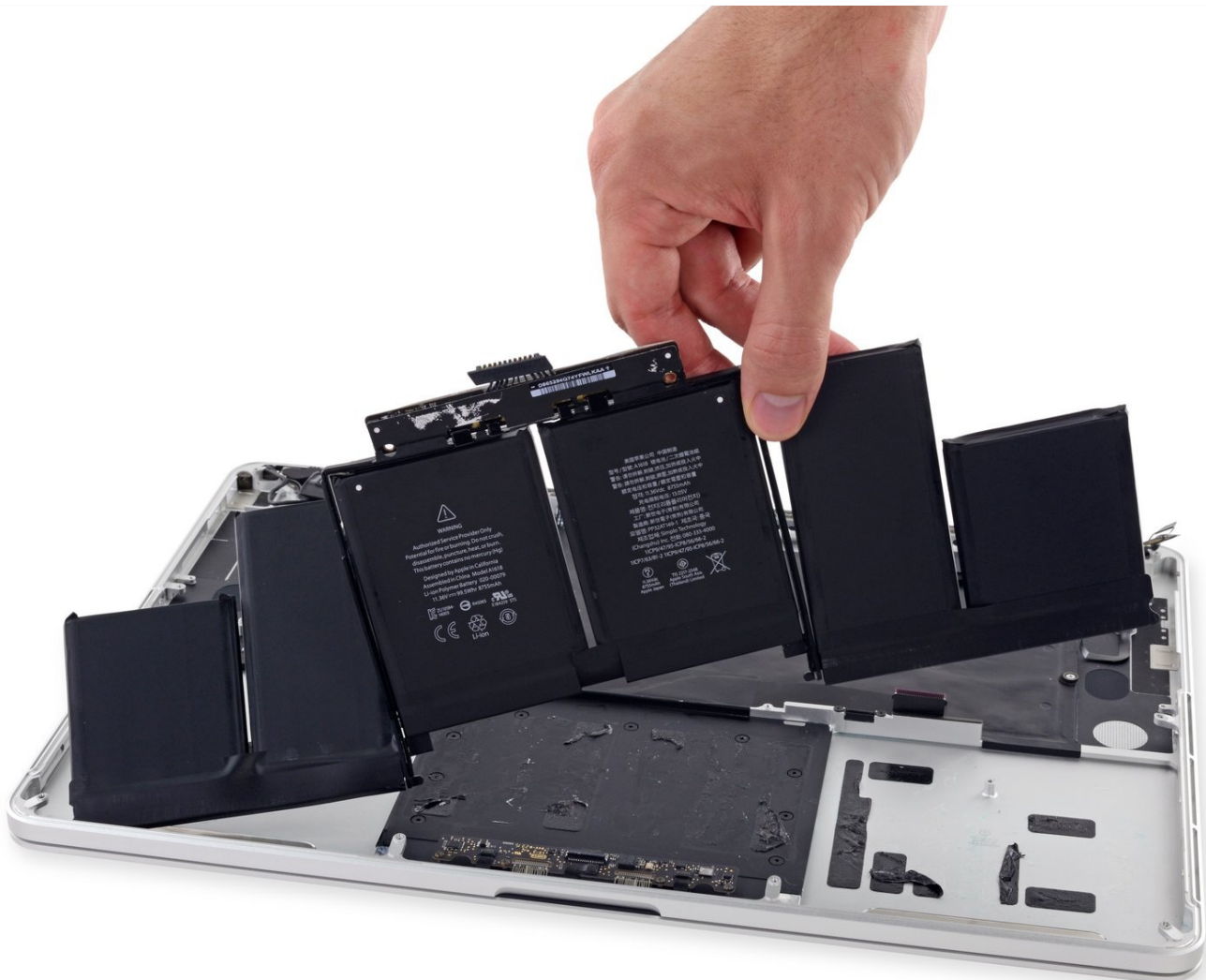




MacBook Pro 15" Retina Display Mid 2015 Battery Replacement

Use this guide to safely remove the glued-in...

Written By: Jeff Suovanen



INTRODUCTION

Use this guide to safely remove the glued-in battery from your MacBook Pro with the help of an iFixit battery replacement kit. The adhesive remover in your kit will dissolve the adhesive securing the battery, allowing you to remove it with ease.

Note: This guide instructs you to remove the speakers, logic board, and several other components before proceeding to the battery. This protects the components from being potentially damaged by the adhesive remover. If you're only using a mild solvent such as isopropyl alcohol to loosen the battery, you can choose to leave these components in and skip steps 6-45.

Apple issued a battery recall for this model in June of 2019—so before replacing your battery, you can [check to see if you are eligible to receive a replacement for free](#) from Apple.

iFixit adhesive remover is highly flammable. Perform this procedure in a well-ventilated area. Do not smoke or work near an open flame during this procedure.

To minimize risk of damage, turn on your MacBook and allow the battery to fully discharge before starting this procedure. A charged lithium-ion battery can create a dangerous and uncontrollable fire if accidentally punctured. If your battery is swollen, [take extra precautions](#).



TOOLS:

[P5 Pentalobe Screwdriver Retina MacBook Pro and Air](#) (1)
[Spudger](#) (1)
[T5 Torx Screwdriver](#) (1)
[Tweezers](#) (1)
[Scissors](#) (1)
[Plastic Cards](#) (1)
[Aluminum Foil](#) (1)



PARTS:

[MacBook Pro 15" Retina \(Mid 2015\) Battery](#) (1)

Step 1 — Lower Case



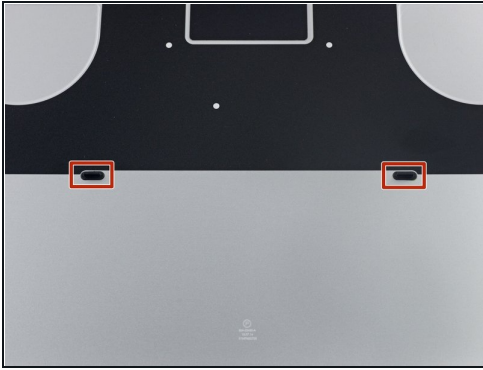
- Remove the following P5 pentalobe screws securing the lower case to the MacBook Pro:
 - Eight 3.1 mm
 - Two 2.3 mm

Step 2



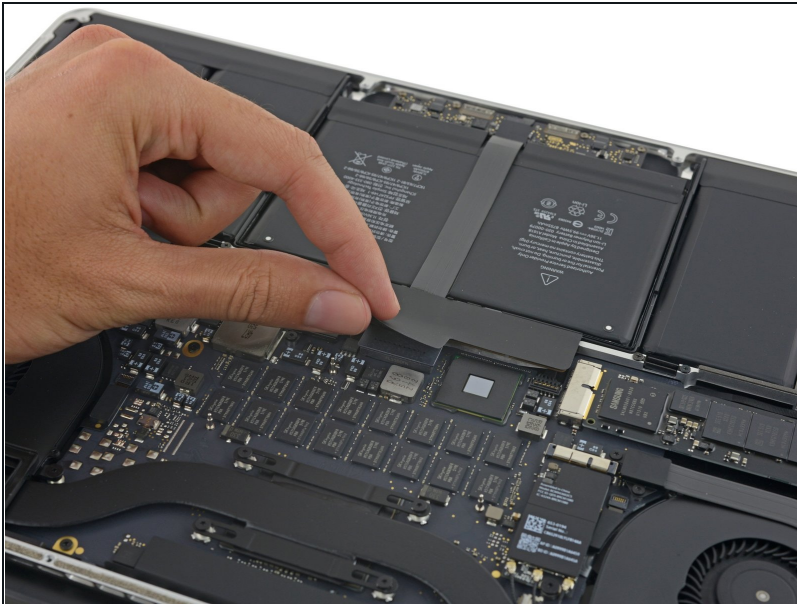
- Lifting from the edge nearest the clutch cover, lift the lower case off the MacBook Pro.

Step 3



- ① The lower case has two plastic pegs (red) that fit into plastic clips in the upper case (orange).
- ✪ During reassembly, gently push down the center of the lower case to reattach the case to its two plastic clips.

Step 4 — Battery Connector



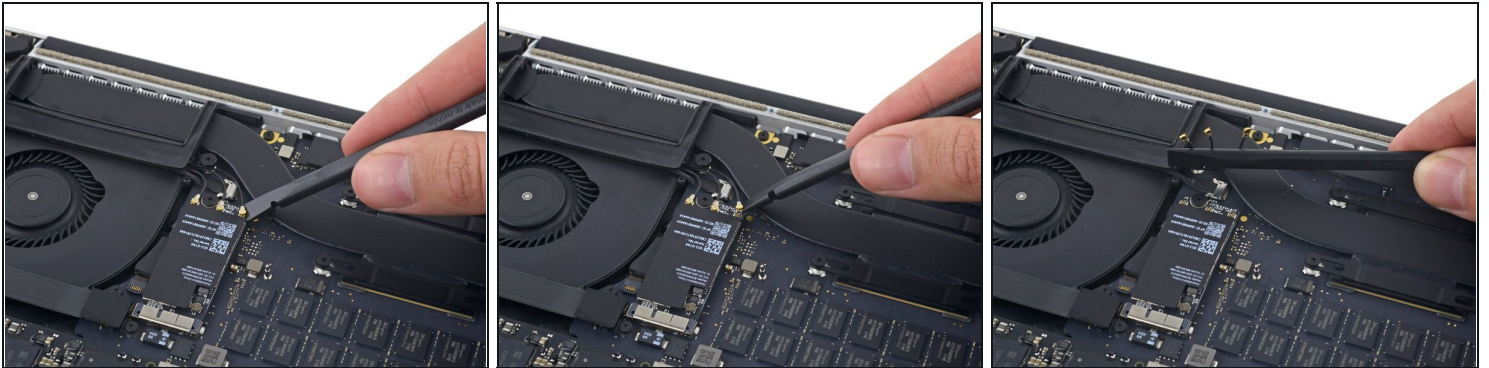
- Peel back the sticker covering the battery connector.

Step 5



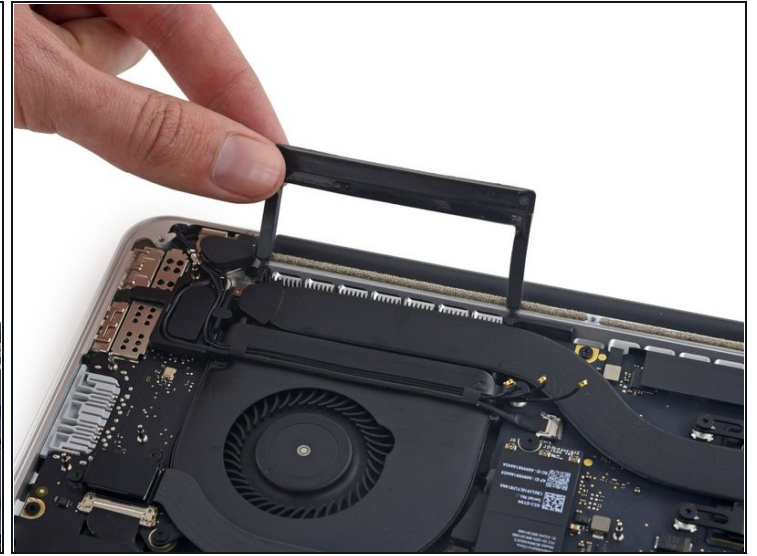
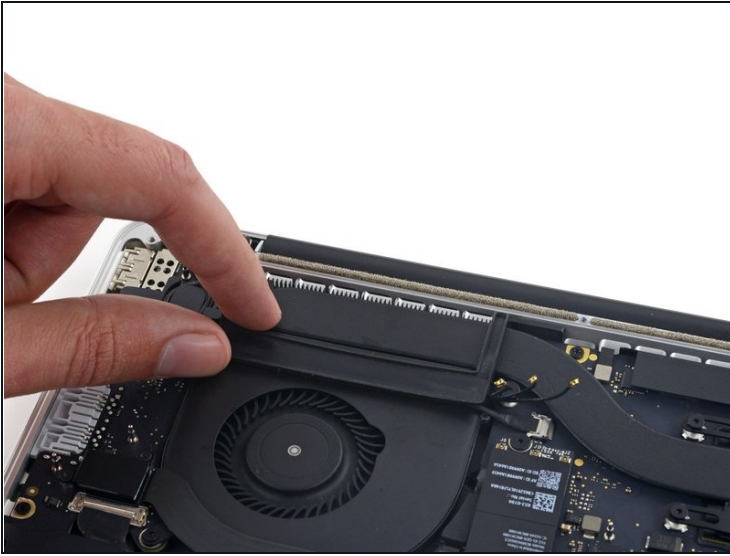
- Gently lift each side of the battery connector to pry the connector out of its socket on the logic board.
- Bend the connector back toward the battery, ensuring that the battery connector doesn't accidentally make contact with the logic board.

Step 6 — AirPort/Camera Cables



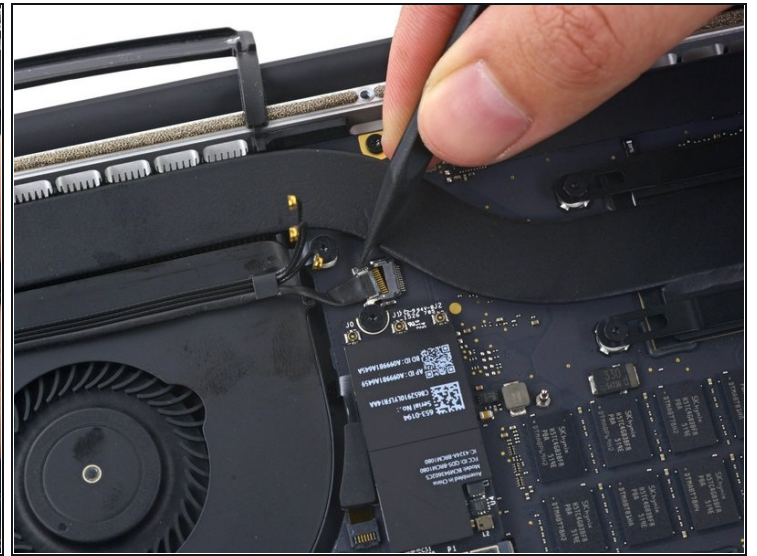
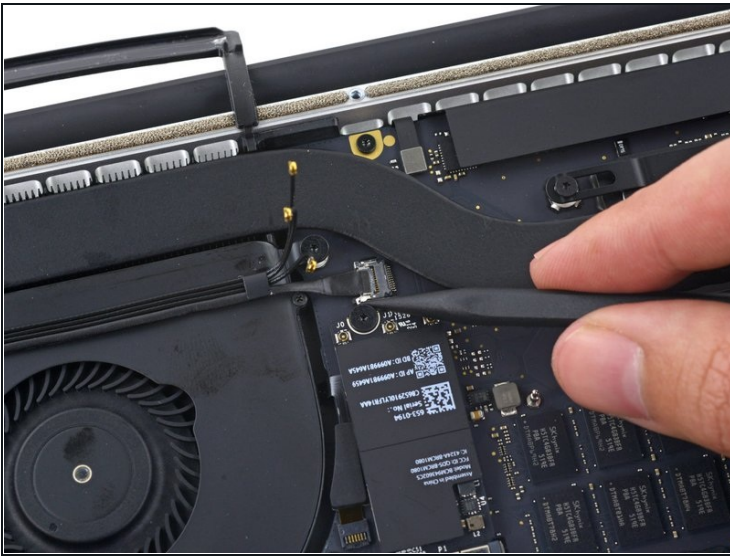
- Use a spudger or tweezers to pry the three AirPort antenna cables straight up off of their sockets on the AirPort board, and bend them up and out of the way.
 - ⚠ The cable connection points are **very** fragile. Be careful to lift only on the connector, and not on the socket or cable.
- ☑ To reconnect, align the connector carefully into position over the socket, and press it down firmly with the flat of your spudger.

Step 7



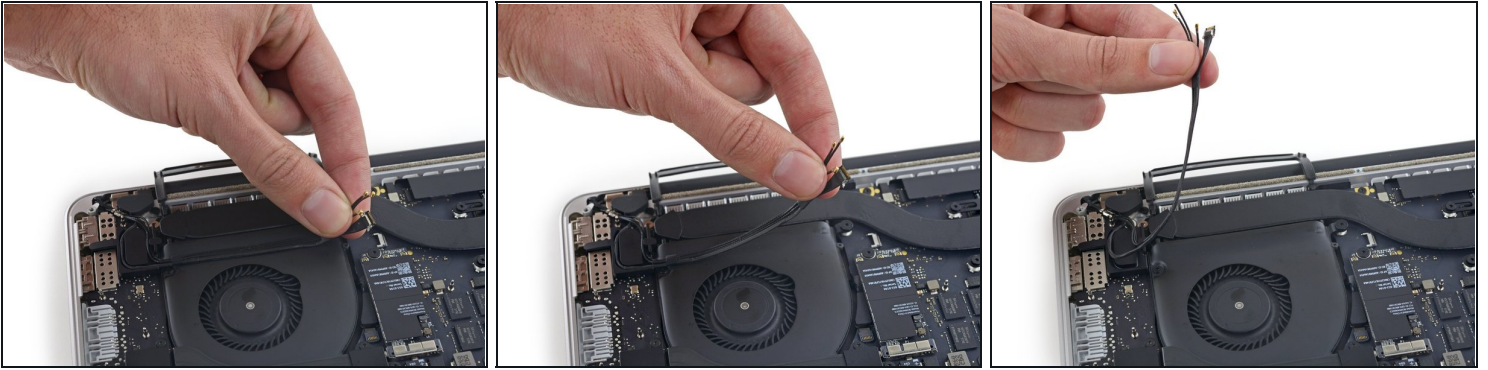
- Peel the right rubber cover up off the fan and fold it out of the way.

Step 8



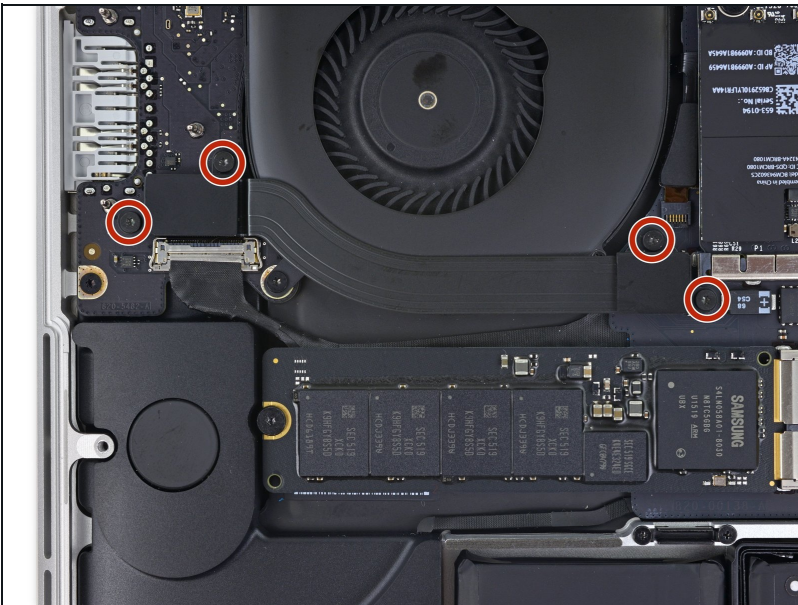
- Use the tip of a spudger to push the camera cable connector out of its socket on the logic board.
 - ① Be sure to push parallel to the board, pushing first on one side, then the other to "walk" the connector out of its socket.

Step 9



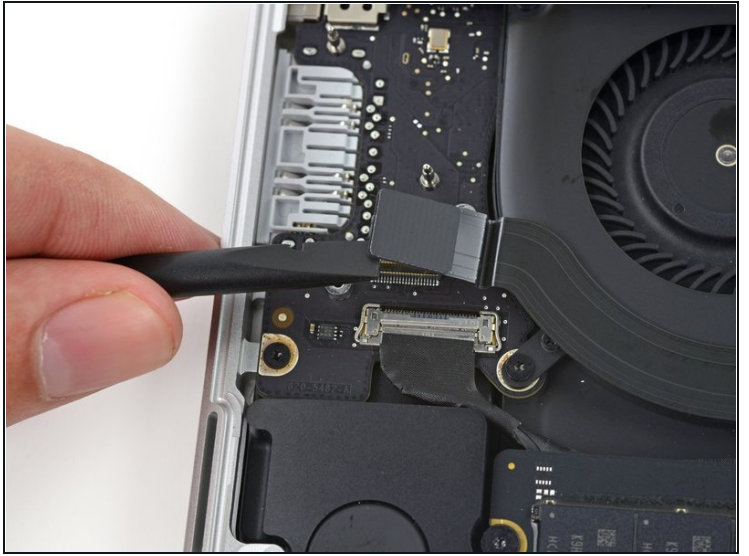
- Use your fingers to pull the AirPort/Camera cables up off the fan.
 - ⓘ The cables are adhered to the fan, so peel them up carefully to avoid damaging them.
 - Carefully de-route the cables from the plastic cable guide.
- ☑ On reassembly, there should be enough adhesive still on these cables to stick them back down to the fan.

Step 10 — I/O Board Cable (Top)



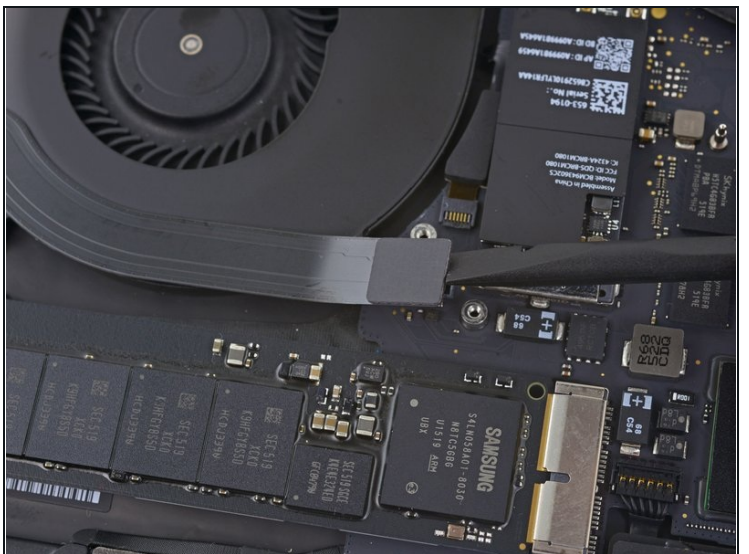
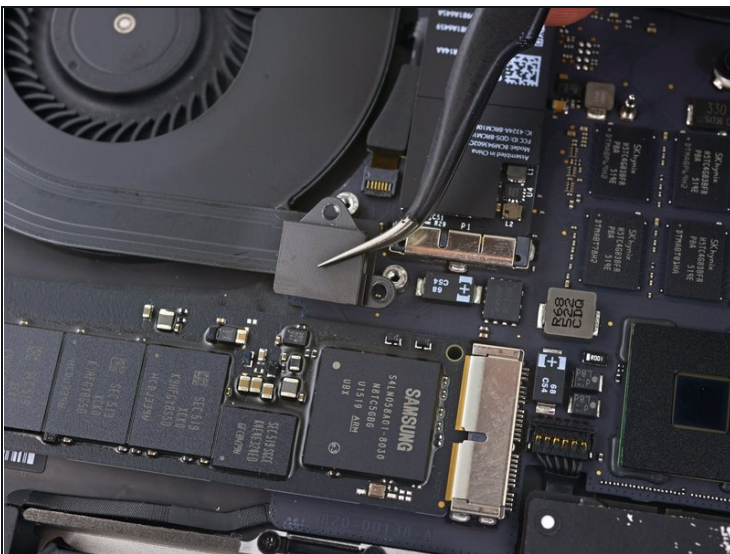
- Remove the four 2.2 mm T5 Torx screws securing the I/O board cable connector covers.

Step 11



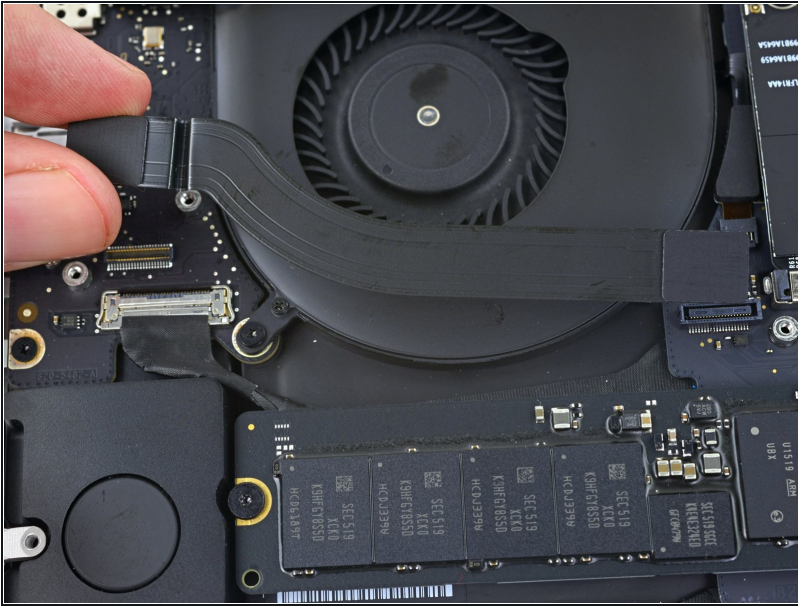
- Remove the left connector cover.
- Use the flat end of a spudger to pry the left end of the I/O board cable up from its socket on the logic board.

Step 12



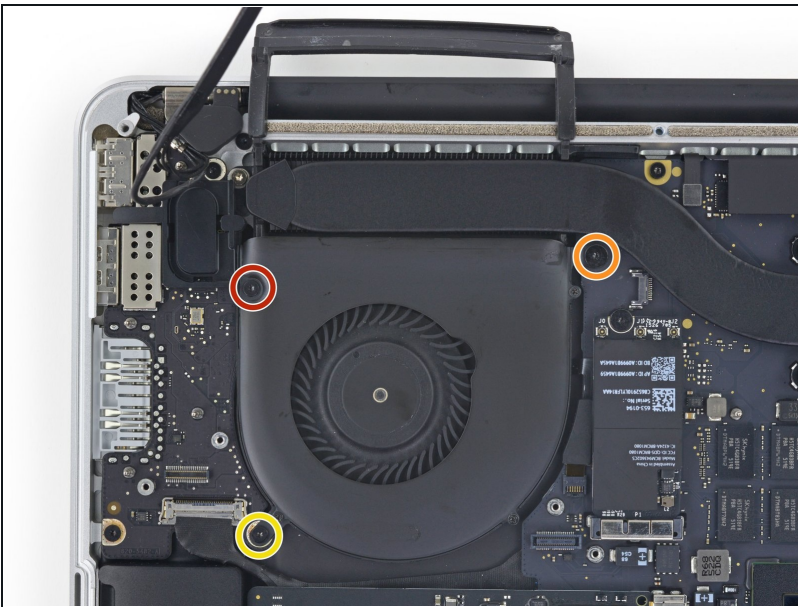
- Remove the right connector cover.
- Use the flat end of a spudger to pry the right end of the I/O board cable up from its socket on the logic board.

Step 13



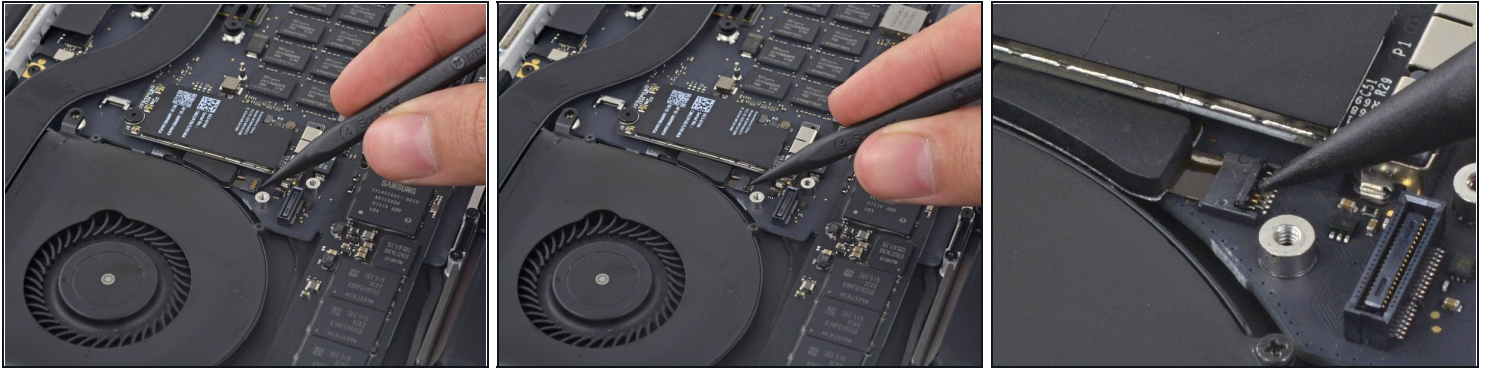
- Peel the I/O board cable up from the adhesive securing it to the fan.
- Remove the cable.

Step 14 — Right Fan



- Use a T5 Torx driver to remove the following three screws securing the right fan to the logic board:
 - One 5.0 mm screw with a 2.0 mm long shoulder
 - One 4.0 mm screw with a wide head
 - One 4.4 mm screw

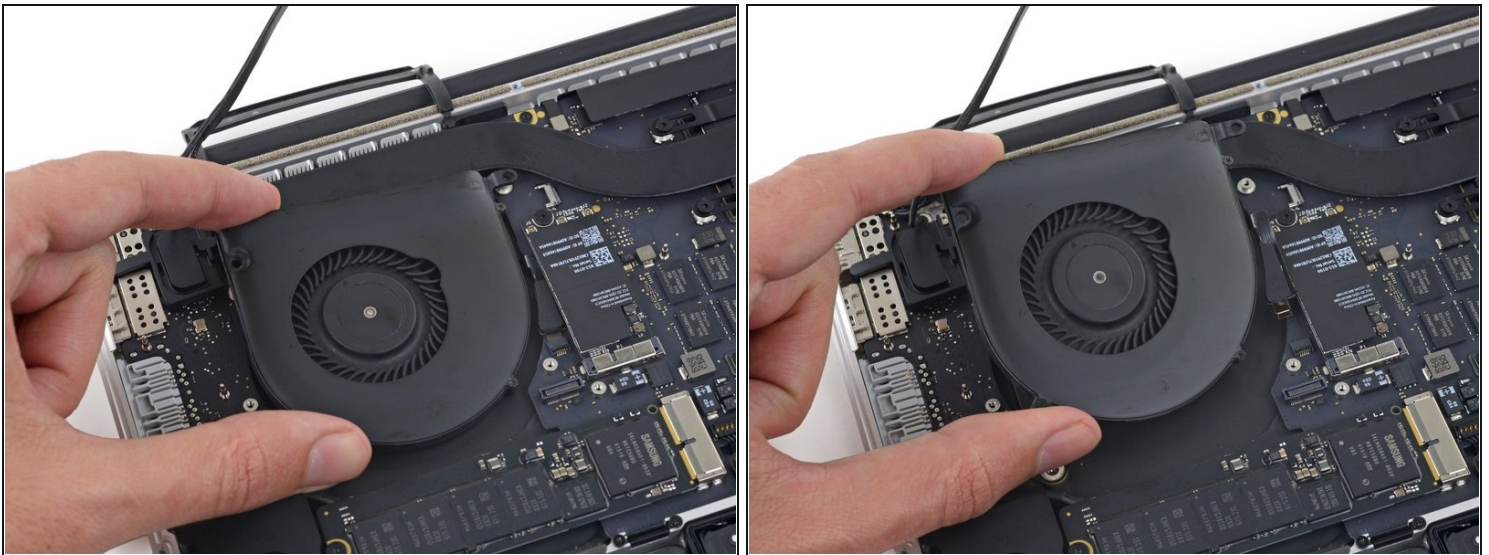
Step 15



- Use the tip of a spudger to flip up the retaining flap on the right fan ribbon cable ZIF socket.

⚠ Be sure you are prying up on the hinged retaining flap, **not** the socket itself.

Step 16

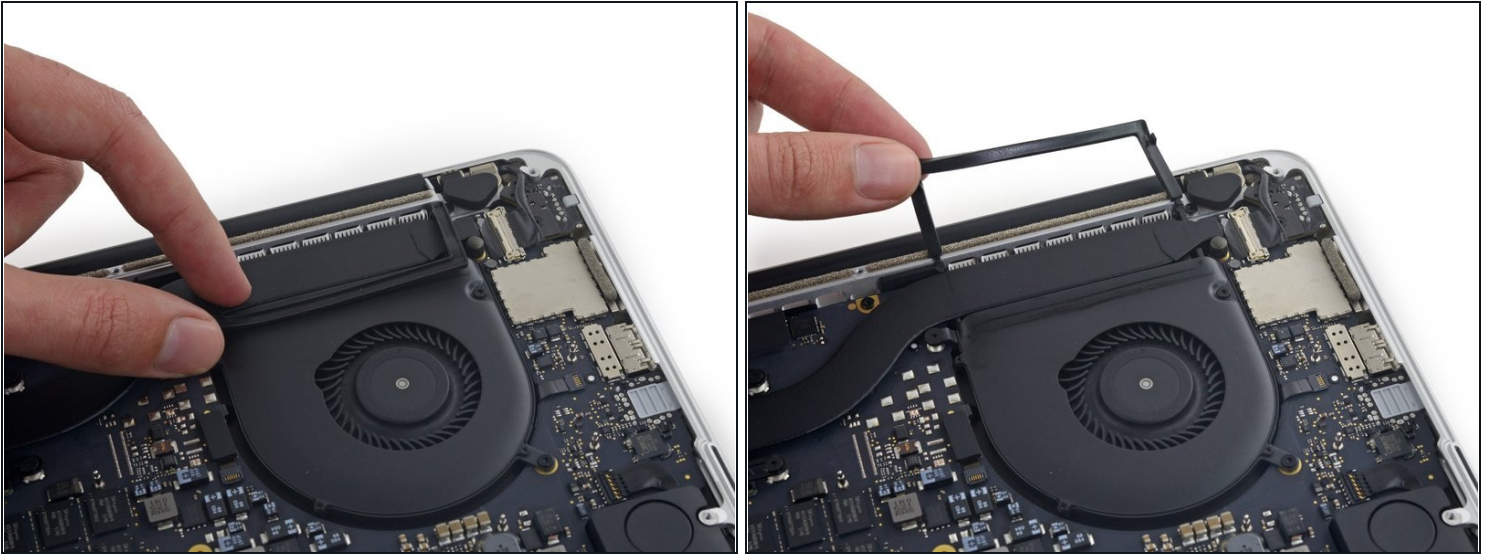


- Lift the fan and push it gently towards the back edge of the MacBook to free the fan cable from its socket.

⚠ The fan cable may be adhered to the logic board—to avoid tearing the cable, gently peel it up while lifting the fan.

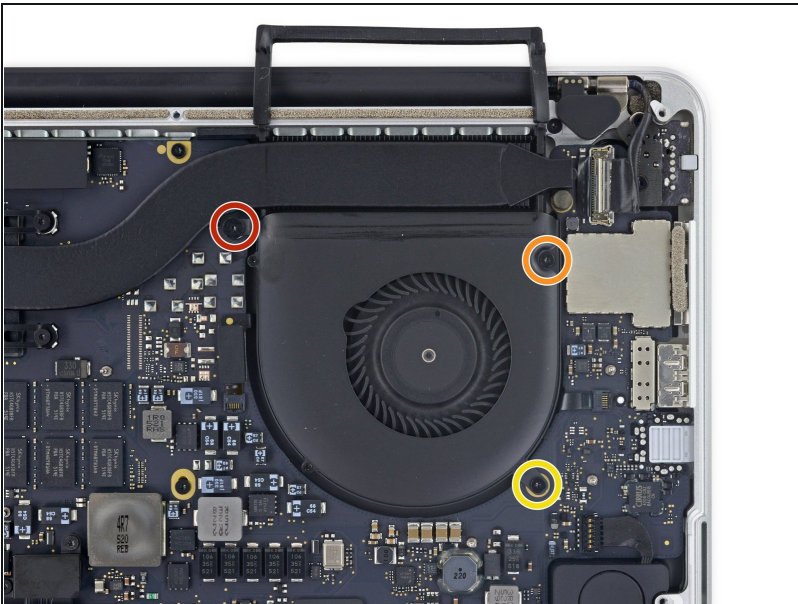
- Remove the fan.

Step 17 — Left Fan



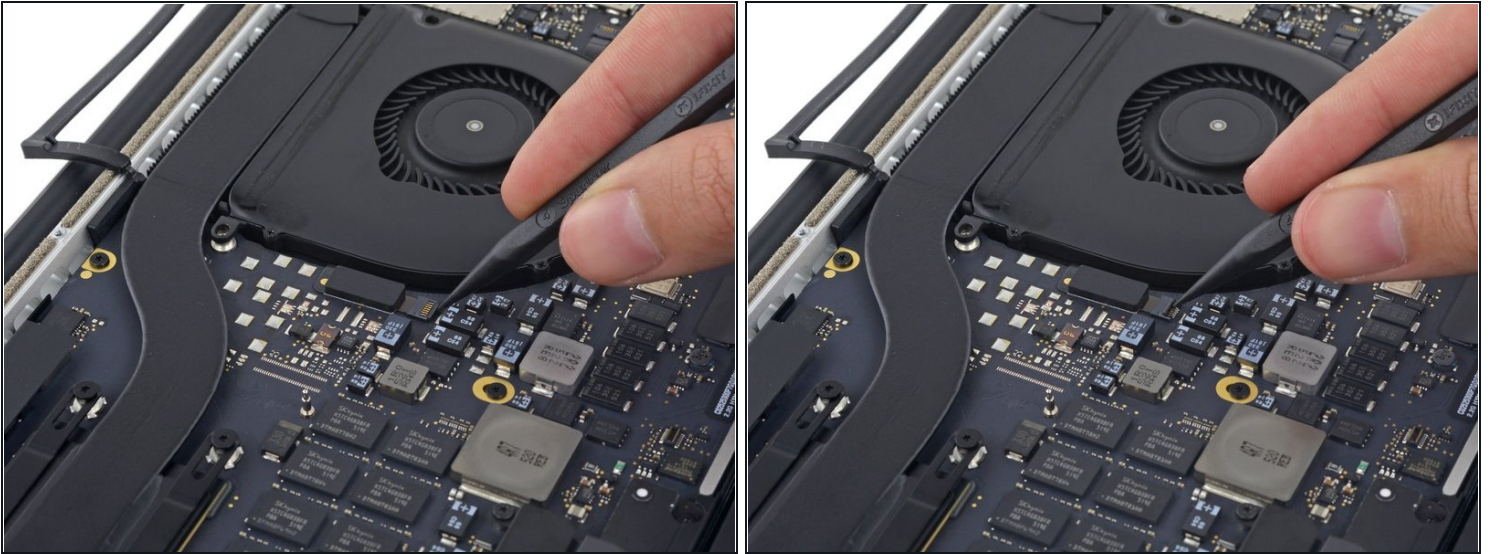
- Peel the left rubber cover up off the fan and fold it out of the way.

Step 18



- Remove the following three screws securing the left fan to the logic board:
 - One 3.6 mm T5 Torx screw with a wide head
 - One 5.0 mm T5 Torx screw with a 2.0 mm long shoulder
 - One 4.4 mm T5 Torx screw

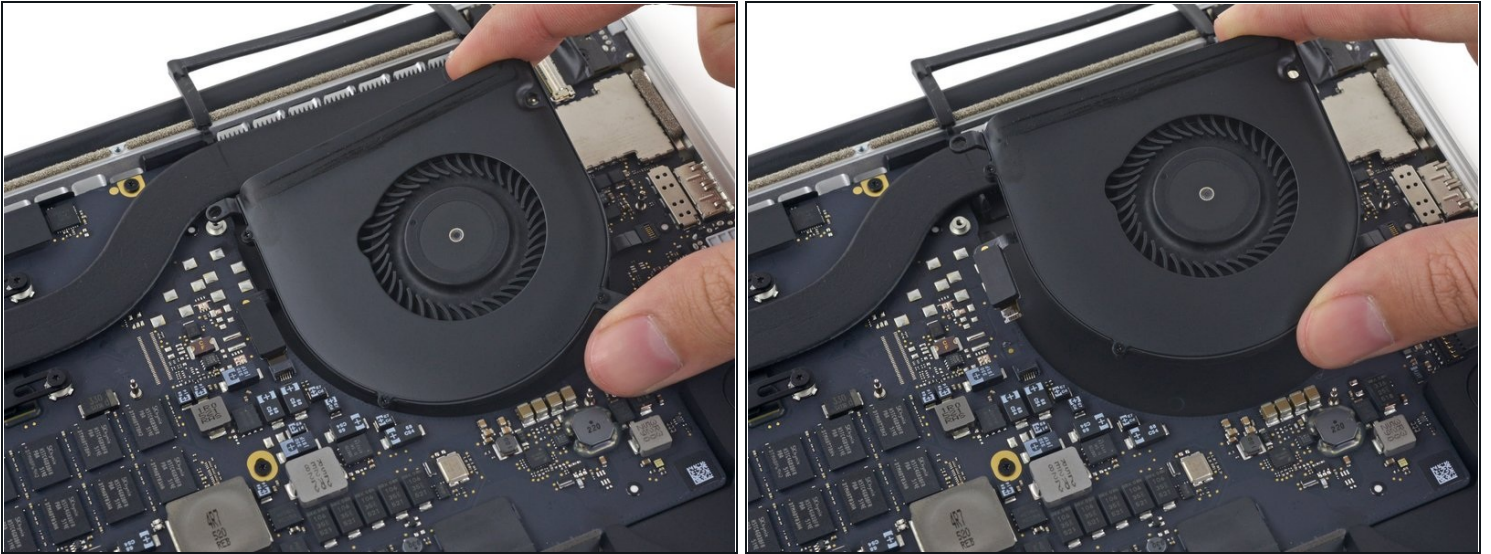
Step 19



- Use the tip of a spudger to flip up the retaining flap on the left fan ribbon cable ZIF socket.

⚠ Be sure you are prying up on the hinged retaining flap, **not** the socket itself.

Step 20



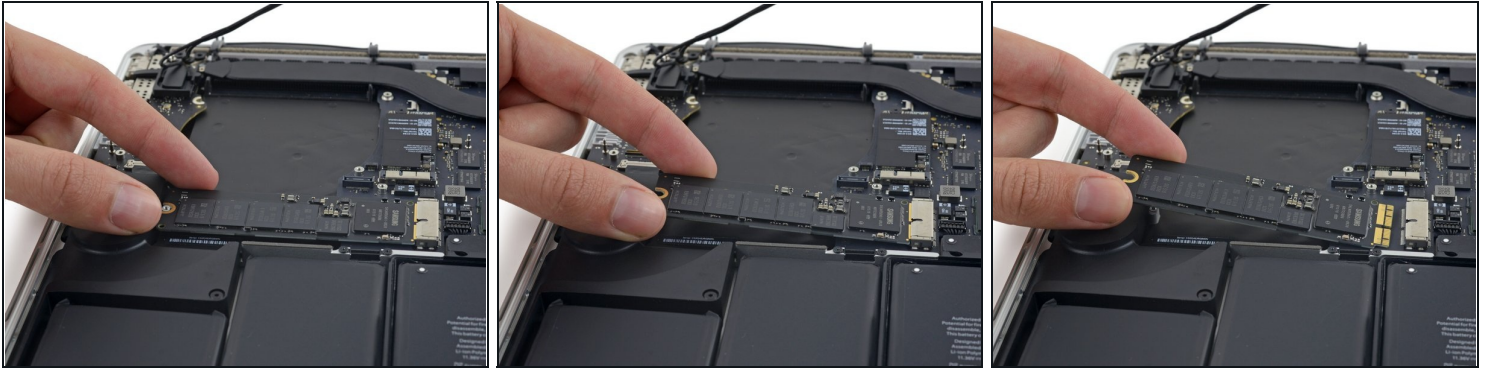
- Lift the fan and push it gently towards the back edge of the MacBook to free the fan cable from its socket.
 - ⚠ The fan cable may be adhered to the logic board—to avoid tearing the cable, gently peel it up while lifting the fan.
- Remove the fan.

Step 21 — SSD



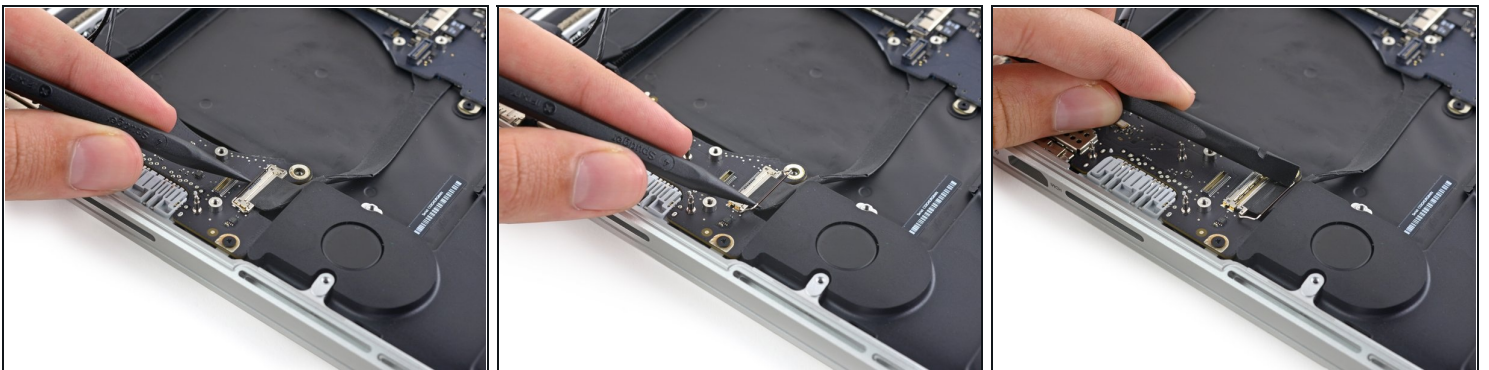
- Remove the single 2.9 mm T5 Torx screw securing the SSD to the logic board.

Step 22



- Lift the end of the SSD up enough to pass over the speaker directly behind it.
⚠ Do not lift the SSD too high, or you could damage the contacts or socket.
- Pull the SSD straight out of its socket on the logic board.

Step 23



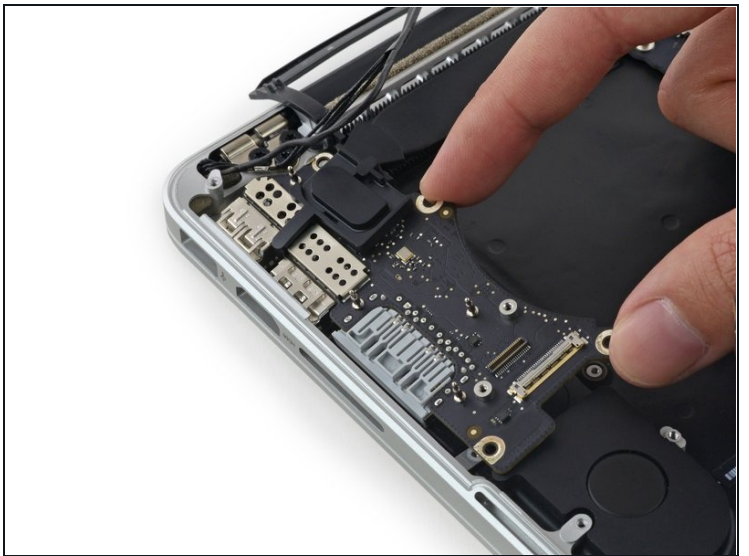
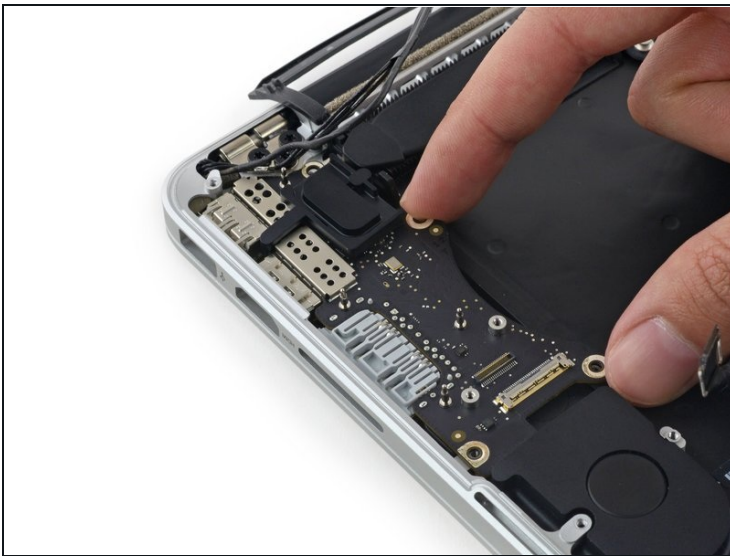
- Use the point of a spudger to flip up the locking mechanism on the I/O board connector.
 - Flip the spudger around and use the flat end to slide the I/O cable out of the connector.
- ⓘ Push on the opened locking mechanism for an easy way to slide the I/O cable out of the connector. This could help prevent accidental damage to the cable or connector contacts.

Step 24



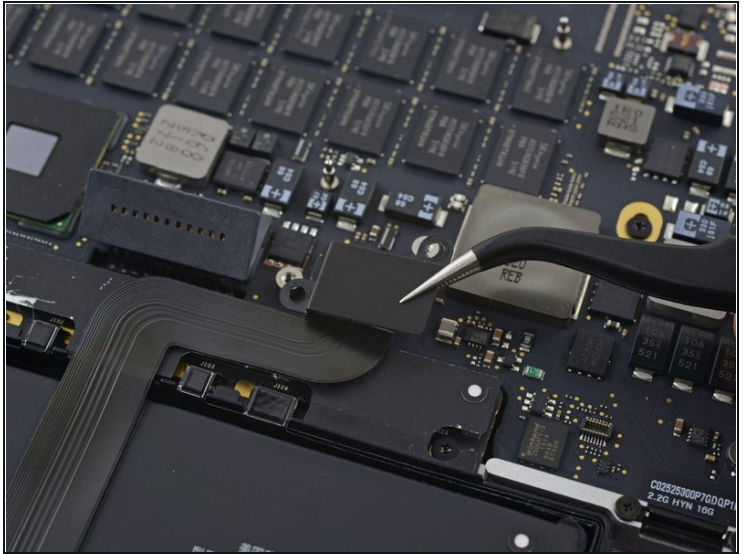
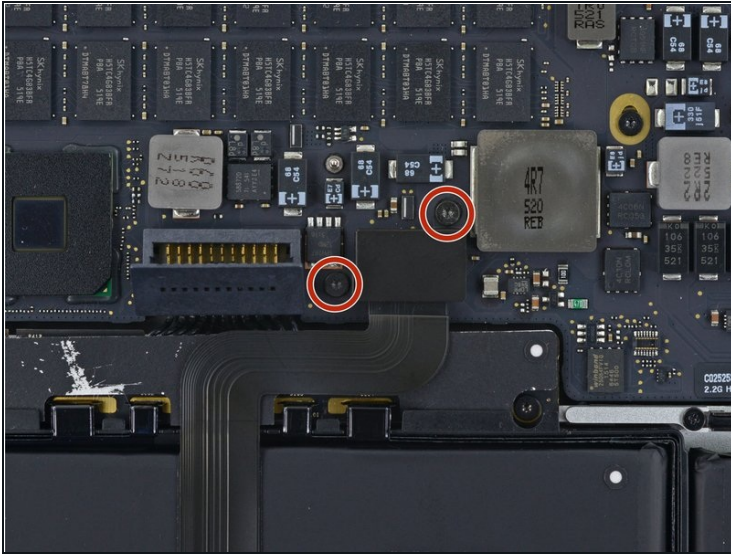
- Remove the two 3.1 mm T5 Torx screws from the I/O board.

Step 25



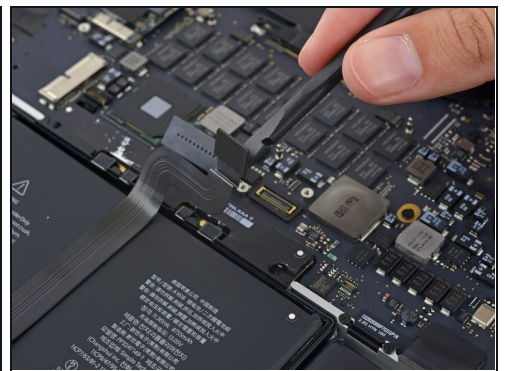
- Slightly lift the interior edge of the I/O board and pull it toward the center of the MacBook, away from the side of the case.
- Remove the I/O board.

Step 26 — Logic Board Assembly



- Remove the two 2.2 mm Torx T5 screws securing the touchpad cable connector cover to the logic board.
- Remove the cover.

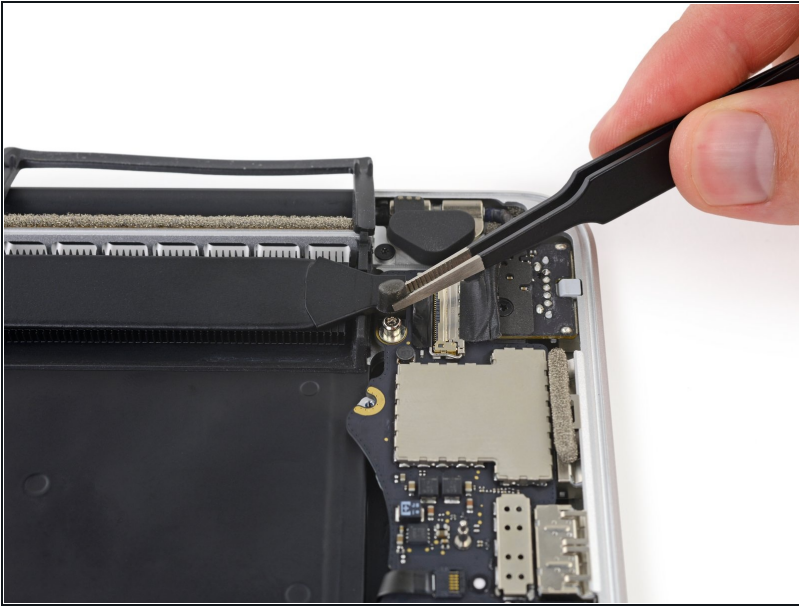
Step 27



- Use the flat end of a spudger to disconnect the touchpad cable connector from its socket in the logic board.
- ① Slightly twisting the flat end of a spudger is an easy way to pry up the cable connector from these types of sockets.

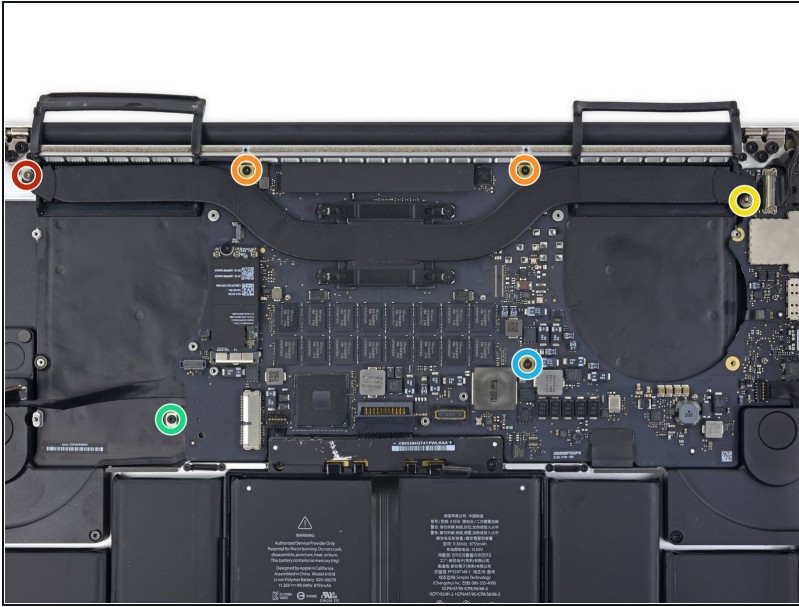
⚠ Be careful to only pry up against the connector, and not the logic board socket.

Step 28



- Remove a small rubber cap off the screw at the end of the heat sink.

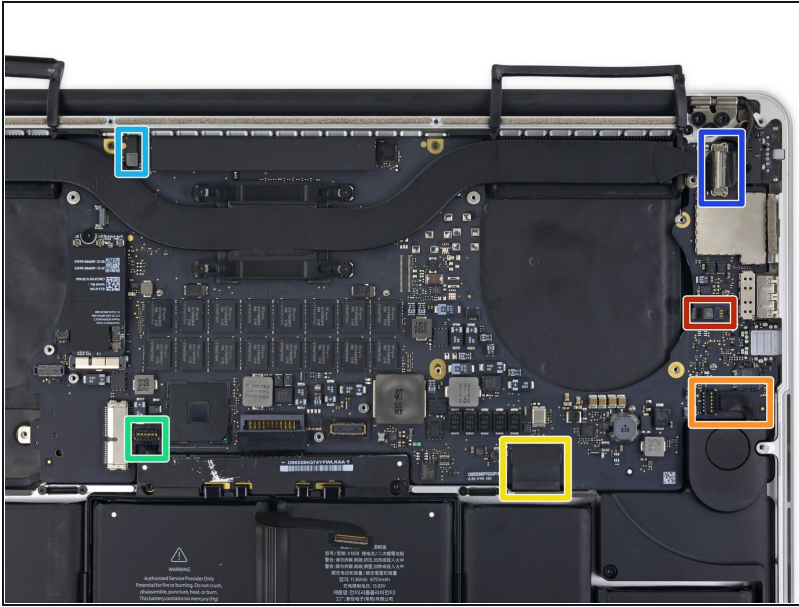
Step 29



- Remove the following six screws securing the logic board assembly to the upper case.
 - One 3.8 mm T5 Torx screw
 - Two 5.7 mm T5 Torx screws
 - One 5.6 mm T5 Torx screw (this one is silver and has a taller head than the others)
 - One 2.6 mm T5 Torx screw
 - One 3.2 mm T5 Torx screw

- ☑ On reassembly, start all six screws but do not tighten any of them. Move the logic board around until all of the screws are centered in their holes and the ports are lined up with their openings in the side of the upper case. Then tighten all of the screws.

Step 30

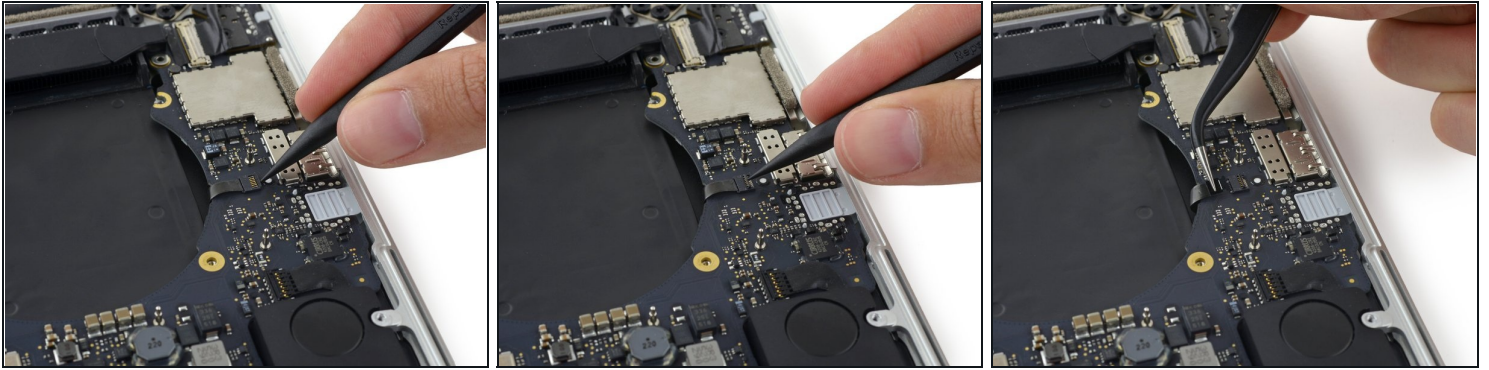


- The following steps will detail disconnecting these six connectors. **Be sure to read each step**, as these connectors come in different styles that disconnect differently.

- Microphone cable
- Left speaker cable
- Keyboard data cable
- Right speaker cable
- Keyboard backlight cable
- Display data cable

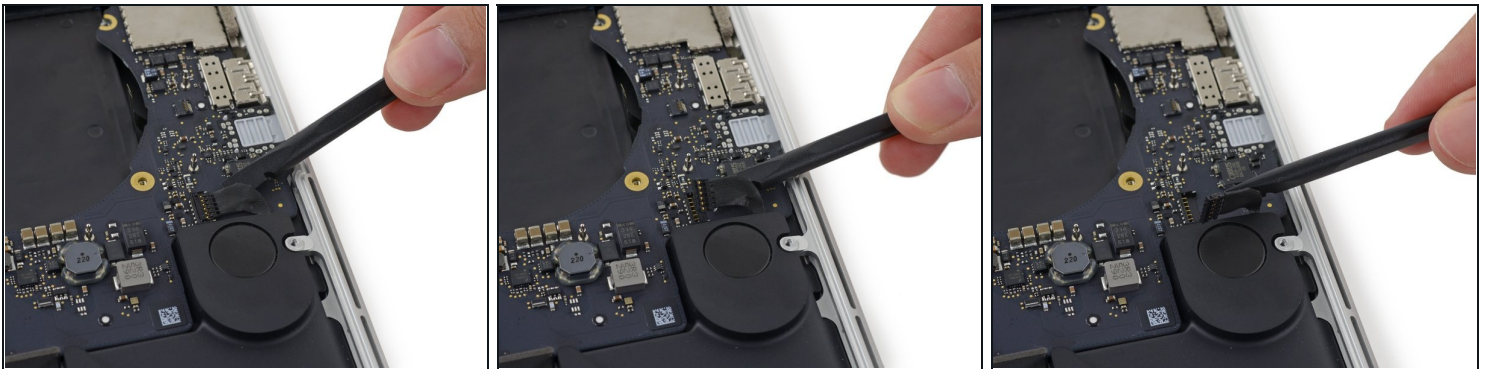
- ☐ On reassembly, check to make sure all of these connectors are connected and fully seated in their sockets.

Step 31



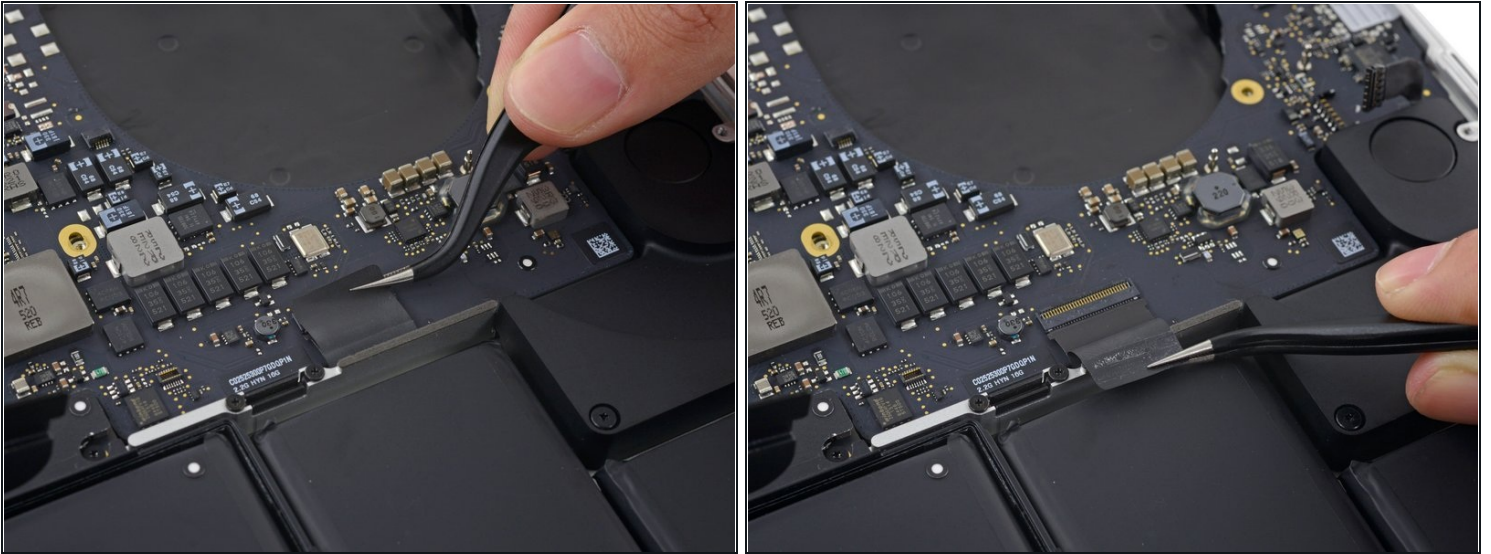
- Use the tip of a spudger to flip up the retaining flap on the microphone ribbon cable ZIF socket.
- Pull the microphone ribbon cable out of its socket, parallel to the logic board.

Step 32



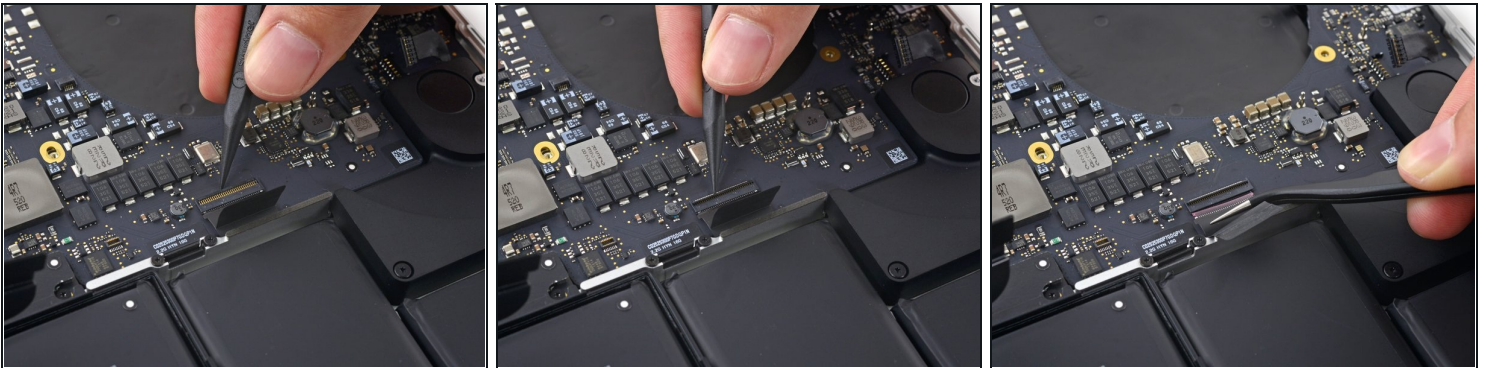
- Use the flat end of a spudger to pry the left speaker connector up and out of its socket on the logic board.
- ⚠ Be sure to pry on the cable connector and not on the socket on the logic board. Prying on the socket may cause it to separate from the logic board.
- Gently fold the cable up and out of the way of the logic board.

Step 33



- Peel back the tape covering the top of the keyboard data cable connector.

Step 34



- Use the tip of a spudger to flip up the retaining flap on the keyboard data cable ZIF socket.
⚠ Be sure you are prying up on the hinged retaining flap, not the socket itself.
- Pull the keyboard data cable out of its ZIF socket. Be sure to pull parallel to the logic board, and not straight up.

Step 35



- Use the tip of a spudger to pry the right speaker connector up and out of its socket on the logic board.

⚠ Be sure to pry on the cable connector and not on the socket on the logic board. Prying on the socket may cause it to separate from the logic board.

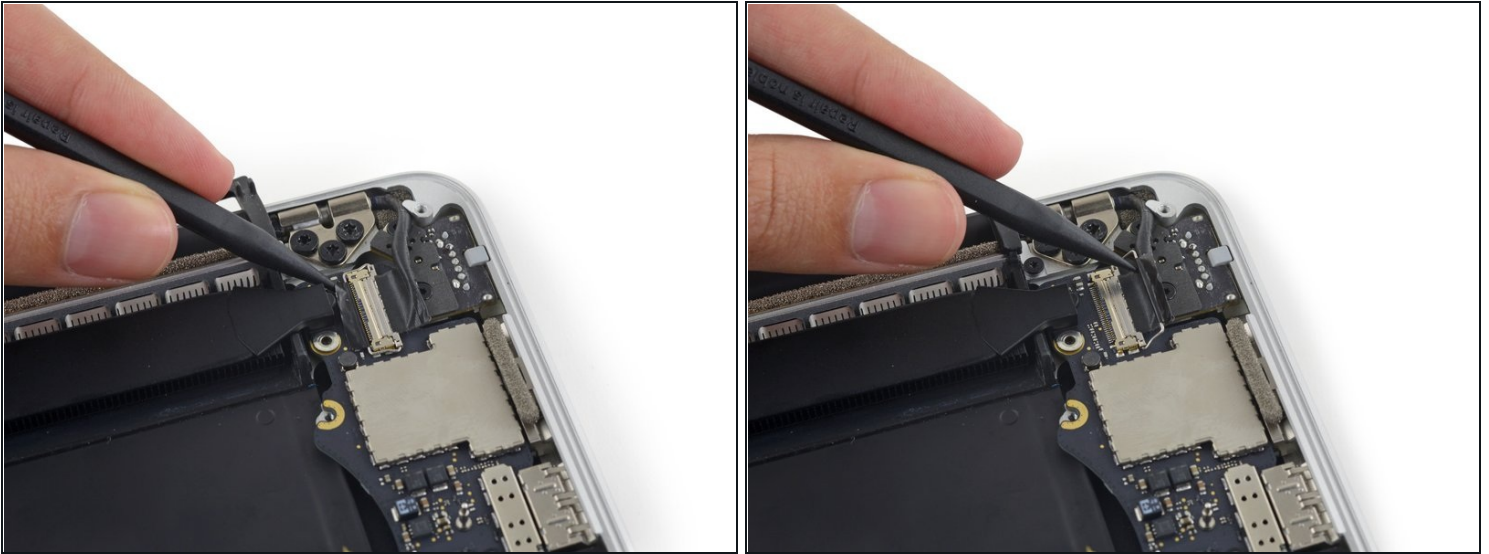
- Gently fold the cable up and out of the way of the logic board.

Step 36



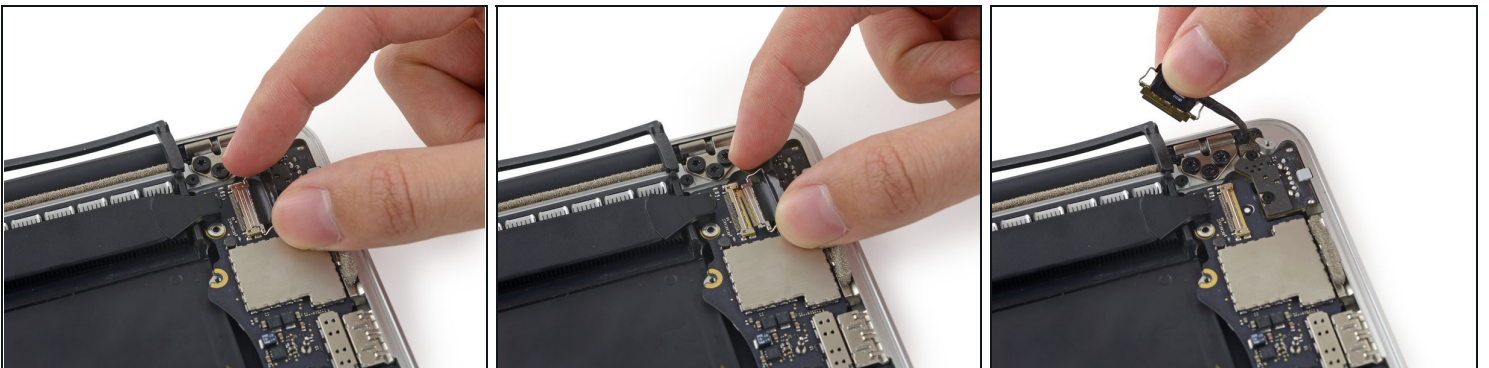
- Use the point of a spudger to pry the keyboard backlight connector up from its socket on the logic board.

Step 37



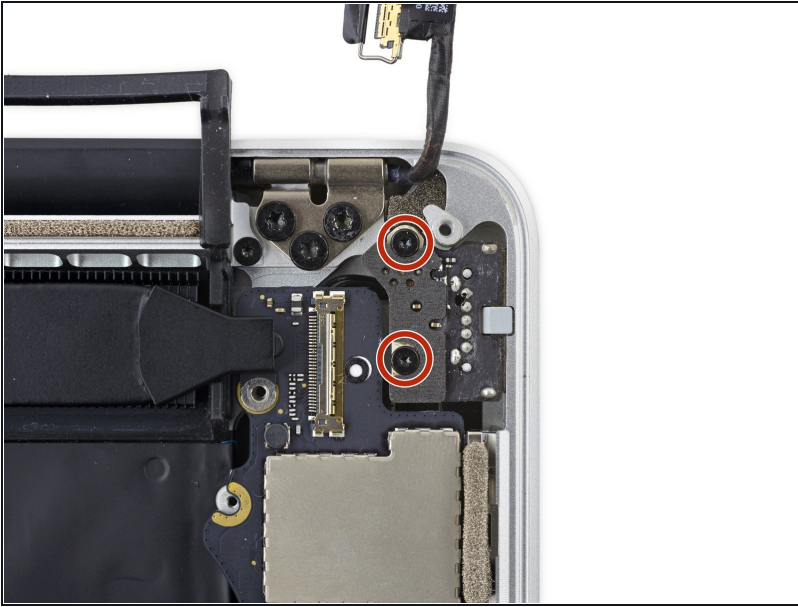
- Use the tip of a spudger to flip up the display data cable lock and rotate it toward the MagSafe 2 power port side of the computer.

Step 38



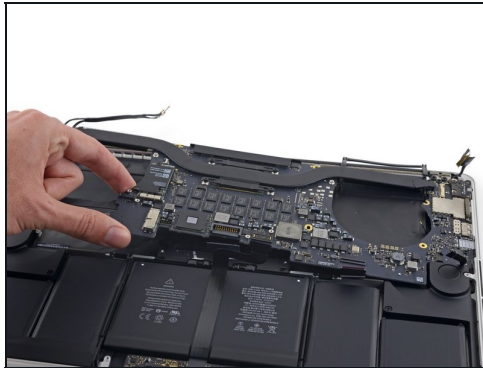
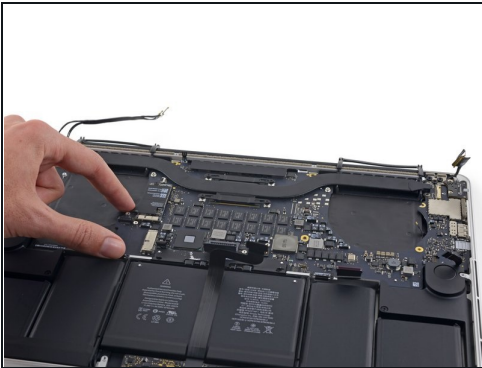
- Pull the display data cable straight out of its socket on the logic board.
 - ⚠ Do not lift up on the display data cable, as its socket is very fragile. Pull the cable parallel to the face of the logic board.
 - ⚠ Do not touch the contacts on the data connector or its socket with your fingers or any tools, as you may deposit oils or damage the pins.
- Gently bend the display data cable toward the display hinge, to expose the screws on the MagSafe 2 board.

Step 39



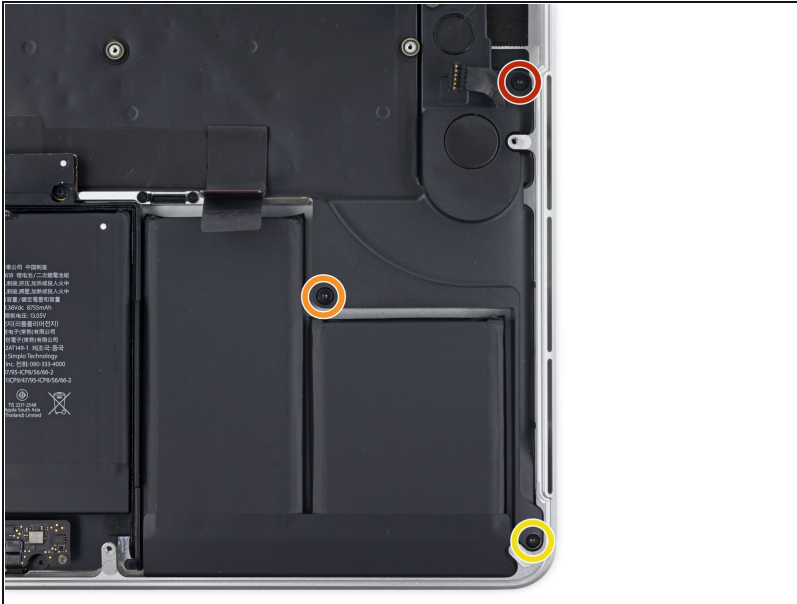
- Remove the two 4.0 mm T5 Torx screws from the MagSafe 2 board.

Step 40



- Lift and pull the entire logic board assembly away from the wall of the upper case.
- ☒ When reassembling, be sure to line up the ports with their cutouts in the upper case.

Step 41 — Left Speaker



- Remove the following screws securing the left speaker to the upper case:
 - 2.7 mm T5 Torx screw
 - 6.9 mm T5 Torx screw (with 4.5 mm shoulder)
 - 5.6 mm T5 Torx screw

Step 42



- Remove the left speaker by pulling it slightly away from the side of the upper case, and out from under the aluminum tab blocking it in.

Step 43 — Right Speaker



- Remove the following screws securing the right speaker to the upper case:
 - 2.7 mm T5 Torx screw
 - 6.9 mm T5 Torx screw (with 4.5 mm shoulder)
 - 5.6 mm T5 Torx screw

Step 44



i The right speaker cable is lightly adhered to the upper case.

- Peel the right speaker cable up to free it from the upper case.

★ On reassembly, tuck the cable up against the aluminum frame above the battery.

Step 45



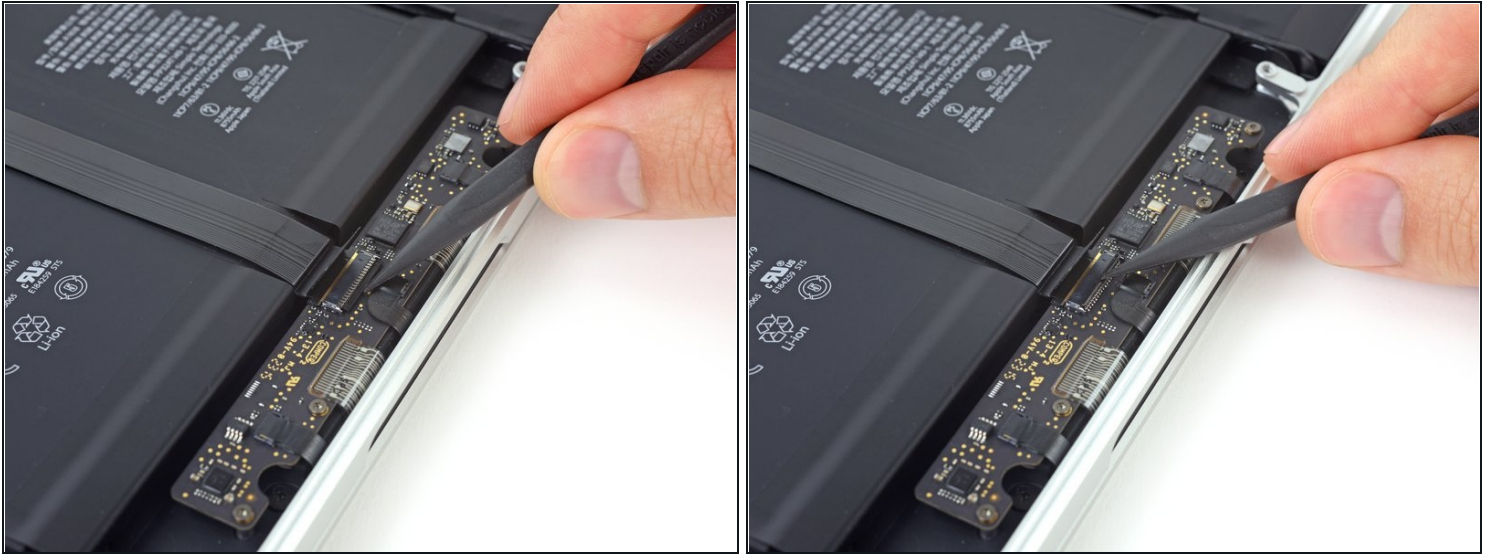
- Remove the right speaker by pulling it slightly away from the side of the upper case, and out from under the aluminum tab blocking it in.

Step 46 — Battery



- Peel back the tape covering the trackpad connector ribbon cable, near the front edge of the MacBook Pro.

Step 47



- Use the tip of a spudger to flip up the black locking tab on the trackpad ribbon cable ZIF connector.

Step 48



- Insert an opening pick between the trackpad ribbon cable and the battery.
 - Carefully slide your pick underneath the length of the ribbon cable to separate the adhesive securing it to the battery.
- ⚠ The ribbon cable is easily damaged. If necessary, use a little heat from an iOpener or hair dryer to soften the adhesive so you can remove it with less force.

Step 49



- Remove the trackpad ribbon cable.

Step 50



- Remove the two 3.2 mm T5 Torx screws securing the battery board.

Step 51



- ❗ The liquid adhesive remover provided in your kit can affect the antireflective coating on your MacBook Pro's display.
- To protect your display, place a sheet of aluminum foil between the display and keyboard and leave it there while you work.

Step 52



- With the front edge of the MacBook Pro facing you, lift the right side and prop it up at a slight angle, using a sturdy foam block or book.
- ❗ In the following steps, you'll apply liquid adhesive remover to the right (outer) edge of the battery. Keeping this side of the MacBook Pro elevated will help the adhesive remover flow underneath the battery.

Step 53

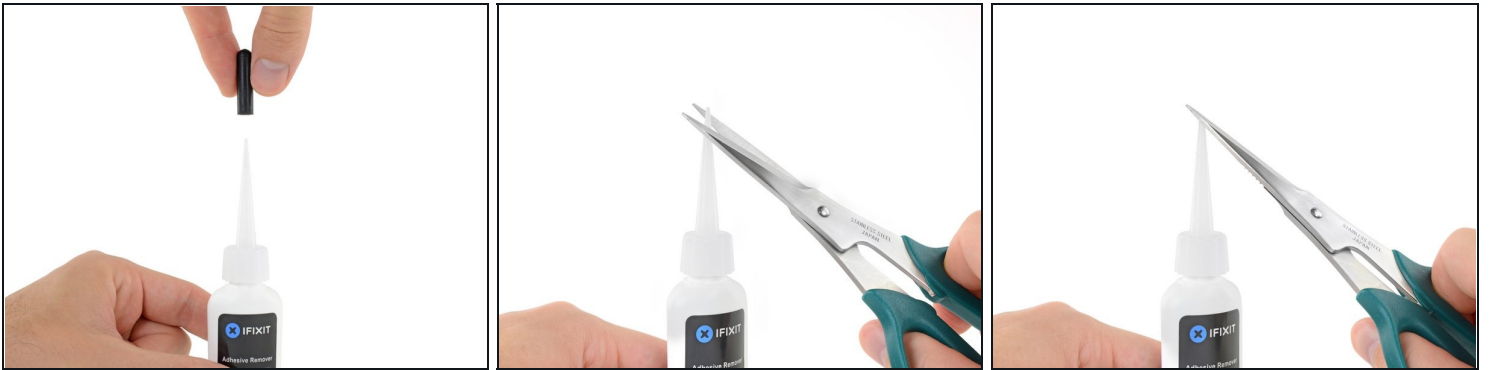


- Now that your MacBook Pro is fully prepped, it's time to prep yourself.

⚠ iFixit adhesive remover contains acetone, a mild skin and eye irritant.

- Wear eye protection when handling and applying the adhesive remover. (Eye protection is included in your kit.)
- **Do not** wear contact lenses without eye protection.
- Protective gloves are also included in your kit. If you are concerned about skin irritation, put your gloves on now.

Step 54



- Pull off the black rubber stopper from your bottle of adhesive remover.

⚠ Twist to loosen or remove the bottle cap before you cut the applicator tip.

- ① This unseals the bottle and allows the pressure to equalize before you cut the applicator tip. **If you skip this step, the adhesive remover may spray out unexpectedly when the tip is cut.**

- Use scissors to cut off the sealed tip of the applicator.

- ① Cutting close to the narrow tip will give you better control so you can apply the adhesive remover in small amounts.

⚠ Twist and close the bottle cap securely before you proceed further.

Step 55



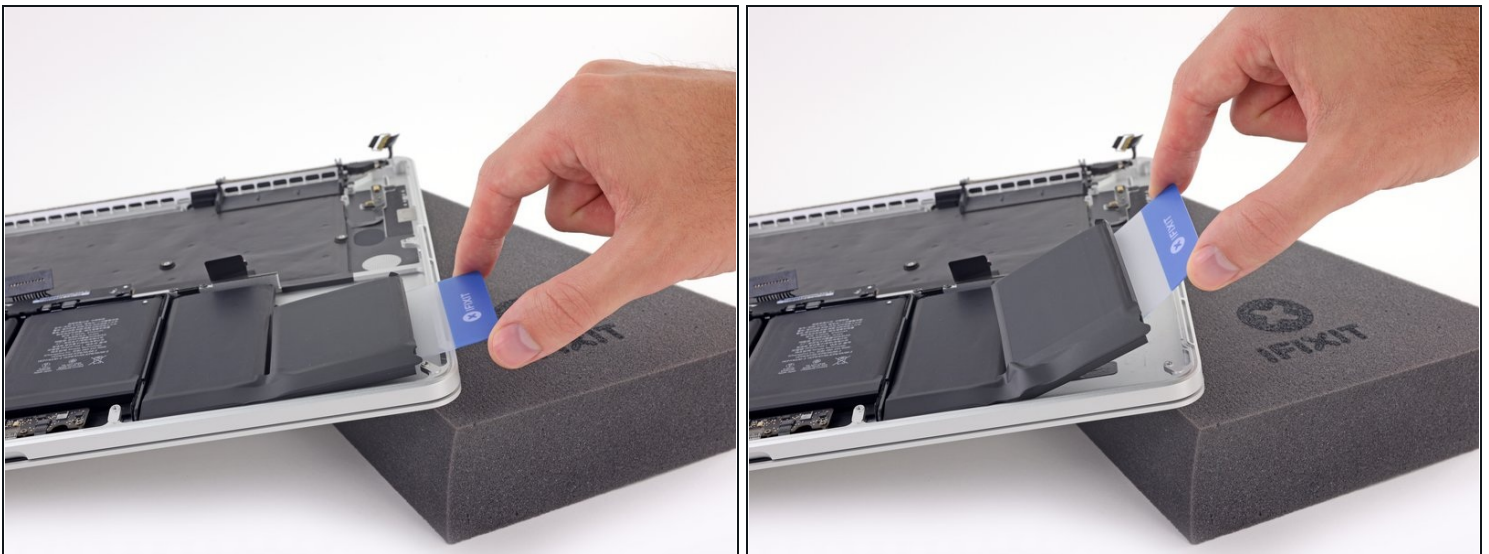
- Apply a few drops of adhesive remover evenly along the elevated edge of the outer right battery cell.
 - ① You don't need to use very much. The small bottle contains more than twice the amount of solvent needed to remove all the battery cells.
- Wait 2-3 minutes for the liquid adhesive remover to penetrate underneath the battery cell before you proceed to the next step.

Step 56



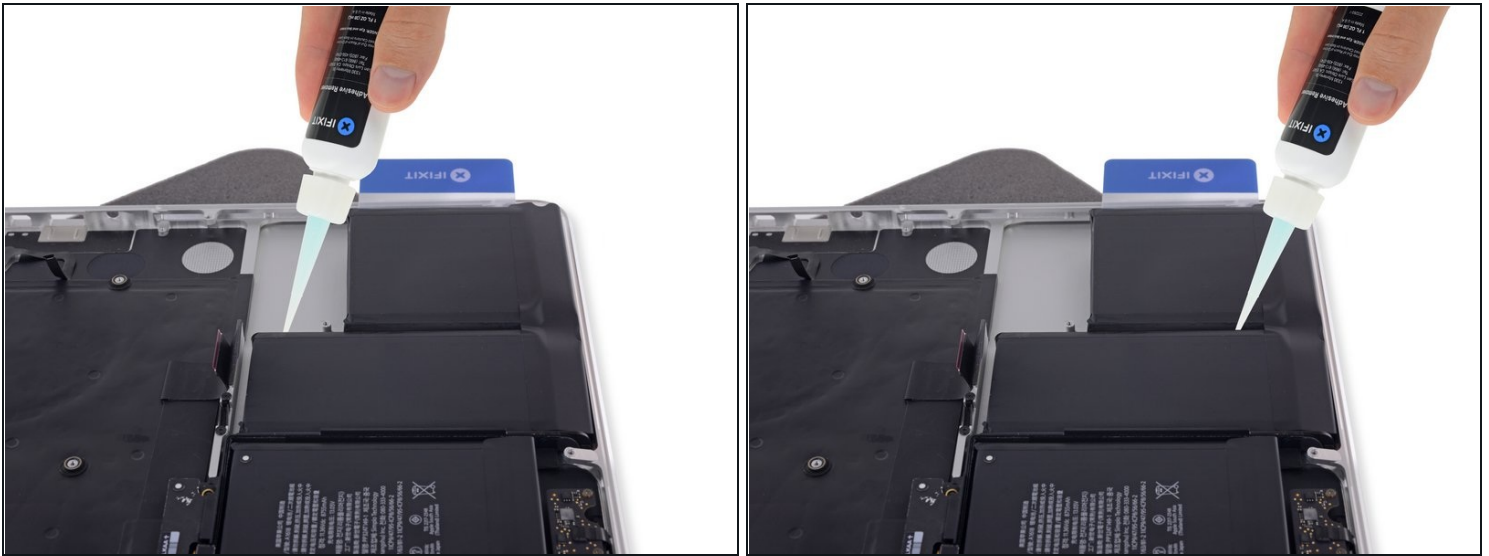
- Slide one corner of a [plastic card](#) under the outer edge of the battery cell.
 - ① It may help to gently twist the card to open up a slight gap between the battery cell and the MacBook Pro's case.
- Slide the card farther underneath the battery cell to separate it from the adhesive securing it to the MacBook Pro's upper case.

Step 57



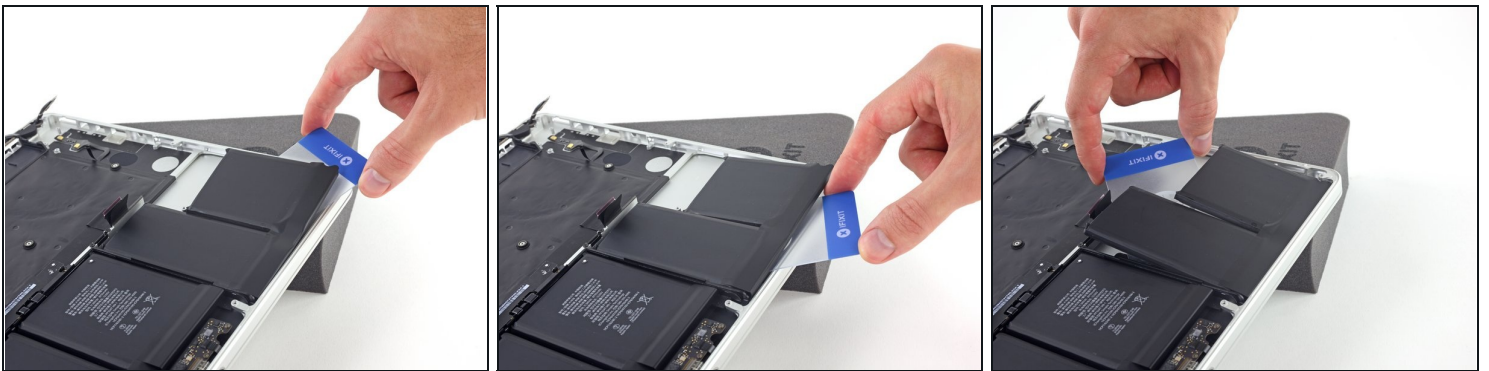
- Lift the battery cell to separate it from the MacBook Pro's upper case, but don't try to remove it.
- Leave the plastic card underneath the battery cell to prevent it from re-adhering as you proceed to the next step.

Step 58



- Apply a few drops of adhesive remover evenly along the elevated edge of the next battery cell.
- Wait 2-3 minutes for the liquid adhesive remover to penetrate underneath the battery cell before you proceed to the next step.

Step 59



- Slide one corner of your plastic card underneath the second battery cell.
- Push the card underneath the second battery cell, and slide it side to side to separate the adhesive underneath.
- Leave the plastic card underneath both battery cells (or [flip them over](#)) to prevent them from re-adhering as you proceed to the next step.

Step 60



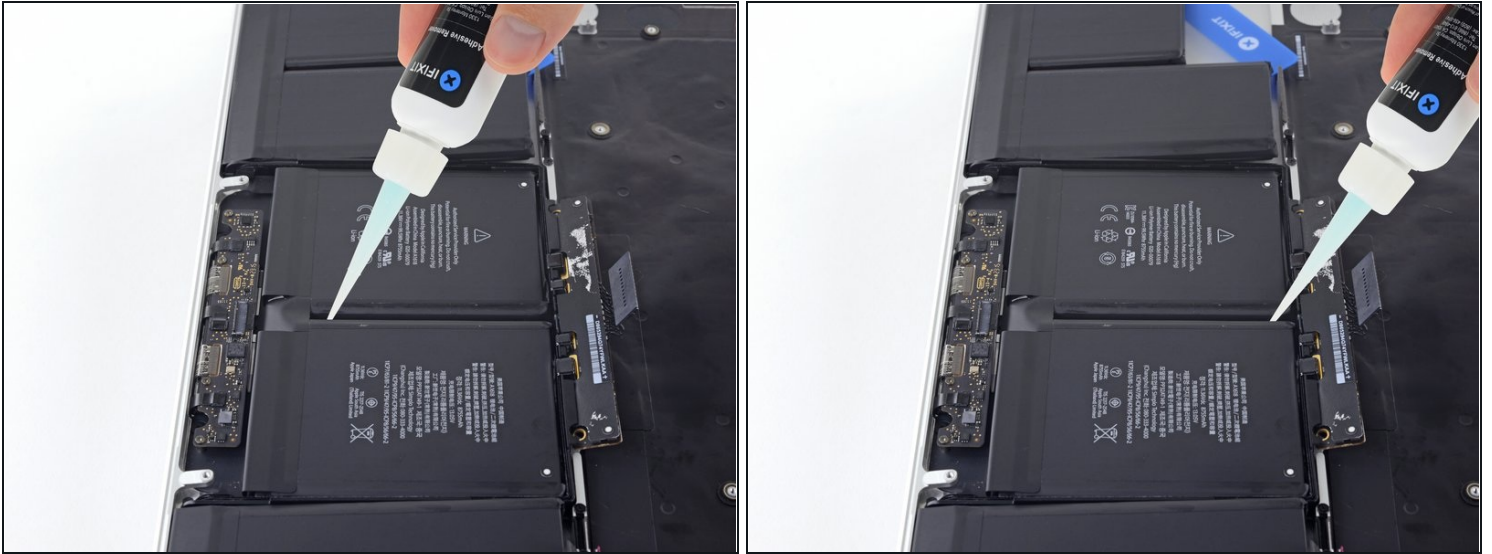
- It's time to switch sides. Remove your book or foam block and place it under the opposite side of your MacBook Pro.

Step 61



- Repeat the procedure from the prior steps to separate the two battery cells on this side:
 - Apply your adhesive remover to the elevated edge of the outer left battery cell, and wait 2-3 minutes for it to penetrate.
 - Work one corner of a plastic card underneath the battery cell, and slide the card fully underneath the battery cell to separate it.
 - Do the same for the adjacent cell.
 - Leave your plastic card in place or flip the battery cells over to prevent them from re-adhering during the following steps.

Step 62



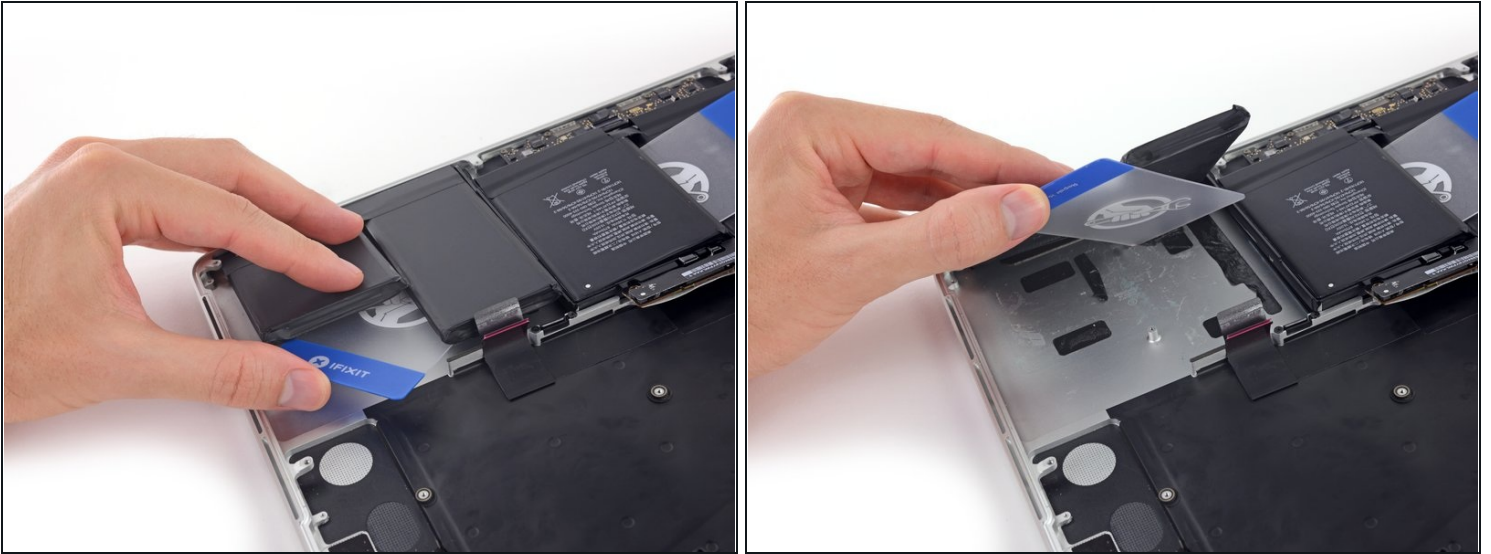
- With the left edge of your MacBook Pro still propped up, apply a few drops of adhesive remover down the center line between the two middle battery cells.
- Wait 2-3 minutes for the adhesive remover to penetrate before you continue.

Step 63



- Slide one corner of a plastic card between the middle two cells, and under the elevated edge of the center-right battery cell.
- Slide the card farther underneath the battery cell to slice through the adhesive securing it in place.
- Don't try to fully separate this battery cell yet. Leave your plastic card in place to prevent it from re-adhering.

Step 64



- Flip the two de-adhered right-hand battery cells over the front edge of the MacBook Pro, if you haven't already. This will allow access to the outside edge of the center cell.

Step 65



- Push one corner of a plastic card below the plastic battery frame and underneath the remaining adhered edge of the lower center cell.

⚠ Do not pry along the edge nearest the battery connector, or you risk damaging the keyboard ribbon cable.

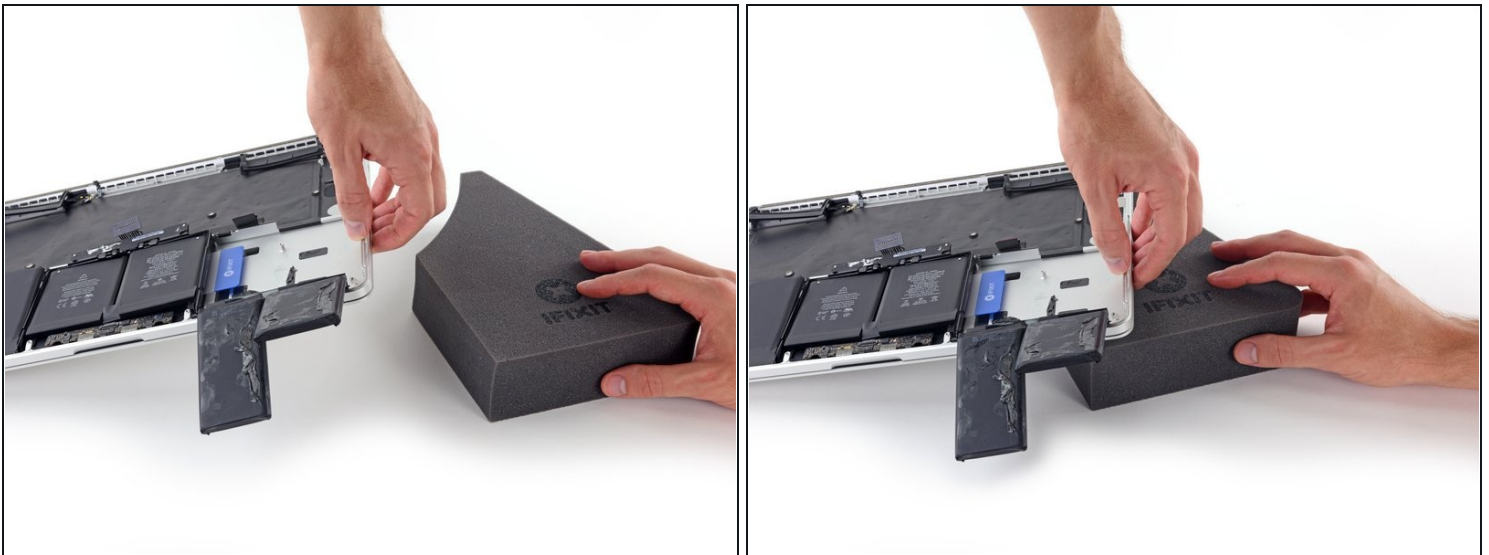
- Slide your card all the way under the battery cell, and leave it to prevent the battery cell from re-adhering.

Step 66



- Remove the first plastic card that you inserted under the center-right battery cell.
- Push the other card in a little further and leave it in place to prevent the battery cell from re-adhering as you continue.

Step 67



- Remove your book or foam block.
- With the front edge of the MacBook Pro facing you, lift the right side and prop it up once again.

Step 68



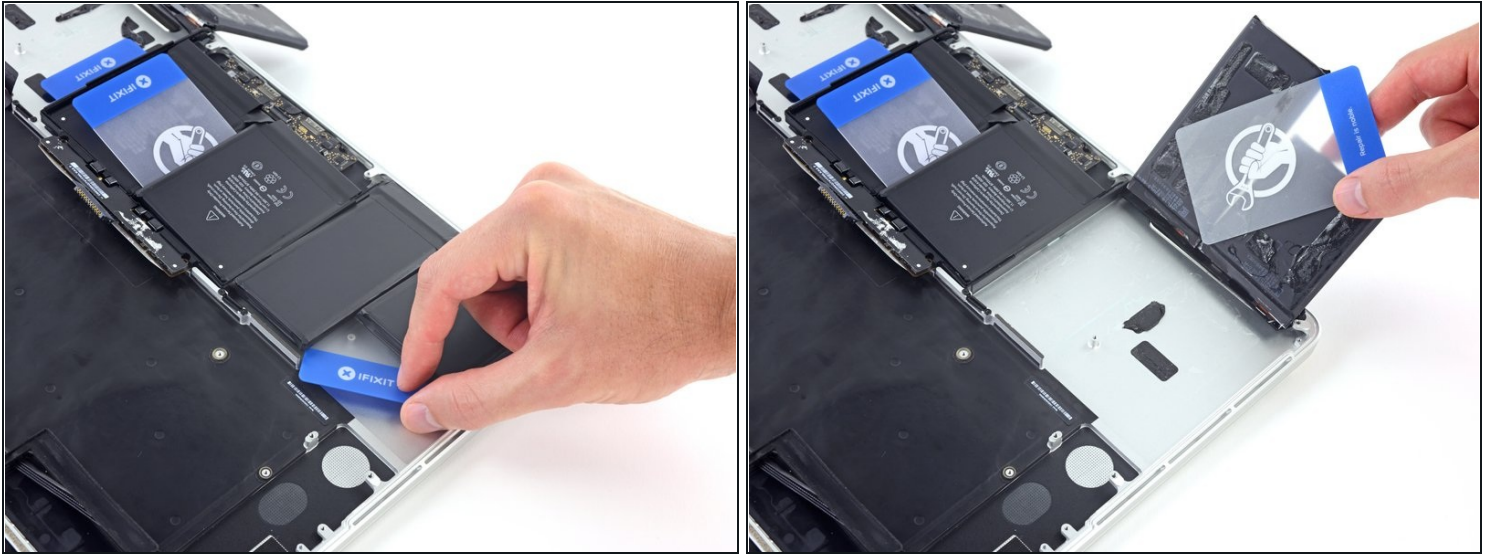
- Apply a few drops of adhesive remover between the two center battery cells, so that it flows underneath the remaining battery cell.
- Wait 2-3 minutes for the adhesive remover to penetrate before you continue.

Step 69



- Slide one corner of a plastic card under the elevated edge of the final battery cell.
- Push the card farther underneath the battery cell to slice through the adhesive securing it in place.
- Don't try to fully separate this battery cell yet. Leave your plastic card in place to prevent it from re-adhering.

Step 70



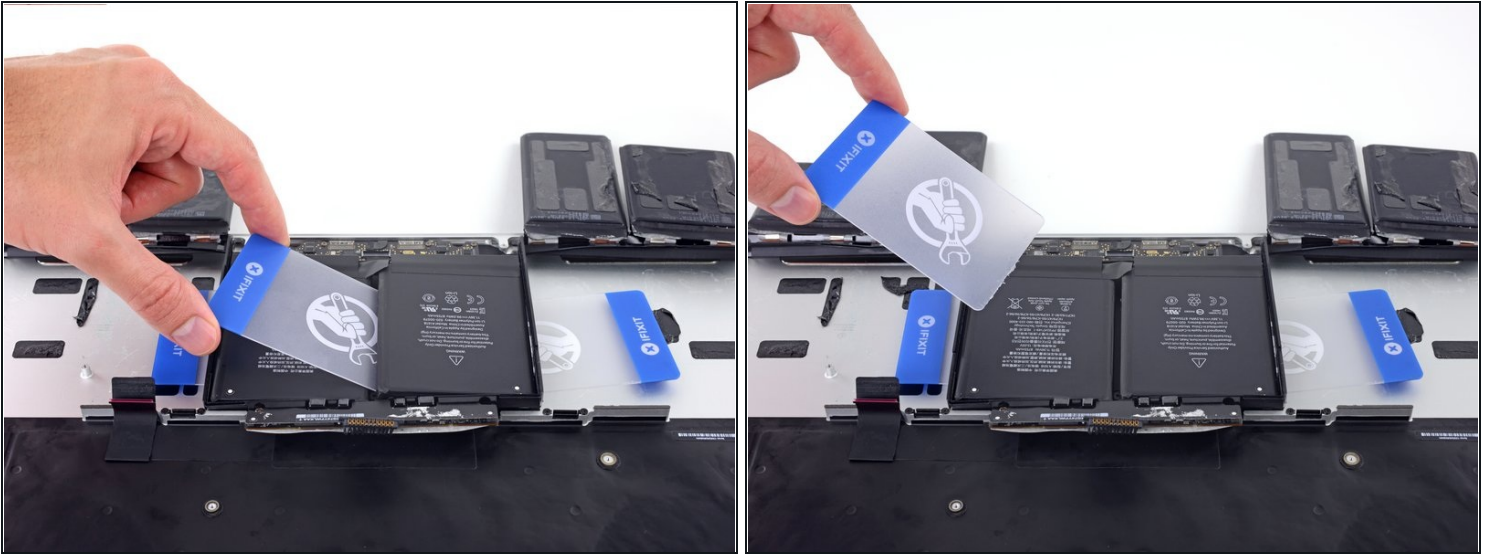
- If you haven't already done so, lift and flip the two outer left battery cells to clear access to the outside edge of the final battery cell.

Step 71



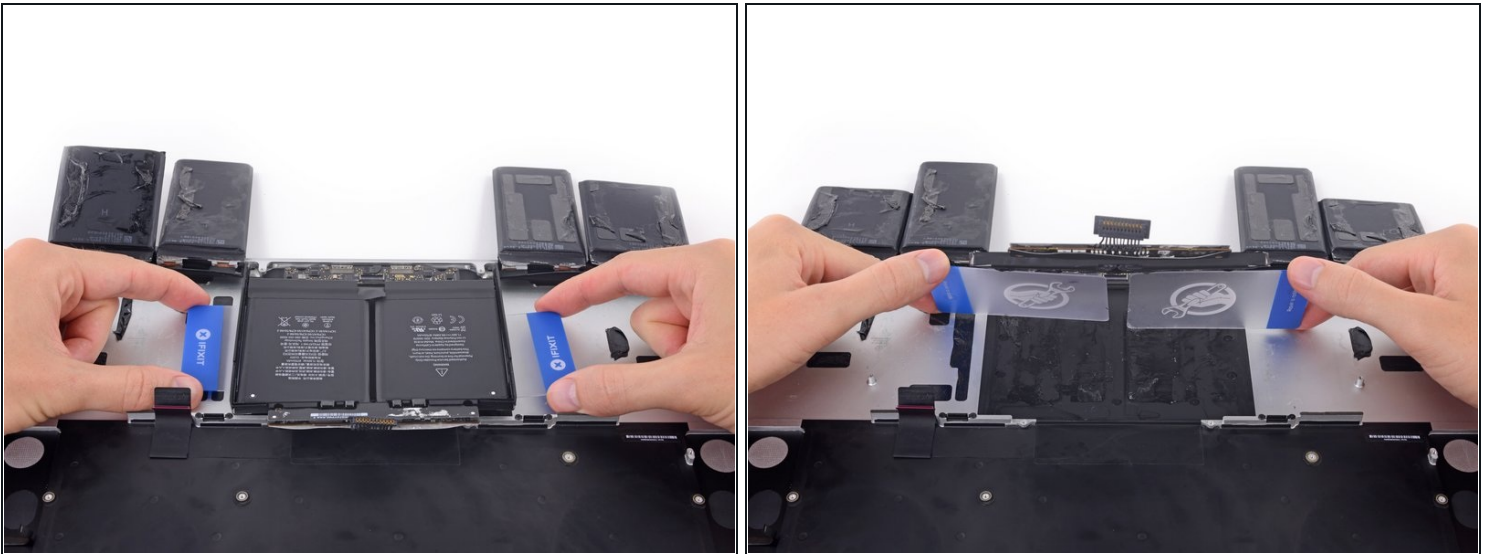
- Repeat the process you used on the center-right battery cell to finish separating the adhesive on the center-left cell:
- Push one corner of a plastic card below the plastic battery frame and underneath the remaining adhered edge of the final battery cell.
- Slide your card all the way underneath the battery cell, and leave it to prevent the battery cell from re-adhering.

Step 72



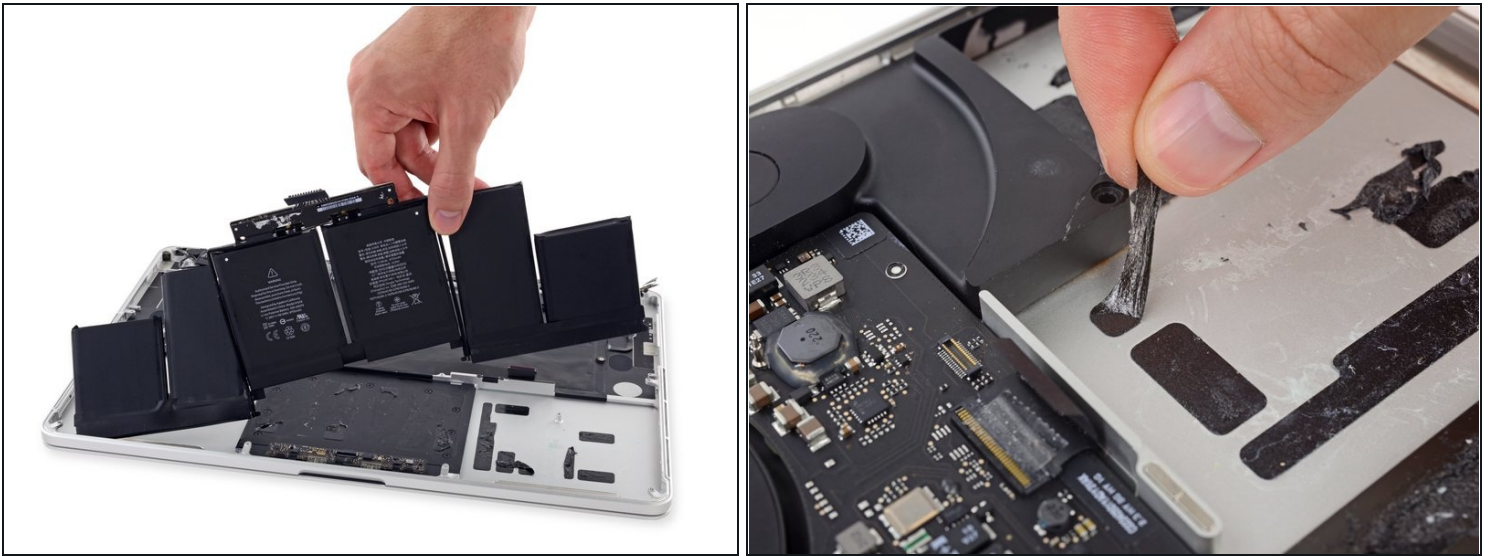
- Remove the first card that you inserted under the final battery cell.

Step 73



- With one plastic card underneath each of the two center battery cells, twist and lift both cards to fully separate the battery cells, together with the plastic frame and battery board, from the MacBook Pro.

Step 74



- Lift and remove the battery.
 - ☑ Before installing your new battery, remove all the old adhesive from the MacBook Pro's case.
 - With a little luck, you can slowly pull out each strip of adhesive with your fingers.
 - Otherwise, soak each strip of adhesive with a bit of adhesive remover for 2-3 minutes, and then scrape it out with a plastic tool. This can take quite a bit of work, so be patient.
 - Mop up any remaining adhesive remover and give your MacBook Pro a few minutes to air dry.
 - ☑ The replacement battery included in your iFixit kit comes with adhesive pre-installed. Test the battery's fit and alignment carefully before peeling off the film covering the adhesive, and then press each cell firmly into place. If any additional films/liners are present that weren't on your original battery, remove them now.
 - [Calibrate](#) your newly installed battery: charge it to 100%, and keep charging it for at least 2 more hours. Unplug and use it normally to drain the battery. When you see the low battery warning, save your work, and keep your laptop on until it goes to sleep due to low battery. Wait at least 5 hours, then charge your laptop uninterrupted to 100%.
- ⚠ If you notice any unusual behavior or problems after installing your new battery, you may need to [reset your MacBook Pro's SMC](#).

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