SONY

PROFESSIONAL VIDEO MONITOR

BVM-X300

TRIMASTER EL 4K

SERVICE MANUAL

1st Edition (Revised 1)

⚠警告

このマニュアルは，サービス専用です。
お客様が，このマニュアルに記載された設置や保守，点検，修理などを行うと感電や火災，人身事故につながることがあります。
危険をさけるため，サービストレーニングを受けた技術者のみご使用ください。

⚠WARNING

This manual is intended for qualified service personnel only.
To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

⚠WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.
Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

⚠AVERTISSEMENT

Ce manual est destiné uniquement aux personnes compétentes en charge de l’entretien. Afin de réduire les risques de décharge électrique, d’incendie ou de blessure n’effectuer que les réparations indiquées dans le mode d’emploi à moins d’être qualifié pour en effectuer d’autres. Pour toute réparation faire appel à une personne compétente uniquement.

設置時には，通気やサービス性を考慮して設置スペースを確保してください。
・ファンの排気部や通気孔をふさがない。
・通気のために，セット周辺に空間をあける。
・作業エリアを確保するため，セット後方は，40 cm 以上の空間をあける。
机上などの平面に設置する場合は、上に 10 cm 以上の空間を確保してください。

When installing the installation space must be secured in consideration of the ventilation and service operation.
- Do not block the ventilation slots, and vents of the fans.
- Leave a space around the unit for ventilation.
- Leave more than 40 cm of space in the rear of the unit to secure the operation area.

When the unit is installed on the desk or the like, leave at least 10 cm of space in the top side.

警告

設置の際には，容易にアクセスできる固定配線内に専用遮断装置を設けるか，機器使用中に，容易に抜き差しできる機器に近いコンセントに電源プラグを接続してください。
万一，異常が起きた際には，専用遮断装置を切るか，電源プラグを抜いてください。

WARNING
When installing the unit, incorporate a readily accessible disconnect device in the fixed wiring, or connect the power plug to an accessible socket-outlet near the unit. If a fault should occur during operation of the unit, operate the disconnect device to switch the power supply off, or disconnect the power plug.

WARNUNG
Beim Einbau des Geräts ist daher im Festkabel ein leicht zugänglicher Unterbrecher einzufügen, oder der Netzstecker muss mit einer in der Nähe des Geräts befindlichen, leicht zugänglichen Wandsteckdose verbunden werden. Wenn während des Betriebs eine Funktionsstörung auftritt, ist der Unterbrecher zu betätigen bzw. der Netzstecker abzuziehen, damit die Stromversorgung zum Gerät unterbrochen wird.

安全のために，周辺機器を接続する際は，過大電圧を持つ可能性があるコネクターを以下のポートに接続しないでください。
: SERIAL REMOTE コネクター
上記のポートについては本書の指示に従ってください。

For safety, do not connect the connector for peripheral device wiring that might have excessive voltage to the following port.
: SERIAL REMOTE connector
Follow the instructions for the above port.

For kundene i Norge

Dette utstyret kan kobles til et IT-strømfordelingssystem.

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Revision History

Manual Structure

Purpose of this manual

This manual is the Service Manual of the Professional Video Monitor BVM-X300. This manual describes the information on the premise of providing the block level service such as service overview, troubleshooting, replacement of parts, software update, maintenance menu, circuit description, spare parts, block diagrams, and frame wiring.

The panel module is replaced as a block. Therefore, the information of the boards except BC4 board inside of the panel module is not included.

Related manuals

In addition to this Service Manual the following manuals are provided.

- **Operating Instructions (supplied with this unit)**
  This manual is necessary for application and operation of this unit.

- **Factory Service Manual (available on request)**
  This manual describes the information on the premise the service based on the components parts of this unit.

Trademarks

Trademarks and registered trademarks used in this manual are as follows.

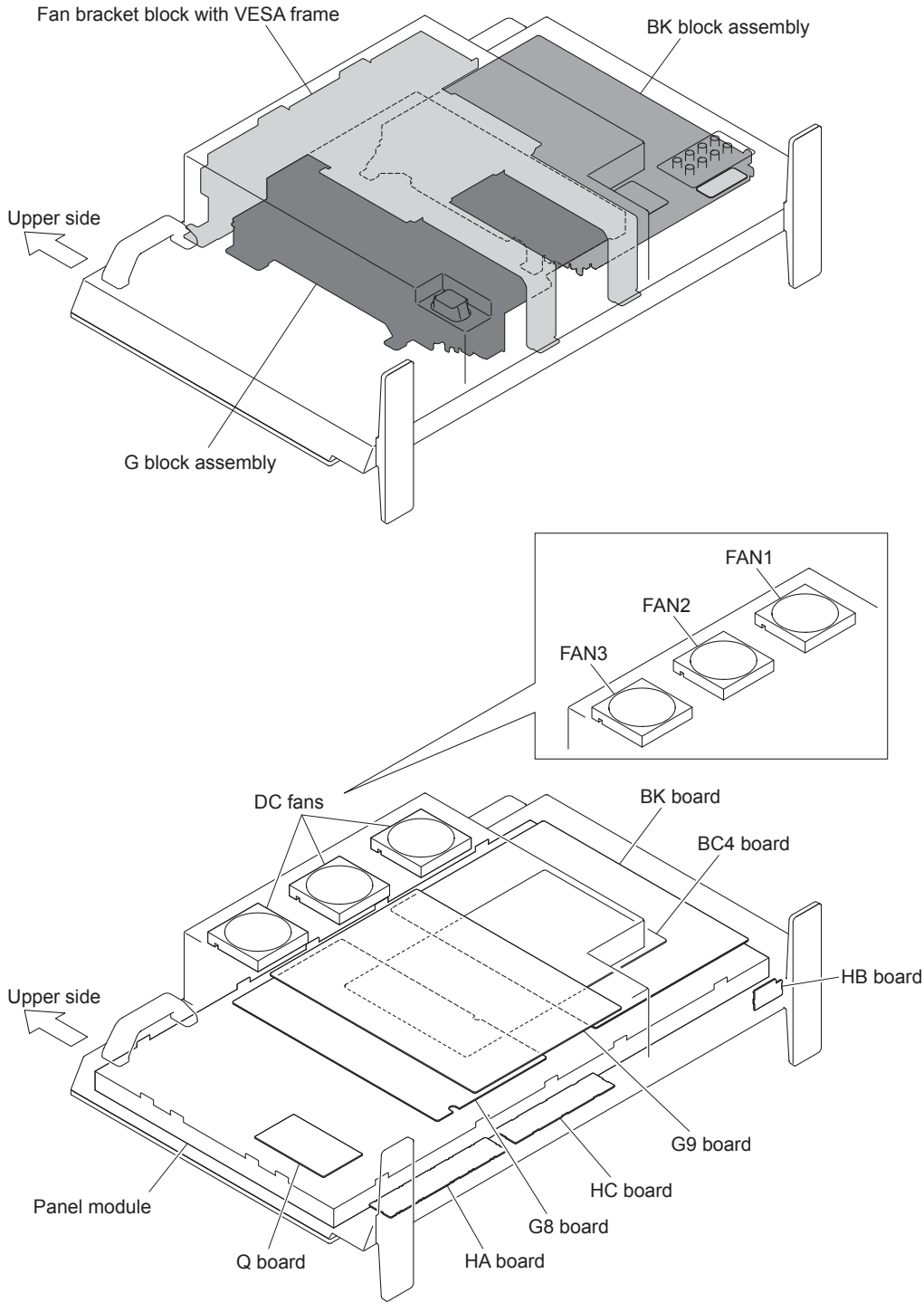
- Windows is trademarks or registered trademarks of Microsoft Corporation in the United States and the other countries.
- The terms HDMI and HDMI High-Definition Multimedia Interface, and the HDMI Logo are trademarks or registered trademarks of HDMI Licensing LLC in the United States and other countries.

Other system names, product names, and company names appearing in this manual are trademarks or registered trademarks of their respective holders.

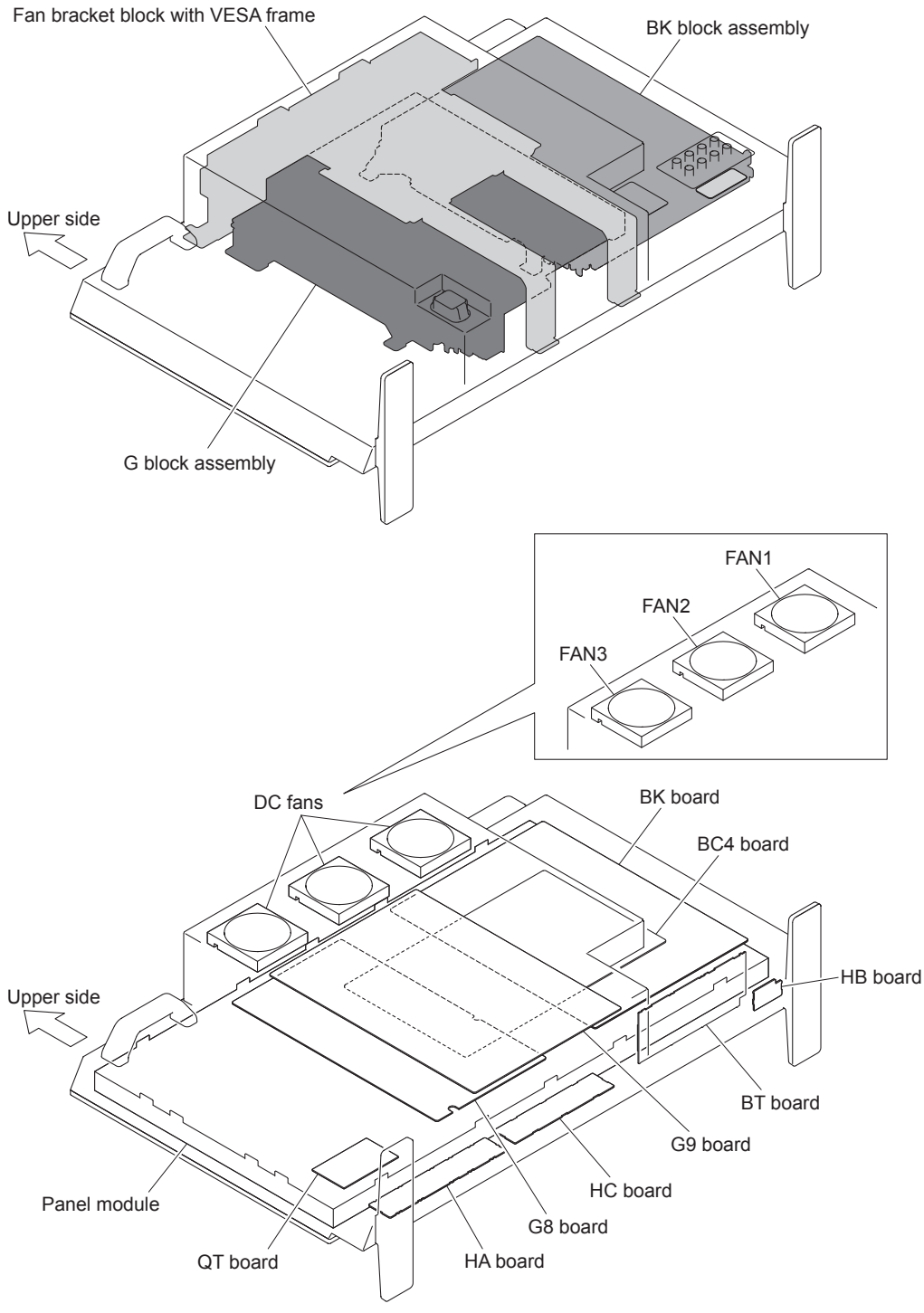
Section 1
Service Overview

1-1. Parts Location

Serial No.: 7000001 to 7100000 (SY)
Serial No.: 7200001 to 7300000 (CN)



Serial No.: 7100001 and Higher (SY)
Serial No.: 7300001 and Higher (CN)



1-2. Recommended Power Cord

This unit does not come with a power cord.
To get a power cord, contact your local Sony Sales Office/Service Center.

WARNING

- Use the approved Power Cord (3-core mains lead)/Appliance Connector/Plug with earthing-contacts that conforms to the safety regulations of each country if applicable.
- Use the Power Cord (3-core mains lead)/Appliance Connector/Plug conforming to the proper ratings (Voltage, Ampere).

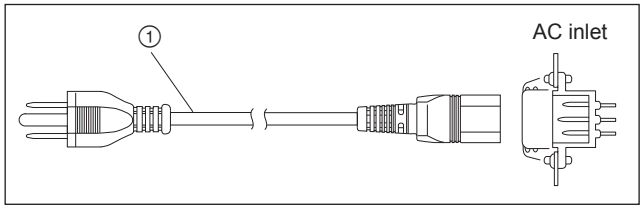
If you have questions on the use of the below Power Cord/Appliance Connector/Plug, contact your local Sony Sales Office/Service Center.

WARNING

Never use an injured power cord.

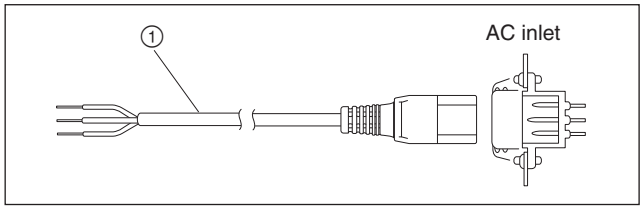
For customers in the U.S.A. and Canada:

① Power cord 125 V 10 A (2.4 m): ⚠1-534-827-15



For customers in European countries

① Power cord 250 V 10 A (2.5 m): ⚠1-782-929-13



If the unit is used in the area except above, contact your local Sony Sales Office/Service Center.

Note

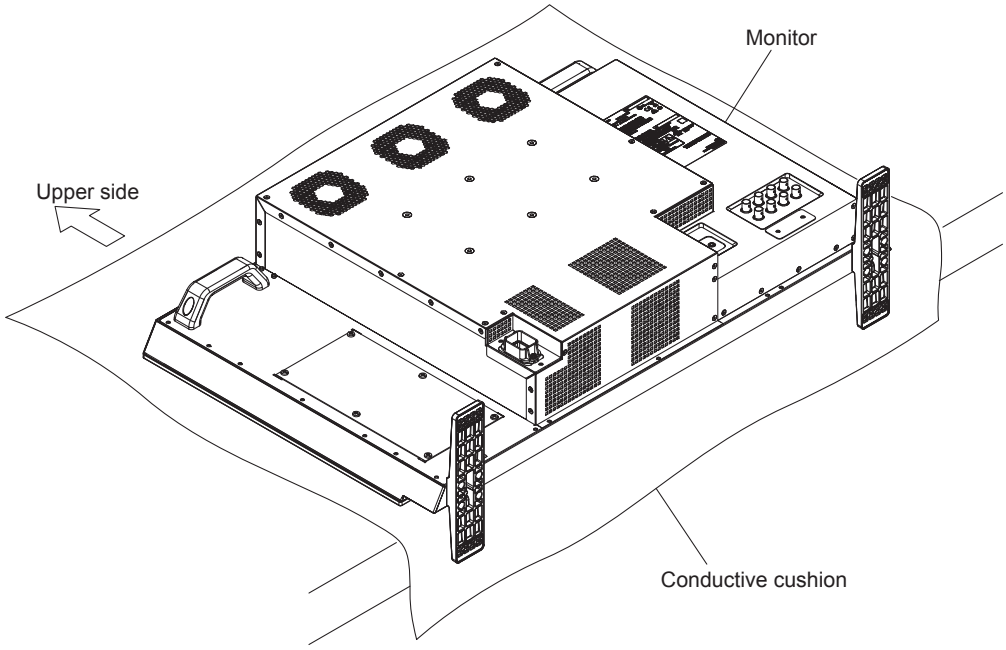
In this unit, plug holder is not used for the power cord.

1-3. Conductive Cushion

Put a monitor on the conductive cushion as shown in the figure below.
This prevents the panel or bezel assembly from being damaged.
Use a conductive material to prevent static electricity.

Illustration in this manual

A conductive cushion is not described in the illustration of replacement procedure.



1-4. Circuit Protective Parts

1-4-1. Fuse

This unit has a fuse for circuit protection. A fuse will blow when abnormality occurs and an overcurrent flows in this equipment. Be sure to replace an old fuse with the specified fuse as shown below after removing the foreign substances that may cause the shorts.

Board name	Ref No.	Part No./Part name
BK	F101 to F104	⚠ 1-523-133-31 Fuse, 50 V/1.4 A
	F201 to F203, F205 to F209, F301, F303, F305, F306, F309, F310, F401 to F405	⚠ 1-523-135-31 Fuse, 32 V/3.15 A
G8	F6000, F6001	⚠ 1-523-067-51 Fuse, 250 V/5 A
BT	F6000	⚠ 1-523-133-31 Fuse, 50 V/1.4 A

1-5. Disconnecting/Connecting Fine-Wire Coaxial Cable and Coaxial Cable

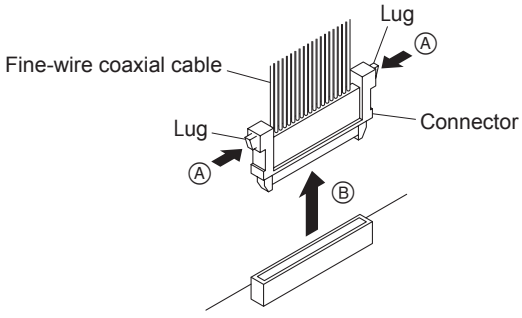
1-5-1. Replacing the Fine-Wire Coaxial Cable

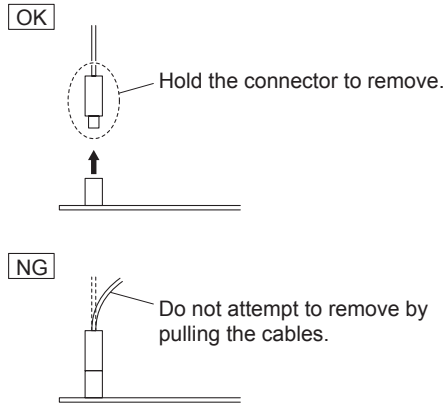
Note

- A fine-wire coaxial cable is very thin. Be careful not to break it when handling the fine-wire coaxial cable.
- When disconnecting the fine-wire coaxial cable, do not attempt to remove by pulling the cable. Be sure to hold the connector to remove.
- Confirm that the contact on the fine-wire coaxial cable is free from dirt or dust.

Disconnecting

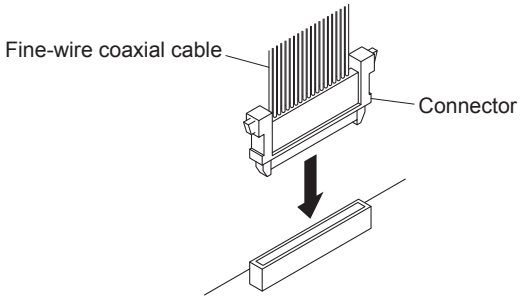
1. While pushing the two lugs in the direction of the arrow Ⓐ, pull out the connector straight in the direction of the arrow Ⓑ.





Connecting

1. Insert the connector as far as it will go.



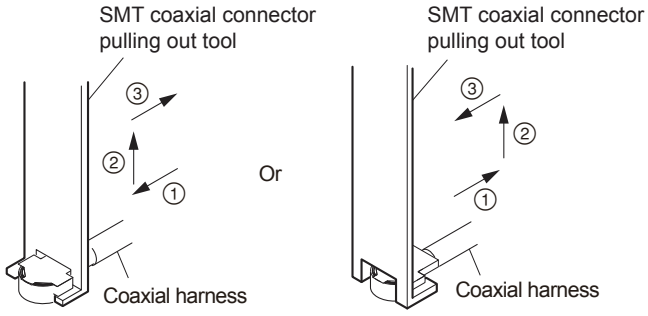
1-5-2. Disconnecting/Connecting the Coaxial Cable

Required tool

When removing the coaxial cables, use the following tool.
SMT coaxial connector pulling out tool: Part number J-7121-380-A

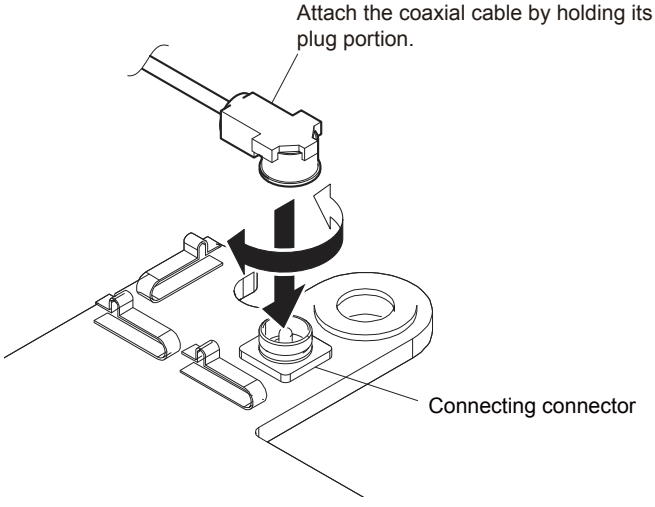
Disconnecting

1. Attach the SMT coaxial connector pulling out tool by sliding it in the direction of the arrow ①.
2. Pull out the SMT coaxial connector pulling out tool vertically in the direction of the arrow ②.
3. Remove the SMT coaxial connector pulling out tool from the coaxial cable in the direction of the arrow ③.



Connecting

1. Hold the plug of the coaxial cable.
2. Push the plug perpendicularly to the connector while slightly turning the plug clockwise and counter clockwise.



1-6. Lead-free Solder

All boards mounted in this unit use lead-free solder. Be sure to use lead-free solder when repairing the boards of this unit. A lead free mark (LF) indicating that the solder contains no lead is printed on each board.
(Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size.)

 : LEAD FREE MARK

Note

- The lead-free solder melts at a temperature about 40 °C higher than the ordinary solder, therefore, it is recommended to use the soldering iron having a temperature regulator.
- The ordinary soldering iron can be used but the iron tip has to be applied to the solder joint for a slightly longer time. The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful.

Section 2
Periodic Replacement Parts and Cleaning

2-1. Periodic Replacement Parts

The replacement period of each part is changed according to the environment and conditions of use.
This section indicates the replacement period of parts when this unit is used at an operating temperature of 25 C°.

Note

This table does not describe the guarantee period of each part.

Part name	Part No.	Number of pieces	Replacement period (h) (Operating time: 24 hours/day)	(Operating time: 16 hours/day)
G8 board	A-2070-731-A	1	25000	50000
G9 board	A-2070-732-A	1	25000	50000
Panel module (when mainly operated in the HDR display)	A-2071-040-A	1	12000	20000
Panel module (when mainly operated in those other than HDR display)			15000	25000
DC fan	1-787-689-11	3	20000	40000

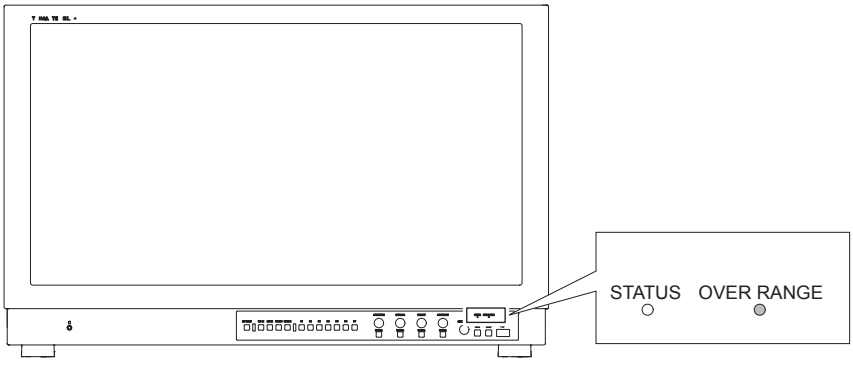
Cautions on HDR display

- The HDR (High Dynamic Range) display indicates the state in which EOTF of a monitor is set to 2.4(HDR), S-Log3(HDR), S-Log2(HDR), SMPTE ST 2084(HDR), HLG SG 1.2 (HDR), HLG SG Variable(HDR), or S-Log3(Live HDR)
- Depending on the type of a display image or the operation method, an HDR display function may quicken the replacement period of a panel.
- To reduce burn-in, do not display a fixed image or still image in which high-luminance display is contained, a time code, a marker, or logo continuously for long time. Investigate that it is displayed in a low level signal of less than 100%.
- During HDR display, a cooling fan forcibly operates irrespective of the outside air temperature.

2-2. Cleaning

Clean the dust near a panel module, inlet port, or fans periodically.
It is recommended to clean the dust once a year.

An OVER RANGE indicator blinks in amber when luminance decreases to protect the panel during increase in temperature. Perform cleaning when the luminance frequently decreases.

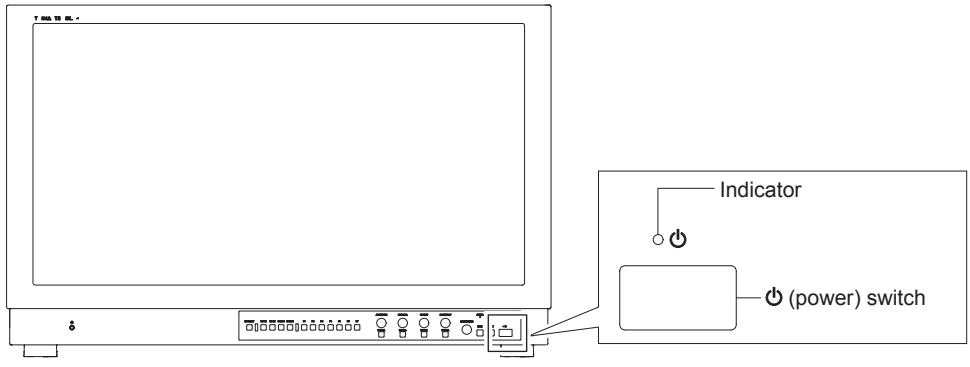


Section 3
Troubleshooting

3-1. Flow of Troubleshooting

Symptom

- The indicator of a ⏻ (power) switch on the front panel blinks in red. No image is displayed.
- The indicator of a ⏻ switch blinks in red. An image is displayed.



Remedy

1. Connect PC to the monitor and confirm a device and register. (Refer to Section 3-2.)
2. When an error cannot be identified by “Identification of an Error Using PC”, confirm the indicator on the board.

Board and indicator	Remedy
D6228 on the G8 board	Confirm the power system. (Refer to Section 3-3-1.)
D6326 on the G9 board	Confirm the power system. (Refer to Section 3-3-2.)
D401, D402, and D403 on the BK board D114, D116, D119, D120, and D121 on the BK board	Confirm the power system. (Refer to Section 3-3-3.)

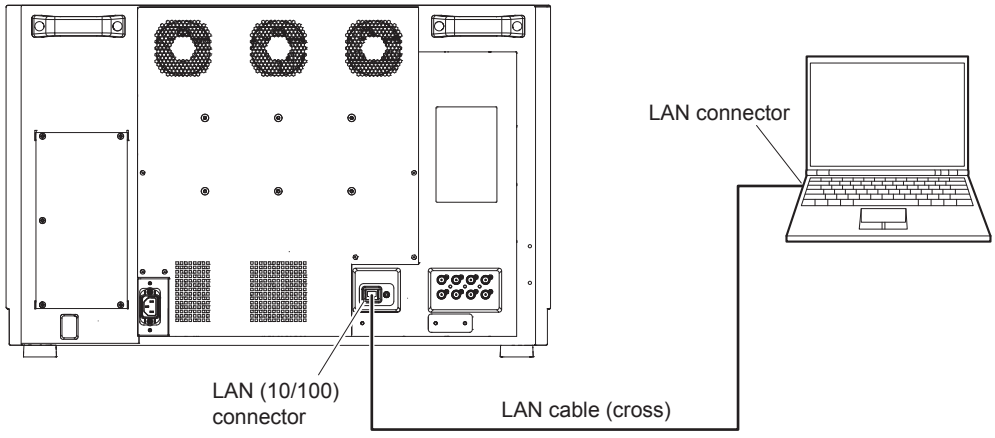
3. When an image is not displayed, acquire the information of the monitor using PC. (Refer to Section 3-4.)

3-2. Identification of an Error Using PC

3-2-1. Required Items

- Personal computer (Hereinafter referred to as PC)
  OS: Windows 7, Windows 8 or Windows 8.1
- LAN cable (cross)
- Terminal software: Tera Term, etc.
- Login name and password
  For obtaining the login name and password, contact your local Sony Sales Office/Service Center.

3-2-2. Connection Diagram



3-2-3. Setting of PC

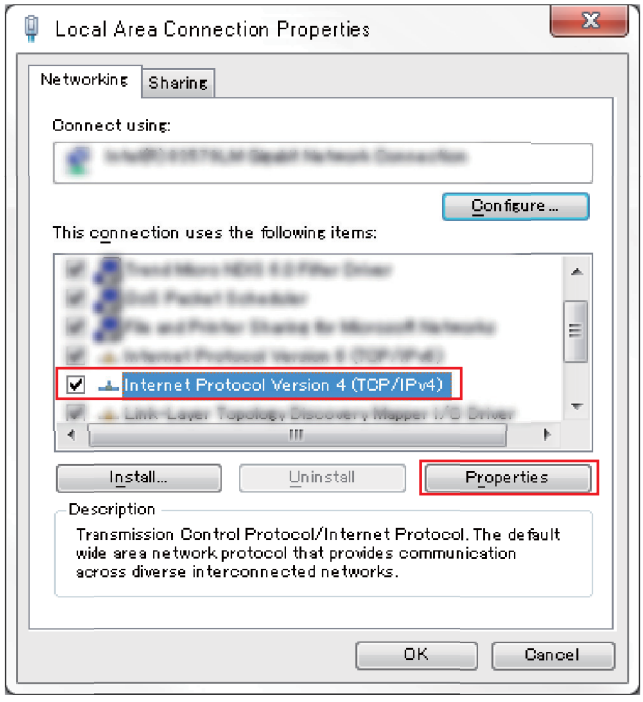
Besides the error identification, this unit uses PC when updating the software and FPGA, and also when performing the procedure after replacing each board and OLED panel module. When connecting PC to this unit, perform the setting of PC in the following procedure.

Note

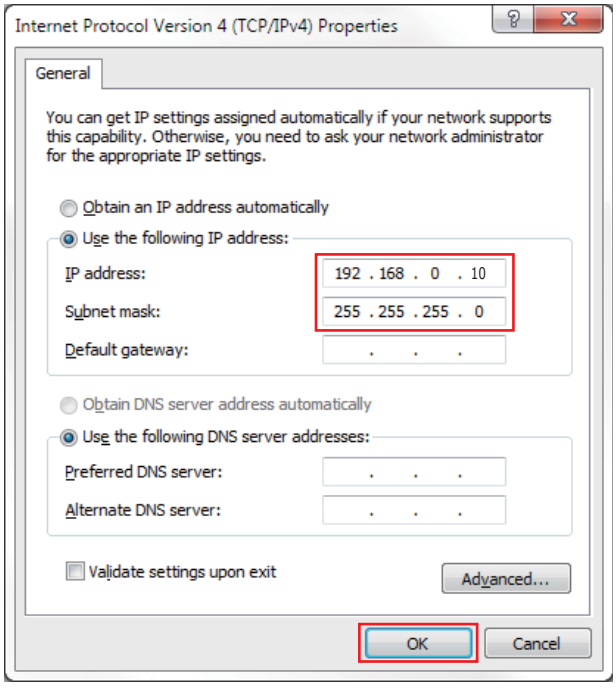
This section describes with an example of the updating procedure in Windows 7. In the Windows OS except Windows7, the screen display may be different.

Procedure

1. Boot the PC.
2. Set Wi-Fi to OFF.
3. Click [Start], click [Control Panel], click [Network and Sharing Center], and then click [Change adapter settings].
4. Right-click [Local Area Connection] and select [Properties].
   The Local Area Connection Properties screen appears.
5. Select [Internet Protocol Version 4 (TCP/IPv4)] and click the [Properties] button.



6. Enter “192.168.0.10” in the [IP address] field, enter “255.255.255.0” in the [Subnet mask] field, and then click the [OK] button.



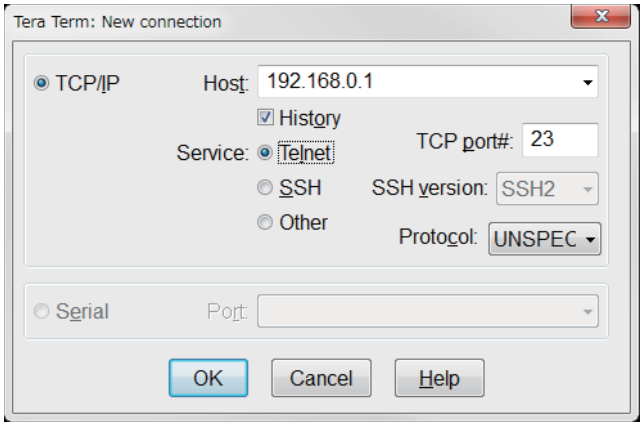
7. Click [OK].
   The Local Area Connection Properties screen closes.

3-2-4. Connecting Commands from the PC

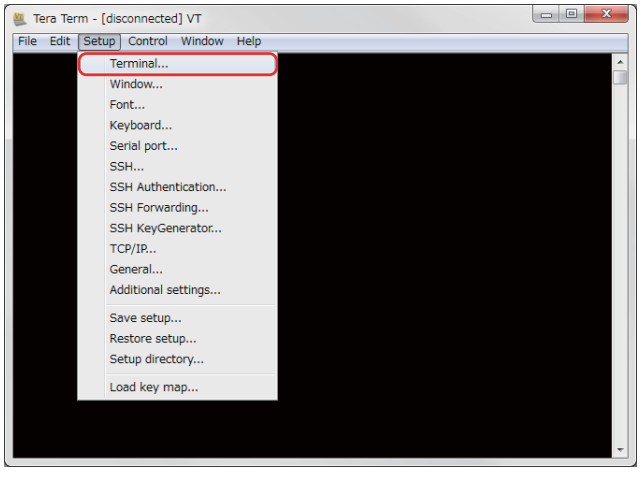
The terminal software Tera Term (open source software) is used in this section.
Refer to the following websites about Tera Term.
Japanese: http://ttssh2.sourceforge.jp/index.html.ja
English: http://ttssh2.sourceforge.jp/index.html.en

Procedure

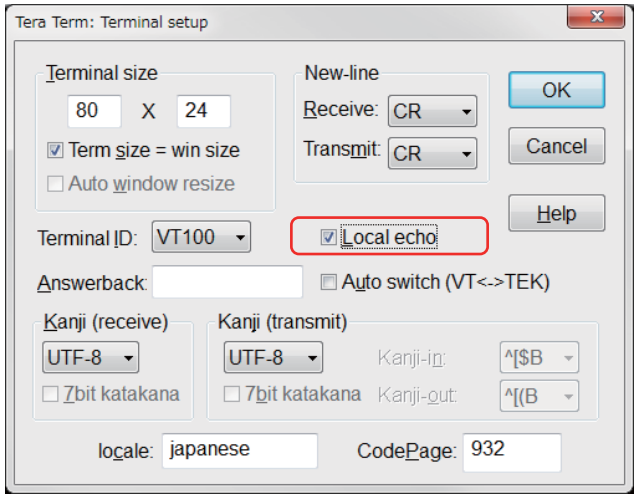
1. Run the Tera Term.
2. Make the following settings for connection to the unit.
   - Protocol: TCP/IP
   - Destination host IP address: 192.168.0.1
   - Port number: 23
   - Service: Telnet



3. Click [OK].
   When the connection has been successfully completed, [login:] appears.
4. Select [Setup] and then [Terminal] from the menu.
   The [Terminal setup] menu appears.



5. Select the [Local echo] checkbox.



6. Click [OK].
   `[login:]` appears.
7. Log in to the unit.

Note

Commands for the command connection are two types (MR6 and DgTerm). User name and password are different for MR6 commands and DgTerm commands. Log in using each of the user name and password to select the type of commands. For user name and password, contact your local Sony Sales Office/Service Center.

(1) Enter user name and press the Enter key.
`[pass:]` appears.
(2) Enter password and press the Enter key.
[>] appears to allow you to enter a command.

Tip

Example of notation for commands input:
- ␣ : Space for one character
- ⏎ : Enter key

After each command has been entered, check the return value and then enter the next command or perform the following procedure.
- Several seconds are required until “ok” appears in some cases.
- If “ng” appears, re-enter the command.

Note

At the end of the work, be sure to disconnect the unit from the PC by using the Tera Term.
The Tera Term can no longer be used.

3-2-5. How to Find the Versions

Check the software and FPGA versions by using the menu.

Procedure

1. Turn on the unit.
2. Press the [MENU] button.
   The [MENU] selecting screen opens.
3. Select page 4 of [Status] tab. (Refer to Operating Instructions.)
4. Check the software and FPGA versions.
5. Press the [MENU] button.
   The [Menu] screen closes.

3-2-6. Identification of Error and its Remedy

1. Start Tera Term and perform the MR6 command connection from PC.
2. After ">", enter "get_system_error_status", then press the Enter key.
   Identify a failure by the displayed message.

Message when no image is displayed

Message	Possible cause	Remedy
BC4 Error	A problem exists in the board inside a panel module.	The BC4 board inside the panel module is judged to be defective. Replace the panel module. (Refer to Section 4-15.)
Panel Temp Error	A panel module becomes high in temperature, and the system shut down to ensure safety.	• Check if this unit is used within the recommended temperature range. • Check if the fan or air intake vent is not blocked. • Clean the fan and air intake vent. (Refer to Section 2-2.) If the problem persists after performing the above, replace the panel module. (Refer to Section 4-15.)
FPGA Temp Error	The FPGA of the BK board or BC4 board became too hot, which has caused the system shutdown for safety. Or, the temperature information could not be obtained because either one of the accesses to FPGA has failed, which has caused the system shutdown.	• Check if this unit is used within the recommended temperature range. • Check if the fan or air intake vent is not blocked. • Clean the fan and air intake vent. (Refer to Section 2-2.) If the problem persists, perform the command "get_temp" to identify the defective portion. (Refer to step 3.)
BK Power Error	A problem exists in the power of the BK board.	Check the state of DC-DC converter and fuse on the BK board. (Refer to "Power system diagram of BK board".)
FPGA BC4 Config Error FPGA BC4 Initialize Error	The FPGA of the panel module has caused startup error.	Identify the defective IC. (Refer to step 3.) If the defective IC cannot be identified, replace the panel module. (Refer to Section 4-15.)
FPGA BK Config Error	The FPGA on the BK board or BT board has caused startup error.	Check the configuration system. (Refer to "Configuration system diagram of BK board" and "Configuration system diagram of BT board".)
Panel Temp Sensor Error	The panel temperature became too high, or the sensor is abnormal.	• Check if this unit is used within the recommended temperature range. If the problem persists, the PT1 board in the panel module is defective. Replace the panel module. (Refer to Section 4-15.)
Room Temp Sensor Error	The ambient temperature is too high, or the sensor is abnormal.	• Check if this unit is used within the recommended temperature range. If the problem persists, check if the temperature sensor system is normal. (Refer to "I2C bus system diagram of BK board".)

Massage when the image is displayed

Message	Possible cause	Remedy
DMA Transfer Error(Power On)	The panel module correction circuit has a problem.	Replace the panel module. (Refer to Section 4-15.)
DMA Transfer Error(Normal)	The panel module correction circuit has a problem.	Turn the power of this unit off and on, and check if the system is restored. If the system is restored, the error is due to temporary noise and it is no problem. If the system is not restored without displaying the image, and at the same time, the power indicator blinks in red, identify the defective IC. (Refer to step 3.) If the defective IC cannot be identified, replace the panel module. (Refer to Section 4-15.)
FAN Error	The fan has a problem.	Perform the command “fan_error_status”. (Refer to step 3.)
BT Power Error	The BT board power supply has a problem.	Check the state of DC-DC converter and fuse on the BT board. (Refer to “Power system diagram of BK board”.)
QT Power Error	The QT board power supply has a problem.	Check the state of DC-DC converter on the QT board. (Refer to “QT board power supply system diagram”.)

3. When the following message is displayed, perform the procedure according to the message.

Message	Procedure	Reference
FPGA Temp Error	Perform the command “get_temp”.	“get_temp”
FPGA BC4 Config Error	Identify the defective IC.	“Identifying the defective IC”
FPGA BC4 Initialize Error		
DMA Transfer Error(Power On)		
DMA Transfer Error(Normal)		
FAN Error	Perform the command “fan_error_status”	“fan_error_status”

get_temp

When “FPGA Temp Error” is displayed, perform the following procedure.

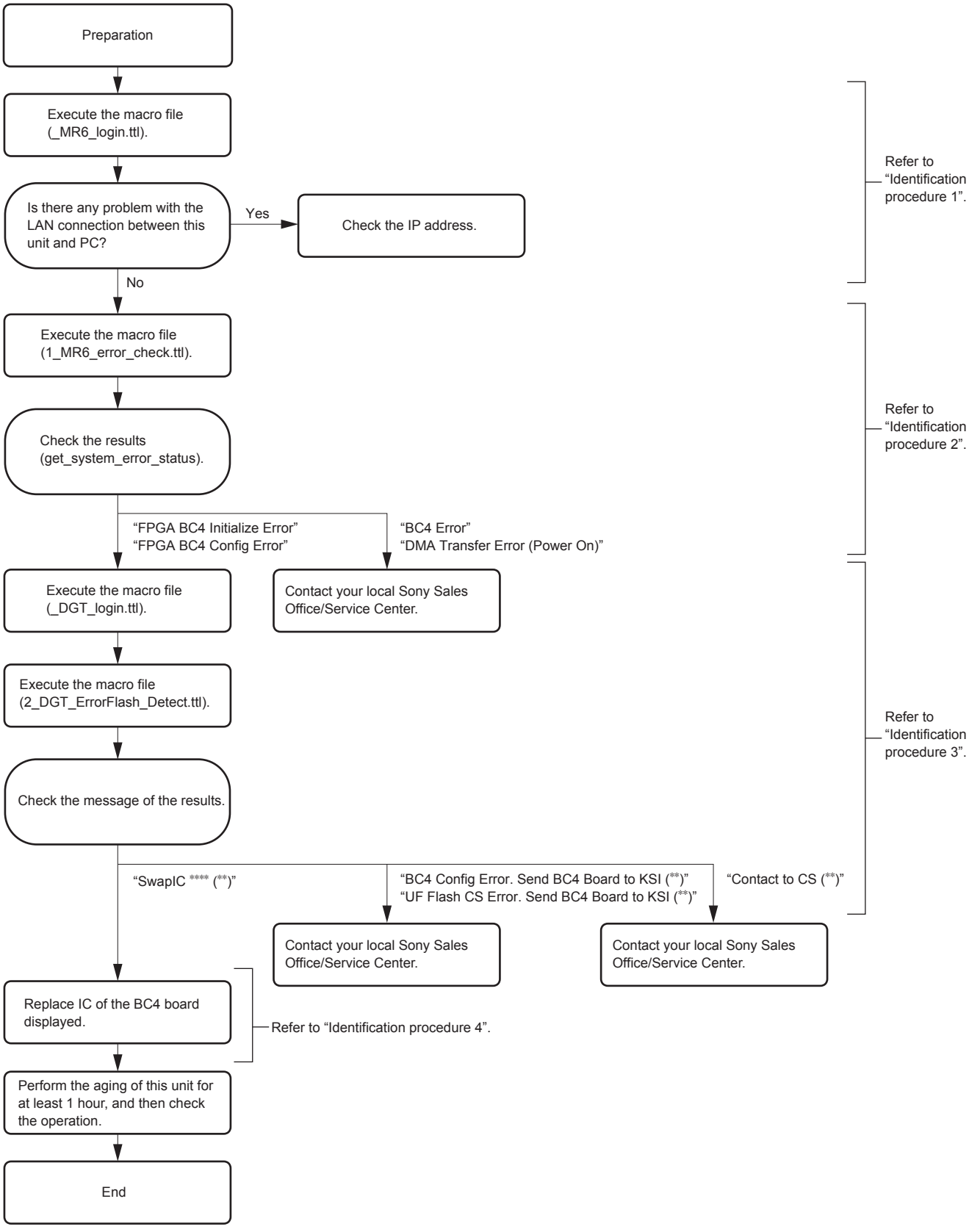
(1) Disconnect the connection between this unit and PC using Tera Term.
(2) Turn the power of this unit off and on, and then log in to Tera Term again.
(3) Check the temperature of the four FPGAs and make a note of each temperature.
   1) Type “get_temp 2” after “>”, and then press the Enter key.
      The temperature of FPGA1 is displayed.
   2) Type “get_temp 3” after “>”, and then press the Enter key.
      The temperature of FPGA2 is displayed.
   3) Type “get_temp 4” after “>”, and then press the Enter key.
      The temperature of FPGA3 is displayed.
   4) Type “get_temp 5” after “>”, and then press the Enter key.
      The temperature of FPGA4 is displayed.
(4) Compare the temperature (unit: ˚C) of the four FPGAs and identify the defective portion from the table below.

Judgment	Symptom	Remedy
When the temperature of FPGA1 or FPGA2 is the highest	The BK board has a problem.	Replace the BK board. Or, replace the radiation sheet with the new one. (Refer to Section 4-14.)
When the temperature of FPGA3 or FPGA4 is the highest	The BC4 board has a problem.	Replace the panel module. (Refer to Section 4-15.)

4. Terminate the terminal software.
   When terminating Tera Term, press the Alt and Q keys simultaneously.

Identifying the defective IC

Work flow



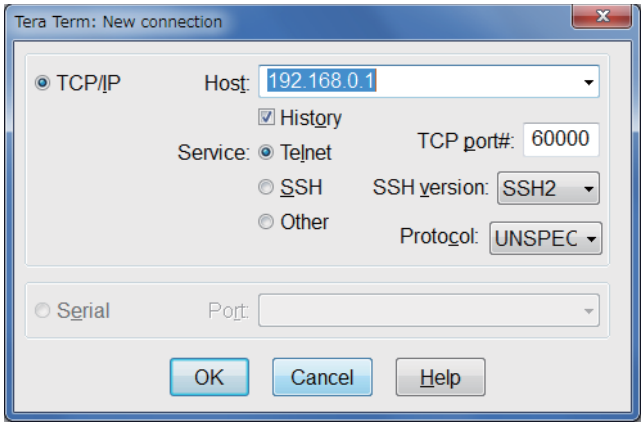
Preparation

(1) Connect this unit and PC with the LAN cable. (Refer to Section 3-2-2.)
(2) Turn on the power of this unit and PC.
(3) Copy the macro files to any location on PC. For details on how to obtain the macro files, contact your local Sony Sales Office/Service Center.
- MR6 login macro (MR6) (File name: _MR6_login.ttl)
- DGTerm login macro (DGT) (File name: _DGT_login.ttl)
- Error status readout macro (MR6) (File name: 1_MR6_error_check.ttl)
- BC4 board failure checking macro (DGT) (File name: 2_DGT_ErrorFlash_Detect.ttl)

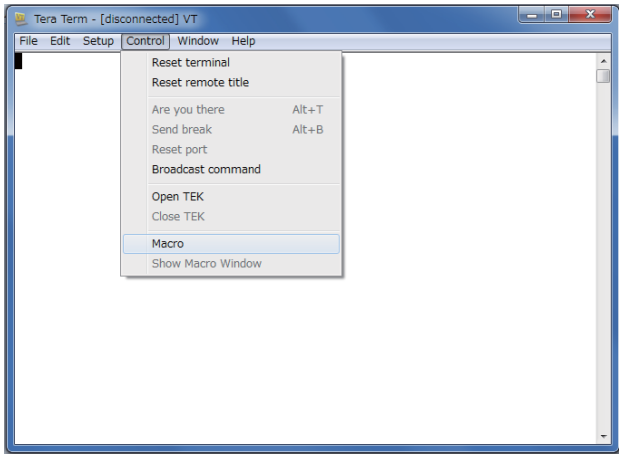
(4) Set PC. (Refer to Section 3-2-3.)

How to use the macro file

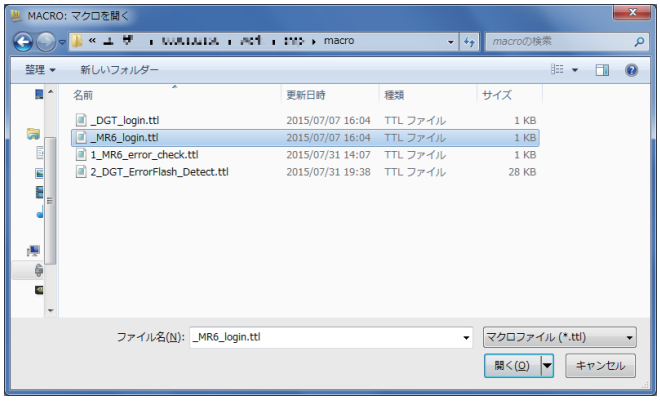
(1) Start Tera Term.
When the following window is displayed, click “Cancel”.



(2) Select “Macro” from the Control menu.



(3) Select the login macro file (_MR6_login.ttl or _DGT_login.ttl) according to the work flow.



Tip

The login macro files, MR6 and DgTerm, are different files.

- MR6: _MR6_login.ttl
- DgTerm: _DGT_login.ttl

When the login is successful, the following message is displayed.
The message indicates that this unit and PC are correctly connected by LAN.

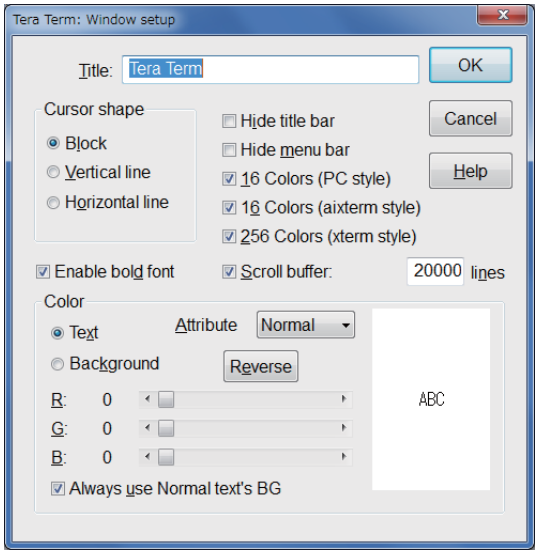
In the case of MR6

```
login: BVM_Mr6
pass:

>
```

In the case of DgTerm

```
login: BVM_DgTerm
pass:
[DgTerm]

Welcom to DragonTerm...
>
```

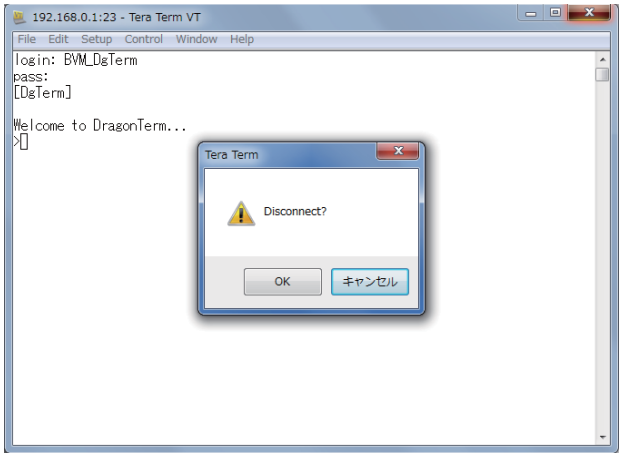
(4) Select the macro file (1_MR6_error_check.ttl or 2_DGT_ErrorFlash_Detect.ttl).
Check the message displayed in the macro.
Select “Select all” → “Copy” from the Edit menu as required, and then copy and save the file in the text editor.



Tip

If you cannot see all of the results by scrolling the window during the execution of macro, select Window … from the Setup menu and change the value of Scroll buffer setting to a larger value.

(5) To quit, close the window and disconnect the communication.



Identification procedure

Identification procedure 1

(1) Perform steps 1 to 4 in “How to use the macro file”. (Execute _MR6_login.ttl.)
When the LAN connection is not enabled, check the PC setting and IP address on the monitor side in “Preparation”. If the IP address of this unit is other than 192.168.0 1, open the macro file using the text editor and change the “connect …” line to the IP address of this unit.

Example) “connect “192.168.0.1:23 /nossh /T=1””

When the connection fails repeatedly, turn the power of this unit off and on, and then try to connect again. If the connection still fails, or the IP address is unknown, contact your local Sony Sales Office/ Service Center.

Identification procedure 2

(1) Execute “1_MR6_error_check.ttl” in the procedure of step 5 in “How to use the macro file” in the logged in state in the identification procedure 1.
(2) Check the message of the line under “get_system_error_status” and perform the identification procedure 3 as required.

Identification procedure 3

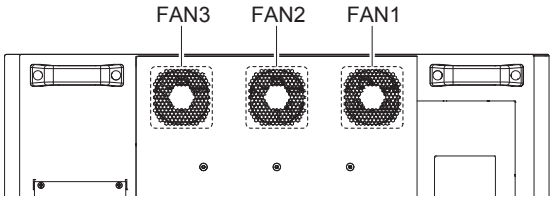
(1) Execute “_DGT_login.ttl”.
(2) Execute step 5 in “How to use the macro file” with “2_DGT_ErrorFlash_Detect.ttl”.
Check the message of the lowest line and perform the identification procedure 4 as required.

Identification procedure 4

(1) Replace IC on the BC4 board displayed on the message “Swap ICxxx…”.
If the displayed IC is not available as the service parts, replace the BC4 board. (Refer to Section 4-17.)

fan_error_status

(1) When the “FAN Error” is displayed, enter “get_system_error_status” after “>”, then press the Enter key.
Identify a failure by the displayed message.
The fans on the right are called FAN1, FAN2, and FAN3 in order when viewing a monitor from the rear panel.

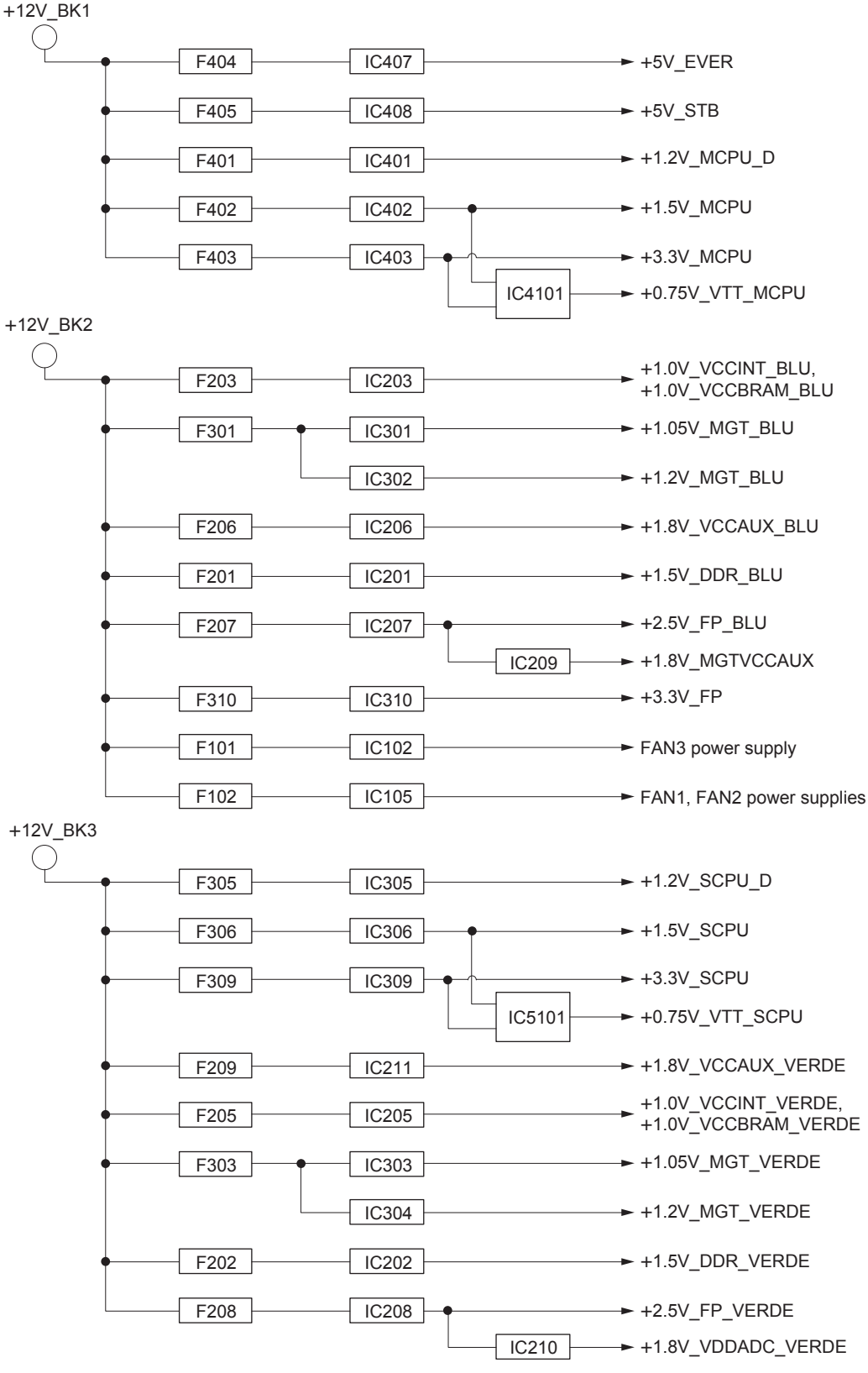


Message	Possible cause	Remedy
01	A problem exists in FAN3.	Confirm “FAN3 power supply” in the “Power system diagram of BK board” described later. If no problem exists in “FAN3 power supply”, replace the FAN3.
02	A problem exists in FAN1 or FAN2.	Confirm “FAN1, FAN2 power supplies” in the “Power system diagram of BK board” described later. If no problem exists in “FAN1, FAN2 power supplies”, replace the FAN1 or FAN2.
03	A problem exists in FAN1, FAN2 or FAN3.	Confirm “FAN1, FAN2 power supplies” and “FAN3 power supply” in the “Power system diagram of BK board” described later. If no problem exists in “FAN1, FAN2 power supplies” and “FAN3 power supply”, replace the FAN1, FAN2 or FAN3.

(2) Terminate the terminal software.
When terminating Tera Term, press the Alt and Q keys simultaneously.

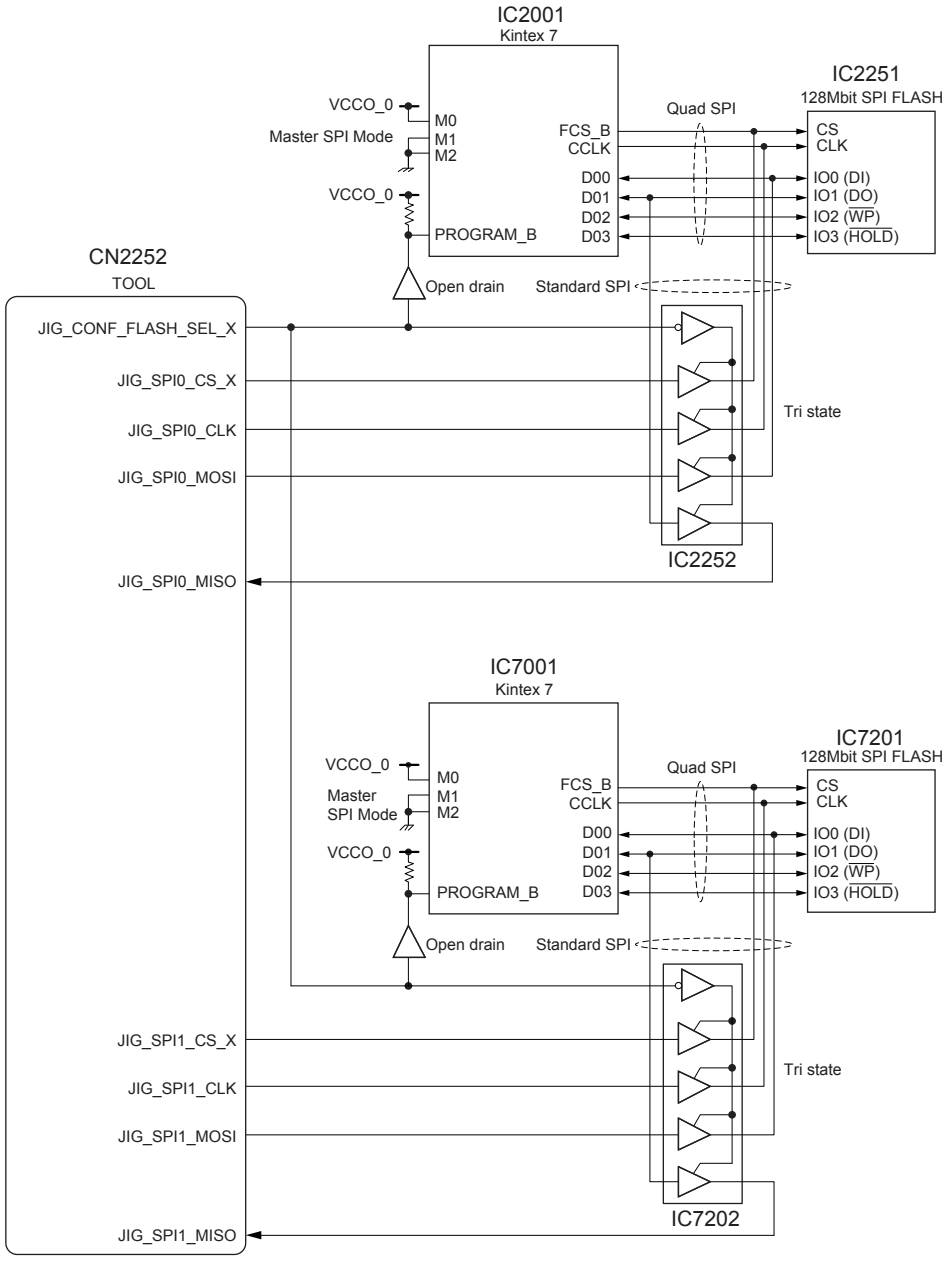
Power system diagram of BK board

The system diagram below is a simplified one that makes it easy to search for the parts in a power system. For a power error, confirm that a fuse does not blow before confirming the voltage output.



Configuration system diagram of BK board

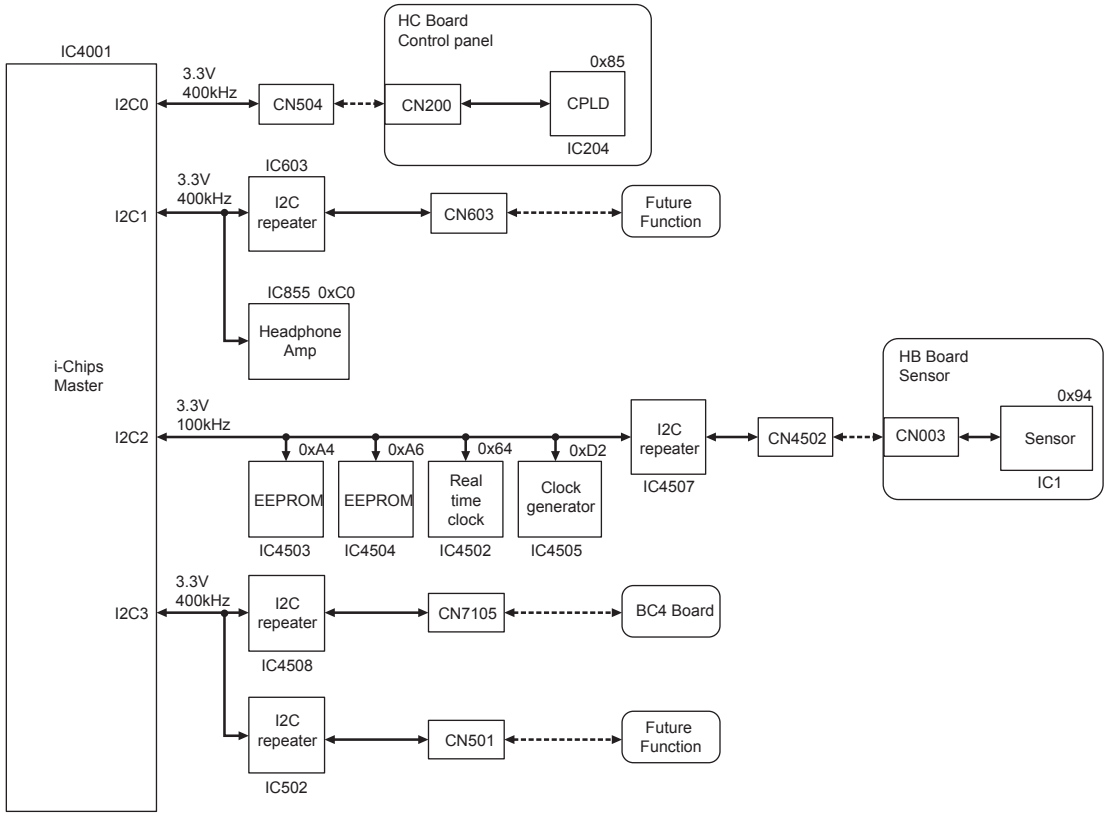
The system diagram below is a simplified one that makes it easy to search for the parts in a configuration system.
When message “FPGA BK Config Error” is displayed, confirm that both D2001 and D7001 on the BK board light. ICs (IC2001, IC2251, and IC2252) of an SPI0 line or ICs (IC7001, IC7201, and IC7202) of an SPI1 line cannot normally communicate when D2001 and D7001 light. Confirm whether no problem exists in those lines.



I2C bus system diagram of BK board

Serial No.: 7000001 to 7100000 (SY)
Serial No.: 7200001 to 7300000 (CN)

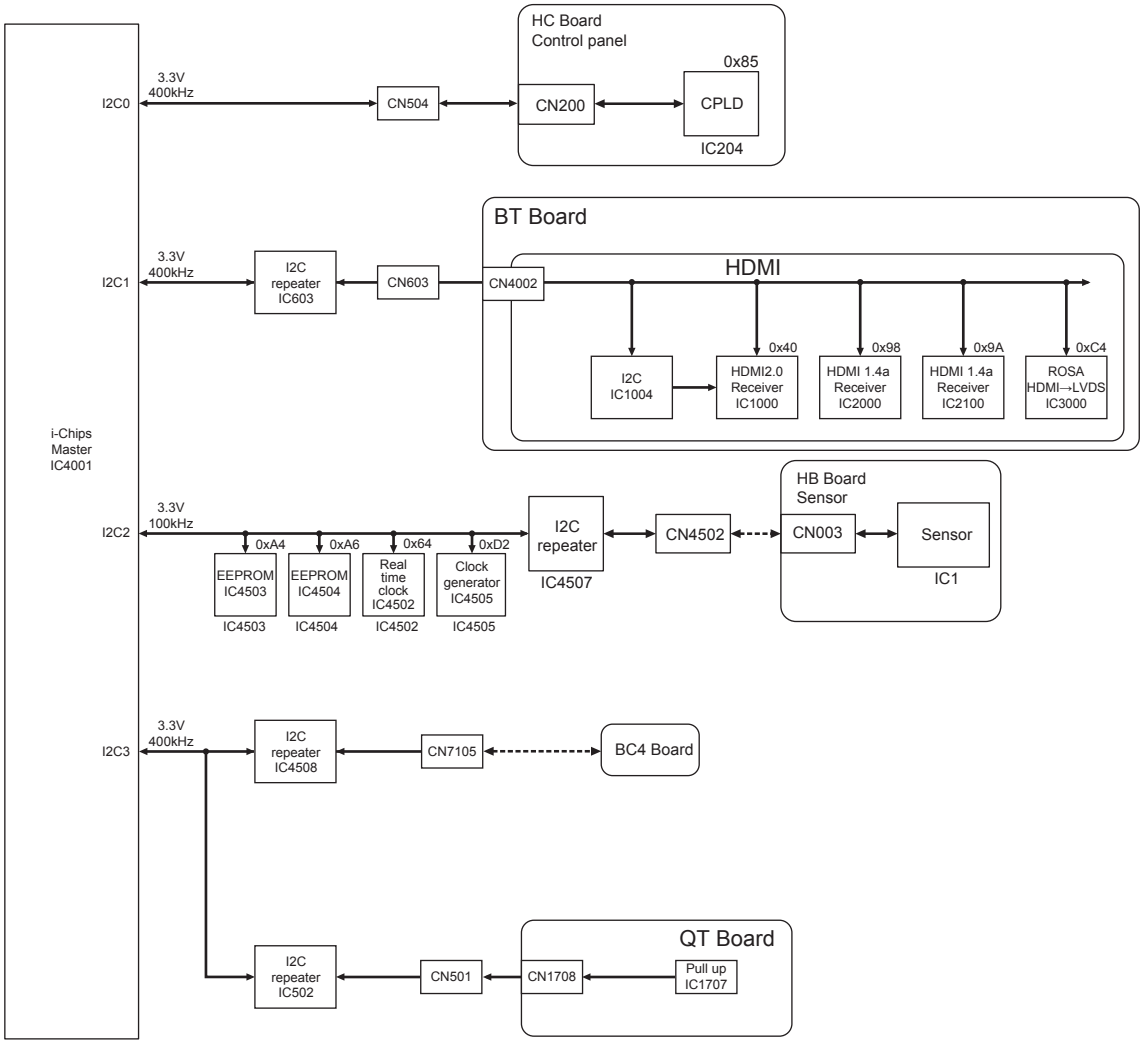
The system diagram below is a simplified one that makes it easy to search for the parts in an I2C bus system.
A room temperature sensor is mounted on an HB board. The HB board communicates with IC4001 using I2C. When message “Room Temp Sensor Error” is displayed, confirm an I2C2 line.



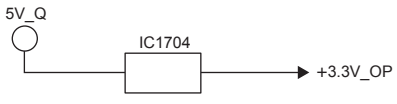
I2C bus system diagram of BK board

Serial No.: 7100001 and Higher (SY)
Serial No.: 7300001 and Higher (CN)

The system diagram below is a simplified one that makes it easy to search for the parts in an I2C bus system.
A room temperature sensor is mounted on an HB board. The HB board communicates with IC4001 using I2C. When message “Room Temp Sensor Error” is displayed, confirm an I2C2 line.

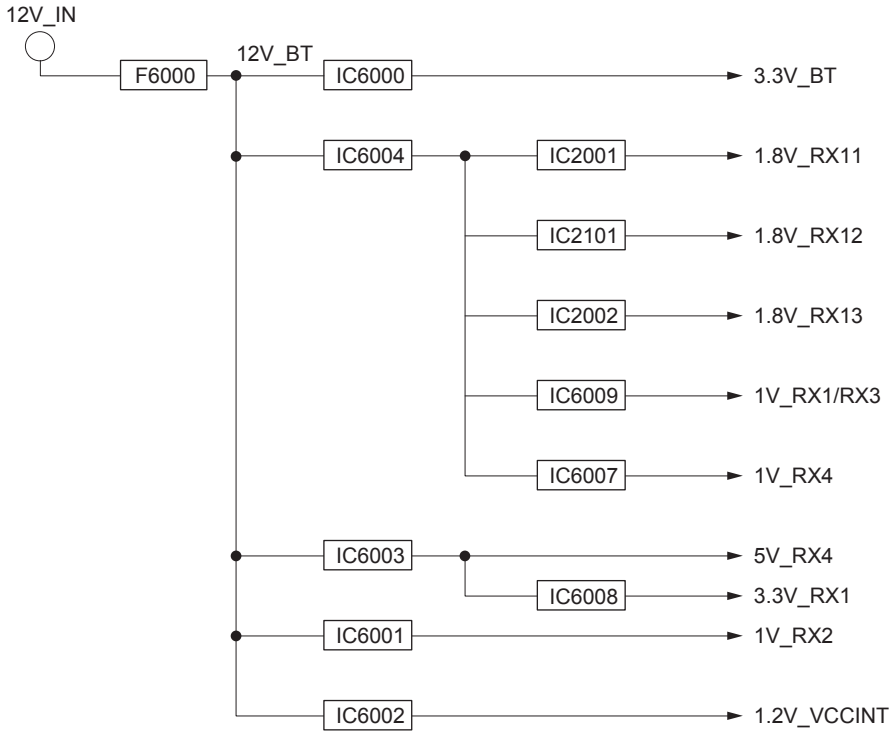


Power system diagram of QT board



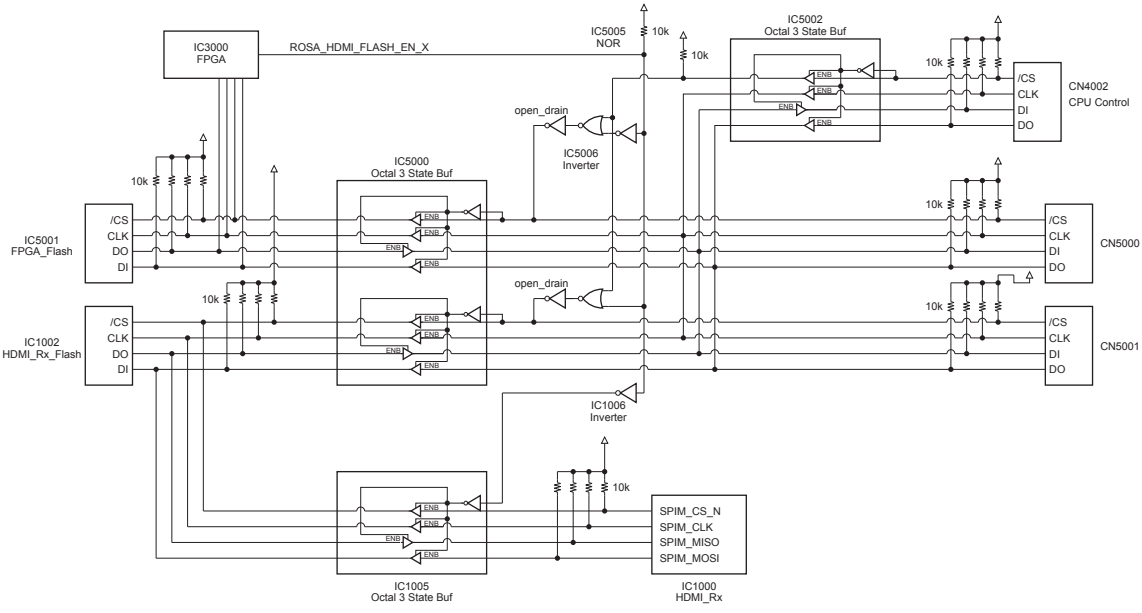
Power system diagram of BT board

The system diagram below is a simplified one that makes it easy to search for the parts in a power system. For a power error, confirm that a fuse (F6000) does not blow before confirming the voltage output.



Configuration system diagram of BT board

The illustration is a simplified one that makes it easy to search for the parts in a configuration system. When message “FPGA BK Config Error” is displayed, check if D3100 on the BT board is lit. When they are lit, ICs (IC3000 and IC5001) of an SPI0 line cannot normally communicate. Confirm whether no problem exists in these lines and power of the IC2001.



3-3. Identification of an Error Using Indicator

Confirm the indicator on a board when an error cannot be identified by “Identification of an Error Using PC”.

3-3-1. Indicator on the G8 Board

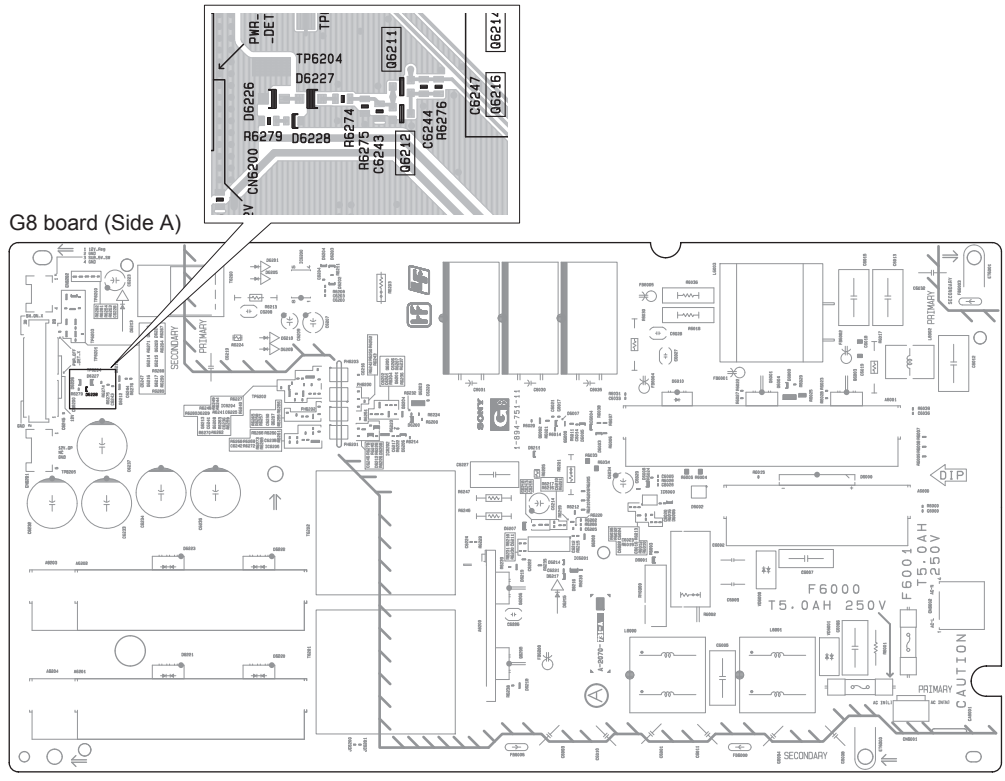
Error confirmation method and remedy

Confirm D6228 on the G8 board.

Lights: OUT_12V of the G8 board is output. The BK board or panel module is defective.

Goes off: Replace the G8 board. (Refer to Section 4-13.)

When D6228 continuously goes off even if the G8 board is replaced, any of the devices (BK board, panel module, or HC board) connected to the G8 board is defective.



3-3-2. Indicator on the G9 Board

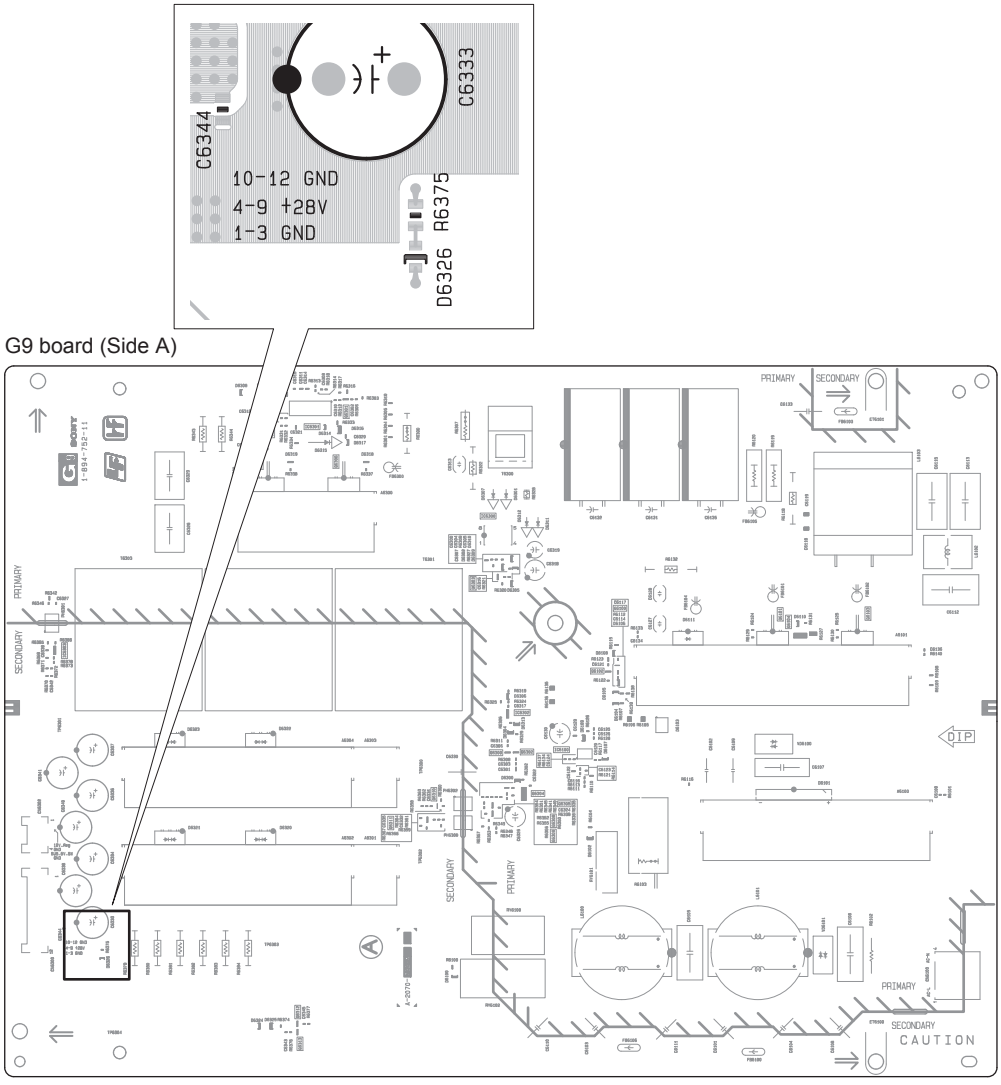
Error confirmation method and remedy

Confirm D6326 on the G9 board.

Lights: OUT_28V of the G9 board is output. The BK board or panel module is defective.

Goes off: Replace the G9 board. (Refer to Section 4-12.)

When D6326 continuously goes off even if the G9 board is replaced, panel module is defective.



3-3-3. Indicators on the BK Board

A defective power system is identified from the indicators below and “Power system diagram of BK board” described previously.

Error confirmation method and remedy

Confirm the indicators on the BK board.

- D401, D402, and D403
- D114, D116, D119, D120, and D121

D401 lights. (Normal: Goes off)

Among the DC-DC converters below, any protector operates.

+1.2V_MCPU_D
+1.5V_MCPU
+3.3V_MCPU
+1.2V_SCPU_D
+1.5V_SCPU
+3.3V_SCPU
+5V_STB

D402 lights. (Normal: Goes off)

Among the DC-DC converters below, any protector operates.

+2.5V_FP_BLU
+1.0V_VCCINT_BLU
+1.8V_VCCAUX_BLU
+1.5V_DDR_BLU
+1.0V_MGT_BLU
+1.2V_MGT_BLU
+3.3V_FP

D403 lights. (Normal: Goes off)

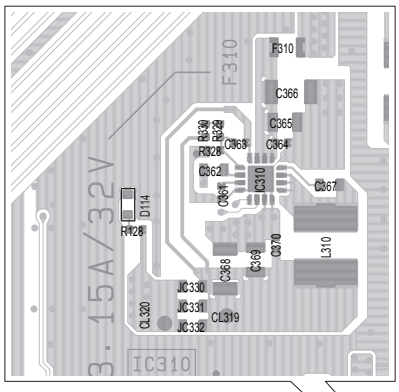
Among the DC-DC converters below, any protector operates.

+1.5V_DDR_VERDE
+1.0V_VCCINT_VERDE
+1.8V_VCCAUX_VERDE
+2.5V_FP_VERDE
+1.0V_MGT_VERDE
+1.2V_MGT_VERDE

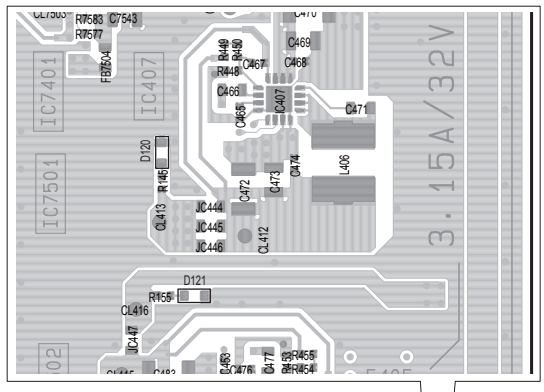
The indicators below go off. (Normal: Lights)

- D120 (+5V_EVER)
- D121 (+5V_STB)
- D119 (+3.3V_MCPU)
- D116 (+3.3V_SCPU)
- D114 (+3.3V_FP)

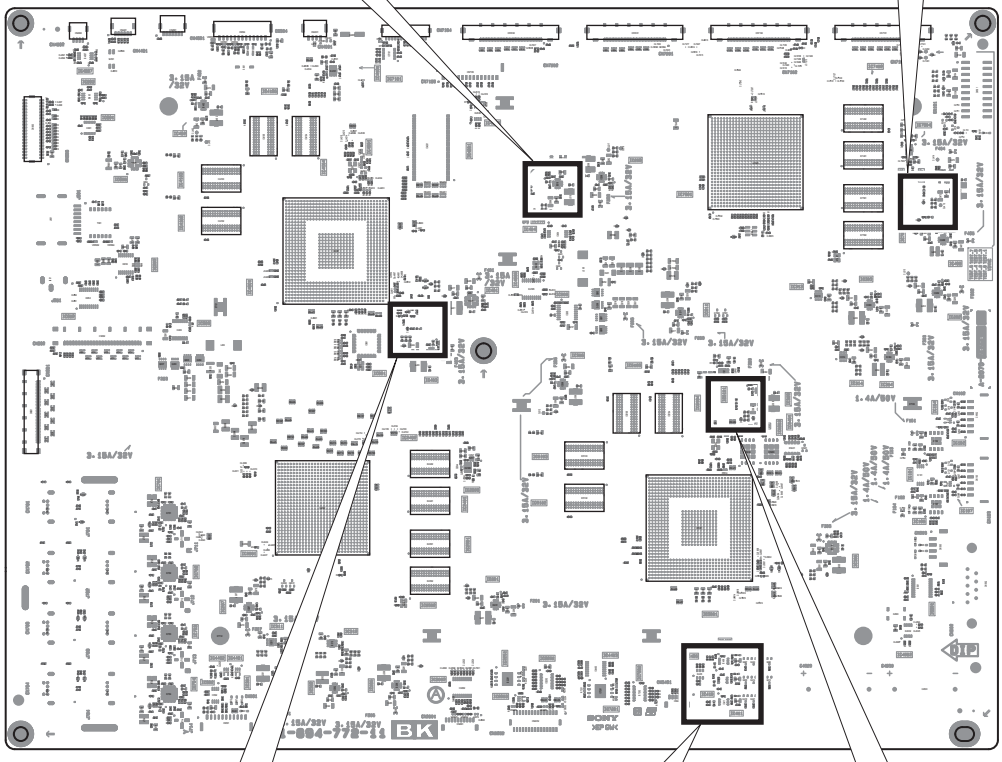
D114



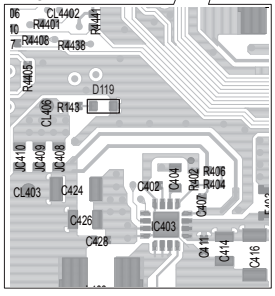
D120 and D121



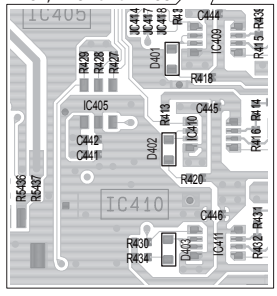
BK board (Side A)



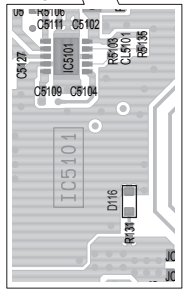
D119



D401, D402 and D403



D116



3-4. Acquisition of Data Using PC

The data below can be acquired from PC using a command even when an image cannot be displayed.
- Serial No.
- Operation time
- Panel on-time: Total time for which a panel is energized
- HDR on-time: Total time for which an HDR (High Dynamic Range) function is used

Acquire these data before making repairs. This is the first step of solving a problem occurring in the unit.

Preparation

- Personal computer (Hereinafter referred to as PC)
  OS: Windows 7, Windows 8 or Windows 8.1
- LAN cable (cross)
- Terminal software: Tera Term, etc.
- Login name and password
  For obtaining the login name and password, contact your local Sony Sales Office/Service Center.

Procedure

1. Connect the monitor and PC using a LAN cable (cross). (Refer to Section 3-2-2.)
2. Set the PC. (Refer to Section 3-2-3.)
3. Turn on the power of the monitor and log in to the monitor using the PC. (Refer to Section 3-2-4.)
4. Enter the commands below after ">".
   Make a note of the displayed values.

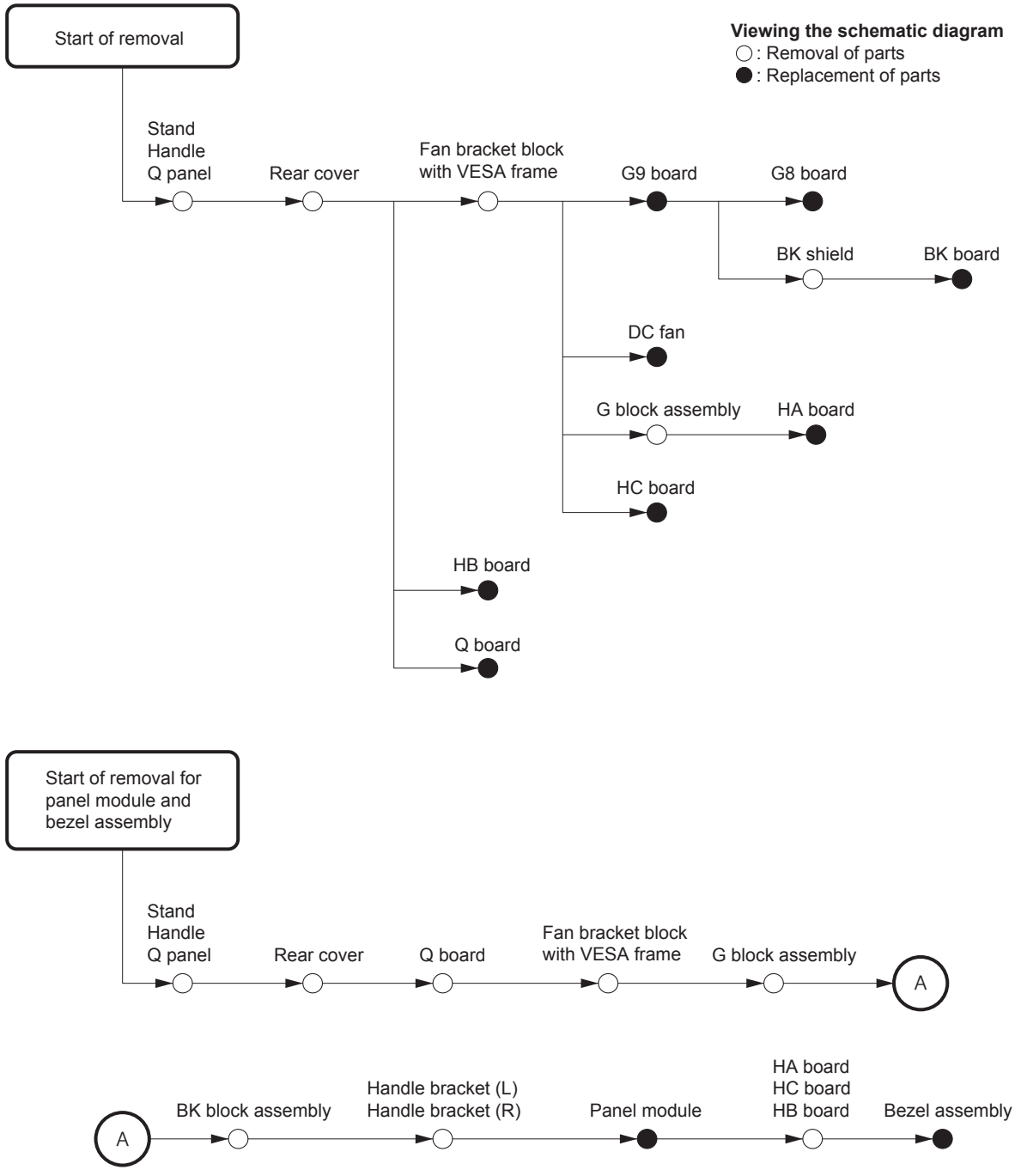
Command	Acquired data	Value
get_serial_number_set	Serial No.	7XXXXXX
get_operation_time	Operation time	0 to 999999
get_panel_on_time	Panel on-time	0 to 999999
get_hdr_time	HDR on-time	0 to 999999

5. Terminate the terminal software.
   When terminating Tera Term, press the Alt and Q keys simultaneously.

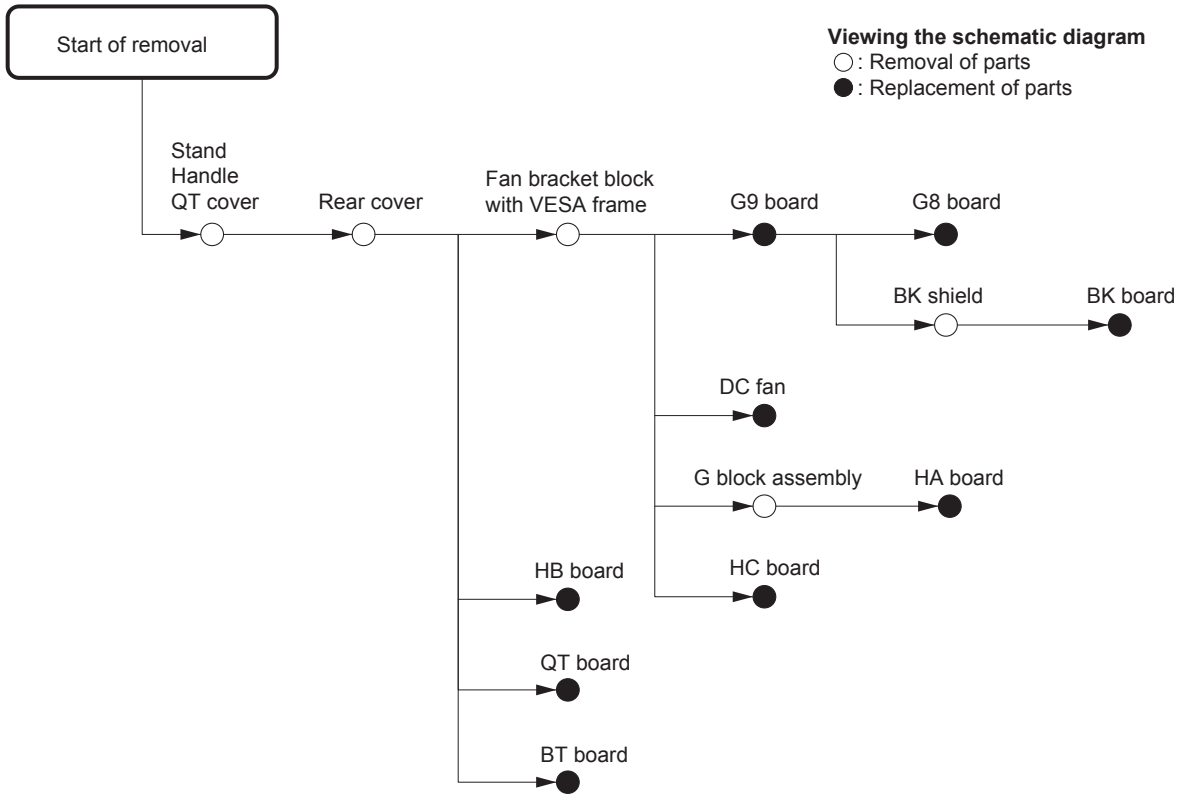
Section 4
Replacement of Parts

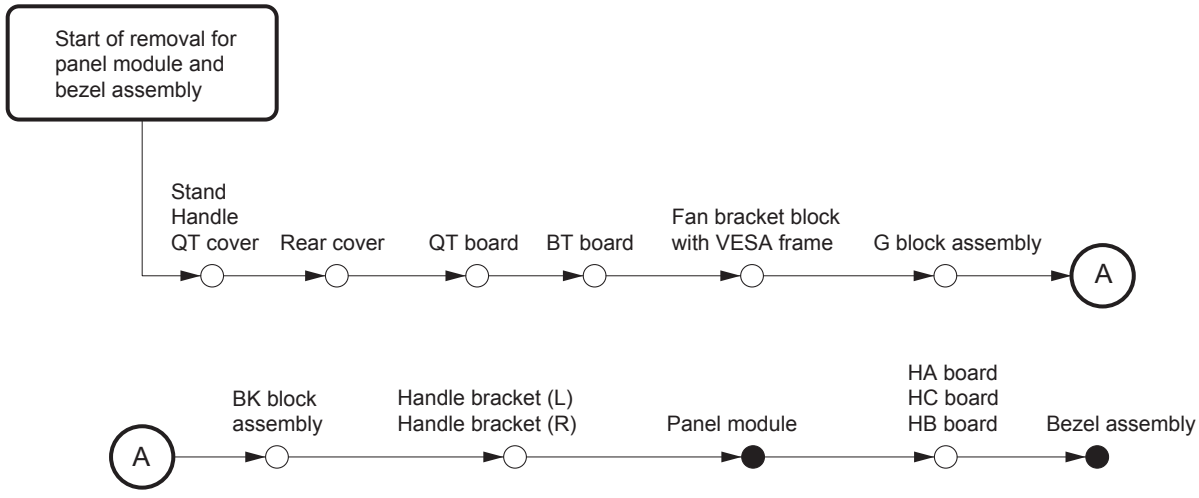
4-1. Guide of Removal

Serial No.: 7000001 to 7100000 (SY)
Serial No.: 7200001 to 7300000 (CN)



Serial No.: 7100001 and Higher (SY)
Serial No.: 7300001 and Higher (CN)





4-2. Tightening Torque

Tighten the each screw with the torque below.

- B2 × 4*: 0.2 ±0.02 N•m
- B4 × 8: 1.4 ±0.20 N•m
- PS4 × 14: 1.4 ±0.20 N•m
- PSW3 × 6 (for heatsink (BK)): 0.6 ±0.10 N•m
- PSW3 × 6 (for excluding heatsink (BK)): 0.8 ±0.10 N•m
- PSW3 × 12: 0.8 ±0.10 N•m
- PSW4 × 8 (for ground terminal): 1.5 ±0.10 N•m
- PSW4 × 8 (for excluding ground terminal): 1.4 ±0.20 N•m
- PSW4 × 10: 1.4 ±0.20 N•m
- M2 × 3: 0.2 ±0.02 N•m
- Nut M6 × 0.5: 0.4 ±0.10 N•m

Tip

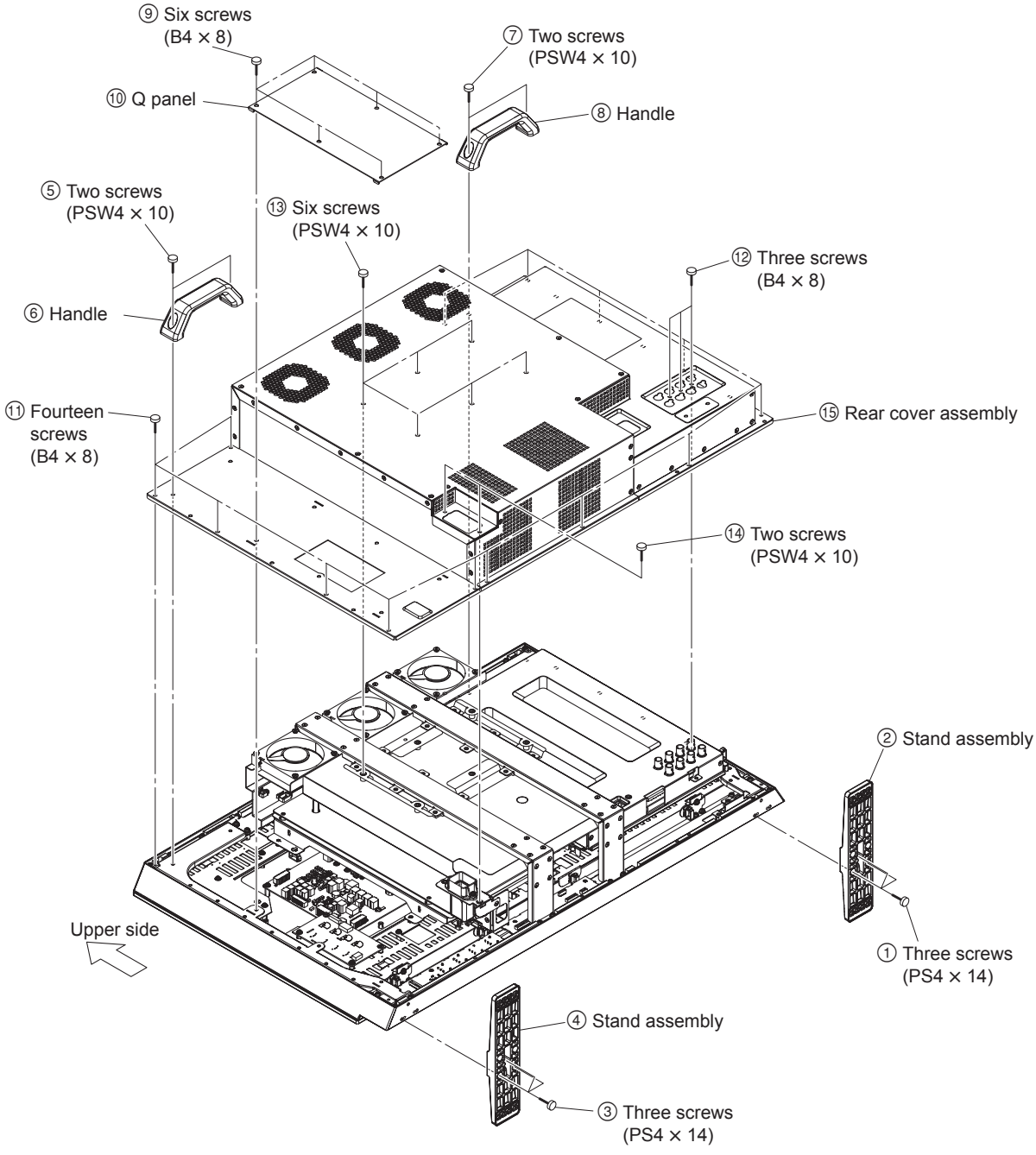
- *:
  Serial No.: 7100001 and Higher (SY)
  Serial No.: 7300001 and Higher (CN)
- When using the torque driver with the notation of cN•m, interpret it as follows.
  Example: 0.8 N•m = 80 cN•m

4-3. Removal of Rear Cabinet Parts

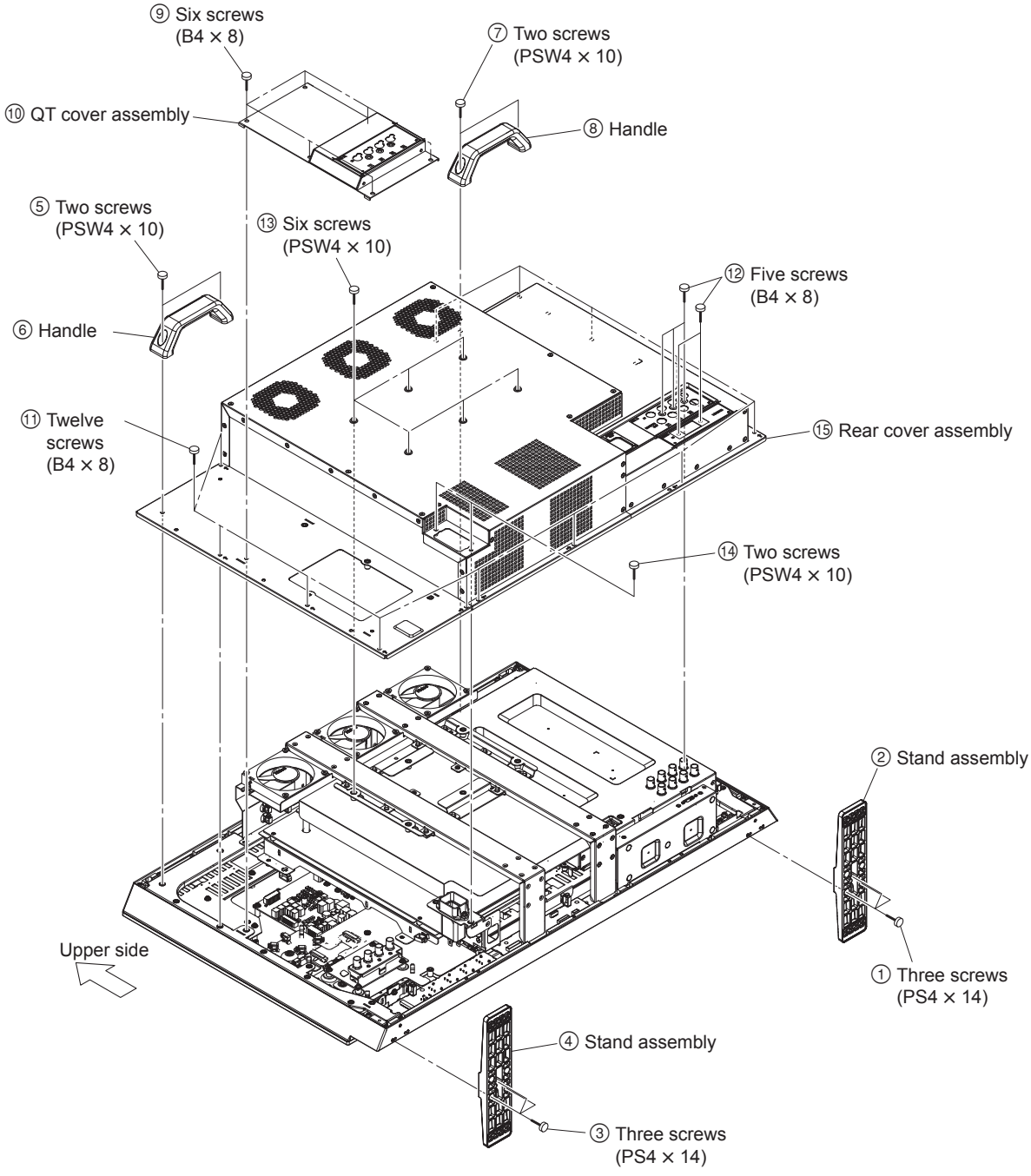
In this section, remove the parts below.
- Stand assembly
- Handle
- Q panel
- Rear cover assembly

Remove parts in the order of numbers shown in the figure.
The handle, Q panel, or rear cover assembly can be removed without removing the stand assembly.

Serial No.: 7000001 to 7100000 (SY)
Serial No.: 7200001 to 7300000 (CN)

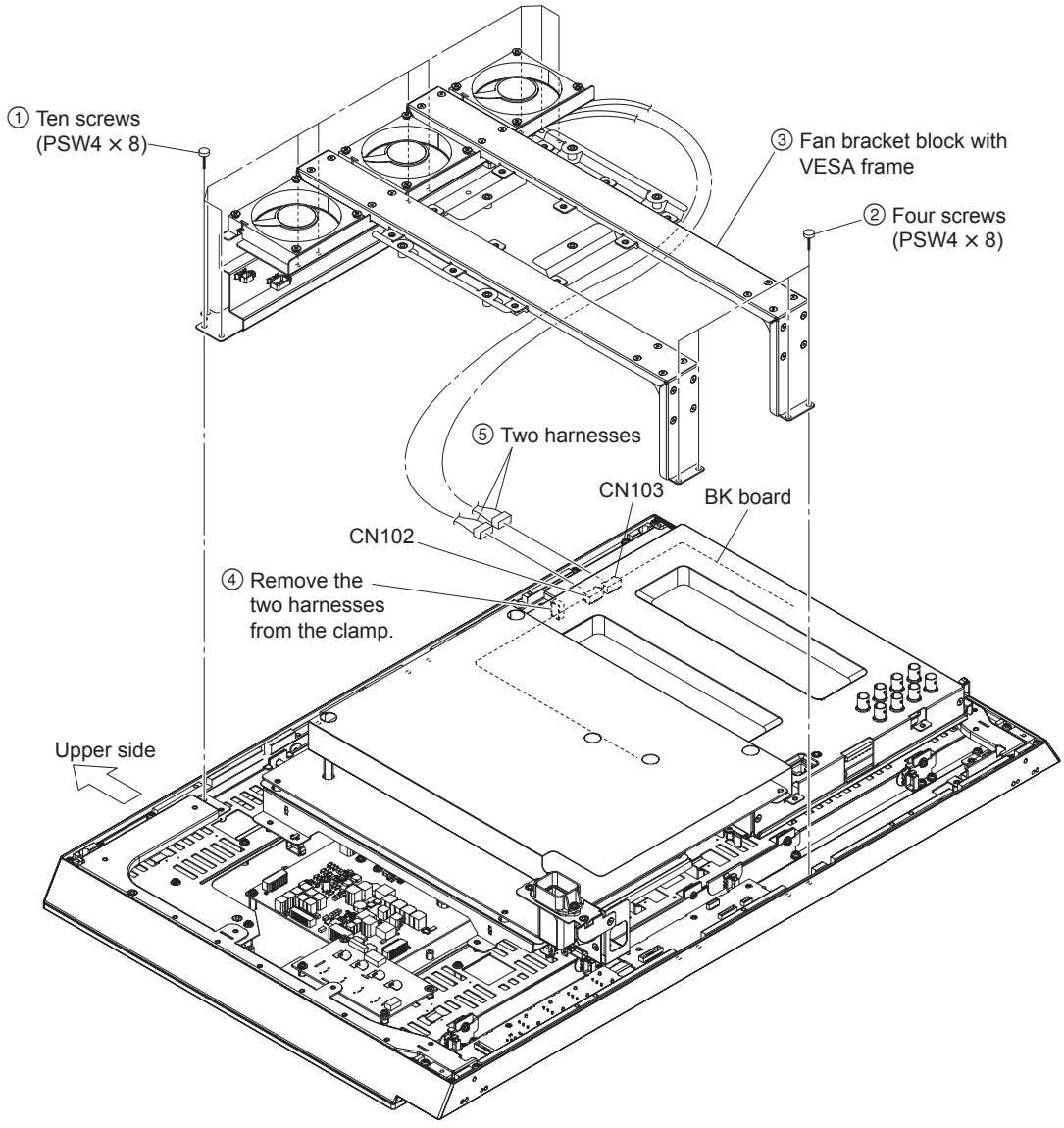


Serial No.: 7100001 and Higher (SY)
Serial No.: 7300001 and Higher (CN)



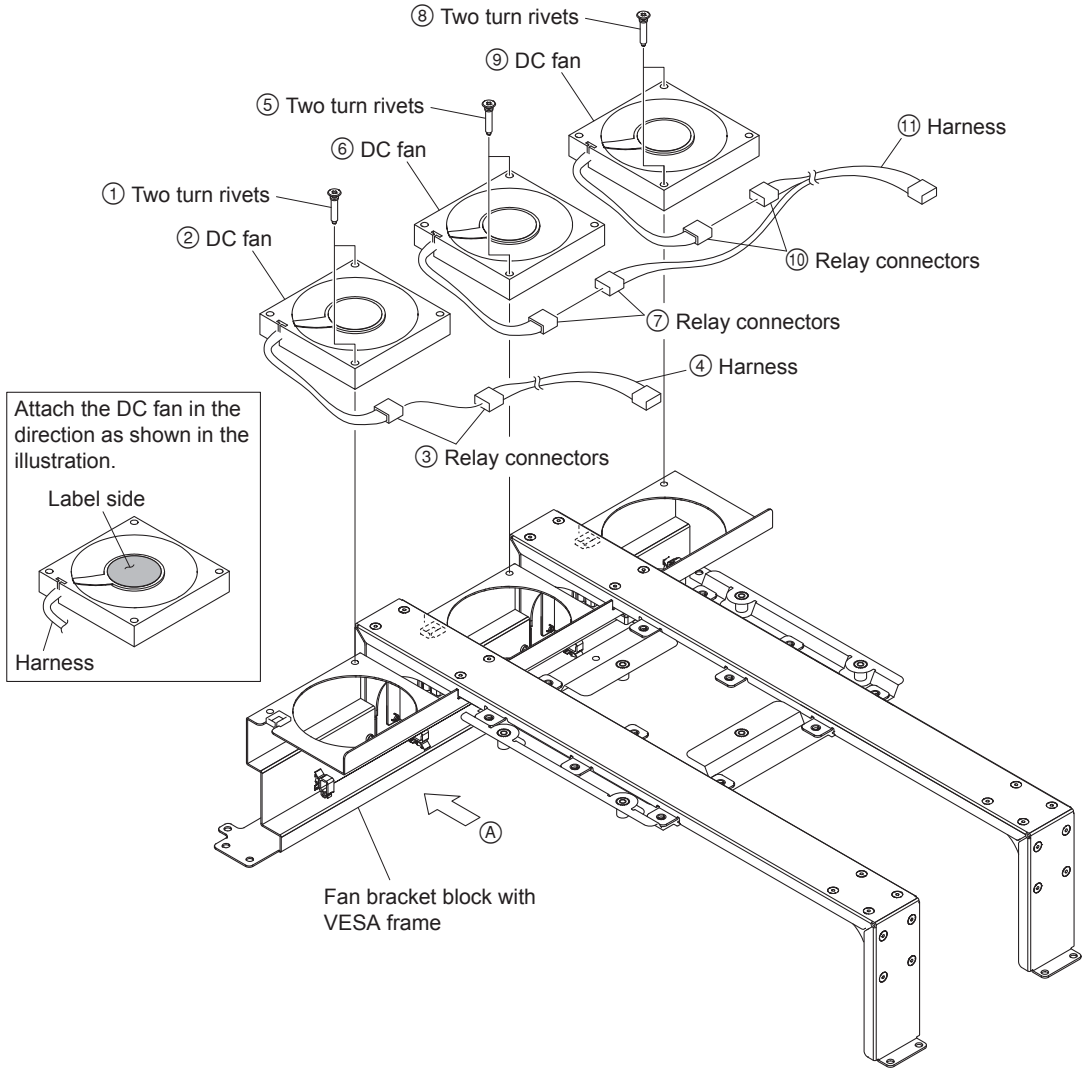
4-4. Removal of Fan Bracket Block with VESA Frame

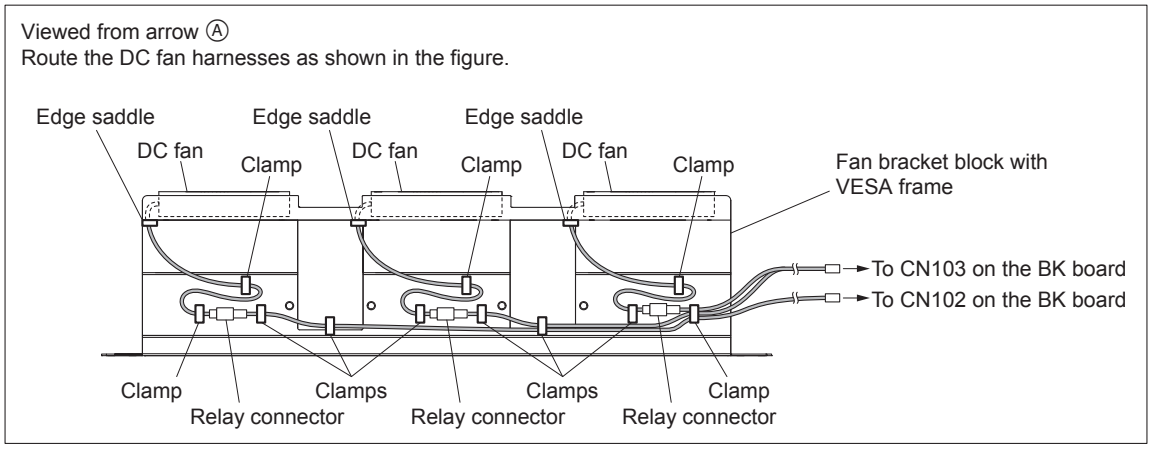
1. Remove the rear cabinet parts. (Refer to Section 4-3.)
2. Remove parts in the order of numbers shown in the figure.



4-5. DC Fan

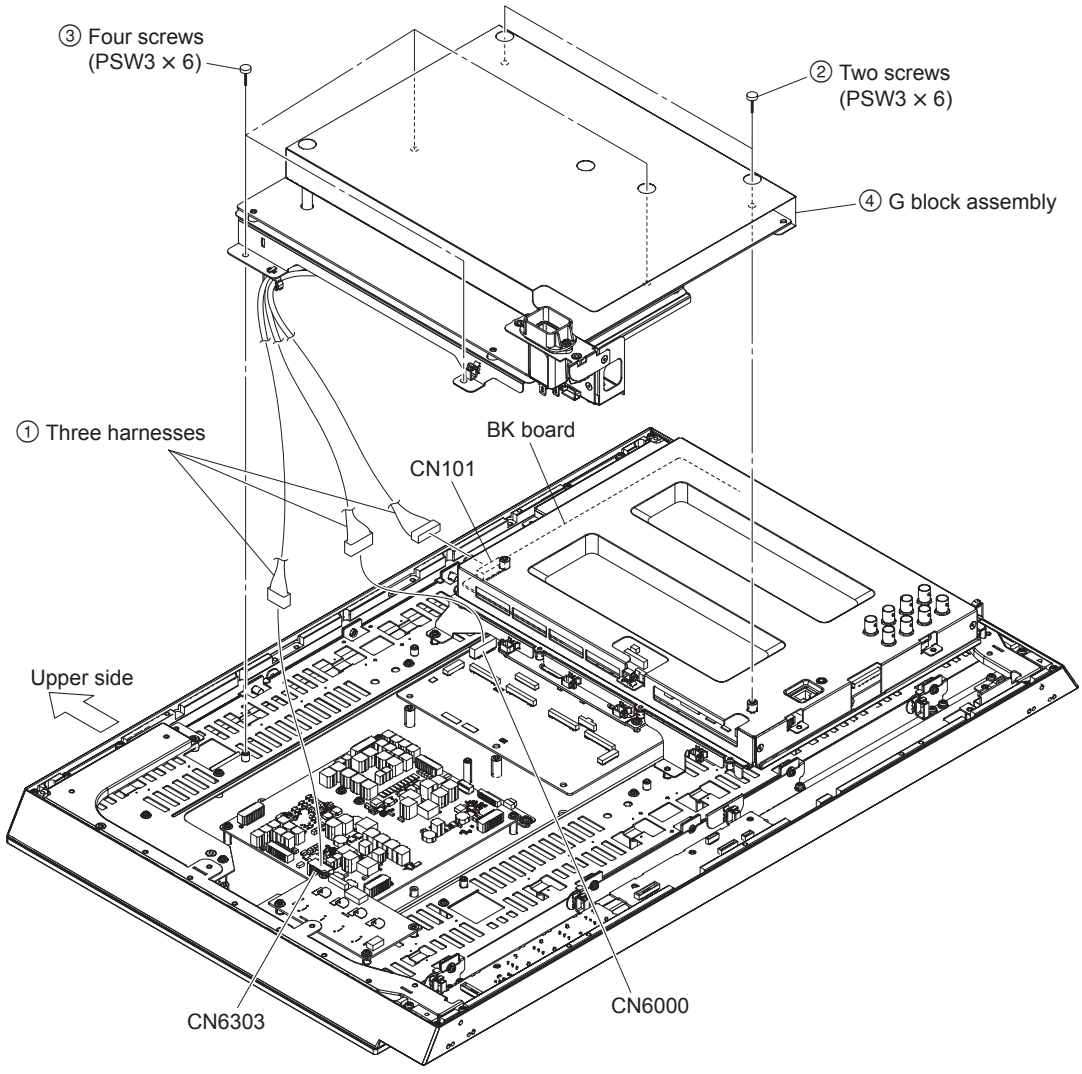
1. Remove the rear cabinet parts. (Refer to Section 4-3.)
2. Remove the fan bracket block with VESA frame. (Refer to Section 4-4.)
3. Remove parts in the order of numbers shown in the figure.





4-6. Removal of G Block Assembly

1. Remove the rear cabinet parts. (Refer to Section 4-3.)
2. Remove the fan bracket block with VESA frame. (Refer to Section 4-4.)
3. Remove parts in the order of numbers shown in the figure.



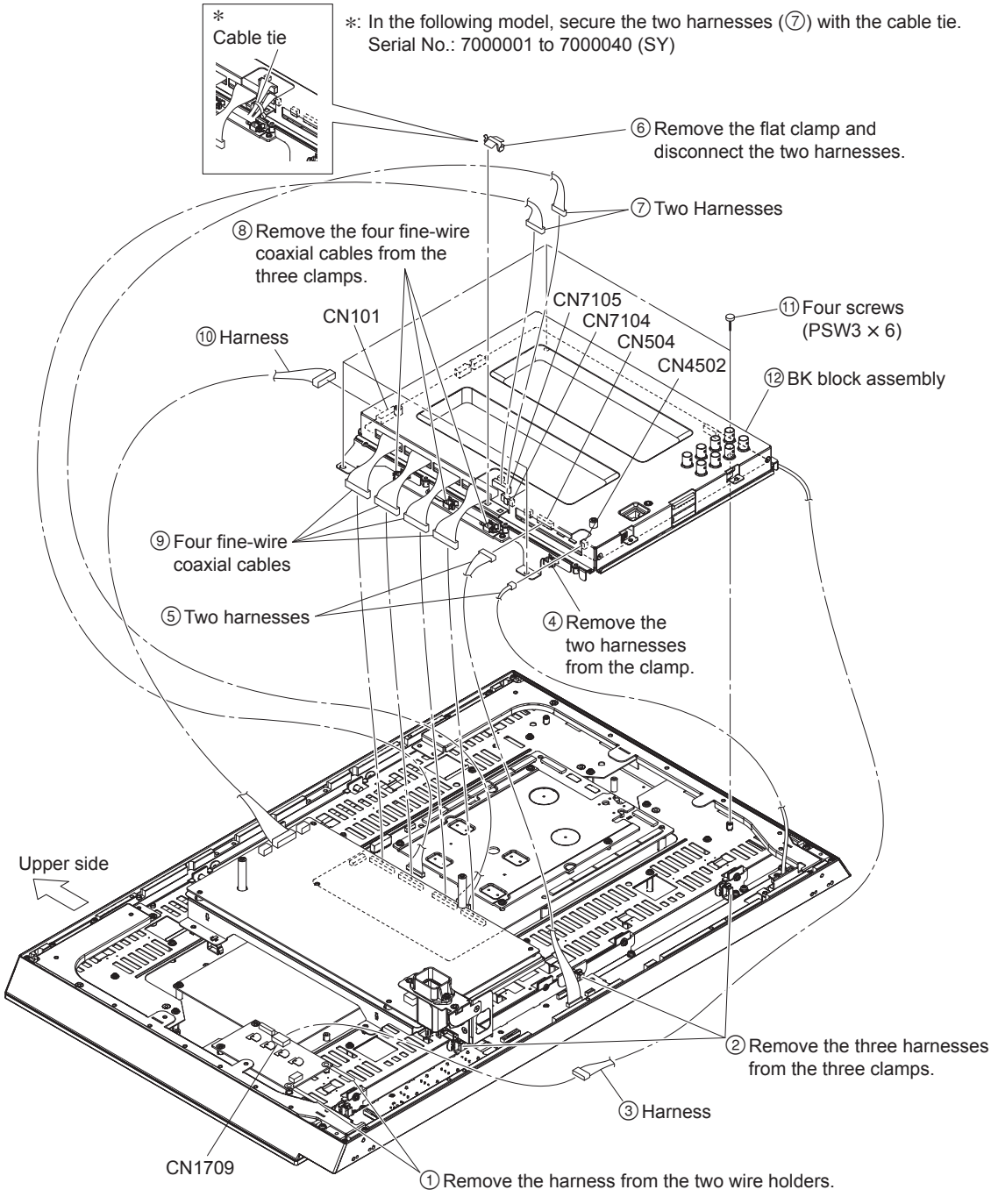
4-7. Removal of BK Block Assembly

Serial No.: 7000001 to 7100000 (SY)
Serial No.: 7200001 to 7300000 (CN)

1. Remove the rear cabinet parts. (Refer to Section 4-3.)
2. Remove the fan bracket block with VESA frame. (Refer to Section 4-4.)
3. Remove the G board. (Refer to Section 4-12.)
4. Remove parts in the order of numbers shown in the figure.

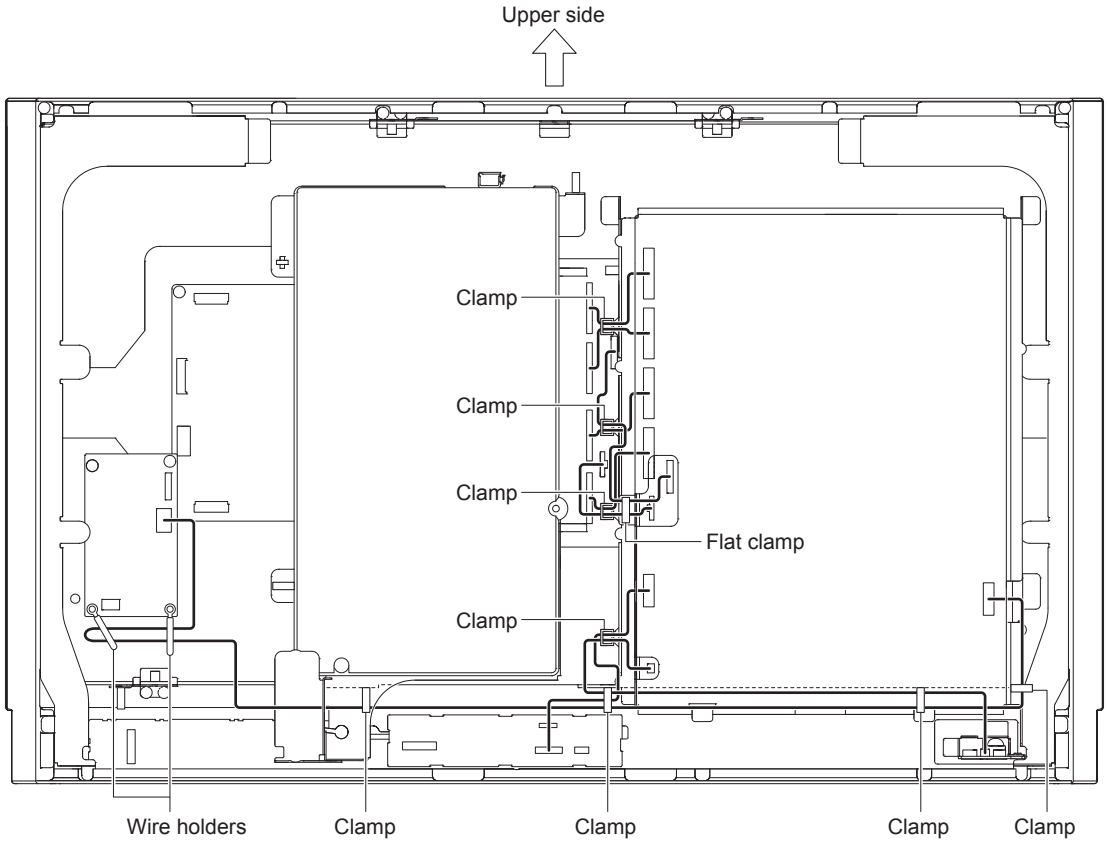
Tip

Refer to Section 1-5-1 for the disconnection and connection of a fine-wire coaxial cable.



Tip

Route the harnesses and fine-wire coaxial cables as shown in the figure.

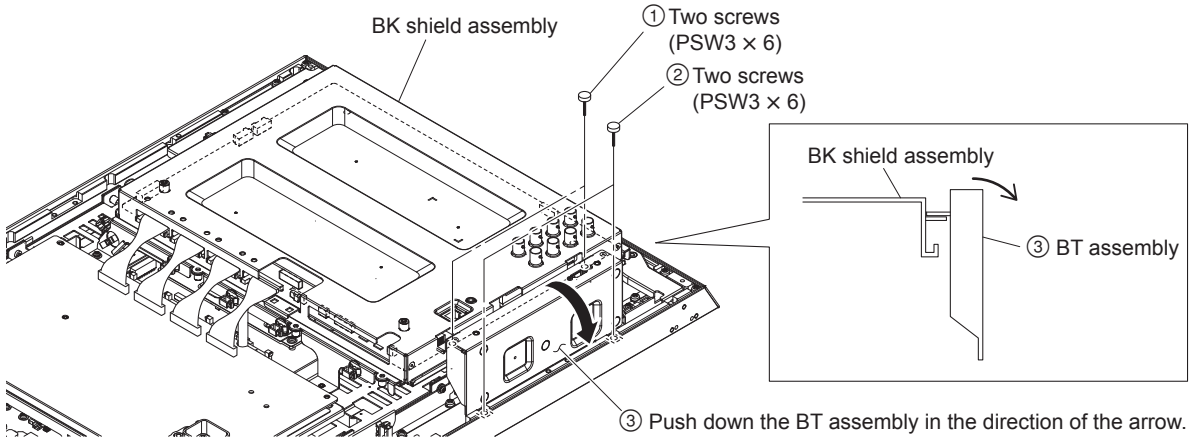


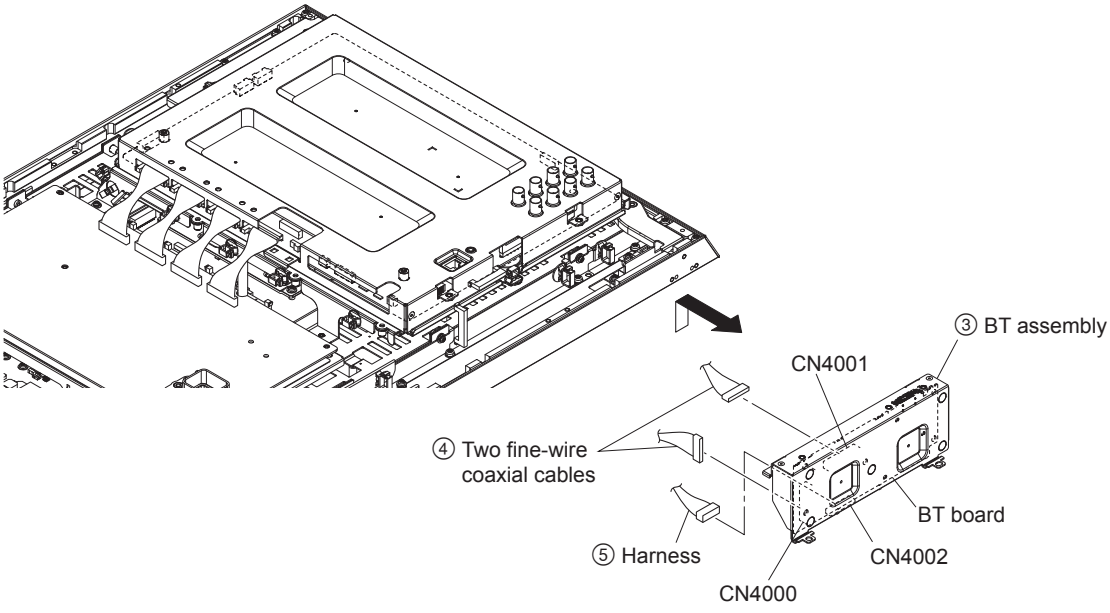
Serial No.: 7100001 and Higher (SY)
Serial No.: 7300001 and Higher (CN)

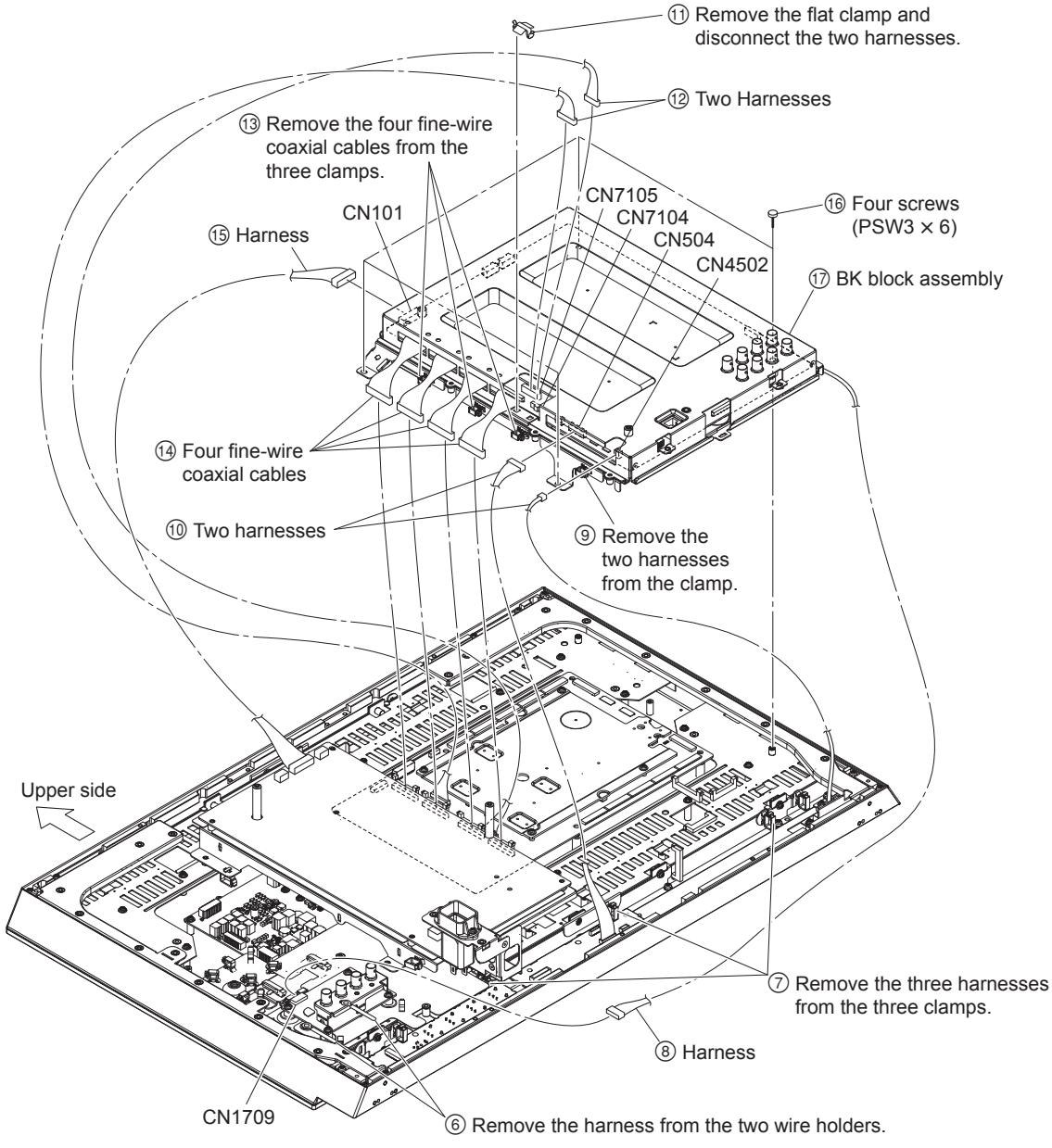
1. Remove the rear cabinet parts. (Refer to Section 4-3.)
2. Remove the fan bracket block with VESA frame. (Refer to Section 4-4.)
3. Remove the G9 board. (Refer to Section 4-12.)
4. Remove parts in the order of numbers shown in the figure.

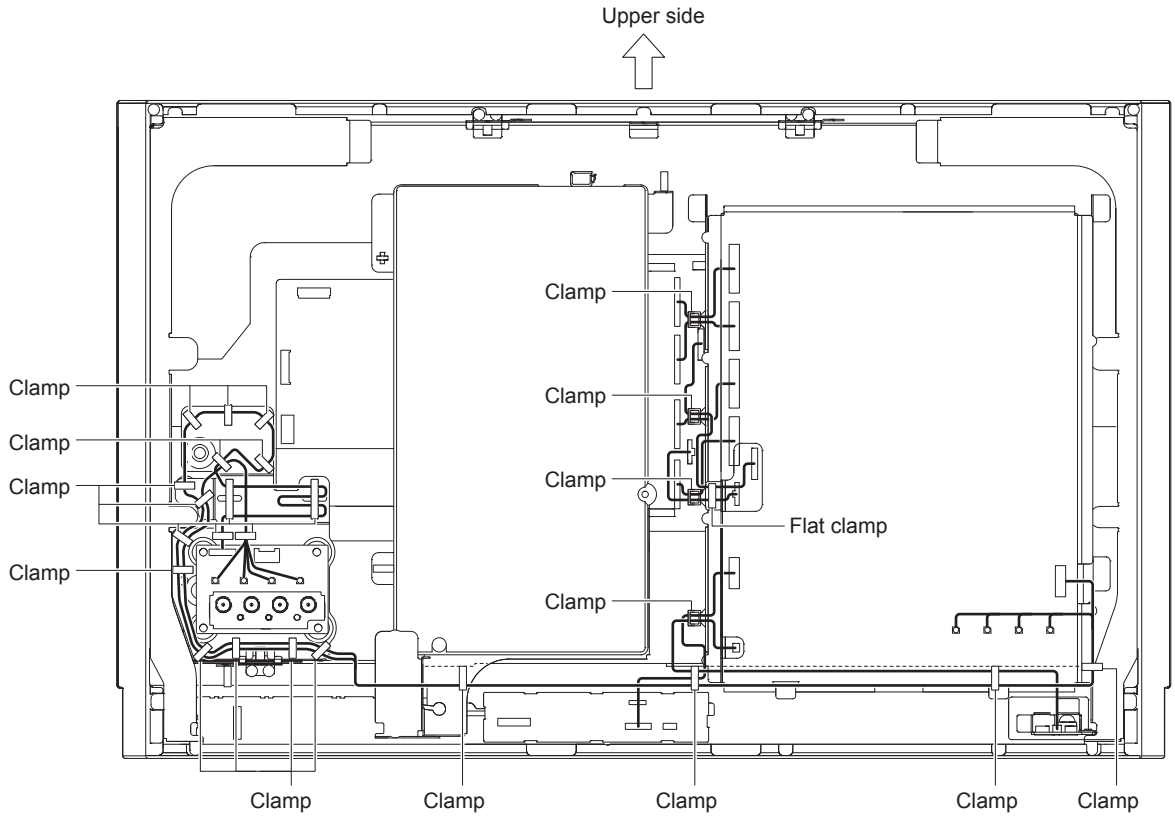
Tip

Refer to Section 1-5-1 for the disconnection and connection of a fine-wire coaxial cable.





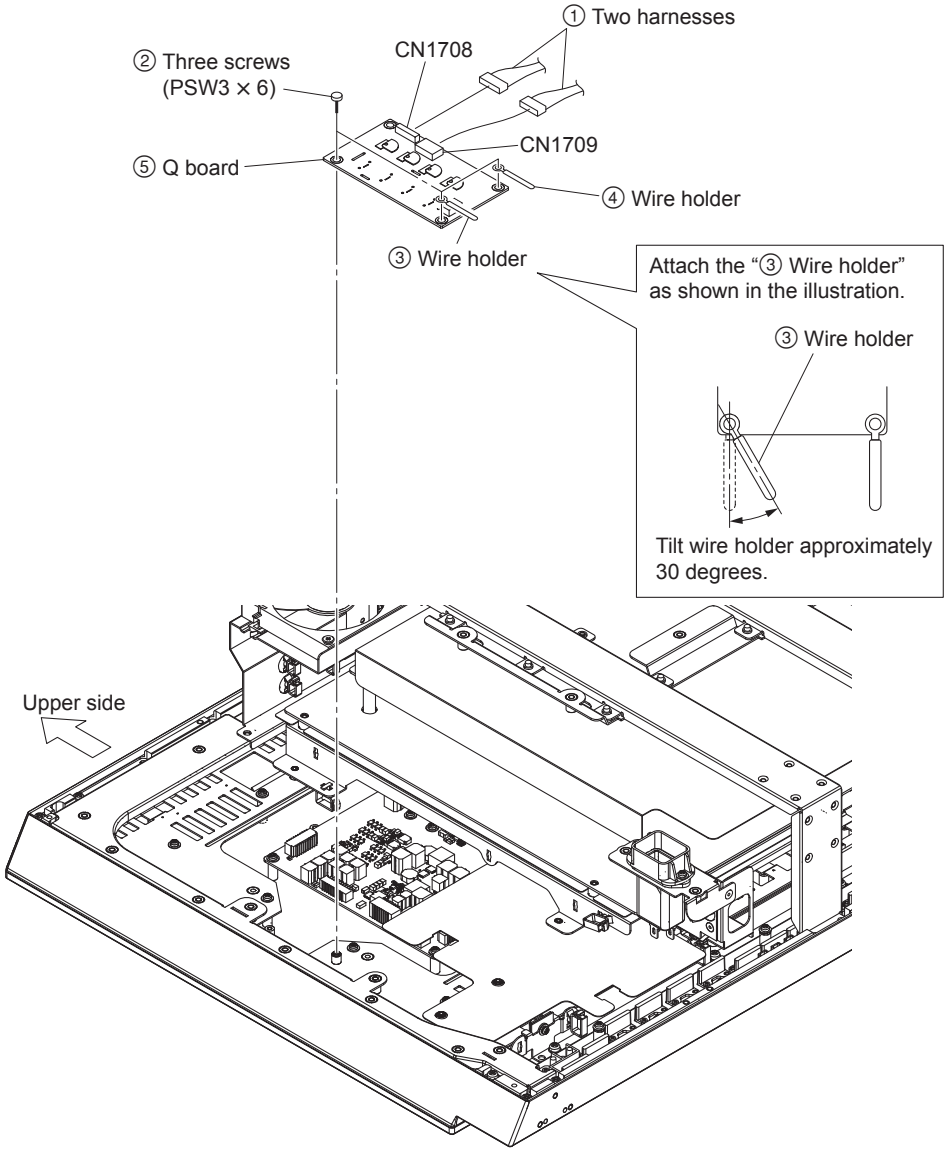

⑪ Remove the flat clamp and disconnect the two harnesses.
⑫ Two Harnesses
⑬ Remove the four fine-wire coaxial cables from the three clamps.
CN7105
CN7104
CN504
CN4502
CN101
⑯ Four screws (PSW3 × 6)
⑮ Harness
⑰ BK block assembly
⑭ Four fine-wire coaxial cables
⑩ Two harnesses
⑨ Remove the two harnesses from the clamp.
Upper side
⑦ Remove the three harnesses from the three clamps.
⑧ Harness
CN1709
⑥ Remove the harness from the two wire holders.


Upper side
Clamp
Clamp
Clamp
Clamp
Clamp
Clamp
Clamp
Flat clamp
Clamp
Clamp
Clamp
Clamp
Clamp
Clamp

4-8. Q Board and QT Board

Serial No.: 7000001 to 7100000 (SY)
Serial No.: 7200001 to 7300000 (CN)

1. Remove the rear cabinet parts. (Refer to Section 4-3.)
2. Remove parts in the order of numbers shown in the figure.

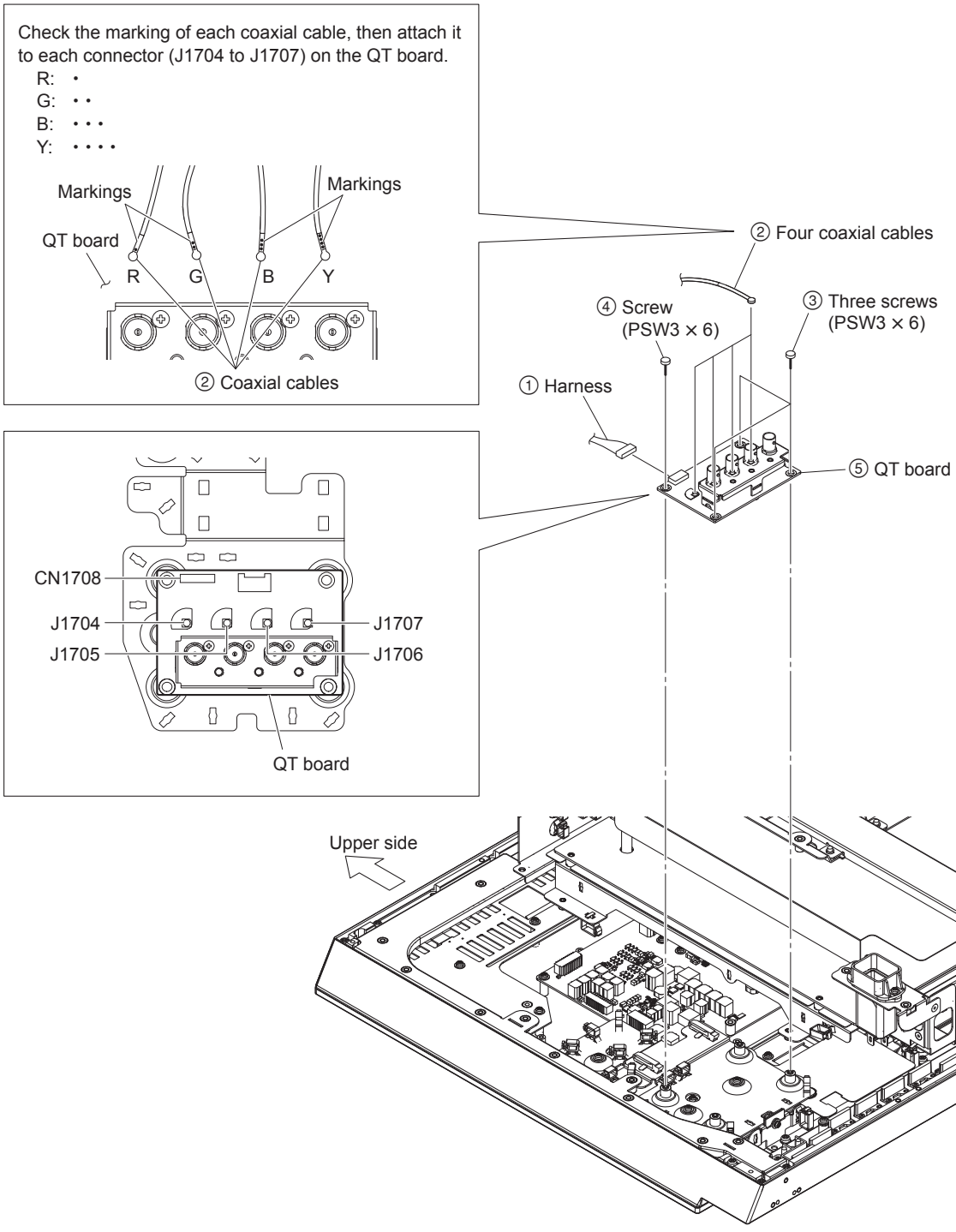


Serial No.: 7100001 and Higher (SY)
Serial No.: 7300001 and Higher (CN)

1. Remove the rear cabinet parts. (Refer to Section 4-3.)
2. Remove parts in the order of numbers shown in the figure.

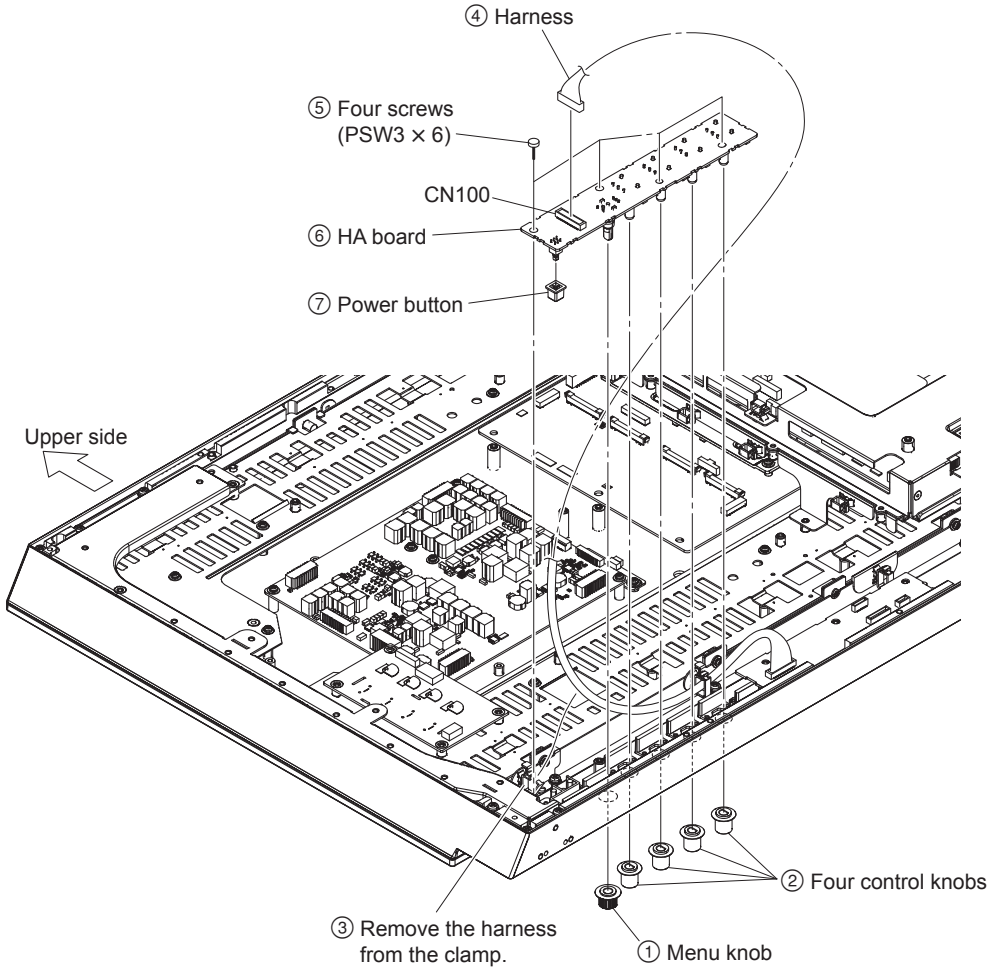
Tip

Refer to Section 1-5-2 for the disconnection and connection of a coaxial cable.



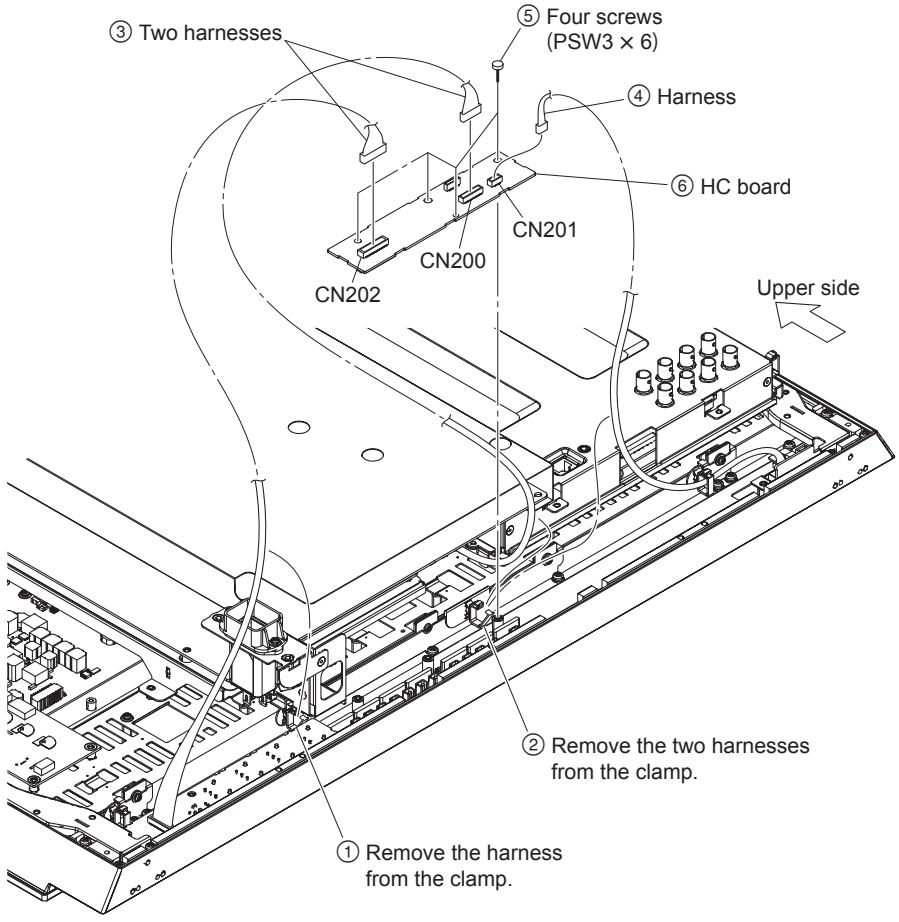
4-9. HA Board

1. Remove the rear cabinet parts. (Refer to Section 4-3.)
2. Remove the fan bracket block with VESA frame. (Refer to Section 4-4.)
3. Remove the G block assembly. (Refer to Section 4-6.)
4. Remove parts in the order of numbers shown in the figure.



4-10. HC Board

1. Remove the rear cabinet parts. (Refer to Section 4-3.)
2. Remove the fan bracket block with VESA frame. (Refer to Section 4-4.)
3. Remove parts in the order of numbers shown in the figure.



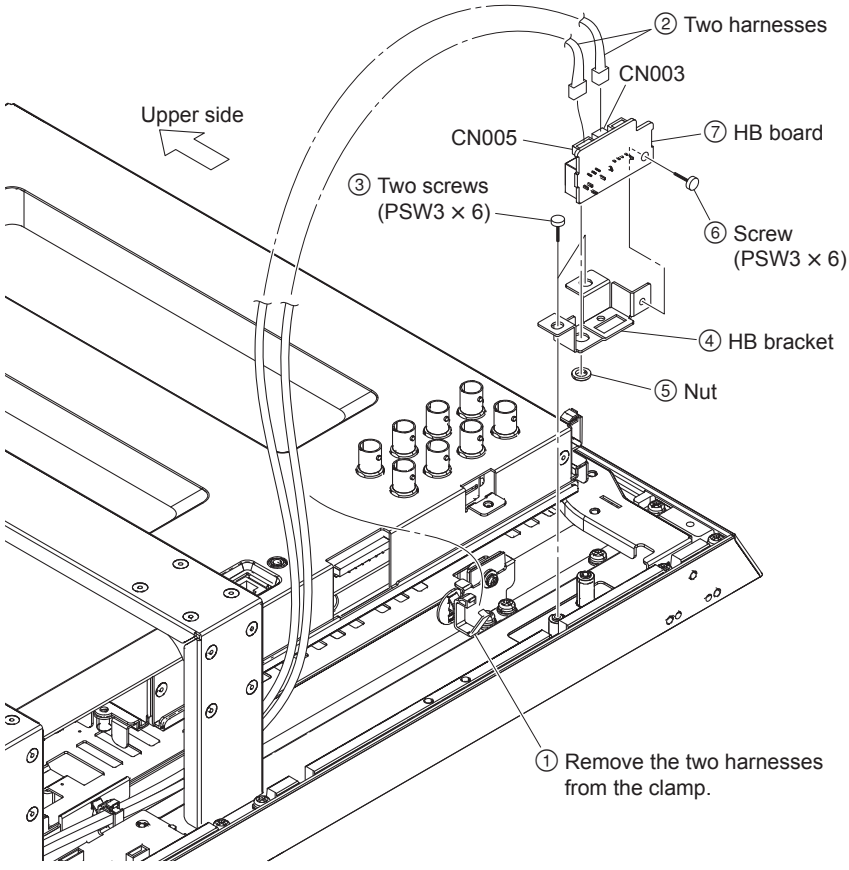
4-11. HB Board

Serial No.: 7000001 to 7100000 (SY)
Serial No.: 7200001 to 7300000 (CN)

1. Remove the rear cabinet parts. (Refer to Section 4-3.)
2. Remove parts in the order of numbers shown in the figure.

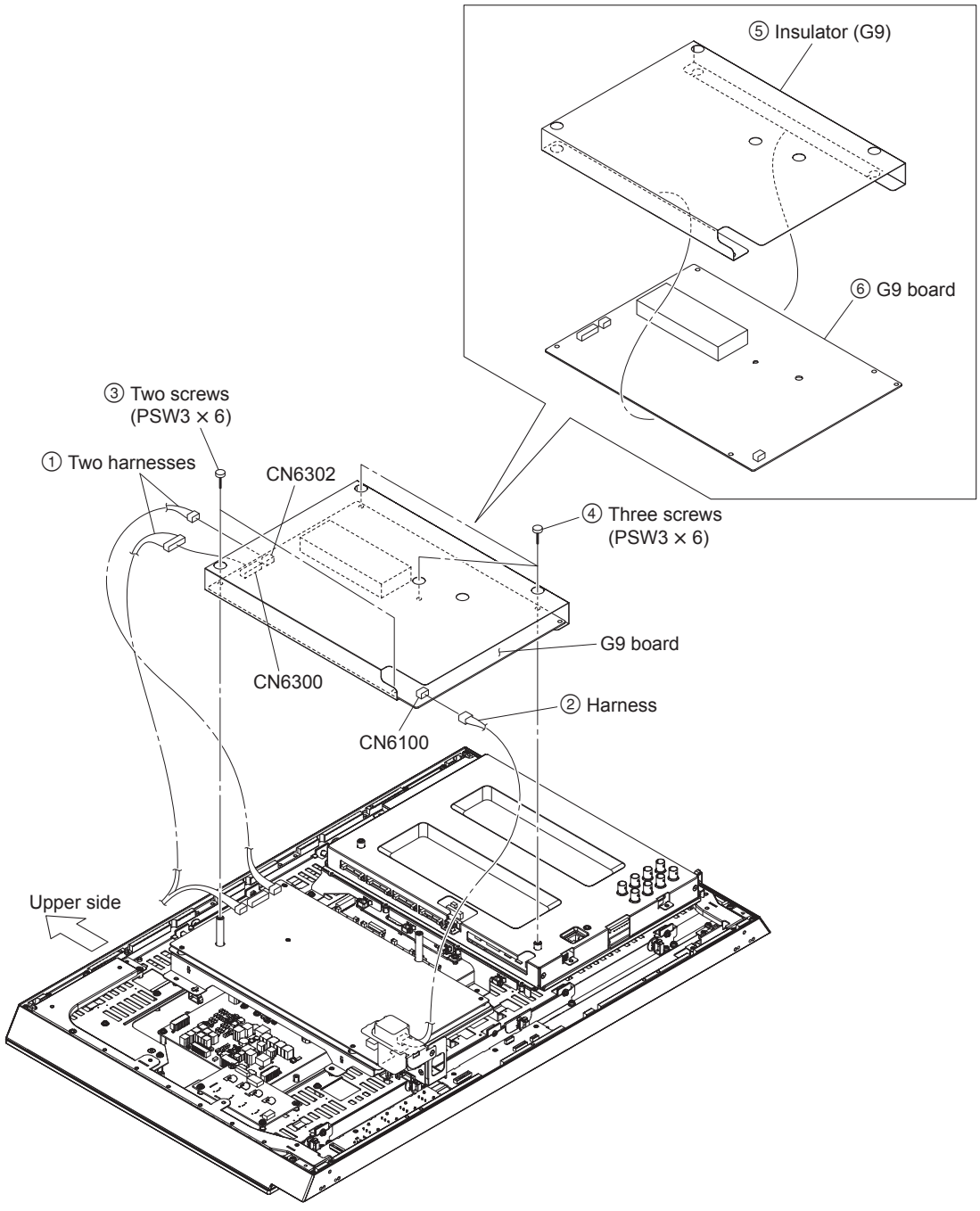
Serial No.: 7100001 and Higher (SY)
Serial No.: 7300001 and Higher (CN)

1. Remove the rear cabinet parts. (Refer to Section 4-3.)
2. Remove the BT assembly. (Refer to steps ① to ⑤ in Section 4-7.)
3. Remove parts in the order of numbers shown in the figure.



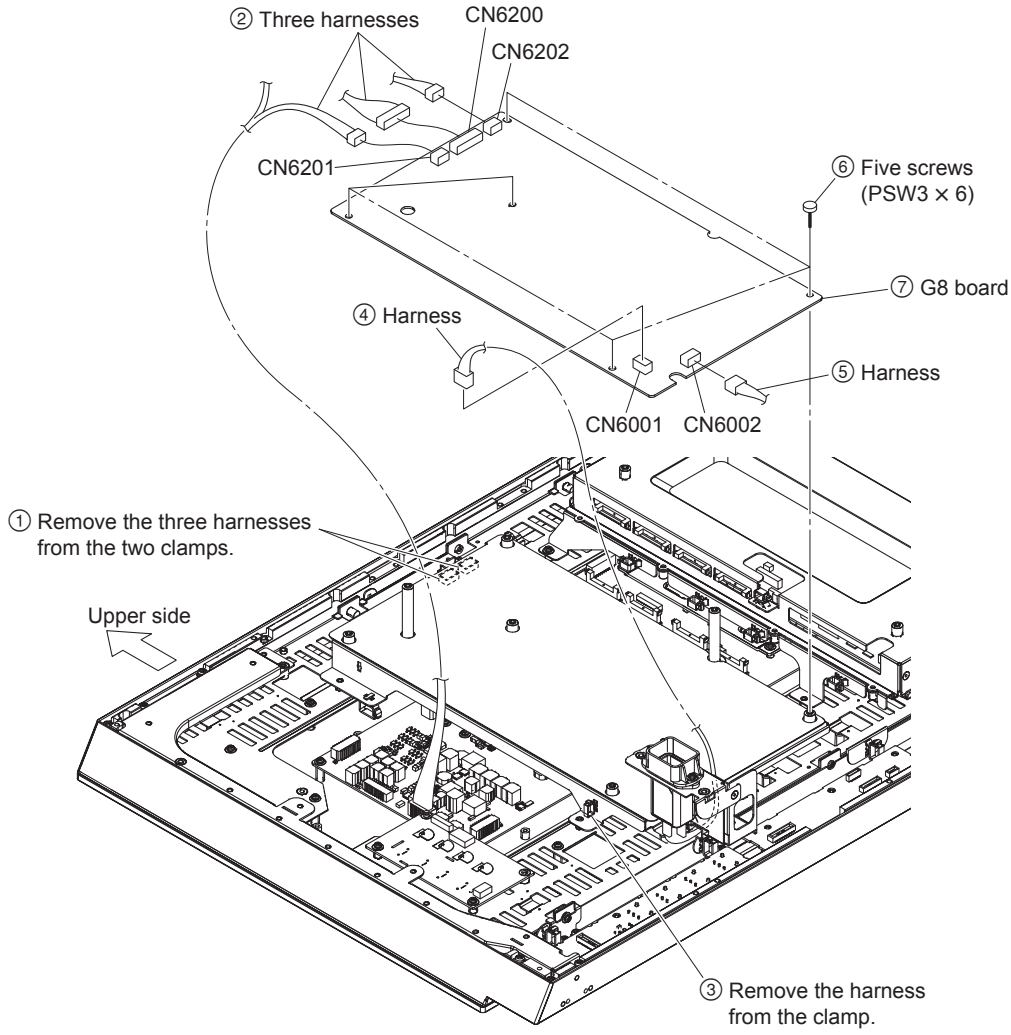
4-12. G9 Board

1. Remove the rear cabinet parts. (Refer to Section 4-3.)
2. Remove the fan bracket block with VESA frame. (Refer to Section 4-4.)
3. Remove parts in the order of numbers shown in the figure.



4-13. G8 Board

1. Remove the rear cabinet parts. (Refer to Section 4-3.)
2. Remove the fan bracket block with VESA frame. (Refer to Section 4-4.)
3. Remove the G9 board. (Refer to Section 4-12.)
4. Remove parts in the order of numbers shown in the figure.



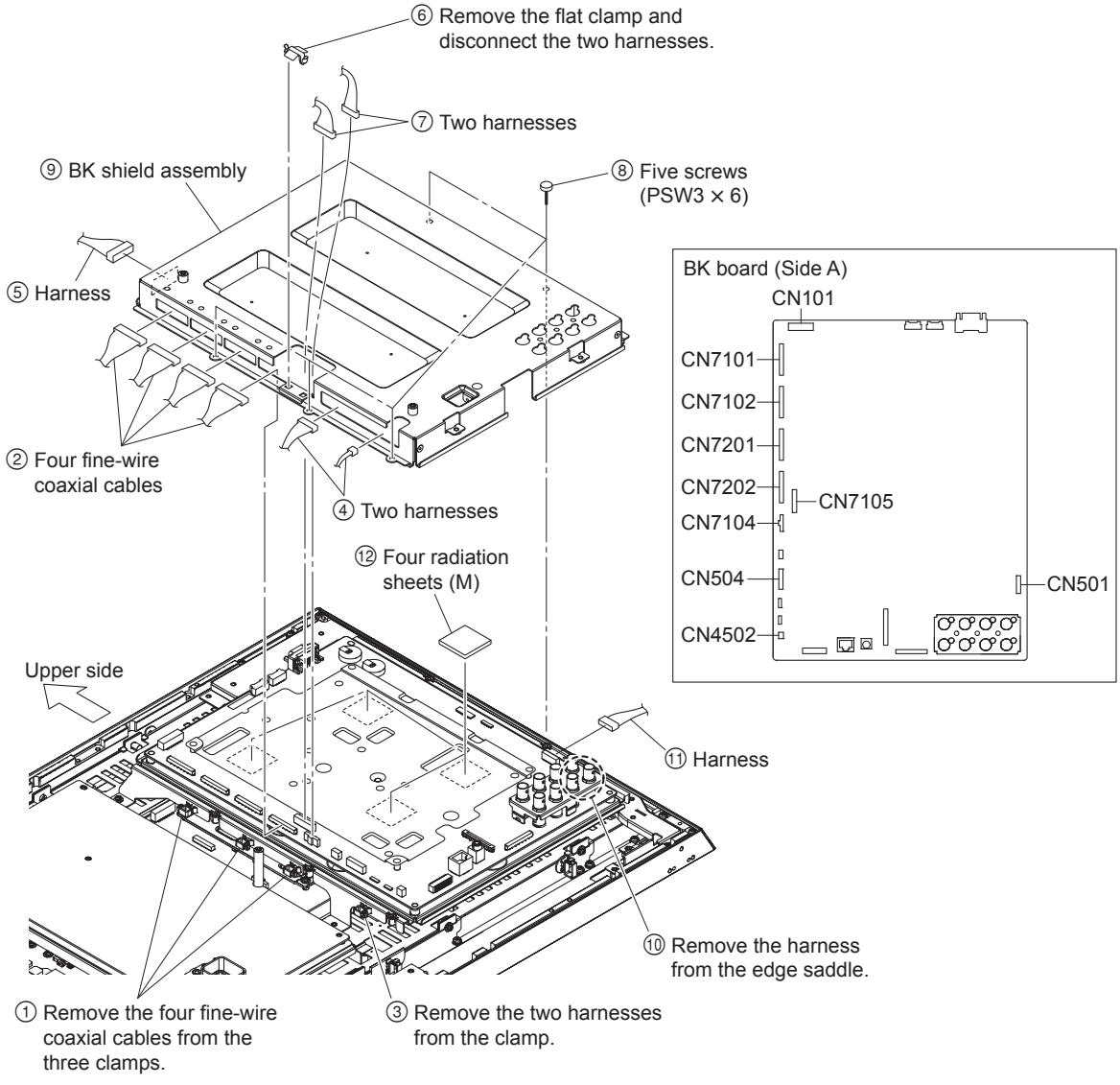
4-14. BK Board

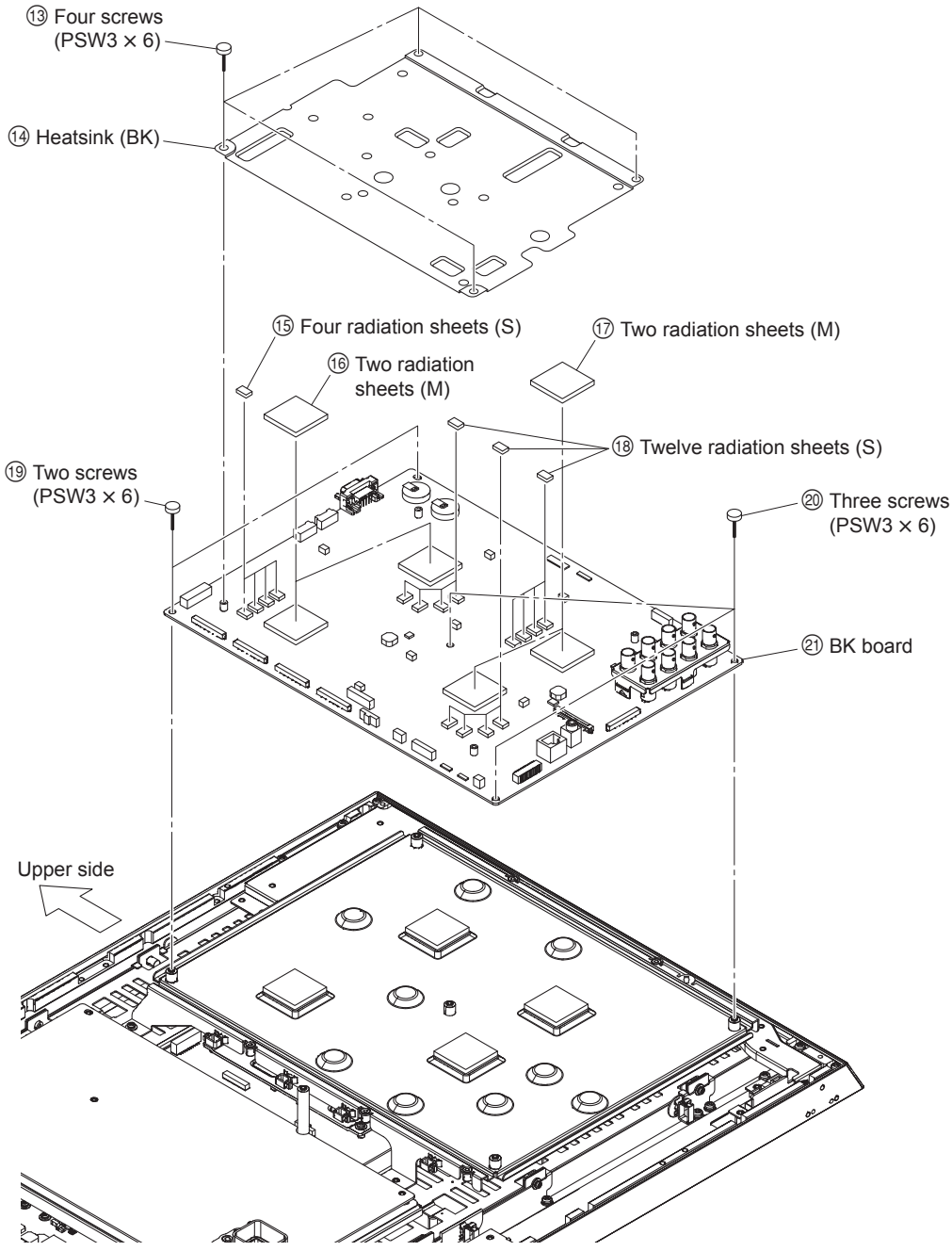
Serial No.: 7000001 to 7100000 (SY)
Serial No.: 7200001 to 7300000 (CN)

1. Remove the rear cabinet parts. (Refer to Section 4-3.)
2. Remove the fan bracket block with VESA frame. (Refer to Section 4-4.)
3. Remove the G9 board. (Refer to Section 4-12.)
4. Remove parts in the order of numbers shown in the figure.

Tip

Refer to Section 1-5-1 for the disconnection and connection of a fine-wire coaxial cable.





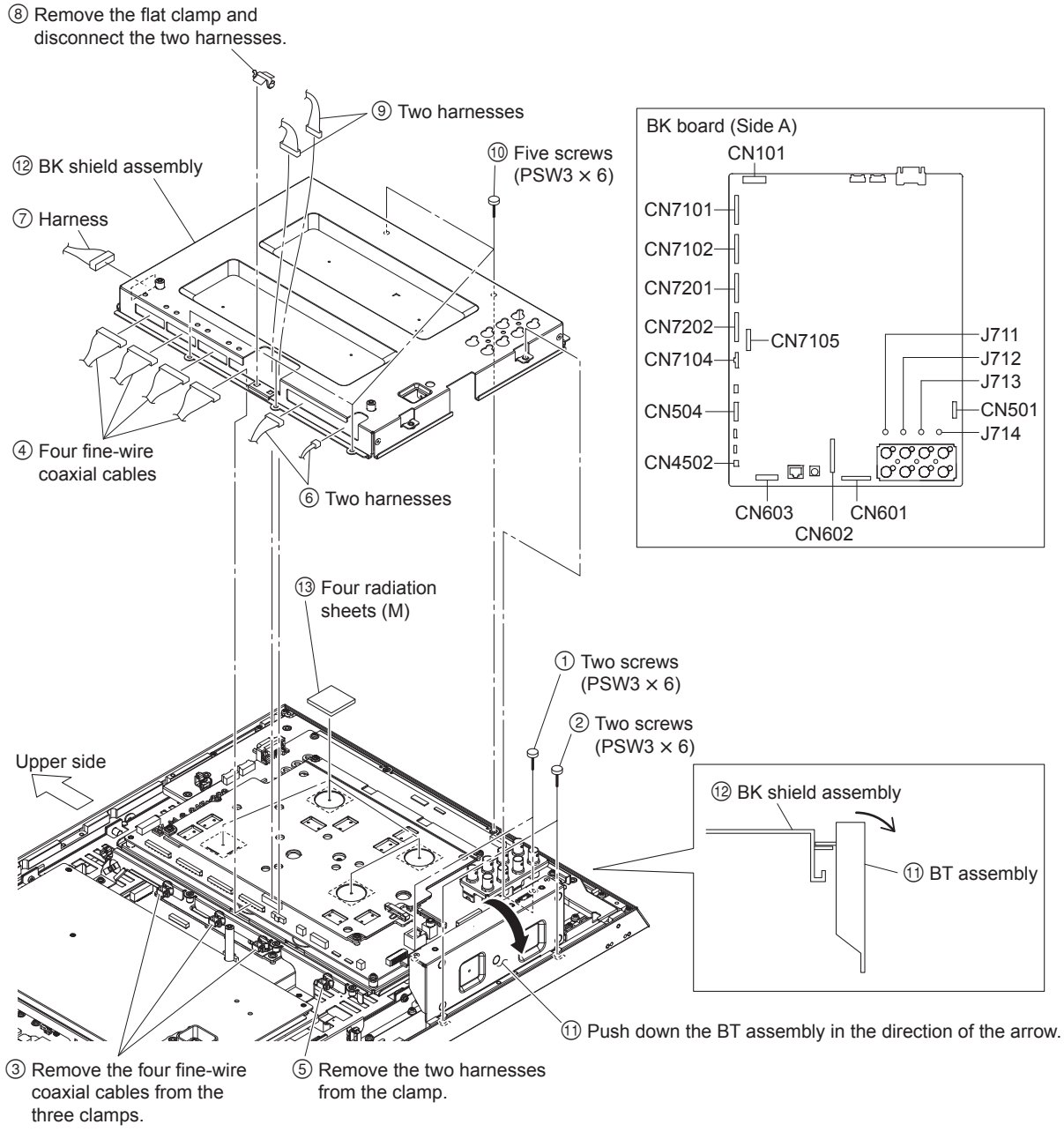
5. Install the parts in the reverse procedure of removal.
6. Perform “Operation after Replacement of a BK board”. (Refer to Section 4-18-2.)

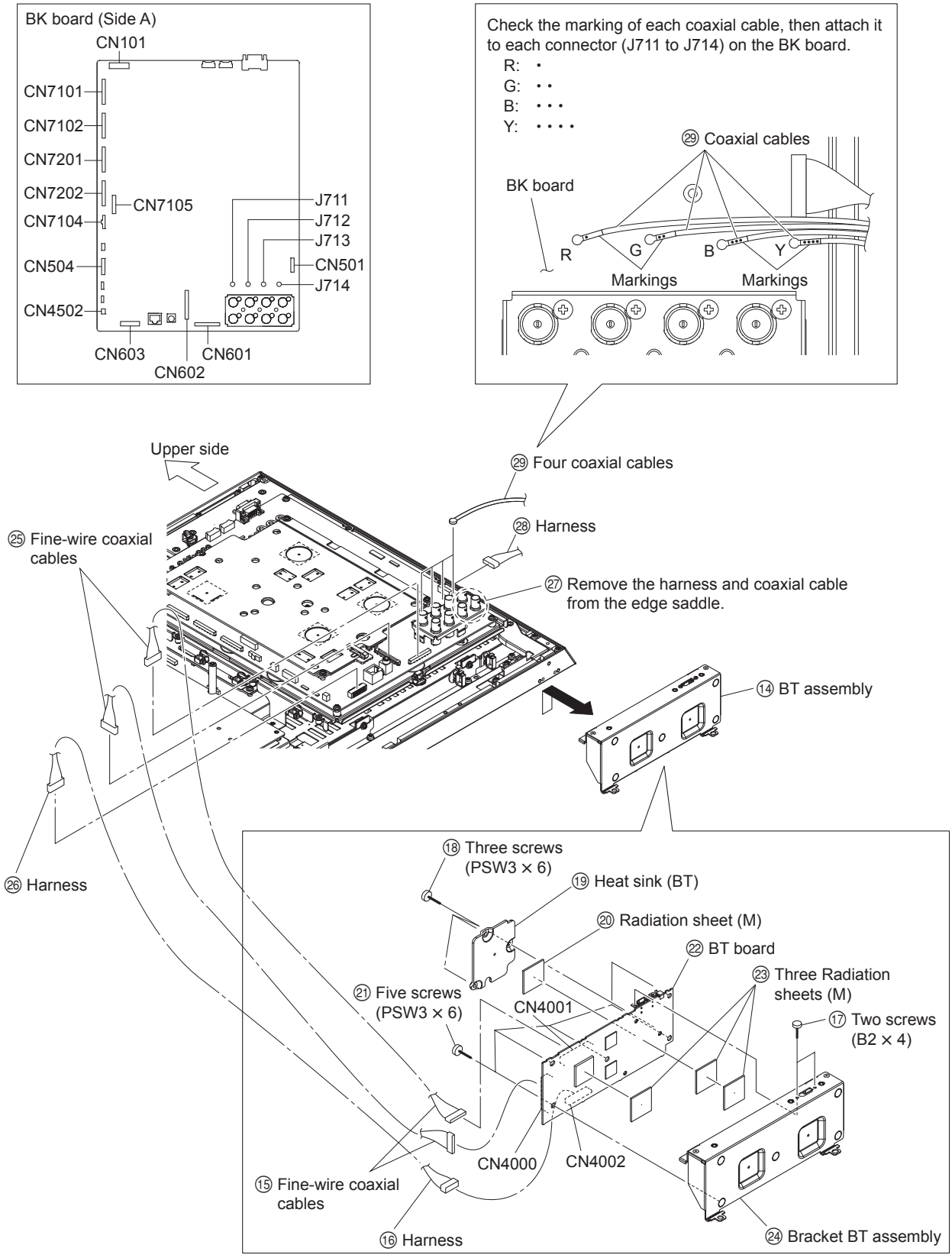
Serial No.: 7100001 and Higher (SY)
Serial No.: 7300001 and Higher (CN)

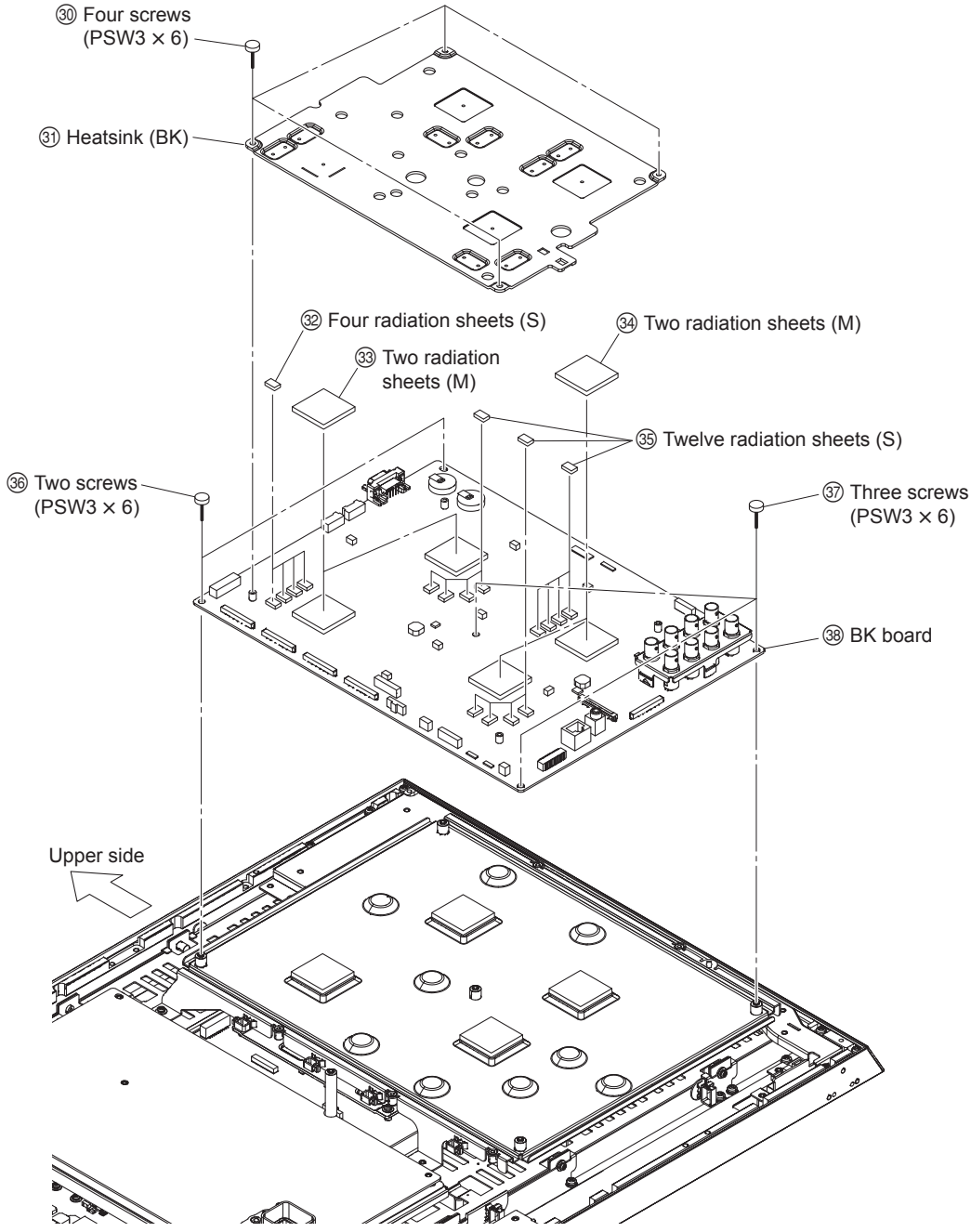
1. Remove the rear cabinet parts. (Refer to Section 4-3.)
2. Remove the fan bracket block with VESA frame. (Refer to Section 4-4.)
3. Remove the G9 board. (Refer to Section 4-12.)
4. Remove parts in the order of numbers shown in the figure.

Tip

Refer to Section 1-5 for the disconnection and connection of a fine-wire coaxial cable and coaxial cable.




BK board (Side A)
CN101
CN7101
CN7102
CN7201
CN7202
CN7105
CN7104
CN504
CN4502
CN603
CN602
CN601
J711
J712
J713
CN501
J714
Check the marking of each coaxial cable, then attach it to each connector (J711 to J714) on the BK board.
R: •
G: • •
B: • • •
Y: • • • •
29 Coaxial cables
BK board
R
G
B
Y
Markings
Markings
Upper side
29 Four coaxial cables
28 Harness
25 Fine-wire coaxial cables
27 Remove the harness and coaxial cable from the edge saddle.
14 BT assembly
26 Harness
18 Three screws (PSW3 × 6)
19 Heat sink (BT)
20 Radiation sheet (M)
22 BT board
23 Three Radiation sheets (M)
21 Five screws (PSW3 × 6)
CN4001
17 Two screws (B2 × 4)
CN4000
CN4002
15 Fine-wire coaxial cables
16 Harness
24 Bracket BT assembly

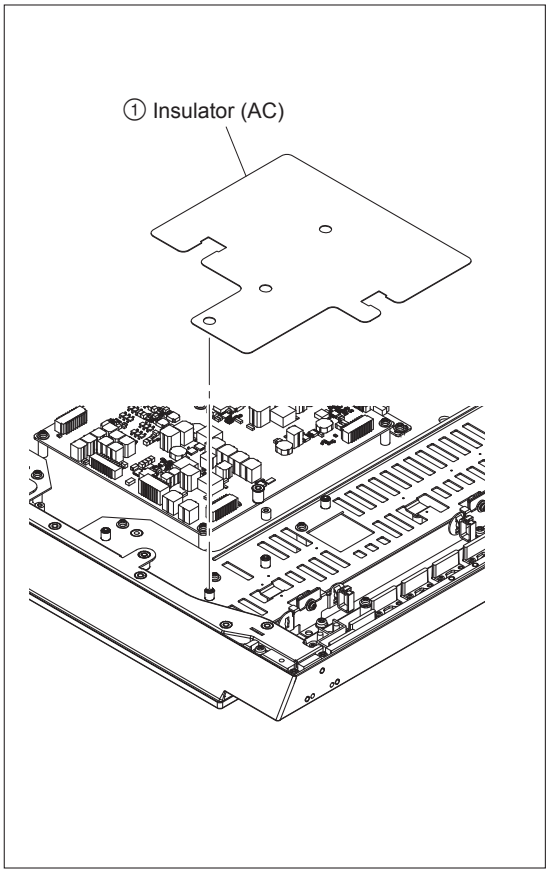


5. Install the parts in the reverse procedure of removal.
6. Perform “Operation after Replacement of a BK board”. (Refer to Section 4-18-2.)

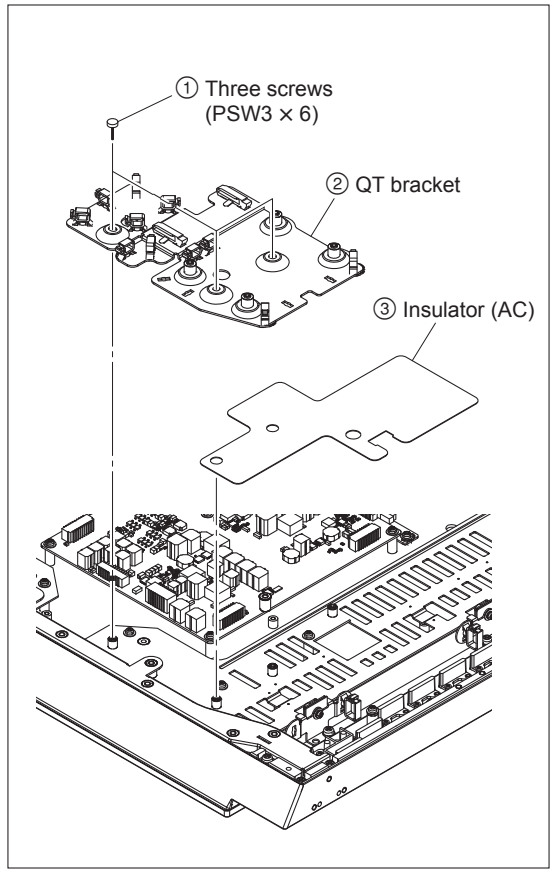
4-15. Panel Module

1. Remove the rear cabinet parts. (Refer to Section 4-3.)
2. Remove the fan bracket block with VESA frame. (Refer to Section 4-4.)
3. Remove the G block assembly. (Refer to Section 4-6.)
4. Remove the BK block assembly. (Refer to Section 4-7.)
5. Remove the Q board or QT board. (Refer to Section 4-8.)
6. Remove the insulator (AC) and QT bracket.

Serial No.: 7000001 to 7100000 (SY)
Serial No.: 7200001 to 7300000 (CN)



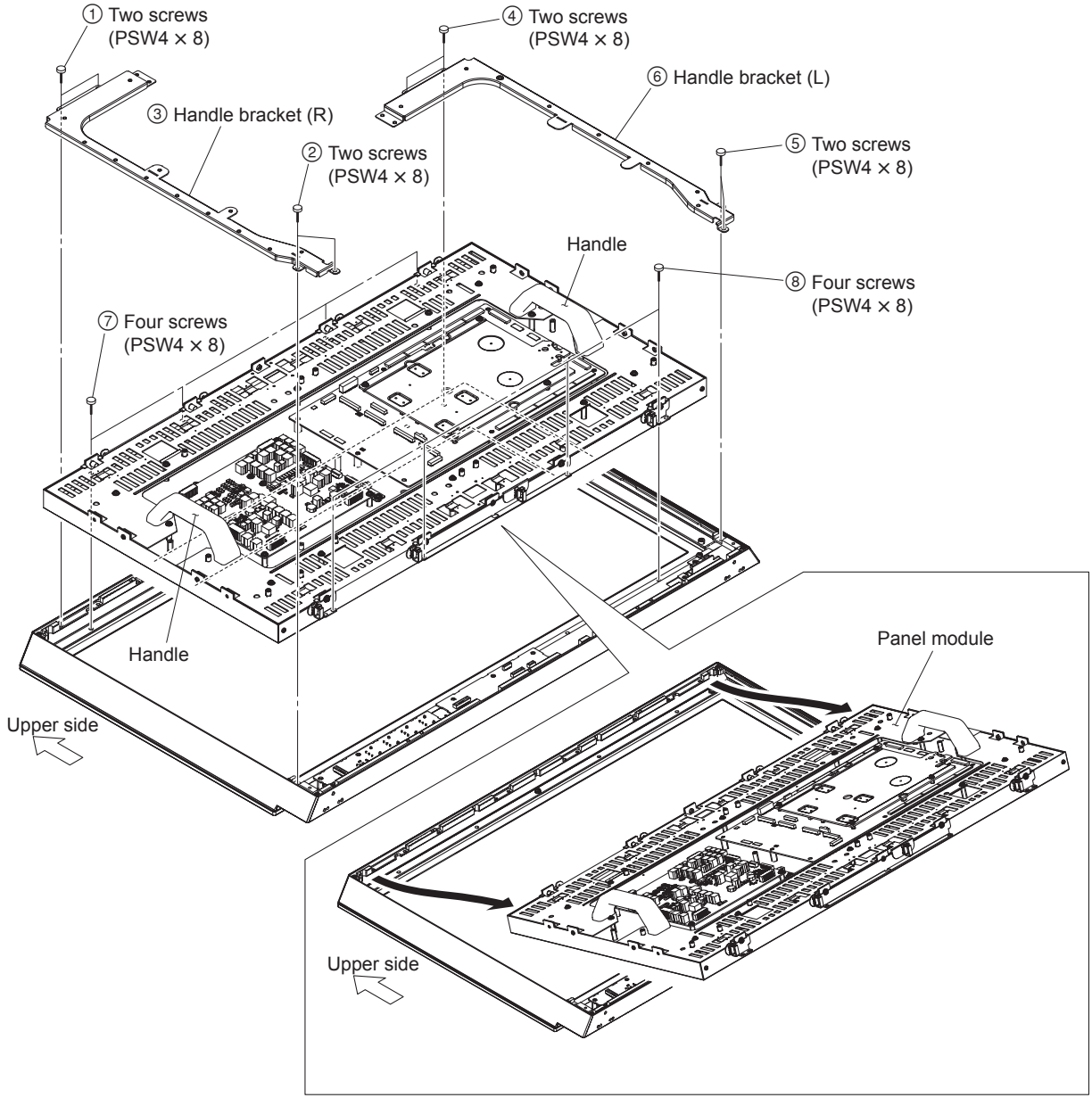
Serial No.: 7100001 and Higher (SY)
Serial No.: 7300001 and Higher (CN)

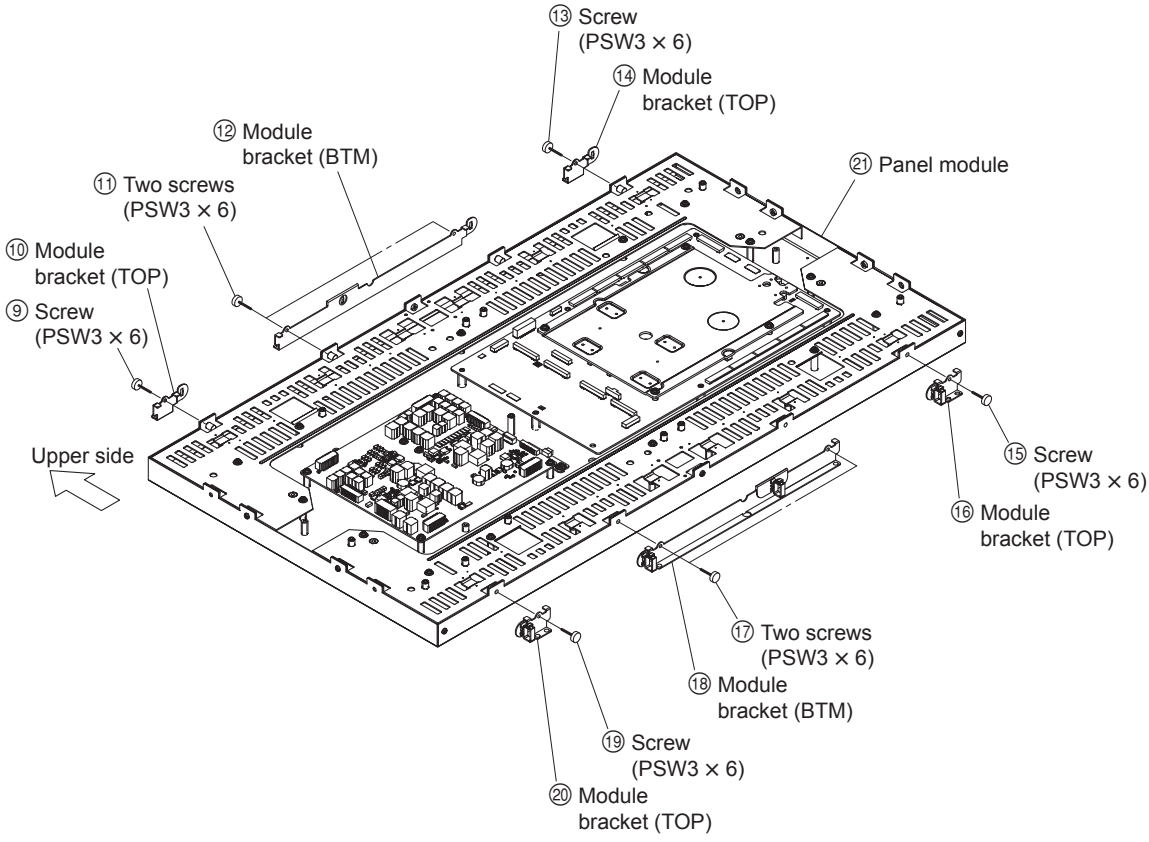


7. Remove parts in the order of numbers shown in the figure.
8. Remove the panel module.

Tip

Installing the two handles, removed in step 1, in the position shown in the figure is convenient when removing the panel module. However, take care not to damage the flexible flat cable by the handles when installing or removing the handles. This may cause a break in the flexible flat cable.



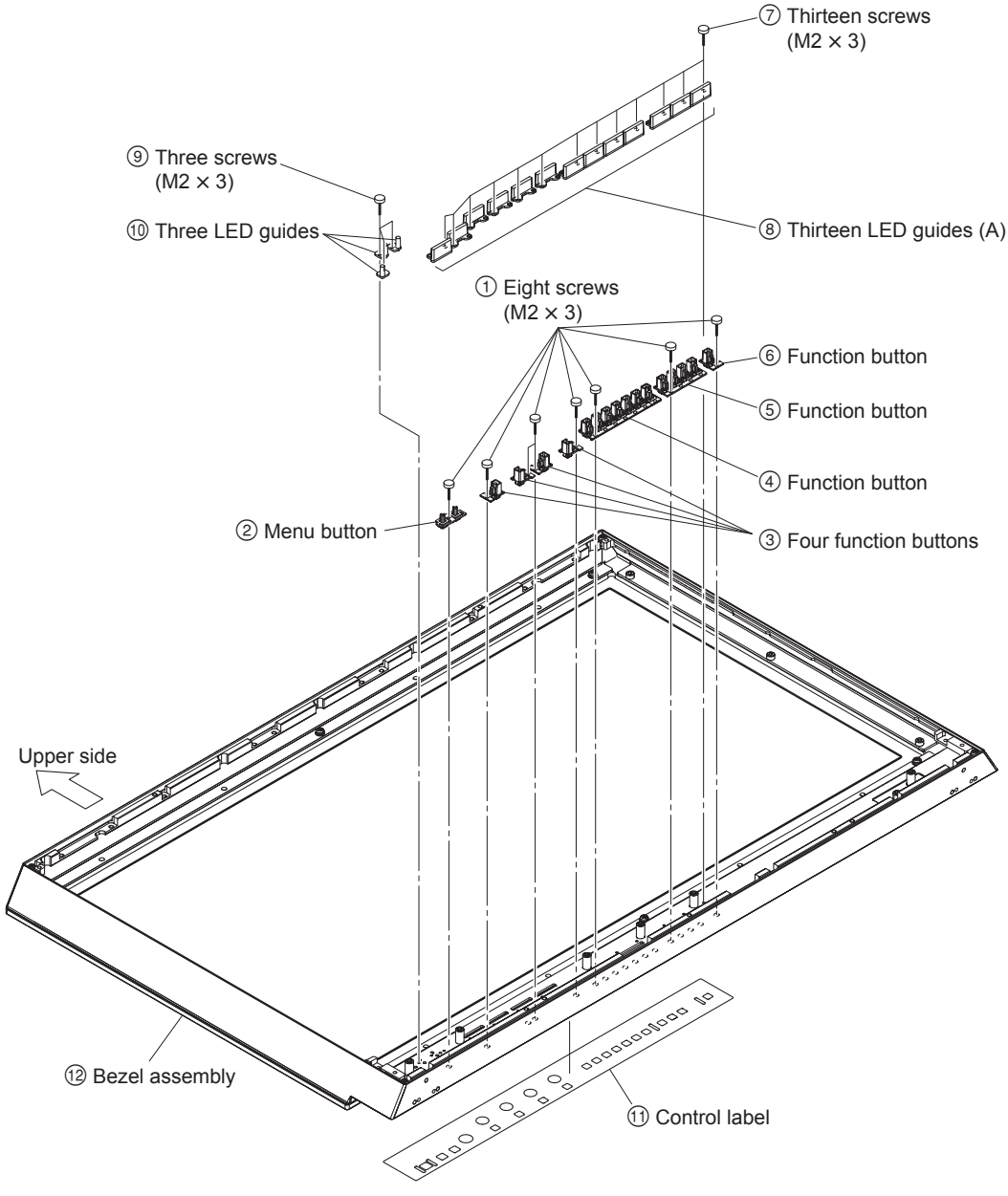


9. Install the parts in the reverse procedure of removal.
10. Perform “Operation after Replacement of a Panel Module”. (Refer to Section 4-18-1.)

4-16. Bezel Assembly

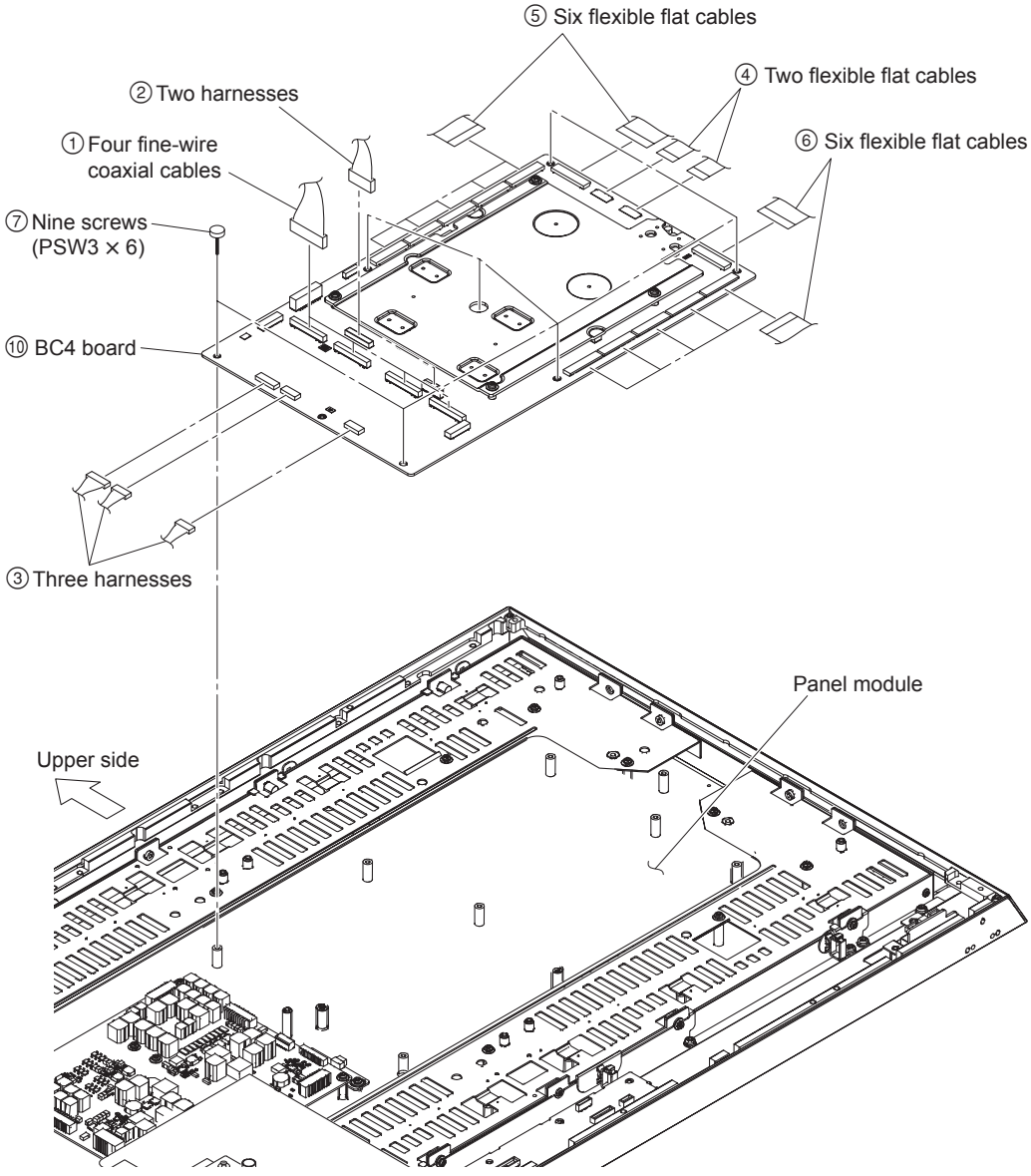
The following parts cannot be reused. Prepare the new parts.
• Control label (⚠4-559-689-01): 1pc

1. Remove the rear cabinet parts. (Refer to Section 4-3.)
2. Remove the fan bracket block with VESA frame. (Refer to Section 4-4.)
3. Remove the G block assembly. (Refer to Section 4-6.)
4. Remove the BK block assembly. (Refer to Section 4-7.)
5. Remove the Q board. (Refer to Section 4-8.)
6. Remove the HA board. (Refer to Section 4-9.)
7. Remove the HC board. (Refer to Section 4-10.)
8. Remove the HB board. (Refer to Section 4-11.)
9. Remove the panel module. (Refer to Section 4-15.)
10. Remove parts in the order of numbers shown in the figure.



4-17. BC4 Board

1. Remove the rear cabinet parts. (Refer to Section 4-3.)
2. Remove the fan bracket block with VESA frame. (Refer to Section 4-4.)
3. Remove the G block assembly. (Refer to Section 4-6.)
4. Remove the BK block assembly. (Refer to Section 4-7.)
5. Remove parts in the order of numbers shown in the figure.



4-18. Operation Regarding Replacement of Parts

4-18-1. Operation after Replacement of a Panel Module

After the panel module is replaced, transfer the data stored in the panel module to the memory on the BK board.

Required Items

- Personal computer (Hereinafter referred to as PC)
  OS: Windows 7, Windows 8 or Windows 8.1
- LAN cable (cross)
- Terminal software: Tera Term, etc.
- Login name and password
  For obtaining the login name and password, contact your local Sony Sales Office/Service Center.

Procedure

1. Replace the panel module. (Refer to Section 4-15.)
2. Connect the monitor and PC using a LAN cable (cross). (Refer to Section 3-2-2.)
3. Set the PC. (Refer to Section 3-2-3.)
4. Turn on the power of the monitor and log in to the monitor using the PC. (Refer to Section3-2-4.)
5. Enter “copy_panel_data” after “>” and press the Enter key.
6. Enter “calc_wb_cor_temp_coef 1” and press the Enter key.
   The data stored in the panel module is transferred to the memory on the BK board.
   When the transfer is completed, “>” is displayed.
7. Terminate the terminal software.
   When terminating Tera Term, press the Alt and Q keys simultaneously.
8. Upgrade the software and FPGA of this unit and FPGA of panel module to the latest version. (Refer to Section 5.)

4-18-2. Operation after Replacement of a BK Board

After the BK board is replaced, transfer the data stored in the BK board to the memory on the BK board. When the serial number, operation time, panel on time and HDR on time have been acquired in “Data acquisition by PC”, write that data in the memory on the BK board.

Required Items

- Personal computer (Hereinafter referred to as PC)
  OS: Windows 7, Windows 8 or Windows 8.1
- LAN cable (cross)
- Terminal software: Tera Term, etc.
- Login name and password
  For obtaining the login name and password, contact your local Sony Sales Office/Service Center.

Procedure

1. Replace the panel module. (Refer to Section 4-15.)
2. Connect the monitor and PC using a LAN cable (cross). (Refer to Section 3-2-2.)
3. Set the PC. (Refer to Section 3-2-3.)
4. Turn on the power of the monitor, start Tera Term, and perform the MR6 command connection from PC. (Refer to “Command connection from PC”.)
5. Enter “copy_panel_data” after “>” and press the Enter key.
6. Write the serial number.
   Type “set_serial_number_set 7xxxxxx” after “>”.
7. Write the operation time.
   Type “set_operation_time xxxxxx” after “OK”.
8. Write the panel on time.
   Type “set_panel_on_time xxxxxx” after “OK”.
9. Write the HDR on time.
   Type “set_hdr_time xxxxxx” after “OK”.
10. Start the burn-in correction.
    Type “enable_bic_correct” after “OK”.
11. Terminate the terminal software.
    When terminating Tera Term, press the Alt and Q keys simultaneously.

Section 5
Software Update

5-1. Required Items

- Personal computer (Hereinafter referred to as PC)
  OS: Windows 7, Windows 8, or Windows 8.1
- LAN cable (cross)
- Update software (*** indicates the version)
  - BVM-X300_ARM926EJ-S_Lan_update_***_ww_.zip
  - BVM-X300_FPGA_BLU_Lan_update_***_ww_.zip
  - BVM-X300_FPGA_VERDE_Lan_update_***_ww_.zip
  - BVM-X300_FPGA_CRE4_Lan_update_***_ww_.zip
  - BVM-X300_FPGA_ROSA_Lan_update_***_ww_.zip(*1)
  - BVM-X300_HDMI_Lan_update_***_ww_.zip(*1)

  For details on how to obtain the update software, contact your local Sony Sales Office/Service Center.

Tip

(*1)

- Serial No.: 7100001 and Higher (SY)
- Serial No.: 7300001 and Higher (CN)

5-2. Preparation

1. Connect this unit and PC with the LAN cable. (Refer to Section 3-2-2.)

   Note

   Do not connect with anything other than the LAN cable and AC cable.
2. Copy the update software to any location on PC.
3. Set PC as follows. (Refer to Section 3-2-3.)
   Fixed IP address: 192.168.0.10 (must be other than 192.168.0.1)
   Subnet mask: 255.255.255.0

5-3. Update

Note

Update FPGA first, and then update the software.

5-3-1. FPGA Update

1. Extract BVM_X300_FPGA_BLU_Lan_update_***_ww_.zip.
2. Execute BLU_R***_******_quad_22m_update.bat in the folder.
   The progress status is displayed in the DOS Prompt window during the execution of batch file.
3. After approx. 8 minutes, check that “Press any key to continue” is displayed in the DOS Prompt window.
   Then, check that “Finished correctly” is displayed, and then click the [Enter] button to close the DOS window.
4. Extract BVM_X300_FPGA_VERDE_Lan_update_***_ww_.zip.
5. Execute VERDE_R***_******_quad40m_update.bat in the folder.
   The progress status is displayed in the DOS Prompt window during the execution of batch file.
6. After approx. 10 minutes, check that “Press any key to continue” is displayed in the DOS Prompt window.
   Then, check that “Finished correctly” is displayed, and then click the [Enter] button to close the DOS window.
7. Extract BVM_X300_FPGA_CRE4_Lan_update_***_ww_.zip.
8. Execute CRE4L_R***_******_update.bat in the L folder.
   The progress status is displayed in the DOS Prompt window during the execution of batch file.
9. After approx. 7 minutes, check that “Press any key to continue” is displayed in the DOS Prompt window.
   Then, check that “Finished correctly” is displayed, and then click the [Enter] button to close the DOS window.
10. Extract BVM_X300_FPGA_CRE4_Lan_update_***_ww_.zip.
11. Execute CRE4R_R***_******_update.bat in the R folder.
    The progress status is displayed in the DOS Prompt window during the execution of batch file.
12. After approx. 7 minutes, check that “Press any key to continue” is displayed in the DOS Prompt window.
    Then, check that “Finished correctly” is displayed, and then click the [Enter] button to close the DOS window.
13. Extract BVM_X300_FPGA_ROSA_Lan_update_***_ww_.zip.
14. Execute fpga_rosa_update.bat in the folder.
    The progress status is displayed in the DOS Prompt window during the execution of batch file.
15. After approx. 1 minute, check that “Press any key to continue” is displayed in the DOS Prompt window.
    Then, check that “Finished correctly” is displayed, and then click the [Enter] button to close the DOS window.
16. Extract BVM-X300_HDMI_Lan_update_***_ww_.zip.
17. Execute hdmi_recv_update.bat in the folder.
    The progress status is displayed in the DOS Prompt window during the execution of batch file.
18. After approx. 20 seconds, check that “Press any key to continue” is displayed in the DOS Prompt window.
    Then, check that “Finished correctly” is displayed, and then click the [Enter] button to close the DOS window.

5-3-2. Software Update

1. Extract BVM-X300_ARM926EJ-S_Lan_update_***_ww_.zip.
2. Execute application_update.bat in the folder.
   The progress status is displayed in the DOS Prompt window during the execution of batch file.
3. After approx. 2 minutes, check that “Press any key to continue” is displayed in the DOS Prompt window.
   Then, check that “Finished correctly” is displayed, and then click the [Enter] button to close the DOS window.
4. Execute osd_bitmap_update.bat in the folder.
   The progress status is displayed in the DOS Prompt window during the execution of batch file.
5. After approx. 3 minutes, check that “Press any key to continue” is displayed in the DOS Prompt window.
   Then, check that “Finished correctly” is displayed, and then click the [Enter] button to close the DOS window.
6. Execute osd_font_update.bat in the folder.
   The progress status is displayed in the DOS Prompt window during the execution of batch file.
7. After approx. 20 seconds, check that “Press any key to continue” is displayed in the DOS Prompt window.
   Then, check that “Finished correctly” is displayed, and then click the [Enter] button to close the DOS window.
8. Turn the power of this unit off and on.

5-4. Version Check after Installation

Check the version in the following procedure.

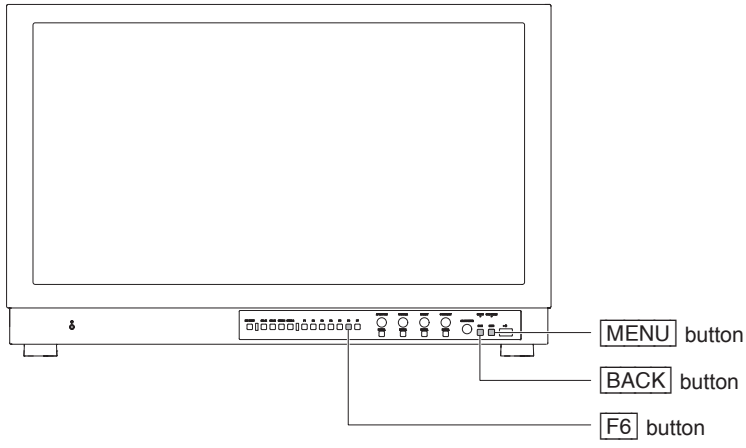
1. Turn on the power of this unit.
2. Press the [MENU] button to display the menu.
3. Display Status Menu → Status 4/4 menu using the menu selection knob.
4. Check the version of the software and FPGA.

Section 6
Maintenance Menu

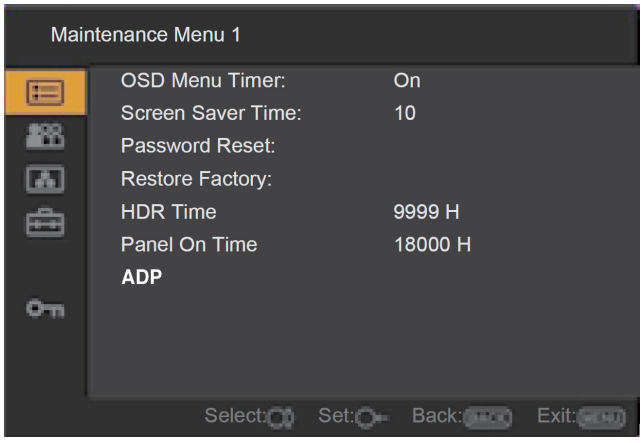
The maintenance menu is used when resetting the password of a monitor or returning a monitor to the factory setting.

6-1. Entering the Maintenance Menu

Press the BACK and F6 buttons simultaneously with the menu screen displayed.



The Maintenance menu is displayed.



To exit the Maintenance menu

Press the MENU button. The Maintenance menu display disappears.

6-2. Maintenance Menu List

Item	Function
OSD Menu Timer	Used for design. Do not change the setting.
Screen Saver Time	Used for design. Do not change the setting.
Password Reset	Resets the password of a monitor.
Restore Factory	Returns all setting values to the factory-setting values.
HDR Time	Displays the total time for which an HDR (High Dynamic Range) function is used.
Panel On Time	Displays the total time for which a panel is energized.
ADP	Sets the function of lowering the luminance level by ON/OFF. It operates when the static image with high luminance level is displayed continuously in HDR.

6-3. Menu Operation

To move the cursor to the right

Press the menu selection control.

To move the cursor up and down

Turn the menu selection control clockwise.
When the control is set to the lower position in the lowermost line, the cursor is moved to the uppermost position.

To determine an item

Press the menu selection control.

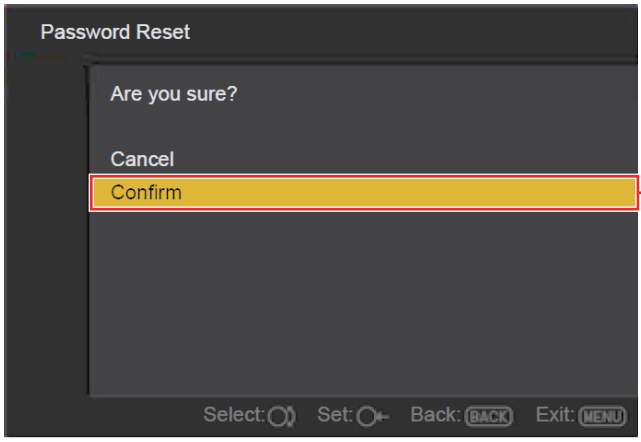
To move the cursor to the left

Press the BACK button.

6-4. Initializing the Password

Reset the password of a monitor.

1. Select [Password Reset] in the Maintenance menu and determine it.
   The screen below appears.



Select [Confirm].

2. Select [Confirm] and determine it.

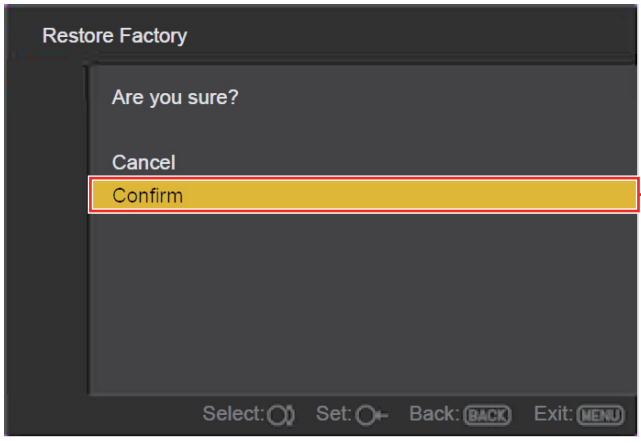
To set a password

Refer to the Operating Instructions.

6-5. Returning to Factory-Setting Values

Return all setting values set in a monitor to the factory-setting values.

1. Select [Restore Factory] in the Maintenance menu.
   The screen below appears.



Select [Confirm].

2. Select [Confirm] and determine it.

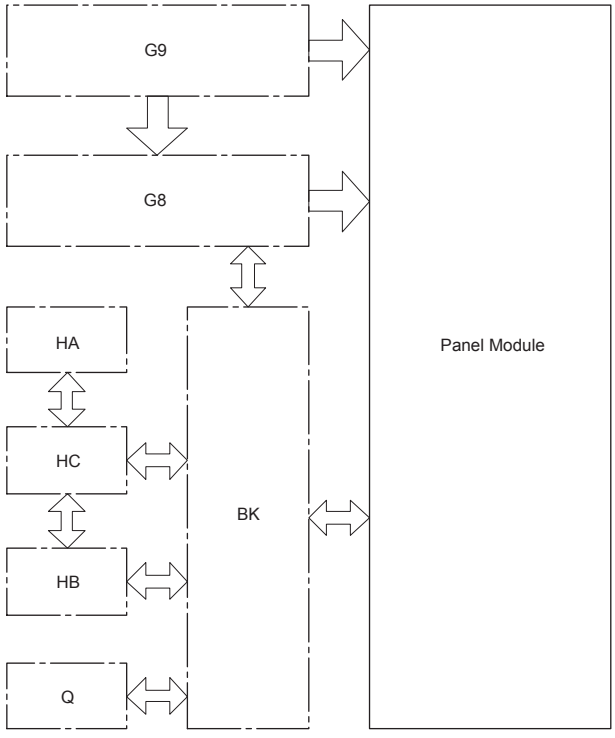
Section 7
Circuit Description

7-1. Board Configuration

Serial No.: 7000001 to 7100000 (SY)
Serial No.: 7200001 to 7300000 (CN)

The whole block and board configuration of this unit are as follows:

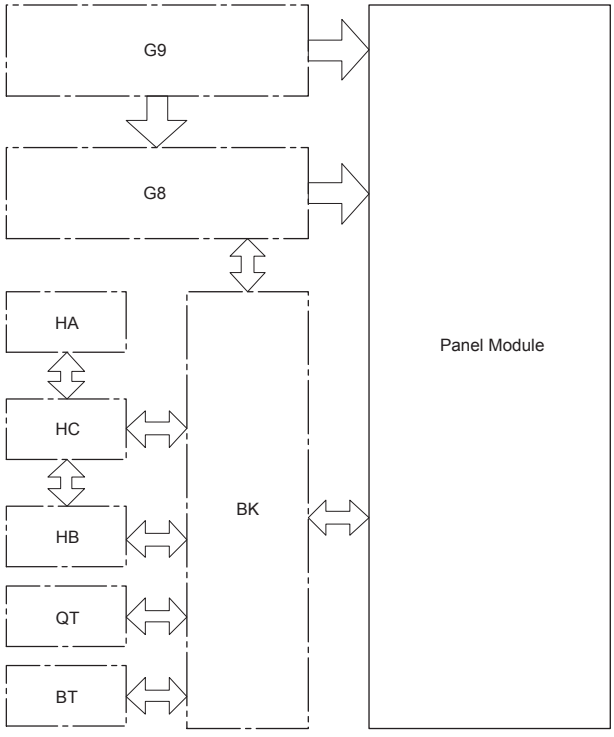
- G8 board: Power board (12 VAC → 12 VDC output)
- G9 board: Power board (28 VAC → 28 VDC output)
- BK board: Signal processing board (SDI input processing, each signal processing, and CPU)
- Q board: Input extension board (Dummy board for an extension board in future)
- HA board: User interface board (Switch and rotary encoder)
- HB board: User interface board (Headphone terminal)
- HC board: User interface board (Switch and CPLD)



Serial No.: 7100001 and Higher (SY)
Serial No.: 7300001 and Higher (CN)

The whole block and board configuration of this unit are as follows:

- G8 board: Power board (12 VAC → 12 VDC output)
- G9 board: Power board (28 VAC → 28 VDC output)
- BK board: Signal processing board (SDI1 input processing, each signal processing, and CPU)
- QT board: For SDI2 input
- BT board: For HDMI input
- HA board: User interface board (Switch and rotary encoder)
- HB board: User interface board (Headphone terminal)
- HC board: User interface board (Switch and CPLD)



7-2. G8 Board

The G8 board generates the power used in this unit. When this board receives AC power, this board improves a power factor using a regulator and generates 12 VDC using an insulating converter. The generated 12 VDC is output to the panel module and the BK board for signal processing.

7-3. G9 Board

The G9 board generates the power used in this unit. When this board receives AC power, this board improves a power factor using a regulator and generates 28 VDC using an insulating converter. The generated 28 VDC is output to the panel module.

7-4. BK Board

Serial No.: 7000001 to 7100000 (SY)
Serial No.: 7200001 to 7300000 (CN)

The BK board processes a video signal. SDI inputs (J701 to J704) that are provided as a standard feature and SDI inputs (J711 to J714) used for extension in future are selected using ICs (IC701 to IC704).
The main device is as described below.

- FPGA (IC2001): Processes the signal output from IC701 through IC704, for example, converts a signal format.
- IC4001 and IC5001: Perform system control or scaling.
- FPGA (C7001): Generates the signal output to the panel module.

IC2001 performs SerDes (Serial-to-Parallel conversion) of an SDI signal, decoding, signal discrimination, and signal rearrangement for a later-stage device.
IC4001 has a role of CPU. It controls a control panel, temperature, and power supply. IC4001 can receive a 2K signal (maximum). Therefore, a 4K signal is sent from IC2001 in two phases and input to IC4001 and IC5001. IC4001 and IC5001 perform frame frequency switching, scaling processing, or OSD display.
The signals sent from IC4001 and IC5001, and the 4K signal directly sent from IC2001 are input to IC7001. The selection of a path is switched by the setting of a monitor. IC7001 has mainly an image adjustment function. It performs various adjustments (contrast, brightness, chroma, aperture, or white balance) and gamma switching. The image-adjusted signal is converted into the timing in which the panel module can be driven, then output to the panel module in the four phases of an LVDS signal.

Serial No.: 7100001 and Higher (SY)
Serial No.: 7300001 and Higher (CN)

The BK board processes a video signal. The four inputs, SDI1 inputs of main unit and SDI2 inputs from the QT board, are selected using ICs (IC701 to IC704).
The main device is as described below.

- FPGA (IC2001): Processes the signal from the reclocker of IC701 to IC704 and the HDMI input signal from the BT board.
- IC4001 and IC5001: Perform system control or scaling.
- FPGA (IC7001): Generates the signal output to the panel module.

IC2001 performs SerDes (Serial-to-Parallel conversion) of an SDI signal, decoding, signal discrimination, signal rearrangement for a later-stage device, and switching of input system.
IC4001 has a role of CPU. It controls a control panel, temperature and power supply. IC 4001 and IC-5001can receive a 2K signal (maximum). Therefore, a 4K signal in four phases or 2K signal in four inputs is sent from IC2001 in the previous-stage, and then input to IC4001 and IC5001 respectively for the right half side and left half side on the display.
IC4001 and IC5001 perform frame frequency switching, scaling processing, or OSD display.
The signals sent from IC4001 and IC5001, and the 4K signal directly sent from IC2001 are input to IC7001. The selection of a path is switched by the setting of a monitor. IC7001 has mainly an image adjustment function. It performs various adjustments (contrast, brightness, chroma, aperture, or white balance) and gamma switching. The image-adjusted signal is converted into the timing in which the panel module can be driven, then output to the panel module in the four phases of an LVDS signal.

7-5. HA Board, HB Board, and HC Board

These boards process the signal of a user interface part (controller).
The HA board, HB board, and HC board consist of an input selector, function selector, image adjustment rotary encoder, menu control, headphone terminal, and power switch. The user interface part reads an input signal using CPLD (IC204) and exchanges data with CPU (IC4001) on the BK board.

7-6. BT Board

Serial No.: 7100001 and Higher (SY)
Serial No.: 7300001 and Higher (CN)

The BT board processes the signal from the HDMI input terminal.
The main device is as described below.

- Splitter IC (IC1000): Receives the HDMI signal and distributes it to the later-stage.
- Receiver IC (IC2000, IC2100): Decodes the TMDS signal sent from the HDMI terminal.
- FPGA (IC3000): Converts the audio signal and video signal format.

IC1000 distributes the received 6G-HDMI signal into two 3G-HDMI signals. IC2000 and IC2100 convert the TMDS signal into the parallel video signal and audio signal.
IC3000 performs the transfer of audio signal, array conversion of video signal, and conversion of video signal from an LVCMOS signal to LVDS signal.
IC1000, IC2000 and IC2100 have built-in HDCP Decode Key, which is not available as service parts as a single part.

7-7. QT Board

Serial No.: 7100001 and Higher (SY)
Serial No.: 7300001 and Higher (CN)

The QT board processes the signal from the SDI2 input terminal of this unit.
It receives the SDI signal and outputs to the BK board with the four cable drivers (IC1700 to IC1703).

Section 8
Spare Parts

8-1. Notes on Repair Parts

1. Safety Related Components Warning

WARNING

Components marked ⚠ are critical to safe operation. Therefore, specified parts should be used in the case of replacement.

2. Standardization of Parts

Some repair parts supplied by Sony differ from those used for the unit. These are because of parts commonality and improvement.

3. Stock of Parts

Parts marked with “o” at SP (Supply Code) column of the spare parts list may not be stocked. Therefore, the delivery date will be delayed.

4. Harness

Harnesses with no part number are not registered as spare parts.

8-1. 補修部品注意事項

1. 安全重要部品

⚠警告

⚠印のついた部品は安全性を維持するために重要な部品です。したがって，交換する時は必ず指定の部品を使ってください。

2. 部品の共通化

ソニーから供給する補修用部品は，セットに使われているものと異なることがあります。
これは部品の共通化，改良等によるものです。

3. 部品の在庫

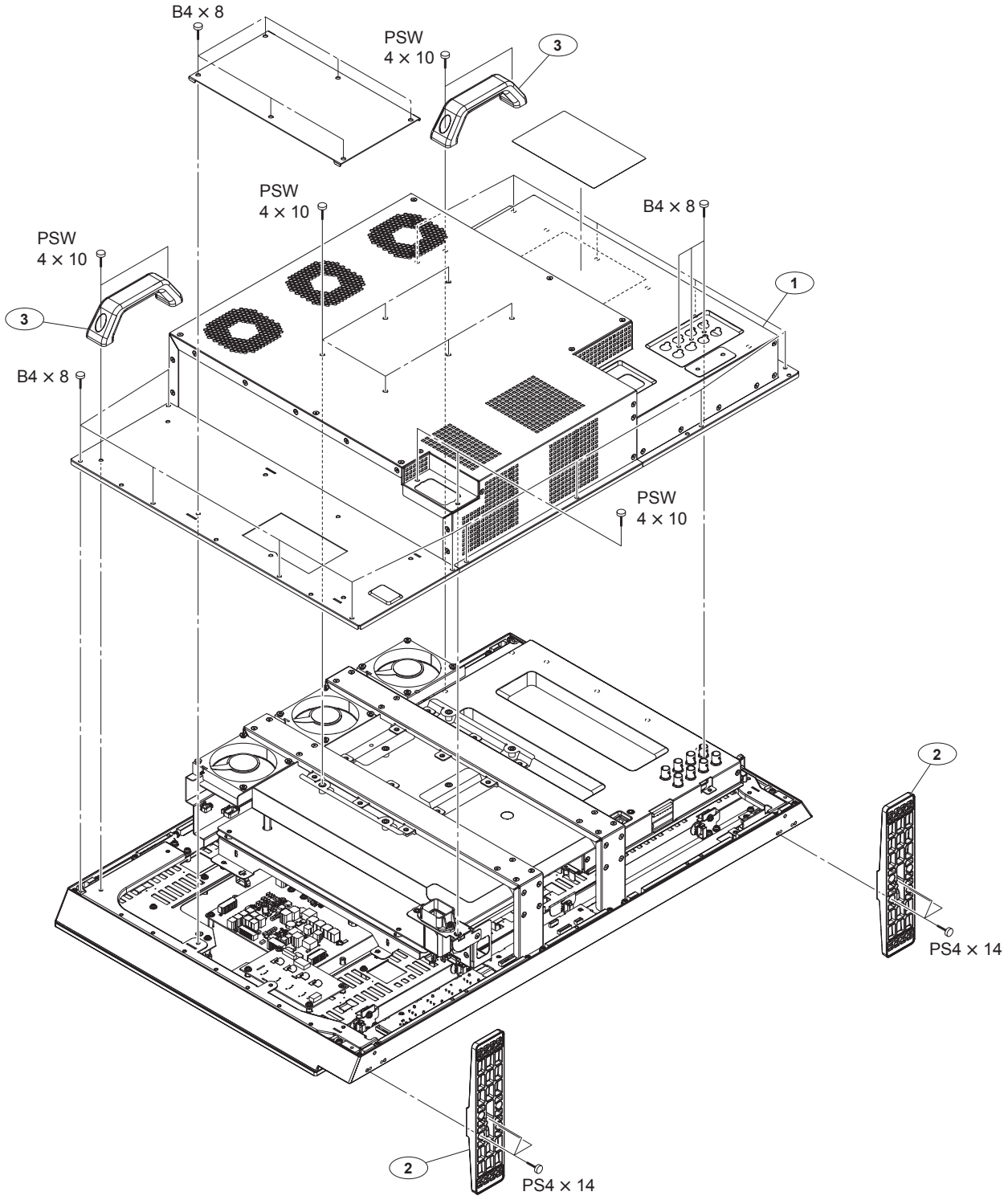
部品表の SP（Supply code）欄に “o” で示される部品は在庫していないことがあり，納期が長くなることがあります。

4. ハーネス

部品番号の記載されていないハーネスは，サービス部品として登録されていません。

8-2. Exploded Views

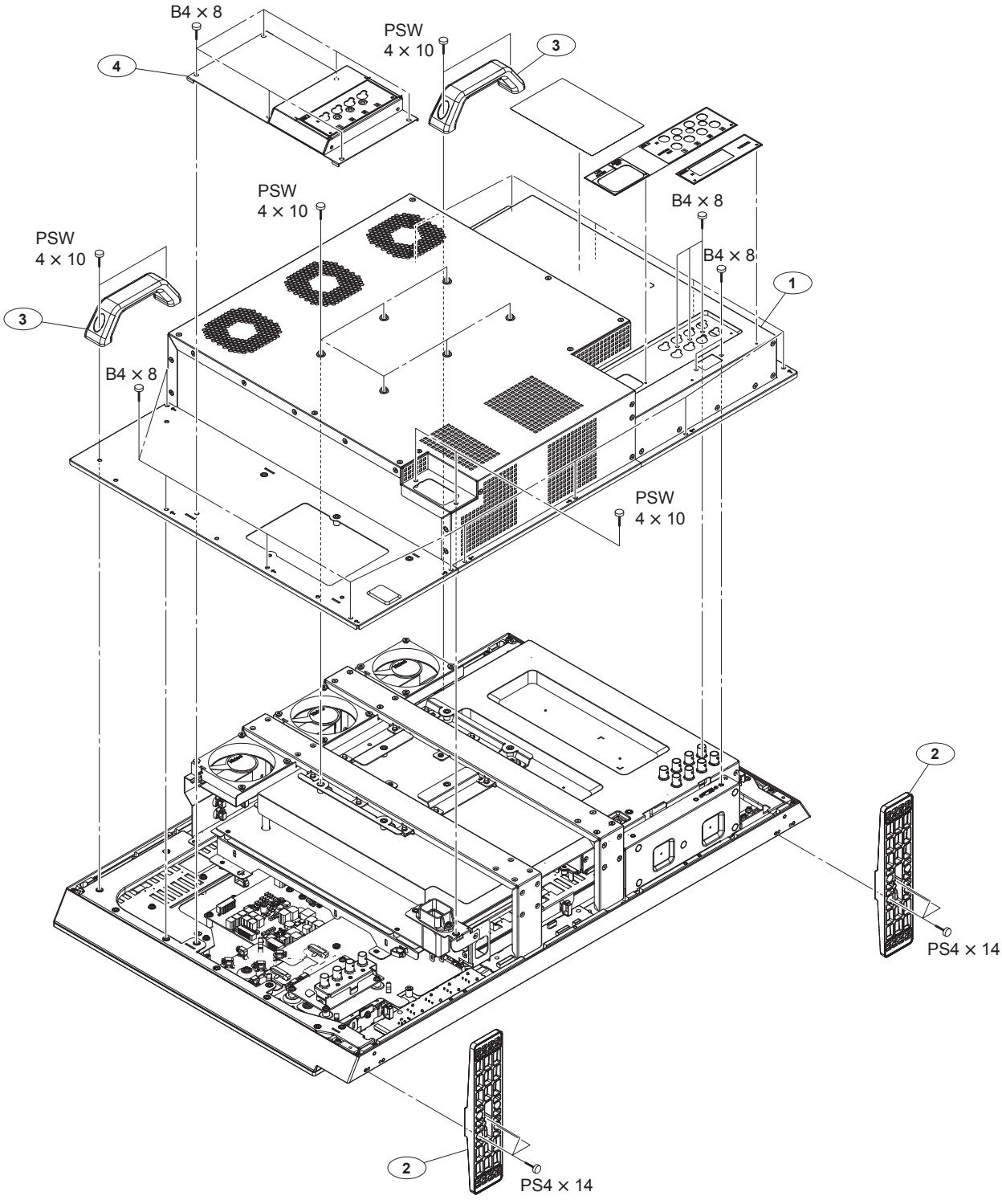
Serial No.: 7000001 to 7100000 (SY)
Serial No.: 7200001 to 7300000 (CN)



No.	Part No.	SP	Description
1	X-2591-109-1	s	REAR COVER ASSY
2	X-2591-110-1	s	STAND ASSY
3	⚠ 4-264-182-01	s	HANDLE
	7-682-561-09	s	SCREW +B 4X8
	7-682-664-01	s	SCREW +PS 4X14
	7-682-962-09	s	SCREW +PSW 4X10

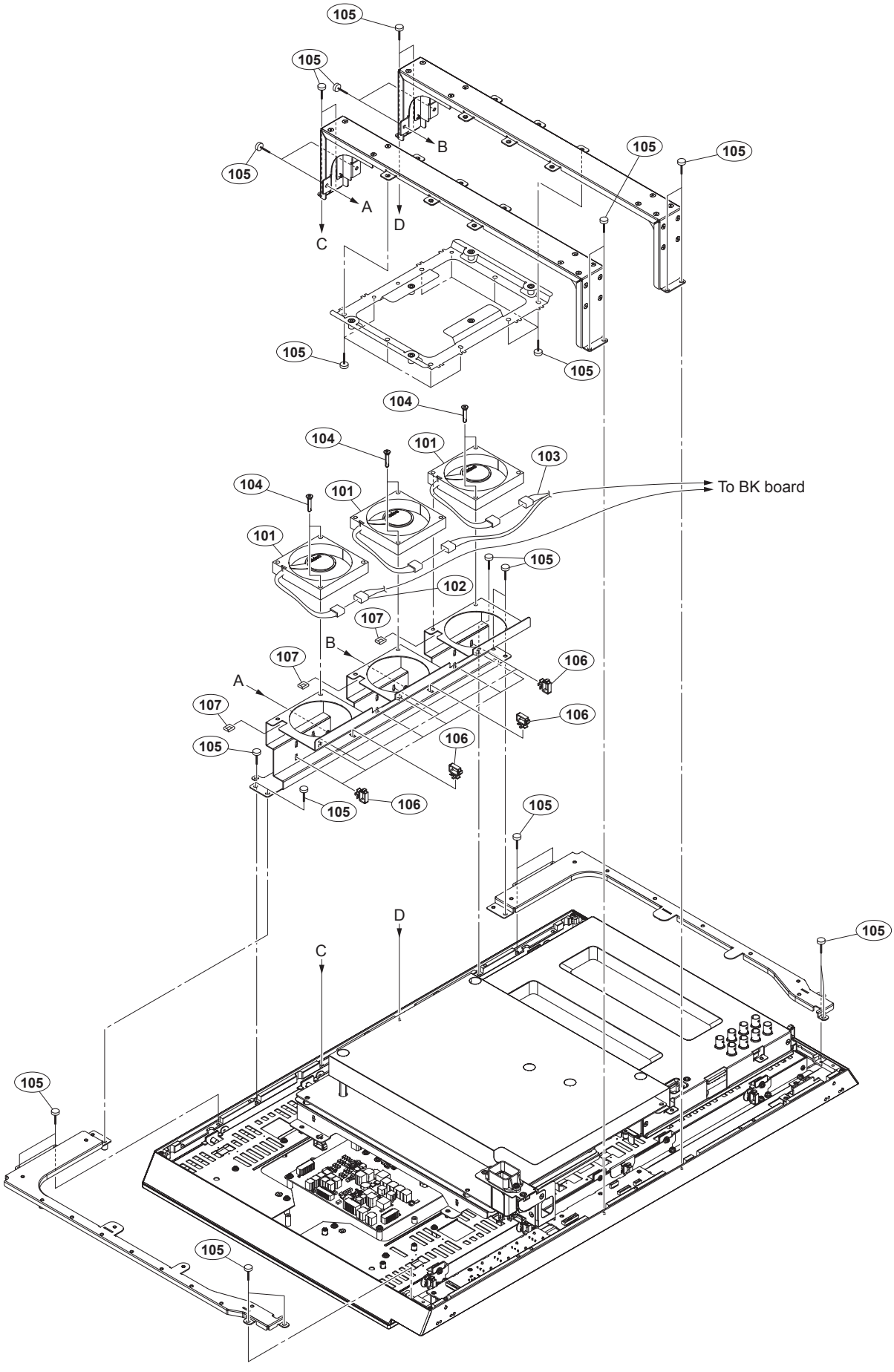
Rear Cover Block

Serial No.: 7100001 and Higher (SY)
Serial No.: 7300001 and Higher (CN)



No.	Part No.	SP	Description
1	X-2594-238-1	s	REAR COVER ASSY
2	X-2591-110-1	s	STAND ASSY
3	⚠ 4-264-182-01	s	HANDLE
4	X-2594-239-1	s	COVER ASSY, QT
	7-682-561-09	s	SCREW +B 4X8
	7-682-664-01	s	SCREW +PS 4X14
	7-682-962-09	s	SCREW +PSW 4X10

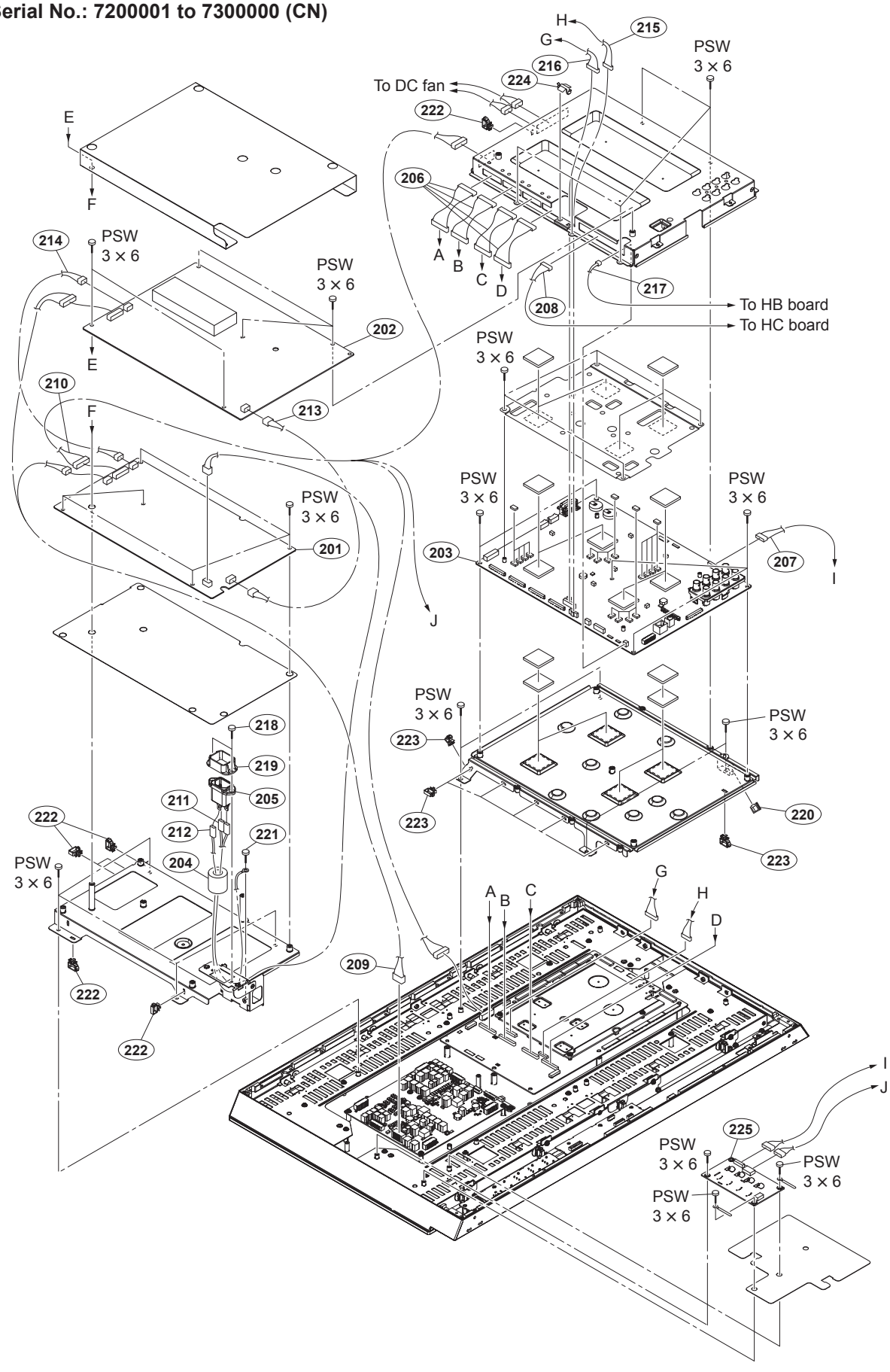
DC Fan and Frame Block



No.	Part No.	SP	Description
101	⚠ 1-787-689-11	s	D.C. FAN
102	1-970-703-11	s	SUB HARNESS (FAN3)
103	1-970-730-11	s	SUB HARNESS (FAN1,2)
104	2-637-595-01	s	RIVET, TURN
105	4-066-309-02	s	SCREW, MACHINE, (+) P M4X8
106	4-098-147-41	s	CLAMP
107	4-137-926-01	s	SADDLE (LES-0505), EDGE
	7-682-947-01	s	SCREW +PSW 3X6

G Block and BK Block

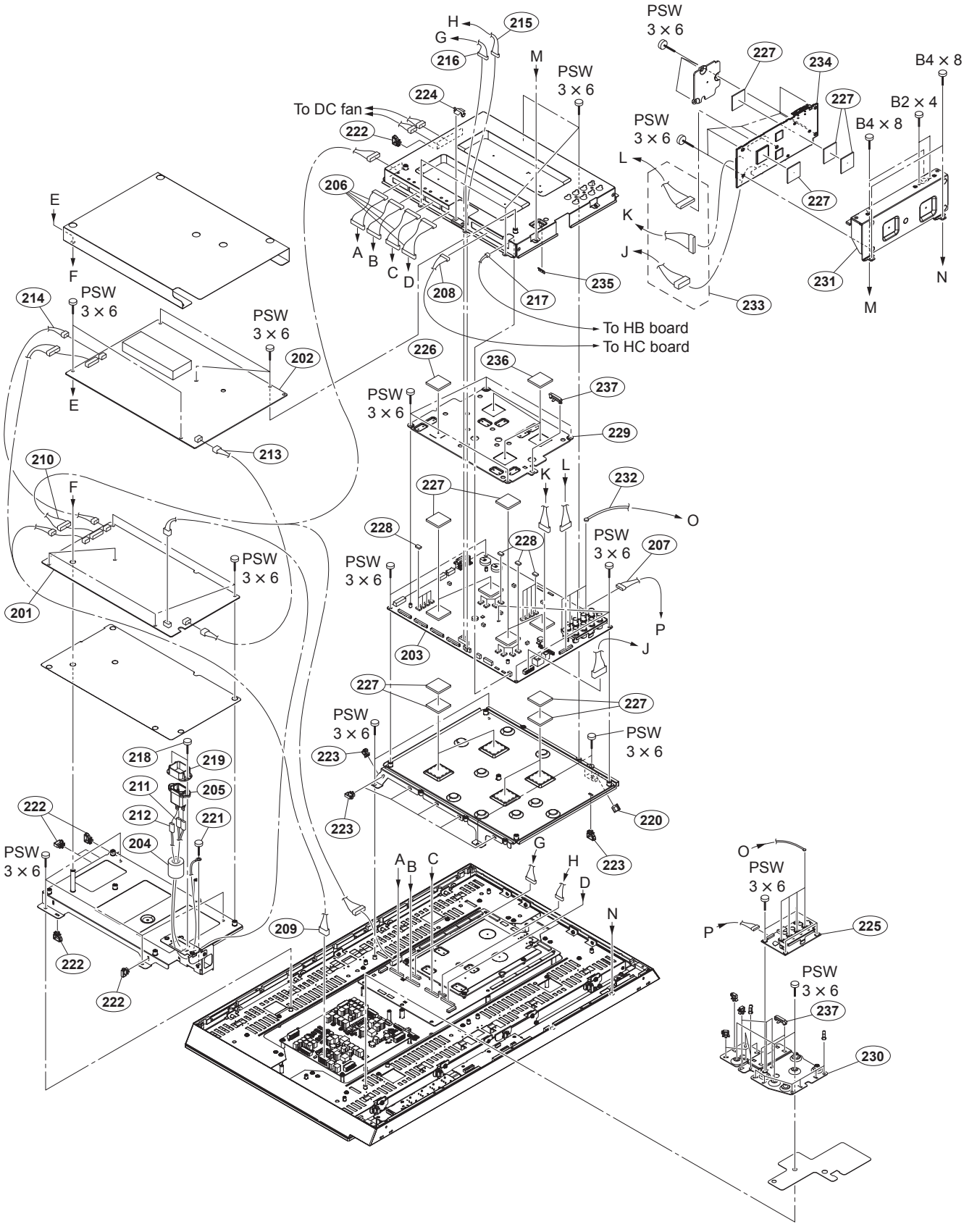
Serial No.: 7000001 to 7100000 (SY)
Serial No.: 7200001 to 7300000 (CN)



No.	Part No.	SP	Description
201	A-2070-731-A	s	MOUNTED CIRCUIT BOARD, G8
202	A-2070-732-A	s	MOUNTED CIRCUIT BOARD, G9
203	A-2071-733-A	s	MOUNTED CIRCUIT BOARD, BK (SERVICE)
204	1-500-021-11	s	CLAMP, SLEEVE FERRITE
205 ⚠	1-842-404-11	s	AC INLET (SCREW) 3P FASTEN
206	1-848-946-11	s	COAXIAL CABLE ASSY (LVDS)
207	1-969-408-21	o	SUB HARNESS (BF-Q 11P)
208	1-970-693-11	s	SUB HARNESS (BK-HC 13P)
209	1-970-695-11	s	SUB HARNESS (GP-G8-G9)
210	1-970-696-11	s	SUB HARNESS (G8-BC4-BK-Q)
211 ⚠	1-970-697-11	s	SUB HARNESS (G8-G9_AC IN 2P)
212 ⚠	1-970-698-11	s	SUB HARNESS (G8-G9_AC IN 1P)
213 ⚠	1-970-699-11	s	SUB HARNESS (G8-G9_AC IN 4P)
214	1-970-700-11	s	SUB HARNESS (G8-G9_4P)
215	1-970-701-11	s	SUB HARNESS (BK-BC4 14P)
216	1-970-702-11	s	SUB HARNESS (BK-BC4 15P)
217	1-970-705-11	s	SUB HARNESS (BK-HB TEMP 4P)
218	2-580-595-01	s	SCREW, +PSW M3X12
219	2-990-241-02	s	HOLDER (A), PLUG
220	3-281-853-02	s	SADDLE, LOCKING EDGE
221	4-066-309-02	s	SCREW, MACHINE, (+) P M4X8
222	4-098-147-31	s	CLAMP
223	4-098-147-41	s	CLAMP
224	4-572-129-01	s	CLAMP, FLAT
225	A-1919-961-A	s	MOUNTED CIRCUIT BOARD, Q
	7-682-947-01	s	SCREW +PSW 3X6

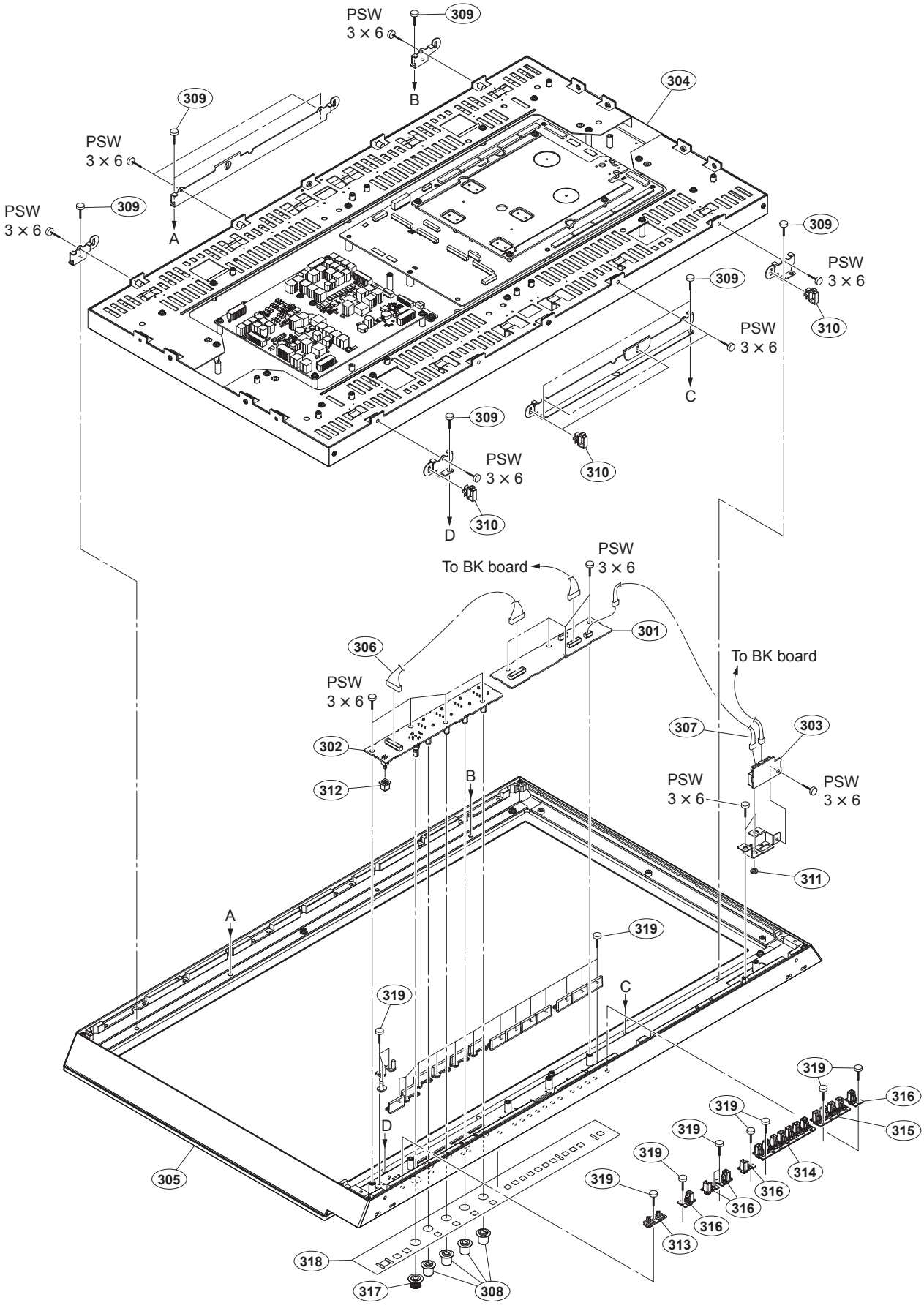
G Block and BK Block

Serial No.: 7100001 and Higher (SY)
Serial No.: 7300001 and Higher (CN)



No.	Part No.	SP	Description
201	A-2070-731-A	s	MOUNTED CIRCUIT BOARD, G8
202	A-2070-732-A	s	MOUNTED CIRCUIT BOARD, G9
203	A-2071-733-A	s	MOUNTED CIRCUIT BOARD, BK (SERVICE)
204	1-500-021-11	s	CLAMP, SLEEVE FERRITE
205 ⚠	1-842-404-11	s	AC INLET (SCREW) 3P FASTEN
206	1-848-946-11	s	COAXIAL CABLE ASSY (LVDS)
207	1-969-408-21	o	SUB HARNESS (BF-Q 11P)
208	1-970-693-11	s	SUB HARNESS (BK-HC 13P)
209	1-970-695-12	s	SUB HARNESS (GP-G8-G9)
210	1-971-387-11	s	SUB HARNESS (G8-BC4-BK)
211 ⚠	1-970-697-11	s	SUB HARNESS (G8-G9_AC IN 2P)
212 ⚠	1-970-698-11	s	SUB HARNESS (G8-G9_AC IN 1P)
213 ⚠	1-970-699-11	s	SUB HARNESS (G8-G9_AC IN 4P)
214	1-970-700-11	s	SUB HARNESS (G8-G9_4P)
215	1-970-701-11	s	SUB HARNESS (BK-BC4 14P)
216	1-970-702-12	s	SUB HARNESS (BK-BC4 15P)
217	1-970-705-12	s	SUB HARNESS (BK-HB TEMP 4P)
218	2-580-595-01	s	SCREW, +PSW M3X12
219	2-990-241-02	s	HOLDER (A), PLUG
220	3-281-853-02	s	SADDLE, LOCKING EDGE
221	4-066-309-02	s	SCREW, MACHINE, (+) P M4X8
222	4-098-147-31	s	CLAMP
223	4-098-147-41	s	CLAMP
224	4-572-129-01	s	CLAMP, FLAT
225	A-2165-272-A	s	MOUNTED CIRCUIT BOARD, QT
226	4-471-145-01	s	SHEET, RADIATION (L)
227	4-565-913-01	s	SHEET, RADIATION (M)
228	4-565-914-01	s	SHEET, RADIATION (S)
229	4-591-655-01	s	HEATSINK(BK)
230	X-2594-346-1	s	BRACKET ASSY, QT
231	X-2594-347-1	s	BRACKET ASSY, BT
232	1-846-668-31	s	HARNESS, COAXIAL
233	1-849-602-11	s	LEADWIRE WITHCONNECTOR
234	A-2166-826-A	s	MOUNTED CIRCUIT BOARD, BT
235	4-528-328-01	s	FINGERS, SHIELD
236	4-595-701-01	s	SHEET, RADIATION (N)
237	4-126-096-02	s	CRAWL CLAMP
	7-621-772-10	s	SCREW +B 2X4
	7-682-561-09	s	SCREW +B 4X8
	7-682-947-01	s	SCREW +PSW 3X6

Panel Module and Bezel Block



No.		Part No.	SP	Description
301		A-2070-748-A	s	MOUNTED CIRCUIT BOARD, HC
302		A-2070-749-A	s	MOUNTED CIRCUIT BOARD, HA
303		A-2070-750-A	s	MOUNTED CIRCUIT BOARD, HB
304	⚠	A-2071-040-A	s	MODULE ASSY (SVC), OLED
305	⚠	X-2591-097-1	s	BEZEL ASSY
306		1-970-694-11	s	SUB HARNESS (HA-HC 40P)
307		1-970-704-11	s	SUB HARNESS (HB-HC 5P)
308		2-672-611-01	s	KNOB, CONTROL
309		4-066-309-02	s	SCREW, MACHINE, (+) P M4X8
310		4-098-147-31	s	CLAMP
311		4-487-558-01	s	NUT (M6X0.5)
312		4-559-427-01	s	COVER, BUTTON
313		4-559-428-01	s	BUTTON, MENU
314		4-559-430-01	s	BUTTON, FUNCTION
315		4-559-430-11	s	BUTTON, FUNCTION
316		4-559-430-21	s	BUTTON, FUNCTION
317		4-687-890-01	s	KNOB, MENU
318	⚠	4-559-689-01	s	LABEL, CONTROL
319		4-644-492-21	s	ACE (M2), LOCK
		7-682-947-01	s	SCREW +PSW 3X6

8-3. Packing Materials & Supplied Accessories

PACKING MATERIALS & SUPPLIED ACCESSORIES
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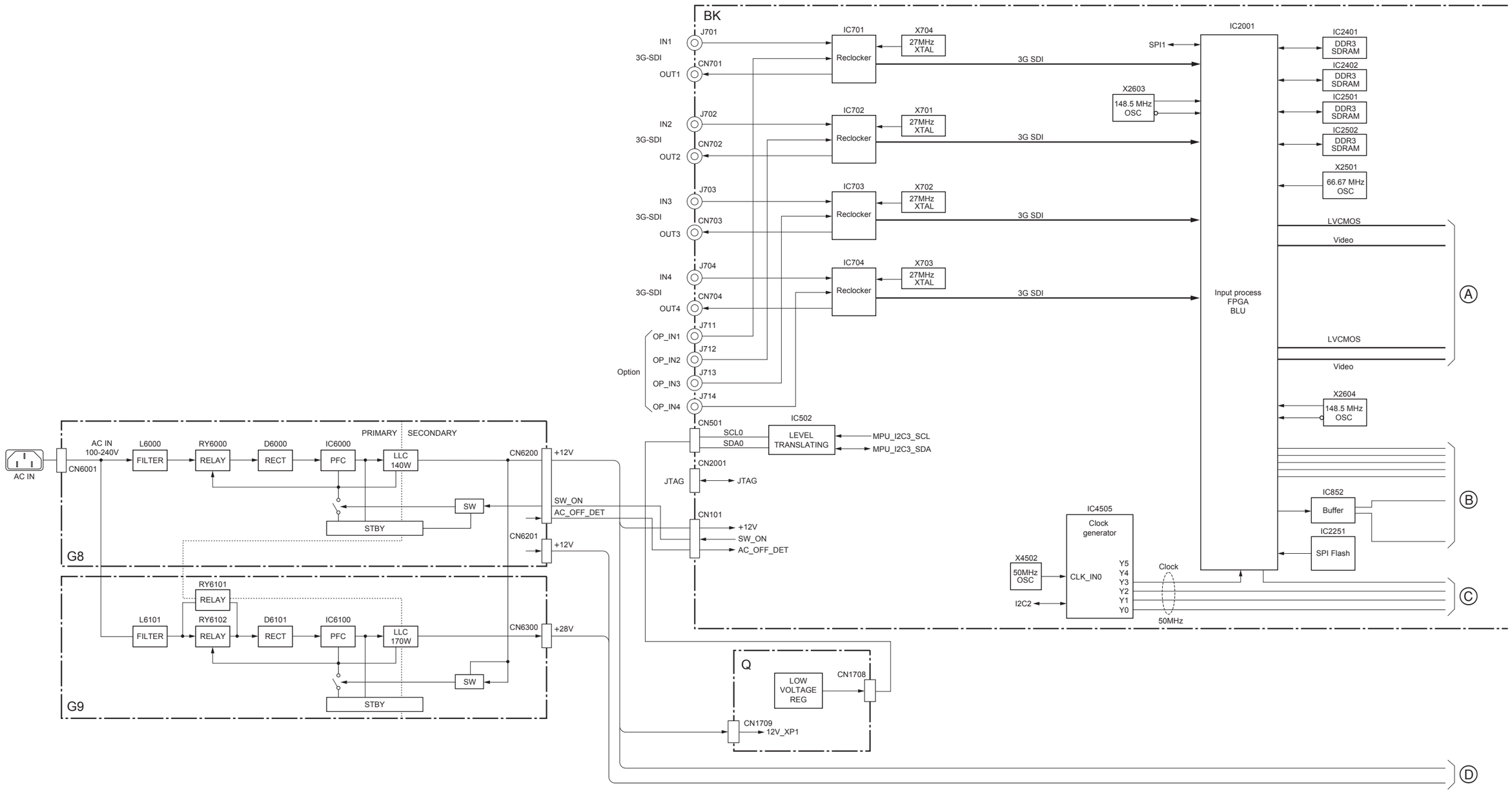
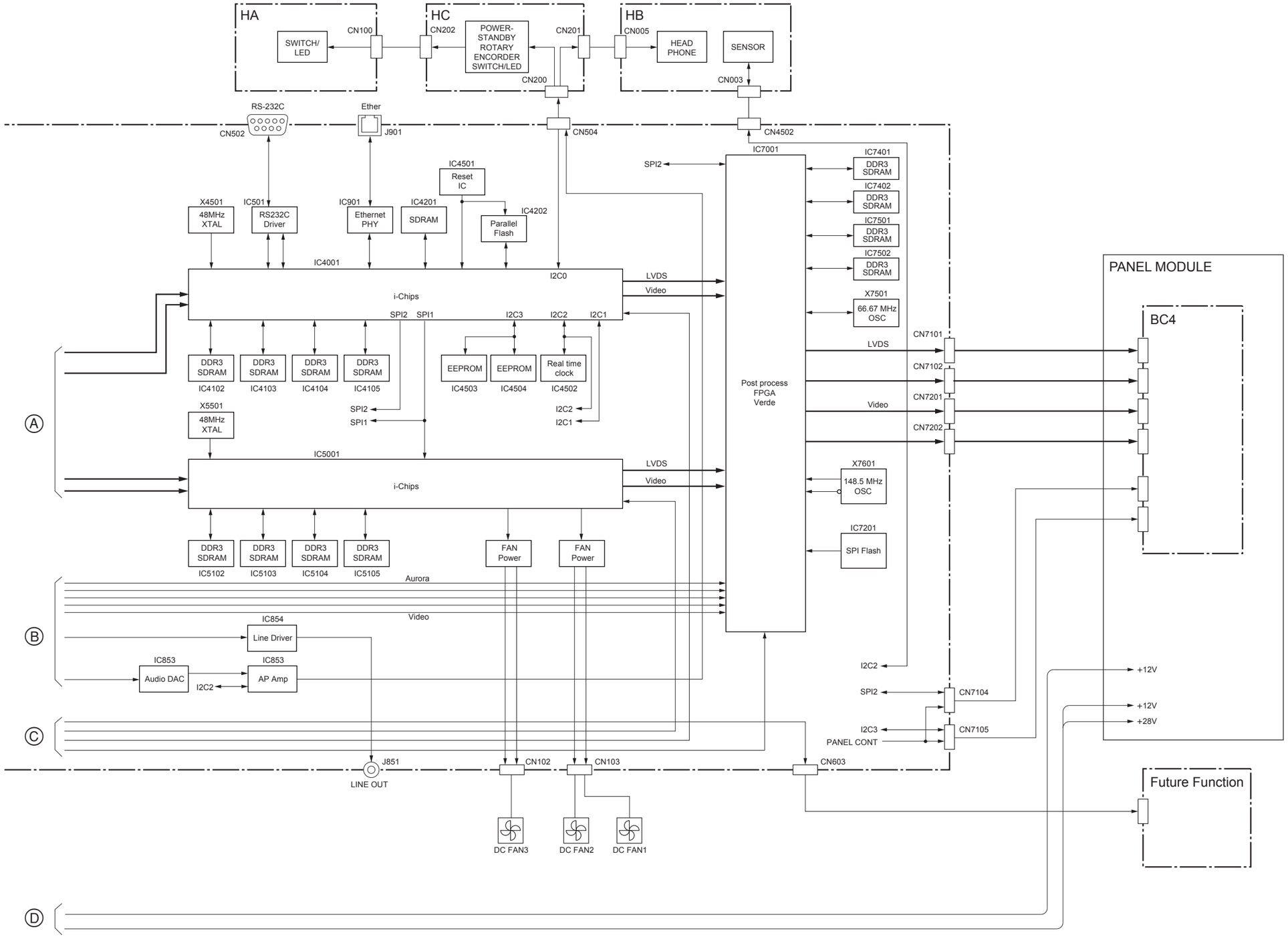
*1: [For SY]
*2: [For CN]

Ref. No. or Q'ty	Part No.	SP	Description
9pcs	1-482-018-11	s	FERRITE CORE (GRFC-8)
1pc *1 ⚠	1-791-041-33	s	CORD SET, POWER (For J)
1pc *1 ⚠	1-793-461-12	s	PLUG, CONVERSION (3P-2P) (For J)
1pc *2 ⚠	1-830-860-12	s	AC POWER-SUPPLY CORD
1pc	2-990-242-01	s	HOLDER (B), PLUG
1pc *1 ⚠	4-566-074-06	s	CD-ROM OPERATING INSTRUCTIONS (JAPANESE, ENGLISH)
1pc *2 ⚠	4-572-148-04	s	OPERATING INSTRUCTIONS (SIMPLIFIED CHINESE)

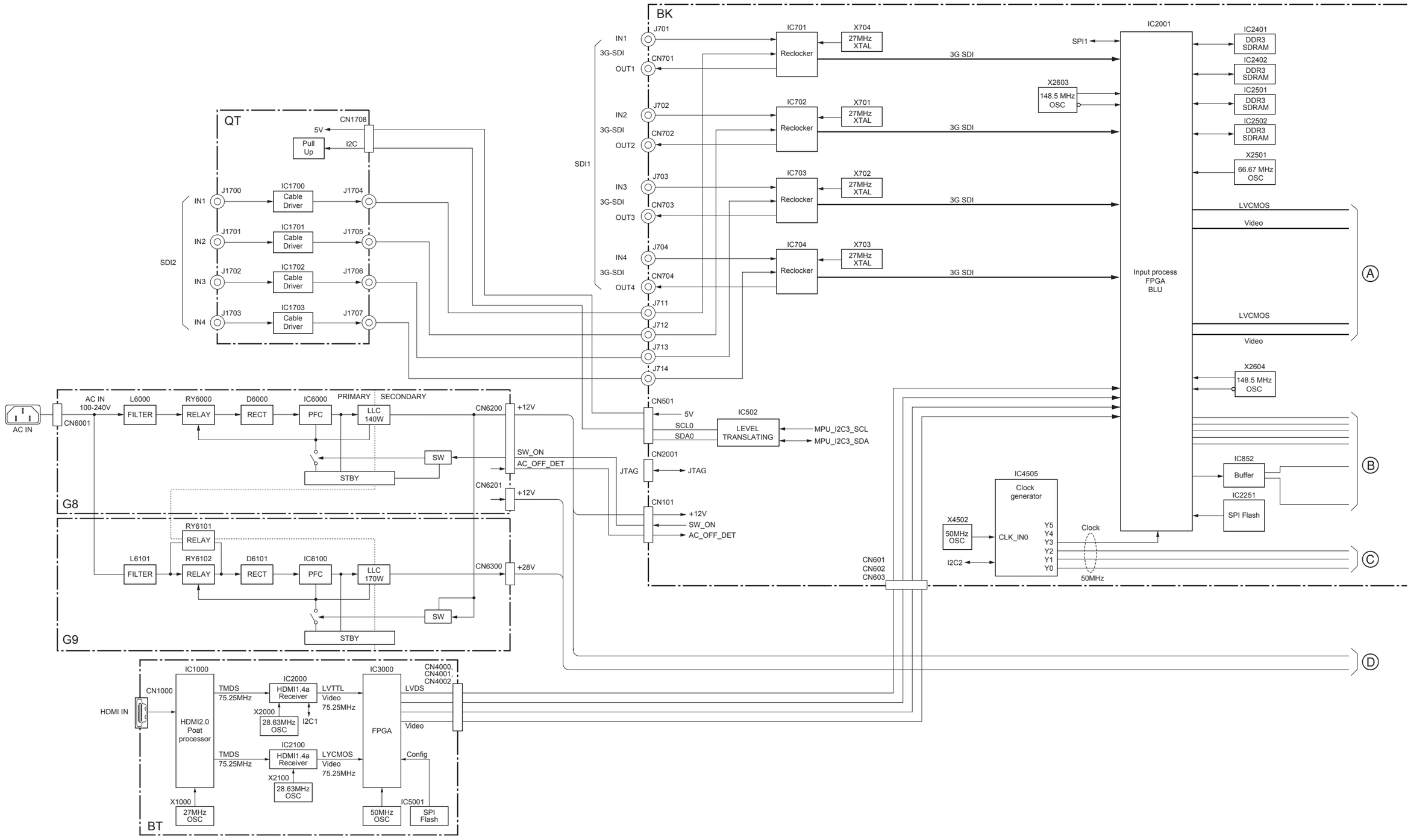
Section 9
Block Diagrams

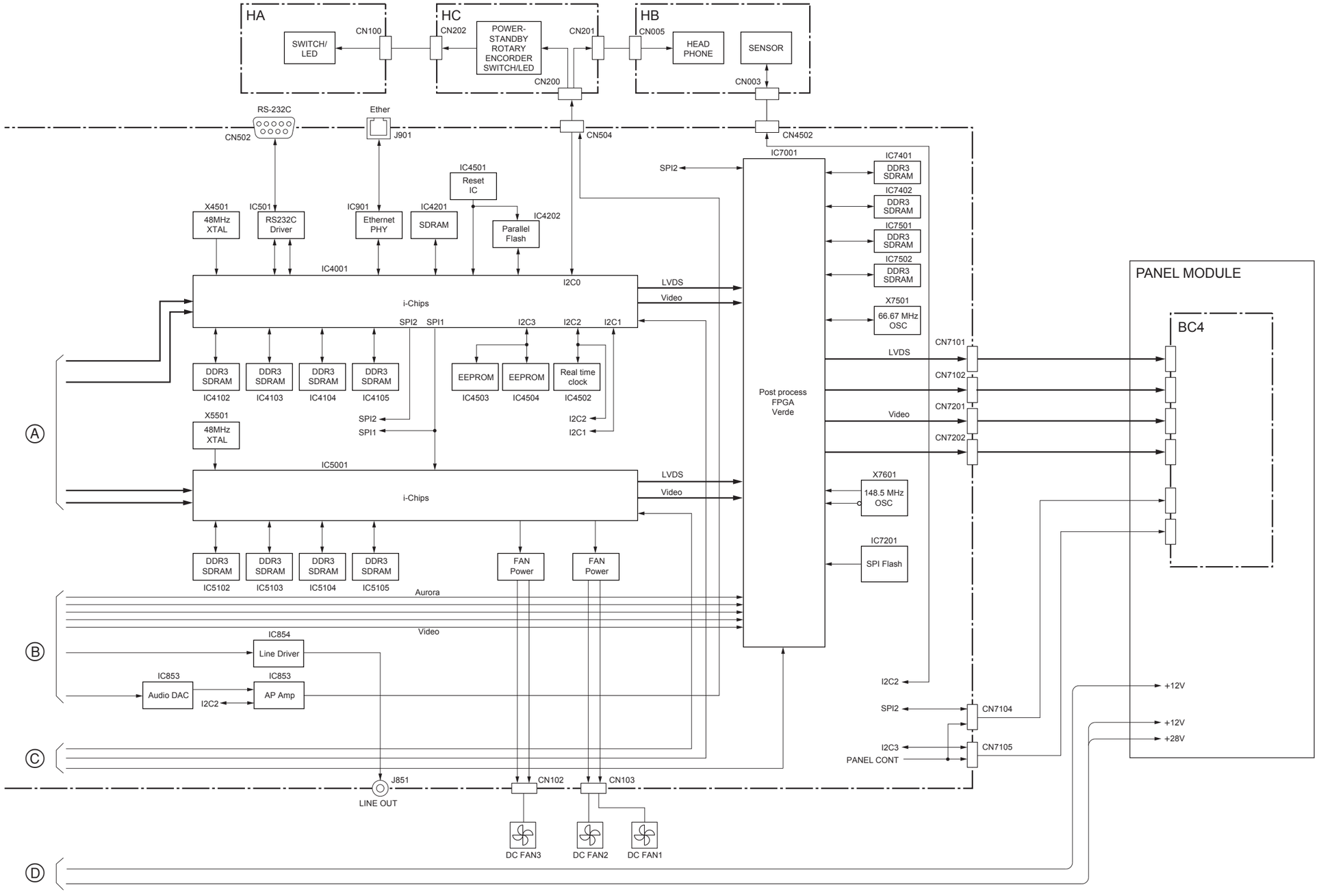
Serial No. 7000001 to 7100000 (SY)
Serial No. 7200001 to 7300000 (CN)




HA
SWITCH/ LED
CN100
HC
CN202
POWER- STANDBY ROTARY ENCORDER SWITCH/LED
CN201
CN200
HB
CN005
HEAD PHONE
SENSOR
CN003
RS-232C
CN502
Ether
J901
CN504
CN4502
IC4501
Reset IC
IC7001
SPI2
IC7401
DDR3 SDRAM
IC7402
DDR3 SDRAM
IC7501
DDR3 SDRAM
IC7502
DDR3 SDRAM
X4501
48MHz XTAL
IC501
RS232C Driver
IC901
Ethernet PHY
IC4201
SDRAM
IC4202
Parallel Flash
IC4001
I2C0
i-Chips
LVDS
Video
SPI2
SPI1
I2C3
I2C2
I2C1
X7501
66.67 MHz OSC
PANEL MODULE
BC4
CN7101
LVDS
CN7102
CN7201
Video
CN7202
DDR3 SDRAM
IC4102
DDR3 SDRAM
IC4103
DDR3 SDRAM
IC4104
DDR3 SDRAM
IC4105
EEPROM
IC4503
EEPROM
IC4504
Real time clock
IC4502
Post process FPGA Verde
X5501
48MHz XTAL
IC5001
i-Chips
LVDS
Video
X7601
148.5 MHz OSC
IC7201
SPI Flash
DDR3 SDRAM
IC5102
DDR3 SDRAM
IC5103
DDR3 SDRAM
IC5104
DDR3 SDRAM
IC5105
FAN Power
FAN Power
Aurora
Video
IC854
Line Driver
IC853
Audio DAC
I2C2
IC853
AP Amp
I2C2
SPI2
CN7104
I2C3
PANEL CONT
CN7105
+12V
+12V
+28V
J851
LINE OUT
CN102
CN103
CN603
DC FAN3
DC FAN2
DC FAN1
Future Function
A
B
C
D

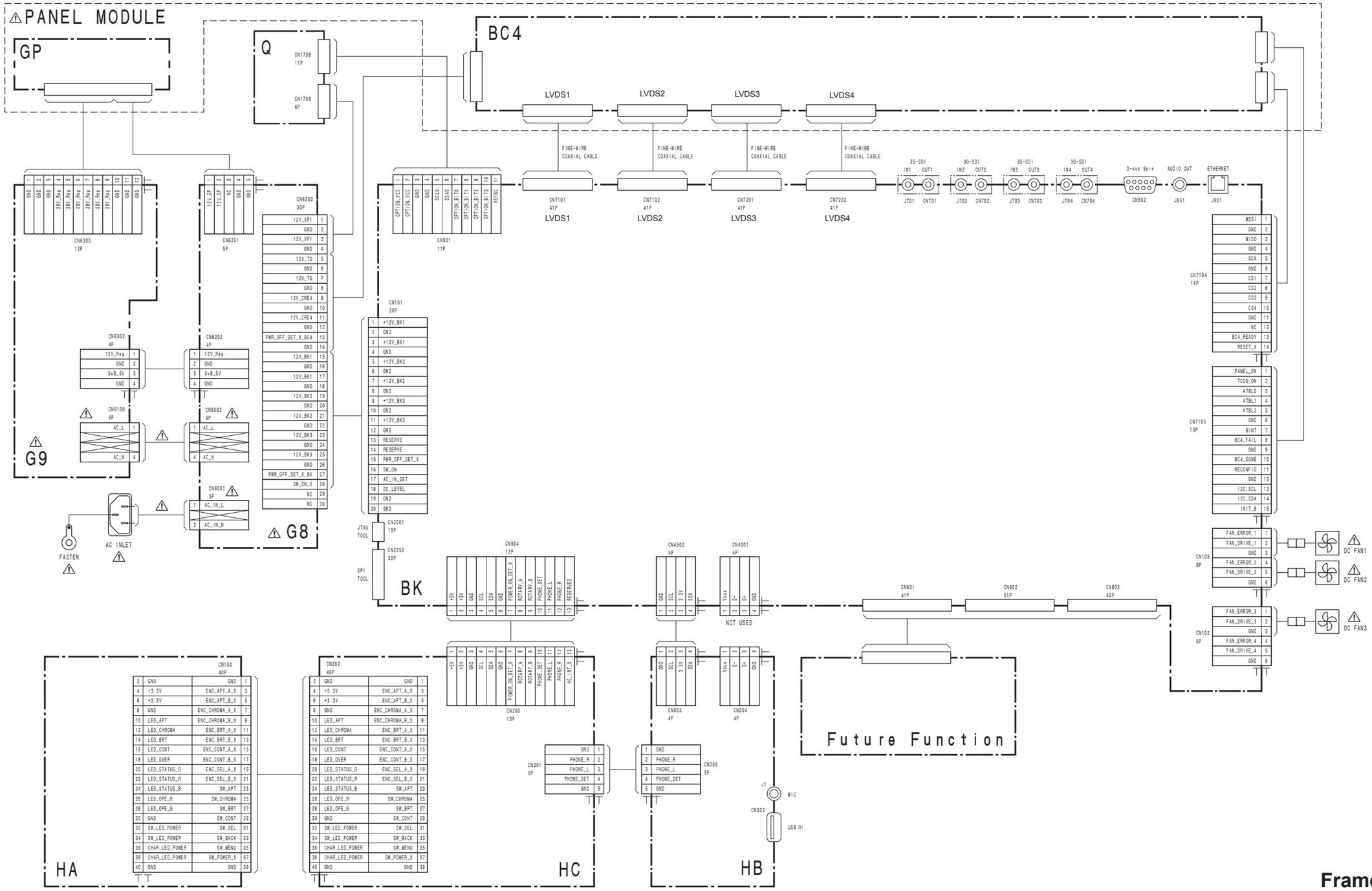
Serial No. 7100001 and Higher (SY)
Serial No. 7300001 and Higher (CN)



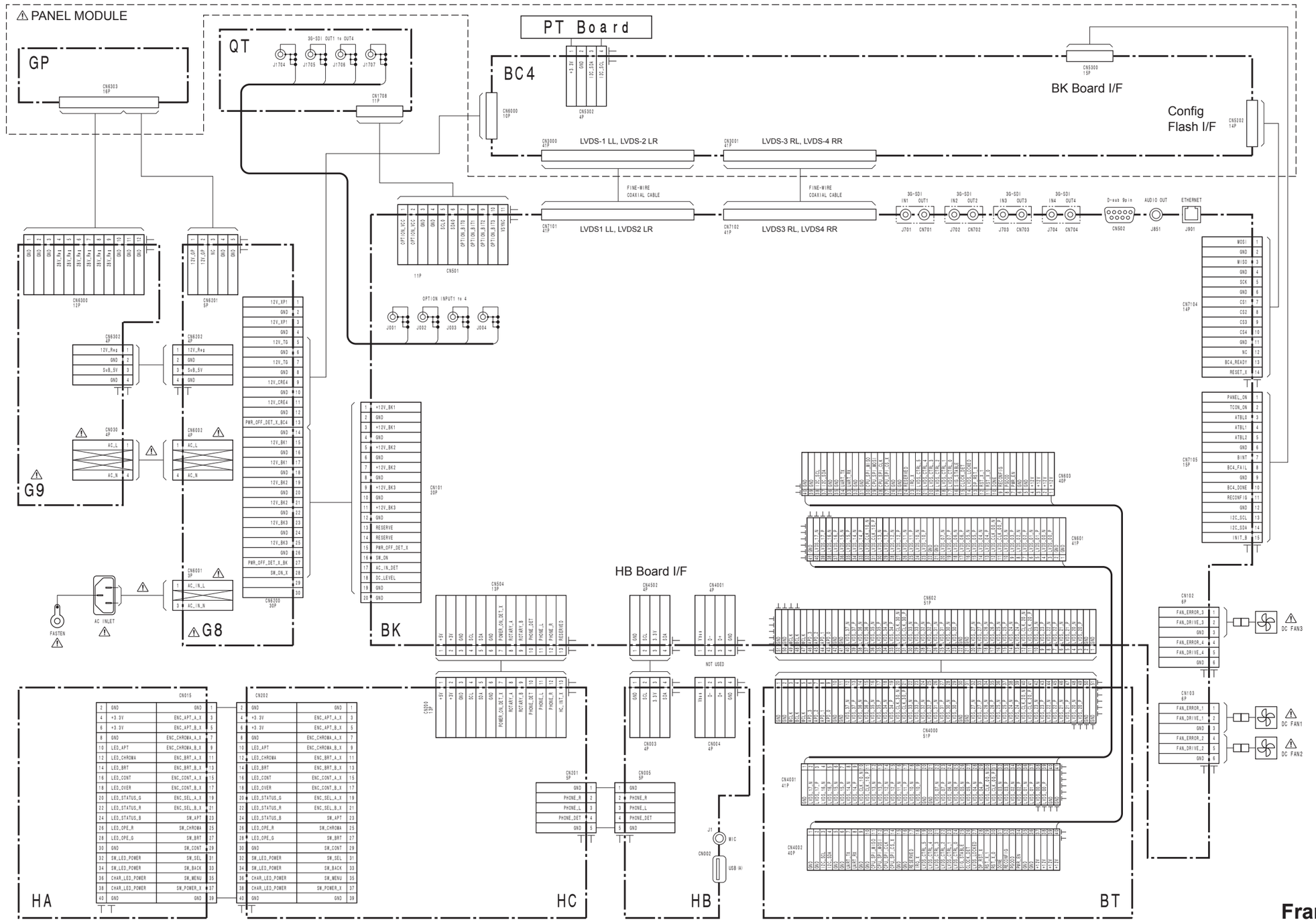

HA
SWITCH/ LED
CN100
HC
CN202
POWER- STANDBY ROTARY ENCORDER SWITCH/LED
CN201
CN200
HB
CN005
HEAD PHONE
SENSOR
CN003
RS-232C
CN502
Ether
J901
CN504
CN4502
IC7001
SPI2
IC4501
Reset IC
IC4202
Parallel Flash
X4501
48MHz XTAL
IC501
RS232C Driver
IC901
Ethernet PHY
IC4201
SDRAM
IC4001
i-Chips
I2C0
LVDS
Video
SPI2
SPI1
I2C3
I2C2
I2C1
DDR3 SDRAM
IC4102
IC4103
IC4104
IC4105
EEPROM
IC4503
IC4504
Real time clock
IC4502
X5501
48MHz XTAL
IC5001
i-Chips
IC5102
IC5103
IC5104
IC5105
FAN Power
Aurora
Video
IC854
Line Driver
IC853
Audio DAC
AP Amp
J851
LINE OUT
CN102
CN103
DC FAN3
DC FAN2
DC FAN1
IC7401
IC7402
IC7501
IC7502
X7501
66.67 MHz OSC
X7601
148.5 MHz OSC
IC7201
SPI Flash
Post process FPGA Verde
CN7101
CN7102
CN7201
CN7202
CN7104
CN7105
PANEL CONT
PANEL MODULE
BC4
+12V
+12V
+28V
A
B
C
D

Section 10
Frame Wiring

Serial No. 7000001 to 7100000 (SY)
Serial No. 7200001 to 7300000 (CN)



Serial No. 7100001 and Higher (SY)
Serial No. 7300001 and Higher (CN)



Revision History

Date	History	Contents
2015. 2	1st Edition 9-878-633-01	—
2016. 9	Revised-1 9-878-633-02	Added SDI input and HDMI input for the reinforcement of HDR function. • **Modifications:** 1-1. Parts Location, 1-4. Circuit Protective Parts, 1-5. Disconnecting/Connecting Fine-Wire Coaxial Cable and Coaxial Cables, 2-1. Periodic Replacement Parts, 3-2-1. Required Items, 3-2-3. Setting of PC, 3-2-4. Connecting Commands from the PC, 3-2-5. Location of Main Parts, 3-2-6. Identification of Error and its Remedy, 3-4. Acquisition of Data Using PCs, 4. Replacement of Parts, 5. Software Update, 6-1. Entering the Maintenance Menu, 6-2. Maintenance Menu List, 7-1. Board Configuration, 7-4. BK Board, 8-3. Packing Materials & Supplied Accessories, 9. Block Diagrams, 10. Frame Wiring, • **Additions:** 7-6. BT Board, 7-7. QT Board • **Modifications of the exploded view:** Rear Cover Block, Rear Cover Block, G Block and BK Block, Panel Module and Bezel Block

BVM-X300 (SY) J, E
9-878-633-02

Sony Corporation

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