

E20391

First Edition / August 2022

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 © 2022 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

Disclaimer	4
Safety precautions.....	4
Major components.....	6
Installation tools.....	7
Removing the bottom cover	8
Disconnecting the battery	11
Replacing the battery.....	13
Replacing the M.2 SSD module	16
Replacing the RAM module	19
Replacing the motherboard	24
Replacing the LCD module	39
Screw map.....	44
Wiring and connection diagrams	45

Disclaimer

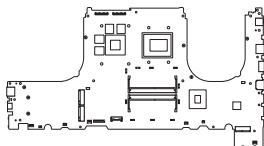
ASUS is not responsible for direct, indirect, intentional or unintentional damages resulting from improper installation and operation.

Safety precautions

- Keep liquids or moisture away from your Notebook PC before installing or removing any components.
- Ensure to place your Notebook PC on a stable surface before installing or removing any components.
- Detach the clip or flap before removing the signal cables to prevent damage.
- Disconnect the power plug by pulling the plug evenly to avoid damage. Ensure to connect the signal cables in the correct orientation.
- Disconnect all power cables and remove the battery pack (if applicable) before cleaning your Notebook PC with liquid detergent to avoid risk of electric shock.
- Disconnect all power cables and remove the battery pack (if applicable) before installing or removing any components. Ensure to read and follow the instructions in the manual.

- 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 Notebook PC to avoid short circuits.
- Hold components by the edges to avoid touching the ICs.
- Ensure to properly install all the 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.
- Ensure to install the correct screw models on your Notebook PC to prevent damage.

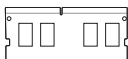
Major components



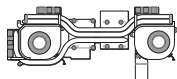
Motherboard with ports and connectors



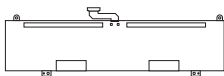
M.2 SSD module



RAM module



Thermal module



Battery and power connector



LCD panel module

NOTE:

- The illustrations are for reference only.
 - The maintenance procedures described in this manual depend on the model configuration and may not reflect the entire servicing process. For servicing those components that are not covered in this manual, please visit an authorized service center for further assistance.
-

Installation tools



Screwdriver



Plastic blade

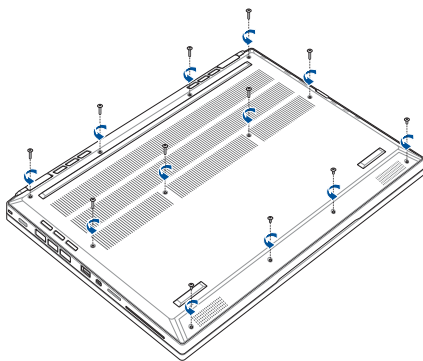


Tweezers

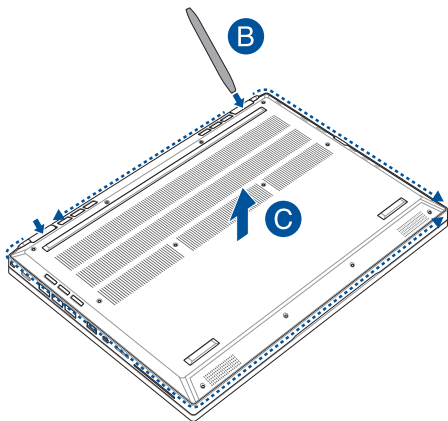
Removing the bottom cover

NOTE: The appearance of your Notebook PC's bottom view may vary per model.

- A. Remove the screw(s) from the Notebook PC's bottom cover.



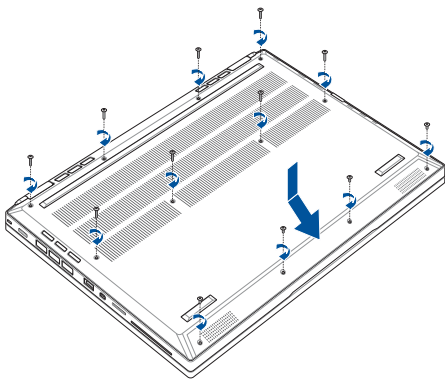
- B. Use the plastic blade to pry open the indicated area of the bottom cover as shown in the illustration below.
- C. Remove the bottom cover.



IMPORTANT! Avoid sliding the plastic blade along the side of your Notebook PC to prevent damage.

To reattach the bottom cover:

- A. Align and reattach the bottom cover.
- B. Secure the bottom cover using the screw(s) you removed earlier.

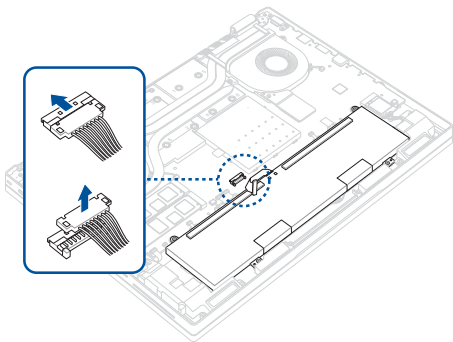


Disconnecting the battery

- A. Remove the bottom cover.

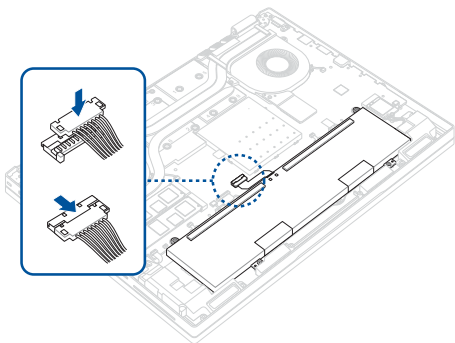
NOTE: For more details, refer to the *Removing the bottom cover* section in this manual.

- B. Locate and disconnect the battery power cable as shown in the illustration below.



To connect the battery:

- A. Align and connect the cable to the battery connector before you reattach the bottom cover.



Replacing the battery

Refer to the following steps when installing a compatible battery in your Notebook PC:

IMPORTANT! Purchase your battery from authorized retailers of this Notebook PC to ensure maximum compatibility and reliability.

WARNING! Disconnect all the connected peripherals, any telephone or telecommunication lines and power connector (such as external power supply, battery pack, etc.) before removing the compartment cover.

NOTE:

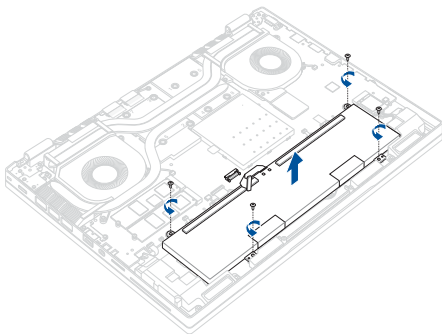
- The appearance of your Notebook PC's bottom view and battery may vary per model but the module installation remains the same.
 - It is recommended that you install the battery under professional supervision. You may also visit an authorized service center for further assistance.
-

- A. Remove the bottom cover and disconnect the battery.

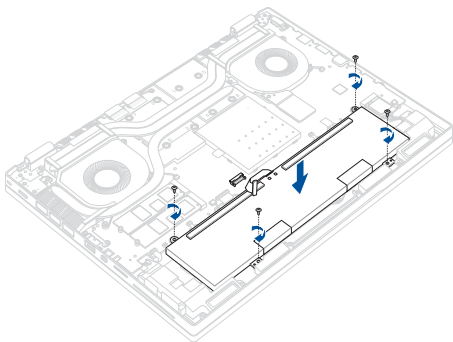
NOTE: For more details, refer to the *Removing the bottom cover* and *Disconnecting the battery* sections in this manual.

- B. Remove the screw(s) from the battery.

- C. Remove the battery.



- D. Prepare the new battery.
- E. Align and reinstall the battery.
- F. Secure the battery using the screw(s) you removed earlier.
- G. Reconnect the battery cable.



Replacing the M.2 SSD module

Refer to the following steps when installing a compatible M.2 SSD module in your Notebook PC:

IMPORTANT! Purchase your M.2 SSD module from authorized retailers of this Notebook PC to ensure maximum compatibility and reliability.

WARNING! Disconnect all the connected peripherals, any telephone or telecommunication lines and power connector (such as external power supply, battery pack, etc.) before removing the compartment cover.

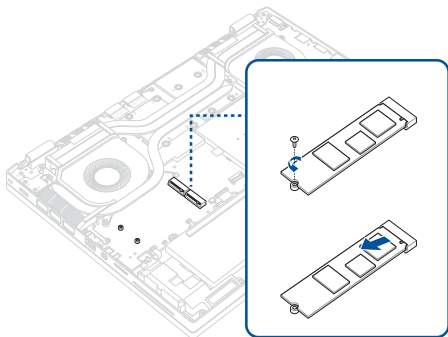
NOTE:

- The appearance of your Notebook PC's bottom view and M.2 SSD module may vary per model but the module installation remains the same.
 - It is recommended that you install the M.2 SSD module under professional supervision. You may also visit an authorized service center for further assistance.
-

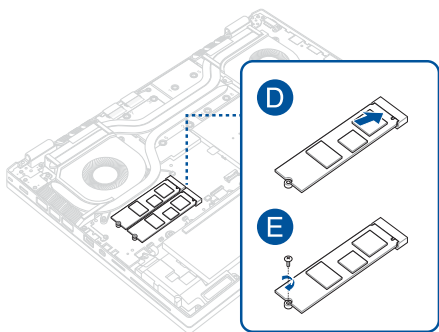
- A. Remove the bottom cover and disconnect the battery.

NOTE: For more details, refer to the *Removing the bottom cover* and *Disconnecting the battery* sections in this manual.

- B. Remove the screw(s), then remove the M.2 SSD module from the motherboard.



- C. Prepare the new M.2 SSD module.
- D. Align and insert the M.2 SSD module into the M.2 connector(s) on the motherboard.
- E. Secure the M.2 SSD module in place using the screw(s) you removed earlier.



Replacing the RAM module

Upgrade the memory capacity of your Notebook PC by installing a RAM (Random Access Memory) module in the memory module compartment. Refer to the following steps when installing a RAM module in your Notebook PC:

IMPORTANT! Visit an authorized service center or retailer for information on RAM module upgrades for your Notebook PC. Purchase your RAM modules from authorized retailers of this Notebook PC to ensure maximum compatibility and reliability.

WARNING! Disconnect all the connected peripherals, any telephone or telecommunication lines and power connector (such as external power supply, battery pack, etc.) before removing the compartment cover.

NOTE:

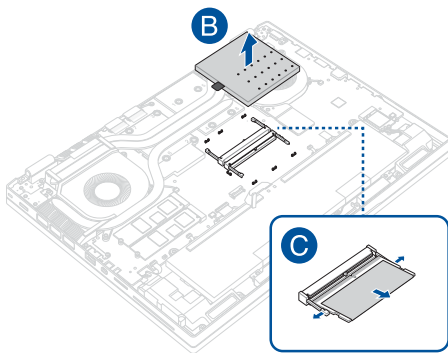
- The appearance of your Notebook PC's bottom view and RAM module may vary per model but the RAM module installation remains the same.
 - It is recommended that you install the RAM module under professional supervision. You may also visit an authorized service center for further assistance.
-

To replace the RAM modules on the top side of the motherboard:

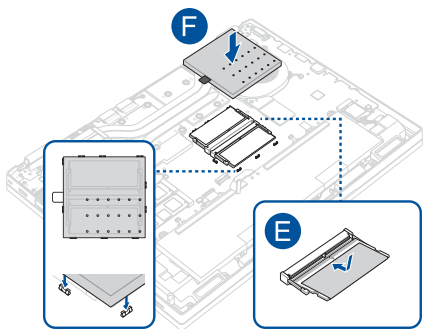
- A. Remove the bottom cover and disconnect the battery.

NOTE: For more details, refer to the *Removing the bottom cover* and *Disconnecting the battery* sections in this manual.

- B. Use the pull tab to remove the shielding cover from the motherboard.
- C. Push the clips outwards to remove the RAM module.



- D. Prepare the new RAM module.
- E. Align and insert the RAM module into the RAM module slot.
- F. Align and reinstall the shielding cover.



To replace the RAM modules on the bottom side of the motherboard:

- A. Remove the bottom cover and disconnect the battery.

NOTE: For more details, refer to the *Removing the bottom cover and Disconnecting the battery* sections in this manual.

- B. Remove the battery.

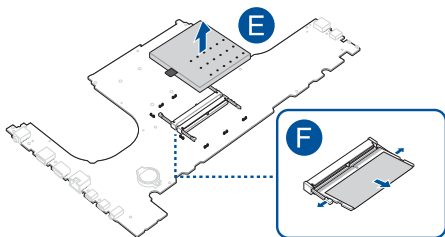
NOTE: For more details, refer to the *Replacing the battery* section in this manual.

- C. Remove the motherboard.

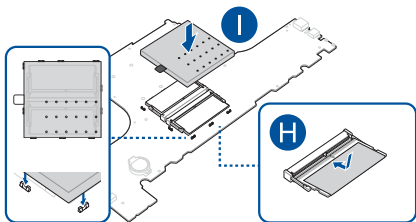
NOTE: For more details, refer to the *Replacing the motherboard* section in this manual.

- D. Turn the motherboard over and place it on a flat surface with the bottom side facing up.

- E. Use the pull tab to remove the shielding cover from the motherboard.
- F. Push the clips outwards to remove the RAM module.



- G. Prepare the new RAM module.
- H. Align and insert the RAM module into the RAM module slot.
- I. Align and reinstall the shielding cover.



Replacing the motherboard

Refer to the following steps when installing the motherboard to your Notebook PC:

IMPORTANT! Purchase your motherboard from authorized retailers of this Notebook PC to ensure maximum compatibility and reliability.

WARNING! Disconnect all the connected peripherals, any telephone or telecommunication lines and power connector (such as external power supply, battery pack, etc.) before removing the compartment cover.

NOTE:

- The appearance of your Notebook PC's bottom view and motherboard may vary per model but the module installation remains the same.
 - It is recommended that you install the motherboard under professional supervision. You may also visit an authorized service center for further assistance.
-

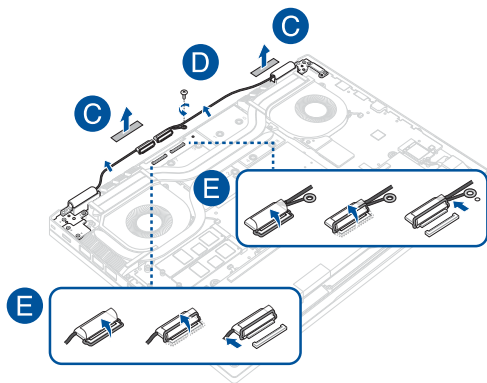
- A. Remove the bottom cover and disconnect the battery.

NOTE: For more details, refer to the *Removing the bottom cover* and *Disconnecting the battery* sections in this manual.

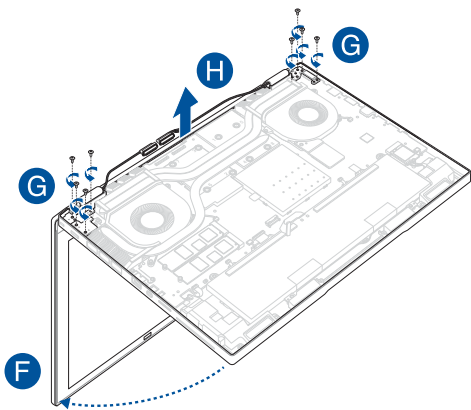
- B. Remove the battery.

NOTE: For more details, refer to the *Replacing the battery* section in this manual.

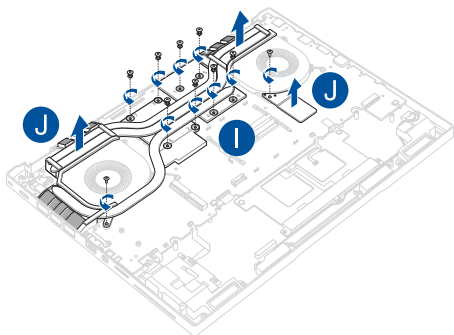
- C. Locate and remove the tape as shown in the illustration below.
- D. Locate and remove the screw to disconnect the ground cable.
- E. Locate and remove all the cable(s) and connector(s) as shown in the illustration below.



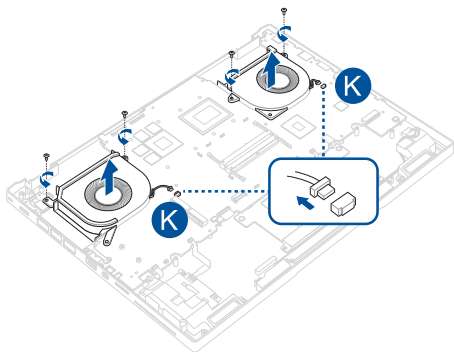
- F. Place your Notebook PC in the orientation shown in the illustration below.
- G. Remove the screw(s) from the hinges.
- H. Remove the display panel.



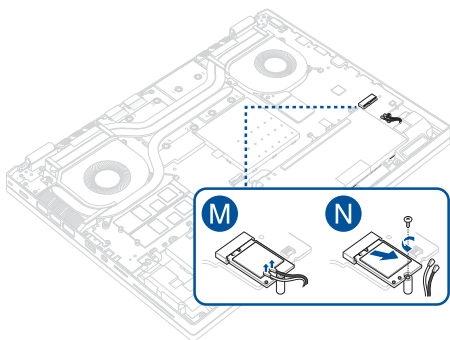
- I. Remove the screw(s) from the thermal module.
- J. Remove the thermal module from the motherboard.



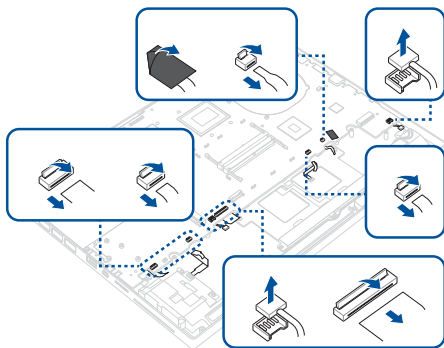
- K. Locate and remove the fan connector(s) and screw(s).
- L. Remove the fan(s) from the motherboard.



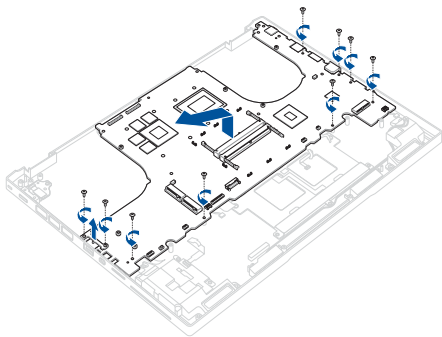
- M. Locate and remove the antenna cable(s).
- N. Remove the screw(s), then remove the Wi-Fi module.



- O. As shown in the illustration below, locate and remove the tape, then remove all the cable(s) and connector(s).

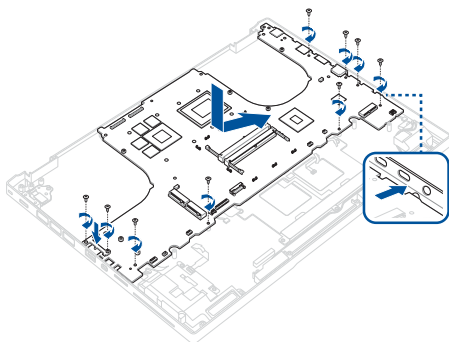


- P. Remove the screw(s) from the motherboard, then remove the motherboard from the chassis.

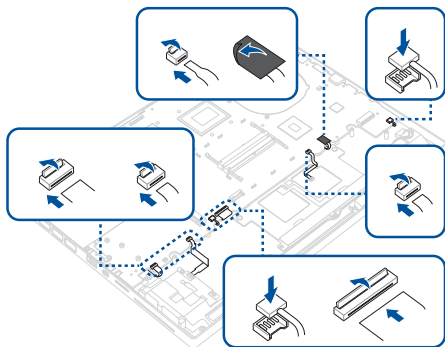


To install the new motherboard:

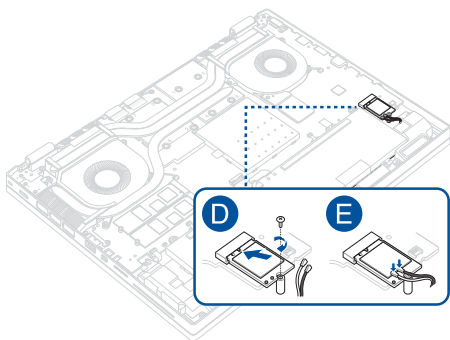
- A. Prepare the new motherboard.
- B. Align the motherboard with the I/O ports on the chassis, then reinstall and secure it using the screw(s) you removed earlier.



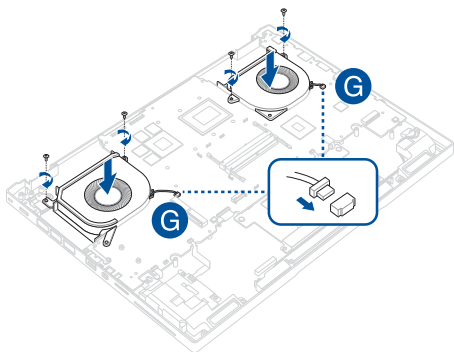
- C. As shown in the illustration below, locate and reconnect all the cable(s) and connector(s), then reattach the tape.



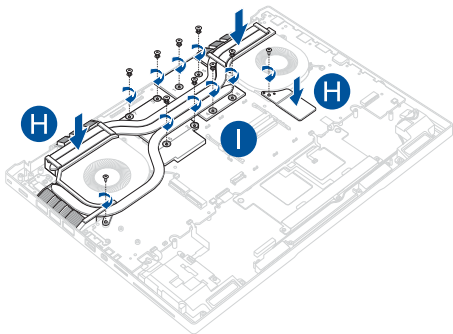
- D. Align and reinstall the Wi-Fi module, then secure the Wi-Fi module using the screw(s) you removed earlier.
- E. Reconnect the antenna cable(s).



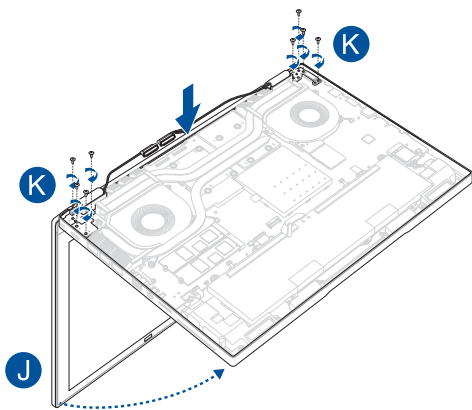
- F. Align and reinstall the fan(s), then secure the fan(s) using the screw(s) you removed earlier.
- G. Reconnect the fan connector(s) to the motherboard.



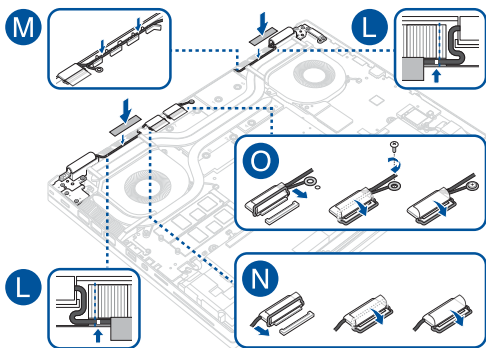
- H. Align and place the thermal module on the screw holes of the motherboard.
- I. Secure the thermal module to the motherboard using the screw(s) you removed earlier.



- J. In the orientation shown, align and place the hinges of the display panel on the screw holes of the motherboard.
- K. Secure the hinges using the screw(s) you removed earlier.



- L. Align the position indicator(s) on the cable(s) with the edge of the heatsink fins as shown in the illustration below.
- M. Route the cable(s) through the cable guide.
- N. As shown in the illustration below, locate and reconnect all the cable(s) and connector(s), then reattach the tape.
- O. Secure the ground cable using the screw(s) you removed earlier as shown in the illustration below.



Replacing the LCD module

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

NOTE: The illustrations are for reference only.

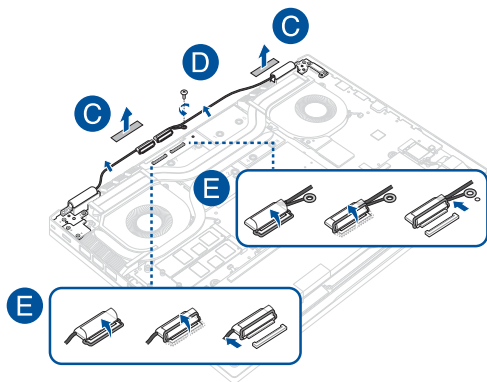
- A. Remove the bottom cover and disconnect the battery.
-

NOTE: For more details, refer to the *Removing the bottom cover* and *Disconnecting the battery* sections in this manual.

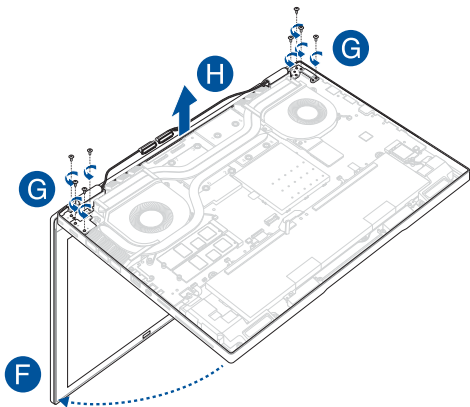
- B. Remove the battery.
-

NOTE: For more details, refer to the *Replacing the battery* section in this manual.

- C. Locate and remove the tape as shown in the illustration below.
- D. Locate and remove the screw to disconnect the ground cable.
- E. Locate and remove all the cable(s) and connector(s) as shown in the illustration below.

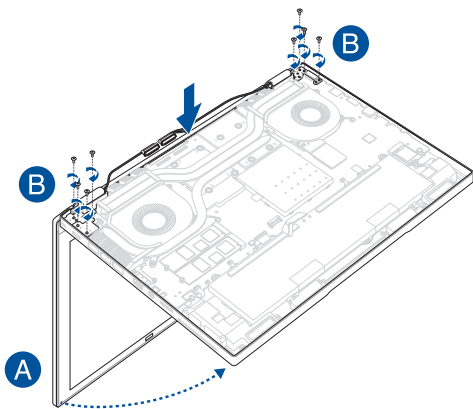


- F. Place your Notebook PC in the orientation as shown in the illustration below.
- G. Remove the screw(s) from the hinges.
- H. Remove the display panel.

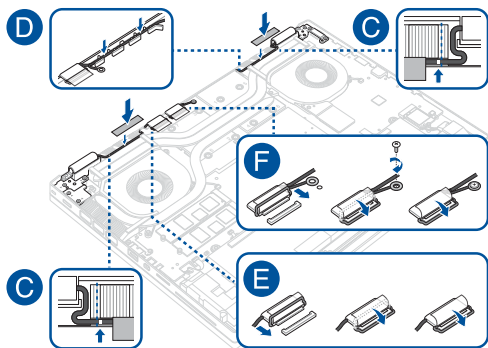


To install the new LCD panel module:

- A. In the orientation shown, align and place the hinges of the display panel on the screw holes of the motherboard.
- B. Secure the hinges using the screw(s) you removed earlier.

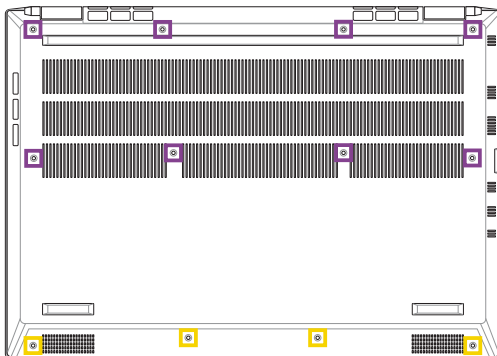


- C. Align the position indicator(s) on the cable(s) with the edge of the heatsink fins as shown in the illustration below.
- D. Route the cable(s) through the cable guide.
- E. As shown in the illustration below, locate and reconnect all the cable(s) and connector(s), then reattach the tape.
- F. Secure the ground cable using the screw(s) you removed earlier as shown in the illustration below.



Screw map

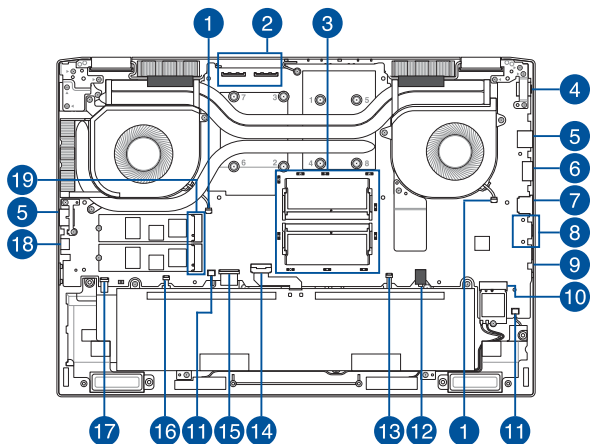
Bottom cover screw map



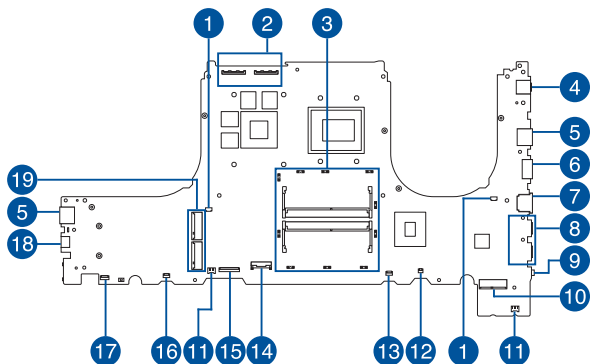
■ M2.5 X 13.7+0.8L (8PCS)

■ M2.5 X 6L (4PCS)

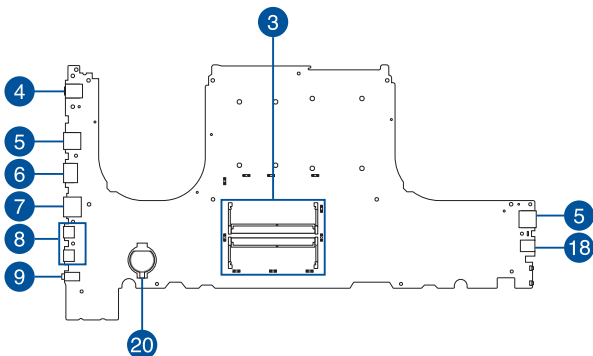
Wiring and connection diagrams



Top View



Bottom View



- | | |
|----------------------------|----------------------------------|
| 1. Fan connector | 11. Speaker connector |
| 2. eDP connector | 12. Keyboard backlight connector |
| 3. DIMM socket | 13. Touchpad connector |
| 4. Power supply connector | 14. Battery connector |
| 5. USB Type-A connector | 15. Keyboard connector |
| 6. HDMI connector | 16. Smart card reader connector |
| 7. LAN connector | 17. Power switch connector |
| 8. USB Type-C® connector | 18. Mini DisplayPort connector |
| 9. Audio connector | 19. SSD connector |
| 10. Wi-Fi module connector | 20. RTC connector |