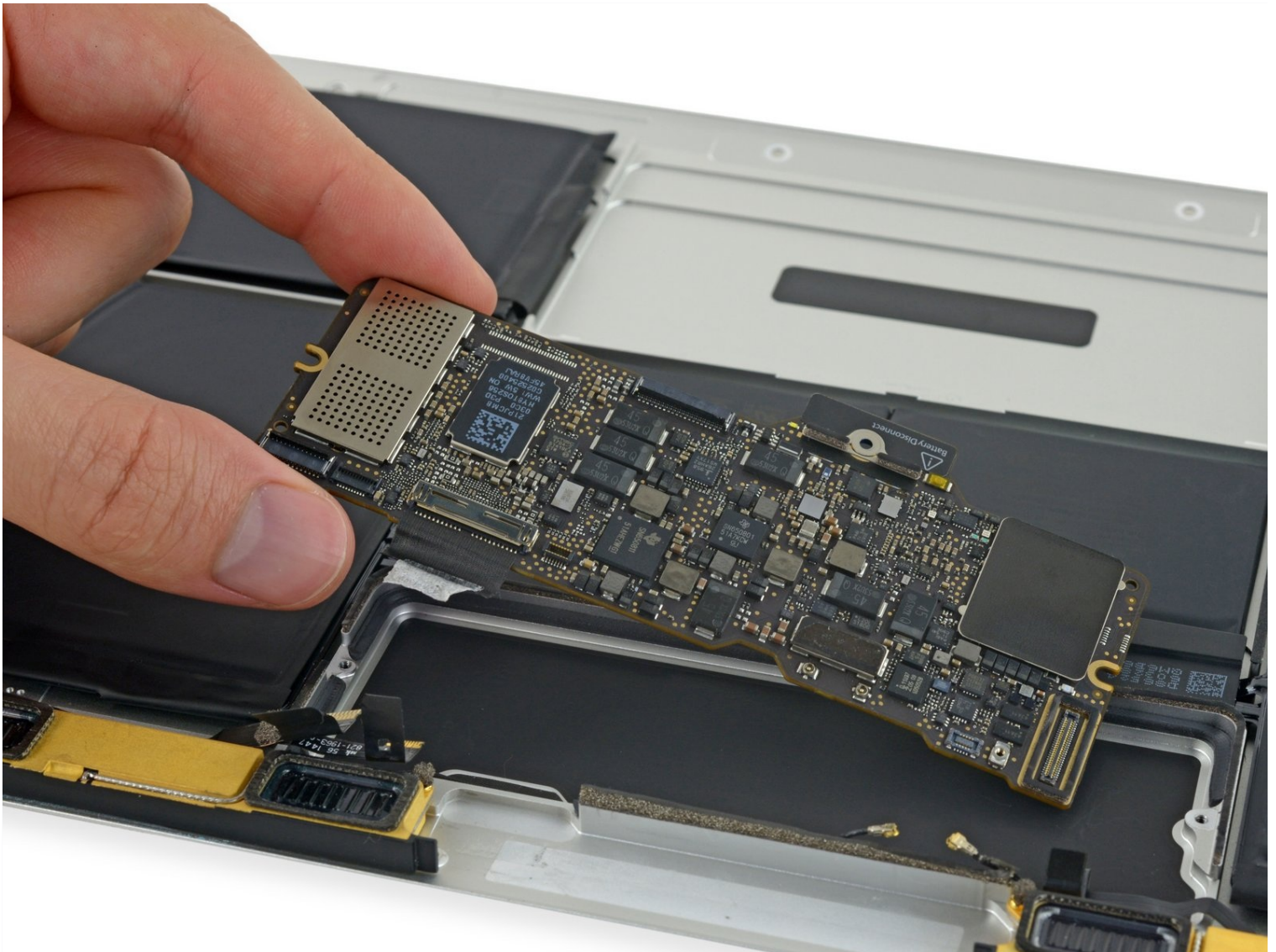




Retina MacBook 2016 Logic Board Replacement

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

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INTRODUCTION

Use this guide to replace the logic board in your Retina MacBook 2016.



TOOLS:

Battery Blocker (1)
P5 Pentalobe Screwdriver Retina MacBook Pro and Air (1)
Spudger (1)
T5 Torx Screwdriver (1)
Tweezers (1)
Phillips #00 Screwdriver (1)




PARTS:

MacBook 12" Retina (Early 2016) Logic Board (1)

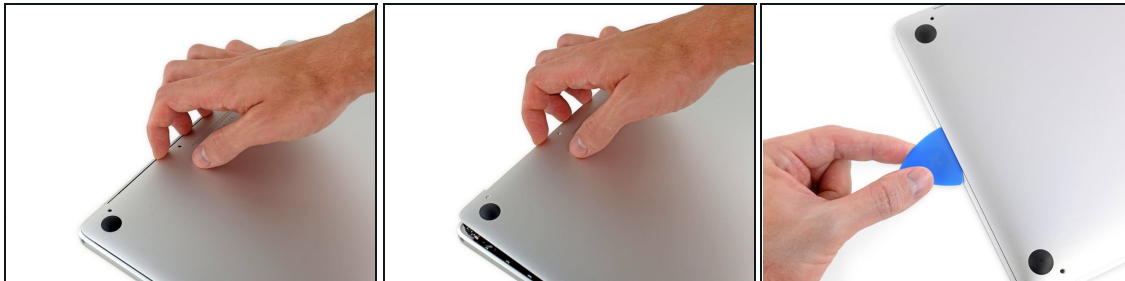
Step 1 — Unfasten the lower case



 Before proceeding, unplug and power down your MacBook. Close the display and lay it on a soft surface, top-side down.

- Remove the following eight screws securing the lower case:
 - Two 1.8 mm P5 Pentalobe screws
 - Four 2.9 mm P5 Pentalobe screws
 - Two 6.1 mm P5 Pentalobe screws
- ☞ Note the orientation of the screws as you remove them—they need to be reinstalled at a slight angle.
- ☞ 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



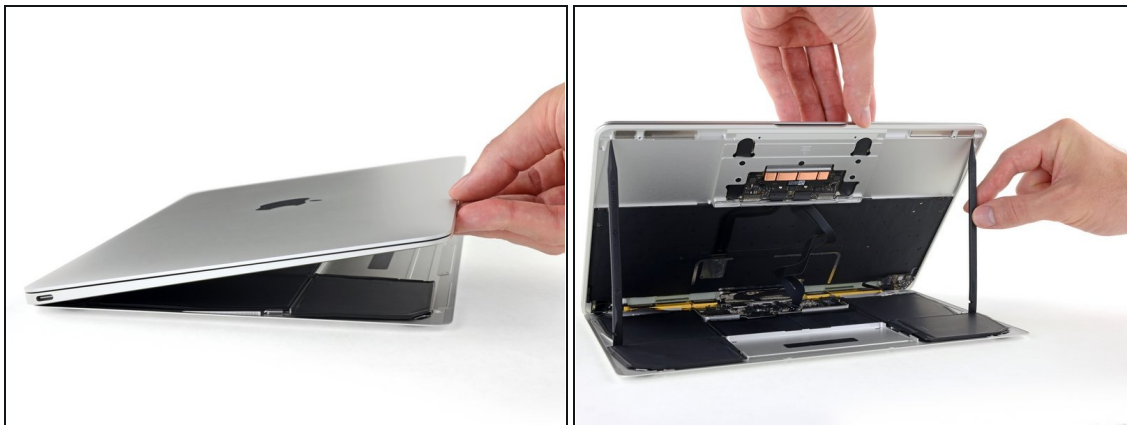
- Wedge your fingers between the upper case and the lower case, starting from the rear of the MacBook between the hinges.
- ⚠ Lift the lower case only slightly to avoid damaging the cables that connect the lower case to the upper case.
- Keeping a firm grip, lift steadily until the lower case separates slightly from the upper case.
- ⓘ You may experience a lot of resistance when lifting the lower case. If necessary, slide an opening pick or other ESD-safe pry tool down the side edges of the lower case to pop the two hidden retaining clips free.
- ✦ During reassembly, to re-engage the clips, press firmly near both side edges of the lower case (near where the pick is inserted in the third image) until you hear the clips snap into place.

Step 3



- While holding the lower case in place, carefully flip the MacBook over so the Apple logo faces up.

Step 4




- Lift the upper case and display together from the front edge and raise it to about a 45° angle.

 It may be helpful to prop the MacBook open in this position for the next step.

Step 5



- Use the flat end of a spudger to press and hold the small gold 'battery disconnect' button.
 - If the power LED is lit up, continue holding the button until the LED goes dark, and then release. This may take up to 10 seconds.
 - If the LED does not light, release the button after 5-10 seconds. Press and hold it again for 5-10 seconds, and release. Finally, press and hold it a third time for 5-10 seconds, and release.

 This step ensures the MacBook is fully powered down and safe to work on.

Step 6



- Close the MacBook and carefully flip it upside-down.

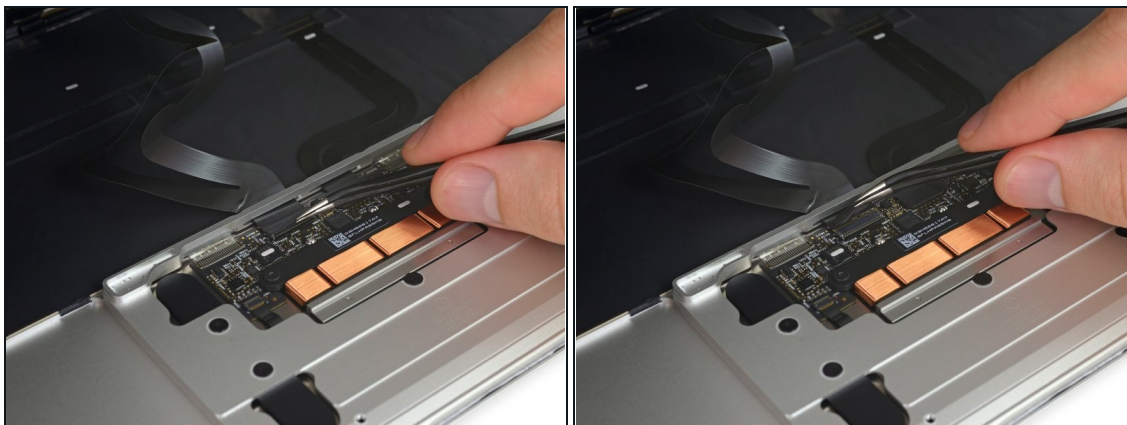
Step 7



- Lifting from the front edge, open the lower case to an angle of about 45°.

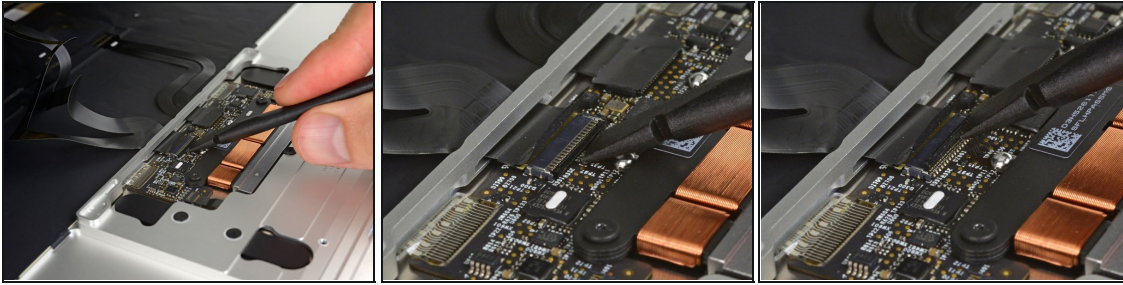
⚠ Take care not to damage the ribbon cables that still attach the lower case to the MacBook.

Step 8



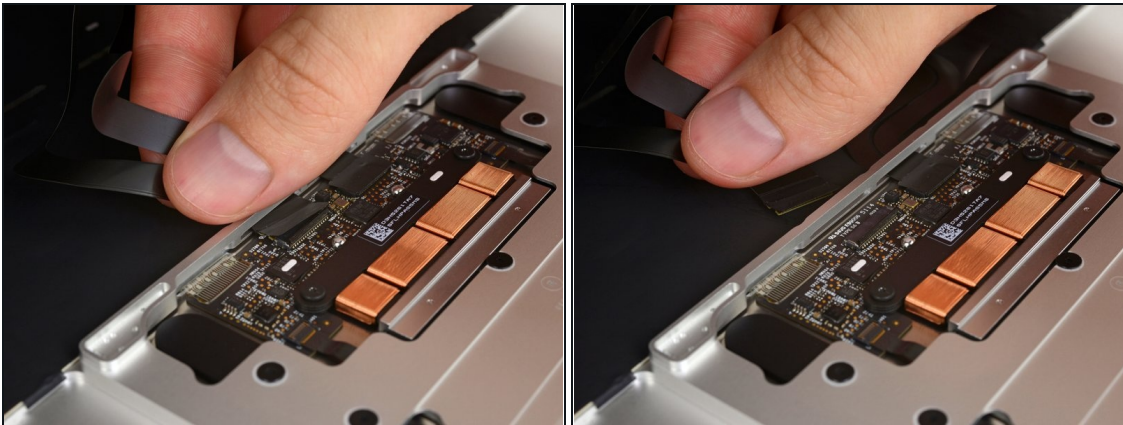
- Use tweezers to peel back the tape covering the trackpad cable ZIF connector.

Step 9



- Use a spudger to carefully flip up the retaining flap on the trackpad cable [ZIF connector](#).

Step 10



- Disconnect the trackpad ribbon cable from the trackpad by pulling it gently through its slot in the frame.

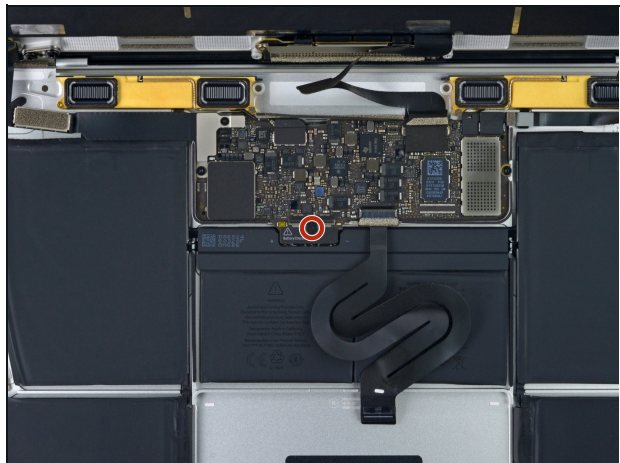
Step 11



- Carefully close the MacBook and flip it over once again, so that the Apple logo faces up.
- Lifting from the front edge, raise the upper case/display assembly to about a 90° angle, and prop it up against something sturdy so you don't have to hold it.
- Add a piece of tape near the track pad to secure the upper case and prevent accidental movement.

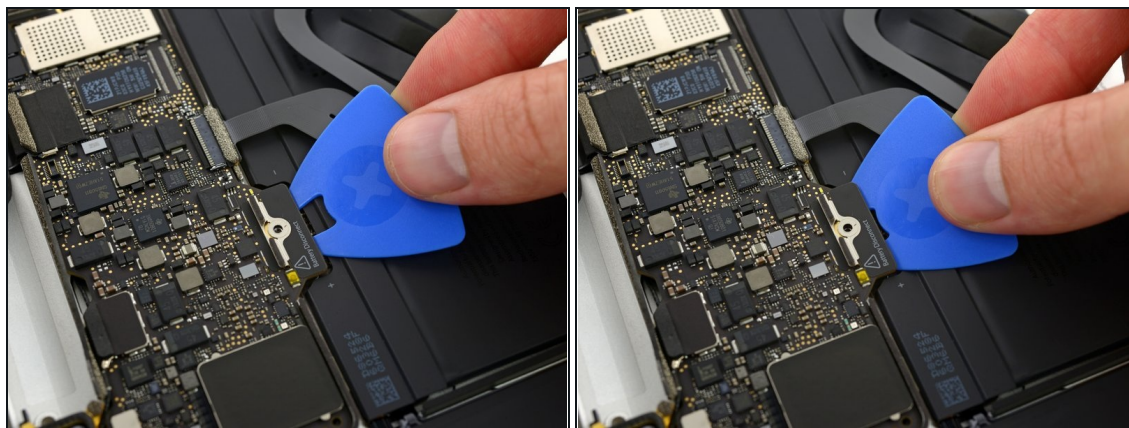
⚠ It's possible to open the MacBook all the way and lay both sides down flat, but this may damage the flex cables and is not recommended.

Step 12



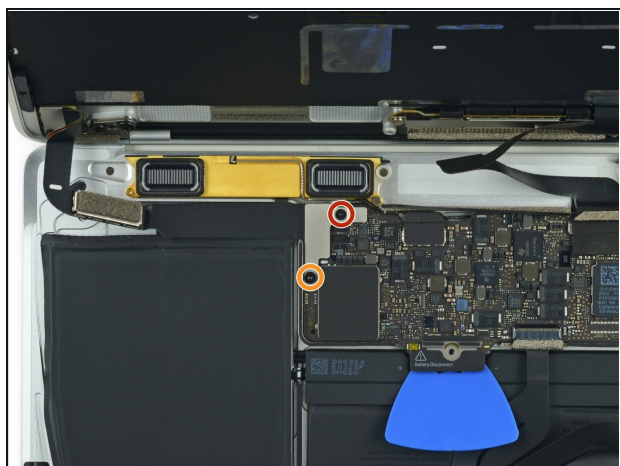
- Remove the single 2.9 mm T5 Torx screw securing the battery connector to the logic board.

Step 13



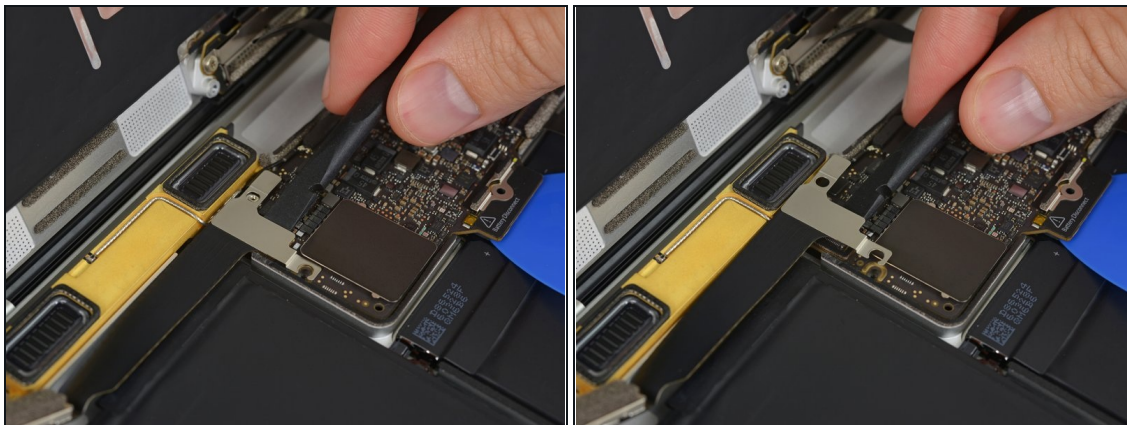
- As an added precaution, you may physically disconnect the battery by inserting a [battery isolation pick](#) between the logic board and the battery connector.

Step 14 — USB-C and Audio Jack Disconnect



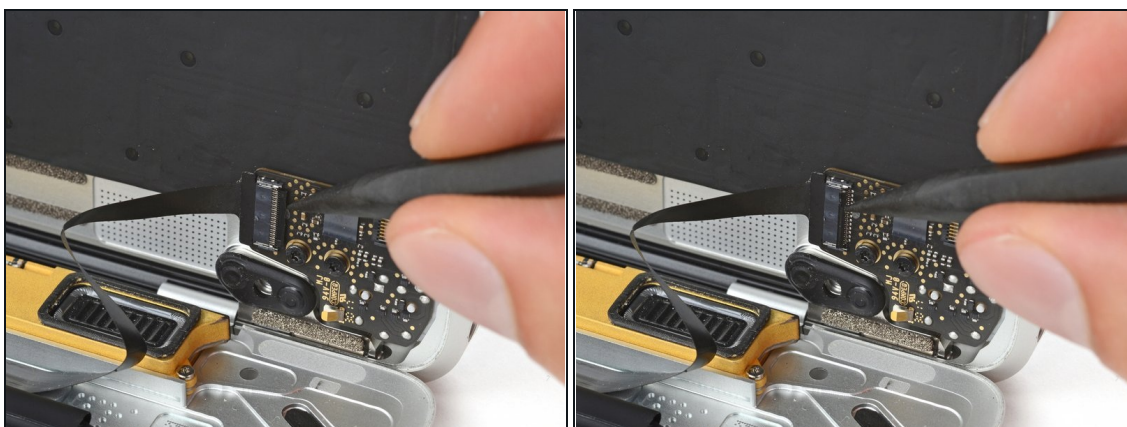
- Remove the two screws securing the USB-C port cable bracket:
 - 1.1 mm Phillips #00 screw
 - ⓘ Some variations of this model may use a Tri-point Y00 screw.
 - 3.5 mm T5 Torx screw

Step 15



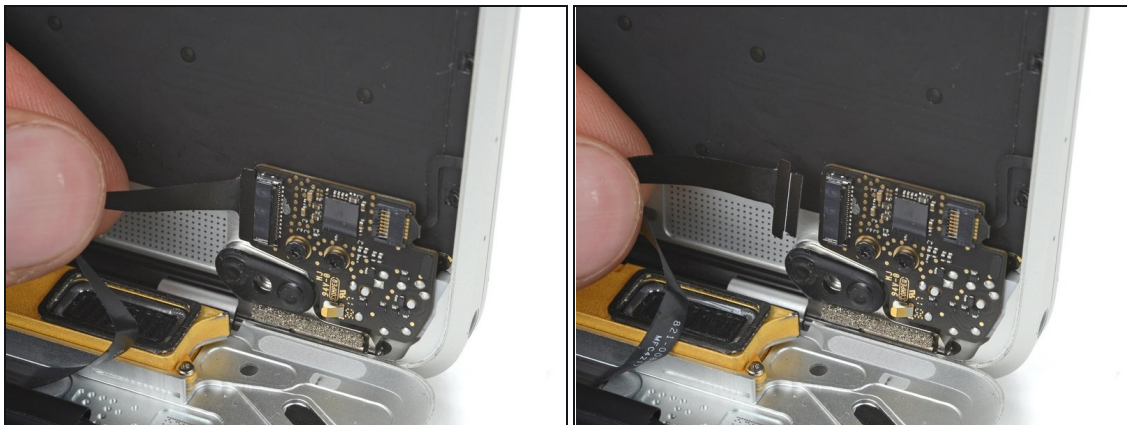
- Use the flat end of a spudger to disconnect the USB-C port cable bracket by prying it straight up from the logic board.
- ☒ To reconnect this cable, first line up the metal bracket over the screw holes, then press down on the middle of the bracket. Make sure it's aligned correctly, or you may damage the connector.

Step 16



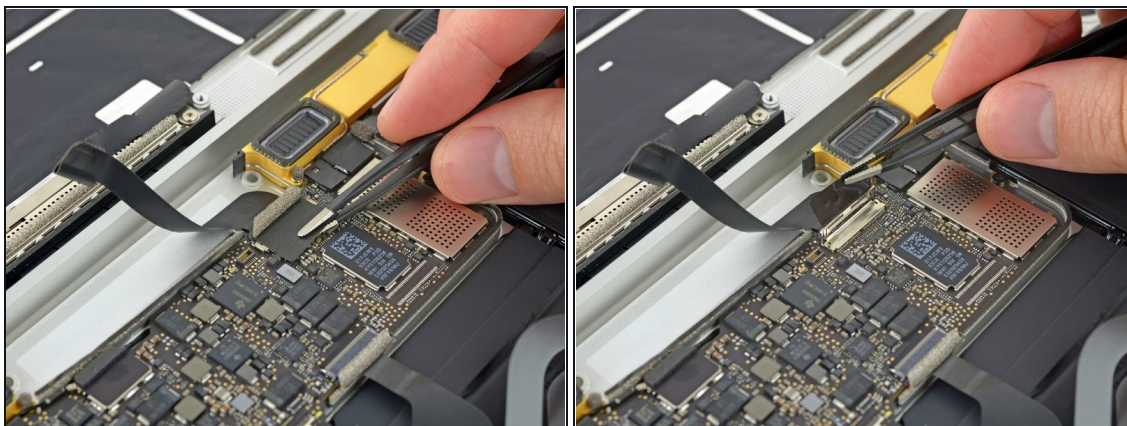
- Use a spudger to flip open the retaining flap on the audio jack board cable ZIF connector.

Step 17



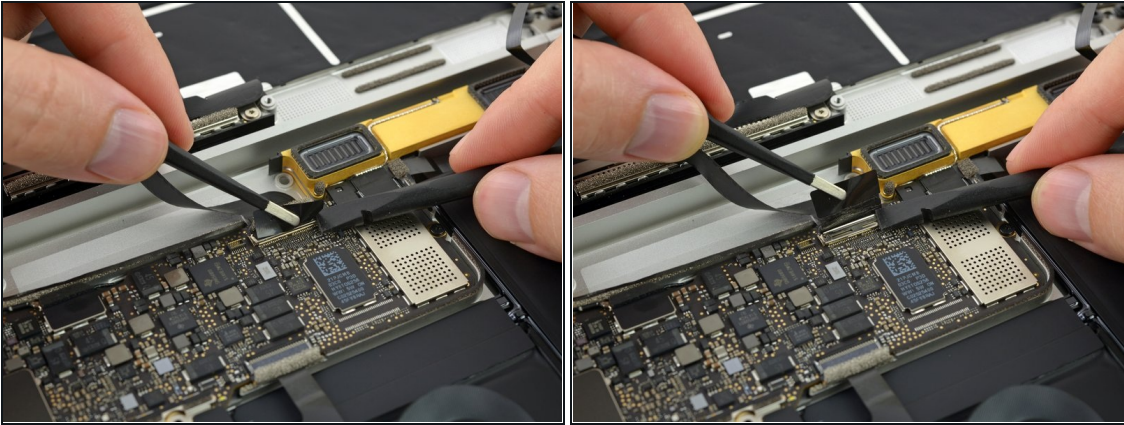
- Disconnect the audio jack board ribbon cable by pulling it straight back out of the ZIF connector.
- ✦ During reassembly, orient the ribbon cable so the white stripe faces you. Insert the cable until the white line disappears under the socket.
- ⓘ At this point it is possible to open the macbook all the way and to lay it flat on a table without causing any damage to the flex cables.

Step 18 — Lower Case Assembly Removal



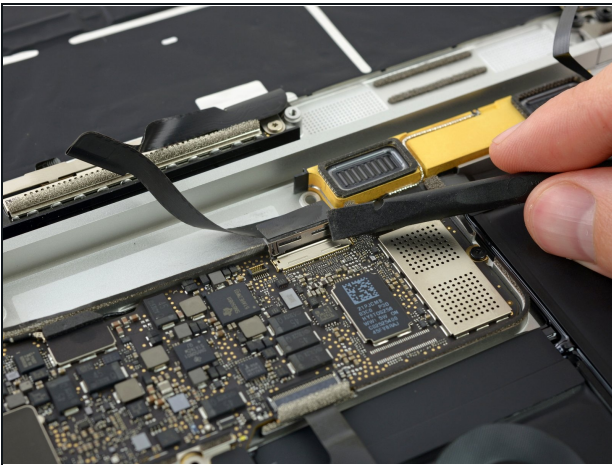
- Use tweezers to peel back the tape covering the display cable connector.

Step 19



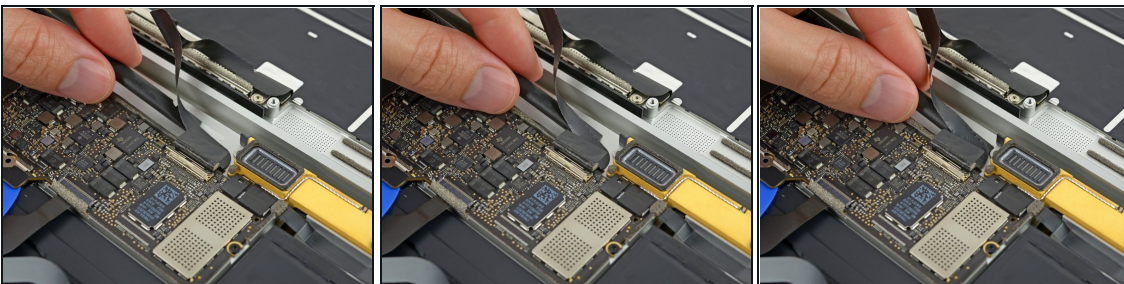
- ❗ It's possible the metal retaining flap on the display cable connector may flip open, remaining stuck to the tape.
 - If so, use the flat end of a spudger to hold down the retaining flap while peeling the tape away with the tweezers.

Step 20



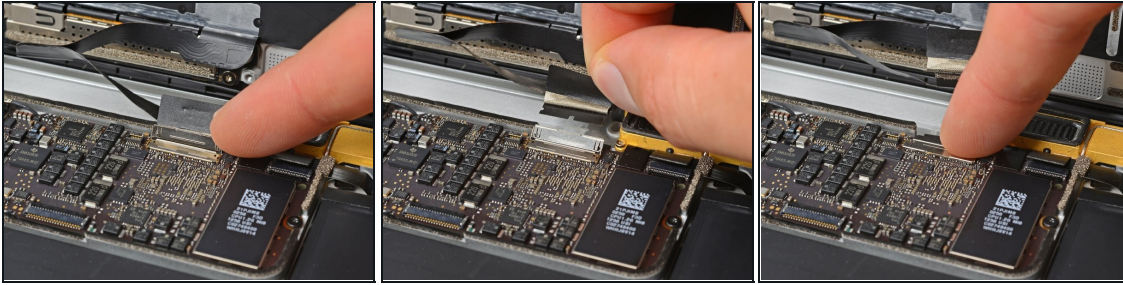
- Use the flat end of a spudger to flip open the retaining flap on the display cable connector.
- Try to keep it clear of the tape, or it may re-adhere and make cable removal difficult.

Step 21



- Carefully slide the flat end of a spudger underneath the display cable to separate the adhesive holding it to the lower case.
 - ⚠ Take care not to damage the cable. If the adhesive is very strong, heat the case directly beneath the cable with an [iOpener](#) to soften the adhesive, and then try again.

Step 22

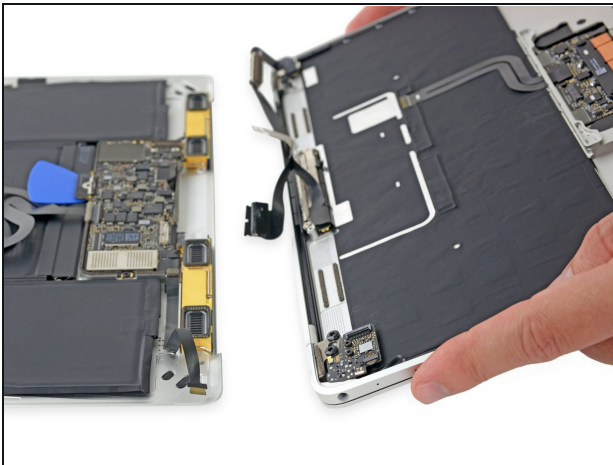


- Hold the retaining flap open.
- Disconnect the display cable by gently pulling it straight out of its connector.

⚠ **Immediately close the retaining flap. Keep it closed throughout your repair.**

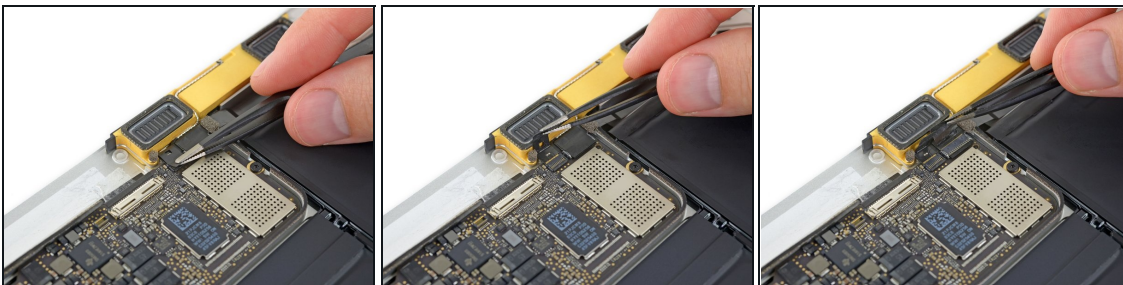
- ☑ During reassembly, **keep the flap closed** while you insert the display cable. Remember to orient the cable so its gold contacts face down, making sure not to crimp or fold it—it'll click into place when it's connected.

Step 23



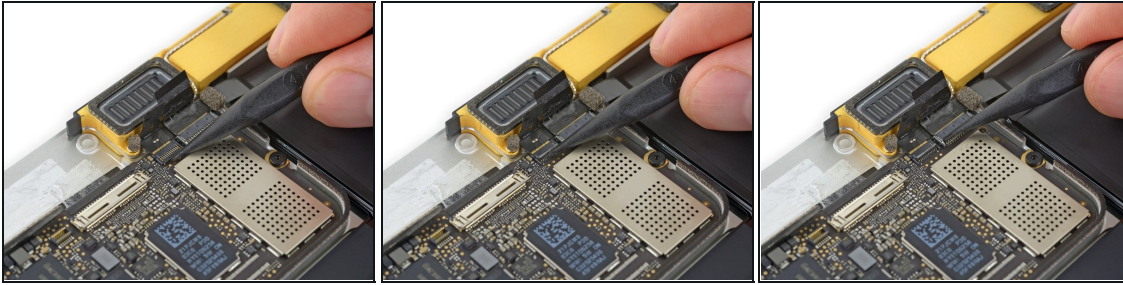
- Separate the upper case assembly from the lower case assembly.

Step 24 — Logic Board



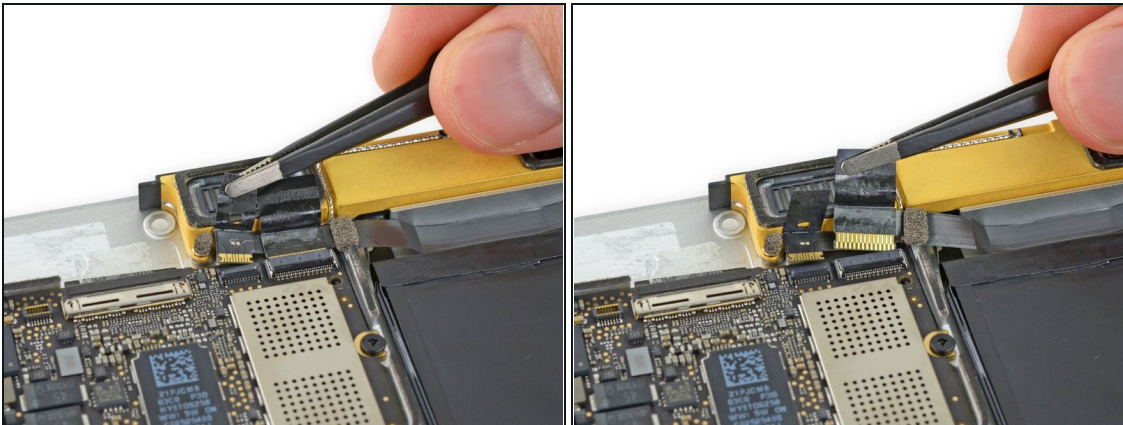
- Use tweezers to peel up the tape covering the two ZIF connectors—one for the right speaker cable, and one for the audio jack board cable.

Step 25



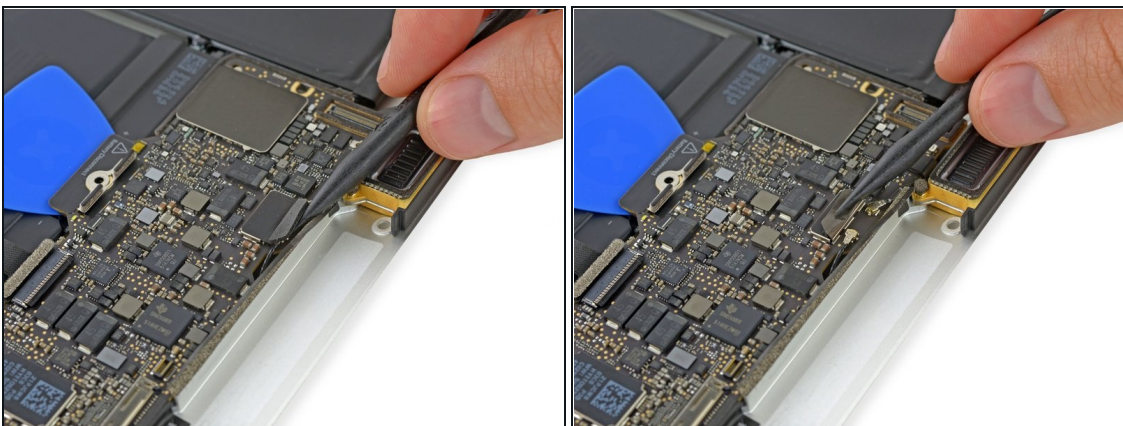
- Use the point of a spudger to flip up both ZIF connector retaining flaps.

Step 26



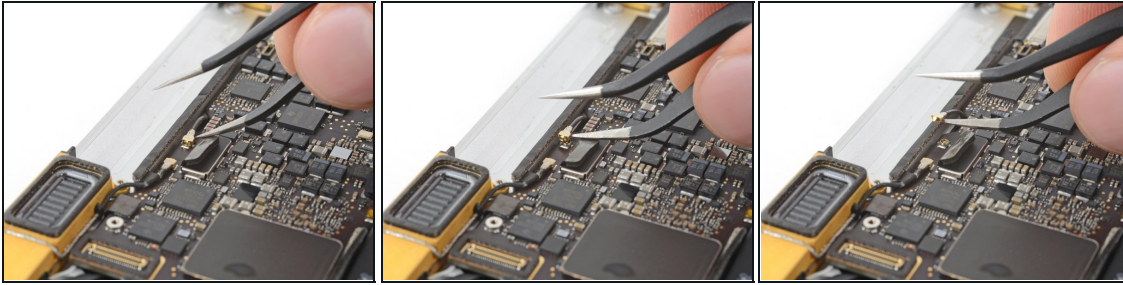
- Carefully pull straight back on the two pieces of tape you just peeled up to disconnect the two ribbon cables.

Step 27



- Use the point of a spudger to peel up the foam pad covering the two antenna connectors.

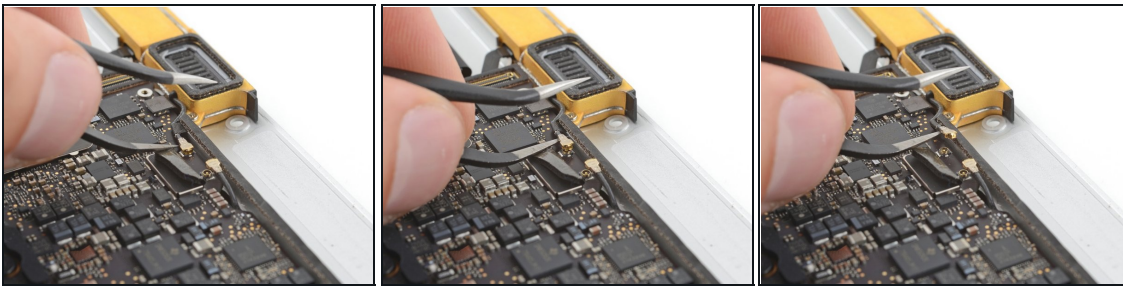
Step 28



- Insert one arm of your angled tweezers under the metal neck of the first antenna connector and pry up to disconnect it.

⚠ The antenna connectors and sockets are extremely fragile. Be very careful to lift only on the connector, and not on the socket itself. Do not lift under the cable, or put any unnecessary strain on it.

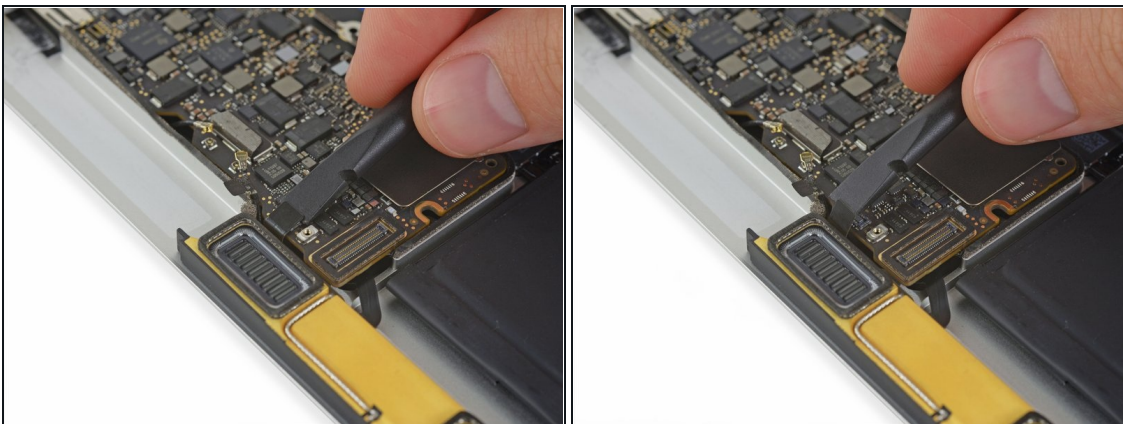
Step 29



- Pry up the second antenna connector to disconnect it.

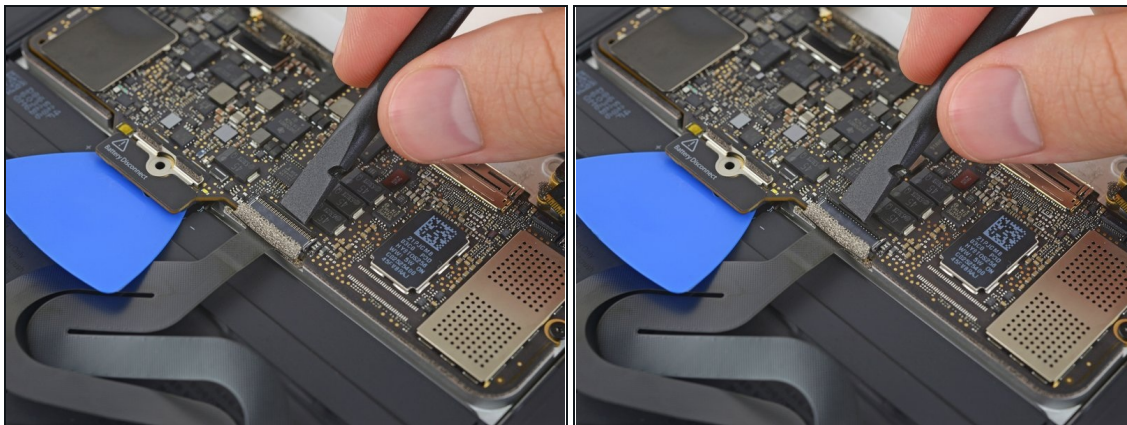
⚠ The antenna connectors and sockets are extremely fragile. Be very careful to lift only on the connector, and not on the socket itself. Do not lift under the cable, or put any unnecessary strain on it.

Step 30



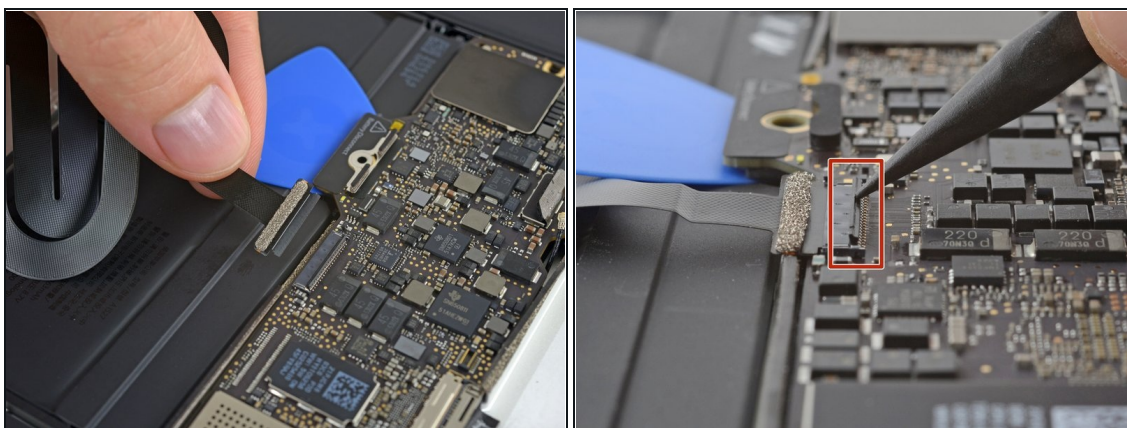
- Use a spudger to disconnect the left speaker cable connector by prying it straight up from the logic board.

Step 31



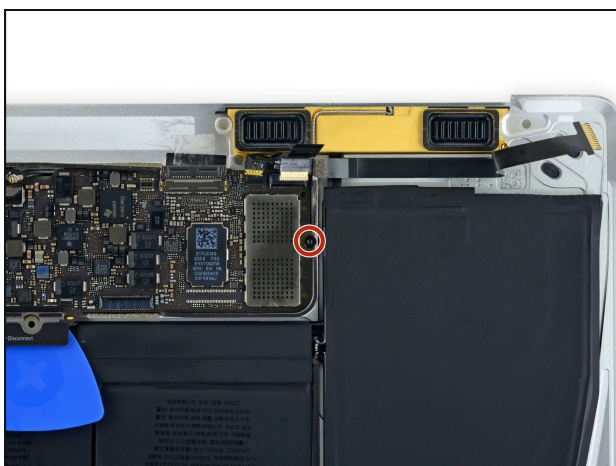
- Use a spudger to flip up the retaining flap on the trackpad cable ZIF connector.

Step 32



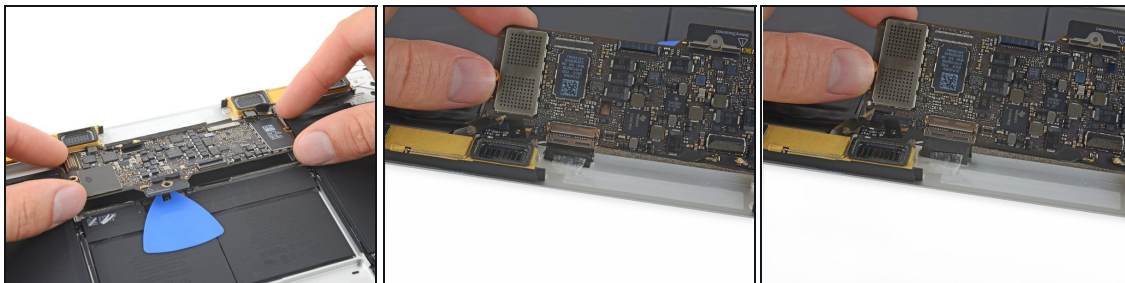
- Disconnect the trackpad cable from the logic board by gently pulling it straight out of its connector.
- ☒ During reassembly, check that your ZIF connector flaps are flipped up before reinserting their cables.

Step 33



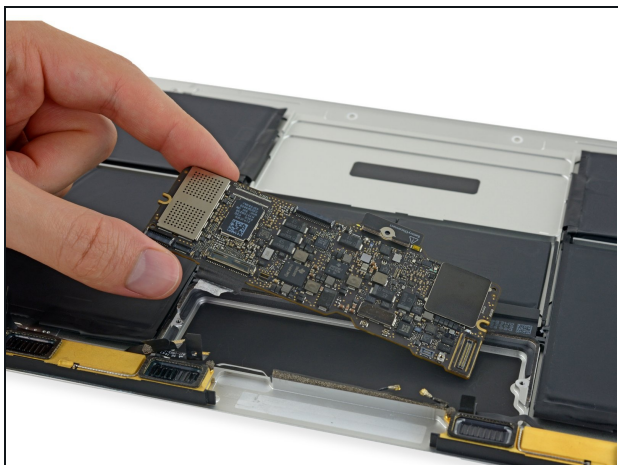
- Remove the single 3.5 mm T5 Torx screw securing the logic board to the lower case.

Step 34



- Flip up the front edge of the logic board.
- ⚠ Handle the logic board only by its edges.
- Lift and detach the EMI tape securing the logic board to the lower case.
 - ℹ If the tape feels stuck, [heat it with a hair dryer](#) or iOpener to soften the adhesive.
 - ✳ Reattach the tape securely during reassembly.

Step 35



- Remove the logic board.

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