Service Manual

Dell E1715S

Content Index

Model No.: E1715S

Regulatory model: E1715Sc

1. General Safety Instructions

Use the following safety guidelines to help ensure your own personal safety and to help protect your equipment and working environment from potential damage.

NOTE: In this section, equipment refers to monitors.

IMPORTANT NOTICE FOR USE IN HEALTHCARE ENVIRONMENTS:

Dell products are not medical devices and are not listed under UL or IEC 60601 (or equivalent). As a result, they must not be used within 6 feet of a patient or in a manner that directly or indirectly contacts a patient

1.1 SAFETY: General Safety

WARNING: To prevent the spread of fire, keep candles or other open flames away from this product at all times.

When setting up the equipment for use:

- Place the equipment on a hard, level surface. Leave 10.2 cm (4 in) minimum of clearance on all vented sides of the computer to permit the airflow required for proper ventilation.
- Restricting airflow can damage the computer or cause a fire.
- Do not stack equipment or place equipment so close together that it is subject to recalculated or preheated air.
- NOTE: Review the weight limits referenced in your computer documentation before placing a monitor or other devices on top of your computer.
- Ensure that nothing rests on your equipment's cables and that the cables are not located where they can be stepped on or tripped over.
- Ensure that all cables are connected to the appropriate connectors. Some connectors have a similar appearance and may be easily confused (for example, do not plug a telephone cable into the network connector).
- Do not place your equipment in a closed-in wall unit or on a bed, sofa, or rug.
- Keep your device away from radiators and heat sources.
- Keep your equipment away from extremely hot or cold temperatures to ensure that it is used within the specified operating range.
- Do not push any objects into the air vents or openings of your equipment. Doing so can cause fire or electric shock by shorting out interior components.
- Avoid placing loose papers underneath your device. Do not place your device in a closed-in wall unit, or on a soft, fabric surface such as a bed, sofa, carpet, or a rug.

When operating your equipment:

- Do not use your equipment in a wet environment, for example, near a bath tub, sink, or swimming

pool or in a wet basement.

- Do not use AC powered equipment during an electrical storm. Battery powered devices may be used if all cables have been disconnected.
- Do not spill food or liquids on your equipment.
- Before you clean your equipment, disconnect it from the electrical outlet. Clean your device with a soft cloth dampened with water. Do not use liquids or aerosol cleaners, which may contain flammable substances.
- Clean the monitor display with a soft, clean cloth and water. Apply the water to the cloth, then stroke the cloth across the display in one direction, moving from the top of the display to the bottom. Remove moisture from the display quickly and keep the display dry.
- Long-term exposure to moisture can damage the display. Do not use a commercial window cleaner to clean your display.
- If your equipment does not operate normally - in particular, if there are any unusual sounds or smells coming from it - unplug it immediately and contact an authorized dealer or service center.

Protecting Against Electrostatic Discharge

Electrostatic discharge (ESD) events can harm electronic components inside your equipment. Under certain conditions, ESD may build up on your body or an object, such as a peripheral, and then discharge into another object, such as your computer. To prevent ESD damage, you should discharge static electricity from your body before you interact with any of your equipment's internal electronic components, such as a memory module. You can protect against ESD by touching a metal grounded object (such as an unpainted metal surface on your computer's I/O panel) before you interact with anything electronic. When connecting a peripheral (including handheld digital assistants) to your equipment, you should always ground both yourself and the peripheral before connecting it. In addition, as you work inside the equipment, periodically discharge any static charge your body may have accumulated.

You can also take the following steps to prevent damage from electrostatic discharge:

- When unpacking a static-sensitive component from its shipping carton, do not remove the component from the antistatic packing material until you are ready to install the component.
- Just before un wrapping the antistatic package, be sure to discharge static electricity from your body.
- When transporting a sensitive component, first place it in an antistatic container or packaging.
- Handle all electrostatic sensitive components in a static-safe area. If possible, use antistatic floor pads and work bench pads.

1.2 SAFETY: General Power Safety

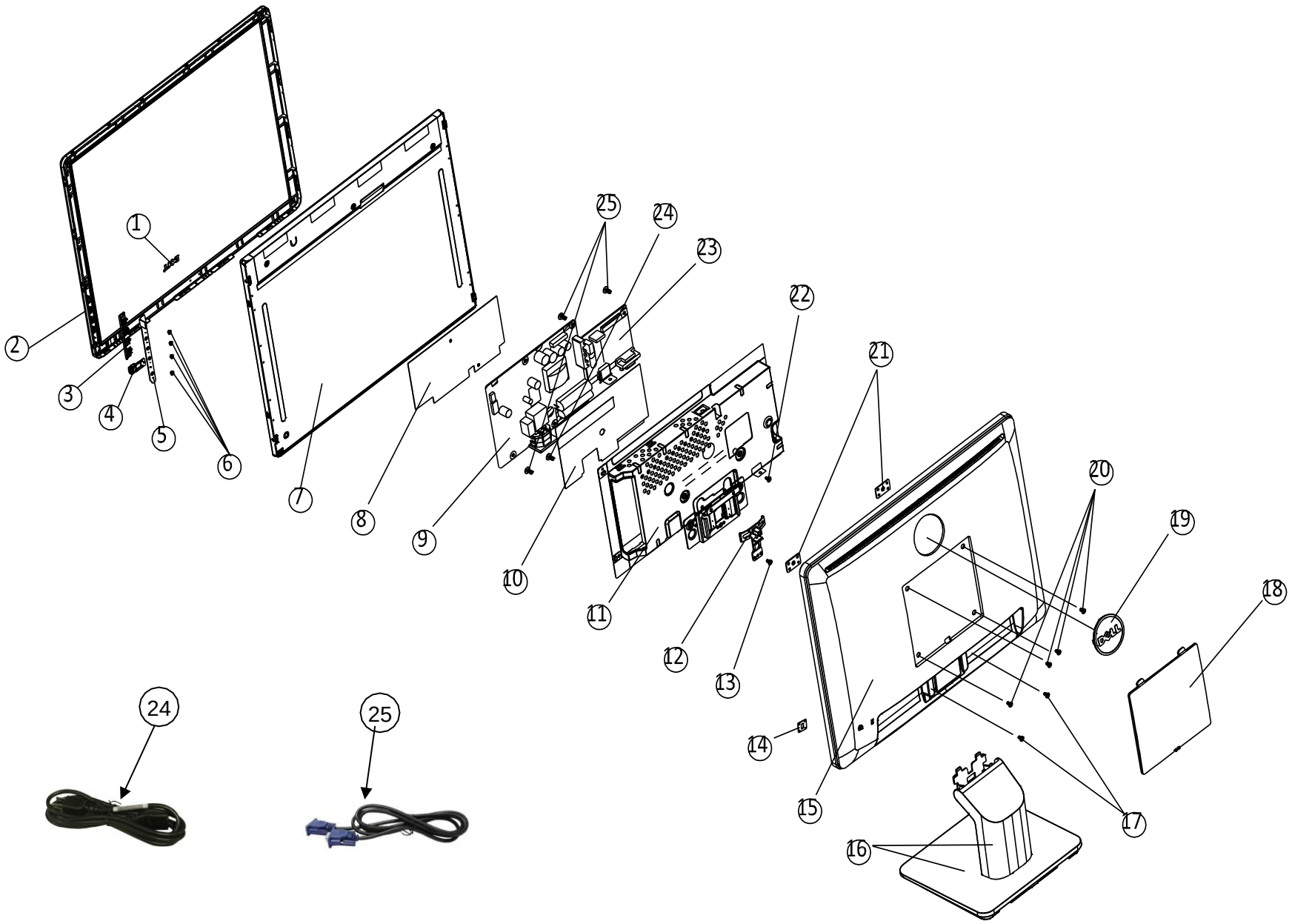
Observe the following guidelines when connecting your equipment to a power source:

- Check the voltage rating before you connect the equipment to an electrical outlet to ensure that the required voltage and frequency match the available power source.
- Do not plug the equipment power cables into an electrical outlet if the power cable is damaged
- Norway and Sweden: If this product is provided with a 3-prong power cable, connect the power cable to a grounded electrical outlet only.
- If you use an extension power cable, ensure that the total ampere rating of the products plugged in to the extension power cable does not exceed the ampere rating of the extension cable.
- If you must use an extension cable or power strip, ensure the extension cable or power strip is connected to a wall power outlet and not to another extension cable or power strip. The extension cable or power strip must be designed for grounded plugs and plugged into a grounded wall outlet.
- If you are using a multiple-outlet power strip, use caution when plugging the power cable into the power strip. Some power strips may allow you to insert a plug incorrectly. Incorrect insertion of the power plug could result in permanent damage to your equipment, as well as risk of electric shock and/or fire. Ensure that the ground prong of the power plug is inserted into the mating ground contact of the power strip.
- Be sure to grasp the plug, not the cable, when disconnecting equipment from an electric socket.

If your equipment uses an AC adapter:

- Use only the Dell provided AC adapter approved for use with this device. Use of another AC adapter may cause a fire or explosion.
- NOTE: Refer to your system rating label for information on the proper adapter model approved for use with your device.
- Place the AC adapter in a ventilated area, such as a desk top or on the floor, when you use it to run the computer or to charge the battery. Do not cover the AC adapter with papers or other items that will reduce cooling; also, do not use the AC adapter inside a carrying case.
- The AC adapter may become hot during normal operation of your computer. Use care when handling the adapter during or immediately after operation.
- It is recommended that you lay the adapter on the floor or desk so that the green light is visible. This will alert you if the adapter should accidentally go off due to external effects. If for any reason the green light goes off, disconnect the AC power cord from the wall for a period of ten seconds, and then reconnect the power cord.
- Japan Only: Use only the Dell-provided AC power cable with the AC adapter. Use of any other power cable may damage the device or AC adapter or may present risk of fire or electric shock.

2. Exploded view diagram with list of items



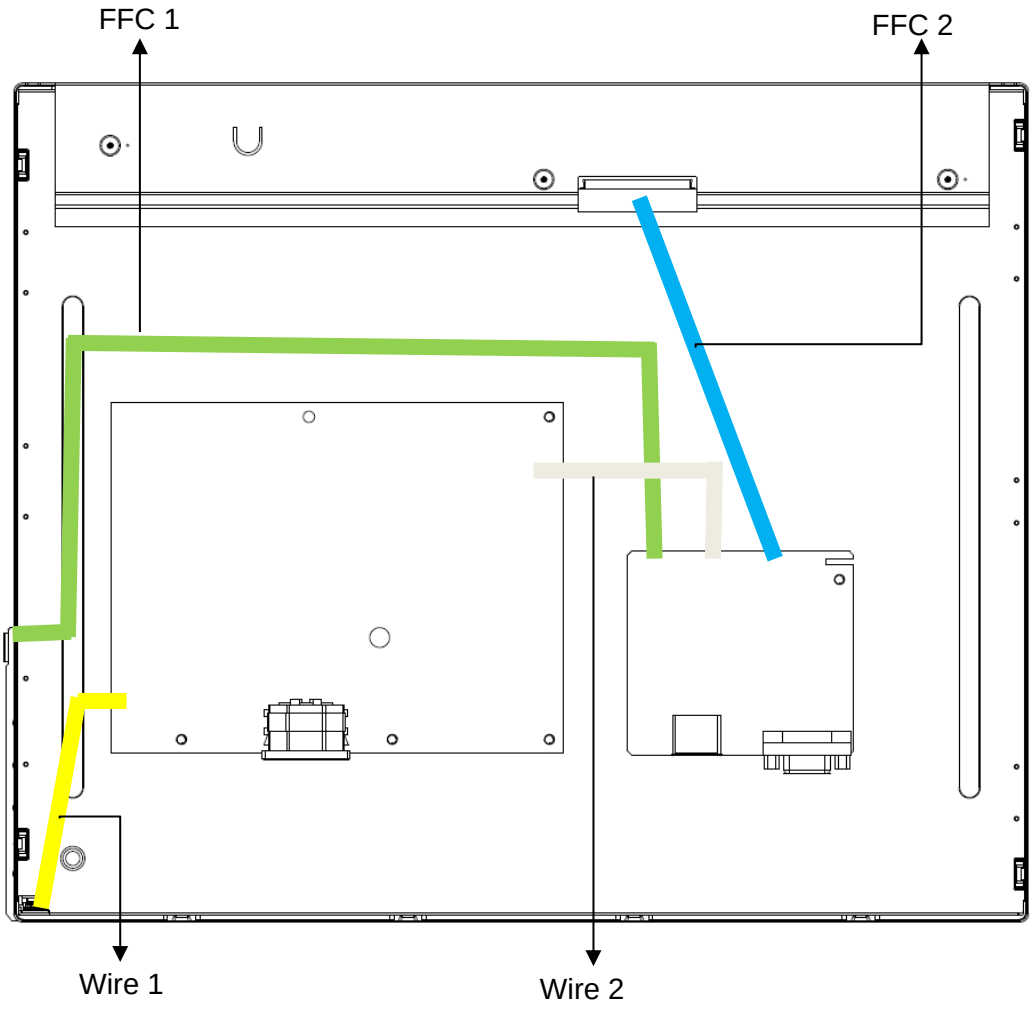
No.	Description	Q'ty	Remark
1	LOGO DELL	1	For EMEA Only, not for other regions
2	BEZEL	1	
3	KEY_FUNCTION	1	
4	KEY_POWER	1	
5	KEY BOARD	1	
7	PANEL	1	
8	INSULATING SHEET	1	
9	POWER	1	
10	INSULATING SHEET	1	
11	MAINFRAME	1	
12	KNOB_CONTROL	1	
14	MAINFRAME	1	
15	REAR_COVER	1	
16	STAND-BASE ASS'Y	1	
18	COVER_VESA	1	
19	DECO_LOGO	1	
21	PLATE	2	
23	MAIN BOARD	1	
24	Power Cable	1	See "NOTE"
25	VGA Cable	1	See "NOTE"

NOTE:

For replacement of power cord, connectivity cable and external power supply (if applicable), contact Dell:

1. Go to https://www.dell.com/support.
2. Verify your country or region in the Choose A Country/Region drop-down menu at the bottom-right corner of the page.
3. Click Contact Us next to the country dropdown.
4. Select the appropriate service or support link based on your need.
5. Choose the method of contacting Dell that is convenient for you

3. Wiring connectivity diagram



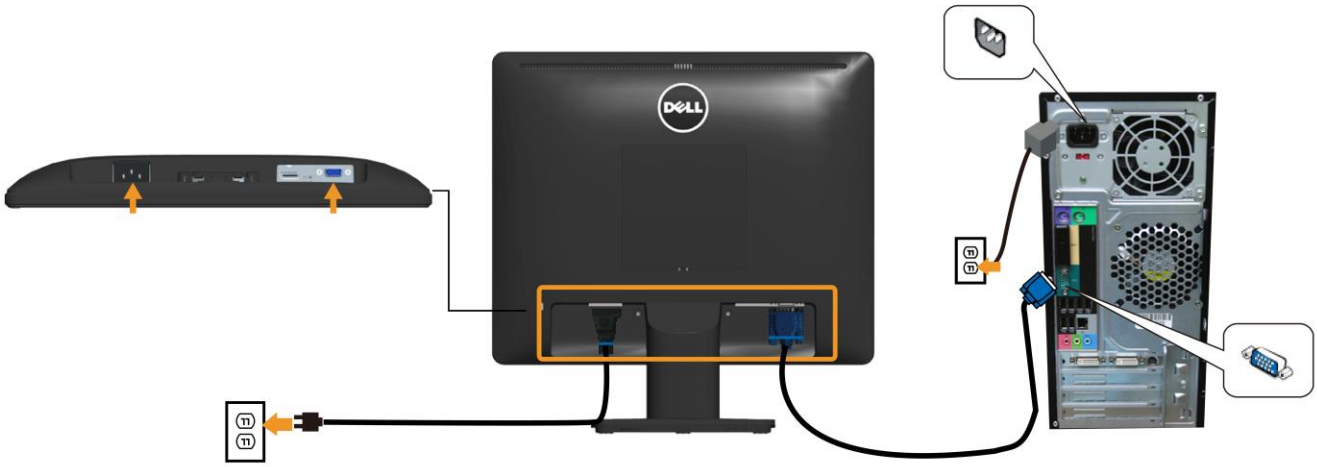
4. How to connect and disconnect power cable/ connectivity cable

⚠ **WARNING: Before you begin any of the procedures in this section, follow the Safety Instructions.**

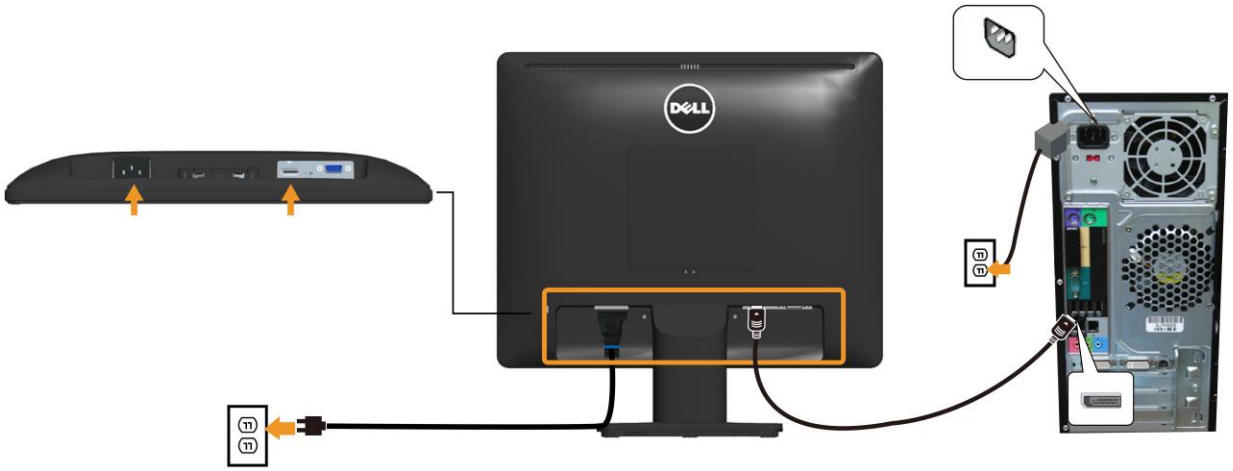
To connect your monitor to the computer:

1. Turn off your computer and disconnect the power cable.
2. Connect either the black (digital DP) or the blue (analog VGA) display connector cable to the corresponding video port on the back of your computer. Do not use both cables at the same time. Use both the cables only when they are connected to two different computers with appropriate video systems.

Connecting the blue VGA Cable



Connecting the black DP cable



Note: The graphics are used for the purpose of illustration only. Appearance on the computer may vary.

5. Mechanical Instruction

NOTE:
This “Disassembly and Assembly Procedures” is for EMEA only, not for other regions. Please note that Dell will deem warranty void if any disassembly is done on the monitors.

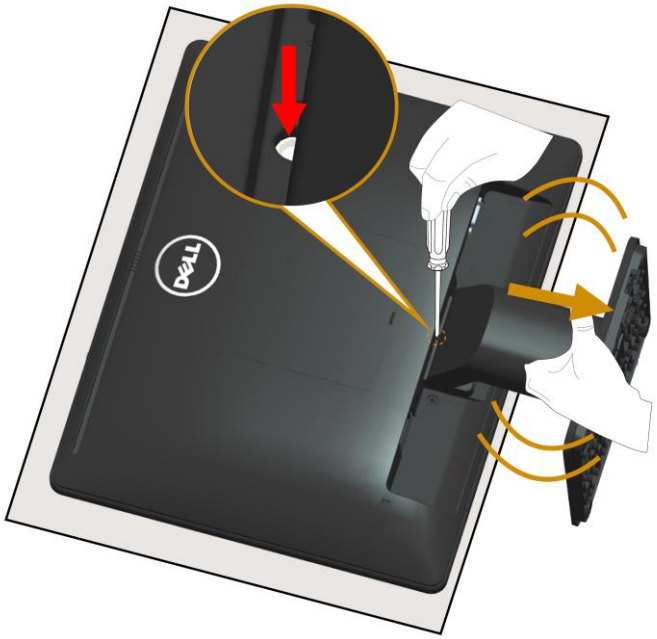
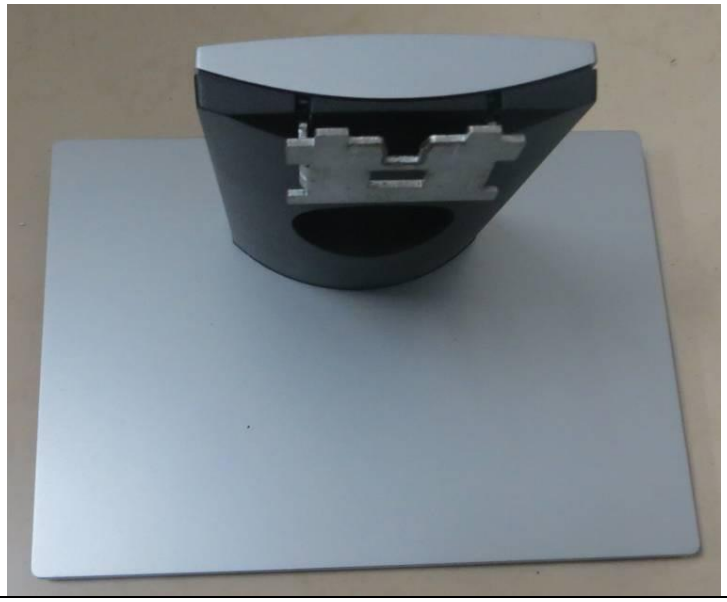
Tools Required

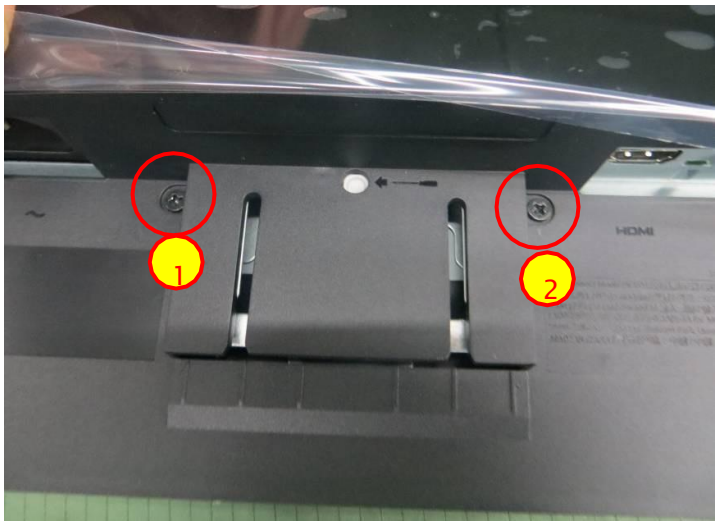
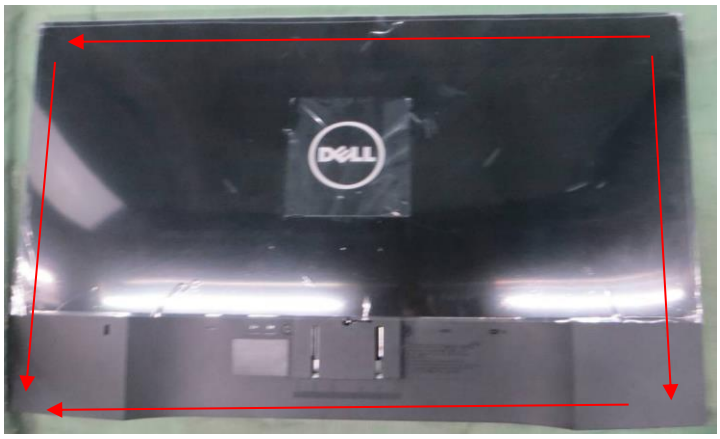
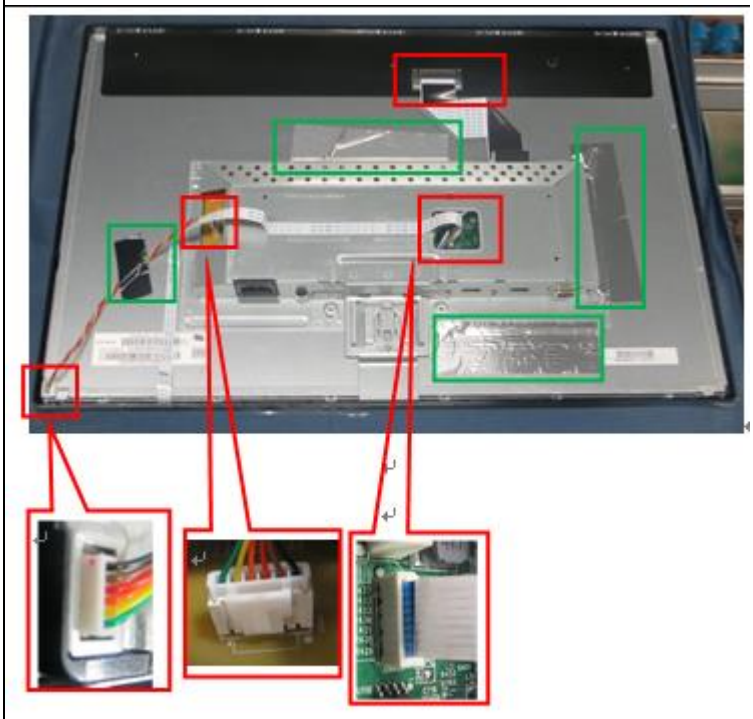
List the type and size of the tools that would typically can be used to disassemble the product to a point where components and materials requiring selective treatment can be removed.

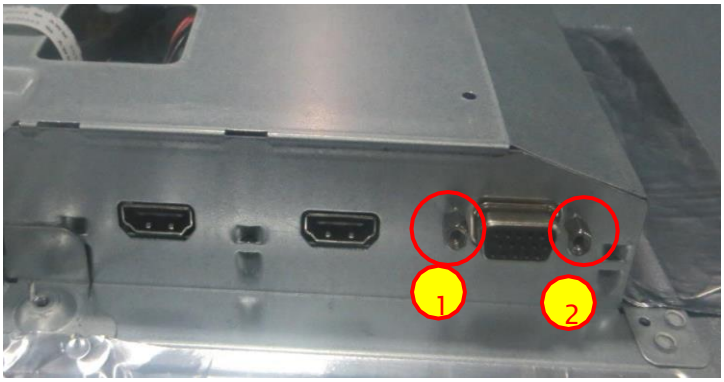
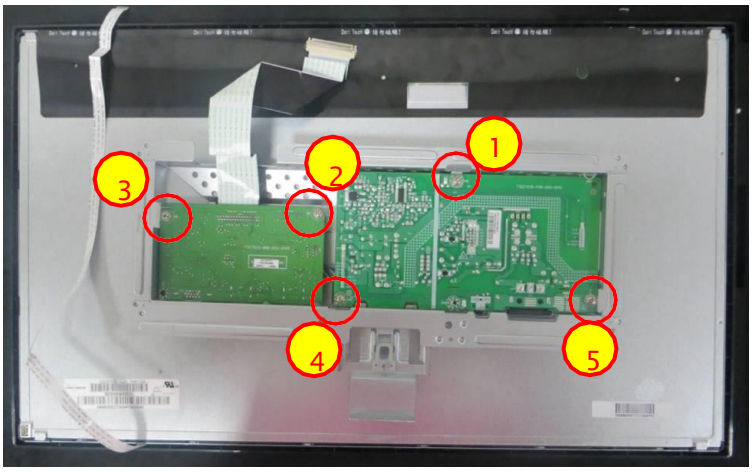
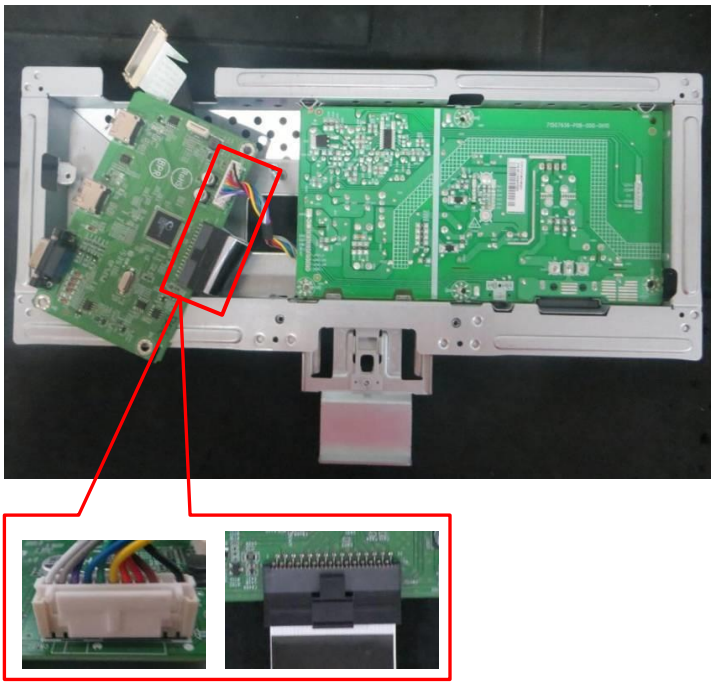
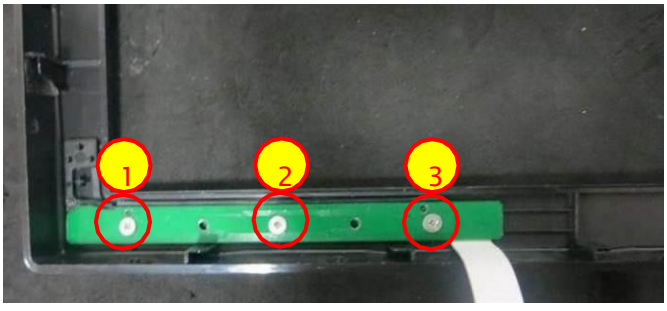
Tool Description:

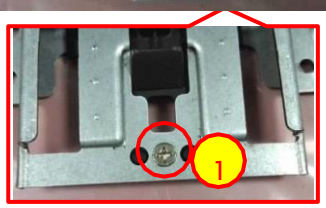
- Screwdriver (Phillip-head, Hexagonal head)
- Penknife

5.1 Disassembly Procedures:

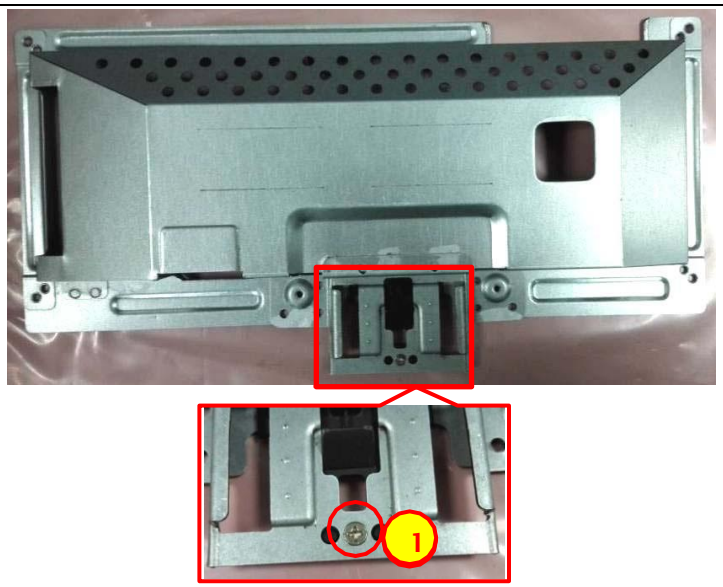
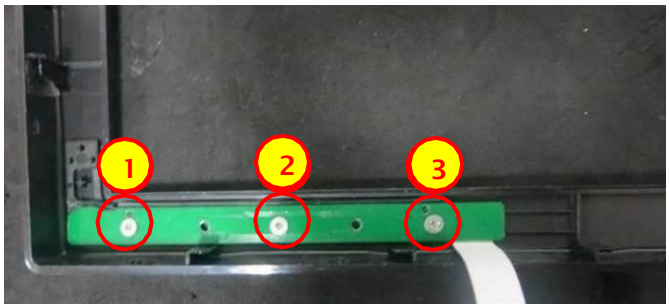
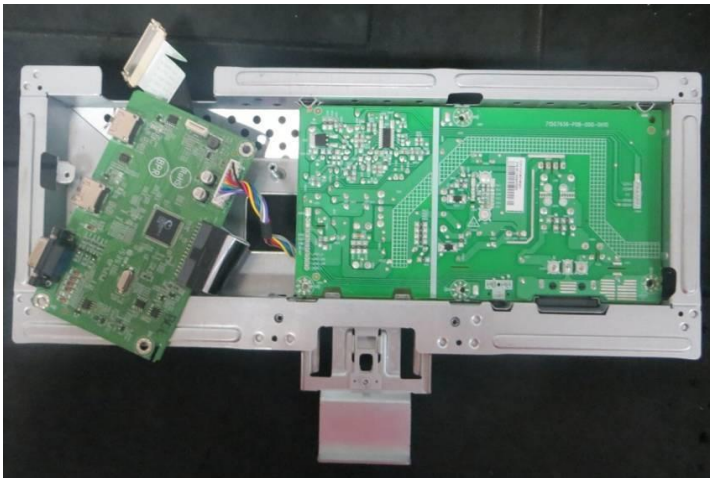
Step	Figure	Remark
S1. Before disassemble		Turn off power, Unplug external cables from product
S2.Remove the STAND-BASE ASS'Y	 	To remove the stand: 1. Wedge your fingers Press and hold the stand release button. 2. Lift the stand up and away from the monitor. Note: To prevent scratches on the LCD screen while removing the stand, ensure that the monitor is placed on a soft, clean surface.

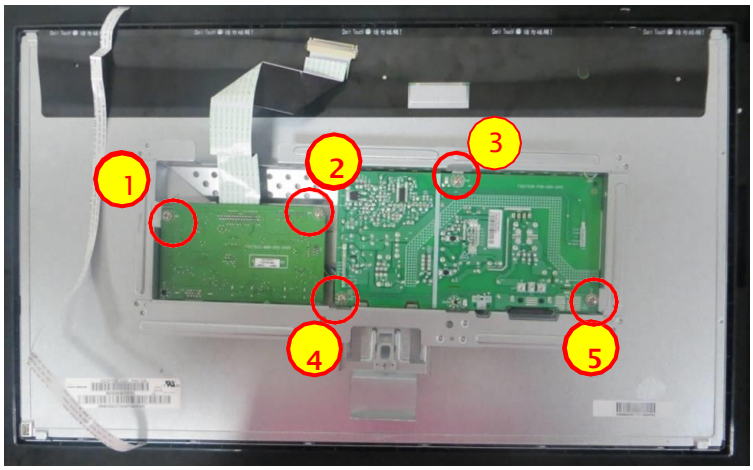
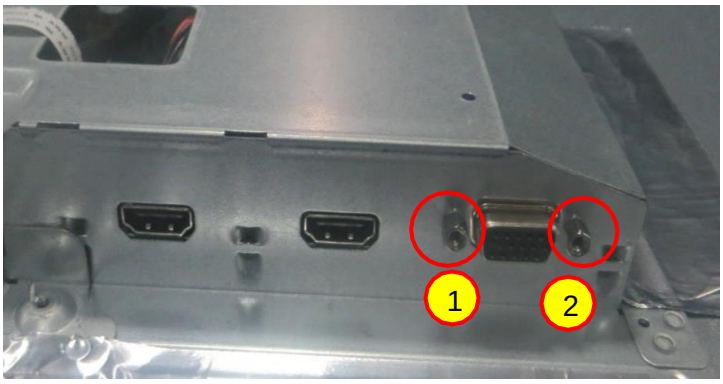
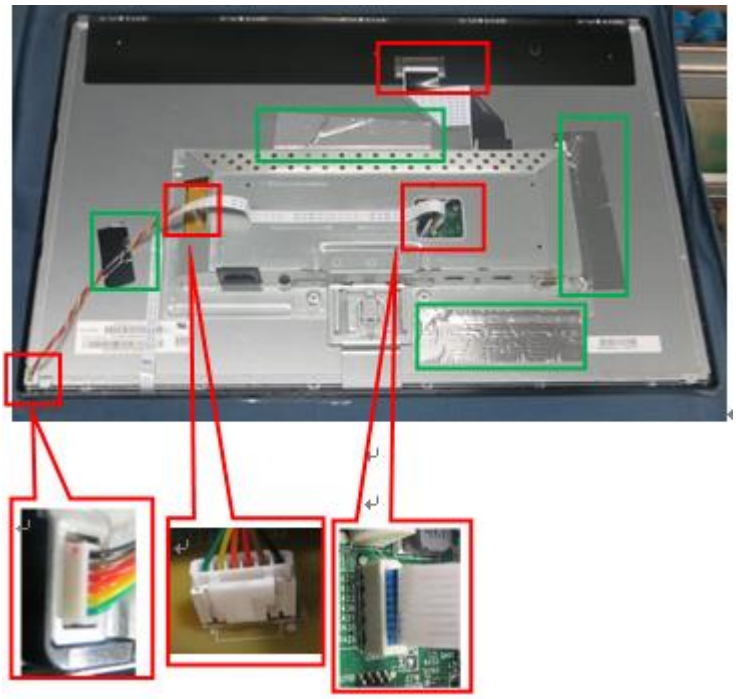
S3.Remove the REAR COVER	 	Use a Philips-head screwdriver to remove 2 screws for unlocking mechanisms. (No.1~2 screw size=M3x4; Torque=4±1kgf. cm) Use Penknife to separate the bezel and rear cove follow the arrows in sequence, then you can take out rear cover.
S4.Disconnect the connectors, and tear off the tapes		

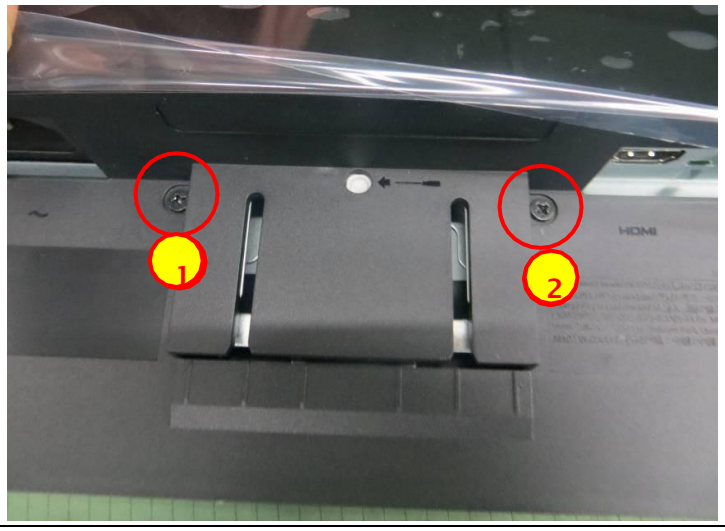
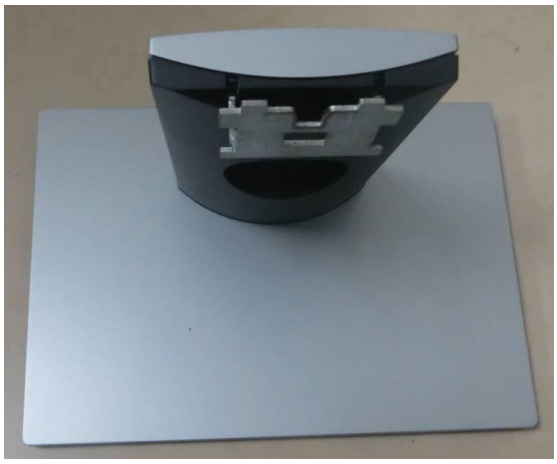
S5.Unscrew the hex screws		Use a hex screwdriver to remove 2 screws for unlocking mainboard. (No.1~2 is Hex-screw, Torque= 4.5±0.5kgf.cm)
S6.Unscrew the screws to remove the Main board and Power board		Use a Philips-head screwdriver to remove 5 screws for unlocking mainboard. (No.1~4 screw size=M4x8;Torque= 6±1kgf.cm; No.5 screw size=D3x6;Torque= 6±1kgf.cm)
7. Disconnect the connectors		
S8.Remove the KEY BOARD		Use a Philips-head screwdriver to remove 3 screws for unlocking Key board. (No.1~3 screw size= M2x2.5 Torque=0.9±0.4kgf.cm)

S9. Remove the screw	 	Use a Philips-head screwdriver to remove 1 screw for unlocking clip. (No.1 screw size=Q3x6; Torque=4±1kgf.cm)
S10. The MAIN FRAME		

5.2 Assembly Procedures:

Step	Figure	Remark
S1. Tighten the clip		Use a Philips-head screwdriver to screw 1 screw for tighten the clip (No.1 screw size=Q3x6; Torque=4±1kgf.cm)
S2.Assembly the KEY BOARD		Use a Philips-head screwdriver to screw 3 screws for tighten Key board. (No.1~3 screw size= M2x2.5 Torque=0.9±0.4kgf.cm)
S3. Connect the connectors	  	

S4.Sscrew the screws to tighten the Main board and Power board		Use a Philips-head screwdriver to screw 5 screws for tighten mainboard. (No.1~4 screw size=M4x8;Torque= 6±1kgf.cm; No.5 screw size=D3x6;Torque= 6±1kgf.cm)
S5.Screw the screws		Use a hex screwdriver to screw 2 screws for tighten mainboard. (No.1~2 is Hex-screw, Torque= 4.5±0.5kgf.cm)
S5.Connect the connectors, and paste the tapes		

S6.Assembly the REAR COVER		Use a Philips-head screwdriver to screw 2 screws for tighten mechanisms. (No.1~2 screw size=M3x4; Torque=4±1kgf. cm)
S7.Assembly the STAND-BASE ASS'Y	 	

6. Trouble shooting instructions

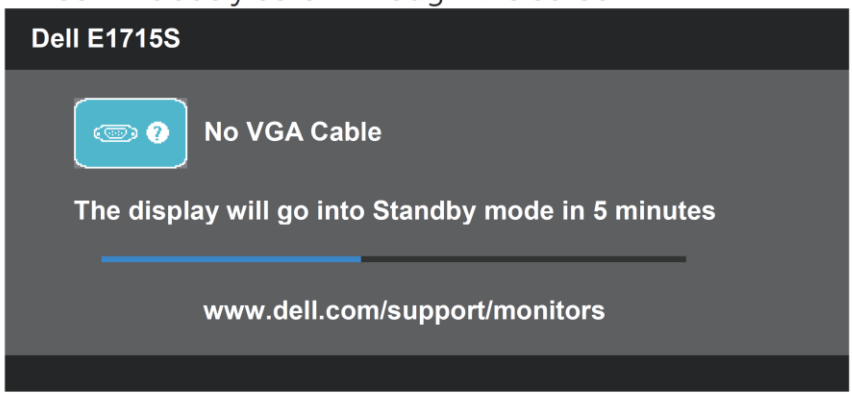
⚠ **WARNING: Before you begin any of the procedures in this section, follow the Safety Instructions .**

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. To ensure proper Self-Test operation, remove any connected video cable from the back of 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.

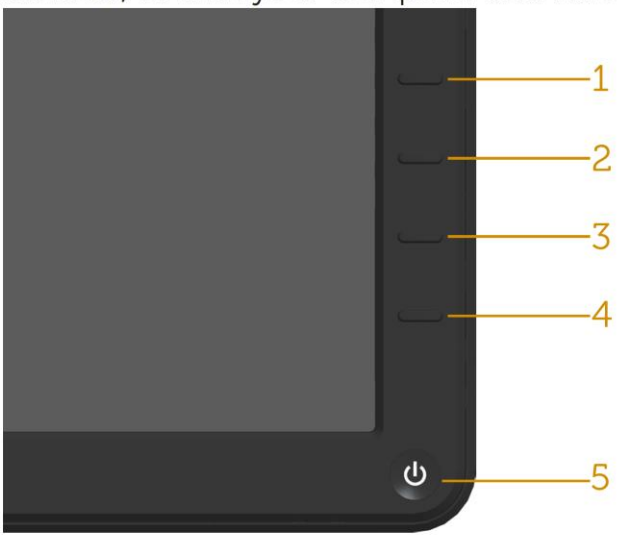


4. This box also appears during normal system operation, if the video cable becomes disconnected or damaged. The monitor will enter **Standby Mode after 5 minutes** if left at this state.
5. Turn off your monitor and reconnect the video cable; then turn on both your computer and the monitor.

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 the **Button 1** and **Button 4** on the front panel simultaneously for 2 seconds. A gray screen appears.
4. Carefully inspect the screen for abnormalities.
5. Press the **Button 4** 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 screens.

The test is complete when the white screen appears. To exit, press the **Button 4** 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	• 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 depressed fully. • Check the LED Button option under Energy Setting in OSD menu
No Video/Power LED on	No picture or no brightness	• Increase brightness & contrast controls via OSD. • Perform monitor self-test feature check. • Check for bent or broken pins in the video cable connector. • Ensure that the correct input source is selected via the **Input Source** Select menu. • Run the built-in diagnostics.
Poor Focus	Picture is fuzzy, blurry, or ghosting	• Perform Auto Adjust via OSD. • Adjust the Phase and Pixel Clock controls via OSD. • Eliminate video extension cables. • Reset the monitor to **Factory Settings**.
Shaky/Jittery Video	Wavy picture or fine movement	• 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	• 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: **www.dell.com/support/monitors**.

Stuck-on Pixels	LCD screen has bright spots	• 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: **www.dell.com/support/monitors**.
Brightness Problems	Picture too dim or too bright	• Reset the monitor to **Factory Settings**. • Auto Adjust via OSD. • Adjust brightness & contrast controls via OSD.
Geometric Distortion	Screen not centered correctly	• Reset the monitor to **Factory Settings**. • Auto Adjust via OSD. • Adjust brightness & contrast controls via OSD. **NOTE**: When using 'DP', the positioning adjustments are not available.
Horizontal/Vertical Lines	Screen has one or more lines	• Reset the monitor to **Factory Settings**. • Perform Auto Adjust via OSD. • Adjust 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. **NOTE**: When using 'DP', the Pixel Clock and Phase adjustments are not available.
Synchronization Problems	Screen is scrambled or appears torn	• Reset the monitor to **Factory Settings**. • Perform Auto Adjust via OSD. • Adjust 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	• Do not perform any troubleshooting steps. • Contact Dell immediately.

Intermittent Problems	Monitor malfunctions on & off	• 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	• 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	• Change the Color Setting Mode in the Color Settings OSD to Graphics or Video depending on the application. • Try different Color Preset Settings in Color Settings OSD. Adjust R/G/B value in Color Settings OSD if the Color Management is turned off. • Change the Input Color Format to PC RGB or YPbPr in the Advance Setting OSD.
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	• Set the screen to turn off after a few minutes of screen idle time. These can be adjusted in Windows Power Options or Mac Energy Saver setting. • Alternatively, use a dynamically changing screensaver. • Use "LCD Conditioning" feature under "Other Settings" to eliminate image retention.

Product-Specific Problems

Specific Symptoms	What You Experience	Possible Solutions
Screen image is too small	Image is centered on screen, but does not fill entire viewing area	• Reset the monitor to **Factory Settings**.
Cannot adjust the monitor with the buttons on the front panel	OSD does not appear on the screen	• Turn off the monitor, unplug the power cord, plug back, and then turn on the monitor.
No Input Signal when user controls are pressed	No picture, the LED light is white. When you press "up", "down" or "Menu" key, the message " No input signal" will appear.	• 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	• Run the built-in diagnostics.

NOTE: When choosing DP mode, the Auto Adjust function is not available.