



MacBook Pro 15" Touch Bar Late 2016 Screen Replacement

Replace a broken screen or failed display cable (a.k.a. FlexGate) on your MacBook Pro with Touch Bar (Late 2016).

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INTRODUCTION

Use this guide to replace the entire display assembly on your MacBook Pro, in order to fix a cracked or faulty screen. This assembly also includes the integrated ribbon cables that are known to fail as part of the “[FlexGate](#)” defect, so replacing it will also resolve the “stage lights” effect and other issues resulting from ribbon cable damage.

For your safety, discharge your MacBook Pro's battery below 25% before you begin. A charged lithium-ion battery can create a dangerous and uncontrollable fire if accidentally punctured.



TOOLS:

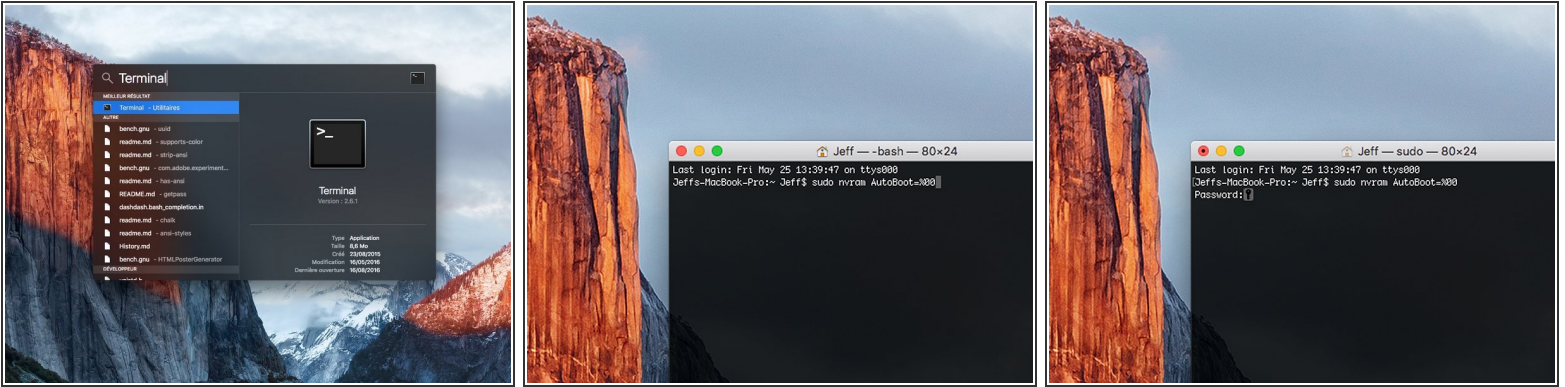
- [P5 Pentalobe Screwdriver Retina MacBook Pro and Air](#) (1)
- [Suction Handle](#) (1)
- [iFixit Opening Picks set of 6](#) (1)
- [Spudger](#) (1)
- [Tweezers](#) (1)
- [T3 Torx Screwdriver](#) (1)
- [T5 Torx Screwdriver](#) (1)
- [T8 Torx Screwdriver](#) (1)
- [P2 Pentalobe Screwdriver iPhone](#) (1)



PARTS:

- [MacBook Pro 15" Retina \(Late 2016-2017\) Display Assembly](#) (1)

Step 1 — Disable Auto Boot



- i** 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.
- 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."*
- i** 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 — Lower Case



 Completely power off and unplug your MacBook Pro before you begin. Close the display and flip the entire laptop upside-down.

- Use a P5 Pentalobe driver to remove six screws securing the lower case, of the following lengths:
 - Four 4.7 mm screws
 - Two 6.6 mm 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 3



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

Step 4



- Slide the corner of an opening pick into the gap you just created underneath the lower case.
- 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 5



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

Step 6



- Lift the front edge of the lower case (the side opposite the display hinge) just enough to slide your fingertips underneath and get a good grip on it.
- ⓘ Two additional hidden clips near the middle of the cover may pop free at this point, if they haven't already.

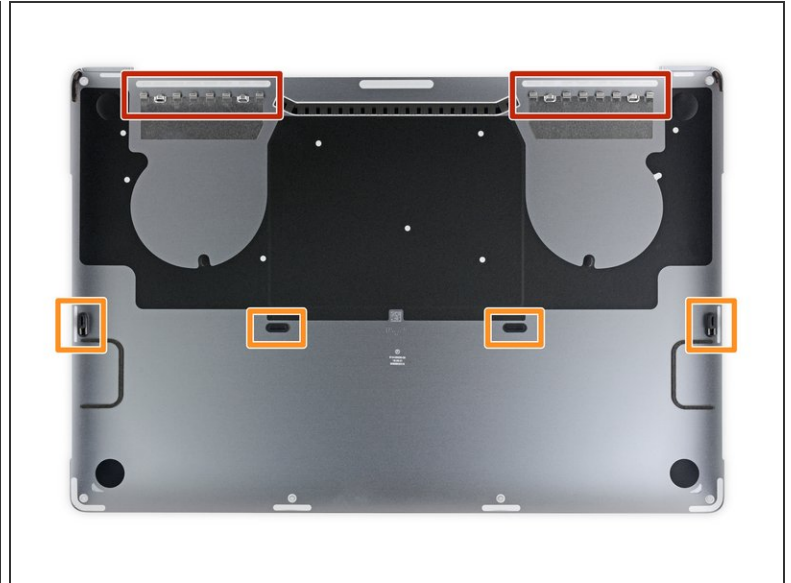
 Don't lift very far and don't try to remove the lower case yet.

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 may require a lot of force.

Step 8

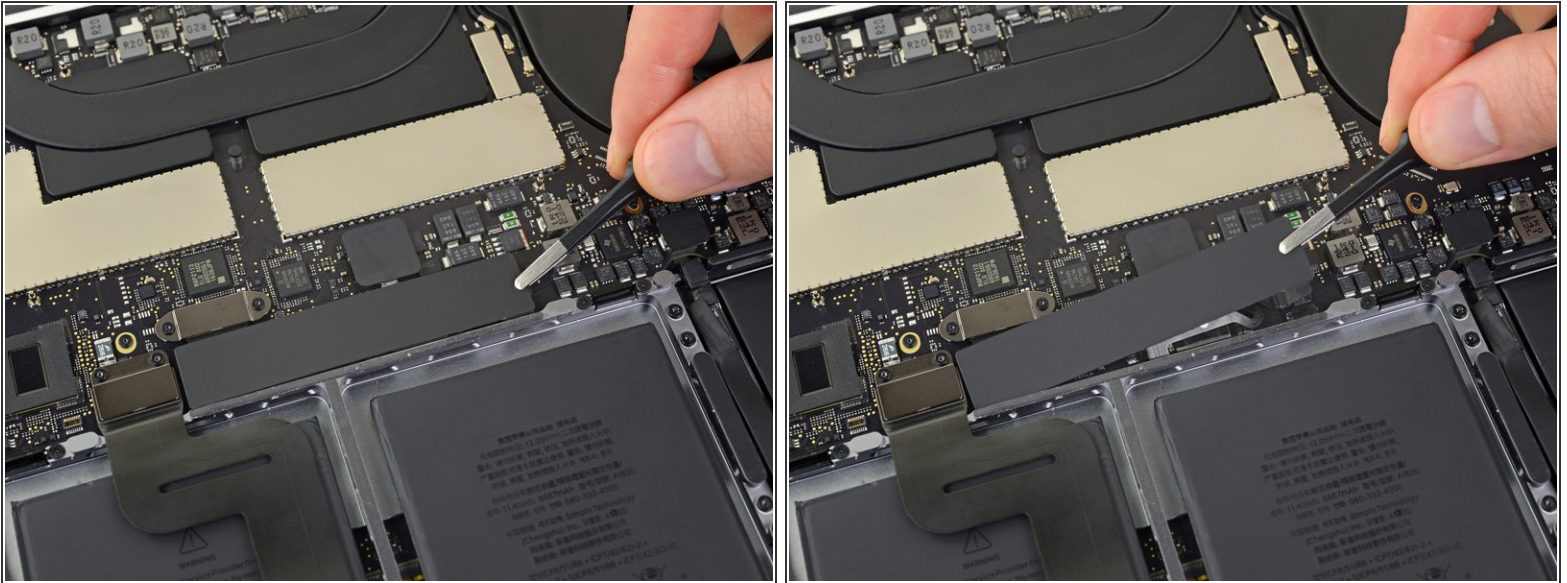


- Remove the lower case.

✦ To reinstall the lower case:

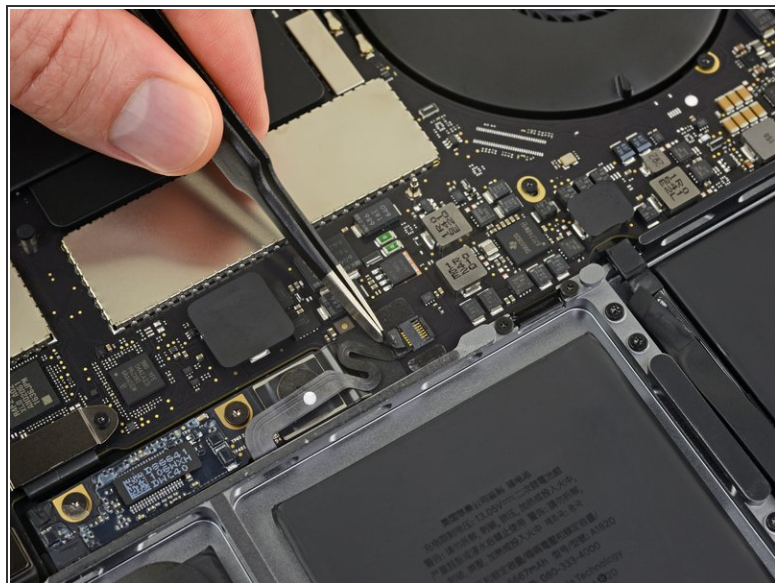
- [Set it in place](#) and align the sliding clips near the display hinge. Press down and slide the cover toward the hinge. It should stop sliding as the clips engage.
- When the sliding clips are fully engaged and the lower case looks correctly aligned, press down firmly on the lower case to engage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

Step 9 — Battery Connector



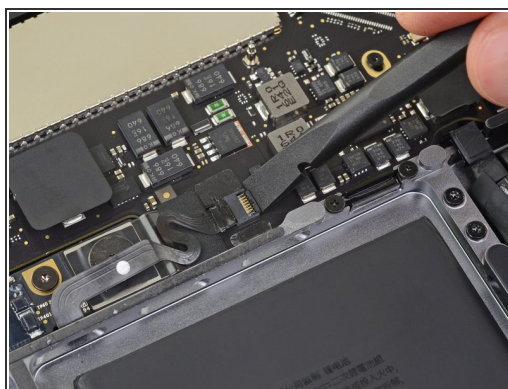
- Peel up and remove the large rectangular battery board cover, on the edge of the logic board nearest the battery.
 - If the cover doesn't peel up easily, apply mild heat with an iOpener, hair dryer, or heat gun to soften the adhesive underneath, and try again.
- ☒ If the cover doesn't seat securely during reassembly, try rotating it 180 degrees. It must be oriented correctly in order for the adhesive pads underneath to contact the board screws.

Step 10



- Peel back the tape covering the battery board data cable connector.
- ⓘ The tape may not detach completely; just peel it back enough to access the connector.

Step 11



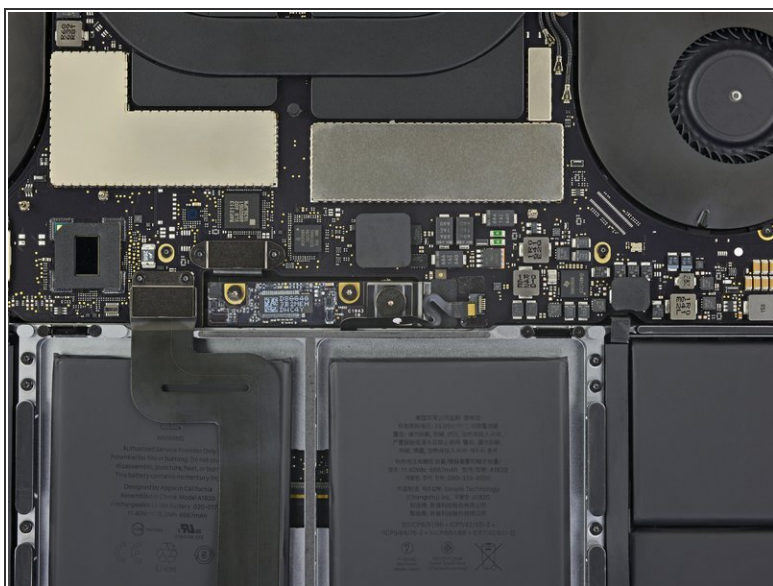
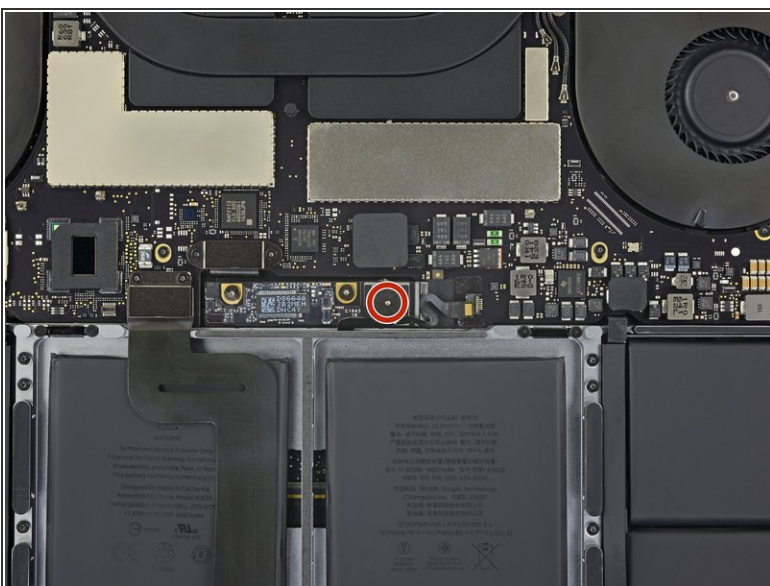
- Use a spudger to gently pry up the locking flap on the [ZIF connector](#) for the battery board data cable.

Step 12



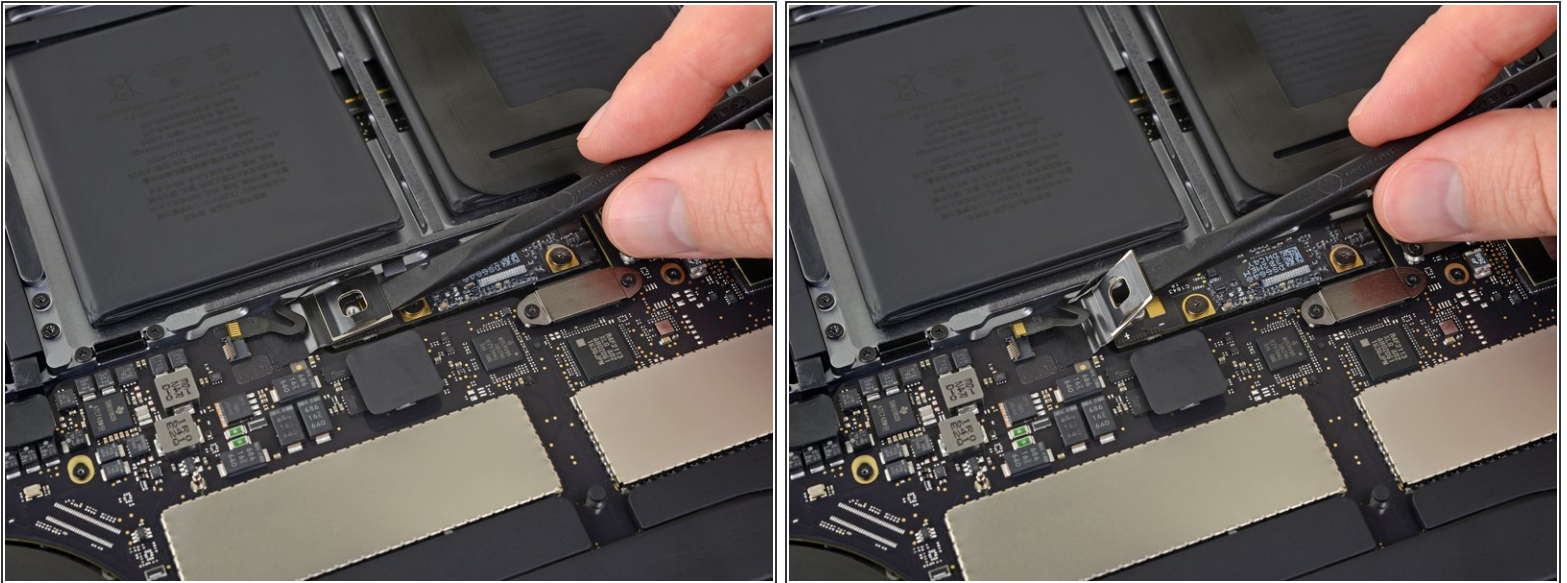
- Disconnect the battery board data cable by sliding it out from its socket.
- Slide parallel to the logic board, in the direction of the cable.

Step 13



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

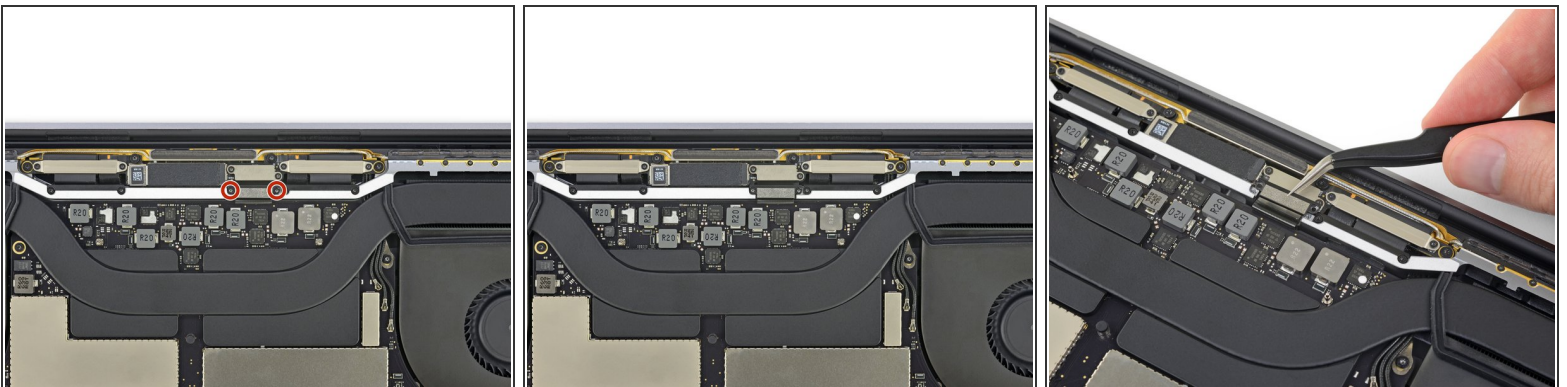
Step 14



- Use a spudger to gently lift the battery power connector, disconnecting the battery.

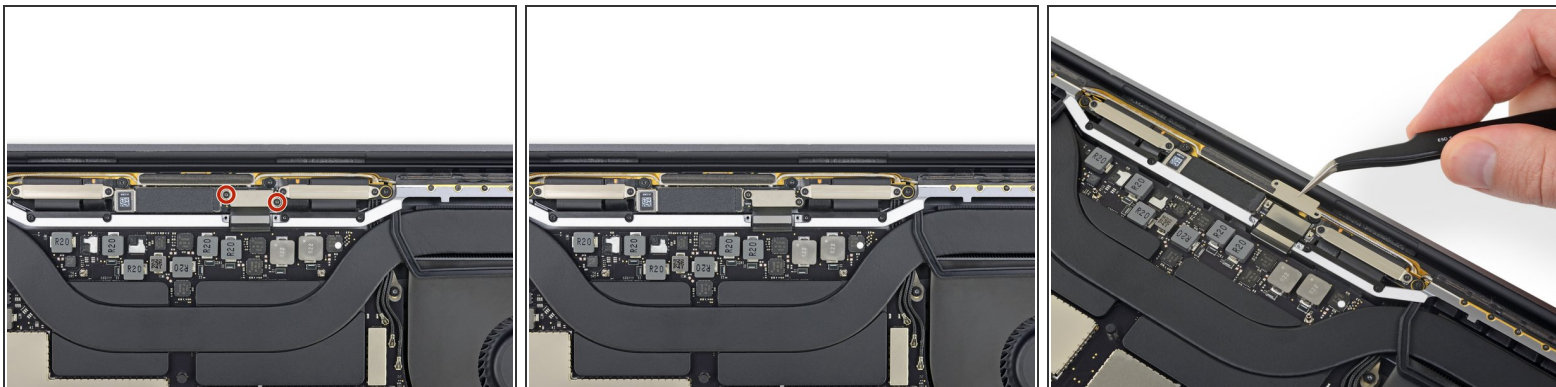
 Lift the connector high enough to keep it separated from its socket while you work. If it accidentally makes contact, it could damage your MacBook Pro.

Step 15 — Screen



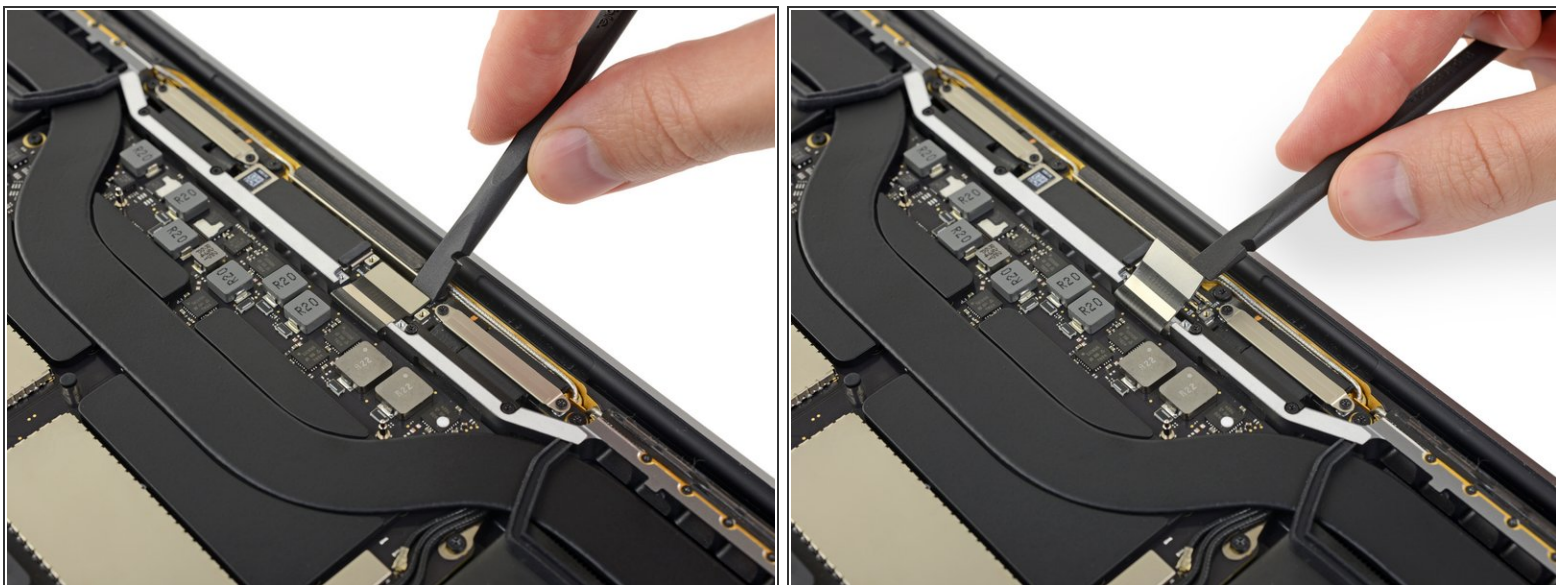
- Use a T3 Torx driver to remove the two 3.5 mm screws securing the cover on the display board flex cable.
- Remove the display board flex cable cover.

Step 16



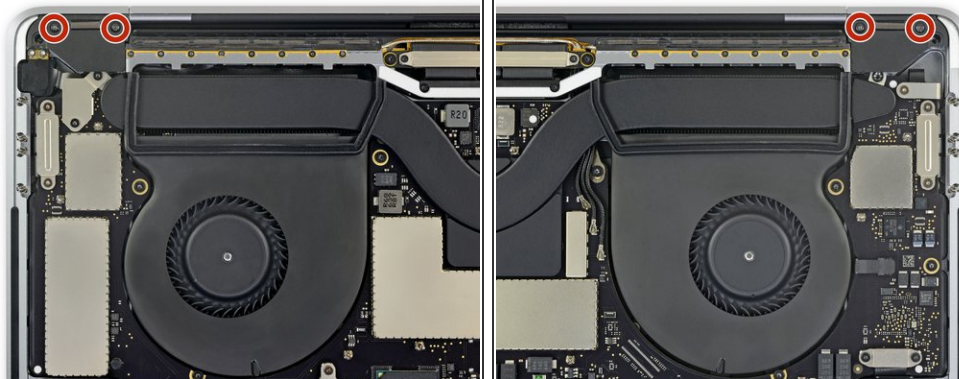
- Use a T3 Torx driver to remove the two 1.7 mm screws securing the bracket for the display board cable connector.
- Remove the bracket from the display board cable connector.

Step 17



- Pry straight up with your spudger to disconnect the display board flex cable.

Step 18



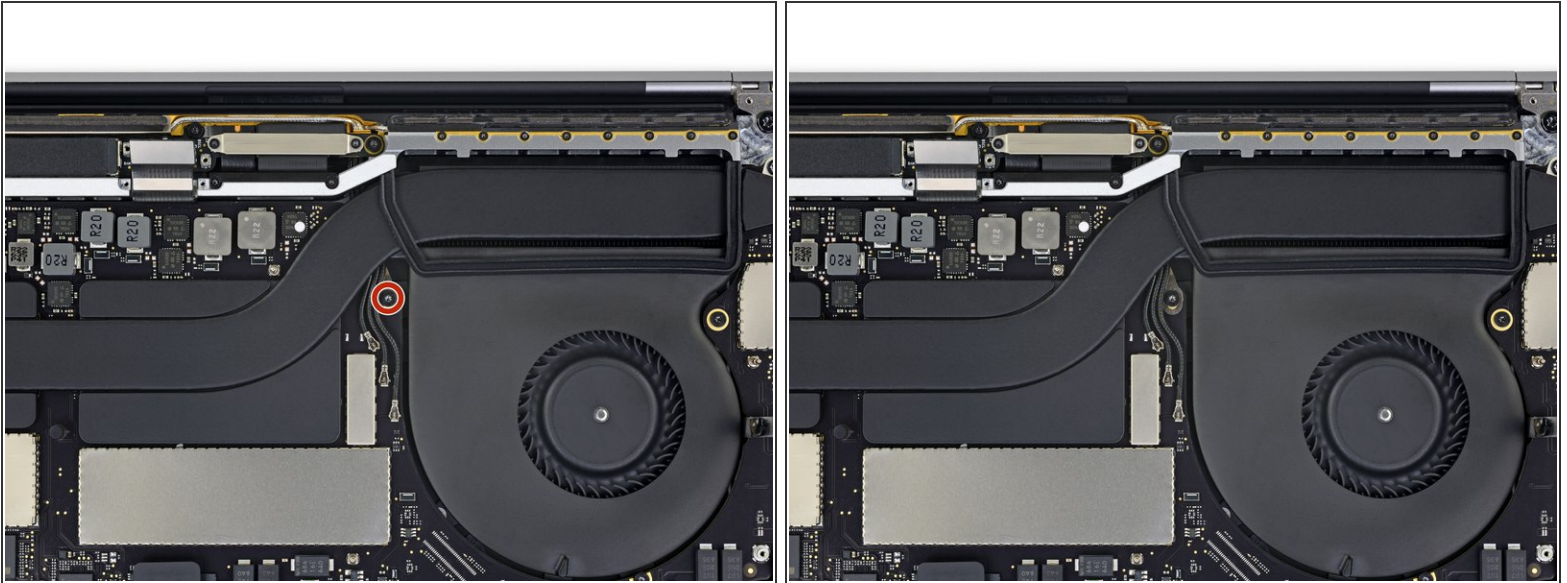
- Use a T3 Torx driver to remove the two 2.0 mm screws securing each hinge cover (four screws total).

Step 19



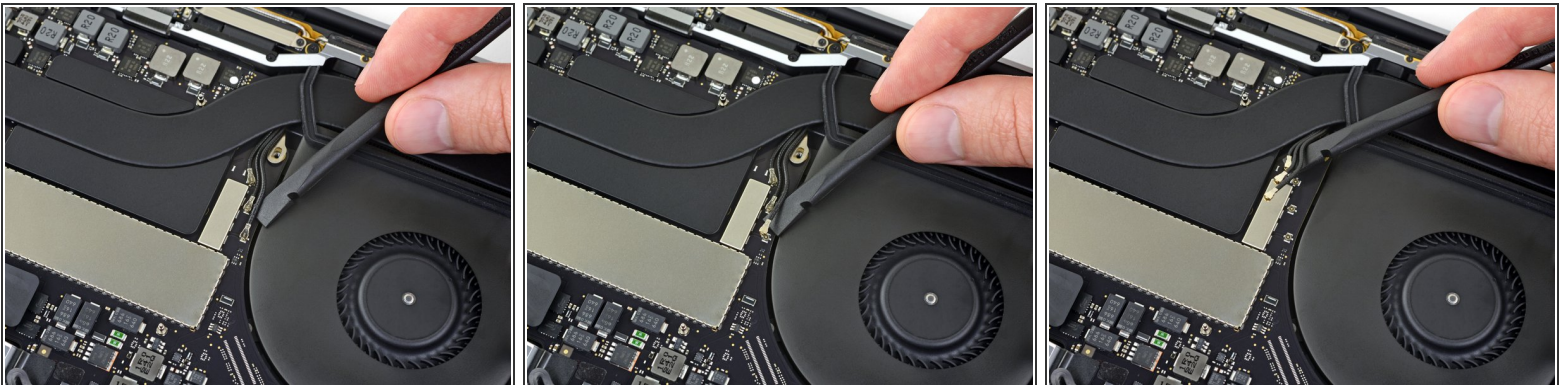
- Remove both hinge covers.

Step 20



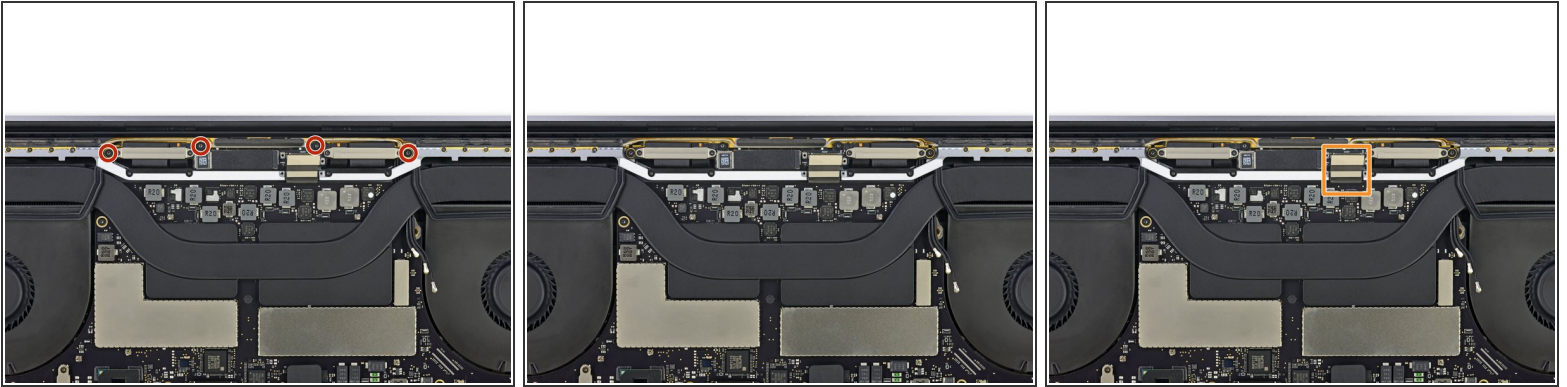
- Use a T5 Torx driver to remove the single 2.9 mm screw securing the antenna cable bundle.

Step 21



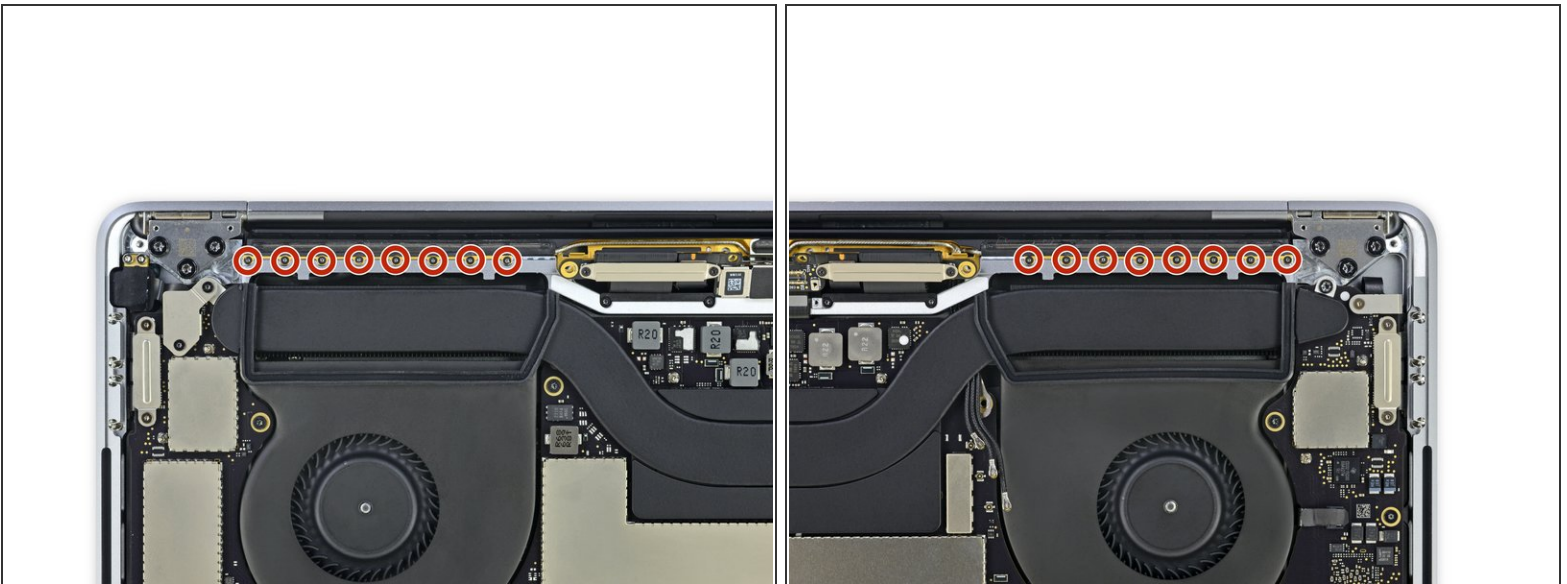
- Disconnect all three antenna cables by prying each one straight up from its socket.
 - Slide your tweezers or the flat end of your spudger underneath each cable until it's near the socket, and then gently twist or pry up to disconnect it.
- ☑ To reconnect each cable, align the connector directly over its socket, and then press down so it snaps into place.

Step 22



- Use a T5 Torx driver to remove the four 3.3 mm screws securing the display board.
- ☑ Before reinstalling these screws:
- Make sure the display board flex cable lies on top of the board, not trapped underneath.

Step 23



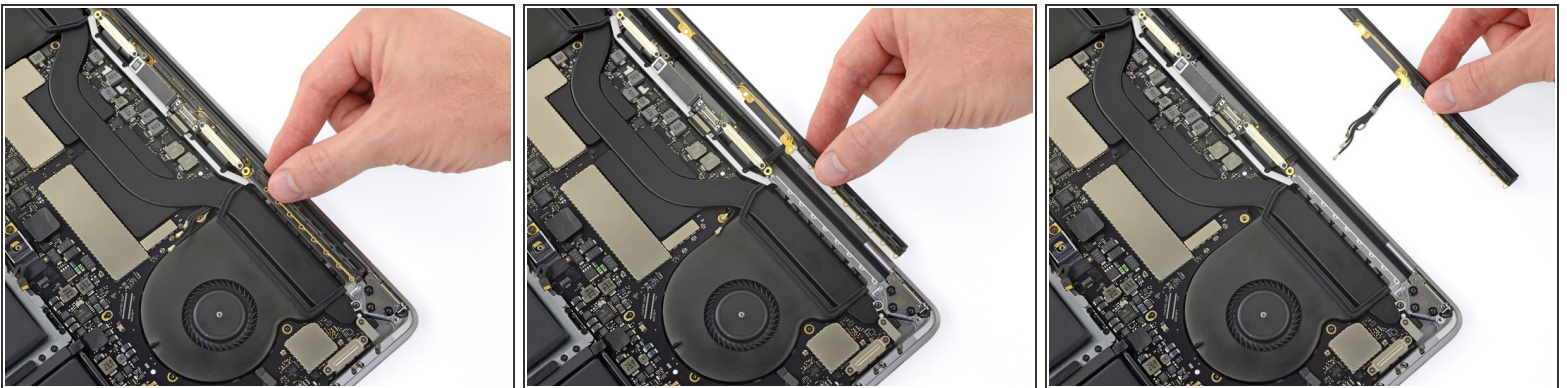
- Use a P2 Pentalobe driver to remove the sixteen 1.5 mm screws securing the antenna assembly.

Step 24



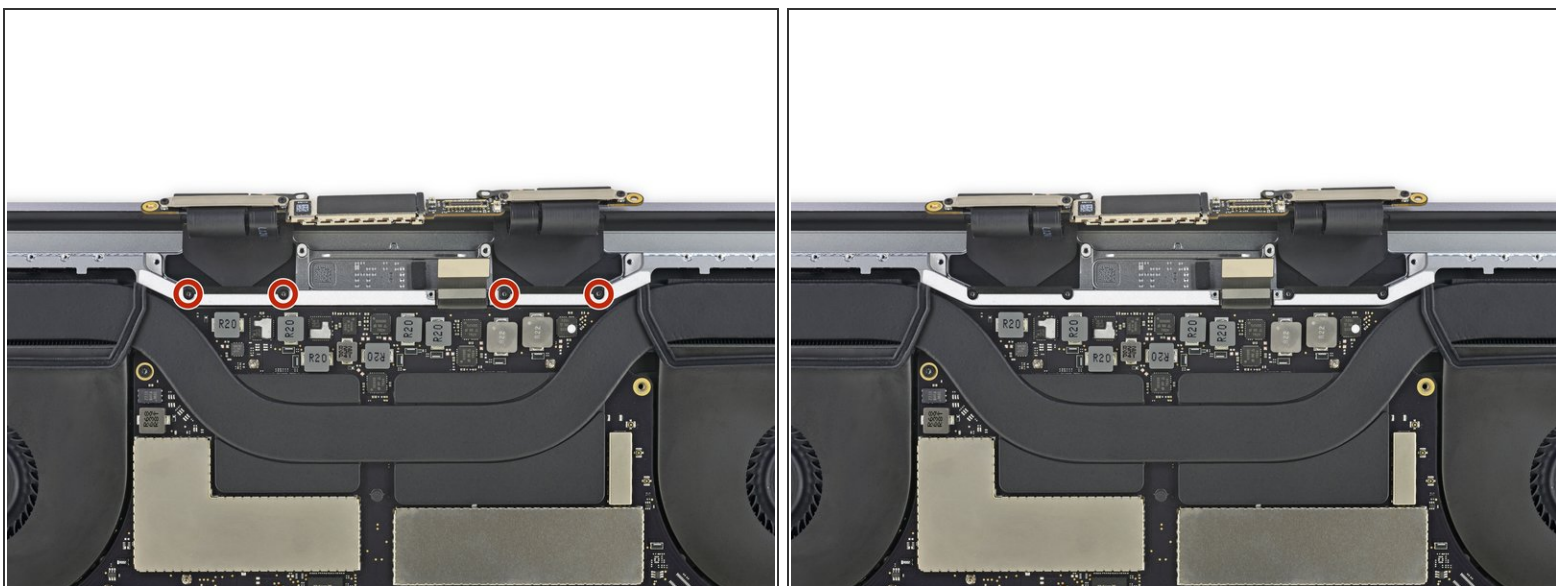
- Use an opening pick to pry up the antenna assembly and separate it from the MacBook Pro.
⚠ Watch out for the delicate ribbon cables in the middle section. Avoid sliding the pick from side to side so as not to damage the cables.

Step 25



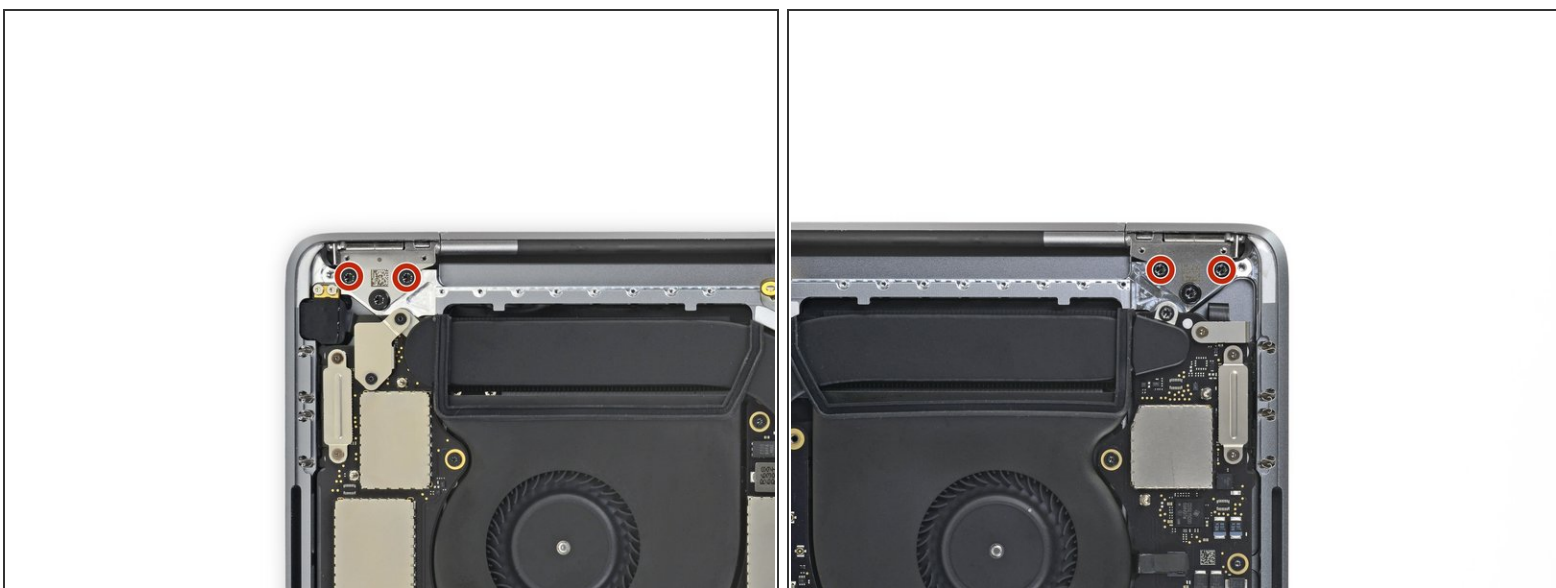
- Carefully remove the antenna assembly, while simultaneously feeding the antenna cable bundle out from underneath the heat sink.
- ☞ During reassembly, gently pinch the cable bundle together and guide it under the heat pipe into the correct position on the board. If needed, use your tools to help guide it through, but don't force it.

Step 26



- Use a T3 Torx driver to remove the four 3.9 mm screws securing the display cable cover springs.

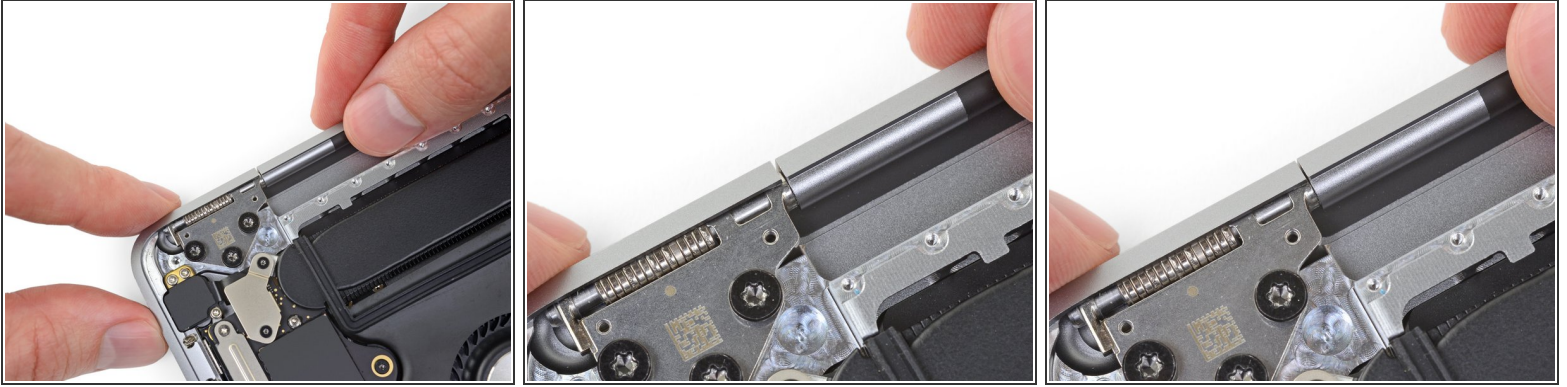
Step 27



- Use a T8 Torx driver to remove two 4.9 mm screws from each hinge (four screws total).

 Each hinge has a third screw, which you should leave in place for now.

Step 28



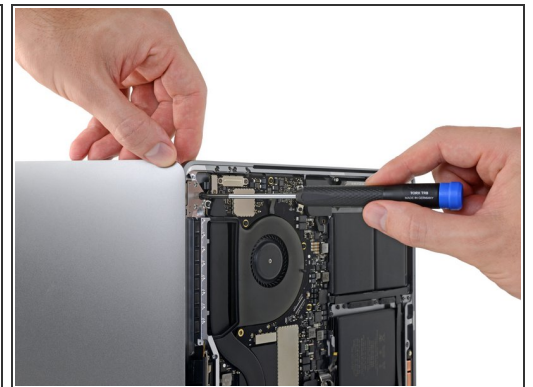
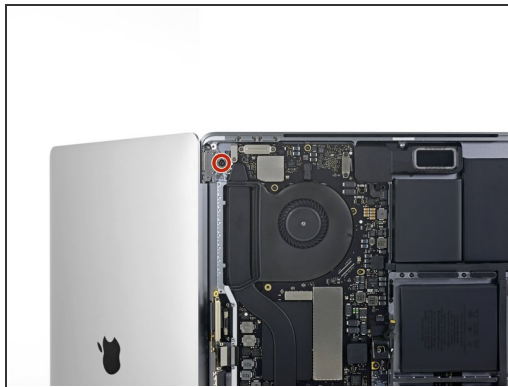
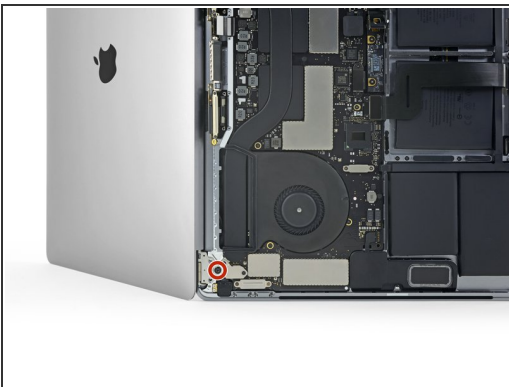
- ✦ During reassembly, first install the hinge screws without tightening them. Then adjust the screen until it is correctly centered and aligned on each side. Finally, tighten the screws.
- ✦ If your screen clicks or snaps upon opening, loosen the hinge screws and adjust the alignment. Make sure the screen doesn't sit too far forward, or it can catch on the body when opening and closing.
- ✦ If desired, add a little blue threadlocker to the screw threads to prevent them from loosening over time.

Step 29



- If you plan to re-use your screen, open it and apply a piece of tape to the glass directly above each hinge. This helps protect the glass from getting scratched in the following step.
- Fully open the screen and stand your MacBook Pro up on one side.

Step 30



- Use a T8 Torx driver to remove the two remaining 4.9 mm hinge screws (one from each hinge).
- Remove the topmost screw last, using one hand to steady both halves of the MacBook Pro to make sure they don't separate and fall over unexpectedly.

Step 31



 Keep a firm grip on both the screen and main body of the MacBook Pro. Either half can fall unexpectedly during this step.

- Push both halves of the MacBook Pro together so that the hinges can be lifted clear of their recesses in the chassis.
- Push the main body of the MacBook Pro away from you while pulling the screen toward you to separate it.

Step 32



- Remove the screen.

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 installing.

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? Check out our [Answers community](#) for troubleshooting help.