



Maintenance and Service Guide

E22 G5 model

SUMMARY

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

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N22900-001-E22 G5 -MSG-V1

Assembly part number N22900-001

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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1 Getting started

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

Important safety information

Carefully read the cautions and notes within this document to minimize the risk of personal injury to service personnel. The cautions and notes are not exhaustive. Proper service methods are important to the safe, reliable operation of equipment. Improper service methods can damage equipment.

The service procedures recommended and described in this service manual provide effective methods of performing service operations. Service engineers should have prior repair knowledge and experience as well as appropriate training for the product before performing 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 should perform service or maintenance for it. Before performing any service or maintenance, personnel must read the important safety information.

IMPORTANT: You must disconnect the power cord from the power source before opening the monitor to prevent component damage.

Important service information and precautions

- Repair must be performed by professional service technicians in a repair center. End users should not perform these procedures.
- Please note during servicing that the primary side is the high voltage area.
- This monitor meets ROHS requirements. Be sure to use lead-free solder wire when soldering.
- If you must change a capacitor, be sure to match the polarity as printed on the PCB.
- If you must replace a capacitor, make sure the specification and part number match the BOM and location.
- If you must replace a capacitor, insert new parts carefully to avoid a short circuit caused by the near pin.
- Do not get the board wet. Water and moisture can cause a short circuit that causes malfunctions.
- To avoid damage, be sure to use lead-free solder.
- When soldering, work quickly to avoid overheating the circuit board.
- Keep the soldering iron tip clean and well tinned when replacing parts.
- After repair, perform a close inspection of the circuit board to confirm it is in good condition.
- After repair, perform a function test to confirm the power supply is working properly.

ERP Lot5 requirement

1. A professional repairer must have the technical competence to repair electronic displays and comply with the applicable regulations for repairers of electrical equipment in the Member States where the repairer operates. Reference to an official registration system as professional repairer, where such a system exists in the Member States, shall be accepted as proof of compliance.

2. A professional repairer must have insurance that covers liabilities resulting from repairs, regardless of whether required by the Member State.

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 compliant, the replacement parts can be non-ROHS compliant. If the original parts are RoHS compliant, the replacement parts **MUST** be RoHS compliant.

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

Firmware updates

Firmware updates for the monitor are available at support.hp.com. If no firmware is posted, the monitor does not need a firmware update.

Before returning the repaired product to the customer

Perform an AC leakage current check on exposed metallic parts to be sure the product is safe to operate without the potential of electrical shock. Do not use a line isolation transformer during this check.

Measurements that are not within specified limits present a possible shock hazard. You must check and repair the product before returning it to the customer.

2 Monitor features

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

Features

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

- 54.60 cm (21.5 in), plus full-screen support for lower resolutions; includes custom scaling for maximum image size while preserving original aspect ratio
- sRGB 99%
- Anti-glare panel with an LED backlight
- Ergonomic monitor setup guide (via the HP Display Center software) during first time use
- Tilt, swivel, height-adjustable, and pivot capabilities
- On-screen display (OSD) adjustments in several languages for easy setup and screen optimization
- Joypad OSD navigation
- Energy saver feature to meet requirements for reduced power consumption
- HP Eye Ease (TUV Low Blue Light Hardware Solution certified and 75 Hz Max Refresh rate)
- Compatible with displays software including:
 - HP Display Center
 - HP Display Manager
 - Secure firmware updates with HP Display Center
 - Security cable slot on the rear of the monitor for an optional security cable
 - Cable management feature for placement of cables and cords
 - High-Definition Multimedia Interface® (HDMI®) video input
 - USB Type-B port
 - USB Type-A port
 - Plug and Play capability, if supported by your operating system
 - Removable stand for flexible monitor head mounting solutions
 - VESA® mounting capability (100 × 100 mm) for attaching the monitor to a swing arm mount

NOTE: For safety and regulatory information, refer to the Product Notices provided in your documentation kit. To access the latest user guides or manuals for your product, go to <http://www.hp.com/support> and follow the instructions to find your product. Then select **Manuals**.

Front components

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

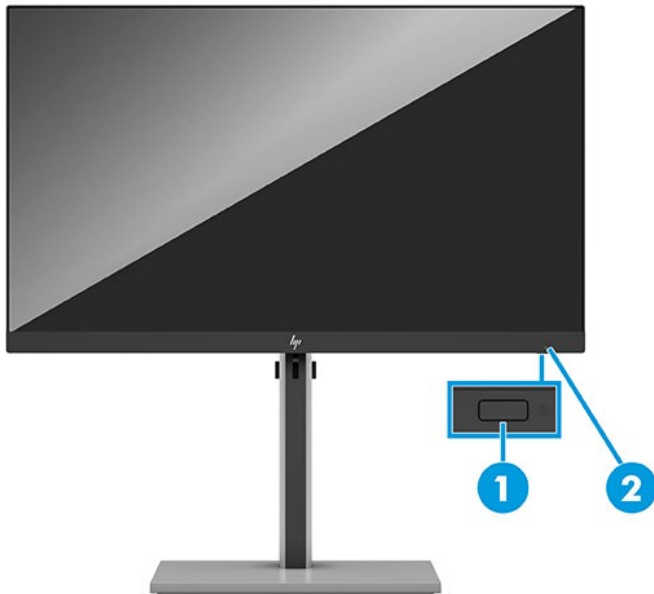


Table 1-1: Front components and their descriptions

Component	Description
1 Power button	Turns the monitor on or off.
2 Power LED	Indicates that the monitor is powered on.

Rear components

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

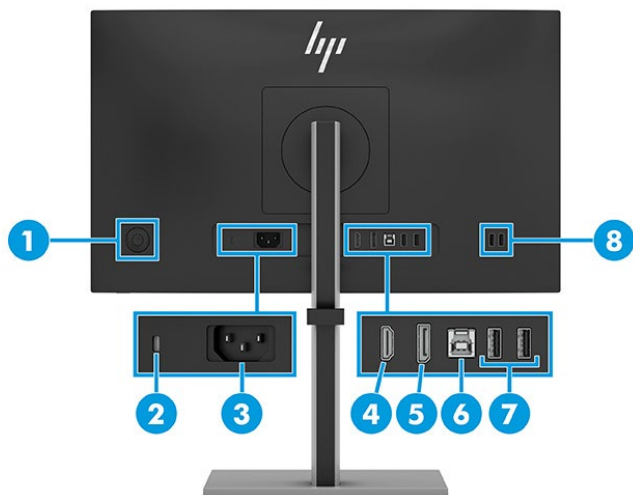


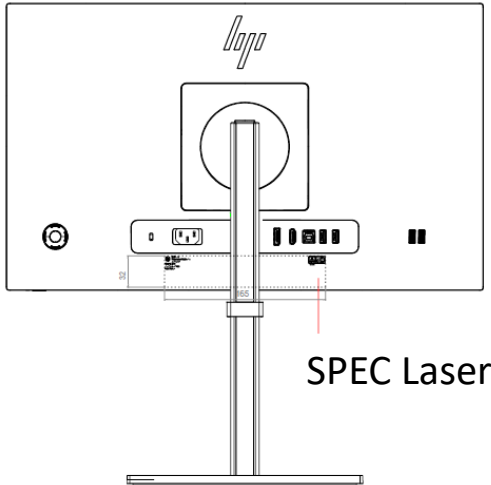
Table 1-2: Rear components and their descriptions

Component	Function
(1) Joypad	Press to open the OSD settings.
(2) Security cable slot	Connects an optional security cable.
(3) Power connector	Connects a power cord.
(4) DisplayPort connector	Connects a DisplayPort cable to a source device such as a computer or game console.
(5) HDMI port	Connects the HDMI cable to a source device such as a computer or game console.
(6) USB Type-B port	Connects a USB Type-B to A cable. NOTE: The USB hub is enabled only if the monitor is connected to the computer via a USB Type-B to A cable. NOTE: The touch screen function (select products only) is enabled only if the monitor is connected to the computer via a USB Type-B to A cable.
(7) USB ports (2)	Connects a USB device, provides data transfer, and (for select products) charges small devices (such as a smartphone) when the computer is on or in Sleep mode. NOTE: Use a standard USB Type-A charging cable or cable adapter (purchased separately) when charging a small external device.
(8) USB Type-C port	

-
- (8) USB Type-A port (1), USB Type-A port with HP Sleep and Charge (1)
- USB port: Connects a USB device, provides data transfer, and (for select products) charges small devices (such as a smartphone) when the computer is on or in Sleep mode.
- USB port with HP Sleep and Charge: Connects a USB device, provides high-speed data transfer, and charges small devices (such as a smartphone), even when the computer is off.
- NOTE: Use a standard USB Type-A charging cable or cable adapter (purchased separately) when charging a small external device.
-

Locating the serial number and product number

The SPEC label (1) and Barcode label (2) are located on the rear of the monitor. The serial number and product number are located on a Safety label. You may need these numbers when contacting HP about the monitor model.



For worldwide models:

For MP

HP E22 G5 FHD Monitor
 Regulatory Model No./规定型号/型號/모델명: HSD-0146-Q
 名称/名稱-液晶显示器/液晶顯示器/모니터 IS 13252(Part 1)/IEC 60950-1
 제조국: 중국/Made in China/中國製造/中國製
 Electrical Ratings/电源电压 交流/電壓 電流/정격입력
 Input Rating: 100-240V~ 1.0A(1.0A) 50/60Hz
 R-41083240
 www.bis.gov.in
 For Korea Only
 XU100008-22174
 R4-HP-HSD-0146-Q
 A/S Number: 1588-3003
 Manufacturer: Qisda(Suzhou)Co.,Ltd.

SAFETY MARK
 220906-11
 This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
 (1) this device may not cause harmful interference, and
 (2) this device must accept any interference received, including interference that may cause undesired operation.

Serial No. [REDACTED]
 Product No./제품명칭 [REDACTED]
 Assembly Part No./제품명칭 [REDACTED] Rev. REV
 Spares No./ spare No./ASSY [REDACTED] Head/ASSY [REDACTED]
 Manufactured/제조日期/製造日期 [REDACTED]
 제조년월 [REDACTED] Month Year

Example:
 January 2022
 February 2022

For Service

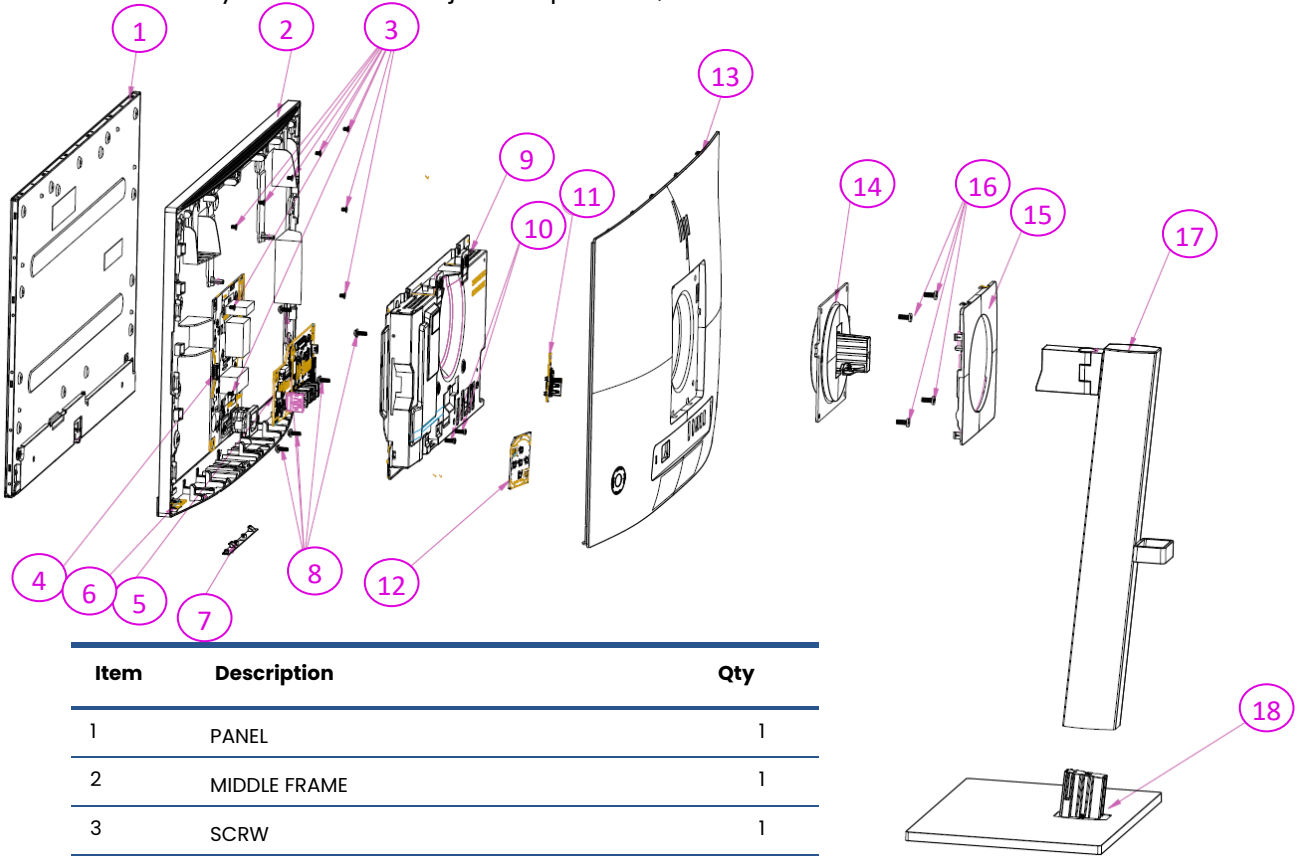
HP E22 G5 FHD Monitor
 Regulatory Model No./规定型号/型號/모델명: HSD-0146-Q
 名称/名稱-液晶显示器/液晶顯示器/모니터 IS 13252(Part 1)/IEC 60950-1
 제조국: 중국/Made in China/中國製造/中國製
 Electrical Ratings/电源电压 交流/電壓 電流/정격입력
 Input Rating: 100-240V~ 1.0A(1.0A) 50/60Hz
 R-41083240
 www.bis.gov.in
 For Korea Only
 XU100008-22174
 R4-HP-HSD-0146-Q
 A/S Number: 1588-3003
 Manufacturer: Qisda(Suzhou)Co.,Ltd.

SAFETY MARK
 220906-11
 This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
 (1) this device may not cause harmful interference, and
 (2) this device must accept any interference received, including interference that may cause undesired operation.

Service LBL
 (45*15mm-R2)

3 Illustrated parts catalog

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



Item	Description	Qty
1	PANEL	1
2	MIDDLE FRAME	1
3	SCRW	1
4	SPS BD	1
5	MAIN SHD	1
6	LENS BD	1
7	CVR SPK	1
8	SCRW	1
9	SHD MAIN	1
10	SCRW	1
11	USB BD	1
12	CONTROL BD	1
13	REAR COVER	1
14	HINGE	1
15	CVR VESA	1
16	SCRW	1
17	CLMN	1
18	BASE	

How to order parts

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

Power board

Description	HP spare part number	Manufacturer part number
SPS-IPS E22 G5 5E.5S402.001 AUO-Q	N40664-001	5E.5S402.001
SPS-IPS E22 G5 5E.5S402.002 INX-Q	N40664-002	5E.5S402.002
SPS-IPS E22 G5 5E.5S402.003 HKC-Q	N40664-003	5E.5S402.003

Capacitors and connectors are available for purchase from the following EU distributors:

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

Capacitors by distributor

Component description	Location	Component distributor	Distributor part number
Capacitor 470 µF 10*12.5 5K	C706 C707 C801	Farnell RS	25ZLH470MEFC10X12.5

Connectors by distributor

Component description	Location	Component distributor	Distributor part number
DP	J2	Farnell	TE 2041441-1
HDMI	J3	Farnell	Molex 47659-1100
USB3.1 Type A	JG4; JG3	Farnell	Molex 48408-0003

NOTE: The connector may need to be modified to meet functionality, regulatory and safety requirements if it is not an exact match.

You can purchase cables from the HP part store at <https://partsurfer.hp.com/Search.aspx>.

NOTE: HP continually improves and changes product parts. For complete and current information about supported parts for your computer, go to <http://partsurfer.com>, select your country or region, and then follow the on-screen instructions.

Internal and External Power Supplies are available for purchase from the following EU distributor: EET <https://www.eetgroup.com/en-eu/>

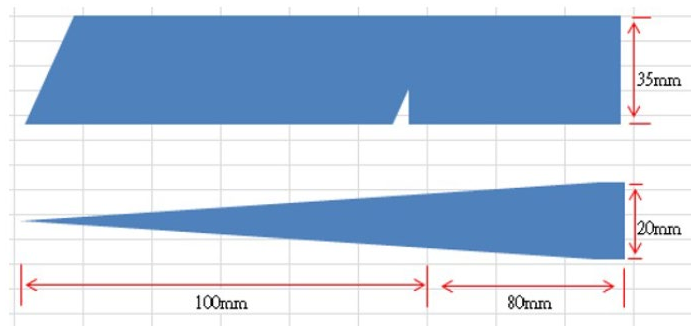
4 Removal and replacement procedures

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


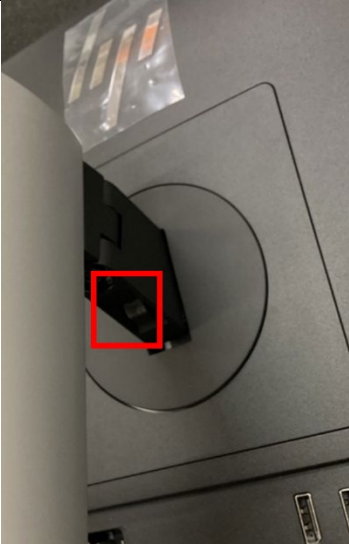

Preparation for disassembly


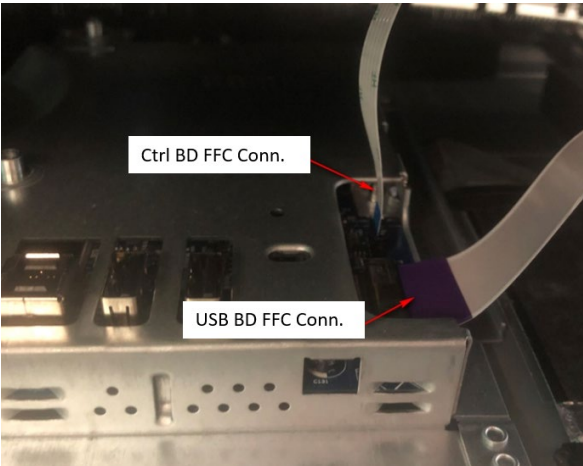
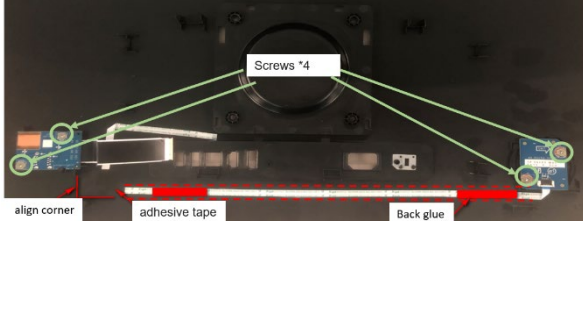
Use this information to properly prepare to disassemble and reassemble the monitor.

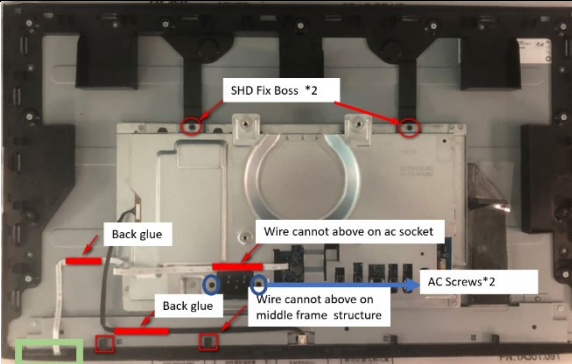
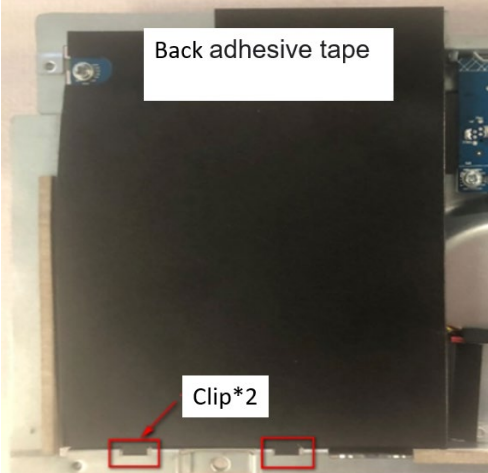
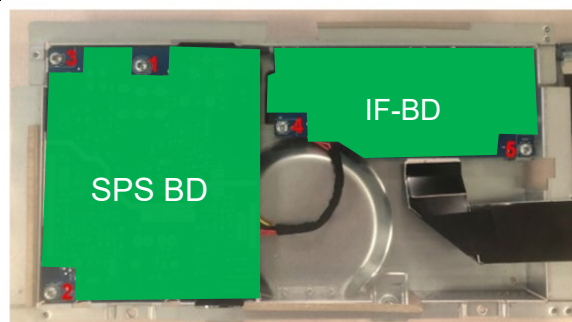
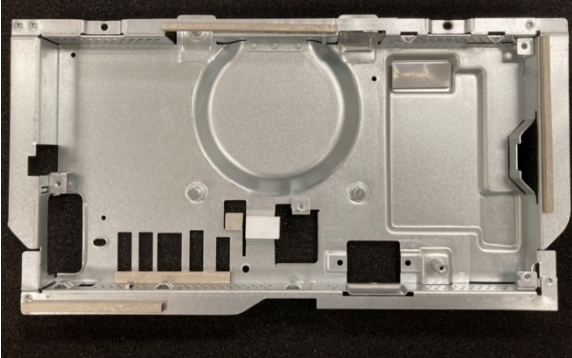
- 1) Read the "Important safety information" and "Important service information and precautions" sections in the "Getting started" chapter of this guide.
- 2) Clean the room for disassembly.
- 3) Identify the disassembly area.
- 4) Check the position that the monitors are to be placed along with the number of monitors. Prepare the area for material flow according to the disassembly layout.
- 5) 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:



Rear Cover

No	Picture	Operation	Tool
1	 A photograph of the rear cover of a device. Two screws are circled in red. A barcode sticker is visible at the bottom center of the cover.	Disassemble base with CLMN.	N/A
2	 A close-up photograph of a black clip hook on the rear cover. The clip hook is highlighted with a red square.	Disassembly CLMN from hinge with clip hook.	N/A
	 A photograph showing a hand removing a VESA cover from the rear cover. The VESA cover is a square plate with a circular hole in the center. The hand is wearing a watch.	Disassembly VESA COVER from RC.	N/A

<p>3</p>		<ol style="list-style-type: none"> 1. Disassembly screw (8F.00729.011) * 4pcs、 2. Disassembly RC from middle frame. 	<p>(1) Screwdriver : TORQUE 9±1 (KG-CM), Screw Head #2</p>
<p>4</p>		<p>Disconnect Ctrl BD cable and USB BD cable from IF BD as the picture .</p>	<p>N/A</p>
<p>5</p>		<ol style="list-style-type: none"> 1. Tear off tape (3H.04054.071) *1pc 2. Disassembly screw (8F.MA564.6R0) * 4pcs. 3. Disassembly OSD-BD and USB BD from RC. 	<p>(1)Screwdriver : TORQUE 3.0±0.5 (KG-CM), Screw Head #2</p>

<p>6</p>		<ol style="list-style-type: none"> 1. Disconnect PWR-BD with panel light bar 2. Disconnect IF-BD to panel with LVDS. 3. Tear off LED FFC from IF BD. 4. Disassembly screw (8F.00607.8R0) * 2pcs. 5. Disassemble MAIN-SHD with Middle frame. 	<p>(1) Screwdriver : TORQUE 4.5 ± 0.5 (KG-CM), Screw Head #2</p>
<p>7</p>		<p>Disassemble safety Mylar (4K.5S401.001).</p>	<p>N/A</p>
<p>8</p>		<p>Unfixed screw (8F.VC434.9R0) *6pcs.</p>	<p>(1)Screwdriver : TORQUE 8 ± 0.5 (KG-CM), Screw Head #2</p>
<p>9</p>		<p>Take out everything.</p>	<p>N/A</p>

Power board

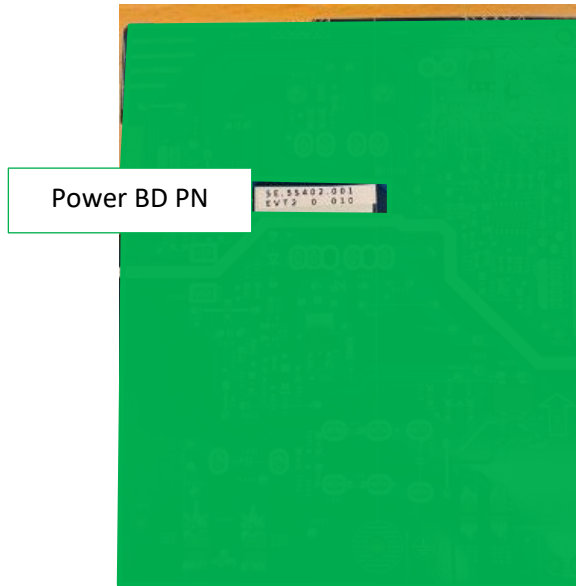
The power board part number is 5E.5S402.00*

Before removing the power board, follow these steps:

- ▲ Prepare the monitor for disassembly. See Preparation for disassembly on page 11.

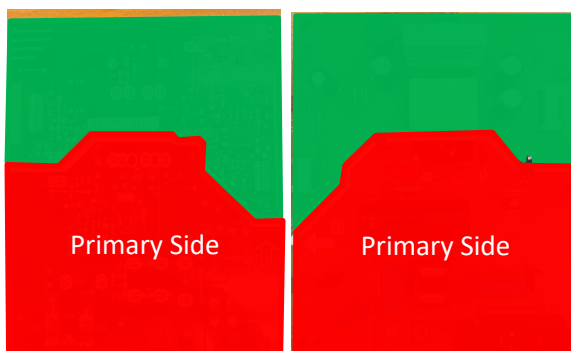
Remove the power board:

Locate the part number location on the board.



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)**



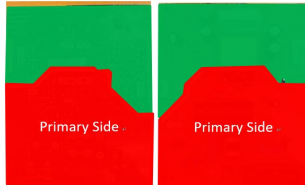
After repaired, must check PSU function is ordinary

Power board

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

IMPORTANT:

- **Repairing must operate by professional repairers (Note) 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

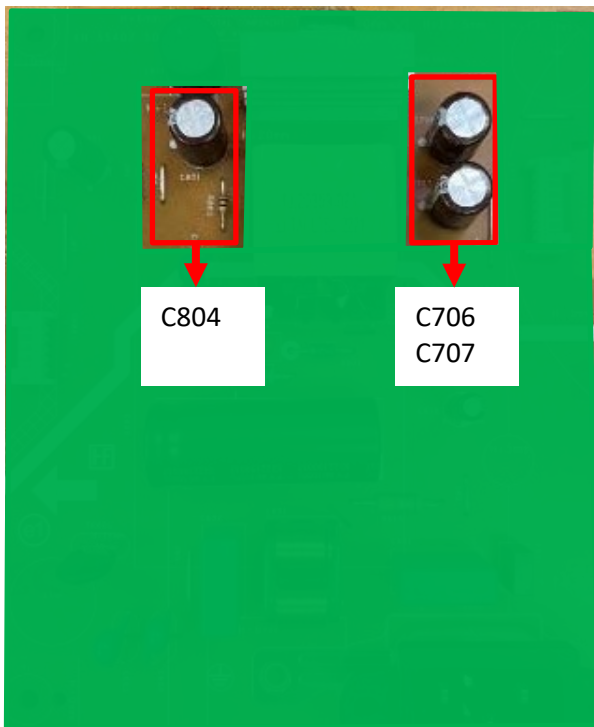
be accepted as proof of compliance with this point.

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

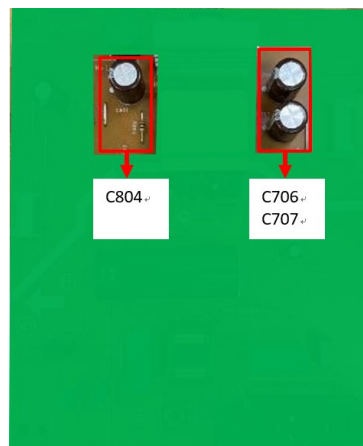
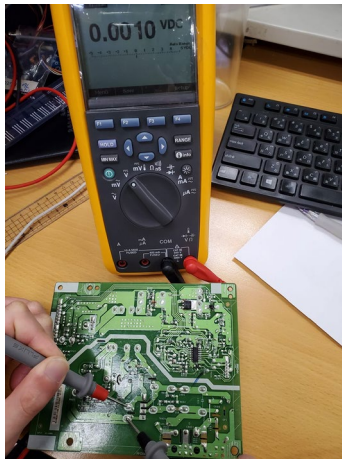
Repair Process:

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

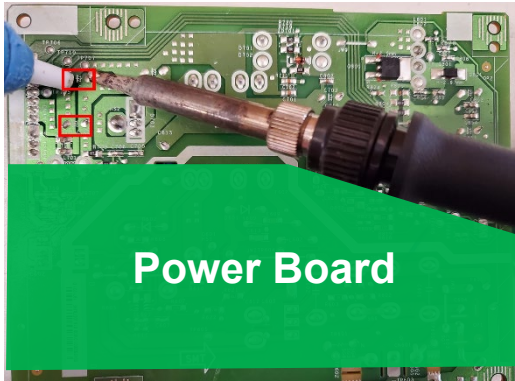
The C701 locations are identified below:



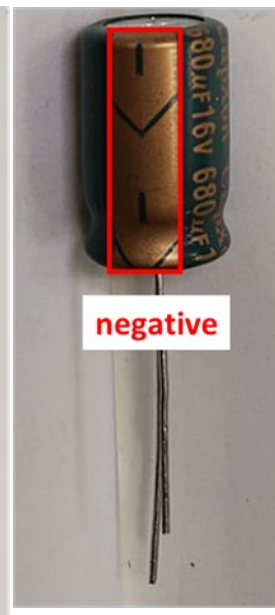
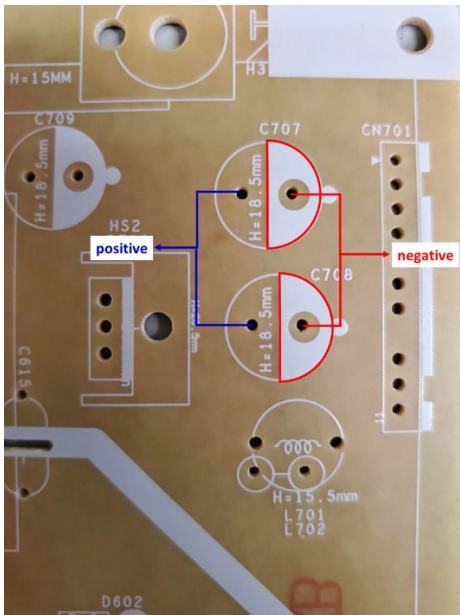
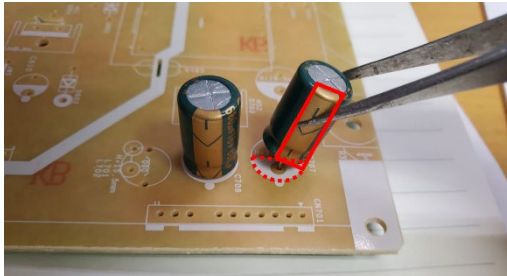
- 1) You must disconnect the power cord from the power source before opening the monitor to prevent component damage.
- 2) Use Multimeter measure whether EL capacitors still have charge. Before repairing must discharging it.



3) Lift capacitors from the PCB.



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



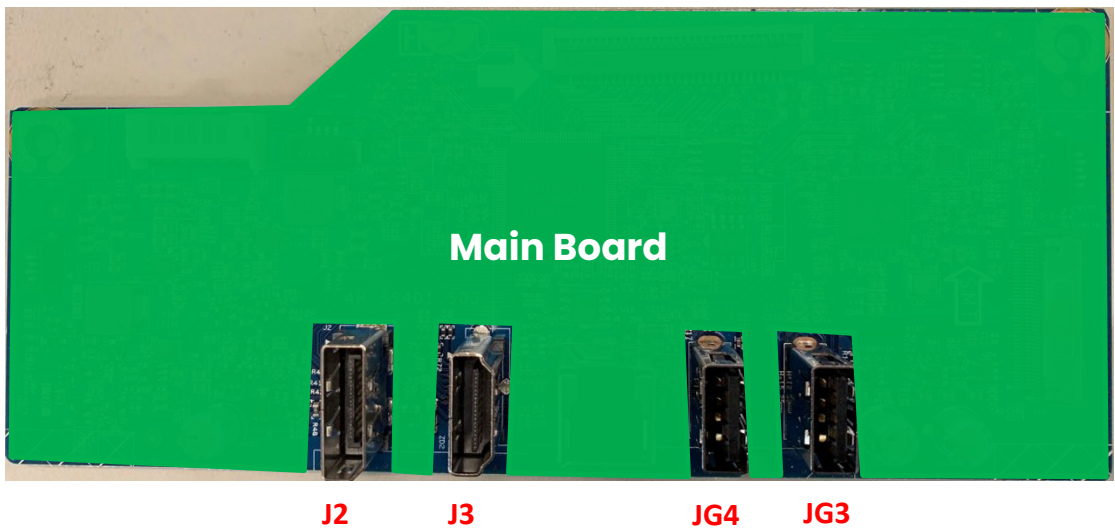
After repaired, please double check whether polarity match PCB print, solder empty and unnecessary solder after soldering must remove.

Connector repair

The connectors are on the main board (board part number 5E.5S401.00x).

The connectors identifiers are as follows:

Connector	Location
DP	J2
HDMI	J3
USB3.1Type A	JG4; JG3

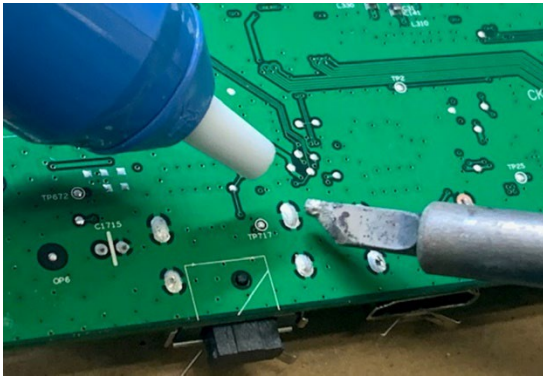


Before repairing connectors, follow these steps:

- ▲ Prepare the monitor for disassembly. See [Preparation for disassembly](#) on page 11.

DP Connector repair - J2

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



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

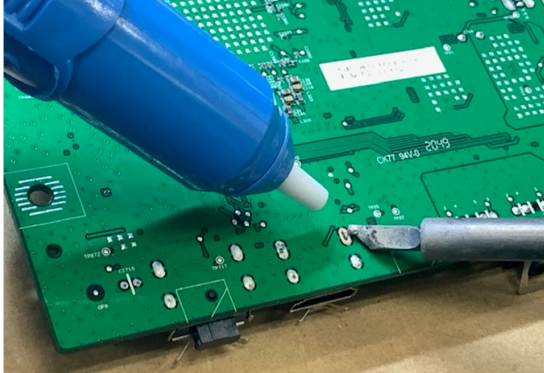


- 3) Lift connector from the PCB
- 4) Place new component on the location, and must check it can match PCB footprint
- 5) Soldering the new component by solder iron

HDMI connector – J3

Repair the HDMI connector:

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



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

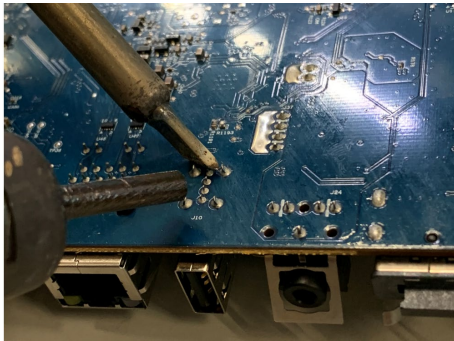
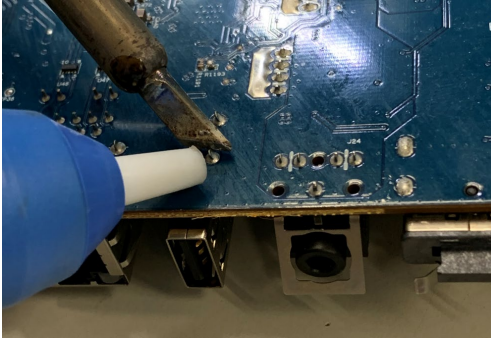


- 3) Lift the J3 connector from the circuit board.
- 4) Place the new component on the circuit board. Be sure that it matches the footprint.
- 5) Solder the new component.

USB A 2.0 Connector repair – JG4; JG3

- 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

Function test

After repair, be sure to confirm that all functions are working.

Table 4-1: Function test

Test item	Operating description	Tool used
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
HDMI test	Confirm whether image displays and sound plays correctly on the monitor.	Computer or DVD player
USB test	Connected USB wire with PC and Monitor. Connected USB drive to check USB function	USB wire and PC

Support and troubleshooting

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

Table 4-2: Solving common problems

Problem	Possible cause	Solution
Screen is blank or video is flashing.	Power cord is disconnected.	Connect the power cord.
	Monitor is off.	Power 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.
	System is in Sleep mode.	Press any key on the keyboard or move the mouse to exit Sleep mode.
Image appears blurred, indistinct, or too dark.	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
	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.
The monitor is off, but it did not seem	The monitor's power saving control is disabled.	Open the OSD menu and select Power Control >

to enter into Sleep mode.		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 to 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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