



iPhone X Taptic Engine Replacement

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

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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 X.

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)
- [Spudger](#) (1)
- [Tweezers](#) (1)
- [Tri-point Y000 Screwdriver Bit](#) (1)
- [Phillips #000 Screwdriver](#) (1)



PARTS:

- [iPhone X Vibrator](#) (1)
- [iPhone X/XS Loudspeaker Adhesive Gasket](#) (1)

Step 1 — 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 6.9 mm-long pentalobe screws at the bottom edge of the iPhone.
-  If the screws are stripped or damaged, [replace the screws](#).
-  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 — Opening Procedure



- ⓘ Heating the lower edge of the iPhone will help 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



- i** 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 X.
 - 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.
- i** If your display or back glass is badly cracked, covering it with a layer of clear packing tape may allow the suction cups to 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.
- **Skip the next two steps.**

Step 5



- If 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



- 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



- 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



i 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



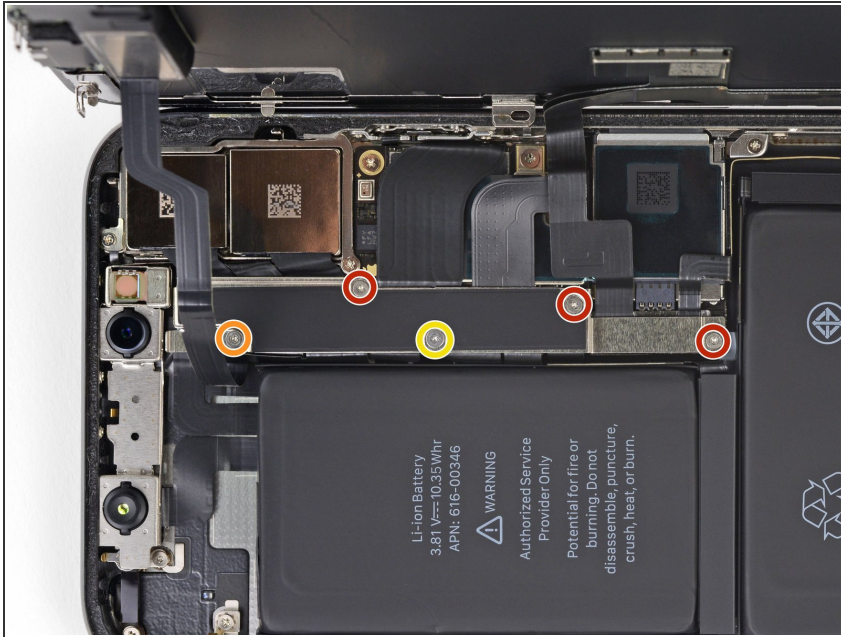
- Open the iPhone by swinging the display up from the left side, like the back cover of a book.

 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 — Display Assembly



- Remove five Y000 screws securing the logic board connector bracket, of the following lengths:

- Three 1.1 mm screws
- One 3.1 mm screw
- One 3.7 mm screw

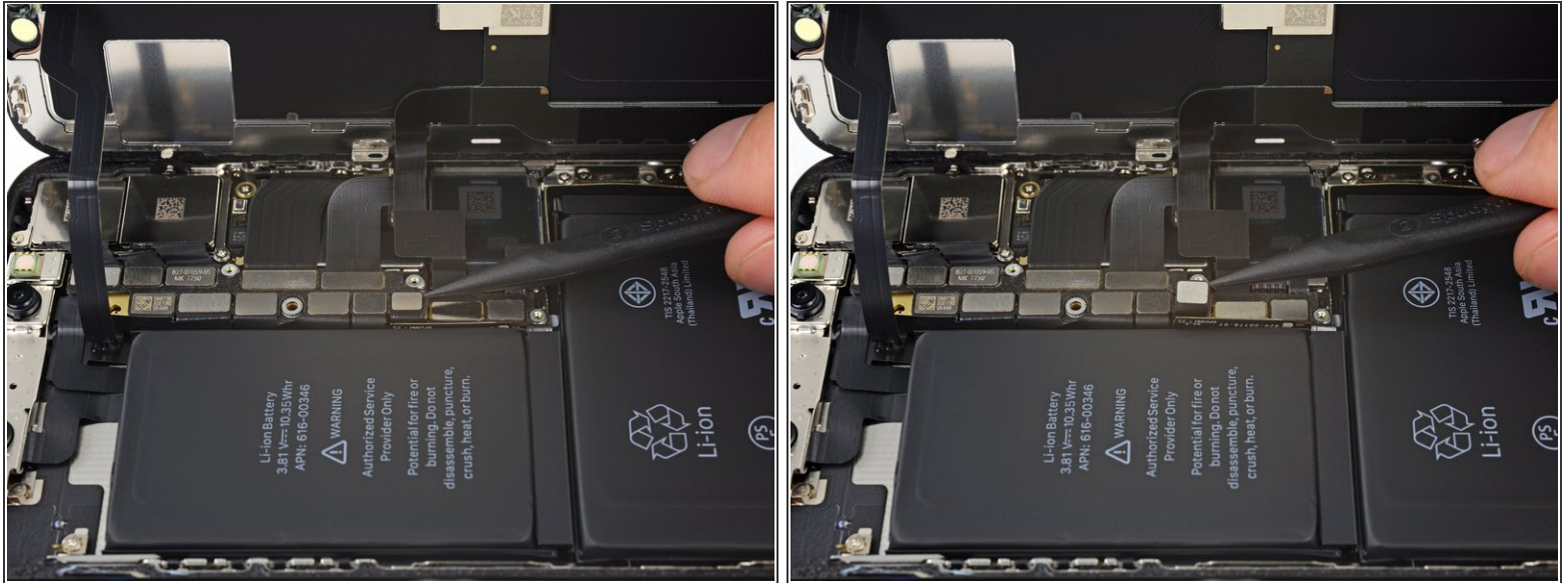
- ⓘ Throughout this repair, [keep track of each screw](#) and make sure it goes back exactly where it came from to avoid damaging your iPhone.

Step 13



- Remove the bracket.
- ⓘ The bracket may be lightly adhered in place. Lift gently but firmly to separate it.
- ★ 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 14



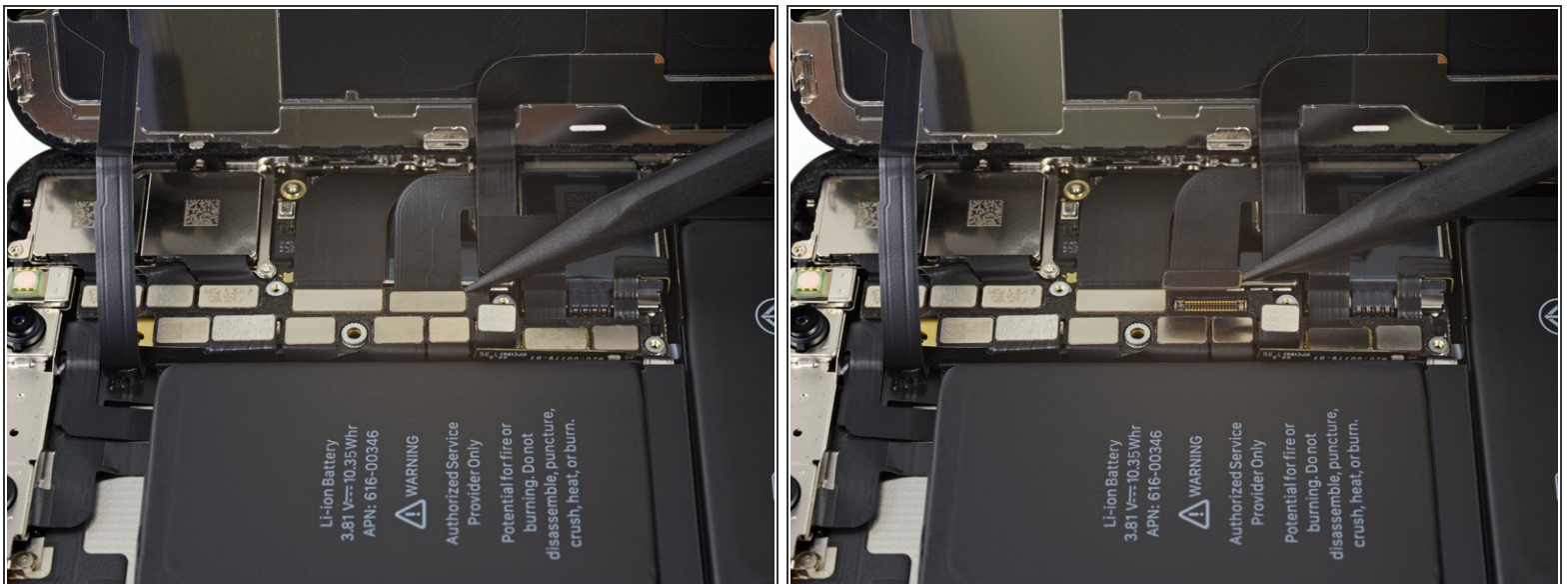
- Use the point of a spudger or a clean fingernail to pry the battery connector up from its socket on the logic board.
- ⓘ Try not to damage the black silicone seal surrounding this and other board connections. These seals provide extra protection against water and dust intrusion.
- Bend the connector 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 15



- Use the point of a spudger or a fingernail to disconnect the front panel sensor assembly connector.

Step 16



- Use the point of a spudger or a fingernail to disconnect the OLED panel 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 17



- Use the point of a spudger to pry the digitizer cable connector up from its socket.
 - ☑ This connector's recessed location makes it tricky to reconnect. Take your time and align it carefully, then gently press it into place with your fingertip—first one side, then the other. You should feel it click into place.
 - ☑ 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.

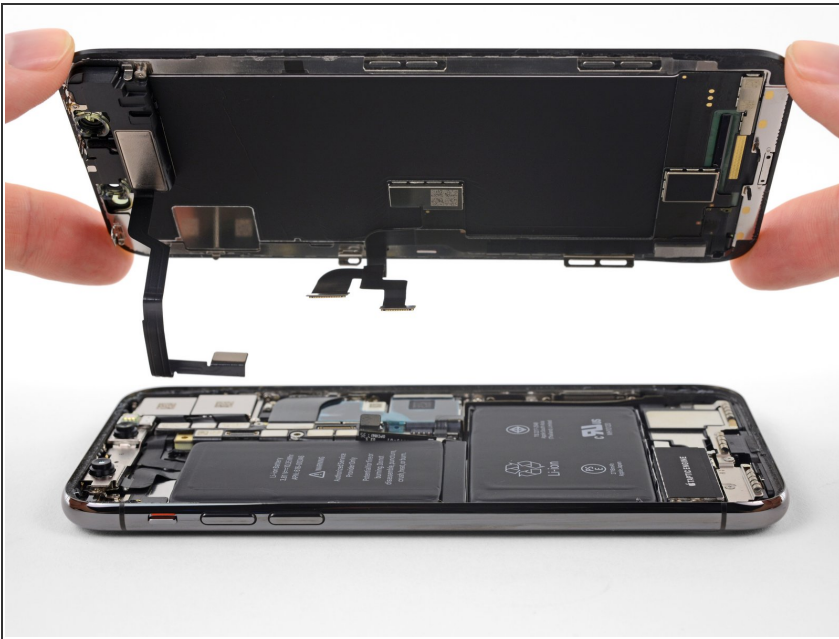
Step 18



 The front panel sensor assembly flex cable is lightly adhered in place.

- Carefully lift the cable until the adhesive separates.

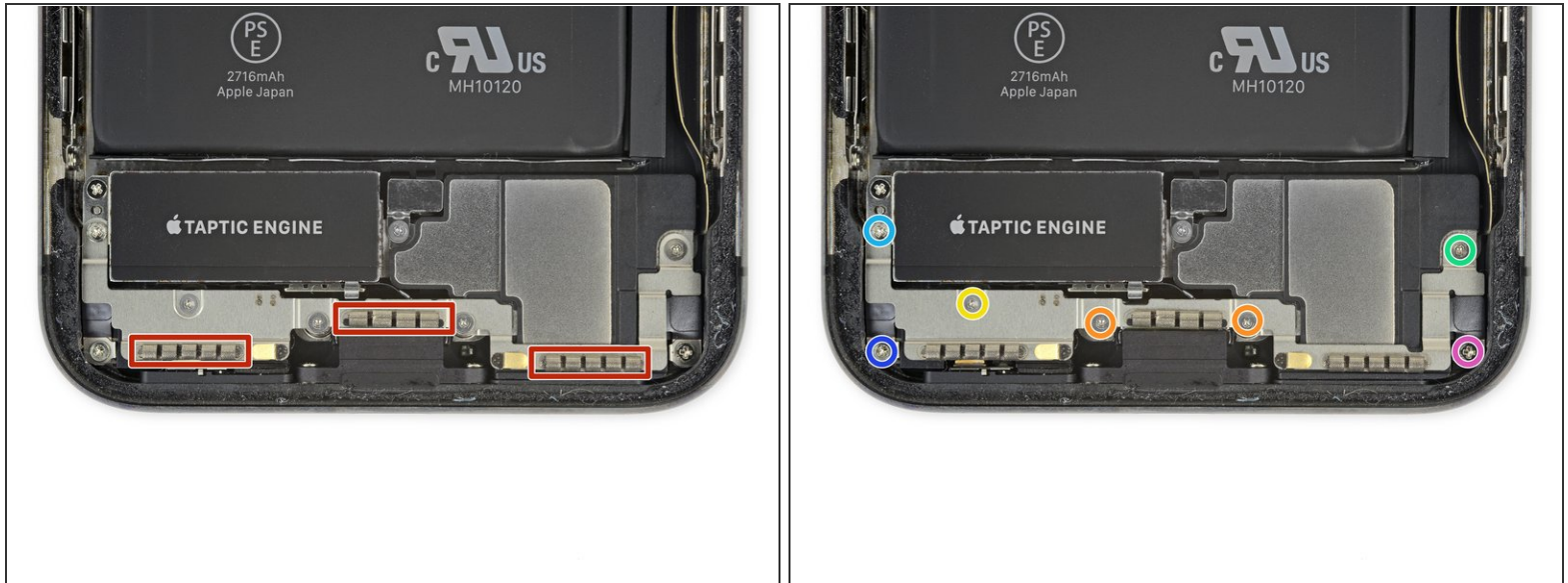
Step 19



- Remove the display assembly.

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

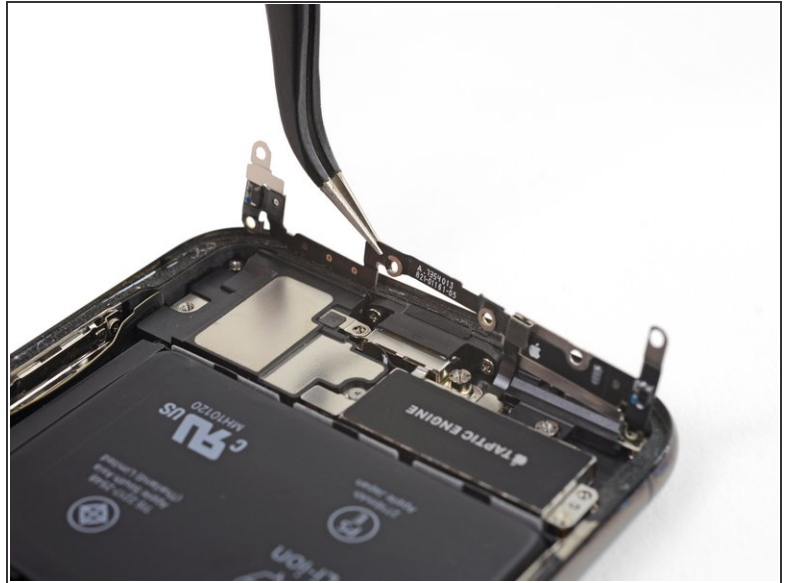
Step 20 — Lower Speaker



 Be careful not to touch the three rows of grounding pads near the bottom of the iPhone.

- Remove the seven screws securing the bracket below the Taptic Engine and speaker:
 - Two Y000 1.9 mm screws
 - One Y000 1.2 mm screw
 - One Y000 1.6 mm screw
 - One Phillips 2.4 mm screw
 - One Phillips 1.7 mm screw
 - One Phillips 1.5 mm screw

Step 21



- Lift the bracket from the edge nearest the battery. Don't try to remove it fully, 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 2.1 mm Y000 screw securing the speaker connector cover.

Step 25



- Remove the speaker connector cover.

Step 26



- Use the tip of a spudger to pry up and disconnect the speaker connector.

Step 27



 When prying up the speaker, take care not to damage the flex cable you just disconnected. If necessary, hold it to one side so the speaker has room to come out.

- 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.

 When reinstalling the speaker, check the position of the flex cable and make sure it doesn't get trapped underneath the speaker.

Step 28



- 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 29



- 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 30 — Taptic Engine



- Remove the 2.3 mm Phillips screw securing the Taptic Engine.

Step 31



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

Step 32



- 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.