MacBook Pro 14" 2021 Logic Board Replacement

Use this guide to replace the logic board in...

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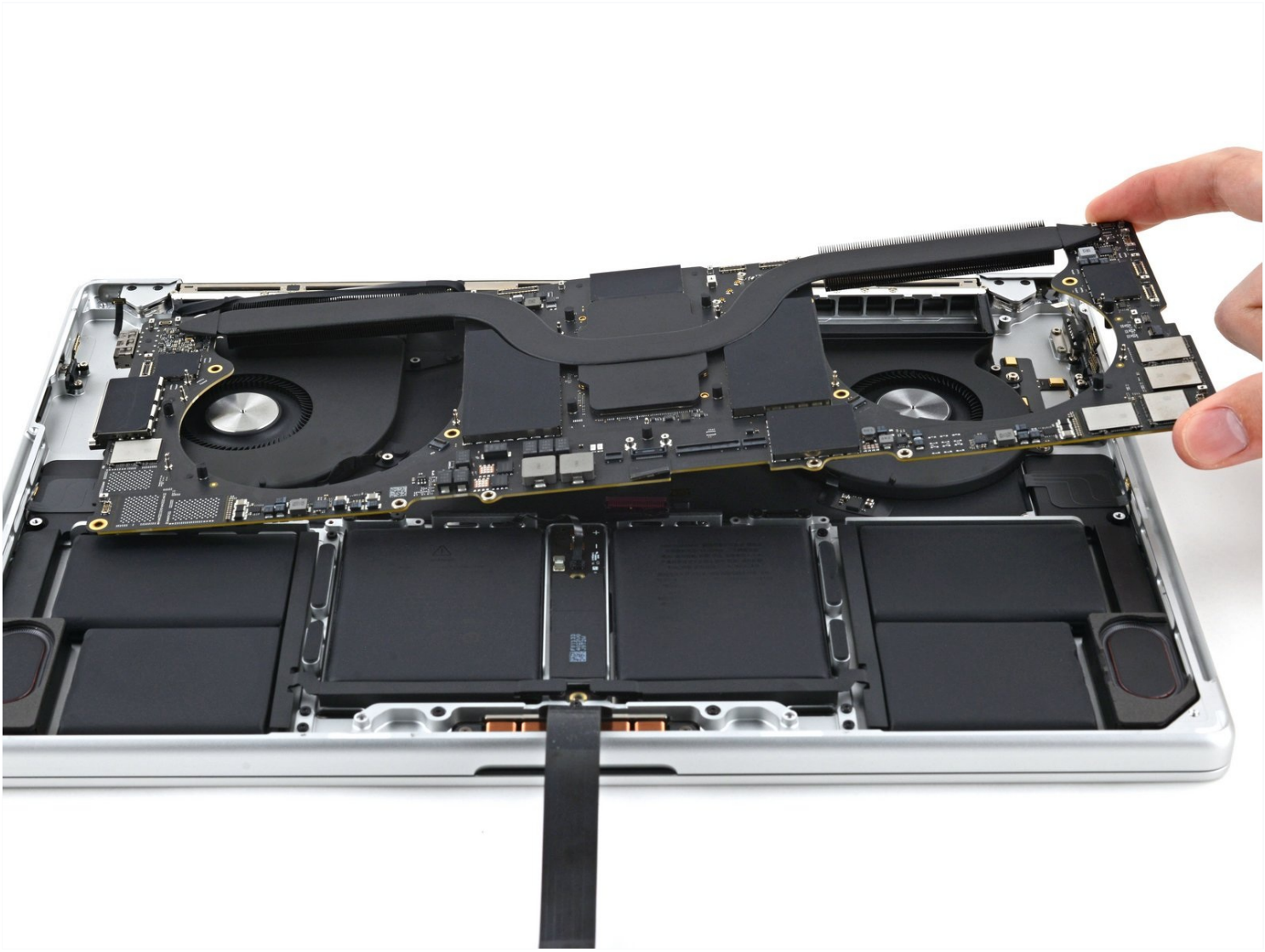


INTRODUCTION

Use this guide to replace the logic board in your MacBook Pro 14" 2021.

Note that Touch ID will not function after replacing the logic board. The MacBook Pro's original Touch ID sensor is uniquely paired to the logic board at the factory—and without Apple's proprietary calibration process, even a genuine replacement Touch ID sensor from another MacBook Pro won't work.

For your safety, discharge the battery below 25% before disassembling your MacBook. This reduces the risk of fire if the battery is accidentally damaged during the repair. If your battery is swollen, take appropriate precautions.

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:

- ESD Safe Blunt Nose Tweezers (1)
- 4 mm Hex Driver (1)
- Suction Handle (1)
- iFixit Opening Picks (Set of 6) (1)
- P5 Pentalobe Screwdriver Retina MacBook Pro and Air (1)
- T5 Torx Screwdriver (1)
- Spudger (1)
- T6 Torx Screwdriver (1)
- T3 Torx Screwdriver (1)
- Isopropyl Alcohol (90% or Greater) (1)
- Coffee Filters or a lint-free cloth (1)

PARTS:

- iFixit Thermal Paste (1)

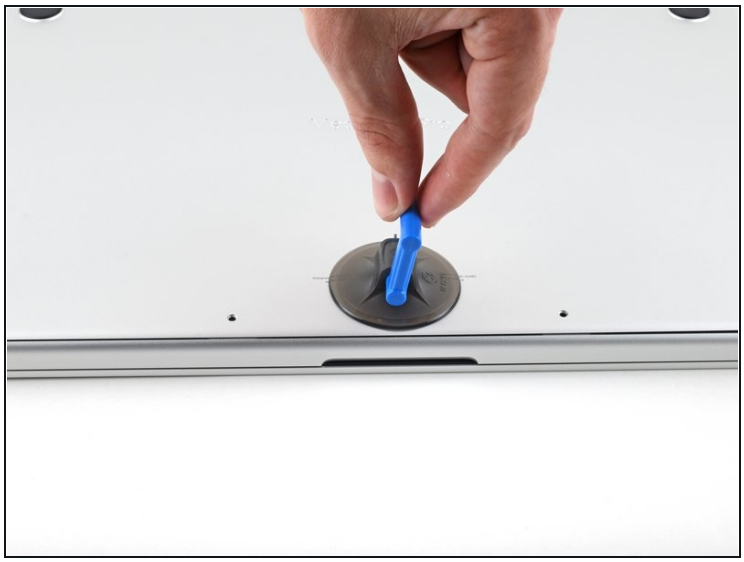
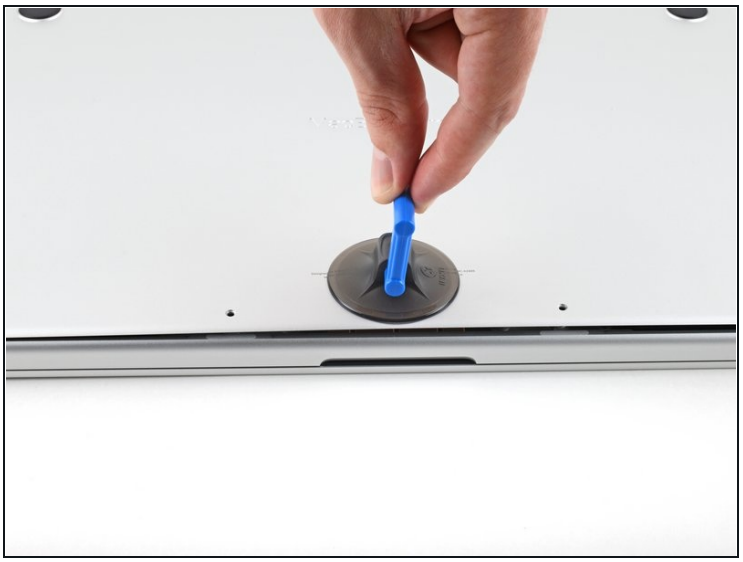
Step 1 — Unfasten the lower case

⚠ Completely power off and unplug your MacBook Pro before you start. Close the screen and flip the entire laptop upside-down.

- Use a P5 Pentalobe driver to remove eight screws securing the lower case:
  - Four 9.3 mm screws
  - Four 5 mm screws

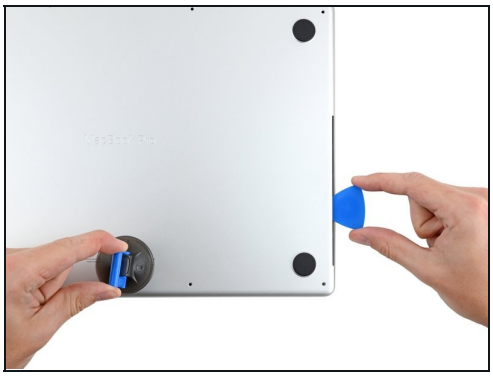
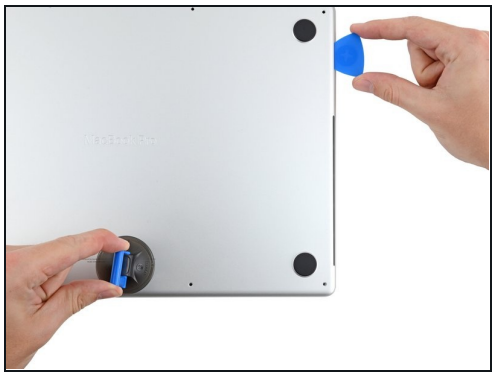
ⓘ Throughout this repair, keep track of each screw and make sure it goes back exactly where it came from to avoid damaging your device.

Step 2 — Unclip the lower case

- Press a suction handle into place near the front edge of the lower case, between the screw holes.
- Pull up on the suction handle to create a small gap under the lower case.

Step 3 — Release the right clips

- Insert an opening pick into the gap you just created.
- Slide the opening pick around the nearest corner and then halfway up the side of the MacBook Pro.

ⓘ This releases the first of the hidden clips securing the lower case. You should feel and hear the clip pop free.

Step 4 — Release the left clips



- Repeat the previous step on the other side, using an opening pick to to release the second clip.

Step 5 — Release the sliding clips

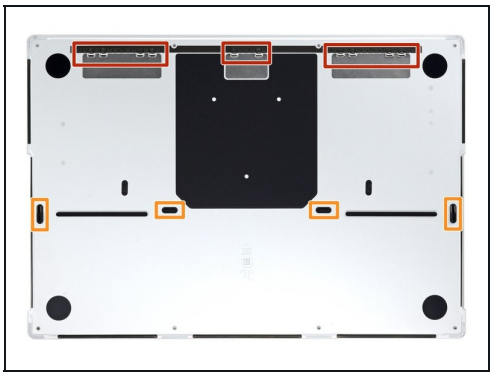
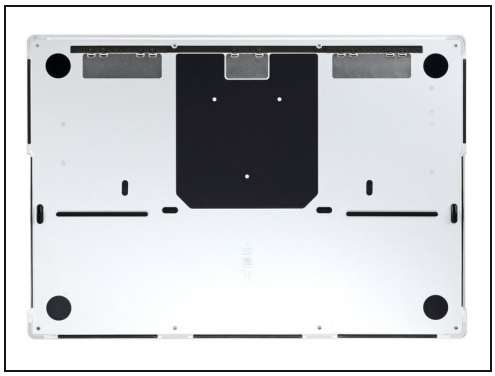


Sliding clips along the back edge of the MacBook further secure the lower case. Separating these clips may require a lot of force—consider using gloves to protect your hands from the sharp edges of the lower case.

- Firmly pull the lower case away from the back edge, one corner at a time, to disengage the sliding clips.

⚠ Keep the lower case flat to the MacBook. Don't pull upward until it's completely separated.

Step 6 — Remove the lower case

- Remove the lower case.

To reinstall the lower case:

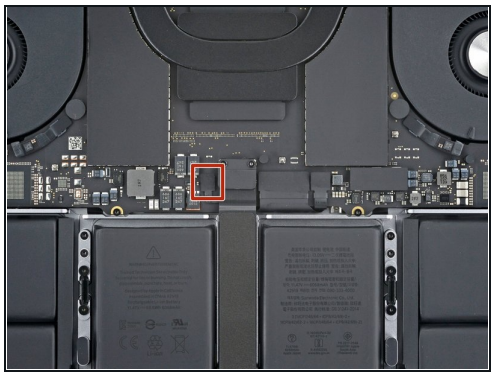
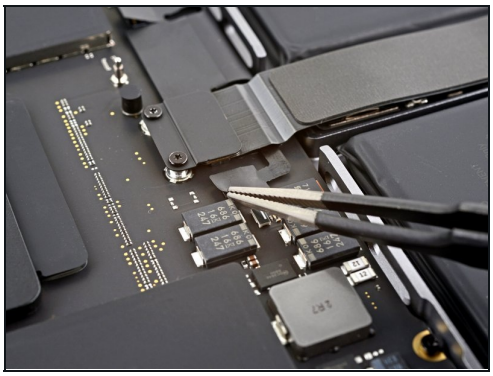
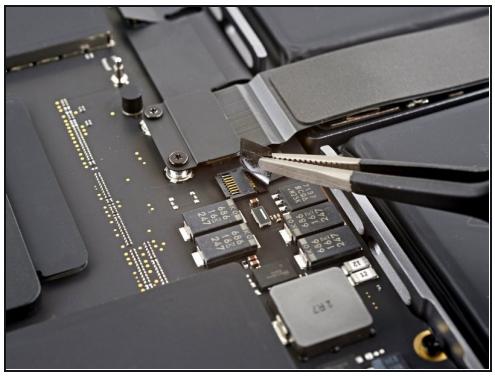
- Lay it down and align the sliding clips with the back edge of the MacBook. Press down on the lower case and slide it toward the back edge to engage the clips.

  When one side is engaged, it may push the other out of alignment. Check both sides as you push.

- Once the back corners of the lower case are secured and flush with the frame, press down along the middle of the lower case to engage the four remaining clips.

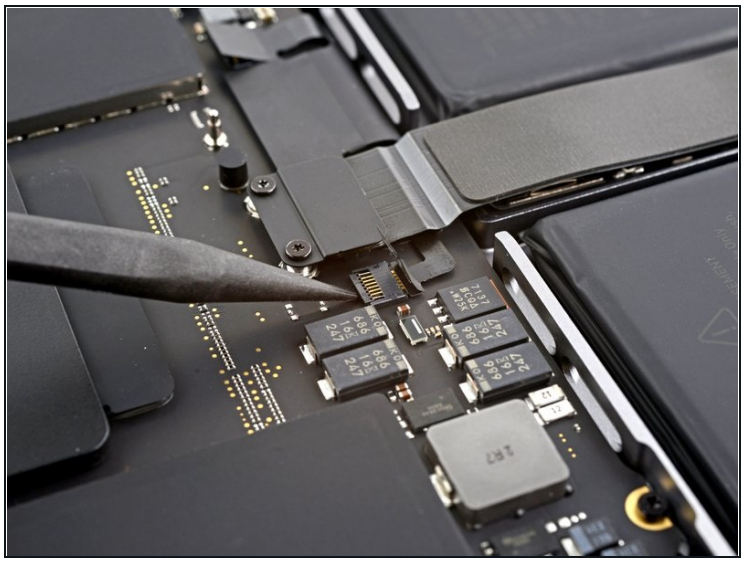
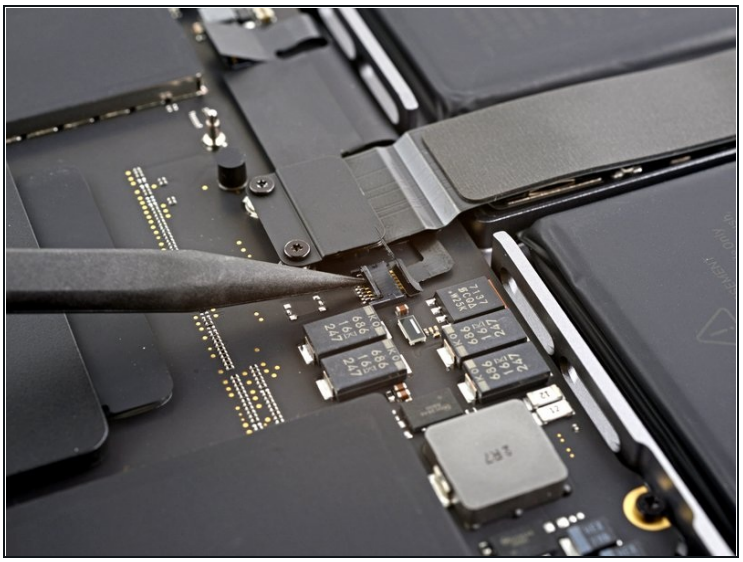
  You'll hear and feel each clip snap into place.

Step 7 — Disconnect the battery board

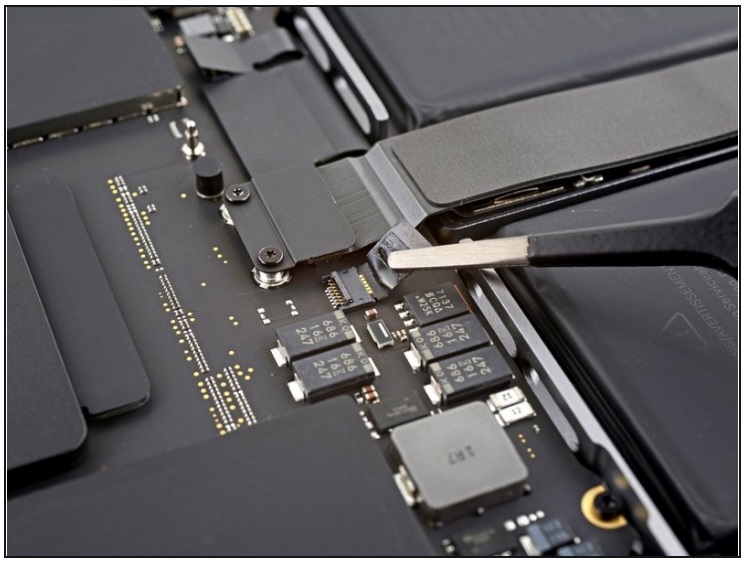
- Peel back any tape covering the battery board data cable connector on the logic board.

Step 8

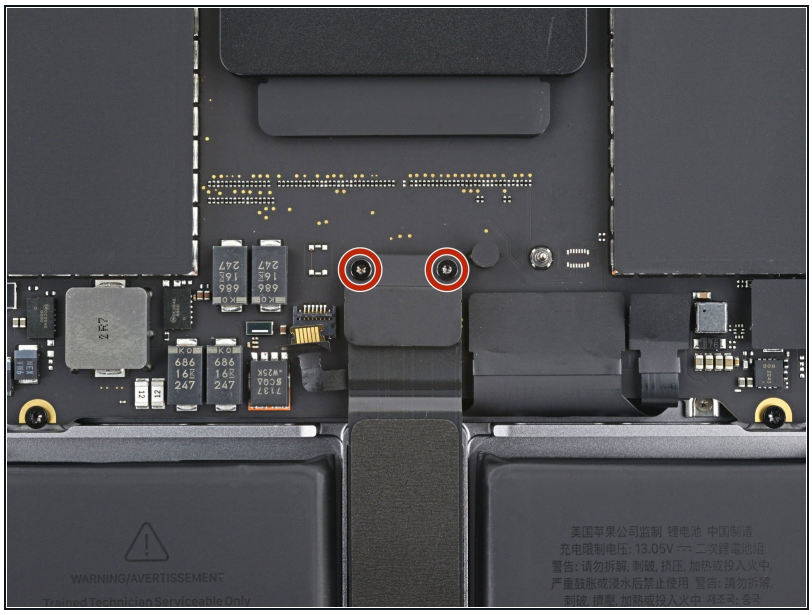
- Use a spudger to gently pry up the locking flap on the ZIF connector for the battery board data cable.

Step 9




- Disconnect the battery board data cable by sliding it out from its socket on the logic board.

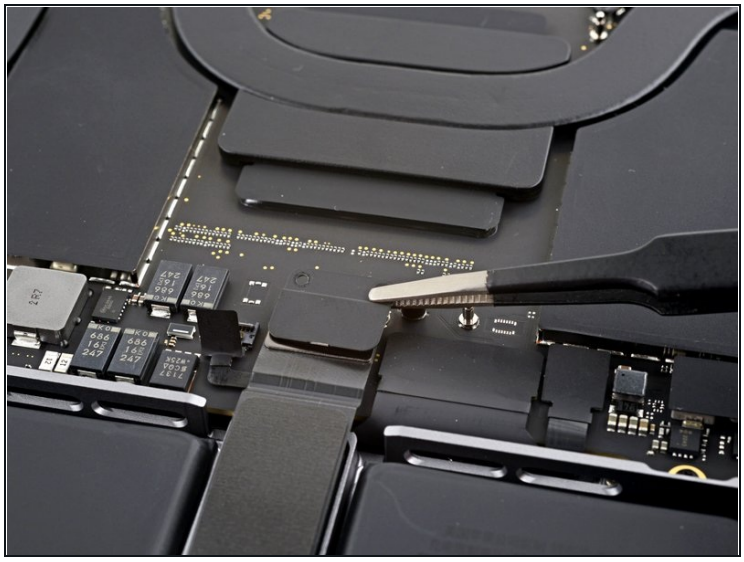
Step 10 — Unfasten the trackpad cable bracket

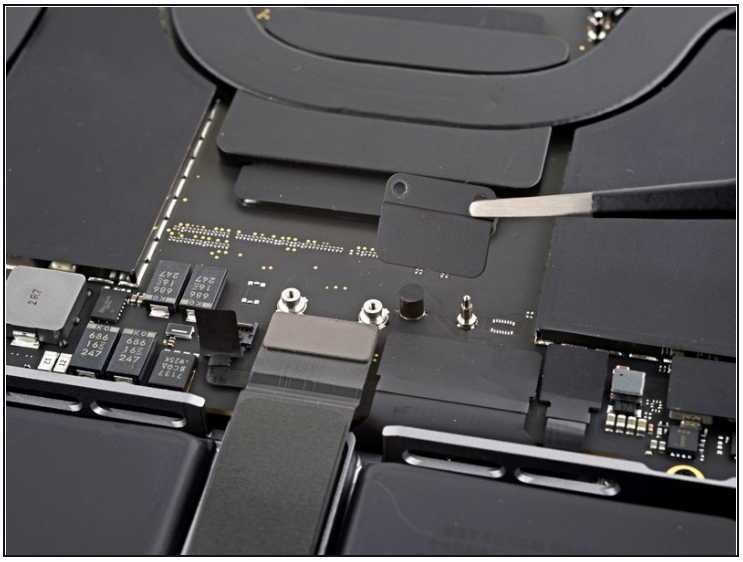


While your MacBook uses some Torx Plus screws, standard Torx bits work. Make sure to apply constant, downward force to avoid stripping.

- Use a T3 Torx driver to remove the two 2.1 mm-long 3IP Torx Plus screws securing the trackpad cable bracket to the logic board.

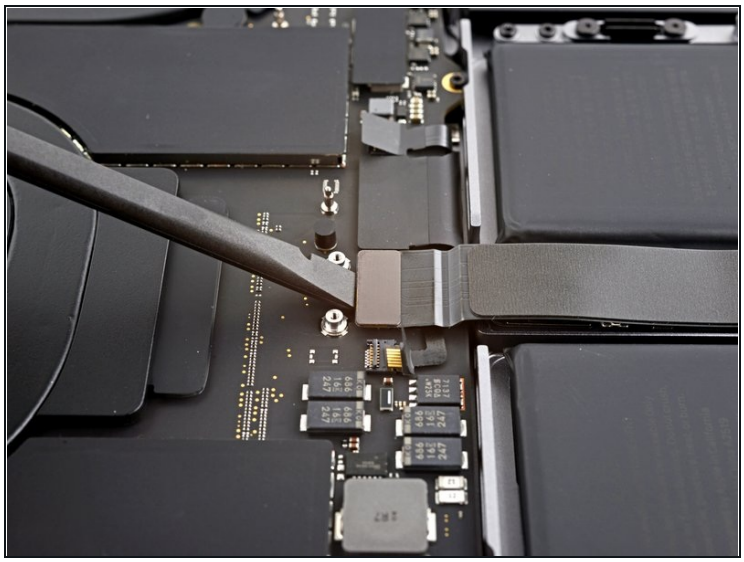
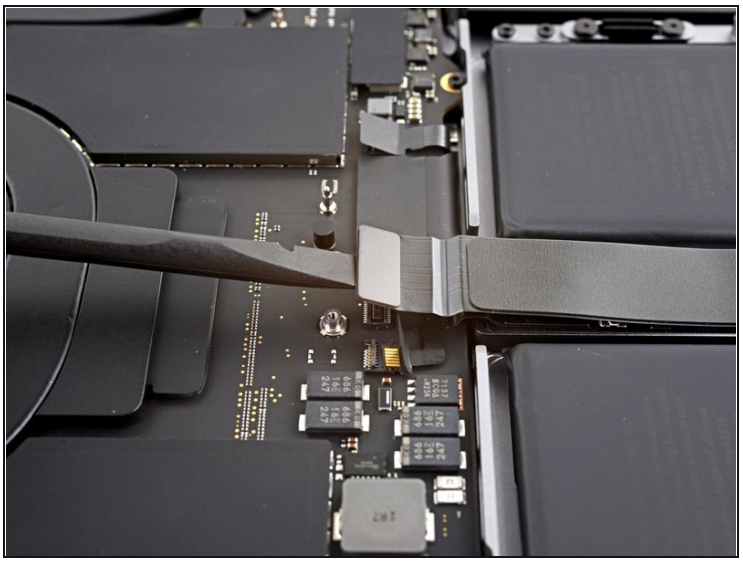
Step 11 — Remove the trackpad cable bracket





- Use tweezers, or your fingers, to remove the trackpad cable bracket.

Step 12 — Disconnect the trackpad cable

- Use the flat end of a spudger to pry up and disconnect the trackpad cable's press connector secured to the logic board.

ⓘ To re-attach press connectors like this one, carefully align and press down on one side until it clicks into place, then repeat on the other side. Don't press down on the middle. If the connector is misaligned, the pins can bend, causing permanent damage.

Step 13 — Reposition the trackpad cable


ⓘ The trackpad cable is lightly adhered to the frame.

- Peel the trackpad cable away from the device, making sure to separate the adhesive.

Step 14 — Disconnect the battery board


- Peel back any tape covering the battery board data cable connector under the large pancake screw.

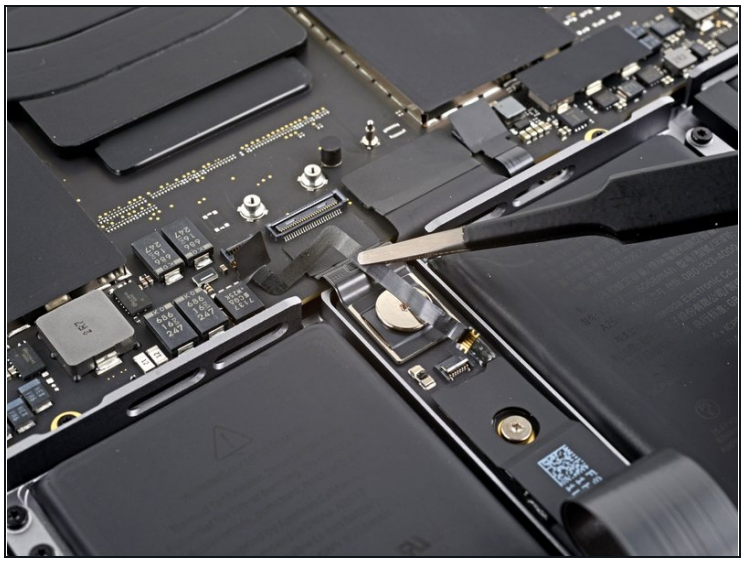
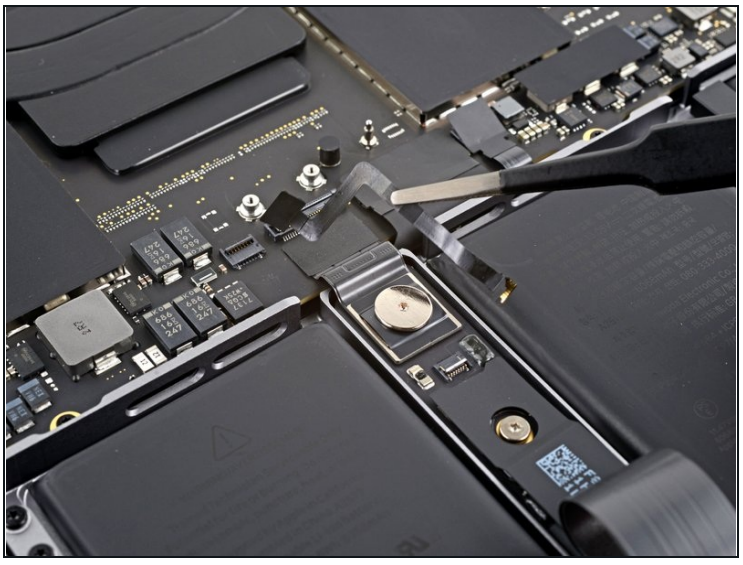
Step 15


- Use a spudger to gently pry up the locking flap on the ZIF connector for the battery board data cable.

Step 16


- Disconnect the battery board data cable by sliding it out from its socket on the battery board.

Step 17 — Remove the data cable

ⓘ The battery board data cable is lightly adhered to the device.

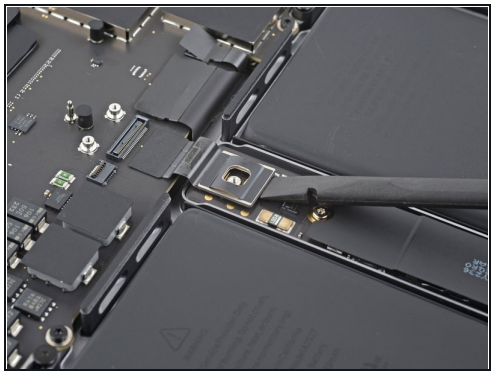
- Slide blunt nose tweezers under areas with adhesive to separate the cable from the device.

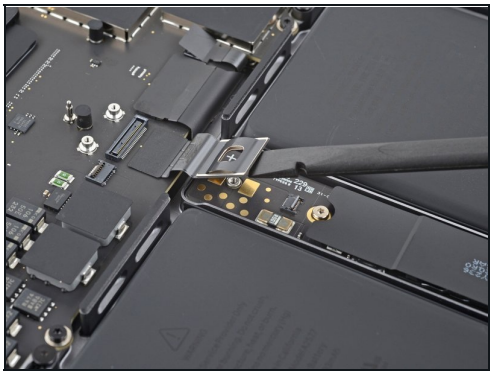
- Remove the battery board data cable.

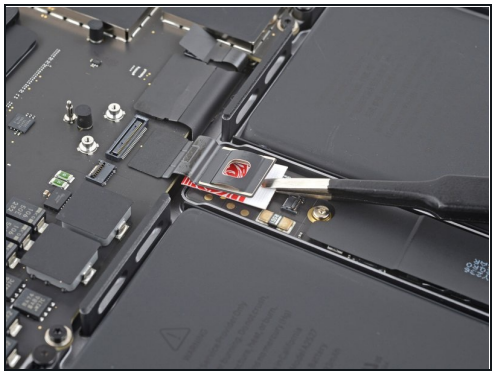
Step 18 — Unfasten the battery connector

- Use a T5 Torx driver to remove the 3.8 mm 5IP Torx Plus wide-head screw securing the battery power connector.

Step 19 — Disconnect the battery connector





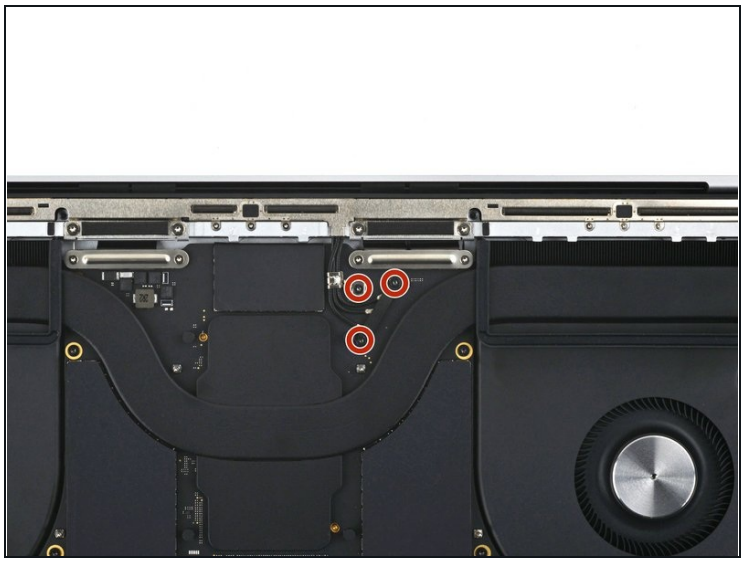


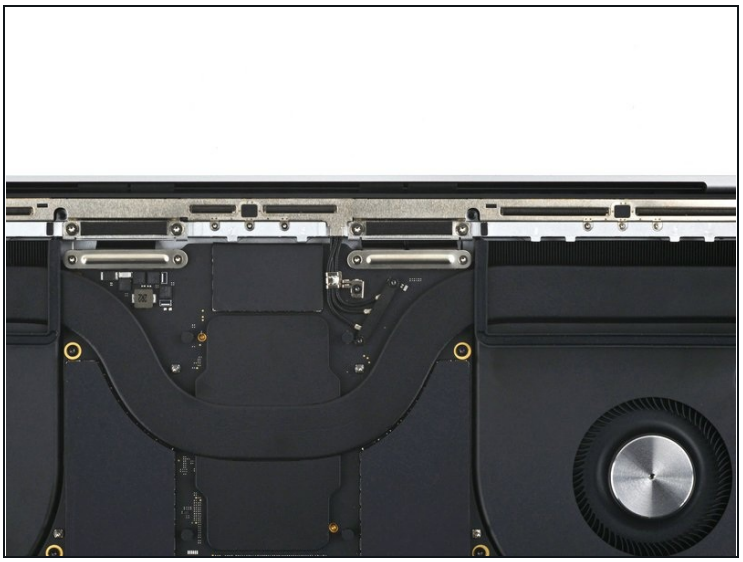
- Use the flat end of your spudger to lift the battery connector away from the battery board, disconnecting the battery.

⚠ Lift the connector high enough that it doesn't accidentally make contact during the repair, but no more than 45 degrees to prevent damaging its hinge.

ⓘ For added safety, place a barrier, such as a piece of a playing card, between the connector and board.

Step 20 — Unfasten the antenna bar's connector bracket



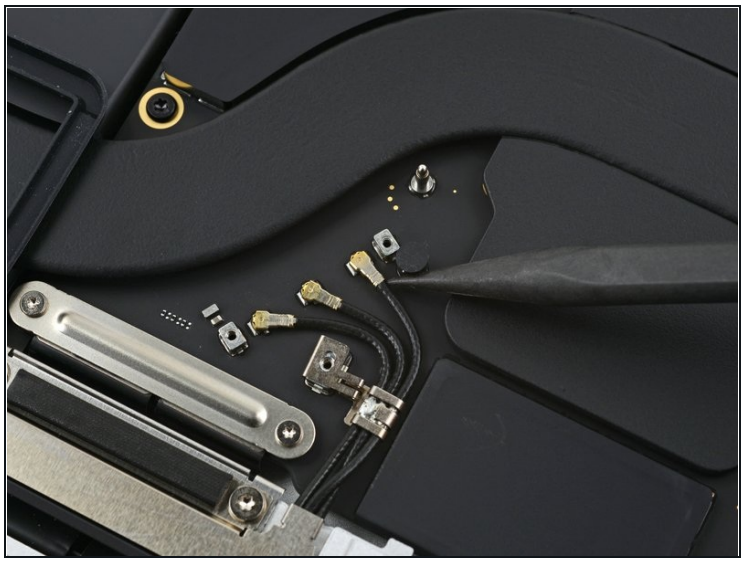


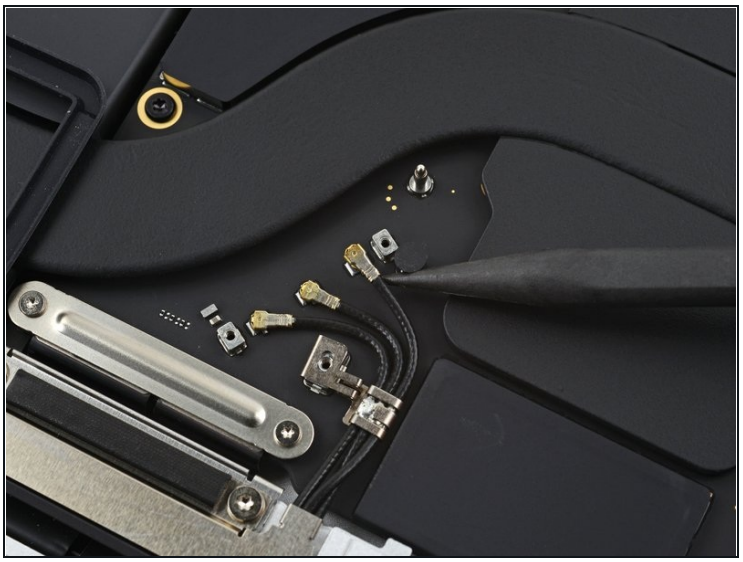
- Use a T3 Torx screwdriver to remove the three 2.1 mm screws securing the antenna board bracket and coaxial cable cover to the frame.

Step 21

- Use tweezers, or your fingers, to remove the cover on top of the antenna bar's coaxial cables.

Step 22 — Disconnect the antenna bar

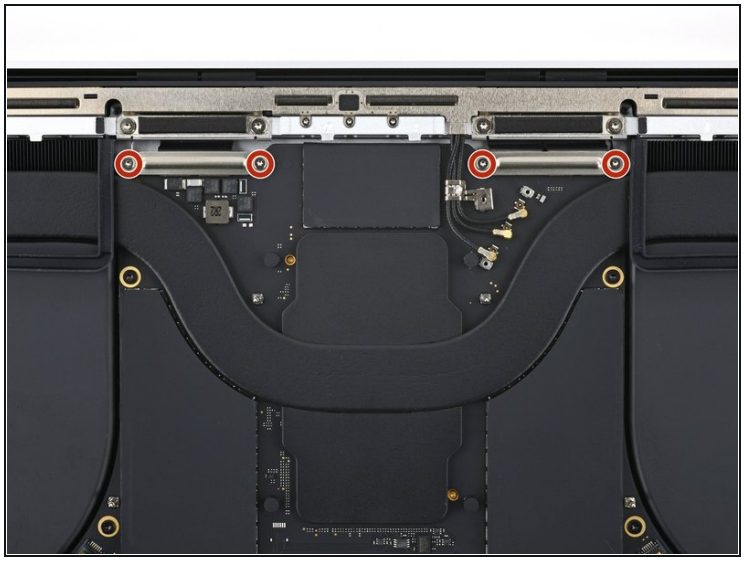


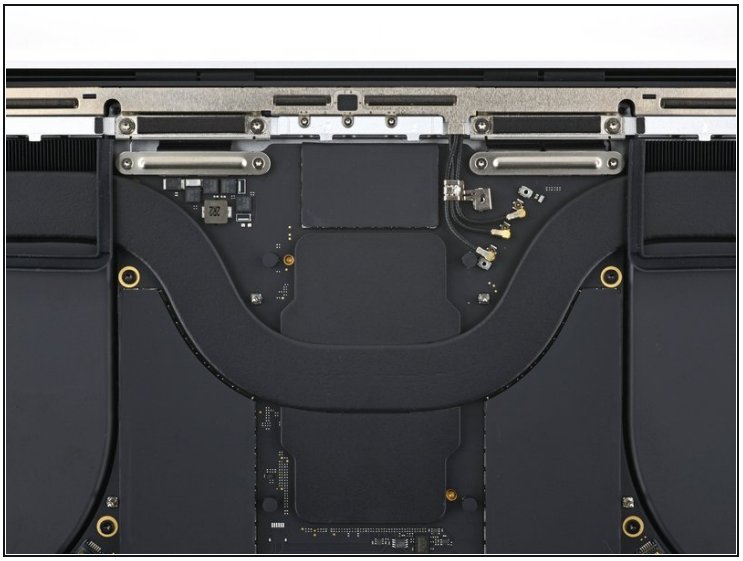


- Use the tip of a spudger to pry up and disconnect the antenna bar's coaxial cable.
- Repeat for the two other cables.

During reassembly, these can be tricky to reconnect. Hold each connector in place over its socket and press down with the flat end of a spudger. The connector should snap into place.

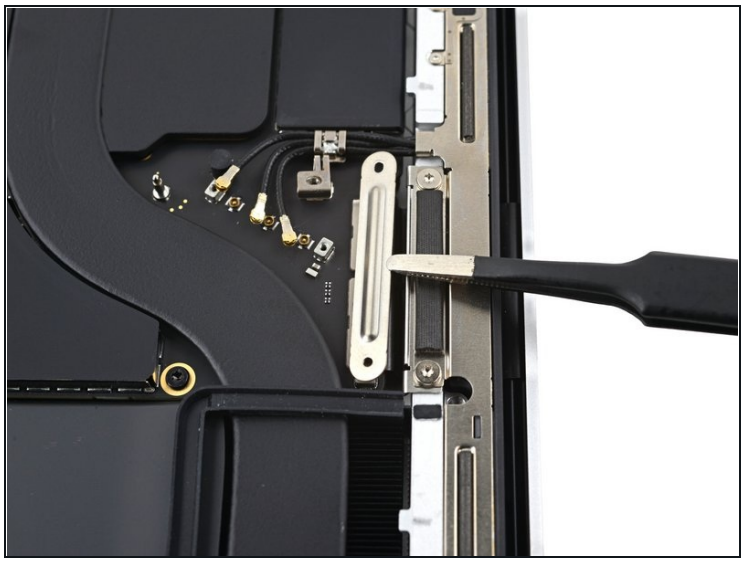
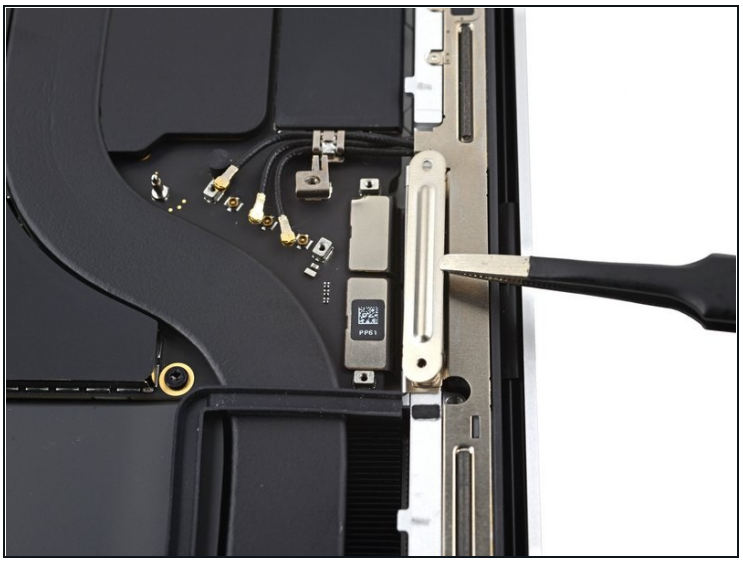
Step 23 — Unfasten the screen cable covers





- Use a T3 Torx driver to remove the four 2.1 mm screws securing the screen cable covers.

Step 24 — Remove the screen cable covers

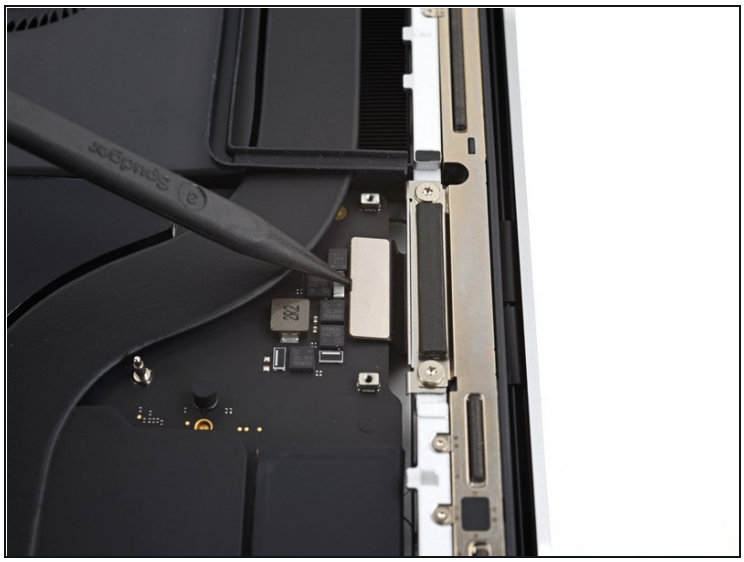
- Use tweezers, or your fingers, to remove the two screen cable covers from the logic board.

Step 25 — Disconnect the screen cables



- Use the flat end of a spudger to pry up and disconnect the right-most screen cable press connectors secured to the logic board.

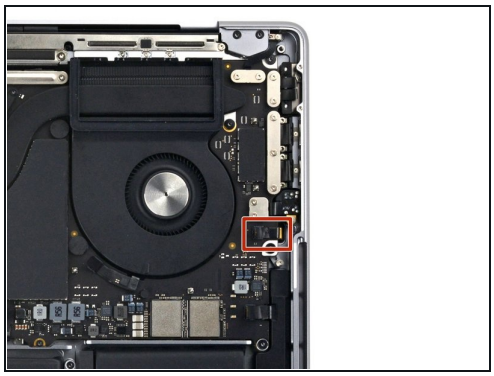
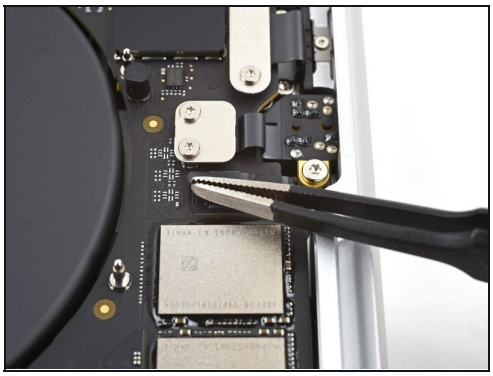
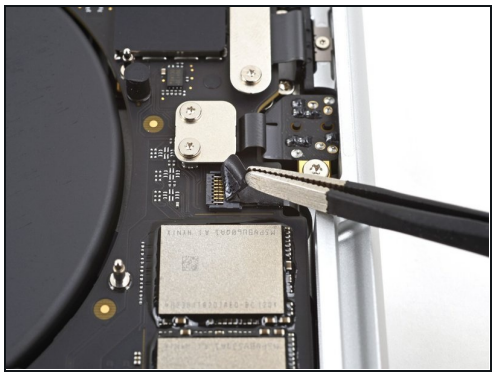
Step 26




- Repeat the previous disconnection process for the remaining press connector at the top left of the logic board.

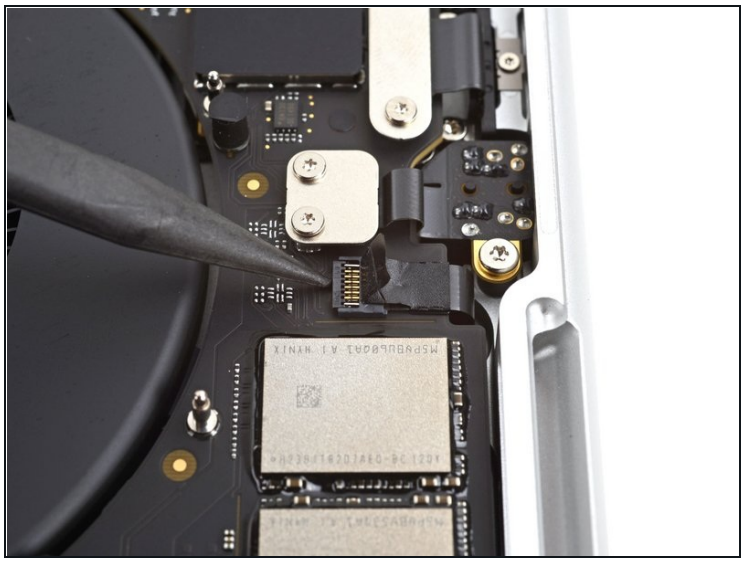
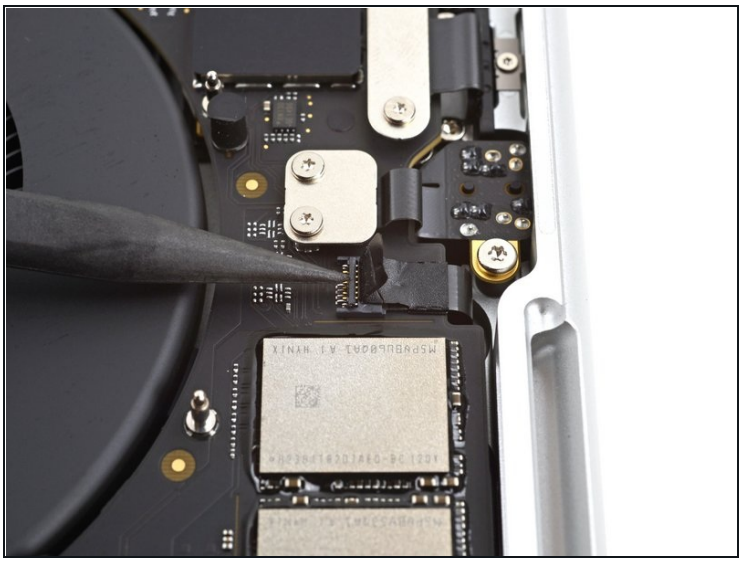
⚠ Don't pry against the surface-mounted components near the press connector.

Step 27

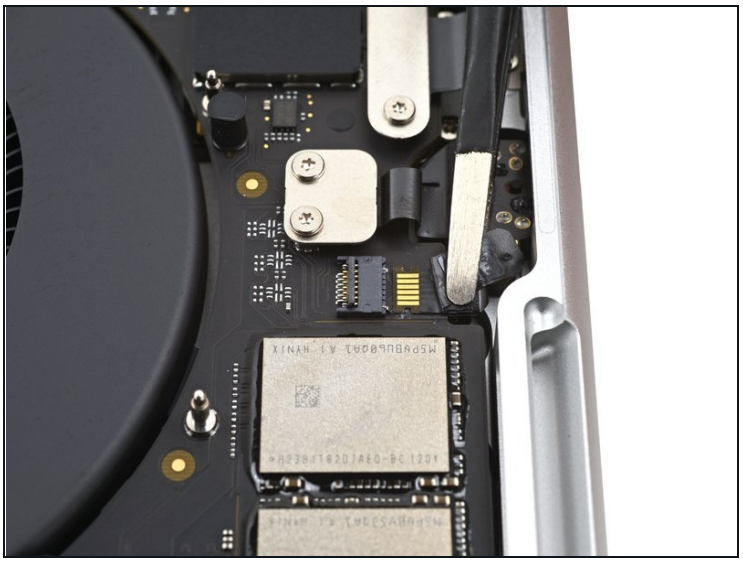
- Peel back any tape covering the microphone cable connector.

Step 28

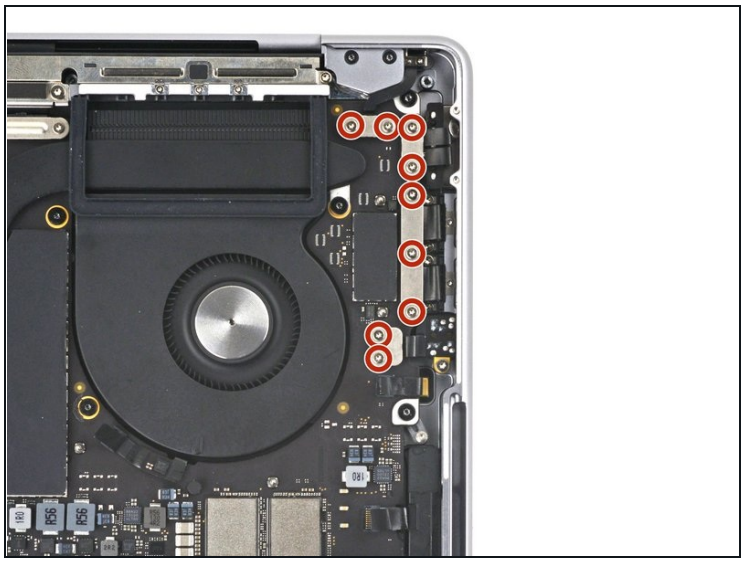
- Use a spudger to gently pry up the locking flap on the ZIF connector for the microphone cable.

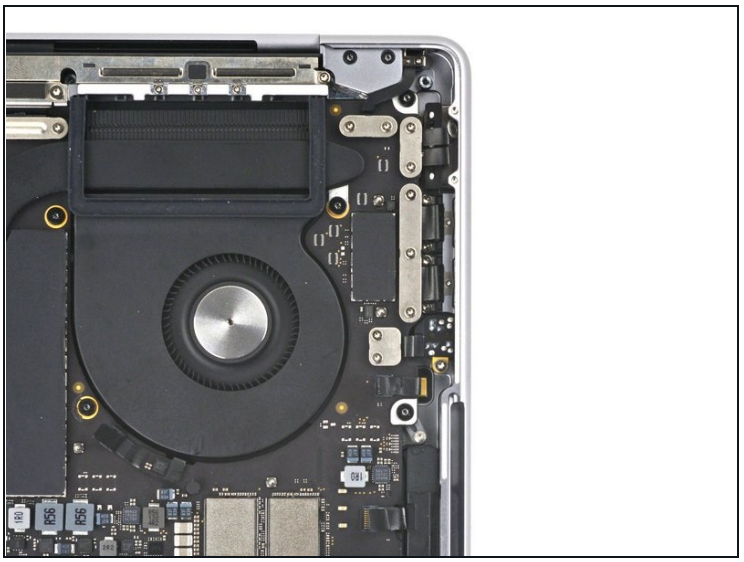
Step 29

- Disconnect the microphone cable by sliding it out from its socket on the logic board.

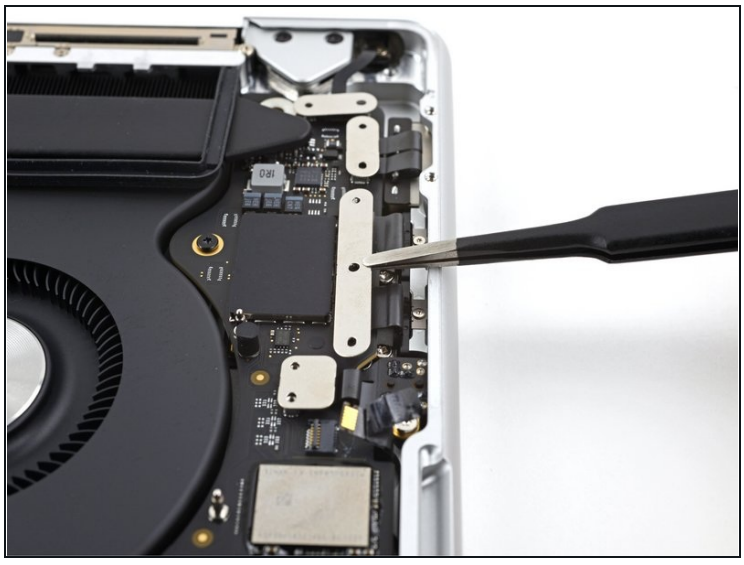
Step 30 — Unfasten the right-side cable covers

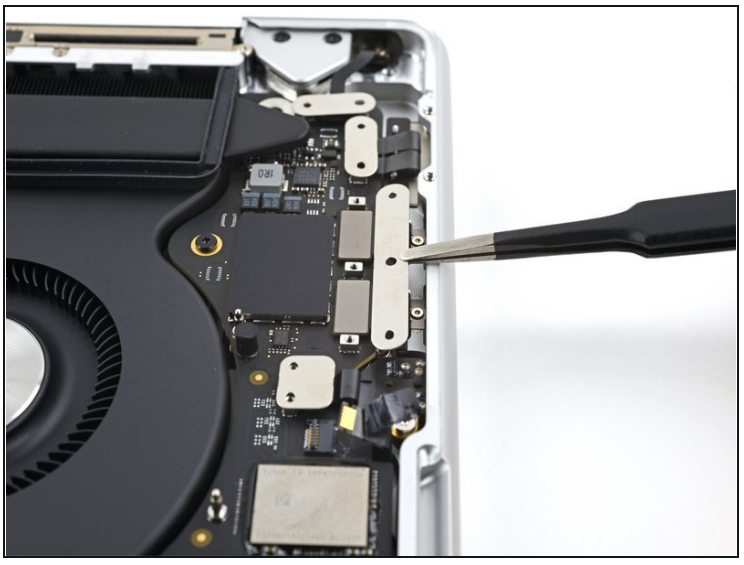




- Use a T3 Torx driver to remove the nine 2.1 mm screws securing the right cable covers to the frame:

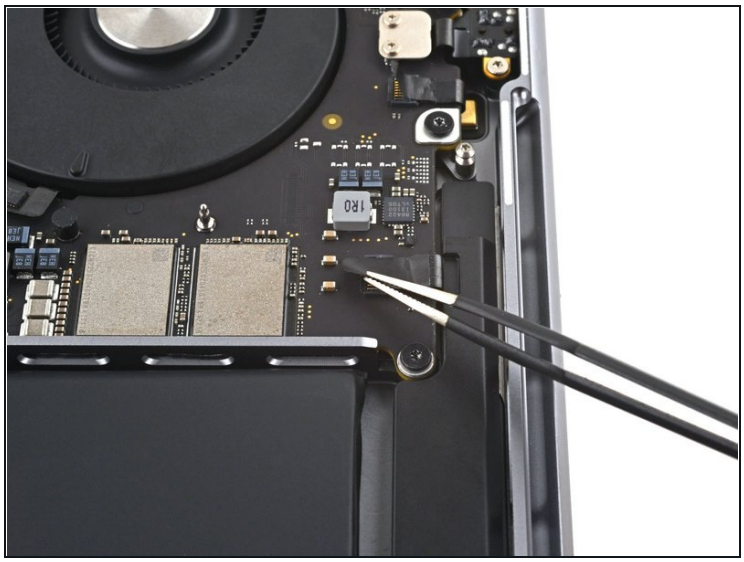
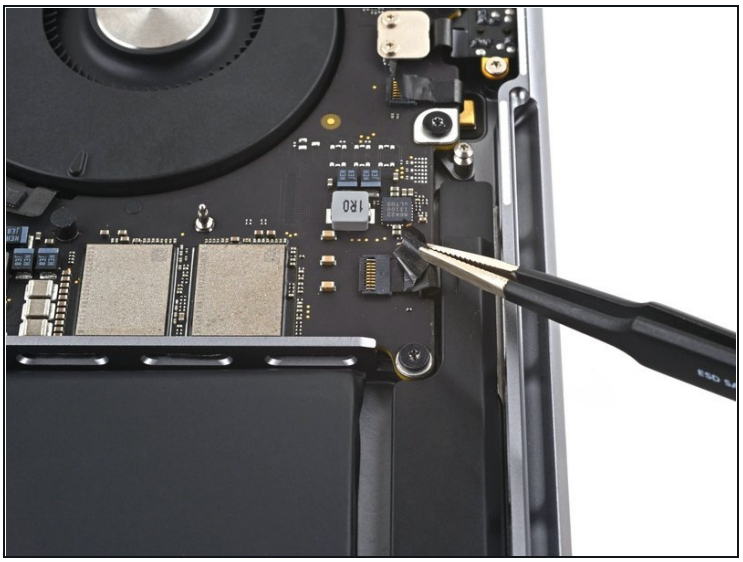
Step 31 — Remove the right cable covers





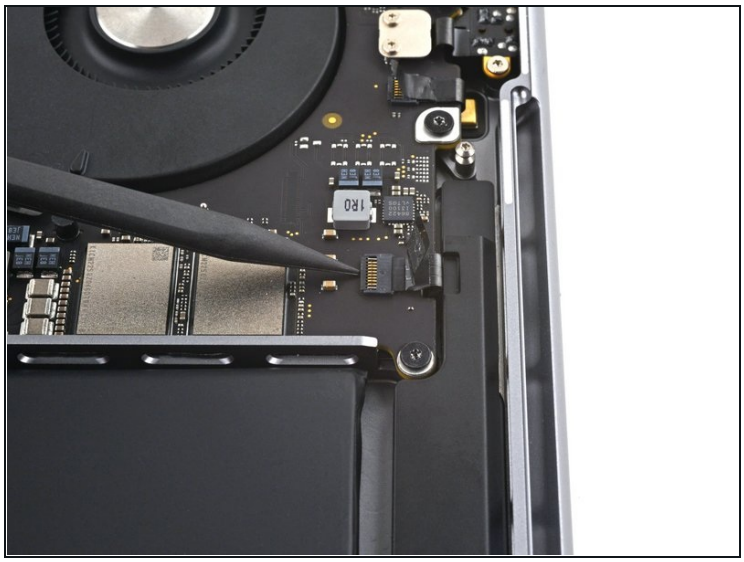
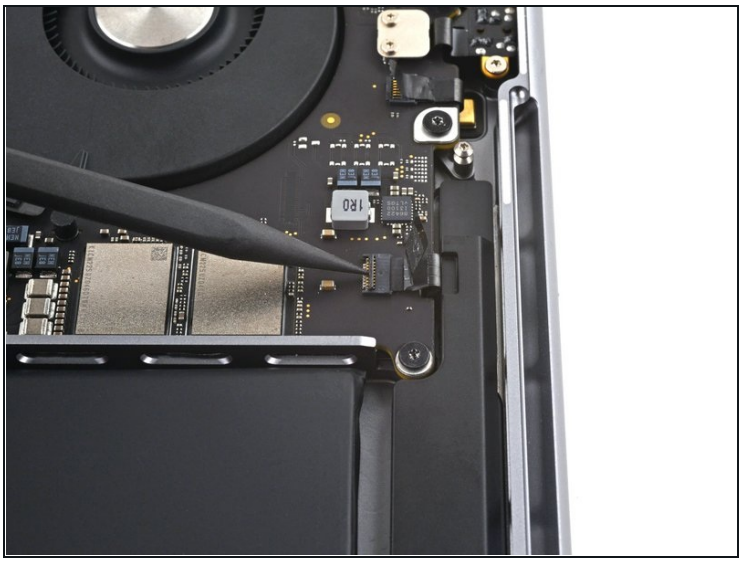
- Use tweezers, or your fingers, to remove the five right cable covers.

Step 32

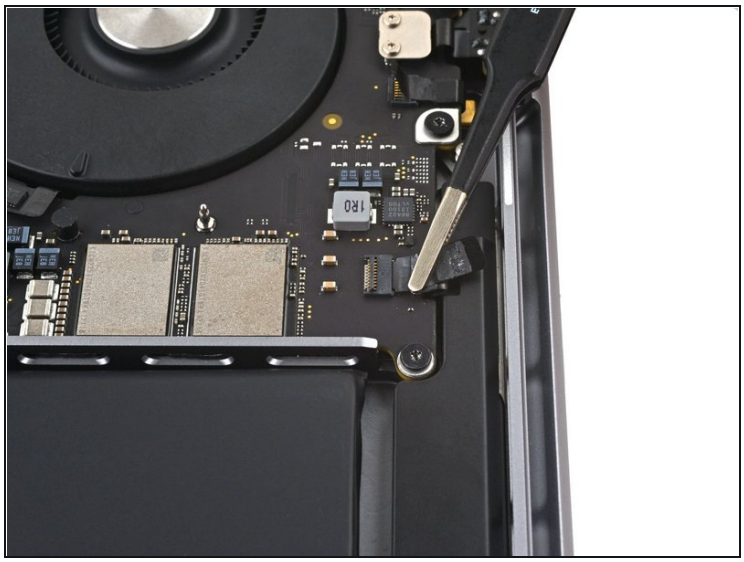
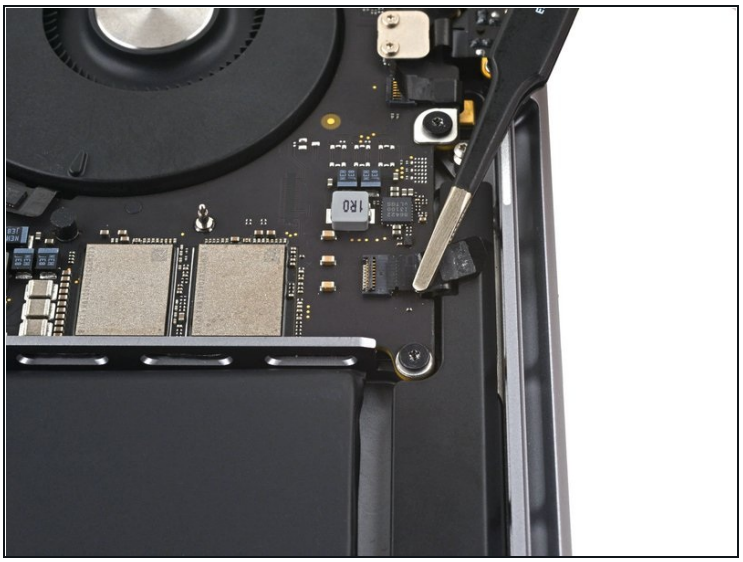
- Peel back any tape covering the right speaker cable.

Step 33

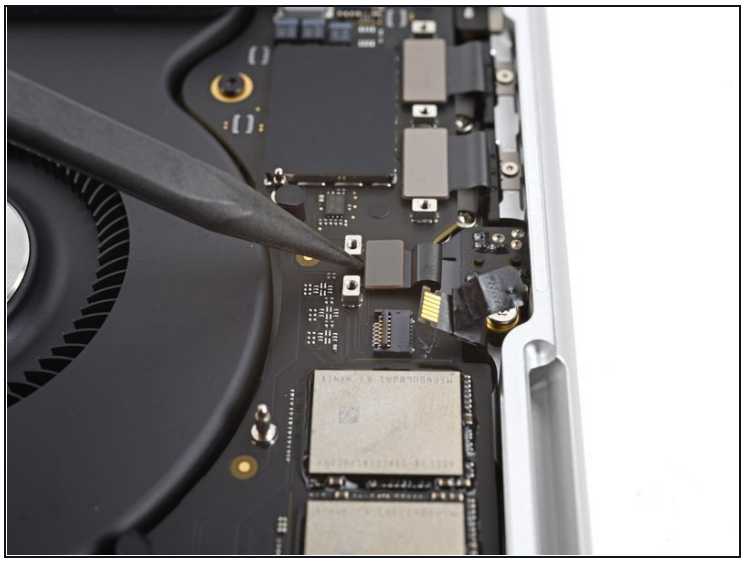
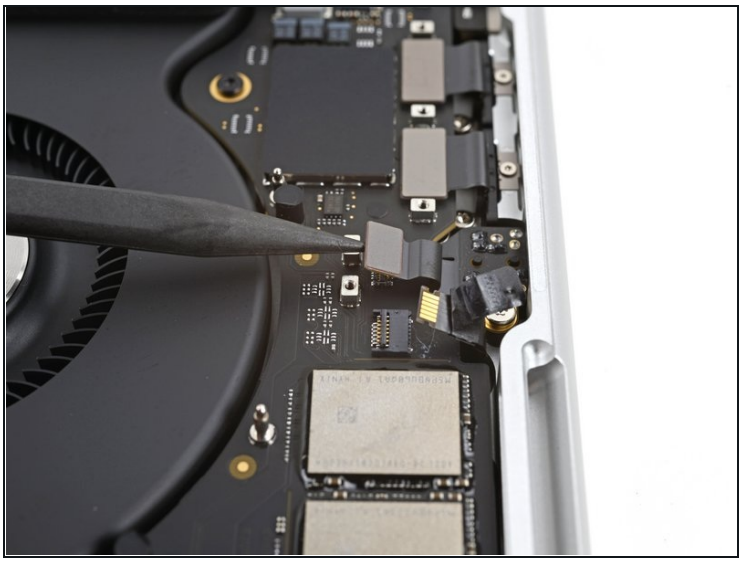
- Use a spudger to gently pry up the locking flap on the ZIF connector for the right speaker cable.

Step 34

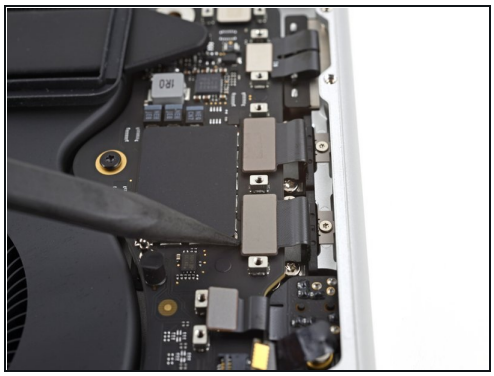
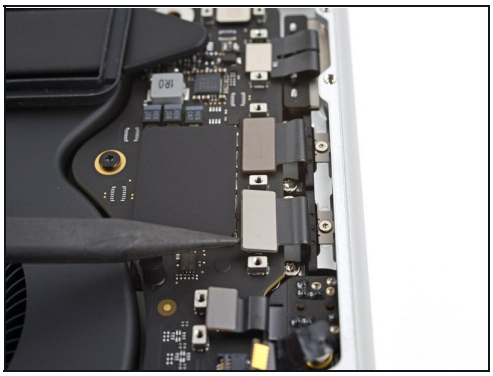
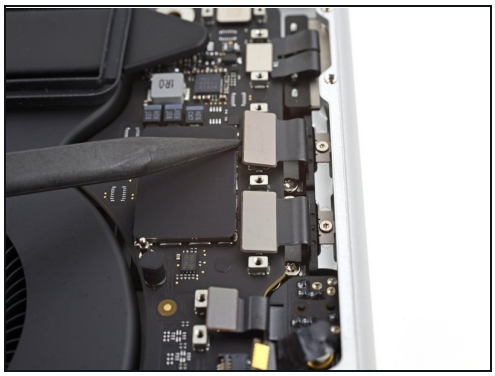
- Disconnect the right speaker cable by sliding it out from its socket on the logic board.

Step 35 — Disconnect the headphone jack

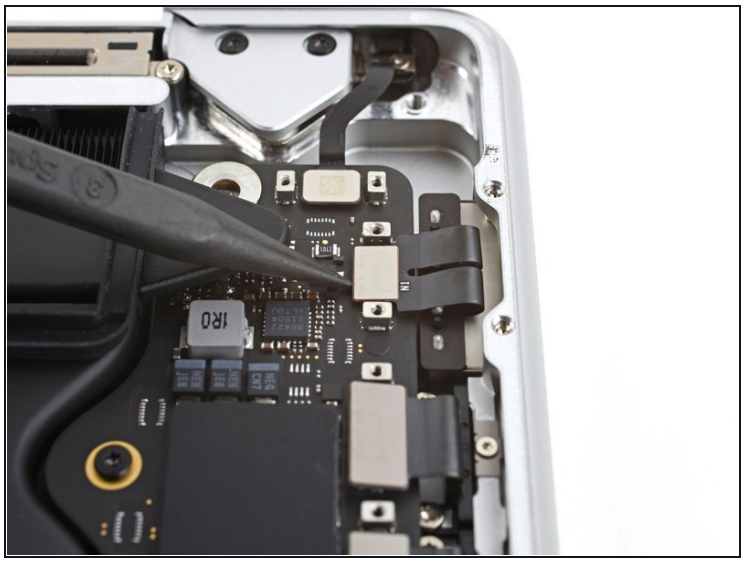
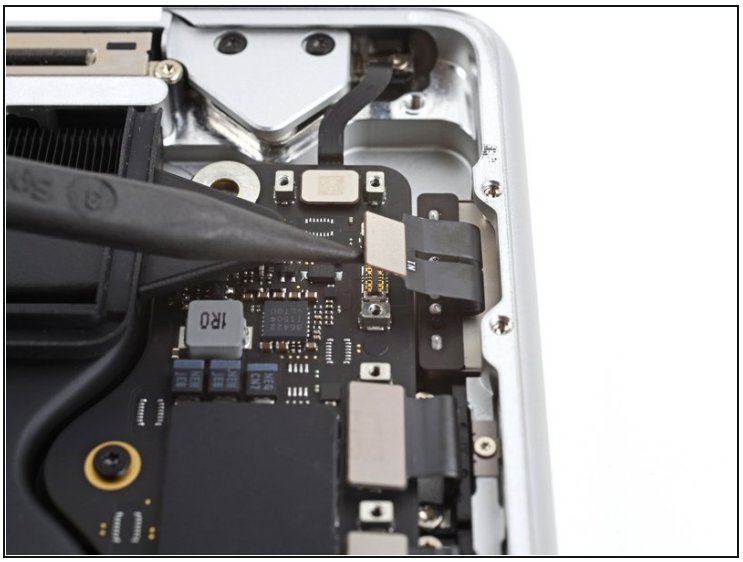
- Use a spudger to pry up and disconnect the headphone jack's press connector.

Step 36 — Disconnect the right USB-C ports

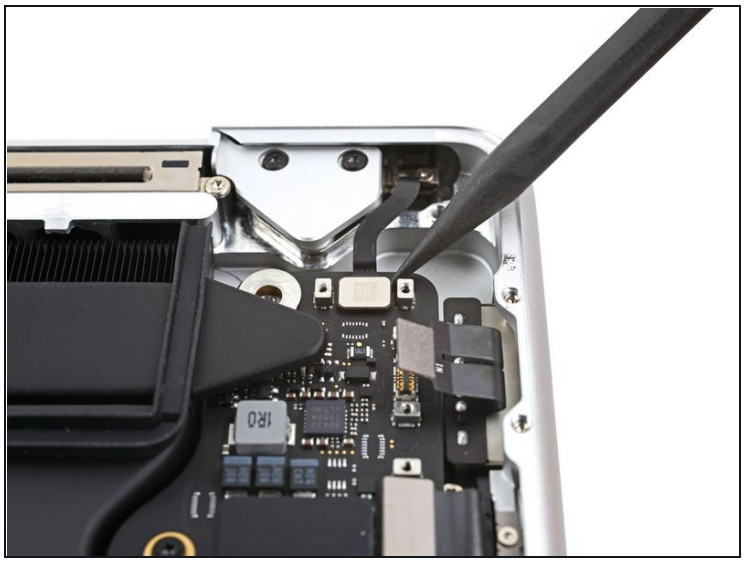
- Use a spudger to pry up and disconnect the right USB-C ports' press connectors.

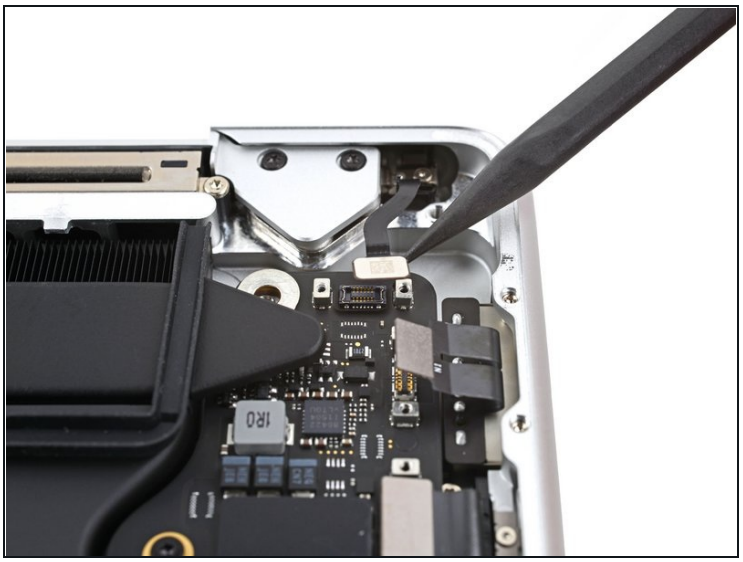
Step 37 — Disconnect the MagSafe port

- Use a spudger to pry up and disconnect the MagSafe port's press connector.

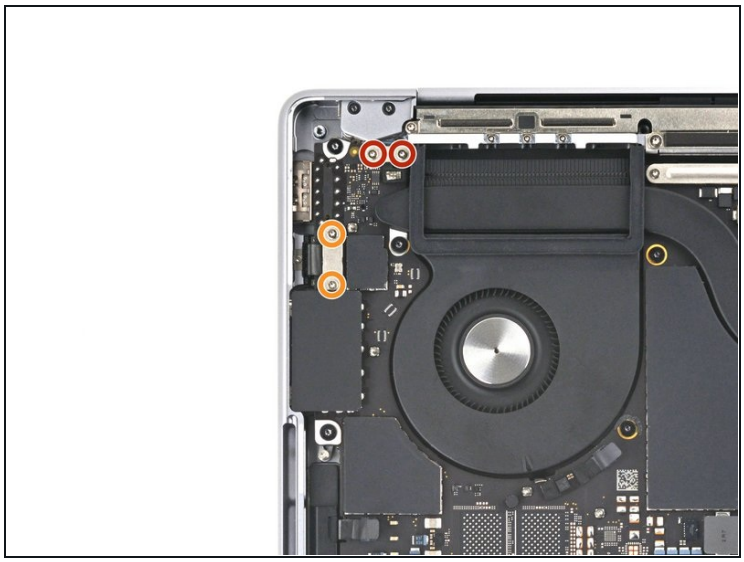
Step 38 — Disconnect the lid angle sensor cable

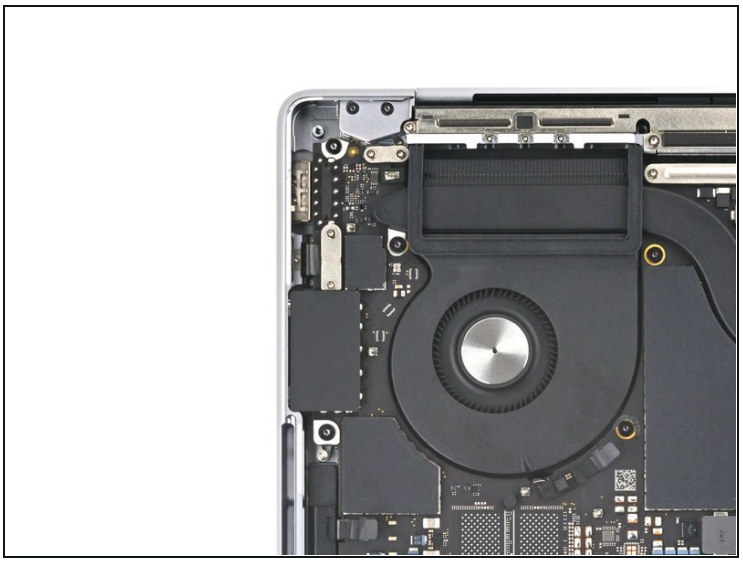




- Use a spudger to pry up and disconnect the lid angle sensor's press connector.

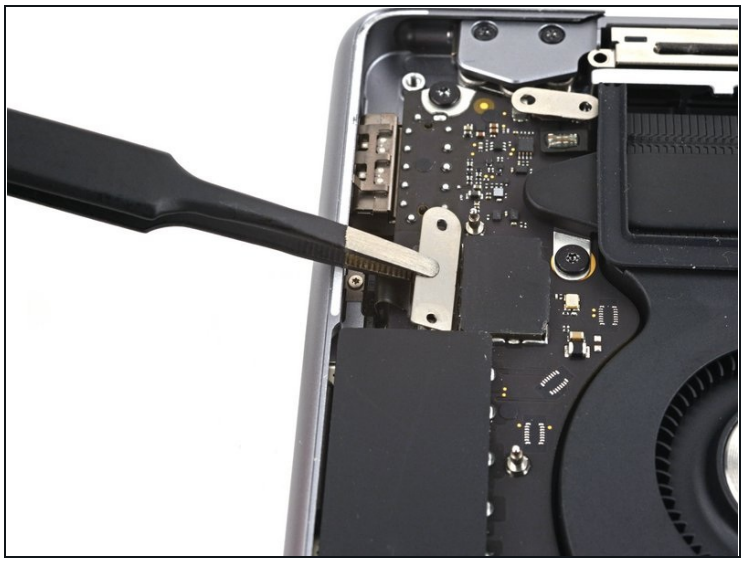
Step 39 — Unfasten the left cable covers

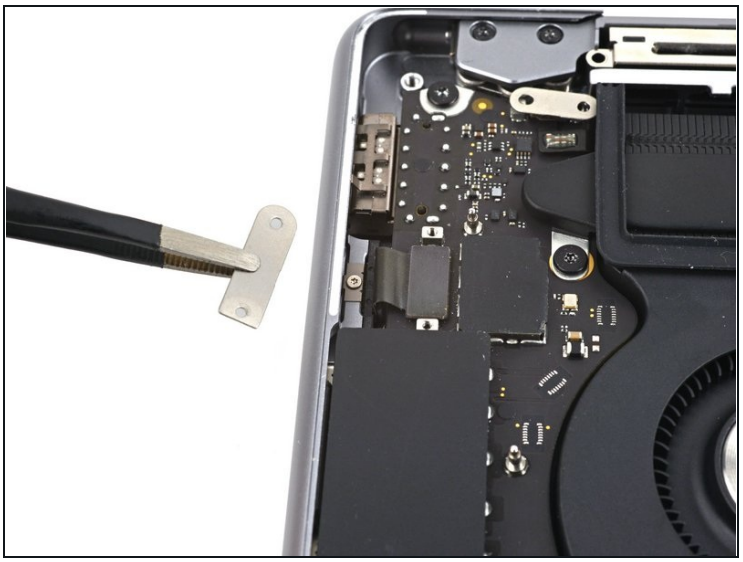




- Use a T3 Torx driver to remove the four screws securing the left cable covers to the frame:
  - Two 2 mm screws
  - Two 2.1 mm screw

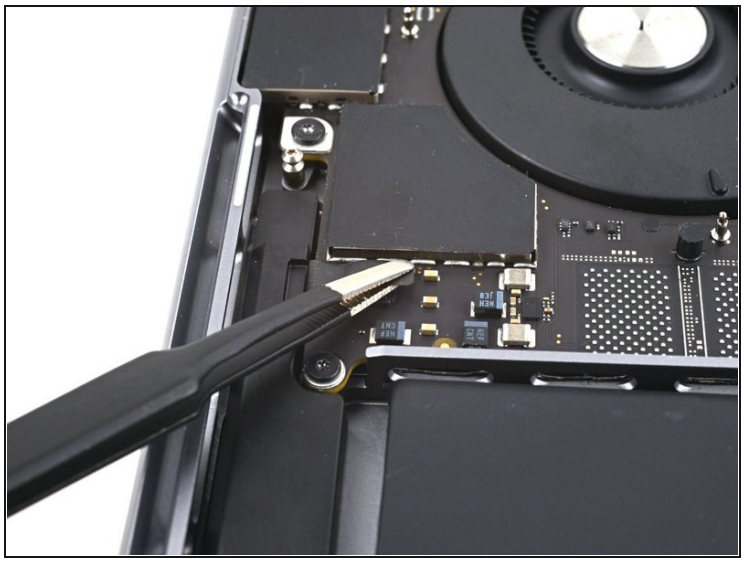
Step 40 — Remove the left cable covers

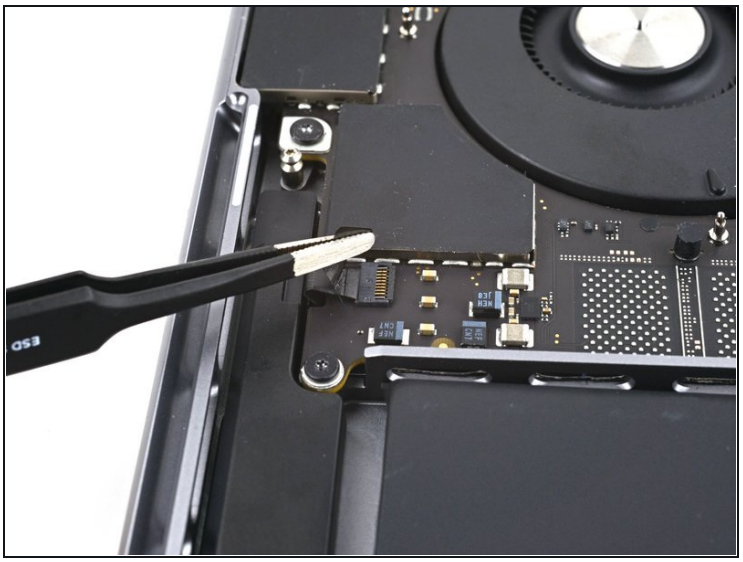




- Use tweezers, or your fingers, to remove the two left cable covers.

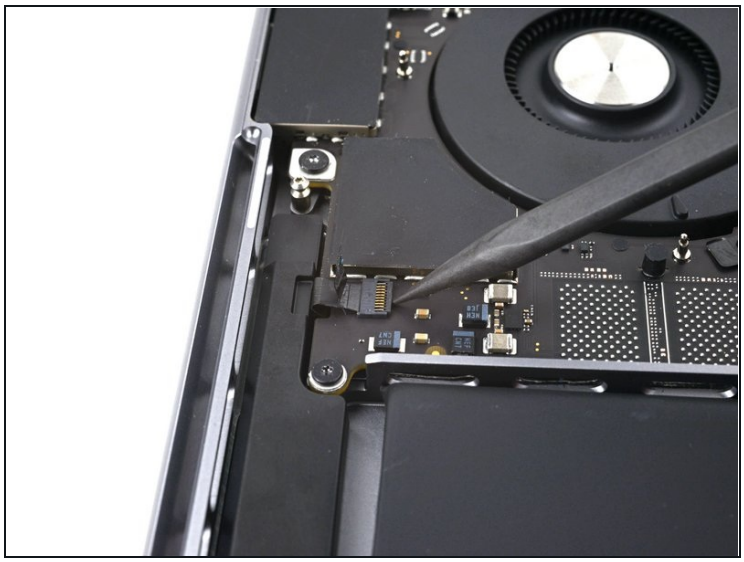
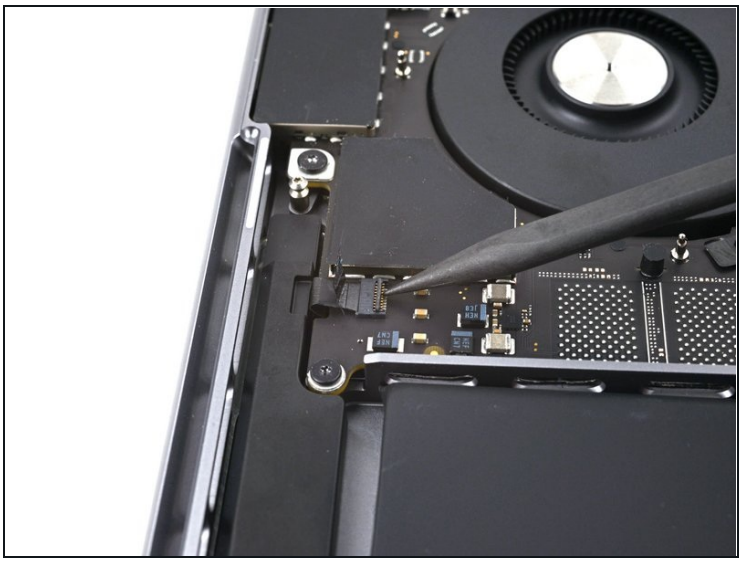
Step 41 — Disconnect the left speaker





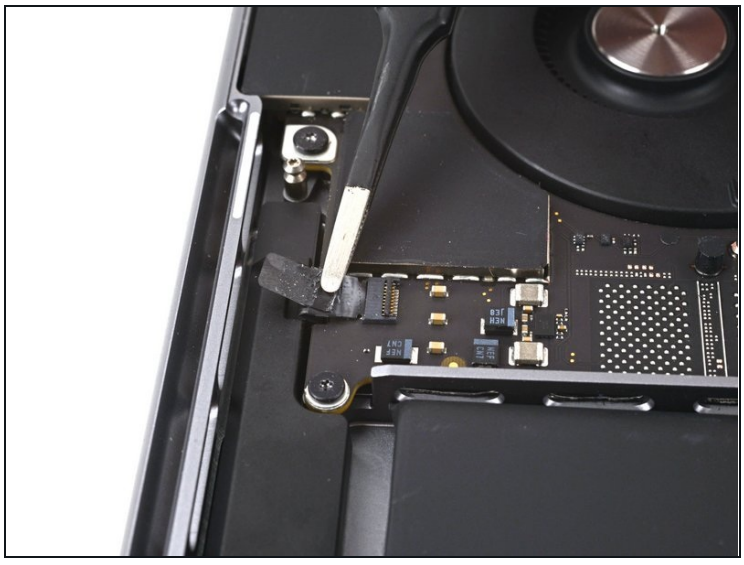
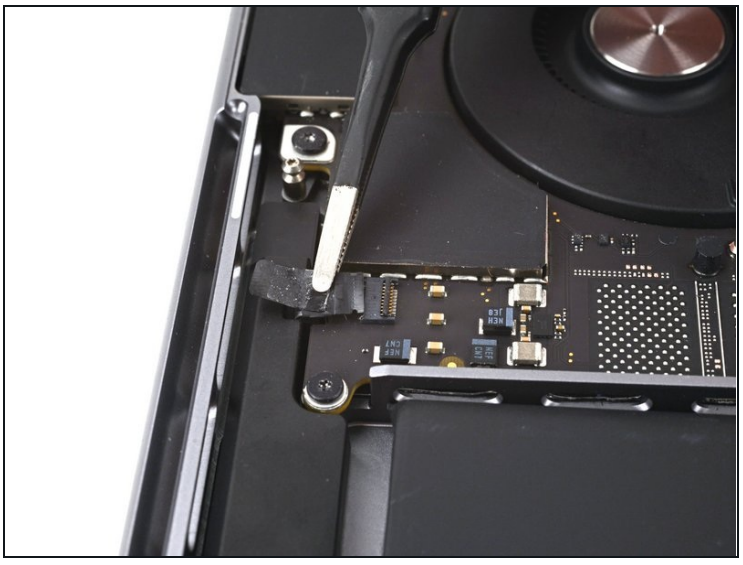
- Peel back any tape covering the left speaker cable.

Step 42

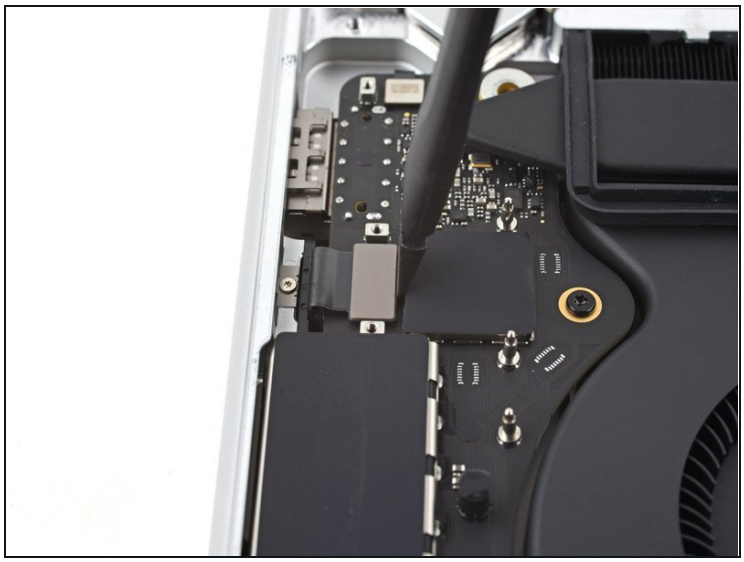
- Use a spudger to gently pry up the locking flap on the ZIF connector for the left speaker cable.

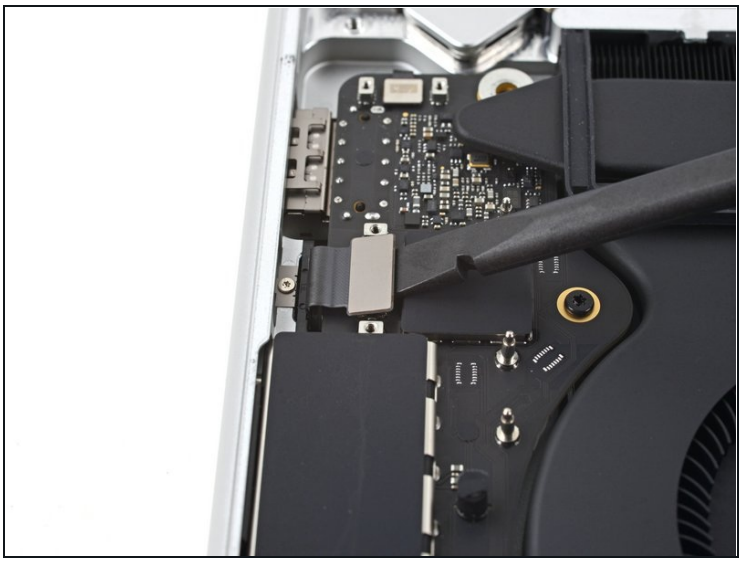
Step 43

- Disconnect the left speaker cable by sliding it out from its socket on the logic board.

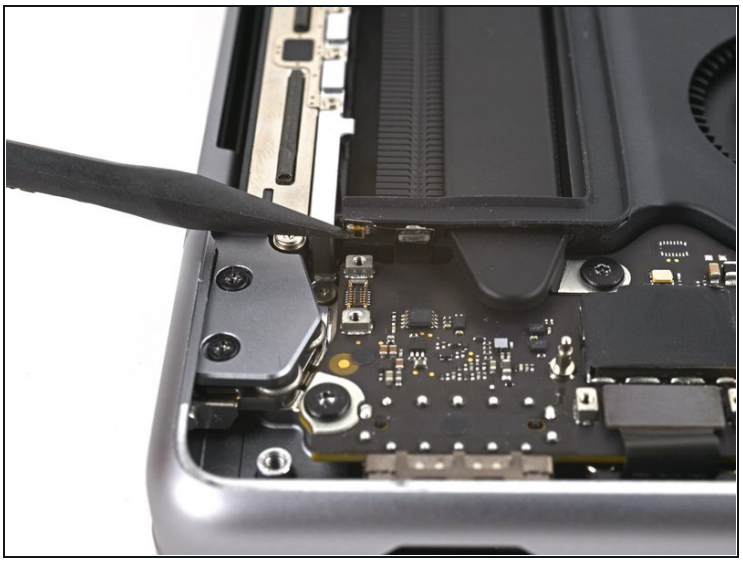
Step 44 — Disconnect the left USB-C port





- Use a spudger to pry up and disconnect the left USB-C port's press connector.

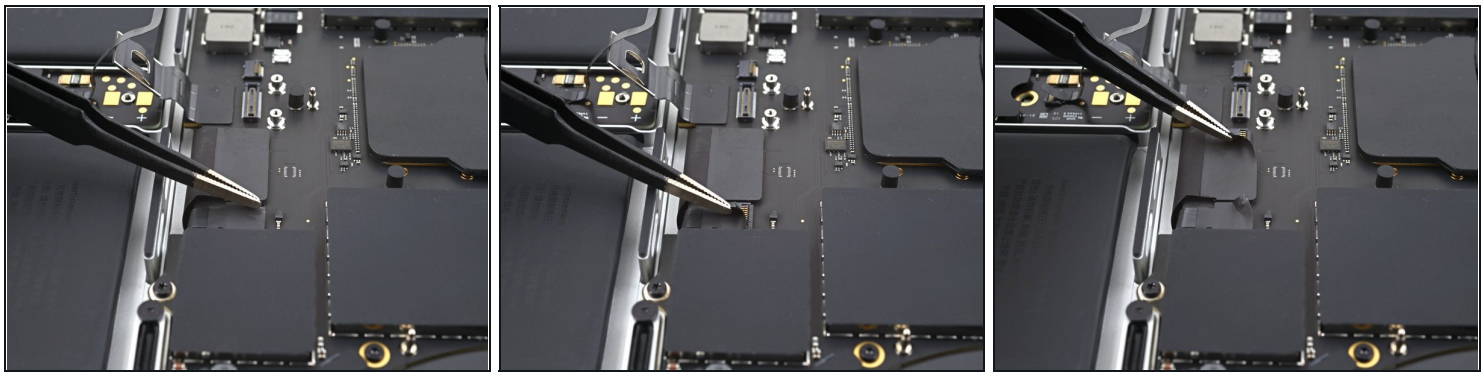
Step 45 — Disconnect the Touch ID sensor



- Use a spudger to pry up and disconnect the Touch ID sensor's press connector near the top left of the device.

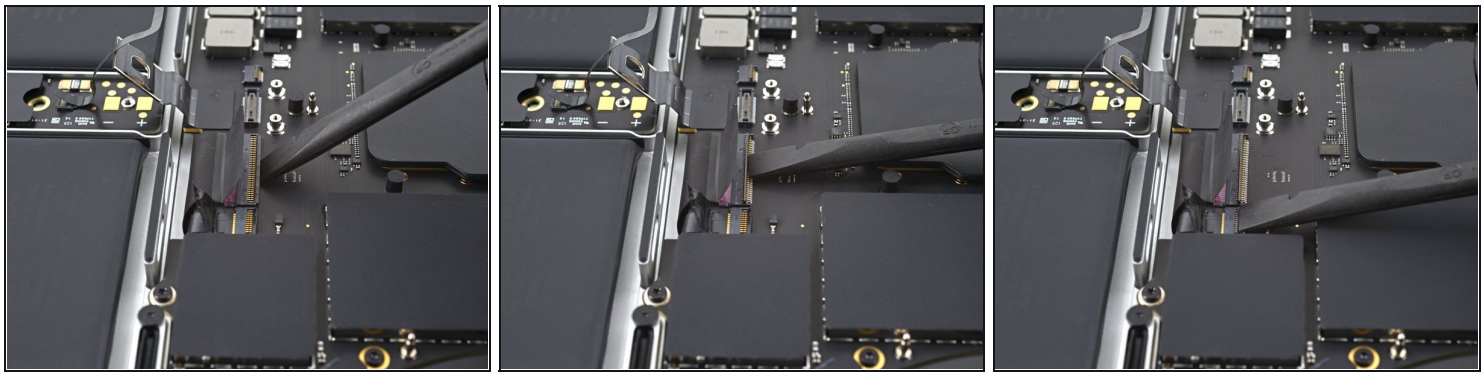
ⓘ The Touch ID sensor cable is adhered to the frame. If the adhesive doesn't separate when you disconnect the press connector, slide an opening pick under the cable to separate it.

Step 46 — Disconnect the keyboard



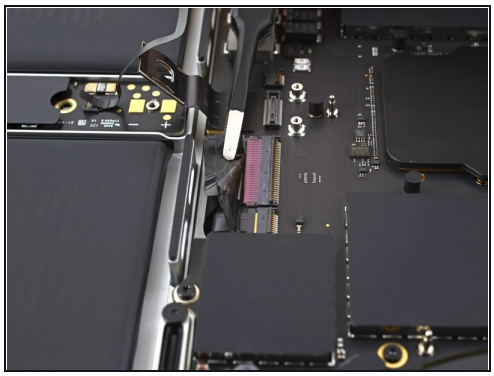
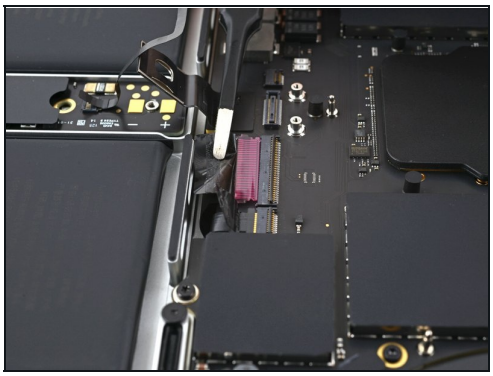
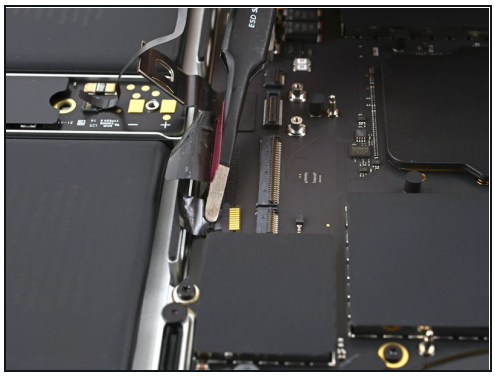
- Peel back any tape covering the keyboard and keyboard backlight cable connectors.

Step 47



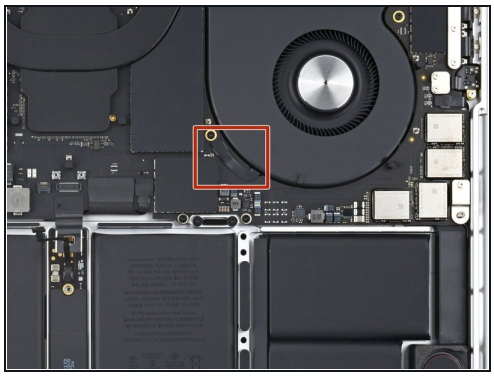
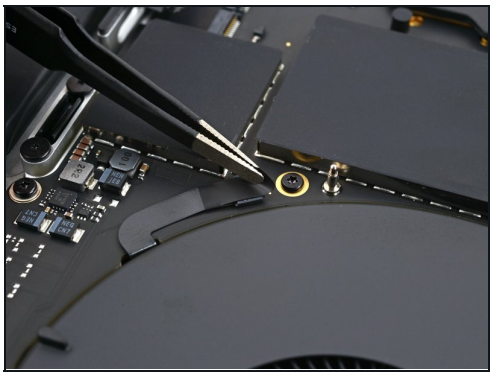
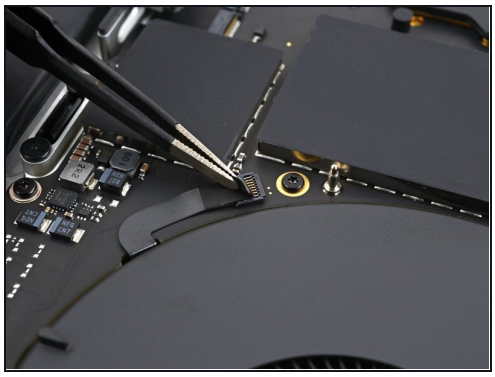
- Use a spudger to gently pry up the locking flap on the ZIF connectors for the keyboard cables.

Step 48

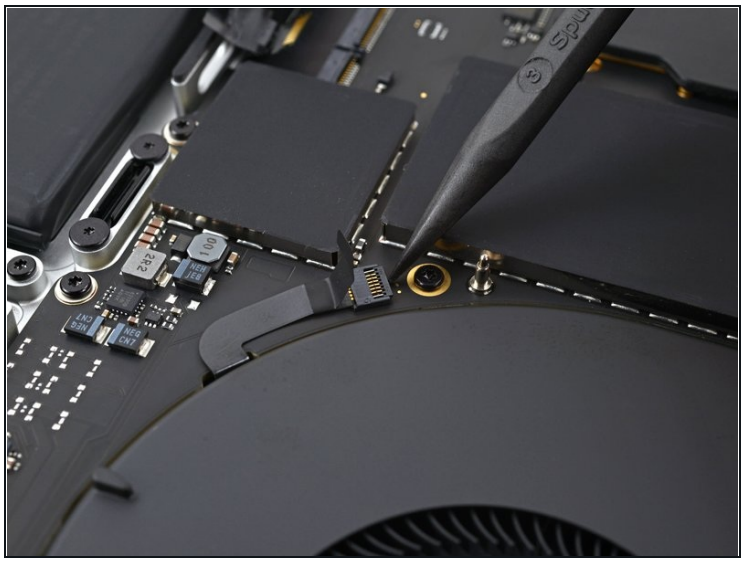
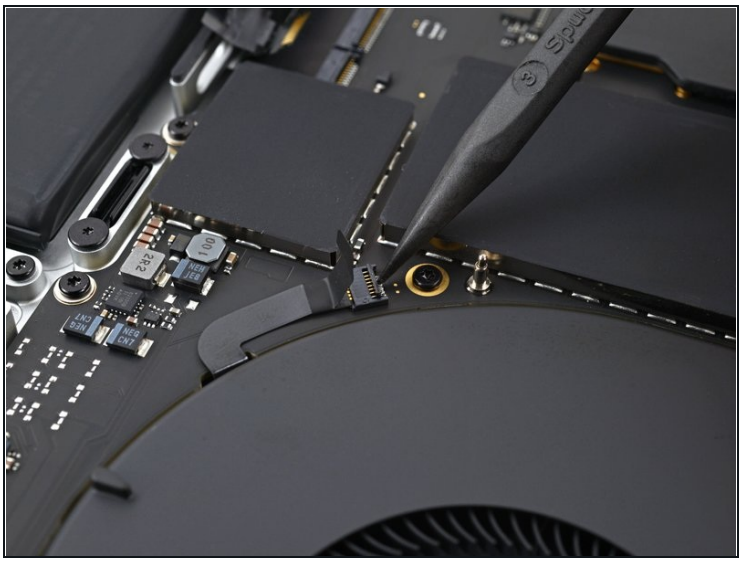
- Disconnect the keyboard and keyboard backlight cables by sliding them out from their sockets on the logic board.

Step 49 — Disconnect the fans

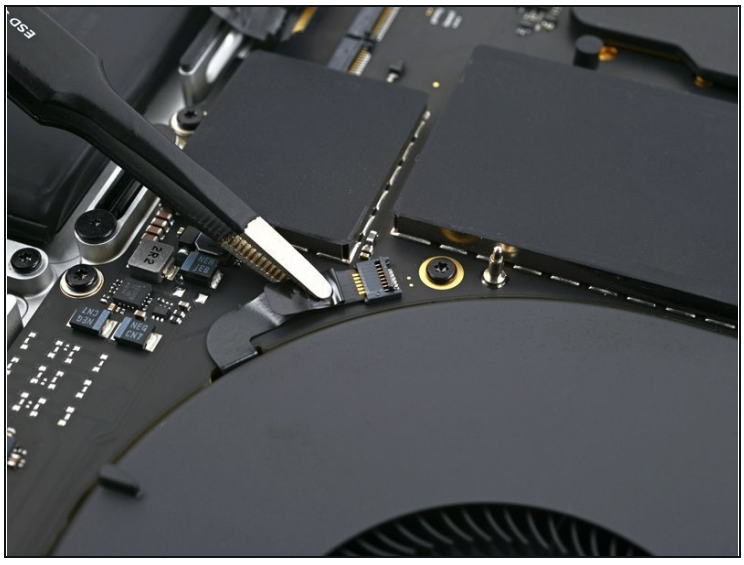
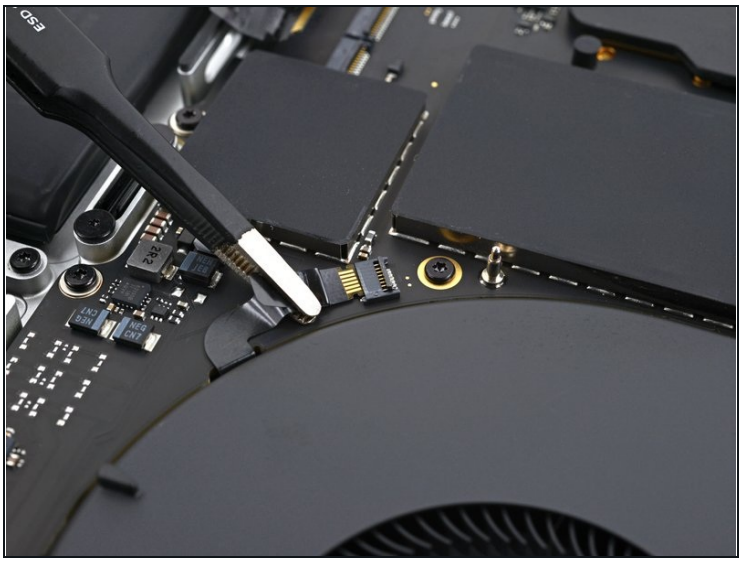
- Peel back any tape covering the right fan cable connector.

Step 50

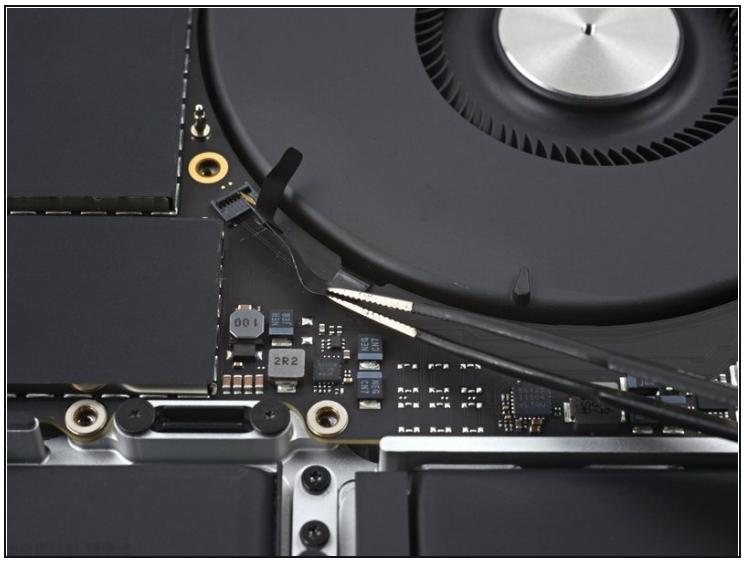
- Use a spudger to gently pry up the locking flap on the ZIF connector for the right fan cable.

Step 51

- Disconnect the right fan cable by sliding it out from its socket on the logic board.

Step 52 — Reposition the right fan cable

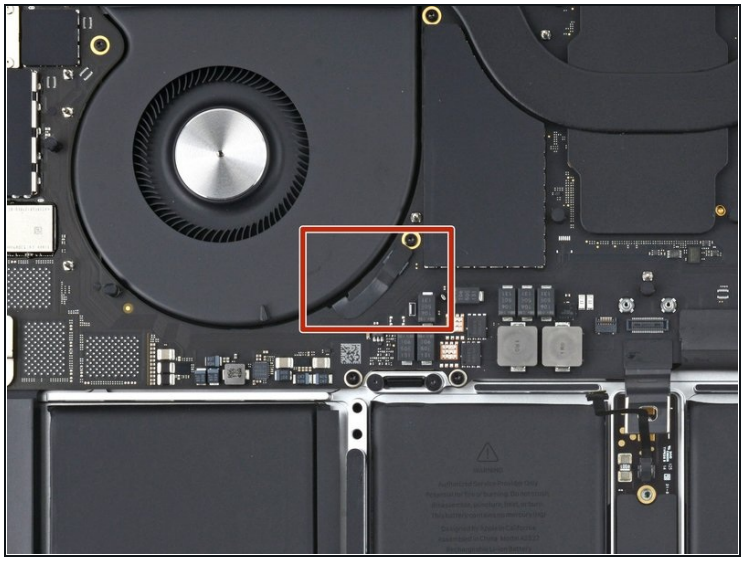
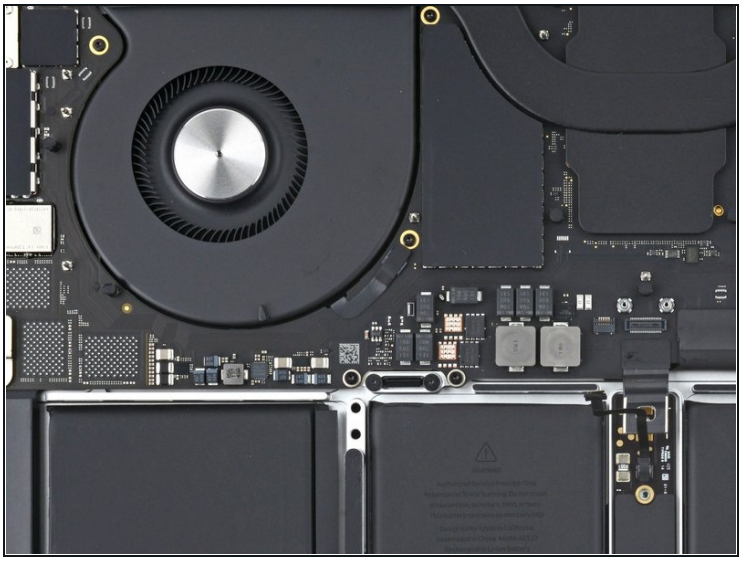



ⓘ The right fan cable is lightly adhered to the logic board.

- Pull the fan cable away from the logic board with tweezers to separate the adhesive.

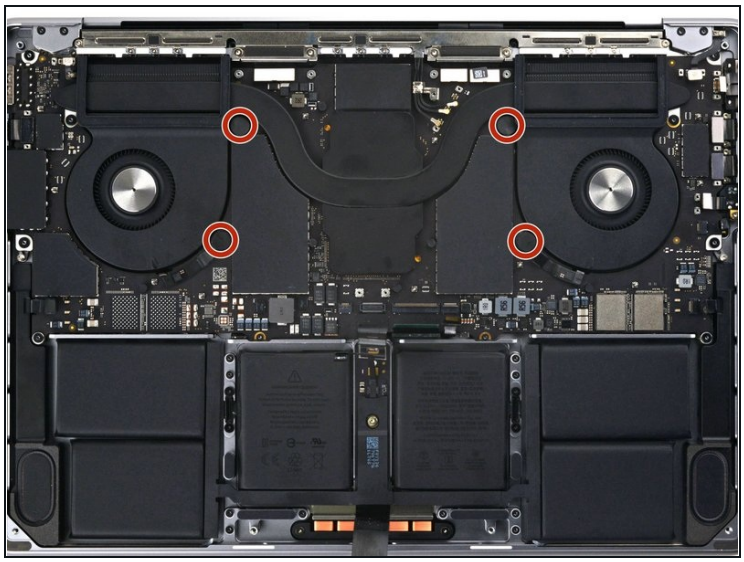
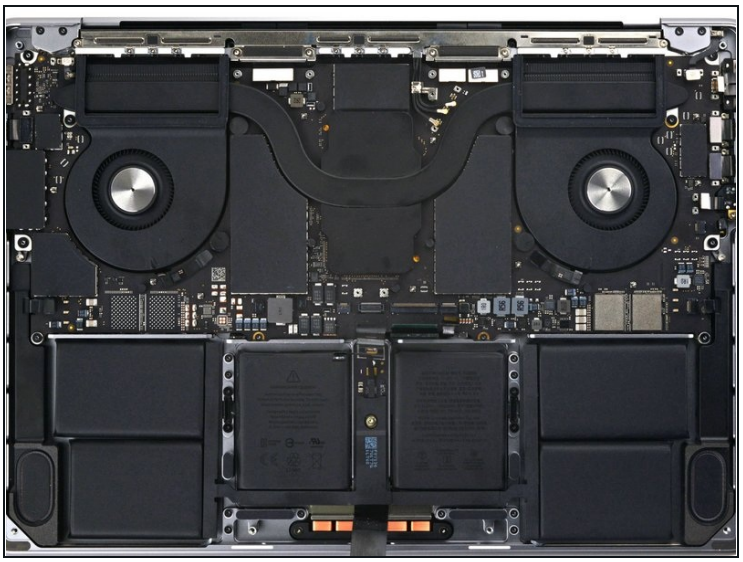
⚠ The fan cables are incredibly delicate and prone to tearing; use caution when bending them with tools.

Step 53

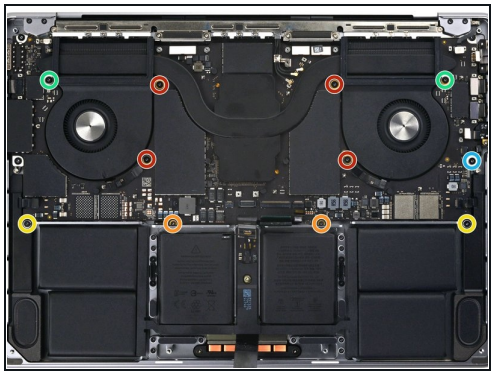
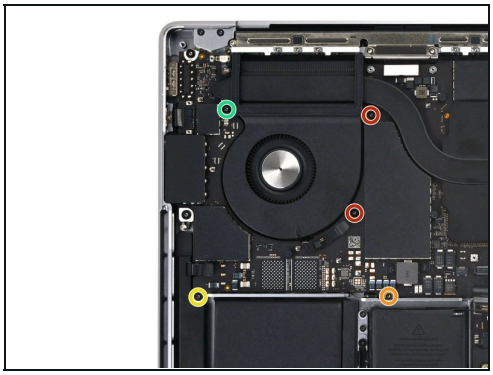
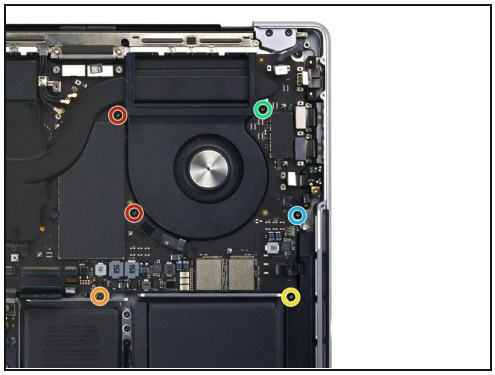
- Repeat the previous disconnection and reposition procedure for the left fan.

Step 54

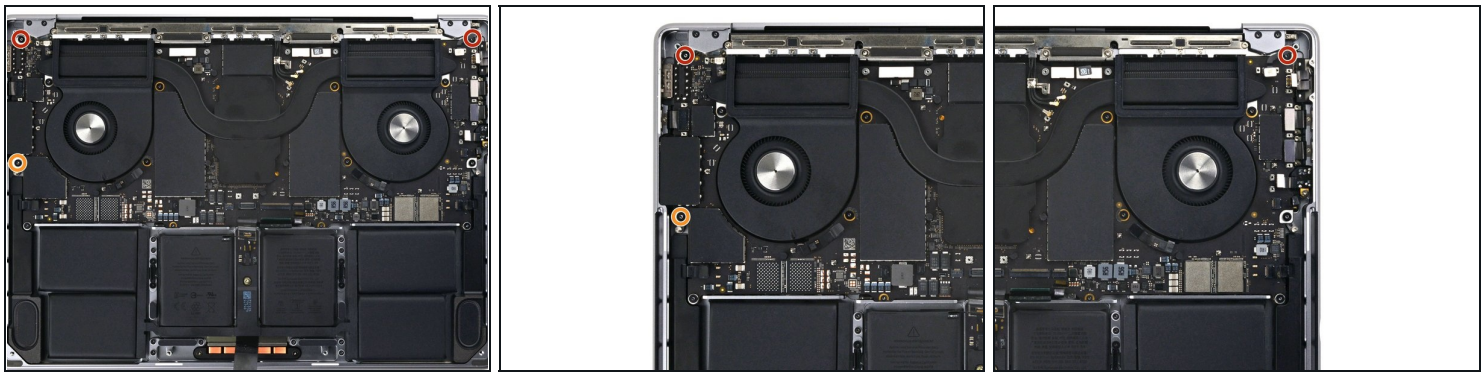
- Remove the four black screw covers from the logic board.

Step 55 — Unfasten the logic board

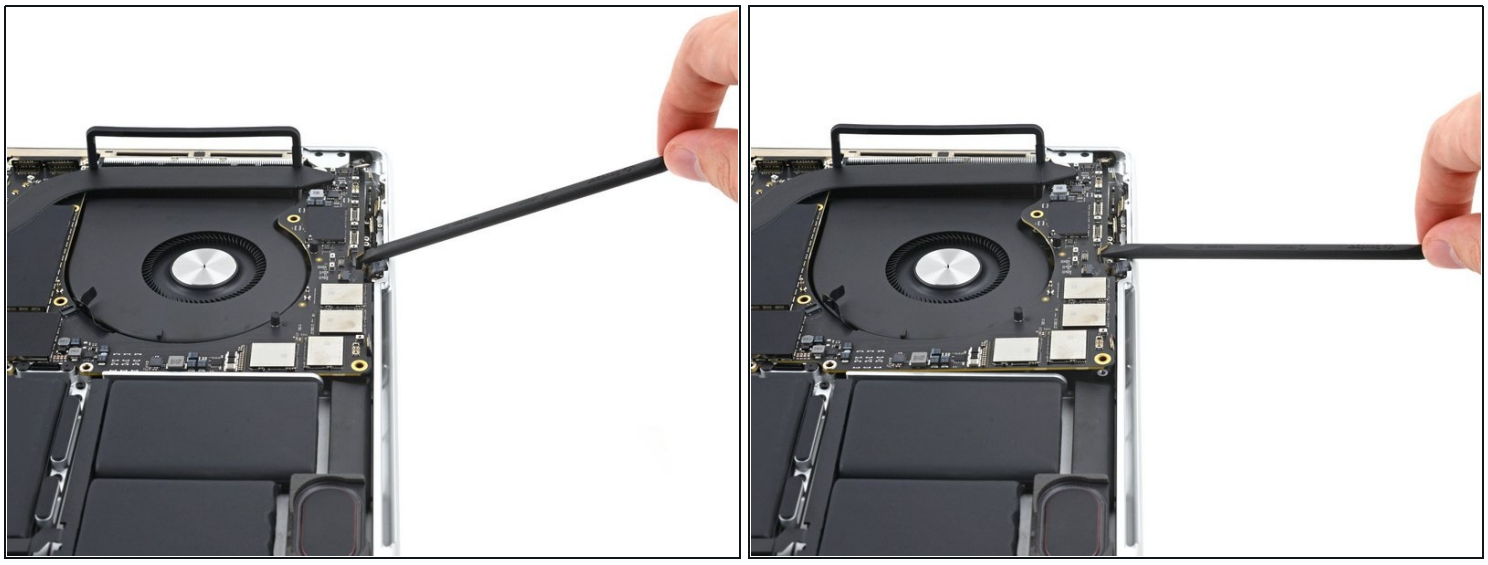
- Use a T5 Torx driver to remove the 11 screws securing the logic board:
  - Four 3.6 mm screws
  - Two 4.5 mm screws
  - Two 5.2 mm screws
  - Two 3.8 mm screws
  - One 3.9 mm screw

Step 56



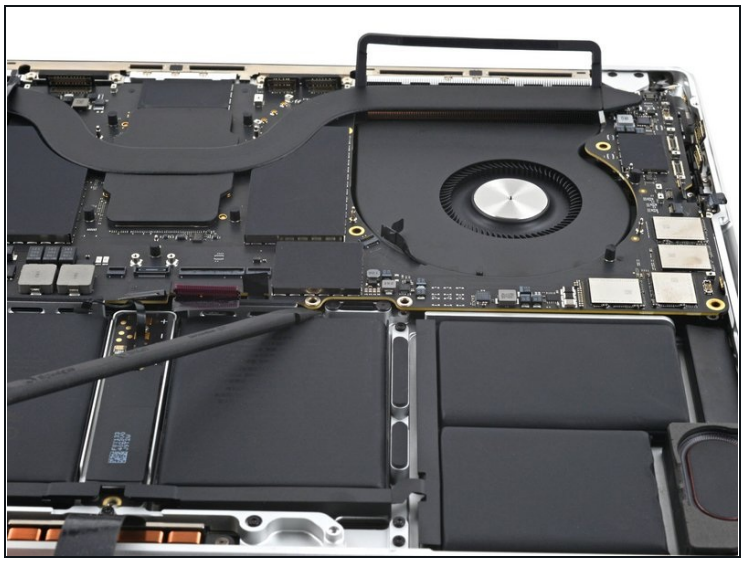
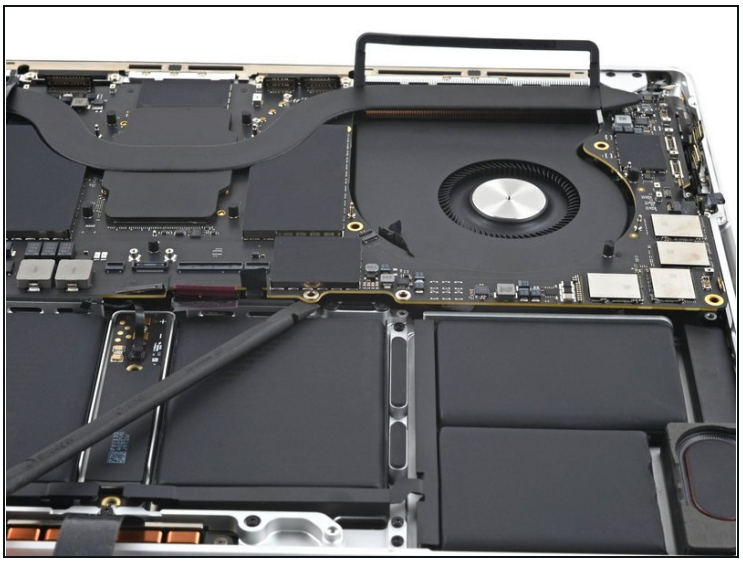
- Use a T6 Torx driver to remove the three screws securing the logic board:
  - Two 4.7 mm screws
  - One 5.7 mm screw

Step 57 — Release the logic board's clips



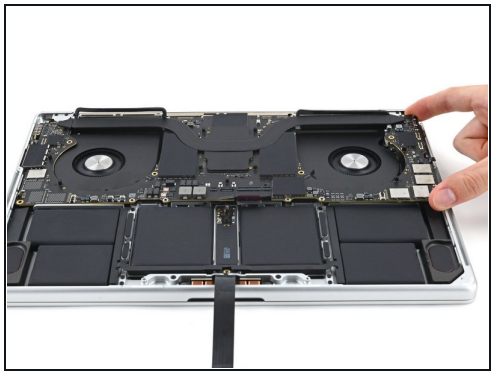
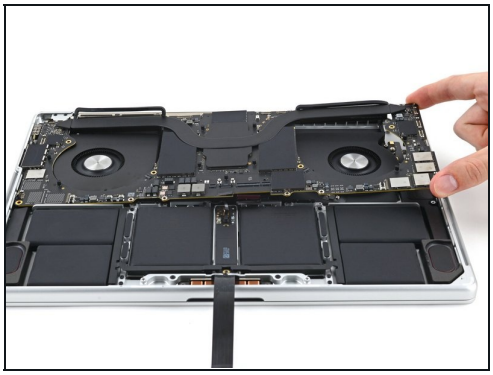
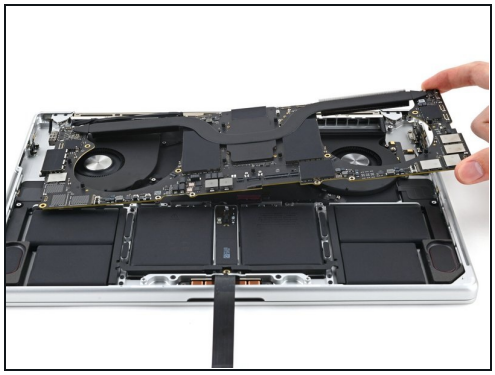
- Insert a spudger between the right side of the logic board and the frame.
- Pry up with the spudger to release the logic board from its clips.

Step 58

- Insert a spudger between the bottom of the logic board and the frame.
- Pry up with the spudger to release the logic board from its clips.

Step 59 — Remove the logic board

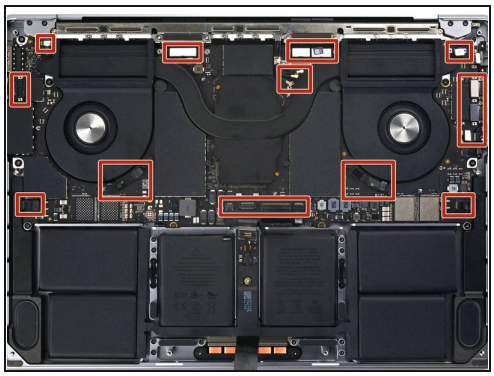




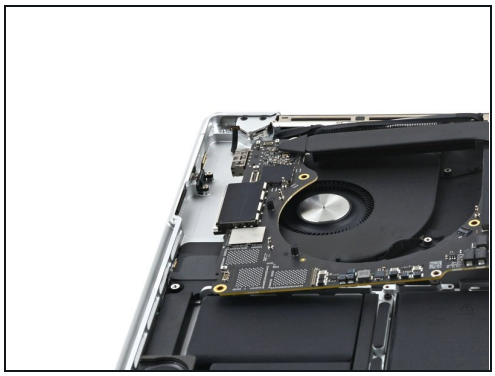
- Gently lift up the logic board by its right side to release it from its alignment pegs.

  ⓘ If it feels like it's not coming out, check that all the cables are disconnected.

- Pull the logic board away from the left side of the device to separate the HDMI and SDXC ports from their slots in the frame.
- Remove the logic board.

Step 60 — Reassembly information





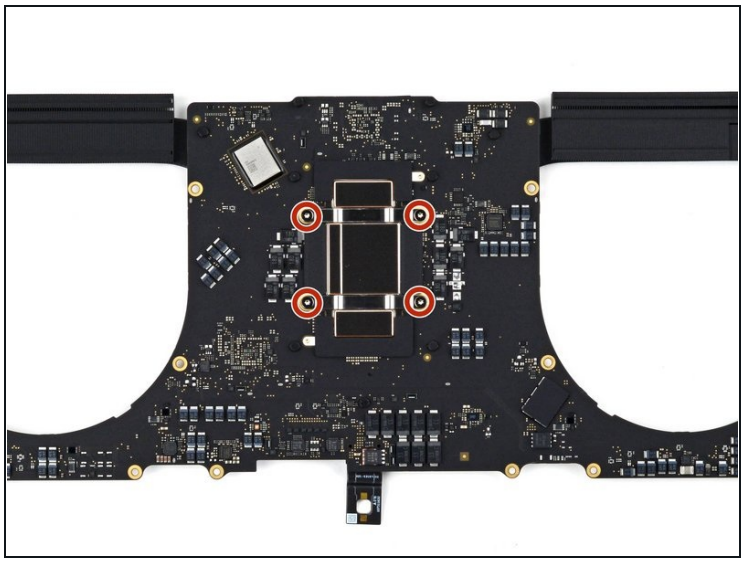
During reassembly, perform the following:

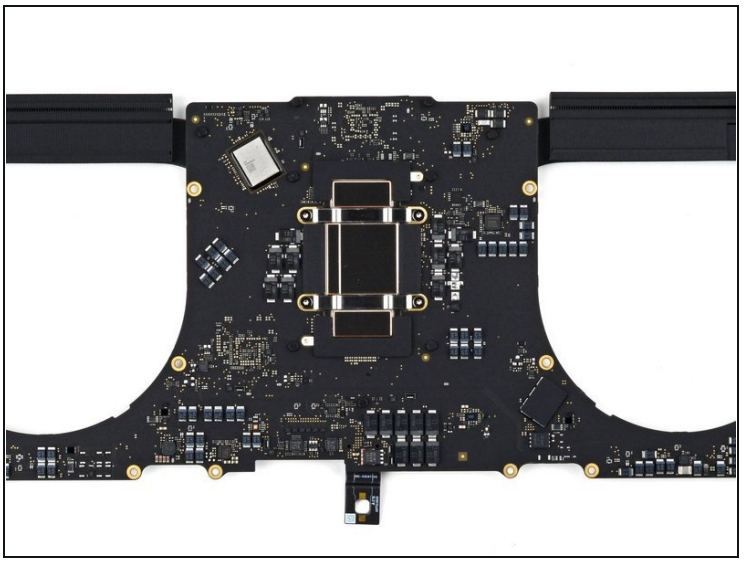
- Make sure all 17 connectors are above the logic board before securing it back into the frame.

If you're having trouble positioning the connectors, use tape to keep them out of the way.

- Hold the rubber spacers out of the way so the fins can drop into their recesses.
- When reinstalling the logic board, insert the left side first to reposition the HMDI and SDXC ports.
- Use your fingers to slightly compress the HDMI port to fit it into its recess. Otherwise, the logic board won't sit correctly.

Step 61 — Unfasten the heat sink



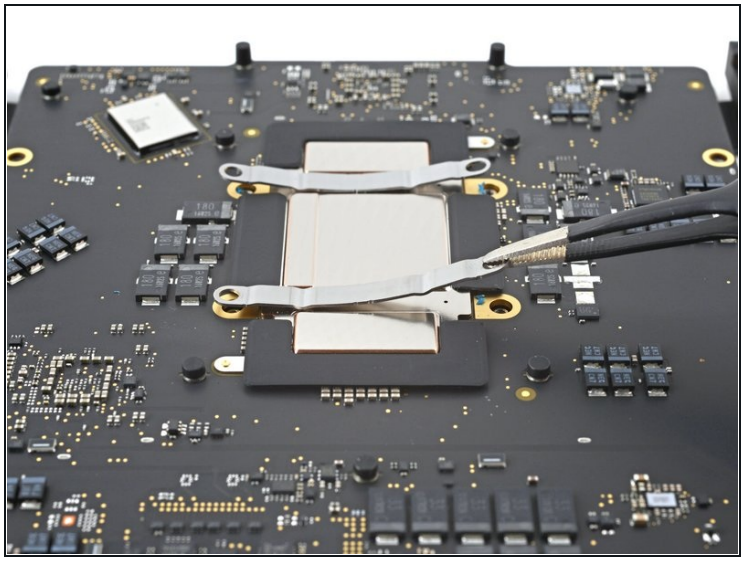


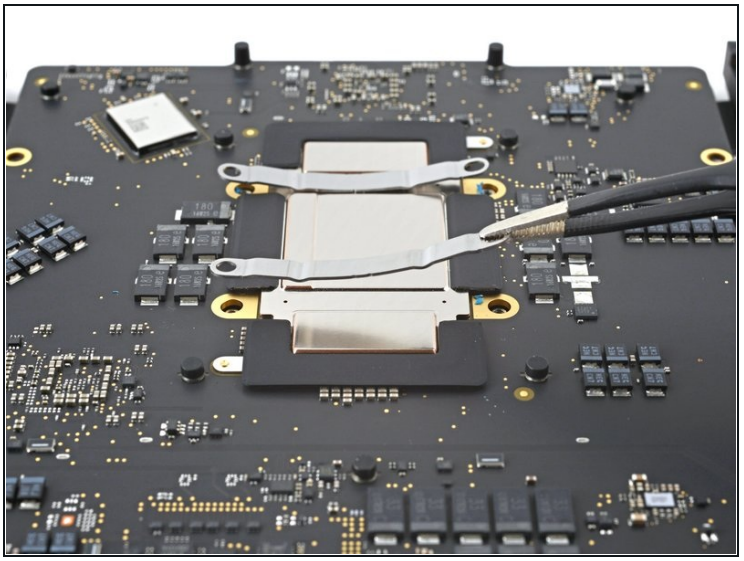
- Turn the logic board upside-down so that the heat sink screws face upwards.
- Use a T5 Torx driver to remove the four 3.9 mm screws securing the heat sink to the logic board.

⚠ Gently hold the screws as you remove them, as the tension brackets may eject them.

During reassembly, loosely tighten these screws, then align the brackets and heatsink before fully tightening them in an X-pattern.

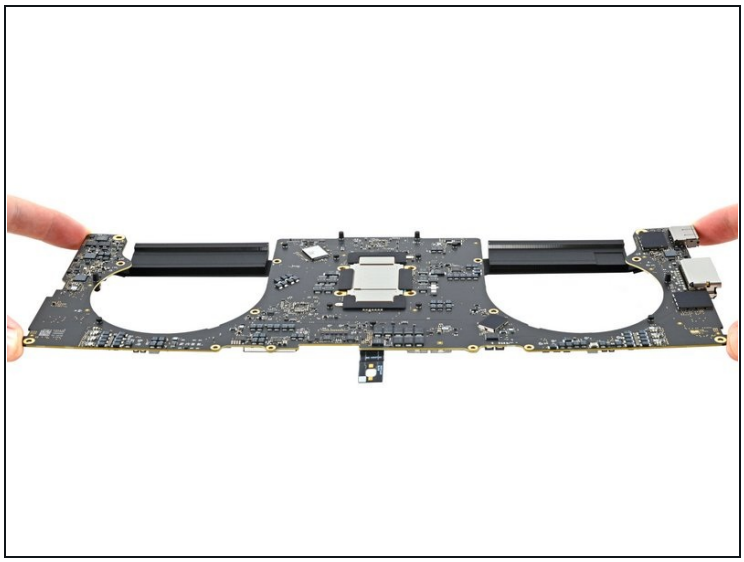
Step 62 — Remove the heat sink brackets

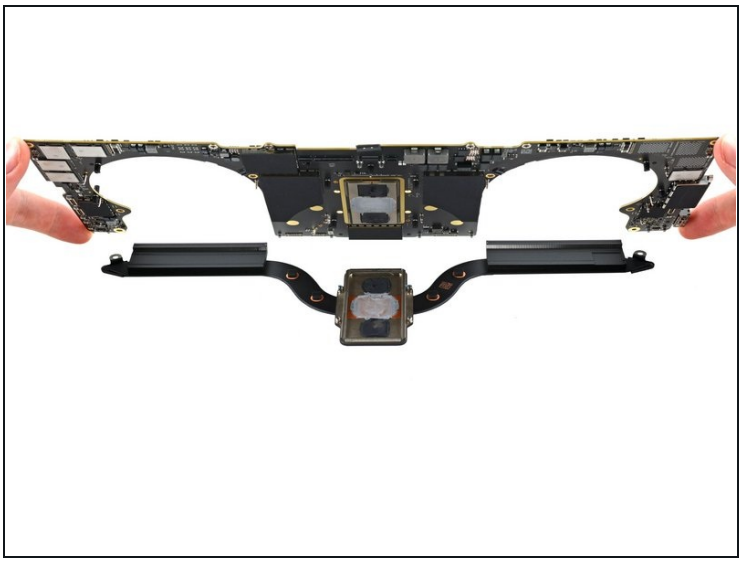




- Use tweezers, or your fingers, to remove the heat sink brackets.

Step 63 — Remove the heat sink





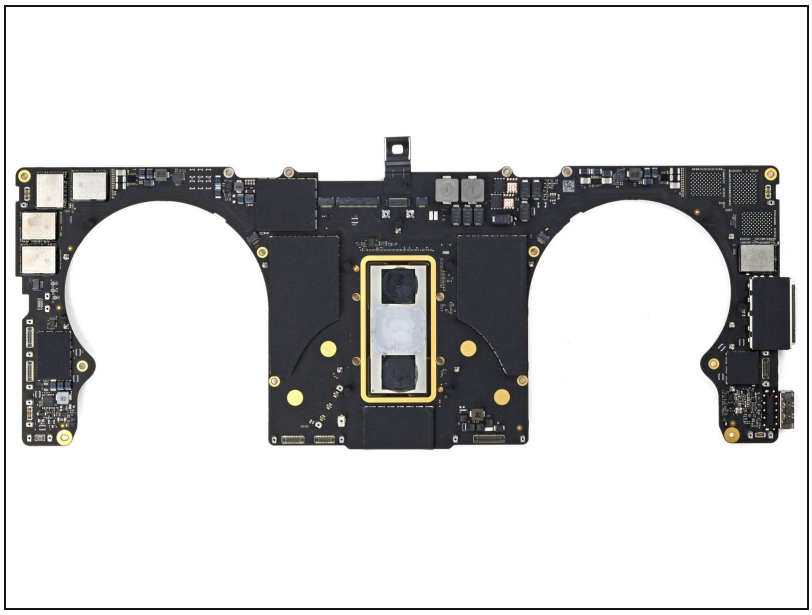
- Use your fingers to lift the logic board up and off of the heat sink.

  You may feel a bit of resistance. This is normal, since the heat sink is slightly bonded to the logic board with thermal paste.

- Remove the heat sink.

A thick, grey thermal compound bridges the gap between the logic board and the heat sink underneath. Whenever the heat sink is removed, refer to our thermal paste guide to remove the old thermal compound and replace it with an appropriate compound.

Step 64 — Only the logic board remains



- You're now left with the logic board.

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 you install it.

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

Repair didn’t go as planned? Try some basic troubleshooting, or ask our MacBook Pro 14" 2021 Answers community for help.