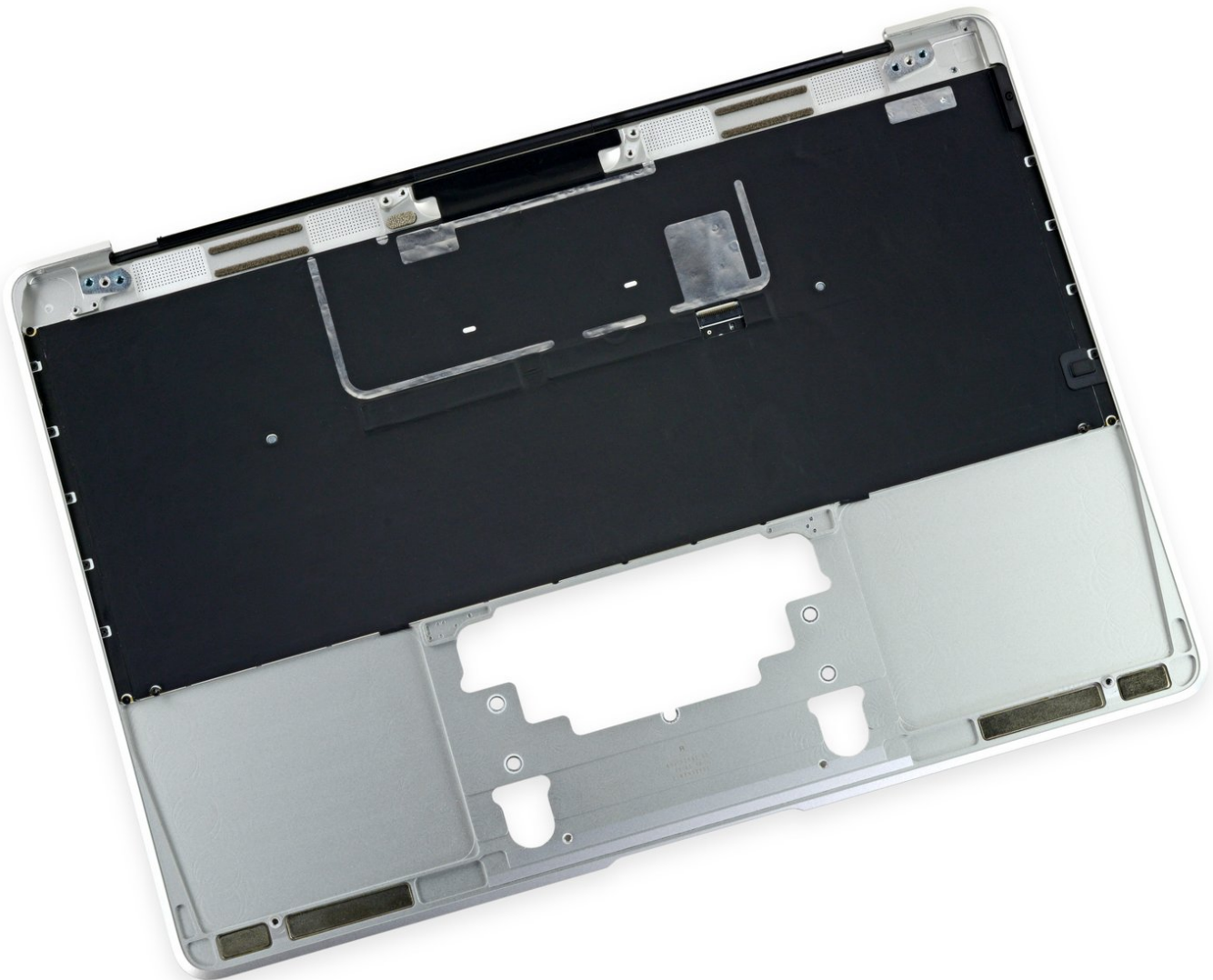




Retina MacBook 2016 Upper Case Assembly Replacement

Replace the upper case assembly (including the integrated keyboard) on the Retina MacBook 2016.

Written By: Adam O'Camb



INTRODUCTION

The upper case assembly includes the keyboard. Use this guide to replace the entire case/keyboard assembly as a single unit.



TOOLS:

- [P5 Pentalobe Screwdriver Retina MacBook Pro and Air](#) (1)
- [Tweezers](#) (1)
- [Spudger](#) (1)
- [T5 Torx Screwdriver](#) (1)
- [iPad Battery Isolation Pick](#) (1)
- [Phillips #00 Screwdriver](#) (1)
- [iOpener](#) (1)
- [Probe and Pick Set](#) (1)
- [T8 Torx Screwdriver](#) (1)
- [T3 Torx Screwdriver](#) (1)



PARTS:

- [MacBook 12" Retina \(Early 2016/2017\) Upper Case with Keyboard](#) (1)
- [MacBook 12" Retina \(Early 2015 to 2017\) Lower Case Screw Set](#) (1)

Step 1 — Lower Case Assembly Opening



- ⚠ 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 Pentolobe screws
 - Four 2.9 mm P5 Pentolobe screws
 - Two 6.1 mm P5 Pentolobe 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



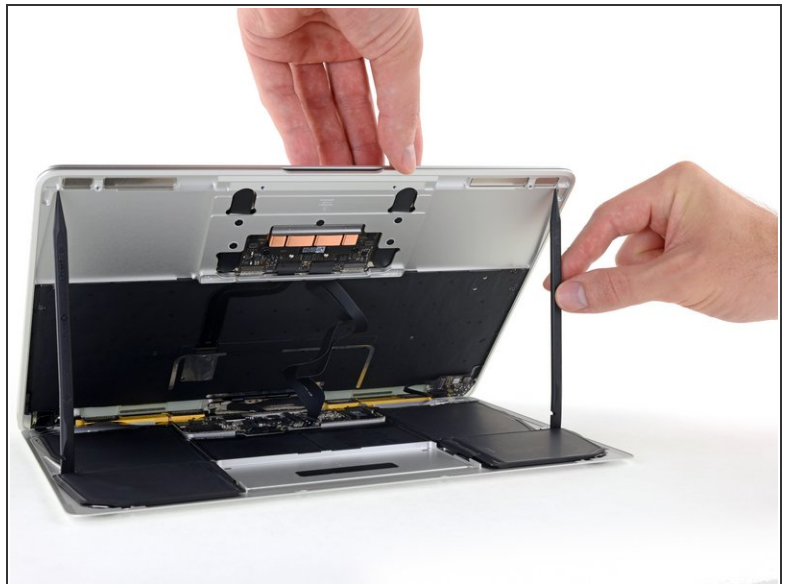
- Wedge your fingers between the upper case and the lower case, starting from the rear of the MacBook between the hinges.
- ⚠ Lift the lower case only slightly to avoid damaging the cables that connect the lower case to the upper case.
 - Keeping a firm grip, lift steadily until the lower case separates 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.

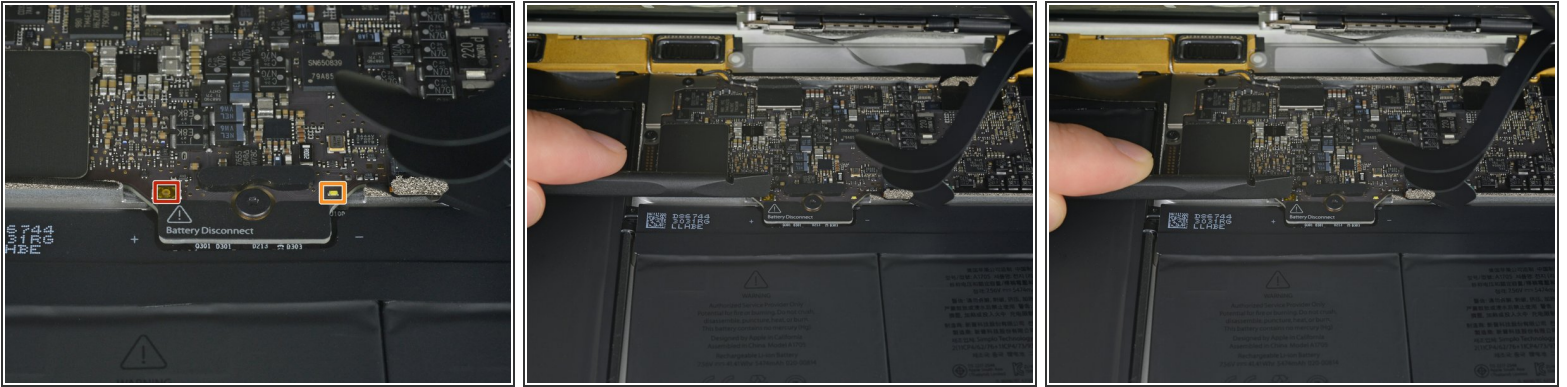
Step 4



- 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.
- i** 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.

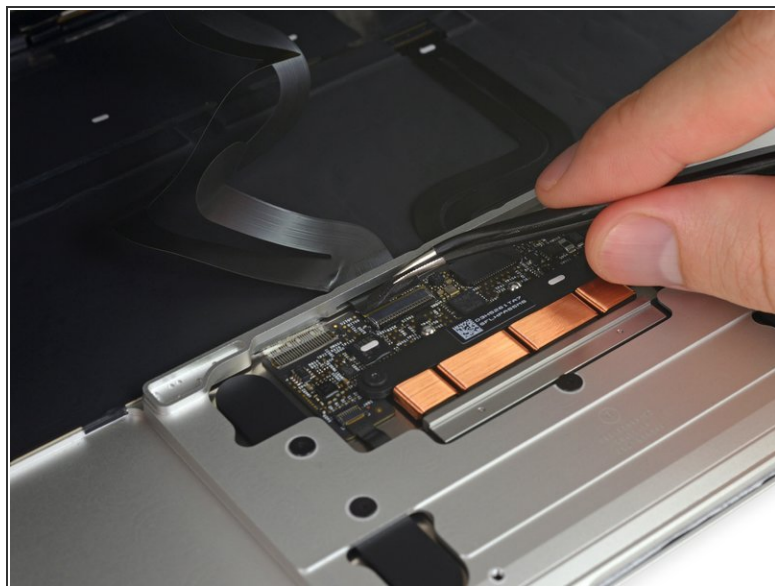
Step 7



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

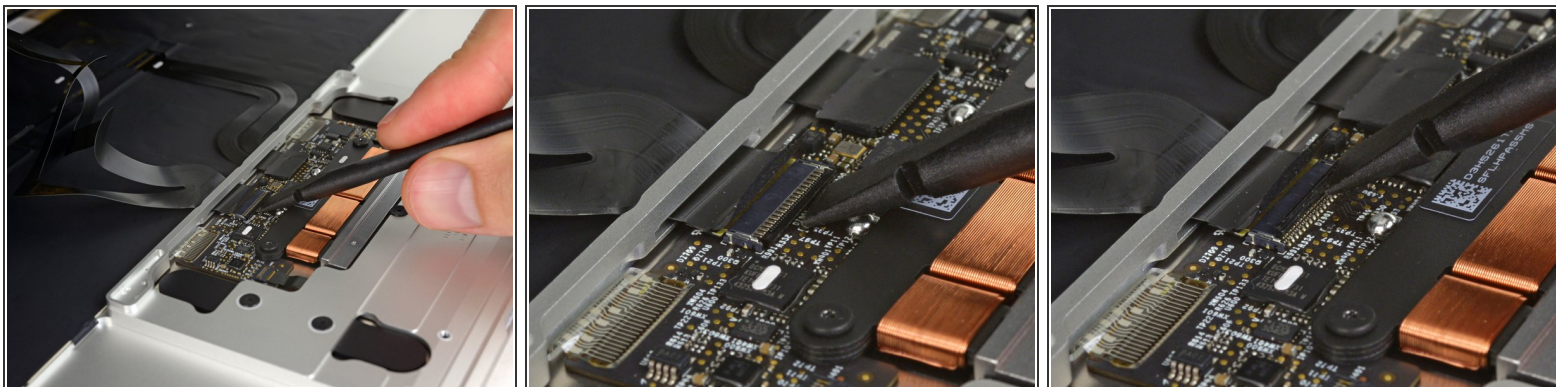
⚠ Take care not to damage the ribbon cables that still attach the lower case to the MacBook.

Step 8



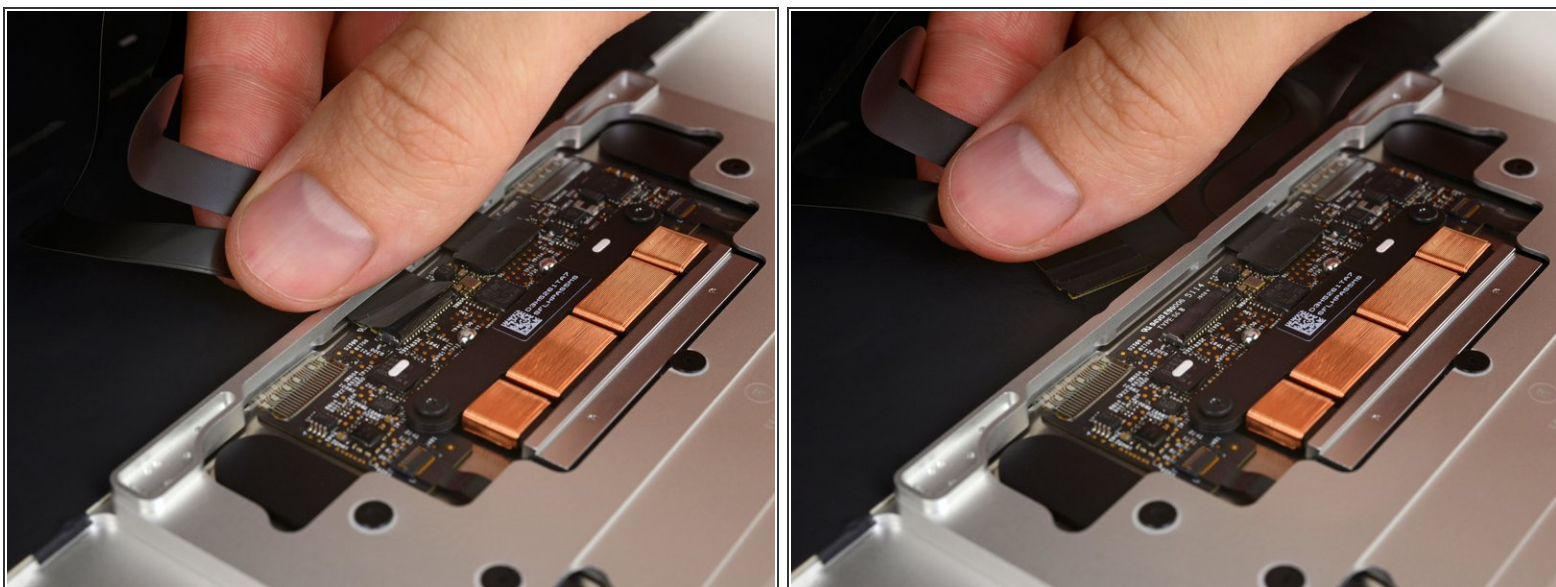
- Use tweezers to peel back the tape covering the trackpad cable ZIF connector.

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.

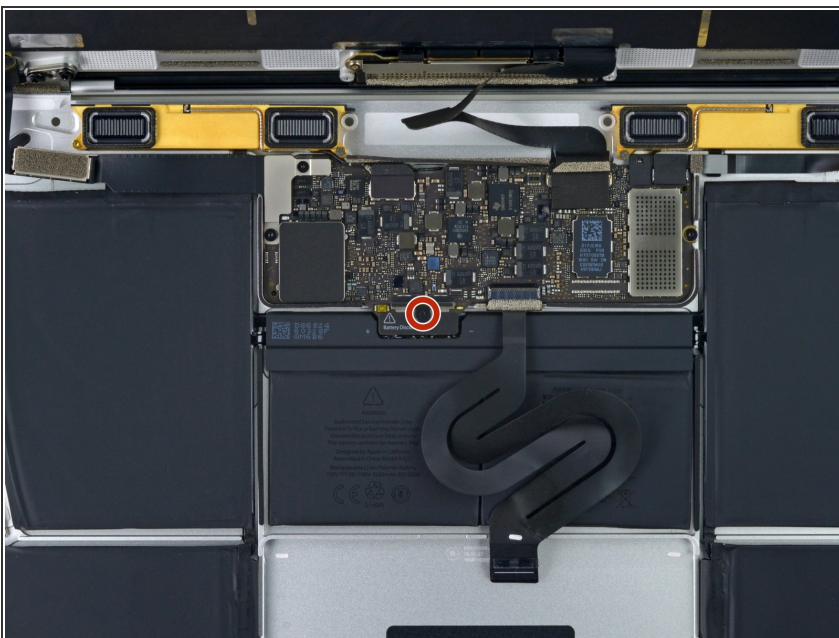
Step 11



- 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.

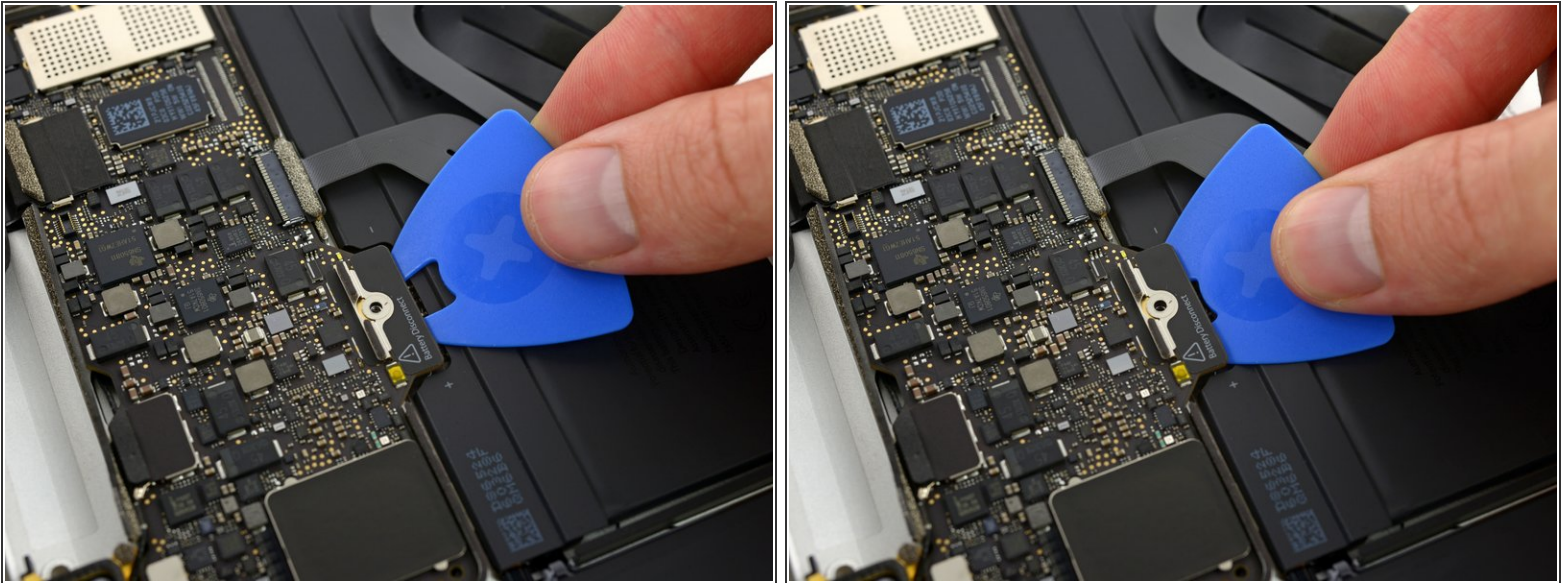
⚠ It's possible to open the MacBook all the way and lay both sides down flat, but this may damage the flex cables and is not recommended.

Step 12



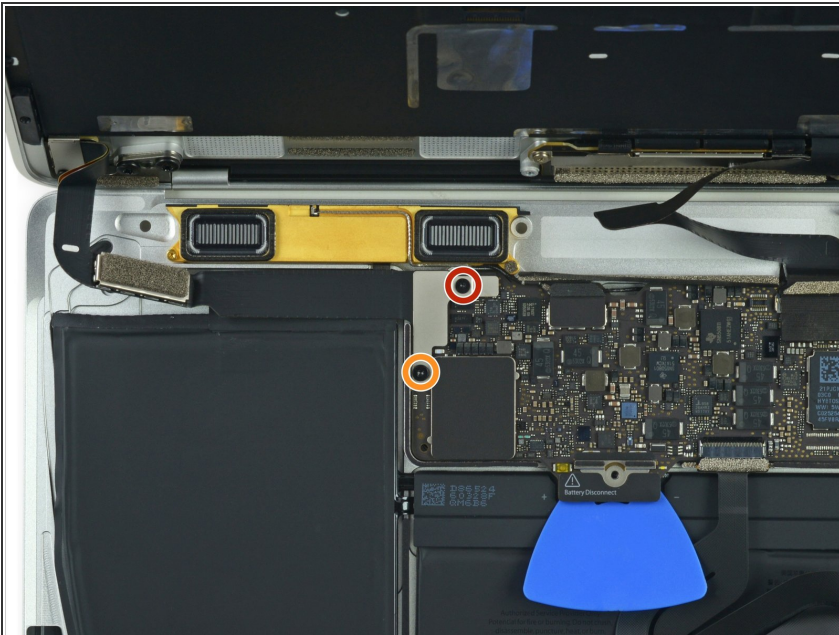
- Remove the single 2.9 mm T5 Torx screw securing the battery connector to the logic board.

Step 13



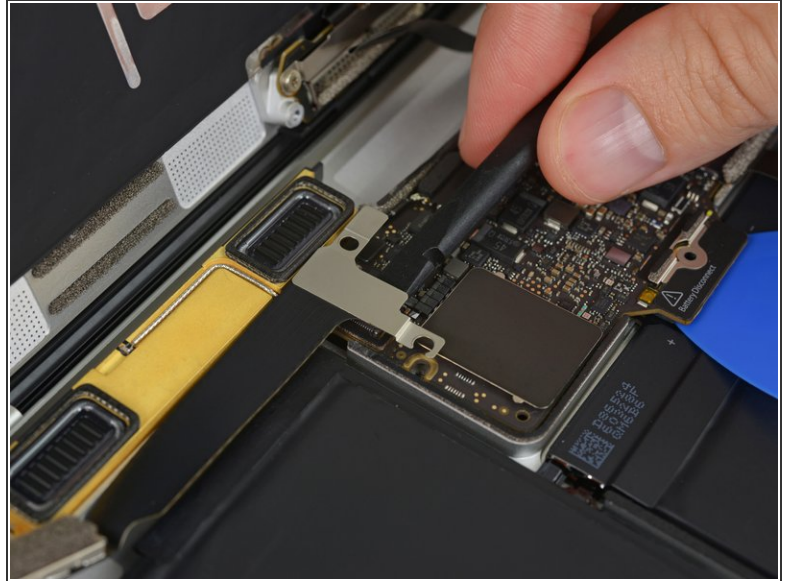
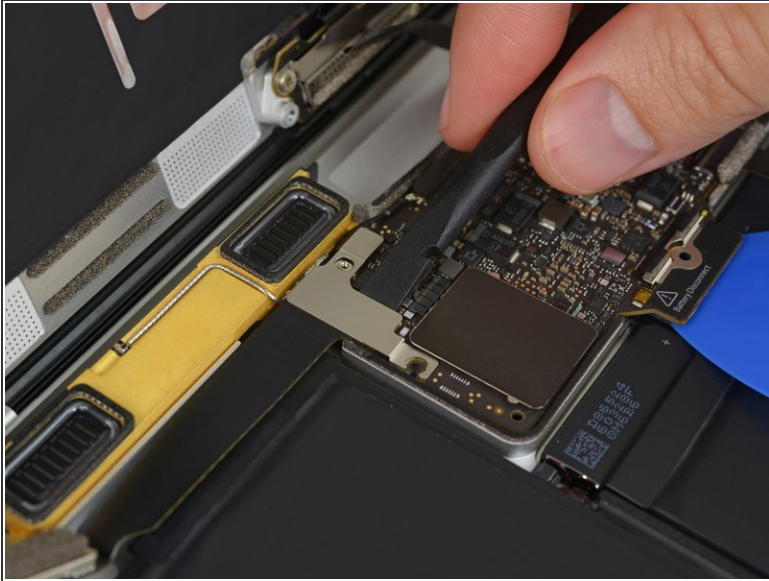
- As an added precaution, you may physically disconnect the battery by inserting a [battery isolation pick](#) between the logic board and the battery connector.

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
 - 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



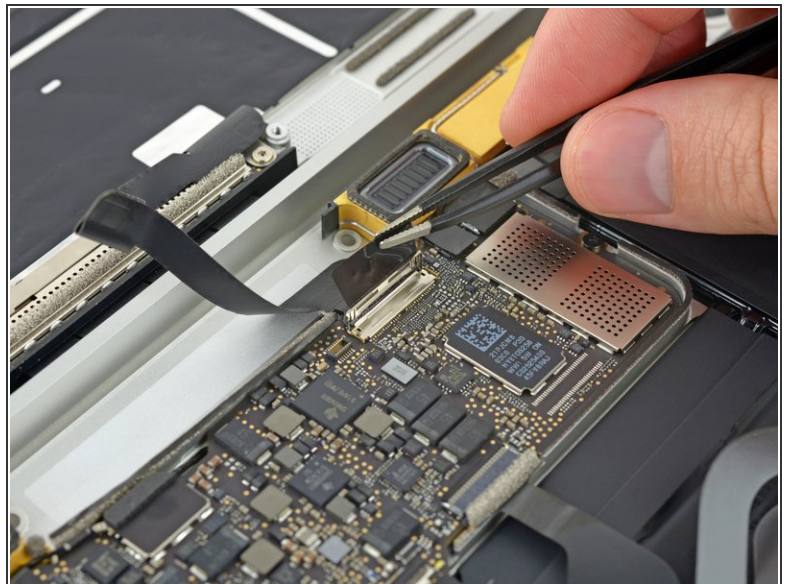
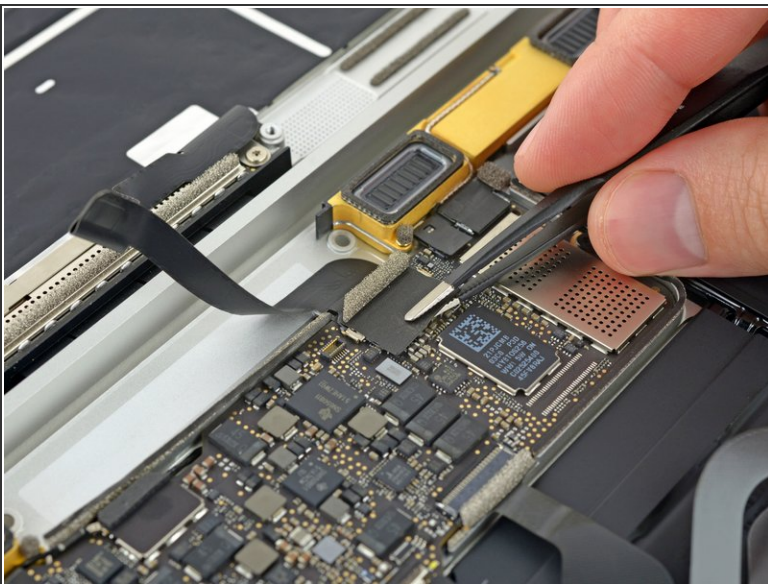
- Use a spudger to flip open the retaining flap on the audio jack board cable ZIF connector.

Step 17



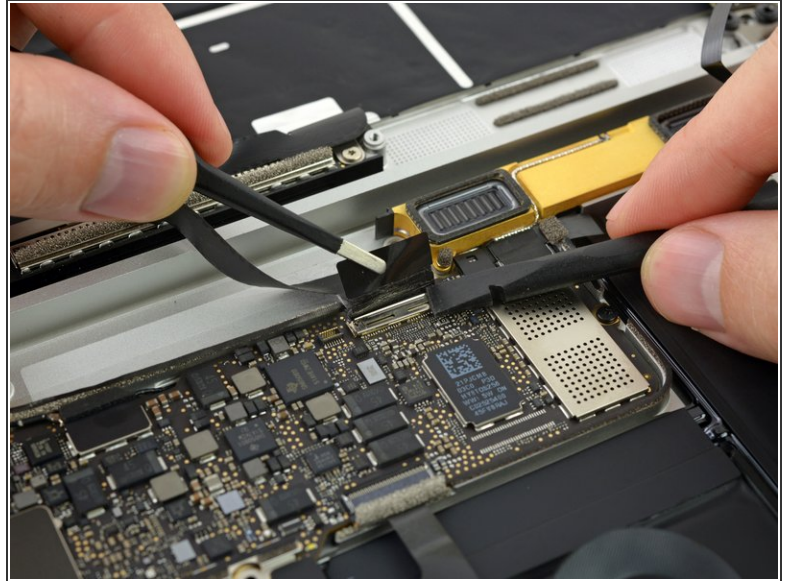
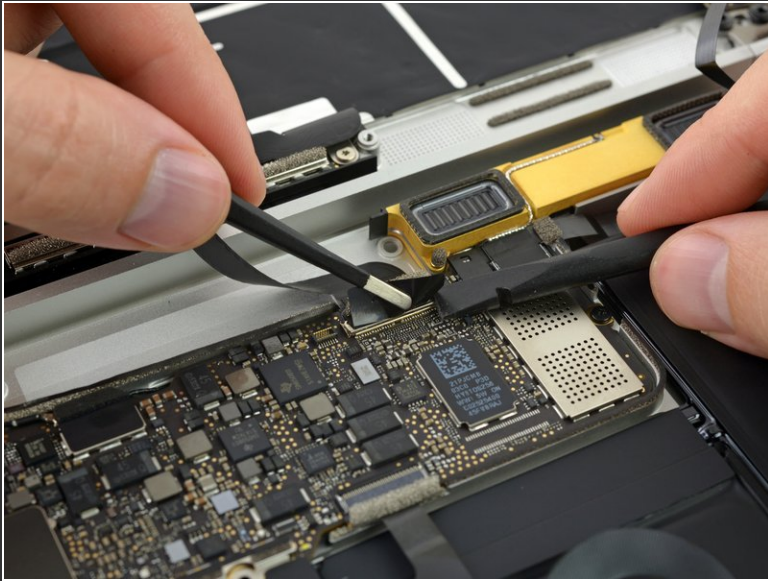
- Disconnect the audio jack board ribbon cable by pulling it straight back out of the ZIF connector.
- ★ During reassembly, orient the ribbon cable so that the side with the white stripe faces you, as shown.
- i At this point it is possible to open the macbook all the way and to lay it flat on a table without causing any damage to the flex cables.

Step 18 — Lower Case Assembly Removal



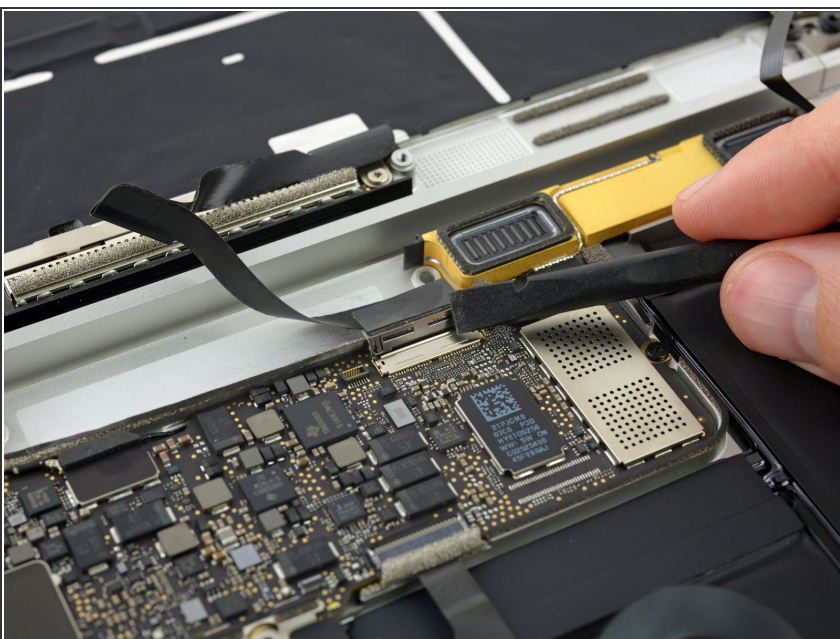
- Use tweezers to peel back the tape covering the display cable connector.

Step 19



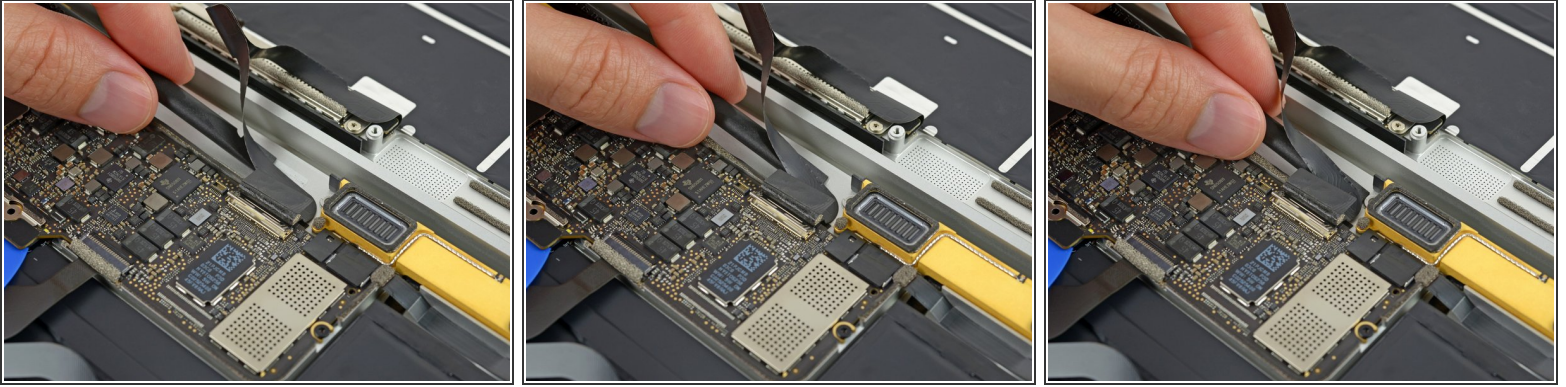
- i** It's possible the metal retaining flap on the display cable connector may flip open, remaining stuck to the tape.
- If so, use the flat end of a spudger to hold down the retaining flap while peeling the tape away with the tweezers.

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.

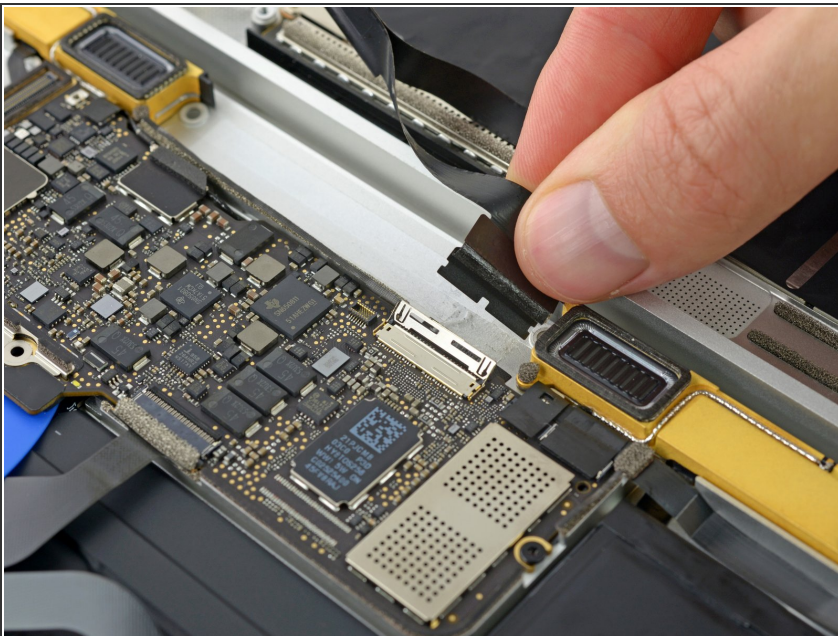
Step 21



- 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

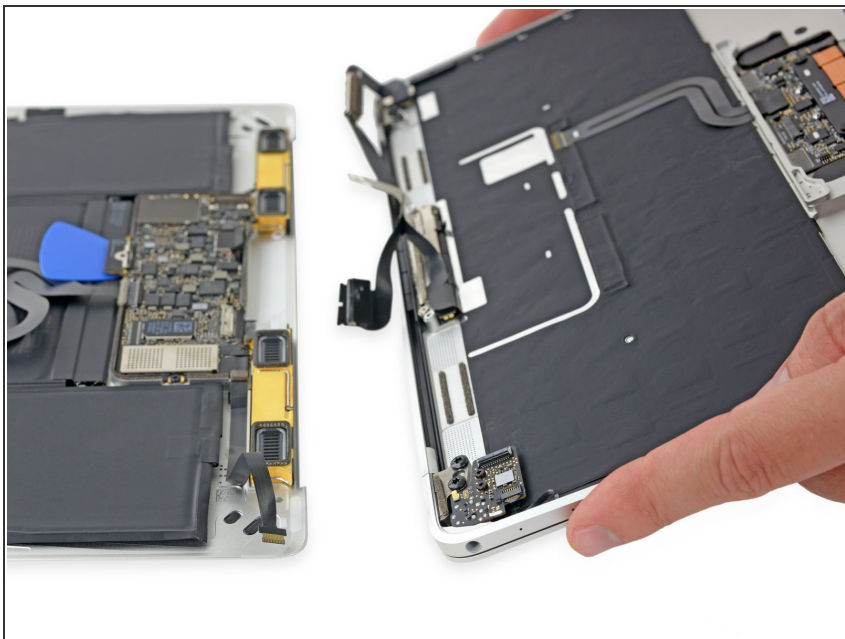


- Disconnect the display cable by gently pulling it straight out of its connector.

⚠ Immediately close the retaining flap.

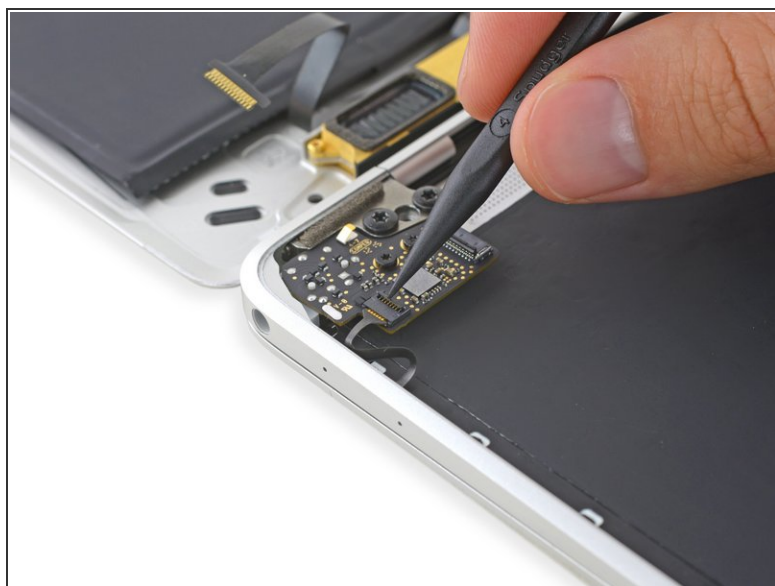
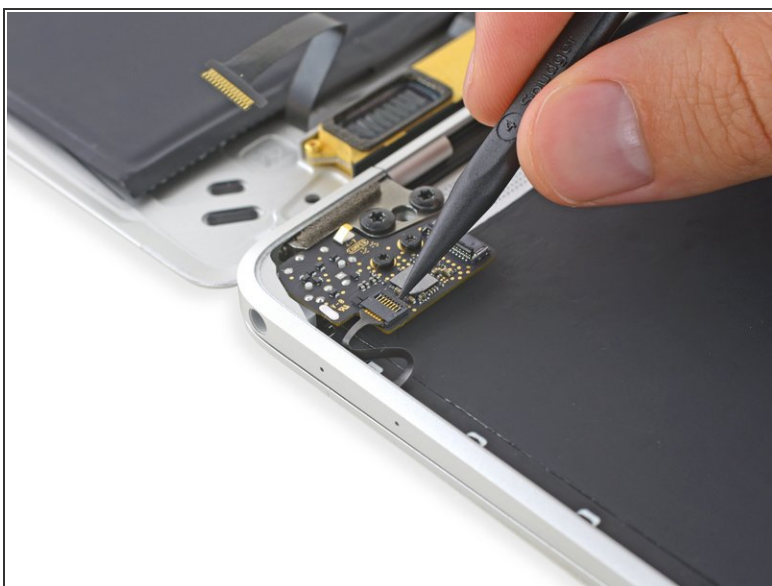
- ✦ The flap must remain **closed** when the cable is reinserted during reassembly. Line up the cable with the gold contacts facing down, and gently slide it into the **closed** connector. Take care not to crimp or damage the cable. When fully inserted, the indentations on the sides should not be visible.

Step 23



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

Step 24 — Audio Jack Board



- Use a spudger to flip open the ZIF connector retaining flap for the dual microphone assembly ribbon cable.

Step 25



- Disconnect the microphone assembly ribbon cable by pulling it straight out of its connector.

Step 26



- Remove the two 3.2 mm T5 Torx screws securing the audio jack board to the case.

Step 27



- Remove the audio jack board.

Step 28 — Dual Microphone Assembly



- [Prepare an iOpener](#) and apply heat to the upper case directly behind the microphone assembly.

Step 29



- Use a fine-tip probe or pick to gently peel the dual microphone assembly away from the case.

Step 30



- Remove the dual microphone assembly.

Step 31 — USB-C Port



- Remove two 2.5 mm Phillips #00 screws securing the USB-C port.

Step 32



- Use tweezers to lift the USB-C port just over the hinge screws.
- Slide the port out and up over the display hinge to remove it.

⚠ There's very little clearance when removing and installing the USB-C port. If there's not enough room, don't force it. Try [removing the display hinge screws](#) and moving the hinges for additional clearance, if necessary.

Step 33 — Display Assembly



- Remove the two 3.3 mm T5 Torx screws securing the display cable assembly.
- ☞ Take care not to lose the small retaining bracket located under the right screw. If it comes loose, note the orientation shown here for reassembly. The small tab on the outer left edge should be hooked under the perforated metal shield.

Step 34



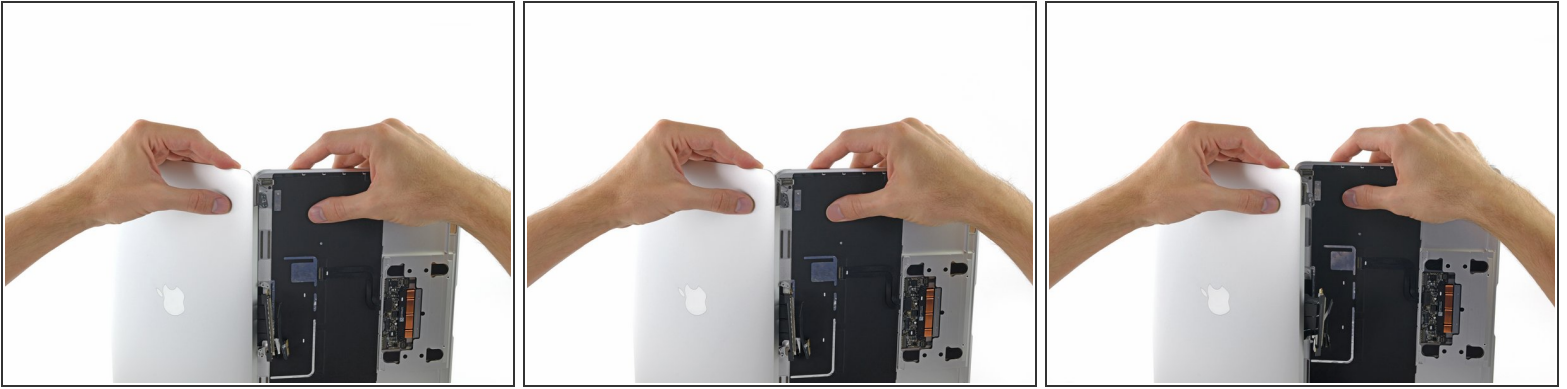
- Fully open the display.
- Set the MacBook down on its right edge with the display facing away from you, as shown.

Step 35



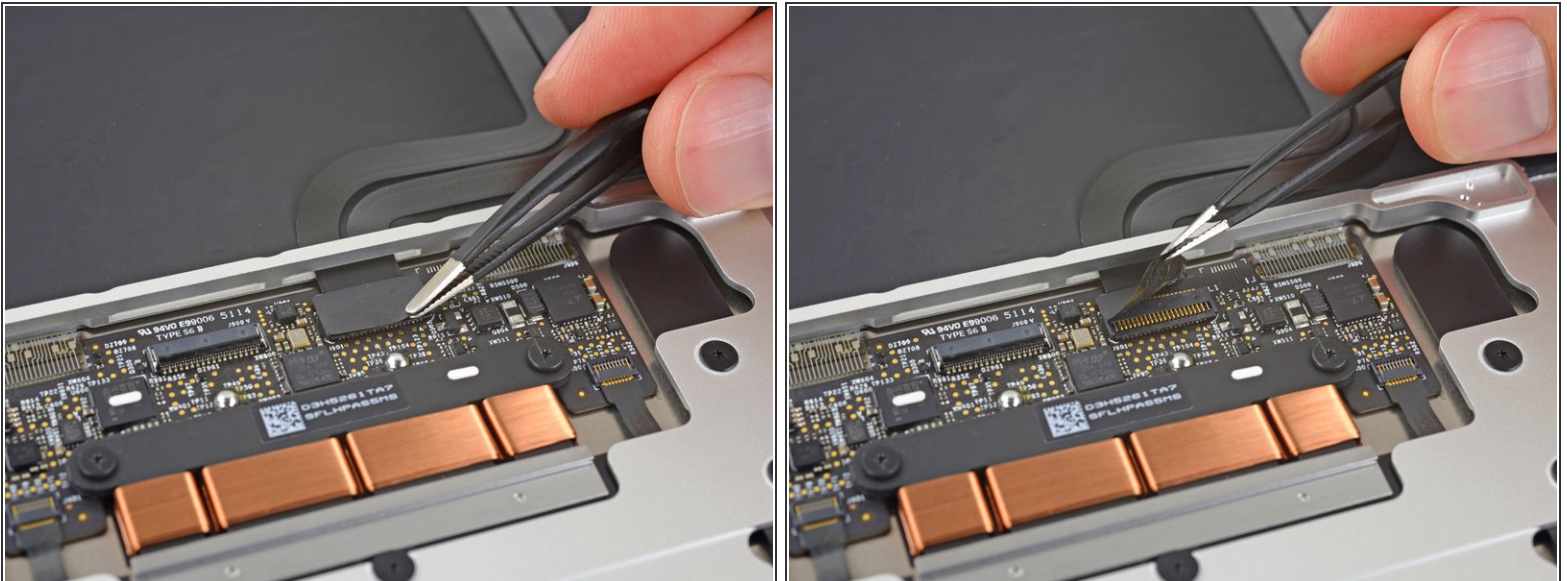
- Remove the four 4.8 mm T8 Torx screws securing the display hinges.
- ⓘ There may be a rubber cover on the hinge screws. [Remove this](#) before removing the screws and replace it during reassembly.

Step 36



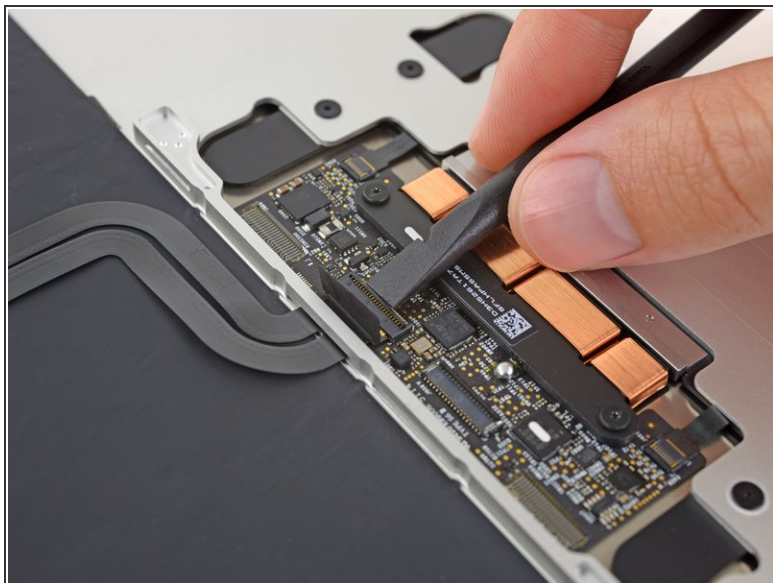
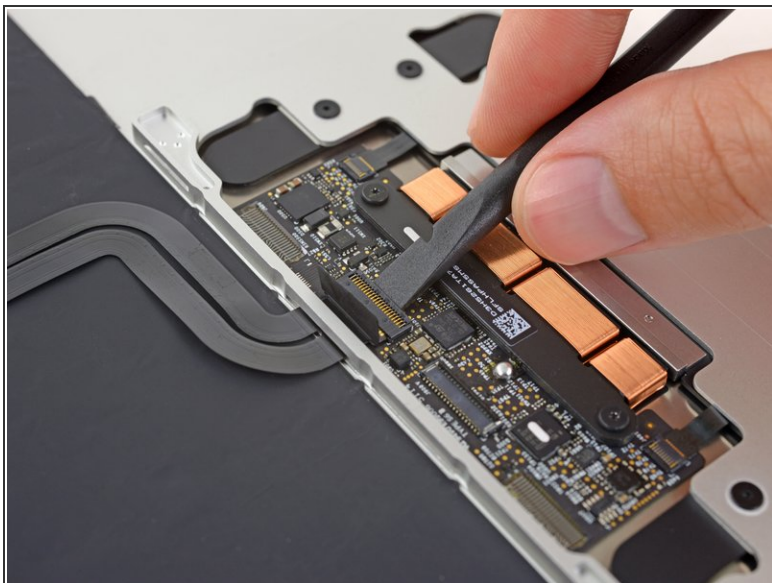
- Holding the display assembly with one hand and the upper case with the other, push them together slightly to move the hinges out of their recesses in the upper case.
 - ⓘ There are only a few millimeters of play between the hinges and the case, so you won't need to push far.
- Push the upper case forward while pulling back gently on the display.
- Once the two display hinges have cleared the upper case, remove the display and set it aside.

Step 37 — Trackpad Assembly



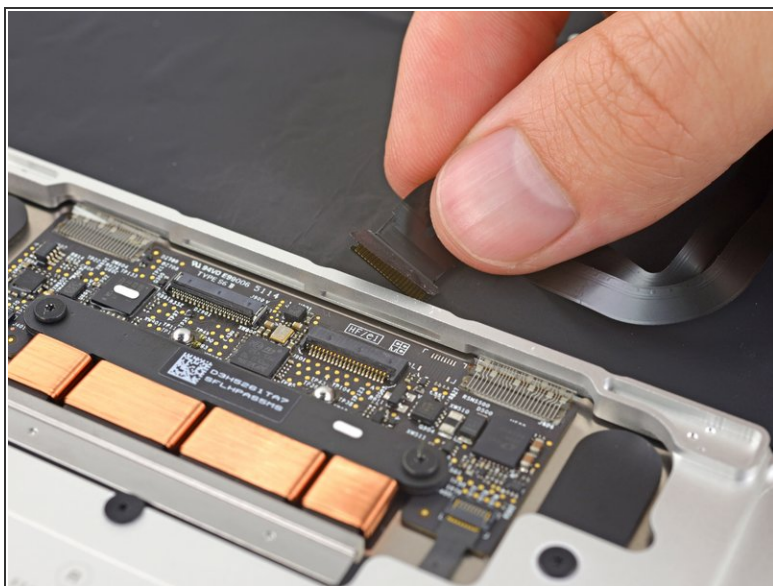
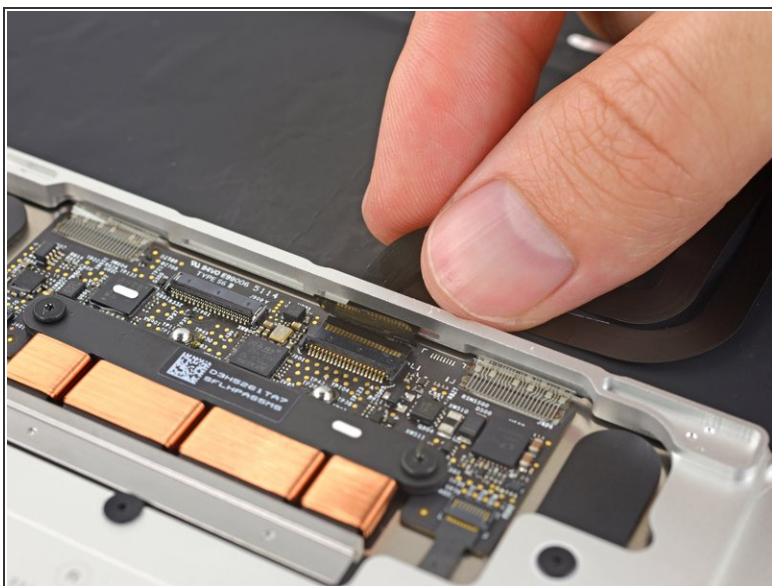
- Use a pair of tweezers to remove the tape covering the keyboard ribbon cable connector on the trackpad.

Step 38



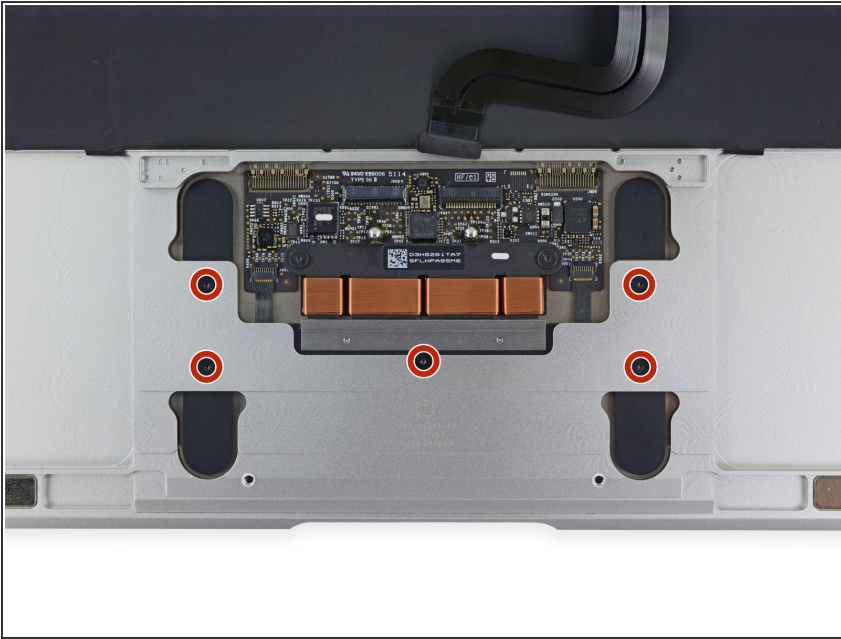
- Using a spudger, flip open the retaining flap on the keyboard ribbon cable ZIF connector.

Step 39



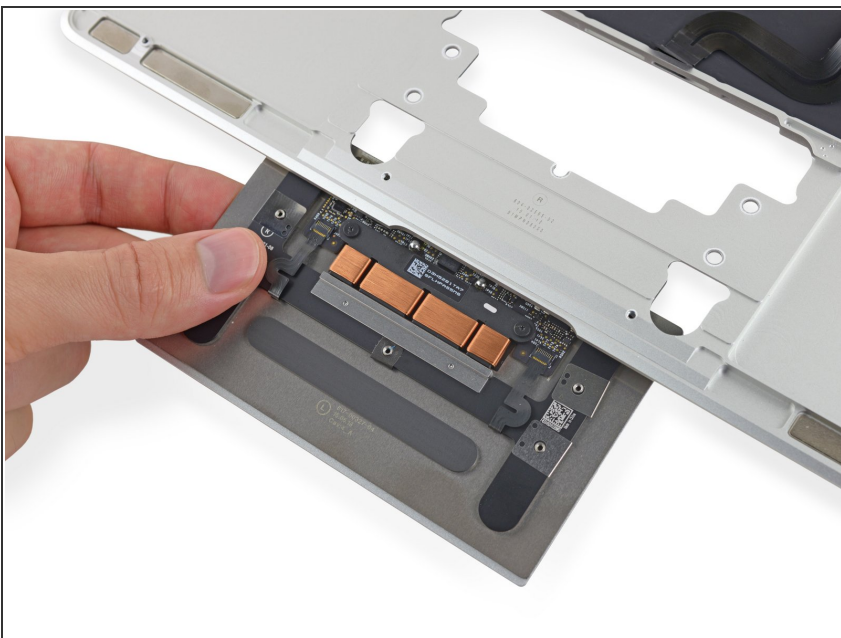
- Gently pull the keyboard ribbon cable out of its slot in the frame.

Step 40



- Remove the five 2.5 mm T3 Torx screws securing the trackpad to the case.
- ⓘ On some driver sets, a T4 driver may fit better.

Step 41



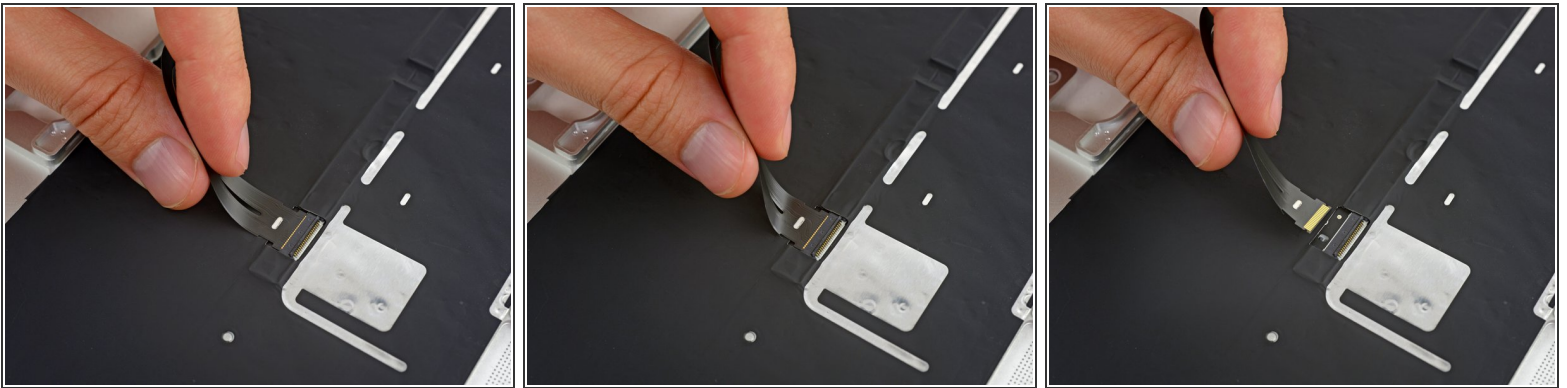
- Remove the trackpad assembly.
- ☑ Metal brackets on each side of the trackpad may fall away during removal. Be sure to position them as shown in the photo during reassembly.

Step 42



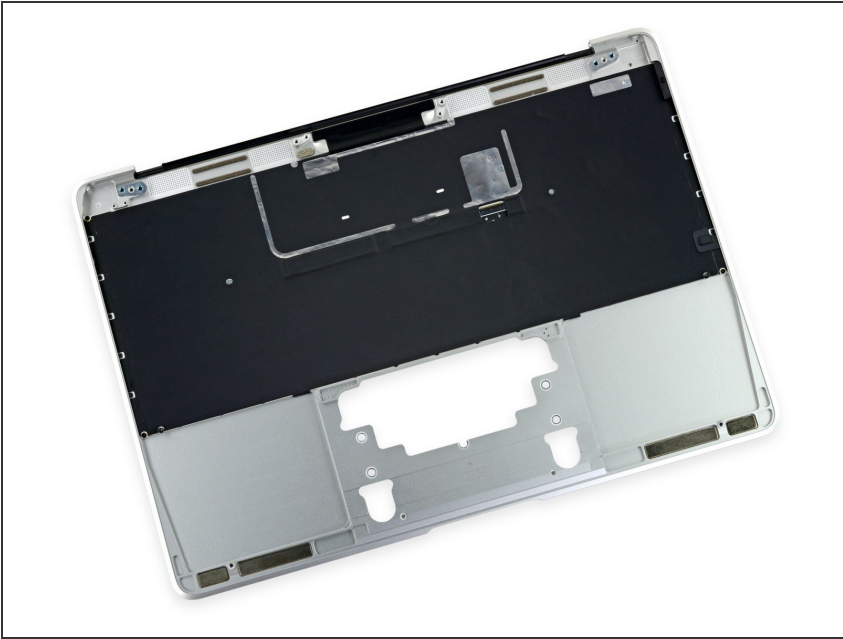
- Use a spudger to flip up the retaining flap on the keyboard ribbon cable ZIF connector.

Step 43



- Gently peel the keyboard ribbon cable up from the case, and remove the cable.

Step 44



- The upper case remains.

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