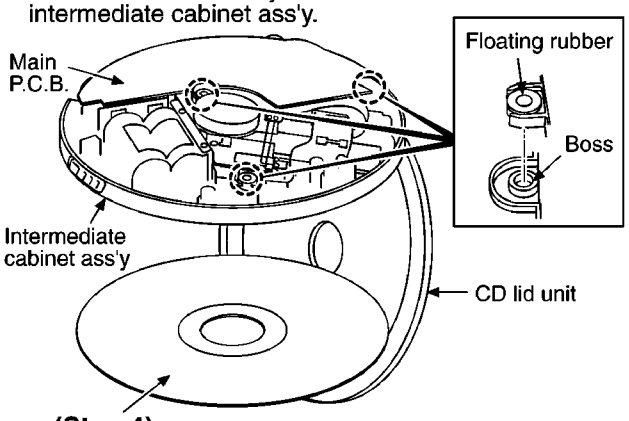
NOTE:
After checking, unsolder the short land to open circuit.

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

- Follow the **(Step 1)** - **(Step 7)** of item 5.1.1.



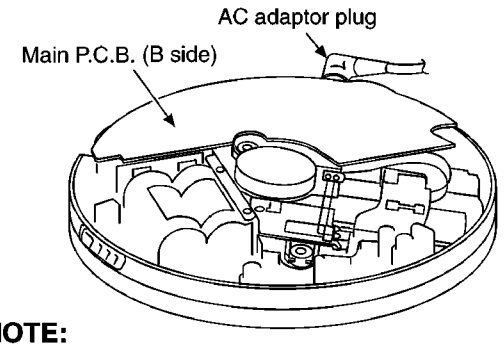
(Step 3)
Align the floating rubbers with bosses, and then locate the traverse deck ass'y and main P.C.B. on the intermediate cabinet ass'y.



(Step 4)
Put the test disc, and then close the CD lid unit.

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

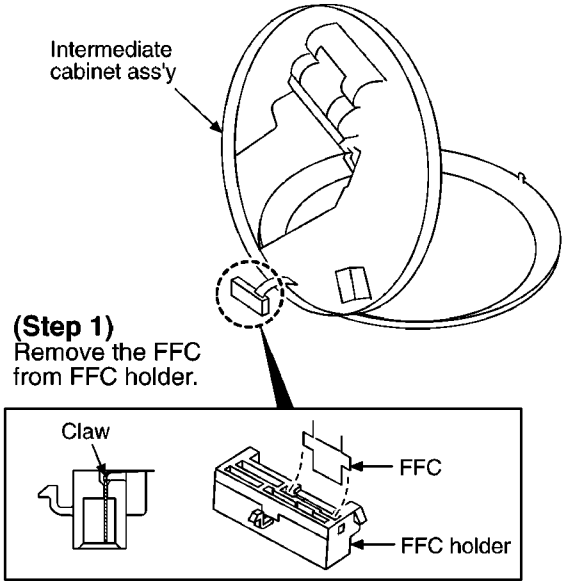
(Step 5)
Insert the AC adaptor plug into the DC IN jack, and then apply the power.

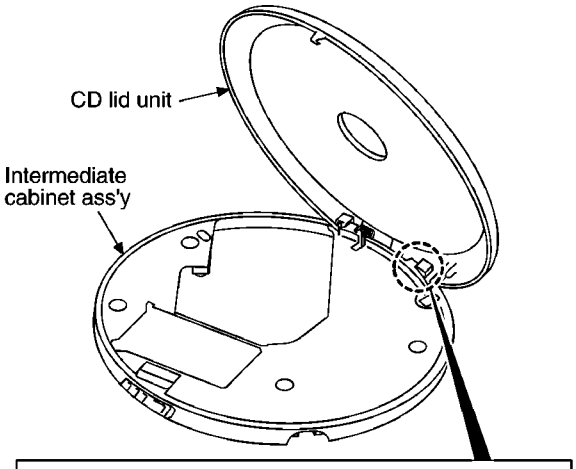


NOTE:
After checking, unsolder the short land to open circuit.

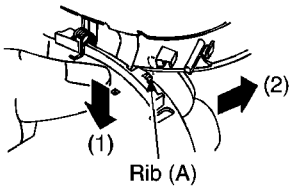
5.2. Replacement for the CD lid unit

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



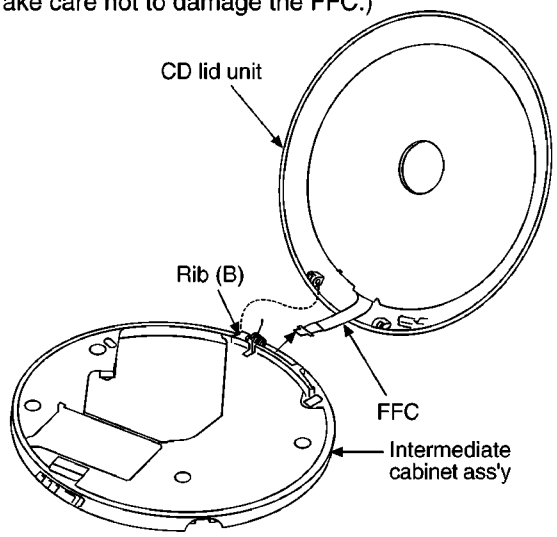


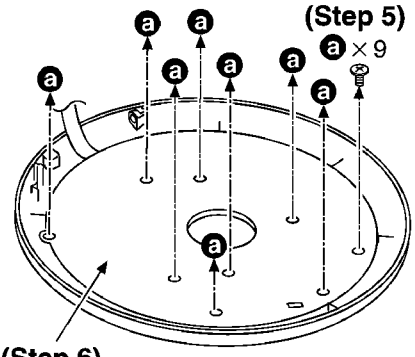
(Step 2)
Push the intermediate cabinet ass'y direction of arrow (1), and then remove the CD lid unit from rib (A)



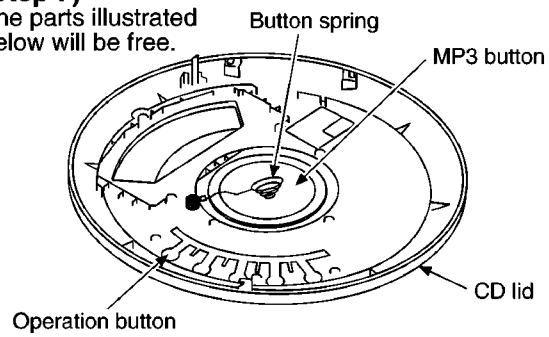
(Step 3)
Remove the CD lid unit from rib (B).

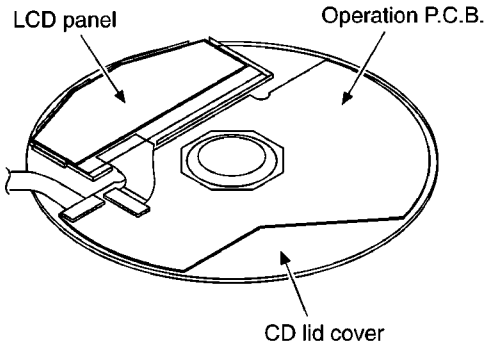
(Step 4)
Draw the FFC from the intermediate cabinet ass'y. (Take care not to damage the FFC.)





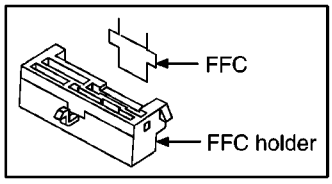
(Step 7)
The parts illustrated below will be free.



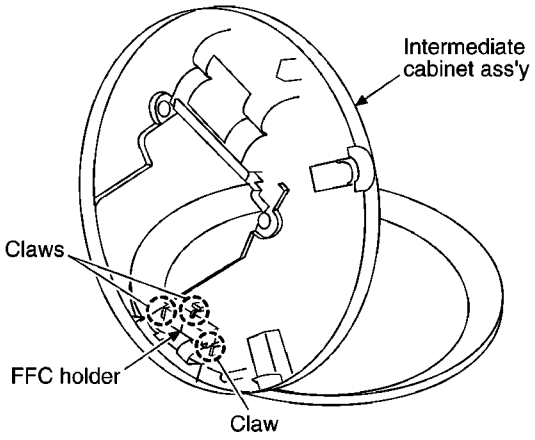


Installation of intermediate cabinet ass'y

(Step 1)
Install the FFC to FFC holder.

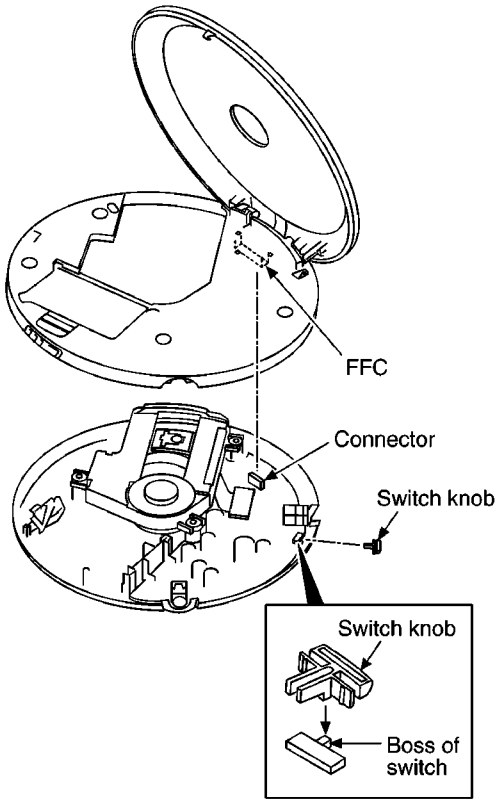


(Step 2)
Install the FFC holder to intermediate cabinet ass'y.



(Step 3)
Make sure the boss of switch is fit in the switch knob.

(Step 4)
Connect the FFC to connector (CN301).

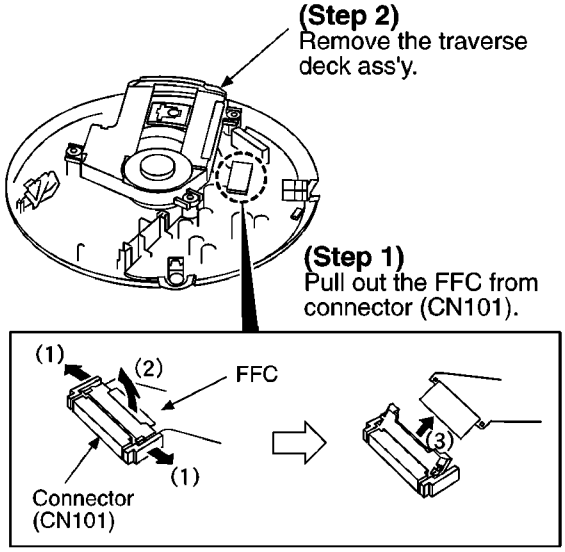


5.3. Replacement for the traverse motor

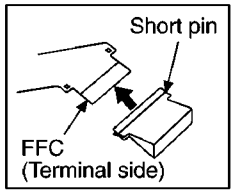
- Follow the **(Step 1)** - **(Step 4)** of item 5.1.1.

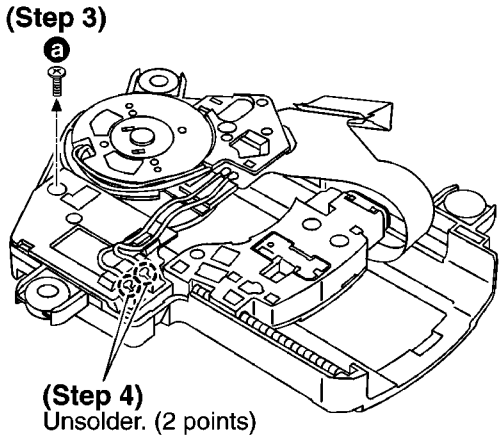
NOTE:

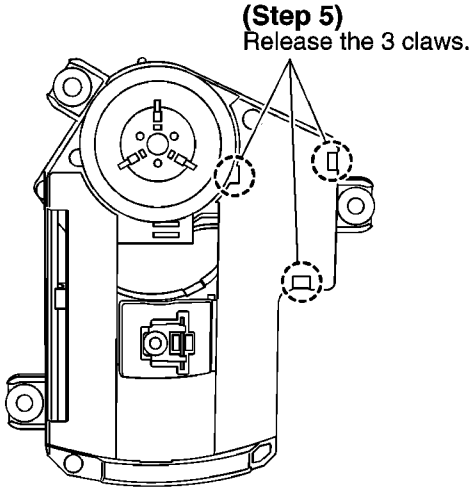
Be sure to confirm the item 4 "Handling Precautions for Traverse Deck" before removing the traverse deck ass'y.

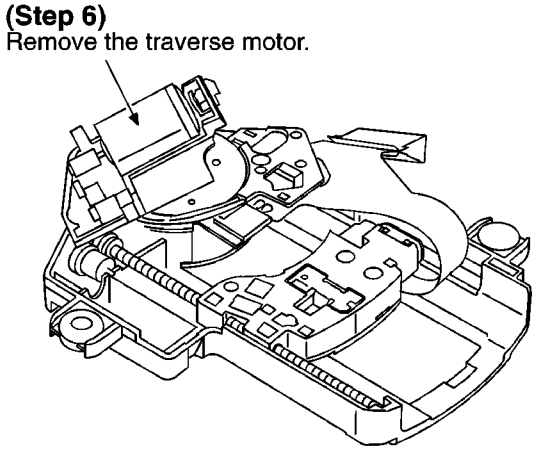


NOTE:
Insert a short pin into the traverse deck's FFC (Terminal side).
(Refer to "**Handling Precautions for Traverse Deck**".)



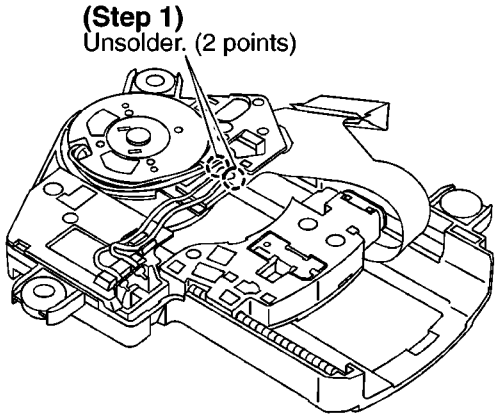




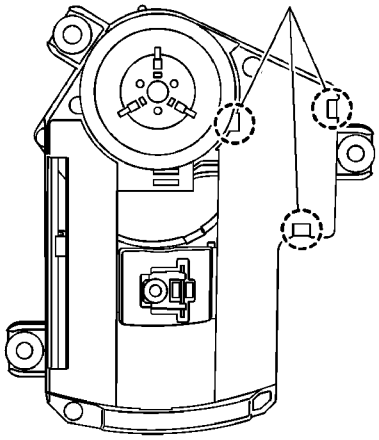


5.4. Replacement for the optical pick-up

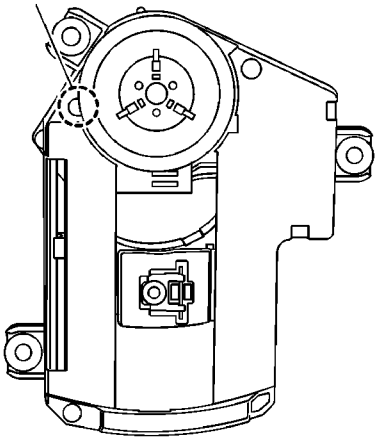
- Follow the **(Step 1)** - **(Step 4)** of item 5.1.1.
- Follow the **(Step 1)** - **(Step 3)** of item 5.3.



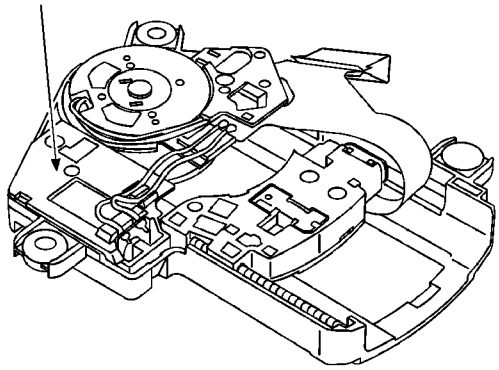
(Step 2)
Release the 3 claws.



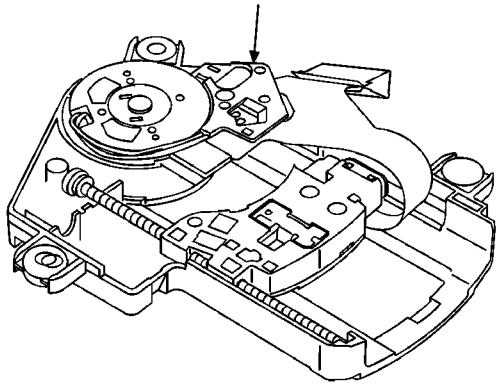
(Step 7)
Release the claw.



(Step 3)
Remove the holder and traverse motor.

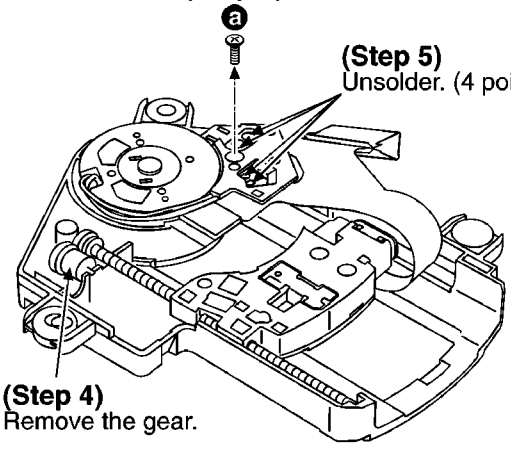


(Step 8)
Remove the FFC holder.



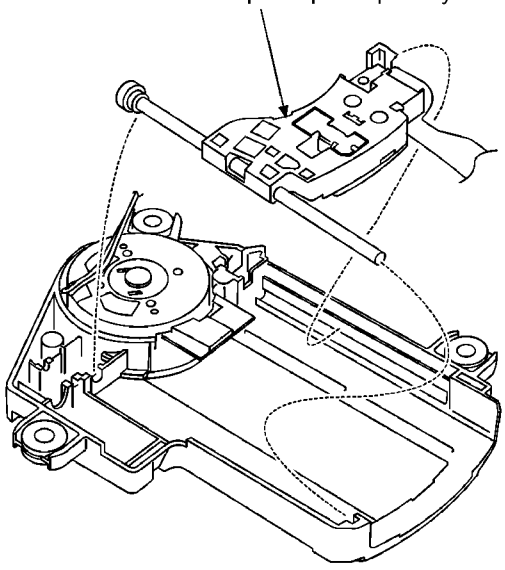
(Step 6)
ⓐ

(Step 5)
Unsolder. (4 points)

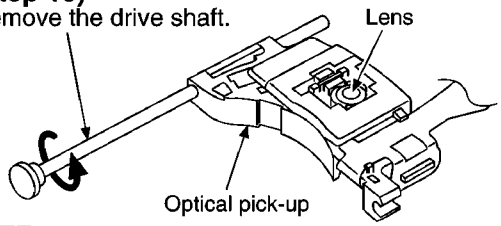


(Step 4)
Remove the gear.

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



(Step 10)
Remove the drive shaft.



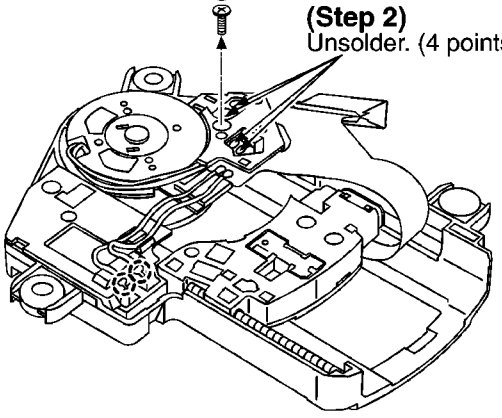
NOTE:
1. Use care to prevent damage the optical pick-up, due to the precision construction.
2. Do not apply the grease on the lens of optical pick-up.
3. Do not touch the lens of the optical pick-up.

5.5. Replacement for the rest switch

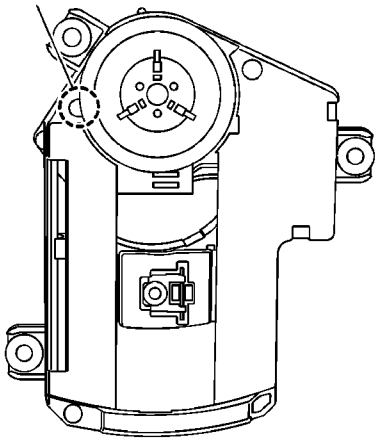
- Follow the **(Step 1)** - **(Step 4)** of item 5.1.1.
- Follow the **(Step 1)** , **(Step 2)** of item 5.3.

(Step 1)
ⓐ

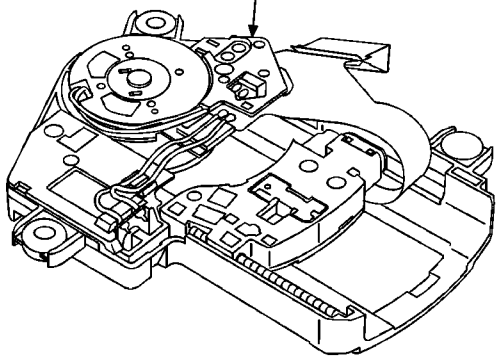
(Step 2)
Unsolder. (4 points)

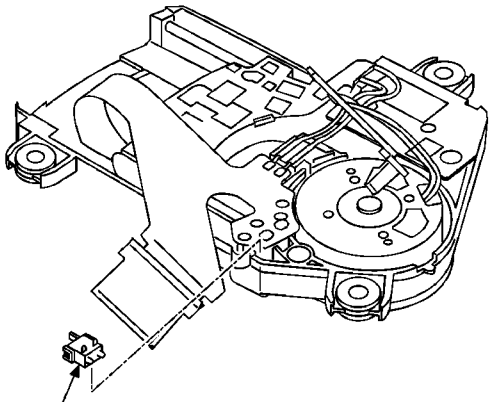


(Step 3)
Release the claw.



(Step 4)
Remove the FFC holder.





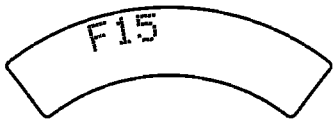
(Step 5)
Remove the rest switch.

6 Display of Self-Diagnostic Function

This unit (SL-MP80) has self-diagnostic function. It may display below-mentioned on the LCD display.

- The substance of self-diagnostic display.

  LCD display



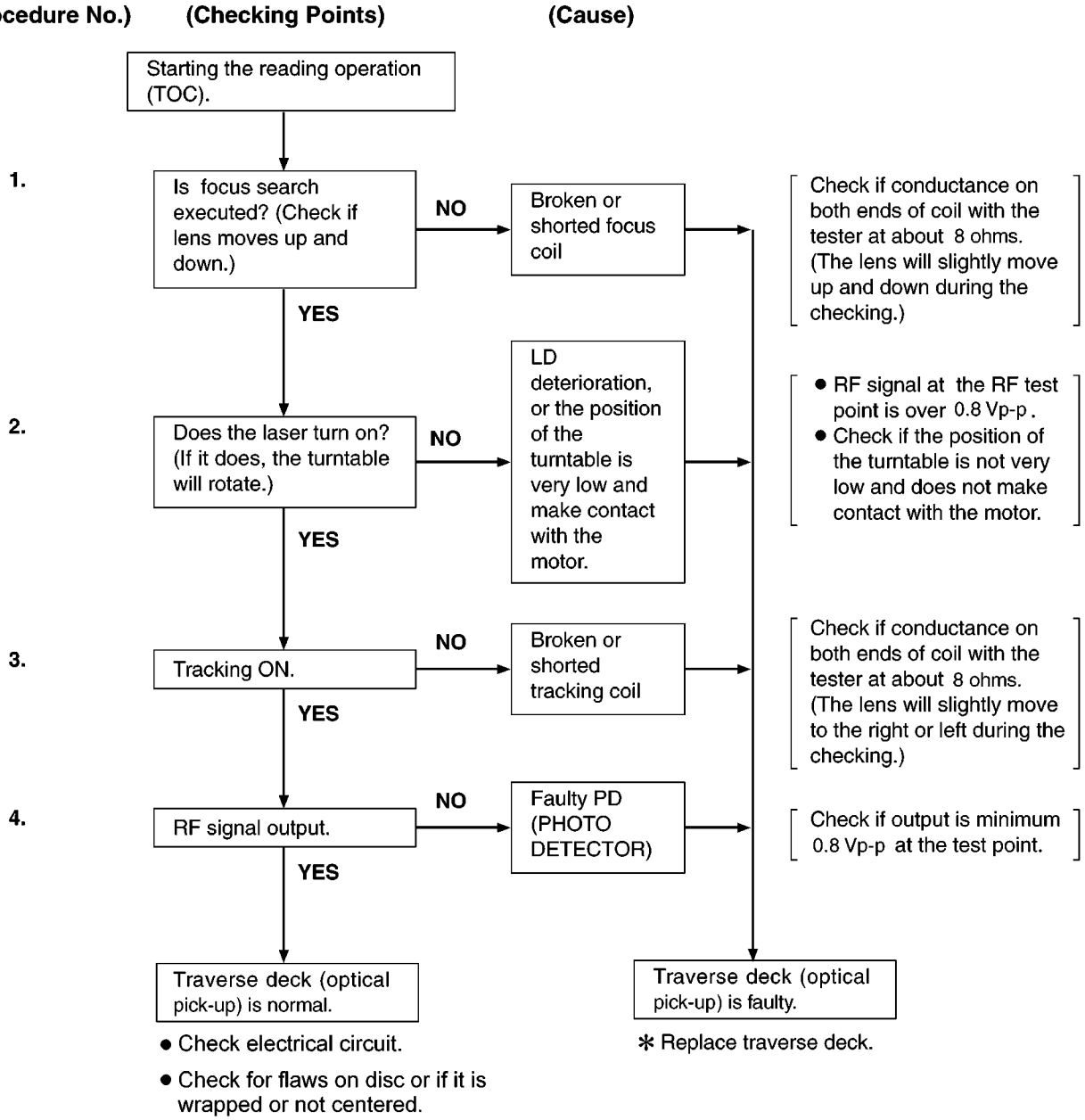
  (Press PLAY and STOP button. After 15 seconds, it is displayed for 2 seconds.)

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)

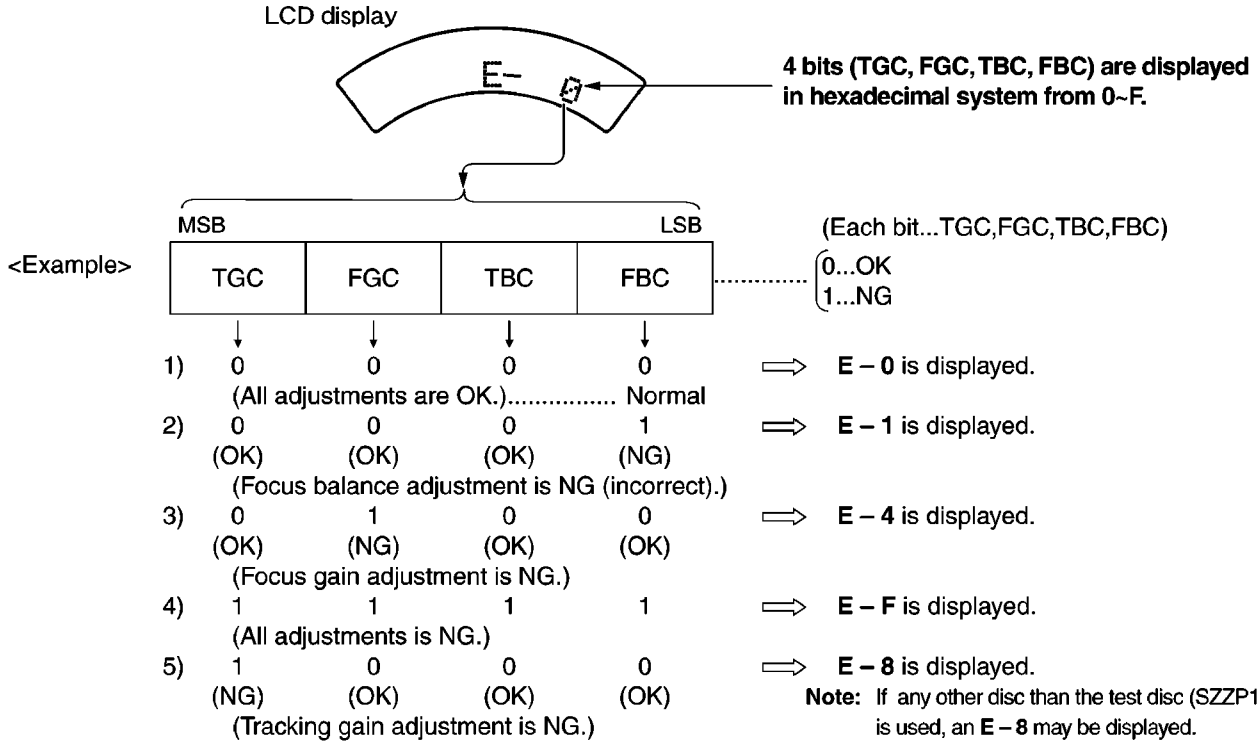
On the unit (SL-MP80), each automatic adjustment result are displayed on the LCD display. This function is convenient to check or identify which automatic adjustment circuit is incorrect.

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 EQ and VOLUME - buttons simultaneously and hold them, and additionally press the ▶/❚❚ (PLAY/PAUSE) button.
3. Press the ■ (STOP/OPR OFF) button once.
4. An automatic adjustment result is displayed on the LCD 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.

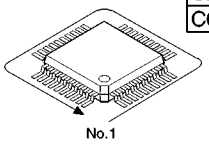
Note:

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

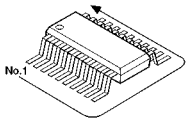
This is not a malfunction.

9 Type Illustration of ICs, Transistors and Diodes

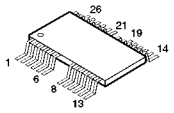
MN662792AE	80PIN
C2BBGE000654	80PIN
C0DBFFB00004	48PIN



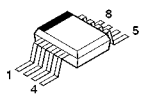
AN22003A-NF	32PIN
C1BB00000742	8PIN



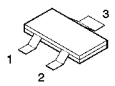
C3ABMB000027



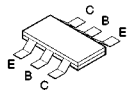
AK93C45BH-L



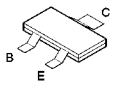
C0CBAAB00018



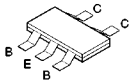
B1GFGCAA0001



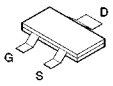
2SB709ATX
DTA114YUA106
DTA144EUA106
DTC143EUA106
UN5215TX



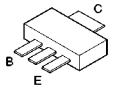
UMG6NTR



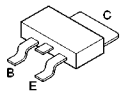
2SK1958T1



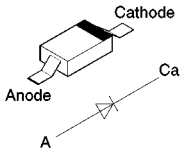
B1ABMD000004



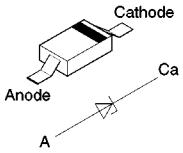
2SB1182TLPQR



MA111TX



MA8056MTX



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.)
S310:	Hold (HOLD) switch in OFF position
S1001:	Play/pause (▶/❚❚) switch
S1002:	Volume control switch (VOLUME+)
S1003:	Stop/operation off (■) switch
S1004:	R.skip/search (I◀◀) switch
S1005:	Volume control switch (VOLUME-)
S1006:	Play mode selection switch (MODE)
S1007:	F.skip/search (▶▶I) switch
S1008:	Program/Recall/Display switch (● MEMO/ ▬ DISP)
S1009:	Tone selection switch (EQ)

- 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.

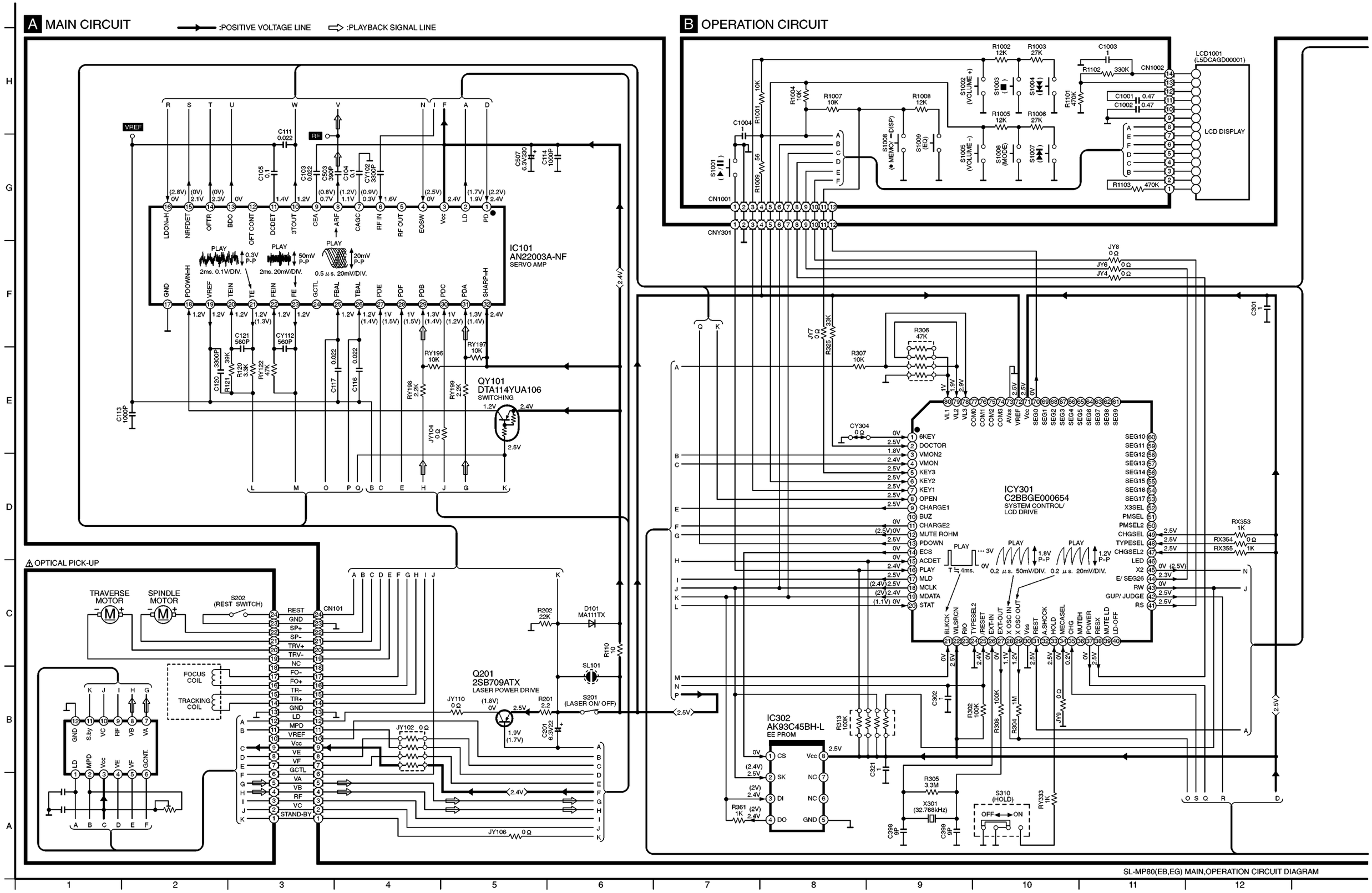
Cover the parts boxes made of plastics with aluminum foil.

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



A MAIN CIRCUIT

:POSITIVE VOLTAGE LINE :PLAYBACK SIGNAL LINE

IC502
C3ABMB000027
16M DRAM

ICY501
MN662792AE
SERVO PROCESSOR /
DIGITAL SIGNAL PROCESSOR /
DIGITAL FILTER & D/A CONVERTER

ICY13
C0CBAAB00018
REGULATOR

IC11
C0DBFFB00004
POWER SUPPLY/
MOTOR DRIVE

IC701
C1BB00000742
HEADPHONE AMP

Q502
2SK1958T1
SWITCHING

Q18
DTA144EUA106
RESET

Q19
Q19,301
DTC143EUA106
RESET

Q301

Q703
UMG6NTR
VOICE GAIN-UP

Q702
DTA114YUA106
MUTING CONT.

Q701
B1GFGCAA0001
MUTING

Q11
2SB1182TLPQR
REGULATOR

Q15
DTC143EUA106
DC IN DET.
(AC ADAPTOR)

Q14
DTA114YUA106
CHARGE CONT.

Q12
B1ABMD000004
CHARGE CONT.

Q13
DTC143EUA106
CHARGE CONT.

QY16
UN5215TX
DC IN DET.
(BATTERIES)

D11
MA8056MTX

DY22
MA111TX

ICP11
K5H1522A0018

2 R6/LR6(UM-3)
BATTERIES 3V

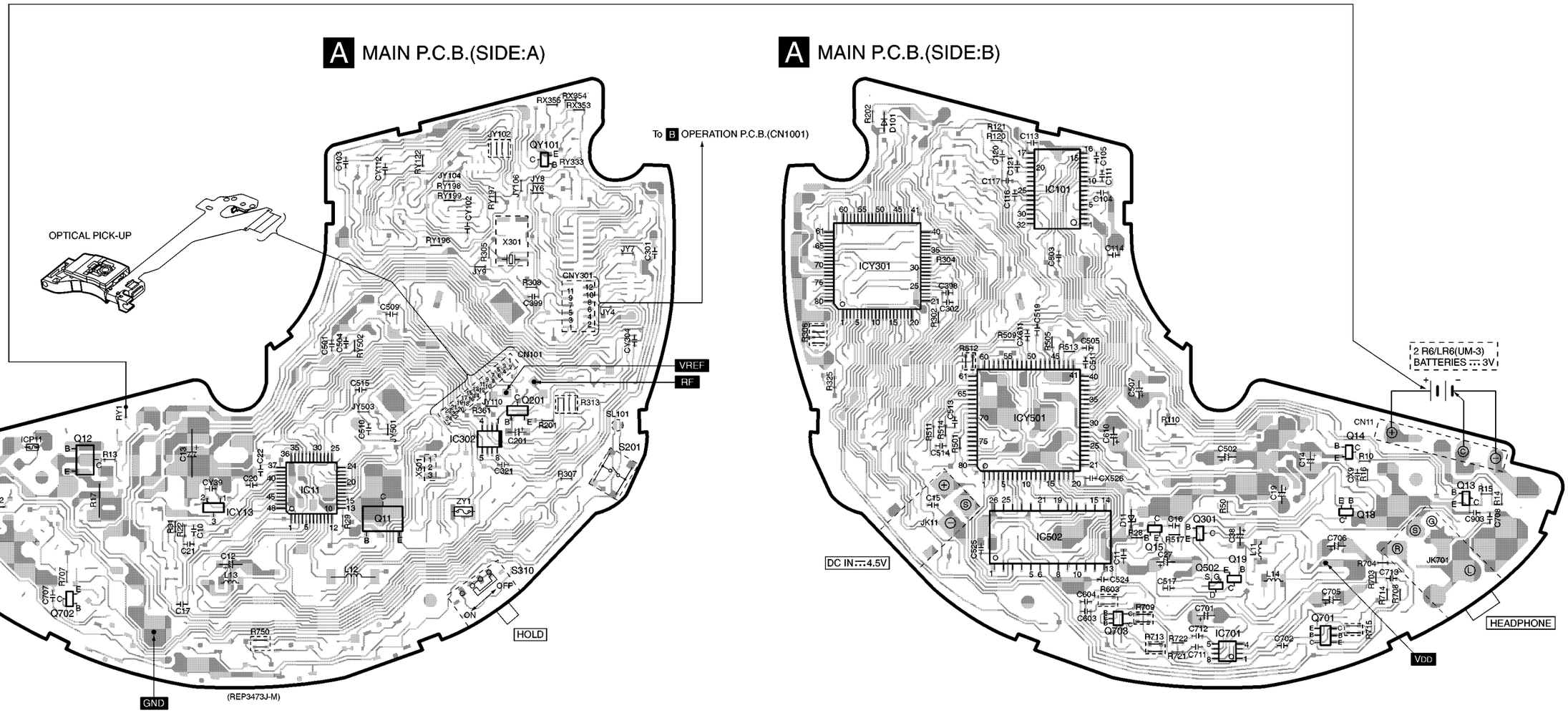
JK11
DC IN 4.5V

JK701
HEADPHONE

SL-MP80(EB,EG) MAIN CIRCUIT DIAGRAM

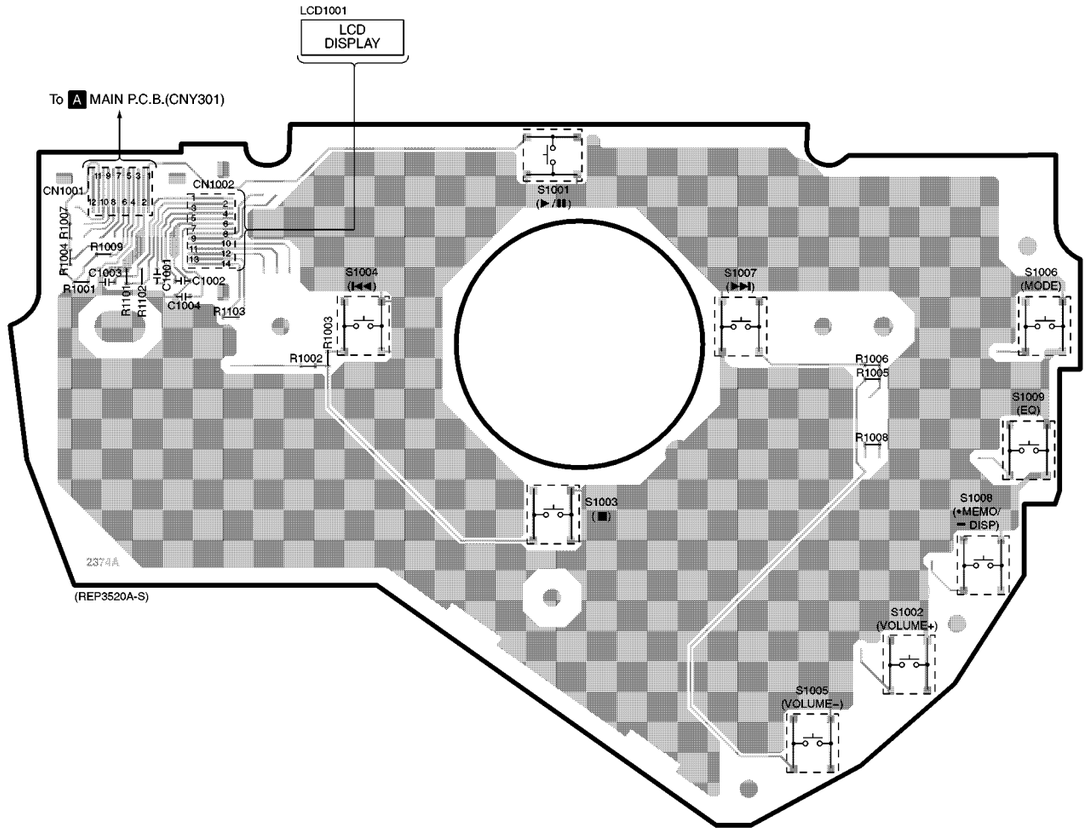
12 Printed Circuit Board and Wiring Connection Diagram

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

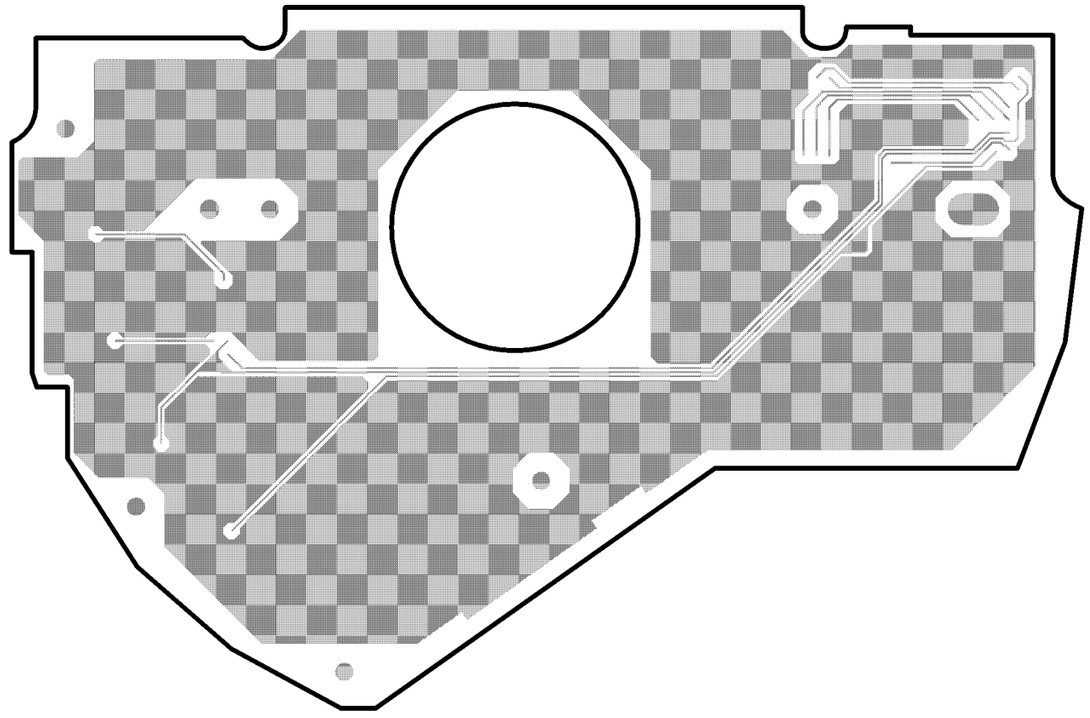


SL-MP80(EB,EG) MAIN P.C.B.

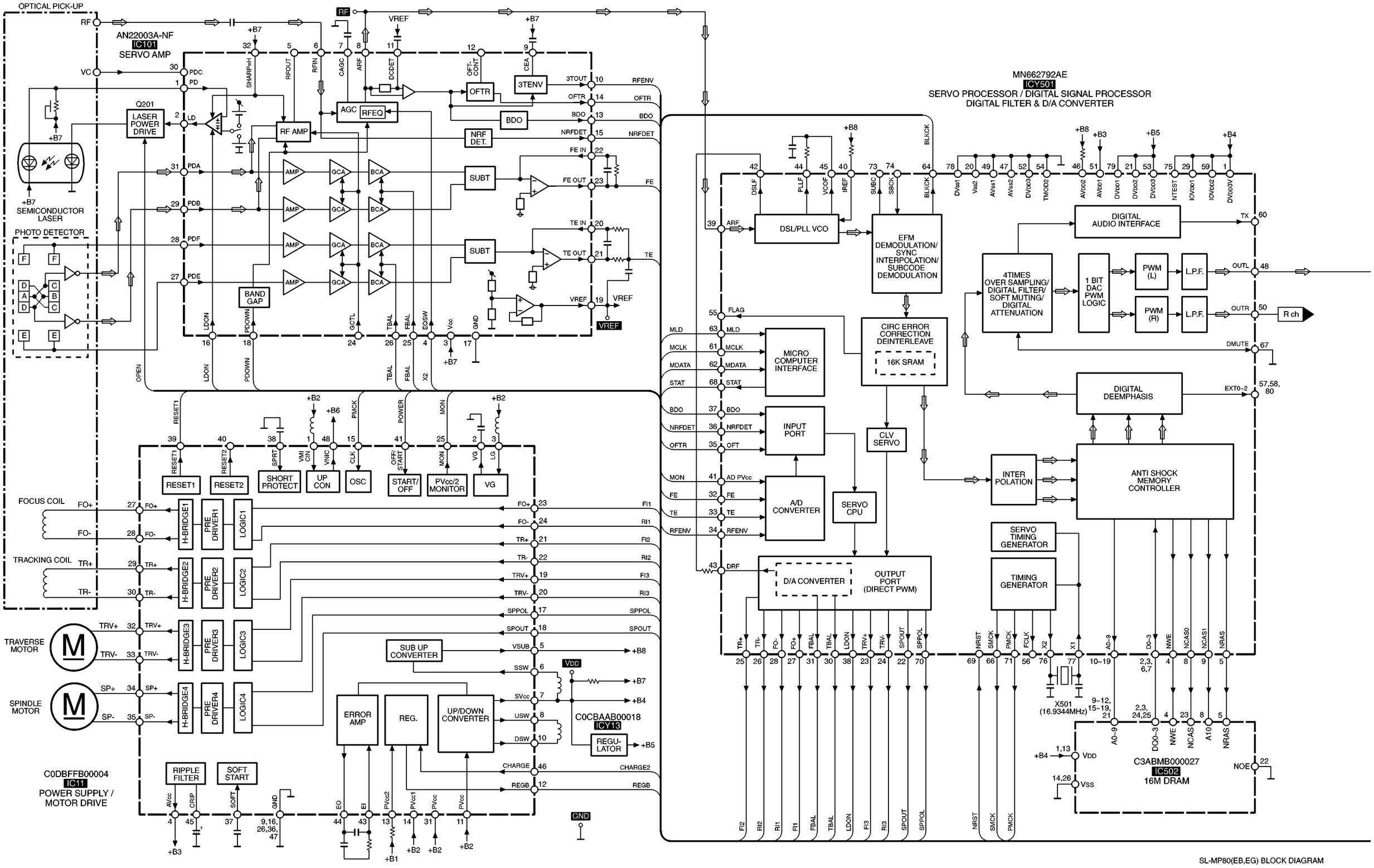
B OPERATION P.C.B.(SIDE:A)



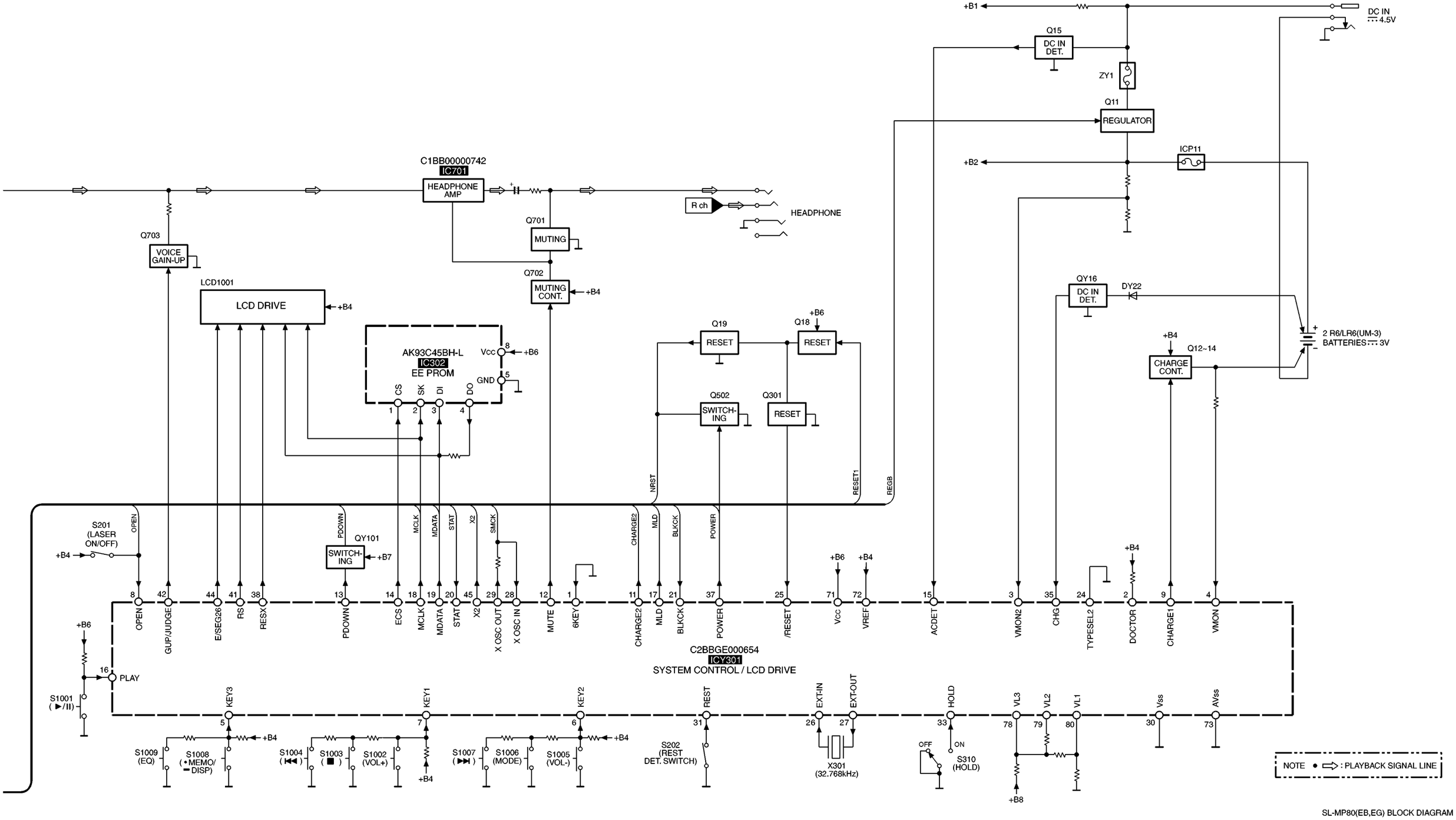
B OPERATION P.C.B.(SIDE:B)



13 Block Diagram



SL-MP80(EB,EG) BLOCK DIAGRAM



SL-MP80(EB,EG) BLOCK DIAGRAM

14 Terminal Function of ICs

14.1. IC101(AN22003A-NF): Servo Amplifier

Pin No.	Terminal Name	I/O	Function
1	PD	I	APC amplifier input terminal
2	LD	O	APC amplifier output terminal
3	V_{CC}	I	Power supply terminal
4	EQSW	I	EQ characteristic drive signal input
5	RF OUT	-	Not used, open
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	-	Not used, open
25	FBAL	I	Focus balance signal input terminal
26	TBAL	I	Tracking balance signal input terminal
27	PDE	I	Tracking signal input terminal
28	PDF	I	Tracking signal input terminal
29	PDB	I	Focus signal input terminal
30	PDC	I	RF addition input terminal
31	PDA	I	Focus signal input terminal
32	SHARP =H	I	Connected to V_{CC}

14.2. ICY301(C2BBGE000654): System Control/LCD Drive

Pin No.	Terminal Name	I/O	Function
1	6KEY	I	Not used, connected to GND
2	DOCTOR	I	Connected to VREF though resistor
3	VMON2	I	Battery remaining measurement signal
4	VMON	I	Rechargeable battery voltage signal input
5	KEY3	I	Operation key signal input
6	KEY2	I	Operation key signal input
7	KEY1	I	Operation key signal input
8	OPEN	I	CD cover open detect signal input
9	CHARGE1	O	Charge ON signal output
10	BUZ	-	Not used, open
11	CHARGE2	O	PVCC voltage up output
12	MUTE ROHM	O	Mute signal output
13	PDOWN	O	Headamp power OFF signal output
14	ECS	O	EEPROM communication select signal
15	AC DET	I	Power failure detect signal input
16	PLAY	I	Play key signal input
17	MLD	O	Serial command latch output
18	MCLK	O	Serial command clock output
19	MDATA	O	Serial command data output
20	STAT	I	Status signal input
21	BLKCK	I	Sub-code block clock signal input
22	WLSRCN	-	Not used, connected to V_{CC}
23	RIO	-	Not used, open
24	TYPE SEL2	I	Model select signal input
25	/RESET	I	Reset detect signal input
26	EXT-IN	I	Oscillator connected terminal (F=32.7 kHz)
27	EXT-OUT	O	
28	XOSCIN	I	System clock signal
29	XOSC OUT	O	
30	V_{SS}	-	GND
31	REST	I	Rest detect switch signal input
32	A.SHOCK	-	Not used, open
33	HOLD	I	HOLD switch signal input
34	MECASEL	I	Traverse select signal input
35	CHG	I	Not used, connected to GND via resistor
36	MUTEH	-	Not used, open
37	POWER	O	Power supply detect signal output
38	RESX	O	Reset signal output for dot matrix
39	MUTELD	-	Not used, open
40	LD OFF	-	Not used, open
41	RS	O	Resister select signal output for dot matrix
42	GUP/ JUDGE	O	Voice gain up output
43	RW	O	Output for CD-RW
44	E/SEG26	O	Chip select signal output for dot matrix
45	X2	O	RF equalizer more than twice speed signal output
46	LED	-	Not used, open
47	CHGSEL2	-	Not used, open
48	TYPESEL	-	Not used, connected to V_{CC}
49	CHGSEL	-	Not used, open
50	PMSEL2	-	Not used, open
51	PMSEL	-	Not used, open
52	X3SEL	-	Not used, open
53 | 69	SEG17 | SEG1	-	Not used, open
70	SEG0	O	LCD segment signal output
71	V_{CC}	I	Power supply terminal
72	VREF	I	Reference voltage input terminal
73	AV_{SS}	-	GND
74 | 77	COM3 | COM0	-	Not used, open
78	VL3	I	Power supply terminal
79	VL2	I	Power supply terminal (LCD drive bias)
80	VL1	I	Power supply terminal (LCD drive bias)

14.3. ICY501(MN662792AE): Servo Processor, Digital Signal Processor, Digital Filter & D/A Converter

Pin No.	Terminal Name	I/O	Function
1	DV_{DD} 3V	I	Power supply terminal
2	D0	I/O	Data 0-1 input/output terminal
3	D1		
4	NWE	O	Write enable output terminal

Pin No.	Terminal Name	I/O	Function
5	NRAS	O	RAS control signal output terminal
6	D2	I/O	Data 2-3 input/output terminal
7	D3		
8	NCAS0	O	CAS control 0 signal output terminal
9	NCAS1	O	CAS control 1 signal output terminal
10 | 14	A8 | A4	O	Addresses 8-4 output terminal
15	A9	O	Address 9 output terminal
16 | 19	A0 | A3	O	Addresses 0-3 output terminal
20	V_{SS} 2	-	GND
21	DV_{DD} 2	I	Power supply terminal
22	SPOUT	O	Spindle motor drive output terminal
23	TRV+	O	Traverse motor drive (+) output terminal
24	TRV-	O	Traverse motor 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	IOV_{DD} 1	I	Power supply terminal
30	TBAL	O	Tracking balance adjustment signal output
31	FBAL	O	Focus balance adjustment signal output
32	FE	I	Focus error signal input terminal
33	TE	I	Tracking error signal input terminal
34	RFENV	I	RF envelope signal input terminal
35	OFT	I	Off-track signal input terminal
36	NRFDET	I	RF detection signal input terminal
37	BDO	I	Dropout signal input terminal
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 PV_{CC}	I	A/D reference voltage input terminal
42	DSLF	O	Loop filter output terminal for DSL
43	DRF/ RFSW	-	Not used, connected to GND
44	PLLF	O	Not used, connected to GND
45	VCOF/ PLLFO	O	Not used, connected to GND via capacitor
46	AV_{DD} 2	I	Power supply terminal
47	AV_{SS} 2	-	GND
48	OUTL	O	L ch audio signal output terminal
49	AV_{SS} 1	-	GND
50	OUTR	O	R ch audio signal output terminal
51	AV_{DD} 1	I	Power supply terminal
52	DV_{SS} 3	-	Not used, connected to GND
53	TMOD1/ DV_{DD} 3	I	Power supply terminal
54	TMOD2	-	Not used, connected to GND
55	FLAG0	-	Not used, open
56	FCLK	-	Not used, open
57	EXT0	-	Not used, open
58	EXT1	-	Not used, open
59	IOV_{DD} 2	I	Power supply terminal
60	TX	-	Not used, open
61	MCLK	I	Serial command clock input
62	MDATA	I	Serial command data input
63	MLD	I	Serial command latch input
64	BLKCK	O	Sub-code block clock signal output
65	PWMSEL	I	Connected to GND
66	SMCK	O	System clock signal output
67	DMUTE	-	Connected to GND
68	STAT	O	Status signal output terminal
69	NRST	I	Reset signal input terminal
70	SPPOL	O	Spindle motor drive signal output terminal
71	PMCK	O	Clock signal output
72	DQSW/ NCLDCK	-	Not used, open
73	SUBC	-	Not used, open
74	SBCK	-	Not used, open
75	NTEST	I	Test terminal (Connected to power supply)
76	X2	O	Crystal oscillator connected (F=16.9 MHz)
77	X1	I	
78	DV_{SS} 1	-	GND
79	DV_{DD} 1	I	Power supply terminal
80	EXT2	-	Not used, open

15 Replacement Parts List

Notes:

- Important safety notice:

  Components identified by ⚠ mark have special characteristics important for safety.

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

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

- The parenthesized indications in Remarks columns specify the areas.

  (EB): SL-MP80EB

  (EG): SL-MP80EG

- 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.

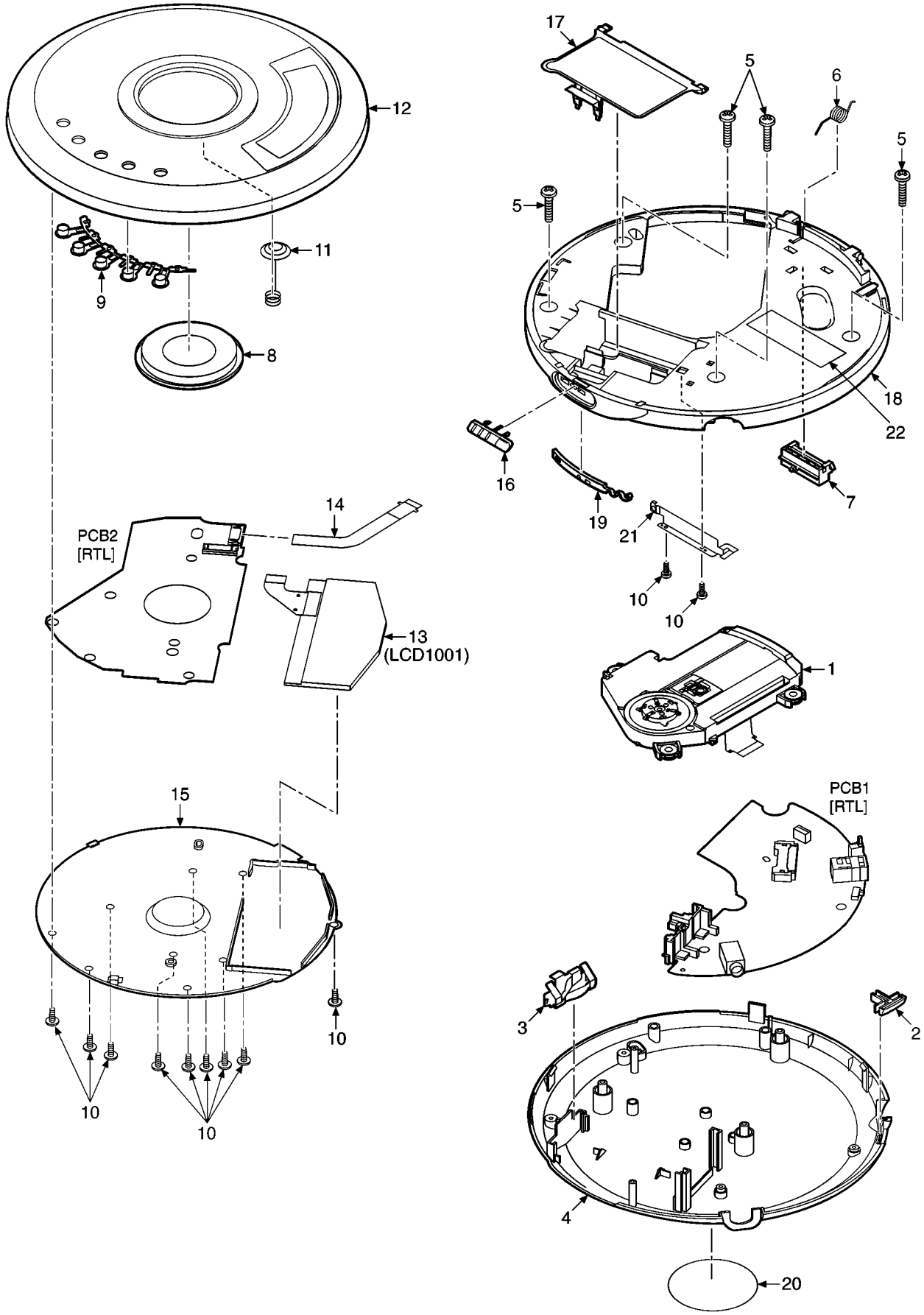
- All parts are supplied by SPC.

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
1	RAE0242Z-M	TRAVERSE DECK UNIT	1	⚠
1-1	RMG0605-K1	FLORTING RUBBER	3	
1-2	RAF0241A	OPTICAL PICK-UP	1	⚠
1-3	RDG0554	GEAR 1	1	
1-4	RDG0555	GEAR 2	1	
1-5	RMQ1125	MOTOR HOLDER	1	
1-6	RMS0782	SHAFT	1	
1-7	XQN17+BG45	SCREW	1	
1-8	RXQ0971-3	MOTOR ASS´Y	1	
2	RGV0317-H1	KNOB,HOLD	1	
3	RJC93038-3	BATTERY TERMINAL	1	
4	RKS0376-H	BOTTOM CABINET	1	
5	XTN17+6GFZ	SCREW	4	
6	RMB0740-1	OPEN SPRING	1	
7	RMR1524-K	FFC HOLDER	1	
8	RGU2195-S1	BUTTON,STOP/ OPERATION OFF	1	
9	RGU2197-S	BUTTON,PLAY/MODE ETC	1	
10	RHQ0088-S	SCREW	11	
11	RMB0741-1	SPRING	1	
12	RYF0668A-S	CD LID UNIT	1	
13	L5DCAGD00001	LCD(LCD1001)	1	
14	RJB2735A	FFC	1	
15	RMR1523-H	LID COVER	1	
16	RGV0318-S	KNOB,OPEN	1	
17	RKK0171-H	BATTERY LID	1	
18	RKM0482A-H	MIDDLE CABINET	1	
19	RMR1412-K1	LOCK PLATE	1	
20	RGN2507-H1	NAME PLATE	1	(EG)
20	RGN2508-H1	NAME PLATE	1	(EB)
21	RMC0537	SPRING	1	
22	RQLS0244	LASER LABEL	1	
A1	L0BAB0000123	STEREO EARPHONES	1	
A2	N0JCCE000004	AC ADAPTOR	1	⚠ (EB)
A2	RFEA419E-M	AC ADAPTOR	1	⚠ (EG)
A3	RQT6779-B	OPERATING INSTRUCTIONS	1	English
A3	RQT6776-E	OPERATING INSTRUCTIONS	1	(EG) French, Germany, Spanish, Netherlands, Swedish, Danish, Italian, Portuguese, Russian, Czech, Polish
C10	ECUV1H271KBV	50V 270P	1	F1H1H271A009
C11	ECUVNJ475MBN	6.3V 4.7U	1	F1J0J4750002
C12	RCST1AY475RG	10V 4.7U	1	F3F1A4750003
C13	F3H1A476A001	10V 47U	1	
C14	RCE0JKA221IG	6.3V 220U	1	F2A0J2210012
C15	ECJ1VC1H121J	50V 120P	1	
C16	F1H1A105A028	10V 1U	1	
C17	ECUVNA105ZFV	10V 1U	1	F1H1A105A030
C19	ECA1CAK220XH	16V 22U	1	
C20	F1H1A105A028	10V 1U	1	
C21	ECUVNH103KBV	50V 0.01U	1	F1H1H103A748
C22	ECUZNC104ZFV	16V 0.1U	1	F1H1C1040008
C27	F2A0J102A130	6.3V 1000U	1	
C38	RCST0JY226RG	6.3V 22U	1	F3F0J2260002
C103	ECJ1VB1E223K	25V 0.022U	1	
C104,05	ECJ1VB1C104K	16V 0.1U	2	
C111	ECJ1VB1E223K	25V 0.022U	1	
C113,14	ECJ1VB1H102K	50V 1000P	2	
C116,17	ECJ1VB1E223K	25V 0.022U	2	
C120	ECJ1VB1H332K	50V 3300P	1	
C121	ECJ1VB1H561K	50V 560P	1	
C201	RCST0JY226RG	6.3V 22U	1	F3F0J2260002
C301,02	ECUVNA105ZFV	10V 1U	2	F1H1A105A030
C321	ECUVNA105ZFV	10V 1U	1	F1H1A105A030
C398,99	ECUV1H090DCV	50V 9P	2	F1H1H9R0A244
C501	ECJ1VB1H102K	50V 1000P	1	
C502	ECEA1CKS101	16V 100U	1	
C503	ECUV1H391KBV	50V 390P	1	ECJ1VB1H391K
C504	ECUZNC104ZFV	16V 0.1U	1	F1H1C1040008
C505	ECJ1VB1H153K	50V 0.015U	1	
C507	ECEA0JKS331	6.3V 330U	1	
C509	ECJ1VB1C104K	16V 0.1U	1	
C510	ECJ1VB1H102K	50V 1000P	1	
C511	ECUZNC104ZFV	16V 0.1U	1	F1H1C1040008
C513	ECUV1H330GCV	50V 33P	1	ECJ1VC1H330G
C514,15	ECJ1VB1H102K	50V 1000P	2	
C517	ECUVNA105ZFV	10V 1U	1	F1H1A105A030
C519	F1H1A104A028	10V 0.1U	1	
C524,25	ECJ1VB1H102K	50V 1000P	2	
C603,04	ECJ1VB1H272K	50V 2700P	2	
C610	ECA0JAK470XH	6.3V 47U	1	
C701	ECA1CAK220XH	16V 22U	1	
C702	ECUZNC104ZFV	16V 0.1U	1	F1H1C1040008
C705,06	ECA0JAK221XH	6.3V 220U	2	
C707,08	ECUVNC473KBV	16V 0.047U	2	F1H1C473A071
C711-13	F1H1A105A028	10V 1U	3	
C903	ECUZNC104ZFV	16V 0.1U	1	F1H1C1040008
C1001,02	ECUVNJ474KBV	6.3V 0.47U	2	F1H0J474A002
C1003,04	F1H1A105A028	10V 1U	2	
CN11	K4BC03B00014	BATTERY TERMINAL	1	
CN101	K1MN24B00093	CONNECTOR(24P)	1	
CN1001	K1MN12B00111	CONNECTOR(12P)	1	
CN1002	K1MN14B00100	CONNECTOR(14P)	1	
CNY301	K1MN12A00056	CONNECTOR(12P)	1	
CX9	F1H1A105A028	10V 1U	1	
CX526	ECUV1H390KUV	50V 39P	1	ECJ1VU1H390K

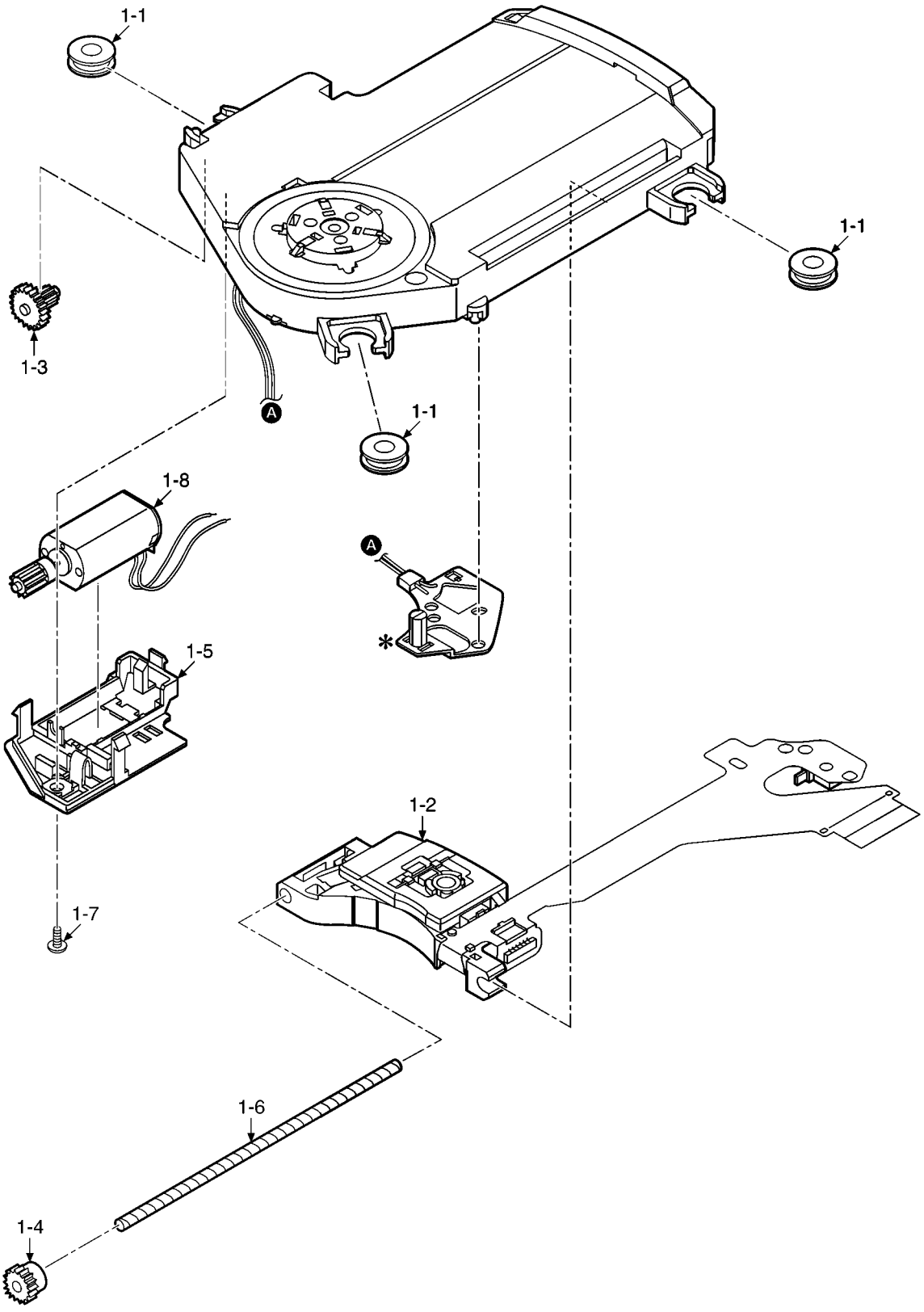
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
CX611	F1H1A104A028	10V 0.1U	1	
CY39	ECJ1VB1H102K	50V 1000P	1	
CY102	ECJ1VB1H332K	50V 3300P	1	
CY112	ECJ1VB1H561K	50V 560P	1	
CY304	ERJ3GEY0R00V	1/16W 0	1	
D11	MAZ80560ML	DIODE	1	
D101	MA2J11100L	DIODE	1	
DY22	MA2J11100L	DIODE	1	
IC11	C0DBFFB00004	IC	1	
IC101	AN22003A-NF	IC	1	
IC302	AK93C45BH-L	IC	1	C3EBCG000028
IC502	C3ABMB000027	IC	1	
IC701	C1BB00000742	IC	1	
ICP11	K5H1522A0018	IC	1	⚠
ICY13	C0CBAAB00018	IC	1	
ICY301	C2BBGE000654	IC	1	
ICY501	MN662792AE	IC	1	
JK11	RJJ43K09-C	JK,DC IN	1	K2EB2B000006
JK701	K2HC104B0013	JK,HEADPHONE	1	
JY4	ERJ3GEY0R00V	1/16W 0	1	
JY6-Y9	ERJ3GEY0R00V	1/16W 0	4	
JY102	EXBV8VR000V	1/8W 0	1	
JY104	ERJ3GEY0R00V	1/16W 0	1	
JY106	ERJ3GEY0R00V	1/16W 0	1	
JY110	ERJ3GEY0R00V	1/16W 0	1	
JY501	ERJ3GEY0R00V	1/16W 0	1	
JY503	ERJ3GEY0R00V	1/16W 0	1	
L11	RLQU331KT-W	COIL	1	G1C331K00004
L12	G1A101D00009	COIL	1	
L13	RLQU101KT-W	COIL	1	G1C101K00008
L14	RLQU331KT-W	COIL	1	G1C331K00004
P1	RPK1920	GIFT BOX	1	
P2	RPQ0836-3	PAD	1	
P3	RPQ1600	PAD	1	
P4	RPF0111-2	PROTECTION BAG	1	
PCB1	REP3473J-M	MAIN PCB ASS´Y	1	[RTL]
PCB2	REP3520A-S	OPERATION PCB ASS´Y	1	[RTL]
Q11	2SB1182TLPQR	TRANSISTOR	1	B1BDND000001
Q12	B1ABMD000004	TRANSISTOR	1	
Q13	DTC143EUA106	TRANSISTOR	1	B1GBCFGG0011
Q14	B1GDCFJN0011	TRANSISTOR	1	
Q15	DTC143EUA106	TRANSISTOR	1	B1GBCFGG0011
Q18	B1GDCFNN0007	TRANSISTOR	1	
Q19	DTC143EUA106	TRANSISTOR	1	B1GBCFGG0011
Q201	2SB709A	TRANSISTOR	1	2SB0709A
Q301	DTC143EUA106	TRANSISTOR	1	B1GBCFGG0011
Q502	B1CFHA000001	TRANSISTOR	1	
Q701	B1GFGCAA0001	TRANSISTOR	1	
Q702	B1GDCFJN0011	TRANSISTOR	1	
Q703	UMG6NTR	TRANSISTOR	1	B1GFCFNA0001
QY16	UN5215TX	TRANSISTOR	1	UNR521500L
QY101	B1GDCFJN0011	TRANSISTOR	1	
R10	ERJ3GEYJ271V	1/16W 270	1	
R13	ERJ3GEYJ102V	1/16W 1K	1	
R14	ERJ3RBD473	1/16W 47K	1	
R15	ERJ3RBD753	1/16W 75K	1	
R16	ERJ3GEYJ104	1/16W 100K	1	
R17	ERJ12YJ1R8U	1/2W 1.8	1	
R22	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R28	ERJ3GEYJ271V	1/16W 270	1	
R29	ERJ3GEYJ560V	1/16W 56	1	
R31	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
R50	ERJ3GEY0R00V	1/16W 0	1	
R110	ERJ3GEYJ100	1/16W 10	1	
R120	ERJ3GEYJ332V	1/16W 3.3K	1	D0GB332JA002
R121	ERJ3GEYJ393V	1/16W 39K	1	D0GB393JA002
R201	ERJ3GEYJ2R2V	1/16W 2.2	1	D0GB2R2JA002
R202	ERJ3GEYJ223V	1/16W 22K	1	D0GB223JA002
R302	ERJ3GEYJ104	1/16W 100K	1	
R304	ERJ3GEYJ105V	1/16W 1M	1	
R305	ERJ3GEYJ335V	1/16W 3.3M	1	
R306	EXBV8V473JV	1/16W 47K	1	
R307	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R308	ERJ3GEYJ104	1/16W 100K	1	
R313	EXBV8V104JV	1/16W 100K	1	
R325	ERJ3GEYJ333V	1/16W 33K	1	D0GB333JA002
R361	ERJ3GEYJ102V	1/16W 1K	1	
R501	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R505	MCR03PZHJ561	1/16W 560	1	
R509	ERJ3GEYJ331V	1/16W 330	1	
R511	ERJ3GEYJ222V	1/16W 2.2K	1	
R512	EXBV4V222JV	1/16W 2.2K	1	
R513	ERJ3GEYJ154V	1/16W 150K	1	
R514	ERJ3GEYJ681V	1/16W 680	1	D0GB681JA002
R517	ERJ3GEYJ104	1/16W 100K	1	
R603	EXBV4V561JV	1/32W 560	1	
R703,04	ERJ3GEYJ180V	1/16W 18	2	
R707,08	ERJ3GEYJ102V	1/16W 1K	2	
R709	EXBV4V222JV	1/16W 2.2K	1	
R713	EXBV4V332JV	1/32W 3.3K	1	
R714	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R715	EXBV4V331JV	1/32W 330	1	
R721,22	ERJ3GEYJ223V	1/16W 22K	2	D0GB223JA002
R750	EXBV4V123J	1/32W 12K	1	D1H412320001
R1001	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R1002	ERJ3GEYJ123V	1/16W 12K	1	
R1003	ERJ3GEYJ273V	1/16W 27K	1	D0GB273JA002
R1004	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R1005	ERJ3GEYJ123V	1/16W 12K	1	
R1006	ERJ3GEYJ273V	1/16W 27K	1	D0GB273JA002
R1007	ERJ3GEYJ103V	1/16W 10K	1	D0GB103JA002
R1008	ERJ3GEYJ123V	1/16W 12K	1	
R1009	ERJ3GEYJ560V	1/16W 56	1	
R1101	ERJ3GEYJ474V	1/16W 470K	1	
R1102	ERJ3GEYJ334V	1/16W 330K	1	
R1103	ERJ3GEYJ474V	1/16W 470K	1	
RX353	ERJ3GEYJ102V	1/16W 1K	1	
RX354	ERJ3GEY0R00V	1/16W 0	1	
RX355	ERJ3GEYJ102V	1/16W 1K	1	
RY1	D0YBR0000010	10K	1	
RY36	ERJ3GEYJ474V	1/16W 470K	1	
RY122	ERJ3GEYJ473V	1/16W 47K	1	D0GB473JA002
RY196,97	ERJ3GEYJ103V	1/16W 10K	2	D0GB103JA002
RY198,99	ERJ3GEYJ222V	1/16W 2.2K	2	
RY333	ERJ3GEYJ102V	1/16W 1K	1	
RY502	ERJ3GEYJ683V	1/16W 68K	1	D0GB683JA002
S201	ESE11MV9T	SW,LASER ON/OFF	1	
S202	K0L1BB000025	SW,REST DET.	1	
S310	RSS2A010-1A	SW,HOLD	1	K0D112B00071
S1001-09	K0H1BA000432	SW,OPERATION	9	
X301	H0J327200097	OSCILLATOR	1	
X501	H2D169500026	OSCILLATOR	1	
ZY1	ERY32SB075VA	IC PROTECTOR	1	⚠

16 Cabinet Parts Location



17 Traverse Unit Parts Location



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

18 Packaging