

# Maintenance and Service Guide HC241/HC241p model

#### **SUMMARY**

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

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Assembly part number: L17637-001(HC241),

L17637-010 (HC241p)

#### 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 <u>support.hp.com</u>. 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**

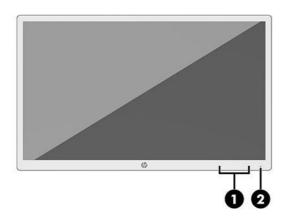
- 61.1 cm (24.0-inch) diagonal viewable area with 1920 × 1200 resolution, plus full-screen support for lower resolutions; custom scaling for maximum image size while preserving original aspect ratio
- Nonglare screen with an LED backlight
- Wide viewing angle to allow viewing from a sitting or standing position, or moving from side to side (models with embedded privacy filters are limited to a 60 degree horizontal viewing angle)
- Embedded privacy filter behind the cover glass (HP HC241p)
- Edge-to-edge anti-glare cover glass
- IP protection: IP32 for LCD display front cover glass only
- Luminance uniformity
- Optional stand sold separately, with tilt capability, pivot capability to rotate the display from landscape to portrait, swivel and height adjustment capabilities
- HP Quick Release 2 device to quickly attach the display head to the stand (sold separately) with a simple click, and then remove it with the convenient sliding tab release
- DisplayPort, High-Definition Multimedia Interface (HDMI), and VGA video inputs with cables included
- USB 2.0 hub with one Type-B USB 2.0 upstream port (connects the display to the source device) and two Type-A USB downstream ports (connect to USB devices)
- USB 2.0 Type-B to Type-A cable provided to connect the display's USB hub to the USB connector on the computer
- Hospital grade power cable
  - **WARNING!** Grounding reliability can only be achieved when the equipment is connected to an equivalent receptacle marked hospital only or hospital grade.
- Four function buttons under the right side of the front bezel, three that can be reconfigured to quickly allow selection of the most commonly used operations
- Capacitive on-screen display (OSD) buttons
  - CAUTION: Do not touch the patient and this medical device at the same time.
- Plug and Play capability if supported by your operating system
- 100 mm integrated VESA mounting
- Security cable slot on the rear of the display for an optional security cable lock
- OSD menu adjustments in several languages for easy setup and screen optimization
- High Bandwidth Digital Content Protection (HDCP) copy protection on all digital inputs
- Compliance with Digital Imaging and Communications in Medicine (DICOM) Part 14 for use in healthcare clinical reviews by healthcare professionals in peer consultation and patient consultation (on HP HC241 model without privacy filter)

- Compliance with IEC 60601–1–2.2015
- Expected service life: 5 years
  - 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**

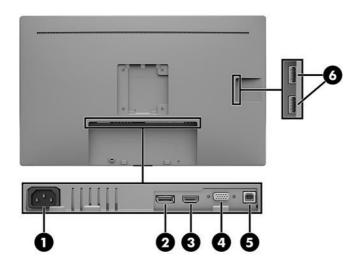
To identify the components on the front of the monitor, use this illustration and table.



Control		Function	
Func	tion buttons (1–4)	Use these buttons to navigate through the OSD menu based on the indicators next to the buttons that are activated while the OSD menu is open.	
		<b>NOTE:</b> To activate the function buttons, press any of the buttons so that the buttonlabels appear on the right side of the screen and the button LEDs are lit.	
1 Menu button Information button		Opens the OSD menu, selects a menu item from the OSD menu, or closes the OSD menu.	
		Opens the <b>Information</b> menu and selects a preset view mode.	
	Assignable function button 1		
	Next Active Input button	Navigates through the OSD menu and selects a video input source.	
	Assignable function button 2		
	Sanitization button	Updates the sanitization log.	
	Assignable function button 3		
2	Power button	Turns the display on or off.	

# **Rear and side components**

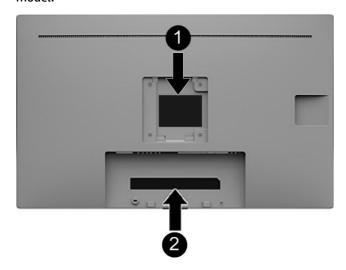
To identify the components on the rear of the monitor, use this illustration and table.



Component		Function	
1	Power connector	Connects an AC power cord.	
2	DisplayPort port	Connects a DisplayPort cable to the source device.	
3	HDMI port	Connects an HDMI cable to the source device.	
4	VGA port	Connects a VGA cable to the source device.	
5	USB Type-B port(upstream)	Connects a USB Type-B cable to a source device to enable the display USBhub.	
6	USB Type-A ports (2)(downstream)	Connect USB devices to the display USB hub.	

# 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 (except India):

#### Barcode label for HC241



#### Barcode label for HC241p



#### Spec label for HC241



#### Spec label for HC241p



#### For India:

#### Barcode label for HC241 and HC241p



#### Spec label for HC241 and HC241p



# 3 Illustrated parts catalog

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

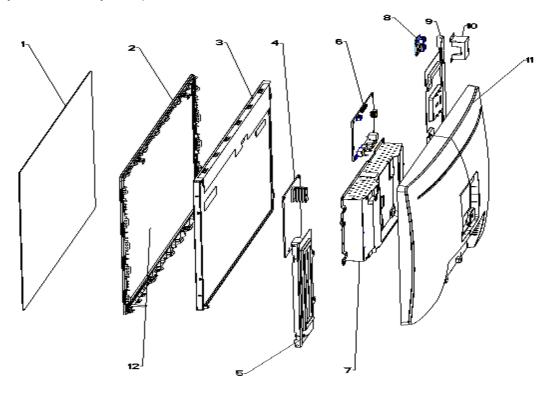


Table 3-1: Monitor major components and their descriptions

Item	Description	Qty
1	#ASSY Glass HC241p	1
2	#ASSY Front cover HC241p	1
3	#ASSY LCM HC241p	1
4	#ASSY POWER BD HC241p	1
5	#Bracket-left HC241p	1
6	#ASSY IF BD HC241p	1
7	#ASSY Main Chassis HC241p	1
8	#ASSY USB BD HC241p	1
9	#Bracket-right HC241p	1
10	#Bracket-USB HC241p	1
11	#ASSY Rear Cover HC241p	1
12	#PRIVACY_FILTER_HC241p	1

**NOTE:** item 12 just for HC241p model.

# 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
POWER BD HC241/HC241p DIP	M74412-001	755.02P04.0001

#### **Connectors by manufacturer**

Component description	Location identifier	Component distributor	Digi-Key Part Number	Remark
DisplayPort	DP	JAE Electronics	https://www.digikey.com PN DP1RD20JQ1R400	Only DP1.1, without fixed screw holes  16.10±0.00 9.00 NOTE 44:5 PN 1 16.10 12.00 15.50 PN 2
HDMI	HMDI	Molex	https://www.digikey.com PN: 2086581102	
USB	USB	Molex	https://www.digikey.com PN: 0670688000	
VGA Port	VGA	Molex	https://www.digikey.com PN: AHDF15A-KG-TAXB	1. Without thread, can't mount the screw Below pin need cut off  A  B  C  D

**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 <a href="https://partsurfer.hp.com/Search.aspx">https://partsurfer.hp.com/Search.aspx</a>.

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

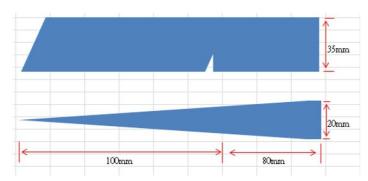
# 4 Removal and replacement procedures

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:

- A Prepare the monitor for disassembly. See Preparation for disassembly on page 11.
- 1) Remove four screw from the rear case.

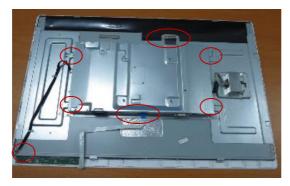


2) Use tool to release rear cover from monitor head.





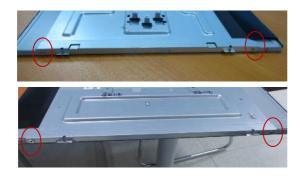
3) Remove bracket Assy from monitor head (remove cable and screws)



4) Remove front cover from monitor head (remove screw)



5) Remove bracket from panel



6) Remove Privacy filter(just for HC241p), OSD from Front cover ASSY ( tear poron tape )



### 7) Remove PCB from Bracket Assy



### **Power board**

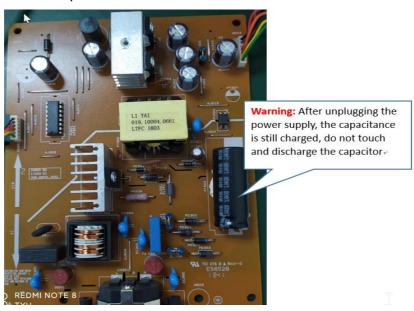
The power board part number is 755.02P04.0001.

Before removing the power board, follow these steps:

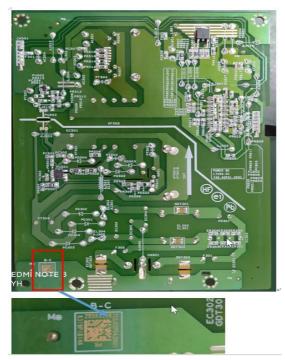
▲ Prepare the monitor for disassembly. See Preparation for disassembly on page 11.

Remove the power board:

1) The HP Z32 power board no connector:



2) Locate the part number location on the board.



3) Pin solder with soldering iron and absorber. NA

4) Lift the connector up and away from the PCB.

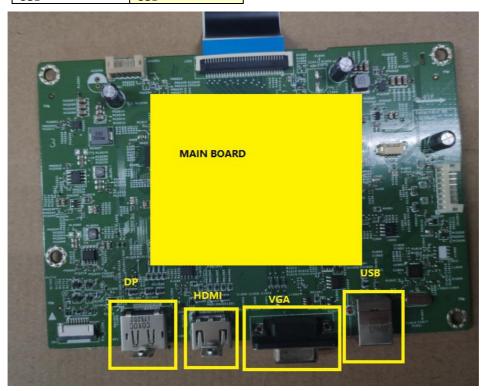
# **Connector repair**

This procedure includes HDMI, Display Port, VGA and USB connectors.

The connectors are on the main board (board part number 7ZB.02P01.0002).

The connector identifiers are as follows:

Connector	Location
HDMI	HDMI
DisplayPort	DP
VGA	VGA
USB	USB



Before repairing connectors, follow these steps:

▲ Prepare the monitor for disassembly. See <u>Preparation for disassembly</u> on page 11.

#### **USB** connector

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 USB out of the through holes.



- 2) Lift the USB 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.

### **HDMI** connector

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 HDMI 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

Repair the DP 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 DP 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.

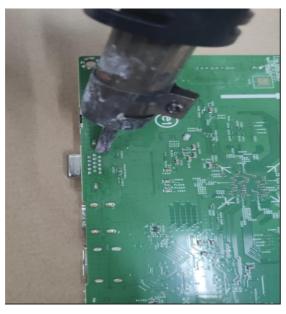
### **VGA** connector

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 VGA 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.

# **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, sound bar
DP test	Confirm whether image displays and sound plays correctly on the monitor.	Computer or DVD player, sound bar
VGA Test	Confirm whether image displays correctly on the monitor	Computer or DVD player

# **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 turned 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 <b>Brightness</b> to adjust the brightness scale as needed.
<b>Check Video Cable</b> 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 <b>Power Control &gt; Auto-Sleep Mode</b> and set auto-sleep to <b>On</b> .
On-Screen Menus are Locked is displayed.	The monitor's OSD lock function is enabled.	Press and hold the <b>Menu</b> 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.
Power voltage	Interruption note	An imaging system displays an image that could be altered, but in a waythat would not affect the diagnosis or treatment.

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