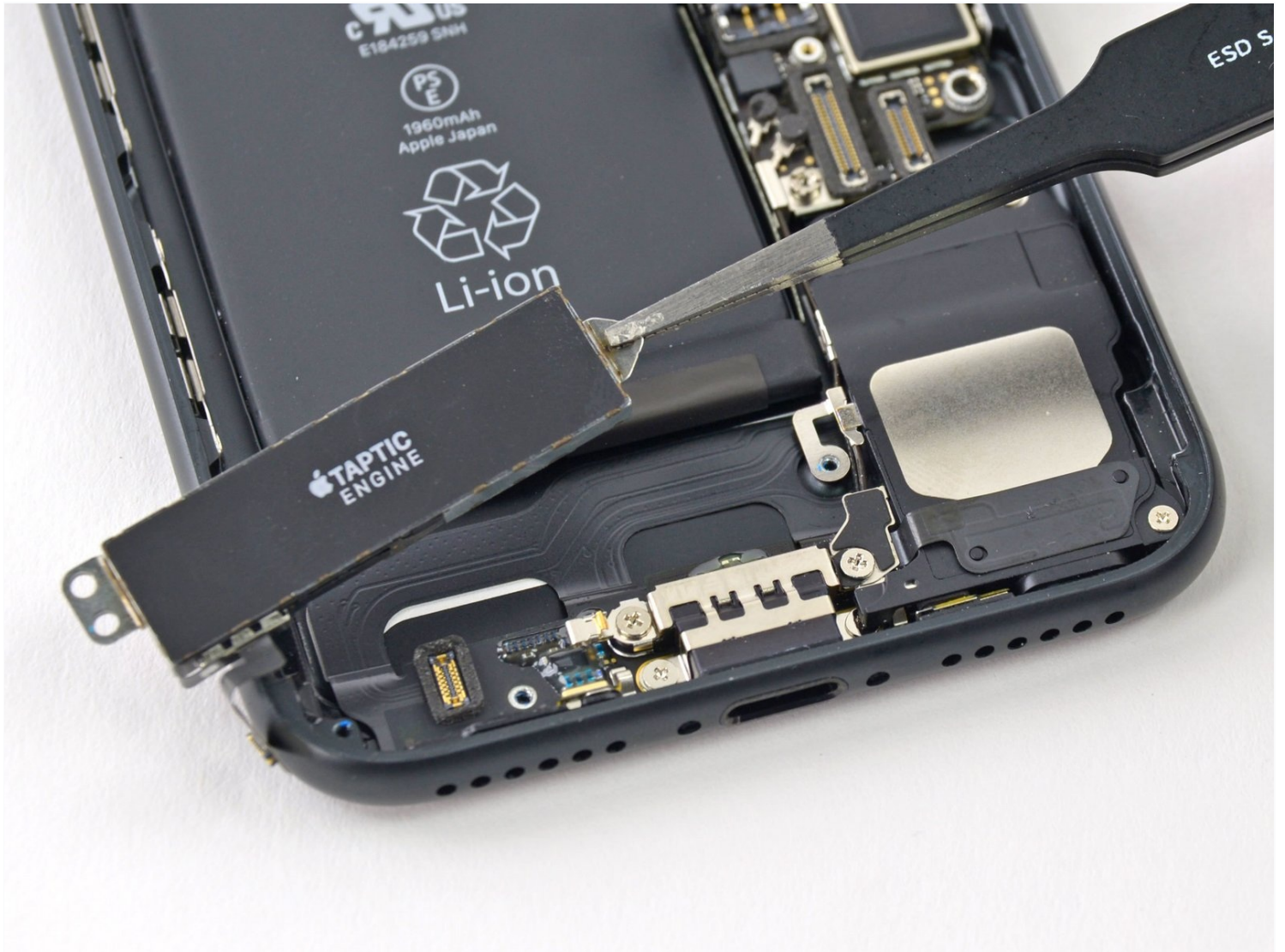




iPhone 7 Taptic Engine Replacement

The Taptic Engine produces your iPhone's...

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INTRODUCTION

The Taptic Engine produces your iPhone's vibration and haptic feedback functions. Use this guide to remove and/or replace the Taptic Engine in your iPhone 7.

This guide instructs you to remove the display assembly; this is intended to prevent damage to the display cables. If you feel comfortable removing the Taptic Engine without putting undue strain on the display cables, you can skip the display removal steps.



TOOLS:

[Anti-Clamp](#) (1)
[iFixit Opening Picks \(Set of 6\)](#) (1)
[P2 Pentalobe Screwdriver iPhone](#) (1)
[iOpener](#) (1)
[Suction Handle](#) (1)
[Tri-point Y000 Screwdriver](#) (1)
[Tweezers](#) (1)
[Spudger](#) (1)
[Phillips #000 Screwdriver](#) (1)



PARTS:

[iPhone 7 Vibrator](#) (1)
[iPhone 7 Display Assembly Adhesive](#) (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 3.4 mm pentalobe screws on the bottom edge of the iPhone.
- ⓘ 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 — 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 just above the home button—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 4



- 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 5



- [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 into the gap.
 - 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 6 — Heat the display



- ① The next three steps show how to separate the screen using a suction cup.
- Heating the lower edge of the iPhone will help soften the adhesive securing the display, making it easier to open.
- Use a hairdryer or [prepare an iOpener](#) and apply it to the lower edge of the phone for about 90 seconds in order to soften up the adhesive underneath.

Step 7 — Separate the display



- Apply a suction cup to the lower half of the front panel, just above the home button.
 - ① Be sure the suction cup does not overlap with the home button, as this will prevent a seal from forming between the suction cup and front glass.

Step 8



- 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.
- ⓘ 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 9



- Slide the opening pick up the left edge of the phone starting at the lower edge and moving towards the volume control buttons and silent switch, breaking up the adhesive holding the display in place.
- Stop near the top left corner of the display.

⚠ Do not try to pry the top edge of the display away from the rear case, as it is held in place by plastic clips that may break.

Step 10 — Screen information



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

Step 11



- Re-insert your tool at the lower right corner of the iPhone, and slide it around the corner and up the right side of the phone to separate the adhesive.

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

Step 12



- Gently pull up on the suction cup to lift up the bottom edge of the display.
⚠ Do not raise the display more than 15° or you'll risk straining or tearing the ribbon cables connecting the display.
- Pull on the small nub on the suction cup to remove it from the front panel.

Step 13



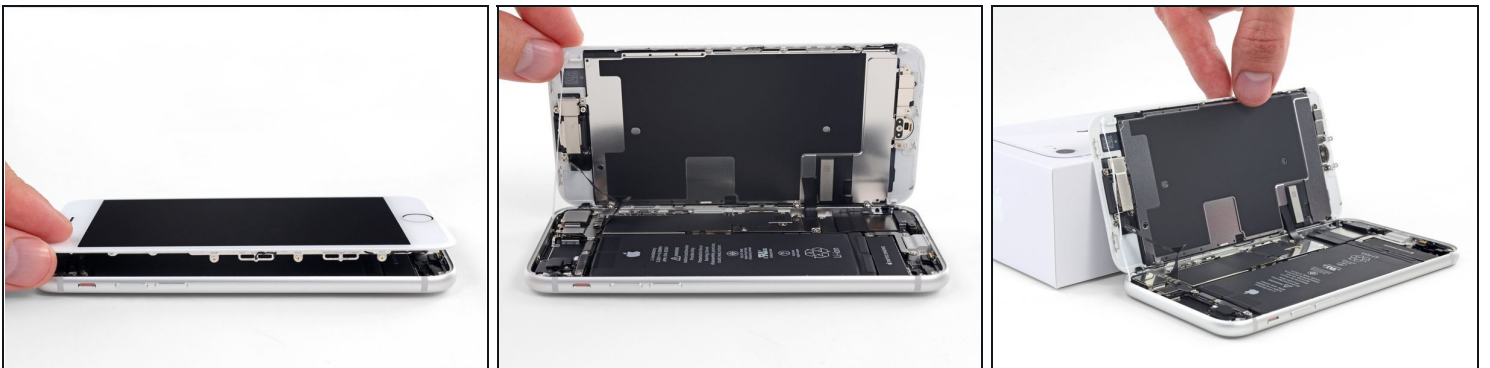
- Slide an opening pick underneath the display around the top left corner and along the top edge of the phone to loosen the last of the adhesive.

Step 14



- Slide the display assembly slightly down (away from the top edge of the phone) to disengage the clips holding it to the rear case.

Step 15



- 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.

Step 16 — Battery Disconnection



- [Remove four tri-point Y000 screws](#) securing the lower connector bracket, of the following lengths:
 - Three 1.2 mm screws
 - One 2.4 mm screw
- ① 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 17



- Remove the lower connector bracket.

Step 18



- Use the point of a spudger to lift the battery connector out of its socket on the logic board.
- ① Bend the connector cable up slightly to prevent it from making contact with the socket and providing power to the phone.

Step 19 — Display Assembly



⚠ Make sure the battery is disconnected before you disconnect or reconnect the cables in this step.

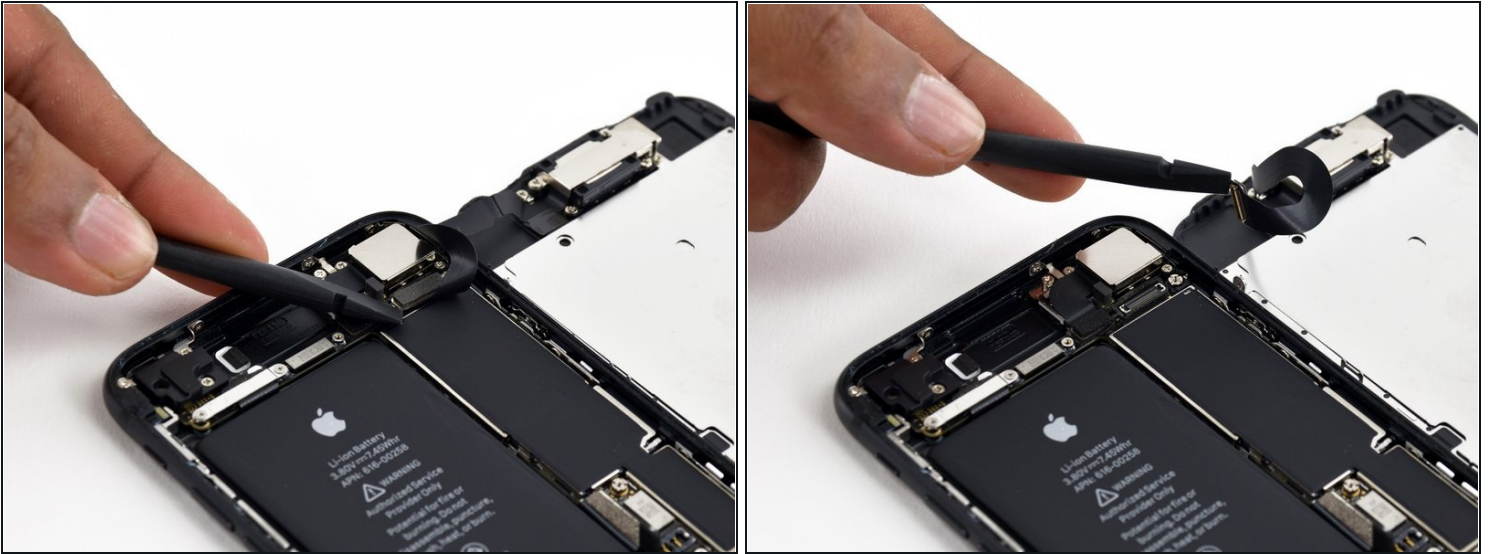
- Use a spudger or a fingernail to disconnect the two lower display connectors by prying them straight up from their sockets on the logic board.
- ☑ To reconnect these cables, press down on one end until it clicks into place, then repeat on the opposite end. **Do not** press down on the middle. If the connector is even slightly misaligned, the connector can bend, causing permanent damage.
- ☑ If you have a blank screen, white lines on the display, or partial or complete lack of touch response after reassembling your phone, try disconnecting and carefully reconnecting both of these cables and make sure they are fully seated.

Step 20



- Remove the two 1.3 mm Phillips #000 screws securing the bracket over the front panel sensor assembly connector.
- ⓘ Some phones could be Y000. Apple started using Y000 for these at some point in the middle of the product's lifecycle.

Step 21



- Disconnect the front panel sensor assembly connector from its socket on the logic board.
- ☑ This press connector should also be reconnected one end at a time to minimize the risk of bending.

Step 22



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

Step 23 — Barometric Vent



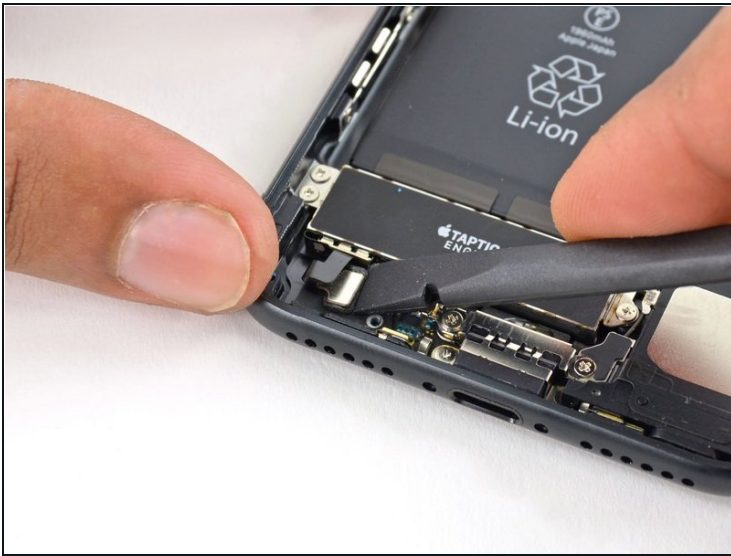
- Remove the two 1.9 mm Phillips screws securing the barometric vent to the rear case.

Step 24



- Remove the vent.

Step 25 — Taptic Engine



- Use the flat end of a spudger to disconnect the Taptic Engine connector from its socket on the logic board.

Step 26



- Remove the three 1.6 mm Phillips screws securing the Taptic Engine to the rear case.

Step 27



- Remove the Taptic Engine.

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