

Service
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Simplified

Service Manual

Important Safety Notice

Proper service and repair is important to the safe, reliable operation of all DELL Company Equipment. The service procedures recommended by DELL and described in this service manual are effective methods of performing service operations. Some of these service operations require the use of tools specially designed for the purpose. The special tools should be used when and as recommended.

It is important to note that this manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It is also important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. DELL could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, DELL has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by DELL must first satisfy himself thoroughly that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

Hereafter throughout this manual, DELL Company will be referred to as DELL.

WARNING

Use of substitute replacement parts, which do not have the same, specified safety characteristics may create shock, fire, or other hazards.

Under no circumstances should the original design be modified or altered without written permission from DELL. DELL assumes no liability, express or implied, arising out of any unauthorized modification of design.

Servicer assumes all liability.

FOR PRODUCTS CONTAINING LASER:

DANGER-Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.

CAUTION-Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

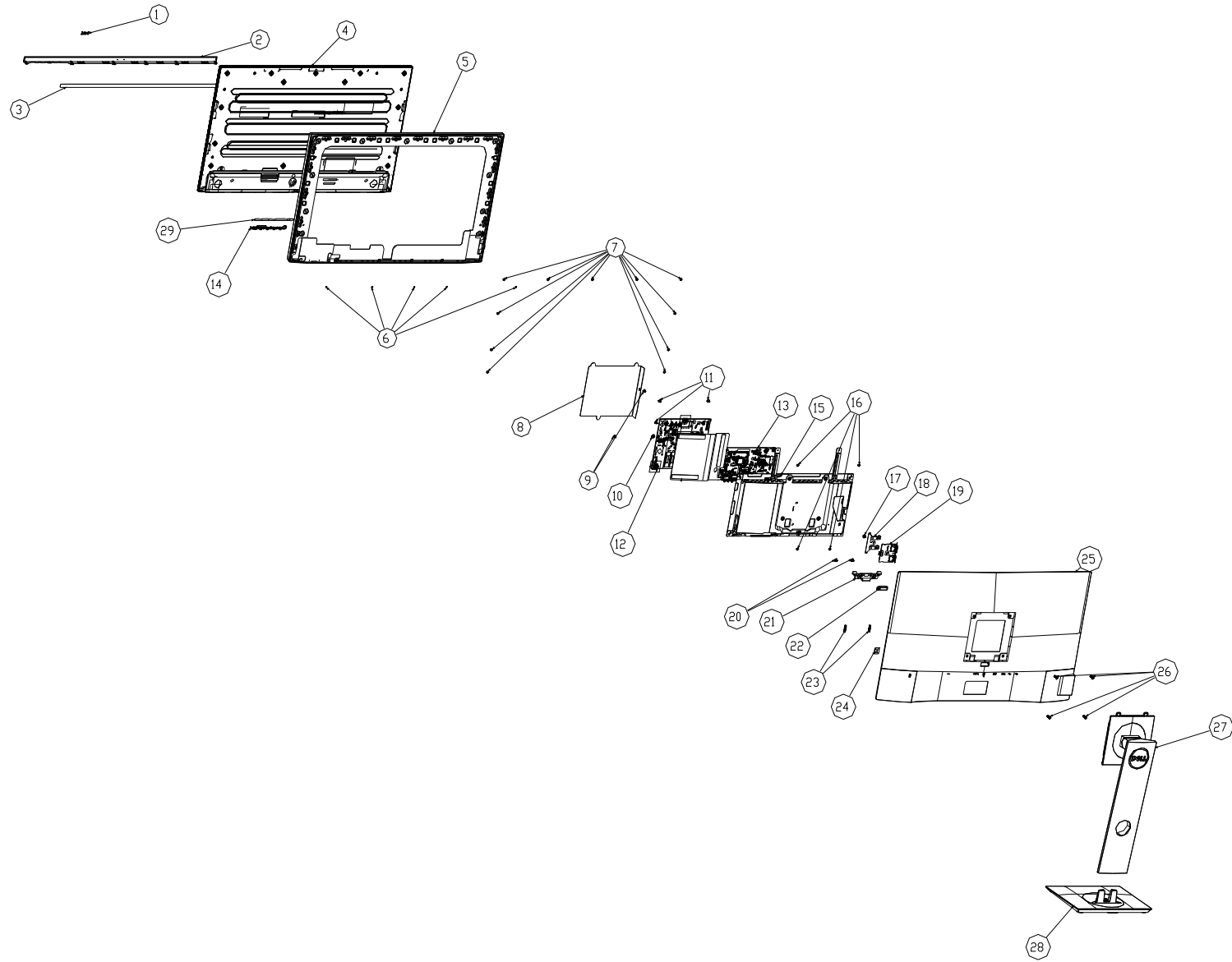
CAUTION -The use of optical instruments with this product will increase eye hazard.

TO ENSURE THE CONTINUED RELIABILITY OF THIS PRODUCT, USE ONLY ORIGINAL MANUFACTURER'S REPLACEMENT PARTS, WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THIS SERVICE MANUAL.

Take care during handling the LCD module with backlight unit

- Must mount the module using mounting holes arranged in four corners.
- Do not press on the panel, edge of the frame strongly or electric shock as this will result in damage to the screen.
- Do not scratch or press on the panel with any sharp objects, such as pencil or pen as this may result in damage to the panel.
- Protect the module from the ESD as it may damage the electronic circuit (C-MOS).
- Make certain that treatment person's body is grounded through wristband.
- Do not leave the module in high temperature and in areas of high humidity for a long time.
- Avoid contact with water as it may a short circuit within the module.
- If the surface of panel becomes dirty, please wipe it off with a soft material. (Cleaning with a dirty or rough cloth may damage the panel.)

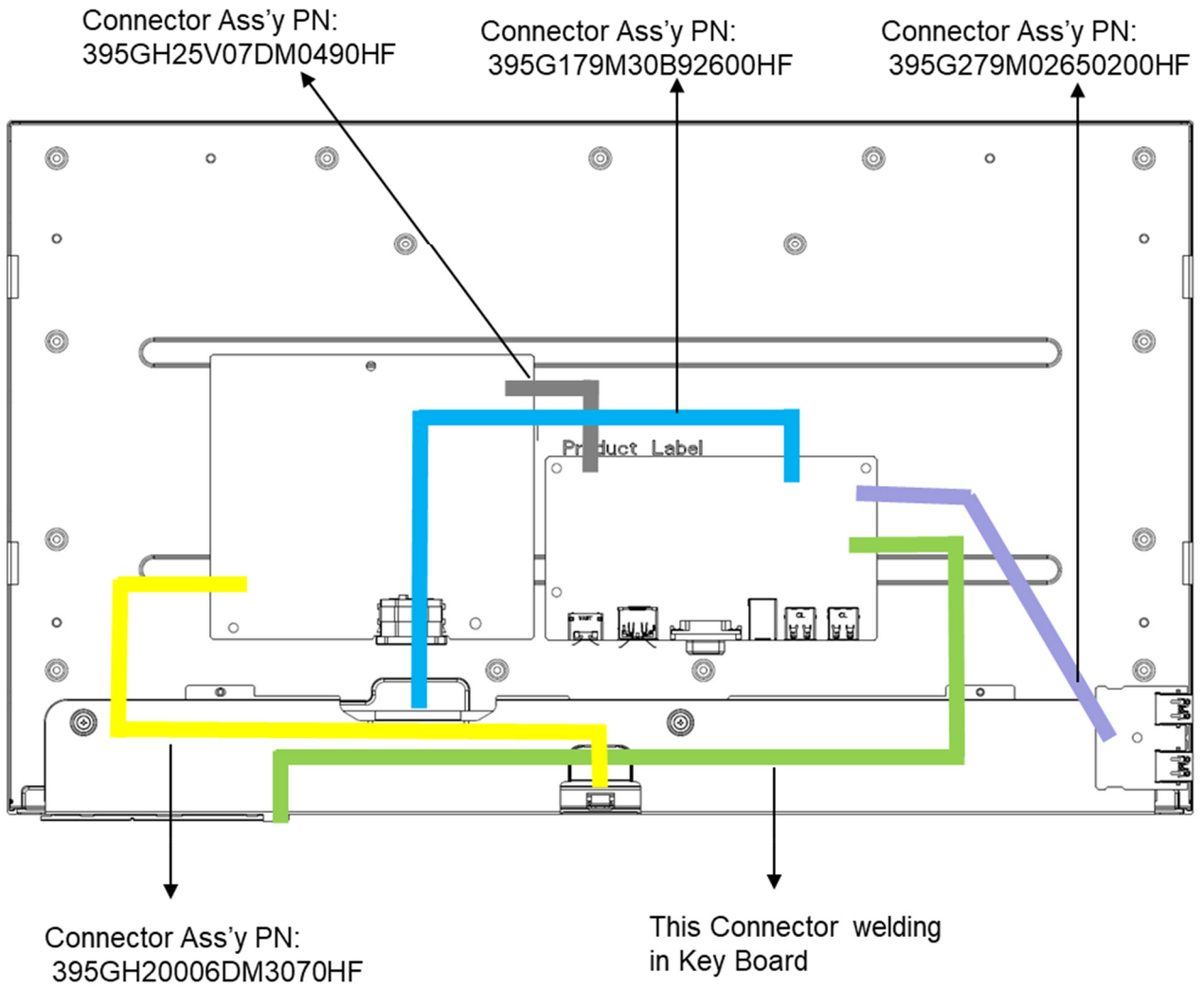
1. Exploded view diagram with list of items



No.	Description	Q'ty
1	LOGO DELL	1
2	DECO_BEZEL	1
3	DECO_PLATE	1
4	PANEL	1
5	MIDDLE_FRAME	1
8	INSULATING SHEET	1
12	ADAPTER BOARD	1
13	CONVERSION BOARD	1
14	KEY	1
15	MAINFRAME	1

No.	Description	Q'ty	No.	Part No.	Description	Q'ty
18	SHIELD_USB	1				
19	USB BOARD	1	6	0Q1G6019 1	SCREW(DECO BEZEL /MIDDLE FRAME)	3
21	Latch	1	7	QM1G30300301200ARA	SCREW M3 3(MIDDLE FRAME/PANEL)	11
22	STAND_BUTTON	1	9	0D1G1030 6120	SCREW D3 6 (POWER BOARD/MAINFRAME)	2
23	spring	2	10	QM1G38400601200ARA	SCREW -- 6mm(POWER BOARD/MAINFRAME)	1
24	BKT_LOCKER	1	11	0D1G1030 6120	SCREW D3 6(MAIN BOARD/MAINFRAME)	3
25	REAR_COVER	1	16	QM1G30300301200ARA	SCREW M3 3(MAINFRAME/PANEL)	4
27	stand ass'y	1	17	0Q1G2030 5120	SCREW 5 (USB BOARD/REAR COVER)	1
28	BASE_ASS'Y	1	20	0Q1G2030 5120	SCREW 5 (Latch/REAR COVER)	2
29	KEY BOARD	1	26	0M1G2940 10225 CR3	SCREW M4 10(REAR COVER/PANEL)	4

2. Wiring connectivity diagram



3.Mechanical Instruction



Tools Required

List the type and size of the tools that would typically can be used to disassemble the product to a point where components and materials requiring selective treatment can be removed.

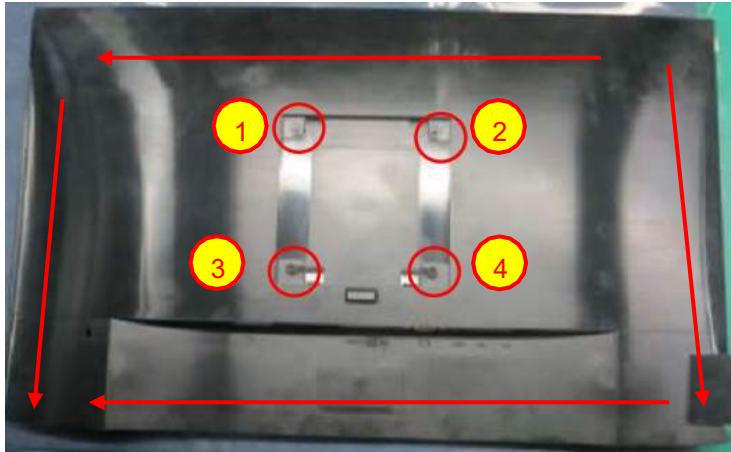
Tool Description:

- Phillip head Screwdriver
- Hex Screwdriver
- Penknife

3.1 Disassembly Procedures:

Step	Figure	Remark
<p>S1. Before disassemble</p>		<p>Turn off power, Unplug external cables from product</p>
<p>S2. Remove the stand</p>		<p>Press the button on the red then pull out the stand upward, stand will be remove.</p>

S3.Remove the REAR COVER.



Use a Philips-head screwdriver to remove 4 screws for unlocking mechanisms.

(No.1~4 screw size=M4x10;

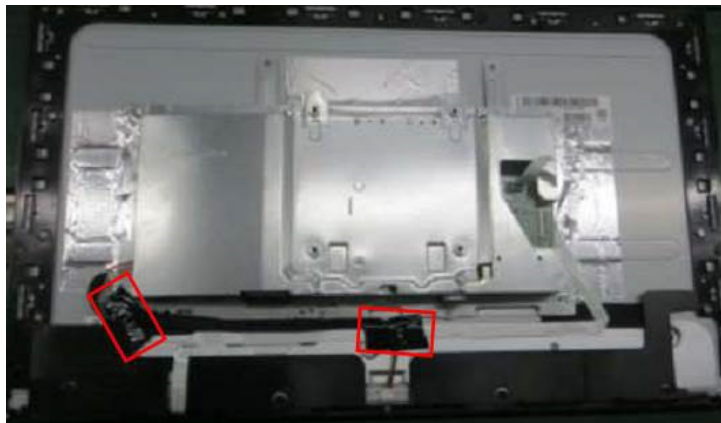
Torque=12±2kgf.cm)

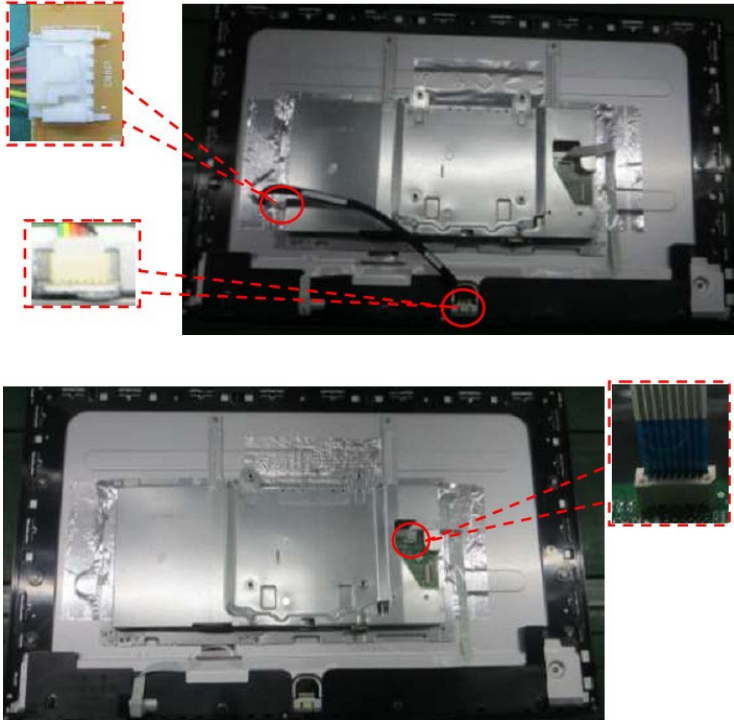
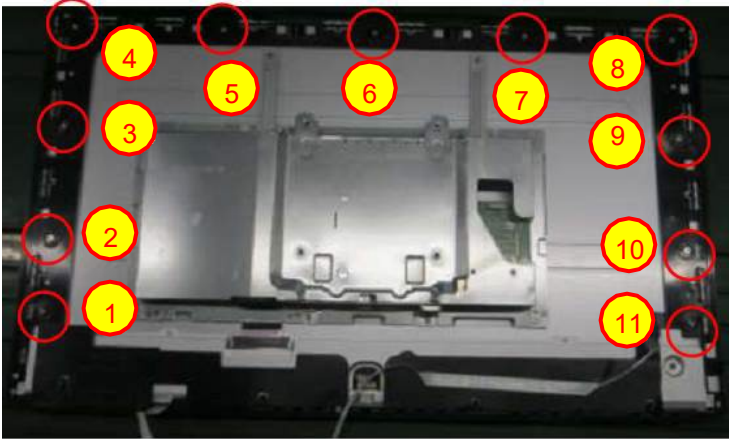
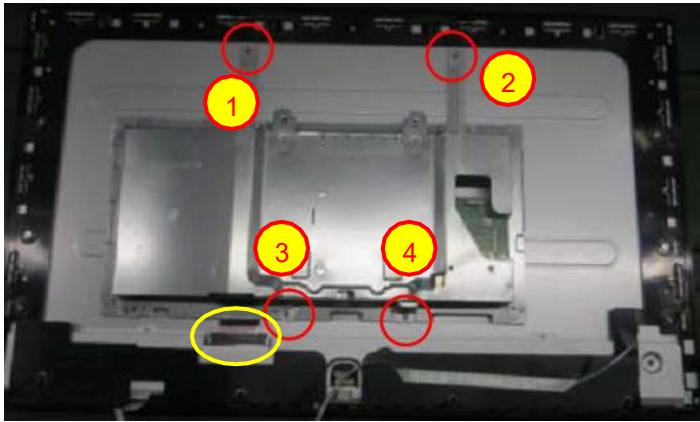
Use Penknife to separate the bezel and rear cove follow the arrows in sequence, then you can take out rear cover.

S4.Remove the Cables and Tapes

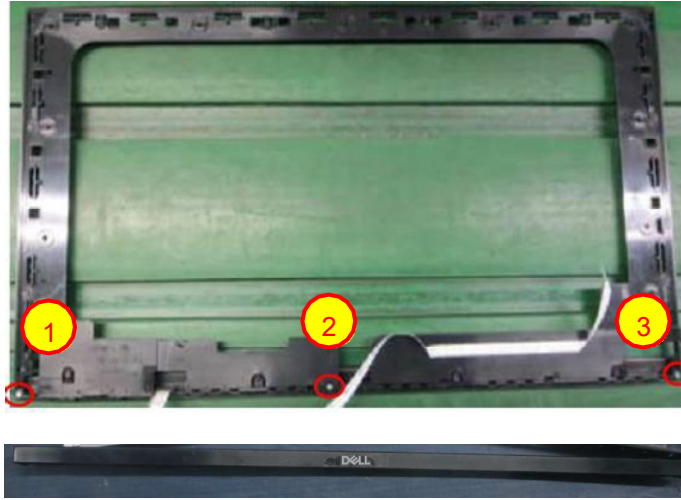


Disconnect the pins and the tapes.



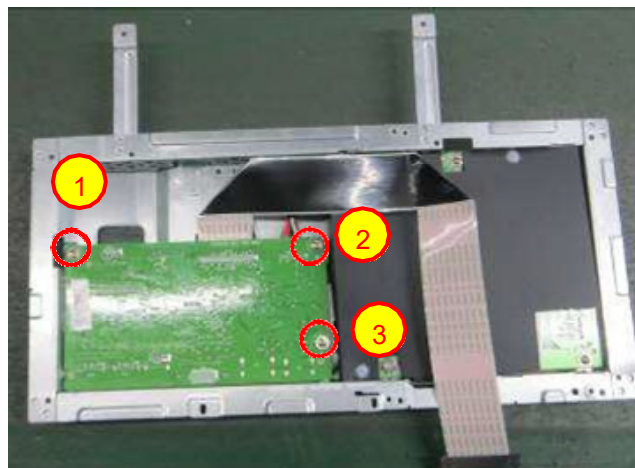
		
<p>S5.Remove the Middle_Frame</p>		<p>Use a Philips-head screwdriver to remove 11 screws for unlocking middle frame. (No.1~11 screw size=M3x3; Torque=3±0.5kgf.cm)</p>
<p>S6.Remove the Main frame and the pin</p>		<p>1. Use a Philips-head screwdriver to remove 4 screws for unlocking main frame. (No.1~4 screw size=M3x3; Torque=3±0.5kgf.cm)</p> <p>2. Disconnect the pin</p>

S7.The Middle frame \ The Deco Bezel and the Key Board



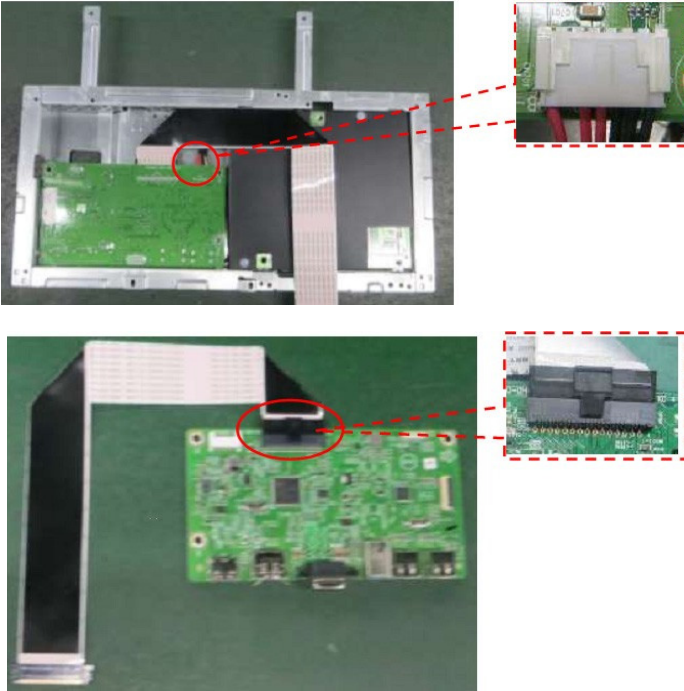
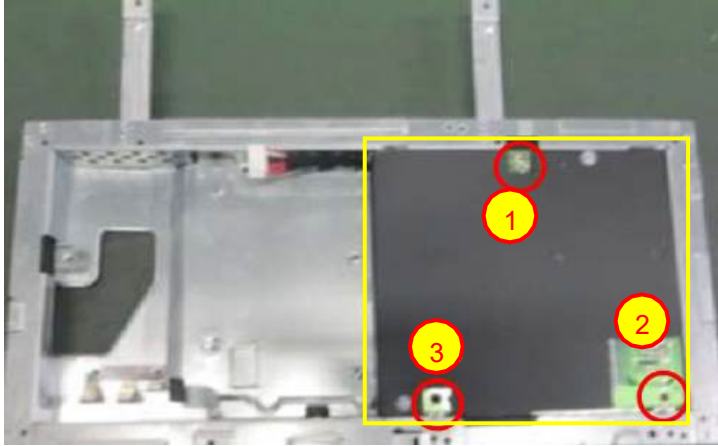
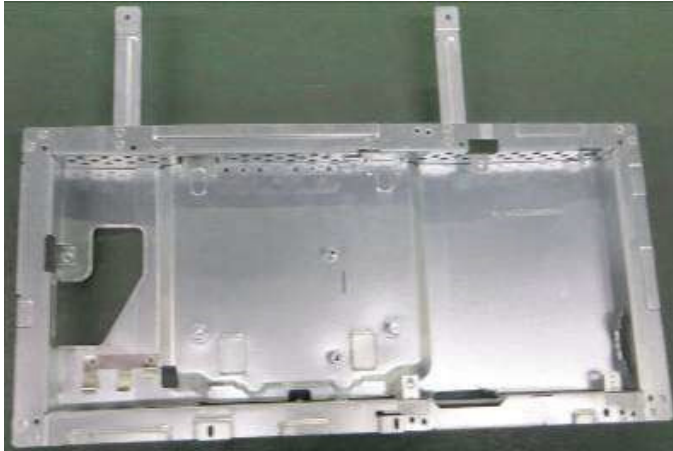
Use a Philips-head screwdriver to remove 3 screws for unlocking the Deco bezel
(No.1~3 screw size=M2x2.5; Torque=0.9±0.4kgf.cm)

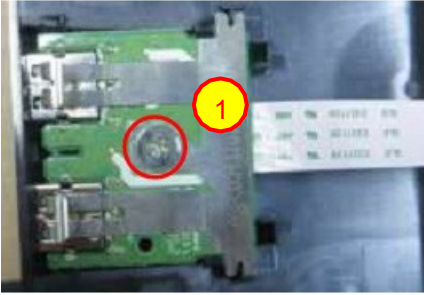

S8.Remove the Main Board



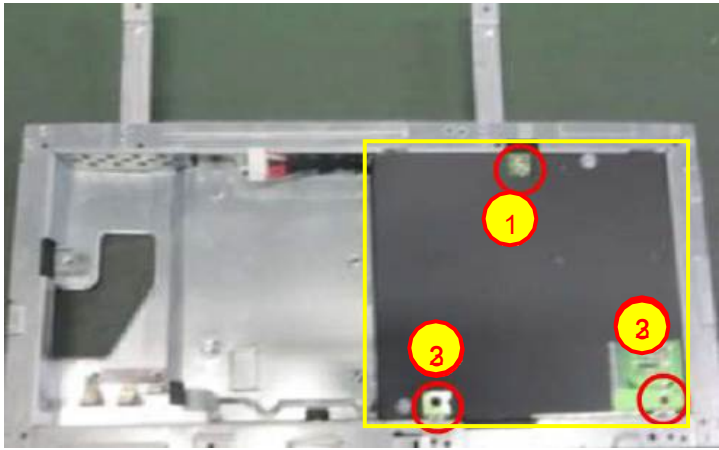
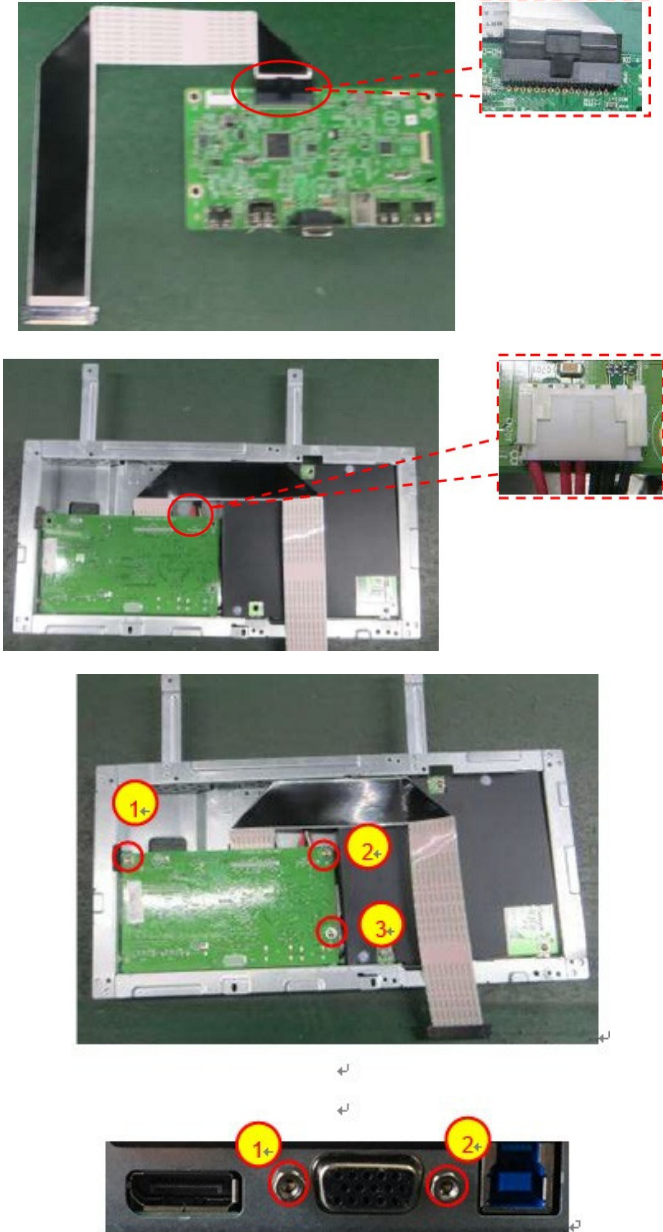
Use a Philips-head screwdriver to remove 3 screws for unlocking Main board.
(No.1~3 screw size=D3x6 Torque=6±1kgf.cm)

Use a hex screwdriver to remove 2 screws for unlocking mainboard
(No.1~2 Hex screw Torque= 4.5± 0.5kgf.cm)

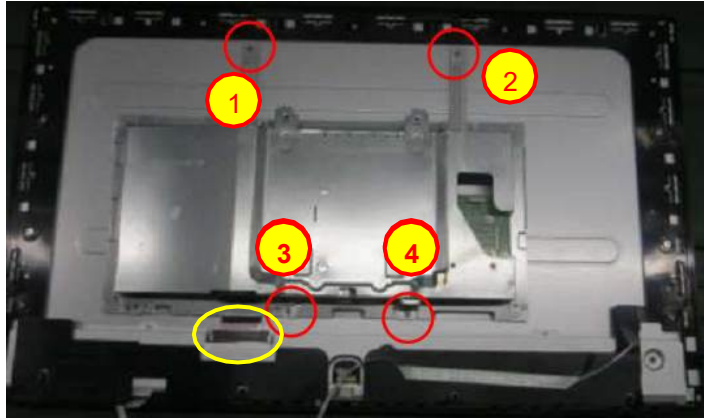
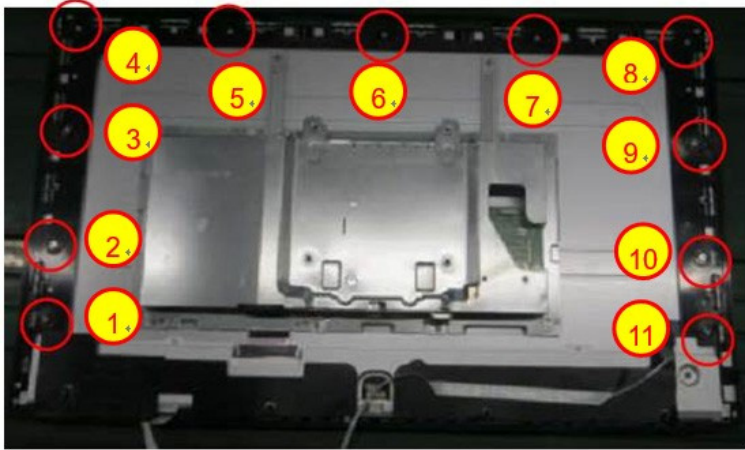
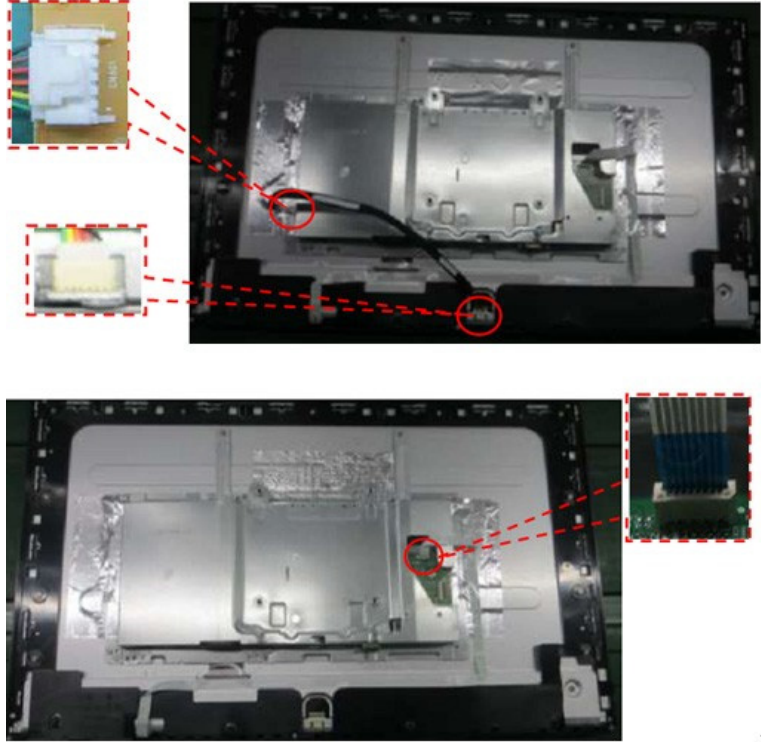
<p>S9.Disconnect the pins</p>		<p>Disconnect the pins</p>
<p>S10.Remove the Mylar and the Power Board</p>		<p>1. Take off the Mylar 2. Use a Philips-head screwdriver to remove 3 screws for unlocking the Power Board (No.1~2 screw size=D3x6 Torque=6±1kgf.cm No.3 screw size=M4x6 Torque=6±1kgf.cm)</p>
<p>S11.The Mainframe</p>		

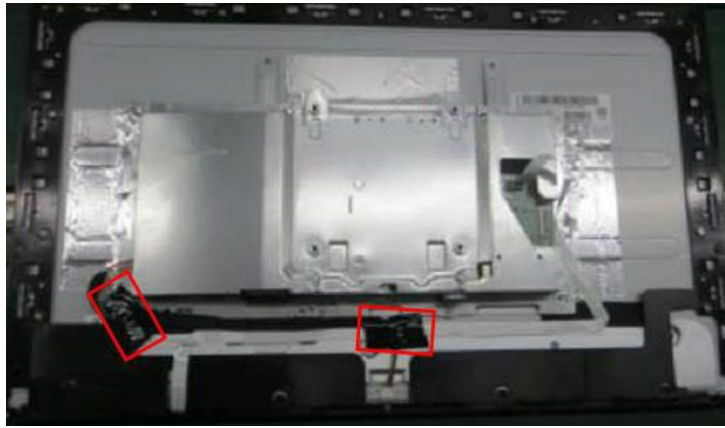
<p>S12.Remove the USB board</p>		<p>Use a Philips-head screwdriver to remove 1 screw for unlocking the USB board (No.1 screw size=Q3x5 Torque=4±1kgf.cm)</p>
<p>S13.The Rear Cover</p>		

3.2 Assembly Procedures:

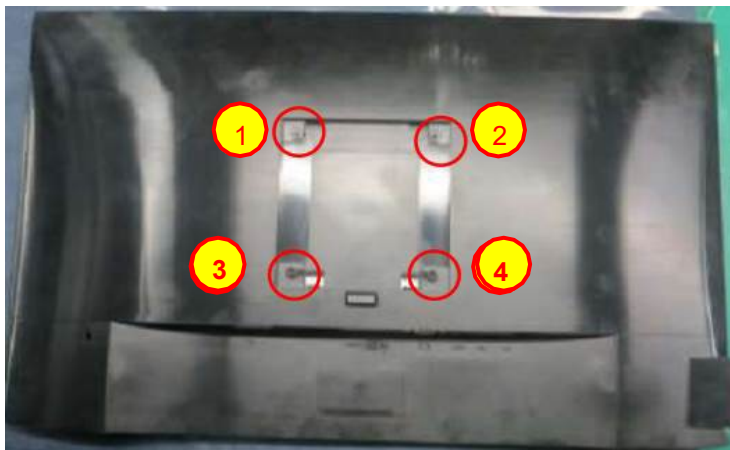
Step	Figure	Remark
<p>S1.Assemble the Mylar and the Power Board</p>		<p>1.Assemble the Mylar 2. Use a Philips-head screwdriver to screw 3 screws for locking the Power Board (No.1~2 screw size=D3x6 Torque=6±1kgf.cm No.3 screw size=M4x6 Torque=6±1kgf.cm)</p>
<p>S2. Assemble the Main Board</p>		<p>Connect the pins</p> <p>Use a Philips-head screwdriver to screw 3 screws for locking Main board. (No.1~3 screw size=D3x6 Torque=6±1kgf.cm)</p> <p>Use a hex screwdriver to screw 2 screws for locking mainboard (No.1~2 Hex screw Torque= 4.5±0.5kgf.cm)</p>

<p>S3.Assembly the Middle frame \ Deco Bezel and the Key Board</p>		<p>Assembly Key board and Deco bezel</p> <p>Use a Philips-head screwdriver to screw 3 screws for locking the Deco bezel (No.1~3 screw size=M2x2.5; Torque=0.9±0.4kgf.cm)</p>
<p>S4.Assembly the USB board</p>		<p>Use a Philips-head screwdriver to screw 1 screw for locking the USB board (No.1 screw size=Q3x5 Torque=4±1kgf.cm)</p>

<p>S5.Assemble the Main frame</p>		<p>1. Disconnect the pin</p> <p>2. Use a Philips-head screwdriver to screw 4 screws for locking main frame. (No.1~4 screw size=M3x3; Torque=3±0.5kgf.cm)</p>
<p>S6. Assemble the Middle_Frame</p>		<p>Use a Philips-head screwdriver to screw 11 screws for locking middle frame. (No.1~11 screw size=M3x3; Torque=3±0.5kgf.cm)</p>
<p>S7.Connect the Cables and paste the tapes</p>		



**S8.Assembly
the REAR
COVER.**



Use a Philips-head
screwdriver to screw 4
screws for locking
mechanisms.
(No.1~4 screw
size=M4x10;
Torque=12±2kgf.cm)

S9. Assembly the stand



4. Trouble shooting instructions

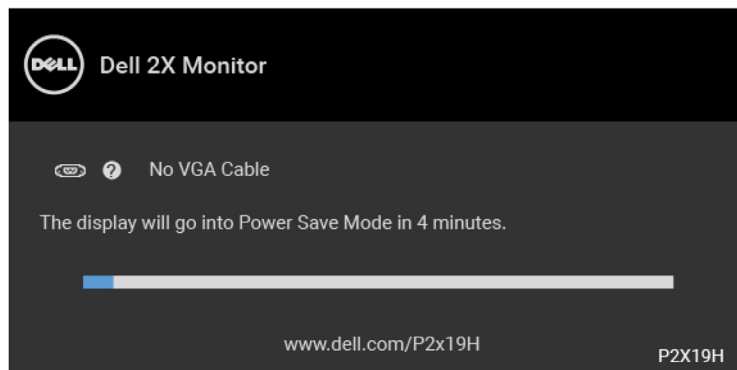
⚠ WARNING: Before you begin any of the procedures in this section, follow the [Safety instructions](#).

Self-test

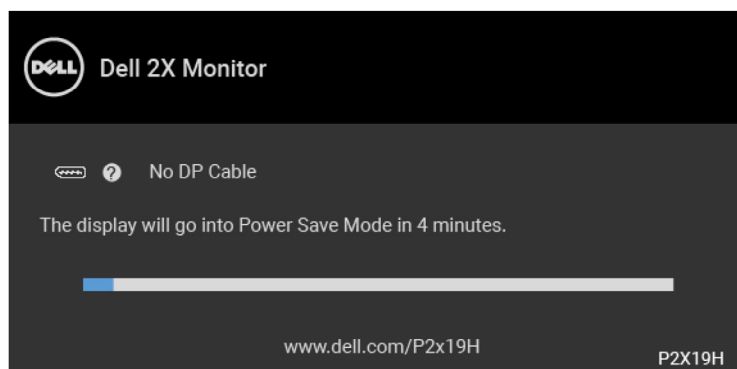
Your monitor provides a self-test feature that allows you to check whether your monitor is functioning properly. If your monitor and computer are properly connected but the monitor screen remains dark, run the monitor self-test by performing the following steps:

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.

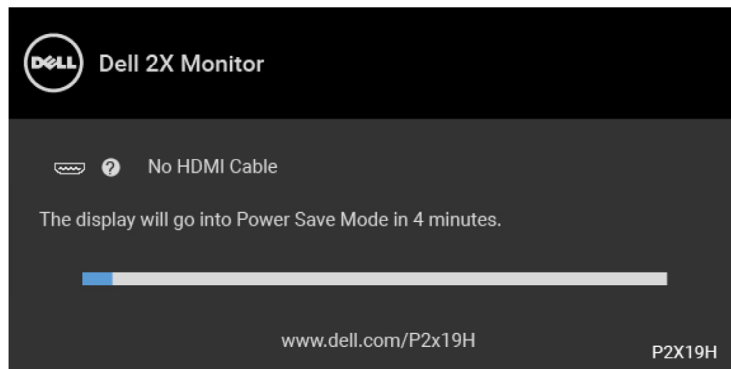
The floating dialog box should appear on-screen (against a black background), if the monitor cannot sense a video signal and is working correctly. While in self-test mode, the power LED remains white. Also, depending upon the selected input, one of the dialogs shown below will continuously scroll through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



OR



OR



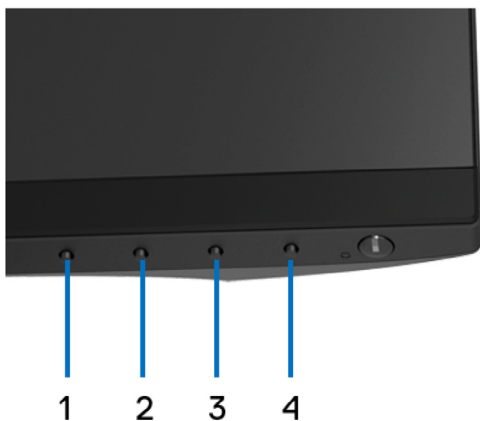
4. This box also appears during normal system operation, if the video cable becomes disconnected or damaged.
5. Turn Off your monitor and reconnect the video cable; then turn On both your computer and the monitor.

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

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.

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"> • Ensure that the video cable connecting the monitor and the computer is properly connected and secure. • Verify that the power outlet is functioning properly using any other electrical equipment. • Ensure that the power button is pressed fully. • Ensure that the correct input source is selected in the Input Source menu.

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


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

Synchronization Problems	Screen is scrambled or appears torn	<ul style="list-style-type: none"> • Reset the monitor to factory settings. • Perform Auto Adjust via OSD. • Adjust the Phase and Pixel Clock controls via OSD. • Perform monitor self-test feature check to determine if the scrambled screen appears in self-test mode. • Check for bent or broken pins in the video cable connector. • Restart the computer in the safe mode.
Safety Related Issues	Visible signs of smoke or sparks	<ul style="list-style-type: none"> • Do not perform any troubleshooting steps. • Contact Dell immediately.
Intermittent Problems	Monitor malfunctions on & off	<ul style="list-style-type: none"> • Ensure that the video cable connecting the monitor to the computer is connected properly and is secure. • Reset the monitor to factory settings. • Perform monitor self-test feature check to determine if the intermittent problem occurs in self-test mode.
Missing Color	Picture missing color	<ul style="list-style-type: none"> • Perform monitor self-test feature check. • Ensure that the video cable connecting the monitor to the computer is connected properly and is secure. • Check for bent or broken pins in the video cable connector.

Wrong Color	Picture color not good	<ul style="list-style-type: none"> Change the settings of the Preset Modes in the Color menu OSD depending on the application. Adjust R/G/B value under Custom Color in Color menu OSD. Run the built-in diagnostics.
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"> Use the Power Management feature to turn off the monitor at all times when not in use (for more information, see Power management modes). Alternatively, use a dynamically changing screensaver.

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"> Check the Aspect Ratio setting in the Display menu OSD. Reset the monitor to factory settings.
No Input Signal when user controls are pressed	No picture, the LED light is white	<ul style="list-style-type: none"> 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. Check whether the signal cable is plugged in properly. Re-plug the signal cable if necessary. Reset the computer or video player.
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"> Due to different video formats (aspect ratio) of DVDs, the monitor may display in full screen. Run the built-in diagnostics.

 **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">• Check that your monitor is turned On.• Reconnect the upstream cable to your computer.• Reconnect the USB peripherals (downstream connector).• Switch Off and then turn On the monitor again.• Reboot the computer.• Some USB devices like external portable HDD require higher electric current; connect the device directly to the computer system.
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">• Check that your computer is USB 3.0-capable.• Some computers have USB 3.0, USB 2.0, and USB 1.1 ports. Ensure that the correct USB port is used.• Reconnect the upstream cable to your computer.• Reconnect the USB peripherals (downstream connector).• Reboot the computer.
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">• Increase the distance between the USB 3.0 peripherals and the wireless USB receiver.• Position your wireless USB receiver as close as possible to the wireless USB peripherals.• Use a USB-extender cable to position the wireless USB receiver as far away as possible from the USB 3.0 port.