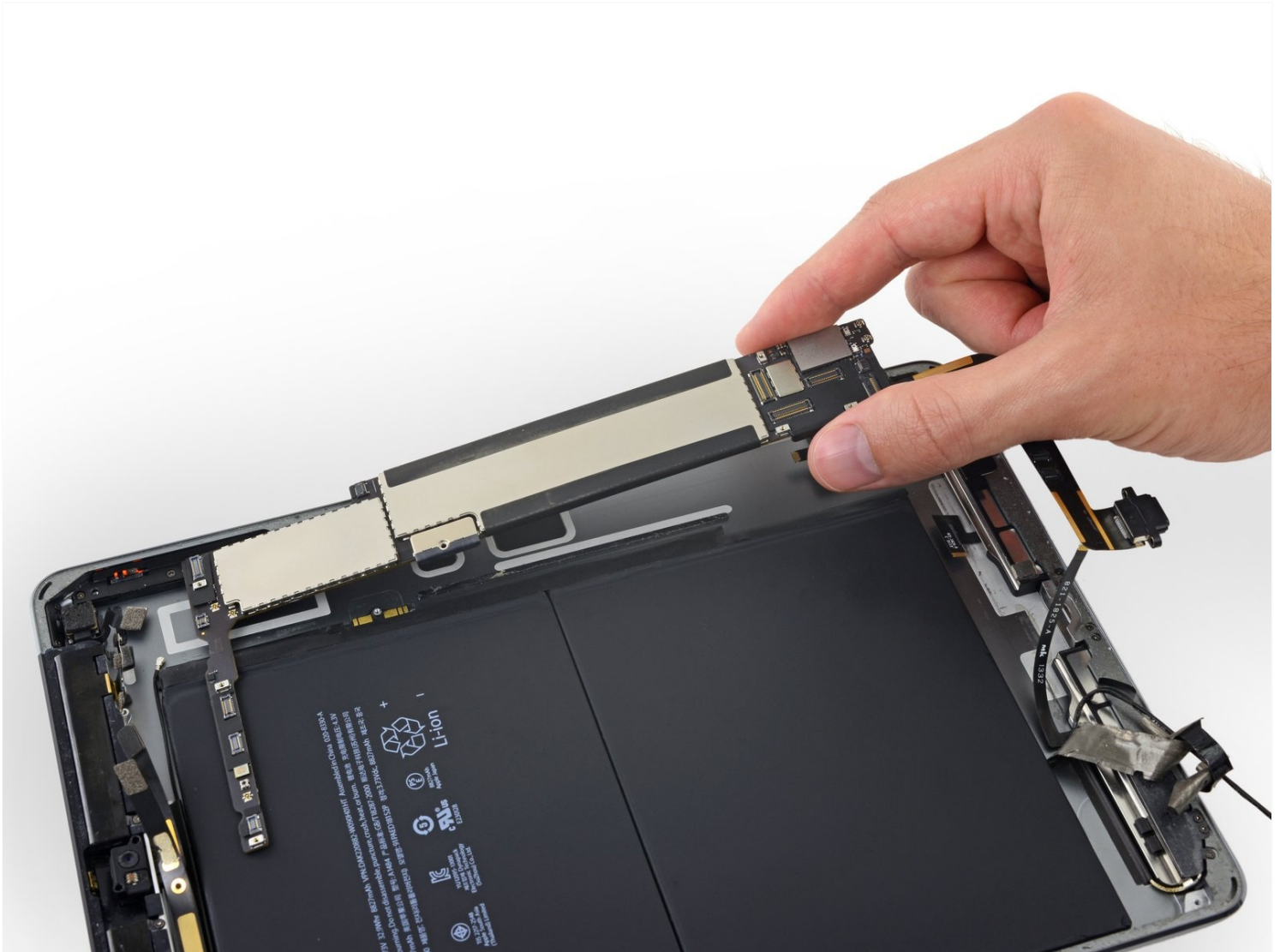




iPad Air LTE Logic Board Replacement

Follow the steps in this guide to replace the...

Written By: Evan Noronha



INTRODUCTION

Follow the steps in this guide to replace the logic board in an iPad Air LTE. Note that replacing the logic board will result in losing all your data, as well as Touch ID functionality.

Parts of this guide were shot with a Wi-Fi model and as such the internals may look slightly different from the LTE model. The procedure is the same for both models except where noted.

Warning: the battery isolation method in this guide is outdated, and may result in irreversible damage to the battery pins of the logic board, effectively destroying it. If you choose to isolate the battery this way, heed all warnings and work extremely carefully. If you choose to complete the guide without isolating the battery, avoid using metal tools except only when completely necessary (like when removing screws) to prevent shorting the battery and damaging sensitive circuit components.



TOOLS:

[Anti-Clamp](#) (1)
[iOpener](#) (1)
[iFixit Opening Picks \(Set of 6\)](#) (1)
[Suction Handle](#) (1)
[Tweezers](#) (1)
[Phillips #00 Screwdriver](#) (1)
[Spudger](#) (1)



PARTS:

[iPad Air LTE Logic Board](#) (1)

Step 1 — iOpener Heating



- ① We recommend that you clean your microwave before proceeding, as any nasty gunk on the bottom may end up stuck to the iOpener.
- Place the iOpener in the center of the microwave.
 - ⚠ For carousel microwaves: Make sure the plate spins freely. If your iOpener gets stuck, it may overheat and burn.

Step 2



- Heat the iOpener for **thirty seconds**.
- Throughout the repair procedure, as the iOpener cools, reheat it in the microwave for an additional thirty seconds at a time.

⚠ Be careful not to overheat the iOpener during the repair. Overheating may cause the iOpener to burst. Do not attempt to heat over 100°C (212°F).

⚠ Never touch the iOpener if it appears swollen.

⚠ If the iOpener is still too hot in the middle to touch, continue using it while waiting for it to cool down some more before reheating. A properly heated iOpener should stay warm for up to 10 minutes.

Step 3



- Remove the iOpener from the microwave, holding it by one of the two flat ends to avoid the hot center.

⚠ The iOpener will be very hot, so be careful when handling it. Use an oven mitt if necessary.

Step 4 — Alternate iOpener heating method



ⓘ If you don't have a microwave, follow this step to heat your iOpener in boiling water.

- Fill a pot or pan with enough water to fully submerge an iOpener.
 - Heat the water to a boil. **Turn off the heat.**
 - Place an iOpener into the hot water for 2-3 minutes. Make sure the iOpener is fully submerged in the water.
 - Use tongs to extract the heated iOpener from the hot water.
 - Thoroughly dry the iOpener with a towel.
- ⚠ The iOpener will be very hot, so be careful to hold it only by the end tabs.
- Your iOpener is ready for use! If you need to reheat the iOpener, heat the water to a boil, turn off the heat, and place the iOpener in the water for 2-3 minutes.

Step 5 — Front Panel



- If your display glass is cracked, keep further breakage contained and prevent bodily harm during your repair by taping the glass.
- Lay overlapping strips of clear packing tape over the iPad's display until the whole face is covered.
 - ⓘ This will keep glass shards contained and provide structural integrity when prying and lifting the display.
- Do your best to follow the rest of the guide as described. However, once the glass is broken, it will likely continue to crack as you work, and you may need to use a metal prying tool to scoop the glass out.

⚠ Wear safety glasses to protect your eyes, and be careful not to damage the LCD screen.

Step 6



- Handling it by the tag, place the heated iOpener on the side of the iPad to the left of the home button assembly.
- Let the iOpener sit for at least a minute to soften the adhesive beneath the glass.

Step 7



- ⓘ While the iPad looks uniform from the outside, there are delicate components under the front glass. To avoid damage, **only** heat and pry in the areas described in each step.
- As you follow the directions, take special care to avoid prying in the following areas:
 - Front-facing camera
 - Antennas
 - Display cables

Step 8 — Anti-Clamp instructions



- ① The next three steps demonstrate the [Anti-Clamp](#), a tool we designed to make the opening procedure easier. **If you aren't using the Anti-Clamp, skip down three steps for an alternate method.**
- ① For complete instructions on how to use the Anti-Clamp, [check out this guide](#).
- Pull the blue handle backwards to unlock the Anti-Clamp's arms.
- Place an object under your iPad so it rests level between the suction cups.
- Position the suction cups near the middle of the left edge—one on the top, and one on the bottom.
- Hold the bottom of the Anti-Clamp steady and firmly press down on the top cup to apply suction.
- ① If you find that the surface of your iPad is too slippery for the Anti-Clamp to hold onto, [use tape](#) to create a grippier surface.

Step 9



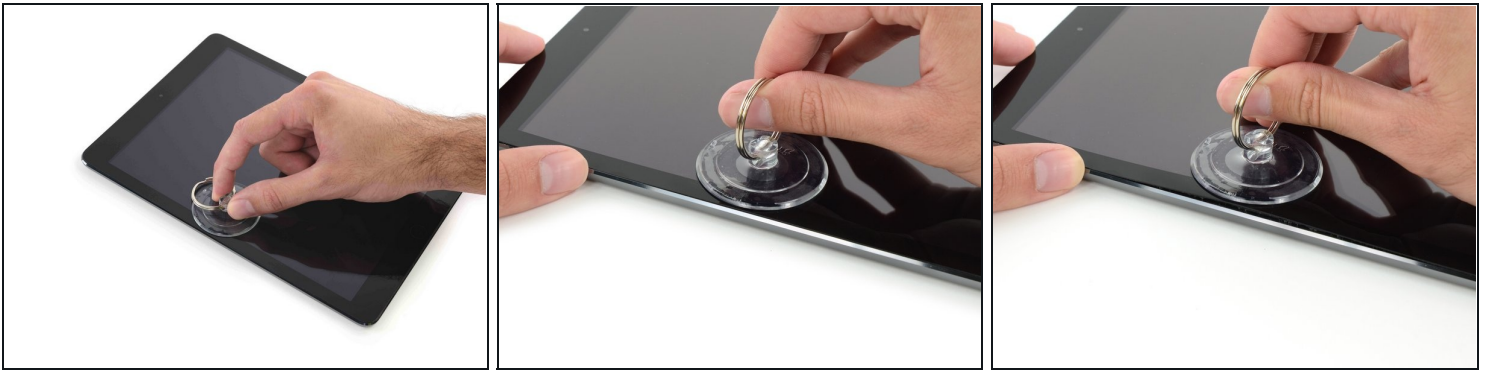
- Pull the blue handle forward to lock the arms.
- Turn the handle clockwise 360 degrees or until the cups start to stretch.
- Make sure the suction cups remain aligned with each other. If they begin to slip out of alignment, loosen the suction cups slightly and realign the arms.

Step 10



- Wait one minute to give the adhesive a chance to release and present an opening gap.
- If your screen isn't getting hot enough, you can use a hair dryer to heat along the left edge of the iPad.
 - ① For complete instructions on how to use a hair dryer, [check out this guide](#).
- Insert an opening pick under the screen when the Anti-Clamp creates a large enough gap.
 - ① If the Anti-Clamp doesn't create a sufficient gap, apply more heat to the area and rotate the handle clockwise half a turn.
- ⚠ Don't crank more than a half a turn at a time, and wait one minute between turns. Let the Anti-Clamp and time do the work for you.
- **Skip the next two steps.**

Step 11



- Carefully place a suction cup halfway up the heated side.
 - Be sure the cup is completely flat on the screen to get a tight seal.
- While holding the iPad down with one hand, pull up on the suction cup to slightly separate the front panel glass from the rear case.
- ① If your iPad's screen is badly cracked, covering it with a smooth layer of clear packing tape may help the suction cup adhere. Alternatively, use a strong piece of tape (such as duct tape) and [fold it into a handle](#).

Step 12



- Place an opening pick in the gap opened by the suction cup.
 - ⚠ Don't insert the opening pick any deeper than the black bezel on the side of the display. Inserting the pick too far may damage the LCD.
- Pull the suction cup's plastic nub to release the vacuum seal and remove the suction cup from the display assembly.

Step 13



- Reheat and replace the iOpener.

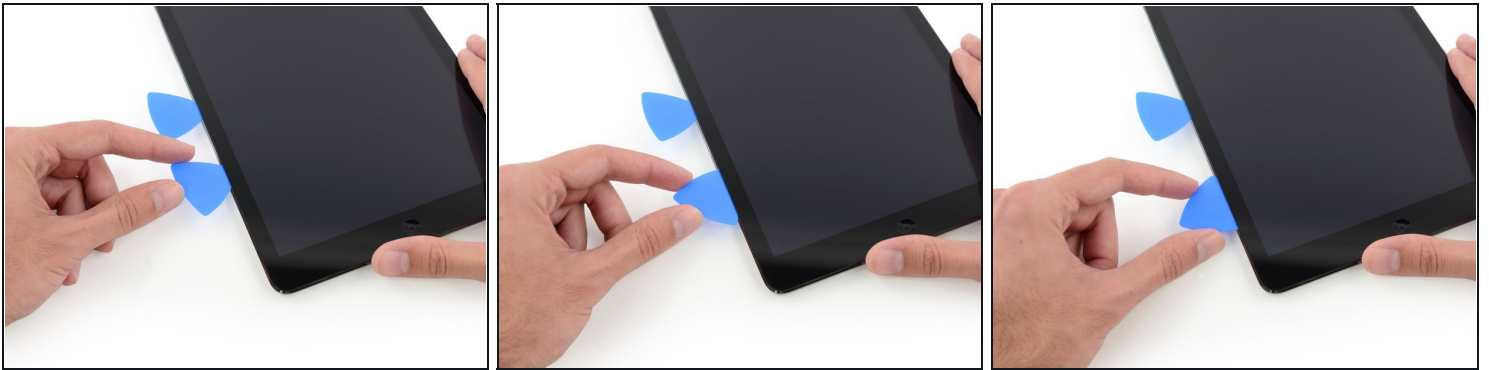
⚠ Be careful not to overheat the iOpener during the repair procedure. Always wait at least ten minutes before reheating the iOpener.

Step 14



- Place a second opening pick alongside the first and slide the pick down along the edge of the iPad, releasing the adhesive as you go.

Step 15



- Continue moving the opening pick down the side of the display to release the adhesive.
- If the opening pick gets stuck in the adhesive, "roll" the pick along the side of the iPad, continuing to release the adhesive.

Step 16



- Take the first pick you inserted and slide it up toward the top corner of the iPad.
- If you can see the tip of the opening pick through the front glass, don't panic—just pull the pick out just a little bit. Most likely, everything will be fine, but try to avoid this as it may deposit adhesive on the front of the LCD that is difficult to clean off.

Step 17



- Reheat the iOpener and place it on the top edge of the iPad, over the front-facing camera.

⚠ Be careful not to overheat the iOpener during the repair procedure. Wait at least ten minutes before reheating the iOpener.

- ① If you have a flexible iOpener, you can bend it to heat both the upper left corner and the upper edge at the same time.

Step 18



- Slide the opening pick around the top left corner of the iPad to separate the adhesive.

Step 19



- Slide the opening pick along the top edge of the iPad, stopping just before you reach the camera.
- ① The third image shows where the front-facing camera and housing are in the iPad.
 - ⚠️ Avoid sliding the opening pick over the front facing camera, as you may smear adhesive onto the lens or damage the camera. The following steps will detail how to best avoid disturbing the front facing camera.

Step 20



- Pull the pick out slightly, and slide the very tip gently along the top of the front-facing camera section of the top edge.

Step 21



- Leave the opening pick in the iPad slightly past the front-facing camera.
- Take a second pick and insert it to the left of the camera, and then slide it to the corner of the iPad to finish cutting the adhesive on that edge.

Step 22



- Insert the previous pick deeper into the iPad and slide it away from the camera toward the corner.

Step 23



- Leave the three picks in the corners of the iPad to prevent re-adhering of the front panel adhesive.
- Reheat the iOpener and place it on the remaining side of the iPad—along the volume and lock buttons.

Step 24



- Slide the opening pick around the top right corner of the iPad, releasing the adhesive there.
- ① Leave this pick in place to keep the adhesive from re-sealing itself, and grab a new pick for the next step.

Step 25



- Insert a new opening pick and slide it to the middle of the right edge of the iPad, releasing the adhesive as you go.

⚠ The display cables are located approximately halfway from the bottom of the iPad. Stop sliding the pick when you get ~4.5" from the bottom of the iPad.

Step 26



- Leave the opening picks in place, and set the reheated iOpener on the home button end of the iPad.

Step 27



- Slide the lower left pick to the lower left corner to cut the adhesive on that corner.
- Leave the pick at the corner. Do not pry any farther, and do not remove the pick from the iPad.
- ① The third image shows the two antennas and the home button cavity in the lower case of the iPad.
 - The following steps will direct you where to pry to avoid damage to these components. Only apply heat and pry where directed.

Step 28



- ① Leave the pick from the last step in place to prevent the adhesive from re-sealing.
- With a new pick, slice gently over the left-hand antenna, stopping before the home button.
 - ⚠ Only slide the pick from the outer edge toward the center of the iPad. Do not move the pick back toward the outer edge, as moving in this direction may damage the antenna.
- ① If you need to slide the pick over the lower section more than once, remove it and re-insert at the outer edge, and slide inwards.
- Leave the pick in place before moving on.

Step 29



- Take a new pick and slip it in to the right of the previous pick.
- Slide across the home button and right-hand antenna using **only the very tip** to remove the adhesive.

Step 30



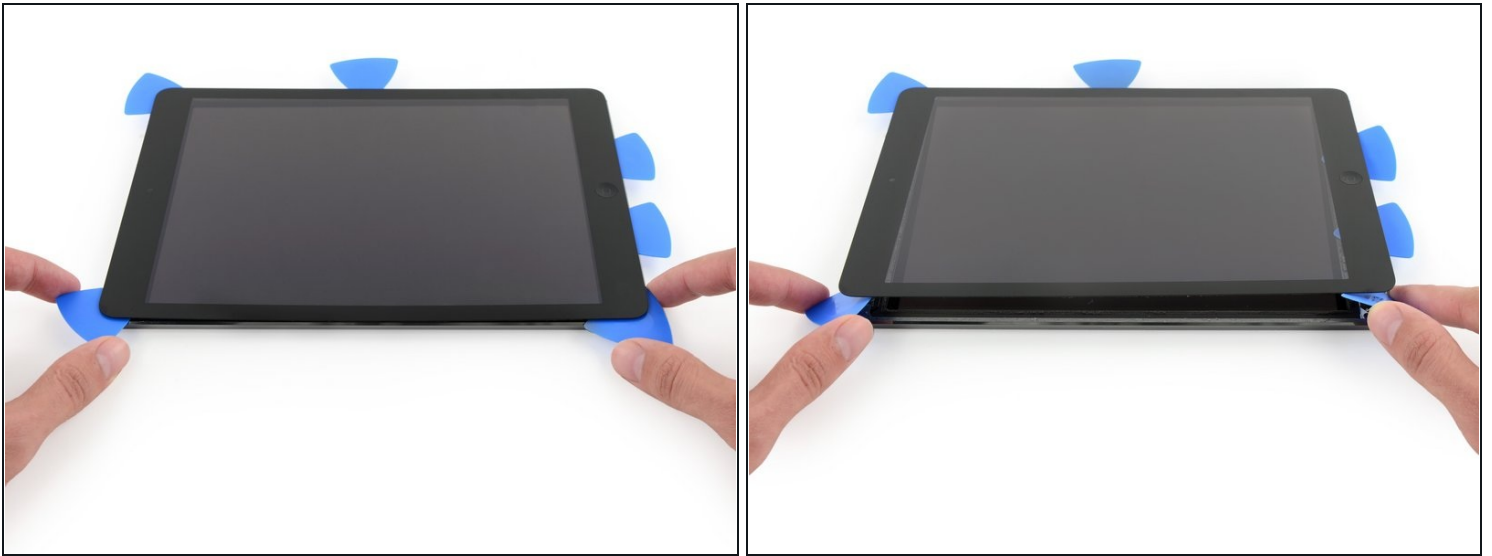
- With the adhesive loosened, you can now insert the pick near the right-hand corner. Slide the pick to the left, and stop just short of the Home button.
⚠ Just like with the left antenna, only slide from the outer edge toward the center. Reversing this direction may damage the antenna.

Step 31



- Reheat and reapply the iOpener to the volume control side of the iPad.

Step 32



⚠ Be very careful with this step. Take your time and ensure the adhesive is hot and soft, and that you've been through all of the adhesive with an opening pick. Don't be afraid to stop and reheat.

- On the side of the iPad opposite the volume controls, you should have a pick lodged into each corner. Twist the picks to lift the glass slightly, separating the last of the adhesive along the display cable edge.
- ① If you encounter a significant amount of resistance, leave the picks in place, reheat, and reapply the iOpener to the problem areas.

Step 33



- Lift slowly and gently to further detach the adhesive along the display cable edge.

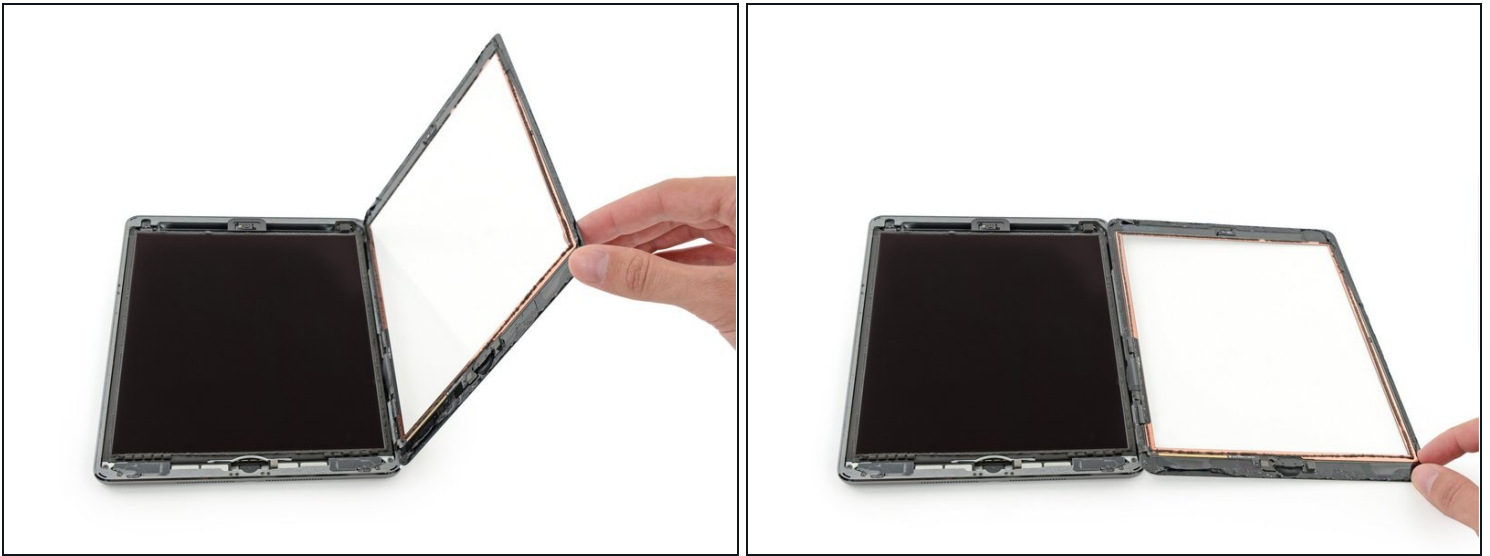
Step 34



- While supporting the front panel glass, use an opening pick to cut the last of the adhesive.

⚠ Be very careful not to cut or damage any of the display cables.

Step 35



- Once all of the adhesive has been separated, open the glass panel like a page in a book and rest it on your workspace.
- ☑ During reassembly, clean the remains of the adhesive from the case (and the front glass if you are re-using it) with isopropyl alcohol, and replace the adhesive using our [display adhesive application guide](#) and [pre-cut adhesive strips](#).
- ☑ It's easy to pinch a flex cable between the front glass and the iPad's frame during reassembly. Be mindful of the flex cables and make sure they gently fold and tuck under the frame. If the folds in a flex cable are pressed completely flat, it may be damaged beyond repair.

Step 36 — LCD



- Remove any tape obscuring the LCD screws.

Step 37



- Remove the four Phillips screws securing the LCD:
 - Three 4.0 mm screws
 - One 4.8 mm screw

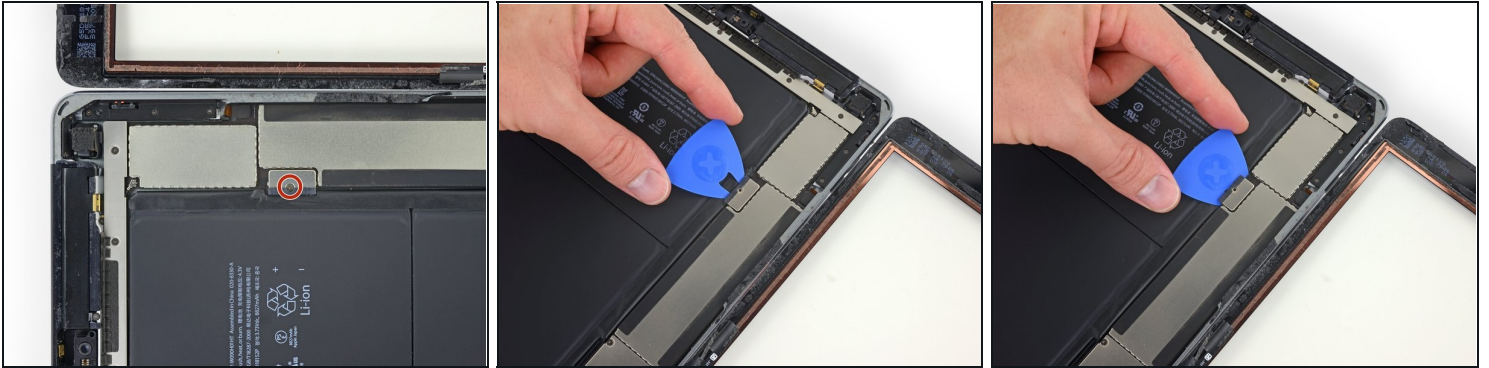
Step 38



⚠ Do not attempt to fully remove the LCD. It is still connected to the iPad by several cables at the home button end. Lift only from the front-facing camera end.

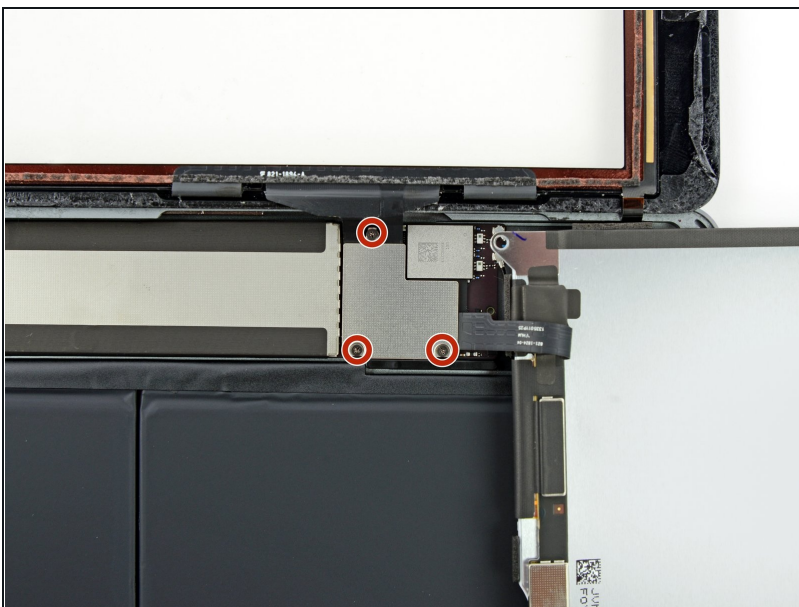
- Use the flat end of a spudger to pry the LCD out of its recess just enough to grab it with your fingers.
- Flip the iPad LCD like a page in a book, lifting near the camera and turning it over the home button end of the rear case.
 - ⚠ Be gentle and keep an eye on the LCD cables as you flip the display over.**
- Lay the LCD on its face to allow access to the display cables.
 - i Set the LCD down on a soft, clean, lint-free surface.**

Step 39



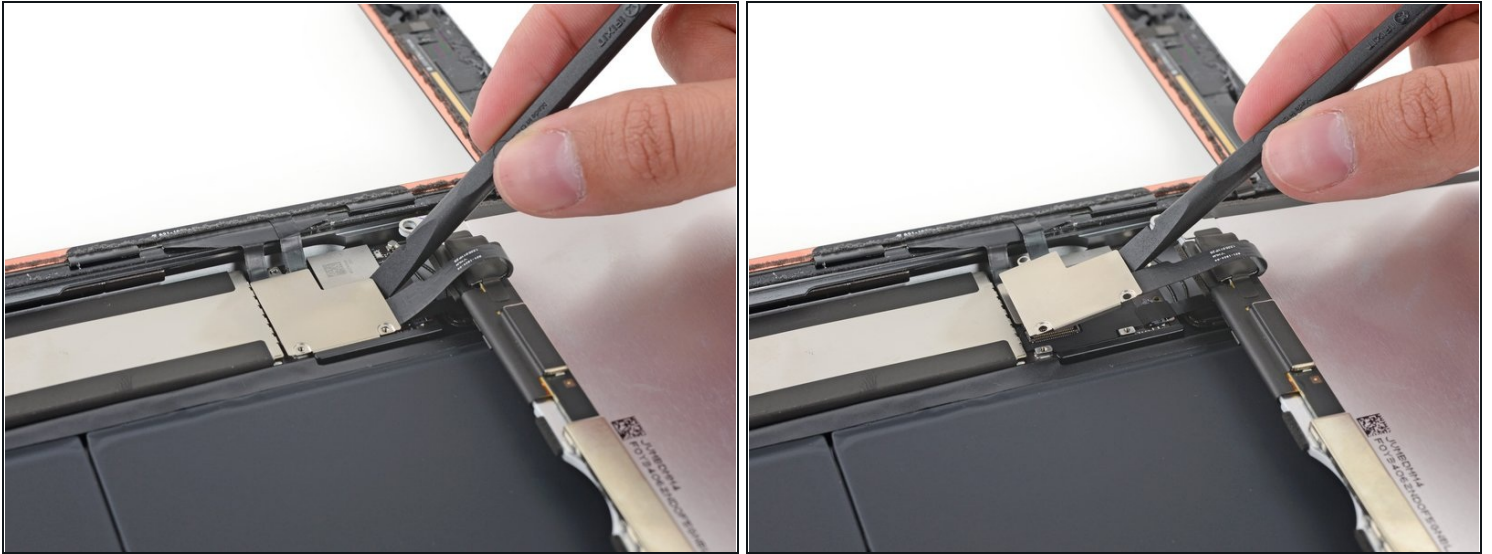
- Remove the single 2.3 mm Phillips screw securing the battery connector to the logic board.
- ① [Make a battery blocker using a playing card](#) and slide it underneath the logic board connector to disconnect the battery.
 - ⚠ You can also use an iFixit battery blocker. Be very careful and don't push the battery blocker underneath the connector with excessive force.
- Leave the blocker there to prevent the battery connector leads from making contact until you have completed your repairs.

Step 40



- Remove the three 1.4 mm Phillips screws securing the display cable bracket.

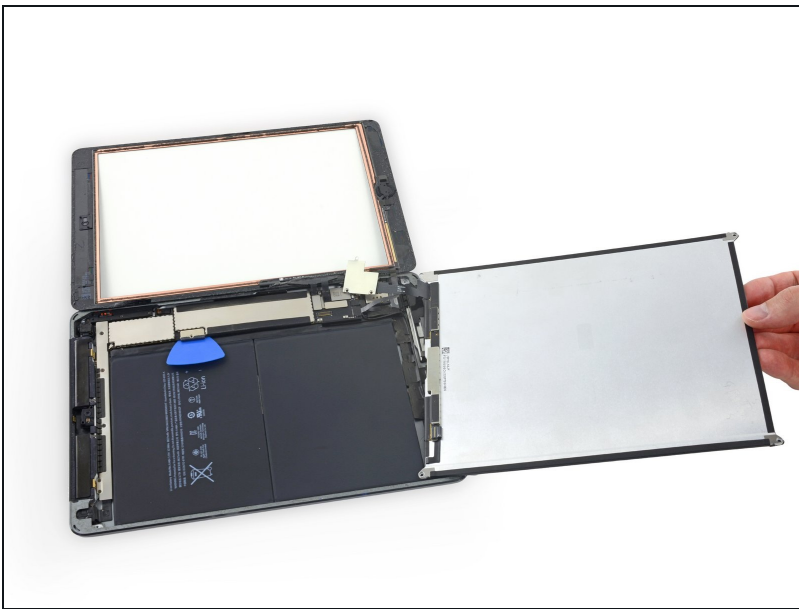
Step 41



- Use the flat end of a spudger to gently pry the display cable bracket straight up from the logic board.

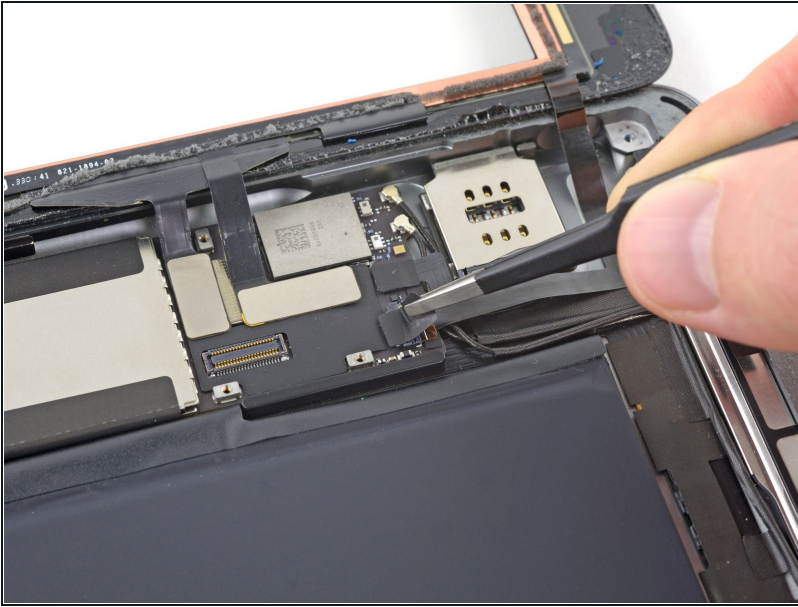
⚠ The display cable connector is adhered to the underside of the bracket, so don't push the spudger too far under the bracket, or you may damage the connector.

Step 42



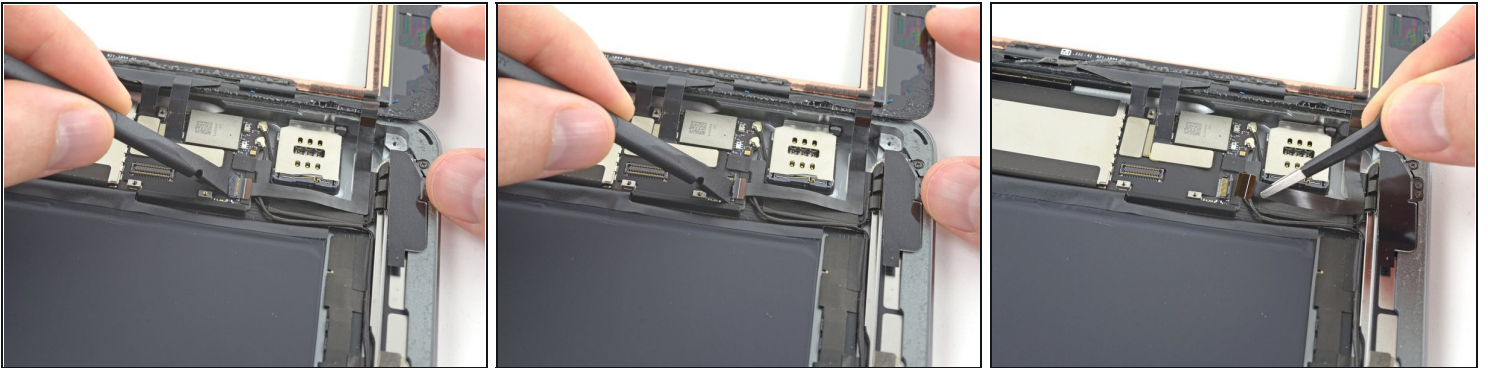
- Remove the LCD.

Step 43 — Front Panel Assembly



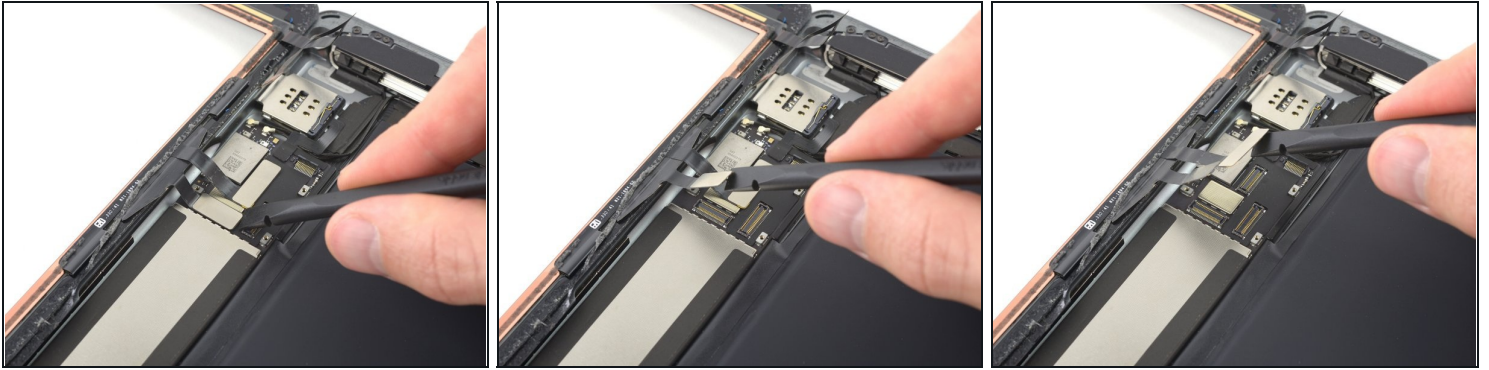
- Remove any tape covering the home button ribbon cable connector.

Step 44



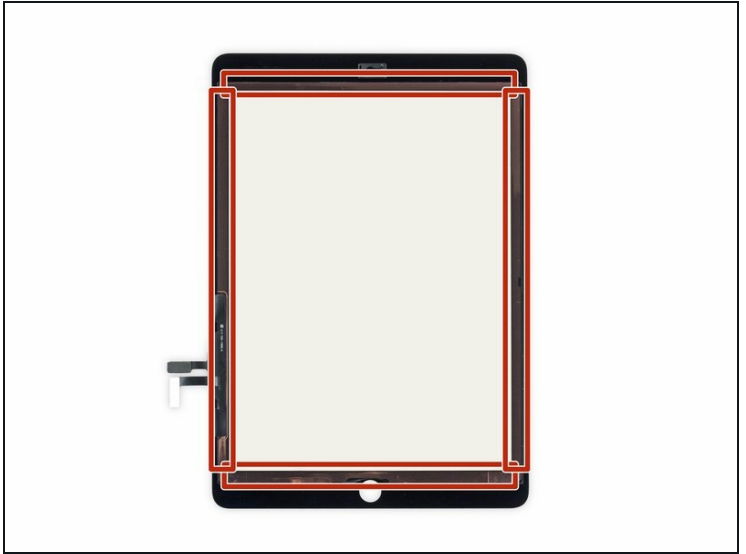
- Use the flat end of a spudger to flip the tab on the home button ribbon cable ZIF connector upward.
- Carefully pull the home button ribbon cable straight out of the ZIF connector.

Step 45



- Use the flat end of a spudger or a fingernail to carefully pop the two digitizer cable connectors straight up from their sockets.
⚠ To avoid damaging your iPad, pry only on the connectors themselves, **not** on the socket on the logic board.

Step 46

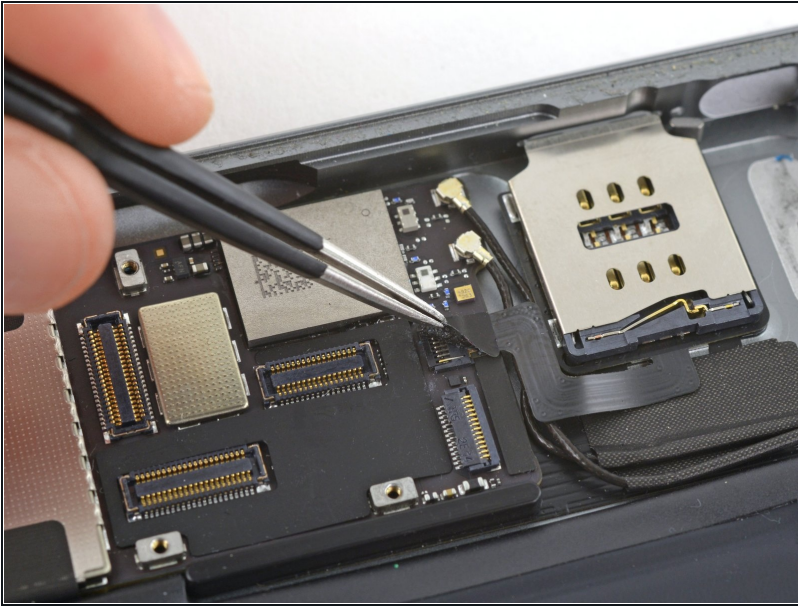


- Remove the front panel assembly.

⚠ If the home button ribbon cable sticks to the iPad's rear case, don't try to force it. Gently peel it off the case using a pair of tweezers, and then you can fully remove the front panel assembly.

- If you experience "ghost" or "phantom" touch input issues with your new display, this can be resolved by adding a layer of very thin insulating tape, such as [Kapton \(polyimide\) tape](#), to the highlighted areas on the back of the panel. **iFixit panels come with the proper insulation, and should not require the addition of any tape.**
 - ✦ Without the proper insulation, these areas of the digitizer can ground out against other components, causing touch input malfunction.
 - ⓘ The insulation is not visible to the naked eye, and is different from the foam dust barrier strips found on many iPads.

Step 47 — SIM Board Cable



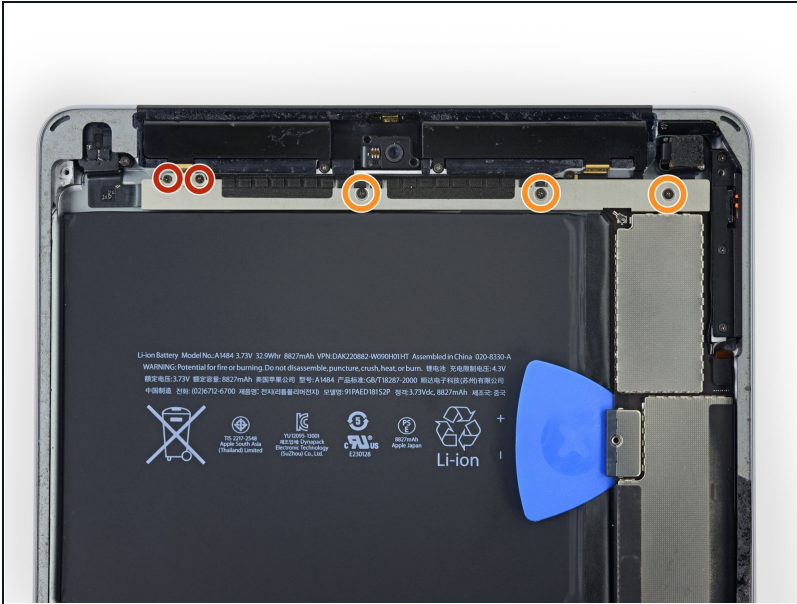
- Use tweezers to peel and remove the piece of tape covering the SIM board cable connector on the logic board.

Step 48



- Use the pointed end of a spudger to flip up the retaining flap on the SIM board cable connector.
- Slide the SIM board cable straight out of its ZIF connector.

Step 49 — Upper Component Cable Bracket



- Remove the following screws securing the upper component cable bracket:
 - Two 2.0 mm Phillips screws
 - Three 1.4 mm Phillips screws

Step 50



- Use tweezers to start peeling back the tape securing the upper component cable bracket.

Step 51



- Slowly peel the upper component cable bracket up out of the iPad—leaving the tape pieces on the bracket to make it easier to reinstall.

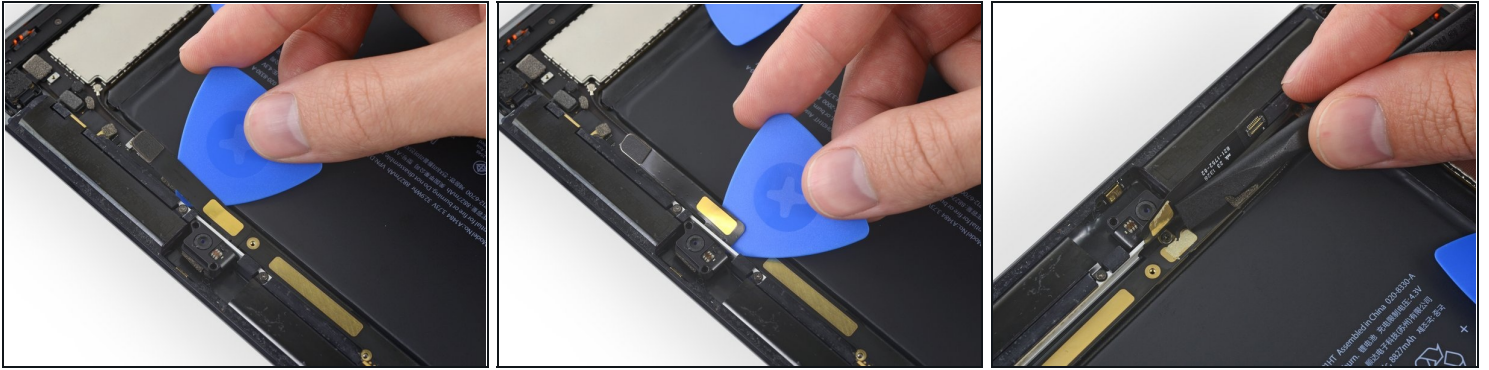
Step 52 — Logic Board



⚠ The following steps involve disconnecting many press connectors from their sockets on the logic board. When disconnecting these cables, be sure to pry up only on the connector, and not the socket itself.

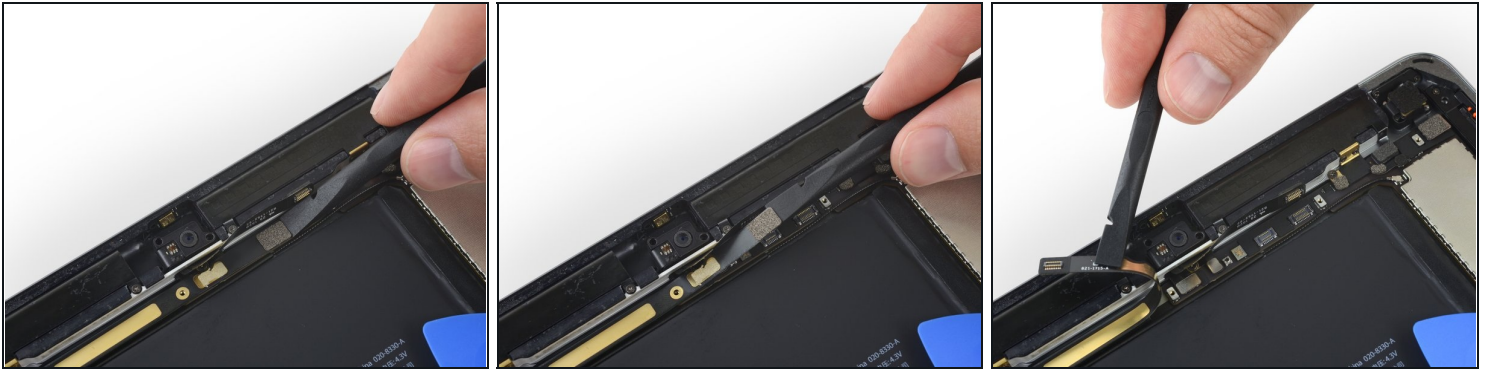
- Use the flat end of a spudger to disconnect the front-facing camera connector from its socket on the logic board.

Step 53



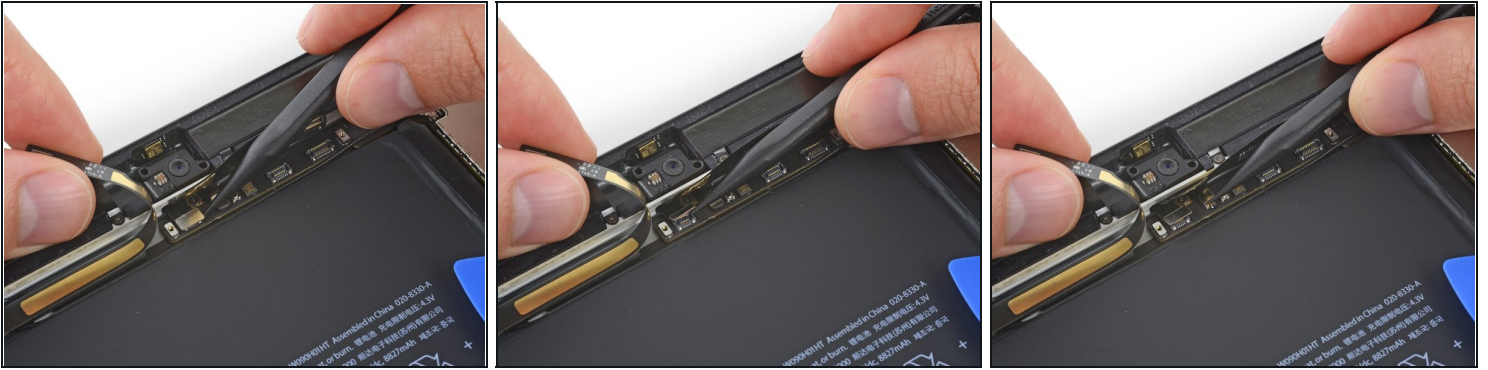
- Slide an opening pick underneath the front-facing camera cable to break up the adhesive holding it in place.
- Push the camera cable up with a spudger to reveal a second ribbon cable connector underneath.

Step 54



- Use the flat end of a spudger to gently disconnect the headphone jack ribbon cable from its socket on the logic board.
- Again, carefully push this second ribbon cable aside to reveal more connectors underneath.

Step 55



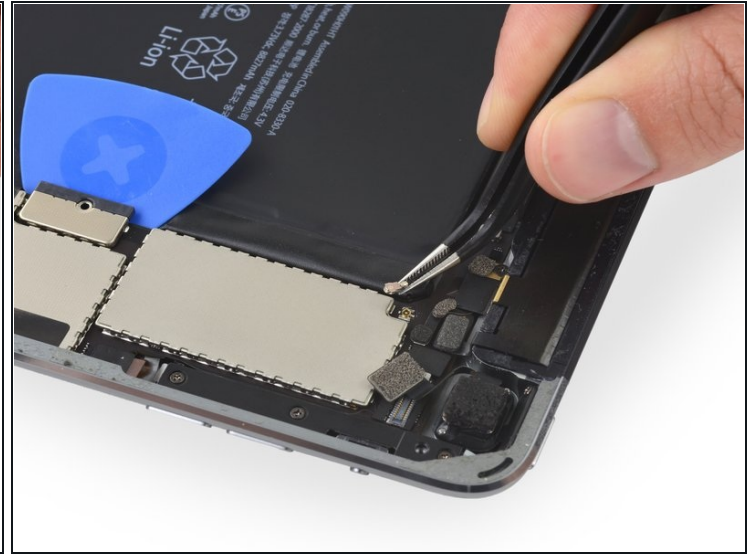
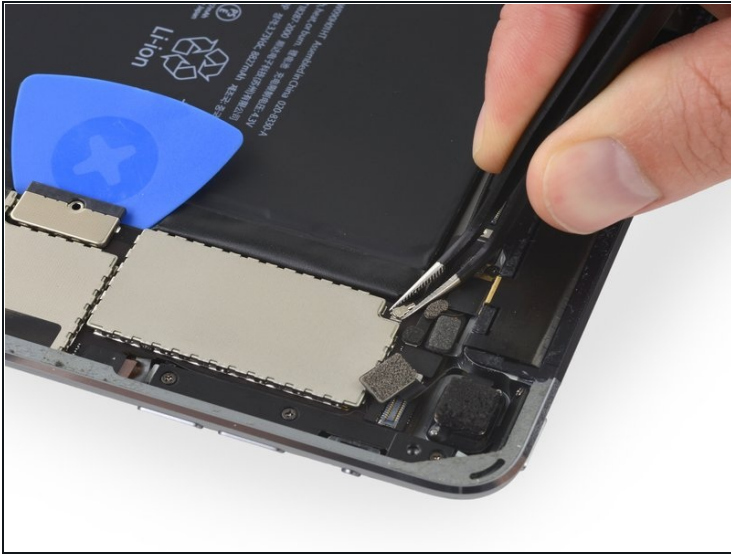
- Use the pointed tip of a spudger to disconnect the microphone cable connector from its socket on the logic board.
- Use the pointed tip of the spudger to disconnect the GPS antenna cable, directly to the right of the microphone cable connector.

Step 56



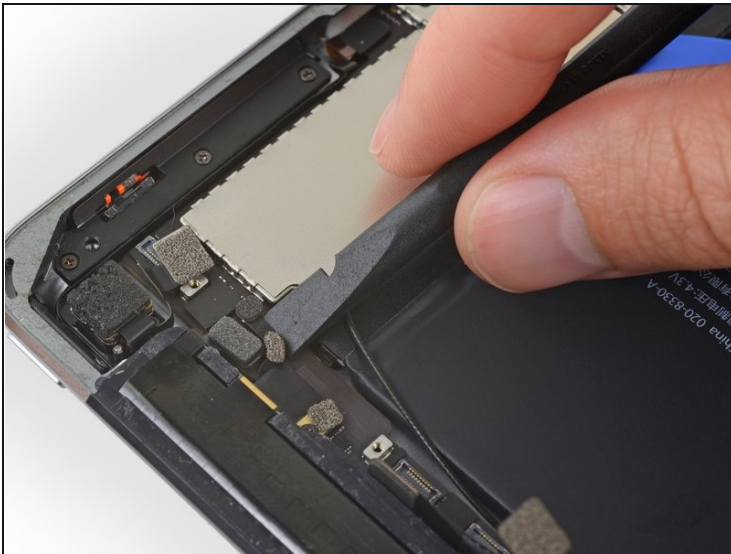
- Use the flat tip of a spudger to disconnect the rear-facing camera cable by prying it straight up from its socket on the logic board.

Step 57



- Disconnect the antenna interconnect cable by lifting it straight up from its socket on the logic board.

Step 58



- Use the flat end of a spudger to disconnect the primary cellular antenna interconnect cable from its socket on the logic board.

Step 59



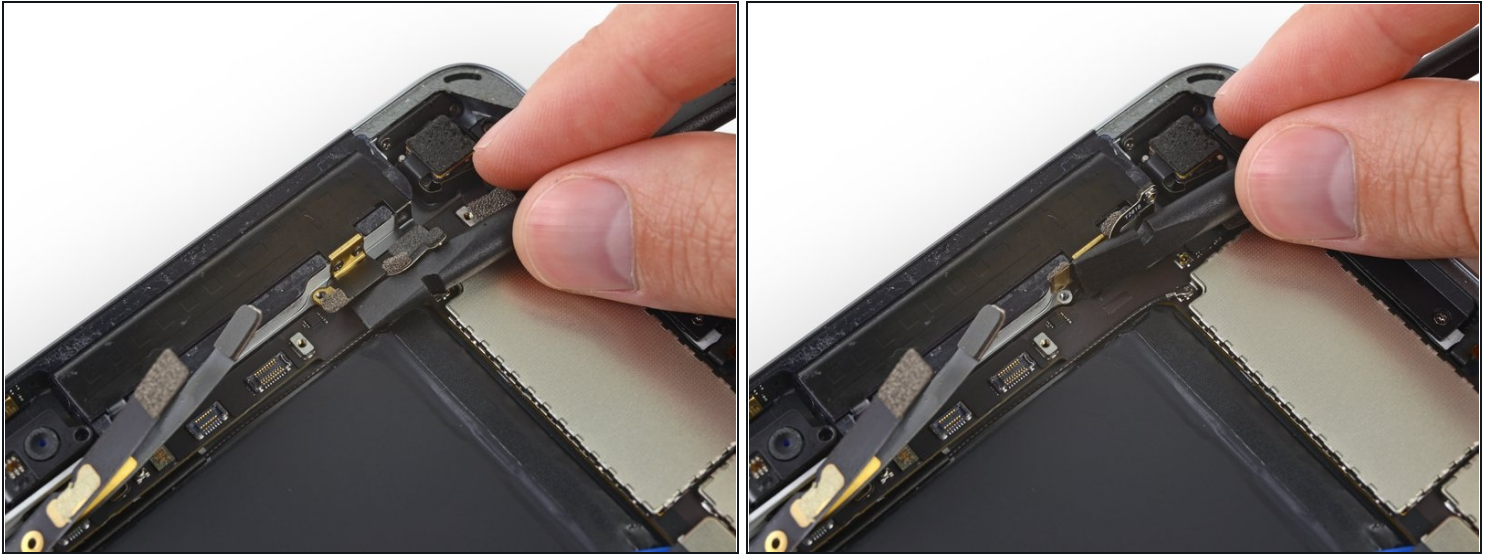
- Use the flat end of a spudger to lift the primary cellular antenna connector from its socket on the logic board.

Step 60



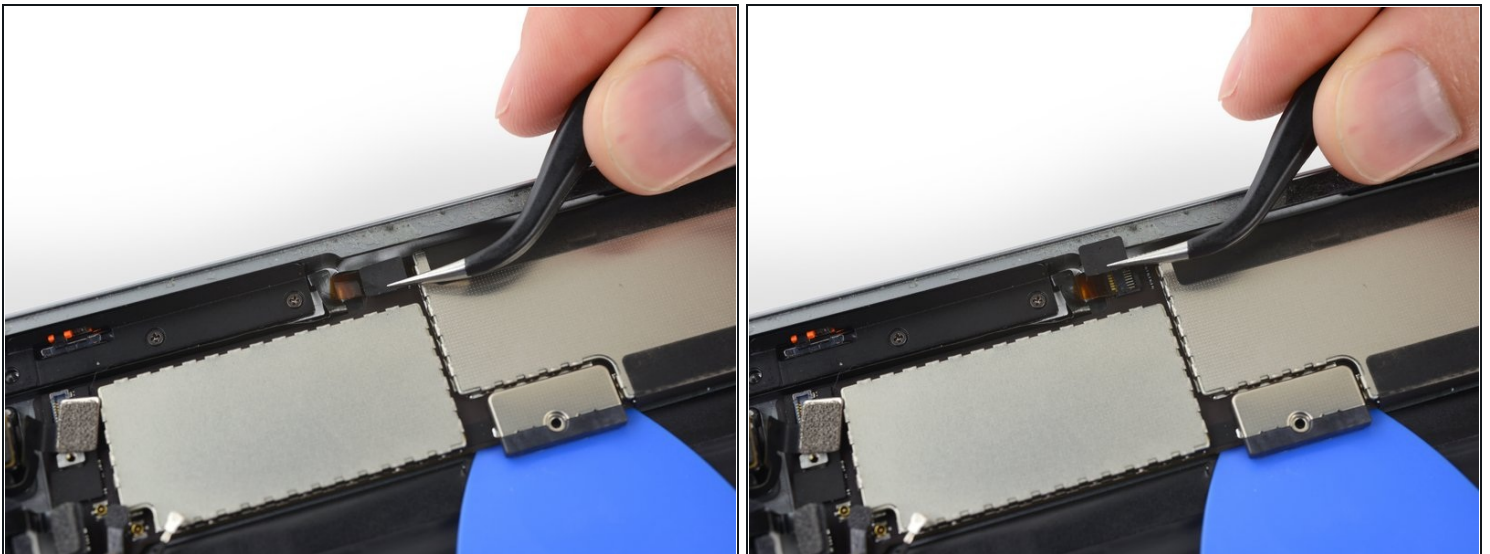
- Remove the 1.4 mm Phillips screw securing the primary cellular antenna interconnect cable bracket.

Step 61



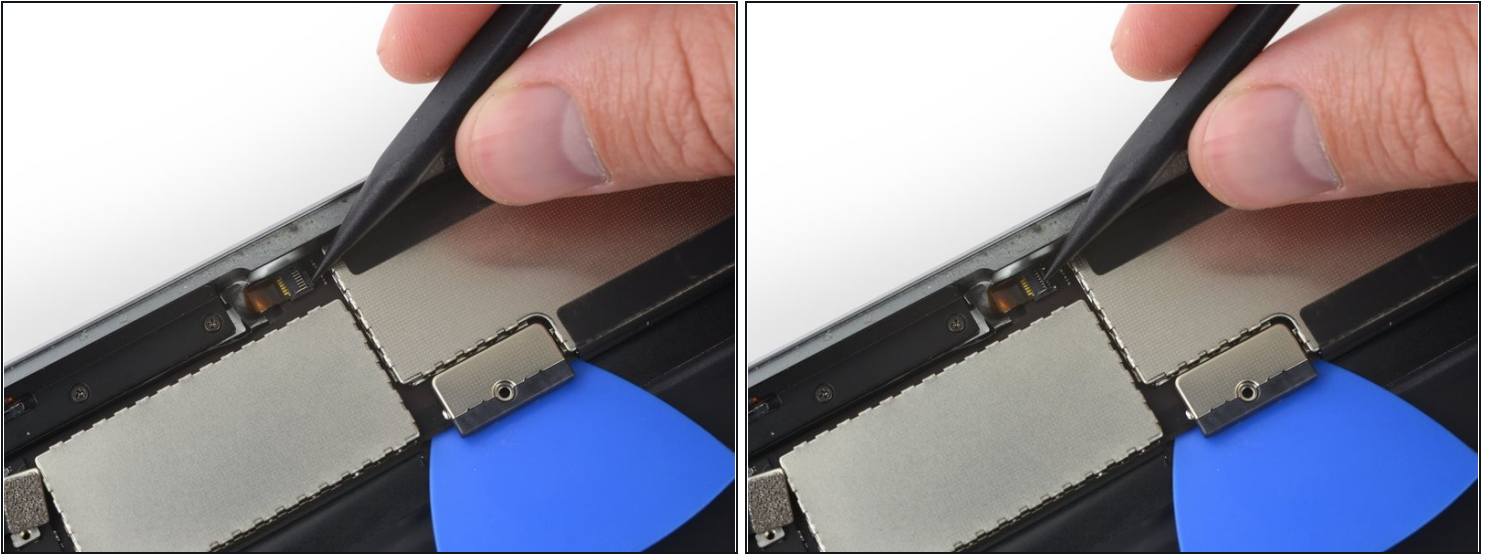
- Use the flat end of a spudger to gently fold the primary cellular antenna interconnect cable bracket up and out of the way.
 - ☑ The small, S-shaped interconnect cable remains attached to the bracket via a press connector on the underside of the bracket. If it disconnects accidentally, reconnect it by pressing it into place.

Step 62



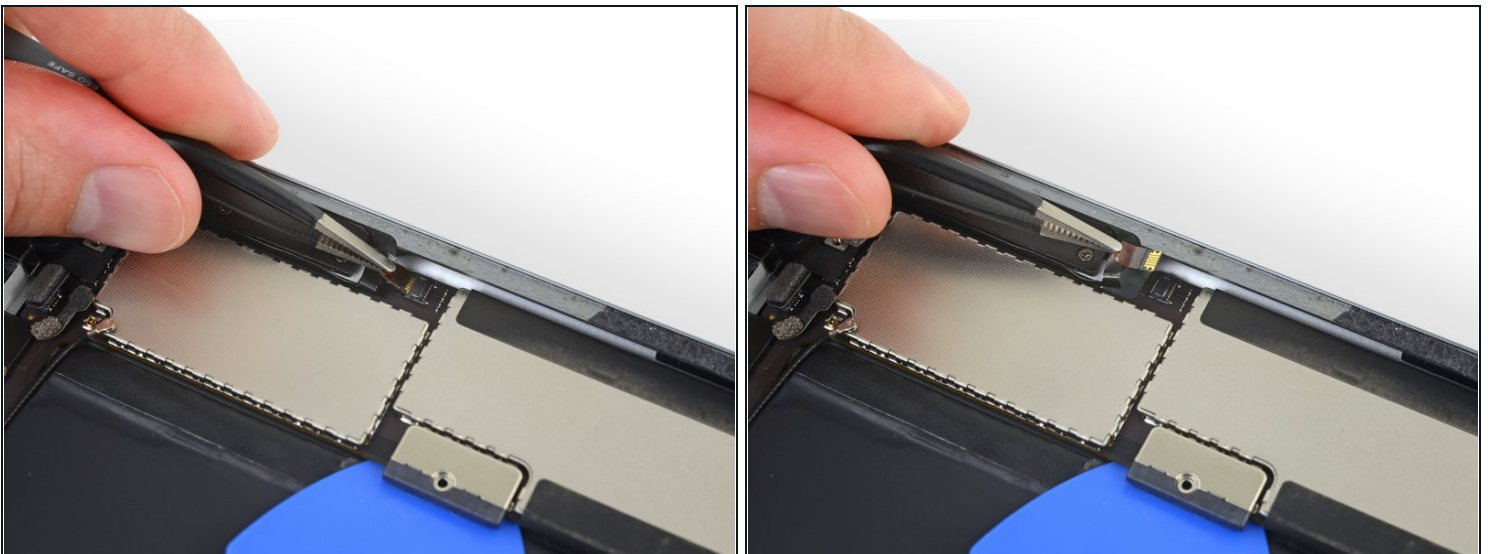
- Remove the piece of black tape covering the upper button assembly cable connector.

Step 63



- Use the pointed tip of a spudger to flip up the retaining flap on the upper button assembly cable connector.

Step 64



- Use tweezers to carefully pull the upper button assembly ribbon cable straight out of its connector.

⚠ There is very little give on this cable, so you may need to apply a decent amount of force. Be sure you are pulling the cable straight back, and not upward against the connector.

Step 65



- Disconnect the left and right Wi-Fi antenna cables by lifting them straight up from their sockets on the lower end of the logic board.

⚠ These sockets are fairly delicate. Be careful to apply pressure straight up so you don't shear the socket off the board.

Step 66

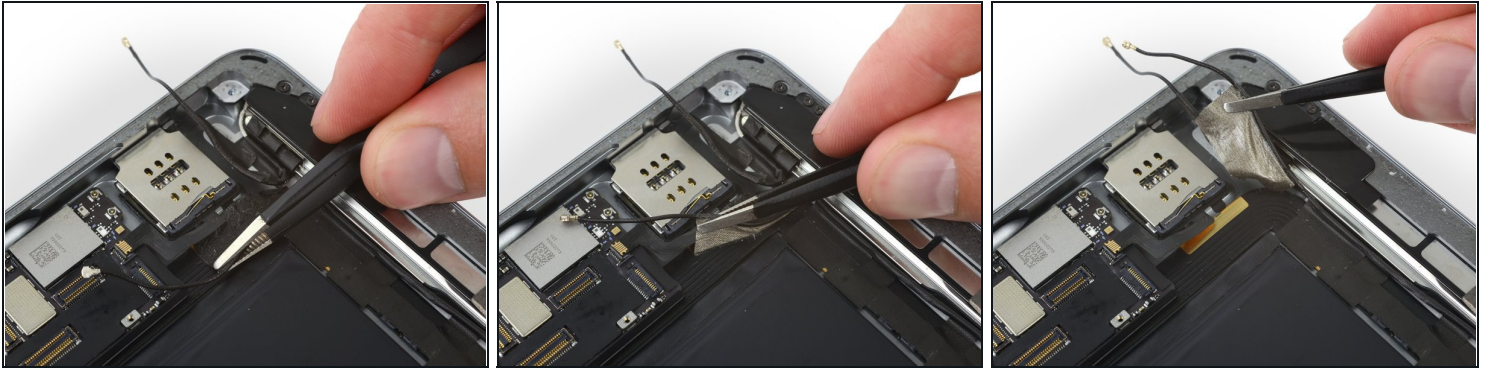


- Use a pair of tweezers to peel up the tape securing the right Wi-Fi antenna cable near the SIM board.

⚠ Peel carefully and pull up on the tape only—not the antenna cable, which will rip easily.

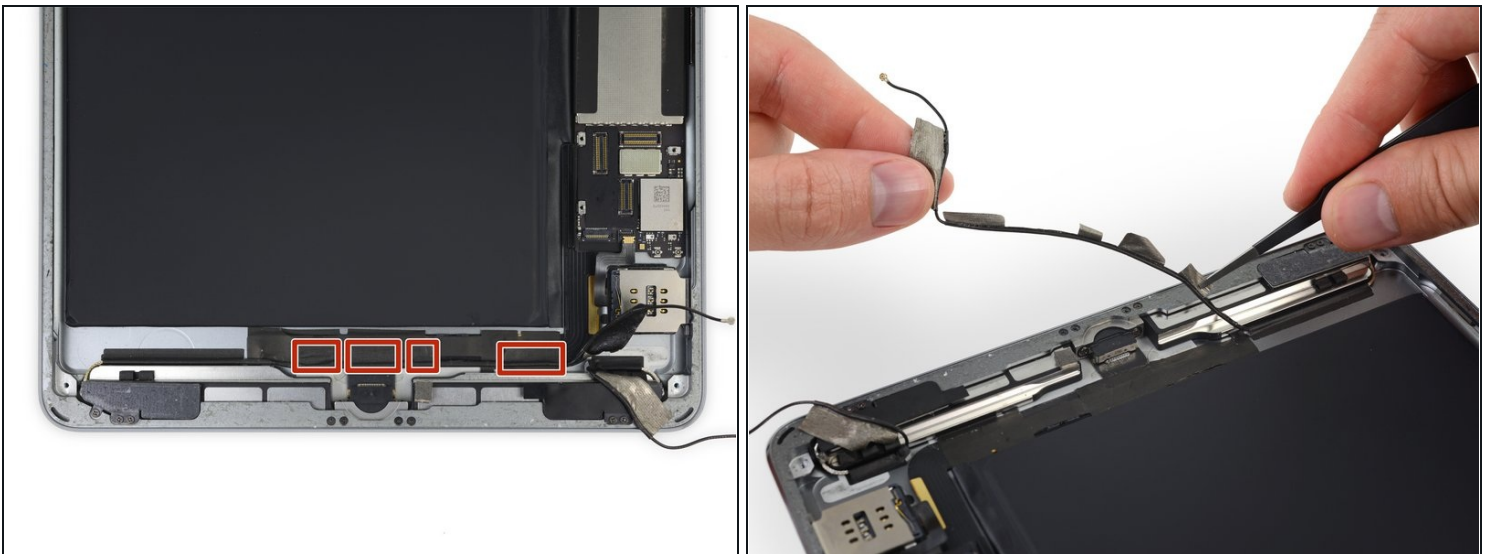
⚠ It may be helpful to fold the SIM board cable back slightly to better access the tape—but be careful not to damage the SIM board cable. If you need more clearance, [remove the SIM board](#).

Step 67



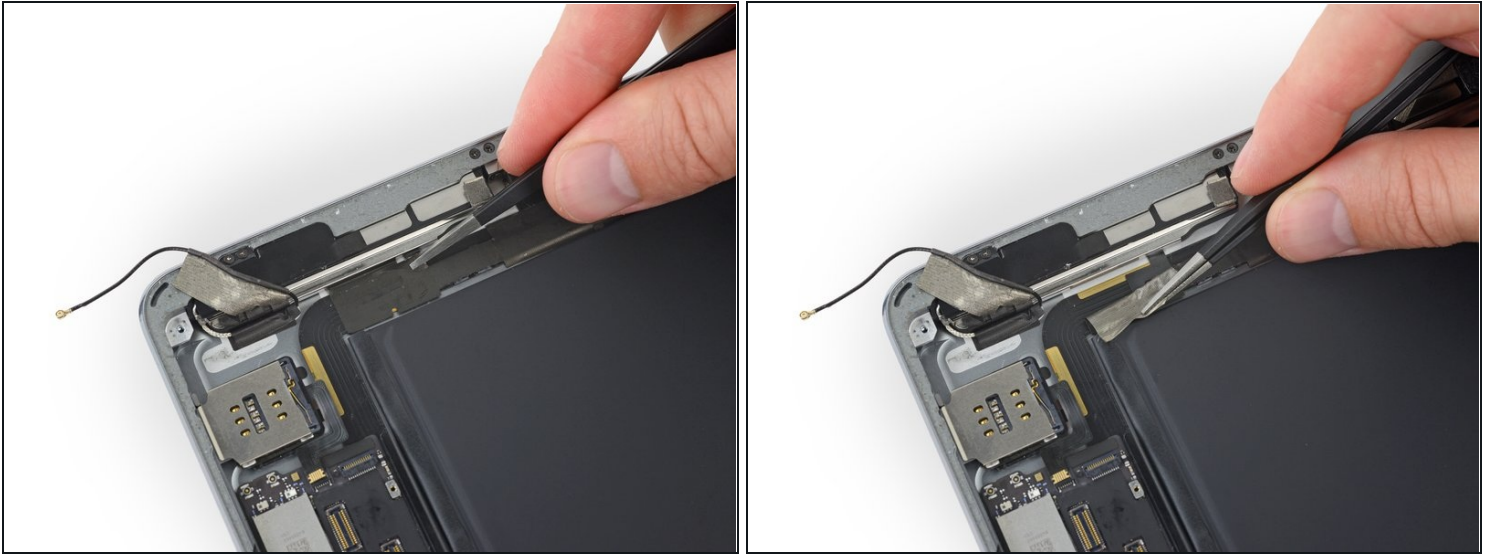
- Repeat the previous step to peel up a second piece of tape directly underneath, securing the left Wi-Fi antenna cable.
- If you accidentally peeled up both pieces of tape together, carefully peel them apart and separate them before proceeding to the next step.

Step 68



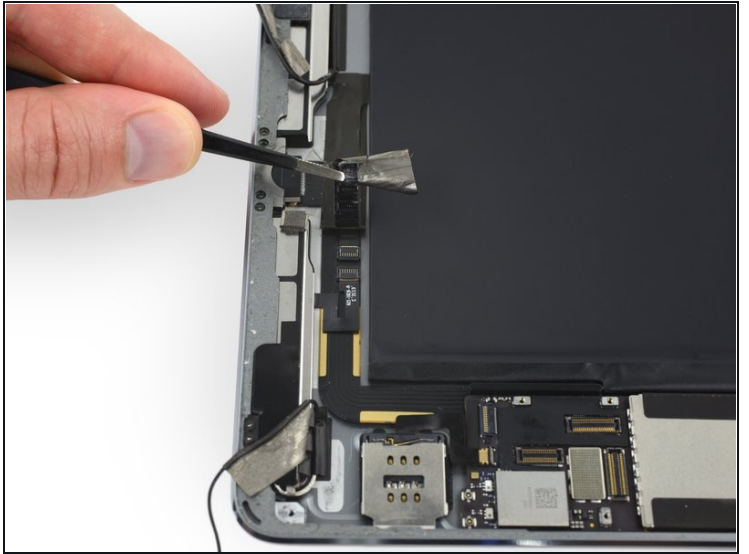
- Four additional pieces of tape secure the left Wi-Fi antenna near the lower edge of the iPad.
- Peel the tape up from the rear case.
- Fold the antenna cable out of the way.

Step 69



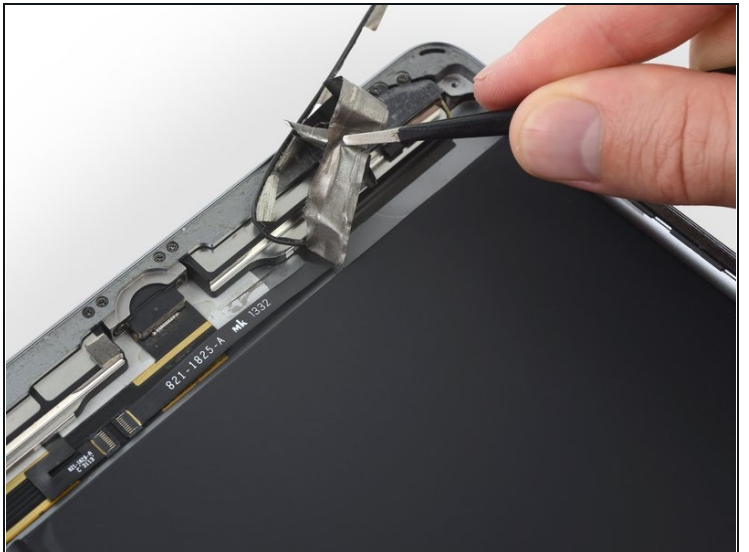
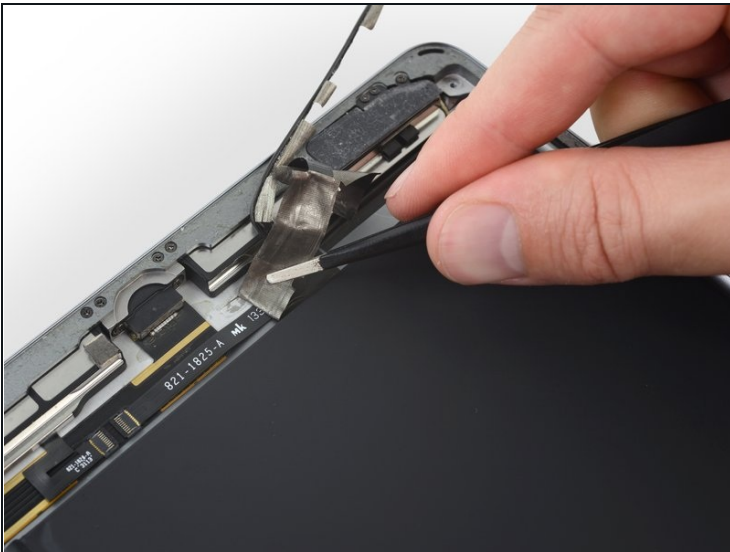
- ⓘ A bend in the speaker cable makes it difficult to peel the tape up from the end.
- Instead, grip the tape just under the speaker and peel it down, away from the edge of the case.
- ⚠ Be careful with your tweezers—only grab and peel the tape, and not the cable beneath.

Step 70



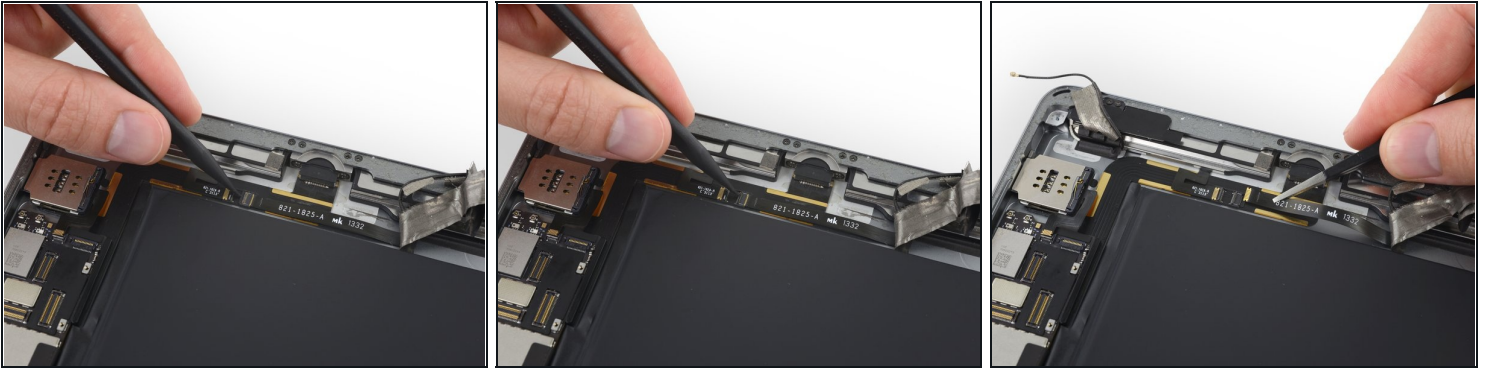
- Peel the tape toward the home button to uncover the speaker cable connector.
⚠ If necessary, as you peel the tape off the right speaker ribbon cable, use a spudger to hold the cable in place and prevent it from tearing.

Step 71



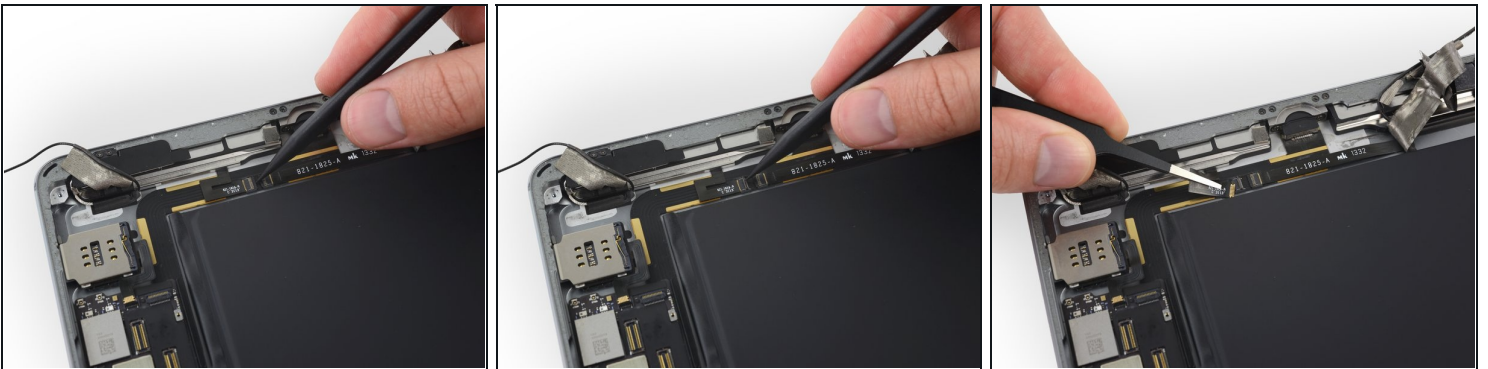
- Continue peeling up the tape away until there is enough slack in the left speaker cable to disconnect it.
☑ Do not completely remove the tape—it will be easier to replace if you leave a section still attached to the rear case.

Step 72



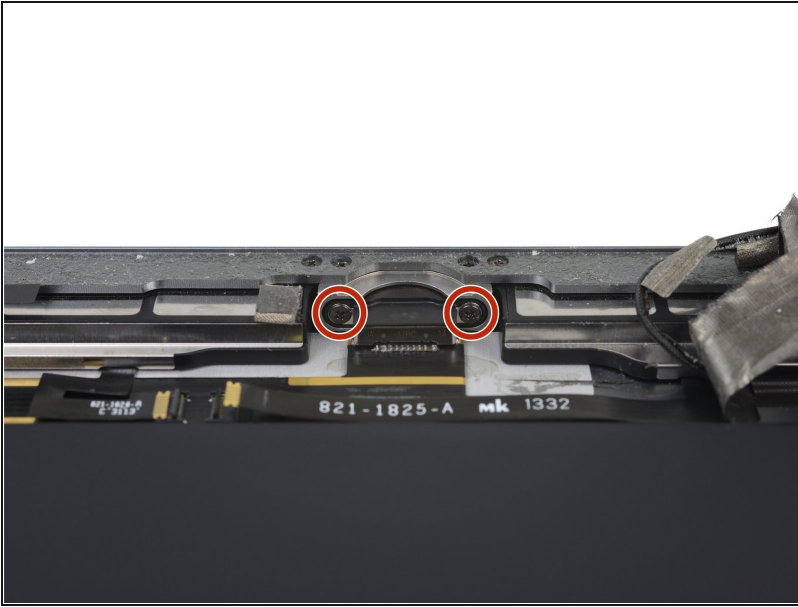
- Use the pointed end of a spudger to flip up the retaining flap on the left speaker cable connector.
- Disconnect the left speaker cable by pulling it straight out of its socket.

Step 73



- Use the pointed end of a spudger to flip up the retaining flap on the right speaker cable connector.
- Disconnect the right speaker cable by pulling it straight out of its socket.

Step 74



- Remove the two 3.3 mm Phillips screws securing the Lightning connector to the rear case.

Step 75



- ① In the next steps, you will use an iOpener to apply heat to the rear case of the iPad to soften adhesive holding the logic board in place.
- ① As you reheat and place the iOpener in each of the indicated locations, leave it in place for at least a minute to soften the adhesive through the rear case.
- The adhesive is in the form of seven strips of black tape—refer to this step as you work at heating and prying to keep track of where each piece is located.

Step 76



- Reheat your iOpener and lay it over the bottom edge of the iPad to soften the adhesive securing the Lightning port ribbon cable to the rear case.
- Wait a couple minutes for the adhesive to soften, then move on to the next step.

Step 77



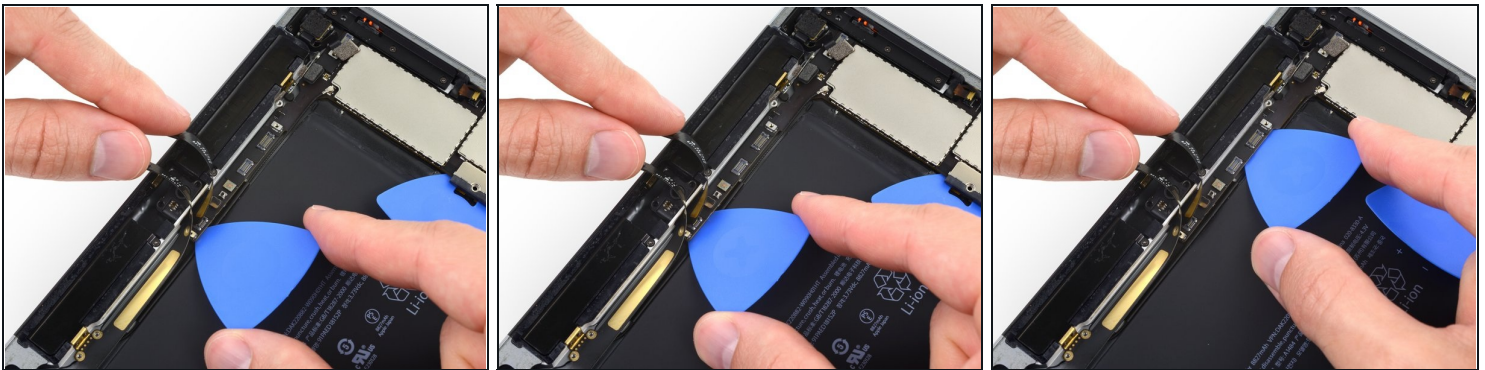
- Slide the flat end of a spudger under the Lightning connector cable to break up the adhesive securing it to the rear case.
- If necessary, push the left speaker cable gently aside to provide access to the Lightning connector cable.

Step 78



- Lay a warm iOpener over the upper edge of the iPad and let it sit for a couple minutes to soften the adhesive holding the logic board in place.

Step 79



⚠ As you complete the next few steps, prying adhesive securing the logic board in place, always start by testing gently to see if the adhesive is softened. If not, reheat the iOpener and reapply it to the back of the rear case.

- Carefully insert an opening pick under the logic board, between the front-facing camera and the battery.
 - ⓘ Be sure to insert the pick *over* the antenna cable that runs along the length of the battery.
- Slide the guitar pick toward the front-facing camera connector, and stop at the bend in the logic board.

Step 80



- Reheat your iOpener and lay it lengthways on the rear case, directly over the logic board.
- Wait a couple minutes for the adhesive to soften, then remove the iOpener and move on to the next step.

Step 81



- Insert an opening pick underneath the logic board at the corner of the large EMI shield.
- Slide the pick upwards until you reach the battery connector to break up the adhesive holding the logic board in place.

Step 82



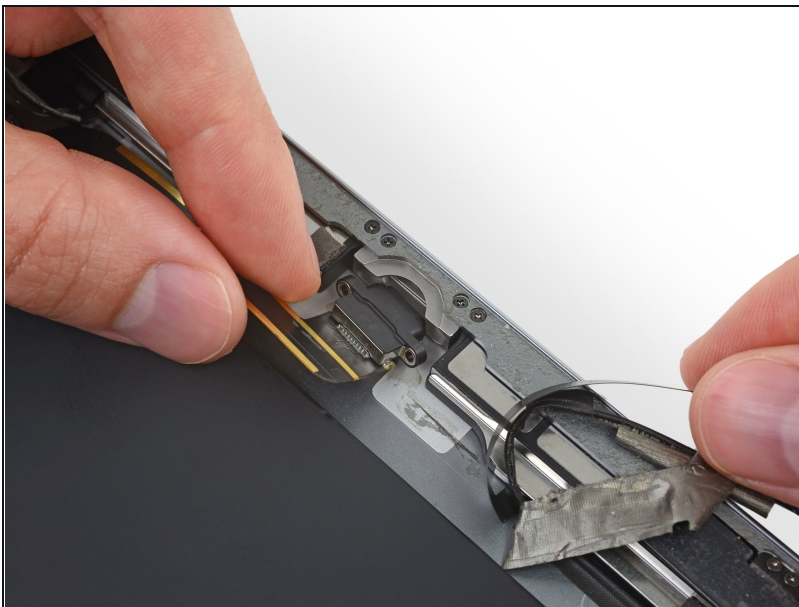
- Remove the battery isolation pick.
- Insert a [plastic card](#) underneath the logic board at the battery connector.
 - ⚠ Do not use excessive force when inserting this card under the logic board to prevent damaging its battery pins. If the logic board won't budge easily, try reheating the adhesive underneath with an iOpener.
 - ⚠ As you push through the adhesive at the outer edge of the logic board, be careful not to damage the upper button assembly ribbon cable that you disconnected in [Step 60](#). Position the card exactly as shown.
- Slide the card all the way underneath the logic board, separating the adhesive along the outer edge.

Step 83



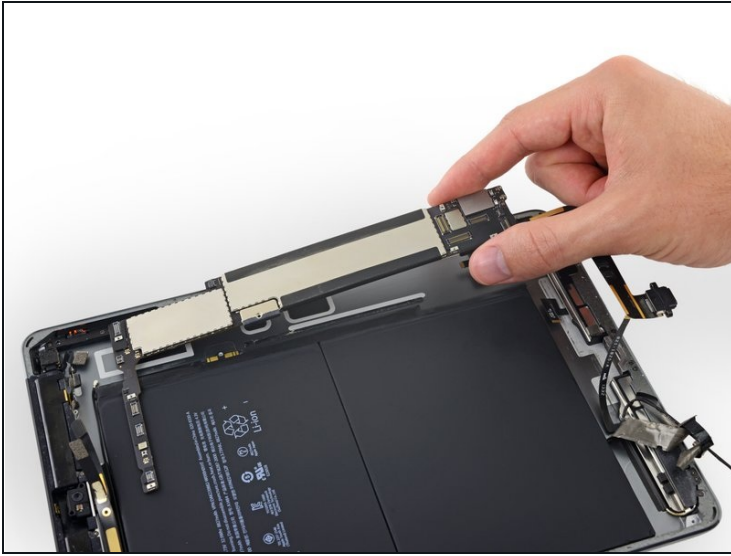
- Insert a plastic card underneath the lower end of the logic board, directly underneath the display connectors and Wi-Fi module.

Step 84



- Pull the Lightning connector straight out of its recess in the rear case.

Step 85



- Gently lift up on the logic board from its lower edge and remove the logic board.
- ☑ When installing the logic board, check to make sure that each of the cable connectors you detached earlier is correctly routed over the top of the logic board *before* proceeding with reassembly.

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