Maintenance and Service Guide

E24d G4&E27d G4 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:

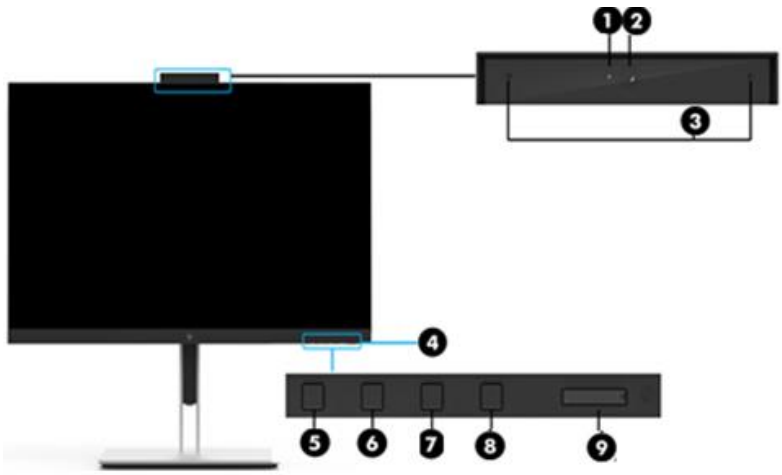
- 60.5 cm (23.8-inch) diagonal viewable screen area with 1920 x 1080 resolution, plus full-screen support for lower resolutions; includes custom scaling for maximum image size while preserving original aspect ratio
- 68.5 cm (27-inch) diagonal viewable screen area with 1920 x 1080 resolution, plus full-screen support for lower resolutions; includes custom scaling for maximum image size while preserving original aspect ratio
- The monitor features include the following:
- Nonglare panel with an LED backlight
- Skype for Business–certified popup camera and microphone for online collaboration (select models)
- Wide viewing angle to allow viewing from a sitting or standing position, or when moving from side to side
- Tilt capability
- Pivot capability to rotate the monitor panel from landscape to portrait mode
- Swivel and height adjustment capabilities
- Removable stand for flexible monitor panel mounting solutions
- DisplayPort and VGA video inputs (cables provided)
- One HDMI (High-Definition Multimedia Interface) video input (cable not provided)
- USB 3.0 hub with one upstream port (connects to the computer) and two downstream ports (connect to USB devices)
- USB BM to AM cable provided to connect the monitor's USB hub to the USB connector on the computer (23.8–inch model only)
- USB CM to AM cable provided to connect the monitor's USB hub to the USB connector on the computer (27–inch model only)
- Plug and Play capability, if supported by your operating system
- Security cable slot provision on rear of monitor for optional security cable
- On-screen display (OSD) adjustments in several languages for easy setup and screen optimization
- HP Display Assistant software for adjusting monitor settings and enabling the theft deterrence features
- Cyberlink YouCam software
- HDCP (High-bandwidth Digital Content Protection) copy protection on all digital inputs
- Software and documentation optical disc (provided with the monitor in select regions) that includes monitor drivers and product documentation

- 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.



Front of monitor showing location of controls

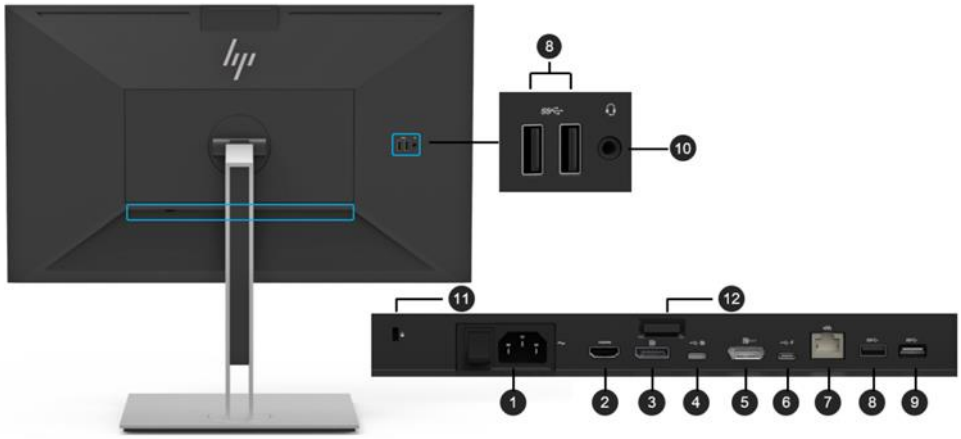
Table 1-1: Front components and their descriptions

Component		Function
1	Webcam LED	
2	Full High Definition (FHD) webcam	
3	Microphone	
4	Power light	On: The monitor is on. Amber: Monitor is in a reduced power state because of inactivity. Blinking amber: Monitors is in a reduced power state because of an Energy Saver setting.
5	Menu/ Select	Opens the OSD menu or selects items on the OSD menu.
6	Next Active Input or Information / Minus	Next Active Input or Information: If the OSD menu is inactive, press to show Monitor information OSD under DisplayPort source Minus: If the OSD menu is open, press to navigate backward through the OSD menu and decrease adjustment levels

7	Viewing Modes / Plus	Viewing Modes: If the OSD menu is inactive, press to activate the Viewing Modes to choose different video settings. Plus: If the OSD menu is open, press to navigate forward through the OSD menu and increase adjustment levels
8	Brightness	Open the brightness chart, press to choose different brightness level.
9	Power button	Turns the monitor on or off.

Rear components

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



Rear of monitor showing location connectors

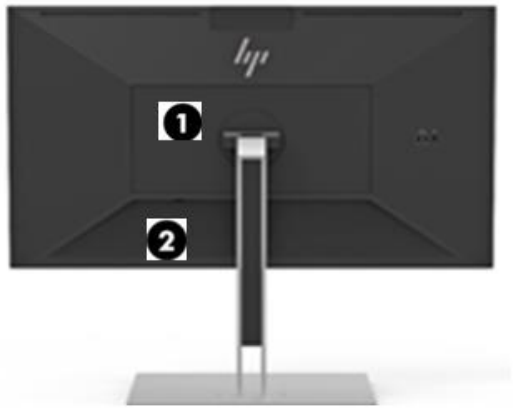
Table 1-2: Rear components and their descriptions

Component		Function
1	Master Power switch and connector	Master Power control. Connects the power cord.
2	HDMI port	Connects the HDMI cable to the monitor.
3	Display Port Input port	Connects the Display Port cable to the monitor
4	USB Type-C HUB port	Connects the USB Type-C cable to the monitor*. *Only this port connected (as a HUB), the fellow ports would be active.

5	Display Port Output port	Connects the Display Port cable to the extension monitor.
6	USB Type-C Thunderbolt port with HP Sleep and Charge	When the monitor is on, the USB Type-C port connects a USB device, provides data transfer, and even when the monitor is off, charges most USB devices that have a Type-C connector, such as a mobile phone, camera, activity tracker, or smart watch, and provides data transfer.
7	RJ-45 (network) jack	Connects the network cable to the device.
8	USB 3.1 Super Speed port	Connects a USB device, such as a mobile phone, camera, activity tracker, or smart watch, and provides high-speed data transfer.
9	USB 2.0 (downstream)	Connects a USB device.
10	Headset/Mic Combo jack	Connects the headphone
11	Security Lock Slack	Connects the Security Cable
12	Stand Release Button	Release the Stand

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.



Label Location

For worldwide models:

E24d G4:

Barcode label

Barcode label for worldwide region

E27d G4:

Barcode label

Barcode label for worldwide region

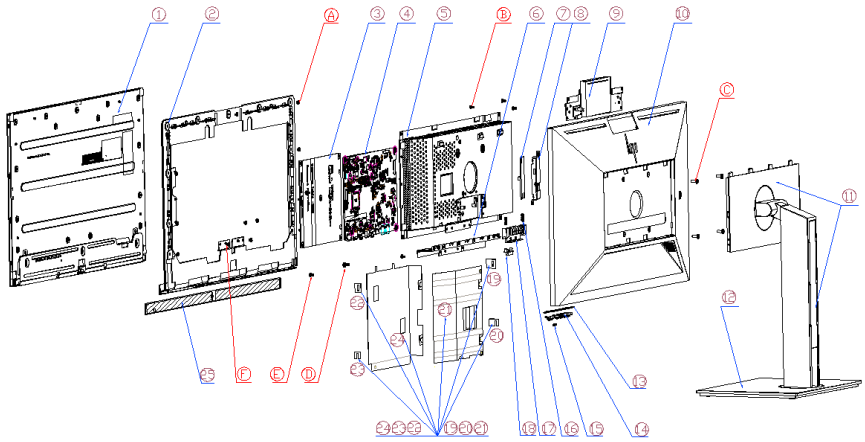
E24d G4/E27d G4:

Spec label

Spec label for worldwide region

3 Illustrated parts catalog

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



Mechanical explosion

Item	Description	Qty
1	LG PANEL	1
2	MID-FRAME_QWHH	1
3	PI BOARD	1
4	IF BOARD	1
5	MAIN PCB SHIELDING	1
6	IO Cover	1
7	USB BOARD	1
8	E274D_SIDE_BKT	1
9	E274D_Webcam_ASSY	1
10	REAR COVER_QWHH	1
11	STAND_ARM_ASSY	1
12	STAND_BASE_ASSY	1
13	KEYPAD	1
14	E274D_KEY_PAD	1
15	LENS, V201, HF	1
16	LENS, V201, HF	1
17	E274D_SLIDE	1
18	E274D_RELEASE_BUTTON	1
19	MYLAR, POWER BOARD BOTTOM, P174	1

20	SPK BAR COVER, JB, MT11010, HF	1
21	keypad	1
22	BUTTON, POWER, OSD, PC, P174	1
23	LENS, POWER, PC, P174, HF	1
24	BUTTON, POWER, OSD, PC, P174	1
25	DISPLAY CHIN	1
A	SCREW_Iron_I_M3*3_Machine_Black Zn	14
B	SCREW, F, CROSS, T3*6, Zn	6
C	SCREW, I, CROSS, M4*10, BLK-NL	4
D	SCREW, PW, CROSS M4X9, Zn-CC	1
E	SCREW, P, CROSS M3*6, ZN-CC	10
F	SCREW, I, CROSS, M3*4 ZN-CC	2

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	Remark
PCBA, PI/BD, W/OSPK, LP24QJ-A1V/E24d/HF	M84521-001	790PB1400A00H01	Common power board of E24d G4&E27d G4

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)
- Digi-Key Component: Digi-Key Electronic United Kingdom

Capacitors by distributor

Component description	Location	Component distributor	Distributor part number
Capacitor 680 µF 10*12.5 10K	C816 and C817	Farnell	16ZLH680MEFC10X12.5
Capacitor 680 µF 10*12.5 6K			16ZLS680MEFC10X12.5
Capacitor 680 µF 10*12.5 10K		RS	16ZLH680MEFC10X12.5

Connectors by manufacturer

Component description	Location identifier	Component distributor	Distributer part number
HDMI Port	CN201	Farnell	208658-1051
Display Port	CN301, CN401	Farnell	47272-0001 (Notes: the rear cover and chassis need to be modified to make the connector opening larger)
Headphone	CN102	N/A	N/A (Please contact HP Service)
RJ45	CN901	Digi-Key	6116075-1 (Notes: the rear cover and chassis need to be modified to make the connector opening larger)
USB(VA)	P103, P104	Digi-Key	0484080003 (Notes: the rear cover and chassis need to be modified to make the connector opening larger)
USB(RA)	P701, P702	Farnell	48405-0003(Notes: the chassis and rear cover need to be modified to make the connector opening larger)
USB-C	P501, P1001	Farnell	DX07S024JJ2R1300

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.

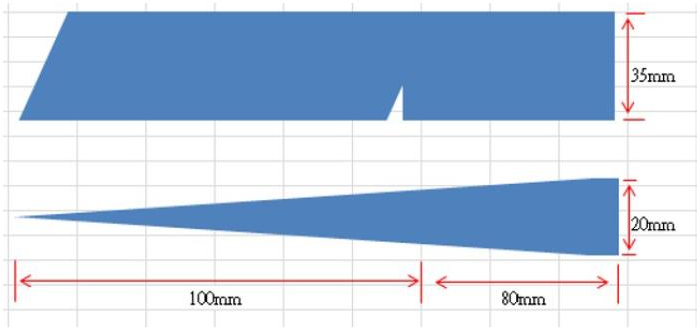
4 Removal and replacement procedures

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:



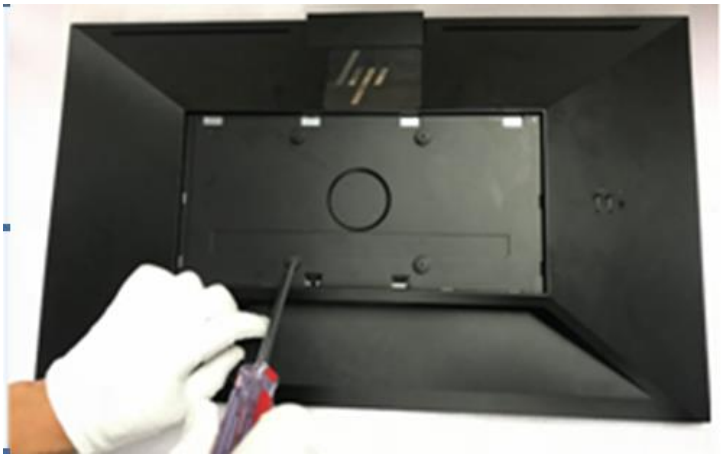
Rear Cover

Before removing the Rear Cover, follow these steps:

▲ Prepare the monitor for disassembly. See Preparation for disassembly on page 13.

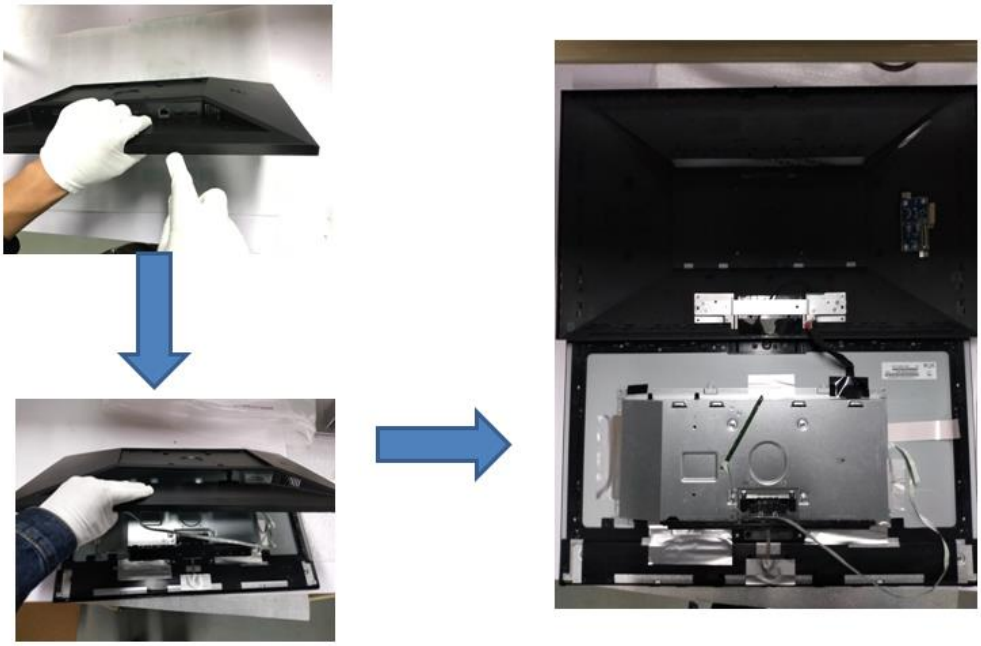
Remove the Rear Cover:

1) Remove four screw from Disassemble VESA screws.



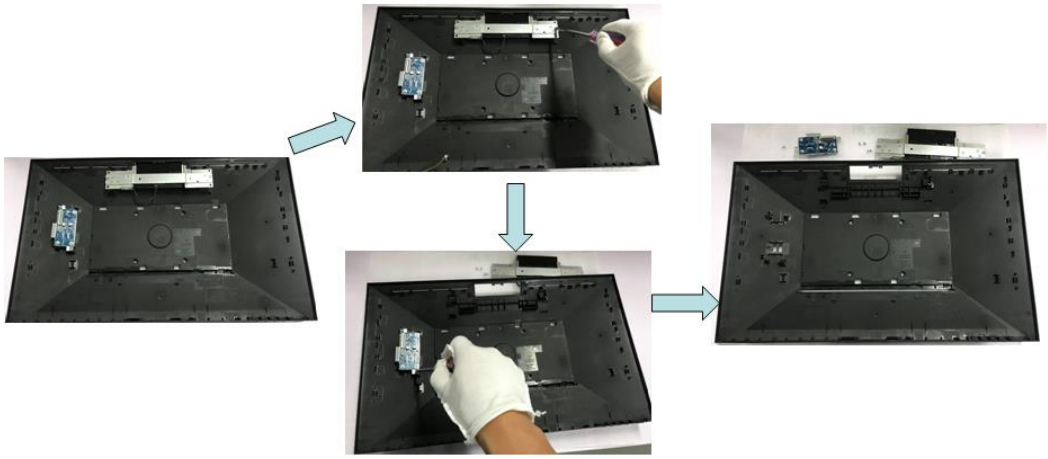
Remove the VESA-screws

2) Disassemble Rear-cover: Use disassembling tool to separate bucket from monitor (starting from the disassembling hole as shown). Watch out the cable of the Keypad/camera/USB.



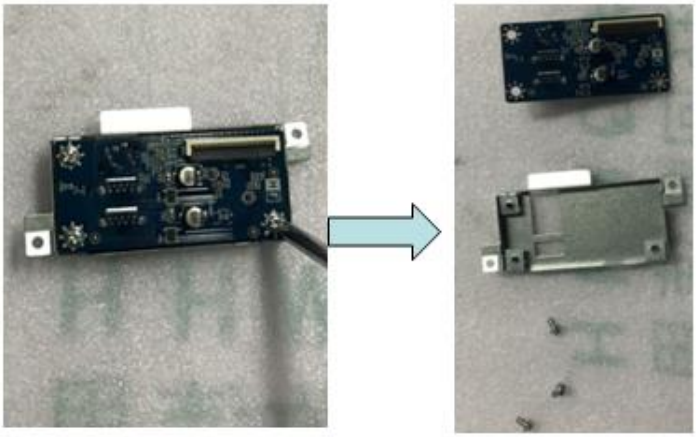
Disassemble Rear-Cover

3) Disassemble rear-cover assembly: use screwdriver to disassemble side USB and Webcam Assy



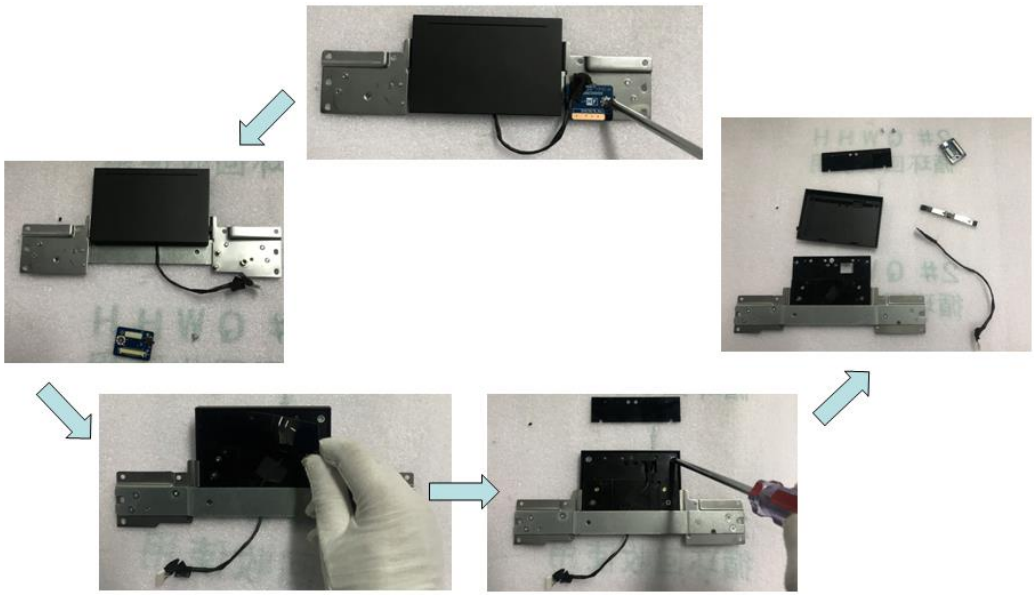
Disassemble Rear-cover Assembly

4) Disassemble Side USB Chassis Assembly: Release all screws that fixed on chassis then to take out the PCB Board.



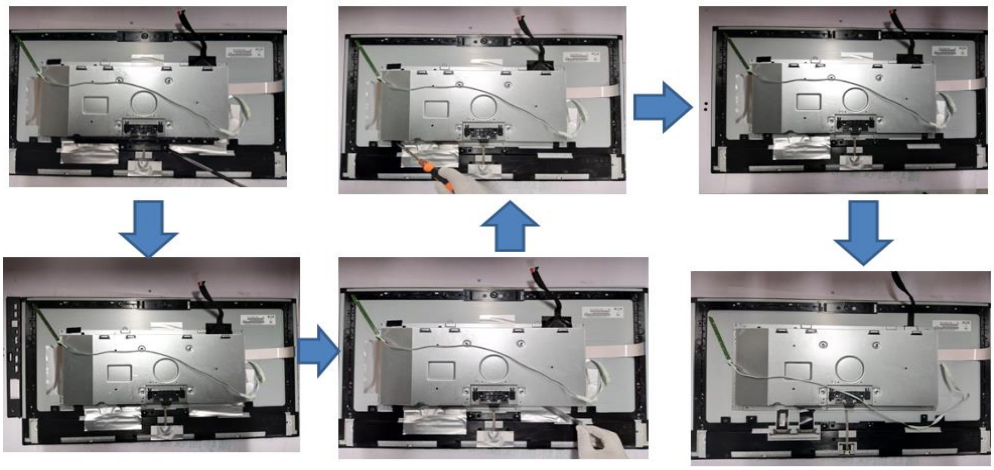
Disassemble Side USB Chassis Assembly

5) Disassemble webcam Assembly: Release the screw that fixed on PCB and peel camera PMMA glass use tool/hand, then disassemble webcam Assy and take out the camera PCB



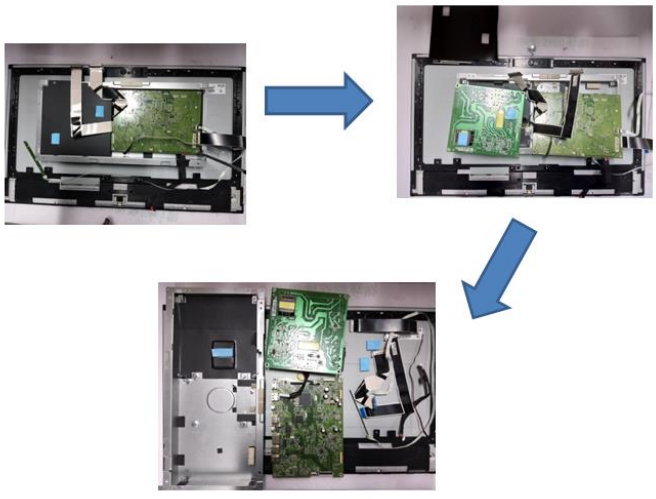
Disassemble Side Webcam Assembly

6) Disassemble IO Cover: Release the screws that fixed on Panel and peel off all Foils



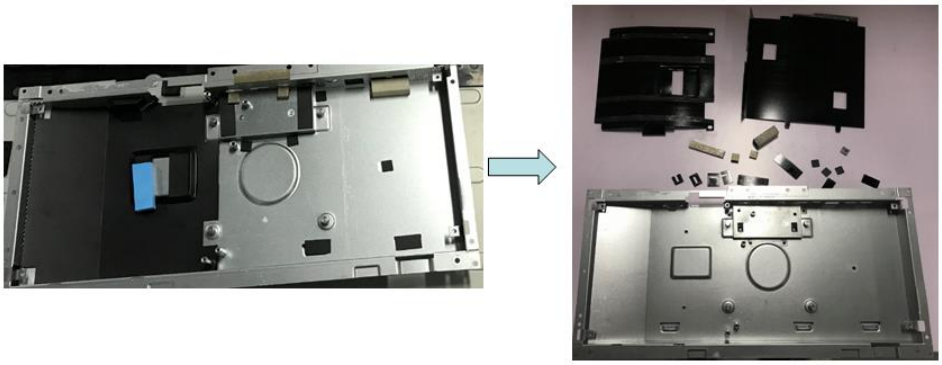
Disassemble IO Cover

7) Disassemble chassis PCB: Release the screw that fixed on PCB and peel off Mylar/rubber



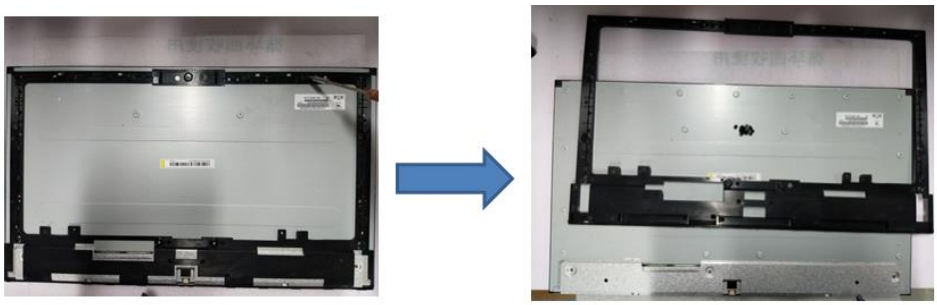
Disassemble Chassis PCB

8) Disassemble chassis Assembly: Peel off all the mylar and Gasket



Disassemble Chassis Assembly

9) Disassemble Middle-frame: Release all the screws that fixed on Middle-frame



Disassemble Middle-frame

Power board

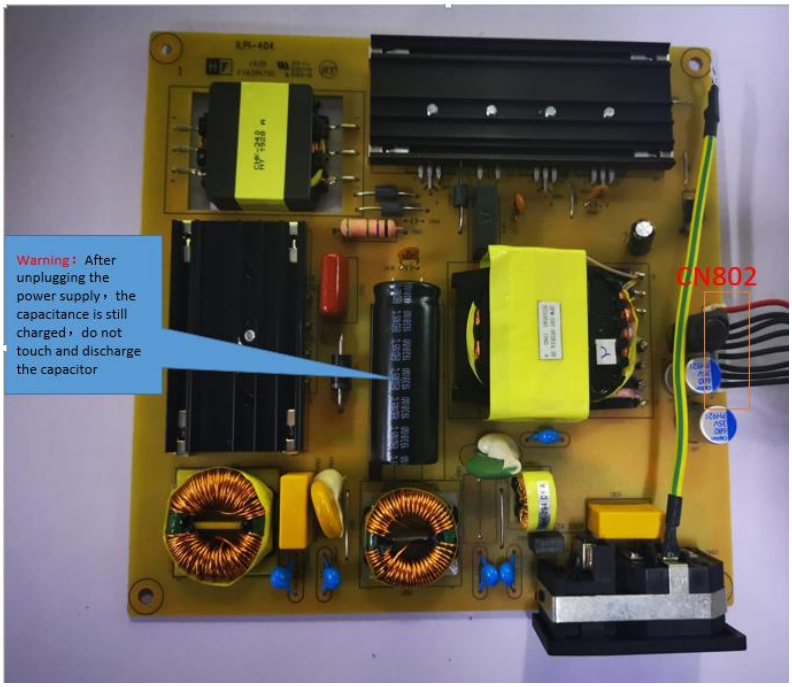
The power board part number is 790PB1400***H01*.

Before removing the power board, follow these steps:

▲ Prepare the monitor for disassembly. See Preparation for disassembly on page 13.

Remove the power board:

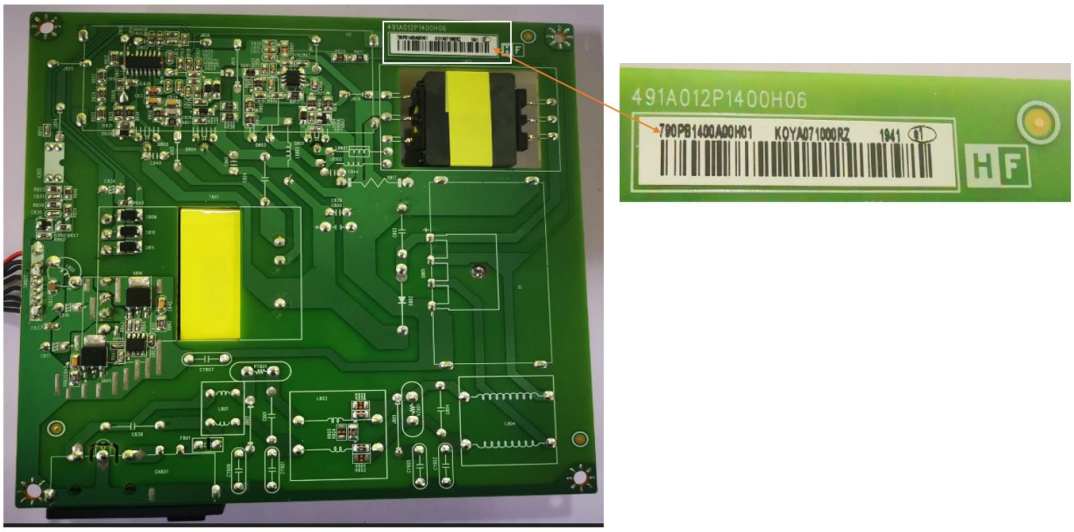
1) The HP E24d G4 power board connector position is as follows:



Power Board location showing of connector

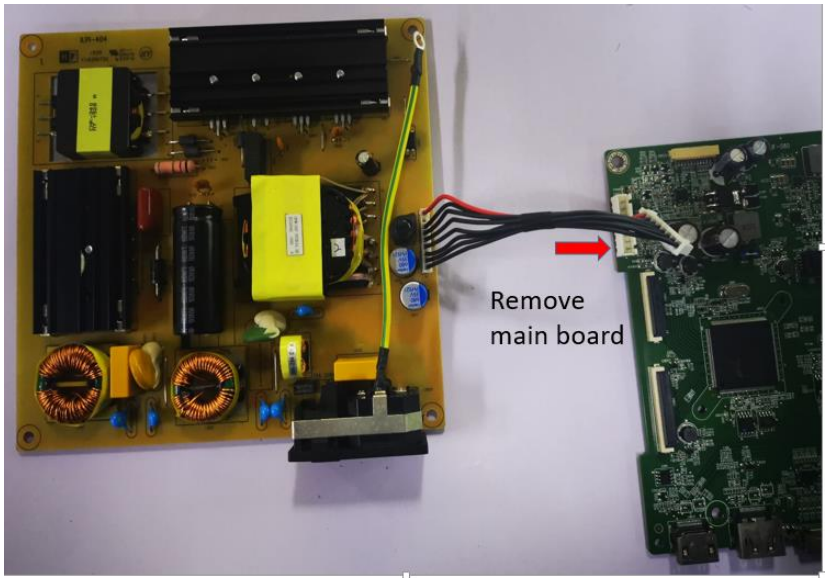
CN802 Foxconn P/N: 35105Q800-39U-H

2) Locate the part number location on the board.



Part number location of power board

3) Remove the backlight cable and main board.



Remove the backlight cable and main board

Lift the connector up and away from the PCB.

CN701:

[image showing external connectors on the main board, such as USB, DP, etc]

CN801:

[image showing external connectors on the main board, such as USB, DP, etc]

Connector repair

This procedure includes HDMI, Display Port, headphone, USB-C, RJ45 and USB connectors.

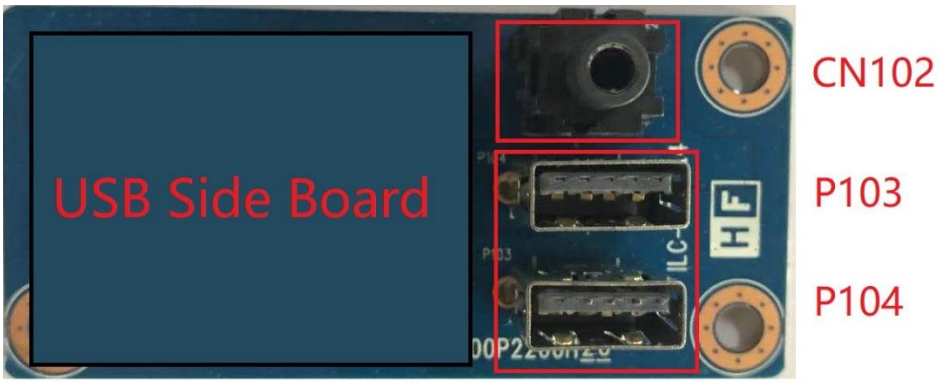
The connectors are on the main board (board part number 790PB1300***H01), and USB side board (board part number 790PB0300***H0*).

The connectors identifiers are as follows:

Connector	Location
HDMI Port	CN201
Display Port	CN301, CN401
USB-C	P501, P1001
RJ45	CN901
USB(RA)	P701, P702

Connector location showing of main board

Connector	Location
USB(VA)	P103, P104
Headphone	CN102



Connector location showing of USB side board

Before repairing connectors, follow these steps:

▲ Prepare the monitor for disassembly. See Preparation for disassembly on page 13.

DP connector CN301/CN401

Repair the DP 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 CN301/CN401 out of the through holes.

Remove DP connector

2) Lift the CN301/CN401 connector from the circuit board.
3) Place the new component on the circuit board. Be sure that it matches the footprint.
4) Solder the new component.

HDMI connector CN201

Repair the HDMI 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 CN201 out of the through holes.

Remove HDMI connector

2) Lift the CN201 connector from the circuit board.
3) Place the new component on the circuit board. Be sure that it matches the footprint.
4) Solder the new component.

RJ45 connector CN901

Repair the RJ45 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 CN901 out of the through holes.

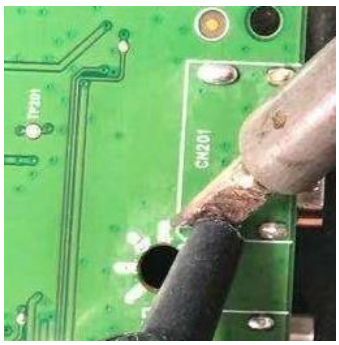
Remove RJ45 connector

2) Lift the CN901 connector from the circuit board.
3) Place the new component on the circuit board. Be sure that it matches the footprint.
4) Solder the new component.

USB connector P103, P104 (VA) & P701, P702 (RA)

Repair the USB 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 P103, P104, P701, P702 out of the through holes.



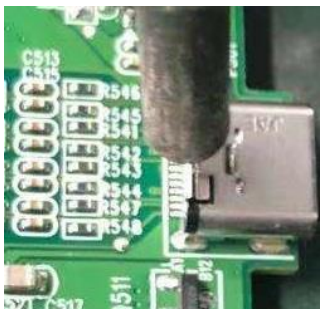
Remove USB connector

2) Lift the P103, P104 (VA) & P701, P702 (RA) connector from the circuit board.
3) Place the new component on the circuit board. Be sure that it matches the footprint.
4) Solder the new component.

USB-C connector P501, P1001

Repair the USB-C connector:

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



Remove DP connector

2) Lift the P501, P1001 connector from the PCB.
3) Place the new component on the circuit board. Be sure that it matches the footprint.
4) Solder the new component.

Headphone connector CN102

Repair the Headphone connector:

1) Use e a hot air gun to heat the bottom side of PCB below the headphone connector.

Remove headphone connector

2) Lift the CN102 connector from the PCB.
3) Place the new component on the circuit board. Be sure that it matches the 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
USB test	Confirm whether transmitting data between computer and USB devices.	Computer and USB devices
USB-C test	Confirm whether image displays, sound plays and data transmitting correctly on the monitor.	Computer
RJ45 test	Confirm whether connecting to the internet	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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