Maintenance and Service Guide

OMEN X 27 model

SUMMARY

This guide provides information about spare parts, removal and replacement of parts, diagnostic tests, problem troubleshooting, and more.

Product notice

Only trained service personnel familiar with this product should service it. Before performing any maintenance or service, be sure to read "Important Safety Information".

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Getting started

Read this chapter to learn about safety information and where to find additional HP resources.

Important safety information

It is important to note that this manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. Proper service and repair are important to the safe, reliable operation equipment.

The possibility exists that improper service methods may damage the equipment. It is also important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE.

The service procedures recommended and described in this service manual with effective methods of performing service operations. It is recommended that service engineers should have repairing knowledge, experience as well as appropriate product training per new model before performing the service procedures.

- Be sure your working environment is dry and clean and meets all government safety requirements.
- Be sure that other persons are safe while you are servicing the product.
- Do not perform any action that can cause a hazard to the customer or make the product unsafe.
- Use proper safety devices to ensure your personal safety.
- Always use approved tools and test equipment for servicing.
- Never assume the product's power is disconnected from the main power supply. Check that it is disconnected before opening the product's cabinet.
- Modules containing electrical components are sensitive to electrostatic discharge (ESD). Follow ESD safety procedures while handling these parts.
- Some products contain more than one battery. Do not disassemble or expose a battery to high temperatures, such as throwing into fire, or the battery may explode.
- Refer to government requirements for battery recycling or disposal.

This information provides general service information for the monitor. Adherence to the procedures and precautions is essential for proper service.

IMPORTANT:
Only trained service personnel who are familiar with this HP Product shall perform service or maintenance to it. Before performing any maintenance or service, the engineer MUST read the "Safety Note".
You must disconnect the power cord from the power source before opening the monitor to prevent component damage.

RoHS (2002/95/EC) requirements

Applied to all countries that require RoHS.

The RoHS (Restriction of Hazardous Substance in Electrical and Electronic Equipment Directive) is a legal requirement by the EU (European Union) for the global electronics industry sold in the EU and other countries. Any electrical and electronics products launched in the market after June 2006 should meet this RoHS requirement. Products launched in the market before June 2006 are not required to be compliant with RoHS parts. If the original parts are not RoHS complaint, the replacement parts can be non-ROHS complaint. If the original parts are RoHS compliant, the replacement parts MUST be RoHS complaint.

If product service or maintenance requires replacing parts, confirm the RoHS requirement before replacement.

General descriptions

This manual contains general information. There are two levels of service:

Level 1: Cosmetic/appearance/alignment service

Level 2: Circuit board or standard parts replacement

Before return to receiver:

- Please always perform an AC leakage current check on the exposed metallic parts to be sure the set is safe to operate without damage of electrical shock.
- Do not use a line Isolation Transformer during this check.
- In case any measurement is out of the limits specified, there is possibility of shock hazard and the set must be checked and repaired before it is returned to the customer.

Monitor features

This chapter provides an overview of the monitor's features.

Features

Depending on the model, your monitor might include the following features:

- 68.47 cm (27-inch) diagonal viewable area with 2560 × 1440 resolution
- Tilt and height-adjustment capabilities
- One High-Definition Multimedia Interface (HDMI) video input
- One DisplayPort video input
- High-bandwidth Digital Content Protection (HDCP) used on all inputs
- USB hub with one upstream port and two downstream ports
- Audio-out (headphone) jack
- HDMI, DisplayPort, and USB Type-B–to–USB Type-A cables included
- Plug and Play capability if supported by your operating system
- OSD adjustments in 10 languages for easy setup and screen optimization
- Frames-per-second indicator displayed on the monitor screen, adjustable using the OSD menu
- Message timer displayed on the monitor screen, adjustable using the OSD menu
- Gaming crosshair displayed on the monitor screen, adjustable using the OSD menu
- Security cable slot on the rear of the monitor for an optional security cable
- User-configurable ambient lighting with full-range LEDs
- Convenient headphone storage hook on monitor stand
- VESA® mounting capability for attaching the display to a wall mount device or swing arm

NOTE: For safety and regulatory information, refer to the Product Notices provided in your documentation kit. To locate updates to the user guide for your product, go to http://www.hp.com/support to download the latest versions of HP programs and drivers

Front View

Rear components

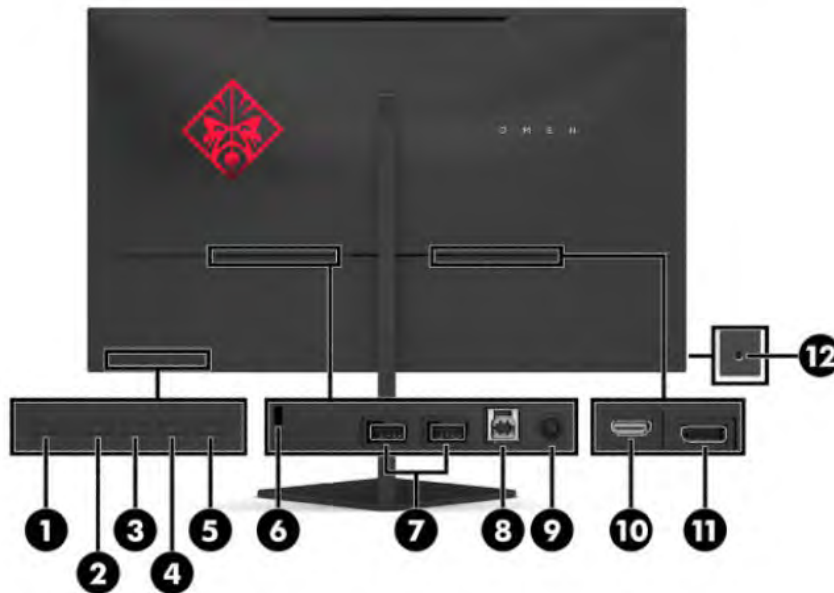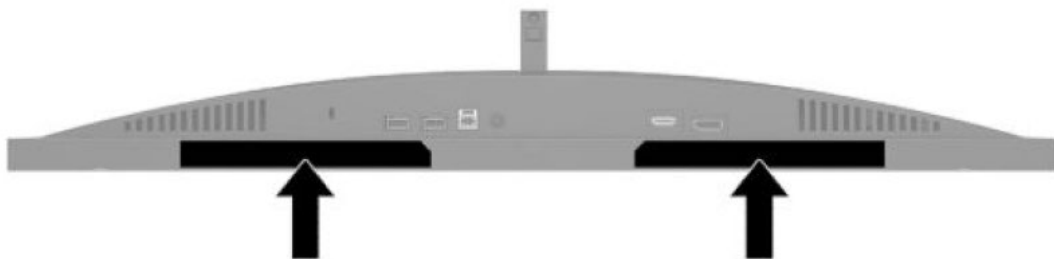To identify the components on the rear of the monitor, use this illustration and table.

Table 1-1: Rear components and their descriptions

Component		Description
(1)	Power button	Turns the monitor on or off.
(2)	Back button	If the OSD menu is open, press to exit or return to previous menu level. If the OSD menu is closed, press to open the Brightness menu.
(3)	Plus button	If the OSD menu is open, press to navigate forward through the OSD menu and increase adjustment levels. If the OSD menu is closed, press to open the Color menu.
(4)	Minus button	If the OSD menu is open, press to navigate backward through the OSD menu and decrease adjustment levels. If the OSD menu is closed, press to open the Information menu.
(5)	Menu/OK button	Press to open the OSD menu, or select a menu item from the OSD.
(6)	Security cable slot	Connects an optional security cable to the monitor.
(7)	USB ports	Connects USB devices.
(8)	USB Type-B port	Connects the USB hub cable to a source device such as a computer or game console.
(9)	Power connector	Connects an AC adapter.
(10)	HDMI port	Connects an HDMI cable to a source device such as a computer or game console.

(11)	DisplayPort connector	Connects a DisplayPort cable to a source device such as a computer or game console.
(12)	Audio-out (headphones) jack	Connects optional headphones. **WARNING!** To reduce the risk of personal injury, adjust the source device volume before using headphones, earbuds, or a headset. For additional safety information, see the *Product Notices* provided in your documentation kit.

Locating the serial number and product number

The serial number and product number are located on a label on the bottom edge of the monitor head. You may need these numbers when contacting HP about the monitor model

Illustrated parts catalog

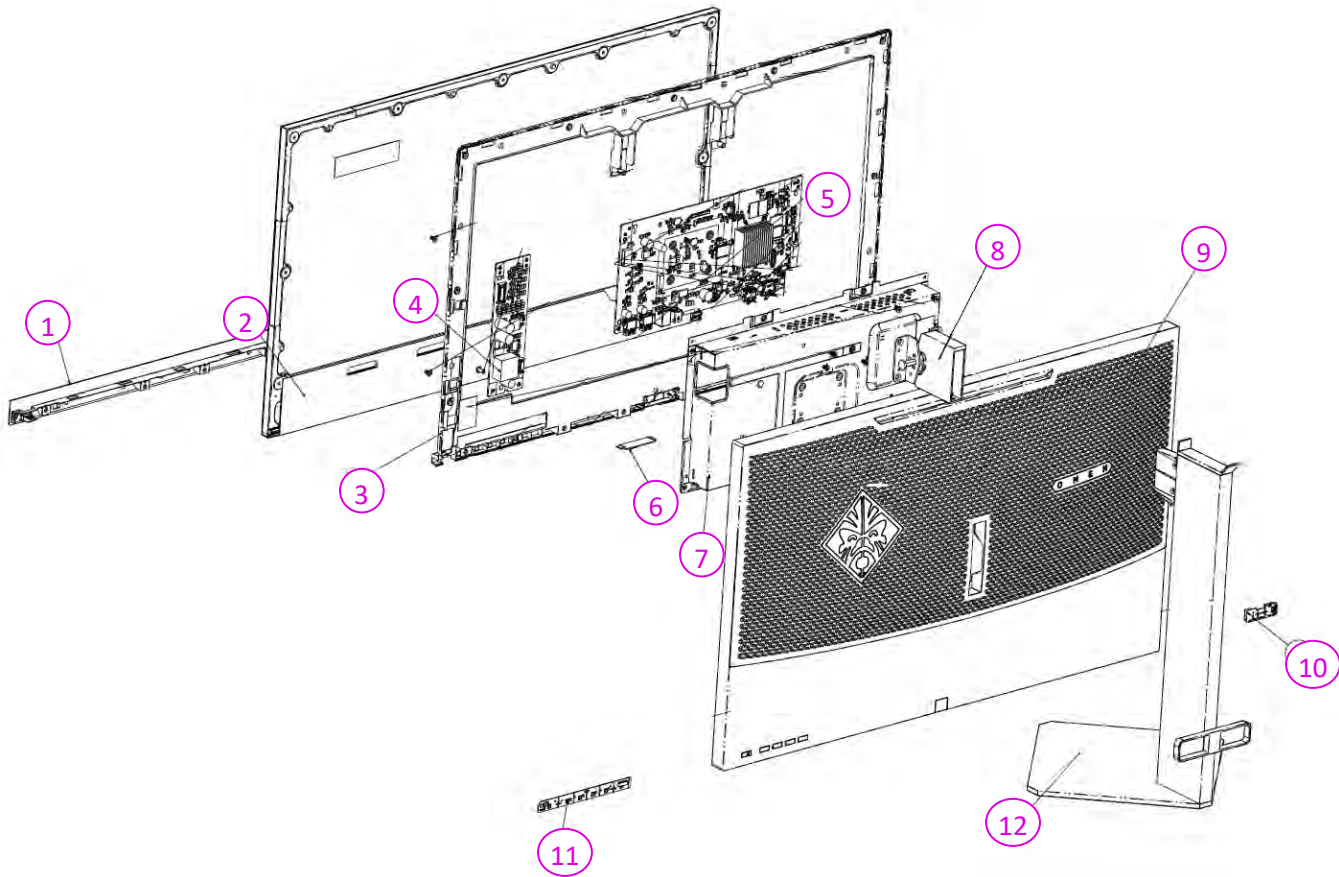To identify the monitor major components, use this illustration and table.

Table 2-1: Monitor major components and their descriptions

Item	Description	Qty
1	ASSY CHIN OMEN X 27	1
2	PANEL	1
3	MID FRAME	1
4	PCBA LED DRV BD	1
5	PCBA IF BD	1
6	PCBA LED BD	1
7	ASSY SHD	1
8	ASSY HINGE	1
9	ASSY RC JAWA OMEN X 27	1
10	PCBA AUDIO BD	1
11	PCBA CTRL BD	1
12	ASSY STAND OMEN X 27	1

How to order parts

Capacitors and connectors available for purchase from EU distributor

- Farnell: Farnell UK - Electronic Components Distributor
- RS Component: Capacitors | RS Components (rs-online.com)

Connectors by Distributor:

Component Description	Location Identifier	Component Distributor	Part number of Manufacturer/ Distributor
USB A 3.0	J7, J8	RS	Molex 48405-0003
USB B 3.0	J6	Farnell	WURTH ELEKTRONIK 692221030100
HDMI	J4	Farnell, RS	Molex 2086581001
DisplayPort (DP)	J3	Farnell	47272-0024

Gasket by Distributor:

Component Description	Location Identifier	Component Distributor	Part number of Manufacturer/ Distributor
Gasket for DP and HDMI	SHD	Farnell	3020812
Specification: Gasket, EMI Shielding, 8 mm Width, 12 mm Height, 1 m Length, 80 dB			

To replace DP or HDMI, must need a gasket stick on shielding.

Cables can be purchased from the HP Part Store
https://partsurfer.hp.com/Search.aspx
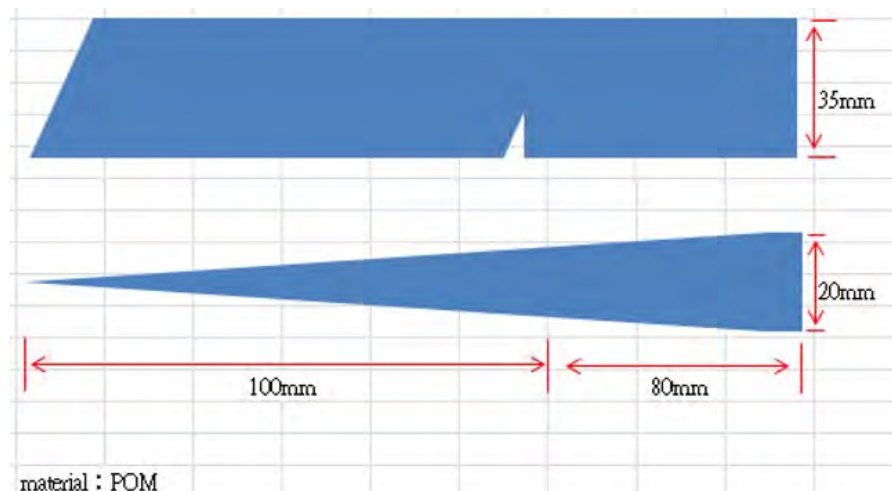
Removal and replacement procedures

Adherence to these procedures and precautions is essential for proper service.
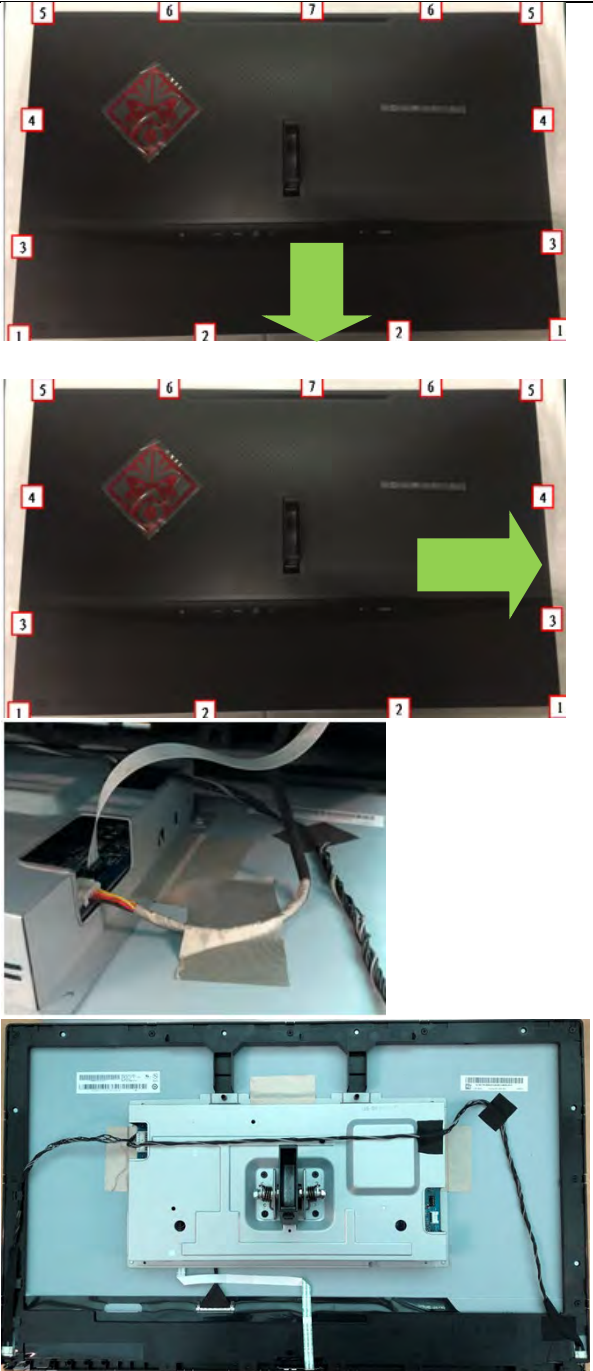
Preparation for disassembly

Use this information to properly prepare to disassemble and reassemble the monitor.
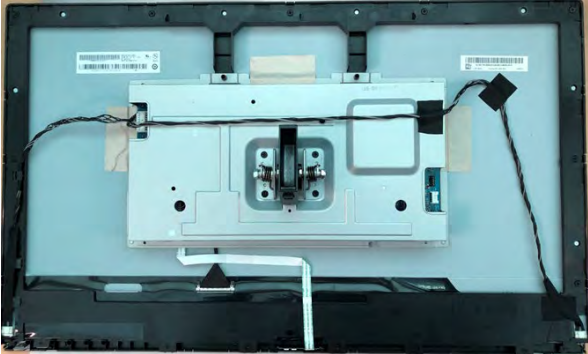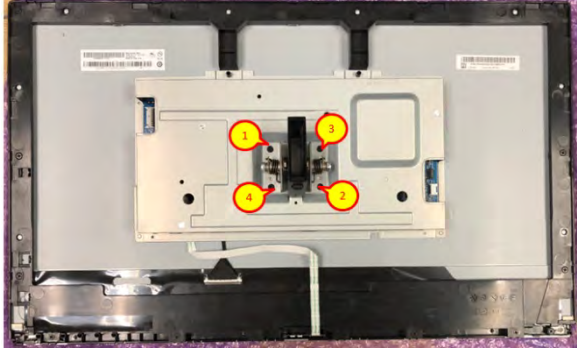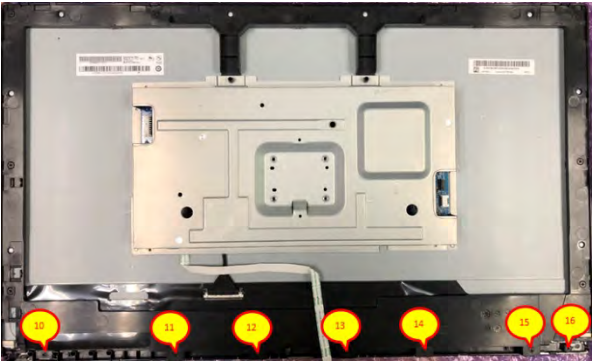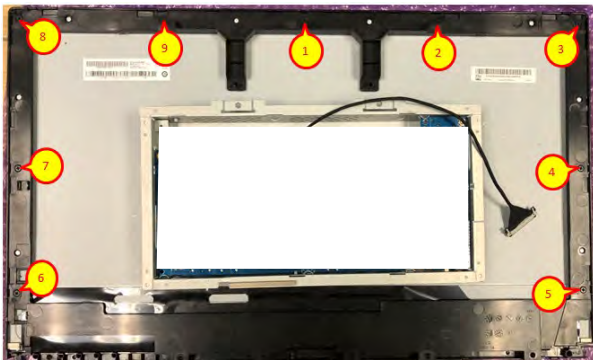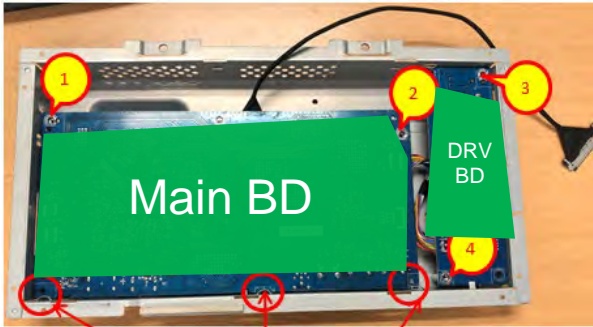
Use this information to properly prepare to disassemble and reassemble the monitor.

1) Clean the room for disassembly.

2) Identify the disassembly area.

3) Check the position that the monitors are to be placed along with the number of monitors. Prepare the area for material flow according to the disassembly layout.

4) Be sure to have the following equipment and materials:

- Press fixture

- Working table

- Screwdriver

- Knife

- Gloves

- Cleaning cloth

- ESD protection

- Scraper bar in the following dimensions:

material : POM

Disassembly procedure

item	picture	Operation	Tool	Notes
1		1. Unlock 2 screws	Screw-driver	4.0～5.0KG
2		Disassemble the RC from the monitor, notice the disassembly order: 1.Disassemble the Bottom part 2.Disassemble the Right part 3. Be careful to remove conduct tape from audio cable 4. Remove ctrl cable and audio cable from IF BD		4.5±0.5 Kg

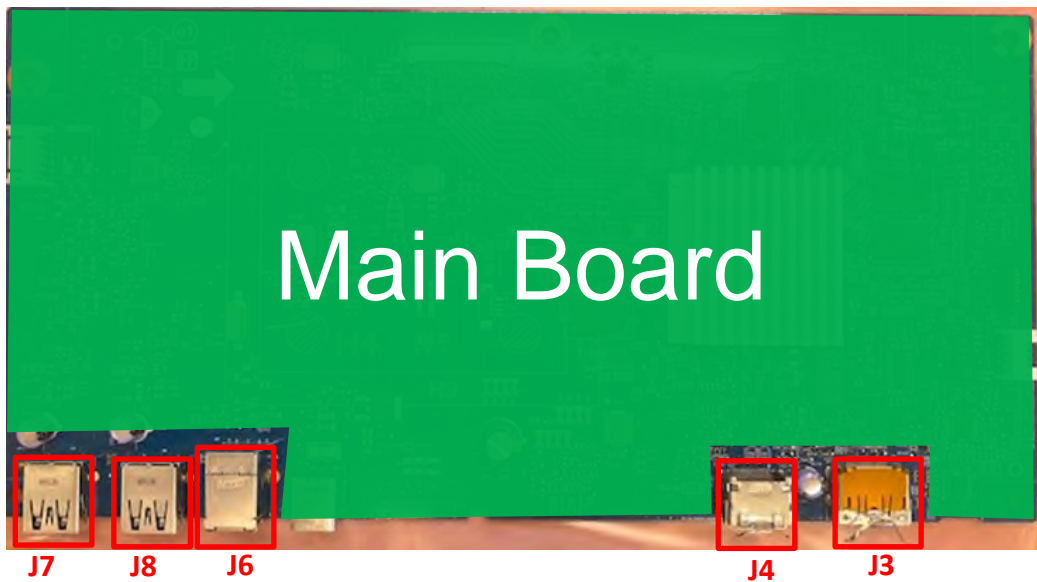|				
3		1. Remove 1 tape from RC 2. Remove 2 tapes from Ctrl cable and Audio cable 3. Unlock 1 screw 4. Disassemble Audio BD from RC 5. Remove audio cable from Audio BD 6. Remove Ctrl cable from RC 7. Unlock 3 screws 8. Disassemble Ctrl BD to RC 9. Remove Ctrl cable to Ctrl BD	Screw-driver	0.9～1.1KG
4		1. Remove 3 tapes from lamp wire 2. Remove lamp wire from panel and DRV BD 3. Remove 3 conduct tapes from SHD		
5		1. Unlock 4 screws 2. Disassemble hinge from SHD 3. Remove LED cable from panel 4. Disassemble LED BD from mid-frame 5. Remove LED cable from panel and LED BD	Screw-driver	8～10KG

6		1. Remove FFC cable from panel 2. Disassemble SHD to mid-frame 3. Remove LED cable from IF BD 4. Unlock 7 screws 5. Disassemble assy chin to mid-frame	Screw-driver	4.5±0.5 kg
7		1. Unlock 9 screws 2. Disassemble mid-frame to panel	Screw-driver	6.5±1.0 KG
8		1. Unlock 4 screws 2. Disassemble IF BD from SHD 3. Remove FFC cable from IF BD 4. Disassemble DRV BD from SHD 5. Remove DRV cable to DRV BD	Screw-driver	6～8KG

Main board- Connector repair

Repair Condition: Connector repair is only for the monitor that has been out of warranty period.

- The repair procedure is for HDMI, DisplayPort and audio connectors.
- The connectors are on the main board (IF board part number 5E.4EW01.012).
- Please refer to the location to repair the correct parts:

Connector	Location
USB A 3.0	J7, J8
USB B 3.0	J6
HDMI	J4
DisplayPort (DP)	J3

IMPORTANT:

- **Repair Condition: Connector repair is only for out of warranty.**
- **Repairing must operate by <u>professional repairers (Note)</u> in repair center, not applicable for end user.**
- **Electrostatic protection is required when component replacement is required.**
- **The monitor meets ROHS, please use Lead-free solder wire for soldering.**
- **If Connector need to replace, must check specification and part number whether match the BOM and location.**
- **If connector need to replace, please insert new parts carefully because the near pin may cause short circuit by inappropriate operate.**
- **DO NOT allow any liquid on the board. Water and moisture may cause short-circuit to the electronic components and lead to malfunctions.**
- **The fusion point of Lead-Free solder is requested. Repairing with conventional lead wire may cause damage.**
- **Work quickly to avoid overheating the circuit board as soon as you confirm the steady soldering condition.**
- **Keep the soldering iron tip clean and well tinned and when replacing parts.**
- **A close inspection of the circuit board revealed look in good condition.**
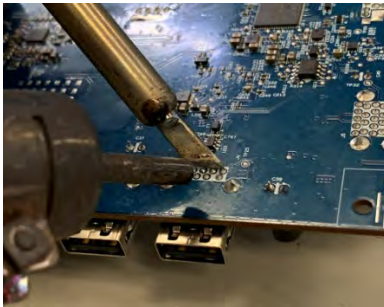- **After repaired, must connect source to each port to check Main board function is ordinary.**

Note: (The requirement of professional repairers' regulation by ERP lot5)

(1) The professional repairer has the technical competence to repair electronic displays and complies with the applicable regulations for repairers of electrical equipment in the Member States where it operates. Reference to an official registration system as professional repairer, where such system exists in the Member States concerned, shall be accepted as proof of compliance with this point.

(2) The professional repairer is covered by insurance covering liabilities resulting from its activity, regardless of whether this is required by the Member State.

USB A 3.0 Connector repair- J7, J8

1) Use a hot air gun to melt the solder on the pins Pin solder with soldering iron and absorber.

You can gently push down with the soldering iron once everything is molten to move the connector out of the through holes
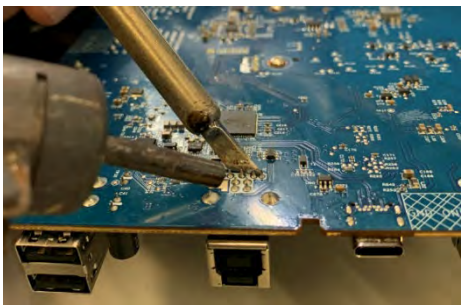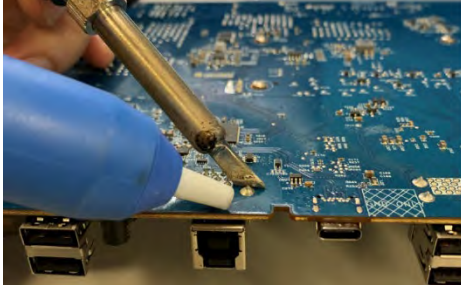

2). Lift connector from the PCB

3). Place new component on the location, and must check it can match PCB footprint

4). Soldering the new component by solder iron

USB B 3.0 Connector repair- J6

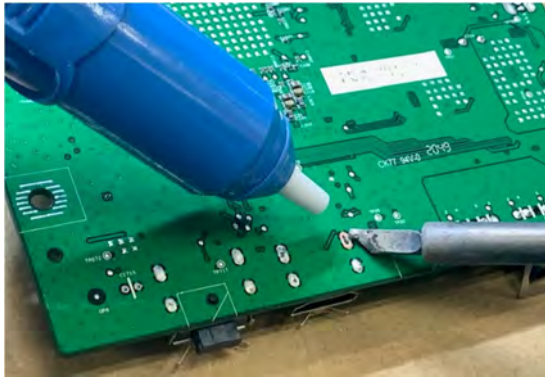**1)** Use a hot air gun to melt the solder on the pins Pin solder with soldering iron and absorber.

You can gently push down with the soldering iron once everything is molten to move the connector out of the through holes

2). Lift connector from the PCB

3). Place new component on the location, and must check it can match PCB footprint

4). Soldering the new component by solder iron

HDMI Connector repair- J4

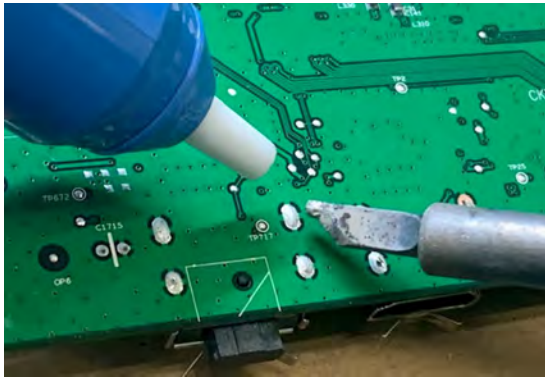1) Use a soldering iron and a de-soldering pump to remove as much solder as possible from one of the pin.

2) Use a hot air gun to melt the solder on the pins

3). Lift J2 from the PCB

4). Place new component on the location, and must check it can match PCB footprint

5). Soldering the new component by solder iron

6). Please must stick a gasket on the Shielding. Find the procedure on page 22.

DP Connector repair- J3

1) Use a soldering iron and a de-soldering pump to remove as much solder as possible from one of the pin.
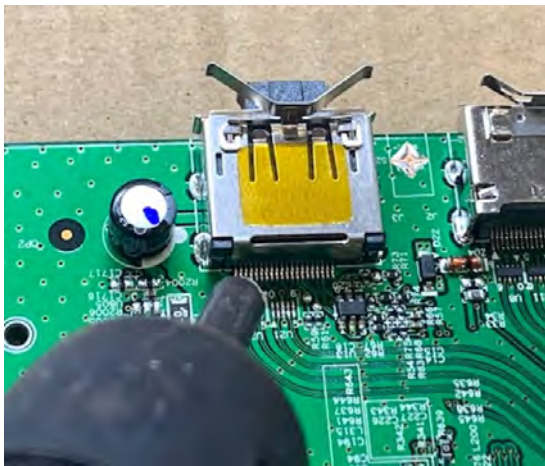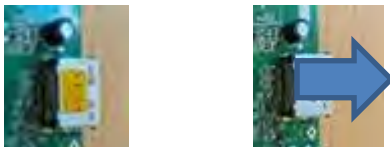

2) Use a hot air gun to melt the solder on the pins

3) Lift J3 from the PCB

4) Place new component on the location, and must check it can match PCB footprint

5) Soldering the new component by solder iron

6) Tear off the yellow tape on the DP connector, so that it can contact to the gasket, EMI will be effective.

7). Please must stick a gasket on the Shielding. Find the procedure on page 22.

Stick Gasket on the Shielding

1) Use scissors to cut the length of gasket 3020812 in 20mm.

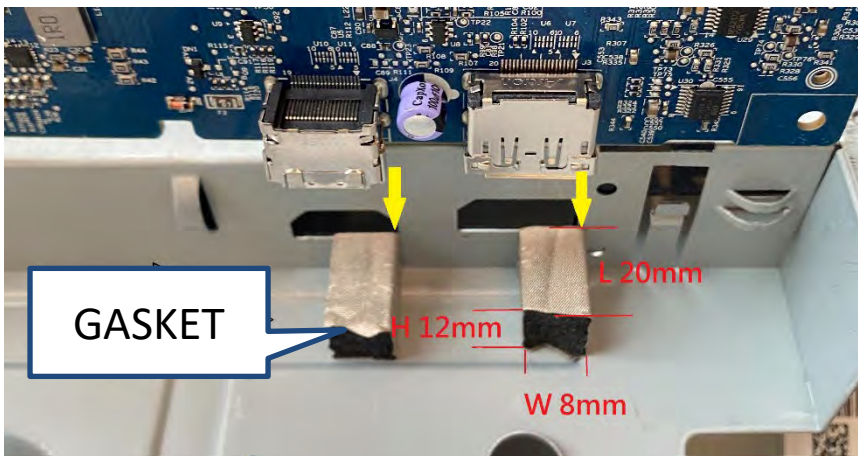   Gasket Size: W 8mmx x H 12mm x L 20mm

    (The Length of gasket should not be less than 20mm)

2) Remove the tape on the gasket and align the gasket to the right side of the HDMI or DP.

   (Alignment refers to the yellow arrow in the image below)

3) Press the gasket to the end of shielding with your fingers and confirm that it will not fall.

   If the gasket falls on the inner boards, it will cause a short circuit and damage the Monitor.

4) After assembly, check from the appearance whether the connector is indeed fixed with the gasket.

Function Test:

After repairing, please do the function test to check all functions are working.

Test Item	OPERATION DESCRIPTIONS	EQUIP.OR TOOL USED
HDMI test	Check if the image and sound can be played normally on monitor. No noise volume and balance is correct.	PC or DVD Player
DP test	Check if the image and sound can be played normally on monitor. No noise volume and balance is correct.	PC or DVD Player
Audio test	Change sound volume and balance if the volume sound smoothly and loud enough.	Speaker

Support and Troubleshooting

Solving common problems

The following table lists possible problems, the possible cause of each problem, and the recommended solutions.

Problem	Possible Cause	Solution
Screen is blank or video is flashing.	Power cord is disconnected.	Connect the power cord.
	Monitor is off.	Press the Power button. **NOTE:** If pressing the Power button has no effect, press and hold the power button for 10 seconds to disable the Power button lockout feature.
	Video cable is improperly connected.	Connect the video cable properly. See Connecting the cables on page 5 for more information.
	System is in sleep mode.	Press any key on the keyboard or move the mouse to exit sleep mode.
	Video card is incompatible.	Open the OSD menu and select the Input Control menu. Set Auto-Switch Input to Off and manually select the input.
Image appears blurred, indistinct, or too dark.	Brightness is too low.	Open the OSD menu and select **Brightness** to adjust the brightness scale as needed.
Check Video Cable is displayed on screen.	Monitor video cable is disconnected.	Connect the appropriate video signal cable between the computer and monitor. Be sure that the computer power is off while you connect the video cable.
Input Signal Out of Range is displayed on screen.	Video resolution and/or refresh rate are set higher than what the monitor supports.	Change the settings to a supported setting. See Preset display resolutions on page 17 for more information.
The monitor is off but it did not seem to enter into sleep mode.	The monitor's power saving control is disabled.	Open the OSD menu and select **Power Control** > **Auto-Sleep Mode** and set auto-sleep to **On**.
On-Screen Menus are Locked is displayed.	The monitor's OSD lock function is enabled.	Press and hold the **Menu** button on the front bezel for 10 seconds to disable the OSD lockout function.
Power Button is Locked is displayed.	The monitor's power button is locked.	Press and hold the power button for 10 seconds to disable the power button lock function.

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