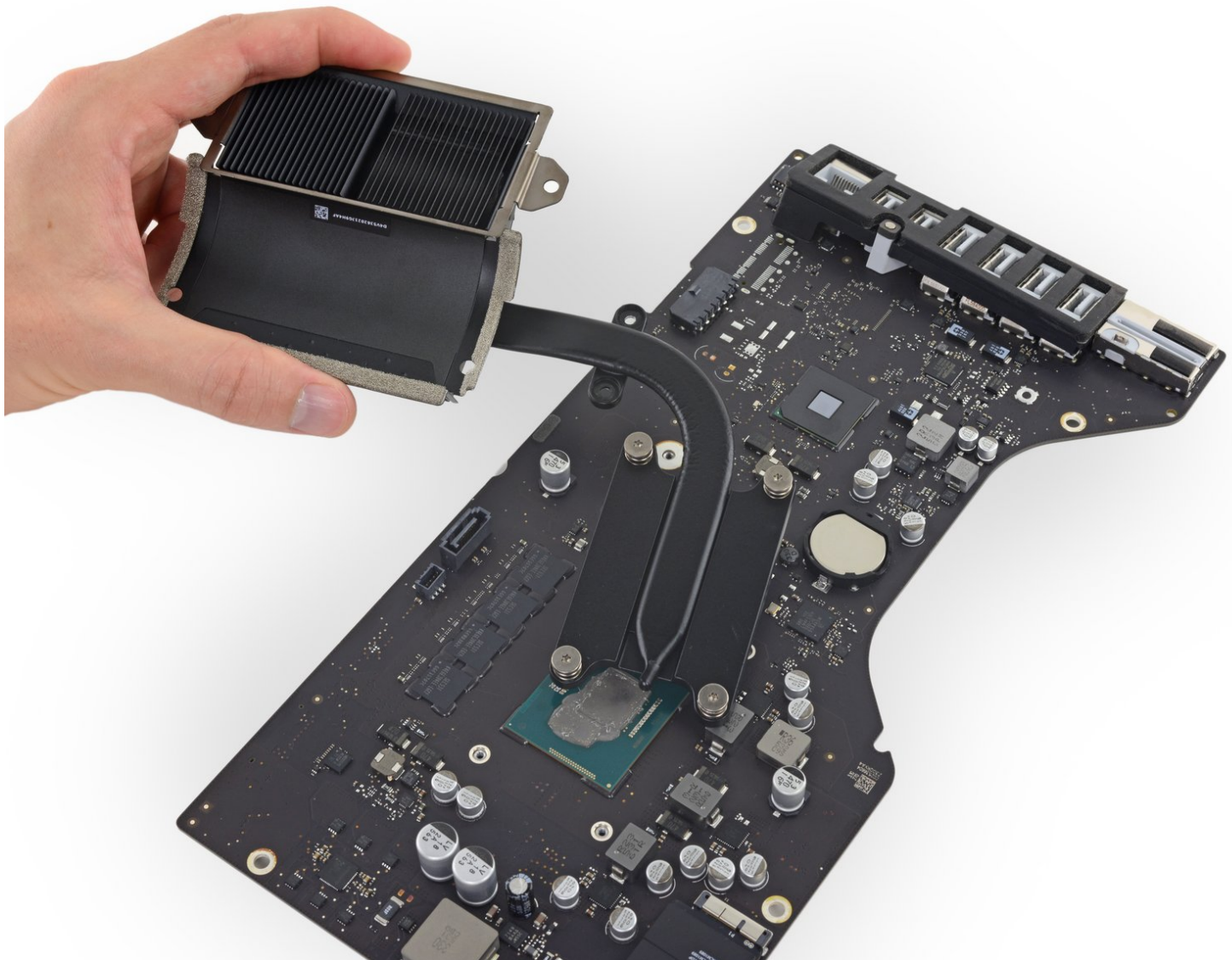




iMac Intel 21.5" Retina 4K Display Heat Sink Replacement

Replace the heat sink in a 21.5" Retina 4K Late 2015 iMac EMC 2388.

Written By: Evan Noronha



INTRODUCTION

Follow the steps in this guide to remove or replace the heat sink in a 21.5" Retina 4K Late 2015 iMac.

Make sure to follow our [thermal paste application guide](#) after you have removed your heat sink.



TOOLS:

- [iMac Service Wedge](#) (1)
- [iMac Opening Tool](#) (1)
- [Plastic Cards](#) (1)
- [Tweezers](#) (1)
- [Spudger](#) (1)
- [Phillips #00 Screwdriver](#) (1)
- [T8 Torx Screwdriver](#) (1)
- [T10 Torx Screwdriver](#) (1)



PARTS:

- [iMac Intel 21.5" \(2012-2017\) Adhesive Strips](#) (1)
- [Arctic Silver ArctiClean](#) (1)
- [Arctic Silver Thermal Paste](#) (1)
- [Coffee Filters or a lint-free cloth](#) (1)

Step 1 — Display Assembly

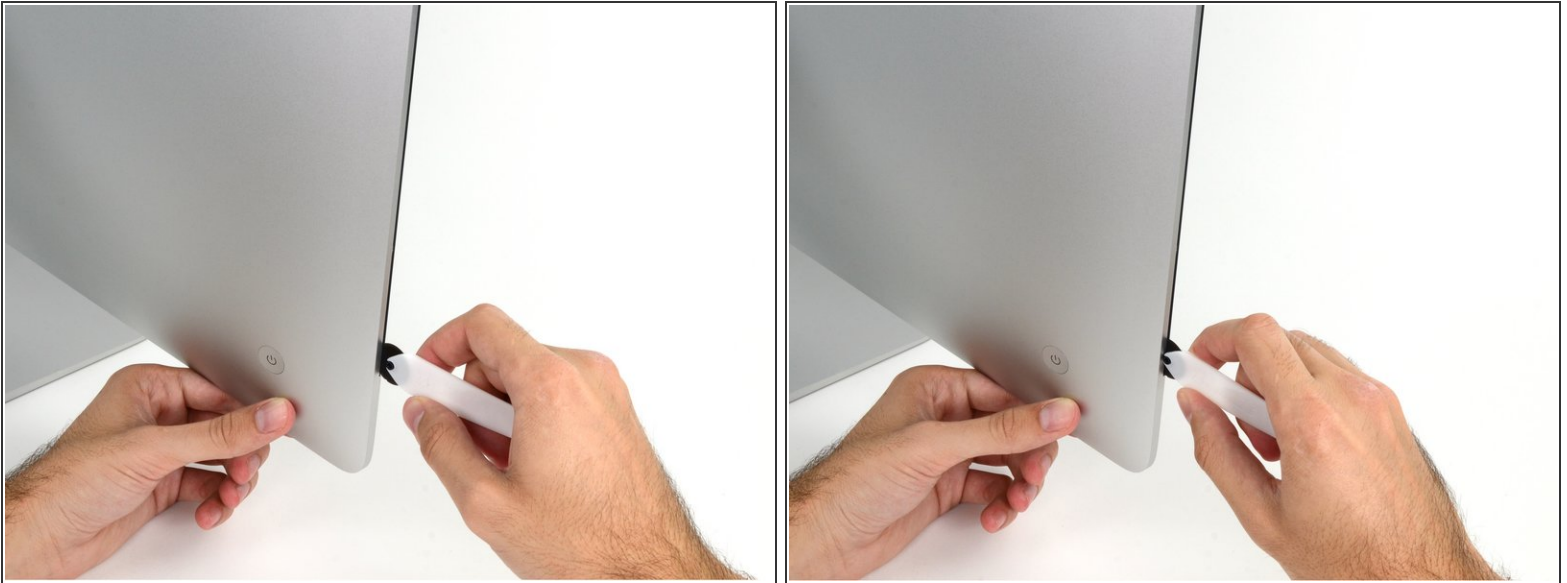


i With the hinge free to move, the iMac will be unbalanced and hard to work on. Repairs are fast and easy with an [iMac service wedge](#), but can be completed without one.

- **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.

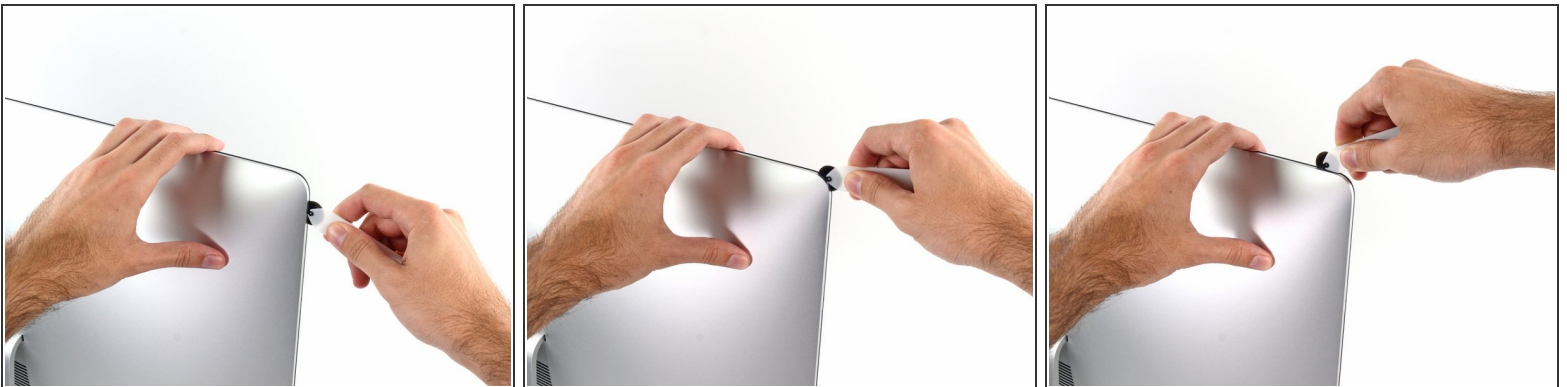
 The hub on the iMac Opening Tool will keep you from pushing the wheel in too far. If using a different tool, insert no more than 3/8" into the display. Otherwise, you risk severing antenna cables and causing serious damage.

Step 3



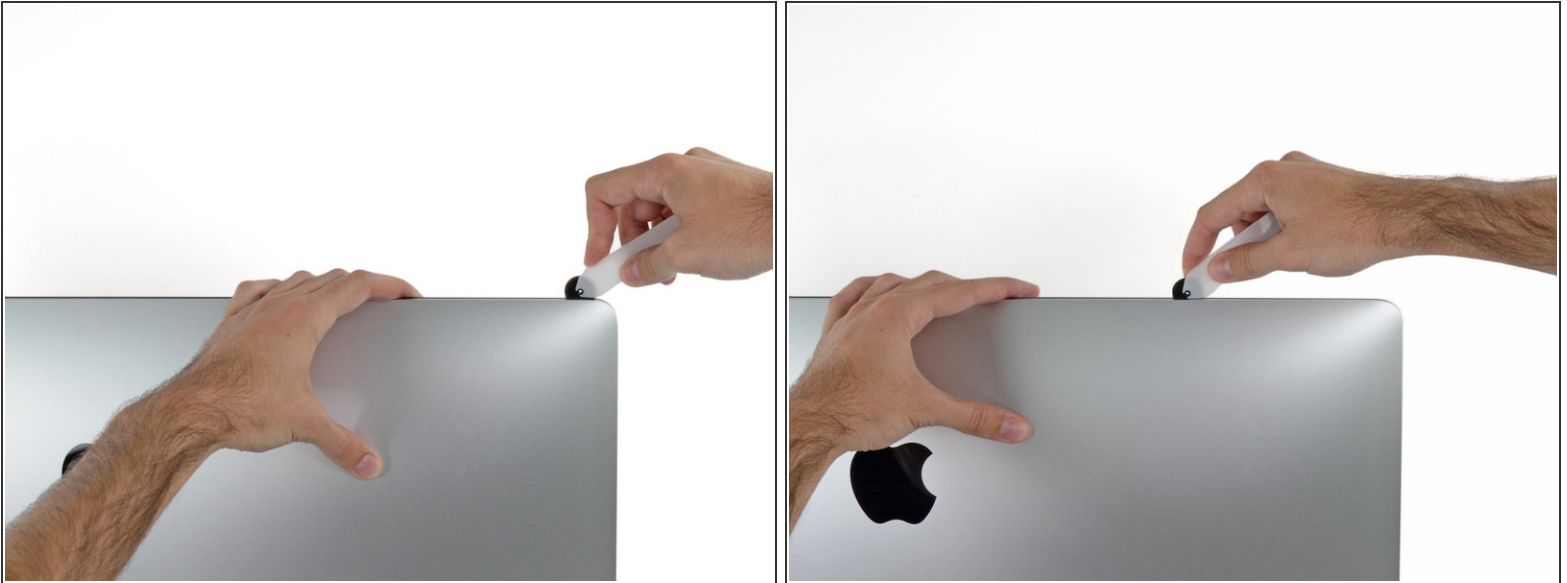
- Use the tool like a pizza cutter—roll it along through the gap, and it will cut the foam adhesive through the center.
- ⓘ Be sure to always push with the handle behind the cutting wheel. If you pull, the wheel might get pulled out of the handle.
- Run the tool up along the left side of the display.

Step 4



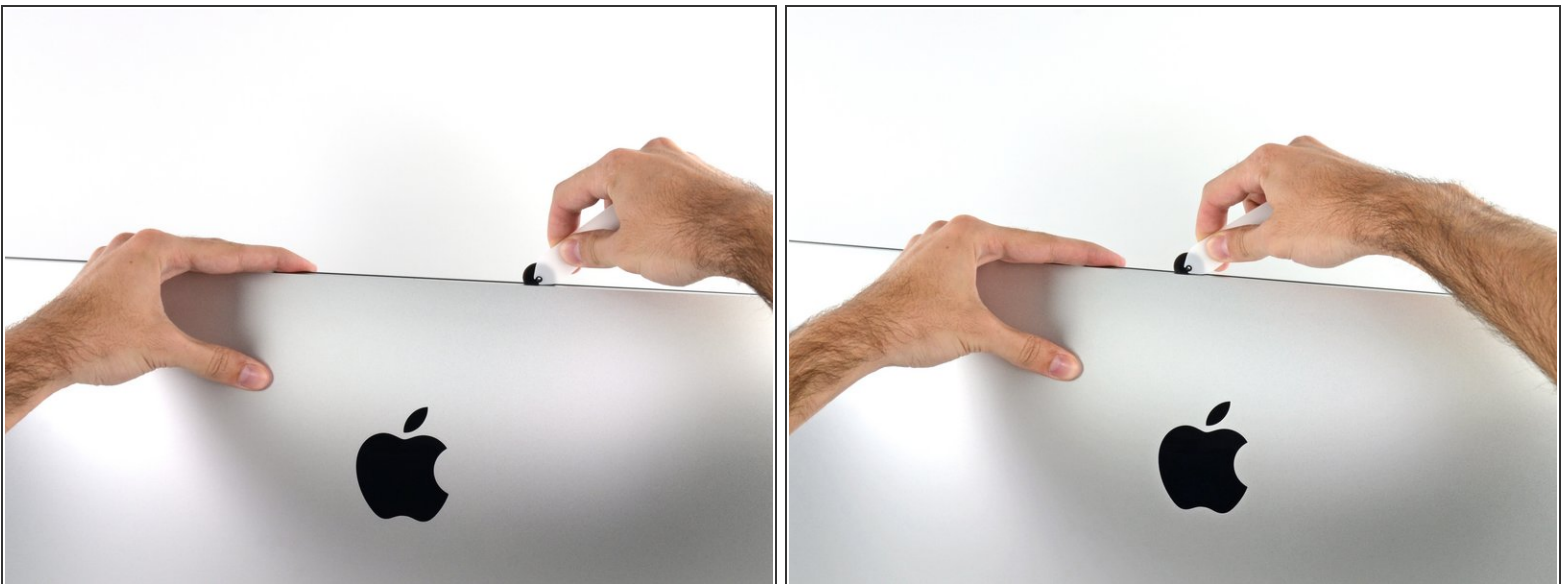
- Continue running the tool up around the top left corner.

Step 5



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

Step 6



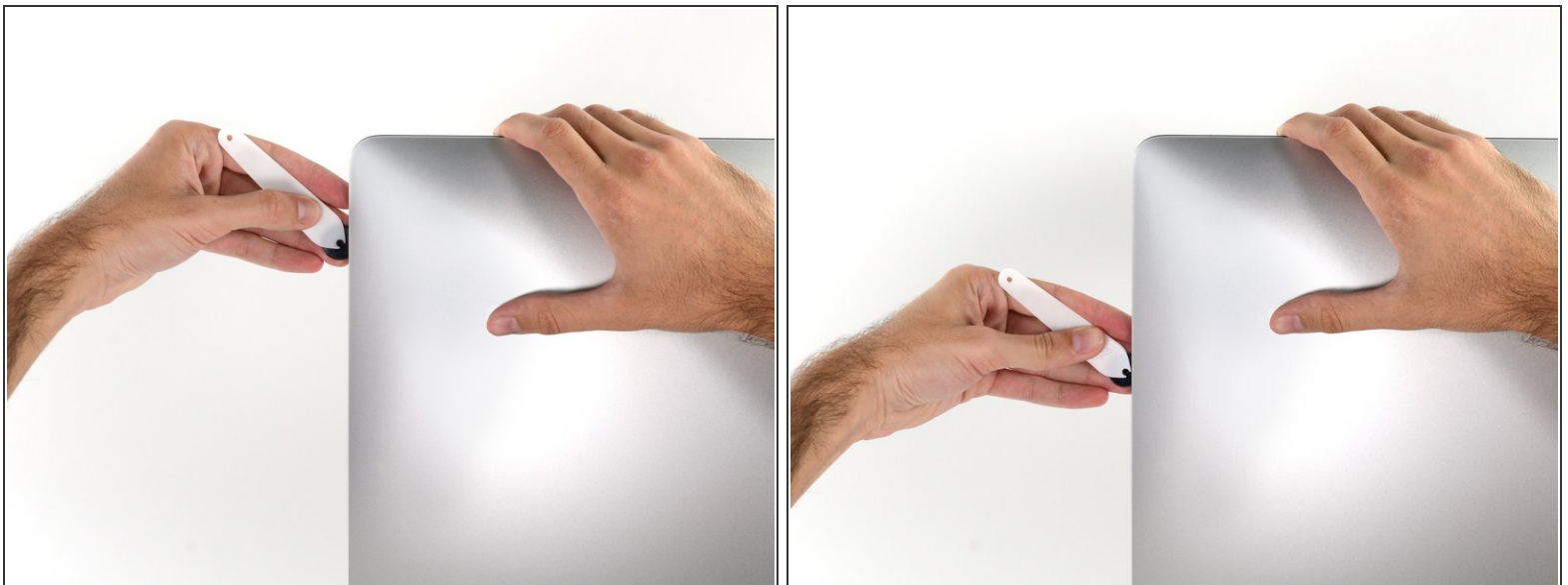
- Continue along the top of the display.
- ⓘ You may want to run the tool back and forth through what you've already cut a few times, to ensure you get as much of the adhesive separated as possible.

Step 7



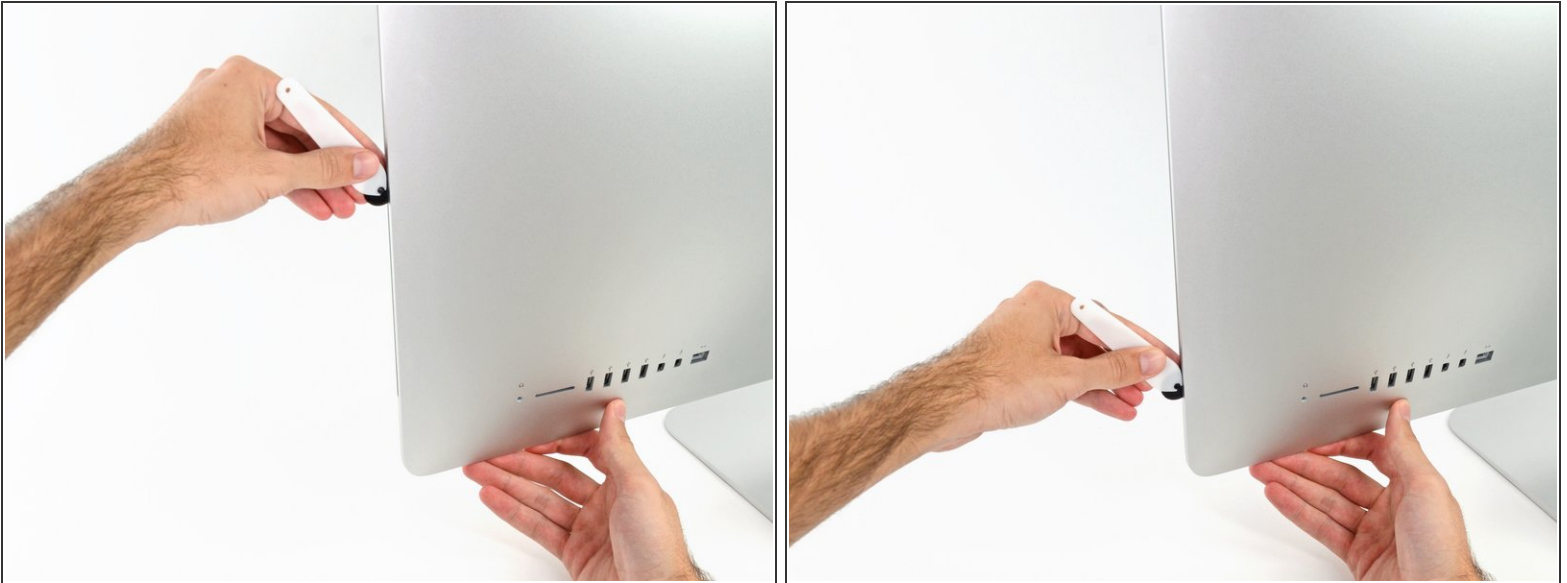
- Push the tool around the top right corner of the display.

Step 8



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

Step 9



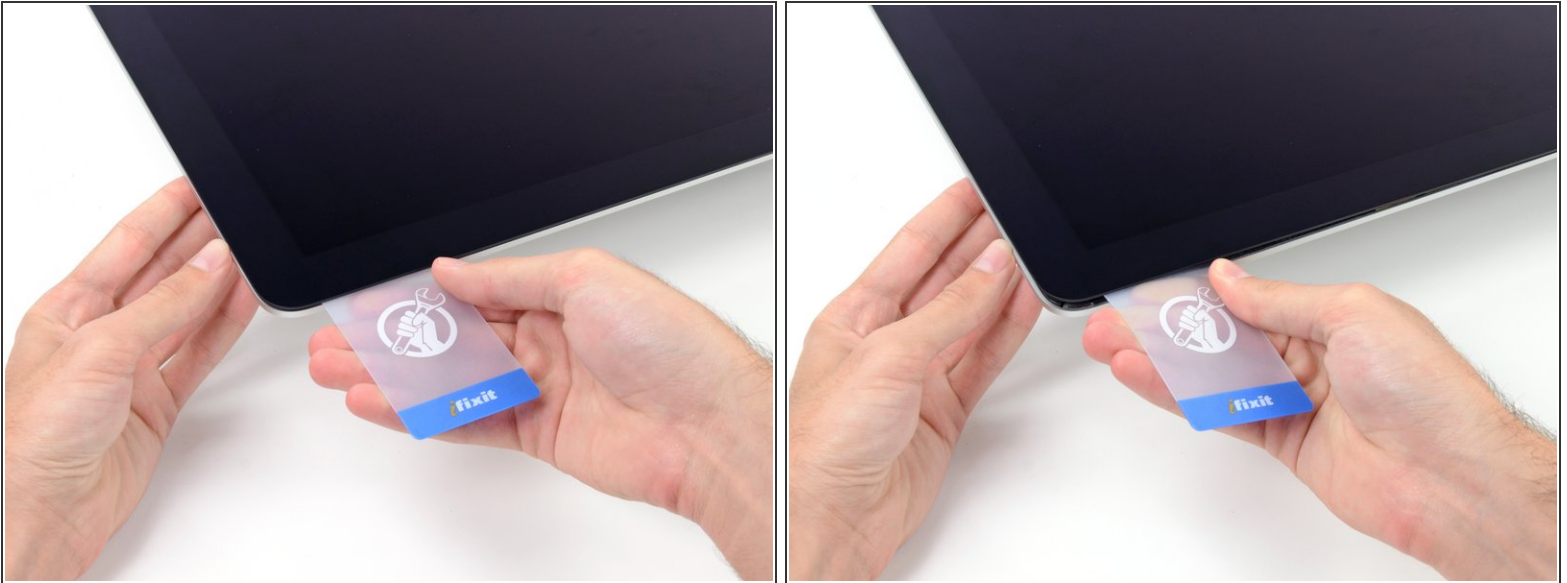
- Finish pushing the opening tool to the bottom of the right side of the display.
- ⓘ At this point, you'll want to run the tool back around the entire display, to ensure you cut as much adhesive as possible.

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".

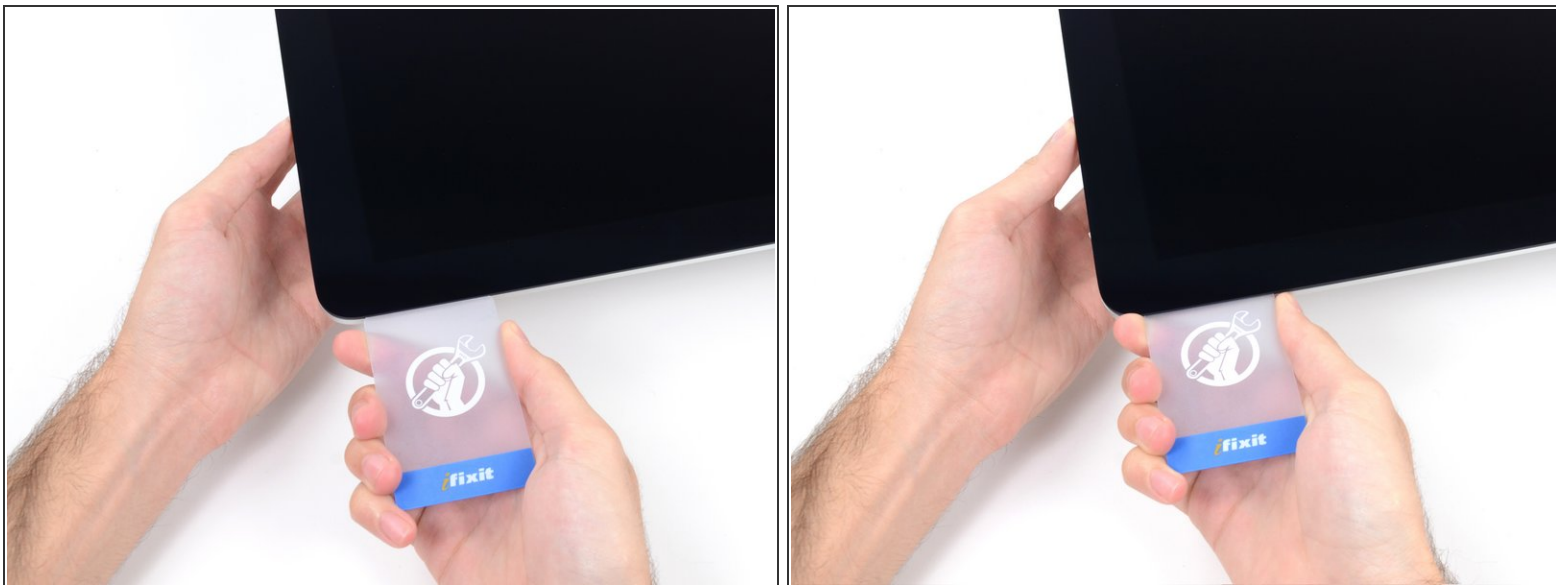
Step 12



- 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



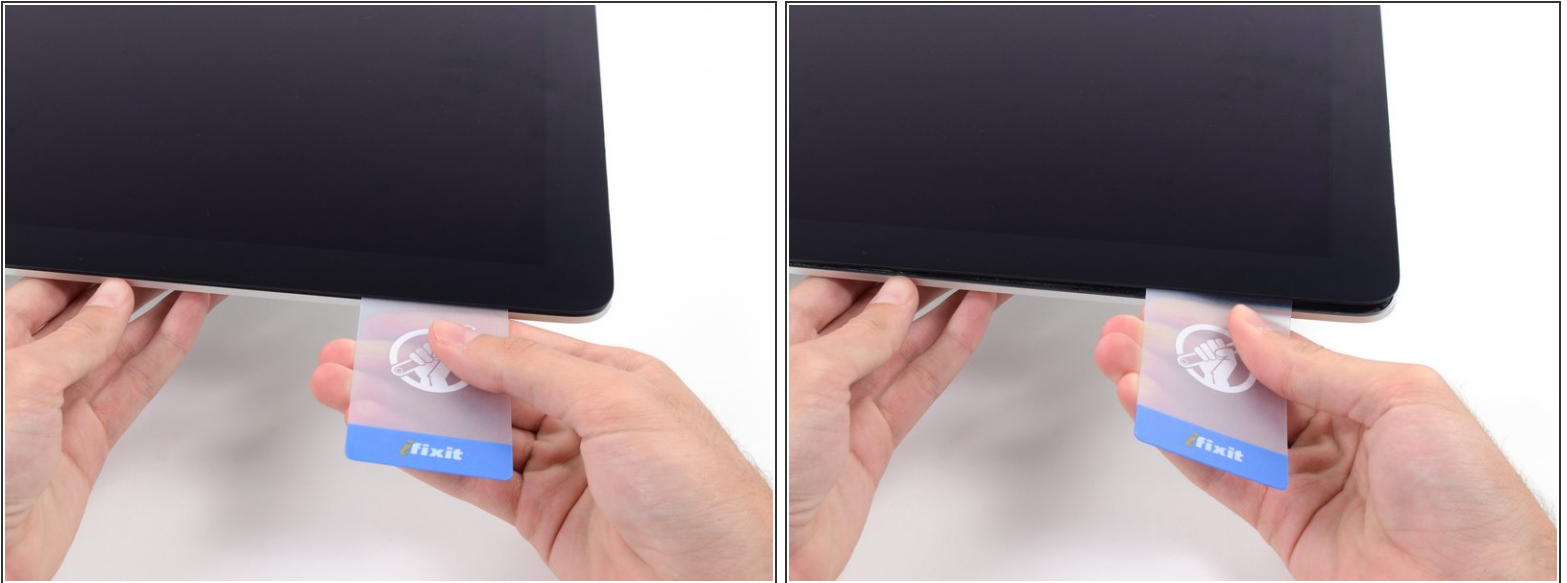
- Wedge the plastic card into the top right corner once again, and leave it there to prevent the adhesive from resticking.

Step 14



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

Step 15



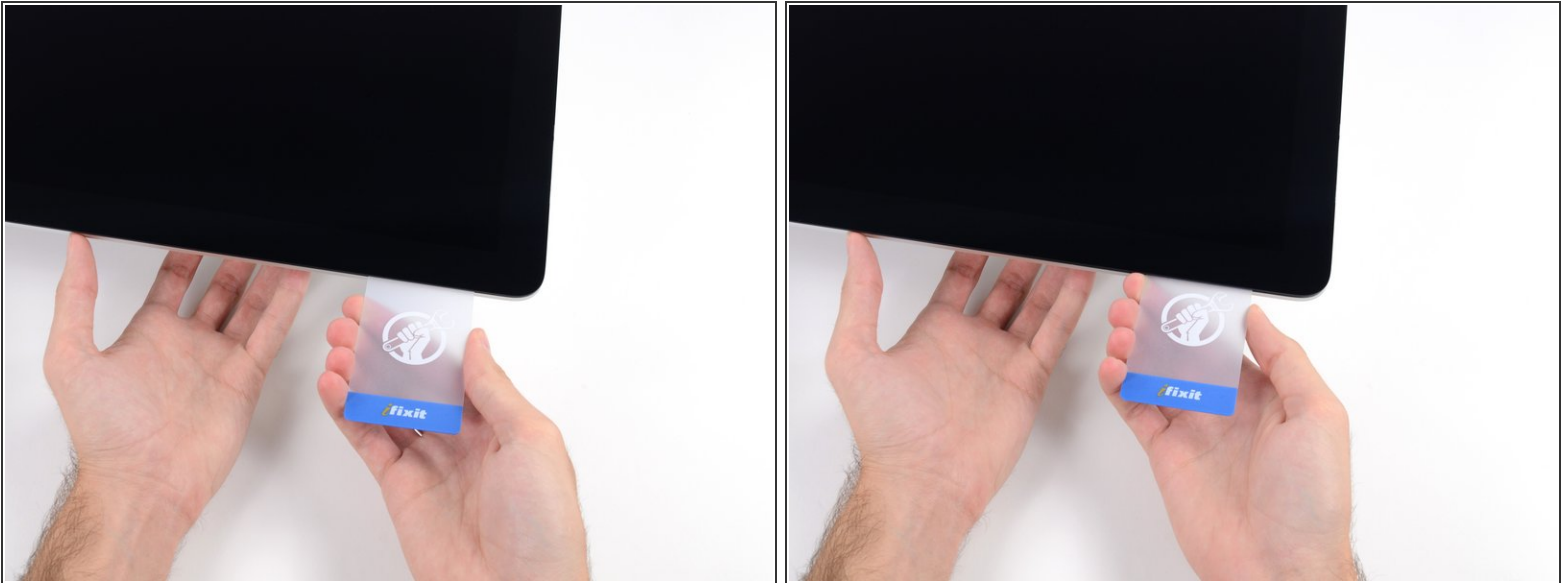
- Gently twist the card upward, slightly increasing the space between the display and frame.
- ⓘ As with the other side, twist slowly to allow the adhesive time to separate, and be careful not to over-stress the display glass.

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 — Display Assembly Cables



- ① 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").
- Hold the display with one hand while using your other hand to unplug the display power cable.

Step 20



- Continuing to support the display with one hand, 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, keeping it parallel to the motherboard, to avoid damaging it.

Step 21 — Display Assembly Separation



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



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

Step 23

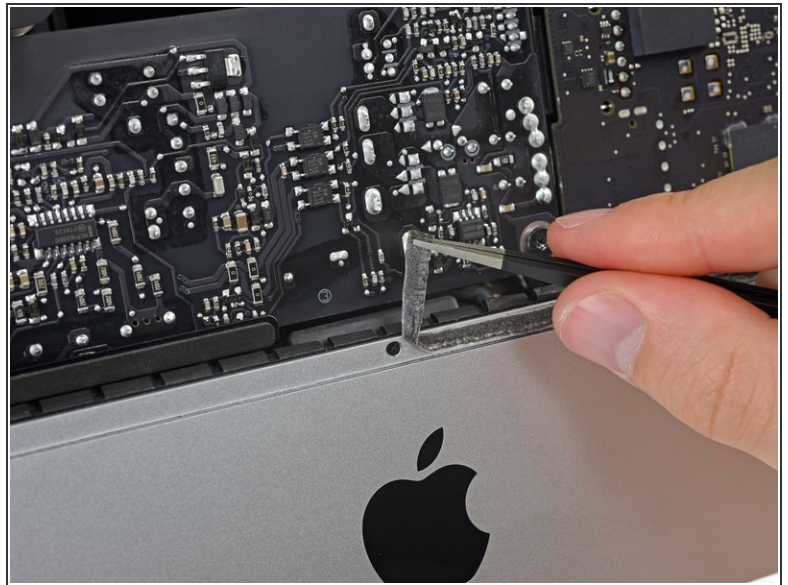


- Lift the display up from the frame and remove it from the iMac.
- It may be necessary to slowly lift from one side to peel against the remaining adhesive.

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

-  After the adhesive is cut, it cannot be used to re-seal the display in place. Follow [this guide](#) to replace the adhesive strips that secure the display to the rear enclosure.

Step 24 — Lower Support Bracket



- Remove the following five Phillips screws holding the lower support bracket in place:

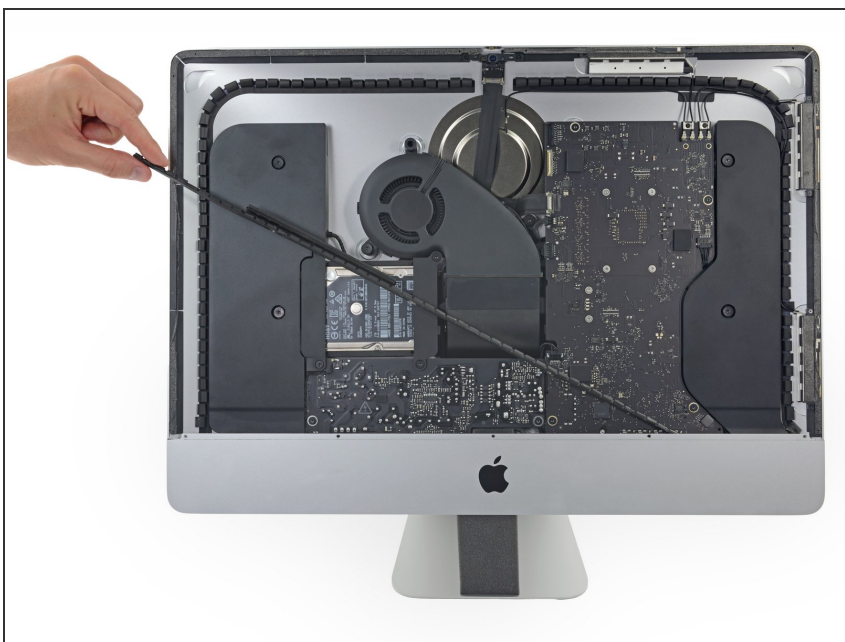
- Four 3.2 mm screws

- One 1.7 mm screw

ⓘ On at least some EMC 2544 machines, all five screws are the same size.

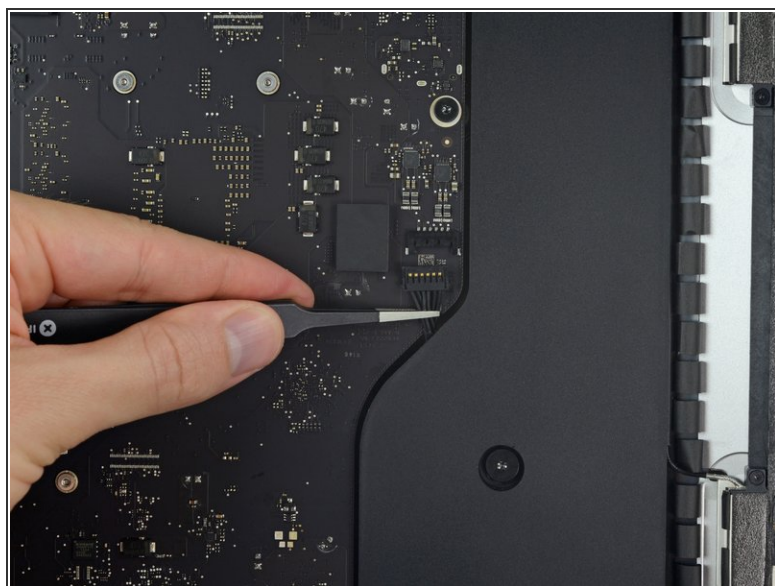
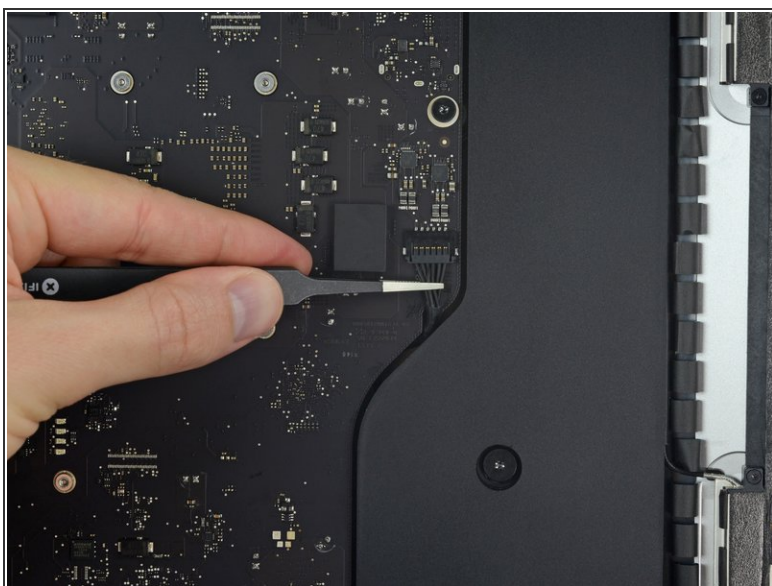
ⓘ You may need to peel up the display adhesive lining the bottom edge of the iMac enclosure to access the screws.

Step 25



- Remove the lower support bracket from the iMac enclosure.

Step 26 — Right Speaker



- Gently pull the right speaker cable connector straight down and out of its socket on the logic board.

Step 27



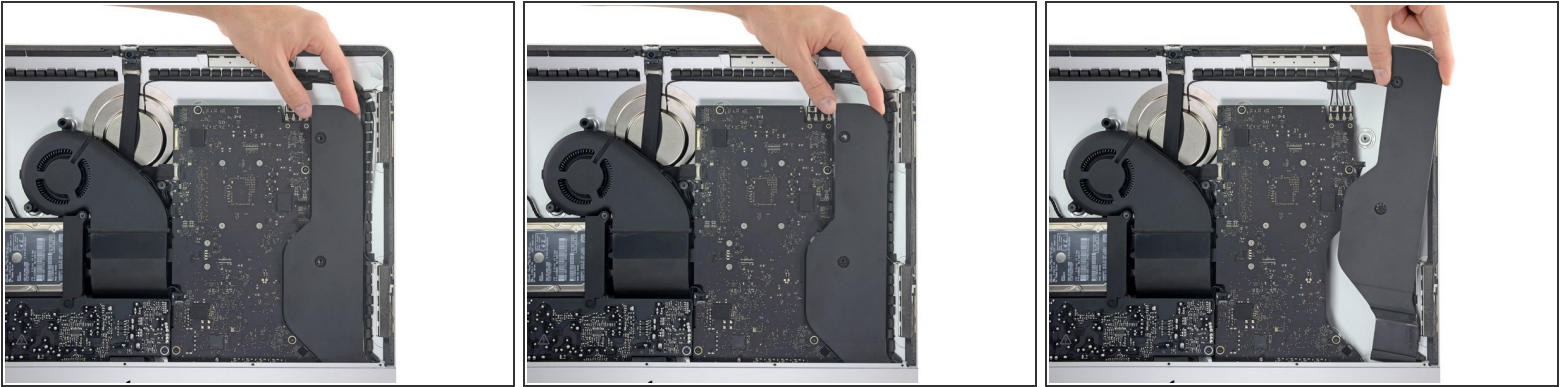
- Remove the two 10 mm T10 Torx screws securing the right speaker to the rear enclosure.
- ⓘ Rubber washers keep the screws snug in the speaker even when loosened. You can use tweezers or a fingernail to remove the screws, or simply leave them with the speaker assembly.

Step 28



- Insert the tip of a spudger between the right speaker and the antenna cable, running it down the right side of the speaker to de-route the cable from its channel.
- ⓘ If the channel is not easily accessible, you can tip the speaker slightly forward (away from the rear case) to gain access to the antenna cable.

Step 29



- Tip the right speaker forward out of the rear enclosure, about 1 cm.
- Pull the speaker straight up and remove it from the iMac.

Step 30 — Hard Drive Brackets



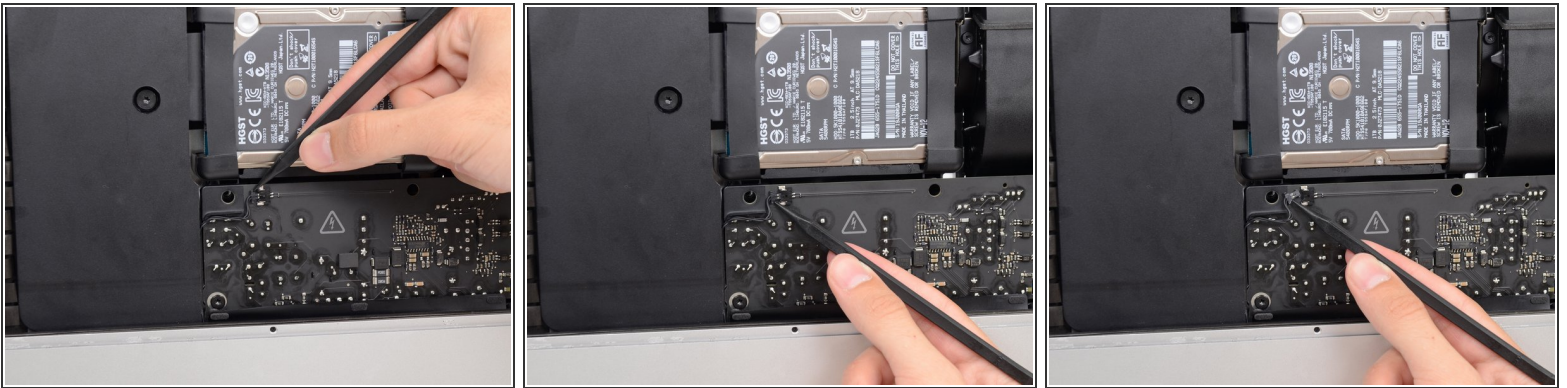
- Remove the following T10 Torx screws securing the hard drive brackets to the iMac:
 - Two 21 mm screws
 - One 9 mm screw
 - One 27 mm screw

Step 31



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

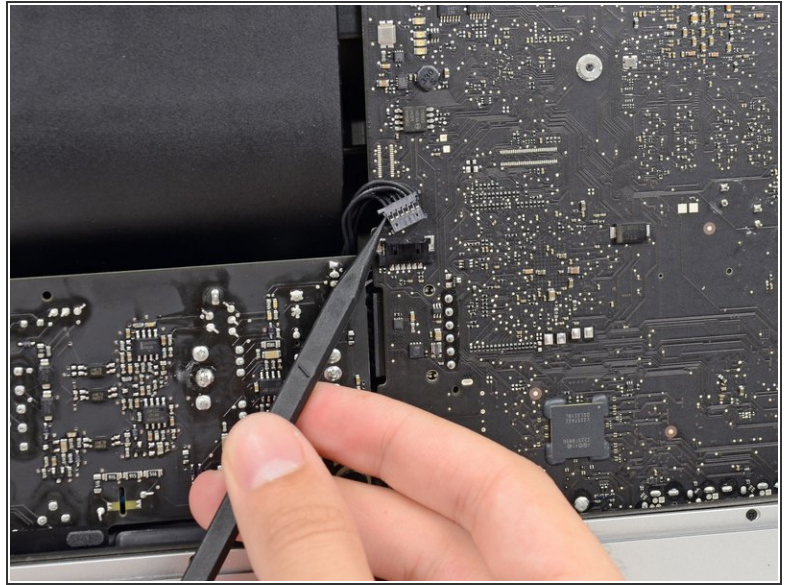
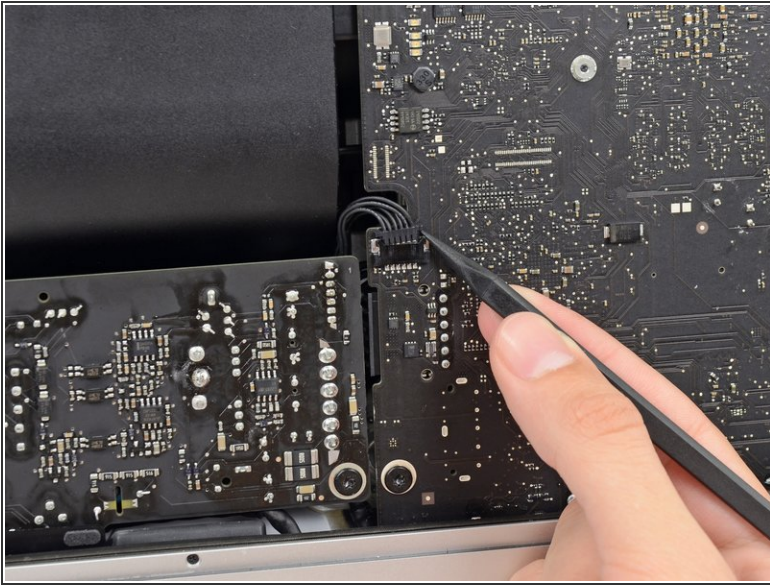
Step 32 — Power Supply



 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 or any of the exposed solder. Touching it risks a high voltage shock from the many large capacitors attached to the board.

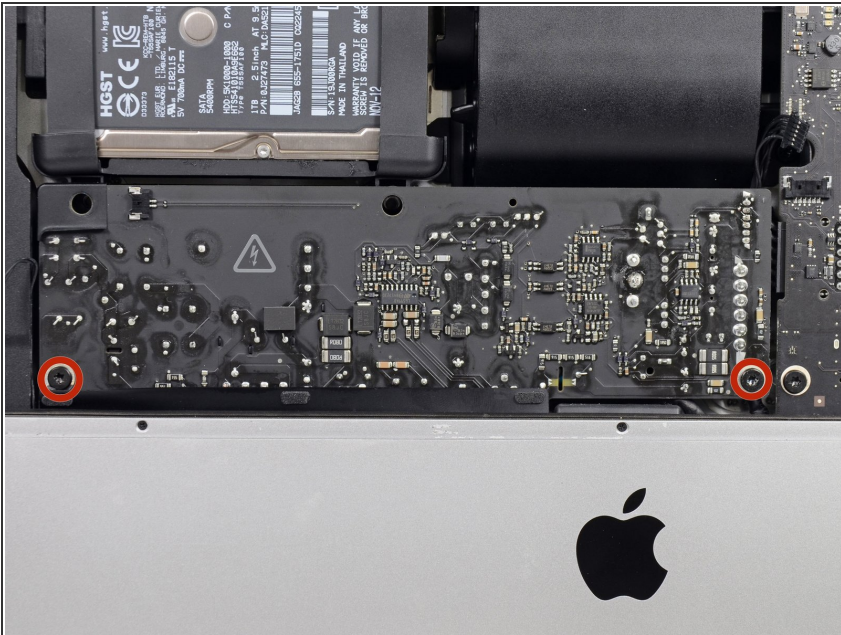
- Use the tip of a spudger to push each side of the power button cable connector and gently *walk* it out of its socket.

Step 33



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

Step 34



- Remove the two 7.2 mm T10 Torx screws securing the power supply to the rear enclosure.
- ⓘ In newer model iMacs these are 7.2 mm T8 Torx screws.

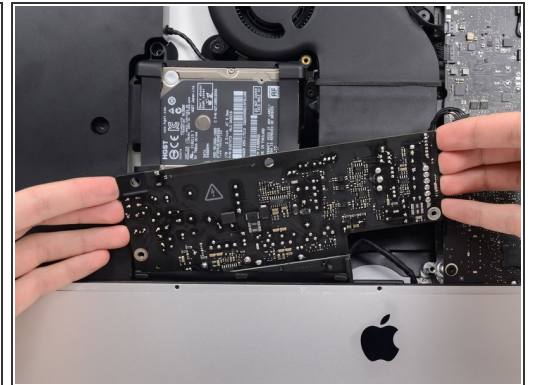
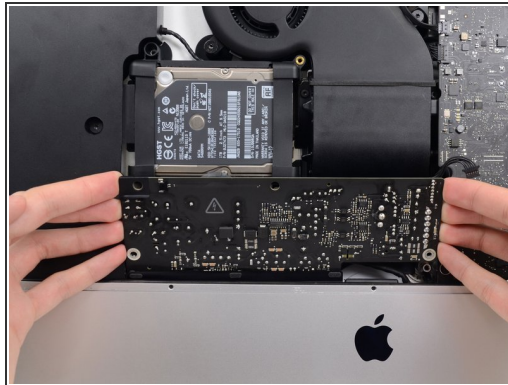
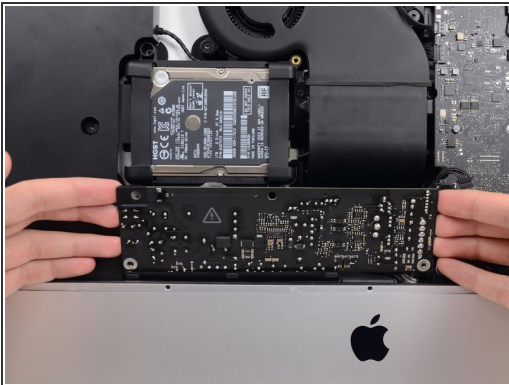
Step 35



⚠ 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 36



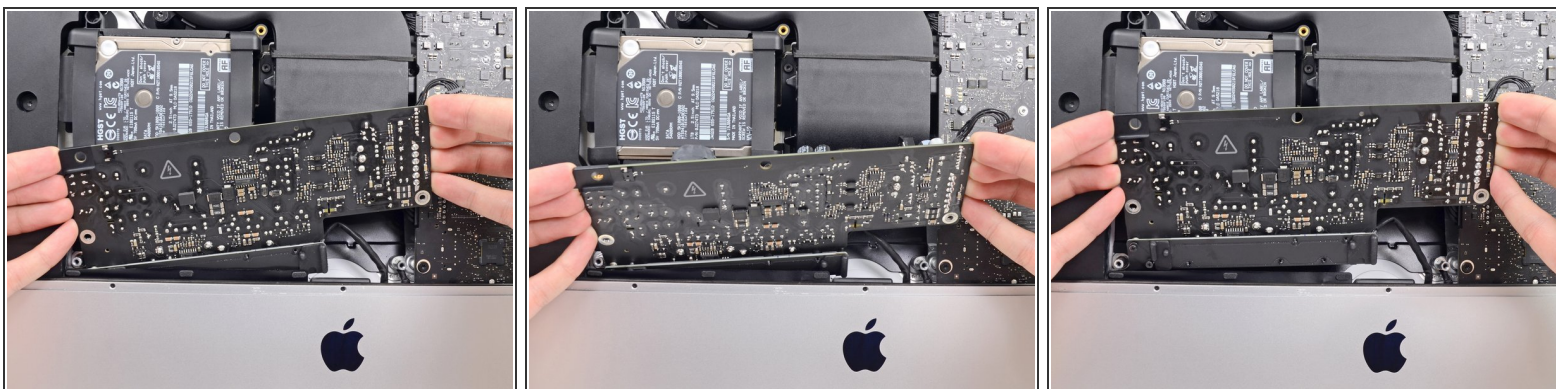
- Pull the power supply slightly up and out from the rear enclosure.
- Rotate the power supply counterclockwise, lifting the right side up about an inch higher than the left.

Step 37



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

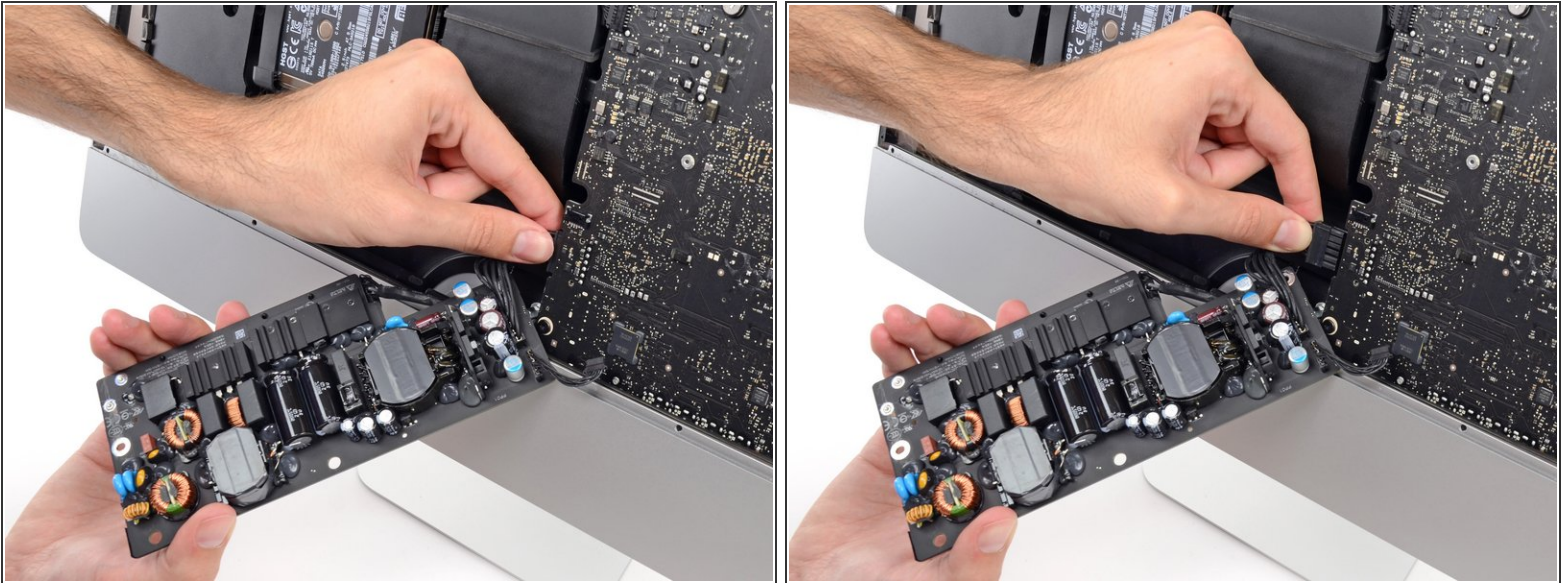
Step 38



- 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.

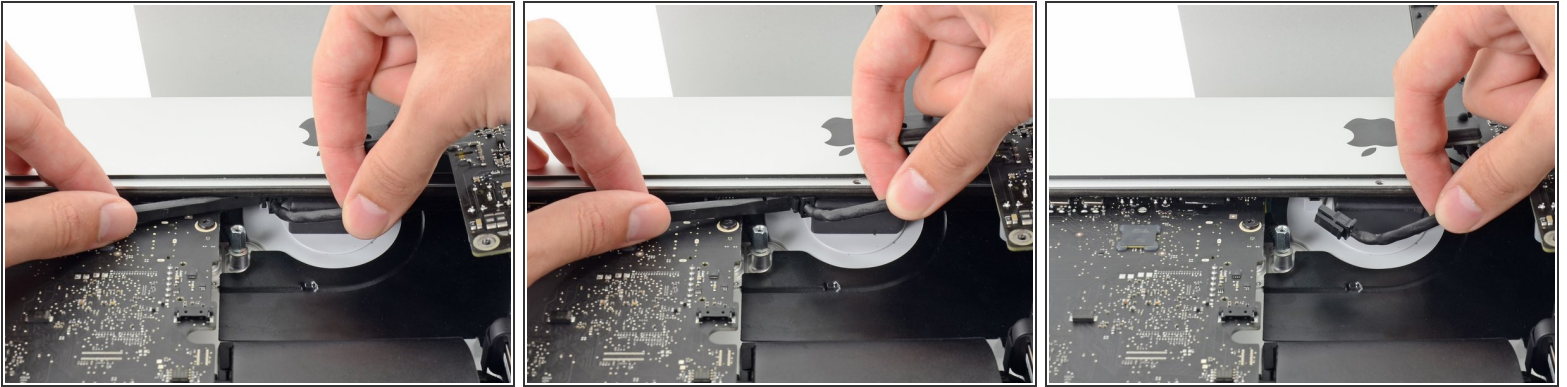
Step 39



⚠ 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.

- i** Flip the power supply over to access the DC power cable connection behind the logic board.
- Squeeze the tab on the back side of the DC power cable connector and pull it straight out of its socket on the back of the logic board.

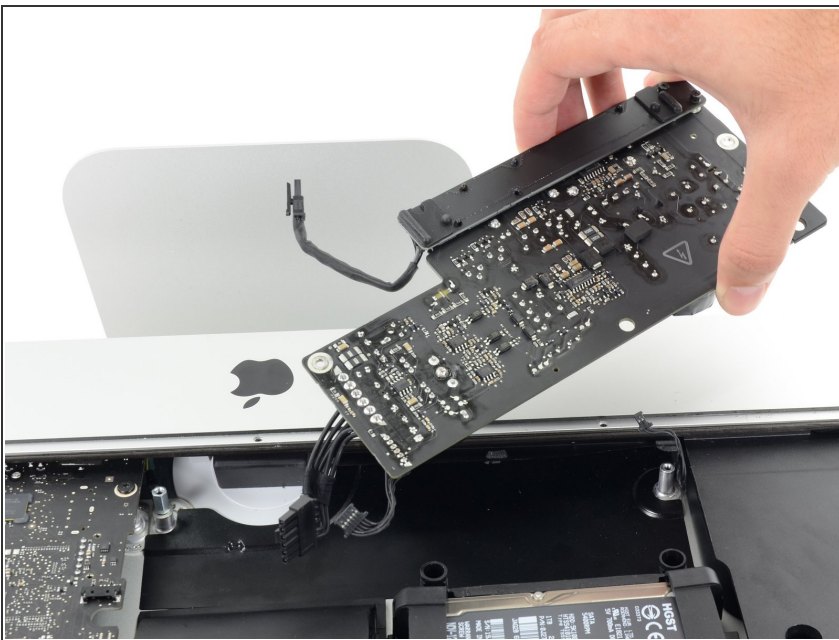
Step 40



 You may find it helpful to set the iMac down on its back for the next couple of steps.

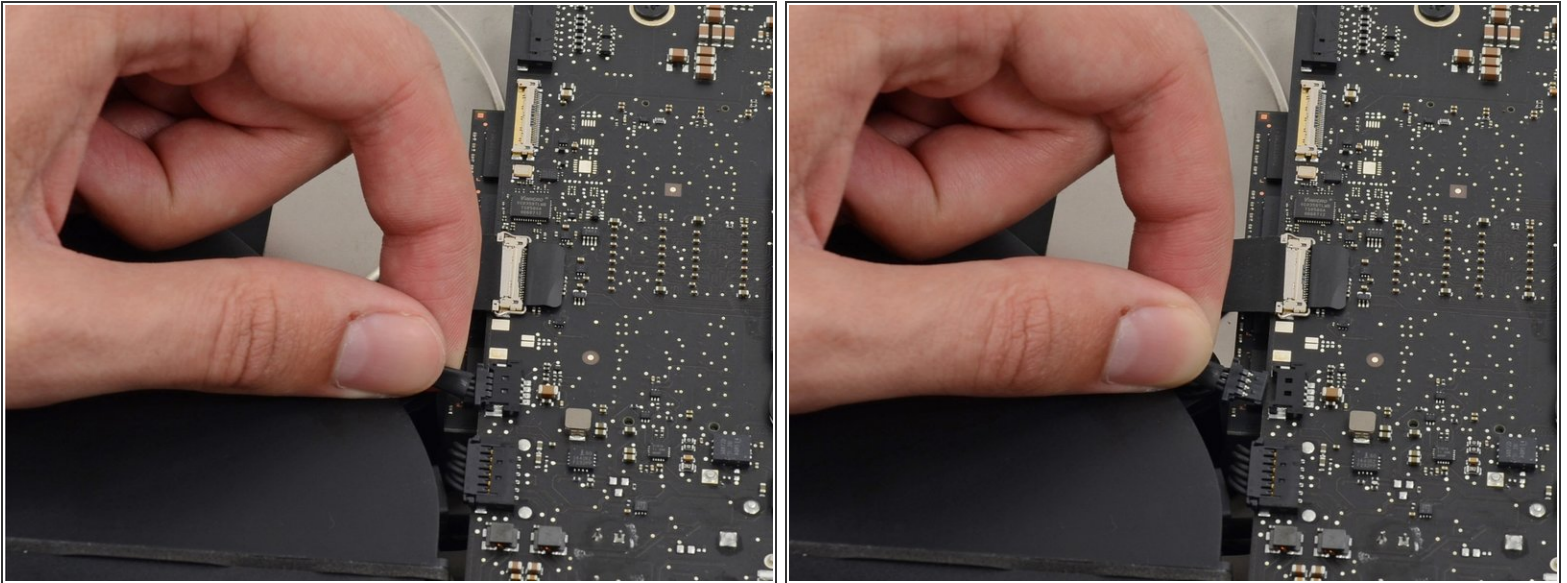
- Use the flat end of a spudger to press the clip on the side of the AC inlet cable connector inward.
- While pressing on the release clip with the spudger, grasp the AC inlet cable, and pull the connector straight out of its socket.

Step 41



- Remove the power supply from the iMac.

Step 42 — Fan



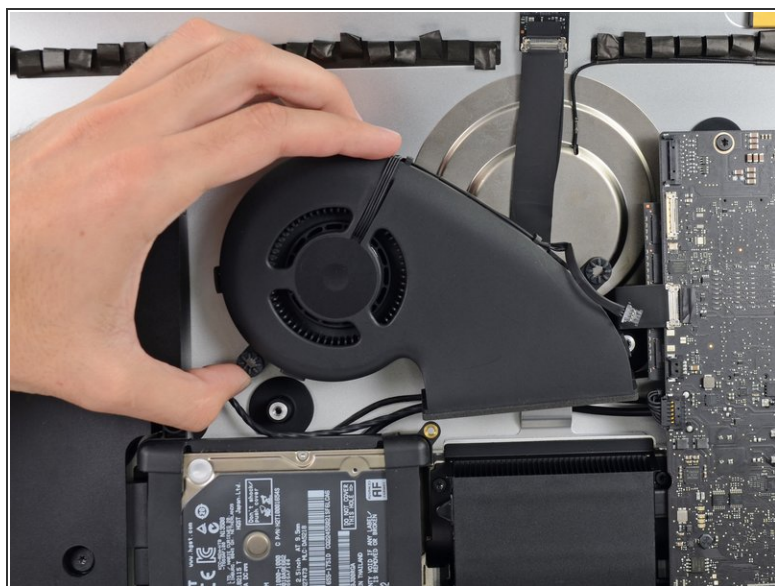
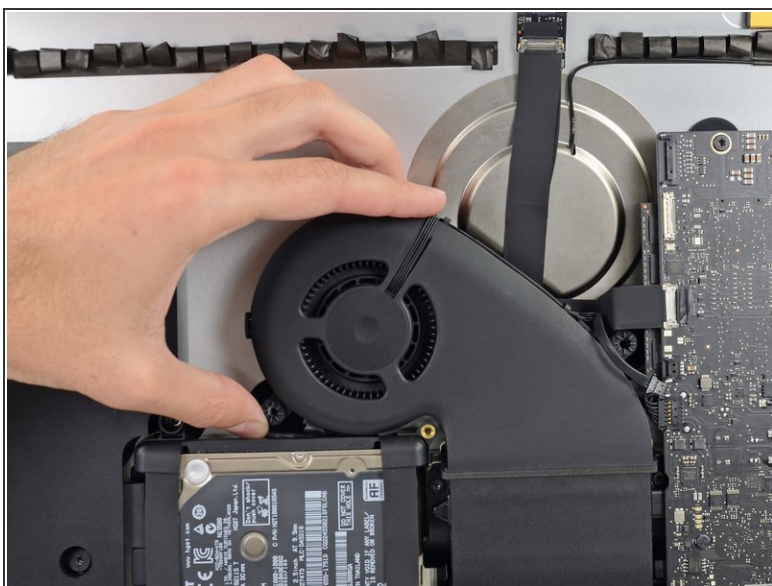
- Gently pull the fan cable connector straight out of its socket on the logic board.

Step 43



- Remove the three 10 mm T10 Torx screws securing the fan to the rear enclosure.
- ⓘ The uppermost screw has a rubber standoff adhered to its head to support the display—leave this in place.

Step 44



- Remove the fan from the iMac.

Step 45 — Hard Drive Assembly

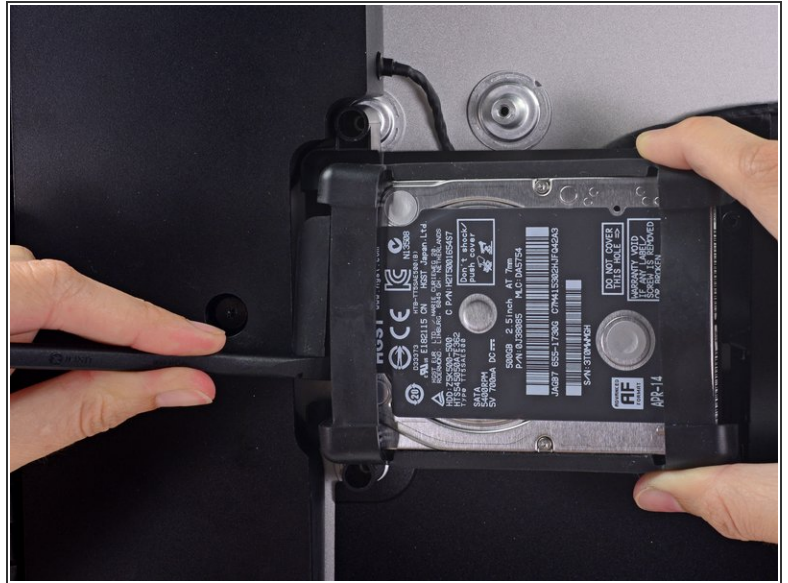
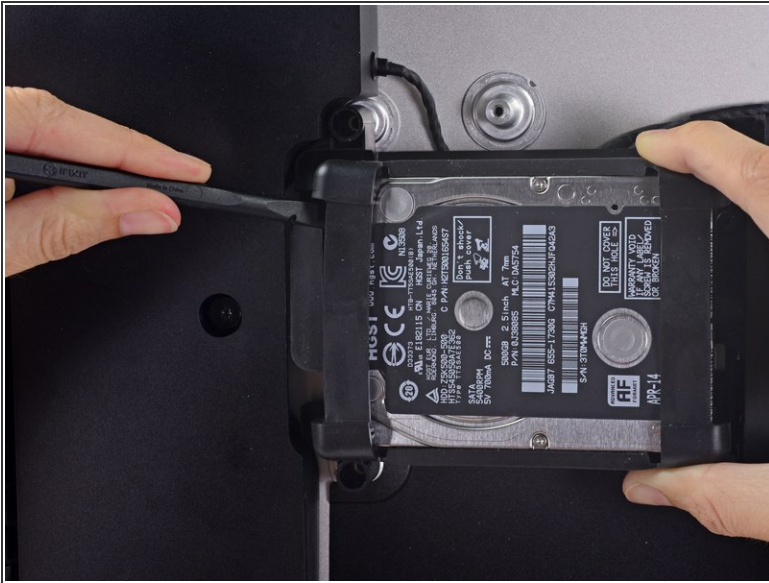


- Lift the hard drive from the edge nearest the logic board and pull it slightly out of its recess.



The hard drive is attached by a single SATA power/data cable—do **not** attempt to fully remove it from the iMac yet.

Step 46



- Use a spudger to disconnect the single SATA power and data combo cable by gently prying its large plastic connector away from the hard drive.

Step 47



- Remove the hard drive assembly from the iMac.

Step 48 — Hard Drive Tray



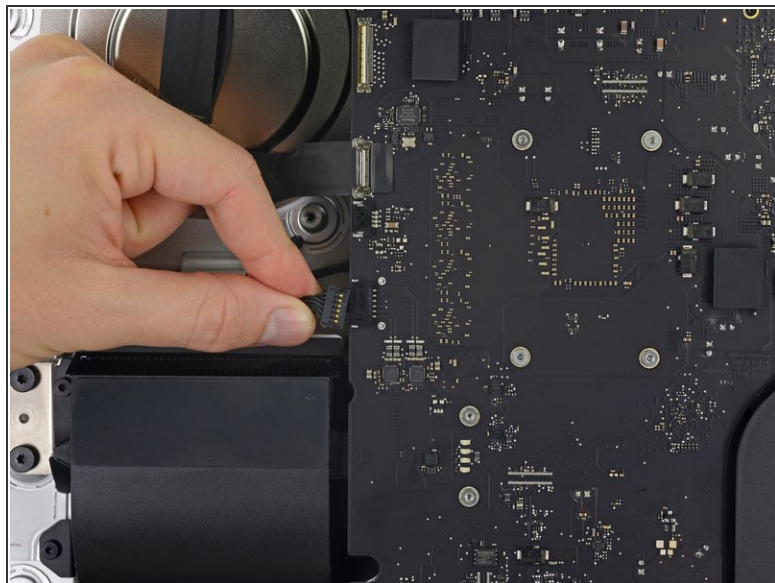
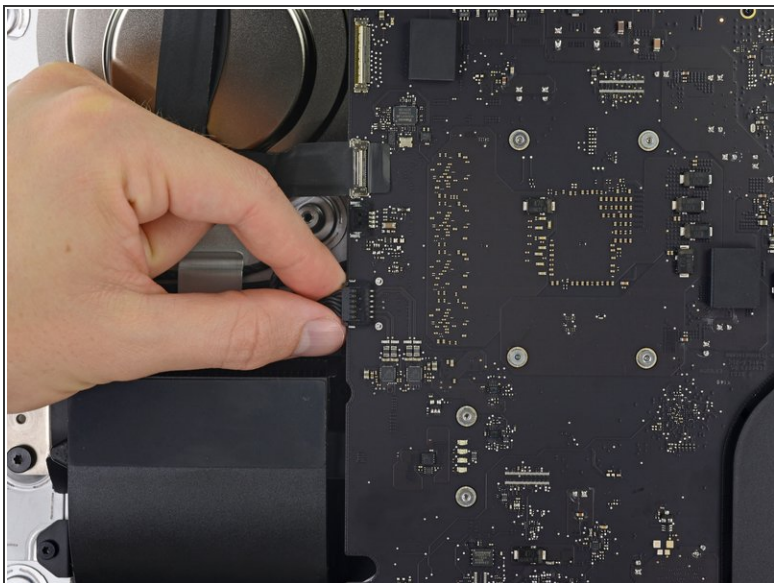
- Remove the 7.3 mm T8 Torx screw securing the hard drive tray to the rear enclosure.

Step 49



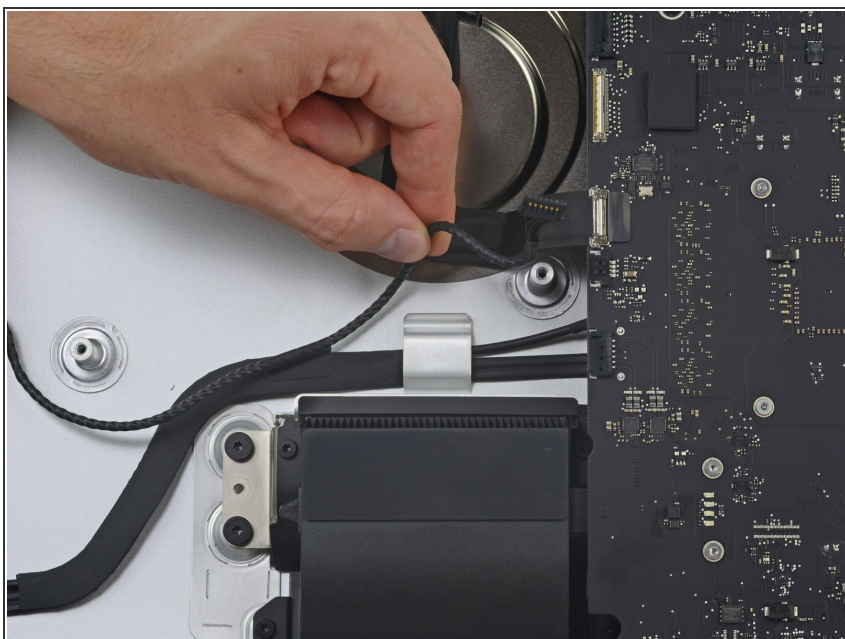
- Remove the hard drive tray.

Step 50 — Logic Board Assembly



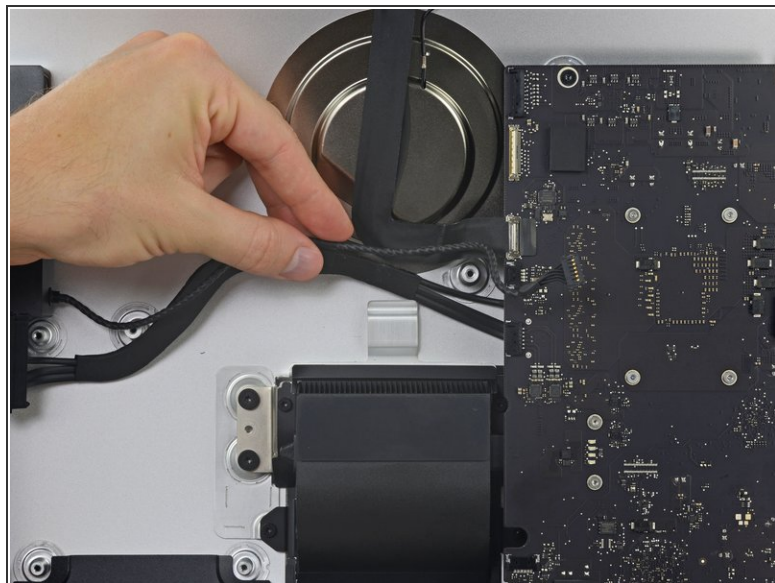
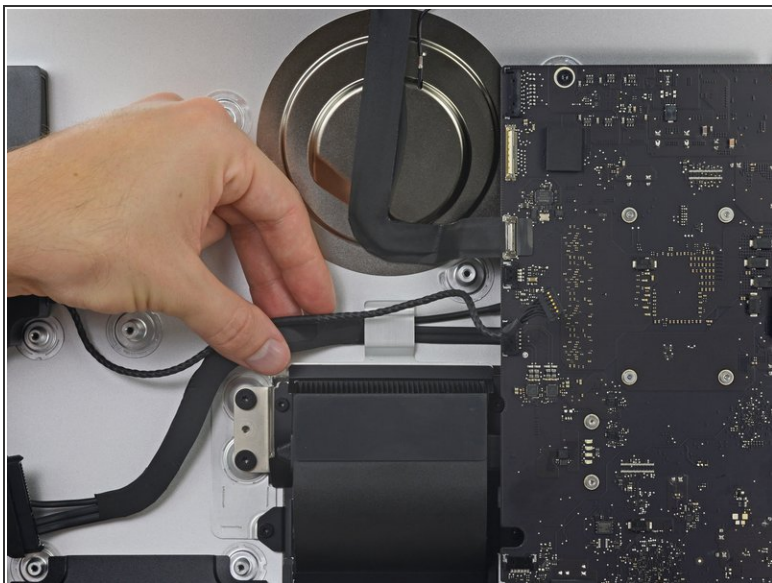
- Gently pull the left speaker cable straight out of its socket on the logic board.

Step 51



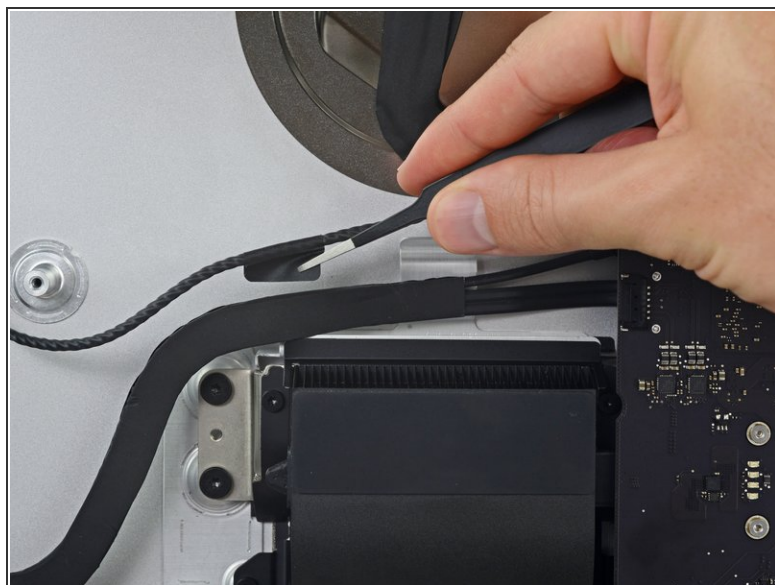
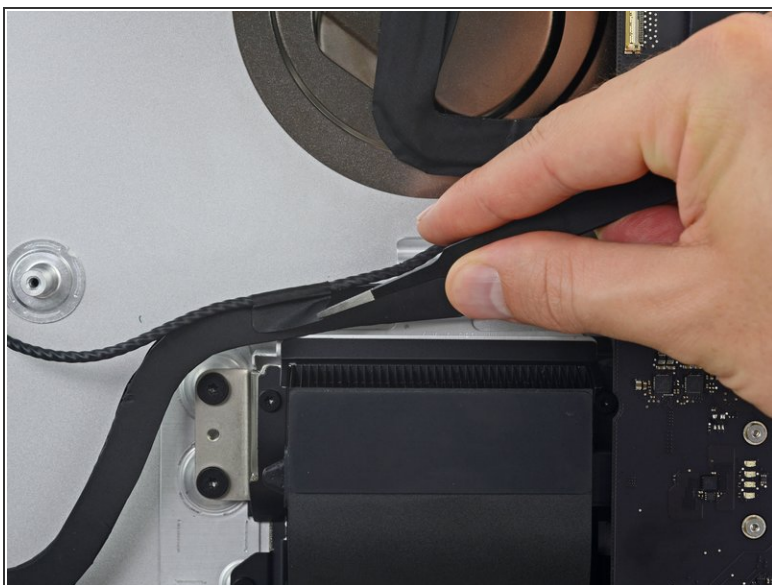
- De-route the left speaker cable by pulling it straight up out of the retaining clip in the back of the rear enclosure.

Step 52



- Similarly to the previous step, de-route the SATA and power cables by pulling the braid straight up out of the retaining clip.

Step 53



- Peel up the piece of tape connecting the left speaker connector to the SATA power and data cables.

Step 54



- Flip up the metal retaining bracket on the FaceTime camera cable connector.
- Pull the FaceTime camera cable straight out of its socket on the logic board.

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

Step 55



- Remove the two 4.0 mm T5 Torx screws securing the four antenna connectors to the AirPort/Bluetooth card.

Step 56



- Disconnect all four antenna connectors by prying them straight up from their sockets on the AirPort/Bluetooth card.

Step 57



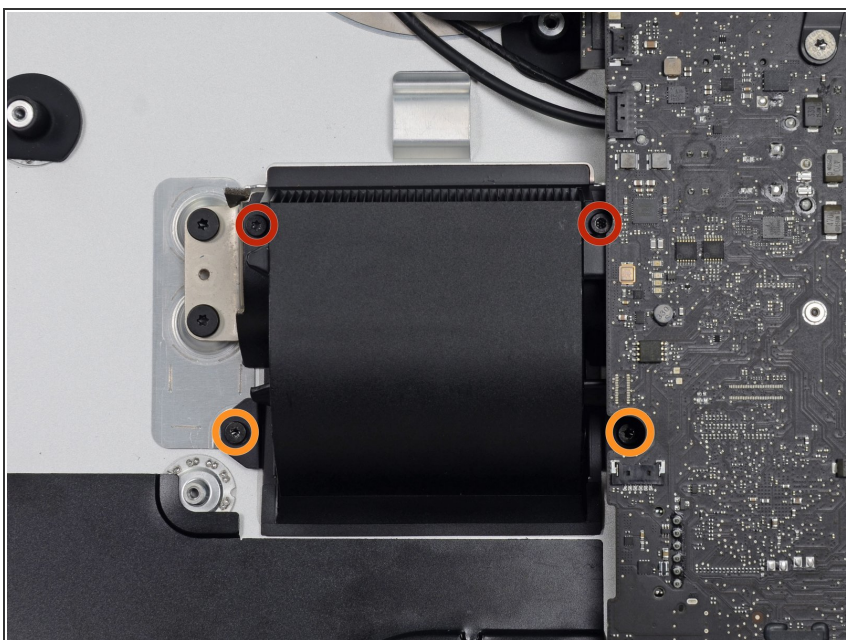
- Use the flat edge of a spudger to pry the headphone jack cable connector from its socket on the logic board.
- ⓘ Push the cable slightly to the right.

Step 58



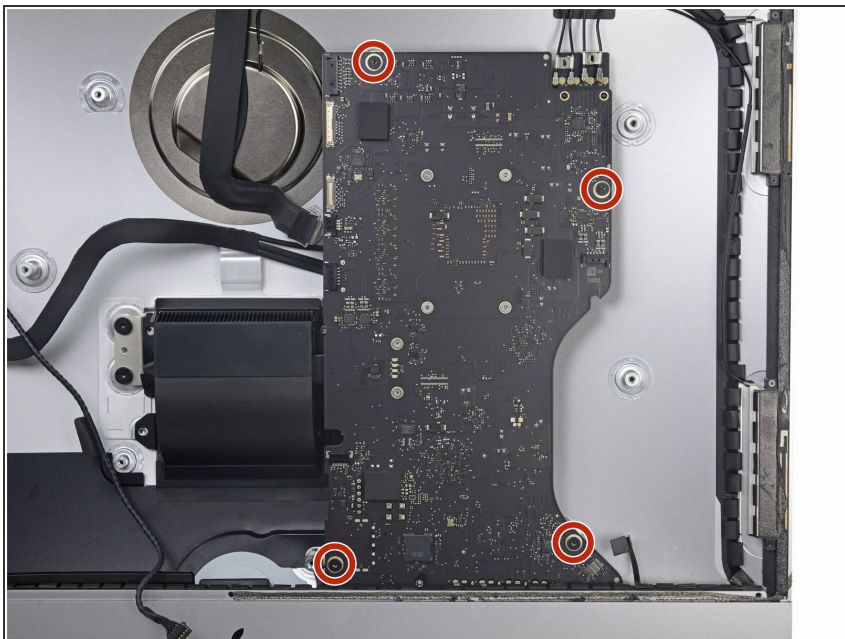
- Peel off the tape covering the exhaust duct.

Step 59



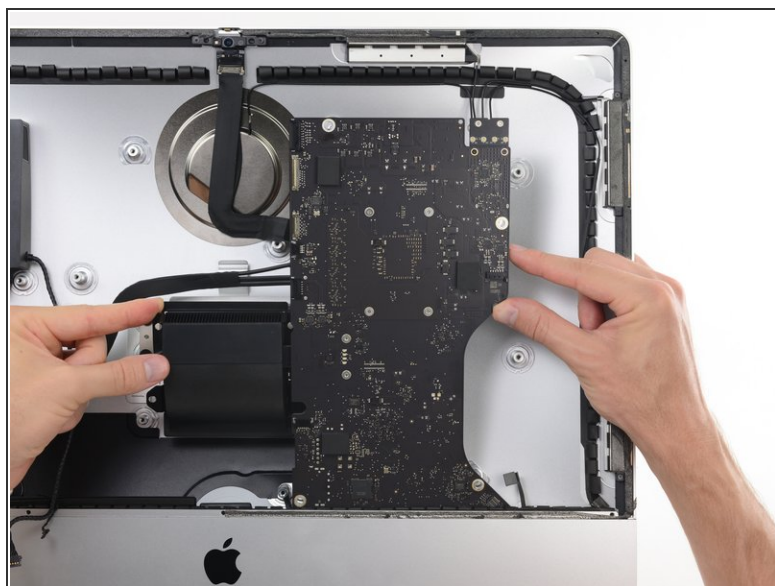
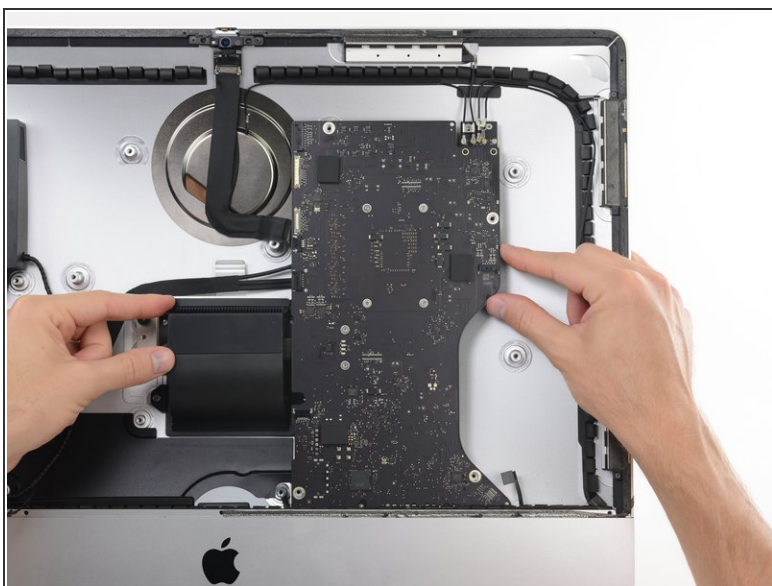
- Remove the following T8 Torx screws securing the exhaust duct to the rear enclosure:
 - Two 6.2 mm screws
 - Two 4.7 mm screws

Step 60



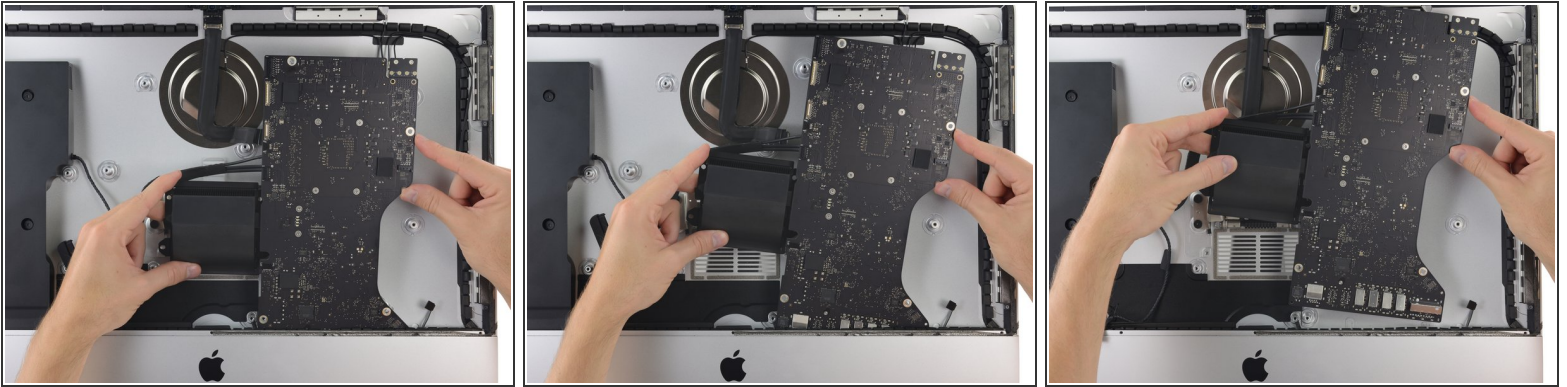
- Remove the four 7.3 mm T8 Torx screws securing the logic board to the rear enclosure.

Step 61



- Tilt the top of the logic board away from the rear enclosure.

Step 62



- Lift the logic board straight up and out of the iMac.

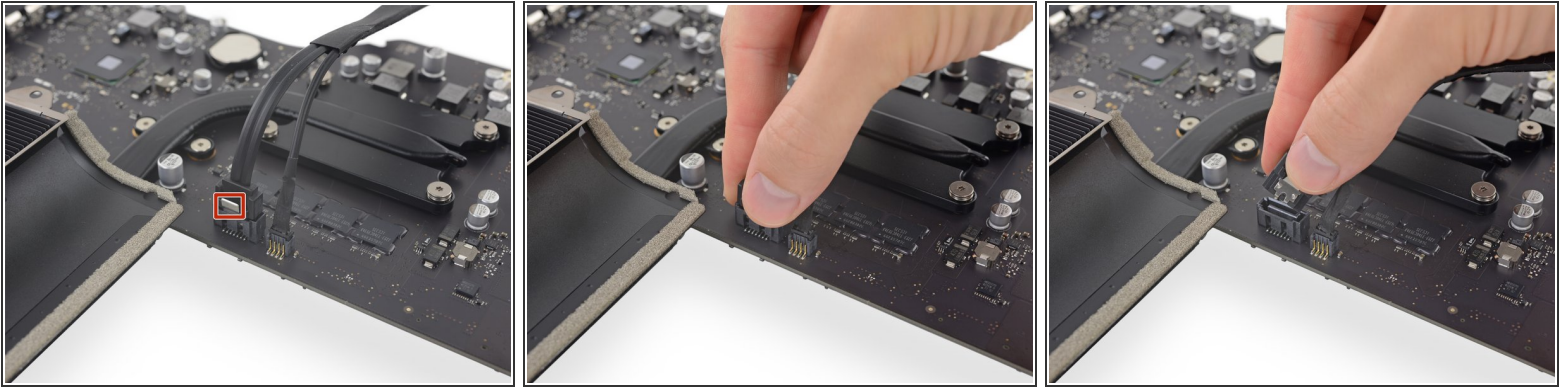
 Be careful not to snag the board on any of the rear enclosure's screw posts.

Step 63



- ☒ When reinstalling the logic board, take care to align the exterior I/O ports correctly. The logic board can sit crooked even when secured with all its screws.
- You can use a USB flash drive and/or ethernet cable to ensure the logic board is seated correctly while you screw it in.

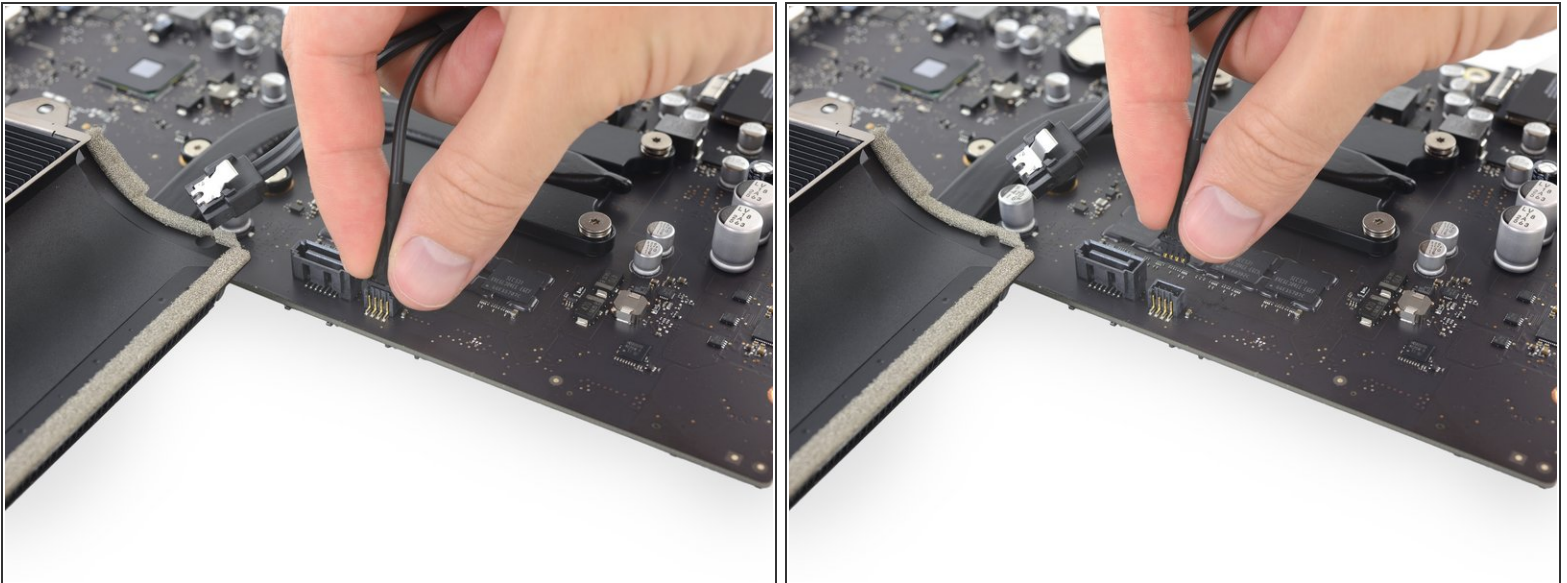
Step 64 — SATA Data and Power Cables



 The SATA data connector has a clip that must be pressed to allow removal.

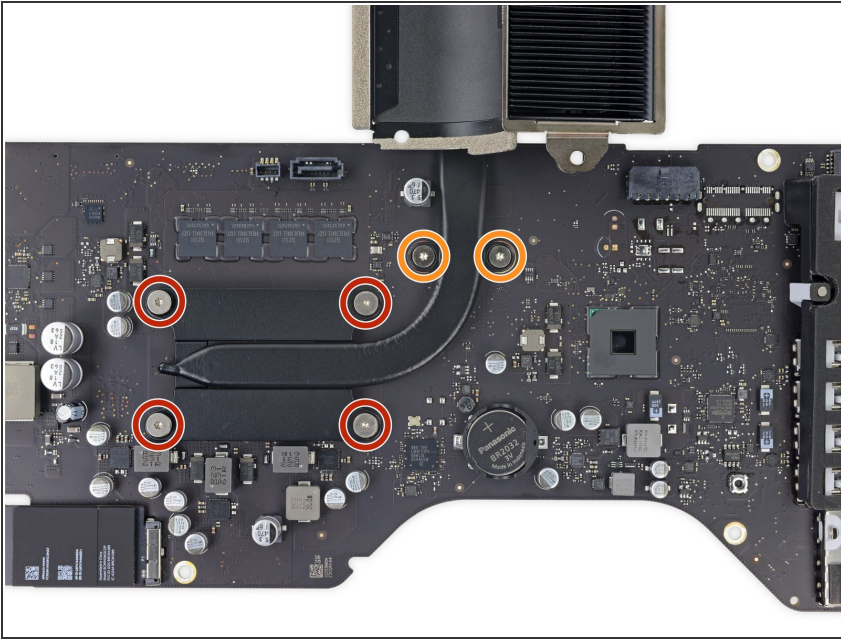
- While pressing on the clip with your thumb, lift and disconnect the SATA data connector from its socket on the logic board.

Step 65



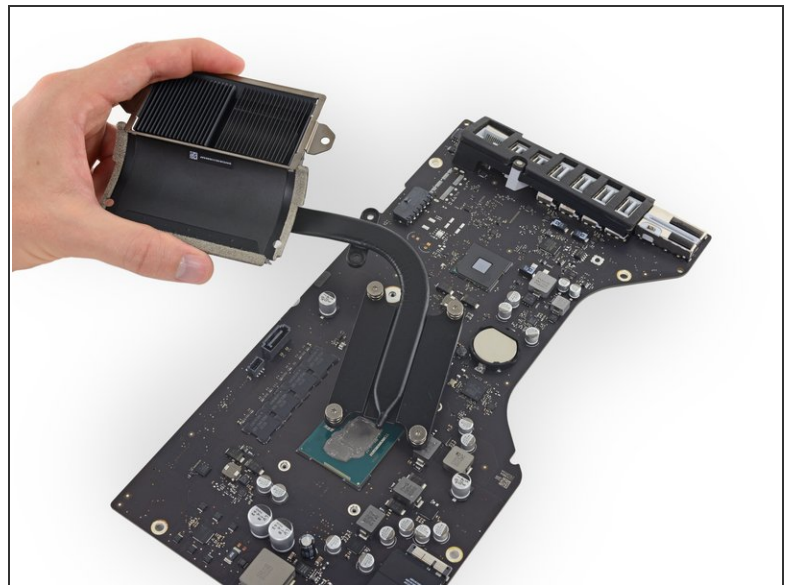
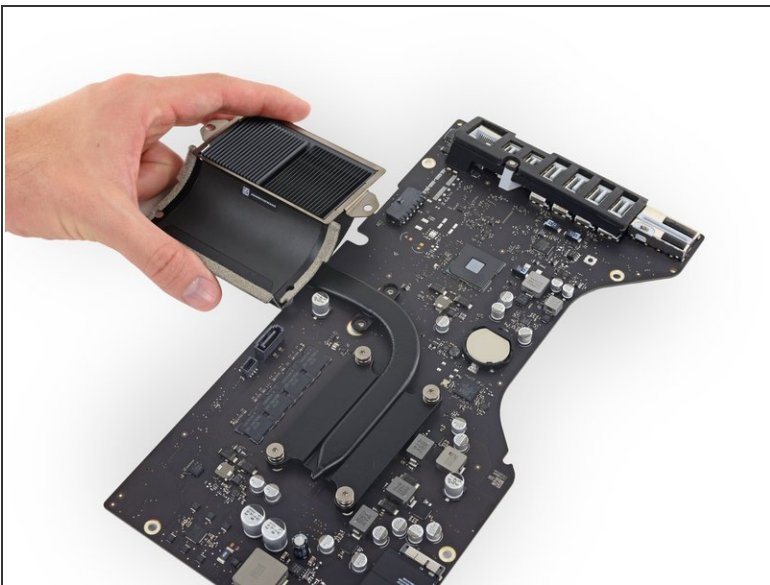
- Grasp the hard drive power connector and gently pull it out of its socket on the logic board.

Step 66 — Heat Sink



- Loosen but do not remove the four captive T8 screws securing the heat sink over the CPU.
- Remove the two 5.4 mm T8 screws securing the heat pipe to the logic board.
- ⓘ Some iMac models have a straight heat pipe rather than a curved one—regardless, the screws will be the same size/type and the ones over the CPU will be captive to the heat sink.

Step 67



- Lift and remove the heat sink assembly from the logic board.
- ☑ When reassembling your iMac, follow our [thermal paste application guide](#) to reapply the thermal paste.

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