



iPhone XR Battery Replacement

iPhone batteries degrade with use—over time,...

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INTRODUCTION

iPhone batteries degrade with use—over time, they lose their ability to hold a full charge. Apple's batteries are rated to hold 80% of their capacity for up to 500 charge cycles, which lasts roughly 18-24 months for most users. When your battery's chemistry is degraded, it may also cause your iPhone to run more slowly. Use this guide to replace your battery and restore your iPhone to full performance.

If your battery is swollen, [take appropriate precautions](#).

Note: After the repair, your iPhone may [display a warning](#) about the “genuineness” of the battery, even when using original Apple parts. If your iPhone functions normally, you can safely ignore the warning.

The “battery health” section will not show up after a battery replacement. Apple disables this functionality when you replace the battery yourself.

For optimal performance, after completing this guide, [calibrate](#) your newly installed battery: Charge it to 100% and keep charging it for at least two more hours. Then use your iPhone until it shuts off due to low battery. Finally, charge it uninterrupted to 100%.

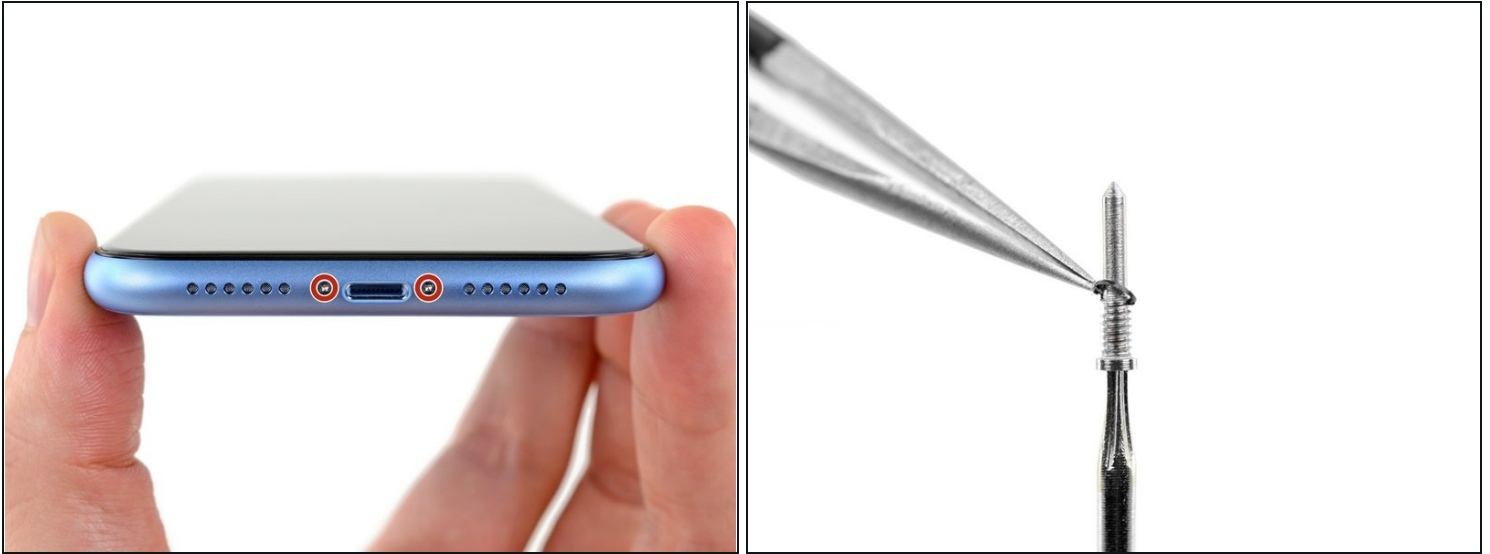
TOOLS:

[Anti-Clamp](#) (1)
[P2 Pentalobe Screwdriver iPhone](#) (1)
[iOpener](#) (1)
[iFixit Opening Picks \(Set of 6\)](#) (1)
[Suction Handle](#) (1)
[Tri-point Y000 Screwdriver](#) (1)
[Phillips PH000 Screwdriver](#) (1)
[Spudger](#) (1)
[Tweezers](#) (1)
[Standoff Screwdriver for iPhones](#) (1)

PARTS:

[iPhone XR Battery](#) (1)
[iPhone XR Battery Adhesive Strips](#) (1)
[iPhone XR Display Assembly Adhesive](#) (1)

Step 1 — Remove the pentalobe screws



⚠ Before you begin, discharge your iPhone battery below 25%. A charged lithium-ion battery can catch fire and/or explode if accidentally punctured.

- Power off your iPhone before beginning disassembly.
- Remove the two 6.7 mm-long pentalobe screws at the bottom edge of the iPhone.
- ⓘ Opening the iPhone will compromise its waterproof seals. Have replacement seals ready before you proceed past this step, or take care to avoid liquid exposure if you reassemble your iPhone without replacing the seals.
- ★ There's a black rubber gasket just beneath the head on each pentalobe screw. For maximum protection against dust and liquid, check the condition of the gaskets or replace the screws during reassembly.

Step 2 — Mark your opening picks



- ① If inserted too far, an opening pick can damage your device. Follow this step to mark your pick and prevent damage.
- Measure 3 mm from the tip and mark the opening pick with a permanent marker.
 - ① You can also mark the other corners of the pick with different measurements.
 - ① Alternatively, [tape a coin to a pick](#) 3 mm from the tip.

Step 3 — Tape over any cracks



- ① If your iPhone has a cracked screen, keep further breakage contained and prevent bodily harm during your repair by taping over the glass.
- Lay overlapping strips of clear packing tape over the iPhone's screen until the whole face is covered.
- ⚠ Wear safety glasses to protect your eyes from any glass shaken free during the repair.
- If you can't get the suction cup to stick in the next few steps, fold a strong piece of tape (such as duct tape) into a handle and lift the screen with that instead.
- ① If all else fails, you can superglue the suction cup to the screen.

Step 4 — 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.
- Slide the arms over either the left or right edge of your iPhone.
- Position the suction cups near the bottom edge of the iPhone—one on the front, and one on the back.
- Squeeze the cups together to apply suction to the desired area.
- ① If you find that the surface of your iPhone is too slippery for the Anti-Clamp to hold onto, you can [use tape](#) to create a grippier surface.

Step 5



- 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 6



- [Heat an iOpener](#) and thread it through the arms of the Anti-Clamp.
 - ① You can also use a [hair dryer](#), [heat gun](#), or hot plate—but extreme heat can damage the display and/or internal battery, so proceed with care.
- Fold the iOpener so it lays on the bottom edge of the iPhone.
- Wait one minute to give the adhesive a chance to release and present an opening gap.
- Insert an opening pick under the screen and the plastic bezel, **not the screen itself**.
 - ① If the Anti-Clamp doesn't create a sufficient gap, apply more heat to the area and rotate the handle a quarter turn.
- ⚠ Don't crank more than a quarter turn at a time, and wait one minute between turns. Let the Anti-Clamp and time do the work for you.
- **Skip the next three steps.**

Step 7 — Heat up the screen



- ① Heating the lower edge of the iPhone helps soften the adhesive securing the display, making it easier to open.
- Use a hairdryer or heat gun, or [prepare an iOpener](#) and apply it to the lower edge of the iPhone for about a minute in order to soften up the adhesive underneath.

Step 8



- If you're using a single suction handle, apply it to the bottom edge of the phone, while avoiding the curved portion of the glass.

Step 9 — Lift the display slightly



- Pull up on the suction cup with firm, constant pressure to create a slight gap between the front panel and rear case.
- Insert an opening pick under the [screen and the plastic bezel](#), **not the screen itself**.
- ⓘ The watertight adhesive holding the display in place is very strong; creating this initial gap takes a significant amount of force. If you're having a hard time opening a gap, apply more heat, and gently rock the screen up and down to weaken the adhesive until you create enough of a gap to insert your tool.

Step 10 — Separate the screen adhesive



- Slide the opening pick around the lower left corner and up the left edge of the iPhone, slicing through the adhesive holding the display in place.
- ⚠ Don't insert your pick more than 3 mm, as you may damage internal components.

Step 11 — Screen information



⚠ There are delicate cables along the right edge of your iPhone. **Don't insert your pick at the marked spots**, as you may damage the cables.

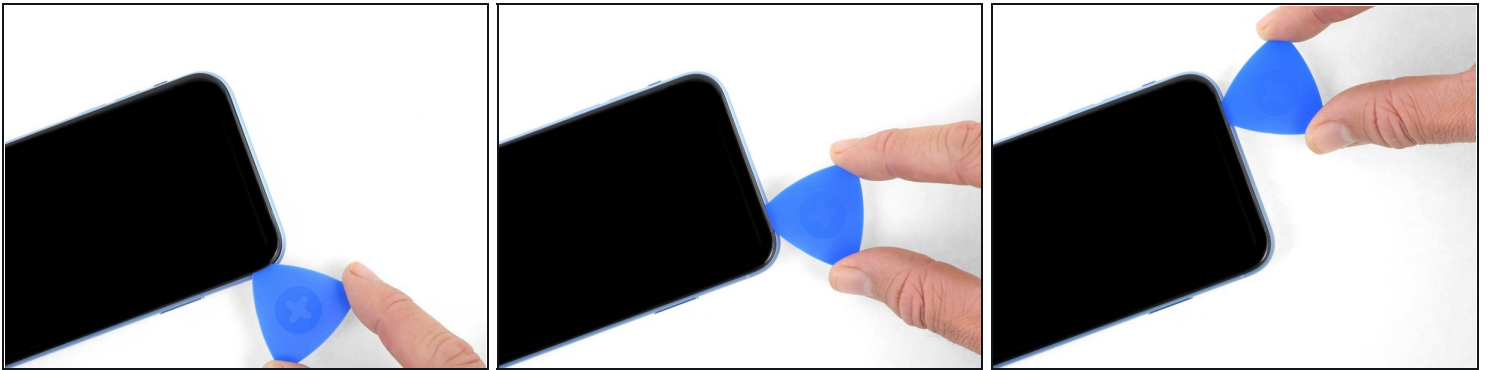
Step 12



- Re-insert your pick at the bottom edge of the iPhone, and slide it up the right side to continue separating the adhesive.

⚠ Don't insert your pick more than 3 mm, as you may damage the display cables.

Step 13



① The top edge of the display is secured with both glue and clips.

- Slide the opening pick around the top corner of the display, while gently pulling or wiggling the display **down** in the direction of the Lightning port.

⚠ The clips will break if you use too much force. Work carefully and be patient.

⚠ Don't insert your pick more than 3 mm, as you may damage the front panel sensor array.

- Slide the pick to the opposite corner and cut any remaining adhesive securing the display.

Step 14



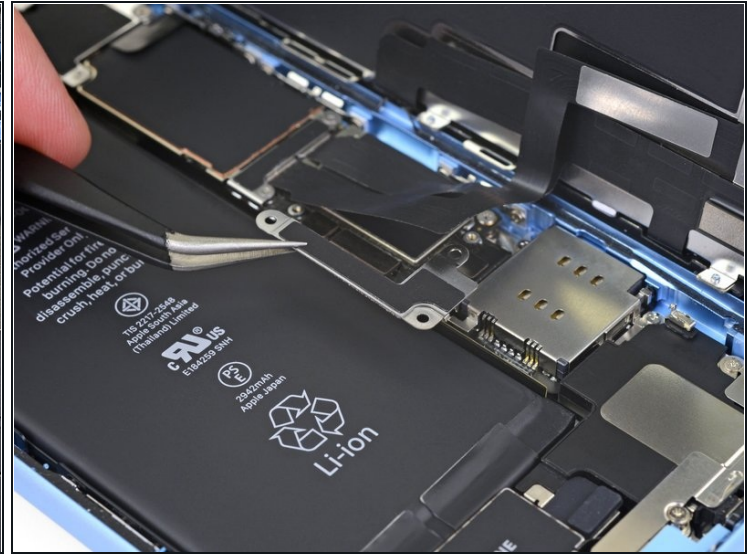
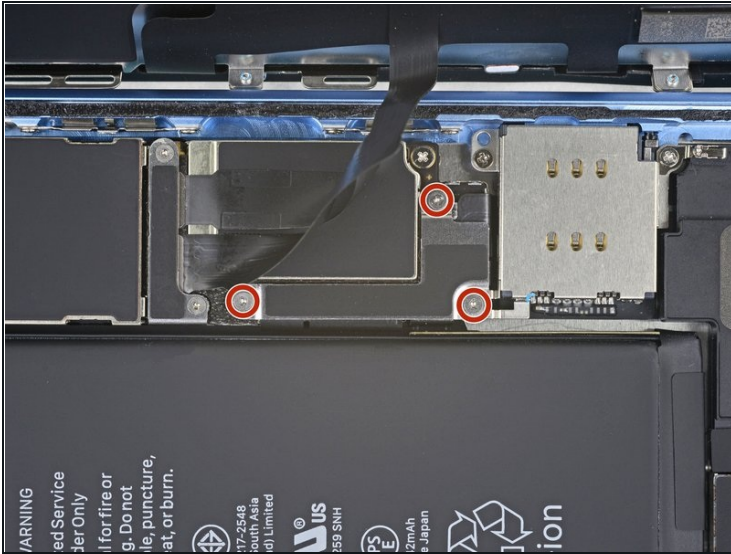
- Pull on the small nub on the suction cup to remove it from the front panel.

Step 15 — Open the iPhone



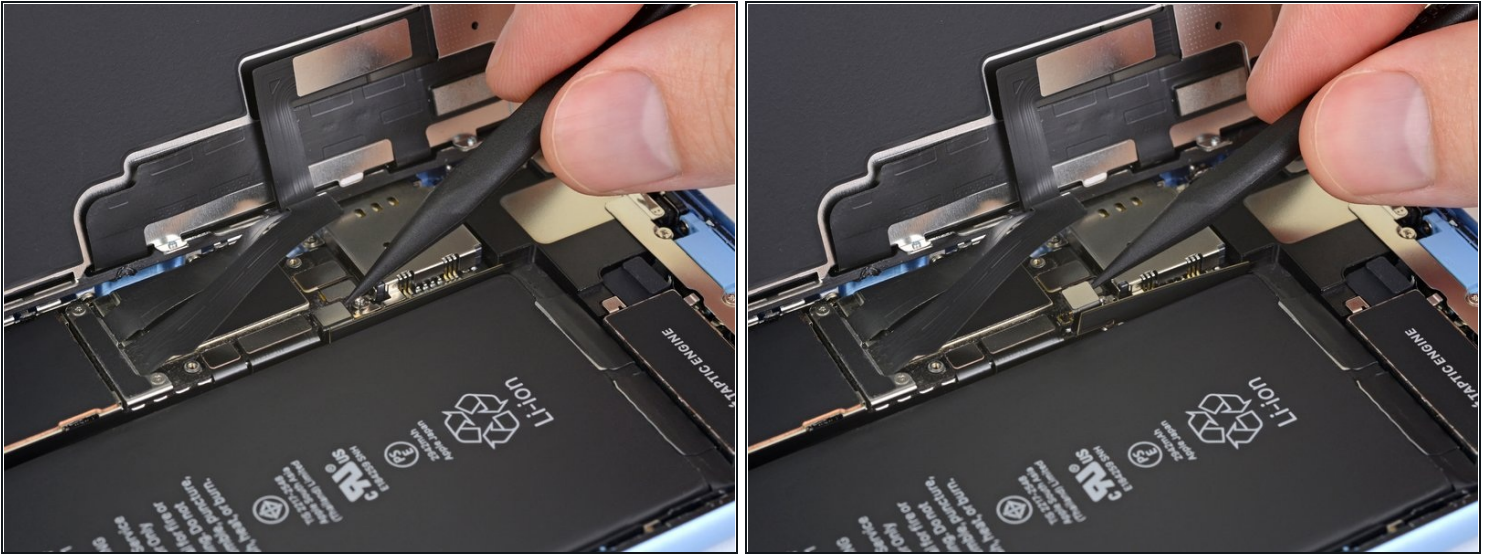
- Open the iPhone by swinging the display up from the left side, like the back cover of a book.
- ⚠ Don't try to fully separate the display yet, as several fragile ribbon cables still connect it to the iPhone's logic board.
- Lean the display against something to keep it propped up while you're working on the phone.
- ☑ During reassembly, lay the display in position, align the clips along the top edge, and carefully press the top edge into place before snapping the rest of the display down. If it doesn't click easily into place, check the condition of the clips around the perimeter of the display and make sure they aren't bent.

Step 16 — Unscrew the battery connector cover



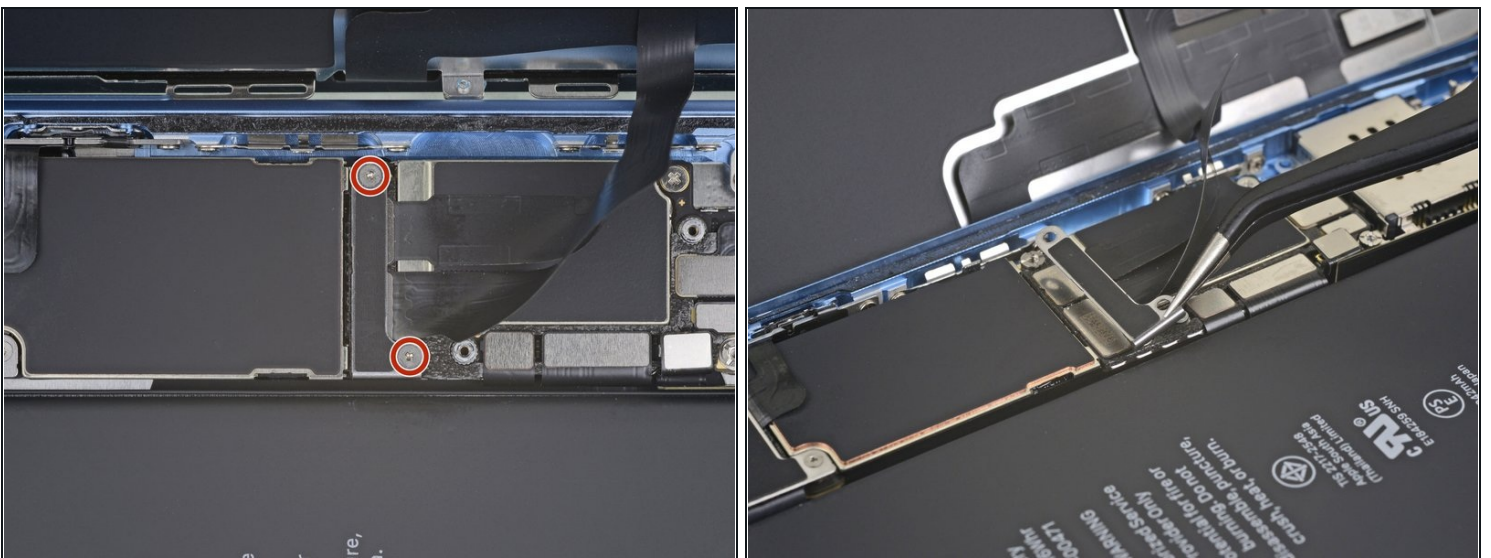
- Remove three 1.2 mm Y000 screws securing the battery connector cover bracket.
- Remove the bracket.
- ⓘ Throughout this repair, [keep track of each screw](#) and make sure it goes back exactly where it came from to avoid damaging your iPhone.
- ☑ During reassembly, this is a good point to power on your iPhone and test all functions before you seal the display in place. Be sure to power your iPhone back down completely before you continue working.

Step 17 — Disconnect the battery



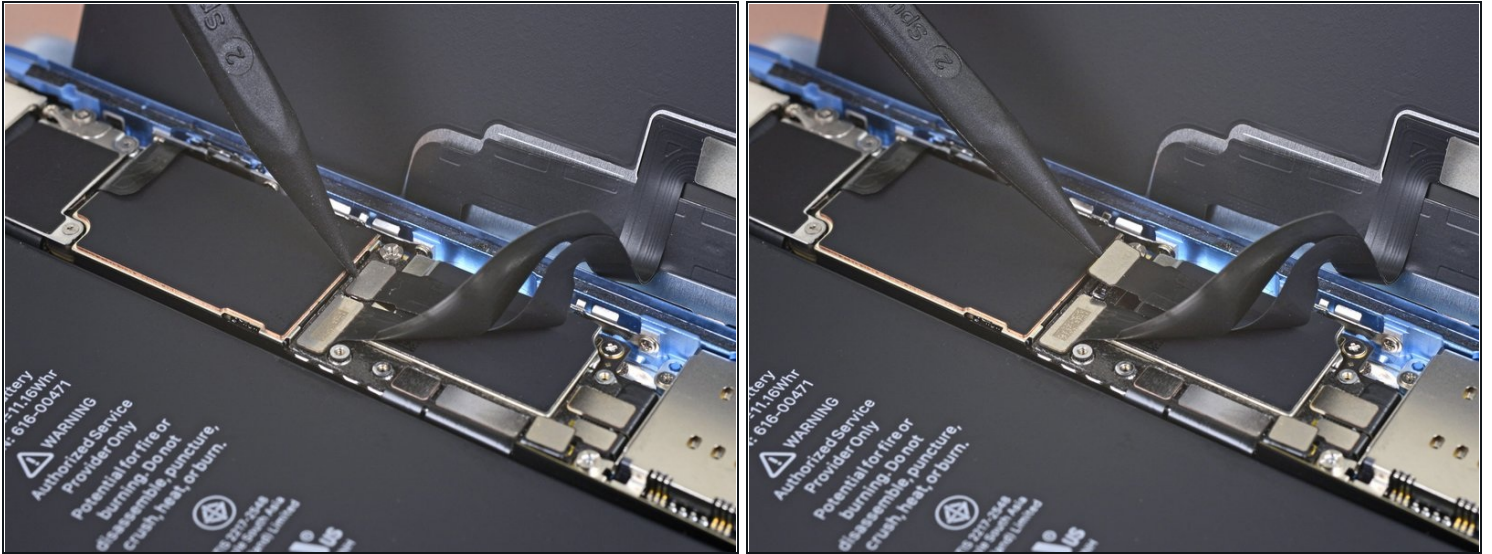
- Use the point of a spudger to pry the battery connector straight up out of its socket.
 - ① Try not to damage the black silicone seal surrounding this and other board connections. These seals provide extra protection against water and dust intrusion.
- Bend the connector slightly away from the logic board to prevent it from accidentally making contact with the socket and providing power to the phone during your repair.

Step 18 — Unscrew the display connector cover



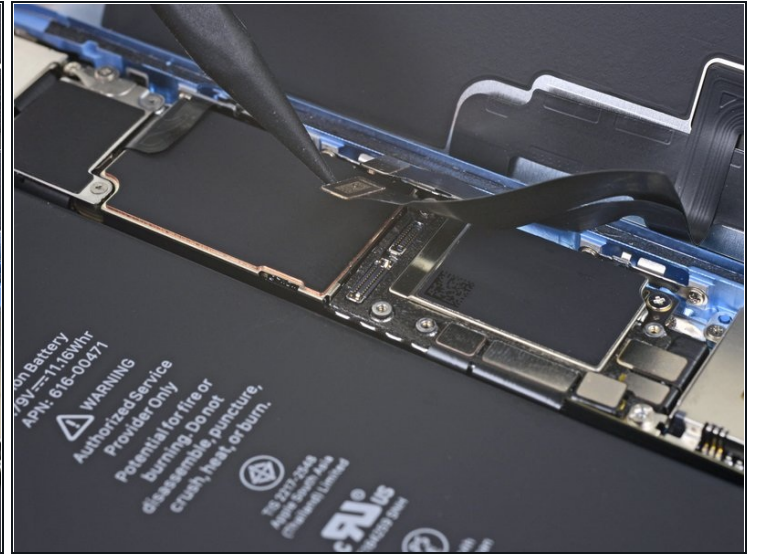
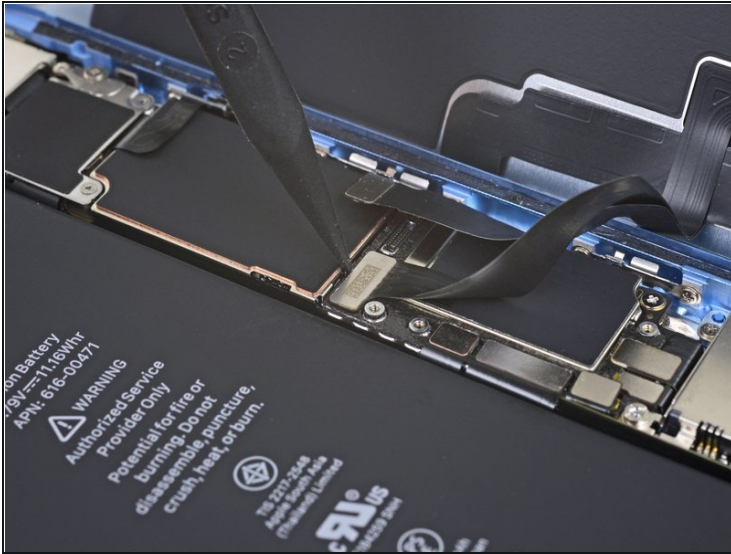
- Remove the two 1.2 mm Y000 screws securing the display connector bracket.
- Remove the bracket.

Step 19 — Disconnect the digitizer



- Use the tip of a spudger to pry up and disconnect the digitizer cable.
- ☑ To re-attach [press connectors](#) like this one, carefully align and press down on one side until it clicks into place, then repeat on the other side. Do not press down on the middle. If the connector is misaligned, the pins can bend, causing permanent damage.
- ☑ If any part of your screen doesn't respond to touch after your repair, disconnect the battery and then re-seat this connector, making sure it clicks fully into place and that there's no dust or other obstruction in the socket.

Step 20 — Disconnect the display



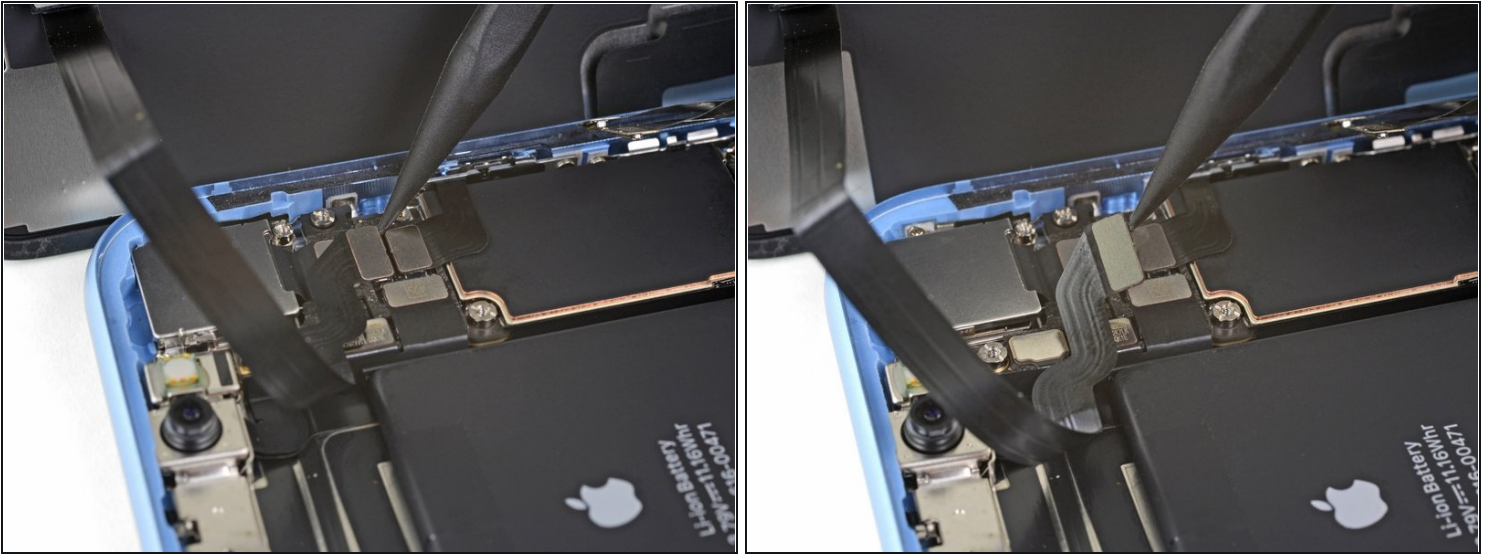
- Use the tip of a spudger to disconnect the display cable connector.

Step 21 — Unscrew the logic board connector cover



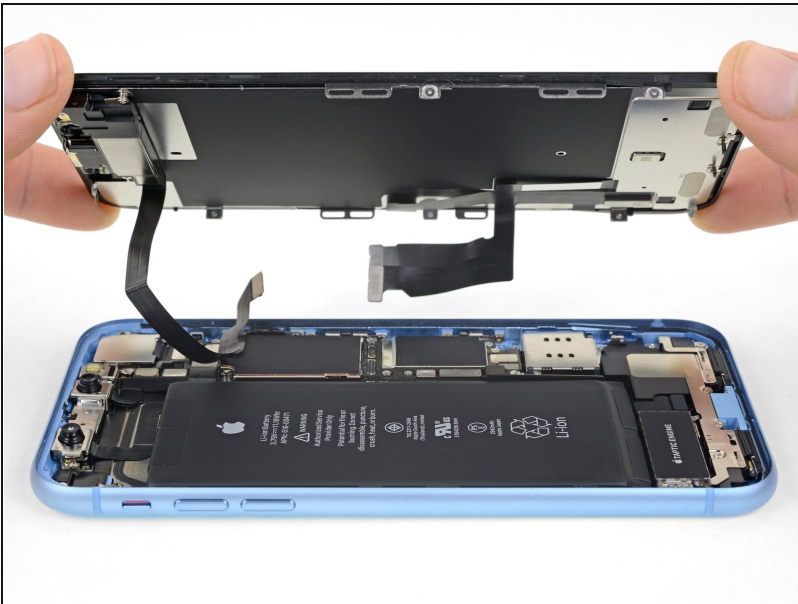
- Remove the five screws securing the logic board connector bracket to the rear case:
 - One 1.3 mm Phillips #000 screw
 - One 1.5 mm Phillips #000 screw
 - Three 1.2 mm Y000 screws
- Remove the bracket.
 - ⓘ Be careful not to lose the [smaller bracket](#) clipped onto the edge. It's secured with a [small clip](#) and is easy to accidentally knock off of the larger bracket.

Step 22 — Disconnect the front sensors



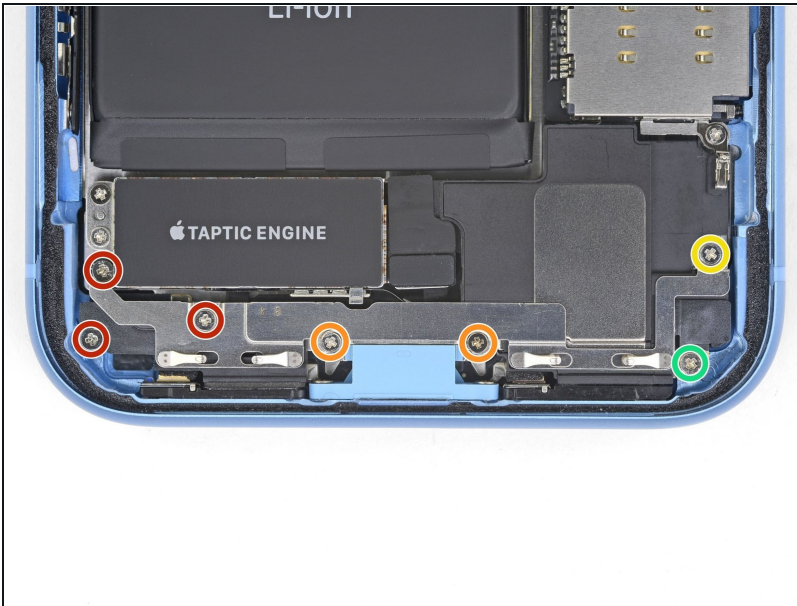
- Use the tip of a spudger to pry the front sensor assembly connector up from its socket.

Step 23 — Remove the display assembly



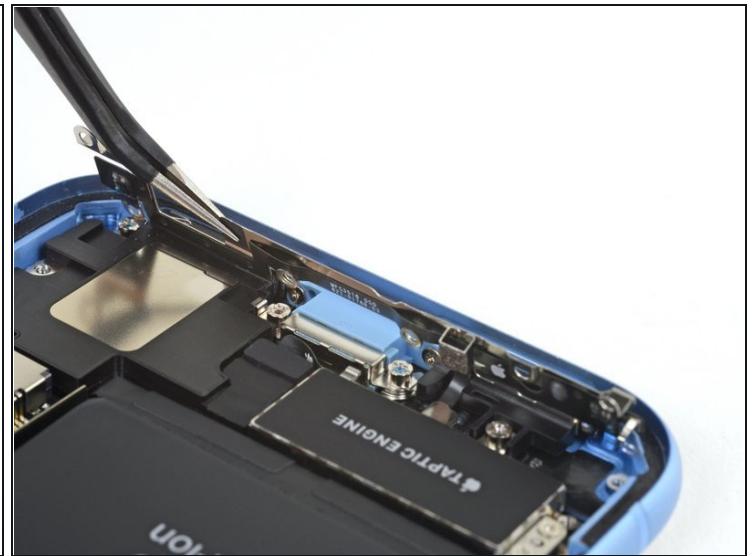
- Remove the display assembly.
- ☑ During reassembly, pause here if you wish to [replace the waterproof adhesive around the edges of the display.](#)

Step 24 — Lower Speaker



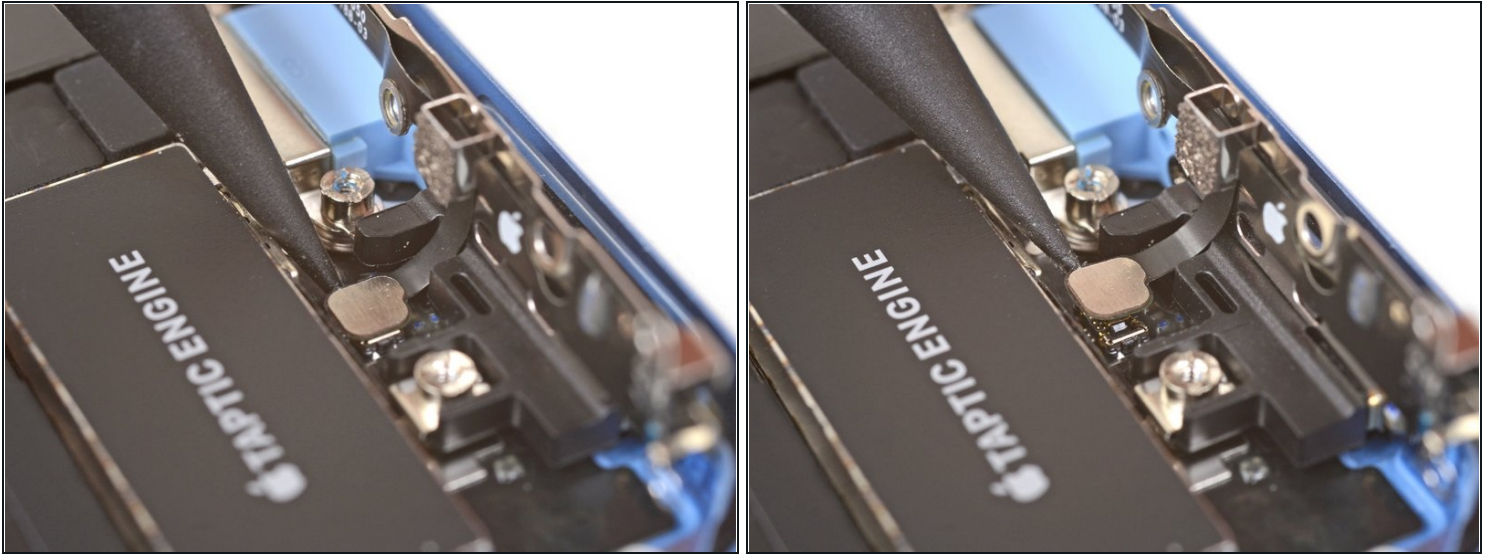
- Remove the seven screws securing the bracket below the Taptic engine and speaker:
 - Three Phillips 1.4 mm screws
 - Two Phillips 1.7 mm screws
 - One Phillips 1.9 mm screw
 - One Phillips 1.6 mm screw

Step 25



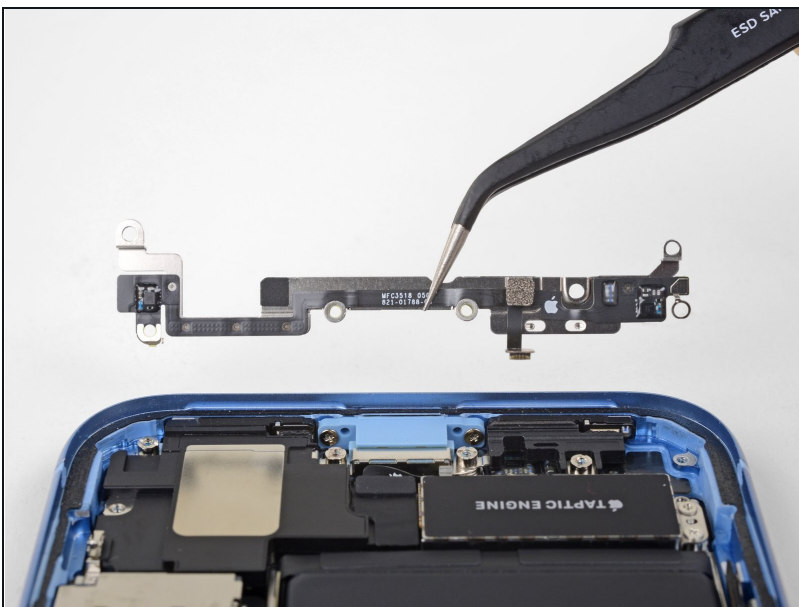
- Lift the bracket from the edge nearest the battery. Don't try to fully remove it, as it's still connected via a small flex cable.

Step 26



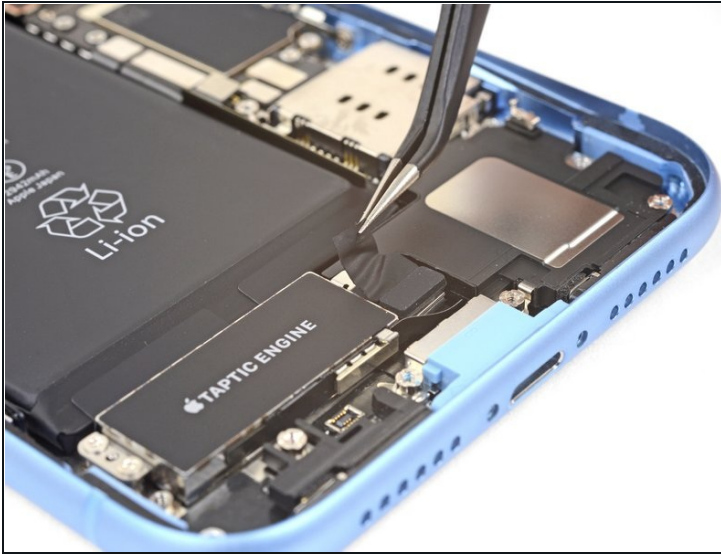
- While holding the bracket out of the way, use the point of a spudger to pry up and disconnect the flex cable underneath.

Step 27



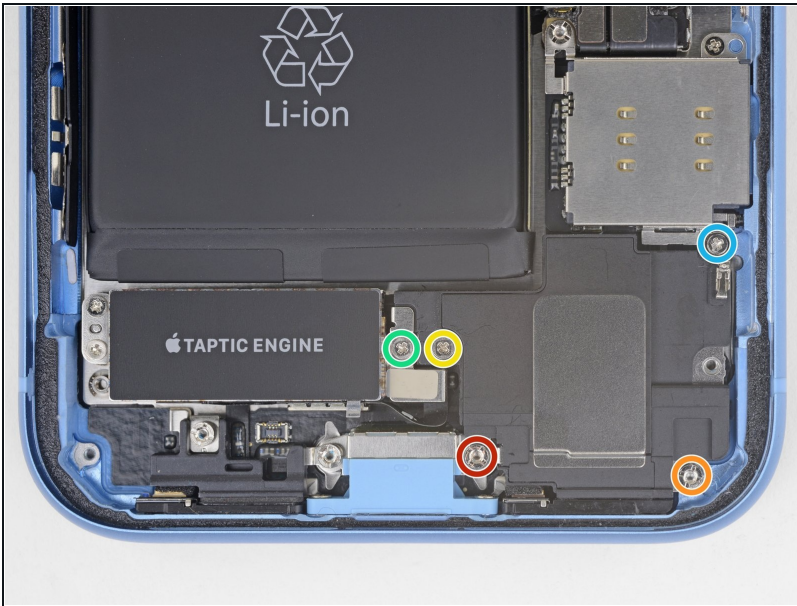
- Remove the bracket.

Step 28



- Remove the piece of black tape and the small rubber rectangle covering the Taptic Engine connector cover.

Step 29



- Remove the five screws securing the lower speaker:
 - One 2.8 mm standoff screw
 - ⓘ Standoff screws are best removed using a dedicated [standoff driver](#) or driver bit.

⚠ In a pinch, a small flathead screwdriver will do the job—but use extra caution to ensure it doesn't slip and damage surrounding components.

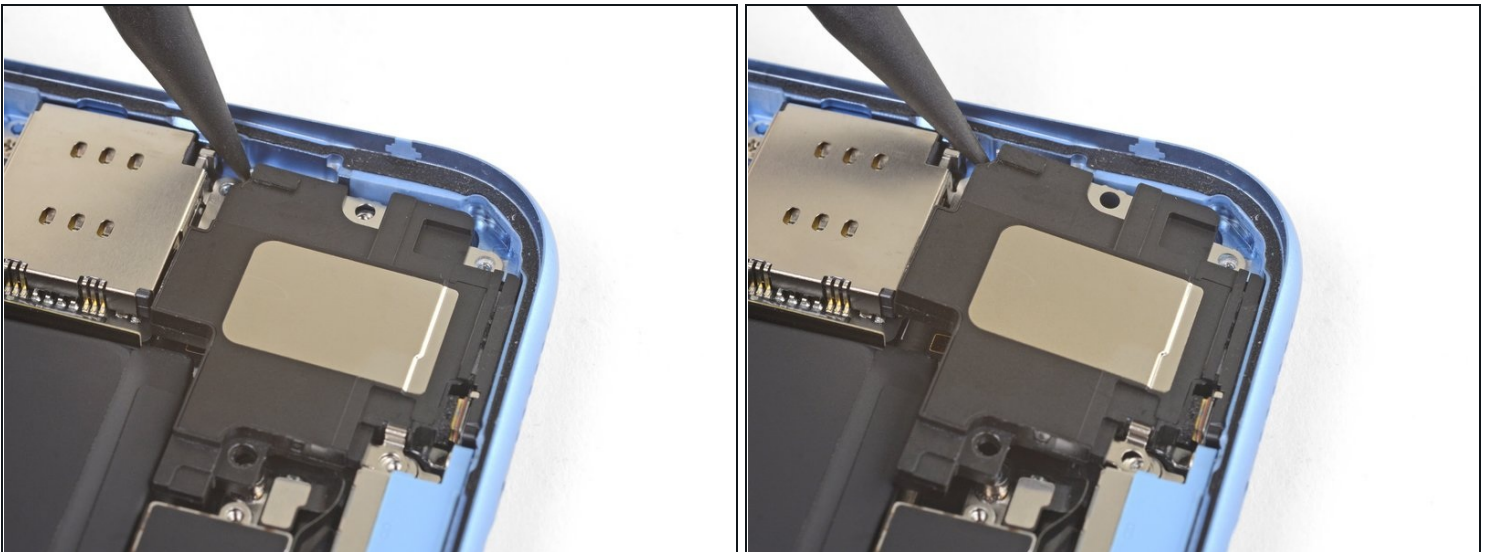
- One 2.3 mm standoff screw
- One 2.3 mm Phillips screw
- One 1.8 mm Phillips screw
- One 1.6 mm Phillips screw

Step 30



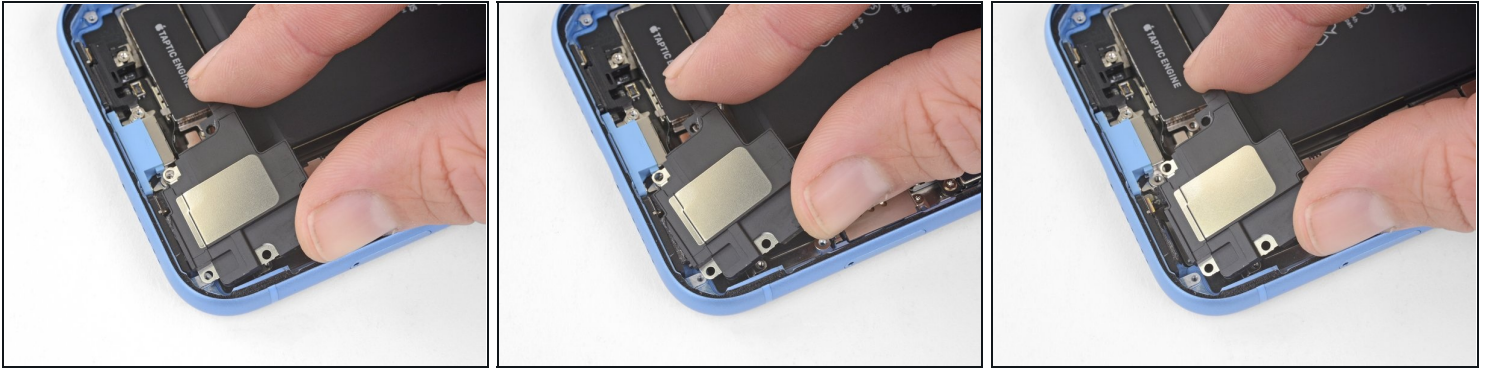
- Remove the small bracket on the top right corner of the speaker.
- Remove the Taptic Engine connector cover.

Step 31



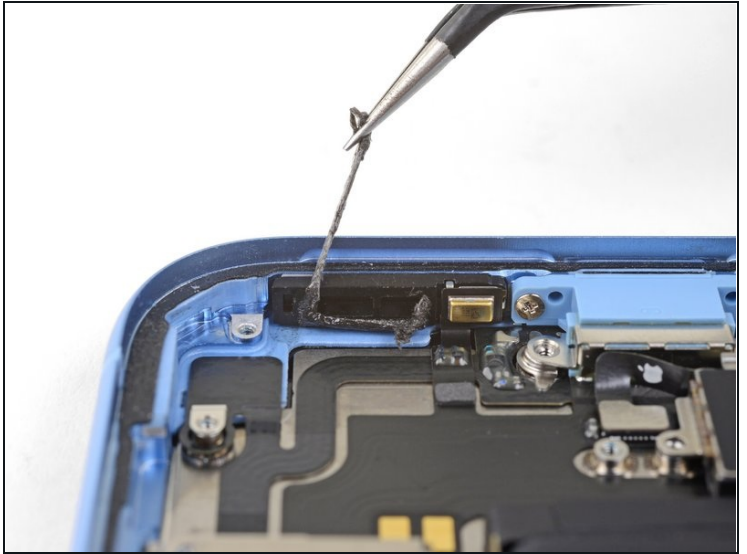
- Insert a spudger under the top edge of the speaker near the edge of the iPhone's case.
- Gently pry up and lift the top edge of the speaker.

Step 32



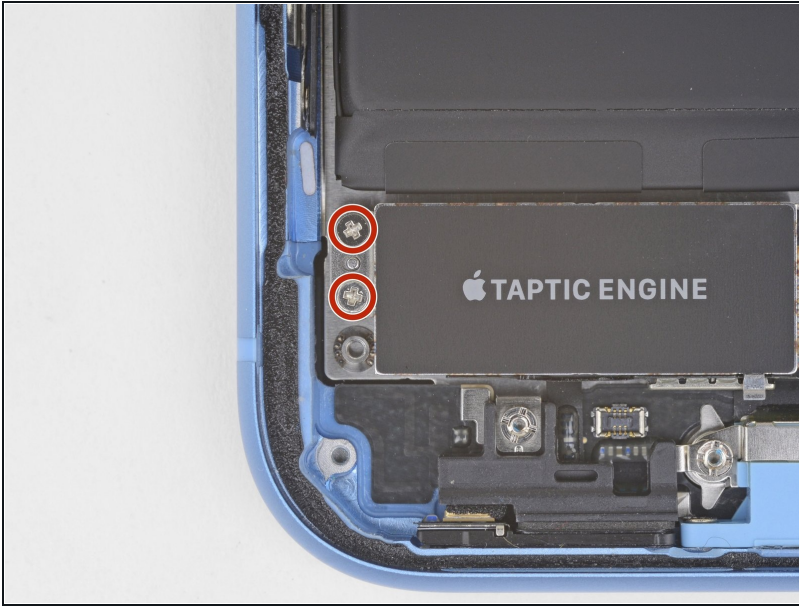
- Hold the speaker by its side edges and rock it side-to-side, separating the adhesive securing it to the bottom edge of the iPhone.
- Pull the speaker away from the bottom edge of the iPhone until the adhesive gasket separates.

Step 33



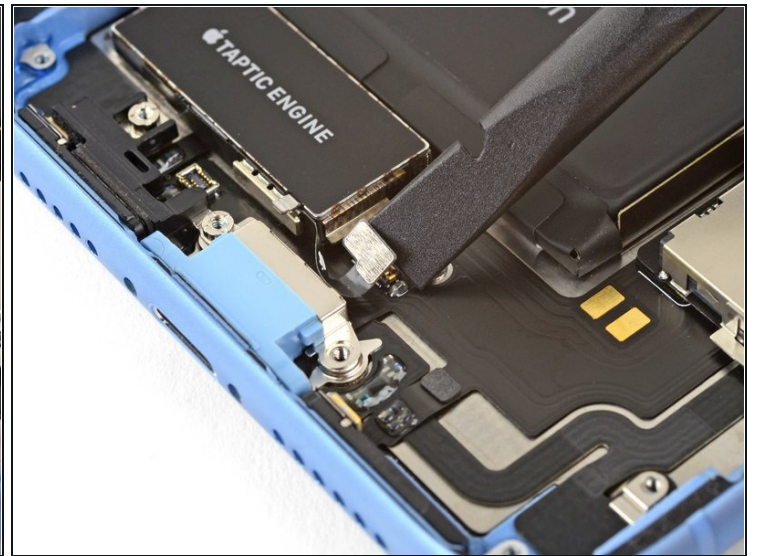
- Remove the speaker.
- ☑ The speaker's adhesive gasket is not reusable. Peel away any remaining adhesive residue with [tweezers](#).
- ☑ To help protect against water and dust intrusion, replace the adhesive gasket during reassembly. Prep the area by cleaning it with a bit of isopropyl alcohol and a lint-free cloth or coffee filter so that the gasket adheres properly. Install a new gasket onto the speaker, and then install the speaker.

Step 34 — Taptic Engine



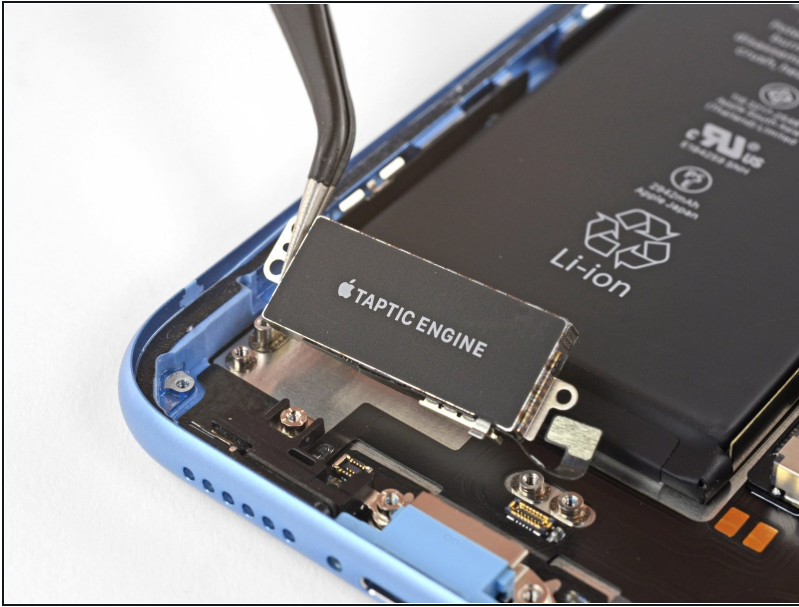
- Remove the two 1.8 mm Phillips screws securing the Taptic Engine.

Step 35



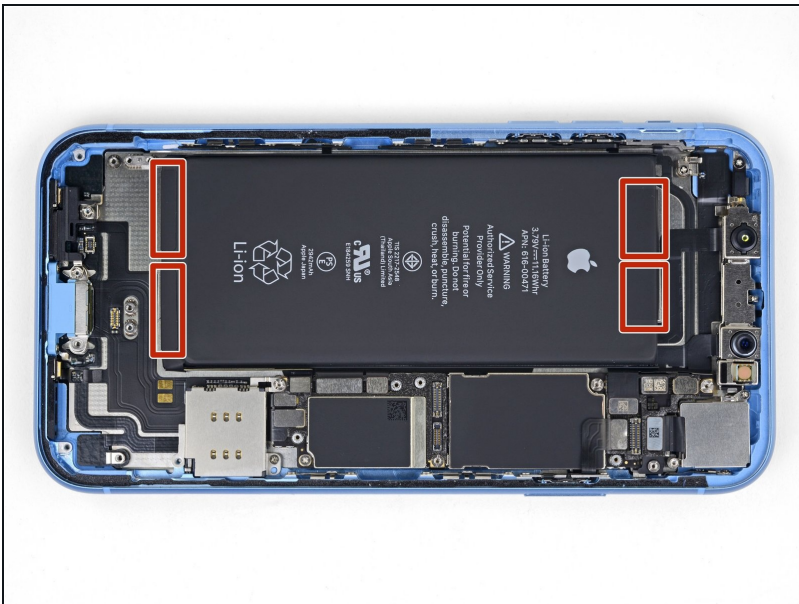
- Use a spudger to disconnect the Taptic Engine flex cable by prying it straight up from its socket.

Step 36



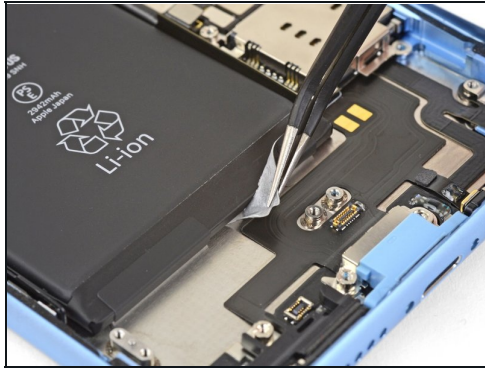
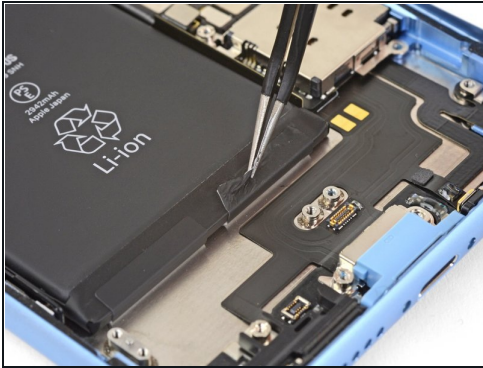
- Remove the Taptic Engine.

Step 37 — Battery



- ① The iPhone XR's battery is secured to the rear case by four pieces of stretch-release adhesive—two on either end of the battery.
- Each piece of adhesive has a black pull-tab at the end, which is lightly adhered to the side edge of the battery.

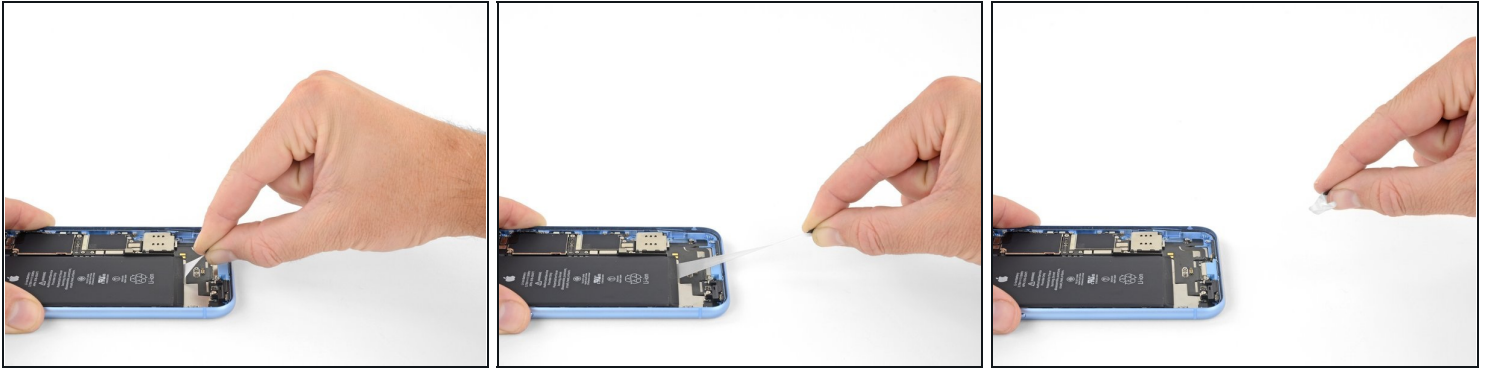
Step 38



- Peel back the first battery adhesive tab from the bottom right edge of the battery.

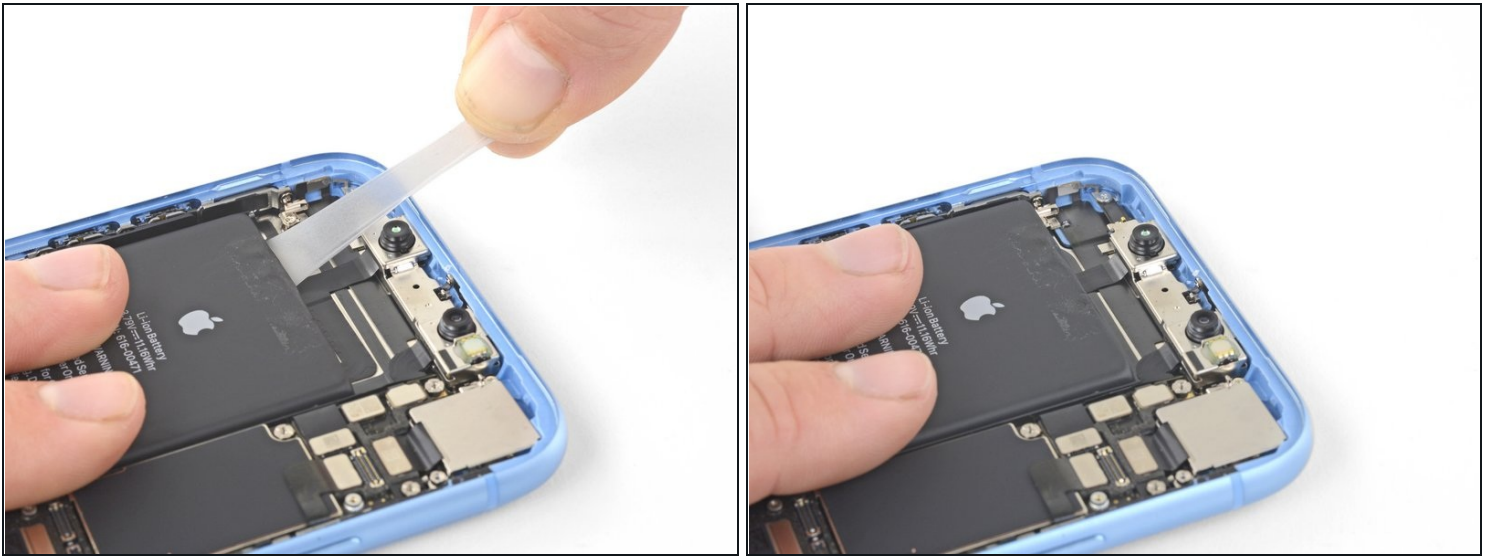
⚠ Be careful not to jab the battery with any sharp tools. A punctured battery may leak dangerous chemicals or catch fire.

Step 39



- ⚠ Try to keep the adhesive strips flat and unwrinkled during this procedure; twisted or wrinkled strips will stick together and break instead of pulling out cleanly.
- ⚠ Additionally, do not press down on the battery as you pull the strips. Pressing on the battery creates pressure points that can snag and break the adhesive.
- **Slowly** pull one battery adhesive tab away from the battery, towards the bottom of the iPhone.
- Pull steadily, maintaining constant tension on the strip until it slips out from between the battery and the rear case. For best results, **pull the strip at as low an angle as possible**, without snagging it on any of the iPhone's other components.
 - ① The strip will stretch to many times its original length. Continue pulling and re-grab the strip near the battery if necessary.
- If the battery adhesive tabs break during the removal process, use your fingers or blunt [tweezers](#) to retrieve the remaining length of adhesive, and continue pulling.
- ⚠ If any of the adhesive strips break underneath the battery and cannot be retrieved, try to remove the remaining strips, and then proceed as instructed below.

Step 40



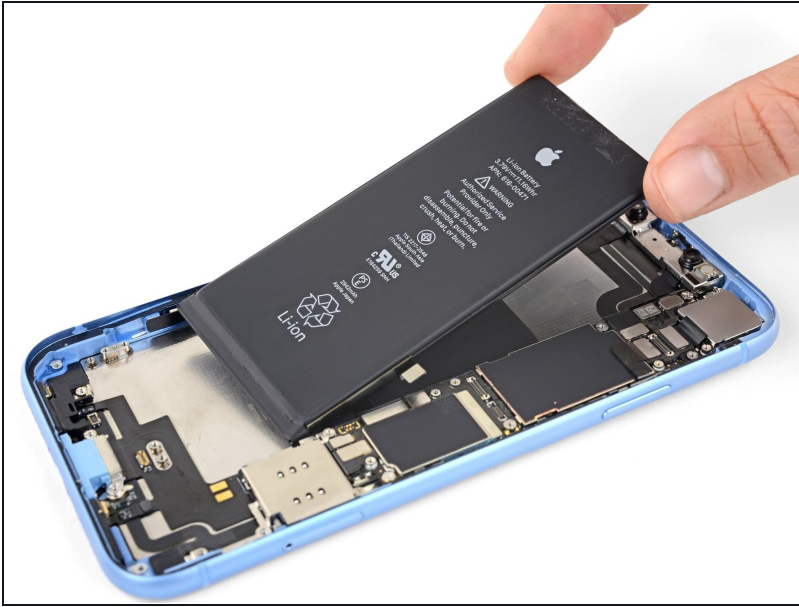
- Repeat the above steps to remove the remaining three adhesive strips.
 - ⚠ Be sure to hold onto the battery as you remove the final strip, or it may fling out of the iPhone unexpectedly.
- If you removed all of the adhesive strips successfully, skip the next step.
- ① If the adhesive breaks off underneath the battery and can't be retrieved, apply a few drops of high concentration (over 90%) isopropyl alcohol under the edge of the battery in the area of the broken adhesive strip(s).
 - Wait about one minute for the alcohol solution to weaken the adhesive. Use the flat end of a spudger to gently lift the battery.
 - ⚠ Don't try to forcefully lever the battery out. If needed, apply a few more drops of alcohol to further weaken the adhesive. Never deform or puncture the battery with your pry tool.
 - ⚠ Be careful not to damage the ribbon cables or the wireless charging coil directly underneath the battery.
- ① For an alternative method to unstick the battery, **continue with the next step below.**

Step 41 — Alternative method to unstick the battery from the case



- If any of the adhesive strips broke off and the battery remains stuck to the rear case, [prepare an iOpener](#) or use a hair dryer to heat the rear case directly behind the battery. This will help soften the adhesive.
⚠ Heat the iPhone until the rear case is slightly too hot to comfortably touch. Don't overheat the iPhone, or you may accidentally ignite the battery.
- Flip the iPhone back over and thread a strong piece of string (such as dental floss or a length of thin guitar string) underneath the battery.
 - ⓘ Wrap the ends of the string around a cloth (or wear gloves) to protect your fingers.
- Pull the string from side to side in a sawing motion all along the length of the battery to separate the adhesive. This can take some time since the adhesive is slow to deform, but with patience it will come free. **Do not deform or damage the battery.**
- ⚠ If you choose to use pry tools to lift the battery out of the iPhone, use extreme caution or you may damage the ribbon cables or the wireless charging coil directly underneath the battery.**

Step 42



- Remove the battery from the iPhone.
- ☑ If there's any alcohol solution remaining in the phone, carefully wipe it off or allow it to air dry before installing your new battery.
- ☑ Reinstall the Taptic Engine and speaker before installing a new battery. This helps keep the battery aligned correctly during installation.
- ☑ Before you adhere the replacement battery, temporarily reconnect the battery connector to the motherboard socket. This ensures that the battery is properly aligned in its recess.
 - Adhere the battery, disconnect it, and continue reassembling your device.
- ☑ If your new battery doesn't have adhesive preinstalled, refer to [this guide](#) to replace the adhesive strips.
- ☑ Perform a [force restart](#) after reassembly. This can prevent several issues and simplify troubleshooting.

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.