

aSystem Upgrades and Repairs

LIFEBOOK E5413

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System Upgrades and Repairs



We recommend printing out the relevant sections of this chapter prior to installation as the device for installing/removing hardware components needs to be switched off.

The following illustrations may differ from your device, depending on its configuration and features.

If you have received any further documents with your device, you should read these through carefully.

Please note the following instructions before installing/removing system components:



- The device must be switched off when installing/removing components and it must not be in power-saving mode.
- Disconnect the mains plug before opening the device.
- Press on the power button for approx. 5-10 seconds in order to discharge the remaining power.
- Remove all externally connected cables.
- Take care not to pinch any cables when installing/removing components.
- Please ensure that the installed components that might heat up intensely during operation do not exceed the permitted operating temperature.

Please take note of the target audience addressed in these instructions. Damage to the device incurred as a result of unqualified methods used during repair work as well as the use of unsuitable spare parts or assemblies during the repair work or upgrades of the device may void your warranty claim.



During a system expansion or a hardware upgrade, it is possible that the BIOS must be updated. You can find more information in the technical information provided for your device.

Information on the installation and removal of components

These instructions provide information on disassembling the device in addition to upgrading or exchanging components. The steps in these instructions describe the removal of a component. Installation is carried out in the reverse order. Specifics are separately described after the removal.

Please pay attention to the locking mechanism (indentations and centring pins) when installing hardware components.

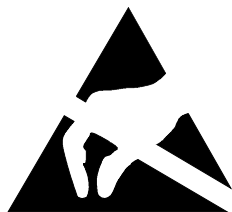
Note that some components on the mainboard may be very hot if the device was in use shortly before the case was removed.

Utmost care is required during installation and removal to avoid damaging components.
Use a non-slip base.

Never use items with sharp edges (screwdrivers) to lever them out.

Parts with Electrostatic Sensitive Devices (ESD) can be identified by a corresponding label.

When dealing with boards with ESDs, the following points must always be observed:



- Always ensure there is a static discharge (e.g. by touching a grounded object) prior to commencing with the work.
- The devices and tools being used must not be statically charged.
- Only touch the components along the edges or on the areas marked in green (contact points).
- Contacts and electronic components must not touch when handling components equipped with ESD protection.

Screws

		 M2.5XL2.5
Screw: M2.5XL2.5 (D4.5) Screwdriver: Phillips PH00 (ISO 8764)		
		 2.5XL6
Screw: 2.5XL6 Screwdriver: Phillips PH00 (ISO 8764)		
		 M2XL3
Screw: M2XL3 Screwdriver: Phillips PH00 (ISO 8764)		
		 2XL3.5
Screw: 2XL3.5 Screwdriver: Phillips PH00 (ISO 8764)		
		 M2 HSK
Screw: M2.5XL2 HSK Screwdriver: Phillips PH 00 (ISO 8764)		
		 M2XL2.5
Screw: M2XL2.5 Screwdriver: Phillips PH 00 (ISO 8764)		



Screw: 2.5XL5
Screwdriver: Phillips PH 00 (ISO 8764)

Tools

Screwdriver: Phillips PH00 (ISO 8764)



Plastic tool (from iFixit: Part # 922-5065)



Plastic tool (from iFixit: Part # SKU: EU145335-1)



[!\[\]\(642aa997563f9a325b310230bb5078b7_img.jpg\) Return to Table of Contents](#)

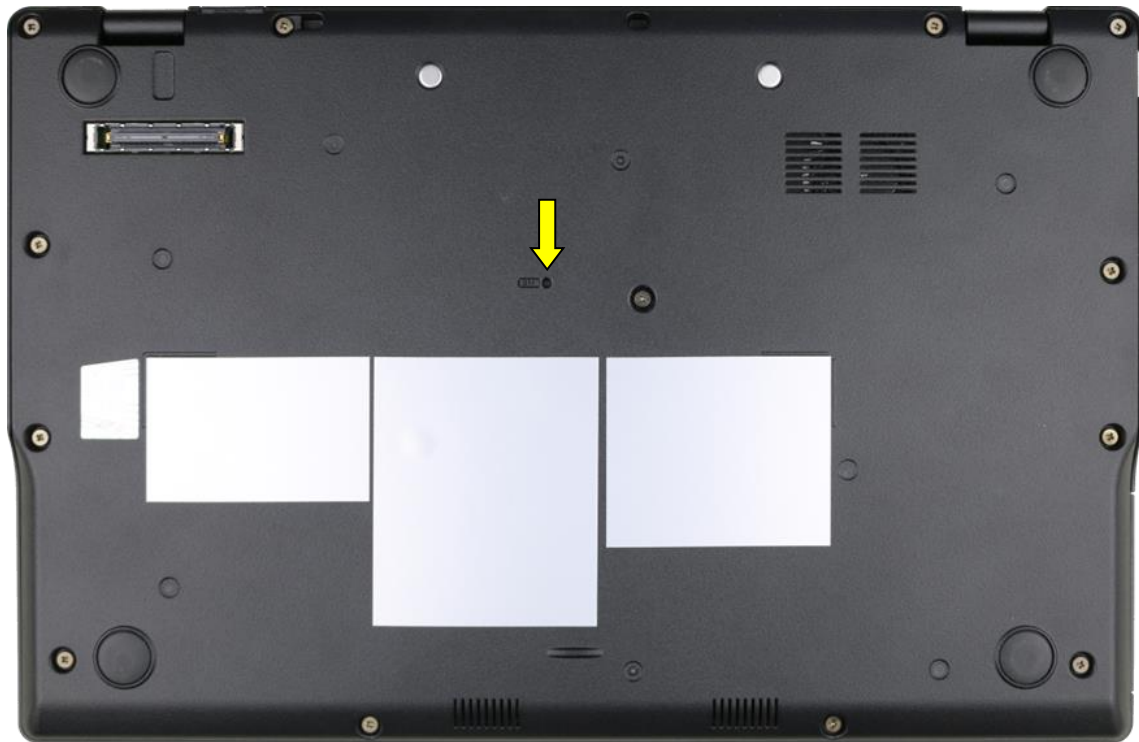
Switch off the battery

Required work steps:

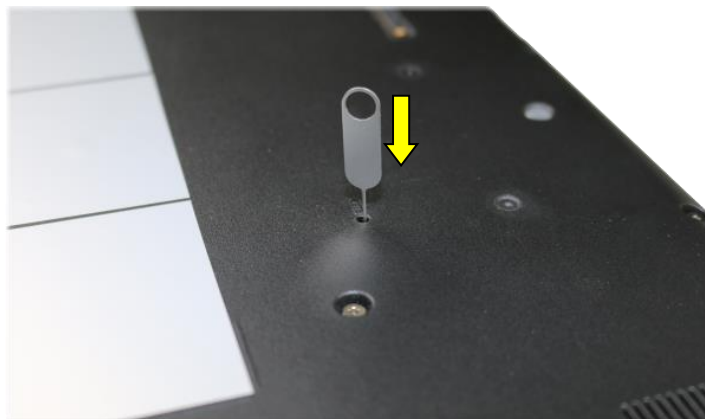
- Close the notebook
- Remove cables and components

Required tools:

- Pin for SimTray or
- e.g. wire or pen



- ▶ Press the battery reset button for 5 seconds.



Remove the SIM card cover

Required work steps:

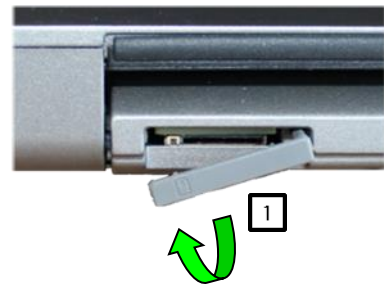
- Close the notebook
- Remove cables and components

Required tools:

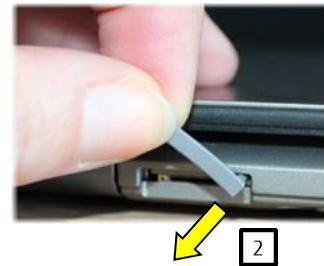
- none



- ▶ Open the cover (1).



- ▶ Pull the cover out completely (2).



- ▶ Remove the cover (3).



Insert the SIM card cover

Required work steps:

- Close the notebook
- Remove cables and components
- [Remove the SIM card cover](#)

Required tools:

- None



- ▶ Guide the bracket (1) of the cover into the opening for the SIM tray (2).



- ▶ Close the SIM card cover (3).



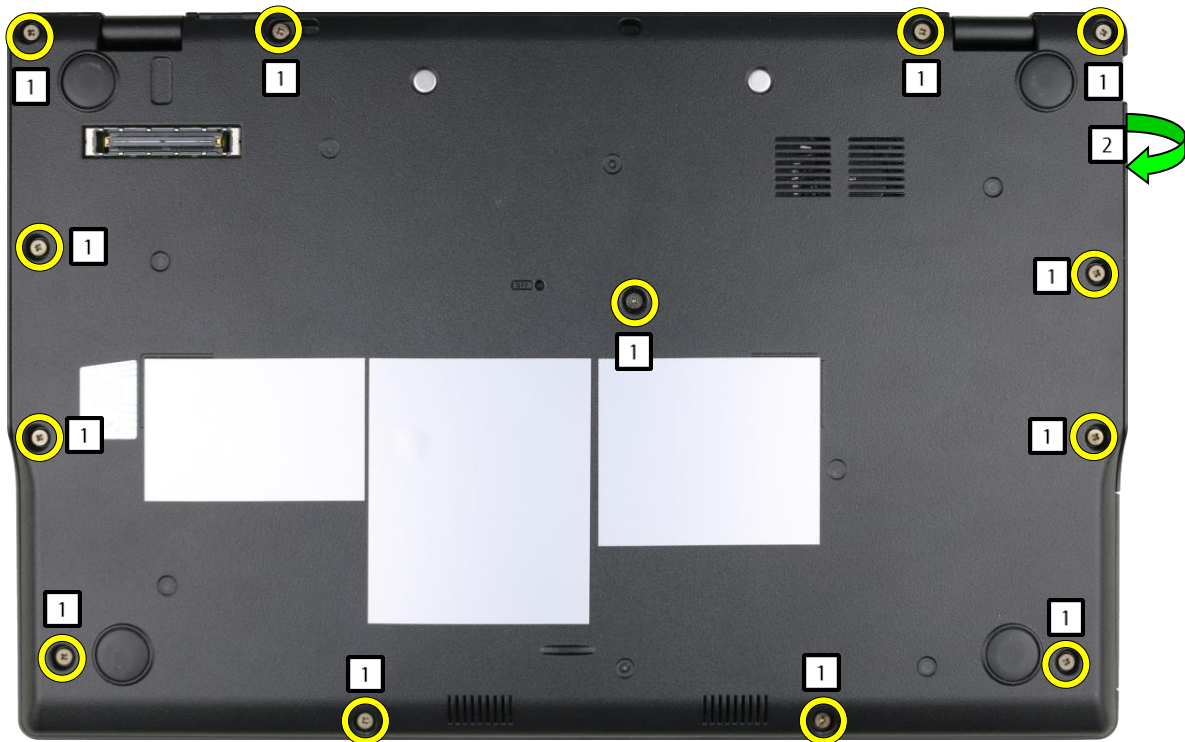
Remove the lower assy

Required work steps:

- Close the notebook
- Remove cables and components
- [Switch off the battery](#)

Required tools:

- Screwdriver: Phillips PH00
- Plastic tool



- ▶ Undo the screws (1).
- ▶ Remove the cover (2).



Make sure the screws are tightly fastened and cannot be removed.

Remove the battery

Required work steps:

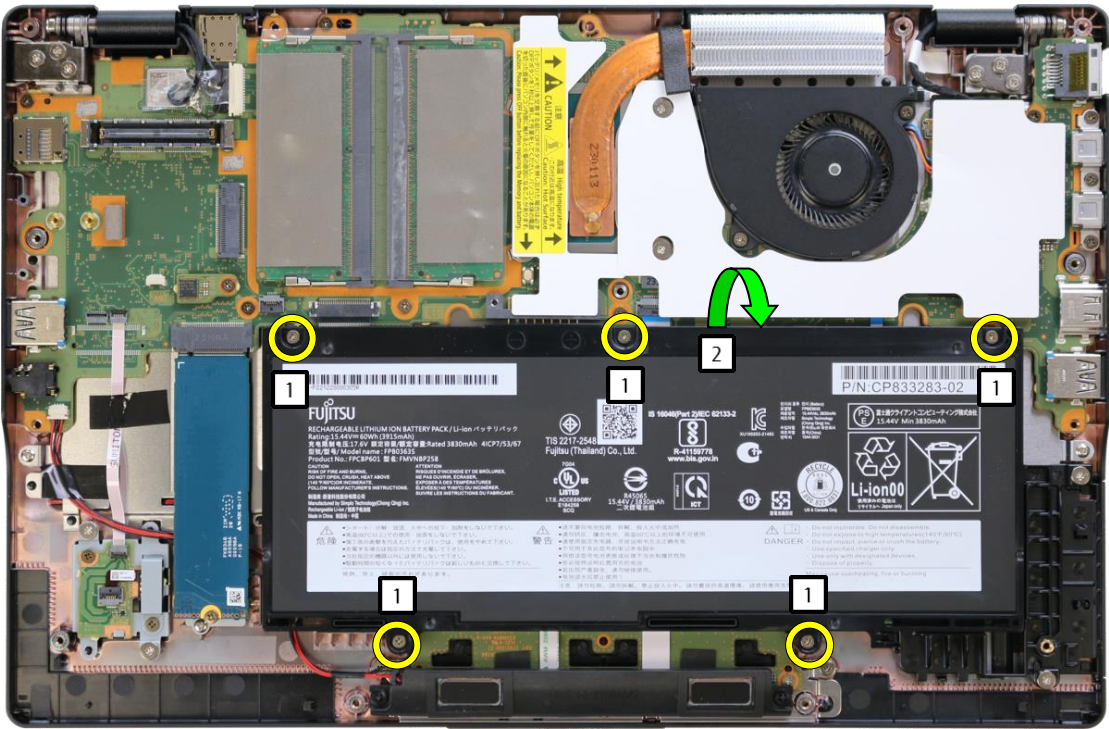
- [Switch off the battery](#)
- [Remove the lower assy](#)

Required tools:

- Screwdriver: Phillips PH00



The improper exchanging of the lithium battery can result in a danger of explosions!
The lithium battery may be replaced only by a battery recommended by the manufacturer.
Do not dispose of lithium batteries in the household waste. They must be disposed of in accordance with the local regulations, as hazardous waste.



- ▶ Undo the screws (1).
- ▶ Remove the battery (2).



Make sure the screws are tightly fastened and cannot be removed.

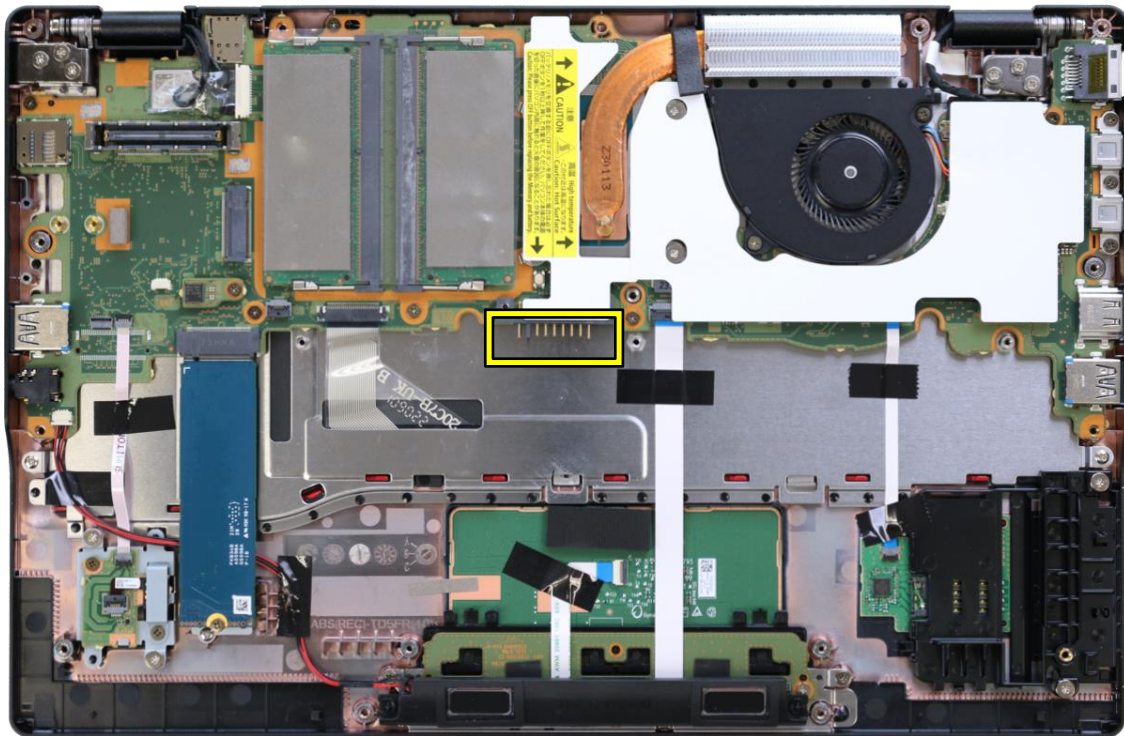
Insert the battery

Required work steps:

- [Switch off the battery](#)
- [Remove the lower assy](#)
- [Remove the battery](#)

Required tools:

- Screwdriver: Phillips PH00



- ▶ Insert the battery into the connector in the direction of the arrow.

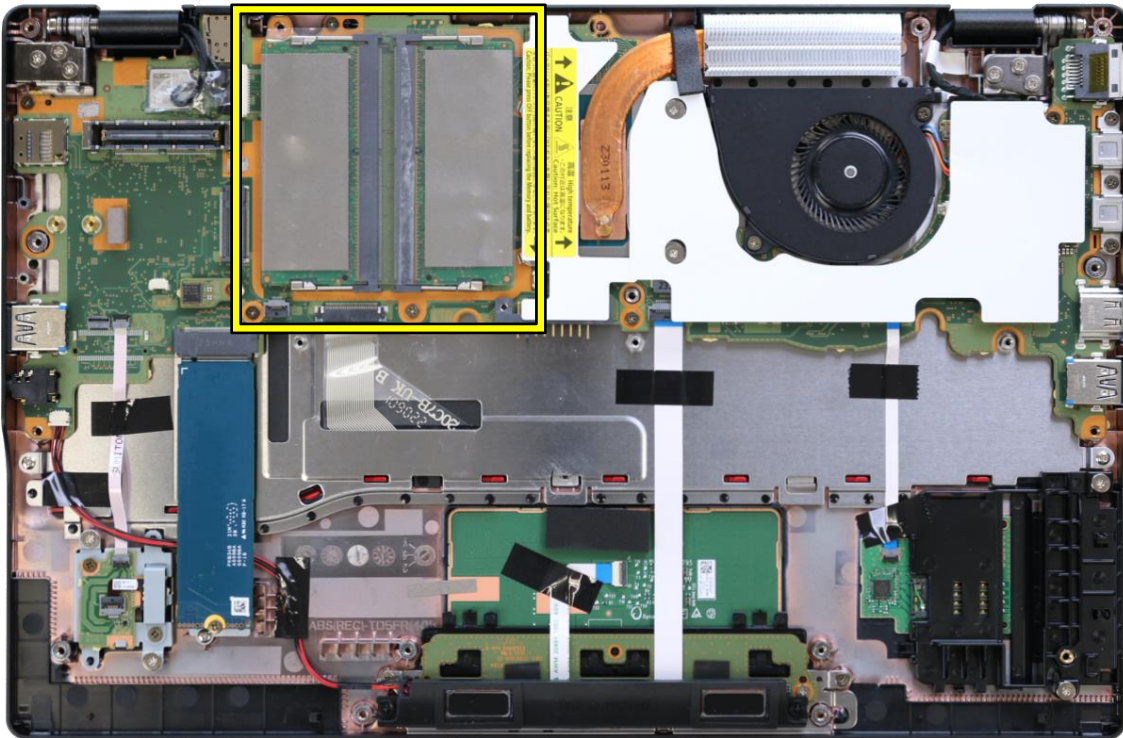
Remove the memory

Required work steps:

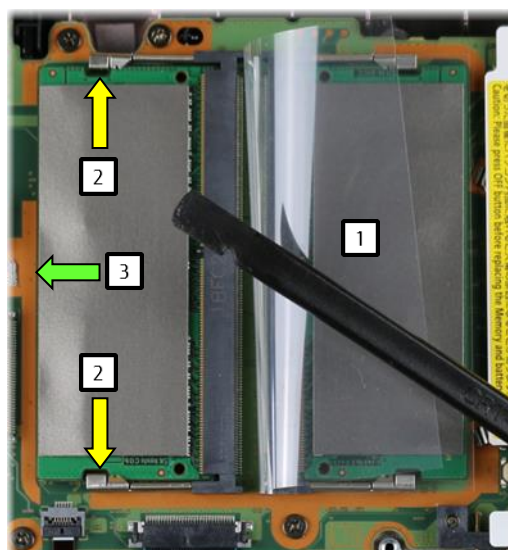
- [Switch off the battery](#)
- [Remove the lower assy](#)
- [Remove the battery](#)

Required tools:

- None



- ▶ Lift the foil (1).
- ▶ Press the latch in the direction of the arrow (2).
- ▶ Remove the module (3).



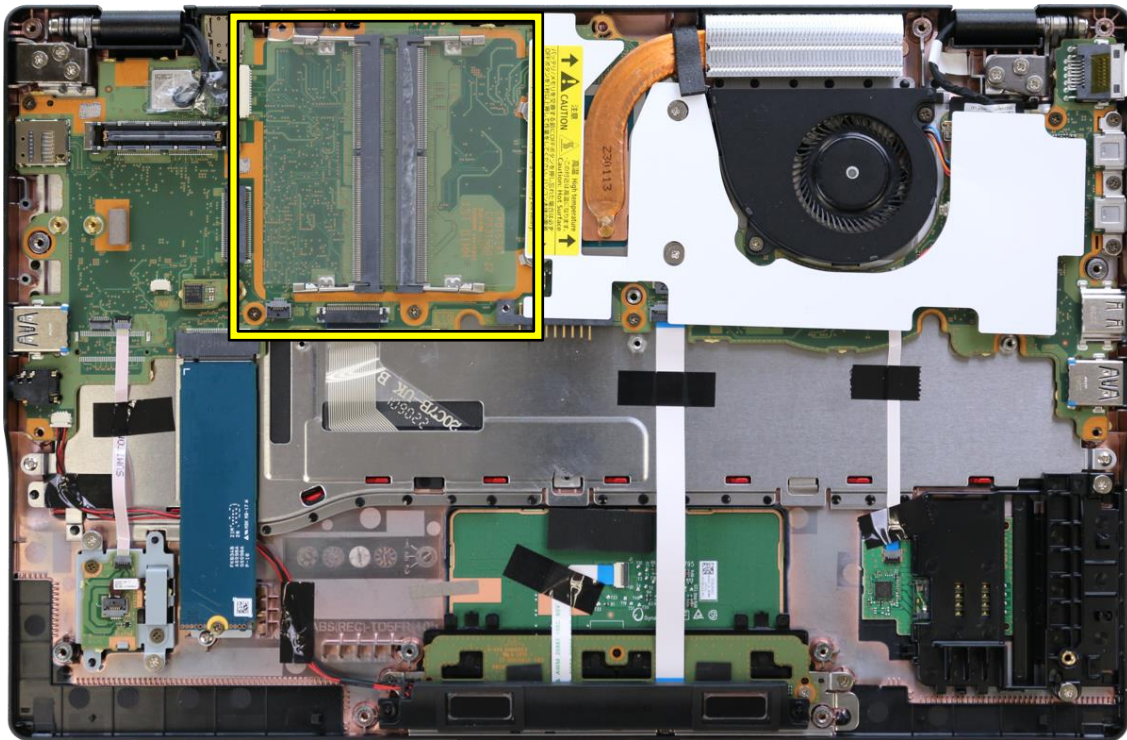
Insert the memory

Required work steps:

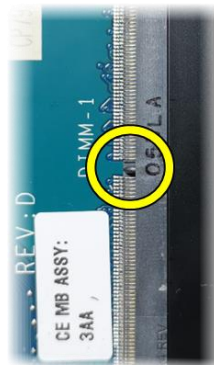
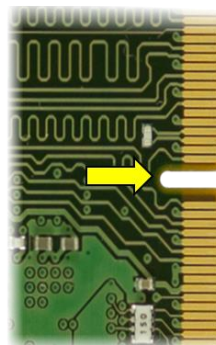
- [Switch off the battery](#)
- [Remove the lower assy](#)
- [Remove the battery](#)

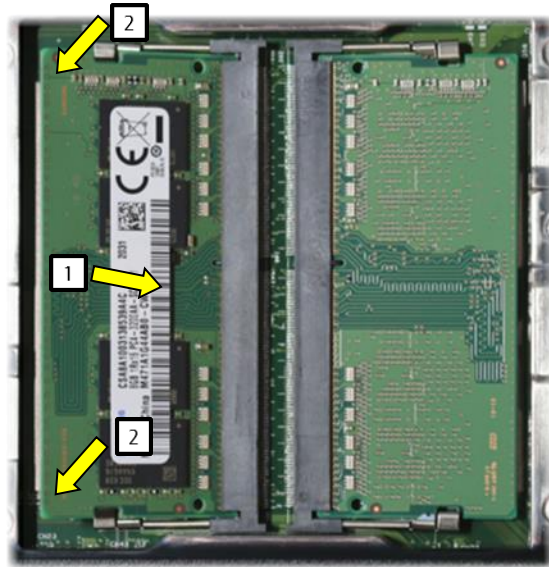
Required tools:

- None



Please note the coding.
The module is initiated after switching on, the Scroll Lock LED flashes.





- ▶ Insert the module (1).
- ▶ Push the module in the direction of the arrow (2), until it snaps into place.

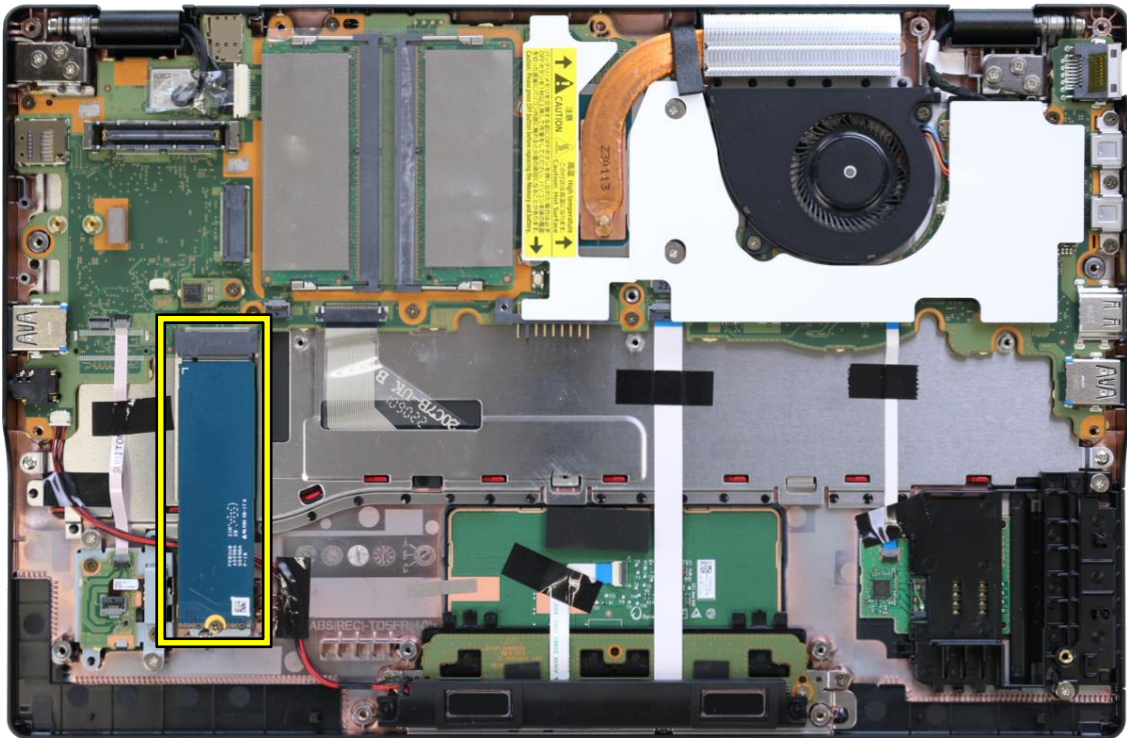
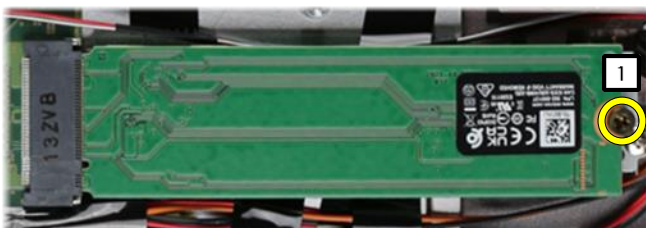
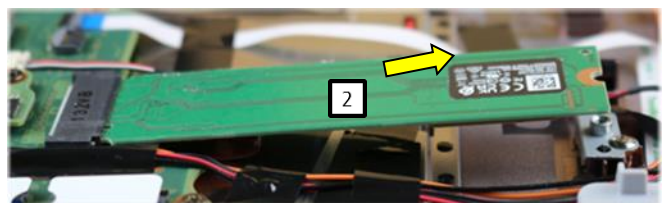
Remove the M.2 module

Required work steps:

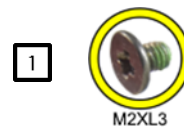
- [Switch off the battery](#)
- [Remove the lower assy](#)
- [Remove the battery](#)

Required tools:

- Screwdriver: Phillips PH00



- ▶ Remove the screw (1).
- ▶ Remove the module (2).



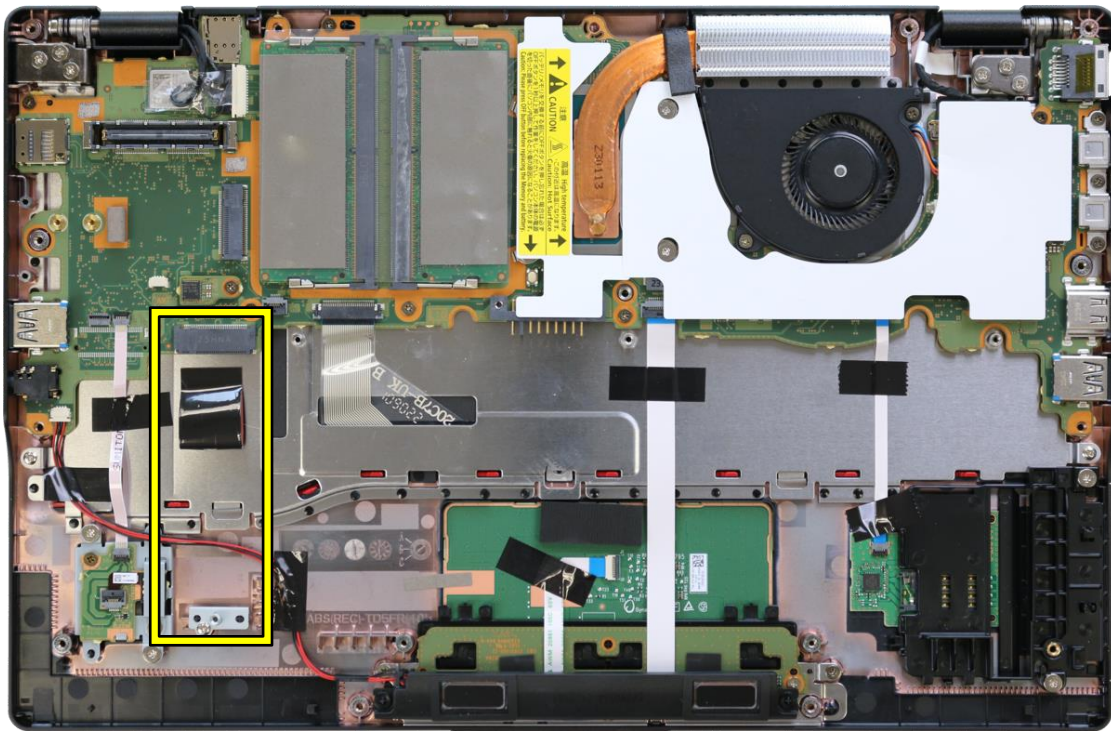
Insert the M.2 module

Required work steps:

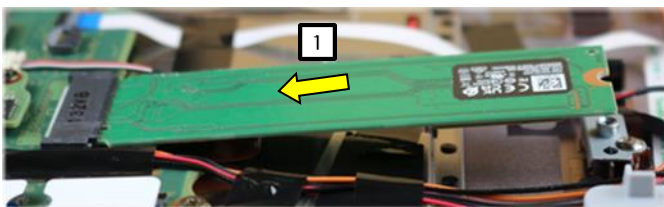
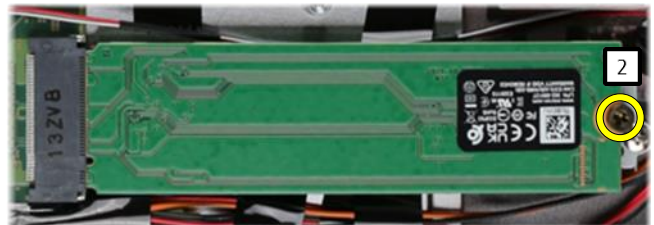
- [Switch off the battery](#)
- [Remove the lower assy](#)
- [Remove the battery](#)
- [Remove M.2 module](#)

Required tools:

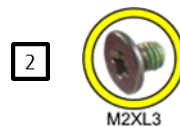
- Screwdriver: Phillips PH00



Please note the coding.



- ▶ Insert the module (1).
- ▶ Tighten the screw (2).



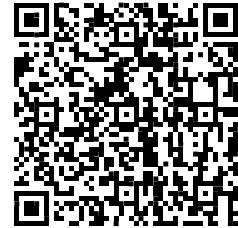
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Mandatory Support Bulletins



[SB-M-10030](#)

Minimum requirements to properly finalise hardware repairs on mobile systems



[SB-M-15007](#)

WIN8x & WIN10 - Spare product key for repaired devices



For any information about ESD, please refer to the web-based training course "[ESD in electronics](#)"



[SB-M-22005](#)

Creating a new Maintenance USB Stick FjAHDT.



[SB-M-22009](#)

Instructions for using the FjAHDT tool.

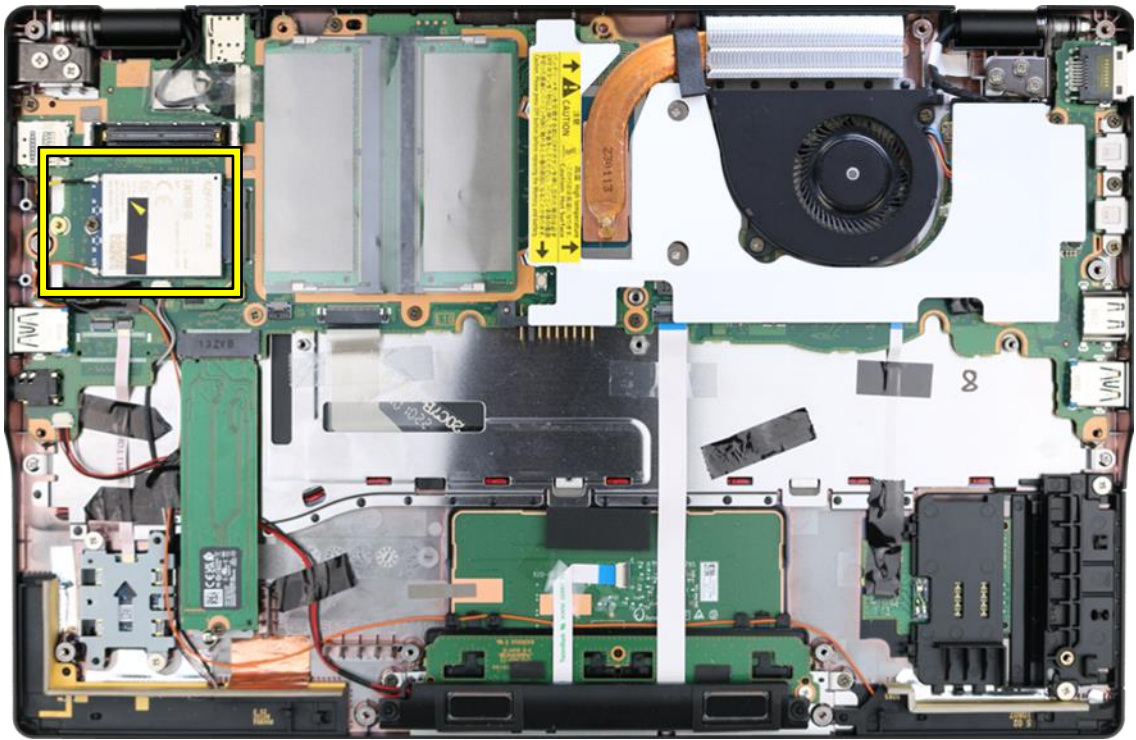
Remove the WWAN module

Required work steps:

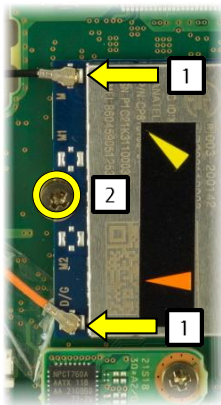
- [Switch off the battery](#)
- [Remove the lower assy](#)
- [Remove the battery](#)

Required tools:

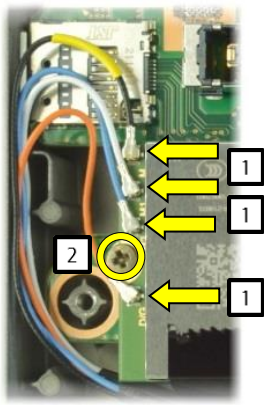
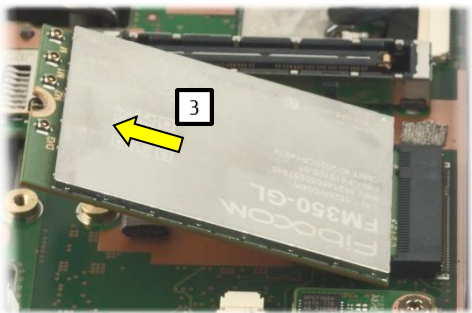
- Screwdriver: Phillips PH00



(Example picture for 4G WWAN)



(Example picture for 5G WWAN)



Antenna colour	4G	5G
yellow	MAIN	MAIN
orange	AUX	AUX or D/G
white		M1
blue		M2

- Remove the cables (1).
- Remove the screw (2).
- Remove the module (3).



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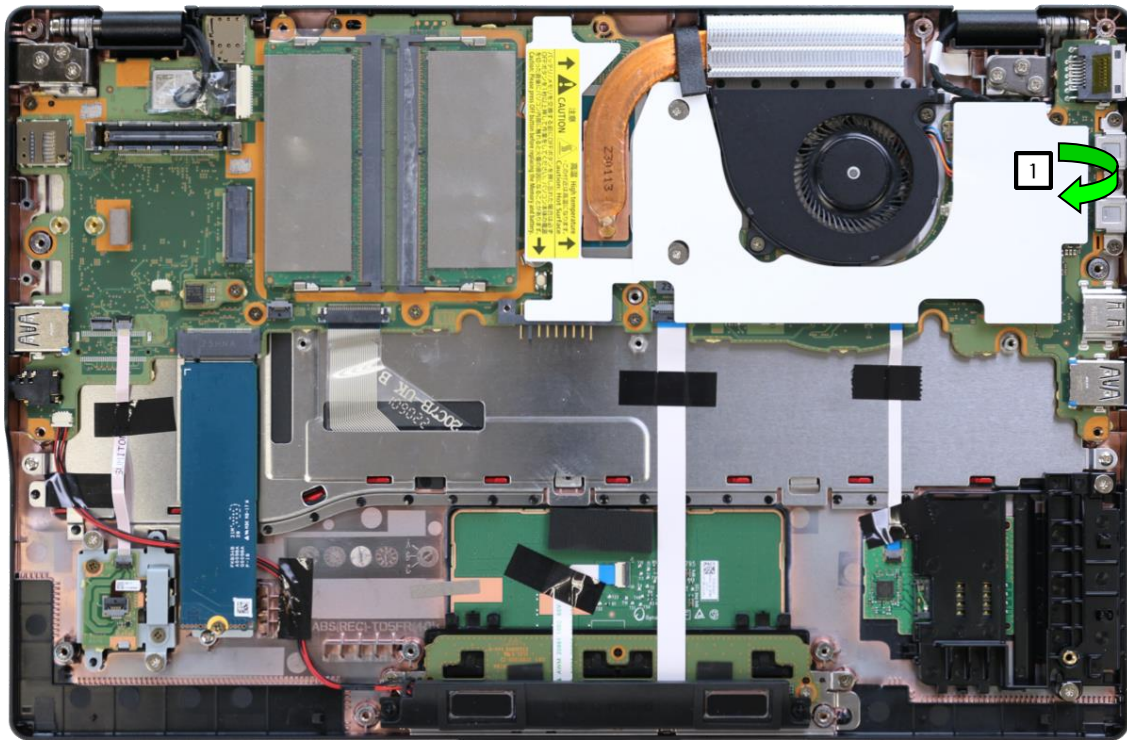
Remove the protective foil

Required work steps:

- [Switch off the battery](#)
- [Remove the lower assy](#)
- [Remove the battery](#)

Required tools:

- None



- ▶ Remove the foil (1).

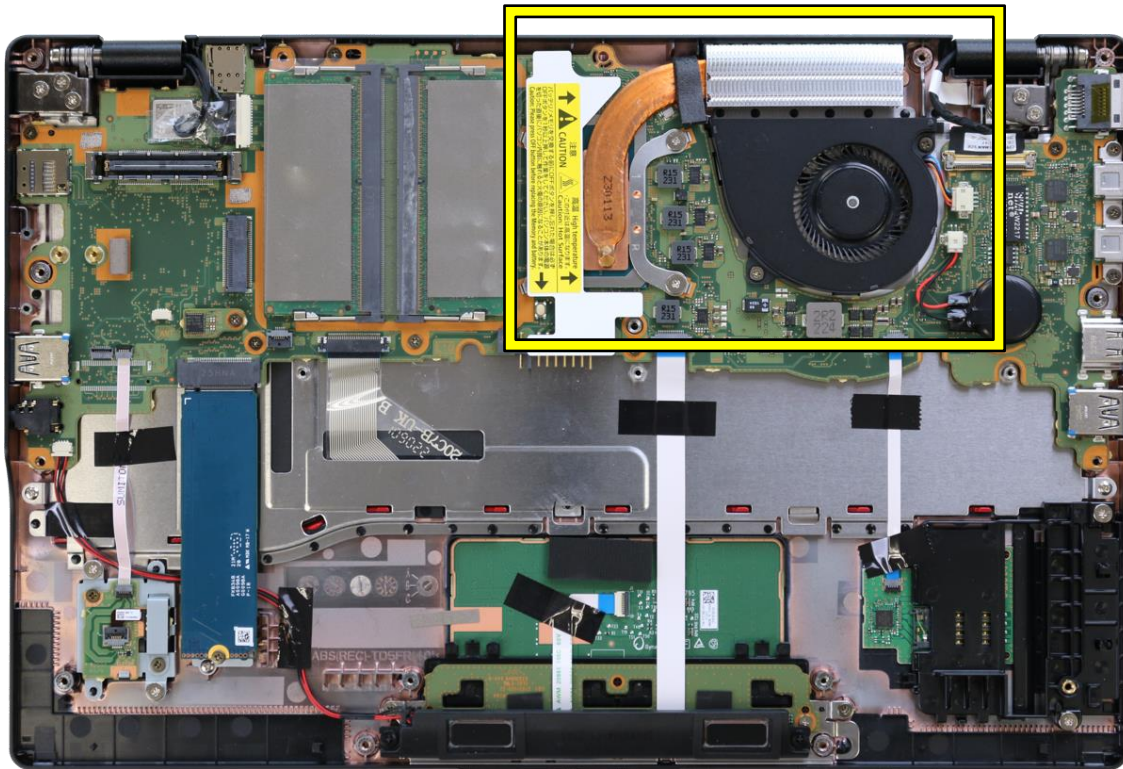
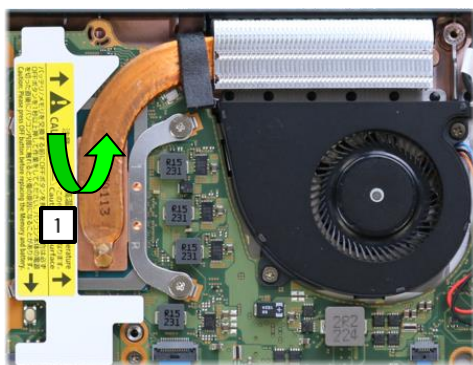
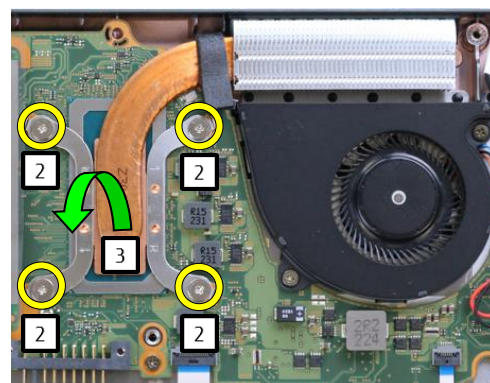
Remove the heatsink

Required work steps:

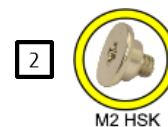
- [Switch off the battery](#)
- [Remove the lower assy](#)
- [Remove the battery](#)
- [Remove the protective foil](#)

Required tools:

- Screwdriver: Phillips PH00



- ▶ Remove the foil (1).
- ▶ Remove the screws (2).
- ▶ Remove the heatsink (3).



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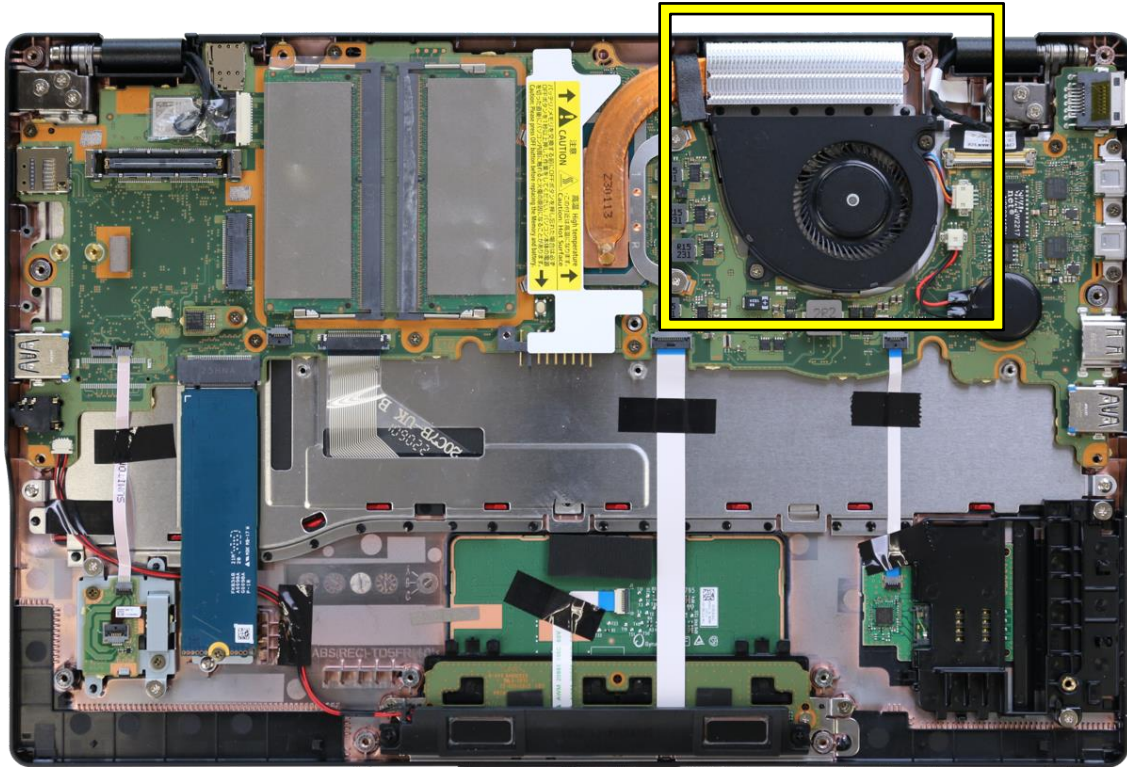
Remove the fan

Required work steps:

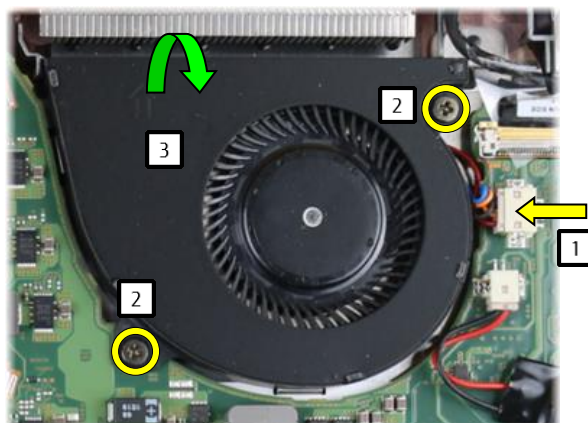
- [Switch off the battery](#)
- [Remove the lower assy](#)
- [Remove the battery](#)
- [Remove the protective foil](#)

Required tools:

- Screwdriver: Phillips PH00



- ▶ Remove the cable (1).
- ▶ Remove the screws (2).
- ▶ Remove the fan (3).



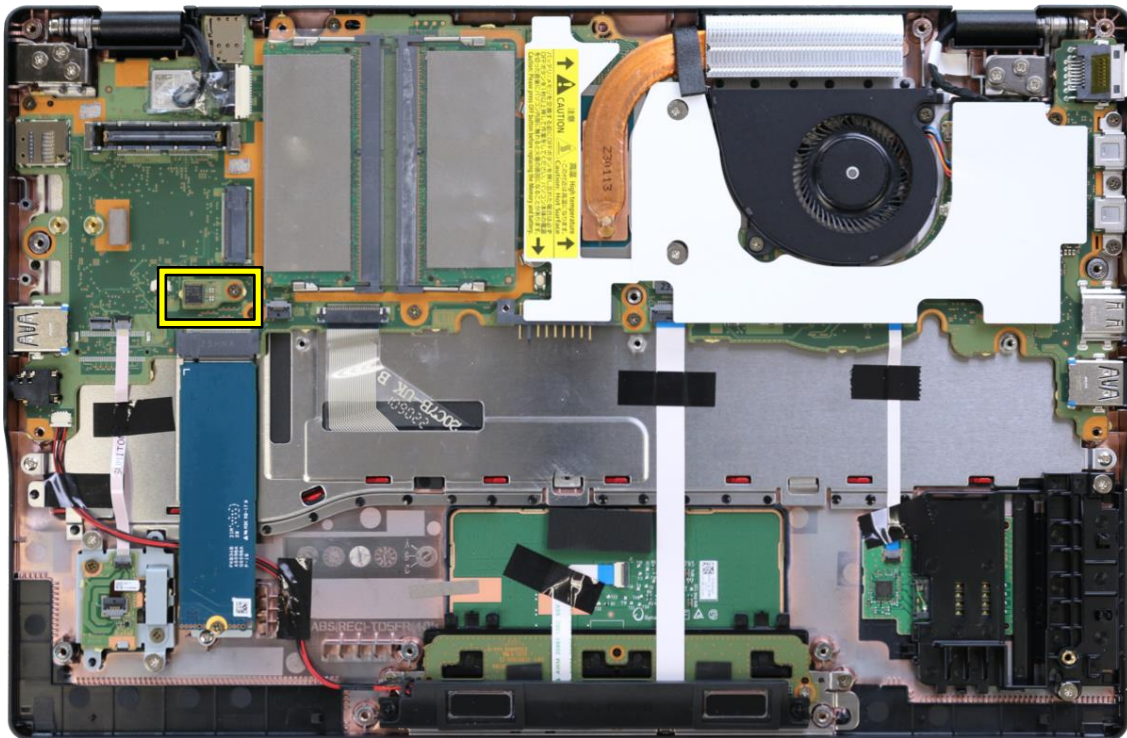
Remove the TPM module

Required work steps:

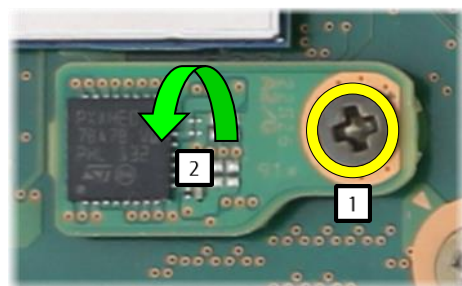
- [Switch off the battery](#)
- [Remove the lower assy](#)
- [Remove the battery](#)

Required tools:

- Screwdriver: Phillips PH00



- ▶ Remove the screw (1).
- ▶ Remove the module (2).



M2XL3

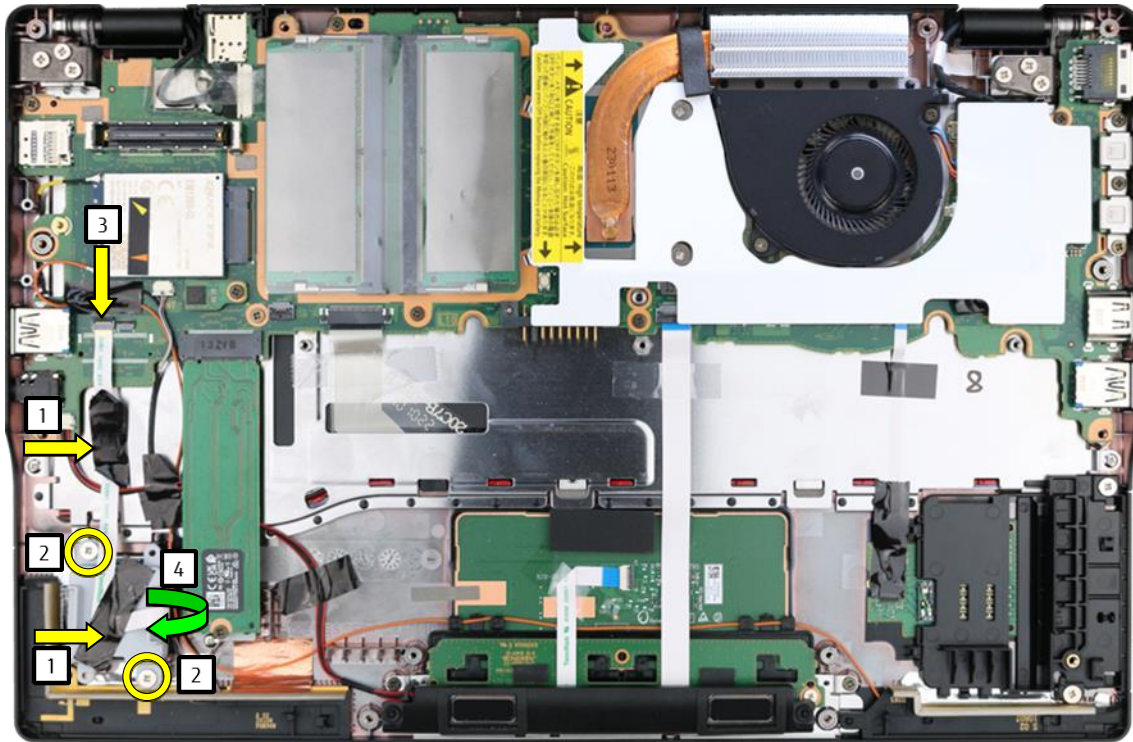
Remove the palm vein sensor

Required work steps:

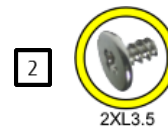
- [Switch off the battery](#)
- [Remove the lower assy](#)
- [Remove the battery](#)

Required tools:

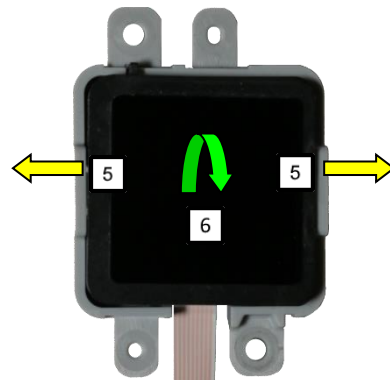
- Screwdriver: Phillips PH00



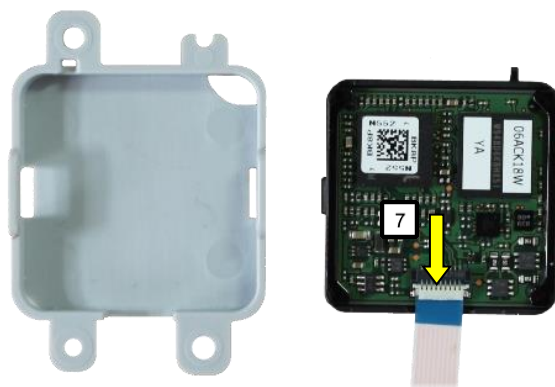
- ▶ Remove the adhesive tape (1).
- ▶ Remove the screws (2).
- ▶ Open the connector lock and remove the cable (3).
- ▶ Remove the module (4).



- ▶ Press the latch in the direction of the arrow (5).
- ▶ Remove the module (6).



- ▶ Open the connector lock and remove the cable (7).



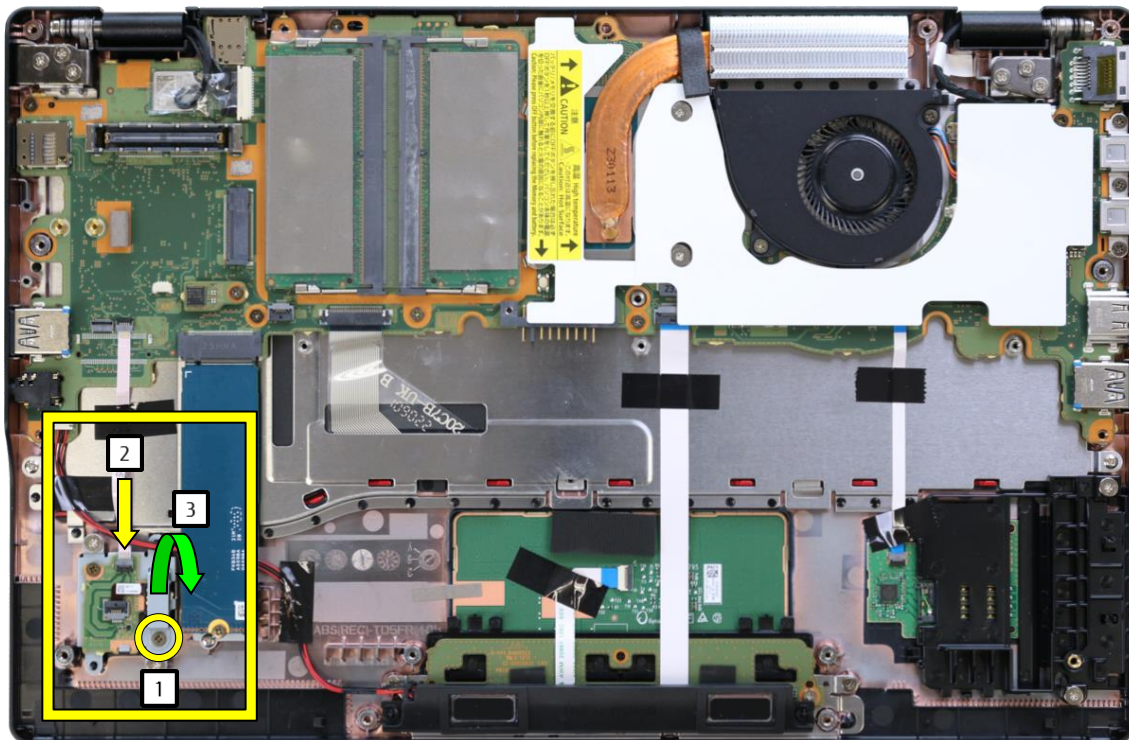
Remove the Bio Secure fingerprint sensor

Required work steps:

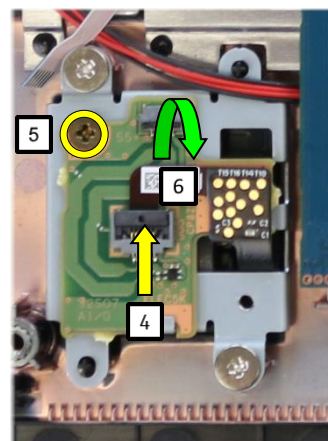
- [Switch off the battery](#)
- [Remove the upper assy](#)
- [Remove the battery](#)

Required tools:

- Screwdriver: Phillips PH00



- ▶ Remove the screw (1).
- ▶ Open the connector lock and remove the cable (2).
- ▶ Remove the bracket (3).
- ▶ Open the connector lock and remove the cable (4).
- ▶ Remove the screw (5).
- ▶ Remove the sub board (6).



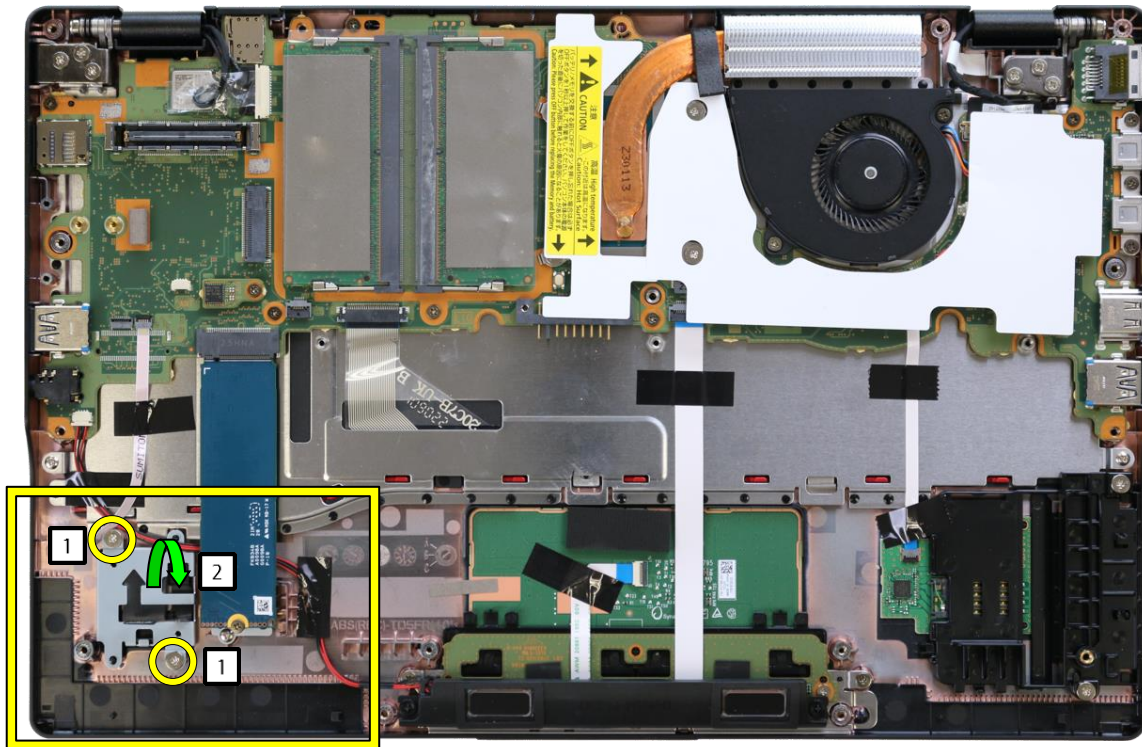
Remove the fingerprint sensor

Required work steps:

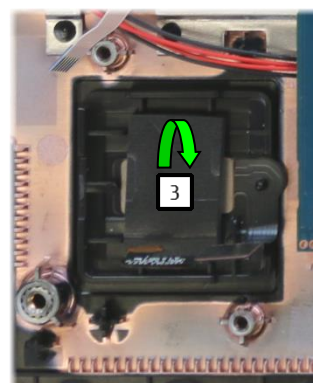
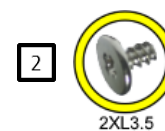
- [Switch off the battery](#)
- [Remove the lower assy](#)
- [Remove the battery](#)
- [Removing the Bio Secure fingerprint sensor](#)

Required tools:

- Screwdriver: Phillips PH00
- Plastic tool



- ▶ Remove the screws (1).
- ▶ Remove the bracket (2).
- ▶ Remove the fingerprint sensor (3).



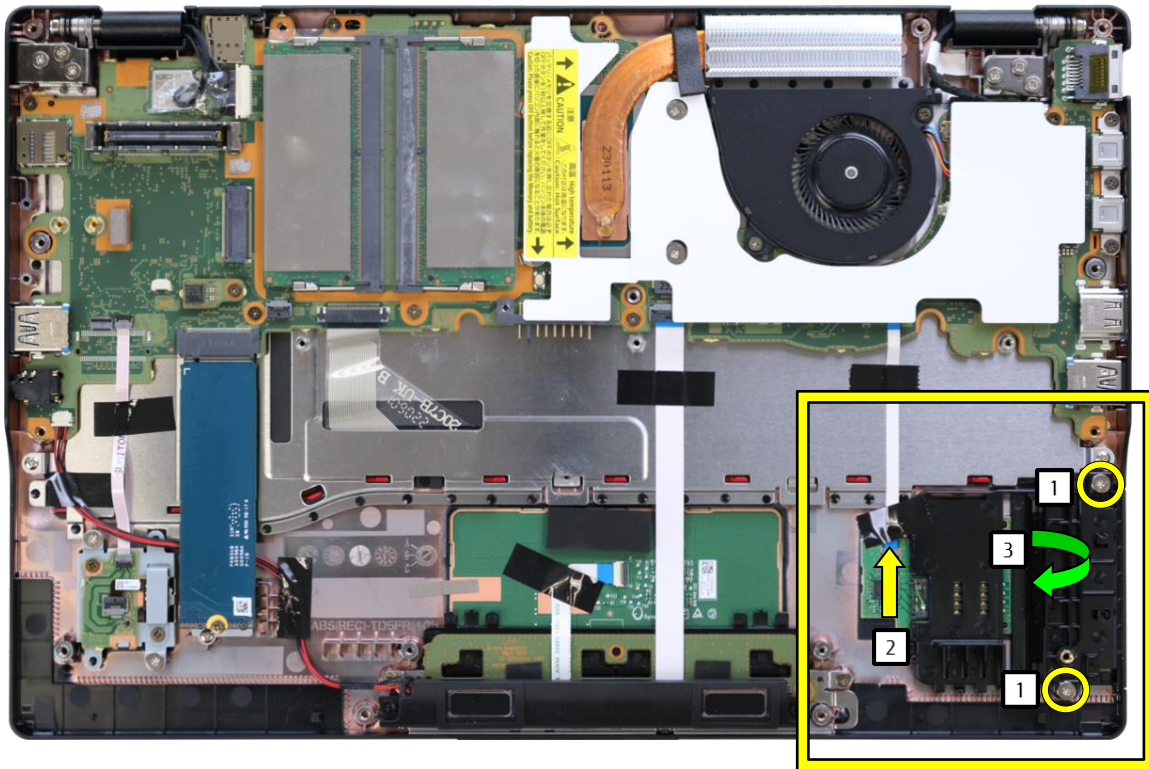
Remove the SmartCard reader

Required work steps:

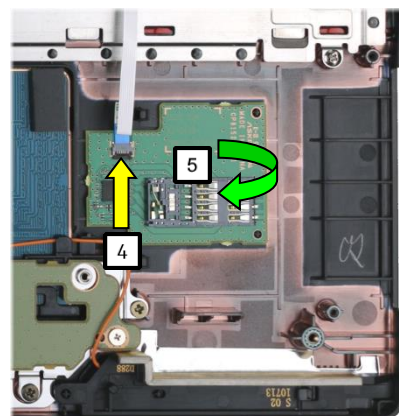
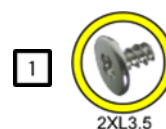
- [Switch off the battery](#)
- [Remove the lower assy](#)
- [Remove the battery](#)

Required tools:

- Screwdriver: Phillips PH00



- ▶ Remove the screws (1).
 - ▶ Remove the adhesive tape (2).
 - ▶ Remove the bracket (3).
-
- ▶ Open the connector lock and remove the cable (4).
 - ▶ Remove the sub board (5).



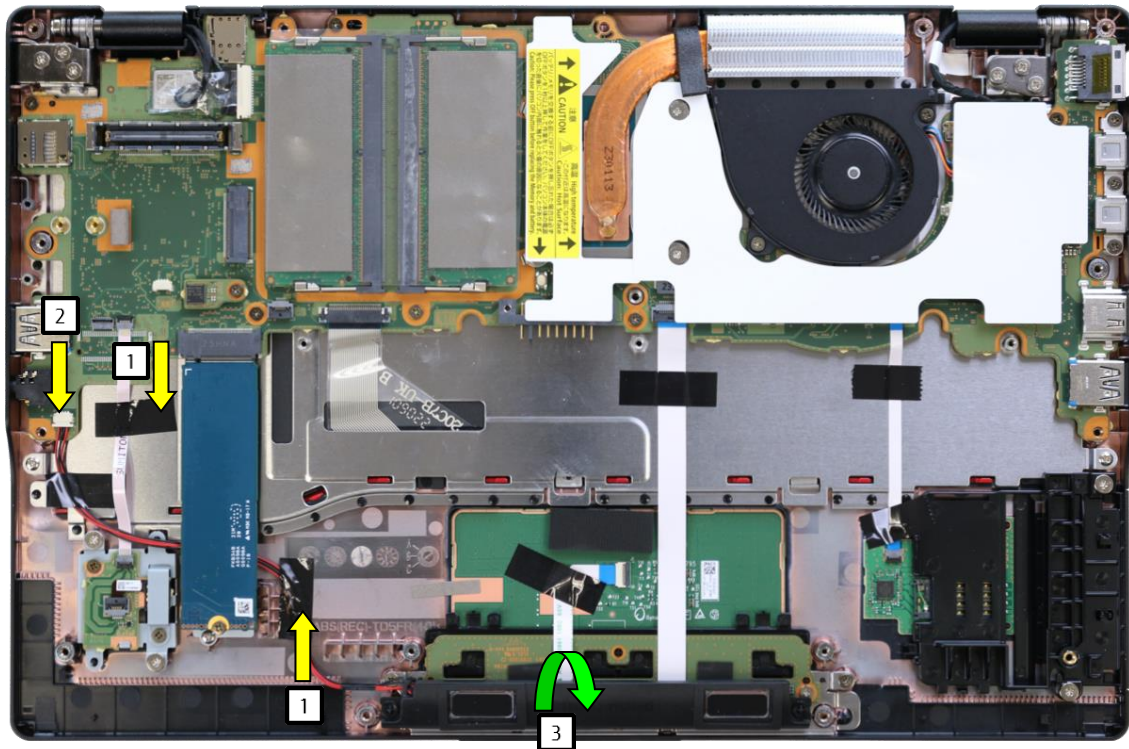
Remove the speaker

Required work steps:

- [Switch off the battery](#)
- [Remove the lower assy](#)
- [Remove the battery](#)

Required tools:

- none



- ▶ Remove the adhesive tape (1).
- ▶ Remove the cable (2).
- ▶ Remove the speakers (3).

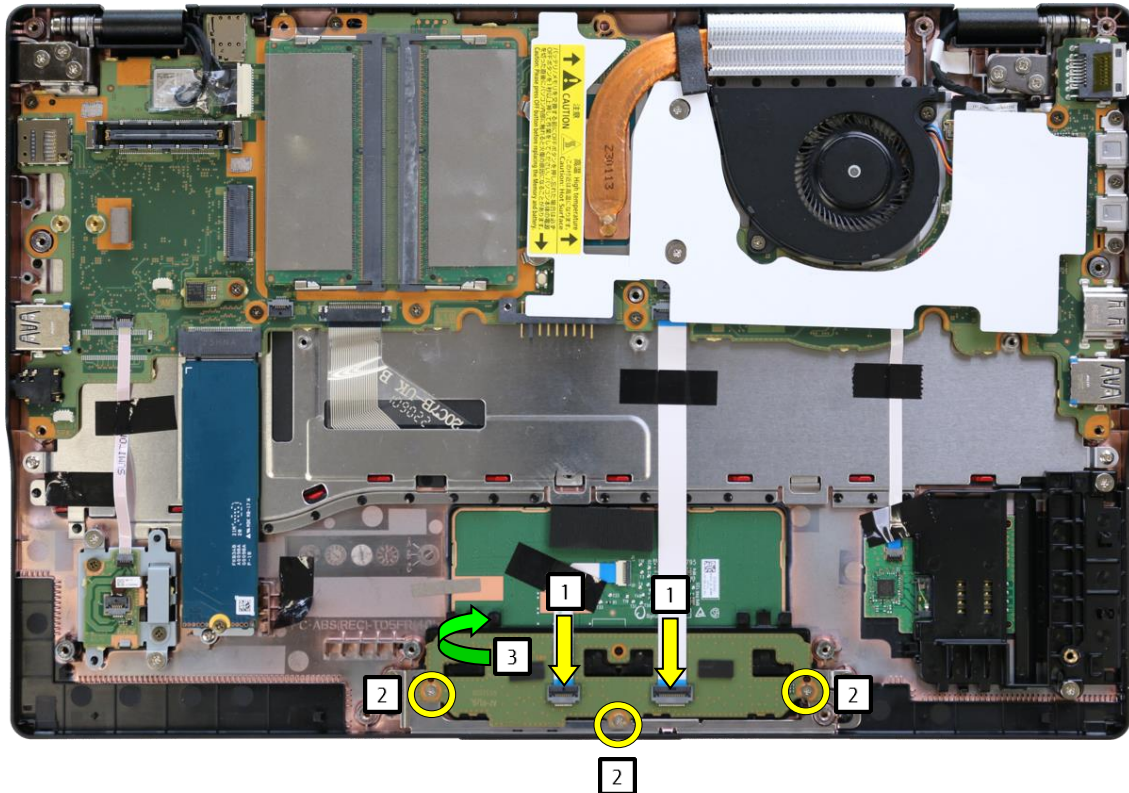
Remove the touchpad buttons sub board

Required work steps:

- [Switch off the battery](#)
- [Remove the lower assy](#)
- [Remove the battery](#)
- [Remove the speaker](#)

Required tools:

- Screwdriver: Phillips PH00



- ▶ Open the connector locks and remove the cables (1).
- ▶ Remove the screws (2).
- ▶ Remove the sub board (3).



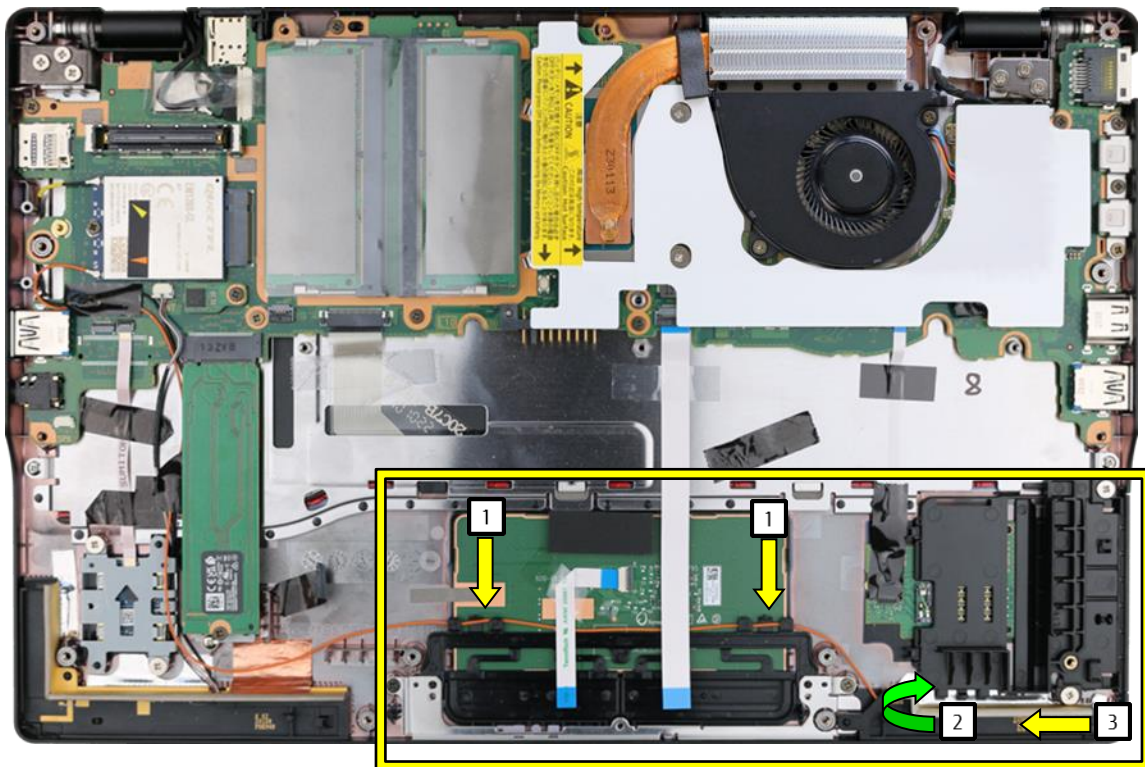
Remove the touchpad buttons

Required work steps:

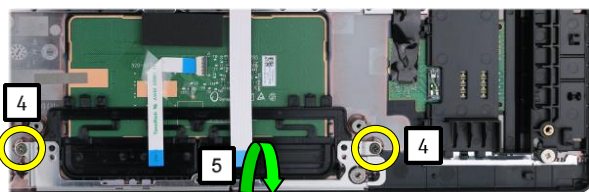
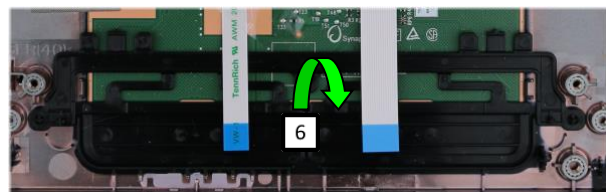
- [Switch off the battery](#)
- [Remove the lower assy](#)
- [Remove the battery](#)
- [Remove the speaker](#)
- [Remove the touchpad buttons sub board](#)

Required tools:

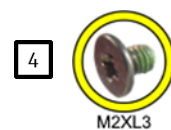
- Screwdriver: Phillips PH00



- ▶ Remove the cable (1).
- ▶ Remove the WWAN antennas in the direction of the arrow (2, 3).



- ▶ Remove the screws (4).
- ▶ Remove the bracket (5).
- ▶ Remove the touchpad buttons (6).



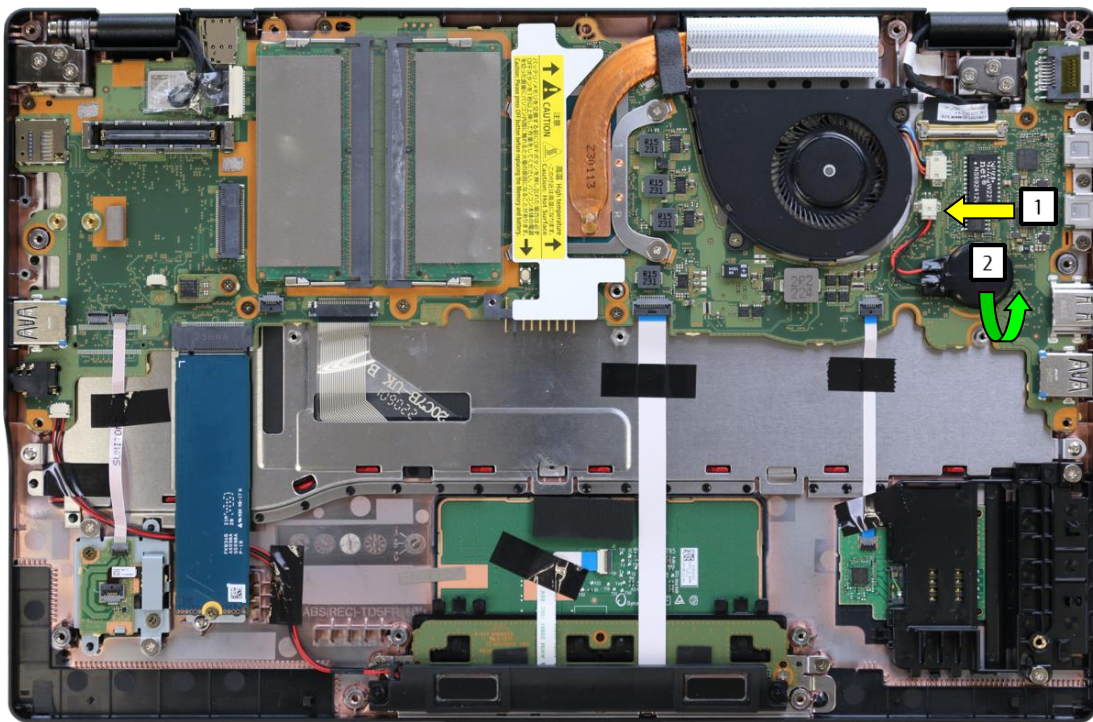
Remove the CMOS battery

Required work steps:

- [Switch off the battery](#)
- [Remove the lower assy](#)
- [Remove the battery](#)
- [Remove the protective foil](#)

Required tools:

- None



The battery is glued to the sub board.

- ▶ Remove the cable (1).
- ▶ Remove the battery (2).



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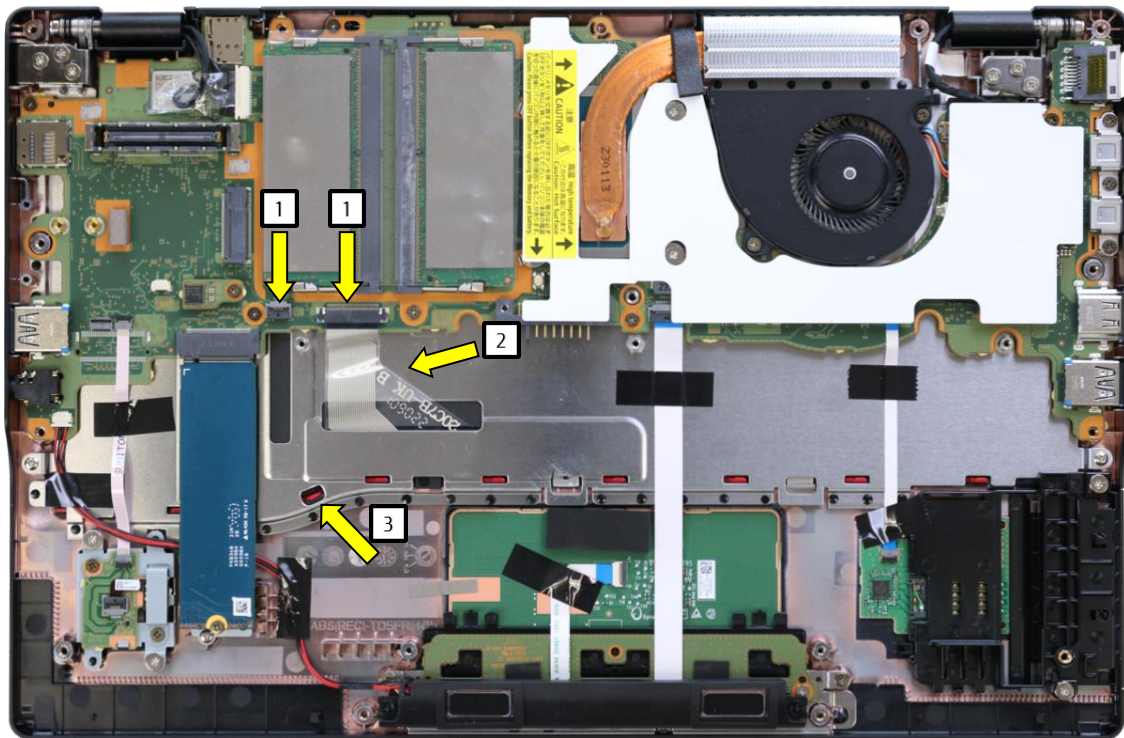
Remove the keyboard

Required work steps:

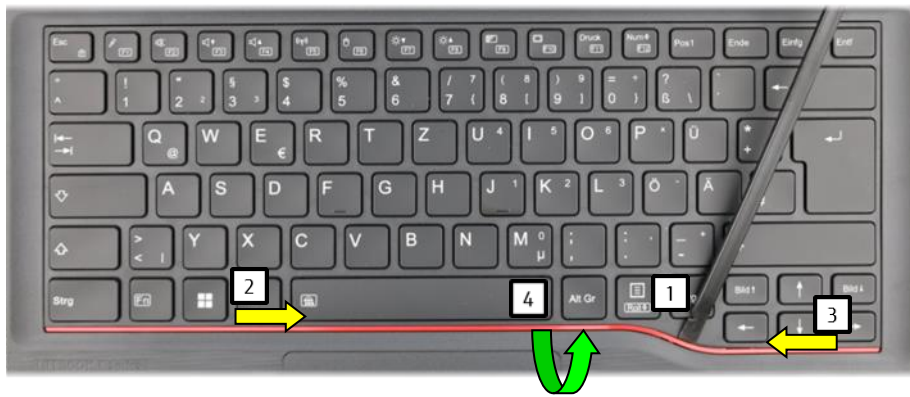
- [Switch off the battery](#)
- [Remove the lower assy](#)
- [Remove the battery](#)

Required tools:

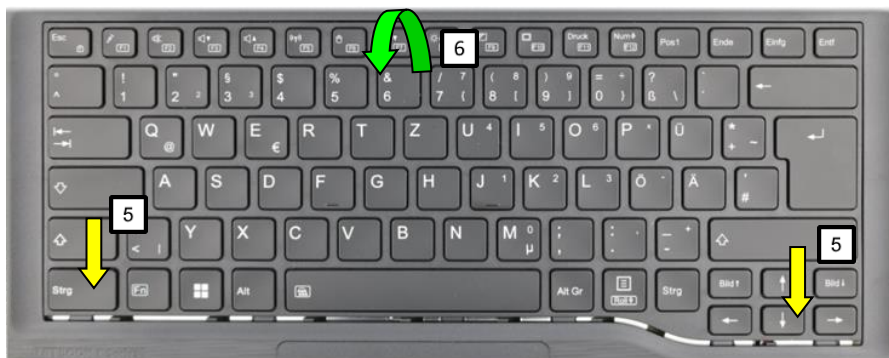
- Plastic tool



- ▶ Open the connector locks and remove the cables (1).
- ▶ Remove the adhesive tape (2).
- ▶ Press the latch in the direction of the arrow (3)
- ▶ Turn the device over.



- ▶ Lift the plastic strip (1).
- ▶ Slide the plastic strip in the direction of the arrow (2, 3).
- ▶ Remove the plastic strip (4).



- ▶ Slide the keyboard in the direction of the arrow (5).
- ▶ Remove the keyboard (6).

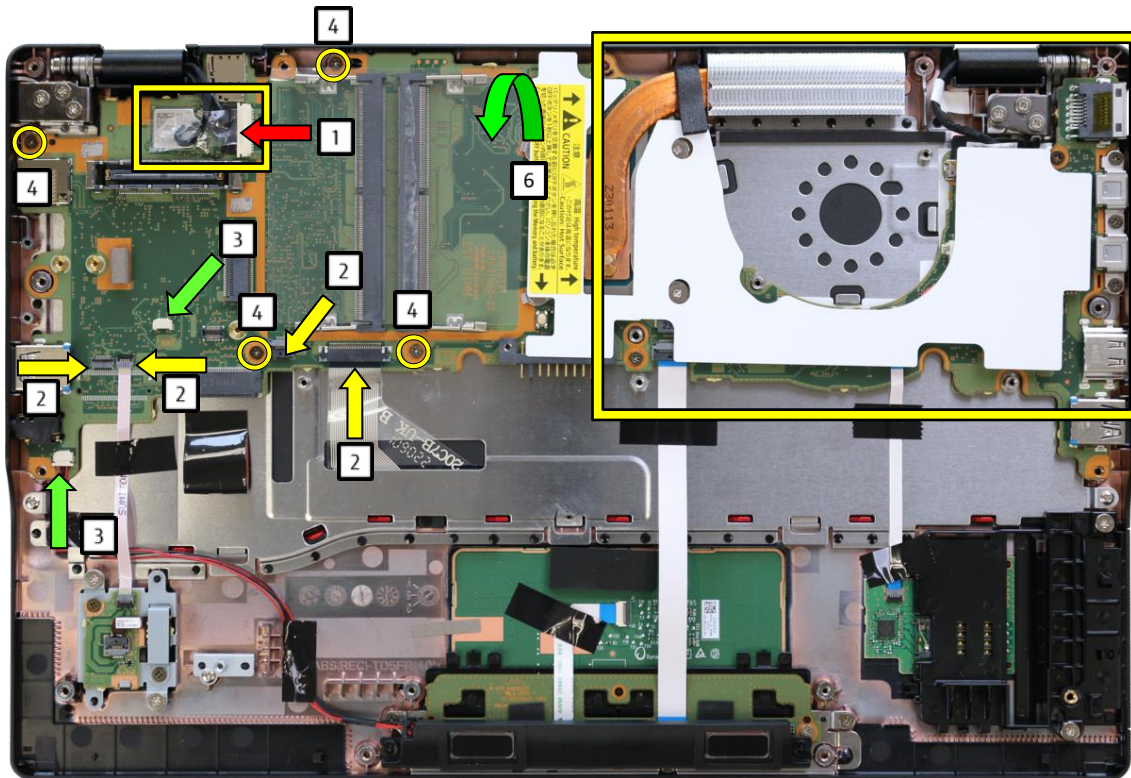
Remove the mainboard/WLAN

Required work steps:

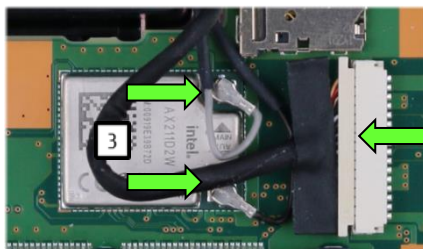
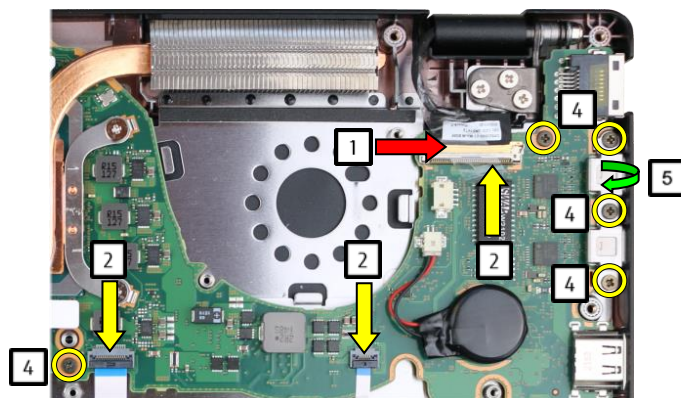
- [Switch off the battery](#)
- [Remove the lower assy](#)
- [Remove the battery](#)
- [Remove the memory](#)
- [Remove the M.2 module](#)
- [Remove the WWAN module](#)
- [Remove the fans](#)
- [Remove the TPM module](#)

Required tools:

- Screwdriver: Phillips PH00



- ▶ Remove the adhesive tape (1).
- ▶ Open the connector locks and remove the cables (2).
- ▶ Remove the cables (3).
- ▶ Remove the screws (4).
- ▶ Remove the bracket (5).
- ▶ Remove the sub board (6).



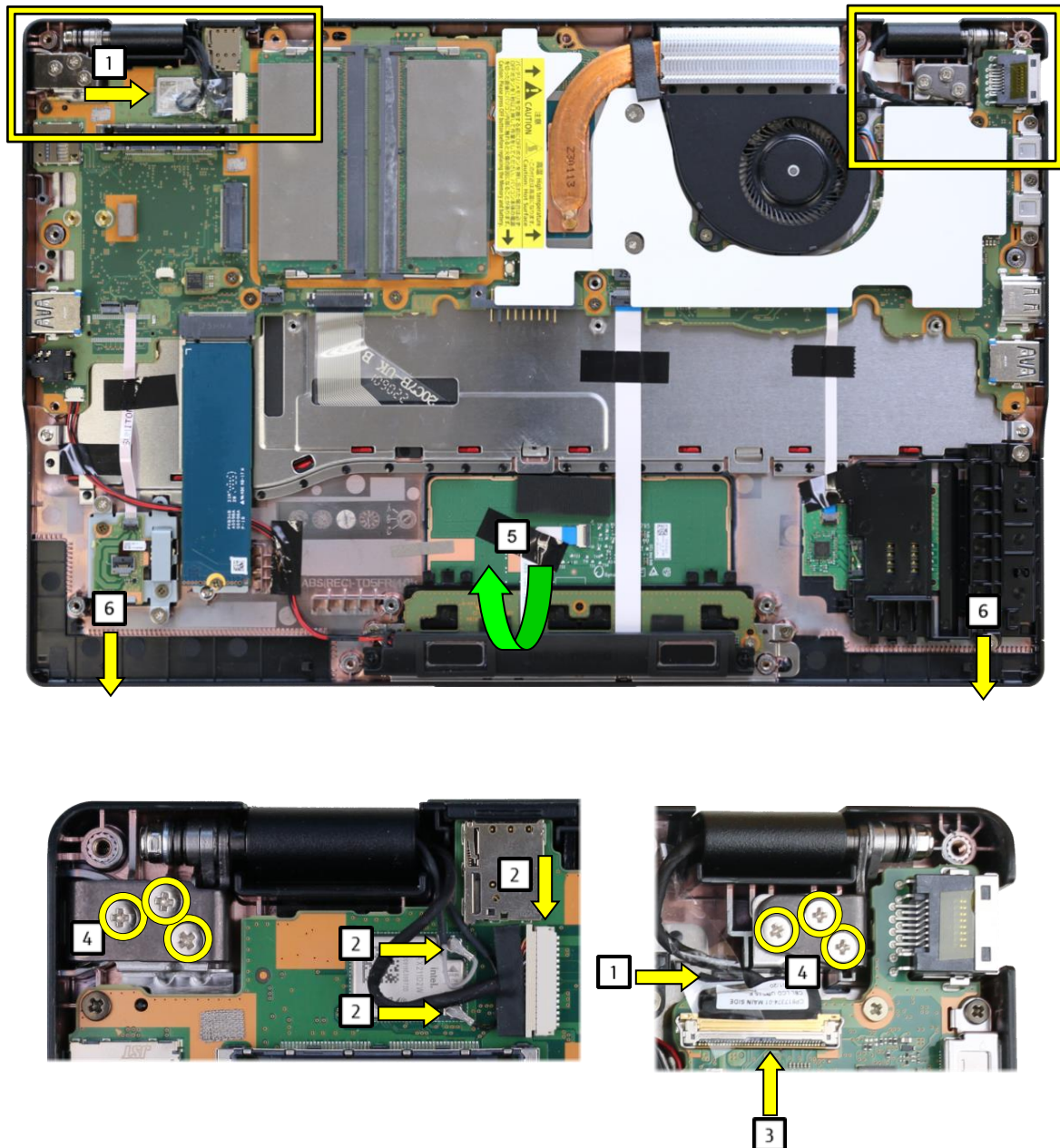
Remove the LCD assy

Required work steps:

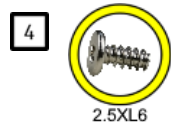
- [Switch off the battery](#)
- [Remove the lower assy](#)
- [Remove the battery](#)

Required tools:

- Screwdriver: Phillips PH00



- ▶ Remove the adhesive tape (1).
- ▶ Remove the cables (2).
- ▶ Open the connector lock and remove the cable (3).
- ▶ Remove the screws (4).
- ▶ Lift the upper assy (5) until you can disconnect the LCD assy from the upper assy (6).



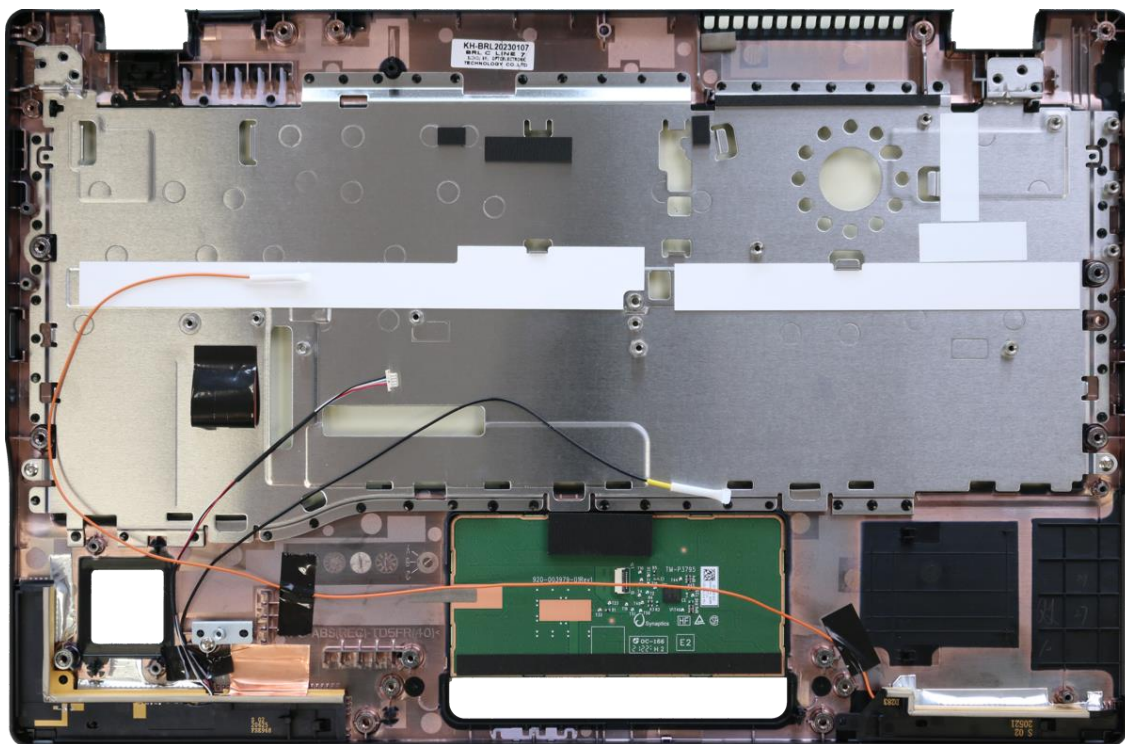
Remove the upper assy

Required work steps:

- [Switch off the battery](#)
- [Remove the lower assy](#)
- [Remove the battery](#)
- [Remove the M.2 module](#)
- [Remove the WWAN module](#)
- [Remove the fans](#)
- [Remove the speaker](#)
- [Remove the touchpad buttons sub board](#)
- [Remove the touchpad buttons](#)
- [Remove the SmartCard reader](#)
- [Remove the palm vein sensor](#)
- [Remove the fingerprint sensor](#)
- [Remove the mainboard/WLAN](#)
- [Remove the keyboard](#)
- [Remove the LCD assy](#)

Required tools:

- None



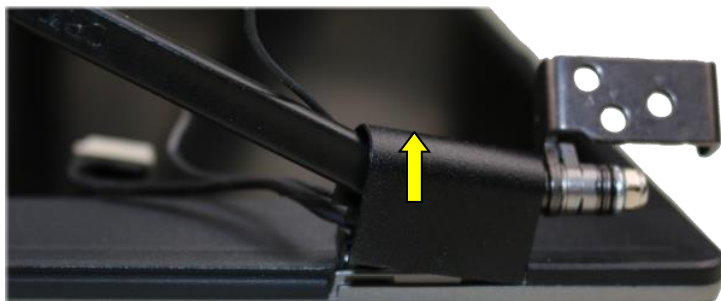
Remove the LCD hinge covers

Required work steps:

- [Switch off the battery](#)
- [Remove the lower assy](#)
- [Remove the battery](#)
- [Remove the LCD assy](#)

Required tools:

- Plastic tool



- ▶ Remove the hinge covers in the direction of the arrow.

Remove the LCD front cover

Required work steps:

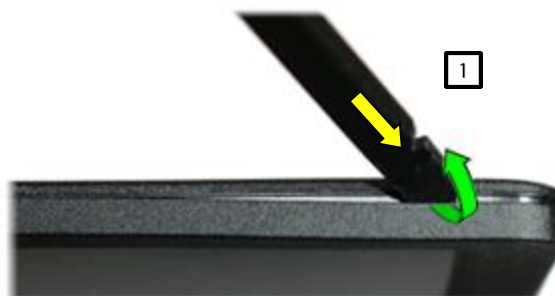
- [Switch off the battery](#)
- [Remove the lower assy](#)
- [Remove the battery](#)
- [Remove the LCD assy](#)

Required tools:

- Plastic tool



- ▶ Open the LCD assy (1).
- ▶ Separate the covers in the direction of the arrow (2)
- ▶ Remove the lower LCD front cover.



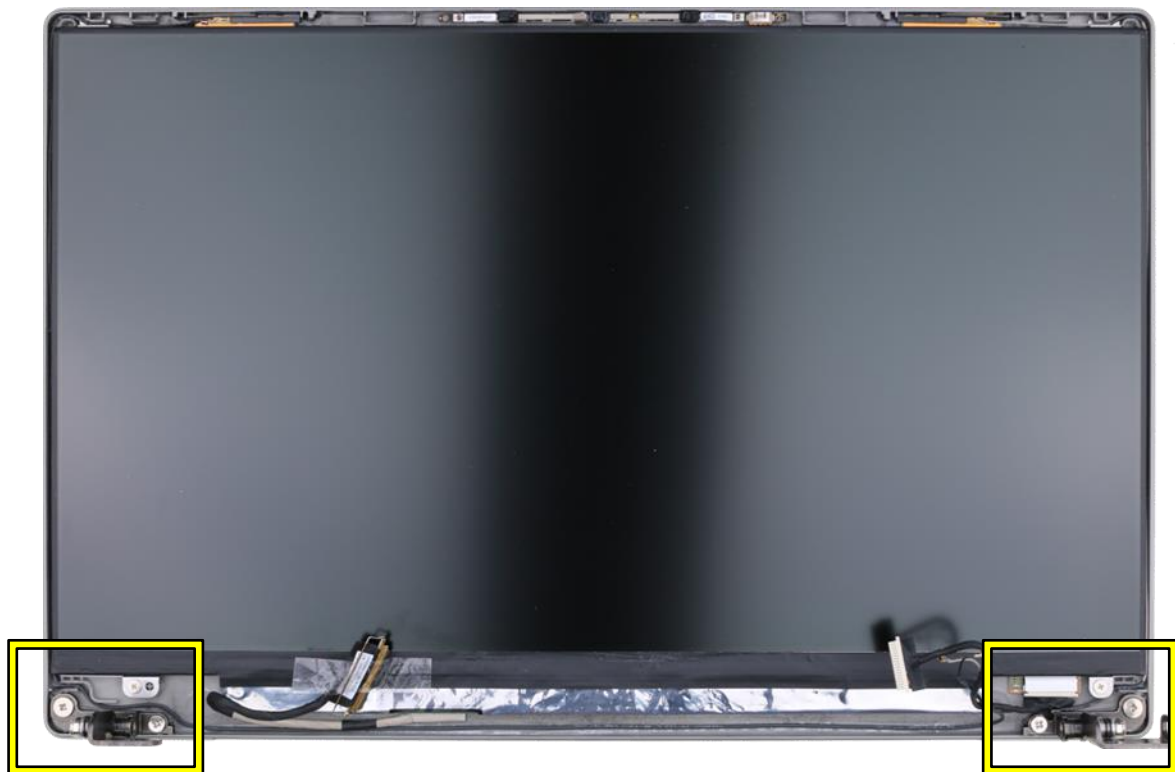
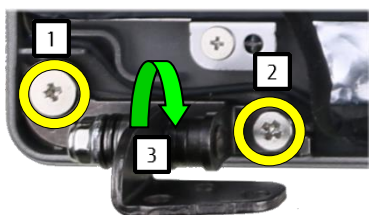
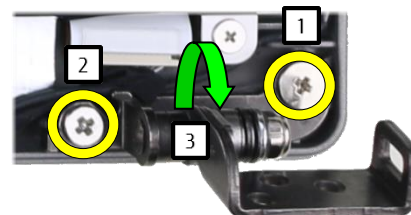
Remove the hinges

Required work steps:

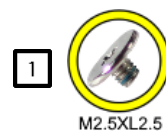
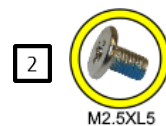
- [Switch off the battery](#)
- [Remove the lower assy](#)
- [Remove the battery](#)
- [Remove the LCD assy](#)
- [Remove the LCD hinge covers](#)
- [Remove the LCD front cover](#)

Required tools:

- Screwdriver: Phillips PH00



- ▶ Remove the screws (1,2).
- ▶ Remove the hinges (3).



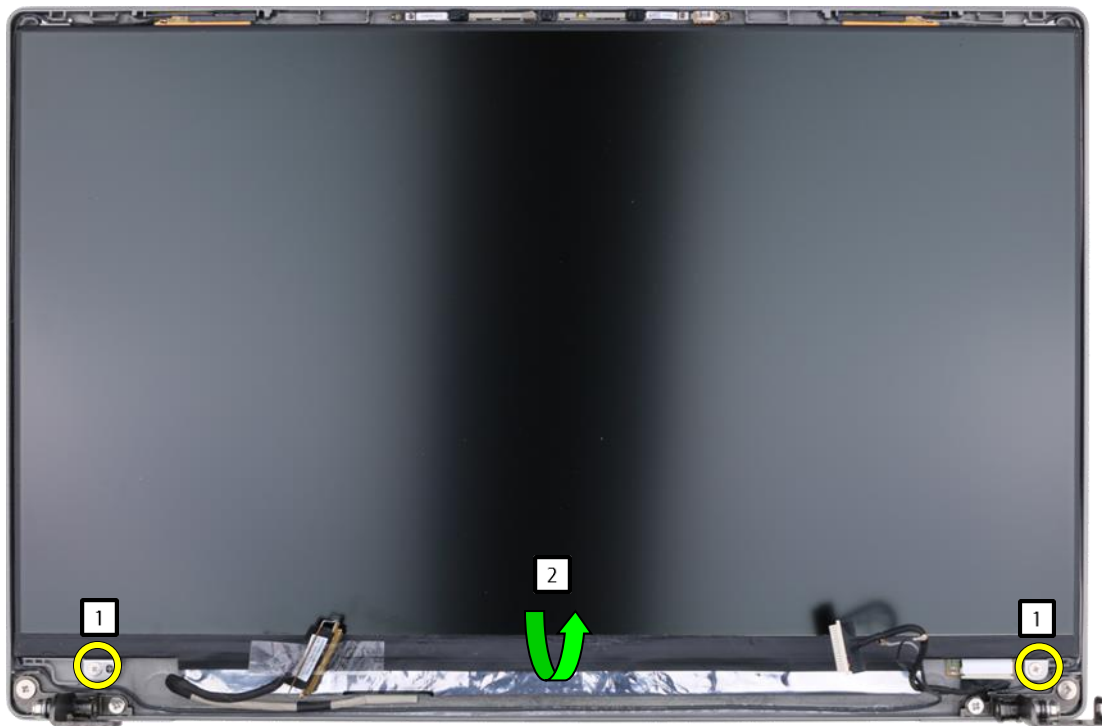
Remove the LCD panel

Required work steps:

- [Switch off the battery](#)
- [Remove the lower assy](#)
- [Remove the battery](#)
- [Remove the LCD assy](#)
- [Remove the LCD hinge covers](#)
- [Remove the LCD front cover](#)
- [Remove the hinges](#)

Required tools:

- Screwdriver: Phillips PH00



- ▶ Remove the screws (1).
- ▶ Remove the panel (2).

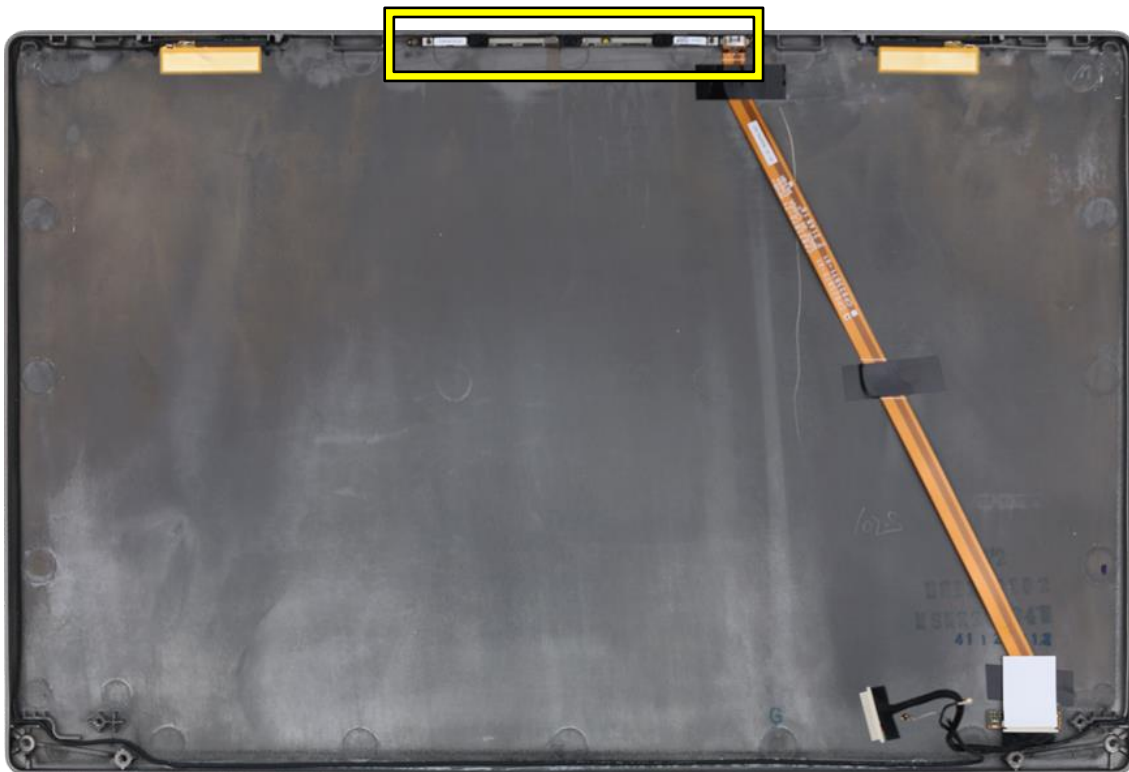
Remove the LCD back cover

Required work steps:

- [Switch off the battery](#)
- [Remove the lower assy](#)
- [Remove the battery](#)
- [Remove the LCD assy](#)
- [Remove the LCD hinge covers](#)
- [Remove the LCD front cover](#)
- [Remove the hinges](#)
- [Remove the LCD panel](#)

Required tools:

- None



Pay attention to the microphone covers.



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Pos.	Spare part	Internal designation	Replaceable parts		Upgradeable	Repairable
			Customer	Service Partner		
	Mechanical parts:					
163	Rubber foot		x			
178	SIM slot cover	Depending on the device configuration	x			
170/171	Hinge cover			x		
158	Palm Vein bracket			x		
174	Hinges			x		
156	Touchpad buttons			x		
157	Touchpad buttons bracket			x		
	Case:					
162	Lower assy		x			
154	Upper assy			x		
150	LCD back cover			x		
152	LCD front cover			x		
	External AC adapter		x			
120	Battery		x			
90	Memory	Depending on the device configuration	x		x	
51	Storage media (SSD, M.2 modul)	Depending on the device configuration	x		x	
	Cooling:					
13	Heatsink			x		
176	Fans			x		
10	Mainboard	Depending on the device configuration		x	x	x
71	WWAN module	Depending on the device configuration		x		
24	TPM module			x		
100	Palm Vein Sensor	Depending on the device configuration		x		
101	Fingerprint sensor			x		
60	LCD display	Depending on the device configuration		x	x	
130	Keyboard	Depending on the device configuration		x	x	
12	CMOS battery			x		
190	Speaker			x		
20, 22, 102	Sub board (e.g. touchpad, SmartCard reader, fingerprint)	Depending on the device configuration		x		
	Cables, flexprint cables, antennas	Depending on the device configuration		x		
	Touchpad: only if the upper assy is replaced					
	Webcam: To change it, replace the LCD back cover					
	Processor - only by replacing the mainboard					
	Graphics card: integrated in the main processor - only by replacing the mainboard					
	WLAN module - can be replaced by replacing the mainboard					



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Additional information LIFEBOOK E5413

Spare part availability:

5 years after end of product life

Spare parts can be obtained from our approved and certified service partners:

[Spare parts - Fujitsu Technical Support pages from Fujitsu EMEA](#)

The exploded diagram is available at the following link:

[Exploded diagram - Fujitsu Technical Support pages from Fujitsu EMEA](#)



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Disposal information for recycling companies

These instructions are for the complete dismantling of a Fujitsu product. All materials can thereby be disposed of according to their provision in the EC directive 2012/19/EC (Waste Electrical and Electronic Equipment (WEEE)).

Product group: Mobile PC
Model: LIFEBOOK E5413

Materials which must be disposed of in a special manner		
Designation	Remarks	Quantity
Printed circuit boards with a surface area greater than 10 cm ²	Mainboard AC adapter LCD HDD or SSD Memory Touch Pad Depending on system configuration: WWAN Port replicator Mouse	1 1 1 1-2 1-2 1 1 1 1
Batteries	Lithium-ion battery - Method of attachment: Detachable - How to remove: Open the cover - Special tool for removal: None Lithium button batteries CR2032 - Included on the mainboard	1 1
Components containing mercury	Not contained	
Liquid crystal displays (if applicable, together with the casing) with a surface area greater than 100 square centimetres and backlit displays with gas discharge lamps	> 100 cm ² display: Yes, for its display Gas discharge lamps: No	1
Cathode ray tubes	Not contained	
Capacitors containing PCBs (PolyChlorinated Biphenyls)	Not contained	
Electrolytic capacitors which contain critical substances (height > 25 mm; diameter: > 25 mm or proportional similar volumes).	Not contained	0
External electrical cables	AC adapter cable	1
Gas discharge lamps	Not contained	
Chlorofluorocarbons (CFC), hydrochlorofluorocarbons (HCFC) or hydrofluorocarbons (HFC), hydrocarbons (HC)	Not contained	

Materials which must be disposed of in a special manner		
Designation	Remarks	Quantity
Plastics which contain brominated flame retardant	<p>This product may contain plastic parts with Brominated flame retardants but to the best of our knowledge we provide this information to sort them out. Plastic parts location can be visually identified by their typical design function for the product (also shown in the disassembly manual).</p> <p>Many of these parts (Greater than 25 grams) are bromine free.</p> <p>Regardless, these parts are labeled (usually molded directly into the plastic) per ISO 11469. A typical label would look like:</p> <p>> Polymer Abbreviation - FR(xx) < i.e. > PC+ABS FR(40) <</p> <p>Flame retardant codes (FR(xx)) are given in ISO 1043-4. Codes for some Brominated flame retardants:</p> <p>14 aliphatic/alicyclic Brominated compounds 15 aliphatic/alicyclic Brominated compounds in combination with antimony compounds 16 aromatic Brominated compounds (excluding Brominated diphenyl ether and biphenyls) 17 aromatic Brominated compounds (excluding Brominated diphenyl ether and biphenyls) in combination with antimony compounds 22 aliphatic/alicyclic chlorinated and Brominated compounds 42 Brominated organic phosphorus compounds</p> <p>- Plastics parts weighing less than 25 grams may or may not contain brominated flame retardants. These smaller plastics parts may be found all over the PC system. It may especially include: fan, speaker.</p>	
Toner cartridges, liquid and paste-like, and colour toner	Not contained	
Asbestos waste and components which contain asbestos	Not contained	
Components which contain fire-proof ceramic fibres	Not contained	
Components which contain radioactive substances	Not contained	
Mass storage device(s)		
Does the product contain mass storage devices? If so, is any of them soldered to a circuit board?	Mass storage devices are contained, and they are not soldered to a circuit board.	1 - 2
Required tools		
Philips Screwdriver		

Version history

Version	Date	Name	Change
1.0			