

Maintenance and Service Guide

322pv model

SUMMARY

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

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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 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

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:

- 54.5 cm (21.5 in) diagonal viewable screen area with 1920 × 1080 resolution
- Vertical Alignment (VA) panel
- Nonglare panel with an LED backlight
- Wide viewing angle to allow viewing from a sitting or standing position, or moving from side to side
- Tilt capabilities
- Removable stand for Flexible monitor head mounting solutions
- HP Quick Release 2 device to quickly attach the monitor head to the stand with a simple click, and then remove it with the convenient sliding tab release
- High-Definition Multimedia Interface™ (HDMI) video input (cable included)
- VGA video input (cable included in select regions)
- A 4-way on-screen display (OSD) controller that you can reconfigure to quickly allow selection of three most commonly used operations
- Plug and Play capability if supported by your operating system
- VESA® mounting bracket for attaching the monitor head to a wall-mount device or swing arm
- Security cable slot on the rear of the monitor for an optional security cable
- Cable management feature for placement of cables and cords
- On-screen adjustments in several languages for easy setup and screen optimization
- Energy saver feature to meet requirements for reduced power consumption

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 light	White: The monitor is on.

Rear components

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

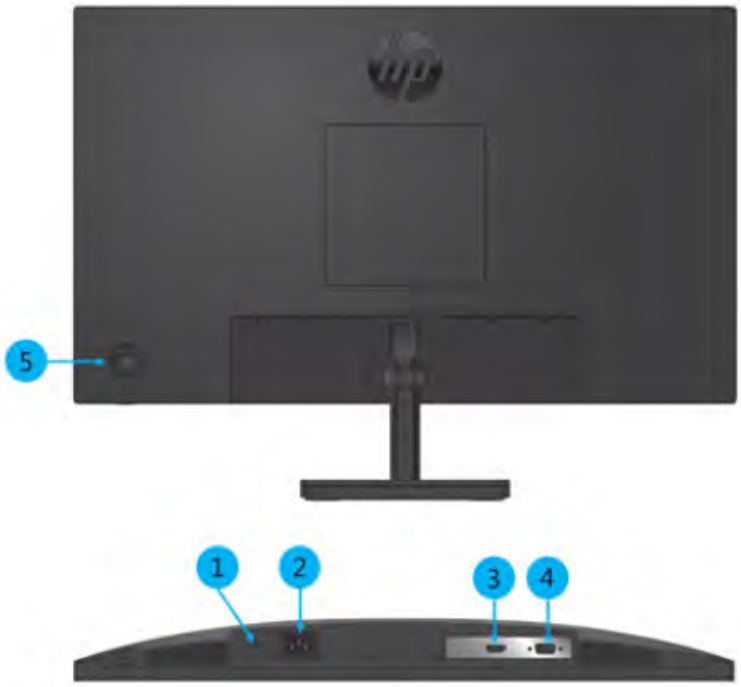
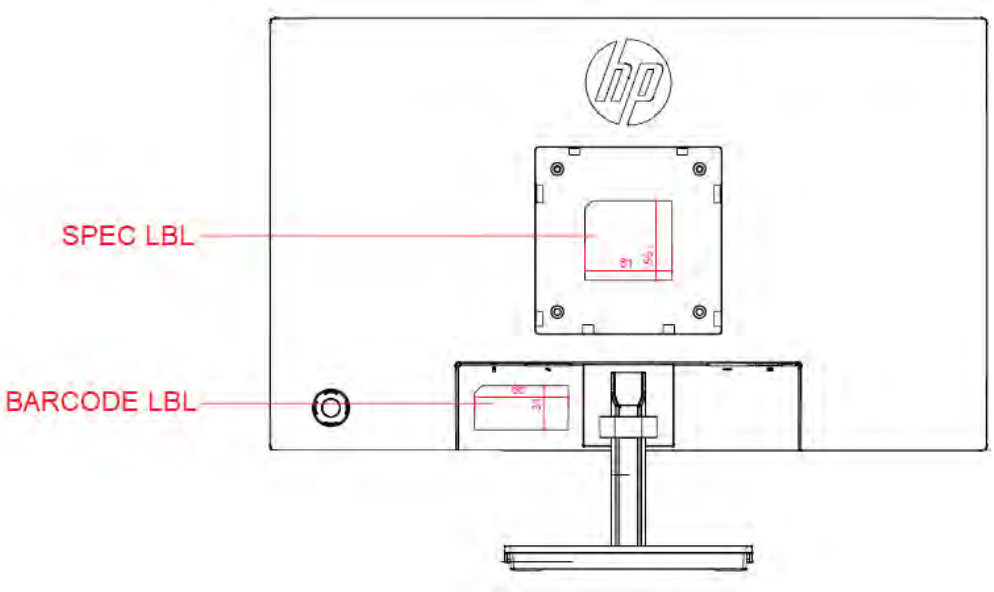


Table 1-2: Rear components and their descriptions

Component		Function
(1)	Security cable slot	Connects an optional security cable.
(2)	Power connector	Connects the power cord.
(3)	HDMI port	Connects the HDMI cable to a source device such as a computer or game console.
(4)	VGA port	Connects the VGA cable to the source device
(5)	OSD controller	Opens the OSD menu and makes adjustments to monitor settings

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.



Spec label



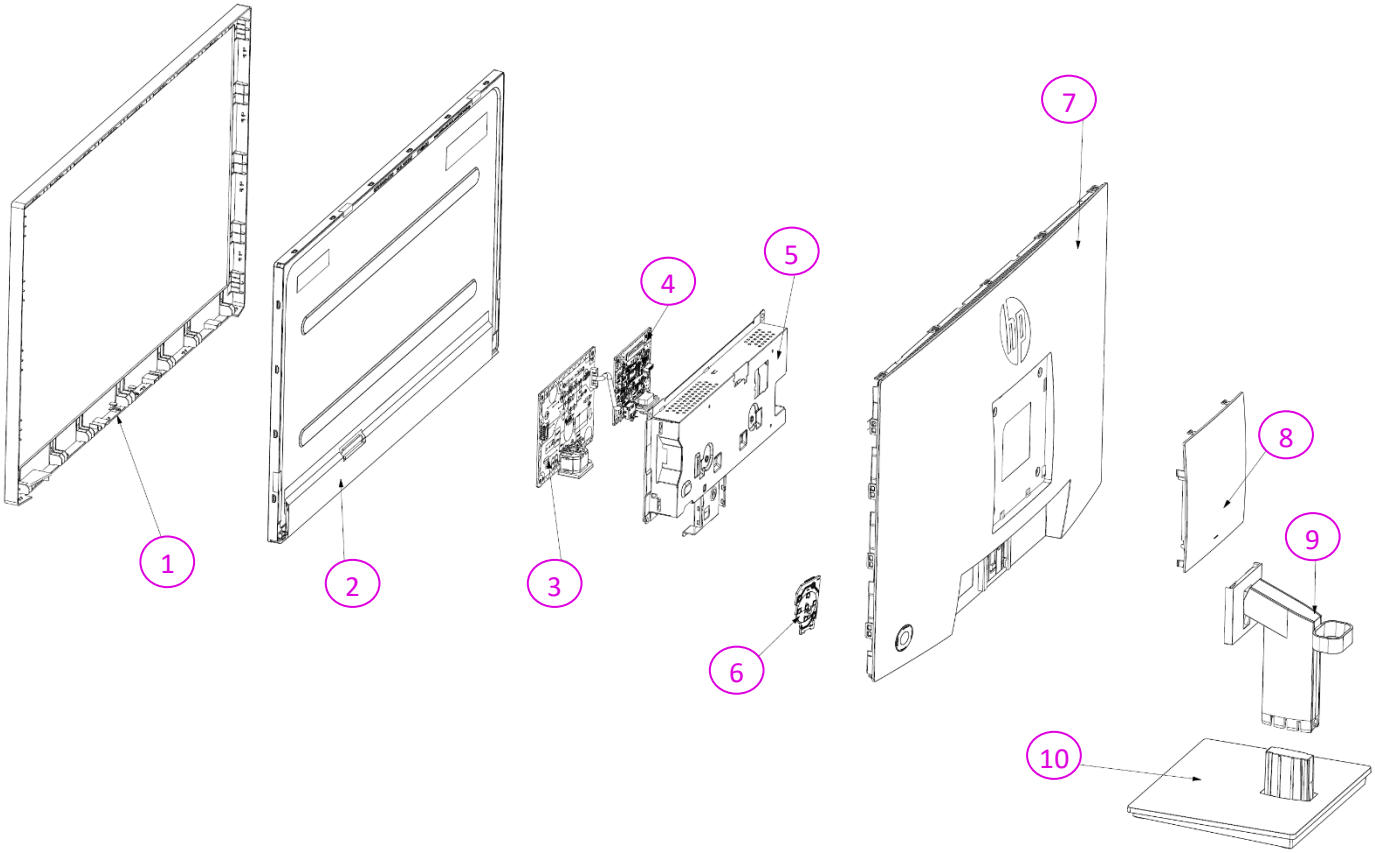
Barcode label





3 Illustrated parts catalog

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



Item	Description	Qty
1	BEZEL	1
2	PANEL	1
3	SPS BD	1
4	MAIN BD	1
5	MAIN SHD	1
6	CTRL BD	1
7	REAR COVER	1
8	CVR VESA	1
8	CLUMN	1
9	BASE	1

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 322pv 5E.69S02.001 AUO-Q	P16650-001	5E.69S02.001
SPS-IPS 322pv 5E.69S02.002 BOE TMS0-Q	P16651-001	5E.69S02.002
SPS-IPS 322pv 5E.69S02.003 CSOT-Q	P16652-001	5E.69S02.003

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 680 µF 10*12.5 10K	C701	Farnell; RS	16ZLH680MEFC10X12.5 16ZLS680MEFC10X12.5

Connectors by distributor

Component description	Location	Component distributor	Distributer part number
HDMI	J3	Farnell; RS	Molex 2086581001
VGA	J1	RS	Amphenol L717SDE09PA4CH4R

Gasket by distributor

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

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

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/

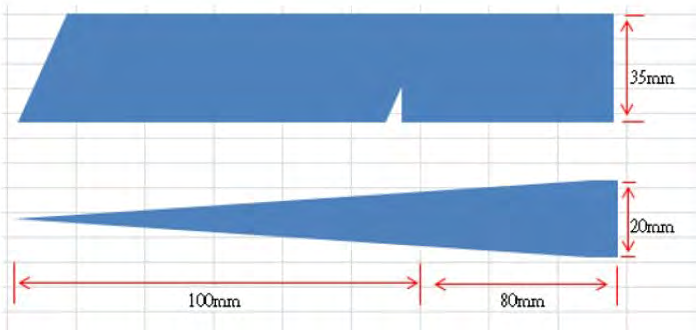
4 Removal and replacement procedures

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

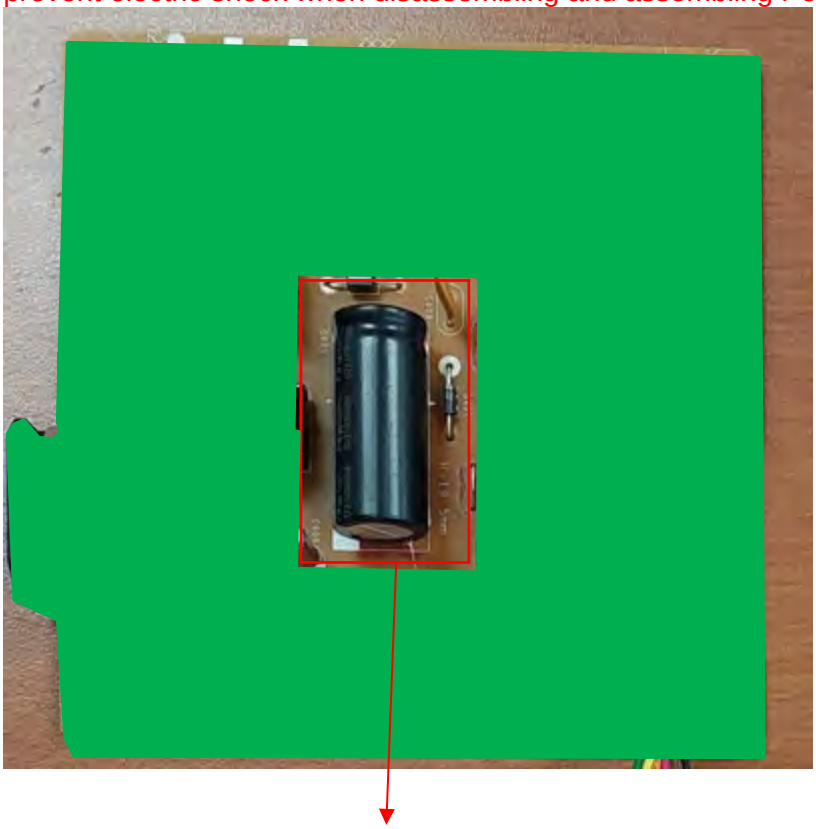
Preparation for disassembly

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:



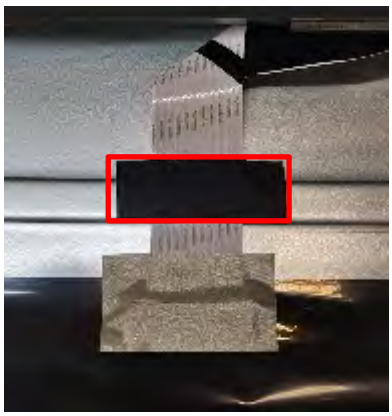
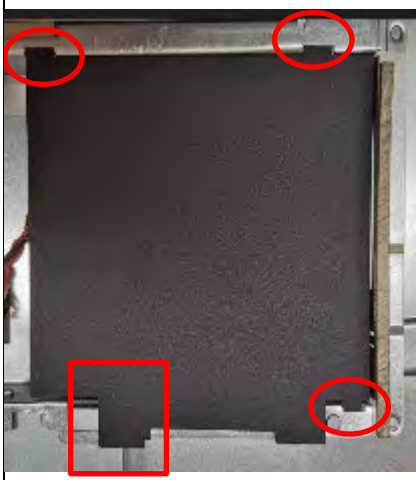
After unplugging the power cord, the power board still have power energy.
Please pay attention NOT to touch the components on Power BD and wear insulating gloves to prevent electric shock when disassembling and assembling Power BD

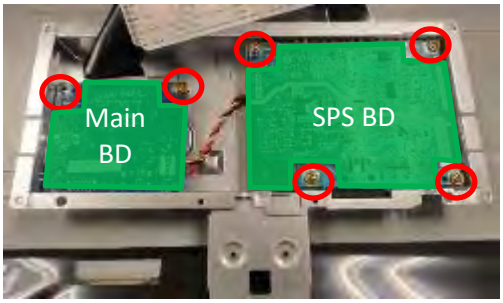
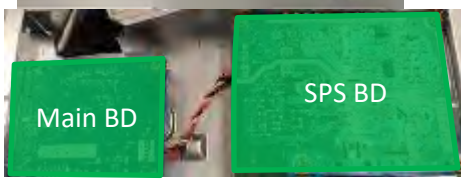


Do not touch this component
without wearing insulating gloves

Rear Cover

Item	Picture	Operation	Tool	Notes
1		Remove the four screws securing the rear cover	Philips-head screwdriver Torsion of RC screw: 8±1Kgf	
2		Disassemble the rear cover from the middle frame following the sequence shown in the illustration		
3		Disconnect the CTRL BD FFC from the Main BD to remove the rear cover		
5	 	1. Remove the conductive cloth from above the iron 2. Unplug the light line from the panel and power strip		

		For AUO panels: Remove the aluminum foil from the bottom left corner of the panel		
6	 	1. Remove the long piece of acetate tape securing the LVDS wire 2. For BOE panel: Remove the conductive cloth and yellow tape from the LVDS wire		
7		Remove the SPS board Mylar		

8	 	Remove six screws securing the PCBA and two hex screws	1. Philips-head screwdriver Torsion of PCB screw: 8.5±1kgf 2. Hex-head screwdriver Torsion of hex screw: 5.0±0.5kgf	
9	 	1. Remove the Main BD and SPS BD from SHD. 2. Disconnect the LVDS cable from the Main board 3. Remove the power strip from the Main board and SPS board.		

Power board (SPS board)

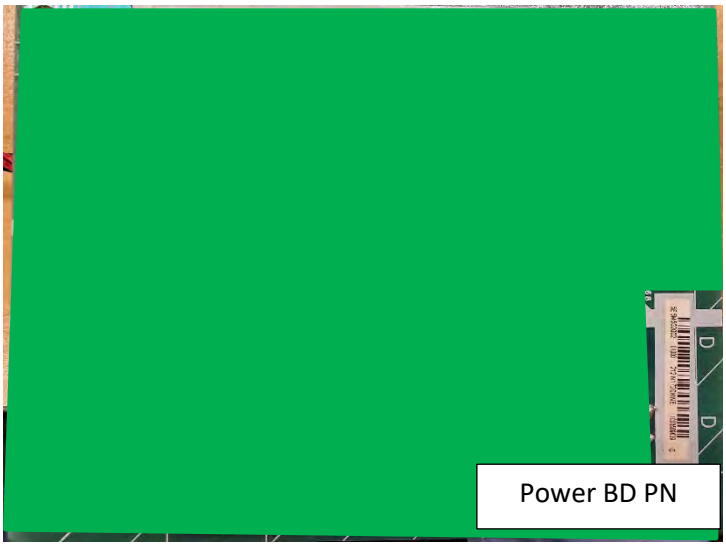
The power board part number is 5E.69S02.00*

Before removing the power board, follow these steps:

▲ Prepare the monitor for disassembly. See Preparation for disassembly on page 10.

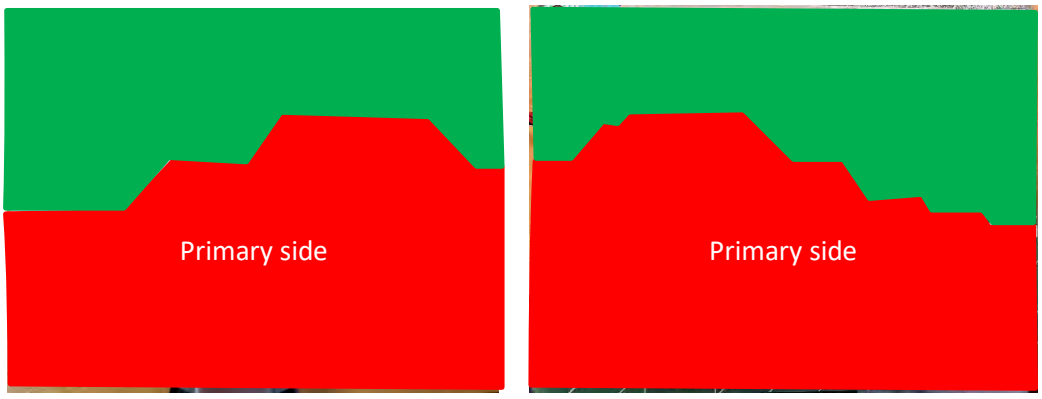
Remove the power board:

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 SPS 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)

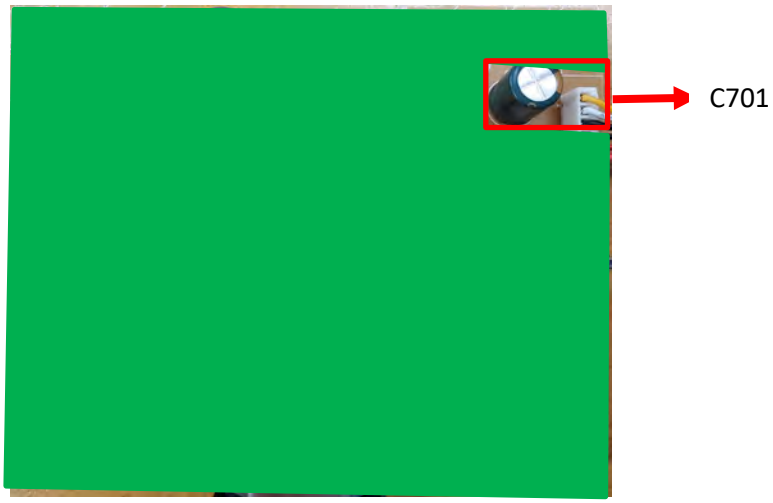
(1) The professional repairer has the technical competence to repair electronic displays and complies with the applicable regulations for repairers of electrical equipment in the Member States where it operates. Reference to an official registration system as professional repairer, where such system 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:

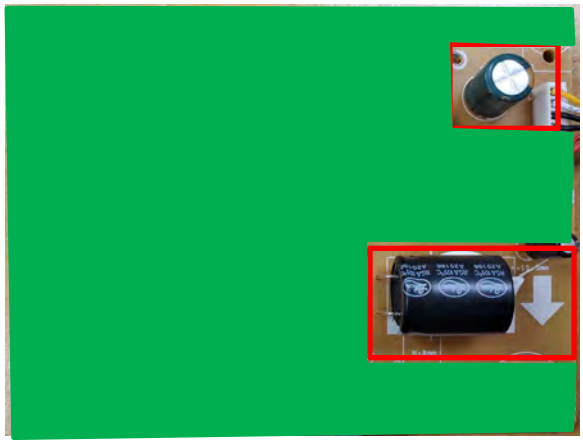
When EL capacitors damage or explode, it may lose function and cause product no work.

The C701 locations are identified below:

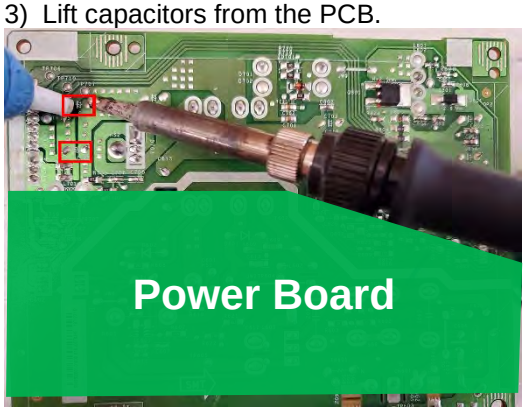


1) You must disconnect the power cord from the power source before opening the monitor to prevent component damage.
2) Use Multimeter measure whether EL capacitors still have charge. Before repairing must discharging it.

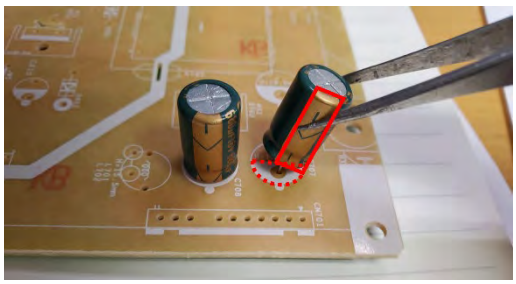


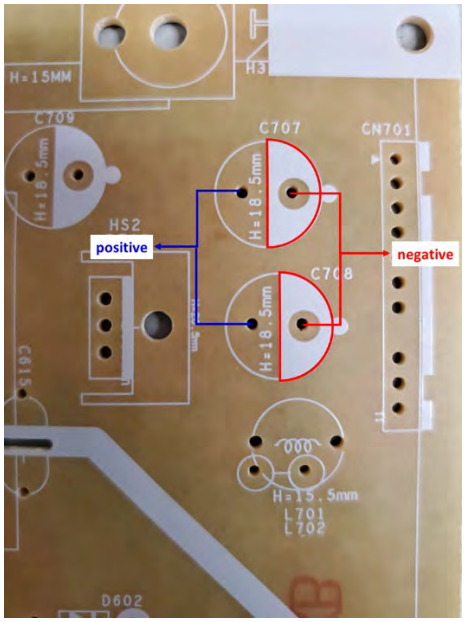


3) Lift capacitors from the PCB.

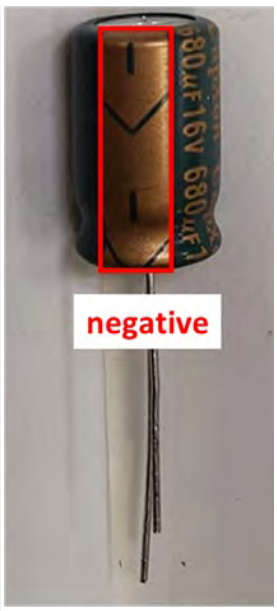


4) Place new component on the location, and must check polarity match PCB print.









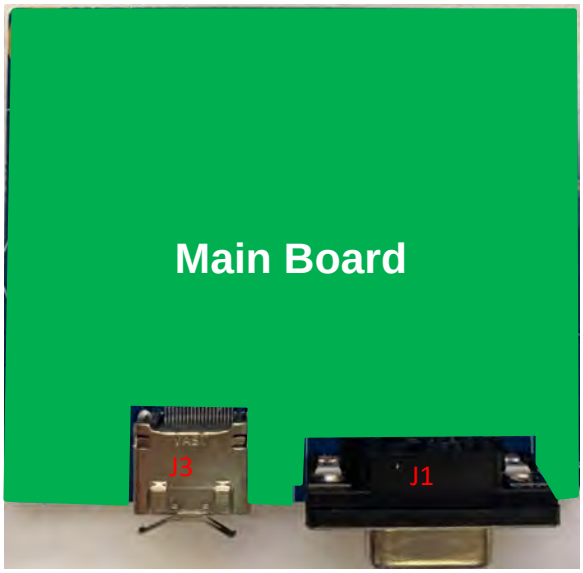
After repaired, please double check whether polarity match PCB print, solder empty and unnecessary solder after soldering must remove.

Connector repair

The connectors are on the main board (board part number 5E.69S01.00x).

The connectors identifiers are as follows:

Connector	Location
HDMI	J3
VGA	J1



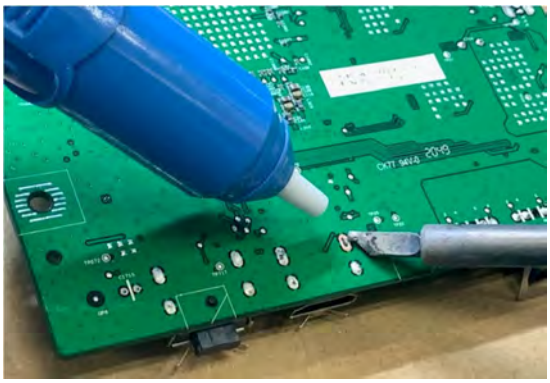
Before repairing connectors, follow these steps:

▲ Prepare the monitor for disassembly. See Preparation for disassembly on page 10.

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.

VGA connector J1

Repair the VGA 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 J1 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.

Stick Gasket on the Shielding for HDMI

1) Use scissors to cut the length of gasket 3020812 in 15mm.

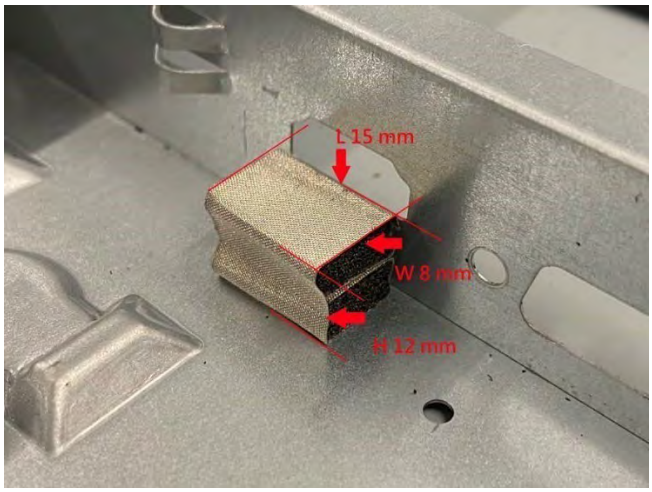
Gasket Size: W 8mmx x H 12mm x L 15mm

(The Length of gasket should not be less than 15mm)

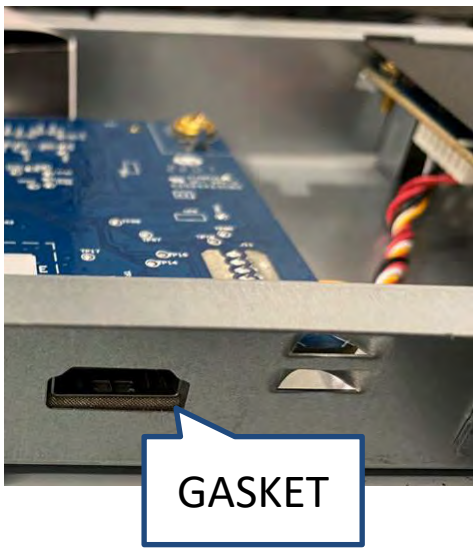
2) Remove the tape on the gasket and align the gasket to the right side of the HDMI.

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

Table 4-1: Function test

Test item	Operating description	Tool used
HDMI test	Confirm whether image displays and sound plays correctly on the monitor.	Computer or DVD player
VGA	Confirm whether image displays and sound plays correctly on the monitor.	Computer

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.
	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.
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 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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