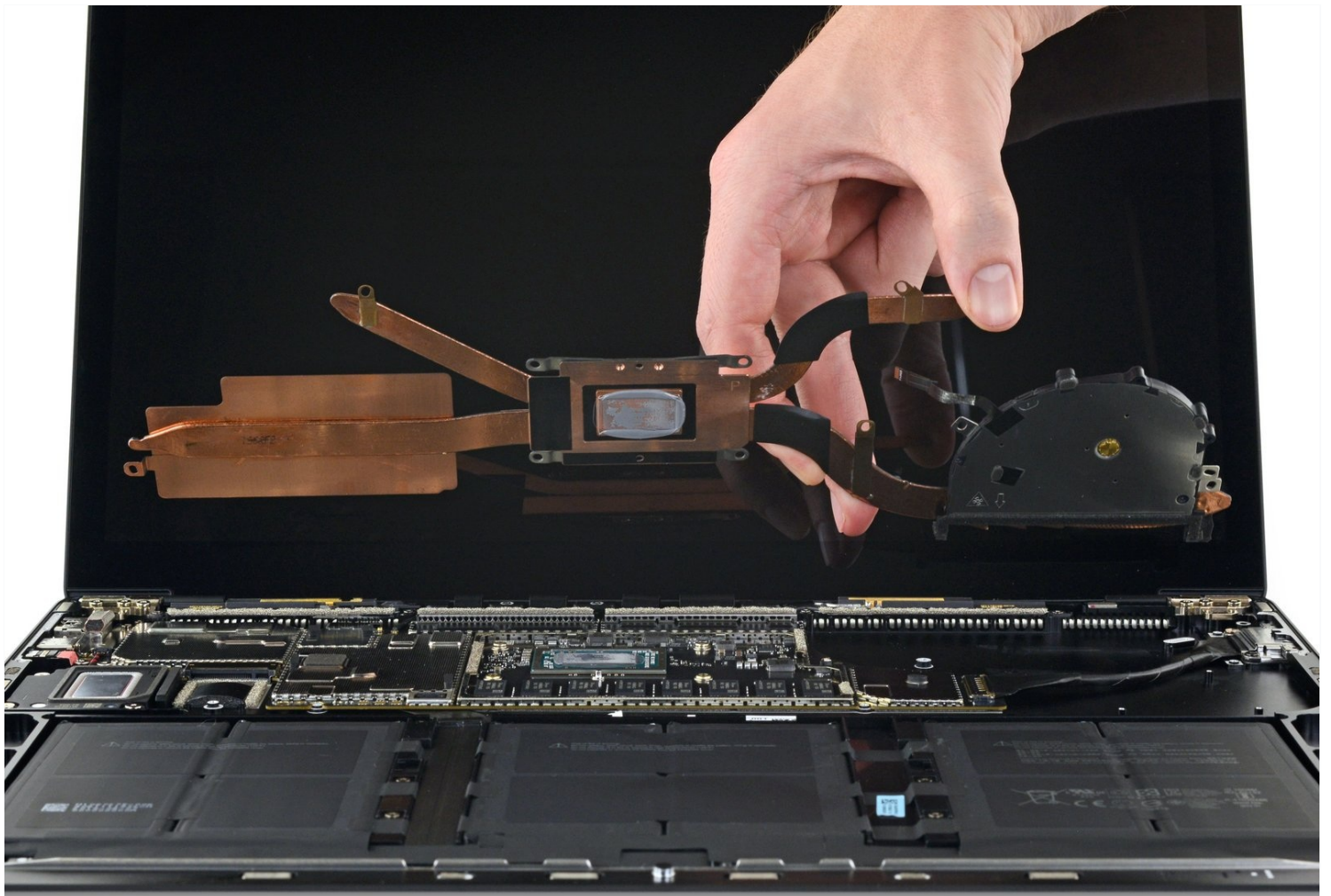




Microsoft Surface Laptop 3 13.5" Heatsink and Fan Replacement

Use this guide to remove or replace the...

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INTRODUCTION

Use this guide to remove or replace the heatsink or to service a faulty cooling fan on a Microsoft Surface Laptop 3 (13.5").

Some photos in this guide are from a different model and may contain slight visual discrepancies, but they won't affect the guide procedure.

TOOLS:

Spudger (1)

T5 Torx Screwdriver (1)

Tweezers (1)

Step 1 — Flip the laptop over



- Flip the laptop over and place it on your work surface, feet facing up.

Step 2 — Removal tip



- ① The feet on the bottom of the laptop are meant to be removed with the pointed end of a spudger.
 - Each foot has a hidden indent that will simplify removal.
 - To make sure the spudger is in the indent, insert it at the nearest **long edge**, pushing parallel to the short edges of the laptop, as shown.
- ① Note that the two feet near the rear (screen) edge are different than the two front feet.

Step 3 — Remove the rear feet



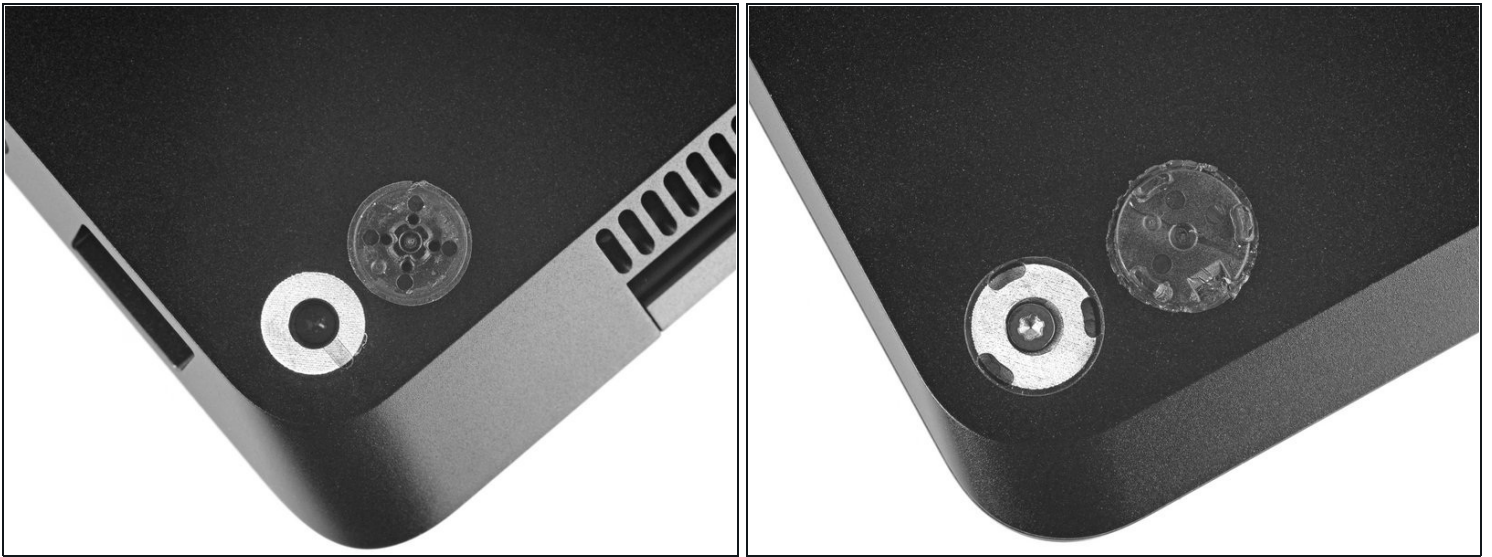
- Insert the pointed end of a spudger underneath one of the two rear feet, at its rear edge.
- Push the spudger underneath the foot and pry up to release it.
 - ❗ The two rear feet are secured with some light adhesive.
- Repeat to remove the second rear foot.

Step 4 — Remove the front feet



- Insert the pointed end of a spudger underneath one of the two front feet, at its front edge.
- Push the spudger underneath the foot and pry up to release it.
 - ❗ The two front feet are secured with plastic clips as well as light adhesive.
- Repeat to remove the second front foot.

Step 5 — Reassembly tip



★ During reassembly:

- Note that the front and rear feet are different.
- Note that the front feet are directional and only clip in one way.

Step 6 — Reassembly tip



★ In place of reusing old, worn out feet on your device, 8 mm rubber furniture pads can be a good substitute.

- Peel a pad away from its backing, align it over a foot cavity, and press to secure.

Step 7 — Remove the upper case screws



- Use a T5 Torx driver to remove the four 3 mm screws in the foot cavities securing the upper case to the device.
- ⓘ Throughout this repair, [keep track of each screw](#) and make sure it goes back exactly where it came from to avoid damaging your laptop.
- ★ During reassembly, don't over-tighten these screws—they strip easily.

Step 8 — Open the display



- Flip the device over.
- Open the display as far as it will go.

Step 9 — Lift up the upper case





 The upper case is secured in place by magnets.

- Grip the top edge of upper case above the keyboard and lift straight up to release it.

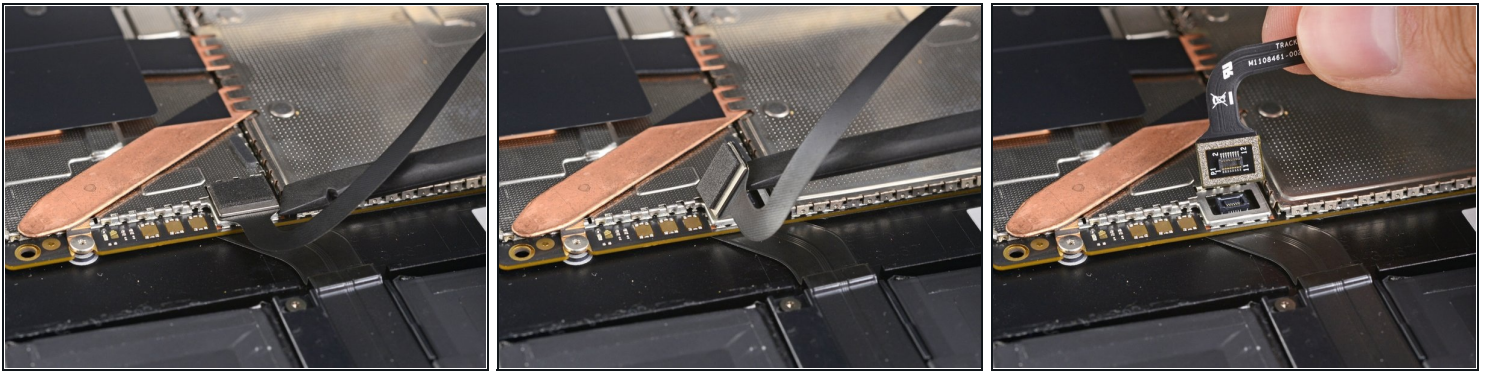
 Don't try to completely remove the upper case just yet, as it's still connected to the rest of the laptop.

- Lift the front edge of the upper case up and away from the laptop, taking care to not strain the keyboard and touchpad ribbon cable underneath.

 During reassembly, lower the upper case onto the lower case until the magnets snap into place and it lays flat.

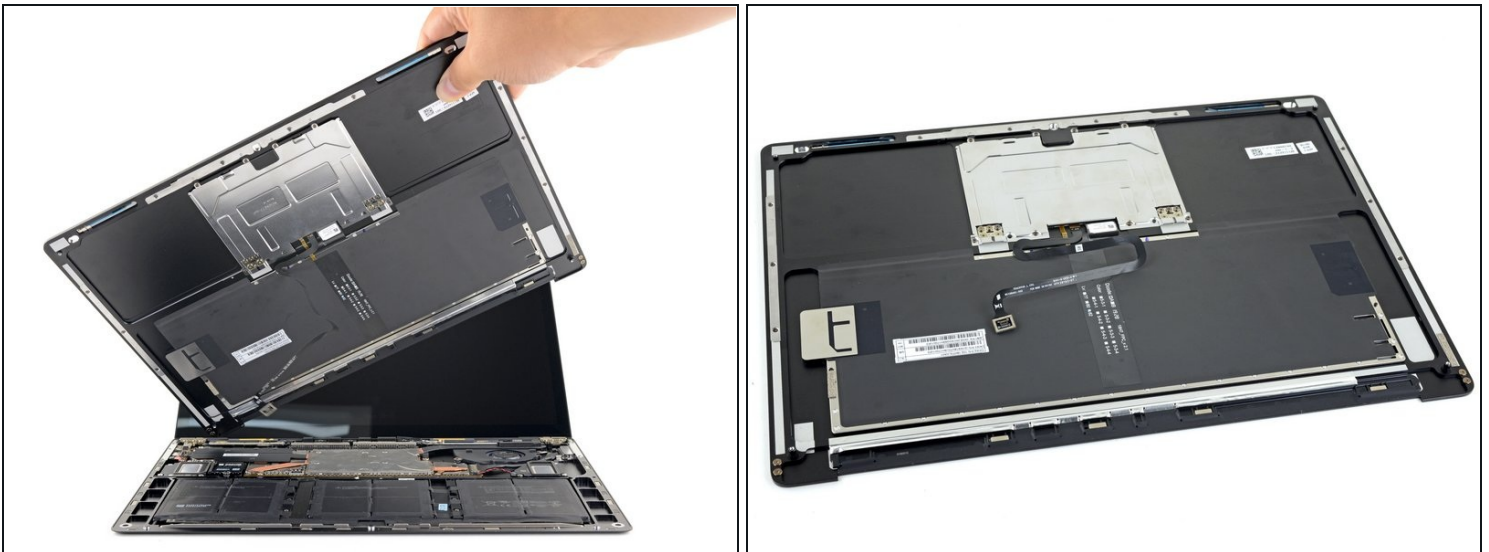
 Check that the upper case sits flush around the entire perimeter. Any gaps between the upper and lower case near the display could cause damage to the display as it closes.

Step 10 — Disconnect the ribbon cable



- ① The keyboard and touchpad ribbon cable is secured in place by a magnet connector.
- ① On some models, this connector is surrounded by black tape.
- Insert the flat end of a spudger underneath one edge of the ribbon cable connector, and pry up to release it.
- Remove the ribbon cable from the motherboard.

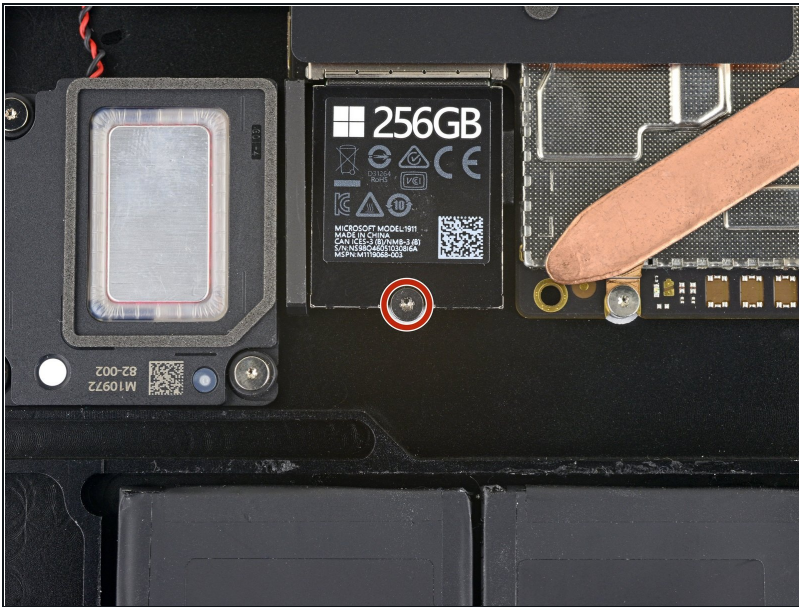
Step 11 — Remove the upper case



- Remove the upper case.
- Set the upper case onto a clean surface, keyboard-side down.

⚠ Ensure the ribbon cable lays flat, and isn't twisted or stressed.

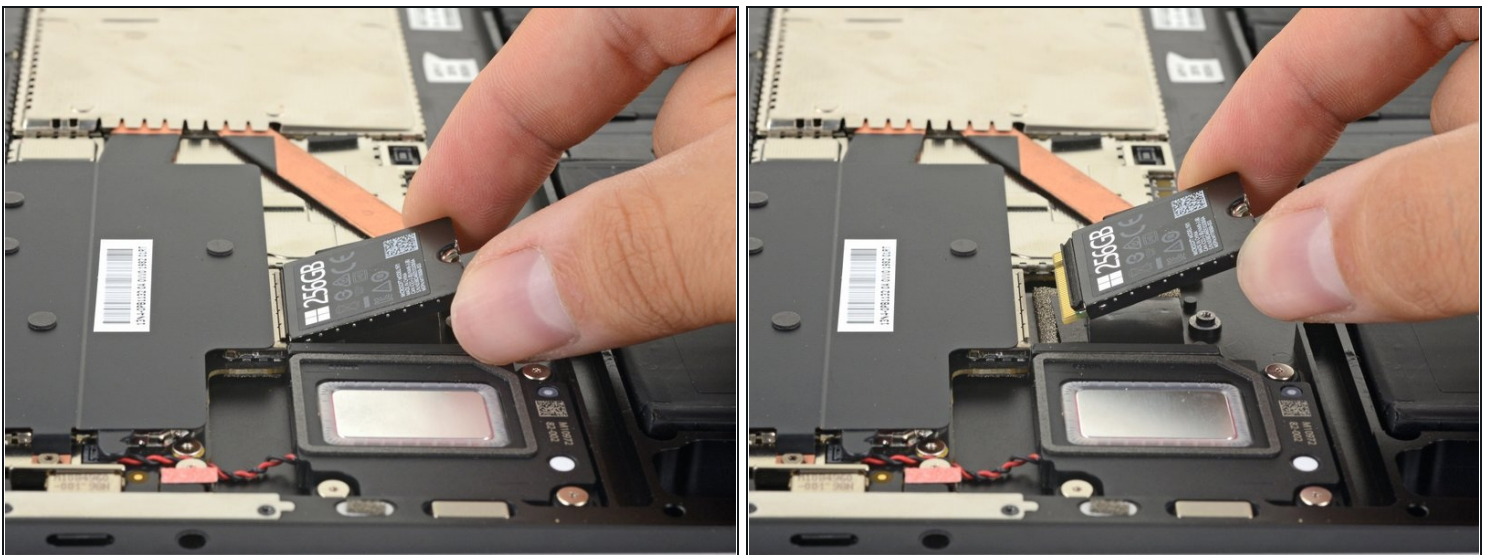
Step 12 — Remove the SSD screw



- Use a T5 Torx driver to remove the 2.7 mm screw securing the SSD.

ⓘ Removing the SSD also [functions as a battery disconnect](#) and should be performed before all major repairs.

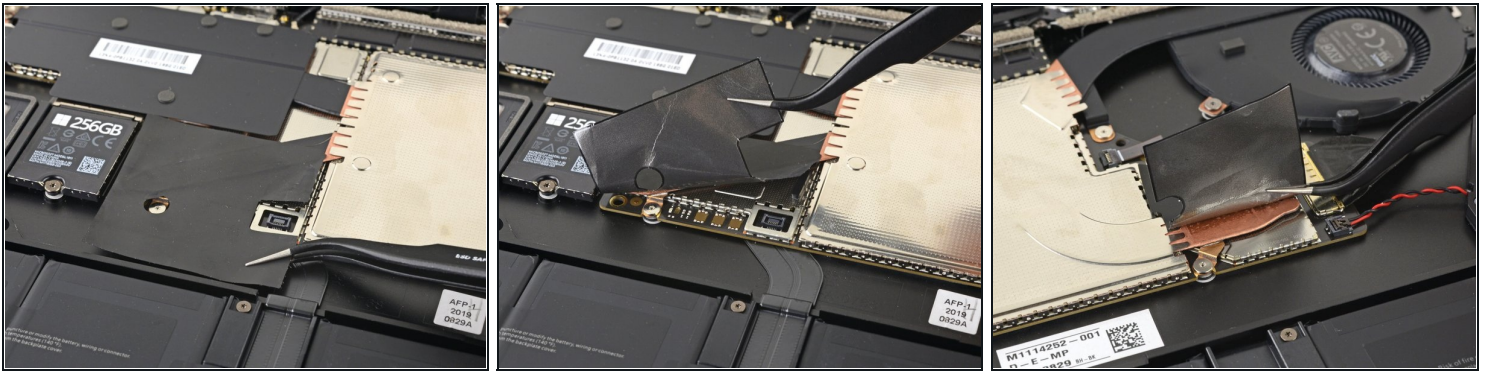
Step 13 — Remove the SSD



ⓘ With the SSD screw removed, the SSD will pop up at a shallow angle.

- Grip the end of the SSD and pull it away from its board connector to remove it.
 - ☑ During reassembly, insert the SSD at a shallow angle into its board connector, and secure it back into its horizontal position with the SSD screw.

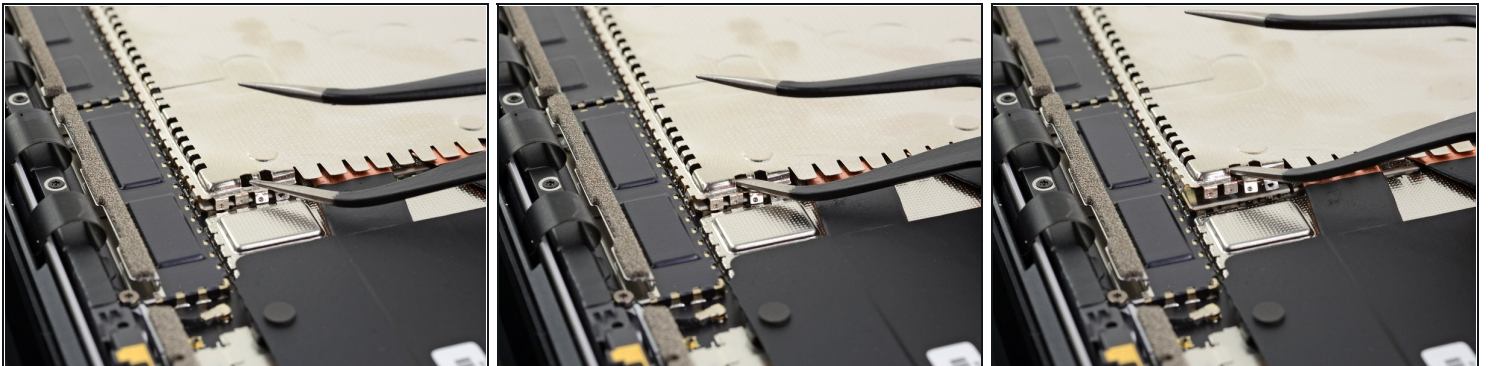
Step 14 — Remove the tape




- Use a pair of tweezers to remove the two pieces of black tape covering the bottom left and bottom right corners of the motherboard.

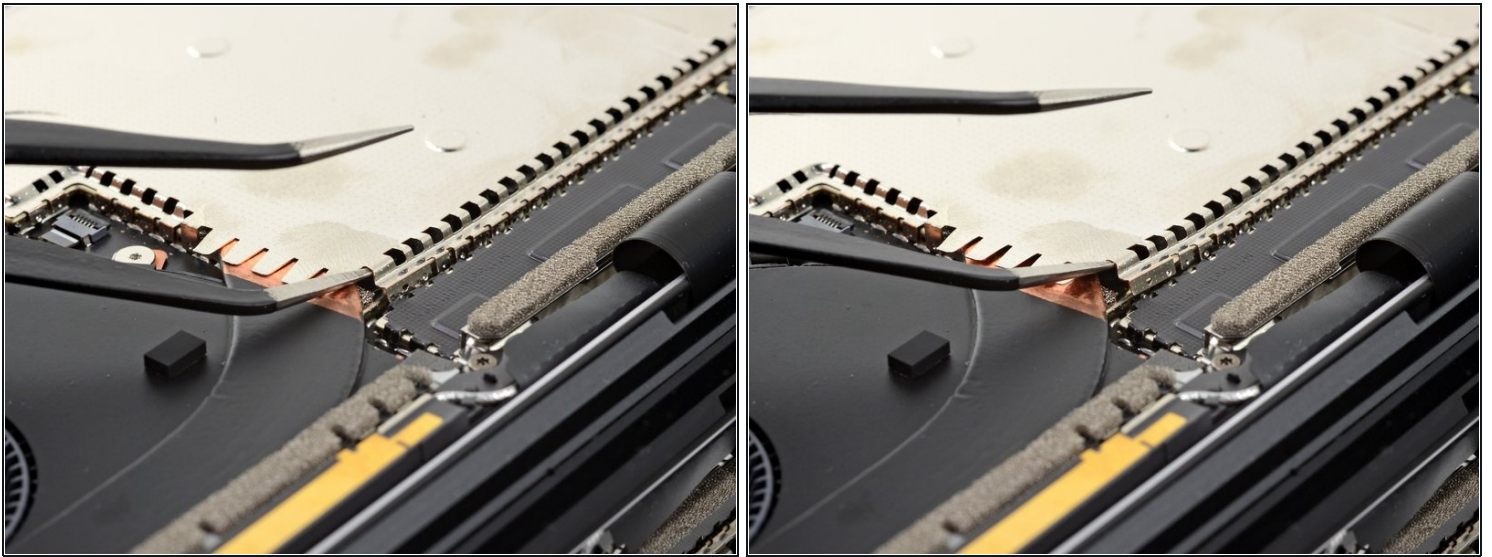
 During reassembly, reapply the tape if it's sticky enough to be reused.

Step 15 — Remove the heatsink shield



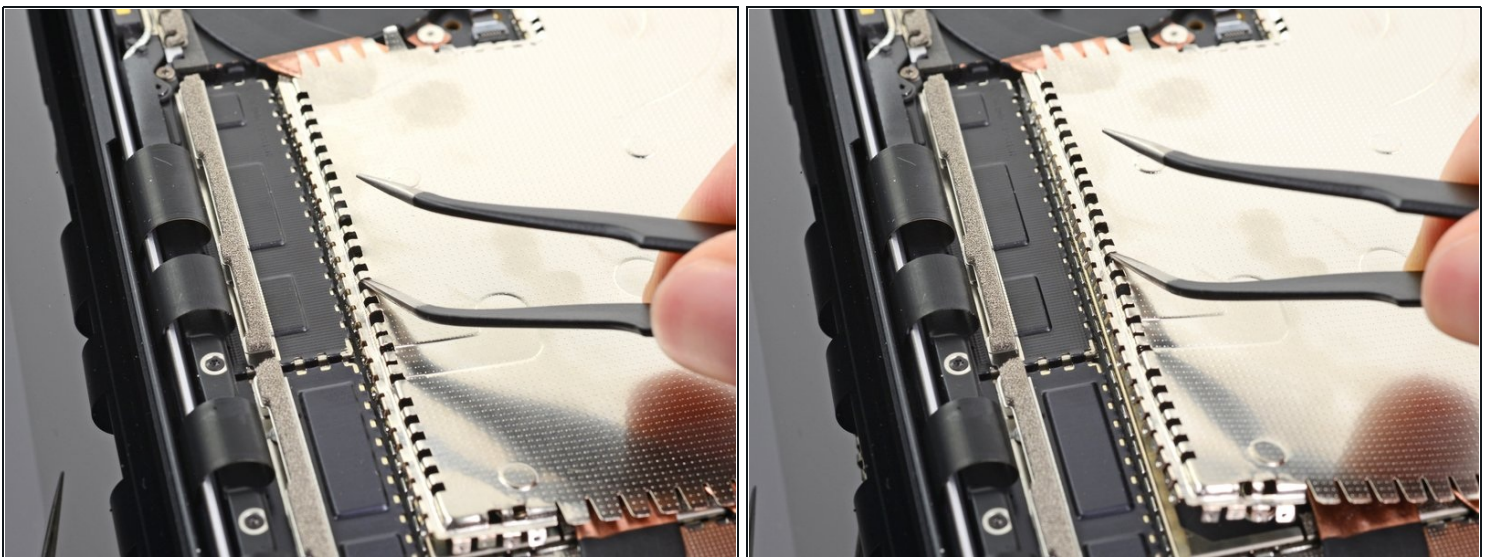
- Insert the tip of one arm of a sharp pair of tweezers into one of the holes near the top left corner of the heatsink shield.
 - Pull upwards to release the top left corner of the shield.
-  This may require a considerable amount of force, but try not to deform the shield too much—you'll need to reinstall it during reassembly.

Step 16



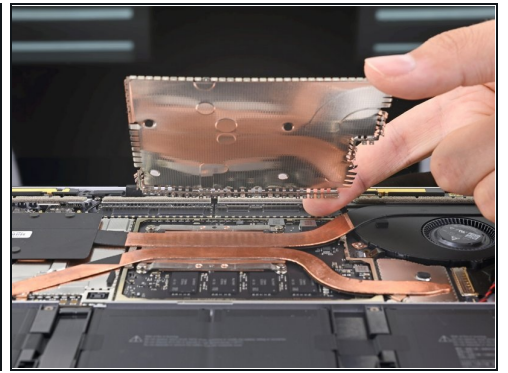
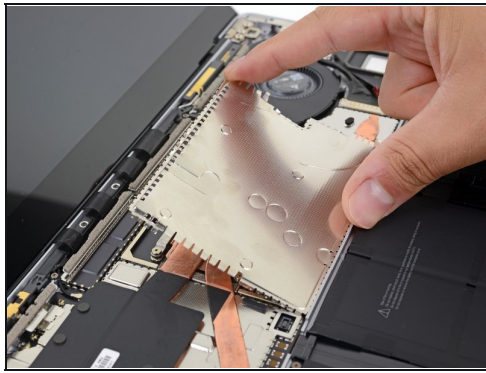
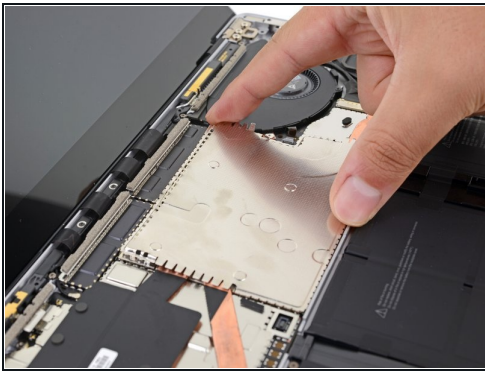
- Repeat the previous step's procedure to release the top right corner of the heatsink shield.

Step 17



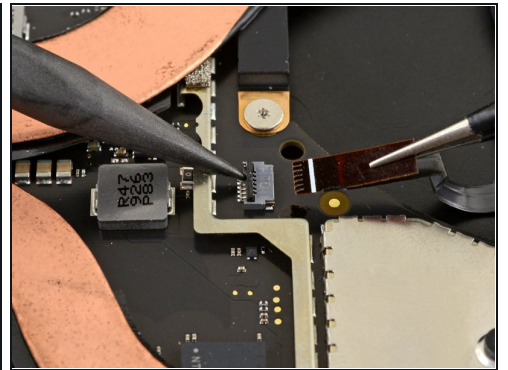
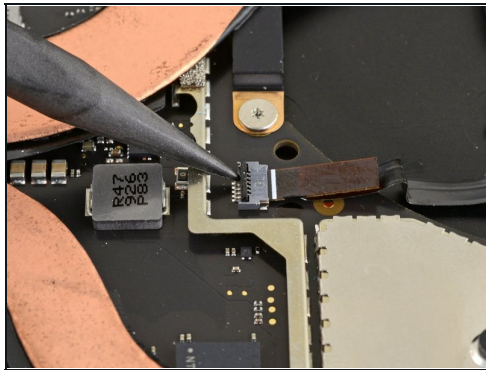
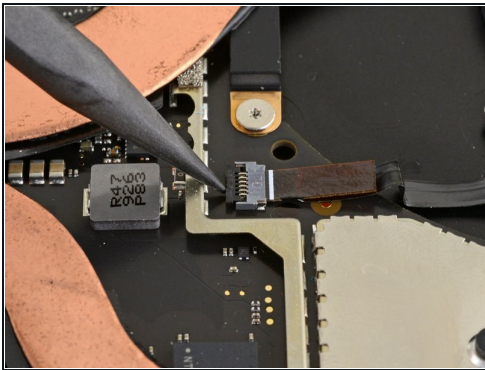
- Continue along the heatsink's top edge, inserting a tweezer arm into the shield holes and prying upwards on each one as you go.

Step 18



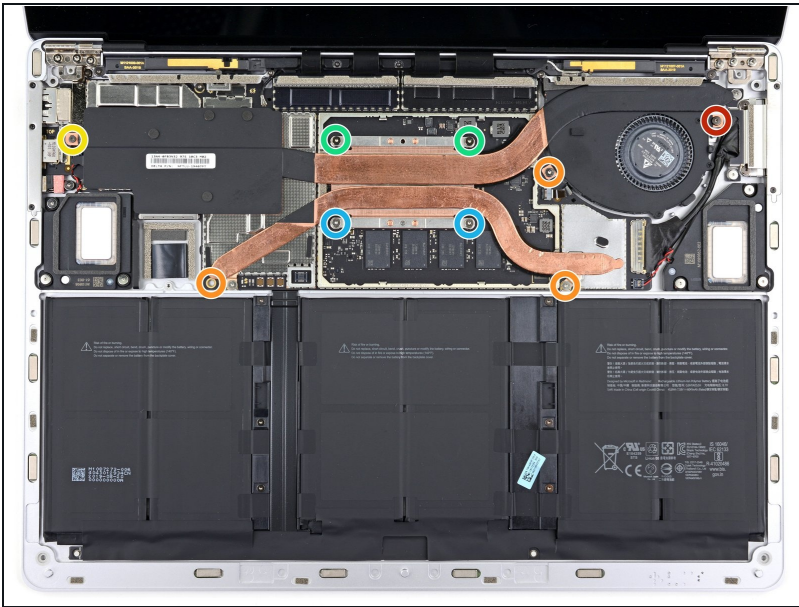
- Once the top edge is loose, use your fingers to grip the top of the shield and pull it up and away from the heatsink to release the remainder of the shield.
- ⓘ Try not to deform the shield too much—you'll need to reinstall it during reassembly.
- Completely remove the heatsink shield.

Step 19 — Disconnect the cooling fan



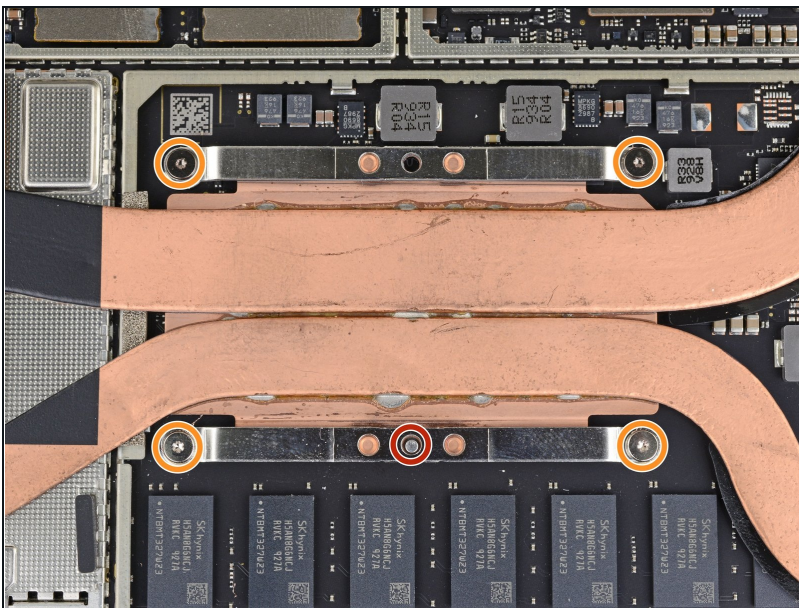
- Use the pointed end of a spudger to flip up the locking flap on the fan cable's [ZIF connector](#).
- Use a pair of tweezers to pull the fan cable straight out of the connector.

Step 20 — Remove the heatsink screws



- Use a T3 Torx driver to remove the nine screws securing the heatsink:
 - One 2.5 mm screw
 - Three 2.0 mm screws
 - One 3.0 mm screw
 - Two 4.1 mm screws
 - Two 3.4 mm screws

Step 21 — Reassembly tip



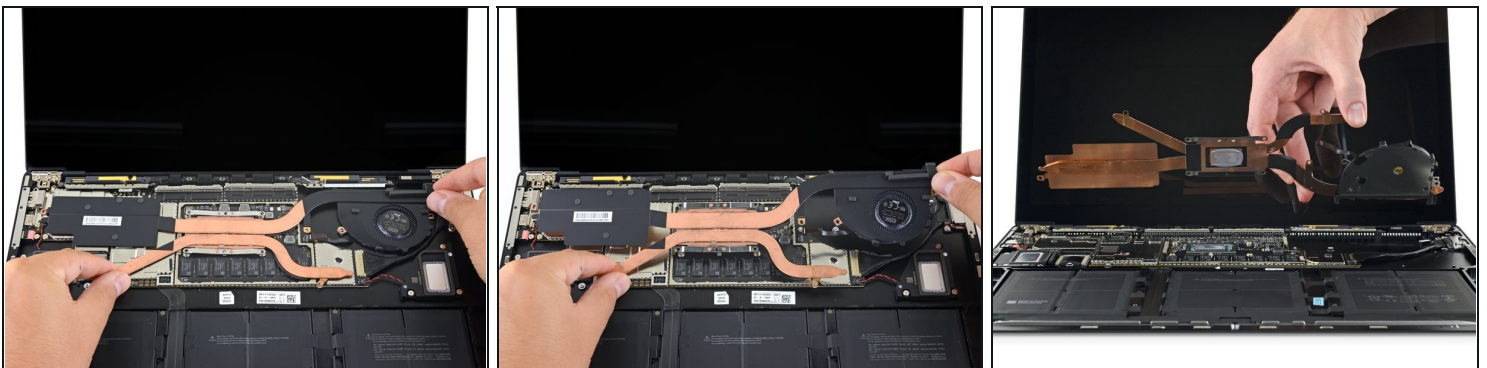
- ★ During reassembly:
 - Align the heatsink with the centering peg on the motherboard.
 - Tighten the four CPU tension screws in an "X" pattern.

Step 22 — Clear the alignment peg



- Use the tip of your finger to lift the far right edge of the heatsink up and off of the small alignment peg near the right side of the fan on the lower case.
- Once the heatsink has cleared the peg, lightly pull the right edge towards the front of the device.

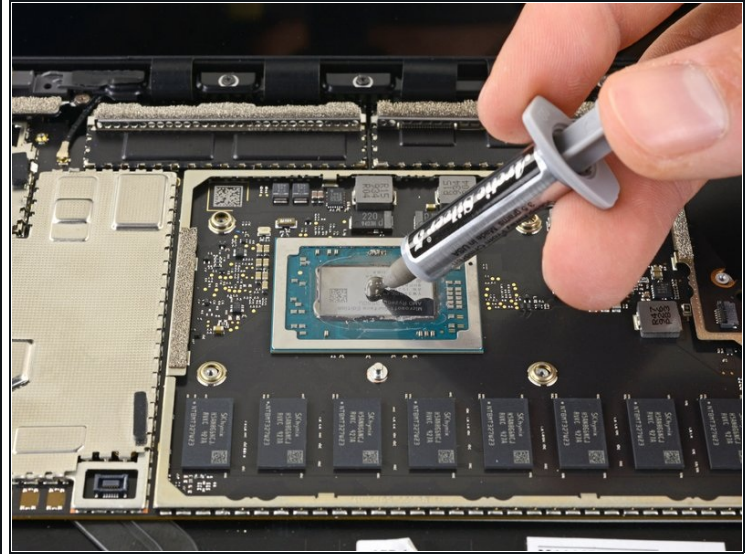
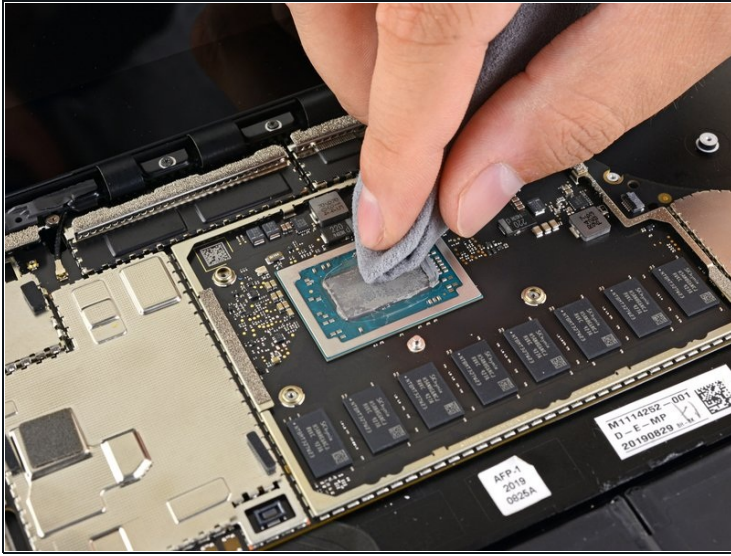
Step 23 — Remove the heatsink



- Remove the heatsink.
 - ⓘ If the heatsink feels stuck to the CPU, gently wiggle it side-to-side to separate it from the thermal paste holding it down.

⚠ Don't pull on the heatsink too hard; the heat pipes are susceptible to creasing.

Step 24 — Reapply thermal paste



- ✦ Before reinstalling the heatsink, follow [this guide](#) to clean the heatsink and CPU and reapply thermal paste.

Compare your new replacement part to the original part—you may need to transfer remaining components or remove adhesive backings from the new part before installing.

To reassemble your device, follow the above steps in reverse order.

Take your e-waste to an [R2 or e-Stewards certified recycler](#).

Repair didn't go as planned? Try some basic [troubleshooting](#) or search our [Answers community](#) for help.