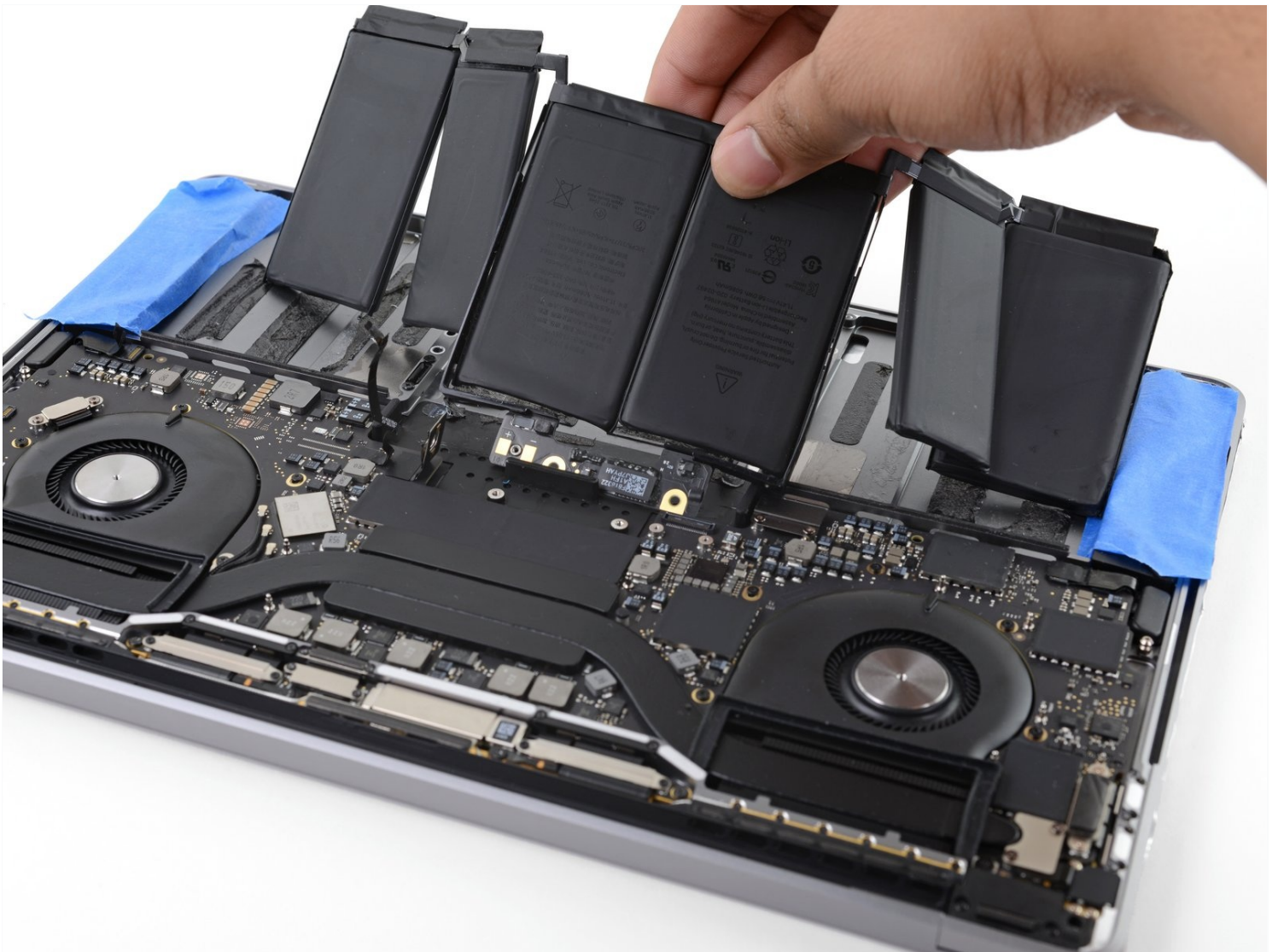




# MacBook Pro 13" Touch Bar 2019 Battery Replacement

Follow these instructions to replace the...

Written By: Sam Omiotek



# INTRODUCTION

Follow these instructions to replace the glued-in battery in your MacBook Pro using an iFixit kit with adhesive remover. The adhesive remover helps weaken the glue securing the old battery, making it easier to remove.

**iFixit adhesive remover is flammable.** Follow this procedure in a well-ventilated area, and don't smoke or work near an open flame.

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

**Note:** The solvent used to dissolve the battery adhesive can damage certain plastics. Follow all instructions and take care where you apply the adhesive remover.



## TOOLS:

Suction Handle (1)  
iFixit Opening Picks (Set of 6) (1)  
P5 Pentalobe Screwdriver Retina MacBook Pro and Air (1)  
T3 Torx Screwdriver (1)  
Spudger (1)  
T5 Torx Screwdriver (1)  
Tweezers (1)  
iOpener (1)  
Plastic Cards (1)  
iFixit Adhesive Remover (1)  
Painter's Tape (1)  
Safety Glasses (1)  
Nitrile Gloves 100 Box (1)



## PARTS:

MacBook Pro 13" Retina (A1989, A2251)  
Battery (1)

---

## Step 1 — Disable Auto Boot



- ① Before starting this procedure, you must disable your Mac's **Auto Boot** feature. Auto Boot powers on your Mac when you open the lid, and may be accidentally triggered during disassembly. [Use this guide](#) or follow the abbreviated instructions below to disable Auto Boot. *This command may not work on all Macs.*
  - Power on your Mac and launch **Terminal**.
  - Copy and paste the following command (or type it exactly) into Terminal:
    - **sudo nvram AutoBoot=%00**
  - Press **[return]**. If prompted, enter your administrator password and press **[return]** again. *Note: Your return key may also be labeled ↵ or "enter."*
- ① You can now safely power down your Mac and open the bottom case, without it accidentally powering on.
- ★ When your repair is complete and your Mac is successfully reassembled, re-enable Auto Boot with the following command:
  - **sudo nvram AutoBoot=%03**

## Step 2 — Remove the pentalobe screws



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

- Use a P5 Pentalobe driver to remove the six screws securing the lower case:
  - Two 6.2 mm screws
  - Four 3.4 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 3 — Open a gap using a suction cup



- Apply a suction handle to the lower case near the front-center area of the MacBook Pro.
- Lift the suction handle to create a slight gap between the lower case and the chassis.



## Step 4 — Separate the clips



- Insert one corner of an opening pick into the space between the lower case and the chassis.
- Slide the opening pick around the nearest corner and halfway up the side of the case.
  - ⓘ This releases the first of the hidden clips securing the lower case to the chassis. You should feel and hear the clip pop free.

## Step 5



- Repeat the previous step on the opposite side, sliding your opening pick under the lower case and up the side to pop the second clip free.

## Step 6



- Insert your opening pick once again under the front edge of the lower case, near one of the two centermost screw holes.
- Give the pick a firm twist to pop free the third clip securing the lower case to the chassis.
- Repeat this procedure near the other of the two centermost screw holes, popping the fourth clip free.

## Step 7

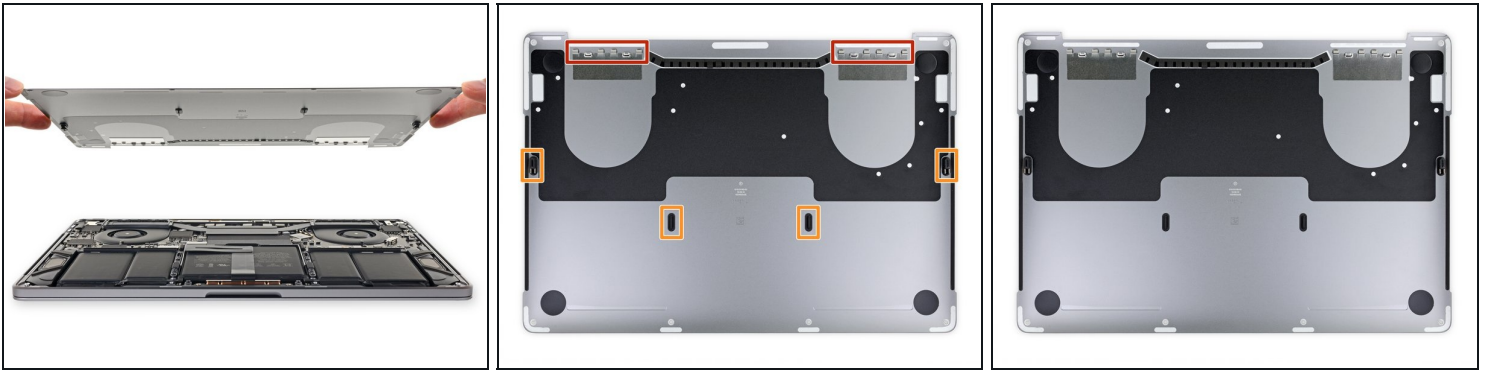


- Pull the lower case firmly towards the front of the MacBook (away from the hinge area) to separate the last of the clips securing the lower case.
  - Pull first at one corner, then the other.

 Pull to the side—not up.

 This can require a lot of force.

## Step 8 — Remove the lower case

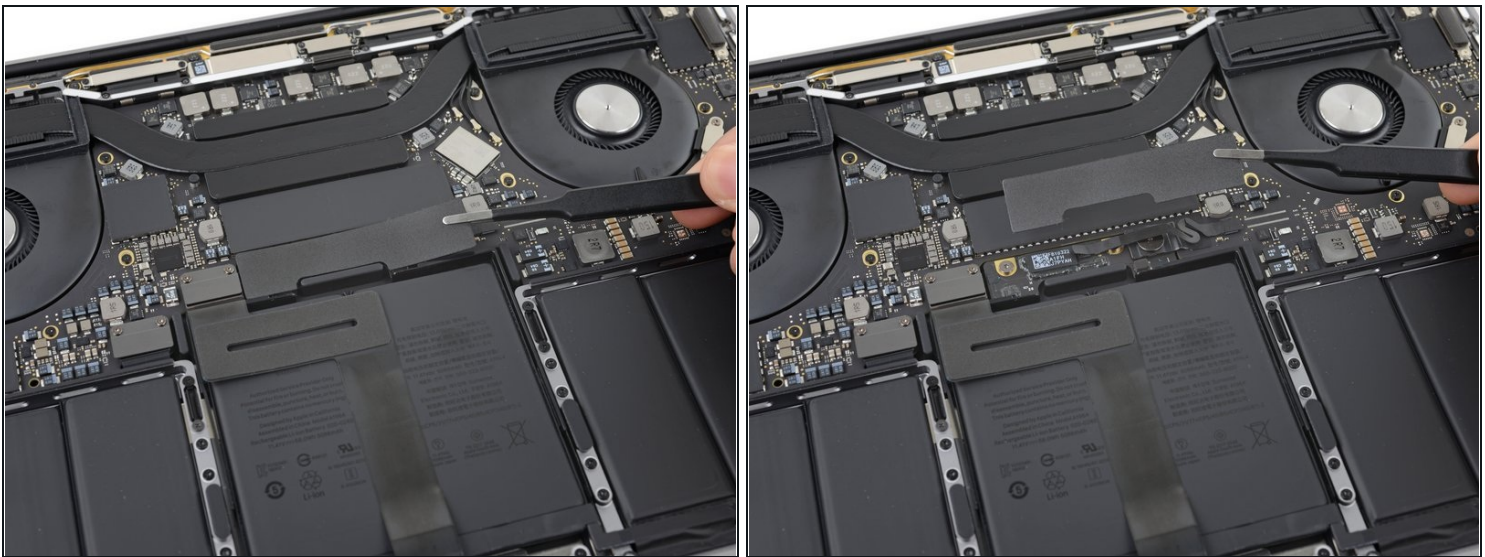


- Remove the lower case.

☒ To reinstall the lower case:

- [Set it in place](#) and align the sliding clips near the display hinge. Press down and slide the cover toward the hinge. It should stop sliding as the clips engage.
- When the sliding clips are fully engaged and the lower case looks correctly aligned, press down firmly on the lower case to engage the four hidden clips underneath. You should feel and hear them snap into place.

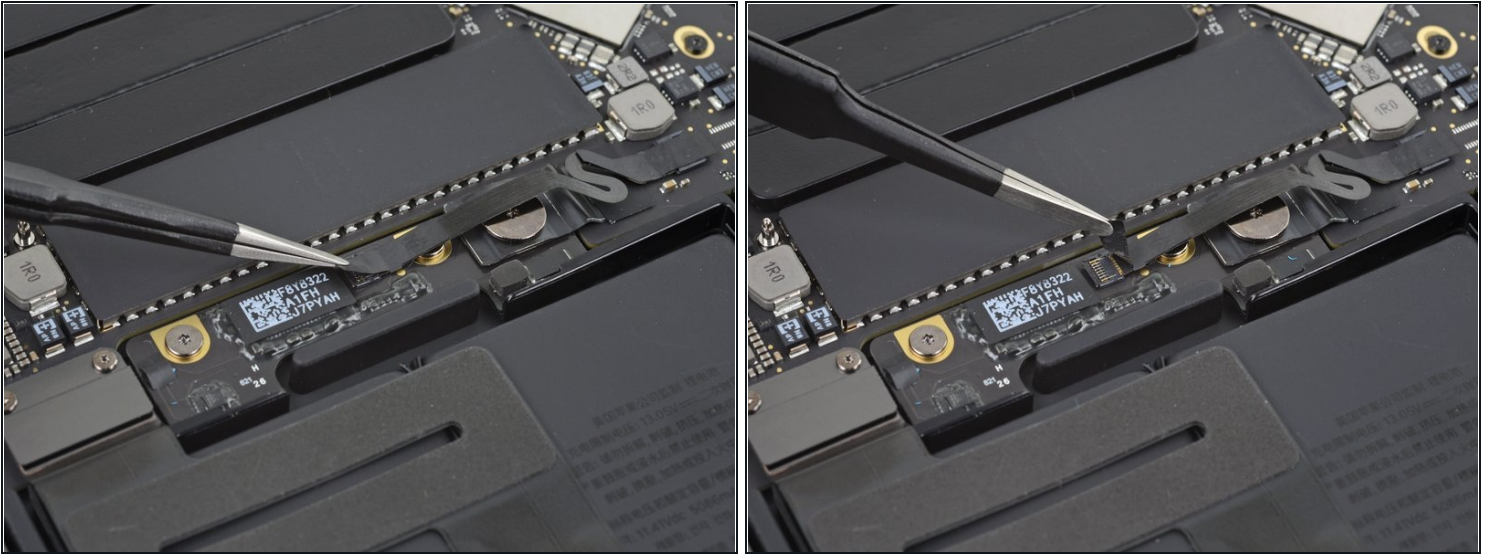
## Step 9 — Uncover the battery connector



- Carefully peel up the large piece of tape covering the battery connector, on the edge of the logic board nearest the battery.
- Remove the tape.

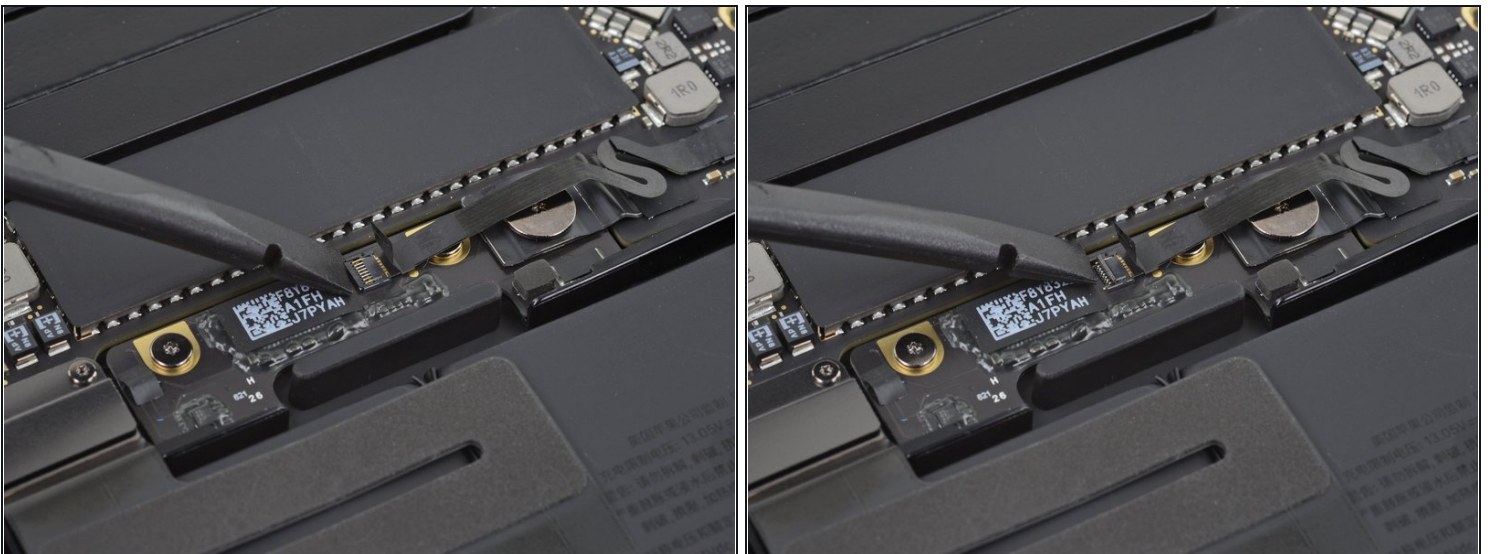


## Step 10



- Gently peel back the small piece of tape covering the battery board data cable connector.
  - ① The tape is integrated into the ribbon cable and will not detach completely. Simply peel it back enough to access the connector.

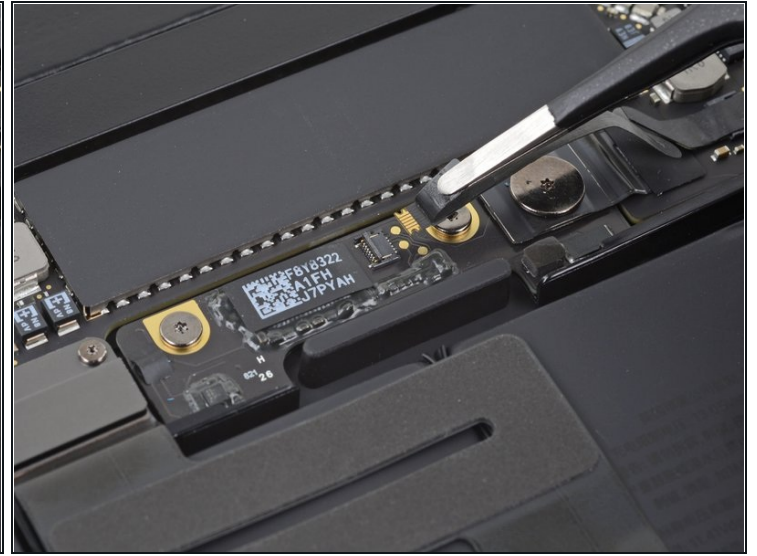
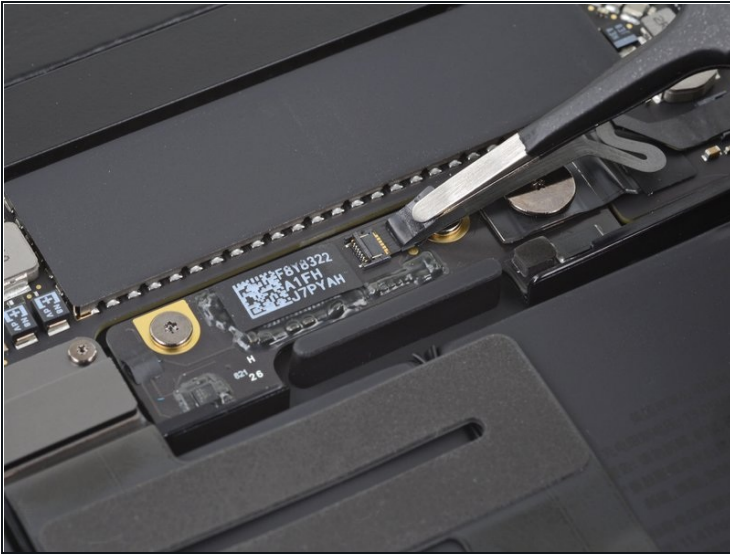
## Step 11



- Use the tip of a spudger to flip up the small black locking tab securing the cable in its connector.



## Step 12



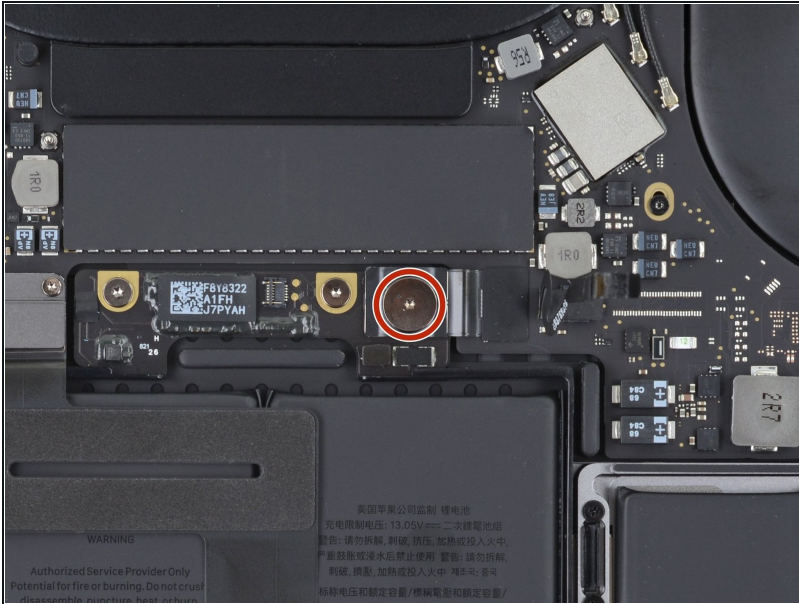
- Disconnect the battery board data cable by sliding it out from its socket.
- Slide parallel to the logic board, in the direction of the cable.

## Step 13



- Fold the battery board data cable to the side and out of the way.

## Step 14



- Use a T5 Torx driver to remove the 3.7 mm pancake screw securing the battery power connector.

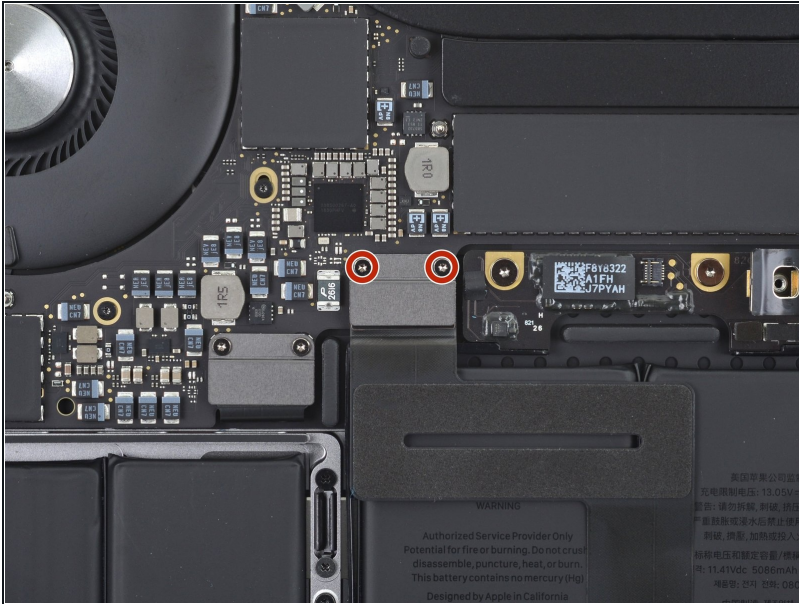
## Step 15 — Disconnect the battery



- Use a spudger to gently lift the battery power connector, disconnecting the battery.
- Lift the connector high enough so that it stays separated from its socket. If it accidentally makes contact during the course of your repair, it could damage your MacBook Pro.

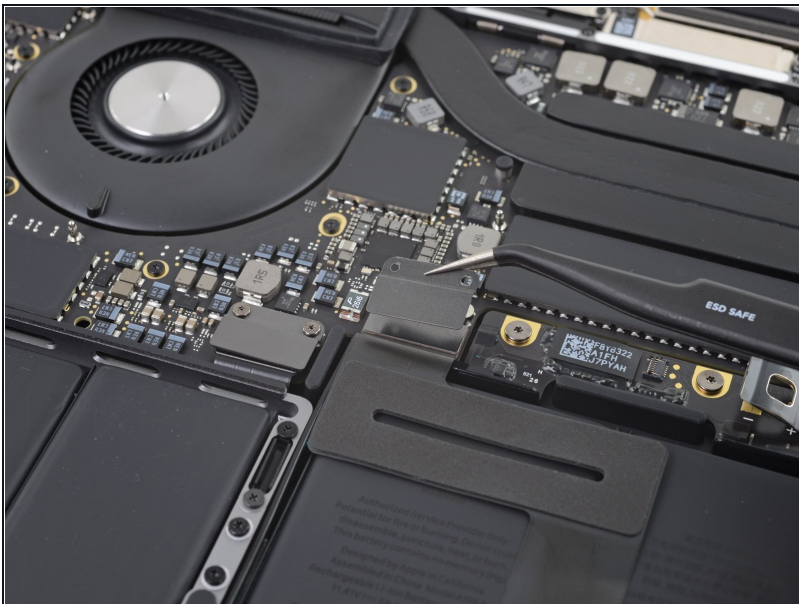


## Step 16 — Remove the trackpad connector screws



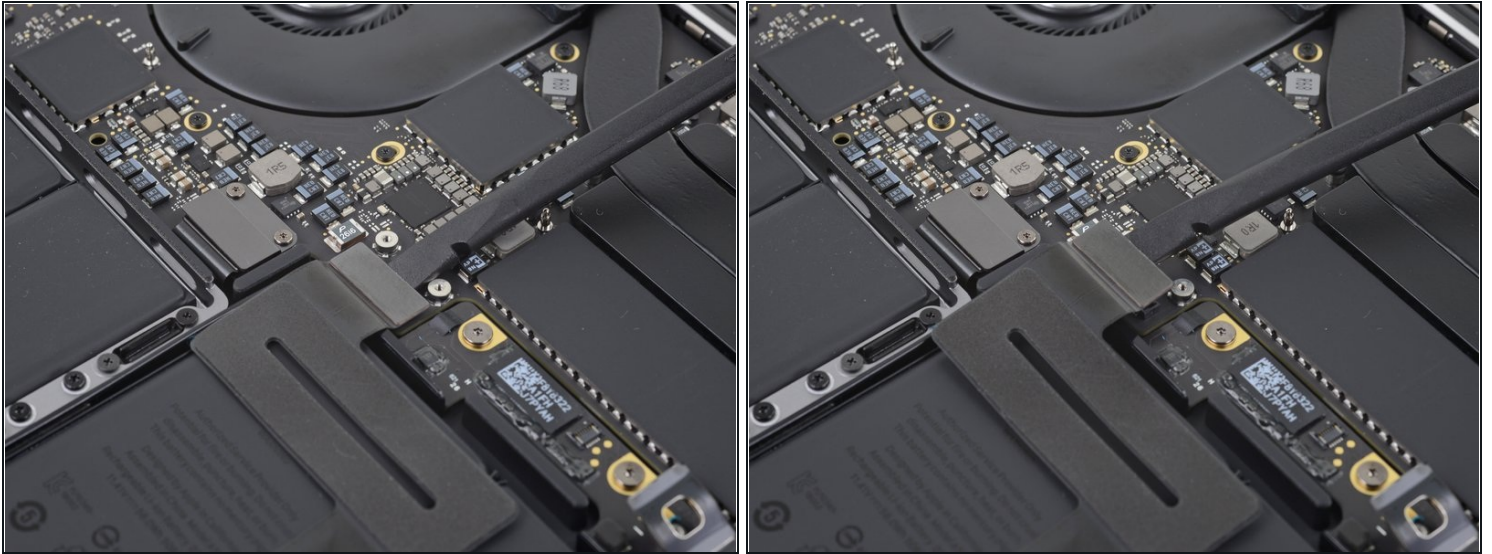
- Use a T3 Torx driver to remove the two 1.8 mm screws securing the trackpad cable connector bracket.

## Step 17



- Remove the trackpad cable connector bracket with a pair of tweezers.

## Step 18 — Disconnect the trackpad



- Use a spudger to disconnect the trackpad ribbon cable by gently prying its connector straight up from the logic board.

## Step 19 — Heat the trackpad cable



- [Prepare an iOpener](#) and lay it on top of the trackpad ribbon cable for about a minute, in order to soften the adhesive securing the trackpad ribbon cable to the top of the battery.
- If you don't have an iOpener, use a hair dryer to warm up the cable instead. The cable should be warm, but not too hot to touch. Be careful not to overheat the battery.



## Step 20 — Peel up the trackpad cable



- Carefully peel the trackpad ribbon cable up off the battery, and push it out of the way.

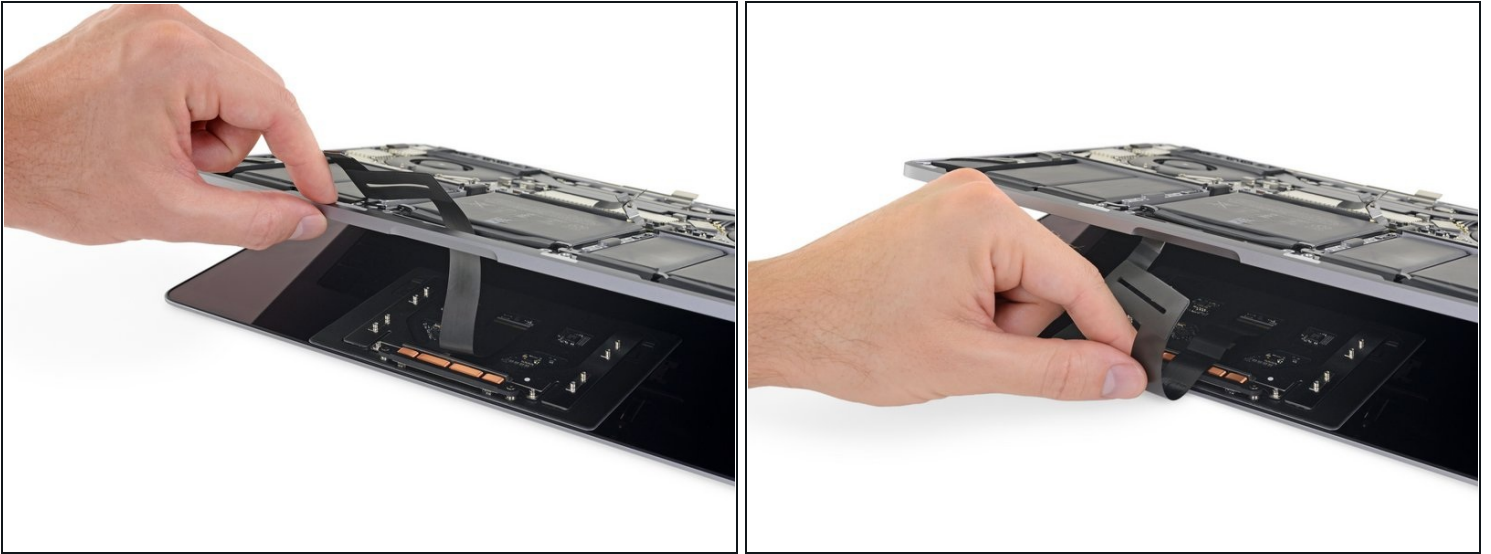
⚠ Do not fold or tear the cable.

## Step 21 — Remove the trackpad screws



- Use a T5 Torx driver to remove the ten screws securing the trackpad assembly:
  - Two 4.3 mm screws
  - Eight 5.8 mm screws

## Step 22



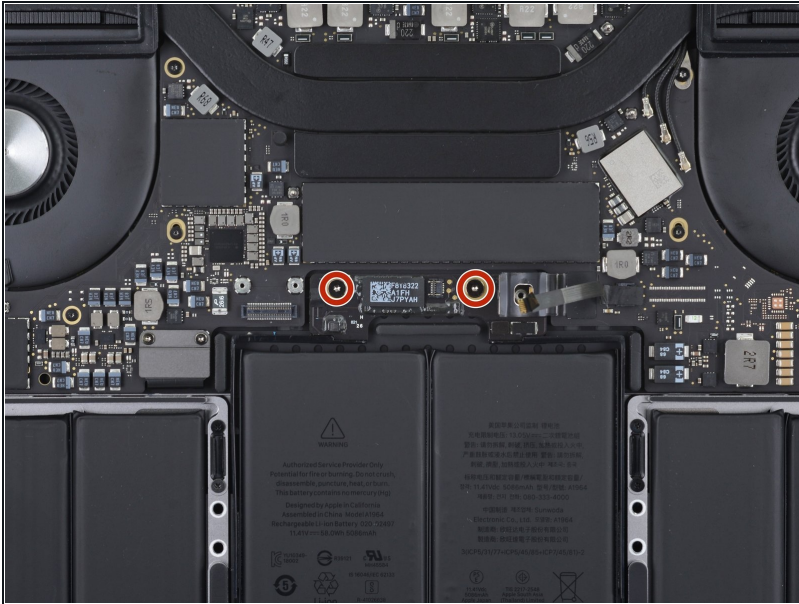
- Swing the display open slightly to access the trackpad.
- Carefully thread the trackpad ribbon cable out through the hole in the MacBook Pro's frame.

## Step 23



- Remove the trackpad assembly.
- Be sure not to lose the six small washers (two circular and four rectangular) resting on the underside of the trackpad.

## Step 24 — Unscrew the battery board



- Use a T5 Torx driver to remove the two 3.2 mm screws from the battery board.

## Step 25 — Protect the display and keyboard



**⚠ The liquid adhesive remover provided in your kit can cause damage if it contacts the MacBook Pro's display or keyboard.**

- To protect your display, place a sheet of aluminum foil between the display and keyboard and leave it there while you work.
- Additionally, use some tape and/or foil to seal off the area under the trackpad. Optionally, you may also layer an [absorbent towel](#) directly underneath the trackpad area to soak up any excess adhesive remover.

## Step 26 — Protect the speakers



- ❗ Before removing the battery, it's important to protect the speakers on either side. The speakers are glued down just like the battery—so if the liquid adhesive remover gets under the speakers, they may come loose and rattle after your repair.
- Cut a length of packing tape or painter's tape, and slide one edge between the battery and the speaker on the left side.

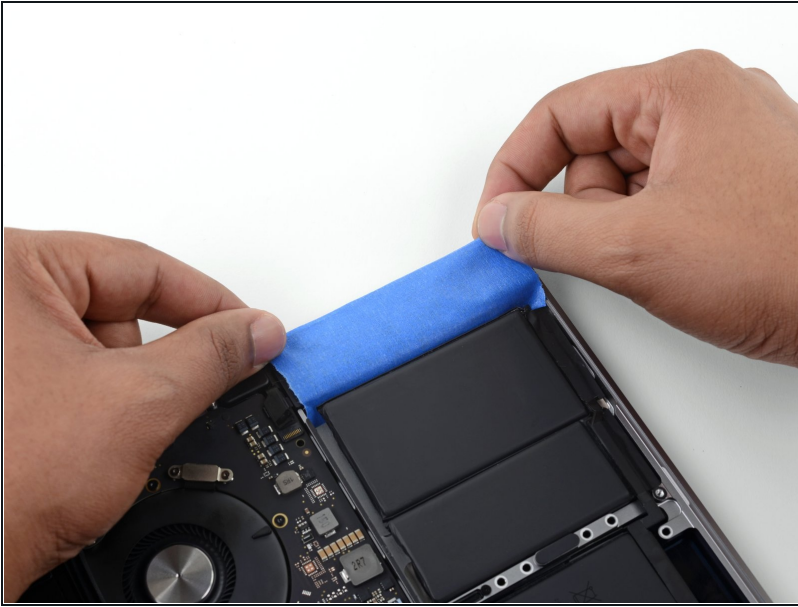
## Step 27



- Press all along the edge of the tape with your spudger to stick it securely to the MacBook Pro's aluminum case, sealing off the speaker from the battery.
  - ⚠ Be careful not to poke or puncture the battery.
- Fold the tape over and lightly adhere it to the speaker to keep it out of the way.
  - ⚠ The foam bumpers on top of the speaker may tear when peeling the tape off. Don't press the tape directly onto the bumpers.



## Step 28



- Repeat the previous two steps on the opposite side in order to seal off the other speaker from the battery.

## Step 29 — Elevate the right edge



- To control the flow of adhesive remover and direct it away from the speaker, raise the right edge of your MacBook Pro a few inches using a book or foam block.

## Step 30 — Protect your eyes and skin

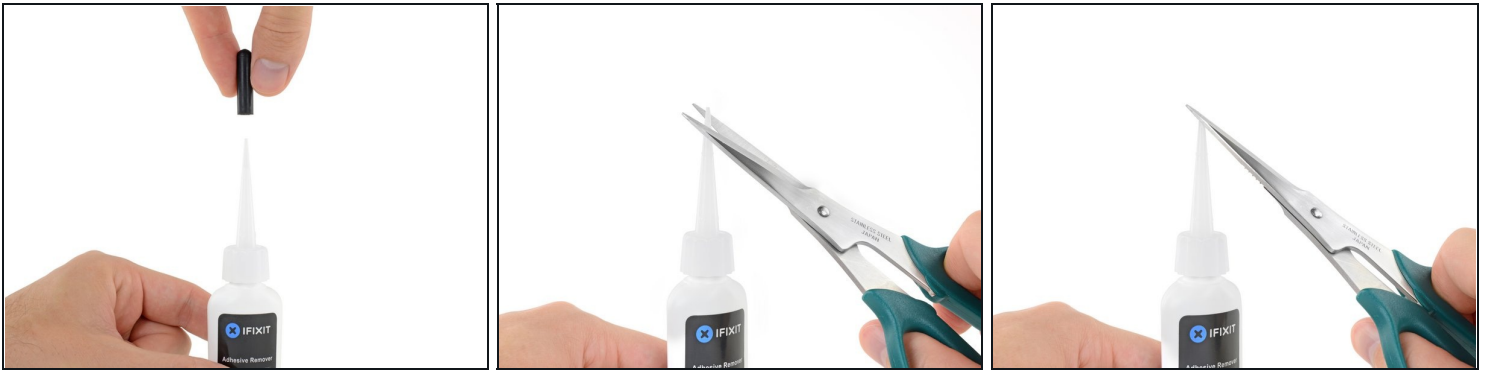


- Now that your MacBook Pro is fully prepped, it's time to prep yourself.

**⚠ 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 possible skin irritation, put your gloves on now.

## Step 31 — Open the adhesive remover



- 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.
  - 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 32 — Apply the adhesive remover



- Apply a few drops of adhesive remover underneath the far 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 about two minutes for the adhesive remover to penetrate and soften the battery adhesive before you proceed to the next step.

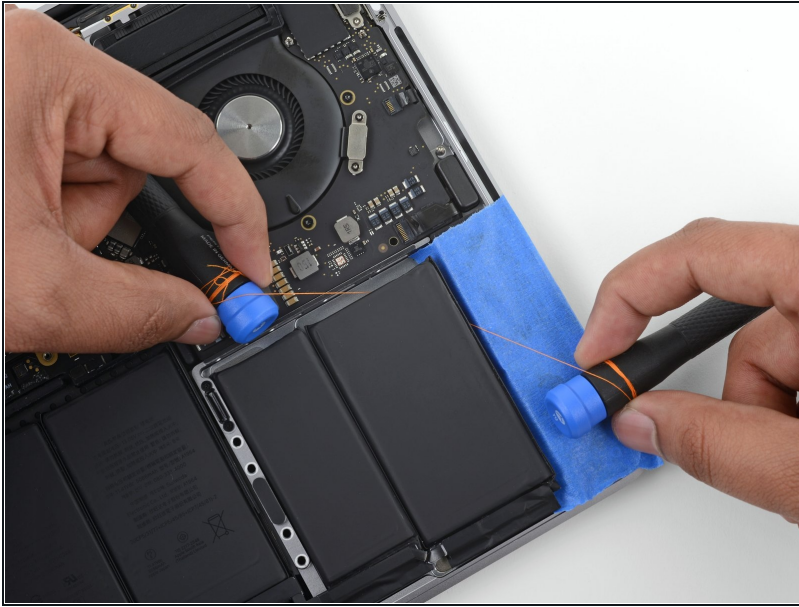


### Step 33 — Separate the outside right battery cell



- After a couple minutes, insert one corner of a [plastic card](#) underneath the far right battery cell, starting from the front edge.
  - ⚠ This shouldn't require much force. If you have trouble, apply more adhesive remover and give it 2-3 additional minutes to penetrate.
  - ⚠ Try not to deform the battery. A damaged battery can leak dangerous chemicals and/or catch fire.
- Wiggle the card from side to side and slide it all the way under the battery cell.
- Lift to fully separate the adhesive, but don't try to remove the battery cell yet.
- Leave the plastic card temporarily underneath the cell to prevent it from re-adhering while you continue.

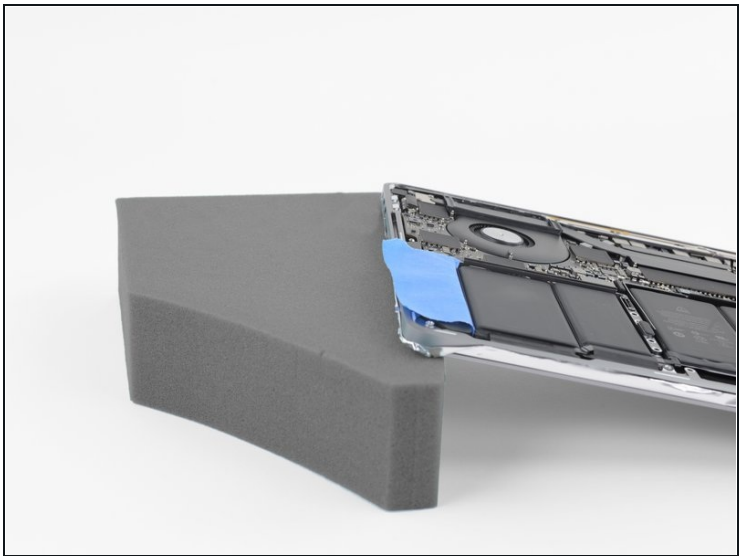
## Step 34 — Alternative: separate the battery cell with floss



- If you have difficulty getting the card underneath any of the battery cells, try working a piece of floss or wire underneath the battery cell. Pull it side-to-side in a sawing motion to separate the adhesive.

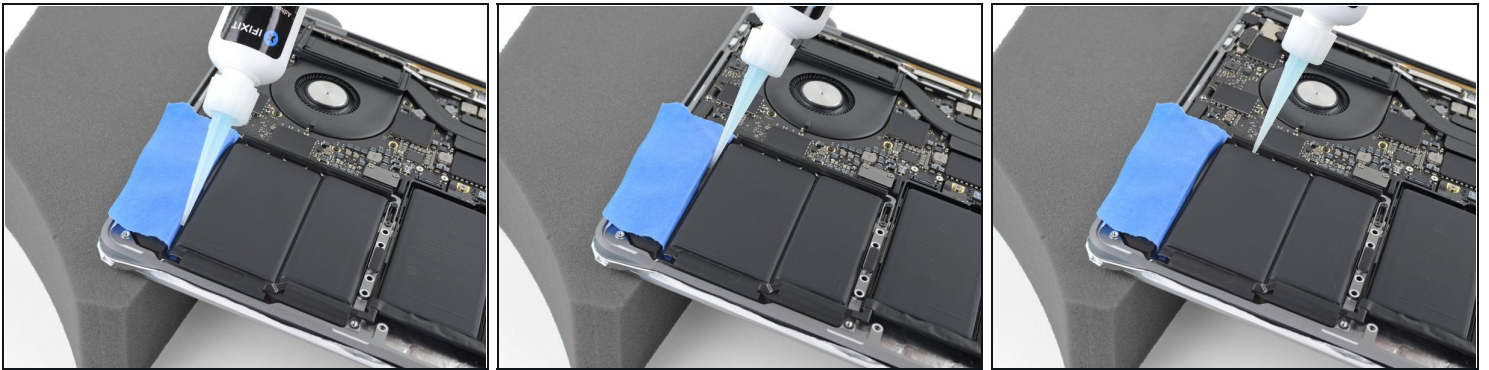
⚠ Wear thick gloves or wrap the floss around a couple of driver handles so as not to hurt your fingers.

## Step 35 — Elevate the left edge



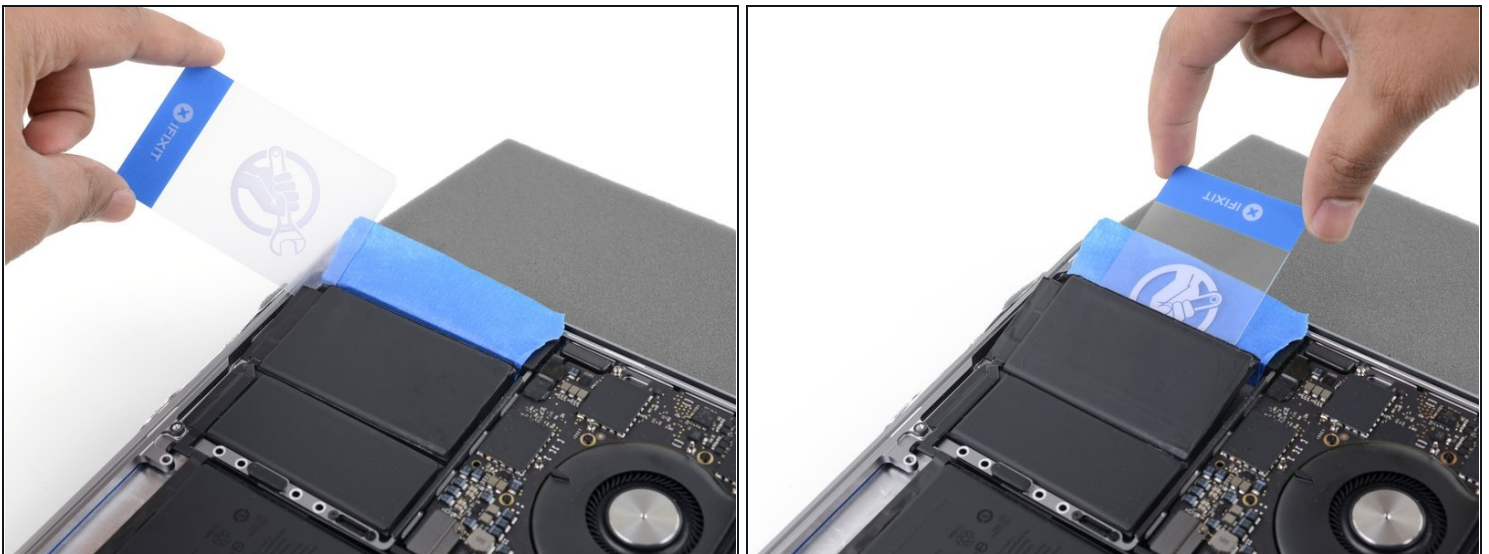
- Repeat the last few steps to separate the far left battery cell.
- Begin by elevating the left side of the MacBook Pro to direct the flow of adhesive remover away from the speaker.

### Step 36 — Apply adhesive remover



- Apply a few drops of adhesive remover under the far left battery cell, and wait about two minutes for it to penetrate.

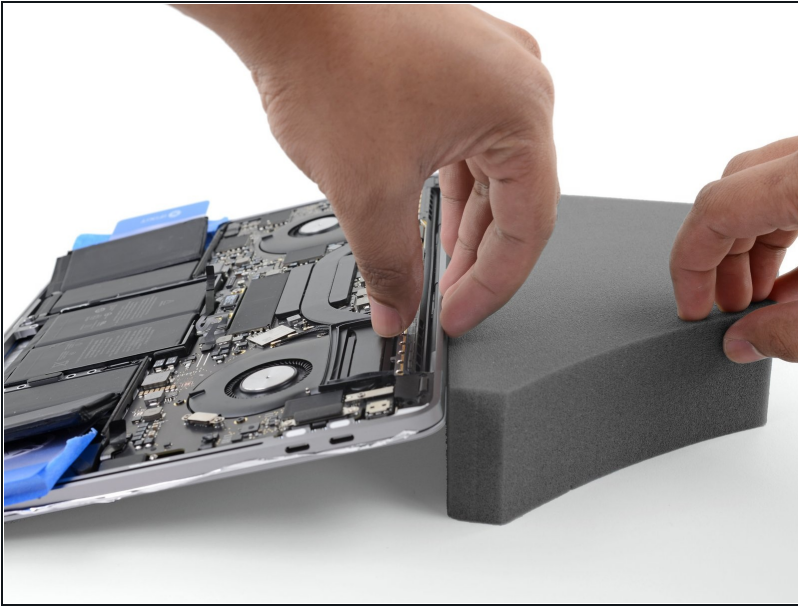
### Step 37 — Separate the outer left cell



- Slide one corner of a plastic card underneath the far left battery cell, and carefully separate the adhesive holding it in place.
- Leave the plastic card temporarily underneath the cell to prevent it from re-adhering while you continue.

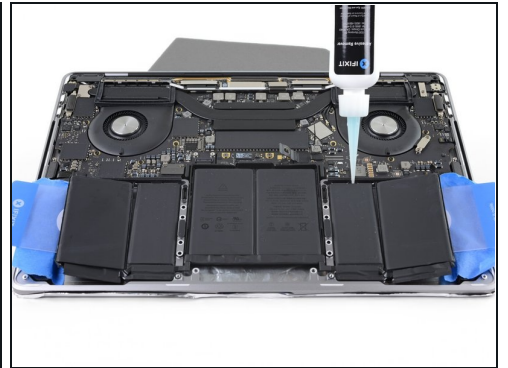
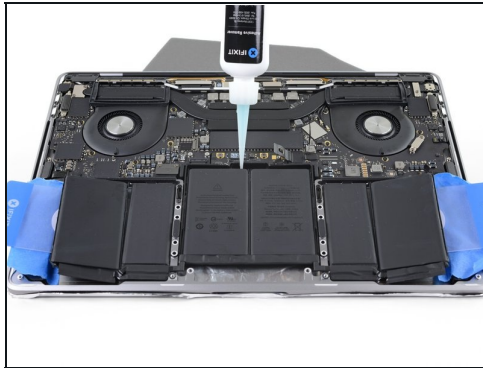


## Step 38 — Elevate the back edge



- Next, raise the back edge of your MacBook Pro to direct the flow of adhesive remover away from the keyboard/logic board area.

## Step 39 — Apply adhesive remover



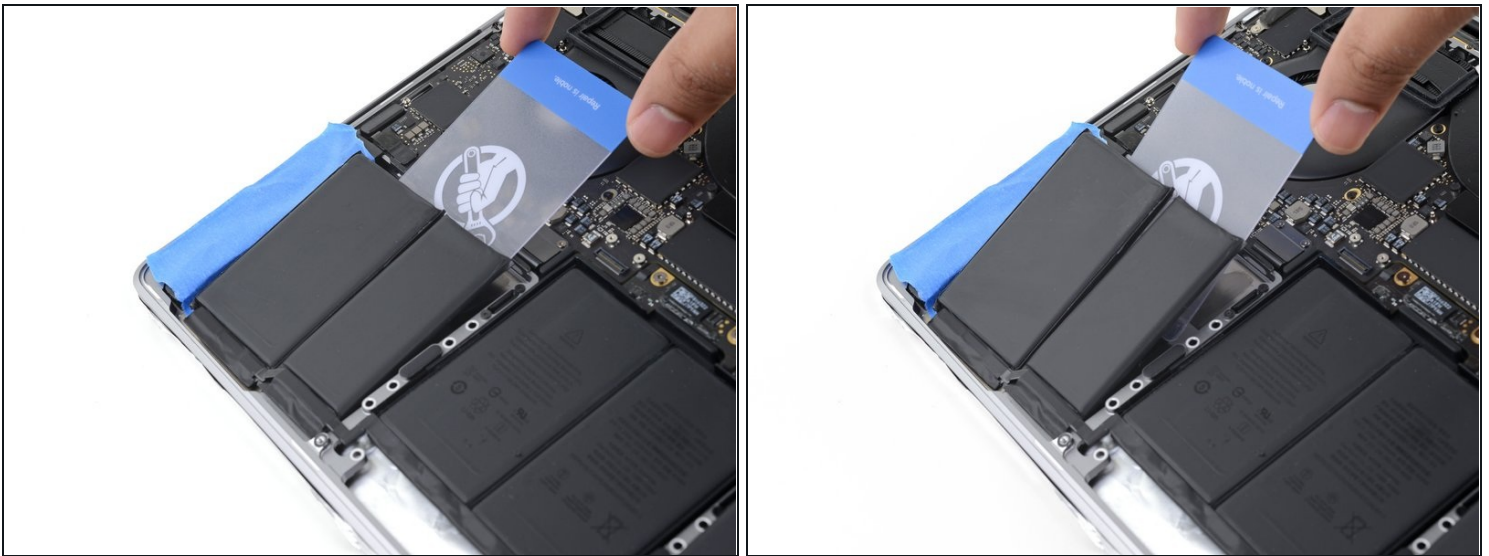
- Apply a few drops of adhesive remover under each of the remaining three battery cells.
  - ⓘ There are openings in the aluminum case underneath these cells, so some of the adhesive remover may leak out instead of penetrating underneath the battery.
- Be mindful of leaks, and apply more adhesive remover in the following steps if needed.
- Wait about two minutes before you continue.

## Step 40 — Separate the inner left cell



- ① The remaining two smaller battery cells each sit on a slightly raised portion of the MacBook's aluminum frame.
- Slide a plastic card all the way underneath the far left battery cell—which you already separated in the previous steps—and then insert it carefully between the remaining left-side battery cell and the MacBook Pro's aluminum case.

## Step 41



- Use your plastic card to fully separate the remaining battery cell on the left side.  
**⚠ Take care to not pry against the logic board.**
- Leave your plastic card in place temporarily to prevent the left-side battery cells from re-adhering.

## Step 42 — Separate the inner right cell



- Repeat the previous two steps to separate the remaining battery cell on the right.

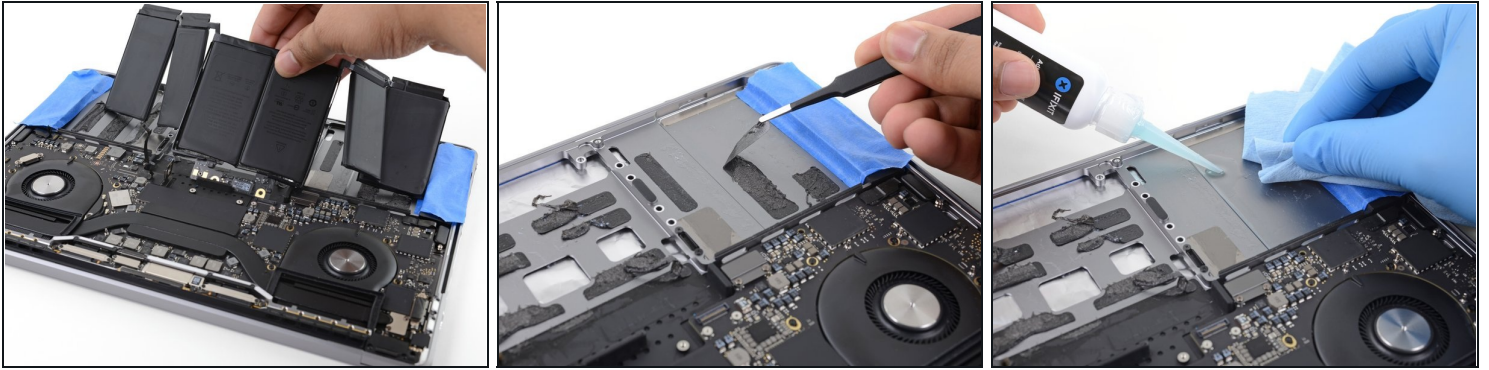
## Step 43 — Separate the middle cells



- ① The final battery cells can be more difficult to remove. If needed, apply more adhesive remover to make the job easier.
- Slide the corner of one of your plastic cards underneath the top edge of one of the cells and then work it underneath the other cell.
- Wiggle the card from side to side and slide it underneath the battery cells to fully separate the adhesive holding them in place.



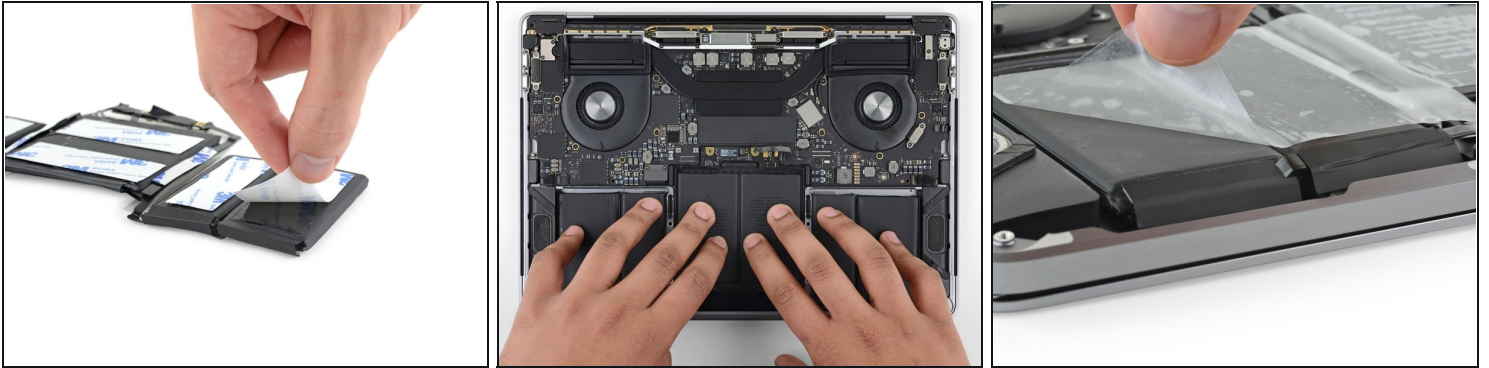
## Step 44 — Remove the battery



⚠ Before you remove the battery, ensure that the [battery connector is sufficiently raised](#) and not in the way of the battery board.

- Remove the battery.
- ☑ Before installing a new battery, remove all remaining adhesive from the MacBook Pro's case.
  - Peel off any large strips of adhesive using tweezers or gloved fingers.
  - Scrape away any remaining chunks of adhesive with a plastic tool, and clean the underlying areas with adhesive remover or isopropyl alcohol. Wipe in one direction (not back and forth) until the chassis is clean and ready for your new battery.
- ⓘ This can take quite a bit of work, so be patient.
- When you're done, carefully [remove the protective tape](#) from the speakers.

## Step 45 — Battery installation



- ☑ Double-check the fit and alignment of your new battery before sticking it down.
  - Be mindful of the battery data cable and make sure it doesn't get pinched or trapped under the battery board.
  - If your battery came with adhesive pre-installed on the bottom, flip it over and carefully peel away the liner to expose the adhesive. If your battery did not come with adhesive, apply a thin double-sided adhesive tape such as [Tesa 61395](#) to keep your battery in place.
  - Carefully position the battery and set it into place.
    - ⓘ Place the battery close to the logic board so the trackpad cable can reach its connector.
  - Press and hold each cell firmly for 5-10 seconds to secure it to the lower case.

---

**To reassemble your device, follow the above steps in reverse order.**

Take your e-waste to an [R2 or e-Stewards certified recycler](#).

Repair didn't go as planned? Try some basic [troubleshooting](#) or search our [Answers community](#) for help.