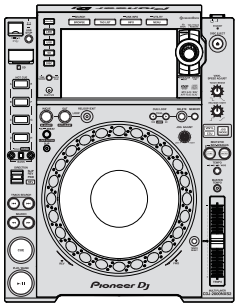
Pioneer DJ

Service Manual



CDJ-2000NXS2

ORDER NO.
RRV4645

MULTI PLAYER

CDJ-2000NXS2

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Model	Type	Power Requirement	Remarks
CDJ-2000NXS2	SYXJ	AC 110 V to 240 V	
CDJ-2000NXS2	UXJCB	AC 110 V to 240 V	
CDJ-2000NXS2	FLXJ	AC 110 V to 240 V	
CDJ-2000NXS2	AXJ	AC 220 V	

THIS SERVICE MANUAL SHOULD BE USED TOGETHER WITH THE FOLLOWING MANUAL(S).

Model	Order No.	Remarks
CDJ-2000NXS2	RRV4646	SCHEMATIC DIAGRAM, PCB CONNECTION DIAGRAM, PCB PARTS LIST



PIONEER CORPORATION 1-1, Shin-ogura, Saiwai-ku, Kawasaki-shi, Kanagawa 212-0031, Japan
PIONEER ELECTRONICS (USA) INC. P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.
PIONEER EUROPE NV Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 2 Jalan Kilang Barat, #07-01, Singapore 159346
ⓒ **Pioneer DJ Corporation 2016**

K-MZV FEB. 2016 Printed in Japan

SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.

Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

This product may contain a chemical known to the State of California to cause cancer, or birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 - Proposition 65

IMPORTANT

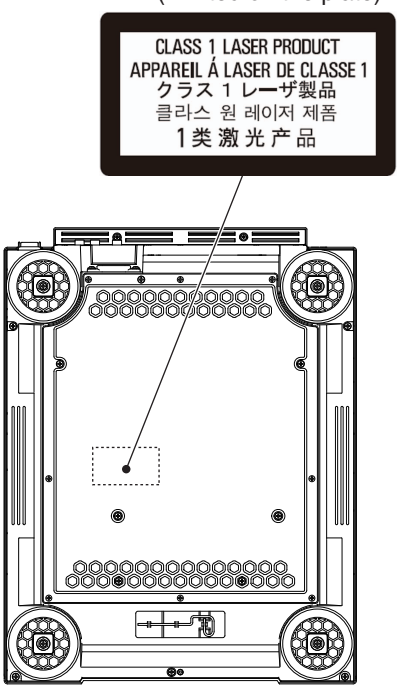
THIS PIONEER APPARATUS CONTAINS LASER OF CLASS 1.
SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

Laser Pickup specifications and Laser characteristics

For DVD	Wave length (typ)	: 655 nm
	Operation output	: 3 mW CW, Class 1
	Maximum output	: Class 1 (Under fault condition)
For CD	Wave length (typ)	: 790 nm
	Operation output	: 4.5 mW CW, Class 1
	Maximum output	: Class 1 (Under fault condition)

LABEL CHECK

(Printed on the plate)



Bottom view

Additional Laser Caution

1. Laser Interlock Mechanism
   The position of the switch (S9002) for detecting loading completion is detected by the system microprocessor, and the design prevents laser diode oscillation when the switch is not in LPS1 terminal side (when the mechanism is not clamped and LPS1 signal is high level.)
   Thus, the interlock will no longer function if the switch is deliberately set to LPS1 terminal side.
   (if LPS1 signal is low level).
   In the test mode ∗ the interlock mechanism will not function.
   Laser diode oscillation will continue, if pin 5 (pin 3) of AN22022A (IC7002) on the SRVB Assy is connected to GND, or else the terminals of Q7002 (Q7001) are shorted to each other (fault condition).

2. When the cover is opened, close viewing of the objective lens with the naked eye will cause exposure to a Class 1 laser beam.

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1. SERVICE PRECAUTIONS

1.1 NOTES ON SOLDERING

- For environmental protection, lead-free solder is used on the printed circuit boards mounted in this unit.
  Be sure to use lead-free solder and a soldering iron that can meet specifications for use with lead-free solders for repairs accompanied by reworking of soldering.
  Do NOT use a soldering iron whose tip temperature cannot be controlled.

1.2 NOTES ON REPLACING PARTS

The part listed below is difficult to replace as a discrete component part.
When the part listed in the table is defective, replace whole Assy.

Assy Name	Parts that is Difficult to Replace			
	Ref No.	Function	Part No.	Remarks
MAIN Assy	IC1, IC2	DDR2	W971GG6SB-25	BGA package
	IC10	MAIN CPU	R8A77240D500BG2	BGA package
	IC14	AUTHENTICATION CHIP	H337S3959	USON package (UltraSmallOutlineNon-lead)
	IC301	DSP	TMS320C6655CZH	BGA package
	IC501, IC502	DDR3	W631GG6KB-12	BGA package
	IC1101	PMIC	TPS65262RHB	IC with heat-pad
	IC1102	SmartReflex	LM10011SD	IC with heat-pad
	IC1103	VTT Regulator	TPS51200DRC	IC with heat-pad
	IC602	USB-LAN Conversion	RTL8152B-VB-CG	IC with heat-pad
	IC603	USB-HUB (function)	USB2512B-AEZG-TR	IC with heat-pad
	IC604	LAN-HUB & PHY	RTL8304E-CG	IC with heat-pad
	IC606, IC1502, IC1503	DC/DC CONVERTER	BD9328EFJ	IC with heat-pad
	IC1201	FPGA	XC3S50A-4FTG256C	BGA package
	IC607	USB CURRENT LIMIT IC	TPS2557DRB	QFN package
LCDB Assy	IC4801	LCD POWER IC	R1290K103A	QFN package
	IC4802	LCD BACKLIGHT POWER IC	BD81A04EFV-M	IC with heat-pad
	IC4202, IC4204	DC/DC CONVERTER	BD9328EFJ	IC with heat-pad
SRVB Assy	IC7305	DC/DC CONVERTER	BD9328EFJ	IC with heat-pad

The part listed below is difficult to replace as a discrete component part.
The replaceing method see remarks.

Assy Name	Parts that is Difficult to Replace			
	Ref No.	Function	Part No.	Remarks
JFLB Assy	V9201	Jog FL	DEL1074	As the Jog FL is integrated with the FL Holder (DNF1735) with the aid of two pieces of double-back tape (Z12-016), first remove the integrated Jog FL and FL Holder, attach a new Jog FL and an FL Holder, using two pieces of double-back tape, then mount them together.

1.3 SERVICE NOTICE

Before starting servicing

For prevention of electrical shock, before starting working on the product, be sure to wait at least 2 minutes after unplugging the Power cord.

About the self-diagnostic functions for the drives

This unit has self-diagnostic functions for the drives in Service mode. Use the self-diagnostic functions to check the drives if the problem symptom pointed out by the customer is a malfunction related to the drives or if a drive-related error is logged in the error history.
For details on the self-diagnostic functions for the drives, see "[5] Drive self-diagnosis" and "[6] Contents of drive self-diagnosis" in "6.1 SERVICE MODE."

About the Flash ROM (IC12) and USB-LAN Conversion IC (IC602) in the MAIN Assy

Replacement of the Flash ROM (IC12) and USB-LAN Conversion IC (IC602) in the MAIN Assy is not possible during service, because writing of the MAC address on the production line is required and USB-LAN Conversion IC (IC602) has unique ID. Therefore, the Flash ROM (IC12) and USB-LAN Conversion IC (IC602) are not supplied as a service part.
If the Flash ROM and USB-LAN Conversion IC are defective, replace the whole MAIN Assy.
After replacing the the MAIN Assy, writing of the serial number of the unit is required.
For details on how to write the serial number, see "8.3 WRITING THE SERIAL NUMBER OF THE UNIT."

About work required after replacement of the TM Assy 09SD-S

After replacement of the TM Assy 09SD-S, reset the LD lighting time to zero.
How to Reset: See "⑥ Drive LD life manual input" in "[3] Various displayed information" in "6.1 SERVICE MODE."

About transfer of the accumulated LD lighting time data after replacement of the MAIN Assy

This unit is equipped with self-diagnostic functions for the drives in Service mode. The service-life check for the laser diode (for CDs/DVDs) among the self-diagnostic functions uses the accumulated lighting time for judgment. If it is 7,000 hours or less, the laser diode is judged as OK. The accumulated lighting time of the LD is stored in the Flash ROM (IC12) in the MAIN Assy. Therefore, after replacement of the MAIN Assy, the accumulated lighting time of the LD is cleared and proper judgment will not be possible after that. To avoid such a situation, when replacement of the MAIN Assy is required, transfer the LD accumulated lighting time data.
Before replacement, confirm the drive LD lighting time in Service mode and take note of the time value. After replacement is finished, enter Service mode then change the drive LD lighting time value to what you noted.
For details on how to confirm and change the LD lighting time, see "⑥ Drive LD life manual input" in "[3] Various displayed information" in "6.1 SERVICE MODE."

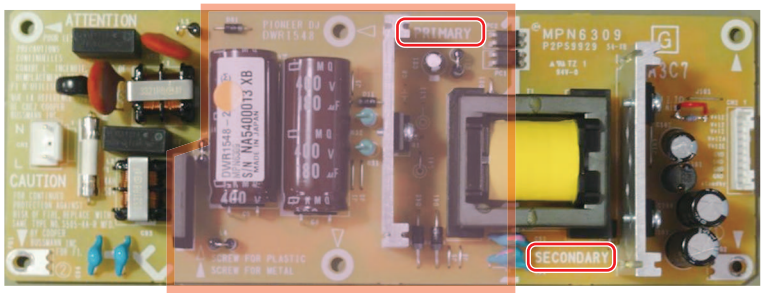
About backup of the UTILITY settings

As this unit is provided with user-settable UTILITY settings (such as the Play mode setting,) it is recommended that you back up the settings before starting repair. The settings can be stored for backup in a USB memory device or an SD card.
For details on how to back up and restore data, see "■ How to Back Up and Restore the Settings" in "8.6 ITEMS FOR WHICH USER SETTINGS ARE AVAILABLE."

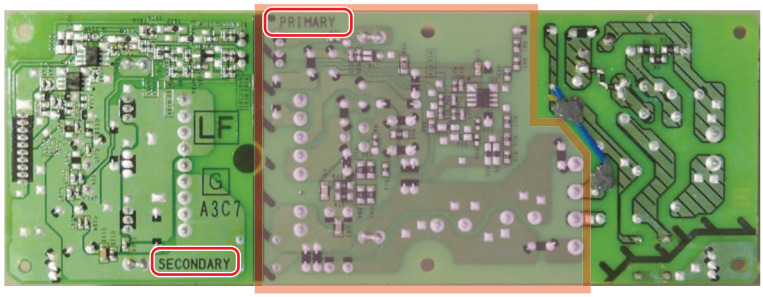
SW POWER SUPPLY Assy Primary side electrical shock

The primary side of SW POWER SUPPLY Assy remains voltage long time, and the primary solder side can be seen.
So if you touch the primary solder side, it is possible to receive an electrical shock.
There is the red area below where we tend to receive an electrical shock.
Be sure to dischsarge the voltage of primary side to avoid receiving the electrical shock.

Electrical shock area of A-side.

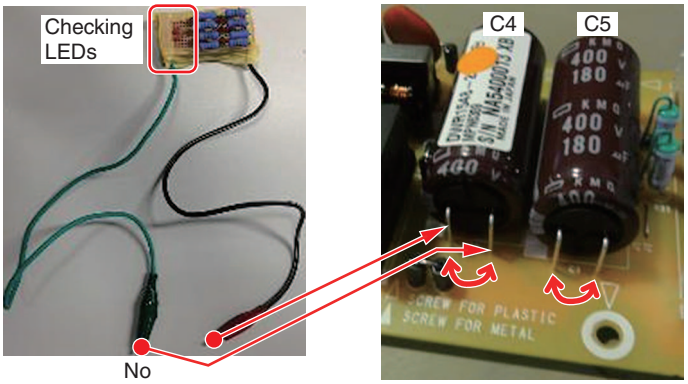


Electrical shock area of B-side.



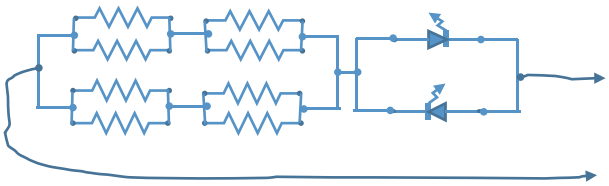
When discharging the above point, use the following discharge jig as needed.

While the charging voltage is left of both C4 and C5, either of checking LEDs turns on.
And if both of LED turns off, we can avoid receiving the electrical shock!!



The circuit of "discharge JIG" is shown below.

- Resister is all 10 kΩ (3W)
- Both of LED is LTL17KRH5D



When there is no above type LED, take measures the following method.
Step 1: After the power is turned off, wait 2 minutes.
Step 2: Connect the Register Jig and leave the unit as it is, for 10 seconds.

2. SPECIFICATIONS

Power requirements.....AC 110 V to 240 V, 50 Hz/60 Hz
Power consumption .....41 W
Power consumption (standby) .....0.4 W
Main unit weight..... 5.7 kg (12.6 lb)
Max. dimensions..... 320 mm (W) × 113.2 mm (H) × 414.4 mm (D)
(12.6 in. (W) × 4.4 in. (H) × 16.3 in. (D))
Tolerable operating temperature.....+5 °C to +35 °C (+41 °F to +95 °F)
Tolerable operating humidity..... 5 % to 85 % (no condensation)

Analog audio output (AUDIO OUT L/R)
Output terminals.....RCA terminal
Output Level ..... 2.0 Vrms (1 kHz)
Frequency response.....4 Hz to 40 kHz
S/N ratio.....115 dB
Total harmonic distortion ..... 0.0018 %

Digital audio output (DIGITAL OUT)
Output terminals.....RCA terminal
Output type.....Coaxial digital (S/PDIF)
Output level.....0.5 Vp-p (75 Ω)
Output format..... 44.1 kHz/96 kHz, 24 bit/16 bit

USB downstream section (USB)
Port..... Type A
Power supply.....5 V/2.1 A or less

USB upstream section (USB)
Port..... Type B

LAN (PRO DJ LINK)
Rating 100Base-TX

SD memory card section
File system .... Conforming to “SD Specifications Part 2 File System Specification Version 2.00”
Max. memory capacity.....32 GB

Main display
Display type .....Active matrix TFT liquid crystal display (LCD)
Supported languages .....18 languages

- The specifications and design of this product are subject to change without notice.

Accessories

- Power cord
  (SYXJ: ADG1244)
  (UXJCB: DDG1108)
  (FLXJ: ADG1244, ADG1239)
  (AXJ: DDG1114)
- Audio cable
  (XDE3045)
- LAN cable
  (DDE1141)
- Disc force eject pin (mounted on bottom of product)
  (DEX1024)
- Operating Instructions (Quick Start Guide)
  (SYXJ: DRH1322)
  (UXJCB: DRH1321)
  (FLXJ: DRH1323)
  (AXJ: DRH1324)

3. BASIC ITEMS FOR SERVICE

3.1 JIGS LIST

Jigs List

Jig Name	Part No.	Purpose of use / Remarks
CD test disc	STD-905	Drive self-diagnosis
DVD test disc	GGV1035 (DVDT-001)	Drive self-diagnosis
Software for writing the serial number	GGS1177	For writing the serial number of the unit to the MAIN Assy after replacement. The zipped writing tool (mmpforseigi.exe) and data file (hidcom.dll) are posted at Niis. See "8.3 WRITING THE SERIAL NUMBER OF THE UNIT."

Lubricants and Glues List



Name	Part No.	Remarks
Lubricating oil	GEM1104	Refer to "9.3 CONTROL PANEL SECTION".
Lubricating oil	GYA1001	Refer to "9.4 JOG DIAL SECTION", "9.6 SLOTIN MECHA SECTION".
Lubricating oil	GEM1034	Refer to "9.4 JOG DIAL SECTION".
Dyfree	GEM1036	Refer to "9.6 SLOTIN MECHA SECTION".

Cleaning



Before shipping out the product, be sure to clean the following positions by using the prescribed cleaning tools.

Position to be cleaned	Name	Part No.	Remarks
Pickup lens	Cleaning liquied	GEM1004	Refer to "9.6 SLOTIN MECHA SECTION".
	Cleaning paper	GED-008	

3.2 CHECK POINTS AFTER SERVICING

Items to be checked after servicing

To keep the product quality after servicing, confirm recommended check points shown below.

No.	Procedure	Check points
1	Confirm the firmware version on Service Mode.	The version of the firmware must be latest. Update firmware to the latest one, if it is not the latest.
2	Confirm whether the customer complain has been solved. If the customer complain occurs with the specific disc, use it for the operation check.	The customer complain must not be reappeared. Audio and operations must be normal.
3	Playback a disc. (track search)	Audio, Search and operations must be normal.
4	Check the connection of each interface.	
	Playback data contained in the device connected to USB A.	Audio, Search and operations must be normal.
	USB B.	The PC must be linked.
	Playback data contained in an SD card.	Audio, Search and operations must be normal.
	LINK.	The PC must be linked.
5	Check output signals while the Jog dial or TEMPO slider is being operated.	Audio and operations must be normal.
6	Check the keys on the unit.	Check whether a product can be operated properly by buttons on the product.
7	Check the LCD display.	Check that there is no dirt or dust trapped inside the LCD display.
8	Check the Touch panel.	Check whether a product can be operated properly in an all-black screen of the Service mode.
9	Check the appearance of the product.	No scratches or dirt on its appearance after receiving it for service.

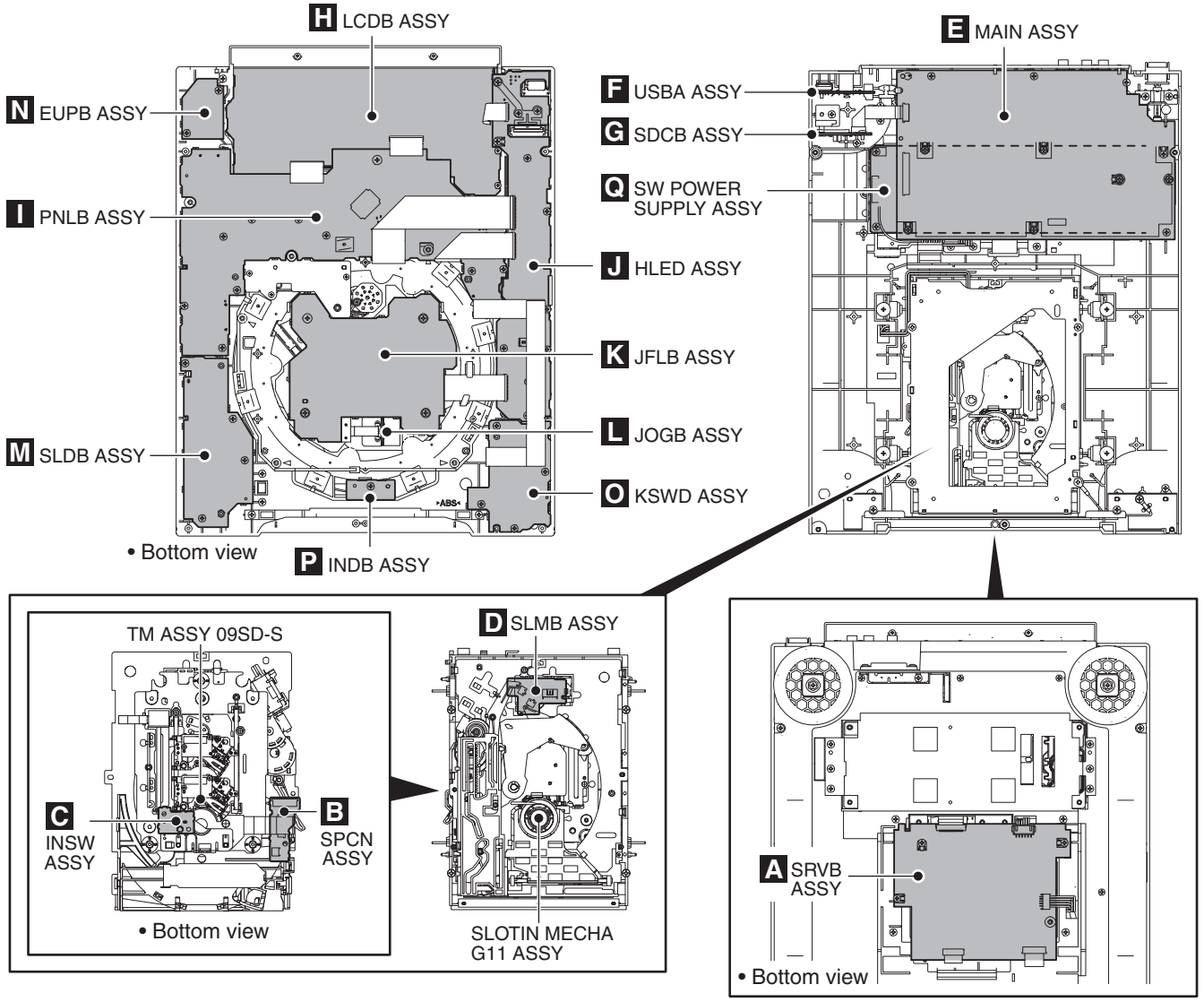
Specific Items to be Checked

No.	Procedure	Check points
1	Confirm playback error rates at the innermost and outermost tracks by using the following disc. DVD test disc (GGV1025)	The error rates must be less than 5.0e-4. (This procedure can determine if the drive is degraded.)

See the table below for the items to be checked regarding audio.

Item to be checked regarding audio	
Distortion	Volume too high
Noise	Volume fluctuating
Volume too low	Sound interrupted

3.3 PCB LOCATIONS



NOTES: ● *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
● *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

LIST OF ASSEMBLIES

Mark	No.	Description	Part No.
	1	MAIN ASSY	DWX3672
NSP	1	LCDA ASSY	DWM2569
	2	LCDB ASSY	DWX3693
	2	SDCB ASSY	DWX3694
	2	USBA ASSY	DWX3695
NSP	1	SRVA ASSY	DWM2570
	2	SRVB ASSY	DWX3696
	2	INSW ASSY	DWX3697
	2	SPCN ASSY	DWX3698
	2	INDB ASSY	DWX3699
NSP	1	PNLA ASSY	DWM2571
	2	PNLB ASSY	DWX3702
	2	KSWB ASSY	DWX3703
	2	EUPB ASSY	DWX3704
	2	SLMB ASSY	DWX3707
	2	JFLB ASSY	DWX3708
	2	JOGB ASSY	DWX3709
	1	SLDB ASSY	DWX3705
	1	HLED ASSY	DWX3700
⚠	1	SW POWER SUPPLY ASSY	DWR1548
NSP		SLOTIN MECHA G11 ASSY	DXA2163
		TM ASSY 09SD-S	DXX2697

4. BLOCK DIAGRAM

4. BLOCK DIAGRAM
4.1 OVERALL WIRING DIAGRAM

- When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- — : The power supply is shown with the marked box.

- 部品を発注する場合は、必ず「分解図と部品表」または「電気部品表」を参照してください。
- ⚠ 印の部品は、安全上重要な部品です。
  交換するときは、安全および性能維持のため必ず指定の部品をご使用ください。
- — 印は電源の供給源を示しています。

TFT-LCD MODULE (CWX4352-)
TOUCH PANEL (DSX1130-)
BackLight
CN4401
CN4601 FOR DEBUG
CN4801
CN4802

H (H1/5 - H5/5) LCDB ASSY (DWX3693)

I PNLB ASSY (DWX3702)

J HLED ASSY (DWX3700)

O KSWB ASSY (DWX3703)

N EUPB ASSY (DWX3704)

M SLDB ASSY (DWX3705)

P INDB ASSY (DWX3699)

L JOGB ASSY (DWX3709)

K JFLB ASSY (DWX3708)

JOG FL
V9201
DEL1074-A

SHEET SW
(DSX1078-)

E (E1/11 - E11/11) MAIN ASSY (DWX3672)

USB CONNECTOR (A-TYPE)
USB CONNECTOR (B-TYPE)
SD CARD

F USBA ASSY (DWX3695)

G SDCB ASSY (DWX3694)

LAN CONNECTOR
DIGITAL OUT
AUDIO OUT
POWER SW
FOR DEBUG (DSP&CPU)
Only Proto

Q SW POWER SUPPLY ASSY (DWR1548)

AC POWER CORD
AC INLET ASSY DKP3975-

Use "C13" type	AC POWER CORD
DESTINATION	Part Number
/UXJCB	DDG1108-
/SYXJ	ADG1244-
/UXJ	DDG1110-
/FLXJ	ADG1244- ADG1239-
/AXJ	DDG1114-

A SRVB ASSY (DWX3696)

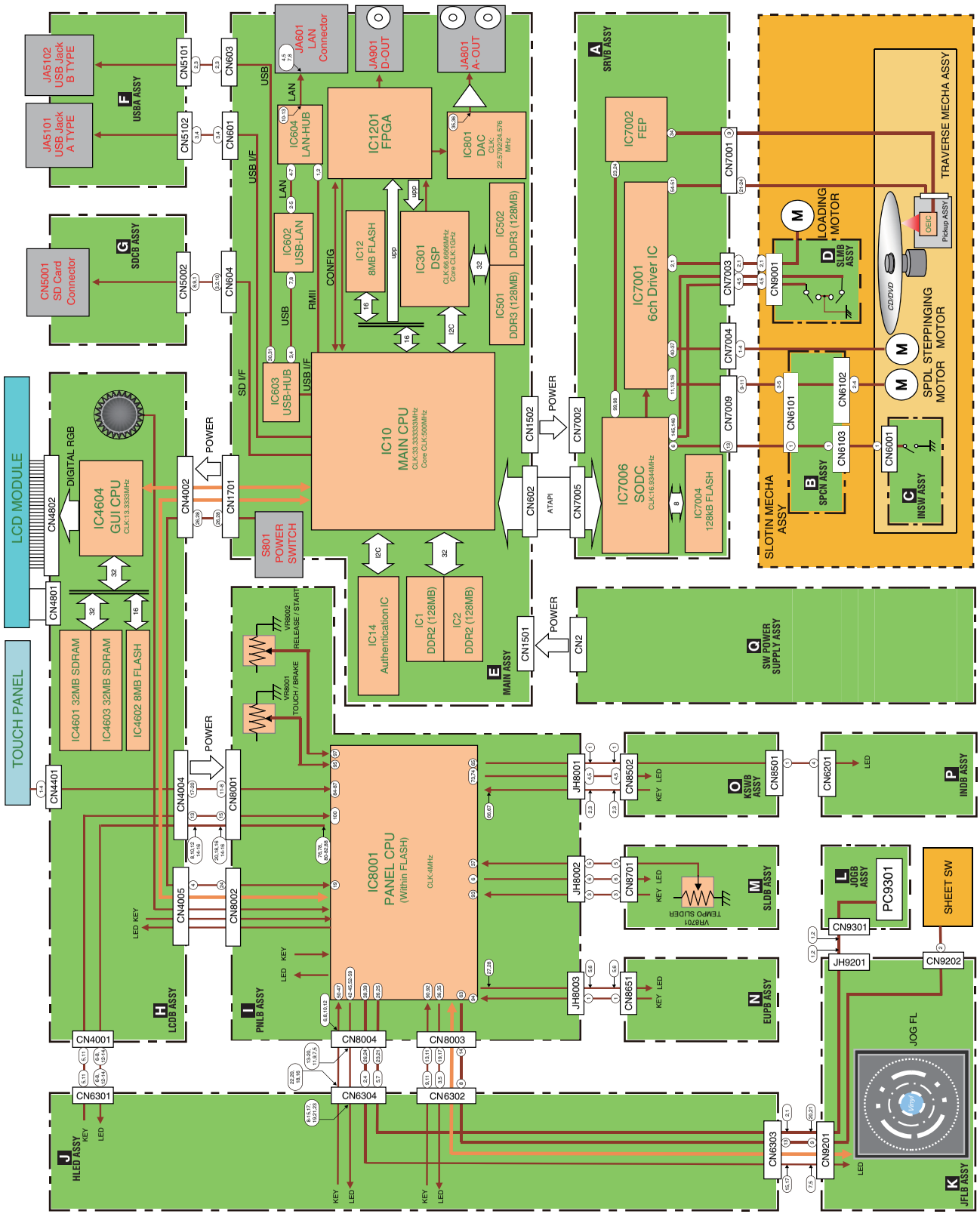
D SLMB ASSY (DWX3707)

B SPCN ASSY (DWX3698)

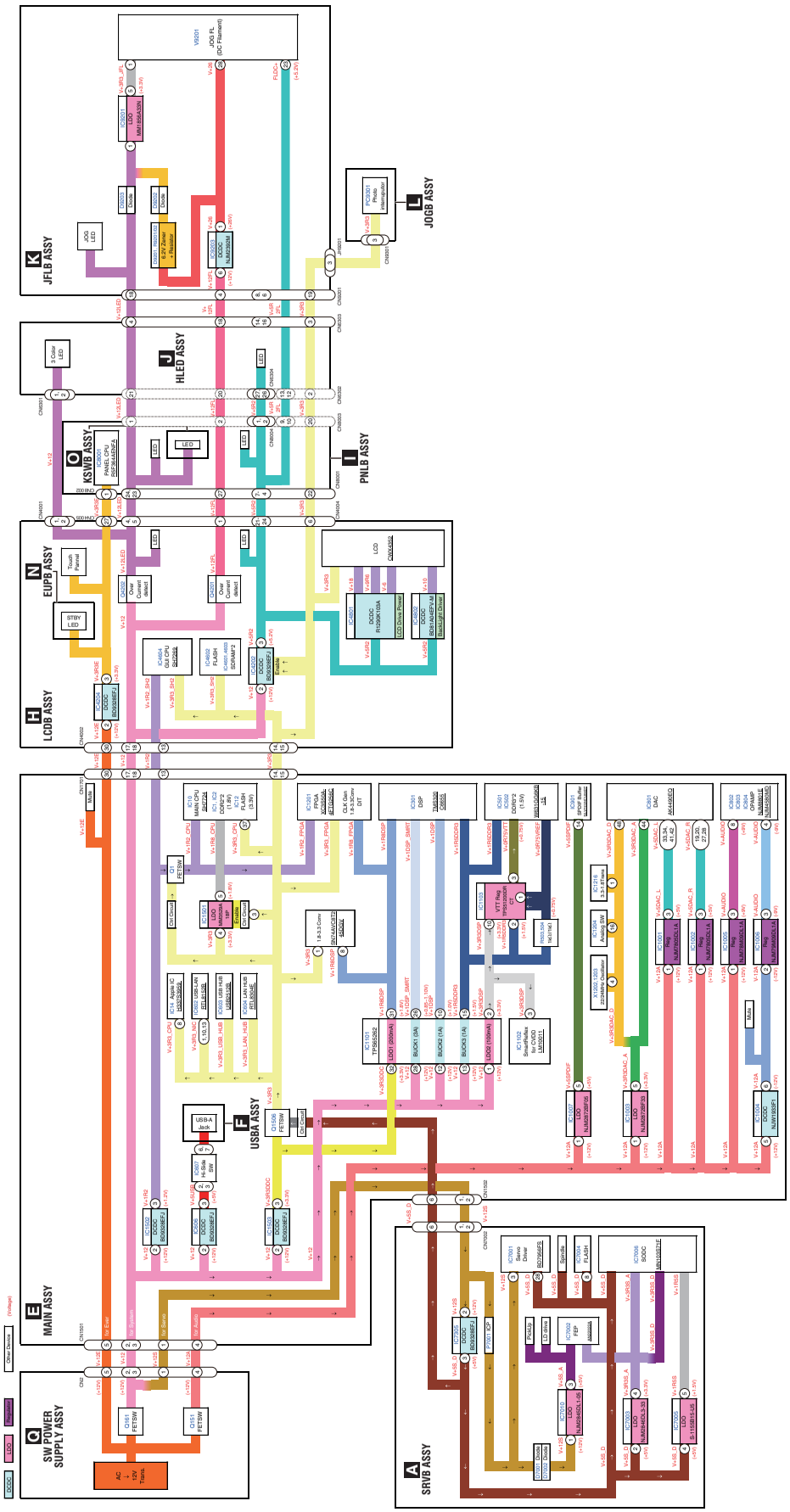
C INSW ASSY (DWX3697)

09SD PICK UP ASSY
TM ASSY 09SD-S (DXX2697)
SLOTIN MECHA G11 ASSY
LOADING MOTOR
DC MOTOR ASSY-S (DXX2510)
STEPPING MOTOR SK
SPNDIE MOTOR G11

4.2 SIGNAL BLOCK DIAGRAM

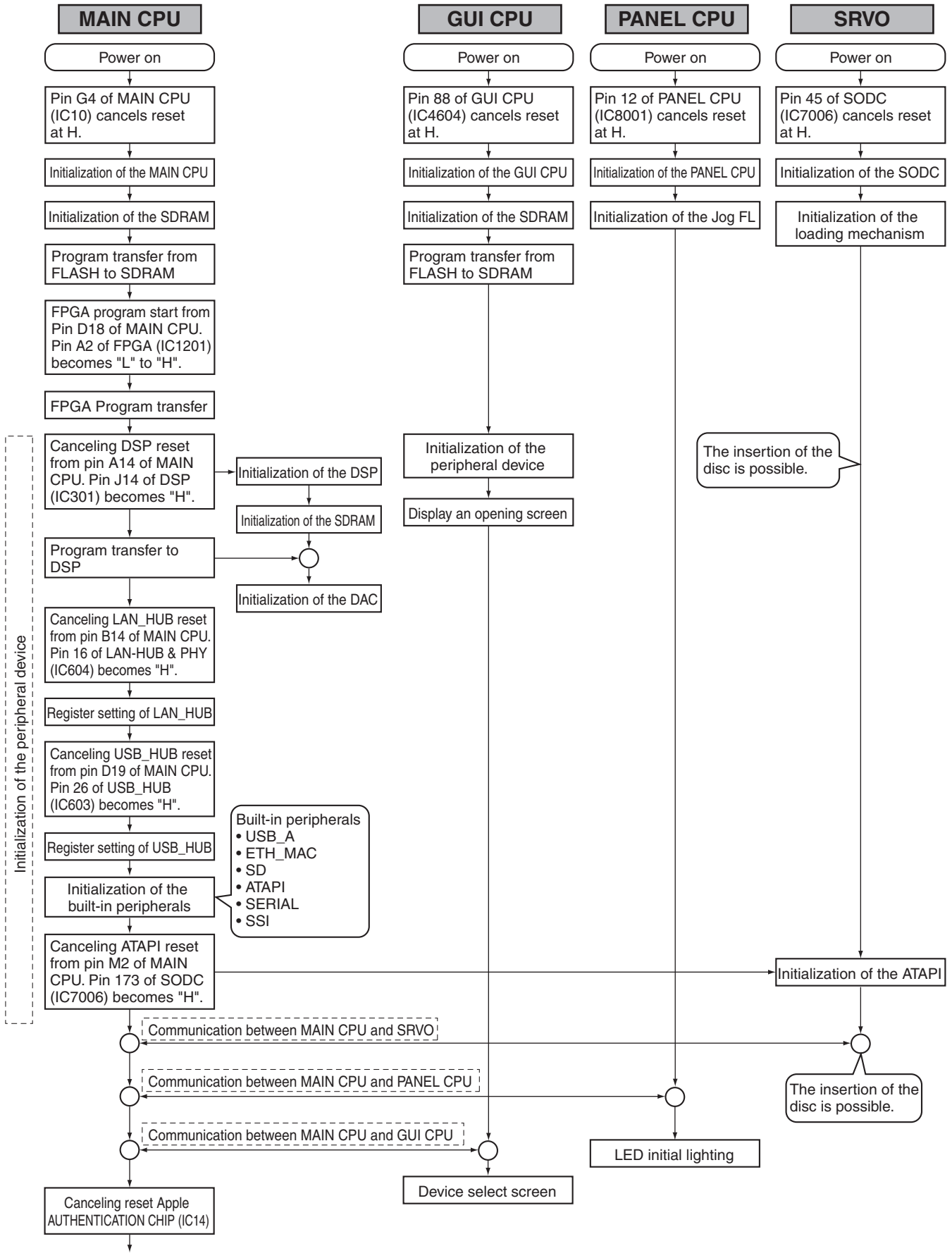


4.3 POWER SUPPLY BLOCK DIAGRAM

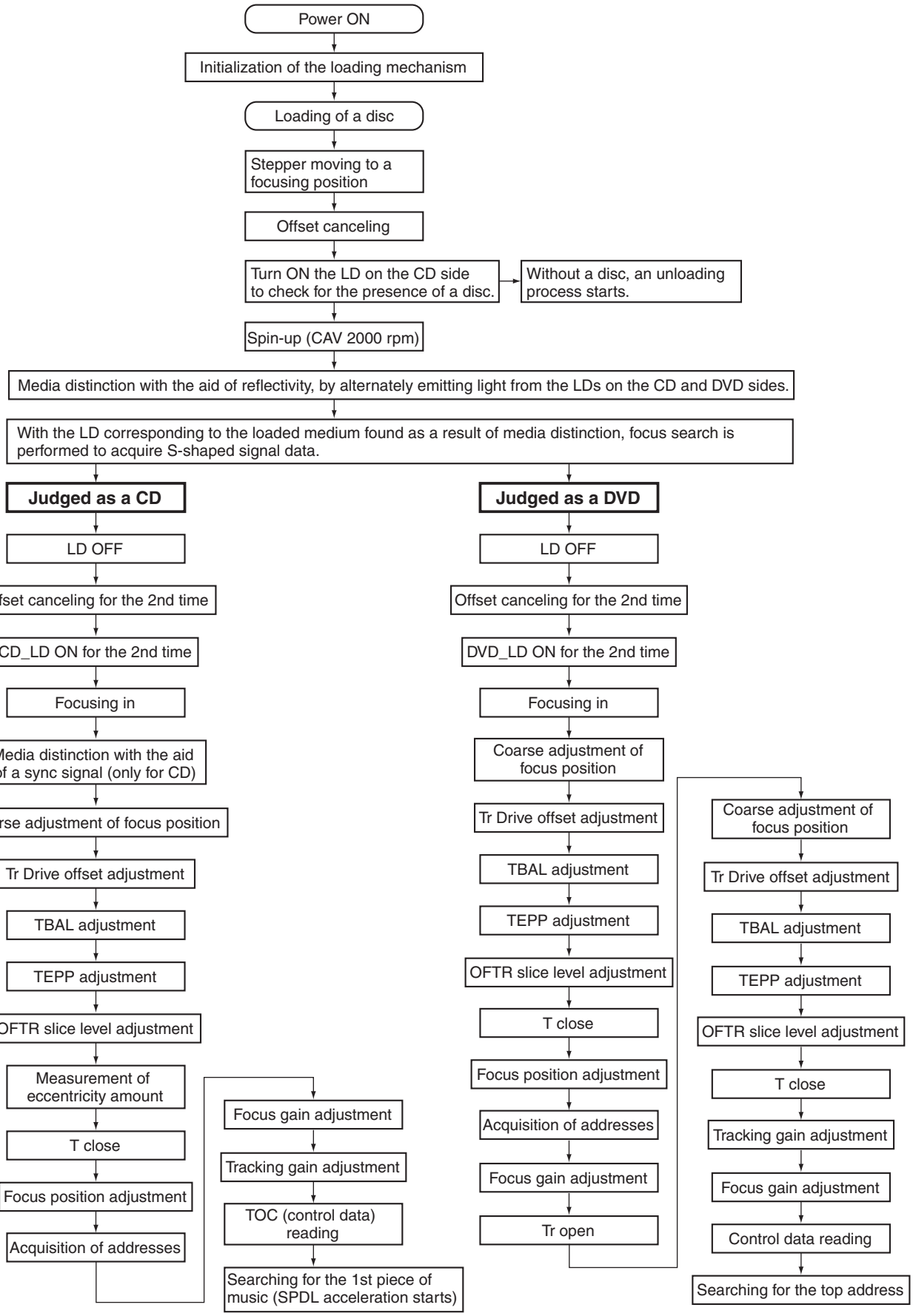


5. DIAGNOSIS
5.1 SEQUENCE

POWER ON SEQUENCE



SETUP SEQUENCE



5.2 FAILURE JUDGEMENT OF THE PICKUP ASSY

This unit has self-diagnostic functions for the drives.
For drive-related malfunctions, first perform the self-diagnostics to check the drives in Service mode. If the results indicate any problem with the drives, check the following items:

● LD power after passing through the objective lens [mW]

SPEC: DVD 0.180 ± 0.03
CD 0.210 ± 0.03
Check method: Measure the LD power, using an optical power meter.
Failure judgment: A value out of the range of the specifications is judged as failure.

● LD current [mA]

SPEC: DVD TYP50 MAX70
CD TYP65 MAX75

Check method

Measure the voltage at the probe pad on the SRVB Assy (see the photo below), using a tester.
∗ To check lighting of each LD, follow the procedure indicated in "[7] Checking the servo operations of the drive unit" in "6.1 SERVICE MODE."
∗ Note that the LD may be degraded if the probes of a tester are applied to or pulled away from the probe pad with the LD ON.

Procedures

1. With the LD OFF, apply the probes of a tester to the reference probe pad (LDCHK) and 78CHK (CD side) or 65CHK (DVD side).
2. With the probes kept applied to the above-mentioned pads, turn the LD ON to measure the voltage between them.
3. After measurement, turn the LD OFF (ALL OFF) then pull the probes away.
4. Calculate the current value by dividing the measured voltage value by the resistance value mentioned below.
(For CDs: R7008 = 22 ohms, For DVDs: R7007 = 12 ohms)

Failure judgment:

If the calculated current value exceeds the maximum value, the LD has been degraded

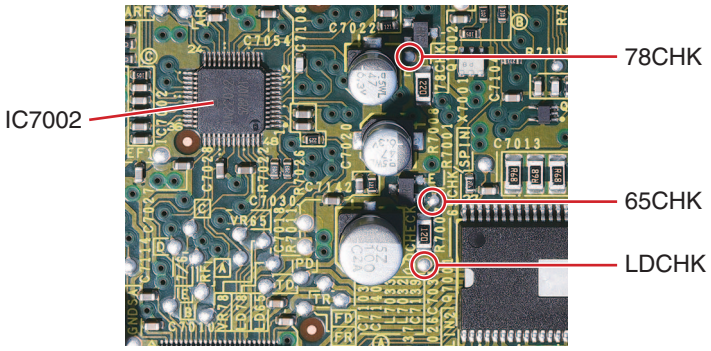


Fig.1 SRVB Assy

● Actuator resistance value [ohms]

Specifications on the focus side: 3.7 ±0.55
Specifications on the tracking side: 4.3 ±0.65

Check method

Directly measure the resistance value of the actuator, using a tester.
* Before measuring, short-circuit the LD short-circuit pads.
Note that the LD may be degraded if connection/disconnection of CN7001 is performed with the LD short-circuit pads open.

• Focus side
Disconnect* the FFC connected to the CN7001 then measure the resistance value between FFC pins 23 and 24.
• Tracking side
Disconnect* the FFC connected to the CN7001 then measure the resistance value between FFC pins 21 and 22.

Failure judgment:

A value out of the range of the specifications is judged as failure.

5.3 TROUBLESHOOTING

In this section, causes of failure, diagnostics points, and corrective measures can be searched for according to symptoms.
Before disassembling this unit, it is recommended to infer a failure point by performing a status check and referring to the error code.
For the relationship of each power-supply and signal system, see "4. BLOCK DIAGRAM," and "10. SCHEMATIC DIAGRAM."
If software of the product is updated before performing diagnostics, check that software updating has been performed properly before proceeding to diagnostics.
If software updating has not been performed properly, update the software, following the instructions in "[9] Firmware update" of "6.1 SERVICE MODE."

Contents

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The waveform numbers confirmation-point numbers (10.27 WAVEFORMS) described in this section correspond to the numbers on the "10. SCHEMATIC DIAGRAM" and "11. PCB DIAGRAM."
Be sure to check the failure points, as well as check for failure in their peripheral circuits.

[0] Prior Confirmation

[0-1] Checking in Service Mode

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	————	————	Check for the location of a defect in Service mode.	See the section describing locations of defects in this manual.	6.1 SERVICE MODE

[0-2] Checking the Alarm Port

If "[0-1] Checking in Service Mode" is performed, this check is not required.

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	————	Alarm port on the MAIN Assy (Fig. 1)	Check the output waveforms from the alarm port.	If an output waveform is judged to be improper, see the section describing locations of defects in this manual.	6.1 SERVICE MODE _[8] Alarm port output

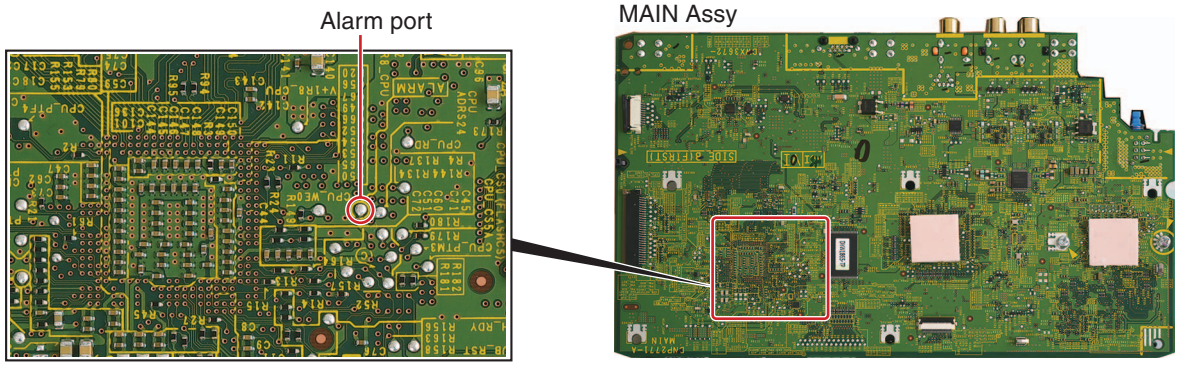


Fig. 1

[0-3] Checking Cables

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Disconnection, breakage, or loose connection of cables	Cables	Check that all the cables are securely connected. Check that there is no breakage in the cables.	Securely connect the cables. If a cable is broken, replace it.	4.1 OVERALL WIRING DIAGRAM 10. SCHEMATIC DIAGRAM

[1] Failure in Startup

[1-1] No power

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	The SW POWER SUPPLY Assy does not function properly.	SW POWER SUPPLY Assy	Check V+12E.	If V+12E (CN2 pin 5) is not output, the SW POWER SUPPLY Assy is defective. Replace it.	————

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
2	The SW power does not function properly.	PNLB Assy, LCDB Assy	Check V+3R3E.	The DCDC converter (IC4204) may be loosely connected with its peripheral devices or a part may be defective. Correct loose connection. If the symptom persists, replace the defective part.	————
3	The EUP control unit does not function properly.	SW POWER SUPPLY Assy	Check the standby signal.	If the signal of standby (CN2 pin 10) is L, check the output of the SW POWER SUPPLY Assy. If V+12 or V+12A (CN2 pins 1 to 4) is not output, the SW POWER SUPPLY Assy is defective. Replace it.	————
4	Various power supply ICs do not function properly.	MAIN Assy, LCDB Assy	Check each power-supply IC.	The power IC and its peripheral devices for each power supply may be loosely connected or a part may be defective. Correct loose connection. If the symptom persists, replace the defective part.	————
5	Defective CPU_RST signal	MAIN Assy	Check the CPU_RST signal.	If CPU_RST is "L" although the V+3R3_CPU is normal, the RESET IC (IC11) is defective or the relevant connection is poor. Correct loose connection. If the symptom persists, replace the defective part.	————
6	Defective SYS_CLK signal	MAIN Assy	Check the SYS_CLK (=33.333333 MHz) signal.	The X2 or Logic IC (IC9) may be loosely connected with its peripheral devices or a part may be defective. Correct loose connection. If the symptom persists, replace the defective part.	10.27 WAVEFORMS ①

[1-2] Indications on the LCD

Check the indications on the LCD.

Nothing is displayed on the LCD. (Black screen)

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Power for backlight is not input properly.	LCDB Assy	Check the connection of the backlight power connector (CN4801) and the mounting status of the peripheral parts of the power-supply circuit for backlighting (IC4802).	Possible causes are poor connection of the backlight power connector (CN4801) and defective power-supply circuit for backlighting. Correct loose connection. If the symptom persists, replace the defective part.	————
2	Defective SH2_VCK signal	LCDB Assy	Check the SH2_VCK (IC4604-pin 189 = 32~about 33.3 MHz) signal.	The GUI CPU (IC4604) may be loosely connected with its peripheral devices or a part may be defective. Correct loose connection. If the symptom persists, replace the defective part.	————
3	Defective SH2_RES signal	LCDB Assy	Check the SH2_RES (IC4604-pin 88) signal.	If SH2_RES is "L" although the V+3R3_SH2 is normal, the Q4601 is defective or the relevant connection is poor. Correct loose connection. If the symptom persists, replace the defective part.	————
4	Defective CKIO signal	LCDB Assy	Check the CKIO (IC4604-pin 61 = about 66 MHz) signal.	If CKIO is "L" although the V+3R3_SH2 and V+1R2_SH2 are normal, the GUI CPU (IC4604) or X4602 is defective or the relevant connection is poor. Correct loose connection. If the symptom persists, replace the defective part.	10.27 WAVEFORMS ⑥
5	Loose connections between GUI CPU and LCD module	LCDB Assy	Check the power source and signals to the LCD module (CN4802). • VAVDD (pin 59), VGL (pin 3), V+3R3LCD (pin 4), VGH (pin 5) • DCLK (pin 33 = about 32 MHz), DE (pin 32), RSTB (pin 28 = "H"), STBYB (pin 27 = "H")	Check the signals described in the left adjacent column at GUI CPU (IC4604) and LCD module to identify a defective part then correct connection or replace the defective part with a new one.	————

The colors displayed on the LCD are improper.

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Loose connections between GUI CPU and LCD module	LCDB Assy	Check the power source and signals to the LCD module (CN4802). • B7 : B2 (pin 34 : 39) G7 : G2 (pin 42 : 47) R7 : R2 (pin 50 : 55)	Check the signals described in the left adjacent column at GUI CPU (IC4604) and LCD module to identify a defective part then correct connection or replace the defective part with a new one.	————

[2] Display (Jog FL/LED)

The Jog FL and the LEDs are controlled by the PANEL CPU (IC8001).

[2-1] The Jog FL does not light.

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Power is not supplied properly.	JFLB Assy	Check the power-supply voltages (VDD (= 3.3 V), F+ (= 4.86 V), F- (= 2.17V) , VH (= 26 V)) of the FL (V9201).	Each power-supply may be loosely connected or may be defective. Correct loose connection. If the symptom persists, replace the defective part.	————
2	Defective control signal	JFLB Assy	Check that the FL (V9201) control line is properly connected in the JFLB Assy. • J_SCLK • J_BK • J_LAT • J_DSO	Check the connection and correct loose connection. As the Jog FL is controlled by the PANEL CPU (IC8001), if no signal is output, check the PANEL CPU (IC8001).	10.27 WAVEFORMS ⑨
3	Defective Jog FL	————	If the symptom persists after the above corrections,	Replace the Jog FL.	————

[2-2] An LED does not light.

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Defective LEDs	PNLB Assy	Check that soldering at the LED in question is properly made. If it is OK, check that the forward voltage (2.2 - 2.7 V) is present at both ends of the LED.	Correct any defective soldering. If the forward voltage is present, then the LED itself is defective. Replace it.	————
2	Defective drive circuit	PNLB Assy	Check that the control signal for the LED in question is output from the PANEL CPU (IC8001).	If the LED does not light even if the control signal is output properly, then the transistor is defective. Replace it.	————
3	Defective PANEL CPU	PNLB Assy	If the symptom persists after the above corrections.	Check the connection between the PANEL CPU (IC8001) and the LED in question. If the connection is OK, the port may be damaged. Replace it.	————

[3] Operations (Button / Volume / Rotary encoder / Jog dial / Touch panel)

As operations of all buttons, variable volumes, rotary encoder , Jog dial and Touch panel can be checked in Service mode, it is recommended to check operations of those controls in Service mode before proceeding to the subsequent checks.
(For details, refer to "6.1 SERVICE MODE.")

[3-1] No key functions.

No key functions. (except USB STOP button)

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Defective Power SW	PNLB Assy	Check if there is loose connection on the signal line from the PANEL CPU (IC8001) up to the SW.	If there is no loose connection and if the signal does not become L when the Power SW is pressed, that SW is defective. Replace it.	————
2	Defective RST signal of PANEL CPU	PNLB Assy	Check the RST signal of the PANEL CPU (IC8001 pin 12).	If Pin 12 of IC8001 is "L" although the V+3R3E is normal, the RESET IC (IC8002) or Q8015 is defective or the relevant connection is poor. Correct connection or replace the defective part with a new one.	————
3	Defective CLK signal of PANEL CPU	PNLB Assy	Check the CLK signal of the PANEL CPU (IC8001 pin 13 = 4 MHz).	The X8001 may be loosely connected with its peripheral devices or a part may be defective. Correct loose connection. If the symptom persists, replace the defective part.	10.27 WAVEFORMS ⑧
4	Defective PANEL CPU	PNLB Assy	If the symptom persists after the above corrections.	Check the connection of the PANEL CPU (IC8001). If the connection is OK, the port may be damaged. Replace it.	————

The USB STOP button does not function. (The signal from the USB STOP button is input to the MAIN CPU.)

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Defective SW	HLED Assy, MAIN Assy	Check if there is loose connection on the signal line from the MAIN CPU (IC10) up to the SW.	If there is no loose connection and if the signal does not become L when the SW is pressed, that SW is defective. Replace it.	————
2	Defective MAIN CPU	MAIN Assy	If the symptom persists after the above corrections.	The MAIN CPU (IC10) is defective. Replace the MAIN CPU (IC10).	————

[3-2] Variable volumes not controllable

TEMPO slider not controllable

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Defective TEMPOslider	SLDB Assy, PNLB Assy	Check the waveform of signals on the signal line (ADCT, ADIN).	If the voltage on the signal line (ADIN) fluctuates within the range of 0–3.3 V, with 1.65 V at the center, go to Step 2. If it does not, the TEMPO slider (VR8701) is defective. Replace it.	————
2	Defective PANEL CPU	PNLB Assy	If the symptom persists after the above corrections.	Check the connection of the PANEL CPU (IC8001). If the connection is OK, the port may be damaged. Replace it.	————

TOUCH/RELEASE control not controllable

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Defective VOL	PNLB Assy	Check the connections of and waveforms of signals on the signal line (TCH/RELS).	If the voltage on the signal line (TCH/BRK and RELS/ST) fluctuates within the range of 0–3.3 V, go to Step 2. If it does not, the TOUCH/RELEASE (VR8001/VR8002) are loosely connected or defective. Connect them properly or replace them.	————
2	Defective PANEL CPU	PNLB Assy	If the symptom persists after the above corrections.	Check the connection of the PANEL CPU (IC8001). If the connection is OK, the port may be damaged. Replace it.	————

[3-3] The Rotary encoder does not work.

No response when the Rotary selector is operated

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Loose connections in the signal line or defective SW	LCDB Assy, PNLB Assy	Check the connections of the signal lines for ENC_SW, ENC1, and ENC2. When the SW is pressed, the ENC_SW signal must become L, and when it is turned, the waveforms of the signal lines for ENC1 and ENC2 must change.	The PANEL CPU (IC8001) and SW may be loosely connected or they may be defective. Reconnect them securely. If the symptom persists, replace them.	————
2	Defective PANEL CPU	PNLB Assy	If the symptom persists after the above corrections.	Check the connection of the PANEL CPU (IC8001). If the connection is OK, the port may be damaged. Replace it.	————

[3-4] Abnormalities regarding the Jog dial

Turning of the Jog dial is not detected

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Defective photo interrupter or PANEL CPU	JOGB Assy, JFLB Assy, PNLB Assy	Check the waveforms of the signal lines (JOG1/JOG2).	If no waveform can be confirmed, the photo interrupter (PC9301) may be defective. Replace it. If a waveform can be confirmed, the signal line may be loosely connected or the PANEL CPU (IC8001) may be defective. Reconnect the signal line. If the symptom persists, replace it.	10.27 WAVEFORMS ⑩⑪
2	Defective Encoder plate	JOG section	Check if the Encoder plate has come off Gear/A or is dirty.	If it has come off, adhere it at its original position. If it is dirty, replace it with a new one.	————

Pressing on the Jog dial cannot be detected.

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Defective Sheet SW or PANEL CPU	JOGB Assy, JFLB Assy, PNLB Assy	Check the waveform of the signal on the signal line (JOG_SW) when the Jog dial is pressed.	If the signal on the signal line (JOG_SW) is not set to L when the Jog dial is pressed, the Sheet SW may be defective. Replace it. If the signal line is set to L, the signal line may be loosely connected or the PANEL CPU (IC8001) may be defective. Reconnect the signal line. If the symptom persists, replace it.	————
2	Defective SW ring and Holder	JOG section	Check if there is any foreign object between the SW ring and Holder.	Remove any foreign object, if present.	————
			Check if the cushions that are adhered to the Holder and SW ring have worn out.	Replace the SW cushion with a new one.	————

Noise is heard when the Jog dial is turned.

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Defective JFLB Assy or gears	JOG section	Check if the Jog FL of the JFLB Assy has been shifted upward from the holder.	The Jog FL may interfere with Jog Dial A Assy. Replace the JFLB Assy.	————
			There may be any scratches on the 3 gears or some foreign object between the gears.	If there are any scratches, replace the scratched gear with a new one. If there is any foreign object, remove it then replace the gears with new ones. After that, check that the Jog adjustment value is within the reference range, referring to "8.4 JOG DIAL ROTATION LOAD ADJUSTMENT."	————

The Jog dial turns too freely. (The load value for the Jog dial is outside the specified range.)

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Improper adjustment or assembly of the Jog dial	JOG section	Check that the load value for the Jog dial is within the specified range, referring to "Measuring method" in "8.4 JOG DIAL ROTATION LOAD ADJUSTMENT."	If it is outside the specified range, adjust the position of the Adjust plate to change the load value for the Jog dial, referring to "How to Adjust" in "8.4 JOG DIAL ROTATION LOAD ADJUSTMENT."	————
				During the above adjustment, if the upper-limit adjustment position of the Adjust plate is reached, oil mayhave been spattered on the Adjust Plate. Replace the washer, gear, and smoother with new ones, then reassemble. After replacement, adjust the position of the Adjust Plate to change the load value for the Jog dial.	————

Resistance to turning the Jog dial is too strong. (The load value for the Jog dial is outside the specified range.)

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Improper adjustment of the Jog dial or defective washer, gear, or cam plate	JOG section	Check that the load value for the Jog dial is within the specified range, referring to "Measuring method" in "8.4 JOG DIAL ROTATION LOAD ADJUSTMENT."	If it is outside the specified range, adjust the position of the Adjust plate to change the load value for the Jog dial, referring to "How to Adjust" in "8.4 JOG DIAL ROTATION LOAD ADJUSTMENT."	————
				During the above adjustment, if the lower-limit adjustment position of the Adjust plate is reached, shavings from the worn-out washer may have increased the friction. Replace the washer, gear, and smoother with new ones, then reassemble. After replacement, adjust the position of the Adjust plate to change the load value for the Jog dial.	————

[3-5] The touch panel is inoperable

The touch panel is unresponsive to operations.

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Poor calibration	————	Check if position gap is a cause of unresponsiveness of the keys on the touch panel.	Perform calibration.	————
2	Loose connections	LCDB Assy	Check that the FFC from the touch panel is securely connected to CN4401.	Fully insert the FFC from the touch panel at a right angle to CN4401 then securely lock it.	————
3	Defective PANEL CPU	PNLB Assy	Check the touch panel input signal (Pins 84 and 85 of IC8001) at the PANEL CPU (IC8001).	If the waveform is abnormal, go to 4. If the waveform is OK, the PANEL CPU (IC8001) may be in failure. Replace it.	————
4	Defective Touch panel	LCDB Assy	Check the touch panel control signal (Pins 1–4 of CN4401).	Check operations of the circuits between IC8001 and CN4401 to identify the part in failure, then repair or replace the part in question. If there is no problem with those circuits, the touch panel itself is in failure. Replace it.	10.27 WAVEFORMS ⑫⑬⑭⑮ Note: The reference waveforms are those to be indicated when the center of the screen or its periphery is touched.

[4] USB (Type A/Type B), SD card

[4-1] No communication via the USB connector (Type A)

Check the following, with a USB device connected to the USB A connector.

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Loose connections in the communication line.	Between USBB Assy and MAIN Assy	Check the connection of the USB communication line.	If connection is improper, resolder it. If connection is proper, go to 2.	————
2	V+5_USB is defective.	MAIN Assy	Check V+5_USB of the USB power supply.	If V+5_USB can be confirmed, go to 5. If V+5_USB cannot be confirmed and V+5_USB_D can be confirmed, go to 3. If V+5_USB_D cannot be confirmed, go to 4.	————

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
3	The USB POWER SW IC or its control signal is defective.	MAIN Assy	Check the CPU_USB_HSTPWREN and HSSW_PWRFL signals from the USB POWER SW IC (IC607).	If the CPU_USB_HSTPWREN signal does not become H, check the connection. If the connection is OK, then the MAIN CPU (IC10) is defective. Replace the MAIN CPU (IC10). If the HSSW_PWRFL signal does not become H, the USB POWER SW IC (IC607) is in a state of shutdown caused by abnormally high temperature. Check the connection. If the connection is OK, then the port may be damaged. Replace it.	————
4	Defective DC/DC converter for V+5_USB or peripheral circuit	MAIN Assy	Check the DC/DC converter for V+5_USB (IC606) or check the peripheral circuit.	Analyze DC/DC converter for V+5USB (IC606) and peripheral circuit. Identify a defectiveness element and replace it.	————
5	Defective USB_CLK signal	MAIN Assy	Check the USB_CLK (= 48.000 MHz) signal.	The X1 may be loosely connected with its peripheral devices or a part may be defective. Correct loose connection. If the symptom persists, replace the defective part.	10.27 WAVEFORMS ②
6	Defective MAIN CPU	MAIN Assy	If the symptom persists after the above corrections.	The MAIN CPU (IC10) is defective. Replace the MAIN CPU (IC10).	————

[4-2] No communication via the USB connector (Type B)

Check the following, with a USB device connected to the USB B connector.

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Loose connections in the communi-cation line.	MAIN Assy	Check the USB communication line.	The communication line may be loosely connected. Correct it if it is. If connection is proper, go to 2.	————
2	Defective CPU_VBUS0 signal	MAIN Assy	Check the VBUS_DET_DIRECT signal.	If the VBUS_DET_DIRECT signal cannot be found, something is wrong in the line from the USB-B connector (JA5102) to IC603. Identify the defective site and correct it. If the VBUS_DET_DIRECT signal is found, go to 3.	————
3	Loose connections in the USB signal.	MAIN Assy	Check the connections of the communication line (USB_D+, USB_D-).	The communication line may be loosely connected. Correct it if it is. If connection is proper, go to 4.	————
4	Defective USB_CLK signal	MAIN Assy	Check the USB_CLK (= 48.000 MHz) signal.	The X1 may be loosely connected with its peripheral devices or a part may be defective. Correct loose connection. If the symptom persists, replace the defective part.	10.27 WAVEFORMS ②
5	Defective MAIN CPU	MAIN Assy	If the symptom persists after the above corrections.	The MAIN CPU (IC10) is defective. Replace the MAIN CPU (IC10).	————

[4-3] The SD card cannot be recognized.

Check the following, with an SD card inserted in the SD card slot.

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Loose connections in the communi-cation line.	MAIN Assy, SDCB Assy	Check the connection of the SD serial communication line.	The communication line may be loosely connected. Correct it if it is.	10.27 WAVEFORMS ⑤
2	Defective MAIN CPU	MAIN Assy	If the symptom persists after the above corrections.	The MAIN CPU (IC10) is defective. Replace the MAIN CPU (IC10).	————

[5] LAN

[5-1] No LAN communication

Check the following, with a peripheral device connected to the LINK terminal.

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Loose connections in the communi-cation line.	MAIN Assy	Check the connection of the periphery circuit of LAN-HUB & PHY (IC604).	The communication line may be loosely connected. Correct it if it is.	————
2	Defective LAN-HUB & PHY or MAIN CPU	MAIN Assy	If the symptom persists after the above corrections.	The LAN-HUB & PHY (IC604) may be defective. Replace it. If the symptom persists, the MAIN CPU (IC10) may be defective. Replace the MAIN CPU (IC10).	————

[6] AUDIO OUT

The analog audio signal is not output.

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Power is not supplied properly.	MAIN Assy	Check the power voltages (V+AUDIO (= 9 V), V-AUDIO (= -9 V), V+3R3DAC_A/D, V+5DAC_L/R)) for audio.	Each power-supply may be loosely connected or may be defective. Correct loose connection. If the symptom persists, replace the defective part.	————
2	Defective MUTE signal	MAIN Assy	Check the MUTE signal (Q953 collector). While you usually playback, MUTE is canceled, and consist with around -12 V.	The connection, or transistor may be defective. Correct loose connection. If the symptom persists, replace the defective part.	————
3	Loose connections in the signal line.	MAIN Assy, JKSW Assy	Check the connection of the audio signal lines (ROUT, LOUT).	The signal line may be loosely connected. Correct it if it is.	————
4	Defective DAC_MCLK signal	MAIN Assy	Check the DAC_MCLK (IC801 pin 46 = 22.5792 MHz) signal.	The X1202, X1203 or logic IC (IC1204) may be loosely connected with its peripheral devices or a part may be defective. Correct loose connection. If the symptom persists, replace the defective part.	10.27 WAVEFORMS ③
5	DAC or DSP is defective.	MAIN Assy	Check the digital inputs (IC801 pin 3, 4, 5) on DAC (IC801) and analog outputs (IC801 pin 25, 26, 35, 36).	If the analog signal is not output although the digital signal is input, DAC (IC801) or one of its peripheral parts may be defective. If the digital signal is not input, DSP (IC301) or FPGA (IC1201) or one of its peripheral parts may be defective. Correct loose connection. If the symptom persists, replace the defective part.	————

The digital audio signal is not output.

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Loose connections in the signal line.	MAIN Assy	Check the connection of the digital audio signal (SPDIF). The digital audio signal from IC1201-pin N6 through IC1202, IC901 and T901 is output by JA901.	Each signal line may be loosely connected or may be defective. Correct loose connection. If the symptom persists, replace the defective part.	————

[7] ATAPI DRIVE

No disc playback (Although loading and disc rotation can be performed properly, no track data are output.)

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Improper RESET signal	SRVB Assy, MAIN Assy	Check the ATA_RESET signal (CN7005).	Communication will not start while the ATA_RESET signal is L. Check the connection between the MAIN CPU (IC10) and SODC (IC7006). If the connection is not properly made, correct it. If no problem is found, see "[8] DRIVE ASSY." If the signal does not become H after those corrections, go to Step 2.	————
2	Loose connections in the communi-cation line.	SRVB Assy, MAIN Assy	Check the connection of the ATAPI lines.	Check the connection between the MAIN CPU (IC10) and SODC (IC7006). If no problem is found, see "[8] DRIVE ASSY." If the symptom persists after those corrections, go to Step 3.	————
3	Defective MAIN CPU	MAIN Assy	Check the periphery circuit of the MAIN CPU (IC10).	Check the periphery of the MAIN CPU (IC10). If no problem is found, the MAIN CPU (IC10) may be defective. Replace the MAIN CPU (IC10).	————

[8] DRIVE ASSY

When it is thought abnormally, the drive section execute drive self-diagnose beforehand.

[8-1] Improper operation of the loading mechanism

No loading

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Missing or defective part	Loading mecha	Check that there is no part missing or defective.	If there is, install the missing part or replace the defective part.	————
2	Loose connections in the signal line.	Loading mecha	Check that the LP switch has been mounted.	If soldering is improper, resolder it.	————
3	Improper assembling	Loading mecha	Check that the lever is engaged with the LP switch.	Engage the lever with the LP switch.	————
4	Improper soldering	Loading mecha	Check that the wires from the loading motor have been properly soldered.	If they are not soldered, solder them.	————
5	Power supply error	SRVB Assy	Check the power voltages (12 V, 5 V, 3.3 V, and 1.5 V).	Check the connection of the parts at the periphery of the power-supply IC that does not output the voltage. If the symptom persists after a corrective action, the power supply block is defective. Replace it.	————
6	LPS1 and LPS2 signal errors	SRVB Assy	Check the waveforms of the LPS1 and LPS2 signal lines. (The LPS1 and LPS2 signals becomes L when the SW is set to ON.)	The loading detection SWs (S9001 and S9002) may be improperly soldered or defective. Resolder them, if necessary. If the symptom persists, replace them.	5.4 OPERATIONAL WAVEFORMS 2

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
7	MUTE1 and MUTE2 signal errors	SRVB Assy	Check the waveforms of the MUTE1 and MUTE2 signals. (During loading, the MUTE1 signal is L and the MUTE2 signal is H.)	DRIVER IC (IC7001) and SODC (IC7006) may be improperly soldered or defective. Resolder them, if necessary. If the symptom persists, replace SODC (IC7006).	————
8	LOAD signal error	SRVB Assy	Check the LOAD signal.	DRIVER IC (IC7001) and SODC (IC7006) may be improperly soldered or defective. Resolder them, if necessary. If the symptom persists, replace SODC (IC7006).	5.4 OPERATIONAL WAVEFORMS [2]
9	Defective SRVB Assy	————	If the symptom persists after the above corrections.	Replace the SRVB Assy.	————

[8-2] The stepper does not work.

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	The main unit is positioned inclined.	Main unit	Check if the main unit is positioned inclined.	Place it on a level surface.	————
2	Improper assembling	Traverse mecha	Check if there is a missing or defective part at the section where the main axis and stepper contact.	If there is, install the missing part or replace the defective part.	————
3	Improper assembling	Traverse mecha	Check the inside switch.	Assemble the INSW Assy properly.	————
4	Power supply error	SRVB Assy	Check the power voltages (12 V, 5 V, 3.3 V, 1.5 V, VREF1, VREF2 and VHALF).	Check the connection of the parts at the periphery of the power-supply IC that does not output the voltage. If the symptom persists after a corrective action, the power supply block is defective. Replace it.	————
5	INSW signal error	SRVB Assy	Check the INSW signal. (The INSW becomes L when the INSW is set to ON.)	The FFC cables that connect the traverse mechanism, SPCN, and SRVB are loosely connected, or the INSW is defective. Reconnect them securely. If the symptom persists, replace the INSW.	————
6	MUTE1 signal error	SRVB Assy	Check that the MUTE1 signal becomes H after loading is completed.	DRIVER IC (IC7001) and SODC (IC7006) may be improperly soldered or defective. Resolder them, if necessary. If the symptom persists, replace SODC (IC7006).	————
7	Improper assembling	Cables	Check that the FPC cable that connects the traverse mecha and the SRVB Assy is securely connected.	If it does not, securely connect it. If it is broken, replace the traverse mecha.	————
8	Signal error	SRVB Assy	Check that a sine-wave signal is input to Pins 29 and 30 of DRIVER IC (IC7001).	The DRIVER IC (IC7001) may be loosely connected or defective. Resolder them, if necessary. If the symptom persists,replace SODC (IC7006).	5.4 OPERATIONAL WAVEFORMS [5] [7] [8]
9	Defective traverse mecha	————	If the symptom persists after the above corrections.	Replace the parts in the order of (1) DRIVER IC (IC7001), (2) SRVB Assy, then (3) traverse mecha.	————

[8-3] No playback

Neither a CD nor a DVD can be played back.

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Short-circuit pad	Traverse mecha	Check if the LD short-circuit pad is short-circuited.	If it is, open it.	————
2	LD current	SRVB Assy	Check that the LD current is within the specified range.	If there is any error, replace the traverse mecha.	5.2 FAILURE JUDGEMENT OF THE PICKUP ASSY
3	Power supply error	SRVB Assy	Check the power voltages (12 V, 5 V, 3.3 V, 1.5 V, VREF1, VREF2 and VHALF).	Check the connection of the parts at the periphery of the power-supply IC that does not output the voltage. If the symptom persists after a corrective action, the power supply block is defective. Replace it.	————
4	INSW signal error	SRVB Assy	Check the INSW signal. (L at ON.)	If the signal waveform is not proper, replace the INSW Assy.	————
5	MUTE1 signal error	SRVB Assy	Check that the MUTE1 signal becomes H after loading is completed.	DRIVER IC (IC7001) and SODC (IC7006) may be improperly soldered or defective. Resolder them, if necessary. If the symptom persists, replace SODC (IC7006).	————
6	Improper assembling	Traverse mecha	Check if the objective lens is dirty.	Clean the lens.	————
7	A–F signal error	SRVB Assy	Check the A–F signals (CN7001).	Check that the signals fluctuate with 2.2 V at the center. If a DC signal is not output, check the VREF1. If a DC signal is not output from it, replace the FEP (IC7002). If an AC signal is not output, check the soldering at the CN7001–IC7002 of the pickup. If soldering is improper, resolder it. If soldering is OK, replace the parts in the order of (1) FEP (IC7002), (2) DRIVER IC (IC7001), (3) SODC (IC7006), (4) SRVB Assy, then (5) traverse mecha.	————

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
8	RF signal error	SRVB Assy	Check the RF signal (CN7001).	Compare the waveform with the operational waveform to check if its quality is low. Check if the disc is dirty or scratched. Check the polarity of the 7/x6 signal. When it is normal, Check the connections between pickup and CN7001 and FEP (IC7002). If soldering is improper, resolder it. If soldering is OK, replace the parts in the order of (1) FEP (IC7002), (2) DRIVER IC (IC7001), (3) SODC (IC7006), (4) SRVB Assy, then (5) traverse mecha.	5.4 OPERATIONAL WAVEFORMS 1
9	————	————	If the symptom persists after the above corrections.	Replace the parts in the order of (1) DRIVER IC (IC7001), (2) FEP (IC7002), (3) SODC (IC7006), (4) SRVB Assy, then (5) traverse mecha.	————

Only a CD cannot be played back

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	LD current	SRVB Assy	Check that the LD current is within the specified range.	If there is any error, replace the traverse mecha.	5.2 FAILURE JUDGEMENT OF THE PICKUP ASSY
2	7/x6 signal error	————	Check that the 7/x6 signal is H during CD playback.	Check the connections between SODC (IC7006) and CN7001. If soldering is improper, resolder it.	————
3	E,F signal error	SRVB Assy	Check the E, F signals (CN7001).	Check that the signals fluctuate with 2.2 V at the center. If a DC signal is not output, check the VREF1. If a DC signal is not output from it, replace the FEP (IC7002). If an AC signal is not output, check the soldering at the CN7001–IC7002 of the pickup. If soldering is improper, resolder it. If soldering is OK, replace the parts in the order of (1) FEP (IC7002), (2) DRIVER IC (IC7001), (3) SODC (IC7006), (4) SRVB Assy, then (5) traverse mecha.	————
4	RF signal error	SRVB Assy	Check the RF signal (CN7001).	Compare the waveform with the operational waveform to check if its quality is low. Check if the disc is dirty or scratched. Check the polarity of the 7/x6 signal. When it is normal, Check the connections between pickup and CN7001 and IC7002. If soldering is improper, resolder it. If soldering is OK, replace the parts in the order of (1) FEP (IC7002), (2) DRIVER IC (IC7001), (3) SODC (IC7006), (4) SRVB Assy, then (5) traverse mecha.	5.4 OPERATIONAL WAVEFORMS 1

Only a DVD cannot be played back

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	LD current	SRVB Assy	Check that the LD current is within the specified range.	If there is any error, replace the traverse mecha.	5.2 FAILURE JUDGEMENT OF THE PICKUP ASSY
2	7/x6 signal error	————	Check that the 7/x6 signal is L during DVD playback.	Check the connections between SODC (IC7006) and CN7001. If soldering is improper, resolder it.	————
3	RF signal error	SRVB Assy	Check the RF signal (CN7001).	Compare the waveform with the operational waveform to check if its quality is low. Check if the disc is dirty or scratched. Check the polarity of the 7/x6 signal. When it is normal, Check the connections between pickup and CN7001 and IC7002. If soldering is improper, resolder it. If soldering is OK, replace the parts in the order of (1) FEP (IC7002), (2) DRIVER IC (IC7001), (3) SODC (IC7006), (4) SRVB Assy, then (5) traverse mecha.	5.4 OPERATIONAL WAVEFORMS 1

[9] EUP Mode

Shifting to EUP mode is not possible.

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	The AUTO STANDBY setting is set to OFF.	————	Check that the AUTO STANDBY setting in the UTILITY settings is set to ON.	Shifting to EUP mode is not possible when the setting is OFF. Change the setting, as required.	————
2	Defective PANEL CPU	PNLB Assy	Check that the signal from pin 18 of the PANEL CPU (IC8001) changes from H to L during mode shift.	The PANEL CPU (IC8001) may be defective. Check the soldering of the PANEL CPU (IC8001) and its periphery. If the soldering is OK, then replace it.	————
3	Disconnection, breakage, or loose connection of cables	SW POWER SUPPLY Assy	Check the standby signal (CN2 pin 10) changes from L to H during mode shift.	The signal line cable may be defective. If it is loosely connected, securely connect it. If it is broken, replace it.	————
4	Defective SW POWER SUPPLY Assy	————	————	When there is not a problem with Step 3, the SW POWER SUPPLY Assy is defective. Replace it.	————

EUP mode cannot be exited.

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Defective key or loose connection of the signal line	PNLB Assy its periphery	Check the connection of the nonresponding key.	Check the connection of the signal line for the nonresponding key. If the connection is proper, replace the connected SW.	————
2	Defective PANEL CPU	PNLB Assy	Check that the signal from pin 18 of the PANEL CPU (IC8001) changes from H to L during mode shift.	The PANEL CPU (IC8001) may be defective. Check the soldering of the PANEL CPU (IC8001) and its periphery. If the soldering is OK, then replace it.	————
3	Disconnection, breakage, or loose connection of cables	SW POWER SUPPLY Assy	Check the standby signal (CN2 pin 10) changes from H to L during mode shift.	The signal line cable may be defective. If it is loosely connected, securely connect it. If it is broken, replace it.	————
4	Defective SW POWER SUPPLY Assy	————	————	When there is not a problem with Step 3, the SW POWER SUPPLY Assy is defective. Replace it.	————

Reference: Signal logic during EUP mode

	Normal mode	EUP mode
standby (CN2 pin 10)	L	H or open
PANEL CPU (IC8001) pin 18	H	L

[10] SERVICE MODE

The drive does not work during Test Operation mode.

The LD does not emit light.

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Short-circuit pad	Traverse mecha	Check if the LD short-circuit pad is short-circuited.	If it is, open it.	————
2	LD current	SRVB Assy	Check that the LD current is within the specified range.	If there is any error, replace the traverse mecha.	5.2 FAILURE JUDGEMENT OF THE PICKUP ASSY

The spindle motor does not rotate.

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Missing or defective part	Loading mecha	Check that there is no part missing or defective.	If there is, install the missing part or replace the defective part.	————
2	Power supply error	SRVB Assy	Check the power voltages (12 V, 5 V, 3.3 V, 1.5 V, VREF1, VREF2 and VHALF).	Check the connection of the parts at the periphery of the power-supply IC that does not output the voltage. If the symptom persists after a corrective action, the power supply block is defective. Replace it.	————
3	MUTE1 signal error	SRVB Assy	Check that the MUTE1 signal becomes H after loading is completed.	DRIVER IC (IC7001) and SODC (IC7006) may be improperly soldered or defective. Resolder them, if necessary. If the symptom persists, replace SODC (IC7006).	————
4	SPDLEC signal error	SRVB Assy	Check that the SPDLEC signal is a PWM signal with 1.65 V at the center.	DRIVER IC (IC7001) and SODC (IC7006) may be improperly soldered or defective. Resolder them, if necessary. If the symptom persists, replace SODC (IC7006).	5.4 OPERATIONAL WAVEFORMS 4 9
5	SPIN1 signal error	SRVB Assy	Check that the SPIN1 signal to Pin 29 of IC7002 is 3.3 V when disc rotation is at full speed.	If the signal is not input, check the soldering. If the soldering is improper, resolder it.	5.4 OPERATIONAL WAVEFORMS 4
6	————	————	If the symptom persists after the above corrections.	Replace the parts in the order of (1) DRIVER IC (IC7001), (2) SODC (IC7006), (3) SRVB Assy, then (4) traverse mecha.	————

In-focus not possible

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Short-circuit pad	Traverse mecha	Check if the LD short-circuit pad is short-circuited.	If it is, open it.	————
2	LD current	SRVB Assy	Check that the LD current is within the specified range.	If there is any error, replace the traverse mecha.	5.2 FAILURE JUDGEMENT OF THE PICKUP ASSY
3	Power supply error	SRVB Assy	Check the power voltages (12 V, 5 V, 3.3 V, 1.5 V, VREF1, VREF2 and VHALF).	Check the connection of the parts at the periphery of the power-supply IC that does not output the voltage. If the symptom persists after a corrective action, the power supply block is defective. Replace it.	————

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
4	MUTE1 signal error	SRVB Assy	Check that the MUTE1 signal becomes H after loading is completed.	DRIVER IC (IC7001) and SODC (IC7006) may be improperly soldered or defective. Resolder them, if necessary. If the symptom persists, replace SODC (IC7006).	————
5	SPDLEC signal error	SRVB Assy	Check the SPDLFG signal.	SPDLFG signal may be improperly solded and SODC (IC7006) may be defective. Resolder them, if necessary. If the symptom persists, replace SODC (IC7006). If the symptom persists, replace DRIVER IC (IC7001).	5.4 OPERATIONAL WAVEFORMS 4 9
6	FEDRV signal error	SRVB Assy	Check that the FEDRV signal fluctuates with 1.65 V at the center.	FEDRV signal may be improperly solded and SODC (IC7006) may be defective. Resolder them, if necessary. If the symptom persists, replace SODC (IC7006). If the symptom persists, replace FEP (IC7002).	5.4 OPERATIONAL WAVEFORMS 3 4 9
7	FE signal error	SRVB Assy	Check that an S-shaped signal is output when a waveform of the FE (FEDRV) signal is rising after it drops down from 1.65 V.	FE signal may be improperly solded and SODC (IC7006) may be defective. Resolder them, if necessary. If the symptom persists, replace SODC (IC7006). If the symptom persists, replace FEP (IC7002).	5.4 OPERATIONAL WAVEFORMS 3 4 5 9
8	————	————	If the symptom persists after the above corrections.	Replace the parts in the order of (1) FEP (IC7002), (2) SODC (IC7006), (3) DRIVER IC (IC7001), (4) SRVB Assy, then (5) traverse mecha.	————

No tracking close

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	————	Traverse mecha	Check that focusing is in. (If focusing is out, tracking close is not possible.)	See “In-focus not possible” above.	————
2	Signal error	SRVB Assy	With a CD, check that the E and F signals fluctuate with 2.2 V at the center. With a DVD, check the A, B, C, and D signals.	Check that the signals fluctuate with 2.2 V at the center. If a DC signal is not output, check the VREF1. If a DC signal is not output from it, replace the FEP (IC7002). If an AC signal is not output, check the soldering at the CN7001–IC7002 of the pickup. If soldering is improper, resolder it. If soldering is OK, replace the traverse mecha.	5.4 OPERATIONAL WAVEFORMS
3	TE signal error	SRVB Assy	Check that the TE signal fluctuates with 1.65 V at the center.	Check the connection of the parts at the periphery of the FEP (IC7002). If soldering is improper, resolder it. If soldering is OK, replace the FEP (IC7002).	5.4 OPERATIONAL WAVEFORMS 4 5 6 7 8
4	TEDRV signal error	SRVB Assy	Check that the TEDRV signal fluctuates with 1.65 V at the center, and that a pulselike signal is output during tracking close.	If the output signal waveform is not proper, the connection of the SODC (IC7006) and its periphery may be loose or the parts may be defective. If the connection is loose, reconnect securely. If the connection is OK, replace the SODC (IC7006).	5.4 OPERATIONAL WAVEFORMS 6 7 8
5	————	————	If the symptom persists after the above corrections.	Replace the parts in the order of (1) FEP (IC7002), (2) SODC (IC7006), (3) DRIVER IC (IC7001), (4) SRVB Assy, then (5) traverse mecha.	————

[11] Error Codes

How to respond when an error code is displayed on the CONTROLLER DISPLAY (LCD) is described below.

[11-1] E-7001: DISC DRIVE ERROR

The ATAPI drive does not work properly.

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	————	Traverse mecha	Enter Service mode, "[3] Various displayed information"_ In ③ "Auto device diagnosis", Check whether be indicated with "DRIVE OK ".	If it is judged as NG, the ATAPI drive does not work properly. If the track data are not output although loading and rotating are properly performed, see "[7] ATAPI DRIVE." In other cases, see "[8] DRIVE ASSY."	————

[11-2] E-7010: DSP DEVICE ERROR

The DSP (IC301) does not work properly. Downloading of programs is not possible.

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	————	————	————	If it is judged as NG, the DSP (IC301) or DDR3 (IC501, IC502) does not work properly or communication between the MAIN CPU (IC10) and DSP is not established. Proceed as follows:	————
2	Power is not supplied properly.	MAIN Assy	Check the power voltages (V+1R8DSP, V+1R5DDR3, V+1DSP, V+1DSP_SMART).	The DSP (IC301) requires four power supply systems. Check the connections of the power supply lines. The power supply lines may be loosely connected. Correct it if it is.	————
3	The clock is not properly input.	MAIN Assy	Check that the frequency at DSP_CORECLKP (IC301-pin AD18), DSP_CORECLKN (IC301-pin AE19), DSP_DDRCLKP (IC301-pin A22), DSP_DDRCLKN (IC301-pin B22) are approx. 66.6 MHz.	Check the connection of the X1201, IC1214 and IC1201. The signal line may be loosely connected. Correct it if it is.	————
4	The RESET signal is not properly input.	MAIN Assy	Check that the signals of the DSP_RST line are H.	If the signal of the CPU_DSP_RST line is L, the port of MAIN CPU (IC10) may be damaged. If the signal of the DSP_RST line is L, check the connection of the logic IC (IC8) and its periphery.	————
5	Loose connection between the MAIN CPU and DSP	MAIN Assy	Check the connection between the MAIN CPU (IC10), FPGA (IC1201) and DSP (IC301).	Check the connections between MAIN CPU (IC10), FPGA (IC1201) and DSP (IC301). The signal line may be loosely connected. Correct it if it is.	————
6	Loose connection between the MAIN DSP and SDRAM	MAIN Assy	Check the connection between the DSP (IC301) and SDRAM (IC501, IC502).	Check the connections between DSP (IC301) and DDR3 (IC501, IC502). The signal line may be loosely connected. Correct it if it is.	————
7	————	————	If the symptom persists after the above corrections.	Replace the MAIN CPU (IC10).	————

[11-3] E-7021: PHY CHIP ERROR

The LAN-HUB & PHY (IC604) does not work properly.

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	————	————	————	LAN-HUB & PHY (IC604) has a function as PHY CHIP. If it is judged as NG, the LAN-HUB & PHY (IC604) does not work properly or communication between the MAIN CPU (IC10) and LAN-HUB & PHY is not established. Proceed as follows:	————
2	Power is not supplied properly.	MAIN Assy	Check the power voltages of V+3R3_LAN_HUB line.	Check the connections of the power supply lines. The power line may be loosely connected. Correct it if it is.	————
3	The clock is not properly input.	MAIN Assy	Check that the frequency at RMII_REF_CLK (IC604-pin 28) of LAN-HUB & PHY (IC604) is 50 MHz.	Check the connections between X604 and LAN-HUB & PHY (IC604). The signal line may be loosely connected. Correct it if it is.	10.27 WAVEFORMS ④
4	The RESET signal is not properly input.	MAIN Assy	Check that the signals of the ETHER_RST line is H.	Check the connection of the ETHER_RST line. The signal line may be loosely connected. Correct it if it is.	————
5	Loose connection between the MAIN CPU and LAN-HUB & PHY	MAIN Assy	Check the connections of communication line between the MAIN CPU (IC10) and LAN-HUB & PHY (IC604).	Check the connections between MAIN CPU (IC10) and LAN-HUB & PHY (IC604). The signal line may be loosely connected. Correct it if it is.	————
6	————	————	If the symptom persists after the above corrections.	Replace the LAN-HUB & PHY (IC604).	————

[11-4] E-7023: GUI CPU ERROR

The GUI CPU (IC4604) does not work properly.

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	————	————	————	If it is judged as NG, the GUI CPU (IC4604), FLASH (IC4602) or SDRAM (IC4601, IC4603) does not work properly or communication between the MAIN CPU (IC10) and GUI CPU (IC4604) is not established. Proceed as follows:	————
2	Power is not supplied properly.	LCDB Assy	Check the power voltages of V+3R3_SH2, V+1R2_SH2 lines.	The power supply line may be loosely connected. Correct it if it is.	————
3	Defective SH2_RES signal	LCDB Assy	Check the SH2_RES (IC4604 pin 88) signal.	If the SH2_RES is "L" although the V+3R3_SH2 is normal, the Q4601 is defective or the relevant connection is poor. Correct connection or replace the defective part with a new one.	————
4	Defective CKIO signal	LCDB Assy	Check the CKIO (IC4604-pin 61 = about 66MHz) signal.	If the CKIO dosn't work although the V+3R3_SH2 and V+1R2_SH2 are normal, the GUI CPU (IC4604) or X4602 is defective or the relevant connection is poor. Correct connection or replace the defective part with a new one.	10.27 WAVEFORMS ⑥
5	Loose connection between the GUI CPU and FLASH	LCDB Assy	Check the connections of communication line between the GUI CPU (IC4604) and FLASH (IC4602).	Check the connections between GUI CPU (IC4604) and FLASH (IC4602). The signal line may be loosely connected. Correct it if it is.	————
6	Loose connection between the GUI CPU and SDRAM	LCDB Assy	Check the connections of communication line between the GUI CPU (IC4604) and SDRAM (IC4601, IC4603).	Check the connections between GUI CPU (IC4604) and SDRAM (IC4601, IC4603). The signal line may be loosely connected. Correct it if it is.	————
7	————	————	If the symptom persists after the above corrections.	Replace the GUI CPU (IC4604).	————

[11-5] E-7026: AUTH CHIP ERROR

The Apple AUTHENTICATION CHIP (IC14) does not work properly.

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Loose connection between the MAIN CPU and AUTHENTICATION CHIP	MAIN Assy	Check the connections of communication line between the MAIN CPU (IC10) and AUTHENTICATION CHIP (IC14).	Check the connections between MAIN CPU (IC10) and AUTHENTICATION CHIP (IC14). The signal line may be loosely connected. Correct it if it is.	————
2	————	————	If the symptom persists after the above corrections.	Replace the MAIN Assy.	————

[11-6] E-8709: COMMUNICATION ERROR

Communication between the GUI CPU (IC4604) and MAIN CPU (IC10) is not possible.

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	————	————	————	If it is judged as NG, the MAIN CPU (IC10) or DDR2 (IC1, IC2) does not work properly or communication between the MAIN CPU (IC10) and GUI CPU (IC4604) is not established. Proceed as follows:	————
2	Power is not supplied properly.	MAIN Assy	Check the power voltages of V+3R3_CPU, V+1R8_CPU and V+1R2_CPU lines.	The MAIN CPU (IC10) requires three power supply systems. Check the connections of the power supply lines. If soldering is improper, resolder it.	————
3	Defective CPU_RST signal	MAIN Assy	Check the CPU_RST signal.	If the CPU_RST is "L" although the V+3R3_CPU is normal, the RESET IC (IC11) is defective or the relevant connection is poor. Correct connection or replace the defective part with a new one.	————
4	Defective SYS_CLK signal	MAIN Assy	Check the SYS_CLK (= 33.333333 MHz) signal.	The X2 or Logic IC (IC9) may be loosely connected with its peripheral devices or a part may be defective. Correct loose connection. If the symptom persists, replace the defective part.	10.27 WAVEFORMS ①
5	Loose connection between the MAIN CPU and FLASH	MAIN Assy	Check the connections of communication line between the MAIN CPU (IC10) and FLASH (IC12).	Check the connections between MAIN CPU (IC10) and FLASH (IC12). The signal line may be loosely connected. Correct it if it is.	————

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
6	Loose connection between the MAIN CPU and SDRAM	MAIN Assy	Check the connection between the MAIN CPU (IC10) and SDRAM (IC1, IC2).	Check the connections between MAIN CPU (IC10) and DDR2 (IC1, IC2). The signal line may be loosely connected. Correct it if it is.	————
7	————	————	If the symptom persists after the above corrections.	Replace the MAIN Assy.	————

[11-7] E-8308: SD CARD ACCESS ERROR

Check the following, with an SD card inserted in the SD card slot.

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Loose connections in the communi-cation line.	MAIN Assy, SDCB Assy	Check the connection of the SD serial communication line.	The communication line may be loosely connected. Correct it if it is.	10.27 WAVEFORMS ⑤
2	Defective MAIN CPU	MAIN Assy	If the symptom persists after the above corrections.	The MAIN CPU (IC10) is defective. Replace the MAIN CPU (IC10).	————

[12] Power Monitoring

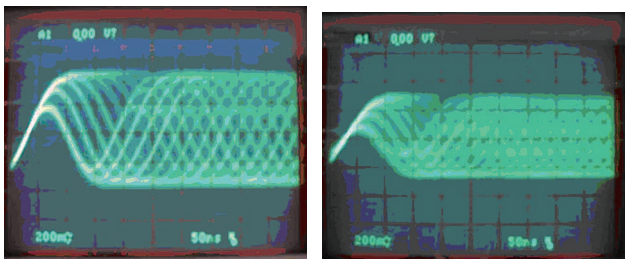
The Standby LED flashes, and the unit does not start up.

No.	Cause	Diagnostics Point	Item to be Checked	Corrective Action	Reference
1	Poor connection of the voltage-monitoring circuit	LCDB Assy	Check the VDET voltage level. If it is L, one or more of the error detection functions was activated.	If the base of Q4201 or Q4202 is H, the excess current detection circuit for V+12_JFL or V+12_LED, respectively, was activated. Check the load circuit. If the anode of D4206, D4205, or D4204 is H, the excess voltage detection circuit was activated.	————

5.4 OPERATIONAL WAVEFORMS

1

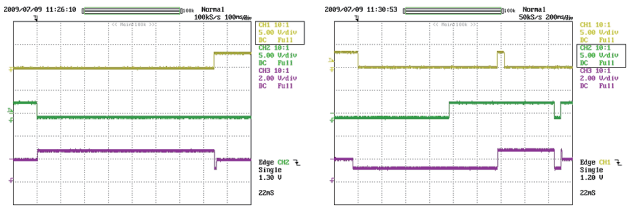
■ RF (CD: STD-905/DVD: Z-1)



2

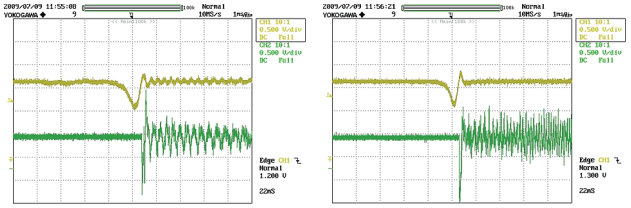
■ Loading in (1-ch LPS1, 2-ch LPS2, 3-ch LOAD)

■ Loading out (1-ch LPS1, 2-ch LPS2, 3-ch LOAD)



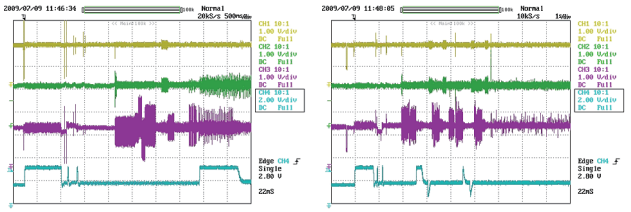
3

■ In-focus (CD/DVD) 1-ch FE, 2-ch FEDRV



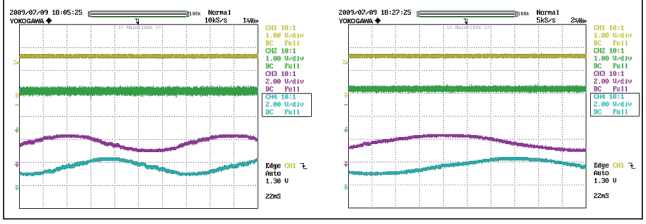
4

■ Setup (CD/DVD) 1-ch FE, 2-ch FEDRV, 3-ch TE, 4-ch SPIN



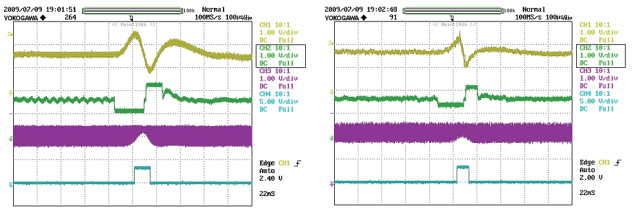
5

■ Playback (CD/DVD) 1-ch FE, 2-ch TE, 3-ch SLIN1, 4-ch SLIN2



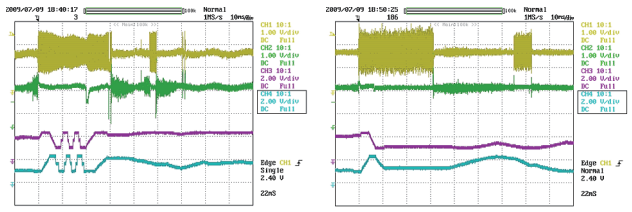
6

■ Pause (CD/DVD) 1-ch TE, 2-ch TEDRV, 3-ch RF, 4-ch OFTR



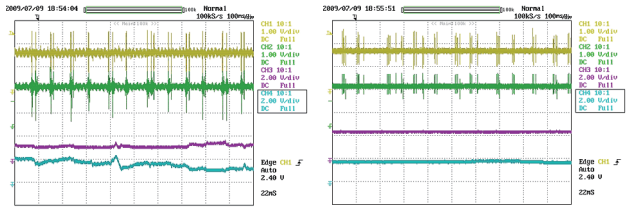
7

■ Track search (CD/DVD) 1-ch TE, 2-ch TEDRV, 3-ch SLIN1, 4-ch SLIN2



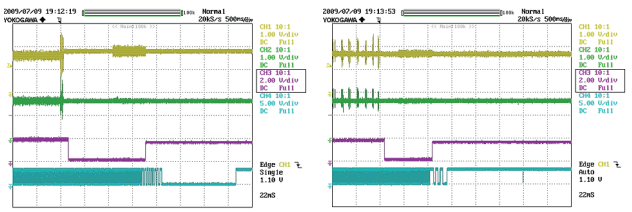
8

■ Search (CD-DA/DVD-MP3) 1-ch TE, 2-ch TEDRV, 3-ch SLIN1, 4-ch SLIN2



9

■ Stop (CD/DVD) 1-ch FE, 2-ch FEDRV, 3-ch SPIN, 4-ch SPDLFG



5.5 CONNECTION CONFIRMATION WITH THE PC

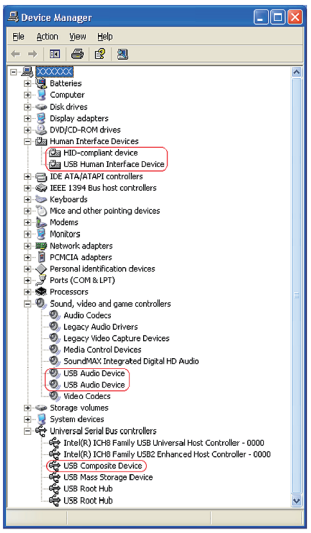
[1. USB B connector]

Whether communication between the PC connected via the USB B connector and this unit is properly performed or not can be confirmed on the PC.
Note: Installation of the driver software is not necessary.

■ Use Device Manager for checking.
If the PC and this unit are properly connected, the components of this unit are added in Device Manager (under Hardware) as devices.
If all components are properly displayed, the PC and this unit are properly communicating via the USB connector.

In a case of Windows 7:
Click on "Start" then right-click on "Computer." Next, select "Properties" then select "Device Manager" on the System screen.
If a User Account Control screen is displayed, click on [Yes].
Devices to be added:
Universal Serial Bus controllers
USB Composite Device
Under “Sound, video and game controllers”
USB Audio Device
Human Interface Devices
HID-compliant device
USB Human Interface Device

A communication check may be easily performed if connection is made with Device Manager displayed on the PC screen.



[2. LINK]

Whether communication between the PC connected via the LINK connector and this unit is properly performed or not can be confirmed on this unit.
Note: Use a Category 5 cable or a cable with higher specifications for connection.
Either a straight or cross LAN cable can be used when the unit is directly connected with the PC, but when the unit is connected with the PC via a hub, be sure to use a straight cable.

■ Use the MENU/UTILITY key of this unit to check linkage.
The linkage between the PC and this unit can be confirmed with LINK STATUS under [MENU/UTILITY].

How to display LINK STATUS
1. Hold the MENU/UTILITY key pressed for at least 1 sec.
   The [UTILITY] screen will be displayed.
2. Select LINK STATUS, using the rotary selector.
3. With LINK STATUS selected, connect the PC and this unit, using the LINK cable.
4. Check the LINK STATUS display.

	① Not connected	② While connection is being made	③ When connected properly
Indication	NOT CONNECT	CONNECTING	CONNECTED

If the indication changes from ① to ② then ③, the link is properly established.
If the cable is disconnected, the indication returns to ①.

5. After checking is completed, press the MENU/UTILITY key.
   The screen displayed before the MENU/UTILITY key was pressed will be restored

6. SERVICE MODE
6.1 SERVICE MODE

OUTLINE OF THE SERVICE MODE

The following service modes are prepared for this unit.

[1] Check mode of the buttons and displays
The mode to check buttons, knobs, sliders and Jog dial and display function.

[2] Check mode of the load of Jog dial
The mode to measure the load when rotating the Jog dial.

[3] Various displayed information
The mode to display information such as version number, error history and abnormality of devices.

[4] List of displayed error
Error codes and the contents are shown.

[5] Drive self-diagnosis
The mode for self-diagnosis of a drive unit.

[6] Contents of drive self-diagnosis
Contents of self-diagnosis of the drive unit.

[7] Check mode of servo of the drive unit
The mode to check operation of mechanism and servo of the drive unit.

[8] Alarm port output
The pulse signal output from the status terminal on the PC board Assy to show abnormality is explained.

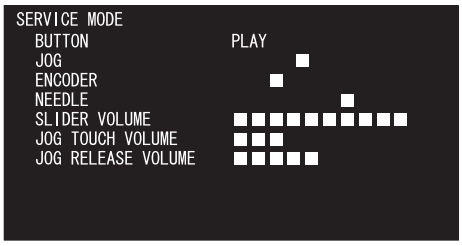
[9] Firmware update.
How to update the firmware is explained.

DETAILS OF THE SERVICE MODE

[1] Check mode of the buttons and displays

When you turn on the power while pressing the both "TEMPO" and "MEMORY" buttons simultaneously, " SERVICE MODE" will be displayed on the LCD to enter service mode. (Please hold all the buttons until "Pioneer LOGO" screen disappears.)
In this mode, you can check whether the buttons, knobs and Jog dial on the unit work normally or not.
Please note that the button name is lit only while the button is pressed.

Caution: When you turn the TOUCH/BRAKE knob to the far right in this mode, "Check mode of the load of Jog dial" will start. (Refer to the following clause.)

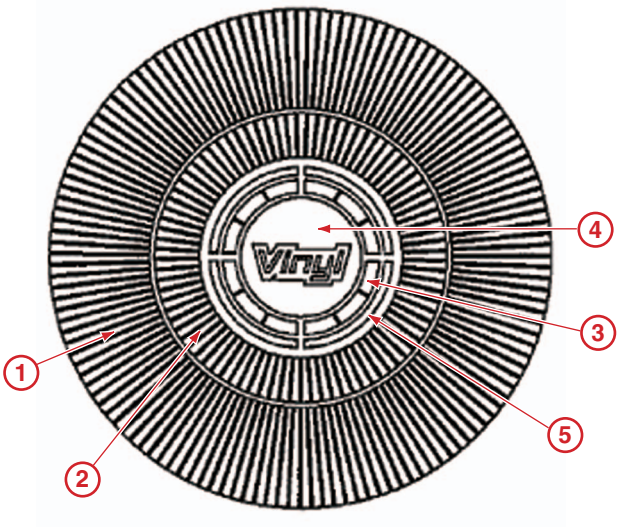


BUTTON	: The name of the pressed button is displayed.
JOG	: A block is lit depending on the Jog rotation.
ENCODER	: A block is lit depending on the rotation of the ENCODER Knob.
NEEDLE	: Not used in service mode.
SLIDER VOLUME	: When the TEMPO slider knob is moved to the - side, the number of blocks will be increased.
JOG TOUCH VOLUME	: When the TOUCH/BRAKE knob is turned to the right, the number of the blocks will be increased.
JOG RELEASE VOLUME	: When the RELEASE/START knob is turned to the right, the number of the blocks will be increased

Button, Switch	Light up LED	Status Display (BUTTON)	Other Displays
PLAY/PAUSE	PLAY/PAUSE	PLAY	
CUE	CUE	CUE	
IN/CUE/IN ADJUST	IN/CUE/IN ADJUST	IN	
OUT/OUT ADJUST	OUT/OUT ADJUST	OUT	
RELOOP/EXIT	RELOOP/EXIT	RELOOP/EXIT	
TRACK REV (I◄◄)		PREVIOUS I◄◄	
TRACK FWD (►►I)		NEXT ►►I	① (Refer to the display pattern of Jog FL)
SEARCH REV (◄◄)		REV ◄◄	② (Refer to the display pattern of Jog FL)
SEARCH FWD (►►)		FWD ►►	⑤ (Refer to the display pattern of Jog FL)
HOT CUE (A)	HOT CUE (A) *1	HOT CUE A	
HOT CUE (B)	HOT CUE (B) *1	HOT CUE B	
HOT CUE (C)	HOT CUE (C) *1	HOT CUE C	
HOT CUE (D)	HOT CUE (D) *1	HOT CUE D	
HOT CUE BANK (A)	HOT CUE BANK (A)	BANK 1	
HOT CUE BANK (B)	HOT CUE BANK (B)	BANK 2	
HOT CUE CALL/DELETE		CALL/DEL	
JOG MODE	VINYL	JOG MODE	④ (Refer to the display pattern of Jog FL)
TEMPO RANGE	CDJ	TEMPO RANGE	
MASTER TEMPO	MASTER TEMPO	MASTER TEMPO	
TEMPO RESET	TEMPO RESET	TEMPO RESET	
TIME MODE/AUTO CUE		TIME/ACUE	
DELETE	All LED lights up *2	DELETE	All Jog FL lights up
MEMORY		MEMORY	
EJECT	EJECT	EJECT	
CUE/LOOP CALL ◄		◄ CALL	
CUE/LOOP CALL ►		CALL ►	
JOG TOUCH	JOG TOUCH	JOG TOUCH SW	③ (Refer to the display pattern of Jog FL)
4/8BEAT		4-BEAT LOOP	
TEMPO		SLIDER VOLUME ■ MARK Increase and decrease (10 points)	
JOG (FWD ROTATE)	JOG illuminations white	JOG ■ MARK Right movement (10 points by one rotation)	
JOG (REV ROTATE)	JOG illuminations red	JOG ■ MARK Left movement (10 points by one rotation)	
TOUCH/BREAK (VOLUME)		JOG TOUCH VOLUME ■ MARK Increase and decrease (10 points)	
RELEASE/START (VOLUME)		JOG RELEASE VOLUME ■ MARK Increase and decrease (10 points)	
DIRECTION LEVER (REV)	REV	REV	
DIRECTION LEVER (SLIP REV)		SLIP REV	
SD DOOR (OPEN)	SD Access	SD OPEN	
USB STOP	USB Access	USB STOP	
LINK	LINK	LINK	
USB	USB	USB	
SD	SD	SD	
DISC	DISC	DISC	
BROWSE	BROWSE	BROWSE	
TAG LIST	TAG LIST	TAG LIST	
INFO	INFO	INFORMATION	
MENU	MENU	MENU	
BACK			Color pattern-changes. (Refer to the color pattern display of LCD)
TAG TRACK			Color pattern-changes. (Refer to the color pattern display of LCD)
FILTER		FILTER	
SHORTCUT		SHORTCUT	
ROTARY SELECTOR (SW)	ROTARY SELECTOR INDICATOR	ENCODER PUSH	
ROTARY SELECTOR (FWD ROTATE)		ENCODER ■ MARK Right movement (Max 10 points)	
ROTARY SELECTOR (REV ROTATE)		ENCODER ■ MARK Left movement (Max 10 points)	
BEAT SYNC	BEAT SYNC	SYNC	
BEAT SYNC MASTER	BEAT SYNC MASTER	MASTER	
REKORDBOX	REKORDBOX	REKORDBOX	
QUANTIZE	QUANTIZE	QUANTIZE	
SLIP	SLIP	SLIP	

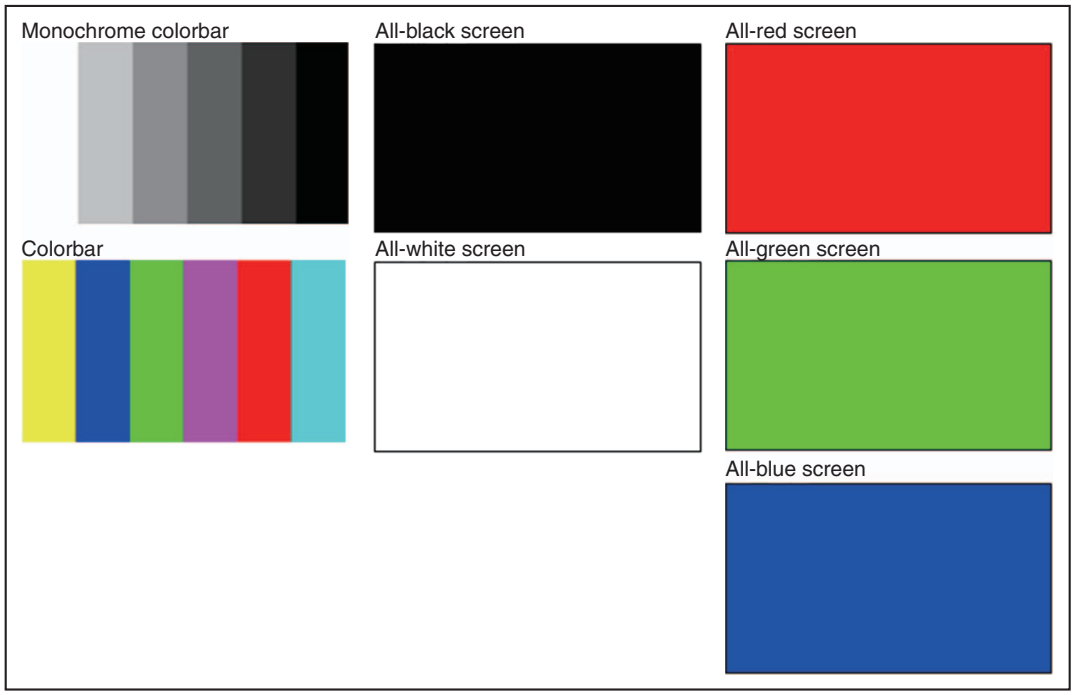
*1: The LED of the HOT CUE buttons lights up in white.
*2: Includes lighting up of the STANDBY-LED and the DISC SLOT-LED.

Display pattern of Jog FL



Color pattern display of LCD

When the TAG-TRACK button is pressed during the mode mentioned above, the following six color patterns are displayed in the LCD.
If the BACK button is pressed, a display will return to the previous one.



Confirmation of the Touch display operation

Display LCD color patterns, as mentioned above, then select an all-black screen.
Touch the screen and verify that a plus sign lights at the touched position.

[2] Check mode of the load of Jog dial

Measurement

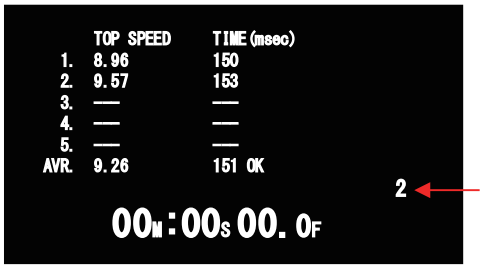
The load (light or heavy) on the Jog dial when it is turned can be objectively judged in this mode.
First, start "[1] Check mode of the buttons and displays."
When the TOUCH/BRAKE knob is turned to the far right, "[2] Check mode of the load of Jog dial" will begin.

When the Jog dial is rotated swiftly in this mode, the speed is measured.
Either direction, clockwise or counterclockwise, is OK.
The meaning of the numerical value displayed is as follows.

TOP SPEED : Maximum speed given that normal speed is defined as when one rotation takes 1.8 sec.
TIME : Time required for the jog dial to slow down from 3x speed to 1.5x speed.

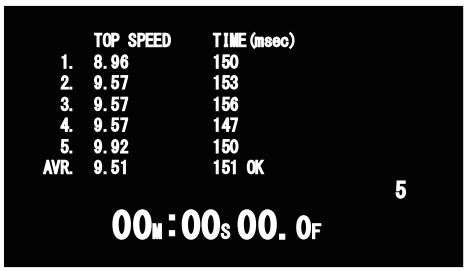
To measure the time required for slowdown, the maximum speed must be 7 times normal speed or higher.
If the maximum speed does not reach 7.0 times normal speed, the time indication section (00M:00S 00.0F) flashes as a warning.

When the measurement is carried out several times in a row, time will be displayed as an avarage of maximum 99 times of the measurement.
This evens out the measurement value.

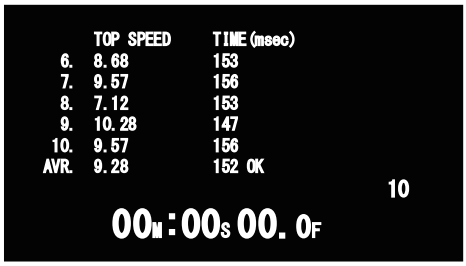


The result when measured twice.

The number written to the far right



The result when measured 5 times.



The result when measured 10 times.

You can measure up to max 99 times to calculate the average value.

Judgment result

If the measured time is within a certain range, [OK] will be displayed in the line of the title. If not, [NG] will be displayed.
The judgment value for this is 170 ± 20 msec.

Record of a judgement

If you insert a USB memory and press the MASTER TEMPO button, the measurement result can outputted as a CSV file under the name "JOGLOAD_2000NXS2.C
The new data is added whenever the MASTER TEMPO button is pressed.
MAC address is written fro individual identification.

● MAC_ADDR:00-E0-36-00-84-40

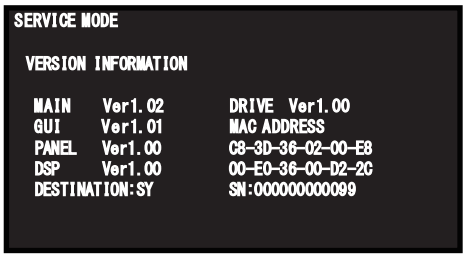
NO.	TOP SPEED	TIME(msec)
1	7.71	138
2	8.17	138
3	7.61	138
4	9.25	141
5	8.81	135
6	8.41	138
7	8.68	141
8	7.12	141
9	8.17	138
10	8.68	135
11	8.17	138
12	8.54	132
13	7.82	135
AVR	8.24	137(NG)

(judge : 150ms <= Time <= 190ms)

[3] Various displayed information

If the power is turned on while the [TEMPO] button and the [CUE/LOOP CALL ◄] button is pressed simultaneously, [SERVICE MODE] will be displayed on the LCD display indicating that the service mode has started.
(Please continue pushing until "Pioneer LOGO" screen disappears.)
In this mode, if you press the TAG-TRACK button to scroll, the display will change as follows.
You can scroll back with the BACK button.

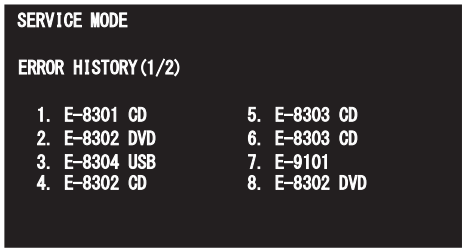
① Version information

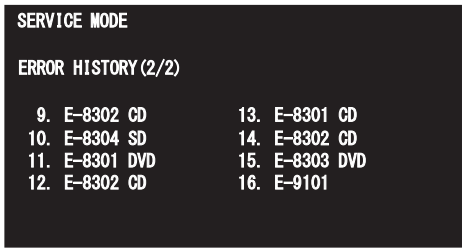


The version number of CPU/microcomputer carried in this machine is displayed.
The MAC Address of Ethernet built in this unit, destination code (DESTINATION) and serial number (SN) are also displayed.

MAIN : The CPU which controls a main
GUI : The CPU which controls a LCD display
PANEL : The microcomputer which controls a button input.
DSP : Audio DSP
DRIVE : The controller which controls a disc drive.

② Error history

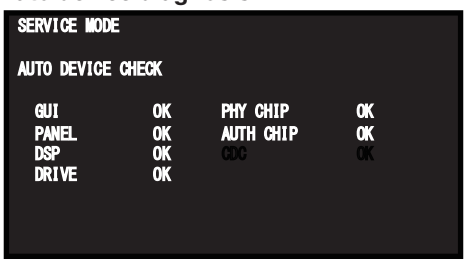




The 16 error codes recorded in the past are divided into two screens and displayed.
(1) is the latest error code.
The latest 16 error codes are displayed in reverse chronological order.
The screen is switched using the BACK button or TAG TRACK button.
The item which follows an error code expresses its media.
(The error which is not related to media is blank.)

USB : USB device (MEMORY/HDD)
SD : SD card
CD : DRIVE - CD media (CDDA/CD-ROM)
DVD : DRIVE - DVD media (DVD-ROM)
About descriptions of the error codes, please refer to "[4] List of displayed error."

③ Auto device diagnosis



The result which judged normal/abnormalities of each device is displayed at the time of power ON and initialization.

GUI : The CPU which controls LCD indication.
PANEL : The microcomputer which controls a button input.
DSP : Audio DSP
DRIVE : The controller which controls a disc drive.
PHY CHIP : The controller which controls the physical layer of Ethernet.
AUTH CHIP : The authentication chip of Apple.

Please refer to "[8] Alarm port output" for details.

④ Factory reset





It is used to reset the setting of UTILITY to the factory setting, or clear an error history.
If TIME MODE button is pressed on this screen, it resets to the factory setting below.

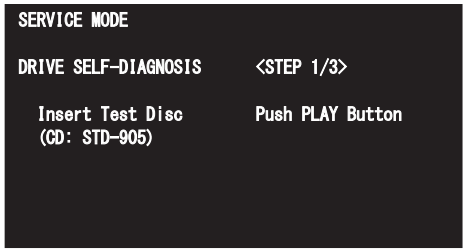
[UTILITY] Settings
PLAY MODE = CONTINUE
EJECT / LOAD LOCK = UNLOCK
QUANTIZE BEAT VALUE = 1Beat
HOT CUE AUTO LOAD = rekordbox SETTING
HOT CUE COLOR = OFF
AUTO CUE LEVEL = MEMORY
SLIP FLASHING = ON
ON AIR DISPLAY = ON
JOG BRIGHTNESS = 2
JOG INDICATOR = ON
DISC SLOT ILLUMINATION = 2
LANGUAGE = <Shipment setting >
HISTORY NAME = "HISTORY"
PLAYER No. = AUTO
MIDI CHANNEL = 1
DIGITAL OUT 24bit
AUTO STANDBY = ON
LCD BRIGHTNESS = 3
SCREEN SAVER = ON
DUPLICATION = DEFAULT

Other settings
TIME MODE = REMAIN
AUTO CUE = OFF
JOG MODE = CDJ
MASTER TEMPO = OFF
QUANTIZE = ON
PHASE METER = TYPE1

Error history
ALL CLEAR

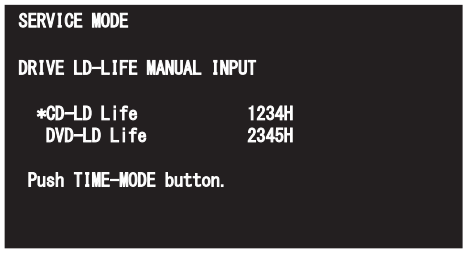
Factory reset can be performed if you turn the power on while pressing the USB-STOP button and the EJECT button at the same time.
However, the error history is not cleared at this time.

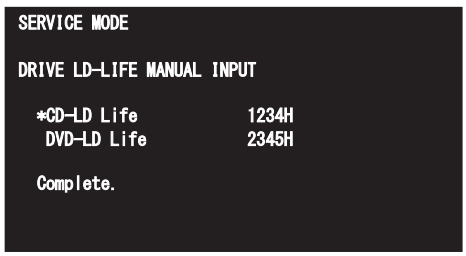
⑤ Drive Self-Diagnosis



Self-diagnosis of a drive is performed.
Please refer to
"[5] Drive self-diagnosis" and
"[6] Contents of drive self-diagnosis"
for details.

⑥ Drive LD life manual input

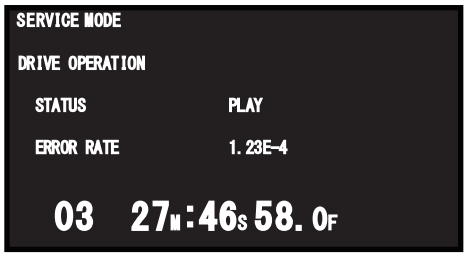




The addition time which the laser diode of CD/DVD had turned on is inputted manually.
In addition, this is used only once, when a main unit is exchanged newly.

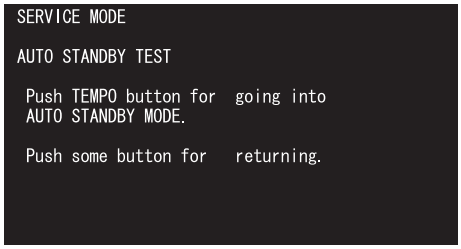
QUANTIZE button:	Select CD/DVD
BROWSE button:	Increase the grade of 1000
TAG LIST button:	Increase the grade of 100
INFO button:	Increase the grade of 10
MENU button:	Increase the grade of 1
TIME MODE button:	It memorizes.

⑦ Drive operation / error rate measurement



This displays the state of the drive at the time of servo test and the measurement result of the error rate.
Please refer to
"[7] Check mode of servo of the drive unit"
for details.

⑧ Auto standby check



Auto standby usually starts when there are no media to reproduce and when operation is not performed for a certain period of time.
In this mode, however, you can immediately switch to the auto standby mode.

To recover from auto standby mode, trigger any operation except the following:
performed,

- Press the USB STOP button
- Jog rotation (except for touching the Table top)
- Turn the TOUCH/BREAK , RELEASE/START volume
- Move the TEMPO slider
- Switch the DIRECTION lever

Auto standby mode will be reset.

Since auto standby reset is the same processing as turning the power on,
the service mode will be ended.

[4] List of displayed error

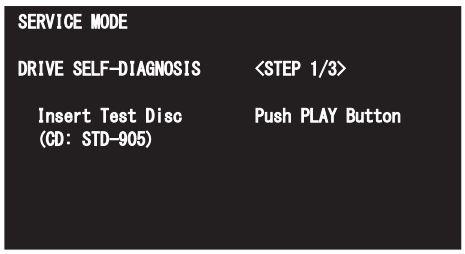
WAVE display shows "E-XXXX: DISC DRIVE ERROR".
Note: An alarm port is a function to notify the location of abnormality based on the number of pulses generated from the SH test port.

Error code	Display word	Contents	Notes	Alarm port correspondence
E-7001	DISC DRIVE ERROR	The ATAPI drive doesn't function normally.		○
E-7010	DSP DEVICE ERROR	DSP does not function normally. The program cannot be downloaded.		○
E-7020	USB-B DEVICE ERROR	The USB-B controller doesn't function normally.		○
E-7021	PHY CHIP ERROR	The PHY CHIP does not function		○
E-7022	PANEL CPU ERROR	The PANEL CPU does not function normally.	This error code appears when communication between the PANEL CPU and the MAIN CPU is not established due to wire connection error, etc. The error code also appears when firmware update of the PANEL CPU fails. The MAIN CPU detects the error and sends the error code to GUI.	○
E-7023	GUI CPU ERROR	The GUI CPU doesn't function normally.	This error code appears when the GUI firmware update fails. The GUI CPU is activated in the emergency mode and displays the error code. * If the GUI CPU cannot be activated even in the emergency mode, nothing will be displayed.	○
E-7024	MAIN CPU ERROR	The MAIN CPU does not function normally.	This error code appears when the MAIN CPU firmware update fails. The MAIN CPU detects the error and sends the error code to GUI in the emergency mode.	
E-7026	AUTH CHIP ERROR	Apple authentication chip does not work normally.		○
E-7101	INTERRUPT EXCEPTION	Unexpected abnormalities on the MIAN CPU occurred.		
E-7201	CANNOT READ DISC	TOC Data can't be read.		
E-8301	CANNOT READ DISC	Abnormalities occurred during starting.		
E-8302	CANNOT PLAY TRACK	Abnormalities occurred during playback.		
E-8303	CANNOT PLAY TRACK	Error occurred when writing in buffer memory.		
E-8304	UNSUPPORTED FILE FORMAT	Decoding error occurred.		
E-8305	UNSUPPORTED FILE FORMAT	This format is not supported.		
E-8306	NO FILE	An unsupported USB device is connected.		
E-8307	• DEVICE NO RESPONSE • UNSUPPORTED DEVICE • HUBS ARE NOT SUPPORTED	• There is no response from the connected device. • An unsupported device is connected. • Unsupported hubs are connected.	• USB ACCESS ERROR • An unsupported USB device is connected. One of these three error types is indicated.	
E-8308	SD CARD ACCESS ERROR	MMC (Multi Media Card) was connected.		
E-8309	LINK ACCESS ERROR	Link access failed after 4 consecutive timeout errors.		
E-8709	COMMUNICATION ERROR	GUI CPU and MAIN CPU cannot be communicated.	When the communication with MAIN is not materialized by the abnormalities of connection, GUI displays an error code spontaneously. When MAIN does not operate completely, it will be in this mode.	
E-9101	MECHANICAL TIMEOUT	Mechanism operation was not completed within regulation time.		

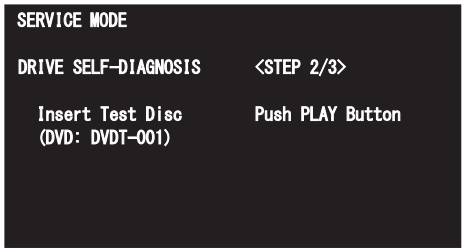
[5] Drive self-diagnosis

Drive self-diagnosis is performed in the following three steps.
[Push PLAY Button] is displayed at the beginning of each step. Insert the test disc and press the PLAY button.
Step 1. A flashing message [Executing ...] is displayed and the diagnosis starts.
Step 2. When the diagnosis is successfully completed, [Complete] is displayed and the disc is automatically ejected.
Step 3. If the diagnosis is disabled for some reason, the following message is displayed and the disc is automatically ejected.

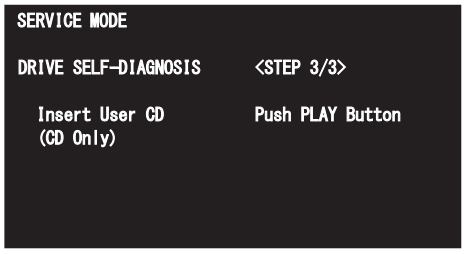
[Mecha Error]	Mechanism error occurred such as a loading mechanism error.
[Setup Error]	The disc was not started.
[Error Stop]	An error occurred in the middle of the diagnosis and the diagnosis stopped.
[Check Disc]	The disc differs from the disignated disc.
[No Disc]	No disc is inserted.



The following items are diagnosed.
See "[6] Contents of drive self-diagnosis" for the details of each item.
- CD-LD LIFE CHECK
- DVD-LD LIFE CHECK
- STEPPER CHECK
- OEIC CHECK
- DISC MOTOR CHECK
- CD ERROR RATE CHECK



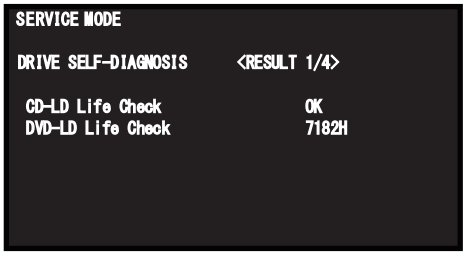
The following items are diagnosed.
- DVD ERROR RATE CHECK



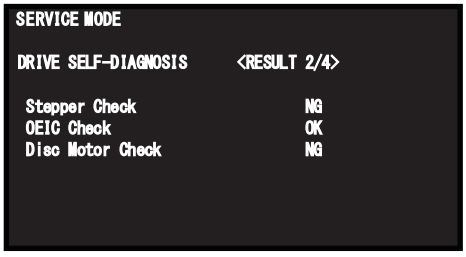
The following items are diagnosed.
- USER CD PHYSICAL CHECK
- USER CD SCRATCH CHECK
- USER CD QUALITY CHECK
- USER CD DIRT CHECK

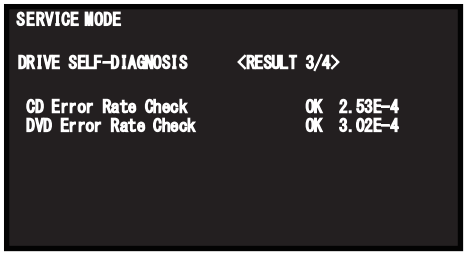
Result display

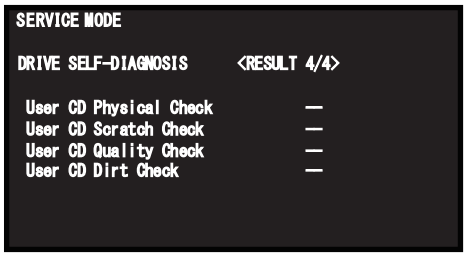
The result of the diagnosis of each item is displayed as "OK" or "NG". Undiagnosed item is displayed as "--."



As for "CD-LD Life Check" and "DVD-LD Life Check",
the working time of the LD is displayed when it exceeded the predetermined period of time (7000H).
("OK" is displayed when it is not exceeded 7000H, and the working time is not displayed.)







The worst value of the measured error rate is displayed in "CD Error Rate Check" and "DVD Error Rate Check".

[6] Contents of drive self-diagnosis

STEP 1

(1) CD-LD LIFE CHECK

This checks the cumulative working time of the LD to judge degradation status.
[NG] will be displayed if the working time exceeds 7000H.
LD current should be measured when the working time exceeds 7000H since the failure date is 1 %.

(2) DVD-LD LIFE CHECK

Same as mentioned above.

(3) STEPPER CHECK

Detects malfunction of the stepper motor caused by foreign materials/stuck, defect of inside switch, step loss due to mechanical component defect, lack of lateral pressure,
Ensures that the stepper motor works correctly using the inside switch.

(4) OEIC CHECK

Detects OEIC drop and other failures frequently occurred on 05SD/09SD.
Detects the failure by checking whether the disc is inserted or not using a CD.

(5) DISC MOTOR CHECK

Detects the defect of the spindle motor.
Starts the spindle motor and checks the time to reach 2000 rpm.

(6) CD ERROR RATE CHECK

An error rate is measured and the final check is performed.

STEP 2

(7) DVD ERROR RATE CHECK

An error rate is measured and the final check is performed.

STEP 3

(8) USER CD PHYSICAL CHECK

Distinguishes whether the cause of the error is due to the disc or not when the user submitted a disc.
Checks the characteristic of the disc based on automatic adjustment value.
Only CDs are accepted. (Judged based on precedents)

(9) USER CD SCRATCH CHECK

The error rate of the entire disc is measured per 1 minute, and best value and worst value are calculated.
The state of the disc is checked from those values.

(10) USER CD QUALITY CHECK

Same as mentioned above.

(11) USER CD DIRT CHECK

Same as mentioned above.

[7] Check mode of servo of the drive unit

The following control is enabled when entering "[3] Various displayed information" mode and select "⑦ Drive operation / error rate measurement."
This mode consists of "Player operation mode" and "Test operation mode."

<Player operation mode>

Basic operation of servo, such as setup, play, pause, and track search, is carried out.
The measurement of an error rate is also performed.

<Test operation mode>

This mode fine-controls the servo operation step by step.

* The player operation mode starts first, and switch to the test operation mode by the key input.
* The command operated here is for mainly testing mechanism and servo systems and not for the operation of DJ functions such as scanning and temp control.

Function	Main unit button
<Player operation mode>	
Servo All Off (Stop)	TIME
Play(Trace) / Pause	PLAY/PAUSE
Track Search Fwd/Rev	TRACK SEARCH FWD/REV
Error Rate Count	CUE
Eject	EJECT
Mode Change (-> Test operation mode)	MASTER TEMPO
<Test operation mode>	
Servo All Off	TIME
CD Select	MEMORY
DVD Select	DELETE
Focus Jump Up	LOOP IN
Focus Jump Down	LOOP OUT
Slider Move Fwd	SEARCH FWD
Slider Move Rev	SEARCH REV
Step command	CUE/LOOP CALL NEXT(►)
Mode Change (->Player operation mode)	MASTER TEMPO

■ Player operation mode command

Play(Trace) / Pause

If the operation is completely stopped, the set up will begin and play will start with the PLAY/PAUSE button lighting up.
If the system is in the play mode, the pause mode will be canceled and the play mode will start. If the system is in the pause mode, the pause mode will be canceled and the play mode will start.
"PLAY or PAUSE" is displayed on the drive condition indication section.
In the case of CD, the track number and time currently tracing are displayed.
In the case of DVD, the number of a layer currently tracing is displayed on the [TRACK] section, and the physical address is displayed on the [MSF] section.
*: In this mode, the automatic setup is not carried out even if a disc is inserted.
"Play" is not reproduce audio, but is tracing the signal side of a disc.

Track Search F/R

In the case of CD, it searches a track displayed in a direction of FWD/REV and pauses.
[SEARCH] is displayed in the drive condition indication section.
*: A track search is disabled in CD-ROMs (MP3/AAC/WAV/AIFF).

In the case of DVD, whenever the FWD/REV is pressed, the search starts with the following direction and pauses.

When the FWD direction was pressed when a DUAL LAYER DISC is in the deck.

→ L0 inside → L0 middle → L0 outside → L1 inside → L1 middle → L1 outside →

When the REV direction was pressed when a DUAL LAYER DISC is in the deck.

← L0 inside ← L0 middle ← L0 outside ← L1 inside ← L1 middle ← L1 outside ←

When the FWD direction was pressed when a SINGLE LAYER DISC is in the deck.

→ L0 inside → L0 middle → L0 outside →

When the REV direction was pressed when a SINGLE LAYER DISC is in the deck.

← L0 inside ← L0 middle ← L0 outside ←

The following messages are displayed in the drive condition indication section.

[SEARCH L0 IN]	Layer 0 inside	[SEARCH L1 IN]	Layer 1 inside
[SEARCH L0 MID]	Layer 0 middle	[SEARCH L1 MID]	Layer 1 middle
[SEARCH L0 OUT]	Layer 0 outside	[SEARCH L1 OUT]	Layer 1 outside

*: The search address [IN/MID/OUT] is relative depending on the total capacity of the disc.
*: The search location of [OUT] is about 20000 sectors from the outermost address on the disc.

Error Rate Count
The error rate is measured for about 20 seconds in the case of CD and 10,000 block in the case of DVD, both starting from the current PLAY/PAUSE position.
The measured error rate will be displayed in the error rate indication section.
Usually you can search the place you wish to measure the error code, and when pushing the [CUE] button during PAUSE, the Error Rate Count will begin.
For example, [3.56E-4 O.K.] will be displayed.
If the error rate is less than 3.00E-3, [OK] will be displayed. If the error rate is larger than 3.00E-3, [NG] will be displayed.
The judgement is based on the judgement using a controlled DISC at the time of shipment from a factory.
(Line inspection judgement)
This is not to judge OK/NG of the product at the time of service.

Eject
The disc is ejected. [EJECT] is displayed in the drive condition indication section.

Mode Change (It shifts to the Test operation mode)
If the MASTER TEMPO button is pressed during the [Player] mode, the MASTER TEMPO LED will light up.
The [Play] stops and the mode will be switched to the below-mentioned the test operation mode. The [TEST MODE] is displayed in the drive condition indication section.

■ Test operation mode command

The servo operation can be finely controlled step by step.
Please note that the test operation mode command may give damage to a player when used in a wrong way.
*: Please operate this mode after the loading is completed.

Servo All Off
If the [TIME] button is pressed when servo is turned on, all the servo will be turned off.
[ALL OFF] will be displayed in the drive condition indication section.

CD Select
Press the [MEMORY] button to select to start a CD.
[CD SELECT] will be displayed in the drive condition indication section.

DVD Select
Press the [CALL] button to select to start a DVD.
[DVD SELECT] will be displayed in the drive condition indication section.

Focus Jump Up
When selecting a DVD, focus jump to L1 will occur.
[FOCUS JUMP] will be displayed in the drive condition indication section.

Focus Jump Down
When selecting a DVD, focus jump to L0 will occur.
[FOCUS JUMP DOWN] will be displayed in the drive condition indication section.

Slider Move Fwd
When the [SEARCH FWD] button is pressed, the slider will move to about 1.8 mm to the direction of outer perimeter.
[SLIDER FWD] will be displayed in the drive condition indication section.

Slider Move Rev
When the [SEARCH REV] button is pressed, the slider will move to about 1.8 mm to the direction of inner perimeter.
[SLIDER REV] will be displayed in the drive condition indication section.

Step command

A series of operations for the set-up will be carried out step by step.
If the CUE/LOOP CALL NEXT (►) button is pressed, the procedure will step up (even if the PREV (◄) button is pressed, the step down will not occur.) Operation and display of each step are as follows.

Step	Action	Indication Part
STEP0 :	Servo All Off	ALL OFF
STEP1 :	Laser diode on	LD ON
STEP2 :	Disc presence judgment	DISC SEARCH
STEP3 :	Spindle on (2000 rpm)	SPINDLE ON
STEP4 :	Disc sense	DISC SENSE
STEP5 :	Focus serve on	FOCUS ON
STEP6 :	Tracking servo on	TRACKING ON
STEP7 :	Focus position coarse adjustment	FOCUS POSITION
STEP8 :	Focus gain adjustment	FOCUS GAIN
STEP9 :	Tracking gain adjustment	TRACKING GAIN
STEP10 :	Address lead start	ADDRESS READ

CUE/LOOP CALL NEXT (►) button : step up

Mode Change (The end of the test movement mode)

If the MASTER TEMPO button is pressed in the "test operation mode", MASTER TEMPO LED will light off and servo will stop. The mode will be switched to the "player operation mode" as mentioned above. [PLAYER MODE] will be displayed in the drive condition indication section.

In addition to "[3] Various displayed information"_"③ Auto device diagnosis" the test port output on the main board can identify abnormalities of each device when the power of the device is turned on and initialized.
If a failure is detected in the device when the power is on, the alarm port will output the pulse signal as follows:

	Alarm Port			Service Mode/Auto Device Diagnostic Display		Normal Error Display
	Detection	Remarks	Output Pattern	Display	Remarks	
MAIN CPU						
FLASH (for MAIN CPU)	×	If FLASH fails, the boot program will not work.		×	←	
SDRAM (for MAIN CPU)	○		(0.5sHI->0.5sLOW) x 1 time -> 2sLOW -> the same pattern to be repeated	×	If SDRAM fails, the service program does not work.	
Peripheral with built-in MAIN CPU						
IDE (DRIVE)	○		(0.5sHI->0.5sLOW) x 7 times -> 2sLOW -> the same pattern to be repeated	○		E-7001
USB-A	—	Since it is SH built-in, it is quite unlikely to have an issue only in a peripheral device. Whether any issue occurs all the way to connectors or not may not be detected.		—	←	
SD	—			—		
LAN	—			—		
External peripheral						
USB-B (USB CONTROLLER)	○		(0.5sHI->0.5sLOW) x 4 times -> 2sLOW -> the same pattern to be repeated	○		E-7020
PHY chip (PHY CHIP)	○		(0.5sHI->0.5sLOW) x 3 times -> 2sLOW -> the same pattern to be repeated	○		E-7021
AUTH chip (AUTH CHIP)	○		(0.5sHI->0.5sLOW) x 9 times -> 2sLOW -> the same pattern to be repeated	○		E-7026
Device communicated with MAIN CPU						
PANEL CPU (PANEL)	○		(0.5sHI->0.5sLOW) x 5 times -> 2sLOW -> the same pattern to be repeated	△	Although detection is possible even when communication fails, precise testing may not be performed because the service mode is not available.	E-7022
DSP (DSP)	○		(0.5sHI->0.5sLOW) x 2 times -> 2sLOW -> the same pattern to be repeated	○		E-7010
SDRAM (for DSP)	×	If SDRAM is NG, it cannot communicate with MAIN CPU.		×	←	
GUI CPU (GUI)	○		(0.5sHI->0.5sLOW) x 6 times -> 2sLOW -> the same pattern to be repeated	△	Although detection is possible even when communication fails, precise testing may not be performed because it is unable to display on the LCD.	
FLASH (for GUI CPU)	×	If FLASH is NG, the boot program itself does not operate.		×	←	
SDRAM (for GUI CPU)	×	If SDRAM fails, it cannot communicate with MAIN CPU.		×	←	
External peripheral communicated with PANEL CPU						
CDC	○		(0.5sHI->0.5sLOW) x 8 times -> 2sLOW -> the same pattern to be repeated	○		E-7025
Everything normal			After 2sHI, remain in LOW			

[9] Firmware update

The devices and updater files required for an update are shown below:

Device	File Name	Remarks
MAIN CPU (MAIN)	C2KNXS2M.UPD	Motorola formal text
GUI CPU (GUI)	C2KNXS2G.UPD	Binary text
PANEL CPU (PANEL)	C2KNXS2P.UPD	Motorola formal text
Drive controller (DRIVE)	C2KNXS2D.UPD	Motorola formal text
Four devices (one conclusion)	C2KNXS2.UPD	Mixture of text form and binary form

The version number is not included in the file name.
Since the character sequence containing information such as version is added to the head of each file, you can check them using a tool such as Editor and Viewer.
"C2KNXS2.UPD", a package of the 4 files, can be loaded.

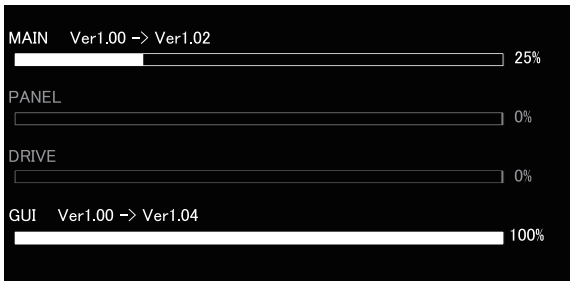
■ When USB memory stick is used

Please use a USB memory stick formatted by FAT/FAT32. HFS+ is not supported.

① Copy a file you wish to update in a USB memory stick.
(Copy only a file or files you want to update. …(" C2KNXS2.UPD " is recognized as one file.))

② Turn on the power while pressing both of the MEDIA SELECT/USB button and the RELOOP button.
(Please continue pressing until "Pioneer LOGO"screen disappears.)
Insert a USB memory stick in the USB port when the message "Connect USB storage device into USB port." appears.
(If the service mode is activated when a USB memory stick is inserted, the message will not be displayed and the update will start immediately.)

③ Update is automatically performed in the order of "GUI -> Drive -> MAIN -> PANEL".
The update status is displayed showing the progress bar indicator and the percentage. Previous version is displayed as well as the new version.



④ If there is no file, the device will be grayed out and the update will not be performed.
Please note that the progress bar indication and percentage shown on the screen are just an estimate.

⑤ When the update is completed, the message "Firmware update is completed. Turn the power off before using" will appear.
Please power off and then power on again.

■ Recovery when failing

When the update fails or the power is turned off before completing the update process, the subsequent process may not be completed.
In that case, the recovery (emergency) mode for updating will begin.

① Failure of MAIN update
When the message of "MAIN firmware update failed." is displayed or the power is turned off in the middle of the process, The error code of "E-7024: MAIN CPU ERROR" will be displayed when the power is turned on again.
In this case, you can complete the update by using MEDIA SELECT/USB button and RELOOP button.
In addition, only MAIN is updated even if files other than MAIN are in the USB memory stick.

② Failure of GUI update
When the message of "GUI firmware update failed." is displayed or the power is turned off in the middle of the process, The error code of "E-7023: GUI CPU ERROR" will be displayed when the power is turned on again.
In this case, you can complete the update by using MEDIA SELECT/USB button and RELOOP button.
If files other than GUI are in the USB memory stick, all of them will be updated as usual.

③ Failure of PANEL update
When the message of "PANEL firmware update failed." is displayed or the power is turned off in the middle of the process, The error code of "E-7022: PANEL CPU ERROR" will be displayed when the power is turned on again.
In this case, the process to enter the update mode is different.
Please turn on the power while pressing only the USB-STOP button, and continue pressing the button until the message of "Connect a USB storage device to the USB port." is displayed.
If files other than PANEL are in the USB memory stick,all of them will be updated as usual.

④ Failure of Drive update
When the message of "DRIVE firmware update failed." is displayed or the power is turned off in the middle of the process, The error code of "E-7001: DISC DRIVE ERROR" will be displayed when the power is turned on again.
Recovery of a drive cannot be performed only by USB memory stick. Software for the recovery and other tools are needed.

6.2 ABOUT THE DEVICE

Device Name	Function	Part No.	Ref No.	Assy
MAIN CPU	Main control	R8A77240D500BG2	IC10	MAIN Assy
FLASH	Memory for MAIN CPU (Firmware)	DYW**** (NSP)	IC12	MAIN Assy
DDR2	Memory for MAIN CPU (Work)	W971GG6SB-25	IC1, IC2	MAIN Assy
DSP	Audio DSP	TMS320C6655CZH	IC301	MAIN Assy
DDR3	Memory for DSP (Work)	W631GG6KB-12	IC501, IC502	MAIN Assy
USB-HUB	USB-HUB (function)	USB2512B-AEZG-TR	IC603	MAIN Assy
USB-LAN Conversion	CONTROLLER for USB-B (function)	RTL8152B-VB-CG (NSP)	IC602	MAIN Assy
LAN-HUB & PHY	LAN-HUB included PHY	RTL8304E-CG	IC604	MAIN Assy
AUTHENTICATION CHIP	Apple authentication	H337S3959	IC14	MAIN Assy
FPGA	SPDIF_TX and I/O level conversion	XC3S50A-4FTG256C	IC1201	MAIN Assy
GUI CPU	LCD display control	R5S72690RW266FP	IC4604	LCDB Assy
FLASH	Memory for GUI CPU (Firmware)	DYW****	IC4602	LCDB Assy
SDRAM	Memory for GUI CPU (Work)	M12L2561616A-5TG2S	IC4601, IC4603	LCDB Assy
PANEL CPU	Button input, LED & Jog FL control	DYW****	IC8001	PNLB Assy
SODC	Disc drive control	MN103S71F	IC7006	SRVB Assy
FLASH	Memory for DRIVE CONTROLLER	DYW****	IC7004	SRVB Assy

Note on DYW**
The "*****" part of the part number changes each time the firmware is updated.

Two or more FLASH and SDRAM are mounted in the main body.
Please diagnose it after confiming whether it is a device that agrees with purpose again.

7. DISASSEMBLY

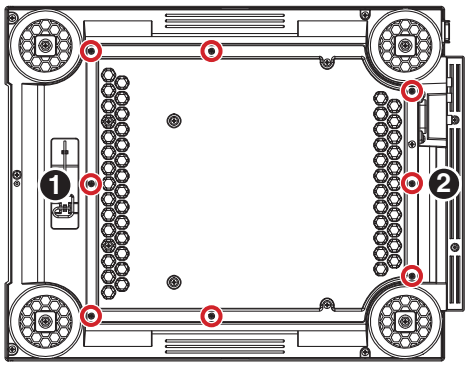
Note:
(1) Do NOT look directly into the pickup lens. The laser beam may cause eye injury.
(2) Even if the unit shown in the photos and illustrations in this manual may differ from your product, the procedures described here are common.

Diagnosis of SRVB Assy

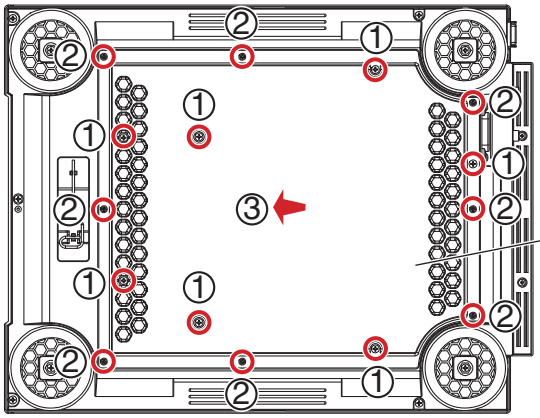
(1) Remove the 7 screws.
(BBZ30P060FTB)
(2) Remove the 8 screws.
(PPZ30P080FTB)
(3) Remove the Panel.

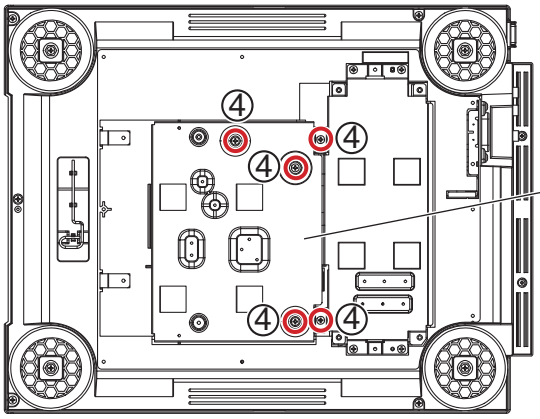
Screw tightening order

The other screws are random order.

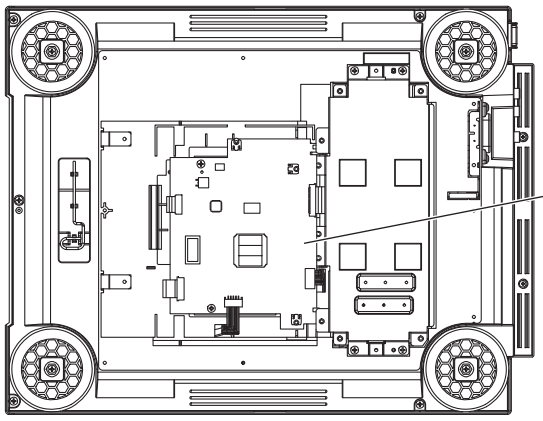


(4) Remove the Plate, by removing the 5 screws.
(BPZ30P100FTC)





Diagnosis

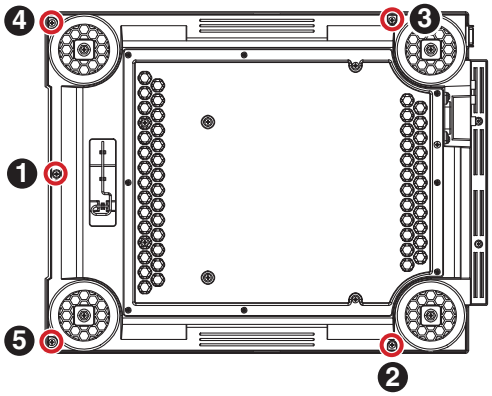


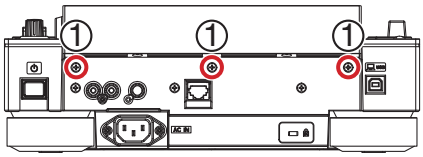
Diagnosis of MAIN Assy

[1] Control Panel Section

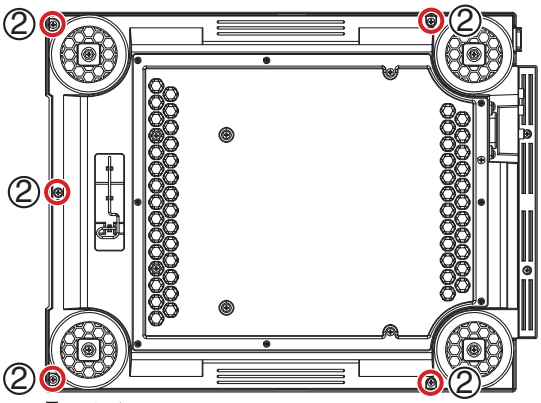
(1) Remove the 3 screws.
(BBZ30P060FTB)
(2) Remove the 5 screws.
(BPZ30P080FNI)

Screw tightening order



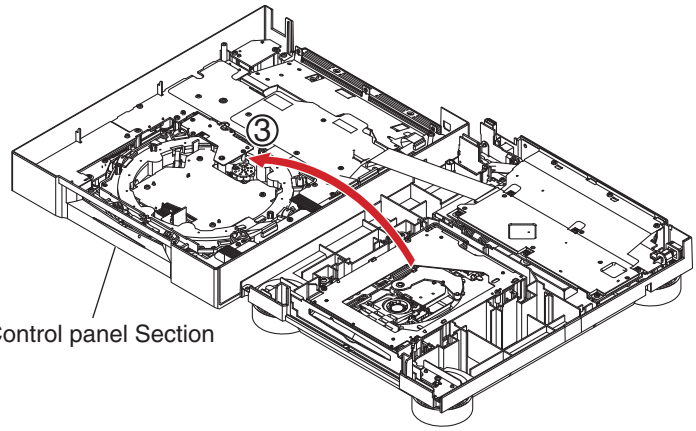


• Rear view



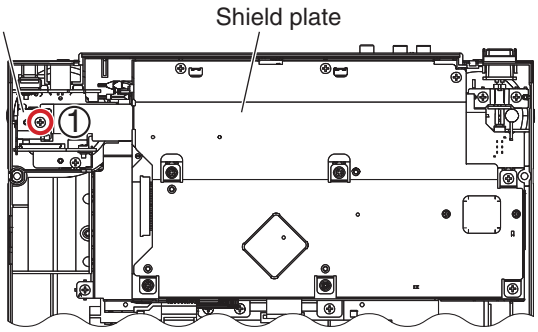
• Bottom view

(3) Remove the Control panel Section.



[2] MAIN Assy

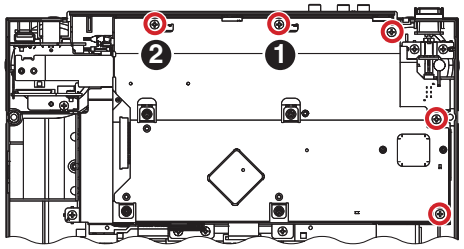
(1) Remove the SD earth spring, by removing the 1 screw.
(BPZ30P080FNI)

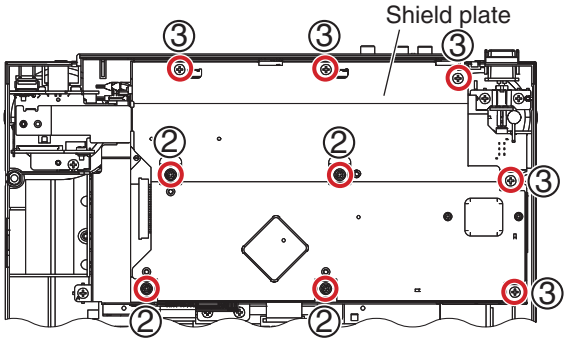


(2) Remove the 4 screws.
(PMH30P080FTC)
(3) Remove the Shield plate, by removing the 5 screws.
(BBZ30P060FTB)

Screw tightening order

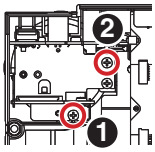
The other screws are random order.

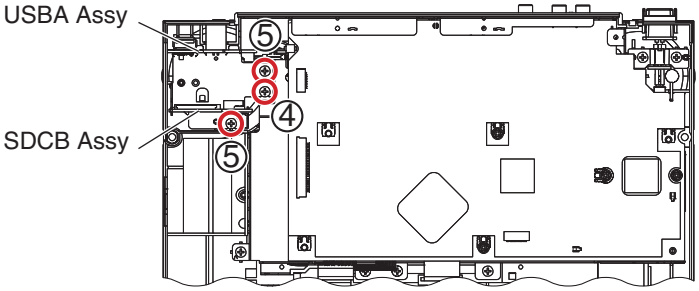




(4) Remove the 1 screw and cord clampers.
(BBZ30P060FTB)
(5) Remove the USBA and SDCB Assemblies with Stay, by removing the 2 screws.
(BPZ30P080FNI)

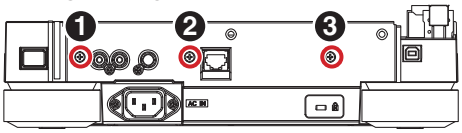
Screw tightening order

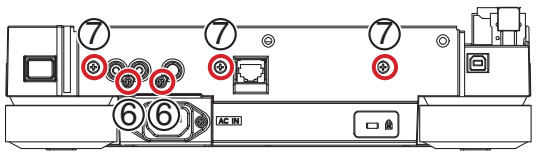




(6) Remove the 2 screws.
(PPZ30P080FTB)
(7) Remove the 3 screws.
(BBZ30P060FTB)

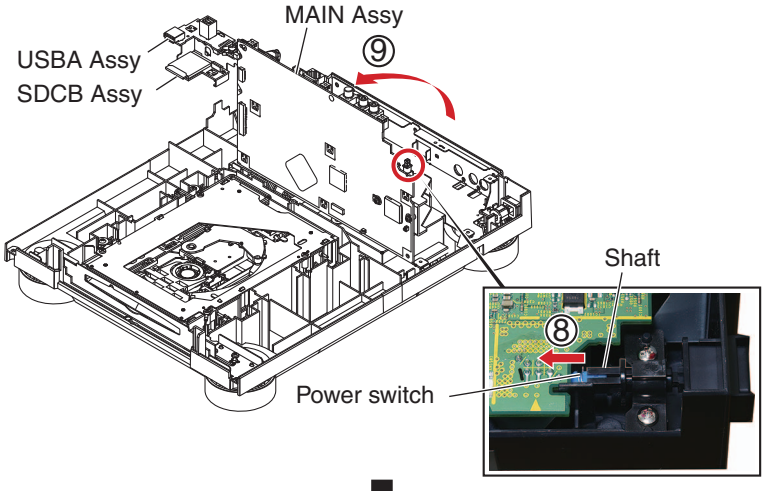
Screw tightening order





• Rear view

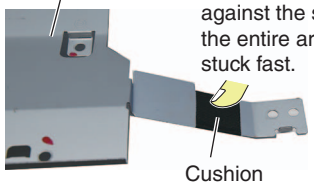
(8) Disconnect the Power switch from the shaft.
(9) Stand the MAIN Assy with the USBA and SDCB Assemblies.

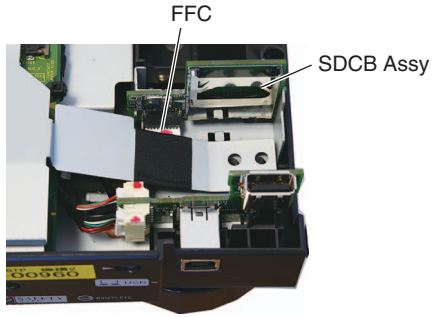


Diagnosis

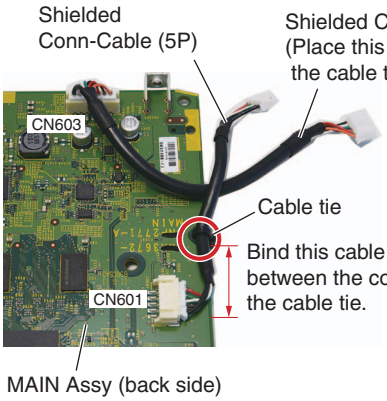
Notes on Reassembly

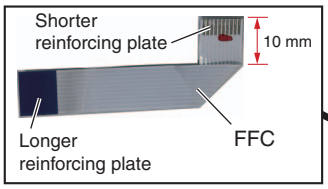
• How to attach the cushion to the shield plate

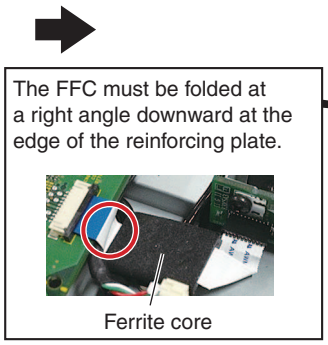


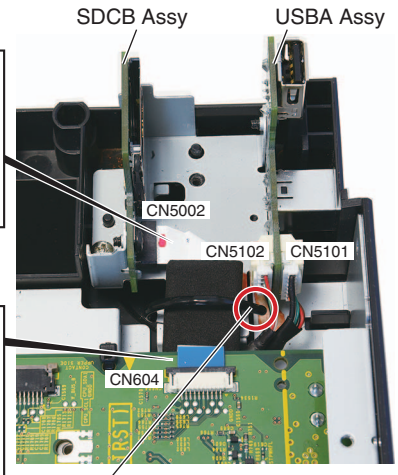


• How to dress the cables between the MAIN and SDCB Assys and between the MAIN and USBA Assys

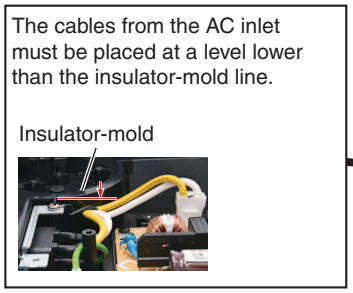


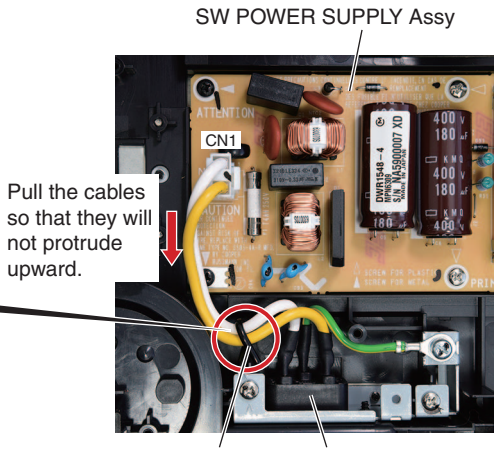


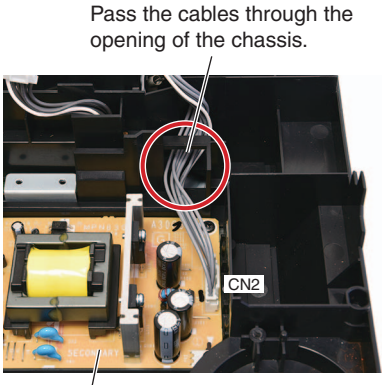




• How to dress the cables from the AC inlet and the SW POWER SUPPLY Assy

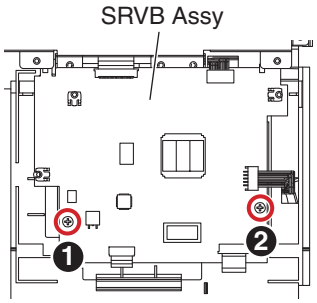






Reference information (Screw tightening order)

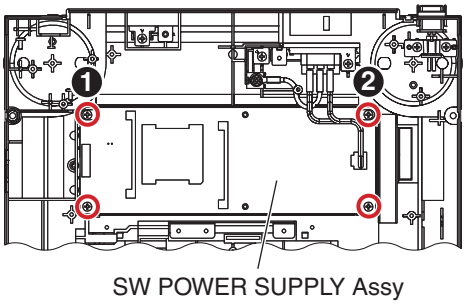
SRVB Assy



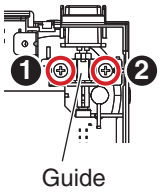
• Bottom view

SW POWER SUPPLY Assy

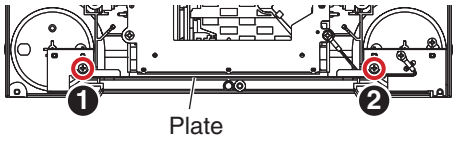
The other screws are random order.



Guide

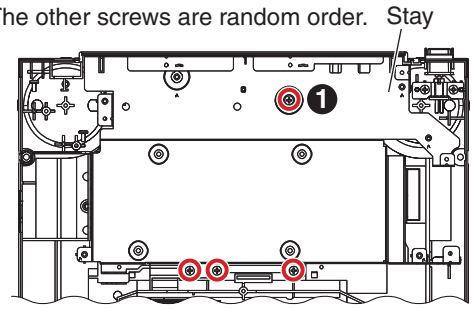


Plate



Stay

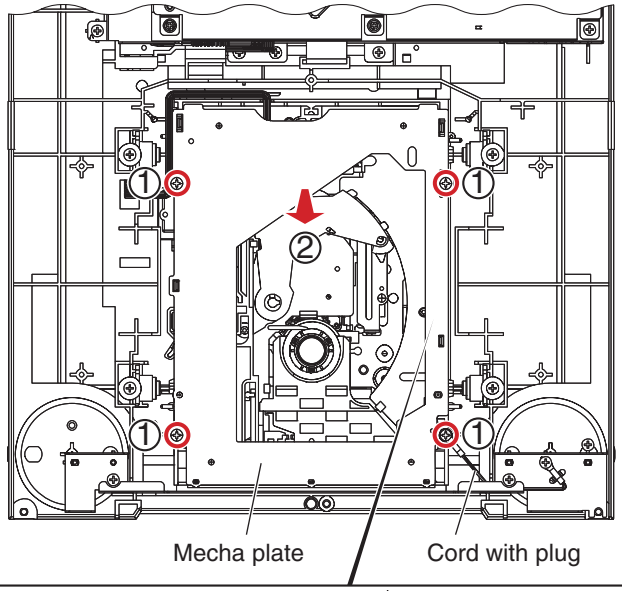
The other screws are random order.



Slotin Mechanism Section

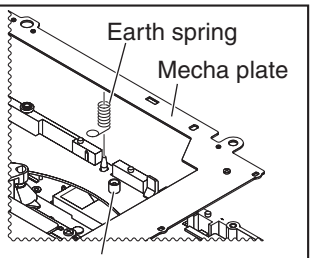
[1] Mecha Plate

(1) Remove the 4 screws.
(BPZ30P080FNI)
(2) Remove the Mecha plate.



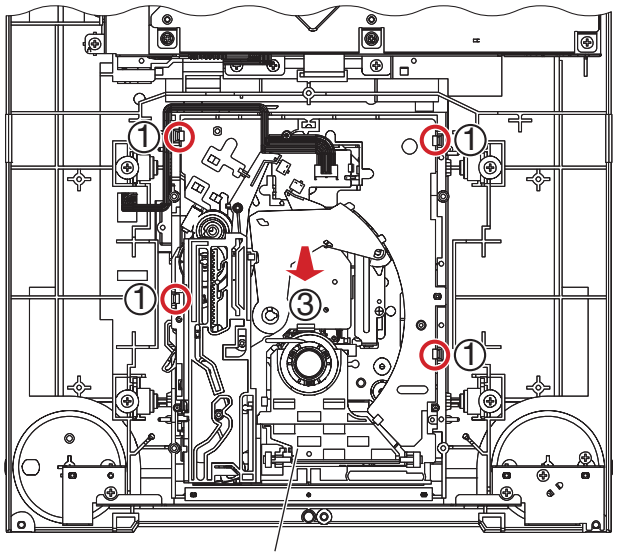
Note of earth spring

- Be sure not to lose it.
- Be careful to the installation places.
- Confirm it by viewing.



[2] Slotin Mechanism Section

(1) Unhook the 4 hooks.
(2) Release the jumper wires, as required.
(3) Remove the Slotin mechanism section.

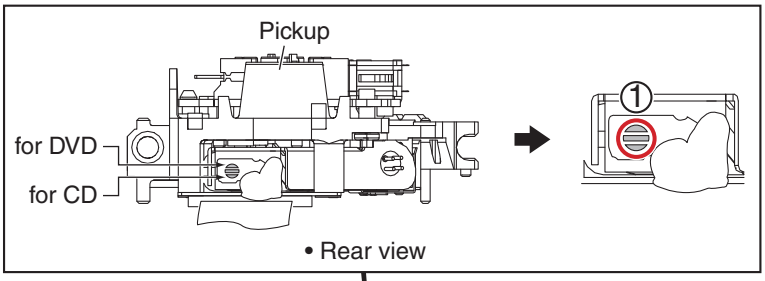


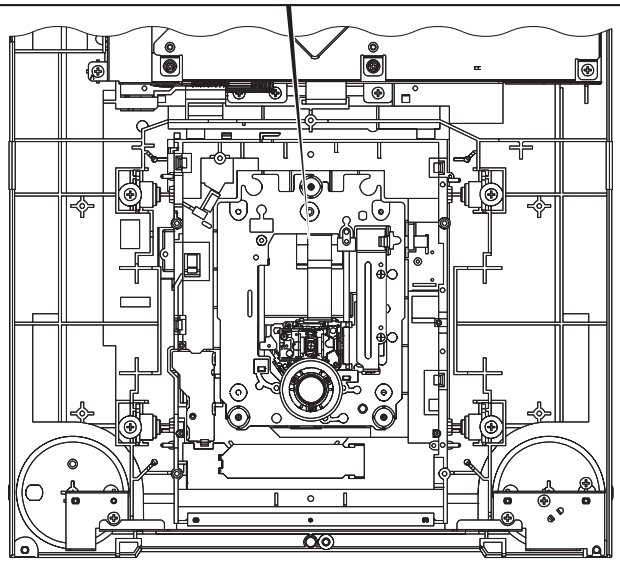
TM Assy-S

[1] Float Base Section

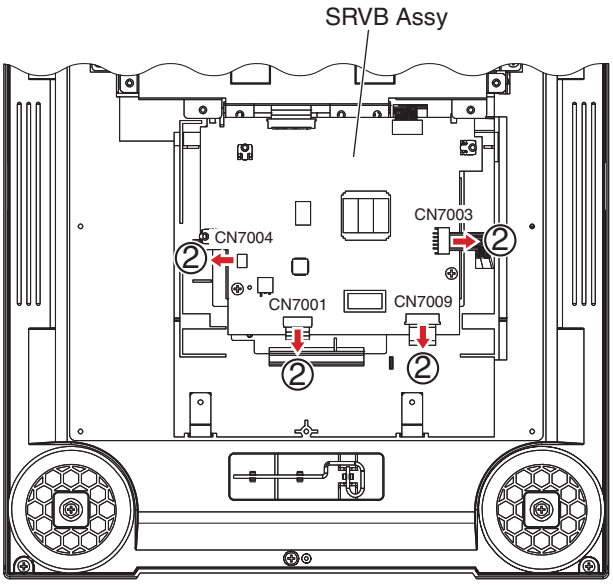
(1) solder the short-circuit point. (short)

Note:
After working, connect the flexible cable, then remove the soldered joint (open).



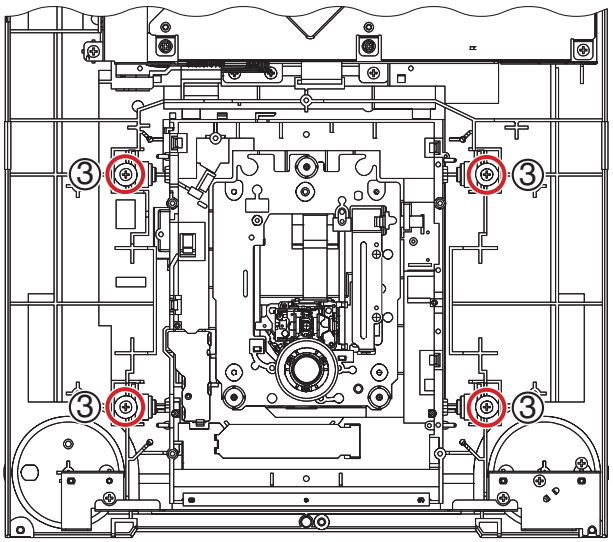


(2) Disconnect the 1 connector and 3 flexible cables.
(CN7001, 7003, 7004, 7009)

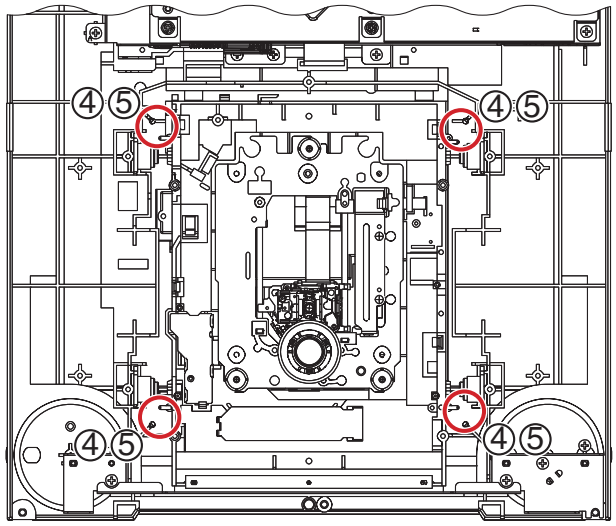


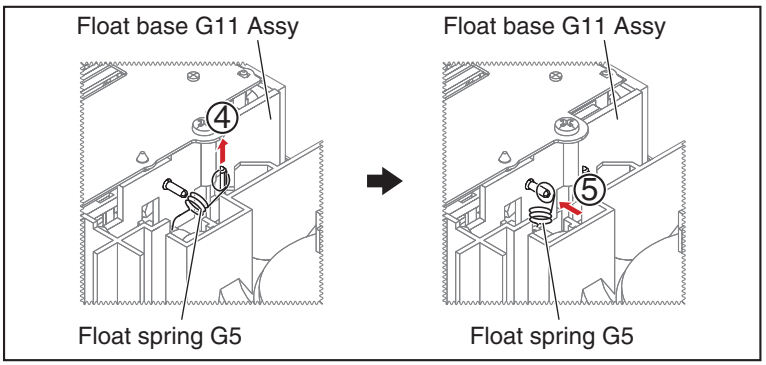
• Bottom view

(3) Remove the 4 DM screws.
(DBA1260)

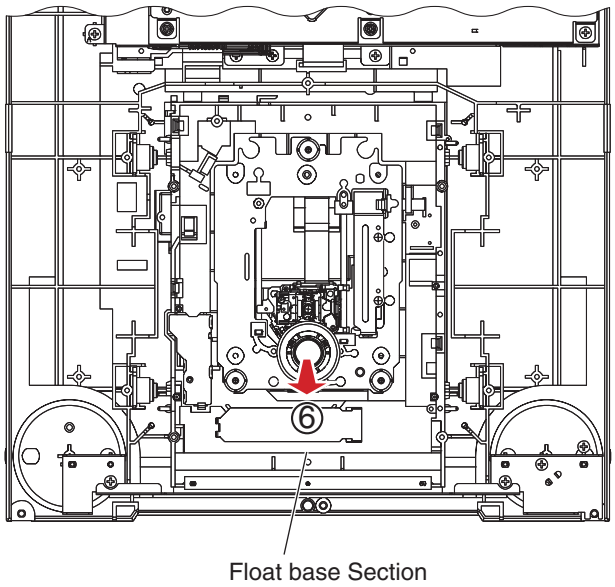


(4) Remove the 4 float springs (G5).
(5) Hook the 4 float springs G5 to the 4 hooks of the Float base G11 Assy.

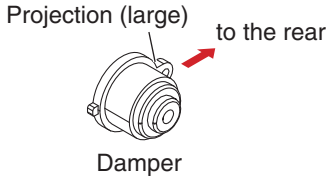




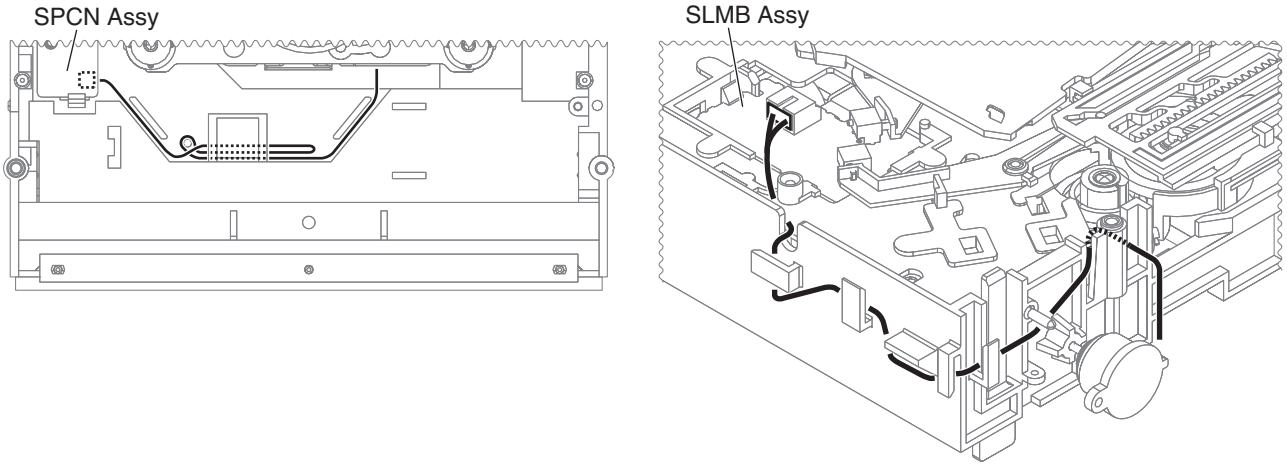
(6) Remove the Float base Section.



Direction of the dampers when attaching them
When attaching the dampers, place them so that their projections (large) face rear.

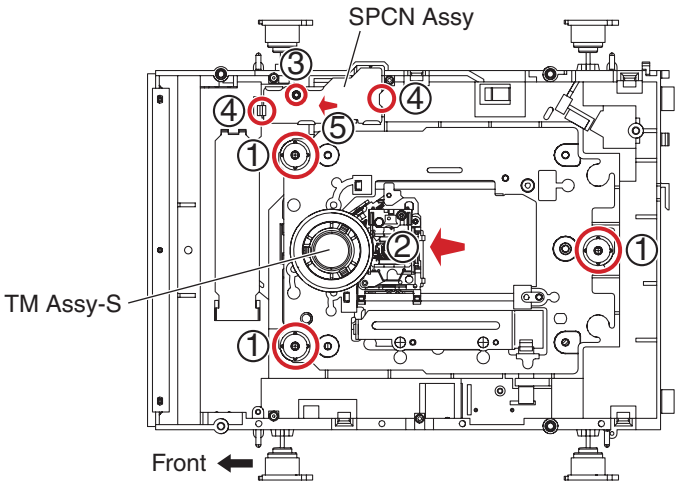


Arrangement of the jumper wires



[2] TM Assy-S

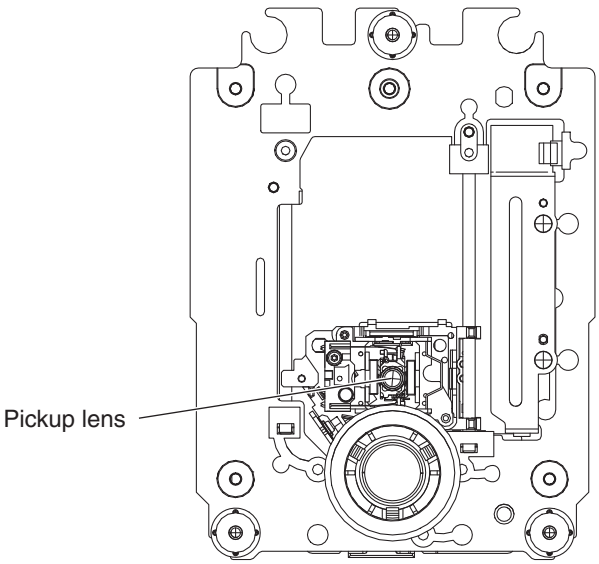
(1) Remove the 3 float screws. (DBA1286)
(2) Remove the TM Assy-S.
(3) Remove the 1 screw. (IPZ20P060FTC)
(4) Unhook the 2 hooks.
(5) Remove the SPCN Assy.



Cleaning the pickup lens

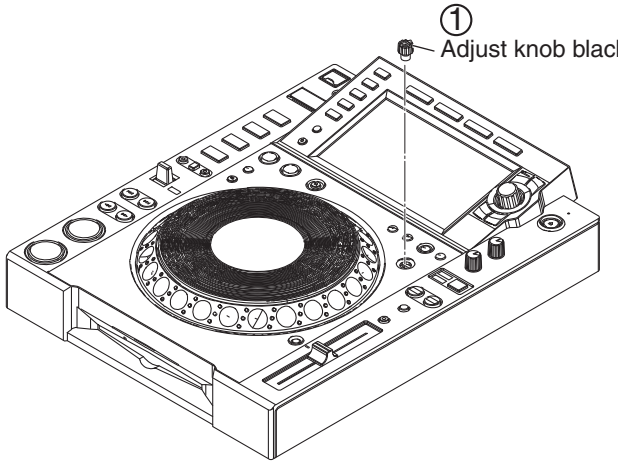
Before shipment, be sure to clean the pickup lens, using the following cleaning materials:

Cleaning liquid : GEM1004
Cleaning paper: GED-008



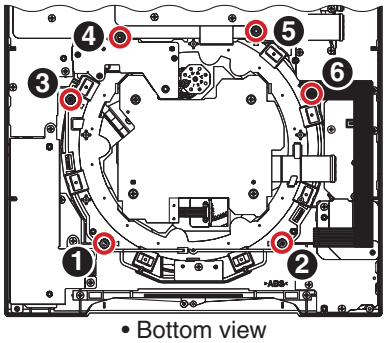
Jog Dial Section

(1) Remove the Adjust knob black.

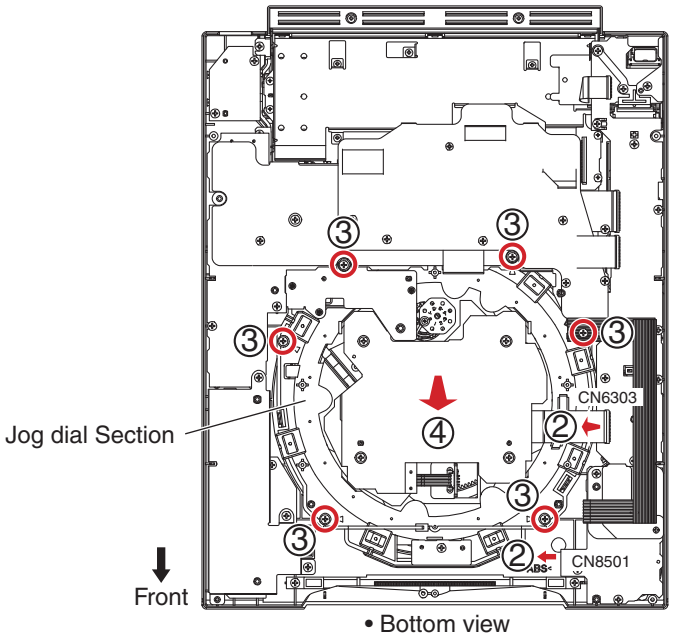


(2) Disconnect the 2 flexible cables.
(CN6303, 8501)
(3) Remove the 6 screws.
(BPZ30P080FNI)
(4) Remove it while pulling Jog dial Section in front side.

Screw tightening order



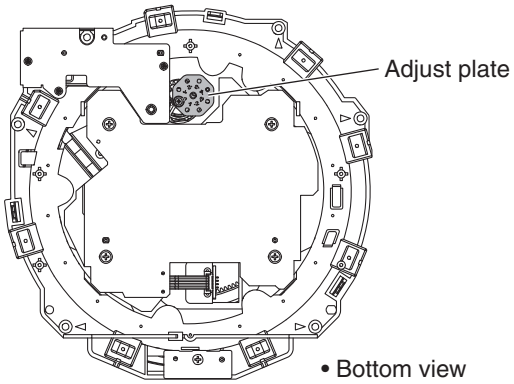
• Bottom view



• Bottom view

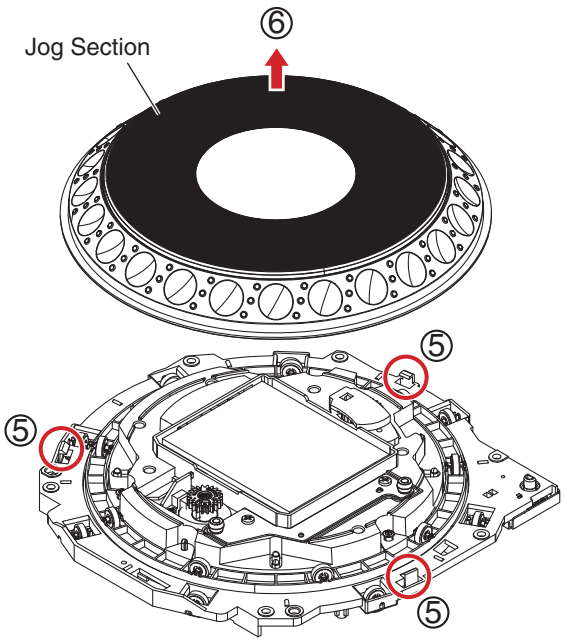
Position of the Adjust plate

About details of Adjustment etc., refer to the "8.4 JOG DIAL ROTATION LOAD ADJUSTMENT".



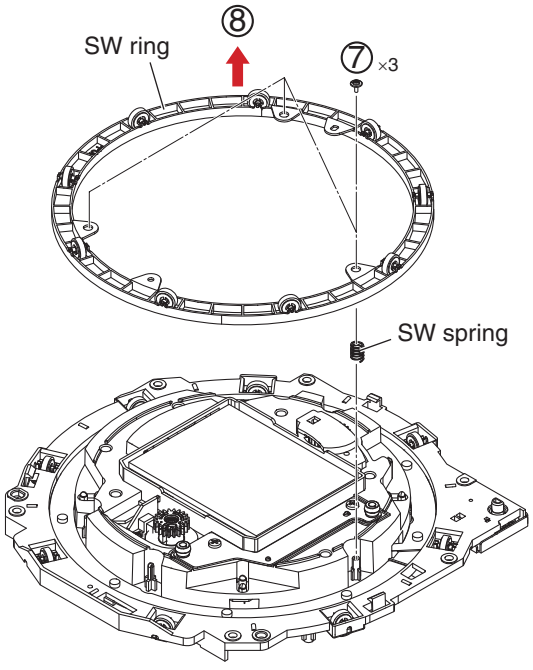
• Bottom view

(5) Unhook the 3 hooks.
(6) Remove the Jog Section.



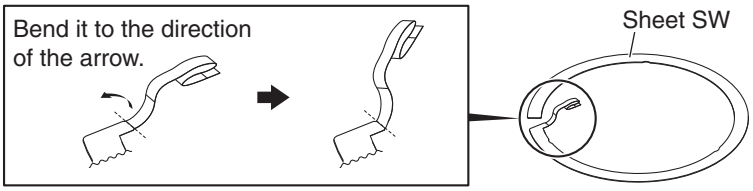
(7) Remove the 3 screws.
(DBA1265)
(8) Remove the SW ring.

Note:
Be careful not to lost SW spring.



Notes on replacing the Sheet SW

Styling of the Sheet SW

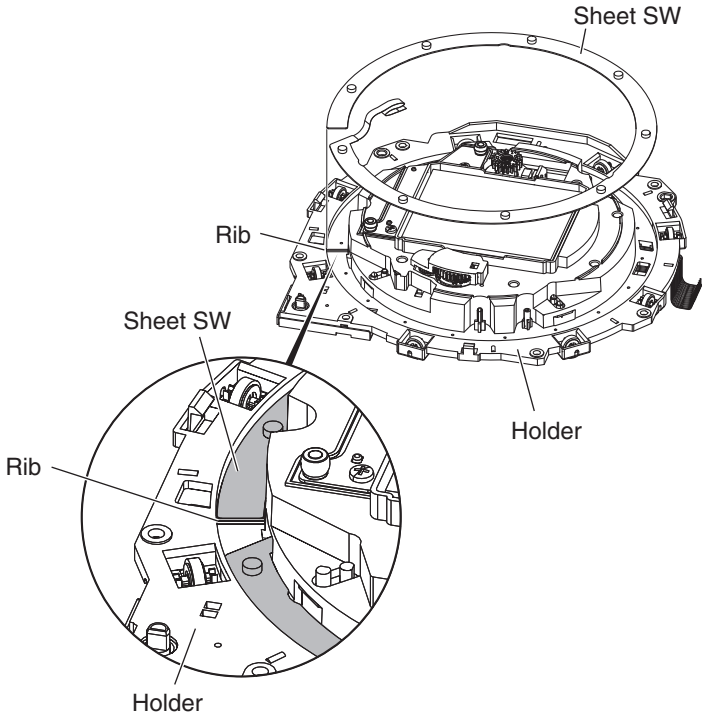


Notes on replacing the Sheet SW

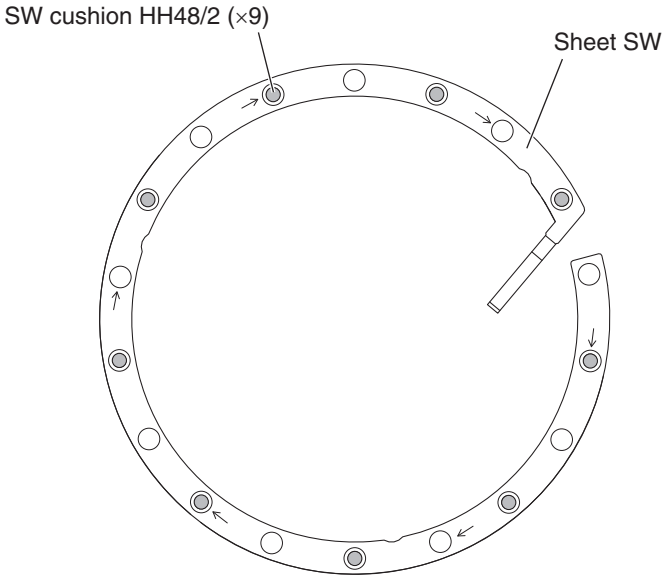
Pasting position of the Sheet SW

Notes:

1. Be careful not to warp the sheet SW.
2. Remove any dirt on the Holder to which the sheet SW is to be adhered. If some adhesive for the old sheet SW remains on the holder, completely remove it with a cloth moistened with alcohol.
3. Do NOT place the sheet SW so that it is mounted on the rib of Holder.
4. When adhering the sheet SW, be careful not to trap air bubbles in it. If air bubbles are formed, remove the sheet SW and adhere a new sheet SW. Do NOT reuse the removed sheet SW.
5. When making a connection, be sure to first release the lock of the connector then securely relock the connector after making the connection.

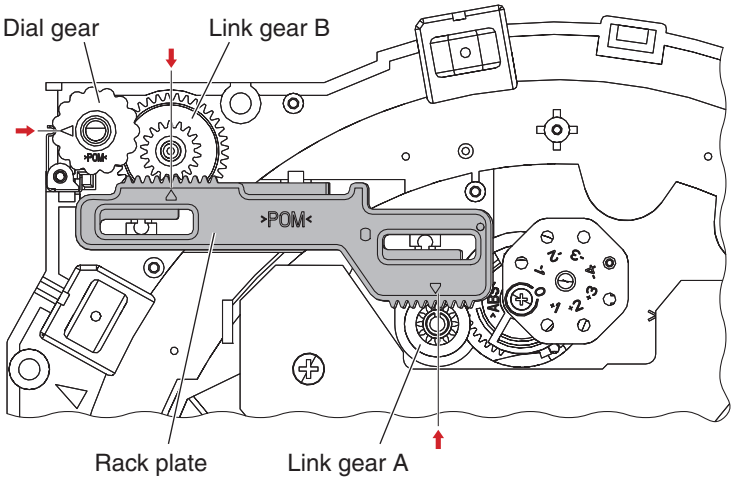


Pasting position of the SW cushion HH48/2



Alignment of the Rack Plate

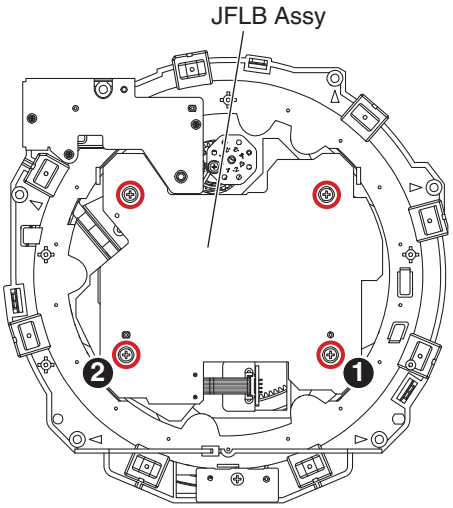
Place the rack plate so that its teeth are engaged with those of the gears and its triangular marks are positioned as shown in the figure.



Reference information

Screw tightening order (JFLB Assy)

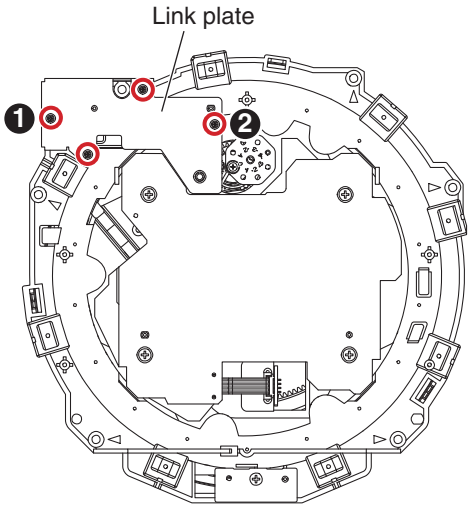
The other screws are random order.



• Bottom view

Screw tightening order (Link plate)

The other screws are random order.



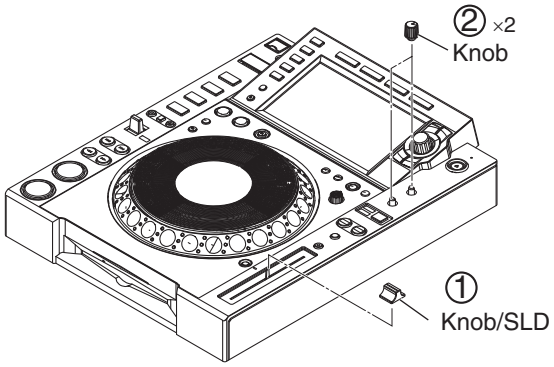
• Bottom view

Control Panel Section / Display Section

[1] PNLB, EUPB, SLDB, HLED and KSWB Assemblies

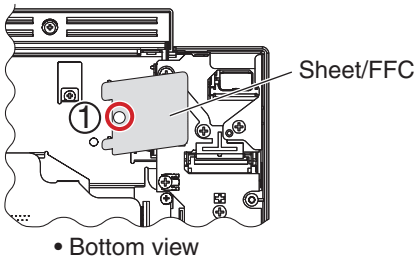
• Exterior Section

(1) Remove the Knob/SLD.
(2) Remove the 2 Knobs.



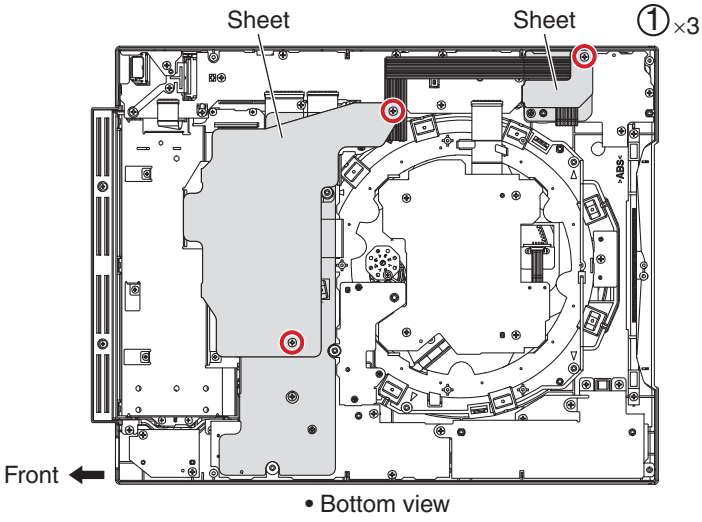
• Sheet/FFC

(1) Remove the Sheet/FFC, by removing the 1 rivet.

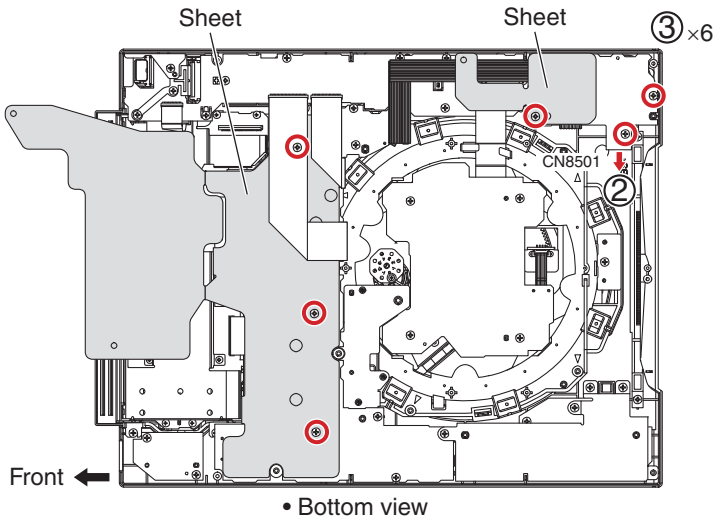


• Sheet

(1) Remove the 3 screws. (BPZ30P080FNI)

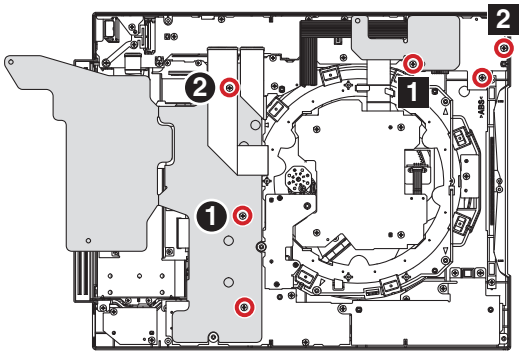


(2) Disconect the 1 flexible cable.
(CN8501)
(3) Remove the 2 Sheets, by removing the 6 screws.
(BPZ30P080FNI)



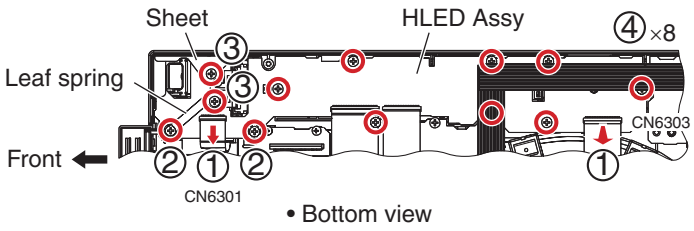
Screw tightening order

The other screws are random order.



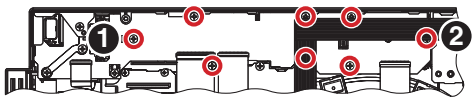
• HLED Assy

(1) Disconnect the 2 flexible cables.
(CN6301, 6303)
(2) Remove the 2 screws.
(BBZ30P060FTB)
(3) Remove the Sheet and Leaf springs, by removing the 2 screws.
(BPZ30P100FTC)
(4) Remove the 8 screws.
(BPZ30P080FNI)



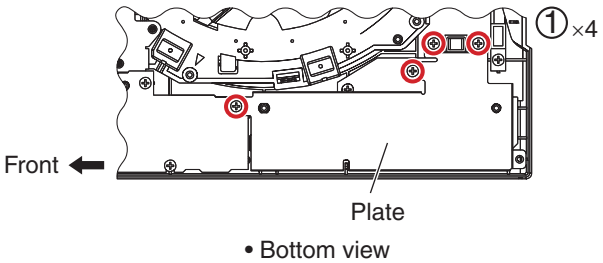
Screw tightening order

The other screws are random order.



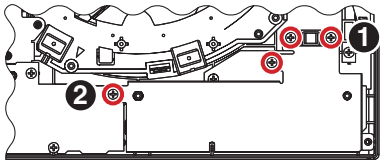
• SLDB Assy

(1) Remove the Plate, by removing the 4 screws.
(BPZ30P080FNI)



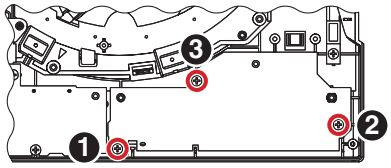
Screw tightening order

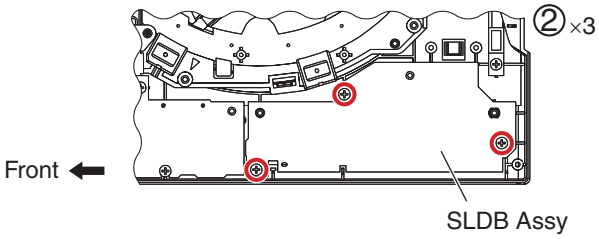
The other screws are random order.



(2) Remove the 3 screws.
(BPZ30P080FNI)

Screw tightening order





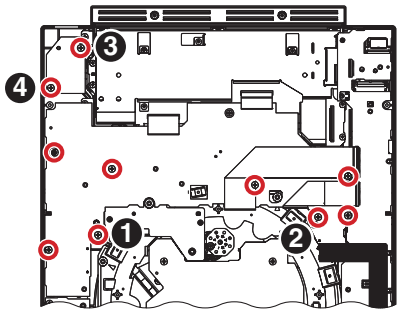
• Bottom view

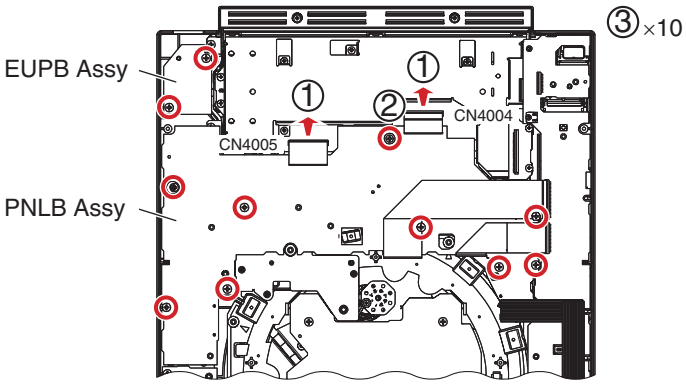
• PNLB and EUPB Assemblies

(1) Disconnect the 2 flexible cables.
(CN4004, 4005)
(2) Remove the 1 screw.
(ABZ30P060FTC)
(3) Remove the 10 screws.
(BPZ30P080FNI)

Screw tightening order

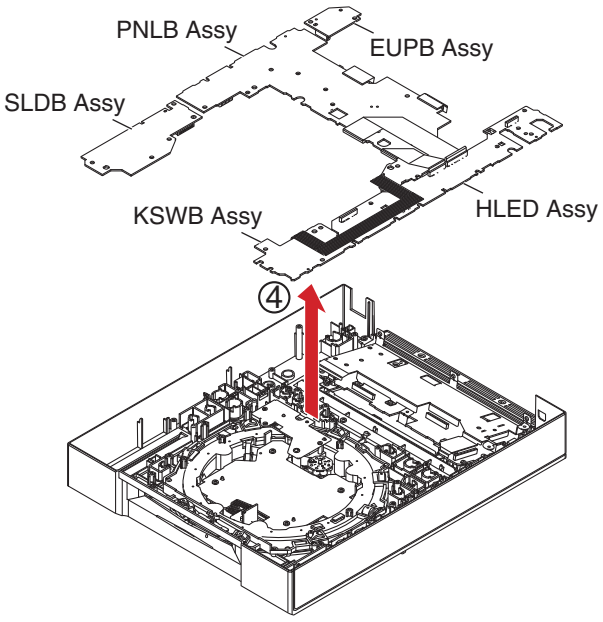
The other screws are random order.





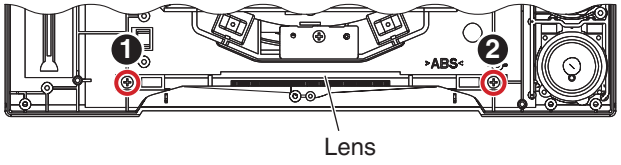
• Bottom view

(4) Remove the all PCB Assemblies.



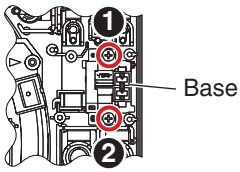
Reference information

Screw tightening order (Lens)



• Bottom view

Screw tightening order (Base)



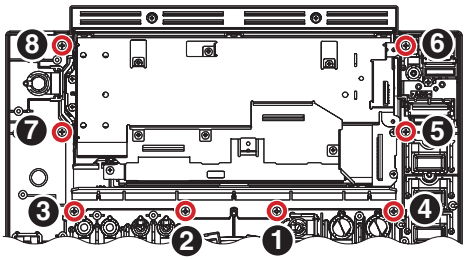
• Bottom view

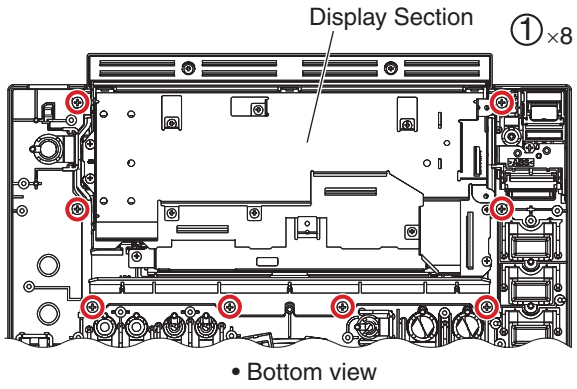
[2] Display Section

• Display Section

(1) Remove the Display Section, by removing the 8 screws. (BPZ30P080FNI)

Screw tightening order

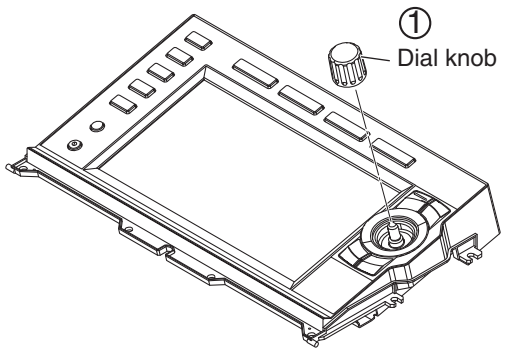




• Bottom view

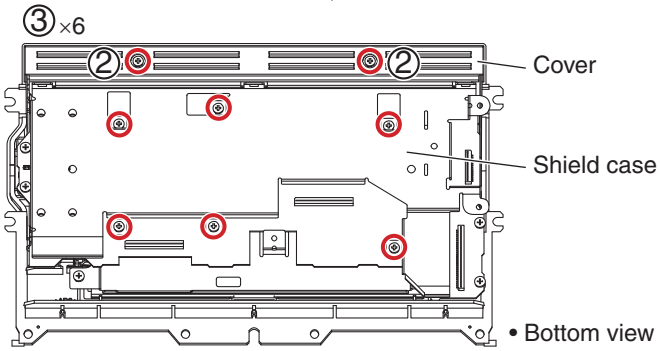
• Exterior Section

(1) Remove the Dial knob.



(2) Remove the Cover, by removing the 2 screws. (BBZ26P060FTB)

(3) Remove the Shield case, by removing the 6 screws. (BBZ26P060FTB)



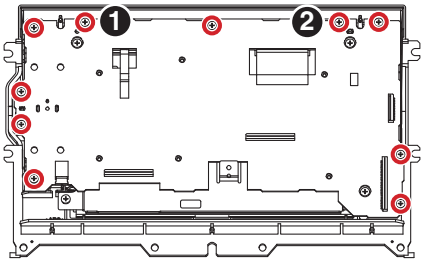
• Bottom view

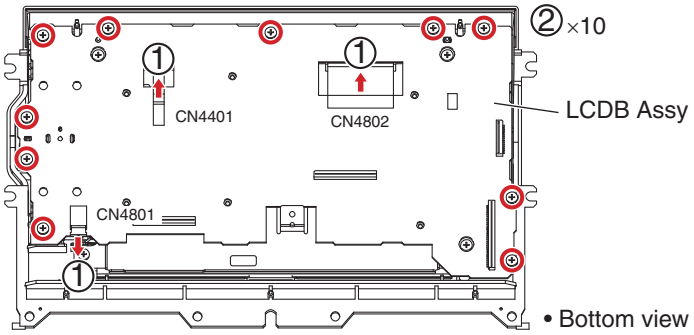
• LCDB Assy

(1) Disconnect the 2 flexible cables and 1 connector. (CN4401, 4801,4802)
(2) Remove the LCDB Assy, by removing the 10 screws. (BPZ26P080FTC)

Screw tightening order

The other screws are random order.



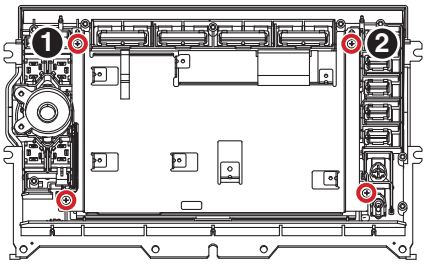


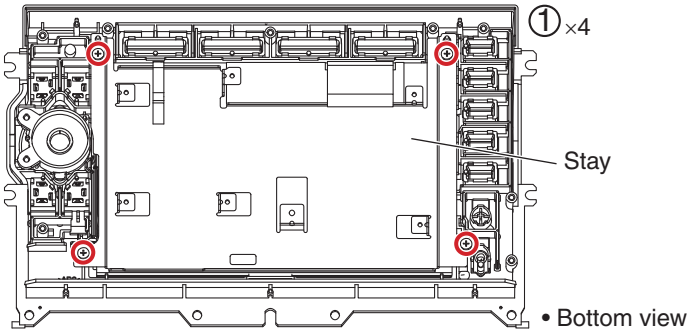
• Stay

(1) Remove the Stay, by removing the 4 screws. (BPZ26P080FTC)

Screw tightening order

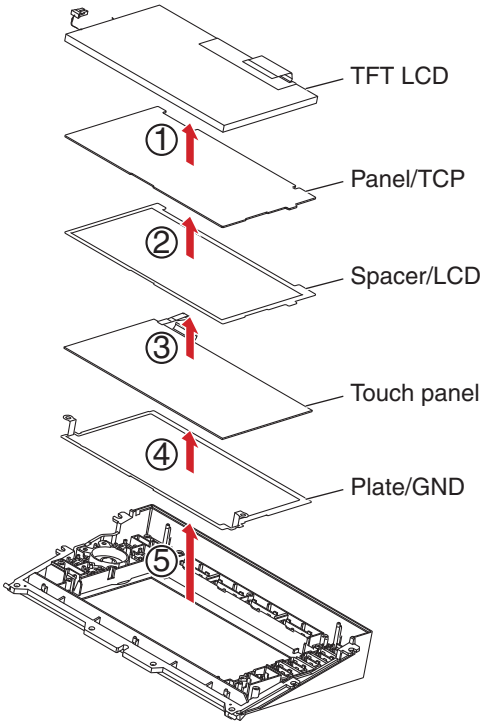
The other screws are random order.



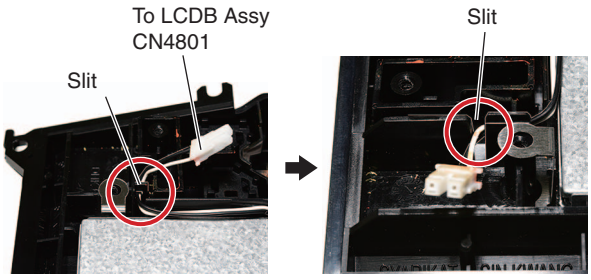


• TFT LCD and Touch panel

(1) Remove the TFT LCD.
(2) Remove the Panel/TCP.
(3) Remove the Spacer/LCD.
(4) Remove the Touch panel.
(5) Remove the Plate/GND.



Jumper wire styling



8. EACH SETTING AND ADJUSTMENT

8.1 NECESSARY ITEMS TO BE NOTED

After repairing, be sure to check the version of the firmware, and if it is not the latest one, update to the latest version.
Perform the each item when the following parts are replaced.

• MAIN Assy	⇒ • Input Drive LD life before the replacing with a manual. (See "6.1 SERVICE MODE") • Confirmation of the version of the firmware • Updating to the latest version of the firmware
• LCDB Assy (FLASH ROM: IC4602)	⇒ • Confirmation of the version of the firmware • Updating to the latest version of the firmware
• PNLB Assy (PANEL CPU: IC8001)	⇒ • Confirmation of the version of the firmware • Updating to the latest version of the firmware
• SRVB Assy (FLASH ROM: IC7004)	⇒ • Confirmation of the version of the firmware • Updating to the latest version of the firmware
• TM Assy 09SD-S	⇒ • Reset drive LD lighting time (See "6.1 SERVICE MODE")
• Tempo slider VR: VR8702 (SLDB Assy)	⇒ • TEMPO ZERO POINT ADJUSTMENT (See "8.5 TEMPO ZERO POINT ADJUSTMENT")
• Jog dial section component	⇒ • JOG DIAL ROTATION LOAD ADJUSTMENT (See "8.4 JOG DIAL ROTATION LOAD ADJUSTMENT")
• Touch panel	⇒ • Confirmation of the touch display operation*

∗: For confirmation of the touch display operation, refer to "Confirmation of the Touch display operation" in "[1] Check mode of the buttons and displays" of "6.1 SERVICE MODE."

8.2 FIRMWARE UPDATE / RECOVERY

For details on updating of firmware and recovery of the main unit, see “[9] Firmware update” in “6.1 SERVICE MODE.”

8.3 WRITING THE SERIAL NUMBER OF THE UNIT

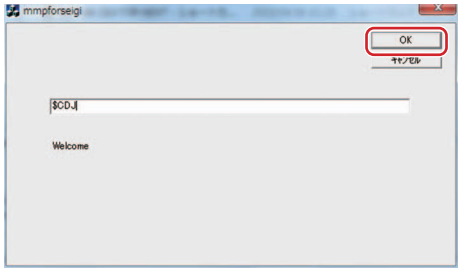
Writing the serial number can be performed from a PC that is connected with this unit via a USB B cable.

Preparations

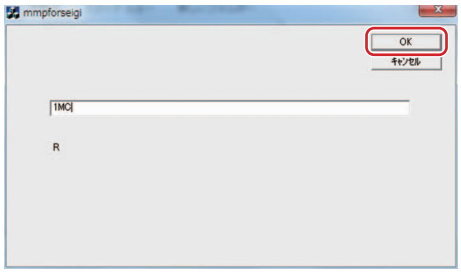
① Download the software for writing the serial number (GGS1177) from Niis.
② Unzip GGS1177 then store the two unzipped files (mmpforseigi.exe and hidcom.dll) in the PC.
Create a new folder at a place of your preference, such as the desktop, to store those files.

Procedure

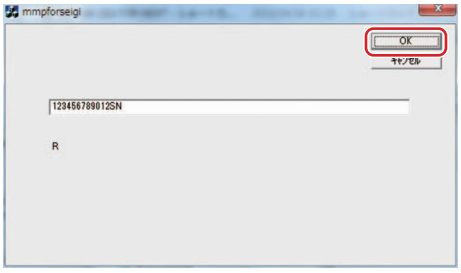
① Connect the unit with a PC via a USB B cable.
② Start the writing software, by double-clicking on mmpforseigi.exe.
③ Enter a "$CDJ" command then click on OK.



④ Enter a "1MC" command then click on OK.



⑤ Enter an "xSN" ("x" denotes a 12-digit serial number printed on the label) command then click on OK.



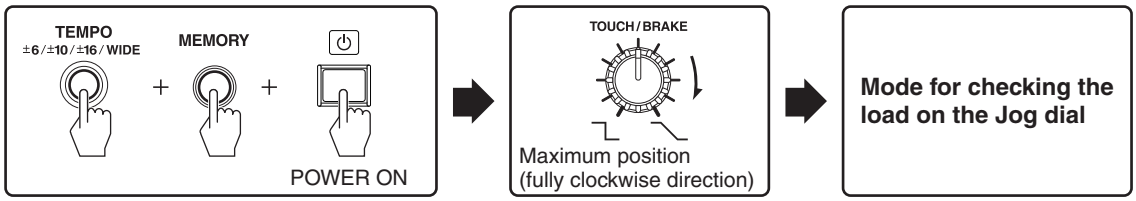
⑥ Enter a "?N" command then click on OK to check the serial number.



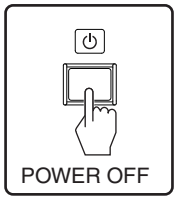
8.4 JOG DIAL ROTATION LOAD ADJUSTMENT

JOG Check Mode : ON

• It is the mode which judges the load (light/-- heavy) numerically when rotating the Jog dial.



JOG Check Mode : CANCEL



[Measuring method]

1. The adjustment value of adjust plate is adjusted to "0" (Refer to Fig. 2).
2. Enters the mode for checking the load on the Jog dial.
3. The jog dial is mightly rotated. Moreover, the direction of the rotation is clockwise.
4. The rotation speed and time are displayed in LCD display (Refer to Fig. 1).
   The time required so that the rotation may decrease from 3 X speed to 1.5 X speed when maximum speed is only 7 X speed or more is displayed.
   The average of the rotation decrease time of 5 times in all is confirmed in spec or less.
   Spec: 170 ± 20 msec.
5. When the rotation decreace time is coming off from spec, the adjustment value of adjust plate is changed, and it does from 2 of above-mentioned to 4.

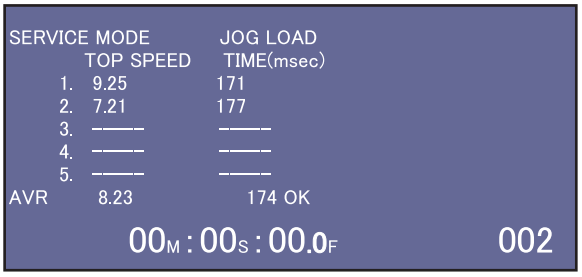


Fig. 1 Example of displaying LCD

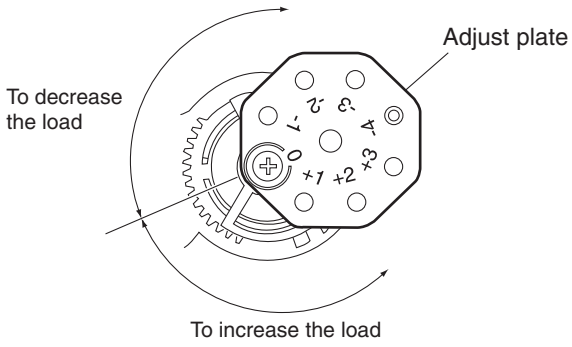


Fig. 2 Adjust plate

[Load adjustment method]

Remove the screw fixing the adjust plate, then screw it into the hole corresponding to the value (-1, -2, -3, -4, +1, +2 or +3) for a load to be added:
-1, -2, -3, -4 : To decrease the load
+1, +2, +3 : To increase the load

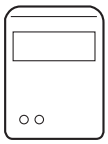
8.5 TEMPO ZERO POINT ADJUSTMENT

■ Necessary Adjustment Points

When	Adjustment points
Exchange the SLIDER VR	VR8702 (Zero Point ADJ.)

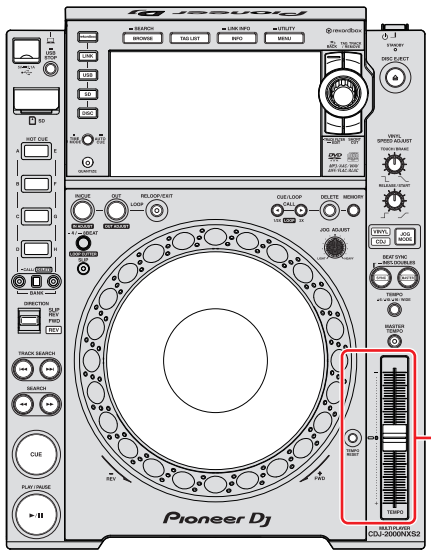
■ Jigs





- ⊖ Precise screwdriver (small)
- Digital multimeter which can be measured to 0.1mV.
- Insulation sheet (The thing that is bigger than SLDB Assy)

■ Adjustment and Check Points

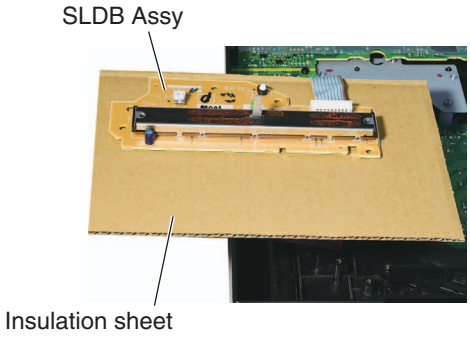


Zero Point ADJ.

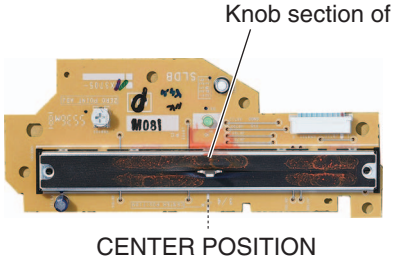
Notes:

Perform the adjustment before SLDB Assy mounting.
Repeat the adjustment until the voltage becomes 0 ± 5 mV.

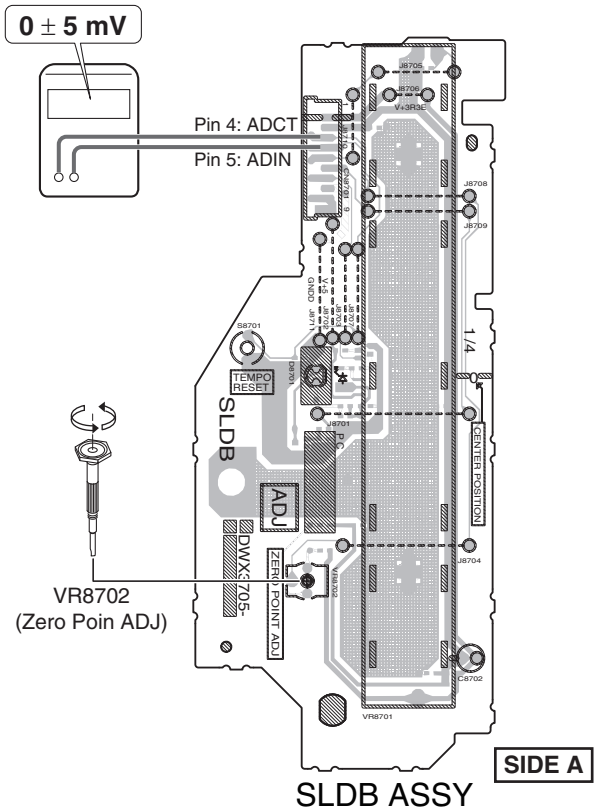
① Insert the insulation sheet between SLDB Assy and the main unit.



② Match the knob section of slide VR with CENTER POSITION.



③ Adjust it so that turn VR8702, and the voltage of the digital multimeter becomes 0 ± 5 mV.



8.6 ITEMS FOR WHICH USER SETTINGS ARE AVAILABLE

The following data have been set in each IC.

Item for Which User's Setting is Available	Setting Value	Part No.	Content to be Stored
PLAY MODE	CONTINUE*/SINGLE	IC12 (NSP) (MAIN Assy)	UTILITY setting
EJECT/LOAD LOCK	LOCK/UNLOCK*		
QUANTIZE BEAT VALUE	1/8, 1/4, 1/2, 1*		
HOT CUE AUTO LOAD	ON/rekordbox SETTING*/OFF		
HOT CUE COLOR	ON/OFF*		
AUTO CUE LEVEL	–36 dB/–42 dB/–48 dB/–54 dB/–60 dB /–66 dB/–72 dB/–78 dB/MEMORY*		
SLIP FLASHING	ON*/OFF		
ON AIR DISPLAY	ON*/OFF		
JOG BRIGHTNESS	OFF/1/2*		
JOG INDICATOR	ON*/OFF		
DISC SLOT ILLUMINATION	OFF/1/2*		
LANGUAGE	Destination		
HISTORY NAME	——		
PLAYER No.	AUTO*, 1 – 4		
LINK STATUS	——		
MIDI CHANNEL	1* to 16		
DIGITAL OUT	16 bit/24 bit*		
AUTO STANDBY	ON*/OFF		
LCD BRIGHTNESS	1 – 3* – 5		
SCREEN SAVER	ON*/OFF		
DUPLICATION	DEFAULT*, ALL, PLAYER1–4		
TIME MODE	TIME/REMAIN*	IC12 (NSP) (MAIN Assy)	Statuses of keys
AUTO CUE	ON/OFF		
JOG MODE	CDJ/VINYL		
MASTER TEMPO	ON/OFF		
QUANTIZE BEAT VALUE	ON/OFF		
PHASE METER	TIPE1*/TIPE2		

*: Setting upon purchase

How to Back Up and Restore the Settings

You can store the UTILITY and other settings in the recording media (USB/SD) then retrieve the stored settings later.
How to store and retrieve data is described below.
(For details, refer to "Changing the Settings" in the operating instructions.)

Backup (Storing the Settings)

1. Connect the storage device (SD, USB) on which you want to store the settings.
2. Press the device button (SD or USB).
3. Press the [MENU/UTILITY] button.
4. Use the rotary selector to select and enter [SAVE] at [MY SETTINGS].

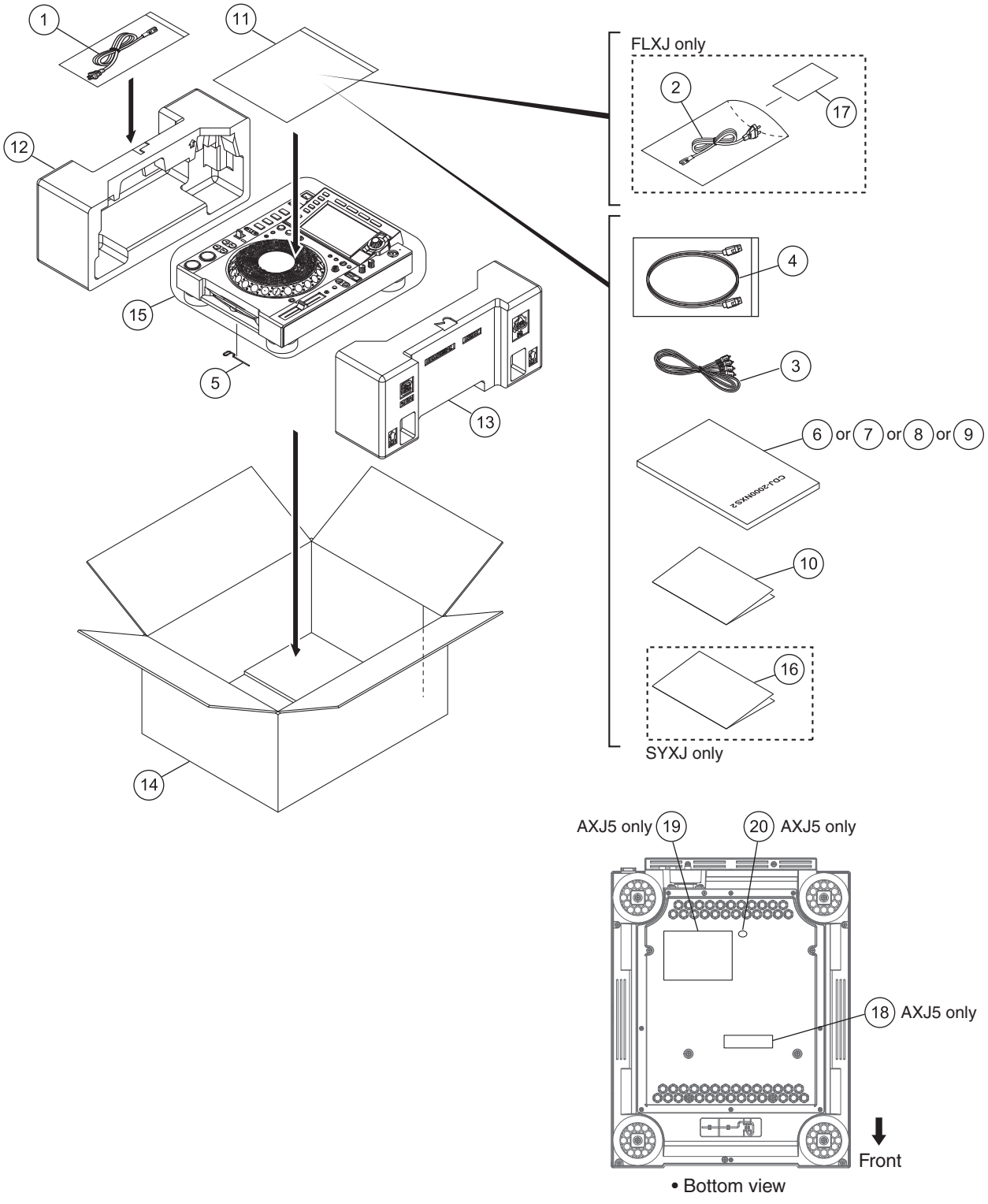
Restore (Retrieving the stored settings)

1. Connect the storage device (SD, USB) on which the settings are stored.
2. Press the device button (SD or USB).
3. Press the [MENU/UTILITY] button.
4. Use the rotary selector to select and enter [LOAD] at [MY SETTINGS].

9. EXPLODED VIEWS AND PARTS LIST

NOTES: ● *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
● *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
● *Screws adjacent to ▼ mark on product are used for disassembly.*
● *For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions, apply as you think it appropriate.)*

9.1 PACKING SECTION



(1) PACKING SECTION PARTS LIST

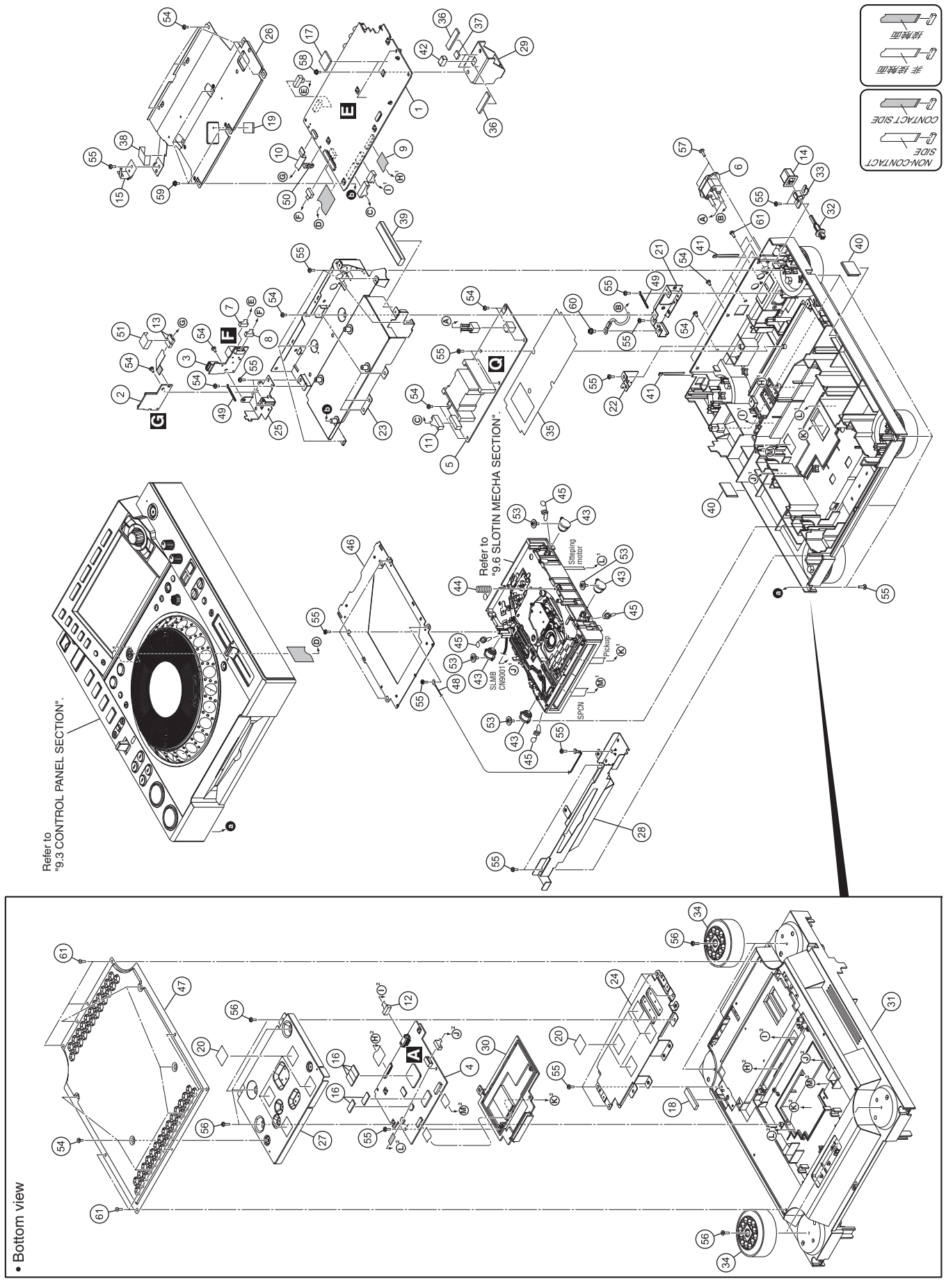
Mark	No.	Description	Part No.
⚠	1	Power Cord	See Contrast table (2)
⚠	2	Power Cord	See Contrast table (2)
	3	Audio Cable	XDE3045
	4	LAN Cable	DDE1141
	5	Disc Force Eject Pin	DEX1024
	6	Operating Instructions (Quick Start Guide)	See Contrast table (2)
	7	Operating Instructions (Quick Start Guide)	See Contrast table (2)
	8	Operating Instructions (Quick Start Guide)	See Contrast table (2)
	9	Operating Instructions (Quick Start Guide)	See Contrast table (2)
NSP	10	Leaflet	See Contrast table (2)
NSP	11	Polyethylene Bag	AHG7117
	12	Packing Pad	DHA1935
	13	Packing Pad	DHA1936
	14	Packing Case	See Contrast table (2)
	15	Packing Sheet	RHC1023
NSP	16	Warranty	See Contrast table (2)
	17	Caution Card SB	See Contrast table (2)
NSP	18	Label	See Contrast table (2)
NSP	19	Name Label	See Contrast table (2)
NSP	20	CCC S Label	See Contrast table (2)

(2) CONTRAST TABLE

CDJ-2000NXS2/SYXJ, UXJCB, FLXJ and AXJ5 are constructed the same except for the following:

Mark	No.	Symbol and Description	CDJ-2000NXS2 /SYXJ	CDJ-2000NXS2 /UXJCB	CDJ-2000NXS2 /FLXJ	CDJ-2000NXS2 /AXJ5
⚠	1	Power Cord	ADG1244	DDG1108	ADG1244	DDG1114
⚠	2	Power Cord	Not used	Not used	ADG1239	Not used
	6	Operating Instructions (Quick Start Guide) (En, Fr, De, It, Nl, Es, Pt, Ru)	DRH1322	Not used	Not used	Not used
	7	Operating Instructions (Quick Start Guide)(En)	Not used	DRH1321	Not used	Not used
	8	Operating Instructions (Quick Start Guide) (En, Es, Zhtw)	Not used	Not used	DRH1323	Not used
	9	Operating Instructions (Quick Start Guide)(Zhcn)	Not used	Not used	Not used	DRH1324
NSP	10	Leaflet	DRH1275	DRH1275	DRH1275	DRH1274
	14	Packing Case	DHG3438	DHG3440	DHG3441	DHG3443
NSP	16	Warranty	ARY7158	Not used	Not used	Not used
	17	Caution Card SB	Not used	Not used	ARM7064	Not used
NSP	18	Label	Not used	Not used	Not used	DRW2667
NSP	19	Name Label	Not used	Not used	Not used	DAL1335
NSP	20	CCC S Label	Not used	Not used	Not used	DRW2310

9.2 EXTERIOR SECTION

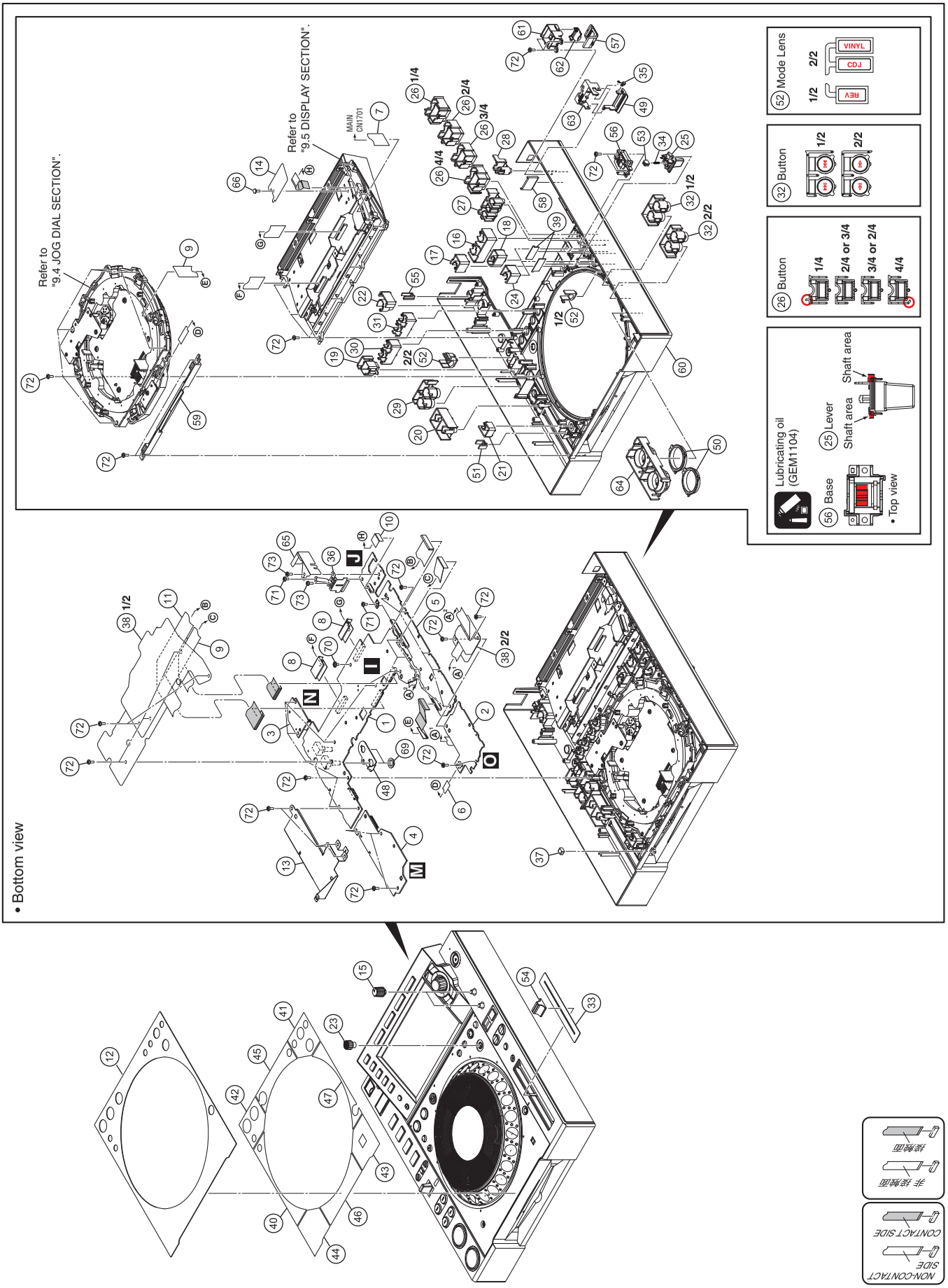


EXTERIOR SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	MAIN Assy	DWX3672
	2	SDCB Assy	DWX3694
	3	USBA Assy	DWX3695
	4	SRVB Assy	DWX3696
⚠	5	SW POWER SUPPLY Assy	DWR1548
⚠	6	AC Inlet	DKP3975
	7	Shielded Conn-Cable	DDA1053
	8	Shielded Conn-Cable	DDA1052
	9	FFC	DDD1703
	10	FFC	DDD1706
	11	Crimp Connector	DDC1024
	12	Connector Assy	PF06PP-S10
	13	Ferrite Core	BTX1037
	14	Power Knob	DAC2306
	15	SD Earth Spring	DBK1357
	16	Silicon Rubber D5 L	DEB1456
	17	Heat Cond Sheet	DEB2018
	18	Heat Cond Sheet	DEB2019
	19	Cushion	DEB2024
	20	Cushion	DEB2030
	21	Bracket/ACI	DNH3020
	22	Stay/KST	DNH3021
	23	Stay	DNH3225
	24	Stay	DNH3226
	25	Stay	DNH3227
	26	Shield Plate	DNH3229
	27	Plate	DNH3230
	28	Plate	DNH3237
	29	Heat Sink	DNH3238
	30	Servo Cover	DNK5492
⚠	31	Chassis	DNK6500
	32	Shaft	DNK6501
	33	Guide	DNK6502
	34	Insulator	DXB2169
	35	Sheet	DEC3660
	36	Heat Cond Sheet	DEB2041
	37	Heat Cond Sheet	DEB2042
	38	Cushion	DEC3679
	39	Gasket	DEC3681
	40	Cushion	DEC3687
	41	Cushion	DEC3688
	42	Gasket/JOG	DEC3562
	43	Damper	CNV7618
	44	Earth Spring	DBH1398
	45	Float Spring (G5)	DBH1494

Mark	No.	Description	Part No.
	46	Mecha Plate	DNH2339
	47	Panel	DAH3052
	48	Cord With Plug	DE007VE0
	49	Cord Clamper (Steel)	RNH-184
	50	Cable Tie	ZCA-SKB90BK
	51	Cushion	DEC3680
	52	•••••	
	53	DM Screw (FTC)	DBA1260
	54	Screw	BBZ30P060FTB
	55	Screw	BPZ30P080FNI
	56	Screw	BPZ30P100FTC
	57	Screw	IBZ30P100FTB
	58	Screw	PMB30P080FTB
	59	Screw	PMH30P080FTC
	60	Screw	PMH40P080FTC
	61	Screw	PPZ30P080FTB

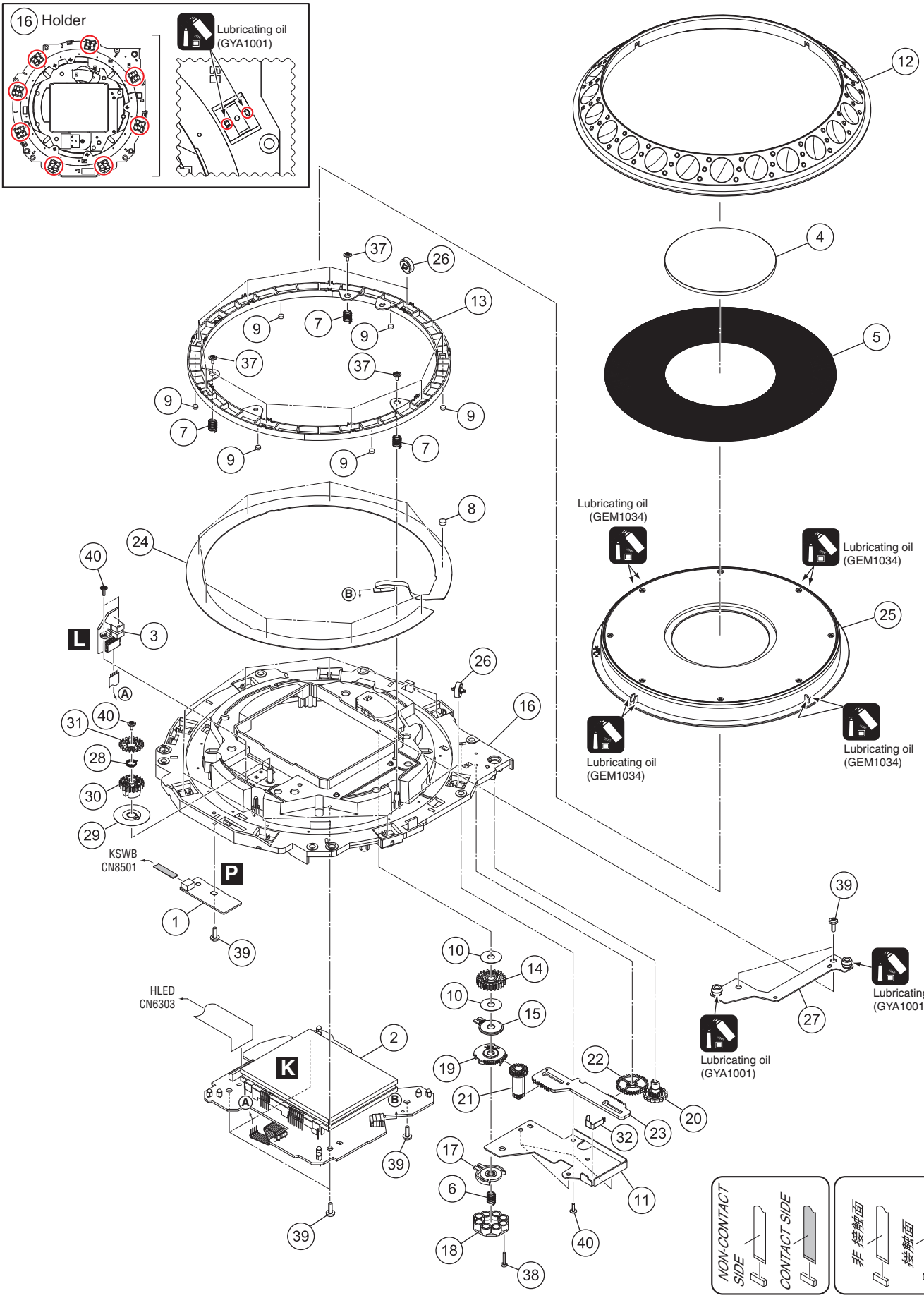
9.3 CONTROL PANEL SECTION



CONTROL PANEL SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	PNLB Assy	DWX3702
	2	KSWB Assy	DWX3703
	3	EUPB Assy	DWX3704
	4	SLDB Assy	DWX3705
	5	HLED Assy	DWX3700
	6	FFC/4P	DDD1641
	7	FFC	DDD1705
	8	FFC	DDD1707
	9	FFC	DDD1709
	10	FFC	DDD1711
	11	FFC	DDD1712
	12	Panel	DAH3051
	13	Plate	DNH3223
	14	Sheet/FFC	DEC3577
	15	Knob	DAA1303
	16	Button (LOOP)	DAC2470
	17	Button (RELOOP)	DAC2471
	18	Button (4-BEAT LOOP)	DAC2472
	19	Button (JOG MODE)	DAC2473
	20	Button (TEMPO)	DAC2474
	21	Button (TEMPO REST)	DAC2475
	22	Button (EJECT)	DAC2476
	23	Adjust Knob Black	DAC2528
	24	Button/SLP	DAC2865
	25	Lever	DAC3097
	26	Button	DAC3129
	27	Button	DAC3130
	28	Button	DAC3134
	29	Button	DAC3135
	30	Button	DAC3147
	31	Button	DAC3148
	32	Button	DAC3149
	33	Slide Sheet 1C	DAH2404
	34	Lever Spring	DBH1702
	35	Spring	DBH1717
	36	Leaf Spring	DBK1386
	37	Gasket/JOG	DEC3562
	38	Sheet	DEC3614
	39	Brake	DEC3634
	40	DS ADH Sheet	DEH1070
	41	DS ADH Sheet	DEH1071
	42	DS ADH Sheet	DEH1072
	43	DS ADH Sheet	DEH1073
	44	DS ADH Sheet	DEH1074
	45	DS ADH Sheet	DEH1075
	46	DS ADH Sheet	DEH1076
	47	DS ADH Sheet	DEH1082
	48	Stay/VR	DNF1894
	49	SD Card Door	DNK5308
	50	Ring Rens (PLAY)	DNK5315
	51	Tempo Lens	DNK5316
	52	Mode Lens	DNK5317
	53	Lever Cap	DNK5344
	54	Knob/SLD	DNK5981
	55	Lens/EUP	DNK6040
	56	Base	DNK6470
	57	Lens	DNK6491
	58	Lens	DNK6492
	59	Lens	DNK6493
⚠	60	Control Panel	DNK6494
	61	Holder	DNK6496
	62	Door	DNK6497
	63	Holder	DNK6498
	64	Button	DXB2170
	65	Sheet	DEC3689
	66	Rivet (Plastic)	RBM-003
	67	•••••	
	68	•••••	
	69	Flange Nut M9	DBN1008
	70	Screw	ABZ30P060FTC
	71	Screw	BBZ30P060FTB
	72	Screw	BPZ30P080FNI
	73	Screw	BPZ30P100FTC

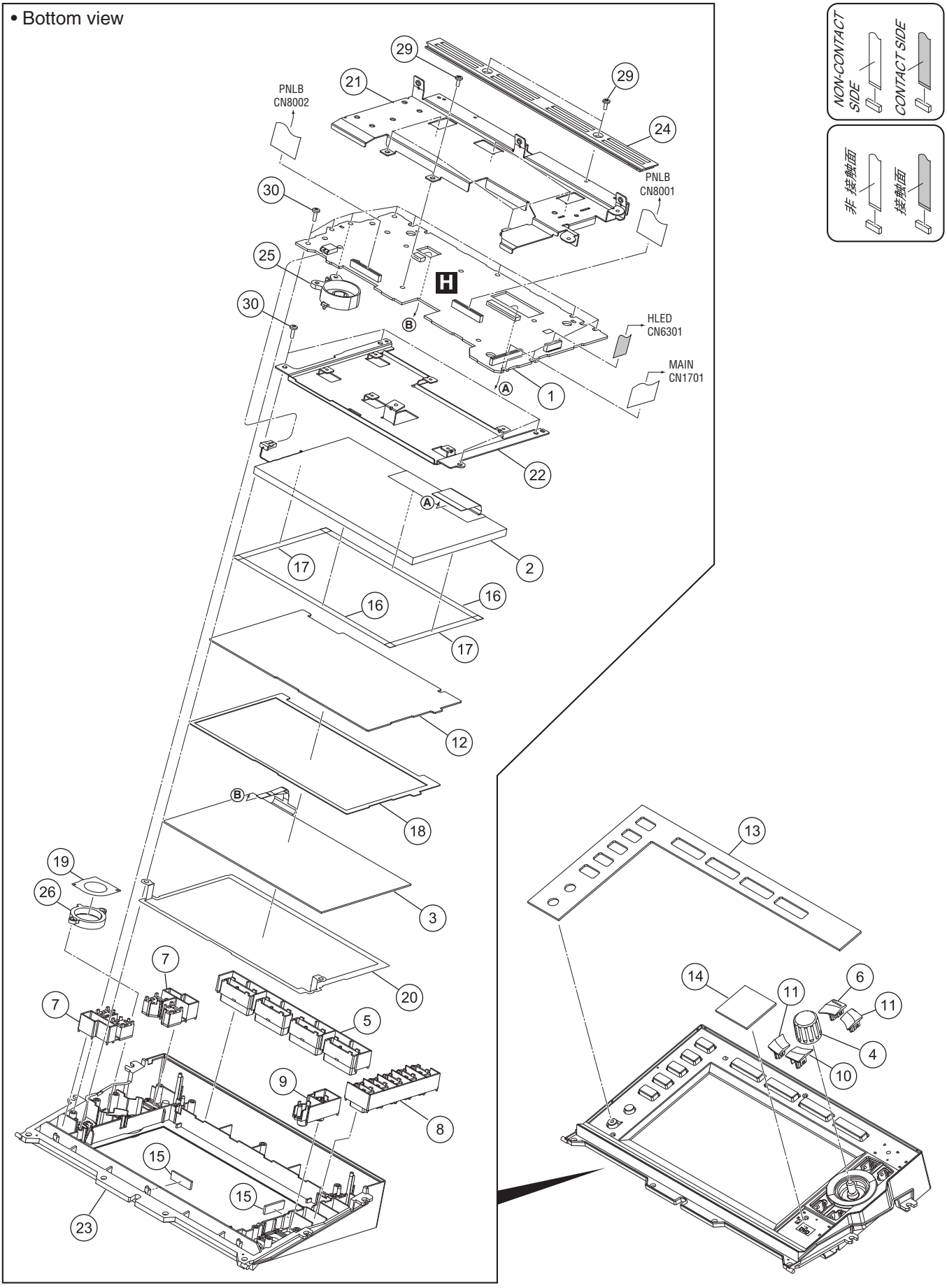
9.4 JOG DIAL SECTION



JOG DIAL SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	INDB Assy	DWX3699
	2	JFLB Assy	DWX3708
	3	JOGB Assy	DWX3709
	4	Jog Panel	DAH2609
	5	Jog Plate	DAH2679
	6	Coil Spring/LD	DBH1798
	7	SW Spring	DBH1681
	8	SW Cushion HH48/2	DEC2538
	9	Cushion/RNG	DEC3466
	10	Washer	DEC3137
	11	Link Plate	DNH2848
	12	Jog B	DNK4068
	13	SW Ring	DNK5233
	14	Gear/LD	DNK6145
	15	Smoother	DNK5237
	16	Holder	DNK6556
	17	Comp Plate	DNK5243
	18	Adjust Plate	DNK5300
	19	Cam Plate	DNK5301
	20	Dial Gear	DNK5302
	21	Link Gear A	DNK5303
	22	Link Gear B	DNK5304
	23	Rack Plate	DNK5305
	24	Sheet SW	DSX1078
	25	Jog Dial A Assy	DXA2159
	26	Roller	DXB2178
	27	Stay Assy/JOG	DXB2133
	28	Encoder Spring	DBH1710
	29	Plate	DEC3700
	30	Gear/A	DNK6143
	31	Gear/B	DNK6144
	32	Leaf Spring/ADJ	DBK1376
	33	•••••	
	34	•••••	
	35	•••••	
	36	•••••	
	37	Screw (FE)	DBA1265
	38	Screw	BPZ20P100FTC
	39	Screw	BPZ30P080FNI
	40	Screw	IPZ20P060FTC

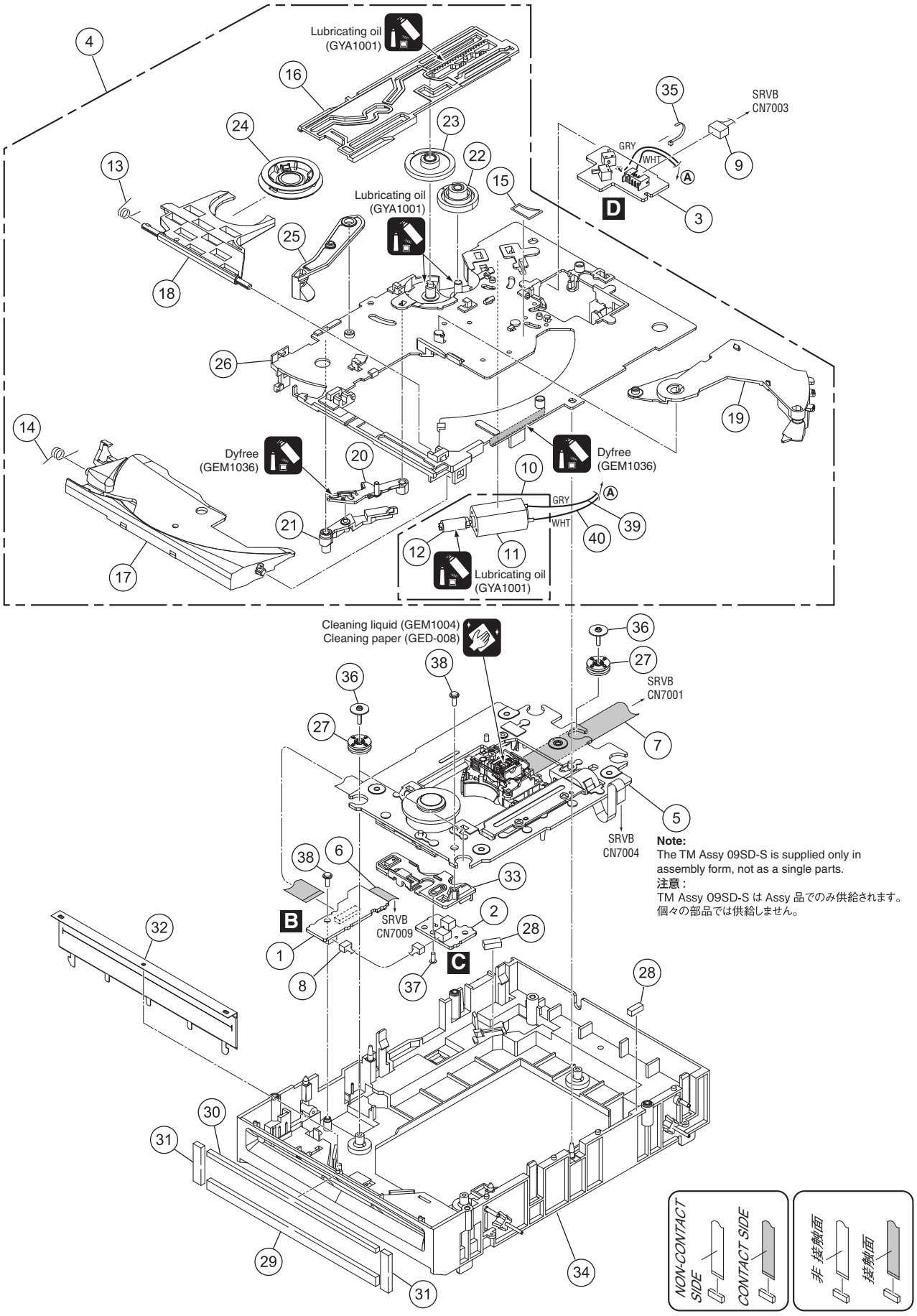
9.5 DISPLAY SECTION



DISPLAY SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	LCDB Assy	DWX3693
	2	TFT LCD	CWX4352
	3	Touch Panel	DSX1130
	4	Dial Knob	DAA1246
	5	Button/MOD	DAC2807
	6	Button	DAC3113
	7	Button	DAC3114
	8	Button	DAC3115
	9	Button	DAC3116
	10	Button	DAC3117
	11	Button	DAC3118
	12	Panel/TCP	DAH3006
	13	Panel	DAH3043
	14	Panel	DAH3044
	15	Packing/LCD	DEC3565
	16	Packing/L	DEC3568
	17	Packing/S	DEC3569
	18	Spacer/LCD	DEC3571
	19	Light-D Sheet	DEC3613
	20	Plate/GND	DNH3173
	21	Shield Case	DNH3220
	22	Stay	DNH3221
⚠	23	Control Panel	DNK6465
	24	Cover	DNK6466
	25	Holder	DNK6467
	26	Lens	DNK6468
	27	•••••	
	28	•••••	
	29	Screw	BBZ26P060FTB
	30	Screw	BPZ26P080FTC

9.6 SLOT IN MECHA SECTION



Note:
The TM Assy 09SD-S is supplied only in assembly form, not as a single parts.
注意 :
TM Assy 09SD-S は Assy 品でのみ供給されます。
個々の部品では供給しません。

SLOT IN MECHA SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	SPCN Assy	DWX3698
	2	INSW Assy	DWX3697
	3	SLMB Assy	DWX3707
NSP	4	SLOTIN MECHA G11 Assy	DXA2163
	5	TM Assy 09SD-S	DXX2697
	6	FFC	DDD1704
	7	FFC	DDD1713
	8	Connector Assy 2P	DKP3769
	9	Connector Assy	PF05PP-C25
	10	DC Motor Assy-S	DXX2510
NSP	11	DC Motor S	DXM1230
NSP	12	Worm Gear	DNK3910
	13	Clamp Spring	DBH1374
	14	Guide Spring	DBH1375
	15	SW. Lever Spacer (PET)	DEC2420
	16	Main Cam	DNK3407
	17	Disc Guide	DNK3478
	18	Clamp Arm	DNK3576
	19	Eject Lever	DNK3684
	20	Lever AP	DNK3835
	21	Lever BP	DNK3836
	22	Loading Gear	DNK3911
	23	Drive Gear	DNK3912
	24	Clamper Assy	DXA2043
	25	Loading Lever Assy	DXB1880
	26	Loading Base Assy-S	DEA1022
	27	Float Rubber D3	DEB1404
	28	Spacer POR (T3)	DEB1566
	29	Vessel Cushion A	DEC2852
	30	Vessel Cushion B	DEC2853
	31	Vessel Cushion C	DEC2854
	32	Front Sheet	DED1132
	33	Inside SW Base	DNK4236
	34	Float Base G11 Assy	DXB1793
	35	Binder	ZCA-SKB90BK
	36	Float Fastener	DBA1286
	37	Screw	VBA1062
	38	Screw	IPZ20P060FTC
NSP	39	Lead Wire (JP1901)	ZWNN1007G28-8-07A
NSP	40	Lead Wire (JP1902)	ZWNN1007G28-9-07A