Maintenance and Service Guide

Z27x G2 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".

Table of Contents

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:

- 68.6 cm (27-inch) diagonal viewable area with 2560×1440 resolution, plus full-screen support for lower resolutions
- 100% coverage of sRGB and BT.709, 99% coverage of Adobe RGB, 93% coverage of DCI-P3, and 72% of BT.2020
- LCD (liquid crystal display) with an active matrix, thin-film transistor (TFT) panel.
- Ability to accurately remap the color gamut of the display (within the supported color gamut of the panel) to enable the selection of the color space and very accurately set the RGB primaries, white point, and grayscale response for consistent and repeatable colors
- Very high color and luminance stability (with typical use)
- Calibrated color space factory presets for DCI P3 D65, BT.709, BT.2020, sRGB D65, sRGB D50, Adobe RGB D65, and Adobe RGB D50 so the display is ready to use for color-critical applications with minimal setup
- Recalibrateable color presets that allow you to recalibrate to a standard or custom color space by specifying the color primaries, white point, gamma/EOTF, luminance, and name (via StudioCal XML)
- Option to reset to Factory Calibration settings or User Calibration settings to easily restore the display to the factory or user settings
- Built-in support for the X-Rite i1Display Pro, X-Rite i1 Pro, Klein Instruments K10-A, Photo Research PR-6xx/7xx, Colorimetry Research CR-250, and Konica Minolta CA-310 measurement devices
- Updatable display firmware to enable HP to quickly and easily provide solutions to identified problems and provide custom solutions
- Four re-assignable front bezel Function buttons to quickly select the most commonly used operations
- Wide viewing angle to allow viewing from a sitting or standing position, or moving from side-to-side
- Adjustable tilt, height, and swivel capabilities
- Removable stand for flexible display panel mounting solutions
- 100 mm integrated VESA mounting
- Two video signal inputs to support DisplayPort digital with one cable provided
- Two video signal inputs to support HDMI digital with one cable provided
- Analog audio output for headphones
- Integrated KVM (Keyboard/Video/Mouse) switch with keyboard-based input switching

- RJ-45 network connector
- Two DreamColor USB ports for connecting a measurement instrument or updating firmware
- Two fast-charging USB 3.0 ports
- USB Type-C port (USB 3.1 Gen1, 5 Gbps) with one USB Type-C cable and one USB Type-C to A cable
- USB 3.0 hub with one upstream port (cable provided) that connects to the computer and four downstream ports that connect to USB devices
- 2 Chapter 1 Getting Started
- Plug and play capability if supported by your operating system
- Security slot provision on rear of display for optional cable lock
- Cable management feature for placement of cables and cords
- On-Screen Display (OSD) adjustments in several languages for easy setup and screen optimization
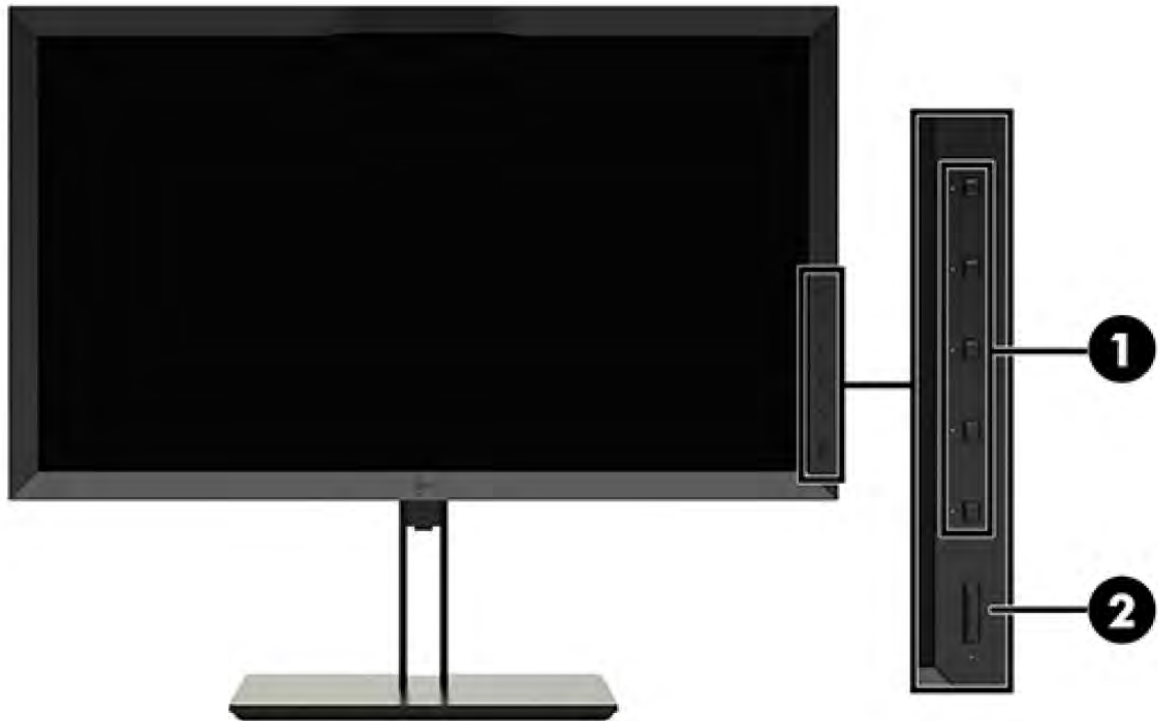- HDCP 2.2 (High-Bandwidth Digital Content Protection) copy protection on all digital inputs

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 components

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

Table 1-1: Front components and their descriptions

| Component		Function
1	Function buttons	Use these buttons to navigate through the OSD based on the indicators next to the buttons that are activated while the OSD is open. **NOTE:** To activate the Function buttons, press any of the buttons so that the button labels appear on the right side of the screen and the button LEDs are lit.
2	Power button	Turns the display on or off. **NOTE:** Be sure the master power switch on the rear of the display is in the ON position

Rear components

To identify the components on the rear of the monitor, use this illustration and table.
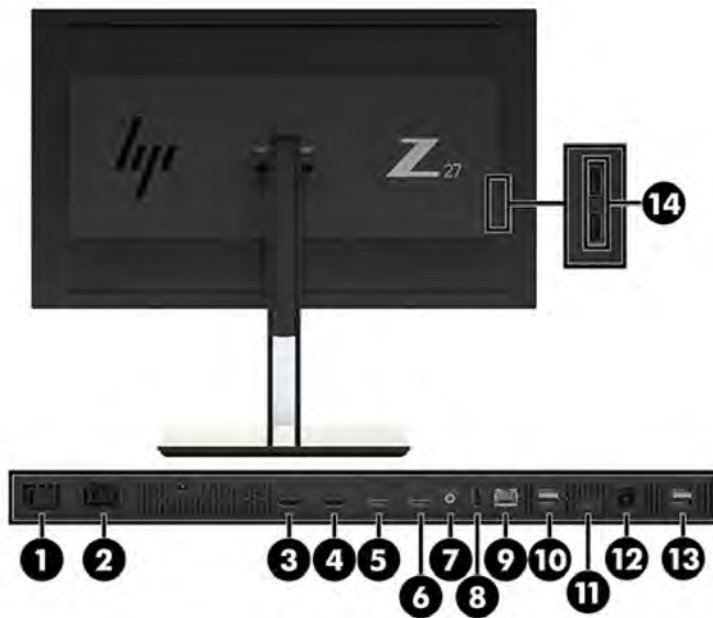
Table 1-2: Rear components and their descriptions

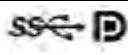| Component		Function
1 ~	Master power switch	Turns off all power to the display. **NOTE:** Putting the switch in the Off position yields the lowest power state for the display when it is not in use.
2 ~	AC power connector	Connects the AC power cord to the display.
3 HDMI	HDMI1	Connects an HDMI cable to the display.
4 HDMI	HDMI2	Connects an HDMI cable to the display.
5	DisplayPort 1	Connects a DisplayPort cable to the display.
6	DisplayPort 2	Connects a DisplayPort cable to the display.
7 ((·⇾	Analog audio out	Connects headphones to the display.
8	KVM keyboard port	Connects a keyboard to the display.
9	RJ-45 connector	Connects a network cable to the display.
10	DreamColor USB ports (2)	Connect a measurement instrument or a USB flash drive for color calibration or firmware update.

11	⟨symbol⟩	USB Type-C upstream port (for host connections)	Connects a host device with a Type-C connector.
12	⟨symbol⟩	USB 3.0 upstream port	Connects the USB hub cable to the display's USB hub connector and to a host USB port/hub.
13	⟨symbol⟩	USB 3.0 downstream ports (2)	Connect optional USB devices to the display.
14	⟨symbol⟩	USB 3.0 downstream ports (side panel) (2)	Connect optional USB devices to the display.

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

Note: You may need to partially pivot the display head to read the label.

Illustrated parts catalog

To identify the monitor major components, use this illustration and table.
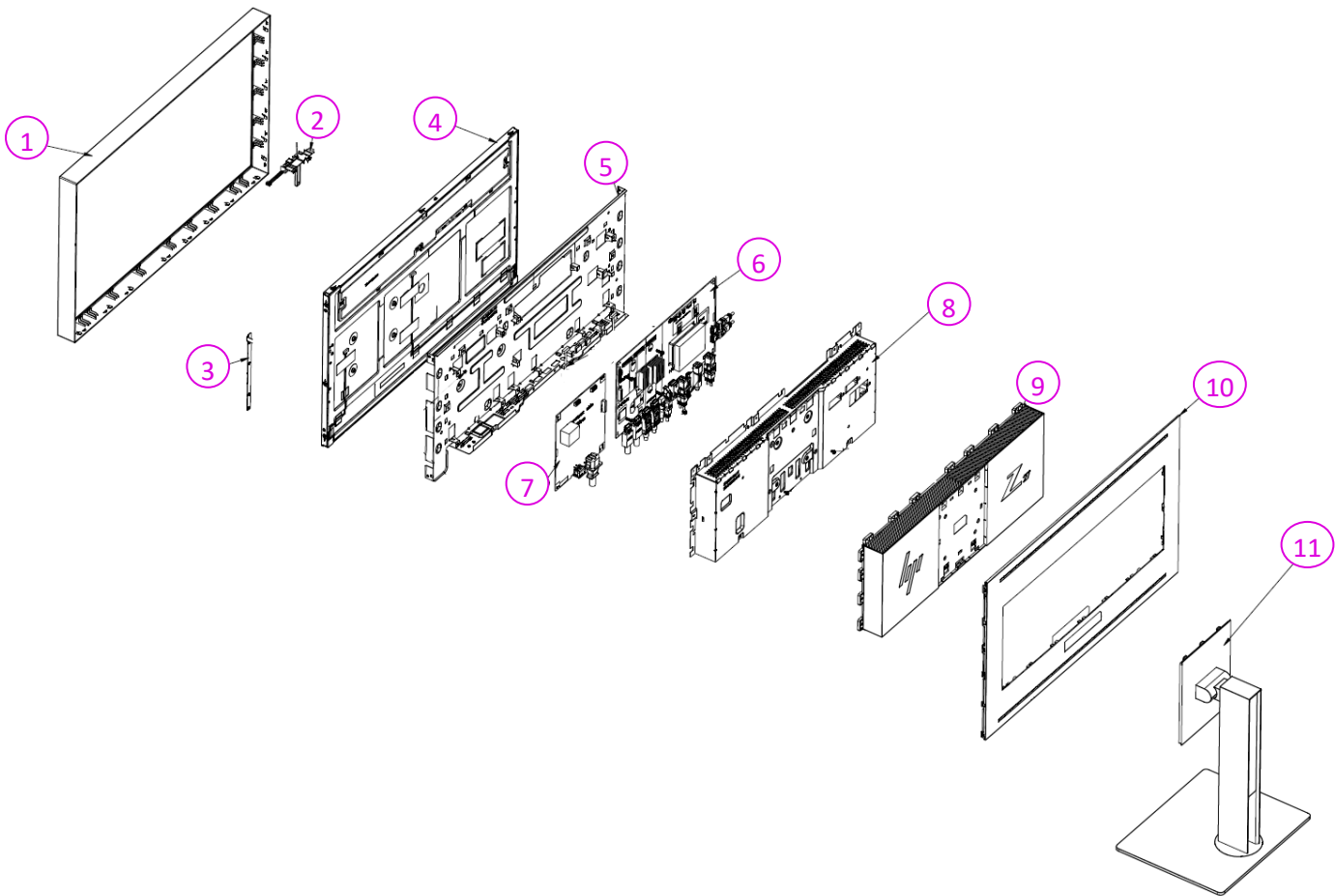
Table 2-1: Monitor major components and their descriptions

Item	Description	Qty
1	ASSY BZL BLACK	1
2	ASSY COLORMETER	1
3	PCBA CTRL BD	1
4	PANEL	1
5	ASSY BKT MAIN	1
6	PCBA IF BD	1
7	PCBA POWER BD	1
8	ASSY SHD	1
9	ASSY CVR BACK SILVER	1
10	RC ABS BLACK	1
11	ASSY STAND	1

How to order parts

The HP authorized repair center can purchase power board from HP.

Power board:

Description	HP Spares Part Number	Manufacturer Part Number
SPS-IPS Z27x G2 5E.3QN02.001	M74404-001	5E.3QN02.001

Capacitors and connectors available for purchase from EU distributor

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

Capacitors by Distributor:

Component Description	Location	Component Distributor	Distributor
Capacitor 680 µF 10*20 7K	C711; C712; C713; C714; C801	Farnell	35ZLH680MEFC10X23
Capacitor 680 µF 10*20 7K		RS	35ZLH680MEFC10X23

Connectors by Distributor:

Component Description	Location Identifier	Component Distributor	Part number of Manufacturer/ Distributor
HDMI	J12, J13	Farnell, RS	Molex 2086581001
DisplayPort (DP)	J14, J15	Farnell	47272-0024
Audio	J24	Farnell	STX-3120-5B
USB A 2.0	J10	Farnell, RS	Molex 48204-0001
RJ45	J27	Farnell, RS	WURTH ELEKTRONIK 7499111447
DUAL USB A 3.0	J5, J6	Farnell, RS	WURTH ELEKTRONIK 692141030100
USB TYPE C	J1	Farnell, RS	WURTH ELEKTRONIK 632723100011
USB B 3.0	J2	RS	WURTH ELEKTRONIK 692221030100
USB A 3.0	J28, J4	RS	Molex 48405-0003

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
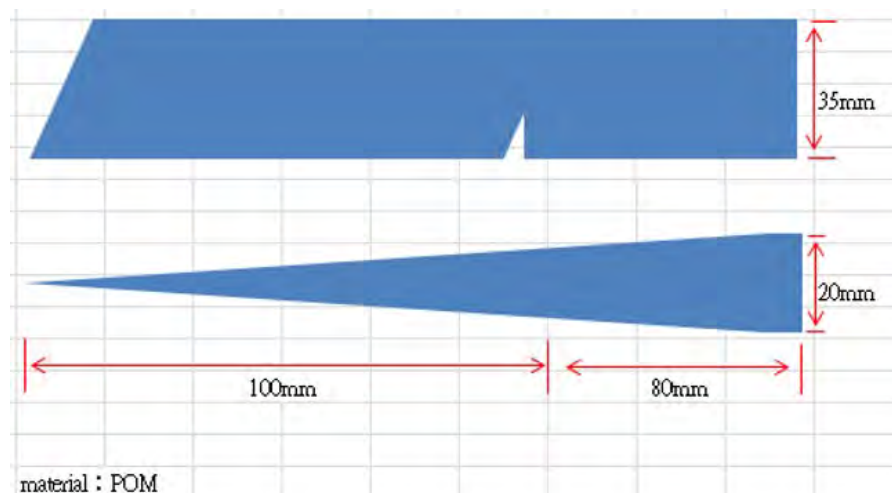
Removal and replacement procedures

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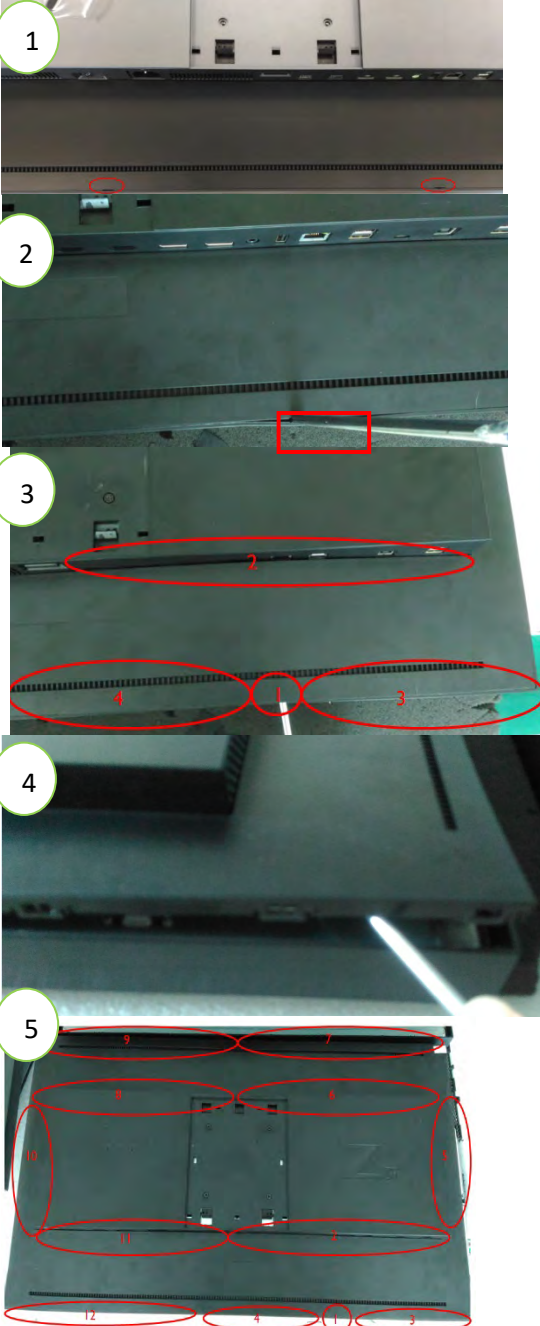
Preparation for disassembly

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
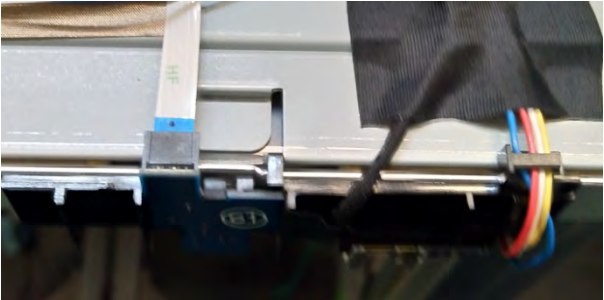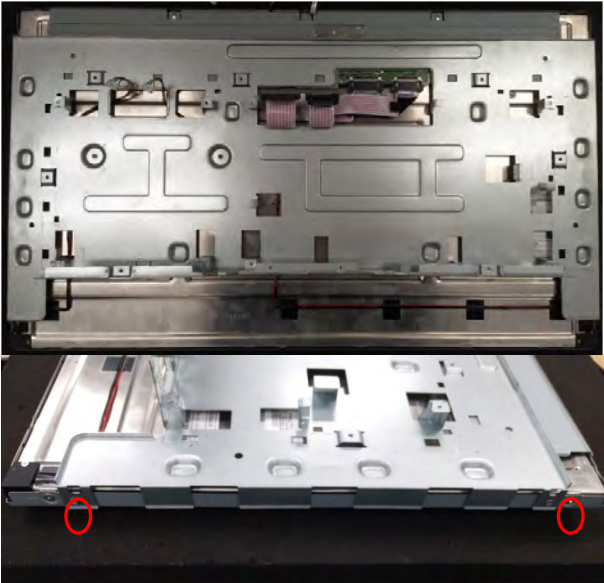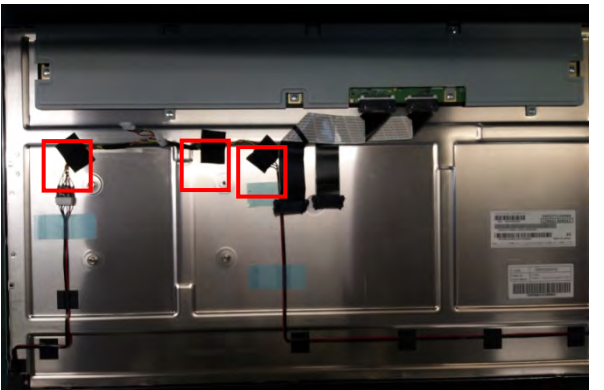- Scraper bar in the following dimensions:

Disassembly procedure

item	picture	Operation	Tool	Notes
1		1. Put Monitor on clean cushion carefully 2. Unlock 4 screws	Screw-driver	
2		Disassembly the RC from the monitor with tools, notice the disassembly order: 1. Use tools to pry open the RC from the two opening holes 2. Pry open the RC as shown in the picture 5 3. Notice: The tool cannot be pressed to the bezel when pry the RC 4. Remove RC from panel		

3		1. Unlock 2 screw from RC 2. Remove the RC from main-SHD	Screw-driver	
4		1. Unlock 9 screw from Main-SHD 2. Remove the Main-SHD 3. Remove all adhesive tapes 4. Pull out all wires contact from PCBA		

|				
5		1. Unlock the power BD connecting wire 2. Unlock 8 screw from PCBA 3. Remove PCBA from SHD		
6		1. Take out the panel from BZL 2. Remove the LOGO 3. Tear down the Mylar from CRTL BD 4. Unlock 4 screw and remove CRTL BD	Screw-driver	

7		1. Disassembly the color meter from panel	Screw-driver	
8		1. Rotating the Panel，unlock 4 side screws 2. Remove the SHD from Panel		
8		1. Remove all adhesive tapes 2. Remove the FFC cables from Panel 3. Remove the lamp wires from Panel		

Power board replacement

- The power board part number is 5E.3QN02.001. This board is a direct replacement for 5E.3QN02.001

- Locate PN on the red frame as follow image.
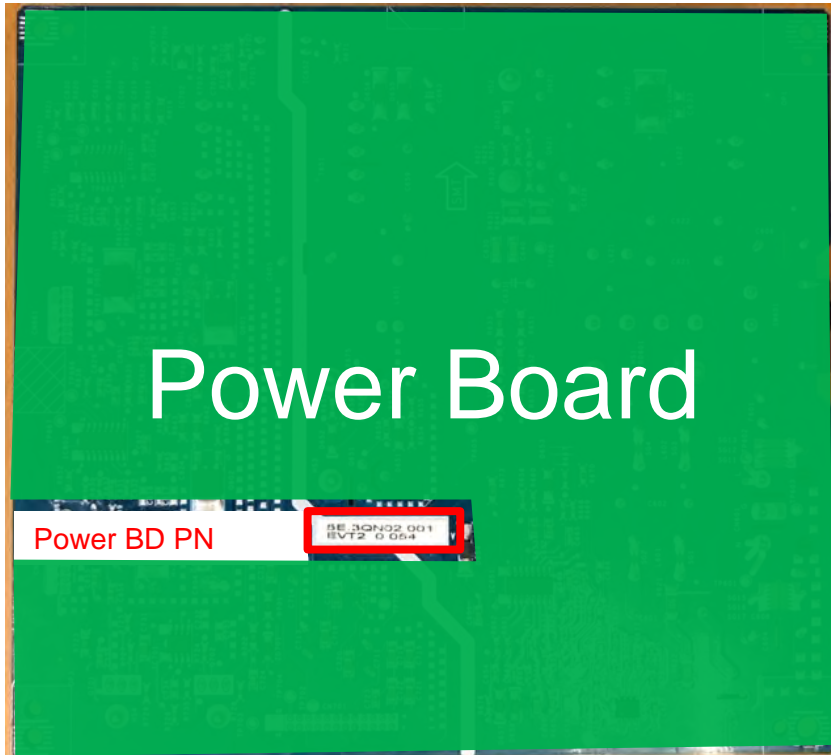
IMPORTANT:

- **Repairing must operate by professional repairers in HP repair center, not applicable for end user**

- **The primary side is the high voltage area, please take care when repair (Front and Back view)**
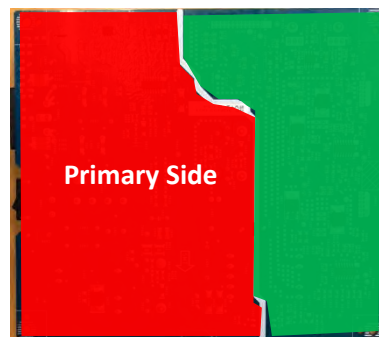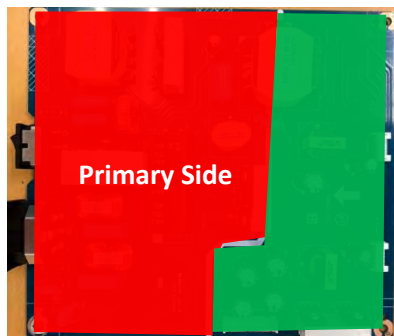
- **After repaired, must check PSU function is ordinary**

Power board- Capacitor repair

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

> **IMPORTANT:**
> - **Repairing must operate by <u>professional repairers (Note)</u> in repair center, not applicable for end user**
> - **The primary side is the high voltage area, please take care when repair (Front and Back view)**
>
>
>
> - **Electrostatic protection is required when component replacement is required.**
> - **The monitor meets ROHS, please use Lead-free solder wire for soldering.**
> - **If capacitor need change, please check polarity match PCB print.**
> - **If capacitor need to replace, must check specification and part number whether match the BOM and location.**
> - **If capacitor 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 do function test to check PSU 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.

Repair Process:

When EL capacitors damage or explode, it may lose function and cause product no work.

The capacitors locations are identified below:
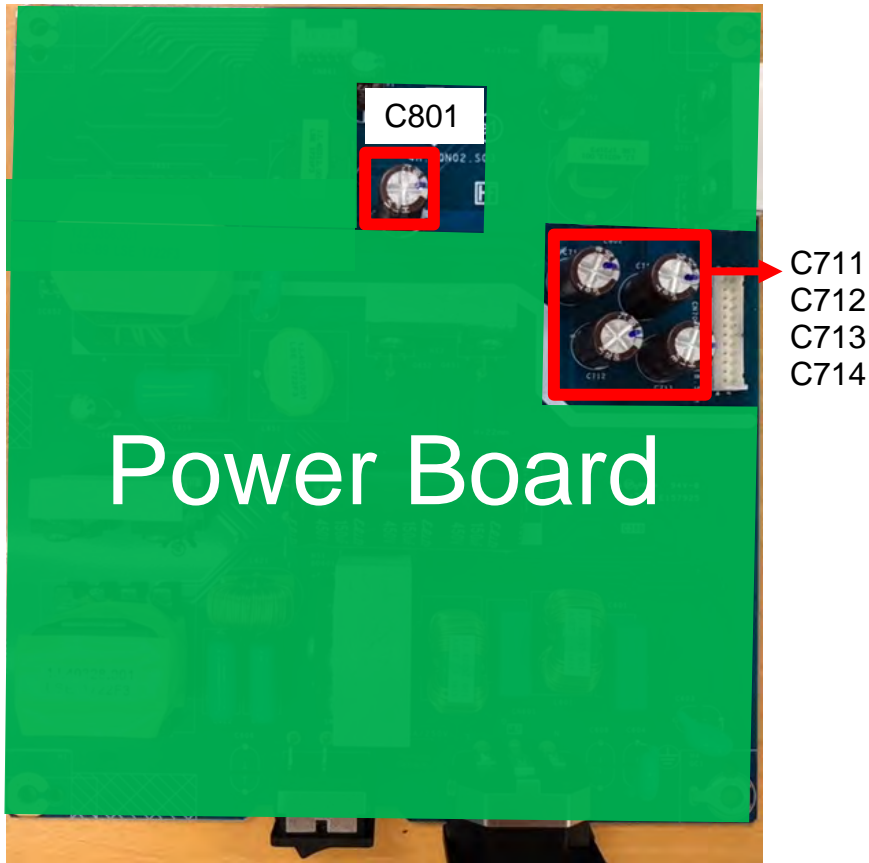
1) You must disconnect the power cord from the power source before opening the monitor to prevent component damage.

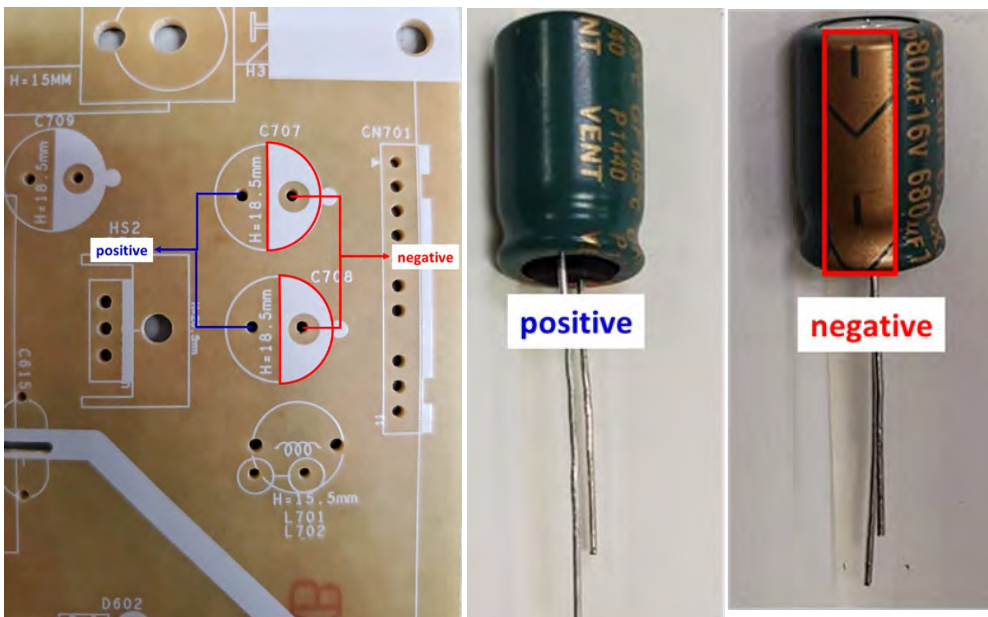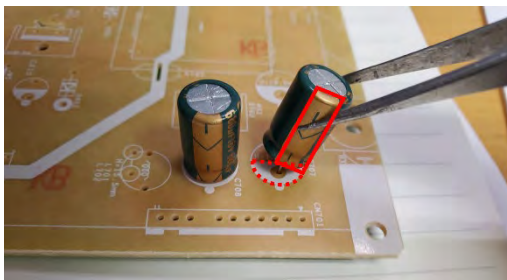2) Use Multimeter measure whether EL capacitors still have charge. Before repairing must discharging it.

C605/C703/C707/C708 in following picture need to discharging.
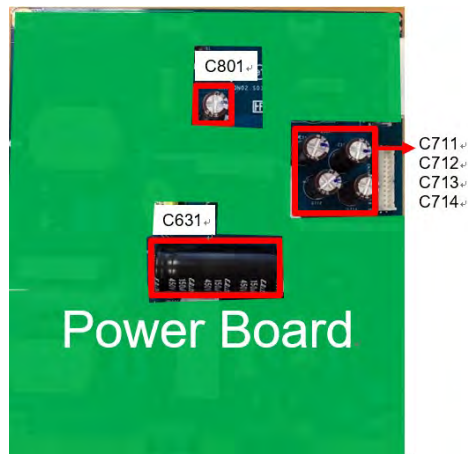
3) Lift capacitors from the PCB.

Power Board
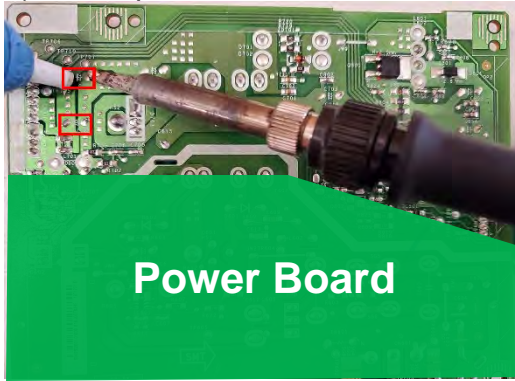
4) Place new component on the location, and must check polarity match PCB print.

5) After repaired, please double check whether polarity match PCB print, solder empty and unnecessary solder after soldering must remove.

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.3QN01.001).

- Please refer to the location to repair the correct parts:

Connector	Location
HDMI	J12, J13
DisplayPort (DP)	J14, J15
Audio	J24
USB A 2.0	J10
RJ45	J27
DUAL USB A 3.0	J5, J6
USB TYPE C	J1
USB B 3.0	J2
USB A 3.0	J28, J4
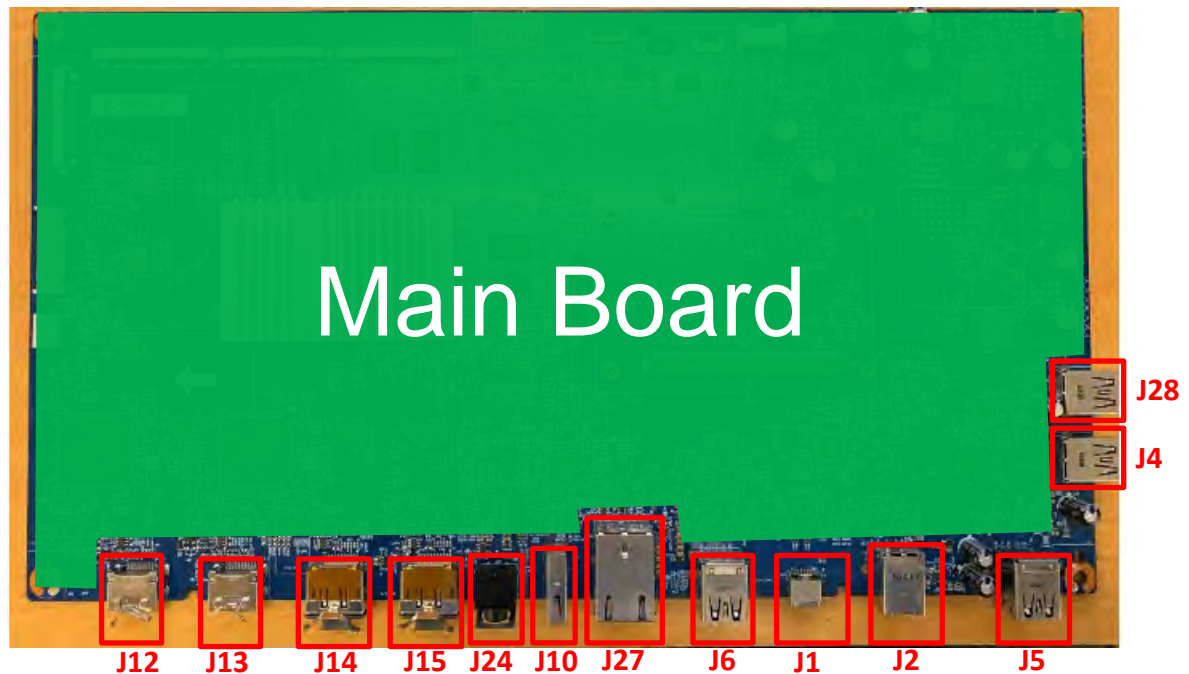
IMPORTANT:

- **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.

HDMI Connector repair- J12, H13

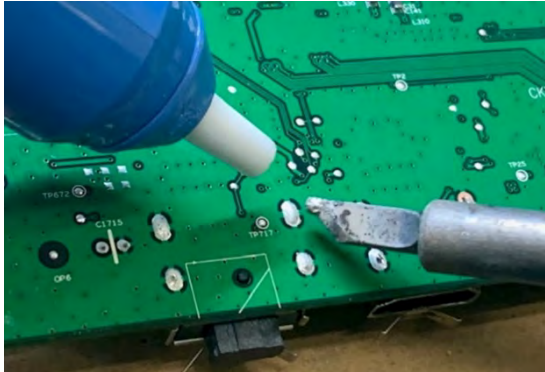1) Use a soldering iron and a de-soldering pump to remove as much solder as possible from one of the pin.
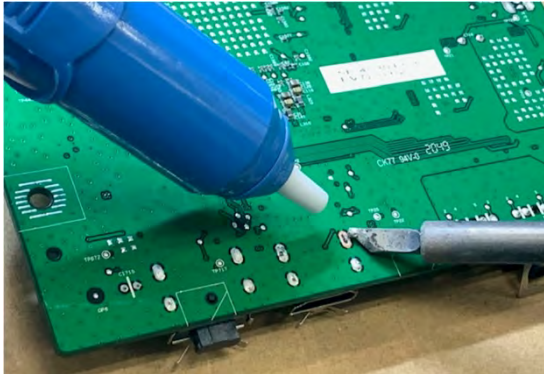
2) Use a hot air gun to melt the solder on the pins

3) Lift connector 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.

DP Connector repair- J14, J15

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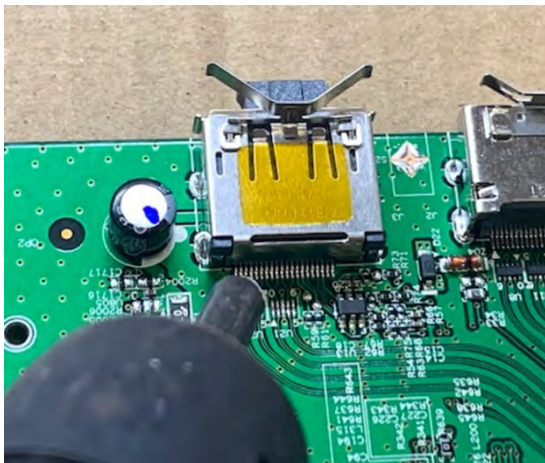

2) Use a hot air gun to melt the solder on the pins

3) Lift connector 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.

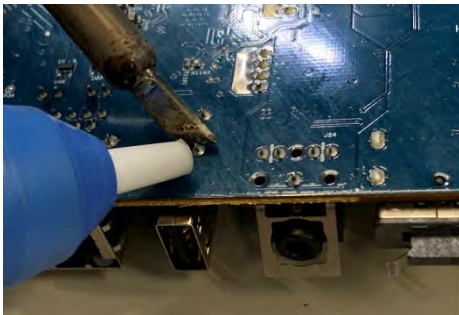7) Please must stick a gasket on the Shielding.

Audio Connector repair- J24

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

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

3) Lift connector 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

USB A 2.0 Connector repair- J10

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

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

3) Lift connector 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

RJ45 Connector repair- J27

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
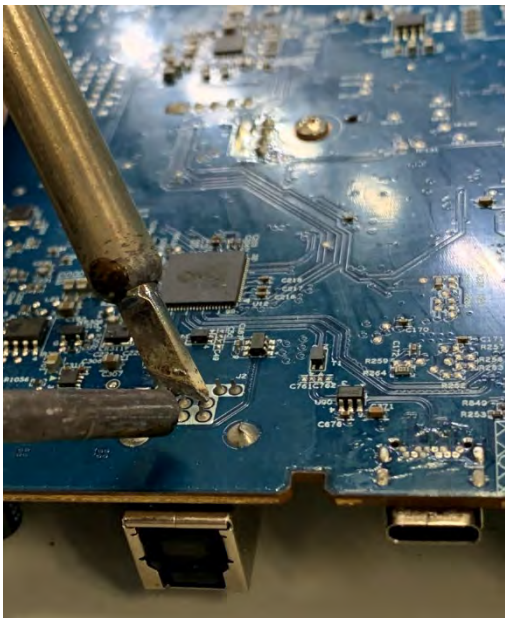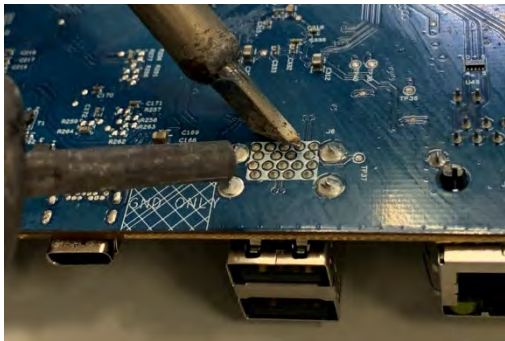

2). Lift connector from the PCB

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

4). Soldering the new component by solder iron
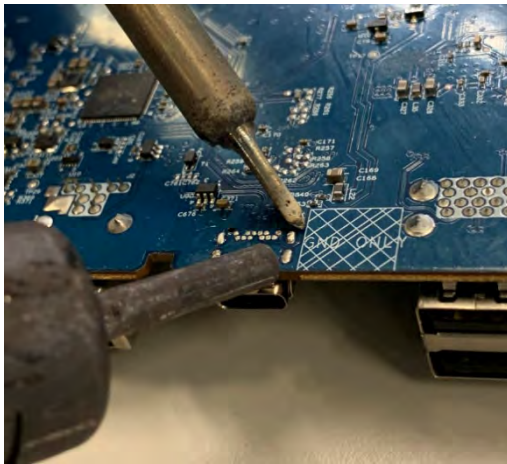
DUAL USB A 3.0 Connector repair- J5, J6

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

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

3) Lift connector 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

USB type C Connector repair- J1

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

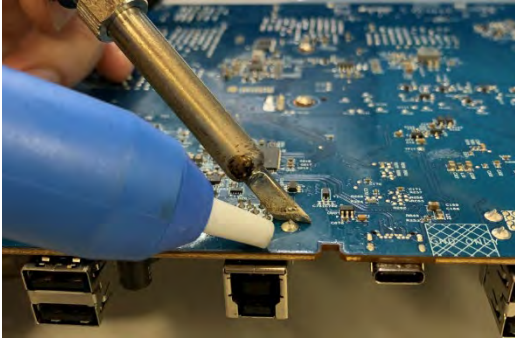
2) Use a hot air gun to melt the solder on the pins

3) Lift connector 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

USB B 3.0 Connector repair- J2

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

2) You can gently push down with the soldering iron once everything is molten to move the connector out of the through holes
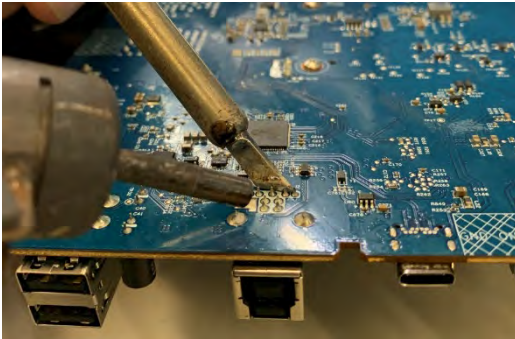
3) Lift connector from the PCB

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

5) Soldering the new component by solder iron
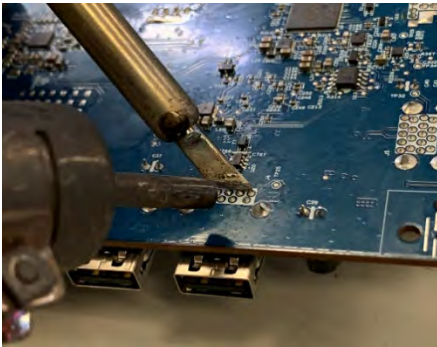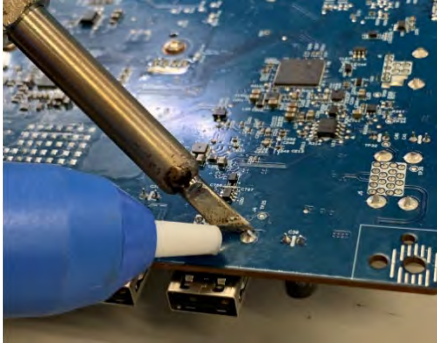
USB A 3.0 Connector repair-J28, J4

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

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

3) Lift connector 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

Stick Gasket on the Shielding

1) Use scissors to cut the length of gasket 3020812 in 8mm.

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

 (The Length of gasket should not be less than 8mm)

2) Remove the tape on the gasket and align the gasket to the left 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.
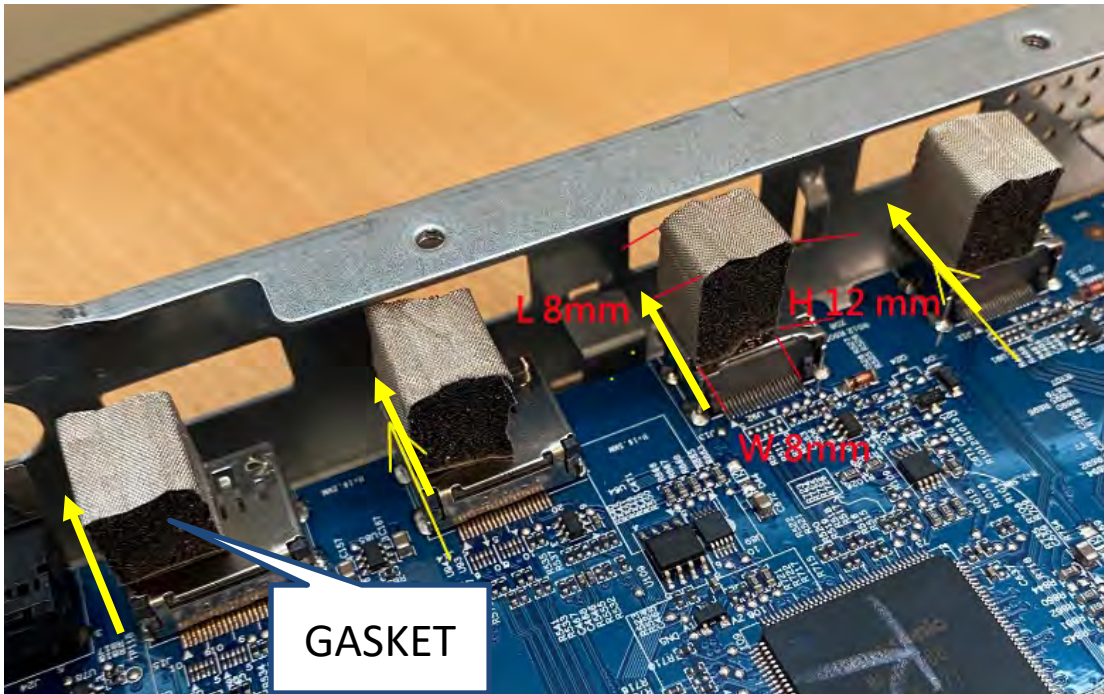
4) After assembly, check from the appearance whether the connector is indeed fixed with the gasket.

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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