Maintenance and Service Guide
HP V28 4K 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

1 Getting started

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

Important safety information

A power cord is included with the monitor. If you use another cord, use only a power source and connection appropriate for this monitor. For information about the correct power cord set to use with the monitor, see the *Product Notices* provided in your documentation kit.

WARNING! To reduce the risk of electric shock or damage to the equipment:

● Plug the power cord into an AC outlet that is easily accessible at all times.

● If the power cord has a 3-pin attachment plug, plug the cord into a grounded (earthed) 3-pin outlet.

● Disconnect power from the computer by unplugging the power cord from the AC outlet. When

unplugging the power cord from the AC outlet, grasp the cord by the plug.

For your safety, do not place anything on power cords or cables. Care should be taken to route all cords and cables connected to the monitor so that they cannot be stepped on, pulled, grabbed, or tripped over.

To reduce the risk of serious injury, read the *Safety & Comfort Guide* provided with your user guides. It describes proper workstation setup and proper posture, health, and work habits for computer users. The *Safety & Comfort Guide* also provides important electrical and mechanical safety information. The *Safety & Comfort Guide* is also available on the Web at http://www.hp.com/ergo.

IMPORTANT: For the protection of the monitor and the computer, connect all power cords for the computer and its peripheral devices (such as a monitor, printer, scanner) to a surge protection device such as a power strip or uninterruptible power supply (UPS). Not all power strips provide surge protection; the power strip must be specifically labeled as having this capability. Use a power strip whose manufacturer offers a damage replacement policy so that you can replace the equipment if surge protection fails.

Use the appropriate and correctly sized furniture designed to properly support your monitor.

WARNING! Monitors that are inappropriately situated on dressers, bookcases, shelves, desks, speakers, chests, or carts could fall over and cause personal injury.

NOTE: This product is suitable for entertainment purposes. Consider placing the monitor in a controlled luminous environment to avoid interference from surrounding light and bright surfaces that might cause disturbing reflections from the screen.

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

The monitor includes the following features:

- 70.9 cm (27.9 in) diagonal viewable screen area with 3840 × 2160 resolution, plus full-screen support for lower resolutions; includes custom scaling for maximum image size while preserving original aspect ratio

- Liquid crystal display (LCD) with active matrix

- Nonglare panel with an WLED backlight

- Wide viewing angle to allow viewing from a sitting or standing position, or moving from side to side

- Tilt adjustment capability

- 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

- DisplayPort™ video input (cable included with select products)

- Two High-Definition Multimedia Interface™ (HDMI) video inputs (cable included with select products)

- Audio-out (headphone) jack

- Four on-screen display (OSD) buttons, three that you can reconfigure to quickly allow selection of the 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

- Support for a mounting bracket to attach the monitor to a workstation

- On-screen display (OSD) adjustments in several languages for setup and screen optimization

- Support for FreeSync™, an Adaptive-Sync technology, to reduce stuttering and tearing in games and videos by locking the monitor's refresh rate to the frame rate of a compatible graphics card

NOTE: Adaptive refresh rates vary by display.

- Energy saver feature to meet requirements for reduced power consumption

NOTE: For safety and regulatory information, see the *Product Notices* provided in your documentation kit. To access the latest user guide, go to http://www.hp.com/support, and follow the instructions to find your product. Then select **User Guides**.

Front components

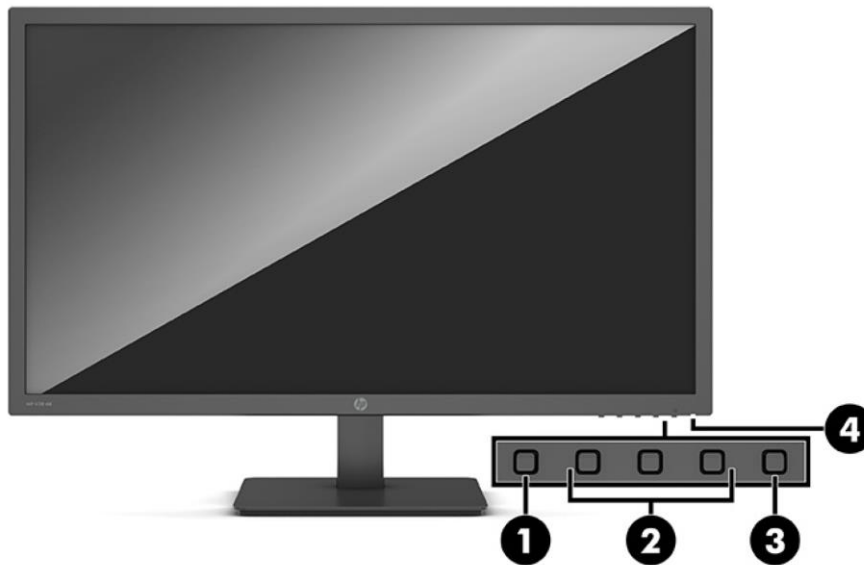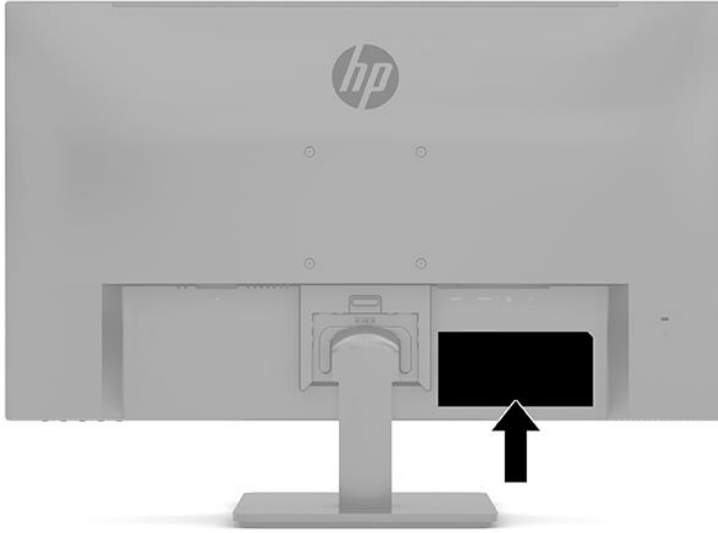To identify the components on the front of the monitor, use this illustration and table.

Table 1-1: Front components and their descriptions

	Component	Function
(1)	Menu button	Press to open the OSD menu, select a menu item from the OSD, or close the OSD menu. When the OSD menu is open, the Menu light turns on.
(2)	OSD buttons (assignable)	When the OSD menu is open, press the buttons to navigate through the menu. The function light icons indicate the default button functions. For a description of these functions, see Using the function buttons on page 14. You can reassign the function buttons to quickly select the most commonly used operations. See Reassigning the function buttons on page 14.
(3)	Power button	Turns the monitor on or off. **NOTE:** Be sure the master power switch on the monitor is in the On position to turn on the monitor.
(4)	Power light	White: The monitor is on. Amber: Monitor is in a reduced power state because of inactivity. See Using Auto-Sleep Mode on page 15.

Rear components

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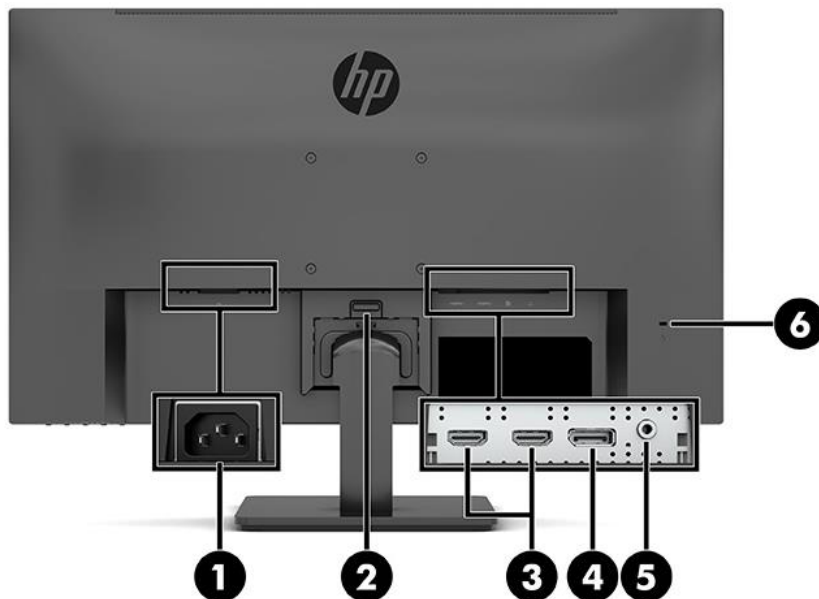
Table 1-2: Rear components and their descriptions

Component		Function
(1)	Power connector	Connects the power cord.
(2)	VESA release button	Releases the stand from the monitor.
(3)	HDMI ports (2)	Connect the HDMI cable to a source device such as a computer or game console.
(4)	DisplayPort connector	Connects the DisplayPort cable to a source device such as a computer or gameconsole.
(5)	Audio-out (headphone) jack	Connects headphones to the monitor. **CAUTION:** To reduce the risk of personal injury, adjust the volume before using headphones or earbuds. For additional safety information, see the *Product Notices*provided in your documentation kit.
(6)	Security cable slot	Connects an optional security cable.

Locating the serial number and product number

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

For worldwide models (except India):

3 Illustrated parts catalog

To identify the monitor major components, use this illustration and table.
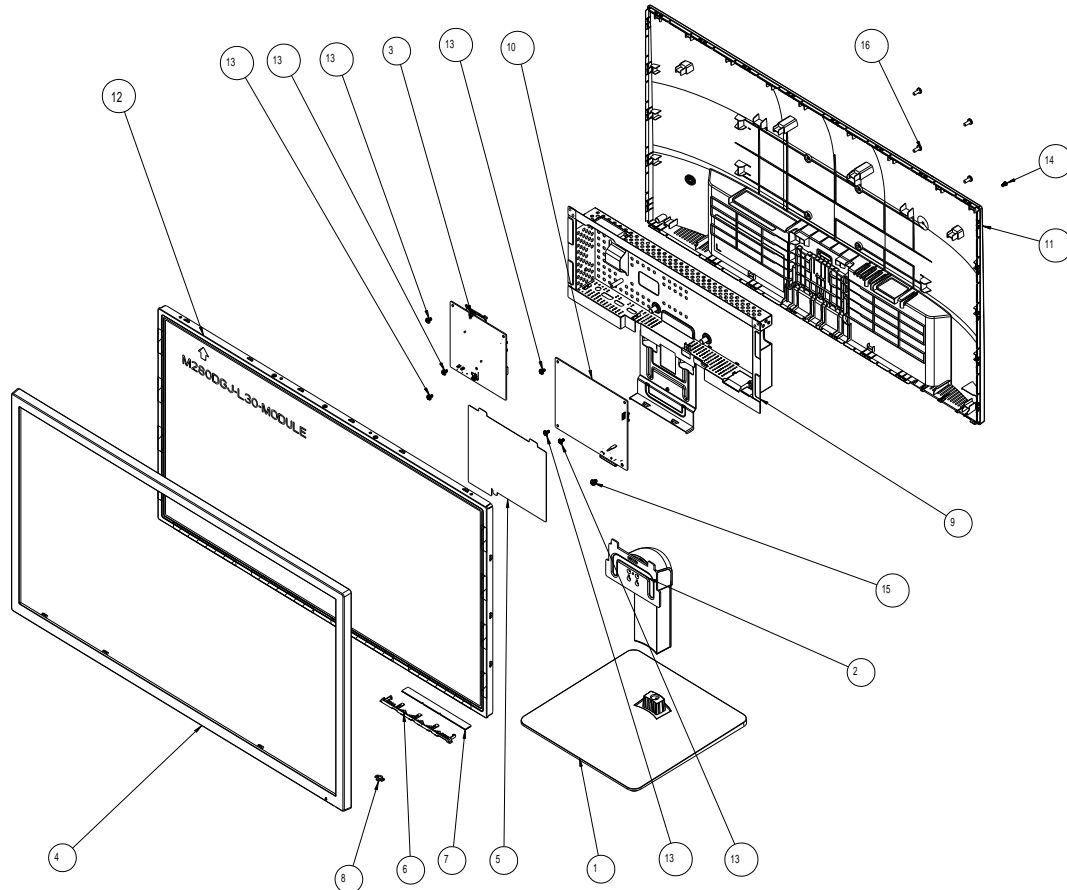
Item	Description	Qty
1	BASE_ASS'Y NA NA	1
2	stand ass'y NA NA	1
4	BEZEL L28W-Dhp3-s3	1
5	INSULATING SHEET 150*135.2*0.43	1
6	KEY_FUNCTION	1
7	KEY BOARD	1
8	LENS	1
9	MAINFRAME	1
10	ADAPTER BOARD NA	1
10	CONVERSION 715GA936*	1
11	REAR_COVER L28W-Dhp3-s3	1
12	LCD M280DGJ-L30 C5 NB INX	1
13	SCREW D3 6(MAIN BOARD/POWER BOARD/MAINFRAME)	6
14	11REW P3 6(REAR COVER/MAINFRAME)	1
15	SCREW M4 8(POWER BOARD/MAINFRAME)	1
16	SCREW M4 10(REAR COVER/MAINFRAME)	4

How to order parts

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

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

- Farnell: Farnell UK - Electronic Components Distributor

- RS: Capacitors | RS Components (rs-online.com)

- Digi-Key: Digikey Electronics

Power board

Description	HP spare part number	Manufacturer part number
PSU HP V28 4K	M84488-001	PLPCJF371IQA1

Capacitors by distributor

Component description	Location	Component distributor	Distributor part number
EC 680uF 20% 25V 10*20 -- -- ERS1EM681G2/EC 680UF 20% 25V 10*20 -- 4000 ECR1EXY68	C917 & C919	Digi-Key	25ZLG680MEFC10X20
EC 680uF 20% 25V 10*20 -- -- ERS1EM681G2/EC 680UF 20% 25V 10*20 -- 4000 ECR1EXY68	C918	Digi-Key	ESY687M025AH4AA

Connectors by manufacturer

Component description	Location identifier	Component distributor	Distributer part number
AUDIO	CN603	RS	913-1021(RS PRO)
HDMI	CN501/CN510	RS	SD-47151-001(Molex)
DisplayPort	CN5301	Farnell	DP1RD20JQ1(JAE)

NOTE: Rear cover and chassis need to be modified to hold connector. Connector may need modifications to meet functional, safety and regulatory requirements accordingly if it doesn't match exactly.

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.

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:
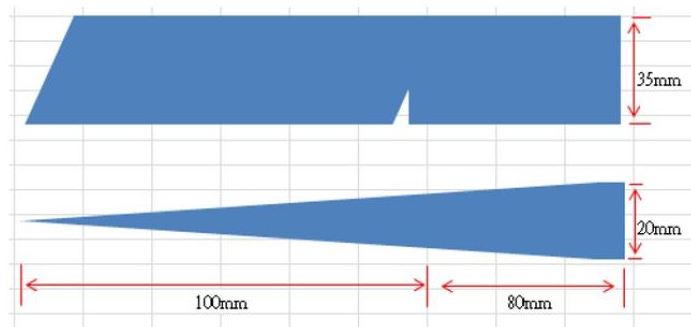
RC

Before removing the RC, follow these steps:

▲ Prepare the monitor for disassembly. See Preparation for disassembly on page 9.

Step	Figure	Description
1. Preparation		Lay the monitor on a flat, soft and clean surface.
2. Remove the Stand-base Ass'y		Push the button the remove the stand-base ass'y
3. Remove the Rear cover		Remove the screws to remove the Rear cover.
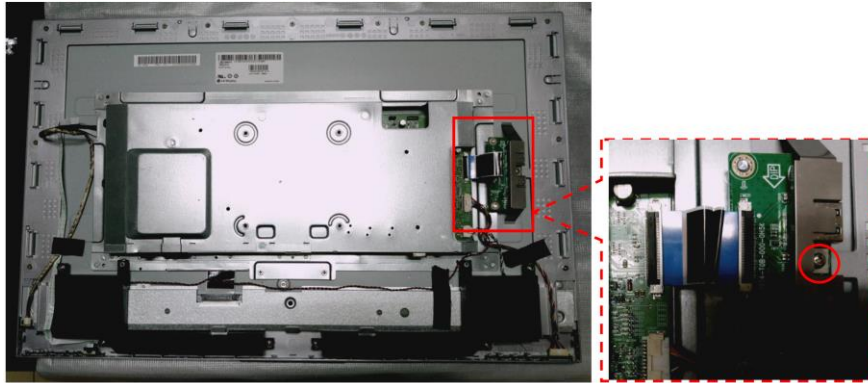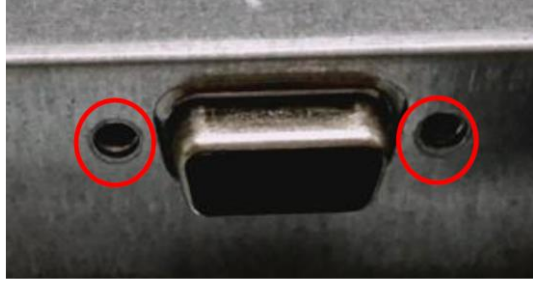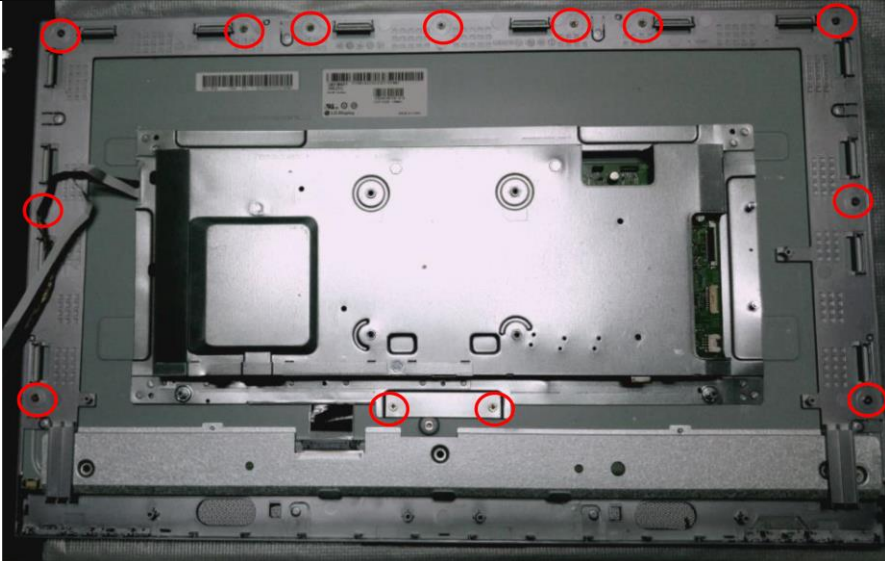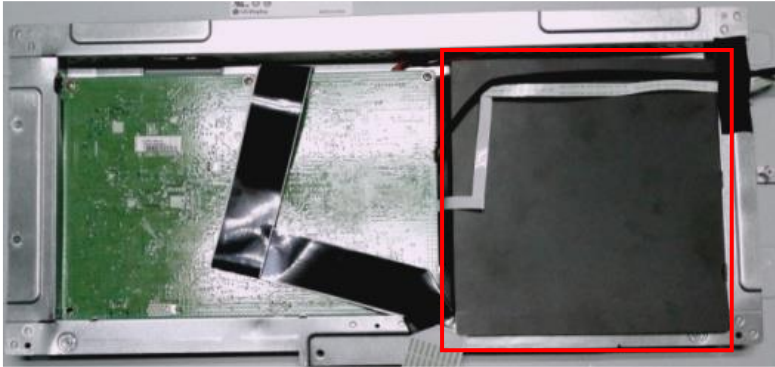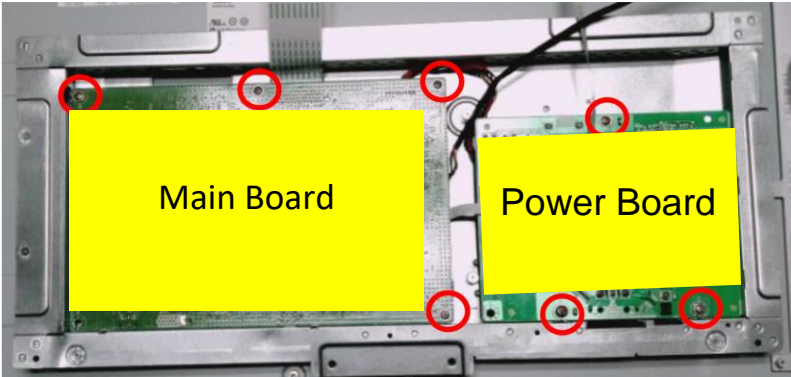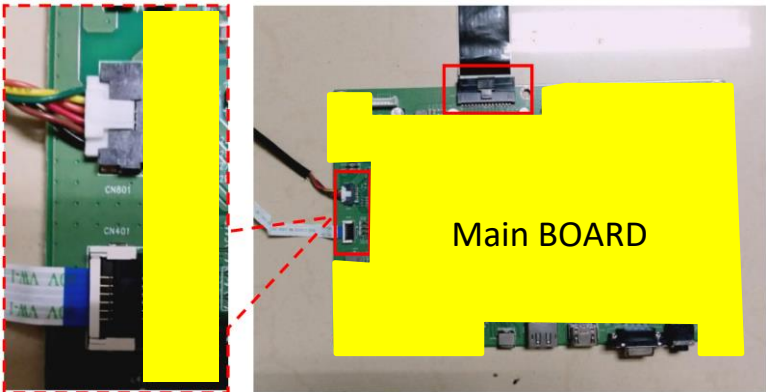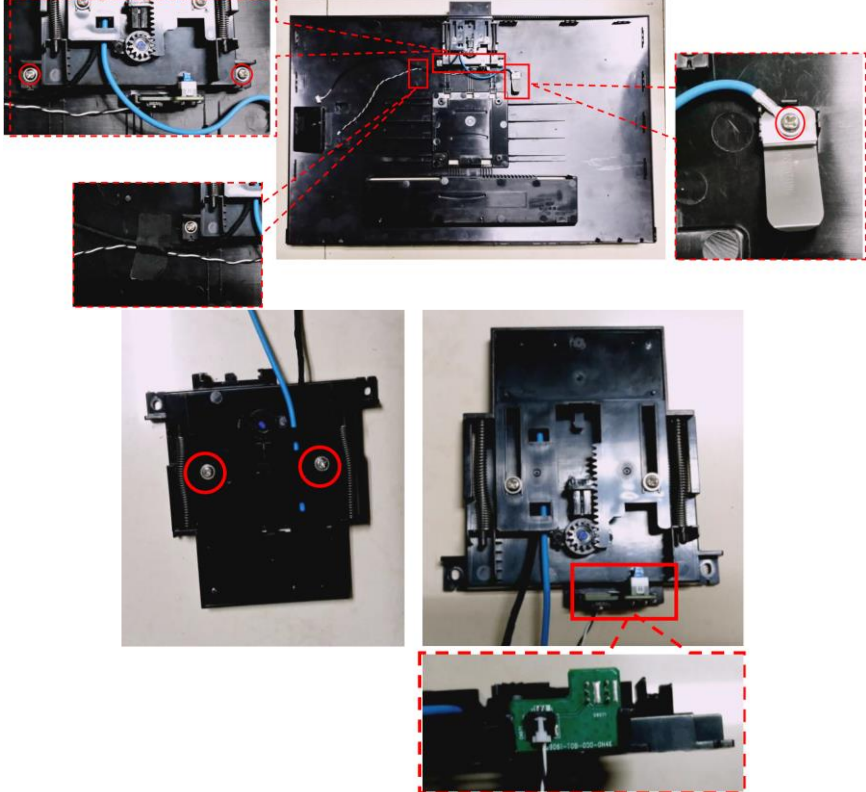
4. Remove the pin and the screw		Remove the pin and the screw.
5. Remove the tapes, screws and the pins		Remove the tapes, the screws and the pins
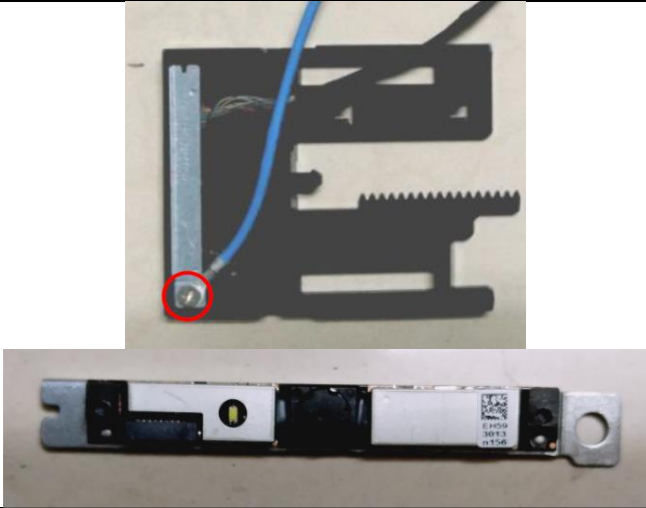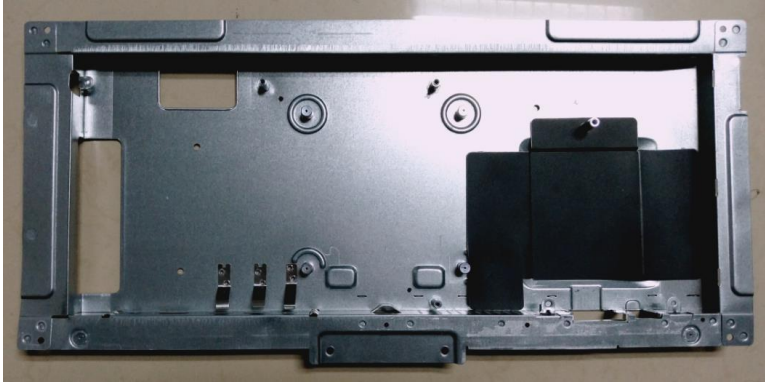
6. Remove the screws		Remove the screws.
7. Remove the screws		Remove the screws
8. Remove the Mylar		Remove the Mylar

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9. Remove the main board and power board	 Main Board Power Board	Remove the screws to remove the main board and power board
10. Remove the connectors	 Main BOARD	Remove the connect pins
11. Remove the screws.		Remove the screws and the key board.

12. Remove the screws.		**Remove the screws and the camera.**
13. The mainframe		The mainframe
14. The panel		The panel

15. The middle frame and the key board		The Middle Frame and the key boards.
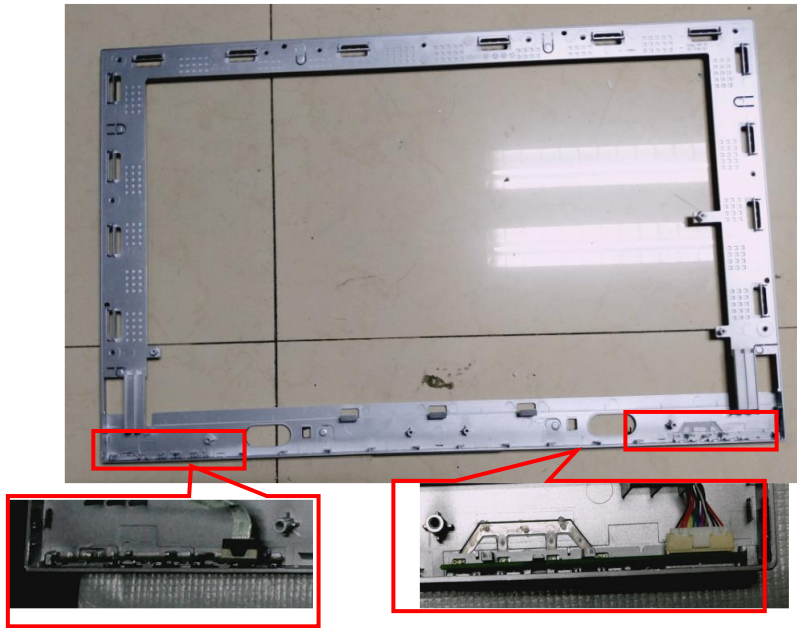
Power board

The power board part number is PLPCJF371IQA1

Before removing the power board, follow these steps:

▲ Prepare the monitor for disassembly. See Preparation for disassembly on page 9.

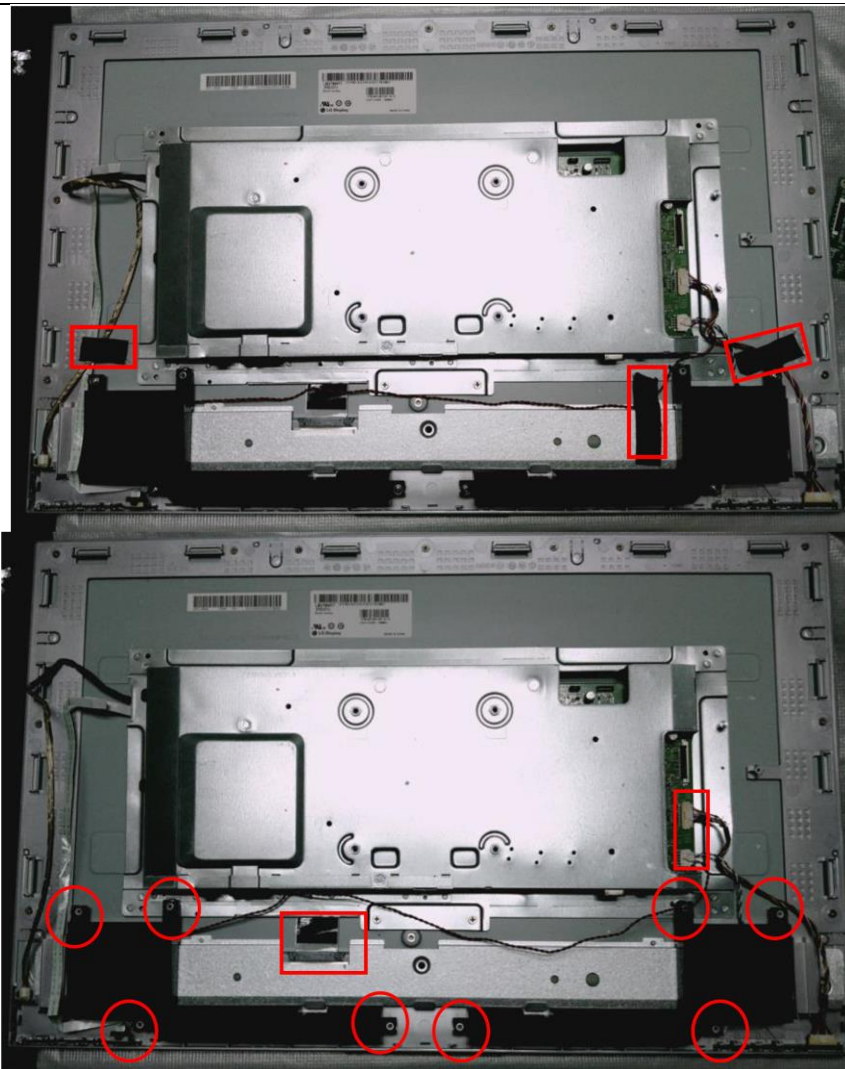Remove the power board:

1) The HP V28 4K power board connector position is as follows:

Power Board
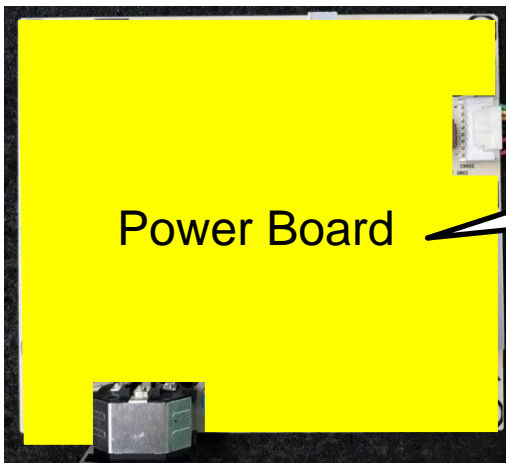
Warning: After unplugging the power supply, the capacitance is still charged, do not touch and discharge the capacitor.

2) Locate the part number location on the board.
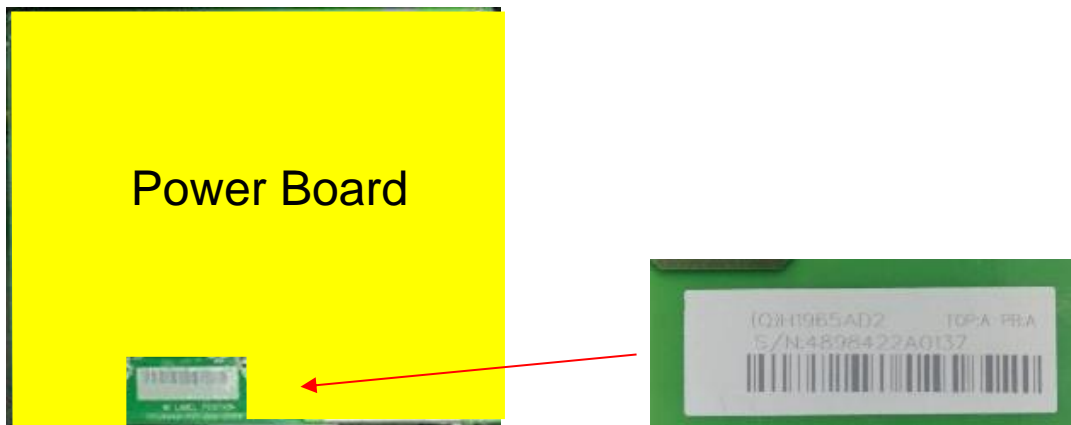
Connector repair

This procedure includes HDMI, DisplayPort and Audio connectors.

The connectors are on the main board (board part number CBPRND9H0Q1).

The connectors identifiers are as follows:

Connector	Location
HDMI 1 &2	CN501/CN510
DisplayPort	CN5301
Audio	CN603
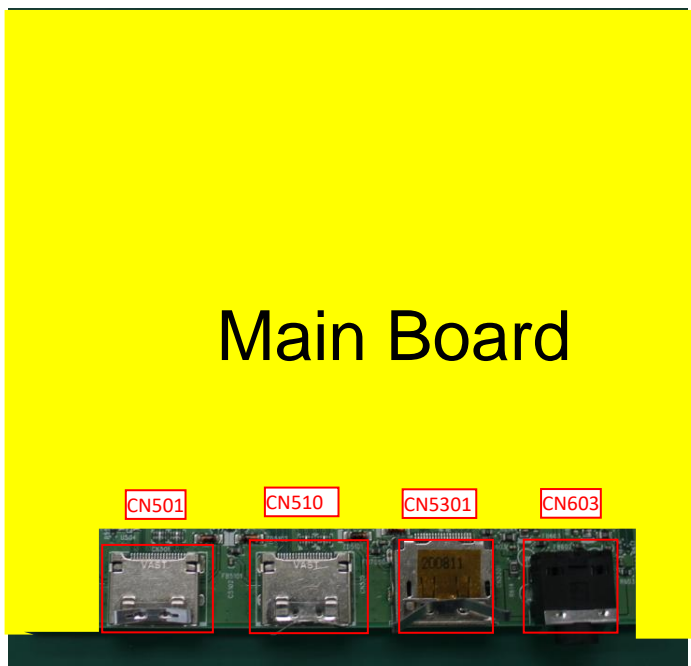
Before repairing connectors, follow these steps:

▲ Prepare the monitor for disassembly. See <u>Preparation for disassembly</u> on page 9.

IMPORTANT:
- **Repair Condition: Connector repair is only for out of warranty.**
- **Repairing must operate by professional repairers (Note) 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.

HDMI1 connector CN501

Repair the HDMI connector:

1) Use a soldering iron and a desoldering 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 CN501 connector from the PCB.

4) Place the new component on the PCB. Be sure that it matches the PCB footprint.

5) Solder the new component.

HDMI 2 connector CN510

Repair the HDMI connector:

1) Use a soldering iron and a desoldering 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 CN510 connector from the PCB.

4) Place the new component on the PCB. Be sure that it matches the PCB footprint.

5) Solder the new component.

DP connector CN5301

Repair the DP connector:

1) Use a soldering iron and a desoldering 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 CN5301 connector from the PCB.

4) Place the new component on the PCB. Be sure that it matches the PCB footprint.

5) Solder the new component.

Audio connector CN603

Repair the audio connector:

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 M1 out of the through holes.
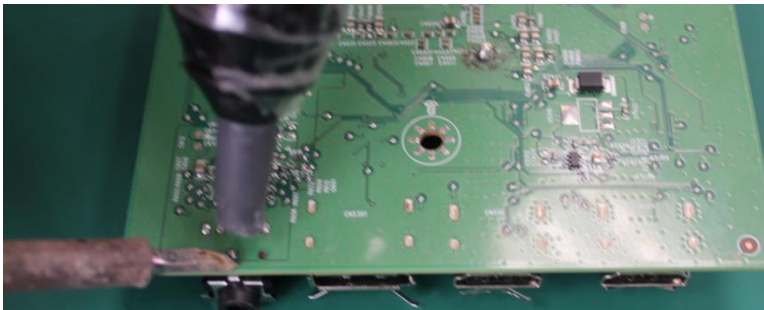

2) Lift the CN603 connector from the PCB.

3) Place the new component on the PCB. Be sure that it matches the PCB footprint.

4) Solder the new component.

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
DP test	Confirm whether image displays and sound plays correctly on the monitor.	Computer or DVD player
Audio test	Change volume and balance to confirm whether volume is smooth and loud enough.	Speaker

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.	Press the monitor power button. **NOTE:** If pressing the power button has no effect, press and hold the power button for 10 sec to disable the Power Button Lockout feature.
	Video cable is improperly connected.	Connect the video cable properly. For more information, see Connecting the cables on page 8.
	System is in Auto-Sleep Mode.	Press any key on the keyboard or move the mouse to inactivate the screen blanking utility.
	Video card is incompatible.	Open the OSD menu and select the **Input** menu. Set **Auto-Switch Input** to **Off** and manually select the input. or Replace the video card or connect the video cable to one of the computer's on-board video sources.
Image appears blurred, indistinct, or too dark.	Brightness setting is too low.	Open the OSD menu, and select **Brightness** to adjust the brightness scale as needed.
"Check Video Cable" is displayed on the 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 connecting the video cable.
"Input Signal Out of Range" is displayed on screen.	Video resolution and/or refresh rate are set higher than the monitor supports.	Change the settings to a supported setting (see Preset display resolutions on page 22).
The monitor does not enter into a low-power sleep state.	The monitor's power saving control is disabled.	Open the OSD menu and select **Power**, select **Auto-Sleep Mode**, and then set auto-sleep to **On**.
"OSD Lockout" is	The monitor's OSD Lockout function is	Press and hold the Menu button for 10

displayed.	enabled.	sec to disable the OSD Lockout function.
"Power Button Lockout" is displayed.	The monitor's Power Button Lockout feature is enabled.	Press and hold the Power button for 10 sec to unlock the power button function.
FreeSync is enabled in monitor OSD, but refresh rate does not vary.	Variable refresh rate (VRR) m ght be disabled in the graphics card software.	Enable VRR in your graphics card software.
The monitor is off but it did not seem to enter into sleep mode.	The refresh rate might be set too low.	In Windows, set the refresh rate to its maximum setting.
The monitor is off but it did not seem to enter into sleep mode.	Content and/or hardware might not be VRR capable.	Verify the content being displayed is VRR capable.
		Be sure a computer with an AMD Radeon graphics card or a AMD A-Series processor is connected to the monitor using a DisplayPort or HDMI cable.
The monitor is experiencing screen tearing.	FreeSync might not be enabled.	Open the OSD and enable FreeSync.

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