Chromebook 3120 2-in-1

Owner's Manual

Regulatory Model: P30T
Regulatory Type: P30T003
August 2024
Rev. A02

DELL Technologies

Notes, cautions, and warnings

NOTE: A NOTE indicates important information that helps you make better use of your product.

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

Contents

1

Views of Chromebook 3120 2-in-1

Right

Figure 1. Right view

1. **Volume-control button**

   Press to increase or decrease the volume.

2. **USB 3.2 Gen 1 (5 Gbps) Type-C with DisplayPort Alt Mode port**

   Connect the power adapter from external power source to charge your laptop.

   Connect devices such as external storage devices, printers, and external displays. Provides data transfer speeds up to 5 Gbps.

   NOTE: A USB Type-C to DisplayPort adapter (sold separately) is required to connect a DisplayPort device.

3. **Wedge-shaped lock slot**

   Connect a security cable to prevent unauthorized movement of your computer.

Left

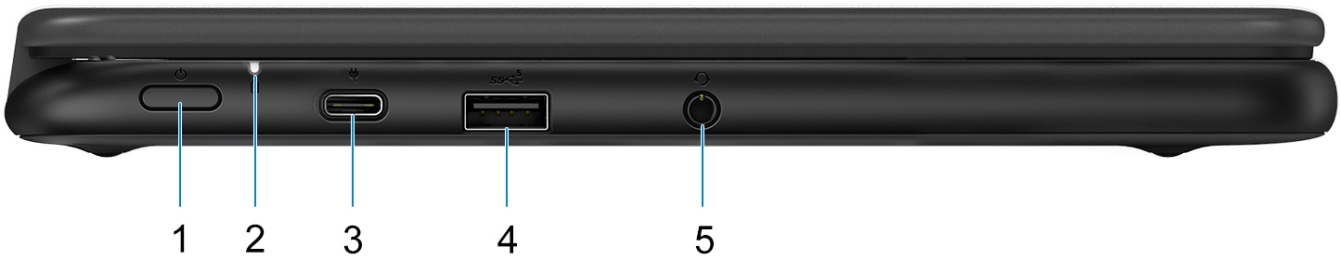


Figure 2. Left view

1. **Power button**

   Press to turn on the computer if it is turned off.

2. **Power and battery-status light**

   Indicates the power state and battery state of the computer.

   Solid white—Power adapter is connected and the battery is charging.

   Solid amber—Battery charge is low or critical.

   Off—Battery is fully charged.

3. **USB 3.2 Gen 1 (5 Gbps) Type-C with DisplayPort Alt Mode port**

   Connect the power adapter from external power source to charge your laptop.

   Connect devices such as external storage devices, printers, and external displays. Provides data transfer speeds up to 5 Gbps.

   NOTE: A USB Type-C to DisplayPort adapter (sold separately) is required to connect a DisplayPort device.

4. **USB 3.2 Gen 1 (5 Gbps) port**

   Connect devices such as external storage devices, printers, and external displays. Provides data transfer speeds up to 5 Gbps.

5. **Headset (headphone and microphone combo) port**

   Connect headphones or a headset (headphone and microphone combo).

Top

Figure 3. Top view

1. **Microphone**

   Provides digital sound input for audio recording, voice calls, and so on.

2. **Camera-status light**

   Turns on when the camera is in use.

3. **World-facing camera**

   Enables you to video chat, capture photos, and record videos.

4. **Keyboard**

   Use the keyboard to input characters and functions into your computer.

5. **Touchpad**

   Move your finger on the touchpad to move the mouse pointer. Tap to left-click and two fingers tap to right-click.

Front

Figure 4. Front view

1. **Left microphone**

   Provides digital sound input for audio recording and voice calls.

2. **Camera**

   Enables you to video chat, capture photos, and record videos.

3. **Camera-status light**

   Turns on when the camera is in use.

4. **Right microphone**

   Provides digital sound input for audio recording and voice calls.

5. **Display**

   Provides visual output.

Bottom

Figure 5. Bottom view

1. **Service Tag label**

   The Service Tag is a unique alphanumeric identifier that enables Dell service technicians to identify the hardware components in your computer and access warranty information.

2. **Speakers**

   Provide audio output.

Service Tag

The service tag is a unique alphanumeric identifier that allows Dell service technicians to identify the hardware components in your computer and access warranty information.

Figure 6. Service Tag location

Modes

The following modes are applicable for your Chromebook 3120 2-in-1 computers.

Notebook

Figure 7. Notebook mode

Tablet

Figure 8. Tablet mode

Stand

Figure 9. Stand mode

Tent

Figure 10. Tent mode

Battery charge and status light

The following table lists the battery charge and status light behavior of your Chromebook 3120 2-in-1.

Table 1. Battery charge and status light behavior

Power Source	LED Behavior	System Power State	Battery Charge Level
AC Adapter	Off	S0 - S5	Fully Charged
AC Adapter	Solid White	S0 - S5	< Fully Charged
Battery	Off	S4 - S5	11-100%
Battery	Solid Amber (590+/-3 nm)	S0 - S3	< 10%

- S0 (ON) - System is turned on.
- S4 (Hibernate) - The system consumes the least power compared to all other sleep states. The system is almost at an OFF state, except for a trickle power. The context data is written to a hard drive.
- S5 (OFF) - The system is in a shutdown state.

2

Set up your Chromebook 3120 2-in-1

About this task

NOTE: The images in this document may differ from your computer depending on the configuration you ordered.

Steps

1. Connect the power adapter and press the power button.

   CAUTION: Connect the power cable to a power distribution Unit (PDU) 16 A and then connect the PDU to the wall outlet.

Figure 11. Connect the power adapter and press the power button

NOTE: To conserve battery power, the battery might enter power-saving mode. Connect the power adapter and press the power button to turn on the computer.

2. Finish Chromebook operating system setup.

   Follow the on-screen instructions to complete the setup. For more information about installing and configuring a Chromebook, go to Chrome OS Support.

3. Locate and install the required apps from the Google Chrome Web Store. For more information about downloading and installing apps on your Chromebook, search in the Knowledge Base Resource at Dell Support Site.

3

Specifications of Chromebook 3120 2-in-1

Dimensions and weight

The following table lists the height, width, depth, and weight of your Chromebook 3120 2-in-1.

Table 2. Dimensions and weight

Description	Values
Height:	
Front height	21.50 mm (0.84 in.)
Rear height	21.50 mm (0.84 in.)
Width	303.90 mm (11.96 in.)
Depth	207.90 mm (8.19 in.)
Weight **NOTE:** The weight of your computer depends on the configuration that is offered.	1.48 kg (3.28 lb)

Processor

The following table lists the details of the processors that are supported in your Chromebook 3120 2-in-1.

Table 3. Processor

Description	Values
Processor type	Intel Processor N100
Processor wattage	4.80 W
Processor core count	4
Processor thread count	4
Processor speed	0.80 GHz to 3.40 GHz Turbo
Processor cache	6 MB
Integrated graphics	Intel UHD Graphics

Chipset

The following table lists the details of the chipset that is supported in your Chromebook 3120 2-in-1.

Table 4. Chipset

Description	Values
Chipset	BGA 1264
Processor	Intel Processor N100
DRAM bus width	64-bit
Flash EPROM	16 MB
PCIe bus	Up to Gen3

Operating system

Your Chromebook 3120 2-in-1 supports the following operating system:

ChromeOS

Memory

The following table lists the memory specifications of your Chromebook 3120 2-in-1.

Table 5. Memory specifications

Description	Values
Memory slots	Onboard **NOTE:** Memory is onboard and cannot be upgraded.
Memory type	LPDDR5/LPDDR5x
Memory speed	4800 MT/s
Maximum memory configuration	8 GB
Minimum memory configuration	4 GB
Memory configurations supported	• 4 GB: 2 x 2 GB, LPDDR5/LPDDR5x, 4800 MT/s, single-channel • 8 GB: 4 x 2 GB, LPDDR5/LPDDR5x,4800 MT/s, single-channel

External ports and slots

The following table lists the external ports and slots on your Chromebook 3120 2-in-1.

Table 6. External ports and slots

Description	Values
USB ports	• Two USB 3.2 Gen 1 (5 Gbps) Type-C with DisplayPort Alt Mode ports • One USB 3.2 Gen 1 (5 Gbps) port
Audio port	One headset (headphone and microphone combo) port
Video port(s)	Via two USB 3.2 Gen 1 (5 Gbps) Type-C with DisplayPort Alt Mode ports
Media-card reader	Not supported
Power-adapter port	One 65 W AC adapter, USB Type-C
Security-cable slot	One Wedge-shaped security slot

Wireless module

The following table lists the Wireless Local Area Network (WLAN) module that is supported on your Chromebook 3120 2-in-1.

Table 7. Wireless module specifications

Description	Values
Model number	Intel Wi-Fi 6 AX203
Transfer rate	1.20 Gbps
Frequency bands supported	2.40 GHz/5 GHz
Wireless standards	• Wi-Fi 802.11a/b/g • Wi-Fi 4 (Wi-Fi 802.11n) • Wi-Fi 5 (Wi-Fi 802.11ac) • Wi-Fi 6 (Wi-Fi 802.11ax)
Encryption	• 64-bit/128-bit WEP • AES-CCMP • TKIP
Bluetooth wireless card	Bluetooth 5.2 wireless card (Chrome)

Audio

The following table lists the audio specifications of your Chromebook 3120 2-in-1.

Table 8. Audio specifications

Description	Values
Audio controller	Cirrus CS42L42

Table 8. Audio specifications (continued)

Description		Values
Stereo conversion		Supported
Internal audio interface		I2S
External audio interface		One headset (headphone and microphone combo) port
Number of speakers		Two
Internal-speaker amplifier		Maxim MAX98360
External volume controls		Keyboard shortcut controls
Speaker output:		
	Average	2 W
	Peak	2.5 W
Microphone		• Single and dual array microphones (front-facing) • Single-integrated microphone (world-facing)

Storage

This section lists the storage options on your Chromebook 3120 2-in-1.

Your Chromebook 3120 2-in-1 system supports one 64 GB eMMC onboard storage.

NOTE: Storage is onboard and cannot be upgraded.

Table 9. Storage specifications

Storage type	Interface type	Capacity
eMMC for Intel Processor N100	Onboard	64 GB

Keyboard

The following table lists the keyboard specifications of your Chromebook 3120 2-in-1.

Table 10. Keyboard specifications

Description	Values
Keyboard type	Non-backlit keyboard
Keyboard layout	QWERTY
Number of keys	Non-backlit keyboard without numpad • English International, English US, Arabic: 74 keys • English UK, Canada Bilingual MUI, Nordic MUI, Spanish Castillan: 75 keys • Belgium, France - AZERTY: 75 keys • Japanese: 78 keys
Key pitch	X = 19.05 mm key pitch Y = 18.05 mm key pitch

Table 10. Keyboard specifications (continued)

Description	Values
Keyboard shortcuts	Some keys on your keyboard have two symbols on them. These keys can be used to type alternate characters or to perform secondary functions. To type the alternate character, press Shift and the desired key. To perform secondary functions, press Fn and the desired key. **NOTE:** You can define the primary behavior of the function keys (F1–F12) changing **Function Key Behavior** in BIOS setup program.

Camera

The following table lists the camera specifications of your Chromebook 3120 2-in-1.

Table 11. Camera specifications

Description	Option one	Option two
Number of cameras	One (front-facing camera)	One (world facing camera)
Camera type	HD RGB camera (Dual-array microphones)	5M RGB camera (Single integrated microphone)
Camera location	Front camera	Rear camera
Camera sensor type	CMOS sensor technology	CMOS sensor technology
Camera resolution:		
Still image	0.92 megapixels	4.92 megapixels
Video	1280 x 720 (HD) at 30 fps	2560 x 1920 (5M) at 30 fps
Diagonal viewing angle:	78.60 degrees	76.60 degrees

Touchpad

The following table lists the touchpad specifications of your Chromebook 3120 2-in-1.

Table 12. Touchpad specifications

Description	Values
Touchpad resolution:	>300 dpi
Touchpad dimensions:	
Horizontal	99.40 mm (3.91 in.)
Vertical	54.40 mm (2.14 in.)
Touchpad gestures	For more information about touchpad gestures available on Chromebook, see support.google.com/chromebook.

Power adapter

The following table lists the power adapter specifications of your Chromebook 3120 2-in-1.

Table 13. Power-adapter specifications

Description		Values
Type		65 W AC adapter, USB Type-C
Power-adapter dimensions:		
	Height	28 mm (1.10 in.)
	Width	51 mm (2.01 in.)
	Depth	112 mm (4.41 in.)
Input voltage		100 VAC x 240 VAC
Input frequency		50 Hz x 60 Hz
Input current (maximum)		1.70 A
Output current (continuous)		• 20 V/3.25 A (continuous) • 15 V/3 A (continuous) • 9 V/3 A (continuous) • 5 V/3 A (continuous)
Rated output voltage		20 VDC/15 VDC/9 VDC/5 VDC
Temperature range:		
	Operating	0°C to 40°C (32°F to 104°F)
	Storage	-40°C to 70°C (-40°F to 158°F)
CAUTION: Operating and storage temperature ranges may differ among components, so operating or storing the device outside these ranges may impact the performance of specific components.		

Power adapter requirements

This section contains the power adapter requirements for Chromebook 3120 2-in-1.

NOTE: If you did not purchase the Dell-branded power adapter that is recommended for your computer, ensure that the power adapter you use meets the following requirements:

Table 14. Power adapter requirements for Chromebook 3120 2-in-1

Description	Value
Power that is required from a power adapter to achieve optimal performance.	65 W
Power that is required to charge the computer at a slower speed. **NOTE:** A warning message may appear informing you about the use of a lower-powered adapter and slower charging speed.	Less than 20 W
Minimum power that is required from a power adapter to operate the computer and charge the battery.	1. AC adapter rate is greater than 15 W.

Table 14. Power adapter requirements for Chromebook 3120 2-in-1 (continued)

Description	Value
NOTE: A warning message appears informing you about the use of a lower-powered adapter and slower charging speed.	2. AC adapter rate is equal to 15 W, and battery RSOC is equal to or greater than 1%.
USB Power Delivery (PD) fast charging	N/A
ExpressCharge mode	N/A

Battery

The following table lists the battery specifications of your Chromebook 3120 2-in-1.

Table 15. Battery specifications

Description		Option one	Option two
Battery type		3-cell, 42 Wh, smart Lithium Ion	3-cell, 42 Wh, smart Lithium Ion, Long Life Cycle
Battery voltage		11.40 VDC	11.40 VDC
Battery weight (maximum)		0.20 kg (0.44 lb)	0.20 kg (0.44 lb)
Battery dimensions:			
	Height	5.90 mm (0.23 in.)	5.90 mm (0.23 in.)
	Width	191.85 mm (7.55 in.)	191.85 mm (7.55 in.)
	Depth	103.25 mm (4.06 in.)	103.25 mm (4.06 in.)
Temperature range:			
	Operating	0°C to 35°C (32°F to 95°F) • Charge: 0°C to 50°C (32°F to 122°F) • Discharge: 0°C to 70°C (32°F to 158°F)	0°C to 35°C (32°F to 95°F) • Charge: 0°C to 50°C (32°F to 122°F) • Discharge: 0°C to 70°C (32°F to 158°F)
	Storage	–20°C to 60°C (-4°F to 140°F)	–20°C to 60°C (-4°F to 140°F)
Battery operating time		Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions.	Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions.
Battery charging time (approximate)		**Standard mode:** • 0~15 degrees: 4 hours • 16~60 degrees: 3 hours • 46~50 degrees: 3 hours	**Standard mode:** • 0~15 degrees: 4 hours • 16~60 degrees: 3 hours • 46~50 degrees: 3 hours
Coin-cell battery		Not supported	Not supported

CAUTION: Operating and storage temperature ranges may differ among components, so operating or storing the device outside these ranges may impact the performance of specific components.

CAUTION: Dell Technologies recommends that you charge the battery regularly for optimal power consumption. If your battery charge is depleted, connect the power adapter, turn on your computer, and then restart your computer to reduce the power consumption.

Display

The following table lists the display specifications of your Chromebook 3120 2-in-1.

Table 16. Display specifications

Description		Values
Display type		11.6" High Definition (HD)
Touch options		Yes
Display-panel technology		In-Plane Switching (IPS)
Display-panel dimensions (active area):		
	Height	144 mm (5.67 in.)
	Width	256.125 mm (10.08 in.)
	Diagonal	294.64 mm (11.60 in.)
Display-panel native resolution		1366 x 768
Luminance (typical)		220 nit
Megapixels		1.04
Color gamut		50% NTSC
Pixels Per Inch (PPI)		135 ppi
Contrast ratio (minimum)		700:1 typical
Response time (maximum)		45 ms
Refresh rate		60 Hz
Horizontal view angle		+80/-80 degrees
Vertical view angle		+80/-80 degrees
Pixel pitch		0.1875 mm x 0.1875 mm
Power consumption (maximum)		4 W
Anti-glare vs glossy finish		Anti-Glare
Stylus		USI Pen support

Sensor

The following table lists the sensor of your Chromebook 3120 2-in-1.

Table 17. Sensor

Sensor support
Accelerometer
Gyro + accelerometer

Table 17. Sensor (continued)

Sensor support
Screen rotation support

GPU—Integrated

The following table lists the specifications of the integrated Graphics Processing Unit (GPU) supported by your Chromebook 3120 2-in-1.

Table 18. GPU—Integrated

Controller	Memory size	Processor
Intel UHD Graphics	Shared system memory	Intel Processor N100

External display support

The following table lists the external display support for your Chromebook 3120 2-in-1.

Table 19. External display support

Graphics card	Supported external displays with laptop display enabled	Supported external displays with laptop display disabled
Intel UHD Graphics	2	2

Hardware security

The following table lists the hardware security of your Chromebook 3120 2-in-1.

Table 20. Hardware security

Hardware security
H1 security chip
One Wedge-shaped lock slot

Operating and storage environment

This table lists the operating and storage specifications of your Chromebook 3120 2-in-1.

Airborne contaminant level: G1 as defined by ISA-S71.04-1985

Table 21. Computer environment

Description	Operating	Storage
Temperature range	0°C to 35°C (32°F to 95°F)	-40°C to 65°C (-40°F to 149°F)
Relative humidity (maximum)	10% to 90% (non-condensing)	0% to 95% (non-condensing)
Vibration (maximum)*	0.66 GRMS	N/A
Shock (maximum)	160 G†	N/A
Altitude range	-15.2 m to 3048 m (-49.87 ft to 10000 ft)	-15.2 m to 10668 m (-49.87 ft to 35000 ft)

Table 21. Computer environment (continued)

Description	Operating	Storage
CAUTION: Operating and storage temperature ranges may differ among components, so operating or storing the device outside these ranges may impact the performance of specific components.		

* Measured using a random vibration spectrum that simulates the user environment.

† Measured using a 2 ms half-sine pulse.

Dell support policy

For information about Dell support policy, search in the Knowledge Base Resource at Dell Support Site.

4

Working inside your computer

Safety instructions

Use the following safety guidelines to protect your computer from potential damage and to ensure your personal safety. Unless otherwise noted, each procedure in this document assumes that you have read the safety information that shipped with your computer.

WARNING: Before working inside your computer, read the safety information that is shipped with your computer. For more safety best practices, see Dell Regulatory Compliance Home Page.

WARNING: Disconnect your computer from all power sources before opening the computer cover or panels. After you finish working inside the computer, replace all covers, panels, and screws before connecting your computer to an electrical outlet.

CAUTION: To avoid damaging the computer, ensure that the work surface is flat, dry, and clean.

CAUTION: You should only perform troubleshooting and repairs as authorized or directed by the Dell technical support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. See the safety instructions that is shipped with the product or at Dell Regulatory Compliance Home Page.

CAUTION: Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate static electricity which could harm internal components.

CAUTION: To avoid damaging the components and cards, handle them by their edges, and avoid touching the pins and the contacts.

CAUTION: When you disconnect a cable, pull it by its connector or its pull tab, not the cable itself. Some cables have connectors with locking tabs or thumbscrews that you must disengage before disconnecting the cable. When disconnecting cables, keep them evenly aligned to avoid bending the connector pins. When connecting cables, ensure that the connector on the cable is correctly oriented and aligned with the port.

CAUTION: Press and eject any installed card from the media-card reader.

CAUTION: Exercise caution when handling rechargeable Li-ion batteries in laptops. Swollen batteries should not be used and should be replaced and disposed properly.

Before working inside your computer

About this task

NOTE: The images in this document may differ from your computer depending on the configuration you ordered.

Steps

1. Save and close all open files and exit all open applications.
2. Shut down your computer. For Windows operating system, click **Start** > **Power** > **Shut down**.

   NOTE: If you are using a different operating system, see the documentation of your operating system for shut-down instructions.
3. Turn off all the attached peripherals.
4. Disconnect your computer and all attached devices from their electrical outlets.

5. Disconnect all attached network devices and peripherals, such as keyboard, mouse, and monitor from your computer.

   CAUTION: To disconnect a network cable, unplug the cable from your computer.

6. Remove any media card and optical disc from your computer, if applicable.

Safety precautions

This section details the primary steps to be followed before performing any disassembly instructions.

Observe the following safety precautions before you perform any installation or break-fix procedures involving disassembly or reassembly:

- Turn off the computer and all attached peripherals.
- Disconnect the computer from AC power.
- Disconnect all network cables and peripherals from the computer.
- Use an ESD field service kit when working inside any to avoid electrostatic discharge (ESD) damage.
- Place the removed component on an anti-static mat after removing it from the computer.
- Wear shoes with nonconductive rubber soles to reduce the chance of getting electrocuted.
- Unplugging, pressing, and holding the power button for 15 seconds should discharge residual power in the system board.

Standby power

Dell products with standby power must be unplugged before you open the back cover. Systems that are equipped with standby power are powered while turned off. The internal power enables the computer to be remotely turned on (Wake-on-LAN) and suspended into a sleep mode and has other advanced power management features.

Bonding

Bonding is a method for connecting two or more grounding conductors to the same electrical potential. This is done by using a field service electrostatic discharge (ESD) kit. When connecting a bonding wire, ensure that it is connected to bare metal and never to a painted or nonmetal surface. Ensure that the wrist strap is secure and in full contact with your skin. Remove all jewelry, watches, bracelets, or rings before grounding yourself and the equipment.

Electrostatic discharge—ESD protection

ESD is a major concern when you handle electronic components, especially sensitive components such as expansion cards, processors, memory modules, and system boards. A slight charge can damage circuits in ways that may not be obvious, such as intermittent problems or a shortened product life span. As the industry pushes for lower power requirements and increased density, ESD protection is an increasing concern.

Due to the increased density of semiconductors used in recent Dell products, the sensitivity to static damage is now higher than in previous Dell products. For this reason, some previously approved methods of handling parts are no longer applicable.

Two recognized types of ESD damage are catastrophic and intermittent failures.

- **Catastrophic** – Catastrophic failures represent approximately 20 percent of ESD-related failures. The damage causes an immediate and complete loss of device functionality. An example of catastrophic failure is a memory module that has received a static shock and immediately generates a "No POST/No Video" symptom with a beep code that is emitted for missing or nonfunctional memory.
- **Intermittent** – Intermittent failures represent approximately 80 percent of ESD-related failures. The high rate of intermittent failures means that most of the time when damage occurs, it is not immediately recognizable. The memory module receives a static shock, but the tracing is merely weakened and does not immediately produce outward symptoms that are related to the damage. The weakened trace may take weeks or months to melt, and in the meantime may cause degradation of memory integrity, intermittent memory errors, and so on.

Intermittent failures that are also called latent or "walking wounded" are difficult to detect and troubleshoot.

Perform the following steps to prevent ESD damage:

- Use a wired ESD wrist strap that is properly grounded. Wireless anti-static straps do not provide adequate protection. Touching the chassis before handling parts does not ensure adequate ESD protection on parts with increased sensitivity to ESD damage.

- Handle all static-sensitive components in a static-safe area. If possible, use anti-static floor pads and workbench pads.
- When unpacking a static-sensitive component from its shipping carton, do not remove the component from the anti-static packing material until you are ready to install the component. Before unwrapping the anti-static packaging, use the anti-static wrist strap to discharge the static electricity from your body. For more information about the wrist strap and ESD wrist strap tester, see Components of an ESD Field Service Kit.
- Before transporting a static-sensitive component, place it in an anti-static container or packaging.

ESD Field Service kit

The unmonitored field service kit is the most commonly used service kit. Each Field Service kit includes three main components: anti-static mat, wrist strap, and bonding wire.

CAUTION: It is critical to keep ESD-sensitive devices away from internal parts that are insulated and often highly charged, such as plastic heat sink casings.

Working Environment

Before deploying the ESD Field Service kit, assess the situation at the customer location. For example, deploying the kit for a server environment is different than for a desktop or laptop environment. Servers are typically installed in a rack within a data center; desktops or laptops are typically placed on office desks or cubicles. Always look for a large open flat work area that is free of clutter and large enough to deploy the ESD kit with additional space to accommodate the type of computer that is being repaired. The workspace should also be free of insulators that can cause an ESD event. On the work area, insulators such as styrofoam and other plastics should always be moved at least 12 inches or 30 centimeters away from sensitive parts before physically handling any hardware components.

ESD Packaging

All ESD-sensitive devices must be shipped and received in static-safe packaging. Metal, static-shielded bags are preferred. However, you should always return the damaged component using the same ESD bag and packaging that the new part arrived in. The ESD bag should be folded over and taped shut and all the same foam packing material should be used in the original box that the new part arrived in. ESD-sensitive devices should be removed from packaging only at an ESD-protected work surface, and parts should never be placed on top of the ESD bag because only the inside of the bag is shielded. Always place parts in your hand, on the anti-static mat, in the computer, or inside an ESD bag.

Components of an ESD Field Service kit

The components of an ESD Field Service kit are:

- **Anti-Static Mat** – The anti-static mat is dissipative and parts can be placed on it during service procedures. When using an anti-static mat, your wrist strap should be snug and the bonding wire should be connected to the anti-static mat and to any bare metal on the computer being worked on. Once deployed properly, service parts can be removed from the ESD bag and placed directly on the anti-static mat. ESD-sensitive items are safe in your hand, on the anti-static mat, in the computer, or inside an ESD bag.
- **Wrist Strap and Bonding Wire** – The wrist strap and bonding wire can be either directly connected between your wrist and bare metal on the hardware if the anti-static mat is not required, or connect to the anti-static mat to protect hardware that is temporarily placed on the mat. The physical connection of the wrist strap and bonding wire between your skin, the anti-static mat, and the hardware is known as bonding. Use only Field Service kits with a wrist strap, anti-static mat, and bonding wire. Never use wireless wrist straps. Always be cautious that the internal wires of a wrist strap are prone to damage from normal wear and tear, and must be checked regularly with a wrist strap tester in order to avoid accidental ESD hardware damage. It is recommended to test the wrist strap and bonding wire at least once per week.
- **ESD Wrist Strap Tester** – The wires inside an ESD strap are prone to damage over time. When using an unmonitored kit, it is a best practice to regularly test the strap prior to each service, and at a minimum, test once per week. A wrist strap tester is the best method for doing this test. To perform the test, plug the bonding-wire of the wrist-strap into the tester while it is strapped to your wrist and push the button to test. A green LED is lit if the test is successful; a red LED is lit and an alarm sounds if the test fails.

NOTE: It is recommended to always use the traditional wired ESD grounding wrist strap and protective anti-static mat when servicing Dell products. In addition, it is critical to keep sensitive parts separate from all insulator parts while servicing the computer.

Transporting sensitive components

When transporting ESD sensitive components such as replacement parts or parts to be returned to Dell, it is critical to place these parts in anti-static bags for safe transport.

After working inside your computer

About this task

CAUTION: Leaving stray or loose screws inside your computer may severely damage your computer.

Steps

1. Replace all screws and ensure that no stray screws remain inside your computer.
2. Connect any external devices, peripherals, or cables you removed before working on your computer.
3. Replace any media cards, discs, or any other components that you removed before working on your computer.
4. Connect your computer and all attached devices to their electrical outlets.
5. Turn on your computer.

Recommended tools

The procedures in this document may require the following tools:

- Phillips screwdriver #1
- Torx #6 (T6) screwdriver
- Plastic scribe

Screw list

NOTE: When removing screws from a component, it is recommended to note the screw type and the quantity of screws, and then place them in a screw storage box. This is to ensure that the correct number of screws and correct screw type is restored when the component is replaced.

NOTE: Some computers have magnetic surfaces. Ensure that the screws are not left attached to such surfaces when replacing a component.

NOTE: Screw color may vary depending on the configuration ordered.

Table 22. Screw list

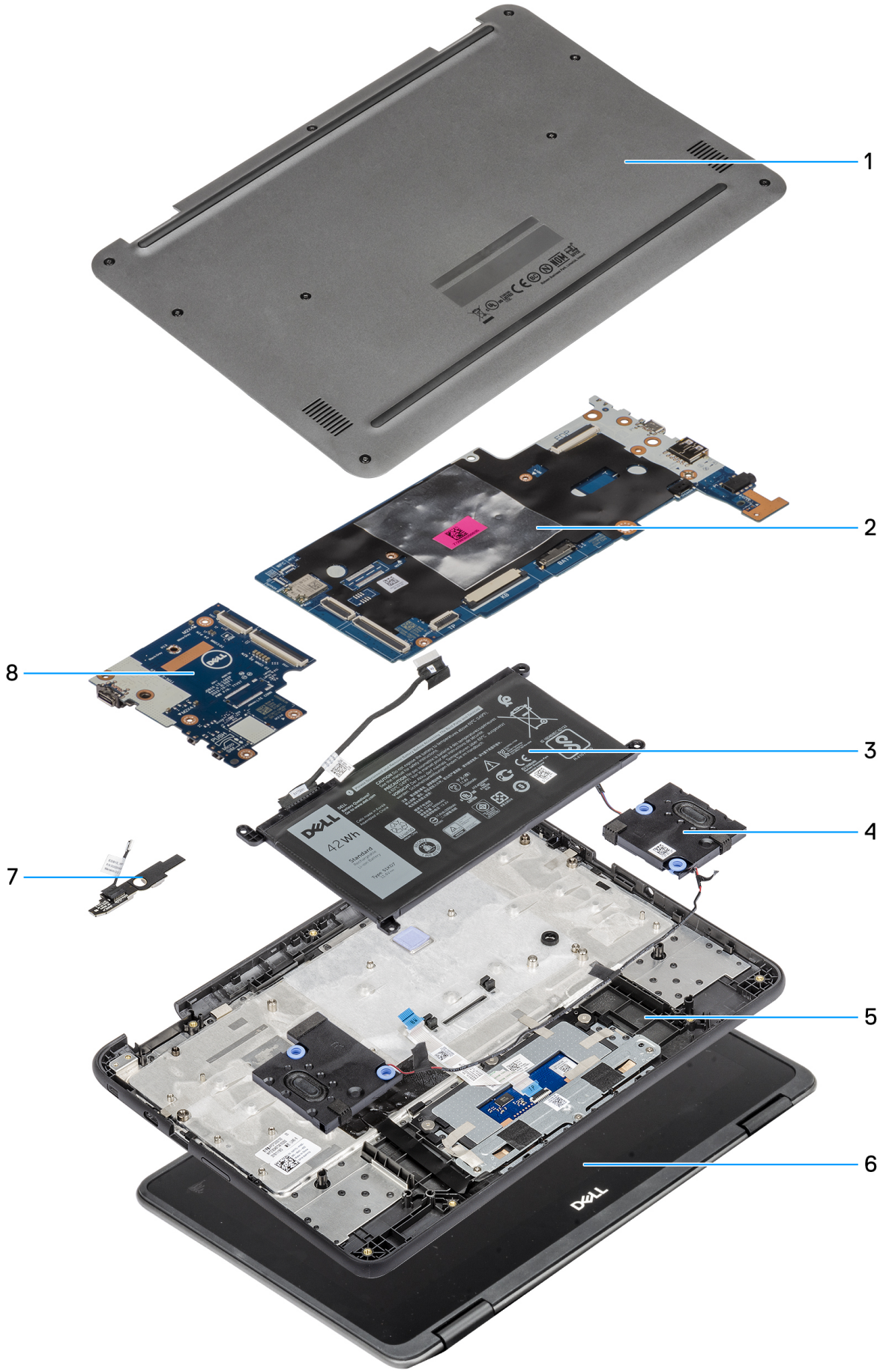
Component	Screw type	Quantity	Screw image
Base cover	Captive (Phillips #1) screws	9	
Battery	M2x4	3	
WLAN bracket	M2x3	1	
Display-cable bracket	M2x4	1	

Table 22. Screw list (continued)

Component	Screw type	Quantity	Screw image
Top-left I/O bracket	M2.5x5	1	
Bottom-left I/O bracket	M2x4	2	
System board	M2x4	4	
Right I/O bracket	M2.5x5	1	
I/O board	M2x4	4	
Display assembly	M2.5x5	6	
World-facing camera	M2.5x2.5	1	
Display hinges	M2x3	4	
	M2.5x2.5	6	

Major components of Chromebook 3120 2-in-1

The following image shows the major components of Chromebook 3120 2-in-1.


1
2
8
3
4
7
5
6

1. Base cover
2. System board
3. Battery
4. Speakers
5. Palm-rest
6. Display assembly
7. World-facing camera
8. I/O board

NOTE: Dell provides a list of components and their part numbers for the original computer configuration purchased. These parts are available according to warranty coverage purchased by the customer. Contact your Dell sales representative for purchase options.

5

Removing and installing Customer Replaceable Units (CRUs)

The replaceable components in this chapter are Customer Replaceable Units (CRUs).

CAUTION: Customers can replace only the Customer Replaceable Units (CRUs) following the safety precautions and replacement procedures.

NOTE: The images in this document may differ from your computer depending on the configuration you ordered.

Base cover

Removing the base cover

Prerequisites

1. Follow the procedure in Before working inside your computer.

About this task

The following images indicate the location of the base cover and provide a visual representation of the removal procedure.

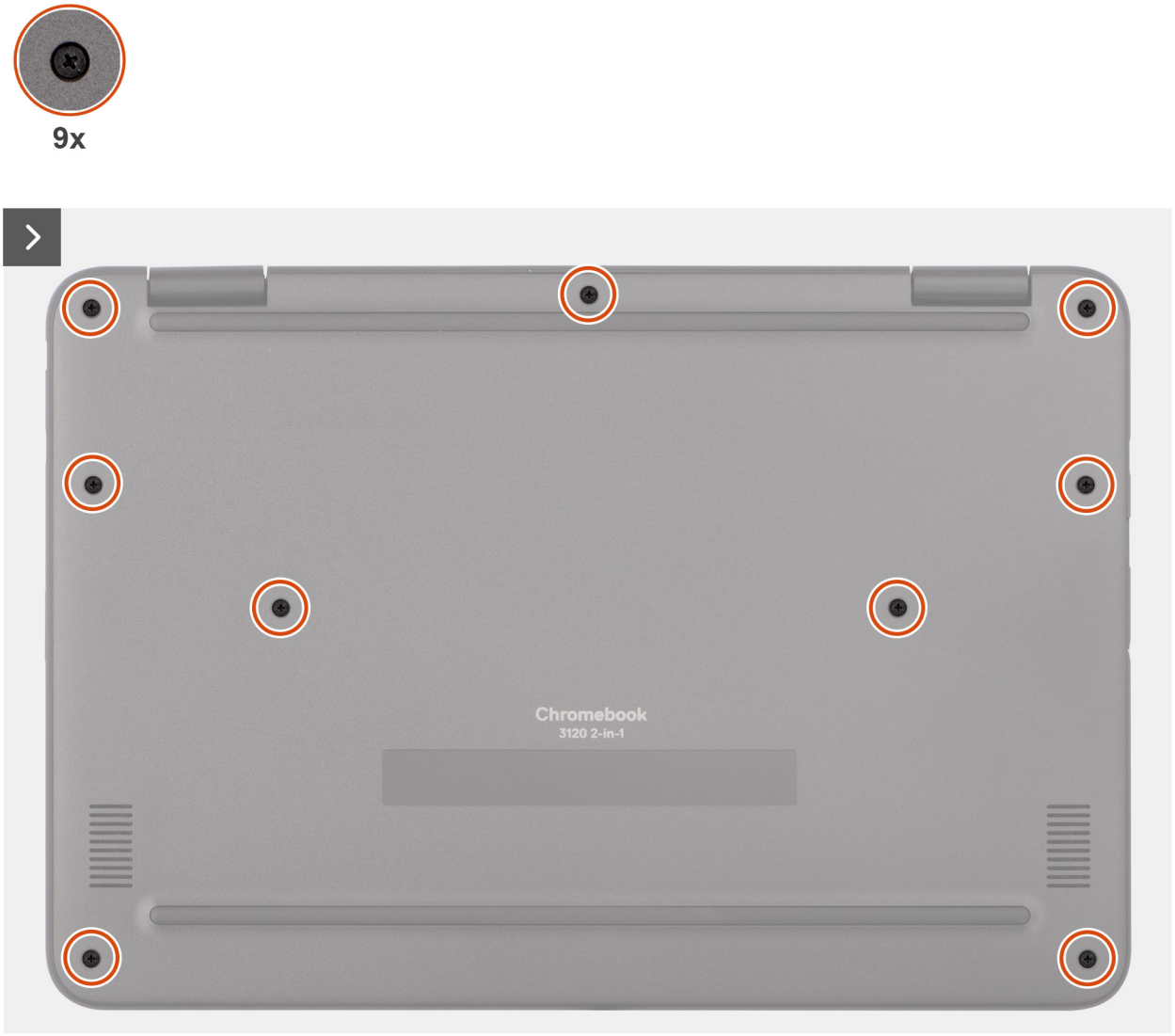


Figure 12. Removing the base cover

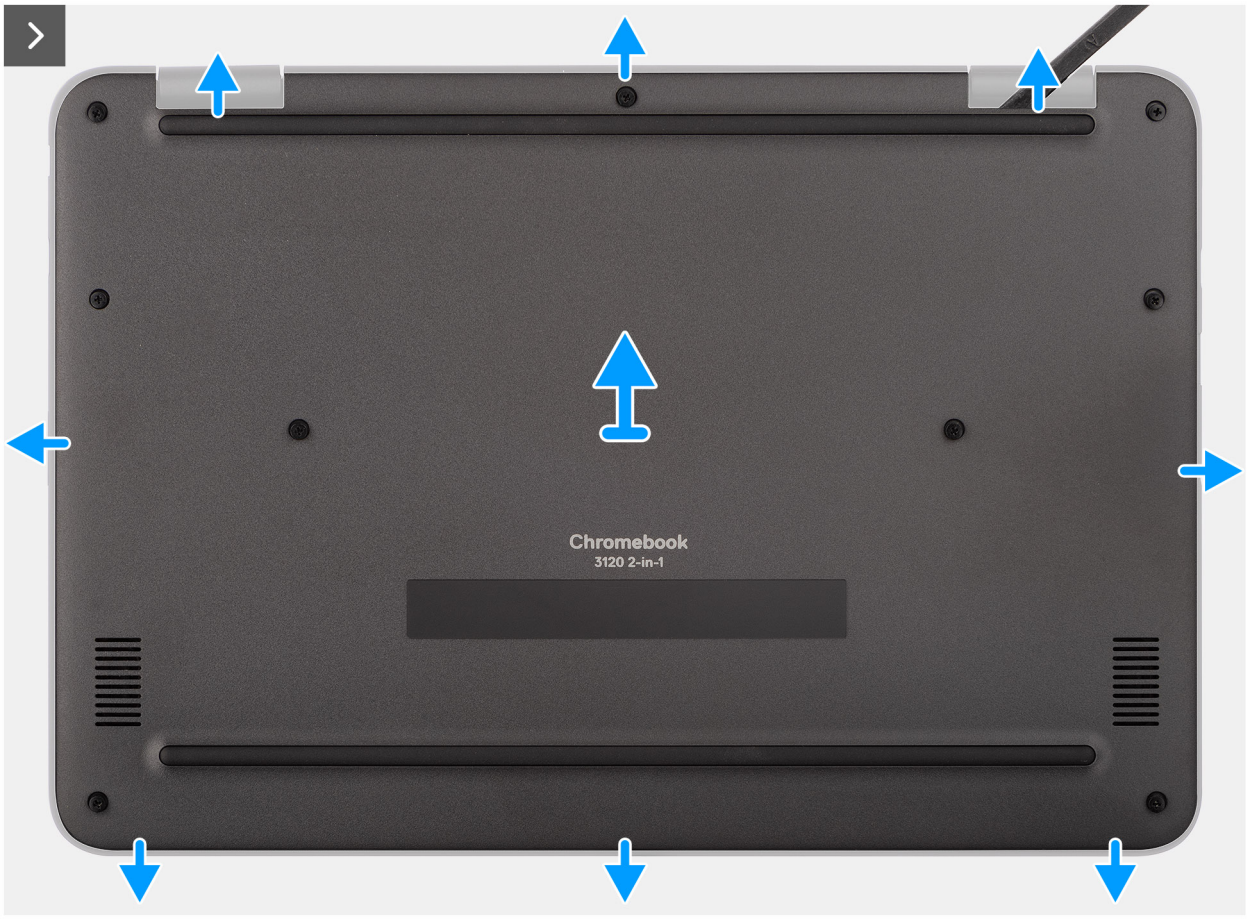


Figure 13. Removing the base cover

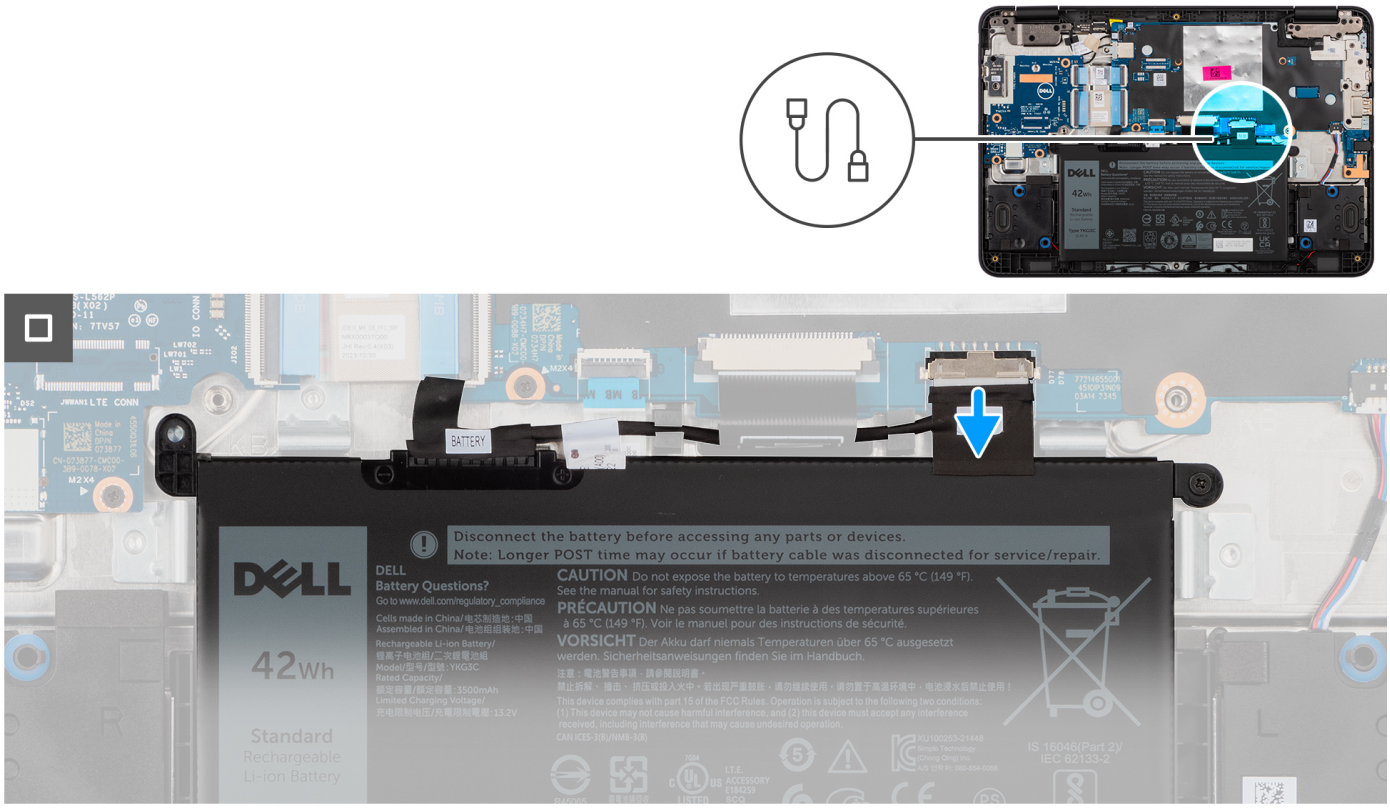


Figure 14. Disconnecting the battery cable

Steps

1. Loosen the nine captive (Phillips #1) screws that secure the base cover to the palm-rest assembly.
2. Using a plastic scribe, pry the base cover from the U-shaped indents at the top and continue working on the sides to open the base cover.
3. Lift and remove the base cover off the palm-rest assembly.
4. Use the pull tab to disconnect the battery cable from the connector (BATT) on the system board.

Installing the base cover

Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

The following images indicate the location of the base cover and provide a visual representation of the installation procedure.

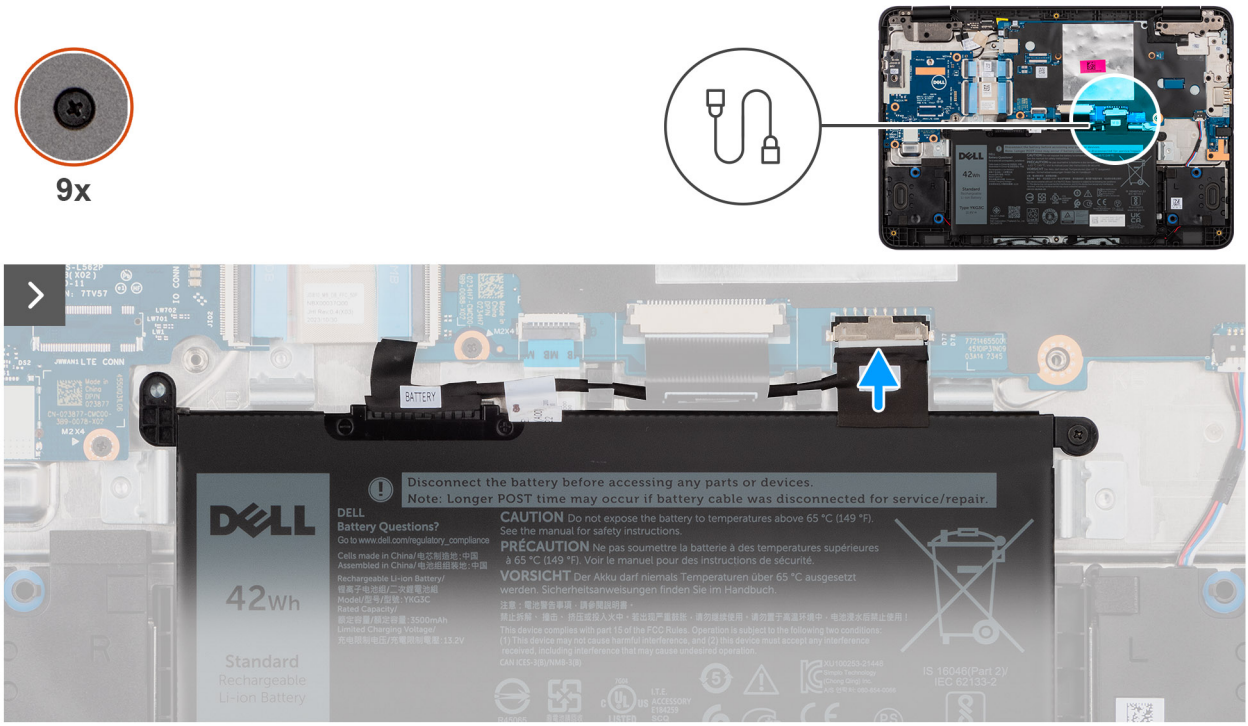


Figure 15. Installing the base cover

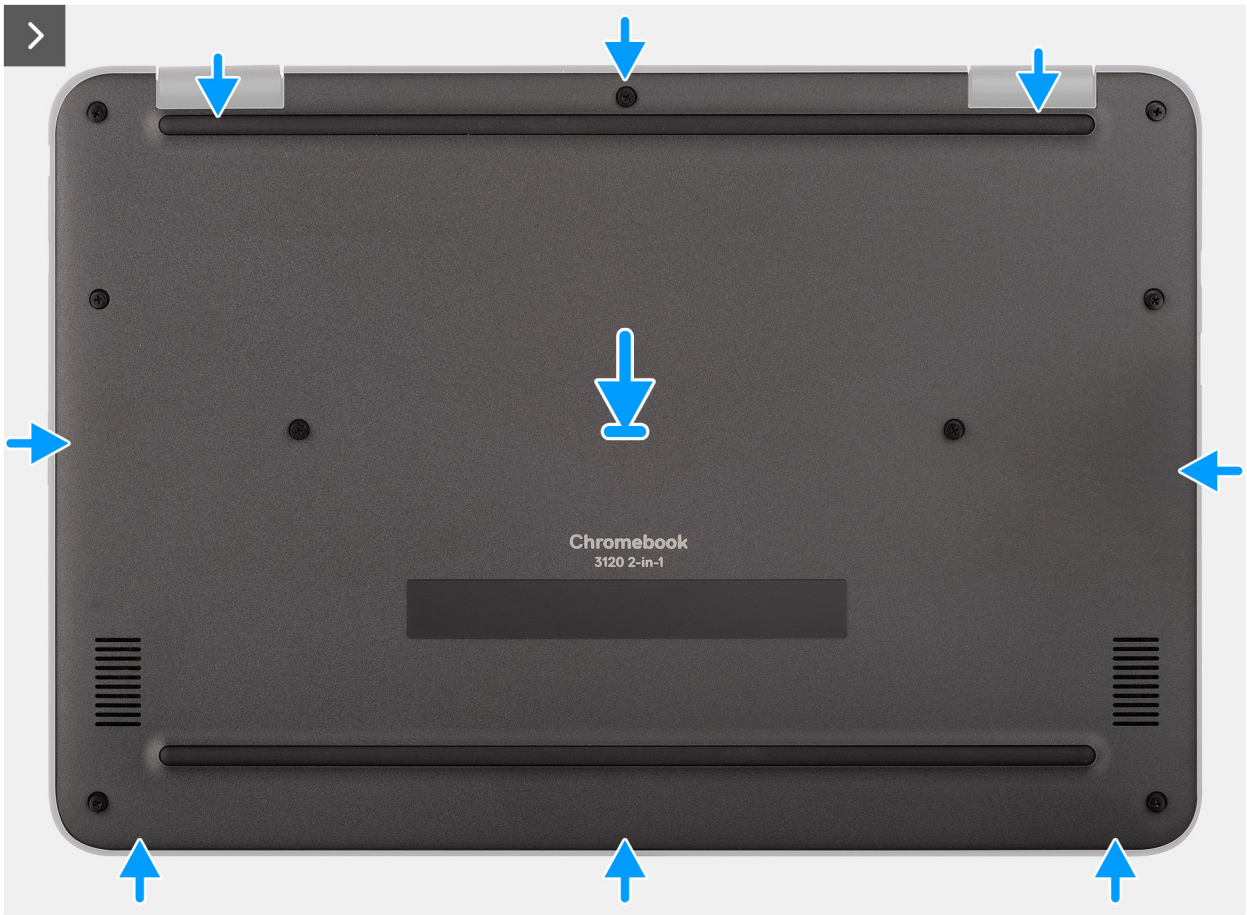


Figure 16. Installing the base cover

Figure 17. Installing the base cover

Steps

1. Connect the battery cable to the connector (BATT) on the system board.
2. Place the base cover on top of the palm-rest assembly.
3. Align the screw holes on the base cover with the screw holes on the palm-rest assembly, and snap the base cover into place.
4. Tighten the nine captive (Phillips #1) screws to secure the base cover to the palm-rest assembly.

Next steps

1. Follow the procedure in After working inside your computer.

6

Removing and installing Field Replaceable Units (FRUs)

The replaceable components in this chapter are Field Replaceable Units (FRUs).

CAUTION: The information in this section is intended for authorized service technicians only.

CAUTION: To avoid any potential damage to the component or loss of data, ensure that an authorized service technician replaces the Field Replaceable Units (FRUs).

CAUTION: Dell Technologies recommends that this set of repairs, if needed, to be conducted by trained technical repair specialists.

CAUTION: As a reminder, your warranty does not cover damages that may occur during FRU repairs that are not authorized by Dell Technologies.

NOTE: The images in this document may differ from your computer depending on the configuration you ordered.

Battery

Rechargeable Li-ion battery precautions

CAUTION:

- **Exercise caution when handling rechargeable Li-ion batteries.**
- **Discharge the battery completely before removing it. Disconnect the AC power adapter from the computer and operate the computer solely on battery power—the battery is fully discharged when the computer no longer turns on when the power button is pressed.**
- **Do not crush, drop, mutilate, or penetrate the battery with foreign objects.**
- **Do not expose the battery to high temperatures, or disassemble battery packs and cells.**
- **Do not apply pressure to the surface of the battery.**
- **Do not bend the battery.**
- **Do not use tools of any kind to pry on or against the battery.**
- **Ensure any screws during the servicing of this product are not lost or misplaced, to prevent accidental puncture or damage to the battery and other computer components.**
- **If the battery gets stuck inside your computer as a result of swelling, do not try to release it as puncturing, bending, or crushing a rechargeable Li-ion battery can be dangerous. In such an instance, contact Dell technical support for assistance. See Contact Support at Dell Support Site.**
- **Always purchase genuine batteries from Dell Site or authorized Dell partners and resellers.**
- **Swollen batteries should not be used and should be replaced and disposed properly. For guidelines on how to handle and replace swollen rechargeable Li-ion batteries, see Handling swollen rechargeable Li-ion batteries.**

Removing the battery

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the base cover.

About this task

The following images indicate the location of the battery and provide a visual representation of the removal procedure.

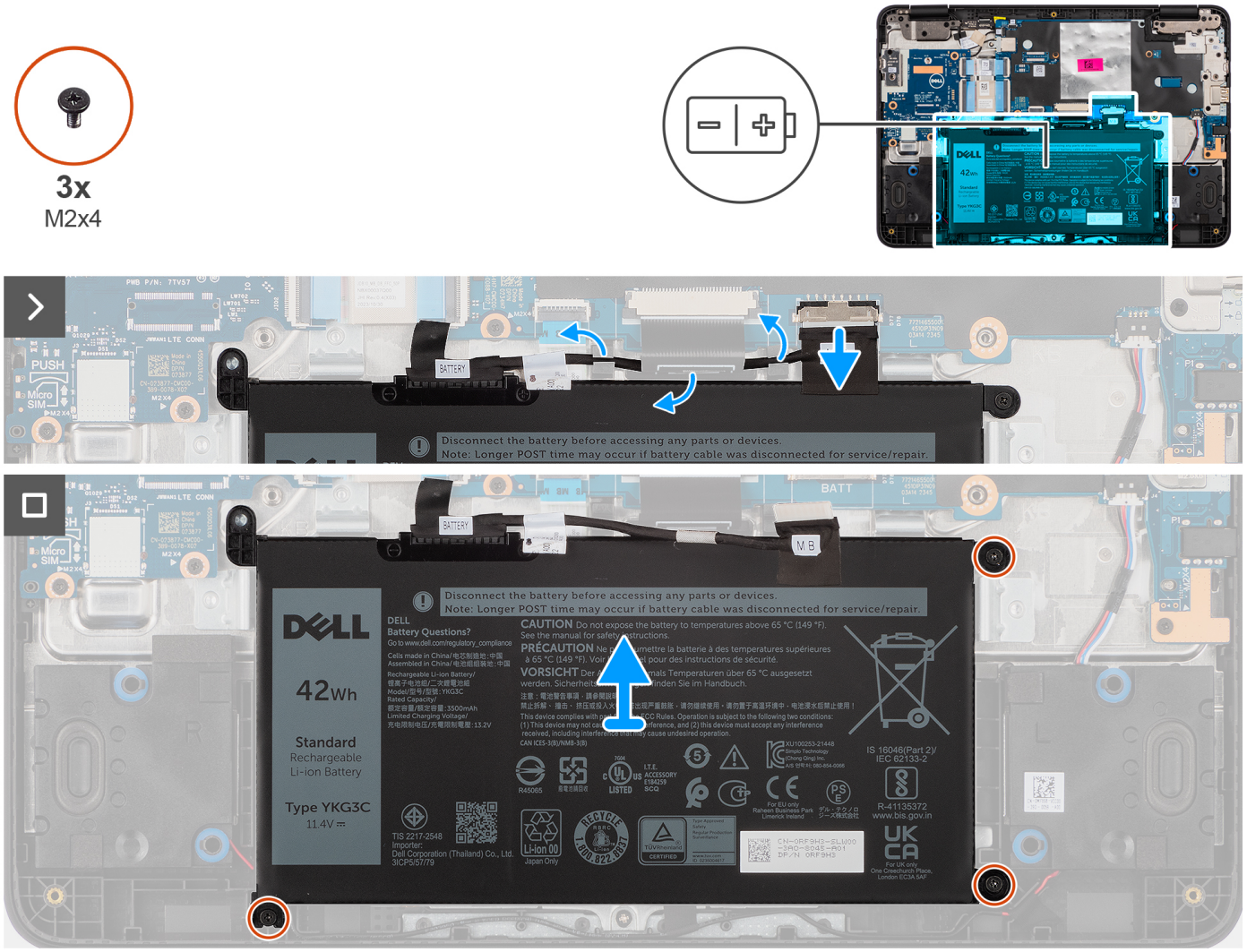


Figure 18. Removing the battery

Steps

1. Open the latch, and using the pull tab, disconnect the battery cable from the connector (BATT) on the system board.
2. Unroute the battery cable from the routing channels between the system board and battery.
3. Remove the three (M2x4) screws that secure the battery to the palm-rest assembly.
4. Lift the battery off the palm-rest assembly.

Installing the battery

Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

The following images indicate the location of the battery and provide a visual representation of the installation procedure.

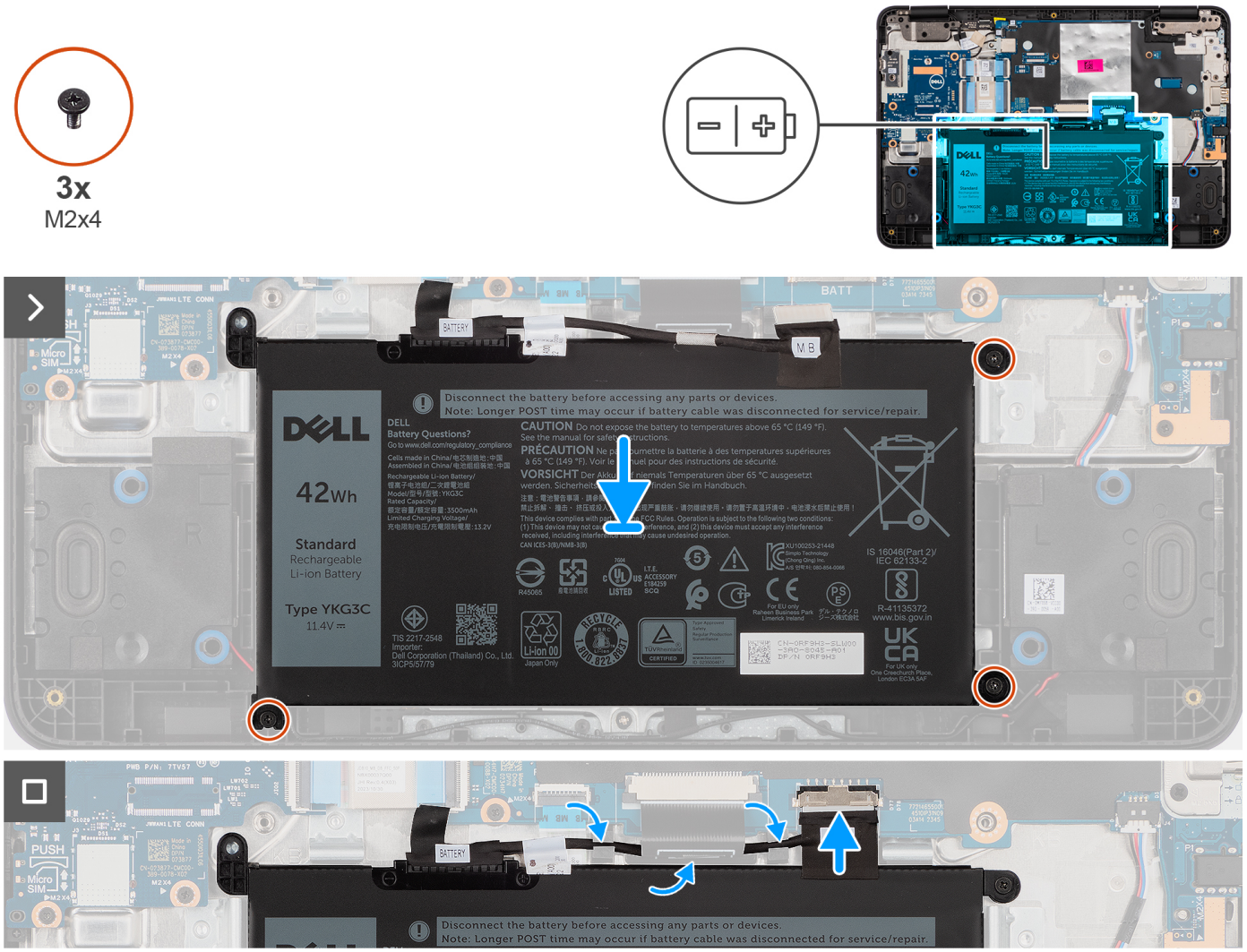


Figure 19. Installing the battery

Steps

1. Align and place the battery in the slot on the palm-rest assembly.
2. Replace the three (M2x4) screws to secure the battery to the palm-rest assembly.
3. Route the battery cable through the routing channels between the system board and battery.
4. Connect the battery cable to the connector (BATT) on the system board and close the latch.

Next steps

1. Install the base cover.
2. Follow the procedure in After working inside your computer.

Battery cable

Removing the battery cable

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the base cover.
3. Remove the battery.

About this task

The following image indicates the location of the battery cable and provides a visual representation of the removal procedure.

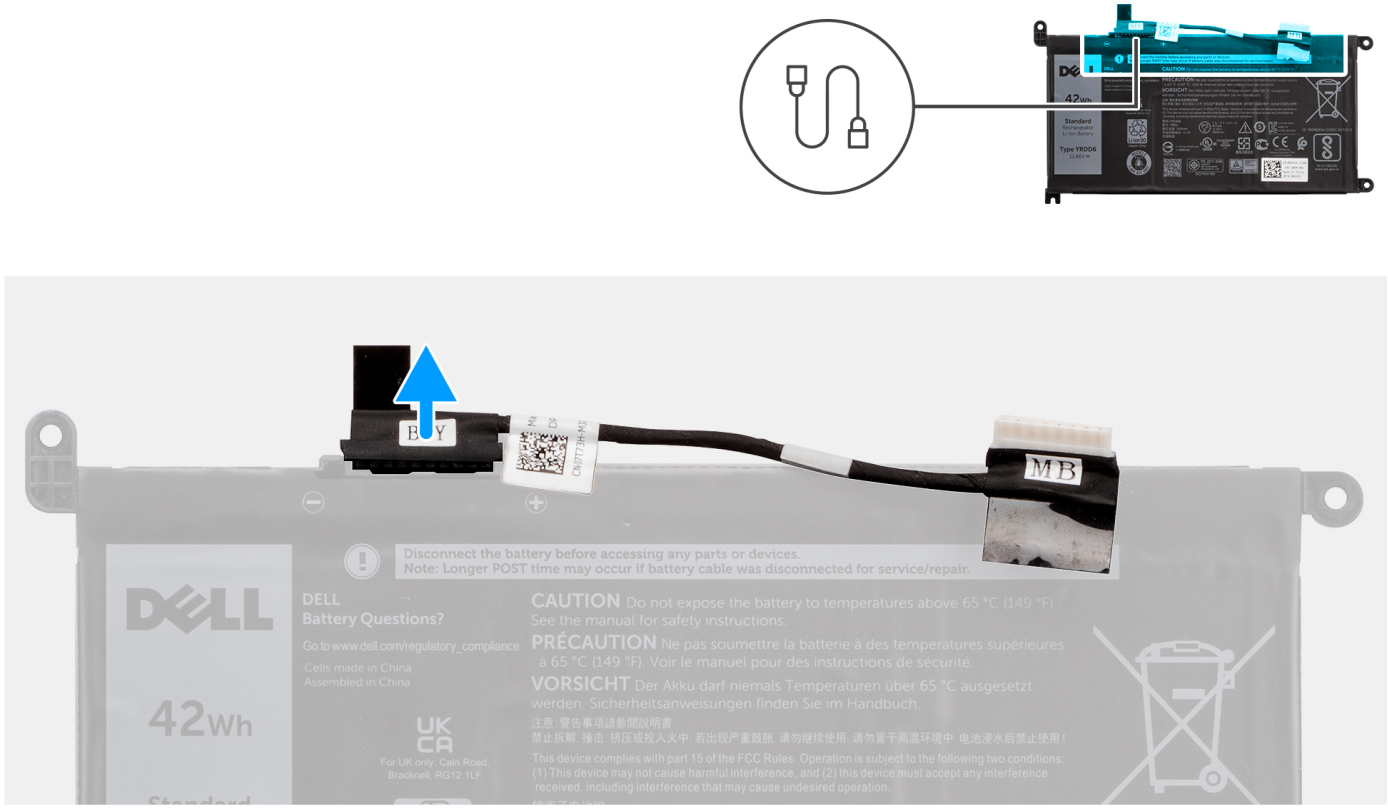


Figure 20. Removing the battery cable

Steps

Disconnect the battery cable from the connector on the battery.

Installing the battery cable

Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

The following image indicates the location of the battery cable and provides a visual representation of the installation procedure.

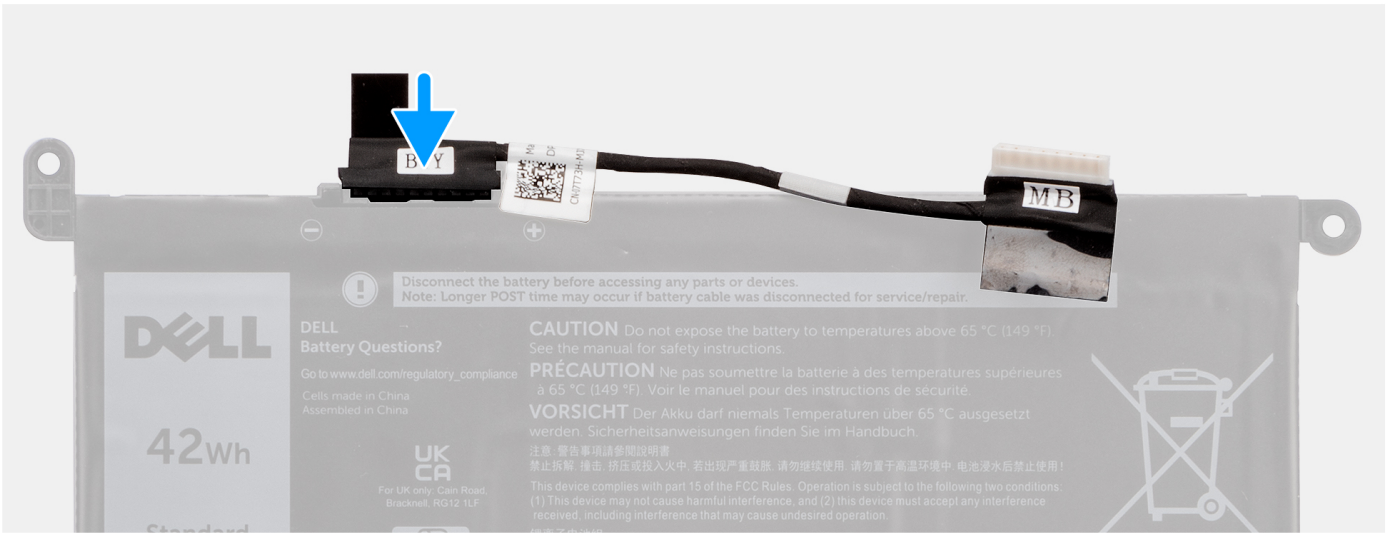


Figure 21. Installing the battery cable

Steps

Connect the battery cable to the connector on the battery.

Next steps

1. Install the battery.
2. Install the base cover.
3. Follow the procedure in After working inside your computer.

Keyboard

Removing the keyboard

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the base cover.

About this task

The following images indicate the location of the keyboard and provide a visual representation of the removal procedure.

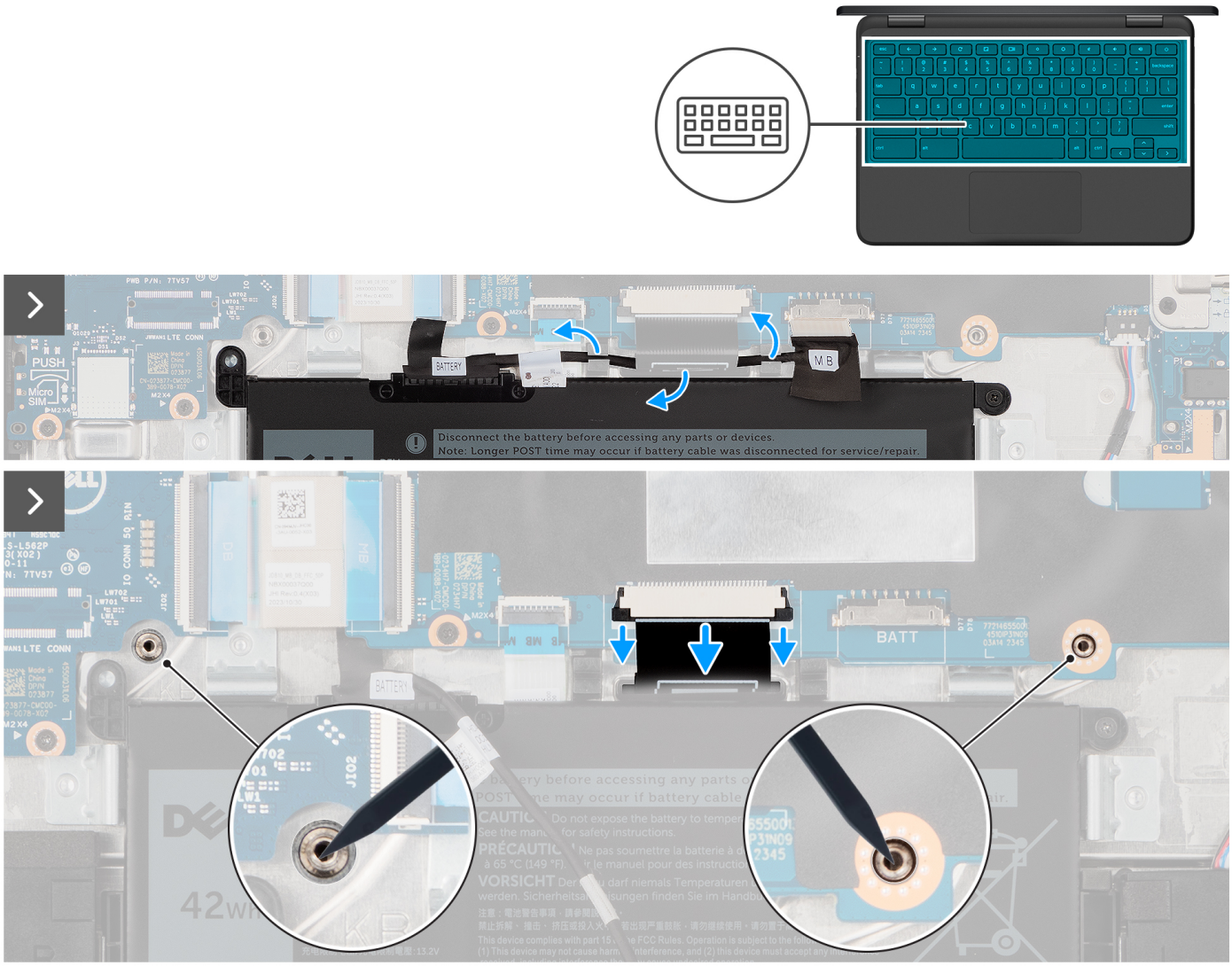


Figure 22. Removing the keyboard

Figure 23. Removing the keyboard

Steps

1. Unroute the battery cable from the routing channels between the system board and battery.
2. Push the release tabs and disconnect the keyboard cable from the connector (KB) on the system board.
3. Turn the computer over and open the display to an angle of 180 degrees with the keyboard facing up.
4. Hold the sides of the palm-rest securely while pushing into the two release holes using a plastic scribe.
5. Using a plastic scribe, gently separate the keyboard from the latches on the palm-rest assembly to release it from the keyboard bracket within the palm-rest assembly.
6. Remove the keyboard from the palm-rest assembly and carefully pull the keyboard cable through the gap on the palm-rest assembly.

Installing the keyboard

Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

The following images indicate the location of the keyboard and provide a visual representation of the installation procedure.

Figure 24. Installing the keyboard

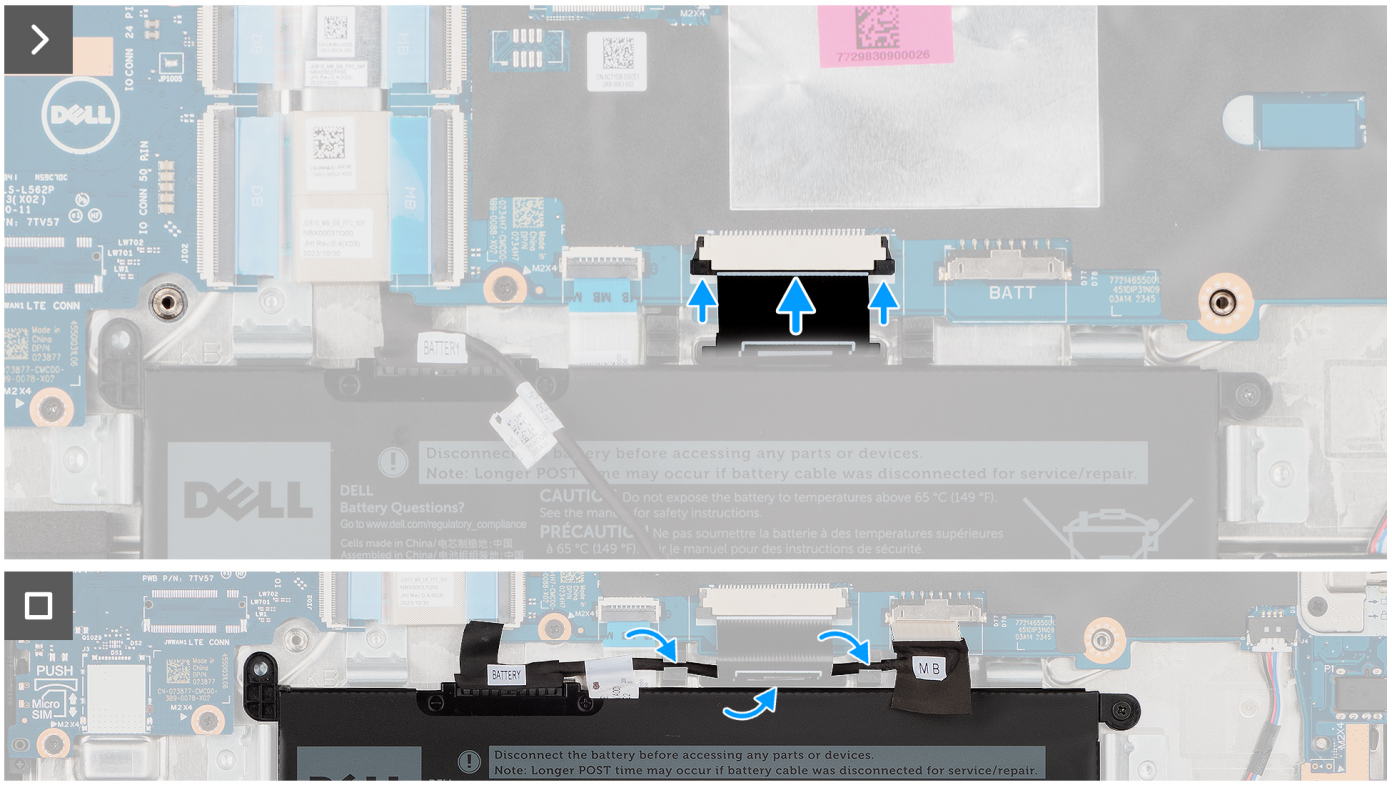


Figure 25. Installing the keyboard

Steps

1. Carefully insert the keyboard cable through the gap on the palm-rest assembly.
2. Align and place the keyboard on the palm-rest assembly.
3. Gently press the keyboard and snap it into place.
4. Close the display completely and turn the computer over.
5. Pull the keyboard cable through the gap in the palm-rest assembly.
6. Pull the release tabs and connect the keyboard cable to the connector (KB) on the system board.
7. Route the battery cable through the routing channels between the system board and battery.

Next steps

1. Install the base cover.
2. Follow the procedure in After working inside your computer.

I/O-board cable

Removing the I/O-board cables (24-pin and 50-pin)

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the base cover.

About this task

The following images indicate the location of the I/O-board cables (24-pin and 50-pin) and provide a visual representation of the installation procedure.

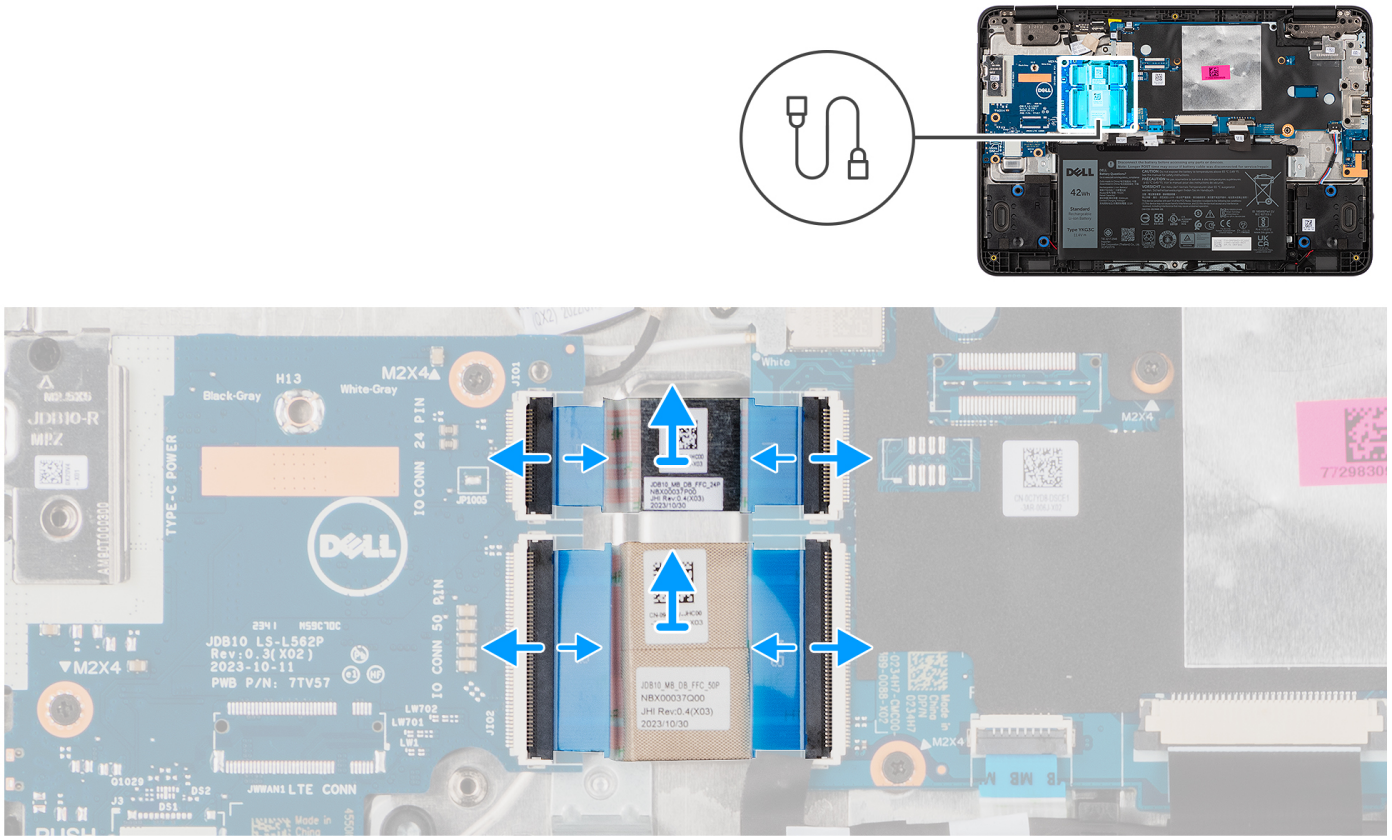


Figure 26. Removing the I/O-board cables (24-pin and 50-pin)

Steps

1. Lift the cable-connector latch and disconnect the 24-pin I/O-board cable from the connector on the system board.
2. Lift the cable-connector latch and disconnect the 24-pin I/O-board cable from the connector on the I/O board.
3. Lift the cable-connector latch and disconnect the 50-pin I/O-board cable from the connector on the system board.
4. Lift the cable-connector latch and disconnect the 50-pin I/O-board cable from the connector on the I/O board.
5. Remove the 24-pin and 50-pin I/O-board cables from the palm-rest assembly.

Installing the I/O-board cables (24-pin and 50-pin)

Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

The following images indicate the location of the I/O-board cables (24-pin and 50-pin) and provide a visual representation of the installation procedure.

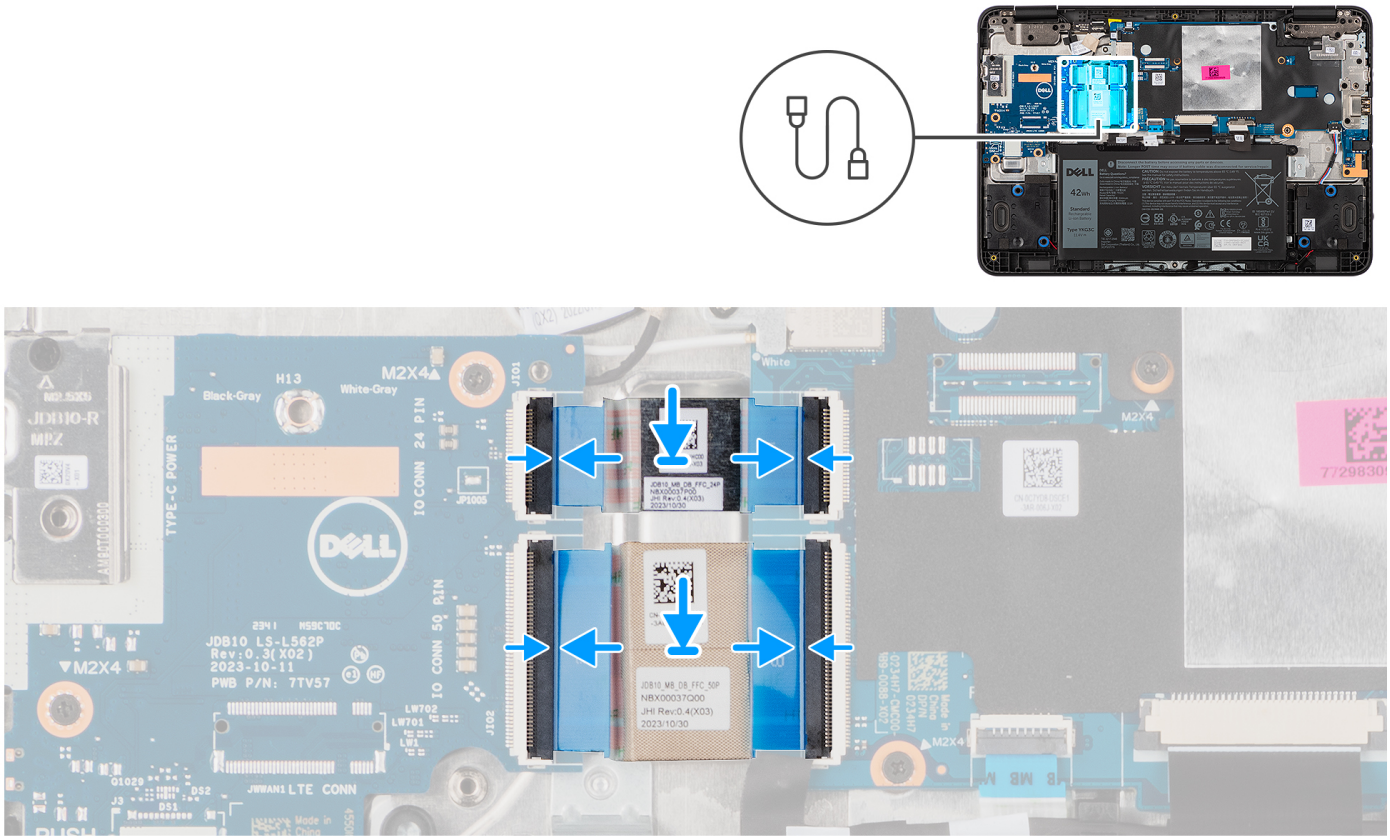


Figure 27. Installing the I/O-board cables (24-pin and 50-pin)

Steps

1. Connect the 24-pin I/O-board cable to the connector on the system board and press down the cable-connector latch to secure the cable in place.
2. Connect the 24-pin I/O-board cable to the connector on the I/O board and press down the cable-connector latch to secure the cable in place.
3. Connect the 50-pin I/O-board cable to the connector on the system board and press down the cable-connector latch to secure the cable in place.
4. Connect the 50-pin I/O-board cable to the connector on the I/O board and press down the cable-connector latch to secure the cable in place.

Next steps

1. Install the base cover.
2. Follow the procedure in After working inside your computer.

WLAN board

Removing the I/O board

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the base cover.

About this task

The following images indicate the location of the I/O board and provide a visual representation of the installation procedure.

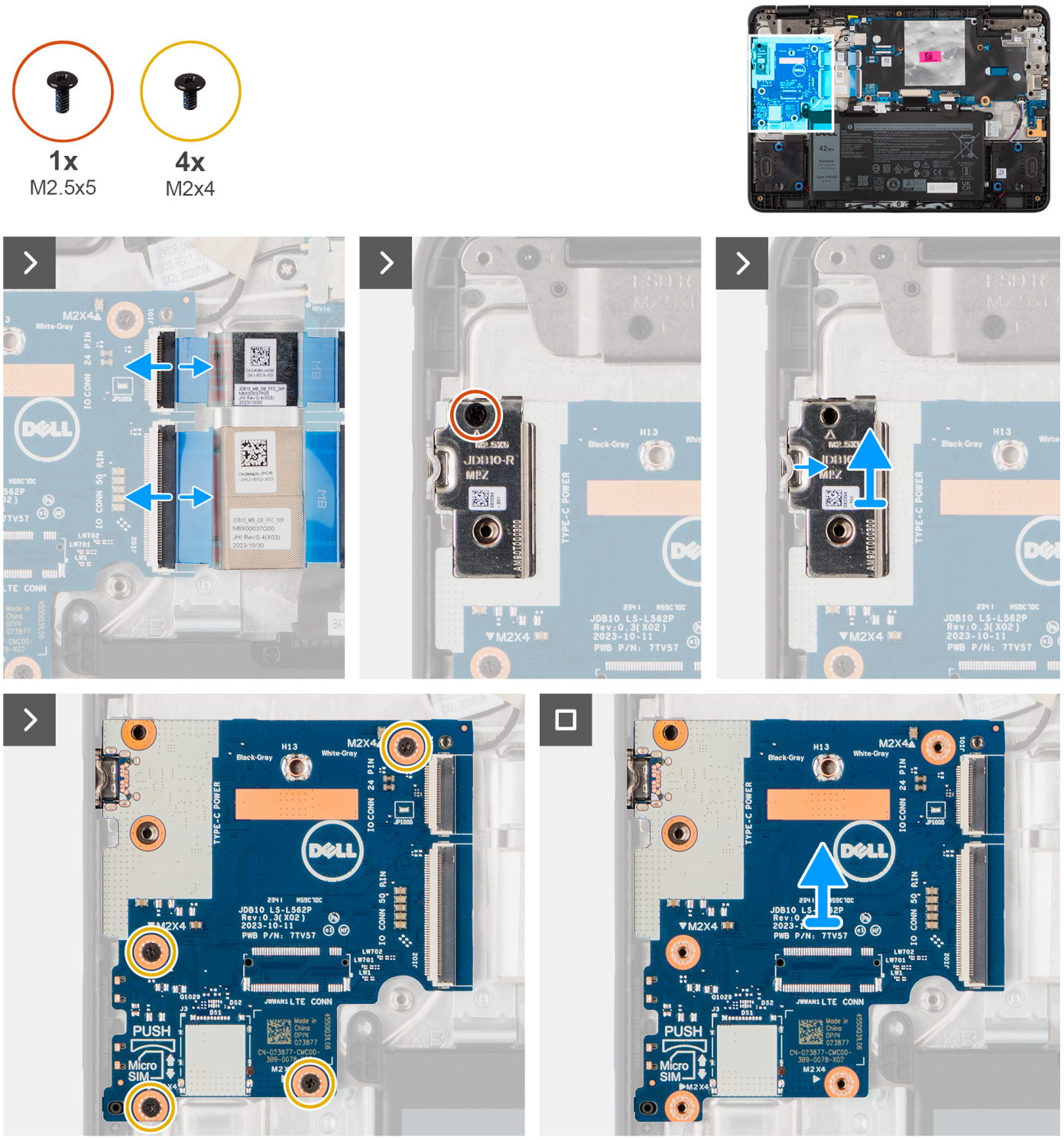


Figure 28. Removing the I/O board

Steps

1. Lift the cable-connector latch and disconnect the 24-pin I/O-board cable from the connector on the I/O board.
2. Lift the cable-connector latch and disconnect the 50-pin I/O-board cable from the connector on the I/O board.
3. Remove the screw (M2.5x5) that secures the Type-C bracket in place.
4. Slide and remove the Type-C bracket from the computer.

NOTE: Do not remove the Type-C brackets located underneath the I/O board or system board.

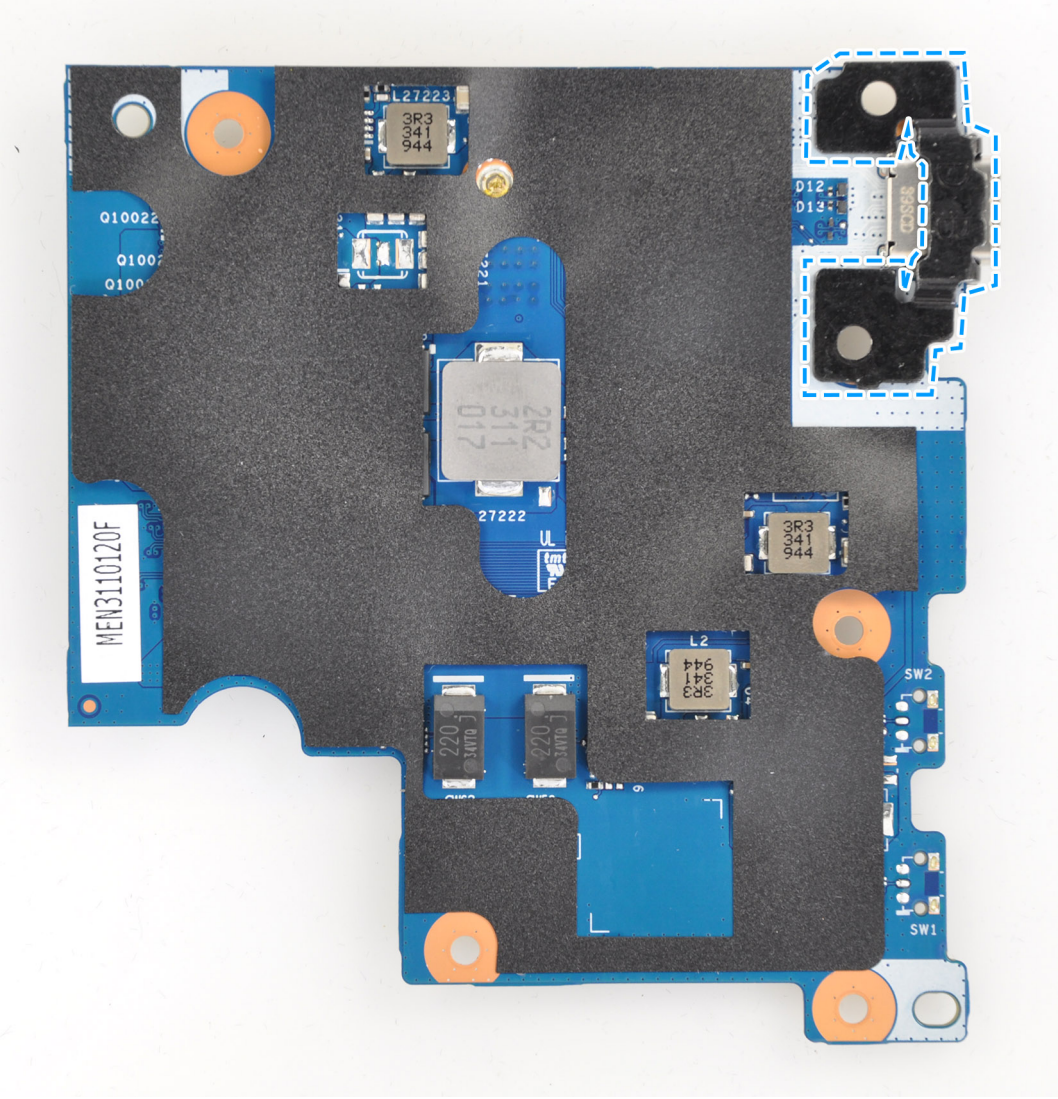


Figure 29. Type-C brackets not to be removed

5. Remove the four (M2x4) screws that secure the I/O board in place.
6. Slide and remove the I/O board from the computer.

Installing the I/O board

Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

The following images indicate the location of the I/O board and provide a visual representation of the installation procedure.

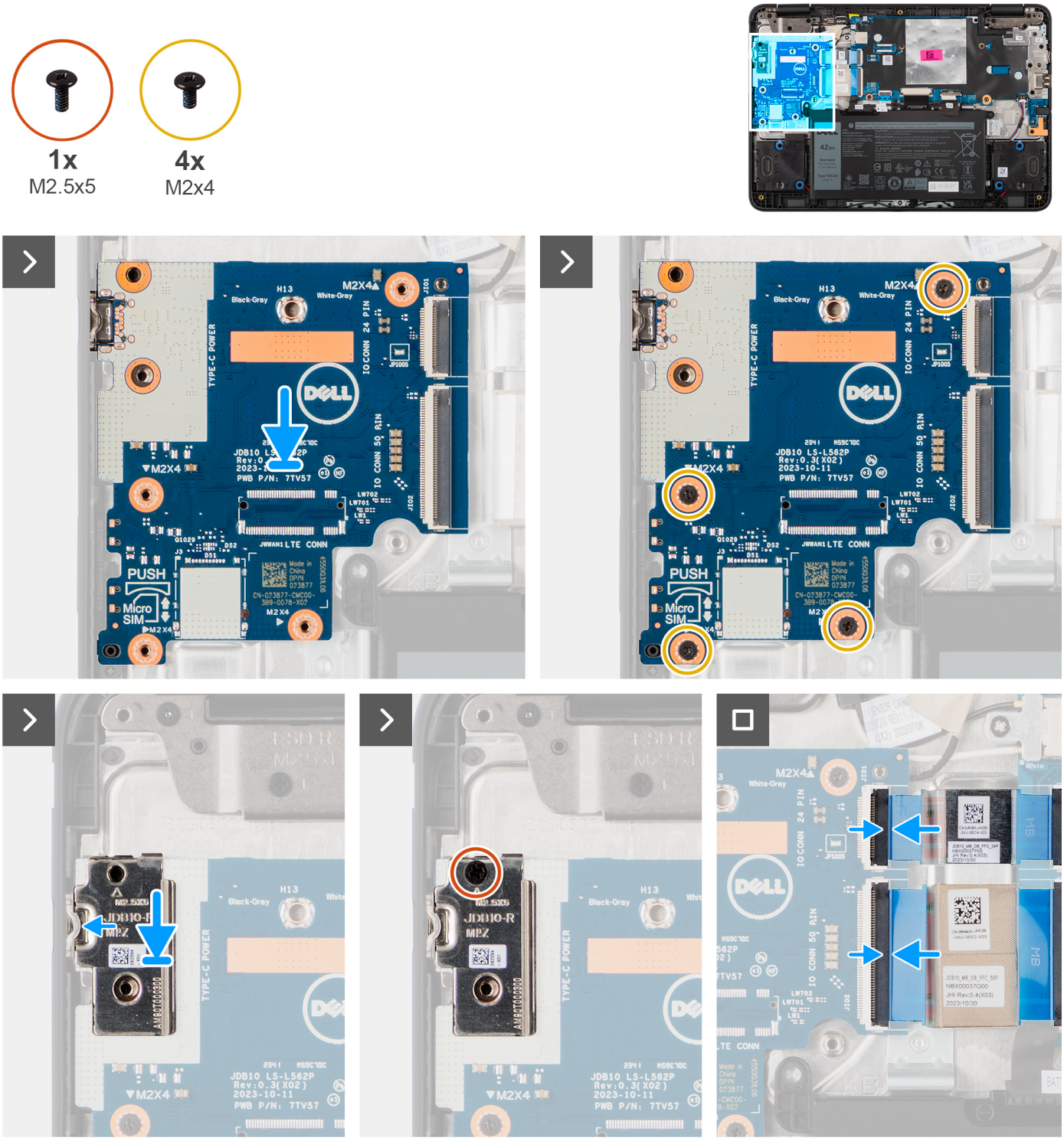


Figure 30. Installing the I/O board

Steps

1. Align and place the I/O board on the palm-rest assembly.
2. Replace the four (M2x4) screws to secure the I/O board in place.
3. Align and place the Type-C bracket on the I/O board.
4. Replace the screw (M2.5x5) to secure the Type-C bracket in place.
5. Connect the 24-pin I/O-board cable to the connector on the I/O board and press down the cable-connector latch to secure the cable in place.

6. Connect the 50-pin I/O-board cable to the connector on the I/O board and press down the cable-connector latch to secure the cable in place.

Next steps

1. Install the base cover.
2. Follow the procedure in After working inside your computer.

Speakers

Removing the speakers

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the base cover.
3. Remove the battery.

About this task

The following image indicates the location of the speakers and provides a visual representation of the removal procedure.

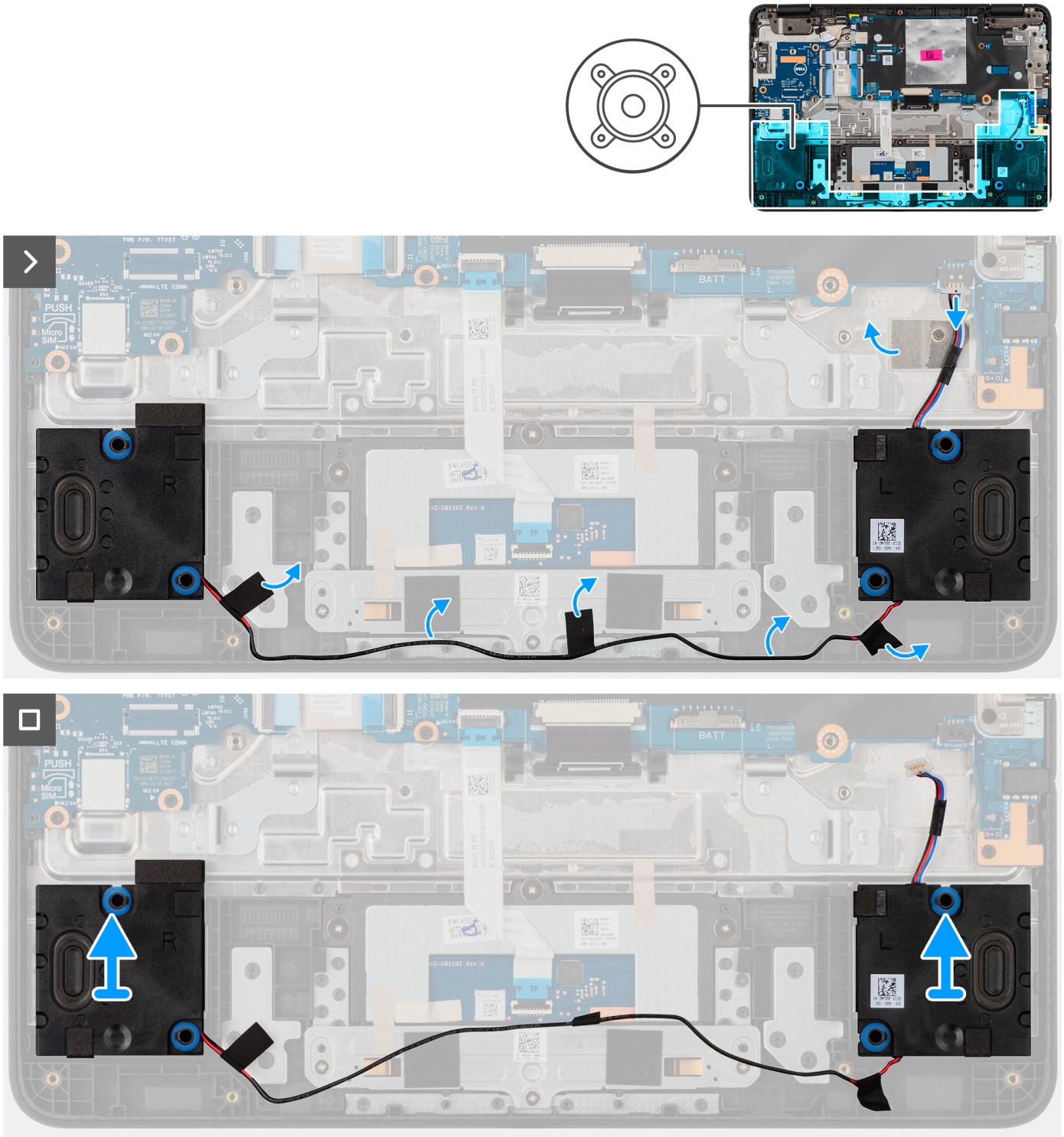


Figure 31. Removing the speakers

Steps

1. Peel back the transparent tape that secures the speaker cable to the palm-rest.
2. Disconnect the speaker cable from the connector (SPEAKER) on the system board.
3. Peel the three pieces of adhesive tape that secure the speaker cable to the palm-rest.
4. Unroute the speaker cable from the routing channels in the palm-rest assembly.

NOTE: When replacing the speakers, the speaker cable must be routed through the routing channels at the bottom of the palm-rest to avoid damaging the speaker cables when installing the base cover.

5. Remove the speakers along with the cable off the palm-rest assembly.

Installing the speakers

Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

The following image indicates the location of the speakers and provides a visual representation of the installation procedure.

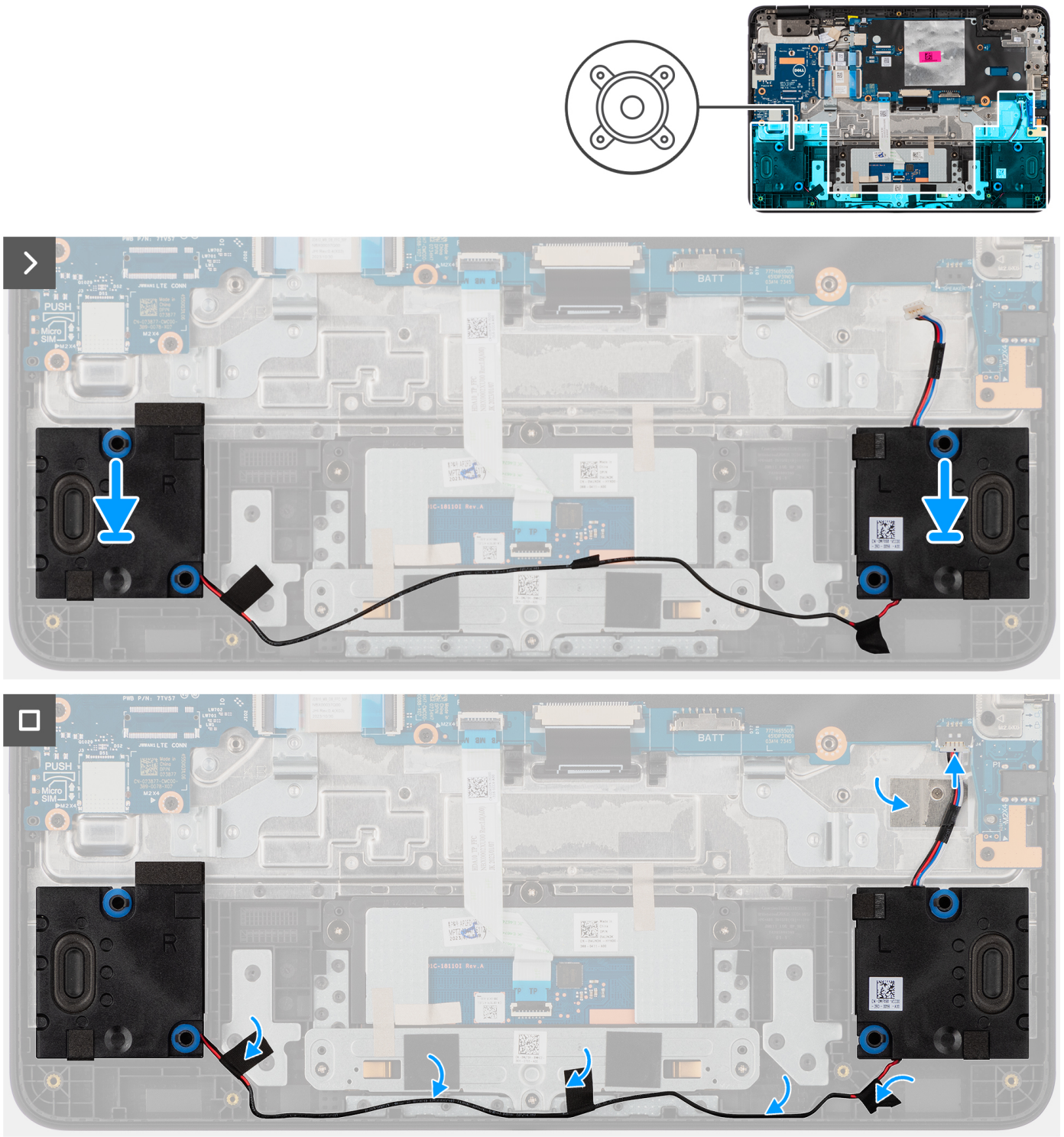


Figure 32. Installing the speakers

Steps

1. Using the alignment posts, place the speakers into the slots on the palm-rest assembly.
2. Route the speaker cable through the routing channels in the palm-rest assembly.

   NOTE: The speaker cable must be routed through the routing channels at the bottom of the palm-rest to avoid damaging the speaker cable when installing the base cover.

3. Adhere the three pieces of adhesive tape to secure the speaker cable on the palm-rest.
4. Connect the speaker cable to the connector (SPEAKER) on the system board.

5. Adhere the transparent tape to secure the speaker cable in place.

Next steps

1. Install the battery.
2. Install the base cover.
3. Follow the procedure in After working inside your computer.

World-facing camera cable

Removing the world-facing camera cable

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the base cover.

About this task

NOTE: The following procedure is applicable only for computers that are shipped with a world-facing camera.

The following image indicates the location of the world-facing camera cable and provides a visual representation of the removal procedure.

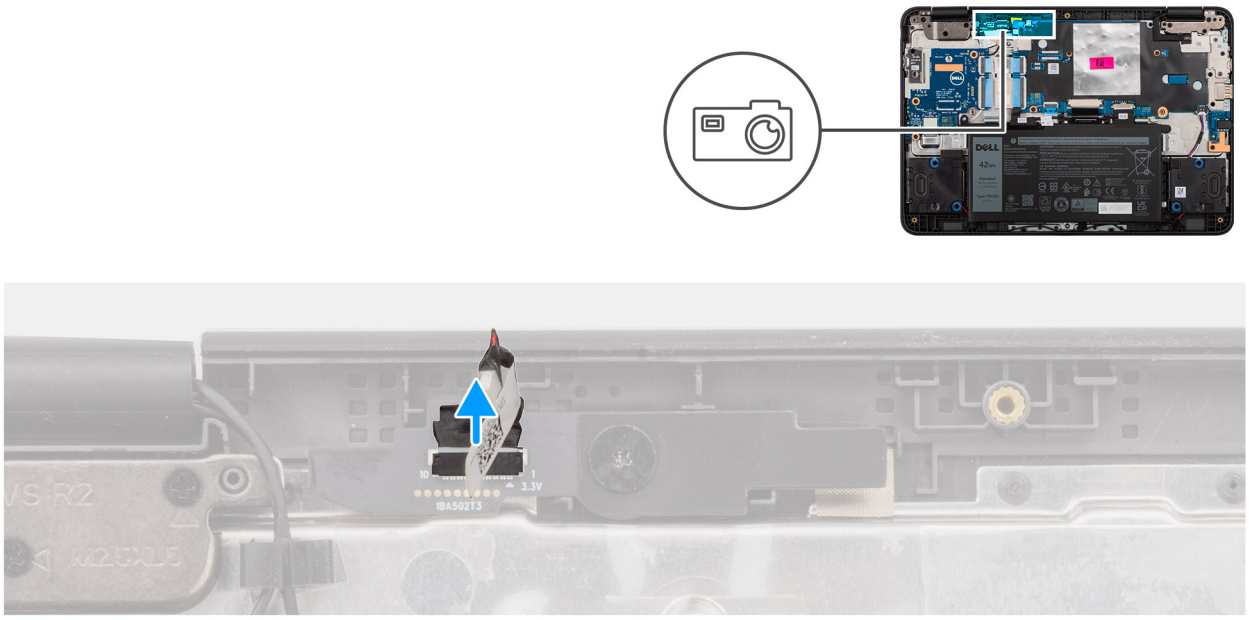


Figure 33. Removing the world-facing camera cable

Steps

1. Disconnect the world-facing camera cable from the connector on the world-facing camera.
2. Disconnect the world-facing camera cable from the connector (WFC) on the system board.
3. Remove the world-facing camera cable from the computer.

Installing the world-facing camera cable

Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

NOTE: The following procedure is applicable only for computers that are shipped with a world-facing camera.

The following image indicates the location of the world-facing camera cable and provides a visual representation of the installation procedure.

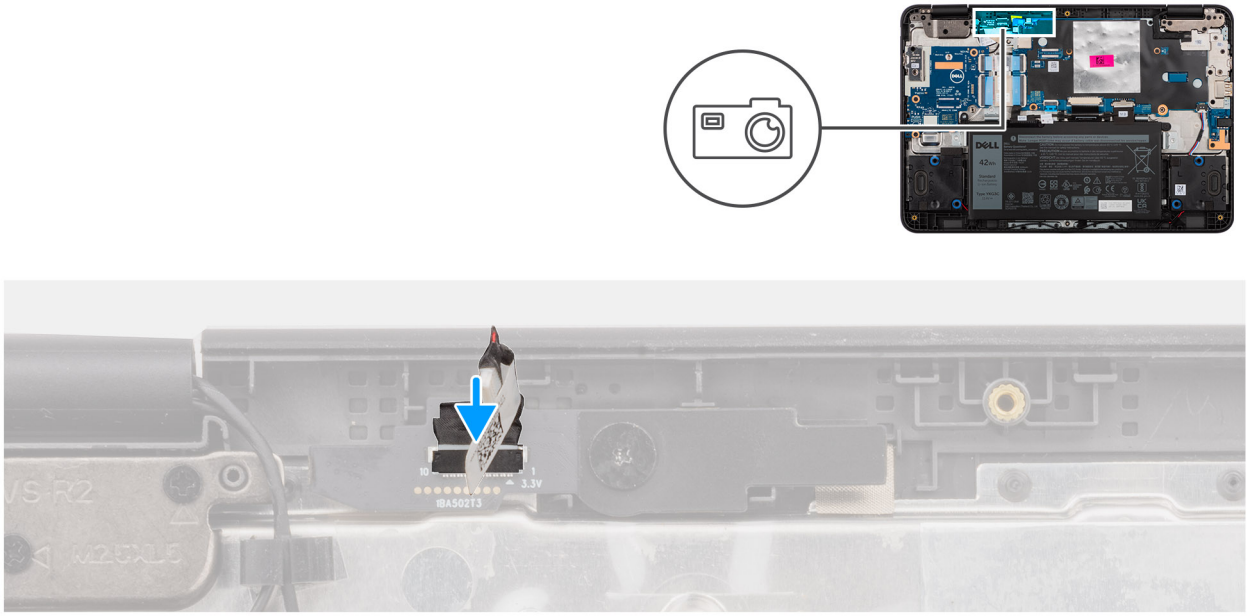


Figure 34. Installing the world-facing camera cable

Steps

1. Connect the world-facing camera cable to the connector on the world-facing camera module.
2. Connect the world-facing camera cable to the connector (WFC) on the system board.

Next steps

1. Install the base cover.
2. Follow the procedure in After working inside your computer.

World-facing camera

Removing the world-facing camera

Prerequisites

CAUTION: This is a fragile component. Handle with care.

1. Follow the procedure in Before working inside your computer.
2. Remove the base cover.
3. Remove the world-facing camera cable.
4. Remove the system board.

About this task

NOTE: The following procedure is applicable only for computers that are shipped with a world-facing camera.

The following images indicate the location of the world-facing camera and provide a visual representation of the removal procedure.

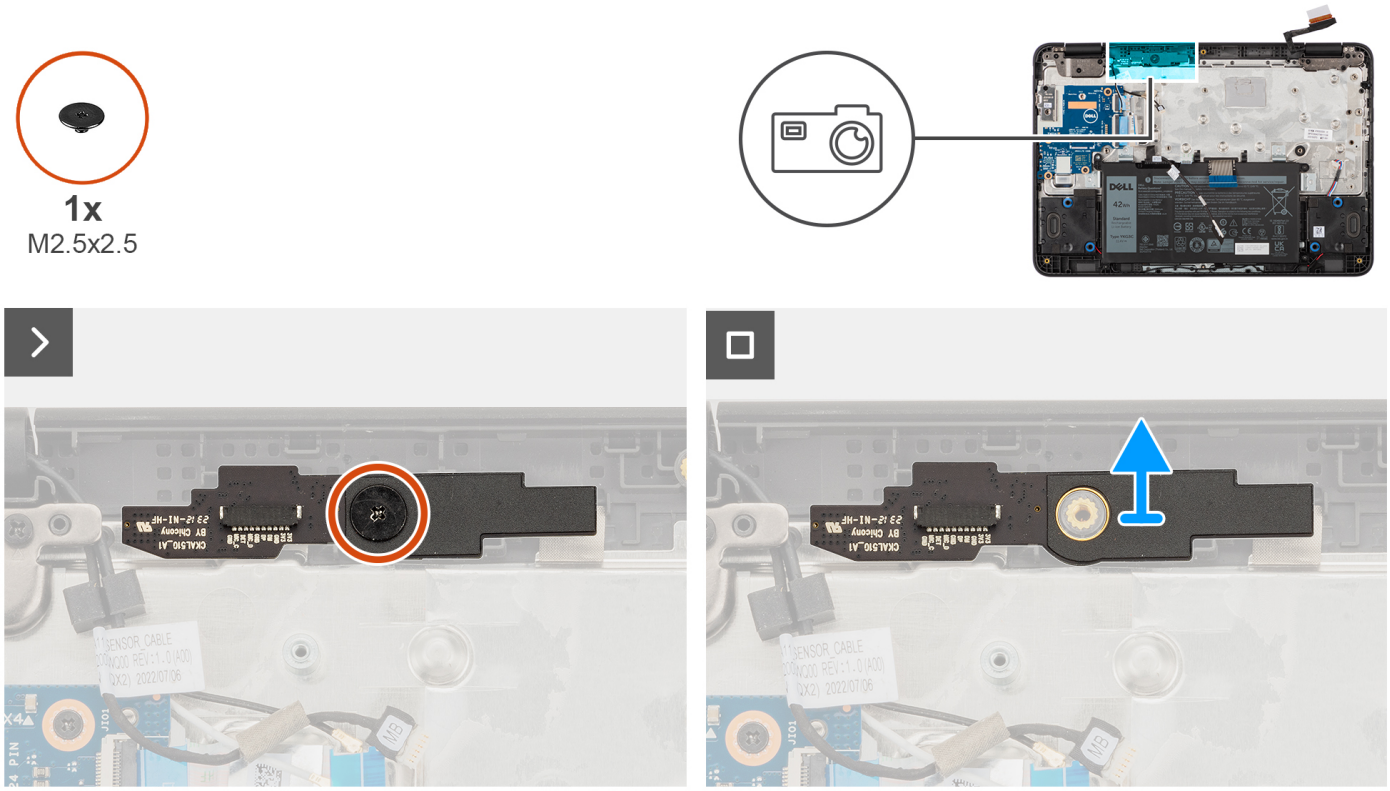


Figure 35. Removing the world-facing camera

Steps

1. Remove the (M2.5x2.5) screw that secures the world-facing camera module to the palm-rest assembly.
2. Remove the world-facing camera module from the palm-rest assembly.

Installing the world-facing camera

Prerequisites

CAUTION: This is a fragile component. Handle with care.

About this task

NOTE: The following procedure is applicable only for computers that are shipped with a world-facing camera.

The following image indicates the location of the front-facing camera and provides a visual representation of the installation procedure.

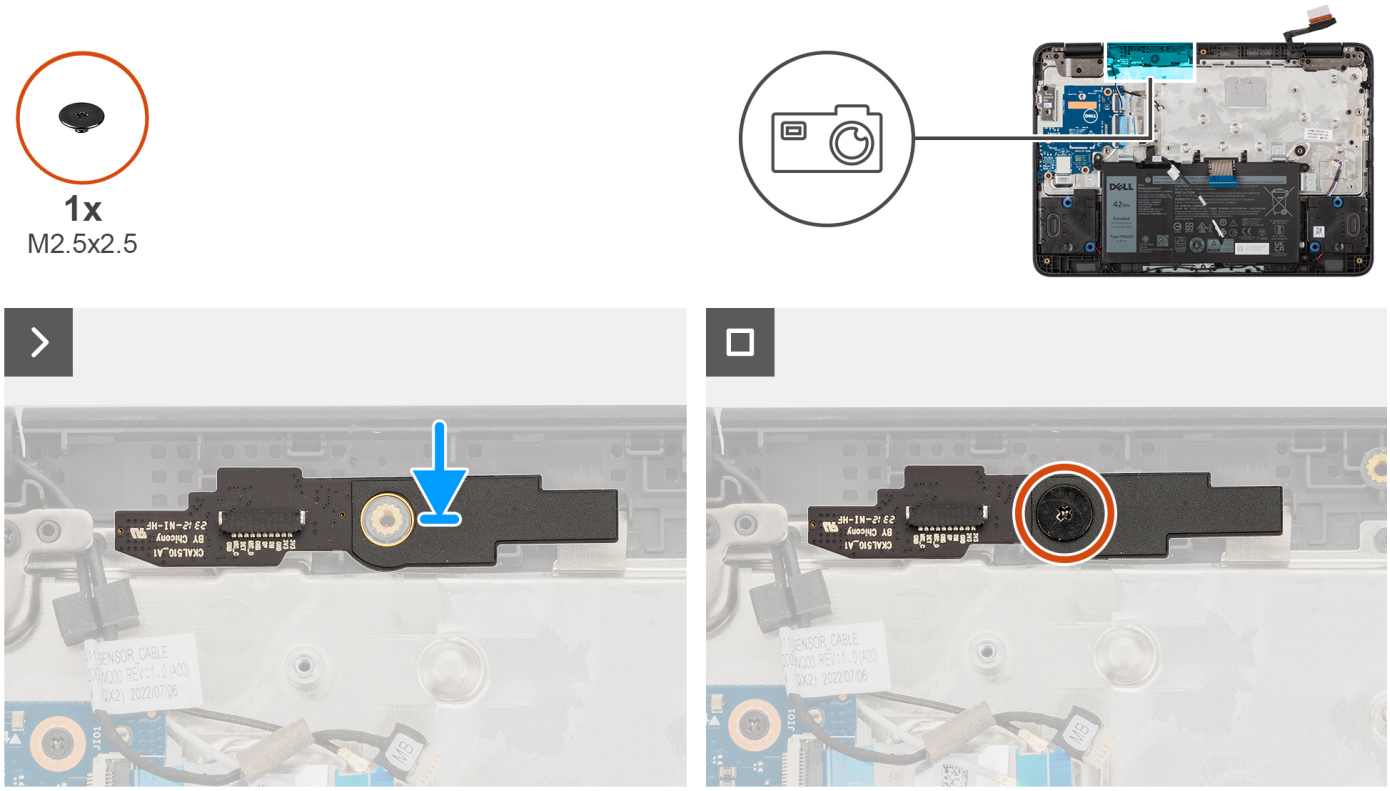


Figure 36. Installing the world-facing camera

Steps

1. Insert the world-facing camera module into the slot on the palm-rest assembly.
2. Replace the (M2.5x2.5) screw to secure the world-facing camera module to the palm-rest assembly.

Next steps

1. Install the system board.
2. Install the world-facing camera cable.
3. Install the base cover.
4. Follow the procedure in After working inside your computer.

System board

Removing the system board

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the base cover.

About this task

The following images indicate the connectors on your system board.

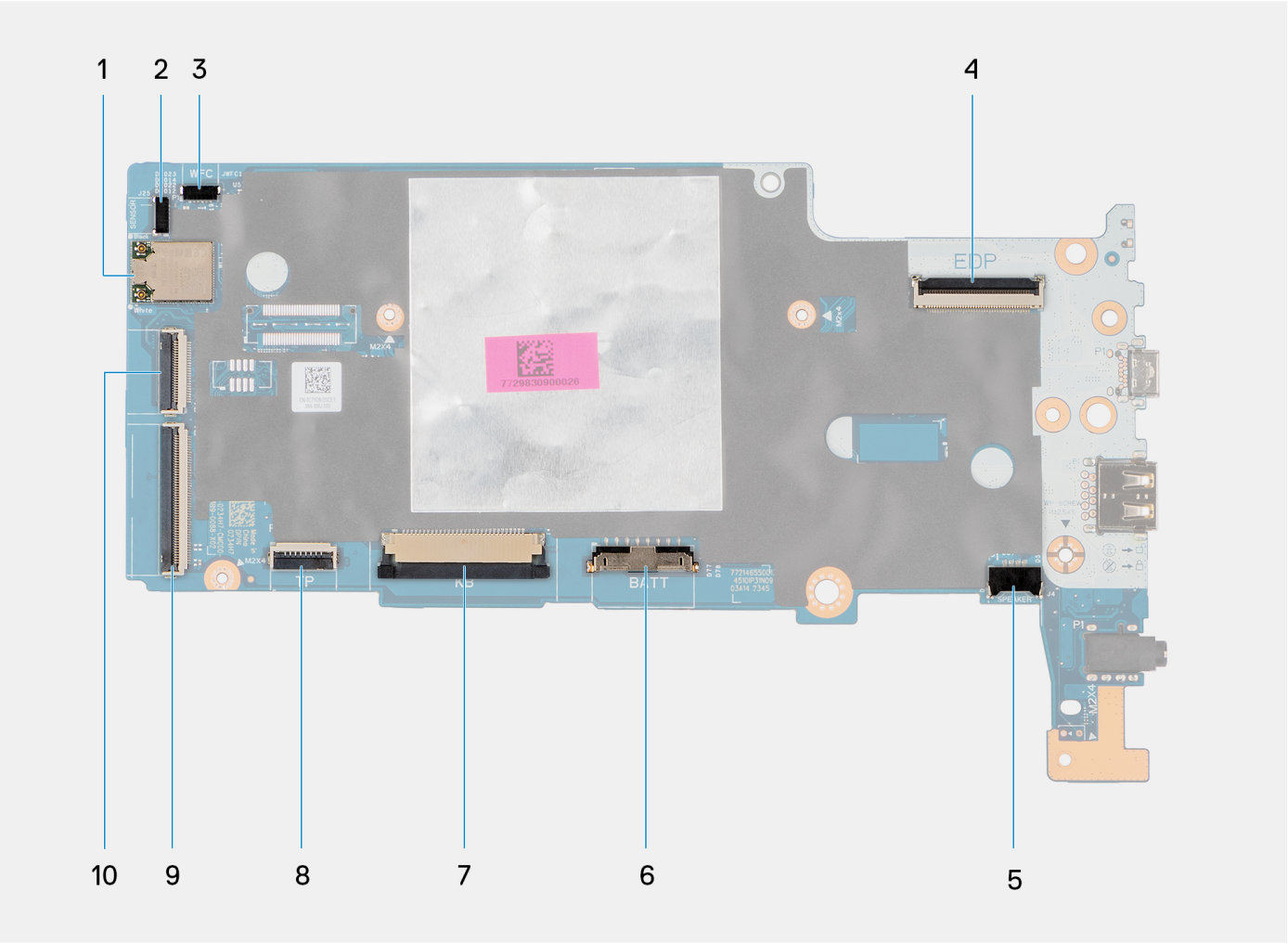


Figure 37. System board connectors

1. WLAN card (WL1) connector
2. G-sensor cable (SENSOR) connector
3. World-facing camera cable (WFC) connector
4. Display cable (EDP) connector
5. Speaker cable (SPEAKER) connector
6. Battery cable (BATT) connector
7. Keyboard cable (KB) connector
8. Touchpad cable (TP) connector
9. 50-pin I/O-board cable connector
10. 24-pin I/O-board connector

The following images indicate the location of the system board and provide a visual representation of the removal procedure.

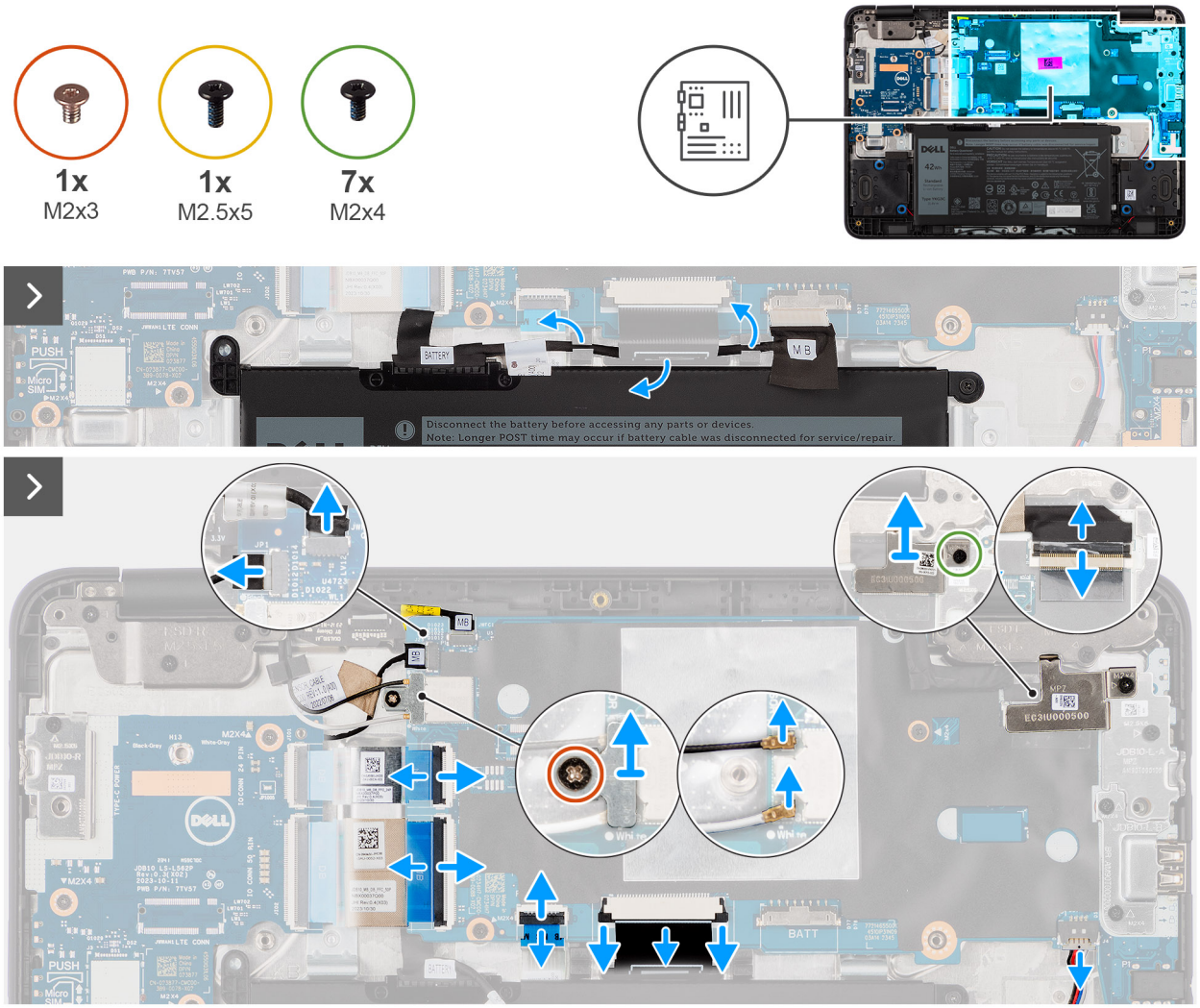


Figure 38. Removing the system board

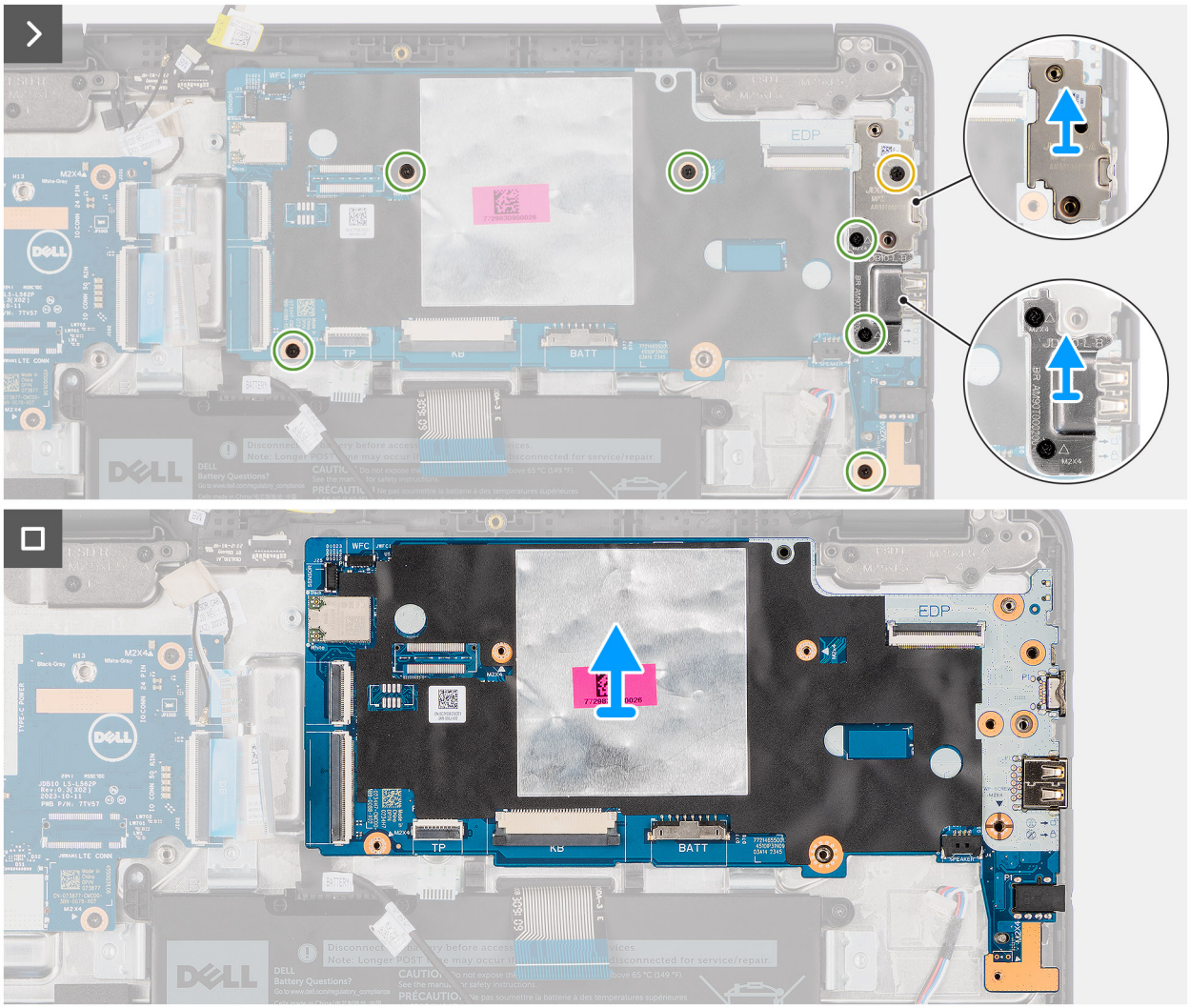


Figure 39. Removing the system board

Steps

1. Unroute the battery cable from the routing channels between the system board and battery.
2. Remove the (M2x3) screw that secures the WLAN card bracket to the WLAN card module on the system board.
3. Remove the WLAN card bracket from the WLAN card module that secures the two antenna cables.
4. Disconnect the WLAN antenna cables from the connectors on the WLAN card module.
5. Remove the (M2x4) screw that secures the display-cable bracket to the system board.
6. Remove the display-cable bracket from the system board.
7. Disconnect the following cables from the system board:
   a. display cable (EDP)
   b. speaker cable (SPEAKER)
   c. G-sensor cable (SENSOR)
   d. world-facing camera cable (WFC) - (for models shipped with a world-facing camera)
   e. touchpad cable (TP)
   f. keyboard cable (KB)
   g. 50-pin I/O-board cable (for models shipped with an I/O daughter board)
   h. 24-pin I/O-board cable (for models shipped with an I/O daughter board)
8. Peel back the display cable from the system board.
9. Remove the (M2.5x5) screw that secures the top-left I/O bracket in place.
10. Remove the top-left I/O bracket from the computer.
11. Remove the two (M2x4) screws that secure the bottom-left I/O bracket in place.

12. Remove the bottom-left I/O bracket from the computer.
13. Remove the four (M2x4) screws that secure the system board to the palm-rest assembly.

NOTE: Do not remove the Type-C brackets located underneath the I/O board or system board.

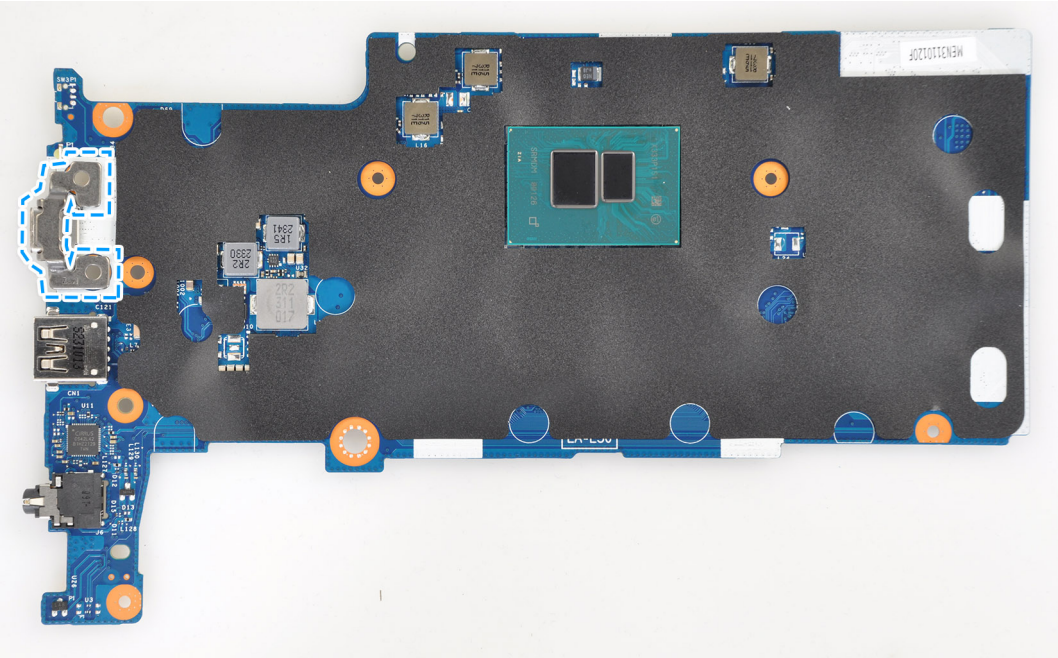


Figure 40. Type-C brackets not to be removed

14. Carefully lift and remove the system board from the left side of the palm-rest assembly.

NOTE: Lifting the system board from another side can damage components that are connected to the palm-rest.

NOTE: A thermal pad is adhered to the palm-rest underneath the system board. If the thermal pad gets detached from the palm rest during any replacement procedure, readhere it back onto the compartment on the palm-rest.

Figure 41. Thermal pad

Installing the system board

Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

The following images indicate the connectors on your system board.

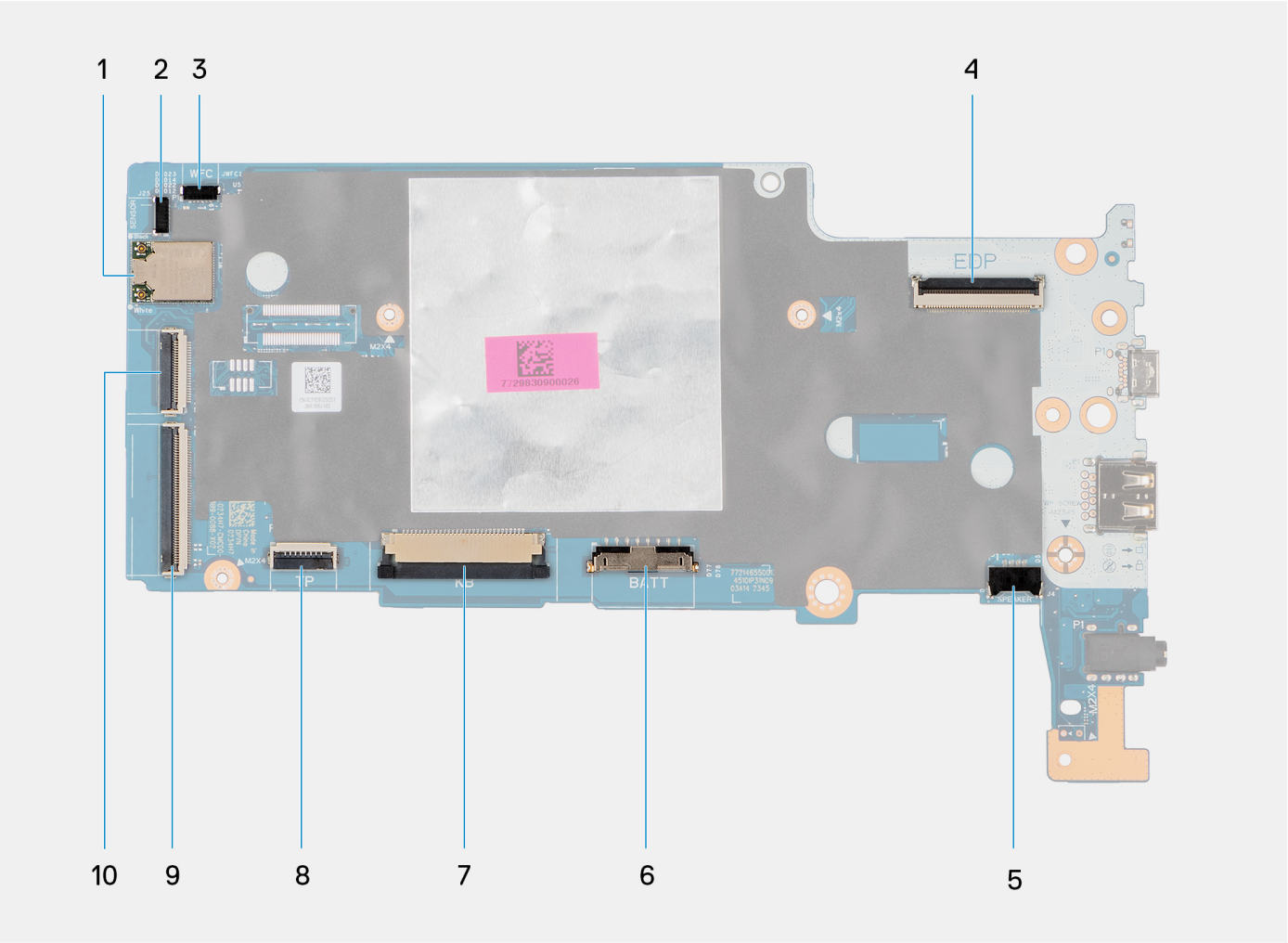


Figure 42. System board connectors

1. WLAN card (WL1) connector
2. G-sensor cable (SENSOR) connector
3. World-facing camera cable (WFC) connector
4. Display cable (EDP) connector
5. Speaker cable (SPEAKER) connector
6. Battery cable (BATT) connector
7. Keyboard cable (KB) connector
8. Touchpad cable (TP) connector
9. 50-pin I/O board cable connector
10. 24-pin I/O board cable connector

The following images indicate the location of the system board and provide a visual representation of the installation procedure.

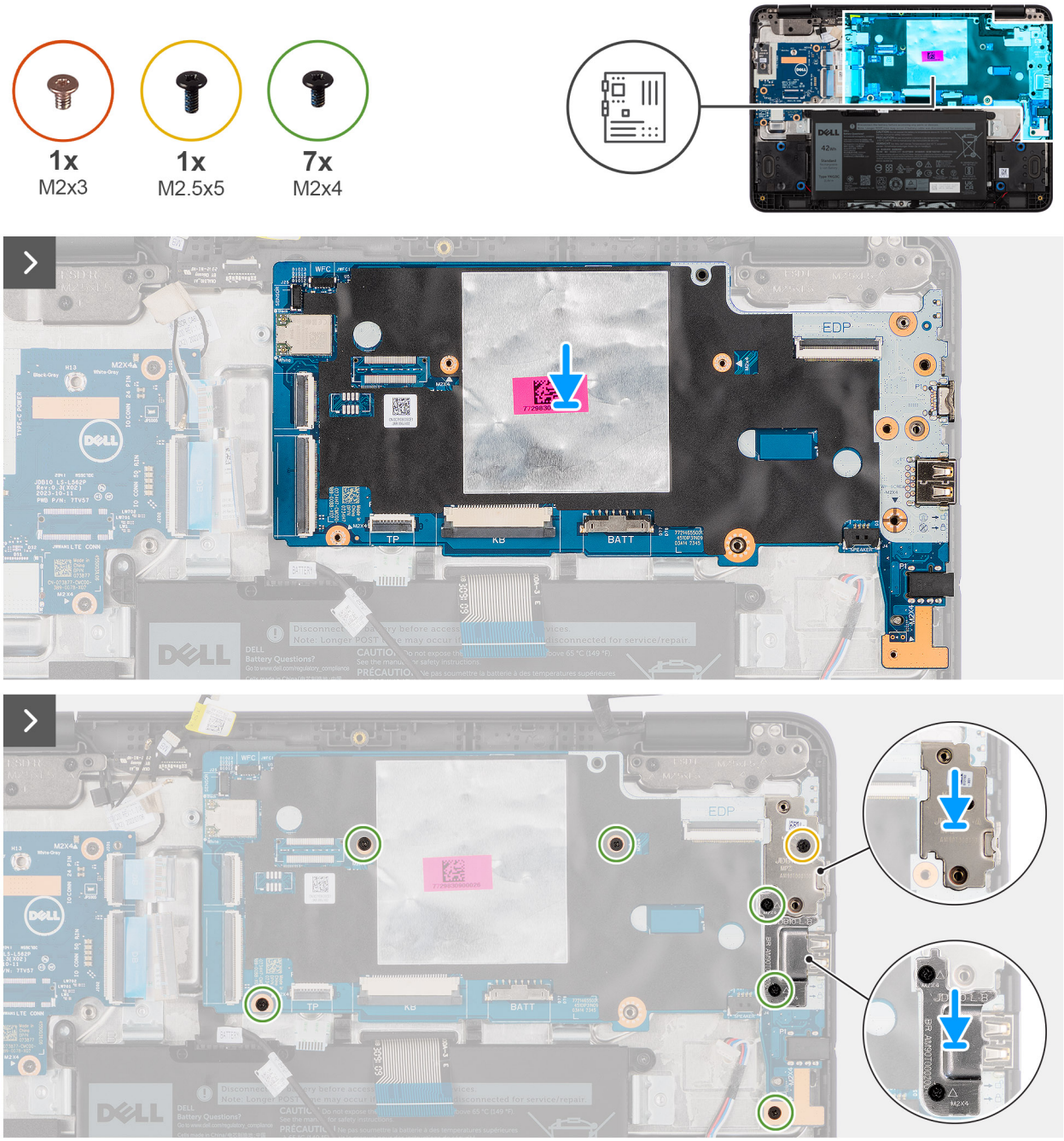


Figure 43. Installing the system board

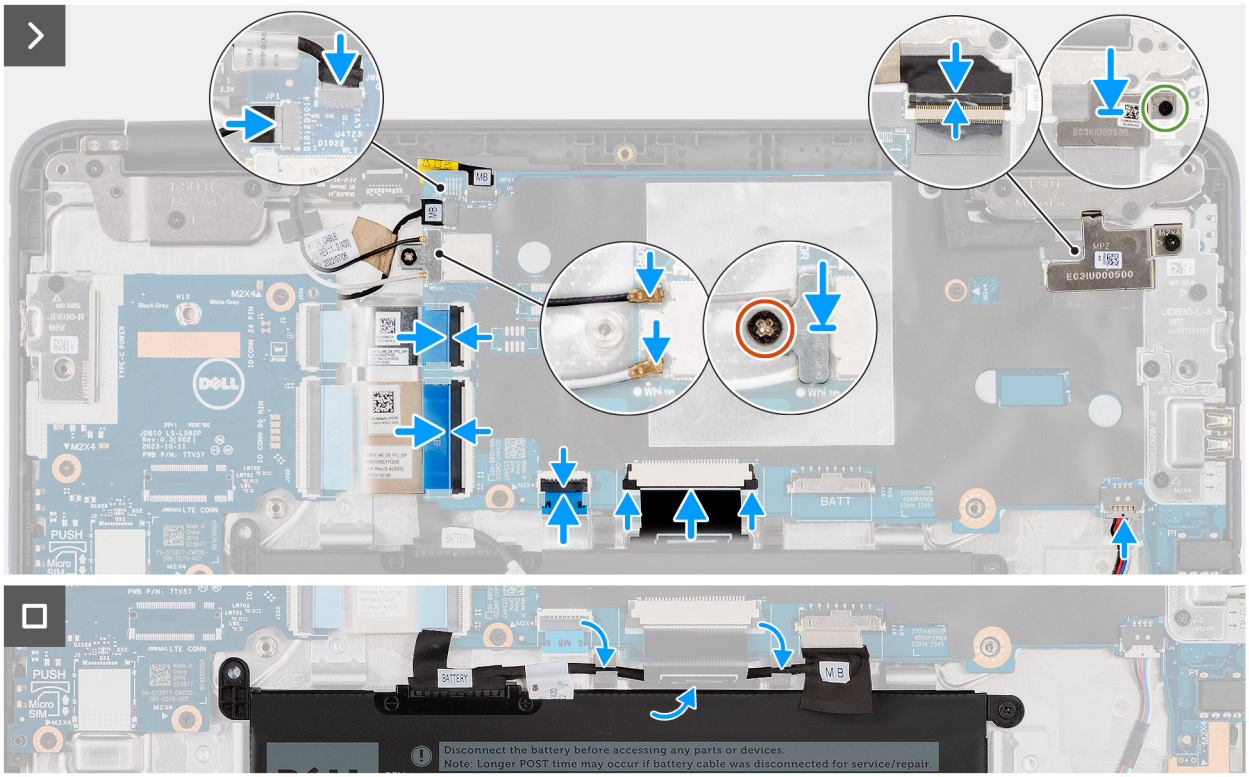


Figure 44. Installing the system board

NOTE: If the thermal pad on the palm-rest underneath the system board gets detached, adhere it back on the palm-rest.

Steps

1. Place the system board on the palm-rest assembly.
2. Align the screw holes on the system board with the screw holes on the palm-rest assembly.
3. Replace the four (M2x4) screws to secure the system board to the palm-rest assembly.
4. Align and place the bottom-left I/O bracket on the palm-rest assembly.
5. Replace the two (M2x4) screws to secure the bottom-left I/O bracket in place.
6. Align and place the top-left I/O bracket on the palm-rest assembly.
7. Replace the (M2.5x5) screw to secure the top-left I/O bracket in place.
8. Adhere the display cable to the system board.
9. Connect the following cables on the system board:
   a. display cable (EDP)
   b. speaker cable (SPEAKER)
   c. G-sensor cable (SENSOR)
   d. world-facing camera cable (WFC) - (for models shipped with a world-facing camera)
   e. touchpad cable (TP)
   f. keyboard cable (KB)
   g. 50-pin I/O-board cable (for models shipped with an I/O board)
   h. 24-pin I/O-board cable (for models shipped with an I/O board)
10. Align and place the display-cable bracket over the display-cable connector on the system board.
11. Replace the (M2x4) screw to secure the display-cable bracket on the system board.
12. Connect the WLAN antenna cables to the connectors on the WLAN card module.
13. Replace the WLAN card bracket on the WLAN card module to secure the two antenna cables.
14. Replace the (M2x3) screw to secure the WLAN card bracket to the WLAN card module on the system board.
15. Route the battery cable through the routing channels between the system board and battery.

Next steps

1. Install the base cover.
2. Follow the procedure in After working inside your computer.

Display assembly

Removing the display assembly

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the base cover.

About this task

The following images indicate the location of the display assembly and provide a visual representation of the removal procedure.

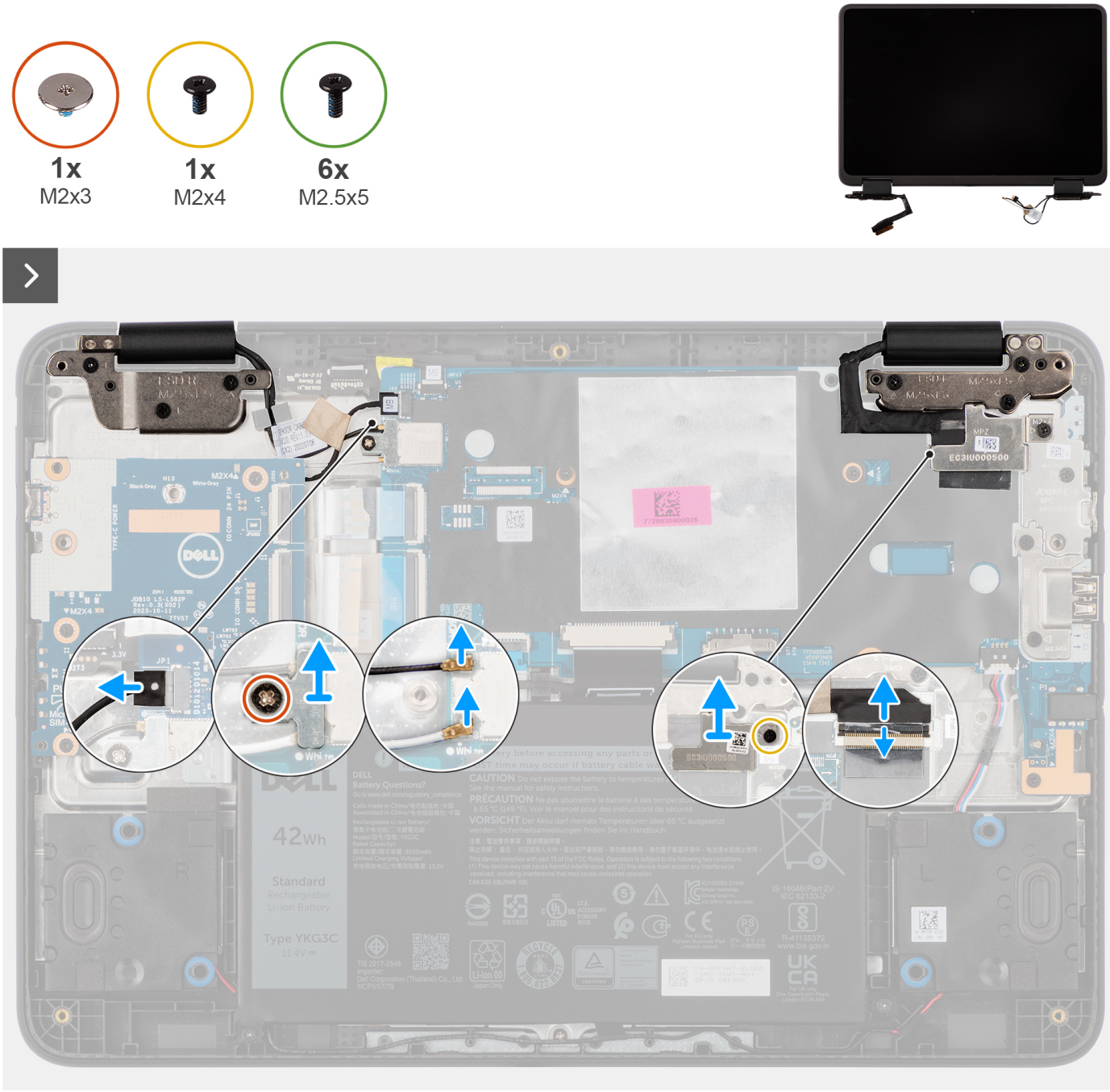


Figure 45. Removing the display assembly

Figure 46. Removing the display assembly

Figure 47. Display assembly

Steps

1. Remove the (M2x3) screw that secures the WLAN card bracket to the WLAN card module on the system board.
2. Remove the WLAN card bracket from the WLAN card module that secures the two antenna cables.
3. Disconnect the WLAN antenna cables from the connectors on the WLAN card module.
4. Disconnect the G-sensor cable from the connector (SENSOR) on the system board.
5. Peel the tape and unroute the WLAN antenna cables and G-sensor cable from the routing guides on the palm-rest assembly.
6. Remove the screw (M2x4) that secures the display-cable bracket to the system board.
7. Remove the display-cable bracket from the system board.
8. Disconnect and peel back the display cable from the connector (EDP) on the system board.
9. Open the display assembly at an angle of 270 degrees and place the computer on a flat surface such that the display hinges face upwards.
10. Remove the six (M2.5x5) screws that secure the display assembly in place.

NOTE: Ensure to hold the display assembly in place while loosening the screws in order to avoid the computer from tipping over and damaging the display assembly.

Figure 48. Open the system to 270 degrees

11. Remove the display assembly off the palm-rest assembly.

Installing the display assembly

Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

The following images indicate the location of the display assembly and provide a visual representation of the installation procedure.

Figure 49. Installing the display assembly

Figure 50. Installing the display assembly

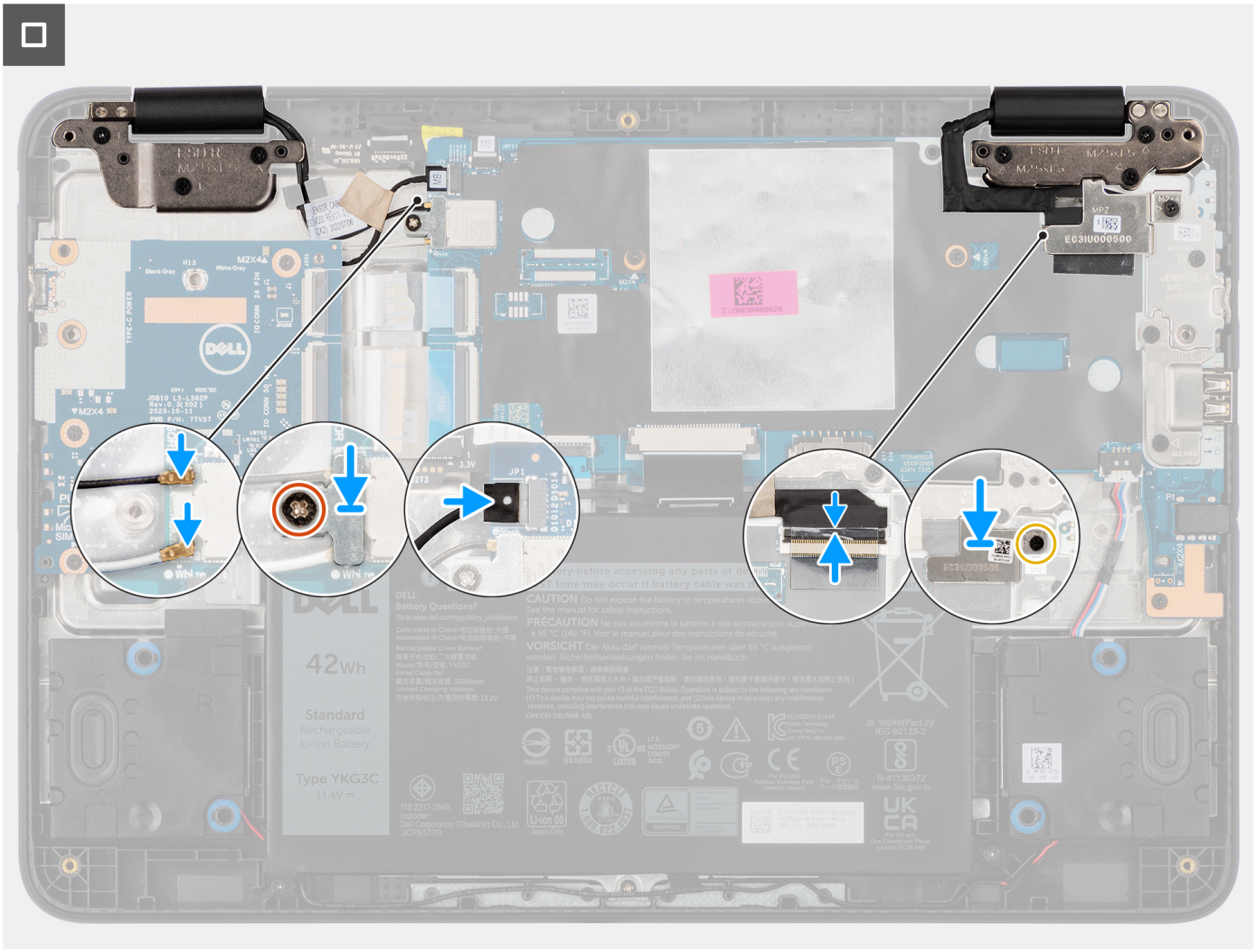


Figure 51. Installing the display assembly

Steps

1. Place the palm-rest assembly on a flat surface.
2. Align the display assembly such that the screw holes on the display hinges align with the screw holes on the palm-rest assembly.
3. Replace the six (M2.5x5) screws to secure the display assembly to the palm-rest assembly.
4. Adhere the display cable on the system board.
5. Connect the display cable to the connector (EDP) on the system board.
6. Align and place the display-cable bracket on the system board.
7. Replace the screw (M2x4) to secure the display-cable bracket on the system board.
8. Route the WLAN antenna cables and G-sensor cable through the routing guides on the palm-rest assembly, and adhere the tape to secure the cables.

   NOTE: For Chromebook 3120 2-in-1, the G-sensor cable has to be taped down to the palm-rest and routed underneath the WLAN antennas.

9. Connect the G-sensor cable to the connector (SENSOR) on the system board.
10. Connect the WLAN antenna cables to the connectors on the WLAN card module.

    NOTE: For computers shipped with WLAN capabilities, route both WLAN antenna cables underneath the tab on the right display hinge, then into the rubber cable holder.

11. Align and place the WLAN card bracket on the WLAN card module to secure the two antenna cables.
12. Replace the (M2x3) screw to secure the WLAN card bracket to the WLAN card module on the system board.

Next steps

1. Install the base cover.
2. Follow the procedure in After working inside your computer.

Display panel

Removing the display panel

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the base cover.
3. Remove the display assembly.

About this task

The following images indicate the location of the display panel and provide a visual representation of the removal procedure.

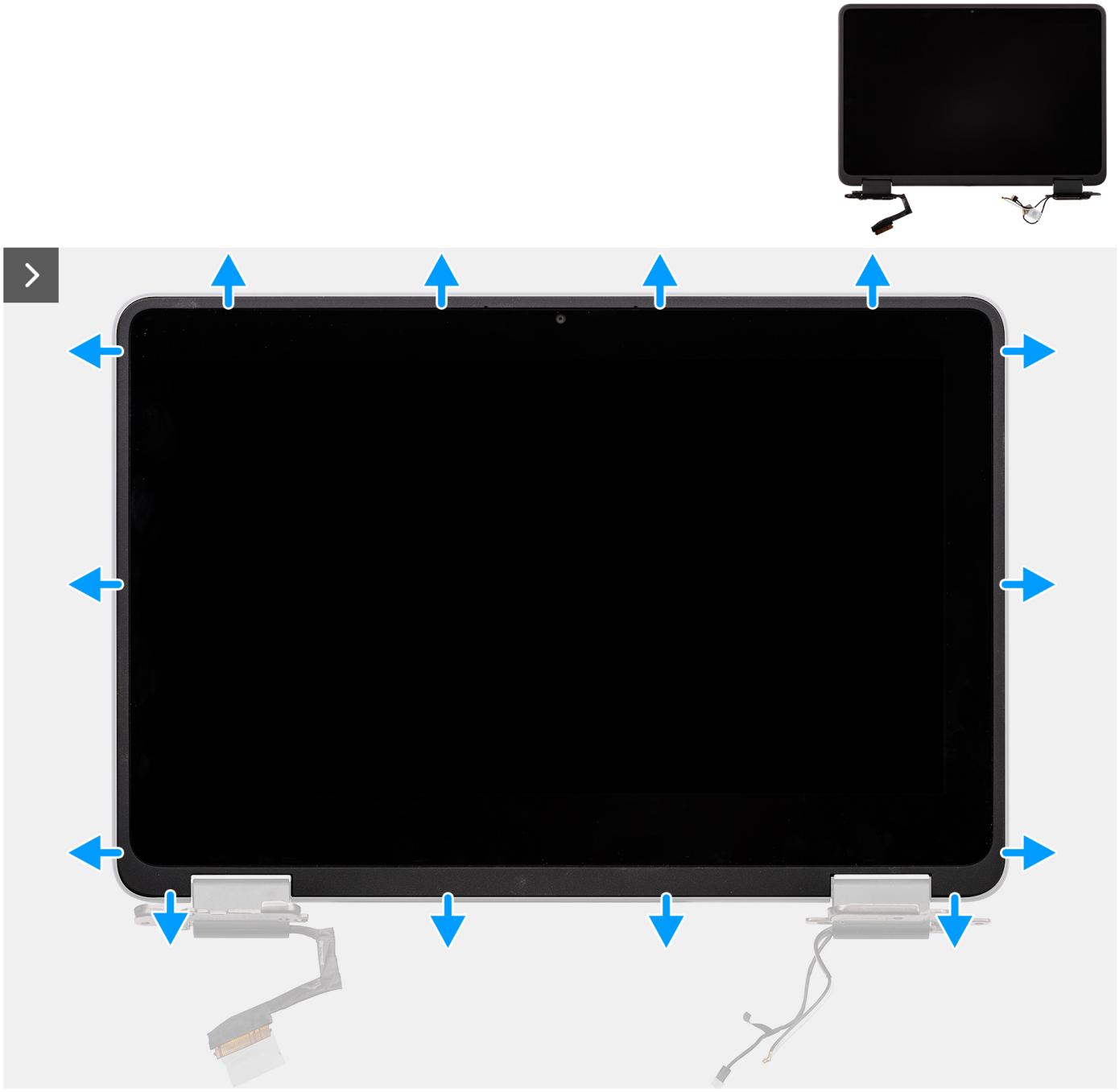


Figure 52. Removing the display panel

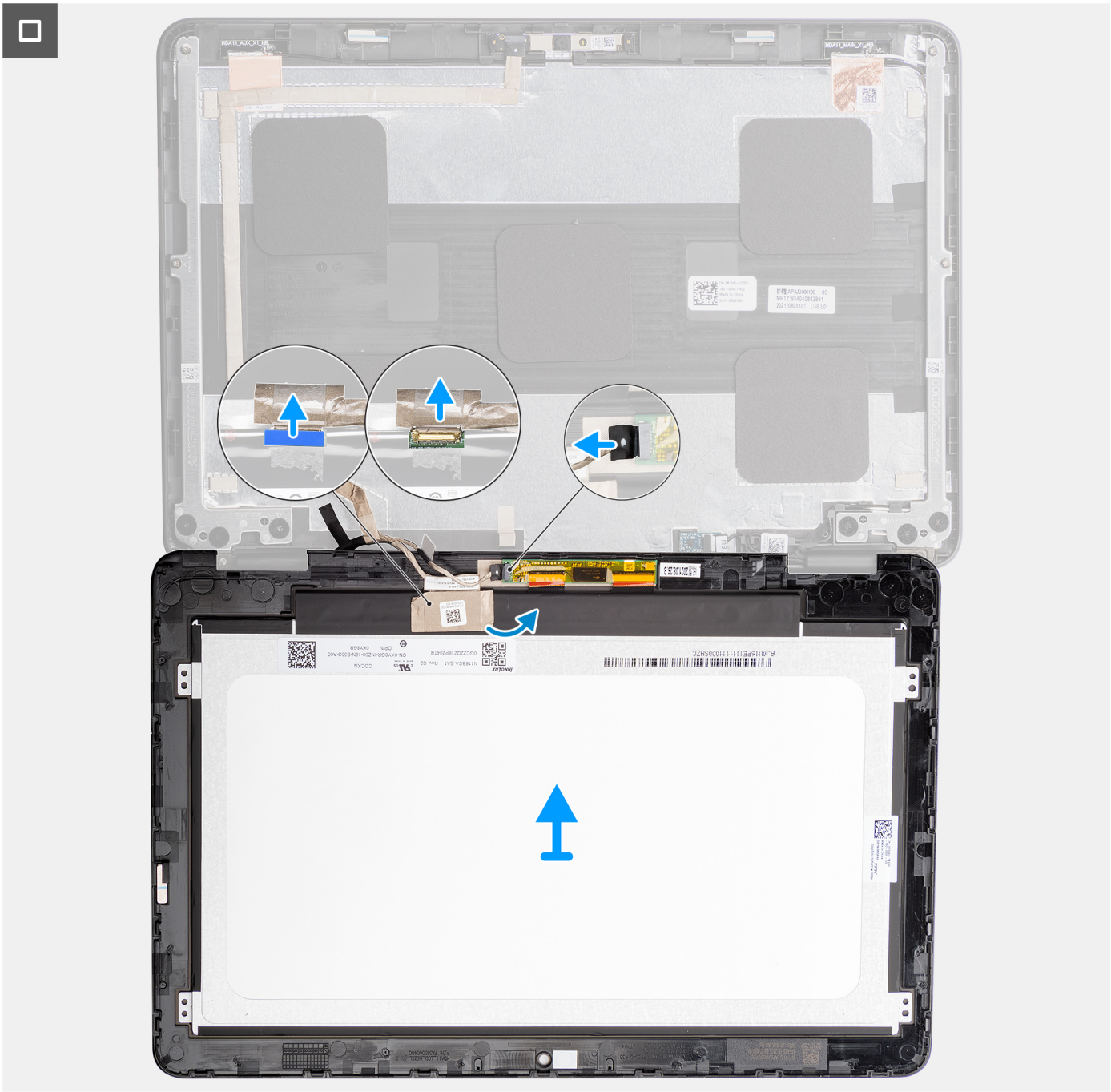


Figure 53. Removing the display panel

Steps

1. Using a plastic scribe, carefully pry open the display panel from the recesses at the U-shaped indents above the left and right-display hinges.

2. Using the plastic scribe, pry open the outside bottom edge of the display panel and work your way around the left, top, and right edges of the display panel.

Figure 54. Pry open the display panel

3. Carefully flip the display panel to access the display cable.
4. Peel back the conductive tape that secures the display cable to the back of the display panel.
5. Peel and remove the rubber spacer covering the display cable.
6. Disconnect the display cable and touch sensor cable from the connector on the back of the display panel.
7. Remove the display panel from the display assembly.

Installing the display panel

Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

The following images indicate the location of the display panel and provide a visual representation of the installation procedure.

Figure 55. Installing the display panel

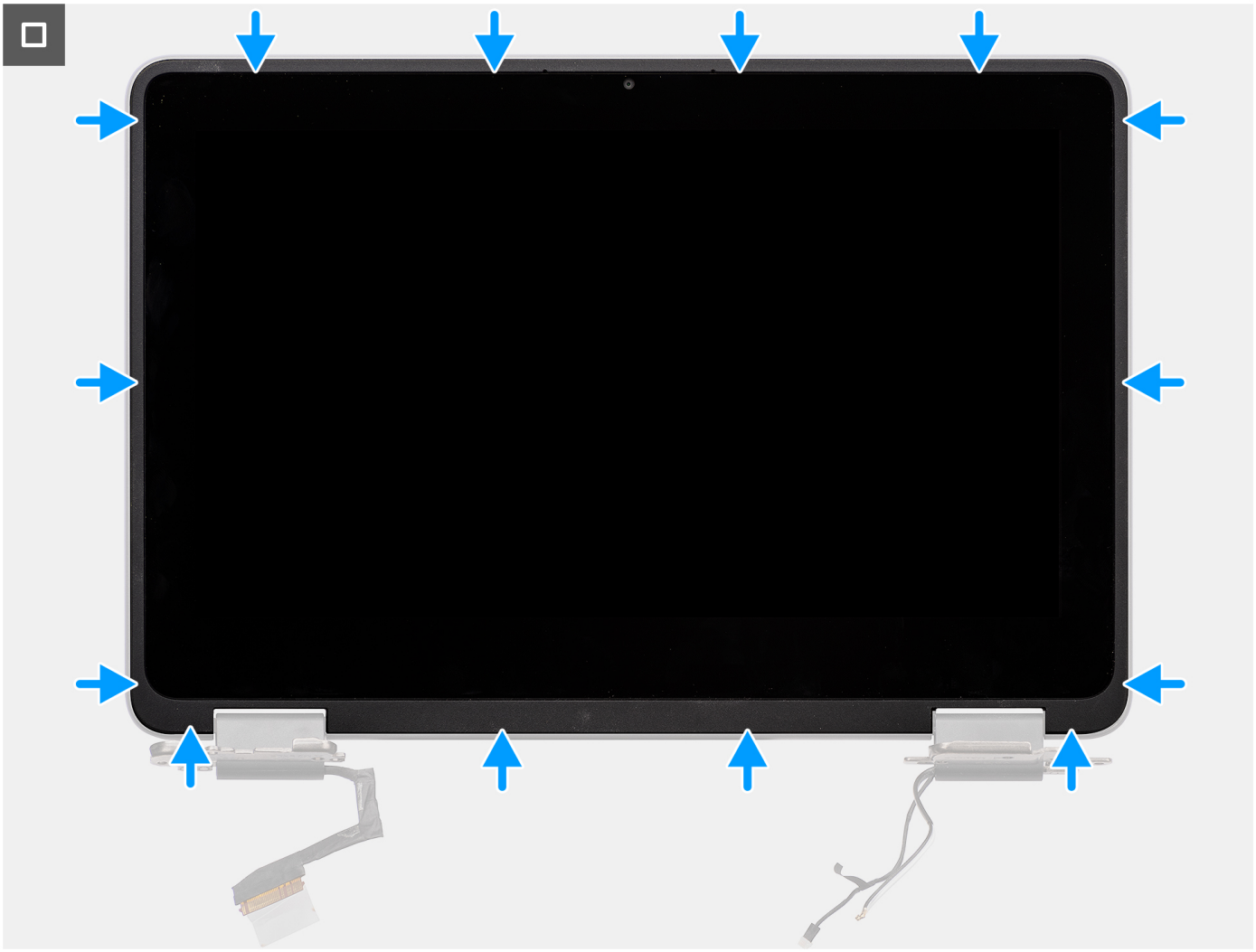


Figure 56. Installing the display panel

Steps

1. Connect the display cable and touch sensor cable to the connectors at the back of the display panel.
2. Adhere the rubber spacer on the display cable.
3. Adhere the conductive tape to secure the display cable to the back of the display panel.
4. Carefully flip back the display panel.
5. Starting from the top corner, press on the display bezel and work around the entire bezel until it clicks onto the display assembly.

Next steps

1. Install the display assembly.
2. Install the base cover.
3. Follow the procedure in After working inside your computer.

Front-facing camera

Removing the front-facing camera

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the base cover.
3. Remove the display assembly.
4. Remove the display panel.

About this task

The following image indicates the location of the front-facing camera and provides a visual representation of the removal procedure.

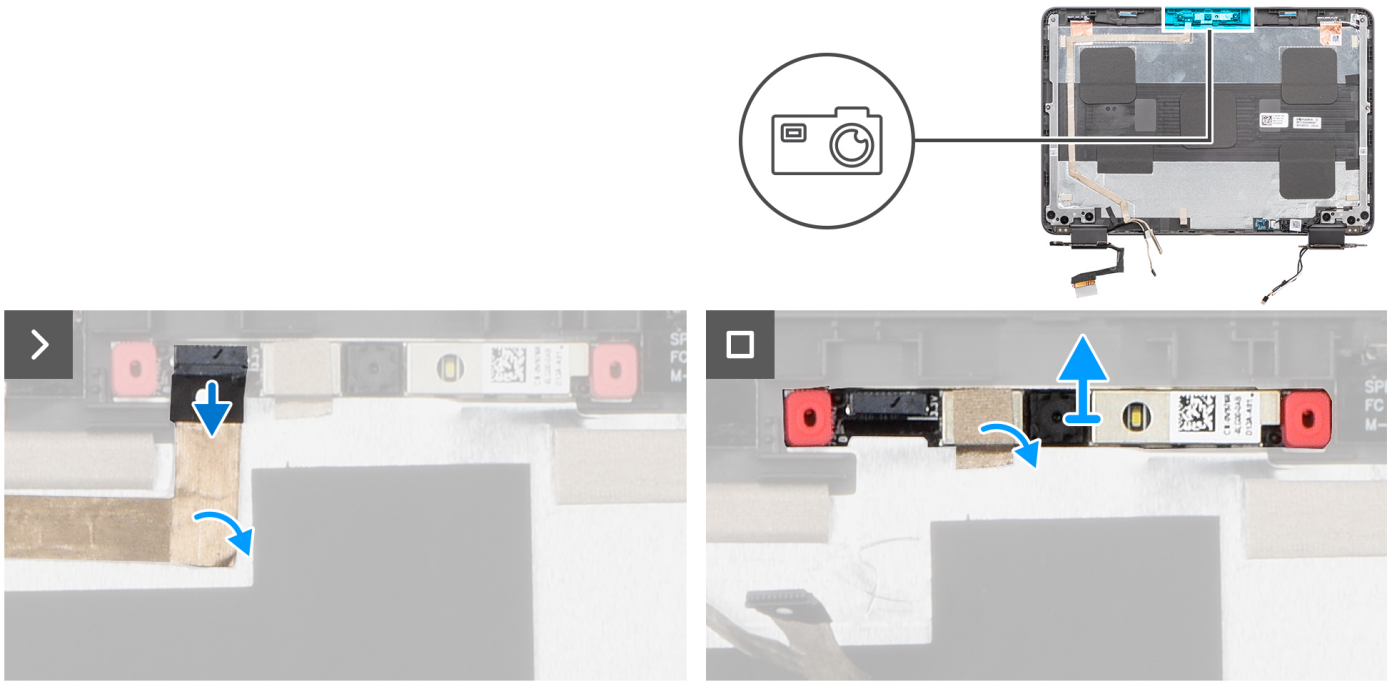


Figure 57. Removing the front-facing camera

Steps

1. Disconnect the camera cable from the connector on the camera module.
2. Using a plastic scribe, carefully pry up the camera from the top starting from the location marked by arrows.
3. Remove the camera module from the display assembly.

Installing the front-facing camera

Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

The following image indicates the location of the front-facing camera and provides a visual representation of the installation procedure.

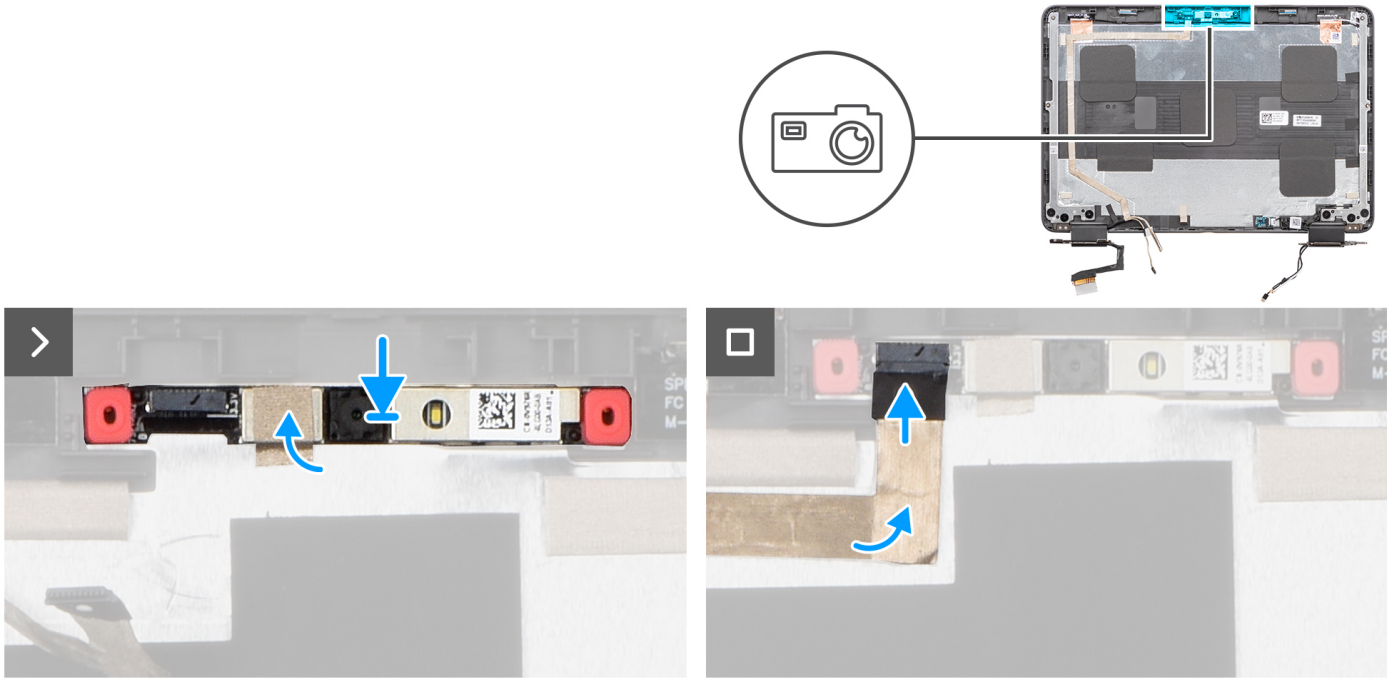


Figure 58. Installing the front-facing camera

Steps

1. Align and place the camera module into the slot on the display assembly.
2. Gently press the camera module until it clicks into place.
3. Connect the camera cable to the connector on the camera module.

Next steps

1. Install the display panel.
2. Install the display assembly.
3. Install the base cover.
4. Follow the procedure in After working inside your computer.

Display hinges

Removing the display hinges

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the base cover.
3. Remove the display assembly.
4. Remove the display panel.

About this task

The following image indicates the location of the display hinges and provides a visual representation of the removal procedure.

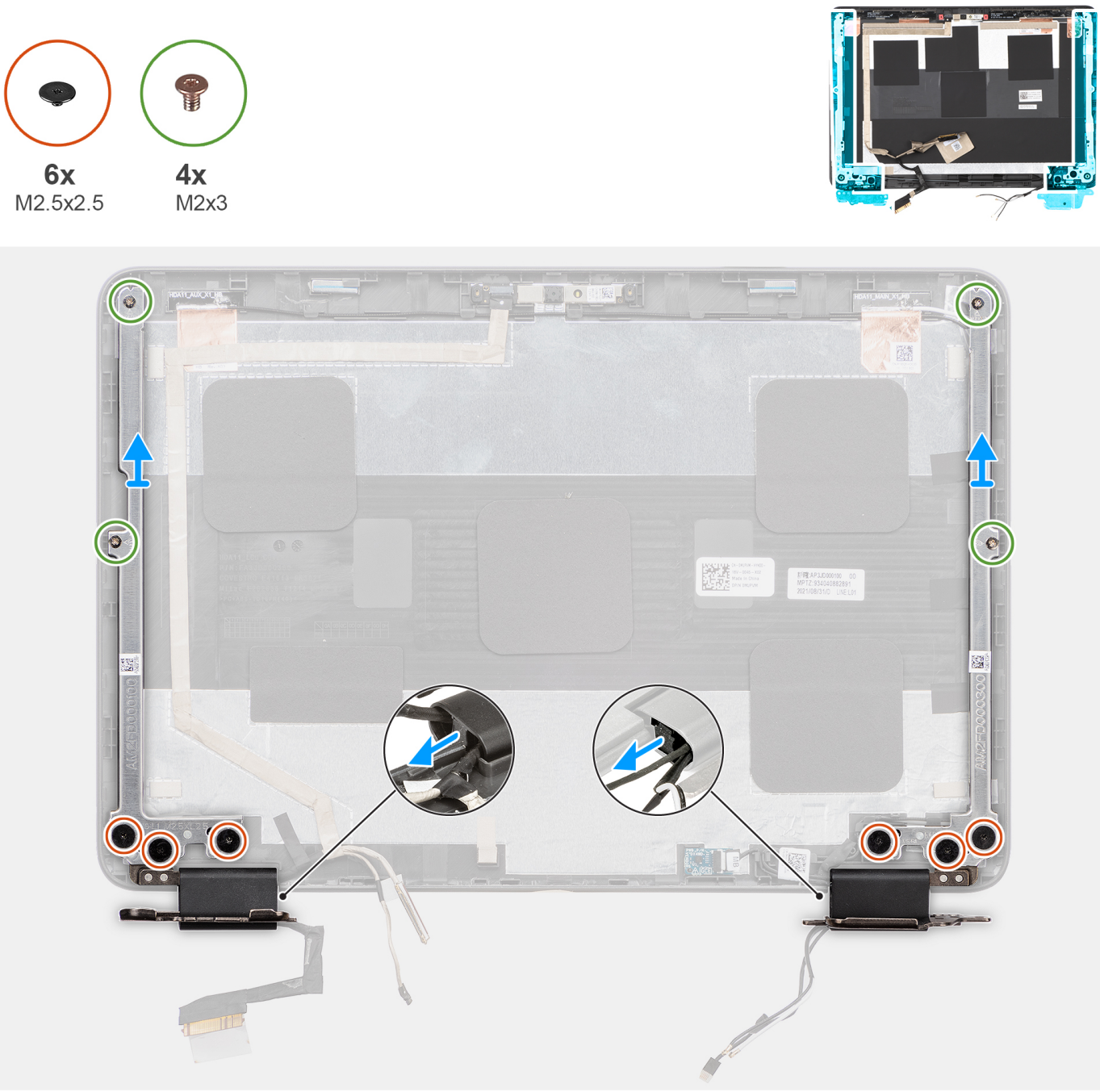


Figure 59. Removing the display hinges

Steps

1. Rotate the display hinges and the hinge caps upwards toward the display cover.

   NOTE: The display hinges should be at an angle of 0 degrees while the hinge caps should be at an angle of 90 degrees (or of the position of a closed laptop).

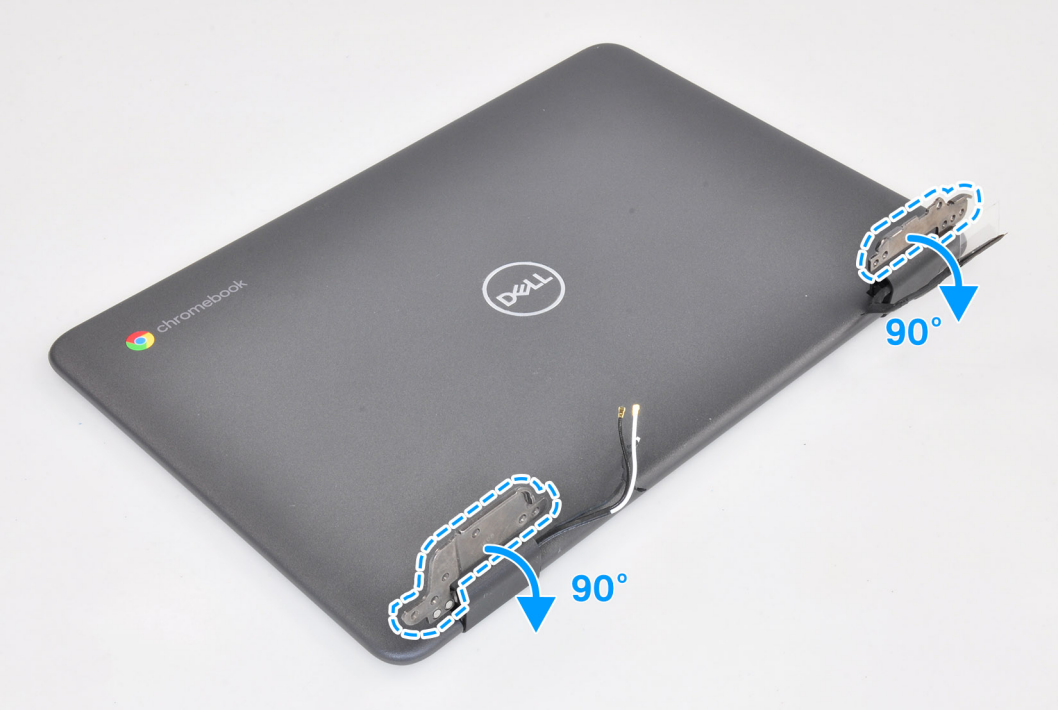


Figure 60. Display hinges and hinge cap angle

NOTE: Ensure that the display hinges are rotated to the unlock position only, the hinge caps do not rotate until the display hinges are in the unlock position.

Figure 61. Display hinges are rotated to the unlock position

2. Remove the hinge rubbers that cover the left and right-hinge caps.
3. Gently pull the display cable out of the left-hinge cap.
4. Gently pull the G-sensor cable and wireless antennas out of the right-hinge cap.
5. Rotate the display hinges open to an angle of 90 degrees.

6. Remove the four (M2x3) screws and the six (M2.5x2.5) screws that secure the display hinges to the display back-cover.
7. Remove the display hinges from the display back-cover.

Installing the display hinges

Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

The following image indicates the location of the display hinges and provides a visual representation of the installation procedure.

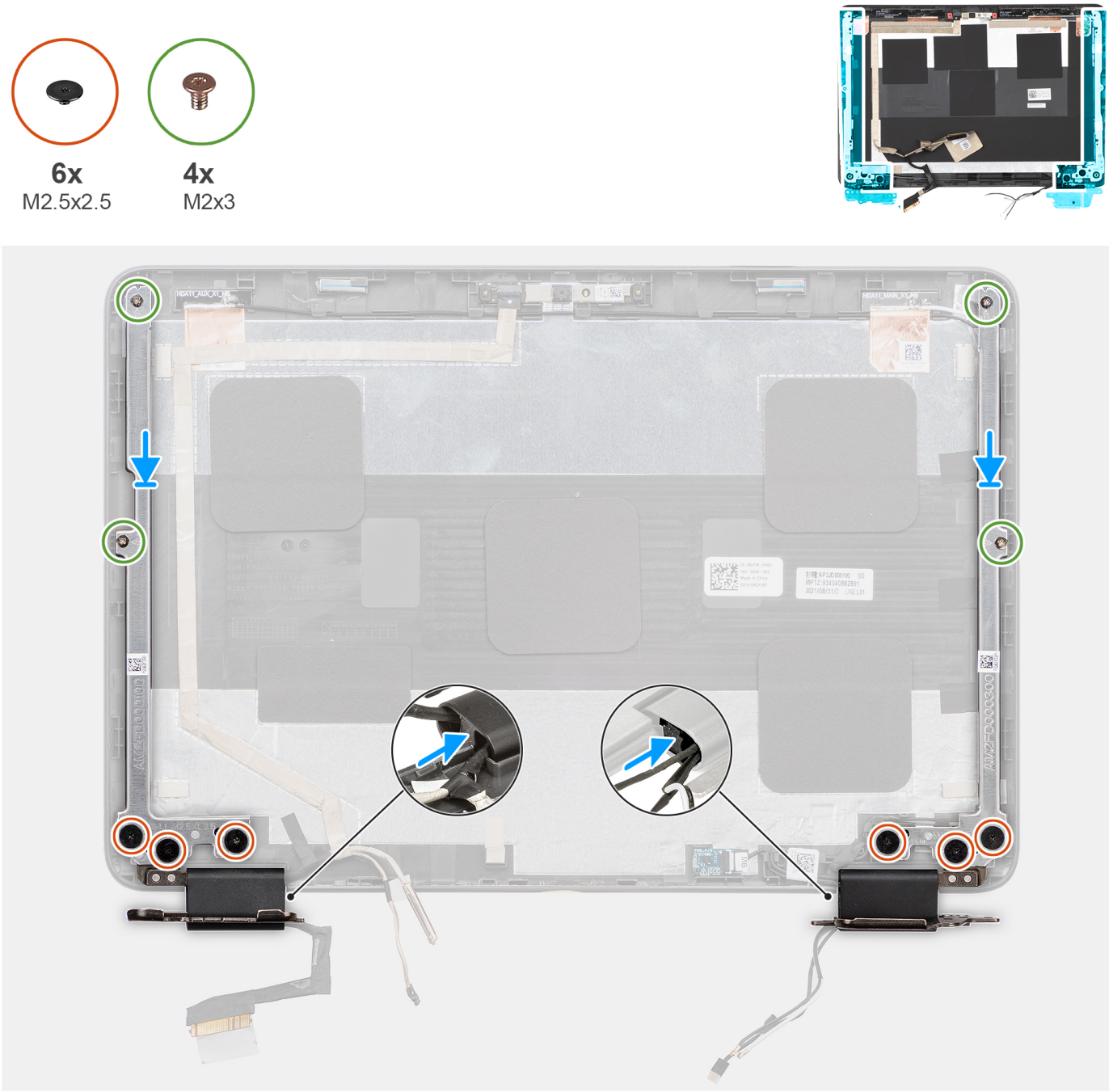


Figure 62. Installing the display hinges

Steps

1. Align the screw holes on the display hinges with the screw holes on the display back-cover.
2. Replace the four (M2x3) screws and the six (M2.5x2.5) screws to secure the display hinges to the display back-cover.
3. Rotate the display hinges close to an angle of 90 degrees.
4. Gently push the G-sensor cable and wireless antennas into the right-hinge cap.
5. Gently push the display cable into the left-hinge cap.
6. Replace the hinge rubbers to secure the left and right-hinge caps.
7. Rotate the display hinges and the hinge caps downwards away from the display cover.

   NOTE: The display hinges should be at an angle of 0 degrees while the hinge caps should be at an angle of 90 degrees (or of the position of a closed laptop).

   NOTE: Ensure that the display hinges are rotated only to the unlock position, the hinge caps do not rotate until the display hinges are in the unlock position.

Next steps

1. Install the display panel.
2. Install the display assembly.
3. Install the base cover.
4. Follow the procedure in After working inside your computer.

Display cable

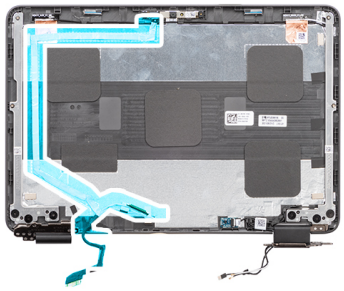
Removing the display cable

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the base cover.
3. Remove the display assembly.
4. Remove the display panel.
5. Remove the front-facing camera.

About this task

The following image indicates the location of the display cable and provides a visual representation of the removal procedure.



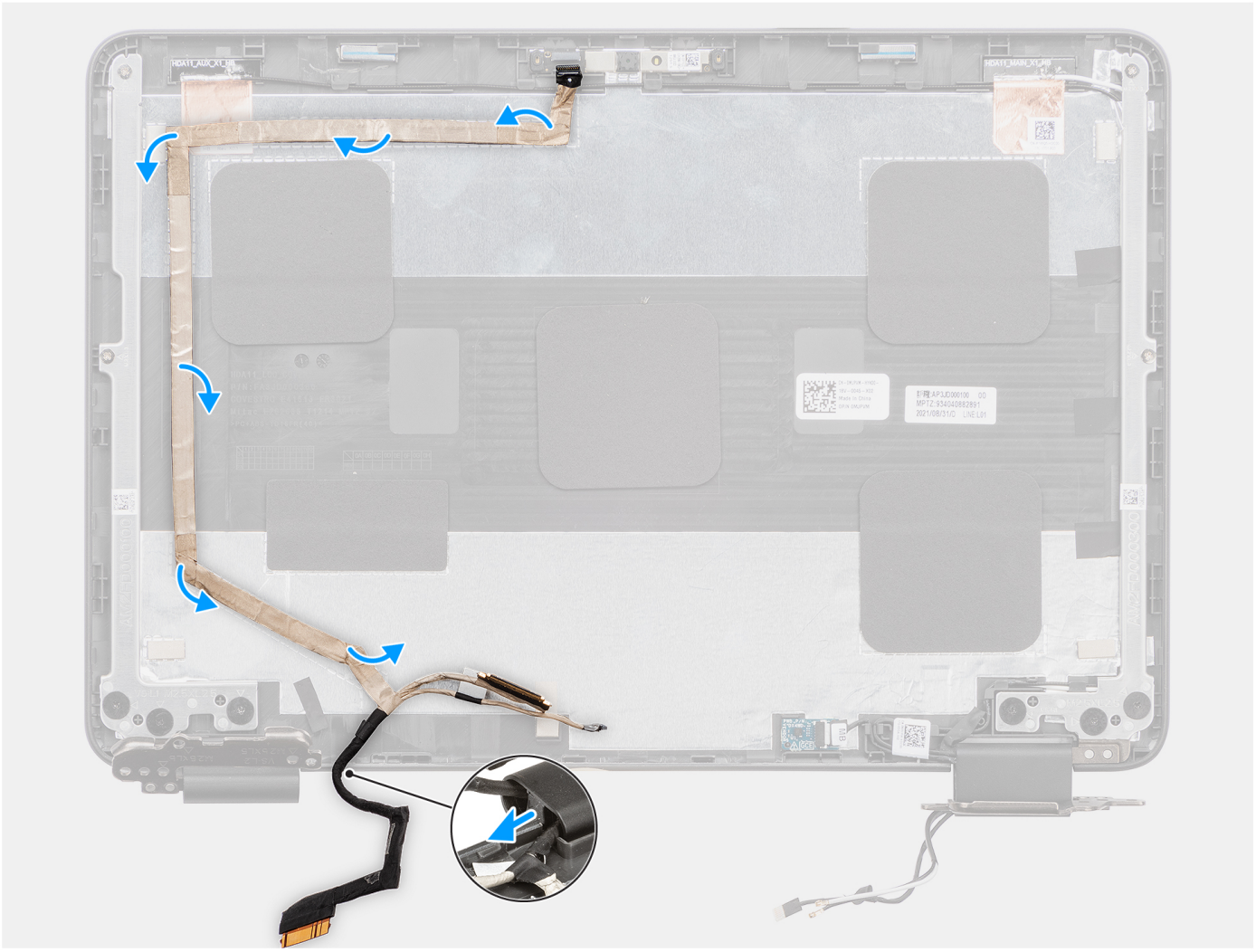


Figure 63. Removing the display cable

Steps

1. Rotate the left-display hinge and the left hinge cap upwards toward the display cover. The display hinge should be at an angle of 0 degrees while the hinge cap should be at an angle of 90 degrees (or of the position of a closed laptop).

   NOTE: Ensure that the display hinge is rotated only to the unlock position; the hinge cap does not rotate until the display hinge is in the unlock position.

2. Remove the hinge rubber that secures the left-hinge cap.
3. Gently pull the display cable out of the left-hinge cap.
4. Disconnect the camera cable from the camera module.
5. Peel back the tape that secures the display cable in place and close to the left-hinge cap.
6. Peel the display cable from the display back cover.

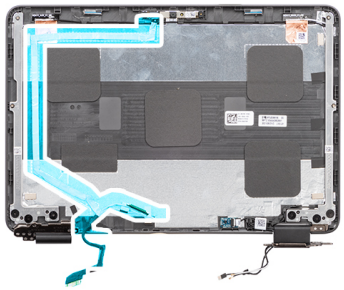
Installing the display cable

Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

The following image indicates the location of the display cable and provides a visual representation of the installation procedure.



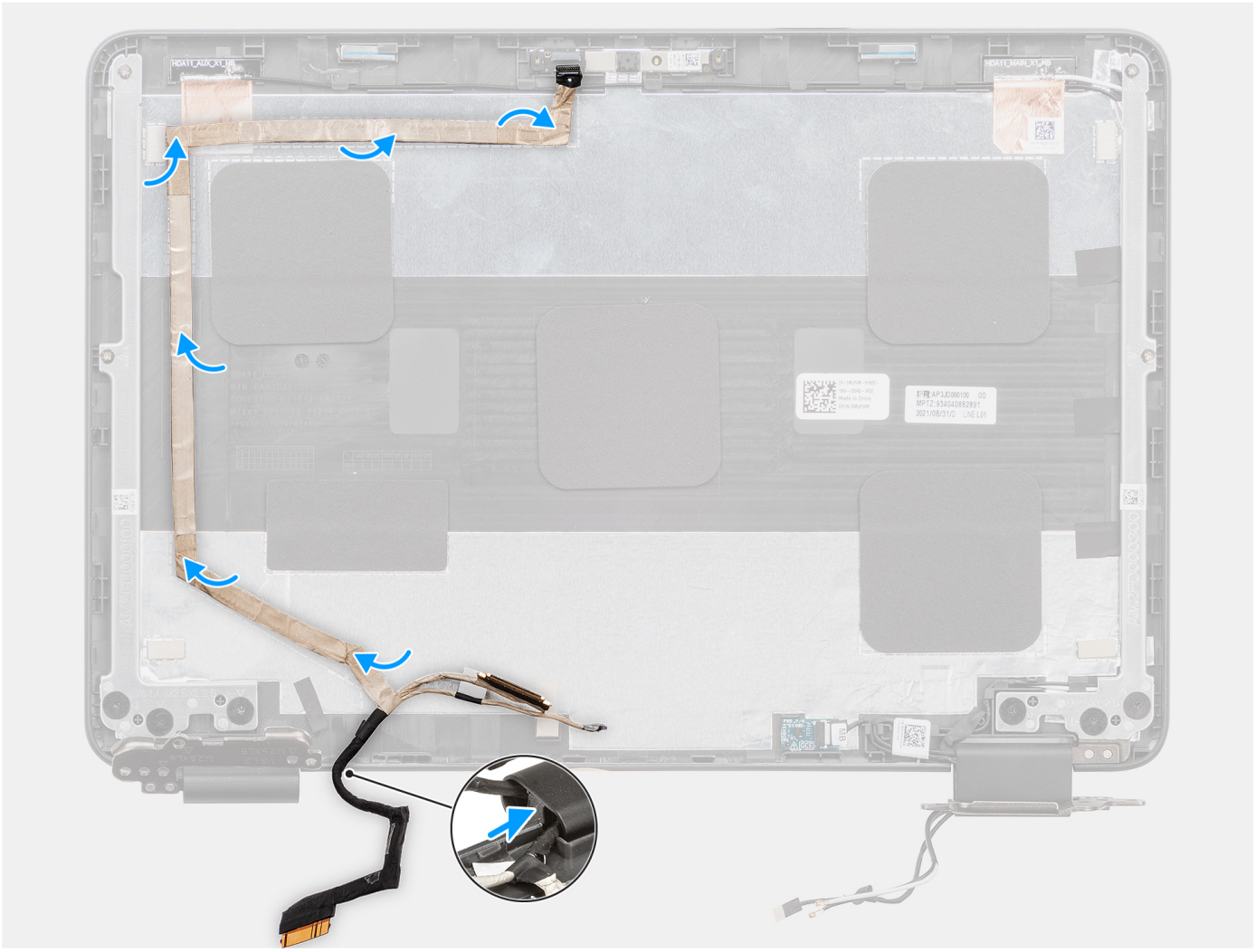


Figure 64. Installing the display cable

Steps

1. Adhere the display cable on the display back cover.
2. Adhere the tape that secures the display cable in place and close to the left-hinge cap.

3. Connect the camera cable to the camera module.
4. Gently push the display cable into the left-hinge cap.
5. Replace the hinge rubber that secures the left-hinge cap.
6. Rotate the left-display hinge and the left-hinge cap downwards away from the display cover. The display hinge should be at an angle of 0 degrees while the hinge cap should be at an angle of 90 degrees (or of the position of a closed laptop).

   NOTE: Ensure that the display hinge is rotated only to the unlock position. The hinge cap does not rotate until the display hinge is in the unlock position.

Next steps

1. Install the front-facing camera.
2. Install the display panel.
3. Install the display assembly.
4. Install the base cover.
5. Follow the procedure in After working inside your computer.

Display back-cover and antenna assembly

Removing the display back cover and antenna assembly

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the base cover.
3. Remove the display assembly.
4. Remove the display panel.
5. Remove the front-facing camera.
6. Remove the display hinges.
7. Remove the display cable.

About this task

The image below shows the display back-cover and antenna assembly after the pre-removal parts procedures have been performed for any display back-cover and antenna assembly replacement.

Figure 65. Display back cover and antenna assembly

NOTE: The display back cover and antenna assembly cannot be further disassembled once all the components in the prerequisite steps have been removed. If the wireless antennas or G-sensor module are malfunctioning and are required to be replaced, replace the entire display back cover and antenna assembly.

Steps

After performing the pre-requisites, you are left with the display back-cover and antenna assembly.

Installing the display back-cover and antenna assembly

Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

The following image indicates the location of the display back-cover and antenna assembly.

Figure 66. Installing the display back-cover and antenna assembly

Steps

Place the display back-cover and antenna assembly on a flat surface and install the components listed in **Next steps** to complete the display back-cover and antenna assembly.

Next steps

1. Install the display cable.
2. Install the display hinges.
3. Install the front-facing camera.
4. Install the display panel.
5. Install the display assembly.
6. Install the base cover.
7. Follow the procedure in After working inside your computer.

Palm-rest assembly

Removing the palm-rest assembly

Prerequisites

1. Follow the procedure in Before working inside your computer.
2. Remove the base cover.
3. Remove the battery.

4. Remove the keyboard.
5. Remove the world-facing camera cable (for computers that are shipped with a world-facing camera).
6. Remove the I/O-board cables (24-pin and 50-pin).
7. Remove the I/O board.
8. Remove the display assembly.
9. Remove the system board.
10. Remove the speakers.
11. Remove the world-facing camera (for computers that are shipped with a world-facing camera).

About this task

The following image shows the palm-rest assembly after all the components in the prerequisite steps have been removed.

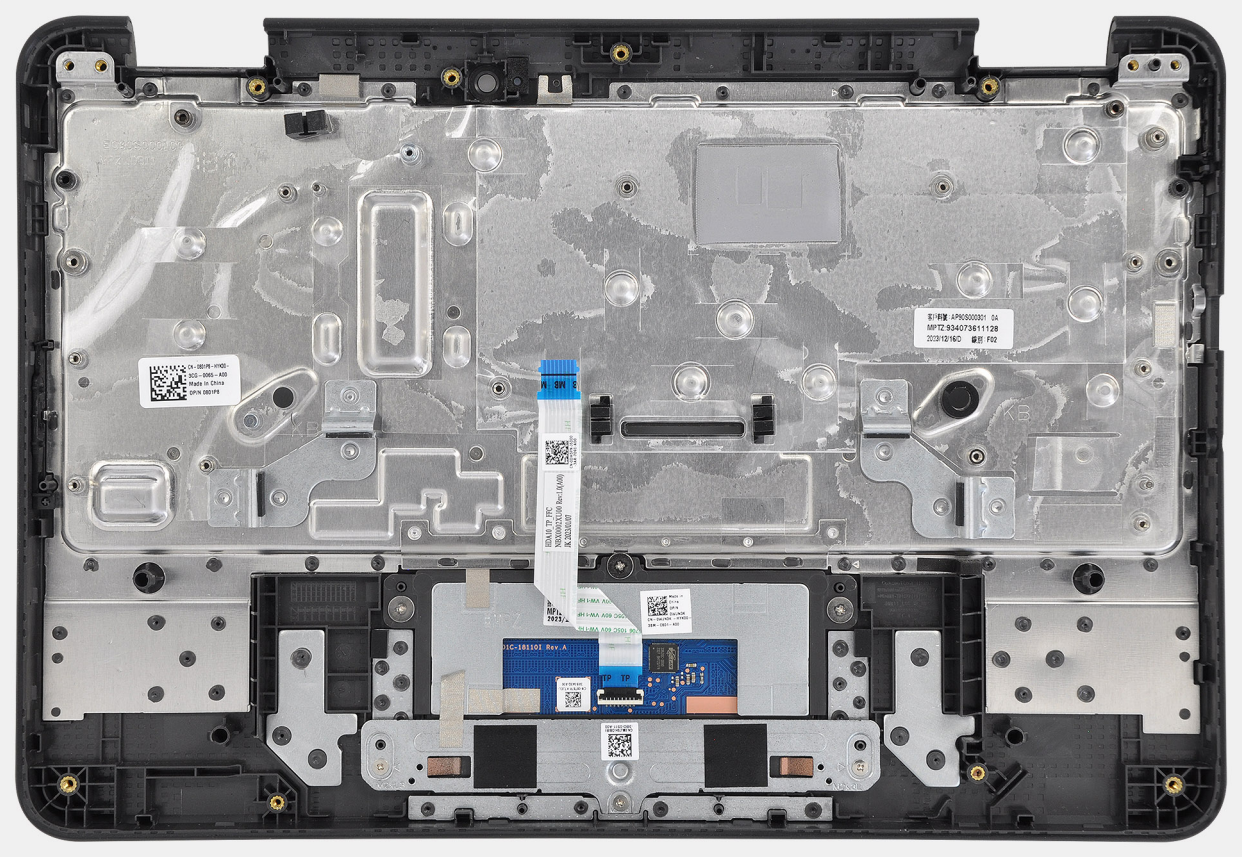


Figure 67. Removing the palm-rest assembly

NOTE: The palm-rest assembly cannot be further disassembled once all the pre-removal parts procedures are completed. If the touchpad frame, touchpad support bracket, touchpad mylar, touchpad module, touchpad cable, conductive tape, or thermal pad are malfunctioning and requires to be replaced, replace the entire palm-rest assembly.

Steps

After performing the **Prerequisites**, you are left with the palm-rest assembly.

Installing the palm-rest assembly

Prerequisites

If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

The following image indicates the location of the palm-rest assembly.

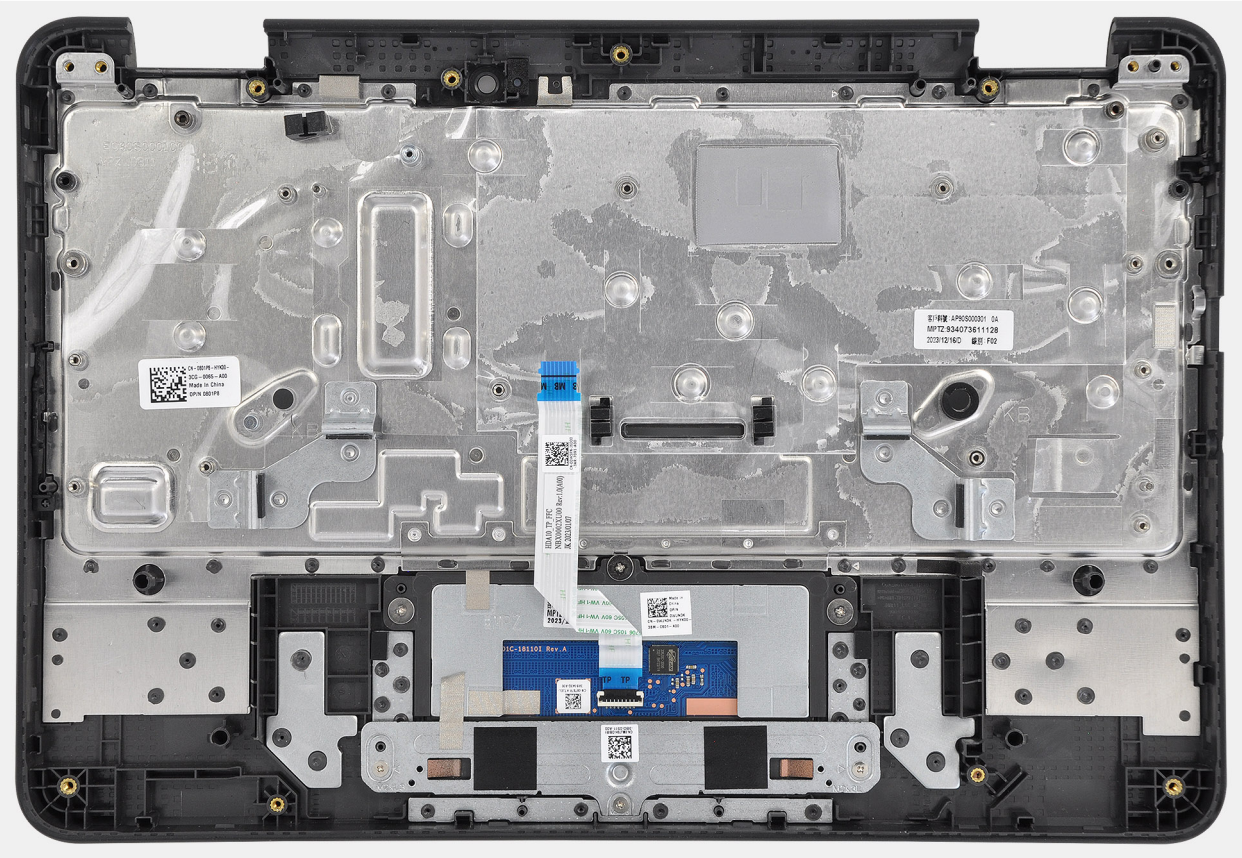


Figure 68. Installing the palm-rest assembly

NOTE: If the thermal pad on the palm-rest underneath the system board gets detached, adhere it back onto the palm-rest.

Steps

Place the palm-rest assembly on a flat surface and install the components that are listed in **Next steps** to complete the palm-rest installation.

Next steps

1. Install the world-facing camera (for computers that are shipped with a world-facing camera).
2. Install the speakers.
3. Install the system board.
4. Install the display assembly.
5. Install the I/O board.
6. Install the I/O-board cables (24-pin and 50-pin).
7. Install the keyboard.
8. Install the battery.
9. Install the base cover.
10. Follow the procedure in After working inside your computer.

7

Software

This chapter details the supported operating systems along with instructions on how to install the drivers.

Operating system

Your Chromebook 3120 2-in-1 supports the following operating systems:

ChromeOS

Drivers and downloads

When troubleshooting, downloading, or installing drivers, it is recommended that you read the Dell Knowledge Base article Drivers and Downloads FAQs 000123347.

Frequently asked questions

The following are frequently asked questions:

Table 23. Frequently asked questions

Frequently asked questions	Responses
What software works on a Chromebook?	Chromebooks use apps from the **Google Play Store** and the Internet. You can use these apps to work, be creative, watch movies or shows, or play games.
Where can I get more apps?	You can get more apps from the **Google Play Store** or the web.
Can I use Microsoft Office software?	Chromebooks work with Microsoft Office (Word, Excel, and Microsoft PowerPoint). You can find these apps on the Internet.
Where can I find my files?	All your files are stored in the **Files** app. You can find the app by clicking the **Launcher** icon and searching `Files`.
How do I transfer my local files?	You can transfer your local files using a compatible storage device. Your Chromebook works with most of the external storage devices (for example; USB drive, removable hard drives). You can also upload your files, photos, and videos to Google Drive. After setting up your Chromebook with your Google Account, you can access your files on Drive.

Table 23. Frequently asked questions (continued)

Frequently asked questions	Responses
Why does my Chromebook need my Google Account information?	You have to use your Google Account to sign in to your Chromebook. It is the same account that you use for Google services such as Gmail and Drive. Your Chromebook uses your account information to automatically sign you into apps and services.
How do I set this up for my child?	If you want to set up parental controls for your child, it is important that you sign in using your child's personal Google Account. If they do not already have one account, you can create one during the sign-in process on your Chromebook. You can add your child's school account after you complete device onboarding.

For more information about your Chromebook, see Chromebook Help.

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Troubleshooting

Handling swollen rechargeable Li-ion batteries

Like most laptops, Dell laptops use Lithium-ion batteries. One type of Lithium-ion battery is the rechargeable Li-ion battery. Rechargeable Li-ion batteries have increased in popularity in recent years and have become a standard in the electronics industry due to customer preferences for a slim form factor (especially with newer ultra-thin laptops) and long battery life. Inherent to rechargeable Li-ion battery technology is the potential for swelling of the battery cells.

A swollen battery may impact the performance of the laptop. To prevent possible further damage to the device enclosure or internal components leading to malfunction, discontinue the use of the laptop and discharge it by disconnecting the AC adapter and letting the battery drain.

Swollen batteries should not be used and must be replaced and disposed of properly. We recommend contacting Dell Support for options to replace a swollen battery under the terms of the applicable warranty or service contract, including options for replacement by a Dell authorized service technician.

The guidelines for handling and replacing rechargeable Li-ion batteries are as follows:

- Exercise caution when handling rechargeable Li-ion batteries.
- Discharge the battery before removing it from the computer. To discharge the battery, unplug the AC adapter from the computer and operate the computer only on battery power. The battery is fully discharged when the computer no longer turns on when the power button is pressed.
- Do not crush, drop, mutilate, or penetrate the battery with foreign objects.
- Do not expose the battery to high temperatures, or disassemble battery packs and cells.
- Do not apply pressure to the surface of the battery.
- Do not bend the battery.
- Do not use tools of any type to pry on or against the battery.
- If a battery gets stuck in a device as a result of swelling, do not try to free it as puncturing, bending, or crushing a battery can be dangerous.
- Do not attempt to reassemble a damaged or swollen battery into a laptop.
- Swollen batteries that are covered under warranty should be returned to Dell in an approved shipping container (provided by Dell)—this is to comply with transportation regulations. Swollen batteries that are not covered under warranty should be disposed of at an approved recycling center. Contact Dell Support at Dell Support Site for assistance and further instructions.
- Using a non-Dell or incompatible battery may increase the risk of fire or explosion. Replace the battery only with a compatible battery purchased from Dell that is designed to work with your Dell computer. Do not use a battery from other computers with your computer. Always purchase genuine batteries from Dell Site or otherwise directly from Dell.

Rechargeable Li-ion batteries can swell for various reasons such as age, number of charge cycles, or exposure to high heat. For more information about how to improve the performance and lifespan of the laptop battery and to minimize the possibility of occurrence of the issue, search Dell laptop battery in the Knowledge Base Resource at Dell Support Site.

Locating the Service Tag or Express Service Code of your Dell computer

Your Dell computer is uniquely identified with a Service Tag or Express Service Code. To view relevant support resources for your Dell computer, we recommend entering the Service Tag or Express Service Code at Dell Support Site.

For more information about how to find the Service Tag for your computer, see Instructions on how to find your Service Tag or Serial Number.

Chromebook storage

Overview

Dell Technologies recommends that customers prepare their Chromebooks for long-term storage (or summer break). This best practice eliminates the possibility of battery issues when Chromebooks are put back into service.

The following are a few steps to prepare your Chromebooks for long-term storage:

1. Update to the latest version of the ChromeOS.
2. Charge your Chromebooks so that the battery is at least 80% full. This ensures that even when the battery discharges while unplugged over the summer, power is not fully depleted.
3. DO NOT physically remove the battery from the Chromebook for storage.

NOTE: Failure to follow these steps could cause your batteries to reach a critically low charge when the Chromebook is stored for long periods of time, and can result in permanent failure of the battery. Dell provides a standard 1-year warranty on batteries. Batteries are a consumable item. All batteries degrade with time and use. For more information, see https://www.dell.com/support/.

Battery management

Chromebook batteries, after the first power-up will slowly discharge even after the computer is turned off. If the battery is allowed to discharge below 1%, it may enter a permanent failure mode rendering it useless.

Simultaneously, do not keep Chromebooks plugged into a cart or charger if they are in storage for months. This reduces battery life and can lead to other issues. If you are storing Chromebooks for a long time, charge them to at least 80% and unplug them from a battery source.

Dell Technologies recommends that customers properly prepare their Chromebooks for long-term storage. This best practice should eliminate or reduce the possibility of premature battery failure.

Chromebook battery long-term storage - best practices

The following suggestions are provided depending on your long-term storage usage to mitigate the number of Chromebooks that need to be put into storage mode:

`Classroom storage:`

If the Chromebooks are being stored in the classroom such as on a cart or other storage means, if possible (depending on the age of the student), have the teacher walk through the step with the students on the last day of use. Otherwise depending on the size of the class, have the teacher or maybe a teacher's aid follow the process.

`Student takes the the system home for summer break:`

Provide the process to the student who will take the Chromebook home. Suggest a letter that can be sent home with the student advising of the process.

1. If the student is going to use the Chromebook over the summer, this would not be a concern.
2. If the student is going to store the Chromebook at home over the summer, it is best to be put in storage mode.

`IT department storage (student turns in Chromebook):`

If the students turn the Chromebook into the IT dept or lab, you could do the following to avoid additional work load on the IT staff:

1. Have the teacher assist with putting Chromebooks into storage mode before turning them in (similar to Classroom storage), or have the IT team provide steps to put the Chromebook into storage mode.
2. IT team can later press the power button to ensure it is in storage mode.

Preparing the Chromebook for long-term storage

Prerequisites

Update your Chromebook to the latest version of the ChromeOS and charge so that the battery is at least 80% full. This ensures that even when the battery discharges while unplugged over the summer, power is not fully depleted.

In order to slow the discharge rate during storage, use the same process that the factory uses before they ship devices.

NOTE: DO NOT physically remove the battery from the Chromebook for storage, but instead perform the following steps:

Steps

1. Connect the device to the power adapter and power on.
2. With the power adapter connected to the device, put the device in Battery cut-off mode.
3. Press and hold the Refresh + Power keys simultaneously at least for 3 seconds.
4. While holding these keys, remove the power cable from the device, and then release the keys.
   The device should shut down and remain off.
5. Attempt to power the unit on using the power button.
6. If the computer does not power on, you have completed the steps and can safely store the computer.
7. If the unit powers on, repeat steps 1 to 5.
8. Store it in a cool, dry place at 25^{0}C ($78\ ^{0}$F).

   This is the ideal way to store devices, as it reduces battery discharge to a minimal rate. It prevents constant charge or discharge from reducing the battery life and keeps the Chromebook in a stable, powered-off state.

   NOTE: If you cannot put your Chromebook into the battery disconnect state as described above, charge the battery to at least 80%, turn off the Chromebook, unplug it from a power source, and store it in a cool, dry place.

   NOTE: If combo keys do not work with your model, charging with a higher socket level is the only alternative from Google.

Getting your Chromebook ready

About this task

Perform the following steps to get your Chromebook ready for school:

Steps

1. Connect the Chromebook to a charger and a power source to get the computer out of the battery disconnect state.
2. Power up your device.
3. Connect your Chromebook to Wi-Fi and update them to the latest ChromeOS release.

   NOTE: This step can take time as multiple ChromeOS versions may have been released since the last time the device was updated.

Recovering the operating system

When your Chromebook operating system is not working properly, you can recover it. Recovery is removing and reinstalling the operating system.

To know how to recover your Chromebook operating system, see Recover your Chromebook at ttps://support.google.com/chromebook.

Wi-Fi power cycle

About this task

If your computer is unable to access the Internet due to Wi-Fi connectivity issues, reset your Wi-Fi device by performing the following steps:

Steps

1. Turn off the computer.
2. Turn off the modem.

   NOTE: Some Internet service providers (ISPs) provide a modem and router combo device.
3. Turn off the wireless router.
4. Wait for 30 seconds.
5. Turn on the wireless router.
6. Turn on the modem.
7. Turn on the computer.

Drain residual flea power (perform hard reset)

About this task

Flea power is the residual static electricity that remains in the computer even after it has been powered off and the battery is removed.

For your safety, and to protect the sensitive electronic components in your computer, you must drain residual flea power before removing or replacing any components in your computer.

Draining residual flea power, also known as a performing a "hard reset," is also a common troubleshooting step if your computer does not turn on or boot into the operating system.

Perform the following steps to drain the residual flea power:

Steps

1. Turn off the computer.
2. Disconnect the power adapter from the computer.
3. Remove the base cover.
4. Remove the battery.

   CAUTION: The battery is a Field Replaceable Unit (FRU) and the removal and installation procedures are intended for authorized service technicians only.
5. Press and hold the power button for 20 seconds to drain the flea power.
6. Install the battery.
7. Install the base cover.
8. Connect the power adapter to the computer.
9. Turn on the computer.

   NOTE: For more information about performing a hard reset, search in the Knowledge Base Resource at the Dell Support Site.

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Getting help and contacting Dell

Self-help resources

You can get information and help on Dell products and services using these self-help resources:

Table 24. Self-help resources

Self-help resources	Resource location
Information about Dell products and services	Dell Site
Tips	
Online help for operating system	For support on your Chromebook, see ChromeOS Support.
Access top solutions, diagnostics, drivers and downloads, and learn more about your computer through videos, manuals, and documents.	Your Dell computer is uniquely identified using a Service Tag or Express Service Code. To view relevant support resources for your Dell computer, enter the Service Tag or Express Service Code at Dell Support Site. For more information about how to find the Service Tag for your computer, see Instructions on how to find your Service Tag or Serial Number.
Dell knowledge base articles	1. Go to Dell Support Site. 2. On the menu bar at the top of the Support page, select **Support** > **Support Library**. 3. In the Search field on the Support Library page, type the keyword, topic, or model number, and then click or tap the search icon to view the related articles.

Contacting Dell

To contact Dell for sales, technical support, or customer service issues, see Contact Support at Dell Support Site.

NOTE: Availability of the services may vary depending on the country or region, and product.

NOTE: If you do not have an active Internet connection, you can find contact information about your purchase invoice, packing slip, bill, or Dell product catalog.