

# Service Manual

Blu-ray Disc Player

Model No. **DMP-BD85EB**

**DMP-BD85EE**

**DMP-BD85EF**

**DMP-BD85EG**



**Notes: These model's BDP/Digital P.C.B. Module are**

**DMP-BD85EB : RFKNBD85EBT**

**DMP-BD85EE : RFKNBD85EET**

**DMP-BD85EF : RFKNBD85EFT**

**DMP-BD85EG : RFKNBD85EGT**

**Vol. 1**

Colour

(K).....Black Type

**Caution:**

Pairing of BD Drive and Digital P.C.B. as "BDP/Digital P.C.B. Module" have to be replaced together.

If the either BD Drive or Digital P.C.B. is changed, BD Drive unit has to be re-aligned.

Because the alignment data for BD Drive Unit is stored in Digital P.C.B.

**⚠ 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.

**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, Circuit Board 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.

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# 1 Safety Precautions

## 1.1. General Guidelines

### 1. 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, Circuit Board Layout, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent X-RADIATION, shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

2. An Isolation Transformer should always be used during the servicing of AC Adaptor whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks. It will also protect AC Adaptor from being damaged by accidental shorting that may occur during servicing.
3. 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.
4. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
5. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

## 1.2. 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  $1\text{ M}\Omega$  and  $5.2\text{ M}\Omega$ . When the exposed metal does not have a return path to the chassis, the reading must be infinity.

## 1.3. 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  $1.5\text{ k}\Omega$ ,  $10\text{ W}$  resistor, in parallel with a  $0.15\text{ }\mu\text{F}$  capacitor, between each exposed metallic part on the set and a good earth ground, as shown in Figure 1.
3. Use an AC voltmeter, with  $1\text{ k}\Omega/\text{V}$  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  $0.75\text{ V RMS}$ . A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks, leakage current must not exceed  $1/2\text{ mA}$ . 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.

Hot-Check Circuit

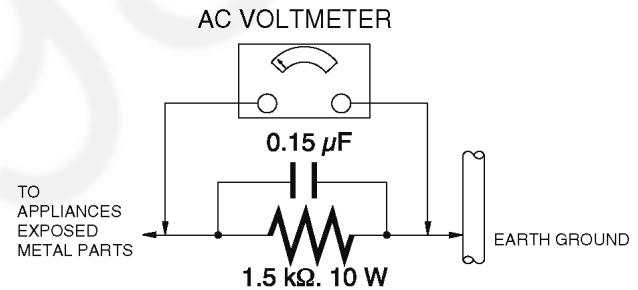


Figure. 1

## 2 Warning

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

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices.

Examples of typical ES devices are IC (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 antistatic solder removal device. Some solder removal devices not classified as "antistatic (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 (ESD) sufficient to damage an ES device).

## 2.2. Caution for AC Cord (For EB)

### 2.2.1. Information for Your Safety

#### IMPORTANT

Your attention is drawn to the fact that recording of pre-recorded tapes or discs or other published or broadcast material may infringe copyright laws.

#### WARNING

To reduce the risk of fire or shock hazard, do not expose this equipment to rain or moisture.

#### CAUTION

To reduce the risk of fire or shock hazard and annoying interference, use the recommended accessories only.

#### FOR YOUR SAFETY

##### DO NOT REMOVE THE OUTER COVER

To prevent electric shock, do not remove the cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

### 2.2.2. 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 amperes and 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 Panasonic Dealer.

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 shown below.

If in any doubt, please consult a qualified electrician.

### 2.2.2.1. Important

The wires in this mains lead are coloured in accordance with the following code:

Blue	Neutral
Brown	Live

As the colours of the wires in the mains lead of this appliance 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 in the plug which is marked with the letter N or coloured BLACK.

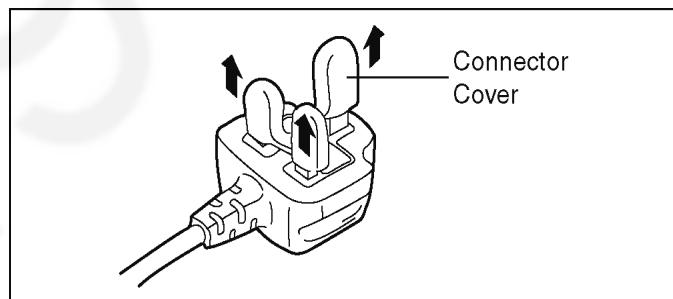
The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

Under no circumstances should either of these wires be connected to the earth terminal of the three pin plug, marked with the letter E or the Earth Symbol.



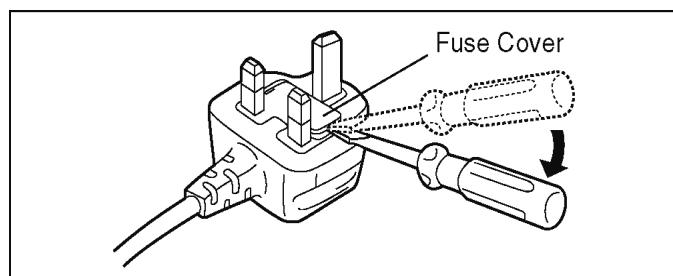
### 2.2.2.2. Before Use

Remove the Connector Cover as follows.

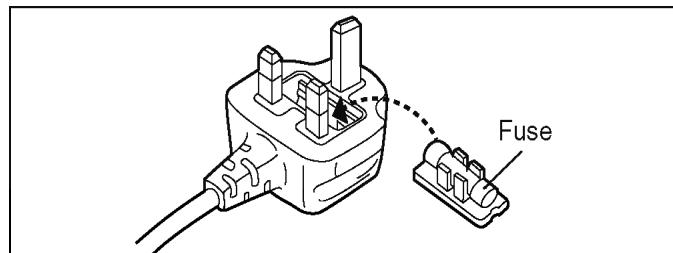


### 2.2.2.3. How to Replace the Fuse

1. Remove the Fuse Cover with a screwdriver.



2. Replace the fuse and attach the Fuse cover.



## 2.3. Precaution of Laser Diode

### CAUTION

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

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

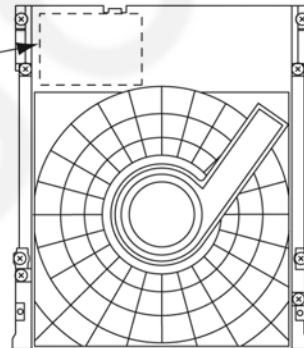
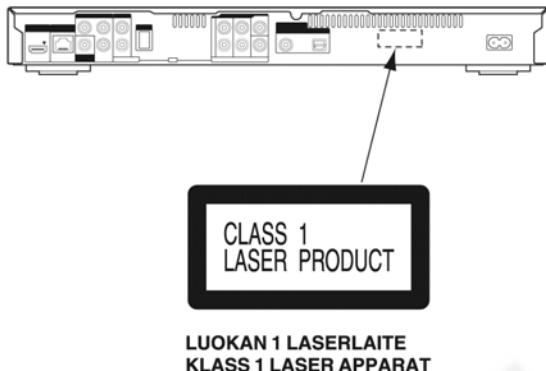
### ACHTUNG

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 µW/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.

## 2.4. Service Caution Based On Legal Restrictions

This service manual contains technical information, which 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, the information will be followed by service manual to be controlled with original service manual.

### 2.4.1. 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°C (86°F) more than that of the normal solder.

**Distinction of P.C.B. Lead Free Solder being used**

The letter of "PbF" is printed either foil side or components side on the P.C.B. 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 P.C.B. 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 P.C.B. 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°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%

## 2.5. Static Electricity Protection Measures

- The laser diode in the traverse unit (optical pick-up) may break down due to potential difference caused by static electricity of clothes or human body.  
So, be careful of electrostatic breakdown during repair of the traverse unit (optical pick-up).

## 2.6. Ground for electrostatic breakdown prevention

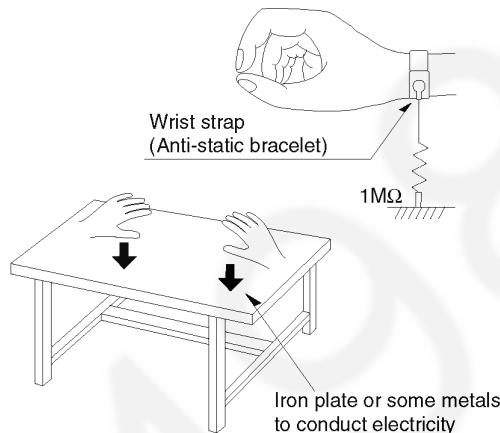
- As for parts that use optical pick-up (laser diode), the optical pick-up is destroyed by the static electricity of the working environment.  
Repair in the working environment that is grounded.

### 2.6.1. Work table grounding

- Put a conductive material (sheet) or steel sheet on the area where the traverse unit (optical pick-up) is placed, and ground the sheet.

### 2.6.2. Human body grounding

- Use the anti-static wrist strap to discharge the static electricity from your body.



### 2.6.3. When exchange the BDP/Digital P.C.B. Module

- Do not remove the FFC while replacing the BDP/Digital P.C.B. Module.  
Keep the BDP Drive and the Digital P.C.B. connecting with it.  
After repaired, keep the BDP/Digital Module connected during the process of return which is replaced.  
The FFC should be returned together and not removed.

### 2.6.4. When exchange the BDP Drive

- Before remove the ESD prevention bag, make sure to use the anti-static wrist strap to discharge the static electricity when replace the BDP Drive.

**Note:**

The ESD prevention bag is used to replace the original short-circuit point.  
It can be removed while placing the BDP Drive.

### 3 Service Navigation

#### 3.1. Service Infomation

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 BDP/Digital P.C.B. Module.
  - Parts List for individual parts of BDP/Digital P.C.B. Module.
  - Exploded View and Parts List for individual parts of BDP/Digital P.C.B. Module.
2. The following category are recycle module part. Please send them to Central Repair Center.
  - BDP/Digital P.C.B. Module (DMP-BD85EB: RFKNBD85EBT)
  - BDP/Digital P.C.B. Module (DMP-BD85EE: RFKNBD85EET)
  - BDP/Digital P.C.B. Module (DMP-BD85EF: RFKNBD85EFT)
  - BDP/Digital P.C.B. Module (DMP-BD85EG: RFKNBD85EGT)
3. The module and digital P.C.B. for BDP model is offered respectively for the market maintenance.  
For the information about pairing adjustment of the module and digital P.C.B., please refer to "11.2.4. How to adjust the BDP/Digital P.C.B. Module".

## 3.2. Caution for DivX

Please will always pass the customer “Warning for Customers Who Use the DivX Video-on-Demand content.” with the product and get it when you unavoidably exchange FLASH ROM or P.C.B. including FLASH ROM (When the product is exchanged, it is the same.).

You must use print attached to service part (FLASH ROM or P.C.B. including FLASH ROM) or must use copy of print below as “Warning for Customers Who Use the DivX Video-on-Demand content.”

Information needed without fail for the customer for whom it is used continuing DivX Video-on-Demand Service to “Manual for the customer” is recorded.

Appendix:

\*Parts that memorize user's information are only FLASH ROM.

\*The registration of Registration Code is possible for half a year up to 6 recorders up to 10 recorders a year.

### About DivX Video-on-Demand Control

#### ABOUT DIVX VIDEO-ON-DEMAND:

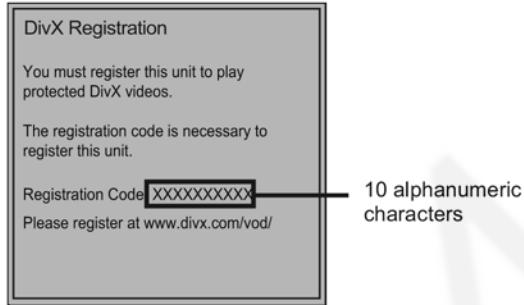
This DivX Certified® device must be registered in order to play DivX Video-on-Demand (VOD) content.

To generate the registration code, locate the DivX VOD section in the device setup menu.

Go to [vod.divx.com](http://vod.divx.com) with this code to complete the registration process and learn more about DivX VOD.

- It is not possible to playback DivX VOD content recorded on the USB device.

#### Display the unit's registration code.



- After playing DivX VOD content for first time, the registration code is not displayed.
- If you purchase DivX VOD content using a registration code different from this unit's code, you will not be able to play this content. (“Authorisation Error.” is displayed.)

Registration Code is memorized in FLASH ROM (Digital P.C.B.).

If exchange above P.C.B. or FLASH ROM, new registration Code differ from previous Registration Code will be generated.

In this case if your customer uses DivX Video-on-Demand service, he/she will no longer be able to play any content that he/she purchased under that same registration code.

Therefore your customer will need to obtain and register the new registration code.

\*Copy this page and cut on the dotted line and give the lower half to your customer.

#### Warning for Customers Who Use the DivX Video-on-Demand content.

1. The registration code has been changed for the repair of the product or the product exchange.
2. Obtain and register a new registration code, otherwise you will no longer be able to play DivX Video-on-Demand content.
3. Follow the procedure on the DivX Video-on-Demand web site to register at <http://vod.divx.com/>.

\*If you do not use the DivX Video-on-Demand content, please ignore this warning.

# 4 Specifications

<b>Power supply:</b>	AC 220 - 240 V, 50 Hz	<b>BD-R:</b>	Video, DivX
<b>Power consumption:</b>	Approx. 27 W	<b>DVD-Video:</b>	Video
In standby mode:	Approx. 0.2 W	<b>DVD-RAM:</b>	Video, AVCHD, JPEG
In quick start standby mode:	Approx. 8.4 W	<b>DVD-R:</b>	Video, AVCHD, JPEG, MP3, DivX
<b>Operating temperature range:</b>	+5°C to +35°C	<b>DVD-R DL:</b>	Video, AVCHD, JPEG, MP3, DivX
<b>Operating humidity range:</b>	10 % to 80 % RH (no condensation)	<b>DVD-RW:</b>	Video, AVCHD
<b>Signal system:</b>	PAL/NTSC	<b>+R/+RW/+R DL:</b>	Video, AVCHD
<b>Video output:</b>		<b>Music CD:</b>	Music [CD-DA]
Output level:	1.0 Vp-p (75 Ω)	<b>CD-R/CD-RW:</b>	Music [CD-DA], JPEG, MP3, DivX
Output connector:	Pin jack (1 system)		
<b>Component video output:</b>		<b>SD card:</b>	
<b>(1080i/720p/480p/480i:60 Hz)</b>		SD Memory Card (from 8MB to 2GB):	MPEG2, AVCHD, JPEG
<b>(1080i/720p/576p/576i:50 Hz)</b>		SDHC Memory Card (from 4GB to 32GB):	MPEG2, AVCHD, JPEG
Y output level:	1.0 Vp-p (75 Ω)	SDXC Memory Card (48GB, 64GB):	MPEG2, AVCHD, JPEG
P <sub>B</sub> output level:	0.7 Vp-p (75 Ω)		
P <sub>R</sub> output level:	0.7 Vp-p (75 Ω)	<b>USB device:</b>	
Output connector:	Pin jack (Y:green, P <sub>B</sub> :blue, P <sub>R</sub> :red) (1 system)	USB device: (up to 128GB)	DivX, MP3, JPEG
<b>Video performance:</b>		<b>Contents:</b>	
Horizontal resolution:	More than 500 lines	<b>JPEG:</b>	
Video S/N ratio:	More than 65 dB	SD card, CD-R, CD-RW, DVD-RAM, DVD-R, DVD-R DL, BD-RE, USB device:	
<b>Audio output:</b>		Picture resolution:	between 34x34 and 8192x8192 pixels (sub sampling is 4:2:2 or 4:2:0)
Output level:	2 Vrms (1 kHz, 0 dB)	<b>MP3:</b>	
Output connector:	Pin jack	CD-R, CD-RW, DVD-R, DVD-R DL, USB device: Compression rate: Sampling rate:	32 kbps - 320 kbps 44.1 kHz / 48 kHz
Number of connectors:	7.1 channel discrete output (2 channel + 5.1 channel discrete output)	<b>DivX:</b>	
	1 system	BD-R, DVD-R, DVD-R DL, CD-R, CD-RW, USB device: Picture resolution:	Up to 1920 x 1080 pixels
<b>Audio performance:</b>		<b>Dimensions:</b>	430mm(W) x 242mm(D) x 55mm(H) (excluding the projecting parts)
Frequency response:			430mm(W) x 249mm(D) x 55mm(H) (including the projecting parts)
DVD(linear audio):	4 Hz - 22 kHz (48 kHz sampling) 4 Hz - 44 kHz (96 kHz sampling)	<b>Mass:</b>	Approx. 2.6 kg
CD-Audio:	4 Hz - 20 kHz	<b>Wireless LAN Adaptor (DY-WL10)</b>	
S/N ratio:	115 dB	<b>Power supply:</b>	DC 5 V (USB powered) 500 mA
Dynamic range:	100 dB	<b>Power consumption:</b>	Max 2500 mW
Total harmonic distortion:	0.003 %	<b>Dimensions:</b>	44mm(W) x 72mm(D) x 27mm(H)
<b>Digital audio output:</b>		<b>Mass:</b>	Approx. 29 g
Optical digital output:	Optical terminal	<b>Antenna:</b>	T x 1, R x 2
Coaxial digital output:	Pin jack	<b>Interface:</b>	USB 2.0
<b>HDMI AV output:</b>		<b>Standard Compliance:</b>	IEEE802.11n / IEEE802.11a / IEEE802.11g / IEEE802.11b
Output format:	1080p/1080i/720p/480p	<b>Transmission system:</b>	MISO-OFDM system, OFDM system, DSSS system
Output connector:	TypeA (19 pin)	<b>Frequency range:</b>	IEEE802.11n / IEEE802.11a: 5.15 GHz - 5.35 GHz 5.47 GHz - 5.725 GHz
<b>SD card slot:</b>	1 system	<b>IEEE802.11g / IEEE802.11b /</b>	
Connector:		<b>IEEE802.11n:</b>	2.4 GHz - 2.4835 GHz
<b>USB slot:</b>		<b>Transfer rate (standard):</b>	
USB2.0:	2 system	IEEE802.11n:	Tx Max. 150 Mbps, Rx Max. 300 Mbps
<b>Ethernet:</b>		IEEE802.11g / IEEE802.11a:	Max. 54 Mbps
10BASE-T/100BASE-TX:	1 system	IEEE802.11b:	Max. 11 Mbps
<b>Optical pick-up:</b>	System with 2 lenses		(Transfer rates are theoretical values; however, actual communication rate will vary according to communication environment or connected equipment.)
Wave length:	790 nm (CDs)/655 nm (DVDs)/ 405 nm (BDs)	<b>Access Mode:</b>	Infrastructure mode
<b>LASER Specification</b>			
<b>Class 1 LASER Product:</b>			
Wave length:	790 nm (CDs)/655 nm (DVDs)/ 405 nm (BDs)		
Laser power:	No hazardous radiation is emitted with the safety protection		
<b>Region management</b>			
<b>information:</b>			
DVD-Video:	region number "2" or "ALL"		
BD-Video:	region code B		
<b>Media:</b>			
<b>Playable discs:</b>			
BD-Video:	Video		
BD-RE:	Video, JPEG		

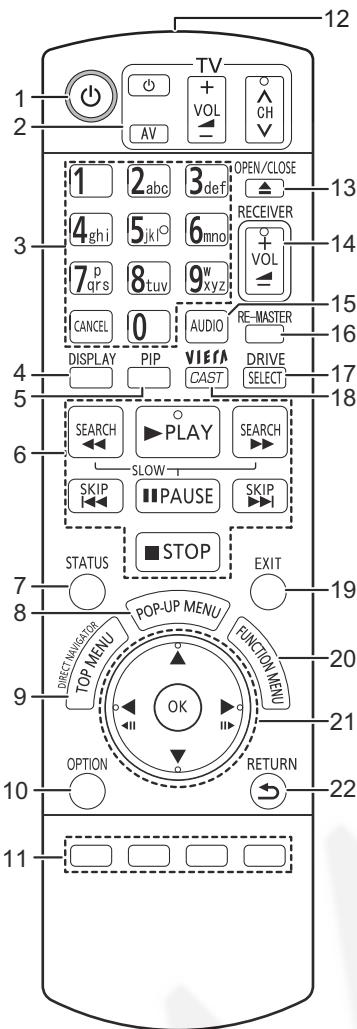
<b>Security:</b>	WPA2-PSK (TKIP/AES) WPA-PSK (TKIP/AES) WEP (64bit/128bit)
(This unit supports WPA and WPA2 encryption.)	
<b>Solder:</b>	This model uses lead free solder (PbF).
<b>Note:</b>	Specifications are subject to change without notice.

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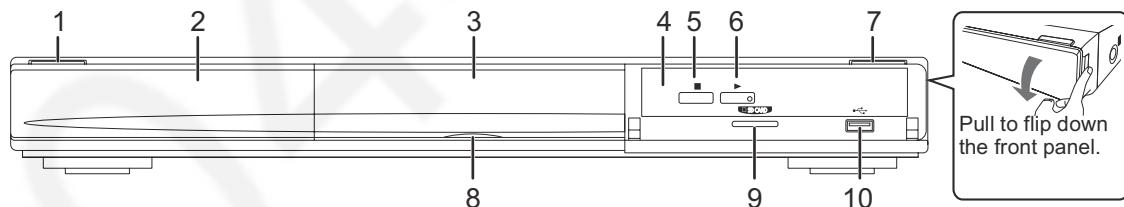
## 5 Location of Controls and Components



- 1 Turn the unit on and off
- 2 **TV operation buttons**  
You can operate the TV through the unit's remote control.  
[ $\odot$  TV] : Turn the television on and off  
[AV] : Switch the input select  
[+ VOL] : Adjust the volume  
[ $\wedge \vee$  CH] : Channel select
- 3 Select title numbers, etc./Enter numbers or characters  
[CANCEL] : Cancel
- 4 Show playback menu
- 5 Switch on/off Secondary Video (Picture-in-picture)
- 6 Basic playback control buttons
- 7 Show status messages
- 8 Show Pop-up menu
- 9 Show Top menu/DIRECT NAVIGATOR
- 10 Show OPTION menu
- 11 Coloured buttons (red, green, yellow, blue)  
These buttons are used when;
  - Operating a BD-Video disc that includes Java™ applications (BD-J).
  - Displaying "Title View" and "Album View" screens.
  - Operating contents of VIERA CAST.
- 12 Transmit the remote control signal
- 13 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 injury.

- 14 Adjust the volume of an amplifier/receiver.
- 15 Select audio
- 16 Reproduce more natural audio
- 17 Select drive (BD/DVD/CD, SD card or USB device)
- 18 Displays the Home screen of the VIERA CAST
- 19 Exit the menu screen
- 20 Show FUNCTION menu
- 21 Selection/OK, Frame-by-frame
- 22 Return to previous screen



- 1 **Standby/on switch ( $\odot$ /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 **Display**

Disc indicator	SD card indicator	USB device indicator

The indicator blinks when reading data from a disc, a card or a USB device, or writing data to a card.
- 3 Disc tray

- 4 Remote control signal sensor  
Distance: Within approx. 7 m  
Angle: Approx. 20° up and down, 30° left and right
- 5 Stop
- 6 Start play
- 7 Open or close the disc tray
- 8 SD Card LED
  - It is possible to set the LED to turn on/off.
- 9 SD card slot
- 10 USB port

## 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. When the power can be turned off.

##### 6.1.1.1. When the power can be turned off.

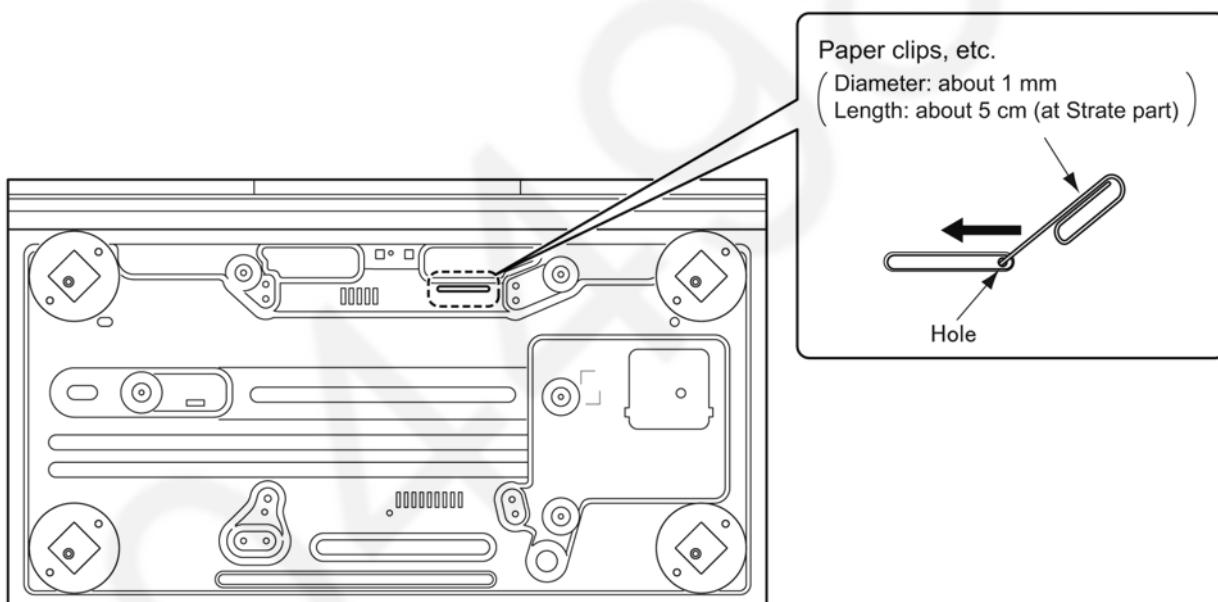
1. Turn the unit off, then press and hold [OK], [Yellow] and [Blue] buttons on the remote control simultaneously for 5 seconds.  
- "00 RET" is displayed on the unit's FL display.
2. Repeatedly press the right cursor button on the remote Control or Power button on the unit until "06 FTO" is displayed on the unit's FL display.
3. Press [OK] button on the remote control or [OPEN/CLOSE] button on the unit.

##### 6.1.1.2. When the power can not be turned off.

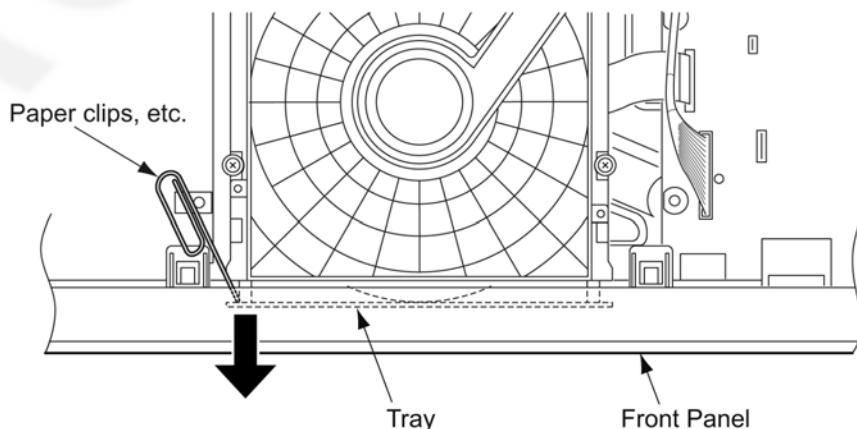
Press [POWER] button on the unit for over 4 seconds to turn off the power forcibly, and step 1 to 3 above.

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

1. Turn off the power and pull out AC cord.
2. Remove the Top Case.
3. Put the unit so that bottom can be seen.
4. Insert paper clips, 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.



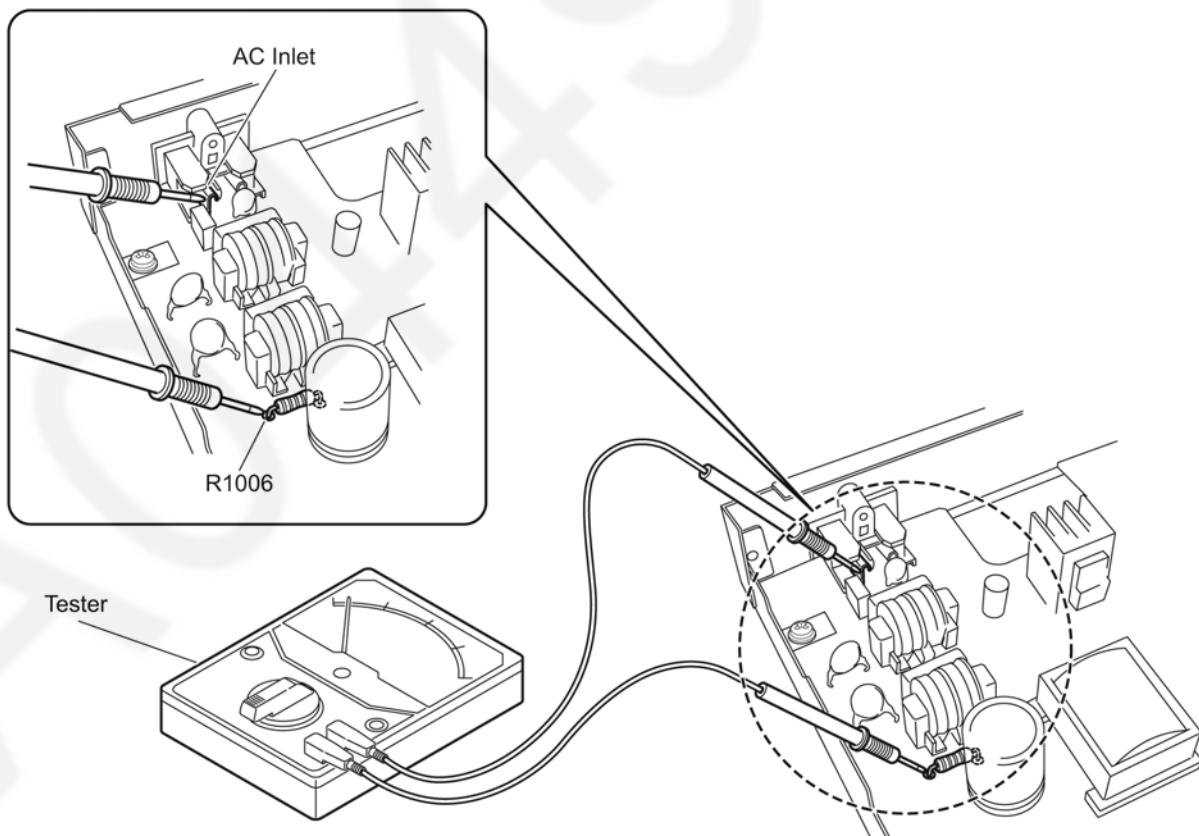
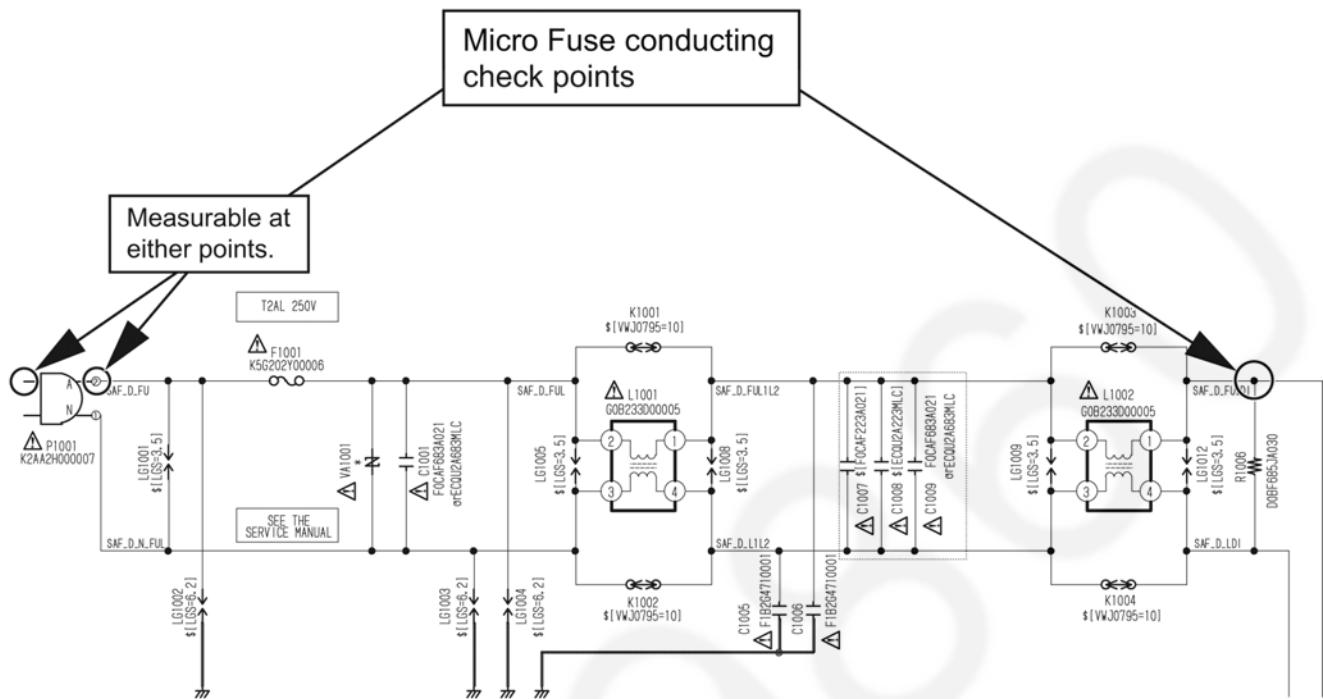
5. Pull the unit upward, and push out Tray by paperclips, etc. or minus screw driver (small).



## 6.2. Micro Fuse Conducting Check

This unit uses the Micro Fuse.

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



# 7 Multiple Pressing Function

## 7.1. About the Multiple Pressing of the Unit's Remote Control

The remote control which included this unit is possible pressing multiple buttons simultaneously (Multiple Pressing function), and can operate for the customer's initial settings and the Service Mode, etc.

The Multiple Pressing function is not available for conventional models' remote control. Use the remote control included this unit.

## 7.2. How to enter the Special Modes using the Multiple Pressing Function of the Unit's Remote Control

For pressing the multiple buttons of the remote control, this unit can be entering each of the following special modes. After entering each mode, and then go to the menu you want to run.

Open Mode	Privately Mode 1	Privately Mode 2
[OK] [Yellow] [Blue]	[6] [7] [Yellow]	[5] [9] [Red]
		

- **Move the menus for each mode:**  mark

Press [Right Cursor] button (Remote Cont.) or [Power] button (Unit)

- **Execute**

Press [OK] button (Remote Cont.) or [Open/Close] button (Unit)

\* After executing the menu will automatically exit the special mode.

- **How to exit from the special modes**

- Press the unrelated buttons for the operation.
- No operation for 2 minutes or more.
- Press and hold [Power] button on the unit.(Forcible Power Off)

### 7.2.1. Open Mode (Remote Cont. Buttons: [OK] [Yellow] [Blue])

When pressing the 3 buttons, [OK], [Yellow] and [Blue] simultaneously for 5 seconds, "00 RET" is displayed on the FL display.

Unit's Power	DISC	FL display	Execute key	Function	Descriptions
OFF	Yes / No	00 RET	-	-	
		06 FTO	[OK]	Forced Tray Open	When the [Open/Close] button does not work, open the disc tray forcible. If still close, refer to "6. 1. 2. When the Forcible Disc Eject can not be done.".
		08 FIN	[OK] (Press and Hold)	Restore the factory settings	All settings included Quick Start setting and Network settings are restored the factory settings.
ON	Yes / No	00 RET	-	-	-
	No	03 VL	[OK]	BD / DVD video viewing unrestricted	The parental control of BD Video and DVD Video are cancelled.
	Yes / No	04 PRG	[OK] (Press and Hold)	Initialization of the Progressive Setting	Initialize the Progressive setting and switch the display mode to the Interlace mode.  When pressing and holding the [Stop] button (remote control / main unit) instead of the [OK] button, current menu is moved to "10 OCL" (Disc Tray Lock/Unlock setting).
	Yes / No	05 P/N	[OK] (Press and Hold)	Switch the TV System	Switch the TV system to another one. If the current TV system is PAL, NTSC is switched to, and vice versa.
	Yes / No	07 DC	[OK] (Press and Hold)	Initialization of the Deep Colour setting	Initialize the Deep Colour setting.
	Yes	10 OCL	[OK]	Disk Tray Lock / Unlock setting (Setting for [Open/Close] button valid /invalid)	While "04 PRG" is displayed, press and hold the [Stop] button (remote control / main unit) is move to this menu. Press the [OK] button for locking /unlocking the disc tray. <ul style="list-style-type: none"><li>• If no disc in drive, "NoDisc" is displayed and cannot be locked.</li><li>• Lock state is retained even if power off.</li></ul>

## 7.2.2. Privately Mode 1 (Remote Cont. Buttons: [6] [7] [Yellow])

When pressing the 3 buttons, [6], [7] and [Yellow] simultaneously for 5 seconds, "50 RET" is displayed on FL display.

Unit's Power	DISC	FL display	Execute key	Function	Descriptions
ON	Yes / No	50 RET	-	-	-
		51 NOP	[OK]	-	When "51 NOP" is displayed and pressing and holding the [Stop] button (remote control / main unit), current menu is moved to "52 BRE" (BD-ROM set of clear history).
		52 BRE	[OK]	Delete the playback history of BD-Video	While "51 NOP" is displayed, press and hold the [Stop] button (remote control / main unit) is move to this menu. Press the [OK] button for deleting the playback history of BD-Video.

## 7.2.3. Privately Mode 2 (Remote Cont. Buttons: [5] [9] [Red])

When pressing the 3 buttons, [5], [9] and [Red] simultaneously for 5 seconds, "70 RET" is displayed on FL display.

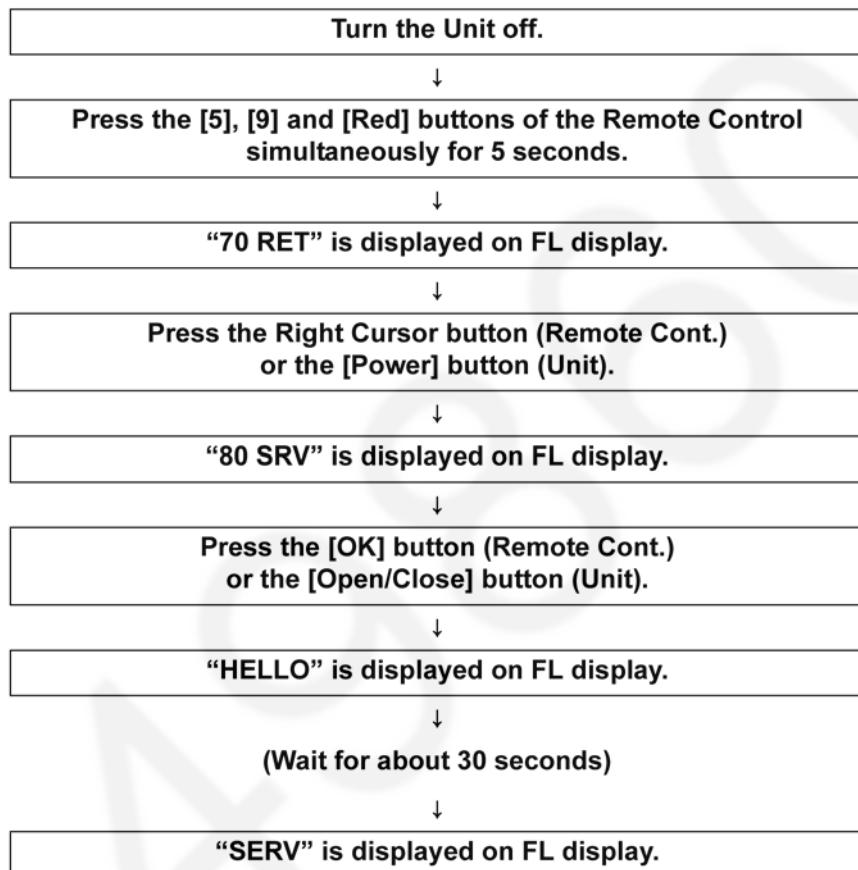
Unit's Power	DISC	FL display	Execute key	Function	Descriptions
OFF	Yes / No	70 RET	-	-	-
		80 SRV	[OK]	Enter the Service Mode	Press the [OK] button then "HELLO" is displayed on the FL display. Wait about 30 seconds for displaying "SERV" on the FL display.
		83 SDI	[OK]	CD/SD Diag	Not used in field service.
		91 SPD	[OK]	Special Display	Not used in field service.
		92 F99	[OK]	Select valid/invalid of the F99 function.	Not used in field service.
ON	Yes / No	70 RET	-	-	-
		81 AIG	[OK]	Enter the Ageing Mode	
		83 SDI	[OK]	CD/SD Diag	Not used in field service.
		91 SPD	[OK]	Special Display	Not used in field service.
		92 F99	[OK]	Select valid/invalid of the F99 function.	Not used in field service.

## 8 Service Mode

### 8.1. About the Service Mode

Informations necessary for service can be displayed.

#### 8.1.1. How to enter the Service Mode



#### 8.1.2. How to exit the Service Mode

Press and hold the [Power] button (remote control or unit).

>>> The Service Mode is terminated and automatically turns the unit off.

## 8.2. Service Mode List

The display of information to each command is as follows.

**Note:**

Do not use it excluding the designated command.

Key operation (remote control keys)	Mode name	FL display (Example)	Descriptions
[0] [0]	Release Items	SERV	Item of Service Mode executing is cancelled.
[0] [1]	Self -Diagnosis Display	UXX or FXX (F99)	Last Error Code of U/F held by memory is displayed on FL display. (XX: 2 digits numeric) *Details are described in "Self-Diagnosis Functions".
[0] [2]	ROM Version Display	NO_#\$_ (NO 2B)	#: Region of DVD (Example: 1,2 ...) \$: Region of BD (Example: A,B ...) (Display for 5 seconds.)
		**** (2620 )	Main firm version (Display for 5 seconds.)
		*** ** (210 PE)	Timer firm version (Display for 5 seconds.)
		*** (5106 )	Drive firm version (Display for 5 seconds.)
		*** (000 )	Timer ROM correction version (Display for 5 seconds.)
		*** ( 209)	B002 version (Display for 5 seconds.)
		*** ( 243)	B003 version (Until pressing any key, the display remains.)
[0] [3]	Loaded Drive Correction Check Display	DRV OK	The loaded drive is correspondence to the model.
		DRV NG	The loaded drive is not correspondence to the model.
[3] [4]	Save the error histories to SD card	NODATA	No information
		ERROR	The error history cannot save the SD card.
		NOCARD	The SD card cannot be recognized.
		FIN	Save end.
[3] [8]	Quick check of the BD drive error history	DRV OK	No error history and still drive OK.
		DRV NG	There are some error history, and still drive no good.
[4] [1]	Laser Used Time Display  Check laser used time (hours) of drive. When the use time exceeds 9999 hours, it is displayed as **9999.	BP**** (BP 0)	BD playback laser used time ****: Hour unit
		BR 0	Not used (Don't care this value.)
		DP**** (DP 0)	DVD playback laser used time ****: Hour unit
		DR 0	Not used (Don't care this value.)
		CD**** (CD 0)	CD playback laser used time ****: Hour unit

Key operation (remote control keys)	Mode name	FL display (Example)	Descriptions
[4] [2]	Drive Last Error Display	NO_**_ (NO 2A )	Error Number is displayed for 5 seconds.
		*****	Not used (Don't care this value.)
		***** (031600)	Last drive error is displayed (1/2)
		***** (450402)	Last drive error is displayed (2/2)
		XXXXXX (BDROM)	<p>Error occurring disc type is displayed for 5 seconds.</p> <p>BDROM: BD-ROM(BD-Video) BDRE: BD-RE BDR: BD-R DVD: DVD-Video RAM26: DVD-RAM(2.6G) RAM47: DVD-RAM(4.7G) DVDR: DVD-R DVDRW: DVD-RW DVDP: DVD+R DVDPW: DVD+RW CD: CD CDR: CD-R CDRW: CD-RW MEDIA *: Error of other disc types (*: RTSC responded value)</p>
		*****	Disc maker ID of error occurring is displayed for 5 seconds. (In case that the maker cannot be identified, display is black out for 5 seconds.)
		**\$#\$# (hexadecimal)	Factor of drive error **: Error occurring operation code
			Factor of drive error \$: Error occurring disk type
			Factor of drive error ##: Error occurring disk situation
		NODATA	No drive last error information.
[4] [6]	TILT Value	DI\$*** DM\$*** DO\$***	Measurements of TILT value for DVD-R \$: + or -
[4] [7]	BEX Value	BL0*** BL1***	Measurements of BEX value for DVD-RE (Dual Layer)
[4] [8]	PD Balance	1F***	FE amplitude regularization (0 - 9999)
		2F***	FE symmetry (0 - 9999)
		3F * *	Number of reflection sides (0 - 9)
		ERROR	Measurements failure

Key operation (remote control keys)	Mode name	FL display (Example)	Descriptions
[4] [9] (Please follow the procedure and operate.)	DVD Playback Jitter	***	<p>The amount of the LBA jitter at the position in which the playback began from the stop is measured.</p> <p>[Procedure]</p> <ol style="list-style-type: none"> <li>1. Playback start. (Use playback possible disc.)</li> <li>2. The playback point is moved to the place to be measured. (Use [SKIP] and [SLOW/SEARCH] button)</li> <li>3. Push the [PAUSE] button, at the position to be measured. Afterwards, the following operation is done. [STOP] - [PLAYBACK] - [STILL]</li> <li>4. Press remote control buttons [4] [9].</li> <li>5. The amount of jitter is displayed.</li> </ol>
[5] [5]	CEC(H) Output Check	CECHOK CECHNG	Check of the CEC terminal high output of HDMI.
[5] [6]	CEC(L) Output Check	CECLOK CECLNG	Check of the CEC terminal low output of HDMI.
[6] [5]	Quick analysis error history	DRV NG	According to the error history, the loaded drive failures occurred within 4 weeks. (The result is valid that the date is set correctly.)
		DRV OK	According to the error history, the loaded drive failures occurred more than 4 weeks. (The result is valid that the date is set correctly.)
		OK	No error histories
		NO DATA	No information
[6] [6]	Save the log spool to SD card  The user operation history of the remote control is saved to the SD card.	NO DATA	No information
		ERROR	The log spool cannot be saved to SD card.
		NOCARD	The SD card cannot be recognized.
		FIN	Save end
[6] [9]	Save the error history and log spool to SD card  The error and user operation history of the remote control are saved to the SD card.	NO DATA	No information
		ERROR	The error history and log spool cannot save the SD card.
		NOCARD	The SD card cannot be recognized.
		FIN	Save end
[9] [1]	Open and Close test of the disc tray	***** (000003)	<p>Repeat the opening and closing the disc tray. (The current numbers of Open/Close is displayed on the FL display.)</p> <p>Press the [Power] button (Remote Control or unit) for exit the test.</p>
[9] [5]	Initialization of the Laser Used Time	CLR	Laser Used Time information stored in the memory of the unit is initialized to factory setting.
[9] [6]	Initialization of the Last Drive Error	CLR	Last Drive Error stored on the BD Drive is deleted.
[9] [7]	Initialization of the Error History	CLR	Error History information stored on the unit is deleted.
[9] [8]	Initialization of the Error Code	CLR	Last Error Code information stored by timer is deleted.
[9] [9]	Initialization of the Service Mode	CLR	Last Drive Error, Error History and Error Code information stored on the unit are initialized to factory setting.

## 8.3. Self-Diagnostics Functions

### 8.3.1. Self-Diagnostics 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 last error code by transmitting [0] [1] of Remote Control 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	FL display	On Screen
<b>U30</b>	Remote control code error	This error is displayed when main unit is different from remote control codes.	<b>U30 *</b> “**” is remote control code of the main unit. Displays for 5 seconds.	Not displayed
<b>U59</b>	Abnormal inner temperature detected	This error is displayed when the internal temperature of the unit exceeds the margin of safety. The power is turned off forcibly. For 30 minutes after this, the [Power] button operation is disabled.	<b>U59</b> Displays for 30 seconds.	Not displayed
<b>U71</b>	HDMI incompatible error (HDCP incompatible)	This error is displayed when it turns on power and HDMI equipment (TV, amplifier etc.) connection error is occurred. (or when there is a problem with the HDMI cable) *HDCP: High-bandwidth Digital Content Protection This error display disappears only when the connection is released. Neither the button operation nor the passage of the fixed time disappear the display.	<b>U71</b>	Not displayed
<b>U72</b>	HDMI connection error (communication error)	This error is displayed when there are any communication problems with the unit and the equipment (TV, amplifier etc.) connected to the unit by HDMI. (or when there is a problem with the HDMI cable) This error display disappears only when the connection is released. Neither the button operation nor the passage of the fixed time disappear the display.	<b>U72</b>	Not displayed
<b>U73</b>	HDMI connection error (authentication error)	This error is displayed when authentication error occurs while the equipment (TV, amplifier etc.) are connected by HDMI. (or when there is a problem with the HDMI cable) This error display disappears only when the connection is released. Neither the button operation nor the passage of the fixed time disappear the display.	<b>U73</b>	Not displayed

Error Code	Diagnosis contents	Description	FL display	On Screen
<b>U76</b>	connection error	This error is displayed when equipment such as TV, amplifier etc. connected with this unit with the HDMI cable do not correspond to the copyright protection. (The BD/DVD video where the copyright is protected cannot be played.)	<b>U76</b>	Not displayed
<b>U77</b>	Illegal disc error	This error is displayed when it becomes impossible to reproduce because of copyright illegal information.	<b>U77</b>	Not displayed
<b>U88</b>	Restoration is operating (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 unit operation normally is operating. It becomes possible to use as soon as not the breakdown but the U88 display disappears.	<b>U88</b>	Not displayed
<b>F00</b>	No error information	Initial setting for error code in memory. (Error code Initialization is possible with error code initialization and main unit initialization.)	No automatic display. It can be displayed in service mode pressing [0] [1].	Not displayed
<b>F34</b>	Microprocessor initialization error	When detected, the power is turned off forcibly, but the event is saved in memory.	No automatic display. It can be displayed in service mode pressing [0] [1].	Not displayed
<b>F58</b>	Drive hardware error	This error is displayed when drive unit error (motor errors, traverse unit error, etc.) is detected. The power is turned off forcibly, but the event is saved in memory.	No automatic display. It can be displayed in service mode pressing [0] [1].	Not displayed
<b>F74</b>	HDIM Device Key Communication error.	HDMI connection could not be authenticated due to a transfer malfunction. Factor of HDMI Device key-load failure - When HDMI LSI is damaged. - When device key information recorded is damaged.	<b>F74</b>	Not displayed
<b>F75</b>	HDIM Device Key Information error	HDMI connection could not be authenticated due to an internal data malfunction. Factor of HDMI Device key-load failure - When HDMI LSI is damaged. - When device key information recorded is damaged	<b>F75</b>	Not displayed
<b>F99</b>	Hang-up	Displayed when communication error has occurred between Main microprocessor (IC51001) and Timer microprocessor (IC57001).	<b>F99</b> Displayed is left until the [POWER] button is pressed.	Not displayed

Error Code	Diagnosis contents	Description	FL display	On Screen
UNSUPPORT	Unsupported disc error	<p>This error is displayed when the following are detected.</p> <ol style="list-style-type: none"> <li>1. When the unsupported format disc is reproduced.</li> <li>2. When the unsupported format data saved in the supported format disc.</li> <li>3. When it becomes impossible to read because the quality of the disc is bad.</li> </ol>	UNSUPPORT	<p>"This disc is incompatible."</p> <p>Display for 5 seconds.</p>
NO READ	Disc read error	<p>This error is displayed when the following are detected.</p> <ol style="list-style-type: none"> <li>1. When the disc is dirty or damaged.</li> <li>2. When failing in reading the track information.</li> <li>3. When the drive error occurs.</li> </ol>	NoREAD	<p>"Cannot read."</p> <p>Please check the disc."</p> <p>Display for 5 seconds.</p>
HARD ERR	Drive error	This error is displayed when the drive detected a hard error.	HARD ERR	<p>"BD drive error."</p> <p>Display for 5 seconds.</p>
SELF CHECK	Restoration is operating.	<p>Since the power cord fell out during a power failure or operation, it is under restoration operation.</p> <p>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 unit.</p>	SELF CHECK	Not displayed
UNFORMAT	Unformatted disc error	This error is displayed when the unformatted DVD-RAM/DVD-RW or DVD-RW recorder by another make of recorder is inserted.	UNFORMAT	<p>Not displayed</p> <p>When pressing the [Play] button, "This disc is not formatted properly. Cannot be played." is displayed.</p>
NO PLAY	When there is a viewing restriction on a BD-Video or DVD-Video.	Rating password is set.	NoPLAY	<p>"Cannot play."</p> <p>Change the rating limit in Setup to play the disc."</p> <p>is displayed.</p>

## 9 Service Fixture & Tools

Part No.	Uses	Pcs	Compatibility
RFKZ0216	Extension Cable (Digital P.C.B. - Audio Out P.C.B. / 23 Pin)	1	Same as BR570 Series
RFKZ0239	Extension Cable (Digital P.C.B. - Front P.C.B. / 10 Pin)	1	Same as BD60/80 Series
RFKZ0367	Extension Cable (Power P.C.B. - Front P.C.B. / 6 Pin)	1	Same as BD60/80 Series
RFKZ03D01KS	Lead Free Solder (0.3mm/100g Reel)		Same as BD60/80 Series
RFKZ06D01KS	Lead Free Solder (0.6mm/100g Reel)		Same as BD60/80 Series
RFKZ10D01KS	Lead Free Solder (1.0mm/100g Reel)		Same as BD60/80 Series
RFKZ0316	Solder Remover (Lead free low temperature Solder/50g)		Same as BD60/80 Series
RFKZ0328	Flux		Same as BD60/80 Series

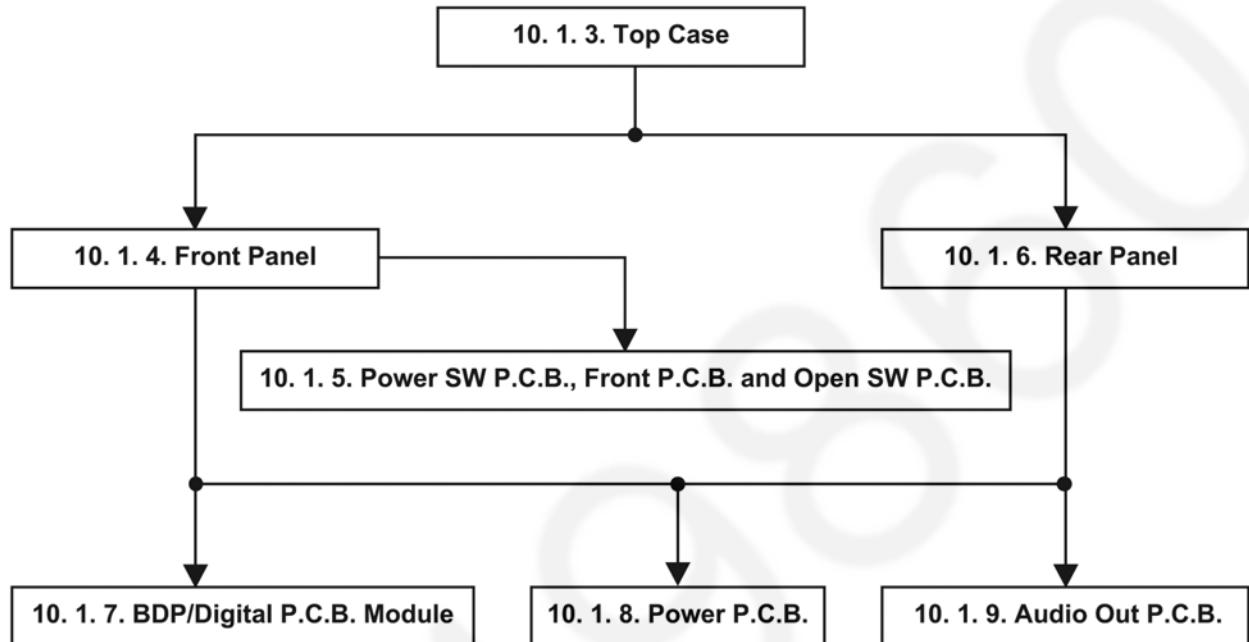
# 10 Disassembly and Assembly Instructions

## 10.1. Unit

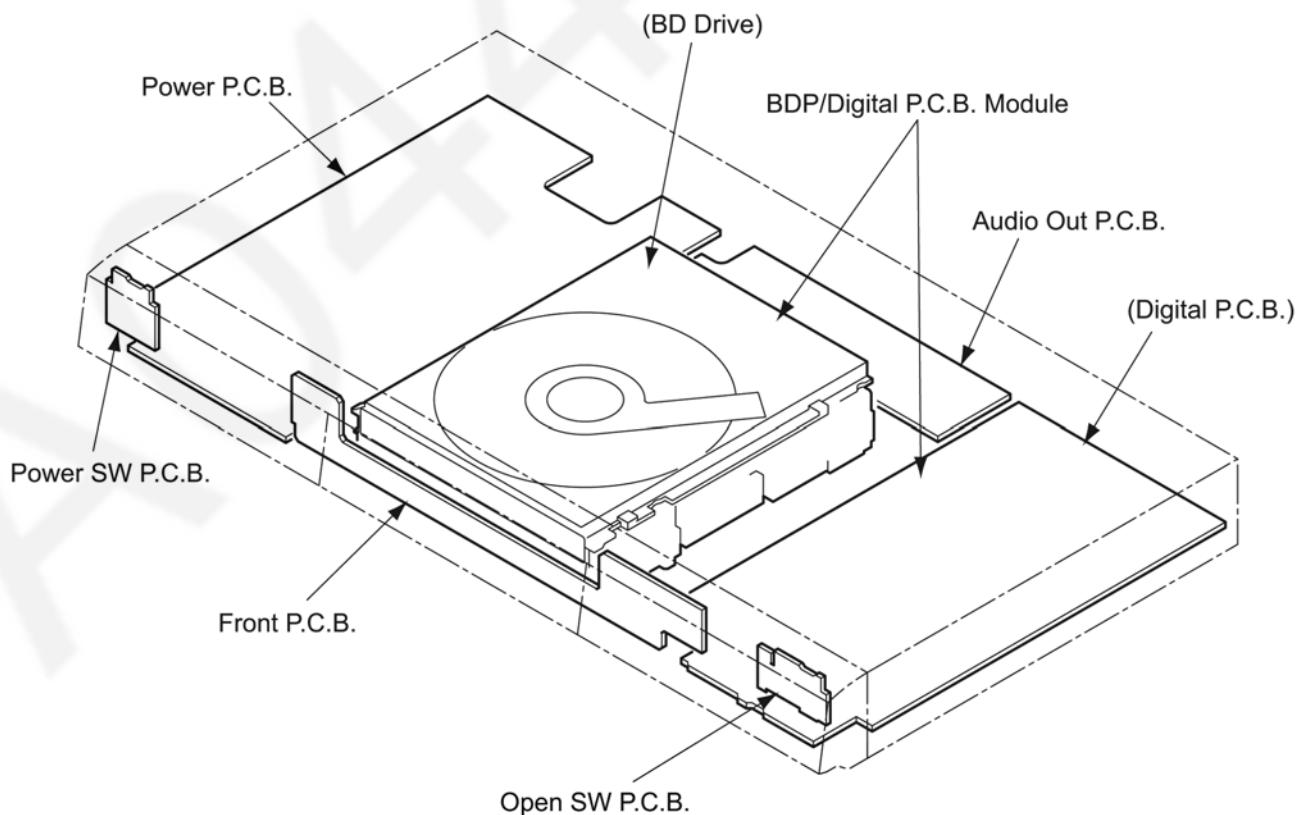
### 10.1.1. Disassembly Flow Chart

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.

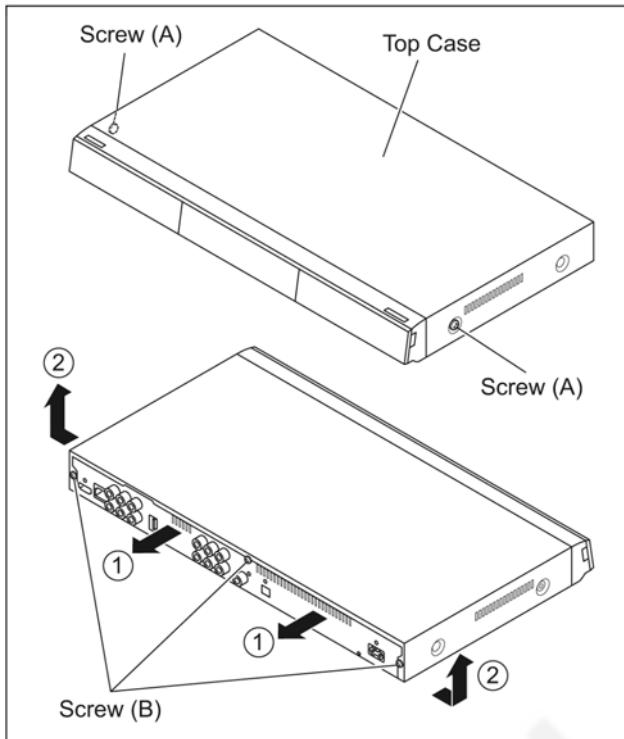


### 10.1.2. P.C.B. Positions



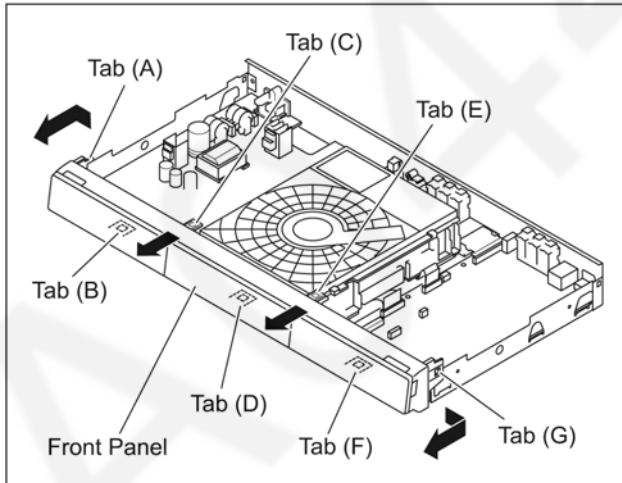
### 10.1.3. Top Case

1. Remove the 2 screws (A) and 3 screws (B).
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.



### 10.1.4. Front Panel

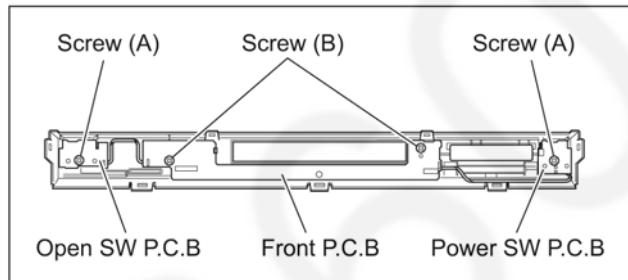
1. Unlock 7 tabs (A) - (G) turn.  
Pull with the Front Panel in the direction of your side.



### 10.1.5. Power SW P.C.B., Front P.C.B. and Open SW P.C.B.

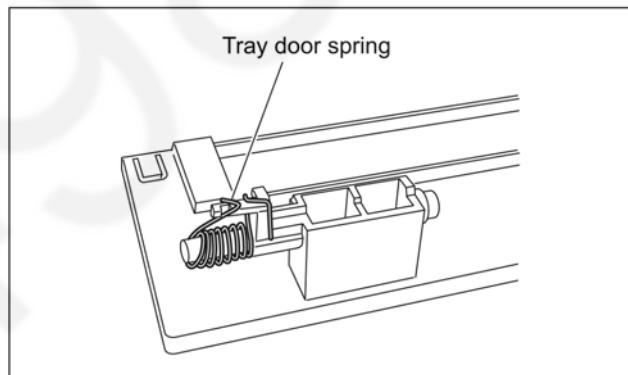
#### 10.1.5.1. Power SW P.C.B., Front P.C.B. and Open SW P.C.B.

1. Remove the 2 screws (A).
2. Remove the Power SW P.C.B. and Open SW P.C.B..
3. Remove the 2 screws (B).
4. Remove the Front P.C.B..



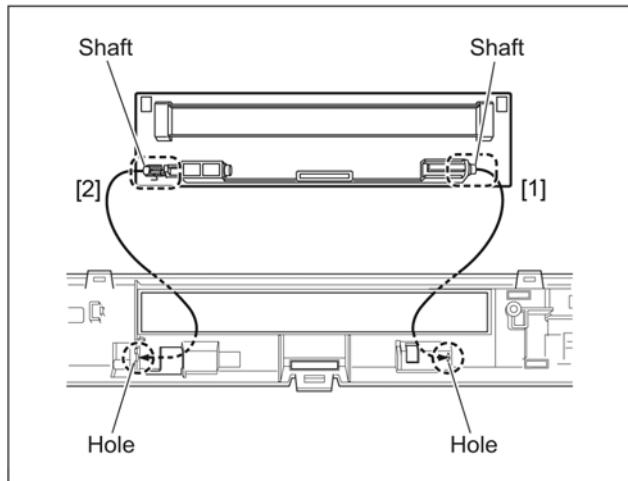
#### 10.1.5.2. How to assemble the Tray door ass'y

1. Attach the Tray door spring to Tray door ass'y.

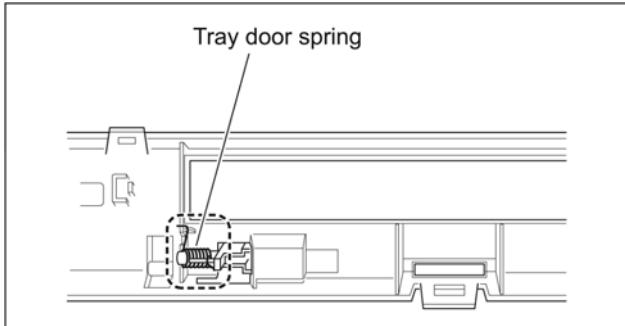


2. Attach Tray door ass'y in order from [1] to [2].

- [1]: Insert the shaft to the hole.
- [2]: Insert the shaft to the hole.



3. Confirm the Tray door spring is attached as following.

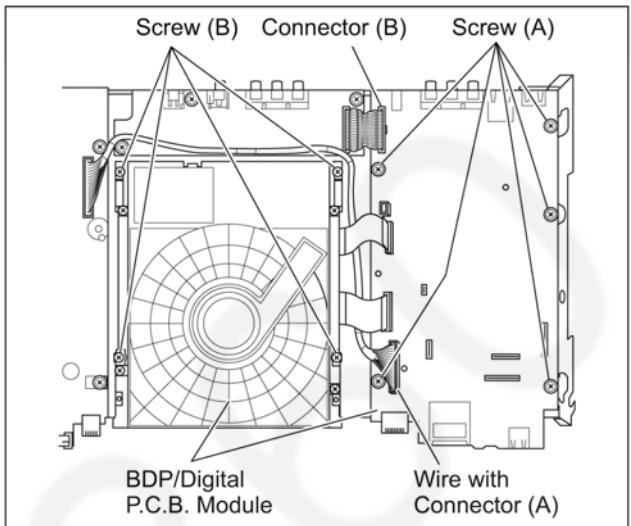


2. Remove the wire with connector (A).

3. Remove the connector (B).

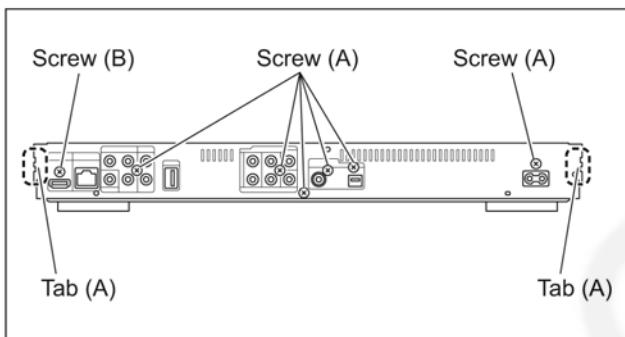
4. Remove the 5 screws (A) to remove Digital P.C.B..

5. Remove the 4 screws (B) to remove BD Drive.



### 10.1.6. Rear Panel

1. Remove the 6 screws (A) and screw (B).
2. Unlock 2 locking tabs (A) to remove the Rear Panel.



### 10.1.7. BDP/Digital P.C.B. Module

#### Caution:

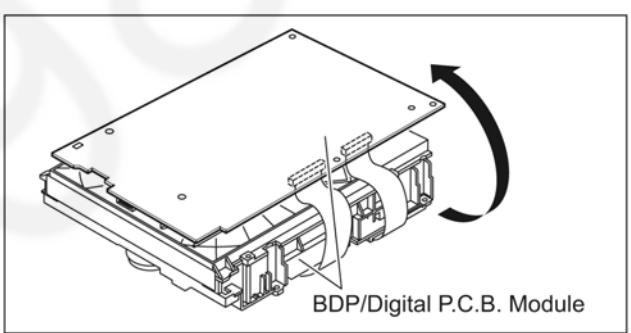
Replacing the pair of BD Drive and Digital P.C.B. as "BDP/Digital P.C.B. Module" is recommended.

If the BD Drive unit alone or the Digital P.C.B. alone is replaced, the replaced BD Drive unit has to be re-adjusted because of the adjustment data is stored in Digital P.C.B..

For the Drive Adjustment method, see "11. 2. 4. How to adjust the BDP/Digital P.C.B. Module".

\* To prevent electrostatic damage to the optical pickup, please replace without removing FFCs between BD Drive unit and Digital P.C.B.

6. Put Digital P.C.B. on BD Drive and remove BDP/Digital P.C.B. Module.



#### CASE 2:

When replacing the BD Drive alone or the Digital P.C.B. alone. (Not replacing as "BDP/Digital P.C.B. Module".)

#### Caution:

After replacing, the Drive Adjustment is required.

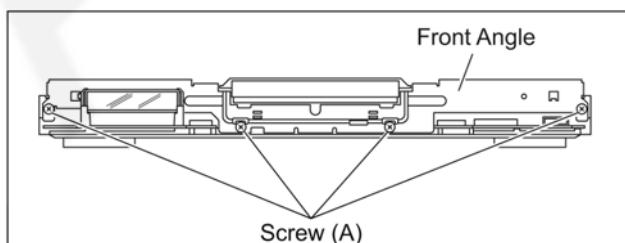
(Not only BD Drive alone has replaced, but also Digital P.C.B. alone has replaced, the Drive Adjustment is always required.

Please see "11. 2. 4. How to adjust the BDP/Digital P.C.B. Module" and adjust the drive.

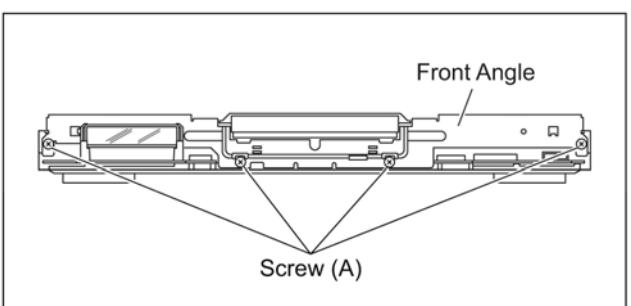
#### CASE 1:

When replacing the pair of BD Drive and Digital P.C.B.  
(Do not remove OPU FFC and 18 pin FFC between BD Drive and Digital P.C.B.)

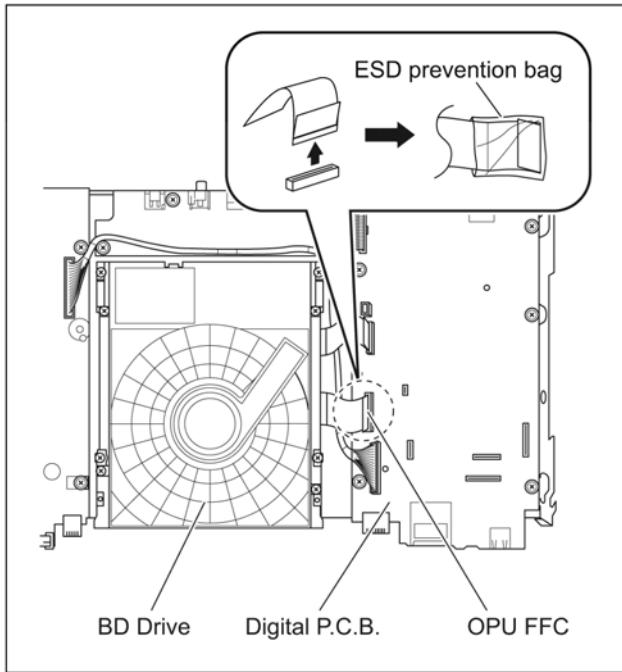
1. Remove the 4 screws (A) to remove Front Angle.



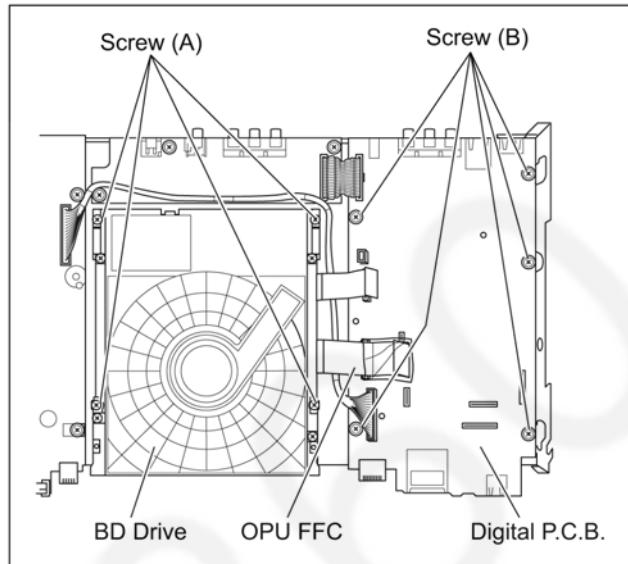
1. Remove the 4 screws (A) to remove Front Angle.



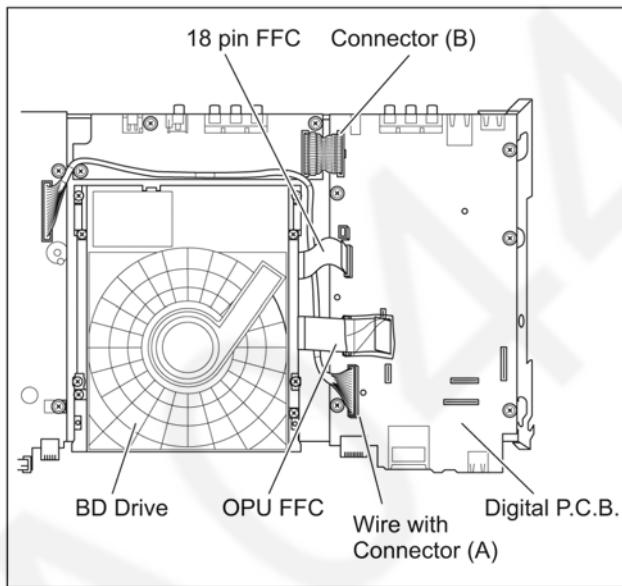
2. Remove the OPU FFC, and isolate it with an ESD prevention bag (RPFC0114).



6. Remove the 4 screws (A) to remove BD Drive.
7. Remove the 5 screws (B) to remove Digital P.C.B..



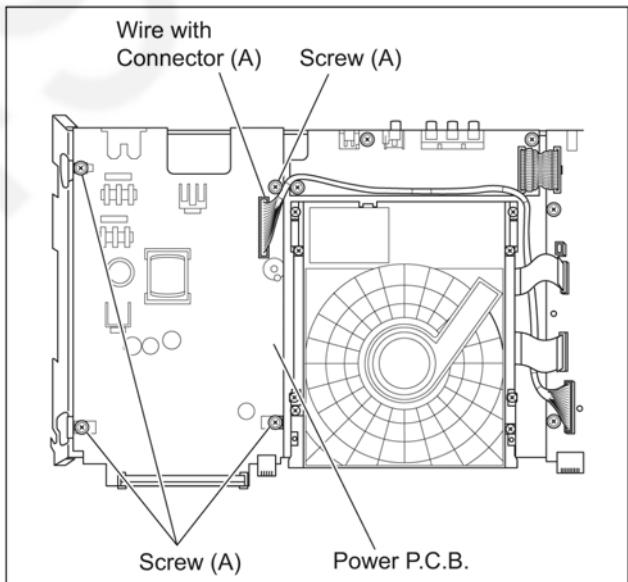
3. Remove the 18 pin FFC.
4. Remove the wire with connector (A).
5. Remove the connector (B).



**Caution for assemble:**  
When remove the ESD prevention bag, do not touch the OPU FFC conductive surface to avoid ESD damage.

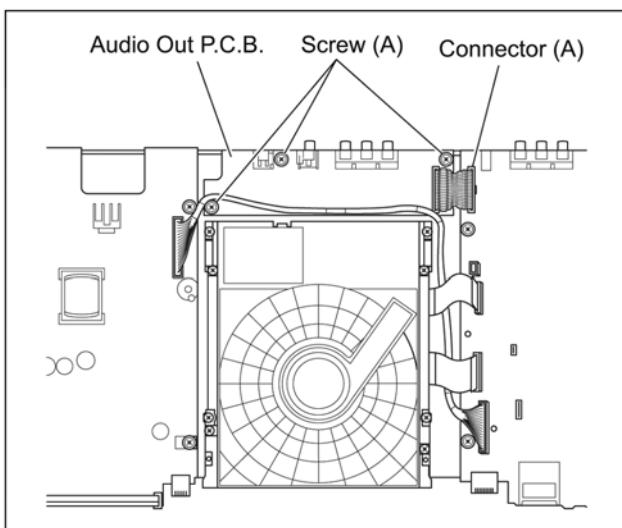
### 10.1.8. Power P.C.B.

1. Remove the wire with connector (A).
2. Remove the 4 screws (A) to remove Power P.C.B..



### 10.1.9. Audio Out P.C.B.

1. Remove the connector (A).
2. Remove the 3 screws (A) to remove Audio Out P.C.B..



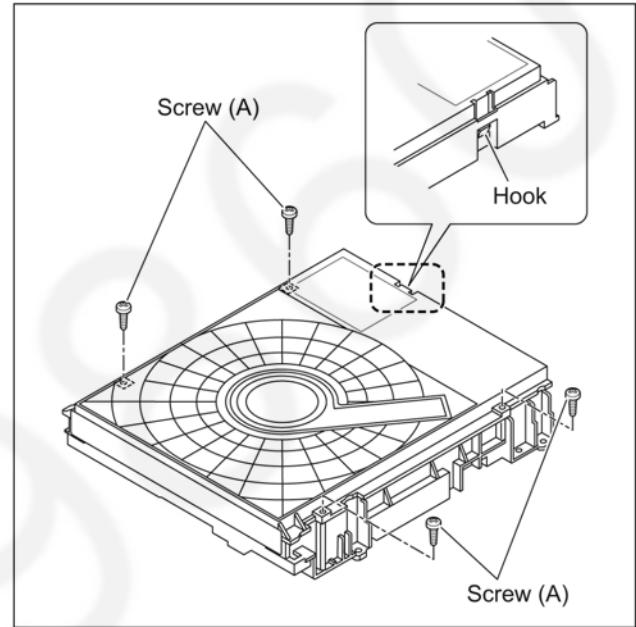
### 10.2. BD Drive

#### Caution:

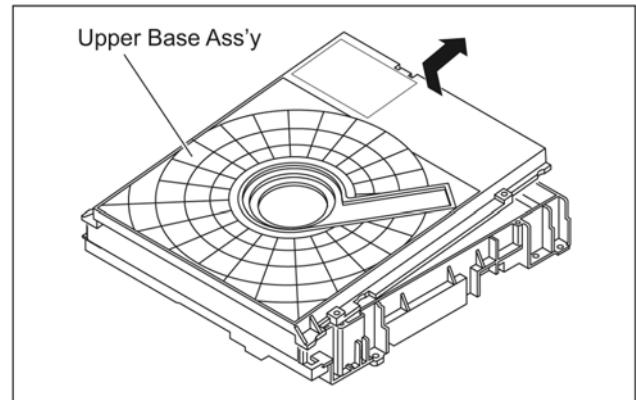
When disassembling the BD Drive, worn the anti-static wrist strap then be care to electrostatic discharge for prevention of the electrostatic damage to optical pick-up.

#### 10.2.1. Upper Base Ass'y

1. Remove the 4 Screws (A), and push the Hook in.

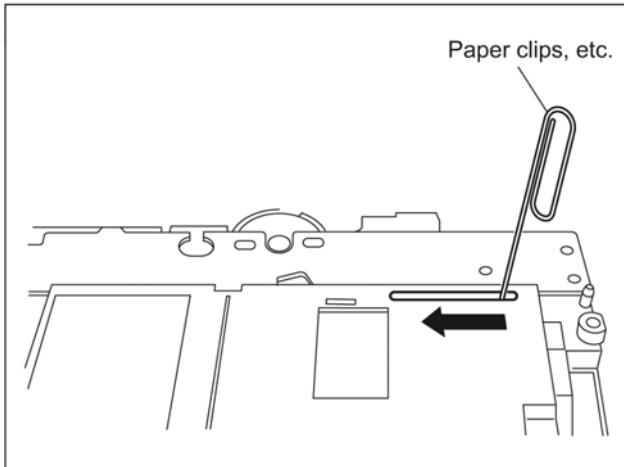


2. Lift up the Upper Base Ass'y, and pull it out to the direction of arrow.

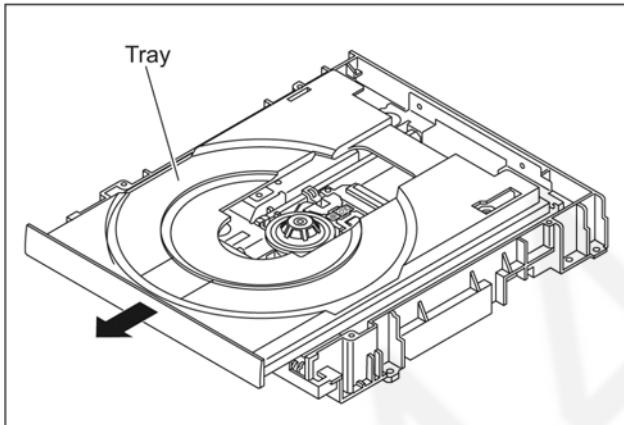


## 10.2.2. Tray

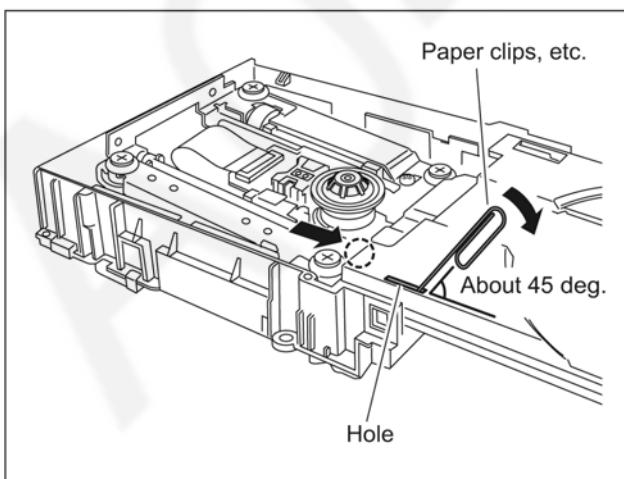
1. Perform the step "10. 2. 1. Upper Base Ass'y".
2. Insert the paper clips, etc. into the hole of the bottom side, and slide it to the direction of arrow until it can be.



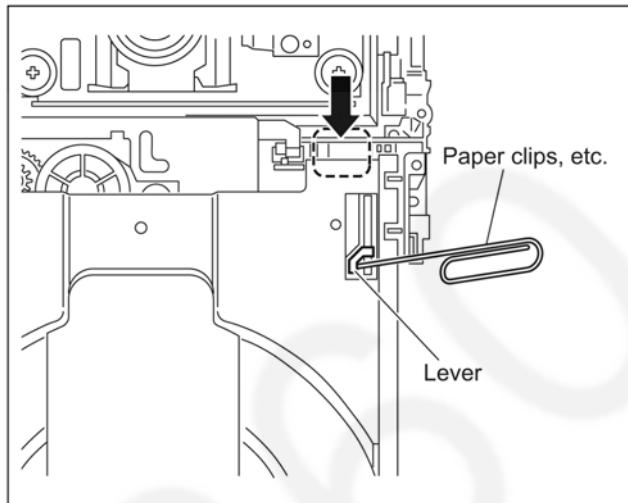
3. Pull the Tray to the direction of arrow until it can be.



4. Insert the paper clips, etc. into the hole of the Tray at 45 degrees, and lean it to the direction of arrow with pushing the dotted point of the tray forward.

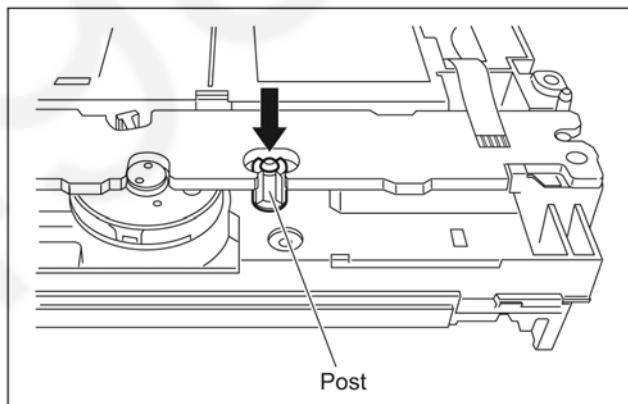


5. Insert the paper clips, etc. into the Tray as below figure, lift up the lever using the Eject Pin while pushing the dotted point of the Tray.

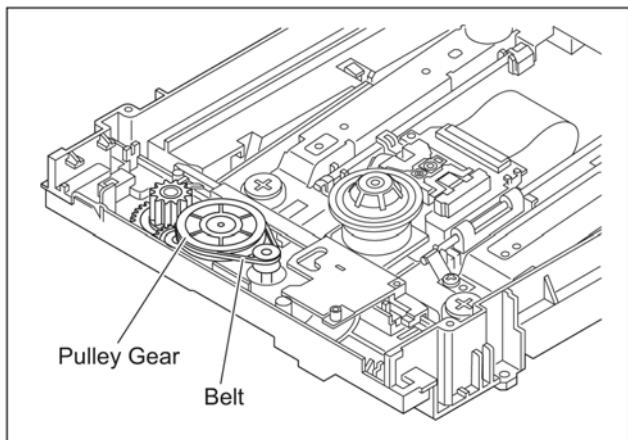


## 10.2.3. Pulley Gear, Belt

1. Perform the step "10. 2. 2. Tray".
2. Push the Post to the direction of arrow by using the slot-screwdriver.

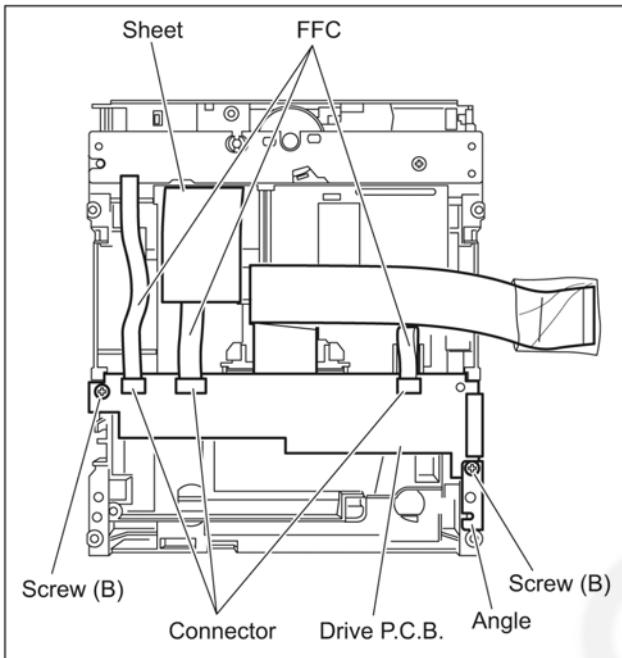


3. Remove the Pulley Gear and Belt.

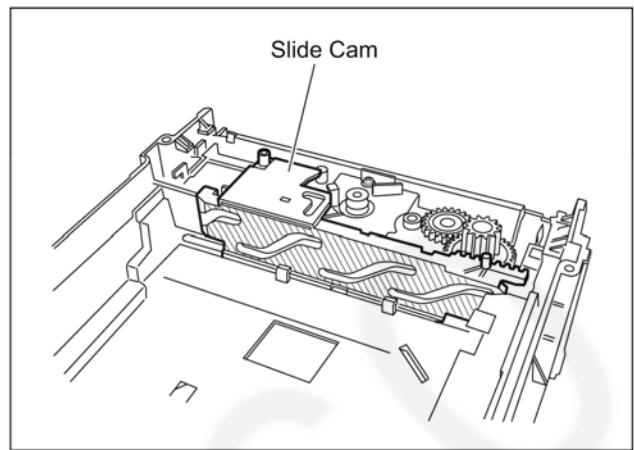


#### 10.2.4. Slide Cam

1. Perform the step "10. 2. 3. Pulley Gear, Belt".
2. Remove the Sheet.
3. Disconnect the 3 FFCs.
4. Remove the 2 Screws (B) and the Angle.
5. Remove the Drive P.C.B..

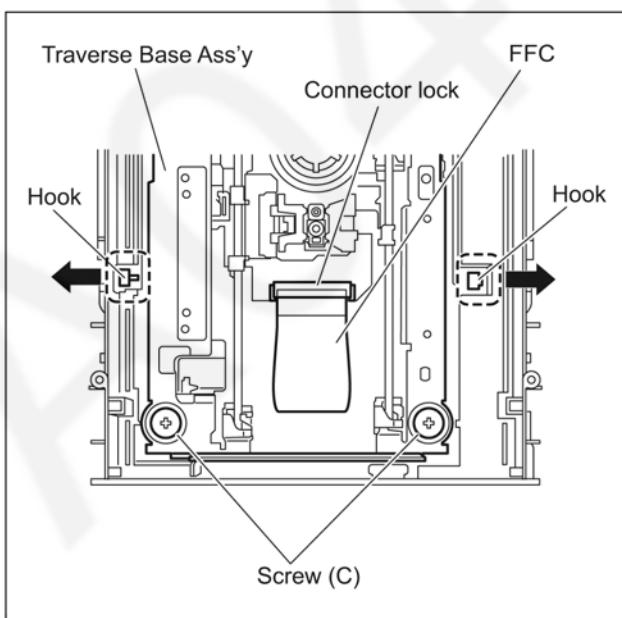
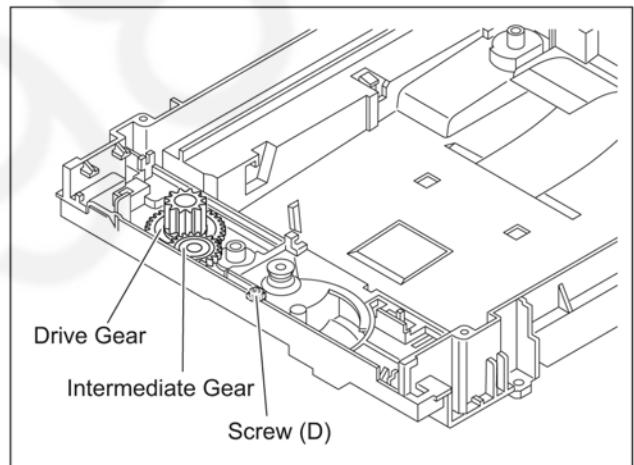


8. Remove the Slide Cam.

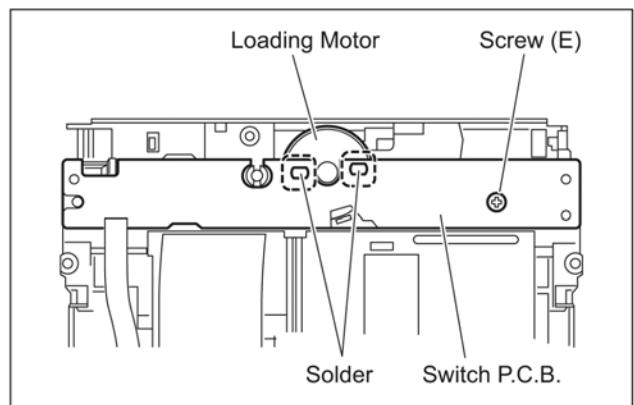


#### 10.2.5. Intermediate Gear, Drive Gear and Loading Motor

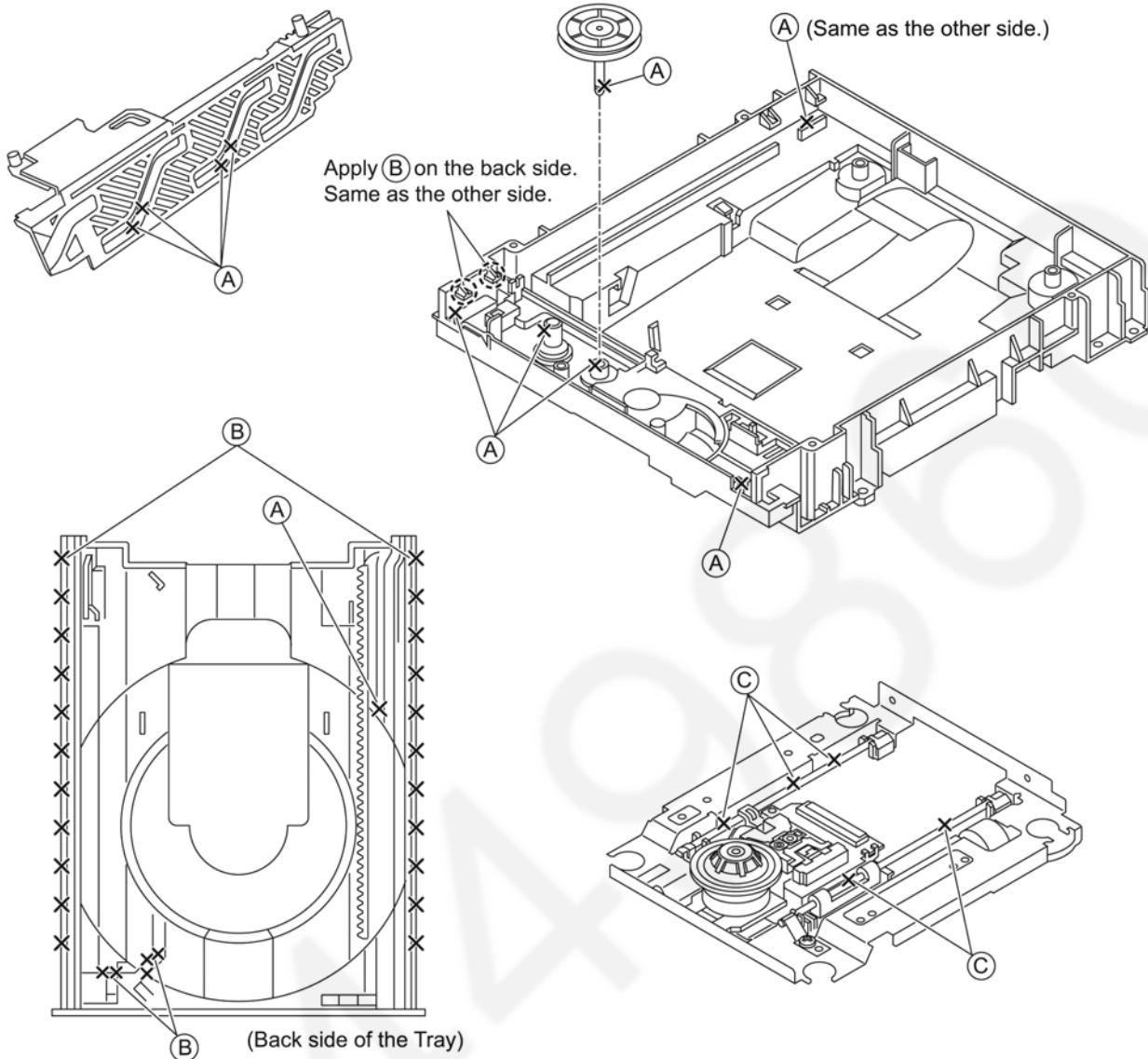
1. Perform the step "10. 2. 4. Slide Cam".
2. Remove the Intermediate Gear and Drive Gear.
3. Remove the Screw (D).



4. Remove the Screw (E), and remove the Switch P.C.B. with the Loading Motor.
- Remove the 2 soldering points, and remove the Loading Motor.



## 10.2.6. Grease



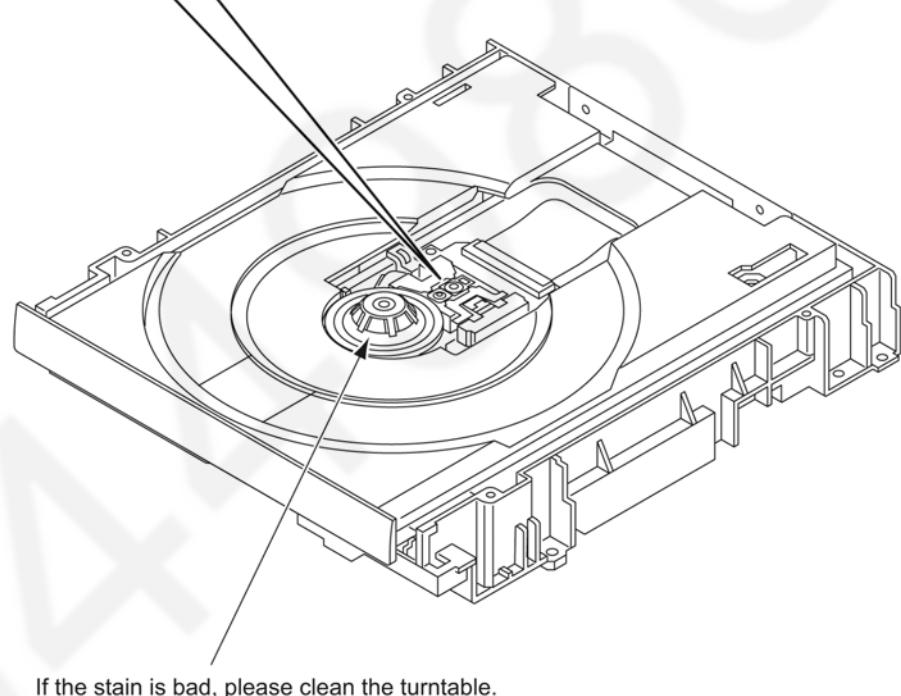
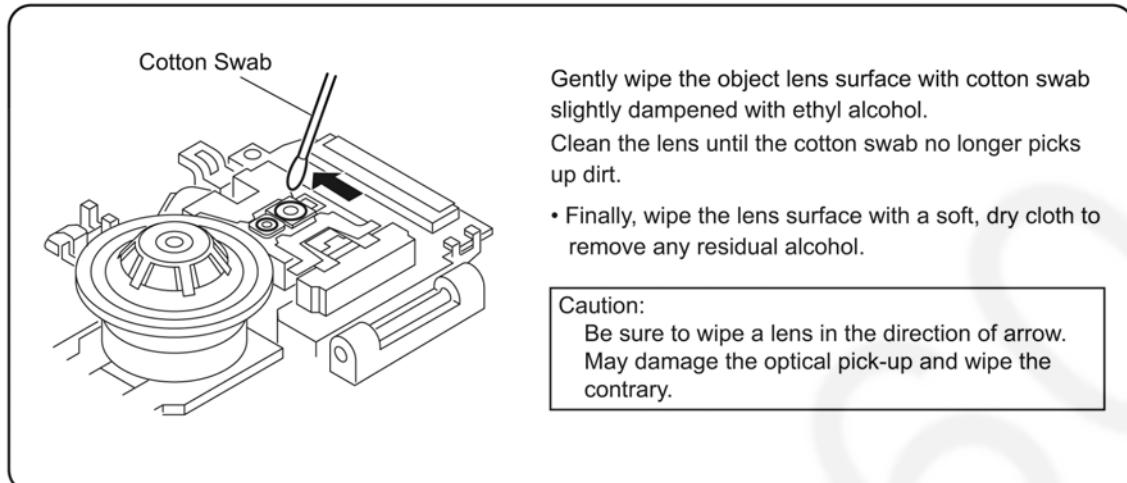
### LUBRICATION POINTS

When the above parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

Mark	Kind of lubricant	Part No.
Ⓐ	Grease	RFKZ0484
Ⓑ	hanarl	RFKZ0441
Ⓒ	Grease	RFKXPG641

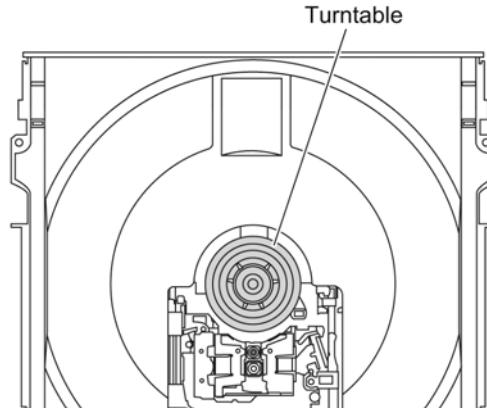
### 10.2.7. How to Clean the Lens of the Optical Pick-UP

After performing the step "10. 2. 1. Upper Base Ass'y", clean the lens of the Optical Pick-UP.



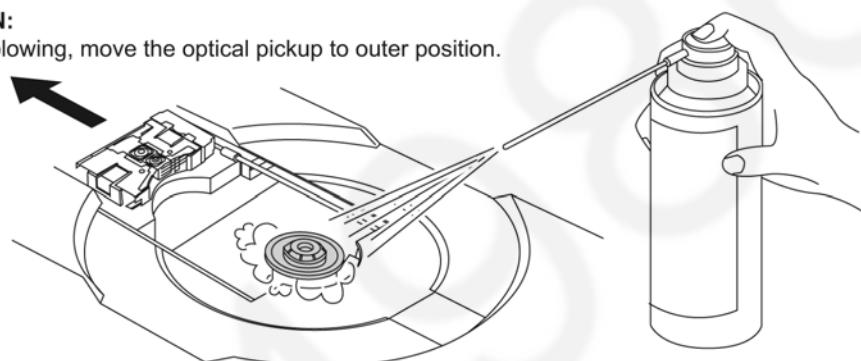
### 10.2.8. How to Clean up the Turntable

When "NoREAD" is displayed in FL display, clean up the Turntable according to the following steps.

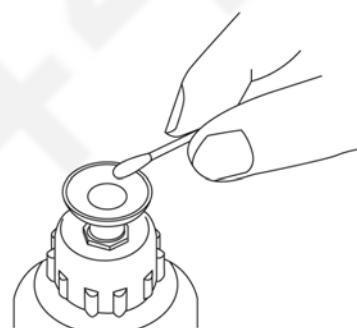


1. Blow the dust from the Turntable in the blower.  
(Do not strongly blow it.)

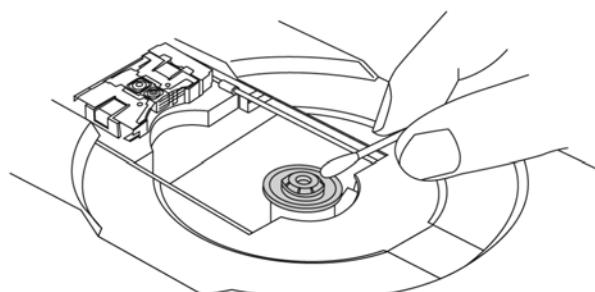
**CAUTION:**  
Before blowing, move the optical pickup to outer position.



2. Put one drop of isopropyl or ethyl alcohol to clean cotton swab.  
(Using a fresh cotton swab does not use chemicals or additives.)



3. Using the cotton swab, wipe out the dust on the Turntable.  
(Be careful not touching the surface of Turntable directly.)



# 11 Measurements and Adjustments

For description of the disassembling procedure, see the "10 Disassembly and Assembly Instructions".

## 11.1. Service Positions

### 11.1.1. Checking and repairing of Power P.C.B.

#### 1. Top Case

- Remove 3 Screws on rear
- Remove 2 Screws on side.
- Remove Top Case.



#### 2. Front Panel

- Unlock the 7 Tabs that is locking the Front Panel and Bottom Chassis, and remove the Front Panel.



#### 3. Front Angle

- Remove the 4 Screws, and remove the Front Angle.



#### 4. Rear Panel

- Remove the 7 Screws (One of for HDMI) fixing the Rear Panel.
- Unlock the 2 Tabs that is locking the Rear Panel and Bottom Chassis, and remove the Rear Panel.



#### 5. Power P.C.B.

- Disconnect the Wire with Connector (14 pin).
- Remove the 4 Screws, and remove the Power P.C.B..
- Put the Power P.C.B. on the Insulation Board up to foil side of P.C.B..
- Connect the original Wire with Connector (14 pin) between Power P.C.B. and Digital P.C.B..



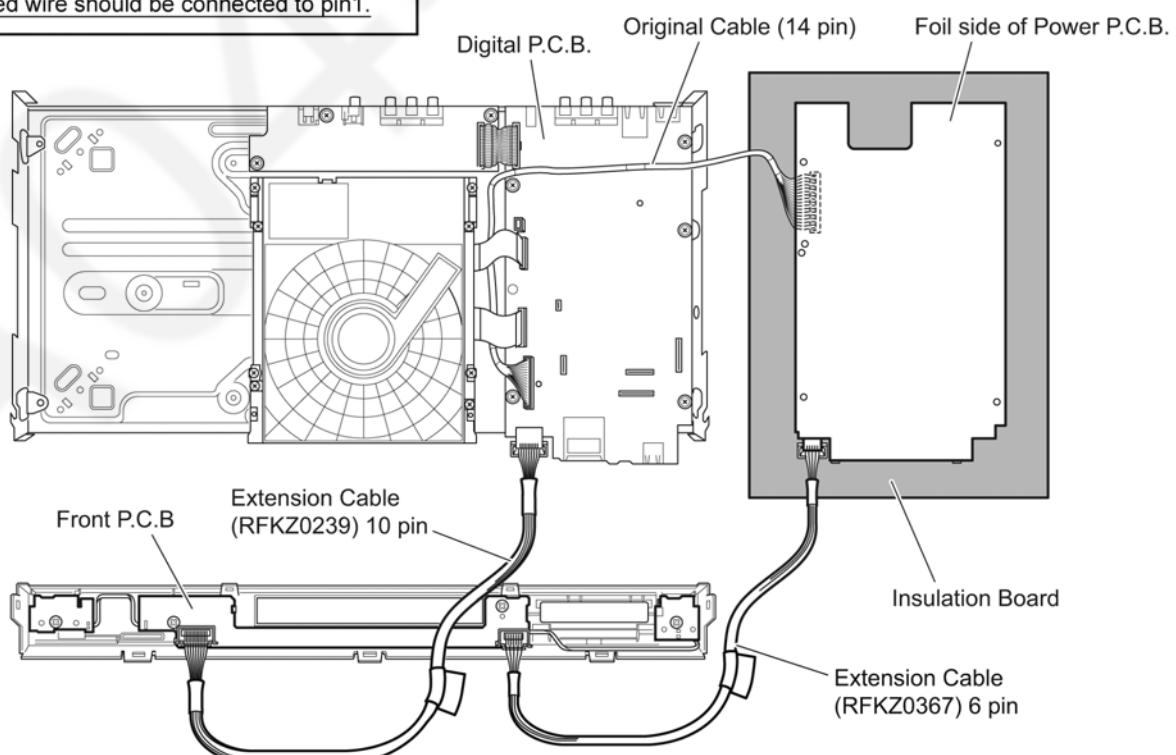
#### 6. Connect Extension Cables shown below.

Between Power P.C.B. and Front P.C.B.: (RFKZ0367) 6 pin

Between Digital P.C.B. and Front P.C.B.: (RFKZ0239) 10 pin

#### Caution:

Red wire should be connected to pin1.



## 11.1.2. Checking and Repairing of Audio Out P.C.B.

### 1. Top Case

- Remove 3 Screws on rear
- Remove 2 Screws on side.
- Remove Top Case.



### 2. Rear Panel

- Remove the 7 Screws (One of for HDMI) fixing the Rear Panel.
- Unlock the 2 Tabs that is locking the Rear Panel and Bottom Chassis, and remove the Rear Panel.



### 3. Audio Out P.C.B.

- Disconnect the Connector (23 pin) between Audio Out P.C.B. and Digital P.C.B..
- Remove the 3 Screws, and remove the Audio Out P.C.B..
- Put the Audio Out P.C.B. on the Insulation Board up to foil side of P.C.B..

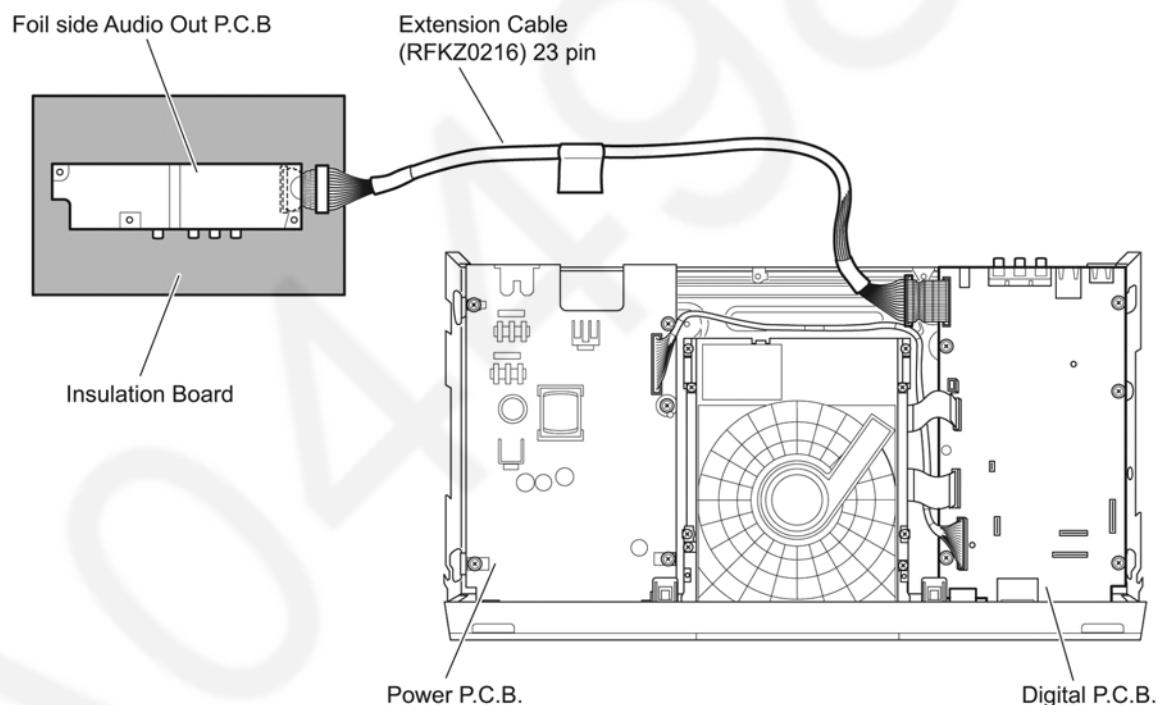


### 4. Connect Extension Cables shown below.

Between Audio Out P.C.B. and Digital P.C.B.: (RFKZ0216) 23 pin

#### Caution:

Red wire should be connected to pin1.



### 11.1.3. Checking and Repairing of BDP/Digital P.C.B. Module

#### 1. Top Case

- Remove 3 Screws on rear
- Remove 2 Screws on side.
- Remove Top Case.



#### 2. Front Panel

- Unlock the 7 Tabs that is locking the Front Panel and Bottom Chassis, and remove the Front Panel.



#### 3. Front Angle

- Remove the 4 Screws, and remove the Front Angle.



#### 4. Rear Panel

- Remove the 7 Screws (One of for HDMI) fixing the Rear Panel.
- Unlock the 2 Tabs that is locking the Rear Panel and Bottom Chassis, and remove the Rear Panel.



#### 5. BDP/Digital P.C.B. Module

- Disconnect the Wire with Connector (14 pin).
- Disconnect the Connector (23 pin) between Audio Out P.C.B. and Digital P.C.B..
- Remove the 5 Screws fixing the Digital P.C.B..
- Remove the 4 Screws fixing the BD Drive.
- Connect the original Wire with Connector (14 pin) between Power P.C.B. and Digital P.C.B..
- Put the Insulation Board on BD Drive, and put the Digital P.C.B. on Insulation Board.



#### 6. Connect Extension Cables shown below.

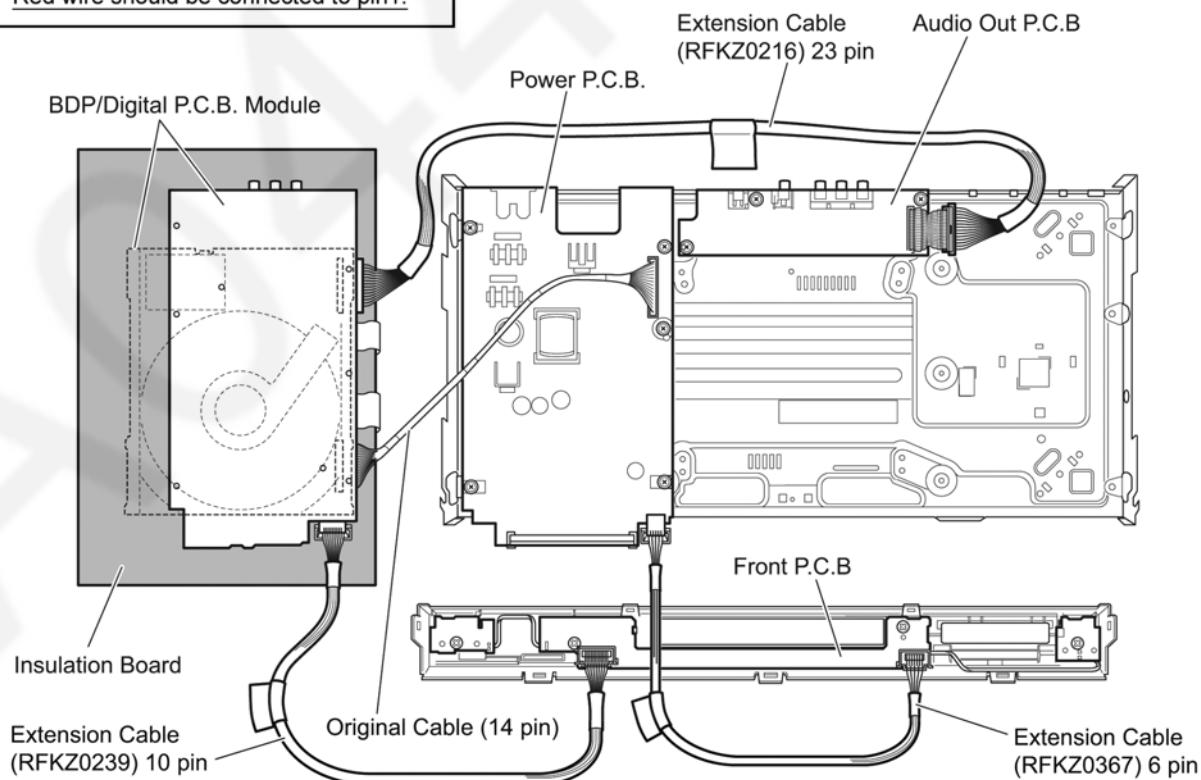
Between Audio Out P.C.B. and Digital P.C.B.: (RFKZ0216) 23 pin

Between Power P.C.B. and Front P.C.B.: (RFKZ0367) 6 pin

Between Digital P.C.B. and Front P.C.B.: (RFKZ0239) 10 pin

#### Caution:

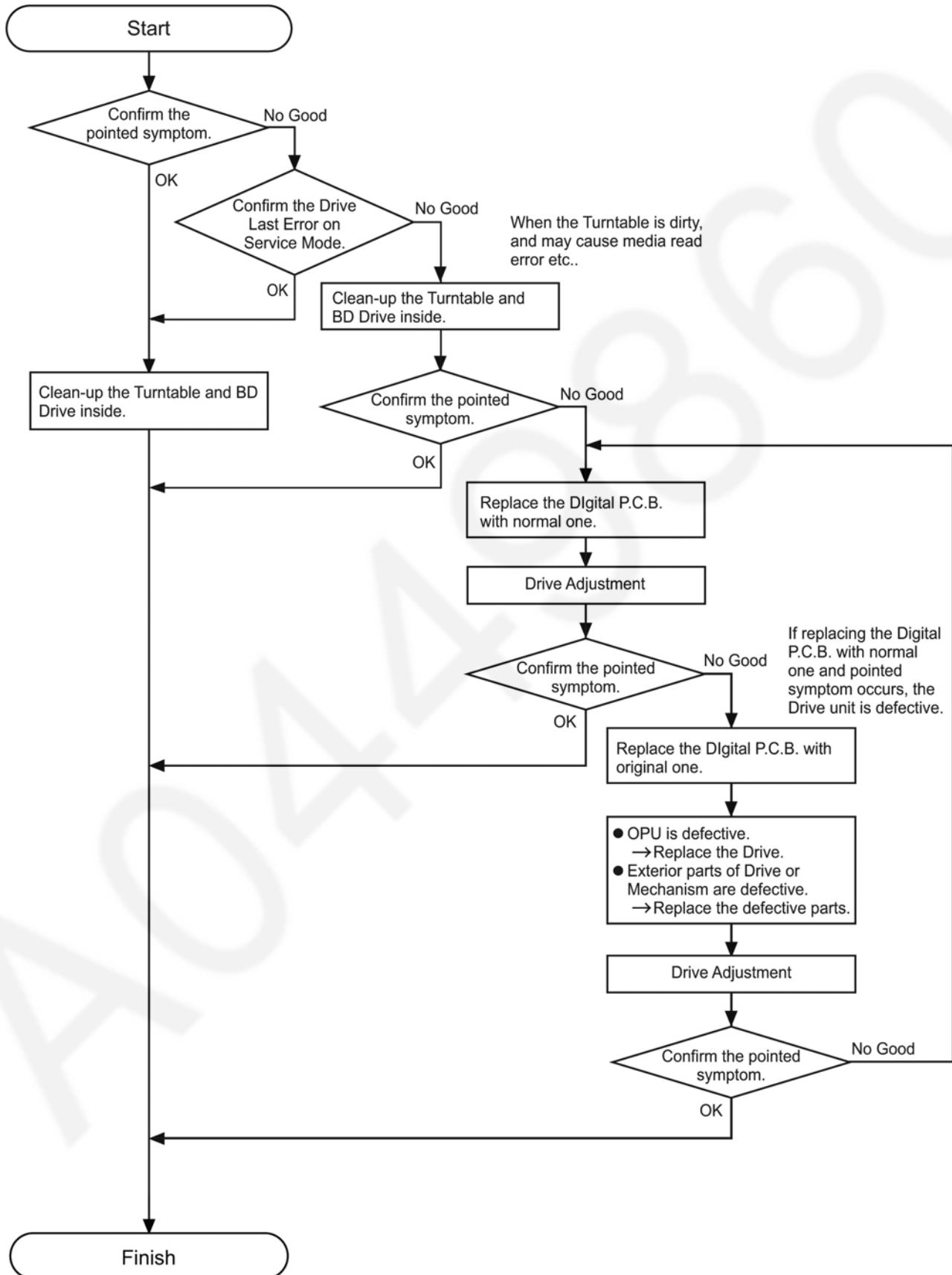
Red wire should be connected to pin1.



## 11.2. Adjustment of BDP/Digital P.C.B. Module

### 11.2.1. Checking out symptoms and repair of BDP/Digital P.C.B. Module

When replacing or repairing the BD Drive unit alone or the Digital P.C.B. alone, please perform the work according to following checking sequence.



## 11.2.2. In the Case of Necessity the Adjustment

1. When the BD Drive is replaced.
2. When the Digital P.C.B. is replaced.

## 11.2.3. List of Service Tools

### 11.2.3.1. Adjustment/Inspection Tools

No.	Category	Part Name	Part No.	Compatibility
1	Instrumentation tool	Serial cable	RFKZ0139	
2	Disc	DVD-RAM test disc (X5RAM-BPS)	RFKZ0514	
3		BD-ROM test disc (VFF0396)	RFKZ0515	
4		CD-ROM test disc (CD-ROM-B01)	RFKZ0516	

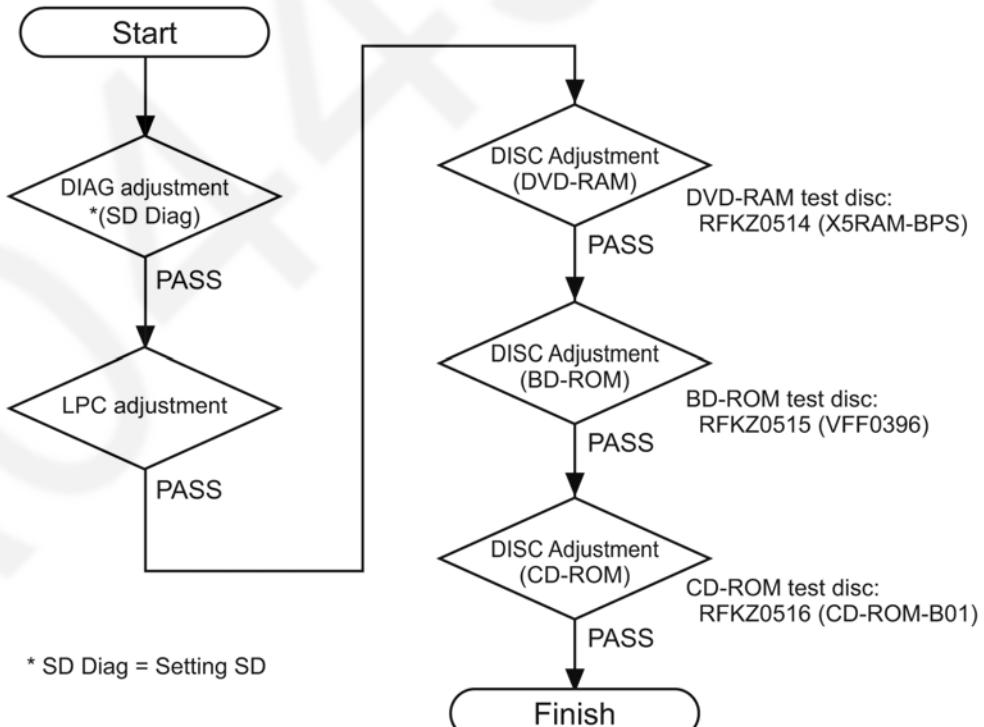
### 11.2.3.2. Commercial Tools Required

No.	Category	Part Name	Part No.	Compatibility
5	Instrumentation tool	PC (OS: Windows XP)		
6		SD Card (written the SD DIAG) within 128 MB to 2 GB (Format as FAT & FAT16) Note: SDHC/SDXC card cannot be used.		

## 11.2.4. How to adjust the BDP/Digital P.C.B. Module

The adjustment may not resume. If interrupt the adjustment, start from the beginning phase.

### < Adjustment Flow Chart >



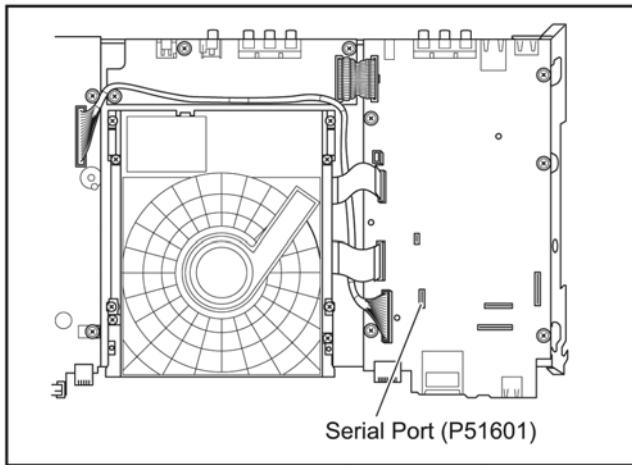
### Preparation:

Before starting the adjustment, install the adjustment software to PC and copy the SD DIAG software to SD card.

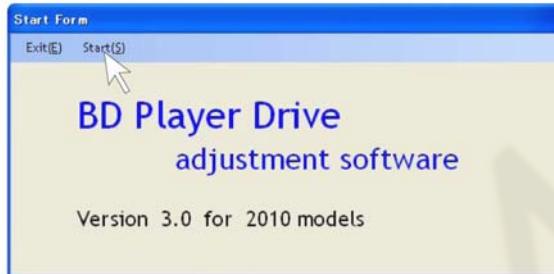
### Note:

This adjustment software can be downloaded from "Support Information from NWBG/VDBG-AVC" web-site in "TSN system", together with instructions of "BD Drive Adjustment" including preparations and connections etc.

1. Connect the Serial cable (RFKZ0139) between serial port connector (P51601) on the Digital P.C.B. and PC's serial port.
- Confirm the PC's serial port number (COM1, COM2, etc.) connected to serial cable (RFKZ0139), the port number may be set after this procedure.



2. Start the Adjustment software, then click the [Start(S)].



#### [Selection of Model Name]

3. Select the model number and click the [OK] button.
- If several other model names might appear, please select the sure model number for the adjustment.



#### [Setting of Adjustment]

4. Click the [Utility] button.



5. Click the [COM Setup] button.



6. Select the COM number that connect the serial cable (RFKZ0139) and click the [OK] button.



7. Click the [Exit] button.



8. Click the [Adjustment] button.

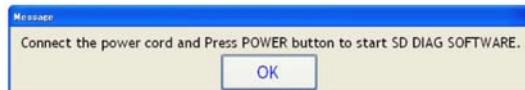


### [The Diag Adjustment (SD Diag) start]

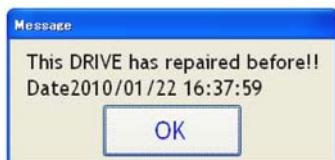
9. When below message displayed, perform followings:
  - a. Insert the SD Diag card to SD card slot.
  - b. Set the RFKZ0139 SW into "ON".
  - c. Click the [OK] button.



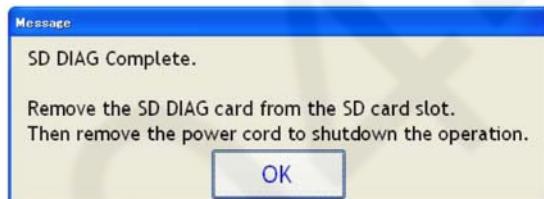
10. When below message displayed, perform followings:
  - a. Connect the power cable to the unit.
  - b. Press the [POWER] button of the unit.
  - c. Click the [OK] button.



- If the BD Drive has replaced before, the following replaced date message is displayed, click the [OK] button for closing the window.

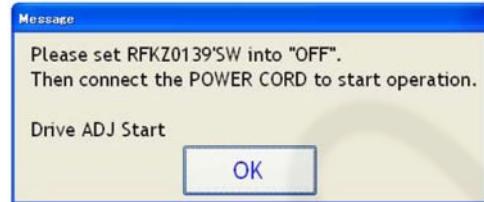


11. The unit is turned on, then "DIAG" is displayed at FL display and automatically begins adjustment.
12. When below message displayed, perform followings:
  - a. Remove the SD Diag card from the SD card slot.
  - b. Disconnect the power cable from the unit.
  - c. Click the [OK] button.



### [LPC Adjustment]

13. When below message displayed, perform followings:
  - a. Set the RFKZ0139 SW into "OFF".
  - b. Connect the power cable to the unit.
  - c. Click the [OK] button.



14. The unit is automatically turned on. After a while the FL display displays "TEST" and automatically begins adjustment.  
When the adjustment is completed, the display is changed to "ADJ1OK".

### [DVD-RAM Adjustment]

15. The disc tray is automatically opened and the following message is displayed, set the DVD-RAM test disc (X5RAM-BPS) on the tray and click the [OK] button.



When clicking the [OK] button, the tray is automatically closed. After a while the FL display displays "ADJ2" and automatically begins adjustment.

When the adjustment is completed, the display is changed to "ADJ2OK".

#### Caution:

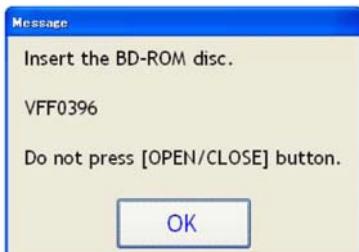
Do not press the [OPEN/CLOSE] button of the unit.

16. The disc tray is automatically opened and the following message is displayed, remove the DVD-RAM test disc (X5RAM-BPS) on the tray and click the [OK] button.



**[BD-ROM Adjustment]**

17. When the following message is displayed, set the BD-ROM test disc (VFF0396) on the tray, then click the [OK] button.



When clicking the [OK] button, the tray is automatically closed. After a while the FL display displays "ADJ3" and automatically begins adjustment.

When the adjustment is completed, the display is changed to "ADJ3OK".

**Caution:**

Do not press the [OPEN/CLOSE] button of the unit.

18. The disc tray is automatically opened and the following message is displayed, remove the BD-ROM test disc (VFF0396) on the tray and click the [OK] button.

**[CD-ROM Adjustment]**

19. When the following message is displayed, set the CD-ROM test disc (CD-ROM-B01) on the tray, then click the [OK] button.



When clicking the [OK] button, the tray is automatically closed.

The FL display displays "TEST" and after a while the display changes to "CDDA" and adjustment is automatically begun.

When the adjustment is completed, the display is changed to "TEST".

**Caution:**

Do not press the [OPEN/CLOSE] button of the unit.

20. The disc tray is automatically opened and the following message is displayed, remove the CD-ROM test disc (CD-ROM-B01) on the tray and click the [OK] button.



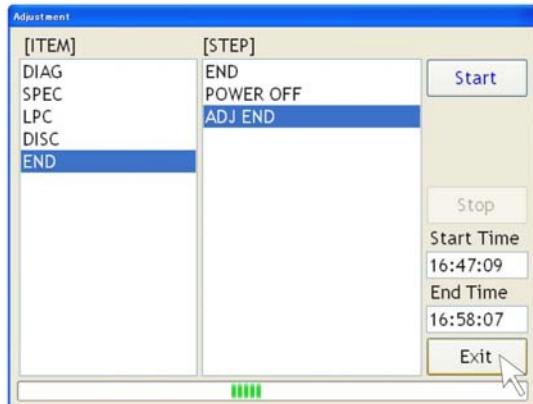
When clicking the [OK] button, the tray is automatically closed. The FL display displays "FACT" and after a while the display changes to "FACTOK" and re-changed to "P OFF".

#### [Finishing the Drive Adjustment]

21. When below message displayed, perform followings:
  - a. Confirm "P OFF" is displayed at the FL Display.
  - b. Disconnect the power cord from the unit.
  - c. Click the [OK] button.



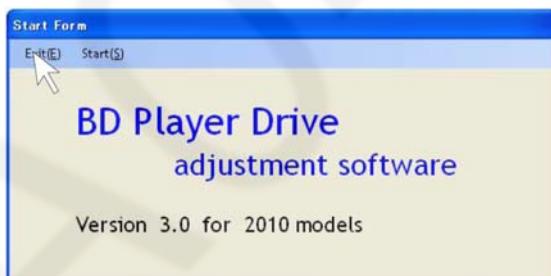
22. Click the [Exit] button.



23. Click the [Exit] button.



24. Click the [Exit(E)] button.



The Drive Adjustment is finished.

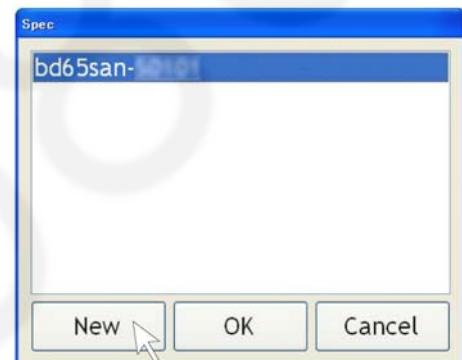
#### 11.2.5. When the latest data is updated to TSN

The data file of the adjustment software may be update because of a firmware update of the machine or other reason. In such case, perform the following steps and use the latest data.

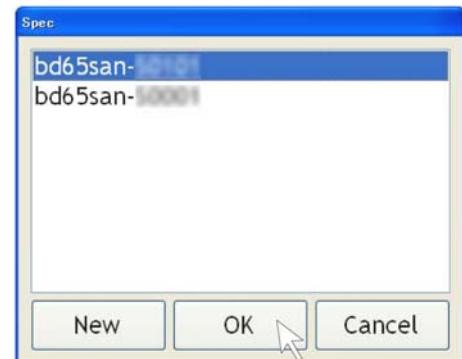
1. Download the latest data to PC.
2. Click the "Spec Setup" button before the step 7.



3. Open the downloaded data and click the "New" button. Then retrieve the data.



4. Select the latest data and click the "OK" button.



5. Go back the step 7 and click the "Exit" button.



## 11.3. Caution for Replacing Parts

After replacing the Digital P.C.B., [TEST] is displayed, so, once power off again to on.

### 11.3.1. Caution after replacing parts

After replacing the BDP/Digital P.C.B. Module, must be update Firmware.

### 11.3.2. Standard Inspect Specifications after Repairs

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

No	Procedures	Item to Check
1	Turn on the power, and confirm items pointed out.	Items pointed out should reappear.
2	Insert DVD-RAM disc.	The Panasonic DVD-RAM disc should be recognized
3	Perform playback for one minute using the DVD-RAM disc.	No abnormality should be seen in the picture, sound and operation. * Panasonic DVD-RAM disc should be used when playback.
4	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.
5	After checking and making repairs, upgrade the firmware to the latest version.	Make sure that [UPD OK] appears on the FL displays. * [UNSUPPORT] display means the unit is already updated to newest same version. Then version up is not necessary.
6	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 on the FL display. After checking it, turn the power off.
7	After replacing the BD Drive, transfer [9] [5] in the service mode setting, and initialize the laser used time.	Make sure that [CLR] appears on the FL display. After checking it, turn the power off.

Use the following checklist to establish the judgment 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				

# Service Manual

## Diagrams and Replacement Parts List

### Blu-ray Disc Player

Model No.

DMP-BD85EB  
DMP-BD85EE  
DMP-BD85EF  
DMP-BD85EG

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

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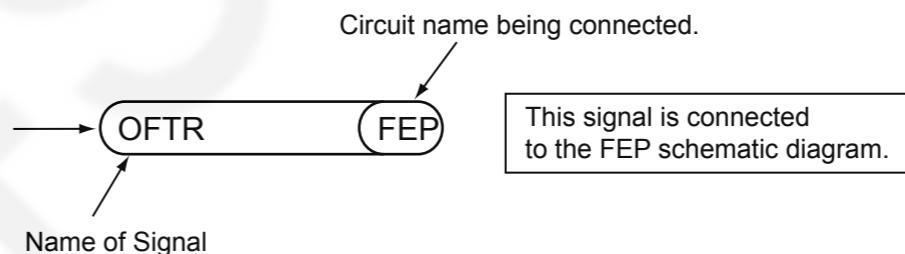
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### S1. About Indication of The Schematic Diagram

#### S1.1. Important Safety Notice

COMPONENTS IDENTIFIED WITH THE MARK  HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS USE ONLY THE SAME TYPE.

- 1.Although reference number of the parts is indicated on the P.C.B. drawing and/or schematic diagrams, it is NOT mounted on the P.C.B. when it is displayed with "\$" mark.
- 2.It is only the "Test Round" and no terminal (Pin) is available on the P.C.B. when the TP (Test Point) indicated as "●" mark.
- 3.The voltage being indicated on the schematic diagram is measured in "Standard-Playback" mode when there is no specify mode is mentioned.
- 4.Although the voltage and waveform available on here is measured with standard frame, it may be differ from actual measurement due to modification of circuit and so on.
- 5.The voltage being indicated here may be include observational-error (deviation) due to internal-resistance and/or reactance of equipment. Therefore, handle the value indicated on here as reference.
- 6.Use the parts number indicated on the Replacement Parts List .
- 7.Indication on Schematic diagrams:



## S2. Voltage and Waveform Chart

Note) Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

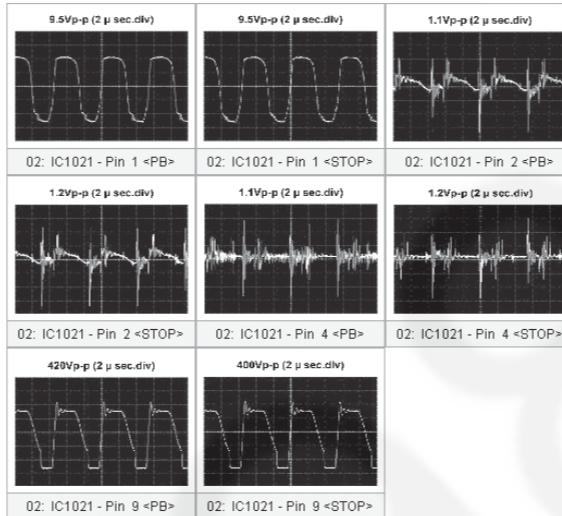
### S2.1. Front P.C.B.

REF No.	PIN No.	PB	STOP
P7201	1	0.0	0.0
P7201	2	3.3	3.3
P7201	3	3.3	3.3
P7201	4	3.3	3.3
P7201	5	5.8	5.7
P7201	6	3.3	3.3
P7201	7	3.3	3.3
P7201	8	3.3	3.3
P7201	9	3.3	3.3
P7201	10	3.3	3.3

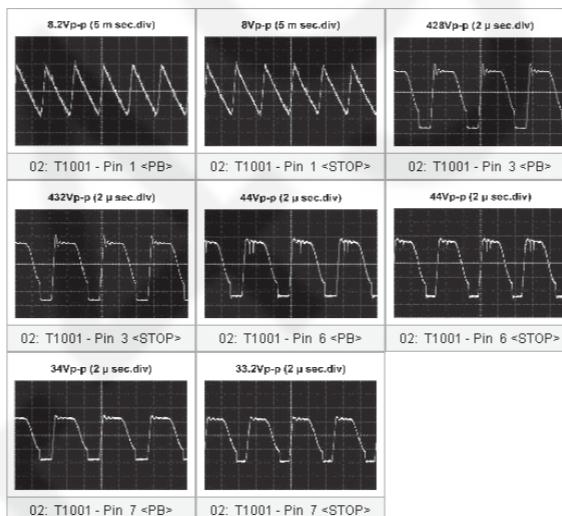
### S2.2. Power P.C.B.

REF No.	PIN No.	PB	STOP
IC1021	1	2.0	2.2
IC1021	2	1.6	1.6
IC1021	3	0.0	0.0
IC1021	4	16.5	16.5
IC1021	5	0.0	0.0
IC1021	6	-	-
IC1021	7	300.0	300.0
IC1021	8	-	-
IC1021	9	1.8	1.8
IC1102	1	-	-
IC1102	2	0.0	0.0
IC1102	3	8.4	8.4
IC1102	4	2.5	2.5
IC1130	1	4.5	4.5
IC1130	2	0.0	0.0
IC1130	3	0.0	0.0
IC1130	4	1.2	1.3
IC1130	5	1.3	1.3
IC1130	6	0.6	0.6
IC1130	7	5.4	5.4
IC1130	8	5.3	5.3
IC1130	9	1.2	1.2
IC1130	10	0.0	0.0
IC1130	11	0.0	0.0
IC1130	12	4.5	4.5
IC1130	13	5.8	5.8
IC1130	14	7.4	7.4
IC1130	15	10.7	10.6
IC1130	16	12.1	12.1
Q1022	1	9.4	9.4
Q1022	2	8.4	8.4
Q1022	3	0.0	0.0
Q1022	4	1.6	1.6
Q1023	1	1.2	1.2
Q1023	2	0.0	0.0
Q1023	3	0.0	0.0
Q1023	4	0.0	0.0
Q1131	1	5.8	5.8
Q1131	2	5.8	5.8
Q1131	3	10.7	10.8
Q1131	4	12.0	12.0
Q1131	5	5.8	5.8
Q1131	6	5.8	5.8
Q1170	1	11.4	11.4
Q1170	2	12.1	12.1
Q1170	3	12.0	12.0
Q1171	1	0.0	0.0
Q1171	2	12.0	12.0
Q1171	3	-0.3	-0.3
Q10101	1	0.0	0.0
Q10101	2	0.0	0.0
Q10101	3	6.6	6.6
QR1101	1	3.3	3.3
QR1101	2	0.0	0.0
QR1101	3	0.1	0.1
QR1131	1	3.3	3.3
QR1131	2	0.0	0.0
QR1131	3	0.0	0.0
QR1170	1	3.3	3.3
QR1170	2	0.0	0.0
QR1170	3	0.0	0.0
P1102	1	0.0	0.0
P1102	2	0.0	0.0
P1102	3	3.3	3.3
P1102	4	12.1	12.1
P1102	5	12.1	12.1

### <IC1021>



### <T1001>

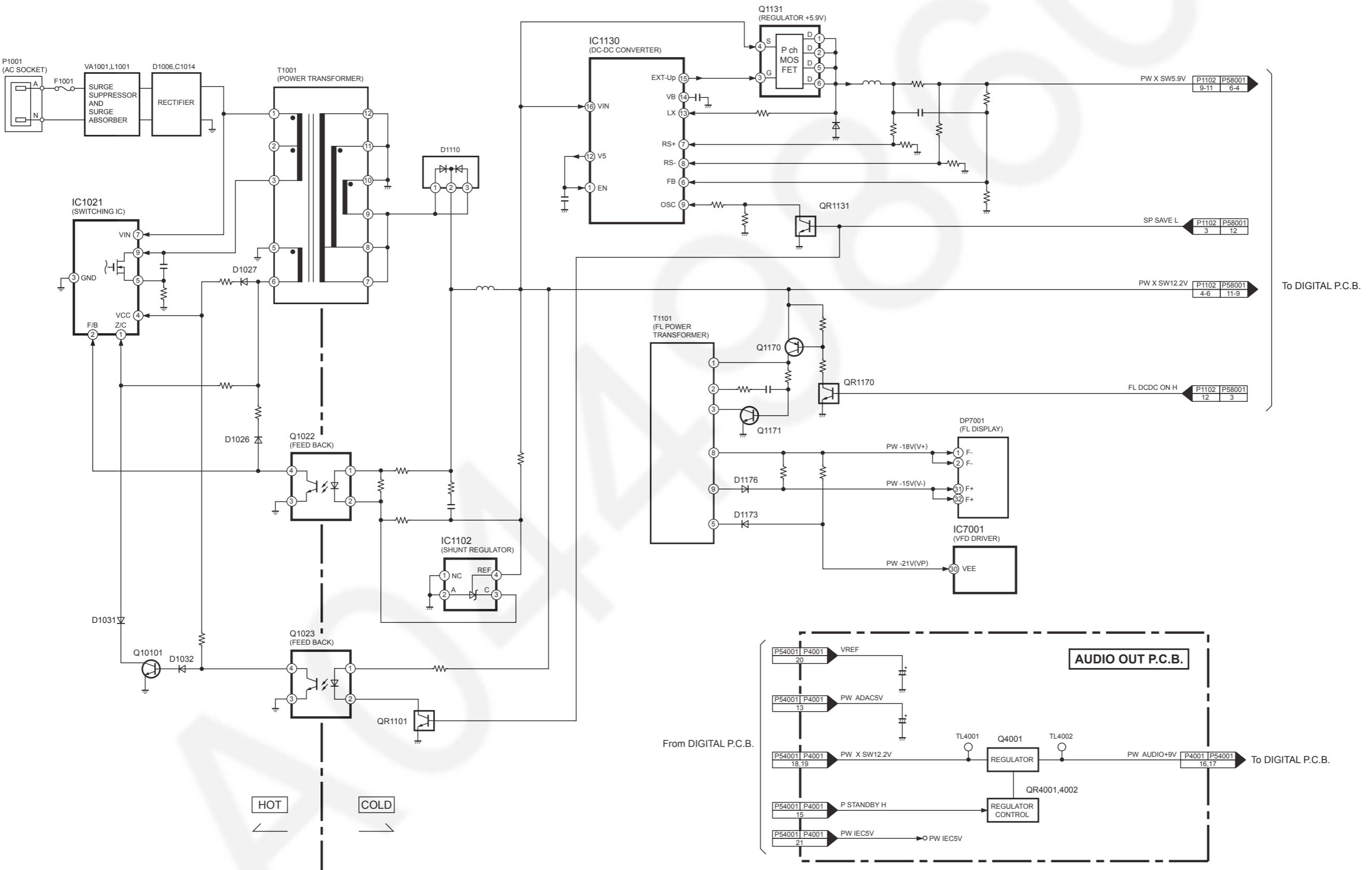


### S2.3. Audio\_Out P.C.B.

REF No.	PIN No.	PB	STOP
IC4001	1	1.7	1.6
IC4001	2	5.0	5.0
IC4001	3	0.0	0.0
Q4001	1	10.9	10.9
Q4001	2	12.0	12.0
Q4001	3	11.6	11.6
Q4002	1	-0.4	0.7
Q4002	2	0.0	0.0
Q4002	3	0.0	0.0
Q4003	1	-0.4	0.7
Q4003	2	0.0	0.0
Q4003	3	0.0	0.0
Q4004	1	-0.4	0.7
Q4004	2	0.0	0.0
Q4004	3	0.0	0.0
Q4005	1	-0.4	0.7
Q4005	2	0.0	0.0
Q4005	3	0.0	0.0
Q4006	1	-0.4	0.7
Q4006	2	0.0	0.0
Q4006	3	0.0	0.0
Q4007	1	-0.4	0.7
Q4007	2	0.0	0.0
Q4007	3	0.0	0.0
Q4008	1	1.7	1.7
Q4008	2	1.4	1.5
Q4008	3	0.0	0.0
Q4009	1	4.0	4.0
Q4009	2	3.4	3.4
Q4009	3	5.0	5.0
QR4001	1	0.0	0.0
QR4001	2	12.0	12.0
QR4001	3	12.0	12.0
QR4002	1	3.2	3.2
QR4002	2	0.0	0.0
QR4002	3	0.0	0.0
P4001	1	5.8	5.8
P4001	2	0.0	0.0
P4001	3	5.8	5.8
P4001	4	0.0	0.0
P4001	5	0.0	0.0
P4001	6	0.0	0.0
P4001	7	0.0	0.0
P4001	8	5.8	5.8
P4001	9	5.9	5.9
P4001	10	5.8	5.8
P4001	11	5.8	5.8
P4001	12	0.0	2.2
P4001	13	5.0	5.0
P4001	14	3.7	3.7
P4001	15	3.2	3.2
P4001	16	11.0	11.0
P4001	17	11.0	11.0
P4001	18	12.0	12.0
P4001	19	12.0	12.0
P4001	20	3.7	3.7
P4001	21	5.0	5.0
P4001	22	1.6	1.6
P4001	23	0.0	0.0

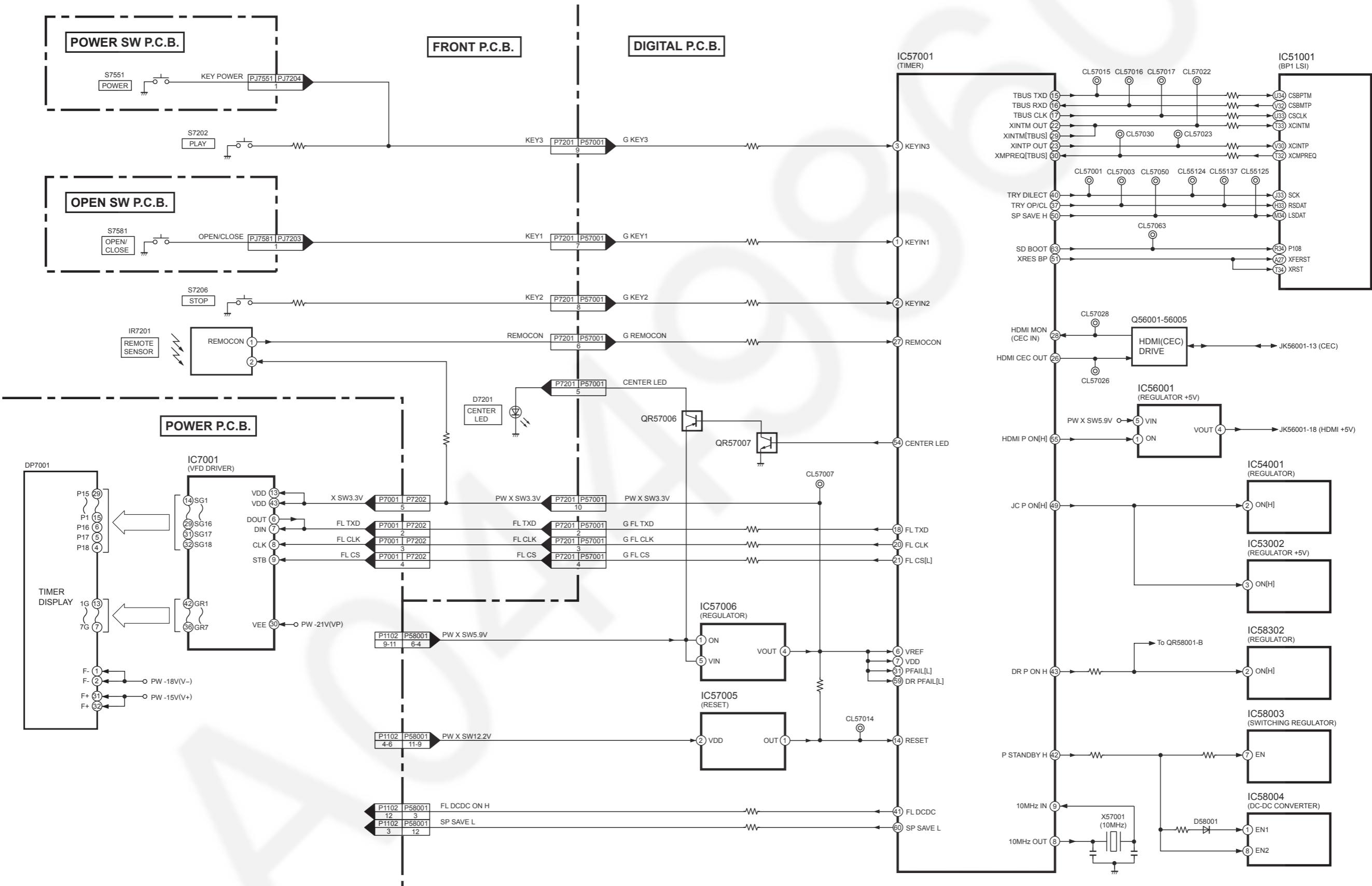
## S3. Block Diagram

### S3.1. Power Supply Block Diagram



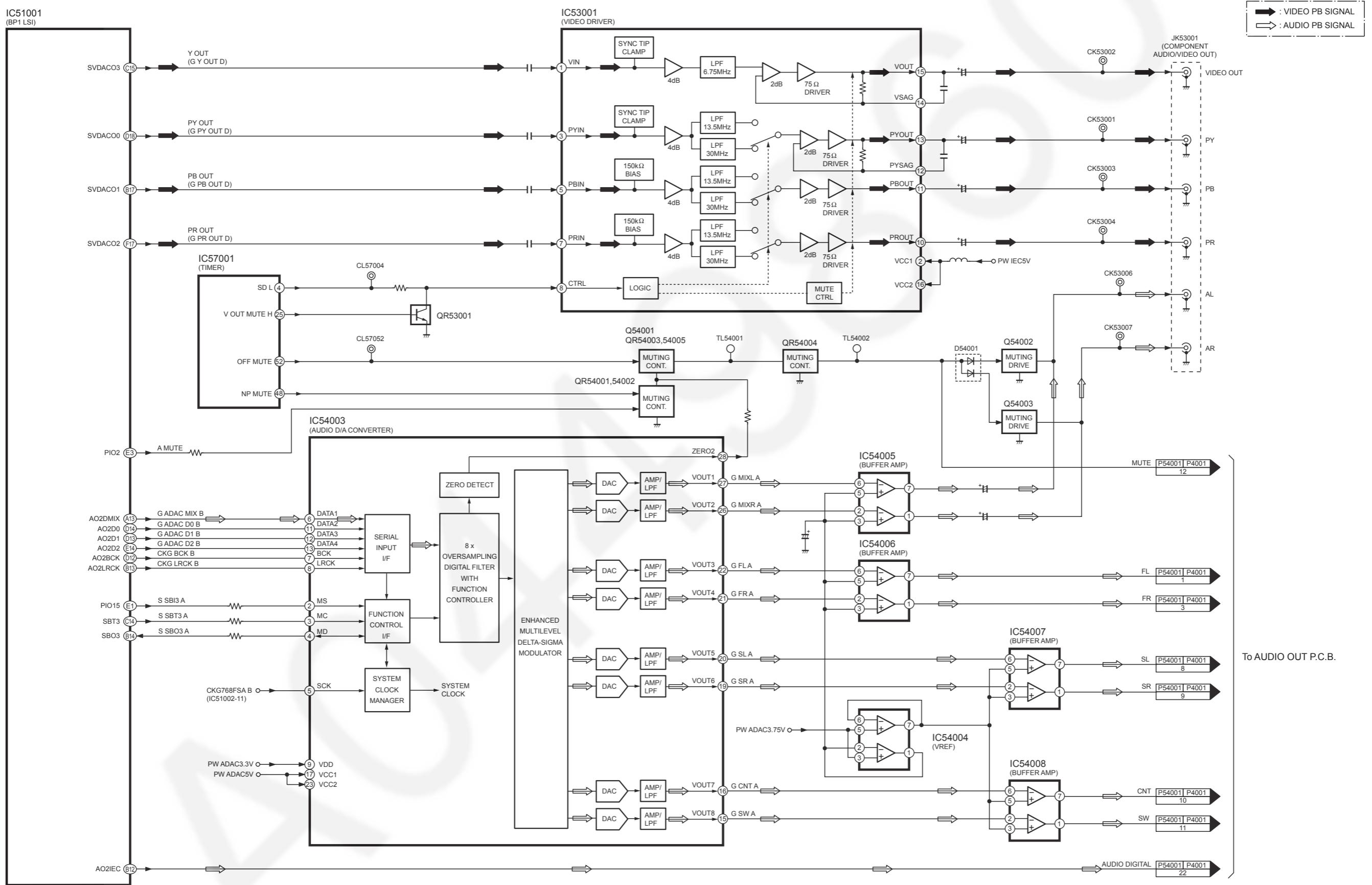
DMP-BD85 POWER SUPPLY CIRCUIT BLOCK DIAGRAM

### S3.2. Timer Block Diagram



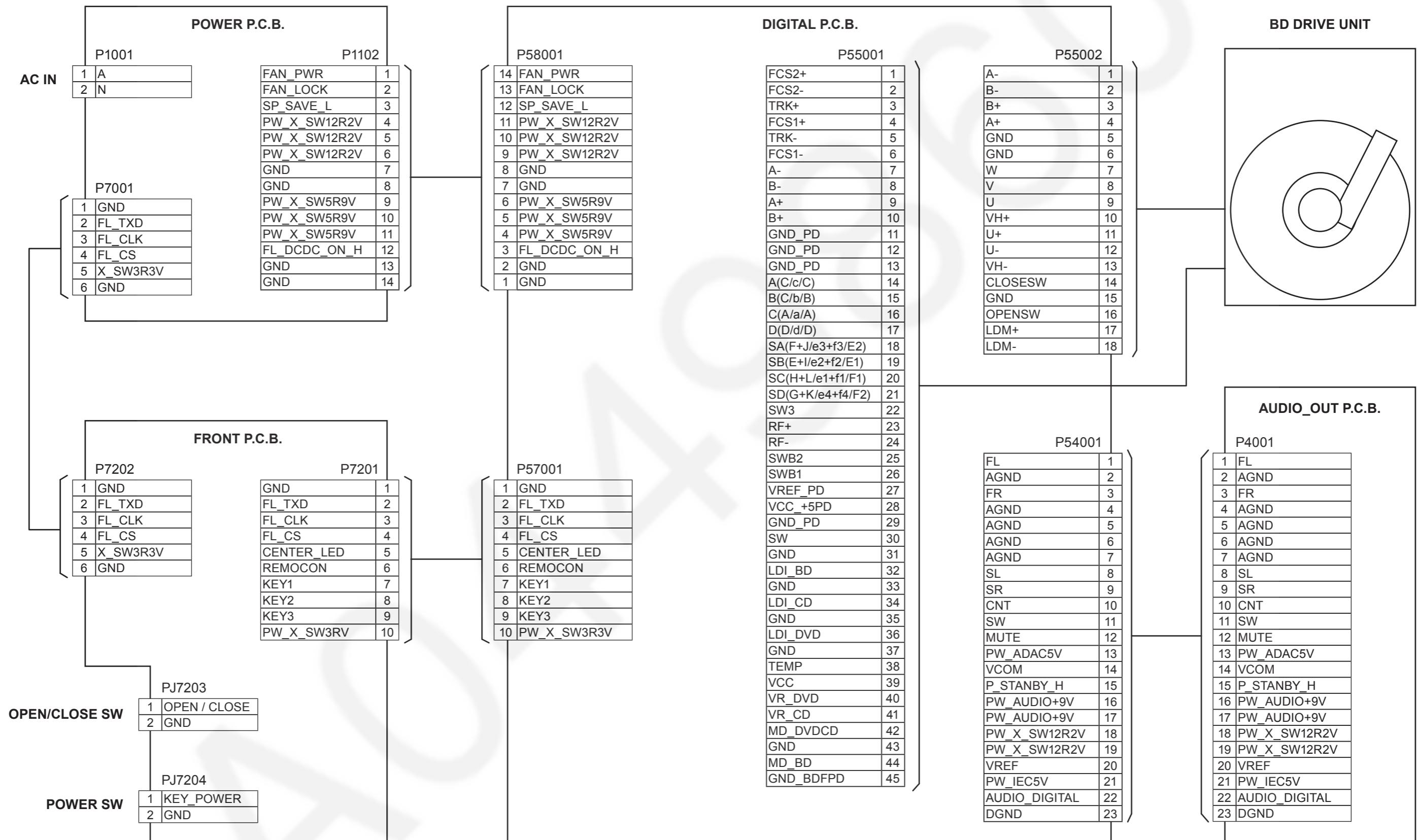
DMP-BD85 TIMER CIRCUIT BLOCK DIAGRAM

### S3.3. Analog Video/Audio Block Diagram

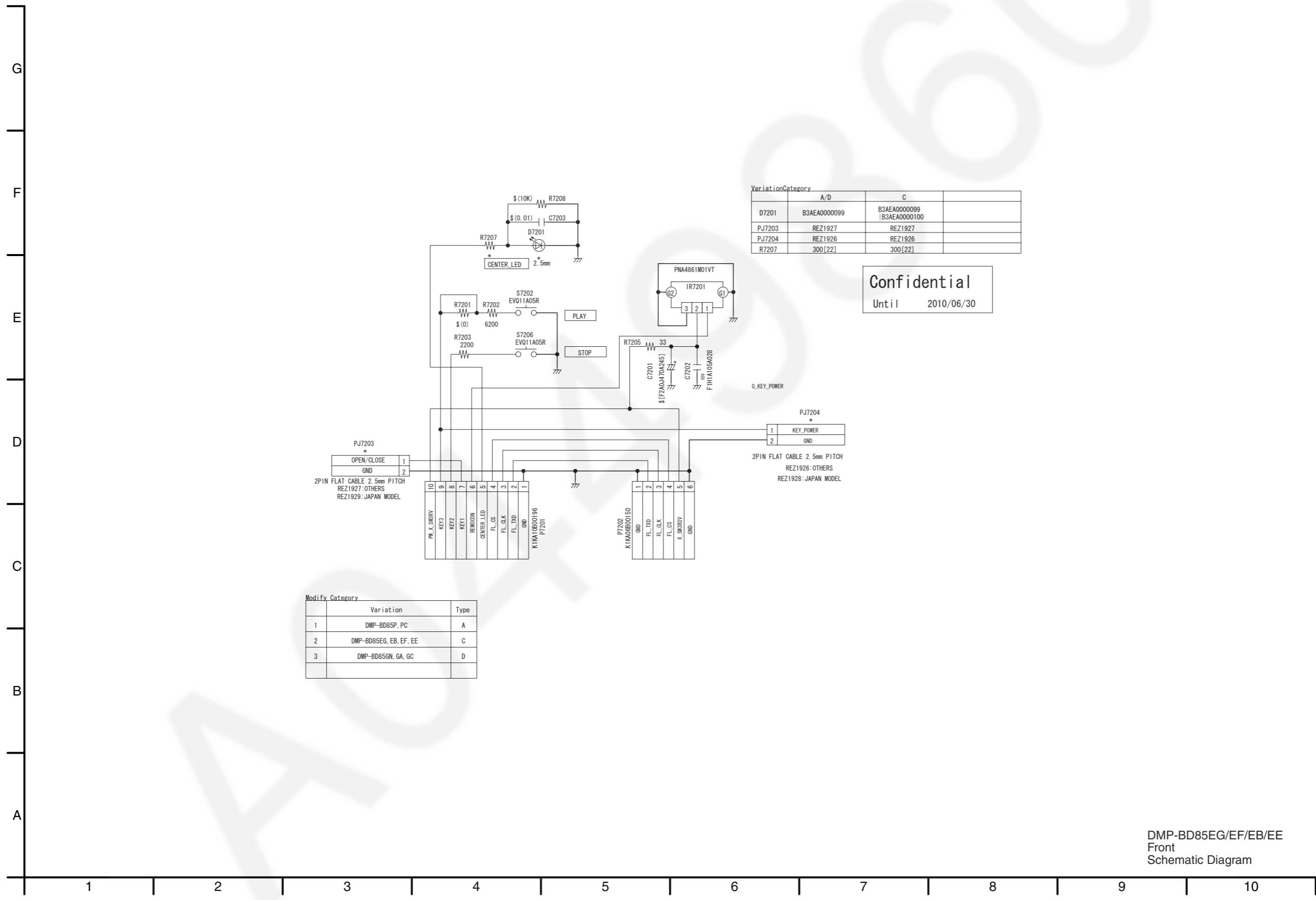


## S4. Schematic Diagram

### S4.1. Interconnection Diagram



## S4.2. Front Schematic Diagram

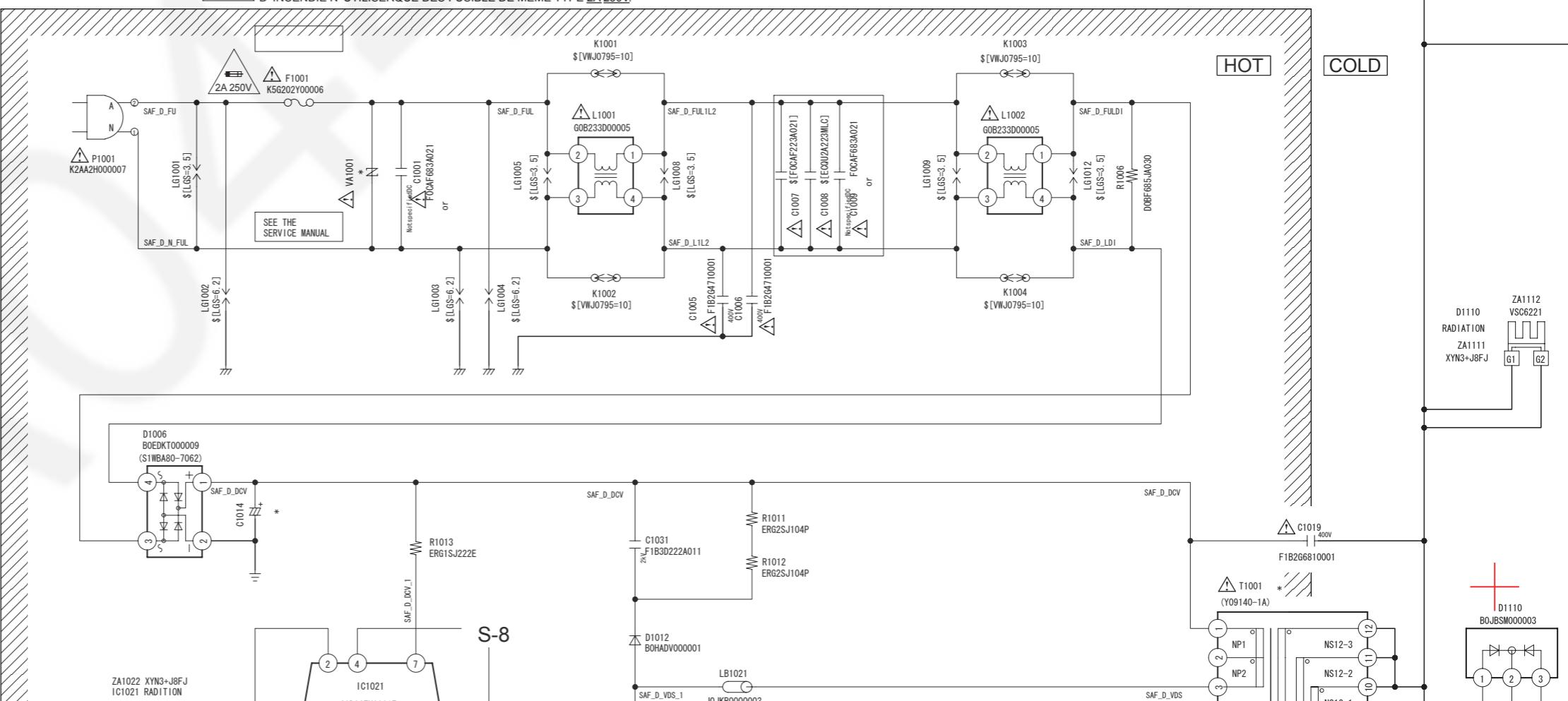


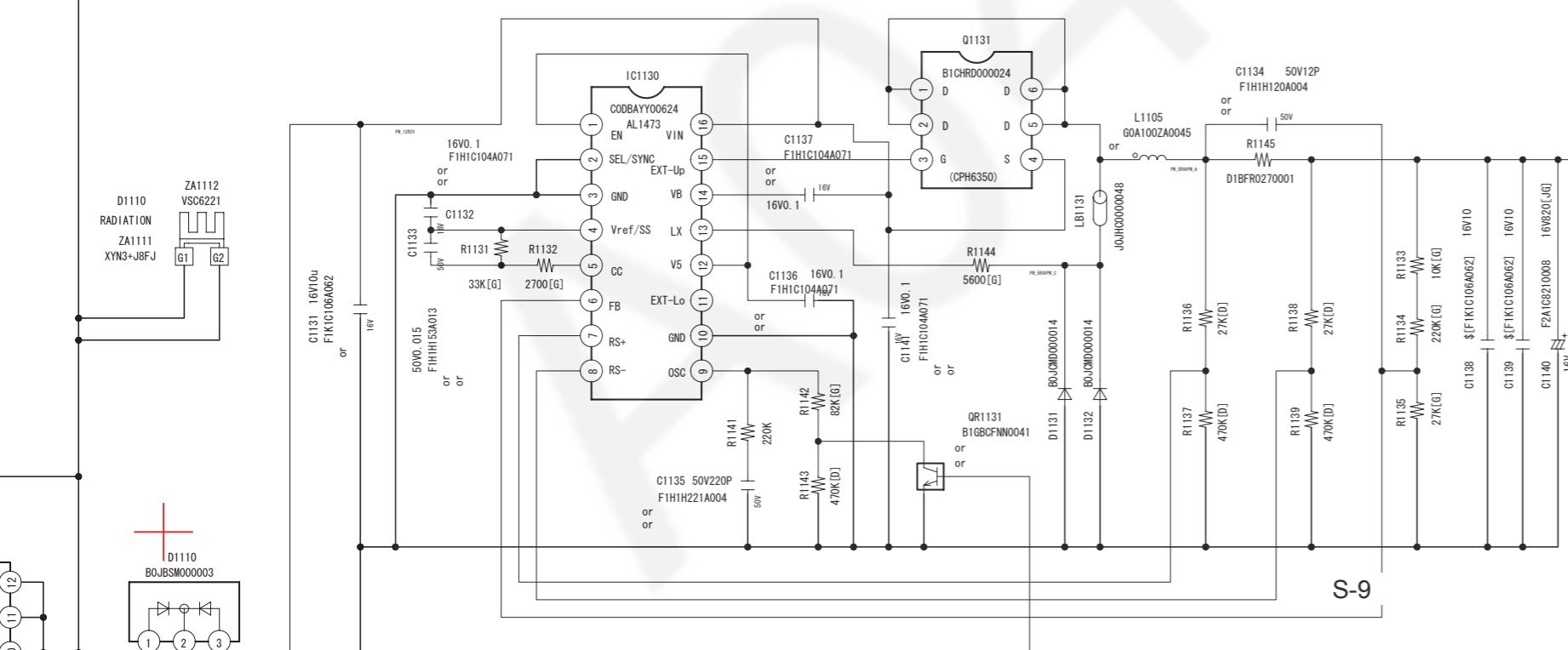
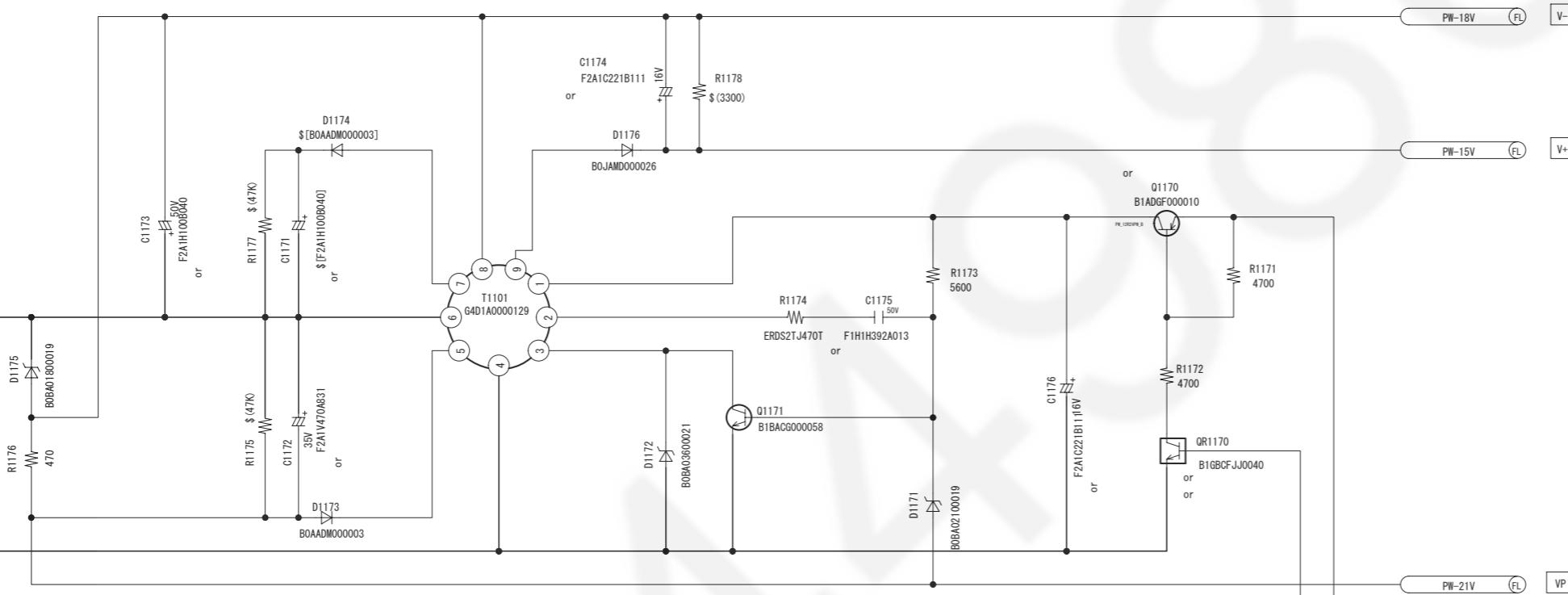
### S4.3. Power\_Wide (P) Schematic Diagram

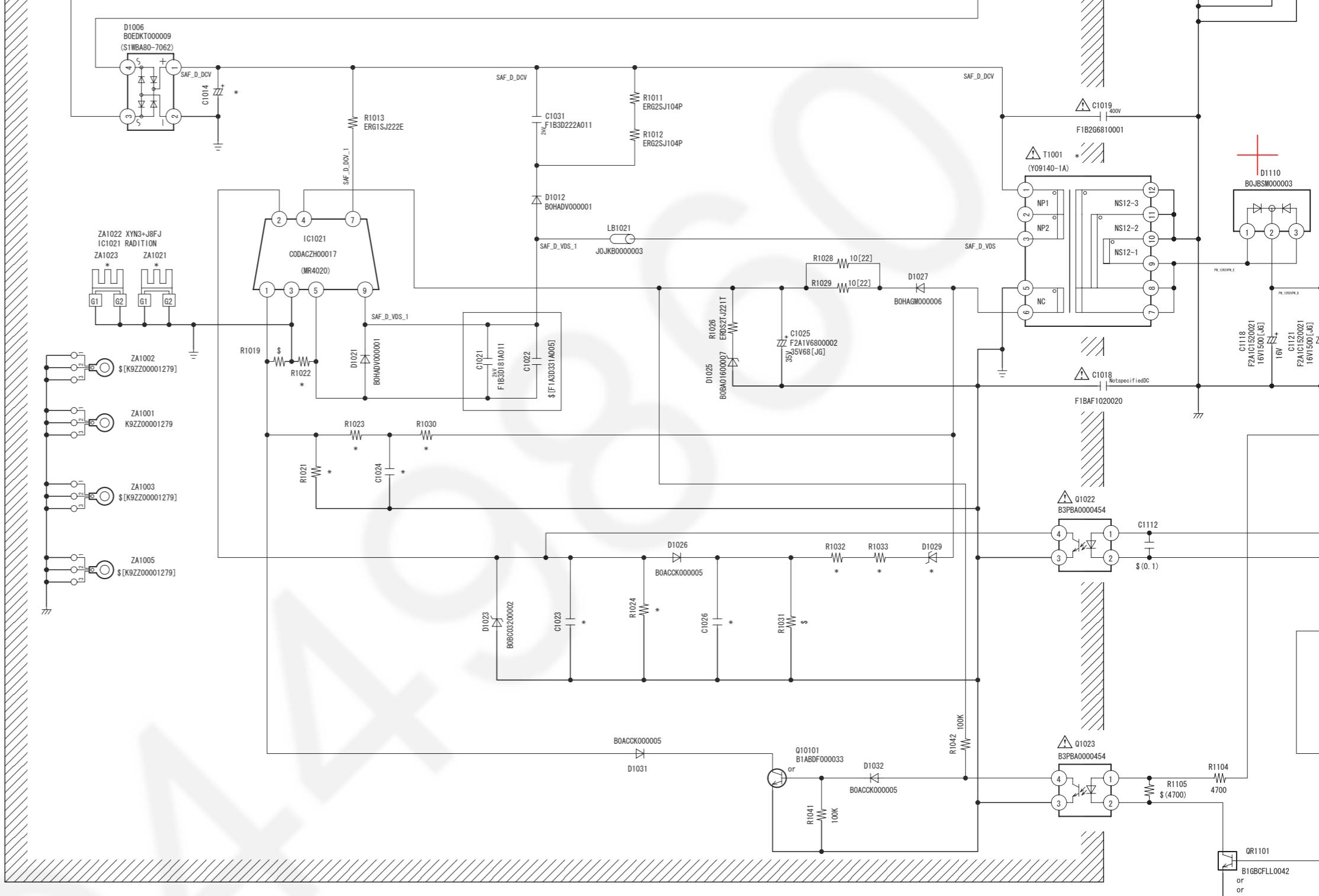
DMP-BD85EG/EF/EB/EE  
Power\_Wide Section  
(Power P.C.B.(1/2))  
Schematic Diagram (P)

VariationCategory	A	E	C	D	
C1014	\$	F2B2W4700003	F2B2W4700003	F2B2G8200010	
C1023	\$	F1H1H471A792  F1H1H471A004	F1H1H471A792  F1H1H471A004	F1H1H471A792  F1H1H471A004	
C1024	\$	F1H1H101A004  F1H1H1010005	F1H1H101A004  F1H1H1010005	F1H1H470A004  F1H1H4700006	
C1026	\$	F1H1H222A013  F1H1H222A219	F1H1H222A013  F1H1H222A219	F1H1H222A013  F1H1H222A219	
D1029	\$	B0BA01200046	B0BA01200046	B0BA09900005	
R1021	\$	\$ (10K)	\$ (10K)	\$ (10K)	
R1022	\$	ERX2SJR33E	ERX2SJR33E	ERX2SJR18E	
R1023	\$	10K	10K	10K	
R1024	\$	15K [G]	15K [G]	22K [G]	
R1030	\$	3900	3900	2200	
R1032	\$	4700 [G]	4700 [G]	3300 [G]	
R1033	\$	4700 [G]	4700 [G]	3900 [G]	
T1001	\$	G4D2A0000314	G4D2A0000314	[\$Y09140-1A]	
VA1001	\$	ERZV05Z471C8	ERZV05Z471C8	ERZV10D471C2	
ZA1021	\$	VSC5603-A	VSC5603-A	\$	
ZA1023	\$	\$	\$	VSC6159	

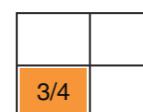
 CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,  
REPLACE ONLY WITH THE SAME TYPE 2A 250V FUSE.  
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES  
D'INCENDIE N' UTILISER QUE DES FUSIBLES DE MÊME TYPE 2A 250V.

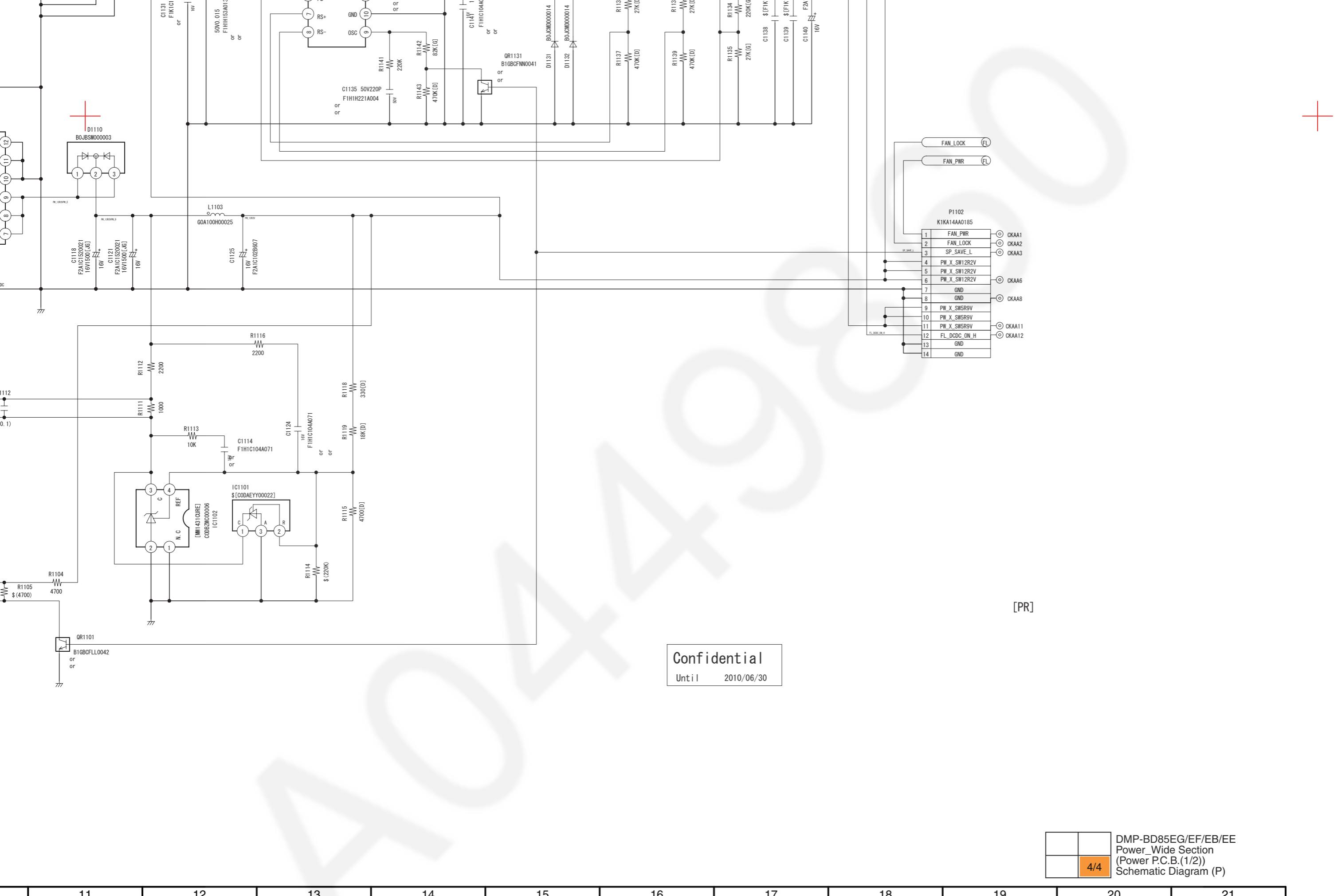






DMP-BD85EG/EF/EB/EE  
Power\_Wide Section  
(Power P.C.B.(1/2))  
Schematic Diagram (P)





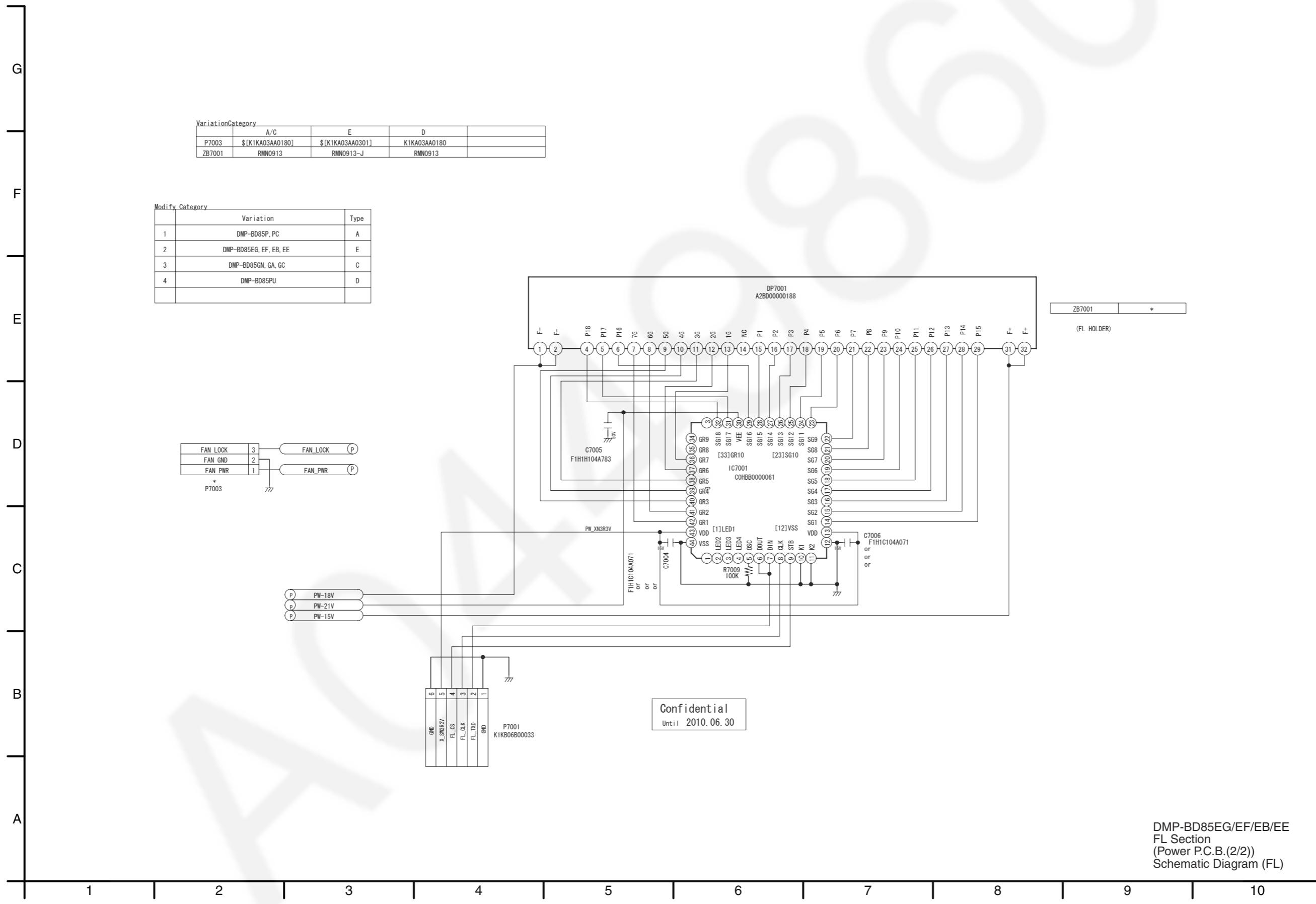
Confidential

Until 2010/06

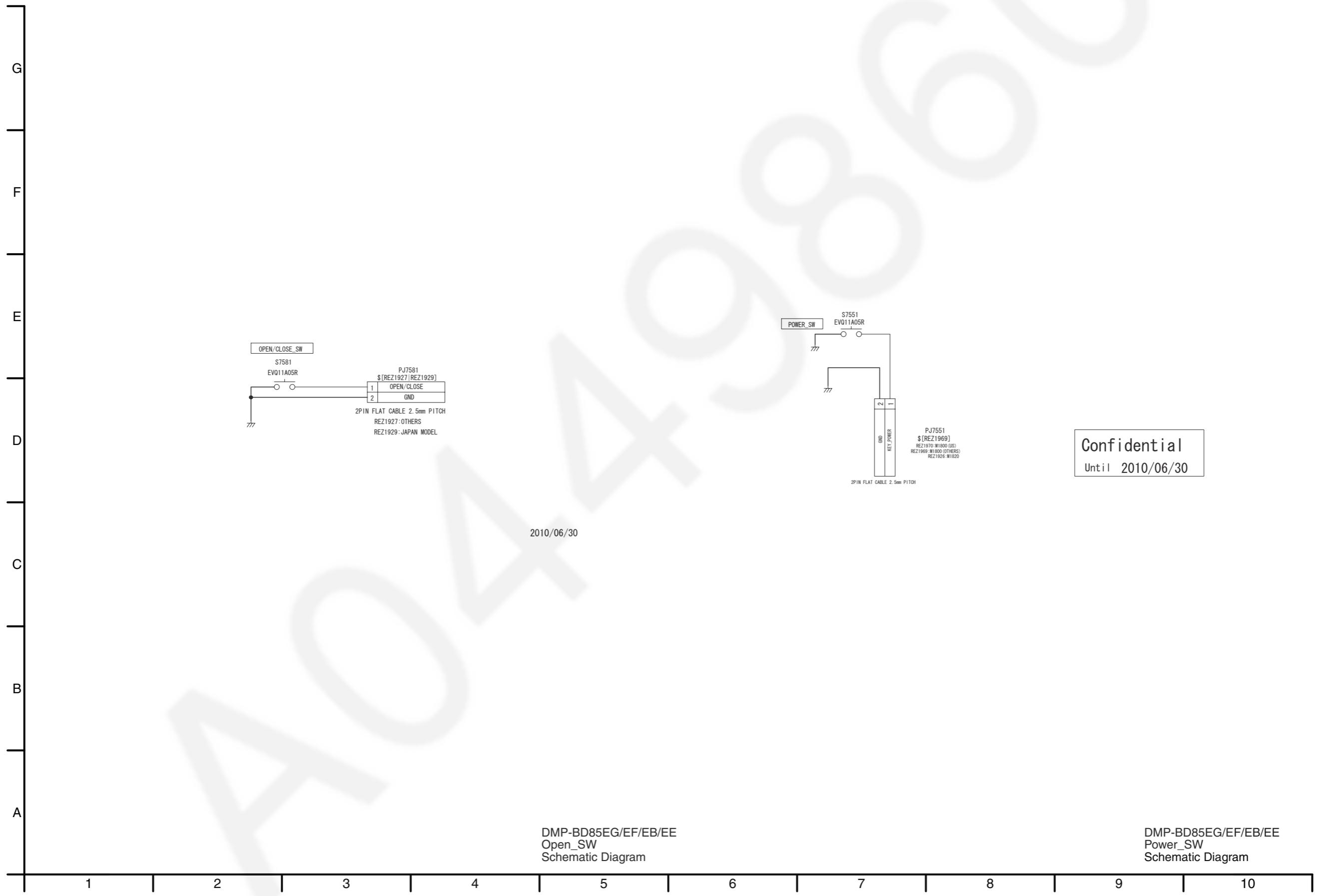
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DMP-BD85EG/EF/EB/EE  
Power\_Wide Section  
(Power P.C.B.(1/2))  
Schematic Diagram (P)  
4/4

#### S4.4. FL (FL) Schematic Diagram



## S4.5. Open\_SW Schematic Diagram / S4.6. Power\_SW Schematic Diagram

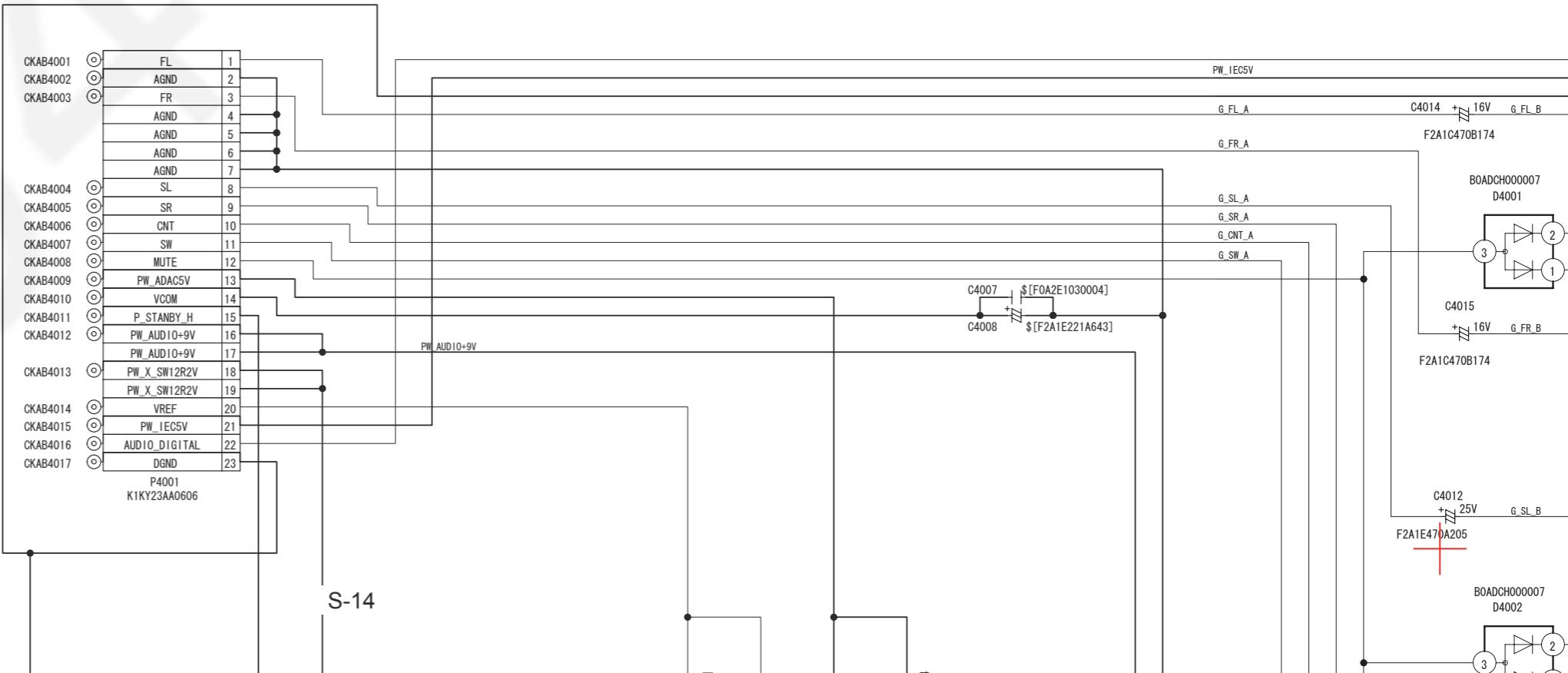


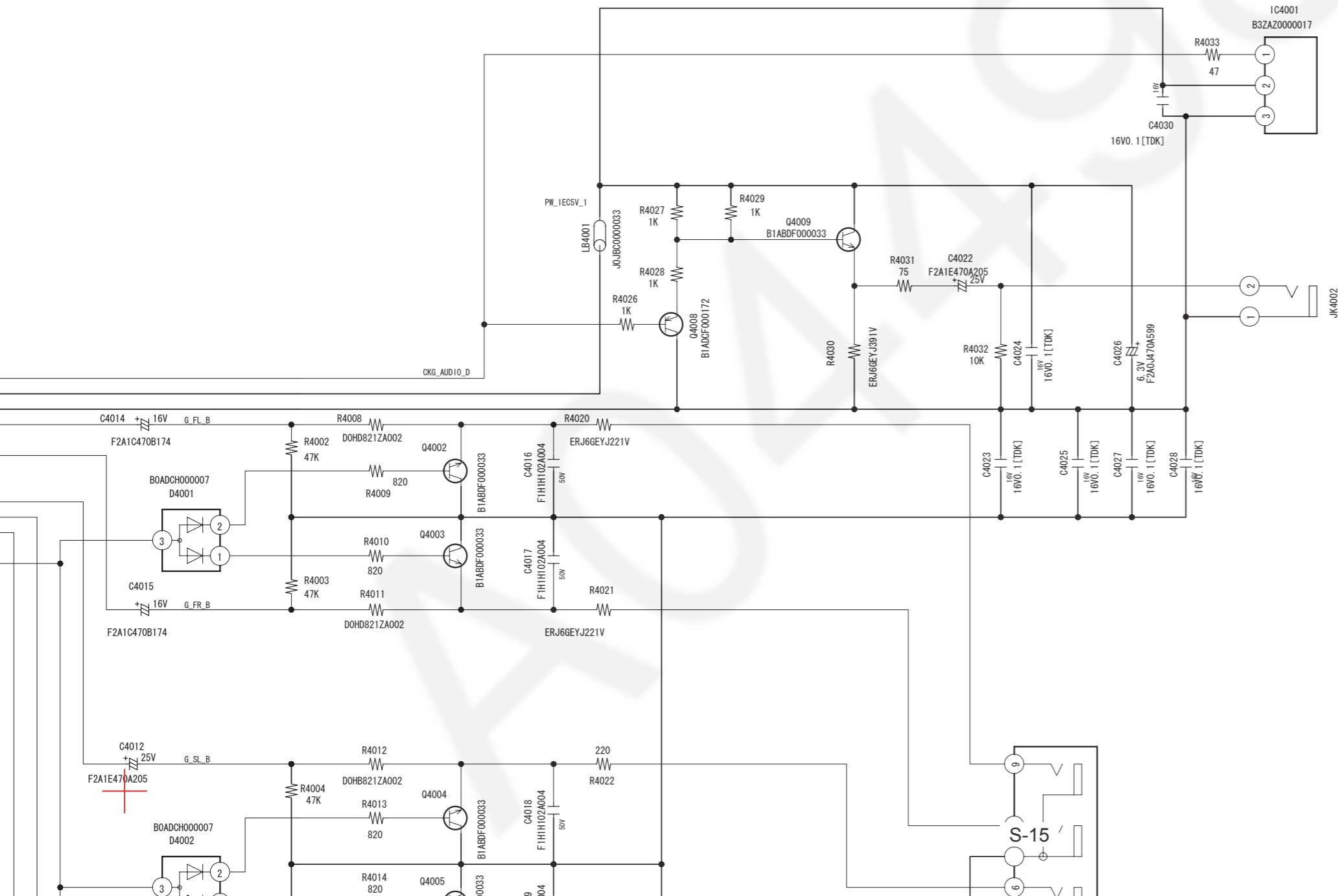
## S4.7. Audio Main Schematic Diagram

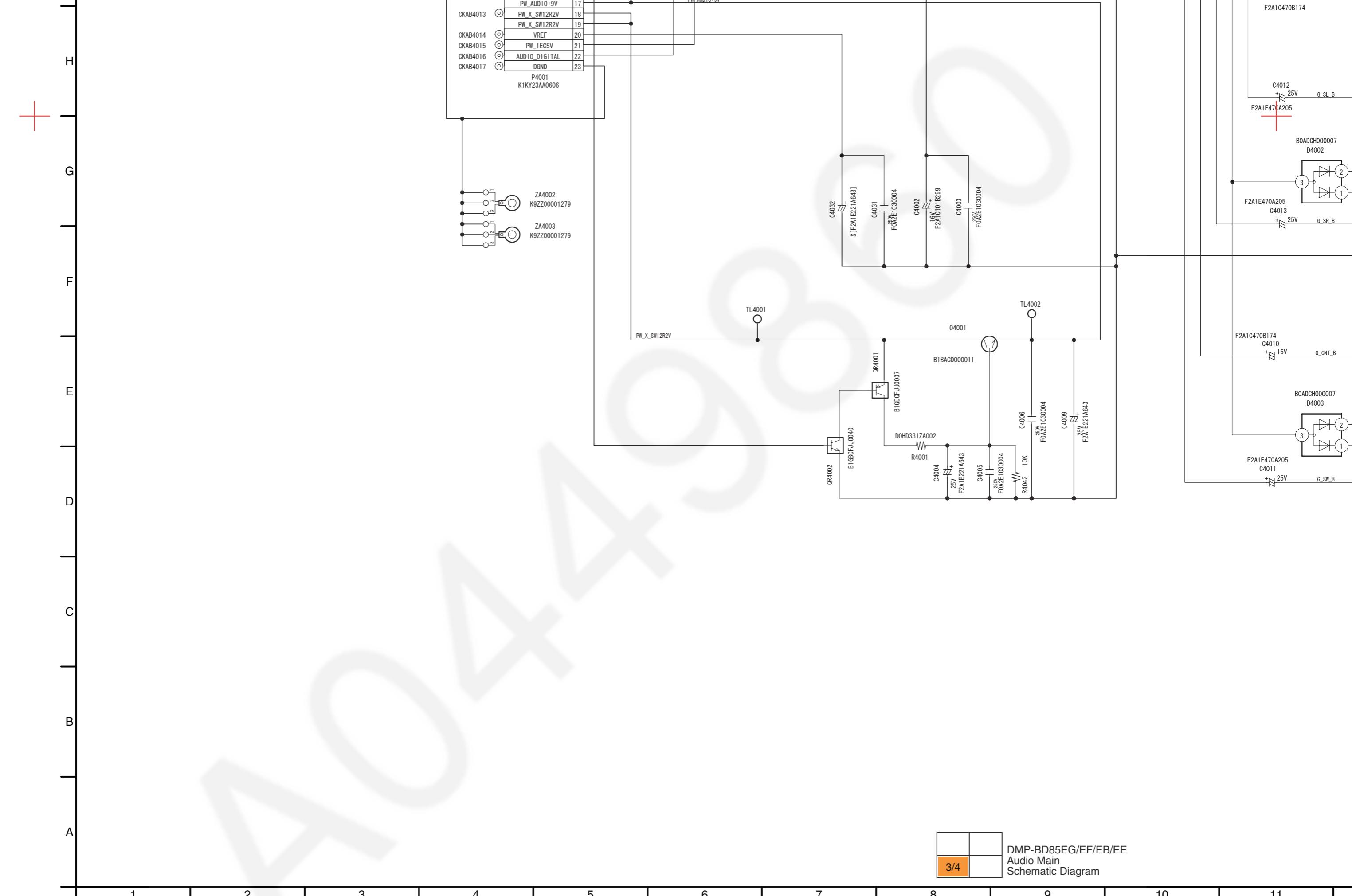
N  
M  
L  
K  
J  
I  
H  
G

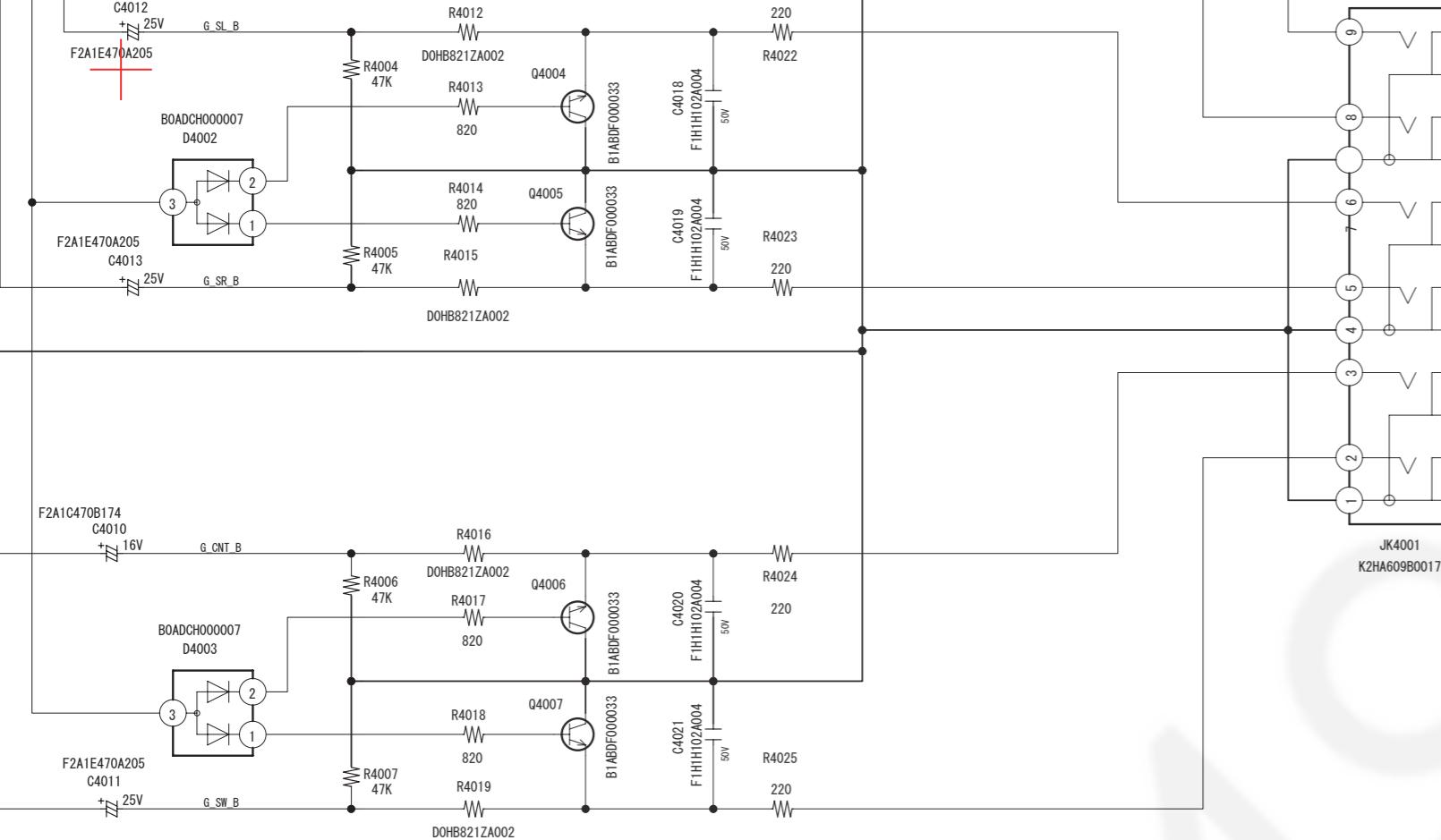


DMP-BD85EG/EF/EB/EE  
Audio Main  
Schematic Diagram









[ES2]

Confidential

Until 2010.06.30

	4/4

DMP-BD85EG/EF/EB/EE  
Audio Main  
Schematic Diagram

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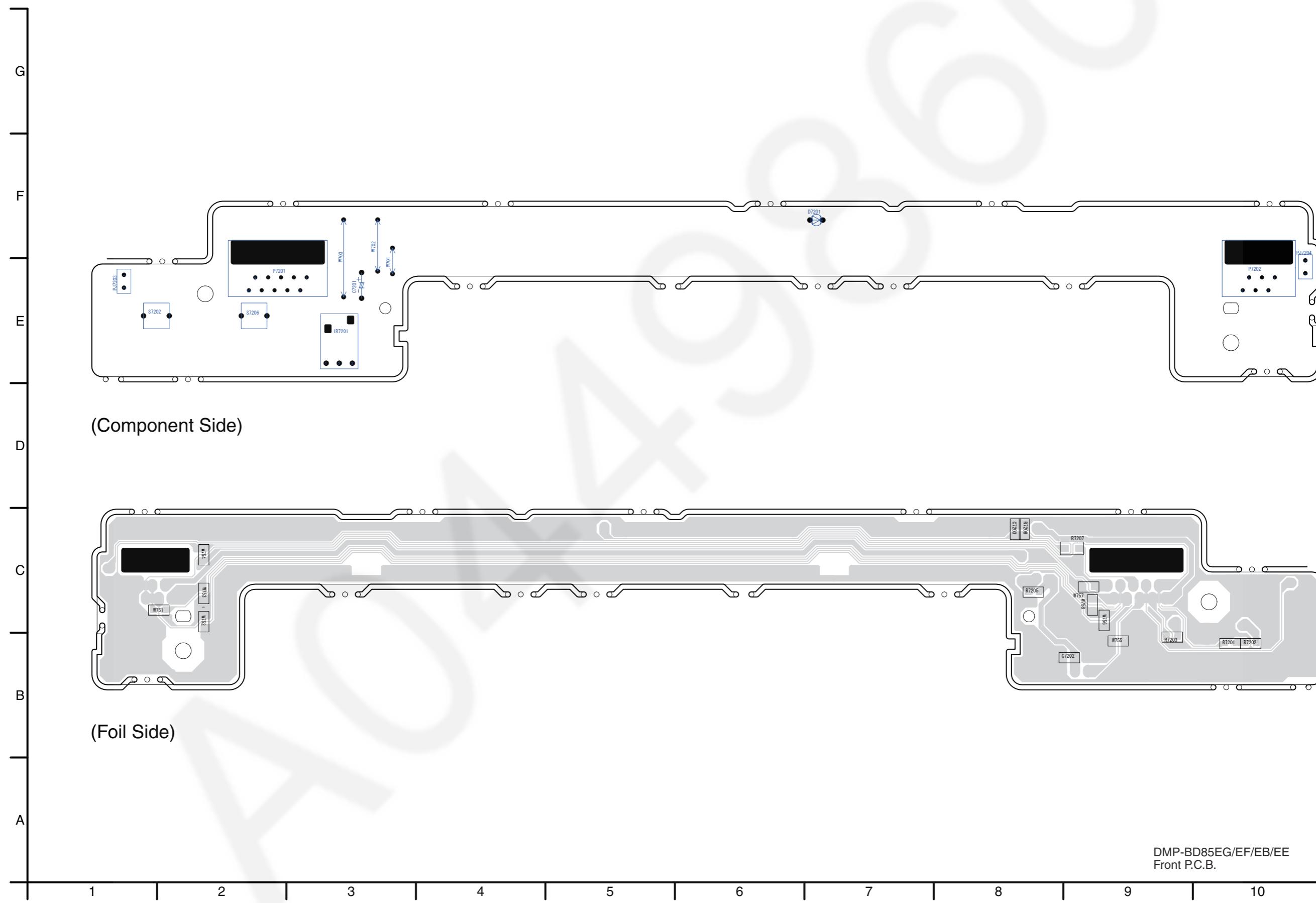
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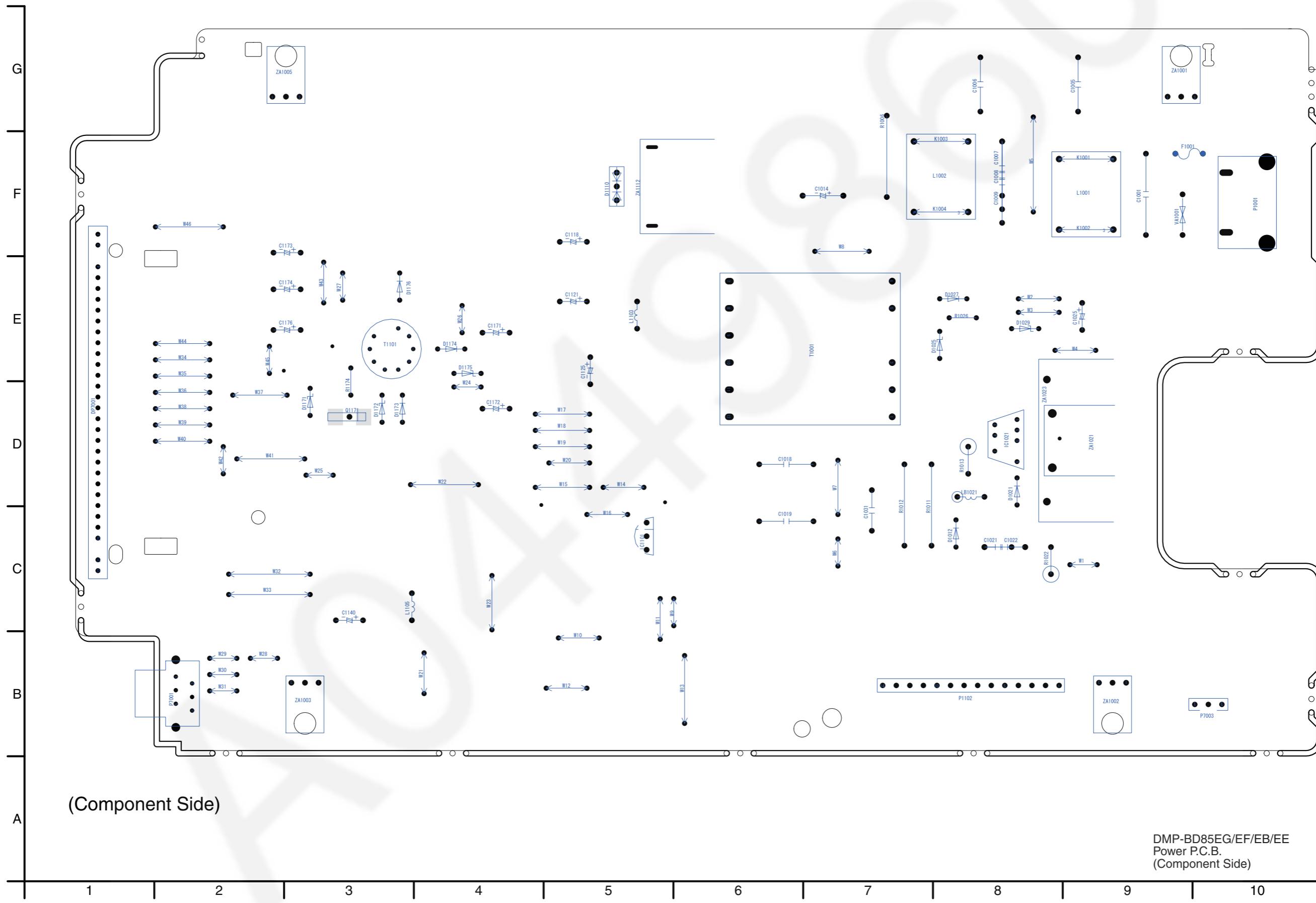
## S5. Print Circuit Board

### S5.1. Front P.C.B.

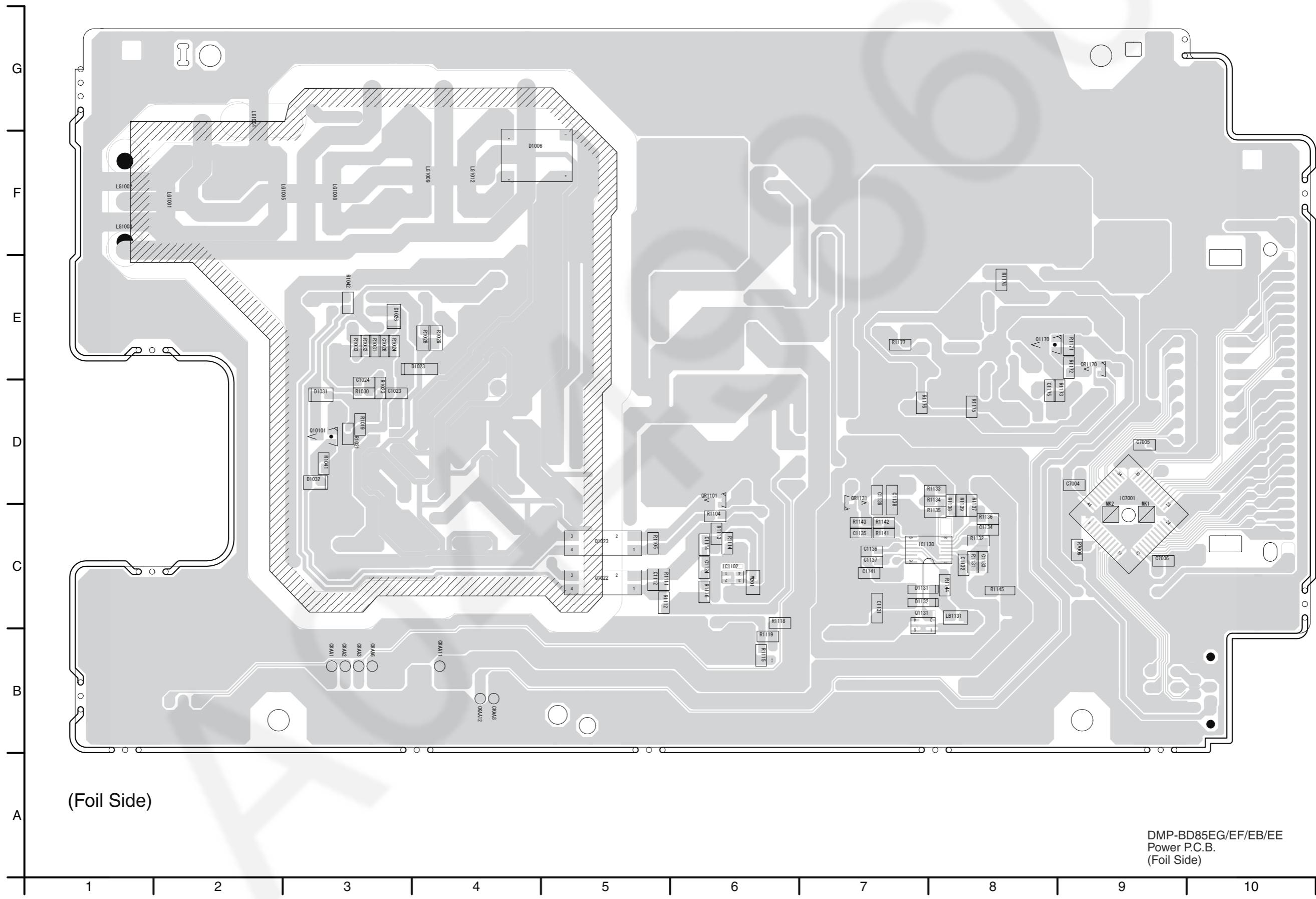


## S5.2. Power P.C.B.

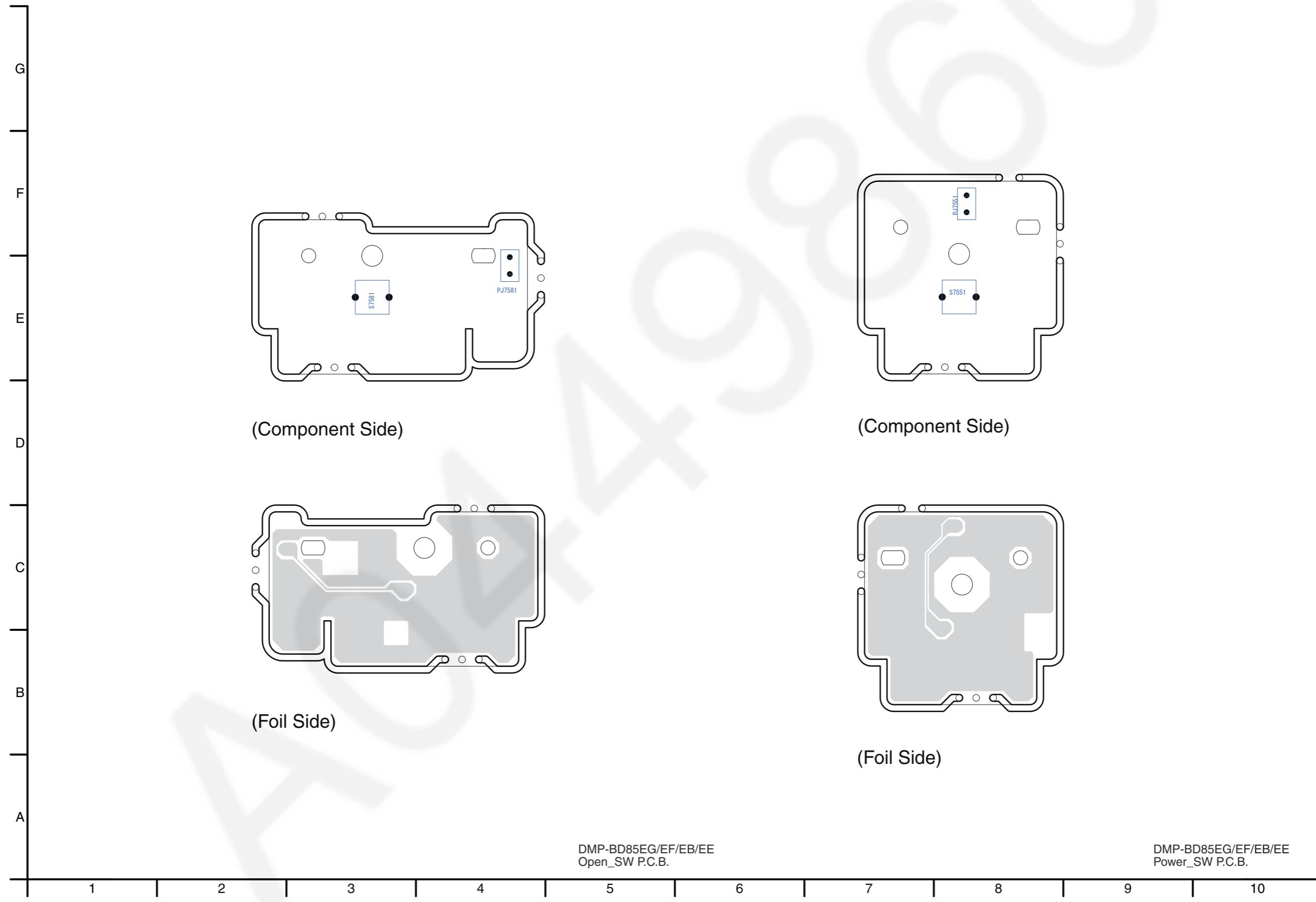
### S5.2.1. Power P.C.B. (Component Side)



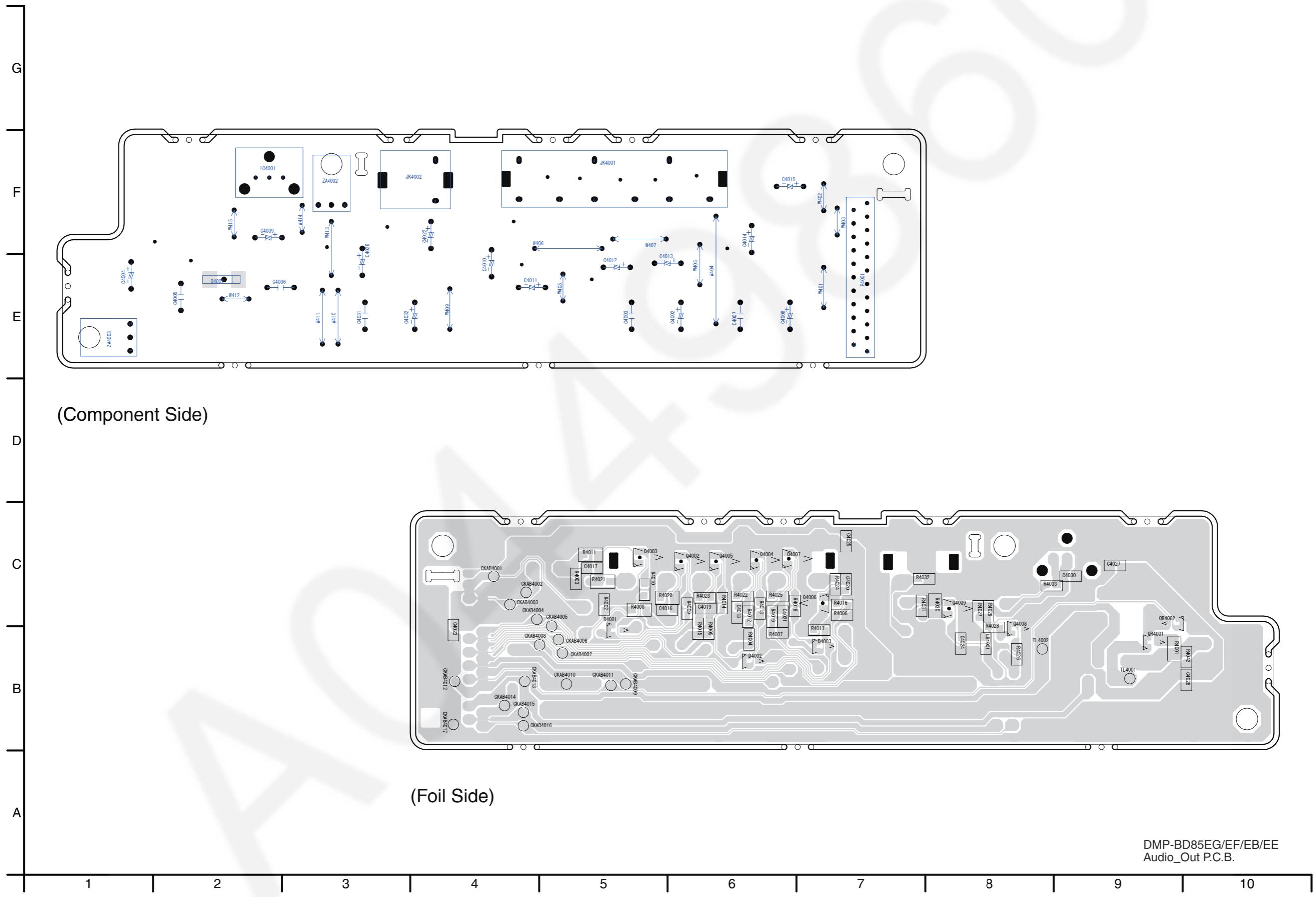
### **S5.2.2. Power P.C.B. (Foil Side)**



**S5.3. Open\_SW P.C.B. / S5.4. Power\_SW P.C.B.**



## S5.5. Audio\_Out P.C.B.



## S6. Abbreviation

INITIAL/LOGO		ABBREVIATIONS
A	A0~UP ACLK AD0~UP ADATA ALE AMUTE AREQ ARF ASI ASO ASYNC	ADDRESS AUDIO CLOCK ADDRESS BUS AUDIO PES PACKET DATA ADDRESS LATCH ENABLE AUDIO MUTE AUDIO PES PACKET REQUEST AUDIO RF SERVO AMP INVERTED INPUT SERVO AMP OUTPUT AUDIO WORD DISTINCTION SYNC
B	BCK BCKIN BDO BLKCK BOTTOM BYP BYTCK	BIT CLOCK (PCM) BIT CLOCK INPUT BLACK DROP OUT SUB CODE BLOCK CLOCK CAP. FOR BOTTOM HOLD BYPATH BYTE CLOCK
C	CAV CBDO CD CDSCK CDSRDATA CDRF CDV CHNDATA CKSL CLV COFTR CPA CPCS CPDT CPH1~3 CPUADR CPUADT CPUIRQ CPRD CPV CPWR CS CSYNCIN CSYNCOUT	CONSTANT ANGULAR VELOCITY CAP. BLACK DROP OUT COMPACT DISC CD SERIAL DATA CLOCK CD SERIAL DATA CD RF (EFM) SIGNAL COMPACT DISC-VIDEO CHANNEL DATA SYSTEM CLOCK SELECT CONSTANT LINEAR VELOCITY CAP. OFF TRACK CPU ADDRESS CPU CHIP SELECT CPU DATA CLOCK PULSE SOURCE DRIVE CPU ADDRESS LATCH CPU ADDRESS DATA BUS CPU INTERRUPT REQUEST CPU READ ENABLE GATE DRIVER CLOCK PULSE CPU WRITE ENABLE CHIP SELECT COMPOSITE SYNC IN COMPOSITE SYNC OUT
D	DACCK DEEMP DEMPH DIG0~UP DIN DMSRCK DMUTE DO DOUT0~UP DRF DRPOUT	D/A CONVERTER CLOCK DE-EMPHASIS BIT ON/OFF DE-EMPHASIS SWITCHING FL DIGIT OUTPUT DATA INPUT DM SERIAL DATA READ CLOCK DIGITAL MUTE CONTROL DROP OUT DATA OUTPUT DATA SLICE RF (BIAS) DROP OUT SIGNAL

INITIAL/LOGO		ABBREVIATIONS
	DREQ DRESP DSC DSLFB DVD	DATA REQUEST DATA RESPONSE DIGITAL SERVO CONTROLLER DATA SLICE LOOP FILTER DIGITAL VIDEO DISC
E	EC ECR ENCSEL ETMCLK ETSCLK	ERROR TORQUE CONTROL ERROR TORQUE CONTROL REFERENCE ENCODER SELECT EXTERNAL M CLOCK (81MHz/40.5MHz) EXTERNAL S CLOCK (54MHz)
F	FBAL FCLK FE FFI FEO FG FSC FSCK	FOCUS BALANCE FRAME CLOCK FOCUS ERROR FOCUS ERROR AMP INVERTED INPUT FOCUS ERROR AMP OUTPUT FREQUENCY GENERATOR FREQUENCY SUB CARRIER FS (384 OVER SAMPLING) CLOCK
G	GND	COMMON GROUNDING (EARTH)
H	HA0~UP HDO~UP HINT HRXW	HOST ADDRESS HOST DATA HOST INTERRUPT HOST READ/WRITE
I	IECOUT IPFRAG IREF ISEL	IEC958 FORMAT DATA OUTPUT INTERPOLATION FLAG I (CURRENT) REFERENCE INTERFACE MODE SELECT
L	LDON LPC LRCK	LASER DIODE CONTROL LASER POWER CONTROL L CH/R CH DISTINCTION CLOCK
M	MA0~UP MCK MCKI MCLK MDATA MDQ0~UP MDQM MLD MPEG	MEMORY ADDRESS MEMORY CLOCK MEMORY CLOCK INPUT MEMORY SERIAL COMMAND CLOCK MEMORY SERIAL COMMAND DATA MEMORY DATA INPUT/OUTPUT MEMORY DATA I/O MASK MEMORY SERIAL COMMAND LOAD MOVING PICTURE EXPERTS GROUP
O	ODC OEH OEV 1, 2 OFTR OSCI OSCO OSD	OPTICAL DISC CONTROLLER SOURCE DRIVER OUTPUT ENABLE GATE DRIVER OUTPUT ENABLE OFF TRACKING OSCILLATOR INPUT OSCILLATOR OUTPUT ON SCREEN DISPLAY
P	P1~UP PCD PCK PDVD PEAK PLLCLK PLLOK PWMCTL	PORT CD TRACKING PHASE DIFFERENCE PLL CLOCK DVD TRACKING PHASE DIFFERENCE CAP. FOR PEAK HOLD CHANNEL PLL CLOCK PLL LOCK PWM OUTPUT CONTROL

INITIAL/LOGO		ABBREVIATIONS
	PWMDA PWMOA, B	PULSE WAVE MOTOR DRIVE A PULSE WAVE MOTOR OUT A, B
R	RE	READ ENABLE
	RFENV	RF ENVELOPE
	RFO	RF PHASE DIFFERENCE OUTPUT
	RS	(CD-ROM) REGISTER SELECT
	RSEL	RF POLARITY SELECT
	RST	RESET
	RSV	RESERVE
S	SBI0, 1	SERIAL DATA INPUT
	SBO0	SERIAL DATA OUTPUT
	SBT0, 1	SERIAL CLOCK
	SCK	SERIAL DATA CLOCK
	SCKR	AUDIO SERIAL CLOCK RECEIVER
	SCL	SERIAL CLOCK
	SCLK	SERIAL CLOCK
	SDA	SERIAL DATA
	SEG0~UP	FL SEGMENT OUTPUT
	SELCLK	SELECT CLOCK
	SEN	SERIAL PORT ENABLE
	SIN1, 2	SERIAL DATA IN
	SOUT1, 2	SERIAL DATA OUT
	SPDI	SERIAL PORT DATA INPUT
	SPDO	SERIAL PORT DATA OUTPUT
	SPEN	SERIAL PORT R/W ENABLE
	SPRCLK	SERIAL PORT READ CLOCK
	SPWCLK	SERIAL PORT WRITE CLOCK
	SQCK	SUB CODE Q CLOCK
	SQCX	SUB CODE Q DATA READ CLOCK
	SRDATA	SERIAL DATA
	SRMADR	SRAM ADDRESS BUS
	SRMDT0~7	SRAM DATA BUS 0~7
	SS	START/STOP
	STAT	STATUS
	STCLK	STREAM DATA CLOCK
	STD0~UP	STREAM DATA
	STENABLE	STREAM DATA INPUT ENABLE
	STH	SOURCE START PULSE
	STSEL	STREAM DATA POLARITY SELECT
	STV	GATE DRIVER SCAN START PULSE
	STVALID	STREAM DATA VALIDITY
	SUBC	SUB CODE SERIAL
	SBCK	SUB CODE CLOCK
	SUBQ	SUB CODE Q DATA
	SYCLK	SYSTEM CLOCK
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

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

## S7. Replacement Parts List

Note: 1.\* Be sure to make your orders of replacement parts according to this list.

2. **IMPORTANT SAFETY NOTICE**  
Components identified with the mark  $\triangle$  have the special characteristics for safety.  
When replacing any of these components, use only the same type.

3. Unless otherwise specified,  
All resistors are in OHMS, K=1,000 OHMS. All capacitors are in MICRO-FARADS (uf), P=uuF.

4. 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.

5. Parts indicated with "JIG and ADJ." in the Remarks column are necessary to adjust the BDP/Digital P.C.B. This adjustment software can be downloaded from "Support Information from NWBG/VDBG-PAVC" web-site in "TSN system", together with instructions of "BD Drive Adjustment" including preparations and connections etc.

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

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
##	VEP70323C	FRONT P.C.B.	1	(RTL) E.S.D.
##	VEP71169E	POWER P.C.B.	1	(RTL) E.S.D.
##	VEP70324B	OPEN SW P.C.B.	1	(RTL) E.S.D.
##	VEP70322B	POWER SW P.C.B.	1	(RTL) E.S.D.
##	VEP73172B	AUDIO OUT P.C.B.	1	(RTL) E.S.D.
##	RFKB76201BT	DIGITAL P.C.B.	1	EG (RTL) E.S.D. (JIG & ADJ.)
##	RFKB76201DT	DIGITAL P.C.B.	1	EB (RTL) E.S.D. (JIG & ADJ.)
##	RFKB76201ET	DIGITAL P.C.B.	1	EE,EF (RTL) E.S.D. (JIG & ADJ.)
##	VEP70323C	FRONT P.C.B.		(RTL) E.S.D.
C7202	F1H1A105A028	10V 1U	1	
D7201	B3AEA0000099	DIODE	1	E.S.D.
IR7201	PNA4861M01VT	IC	1	E.S.D.
P7201	K1KA10B00196	CONNECTOR(10P)	1	
P7202	K1KA06B00150	CONNECTOR(6P)	1	
PJ7203	REZ1927	WIRE	1	
PJ7204	REZ1926	WIRE	1	
R7202	ERJ3GEYJ622V	1/10W 6.2K	1	
R7203	ERJ3GEYJ222V	1/10W 2.2K	1	
R7205	ERJ3GEYJ330V	1/10W 33	1	
R7207	ERJ6GEYJ301V	1/8W 300	1	
S7202	EVQ11A05R	SWITCH	1	
S7206	EVQ11A05R	SWITCH	1	
W751	ERJ3GEY0R00V	1/10W 0	1	
W752	ERJ3GEY0R00V	1/10W 0	1	
W753	ERJ3GEY0R00V	1/10W 0	1	
W754	ERJ3GEY0R00V	1/10W 0	1	
W755	ERJ3GEY0R00V	1/10W 0	1	
W756	ERJ3GEY0R00V	1/10W 0	1	
W757	ERJ3GEY0R00V	1/10W 0	1	
W758	ERJ3GEY0R00V	1/10W 0	1	
##	VEP71169E	POWER P.C.B.		(RTL) E.S.D.
▲ C1001	F0CAF683A021	100V 0.068P	1	
▲ C1005	F1B2G4710001	400V 470P	1	
▲ C1006	F1B2G4710001	400V 470P	1	
▲ C1009	F0CAF683A021	100V 0.068P	1	
C1014	F2B2W4700003	450V 47U	1	
▲ C1018	F1BAF1020020	1000P	1	
▲ C1019	F1B2G6810001	400V 680U	1	
C1021	F1B3D181A011	180P	1	
C1023	F1H1H471A792	50V 470P	1	
C1024	F1H1H101A004	50V 100P	1	
C1025	F2A1V6800002	35V 68U	1	
C1026	F1H1H222A013	50V 2200P	1	
C1031	F1B3D222A011	2000V 2200P	1	
C1114	F1H1C104A071	16V 0.1U	1	
C1118	F2A1C1520021	16V 1500U	1	
C1121	F2A1C1520021	16V 1500U	1	
C1124	F1H1C104A071	16V 0.1U	1	
C1125	F2A1C102B607	16V 1000U	1	
C1131	F1K1C106A062	16V 10U	1	
C1132	F1H1C104A071	16V 0.1U	1	
C1133	F1H1H153A013	50V 0.015U	1	
C1134	F1H1H120A004	50V 12P	1	
C1135	F1H1H221A004	50V 220P	1	
C1136	F1H1C104A071	16V 0.1U	1	
C1137	F1H1C104A071	16V 0.1U	1	
C1140	F2A1C8210008	16V 820U	1	
C1141	F1H1C104A071	16V 0.1U	1	
C1172	F2A1V470A831	35V 47U	1	
C1173	F2A1H100B040	50V 10U	1	
C1174	F2A1C221B111	16V 220U	1	
C1175	F1H1H392A013	50V 3900	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
C1176	F2A1C221B111	16V 220U	1	
C7004	F1H1C104A071	16V 0.1U	1	
C7005	F1H1H104A783	50V 0.1U	1	
C7006	F1H1C104A071	16V 0.1U	1	
D1006	B0EDKT00009	DIODE	1	E.S.D.
D1012	B0HADV00001	DIODE	1	E.S.D.
D1021	B0HADV00001	DIODE	1	E.S.D.
D1023	B0BC0320002	DIODE	1	E.S.D.
D1025	B0BA0160007	DIODE	1	E.S.D.
D1026	B0ACCK00005	DIODE	1	E.S.D.
D1027	B0HAGM00006	DIODE	1	E.S.D.
D1029	B0BA0120046	DIODE	1	E.S.D.
D1031	B0ACCK00005	DIODE	1	E.S.D.
D1032	B0ACCK00005	DIODE	1	E.S.D.
D1110	B0JBSM00003	DIODE	1	E.S.D.
D1131	B0JCMD00014	DIODE	1	E.S.D.
D1132	B0JCMD00014	DIODE	1	E.S.D.
D1171	B0BA0210019	DIODE	1	E.S.D.
D1172	B0BA0360021	DIODE	1	E.S.D.
D1173	B0ADM00003	DIODE	1	E.S.D.
D1175	B0BA0180019	DIODE	1	E.S.D.
D1176	B0JAMD00026	DIODE	1	E.S.D.
DP7001	A2BD00000188	DISPLAY TUBE	1	E.S.D.
▲ F1001	K5G20Y00006	FUSE	1	
IC1021	C0DACZH00017	IC	1	E.S.D.
IC1102	C0DBZMC00006	IC	1	E.S.D.
IC1130	C0DBAY00624	IC	1	E.S.D.
IC7001	C0HBB000061	IC	1	E.S.D.
▲ L1001	G0B23D00005	COIL	1	
▲ L1002	G0B23D00005	COIL	1	
L1103	G0A100H0025	COIL 10UH	1	
L1105	G0A100ZA0045	COIL	1	
LB1021	J0JKB0000003	COIL	1	
LB1131	J0JHC0000048	COIL	1	
▲ P1001	K2AA2H00007	AC INLET	1	
P1102	K1KA14AA0185	CONNECTOR(14P)	1	
P7001	K1KB06B00033	CONNECTOR(6P)	1	
▲ Q1022	B3PBA0000454	TRANSISTOR	1	E.S.D.
▲ Q1023	B3PBA0000454	TRANSISTOR	1	E.S.D.
Q1131	B1CHRD000024	TRANSISTOR	1	E.S.D.
Q1170	B1ADGF00010	TRANSISTOR	1	E.S.D.
Q1171	B1BACG00058	TRANSISTOR	1	E.S.D.
Q10101	B1ABDF00033	TRANSISTOR	1	E.S.D.
QR1101	B1GBCFLL0042	TRANSISTOR	1	E.S.D.
QR1131	B1GBCFNN0041	TRANSISTOR	1	E.S.D.
QR1170	B1GBCFJJ0040	TRANSISTOR	1	E.S.D.
R1006	D0BF685JA030	6.8M	1	
R1011	ERG2SJ104P	2W 100K	1	
R1012	ERG2SJ104P	2W 100K	1	
R1013	ERG1SJ222E	1W 2.2K	1	
R1022	ERX2SJ33E	2W 0.33	1	
R1023	ERJ3GEYJ392V	1/10W 10K	1	
R1024	ERJ3GEY153V	1/10W 15K	1	
R1026	ERDS2TJ221T	1/4W 220	1	
R1028	ERJ6GEYJ100V	1/8W 10	1	
R1029	ERJ6GEYJ100V	1/8W 10	1	
R1030	ERJ3GEYJ392V	1/10W 3.9K	1	
R1032	ERJ3GEYJ472V	1/10W 4.7K	1	
R1033	ERJ3GEYJ472V	1/10W 4.7K	1	
R1041	ERJ3GEYJ104V	1/10W 100K	1	
R1042	ERJ3GEYJ104V	1/10W 100K	1	
R1104	ERJ3GEYJ472V	1/10W 4.7K	1	
R1111	ERJ3GEYJ102V	1/10W 1K	1	
R1112	ERJ3GEYJ222V	1/10W 2.2K	1	
R1113	ERJ3GEYJ103V	1/10W 10K	1	
R1115	ERJ3RBD472V	1/16W 4.7K	1	
R1116	ERJ3GEYJ222V	1/10W 2.2K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R1118	ERJ3RBD331V	1/16W 330	1		C4027	F1H1C104A071	16V 0.1U	1	
R1119	ERJ3RBD183V	1/16W 18K	1		C4028	F1H1C104A071	16V 0.1U	1	
R1131	ERJ3GEYG333V	1/10W 33K	1		C4030	F1H1C104A071	16V 0.1U	1	
R1132	ERJ3GEYG272V	1/10W 2.7K	1		C4031	F0A2E1030004	250V 0.01U	1	
R1133	ERJ3GEYG103V	1/10W 10K	1		D4001	B0ADCH000007	DIODE	1	E.S.D.
R1134	ERJ3GEYG224V	1/10W 220K	1		D4002	B0ADCH000007	DIODE	1	E.S.D.
R1135	ERJ3GEYG273V	1/10W 27K	1		D4003	B0ADCH000007	DIODE	1	E.S.D.
R1136	ERJ3RBD273V	1/16W 27K	1		IC4001	B3ZAZ0000017	IC	1	E.S.D.
R1137	ERJ3RED474V	1/16W 470K	1		JK4001	K2HA609B0017	CONNECTOR	1	
R1138	ERJ3RBD273V	1/16W 27K	1		JK4002	K2HA102B0097	JACK, COAXIAL	1	
R1139	ERJ3RED474V	1/16W 470K	1		LB4001	J0JBC0000033	COIL	1	
R1141	ERJ3GEYJ224V	1/10W 220K	1		P4001	K1KY23AA0606	CONNECTOR(23P)	1	
R1142	ERJ3GEYG823V	1/10W 82K	1		Q4001	B1BACD000011	TRANSISTOR	1	E.S.D.
R1143	ERJ3RED474V	1/16W 470K	1		Q4002	B1ABDF000033	TRANSISTOR	1	E.S.D.
R1144	ERJ3GEYG562V	1/10W 5.6K	1		Q4003	B1ABDF000033	TRANSISTOR	1	E.S.D.
R1145	D1BFR0270001	1/2W 0.027	1		Q4004	B1ABDF000033	TRANSISTOR	1	E.S.D.
R1171	ERJ3GEYJ472V	1/10W 4.7K	1		Q4005	B1ABDF000033	TRANSISTOR	1	E.S.D.
R1172	ERJ3GEYJ472V	1/10W 4.7K	1		Q4006	B1ABDF000033	TRANSISTOR	1	E.S.D.
R1173	ERJ3GEYJ562V	1/10W 5.6K	1		Q4007	B1ABDF000033	TRANSISTOR	1	E.S.D.
R1174	ERDS2TJ470T	1/4W 47	1		Q4008	B1ADCF000172	TRANSISTOR	1	E.S.D.
R1176	ERJ3GEYJ471V	1/10W 470	1		Q4009	B1ABDF000033	TRANSISTOR	1	E.S.D.
R7009	ERJ3GEYJ104V	1/10W 100K	1		QR4001	B1GDCFJJ0037	TRANSISTOR	1	E.S.D.
△ T1001	G4D2A0000314	TRANSFORMER	1		QR4002	B1GBCFJJ0040	TRANSISTOR	1	E.S.D.
T1101	G4D1A0000129	TRANSFORMER	1		R4001	D0HD331ZA002	1/16W 330	1	
△ VA1001	ERZV05Z471CS	VARISTOR	1		R4002	ERJ3GEYJ473V	1/10W 47K	1	
W201	ERJ6GEY0R00V	1/8W 0	1		R4003	ERJ3GEYJ473V	1/10W 47K	1	
ZA1001	K9ZZ00001279	EARTH PLATE	1		R4004	ERJ3GEYJ473V	1/10W 47K	1	
ZA1021	VSC5603-A	HEAT SINK	1		R4005	ERJ3GEYJ473V	1/10W 47K	1	
ZA1022	XYN3+J8FJ	SCREW	1		R4006	ERJ3GEYJ473V	1/10W 47K	1	
ZA1111	XYN3+J8FJ	SCREW	1		R4007	ERJ3GEYJ473V	1/10W 47K	1	
ZA1112	VSC6221	HEAT SINK	1		R4008	D0HD821ZA002	1/10W 820	1	
ZB7001	RMN0913-J	FL HOLDER	1		R4009	ERJ3GEYJ821V	1/10W 820	1	
##	VEP70324B	OPEN SW P.C.B.		(RTL) E.S.D.	R4010	ERJ3GEYJ821V	1/10W 820	1	
S7581	EVQ11A05R	SWITCH	1		R4011	D0HD821ZA002	1/10W 820	1	
##	VEP70322B	POWER SW P.C.B.		(RTL) E.S.D.	R4012	D0HB821ZA002	1/16W 820	1	
S7551	EVQ11A05R	SWITCH	1		R4013	ERJ3GEYJ821V	1/10W 820	1	
##	VEP73172B	AUDIO OUT P.C.B.		(RTL) E.S.D.	R4014	ERJ3GEYJ821V	1/10W 820	1	
C4002	F2A1C101B299	16V 100U	1		R4015	D0HB821ZA002	1/16W 820	1	
C4003	F0A2E1030004	250V 0.01U	1		R4016	D0HB821ZA002	1/16W 820	1	
C4004	F2A1E221A643	25V 220U	1		R4017	ERJ3GEYJ821V	1/10W 820	1	
C4005	F0A2E1030004	250V 0.01U	1		R4018	ERJ3GEYJ821V	1/10W 820	1	
C4006	F0A2E1030004	250V 0.01U	1		R4019	D0HB821ZA002	1/16W 820	1	
C4009	F2A1E221A643	25V 220U	1		R4020	ERJ3GEYJ221V	1/8W 220	1	
C4010	F2A1C470B174	16V 47U	1		R4021	ERJ6GEYJ221V	1/8W 220	1	
C4011	F2A1E470A205	25V 47U	1		R4022	ERJ3GEYJ221V	1/10W 220	1	
C4012	F2A1E470A205	25V 47U	1		R4023	ERJ3GEYJ221V	1/10W 220	1	
C4013	F2A1E470A205	25V 47U	1		R4024	ERJ3GEYJ221V	1/10W 220	1	
C4014	F2A1C470B174	16V 47U	1		R4025	ERJ3GEYJ221V	1/10W 220	1	
C4015	F2A1C470B174	16V 47U	1		R4026	ERJ3GEYJ102V	1/10W 1K	1	
C4016	F1H1H102A004	50V 1000P	1		R4027	ERJ3GEYJ102V	1/10W 1K	1	
C4017	F1H1H102A004	50V 1000P	1		R4028	ERJ3GEYJ102V	1/10W 1K	1	
C4018	F1H1H102A004	50V 1000P	1		R4029	ERJ3GEYJ102V	1/10W 1K	1	
C4019	F1H1H102A004	50V 1000P	1		R4030	ERJ6GEYJ391V	1/8W 390	1	
C4020	F1H1H102A004	50V 1000P	1		R4031	ERJ3GEYJ750V	1/10W 75	1	
C4021	F1H1H102A004	50V 1000P	1		R4032	ERJ3GEYJ103V	1/10W 10K	1	
C4022	F2A1E470A205	25V 47U	1		R4033	ERJ3GEYJ470V	1/10W 47	1	
C4023	F1H1C104A071	16V 0.1U	1		R4042	ERJ3GEYJ103V	1/10W 10K	1	
C4024	F1H1C104A071	16V 0.1U	1		ZA4002	K9ZZ00001279	EARTH PLATE	1	
C4025	F1H1C104A071	16V 0.1U	1		ZA4003	K9ZZ00001279	EARTH PLATE	1	
C4026	F2A0J470A599	6.3V 47U	1						

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
1	RKM0605A-KJ	TOP CASE	1	
3	VEE1H06	POWER CABLE	1	
4	VEP70323C	FRONT P.C.B.	1 (RTL) E.S.D.	
5	VEP71169E	POWER P.C.B.	1 (RTL) E.S.D.	
6	VEP73172B	AUDIO OUT P.C.B.	1 (RTL) E.S.D.	
7	RGR0397G-A1	REAR PANEL	1 EG,EB	
7	RGR0397G-B1	REAR PANEL	1 EE	
7	RGR0397G-C	REAR PANEL	1 EF	
9	RMX0437	INSULATION SHEET	1	
10	RMZ0975-J	BARRIER	1	
11	RSC0851	HEAT TRANSFER SHEET	1	
12	RSC0854	HEAT TRANSFER SHEET	1	
13	RGQ0564-KJ	LSI COVER	1	
14	RKA0207-H1	FOOT BASE	1	
15	RKA0207-H1	FOOT BASE	1	
16	RKA0117-K	FOOT BASE	1	
17	RKA0117-K	FOOT BASE	1	
19	RYP1513-K	FRONT PANEL ASS'Y	1	
19-1	RYK1588-KJ	FL WINDOW ASS'Y	1	
19-2	RGU2670-KJ	OPEN/CLOSE BUTTON	1	
19-3	RGU2672-KJ	POWER BUTTON	1	
19-4	RYF0875-KJ	TRAY DOOR ASS'Y	1	
19-4-1	RMB0899-L	DOOR SPRING	1	
19-4-2	RMG0735-K	TRAY DOOR CUSHION	1	
19-4-3	RMG0735-K	TRAY DOOR CUSHION	1	
19-5	RYF0876-KJ	DOOR ASS'Y	1	
20	VMG1212	FOOT CUSHION	1	
21	VMG1212	FOOT CUSHION	1	
22	RKA0117-K	FOOT BASE	1	
23	RKA0117-K	FOOT BASE	1	
24	VEP70324B	OPEN SW P.C.B.	1 (RTL) E.S.D.	
25	RQLC1025	CAUTION LABEL	1	
26	VWJ1998-1	SW PCB FFC	1	
27	VEP70322B	POWER SW P.C.B.	1 (RTL) E.S.D.	
28	RFKNBD85EGT	BDP/DIGITAL P.C.B. MODULE	1 EG	
28	RFKNBD85EFT	BDP/DIGITAL P.C.B. MODULE	1 EF	
28	RFKNBD85EBT	BDP/DIGITAL P.C.B. MODULE	1 EB	
28	RFKNBD85EET	BDP/DIGITAL P.C.B. MODULE	1 EE	
28-1	VWJ2058-1	FFC(18P)	1	
28-2	VXY2079T	DRIVE UNIT	1 (JIG & ADJ.)	
28-3	RFKB76201BT	DIGITAL P.C.B.	1 EG (RTL) E.S.D. (JIG & ADJ.)	
28-3	RFKB76201DT	DIGITAL P.C.B.	1 EB (RTL) E.S.D. (JIG & ADJ.)	
28-3	RFKB76201ET	DIGITAL P.C.B.	1 EE,EF (RTL) E.S.D. (JIG & ADJ.)	
30	RMN0091	PCB SUPPORT	1	
41	RHD30113-1K	SCREW	1	
42	RHD30113-1K	SCREW	1	
43	RHD30119-L	SCREW	1	
44	RHD30119-L	SCREW	1	
45	RHD30119-L	SCREW	1	
46	RHD30101-1	SCREW	1	
47	RHD30101-1	SCREW	1	
48	RHD30101-1	SCREW	1	
49	RHD30101-1	SCREW	1	
50	RHD30101-1	SCREW	1	
51	RHD30101-1	SCREW	1	
52	RHD30101-1	SCREW	1	
53	RHD30101-1	SCREW	1	
54	RHD30101-1	SCREW	1	
55	RHD30101-1	SCREW	1	
56	RHD30101-1	SCREW	1	
57	RHD30101-1	SCREW	1	
58	RHD30101-1	SCREW	1	
59	RHD30101-1	SCREW	1	
60	RHD30101-1	SCREW	1	
61	RHD30101-1	SCREW	1	
62	RHD30102-1	SCREW	1	
63	RHD30102-1	SCREW	1	
64	RHD30102-1	SCREW	1	
65	RHD30102-1	SCREW	1	
66	RHD30119-L	SCREW	1	
67	RHD30119-L	SCREW	1	
68	RHD30119-L	SCREW	1	
69	RHD30119-L	SCREW	1	

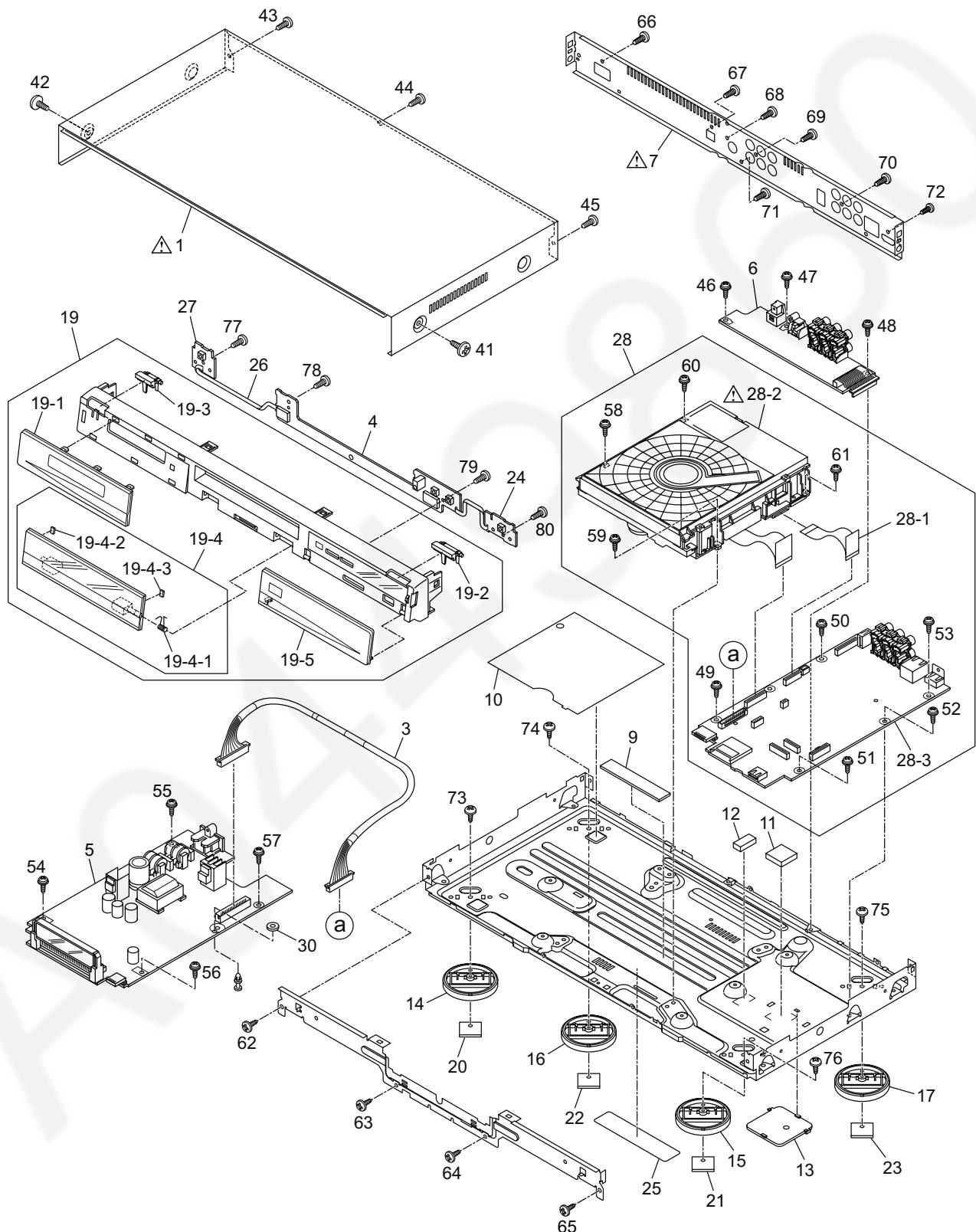
Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
70	RHD30119-L	SCREW	1	
71	RHD30119-L	SCREW	1	
72	XSN3+4FJ	SCREW	1	
73	RHD30105-1	SCREW	1	
74	RHD30105-1	SCREW	1	
75	RHD30105-1	SCREW	1	
76	RHD30105-1	SCREW	1	
77	RHD26045	SCREW	1	
78	RHD26045	SCREW	1	
79	RHD26045	SCREW	1	
80	RHD26045	SCREW	1	

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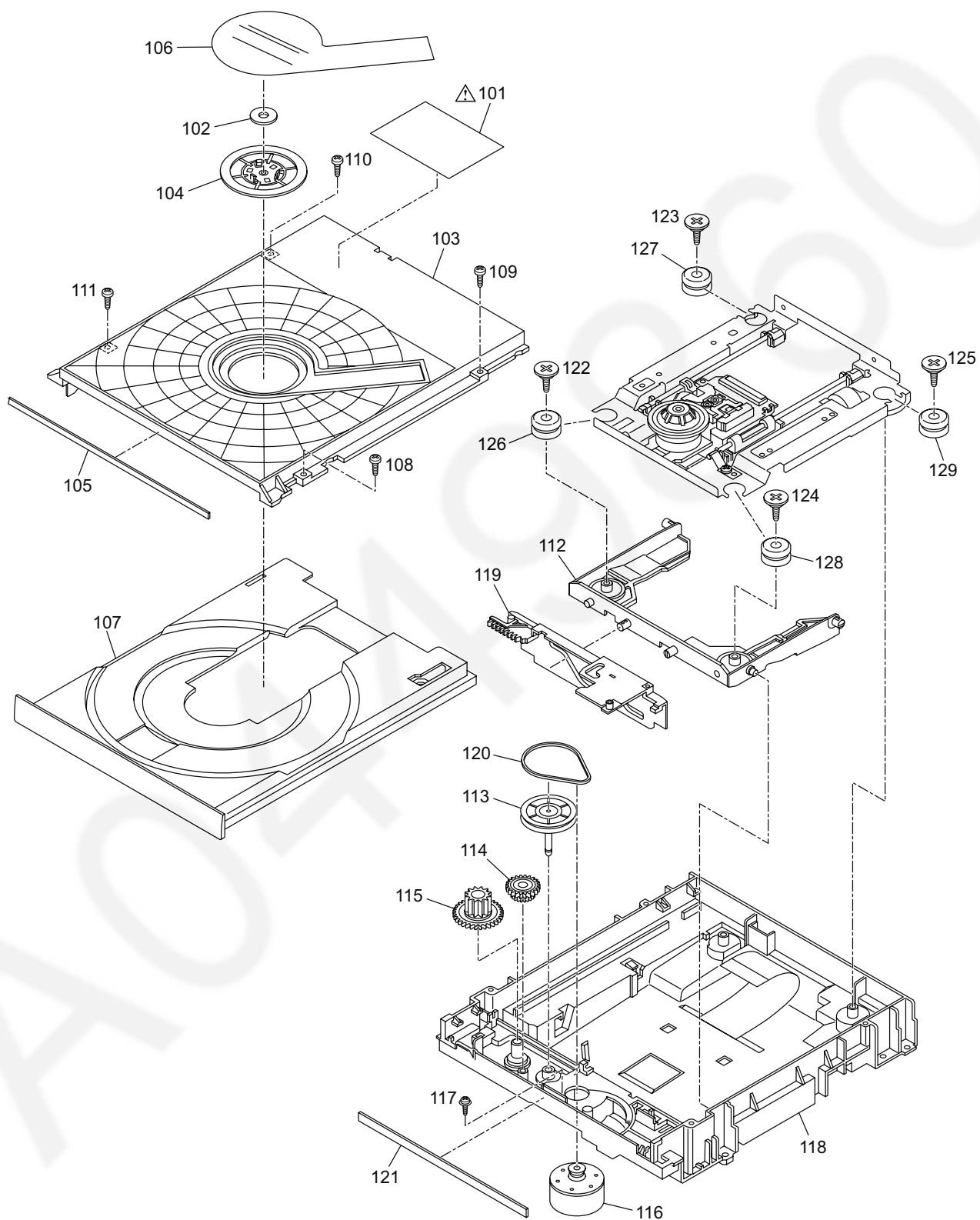


## S8. Exploded View

### S8.1. Frame and Casing Section



## S8.2. Mechanism Section



### S8.3. Packing Parts and Accessories Section

