Chapter 2: Disassembly

Overview

This chapter provides step-by-step instructions for disassembling the ***NH50JNN / NH57JNN / NH58JNN / NH55JNNQ / NH50JNR / NH57JNR / NH58JNR / NH55JNRQ / NH50JNPS / NH57JNPS / NH58JNPS / NH55JNPY*** series notebook's parts and subsystems. When it comes to reassembly, reverse the procedures (unless otherwise indicated).

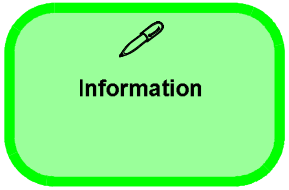
We suggest you completely review any procedure before you take the computer apart.

Procedures such as upgrading/replacing the RAM, optical device and hard disk are included in the User's Manual but are repeated here for your convenience.

To make the disassembly process easier each section may have a box in the page margin. Information contained under the figure # will give a synopsis of the sequence of procedures involved in the disassembly procedure. A box with a  lists the relevant parts you will have after the disassembly process is complete. **Note**: The parts listed will be for the disassembly procedure listed ONLY, and not any previous disassembly step(s) required. Refer to the part list for the previous disassembly procedure. The amount of screws you should be left with will be listed here also.

A box with a  will also provide any possible helpful information. A box with a  contains warnings.

An example of these types of boxes are shown in the sidebar.



NOTE: All disassembly procedures assume that the system is turned **OFF**, and disconnected from any power supply (the battery is removed too).

Maintenance Tools

The following tools are recommended when working on the notebook PC:

- M3 Philips-head screwdriver
- M2.5 Philips-head screwdriver (magnetized)
- M2 Philips-head screwdriver
- Small flat-head screwdriver
- Pair of needle-nose pliers
- Anti-static wrist-strap

Connections

Connections within the computer are one of four types:

Locking collar sockets for ribbon connectors	To release these connectors, use a small flat-head screwdriver to gently pry the locking collar away from its base. When replacing the connection, make sure the connector is oriented in the same way. The pin1 side is usually not indicated.
Pressure sockets for multi-wire connectors	To release this connector type, grasp it at its head and gently rock it from side to side as you pull it out. Do not pull on the wires themselves. When replacing the connection, do not try to force it. The socket only fits one way.
Pressure sockets for ribbon connectors	To release these connectors, use a small pair of needle-nose pliers to gently lift the connector away from its socket. When replacing the connection, make sure the connector is oriented in the same way. The pin1 side is usually not indicated.
Board-to-board or multi-pin sockets	To separate the boards, gently rock them from side to side as you pull them apart. If the connection is very tight, use a small flat-head screwdriver - use just enough force to start.

Maintenance Precautions

The following precautions are a reminder. To avoid personal injury or damage to the computer while performing a removal and/or replacement job, take the following precautions:

1. **Don't drop it**. Perform your repairs and/or upgrades on a stable surface. If the computer falls, the case and other components could be damaged.
2. **Don't overheat it**. Note the proximity of any heating elements. Keep the computer out of direct sunlight.
3. **Avoid interference**. Note the proximity of any high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage components and/or data. You should also monitor the position of magnetized tools (i.e. screwdrivers).
4. **Keep it dry**. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.
5. **Be careful with power**. Avoid accidental shocks, discharges or explosions.
   - Before removing or servicing any part from the computer, turn the computer off and detach any power supplies.
   - When you want to unplug the power cord or any cable/wire, be sure to disconnect it by the plug head. Do not pull on the wire.
6. **Peripherals** – Turn off and detach any peripherals.
7. **Beware of static discharge**. ICs, such as the CPU and main support chips, are vulnerable to static electricity. Before handling any part in the computer, discharge any static electricity inside the computer. When handling a printed circuit board, do not use gloves or other materials which allow static electricity buildup. We suggest that you use an anti-static wrist strap instead.
8. **Beware of corrosion**. As you perform your job, avoid touching any connector leads. Even the cleanest hands produce oils which can attract corrosive elements.
9. **Keep your work environment clean**. Tobacco smoke, dust or other air-born particulate matter is often attracted to charged surfaces, reducing performance.
10. **Keep track of the components**. When removing or replacing any part, be careful not to leave small parts, such as screws, loose inside the computer.

Power Safety Warning

Before you undertake any upgrade procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines and power cord). It is advisable to also remove your battery in order to prevent accidentally turning the machine on.

Cleaning

Do not apply cleaner directly to the computer, use a soft clean cloth.

Do not use volatile (petroleum distillates) or abrasive cleaners on any part of the computer.

(For Computer Models Supplied with Light Blue Cleaning Cloth) Some computer models in this series come supplied with a light blue cleaning cloth. To clean the computer case with this cloth follow the instructions below.

- Power off the computer and peripherals.
- Disconnect the AC/DC adapter from the computer.
- Use a little water to dampen the cloth slightly.
- Clean the computer case with the cloth.
- Dry the computer with a dry cloth, or allow it time to dry before turning on.
- Reconnect the AC/DC adapter and turn the computer on.

Disassembly Steps

The following table lists the disassembly steps, and on which page to find the related information. **PLEASE PERFORM THE DISASSEMBLY STEPS IN THE ORDER INDICATED.**

To remove the Battery:

1. Remove the battery *page 2 - 5*

To remove the HDD:

1. Remove the battery *page 2 - 5*
2. Remove the HDD *page 2 - 6*

To remove the Keyboard:

1. Remove the battery *page 2 - 5*
2. Remove the HDD *page 2 - 6*
3. Remove the keyboard *page 2 - 8*

To remove and install the Processor:

1. Remove the battery *page 2 - 5*
2. Remove the HDD *page 2 - 6*
3. Remove the processor *page 2 - 9*
4. Install the processor *page 2 - 11*

To remove the System Memory:

1. Remove the battery *page 2 - 5*
2. Remove the HDD *page 2 - 6*
3. Remove the system memory *page 2 - 12*

To remove the M.2 SSD:

1. Remove the battery *page 2 - 5*
2. Remove the HDD *page 2 - 6*
3. Remove the SSD *page 2 - 13*

To remove the Wireless LAN Module:

1. Remove the battery *page 2 - 5*
2. Remove the HDD *page 2 - 6*
3. Remove the WLAN *page 2 - 15*

To remove the CCD Module:

1. Remove the battery *page 2 - 5*
2. Remove the CCD module *page 2 - 17*

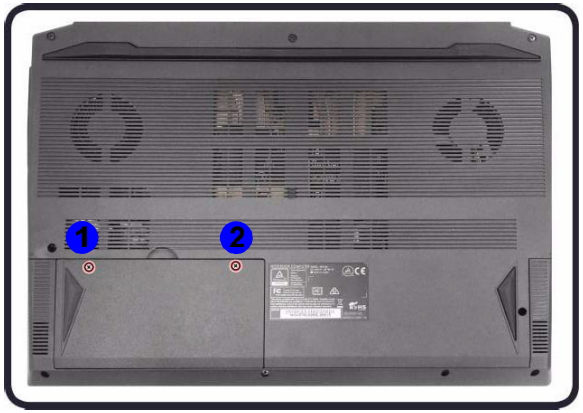
Removing the Battery

1. Turn the computer **off**, and turn it over.
2. Remove the screws 1 - 2 (*Figure 1a*).
3. Carefully lift the battery 3 in the direction of the arrow (*Figure 1b*).
4. Remove the battery 3 out of the compartment (*Figure 1c*).

Figure 1
Battery Removal

a. Remove the screws.
b. Lift the battery.
c. Remove the battery.

a.



b.

c.

3. Battery

- 2 Screws

Removing the Hard Disk Drive

The hard disk drive can be taken out to accommodate other 2.5" serial (SATA) hard disk drives with a height of 7mm (h). Follow your operating system's installation instructions, and install all necessary drivers and utilities (as outlined in **Chapter 4 of the User's Manual**) when setting up a new hard disk.

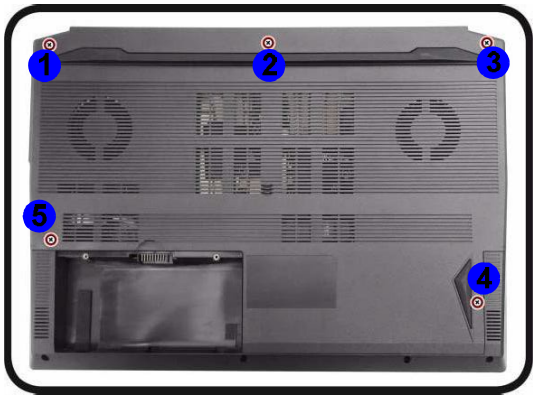
Figure 2
HDD Assembly Removal

a. Remove the screws.
b. Slide the bottom case out and remove it.
c. Locate the HDD.

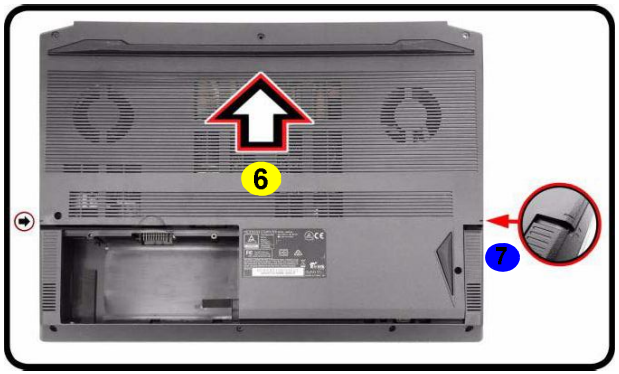
Hard Disk Disassembly Process

1. Turn **off** the computer, and remove the battery (*page 2 - 5*).
2. Remove the screws 1 - 5 (*Figure 2a*).
3. Carefully slide the bottom case 6 as shown 7 and lift it off (*Figure 2b*).
4. The HDD will be visible at point 8 on the mainboard (*Figure 2c*).

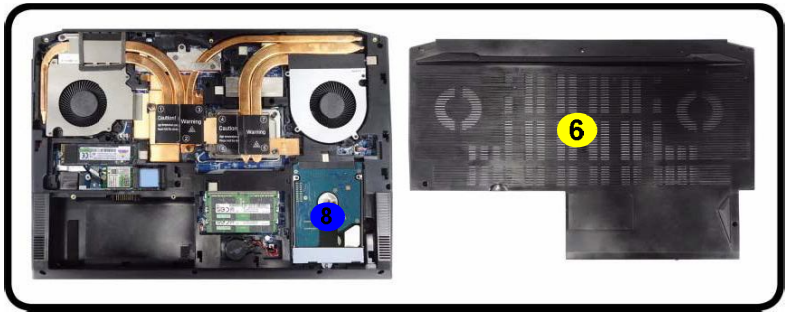
a.



b.



c.



6. Bottom Case

- 5 Screws

5. Remove screws 9 from the HDD assembly (*Figure 3b*).
6. Slightly lift and pull the hard disk assembly in the direction of arrow 10 (*Figure 3c*).
7. Lift the hard disk assembly 11 out of the bay 12 (*Figure 3d*).
8. Remove screws 13 - 14 and bracket 15 from the hard disk 16 (*Figure 3e*).
9. Reverse the process to install a new hard disk (do not forget to replace the screws).

Figure 3
HDD Assembly Removal (cont'd.)

d. Remove the screws.
e. Slightly lift and pull the HDD in the direction of the arrow.
f. Lift the HDD assembly out of the bay.
g. Remove the screws and bracket from the HDD.

d.

e.

f.

g.

HDD System Warning

New HDD's are blank. Before you begin make sure:

You have backed up any data you want to keep from your old HDD.

You have all the CD-ROMs and FDDs required to install your operating system and programs.

If you have access to the internet, download the latest application and hardware driver updates for the operating system you plan to install. Copy these to a removable medium.

11. HDD Assembly
15. Bracket
16. HDD

- 3 Screws

Removing the Keyboard

1. Turn **off** the computer, remove the battery (*page 2 - 5*) and bottom cover (*page 2 - 6*).
2. Remove screws 1 - 2 from the bottom of the computer.
3. Open it up with the LCD on a flat surface before pressing at point 3 to release the keyboard module (use the special eject stick 4 to do this) while releasing the keyboard in the direction of the arrow 5 as shown (*Figure 4a*).
4. Carefully lift the keyboard 6 up, being careful not to bend the keyboard ribbon cable 7. Disconnect the keyboard ribbon cable 7 from the locking collar socket by using a flat-head screwdriver to pry the locking collar pins 8 away from the base (*Figure 4b*).
5. Carefully lift the keyboard 6 off the computer (*Figure 4c*).

Figure 4
Keyboard Removal

a. Remove the screws from the bottom of the computer and then eject the keyboard using a special eject stick to push the keyboard out while releasing the keyboard as shown.
b. Lift the keyboard up and disconnect the keyboard ribbon cable from the locking collar socket.
c. Remove the keyboard.

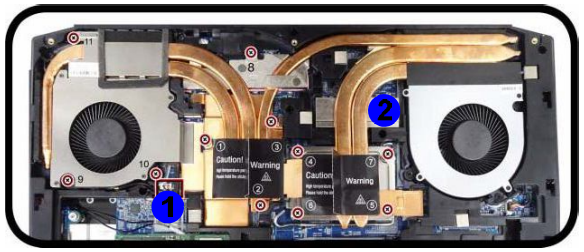
Re-inserting the Keyboard

When re-inserting the keyboard firstly, align the keyboard tabs at the bottom of the keyboard with the slots in the case.

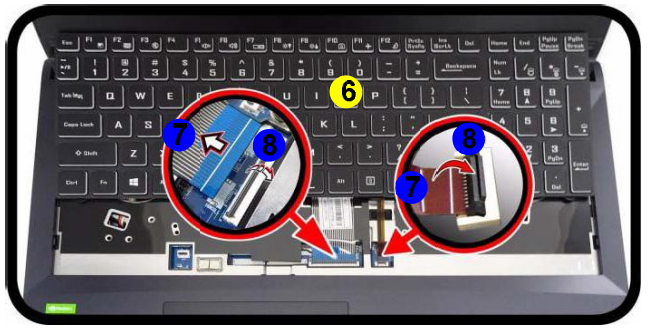
4. Eject Stick
6. Keyboard

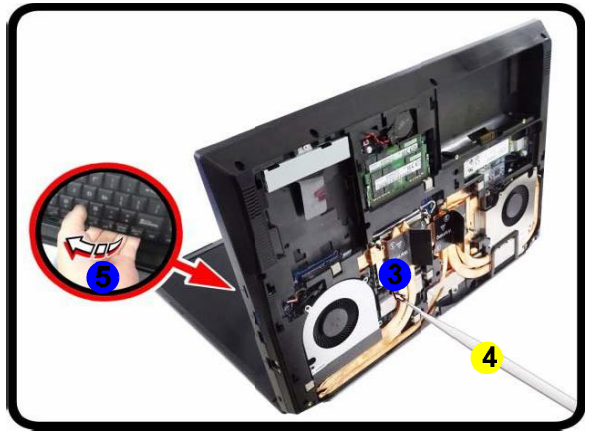
- 2 Screws

a.



b.





c.

Removing and Installing the Processor

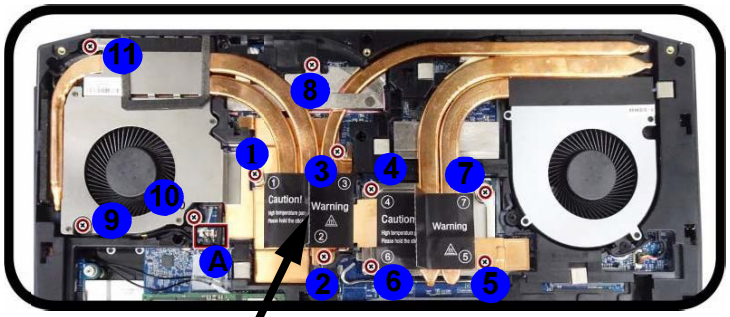
Processor Removal Procedure

1. Turn **off** the computer, remove the battery (*page 2 - 5*) and bottom cover (*page 2 - 6*).
2. Disconnect cable A and remove screws 1 - 11 from the heat sink unit in the order indicated on the label (i.e screw 11 first through to screw 1 last *Figure 5a*).
3. Carefully (it may be hot) remove the heat sink unit 12 using a tool to lever the heatsink up at points 13 - 15. Then lift the heat sink up from the tab 16 at an angle as shown (*Figure 5b*).

Figure 5
Processor Removal Procedure

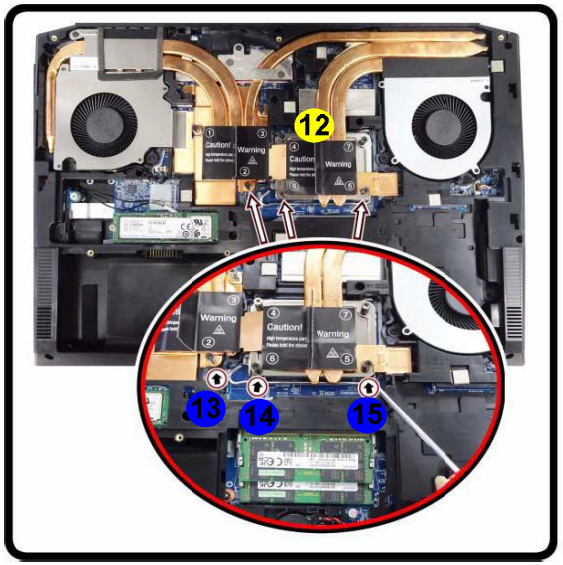
a. Disconnect the cable and remove the screws in the correct order.
b. Carefully remove the heat sink unit.

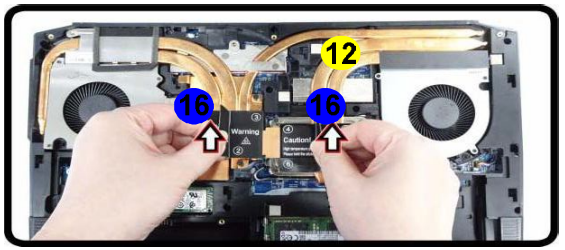
a.



Note:
Loosen the screws in the reverse order 11-10-9-8-7-6-5-4-3-2-1 as indicated.

b.





12. Heat Sink Unit

- 11 Screws

Figure 6
Processor Removal (cont'd)

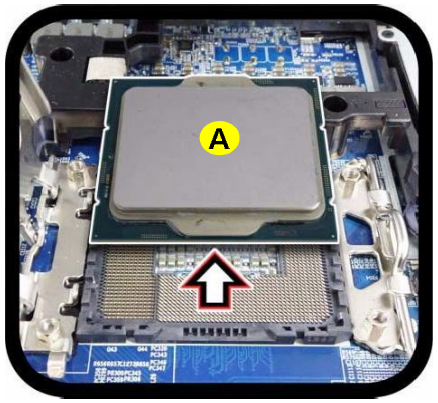
c. Move the latch fully in the direction indicated to unlock the CPU.
d. Lift the CPU out of the socket.

4. Press down and hold the latch 12 (with the latch held down you will be able to release it).
5. Move the latch 12 fully in the direction indicated to unlock the CPU(***Figure 6c***).
6. Carefully (it may be hot) lift the CPU A up out of the socket (***Figure 6d***).
7. See ***page 2 - 11*** for information on inserting a new CPU.
8. When re-inserting the CPU, pay careful attention to the pin alignment, it will fit only one way (DO NOT FORCE IT!).

c.

Unlock

d.



A. CPU

Caution

The heat sink, and CPU area in general, contains parts which are subject to high temperatures. Allow the area time to cool before removing these parts.

AMD & Intel CPU Differences

Note that there are differences between the AMD and Intel CPUs in the RTC CMOS data storage location:

- Intel RTC CMOS data is stored in the PCH.
- AMD RTC CMOS data is stored in the CPU.

Note therefore that every time the CPU is replaced, the CMOS must be reset, and the first boot time after replacing the CPU will be longer (press power on, and the screen will light up after 1 minute).

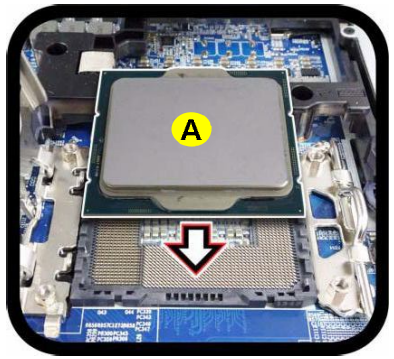
Processor Installation Procedure

1. Insert the CPU A; pay careful attention to the pin alignment (*Figure 7a*), it will fit only one way (DO NOT FORCE IT!).
2. Move the latch B fully in the direction indicated to lock the CPU.
3. Apply the whole tube of the thermal grease C to the center of the CPU as shown (*Figure 7b*).
4. Insert the heat sink unit D in an angle as indicated in *Figure 7c*.
5. Tighten the CPU heat sink screws in the order 1 - 11 (the order as indicated on the label) and reconnect the cable 12 (*Figure 7d*).
6. Replace the video card heat sink, component bay cover and tighten the screws (*page 2 - 9*).

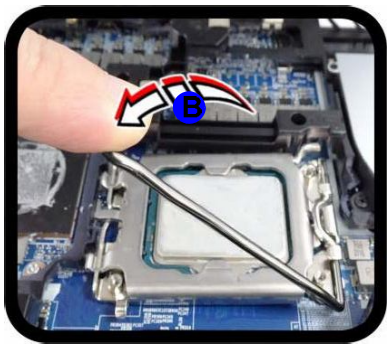
Figure 7
Processor Installation

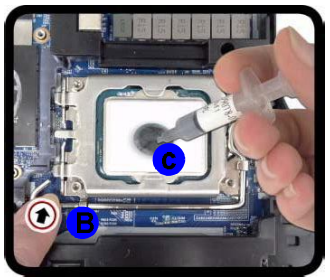
a. Insert the CPU.
b. Move the latch fully in the direction indicated to lock the CPU. Apply thermal grease.
c. Insert the heat sink.
d. Tighten the screws.

a.



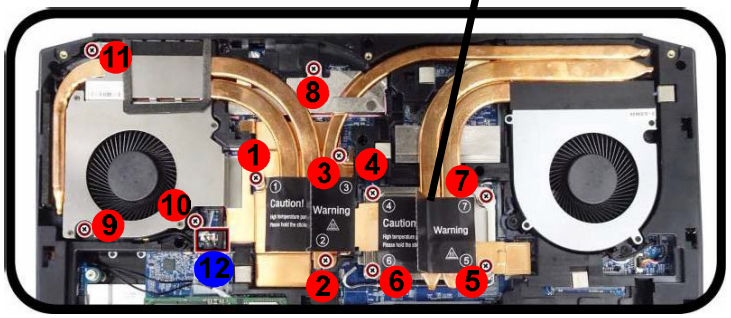
b.





c.

d.



Note:
Tighten the screws in the order 1-2-3-4-5-6-7-8-9-10-11 as indicated.

A. CPU
D. Heat Sink

- 11 Screws

Removing the System Memory (RAM)

The computer has two memory sockets for 260 pin Small Outline Dual In-line Memory Modules (SO-DIMM) supporting DDR4 up to 3200 MHz. The main memory can be expanded up to 64GB. The total memory size is automatically detected by the POST routine once you turn on your computer.

Memory Upgrade Process

1. Turn **off** the computer, turn it over, remove the battery (***page 2 - 5***) and bottom cover (***page 2 - 6***).
2. The RAM modules will be visible at point 1 on the mainboard (***Figure 8a***).
3. Gently pull the two release latches (2 & 3) on the sides of the memory socket in the direction indicated by the arrows (***Figure 8b***). The RAM module 4 will pop-up (***Figure 8c***), and you can then remove it.
4. Pull the latches to release the second module if necessary.
5. Insert a new module (**for only one module** - insert module in the top slot) by holding it at about a 30° angle and fit the connectors firmly into the memory slot.
6. The module will only fit one way as defined by its pin alignment. Make sure the module is seated as far into the slot as it will go. DO NOT FORCE IT; it should fit without much pressure.
7. Press the module in and down towards the mainboard until the slot levers click into place to secure the module.
8. Replace the bottom cover and the screws (see ***page 2 - 6***).
9. Restart the computer to allow the BIOS to register the new memory configuration as it starts up.

Figure 8
RAM Module Removal

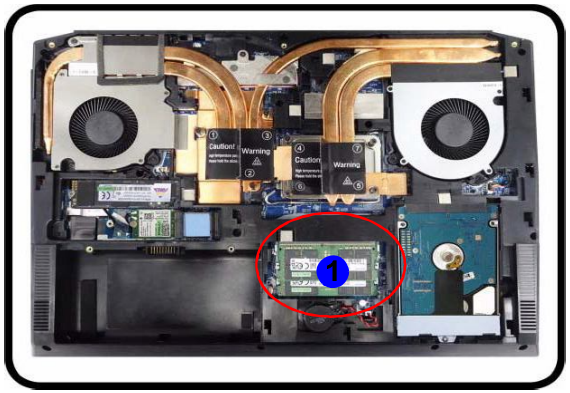
a. The RAM module(s) will be visible at point 1 on the mainboard.
b. Pull the release latches.
c. Remove the module.

Contact Warning

Be careful not to touch the metal pins on the module's connecting edge. Even the cleanest hands have oils which can attract particles, and degrade the module's performance.

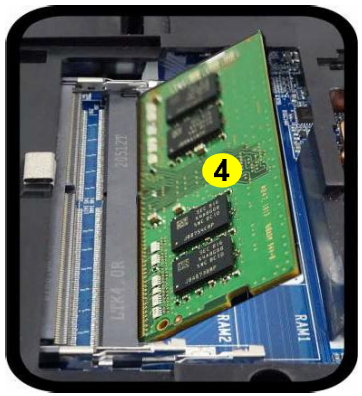
4. RAM Module

a.



b.

c.



Removing the M.2 SSD Module

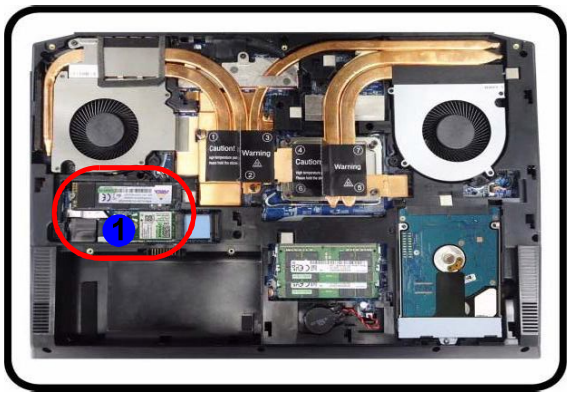
M.2 SSD-1 Module Removal Procedure

1. Turn **off** the computer, turn it over, remove the battery (***page 2 - 5***) and bottom cover (***page 2 - 6***).
2. The M.2 SSD module will be visible at point 1 on the mainboard (***Figure 9a***).
3. Remove the screw 2 (***Figure 9b***)
4. The M.2 SSD module 3 (***Figure 9c***) will pop-up, and you can remove it from the computer.

Figure 9
M.2 SSD-1 Module Removal

a. Locate the M.2 SSD.
b. Remove the screw.
c. The M.2 SSD module will pop up.

a.



b.

c.

PCIE SSD only

Thermal Pad

Make sure to place the thermal pad's adhesive side down on the mainboard's surface as illustrated.

Thermal Pad Thickness

Note that the thermal pad thickness placed in different locations differ in sizes. The thermal pad used for SSD-1 is thicker than the one used for SSD-2.

3.M2 SSD PCIE Module

- 1 Screw

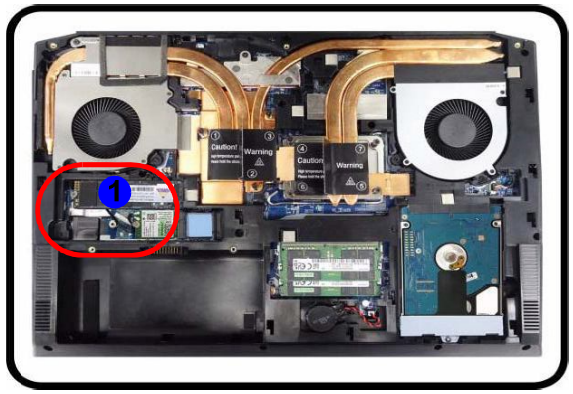
Figure 10
M.2 SSD-2 Module Removal

a. Locate the M.2 SSD.
b. Remove the screw.
c. The M.2 SSD module will pop up.

M.2 SSD-2 Module Removal Procedure

1. Turn **off** the computer, turn it over, remove the battery (***page 2 - 5***) and bottom cover (***page 2 - 6***).
2. The M.2 SSD module will be visible at point 1 on the mainboard (***Figure 9a***).
3. Remove the screw 2 (***Figure 9b***)
4. The M.2 SSD module 3 (***Figure 9c***) will pop-up, and you can remove it from the computer.

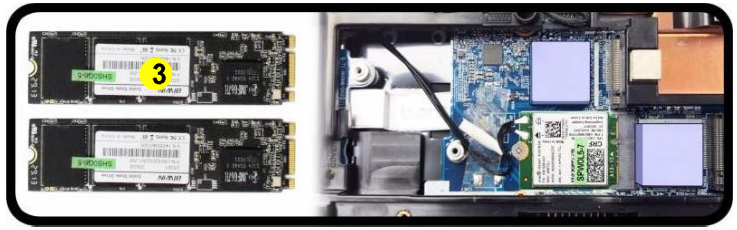
a.



b.

c.

SATA/PCIE SSD



Thermal Pad

Make sure to place the thermal pad's adhesive side down on the mainboard's surface as illustrated.

3.M2 SSD SATA/PCIE Module

- 1 Screw

Thermal Pad Thickness

Note that the thermal pad thickness placed in different locations differ in sizes. The thermal pad used for SSD-1 is thicker than the one used for SSD-2.

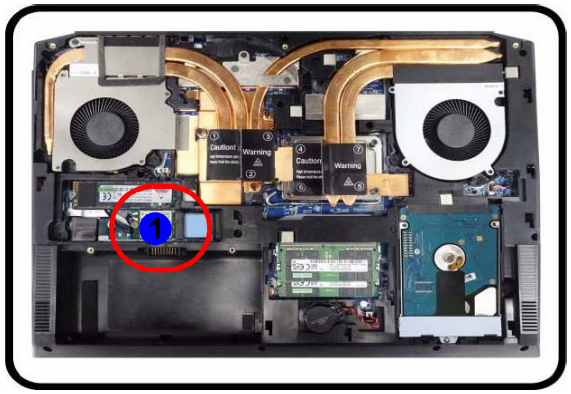
Removing the Wireless LAN Module

1. Turn **off** the computer, turn it over, remove the battery (*page 2 - 5*), bottom cover (*page 2 - 6*) and SSD-1 (*page 2 - 13*).
2. The Wireless LAN module will be visible at point 1 on the mainboard (*Figure 11a*).
3. Carefully disconnect the cables 2 & 3, and then remove the screw 4 (*Figure 11b*)
4. The Wireless LAN module 5 (*Figure 11c*) will pop-up, and you can remove it from the computer.
5. Reverse the process to install a new module (do not forget to replace the mylar and screws while making sure that the cables are properly inserted as shown in *Figure 11c*).

Figure 11
Wireless LAN Module Removal

a. Locate the WLAN.
b. Disconnect the cables and remove the screw.
c. The WLAN module will pop up.

a.



b.

c.

Note: Make sure you reconnect the antenna cable to the "1 + 2" socket (*Figure 11b*).

5.Wireless LAN Module

- 1 Screw

Wireless LAN, Combo Module Cables

Note that the cables for connecting to the antennae on WLAN, WLAN & Bluetooth Combo modules are not labelled. The cables/covers (each cable will have either a black or transparent cable cover) are color coded for identification as outlined in the table below.

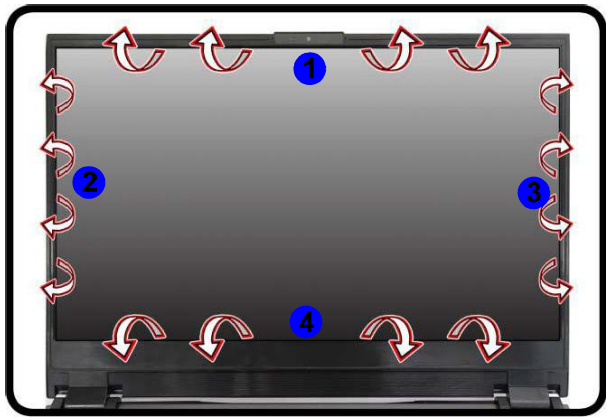
Module Type	Antenna Type	Cable Color	Cable Cover Type
WLAN/WLAN & Bluetooth Combo	WL 1	Black	Transparent
	WL 2	Black	White

Cable 1 is usually connected to antenna 1 on the module, and cable 2 to antenna 2.

Removing the CCD

1. Turn **off** the computer, turn it over to remove the battery (*page 2 - 5*).
2. Lay the computer down on a flat surface with the top case up forming a 90 degree angle.
3. Carefully run your fingers around the inner frame of the LCD panel to lift at points 1 - 4 as indicated by the arrows (*Figure 12a*).
4. Remove the LCD front cover 5 (*Figure 12b*).

a.



b.

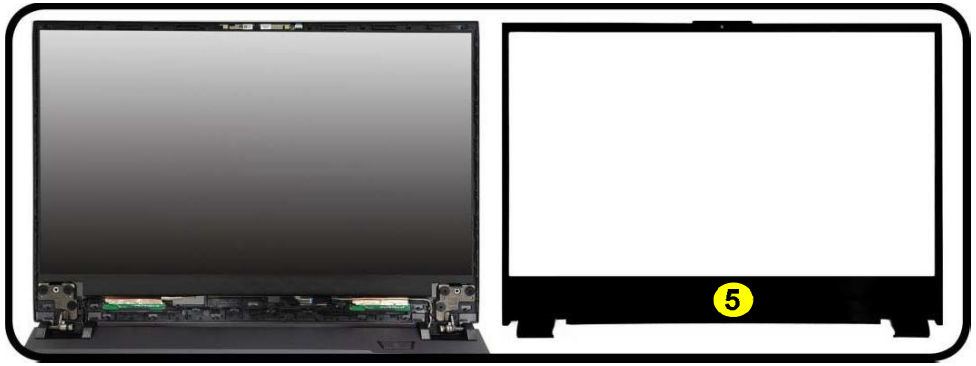


Figure 12
CCD Removal

a. Carefully release the inner frame of the LCD panel at the points indicated by the arrows.
b. Remove the LCD front cover.

5. LCD Front Cover

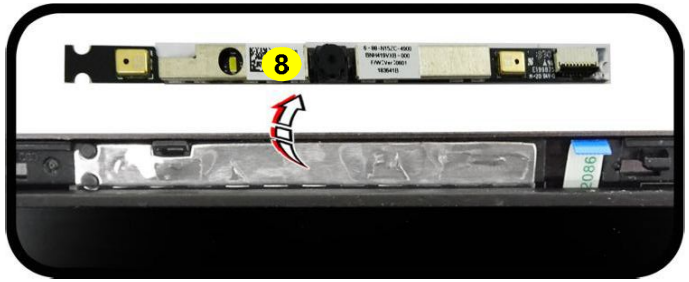
Figure 13
CCD Removal (cont'd)

c. Disconnect the cable from the locking collar socket.
d. Remove the CCD module.

5. Disconnect the cable 6 from the locking collar socket by using a flat-head screwdriver to pry the locking collar pins 7 away from the base (***Figure 13c***).
6. Remove the CCD module 8 (***Figure 13d***).
7. Reverse the process to install a new CCD module.

c.

d.



8. CCD Module