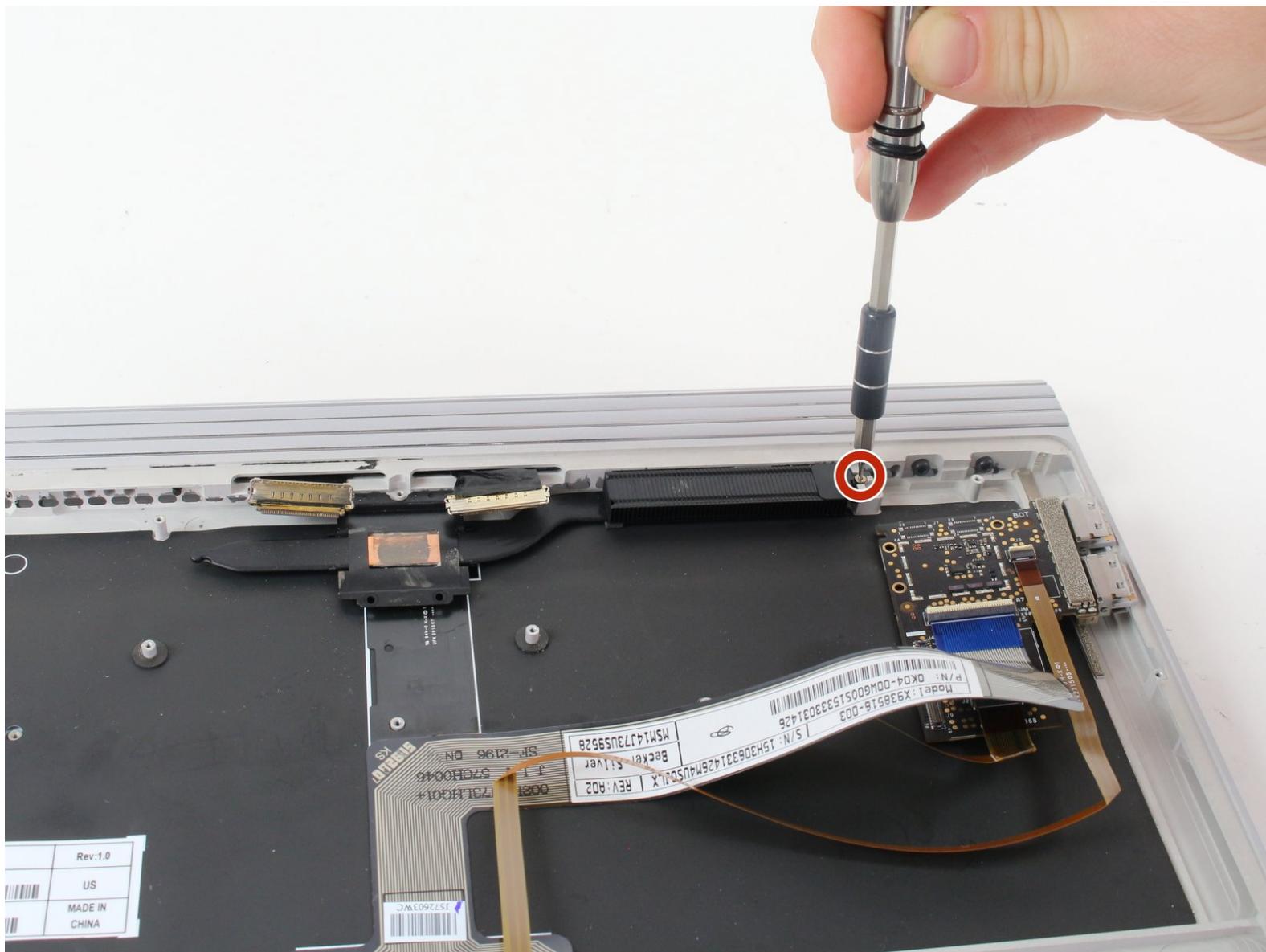




Microsoft Surface Book Keyboard Heat Sink Replacement

You will open up the computer, remove the heat sink, and replace it.

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INTRODUCTION

You will learn how to remove and replace the computer's heat sink. This will require an extensive teardown of the keyboard's internals. You will be removing the motherboard, SD card slot, USB ports, and other internals. Make sure you have a secure place to store the tiny screws you will be removing.

The heat sink transfers heat from the graphics card and motherboard to the fan, ensuring that your computer doesn't overheat. If this heat sink is damaged and not replaced, you run the risk of permanent damage to your motherboard and graphics card by overheating.

TOOLS:

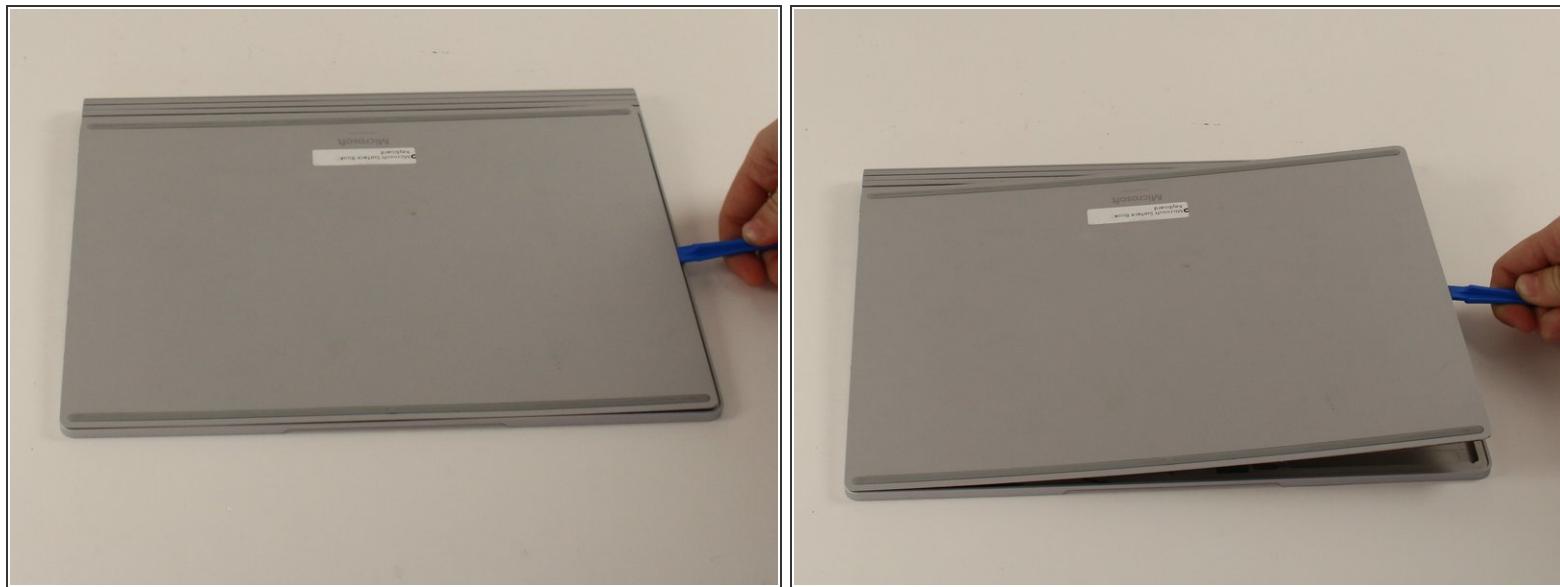
- [iFixit Opening Tools](#) (1)
- [T3 Torx Screwdriver](#) (1)

Step 1 — Back Panel



- Flip the keyboard over so you can see the back panel.

Step 2



- Insert the plastic opening tool in the crevice between the panel and the keyboard.
- Apply some pressure and lift up so that the back panel is pried away from the keyboard.

(i) The panel is glued down on the inside so this may require some force to lift away the panel.

- Continue to lift until the panel is completely separated from the keyboard.

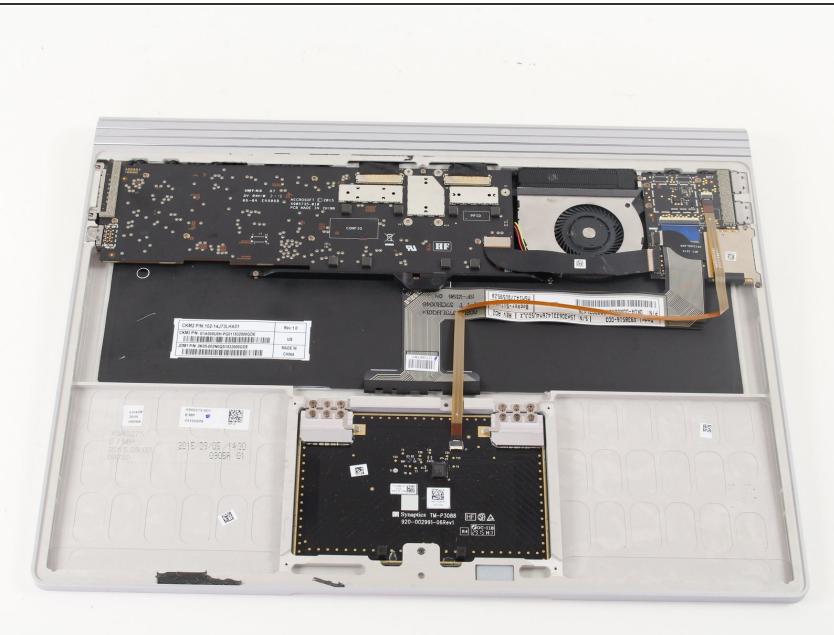
(i) The panel is still attached to the keyboard by a ribbon cable so only lift the panel a few inches.

Step 3



- Lift the panel away with the ribbon cable still attached and set aside the panel so that you can work on other components.

Step 4 — SD Card Reader



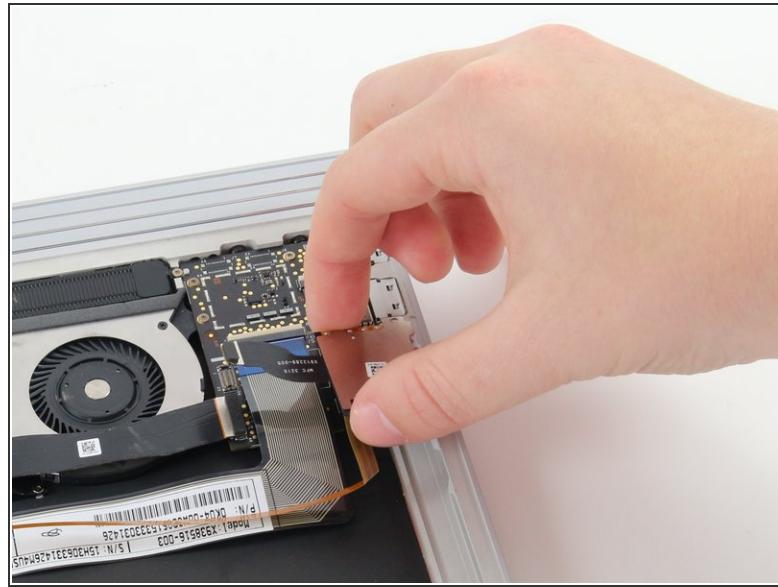
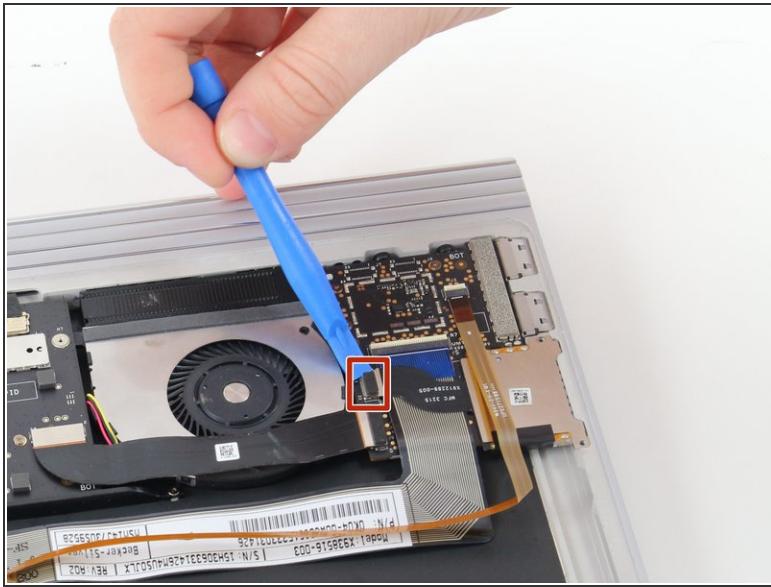
- Orient your keyboard with the internals facing up and the USB ports on the right.

Step 5



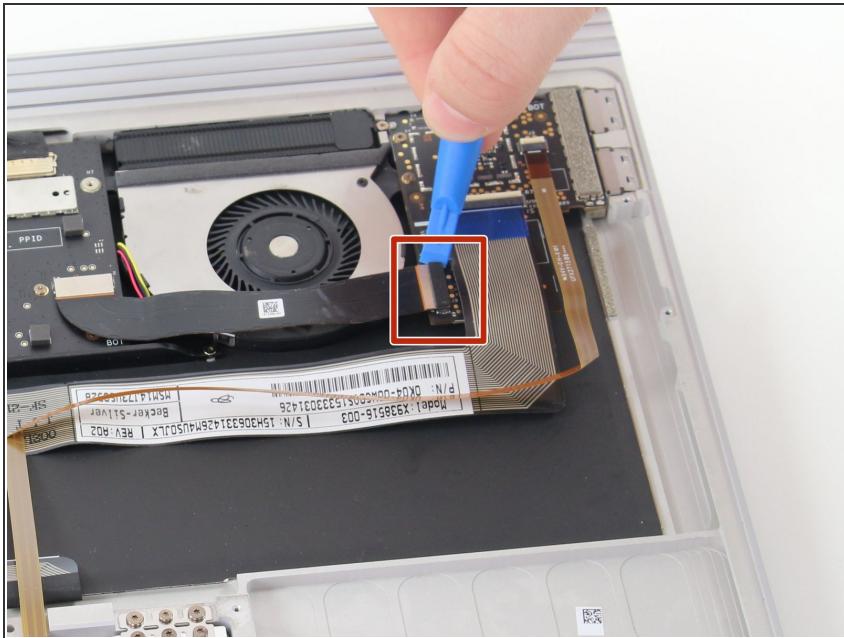
- Use the T3 screwdriver to remove the two 4 mm screws on the right side of the SD Card Reader.

Step 6



- Remove the black ribbon cable tab on the SD card reader from the chip with a plastic opening tool. Place the tool underneath the tab and pry it off.
(i) Removing this tab can be a little difficult. Be sure that you have a good angle and do not get discouraged if removing the tab takes you multiple tries.
- Lift the SD card reader away from the keyboard to replace it.

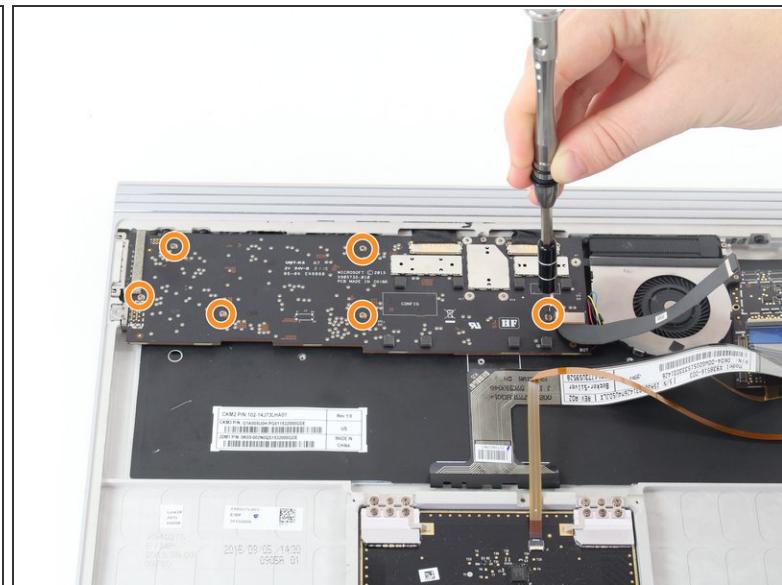
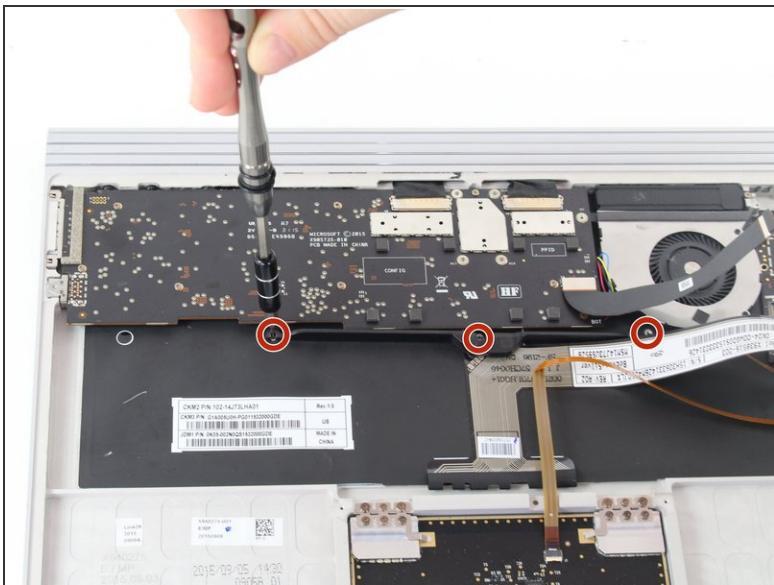
Step 7 — GPU board



- Remove the larger, black ribbon cable located on the USB card with a plastic opening tool by lifting the tab away from its connector. Again, place the tool underneath the tab and pry it off.

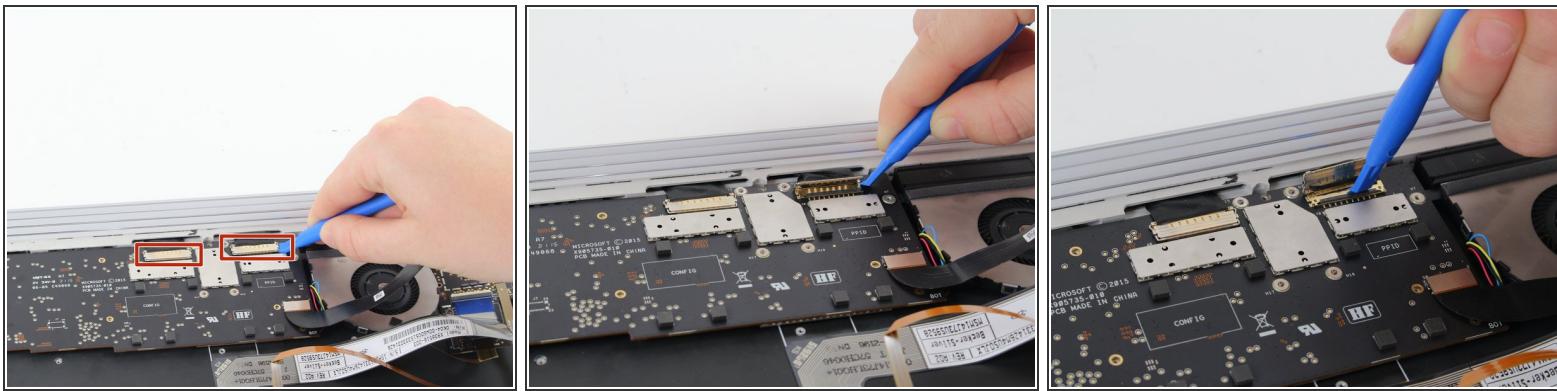
(i) This may require some force. Do not get discouraged if it does not detach on the first try.

Step 8



- Use the T3 screwdriver to remove three 4 mm screws located on the black bar towards the bottom of the board.
- Use the T3 Torx Screwdriver to remove the remaining six 4 mm screws.

Step 9



- Lift both clamps with the blue plastic opening tool. Place the tool underneath the clamps and pry them open.
- Use the plastic opening tool to slide ribbon cable toward the wall of the keyboard until the ribbon cables come loose.

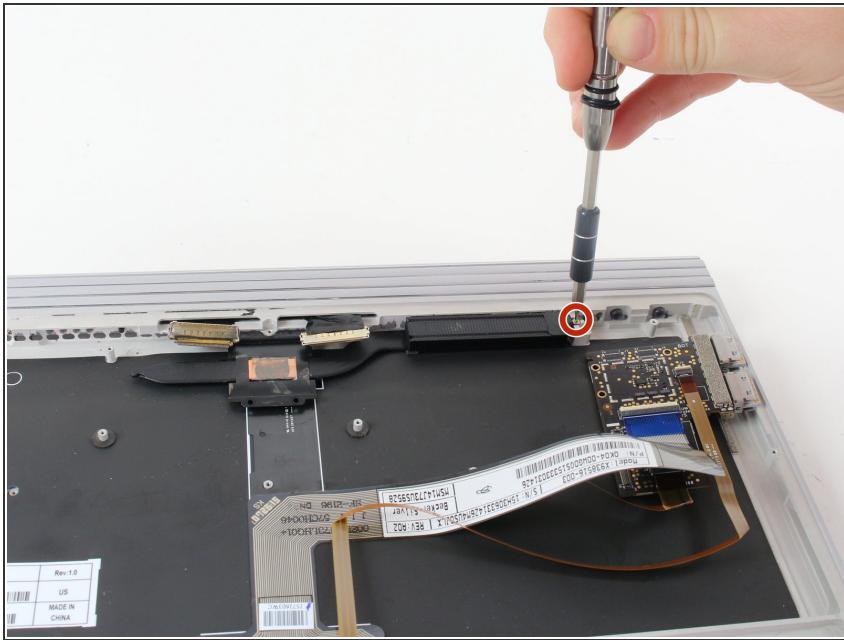
Step 10



- Wiggle the the GPU board out away from the keyboard.

(i) This may require some force to remove.

Step 11 — Heat Sink



- Unscrew the screw on the side of the black fan vent.

Step 12



- Remove the heat sink. It's the long, flat, black piece that runs against the bottom of the keyboard, from the graphics card to the fan vent.

- When replacing the heat sink, note that one side of it is resting against the graphics card (the small rectangle surrounded by a bronze sheet with a gray goop on it). When you replace the heat sink, make sure that it touches the graphics card.*

 Be careful not to touch the gray goop.

To reassemble your device, follow these instructions in reverse order.