

## 1. Important Safety Notice

### Product Announcement:

This product is certificated to meet RoHS Directive and Lead-Free produced definition. Using approved critical components only is recommended when the situation to replace defective parts. Vender assumes no liability express or implied, arising out of any unauthorized modification of design or replacing non-RoHS parts. Service providers assume all liability.

### Qualified Repairability:

Proper service and repair is important to the safe, reliable operation of all series products. The service providers recommended by vender should be aware of notices listed in this service manual in order to minimize the risk of personal injury when perform service procedures. Furthermore, the possible existed improper repairing method may damage equipment or products. It is recommended that service engineers should have repairing knowledge, experience, as well as appropriate product training per new model before performing the service procedures.

### NOTICE:

! To avoid electrical shocks, the products should be connected to an authorized power cord, and turn off the master power switch each time before removing the AC power cord.

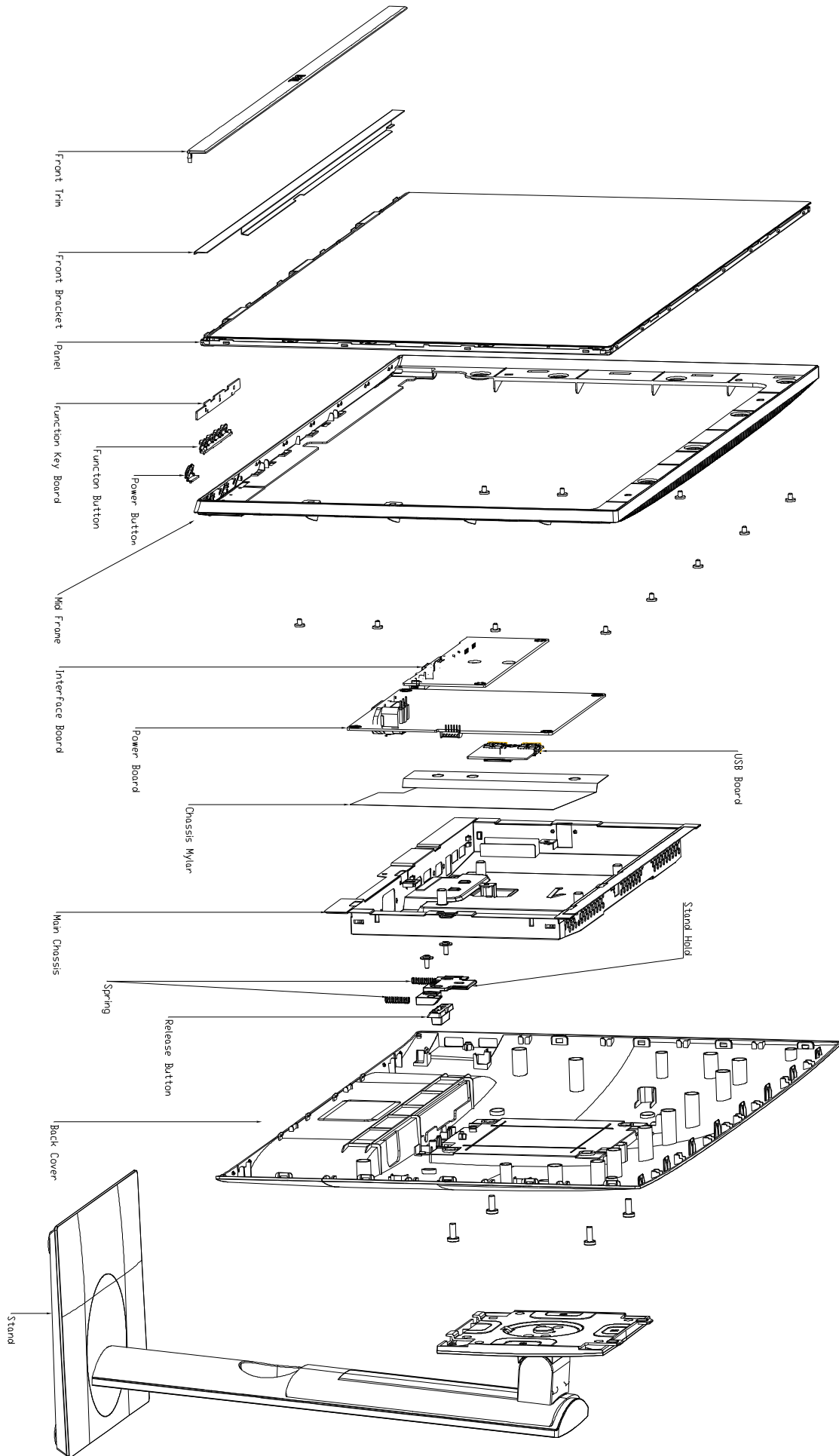
! To prevent the product away from water or expose in extremely high humidity environment.

! To ensure the continued reliability of this product, use only original manufacturer's specified parts.

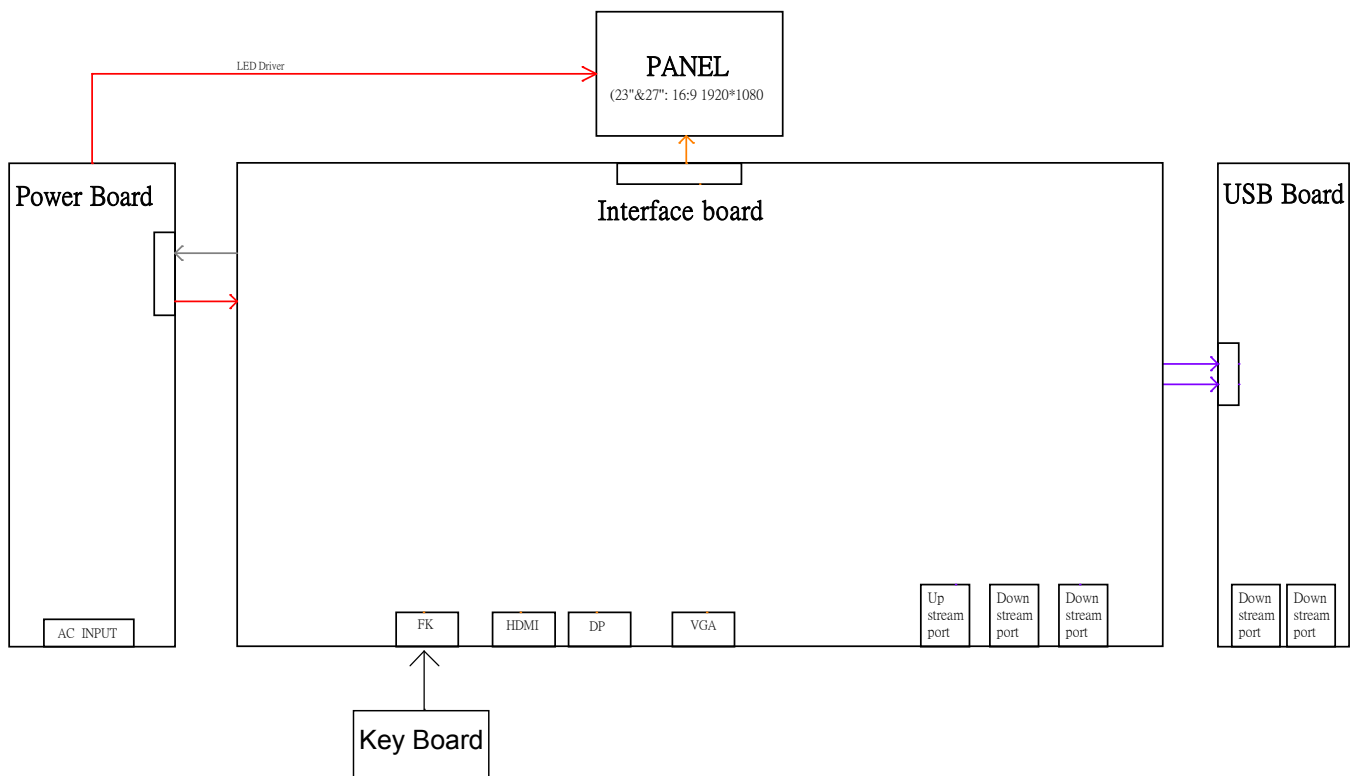
! To ensure following safety repairing behavior, put the replaced part on the components side of PWBA, not solder side.

- ! To ensure using a proper screwdriver, follow the torque and force listed in assembly and disassembly procedures to unscrew screws.
- ! Using Lead-Free solder to well mounted the parts.
- ! The fusion point of Lead-Free solder requested in the degree of 220°C.

## 2. Exploded view diagram with list of items



### 3. Wiring Connectivity Diagram



## 4. Disassembly and Assembly Procedures

Necessary repair and test equipment:

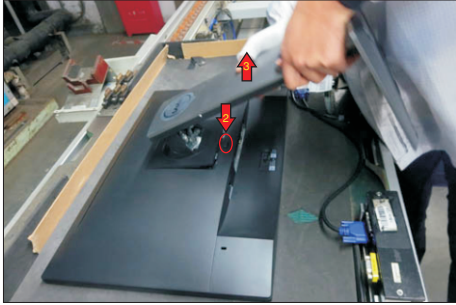
1. Philips-head screwdriver
2. Hex-head screwdriver

### 4.1 Disassembly Procedures:

Remove the monitor stand base:

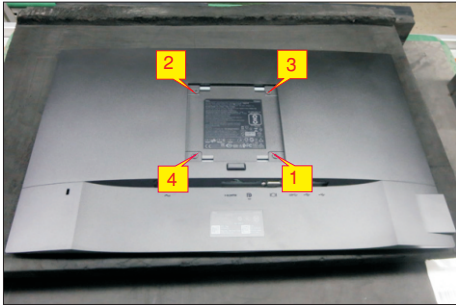
S1

1. Place the monitor on a soft cloth or cushion.
2. Press and hold the stand-release button.
3. Lift the stand up and away from the monitor.



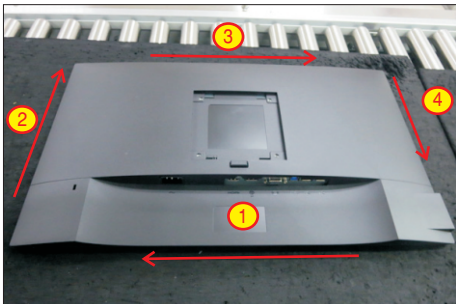
S2

Use a Philips-head screwdriver to remove 4pcs screws for unlocking mechanisms. Remove DP cap. (No.1~4 screw size=M4x10; Torque=12±0.5kgfxcM)



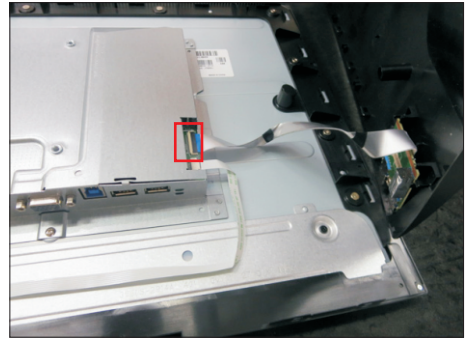
Wedge your fingers between the rear cover and the middle bezel on the corners of the top side of the monitor to release the rear cover, then use one hand to press the middle bezel, the other hand to pull up carefully the rear cover in order of arrow preference for unlocking mechanisms of rear cover.

S3



S4

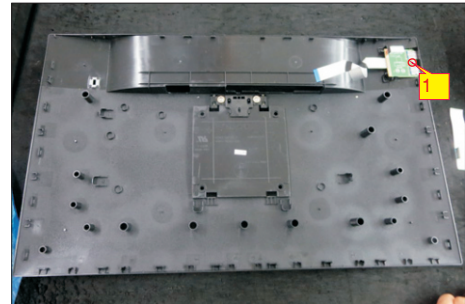
Lift the rear cover up carefully. Disconnect the USB FFC cable from the connector of the interface board, and then remove the rear cover.



S5

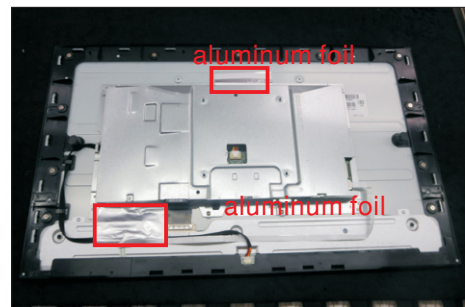
Use a Philips-head screwdriver to remove one screw for unlocking the USB board unit, then release the USB board unit and put it aside.

(No.1 screw size=M3x6, Torque=4±0.5kgfxcM)



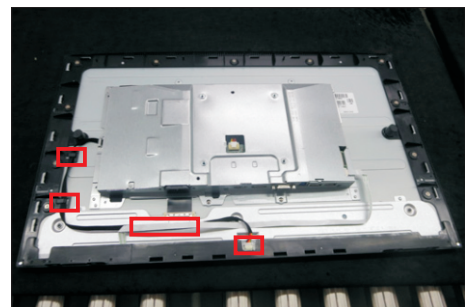
S6

Tear off two pieces of the aluminium foils for unfixing the bracket chassis base.



S7

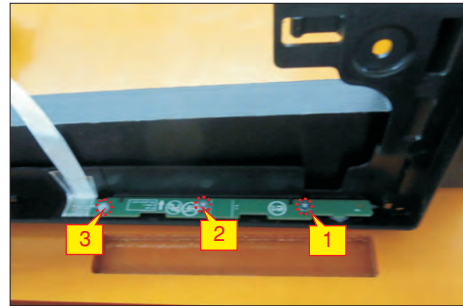
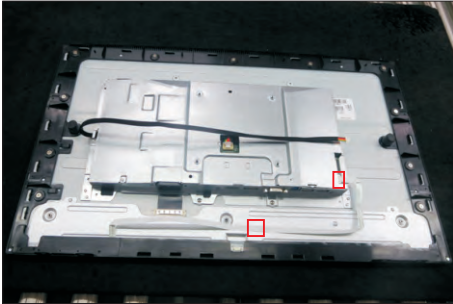
Unplug the panel power cable from the connector of the panel module, then release the function by tearing the tapes on the back of the cable, and then release the cable from the hooks of the middle bezel.



## 4. Disassembly and Assembly Procedures

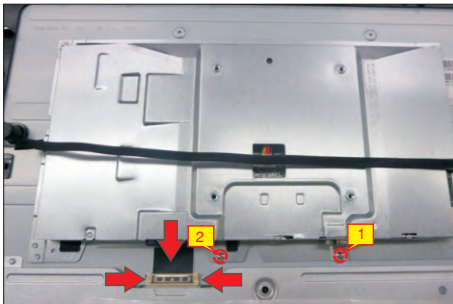
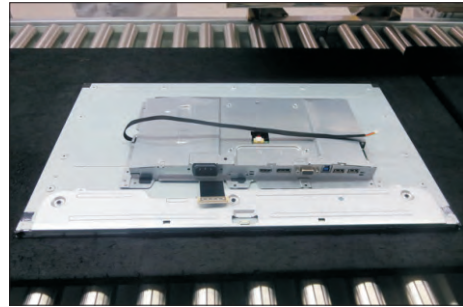
S8

Use a proper tool to release the function key cable from the connector, then pull the function key cable high for releasing the function key cable.



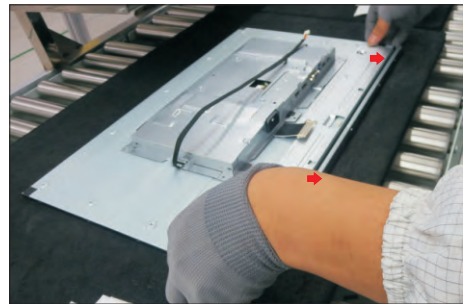
S9

Use a Philips-head screwdriver to remove 2pcs screws for unlocking the bracket with the panel. Push the earring-lock, and disconnect the LVDS cable from the connector of LCD panel module. (No.1~2 screw size=M3x2.8, Torque=4~5kgfxcM)



S12

Lift up the panel module for releasing the front bezel away from the panel module.

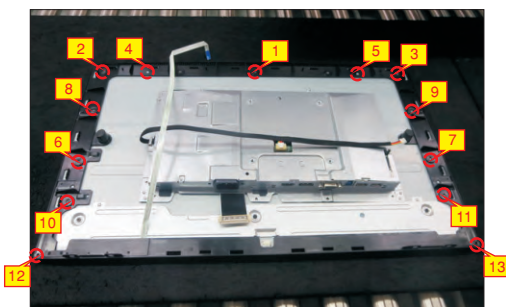


S10

Use a Philips-head screwdriver to remove 13pcs screws for unlocking the middle bezel with the unit. (No.1~11 screw size=M3x4, Torque=3~4kgfxcM; No.12~13 screw size=M1.6x1.7, Torque=0.6~1kgfxcM)

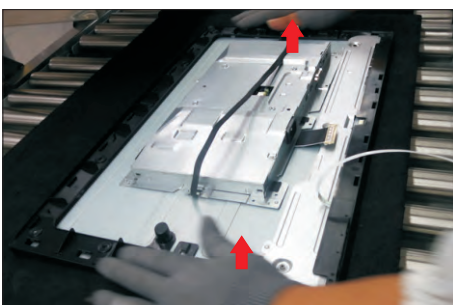
S13

Take away the bracket chassis module and then put the bracket chassis module on a protective cushion.



S11

Take away the middle bezel then use a Philips-head screwdriver to remove 3pcs screws for unlocking the function key board with the middle bezel.



## 4. Disassembly and Assembly Procedures

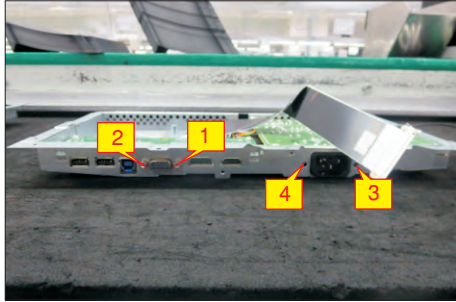
Use a Hex-head screwdriver to remove two screws for unlocking the D-Sub connector.

S14

(No.1~2 screws size=M3x8, Torque=6±0.5kgfxcn)

Use a Philips-head screwdriver to remove two screws for unlocking the AC power outlet.

( No.3~4 screw size=M3x8, Torque=6~7kgfxcn)



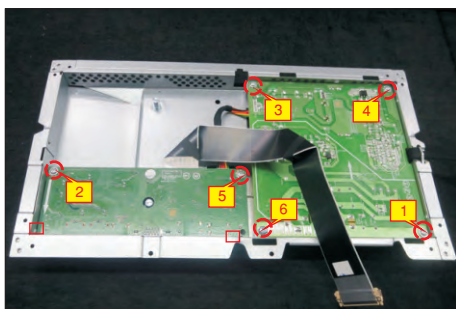
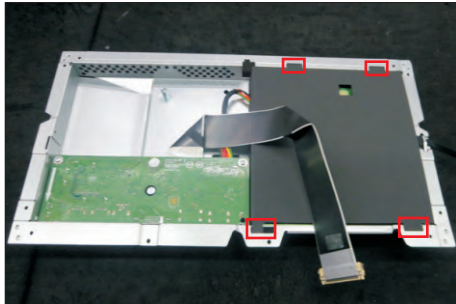
Remove the Mylar from the hooks of the bracket.

S15

Use a Philips-head screwdriver to remove six screws for unlocking the circuit board, release all the cables from the hooks.

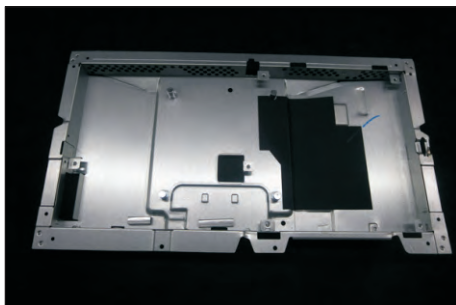
(No.1~5 screw size=M3x7.5, Torque=6±0.5kgfxcn;

No. 6 screw size=M4x8, Torque=6±0.5kgfxcn)



S16

Remove the interface board and power board from the bracket chassis module carefully, and disconnect all the cables.

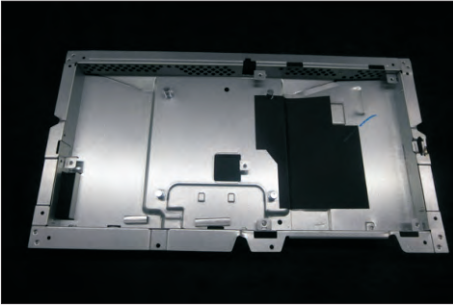


## 4. Disassembly and Assembly Procedures

### 4.2 Assembly Procedures:

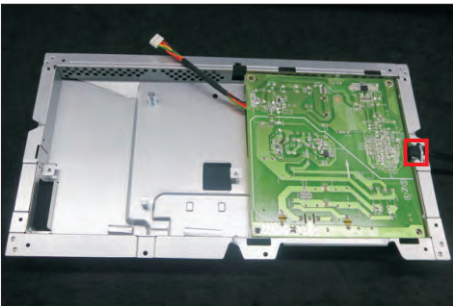
S1

Place a bracket chassis base on a protective cushion.



S2

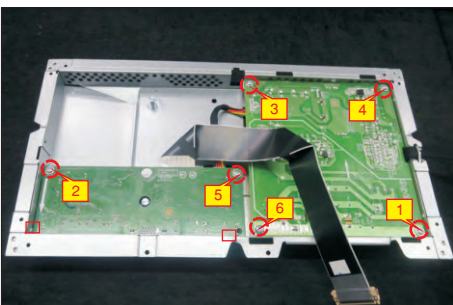
Turn over a power board and put the power board into the bracket chassis, locate the panel power cable into the hook of the bracket chassis.



S3

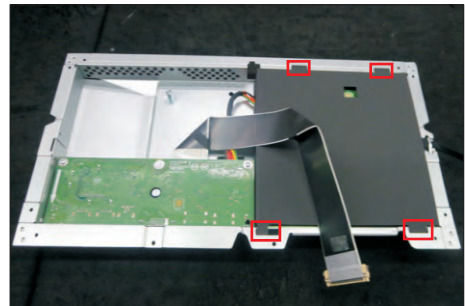
Take a interface board, connect a LVDS cable to the connector of the interface board, then connect the cable of the power board to the connector of the interface board. Turn over the interface board and locate it into the bracket. Use a Philips-head screwdriver to tighten six screws for locking the power board and interface board.

(No.1~5 screw size=M3x7.5, Torque=6±0.5kgfxcM;  
No.6 screw size=M4x8, Torque=6±0.5kgfxcM)



S4

Take a mylar to insert the hooks of the bracket to cover the power board.



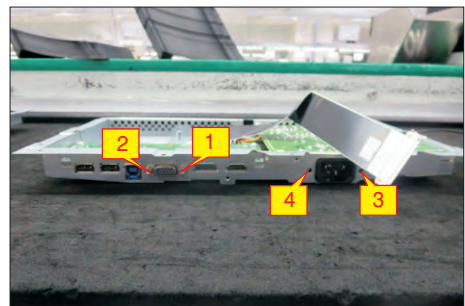
Use a Hex-head screwdriver to tighten two Hex Nuts for locking the D-Sub connector.

(No.1~2 screw size=M3x8, Torque=6±0.5kgfxcM)

S5

Use a Philips-head screwdriver to tighten two screws for locking the AC power outlet.

(No.3~4 screw size=M3x8, Torque=6~7kgfxcM;



S6

Panel preparation: Examine the panel surface according to inspection criteria. Turn over the panel to place the screen faced down for later assembling.

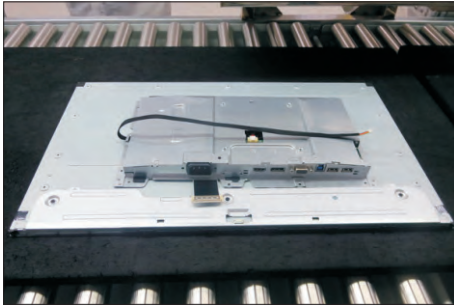
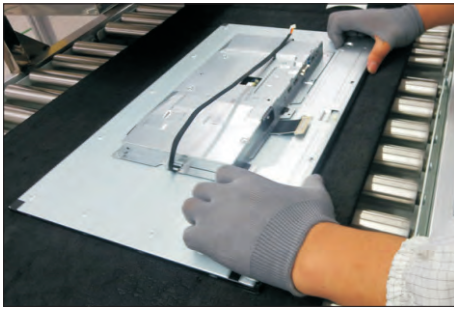


S7

Put the bracket chassis module on the back of LCD module, then lift up the panel with bracket and take 1 pcs front bezel to assemble with the panel module.

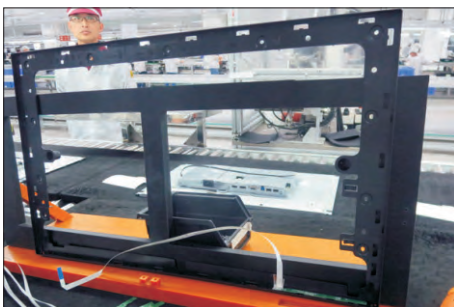
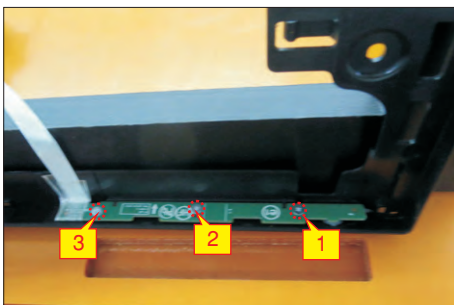


## 4. Disassembly and Assembly Procedures



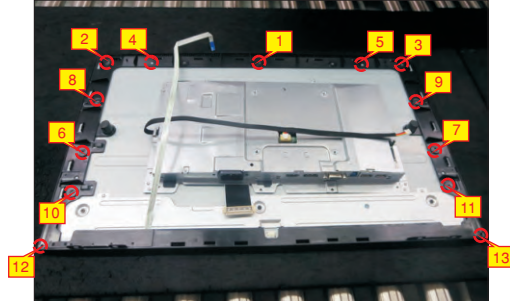
S8

Take a function key board and a middle bezel, then fix the middle bezel with a fixture, and locate the function keyboard into the hooks of the bezel. Use a Philips-head screwdriver to tighten 3pcs screws for locking the function key board with the middle bezel, then assemble the middle bezel with the front bezel.  
(No.1~3 screw size=M2x2.4, Torque=0.8±0.2kgfxcM)



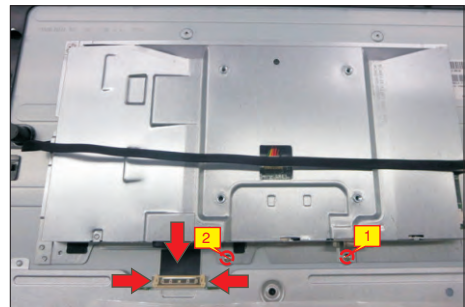
S9

Adjust the middle bezel, then use a Philips-head screwdriver to tighten 13pcs screws for locking the middle bezel with the assembled unit.  
(No.1~11 screw size=M3x4, Torque=3~4kgfxcM;  
No.12~13 screw size=M1.6x1.7, Torque=0.6~1kgfxcM)



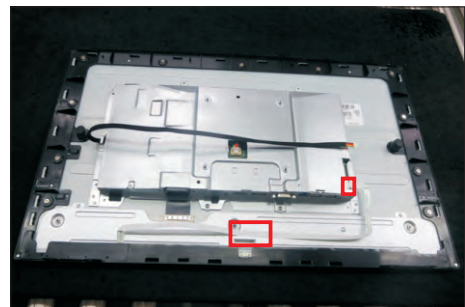
S10

Connect LVDS cable to the connector of panel. Use a Philips-head screwdriver to tighten 2pcs screws for locking the bracket with the panel.  
(No.1~2 screw size=M3x2.8, Torque=4~5kgfxcM)



S11

Connect the function key cable to the connector of the board. Fix the function key cable with adhesive tapes on the back of the cable.



S12

Connect the panel lamp cable to the connector of the panel, locate the cable into the hooks of the middle bezel, then stick 2pcs aluminum foil to fix the bracket chassis base as the picture below shown.

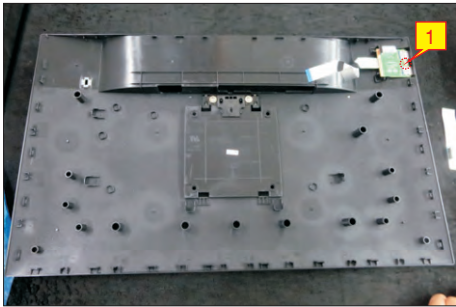
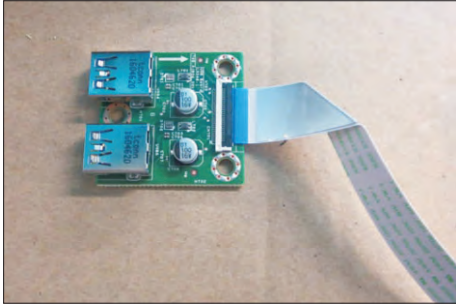




## 4. Disassembly and Assembly Procedures

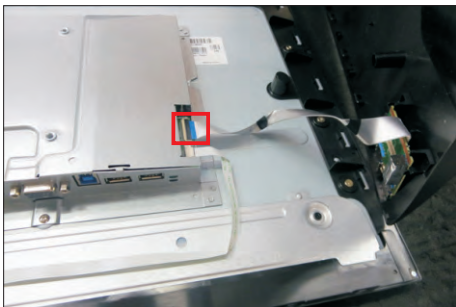
S13

Take a USB board, a USB hub and a connect cable. Connect the cable to the USB board, then locate the USB board into the USB hub. Stick 1pcs aluminum foil on one side of the USB hub, then locate the USB unit into the hook of a rear cover. Use a Philips-head screwdriver to tighten one screw for locking the USB unit with the rear cover.  
(No.1 screw size=M3x6, Torque=4±0.5kgfxcm)



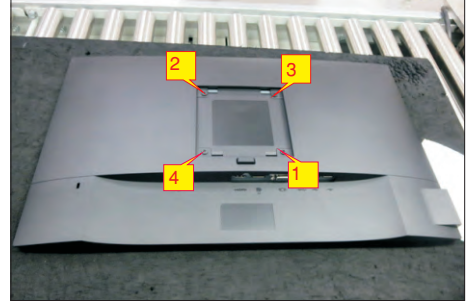
S14

Move the assembled rear cover close to the panel unit, then connect the USB FFC cable to the connector of interface board. Put down the rear cover and push the rear cover on the positions marked as the picture below shown for mechanisms engagement.



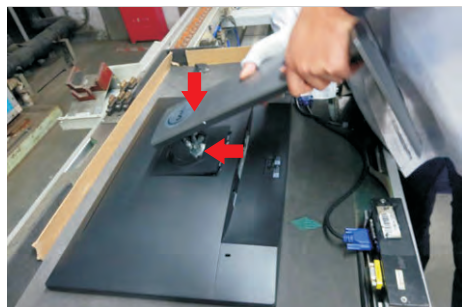
S15

Use a Philips-head screwdriver to tighten 4pcs screws for locking rear cover with the assembled unit.  
(No.1~4 screw size=M4x10; Torque=12±0.5kgfxcm)



S16

Stick 2pcs labels on the specific positions as the picture below shown. Fit the two tabs on the upper part of the stand into the grooves on the back of the monitor, and then press the stand so that the monitor mounting area snaps onto the stand.



S17

Lift up the monitor, then provide power supply and a video signal to the monitor, then turn on the monitor for functionality check.



## 5. Trouble Shooting Instructions

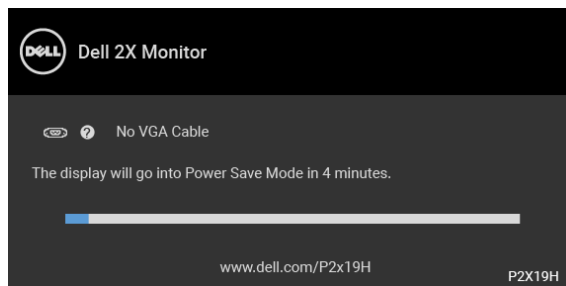
**⚠ WARNING: Before you begin any of the procedures in this section, follow the [Safety instructions](#).**

### Self-test

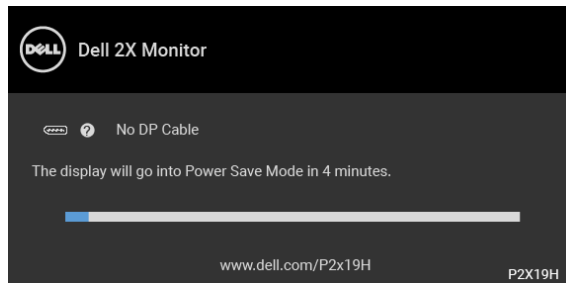
Your monitor provides a self-test feature that allows you to check whether your monitor is functioning properly. If your monitor and computer are properly connected but the monitor screen remains dark, run the monitor self-test by performing the following steps:

1. Turn off both your computer and the monitor.
2. Unplug the video cable from the back of the computer.
3. Turn on the monitor.

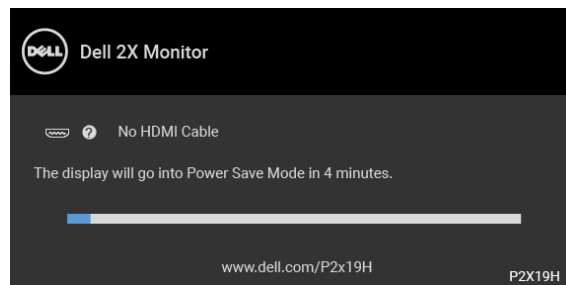
The floating dialog box should appear on-screen (against a black background), if the monitor cannot sense a video signal and is working correctly. While in self-test mode, the power LED remains white. Also, depending upon the selected input, one of the dialogs shown below will continuously scroll through the screen.



or



or



4. This box also appears during normal system operation, if the video cable becomes disconnected or damaged.
5. Turn Off your monitor and reconnect the video cable; then turn On both your computer and the monitor.

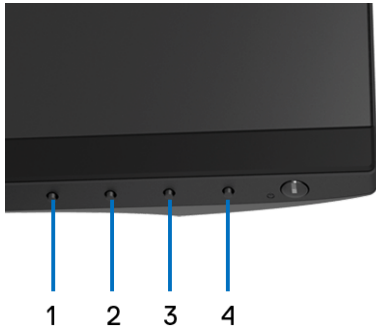
If your monitor screen remains blank after you use the previous procedure, check your video controller and computer, because your monitor is functioning properly.

## 5. Trouble Shooting Instructions

### Built-in diagnostics

Your monitor has a built-in diagnostic tool that helps you determine if the screen abnormality you are experiencing is an inherent problem with your monitor, or with your computer and video card.

 **NOTE: You can run the built-in diagnostics only when the video cable is unplugged and the monitor is in self-test mode.**



To run the built-in diagnostics:

1. Ensure that the screen is clean (no dust particles on the surface of the screen).
2. Unplug the video cable(s) from the back of the computer or monitor. The monitor then goes into the self-test mode.
3. Press and hold **Button 1** on the front panel for 5 seconds. A gray screen appears.
4. Carefully inspect the screen for abnormalities.
5. Press **Button 1** on the front panel again. The color of the screen changes to red.
6. Inspect the display for any abnormalities.
7. Repeat steps 5 and 6 to inspect the display in green, blue, black, white, and text screens.

The test is complete when the text screen appears. To exit, press **Button 1** again.

If you do not detect any screen abnormalities upon using the built-in diagnostic tool, the monitor is functioning properly. Check the video card and computer.


## 5. Trouble Shooting Instructions

### Common problems

The following table contains general information about common monitor problems you might encounter and the possible solutions:

Common symptoms	What you experience	Possible solutions
No Video/Power LED off	No picture	<ul style="list-style-type: none"><li>• Ensure that the video cable connecting the monitor and the computer is properly connected and secure.</li><li>• Verify that the power outlet is functioning properly using any other electrical equipment.</li><li>• Ensure that the power button is pressed fully.</li><li>• Ensure that the correct input source is selected in the <a href="#">Input Source</a> menu.</li></ul>
No Video/Power LED on	No picture or no brightness	<ul style="list-style-type: none"><li>• Increase brightness &amp; contrast controls via OSD.</li><li>• Perform monitor self-test feature check.</li><li>• Check for bent or broken pins in the video cable connector.</li><li>• Run the built-in diagnostics.</li><li>• Ensure that the correct input source is selected in the <a href="#">Input Source</a> menu.</li></ul>
Poor Focus	Picture is fuzzy, blurry, or ghosting	<ul style="list-style-type: none"><li>• Perform <b>Auto Adjust</b> via OSD.</li><li>• Adjust the <b>Phase</b> and <b>Pixel Clock</b> controls via OSD.</li><li>• Eliminate video extension cables.</li><li>• Reset the monitor to factory settings.</li><li>• Change the video resolution to the correct aspect ratio.</li></ul>
Shaky/Jittery Video	Wavy picture or fine movement	<ul style="list-style-type: none"><li>• Perform <b>Auto Adjust</b> via OSD.</li><li>• Adjust the <b>Phase</b> and <b>Pixel Clock</b> controls via OSD.</li><li>• Reset the monitor to factory settings.</li><li>• Check environmental factors.</li><li>• Relocate the monitor and test in another room.</li></ul>
Missing Pixels	LCD screen has spots	<ul style="list-style-type: none"><li>• Cycle power On-Off.</li><li>• Pixel that is permanently Off is a natural defect that can occur in LCD technology.</li><li>• For more information on Dell Monitor Quality and Pixel Policy, see Dell Support site at: <a href="http://www.dell.com/support/monitors">http://www.dell.com/support/monitors</a>.</li></ul>

## 5. Trouble Shooting Instructions

Stuck-on Pixels	LCD screen has bright spots	<ul style="list-style-type: none"> <li>• Cycle power On-Off.</li> <li>• Pixel that is permanently off is a natural defect that can occur in LCD technology.</li> <li>• For more information on Dell Monitor Quality and Pixel Policy, see Dell Support site at: <a href="http://www.dell.com/support/monitors">http://www.dell.com/support/monitors</a>.</li> </ul>
Brightness Problems	Picture too dim or too bright	<ul style="list-style-type: none"> <li>• Reset the monitor to factory settings.</li> <li>• Perform <b>Auto Adjust</b> via OSD.</li> <li>• Adjust brightness &amp; contrast controls via OSD.</li> </ul>
Geometric Distortion	Screen not centered correctly	<ul style="list-style-type: none"> <li>• Reset the monitor to factory settings.</li> <li>• Perform <b>Auto Adjust</b> via OSD.</li> <li>• Adjust horizontal &amp; vertical controls via OSD.</li> <li>• When using HDMI/DisplayPort input, the positioning adjustments are not available.</li> </ul>
Horizontal/Vertical Lines	Screen has one or more lines	<ul style="list-style-type: none"> <li>• Reset the monitor to factory settings.</li> <li>• Perform <b>Auto Adjust</b> via OSD.</li> <li>• Adjust the <b>Phase</b> and <b>Pixel Clock</b> controls via OSD.</li> <li>• Perform monitor self-test feature check and determine if these lines are also in self-test mode.</li> <li>• Check for bent or broken pins in the video cable connector.</li> <li>• Run the built-in diagnostics.</li> <li>• When using HDMI/DisplayPort input, the <b>Pixel Clock</b> and <b>Phase</b> adjustments are not available.</li> </ul>
Synchronization Problems	Screen is scrambled or appears torn	<ul style="list-style-type: none"> <li>• Reset the monitor to factory settings.</li> <li>• Perform <b>Auto Adjust</b> via OSD.</li> <li>• Adjust the <b>Phase</b> and <b>Pixel Clock</b> controls via OSD.</li> <li>• Perform monitor self-test feature check to determine if the scrambled screen appears in self-test mode.</li> <li>• Check for bent or broken pins in the video cable connector.</li> <li>• Restart the computer in the safe mode.</li> </ul>
Safety Related Issues	Visible signs of smoke or sparks	<ul style="list-style-type: none"> <li>• Do not perform any troubleshooting steps.</li> <li>• Contact  immediately.</li> </ul>

## 5. Trouble Shooting Instructions

Intermittent Problems	Monitor malfunctions on & off	<ul style="list-style-type: none"> <li>• Ensure that the video cable connecting the monitor to the computer is connected properly and is secure.</li> <li>• Reset the monitor to factory settings.</li> <li>• Perform monitor self-test feature check to determine if the intermittent problem occurs in self-test mode.</li> </ul>
Missing Color	Picture missing color	<ul style="list-style-type: none"> <li>• Perform monitor self-test feature check.</li> <li>• Ensure that the video cable connecting the monitor to the computer is connected properly and is secure.</li> <li>• Check for bent or broken pins in the video cable connector.</li> </ul>
Wrong Color	Picture color not good	<ul style="list-style-type: none"> <li>• Change the settings of the <b>Preset Modes</b> in the <b>Color</b> menu OSD depending on the application.</li> <li>• Adjust R/G/B value under <b>Custom Color</b> in <b>Color</b> menu OSD.</li> <li>• Run the built-in diagnostics.</li> </ul>
Image retention from a static image left on the monitor for a long period of time	Faint shadow from the static image displayed appears on the screen	<ul style="list-style-type: none"> <li>• Set the screen to turn o after a few minutes of screen idle time. These can be adjusted in Windows Power Options or Mac Energy Saver setting.</li> <li>• Alternatively, use a dynamically changing screensaver.</li> </ul>

### Product specific problems

Common symptoms	What you experience	Possible solutions
Screen image is too small	Image is centered on screen, but does not fill entire viewing area	<ul style="list-style-type: none"> <li>• Check the <b>Aspect Ratio</b> setting in the <b>Display</b> menu OSD.</li> <li>• Reset the monitor to factory settings.</li> </ul>
No Input Signal when user controls are pressed	No picture, the LED light is white	<ul style="list-style-type: none"> <li>• Check the signal source. Ensure the computer is not in the power saving mode by moving the mouse or pressing any key on the keyboard.</li> <li>• Check whether the signal cable is plugged in properly. Re-plug the signal cable if necessary.</li> <li>• Reset the computer or video player.</li> </ul>

## 5. Trouble Shooting Instructions

---

The picture does not fill the entire screen	The picture cannot fill the height or width of the screen	<ul style="list-style-type: none"><li>• Due to different video formats (aspect ratio) of DVDs, the monitor may display in full screen.</li><li>• Run the built-in diagnostics.</li></ul>
---	---	--

---

 **NOTE: When choosing HDMI/DisplayPort mode, the Auto Adjust function will not be available.**

### Universal Serial Bus (USB) specific problems

---

Common symptoms	What you experience	Possible solutions
USB interface is not working	USB peripherals are not working	<ul style="list-style-type: none"><li>• Check that your monitor is turned On.</li><li>• Reconnect the upstream cable to your computer.</li><li>• Reconnect the USB peripherals (downstream connector).</li><li>• Switch Off and then turn On the monitor again.</li><li>• Reboot the computer.</li><li>• Some USB devices like external portable HDD require higher electric current; connect the device directly to the computer system.</li></ul>
Super Speed USB 3.0 interface is slow	Super Speed USB 3.0 peripherals working slowly or not working at all	<ul style="list-style-type: none"><li>• Check that your computer is USB 3.0-capable.</li><li>• Some computers have USB 3.0, USB 2.0, and USB 1.1 ports. Ensure that the correct USB port is used.</li><li>• Reconnect the upstream cable to your computer.</li><li>• Reconnect the USB peripherals (downstream connector).</li><li>• Reboot the computer.</li></ul>
Wireless USB peripherals stop working when a USB 3.0 device is plugged in	Wireless USB peripherals responding slowly or only working as the distance between itself and its receiver decreases	<ul style="list-style-type: none"><li>• Increase the distance between the USB 3.0 peripherals and the wireless USB receiver.</li><li>• Position your wireless USB receiver as close as possible to the wireless USB peripherals.</li><li>• Use a USB-extender cable to position the wireless USB receiver as far away as possible from the USB 3.0 port.</li></ul>

---