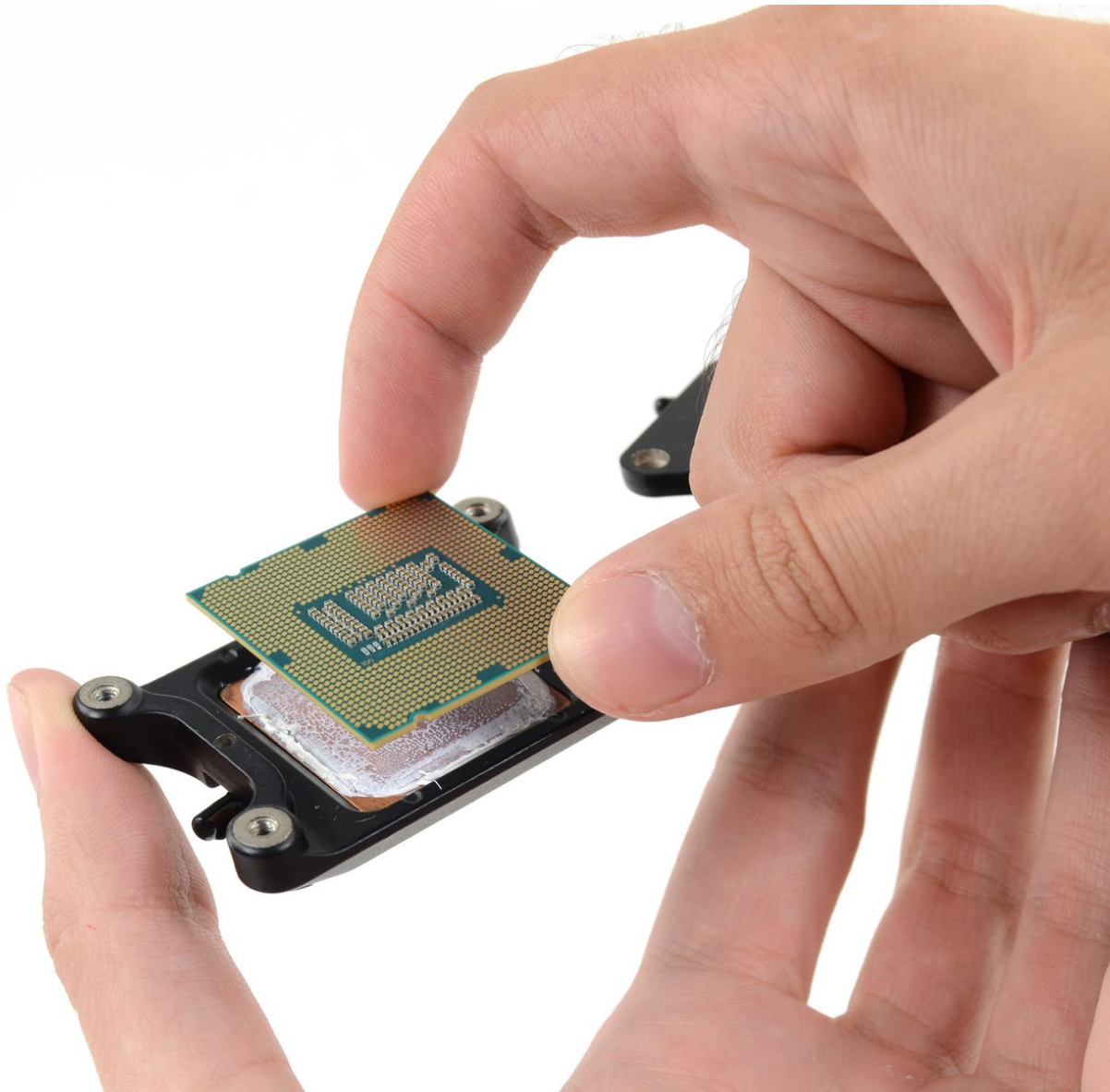




iMac Intel 21.5" EMC 2544 CPU Replacement

Replace the CPU in your iMac Intel 21.5" EMC 2544.

Written By: Sam Goldheart



INTRODUCTION

Use this guide to replace or upgrade the CPU. Don't forget to apply a new layer of thermal compound before reassembling your iMac.



TOOLS:

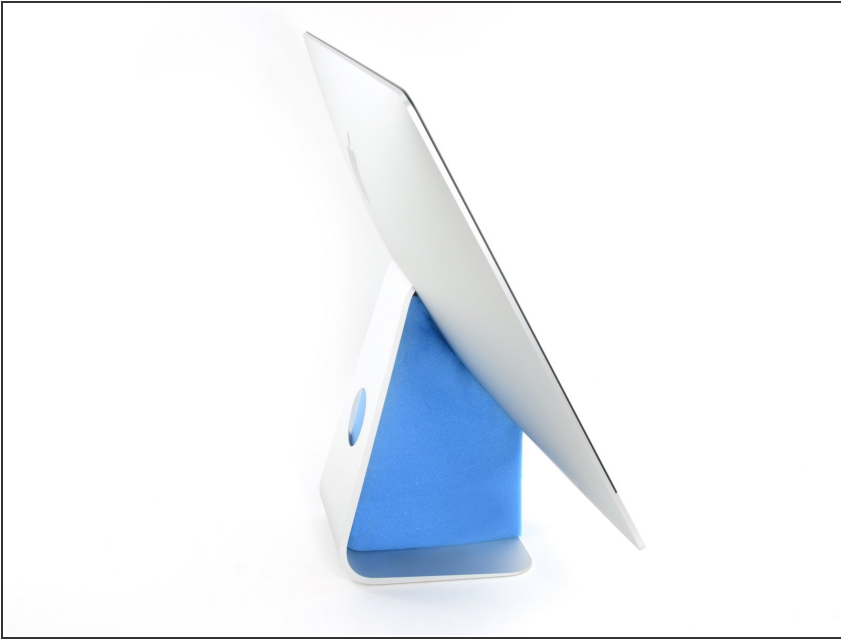
- [Tweezers](#) (1)
- [Phillips #0 Screwdriver](#) (1)
- [Plastic Cards](#) (1)
- [T10 Torx Screwdriver](#) (1)
- [T8 Torx Screwdriver](#) (1)
- [Spudger](#) (1)
- [Arctic Silver ArctiClean](#) (1)
- [Arctic Silver Thermal Paste](#) (1)






PARTS:

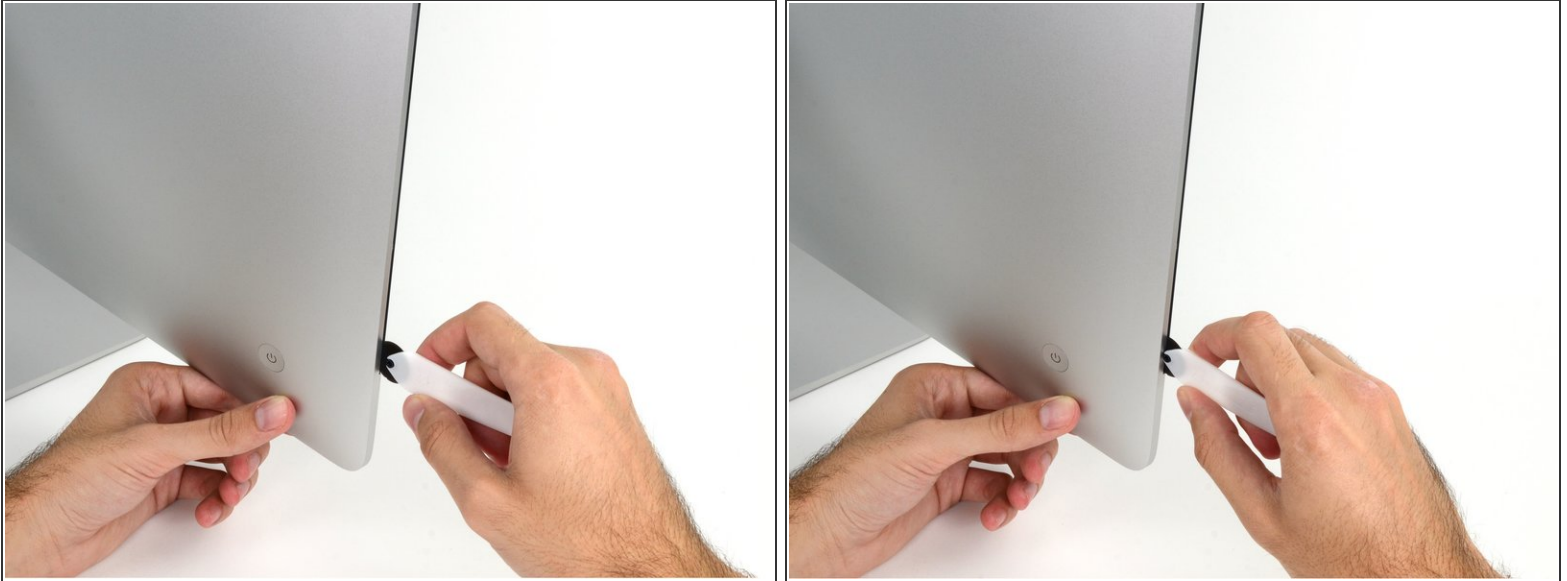
- [iMac Intel 21.5" \(2012-2017\) Adhesive Strips](#) (1)

Step 1 — Display



-  With the hinge free to move, the iMac will be unbalanced and hard to work on. Repairs can be completed as shown, but are faster and easier with an [iMac service wedge](#).
-  **Before beginning any work on your iMac:** Unplug the computer and press and hold the power button for ten seconds to discharge the power supply's capacitors.
-  **Be very careful** not to touch the capacitor leads or any exposed solder joints on the back of the power supply. Only handle the board by the edges.

Step 2



- Starting on the left of the display, near the power button, insert the iMac Opening Tool into the gap between the glass panel and the rear enclosure.

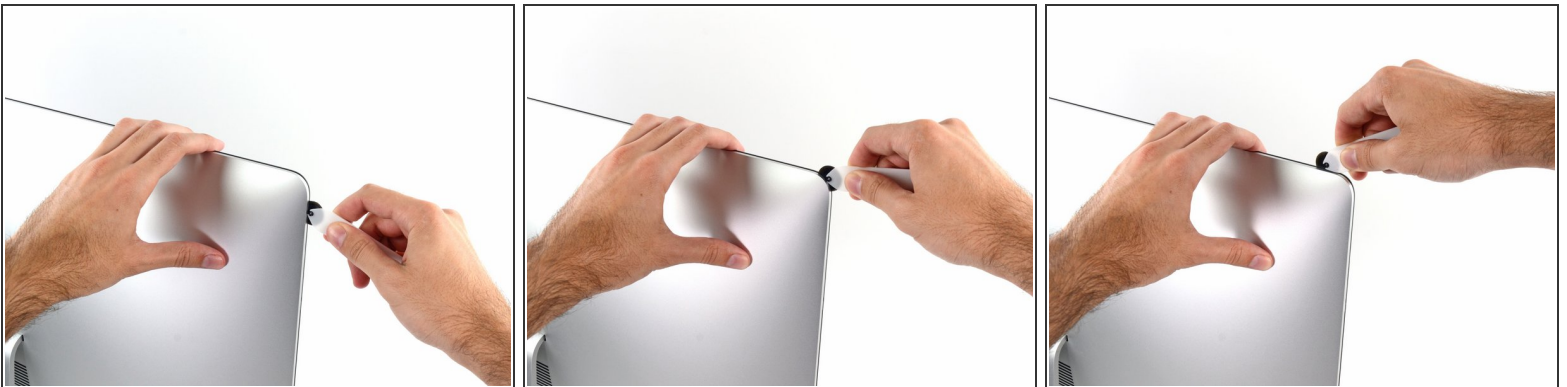
- ⚠ The hub on the iMac Opening Tool will keep you from pushing the wheel in too far. If using a different tool, insert no more than 3/8" into the display. Otherwise, you risk severing antenna cables and causing serious damage.
- ⚠ Be gentle! The glass may crack if pried too much. Use a hairdryer to heat the edges and loosen the tape if the room temperatures are low.

Step 3



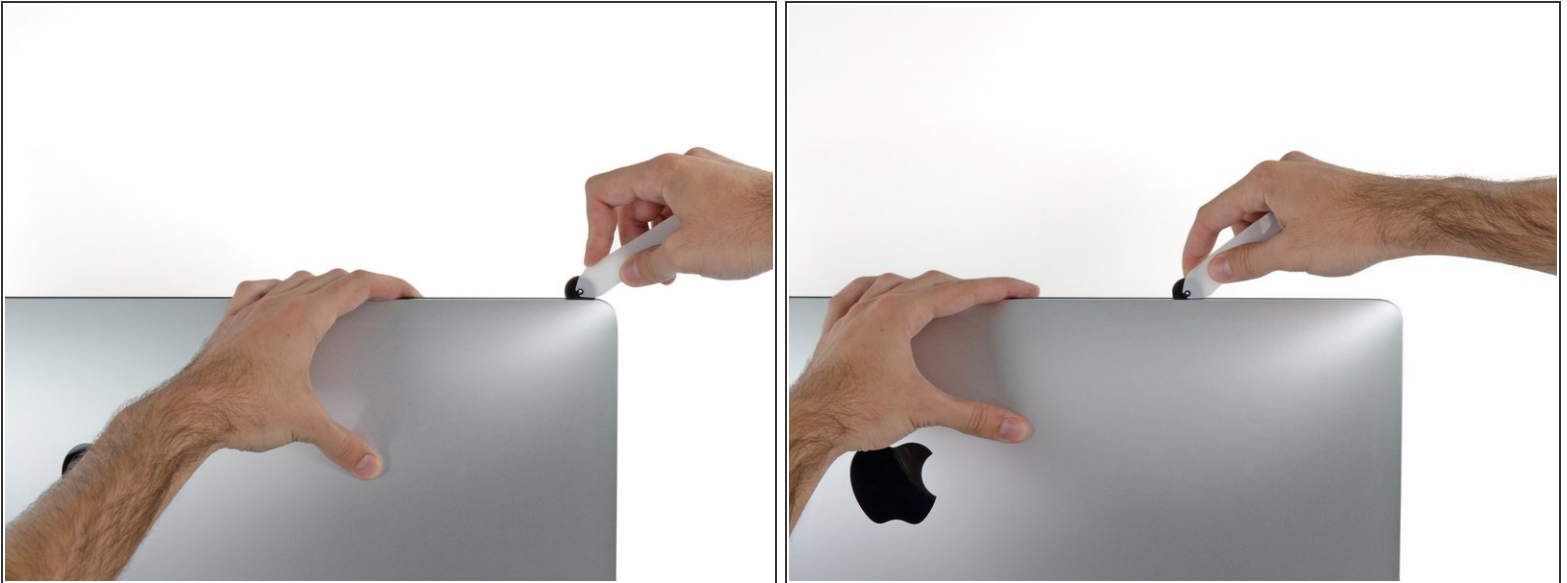
- Use the tool like a pizza cutter—roll it along through the gap, and it will cut the foam adhesive through the center.
- ⓘ Be sure to always push with the handle behind the cutting wheel. If you pull, the wheel might get pulled out of the handle.
- Run the tool up along the left side of the display.

Step 4



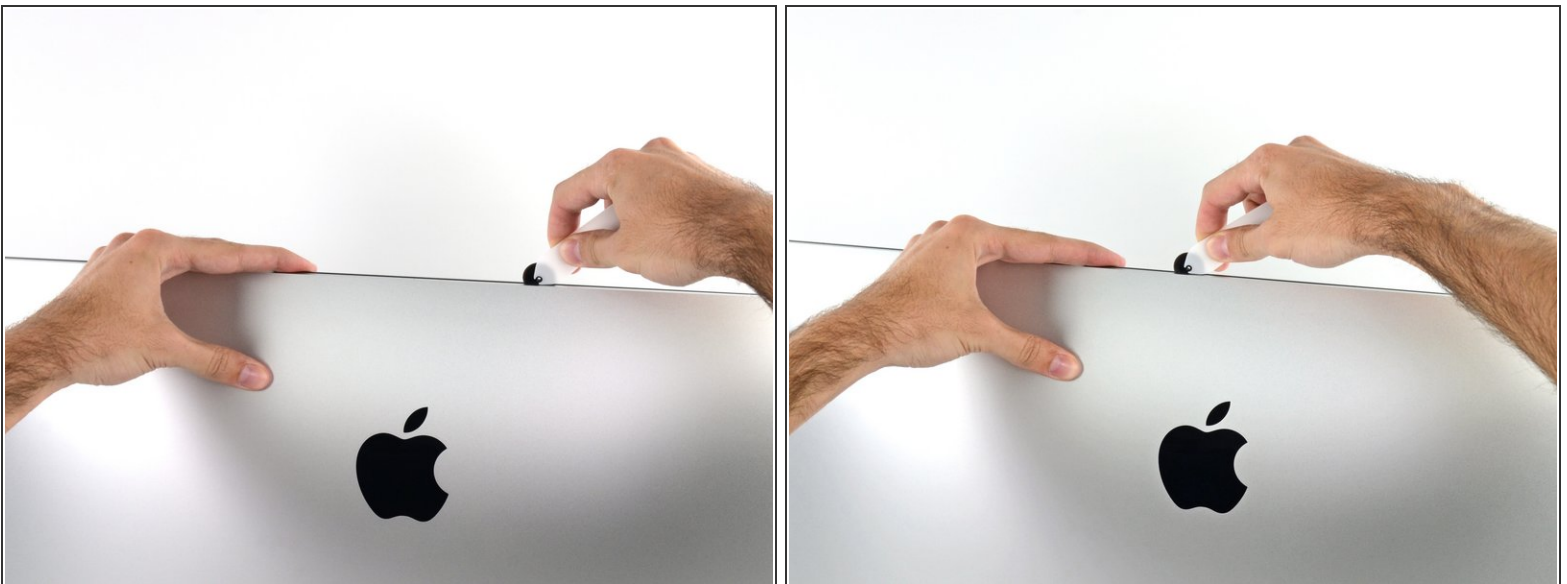
- Continue running the tool up around the top left corner.

Step 5



- Cut the adhesive along the top left of the display.

Step 6



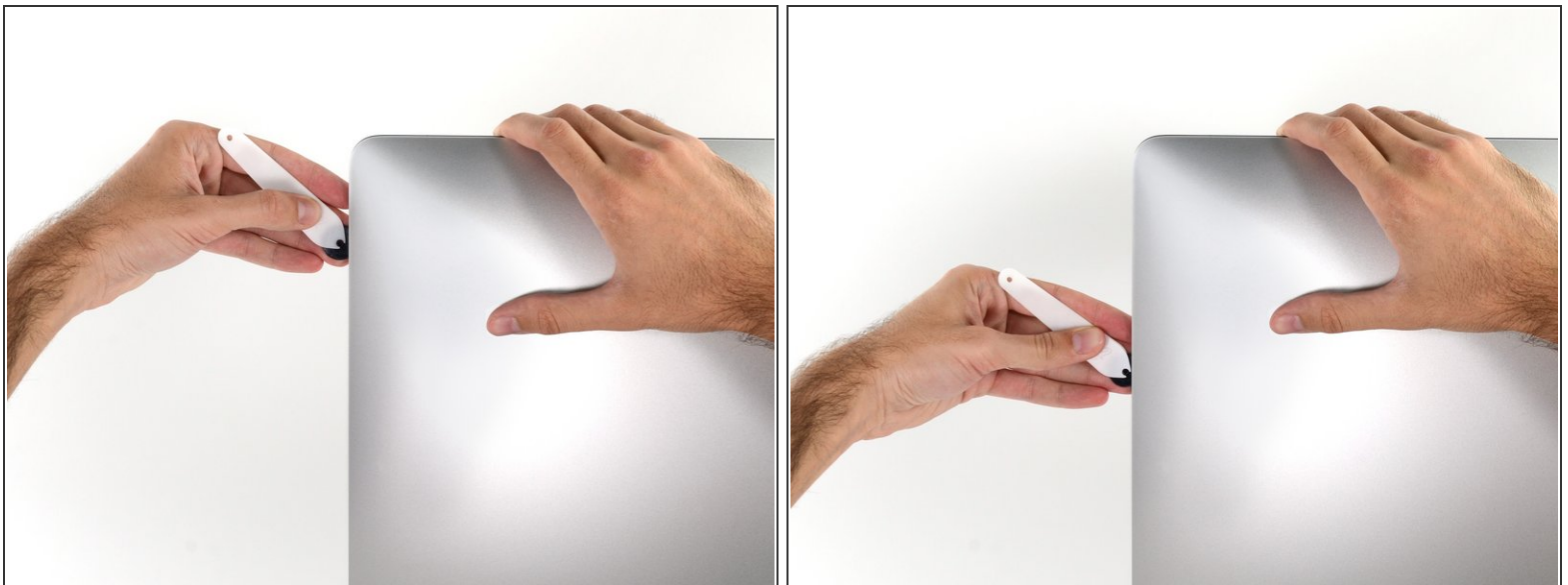
- Continue along the top of the display.
- You may want to run the tool back and forth through what you've already cut a few times, to ensure you get as much of the adhesive separated as possible.

Step 7



- Push the tool around the top right corner of the display.

Step 8



- Wheel the tool down along the right side of the display.




Step 9



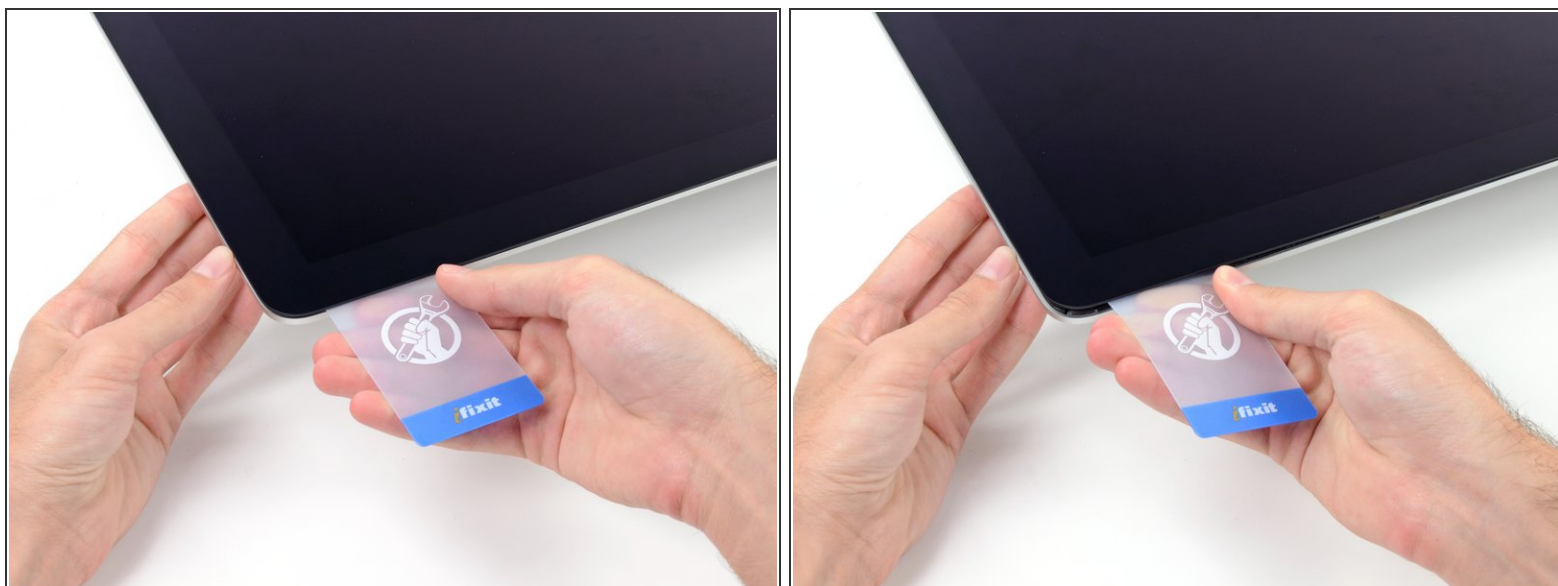
- Finish pushing the opening tool to the bottom of the right side of the display.
- ⓘ At this point, you'll want to run the tool back around the entire display, to ensure you cut as much adhesive as possible.

Step 10



-  While the opening tool cut most of the adhesive, the display will still be slightly adhered to the case. A plastic card will be necessary to free up the last of this adhesive.
-  Set the iMac face-up on a table.
 - Starting from the top right corner of the iMac, wedge a plastic card between the display and frame.
-  Be careful **not** to insert the plastic card more than 3/8", or you may damage internal components.

Step 11



- Gently twist the plastic card sideways to create a gap between the display and frame.
- Move slowly and be careful not to stress the display glass too much—you only need to make a gap of about 1/4".

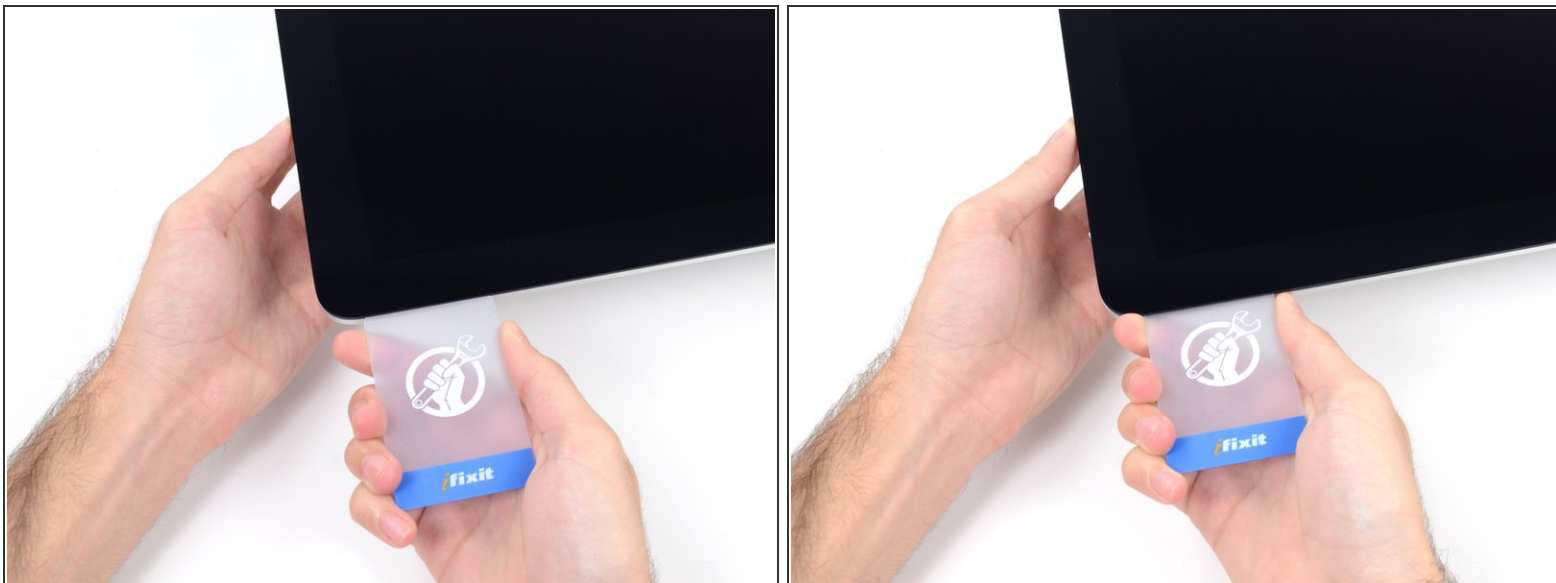
Step 12



- Slide the card toward the center of the display to cut any of the remaining adhesive along the top right corner of the iMac.

 Be sure to **stop** before the iSight camera, or you may damage it.

Step 13



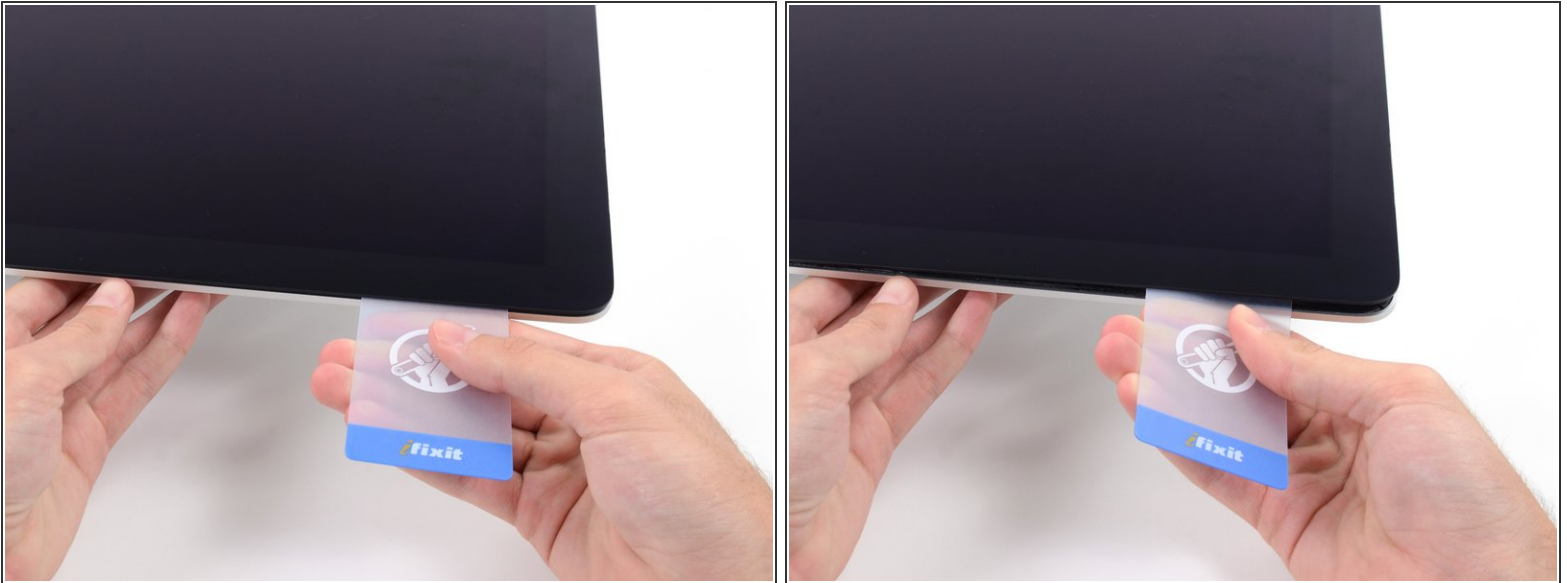
- Wedge the plastic card into the top right corner once again and let it stay there to keep the adhesive from resettling.

Step 14



- Insert a second plastic card into the gap between the display and frame located at the top left corner of the iMac.

Step 15



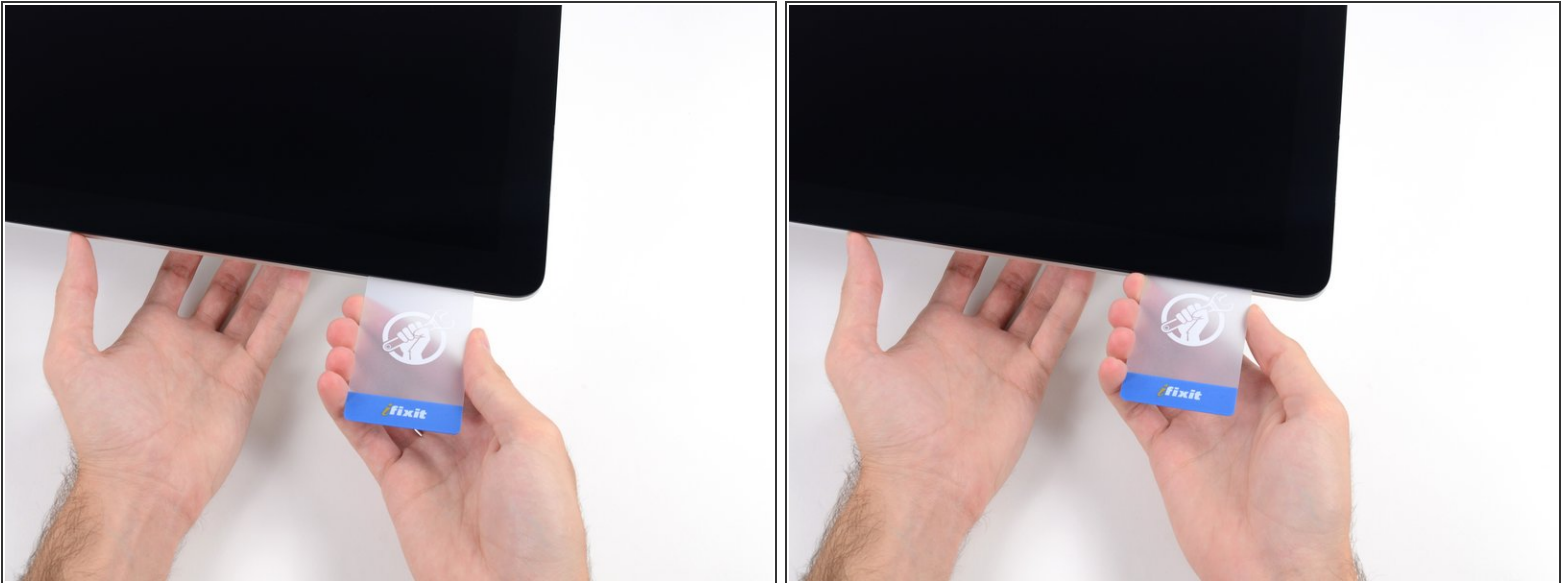
- Gently twist the card upward, slightly increasing the space between the display and frame.
- ⓘ As with the other side, twist slowly to allow the adhesive time to separate, and be careful not to over-stress the display glass.

Step 16



- Slide the plastic card toward the center, again stopping just before the iSight camera.

Step 17



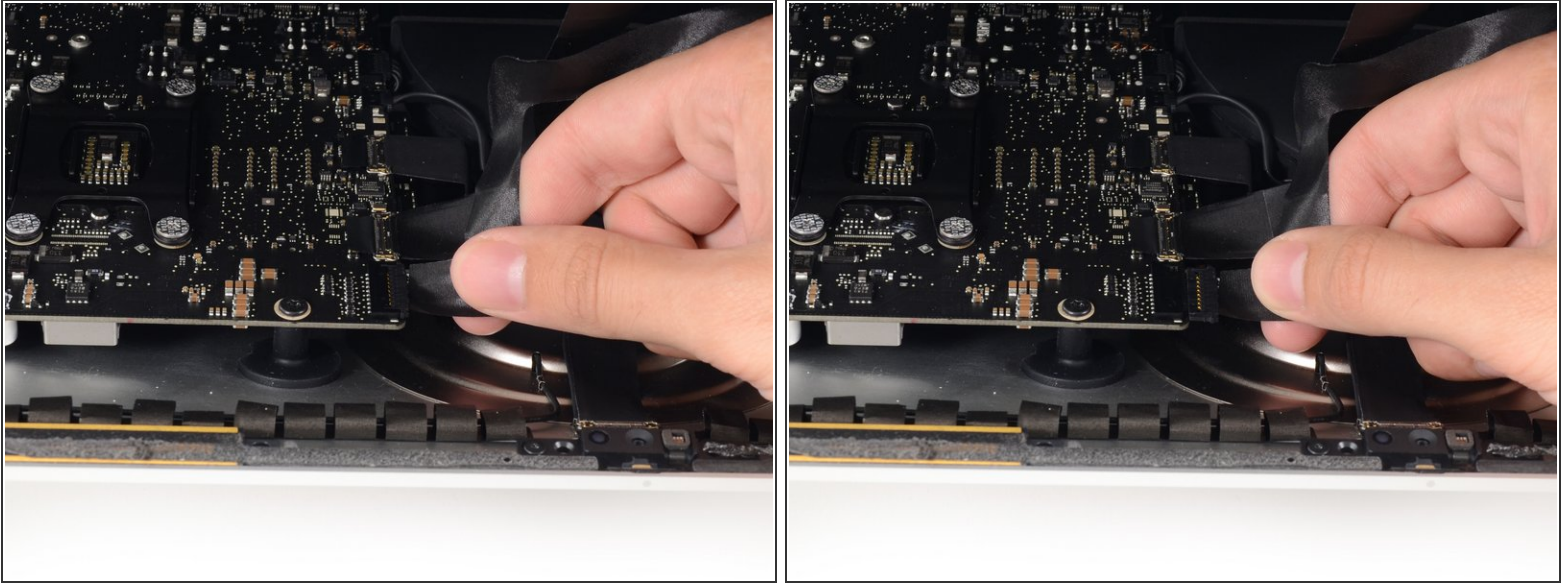
- Wedge the plastic card back into the top left corner.

Step 18



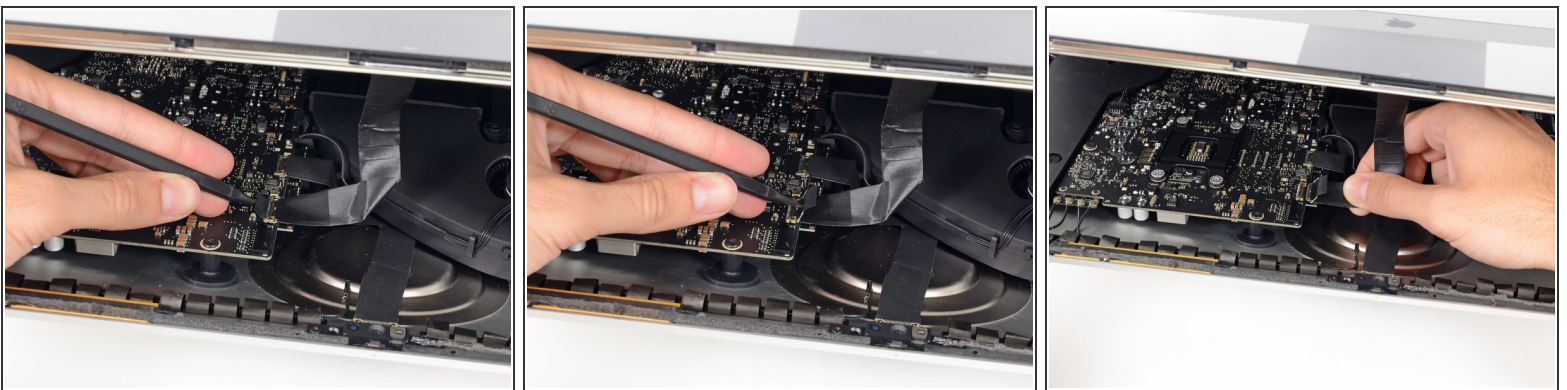
- With both plastic cards inserted as shown near the corners, gently twist the cards sideways to increase the gap between display and case.
- ⓘ If there are any sections that seem to stick and won't separate, stop twisting and use one of the cards to cut the remaining adhesive.
- Begin to lift the top of the display up from the frame.
- ⚠ Only lift the display a few inches—the display data and power cables are still connected to the logic board.

Step 19



- While holding the display up with one hand, use the other hand to unplug the display power cable. Make sure that you pull the cable out from the plastic tab, and not by pulling on the color wires.
- ⓘ Lift the display up enough to have easy access to the connector, but not so much that you stretch the cables and stress their connections (about 8").

Step 20



- Use the tip of a spudger to flip up the metal retaining bracket on the display data cable.
 - Carefully pull the display data cable from its socket on the logic board.
- ⚠ Be sure to pull the display data cable connector straight out of its socket.

Step 21



- Lift the display up to a near-vertical position.

i At this point there is still a strip of adhesive along the bottom of the display, that will hold the display to the frame like a hinge. You can loosen this adhesive by working the display up and down a few times.

Step 22




i If necessary, a plastic card can be used to cut any remaining sections of the bottom adhesive strip.

Step 23

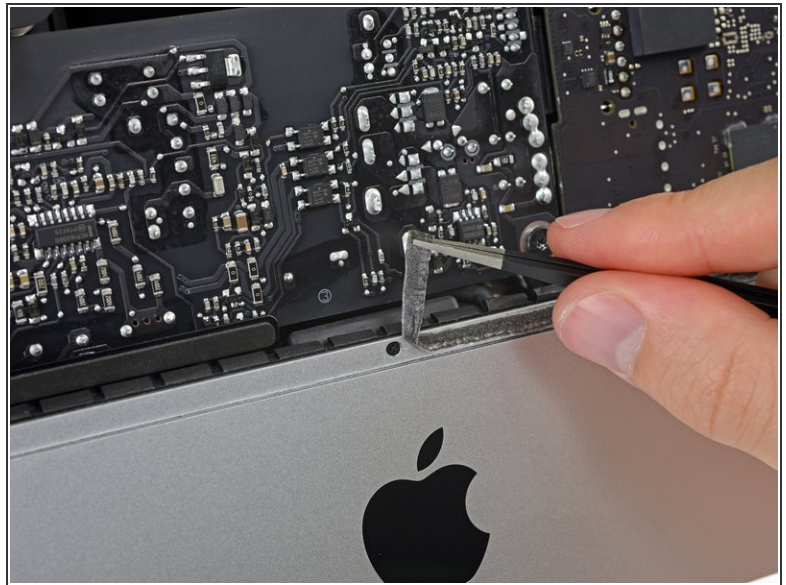


- Lift the display up from the frame and remove it from the iMac.
- It may be necessary to slowly lift from one side, to peel against the remaining adhesive.

 Be very careful handling the display—it's big, heavy, and made of glass.

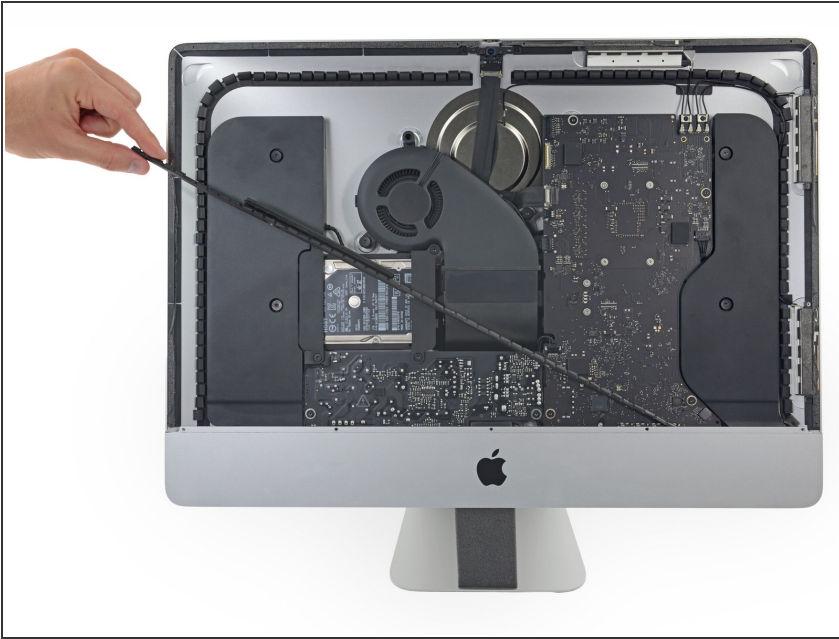
-  During reassembly, remove all traces of old adhesive from the iMac, then head over to our [iMac Intel 21.5" Retina 4K Display \(2017\) Adhesive Strips Replacement](#) guide to install the new adhesive before reinstalling the screen.

Step 24 — Lower Support Bracket



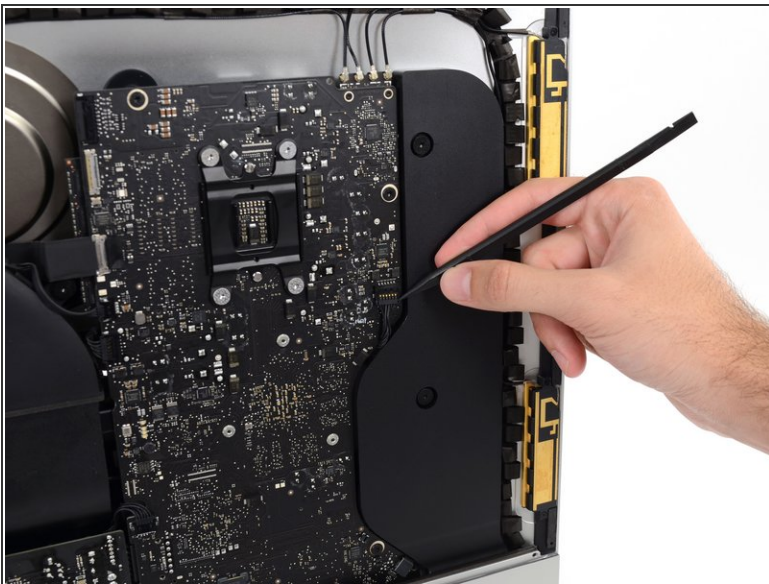
- Remove the following five Phillips screws holding the lower support bracket in place:
 - Four 3.2 mm screws
 - One 1.7 mm screw
- ⓘ On at least some EMC 2544 machines, all five screws are the same size.
- ⓘ You may need to peel up the display adhesive lining the bottom edge of the iMac enclosure to access the screws.

Step 25



- Remove the lower support bracket from the iMac enclosure.

Step 26 — Right Speaker



- Use a spudger to loosen the right speaker cable's connector from its socket on the logic board.
- ⓘ It is useful to push downward on both short sides of the connector to "walk" it out of its socket. Be careful with the corners of the connectors, they can be easily broken off.
- Pull the connector downwards to remove it from its socket.

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Step 27



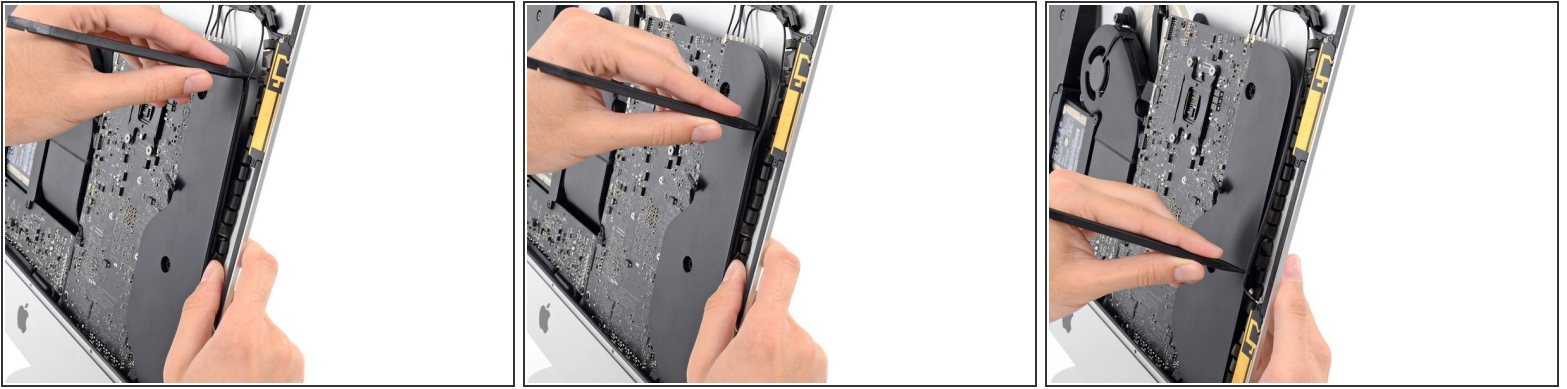
- Remove the two 10.0 mm T10 screws securing the right speaker to the rear enclosure.

Step 28



- Pull the top of the right speaker away from the rear enclosure, about half an inch, to expose the antenna cable running down its right side.

Step 29



- Insert the tip of a spudger between the right speaker and the antenna cable that is routed into the speaker's right side.
- Run the spudger down along the right side of the speaker to pry the antenna cable from its channel in the right speaker.

Step 30



- Pull the right speaker straight up about an inch, toward the top of the iMac.
- Lift the right speaker straight up and remove it from the iMac. This may take some force, both hands and rocking the speaker right and left to get it out.

Step 31 — Hard Drive Brackets



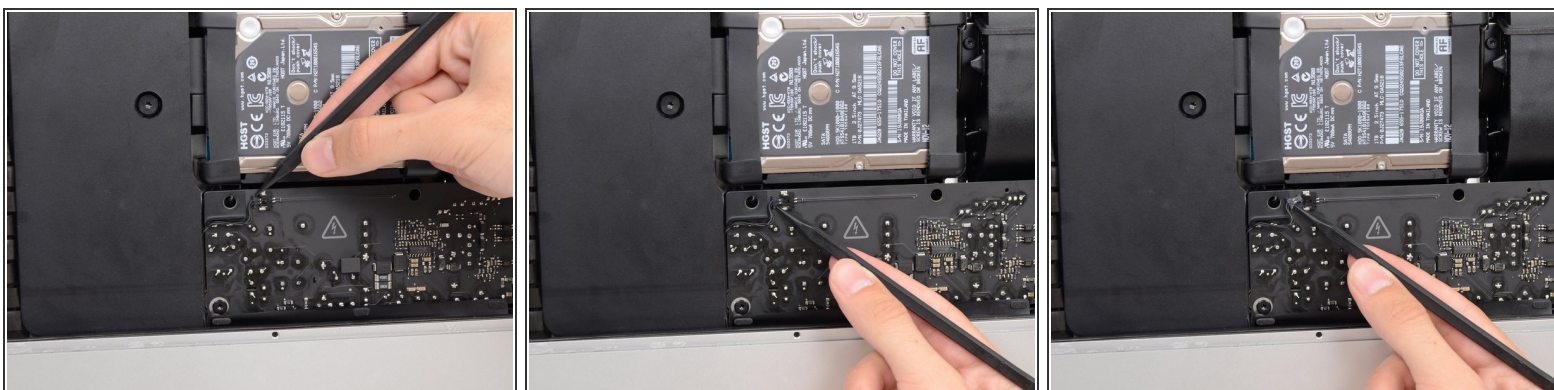
- Remove the following screws securing the hard drive bracket to the rear enclosure:
 - Two 21 mm T10 Torx screws from the left-hand hard drive bracket.
 - One 9 mm T10 Torx screw.
 - One 27 mm T10 Torx screw.


Step 32



- Remove the left and right hard drive brackets from the iMac.

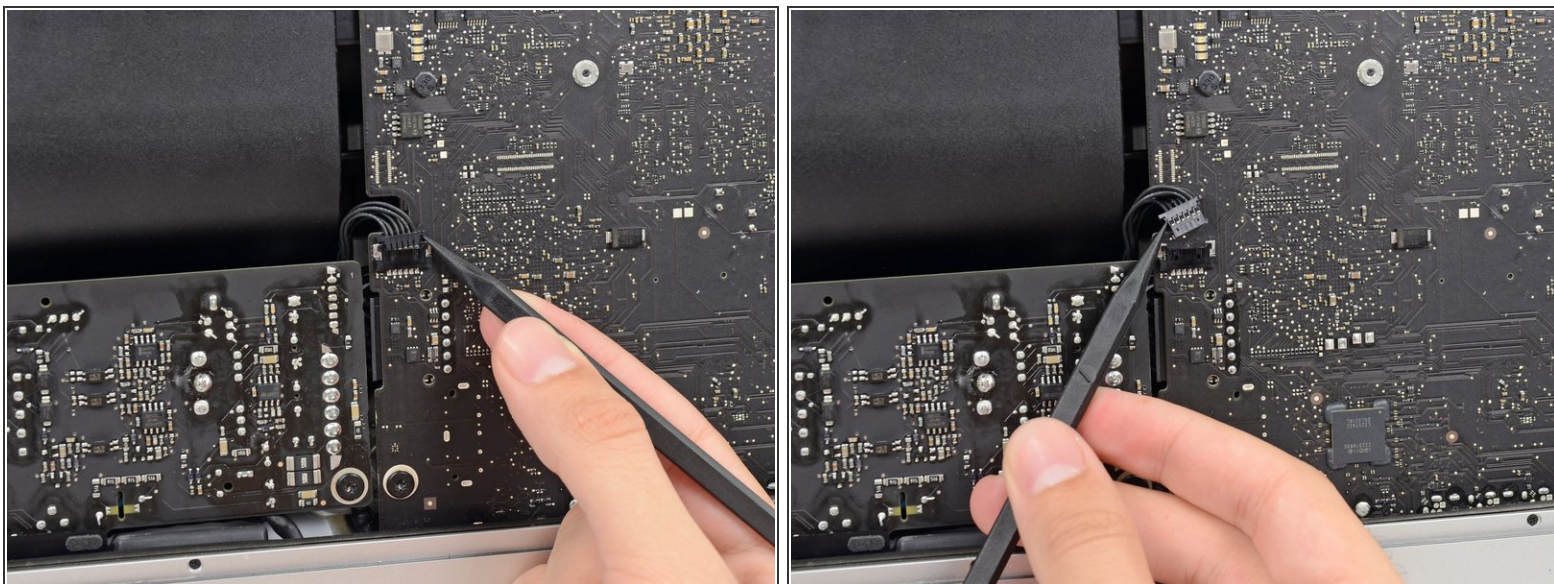
Step 33 — Power Supply



 The next few steps bring your hands close to the exposed face of the power supply. **Do not** touch the face of the power supply to avoid a high voltage shock from the many large capacitors attached to the board.

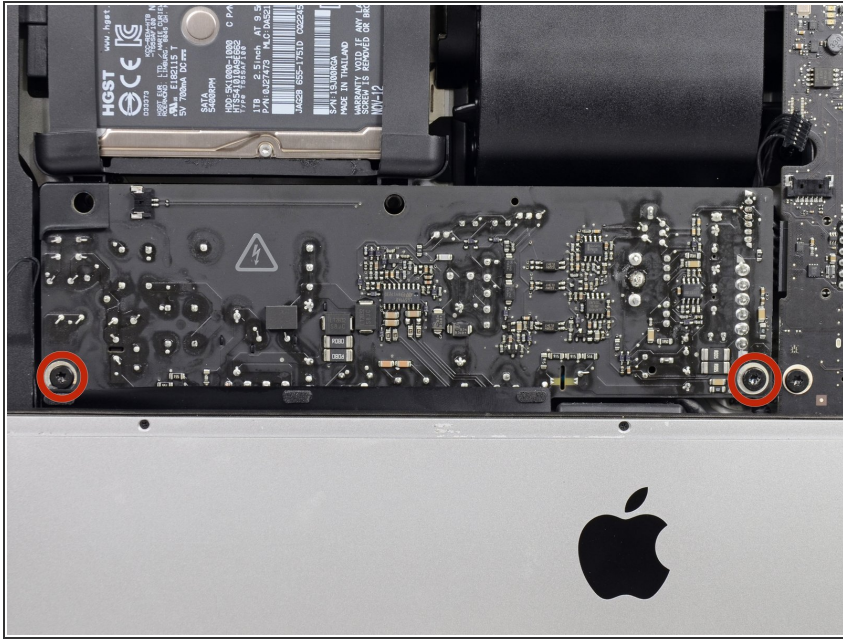
- Use the tip of a spudger to push each side of the power button cable connector and gently "walk" it out of its socket.

Step 34



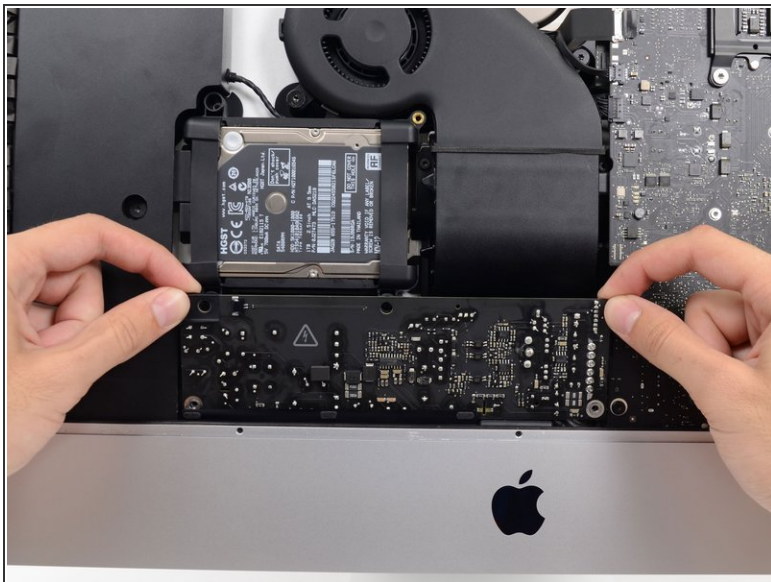
- Gently push upward on each side of the power supply control cable connector with the tip of a spudger to gently "walk" it out of its socket.

Step 35



- Remove the two 7.2 mm T10 screws securing the power supply to the rear enclosure.

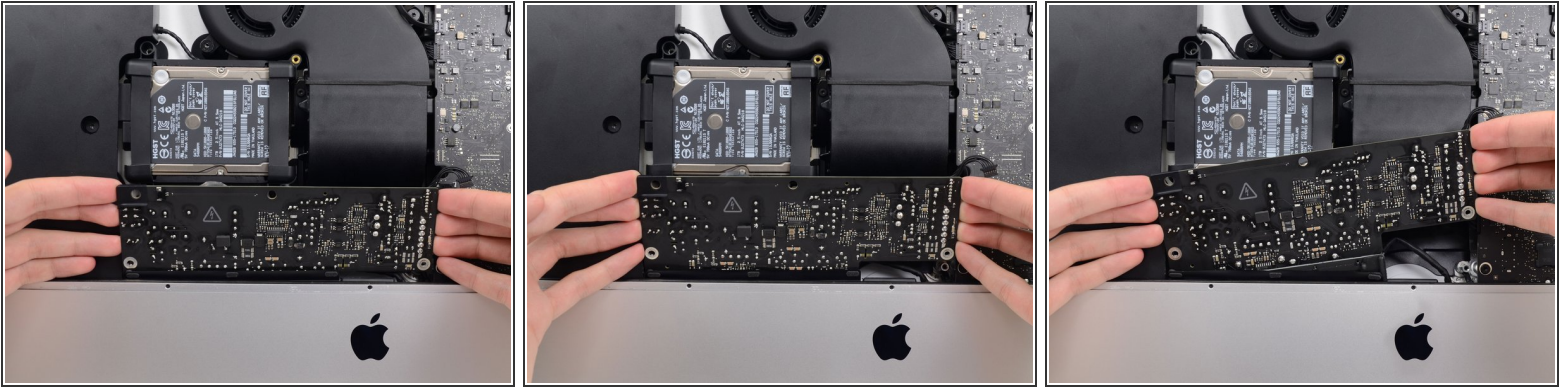
Step 36



⚠ When working on the power supply, **be very careful** not to touch the capacitor leads or any exposed solder joints on the back of the power supply. Only handle the board by the edges.

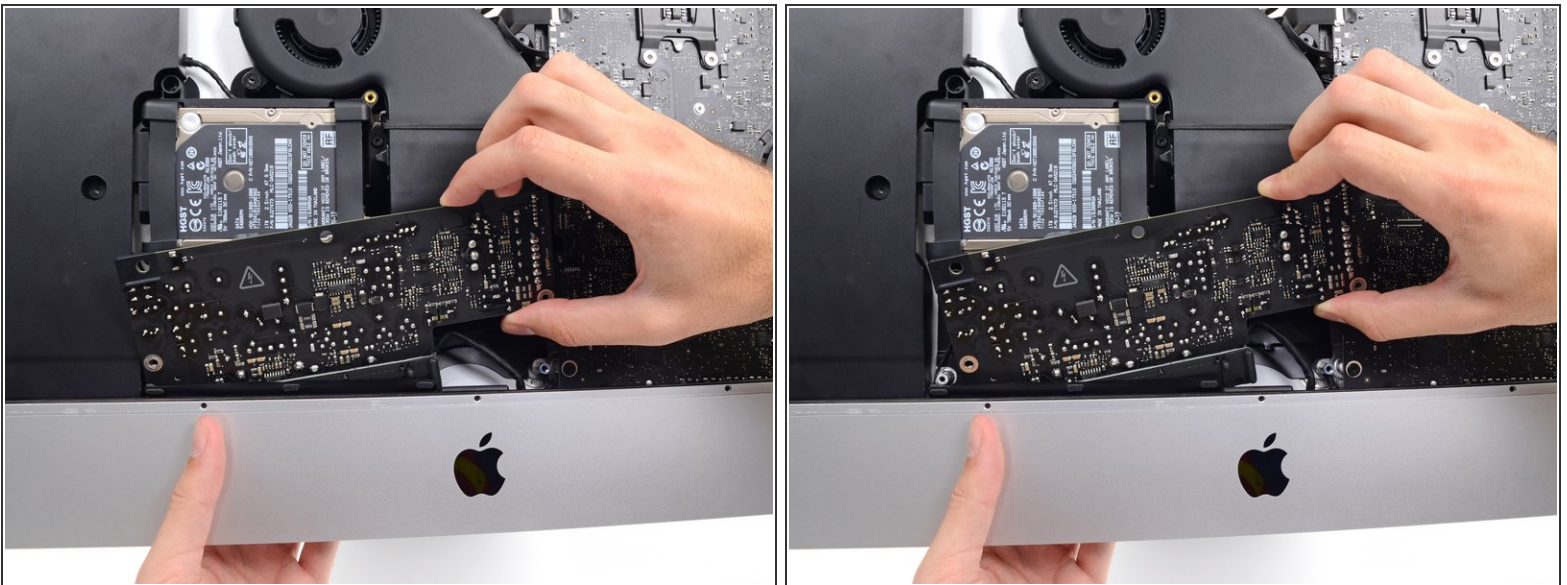
- Tilt the power supply forward.

Step 37



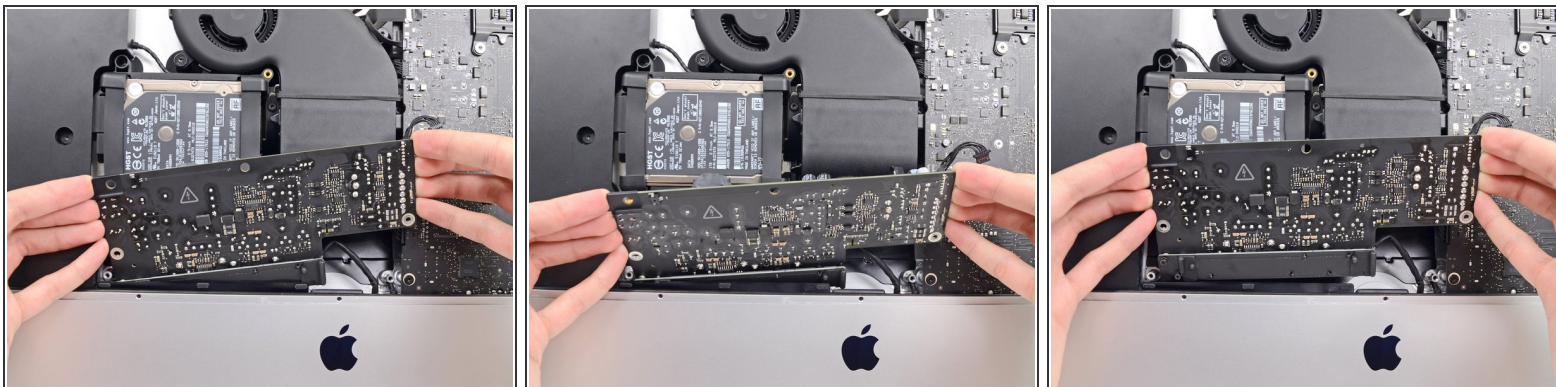
- Pull the power supply slightly up and out from the rear enclosure.
- Rotate the power supply counterclockwise, lifting the right side up about an inch higher than the left.

Step 38



- Slide the power supply to the right to clear the screw posts on the rear enclosure.

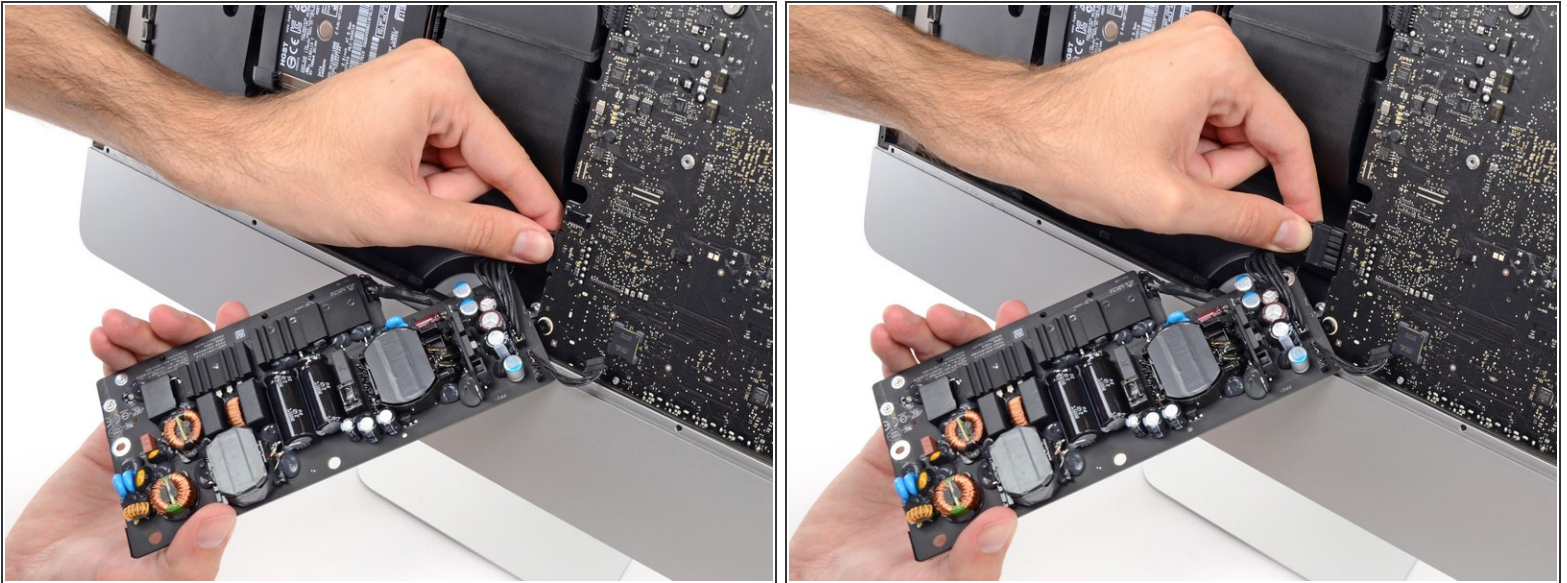
Step 39





- Rock the power supply forward and remove it from its recess in the rear enclosure.

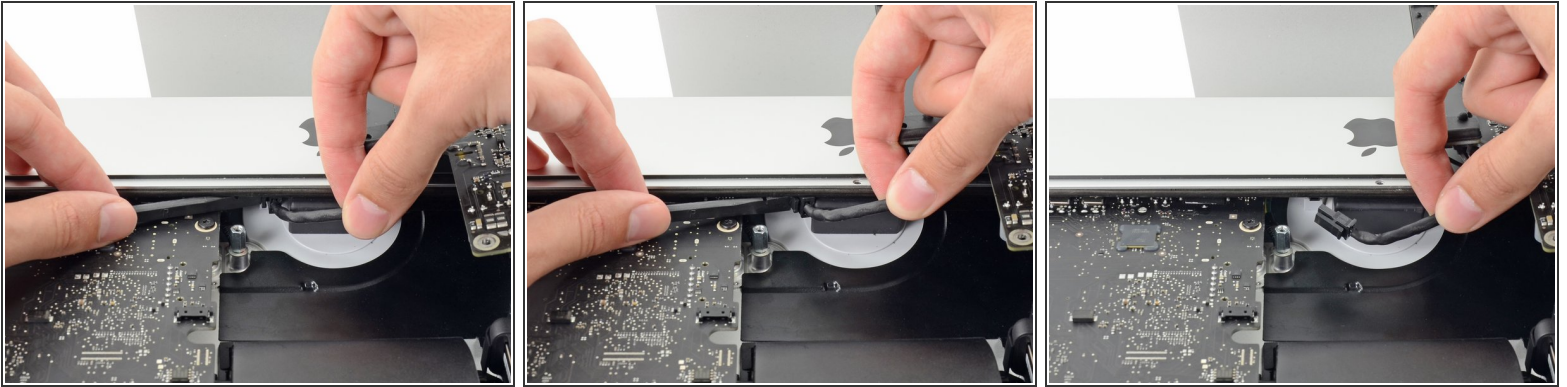
⚠ Do not try to completely remove the power supply from the iMac yet—it is still connected to the logic board.

Step 40



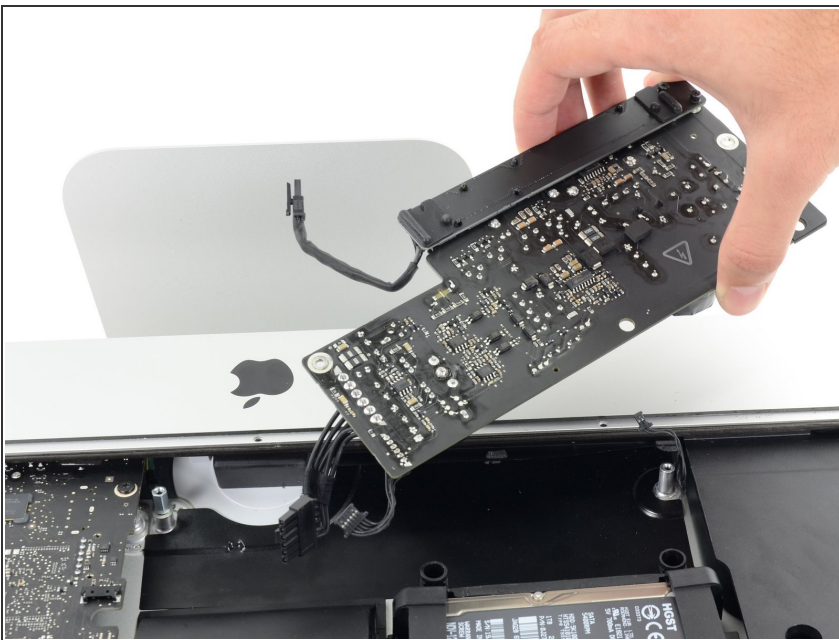
-  **Be very careful** not to touch the capacitor leads or any exposed solder joints on the back of the power supply. Only handle the board by the edges.
-  Flip the top of the power supply towards you to access the DC power cable connection behind the logic board.
- Squeeze the DC power cable connector tab and pull it straight out of its socket on the back of the logic board.

Step 41



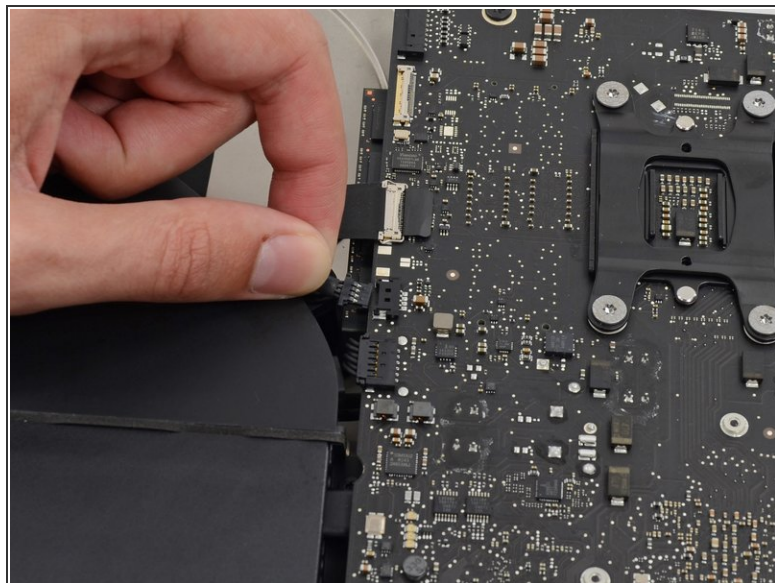
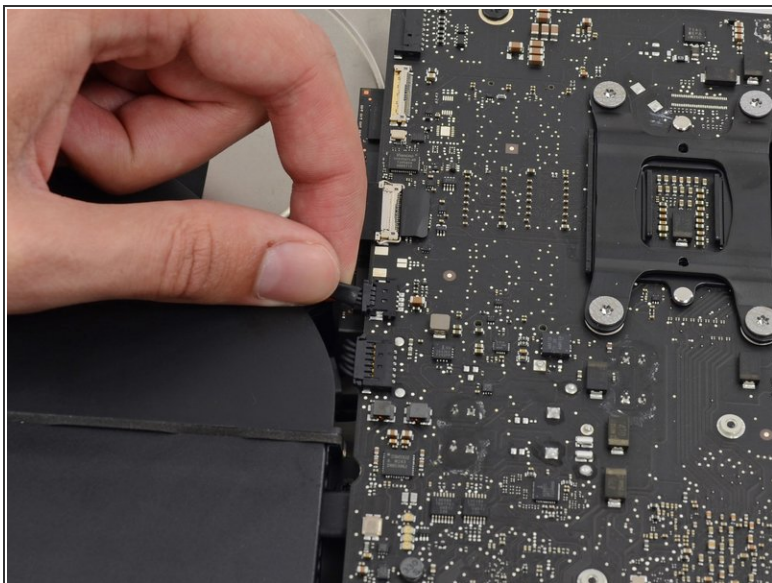
- i** You may find it helpful to set the iMac down on its back on the table for the next couple of steps.
- Use the flat end of a spudger to push the clip on the side of the AC inlet cable connector inward.
 - While holding on the release clip with the spudger, grasp the AC inlet cable, and pull the connector straight out of its socket.

Step 42



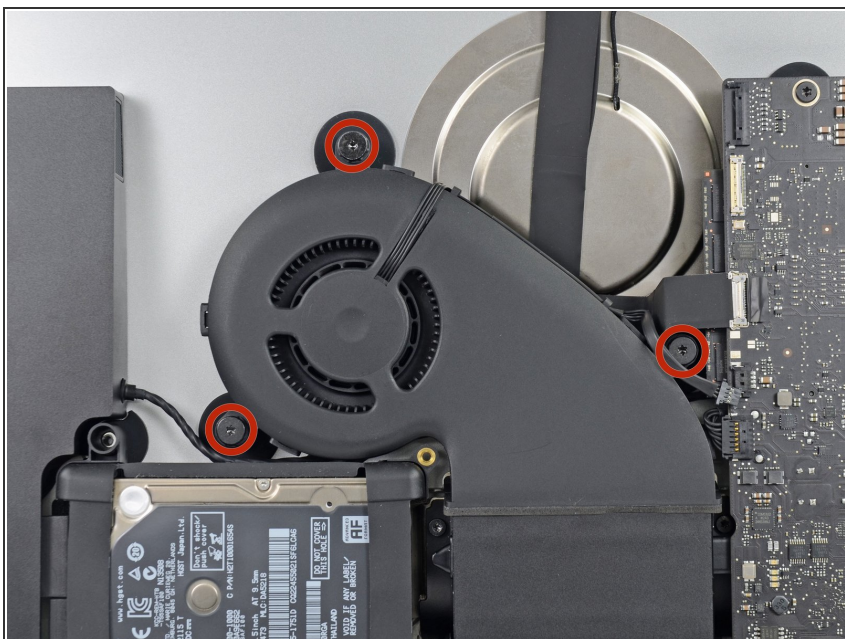
- Remove the power supply from the iMac.

Step 43 — Fan



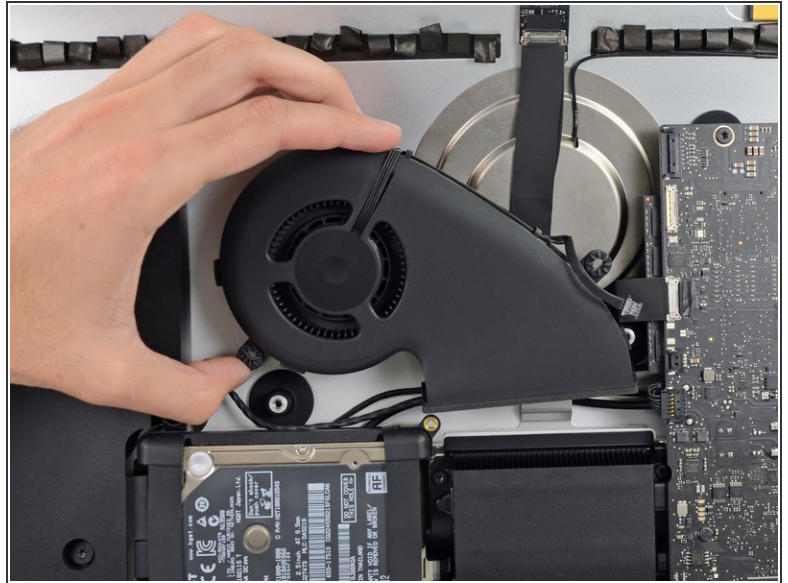
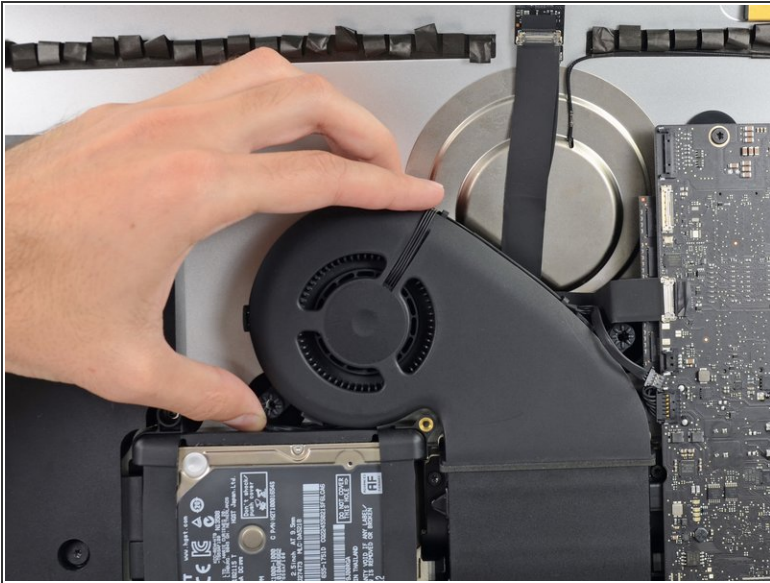
- Gently pull the fan cable connector straight away from its socket on the logic board.

Step 44



- Remove the three 12.3 mm T10 shoulder screws securing the fan to the rear enclosure.

Step 45



- Remove the fan from the iMac.

Step 46 — Hard Drive

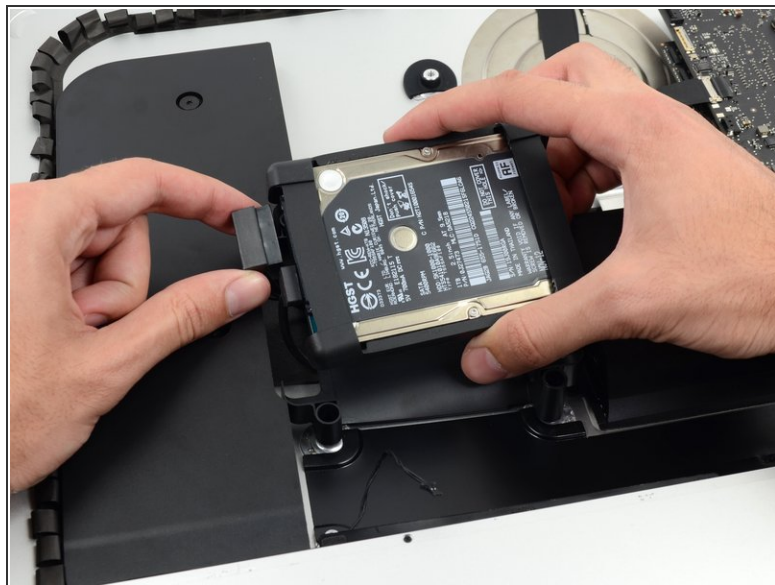


- Lift the hard drive from the edge nearest the logic board and pull it slightly out of its recess.



The hard drive is attached by two cables, do not attempt to fully remove it from the iMac.

Step 47



- Disconnect the SATA power cable.

Step 48



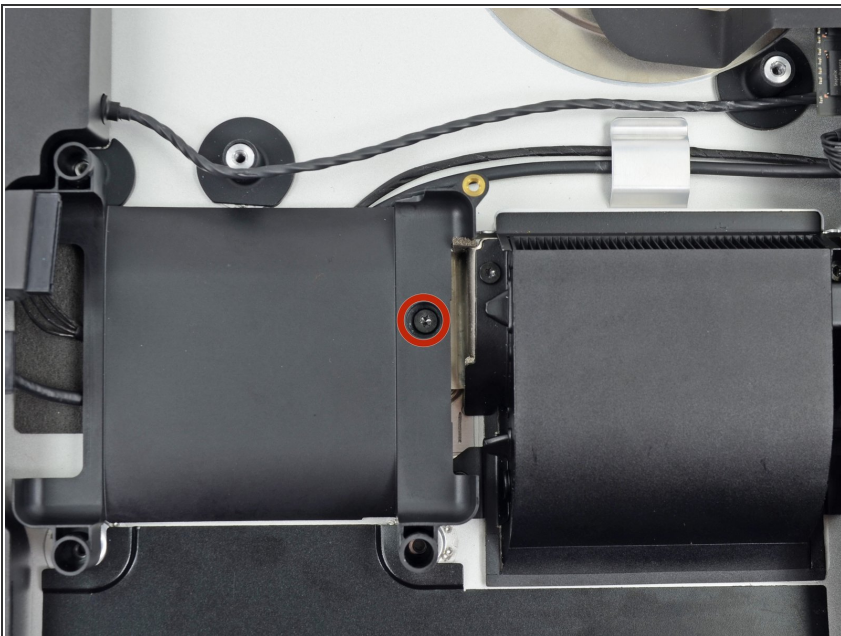
- Unplug the SATA data cable from the hard drive.

Step 49



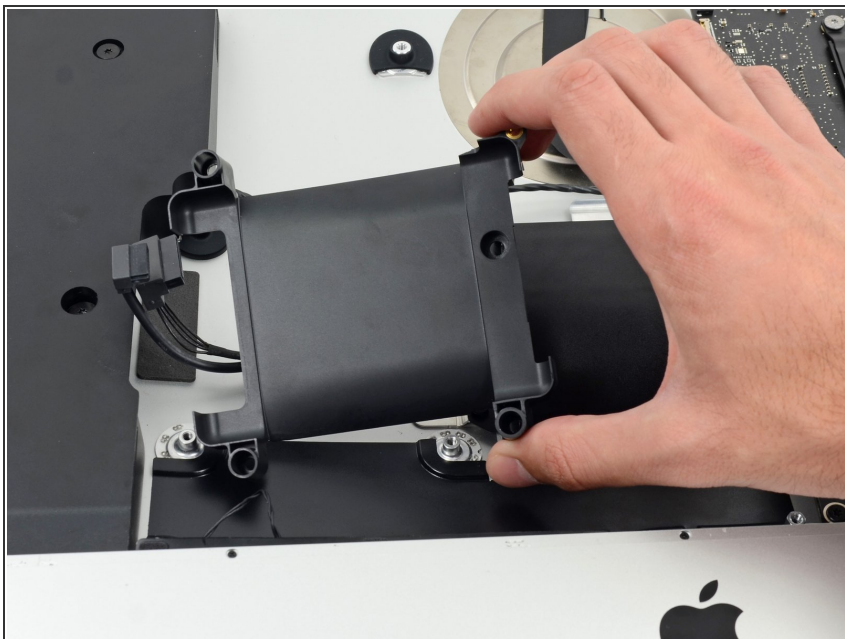
- Remove the hard drive from the iMac.

Step 50 — Hard Drive Tray



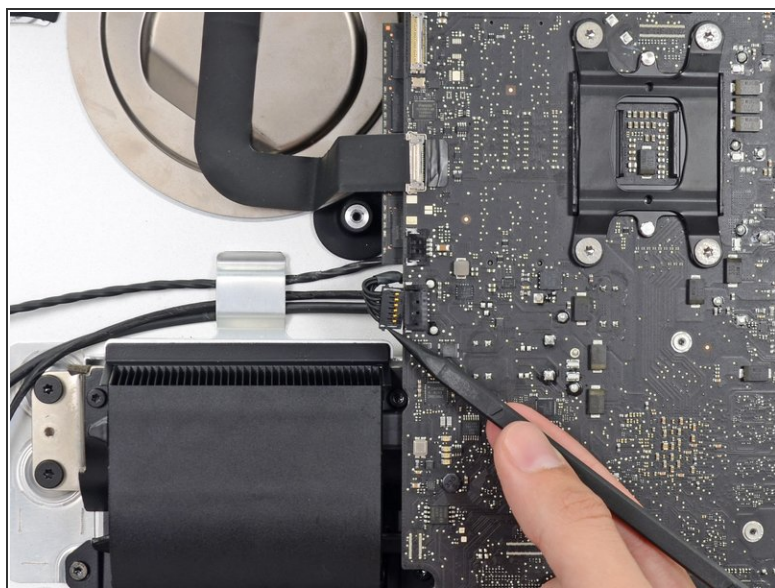
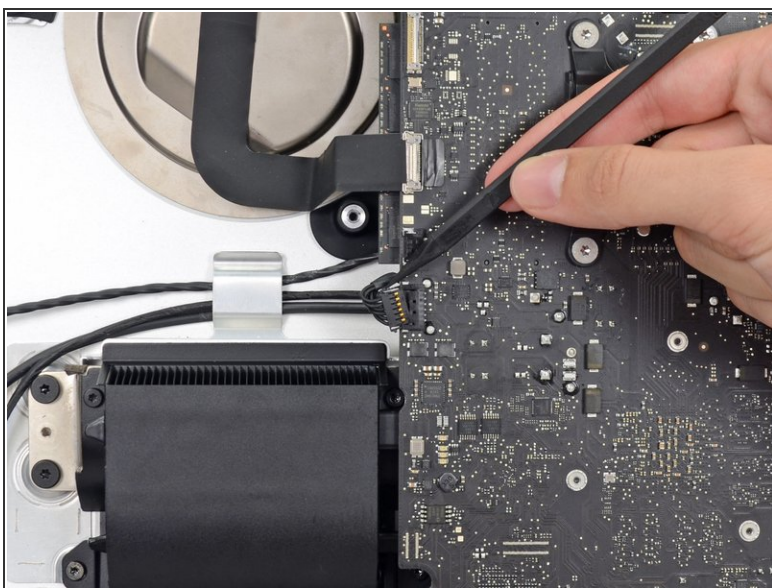
- Remove the single 7.2 mm T10 screw securing the hard drive tray to the rear enclosure.

Step 51



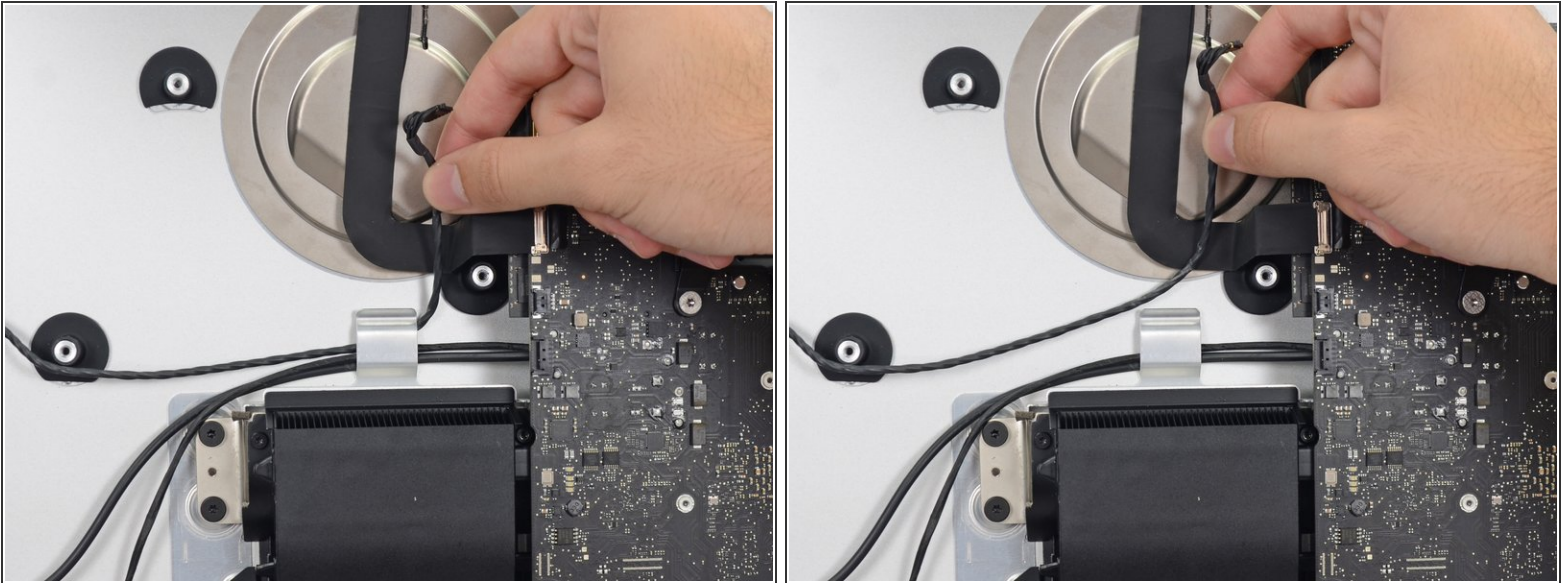
- Remove the hard drive tray from the rear enclosure.

Step 52 — Logic Board Assembly



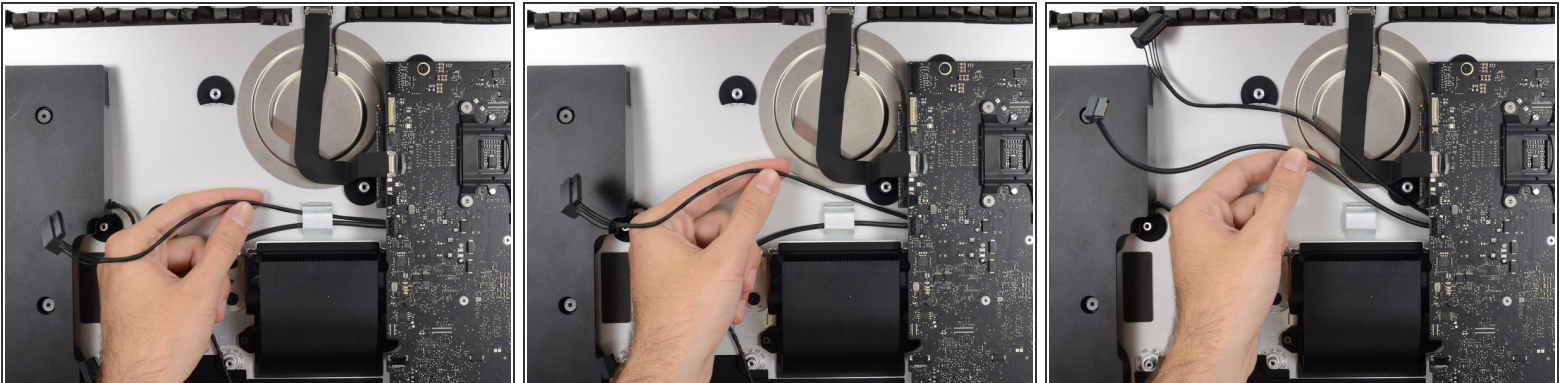
- Push on each side of the left speaker cable connector with the tip of a spudger and gently "walk" it out of its socket.

Step 53



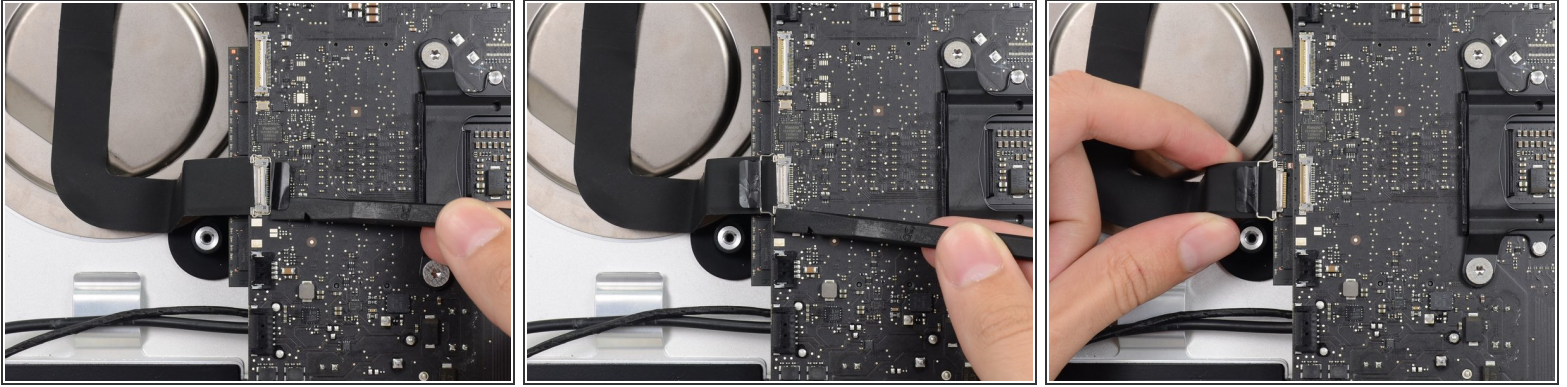
- De-route the left speaker cable by pulling it straight up out of the retaining clip in the back of the rear enclosure.

Step 54



- In a similar fashion as the previous step, de-route the SATA data and power cables up out of the retaining clip.

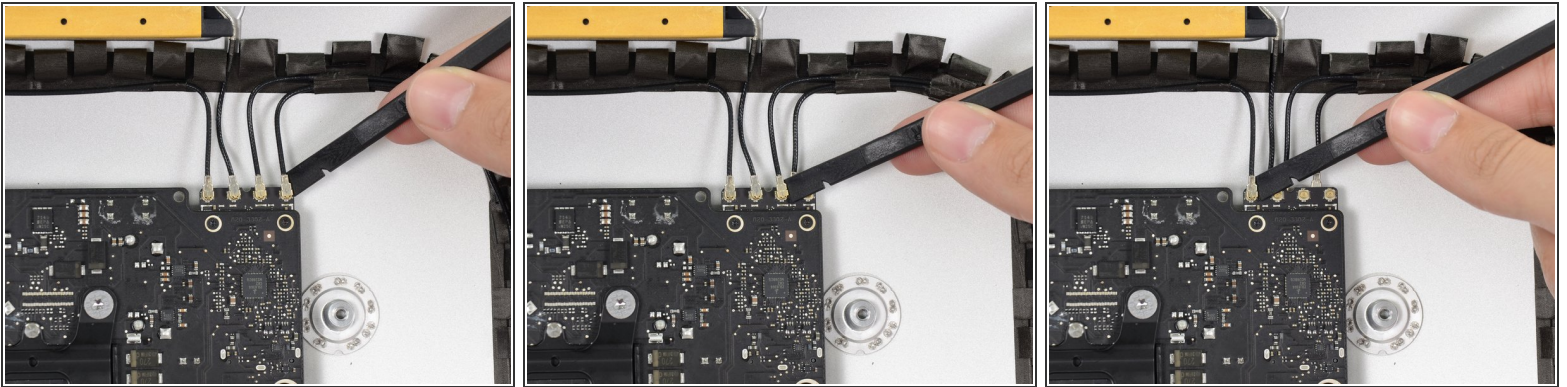
Step 55



- Use the flat edge of a spudger to flip up the metal retaining bracket on the iSight camera cable connector.
- Pull the iSight camera cable straight out of its socket on the logic board.

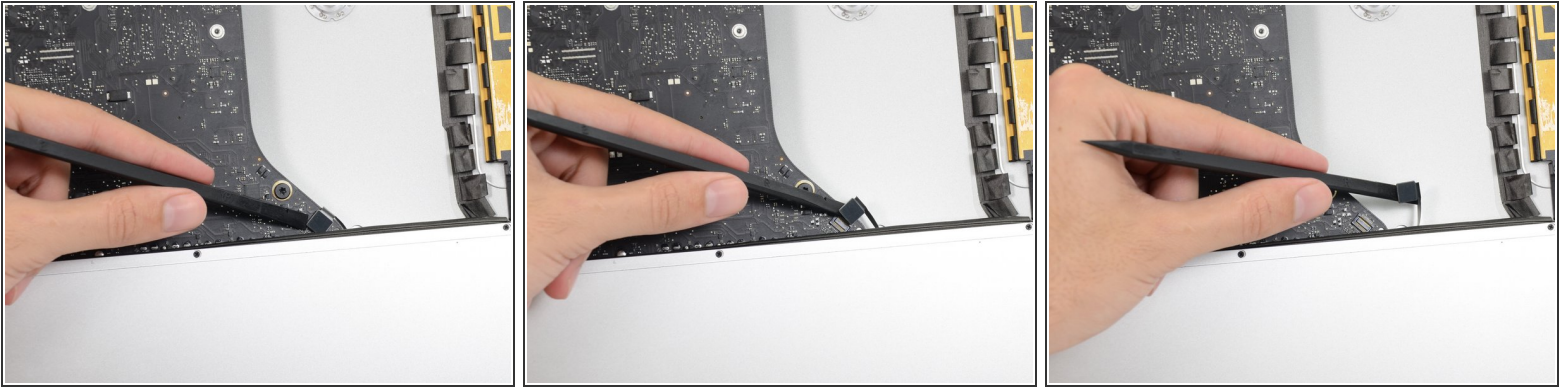
⚠ This is a delicate connector that can be easily damaged.

Step 56




- Use the flat edge of a spudger to disconnect each of the four antenna connectors from the AirPort/Bluetooth card.
- 📌 Note the original positions for each connector when reconnecting the cables.

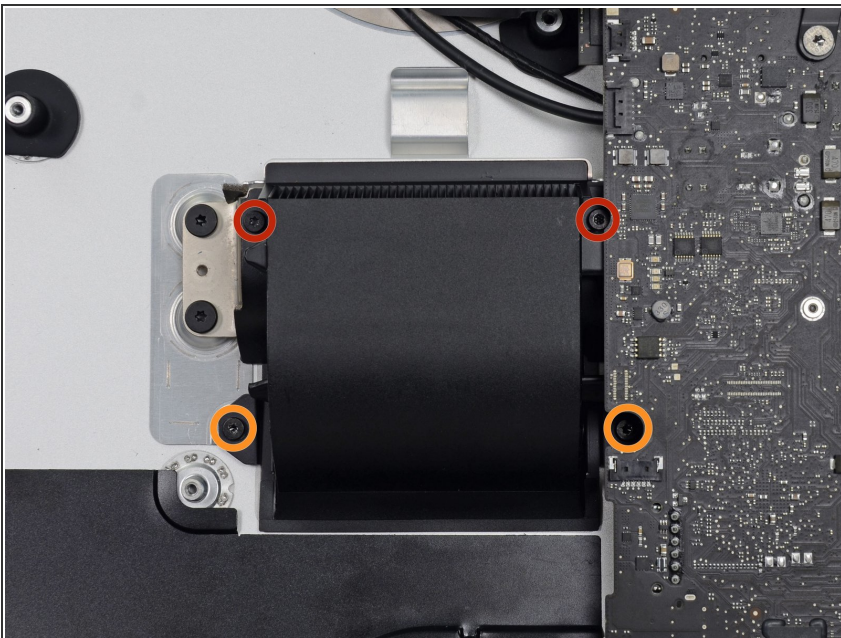
Step 57



- Use the flat edge of a spudger to pry the headphone jack cable connector from its socket on the logic board.

 Push the cable slightly to the right.

Step 58



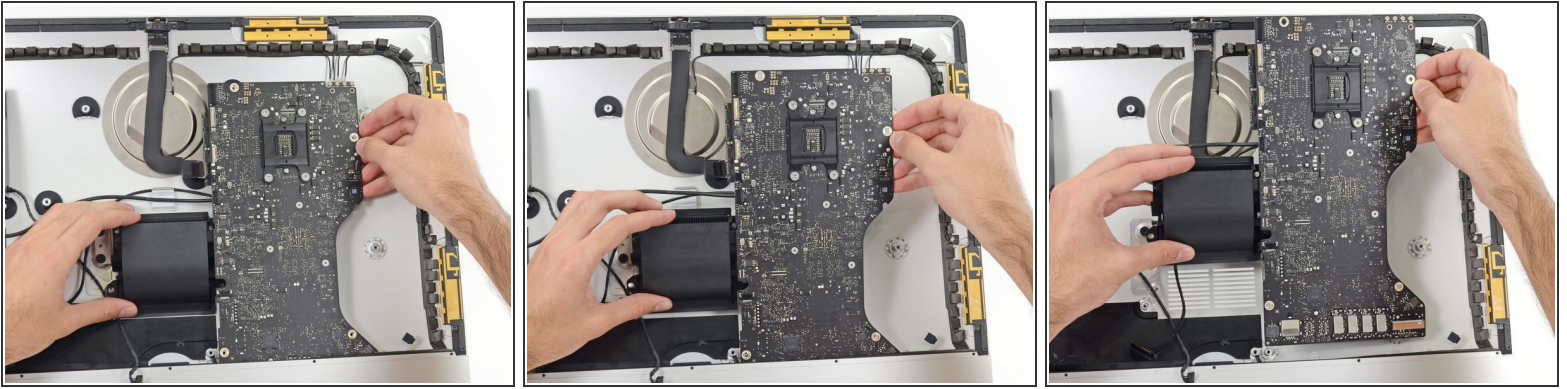
- Remove the following screws securing the exhaust duct to the rear enclosure:
 - Two 6.3 mm T8 screws
 - Two 4.7 mm T8 screws

Step 59



- Remove the four 7.2 mm T10 screws securing the logic board to the rear enclosure.

Step 60

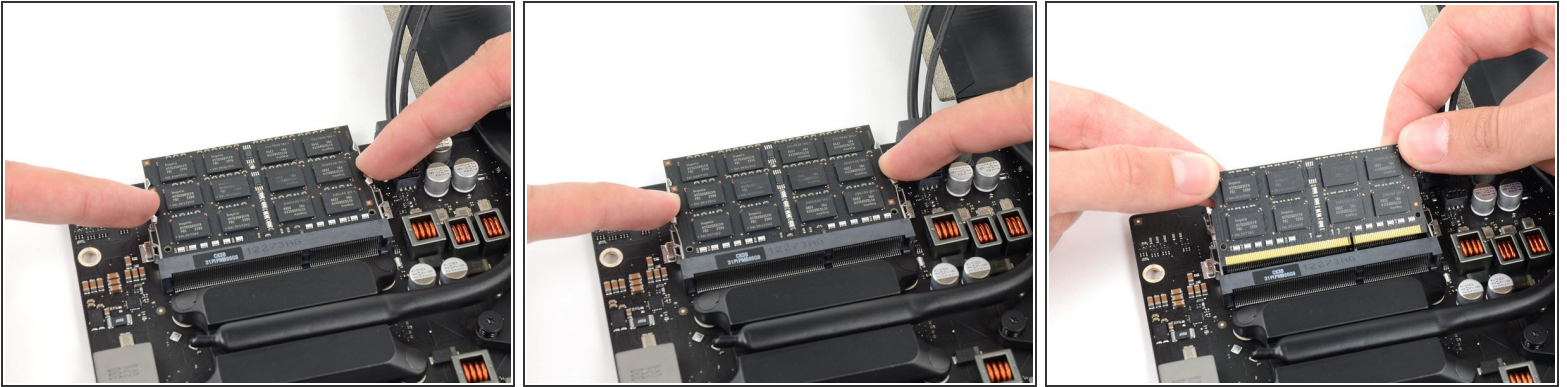


- Tilt the top of the logic board away from the rear enclosure.
- Lift the logic board straight up and out of the iMac.

⚠ Be careful not to snag the board on any of the rear case's screw posts.

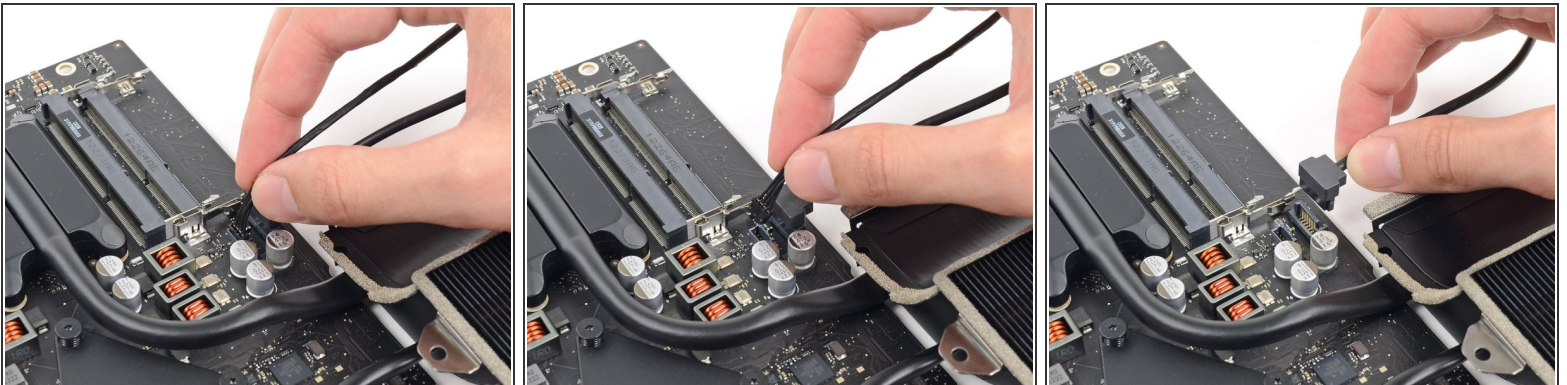
- ⓘ The I/O boards at the bottom of the logic board will be the greatest challenge. It is recommended to pull gently to avoid any damage.
- ★ During reassembly of the logic board, pay attention to the position of the I/O connectors. When the board is back in the case, insert a USB or Thunderbolt cable into one of the connectors to align it perfectly.

Step 61 — RAM



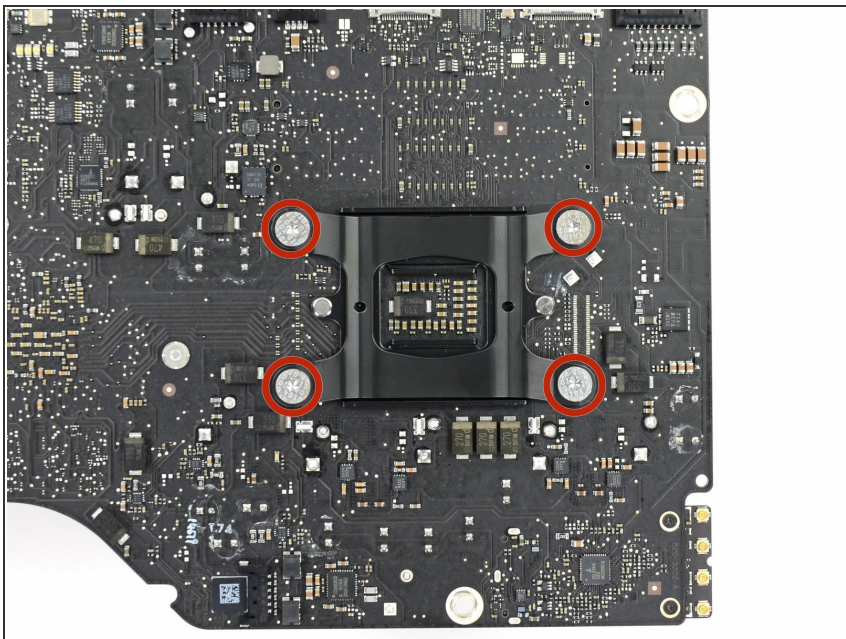
- Release the tabs on each side of the RAM module by simultaneously pushing each tab away.
- ⓘ The RAM module should pop up slightly from its socket.
- Grab the top left and right corners of the RAM module and carefully pull it straight out of its socket.
- ☑ Repeat the process to remove additional RAM modules as necessary.

Step 62 — Heat Sink Assembly



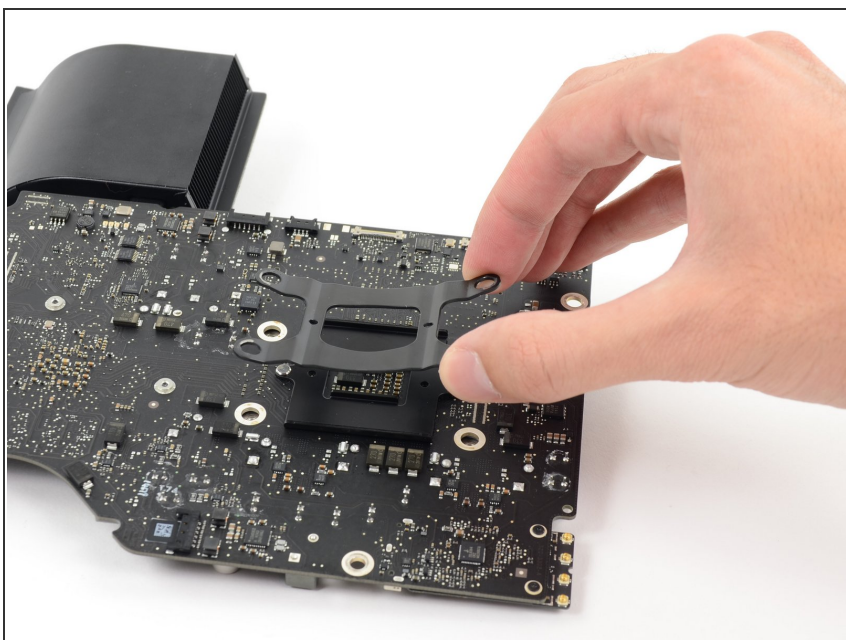
- Disconnect and remove the SATA data and power cables from the logic board.

Step 63



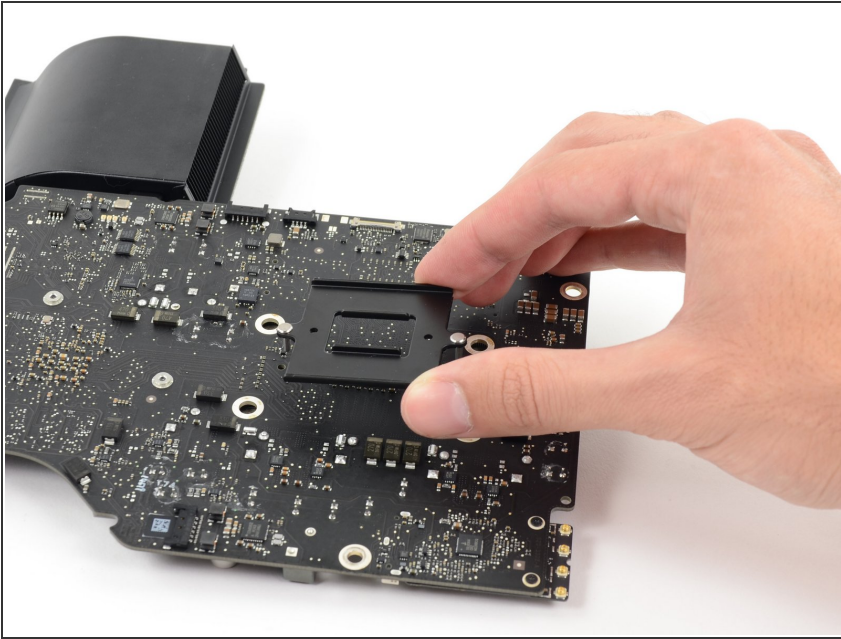
- Remove the four 12 mm T10 shoulder screws from the spring plate behind the CPU.

Step 64



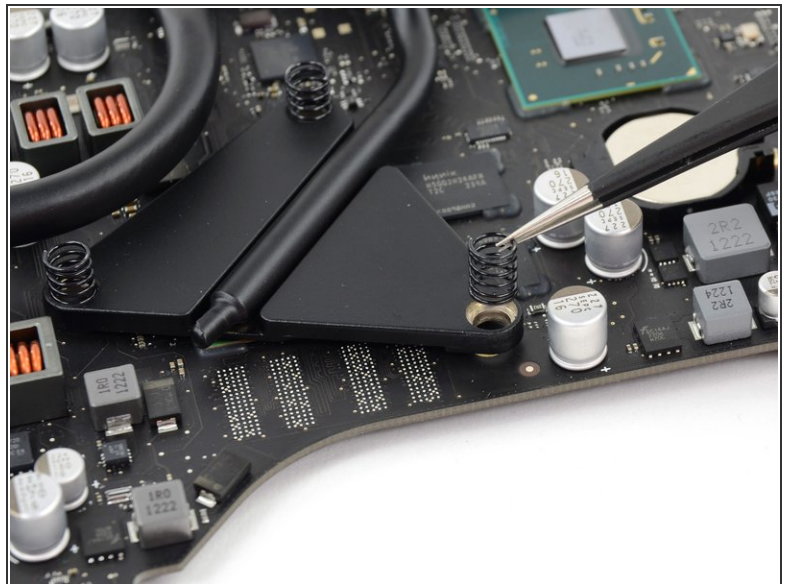
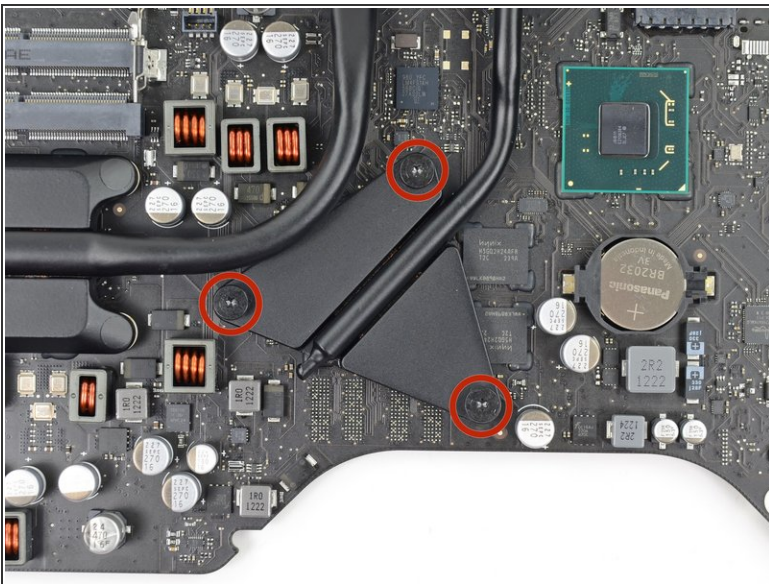
- Remove the spring plate from behind the CPU heat sink.

Step 65



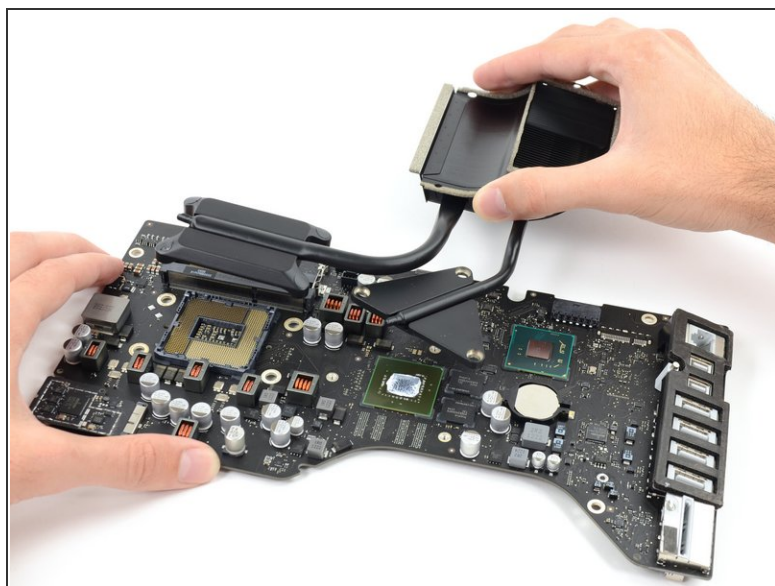
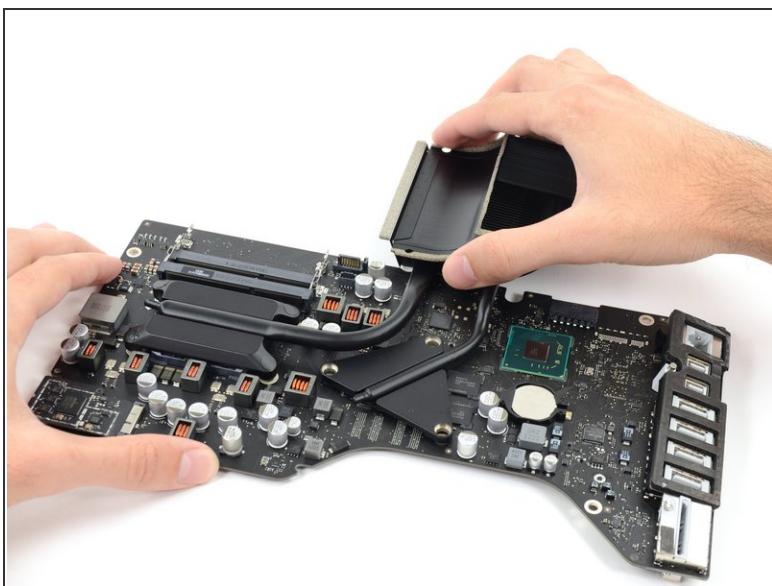
- Lift and remove the backing plate from behind the CPU heat sink.
- ⓘ The backing plate has two posts that fit into alignment holes in the logic board and heat sink.

Step 66



- Remove the three 12 mm T8 Torx screws securing the GPU heat sink to the logic board.
- Remove the three springs left behind.
- ☑ These springs might come up with the screws; be careful not to lose track of them.

Step 67



- Lift and remove the heat sink up off the logic board.

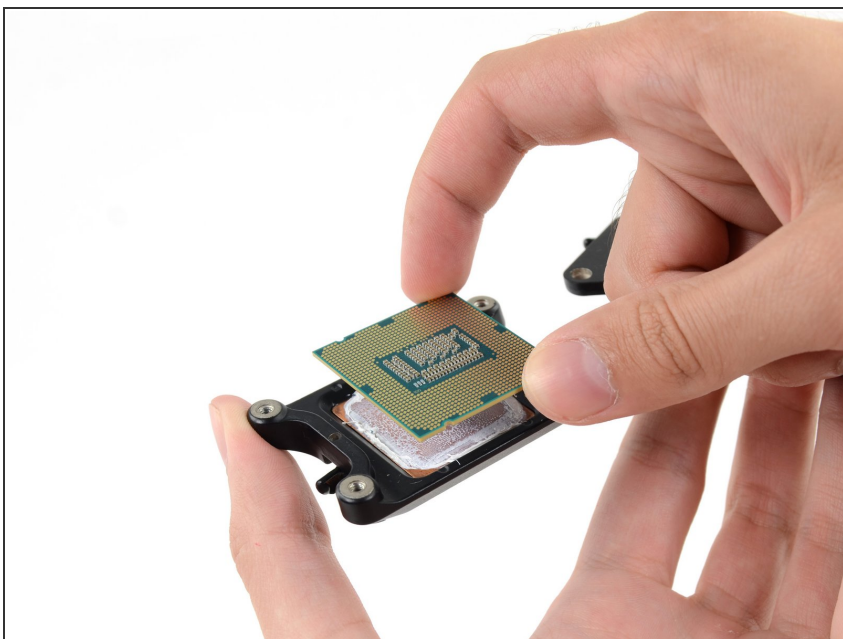
⚠ The CPU will most likely detach with the heat sink, so be careful about where you lay it down.

Step 68 — CPU



- ⓘ The CPU will most likely be stuck to the heat sink with thermal compound.
- Insert the flat edge of a spudger between the CPU and heat sink.
- Gently pry the CPU off the heat sink by slightly twisting the spudger upwards.

Step 69



- Remove the CPU from the heat sink. Be careful not to touch the contacts.
- ⓘ To install a new CPU, see our [thermal paste guide](#) for instructions on cleaning and preparing the thermal surfaces and applying a new layer of thermal compound onto the CPU and GPU dies.

To reassemble your device, follow these instructions in reverse and use our [Adhesive Strips Guide](#) to reattach the display glass.