Maintenance and Service Guide

322ph model

P19023

Applicable to 322ph SN: 3CMXXXXXXX

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: P19023-001

Product notice

Only trained service personnel familiar with this product should service it. Before performing any maintenance or service, be sure to read “Important Safety Information”.

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1 Getting started

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

Important safety information

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

The service procedures recommended and described in this service manual provide effective methods of performing service operations. Service engineers should have prior repair knowledge and experience as well as appropriate training for the product before performing service procedures.

- Be sure your working environment is dry and clean and meets all government safety requirements.
- Be sure that other persons are safe while you are servicing the product.
- Do not perform any action that can cause a hazard to the customer or make the product unsafe.
- Use proper safety devices to ensure your personal safety.
- Always use approved tools and test equipment for servicing.
- Never assume the product's power is disconnected from the main power supply. Check that it is disconnected before opening the product's cabinet.
- Modules containing electrical components are sensitive to electrostatic discharge (ESD). Follow ESD safety procedures while handling these parts.
- Some products contain more than one battery. Do not disassemble or expose a battery to high temperatures, such as throwing into fire, or the battery may explode.
- Refer to government requirements for battery recycling or disposal.

This information provides general service information for the monitor. Adherence to the procedures and precautions is essential for proper service.

IMPORTANT: Only trained service personnel who are familiar with this HP product should perform service or maintenance for it. Before performing any service or maintenance, personnel must read the important safety information.

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

Important service information and precautions

- Repair must be performed by professional service technicians in a repair center. End users should not perform these procedures.
- Please note during servicing that the primary side is the high voltage area.
- This monitor meets ROHS requirements. Be sure to use lead-free solder wire when soldering.
- If you must change a capacitor, be sure to match the polarity as printed on the PCB.
- If you must replace a capacitor, make sure the specification and part number match the BOM and location.

- If you must replace a capacitor, insert new parts carefully to avoid a short circuit caused by the near pin.
- Do not get the board wet. Water and moisture can cause a short circuit that causes malfunctions.
- To avoid damage, be sure to use lead-free solder.
- When soldering, work quickly to avoid overheating the circuit board.
- Keep the soldering iron tip clean and well tinned when replacing parts.
- After repair, perform a close inspection of the circuit board to confirm it is in good condition.
- After repair, perform a function test to confirm the power supply is working properly.

ERP Lot5 requirement

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

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

RoHS (2002/95/EC) requirements

Applied to all countries that require RoHS.

The RoHS (Restriction of Hazardous Substance in Electrical and Electronic Equipment Directive) is a legal requirement by the EU (European Union) for the global electronics industry sold in the EU and other countries. Any electrical and electronics products launched in the market after June 2006 should meet this RoHS requirement. Products launched in the market before June 2006 are not required to be compliant with RoHS parts. If the original parts are not RoHS 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:

- 54.6 cm (21.5 in) diagonal viewable area with 1920 × 1080 resolution with 100Hz refresh rate, plus full-screen support for lower resolutions, includes custom scaling for maximum image size while preserving the original aspect ratio
- Liquid crystal display (LCD) with active matrix and in-plane switching (IPS)
- Wide viewing angle to allow viewing from a sitting or standing position, or moving from side to side
- Tilt capability
- 2W speaker
- Removable stand to accommodate additional mounting options
- DisplayPort, High–Definition Multimedia Interface (HDMI), and VGA video inputs
- Joypad OSD buttons, you can reassign the Up/Down/Left/Right function buttons to quickly select the most commonly used operations
- Plug-and-play capability if supported by the operating system
- 100 mm integrated VESA mounting
- Security slot provision on rear of monitor for optional cable lock
- On-Screen Display (OSD) adjustments in several languages for easy setup and screen optimization
- HP Display Center software for adjusting monitor settings and enabling theft deterrence features
- HDCP (High Bandwidth Digital Content Protection) copy protection on all digital inputs
- Energy saver feature to meet requirements for reduced power consumption
- Security cable slot on the rear of the monitor for an optional security cable
- Cable management feature for placement of cables and cords

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 **User Guide**.

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	Power button	Turns the monitor on or off.
2	Power light	On: The monitor is on. Amber: Monitor is in a reduced state because of inactivity. Blinking amber: Monitor is in a reduced power state because of an Energy Saver setting.

Rear components

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

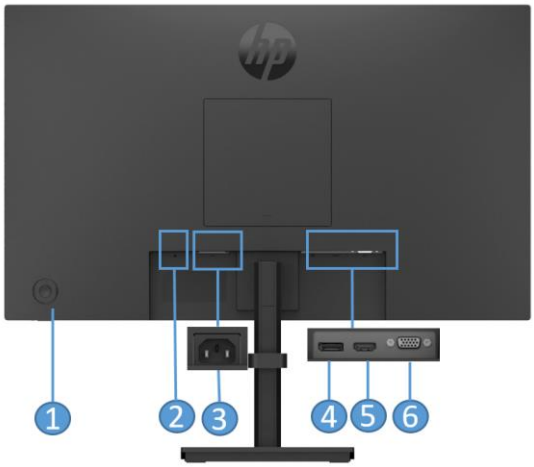


Table 1-2: Rear components and their descriptions

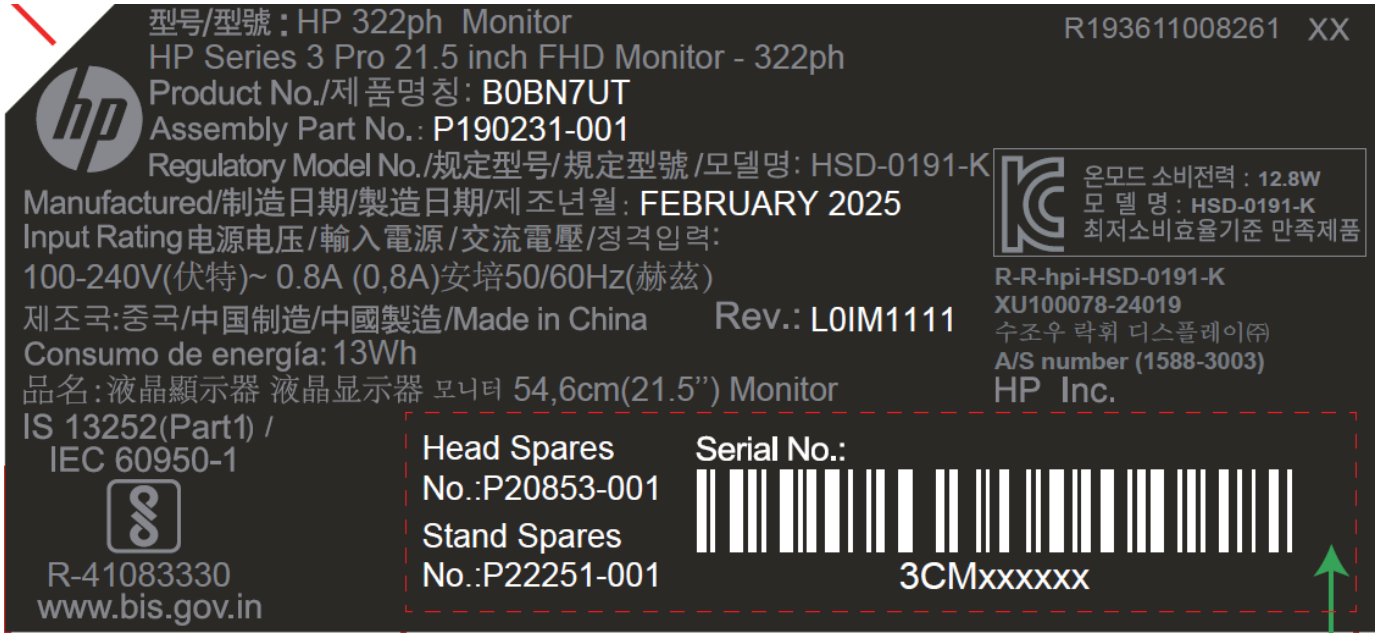
Component		Function
1	Joypad OSD button	When the OSD menu is open, press the buttons to navigate through the menu. You can reassign the function buttons to quickly select the most commonly used operations.
2	Security cable slot	Connects an optional security cable.
3	Power connector	Connects a power cord.
4	DisplayPort connector	Connects a DisplayPort cable to the source device.
5	HDMI port	Connects an HDMI cable to the source device.
6	VGA port	Connects a VGA cable to the source device.

Locating the serial number and product number

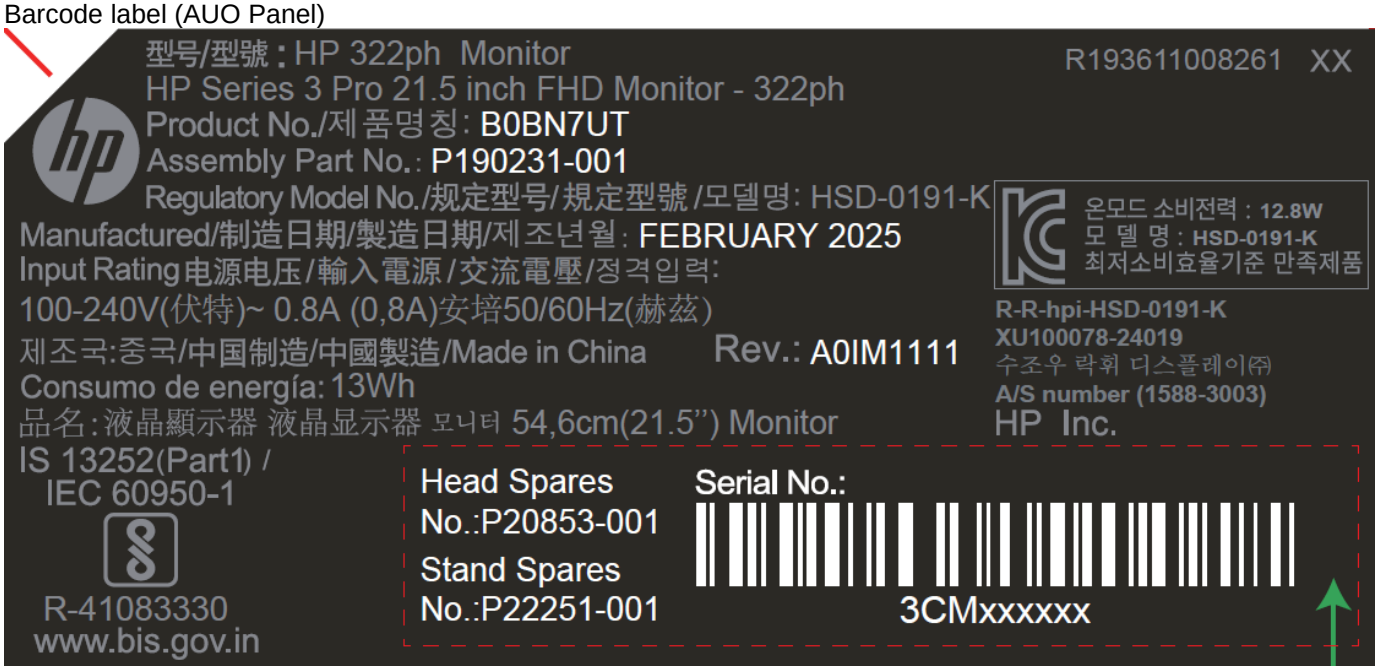
The SPEC label **(1)** and Barcode label **(2)** are located on the back of the monitor. The serial number and product number are located on a Safety label. You may need these numbers when contacting HP about the monitor model.

For worldwide models (WW+India**):**

Barcode label (LG Panel)



Barcode label (AUO Panel)

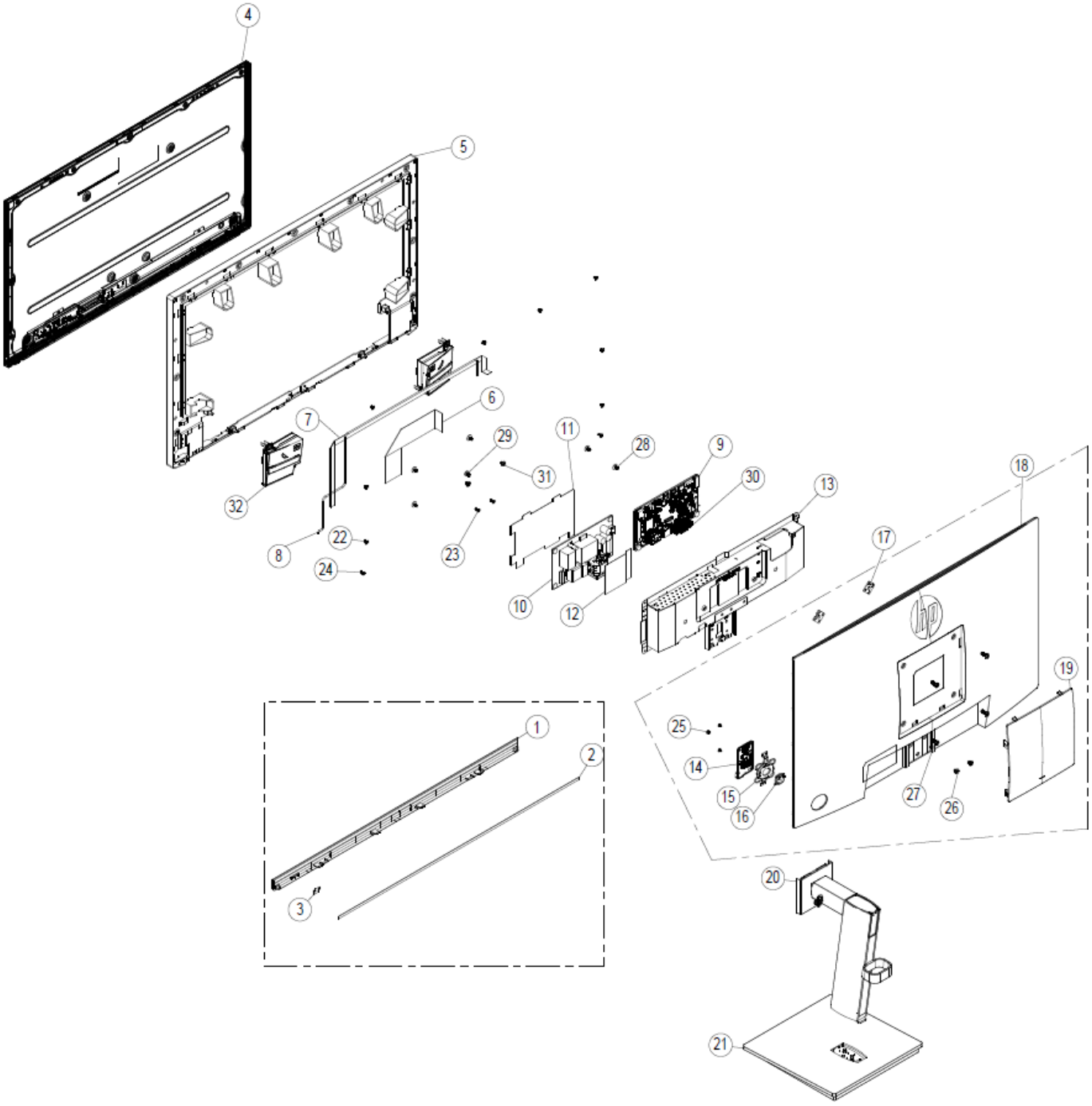


Spec label

SAFETY MARK
02125
Nihon HP
13Wh
XXYYYY-ZZ
Flicker Free
Image Quality ISO 9241-307
Type Approved Safety Regular Production Surveillance
Low Blue Light (Hardware Solution)
NOM
R3A304
RoHS
HP REG 23010,
08028 Barcelona,
Spain
reg@hp.com
警語:使用過度恐傷害視力
警语:使用过度恐伤害视力
ENERGY STAR
显示器
合格证
HIGH-DEFINITION MULTIMEDIA INTERFACE
HP Inc UK Ltd, Regulatory Enquiries,
Earley West, 300 Thames Valley Park Drive, Reading, RG6 1PT
This device complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received,
including interference that may cause undesired operation.
Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan.
Apparatet må tilkoples jordet stikkontakt.
Apparaten skall anslutas till jordat uttag.
Apparatets stikprop skal tilsluttes en stikkontakt med jord,
som giver forbindelse til stikproppens jord.
CAN ICES(B)/NMB(B)
R193611008270

3 Illustrated parts catalog

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



item	Description	Qty
1	FRONT DECO (ABS+90% recycle ABS /JACK BACK (6009-0337))(elemental 322ph)	1
2	SPONGE(L480*W4*0.6t)	1
3	POWER LENS (PC/TRANSPARENT)(OCEAN 20)	1
4	21.5 LCM for HP 322ph	1
5	MID FRAME FOR LGD(ABS+90% recycle ABS /JACK BACK (6009-0337))(elemental 322ph)	1
6	LVDS FFC 30P(1.0mm) 210mm(1FOLD+1PRO)60V G/F W/CONN(A15+BC)+AL(AA)*2 HF	1
7	WH FFC 8P(0.5mm) 560mm(2FOLD+1PRO) 60V G/F (A8+A5) HF	1
8	WH A1007H00-6P-L/KY1251HS05-06 #28 450mm W/B HF	1
9	MAIN BD outer preelaboration for HP 322ph LGD (LM215WF9-SSD1)	1
10	MOSO A-D PSU 1.32A 19V A30T-P1320J190-025F0 (120x70mmHF)	1
11	MYLAR BLACK FOR SHIELDING BOT (125.7*94.4*0.5t) (OCEAN 20)	1
12	MYLAR BLACK FOR SHIELDING TOP (57.3*50*0.2t) (OCEAN 20)	1
13	MAIN SHIELDING ((SGCC 0.5T PIR 10%)(elemental 322ph)	1
14	DISPLAY BD ASS'Y HP OCEAN20	1
15	OSD KEY EXTERNAL PARTS (ABS+90% recycle ABS /JACK BACK (6009-0337)) (elemental 322ph)	1
16	OSD KEY INTERNAL PARTS (ABS+90% recycle ABS /JACK BACK (6009-0337))(elemental 322ph)	1
17	WALL MOUNT BKT(SGCC 1.2t)(VX2363)	2
18	REAR COVER (ABS+90% recycle ABS /JACK BACK (6009-0337))(elemental 322ph)	1
19	VESA COVER (ABS+90% recycle ABS /JACK BACK (6009-0337))(elemental 322ph)	1
20	NECK(elemental 322ph) CX	1
21	BASE(elemental 322ph) CX	1
22	MAC. SCREW-MF M3.0*4.0L,NI	9
23	TAP. SCREW-TF #3.0*6.0L,Ni	2
24	TAP. SCREW-TB #2.5*5.0L,Ni	2
25	TAP.SCREW-T1 M2.0*3.0L,NI	3
26	MAC. SCREW-MI M3.0*4.0L,BLK-ZnNi	2
27	MAC. SCREW-MI M4.0*10 ,Blk-Zn	4
28	MAC. SCREW-MRF M3.0*6.0L, BLK-Ni	6
29	MAC.SCREW-PH-LWM4*6L NI	1
30	MAC. SCREW-MH #4-40*5.0L,Ni	2
31	MAC. SCREW-MI M3.0*4.0L, BLK-Ni	2
32	SPK BOX 2W 4ohm 58*59.2*22.51mm (R400mm/L200mm) YC for HP Elemental 22' HF	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
25W for 322ph	P36524-001	050005170100
25W for 322ph	P36524-002	050005190080

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 Component United Kingdom
- TME: Electronic components. Distributor, online shop – Transfer Multisort Elektronik USA

Capacitors by distributor

Component description	Location	Component distributor	Distributor part number
Capacitors	EC1	Digi-Key	ESH476M450AM7AA
Capacitors	C1	Digi-Key	EKXJ451ELL330ML20S

Connectors by manufacturer

Component description	Location identifier	Component distributor	Distributer part number
DisplayPort	P300	Digi-Key	DP1RD20JQ1
HDMI	P200	Farnell	RAHHD19TR
VGA	P100	Farnell	10090926-P154VLF

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.

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

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

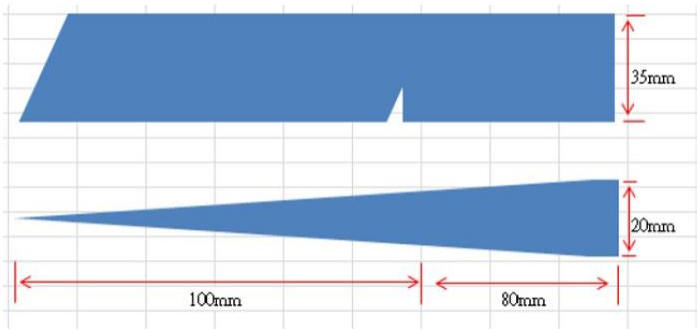
4 Removal and replacement procedures

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

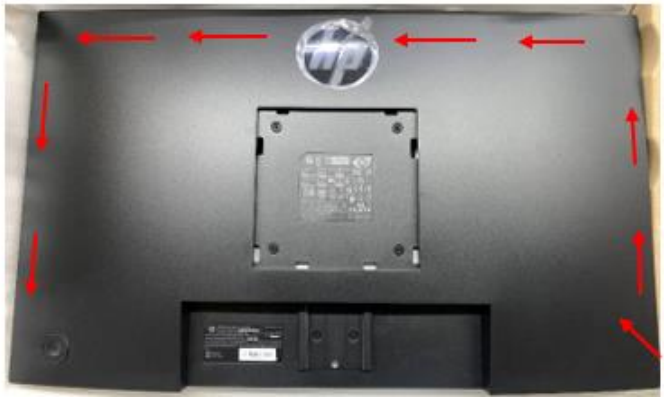
Before removing the Rear Cover, follow these steps:

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

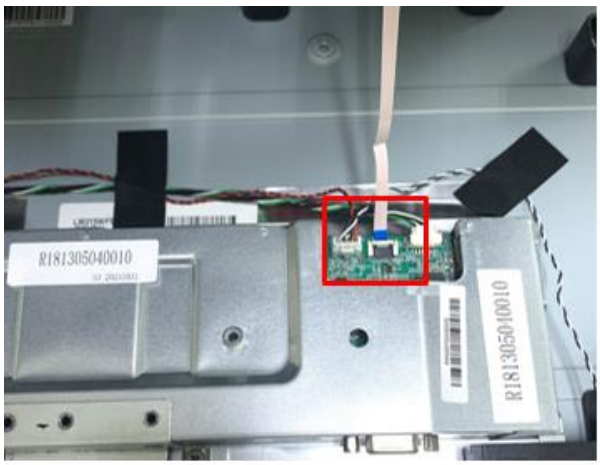
1. Lay the display on soft desk, twist out the screw and separate base and stand.

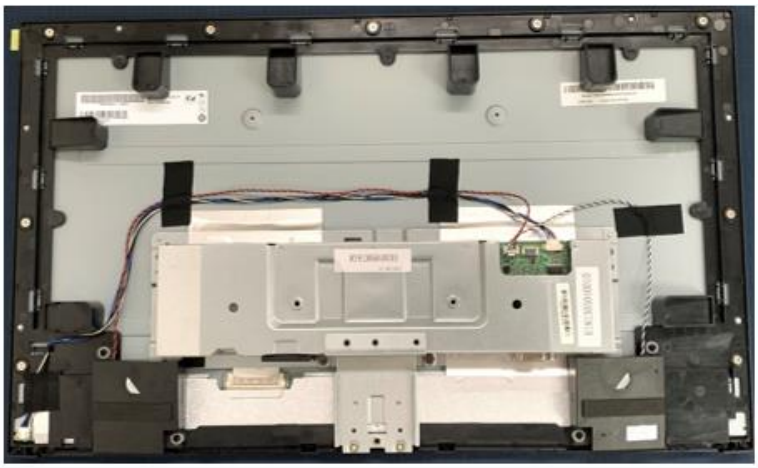
2. Then pull out the stand form the monitor head.

3. Remove the 6 screws from the back cover and use tools to open the back cover.

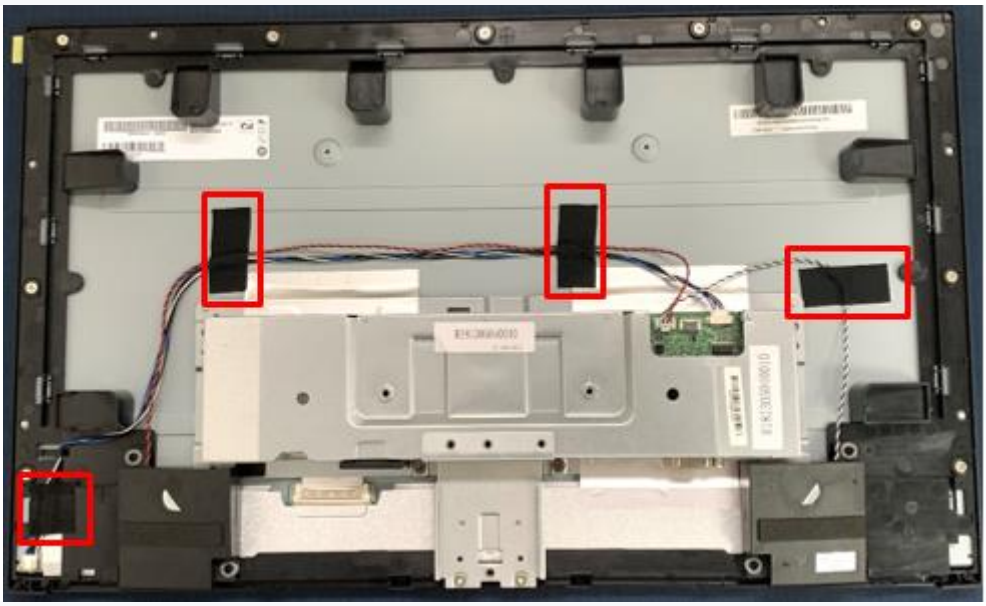


4. Remove the 8pin FFC from main board then remove rear cover

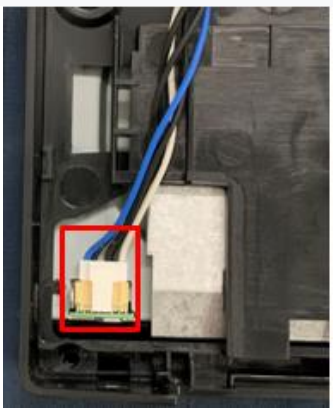


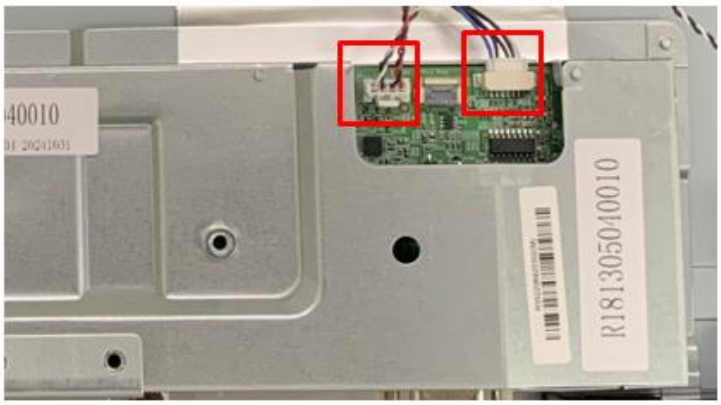


5. Remove three acetate tapes from the LVDS/ LED cable



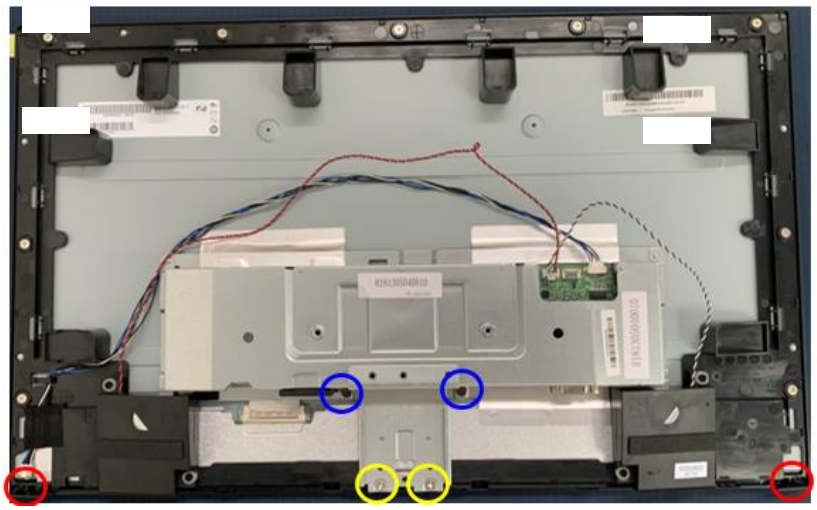
6. Pull out the LVDS/ LED/speaker cable to panel, then take off the SPK box.



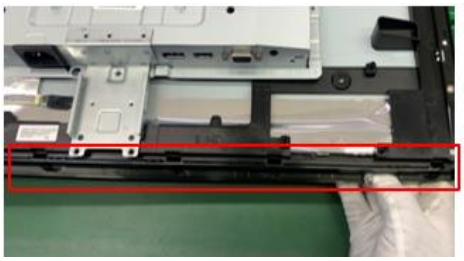


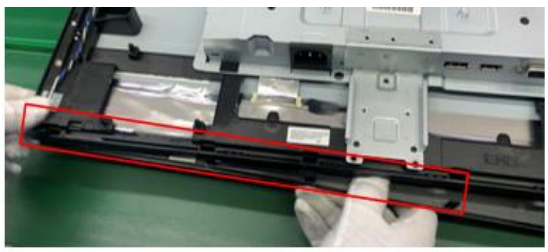
7. Then take off the SPK box.

8. Strip six screws from the Deco and the shielding.

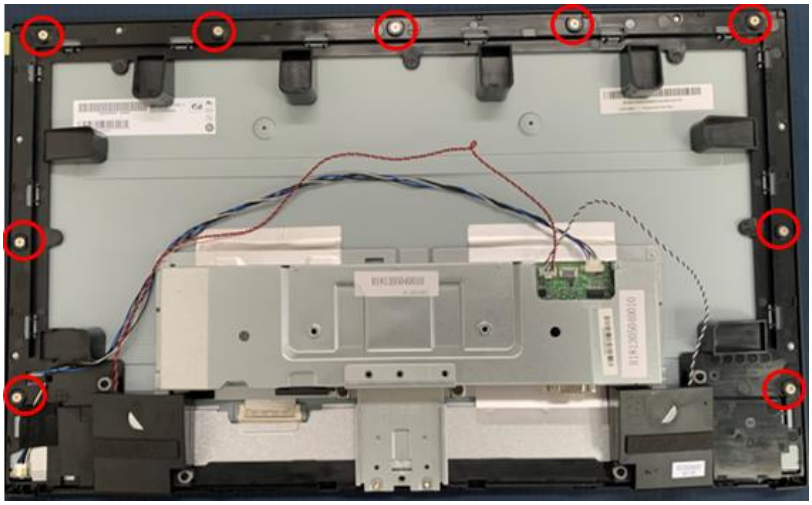


9. Remove the Deco.



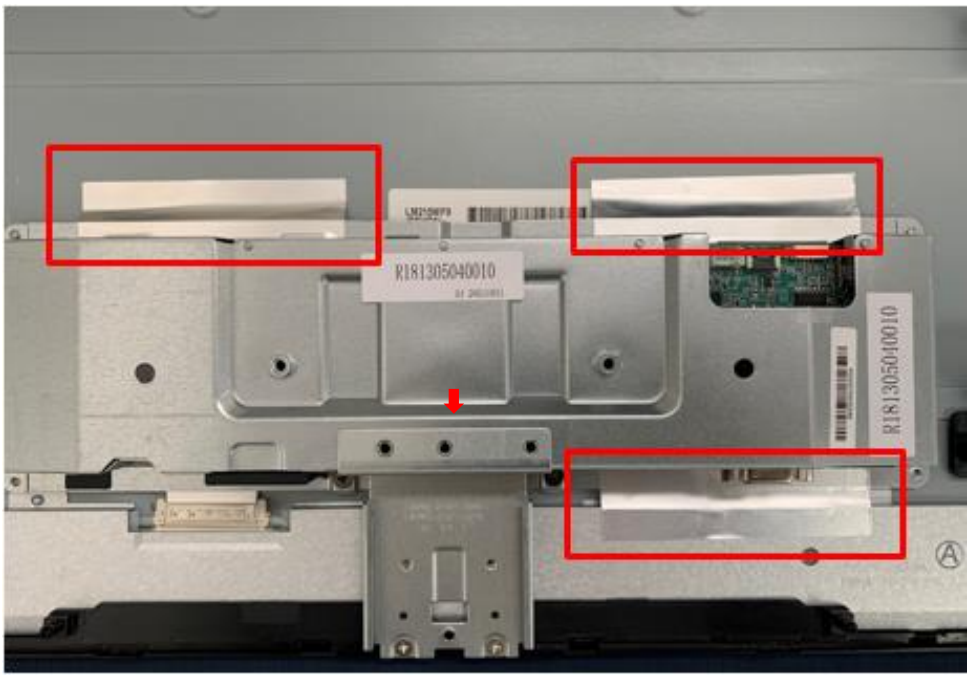


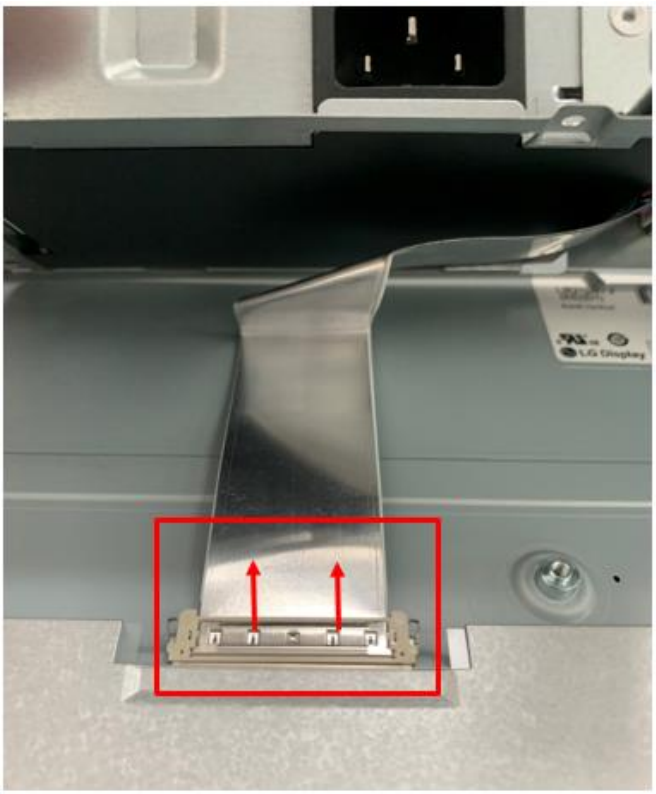
10. Strip seventeen screws from the middle frame.



11. Remove the middle frame

12. Remove the aluminum foil from the shield ·


R181305040010
R181305040010



Power board

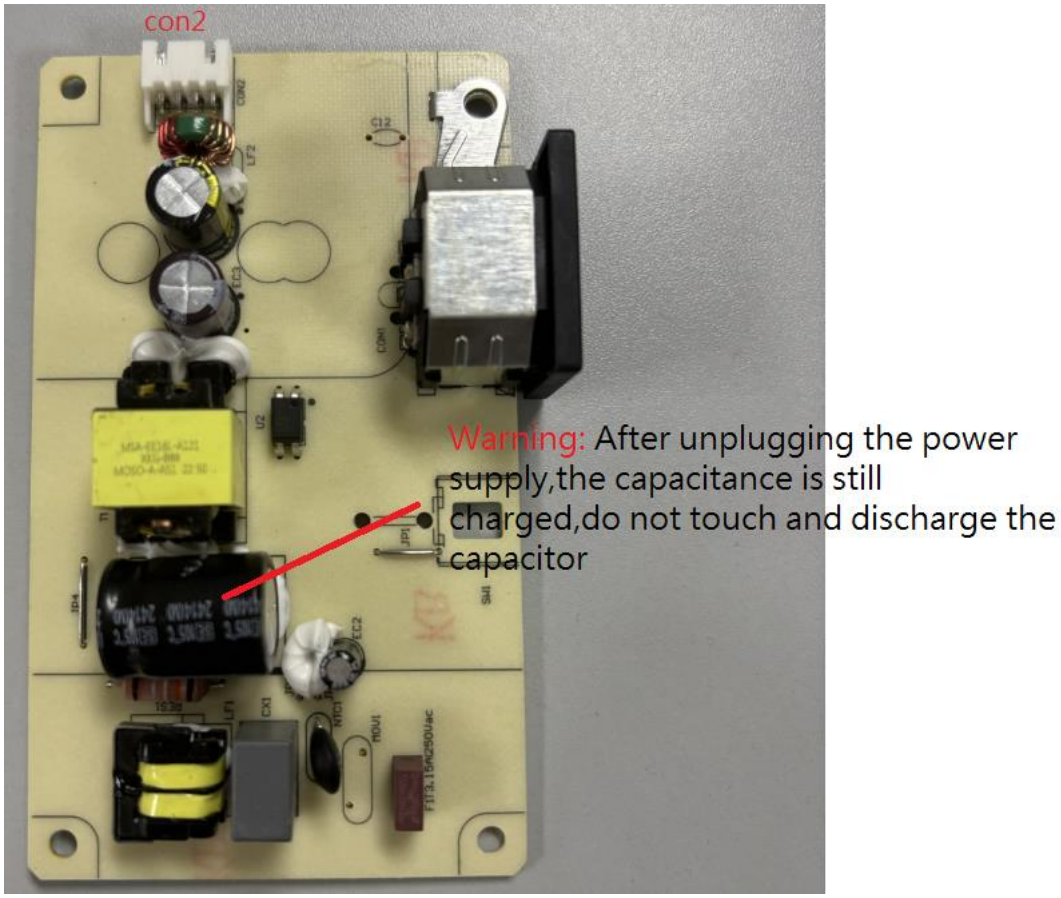
The power board part number is 05000517010.

Before removing the power board, follow these steps:

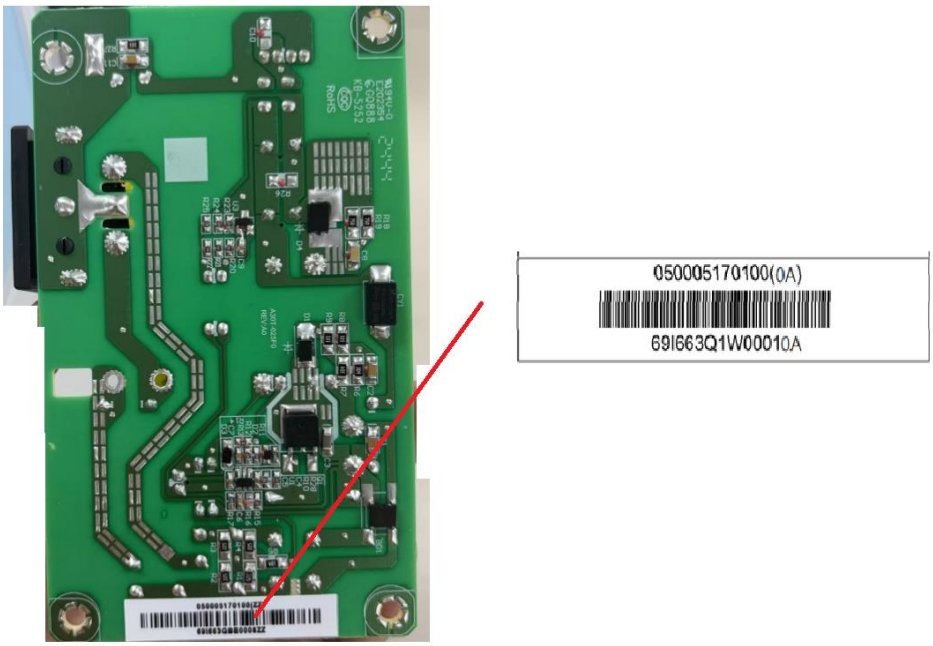
▲ Prepare the monitor for disassembly. See Preparation for disassembly on page 11.

Remove the power board:

1) The HP 322 ph power board connector position is as follows:



2) Locate the part number location on the board.



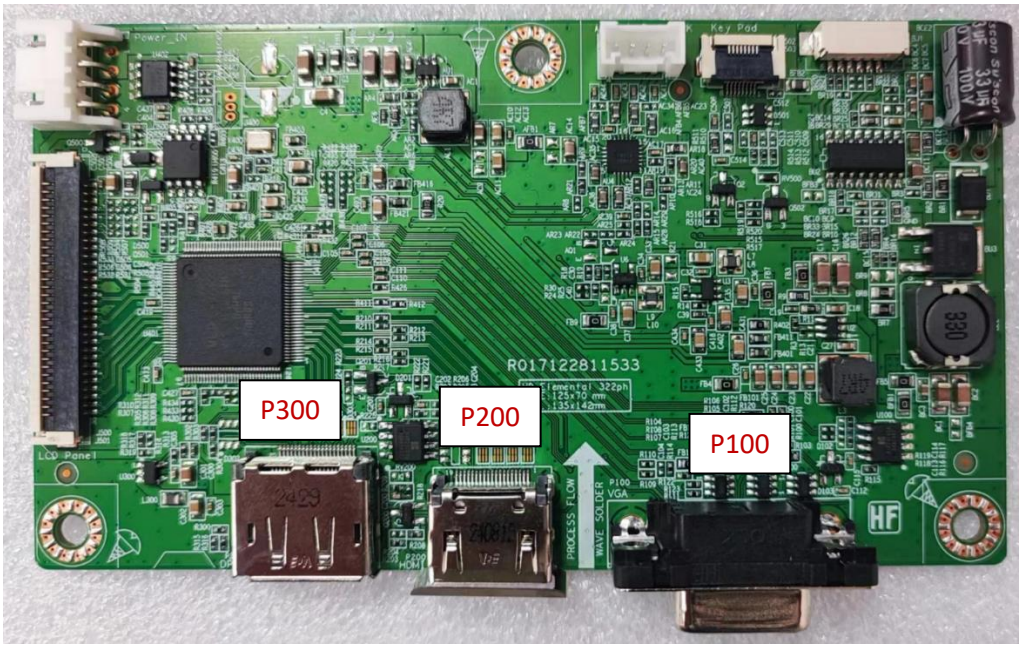
Connector repair

This procedure includes HDMI, DisplayPort and VGA connectors.

The connectors are on the main board.

The connectors identifiers are as follows:

Connector	Location
VGA	P100
HDMI	P200
DP	P300



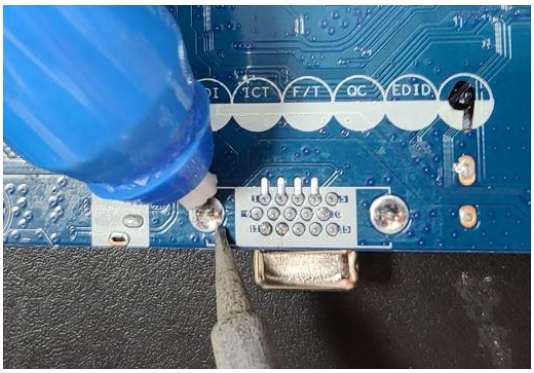
Before repairing connectors, follow these steps:

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

VGA connector P100

Repair the VGA 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 P100 out of the through holes.

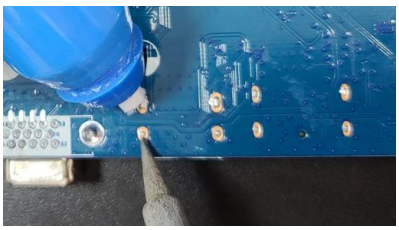


2) Lift the P100 connector from the PCB.
3) Place the new component on the PCB. Be sure that it matches the PCB footprint.
4) Solder the new component.

HDMI connector P200

Repair the HDMI connector:

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



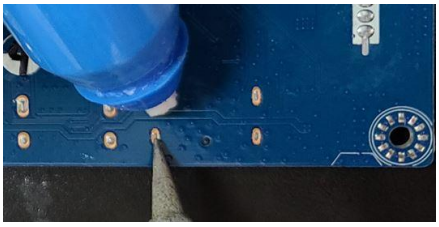
2) Use a soldering iron or hot air gun to melt the solder on the pins.

3) Lift the P200 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.

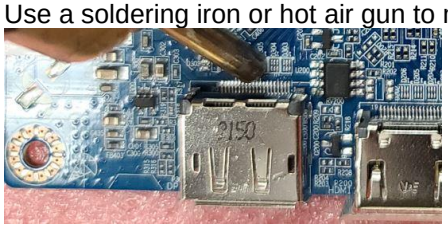
DP connector P300

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 soldering iron or hot air gun to melt the solder on the pins.



3) Lift the P300 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
DP test	Confirm whether image displays and sound plays correctly on the monitor.	Computer or DVD player
VGA test	Confirm whether image displays 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.	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 does not enter into low-power 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 **Left** button of joypad for 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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