



iPhone XR Taptic Engine Replacement

Replace the Taptic Engine (Apple's high-tech vibration motor) in the iPhone XR.

Written By: Adam O'Camb



INTRODUCTION

The Taptic Engine produces your iPhone's vibration and haptic feedback functions. Follow this guide to remove and/or replace the Taptic Engine in an iPhone XR.

This guide instructs you to fully remove the display assembly; this is intended to prevent accidental strain or damage to the display cables while you work. If you feel comfortable removing the Taptic Engine without endangering the display cables, you can skip the steps for disconnecting the display cables.



TOOLS:

- [P2 Pentalobe Screwdriver iPhone](#) (1)
- [iOpener](#) (1)
- [iFixit Opening Picks set of 6](#) (1)
- [Suction Handle](#) (1)
- [iSlack](#) (1)
- [Tri-point Y000 Screwdriver Bit](#) (1)
- [Phillips PH000 Screwdriver](#) (1)
- [Spudger](#) (1)
- [Tweezers](#) (1)






PARTS:

- [iPhone XR Vibrator](#) (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 — Heat up the screen



- ⓘ 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 3 — Apply suction cup(s)



- ❗ The next two steps demonstrate the iSlack, a handy tool that we recommend for anyone doing frequent repairs. **If you aren't using the iSlack, skip down two steps for an alternate method.**
- If the plastic depth gauge is attached at the center of the iSlack, remove it now—it's not needed for larger phones like the iPhone XR.
- Position the suction cups near the bottom edge of the iPhone—one on the front, and one on the back.
- Press both suction cups firmly into place.
- ❗ If your display or back glass is badly cracked, [covering it with a layer of clear packing tape](#) may help the suction cups adhere. The iSlack also includes two pieces of tape for this purpose.

Step 4



- Hold onto your iPhone securely and close the handle of the iSclack to slightly separate the screen from the rear case of the phone.
 - ⚠ Don't try to completely separate the screen; a small opening along the bottom edge is all you need.
- Insert an opening pick into the gap under the display on the lower edge of the iPhone.
- **Skip the next two steps and continue to step 8.**

Step 5



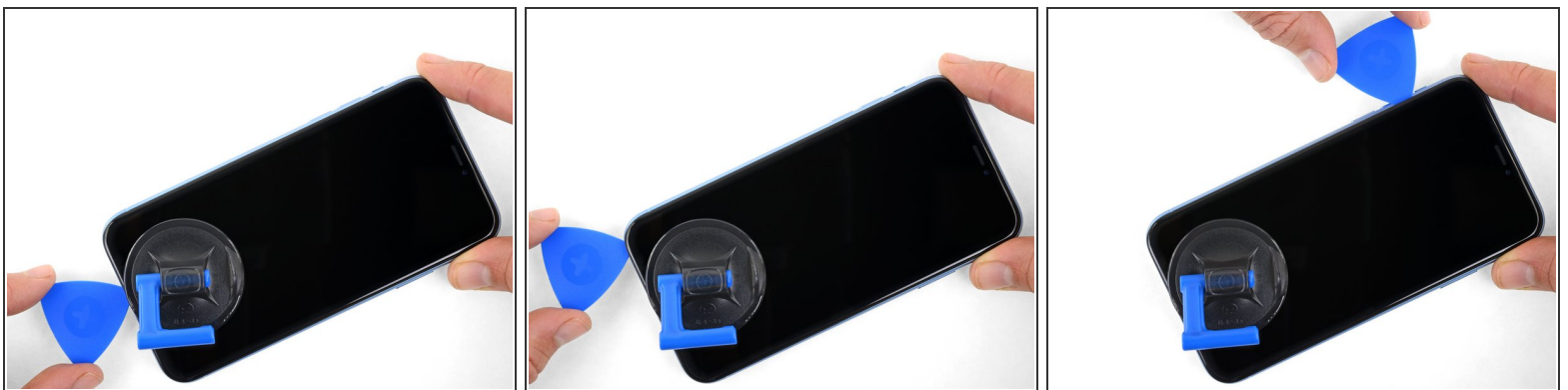
- If you're using a single suction handle, apply it to the bottom edge of the phone, while avoiding the curved portion of the glass.
- ⓘ If your display is badly cracked, [covering it with a layer of clear packing tape](#) may allow the suction cup to adhere. Alternatively, very strong tape may be used *instead of* the suction cup. If all else fails, you can superglue the suction cup to the broken screen.

Step 6 — 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 into the gap.
- i** 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 7 — 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 the opening pick too far into the iPhone, or you may cause damage to internal components.

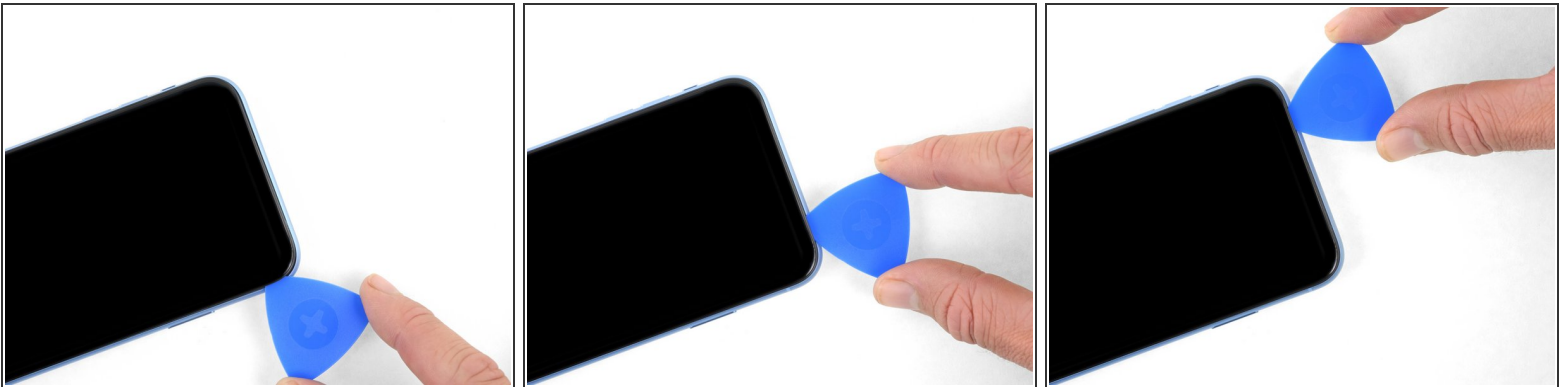
Step 8




- 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 the pick very far, or you may damage the display cables along this side of the iPhone. Insert it only a few millimeters, or about the width of the display bezel.


Step 9



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

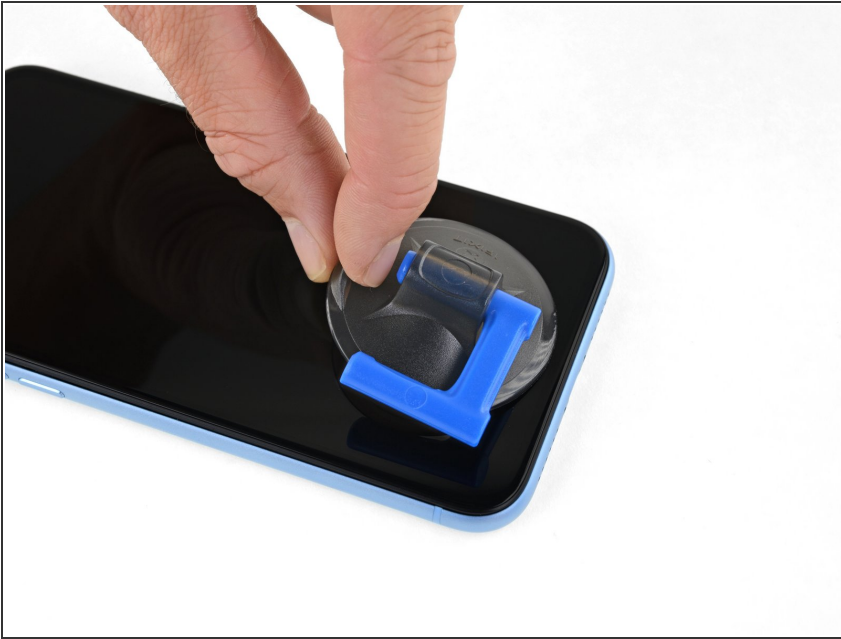
- Slide the opening pick around the top corner of the display, while gently pulling or wiggling the display **down** in the direction of the Lightning port.

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

 Again, don't insert the pick more than a few millimeters—about the width of the display bezel—or you may damage the front panel sensor array.

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

Step 10




- Pull on the small nub on the suction cup to remove it from the front panel.
- If you used an iSlack and it's still affixed to the iPhone, remove it now.


Step 11 — Open the iPhone



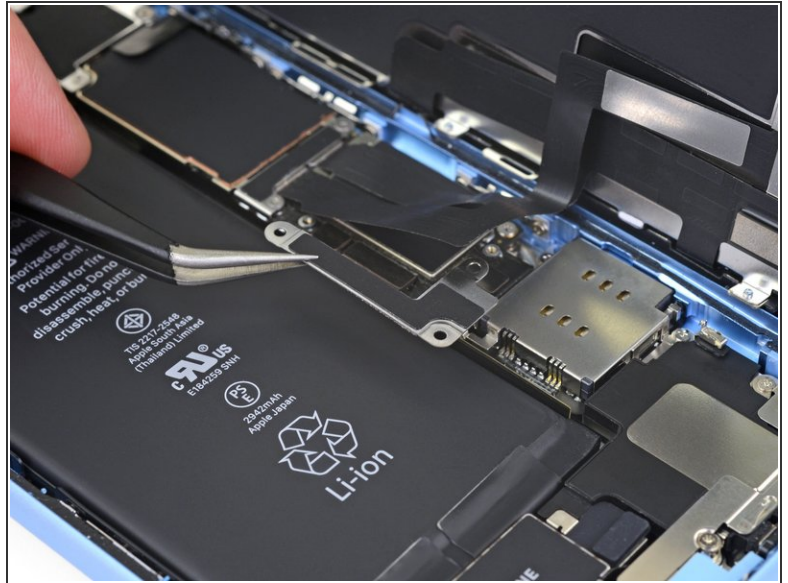
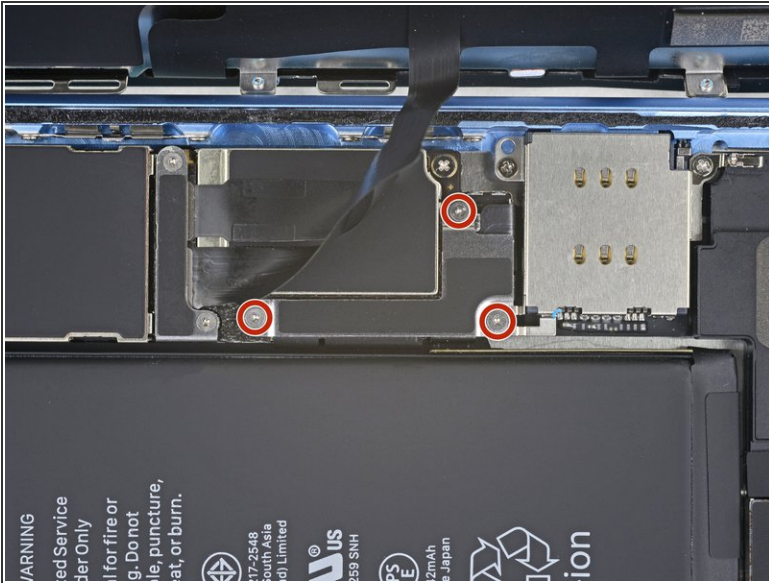
- Open the iPhone by swinging the display up from the left side, like the back cover of a book.

 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.

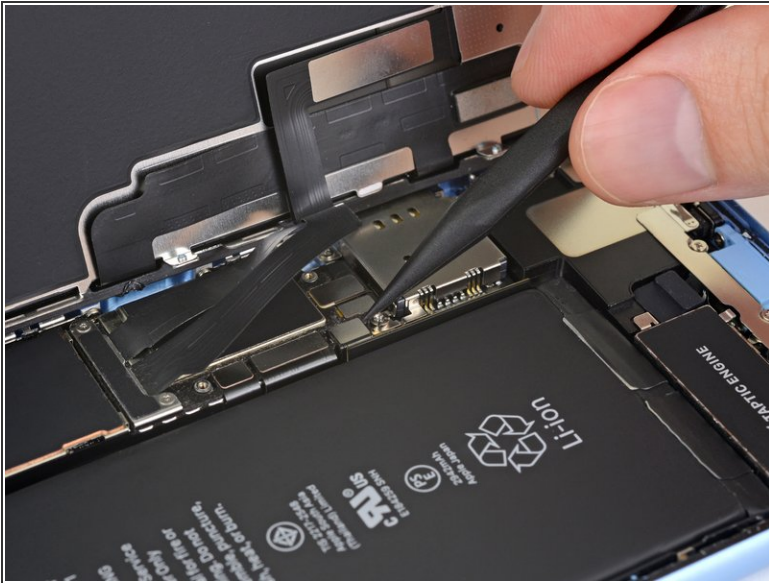
 During reassembly, lay the display in position, align the clips along the top edge, and carefully press the top edge into place before snapping the rest of the display down. If it doesn't click easily into place, check the condition of the clips around the perimeter of the display and make sure they aren't bent.

Step 12 — Unscrew the battery connector cover



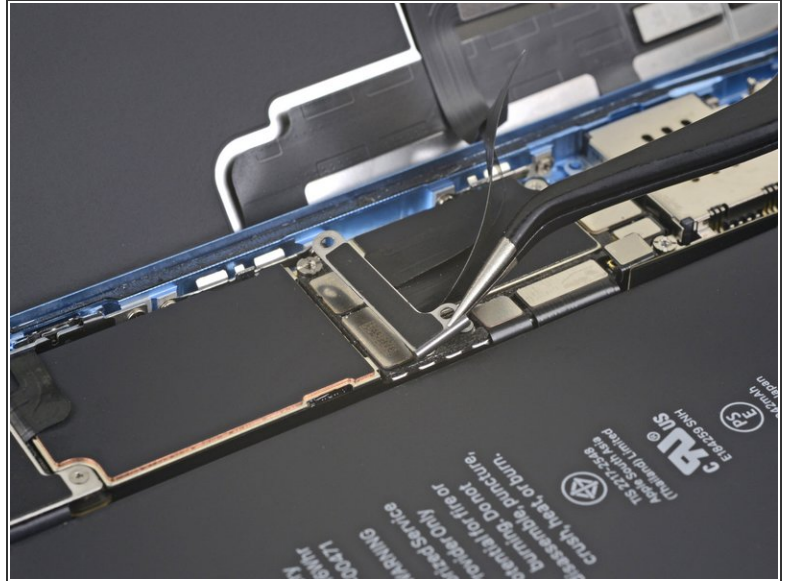
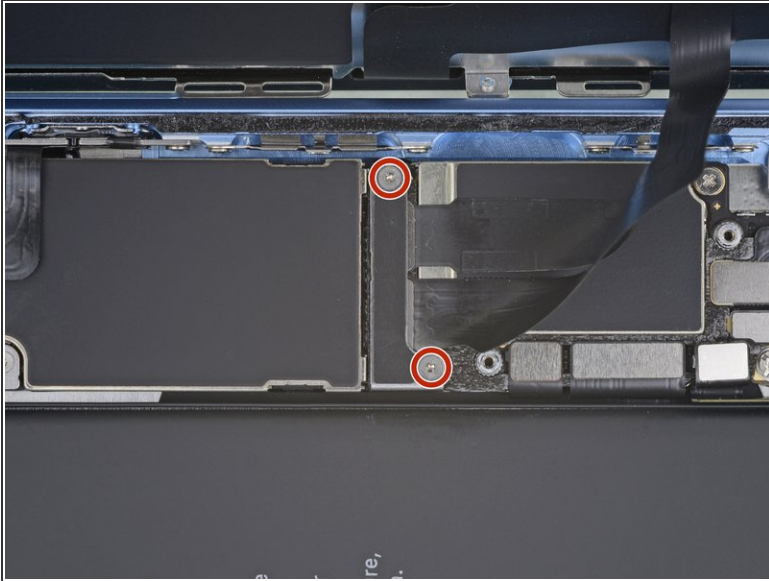
- Remove three 1.2 mm Y000 screws securing the battery connector cover bracket.
- Remove the bracket.
- ⓘ Throughout this repair, [keep track of each screw](#) and make sure it goes back exactly where it came from to avoid damaging your iPhone.
- ☑ During reassembly, this is a good point to power on 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 13 — Disconnect the battery



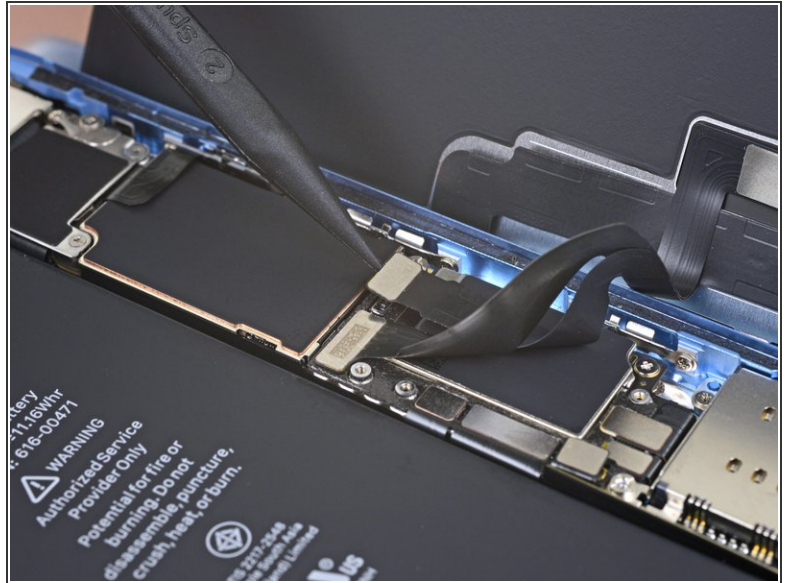
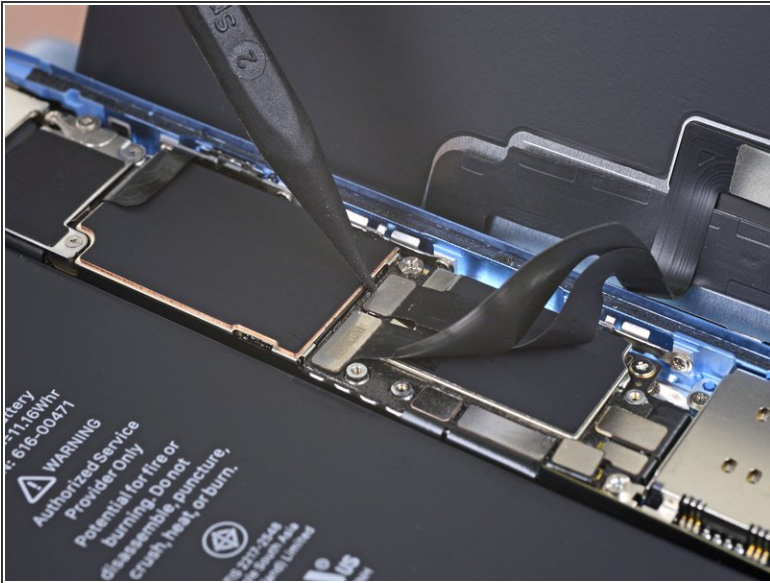
- Use the point of a spudger to pry the battery connector straight up out of its socket.
 - ⓘ Try not to damage the black silicone seal surrounding this and other board connections. These seals provide extra protection against water and dust intrusion.
- Bend the connector slightly away from the logic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

Step 14 — Unscrew the display connector cover



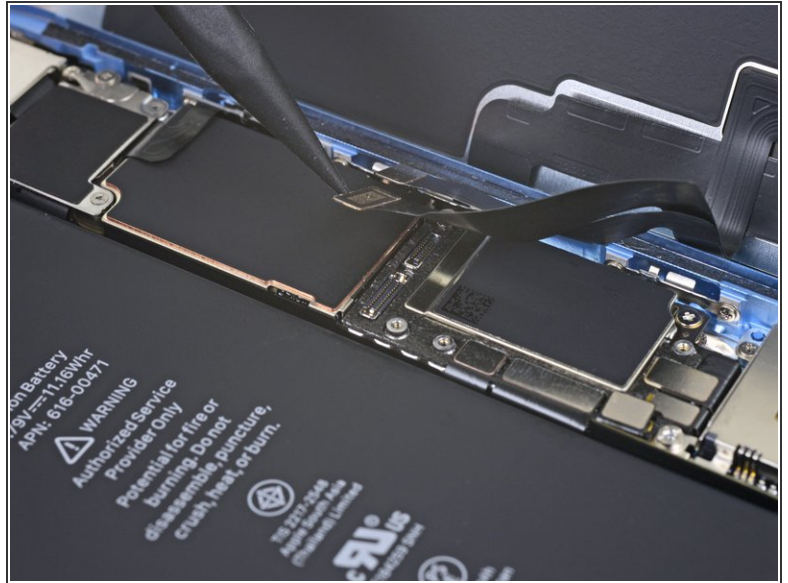
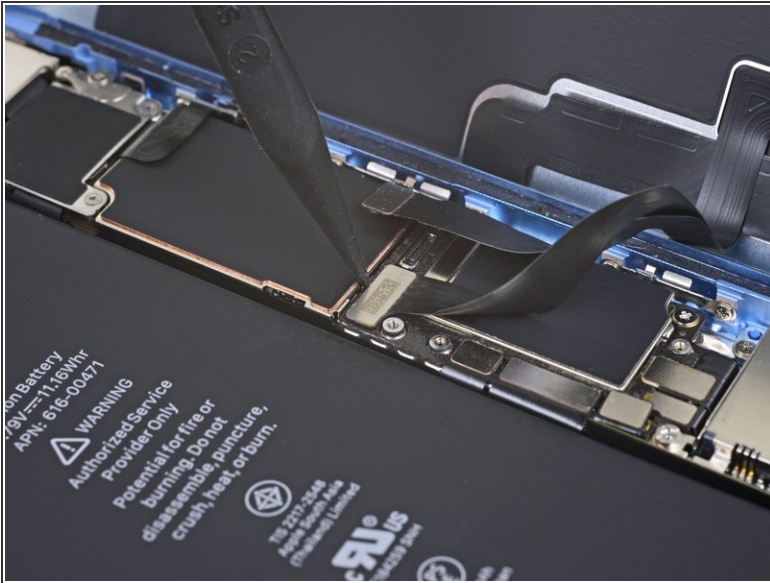
- Remove the two 1.2 mm Y000 screws securing the display connector bracket.
- Remove the bracket.

Step 15 — Disconnect the digitizer



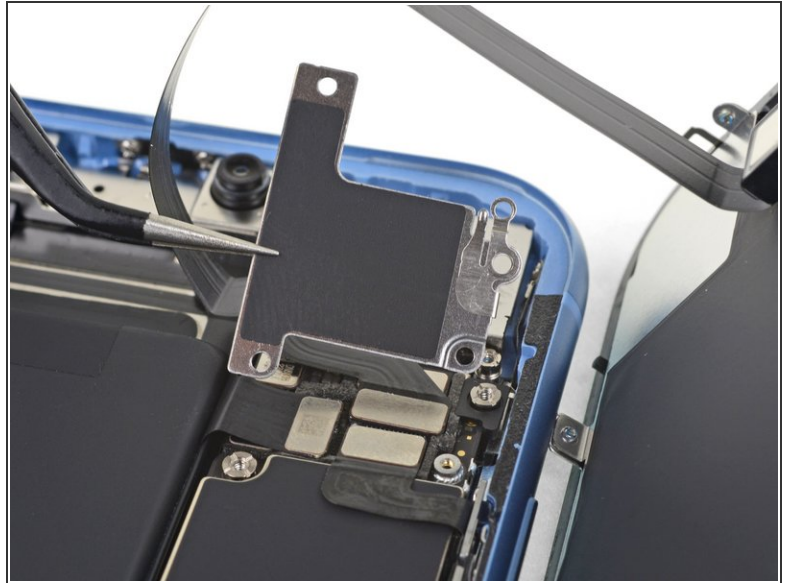
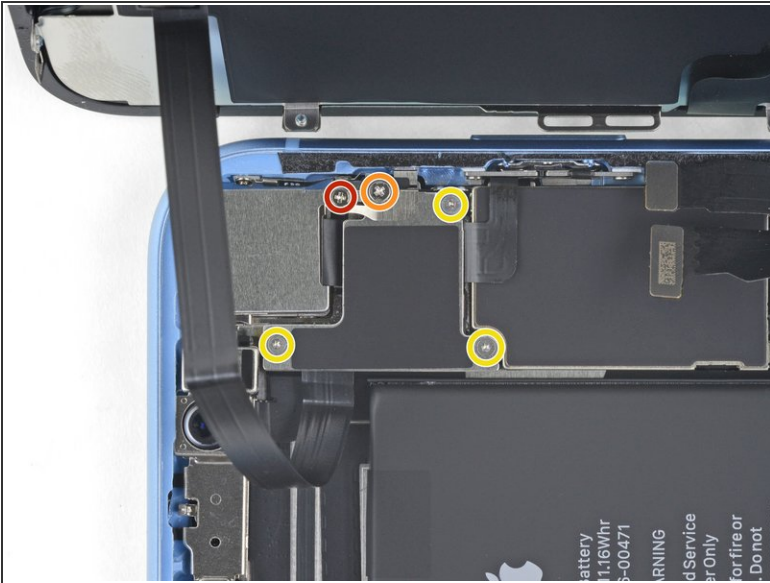
- Use the tip of a spudger to pry up and disconnect the digitizer cable.
- ✦ To re-attach [press connectors](#) like this one, carefully align and press down on one side until it clicks into place, then repeat on the other side. Do not press down on the middle. If the connector is misaligned, the pins 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 16 — Disconnect the display



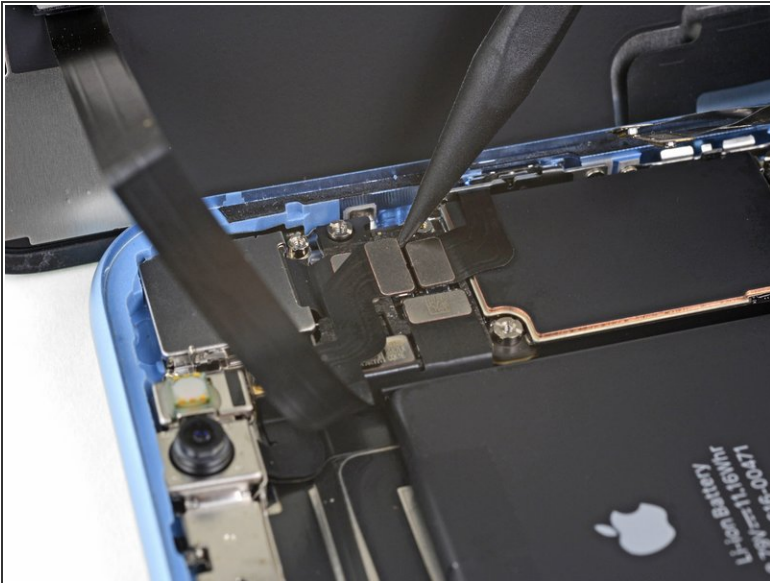
- Use the tip of a spudger to disconnect the display cable connector.

Step 17 — Unscrew the logic board connector cover



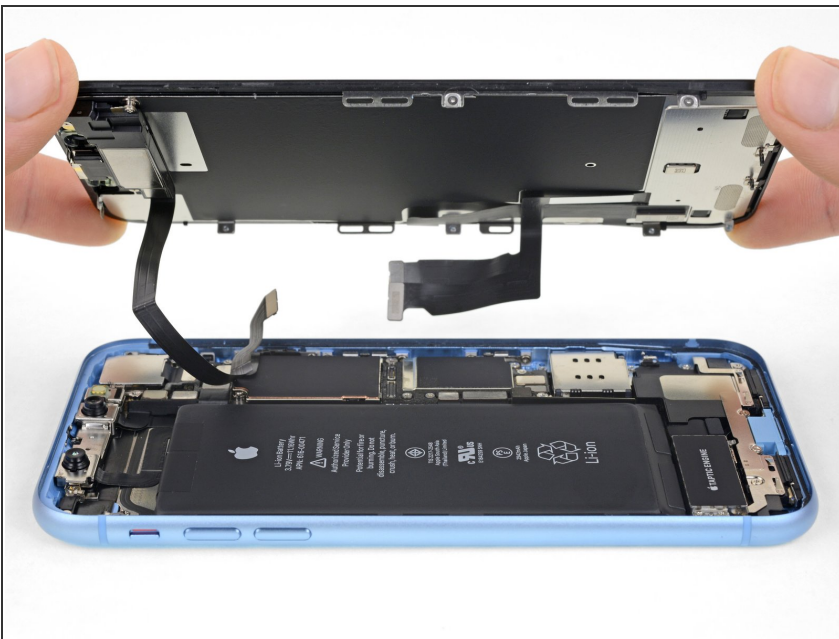
- Remove the five screws securing the logic board connector bracket to the rear case:
 - One 1.3 mm Phillips screw
 - One 1.5 mm Phillips screw
 - Three 1.2 mm Y000 screws
- Remove the bracket.
 - ⓘ Be careful not to lose the [smaller bracket](#) clipped onto the edge. It's secured with a [small clip](#)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

Step 18 — Disconnect the front sensors



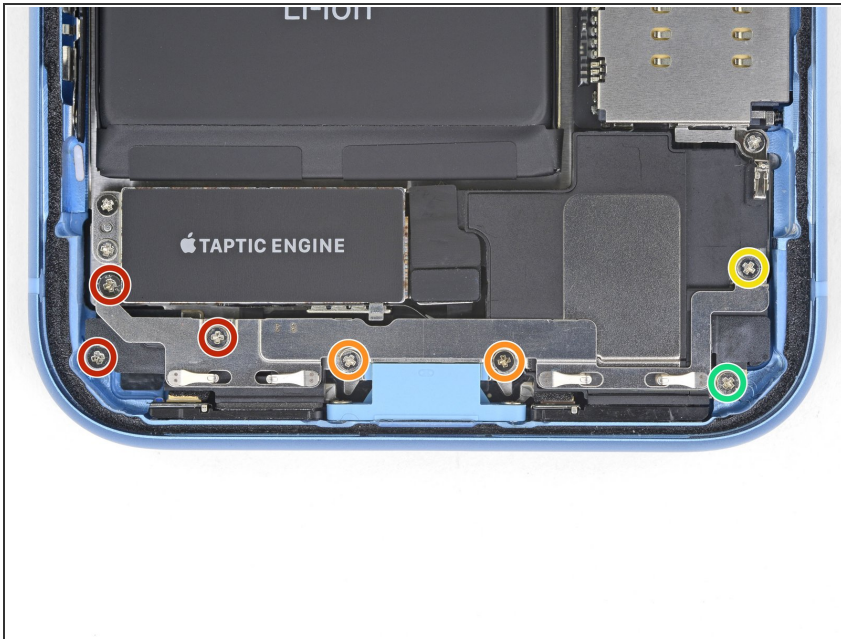
- Use the tip of a spudger to pry the front sensor assembly connector up from its socket.

Step 19 — Remove the display assembly



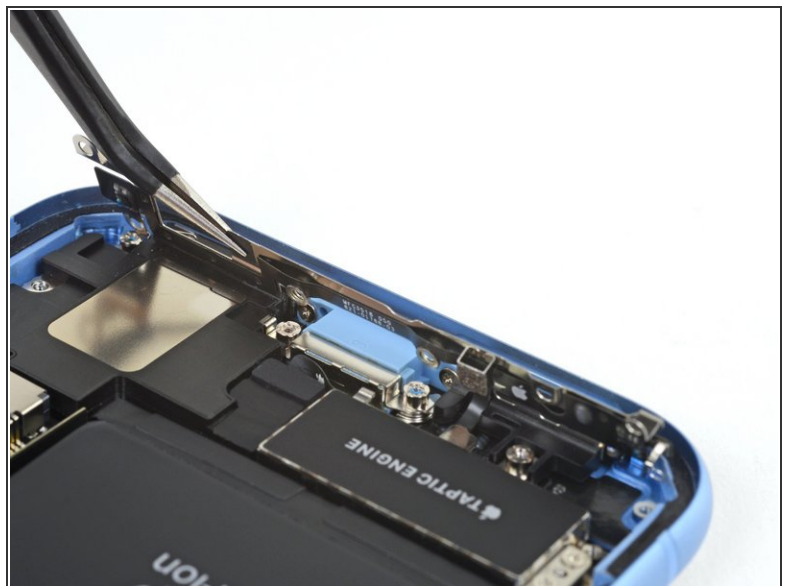
- Remove the display assembly.
- ✦ During reassembly, pause here if you wish to [replace the waterproof adhesive around the edges of the display](#).

Step 20 — Taptic Engine



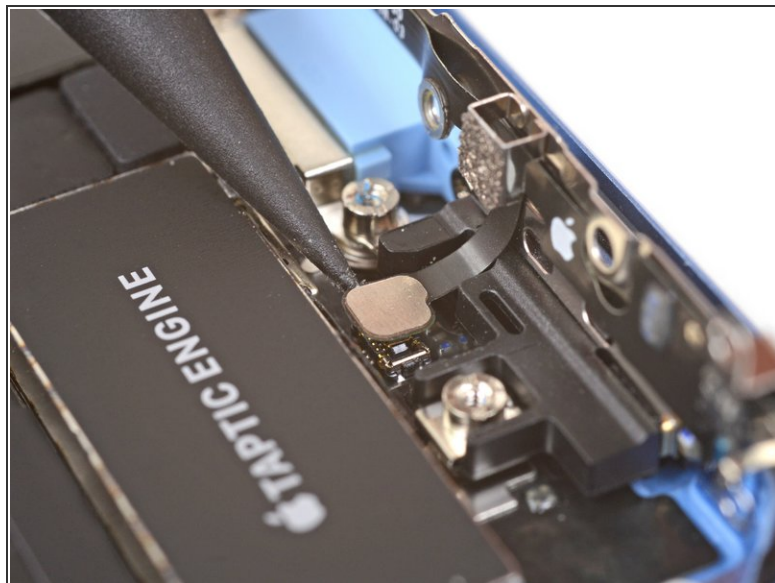
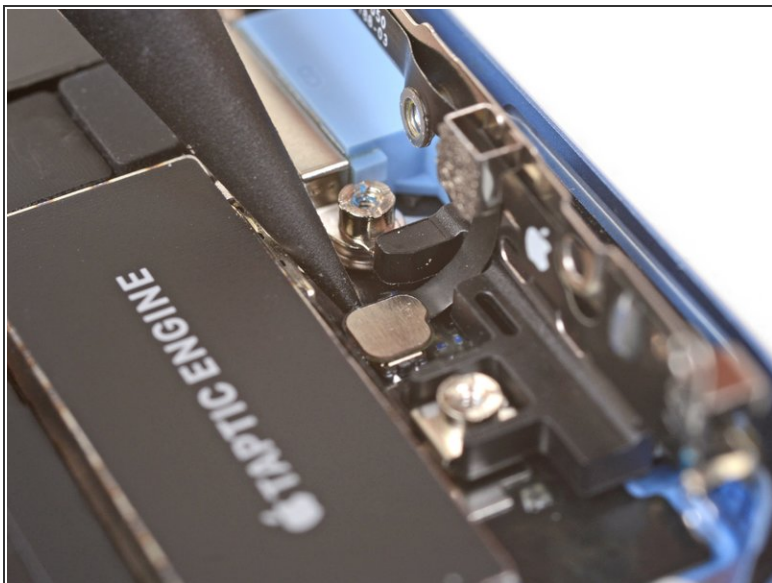
- Remove the seven screws securing the bracket below the Taptic engine and speaker:
 - Three Phillips 1.4 mm screws
 - Two Phillips 1.7 mm screws
 - One Phillips 1.9 mm screw
 - One Phillips 1.6 mm screw

Step 21



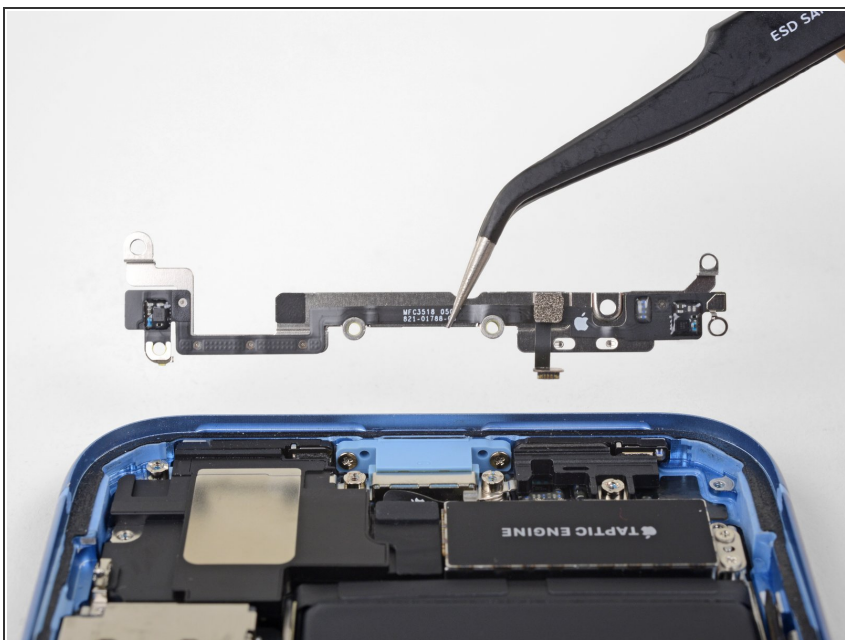
- Lift the bracket from the edge nearest the battery. Don't try to fully remove it, as it's still connected via a small flex cable.

Step 22



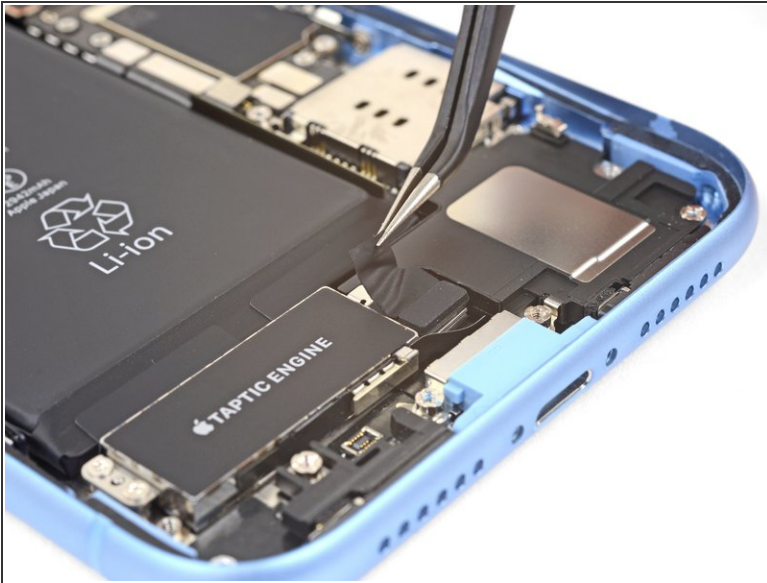
- While holding the bracket out of the way, use the point of a spudger to pry up and disconnect the flex cable underneath.

Step 23



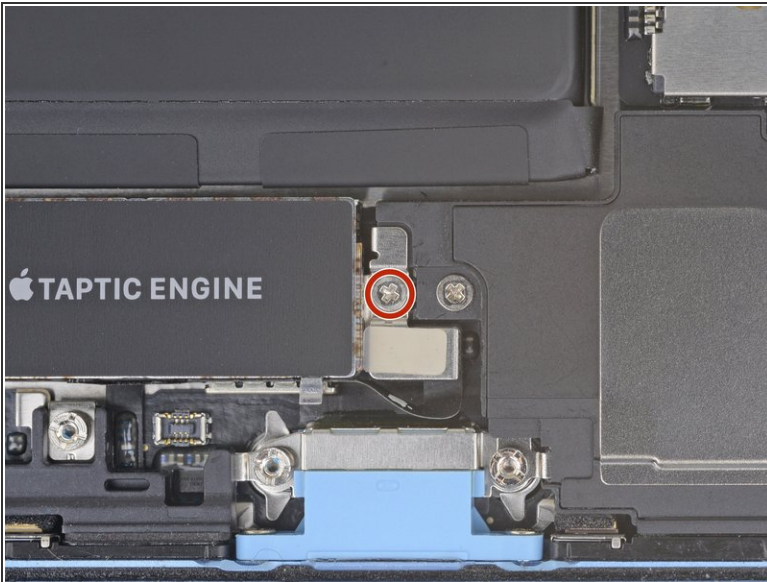
- Remove the bracket.

Step 24



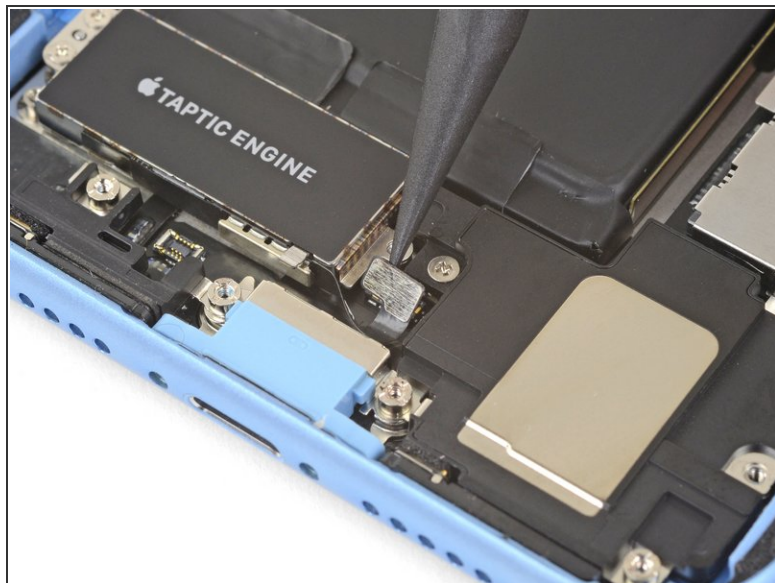
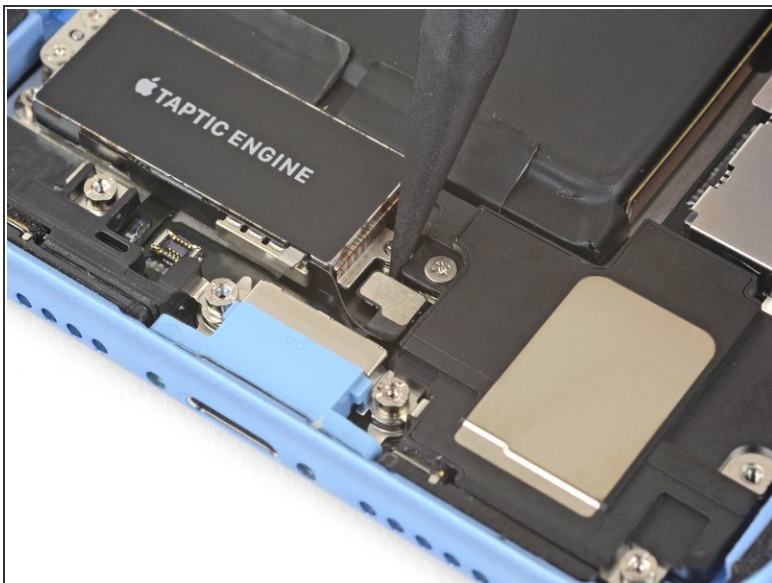
- Remove the piece of black tape and the small rubber rectangle covering the Taptic Engine connector cover.

Step 25



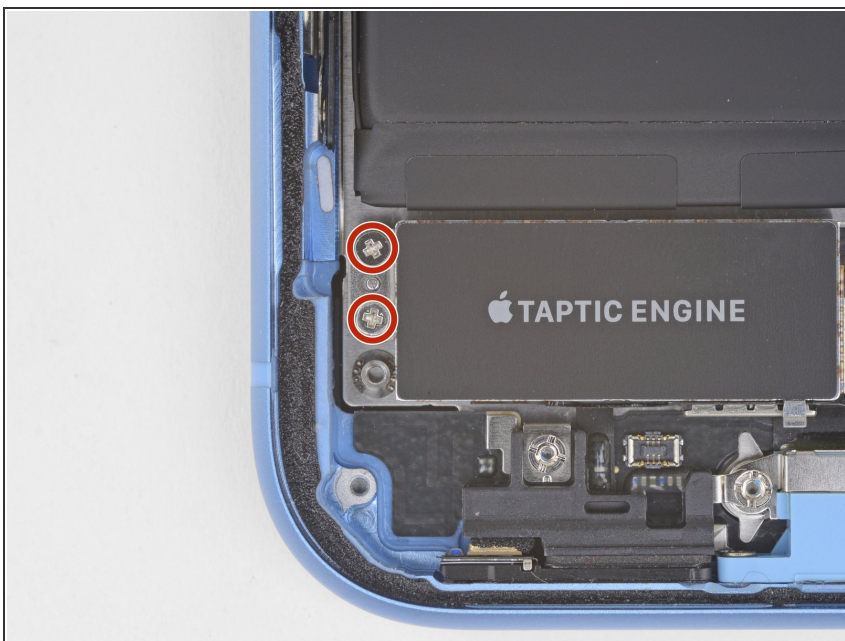
- Remove the 1.8 mm Phillips screw securing the Taptic Engine connector cover.
- Remove the Taptic Engine connector cover.

Step 26



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

Step 27



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

Step 28



- Remove the Taptic Engine.

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.