Microsoft Surface Pro 4 Left Speaker Replacement

Follow this guide to replace the left speaker...

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INTRODUCTION

Follow this guide to replace the left speaker on a Microsoft Surface Pro 4.

There is a significant chance that you may break the unreinforced and fragile display panel during this procedure. Be sure to apply adequate heat and be extremely careful while slicing through the adhesive. Wear safety glasses in case the glass shatters.

Applying new thermal paste during reassembly may improve the performance of your Surface. If you wish to do that, make sure you have new thermal paste and either high-concentration isopropyl alcohol or a specialized thermal paste cleaner.

TOOLS:

iOpener (1)
iFixit Opening Picks (Set of 6) (1)
Spudger (1)
Tweezers (1)
T5 Torx Screwdriver (1)
T3 Torx Screwdriver (1)
Phillips #000 Screwdriver (1)

PARTS:

Surface Pro 4 Left Speaker (1)
Surface Pro 4 Adhesive Strips (1)

Step 1 — Tape the screen



- If your screen glass is cracked, keep further breakage contained and prevent bodily harm during your repair by taping the glass.

- Lay overlapping strips of clear packing tape over the Surface's screen until the whole face is covered.

  ⓘ This will keep glass shards contained and provide structural integrity when prying and lifting the screen.

- Do your best to follow the rest of the guide as described. However, once the glass is broken, it will likely continue to crack as you work, and you may need to use a metal prying tool to scoop the glass out.

⚠ Wear safety glasses to protect your eyes, and be careful not to damage the LCD display.

Step 2 — Heat the right edge of the screen

- Heat an iOpener and apply it to the right edge of the Surface's screen for two minutes.
  - ⓘ You may need to reheat and reapply the iOpener several times to get the tablet warm enough. Follow the iOpener instructions to avoid overheating.

ⓘ You may also use a hair dryer, heat gun, or hot plate to heat the Surface.

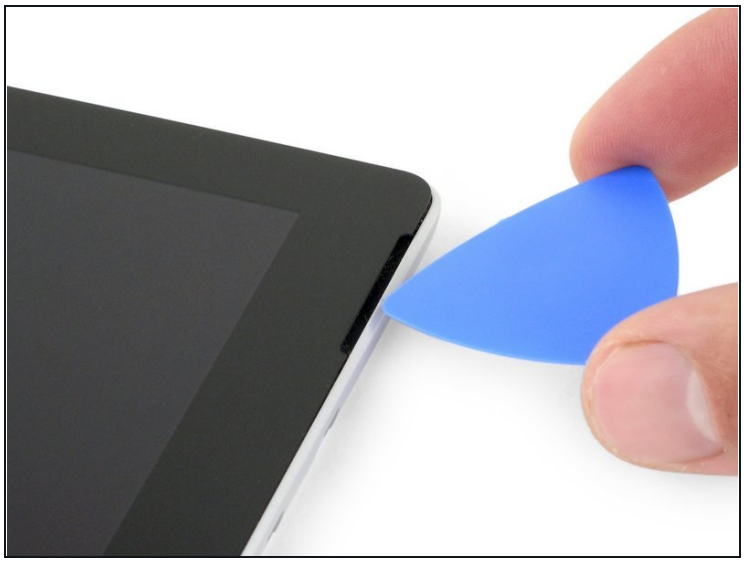
⚠ Be careful not to overheat the Surface—the screen and internal battery are susceptible to heat damage.

⚠ Don't use a hot plate if the screen has been taped.

Step 3 — Take note of the adhesive layout

- Take note of the screen adhesive layout before continuing:
  - These areas only contain adhesive and are safe to cut.
  - The display board and flex cables sit here close to the edge. Cut carefully and don't insert the pick more than 1/8 inch (3 mm).
  - Fragile antenna cables lie under this part of the screen. Carefully follow the procedure in step 13 to avoid damaging them. The adhesive is also the thickest here.

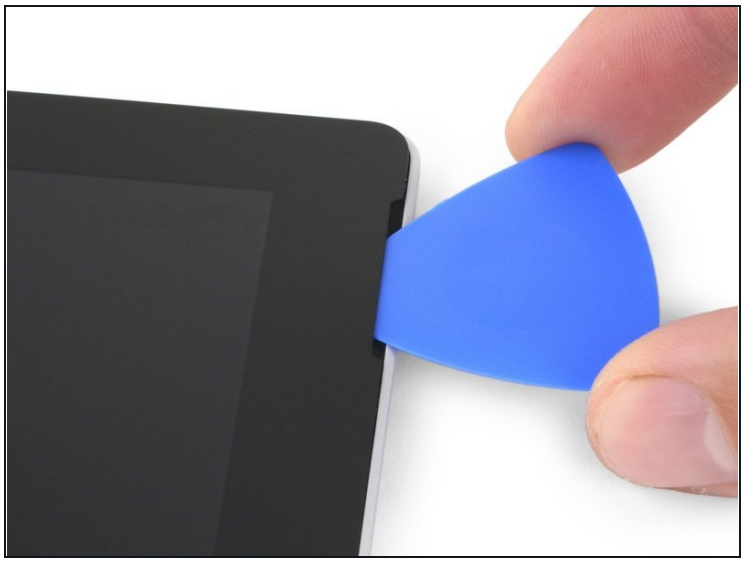
Step 4 — Insert an opening pick into the speaker opening



- Insert an opening pick into the top-right speaker cutout on the screen and slide the pick between the glass and speaker grille.

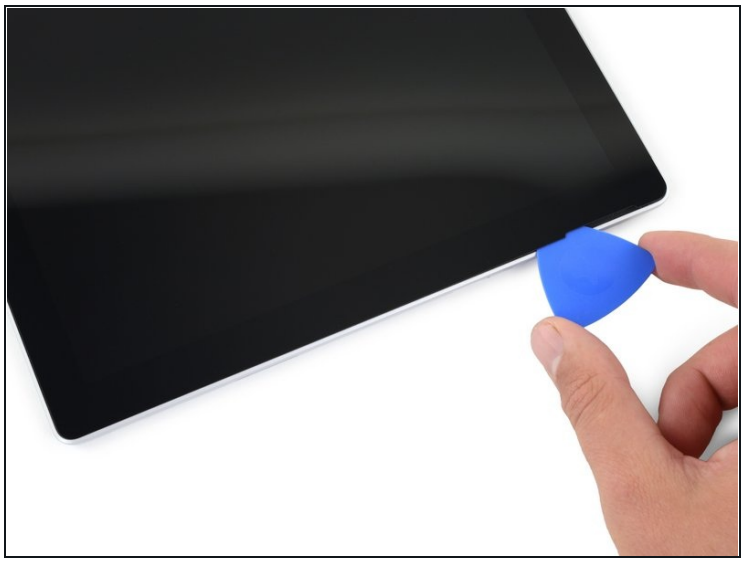
⚠ Don't insert the opening pick deeper than 0.45 in (12 mm). Inserting the pick too far may damage the LCD.

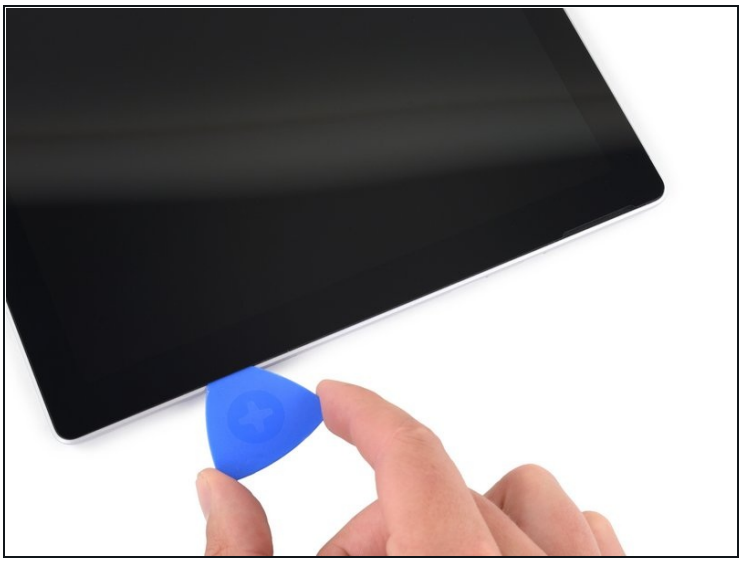
Step 5



- Rotate the pick toward the bottom of the Surface to slide it underneath the lower edge of the speaker cutout.

Step 6 — Cut through the screen adhesive





- Slide the pick down the right edge of the Surface to slice through the adhesive under the screen.

⚠ Throughout the rest of the procedure, if you encounter significant resistance while sliding the pick, stop and reheat the section you're working on. Applying too much pressure with the pick can crack the glass.

- Leave this opening pick in the right edge to prevent the adhesive from resealing.

Step 7

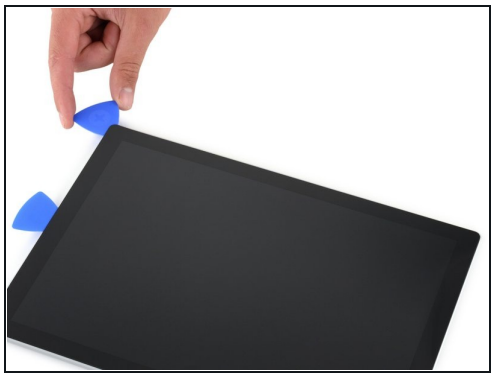
- Reheat your iOpener and apply it to the bottom edge of the Surface's screen for two minutes.

ⓘ You may also use a hair dryer, heat gun, or hot plate to heat the Surface.

⚠ Be careful not to overheat the Surface—the screen and internal battery are susceptible to heat damage.

⚠ Don't use a hot plate if the screen has been taped.

Step 8



- Insert a new opening pick into the bottom-right corner and slide it around the corner toward the bottom edge.

⚠ Don't insert the opening pick deeper than 0.25 in (6 mm) around the bottom-right corner. Inserting the pick too far may damage the LCD.

- Slide the pick along the bottom edge of the Surface to cut through the screen adhesive.

⚠ Don't insert the opening pick deeper than 0.45 in (12 mm) along the bottom edge.

- Leave this pick in the bottom edge to prevent the adhesive from resealing.

Step 9

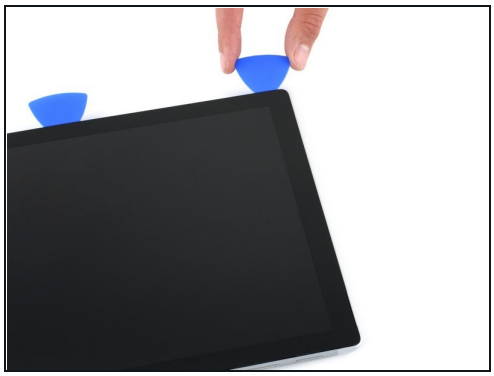
- Reheat your iOpener and apply it to the left edge of the Surface's screen for two minutes.
  - ⓘ You may need to reheat and reapply the iOpener several times to get the tablet warm enough. Follow the iOpener instructions to avoid overheating.

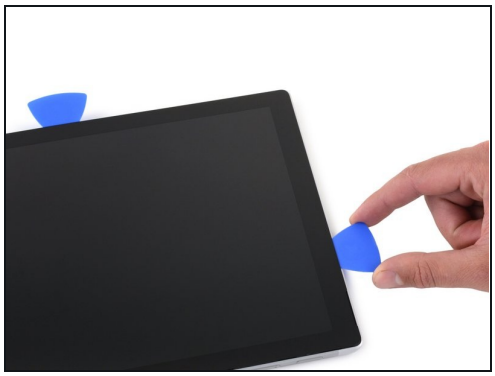
ⓘ You may also use a hair dryer, heat gun, or hot plate to heat the Surface.

⚠ Be careful not to overheat the Surface—the screen and internal battery are susceptible to heat damage.

⚠ Don't use a hot plate if the screen has been taped.

Step 10





- Insert a new opening pick into the bottom left corner and slide it around the corner toward the left edge.

  ⚠ Be careful cutting under the lower 2.5 inches (65 mm) of the left edge. Don't insert the opening pick more than 1/8 inch (3 mm) here. The display cables sit near this part of the bezel and are easily damaged.

  ⓘ Once past the display cable area, you can insert the pick to 0.45 in (12 mm) again.

- Slide the pick along the left edge of the Surface to cut through the screen adhesive.

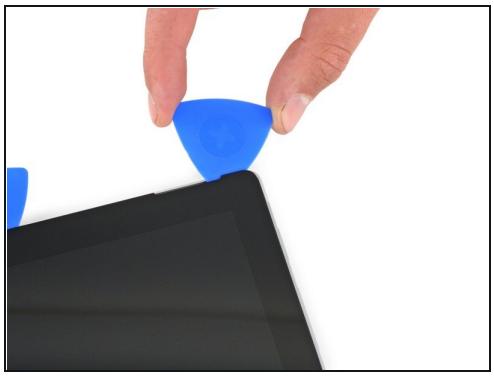
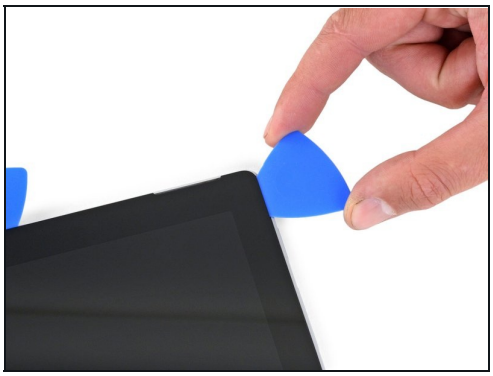
- Leave this pick in the left edge to prevent the adhesive from resealing.

Step 11

- Reheat your iOpener and apply it to the top edge of the Surface's screen for two minutes.
  - The adhesive is thickest along this edge, and you may need to reheat and reapply the iOpener several times to get the tablet warm enough. Follow the iOpener instructions to avoid overheating.

- You may also use a hair dryer, heat gun, or hot plate to heat the Surface.
  - Be careful not to overheat the Surface—the screen and internal battery are susceptible to heat damage.
  - Don't use a hot plate if the screen has been taped.

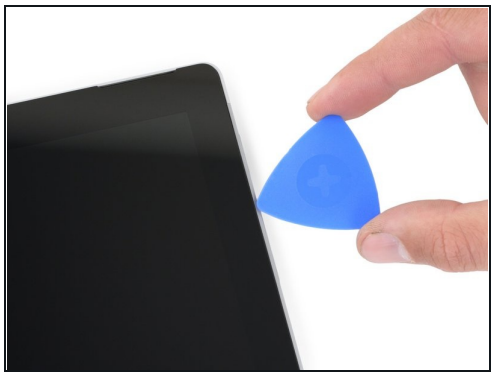
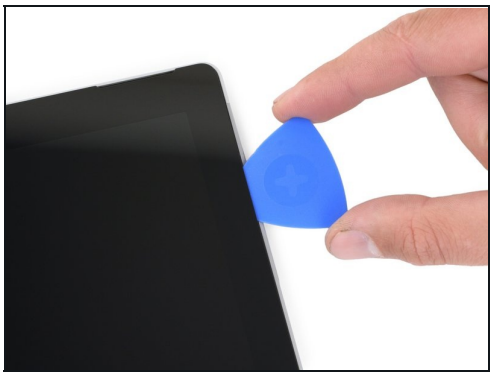
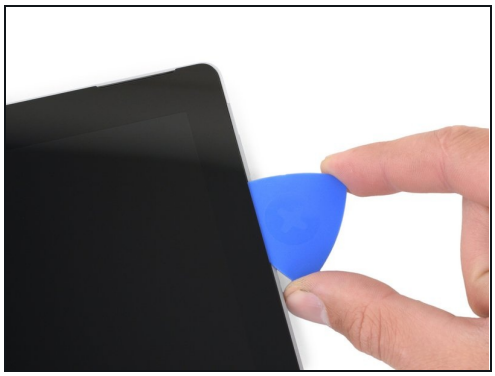
Step 12


- Round the left corner with the opening pick and slide it along the top edge of the Surface. Stop when the pick is 2.75 inches (70 mm) away from the left edge.

⚠ The next 6 inches (15 cm) of the top edge of the case is covered by the left and right antennas, which sit between the case and the screen bezel. Follow the next steps carefully to avoid damaging the antennas.

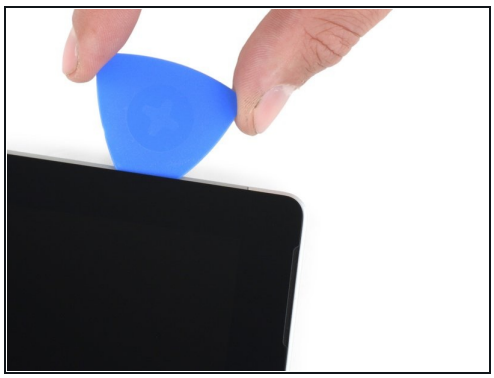
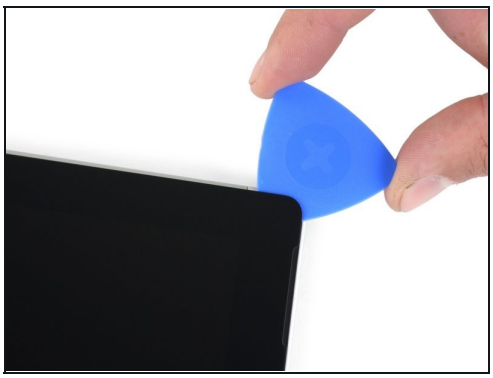
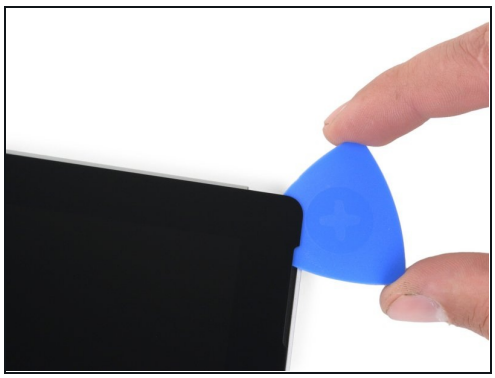
Step 13

⚠ Fragile antenna cables lie under the top edge of the screen. Carefully follow the procedure to avoid damaging them.

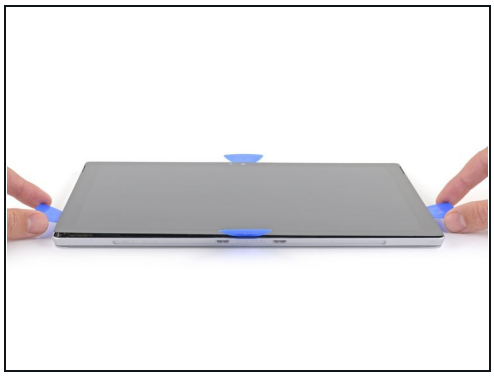
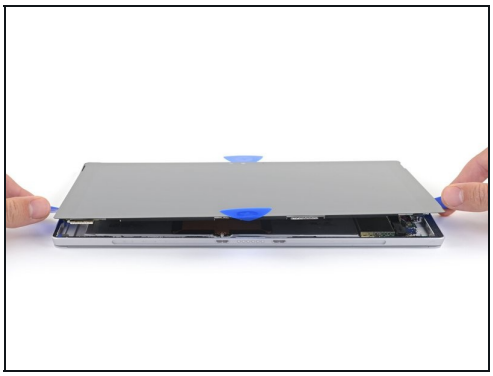
- Insert the point of a pick under the screen where you just stopped cutting. Don't insert the pick deeper than the edge of the bezel.
- Carefully roll the pick to the right, pressing the long edge of the pick into the screen adhesive underneath the bezel, cutting the adhesive as you go. Don't slide the pick along the edge of the Surface.
- Repeat this motion of inserting the point of the pick where you just cut, and rolling to the right all along the top edge of the Surface, until the pick is 2.5 inches (64 mm) from the right edge of the Surface.

Step 14

- Once you cut the adhesive over the antennas (8.5 inches, or 22 cm, from the left edge), slide the pick the rest of the way along the top edge of the surface and round the top right corner to slice through any remaining adhesive.

Step 15 — Open the Surface

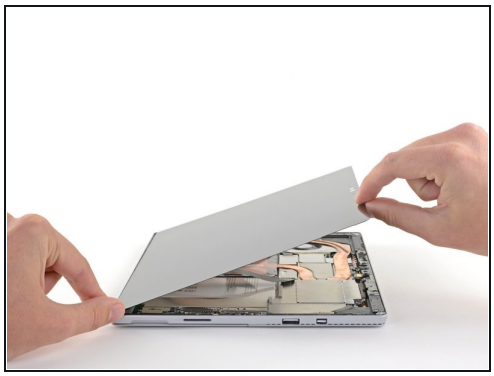
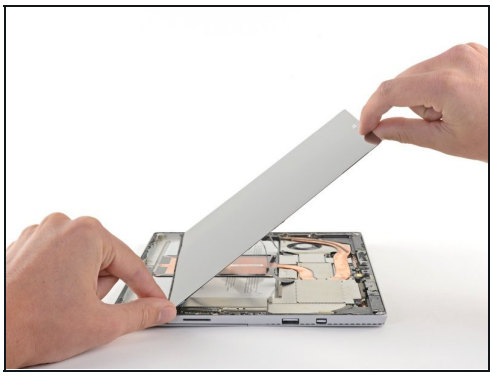




- Very slowly lift the screen assembly away from the Surface case. If you encounter any resistance, stop and check that all the adhesive is separated.

⚠ Don't remove the screen yet. It is still connected to the motherboard by two cables.

- Use an opening pick to cut through any remaining adhesive.

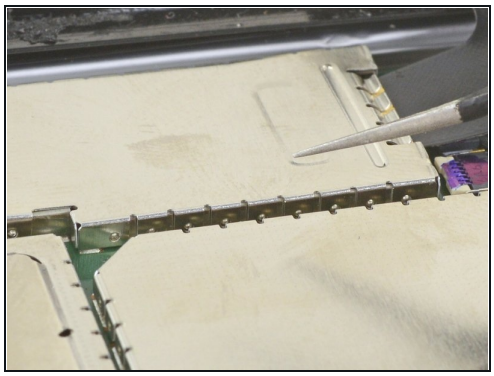
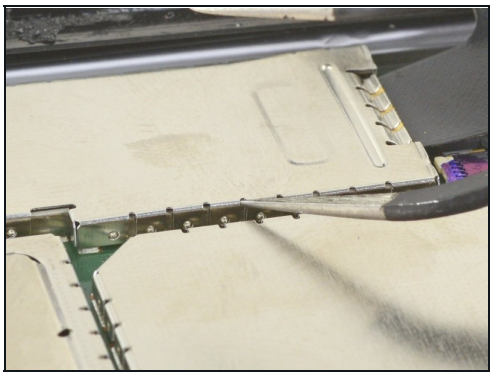
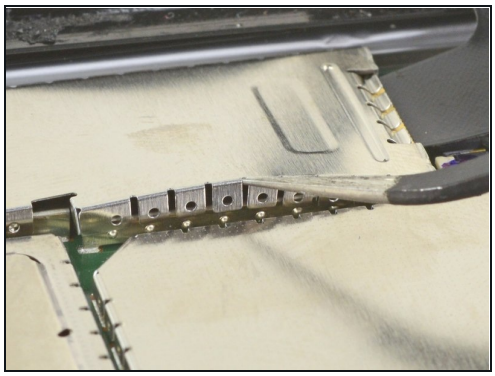
Step 16


- Lift the top of the screen assembly away from the case while sliding the bottom of the screen closer to the motherboard display connectors.

- Gently lay the screen down on the case with the connectors facing up. Take care to avoid creasing the display cables.

Step 17 — Tip for removing EMI shields

Use this method to remove any EMI shields necessary during your repair:

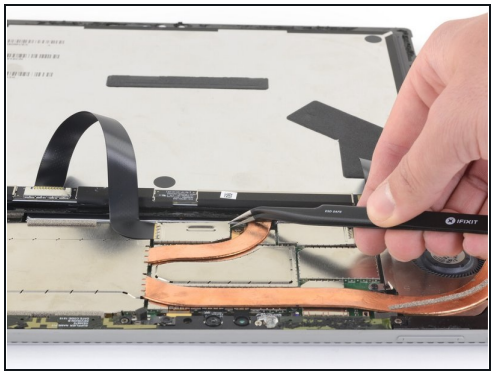
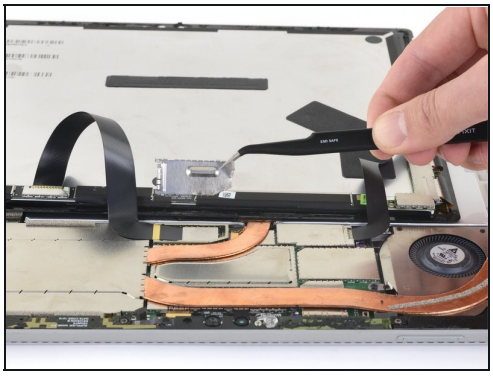
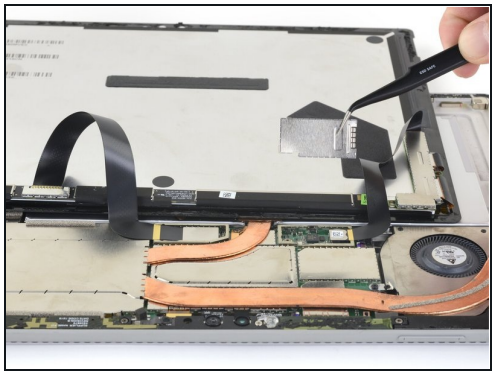
- Use one tip of a pair of angled tweezers to pry up the EMI shield from the gaps between the "teeth."
- Repeat this procedure at different points around the perimeter of the shield until it is free.

Try not to deform the shields too much—you will need to reinstall them during reassembly.

To reinstall, correct any deformations to the best of your ability, make sure the "teeth" align with the rim on the motherboard, and press down on the entire perimeter of the EMI shield.

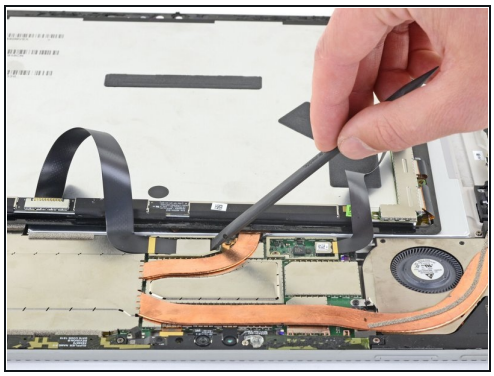
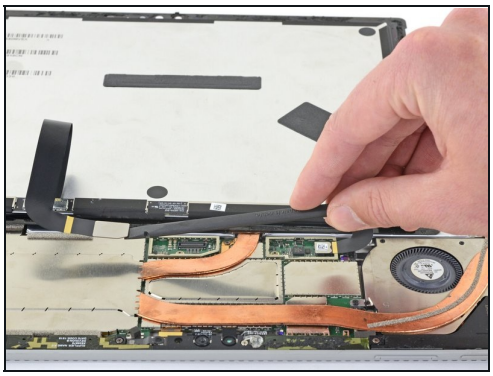
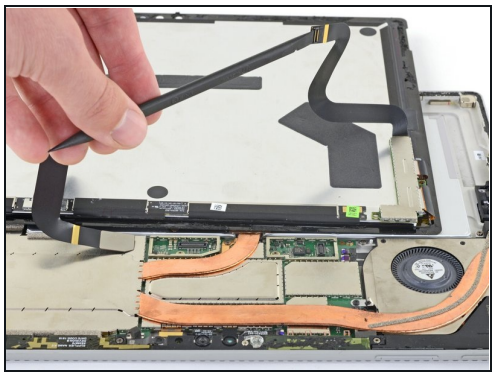
Make sure all "teeth" are snug to the metal rim and not bent underneath the EMI shield.

Step 18 — Disconnect the screen

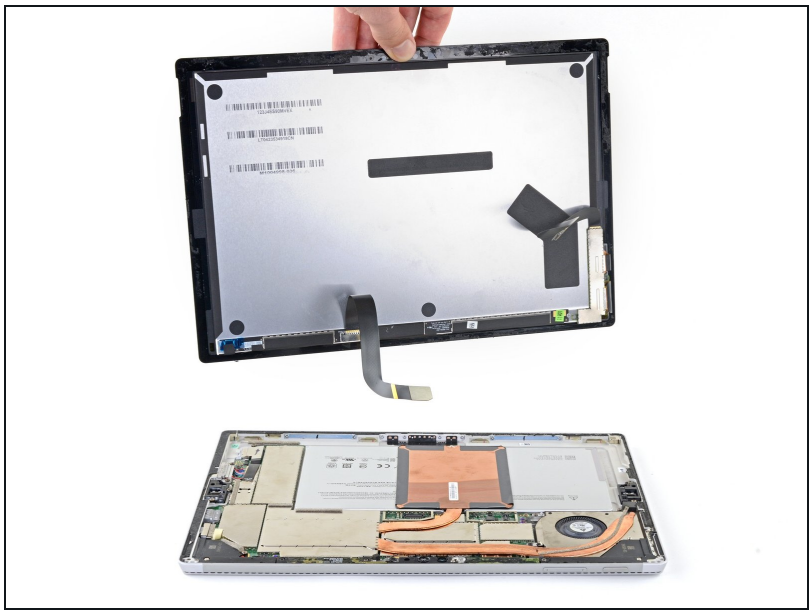
- Use your tweezers to remove the two EMI shields covering the display cable connectors.

Step 19

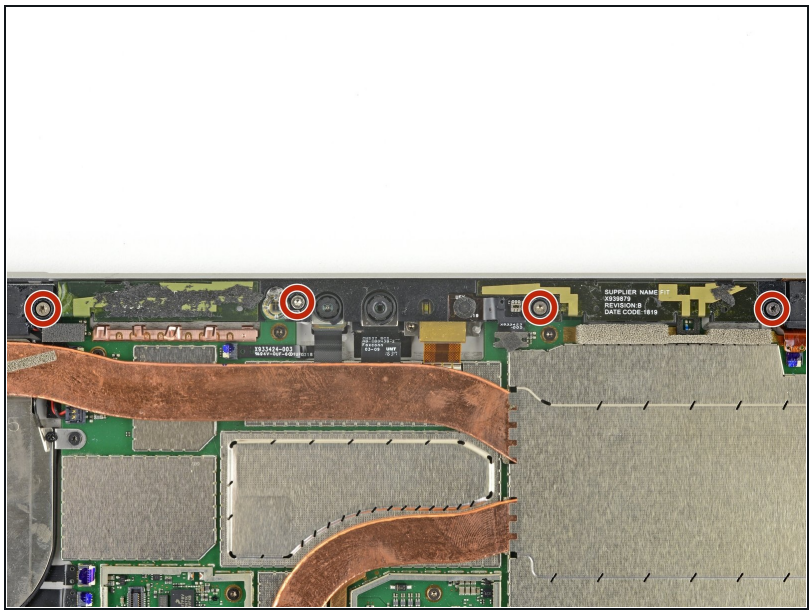
- Pry up with the flat end of a spudger to disconnect each display cable from the motherboard.

Step 20 — Remove the screen



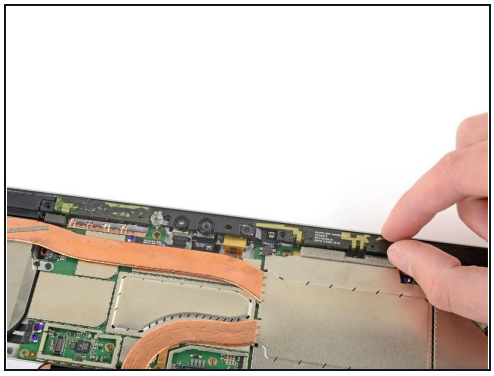
- Remove the screen from the Surface.
- During reassembly, pause here and follow this guide to replace the screen adhesive.

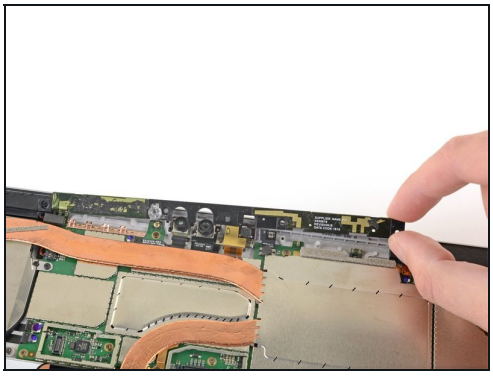
Step 21 — Remove the antenna support bracket

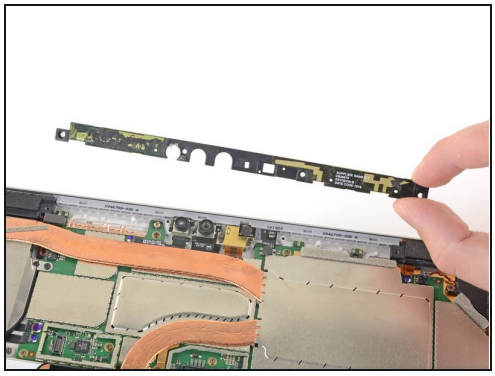


- Use a T5 Torx screwdriver to remove the four 4.5 mm screws securing the antenna support bracket.

Step 22



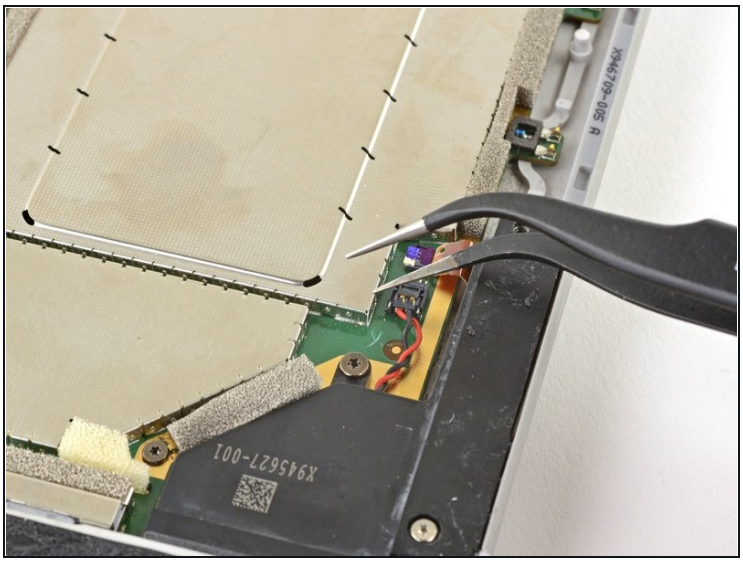


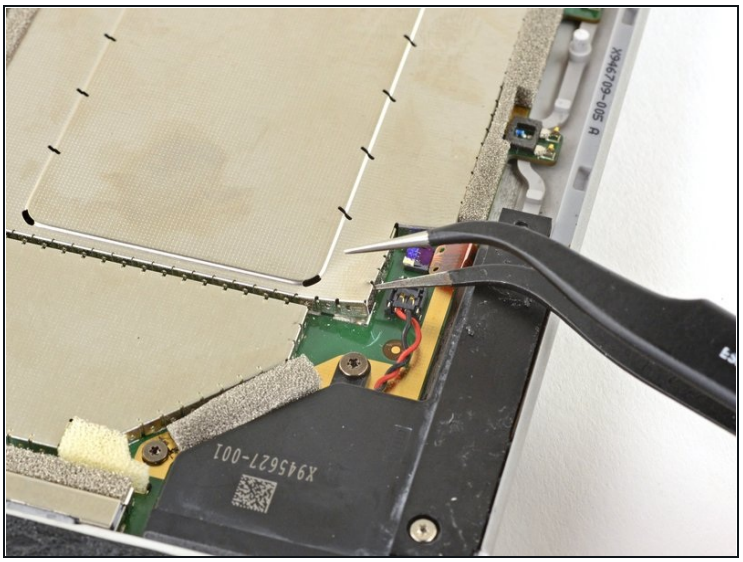


- Carefully remove the antenna support bracket.

⚠ Be careful not to snag any cables. Do not force the bracket out if it is stuck.

Step 23 — Remove the CPU shield

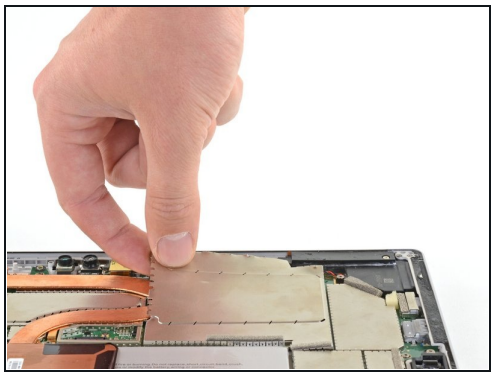


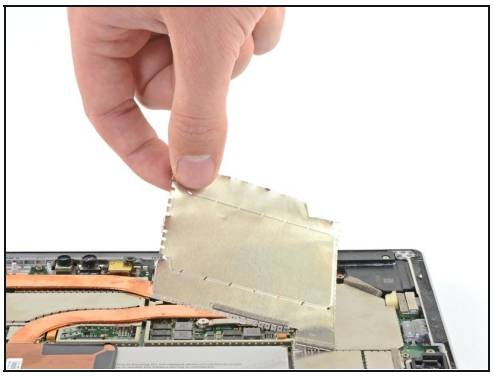


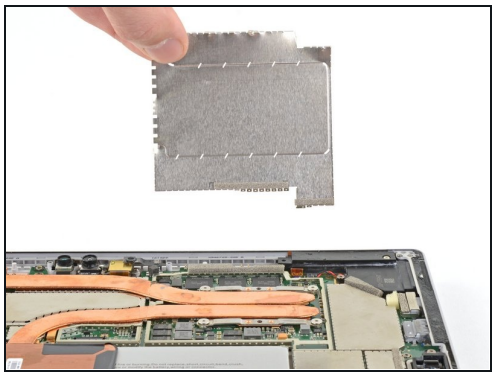
- Insert one point of a pair of pointed tweezers into a gap in the corner of the EMI shield covering the heat sink.
- Use the tweezers to pry the EMI shield away from the motherboard as much as you can without bending it. Do not remove it yet.

⚠ Take care not to puncture the battery with the tweezers while working on this shield.

Step 24





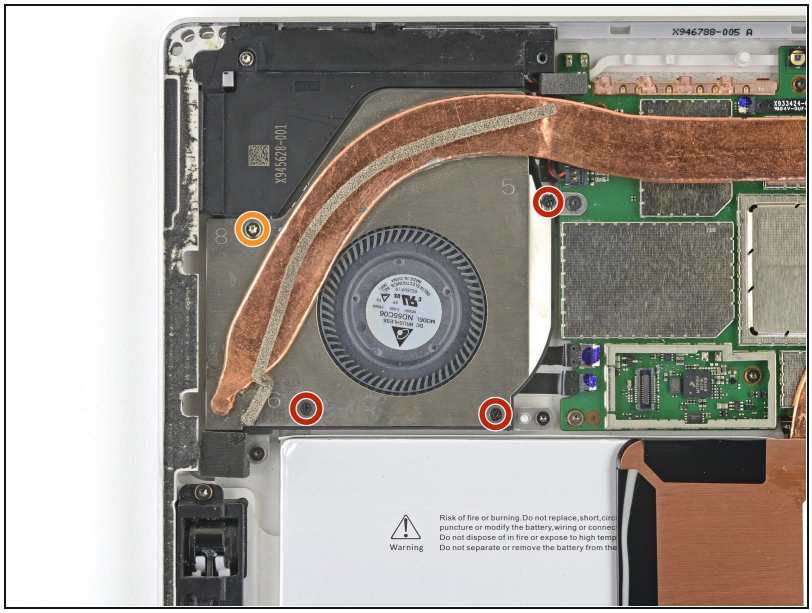


- Repeat the last step at various locations around the perimeter of the EMI shield covering the heat sink.
- Remove the CPU shield.

Step 25 — Unscrew the heat sink

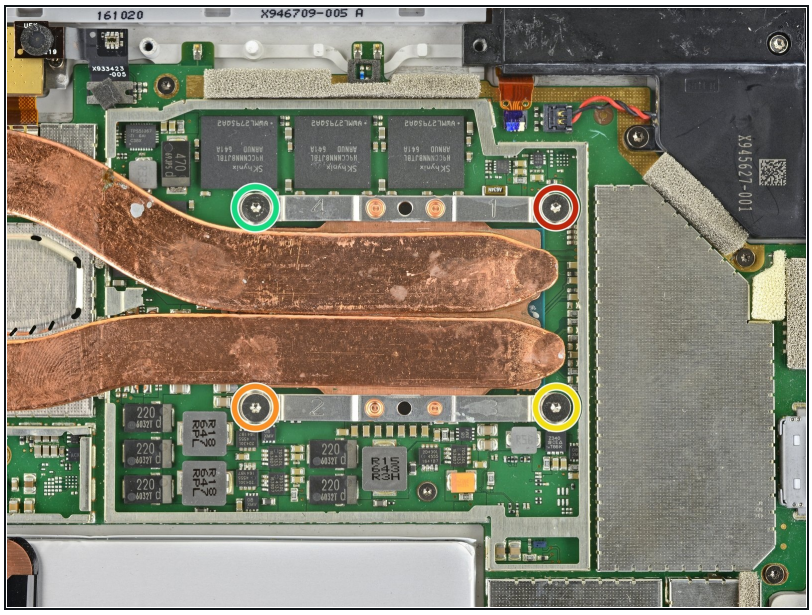
- Use a T3 Torx screwdriver to remove two screws from the heat sink:
  - One 2.4 mm screw along the top of the rectangular plate covering the battery.
    - ⓘ Make sure you don't lose this bracket, as it might separate from the heatsink.
  - One 2.2 mm screw along the bottom of the rectangular plate covering the battery

Step 26



- ⓘ The heat sink is firmly adhered to the fan.
- Use a Phillips screwdriver to remove three 2.4 mm screws securing the fan.
- Use a T5 Torx screwdriver to remove the final 4.4 mm screw securing in the fan cover.

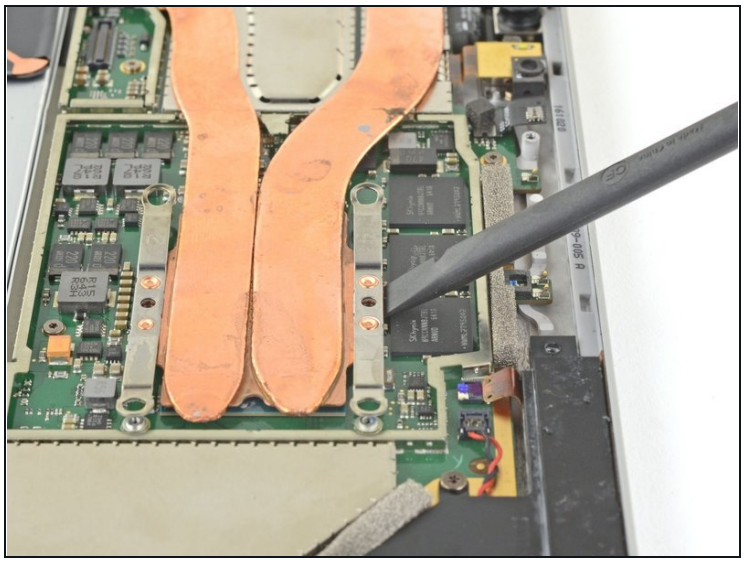
Step 27

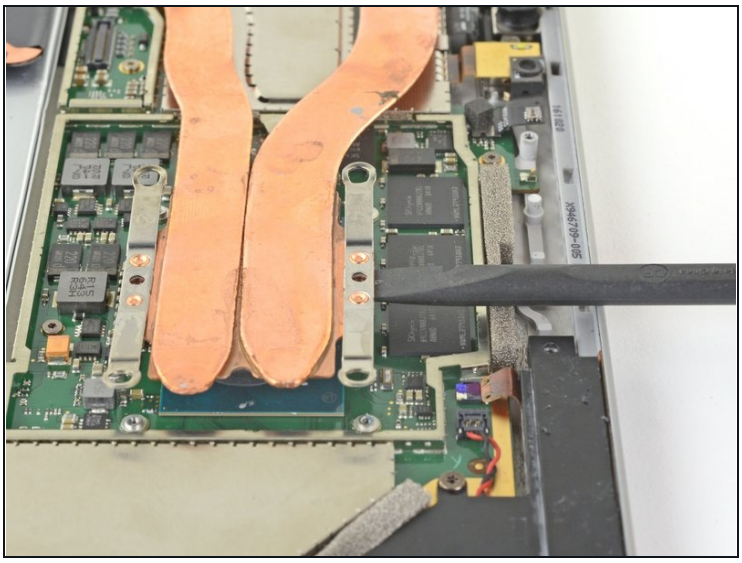


- Use a T5 Torx screwdriver to remove the heat sink screws surrounding the CPU in the following pattern, one turn at a time, until they're free.
  - Screw 1
  - Screw 2
  - Screw 3
  - Screw 4

During reassembly, use the same method to install these screws, tightening one turn at a time until each screw is snug.

Step 28 — Remove the heatsink

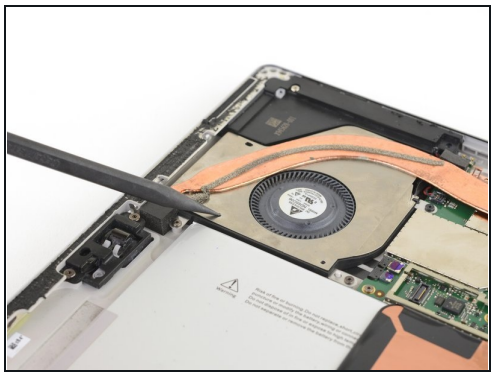
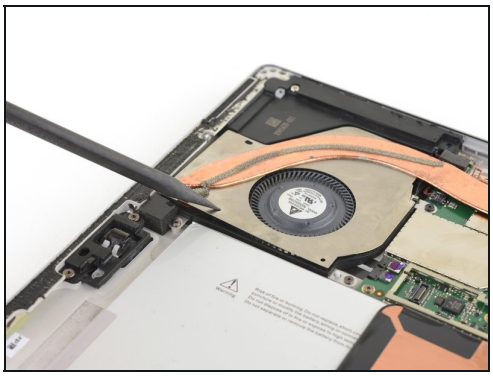
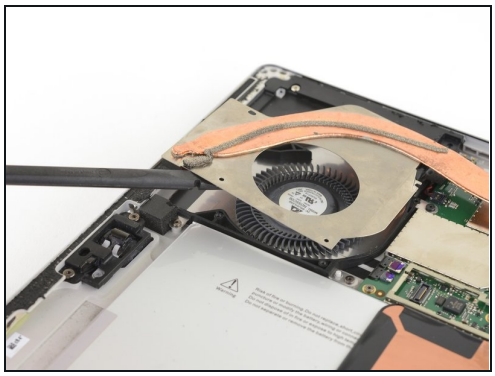




- Use the flat end of a spudger to gently pry the heat sink straight up and off of the CPU.

⚠ Take care not to dent or crease the heat sink pipes during removal.

Step 29

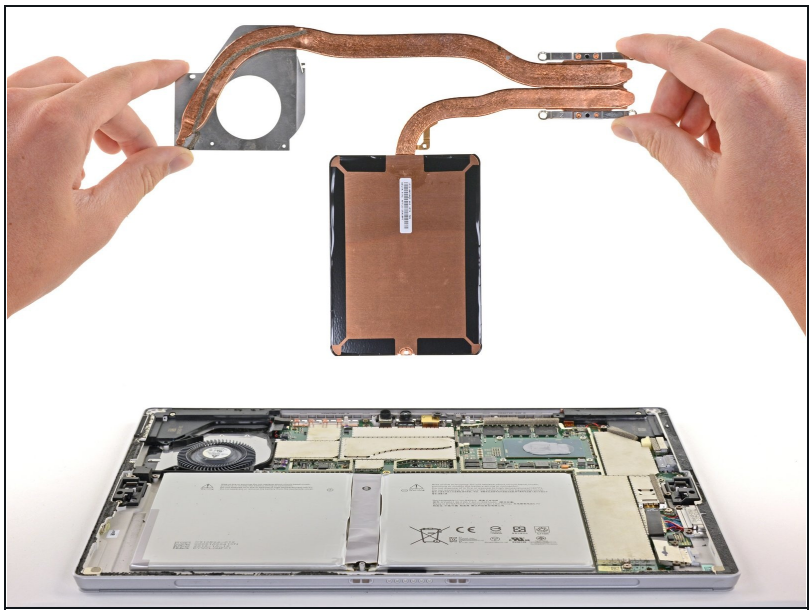




- Insert the pointed end of a spudger into a screw hole in the fan shield and lift up to separate it from the fan.

ⓘ The fan shield is held in place with light adhesive.

⚠ Take care not to dent or crease the heat sink pipes during removal.

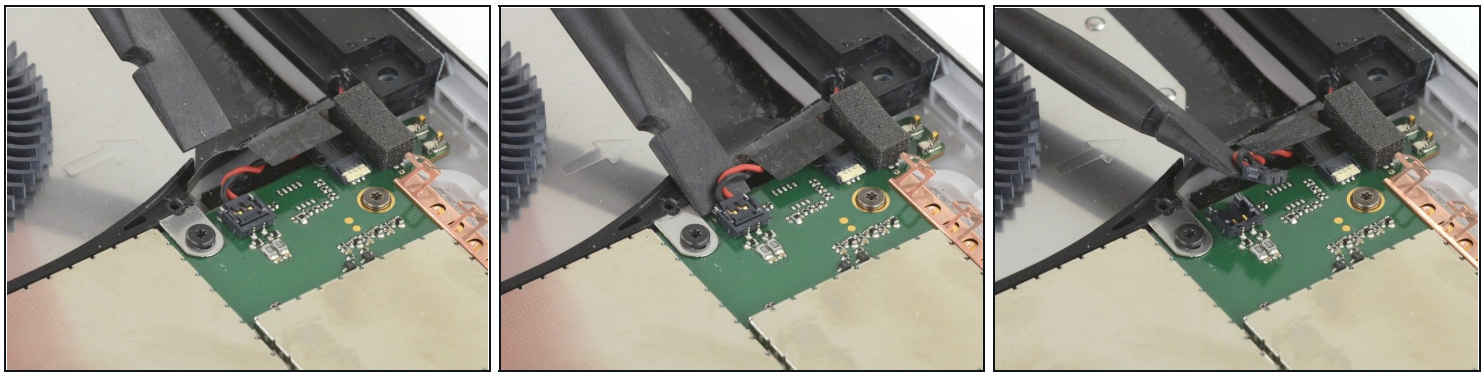
Step 30



- Carefully remove the heatsink.

During reassembly, make sure to properly clean the heat sink and CPU, and apply new thermal paste.

Step 31 — Remove the left speaker

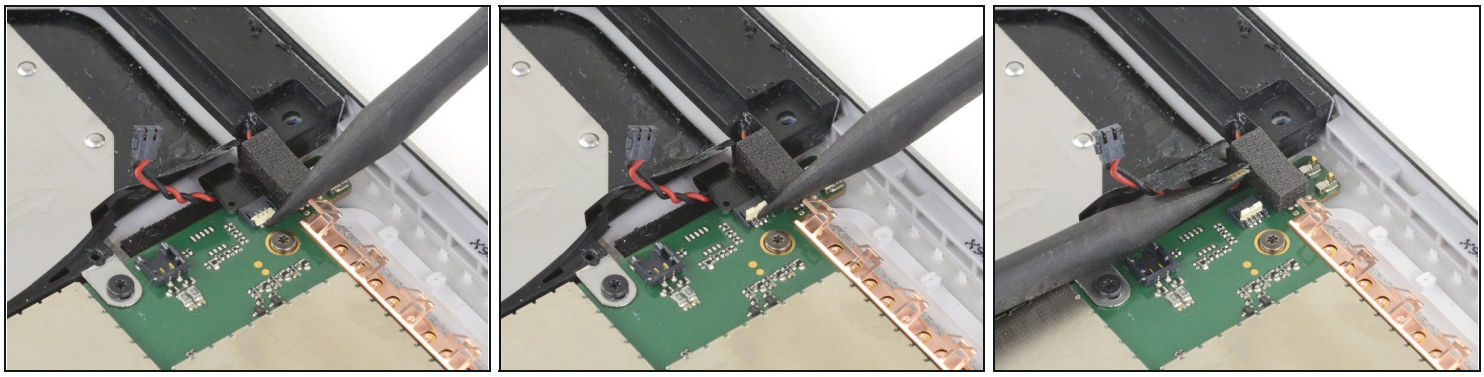


- Gently slide the flat end of a spudger between the speaker wires and the motherboard until it is resting against the connector.
- Carefully pry straight up on the speaker wire connector to disconnect it from the motherboard.

⚠ Be gentle—the speaker wires are delicate.

During reassembly, place the new speaker wire harness on top of the connector on the motherboard and gently press it straight down with your finger to reconnect it.

Step 32



- Use the flat end of a spudger to flip up the white plastic locking flap of the ZIF connector at the top-left corner of the motherboard.

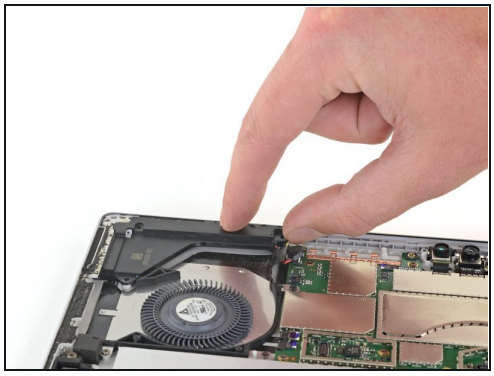
⚠ Be sure to pry up on the hinged flap, not the connector itself.

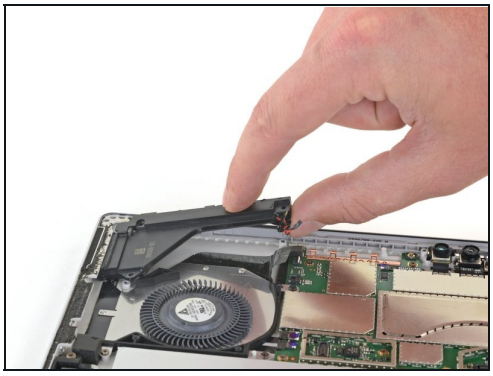
- Use the pointed end of a spudger to pull the cable out.

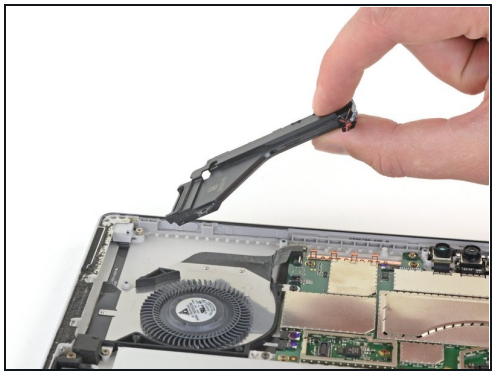
Step 33

- Use a T5 Torx screwdriver to remove the 3.3 mm screw securing the left speaker.

Step 34

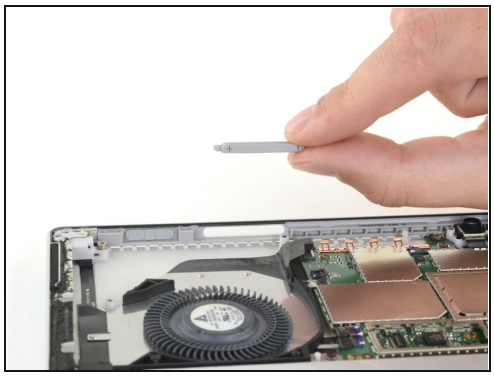
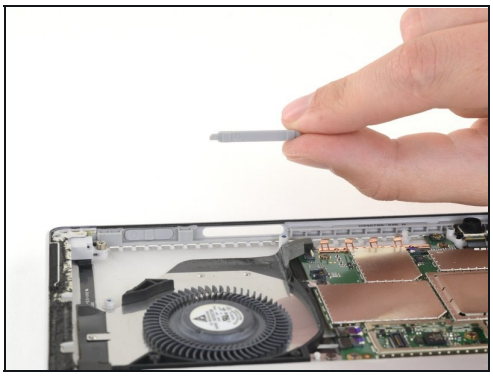
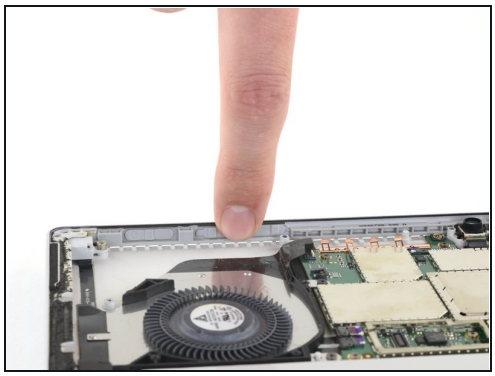






- Grip the left speaker by the narrow section of the box and slide it back out of the chassis.
- Remove the left speaker.

Step 35

- The volume and power buttons are now loose and may fall out. Make sure not to lose them.

During reassembly, notice that the volume button is shaped to prevent it from being installed backwards. If it has fallen out and does not fit back into the chassis, reverse it and try again.

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 ask our Answers community for help.