

E23235

First Edition / March 2024

IN SEARCH OF INCREDIBLE



Service Manual

ASUS

COPYRIGHT INFORMATION

No part of this manual, including the products and software described in it, may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language in any form or by any means, except documentation kept by the purchaser for backup purposes, without the express written permission of ASUSTeK COMPUTER INC. ("ASUS").

ASUS PROVIDES THIS MANUAL "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL ASUS, ITS DIRECTORS, OFFICERS, EMPLOYEES OR AGENTS BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES (INCLUDING DAMAGES FOR LOSS OF PROFITS, LOSS OF BUSINESS, LOSS OF USE OR DATA, INTERRUPTION OF BUSINESS AND THE LIKE), EVEN IF ASUS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES ARISING FROM ANY DEFECT OR ERROR IN THIS MANUAL OR PRODUCT.

Products and corporate names appearing in this manual may or may not be registered trademarks or copyrights of their respective companies, and are used only for identification or explanation and to the owners' benefit, without intent to infringe.

SPECIFICATIONS AND INFORMATION CONTAINED IN THIS MANUAL ARE FURNISHED FOR INFORMATIONAL USE ONLY, AND ARE SUBJECT TO CHANGE AT ANY TIME WITHOUT NOTICE, AND SHOULD NOT BE CONSTRUED AS A COMMITMENT BY ASUS. ASUS ASSUMES NO RESPONSIBILITY OR LIABILITY FOR ANY ERRORS OR INACCURACIES THAT MAY APPEAR IN THIS MANUAL, INCLUDING THE PRODUCTS AND SOFTWARE DESCRIBED IN IT.

Copyright © 2024 ASUSTeK COMPUTER INC. All Rights Reserved.

LIMITATION OF LIABILITY

Circumstances may arise where because of a default on ASUS' part or other liability, you are entitled to recover damages from ASUS. In each such instance, regardless of the basis on which you are entitled to claim damages from ASUS, ASUS is liable for no more than damages for bodily injury (including death) and damage to real property and tangible personal property; or any other actual and direct damages resulted from omission or failure of performing legal duties under this Warranty Statement, up to the listed contract price of each product.

ASUS will only be responsible for or indemnify you for loss, damages or claims based in contract, tort or infringement under this Warranty Statement.

This limit also applies to ASUS' suppliers and its reseller. It is the maximum for which ASUS, its suppliers, and your reseller are collectively responsible.

UNDER NO CIRCUMSTANCES IS ASUS LIABLE FOR ANY OF THE FOLLOWING: (1) THIRD-PARTY CLAIMS AGAINST YOU FOR DAMAGES; (2) LOSS OF, OR DAMAGE TO, YOUR RECORDS OR DATA; OR (3) SPECIAL, INCIDENTAL, OR INDIRECT DAMAGES OR FOR ANY ECONOMIC CONSEQUENTIAL DAMAGES (INCLUDING LOST PROFITS OR SAVINGS), EVEN IF ASUS, ITS SUPPLIERS OR YOUR RESELLER IS INFORMED OF THEIR POSSIBILITY.

SERVICE AND SUPPORT

Visit our multi-language website at <https://www.asus.com/support/>.

Table of Contents

Chapter 1: Introduction

Disclaimer	8
Safety precautions.....	8
Pre-repair checklist	10
Installation tools.....	11
Accessories.....	11
Diagnostic tools	11
Major components.....	12
Non-touch model.....	12
Touch model.....	14

Chapter 2: Service Procedures

Bottom cover	18
Removal	19
Installation	21
Battery	22
Removal	23
Installation	27
M.2 SSD module.....	31
Removal	32
Installation	35
Speakers.....	38
Removal	39
Installation	41

Touchpad.....	43
Removal	44
Installation	47
Heat sink	50
Removal	51
Installation	53
Fan module	55
Removal	56
Installation	57
Motherboard	58
Removal	59
Installation	63
I/O board.....	67
Removal	68
Installation	71
Display panel module	74
Removal	75
Installation	77
Display bezel (Non-touch model).....	79
Removal	80
Installation	82
Display hinges (Non-touch model)	84
Removal	85
Installation	86
Display panel (Non-touch model)	87
Removal	89
Installation	91

Camera module (Non-touch model)	94
Removal	95
Installation	96
Top cover (Non-touch model)	97
Removal	98
Installation	100
Keyboard module	102
Removal	103
Installation	104

Appendices

Wiring and connection diagrams	106
--------------------------------------	-----

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

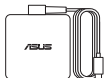


Plastic blade



Tweezers

Accessories



Power adapter

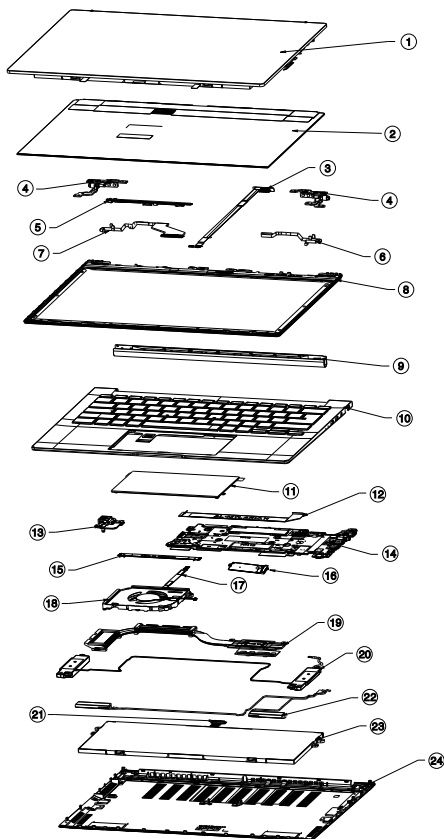
Diagnostic tools

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/.

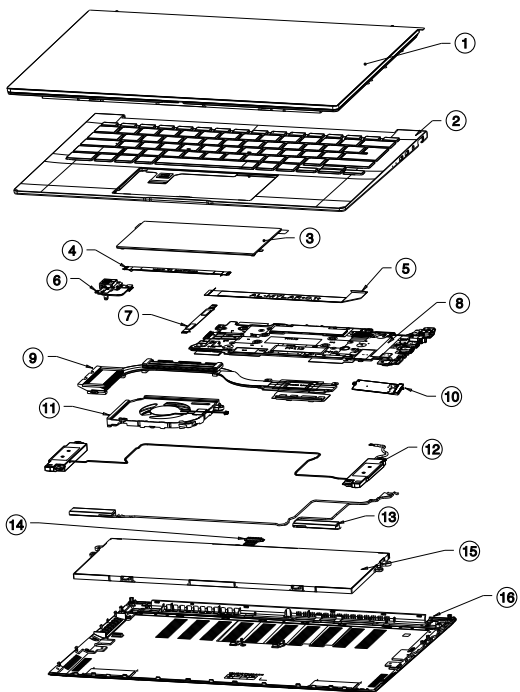
Major components

Non-touch model



1. Top cover
2. Display panel
3. Camera FPC cable
4. Display hinges
5. Camera module
6. Camera cable
7. eDP cable
8. Display bezel
9. Hinge cap
10. Keyboard module
11. Touchpad
12. Motherboard FFC cable
13. I/O board
14. Motherboard
15. I/O board FFC cable
16. M.2 SSD module
17. Touchpad FFC cable
18. Fan
19. Heat sink
20. Speakers
21. Battery power cable
22. Antenna cables
23. Battery
24. Bottom cover

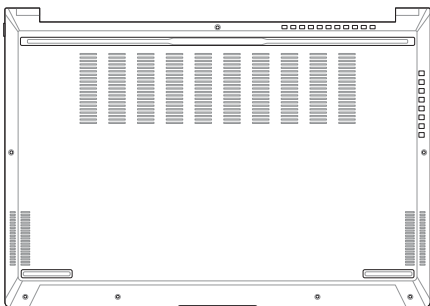
Touch model



1. Display panel module
2. Keyboard module
3. Touchpad
4. I/O board FFC cable
5. Motherboard FFC cable
6. I/O board
7. Touchpad FFC cable
8. Motherboard
9. Heat sink
10. M.2 SSD module
11. Fan
12. Speakers
13. Antenna cables
14. Battery power cable
15. Battery
16. Bottom cover

Chapter 2: ***Service Procedures***

Bottom cover



Before you begin

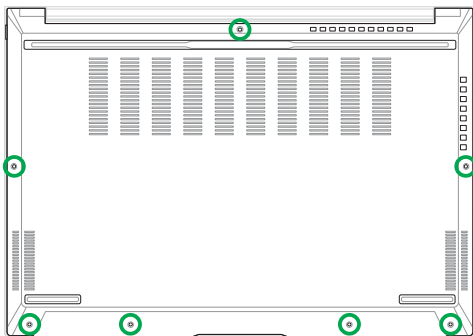
Read the **Safety Precautions** and complete the **Pre-repair Checklist**.

Screw list

- ☺ M2.0 X 3.0L (7pcs)

Removal

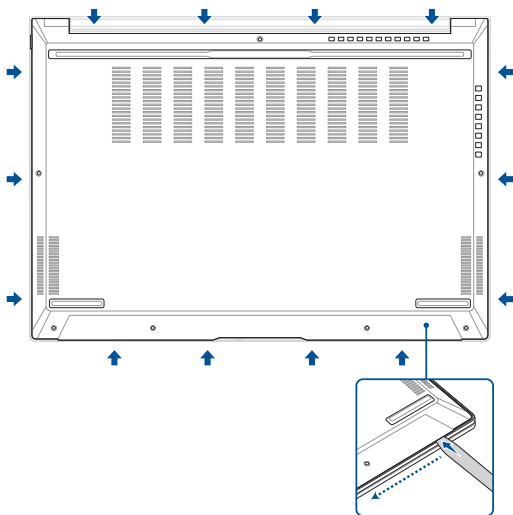
1. Remove the screw(s) from the bottom cover.



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

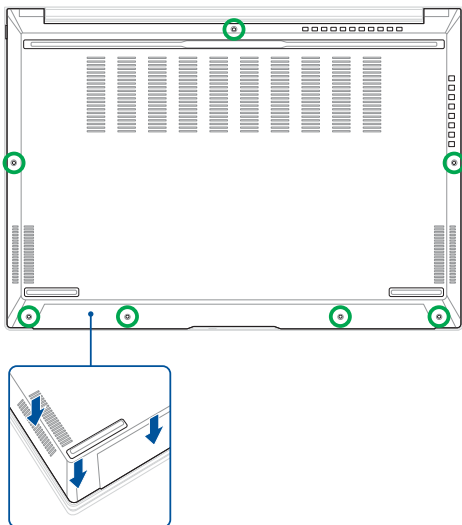
IMPORTANT! Avoid sliding the plastic blade along the side of your device or air vents to prevent damage.

3. Remove the bottom cover.

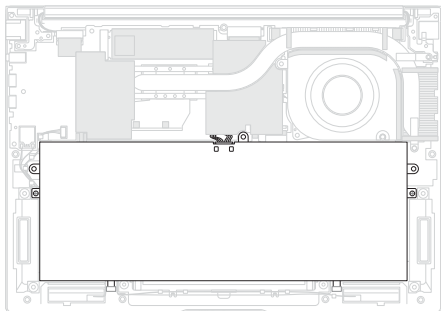


Installation

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

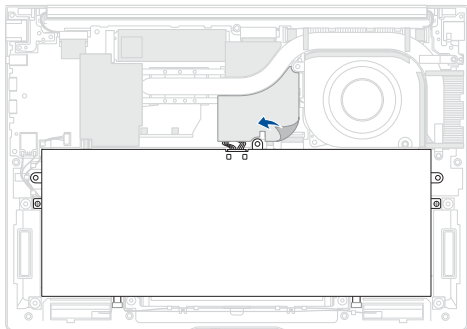
1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following components:
 - Bottom cover

Screw list

- ⊕ M2.0 X 4.5L (3pcs)

Removal

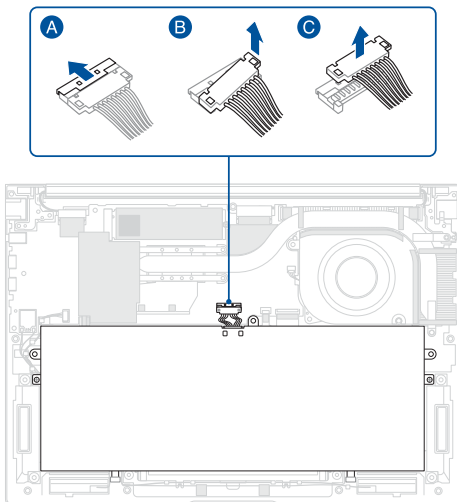
1. Remove the polyester film.



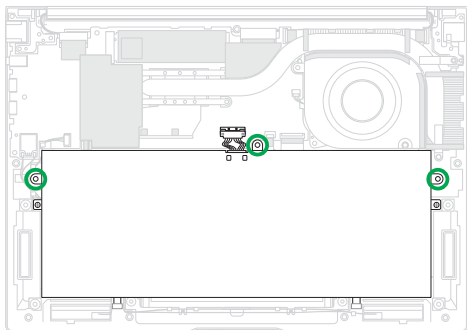
2. Disconnect the battery power cable.

IMPORTANT!

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

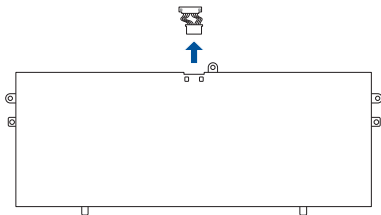


3. Remove the screw(s) from the battery.
4. Remove the battery.



5. Remove the battery power cable.

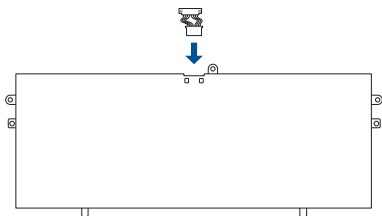
NOTE: This step is only required when you are replacing the existing component with a new one.



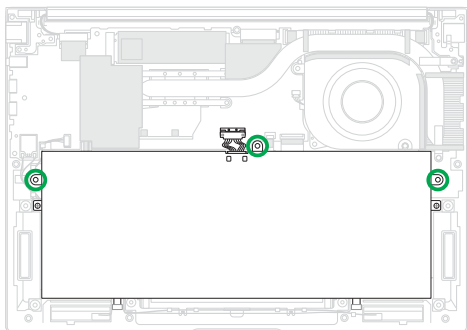
Installation

1. Connect the battery power cable to the battery.

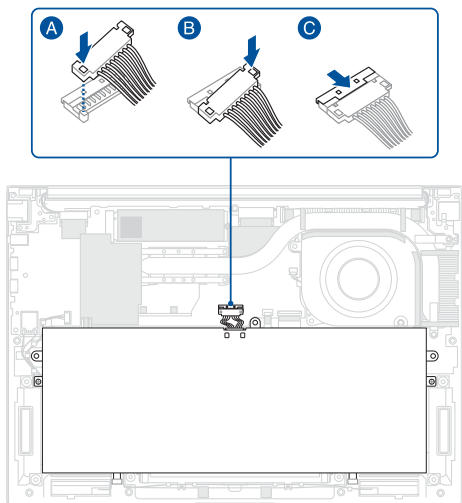
NOTE: This step is only required when you are replacing the existing component with a new one.



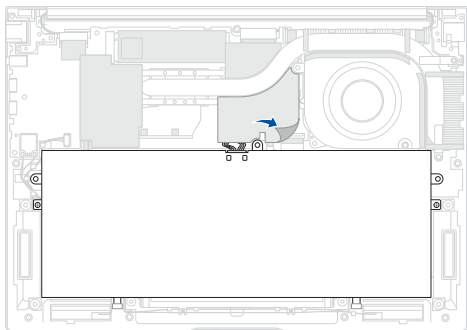
2. Install the battery.
3. Secure the battery using the screw(s) you removed earlier.



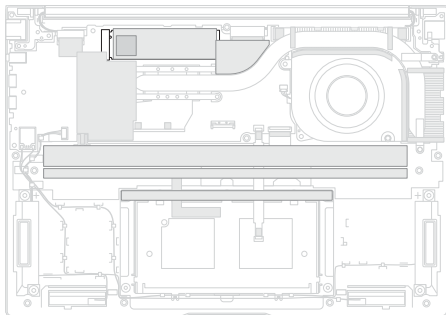
4. Reconnect the battery power cable.



5. Reattach the polyester film.
6. Install the components you removed in the *Before you begin* section.



M.2 SSD module



Before you begin

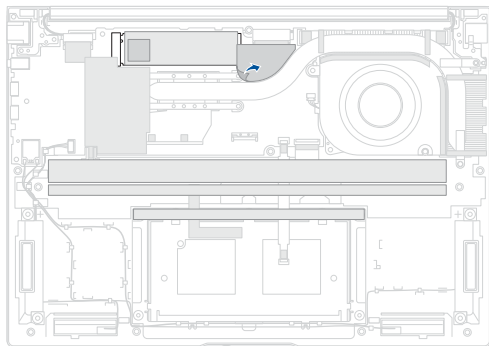
1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following components:
 - Bottom cover
 - Battery

Screw list

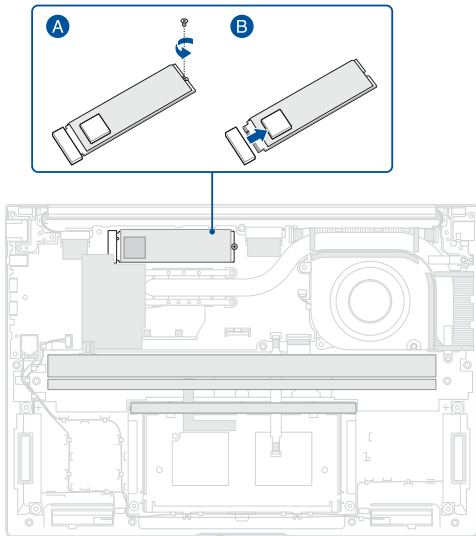
- ⊕ M2.0 X 2.5L (1pc)

Removal

1. Remove the sponge.

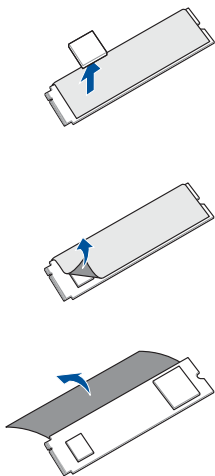


2. Remove the screw, then remove the M.2 SSD module from the motherboard.



3. Remove the thermal pad and polyester film from the M.2 SSD module.

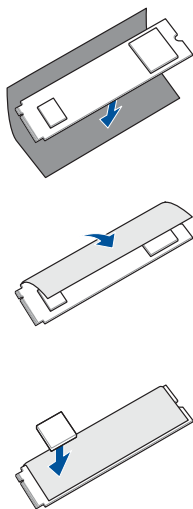
NOTE: This step is only required when you are replacing the existing component with a new one.



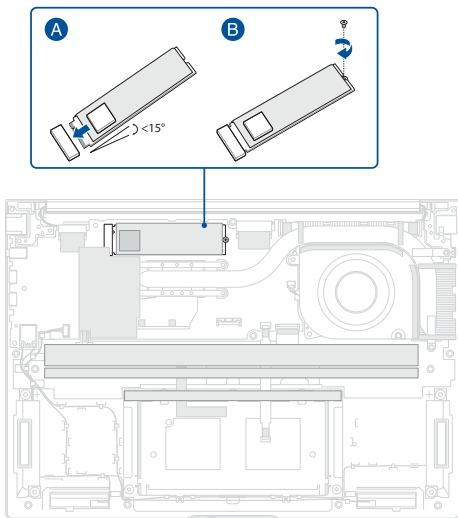
Installation

1. Fold the polyester film around the M.2 SSD module as shown in the illustration below, then reattach the thermal pad.

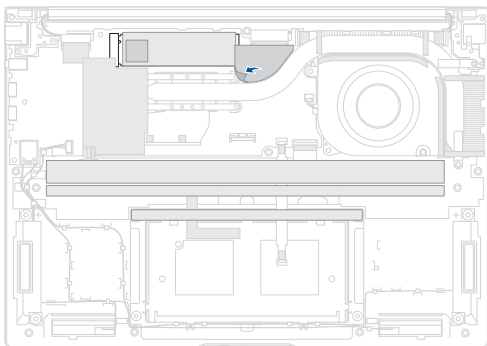
NOTE: This step is only required when you are replacing the existing component with a new one.



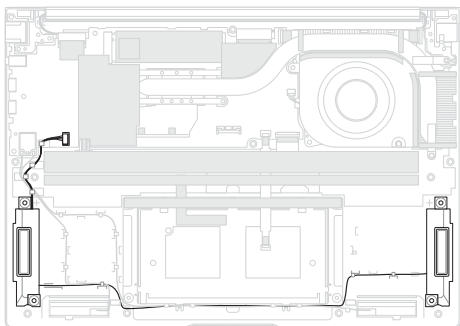
2. Align and insert the M.2 SSD module into the M.2 connector on the motherboard, then secure the M.2 SSD module using the screw you removed earlier.



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



Speakers

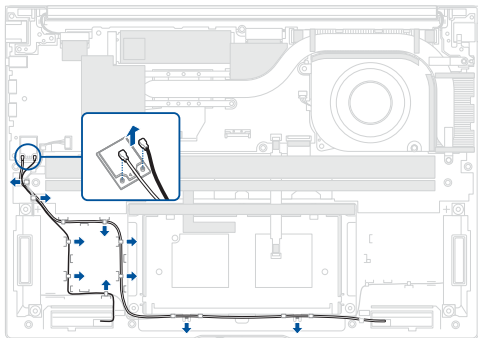


Before you begin

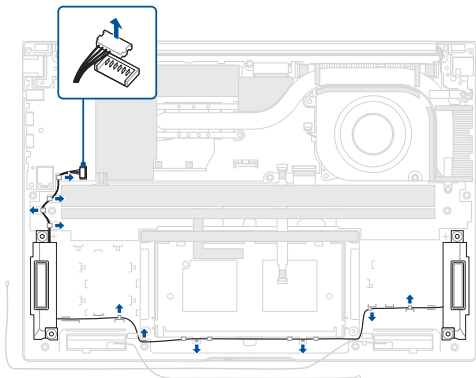
1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following components:
 - Bottom cover
 - Battery

Removal

1. Disconnect the antenna cable(s), then remove the cable(s) from the cable guide(s).



2. Disconnect the speaker connector.
3. Remove the speaker cable from the cable guide(s), then remove the speakers.

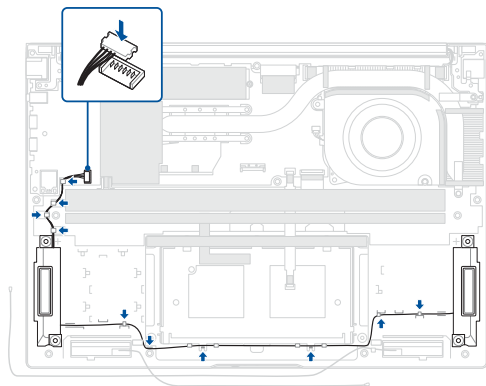


Installation

1. Install the speakers, then route the speaker 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.

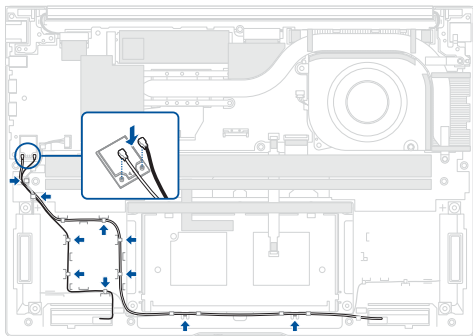
2. Reconnect the speaker connector.



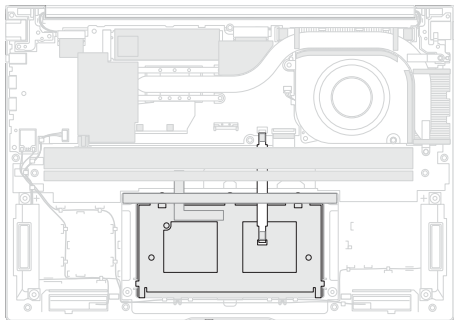
3. Route the antenna cable(s) through the cable guide(s), then reconnect the antenna cable(s).

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



Touchpad



Before you begin

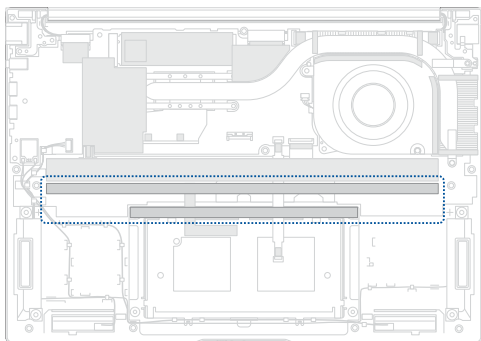
1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following components:
 - Bottom cover
 - Battery

Screw list

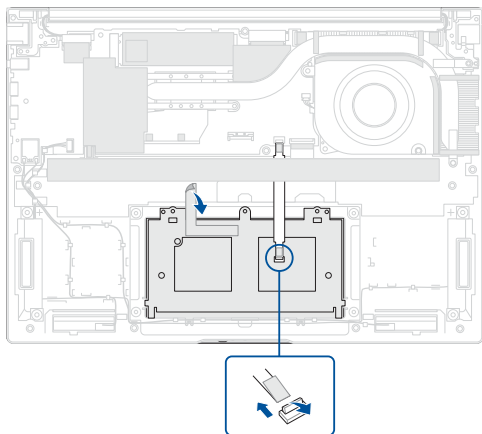
- ⊕ M1.6 X 2.0L (3pcs)

Removal

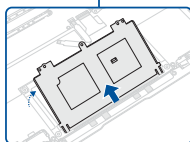
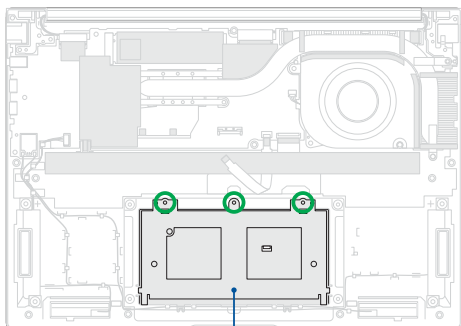
1. Remove the sponges in the dotted area.



2. Disconnect the cable from the touchpad and remove the tape.

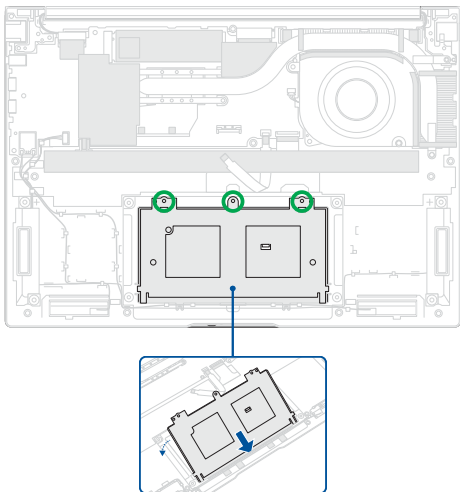


3. Remove the screw(s), then remove the touchpad.

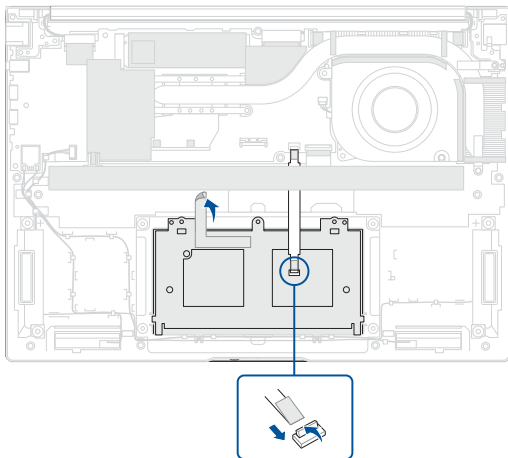


Installation

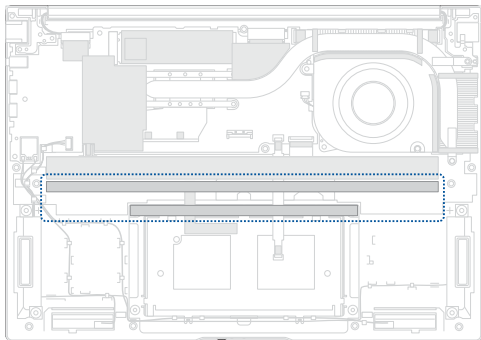
1. Install the touchpad, then secure the touchpad using the screw(s) you removed earlier.



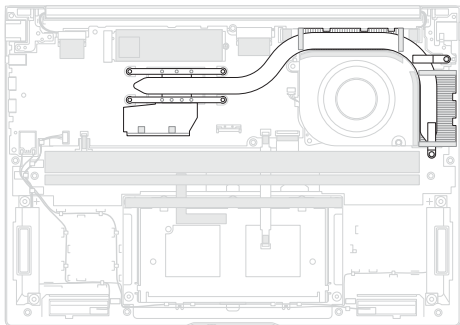
2. Reconnect the cable to the touchpad and reattach the tape.



3. Reattach the sponges in the dotted area.
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.

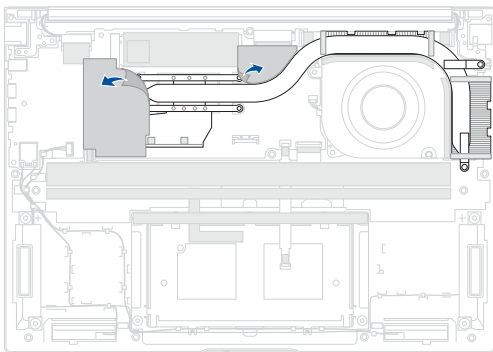
1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following components:
 - Bottom cover
 - Battery

Screw list

- ⊕ M2.5 X 4.5L (1pc)
- ⊕ M2.0 X 2.5L (5pcs)

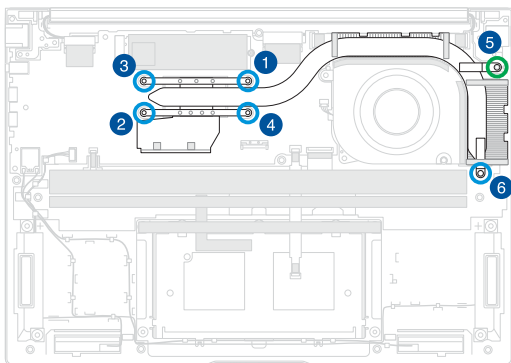
Removal

1. Remove the sponge and polyester film.



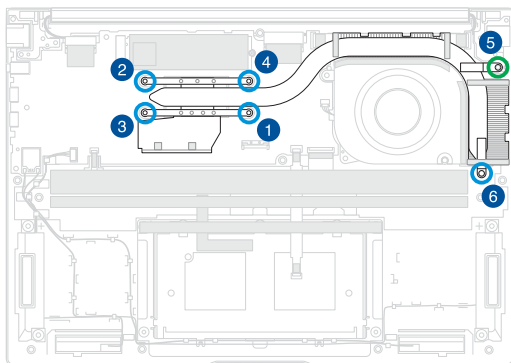
2. Remove the heat sink screw(s) one by one in the sequence shown in the illustration below.
3. Remove the heat sink.

IMPORTANT! Vertically lift the heat sink using the left side of the heat sink to prevent damage.

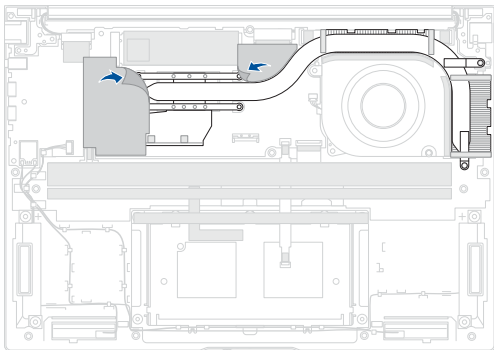


Installation

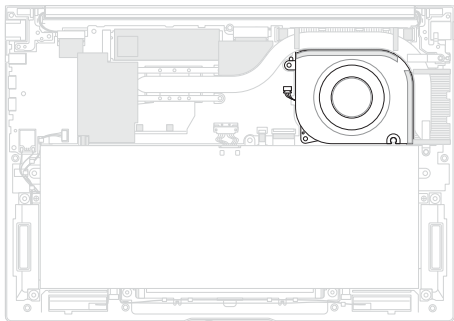
1. Install the heat sink.
2. Secure the heat sink screw(s) one by one in the sequence shown in the illustration below.



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



Fan module



Before you begin

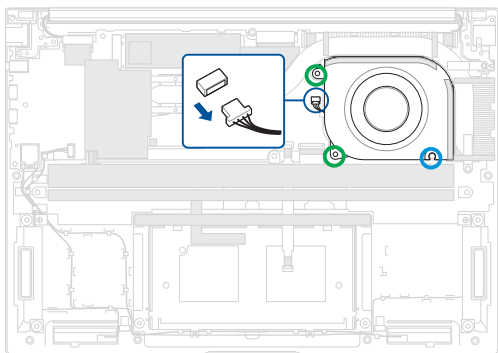
1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following components:
 - Bottom cover
 - Battery

Screw list

- ⊕ M2.0 X 4.5L (2pcs)
- ⊕ M2.0 X 2.5L (1pc)

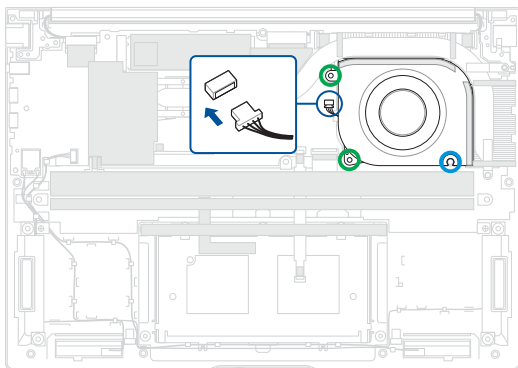
Removal

1. Disconnect the fan connector.
2. Remove the screw(s).
3. Remove the fan.

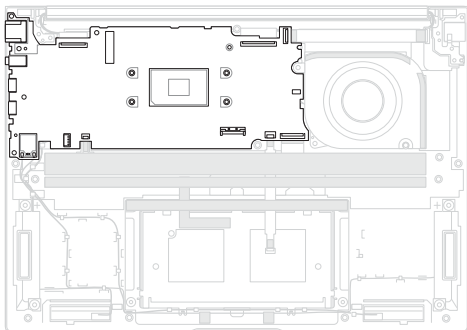


Installation

1. Install the fan.
2. Secure the fan using the screw(s) you removed earlier.
3. Reconnect the fan connector.
4. Install the components you removed in the *Before you begin* section.



Motherboard



Before you begin

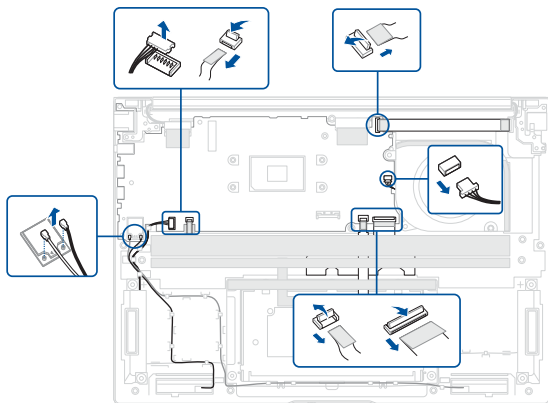
1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following components:
 - Bottom cover
 - Battery
 - M.2 SSD module
 - Heat sink

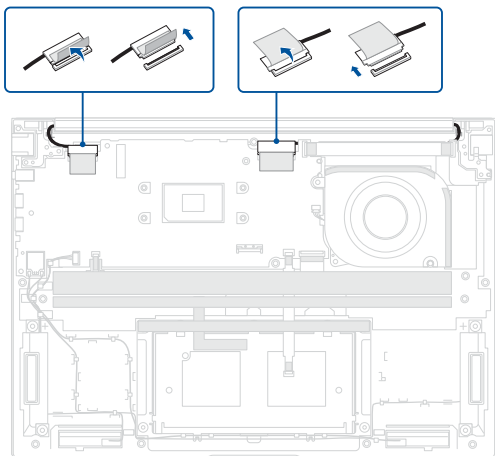
Screw list

- ⊕ M2.5 X 4.5L (2pcs)
- ⊕ M2.0 X 4.5L (1pc)
- ⊕ M2.0 X 3.5L (3pcs)
- ⊕ M1.6 X 3.0L (1pc)

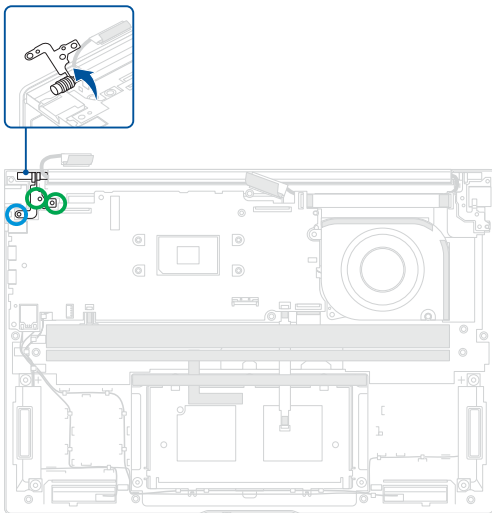
Removal

1. Remove and disconnect the cable(s) from the motherboard.

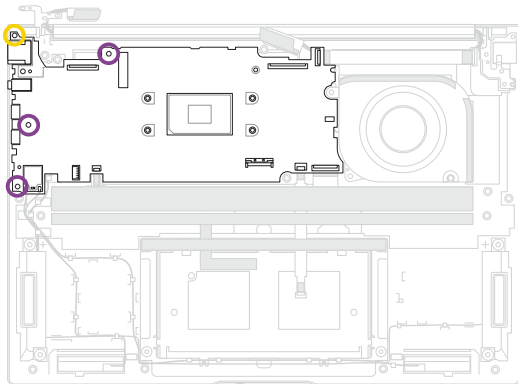




2. Remove the screw(s) from the hinge on the left side, then lift the hinge to a 90-degree position.

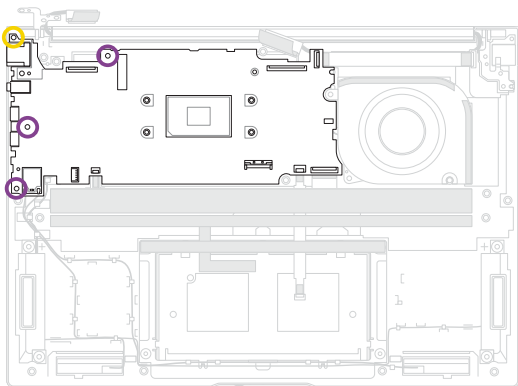


3. Remove the screw(s) from the motherboard, then remove the motherboard.

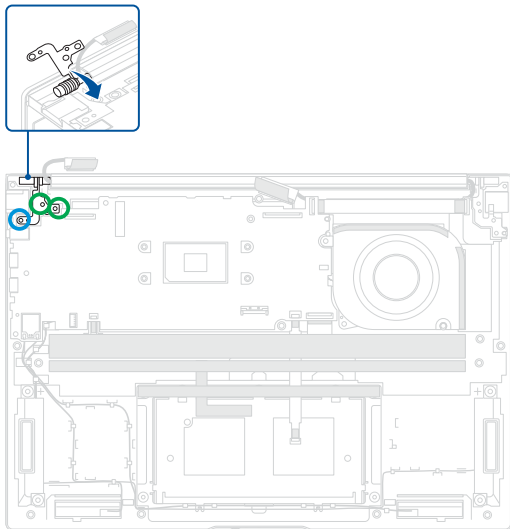


Installation

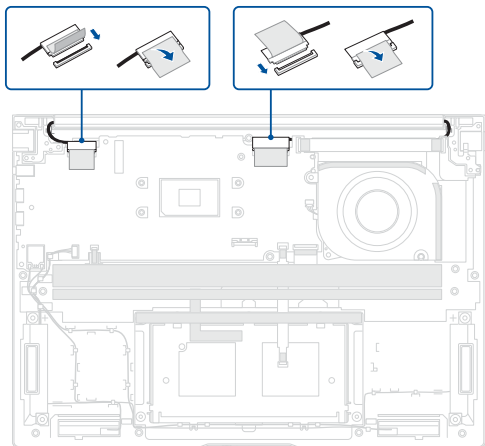
1. Align and install the motherboard, then secure the motherboard using the screw(s) you removed earlier.

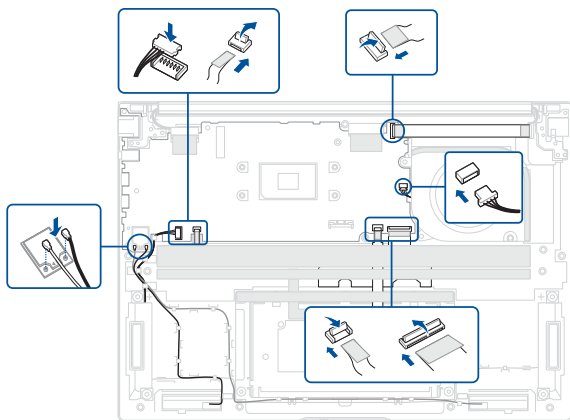


2. Place the hinge of the display panel module on the screw holes, then secure the hinge using the screw(s) you removed earlier.

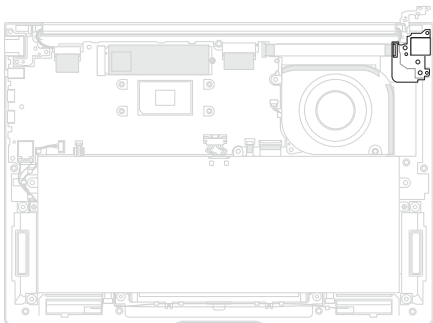


3. Reconnect the cable(s) to the motherboard.
4. Install the components you removed in the *Before you begin* section.





I/O board



Before you begin

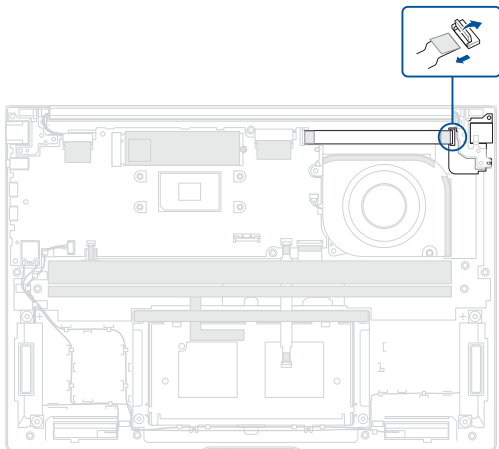
1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following components:
 - Bottom cover
 - Battery
 - Heat sink

Screw list

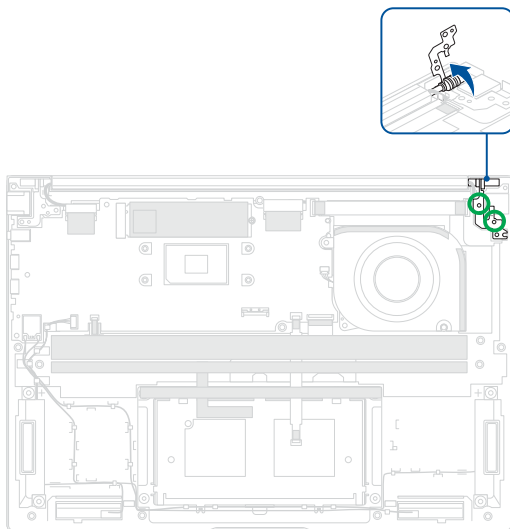
- ⊕ M2.5 X 4.5L (2pcs)
- ⊕ M1.6 X 3.0L (1pc)

Removal

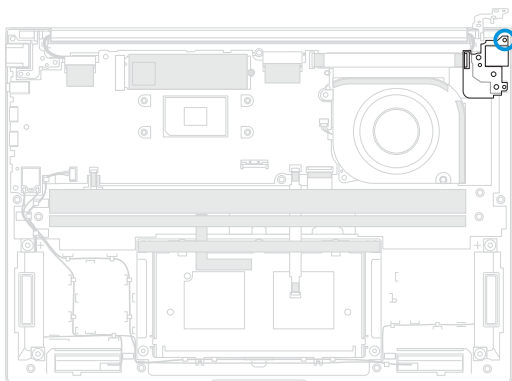
1. Disconnect the cable from the I/O board.



2. Remove the screw(s) from the hinge on the right side, then lift the hinge to a 90-degree position.

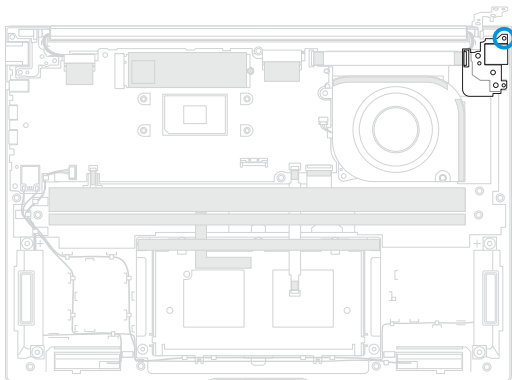


3. Remove the screw from the I/O board, then remove the I/O board.

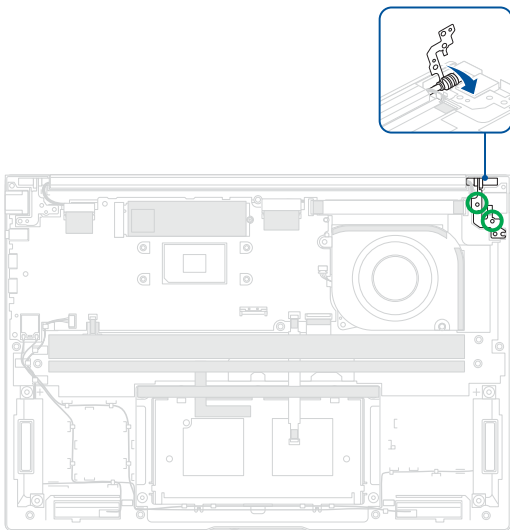


Installation

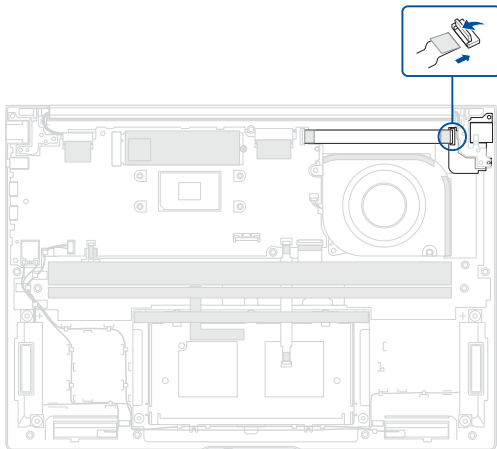
1. Install the I/O board, then secure the I/O board using the screw you removed earlier.



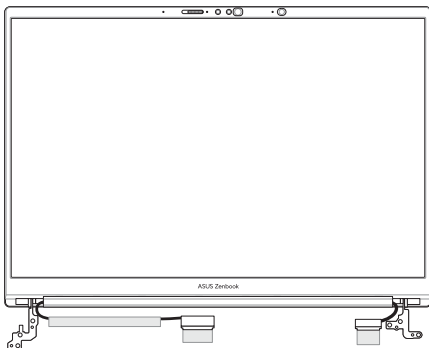
2. Place the hinge of the display panel module on the screw holes, then secure the hinge using the screw(s) you removed earlier.



3. Reconnect the cable to the I/O board.
4. 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.

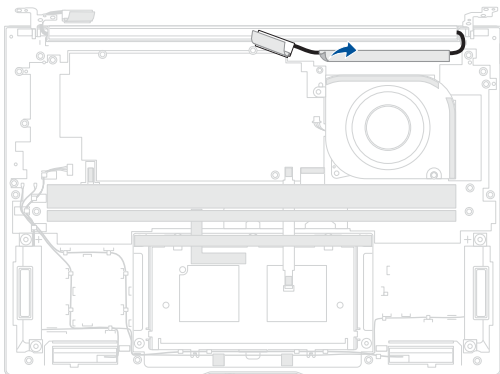
1. Read the **Safety Precautions** and **Pre-repair Checklist**.

2. Remove the following components:

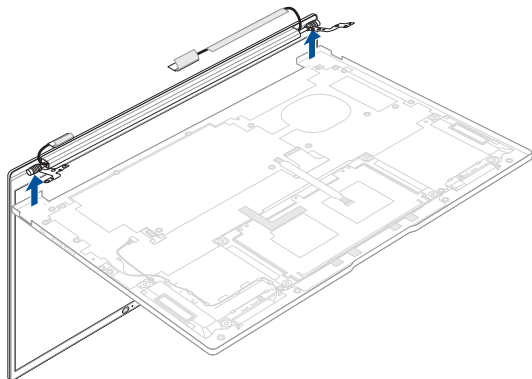
- Bottom cover
- Battery
- Heat sink
- Motherboard
- I/O board

Removal

1. Remove the tape, then remove the cable from the cable guide.

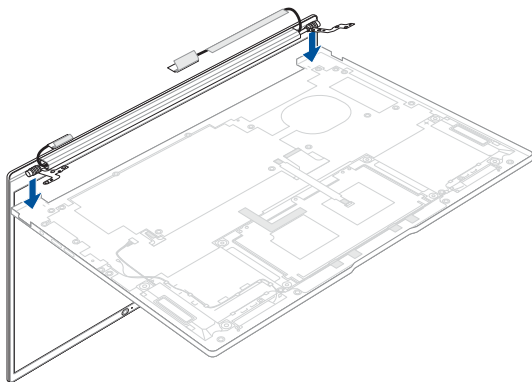


2. In the orientation shown, remove the display panel module.



Installation

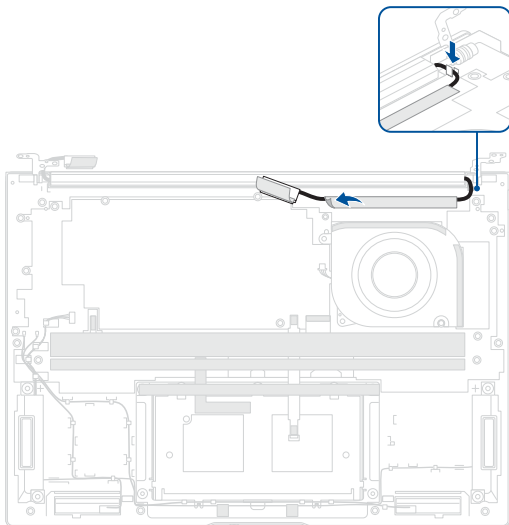
1. In the orientation shown, align and install the display panel module.



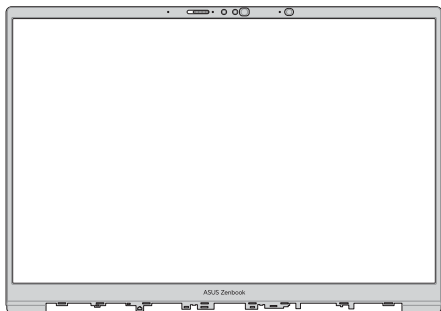
2. Install the cable and route the cable through the cable guide, then reattach the tape.

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.

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



Display bezel (Non-touch model)



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.

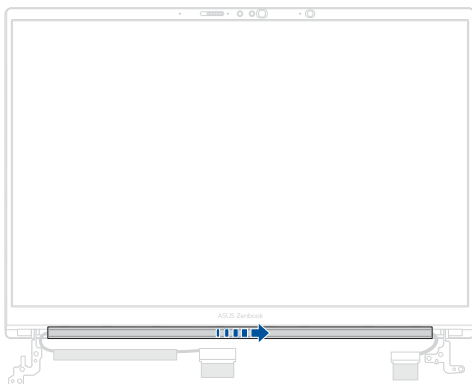
1. Read the **Safety Precautions** and **Pre-repair Checklist**.

2. Remove the following components:

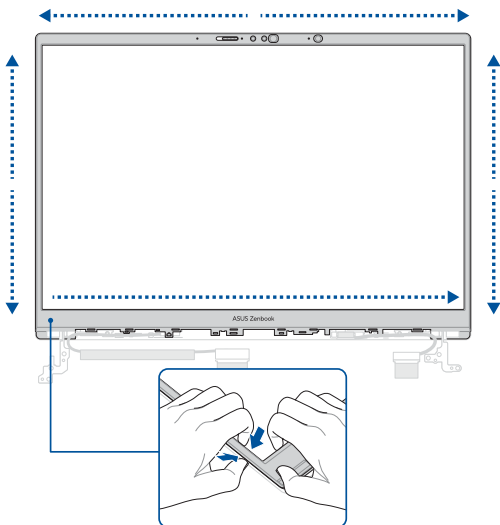
- Bottom cover
- Battery
- Heat sink
- Motherboard
- I/O board
- Display panel module

Removal

1. Remove the hinge cap as shown in the illustration below.



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

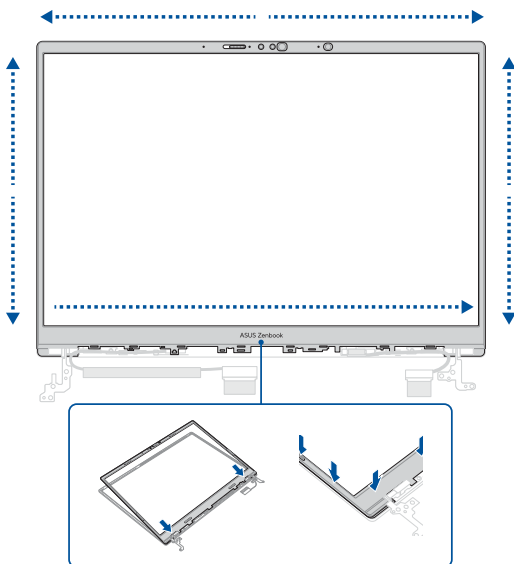


Installation

1. Remove the release liner(s) from the tape on the bezel.

NOTE: The tape cannot be reused. Remove any adhesive residue and use new tape when reinstalling components.

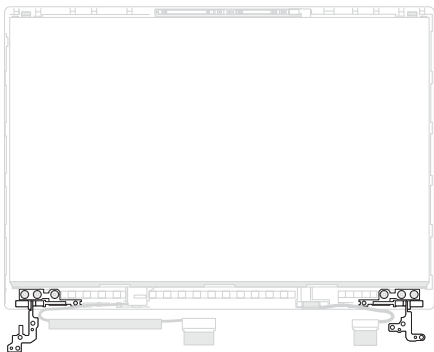
2. Align and install the bezel.



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



Display hinges (Non-touch model)



Before you begin

1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following components:
 - Bottom cover
 - Battery
 - Heat sink
 - Motherboard
 - I/O board
 - Display panel module
 - Display bezel (Non-touch model)

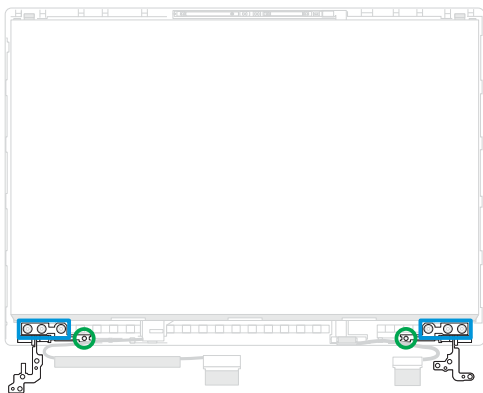
Screw list

● ⊕ M2.0 X 3.0L (2pcs)

● ⊕ M2.0 X 2.0L (6pcs)

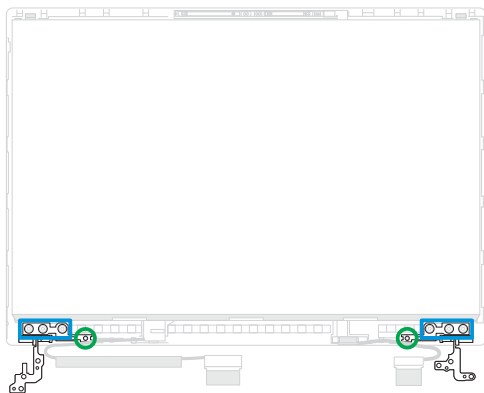
Removal

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



Display panel (Non-touch model)



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.
 - 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**.

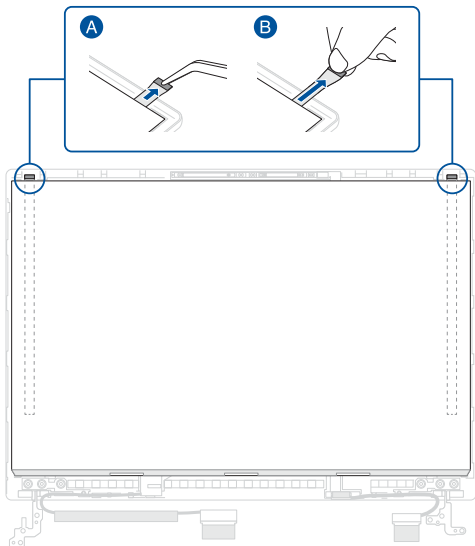
2. Remove the following components:
 - Bottom cover
 - Battery
 - Heat sink
 - Motherboard
 - I/O board
 - Display panel module
 - Display bezel (Non-touch model)

Removal

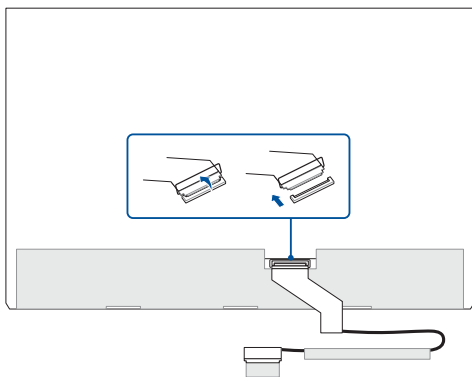
1. Locate the tip of the stretch release tape, then carefully pull out the stretch release tape as shown in the illustration below.

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 display panel from the top cover.

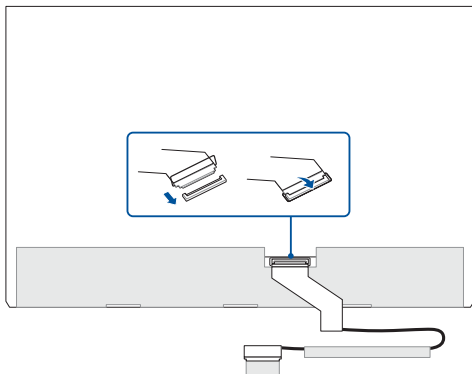


3. Disconnect the cable from the rear side of the display panel.

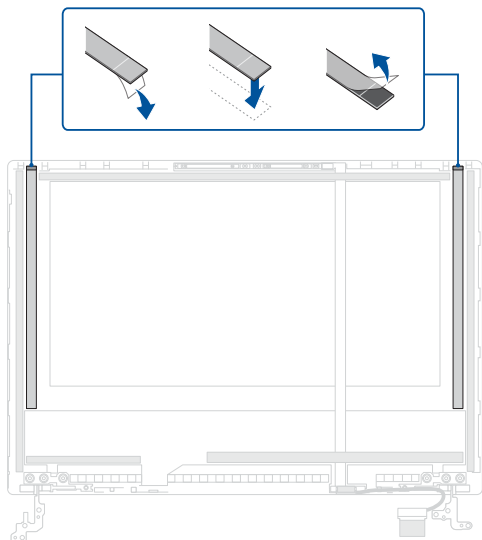


Installation

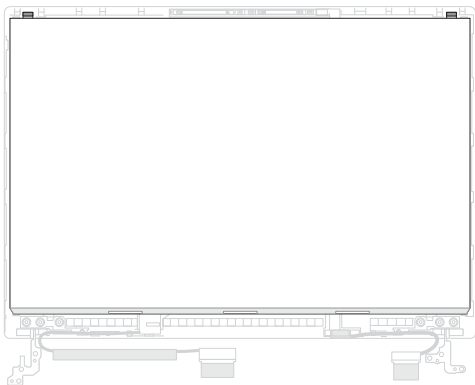
1. Reconnect the cable to the rear side of the display panel.



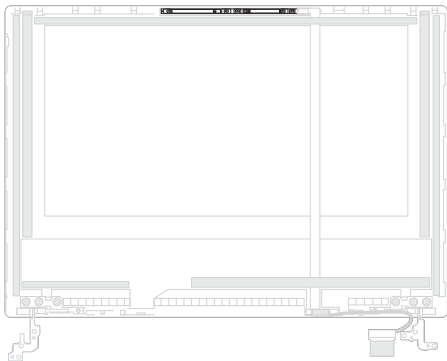
2. Place the top cover in the orientation shown in the illustration below.
3. Remove the release liner(s) from the bottom side of the stretch release tape.
4. Align and attach the stretch release tape to the top cover.
5. Remove the release liner(s) from the top side of the stretch release tape.



6. Align and install the display panel.
7. Install the components you removed in the *Before you begin* section.



Camera module (Non-touch model)



Before you begin

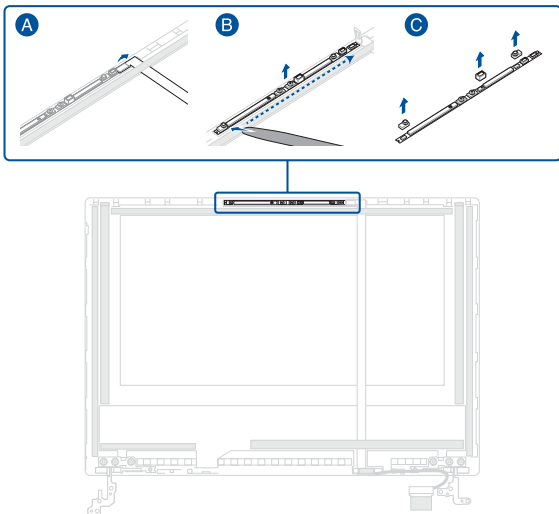
IMPORTANT! This component is fragile. Damage may occur if the service procedure is performed incorrectly. If you are uncertain about proceeding, stop and contact an authorized service center for assistance.

1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following components:
 - Bottom cover
 - Battery
 - Heat sink
 - Motherboard
 - I/O board

- Display panel module
- Display bezel (Non-touch model)
- Display panel (Non-touch model)

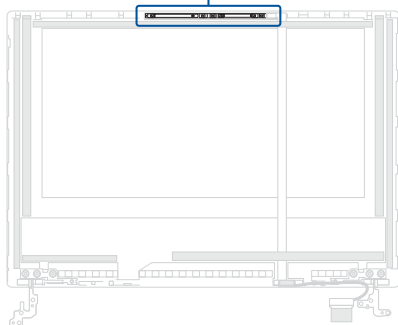
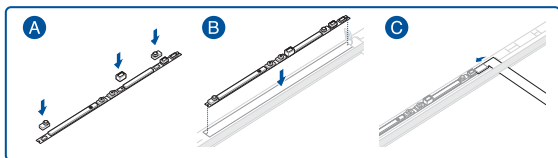
Removal

Disconnect the cable from the camera module and carefully remove the camera module, then remove the rubber caps from the camera module.

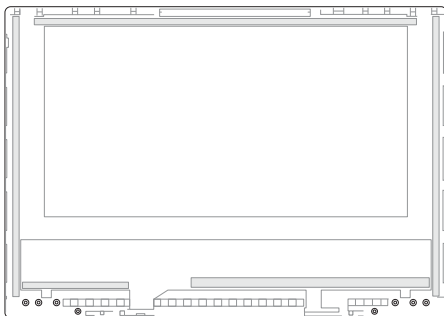


Installation

1. Attach the rubber caps to the camera module, then install the camera module and reconnect the cable to the camera module.
2. Install the components you removed in the *Before you begin* section.



Top cover (Non-touch model)



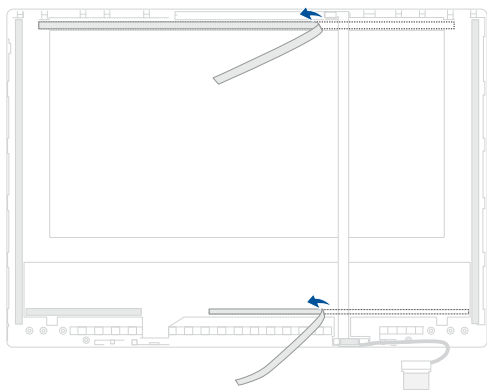
Before you begin

1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following components:
 - Bottom cover
 - Battery
 - Heat sink
 - Motherboard
 - I/O board
 - Display panel module

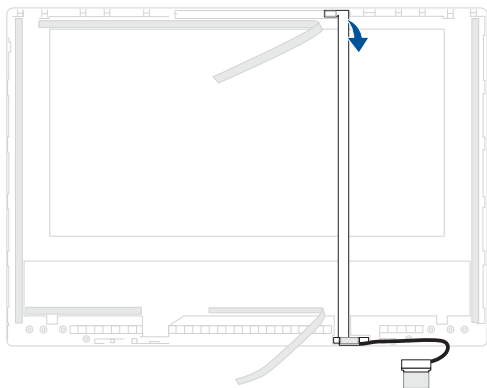
- Display bezel (Non-touch model)
- Display hinges (Non-touch model)
- Display panel (Non-touch model)
- Camera module (Non-touch model)

Removal

1. Peel off the sponges as shown in the illustration below.

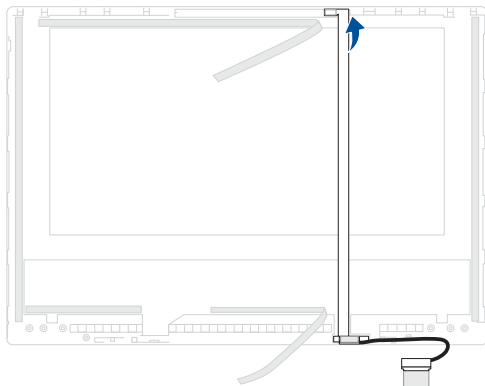


2. Remove the cable.

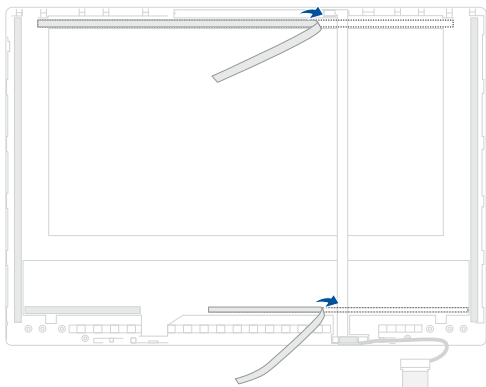


Installation

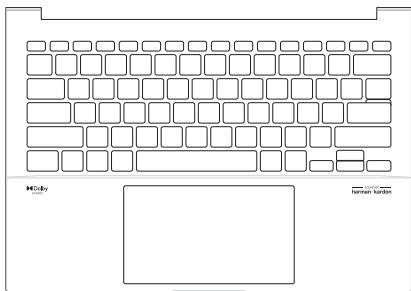
1. Install the cable as shown in the illustration below.



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



Keyboard module



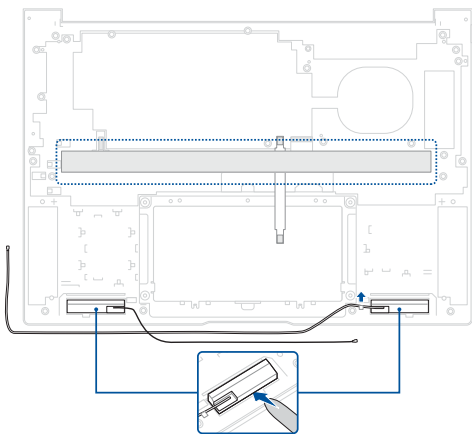
Before you begin

1. Read the **Safety Precautions** and **Pre-repair Checklist**.
2. Remove the following components:
 - Bottom cover
 - Battery
 - Speakers
 - Touchpad
 - Heat sink
 - Fan module
 - Motherboard
 - I/O board
 - Display panel module

Removal

1. Remove the sponge in the dotted area and remove the cable.
2. Remove the antenna cable(s).

IMPORTANT! The antenna cable(s) cannot be reused once removed.

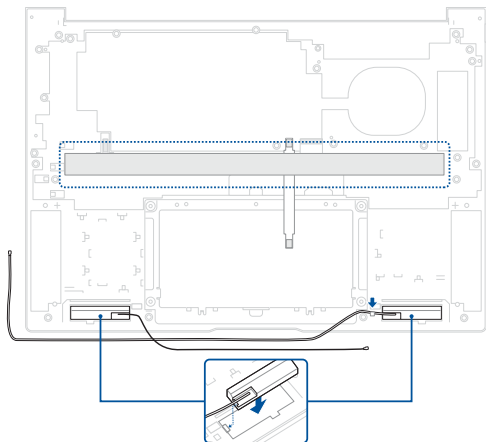


Installation

1. Install the antenna cable(s) and route the cable(s) 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.

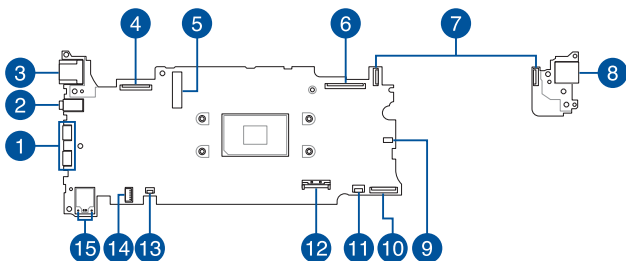
2. Install the cable and reattach the sponge in the dotted area as shown in the illustration below.
3. Install the components you removed in the *Before you begin* section.



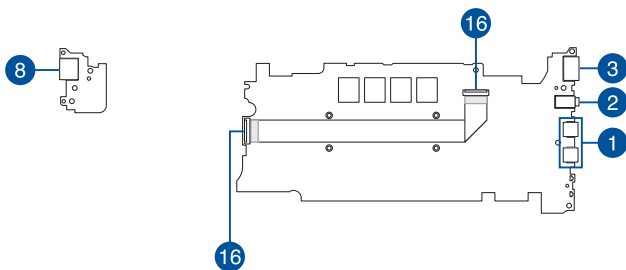
Appendices

Wiring and connection diagrams

Top View



Bottom View



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

