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IN SEARCH OF INCREDIBLE



Service Manual

ASUS

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Chapter 1: ***Introduction***

Disclaimer

ASUS is not responsible for direct, indirect, intentional or unintentional damages resulting from improper installation and operation.

Safety precautions

- Before handling components, use a grounded wrist strap or touch a safely grounded object to avoid damaging them due to static electricity.
- Keep liquids or moisture away from your device to avoid short circuits.
- Remove rings, watches, and any other metal objects from your hands.
- Hold components by the edges to avoid touching the ICs.
- Properly install all components before connecting the AC power.
- Do not use power adapters or batteries from other devices to reduce the risk of injury to persons due to fire or explosion. Use only certified power adapters or batteries supplied by the manufacturer or authorized retailers.
- Detach all clips or flaps before removing cables to prevent damage.

- Disconnect cables, connectors, and power plugs by pulling the plug evenly to avoid damage.
- Use the correct screw models on your device to prevent damage.
- Confirm that the cable orientation is correct before connecting any cables.
- Fully remove all adhesive residue after removing and before installing any components.
- Photograph the appearance of cables, cable routing, connectors, and screws for later reference before proceeding with each step.

Pre-repair checklist

- Read the entire manual before starting any service procedures and follow all instructions.
 - Back up the data on your device.
 - Place your device on a clean and stable surface.
 - Turn off your device.
 - Disconnect all connected peripherals and cables.
 - Disconnect all power cables and remove the battery pack (if applicable).
-

IMPORTANT!

- If you are uncertain about performing the described service procedures, stop and contact an authorized service center for assistance.
 - Purchase replacement components from authorized retailers of this device to ensure maximum compatibility and reliability.
-

NOTE:

- The illustrations are for reference only.
 - The service procedures described in this manual depend on the model configuration and may not reflect the entire servicing process. To service components that are not covered in this manual, please visit an authorized service center for further assistance.
 - Keep all adhesive tape, insulating materials, screws, and other removable items in a safe place until the service procedure is completed, as they may be needed during installation.
-

Installation tools



Screwdriver



Plastic blade



Tweezers

Accessories



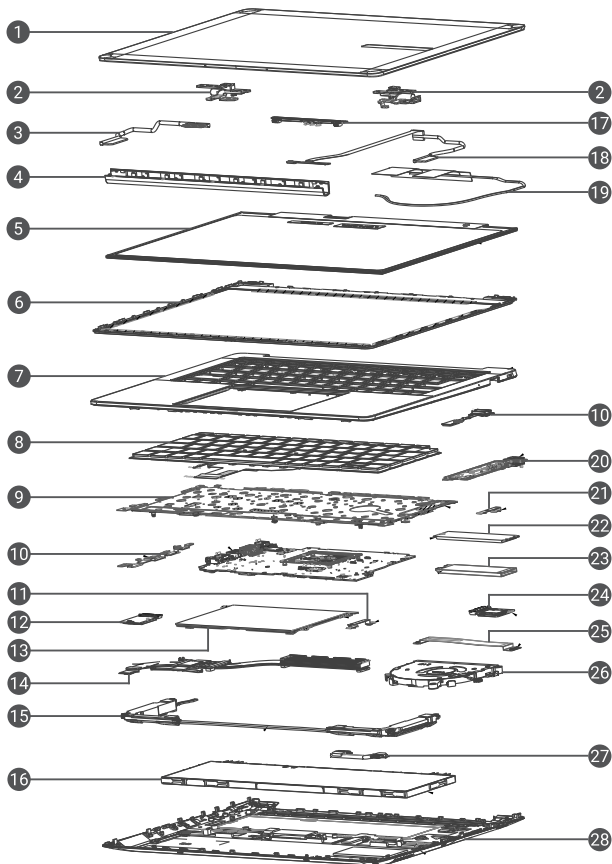
Power adapter

Diagnostic tools

Use ASUS System Diagnostics after completing any service procedures to ensure that all components are working properly.

For more information, visit www.asus.com/support/FAQ/1048490/.

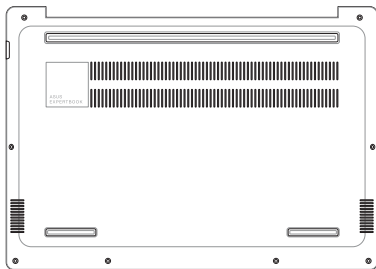
Major components



1. Top cover
2. Hinges
3. eDP cable
4. Hinge cap
5. Display panel
6. Display bezel
7. Keyboard cover
8. Keyboard
9. Keyboard bracket
10. I/O port brackets
11. Touchpad cable
12. WLAN module
13. Touchpad
14. Heat sink
15. Speakers
16. Battery
17. Camera module
18. Camera cable
19. WLAN antenna
20. I/O board
21. Fingerprint sensor cable
22. M.2 2280 SSD module shield
23. M.2 2280 SSD module
24. M.2 2230 SSD module
25. I/O board cable
26. Fan module
27. Battery cable
28. Bottom cover

Chapter 2: ***Service Procedures***

Bottom cover



Before you begin

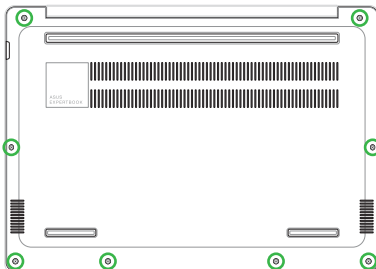
Read the **Safety Precautions** and complete the **Pre-repair Checklist**.

Screw list

- ⊕ M2.0 X 3.5L (8pcs)

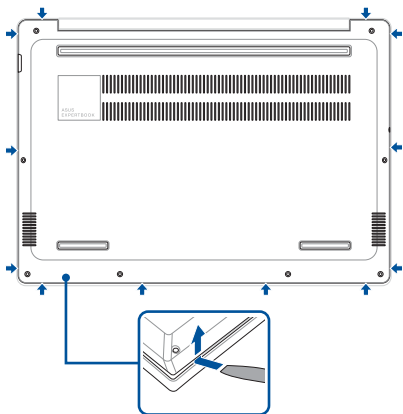
Removal

1. Remove the screw(s) from the bottom cover.



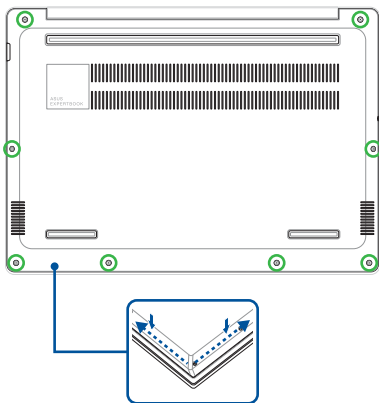
2. Use the plastic blade to pry open the indicated area of the bottom cover as shown in the illustration below.

IMPORTANT! Avoid sliding the plastic blade along the side of your device or air vents to prevent damage.

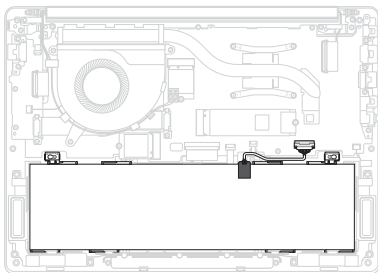


Installation

1. Install the bottom cover.
2. Gently press down on the bottom cover until it clicks into place.
3. Secure the bottom cover using the screw(s) you removed earlier.



Battery



Before you begin

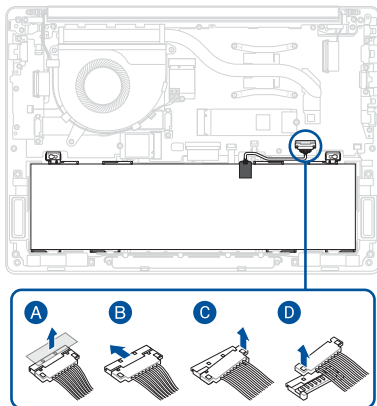
IMPORTANT! Serious risk of fire or explosion may occur if the battery is punctured. If you are uncertain about proceeding, stop and contact an authorized service center for assistance.

1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following components:
 - Bottom cover

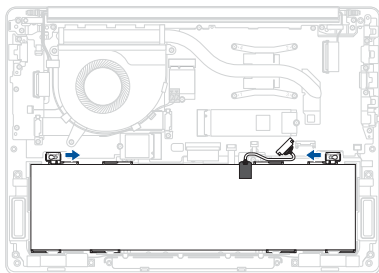
Removal

1. Remove the polyester film, then disconnect the battery power cable.

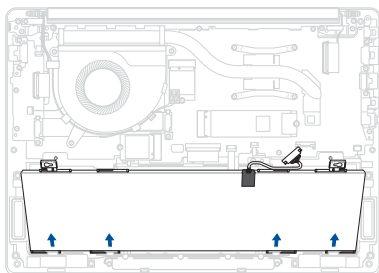
IMPORTANT! Disconnect the battery power cable by lifting the side with the red wires first.



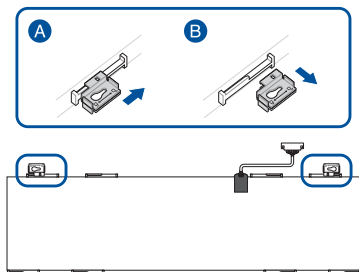
2. Push the latches into the unlocked position.



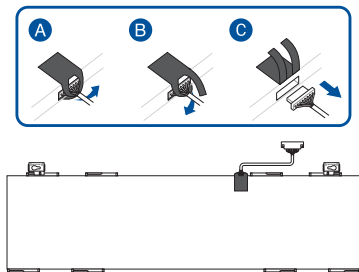
3. Remove the battery.



4. Remove the latches.

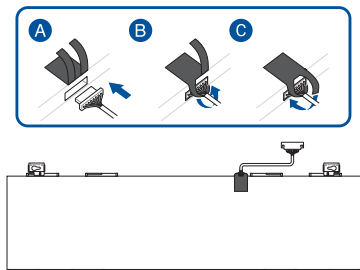


5. Remove the tape, then disconnect the cable.

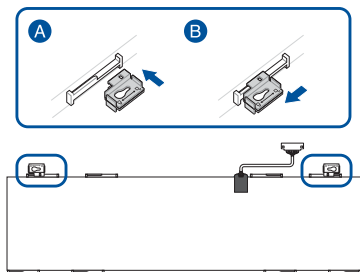


Installation

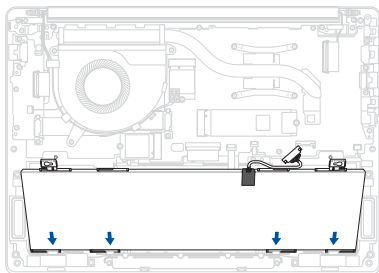
1. Reconnect the cable, then reattach the tape.



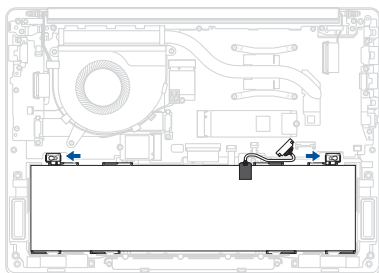
2. Install the latches.



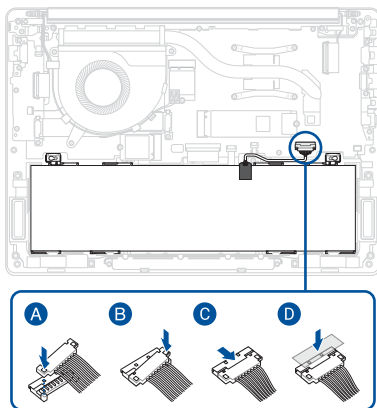
3. Install the battery.



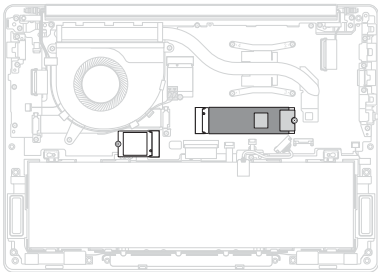
4. Push the latches into the locked position.



5. Reconnect the battery power cable, then reattach the polyester film.
6. Install the components you removed in the *Before you begin* section.



M.2 SSD module



Before you begin

1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following components:
 - Bottom cover
 - Battery

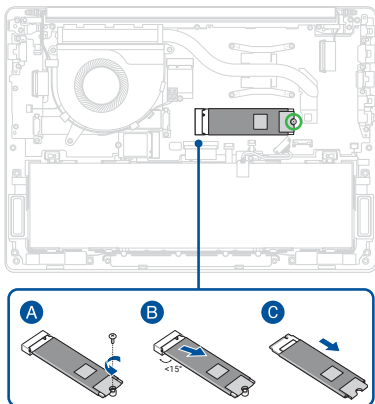
Screw list

- ⊕ M2.0 X 2.0L (1-2pcs)

Removal

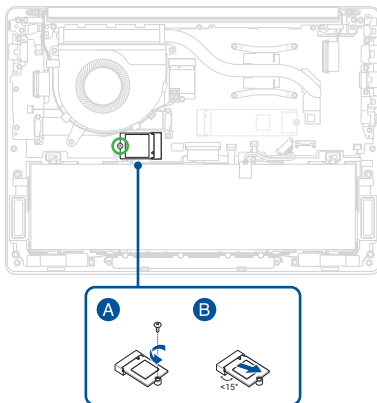
M.2 2280 SSD module

1. Remove the screw.
2. Remove the M.2 SSD module from the motherboard.
3. Remove the cover from the M.2 SSD module.



M.2 2230 SSD module (on selected models)

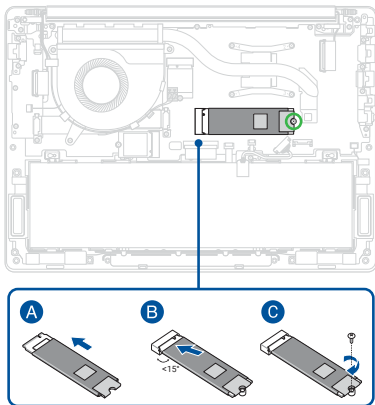
1. Remove the screw.
2. Remove the M.2 SSD module from the motherboard.



Installation

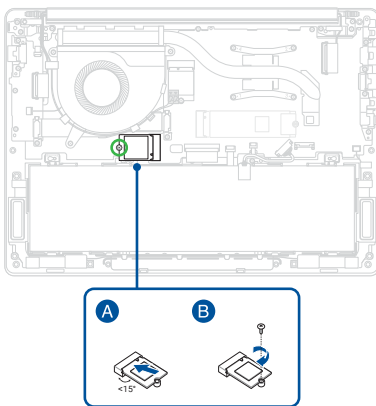
M.2 2280 SSD module

1. Place the M.2 SSD module inside the cover.
2. Align and insert the M.2 SSD module into the M.2 connector on the motherboard.
3. Secure the M.2 SSD module using the screw you removed earlier.
4. Install the components you removed in the *Before you begin* section.

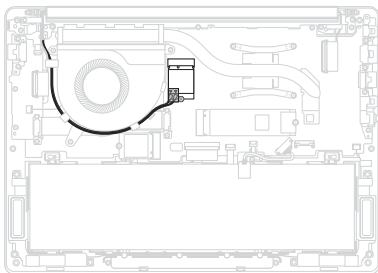


M.2 2230 SSD module (on selected models)

1. Align and insert the M.2 SSD module into the M.2 connector on the motherboard.
2. Secure the M.2 SSD module using the screw you removed earlier.
3. Install the components you removed in the *Before you begin* section.



WLAN module



Before you begin

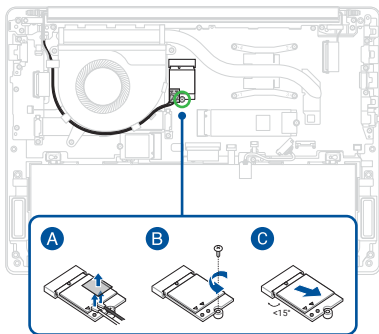
1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following components:
 - Bottom cover
 - Battery

Screw list

- ⊕ M2.0 X 2.0L (1pc)

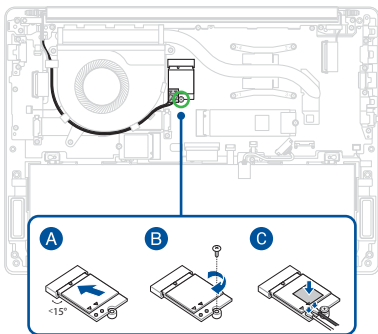
Removal

1. Remove the polyester film, then disconnect the cable(s).
2. Remove the screw, then remove the WLAN module.

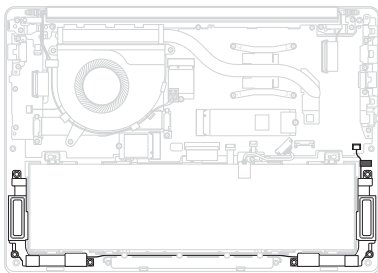


Installation

1. Install the WLAN module, then secure the WLAN module using the screw you removed earlier.
2. Reconnect the cable(s), then reattach the polyester film.
3. Install the components you removed in the *Before you begin* section.



Speakers

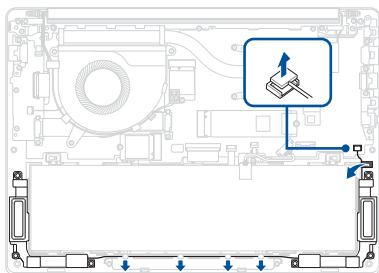


Before you begin

1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following components:
 - Bottom cover
 - Battery

Removal

Disconnect the cable and remove the tape, then remove the speakers.

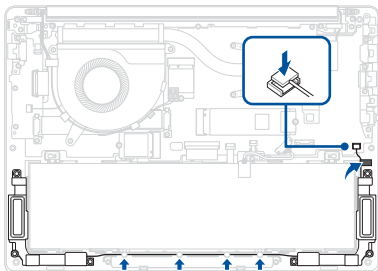


Installation

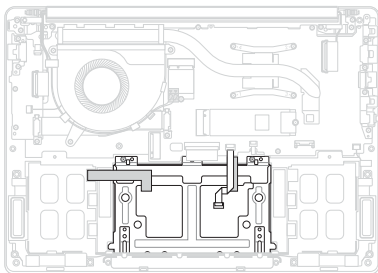
1. Install the speakers and route the cable through the cable guide(s), then reattach the tape and reconnect the cable.

IMPORTANT! Damage may occur if cables are not properly routed through the cable guides. Confirm that all cables are routed through each of the indicated cable guides before proceeding.

2. Install the components you removed in the *Before you begin* section.



Touchpad



Before you begin

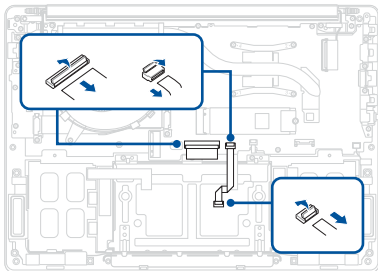
1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following components:
 - Bottom cover
 - Battery

Screw list

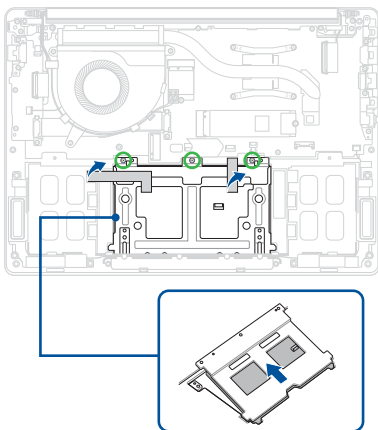
- ⊕ M2.0 X 2.0L (3pcs)

Removal

1. Disconnect the cable(s).

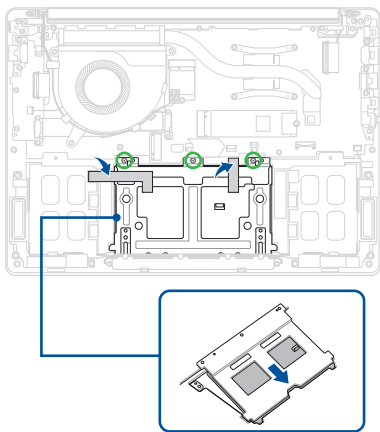


2. Remove the tape, then remove the screw(s) and remove the touchpad.

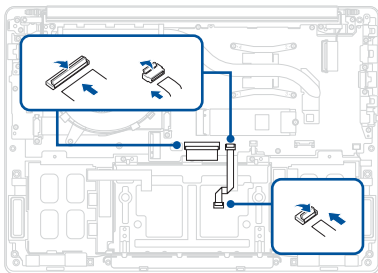


Installation

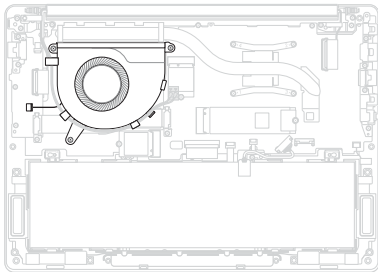
1. Install the touchpad and secure the touchpad using the screw(s) you removed earlier, then reattach the tape.



2. Reconnect the cable(s).
3. Install the components you removed in the *Before you begin* section.



Fan module



Before you begin

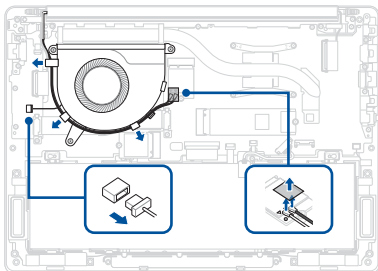
1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following components:
 - Bottom cover
 - Battery

Screw list

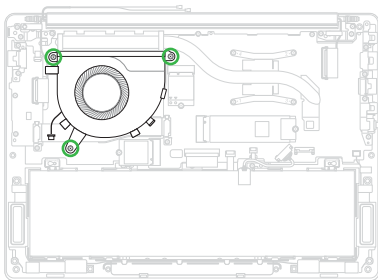
- ⊕ M2.0 X 3.5L (3pcs)

Removal

1. Remove the polyester film and disconnect the cable(s).
2. Remove the cable(s) from the cable guide(s).

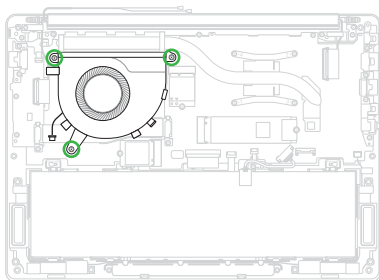


3. Remove the screw(s), then remove the fan.



Installation

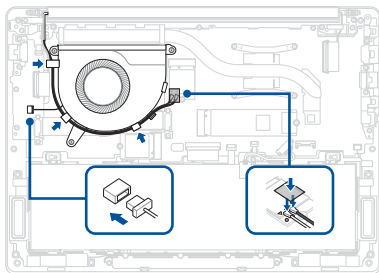
1. Install the fan, then secure the fan using the screw(s) you removed earlier.



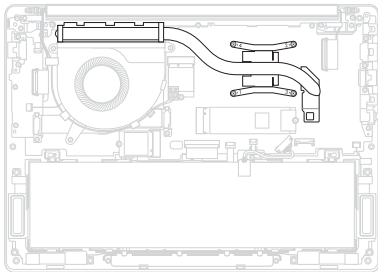
2. Reconnect the cable(s), then reattach the polyester film.
3. Route the cable through the cable guide(s).

IMPORTANT! Damage may occur if cables are not properly routed through the cable guides. Confirm that all cables are routed through each of the indicated cable guides before proceeding.

4. Install the components you removed in the *Before you begin* section.



Heat sink



Before you begin

IMPORTANT! Thermal paste, thermal pads, liquid metal, or other thermal interface materials must be thoroughly removed and replaced if this component is removed. Ensure that replacement materials are available before proceeding, or contact an authorized service center for assistance.

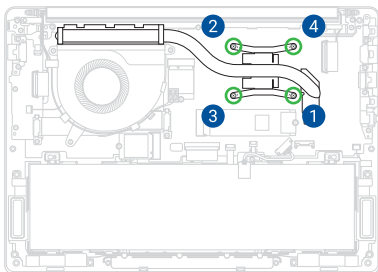
1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following components:
 - Bottom cover
 - Battery

Screw list

- ⊕ M2.0 X 3.5L (4pcs)

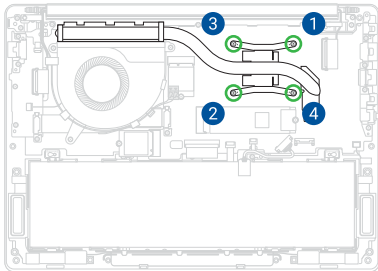
Removal

Remove the screw(s) one by one in the sequence shown in the illustration below, then remove the heat sink.

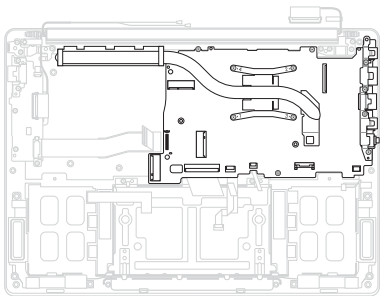


Installation

1. Install the heat sink, then secure the heat sink screw(s) one by one in the sequence shown in the illustration below.
2. Install the components you removed in the *Before you begin* section.



Motherboard



Before you begin

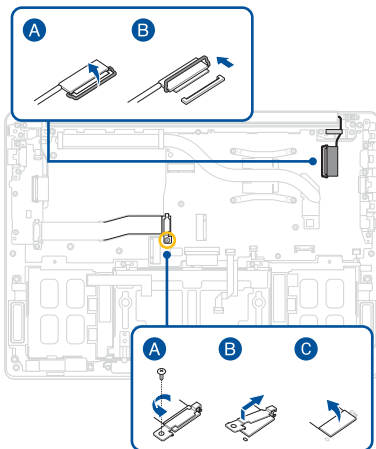
1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following components:
 - Bottom cover
 - Battery
 - M.2 SSD module

Screw list

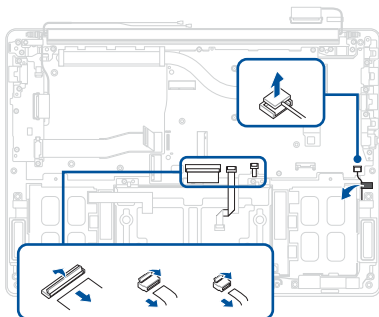
- ⊕ M2.0 X 3.5L (6pcs)
- ⊕ M2.0 X 2.0L (2pcs)

Removal

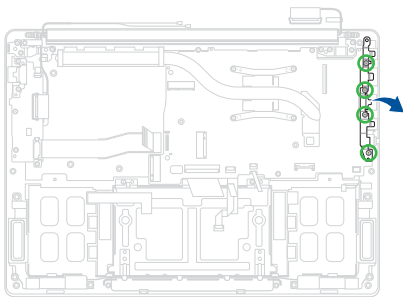
1. Remove the screw and remove the bracket, then disconnect the cable(s).



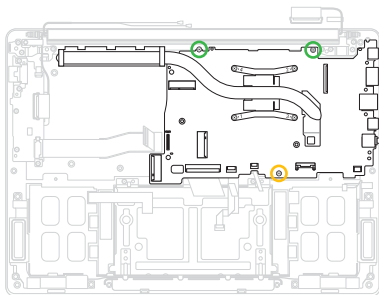
2. Remove the tape, then disconnect the cable(s).



3. Remove the screw(s), then remove the bracket.

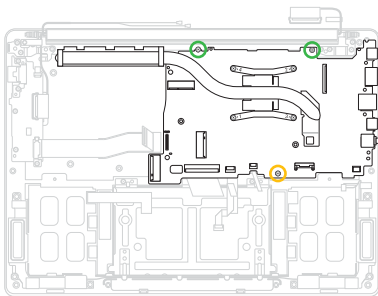


4. Remove the screw(s), then remove the motherboard.

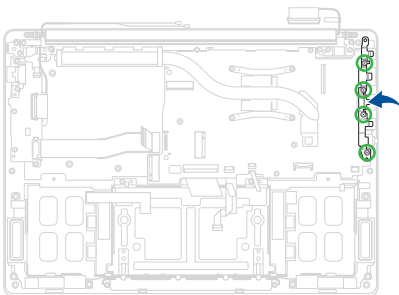


Installation

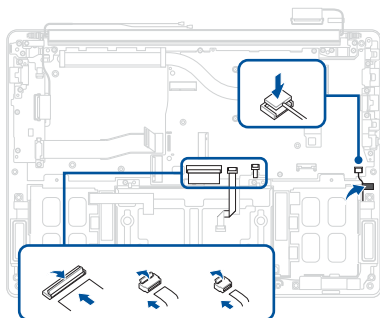
1. Install the motherboard, then secure the motherboard using the screw(s) you removed earlier.



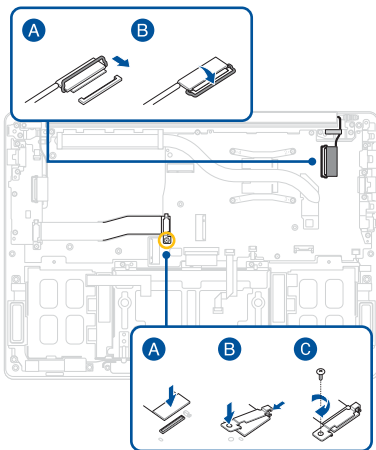
2. Install the bracket, then secure the bracket using the screw(s) you removed earlier.



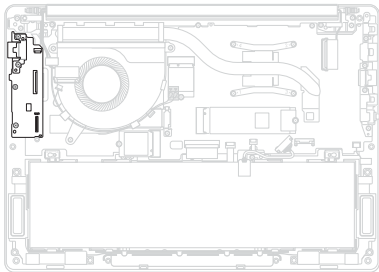
3. Reconnect the cable(s), then reattach the tape.



4. Reconnect the cable(s), then install the bracket and secure the bracket using the screw you removed earlier.
5. Install the components you removed in the *Before you begin* section.



I/O board



Before you begin

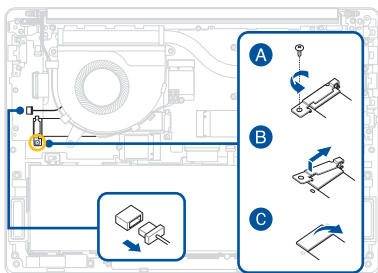
1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following components:
 - Bottom cover
 - Battery

Screw list

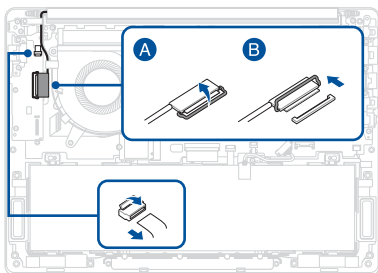
- ⊕ M2.0 X 3.5L (4pcs)
- ⊕ M2.0 X 2.0L (1pc)

Removal

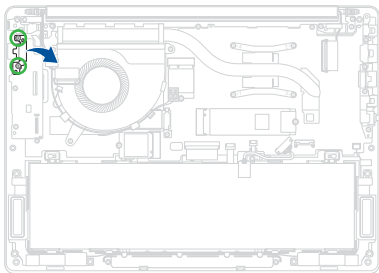
1. Remove the screw and remove the bracket, then disconnect the cable(s).



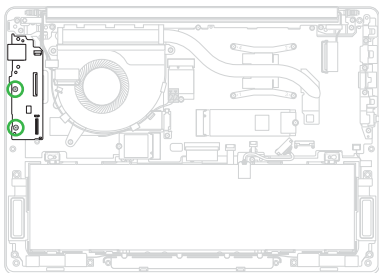
2. Disconnect the cable(s).



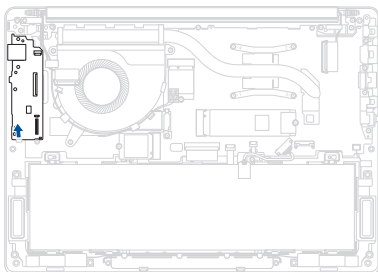
3. Remove the screw(s), then remove the bracket.



4. Remove the screw(s).

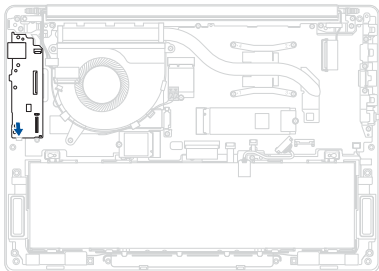


5. Remove the I/O board.

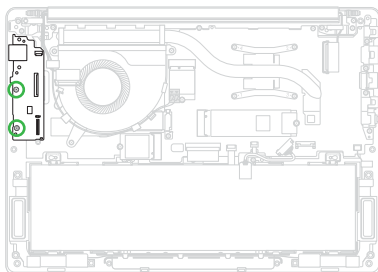


Installation

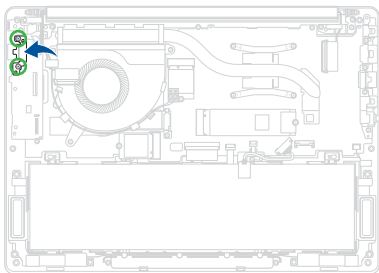
1. Install the I/O board.



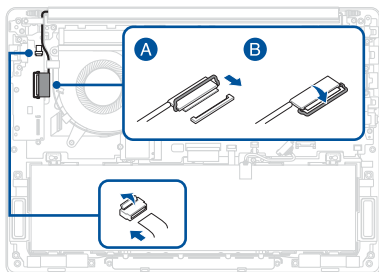
2. Secure the I/O board using the screw(s) you removed earlier.



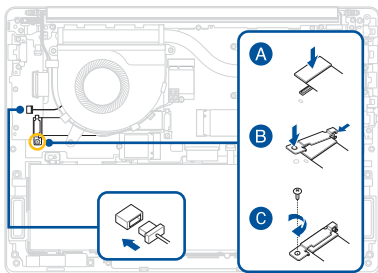
3. Install the bracket, then secure the bracket using the screw(s) you removed earlier.



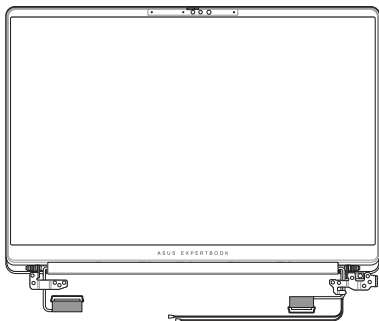
4. Reconnect the cable(s).



5. Reconnect the cable(s), then install the bracket and secure the bracket using the screw you removed earlier.
6. Install the components you removed in the *Before you begin* section.



Display panel module



Before you begin

IMPORTANT! Do not bend the display panel in any way to avoid risk of display panel leakage.

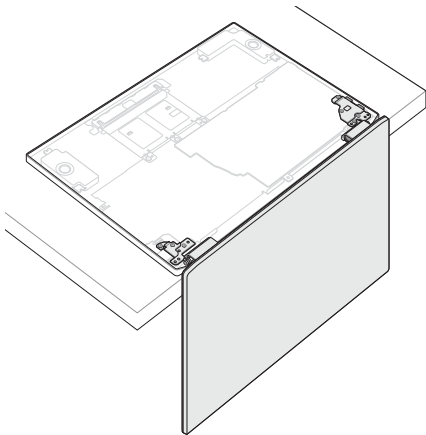
1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following components:
 - Bottom cover
 - Battery

Screw list

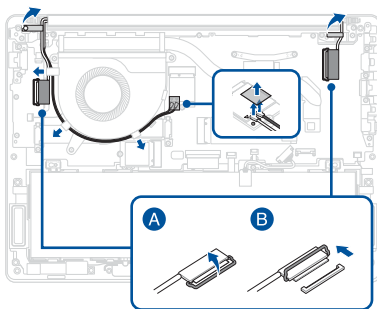
- ⊕ M2.0 X 4.0L (8pcs)

Removal

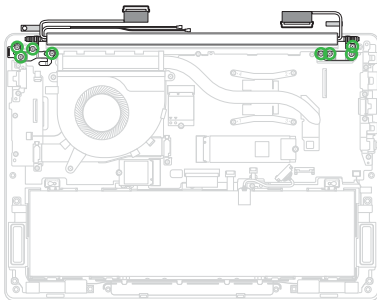
1. Place your device with the display panel hanging over the edge of the workspace as shown in the illustration below.



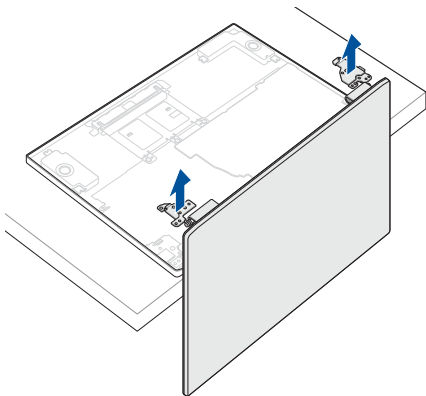
2. Remove the tape and polyester film.
3. Disconnect the cable(s), then remove the cable(s) from the cable guide(s).



4. Remove the screw(s).

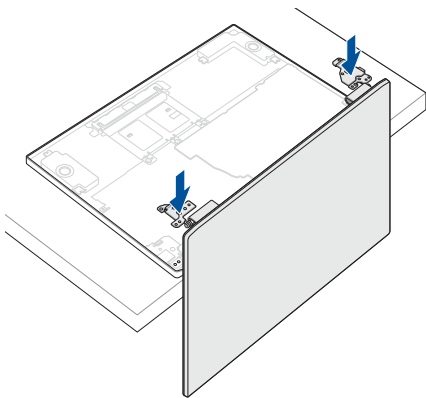


5. Remove the display panel module.

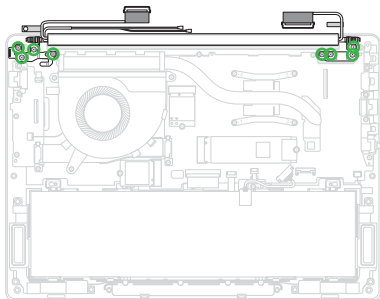


Installation

1. In the orientation shown, align and place the hinges of the display panel module on the screw holes.



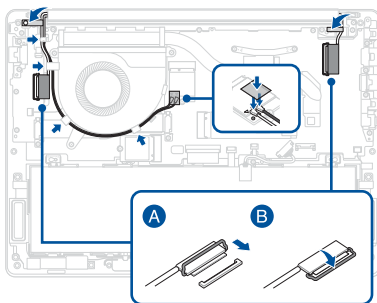
2. Secure the display panel module using the screw(s) you removed earlier.



3. Route the cable(s) through the cable guide(s), then reconnect the cable(s).

IMPORTANT! Damage may occur if cables are not properly routed through the cable guides. Confirm that all cables are routed through each of the indicated cable guides before proceeding.

4. Reattach the tape and polyester film.
5. Install the components you removed in the *Before you begin* section.



Display bezel



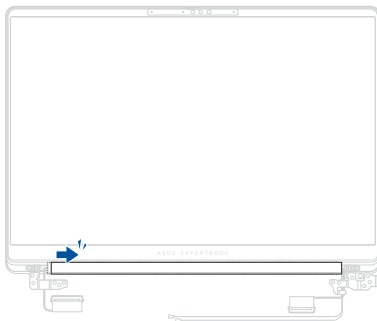
Before you begin

IMPORTANT! This component is fragile. Damage may occur if the service procedure is performed incorrectly. If you are uncertain about proceeding, stop and contact an authorized service center for assistance.

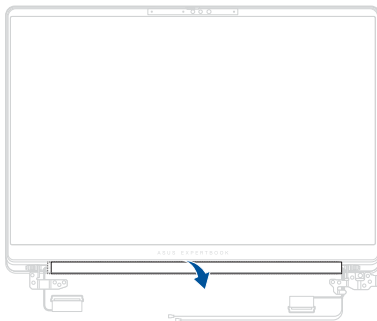
1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following components:
 - Bottom cover
 - Battery
 - Display panel module

Removal

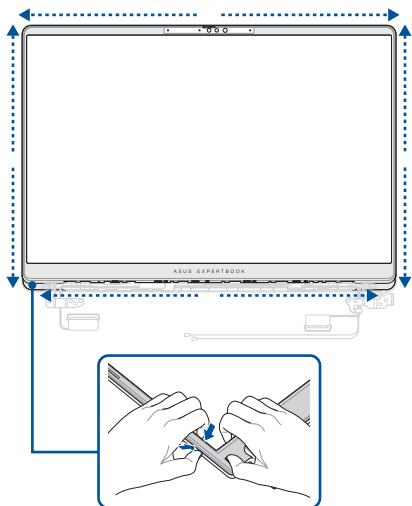
1. Slide the hinge cap to the right.



2. Remove the hinge cap.

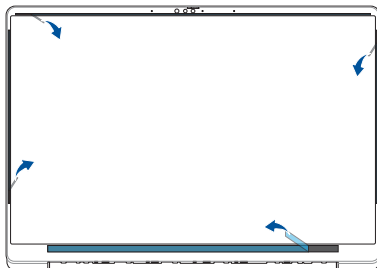


3. Carefully pry the bezel loose, then remove the bezel.

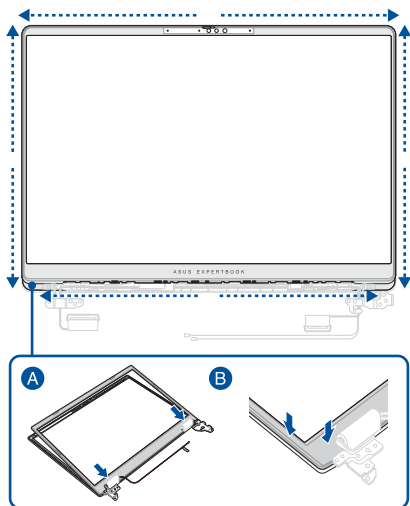


Installation

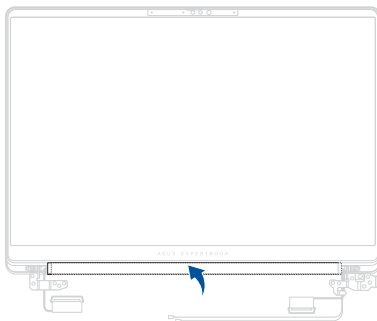
1. Remove the release liners from the tape on the bezel.



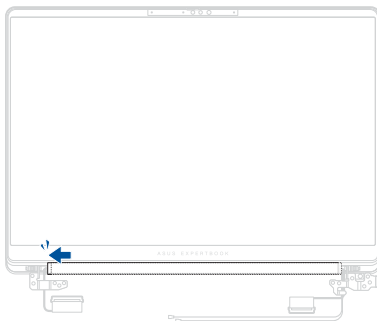
2. Align and install the bezel.



3. Install the hinge cap.



4. Push the hinge cap to the left.
5. Install the components you removed in the *Before you begin* section.



Display panel



Before you begin

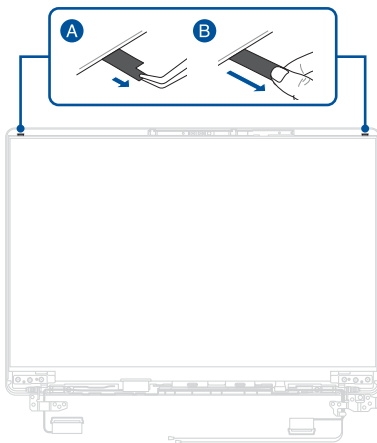
IMPORTANT! Do not bend the display panel in any way to avoid risk of display panel leakage.

1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following components:
 - Bottom cover
 - Battery
 - Display panel module
 - Display bezel

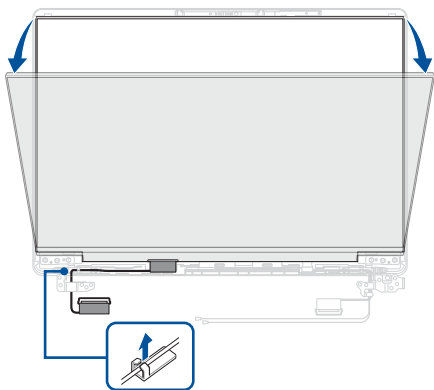
Removal

1. Locate the tip of the stretch release tape, then carefully pull out the stretch release tape as shown in the illustration below.

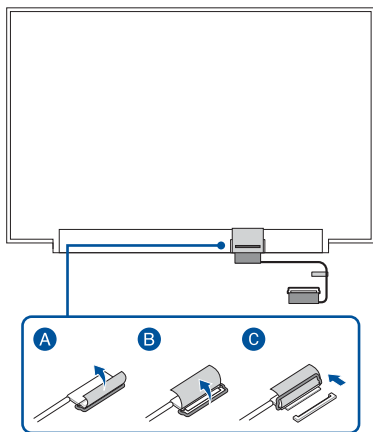
IMPORTANT! Maintain a flat angle and constant speed when pulling the stretch release tape. Excessive force may damage the stretch release tape and prevent removal of the display panel.



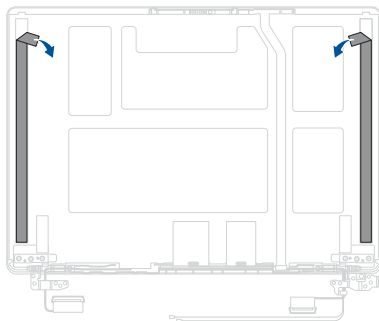
2. Remove the cable from the cable guide, then lift the display panel.



3. Flip the display panel over, then disconnect the cable.

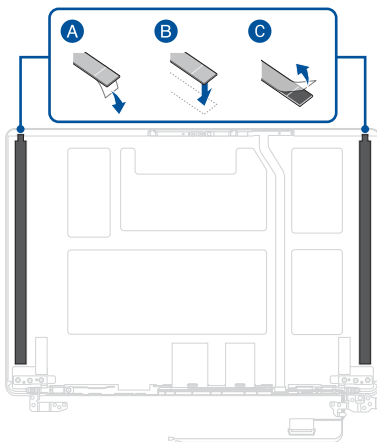


4. Remove the polyester film from the top cover.

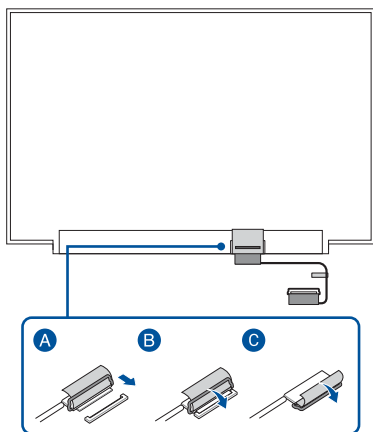


Installation

1. Remove the release liner(s) from the bottom side of the stretch release tape.
2. Align and attach the stretch release tape to the top cover.
3. Remove the release liner(s) from the top side of the stretch release tape.



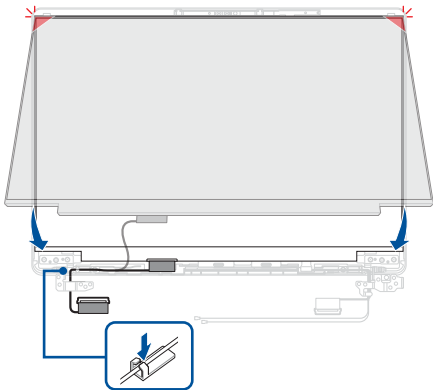
4. Reconnect the cable to the rear side of the display panel.



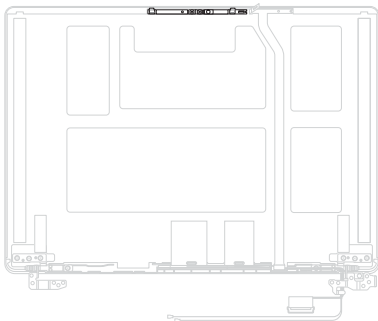
5. Flip the display panel over, then align the display panel with the chassis and gently press down on the display panel until it clicks into place.
6. Route the cable through the cable guide.

IMPORTANT! Damage may occur if cables are not properly routed through the cable guides. Confirm that all cables are routed through each of the indicated cable guides before proceeding.

7. Install the components you removed in the *Before you begin* section.



Camera module



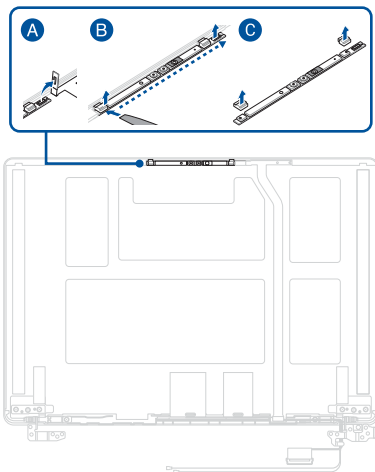
Before you begin

IMPORTANT! This component is fragile. Damage may occur if the service procedure is performed incorrectly. If you are uncertain about proceeding, stop and contact an authorized service center for assistance.

1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following components:
 - Bottom cover
 - Battery
 - Display panel module
 - Display bezel
 - Display panel

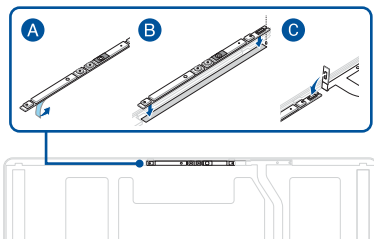
Removal

1. Disconnect the cable.
2. Carefully remove the camera module.
3. Remove the rubber caps from the camera module.

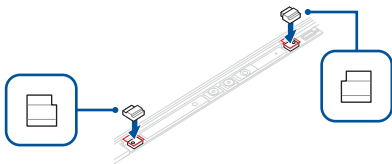


Installation

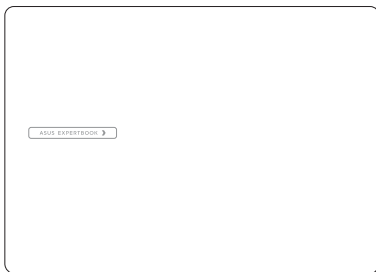
1. Remove the release liner from the camera module.
2. Install the camera module.
3. Reconnect the cable.



4. Attach the rubber caps to the camera module.
5. Install the components you removed in the *Before you begin* section.



Top cover



Before you begin

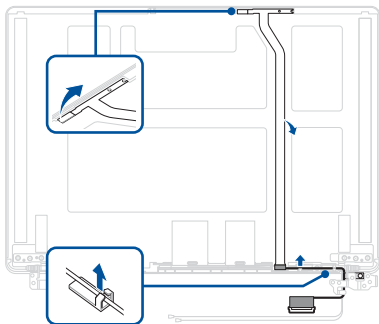
1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following components:
 - Bottom cover
 - Battery
 - Display panel module
 - Display bezel
 - Display panel
 - Camera module

Screw list

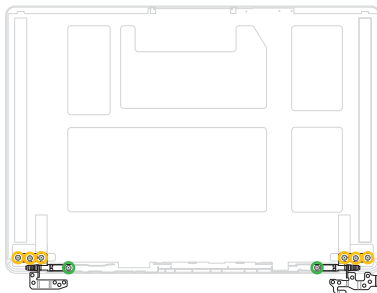
- ⊕ M2.0 X 4.0L (2pcs)
- ⊕ M2.0 X 2.0L (6pcs)

Removal

1. Remove the cable.

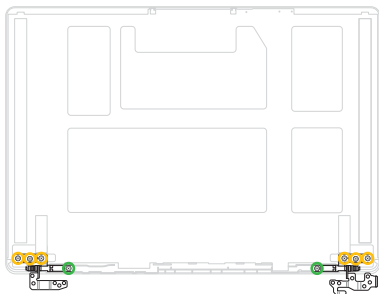


2. Remove the screw(s), then remove the hinges.

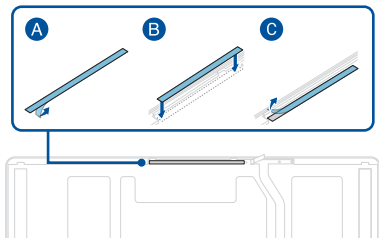


Installation

1. Install the hinges, then secure the hinges using the screw(s) you removed earlier.



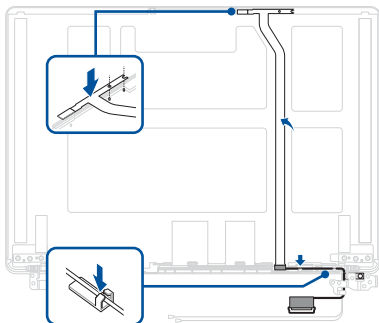
2. Remove the release liner from the bottom side of the tape.
3. Align and attach the tape to the top cover.
4. Remove the release liner from the top side of the tape.



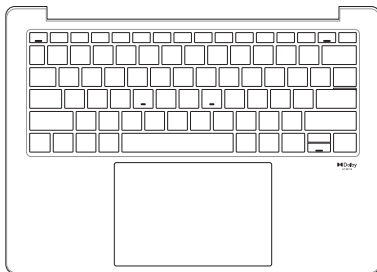
5. Reattach the cable, then route the cable through the cable guide.

IMPORTANT! Damage may occur if cables are not properly routed through the cable guides. Confirm that all cables are routed through each of the indicated cable guides before proceeding.

6. Install the components you removed in the *Before you begin* section.



Keyboard module



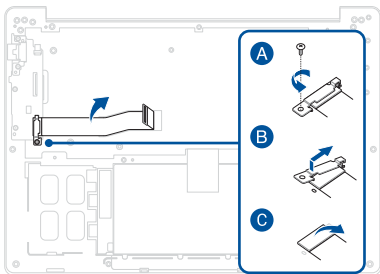
Before you begin

1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following components:
 - Bottom cover
 - Battery
 - M.2 SSD module
 - WLAN module
 - Speakers
 - Touchpad
 - Fan module
 - Heat sink

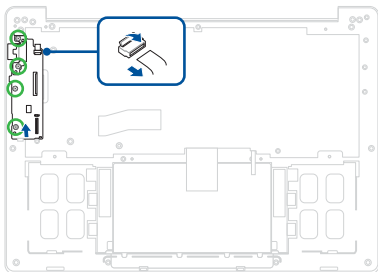
- Motherboard
- Display panel module

Removal

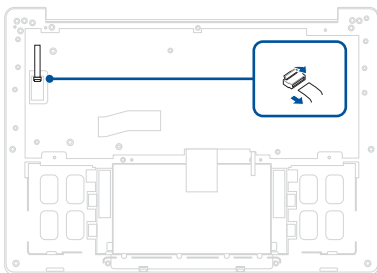
1. Remove the screw, then remove the bracket.
2. Disconnect and remove the cable.



3. Disconnect the cable and remove the screw(s), then remove the I/O board.

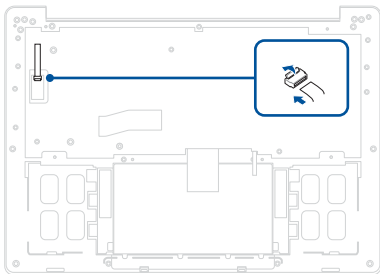


4. Disconnect and remove the cable.

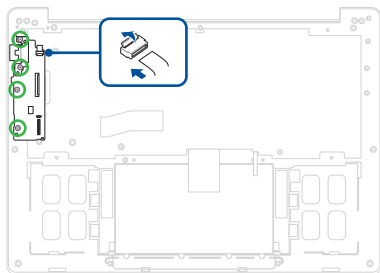


Installation

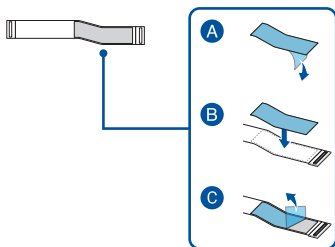
1. Reattach and reconnect the cable.



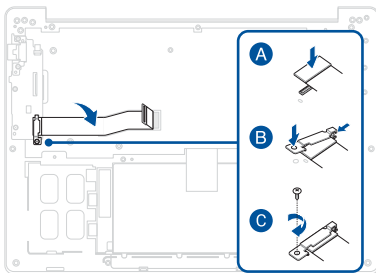
2. Install the I/O board, then secure the I/O board using the screw(s) you removed earlier and reconnect the cable.



3. Remove the release liner from the bottom side of the tape.
4. Align and attach the tape to the cable.
5. Remove the release liner from the top side of the tape.

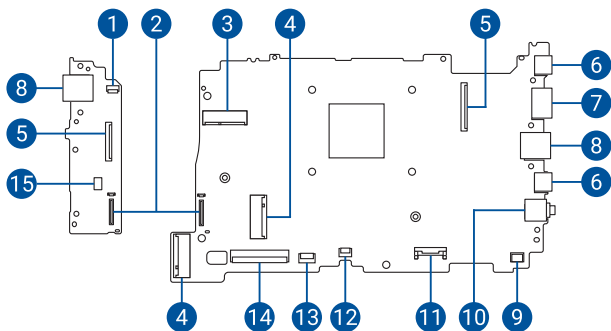


6. Reconnect the cable.
7. Install the bracket, then secure the bracket using the screw you removed earlier.
8. Install the components you removed in the *Before you begin* section.



Appendix

Wiring and connection diagrams



- | | |
|---------------------------------|----------------------------------|
| 1. Fingerprint sensor connector | 9. Speaker connector |
| 2. I/O board connector | 10. Audio connector |
| 3. WLAN module connector | 11. Battery connector |
| 4. M.2 SSD connector | 12. Keyboard backlight connector |
| 5. eDP connector | 13. Touchpad connector |
| 6. USB Type-C® connector | 14. Keyboard connector |
| 7. HDMI connector | 15. Fan connector |
| 8. USB Type-A connector | |