ORDER NO.CHM1104019CE

Service Manual

Blu-ray Disc Player

Model No. **DMP-BDT110GA**
DMP-BDT110GC
DMP-BDT110GN
DMP-BDT110GT
DMP-BDT110GW
DMP-BDT110PU
DMP-BDT110PX



Vol. 1
Colour
(K).....Black Type

Panasonic

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2. This product includes software developed by the University of California, Berkeley and its contributors.
3. FreeType code.
4. The Independent JPEG Group's JPEG software.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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1 Safety Precautions

1.1. General guidelines

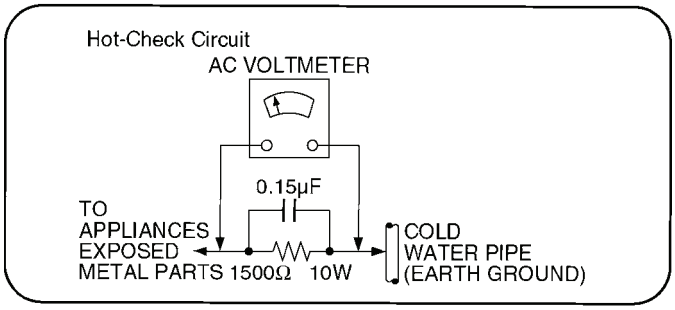
1. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
2. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
3. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

1.1.1. Leakage current cold check

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between 1MΩ and 5.2MΩ.
   When the exposed metal does not have a return path to the chassis, the reading must be ∞.

1.1.2. Leakage current hot check (See Figure 1.)

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a 1.5kΩ, 10 watts resistor, in parallel with a 0.15μF capacitors, between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in Figure 1.
3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 volts RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks, leakage current must not exceed 1/2 milliampere. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.



1.2. Caution for fuse replacement

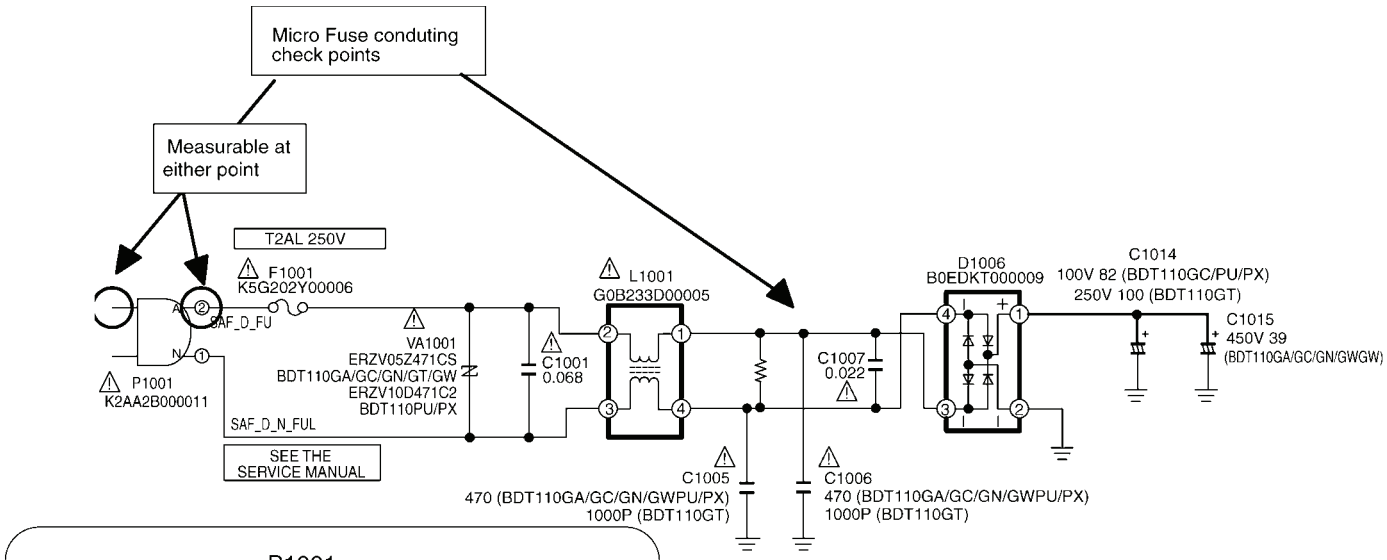
(For English)
CAUTION:
Replace with the same type fuse:
(Manufacturer: Hollyland, Type:SCT, T2A, 250V)

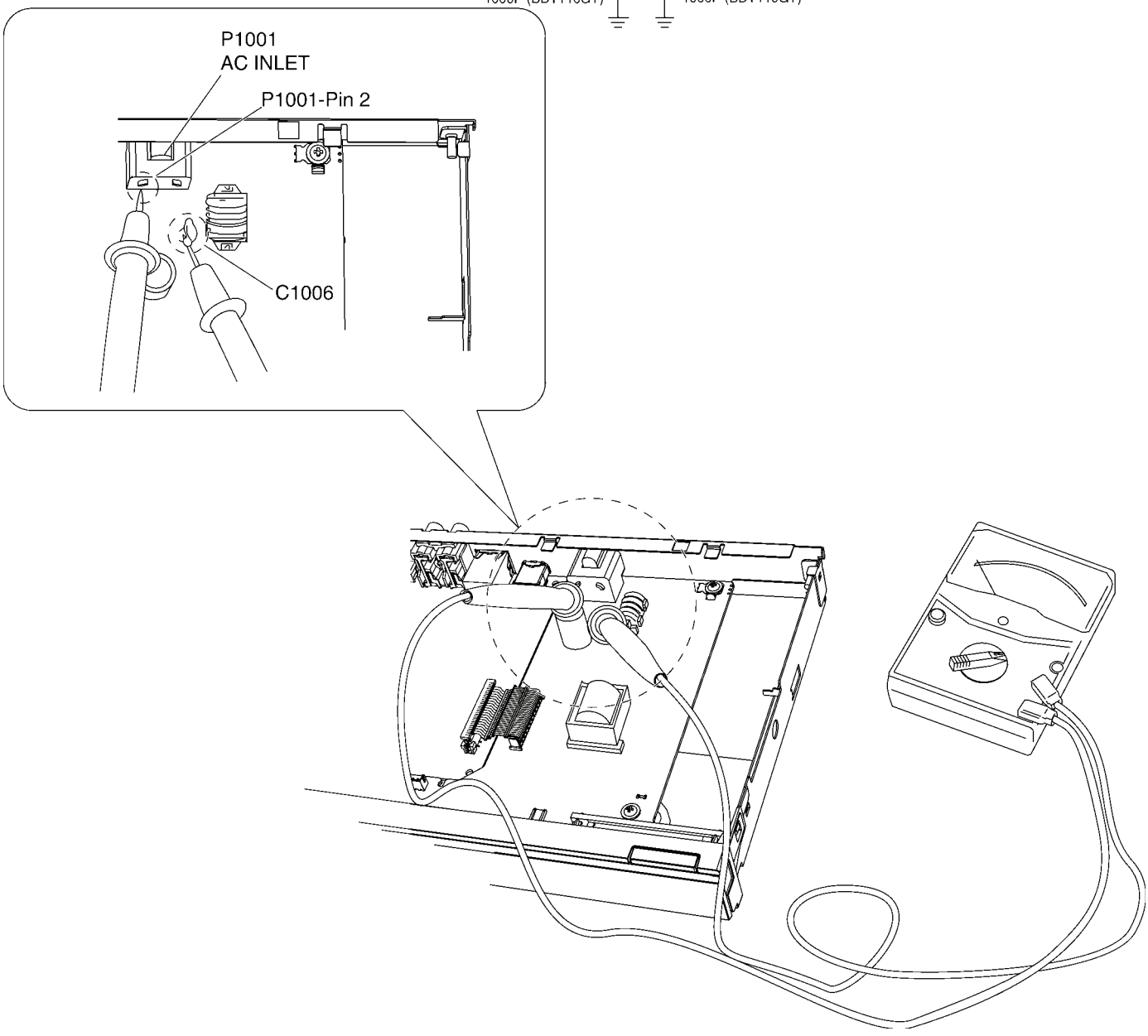
(For Canadian French)
ATTENTION:
Utiliser un fusible de rechange de même type:
(Fabricant: Hollyland, Type:SCT, T2A, 250V)

1.2.1. Micro Fuse conducting check

This unit uses the Micro Fuse.

Check the Micro Fuse conducting using the Tester at the check points below.





1.3. Caution for AC cord (Only for BDT110GC)

Caution for AC Mains Lead

For your safety, please read the following text carefully.
This appliance is supplied with a moulded three pin mains plug for your safety and convenience.
A 5-ampere fuse is fitted in this plug.
Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5-ampere and that it is approved by ASTA or BSI to BS1362.
Check for the ASTA mark ⓐ or the BSI mark ⓚ on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.
If you lose the fuse cover the plug must not be used until a replacement cover is obtained.
A replacement fuse cover can be purchased from your local dealer.

CAUTION!
IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.
THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13-AMPERE SOCKET.

If a new plug is to be fitted please observe the wiring code as stated below.
If in any doubt please consult a qualified electrician.

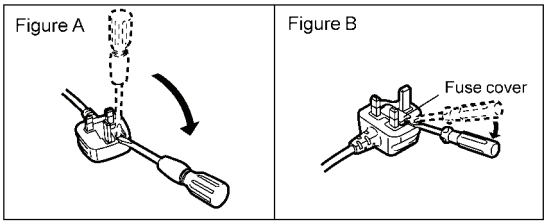
IMPORTANT
The wires in this mains lead are coloured in accordance with the following code:
Blue: Neutral, Brown: Live.
As these colours may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured Blue must be connected to the terminal which is marked with the letter N or coloured Black or Blue.
The wire which is coloured Brown must be connected to the terminal which is marked with the letter L or coloured Brown or Red.

WARNING: DO NOT CONNECT EITHER WIRE TO THE EARTH TERMINAL WHICH IS MARKED WITH THE LETTER E, BY THE EARTH SYMBOL ⏚ OR COLOURED GREEN OR GREEN/YELLOW.

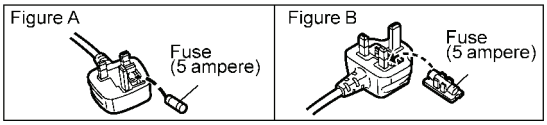
THIS PLUG IS NOT WATERPROOF—KEEP DRY.

Before use
Remove the connector cover.

How to replace the fuse
The location of the fuse differ according to the type of AC mains plug (figures A and B). Confirm the AC mains plug fitted and follow the instructions below.
Illustrations may differ from actual AC mains plug.
1. Open the fuse cover with a screwdriver.



2. Replace the fuse and close or attach the fuse cover.



2 Warning

2.1. Prevention of Electrostatic Discharge (ESD) to Electrostatic Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatic Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electrostatic discharge (ESD).

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static (ESD protected)" can generate electrical charge sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

   Caution

   Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device).

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety.
These parts are marked by ⚠ in the schematic diagrams, Exploded Views and replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

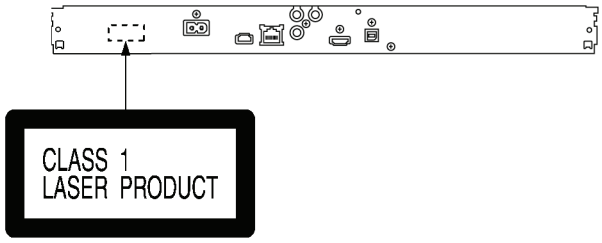
2.2. Precaution of Laser Diode

CAUTION:

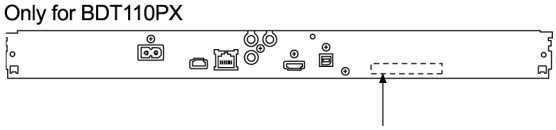
This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pickup lens.
Wave length: 790 nm (CDs)/ 655 nm (DVDs)/ 405 nm (BDs)
Maximum output radiation power from pickup: 100 μ W/VDE
Laser radiation from the pickup lens is safety level, but be sure the followings:

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

Only for BDT110GA/GC/GN/GT/GW/PU



Only for BDT110PX

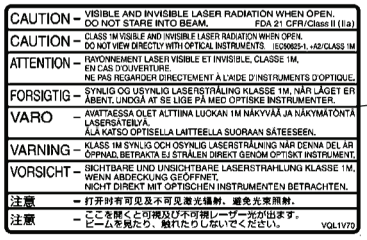


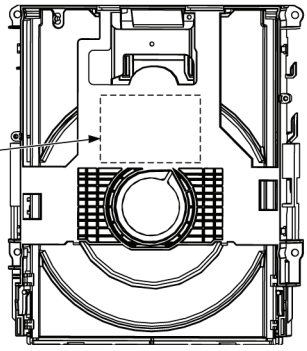
Product complies with DHHS Rules 21 CFR Subchapter J in effect at date of manufacture. Panasonic Corporation Kadoma, Osaka, Japan

ACHTUNG:

Dieses Produkt enthält eine Laserdiode.
Im eingeschalteten Zustand wird unsichtbare Laserstrahlung von der Laserinheit abgestrahlt.
Wellenlänge: 790 nm (CDs)/ 655 nm (DVDs)/ 405 nm (BDs)
Maximale Strahlungsleistung der Lasereinheit: 100 μ W/VDE
Die Strahlung der Lasereinheit ist ungefährlich, wenn folgende Punkte beachtet werden:

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





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

2.3. Service caution based on legal restrictions

2.3.1. General description about Lead Free Solder (PbF)

The lead free solder has been used in the mounting process of all electrical components on the printed circuit boards used for this equipment in considering the globally environmental conservation.

The normal solder is the alloy of tin (Sn) and lead (Pb). On the other hand, the lead free solder is the alloy mainly consists of tin (Sn), silver (Ag) and Copper (Cu), and the melting point of the lead free solder is higher approx.30 degrees C (86°F) more than that of the normal solder.

Definition of PCB Lead Free Solder being used

The letter of “PbF” is printed either foil side or components side on the PCB using the lead free solder. (See right figure)	PbF

Service caution for repair work using Lead Free Solder (PbF)

- The lead free solder has to be used when repairing the equipment for which the lead free solder is used.
  (Definition: The letter of “PbF” is printed on the PCB using the lead free solder.)
- To put lead free solder, it should be well molten and mixed with the original lead free solder.
- Remove the remaining lead free solder on the PCB cleanly for soldering of the new IC.
- Since the melting point of the lead free solder is higher than that of the normal lead solder, it takes the longer time to melt the lead free solder.
- Use the soldering iron (more than 70W) equipped with the temperature control after setting the temperature at 350±30 degrees C (662±86°F).

Recommended Lead Free Solder (Service Parts Route.)

- The following 3 types of lead free solder are available through the service parts route.
  RFKZ03D01KS----------(0.3mm 100g Reel)
  RFKZ06D01KS----------(0.6mm 100g Reel)
  RFKZ10D01KS----------(1.0mm 100g Reel)

Note

* Ingredient: tin (Sn), 96.5%, silver (Ag) 3.0%, Copper (Cu) 0.5%, Cobalt (Co) / Germanium (Ge) 0.1 to 0.3%

3 Service Navigation

3.1. Service Information

This service manual contains technical information which will allow service personnel's to understand and service this model.
Please place orders using the parts list and not the drawing reference numbers.

If the circuit is changed or modified, this information will be followed by supplement service manual to be filed with original service manual.

1) This service manual does not contain the following information, because of the impossibility of servicing at component level.

* Schematic Diagram, Block Diagram and P.C.B. layout of Digital P.C.B..
* Parts List for individual parts of Digital P.C.B..

3.2. Combination of Multiple Pressing on the Remote Control

Press multi-buttons (in combination) on the remote control simultaneously for operations, such as initialization or service mode, etc.
There are no multiple pressing functions on the previous remote controls, thus, please be sure to use the supplied remote control.

3.3. Entering Special Modes with Combination of Multiple Pressing on the Remote Control

Enter the following special modes by multiple pressing functions on the supplied remote control.
After entering each mode, switch to the desired menus for operation.

Disclosure mode	Nondisclosure mode 1	Nondisclosure mode 2
[OK] [Blue] [Yellow]	[6] [7] [Yellow]	[5] [9] [Red]
		

◆ **Menu switch:** ⬇ mark.
Right cursor (remote control),
or
[Power] (main unit)

◆ **Operating menu:**
[OK] (remote control)
or
[O/C] (main unit)

※ Release from special modes automatically after the operation.

◆ **Release from special modes:**

- Press other buttons in no connection with the above operations.
- No operation for over 2 min.
- Press and hold [Power] on main unit (forced to turn off).

3.3.1. Disclosure mode (Combination of multiple pressing: [OK] [Blue] [Yellow])

Press and hold [OK] [Blue] [Yellow] on the remote control simultaneously for 5 sec., then "00 RET" is displayed on FL display window.

Power	Disc	FL display	Key operation	Function	Remarks
OFF	Yes/No	00 RET	No	No	
		⬇ 06 FT0	OK	Force tray open	When O/C button is invalid, the tray of BD Drive is forced to open. If the tray still cannot be opened in this mode, please refer to "6.1.2 When the Forcible Disc Eject can not be done " in Vol.1.
		⬇ 08 FIN	OK	Reset to factory default setting	Reset all to factory default settings, including Quick Start and Network related settings.
ON	Yes/No	00 RET	No	No	
	No	⬇ 03 VL	OK	Release from BD/DVD video play restriction	Release from the aging restriction on BD video and DVD video play.
	Yes/No	⬇ 04 PRG	OK (Press and hold)	Progressive initialization	Initialize the progressive settings, and switch to the interlaced display. Press and hold [Stop] (not [OK])(on the remote control or main unit) to switch to 10 OCL (setting shop lock mode)
	Yes/No	⬇ 07 DC	OK (Press and hold)	Deep Color initialization	Initialize Deep Color.
	Yes	10 OCL	OK	Shop lock mode setting/release ([O/C] is invalid/valid, while setting/release this mode.)	When 04 PRG is displayed, press and hold [Stop] (on the remote control or main unit) to switch to other displays. Press [OK] to only lock the tray switch. * Even turn ON/OFF the power, it is still in locking.
	Yes	⬇ 11 TFS	OK (Press and hold)	Touch Free Sensor ON/OFF	Setting to "ON" enables the tray to open/close with the Touch Free Sensor.

3.3.2. Nondisclosure mode 1 (Combination of multiple pressing: [6] [7] [Yellow])

Press and hold [6] [7] [Yellow] on the remote control simultaneously for 5 sec., then [50 RET] is displayed on FL display window.

Power	Disc	FL display	Key operation	Function	Remarks
ON	No	50 RET	No	No	
		↓ 51 NOP	OK	No	When "51 NOP" is displayed, press and hold [Stop] (on the remote control or main unit) to switch to "52 BRE" (delete BD-ROM history settings)
		52 BRE	OK	BD-ROM history delete	When "51 NOP" is displayed, press and hold [Stop] (on the remote control or main unit) to switch to other displays. Press [OK] to delete BD video history.

3.3.3. Nondisclosure mode 2 (Combination of multiple pressing: [5] [9] [Red])

Press and hold [5] [9] [Red] on the remote control simultaneously for about 5 sec., then "70 RET" is displayed on FL display window.

Power	Disc	FL display	Key operation	Function	Remarks
OFF	Yes/No	70 RET	No	No	
		↓ 80 SRV	OK	Switch to service mode	Press [OK], then "HELLO" is displayed, and wait about 30 sec. until "SERV" is displayed.
		↓ 83 SDI	OK	CD/SD Diag	Do not apply in normal service.
		↓ 91 SPD	OK	Special display	Do not apply in normal service.
		↓ 92 F99	OK	F99 Validate/Invalidate switch	Do not apply in normal service.
ON	Yes/No	70 RET	No	No	
		↓ 81 AIG	OK	Switch to aging mode	
		↓ 83 SDI	OK	CD/SD Diag	Do not apply in normal service.
		↓ 91 SPD	OK	Special display	Do not apply in normal service.
		↓ 92 F99	OK	F99 Validate/Invalidate switch	Do not apply in normal service.

4 Specifications

Power supply: AC220-240V, 50/60Hz (BDTGA/GC)
AC220-240V, 50Hz (BDT110GN)
AC110V, 60Hz (BDT110GT)
AC110-240V, 50/60Hz (BDT110PU/PX)

Power consumption: Approx.11W (BDT110GA/GC/GN)
Approx. 9.9W (BDT110GT)
Approx. 13W (BDT110PU/PX)

in standby mode: Approx. 0.2W (BDT110GA/GC/GN/PU/PX)
Approx. 0.1W (BDT110GT)

in quick start standby mode: Approx. 3.3W (BDT110GA/GC/GN)
Approx. 3.2W (BDT110GT)
Approx. 3.5W (BDT110PU/PX)

Operating temperature range: +5°C to +35°C(+41 to +95°F)

Operating humidity range: 10% - 80%RH (no condensation)

Signal system: PAL/NTSC (BDT110GA/GC/GN/GT)
NTSC (BDT110PU/PX)

Video output:
output level: 1.0Vp-p (75Ω)
output connector: Pin jack (1 System)

Video performance:
Horizontal resolution: More than 500 lines
Video S/N ratio: More than 65dB

Audio output:
output level: 2 Vrms (1kHz, 0dB)
output connector: Pin jack
number of connector: 2 channel
1 system

Audio performance:
Frequency response:
DVD(linear audio): 4Hz-22kHz (48kHz sampling)
4Hz-44kHz (96kHz sampling)
CD-Audio: 4Hz-20kHz
S/N ratio: 100dB
Dynamic range: 100dB
Total harmonic distortion: 0.004%

Digital audio output:
Optical digital output: Optical terminal

HDMI AV output:
Output connector: TypeA (19pin)
1 system

SD card slot:
Connector: 1 system

USB slot:
USB2.0: 2 system (BDT110GA/GN/GT/PU/PX)
1system (BDT110GC)

Ethernet:
10BASE-T/100BASE-TX: 1 system

Regional Code: DVD: #3 (BDT110GA/GT)
DVD: #2 (BDT110GC)
DVD: #4 (BDT110GN/PU)
DVD: #1 (BDT110PX)
BD: Region A(BDTGA/GT/PU/PX)
BD: Region B(BDTGC/GN)

Media:
Playable discs:

BD-Video (Blu-ray 3D, BD-LIVE, BONUSVIEW): BD-ROM Version 2.4
BD-RE: Version3 (Single Layer/Dual Layer), JPEG, MPO
BD-R: Version2 (Single Layer/Dual Layer),DivX(BDTGA/GC/GN/GT/PU *4, *5, *6), MKV(*4, *6, *7)
DVD-R: DVD-Video format (*1), DVD Video Recording format(*1), AVCHD format(*1), JPEG(*2), MPO(*2), MP3(*2), DivX(BDTGA/GC/GN/GT/PU *2, *3, *5, *6), MKV(*2, *3, *6, *7)
DVD-R DL: DVD-Video format (*1), DVD Video Recording format(*1), AVCHD format(*1), JPEG(*2), MPO(*2), MP3(*2),DivX(BDTGA/GC/GN/GT/PU *2, *3, *5, *6), MKV(*2, *3, *6, *7)
DVD-RW: DVD-Video format (*1), DVD Video Recording format(*1), AVCHD format(*1)
+R: Video(*1), AVCHD format(*1)
+R DL: Video(*1), AVCHD format(*1)
+RW: Video(*1), AVCHD format(*1)
DVD-Video: DVD-Video format
CD-Audio: CD-DA
CD-R/CD-RW: CD-DA, JPEG(*2), MPO(*2), MP3(*2), DivX(BDTGA/GC/GN/GT/PU *2, *5, *6), MKV(*2, *6, *7)

*1: Finalizing is necessary.
*2: ISO9660 level1 or 2(except for extended formats), Joliet.
This unit is compatible with multi-session.
This unit is not compatible with packet writing.
*3: UDF1.02 without ISO9660, UDF1.5 with ISO9660.
*4: UDF2.5.
*5: DivX Certified to play Divx video up to HD 1080p, including premium content.
GMC(Global Motion Compensation) is not supported.
*6: Maximum number of folders recognizable:300 folders. (including the root folder)
Maximum number of files recognizable:200 files.
*7: MPEG-4 AVC (H.264) profile is up to High Profile, Level 4. AAC-LC, MP3, Dolby Digital audio, DTS and PCM can be decoded.

SD card: SD Memory Card(*8) formatted FAT12, FAT16, FAT32(*9), exFAT(*10), JPEG, MPO, AVCHD format, MPEG-2

*8: includes SDHC, SDXC card.
includes miniSD™ Cards(need a miniSD™ Adaptor.)
includes microSD™/microSDHC/microSDXC Cards(need a microSD™ Adaptor.)
*9: Not support long file name
*10: SDXC only.

USB device:
USB Standard: USB2.0 High Speed
Format: FAT12, FAT16, FAT32, MP3, JPEG, MPO,MKV, DivX(BDT110GA/GC/GN/GT/GW)

Contents:
JPEG:
SD card, CD-R/RW, BD-RE, DVD-R, USB device:
Pixcels: 34x34~8192x8192
Sub Sampling: 4:2:2, 4:2:0
Motion JPEG not supproted
SD card: JPEG conforming DCF(Design rule for Camera File system)
Thawing Time: approx.2sec (7M pixels.)

Maximum numbers of folders and files:

	CD	SD card	BD-RE	DVD-R	USB device
Maximum folders	500	500	500	500	500
Maximum files(*11)	10000	10000	10000	10000	10000

*11: Total of the JPEG and MPO

MP3:

CD-R, CD-RW, DVD-R, USB device:

Compression rate: 32kbps~320kbps

Sampling rate: 44.1kHz, 48kHz

AVCHD (H.264):

SD card, DVD: AVCHD format V1.0

HDMI: 480p(525p)/ 576p(625p)(BDT110GA/GC/GN/ GT)/1080i(1125i)/720p(750p)/ 1080p(1125p)
HDMI (V.1.4a with 3D, Content Type)
(This unit supports “HDAVI Control 5” function.)

LASER Specification:

Class I LASER Product:

Wave length: 790 nm (CDs)/655 nm (DVDs)/ 405 nm (BDs)

Laser power: No hazardous radiation is emitted with the safety protection

Dimensions:

430mm(W) [Approx. 16 15/16"(W)]
35mm(H) [Approx. 1 7/16"(H)]
179mm(D) [Approx. 7 1/16"(D)](excluding the projecting parts)
185mm(D) [Approx. 7 5/16"(D)](including the projecting parts)

Mass: Approx. 1.6 kg (3.52 lbs)

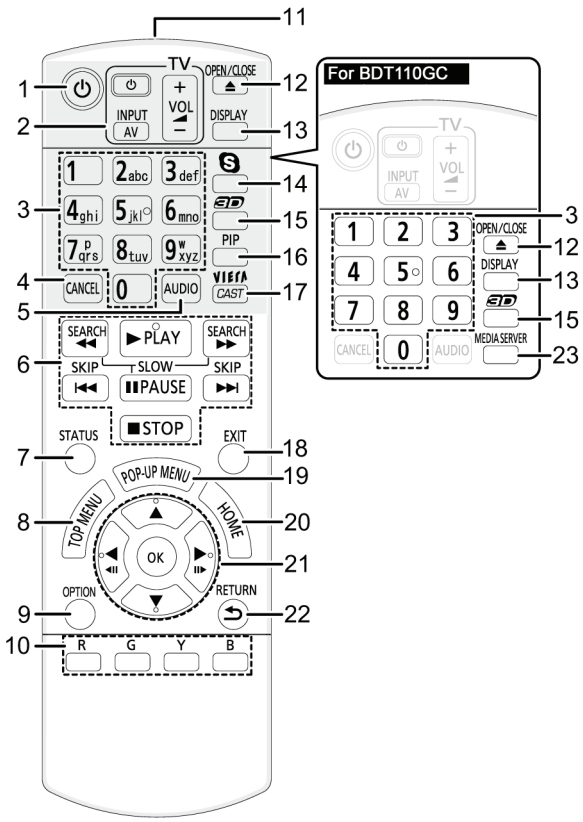
Solder: This model uses lead free solder(PbF).

Note: Specifications are subject to change without notice.

5 Location of Controls and Components

Control reference guide

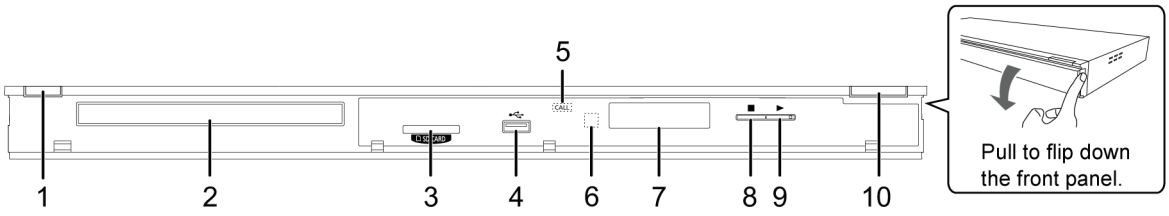
Only for BDT110GA/GC/GN/GT/GW



1 Turn the unit on and off
2 **TV operation buttons**
You can operate the TV through the unit's remote control.
[⏻ TV] : Turn the television on and off
[AV] : Switch the input select
[+ − VOL] : Adjust the volume
3 Except for BDT110GC
Select title numbers, etc./Enter numbers or characters
For BDT110GC
Select title numbers, etc./Enter numbers
4 Cancel
5 Select audio
6 Basic playback control buttons
7 Show status messages
8 Show Top menu/DIRECT NAVIGATOR
9 Show OPTION menu
10 Coloured buttons (red, green, yellow, blue)
These buttons are used when;
- Operating a BD-Video disc that includes Java™ applications (BD-J).

Except for BDT110GC
- Operating contents of VIERA CAST

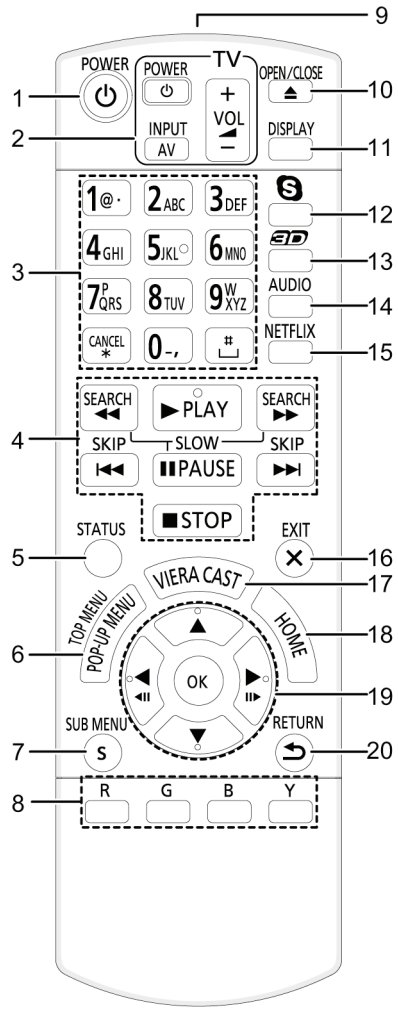
11 Transmit the remote control signal
12 Open or close the disc tray
CAUTION
Do not place objects in front of the unit. The disc tray may collide with objects when it is opened, and this may cause malfunction.
13 Show playback menu
14 Except for BDT110GC
Start up a video communication
15 Set up 3D effects
16 Except for BDT110GC
Switch on/off Secondary Video (Picture-in-picture)
17 Except for BDT110GC
Displays the Home screen of the VIERA CAST
18 Exit the menu screen
19 Show Pop-up menu
20 Show HOME menu
21 Selection/OK, Frame-by-frame
22 Return to previous screen
23 For BDT110GC Start up the DLNA function



1 **Standby/on switch (⏻/I)**
Press to switch the unit from on to standby mode or vice versa. In standby mode, the unit is still consuming a small amount of power.
2 Disc tray
3 SD card slot
4 USB port
5 Except for BDT110GC
CALL LED
The LED will light up when this unit receives incoming call etc. of the video communication.
6 Remote control signal sensor
Distance: Within approx. 7 m
Angle: Approx. 20° up and down, 30° left and right
7 Display
8 Stop
9 Start play
10 Open or close the disc tray

Control reference guide

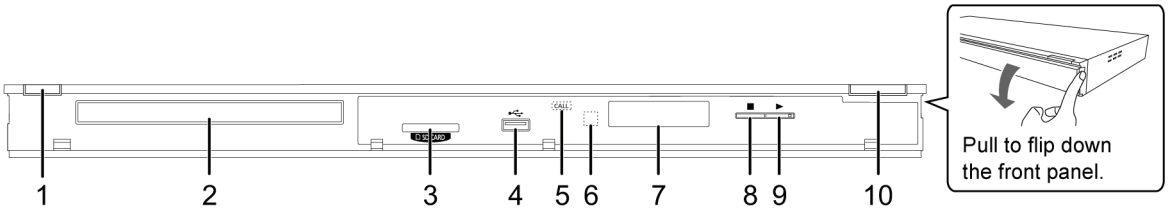
Only for BDT110PU/PX



1 Turn the unit on and off
2 TV operation buttons
You can operate the Panasonic TV through the unit's remote control. (Depending on the TV these buttons may not work.)
[⏻ TV POWER] : Turn the television on and off
[AV] : Switch the input select
[+ − VOL] : Adjust the volume
3 Select title numbers, etc./Enter numbers or characters

[CANCEL] : Cancel
4 Basic playback control buttons
5 Show status messages
6 Show Pop-up menu/Top menu/Direct Navigator
7 Show sub menu
8 These buttons are used when;
- Operating a BD-Video disc that includes Java™ applications (BD-J).
- Operating contents of VIERA CAST.

9 Transmit the remote control signal
10 Open or close the disc tray
CAUTION
Do not place objects in front of the unit. The disc tray may collide with objects when it is opened, and this may cause malfunction.
11 Show Playback menu
12 Start up a video communication
13 Setup 3D effects
14 Select audio
15 Show NETFLIX screen
16 Exit the menu screen
17 Displays the Home screen of the VIERA CAST
18 Show HOME menu
19 Selection/OK, Frame-by-frame
20 Return to previous screen



1 **POWER button** (POWER ⏻/I)
Press to switch the unit from on to standby mode or vice versa. In standby mode, the unit is still consuming a small amount of power.
2 Disc tray
3 SD card slot
4 USB port
5 CALL LED
The LED will light up when this unit receives incoming call etc. of the video communication.
6 Remote control signal sensor
Distance: Within approx. 7 m (23 feet)
Angle: Approx. 20° up and down, 30° left and right
7 Display
8 Stop
9 Start play
10 Open or close the disc tray

6 Operating Instructions

6.1. Taking out the Disc from BD-Drive Unit when the Disc cannot be ejected by OPEN/CLOSE button

6.1.1. Forcible Disc Eject

6.1.1.1. When the power can be turned off.

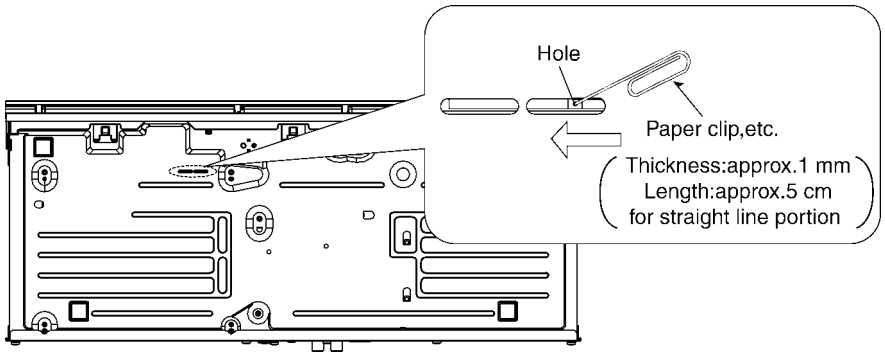
1. Turn off the power, press and hold [OK], [B] and [Y] on the remote control at the same time for more than 5 seconds.
   -"00 RET" is displayed on the unit's display.
2. Repeatedly press [▶] on the remote control or [POWER] on the unit until "06 FTO" is displayed on the unit's display.
3. Press [OK] on the remote control or [OPEN/CLOSE] on the unit.

6.1.1.2. When the power can not be turned off.

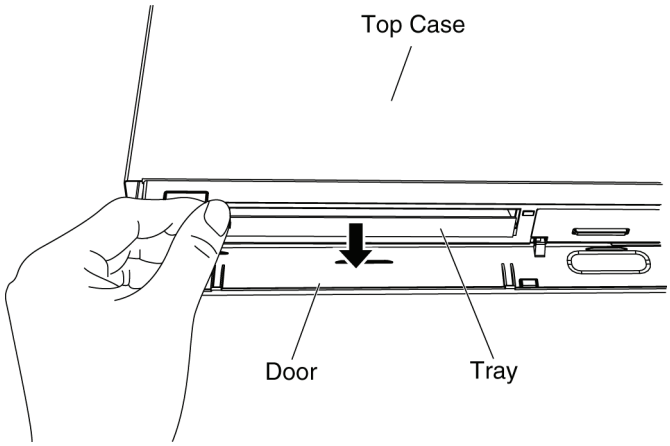
1. Press [POWER] key on the front panel for over 4 seconds to turn off the power forcibly, press and hold [OK], [B] and [Y] on the remote control at the same time for more than 5 seconds.
   -"00 RET" is displayed on the unit's display.
2. Repeatedly press [▶] on the remote control or [POWER] on the unit until "06 FTO" is displayed on the unit's display.
3. Press [OK] on the remote control or [OPEN/CLOSE] on the unit.

6.1.2. When the Forcible Disc Eject can not be done.

1. Turn off the power and pull out AC cord.
2. Put deck so that bottom can be seen.
3. Insert the Paper clip, etc. into the hole on the bottom of BD Drive and slide the Paper clips, etc. in the direction of the arrow to eject tray slightly.



4. Put deck upward, and pick out Tray by finger.



7 Service Mode

7.1. Self-Diagnosis and Special Mode Setting

7.1.1. Self-Diagnosis Functions

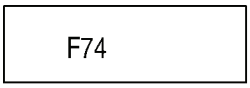
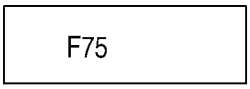
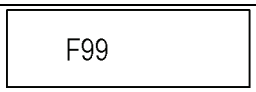
Self-Diagnosis Function provides information for errors to service personnel by “Self-Diagnosis Display” when any error has occurred.

U and F** are stored in memory and held.**

You can check latest error code by transmitting [0] [1] of Remote Controller in Service Mode.

Automatic Display on FL will be cancelled when the power is turned off or AC input is turned off during self-diagnosis display is ON.

Error Code	Diagnosis contents	Description	Monitor Display	Automatic FL display
U30	Remote control code error	Display appears when main unit and remote controller codes are not matched.	No display	SET * * is remote controller code of the main unit. Display for 5 seconds.
U59	Abnormal inner temperature detected	Display appears when the drive temperature exceeds 70°C. The power is turned off forcibly. For 30 minutes after this, all key entries are disabled. The event is saved in memory as well.	No display	U59 "U59" is displayed for 30 minutes.
U71	HDMI incompatible error (HDMI incompatible)	Display this error when the equipment (compatible with DVI such as TV, amplifier etc.) connected to the unit by HDMI is incompatible with HDCP (High-bandwidth Digital Content Protection).	No display	U71
U72	HDMI connection error (communication error)	Display this error when there are any communication problems with the unit and the equipments (TV, amplifier ect.) connected to the unit by HDMI. (or when there is a problem with the HDMI cable). The display disappears only when the connection is released. Neither the button operation nor the passage of the fixed time disappear the display.	No display	U72 "U72" display disappears when error has been solved by Power OFF/ON of connecting equipment or by inserting/removing of HDMI cable.
U73	HDMI connection error (authentication error)	When authentication error occurs while the equipments (TV, amplifier etc.) are connected by HDMI. (or when there is a problem with the HDMI cable) The display disappears only when the connection is released. Neither the button operation nor the passage of the fixed time disappear the display.	No display	U73 "U73" display disappears when error has been solved by Power OFF/ON of connecting equipment or by inserting/removing of HDMI cable.
U76	Connection error	This error is displayed when equipment such as TVs or amplifiers connected to the unit with the HDMI cable do not correspond to the copyright protection. (The BD/DVD video where the copyright is protected cannot be played.)	No display	U76
U77	Illegal disc error	This error is displayed when it becomes impossible to reproduce because of copyright illegal information.	No display	U77
U88	Restoration is operation. (When the disc is in the disc tray)	This error is displayed when there is a disc in the disc tray or abnormality is confirmed during playback. It is shown that the restoration to return the main unit operation normally is operating. It becomes possible to use as soon as not the breakdown but the U88 display disappears.	No display	U88 Display for 30 seconds.
F00	No error information	Initial setting for error code in memory (Error code Initialization is possible with error code initialization and main unit initialization).	No display	No display

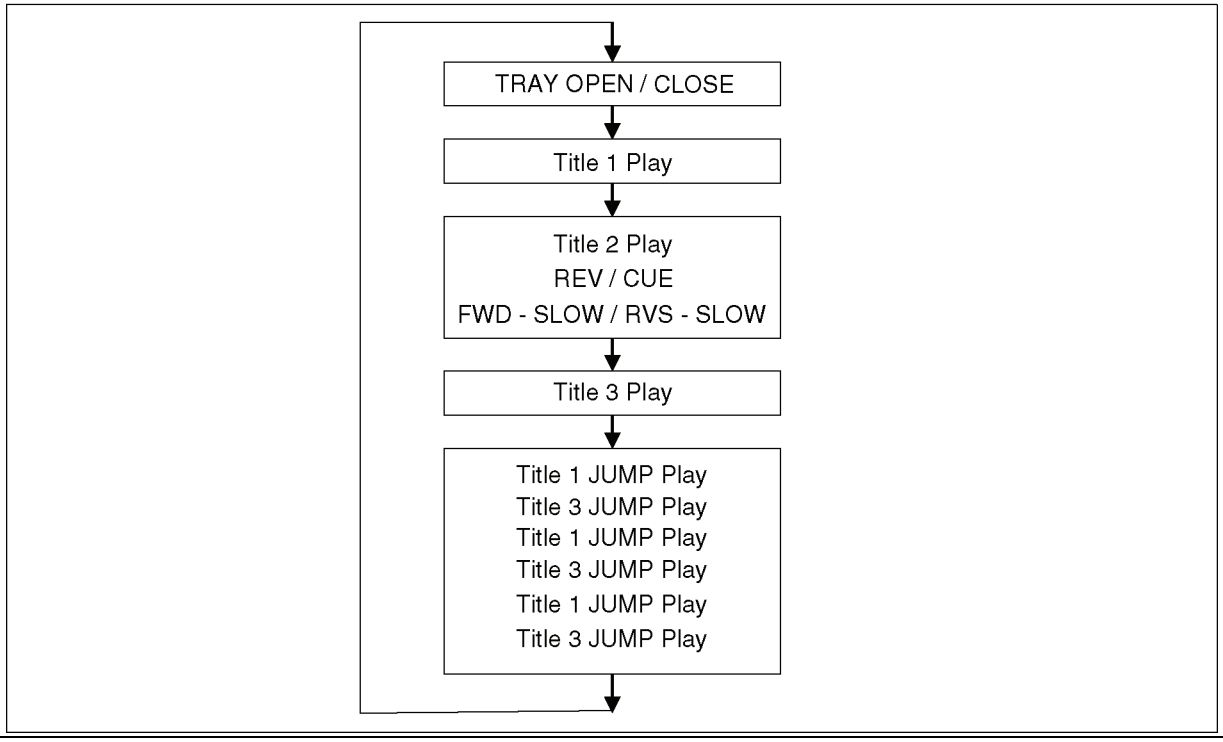
Error Code	Diagnosis contents	Description	Monitor Display	Automatic FL display
F34	Initialization error	When initialization error is detected after starting up main microprocessor, the power is turned off automatically. The event is saved in memory.	No display	No display
F58	Drive hardware error	When drive unit error is detected, the event is saved in memory.	No display	No display
F74	HDMI Device Key Communication error	This error is displayed when the information error is occurred at HDMI device key loading.	No display	
F75	HDMI Device Key Loading error	This error is displayed when the key of loaded is illegal at HDMI device key loading.	No display	
F99	Hang-up	Displayed when communication error has occurred between Main microprocessor and Timer microprocessor.	No display	 "F99" is displayed utill the [POWER] key is pressed.
UNSUPPORT	Unsupported disc error	*An unsupported format disc was played, although the drive starts normally. *The data format is not supported, although the media type is supported. *Exceptionally in case of the disc is dirty.	**"This disc is incompatible."**	 It is displayed for 5 seconds. The character indication flows sideways.
NO READ	Disc read error	*A disc is flawed or dirty. *A poor quality failed to start. *The track information could not be read.	**"Cannot read. Please check the disc."**	
HARD ERR	Drive error	The drive detected a hard error.	**"BD drive error."**	 It is display for 5 seconds. The character indication flows sideways.
SELF CHECK	Restoration operation	Since the power cord fell out during a power failure or operation, it is under restoration operation. *It will OK, if a display disappears automatically. If a display does not disappear, there is the possibility that defective Digital P.C.B. / BD drive.	No display	 The character indication flows sideways.
UNFORMAT	Unformatted disc error	This error is displayed when the unformatted DVD-RAM or DVD-RW recorded by another make of recorder is inserted.	No display	 This disc is not formatted properly. Format the disc in DISC MANAGEMENT?
PLEASE WAIT	Unit is in termination process	Unit is in termination process now. [BYE] is displayed and power will be turned off.	No display	 The character indication flows sideways.
No PLAY	When there is a viewing restriction on a BD-Video or DVD-Video.	Rating password is set.	No display	

7.1.2. Special Modes Setting

Item		FL display	Key operation
Mode name	Description		Front Key
Rating password	The audiovisual level setting password is initialized to Level 8.	① 00 RET ② 03 VL ③ INIT	① While the unit is on, press and hold [OK], [B] and [Y] on the remote control at the same time for more than 5 seconds. - "00 RET" is displayed on the unit's display. ② Repeatedly press [▶] on the remote control or [POWER] on the unit until "03 VL" is displayed on the unit's display. ③ Press [OK] on the remote control or [OPEN/CLOSE] on the unit.
Service Mode	Setting every kind of modes for servicing. *Details are described in **7.1.3. (BD) Service Mode at a glance**.	② 70 RET ③ 80 SRV ④ HELLO -- SERV	① Turn the power off. ② Press the [5] [9] and [R] button simultaneously for five seconds, then [70 RET] is displayed on FL. ③ Press the [▶] button to select until [80 SRV] is displayed on FL. ④ Press the [OK] button . *The command is transmitted by attached remote control.
BD-ROM history cleaning	< Persistent Storage> of BD-ROM standard is cleaned. Screen display: [The player's history data has been cleared.] is displayed for five seconds.	① 50 RET ② 51 NOP ③ 52 BRE	① When the power is on, disc is not in tray, press and hold [6], [7] and [Y] on the remote control at the same time for more than 5 seconds. - "50 RET" is displayed on the unit's disply. ② Repeatedly press [▶] on the remote control or [POWER] on the unit until "51 NOP" is displayed on the unit's display. ③ Press and hold [STOP] on the remote control until "52 BRE" is displayed on the unit's display. ④ Press [OK] on the remote control or [OPEN/CLOSE] on the unit.
Forced disc eject	Removing a disc that cannot be ejected. The tray will open and unit will shift to P-off mode. While Demonstration Lock is being set, this Forced disc eject function is not accepted.	① 00 RET ② 06 FTO	① While the unit is off, press and hold [OK], [B] and [Y] on the remote control at the same time for more than 5 seconds. - "00 RET" is displayed on the unit's display. ② Repeatedly press [▶] on the remote control or [POWER] on the unit until "06 FTO" is displayed on the unit's display. ③ Press [OK] on the remote control or [OPEN/CLOSE] on the unit.
Forced power-off	When the power button is not effective while power is ON, turn off the power forcibly.	Display in P-off mode.	Press [POWER] key over than 10 seconds.

Item		FL display	Key operation
Mode name	Description		Front Key
Aging	Perform sequence of modes as * Aging Description shown below continually.	Display following the then mode.	① Turn the power on. ② Press the [5] [9] and [R] button simultaneously for five seconds, then [70 RET] is displayed on FL. ③ Press the [▶] button to select until [81 AIG] is displayed on FL. ④ Press the [OK] button . *The command is transmitted by attached remote control. **NOTE1:** If the unit has hung-up because of pressing keys for over 10 seconds, once turn off the power, and re-execute this command. *When releasing Aging mode, press [POWER] key over 4 seconds.

Aging Contents (Example):



Item		FL display	Key operation
Mode name	Description		Front Key
Demonstration lock/unlock	Ejection of the disc is prohibited. The lock setting is effective until unlocking the tray and not released by Main unit initialization of service mode.	*When lock the tray. ① 00 RET ② 04 PRG ③ 10 OCL ④ LOCK "LOCK" is displayed for 3 seconds.	① When the power is on, disc is in tray, press and hold [OK], [B] and [Y] on the remote control at the same time for more than 5 seconds. - "00 RET" is displayed on the unit's disply. ② Repeatedly press [▶] on the remote control or [POWER] on the unit until "04 PRG" is displayed on the unit's display. ③ Press and hold [STOP] on the remote control until "10 OCL" is displayed on the unit's display. ④ Press [OK] on the remote control or [OPEN/CLOSE] on the unit.
		*When unlock the tray. ① 00 RET ② 04 PRG ③ 10 OCL ④ UNLOCK "UNLOCK" is displayed for 3 seconds.	① When the power is on, disc is in tray, press and hold [OK], [B] and [Y] on the remote control at the same time for more than 5 seconds. - "00 RET" is displayed on the unit's disply. ② Repeatedly press [▶] on the remote control or [POWER] on the unit until "04 PRG" is displayed on the unit's display. ③ Press and hold [STOP] on the remote control until "10 OCL" is displayed on the unit's display. ④ Press [OK] on the remote control or [OPEN/CLOSE] on the unit.
		*When press [OPEN/CLOSE] key while the tray being locked. LOCK Display "LOCK" for 3 seconds.	Press [OPEN/CLOSE] key while the tray is being locked.
Progressive initialization	The progressive setting is initialized to Interlace.	① 00 RET ② 04 PRG	① When the power is on, press and hold [OK], [B] and [Y] on the remote control at the same time for more than 5 seconds. - "00 RET" is displayed on the unit's disply. ② Repeatedly press [▶] on the remote control or [POWER] on the unit until "04 PRG" is displayed on the unit's display. ③ Press and hold [OK] on the remote control or [OPEN/CLOSE] on the unit.
Default setting	The date of Menu, Mode and EEPROM setting, etc. is set to the default condition in factory.	① 00 RET ② 08 FIN ③ HELLO "HELLO" is displayed 10 seconds.	① While the unit is off, press and hold [OK], [B] and [Y] on the remote control at the same time for more than 5 seconds. - "00 RET" is displayed on the unit's display. ② Repeatedly press [▶] on the remote control or [POWER] on the unit until "08 FIN" is displayed on the unit's display. ③ Press and hold [OK] on the remote control or [OPEN/CLOSE] on the unit for at least 3 seconds.

7.1.3. Service Modes at a glance

Information necessary for service can be displayed.

Service mode setting:

1. Turn the power off.
2. Press the [5] [9] and [R] button simultaneously for five seconds, then [70 RET] is displayed on FL.
3. Press the [▶] button to select until [80 SRV] is displayed on FL.
4. Press the [OK] button.
5. It is displayed on FL as [HELLO-->SERV].: It is shown to have entered the service mode.
6. The command is transmitted by attached remote control.

Method of making clear service mode: Press the power button (power off).

The display of information to each command is as follows.

NOTE:

Do not use it excluding the designated command.

Item		FL display	Key operation
Mode name	Description		(Remote controller key)
Release Items	Item of Service Mode executing is cancelled.	SERV_	Press[0][0] or [Return] in service mode.
Error Code Display	Last Error Code of U/F held by Timer is displayed on FL. *Details are described in **7.1.1. Self-Diagnosis Functions.**	◎○○ *◎shows U/F. ○○shows number. If any error history dose not exist, [F00] is displayed.	Press [0] [1] in service mode
ROM Version Display	The display contents are switched over every 5 seconds. 1. Region code 2. Main firm version 3. Timer firm version 4. Drive firm version 5. ROM correction version 6. BOO2 version 7. BOO3 version	1. NO_$% $: Region of DVD (Example: 1,2.....) %: Region of BD (Example: A,B.....) 2. ＊＊＊＊ 3. ##O＊＊＊ ##: Timer firm version O: OEM ＊＊＊: Product number of microcomputer 4. ＊＊＊＊ 5. ＊＊＊ 6. ＊＊＊ 7. ＊＊＊	Press [0] [2] in service mode

Item		FL display	Key operation
Mode name	Description		(Remote controller key)
Drive application check	Checking whether the drive is applicable drive or not.	When the drive is applicable drive. DRV OK When the drive is not applicable drive. DRV NG	Press [0] [3] in service mode.
Drive Check	Simple quality of BD drive	When BD drive is OK and a drive error is not stored in EEPROM. DRV OK When BD drive is NG or drive errors are stored in EEPROM. DRV NG *If the date of the present or the trouble occurred time is incorrect, it may be not able to judge correctly.	Press [3][8] in service mode.
Laser Used Time Indication	Check laser used time (hours) of drive.	Laser used time: BD Playback BP＊＊＊＊ Laser used time: BD Recording BR＊＊＊＊ Laser used time: DVD Playback DP＊＊＊＊ Laser used time: DVD Recording DR＊＊＊＊ Laser used time: CD Playing CD＊＊＊＊ ● (****) is the used time display in hour. ● Laser used time of BD/ DVD/ CD in Playback/Recording mode is counted.	Press [4] [1] in service mode.

Item		FL display	Key operation
Mode name	Description		(Remote controller key)
BD drive last error	BD drive error code display.	1. Error Number is displayed for 5 seconds. NO ** 2. Time when the error has occurred is display for 5 seconds. YYMMDD YY: Year MM: Month DD: Date 3. Last drive error (1/2) is displayed for 5 seconds. ****** 00 : Bad disc 03 : Bad disc 04 : Bad disc or drive malfunction 4. Last drive error (2/2) is displayed for five seconds. ****** 5. Error occurring disc type is displayed for 5 seconds. DVD ROM DVD CD CD DVD-RAM (2.6GB) RAM26 DVD-RAM (4.7GB) RAM47 DVD-R DVDR DVD-RW DVDRW CD-R CDR	Press [4] [2] in service mode.

<table>
<tr><th colspan="2">Item</th><th rowspan="2">FL display</th><th rowspan="2">Key operation</th></tr>
<tr><th>Mode name</th><th>Description</th><th>(Remote controller key)</th></tr>
<tr><td></td><td></td><td>CD-RW
CDRW

DVD+R
DVDPR

DVD+RW
DVDPRW

BD-ROM
BDROM

BD-RE
BDRE

BD-R
BDR

Others
MEDIA*
* is displayed the respoced value from RTSC.

6. Disc maker ID is displayed for 5 seconds.
******

7. Factor of drive error (hexadeci-mal) occurring is left displayed.
＊＊＋＋&&
＊＊: Error occurring operation code (This is not used)
＋＋: Error occurring disc type
<table><tr><td>00</td><td>DVD-ROM</td></tr><tr><td>01</td><td>CD</td></tr><tr><td>02</td><td>2.6GB DVD-RAM</td></tr><tr><td>03</td><td>4.7GB DVD-RAM</td></tr><tr><td>04</td><td>DVD-R</td></tr><tr><td>After 05</td><td>Others</td></tr></table></td><td>In case that the maker cannot be identified, display is blackout.</td></tr>
</table>

<table>
<tr><th colspan="2">Item</th><th rowspan="2">FL display</th><th rowspan="2">Key operation
(Remote controller key)</th></tr>
<tr><th>Mode name</th><th>Description</th></tr>
<tr><td></td><td></td><td>&&： Error occurring disc situation
<table><tr><th rowspan="2">Display</th><th colspan="4">Detail</th></tr><tr><th>Disc distinction</th><th>With or without Cartridge</th><th>Disc cart-ridge state</th><th>Size</th></tr><tr><td>00</td><td>OK</td><td>With</td><td>Not opened</td><td>12cm</td></tr><tr><td>10</td><td>OK</td><td>With</td><td>Not opened</td><td>8cm</td></tr><tr><td>20</td><td>OK</td><td>With</td><td>Opened</td><td>12cm</td></tr><tr><td>30</td><td>OK</td><td>With</td><td>Opened</td><td>8cm</td></tr><tr><td>40</td><td>OK</td><td>Without</td><td>Not opened</td><td>12cm</td></tr><tr><td>50</td><td>OK</td><td>Without</td><td>Not opened</td><td>8cm</td></tr><tr><td>60</td><td>OK</td><td>Without</td><td>Opened</td><td>12cm</td></tr><tr><td>70</td><td>OK</td><td>Without</td><td>Opened</td><td>8cm</td></tr><tr><td>80</td><td>NG</td><td>With</td><td>Not opened</td><td>12cm</td></tr><tr><td>90</td><td>NG</td><td>With</td><td>Not opened</td><td>8cm</td></tr><tr><td>A0</td><td>NG</td><td>With</td><td>Opened</td><td>12cm</td></tr><tr><td>B0</td><td>NG</td><td>With</td><td>Opened</td><td>8cm</td></tr><tr><td>C0</td><td>NG</td><td>Without</td><td>Not opened</td><td>12cm</td></tr><tr><td>D0</td><td>NG</td><td>Without</td><td>Not opened</td><td>8cm</td></tr><tr><td>E0</td><td>NG</td><td>Without</td><td>Opened</td><td>12cm</td></tr><tr><td>F0</td><td>NG</td><td>Without</td><td>Opened</td><td>8cm</td></tr></table>8. When the last error doesn't exist .
NO DATA</td><td></td></tr>
<tr><td>CEC (H) output check</td><td>Check of the CEC terminal high output of HDMI.</td><td>When the check is OK
CECHOK
When the check is NG
CECHNG</td><td>Press [5] [5] in service mode.</td></tr>
<tr><td>CEC (L) output check</td><td>Check of the CEC terminal low output of HDMI.</td><td>When the check is OK
CECLOK
When the check is NG
CECLNG</td><td>Press [5] [6] in service mode.</td></tr>
<tr><td>Manufacturing Date</td><td>Read out the manufacturing date of the unit.</td><td>YYMMDD
YY: Year
MM: Month
DD: Date</td><td>Press[6][1]in service mode.</td></tr>
</table>

Item		FL display	Key operation
Mode name	Description		(Remote controller key)
Drive adjustment value initialization	Initialize the drive going to factory production adjustment values.	DP DP＊＊＊＊ ＊＊＊＊ : password digits ((4) (5) (3) (6)) Initializing: DINI Successful adjustment value initialization and automatic adjustment time : DINIOK Failed at initialization and automatic adjustment adjustment : DINING When you enter the wrong password service mode initially (SERV __ __) to return.	Press[7][1]in service mode. Wirte remote control number key perform the initialization.
Tray OPEN/CLOSE Test	The BD drive tray is opened and closed repeatedly.	＊＊＊＊＊＊ * is number of open/close cycle times.	Press [9] [1] in service mode *When releasing this mode, press the [POWER] button of Remote Controller more than 10 seconds.
Delete the Laser Used Time	Laser used time information stored in the memory of the unit is deleted.	CLR	Press [9] [5] in service mode.
Delete the Last Drive Error	Laser Drive Error information stored on the BD Drive is deleted.	CLR	Press [9] [6] in service mode.
Delete the Error History	Error History information stored on the unit is deleted.	CLR	Press [9] [7] in service mode.
Initialization of Error code	Last Error Code information stored by timer is deleted. (Write in F00)	CLR	Press [9] [8] in service mode.
Initialization of the Service Mode	Last Drive Error, Error History and Error code information stored on the unit are initialized to factory setting.	CLR	Press [9] [9] in service mode.
Release Service Mode	Release Service Mode and turns the Power Off.	Display in STOP (SS) mode. ＊＊＊＊＊＊	Press [POWER] button on the front panel or Remote controller in service mode.

8 Service Fixture & Tools

Part Number	Description	Pcs	Compatibility
RFKZ0216	Extension Cable (Digital P.C.B. - Power P.C.B. / 23 Pin)	1	Same as BD60 Series
RFKZ0327	Extension Cable (Digital P.C.B. - SD P.C.B. / 15 Pin)	1	Same as XW350 Series
RFKZ03D01KS	Lead Free Solder (0.3mm/100g Reel)		Same as BD60 Series
RFKZ06D01KS	Lead Free Solder (0.6mm/100g Reel)		Same as BD60 Series
RFKZ10D01KS	Lead Free Solder (1.0mm/100g Reel))		Same as BD60 Series
RFKZ0316	Solder Remover (Lead free low temperature Solder/50g)		Same as BD60 Series
RFKZ0328	Flux		Same as BD60 Series

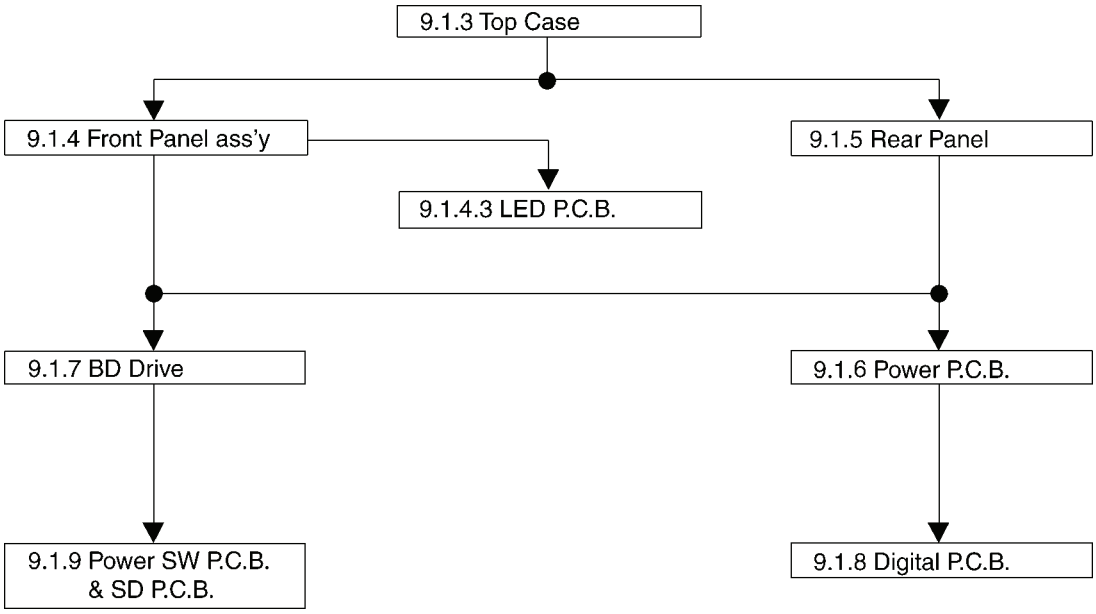
*** The above parts are supplied by AVC-CSC-SPC.**

9 Disassembly and Assembly Instructions

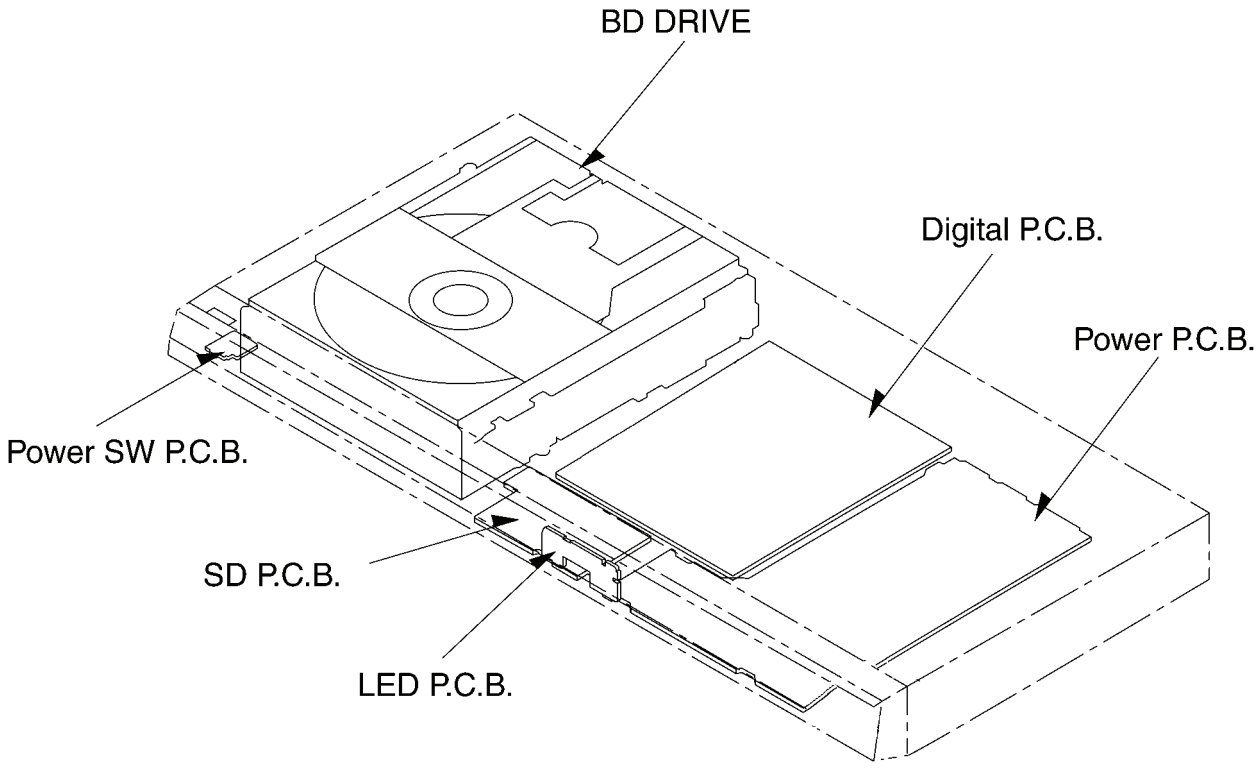
9.1. Unit

9.1.1. Disassembly Flow Chart

The following chart is the procedure for disassembling the casing and inside parts for internal inspection when carrying out the servicing.
To assemble the unit, reverse the steps shown in the chart below.

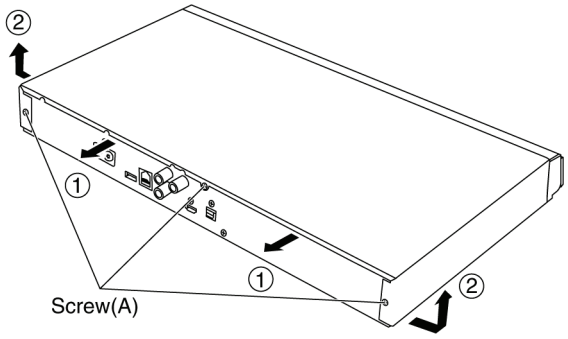


9.1.2. P.C.B. Positions

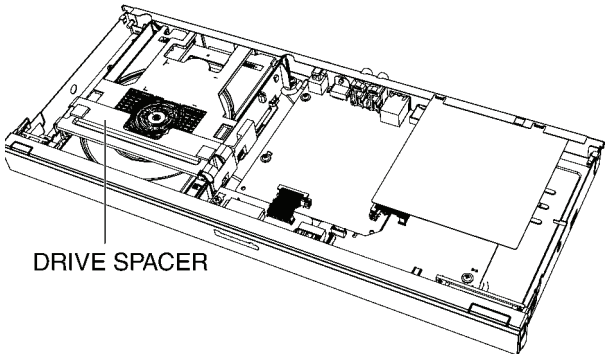


9.1.3. Top Case

1. Remove the 3 Screws (A).
2. Slide Top Case rearward and open the both ends at rear side of the Top Case a little and lift the Top Case in the direction of the arrows.



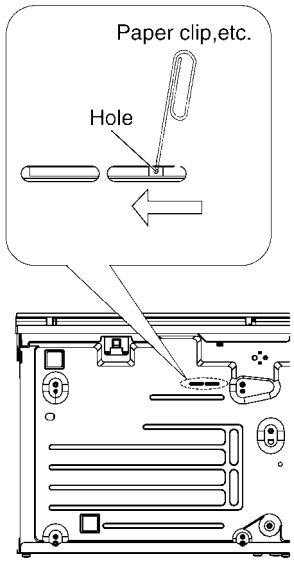
3. Remove the Drive Spacer.



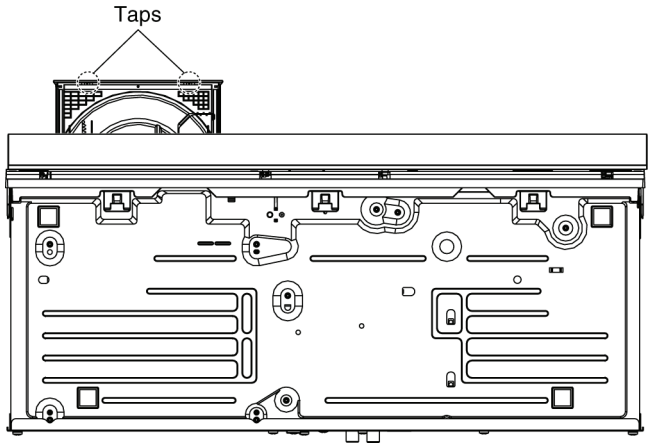
9.1.4. Front Panel ass'y

9.1.4.1. Tray Top

1. Put deck so that bottom can be seen.
2. Insert the Paper clip, etc. into the hole on the bottom of BD Drive and slide the Paper clips, etc. in the direction of the arrow to eject tray slightly.

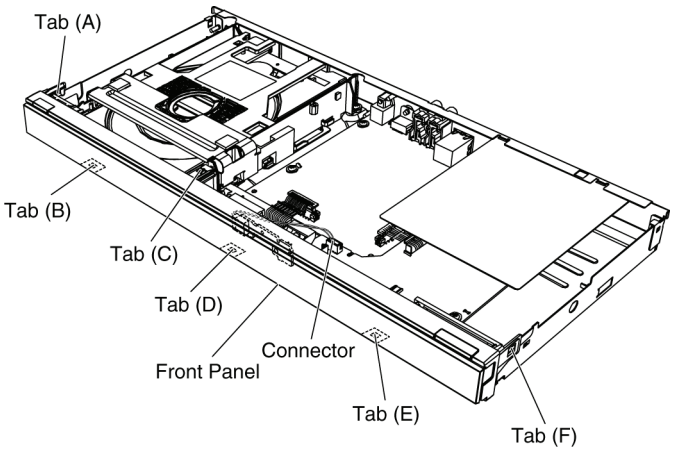


3. Remove the tray top from the tray section.



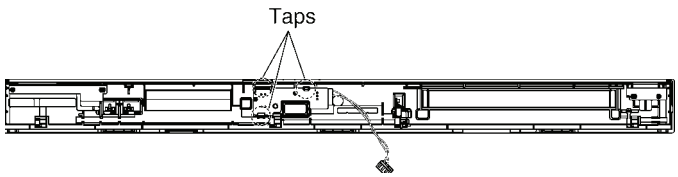
9.1.4.2. Front Panel

1. Remove the connector.
2. Unlock 6 tabs (A)-(F) turn. Pull with the Front Panel in the direction of your side.



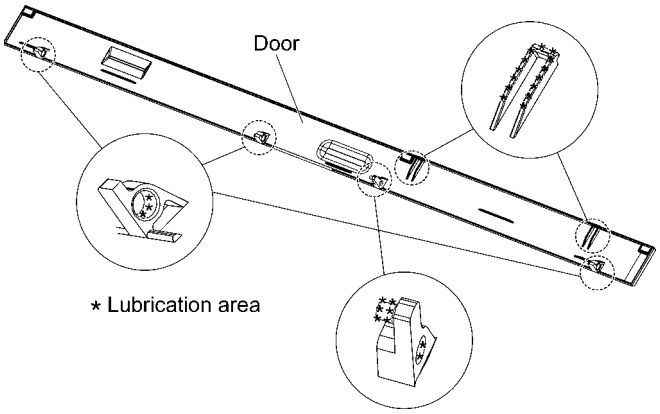
9.1.4.3. LED P.C.B.

1. Release the tabs.
2. Remove the LED P.C.B..



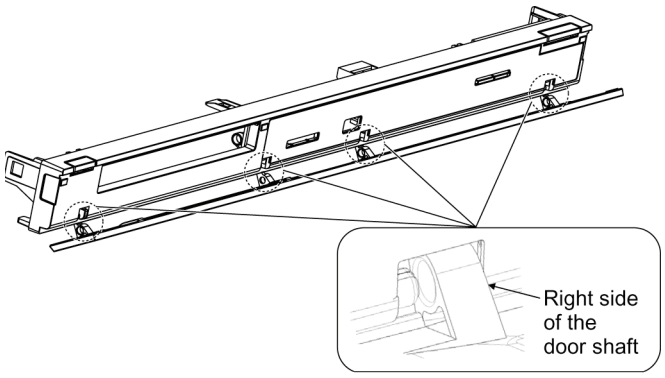
9.1.4.4. Application of the Lubricant to Door Ass'y

1. Lubrication points on door ass'y are shown in the figure as below.
2. Since the replaced parts are not lubricated, please apply lubricant to the specified points (RFKXGUD24).
3. Use Cotton Swab to spread thinly.

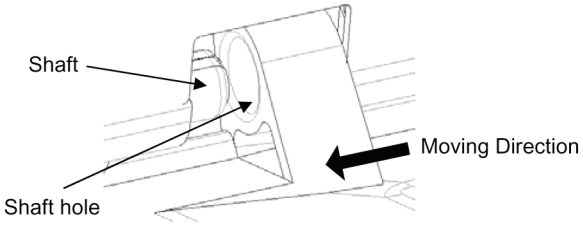


9.1.4.5. How to assemble Door ass'y.

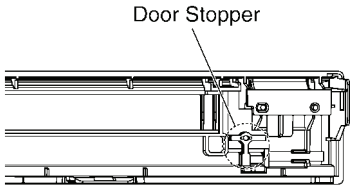
1. Lean the right side of the door shaft against the side of relevant holes of the front panel, and insert the door shaft into the hole of the front panel.



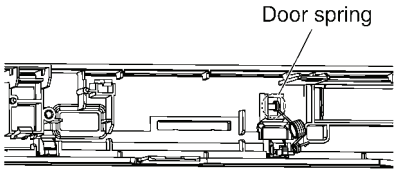
2. Move the door leftward, and insert the 4 shafts of the front panel into the shaft hole of the door.



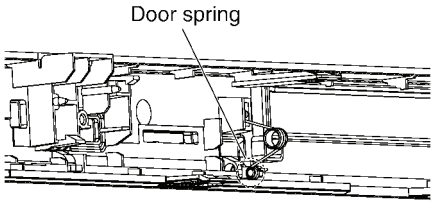
3. Install the door stopper.



4. Firstly attach the door spring to the front panel.

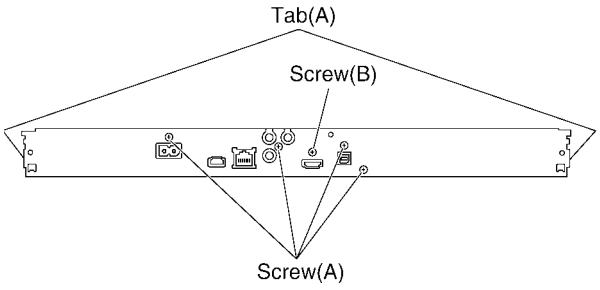


5. Stick the spring to the door with the door closed.



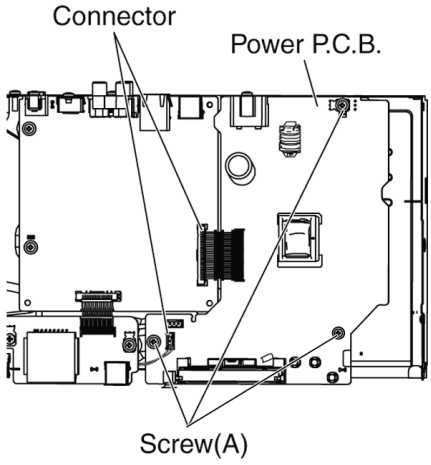
9.1.5. Rear Panel

1. Remove the 4 Screws (A) and Screw (B).
2. Unlock 2 locking Tabs (A) to remove the Rear Panel.



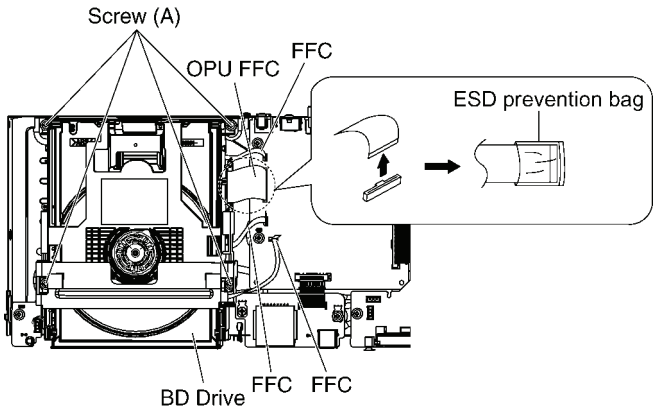
9.1.6. Power P.C.B.

1. Remove the 2 connectors.
2. Remove the 3 Screws (B).



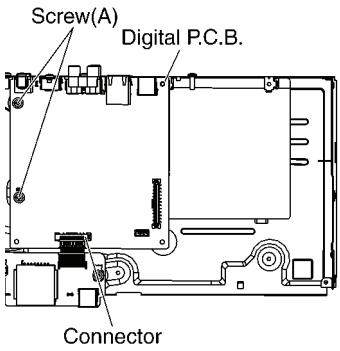
9.1.7. BD Drive

1. Remove the OPU FFC, and isolate it with an ESD prevention bag (RPFC0114) to prevent the laser diode from the ESD damage. (PX/PU only)
2. Remove the 3 FFCs.
3. Remove the 4 Screws (A) to remove BD Drive.



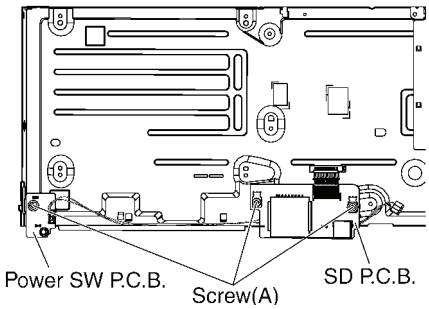
9.1.8. Digital P.C.B.

1. Remove the connector.
2. Remove the 2 Screws (A).



9.1.9. Power SW P.C.B. & SD P.C.B.

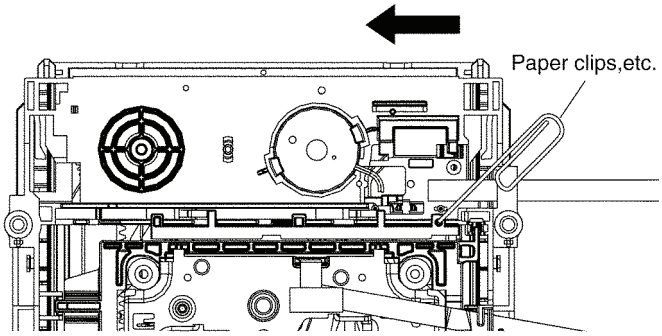
1. Remove the 3 Screws (A).



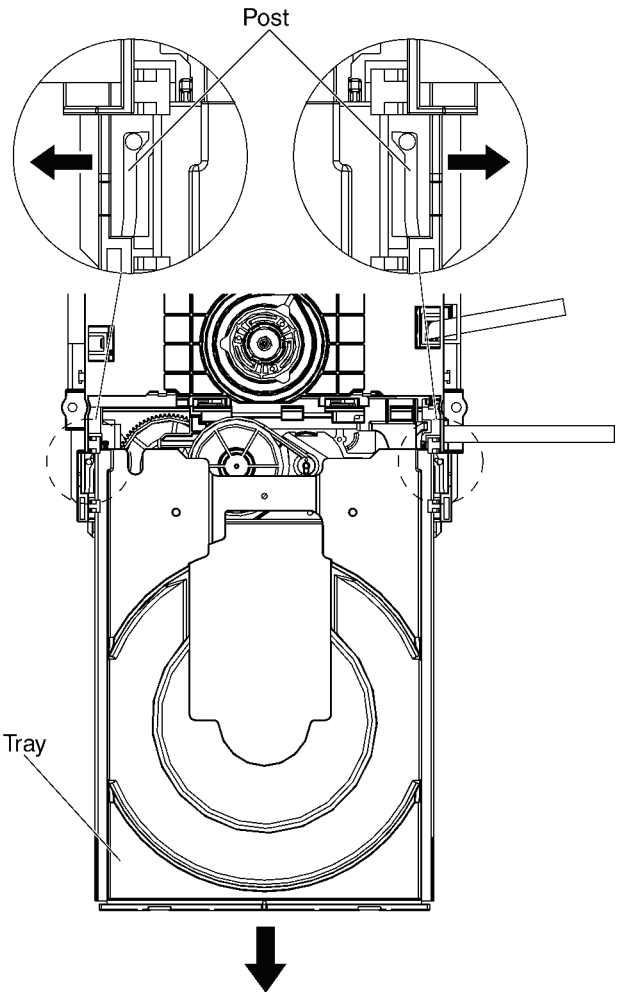
9.2. BD Drive

9.2.1. Tray

1. Insert the Paper clips, etc. into the hole of the bottom side, and slide it to the direction of arrow until it can be.

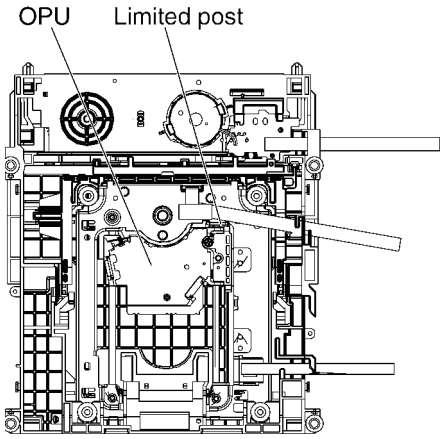


2. Pull the Tray to the direction of arrow until it can be.
3. Push the two posts in front of the mecha chassis to both sides of the drive to unlock the tray, and push it outward simultaneously.

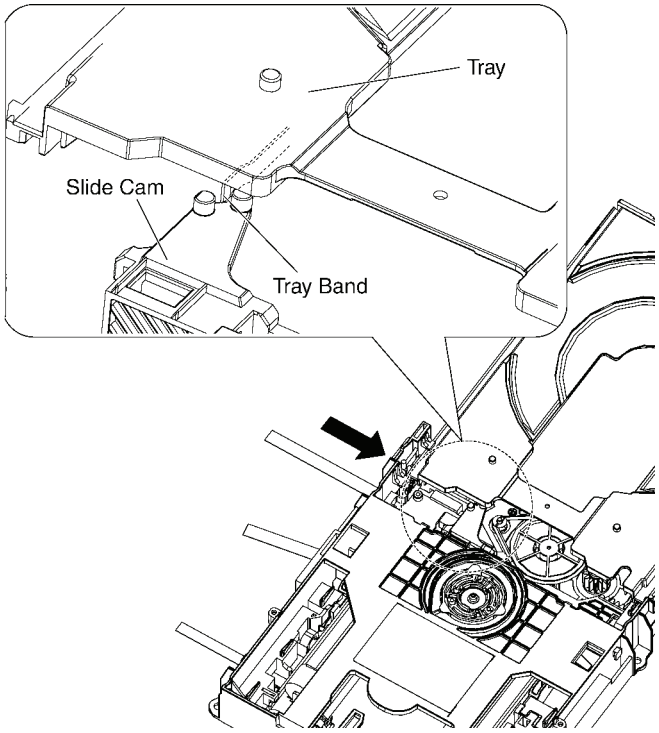


Notes when attaching the tray:

1. Be sure to leave the OPU at the inner limited posts.

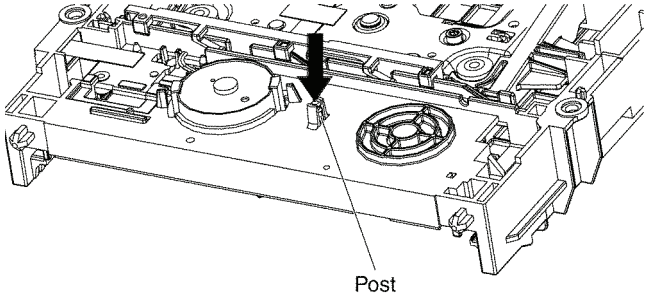


2. Push Slide cam to the left side slightly, and make sure the tray band is between the two posts of Slide cam when attaching the tray.

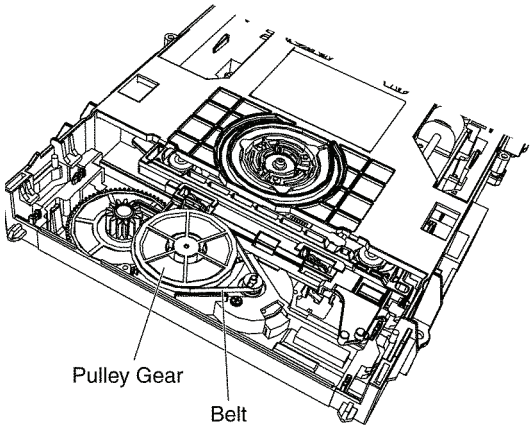


9.2.2. Pulley Gear, Belt

1. Perform the step " Tray ".
2. Push the Post to the direction of arrow by using the slotted screwdriver.

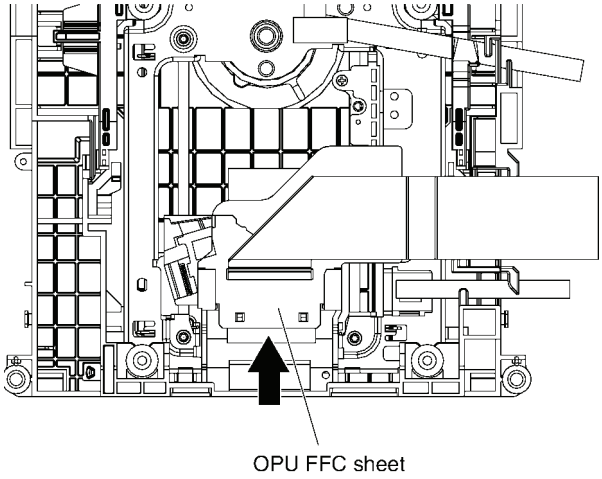


3. Remove the Pulley Gear and Belt.

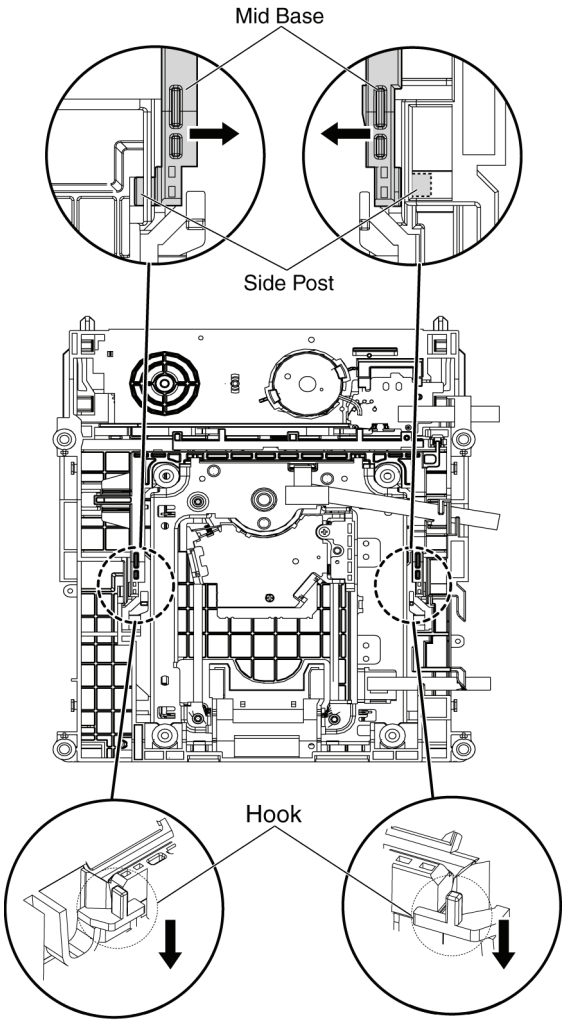


9.2.3. Slide Cam

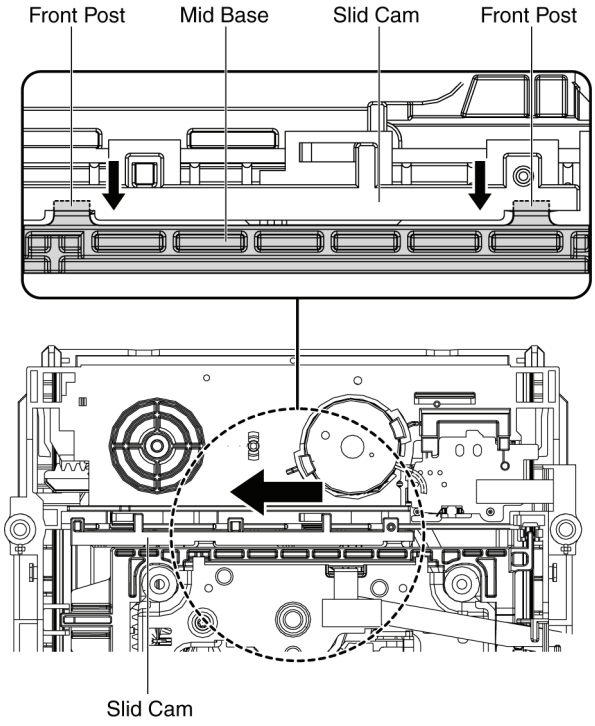
1. Perform the step " Pulley Gear, Belt ".
2. Remove the OPU FFC sheet from the mecha chassis.



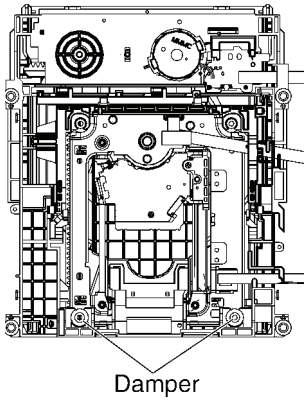
3. Pull the hooks at both sides to remove the side post on the mid base.



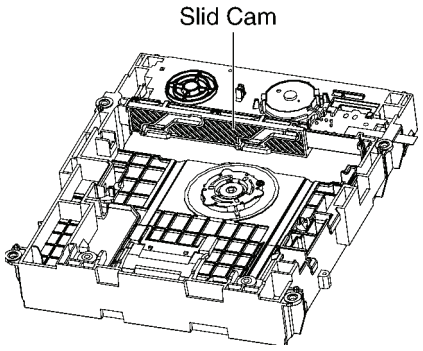
4. Slide the Slid cam in the direction as shown, and then take the front post out of the slide cam track.



5. Take the damper out of the mecha chassis and remove the Drive ass' y.

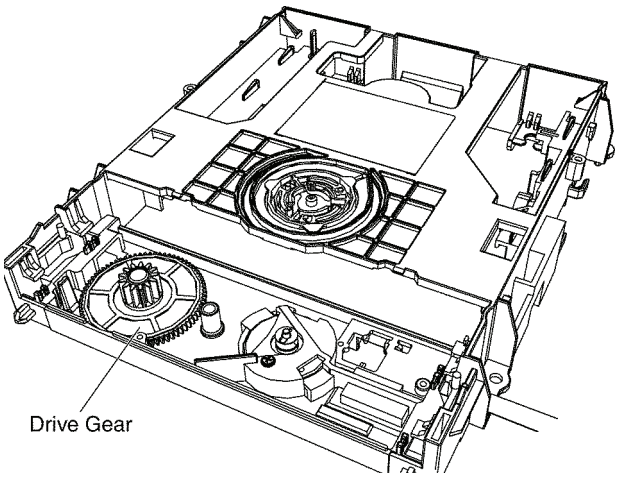


6. Remove the Slide Cam.

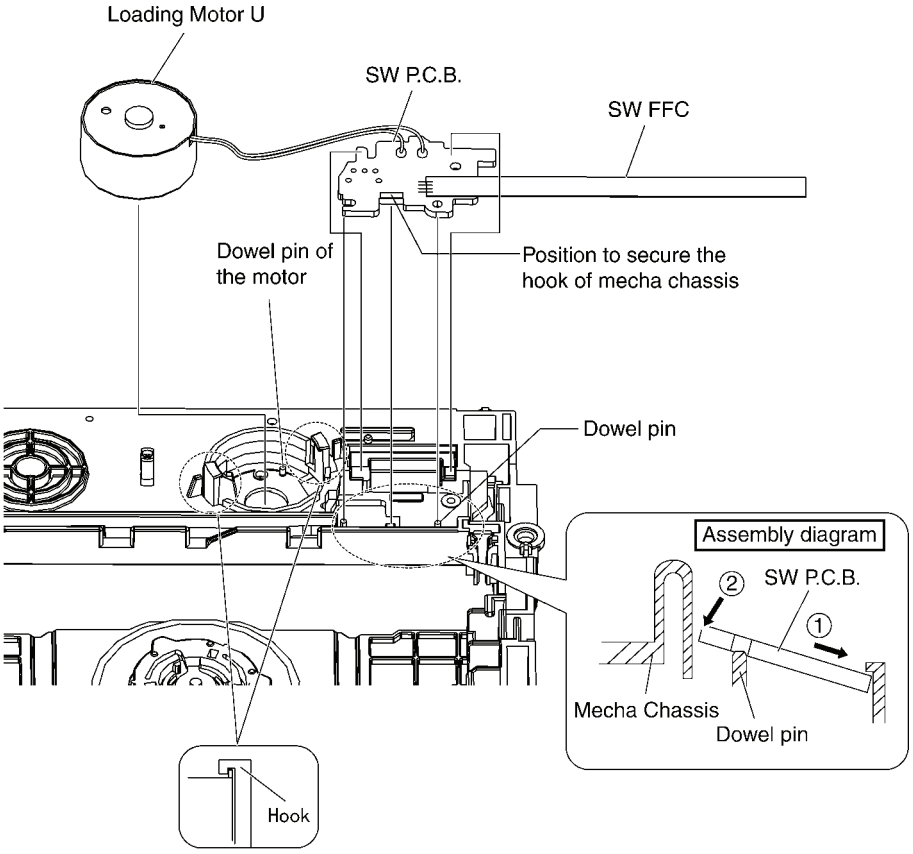


9.2.4. Drive Gear and Loading Motor

1. Perform the step “ Slide Cam ”.
2. Remove the Drive Gear.



3. Loosen the hooks, and remove the Loading Motor Unit and the SW P.C.B.

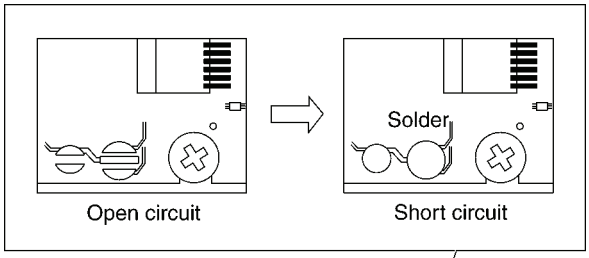


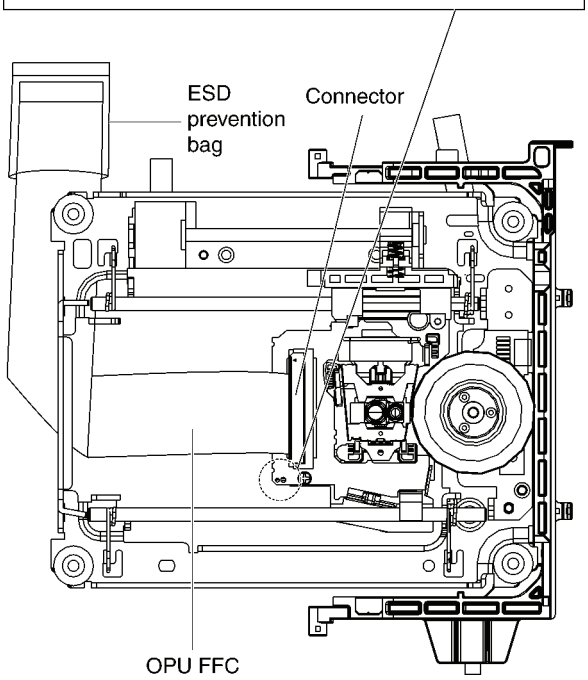
9.3. Traverse Unit

9.3.1. Drive Disassembly from the traverse unit, assembly of the optical pick-up unit, and precautions on ESD-preventive for PU/PX

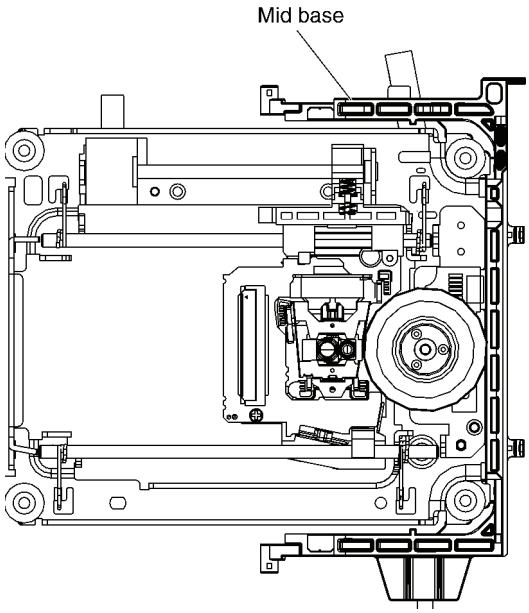
9.3.1.1. Disassemly

1. Before removing the optical pick-up unit, please apply an ESD prevention bag(RPFC0114) to the OPU FFC, and weld the short-circuit solder.
   a. Set the temperature of iron is 350°C.
   b. When using the iron head,do not apply a force more than 1N to the pad. Do not touch any other components around the welding spot.
   c. Welding should be applied less than 3 times.
2. Remove the connector, and take out the OPU FFC.

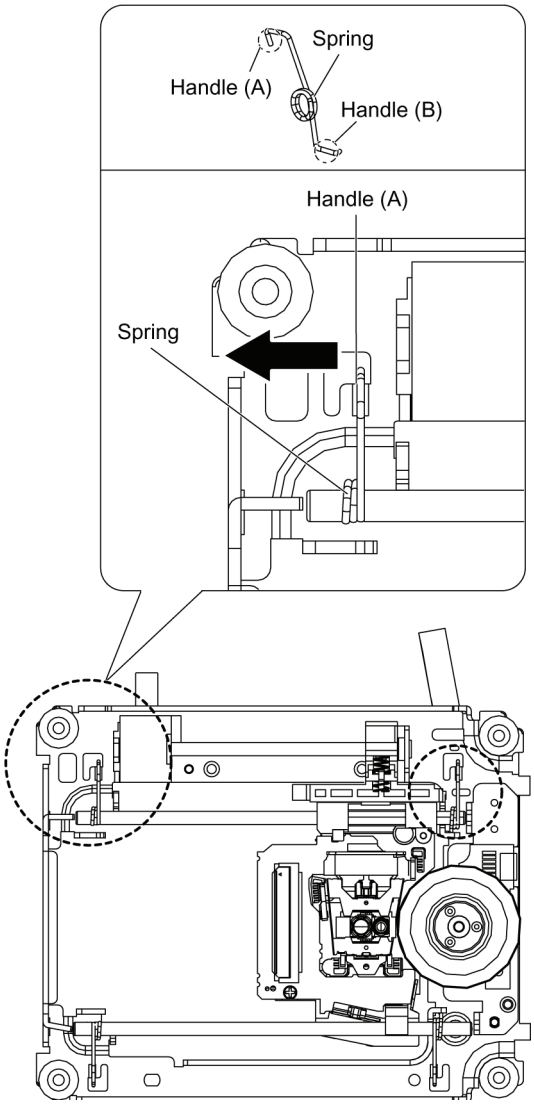


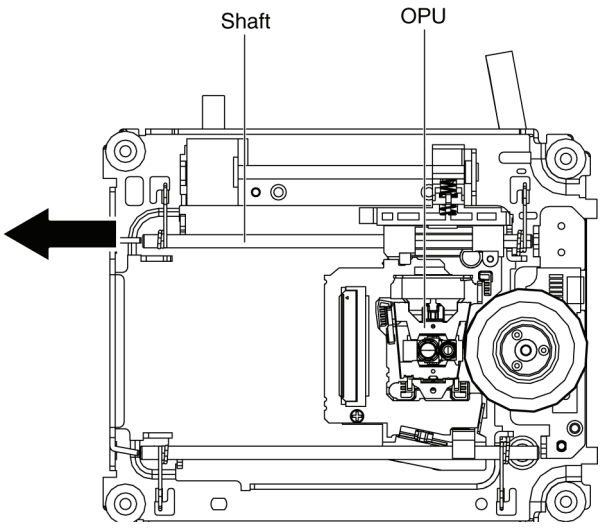


3. Remove the Mid base.

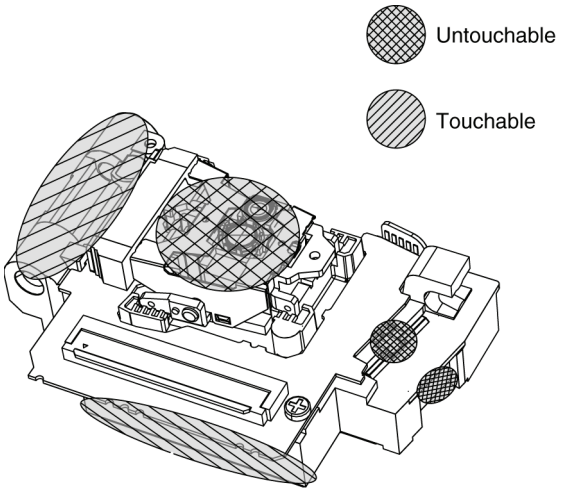


4. Press down the handle A of the two springs, and remove the shaft with OPU.

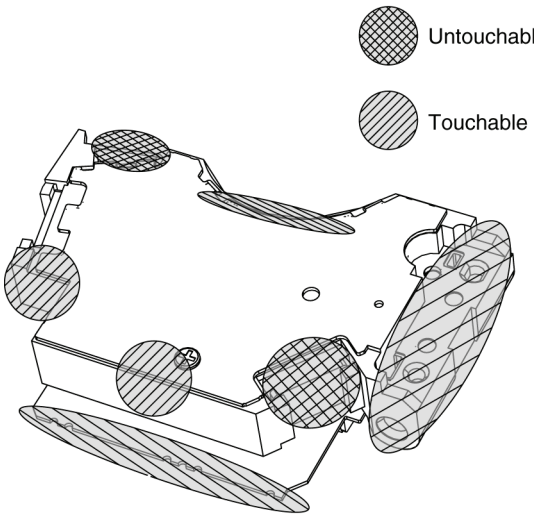




NOTE:
In this action, finger stab needs to be put on.
Do not touch any parts other than the positions marked in the Figure.



P.C.B end face and the Base face

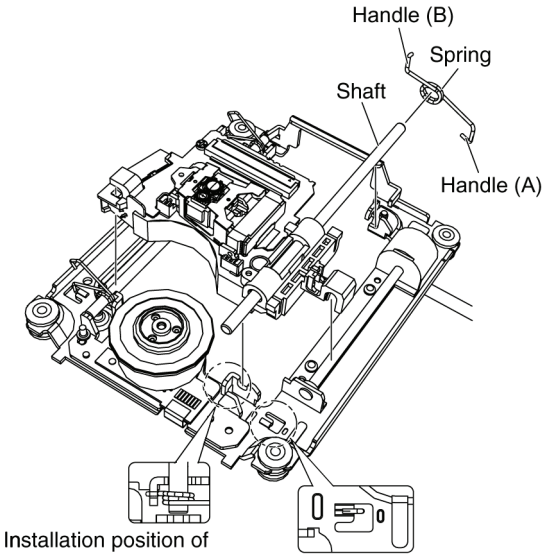


P.C.B end face

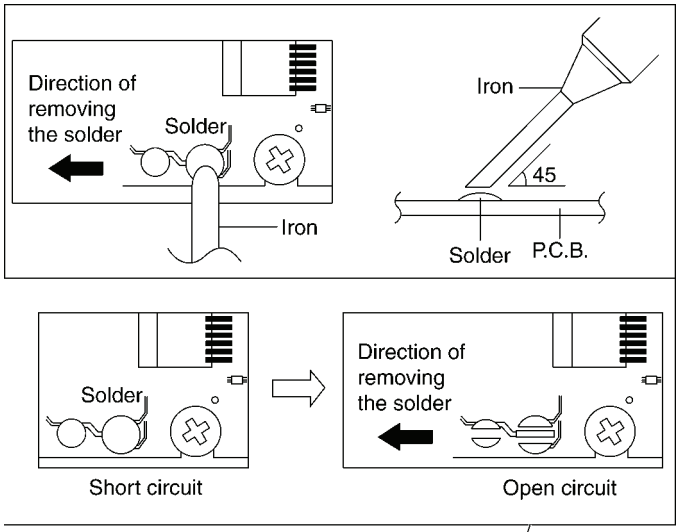
9.3.1.2. Assembly

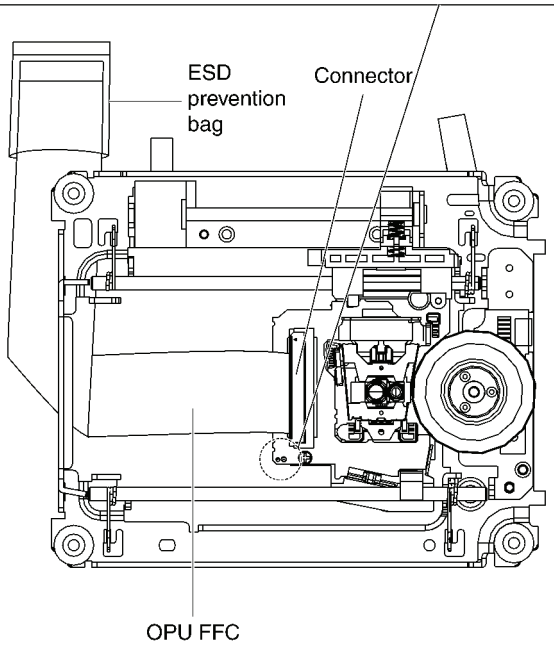
1. Insert the shaft into the shaft hole of the base, install the OPU to the auxiliary shaft, and then attach the nut piece unit onto the screw stem.
2. Assembly of spring.
   a. Insert the two springs to the ends of the shaft.
   b. Then insert the handle (B) of the spring into the spring holder(as shown in Fig).
   c. Press down the handle (A) of the spring (as shown in Fig) into the hole.

.

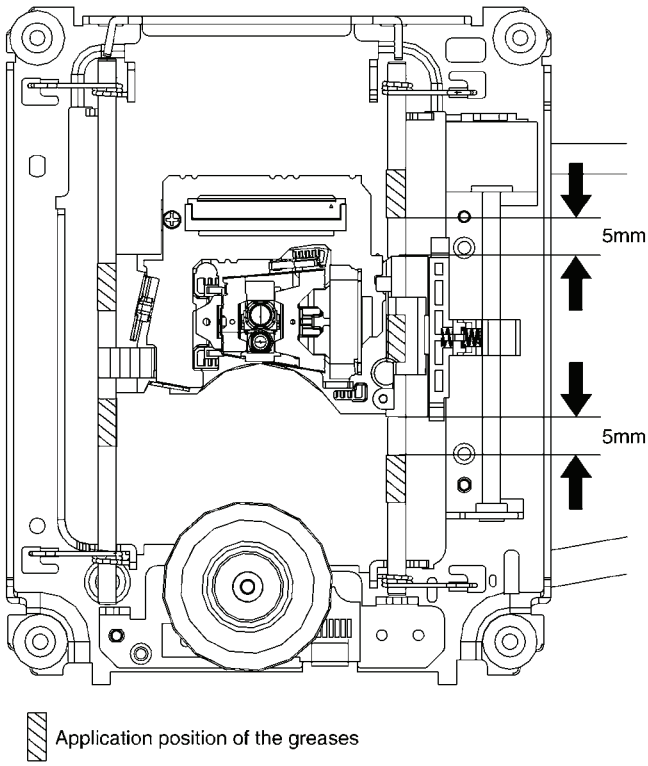


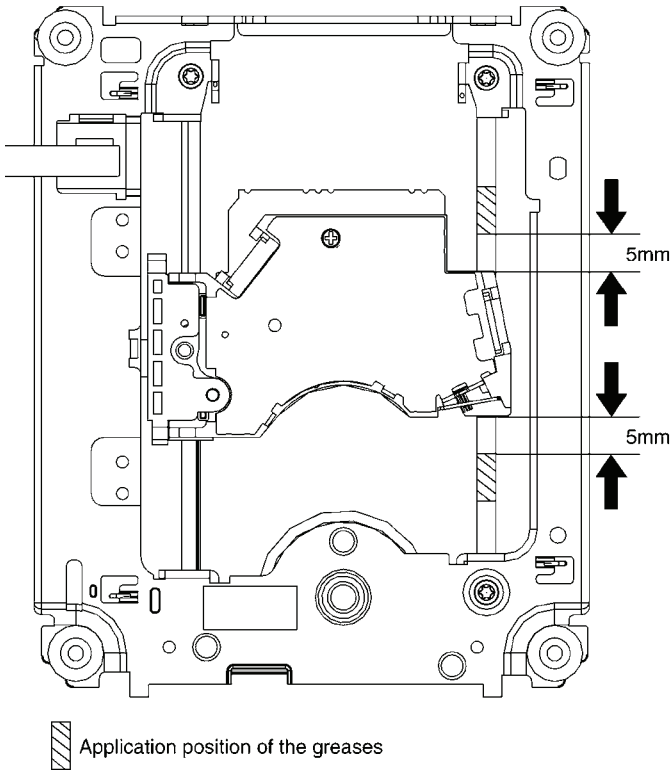
3. Insert FFC, and desolder the solder spot.
   a. Use the iron head with an angle as shown in Fig, remove the solder in the direction as shown.
   b. Set the temperature of iron below 350°C.
   c. When using the iron head,do not apply a force more than 1N to the pad. Do not touch any other components around the welding spot.
   d. Welding should be applied less than 3 times.





4. Apply the lubricants to the 7 points as shown in Figure.

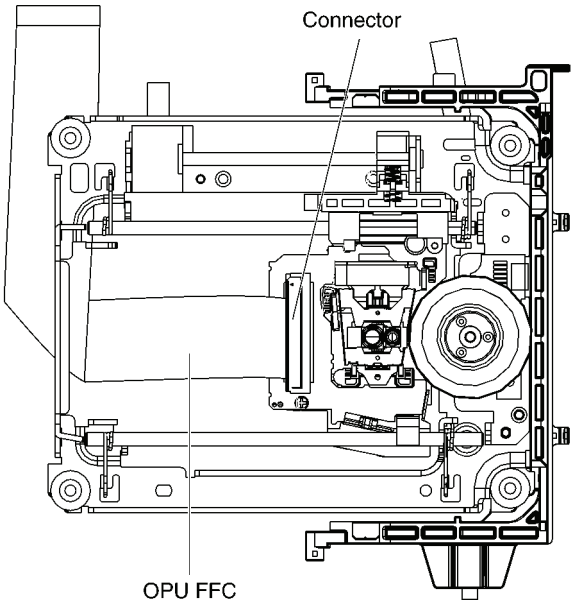




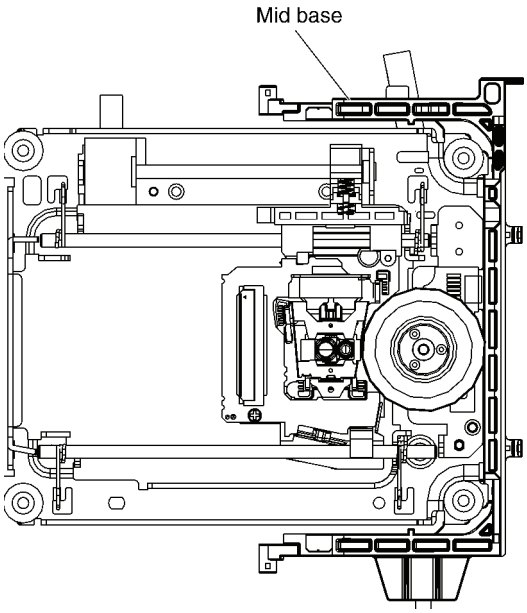
9.3.2. Disassembly from the traverse unit, assembly of the optical pick-up unit for GA/GC/GN/GT/GW

9.3.2.1. Disassemly

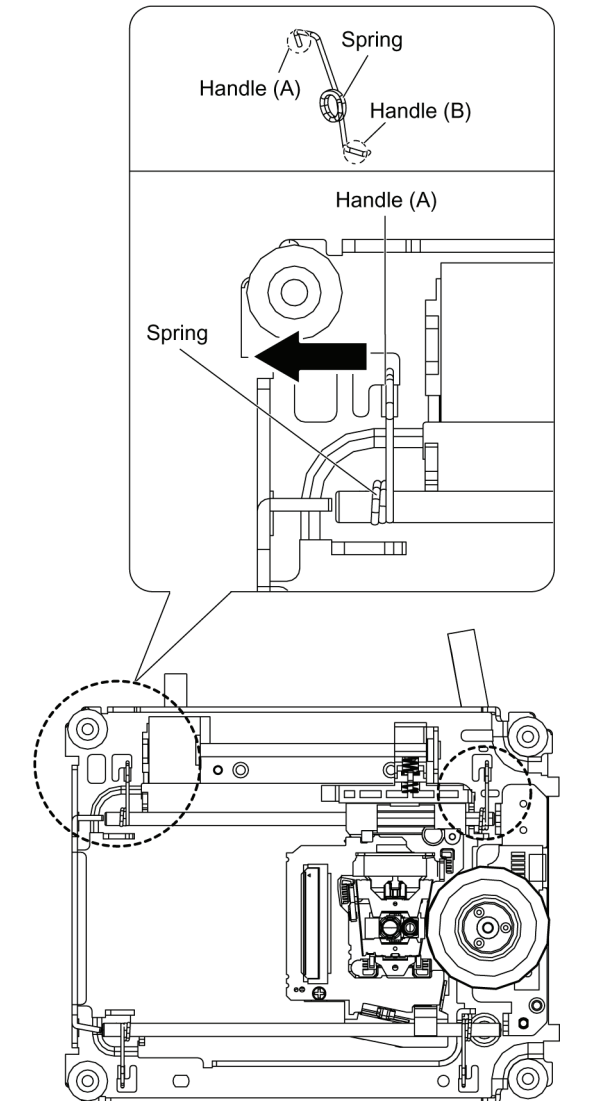
1. Remove the connector, and take out the OPU FFC.

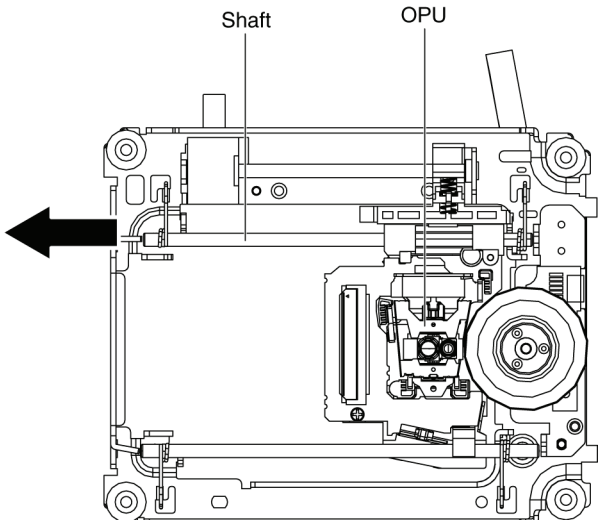


2. Remove the Mid base.

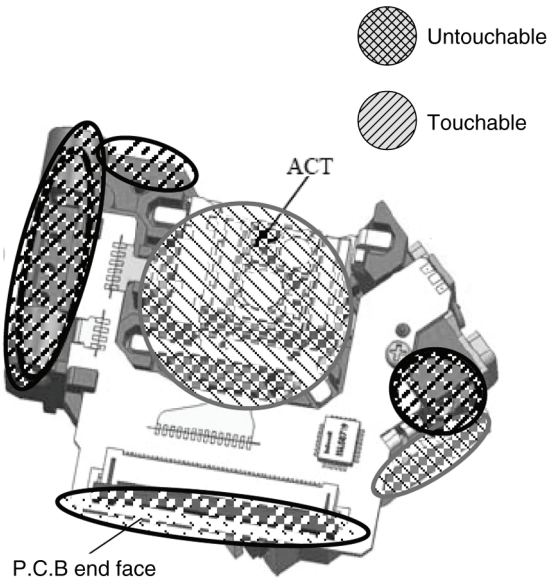


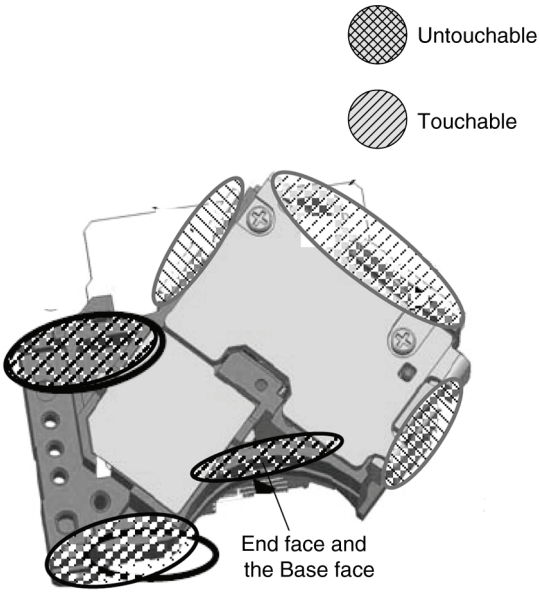
3. Press down the handle A of the two springs, and remove the shaft with OPU.





NOTE:
In this action, finger stab needs to be put on.
Do not touch any parts other than the positions marked in the Figure.

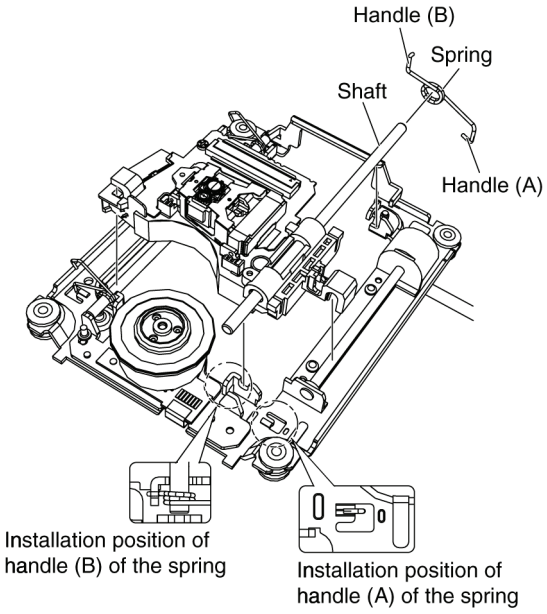




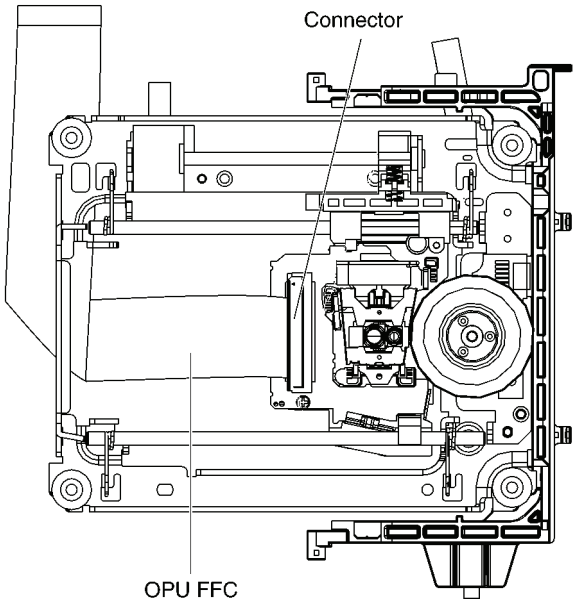
9.3.2.2. Assembly

1. Insert the shaft into the shaft hole of the base, install the OPU to the auxiliary shaft, and then attach the nut piece unit onto the screw stem.
2. Assembly of spring.
   a. Insert the two springs to the ends of the shaft.
   b. Then insert the handle (B) of the spring into the spring holder(as shown in Fig).
   c. Press down the handle (A) of the spring (as shown in Fig) into the hole.

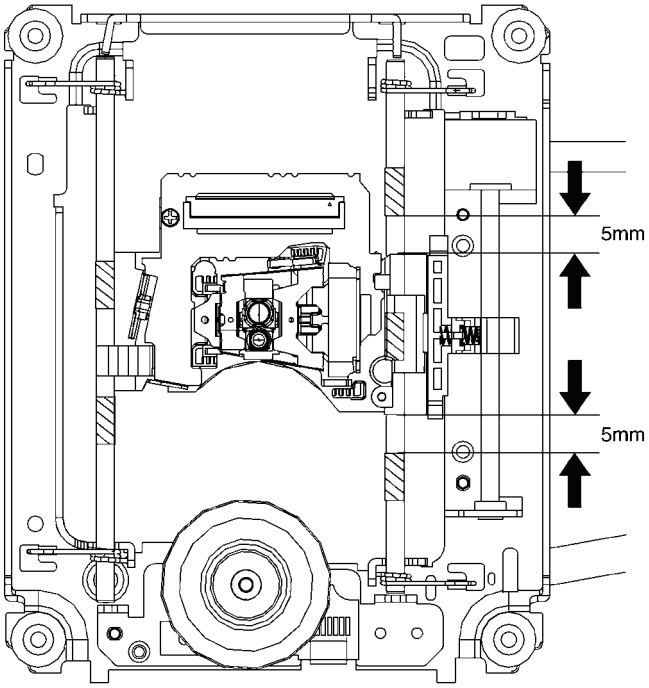
.



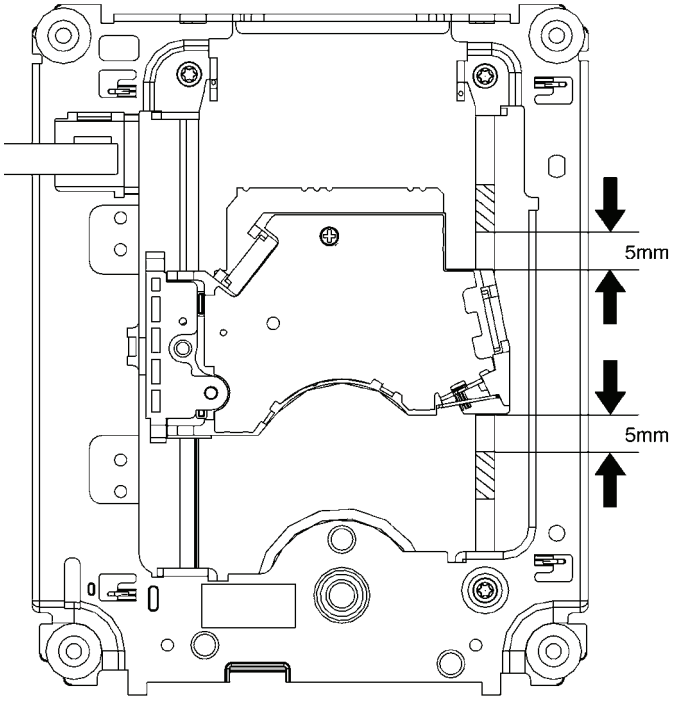
3. Insert FFC.



4. Apply the lubricants to the 7 points as shown in Figure.

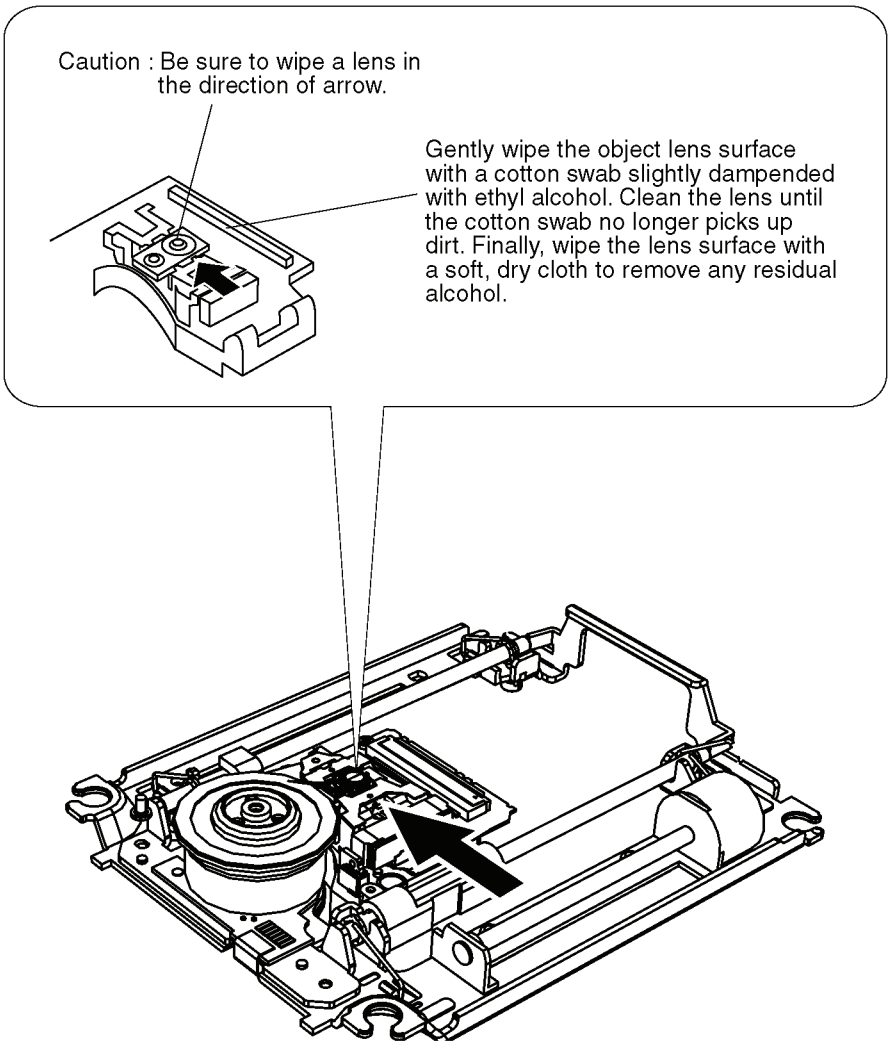


Application position of the greases



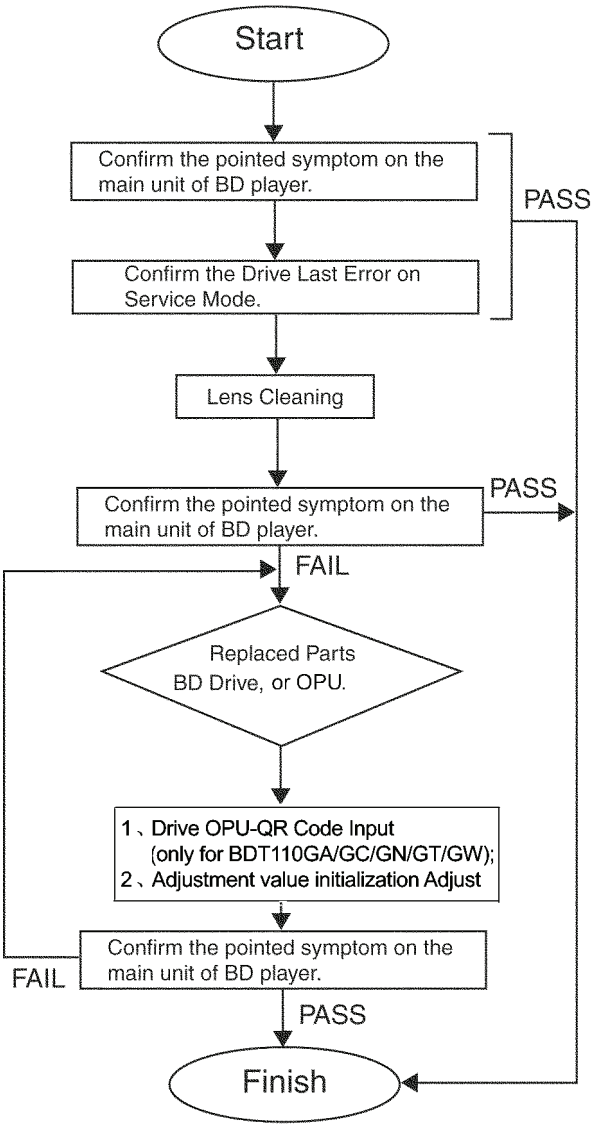
Application position of the greases

9.3.3. How to Clean the Lens of Optical Pick-UP



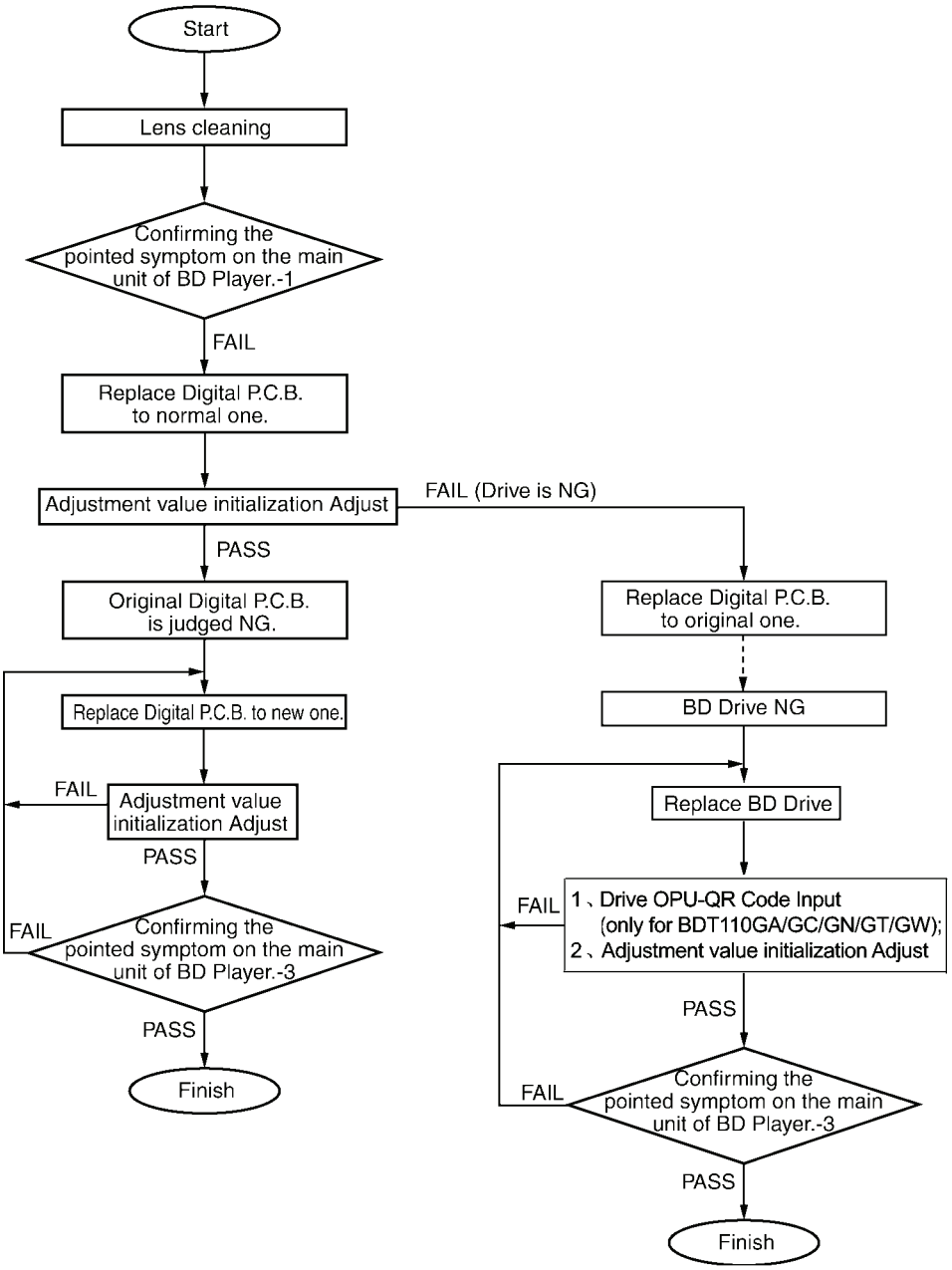
9.4. Adjustment of BD Drive

9.4.1. Repair Flowchart



9.4.2. Distinction Analysis

9.4.2.1. Distinction Analysis Flowchart



9.4.2.2. Analysis Procedures

1. Confirmation of pointed symptom -1
   • Confirm the pointed symptom of BD player occurs again after cleaning the lens.
2. Replacement of Digital P.C.B. with the normal P.C.B.
   • Replace the failed Digital P.C.B. with the normal P.C.B.
3. Confirmation of pointed symptom -2
   • Checking symptoms of failed disc in the procedure 1.
   For this time,
   PASS denotes the Digital P.C.B. is defective.
   FAIL denotes the Optical Pick-up or mechanism are defective.
4. Replacement of Digital P.C.B. with the original one.
5. Pointed symptom -3
   • Recheck the pointed symptoms to see mechanism part is improved.
   For this time,
   In case of FAIL, go back to Replacement failure part 1 to confirm the pointed symptoms.
   If it is PASS, it is finished.

9.4.3. Adjustment

9.4.3.1. Adjustment of BDT110GA/GC/GN/GT/GW

NOTE:

Please do the adjustment according to the following steps.

9.4.3.1.1. Drive OPU-QR Code write(72)

In the service mode, enter 6 digits QR Code after numeral keys ⑦② are input on the remote control.

①	②	③	④	⑤	⑥	
D	R	Q				Enter ⑦② in service mode.
*	*	*	*	*	*	Enter the 6 digits QR code on QR label(OPU). The operation cannot be terminated until all the 6 numbers is entered. If "000000" is entered, QR code write mode can be unlocked.
D	R	Q		O	K	QR code write success
D	R	Q		N	G	QR code write failure

6 digits QR code
location diagram



9.4.3.1.2. [Drive] Adjustment value initialization(71)

When the projector is being manufactured in the factory, the drive adjustment value is initialized.

In the service mode, enter 4 digits password (④⑤③⑥)after numeral keys ⑦① are input on the remote control, then initialization starts.

If password is entered by mistake, it will return to initial status in the service mode (SERV_).

①	②	③	④	⑤	⑥	
D	P	*	*	*	*	When a digit is entered, it is displayed in * (4 digits) (Blank shows when no password is being input)
D	I	N	I			(Enter ⑦① → Input a correct password of 4 digits), then initialization is performed.
D	I	N	I	O	K	When adjustment value is initialized and auto adjustment is ended normally.
D	I	N	I	N	G	When adjustment value is initialized and automatic adjustment is ended abnormally.

9.4.3.2. Adjustment of BDT110PU/PX

9.4.3.2.1. [Drive] Adjustment value initialization(71)

When the projector is being manufactured in the factory, the drive adjustment value is initialized.

In the service mode, enter 4 digits password (④⑤③⑥)after numeral keys ⑦① are input on the remote control, then initialization starts.

If password is entered by mistake, it will return to initial status in the service mode (SERV_).

①	②	③	④	⑤	⑥	
D	P	*	*	*	*	When a digit is entered, it is displayed in * (4 digits) (Blank shows when no password is being input)
D	I	N	I			(Enter ⑦① → Input a correct password of 4 digits), then initialization is performed.
D	I	N	I	O	K	When adjustment value is initialized and auto adjustment is ended normally.
D	I	N	I	N	G	When adjustment value is initialized and automatic adjustment is ended abnormally.

9.4.3.3. In the Case of Necessity the Adjustment

1. When the OPU ass'y is replaced.
2. When the Drive unit is replaced.

10 Measurements and Adjustments

10.1. Service Positions

NOTE:

For description of the disassembling procedure, see the section 9.

10.1.1. Checking and Repairing of Power P.C.B.

1.Top Case

Remove the 3 Screws (A).

Slide Top Case rearward and open the both ends at rear side of the Top Case a little and lift the Top Case in the direction of the arrows.

2. Front Panel ass'y

Remove the Tray top,Remove the connector.

Unlock 6 tabs turn and Remove Front Panel,then Remove the LED P.C.B..

3. Rear Panel

Remove 5 Screws (one of the HDMI) to remove the Rear Panel.

4. Power P.C.B.

Remove the Power SW P.C.B..

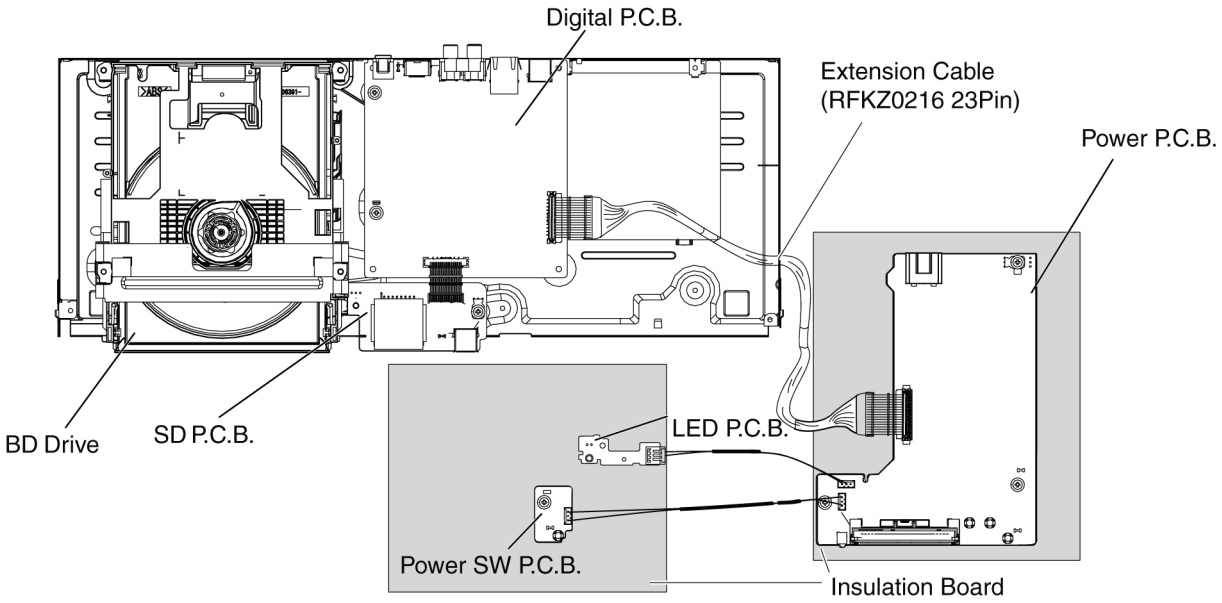
Disconnect the connector (23Pin) between Power P.C.B. and Digital P.C.B..

Remove 3 Screws to remove Power P.C.B.,then Put Power P.C.B. on the Insulation Board.

Connecting the LED P.C.B. to the Power P.C.B. with original cable.
Connecting the Power SW P.C.B. to the Power P.C.B. with original cable.

Connect Extension Cables shown below.
Between Power P.C.B. and Digital P.C.B.:(RFKZ0216) 23 Pin

Caution :
1.Red wire should be connected to pin 1.



10.1.2. Checking and Repairing of Digital P.C.B.

1.Top Case

Remove the 3 Screws (A).

Slide Top Case rearward and open the both ends at rear side of the Top Case a little and lift the Top Case in the direction of the arrows.

2. Front Panel ass'y

Remove the Tray top.Remove the connector.

Unlock 6 tabs turn and Remove Front Panel. Remove the LED P.C.B..

3. Rear Panel

Remove 5 Screws (one of the HDMI) to remove the Rear Panel.

4. Digital P.C.B.

Disconnect the connector (15Pin) between SD P.C.B. and Digital P.C.B..

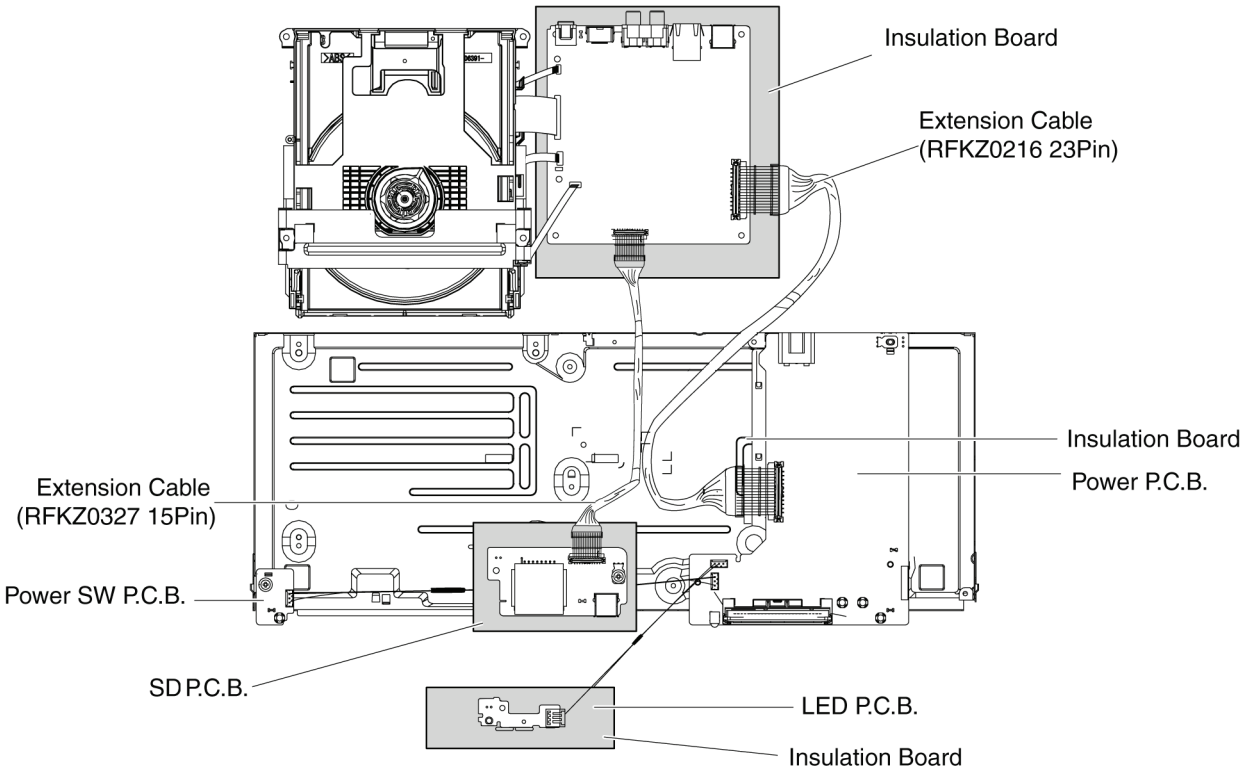
Disconnect the connector (23Pin) between Power P.C.B. and Digital P.C.B..

Remove 6 Screws to remove Digital P.C.B.and BD Drive,then Put Digital P.C.B. on the Insulation Board.

Connecting the LED P.C.B. to the Power P.C.B. with original cable.

Connect Extension Cables shown below.
Between Power P.C.B. and Digital P.C.B.:(RFKZ0216) 23 Pin
Between SD P.C.B.and Digital P.C.B.:(RFKZ0327) 15 Pin

Caution :
1.Red wire should be connected to pin 1.



10.2. Caution for Replacing Parts

10.2.1. Items that should be done after replacing parts

√: Necessary —: Unnecessary

Items that Should be done / Replacing Parts	Updating Firmware (Note 1)
Digital P.C.B.	√

Note 1:
Download latest Firmware and burn it on CD-R or CD-RW, and update Firmware.

10.2.2. Standard Inspection Specifications after Making Repairs

After making repairs, we recommend performing the following inspection, to check normal operation.

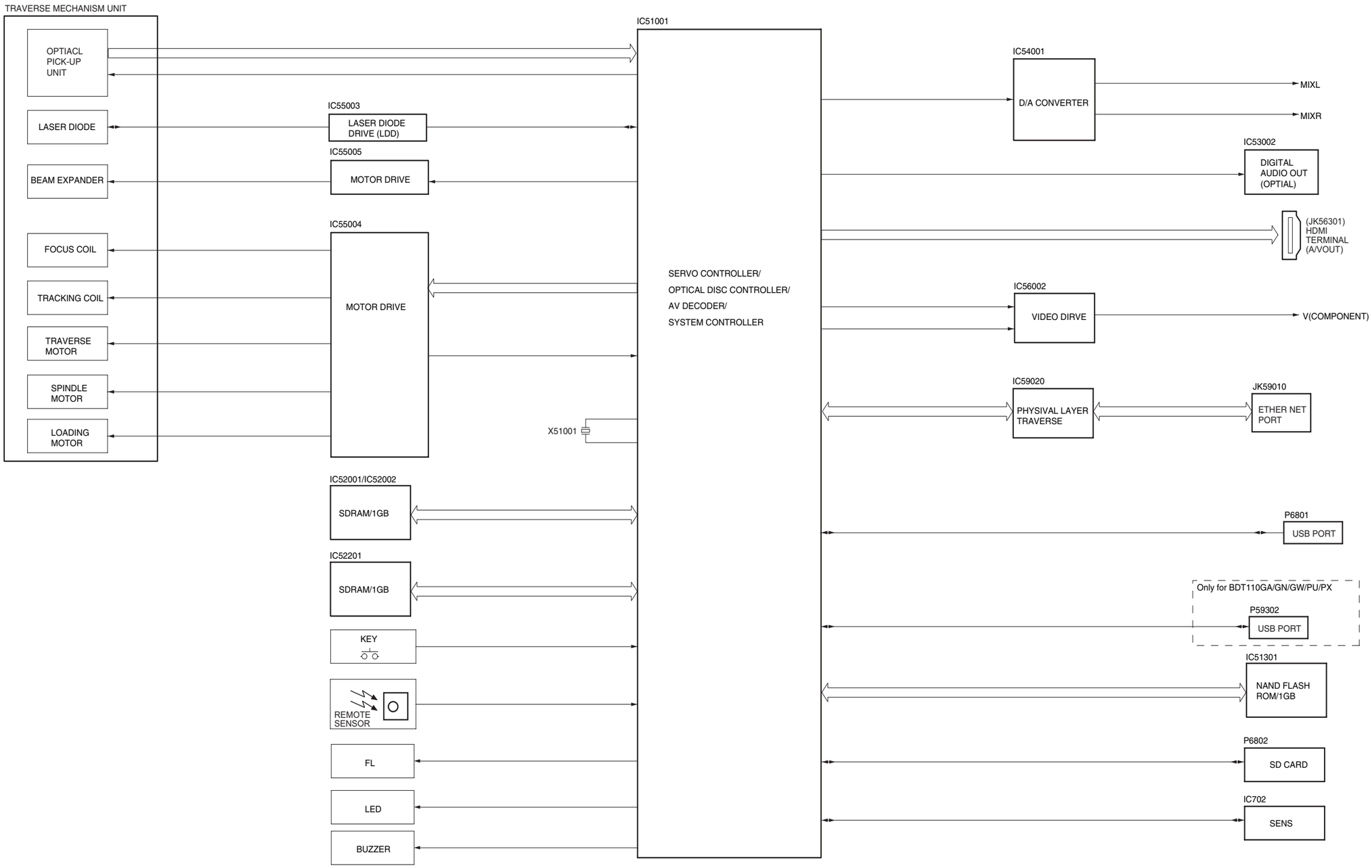
No.	Procedure	Item to Check
1	Turn on the power, and confirm items pointed out.	Items pointed out should reappear.
2	Insert RAM disc.	The Panasonic RAM disc should be recognized.
3	Perform playback for one minute using the RAM disc.	No abnormality should be seen in the picture, sound or operation. *Panasonic DVD-RAM disc should be used when recording and playback.
4	Perform playback for one minute using the BD-Video disc.	No abnormality should be seen in the picture, sound or operation.
5	If a problem is caused by a BD-Video disc, VCD, DVD-R, DVD-Video, Audio-CD, or MP3, playback the test disc.	No abnormality should be seen in the picture, sound or operation.
6	After checking and making repairs, upgrade the firmware to the latest version.	Make sure that [UPD OK] appears in the FL displays. *[UNSUPPORT] display means the unit is already updated to newest same version. Then version up is not necessary.
7	Transfer [9][9] in the service mode setting, and initialize the service settings (return various settings and error information to their default values. The laser time is not included in this initialization).	Make sure that [CLR] appears in the FL display. After checking it, turn the power off.

Use the following checklist to establish the judgement criteria for the picture and sound.

Item	Contents	Check	Item	Contents	Check
Picture	Block noise		Sound	Distorted sound	
	Crosscut noise			Noise (static, background noise, etc.)	
	Dot noise			The sound level is too low.	
	Picture disruption			The sound level is too high.	
	Not bright enough			The sound level changes.	
	Too bright				
	Flickering colour				
	Colour fading				

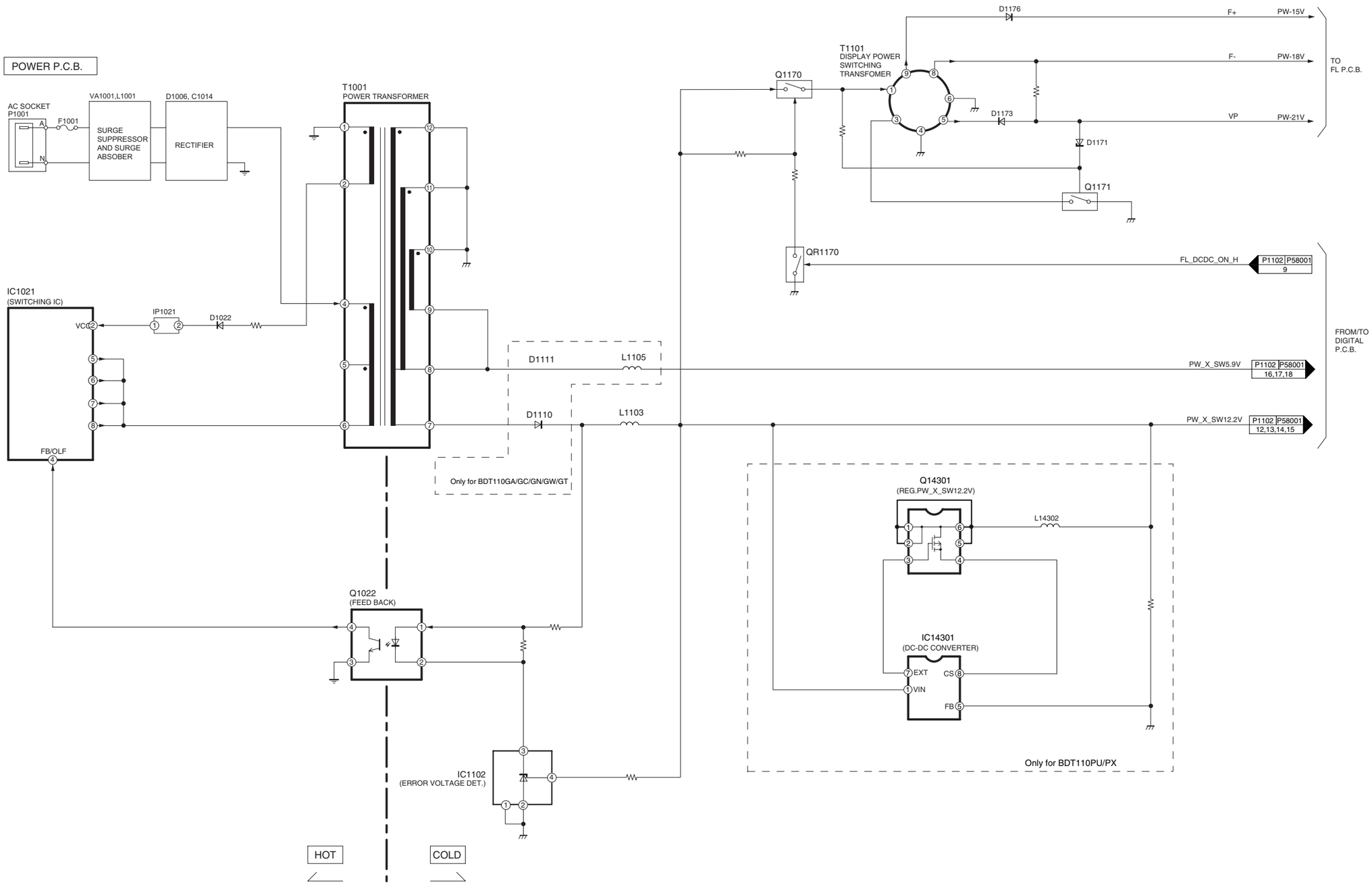
11 Block Diagram

11.1. Overall Block Diagram



DMP-BDT110GA/GC/GN/GT/GW
DMP-BDT110PU/PX
OVERALL BLOCK DIAGRAM

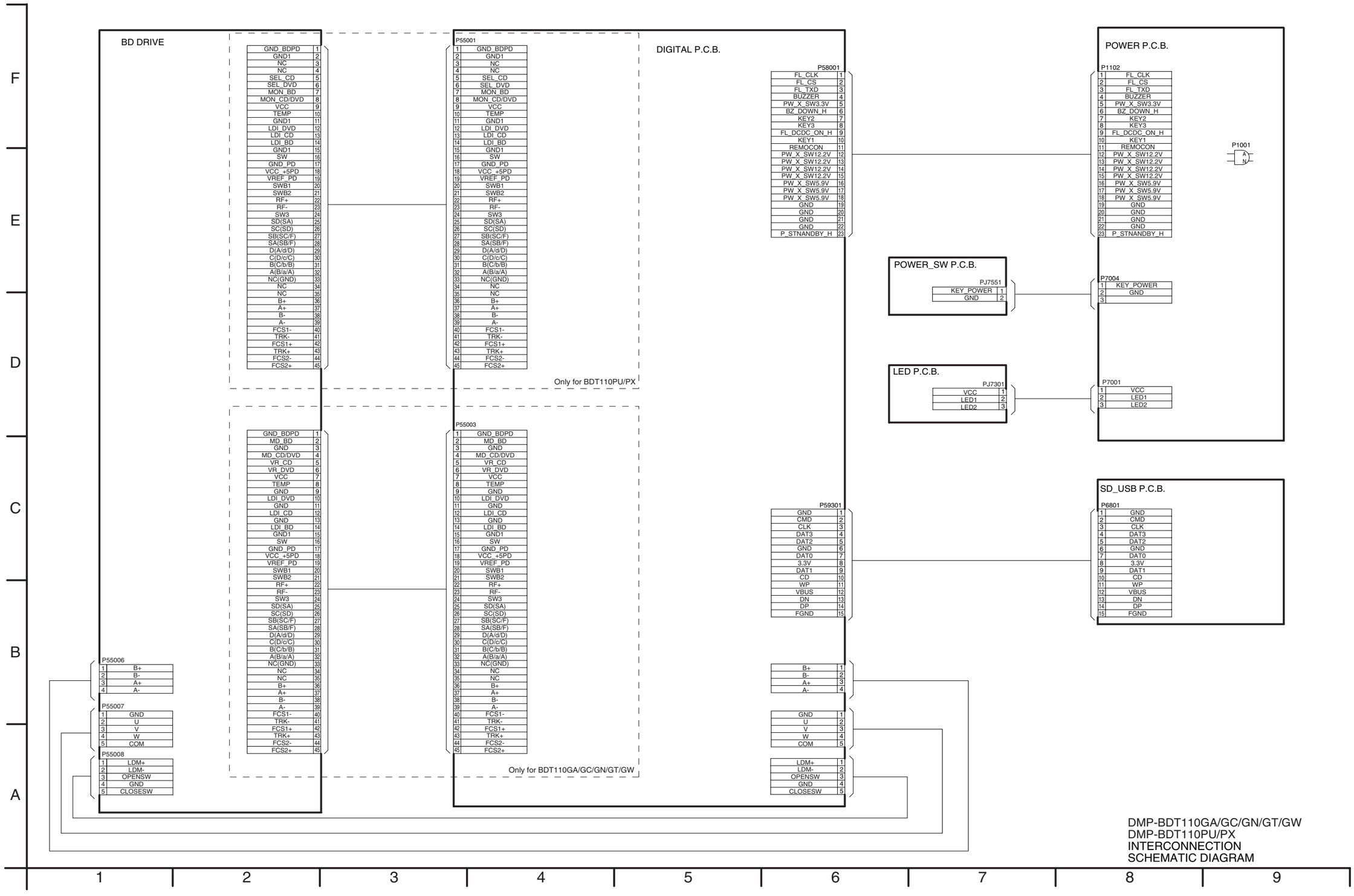
11.2. Power Supply Block Diagram



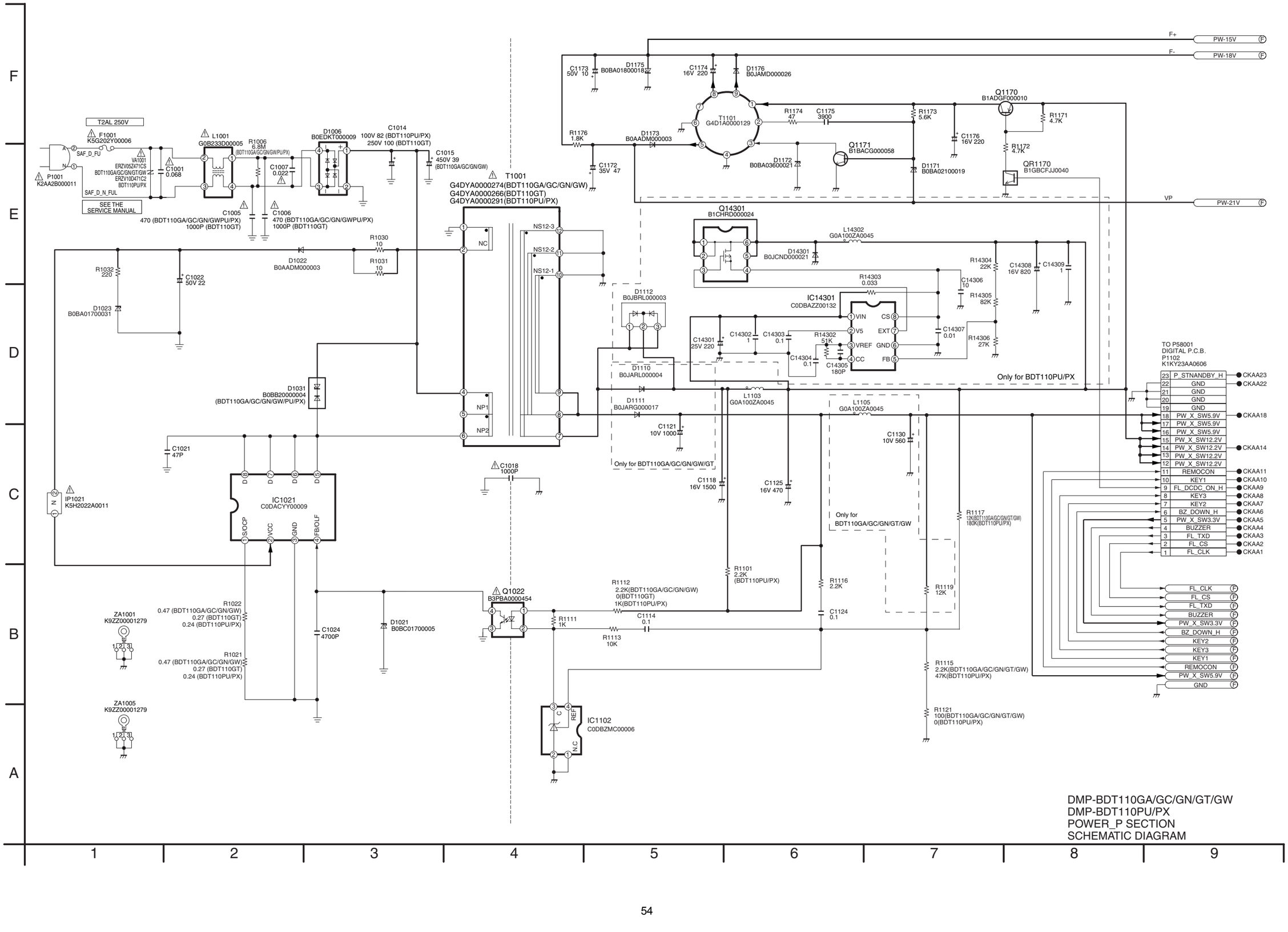
DMP-BDT110GA/GC/GN/GT/GW
DMP-BDT110PU/PX
POWER BLOCK DIAGRAM

12 Schematic Diagram

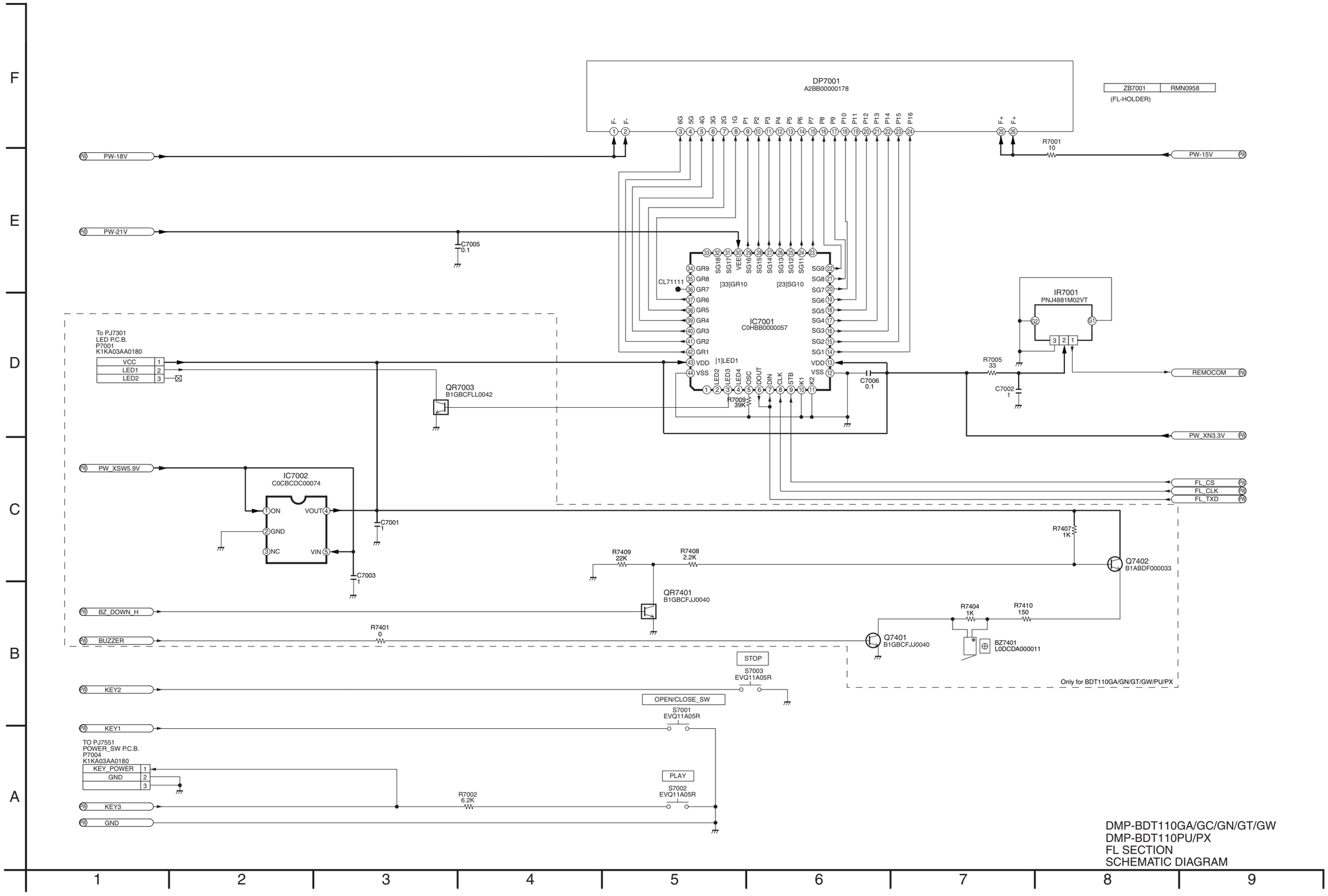
12.1. Interconnection Schematic Diagram



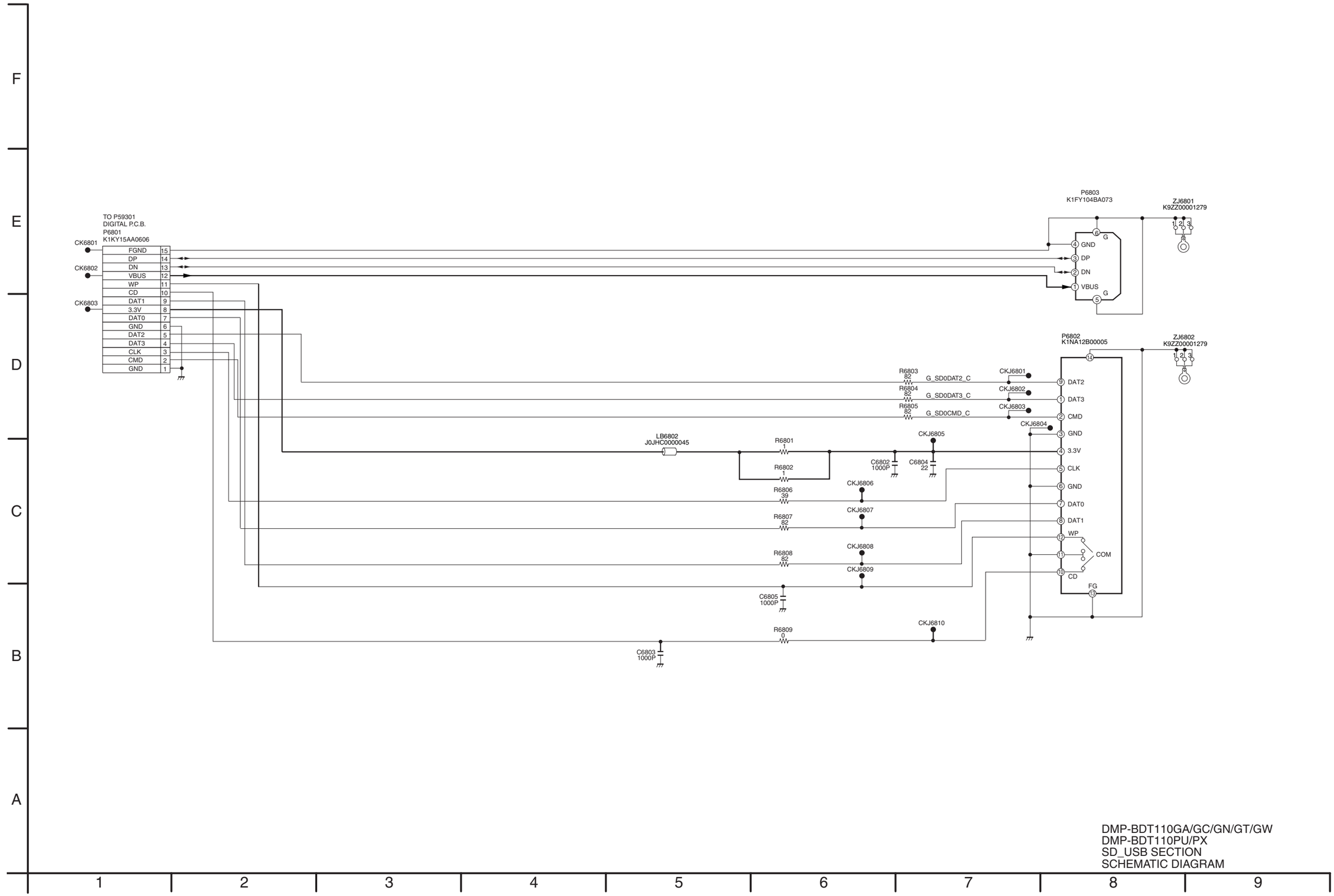
12.2. Power Supply Section Schematic Diagram



12.3. FL Section Schematic Diagram

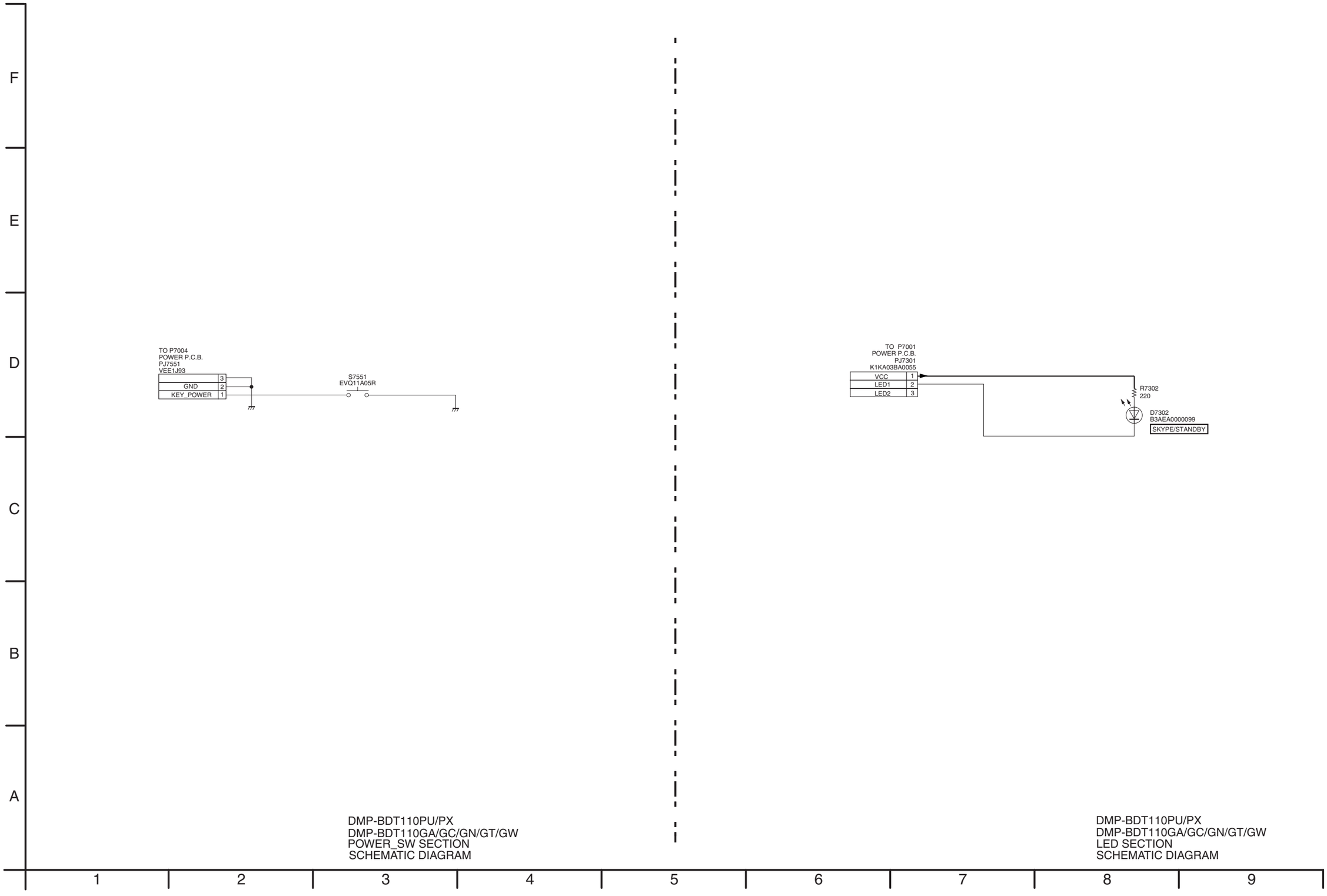


12.4. SD_USB Section Schematic Diagram



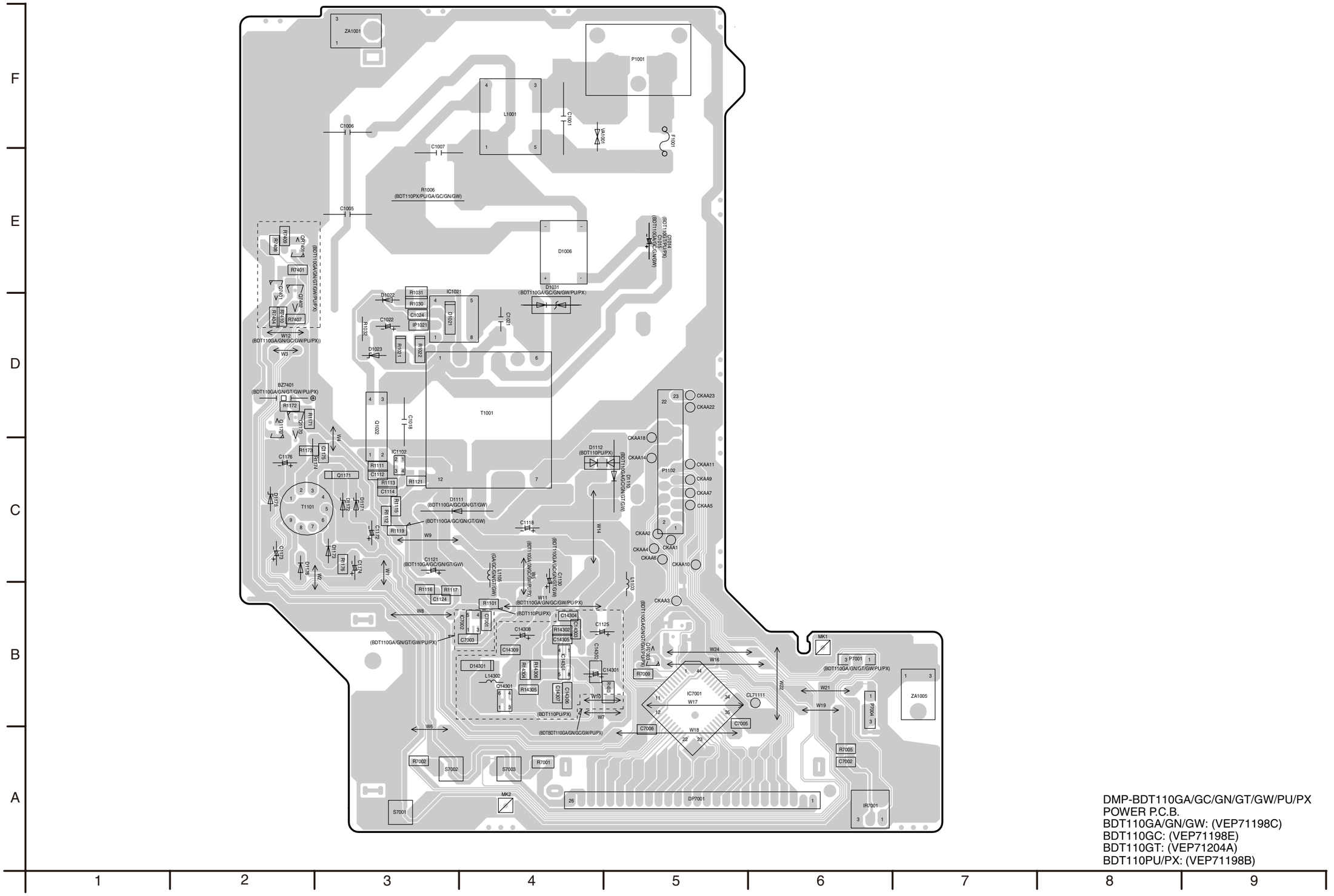
DMP-BDT110GA/GC/GN/GT/GW
DMP-BDT110PU/PX
SD_USB SECTION
SCHEMATIC DIAGRAM

12.5. POWER SW and LED Section Schematic Diagram



13 Printed Circuit Board

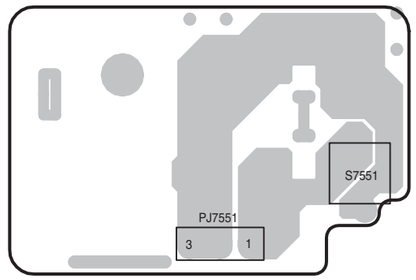
13.1. Power P.C.B.



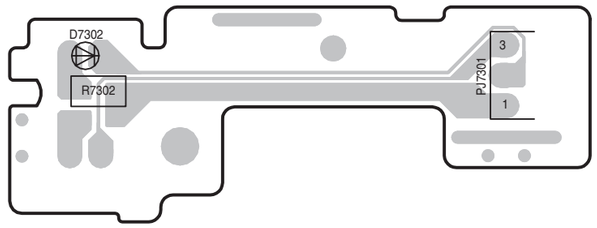
DMP-BDT110GA/GC/GN/GT/GW/PU/PX
POWER P.C.B.
BDT110GA/GN/GW: (VEP71198C)
BDT110GC: (VEP71198E)
BDT110GT: (VEP71204A)
BDT110PU/PX: (VEP71198B)

13.2. Power SW P.C.B., LED P.C.B.and SD P.C.B.

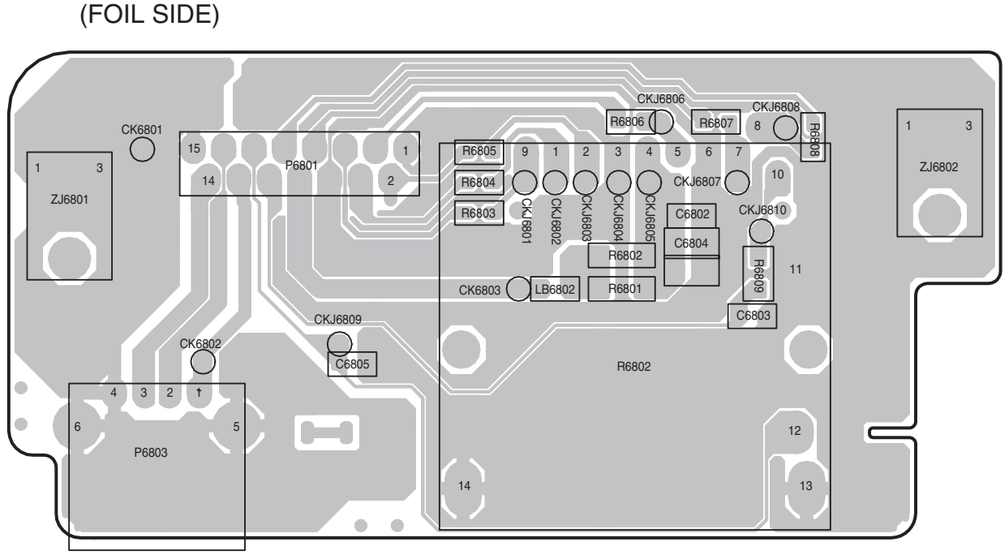
POWER SW P.C.B.
(FOIL SIDE)



LED P.C.B.
(FOIL SIDE)



SD P.C.B.
(FOIL SIDE)



DMP-BDT110GA/GC/GN/GT/GW/PU/PX
POWER SW P.C.B. (VEP70390A)
LED P.C.B. (VEP70421A)
SD P.C.B. (VEP70389A)

14 Appendix for Schematic Diagram

14.1. Voltage and Waveform Chart

NOTE:

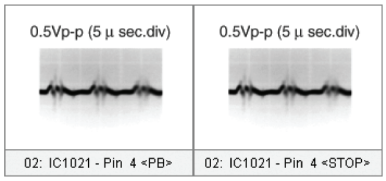
Circuit voltage and waveform described herein shall be regarded as reference information when probing defect point, because it may differ from an actual measuring value due to difference of Measuring instrument and its measuring condition and product itself.

14.1.1. Power P.C.B.

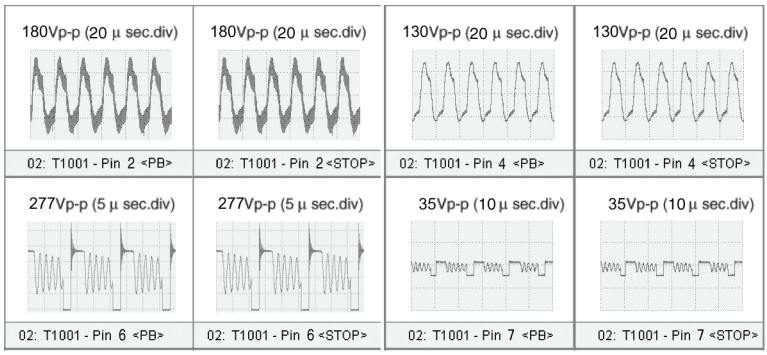
Ref No.	IC1021									IC1102										
MODE	1	2	3	4	5	6	7	8		1	2	3	4							
PLAY	0	0	0	0	3.1	3.1	3.1	3.1		0	0	3.6	2.4							
STOP	0	0	0	0	3.1	3.1	3.1	3.1		0	0	3.6	2.4							
Ref No.	IC14301(BDT110PU/PX)																			
MODE	1	2	3	4	5	6	7	8												
PLAY	12.2	4.5	0	1.2	1.3	0	0	11.8												
STOP	12.2	4.5	0	1.2	1.3	0	0	11.8												
Ref No.	IC7001																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
PLAY	0	0	0	0	0	0	3.3	3.3	0	0	0	0	3.3	-20	-20	-12	-20	-17	-20	0
STOP	0	0	0	0	0	0	3.3	3.3	0	0	0	0	3.3	-20	-20	-12	-20	-17	-20	0
Ref No.																				
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
PLAY	-15	-12	-12	-9	-15	-20	-18	-20	-10	-20	0	0	0	0	0	-18	-18	-18	-18	-18
STOP	-15	-12	-12	-9	-15	-20	-18	-20	-10	-20	0	-0	0	0	0	-18	-18	-18	-18	-18
Ref No.	IC7001					IC7002(BDT110GA/GN/GT//GW/PU/PX)														
MODE	41	42	43	44		1	2	3	4	5										
PLAY	-18	-18	3.3	0		5.9	0	0	5.0	5.8										
STOP	-18	3.3	3.3	0		5.9	0	0	5.0	5.8										
Ref No.	Q14301(BDT110PU/PX)							Q1022						Q1170			Q1171			
MODE	1	2	3	4	5	6		1	2	3	4		1	2	3		1	2	3	
PLAY	6	6	11.7	12.2	6	6		4.6	3.6	0	4.2		11.8	12.0	11.2		0.4	0	0	
STOP	6	6	11.7	12.2	6	6		4.6	3.6	0	4.2		11.8	12.0	11.2		0.4	0	0	
Ref No.	Q7401				Q7402			QR1170					QR7003				QR7401			
MODE	1	2	3		1	2	3	1	2	3			1	2	3		1	2	3	
PLAY	4.5	0	0		5	4.5	4.8	0	3.3	0			3.3	0	0		4.4	0	0	
STOP	4.5	0	0		5	4.5	4.8	0	3.3	0			3.3	0	0		4.4	0	0	

14.1.2. Waveform Chart

<IC1021>



<T1001>



14.1.3. Abbreviations

INITIAL/LOGO		ABBREVIATIONS
A	A0~UP	ADDRESS
	ACLK	AUDIO CLOCK
	AD0~UP	ADDRESS BUS
	ADATA	AUDIO PES PACKET DATA
	ALE	ADDRESS LATCH ENABLE
	AMUTE	AUDIO MUTE
	AREQ	AUDIO PES PACKET REQUEST
	ARF	AUDIO RF
	ASI	SERVO AMP INVERTED INPUT
	ASO	SERVO AMP OUTPUT
	ASYNC	AUDIO WORD DISTINCTION SYNC
B	BCK	BIT CLOCK (PCM)
	BCKIN	BIT CLOCK INPUT
	BDO	BLACK DROP OUT
	BLKCK	SUB CODE BLOCK CLOCK
	BOTTOM	CAP. FOR BOTTOM HOLD
	BYP	BYPATH
	BYTCK	BYTE CLOCK
C	CAV	CONSTANT ANGULAR VELOCITY
	CBDO	CAP. BLACK DROP OUT
	CD	COMPACT DISC
	CDSCK	CD SERIAL DATA CLOCK
	CDSRDATA	CD SERIAL DATA
	CDRF	CD RF (EFM) SIGNAL
	CDV	COMPACT DISC-VIDEO
	CHNDATA	CHANNEL DATA
	CKSL	SYSTEM CLOCK SELECT
	CLV	CONSTANT LINEAR VELOCITY
	COFTR	CAP. OFF TRACK
	CPA	CPU ADDRESS
	CPCS	CPU CHIP SELECT
	CPDT	CPU DATA
	CPUADR	CPU ADDRESS LATCH
	CPUADT	CPU ADDRESS DATA BUS
	CPUIRQ	CPU INTERRUPT REQUEST
	CPRD	CPU READ ENABLE
	CPWR	CPU WRITE ENABLE
	CS	CHIP SELECT
	CSYNCIN	COMPOSITE SYNC IN
	CSYNCOUT	COMPOSITE SYNC OUT
D	DACCK	D/A CONVERTER CLOCK
	DEEMP	DEEMPHASIS BIT ON/OFF
	DEMPH	DEEMPHASIS SWITCHING
	DIG0~UP	FL DIGIT OUTPUT
	DIN	DATA INPUT
	DMSRCK	DM SERIAL DATA READ CLOCK
	DMUTE	DIGITAL MUTE CONTROL
	DO	DROP OUT
	DOUT0~UP	DATA OUTPUT
	DRF	DATA SLICE RF (BIAS)
	DRPOUT	DROP OUT SIGNAL
	DREQ	DATA REQUEST
	DRESP	DATA RESPONSE
	DSC	DIGITAL SERVO CONTROLLER
	DSLF	DATA SLICE LOOP FILTER
	DVD	DIGITAL VIDEO DISC

INITIAL/LOGO		ABBREVIATIONS
E	EC	ERROR TORQUE CONTROL
	ECR	ERROR TORQUE CONTROL REFERENCE
	ENCSEL	ENCODER SELECT
	ETMCLK	EXTERNAL M CLOCK (81MHz/40.5MHz)
	ETSCLK	EXTERNAL S CLOCK (54MHz)
F	FBAL	FOCUS BALANCE
	FCLK	FRAME CLOCK
	FE	FOCUS ERROR
	FFI	FOCUS ERROR AMP INVERTED INPUT
	FEO	FOCUS ERROR AMP OUTPUT
	FG	FREQUENCY GENERATOR
	FSC	FREQUENCY SUB CARRIER
	FSCK	FS (384 OVER SAMPLING) CLOCK
G	GND	COMMON GROUNDING (EARTH)
H	HA0~UP	HOST ADDRESS
	HD0~UP	HOST DATA
	HINT	HOST INTERRUPT
	HRXW	HOST READ/WRITE

INITIAL/LOGO		ABBREVIATIONS
I	IECOUT	IEC958FORMATDATAOUTPUT
	IPFRAG	INTERPOLATIONFLAG
	IREF	I(CURRENT)REFERENCE
	ISEL	INTERFACEMODESELECT
L	LDON	LASERDIODECONTROL
	LPC	LASERPOWERCONTROL
	LRCK	LCH/RCHDISTINCTIONCLOCK
M	MA0~UP	MEMORYADDRESS
	MCK	MEMORYCLOCK
	MCKI	MEMORYCLOCKINPUT
	MCLK	MEMORYSERIALCOMMANDCLOCK
	MDATA	MEMORYSERIALCOMMANDDATA
	MDQ0~UP	MEMORYDATAINPUT/OUTPUT
	MDQM	MEMORYDATAI/OMASK
	MLD	MEMORYSERIALCOMMANDLOAD
	MPEG	MOVINGPICTUREEXPERTSGROUP
O	ODC	OPTICALDISCCONTROLLER
	OFTR	OFFTRACKING
	OSCI	OSCILLATORINPUT
	OSCO	OSCILLATOROUTPUT
	OSD	ONSCREENDISPLAY
P	P1~UP	PORT
	PCD	CDTRACKINGPHASEDIFFERENCE
	PCK	PLLCLOCK
	PDVD	DVDTRACKINGPHASEDIFFERENCE
	PEAK	CAP.FORPEAKHOLD
	PLLCLK	CHANNELPLLCLOCK
	PLLOK	PLLLOCK
	PWMCTL	PWMOUTPUTCONTROL
	PWMDA	PULSEWAVEMOTORDRIVEA
	PWMOA,B	PULSEWAVEMOTOROUTA,B

INITIAL/LOGO		ABBREVIATIONS
R	RE	READENABLE
	RFENV	RFENVELOPE
	RFO	RFPHASEDIFFERENCEOUTPUT
	RS	(CD-ROM)REGISTERSELECT
	RSEL	RFPOLARITYSELECT
	RST	RESET
	RSV	RESERVE
S	SBI0,1	SERIALDATAINPUT
	SBO0	SERIALDATAOUTPUT
	SBT0,1	SERIALCLOCK
	SCK	SERIALDATACLOCK
	SCKR	AUDIOSERIALCLOCKRECEIVER
	SCL	SERIALCLOCK
	SCLK	SERIALCLOCK
	SDA	SERIALDATA
	SEG0~UP	FLSEGMENTOUTPUT
	SELCLK	SELECTCLOCK
	SEN	SERIALPORTENABLE
	SIN1,2	SERIALDATAIN
	SOUT1,2	SERIALDATAOUT
	SPDI	SERIALPORTDATAINPUT
	SPDO	SERIALPORTDATAOUTPUT
	SPEN	SERIALPORTR/WENABLE
	SPRCLK	SERIALPORTREADCLOCK
	SPWCLK	SERIALPORTWRITECLOCK
	SQCK	SUBCODEQCLOCK
	SQCX	SUBCODEQDATAREADCLOCK
	SRDATA	SERIALDATA
	SRMADR	SRAMADDRESSBUS
	SRMDT0~7	SRAMDATABUS0~7
	SS	START/STOP
	STAT	STATUS
	STCLK	STREAMDATACLOCK
	STD0~UP	STREAMDATA
	STENABLE	STREAMDATAINPUTENABLE
	STSEL	STREAMDATAPOLARITYSELECT
	STVALID	STREAMDATAVALIDITY
	SUBC	SUBCODESERIAL
	SBCK	SUBCODECLOCK
	SUBQ	SUBCODEQDATA
	SYSCLK	SYSTEMCLOCK

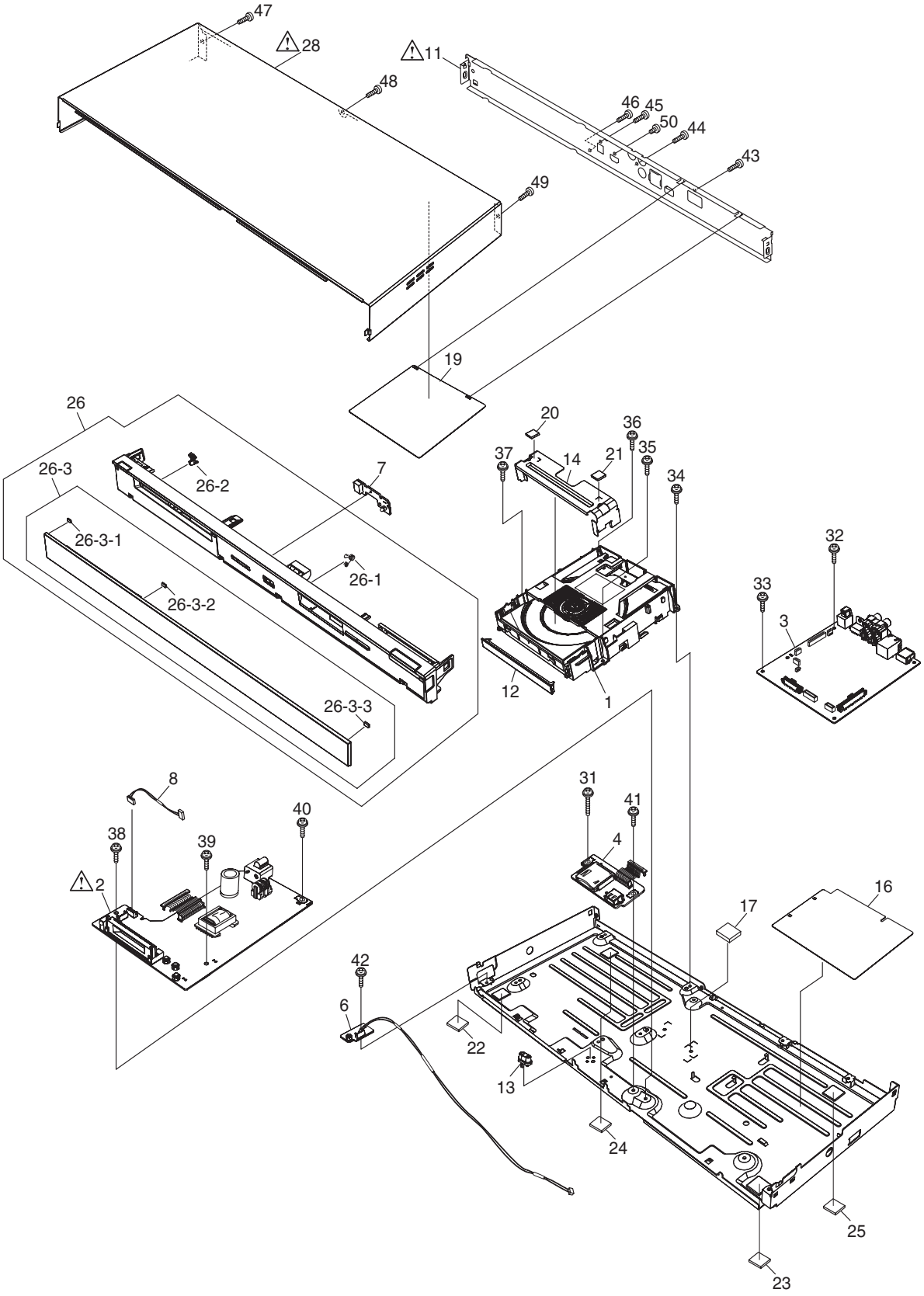
INITIAL/LOGO		ABBREVIATIONS
T	TE	TRACKING ERROR
	TIBAL	BALANCE CONTROL
	TID	BALANCE OUTPUT 1
	TIN	BALANCE INPUT
	TIP	BALANCE INPUT
	TIS	BALANCE OUTPUT 2
	TPSN	OP AMP INPUT
	TPSO	OP AMP OUTPUT
	TPSP	OP AMP INVERTED INPUT
	TRCRS	TRACK CROSS SIGNAL
	TRON	TRACKING ON
	TRSON	TRAVERSE SERVO ON

INITIAL/LOGO		ABBREVIATIONS
V	VBLANK	V BLANKING
	VCC	COLLECTOR POWER SUPPLY VOLTAGE
	VCDCONT	VIDEO CD CONTROL (TRACKING BALANCE)
	VDD	DRAIN POWER SUPPLY VOLTAGE
	VFB	VIDEO FEED BACK
	VREF	VOLTAGE REFERENCE
	VSS	SOURCE POWER SUPPLY VOLTAGE
W	WAIT	BUS CYCLE WAIT
	WDCK	WORD CLOCK
	WEH	WRITE ENABLE HIGH
	WSR	WORD SELECT RECEIVER
X	X	X´ TAL
	XALE	X ADDRESS LATCH ENABLE
	XAREQ	X AUDIO DATA REQUEST
	XCDROM	X CD ROM CHIP SELECT
	XCS	X CHIP SELECT
	XCSYNC	X COMPOSITE SYNC
	XDS	X DATA STROBE
	XHSYNCO	X HORIZONTAL SYNC OUTPUT
	XHINT	XH INTERRUPT REQUEST
	XI	X´ TAL OSCILLATOR INPUT
	XINT	X INTERRUPT
	XMW	X MEMORY WRITE ENABLE
	XO	X´ TAL OSCILLATOR OUTPUT
	XRE	X READ ENABLE
	XSRMCE	X SRAM CHIP ENABLE
	XSRMOE	X SRAM OUTPUT ENABLE
	XSRMWE	X SRAM WRITE ENABLE
	XVCS	X V-DEC CHIP SELECT
	XVDS	X V-DEC CONTROL BUS STROBE
	XVSYNCO	X VERTICAL SYNC OUTPUT

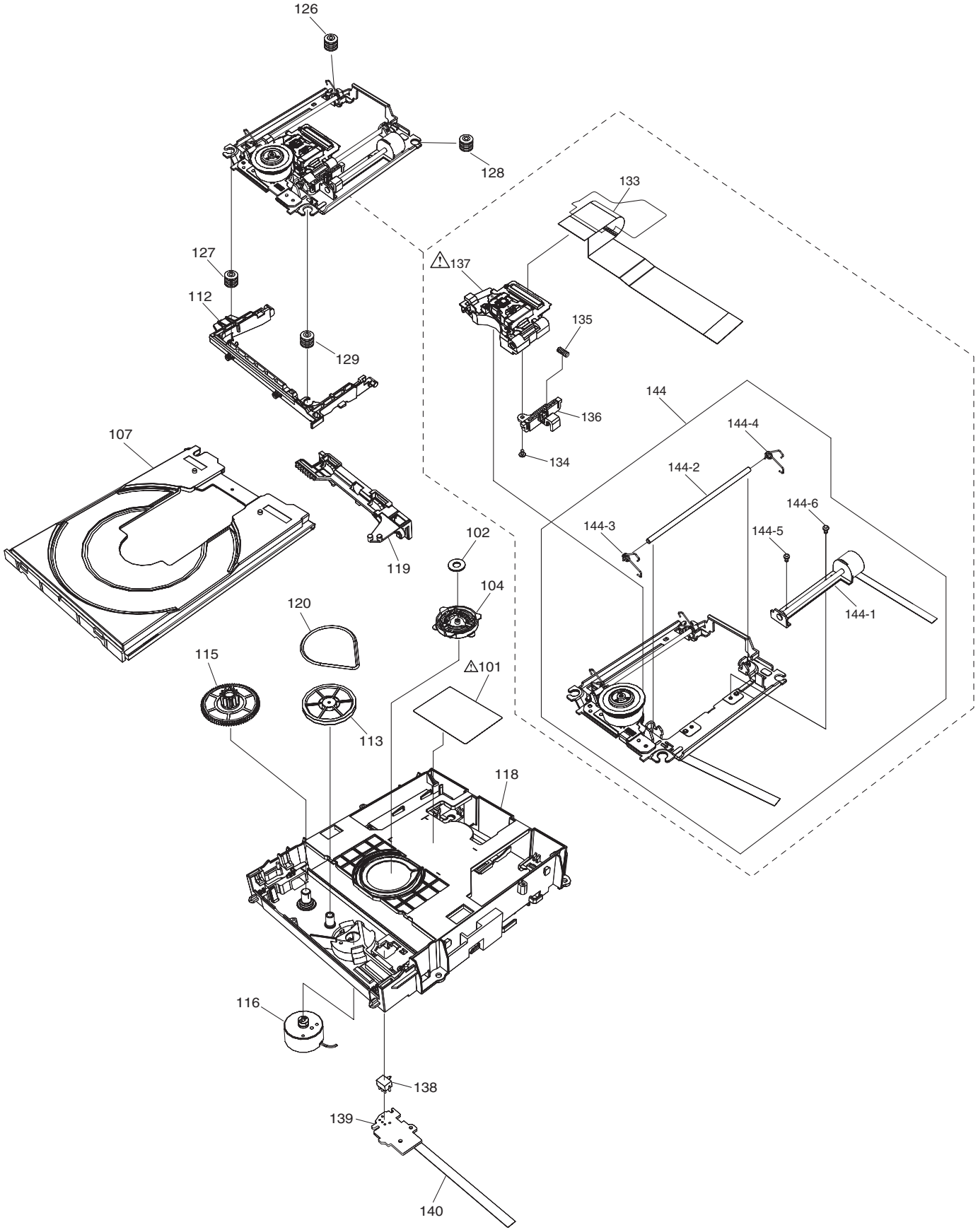
15 Exploded View and Replacement Parts List

15.1. Exploded Views and Mechanical Replacement Parts List

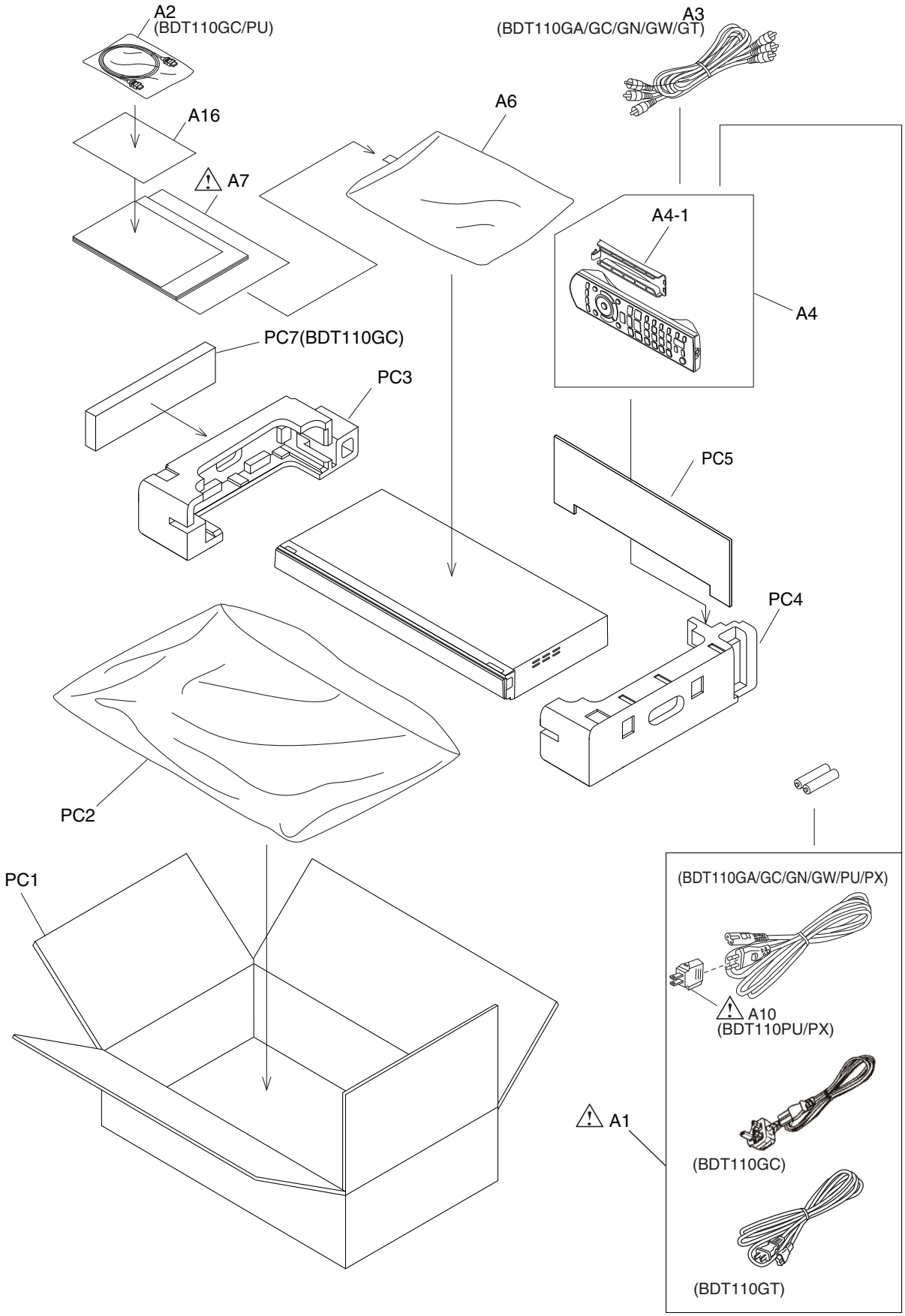
15.1.1. Casing Parts & Mechanism Section



15.1.2. Mechanism Section



15.1.3. Packing & Accessories Section



15.1.4. Mechanical Replacement Parts List

Notes:

*Important safety notice:

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

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

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

*Warning: This product uses a laser diode. Refer to caution statements.

*Capacity values are in microfarads (μF) unless specified otherwise, P=Pico-farads (pF), F=Farads (F).

*Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM), 1M=1,000k (OHM).

*The marking (RTL) indicates the retention time is limited for this item. After the discontinuation of this assembly in production, it will no longer be available.

*"(IA)-(IF)" marks in Remarks indicate languages of instruction manuals. [(IA): Traditional Chinese; (IB): English; (IC): Arabic; (ID):Traditional Chinese; (IE):Spanish; (IF):English,Spanish]

*All parts are supplied by CHPAVC.

E.S.D.. standards for Electrostatically Sensitive Devices, refer to "PREVENTION OF ELECTROSTATIC DISCHARGE (ESD) TO ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section.

Notes:

*Parts indicated with "ADJ" in the Remarks column are necessary to adjustment value initialization adjust.

Safety	Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
	■		CASING		
	1	VXY2130	BD DRIVE	1	BDT110GA /GC/GN/ GW/GT
	1	VXY2122T	BD DRIVE	1	BDT110PU /PX
⚠	2	VEP71198C	POWER P.C.B.	1	(RTL) E.S.D. BDT110GA /GN/GW
⚠	2	VEP71198E	POWER P.C.B.	1	(RTL) E.S.D. BDT110GC
⚠	2	VEP71204A	POWER P.C.B.	1	(RTL) E.S.D. BDT110GT
⚠	2	VEP71198B	POWER P.C.B.	1	(RTL) E.S.D. BDT110PU /PX
	3	RFKB76234CAT	DIGITAL P.C.B.	1	(RTL) E.S.D. BDT110GA
	3	RFKB76234MT	DIGITAL P.C.B.	1	(RTL) E.S.D. BDT110GC
	3	RFKB76234CT	DIGITAL P.C.B.	1	(RTL) E.S.D. BDT110GN
	3	RFKB76234CWT	DIGITAL P.C.B.	1	(RTL) E.S.D. BDT110GW
	3	RFKB76234CTT	DIGITAL P.C.B.	1	(RTL) E.S.D. BDT110GT
	3	RFKB76234BT	DIGITAL P.C.B.	1	(RTL) E.S.D. BDT110PU
	3	RFKB76234AX	DIGITAL P.C.B.	1	(RTL) E.S.D. BDT110PX
	4	VEP70389A	SD P.C.B.	1	(RTL) E.S.D.
	6	VEP70390A	POWER SW P.C.B.	1	(RTL) E.S.D.
	7	VEP70421A	LED P.C.B.	1	(RTL) E.S.D.
	8	VEE1K27	POWER TO LED PCB CABLE	1	BDT110GA /GN/GW/ GT/PU/PX
⚠	11	RGR0414B-L1	REAR PANEL	1	BDT110GA
⚠	11	RGR0414G-A1	REAR PANEL	1	BDT110GC
⚠	11	RGR0414B-D1	REAR PANEL	1	BDT110GN
⚠	11	RGR0414B-S	REAR PANEL	1	BDT110GW
⚠	11	RGR0414B-P1	REAR PANEL	1	BDT110GT
⚠	11	RGR0414B-G1	REAR PANEL	1	BDT110PU
⚠	11	RGR0414B-F1	REAR PANEL	1	BDT110PX
	12	RGK2261-K	TRAY DOOR PANEL	1	
	13	RMX0404C	DRIVE SPACER	1	
	14	RMA2294	DRIVE SPACER	1	
	16	RMZ1201	BOTTOM CASE INSULATION SHEET	1	
	17	RSC0959	RADIATOR SHEET	1	
	19	RMZ1155-1	TOP CASE INSULATION SHEET	1	
	20	RKA0251-K	FOOT RUBBER	1	
	21	RKA0251-K	FOOT RUBBER	1	
	22	RKA0243-KJ	FOOT RUBBER	1	
	23	RKA0243-KJ	FOOT RUBBER	1	
	24	RKA0243-KJ	FOOT RUBBER	1	
	25	RKA0243-KJ	FOOT RUBBER	1	
	26	RYP1633A-K	FRONT PANEL ASS'Y	1	BDT110GA /GW/GN/ GT
	26	RYP1633H-K	FRONT PANEL ASS'Y	1	BDT110GC
	26	RYP1633C-K	FRONT PANEL ASS'Y	1	BDT110PU
	26	RYP1633F-K	FRONT PANEL ASS'Y	1	BDT110PX
	26-1	RMB0921	DOOR SPRING	1	
	26-2	RMR2002-K	DOOR STOPPER	1	
	26-3	RYF0909-Q	DOOR ASS'Y	1	
	26-3-1	RMG0849-K	DAMPER	1	
	26-3-2	RMG0849-K	DAMPER	1	
	26-3-3	RMG0849-K	DAMPER	1	
⚠	28	RKM0643-K	TOP CASE	1	
	31	RHD30164-J	SCREW	1	
	32	RHD30168-J	SCREW	1	
	33	RHD30168-J	SCREW	1	
	34	RHD30168-J	SCREW	1	
	35	RHD30168-J	SCREW	1	
	36	RHD30168-J	SCREW	1	
	37	RHD30168-J	SCREW	1	
	38	RHD30168-J	SCREW	1	
	39	RHD30168-J	SCREW	1	
	40	RHD30168-J	SCREW	1	
	41	RHD30168-J	SCREW	1	
	42	RHD30168-J	SCREW	1	
	43	RHD30119-L	SCREW	1	
	44	RHD30119-L	SCREW	1	
	45	RHD30119-L	SCREW	1	
	46	RHD30119-L	SCREW	1	
	47	RHD30119-L	SCREW	1	
	48	RHD30119-L	SCREW	1	
	49	RHD30119-L	SCREW	1	
	50	XSN3+4FJ	SCREW	1	
⚠	101	VQL1V70-J	LASER CAUTION LABEL	1	

Safety	Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
	102	VMA0V86	YOKE	1	
	104	VMD6392	CLAMPER	1	
	107	VMD6391	TRAY	1	
	112	VMD6494	MID BASE	1	
	113	VDG1756-1	PULLEY GEAR	1	
	115	VDG1757	MID GEAR	1	
	116	VEM0885	LOADING MOTOR U	1	
	118	VMD6389-1	MECHA CHASSIS	1	
	119	VMD6390	SLIDE CAM	1	
	120	VMG1720	BELT	1	
	126	VMG1966	DAMPER	1	
	127	VMG1966	DAMPER	1	
	128	VMG1966	DAMPER	1	
	129	VMG1966	DAMPER	1	
	133	VWJ2222-1	OPU FFC	1	
	134	VHD2268	NUT PIECE SCREW	1	
	135	VMB4004-J	NUT PIECE SPRING	1	
	136	VMD6395	NUT PIECE	1	
⚠	137	RAF3800A-C	OPTICAL PICK-UP	1	ADJ BDT110GA /GC/GN/ GW/GT
⚠	137	L1BBZ0000006	OPTICAL PICK-UP	1	ADJ BDT110PU /PX
	138	K0L1CB000004	LEVER SWITCH	1	
	139	VJB70396	SW P.C.B.	1	E.S.D.
	140	VWJ2228-J	SW FFC	1	
	144	VXA8900-SER	TRAVERSE UNIT(WITH-OUT OPU)	1	
	144-1	L6KAYYYH0006	STEPPING MOTOR	1	
	144-2	VMS8126	SHAFT	1	
	144-3	VMB4426	SHAFT SPRING	1	
	144-4	VMB4426	SHAFT SPRING	1	
	144-5	XTN2+4FFJ	STEPPING MOTOR SCREW	1	
	144-6	XTN2+4FFJ	STEPPING MOTOR SCREW	1	
		■	ACCESSORY		
⚠	A1	K2CP2CA00001	AC CORD	1	BDT110GA
⚠	A1	K2CQ2CA00007	AC CORD	1	BDT110GA /GC/GW/ PU/PX
⚠	A1	K2CZ3YY00005	AC CORD	1	BDT110GC
⚠	A1	K2CJ2DA00014	AC CORD	1	BDT110GN
⚠	A1	K2CA2CA00027	AC CORD	1	BDT110GT
	A2	K1HA19DA0007	HDMI CABLE	1	BDT110GC /PU
	A3	K2KYYYY00048	AV CORD	1	BDT110GN /GA/GC/ GW/GT
	A4	N2QAYB000579	REMOTE CONTROL UNIT	1	BDT110GA /GN/GT/ GW
	A4	N2QAYB000646	REMOTE CONTROL UNIT	1	BDT110GC
	A4	N2QAYB000608	REMOTE CONTROL UNIT	1	BDT110PU
	A4	N2QAYB000574	REMOTE CONTROL UNIT	1	BDT110PX
	A4-1	110300031300	BATTERY COVER	1	
	A6	RPFC0119-1	POLYETHYLENE BAG	1	
⚠	A7	VQT3B78	OPERATING INSTRUC-TIONS	1	BDT110GA (IA)
⚠	A7	VQT3B77	OPERATING INSTRUC-TIONS	1	BDT110GA /GC/GN/ GW (IB)
⚠	A7	VQT3B79	OPERATING INSTRUC-TIONS	1	BDT110GC (IC)
⚠	A7	VQT3B81	OPERATING INSTRUC-TIONS	1	BDT110GT (ID)
⚠	A7	VQT3B60	OPERATING INSTRUC-TIONS	1	BDT110PU (IE)
⚠	A7	VQT3B58-1	OPERATING INSTRUC-TIONS	1	BDT110PX (IF)
⚠	A10	K2DAYYY00002	POWER PLUG ADAPTOR	1	BDT110PU /PX
	A16	RQLS0434	CHINESE LABEL SHEET	1	BDT110GT

Safety	Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
		■	PACKING		
	PC1	RPG9428-1	PACKING CASE	1	BDT110GA
	PC1	RPG9429-1	PACKING CASE	1	BDT110GC
	PC1	RPG9427-1	PACKING CASE	1	BDT110GN
	PC1	RPG9579	PACKING CASE	1	BDT110GW
	PC1	RPG9431	PACKING CASE	1	BDT110GT
	PC1	RPG9426-2	PACKING CASE	1	BDT110PU
	PC1	RPG9425-1	PACKING CASE	1	BDT110PX
	PC2	RPF0536	POLYETHYLENE BAG	1	
	PC3	RPN2248A-1	CUSHION(A)	1	
	PC4	RPN2248B-1	CUSHION(B)	1	
	PC5	RPQ2772	PAD	1	
	PC7	RPQ2799	PAD	1	BDT110GC

15.2. Electrical Replacement Parts List

Notes:

*Important safety notice:

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

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

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

*Warning: This product uses a laser diode. Refer to caution statements.

*Capacity values are in microfarads (μF) unless specified otherwise, P=Pico-farads (pF), F=Farads (F).

*Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM), 1M=1,000k (OHM).

*The marking (RTL) indicates the retention time is limited for this item. After the discontinuation of this assembly in production, it will no longer be available.

*All parts are supplied by CHPAVC.

E.S.D. standards for Electrostatically Sensitive Devices, refer to "PREVENTION OF ELECTROSTATIC DISCHARGE (ESD) TO ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section.

Safety	Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
	■	VEP71198C	POWER P.C.B.	1	(RTL) E.S.D. BDT110GA /GN/GW
	■	VEP71198E	POWER P.C.B.	1	(RTL) E.S.D. BDT110GC
	■	VEP71204A	POWER P.C.B.	1	(RTL) E.S.D. BDT110GT
	■	VEP71198B	POWER P.C.B.	1	(RTL) E.S.D. BDT110PU /PX
	BZ7401	L0DCDA000011	BUZZER	1	BDT110GA /GN/GW/ GT/PU/PX
⚠	C1001	F0CAF683A021	250V 0.068U	1	
⚠	C1005	F1B2G4710001	100V 470U	1	BDT110GA /GC/GN/ GW/PU/PX
⚠	C1005	F1BAF1020020	315V 1000P	1	BDT110GT
⚠	C1006	F1B2G4710001	100V 470U	1	BDT110GA /GC/GN/ GW/PU/PX
⚠	C1006	F1BAF1020020	315V 1000P	1	BDT110GT
⚠	C1007	F0CAF223A021	250V 0.022U	1	
	C1014	F2A2G8200002	100V 82U	1	BDT110 PU/PX
	C1014	F2B2E1010003	250V 100U	1	BDT110GT
	C1015	F2B2W3900003	450V 39U	1	BDT110 GA/GC/ GN/GW
⚠	C1018	F1BAF1020020	315V 1000P	1	
	C1021	F1A3D470A010	2000V 47P	1	
	C1022	F2A1H2200055	50V 22U	1	
	C1024	F1H1H472A013	50V 4700P	1	
	C1114	F1H1C104A071	16V 0.1U	1	
	C1118	F2A1C1520021	16V 1500U	1	
	C1121	F2A1A1020072	10V 1000U	1	BDT110GA /GC/GN/ GT/GW
	C1124	F1H1C104A071	16V 0.1U	1	
	C1125	F2A1C4710079	16V 470U	1	
	C1130	F2A1A5610008	10V 560U	1	BDT110GA /GC/GN/ GT/GW
	C1172	F2A1V470A831	35V 47U	1	
	C1173	F2A1H100B040	50V 10U	1	
	C1174	F2A1C221B111	16V 220U	1	
	C1175	F1H1H392A013	50V 3900	1	
	C1176	F2A1C221B111	16V 220U	1	
	C14301	F2A1E2210067	25V 220U	1	BDT110PU /PX
	C14302	F1J1C105A091	16V 1U	1	BDT110PU /PX
	C14303	F1H1C104A071	16V 0.1U	1	BDT110PU /PX
	C14304	F1H1C104A071	16V 0.1U	1	BDT110PU /PX
	C14305	F1H1H181A004	50V 180P	1	BDT110PU /PX
	C14306	F1K1C106A062	16V 10U	1	BDT110PU /PX
	C14307	F1H1H103A748	50V 0.01U	1	BDT110PU /PX
	C14308	F2A1C8210008	16V 820U	1	BDT110PU /PX
	C14309	F1H1A105A028	10V 1U	1	BDT110PU /PX
	C7001	F1H1A105A028	10V 1U	1	BDT110GA /GN/GT/ GW/PU/PX
	C7002	F1H1A105A028	10V 1U	1	
	C7003	F1H1A105A028	10V 1U	1	BDT110GA /GN/GT/ GW/PU/PX
	C7005	F1H1H104A783	50V 0.1U	1	
	C7006	F1H1C104A071	16V 0.1U	1	
	D1006	B0EDKT000009	DIODE	1	E.S.D.
	D1021	B0BC01700005	DIODE	1	E.S.D.
	D1022	B0AADM000003	DIODE	1	E.S.D.
	D1023	B0BA01700031	DIODE	1	E.S.D.
	D1031	B0BB20000004	DIODE	1	E.S.D. BDT110GA /GC/GN/ GW/PU/PX
	D1110	B0JARL000004	DIODE	1	E.S.D. BDT110GA /GC/GN/ GT/GW
	D1111	B0JARG000017	DIODE	1	E.S.D. BDT110GA /GC/GN/ GT/GW
	D1112	B0JBRL000003	DIODE	1	E.S.D. BDT110PU /PX
	D1171	B0BA02100019	DIODE	1	E.S.D.
	D1172	B0BA03600021	DIODE	1	E.S.D.
	D1173	B0AADM000003	DIODE	1	E.S.D.
	D1175	B0BA01800018	DIODE	1	E.S.D.
	D1176	B0JAMD000026	DIODE	1	E.S.D.
	D14301	B0JCND000021	DIODE	1	E.S.D. BDT110PU /PX
	DP7001	A2BB00000178	DISPLAY TUBE	1	
⚠	F1001	K5G202Y00006	FUSE	1	
	IC1021	C0DACYY00009	IC	1	E.S.D.
	IC1102	C0DBZMC00006	IC	1	E.S.D.
	IC14301	C0DBAZZ00132	IC	1	E.S.D. BDT110PU /PX
	IC7001	C0HBB0000057	IC	1	E.S.D.

Safety	Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
	IC7002	C0CBCDC00074	IC	1	E.S.D. BDT110GA /GN/GT/ GW/PU/PX
⚠	IP1021	K5H2022A0011	IC PROTECTOR	1	
	IR7001	PNJ4881M02VT	REMOTE SENSOR	1	
⚠	L1001	G0B233D00005	COIL	1	
	L1103	G0A100ZA0045	COIL	1	
	L1105	G0A100ZA0045	COIL	1	BDT110GA /GC/GN/ GT/GW
	L14302	G0A100ZA0045	COIL	1	BDT110PU /PX
⚠	P1001	K2AA2B000011	AC INLET	1	
	P1102	K1KY23AA0606	CONNECTOR(23P)	1	
	P7001	K1KA03AA0180	CONNECTOR(3P)	1	BDT110GA /GN/GT/ GW/PU/PX
	P7004	K1KA03AA0180	CONNECTOR(3P)	1	
⚠	Q1022	B3PBA0000454	TRANSISTOR	1	E.S.D.
	Q1170	B1ADGF000010	TRANSISTOR	1	E.S.D.
	Q1171	B1BACG000058	TRANSISTOR	1	E.S.D.
	Q14301	B1CHRD000024	TRANSISTOR	1	E.S.D. BDT110PU /PX
	Q7401	B1GBCFJJ0040	TRANSISTOR	1	E.S.D. BDT110GA /GN/GT/ GW/PU/PX
	Q7402	B1ABDF000033	TRANSISTOR	1	E.S.D. BDT110GA /GN/GT/ GW/PU/PX
	QR1170	B1GBCFJJ0040	TRANSISTOR	1	E.S.D.
	QR7003	B1GBCFEN0015	TRANSISTOR	1	E.S.D. BDT110GA /GN/GT/ GW/PU/PX
	QR7401	B1GBCFJJ0040	TRANSISTOR	1	E.S.D. BDT110GA /GN/GT/ GW/PU/PX
⚠	R1006	D0BF685JA030	1/2W 6.8M	1	BDT110GA /GC/GN/ GW/PU/PX
	R1021	D0GZR47JA027	1/2W 0.47	1	BDT110 GA/GC/ GN/GW
	R1021	D0GZR27JA027	1/2W 0.27	1	BDT110GT
	R1021	D0GZR24JA027	1/2W 0.24	1	BDT110PU /PX
	R1022	D0GZR47JA027	1/2W 0.47	1	BDT110GA /GC/GN/ GW
	R1022	D0GZR27JA027	1/2W 0.27	1	BDT110GT
	R1022	D0GZR24JA027	1/2W 0.24	1	BDT110PU /PX
	R1030	ERJ6GEYJ100V	1/10W 10	1	
	R1031	ERJ6GEYJ100V	1/10W 10	1	
	R1032	ERDS2TJ221T	1/4W 220	1	
	R1101	ERJ3GEYJ222V	1/10W 2.2K	1	BDT110PU /PX
	R1111	ERJ3GEYJ102V	1/10W 1K	1	
	R1112	ERJ3GEYJ222V	1/10W 2.2K	1	BDT110GA /GC/GN/ GW
	R1112	ERJ3GEY0R00V	1/10W 0	1	BDT110GT
	R1112	ERJ3GEYJ102V	1/10W 1K	1	BDT110PU /PX
	R1113	ERJ3GEYJ103V	1/10W 10K	1	

Safety	Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
	R1115	ERJ3RBD222V	1/16W 2.2K	1	BDT110GA /GC/GN/ GT/GW
	R1115	ERJ3RBD473V	1/16W 47K	1	BDT110 PU/PX
	R1116	ERJ3GEYJ222V	1/10W 2.2K	1	
	R1117	ERJ3RBD123V	1/16W 12K	1	BDT110GA /GC/GN/ GT/GW
	R1117	ERJ3RED184V	1/16W 180K	1	BDT110PU /PX
	R1119	ERJ3RBD123V	1/16W 12K	1	BDT110GA /GC/GN/ GT/GW
	R1121	ERJ3RBD101V	1/16W 100	1	BDT110GA /GC/GN/ GT/GW
	R1121	ERJ3GEY0R00V	1/10W 0	1	BDT110PU /PX
	R1171	ERJ3GEYJ472V	1/10W 4.7K	1	
	R1172	ERJ3GEYJ472V	1/10W 4.7K	1	
	R1173	ERJ3GEYJ562V	1/10W 5.6K	1	
	R1174	ERDS2TJ470T	1/4W 47	1	
	R1176	ERJ3GEYJ182V	1/10W 1.8K	1	
	R14302	ERJ3GEYJ513V	1/10W 51K	1	BDT110PU /PX
	R14303	D1BDR033A135	1/8W 0.033	1	BDT110PU /PX
	R14304	ERJ3RBD223V	1/16W 22K	1	BDT110PU /PX
	R14305	ERJ3RBD823V	1/16W 82K	1	BDT110PU /PX
	R14306	ERJ3RBD273V	1/16W 27K	1	BDT110PU /PX
	R7001	ERJ6GEYJ100V	1/10W 10	1	
	R7002	ERJ3GEYJ622V	1/10W 6.2K	1	
	R7005	ERJ3GEYJ330V	1/10W 33	1	
	R7009	ERJ3GEYJ393V	1/10W 39K	1	
	R7401	ERJ3GEY0R00V	1/10W 0	1	BDT110GA /GN/GT/ GW/PU/PX
	R7404	ERJ3GEYJ102V	1/10W 1K	1	BDT110GA /GN/GT/ GW/PU/PX
	R7407	ERJ3GEYJ102V	1/10W 1K	1	BDT110GA /GN/GT/ GW/PU/PX
	R7408	ERJ3GEYJ222V	1/10W 2.2K	1	BDT110GA /GN/GT/ GW/PU/PX
	R7409	ERJ3GEYJ223V	1/10W 22K	1	BDT110GA /GN/GT/ GW/PU/PX
	R7410	ERJ3GEYJ151V	1/10W 150	1	BDT110GA /GN/GT/ GW/PU/PX
	S7001	EVQ11A05R	SWITCH(OPEN/CLOSE)	1	
	S7002	EVQ11A05R	SWITCH(PLAY)	1	
	S7003	EVQ11A05R	SWITCH(STOP)	1	
⚠	T1001	G4DYA0000274	TRANSFORMER	1	BDT110GA /GC/GN/ GW
⚠	T1001	G4DYA0000266	TRANSFORMER	1	BDT110GT
⚠	T1001	G4DYA0000291	TRANSFORMER	1	BDT110PU /PX
	T1101	G4D1A0000129	TRANSFORMER	1	
⚠	VA1001	ERZV05Z471CS	VARISTOR	1	BDT110GA /GC/GN/ GT/GW
⚠	VA1001	ERZV10D471C2	VARISTOR	1	BDT110PU /PX
	ZA1001	K9ZZ00001279	EARTH PLATE	1	
	ZA1005	K9ZZ00001279	EARTH PLATE	1	
	ZB7001	RMN0958-1	FL HOLDER	1	

Safety	Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
	■	VEP70389A	SD P.C.B.		(RTL) E.S.D.
	C6802	F1H1H102A013	50V 1000P	1	
	C6803	F1H1H102A013	50V 1000P	1	
	C6804	F1J0J226A014	6.3V 22U	1	
	C6805	F1H1H102A013	50V 1000P	1	
	LB6802	J0JHC0000045	COIL	1	
	P6801	K1KY15AA0606	CONNECTOR(15P)	1	
	P6802	K1NA12B00005	SD CARD CONNECTOR	1	
	P6803	K1FY104BA073	JACK USB	1	
	R6801	D0GF1R0JA049	1/2W 1	1	
	R6802	D0GF1R0JA049	1/2W 1	1	
	R6803	ERJ3GEYJ820V	1/10W 82	1	
	R6804	ERJ3GEYJ820V	1/10W 82	1	
	R6805	ERJ3GEYJ820V	1/10W 82	1	
	R6806	ERJ3GEYJ390V	1/20W 39	1	
	R6807	ERJ3GEYJ820V	1/10W 82	1	
	R6808	ERJ3GEYJ820V	1/10W 82	1	
	R6809	ERJ6GEY0R00V	1/10W 0	1	
	ZJ6801	K9ZZ00001279	EARTH PLATE	1	
	ZJ6802	K9ZZ00001279	EARTH PLATE	1	
	■	VEP70390A	POWER SW P.C.B.		(RTL) E.S.D.
	S7551	EVQ11A05R	SWITCH(POWER)	1	
	PJ7551	VEE1J93	WIRE	1	
	■	VEP70421A	LED P.C.B.		(RTL) E.S.D.
	D7302	B3AEA0000099	DIODE	1	E.S.D.
	PJ7301	K1KA03BA0055	CONNECTOR(3P)	1	
	R7302	ERJ6GEYJ221V	1/10W 220	1	

16 Schematic Diagram for printing with A4 size