

ASUS TUF Gaming F15 (FX517Z) series

Service Guide



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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.

/ISUS

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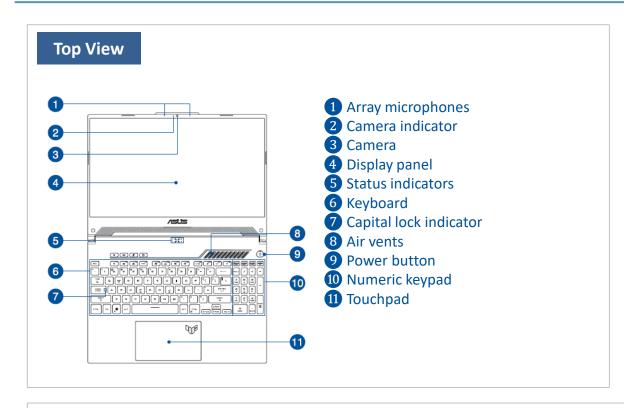
Service Overview

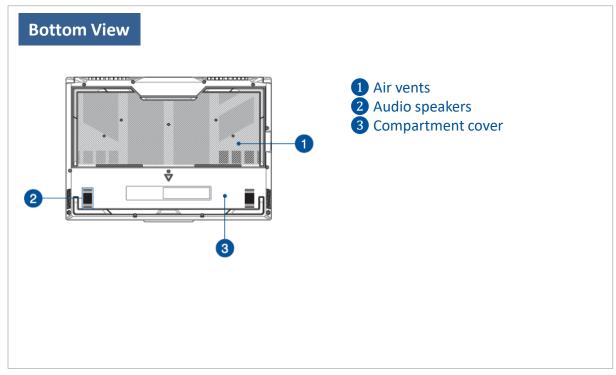
- Carefully read through this Service Guide for a look at various components of the device before performing any service and repairs.
- To provide the best service, we have provided the below information for technicians from distributors and resellers to perform the complete device disassembly and assembly. Before performing the procedures, please be sure to read through the overview in this service guide for component overview to avoid any unwarranted damages to the device hardware.
- The following contents include all part numbers mentioned in the service guide are **used for reference only**, if you need the exact part number for ordering, please refer to the OrderBook.
- Due to sales policy difference, the components might have different specifications on the same series product, please refer to E-manual by model.

Due to sales policy difference, the components may have different specifications on the same model. If you have any operational issues, please contact the service hotline.



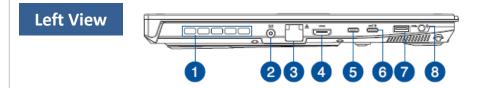
ASUS TUF Gaming F15 (FX517Z) Series Overview







- 1 USB 3.2 Gen 1 port
- 2 Air vents (on selected models)
- 3 Kensington® security slot



- 1 Air vents
- 2 Power (DC) input port
- 3 LAN port
- 4 HDMI output port

- 5 Thunderbol™ 4 port
- 6 USB 3.2 Gen 2 Type-C[®]/DisplayPort combo port
- **7** USB 3.2 Gen 1 port
- 8 Headphone/Headset/Microphone jack



Components Top View

♦ LCD COVER



♦ BASE CASE



♦ SSD AL FOIL



♦ USB FPC



♦ MAIN BOARD



♦ TOUCHPAD MODULE



♦ DIMM COVER MYLAR



♦ LCD BEZEL



♦ BATTERY



♦ DDR



♦ WIFI CARD



♦ LED BD



♦ TP FFC (114.5MM/8P)



♦ HINGE Color ID: 1C/1D



♦ 15.6' LCD PANEL



♦ SSD

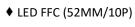


♦ RAM ABSORBER



♦ GPU FAN







♦ SPEAKER SET



♦ BEZEL COSMETIC MYLAR



♦ KEYBOARD MODULE



♦ SSD ABSORBER



♦ USB BD



♦ THERMAL MODULE ASSY



♦ TOP LED SPONGE



♦ BATTERY CABLE



♦ CAMERA



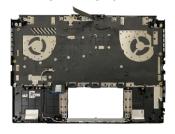


Components Bottom View

♦ LCD COVER



♦ KEYBOARD MODULE



♦ THERMAL MODULE ASSY



♦ LCD BEZEL



♦ WIFI ANTENNA



♦ LED BD



♦ 15.6' LCD PANEL



♦ USB BD



♦ EDP CABLE



♦ BASE CASE



♦ MAIN BOARD



♦ TOUCHPAD MODULE





Repair Overview

This chapter describes disassembly and assembly (Assemble document please look up from the last page), please follow the information provided in this section to perform the complete disassembly procedure.

♦ Precautions:

Before you perform any service or repair on the notebook, please pay special attention to the cautions prevent any damages to the notebook.

- 1. Be sure that the notebook is powered down.
- 2. Before disassembling any part, please disconnect all power source. ex: AC plug/Battery connector/Power protect screw etc.
- 3. Remove all rings, watches and any other metal objects from your hands.



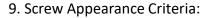


- 4. Always wear a ground strap on your hand to protect the notebook from static discharge.
- 5. Please refer to "ANSI ESD S20.20" about ESD protection measure.
- 6. Put the disassembled parts in the functional PE BAG to avoid any damages of the A/B/C/D part.





- 7. The maintenance environment temperature is 20-30 °C and humidity is 40% 70%.
- 8. To avoid scratching on the surface of machine; please use anti-static and soft materials to put on desk in repair environment as below photo.



If the screws have the following damaged appearance, please do not use.

- a. Shape deformed.
- b. Damaged head unable to drive in or the stripped screw.
- c. Damaged unable to securely tighten.
- d. Paint scratched off.
- e. Rusty











- 10. The following chapter includes all part numbers mentioned in service guide are used for reference only, actual part name depends on different SKU, if you need the exact part number for ordering, please refer to the Orderbook.
- 11. Due to sales policy difference, the components may have different specifications on the same model. Please note that all pictures and components shown on Service Guide are for disassembly/assembly description purpose only, so please refer to the actual product for disassemble/assemble.



Appropriate Tools

Please prepare and select the appropriate tools to disassemble/assemble for the TUF Gaming F15 (FX517Z) series notebook.

♦ Screwdriver

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





♦ Plastic Blade



♦ Plastic Tweezers

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



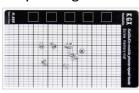
♦ Thickness Gauge

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 Pad PTM7958



♦ FCR-AS Thermal Grease



♦ PLASTIC CARD T=0.35mm









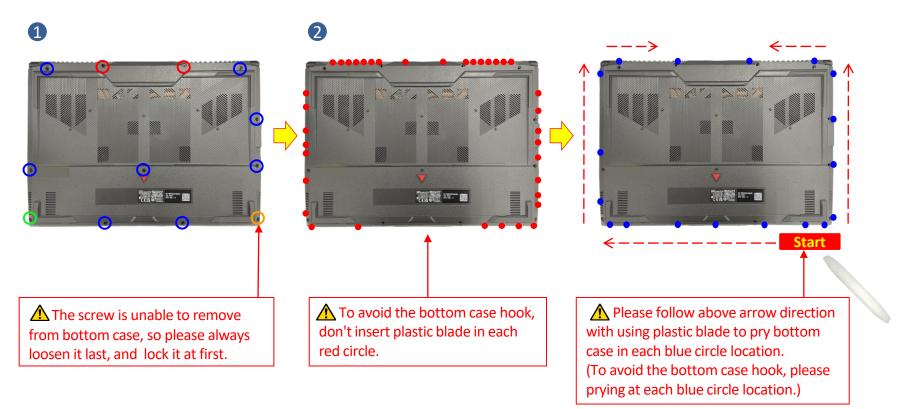
BASE CASE

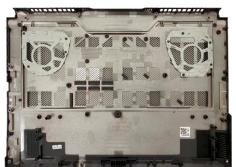
Disassembly Notice

Step 1: Remove the screws *11pcs.

Step 2: Use the plastic blade to pry the base case.

Screws	QTY	Spec	Torque (kgf- cm)
10	2	M2.5*9.5L(4.6,0.85)(K)#1	2.5
10	8	M2.5*8L (4.6,0.8) (K) #1	2.5
10	1	M2.5*2.5L+3.5 (4.5,0.8)	2.5
TO	1	M2.5*2.5L+3.5 (4.5,0.8)	2.5









DISCONNECT BATTERY CONNECTOR

Disassembly Notice

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



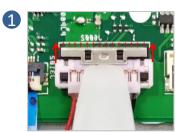
Before disassembly battery connector, please be sure to pull out adapter and disconnect the battery more than ten seconds in order to IC damage.

Step 1: Use the non-conductive pry tool to push iron sheet.

Step 2: Use the non-conductive pry tool to disconnect battery connector.

Note: Please disconnect the red cable side first.



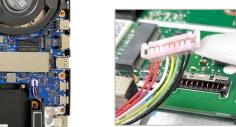














Assembly Notice

To prevent getting a short circuit or an electric shock accident, please follow the below steps to connect the battery connector.

Step 1: Use the non-conductive pry tool to connect the black cable side first, then connect the red cable side.

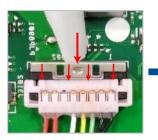
Step 2: Use the non-conductive pry tool to push the iron sheet.

















SSD

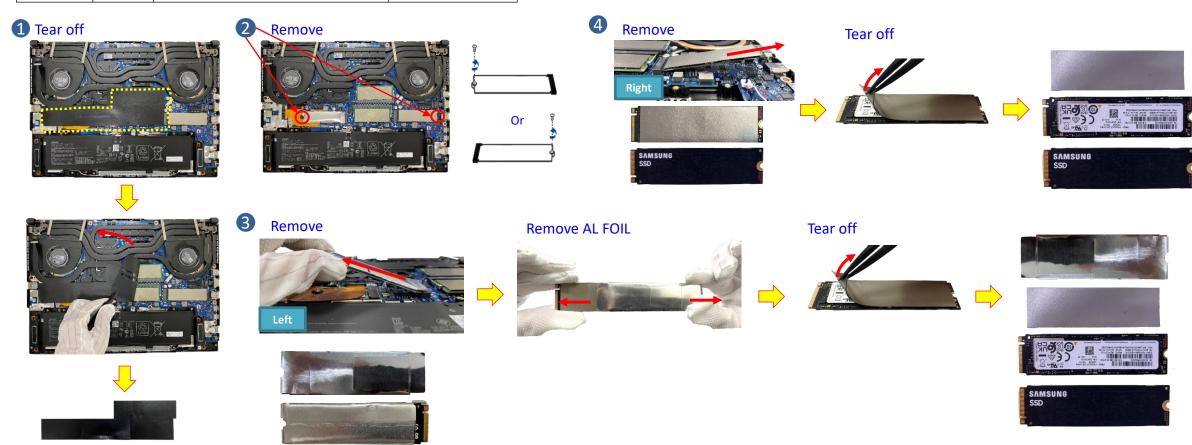
Disassembly Notice

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



- Step 1: Tear off the DIMM COVER MYLAR *1pc.
- Step 2: Remove the screws *2pcs.
- Step 3: Remove the SSD at left side, and remove the AL FOIL and tear off the ABSORBER from SSD.
- Step 4: Remove the SSD at right side, and tear off the ABSORBER from SSD.

Screws	QTY	Spec	Torque (kgf-cm)
TO	2	M2*3L (5.6,0.8) (K) #1	2.0





SSD

Assembly Notice

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



Please use this SSD slot as first priority.



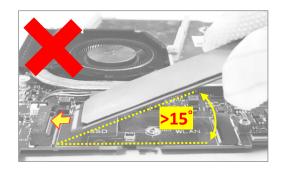
Paste the ABSORBER on the new M.2 card (SSD).

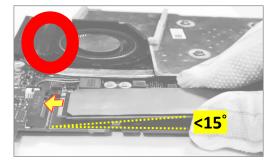


Put the left-M.2 card (SSD) into the AL FOIL*1pc before inserting it into the left-SSD slot.



When installing the SSD, please keep the SSD less then 15 degrees with motherboard, and then insert the SSD.





After installing the SSD, please paste the DIMM COVER MYLAR on below location. (yellow mark)





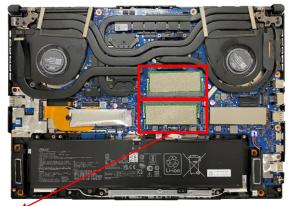
DDR

Disassembly Notice

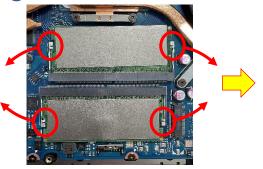
Please be sure to pull out adapter and disconnect the battery.



- Step 1: Unlock and remove the RAM module *2pcs (red mark).
- Step 2: Tear off the two ABSORBERS from each of the front and back sides of the RAM.

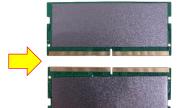




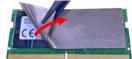


Remove



















Assembly Notice

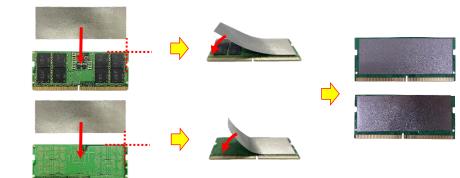
Please paste ABSORBERS on the front and back sides of RAM before installing the Memory Module.

Step 1: Paste the two ABSORBERS on the new RAM front and back side.

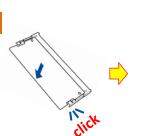
Step 2 : Align and insert the new RAM module at 30° into the memory slot.

Step 3 : Once properly inserted, push down the RAM module until it clicks in place.













BATTERY

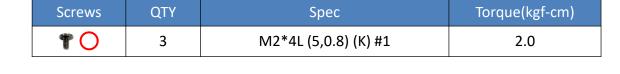
Disassembly Notice

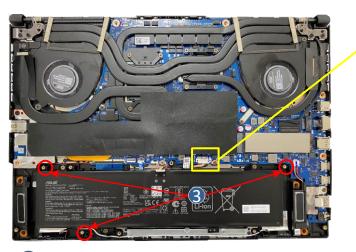
Please be sure to pull out adapter and disconnect the battery.

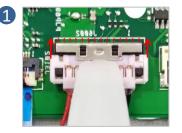


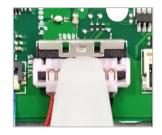
Before disassembly battery connector, please be sure to pull out adapter and disconnect the battery more than ten seconds in order to IC damage.

- Step 1: Use the non-conductive pry tool to push iron sheet.
- Step 2: Use the non-conductive pry tool to disconnect battery connector.
- Step 3 : Remove the screws *3pcs.
- Step 4 : Remove the BATTERY.
- Step 5: Disconnect the BATTERY CABLE from the BATTERY.











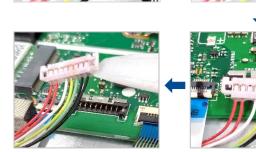
2 Please disconnect the red cable side first!











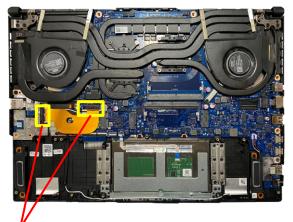


USB BD

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

Step 1: Disconnect the USB FPC connector (yellow mark) and remove the USB FPC.

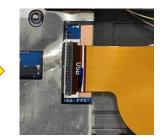
Step 2: Remove the screw *1pc and remove the USB BD.

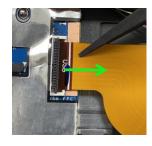


Screws	QTY	Spec	Torque (kgf-cm)
	1	M2*3L (5.6,0.8) (K) #1	2.0







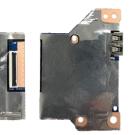














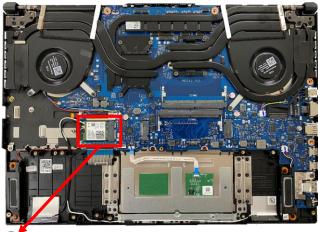
WIFI CARD

Disassembly Notice

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

Step 1 : Disconnect the RF CABLE connector *2pcs.

Step 2 : Remove the screw *1pc. Step 3: Remove the WIFI CARD.



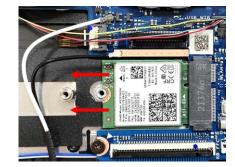








3 Remove

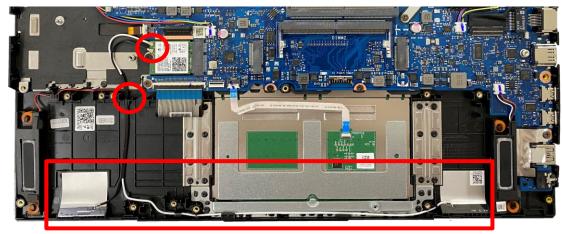




Screws	QTY	Spec	Torque (kgf-cm)
TO	1	M2*3L (5.6,0.8) (K) #1	2.0

Assembly Notice

Please according to below image to assemble and tidy up WIFI ANTENNA.





FAN (with THERMAL MODULE and MAIN BOARD)

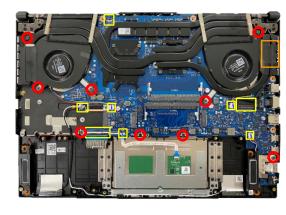
Disassembly Notice

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

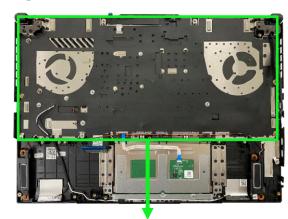


Screws	QTY	Spec	Torque (kgf-cm)
T O	9	M2*4L (5,0.8) (K) #1	2.0

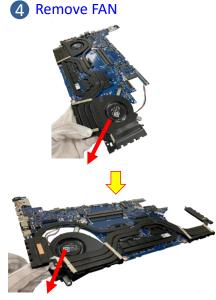
- Step 1: Disconnect the connectors *8pcs (yellow mark) and release EDP cable tape (orange mark).
- Step 2: Remove the screws *9pcs (red mark).
- Step 3: Remove the MB with Thermal and FAN module.
- Step 4: Remove the FAN *2pcs.
- 1 Disconnect (Yellow mark) & Release (Orange mark)
- 2 Remove (Red mark) screws













Assembly Notice

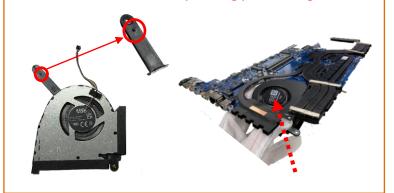


Please use the correct technique to take fans off to avoid getting out of shape.





There is positioning boss on the fan. When assembling the fan, insert the fan obliquely. After assembly, make sure that the positioning boss are fixed on the corresponding positioning holes.





THERMAL MODULE

Disassembly Notice

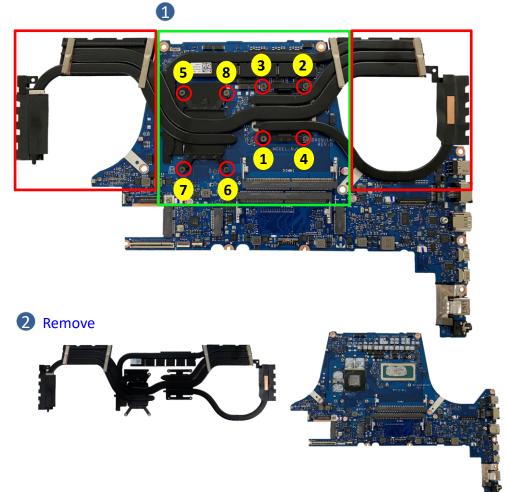
Please be sure to pull out adapter and disconnect the battery.



Step 1: Please follow the reverse screws numbers to remove screws *8pcs.

Step 2: Remove the THERMAL MODULE from MB.

Recommend that the force point is at green block, and pull up thermal module to take it out. Do not pull up at red block and also notice the thermal pipe should not have deformation.



Screws	QTY	Spec	Torque (kgf-cm)
**	8	M2*4L (5,0.8) (K) #1	2.0

Assembly Notice /



Step-1

- THERMAL MODULE Location:[VRAM/CHOKE/MOS] Material: FCR-AS Grease
- MB Location:[GPU/CPU] Material: Main (GA500 Grease) Substitute (PSX Thermal pad)

Step-2

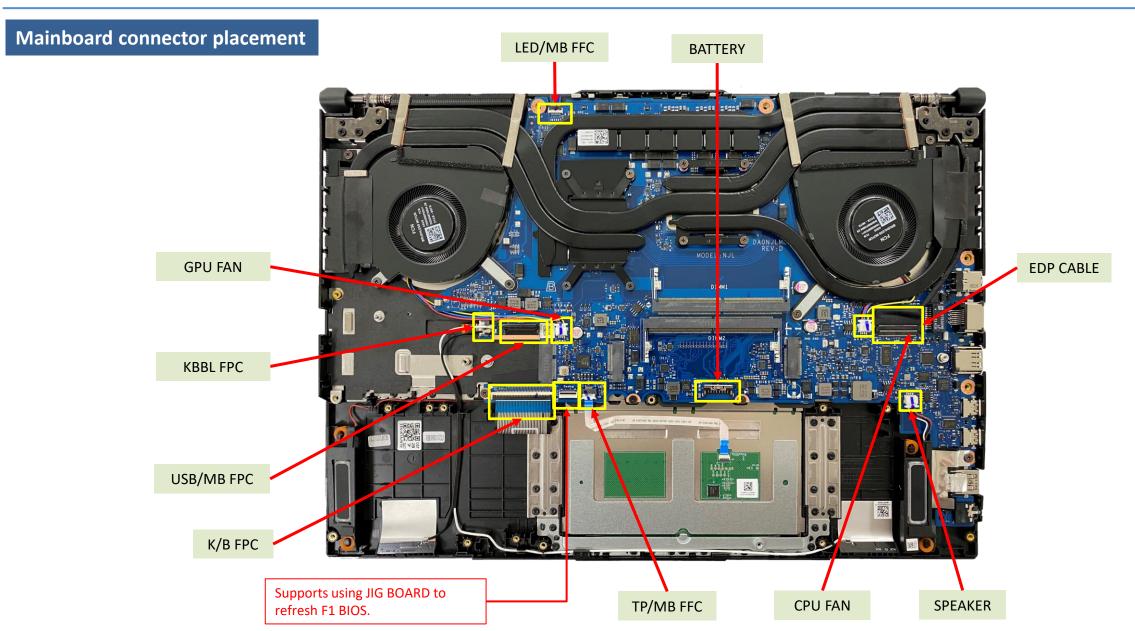
Please follow the screws numbers to lock screws *8pcs.

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.

WARNING! The heat sink contains liquid metal and should only be removed by authorized service personnel. Significant damage may occur to motherboard components if the heat sink is improperly removed.



MAIN BOARD





MAIN BOARD

Materials on mainboard BOT SIDE

Choose by GPU/VGA CHIP Model

NVIDIA GN20-P series FX507ZC MB G20P GPU BOT R ABSORBER(INTEL P SERIES)

Choose by GPU/VGA CHIP Model

NVIDIA GN20-E5 FX507ZE MB G20 GPU BOT ABSORBER

Choose by GPU/VGA CHIP Model

NVIDIA GN20-P series

FX507ZC MB G20P GPU BOT ABSORBER(INTEL P SERIES)



Choose by GPU/VGA CHIP Model

NVIDIA GN20-E5

FX507ZE IO BD AL FOIL **NVIDIA GN20-P series**

Choose by GPU/VGA CHIP Model

NVIDIA GN20-E5 FA506QM N18E G20 GPU MYLAR

FA506QM N18E G20 GPU MYLAR-E3(INTEL E3) NVIDIA GN20-E3

NVIDIA GN20-P series FA506IV N18P GPU MYLAR(INTEL P SERIES)

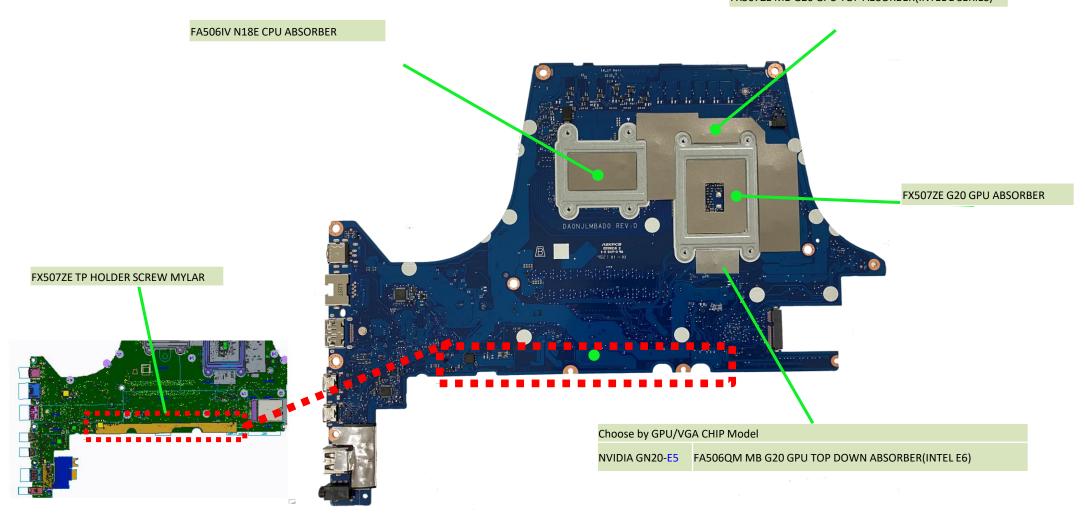


MAIN BOARD

Materials on mainboard

TOP SIDE

FX507ZE MB G20 GPU TOP ABSORBER(INTEL E SERIES)





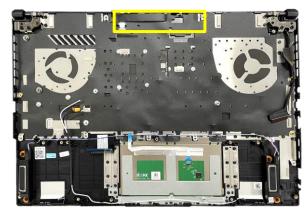
LED BD

Disassembly Notice

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



- Step 1: Release the Mylar (yellow mark).
- Step 2: Release the Gasket.
- Step 3: Remove the LED BD with LED FFC.
- Step 4: Disconnect the LED FFC connector and remove the LED FFC.

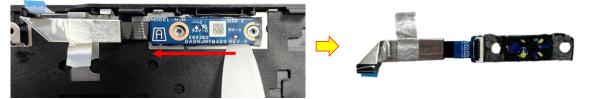












2 Release















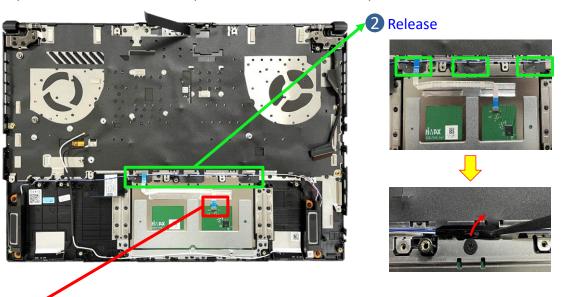
TOUCHPAD MODULE

Disassembly Notice

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



- Step 1: Disconnect the TP FFC connector (red mark) and remove the TP FFC.
- Step 2: Release the Mylar (green mark).
- Step 3: Remove the screws *3pcs and take out the Touchpad.



Screws	QTY	Spec	Torque (kgf-cm)
T 0	3	M2*2L (6.2,0.55) (K) #1	2.0

Assembly Notice

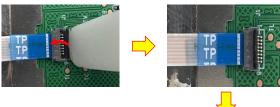
⚠ If FFC is damage during disassembly, please replace new one. Here are some samples of FFC damage:



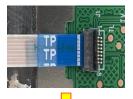








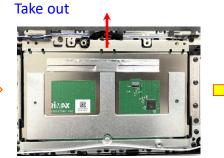
















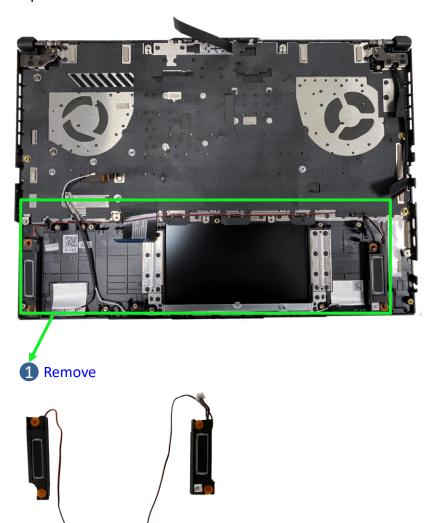
SPEAKER

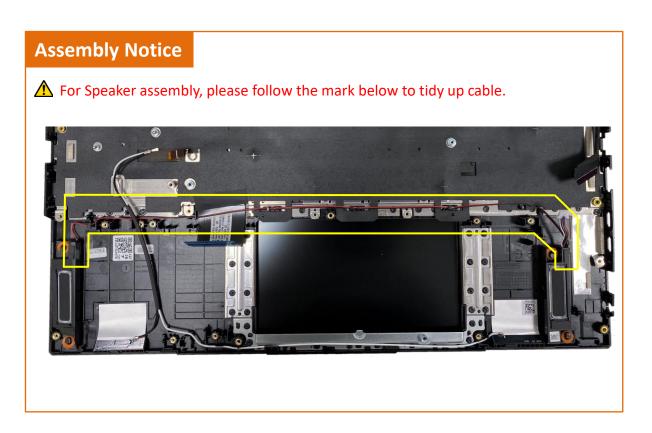
Disassembly Notice

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



Step 1 : Remove the SPEAKER.







KEYBOARD MODULE

Disassembly Notice

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



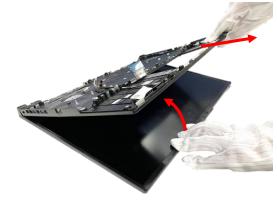
Step 1: Remove the screws *4pcs (red mark).

Step 2: Open and remove the KEYBOARD MODULE.



Screws	QTY	Spec	Torque (kgf-cm)
	4	M2.5*5L (K) B-ZN NY #1	2.5

2 Open and remove



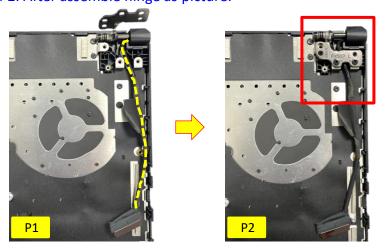


Assembly Notice

A Please refer below picture to organize EDP cable while repair device, it's to keep device safety.

P1. EDP cable need to following yellow dotted line to organize EDP cable.

P2. After assemble hinge as picture.





LCD BEZEL

Disassembly Notice

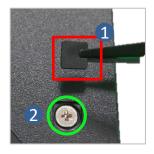
Please be sure to pull out adapter and disconnect the battery.

Step 1: Remove the BEZEL COSMETIC MYLAR *2pcs.

Step 2 : Remove the screws *2pcs.

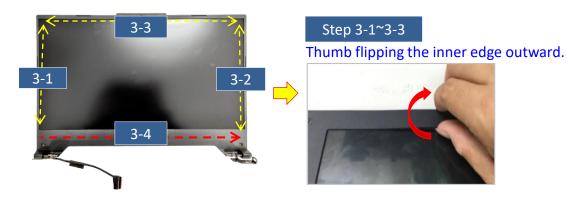
Step 3: Remove the LCD BEZEL.







Step 3-1~3-3, Start from the middle area of each side of bezel. Using the forefinger to hold the outer edge firmly and the thumb flipping the bezel inner edge outward to release the hooks as indicated in the diagram shown. (It can be helpful, if holding the bezel outer edge firmly with forefinger.)



Screws	QTY	Spec	Torque (kgf-cm)
TO	2	M2.5*3.5L(4.5,0.5) (K)#1	2.5

Step 3-4 Due to some tapes behind the lower edge of bezel, please using plastic blade to teardown the bezel.

Please follow the direction shown in the red arrow, to move plastic blade from left to right and peel the bezel away slowly. While peeling, please move the blade in the parallel direction to the panel and pressing the black Mylar downward (As circled in green) to ensure the black Mylar and the tape behind the bezel are well separated.

Please move blade slowly to separate the bezel away, and must press the black Mylar downward with panel parallel direction..





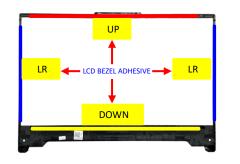


Assembly Notice

When reuse the LCD BEZEL:

Please paste new LCD BEZEL ADHESIVE before assembly BEZEL.

(New LCD BEZEL already contains LCD BEZEL ADHESIVE *4pcs)





LCD PANEL

Disassembly Notice

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



Step 1: Remove the screws	*4pcs and	I remove the	hinges *2pcs.
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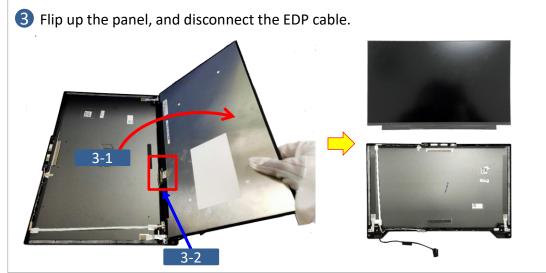
Step 2: Pull out the LCD adhesive *2pcs.

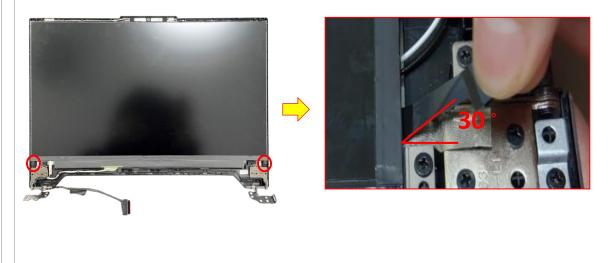
Step 3: Remove the LCD PANEL.

Screws	QTY	Spec	Torque (kgf-cm)
TO	4	M2.5*3L (4.5,0.4) (K) #1	2.5



2 A Please pull the adhesive up about 30 degree slowly, and don't pull out the tape in vertical direction!







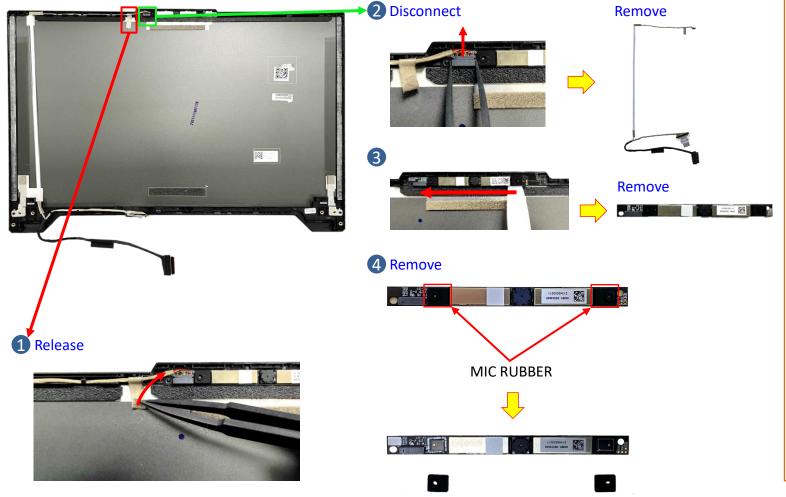
LCD COVER

Disassembly Notice

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



- Step 1: Release the Gasket (red mark).
- Step 2: Disconnect (green mark) and remove the EDP cable.
- Step 3: Use the non-conductive pry tool to insert from below and slide to the left then remove the CAMERA.
- Step 4: Remove the MIC RUBBER *2pcs.







LCD PANEL and LCD Cover

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



When reuse the LCD PANEL or BEZEL:

Please use the fingertip to clean the residual glue on PANEL or BEZEL.





When replace the LCD and reuse the LCD COVER:

Please paste new LCD COVER TAPE *2pcs.



Clean the back of the LCD PANEL:

Before assembling the LCD panel, use a dust-free cloth and a small amount of alcohol to clean the back of the panel.





When assembly the LCD PANEL:

Step 1: Remove release paper of LCD Adhesive *2pcs.

Step 2: Assembly and align the LCD to the upper side of the LCD Cover.

Remove



Align

