Desktop ROG G22CH

Service Manual

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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 Notebook PC 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 Notebook PC 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.

Table of Contents

ASUS Desktop ROG G22CH Overview

Front & Top View
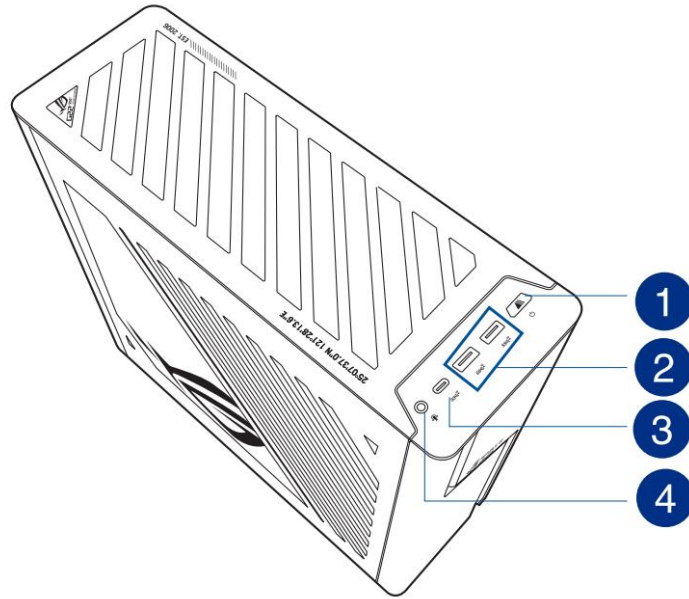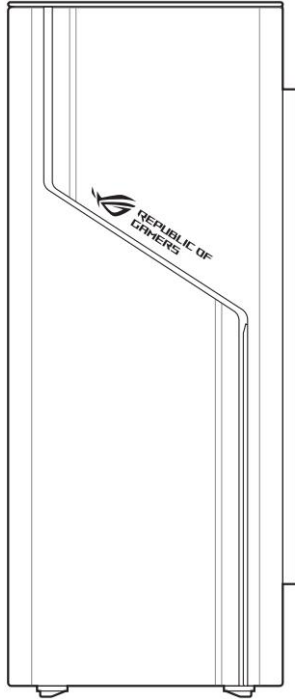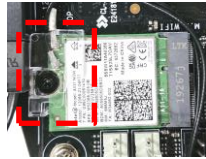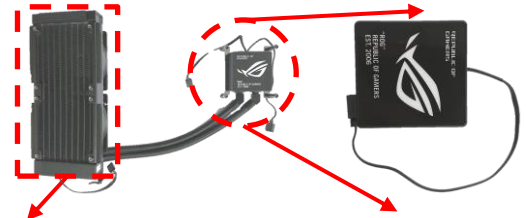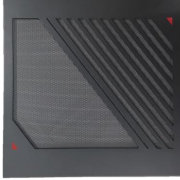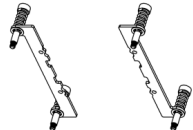
1 Power button
2 USB 3.2 Gen 2 port
3 USB 3.2 Gen 2 Type-C® port
4 Audio combo jack

Rear View
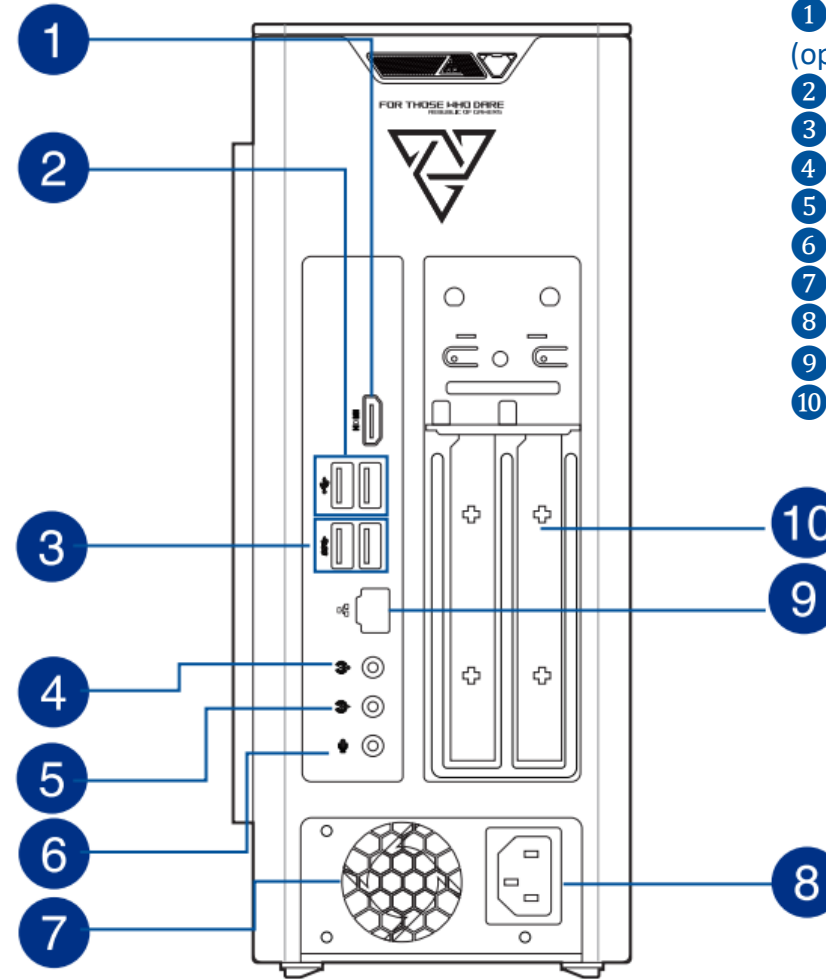
1 HDMI® port (optional)
2 USB 2.0 ports
3 USB 3.2 Gen1 ports
4 Line In port
5 Microphone port
6 Line Out port
7 Air vents
8 Power connector
9 LAN (RJ-45) port
10 Expansion slot brackets

Components Top View

- VGA CARD

- RTX3070 VGA BRACKET

- PCI SLOT COVER

- WLAN CABLE TERMINAL COVER

- TOP COVER

- FIO BD

- FIO TO MB 16P CABLE

- DDR

- SSD

- CPU LIQUID COOL

- CPU LIGHTING COVER

- LEFT COVER

- PSU COVER

- FIO 40P USB CABLE

- PSU

- SSD HOUSING

- SYS FAN 9CM

- ACCESSORY KITS

- RIGHT COVER

- SCREW RUBBER

- FIO TO MB 10P CABLE

- WIFI Card

- M2 PAD 25X20X6

- MAINBOARD

- CPU

- FRONT COVER

- LED RIGHT TO MB 3P CABLE

- RISER TO MB 7P CABLE

- SYS FAN with FAN GUARD

- M2 SSD SINK

- RISER BD

- TOP IO COVER

- BACK COVER

- LED LEFT TO RIGHT 3P CABLE

- MB BRIDGE BRKT

Components Top View

◆ RF CABLE(455 MM)

◆ LED BD 1

◆ VGA

◆ VGA BRACKET

◆ COVER GASKET

FRONT COVER GASKET

◆ RF CABLE(420 MM)

◆ LED BD 2

◆ CPU FAN BRACKET

◆ CPU FAN BRACKET SPONGE

BACK COVER GASKET

◆ WLAN CABLE TERMINAL COVER

◆ VGA SIDE ID MY

◆ CPU AIR FAN

For Air Cooler

◆ TP EMI TAPE
(EN-0387989)

◆ FIO USB GASKET

◆ PSUACETATE CLOTH TAPE

◆ SYSTEM FAN BKT

◆ FIO TYPE-C GASKET

◆ CPU AIR COOLER

Components Bottom View

◆ TOP COVER

◆ LED BD 1

◆ DIPOLE ANTENNA

◆ TOP IO COVER

◆ LED BD 2

◆ VGA SIDE ID
MY

◆ BACK COVER

◆ SYSTEM FAN BKT
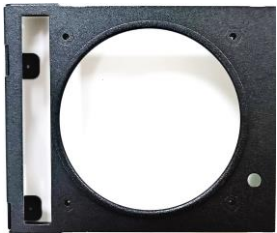
◆ CPU AIR
COOLER
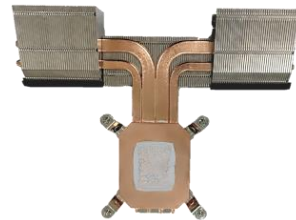
Appropriate Tools

Please prepare and select the appropriate tools to disassemble/assemble for the **ROG Desktop (G22CH)**.

◆ **Screwdriver**

Please accord to different screw specification to choose different screwdriver and head.

#1 #2 ✛

◆ **Plastic Blade**

◆ **Plastic Tweezers**

Use a pair of tweezers to remove/insert/tidy cables.

◆ **Thickness Gauge**

Thickness compass specification 0.05mm-1.5mm. Use it to measure the gap.
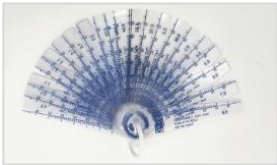
◆ **Magnetism Board**

Suggest local buy magnetism board to place screw, avoid mix different type screw to cause assembly damage.

◆ **Alcohol 95%**   ◆ **Glove**   ◆ **Dust-free Cloth**
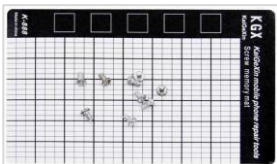
◆ **Thermal Grease**

◆ **Cable Tie (Local Buy)**

◆ **Needle nose pliers**

Top Cover

Disassembly Notice | Please be sure to pull out adapter and disconnect the battery. 🔌🚫

Step 1 : Remove BACK COVER SCREW RUBBER.
Step 2 : Remove the screw *1pc.
Step 3 : Push the button and pull out the TOP COVER to remove it.

Screws	QTY	Spec	Torque (kgf-cm)
🔩 ⭕	1	M2*9L(4.5,0.8)(K) #1	3.0±0.5
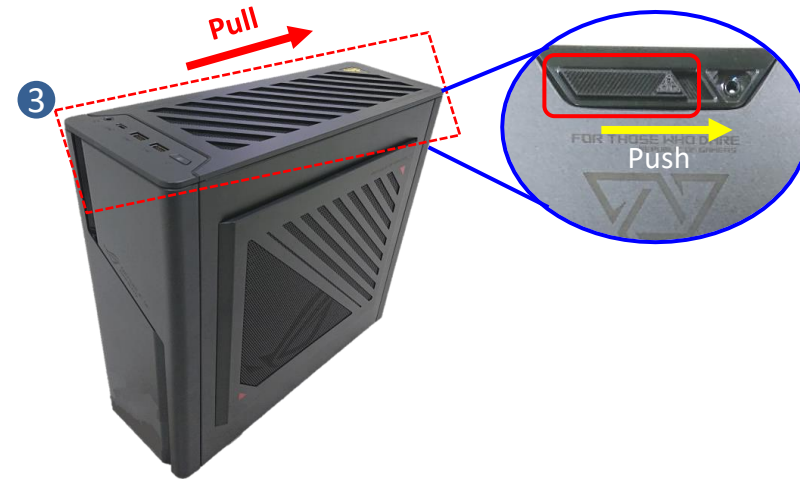
SLIDE COVER

Disassembly Notice   Please be sure to pull out adapter and disconnect the battery.

Step 1 : Pull out the LEFT COVER.
Step 2 : Pull out the RIGHT COVER.

❶ Pull

LEFT COVER

❷ Pull
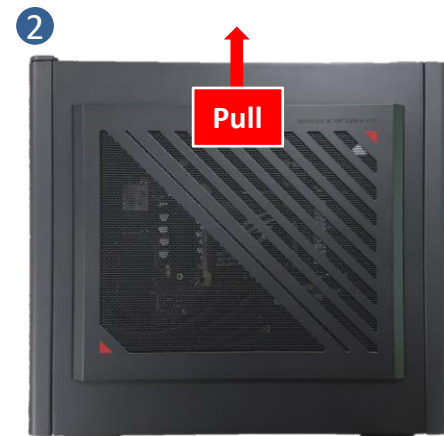
RIGHT COVER

Slide Cover assembly Notice

⚠️ When assembly, please follow the instructions below to assemble the SLIDE COVER.

RIGHT COVER(install the motherboard)
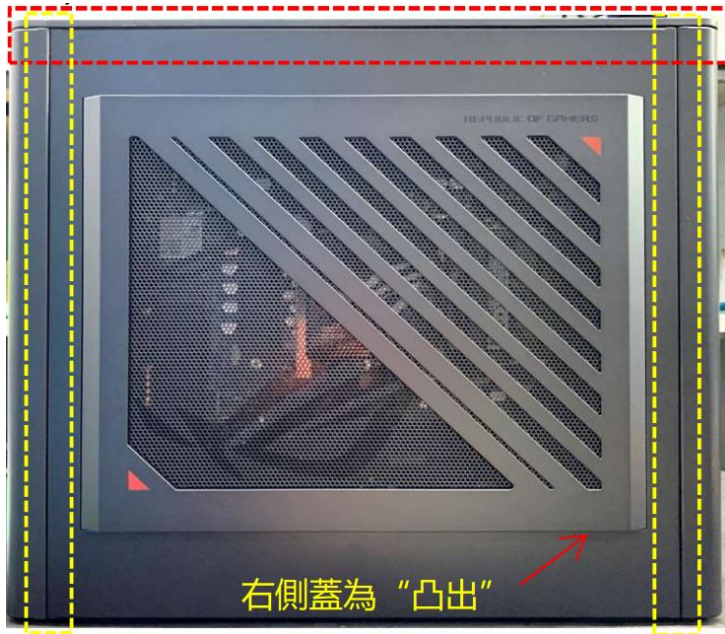
LEFT COVER(install the graphics card)
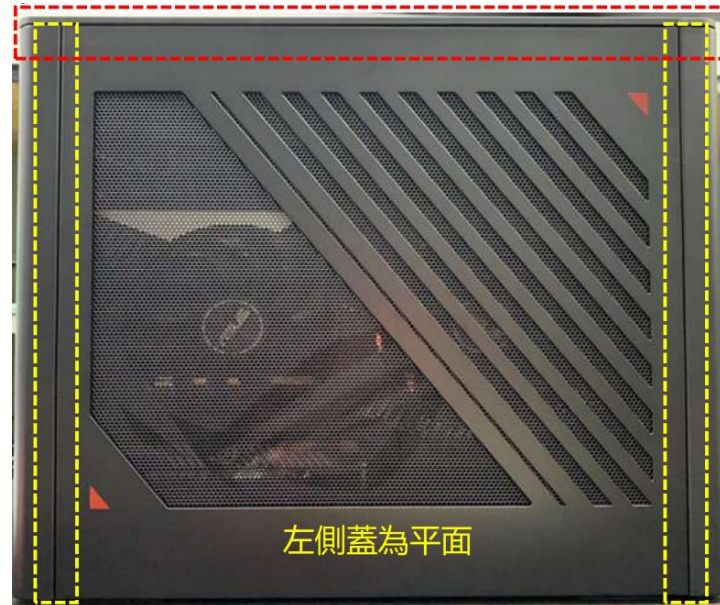
右側蓋為 "凸出"

protruding

左側蓋為平面

flat

TOP IO COVER

Disassembly Notice   Please be sure to pull out adapter and disconnect the battery.

Step 1 : Remove both sides of screws *2pcs
Step 2 : Use the plastic blade to pry the TOP IO COVER.

Screws	QTY	Spec	Torque (kgf-cm)
🔩 ⭕	2	M2.5*4L(4.0,0.7) (F) #1	3.0±0.5
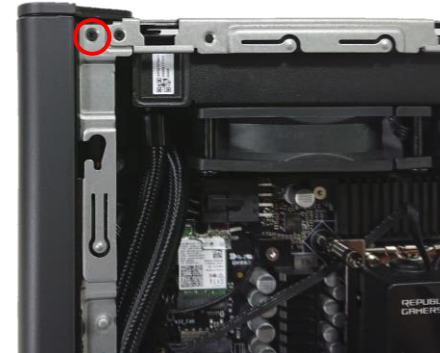
Disassembly Notice Please be sure to pull out adapter and disconnect the battery.

Step 1 : Remove screws *2pcs, and then pull out to remove FRONT COVER.
Step 2 : Remove screws *4pcs, and then Pull out to remove BACK COVER.

Screws	QTY	Spec	Torque (kgf-cm)
⭕	2	#6-32*6.3L (7.3,2.45)(B)	6.0±0.5
🟢	4	M2.5*4L (K) B-ZN NY #1	2.0±0.5

①

Pull

②

Pull

FRONT COVER GASKET
(EN-0388918)

BACK COVER GASKET
(EN-0388918)

Disassembly Notice   Please be sure to pull out adapter and disconnect the battery.

Step 1 : Disconnect 4 cables (Yellow mark) holding on the mainboard.
Step 2 : Remove screws (Red Circle)*8pcs, then remove CHASSIS BRACKET RIGHT.
Step 3 : Remove screws (Blue Circle)*4pcs.
Step 4 : Release screws (Green Circle)*4pcs on CPU LIQUID COOLER 180.
Step 5 : Swinging CPU Liquid Cooler, then remove it.
 e.g. G22CH CASE ASSY with CHASSIS BRACKET RIGHT

Screws	QTY	Spec	Torque (kgf-cm)
⊤ 🔴	8	M2.5*4L(4.0,0.7) (F) #1	3.0±0.5
⊤ 🔵	4	M2.5*4L(4.0,0.7) (F) #1	3.0±0.5
⊤ 🟢	4	LIQUID COOLER with screws	4.0±0.2

❶ Disconnect (Yellow mark)

❷ Unscrew (Red Circle), then remove

❸ Unscrew (Blue Circle)

❹ Release screws (Green Circle)

❺ Swinging cooler then remove

Disassembly Notice

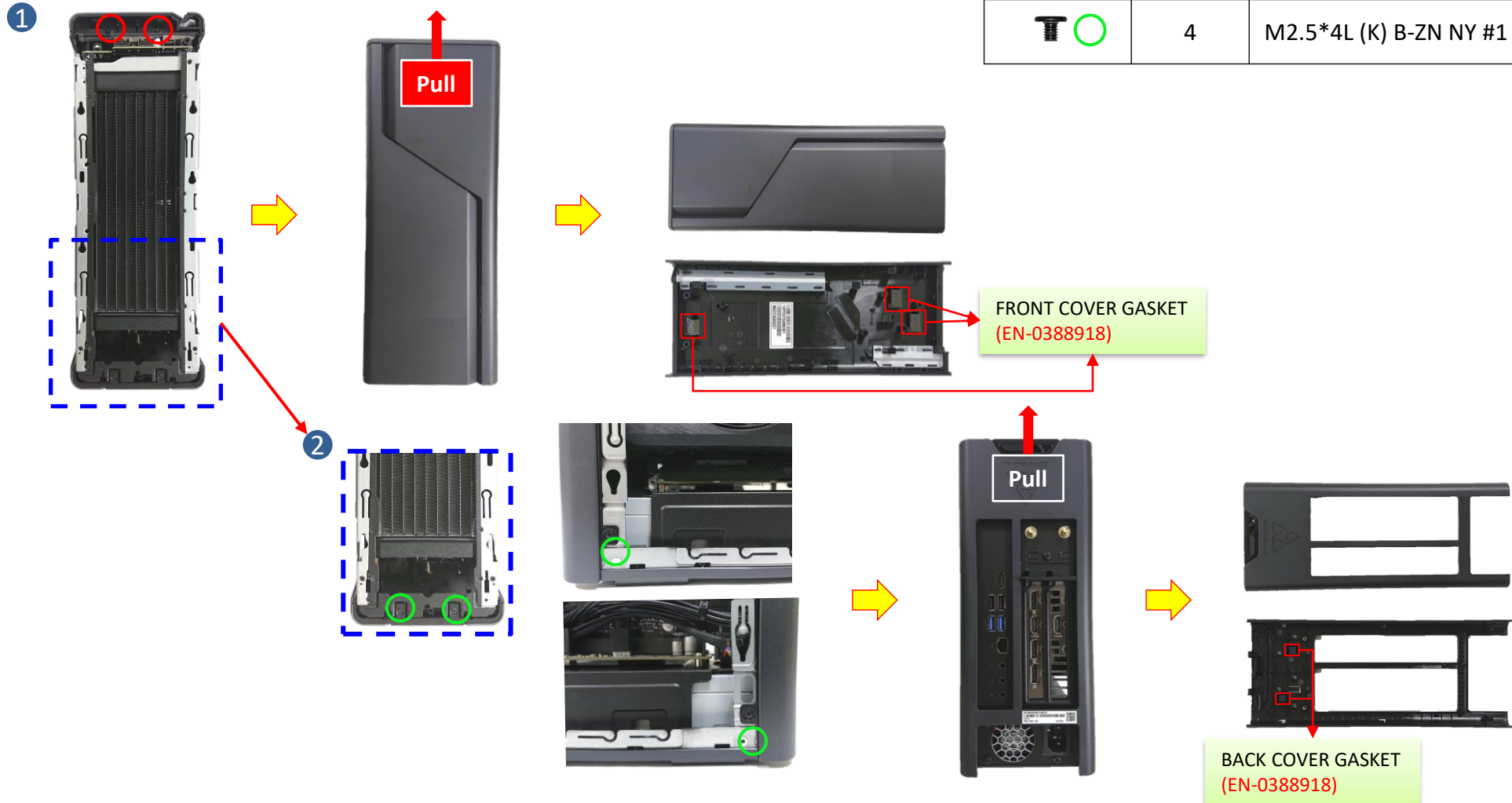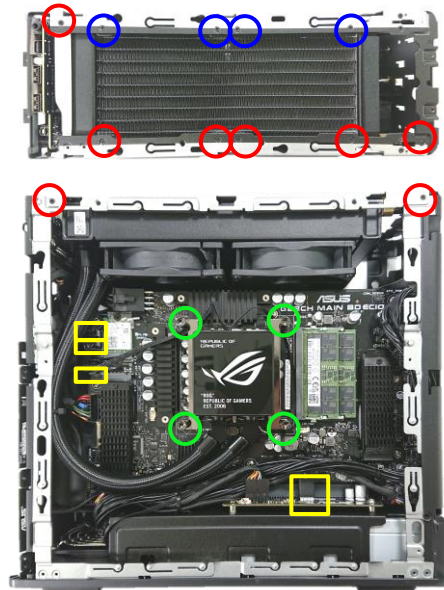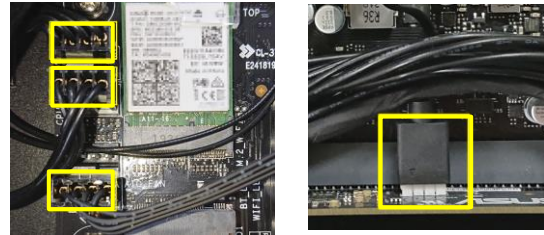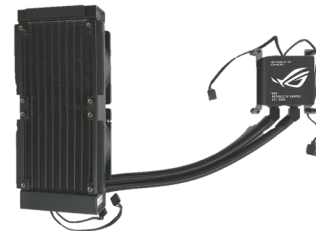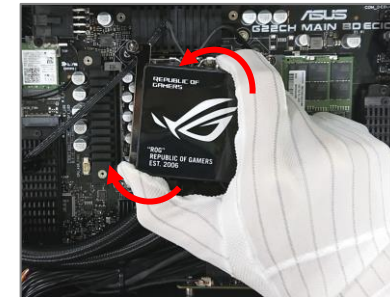⚠ If the CPU LIQUID COOLER is hard to disassemble, please rotate the cooler left and right to separate.

Disassembly Notice   Please be sure to pull out adapter and disconnect the battery.

Step 1 : Remove screws *4pcs, then remove CPU LIGHTING COVER.
Step 2 : Remove screws *4pcs, then remove ACCESSORY KITS.
Step 3 : Remove screws *8pcs. Then move 2 SYS FAN 9CM.

Screws	QTY	Spec	Torque (kgf-cm)
⭕ (red)	4	B2.5*8.7L(LIGHTING COVER with screws)	4.0±0.2
⭕ (green)	4	13PF03T0M29011 / ACCESSORY KITS	4.0±0.2
⭕ (blue)	8	13PF03T0M29011 / ACCESSORY KITS	4.0±0.2

❶ Unscrew (Red mark)

❷ Unscrew (Blue Circle)

❸ Unscrew (Blue Circle)
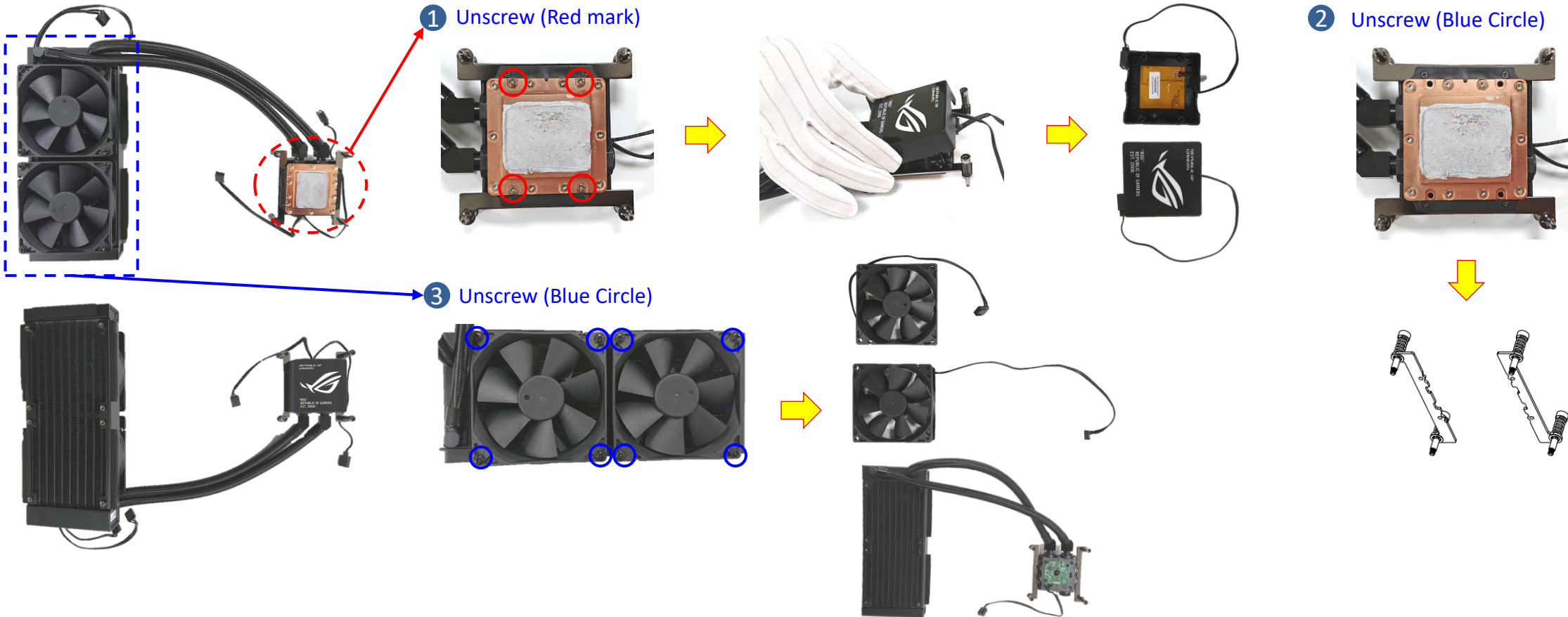
CPU LIQUID COOLER assembly Notice

⚠️ When assembly, please according to below image to tidy up SYS FAN 9CM cables.

⚠️ When assembly, please according to below image to tidy up CPU LIQUID COOLE cables.

圖一、水冷系統風扇線走線要求

Fan cable alignment requirements

圖二、系統風扇線穿線圖示（穿在螺絲內側）Cables inside the screws

圖三、鎖固水冷系統風扇

此處線不要鎖在螺絲內 Do not lock the cable inside the screws

水冷管線繞到外側

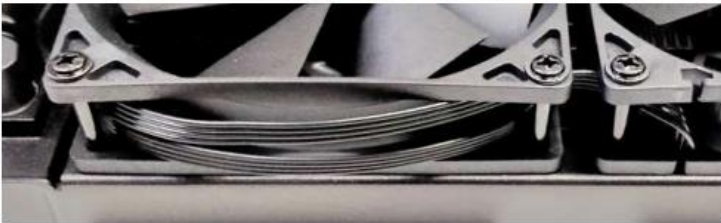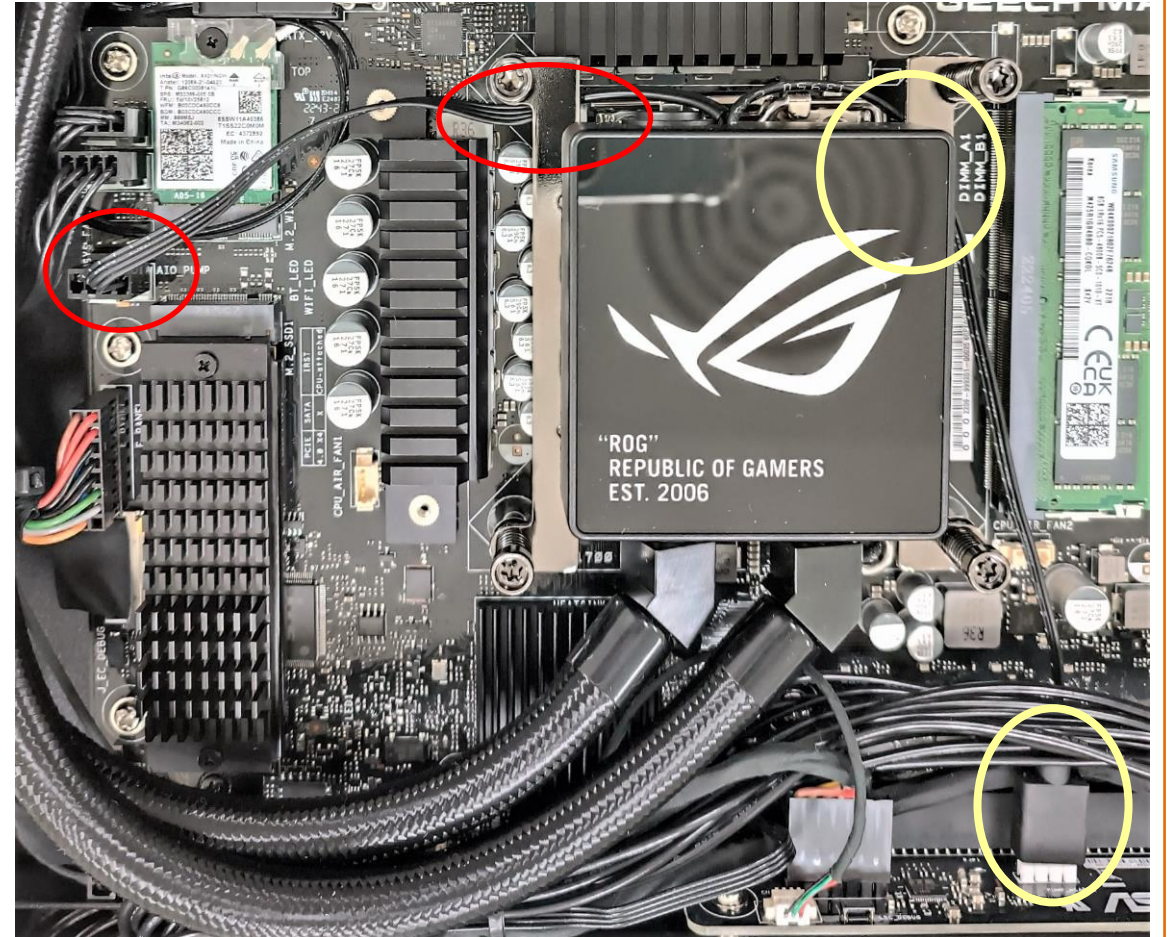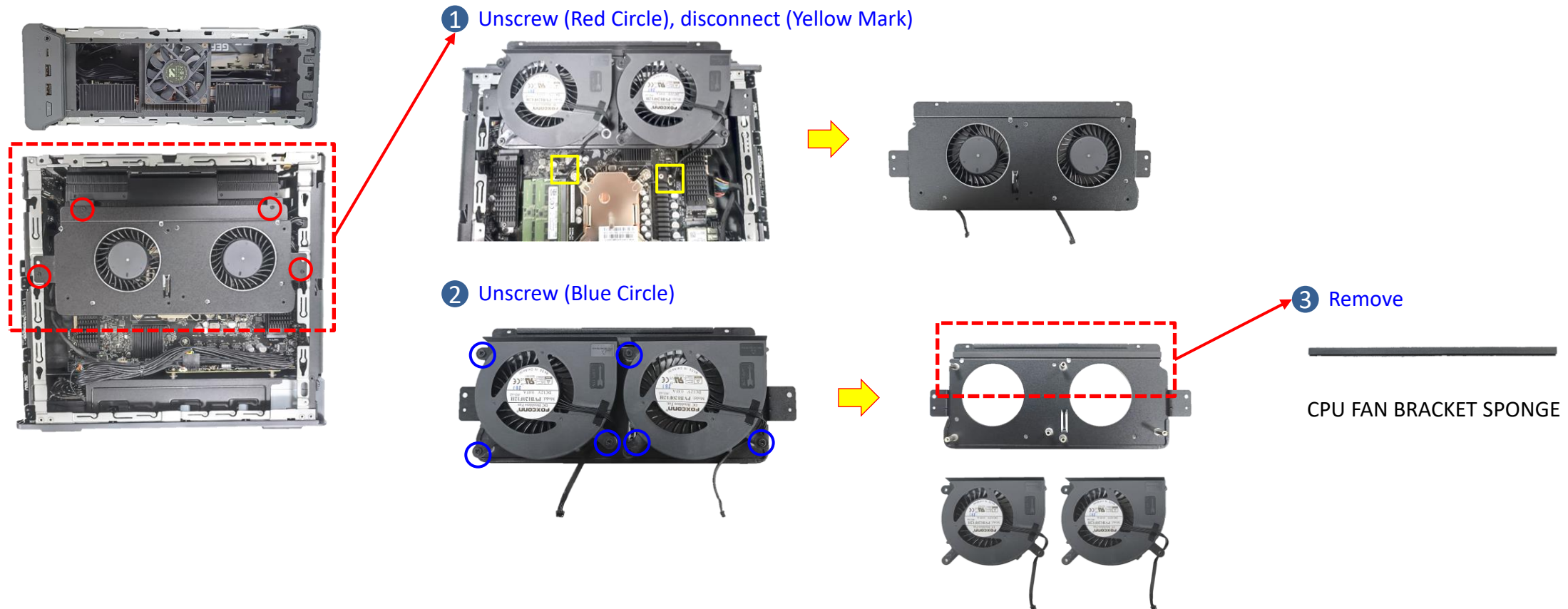**Disassembly Notice**   Please be sure to pull out adapter and disconnect the battery. 🔌🚫

Step 1 : Remove screws *4pcs, and flip CPU FAN BRACKET to disconnect 2 Fan cables, then remove.
Step 2 : Remove screws *6pcs, then remove CPU AIR FAN.
Step 3 : Remove CPU FAN BRACKET SPONGE.

Screws	QTY	Spec	Torque (kgf-cm)
🔩 🔴	4	M2.5*4L (K) B-ZN NY #1	4.0±0.5
🔩 🔵	6	M3*6L (K) B-ZN #2	6.0±0.5

❶ Unscrew (Red Circle), disconnect (Yellow Mark)

❷ Unscrew (Blue Circle)
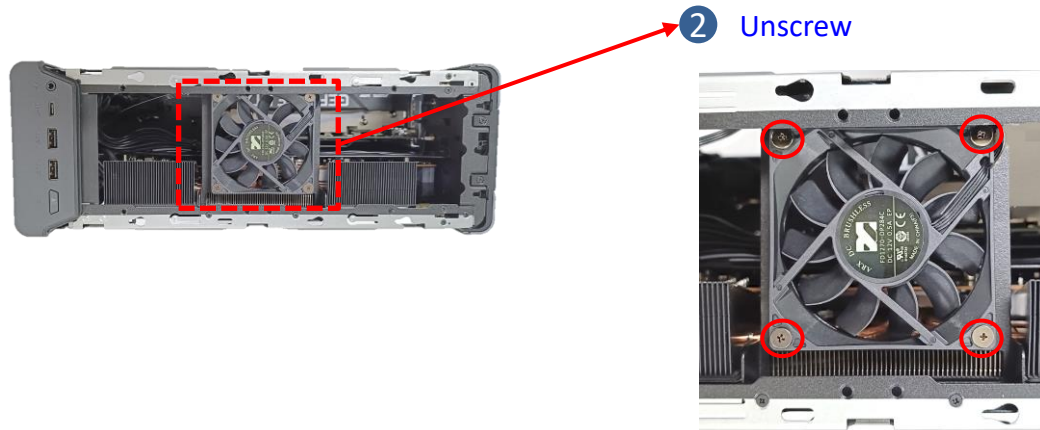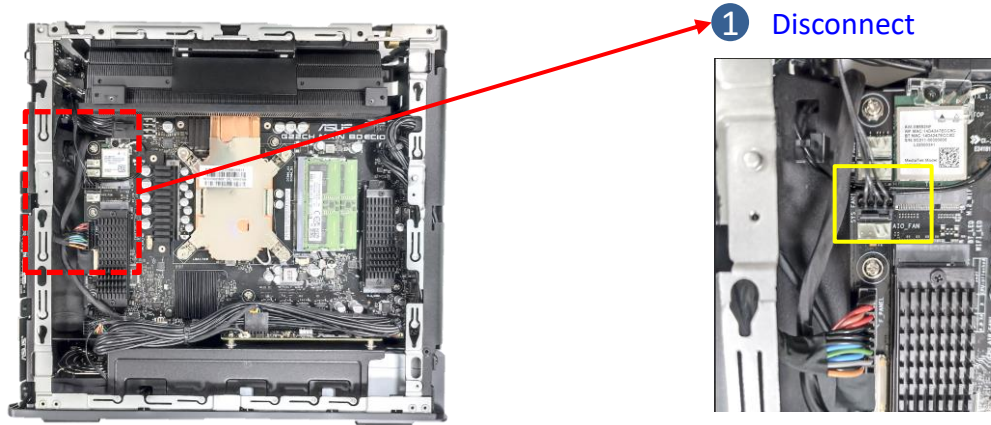
❸ Remove

CPU FAN BRACKET SPONGE

Disassembly Notice Please be sure to pull out adapter and disconnect the battery.

Step 1 : Disconnect SYS FAN connector.
Step 2 : Remove screws *4pcs, then remove SYS FAN 7CM.

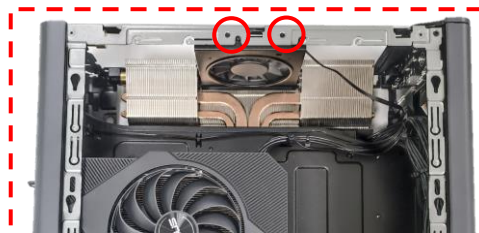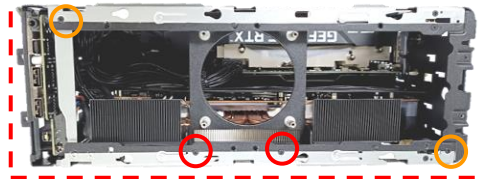| Screws	QTY	Spec	Torque (kgf-cm)
🔩⭕	4	M2.5*5 Φ7(K)	4.0±0.2

① Disconnect

② Unscrew

Disassembly Notice | Please be sure to pull out adapter and disconnect the battery.

Step 1 : Remove screws (Red Circle)*4pcs, then remove SYSTEM FAN BKT.
Step 2 : Remove screws (Green Circle)*2pcs, and release screws (Blue Circle) *4pcs on CPU AIR Cooler, then remove CPU AIR Cooler.
Step 3 : Remove screws (Orange Circle)*4pcs, then remove CHASSIS BRACKET RIGHT.
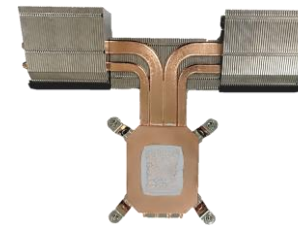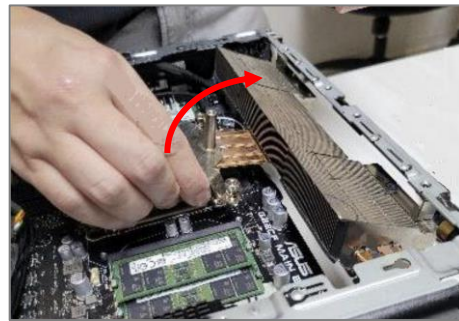
e.g. G22CH CASE ASSY with CHASSIS BRACKET RIGHT

Screws	QTY	Spec	Torque (kgf-cm)
⊤ ⚪	4	M2.5*4L(4.0,0.7) (F) #1	3.0±0.5
⊤ 🟢	2	M2.5*4L(4.0,0.7) (F) #1	4.0±0.5
⊤ 🔵	4	Retention Screw (#2)	5.0±0.5
⊤ 🟠	4	M2.5*4L(4.0,0.7) (F) #1	4.0±0.5

① Unscrew (Red Circle), then remove

❸ Unscrew (Yellow Circle), then remove

② Unscrew (Green Circle), then release (Blue Circle)

VGA CARD

Disassembly Notice — Please be sure to pull out adapter and disconnect the battery. 🚫

Step 1 : Disconnect 2 power supply connectors. (Yellow mark)
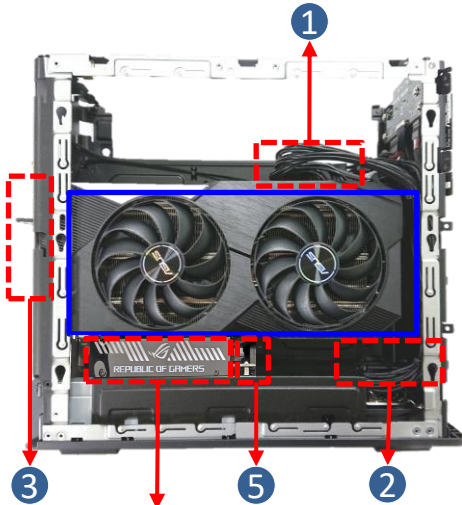Step 2 : Remove screw *1pc.
Step 3 : Remove screws *3pcs, and then remove PCI SLOT COVER.
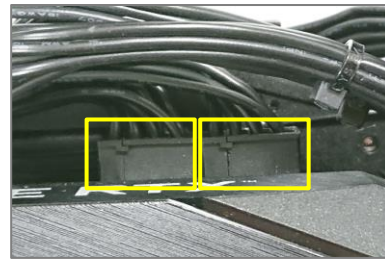Step 4 : Remove screws *2pcs, and then remove VGA SIDE ID MYLA.
Step 5 : Press the button and then remove VGA card.
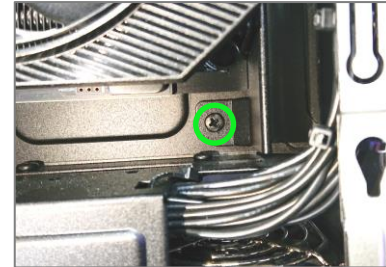Step 6 : Remove screws *2pcs, and VGA BRACKET.

Screws		QTY	Spec	Torque(kgf-cm)
🔩	🟢	1	#6-32*6.3L (7.3,2.45)(B) #2	8.0±0.5
🔩	🔴	3	#6-32*6.3L (7.3,2.45)(B) #2	8.0±0.5
🔩	🟠	2	SCREW M2*5L	2.0±0.2
🔩	🔵	2	SCREW #6-32*6.3L (7.3,2.45)(B)	8.0±0.2

① ③ ⑤ ②

❶ Disconnect

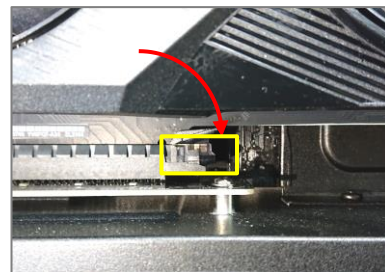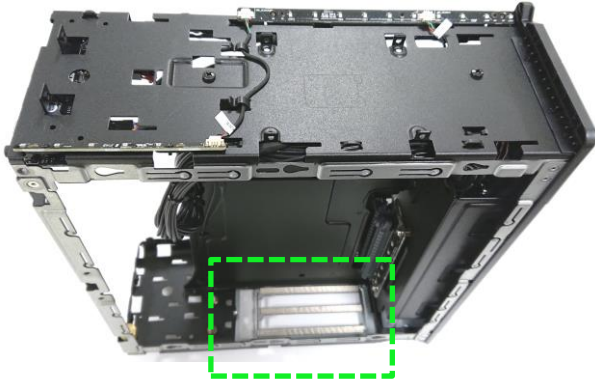❷ Disconnect

❸ Disconnect

❻ Disconnect

④ Disconnect

❺ Press

Remove

EMI SHIELDING GASKET assembly Notice

⚠️ When EMI SHIELDING GASKET assembly, please according to below location to paste.

VGA CARD (For Air Cooler)

Disassembly Notice   Please be sure to pull out adapter and disconnect the battery. 🚫🔌

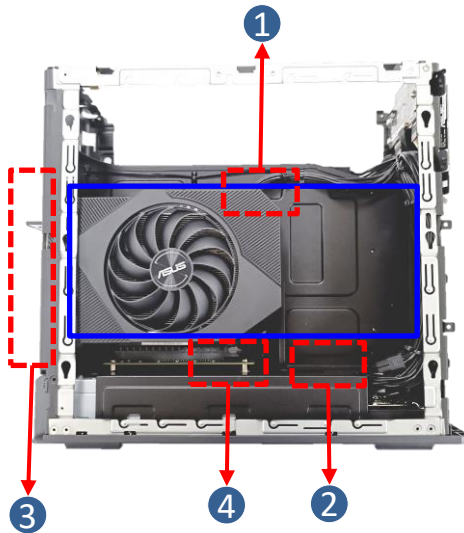Step 1 : Disconnect a power supply connector (Yellow mark).
Step 2 : Remove screw *1pc.
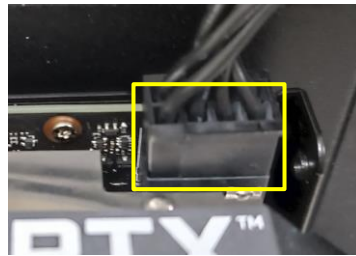Step 3 : Remove screws *3pcs, and then remove PCI SLOT COVER.
Step 4 : Press the button and then remove VGA card.
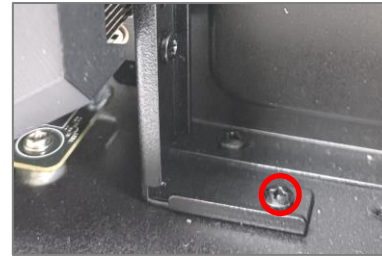Step 5 : Remove screws *2pcs, and VGA BRACKET.

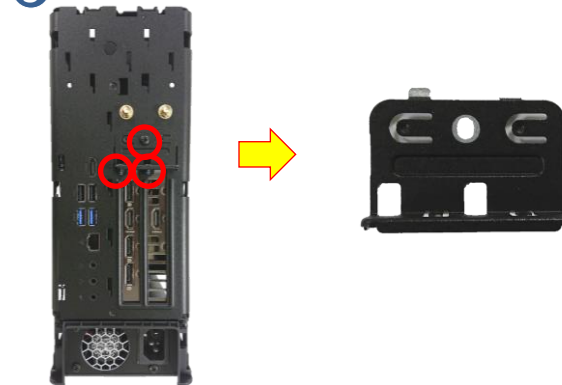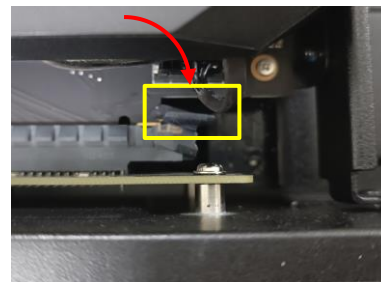| Screws	QTY	Spec	Torque(kgf-cm)
🔩 ⭕	4	#6-32*6.3L (7.3,2.45)(B)	8.0±0.5
🔩 ⭕	2	#6-32*6.3L (7.3,2.45) (B) #2	8.0±0.5

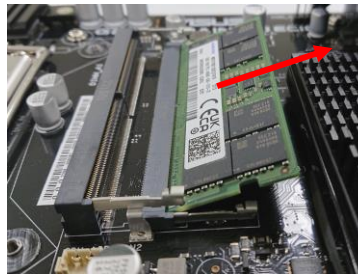❶ Disconnect

❷ Remove

❸ Disconnect
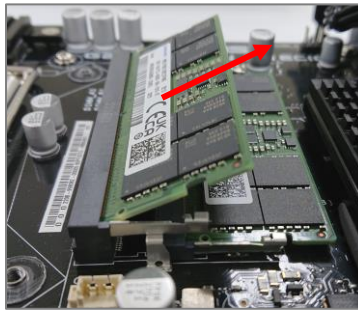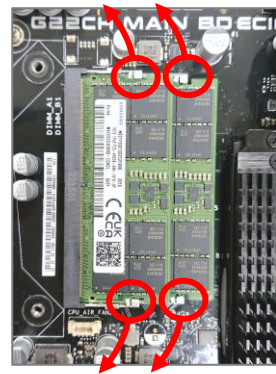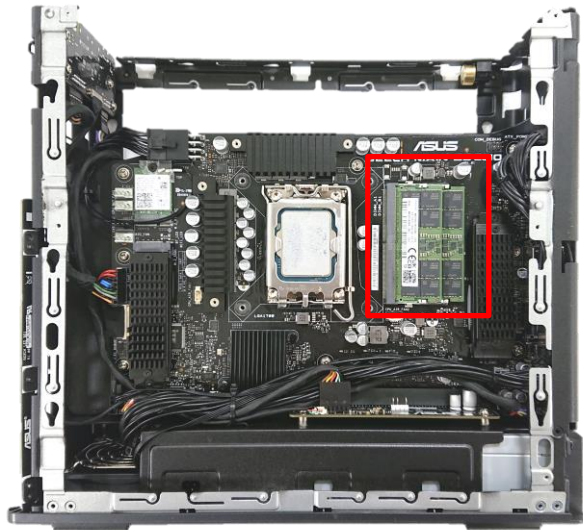
❹ Press and remove

❺ Disconnect

Disassembly Notice Please be sure to pull out adapter and disconnect the battery. 🚫🔌

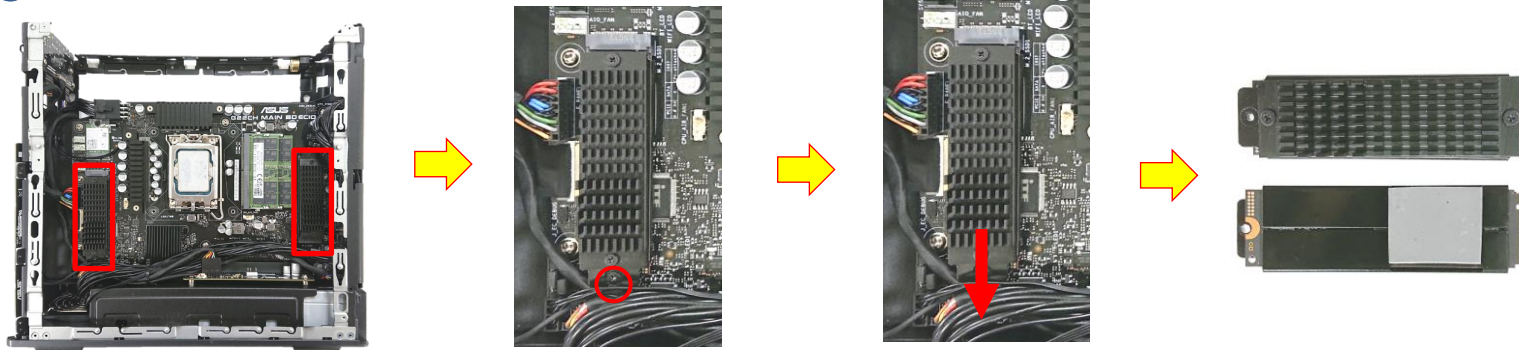Step 1 : Unlock and remove the DDR module *2pcs.

① Unlock

SSD

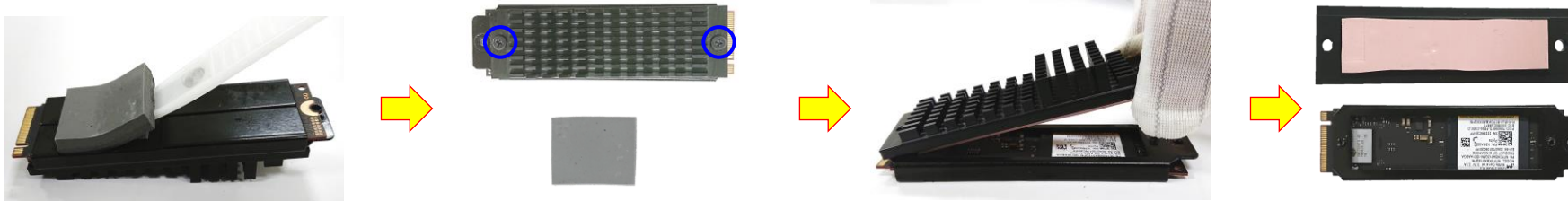**Disassembly Notice**   Please be sure to pull out adapter and disconnect the battery.

Step 1 : Remove screws 1*pc, and follow direction to remove SSD.
Step 2 : Remove PAD, and remove screws *2pcs, then separate SSD housing.
Step 3 : Remove Thermal Pad.
Step 4 : Remove SSD from TH BRACKET.

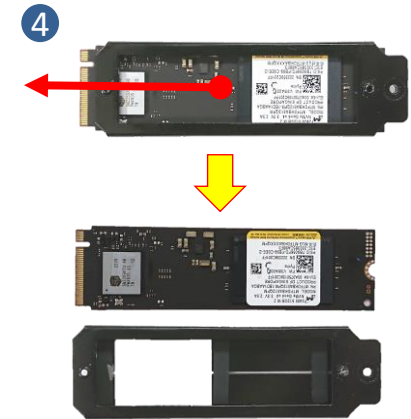| Screws	QTY	Spec	Torque (kgf-cm)
🔩⭕	1	M2*7.5L (4.5,0.8) (K) #1	2.0 ±0.2
🔩⭕	2	M2*4L	2.0 ±0.2

❶ Unscrew

❹

❷ Remove

Assembly Notice

⚠ Please follow the criteria below to assemble SSD.
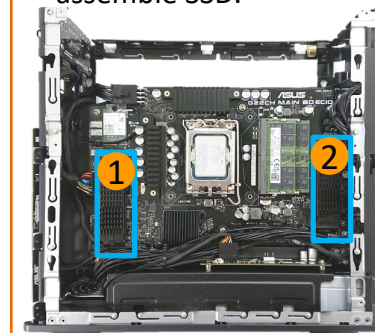
❸ Remove

❶ MAIN SSD
❷ AUX SSD

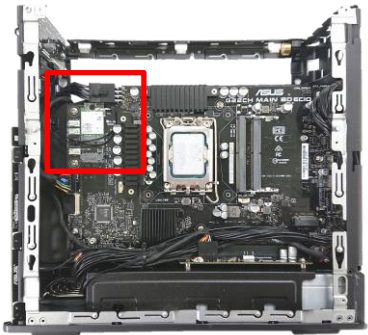26
Back

WIFI CARD

Disassembly Notice   Please be sure to pull out adapter and disconnect the battery. 🚫🔌

Step 1 : Remove screw 1*pc, then remove WLAN CABLE TERMINAL COVER.
Step 2 : Disconnect RF Cables and then remove WIFI Card.

Screws	QTY	Spec	Torque (kgf-cm)
🔩⭕	1	M2*3L (5.5,0.8) (K) B-ZN	2.0±0.2

❶

Unscrew

❷ Disconnect

Remove

Assembly Notice

⚠️ Please according to the image below to tidy up RF MAIN and AUX Antenna cables.
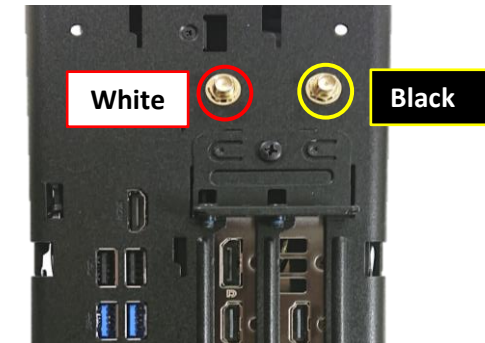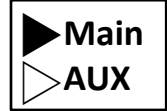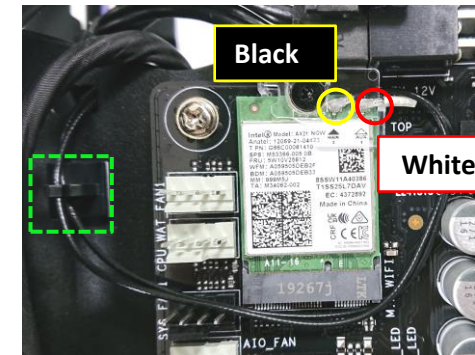
▶ Main
▷ AUX

Black

White

White

Black

27

Disassembly Notice — Please be sure to pull out adapter and disconnect the battery. 🚫

Step 1 : Disconnect connectors (Yellow mark) *8pcs.
Step 2 : Remove screws (Red circle) *8pcs.
Step 3 : Remove screws (Green circle) *4pcs on RISER Board.
Step 4 : Pull up Main-Board, and disconnect connectors (Yellow mark) *2pcs.
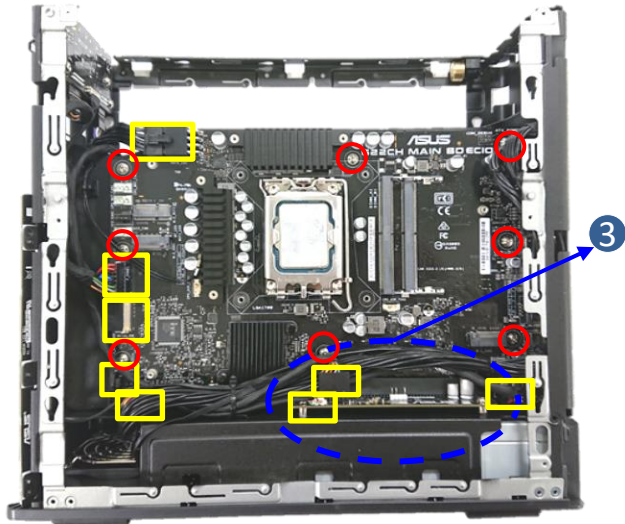Step 5 : Press the button and separate RISER Board.
Step 6 : Remove CPU from socket.

Screws	QTY	Spec	Torque (kgf-cm)
🔩 ⭕	8	M3*4L(7,2.4) (B+W) #2	6.0±0.5
🔩 🟢	4	M3*4L (6.3,2.05) (P)	6.0±0.5

❶ Disconnect (Yellow mark)
❷ Unscrew (Red circle)

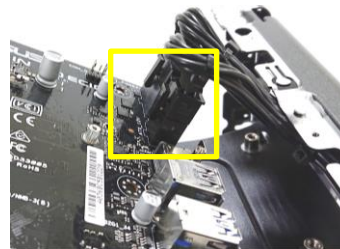❸ Unscrew (Red circle)

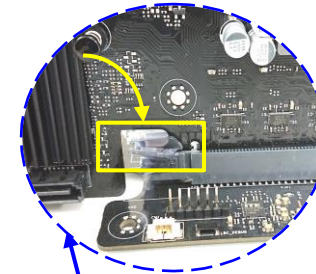**Back**   **Front**
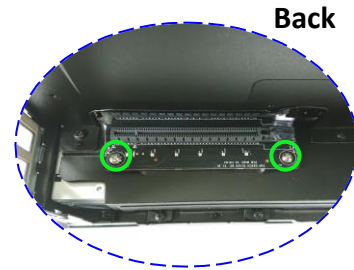
❹ Pull up   Disconnect
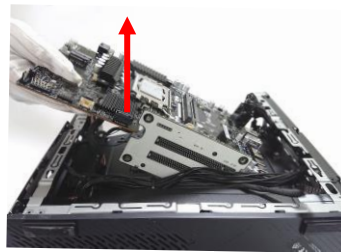
❺ Press

❻ Remove

CPU COOLER Disassembly Notice
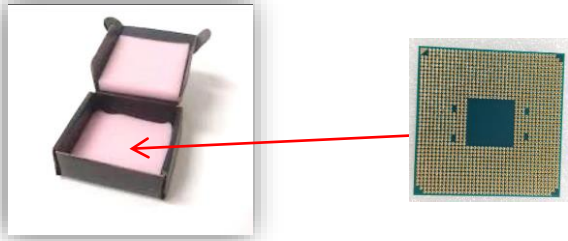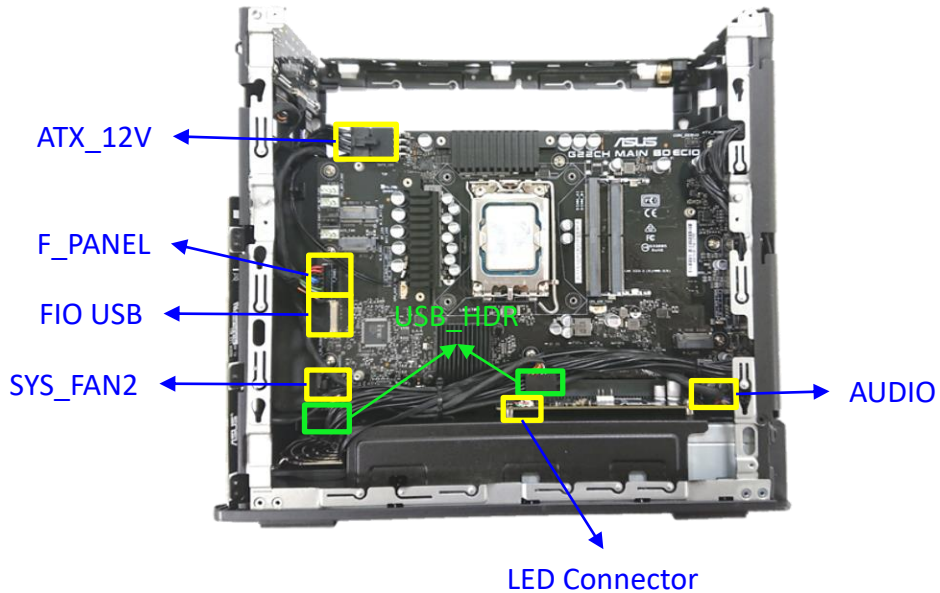
⚠️ Pin facing down on Processor packaging to protect the CPU.

⚠️ Please follow the instructions to assemble the CPU.

ATX_12V

F_PANEL

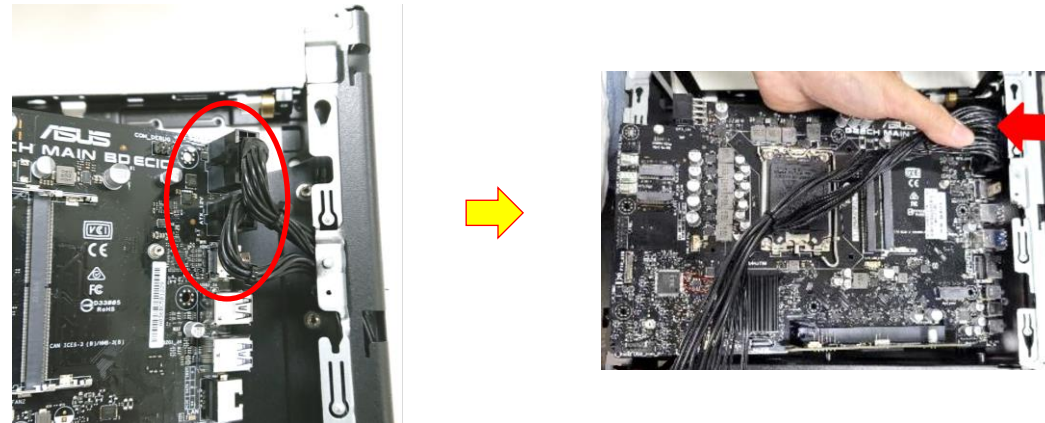FIO USB

USB_HDR

SYS_FAN2

AUDIO

LED Connector

Assembly Notice

⚠️ Please follow the instructions to assemble the CPU.

The CPU triangle logo must be aligned.

⚠️ When assemble Main-Board, please connect 10Pin & 6Pin PSU cables then place MB.
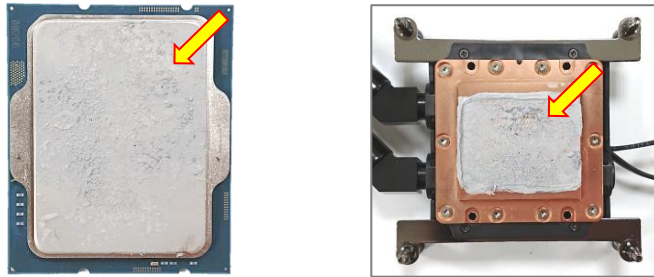
Assembly Notice Please be sure to pull out adapter and disconnect the battery. ⚠️

⚠️ Please make sure that re-smear thermal material on CPU Die, if thermal module have to be reassembled.

Step-1 :

Using dust-free cloth with 95% alcohol to clean up the residual thermal grease on CPU & thermal module.

Step-2 :

Please use plastic tool (Plastic stick) to get Thermal Grease, and smear over CPU around 0.2~0.3mm thick.


Attention:

1.Please clean plastic tool with Dust-free cloth and 95% alcohol before using.

2.Please mix well before Thermal grease using (In case Oil-Grease separation).

FIO BD & LED BD

Disassembly Notice Please be sure to pull out adapter and disconnect the battery.

Step 1: Remove screws (Red circle) *4pcs on FIO Board and then remove FIO BD and cables.
Step 2: Remove screws (Blue circle) *5pcs, then remove LED BD1 & 2、LED RIGHT TO MB 3P
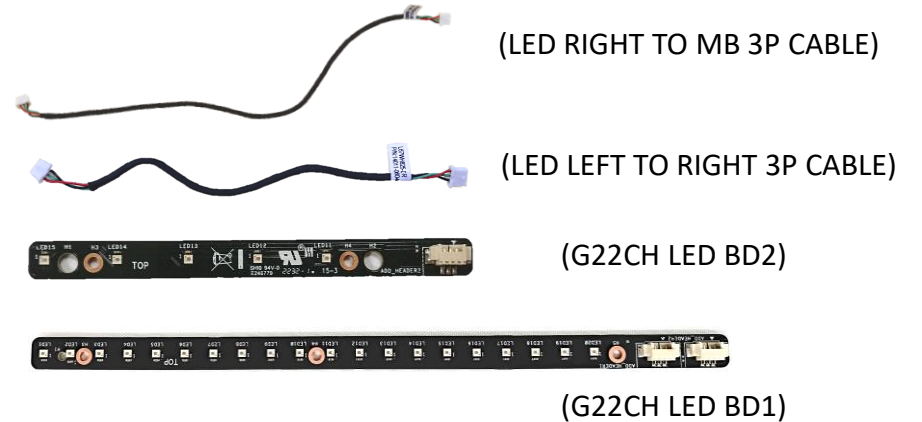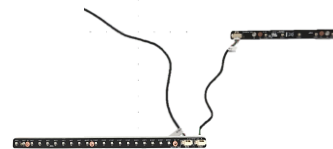CABLE and LED LEFT TO RIGHT 3P CABLE.

Screws	QTY	Spec	Torque(kgf-cm)
🔩 ⭕	4	M3*4L(7,2.4) (B+W) #2	6.0±0.5
🔩 ⭕	5	M2*5L	2.0±0.5

① Unscrew and remove

(FIO TO MB 16P CABLE)

(FIO 40P USB CABLE)

(FIO TO MB 10P CABLE)
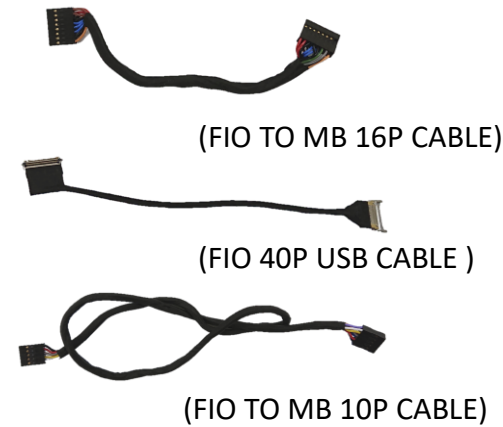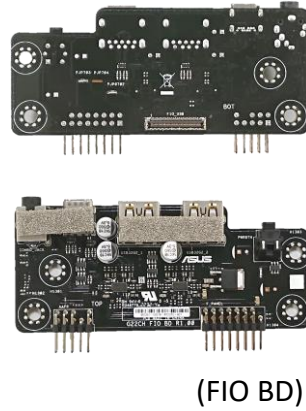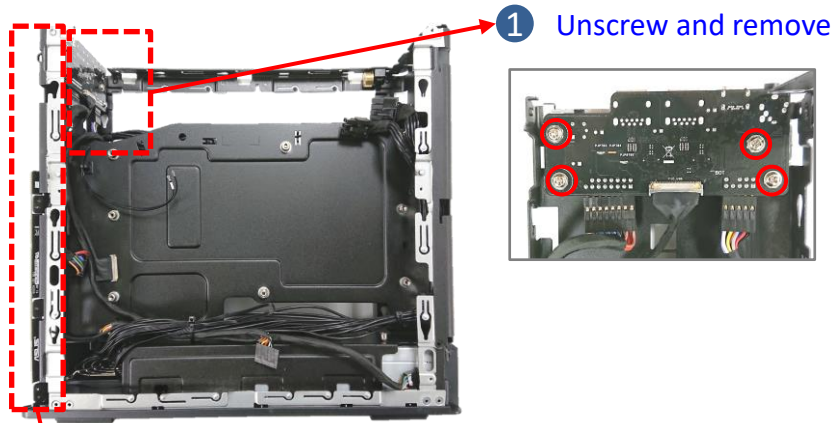
(FIO BD)

Assembly Notice

⚠️ **When reassembly FIO BD:**
Please paste the tape according to the following mark.
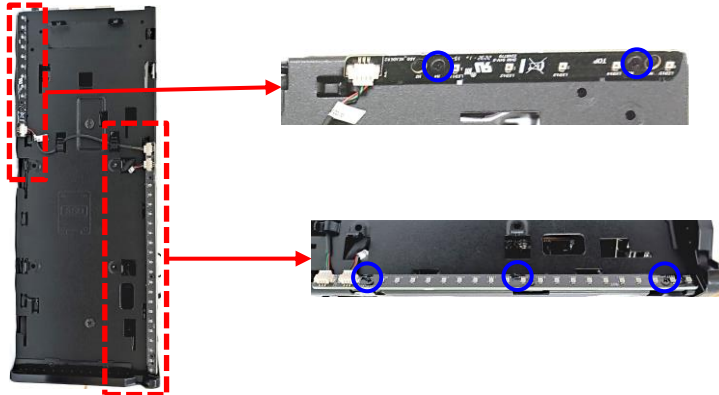
TP EMI TAPE
(EN-0387989)

② Remove

(LED RIGHT TO MB 3P CABLE)

(LED LEFT TO RIGHT 3P CABLE)

(G22CH LED BD2)

(G22CH LED BD1)

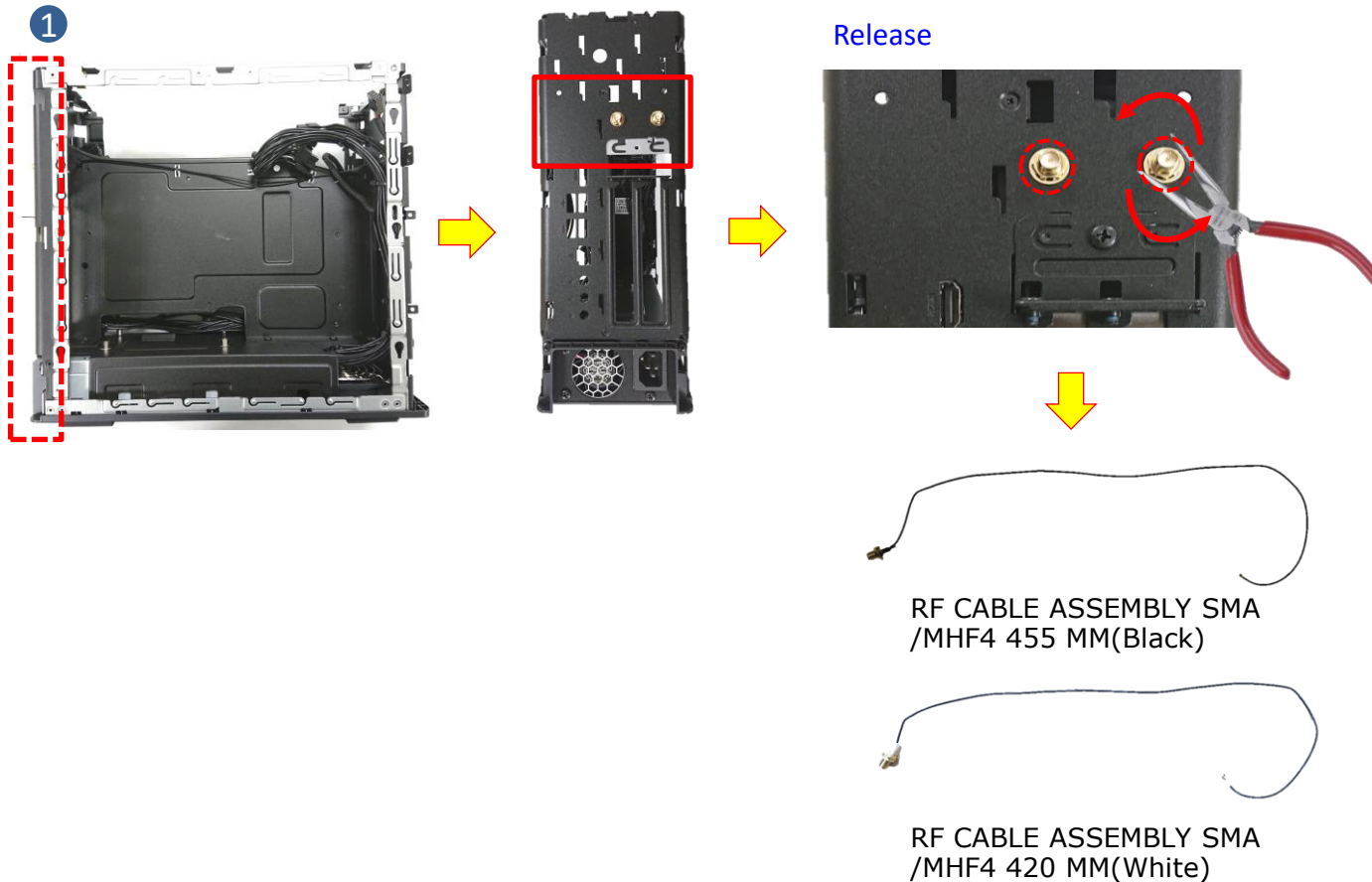**Disassembly Notice** Please be sure to pull out adapter and disconnect the battery.

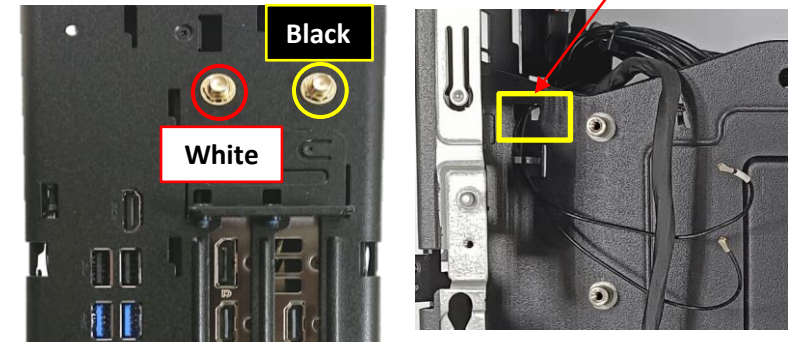Step 1 : Release RF connectors by plier, and then remove RF CABLES.

① Release

RF CABLE ASSEMBLY SMA /MHF4 455 MM(Black)

RF CABLE ASSEMBLY SMA /MHF4 420 MM(White)

Assembly Notice

⚠ Please according to the image below to tidy up RF cables.

Back

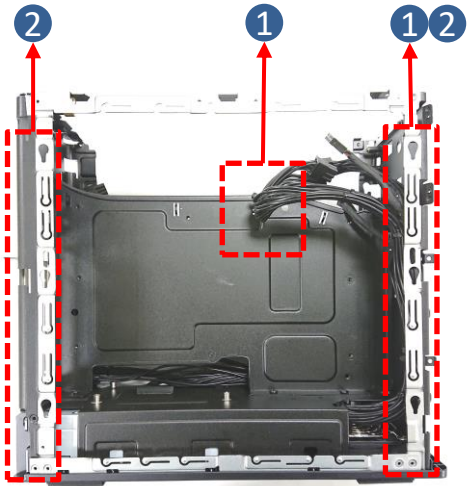1 2 3 4

貼附於六角鉚釘位置

Front

Black

White

Disassembly Notice Please be sure to pull out adapter and disconnect the battery.
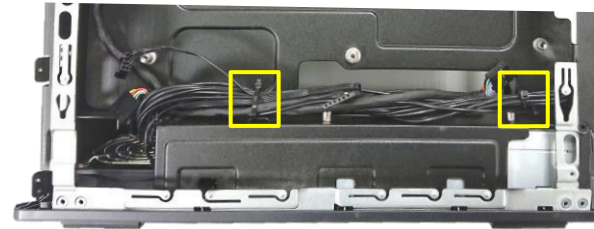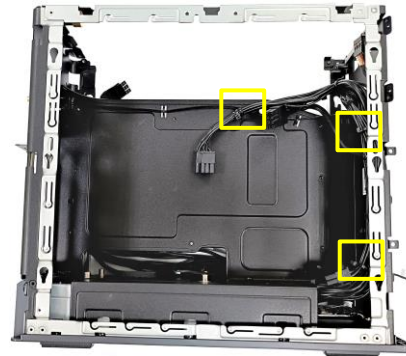
Step 1 : Release cable ties for 5 location, and then remove RISER TO MB 7P CABLE.
Step 2 : Remove screws (Red & Blue Circle)*6pcs, and then remove MB BRIDGE BRKT.
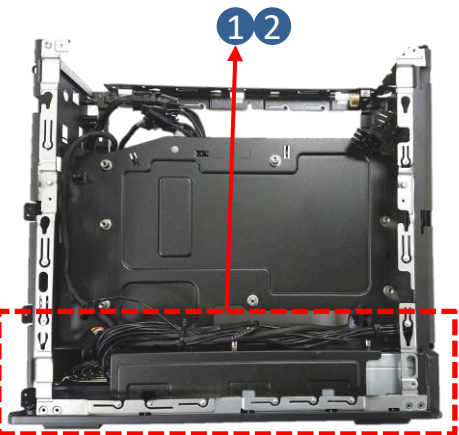
Screws		QTY	Spec	Torque(kgf-cm)
🔩	⭕	2	M2.5*4L(4.0,0.7) (F) #1	4.0±0.5
🔩	⭕	4	#6-32*6.3L (7.3,2.45)(B)	6.0±0.5

❶ Release

(RISER TO MB 7P CABLE)

❷ Unscrew   Front
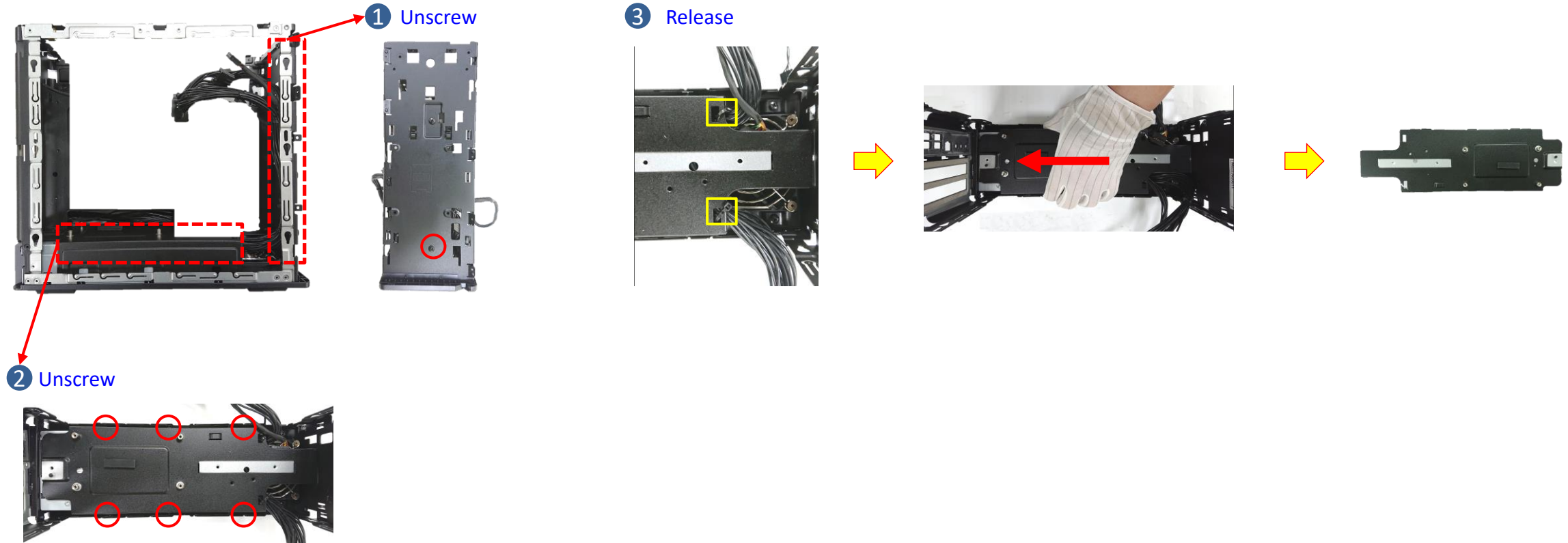
PSU COVER

Disassembly Notice Please be sure to pull out adapter and disconnect the battery.

Step 1 : Remove screws (Red circle) *1pcs.
Step 2 : Remove screws (Red circle) *6pcs.
Step 3 : Release cable ties for 2 location, and follow direction to remove PSU COVER.

Screws	QTY	Spec	Torque(kgf-cm)
⭘	7	#6-32*6.3L (7.3,2.45)(B)	6.0±0.5

❶ Unscrew

❸ Release

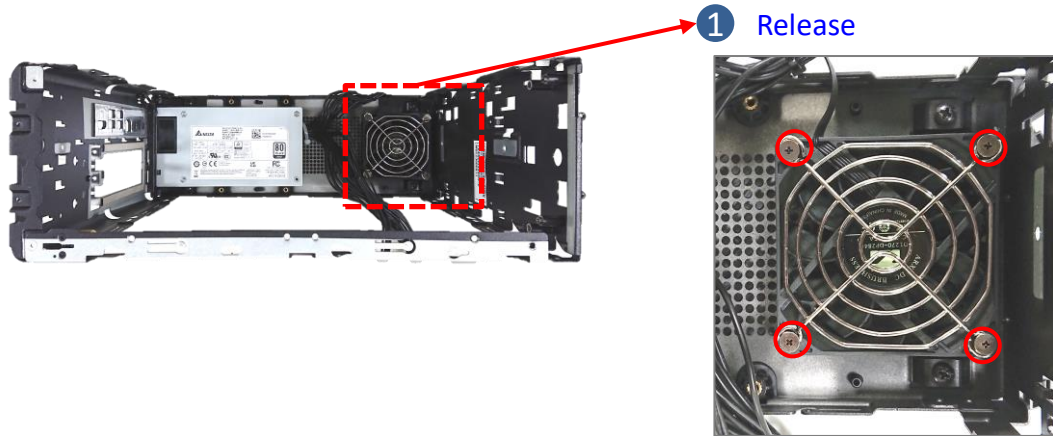❷ Unscrew

SYSTEM FAN 7CM

Disassembly Notice   Please be sure to pull out adapter and disconnect the battery.

Step 1 : Remove screws *4pcs, then remove SYS FAN 7CM WITH FAN GUARD.

Screws	QTY	Spec	Torque (kgf-cm)
🔩⭕	4	BARTON SCREW M2.5*5 Φ7(K)	4.0±0.5
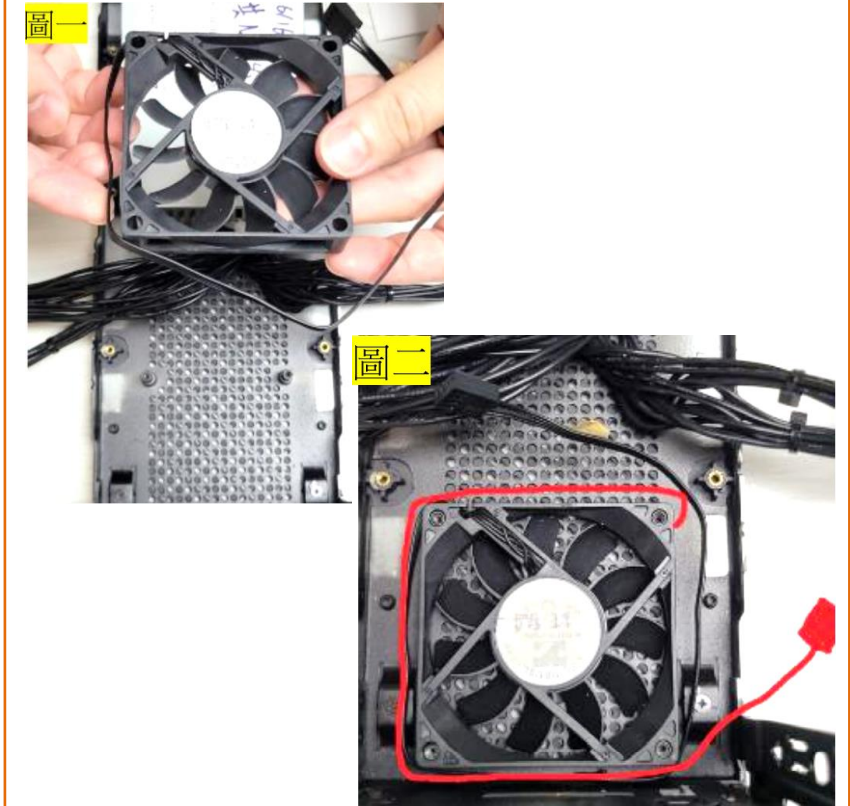
❶ Release

Assembly Notice

⚠️ Please according to the image below to tidy up RF cables.
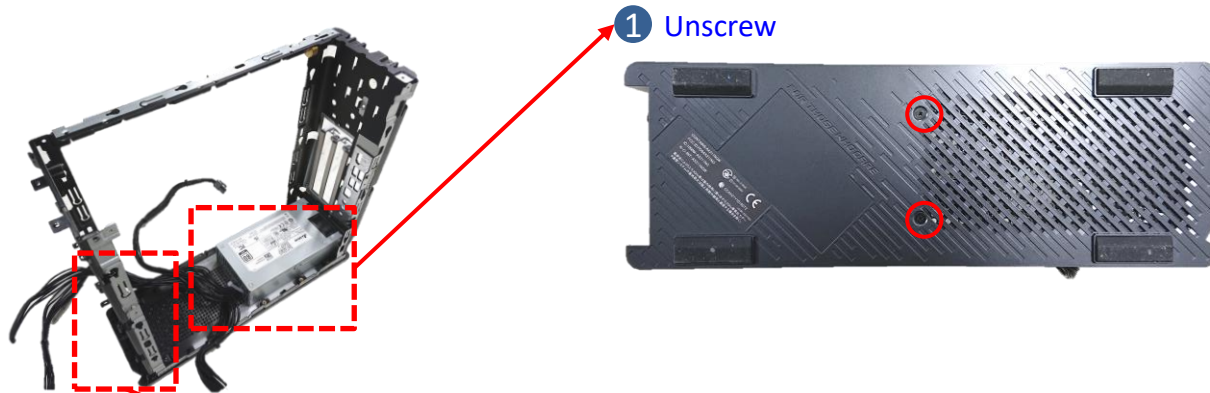
圖一

圖二

PSU FLEX 600W

Disassembly Notice
Please be sure to pull out adapter and disconnect the battery. 🚫🔌

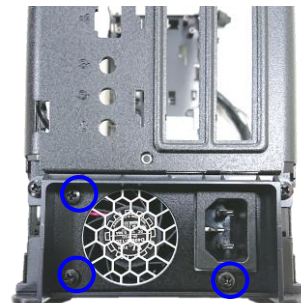Step 1 : Remove screws (Red circle)*2pcs.
Step 2 : Remove screws (Blue circle)*3pcs and PSU FLEX 600W.

Screws	QTY	Spec	Torque (kgf-cm)
🔩 ⭕	2	M3*6L (7,1) (F) #1	6.0±0.5
🔩 ⭕	3	#6-32*6.3L (7.3,2.45)(B)	8.0±0.5

❶ Unscrew

Assembly Notice

⚠️ Please follow the criteria below to assemble ACETATE CLOTH TAPE and power cables 10PIN&6PIN (0~5mm).

10PIN 6PIN 沿CONN頭貼附,間隙允許0~5mm 醋酸膠布

❷ Unscrew   **Remove**