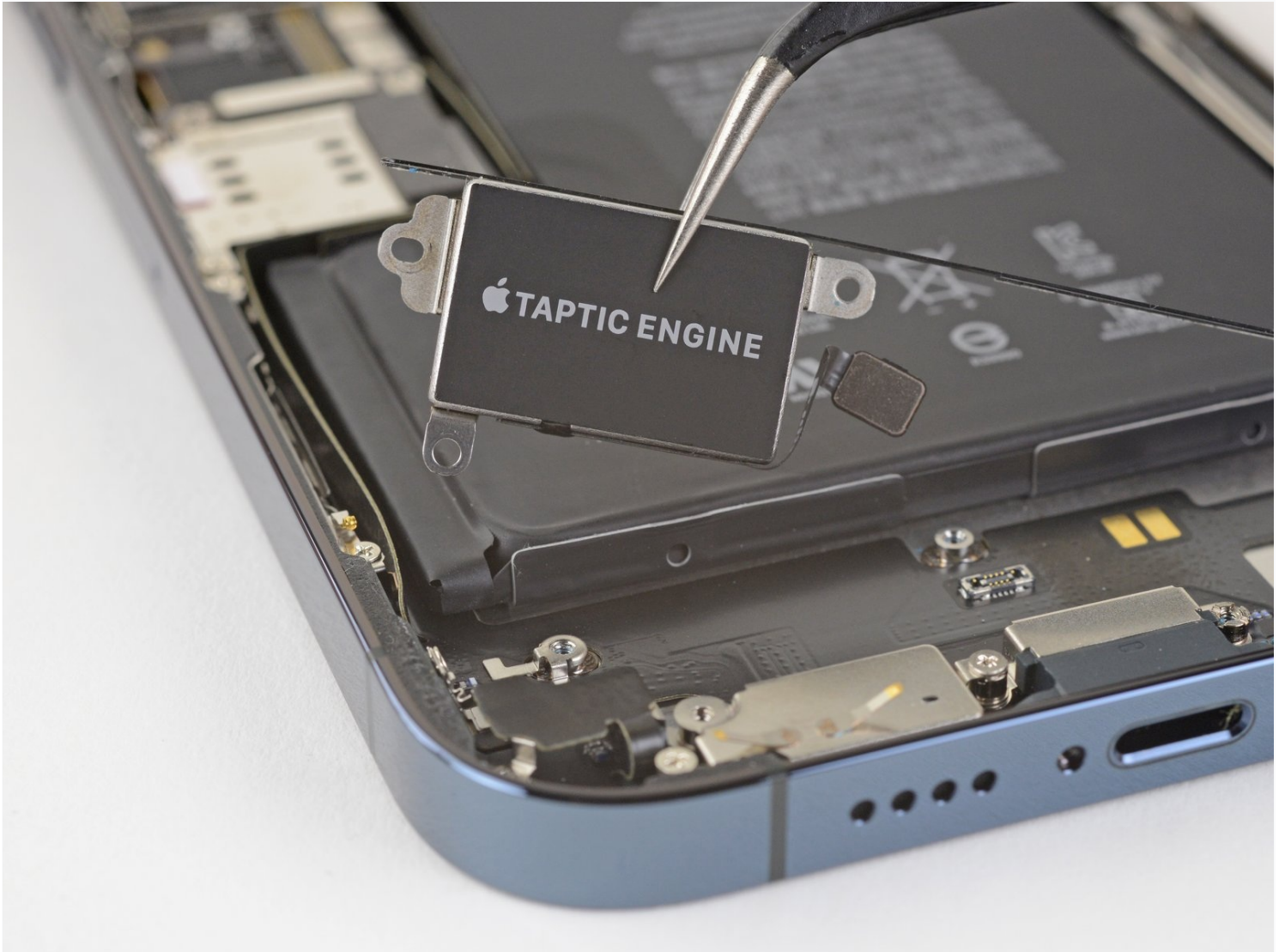




iPhone 12 Pro Max Taptic Engine Replacement

Follow this guide to remove and/or replace the...

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INTRODUCTION

Follow this guide to remove and/or replace the Taptic Engine in an iPhone 12 Pro Max. The Taptic Engine produces your iPhone's vibration and haptic feedback functions.



TOOLS:

[P2 Pentalobe Screwdriver iPhone](#) (1)
[Anti-Clamp](#) (1)
[Hair Dryer](#) (1)
[Heat Gun](#) (1)
[iFixit Opening Picks \(Set of 6\)](#) (1)
[Suction Handle](#) (1)
[Tri-point Y000 Screwdriver](#) (1)
[Spudger](#) (1)
[Tweezers](#) (1)
[Phillips #00 Screwdriver](#) (1)



PARTS:

[iPhone 12 Pro Max Display Assembly Adhesive](#) (1)
[iPhone 12 Pro Max Vibrator](#) (1)

Step 1 — Remove the pentalobe screws



⚠ Caution: 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 P2 screws at the bottom edge of the iPhone.
- i** Opening the iPhone's display 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.

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



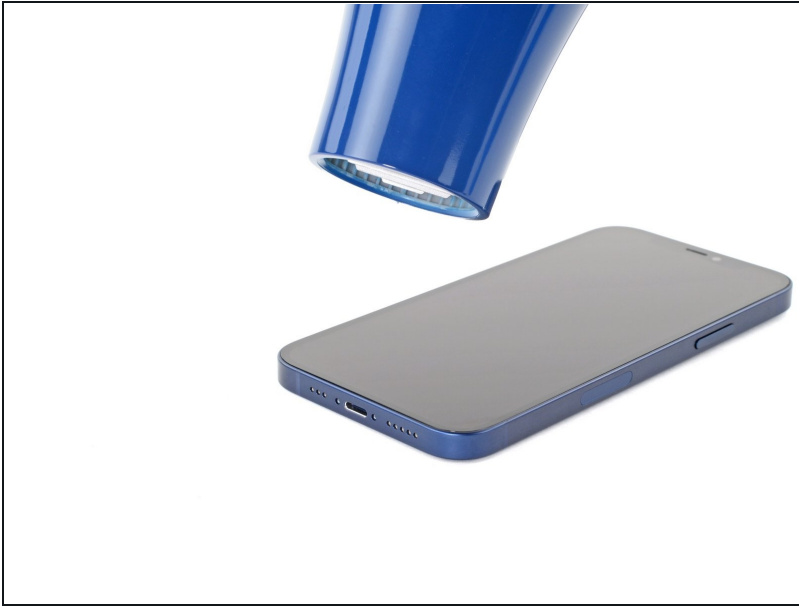
- Pull the blue handle forwards to lock the arms.
- Turn the handle clockwise 360 degrees or until the cups start to stretch.
- Make sure the suction cups remain aligned with each other. If they begin to slip out of alignment, loosen the suction cups slightly and realign the arms.

Step 6



- Support your iPhone on something sturdy such as a hardcover book so it rests hands-free and parallel to the ground; this makes it easier to work with in the following steps.
 - Use a hair dryer to heat along the bottom edge of the iPhone. The screen should feel slightly too hot to touch.
 - ⓘ For complete instructions on how to use a hair dryer, [check out this guide](#).
 - Wait one minute to give the adhesive a chance to release and present an opening gap.
 - Insert an opening pick under the screen's plastic bezel when the Anti-Clamp creates a large enough gap.
 - ⓘ 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 the bottom edge



- Use a [hair dryer](#) or a [heat gun](#) to heat the bottom edge of the iPhone for 90 seconds or until the screen is slightly too hot to touch.

⚠ Never leave your hair dryer in one spot for an extended period of time.

Step 8 — Apply a suction cup



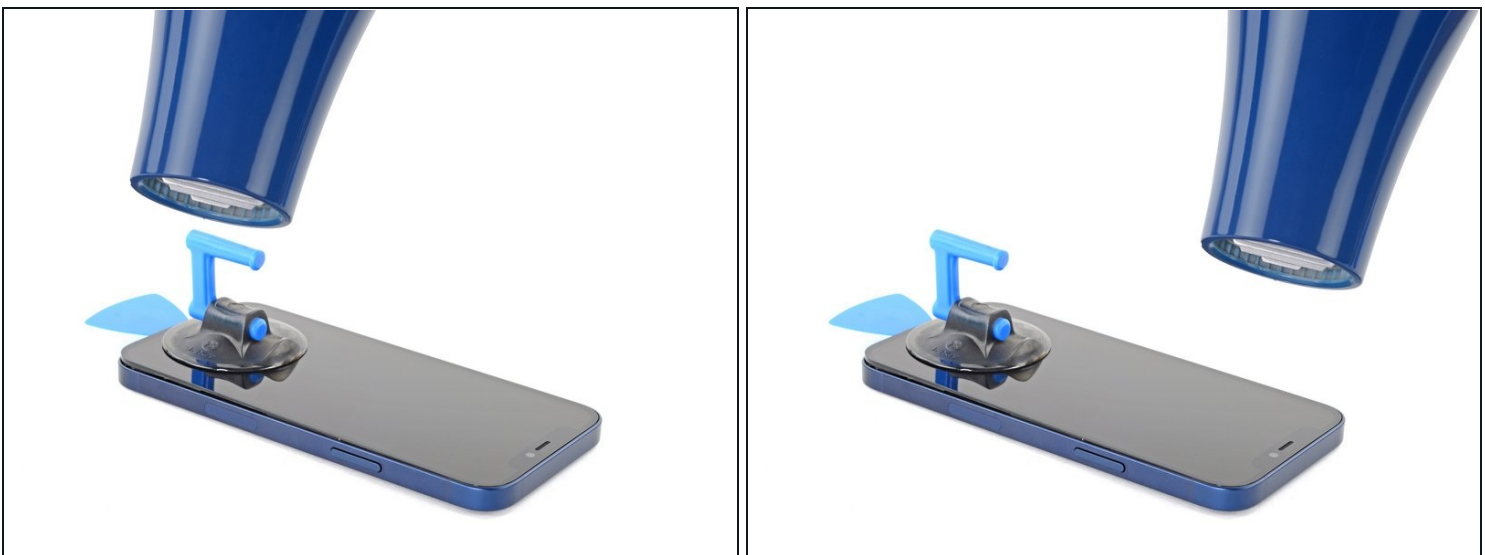
- If you're using a single suction handle, apply it to the bottom edge of the phone, while avoiding the very edge of the glass.

Step 9 — Lift the screen slightly



- Pull up on the suction cup with firm, constant pressure to create a slight gap between the screen and the frame.
 - Insert an opening pick into the gap [under the screen's plastic bezel](#).
- ⓘ The watertight adhesive holding the screen 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 — Heat the right edge



- Use a hair dryer to heat the right edge of the iPhone (the edge with the power button) for 90 seconds or until the screen is slightly too hot to touch.

Step 11



- Slide the opening pick around the bottom right corner of the iPhone to separate its adhesive.
- Continue sliding up the right edge of the iPhone until you reach the top right corner.
⚠ Don't insert your pick more than 3 mm, as you may damage internal components.
- Leave the pick in the top right corner before continuing.

Step 12 — Heat the top edge



- Use a hair dryer to heat the top edge of the iPhone for 90 seconds or until the screen is slightly too hot to touch.

Step 13 — Separate the top adhesive



- Slide the opening pick around the top right corner of the iPhone to separate the top adhesive.
⚠ Don't insert your pick more than 3 mm, as you may damage the top sensors.
- Leave the pick in the top left corner before continuing.

Step 14 — Heat the left edge



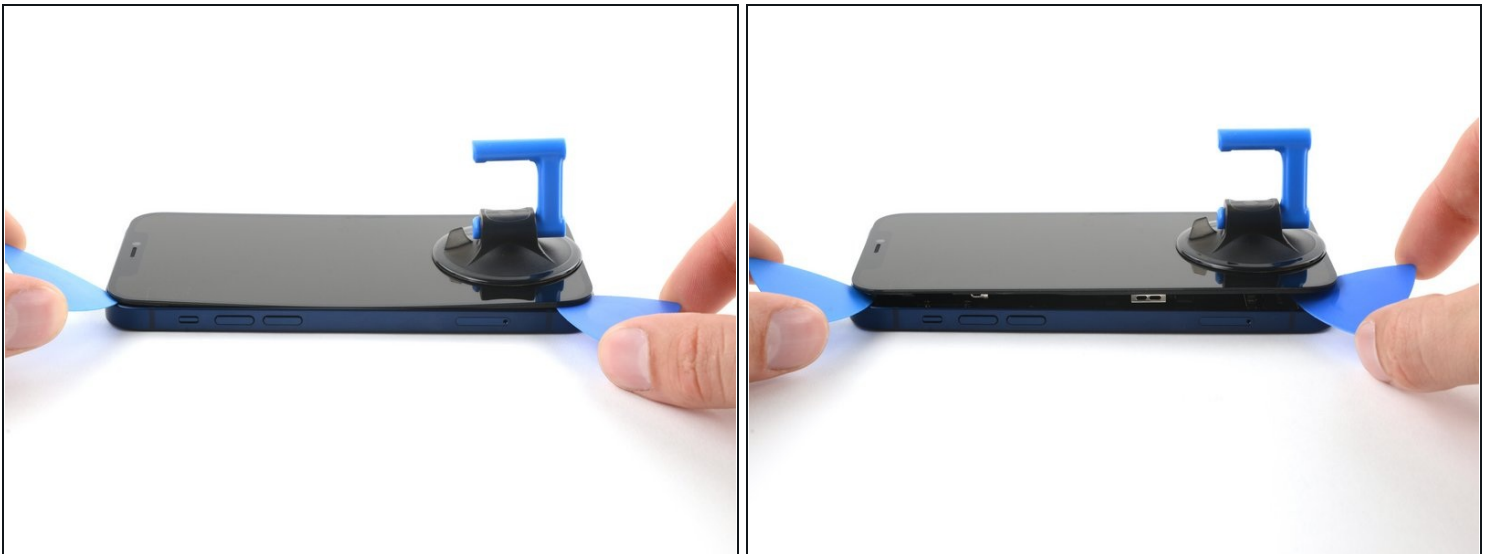
- Use a hair dryer to heat the left edge of the iPhone for 90 seconds or until the screen is slightly too hot to touch.

Step 15 — Screen information



⚠ There are delicate cables along the left edge of your iPhone. **Don't insert your pick here,** as you may damage the cables.

Step 16 — Separate the left adhesive



- Insert a second opening pick in the bottom left corner of the iPhone.
- Twist both picks simultaneously until the left edge clips release.
 - ① Apply the twisting force gradually.
 - ① If you're having trouble separating the adhesive, reheat the left edge.

Step 17 — Open the iPhone



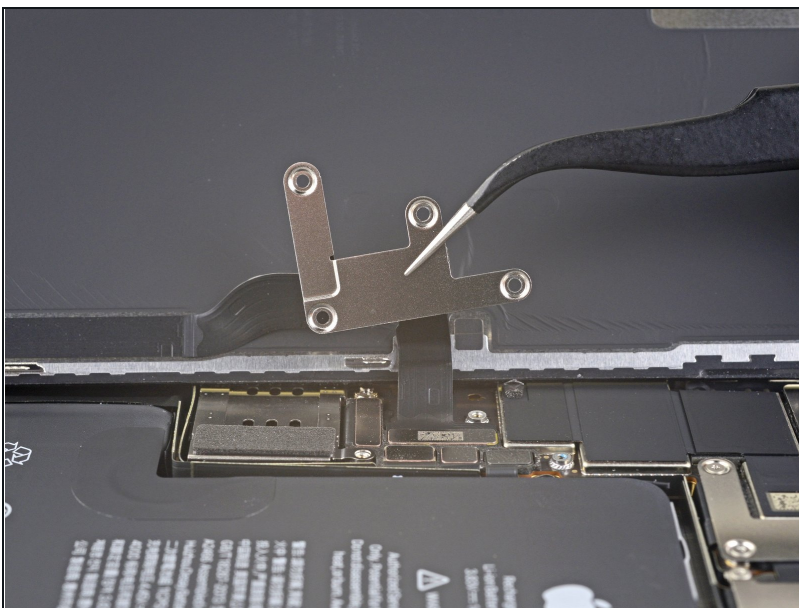
- Rotate your iPhone so the right edge faces you.
 - Open the iPhone by swinging the display up from the right side, like the front cover of a book.
- ⚠ Don't try to fully separate the display yet, as several fragile ribbon cables still connect it to the iPhone's logic board.**
- Lean the display against 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 18 — Unscrew the battery and display connector cover



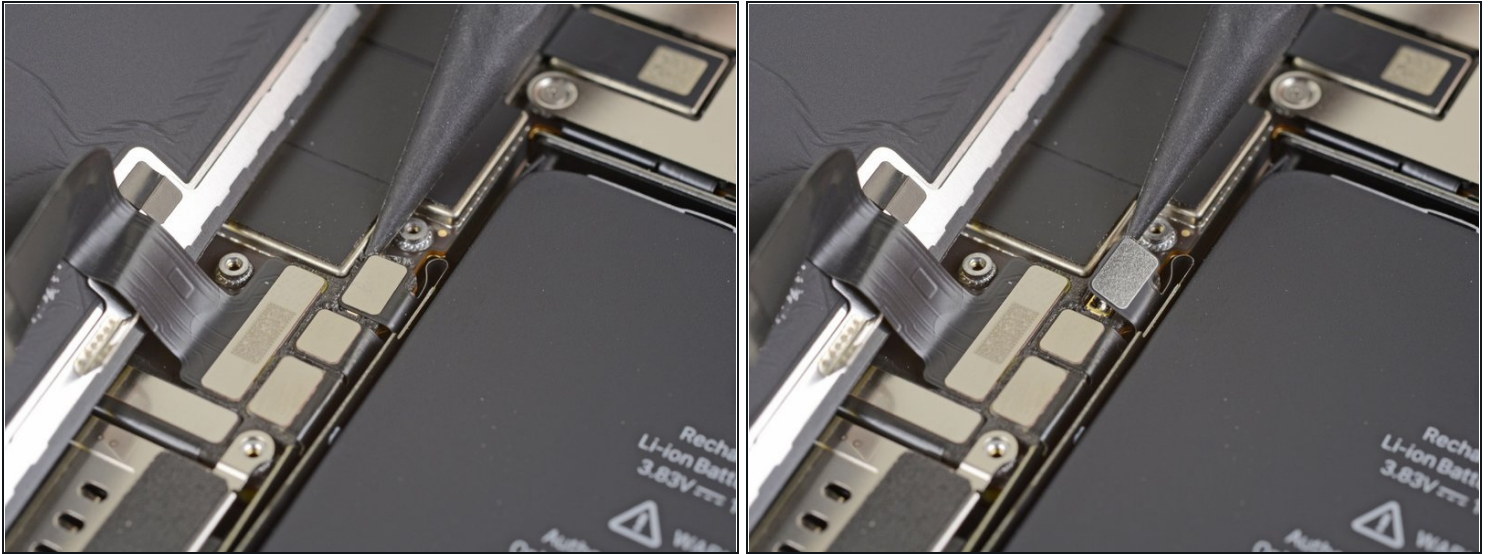
- Remove four 1.1 mm-long Y000 screws securing the battery and display connector cover.
- ⓘ Throughout this repair, [keep track of each screw](#) and make sure it goes back exactly where it came from to avoid damaging your iPhone.
- ★ During reassembly, this is a good point to power on your iPhone and test all functions before you seal the display in place. Be sure to power your iPhone back down completely before you continue working.

Step 19 — Remove the battery and display connector cover



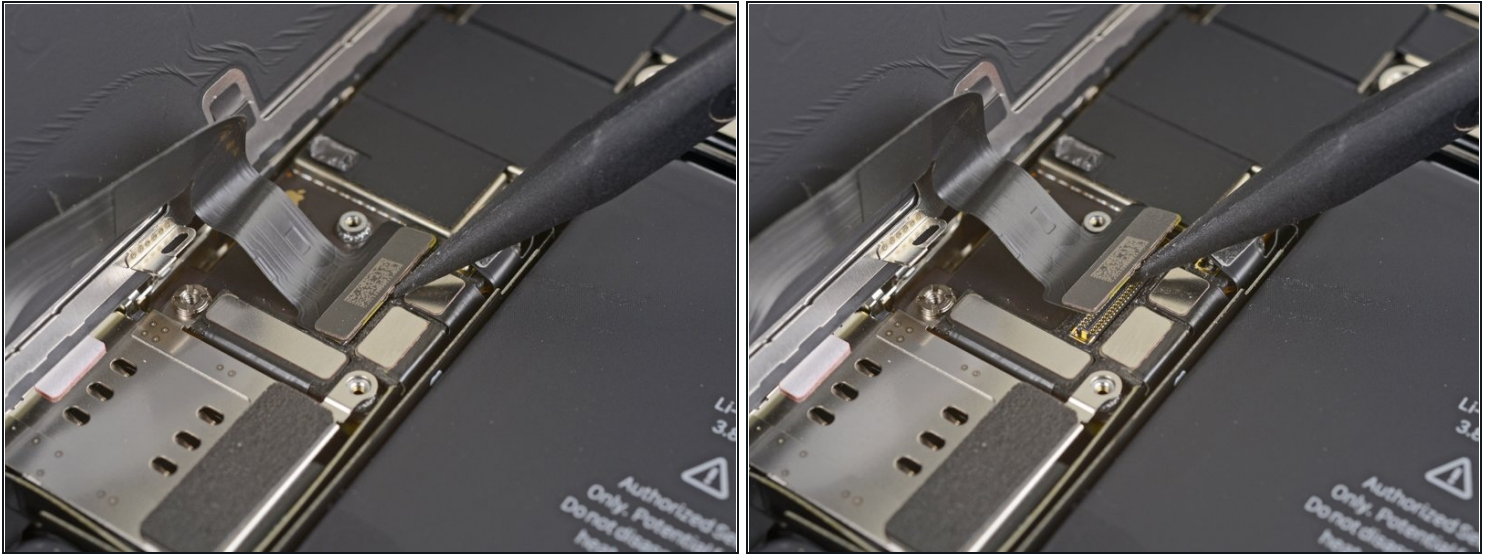
- Remove the battery and display connector cover.

Step 20 — Disconnect the battery



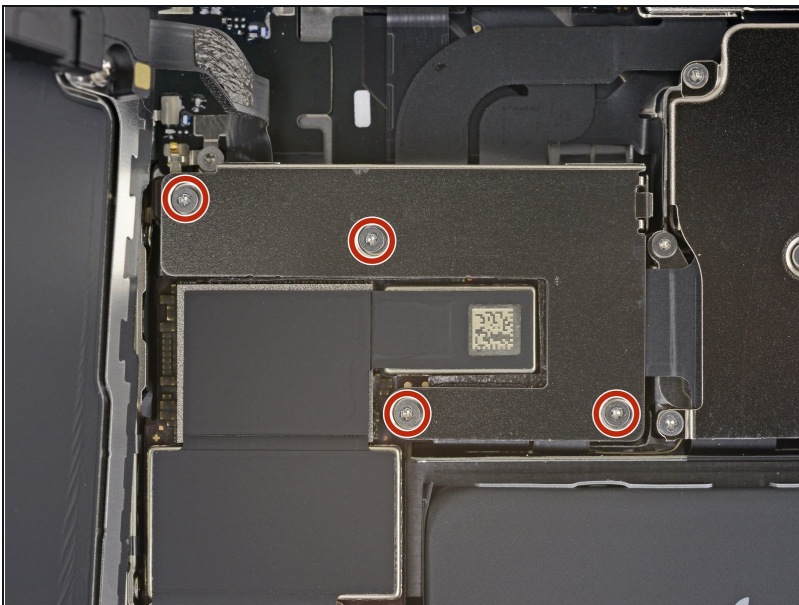
- Use a spudger or a clean fingernail to pry the battery connector up from its socket on the logic board.
 - ① Try not to damage the black silicone seal surrounding this and other board connections. These seals provide extra protection against water and dust intrusion.
- Bend the connector slightly away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

Step 21 — Disconnect the display cable



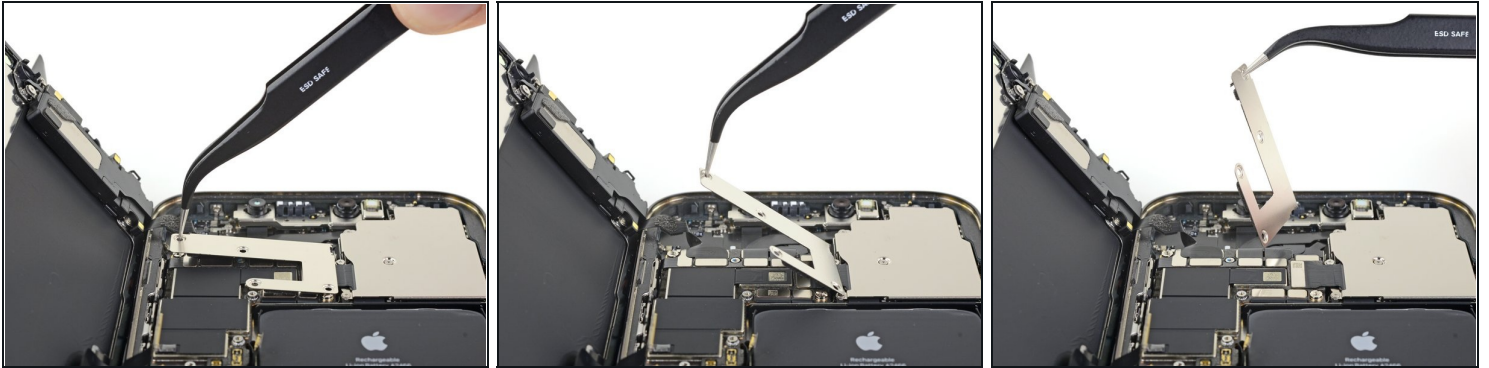
- Use a spudger or a fingernail to disconnect the display cable connector.
 - ☑ To re-attach [press connectors](#) like this one, carefully align and press down on one side until it clicks into place, then repeat on the other side. Do not press down on the middle. If the connector is misaligned, the pins can bend, causing permanent damage.

Step 22 — Unscrew the front sensor connector cover



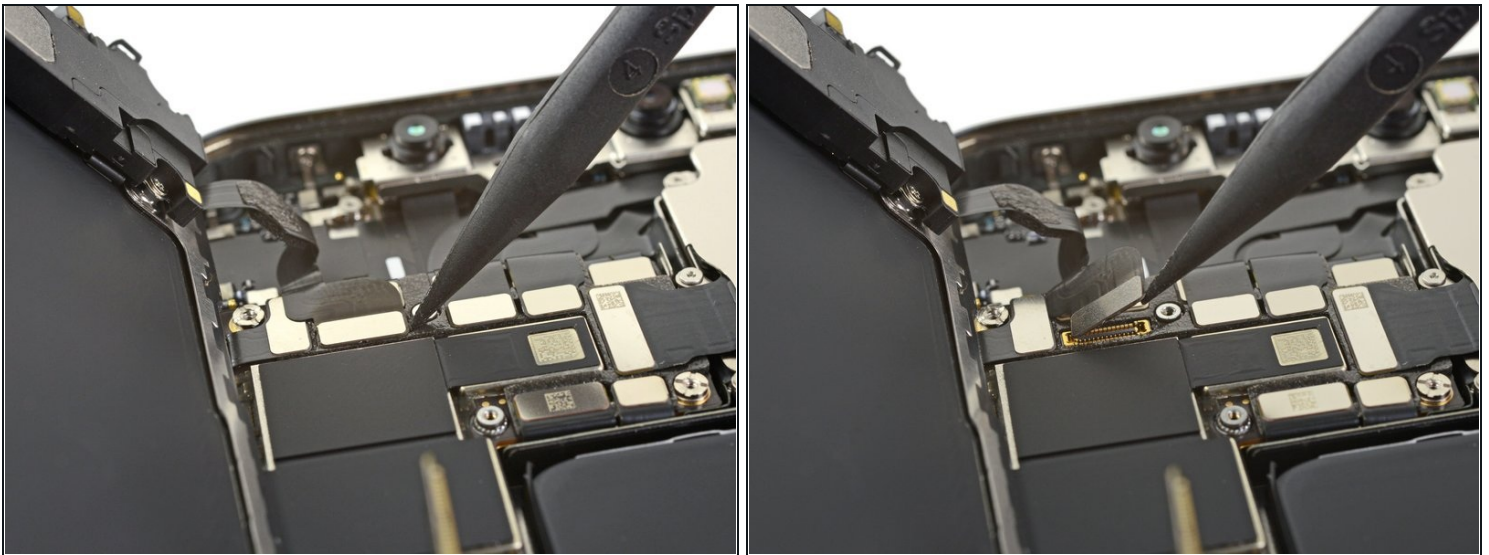
- Use a Y000 driver to remove the four 1.1 mm-long screws securing the front sensor connector cover.

Step 23 — Remove the front sensor connector cover



- Swing the cover up from the left until the small clip on the right unhooks.
 - Remove the cover.
- ☒ During reassembly, insert the clip on the right edge into its slot first, then hinge the rest of the cover into place.

Step 24 — Disconnect the front sensors



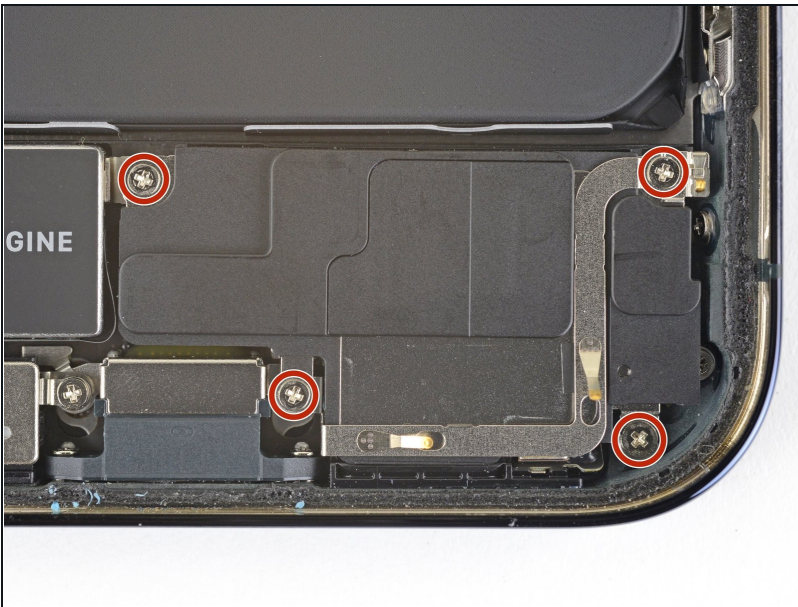
- Use a spudger or a fingernail to disconnect the front sensor assembly cable connector.

Step 25 — 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 26 — Unscrew the loudspeaker



- Use a Phillips driver to remove the four 1.4 mm screws securing the loudspeaker.

Step 27 — Remove the loudspeaker



- Slowly lift the loudspeaker out of its recess while gently peeling it off of its adhesive strip. Reapply this strip to the new loudspeaker.
- Remove the loudspeaker.

Step 28 — Remove the Taptic Engine plastic cover



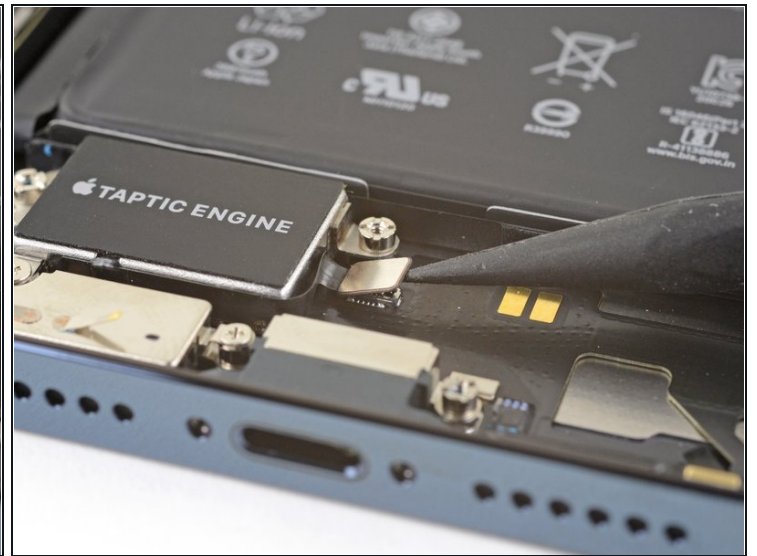
- Use a Phillips driver to remove the 1.4 mm screw securing the Taptic Engine plastic cover.

Step 29



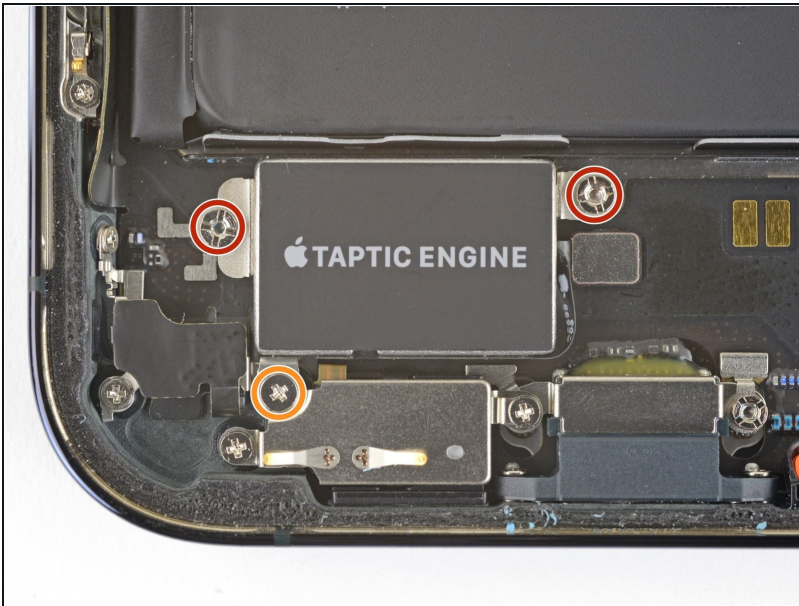
- Remove the plastic cover

Step 30 — Remove the Taptic Engine



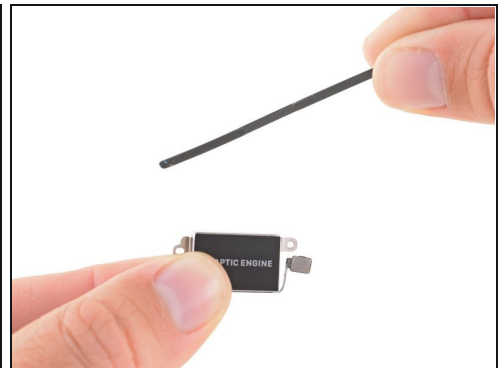
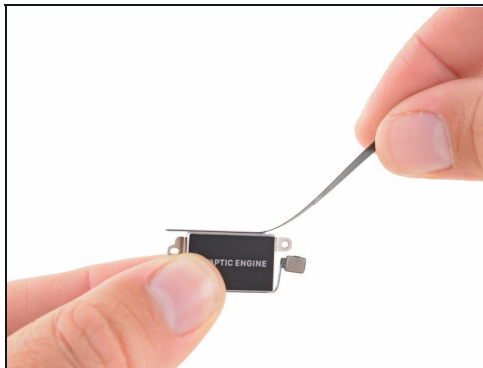
- Use the point of a spudger to pry the Taptic Engine connector straight up and out of its socket.

Step 31



- Remove the three screws securing the Taptic Engine:
 - Two 2.8 mm **standoff** screws
 - ⓘ Standoff screws are best removed using a [standoff screwdriver](#) or 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 1.6 mm Phillips screw

Step 32 — Remove the Taptic Engine



- Remove the Taptic Engine.
- If you are replacing the Taptic Engine, remove the adhesive strip and transfer it to the new Taptic Engine before beginning reassembly.

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? Try some [basic troubleshooting](#), or ask our [iPhone 12 Pro Max Answers community](#) for help.