Maintenance and Service Guide
X27i 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

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:

- 68.6 cm (27.0 inch) diagonal viewable screen area with 2560 × 1440 resolution
- Antiglare panel with an LED backlight
- 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 head from landscape to portrait mode
- Swivel and height adjustment capabilities
- Removable stand for flexible monitor head mounting solutions
- One DisplayPort™ video input (cable not provided)
- One HDMI (High-Definition Multimedia Interface) video input (cable provided)
- 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 deterrent features
- HDCP (High-bandwidth Digital Content Protection) copy protection on all digital inputs
- 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

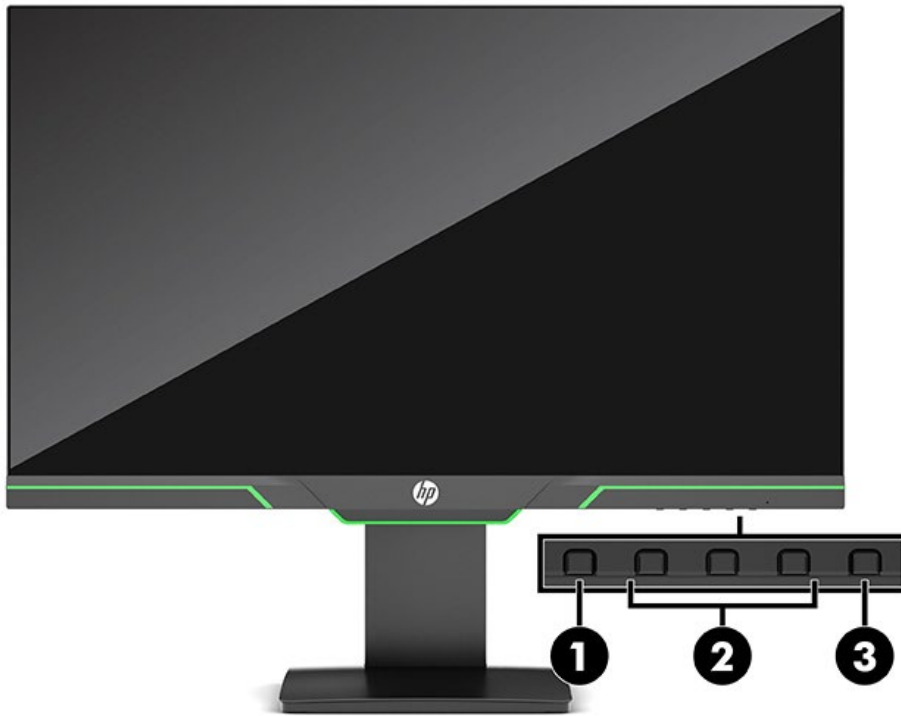To identify the components on the front of the monitor, use this illustration and table.

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.
3	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.
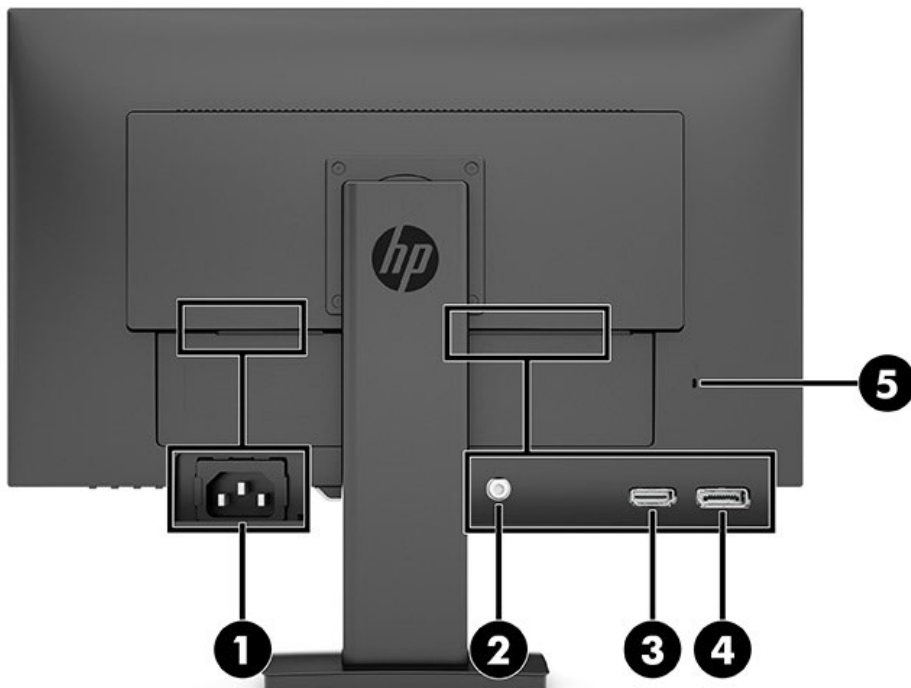
Table 1-2: Rear components and their descriptions

Component		Function
1	Power connector	Connects the power cord.
2	Audio-out (headphone) jack	Connects optional powered stereo speakers, headphones, earbuds, or a television audio cable.
		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.
3	HDMI port	Connects 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 game console.
5	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 back of display. You may need these numbers when contacting HP about the monitor model.

Note: You may need to partially pivot the display head to read the label.
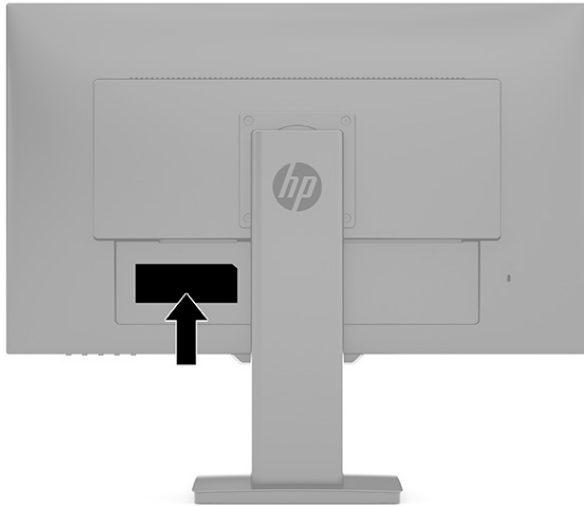
For worldwide models (except India):

Spec label

For India:

Spec label

3 Illustrated parts catalog

To identify the monitor major components, use this illustration and table.
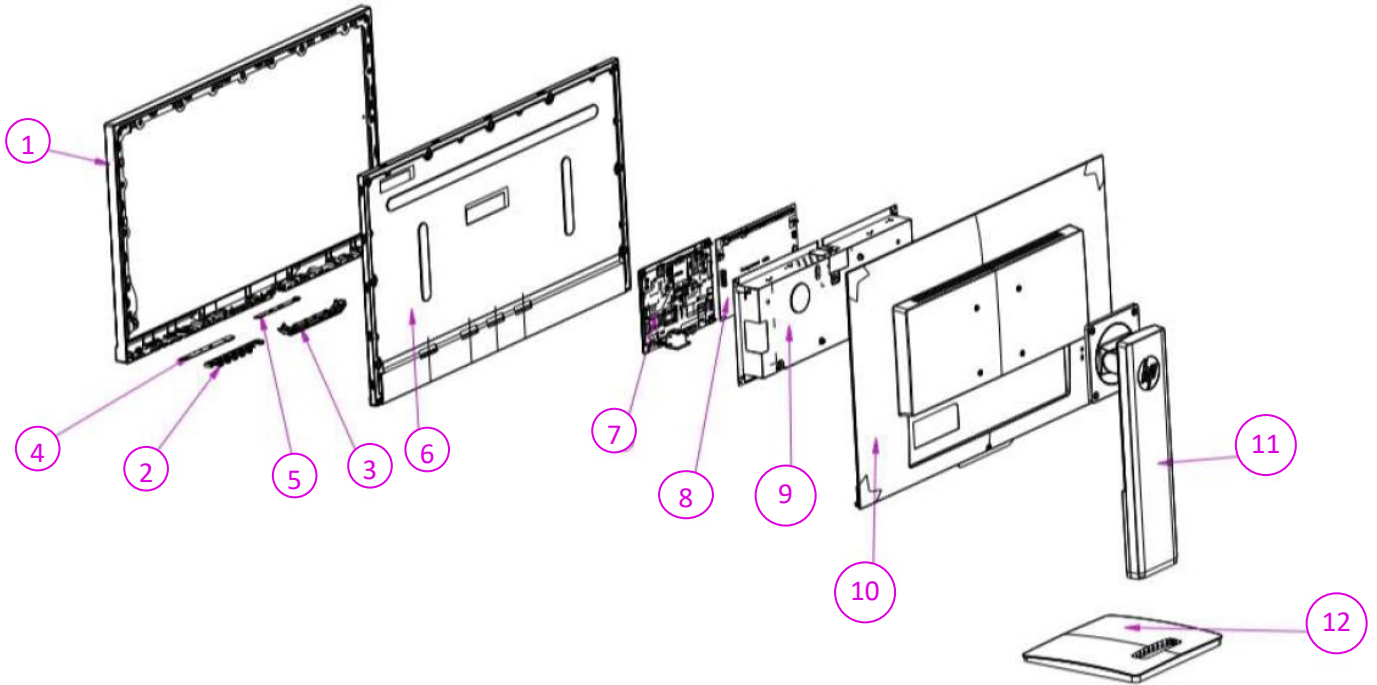
Table 2-1: Monitor major components and their descriptions

Item	Description	Qty
1	ASSY MF X27i	1
2	BTN ABS	1
3	AMBIENT LENS	1
4	PCBA CTRL BD	1
5	PCBA LENS BD	1
6	PANEL	1
7	PCBA IF BD	1
8	PCBA SPS	1
9	SHIELDING	1
10	ASSY RC X27i	1
11	ASSY CLMN X27i	1
12	ASSY BASE X27i	1

How to order parts

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

Power board:

Description	HP Spares Part Number	Manufacturer Part Number
SPS-IPS x27i 5E.4NT02.001	N16671-001	5E.4NT02.001

Capacitors and connectors available for purchase from EU distributor

- Farnell: Farnell UK - Electronic Components Distributor

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

Capacitors by distributor:

Component Description	Location	Component Distributor	Distributor Part Number
Capacitor 470 µF 10*12.5 10K	C707 C708 C709	Farnell	25ZLH470MEFC10X12.5
Capacitor 470 µF 10*12.5 10K		RS	25ZLH470MEFC10X12.5

Connectors by distributor:

Component Description	Location Identifier	Component Distributor	Part number of Manufacturer/ Distributor
DisplayPort (DP)	J3	Farnell RS	Molex SD-47272-0024
HDMI	J5	Farnell RS	Molex 2086581001
Audio	M590	Farnell	STX-3120-5B

Gasket by distributor:

Component Description	Location Identifier	Component Distributor	Part number of Manufacturer/ Distributor
Gasket for DP and HDMI	SHD	Farnell	3021717

Specification: Gasket, EMI Shielding, 17 mm Width, 17 mm Height, 1 m Length, 80 dB

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

NOTE: The connector may need to be modified to meet functionality, regulatory and safety requirements if it is not an exact match.

You can purchase cables from the HP part store at https://partsurfer.hp.com/Search.aspx.

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

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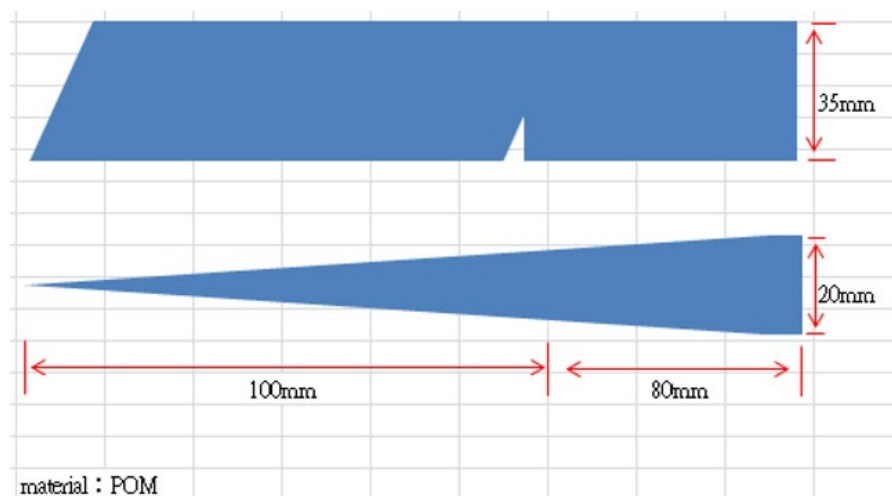
4 Removal and replacement procedures

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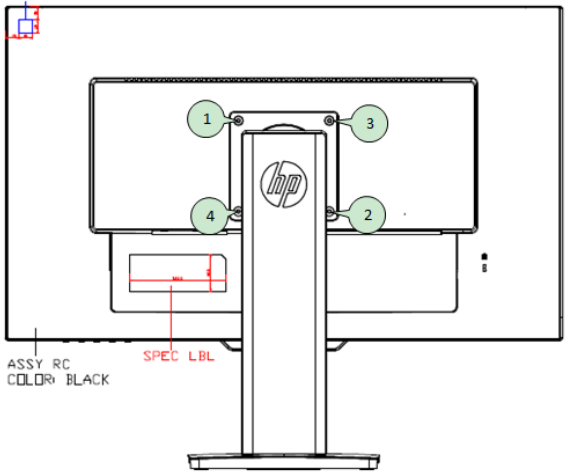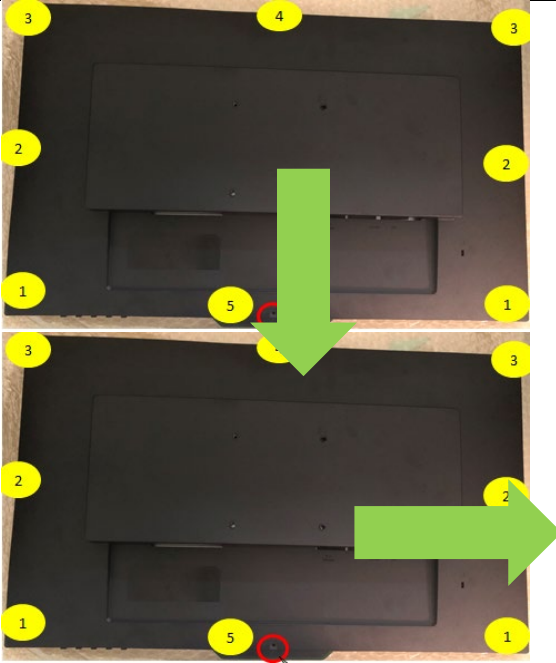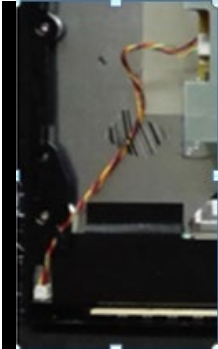
Preparation for disassembly

Use this information to properly prepare to disassemble and reassemble the monitor.
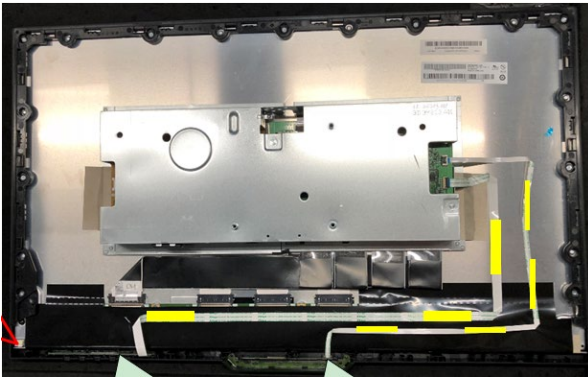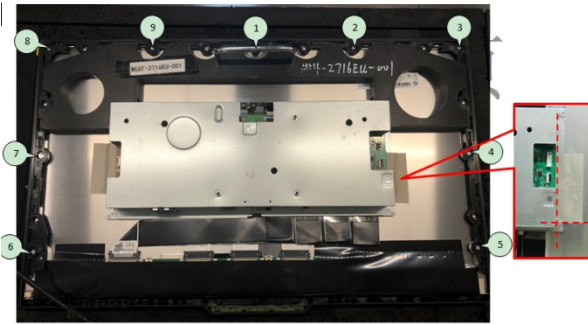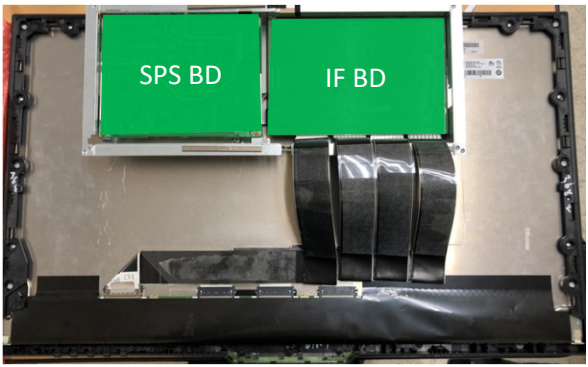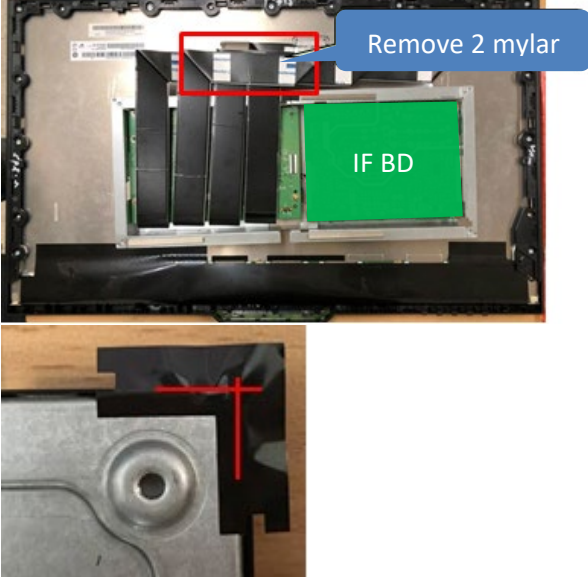
Use this information to properly prepare to disassemble and reassemble the monitor.

1) Clean the room for disassembly.

2) Identify the disassembly area.

3) 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.

4) Be sure to have the following equipment and materials:

- Press fixture
- Working table
- Screwdriver
- Knife
- Gloves
- Cleaning cloth
- ESD protection
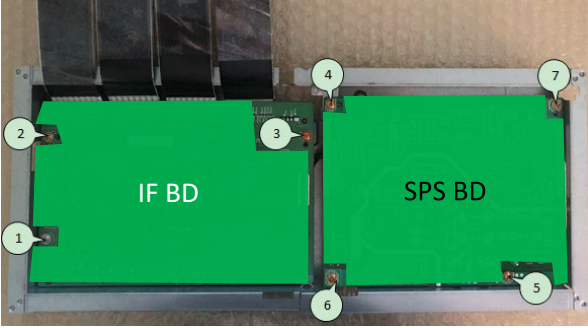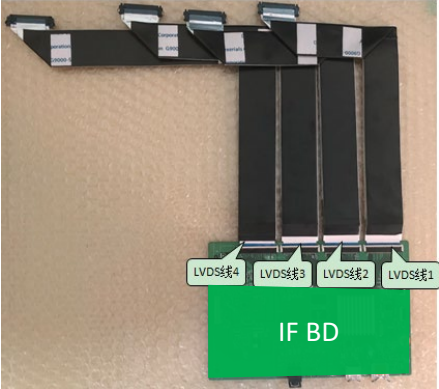- Scraper bar in the following dimensions:

material : POM

Disassembly procedure

Rear Cover

item	picture	Operation	Tool	Notes
1		1. Unlock 4 screws	Screw-driver	11.0±1.0 Kg
2		Disassemble the RC from the monitor, notice the disassembly order: 1. Unlock 1 screw 1.Disassemble the Bottom part 2.Disassemble the Right part 3. Remove RC from panel.		4.5±0.5K g
3		1. Remove Al-tape from SHD 2. Remove tape from lamp wire 3. Remove lamp wire from Power BD		

4		1. Remove lamp wire from panel 2. Remove Lens cable from panel 3. Disassemble Lens BD from MF 4. Remove Lens cable from Lens BD 5. Remove Ctrl cable from panel 6. Disassemble Ctrl BD from MF 7. Remove CTRL cable from CTRL BD		
5		1. Remove 2 conduct tape from SHD 2. Disassemble SHD from panel 3. Unlock 9 screws	Screw-driver	6.5-7.5Kg
6		1. Remove 4 FFC cable from panel		
7		1. Disassemble MF from panel 2. Remove 2 mylar from panel		

| 8		1. Unlock 7 screws 2. Disassemble IF BD and SPS BD from SHD 3. Remove power wire from IF BD	Screw-driver	7±1Kg
		1. Remove 4 LVDS wire from IF BD		

Power board

- The power board part number is 5E.4NT02.001.
- This board is a direct replacement for 5E.4NT02.001
- Locate PN on the red frame as follow image.
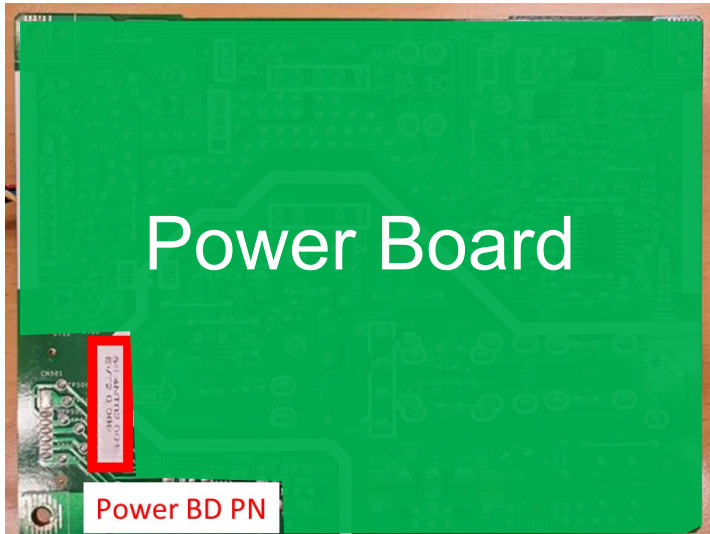
IMPORTANT:

- **Repairing must operate by professional repairers in HP repair center, not applicable for end user**
- **The primary side is the high voltage area, please take care when repair (Front and Back view)**
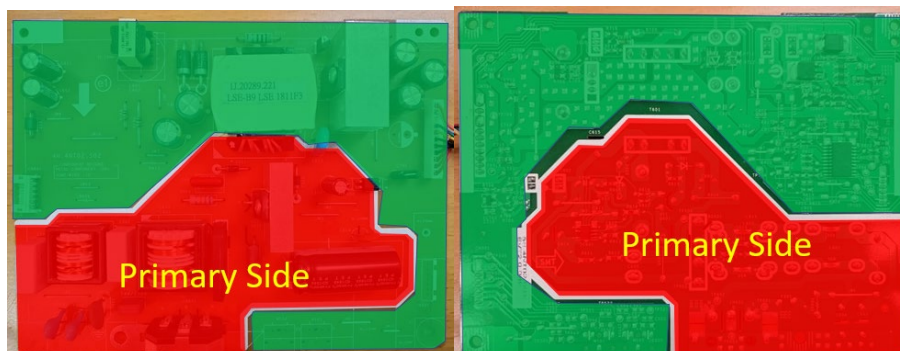
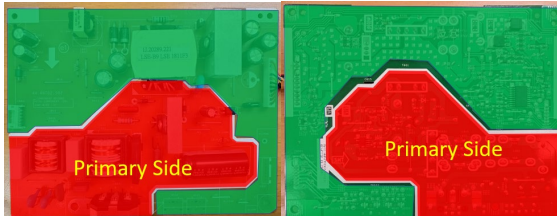- **After repaired, must check PSU function is ordinary**

Power board

Repair Condition: Capacitor repair is only for the monitor that has been out of warranty period.

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IMPORTANT:

- **Repairing must operate by <u>professional repairers (Note)</u> in repair center, not applicable for end user**
- **The primary side is the high voltage area, please take care when repair (Front and Back view)**


- **Electrostatic protection is required when component replacement is required.**
- **The monitor meets ROHS, please use Lead-free solder wire for soldering.**
- **If capacitor need change, please check polarity match PCB print.**
- **If capacitor need to replace, must check specification and part number whether match the BOM and location.**
- **If capacitor need to replace, please insert new parts carefully because the near pin may cause short circuit by inappropriate operate.**
- **DO NOT allow any liquid on the board. Water and moisture may cause short-circuit to the electronic components and lead to malfunctions.**
- **The fusion point of Lead-Free solder is requested. Repairing with conventional lead wire may cause damage.**
- **Work quickly to avoid overheating the circuit board as soon as you confirm the steady soldering condition.**
- **Keep the soldering iron tip clean and well tinned and when replacing parts.**
- **A close inspection of the circuit board revealed look in good condition.**
- **After repaired, must do function test to check PSU function is ordinary.**

Note: (The requirement of professional repairers' regulation by ERP lot5)

(1) The professional repairer has the technical competence to repair electronic displays and complies with the applicable regulations for repairers of electrical equipment in the Member States where it operates. Reference to an official registration system as professional repairer, where such system exists in the Member States concerned, shall be accepted as proof of compliance with this point.

(2) The professional repairer is covered by insurance covering liabilities resulting from its activity, regardless of whether this is required by the Member State.

Repair Process:

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

The C707, C708 and C709 locations are identified below:
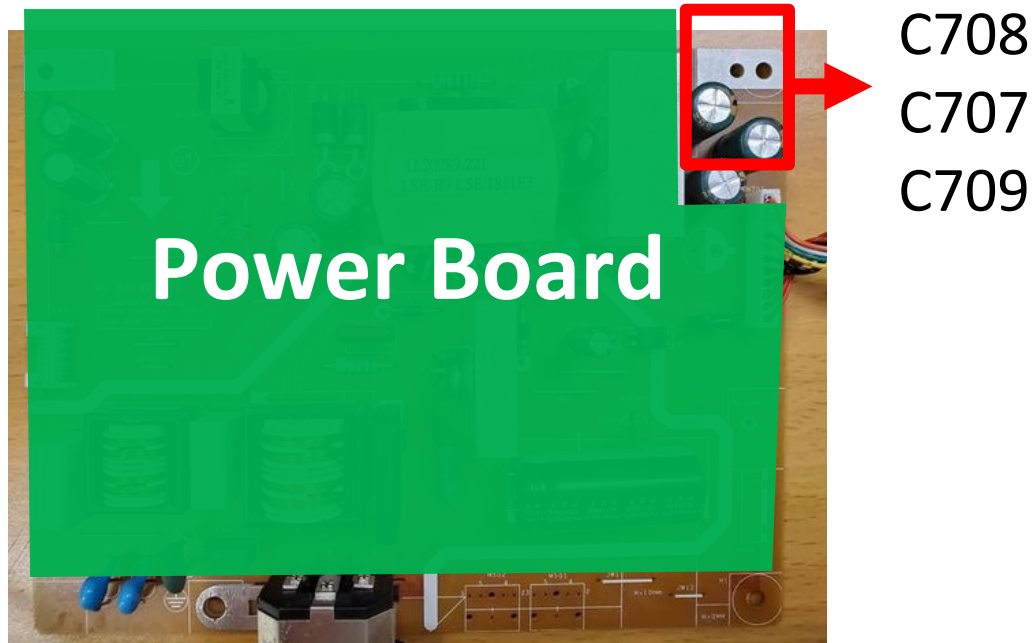
1) You must disconnect the power cord from the power source before opening the monitor to prevent component damage.

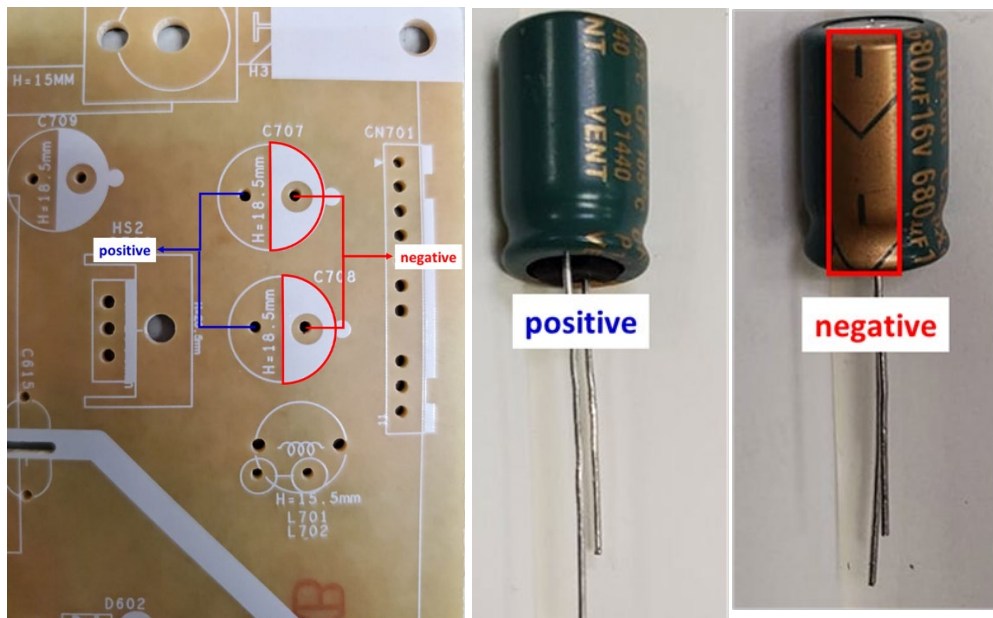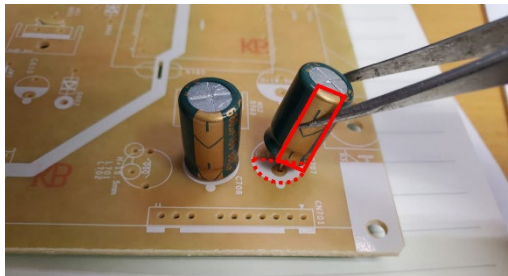2) Use Multimeter measure whether EL capacitors still have charge. Before repairing must discharging it.

   C605/ C801/ C703/ C708/C707/C709 in following picture need to discharging.
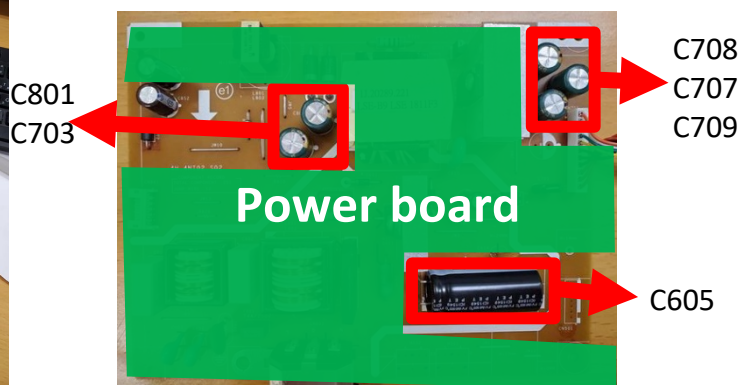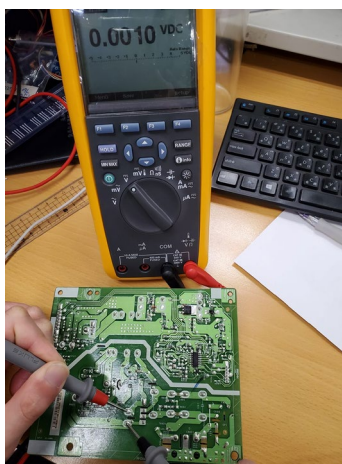
3) Lift capacitors from the PCB.

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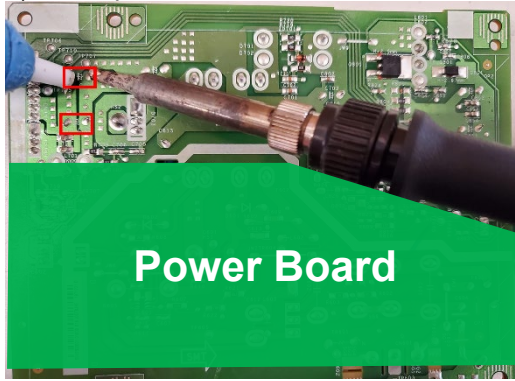
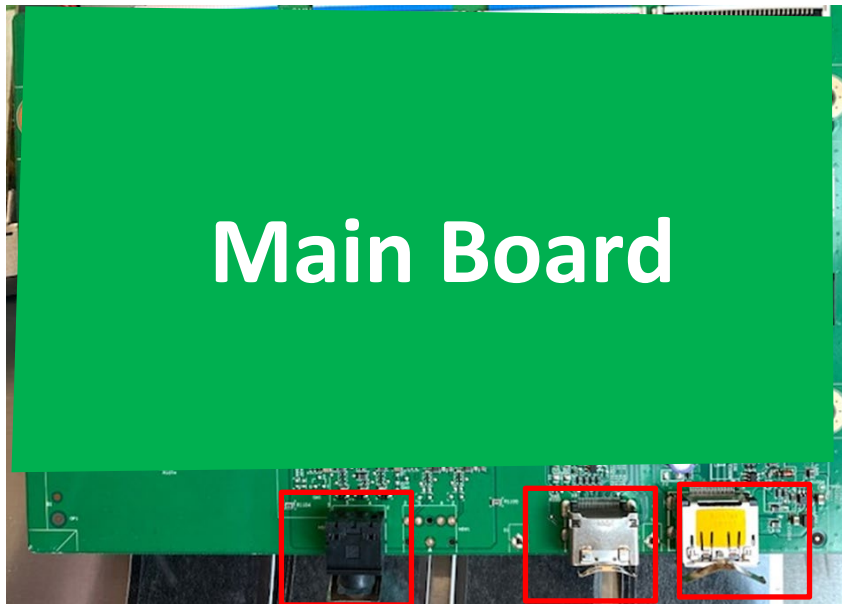4) Place new component on the location, and must check polarity match PCB print.

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

Connector repair

- This procedure includes Audio, HDMI and Display port connectors.

- The connectors are on the IF board (board part number 5E.4NT01.001, 5E.4NT01.002, 5E.4NT01.011, 5E.4NT01.012, 5E.4NT01.013).

- The connectors identifiers are as follows:

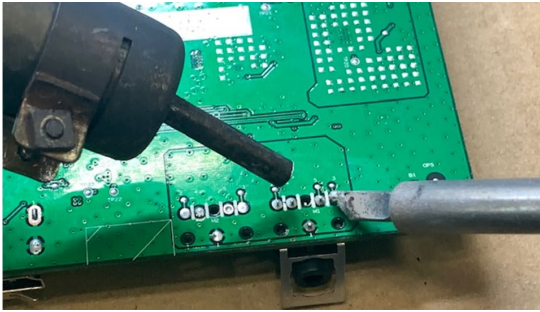| Connector	Location
Audio	M590
HDMI	J5
DisplayPort	J3

Before repairing connectors, follow these steps:

▲ Prepare the monitor for disassembly. See <u>Preparation for disassembly</u> on page 錯誤! 尚未定義書籤。.

Audio Connector repair- M590

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 M1 from the PCB

3). Place new component on the location, and must check it can match PCB footprint

4). Soldering the new component by solder iron

HDMI Connector repair- J5

1) Use a soldering iron and a de-soldering pump to remove as much solder as possible from one of the pin.
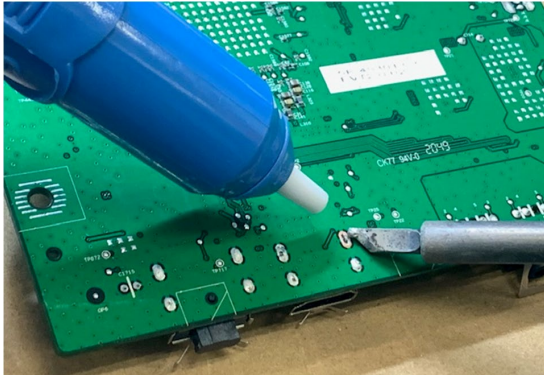
2) Use a hot air gun to melt the solder on the pins

3). Lift J2 from the PCB

4). Place new component on the location, and must check it can match PCB footprint

5). Soldering the new component by solder iron

6). Please must stick a gasket on the Shielding.

DP Connector repair- J3

1) Use a soldering iron and a de-soldering pump to remove as much solder as possible from one of the pin.
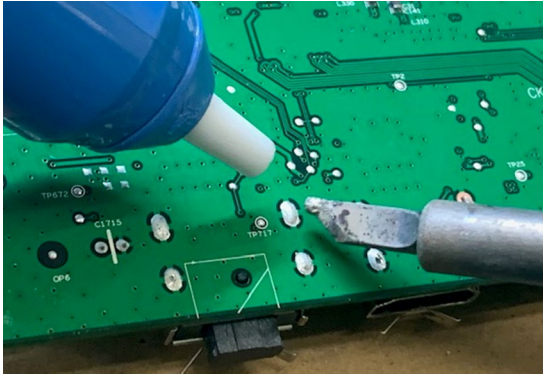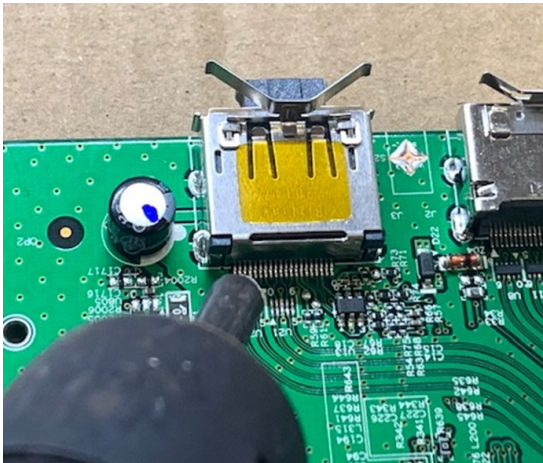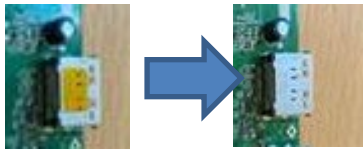

2) Use a hot air gun to melt the solder on the pins

3) Lift J3 from the PCB

4) Place new component on the location, and must check it can match PCB footprint

5) Soldering the new component by solder iron

6) Tear off the yellow tape on the DP connector, so that it can contact to the gasket, EMI will be effective.

Stick Gasket on the Shielding

1) Use scissors to cut the length of gasket 3021717 in 20mm.

   Gasket Size: W 17mmx x H 17mm x L 20mm

   (The Length of gasket should not be less than 20mm)

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

   (Alignment refers to the arrow in the image below)

3) Press the gasket to the end of shielding with your fingers and confirm that it will not fall.

   If the gasket falls on the inner boards, it will cause a short circuit and damage the Monitor.
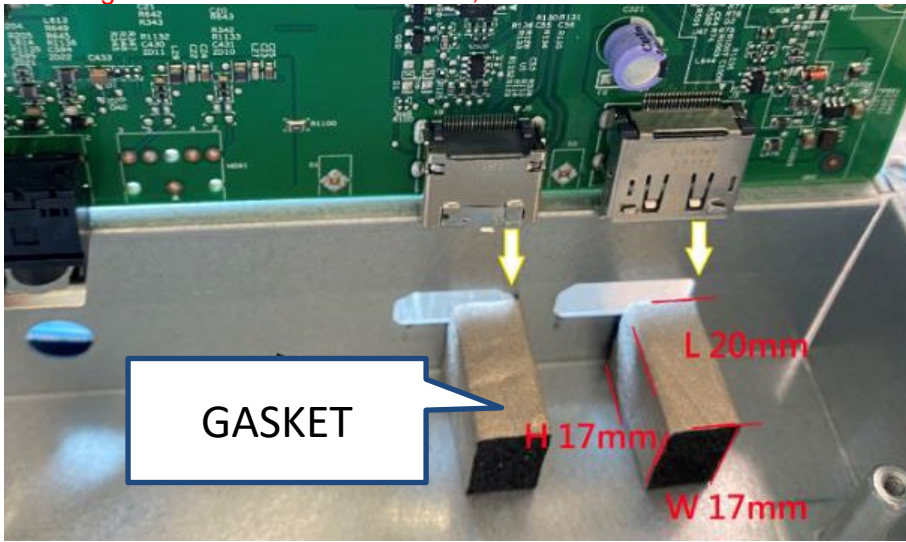
4) After assembly, check from the appearance whether the connector is indeed fixed with the gasket.

Function test

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

Table 4-1: Function test

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