



**iPhone 14**

**Repair Manual**

# Contents

3	<u>Introduction</u>
---	---------------------

## Basics

6	<u>Internal View</u>
7	<u>Orderable Parts</u>
9	<u>Screws</u>
10	<u>Tools</u>

## Safety

15	<u>Battery Safety</u>
18	<u>Broken Glass</u>

## Procedures

20	<u>First Steps</u>
21	<u>SIM Tray</u>
22	<u>Back Glass</u>
49	<u>Display</u>
78	<u>Camera</u>
84	<u>Taptic Engine</u>
87	<u>TrueDepth Camera</u>
94	<u>Battery</u>
104	<u>Bottom Speaker</u>
109	<u>Top Speaker</u>

# Introduction

This manual includes technical instructions for replacing genuine Apple parts in iPhone and is intended for individual technicians with the knowledge, experience, and tools required to repair electronic devices.

## Important

- Read the entire manual first. If you're not comfortable performing the repairs as instructed in this manual, don't proceed.
- Always use the latest version of this document available at [support.apple.com/en\\_US/manuals/iphone](https://support.apple.com/en_US/manuals/iphone).



## Warning

Failure to follow the repair instructions or to use genuine Apple parts or proper tools may cause fire or other safety issues and lead to personal injury or death.



## Caution

Failure to follow the repair instructions or to use genuine Apple parts or proper tools may damage the iPhone, parts, or other property, or compromise the device's functionality or water resistance.

## Warranty information

Damage caused by repairs performed outside of Apple or the Apple Authorized Service Provider network is not covered by Apple's warranty or AppleCare plans. Such damage may cause future repairs to be subject to out-of-warranty costs or render the device ineligible for future repairs by Apple or Apple Authorized Service Providers.

## Tools and parts

### Hardware tools

Apple tools are designed to apply the appropriate heat, force, and torque during repairs, and to withstand high-volume professional use.

- The heated display removal fixture softens adhesive to allow separation of the display from the enclosure. The fixture is used with a heated display pocket designed for the device's specific dimensions.
- The display press applies the appropriate amount of pressure to secure new adhesive during display installation. The display press is used with a repair tray and display adhesive press plate designed for the device's specific dimensions.
- The battery press applies the appropriate amount of pressure to secure new adhesive during battery installation. The battery press is used with a repair tray designed for the device's specific dimensions.

### Ordering tools and parts

You can learn how to order genuine Apple parts and tools at [support.apple.com/self-service-repair](https://support.apple.com/self-service-repair). During the purchase process, enter the manual ID **LBWDCA** to indicate that you've read this manual in its entirety and agree that you have the knowledge and experience to perform your intended repair.

### Software tools

A System Configuration step may be required at the end of your repair. System Configuration is a postrepair software tool that completes the repair for genuine Apple parts. Running System Configuration has a number of purposes that vary based on the part replaced.

What System Configuration does	Why it's important
<b>Transfers factory calibration values</b>	Certain parts like displays, cameras, and ambient light sensors have calibration values that are customized to each individual part during manufacturing. Transferring these values ensures maximum performance and quality after a repair.
<b>Links Secure Enclave and biometric authentication parts</b>	After repair of a logic board or a biometric authentication part (Touch ID or Face ID), linking the biometric sensors to the Secure Enclave on the logic board is required to ensure device security.
<b>Ensures repair integrity</b>	After a hardware repair, software checks are performed to ensure repair integrity. Repair integrity means that a genuine Apple part has been correctly installed.
<b>Assigns wireless region</b>	To comply with regional communications regulations, a wireless region must be assigned to your logic board.
<b>Updates firmware</b>	Keeping firmware up to date ensures that the device has all the latest security and performance features.

## System Configuration requirements

The minimum requirements for System Configuration include:

- The latest version of iOS—not a beta version—on the iPhone
- A strong Wi-Fi network capable of 1.0 Mbps download and upload speeds, with less than 400 ms latency and less than 2% packet loss. Estimated data usage to run System Configuration is 6–22 MB.

If the TrueDepth camera is replaced, System Configuration also requires:

- The latest version of [Apple Service Utility](#) installed on a Mac running macOS Monterey 12.4 or later
- Internet access for the Mac
- A Lightning cable

## How to initiate System Configuration

Depending on the part replaced, you will initiate System Configuration through one of the following two methods:

- [Put the device into diagnostics mode](#). Tap Start Diagnostics and follow onscreen prompts.

or

- Contact the online store where you purchased genuine Apple parts. See [support.apple.com/self-service-repair](https://support.apple.com/self-service-repair).

See the individual repair sections of this manual for more information.

## Alerts

Failure to follow alerts could result in fire, injury, data loss, or damage to the device, parts, or other property.



### Warning

Instructions for reducing risk of personal injury



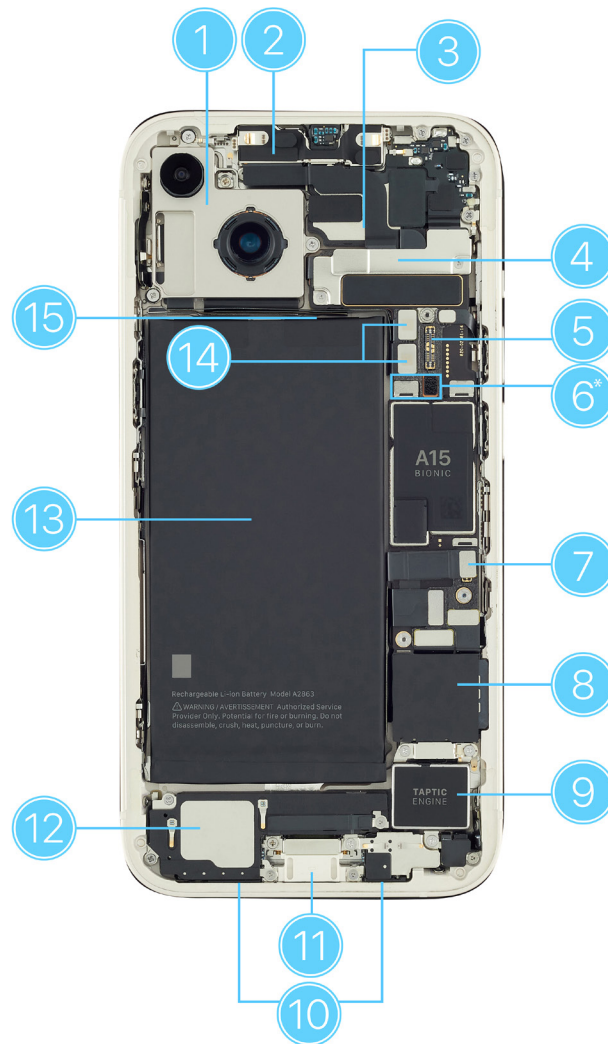
### Caution

Instructions for reducing risk of data loss or device hardware damage

### Important

Supplemental information for successfully completing procedures; neither a Warning nor a Caution

## Internal View



- |  |                            |
|--|----------------------------|
| 1. Camera  | 9. Taptic Engine           |
| 2. TrueDepth camera  | 10. Bottom microphones     |
| 3. Top speaker   | 11. Lightning connector    |
| 4. TrueDepth camera cowl   | 12. Bottom speaker         |
| 5. Back glass flex connector   | 13. Battery                |
| 6. mmWave connector (only in iPhone models with an mmWave antenna)           | 14. Camera flex connectors |
| 7. Battery flex connector  | 15. Battery adhesive tabs  |
| 8. SIM reader (only in iPhone 14 models purchased outside the United States) |                            |

## Orderable Parts

Name	Numbers	Screws
<b>Back glass</b>	661-30413, midnight 661-30414, starlight 661-30415, red 661-30416, blue 661-30417, purple 661-30419, yellow	—
<b>Back glass adhesive</b>	923-08091	—
<b>Back glass antenna</b>	923-08396	—
<b>Battery</b>	661-30373	—
<b>Bottom speaker</b>	923-08212	923-08379 (1) upper left 923-08380 (1) upper right 923-08382 (1) lower left 923-08386 (2) upper left, lower left
<b>Camera</b>	661-30370	923-08383 (3)
<b>Display</b>	661-30366	—
<b>Display adhesive</b>	923-08090	—
<b>Display cowling, lower</b>	923-08229	923-08381 (1)
<b>Display cowling, upper</b>	923-08228	923-08381 (1)
<b>Lower cowling</b>	923-08232	923-08382 (2)
<b>Rubber gasket</b>	923-08213	—
<b>Security screws</b>		923-08387, midnight (2) yellow (2) 923-08388, starlight (2), red (2), blue (2), purple (2)

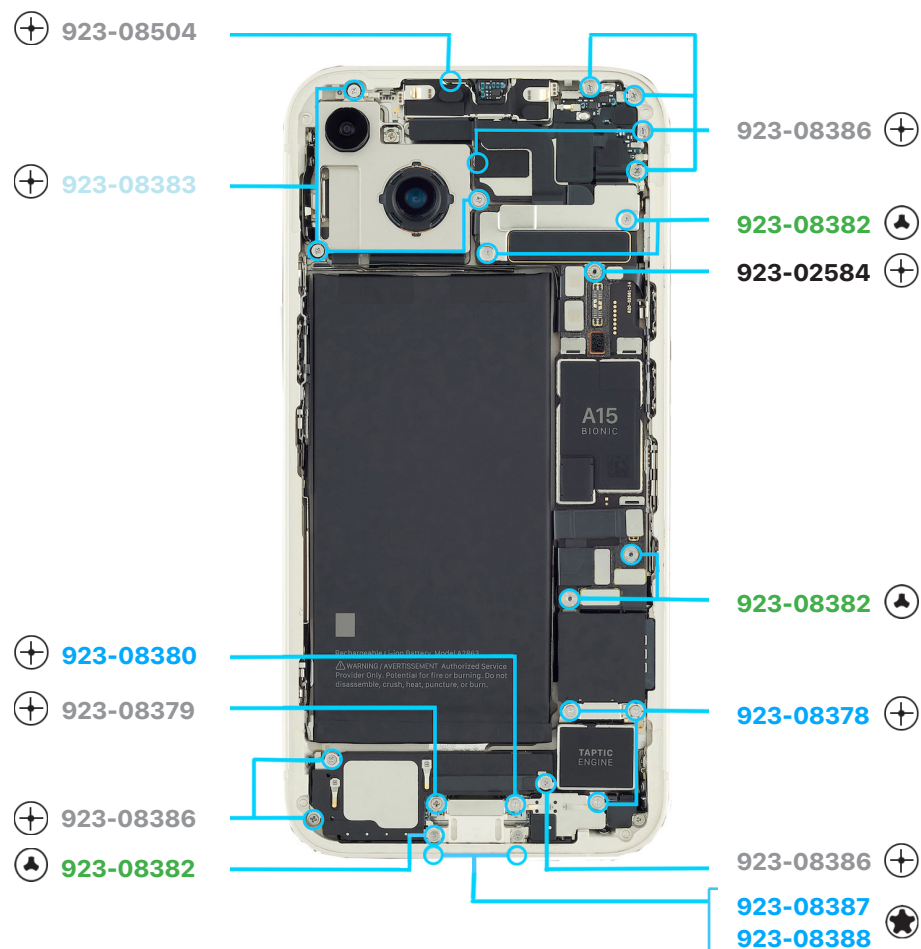
Name	Numbers	Screws
<b>SIM Tray</b>	923-08215, midnight (1)	—
	923-08216, starlight (1)	
	923-08217, red (1)	
	923-08218, blue (1)	
	923-08219, purple (1)	
	923-08220, midnight (2)	
	923-08221, starlight (2)	
	923-08222, (product)red (2)	
	923-08223, blue (2)	
	923-08224, purple (2)	
	923-08862, yellow (1)	
	923-08863, yellow (2)	
<b>Taptic Engine</b>	923-08234	923-08378 (3)
<b>Taptic Engine connector cowling</b>	923-08233	923-08378 (3)
<b>Top speaker</b>	923-08211	923-08386 (5) lower center, right 923-08504 (1) upper center
<b>Top speaker foam</b>	923-08393	—
<b>TrueDepth Camera</b>	661-30371	—
<b>TrueDepth Camera connector cowling</b>	923-08230	923-08382 (1)
<b>Upper cowling</b>	923-08231	923-02584 (1)

## Screws



- Never reinstall a screw after it has been removed. Install only new screws. iPhone screw grooves are covered in adhesive that can't be reused.
- Use only the torque driver indicated to install new screws during reassembly. Both overtightened screws and loose screws can damage parts.

**Note:** You can use any torque driver to remove screws.



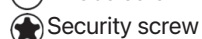
**Torque driver (black, 0.35 kgf cm)**

**Torque driver (green, 0.45 kgf cm)**

**Torque driver (gray, 0.55 kgf cm)**

**Torque driver (blue, 0.65 kgf cm)**

Torque driver (teal, 0.75 kgf cm)



## Tools

Tools with part numbers are available for purchase from the Self Service Repair Store. Tools without part numbers can be purchased from electronics supply retailers.

**923-07559**

6.1-inch back protective cover

**923-07562**

6.1-inch display protective cover

**661-29193**

6.1-inch heated display pocket

**923-08086**

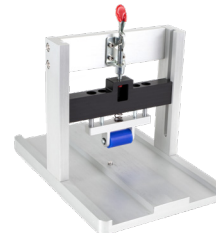
6.1-inch repair tray

**923-01092**

Adhesive cutter

**923-02657**

Battery press



Cut-resistant gloves

**923-08079**

Display adhesive press plate

**661-08916**

Display press



ESD mat



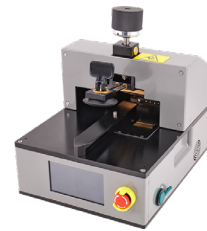
ESD-safe cleaning solution



ESD-safe tweezers



ESD wrist strap with clip or plug

Ethanol wipes<sup>1</sup>[661-28152](#)Heated display removal fixture<sup>2</sup>

Heat-resistant gloves



IPA wipes

[922-1731](#)

Kapton tape

[923-01290](#)

Micro stix® bit











Nitrile or lint-free gloves

[922-5065](#)

Nylon probe (black stick)



<p>Safety glasses with side shields</p> 	<p>Sand<sup>3</sup></p> 	<p>Sand container<sup>4</sup></p> 
<p><b>923-0248</b> Torque driver (black, 0.35 kgf cm) kit<sup>5</sup></p> 	<p><b>923-0448</b> Torque driver (blue, 0.65 kgf cm)</p> 	<p><b>923-00738</b> Torque driver (gray, 0.55 kgf cm)</p> 
<p><b>923-00105</b> Torque driver (green, 0.45 kgf cm)</p> 	<p><b>923-08085</b> Torque driver (teal, 0.75 kgf cm)</p> 	

<sup>1</sup> Ethanol wipes must contain at least 90% ethanol and no additives except isopropyl alcohol.

<sup>2</sup> Refer to the [Heated Display Removal Fixture operating manual](#) for general use and precautions.

<sup>3</sup> Clean, dry, untreated sand (8–10 cups)

<sup>4</sup> Sand container (wide-mouthed, quick pour, nonbreakable plastic container with a flip-top lid)

<sup>5</sup> The black torque driver kit includes a black torque driver (0.35 kgf cm), Torx® security bit (923-0247), and JCIS bit (923-0246). The bits are also available separately.

## Heated Display Removal Fixture

**Note:** A rented heated display removal fixture may have different packaging than shown. If your fixture came with a USB cable, set the cable aside. This setup doesn't require it.

1. Remove the fixture from the box. Then remove the packing foam.

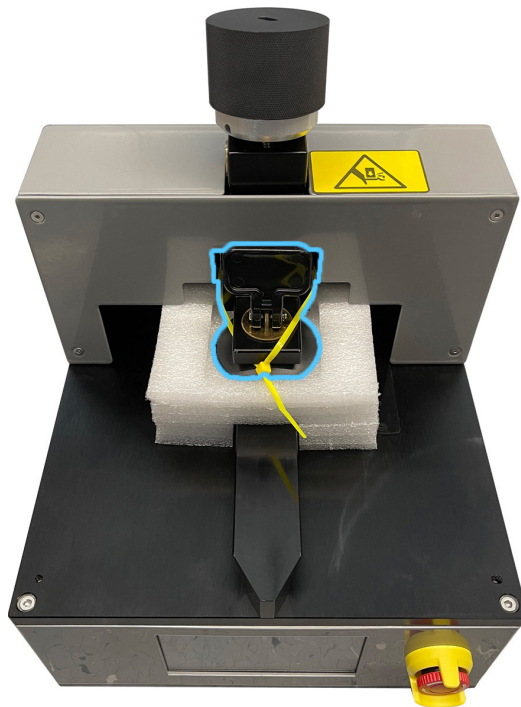


### Caution

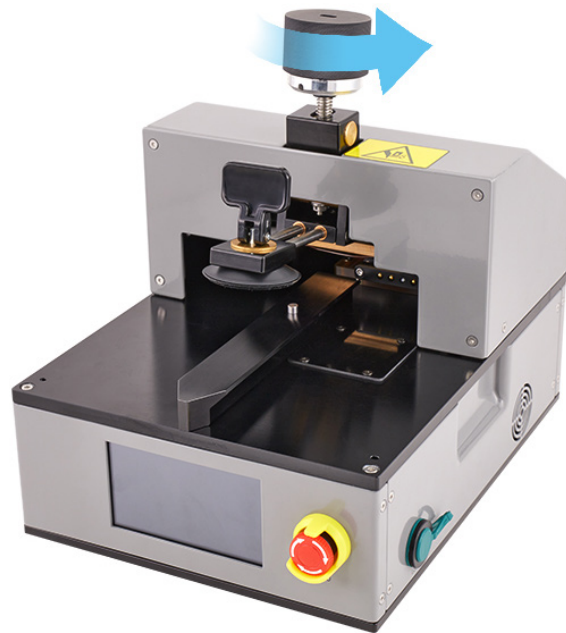
Don't lift the fixture by the knob.



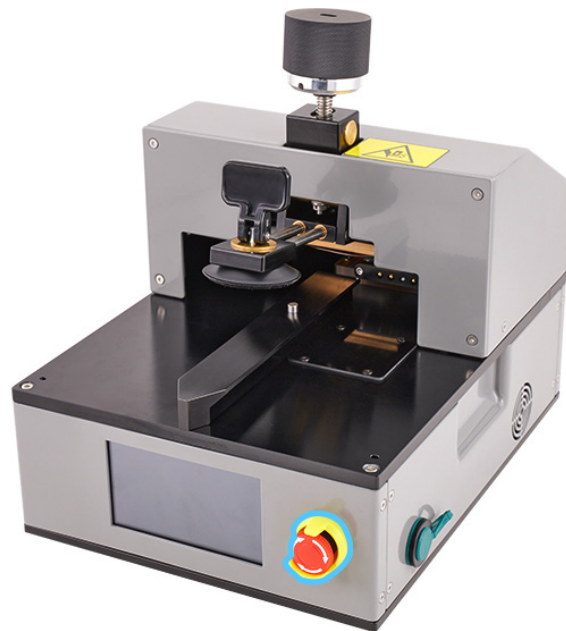
2. Cut and remove the zip tie from the handle.



3. Turn the top knob on the fixture counterclockwise to raise the suction cup. Remove the packing foam.



4. Turn the emergency stop knob clockwise until it clicks and protrudes from the stop guard.



5. Plug the power cord into the fixture. The fixture won't turn on until you flip the switch on the back.

# Battery Safety



## Warning

- This device contains a built-in lithium-ion rechargeable battery with soft battery cells. Battery safety is the number one concern when repairing a device with a built-in lithium-ion battery.
- Only technicians with the knowledge, experience, and tools required to repair electronic devices should replace a battery.
- Improper battery replacement, improper handling of parts, failure to discharge the battery before repair, or failure to follow the provided instructions could cause battery overheating, swelling, venting, leaking, or a battery thermal event. These events could result in fire, injury, death, data loss, or damage to the device, parts, or other property.
- To avoid these potentially harmful events, follow the battery safety guidelines and work in a safety-focused workspace with the tools listed below. It's important to be prepared for all possible outcomes.

## How to set up a workspace for battery safety

### Tools

- Clean, dry, untreated sand (8–10 cups)
- Sand container (wide-mouthed, quick pour, nonbreakable plastic container with a flip-top lid)
- Heat-resistant gloves
- Safety glasses with side shields
- ESD-safe cleaning solution

Workspaces used to repair Apple devices should meet the following criteria:

- Nonflammable and electrostatic discharge (ESD)-safe work bench
- At least 2 feet away from paper and other combustible materials
- Sand container within reach (2 feet) on one side of the workspace, not above the workspace
- Adequate ventilation

**Warning****How to handle a battery thermal event**

A battery thermal event is a rapid chemical chain reaction that occurs inside a battery cell. The energy stored in the battery is released suddenly, which can cause outgassing and fire. A battery thermal event can be triggered by physical damage to the battery, improper replacement or repair, or temperatures outside the battery's operating range.

Act immediately if you notice any of the following signs of a battery thermal event:

- The lithium-ion battery or a device that contains one begins to smoke or emit sparks or soot.
- The battery pouch suddenly and quickly puffs out.
- The lithium-ion battery or a device that contains one begins to emit hissing or popping sounds.

Do smother the battery or device immediately with plenty of clean, dry sand. Dump the sand all at once. Timing is critical — the faster you pour all the sand, the sooner the reaction will be contained.

Do contact local fire authorities if further assistance is needed.

Do leave the room for 30 minutes after the reaction is contained. Ventilate the area. Don't return until the area is clear of smoke.

Do wait 30 minutes before touching the device. Wear the heat-resistant gloves and safety glasses with side shields to remove the device from the sand.

Do wipe the affected area with water first. Then wipe the area with an ESD-safe cleaning solution.

Do dispose of the damaged battery or device (including any debris removed from the sand) according to local environmental laws and guidelines.

## How to handle batteries

### **Warning**

Fully discharge the battery before you begin a repair. A discharged battery is less susceptible to a battery thermal event. If you can't determine the battery level, don't repair the device.

Perform the following steps to discharge the battery:

- Disconnect all external cables.
- Remove all cases and covers.
- Turn on the flashlight from the Lock Screen, in Control Center, or by asking Siri. Wait until the device has turned off and the flashlight is no longer illuminated.

### **Caution**

The flashlight produces heat. Keep the iPhone in a well-ventilated area while the flashlight is illuminated.

## Best practices

- To avoid noxious fumes or a battery thermal event, don't puncture, strike, or crush a lithium-ion battery or a device that contains one.
- Keep your workspace clear of foreign objects and sharp materials.
- Be careful when using sharp tools near the battery.
- Don't leave loose screws, extra screws, or small parts inside the device.
- Don't use tools that conduct electricity.
- Don't throw or drop the battery.
- Don't expose the battery to excessive heat or sunlight, or temperatures outside the battery's operating range.
- Handle and dispose of waste batteries in accordance with local laws and regulations.

## Broken Glass

### **Warning**

iPhone displays and some back covers are made of glass. The glass could break if the iPhone is dropped on a hard surface, receives a substantial impact, or is crushed, bent, or deformed. Don't attempt to remove chipped or cracked glass shards without protection.

### Tools

- Back protective cover
- Cut-resistant gloves
- Display protective cover
- Heated display pocket
- Safety glasses with side shields
- Vacuum cleaner

### If the iPhone glass is broken, perform the following steps before you begin a repair:

1. Put on safety glasses with side shields and the cut-resistant gloves.
2. Use a vacuum cleaner to remove glass pieces from your workspace and the iPhone.
3. Attach a protective cover to the broken glass to prevent injury or scattering of glass. Each protective cover has a release liner underneath. Slowly pull the release liner out from under the protective cover while pressing the cover onto the enclosure.
4. Fold the release liner. Use the shiny side of the release liner to firmly press the protective cover onto the broken glass and smooth out any air bubbles.



5. Wait at least 12 minutes for the bond between the protective cover and the glass to strengthen.
6. If the back glass is broken, place the iPhone into the heated display pocket.

**If the iPhone has any of the following conditions, stop the repair:**

- There's no glass or insufficient glass for the protective cover to adhere to.
- The protective cover doesn't adhere to the iPhone.
- The iPhone doesn't fit in the heated display pocket.

You can find a service option at [support.apple.com/repair](https://support.apple.com/repair).

# First Steps

## Always perform the following steps before starting a repair:

- [Back up the iPhone.](#)
- [Discharge the battery fully.](#)
- [Turn off the iPhone.](#)
- Disconnect all cables.
- Remove all cases and covers.
- Clear and clean your workspace.
- Put on an ESD wrist strap and attach it to a properly grounded ESD mat.



### Caution

ESD (electrostatic discharge, or the release of static electricity) can damage electronic components.

## Be aware of the following while performing a repair:

- The manual for this model may show images of other models, but the procedures are the same. Ensure that you use the correct tools for the model you're repairing.
- Take your time. Thoroughly read all instructions and alerts.
- Magnetizing the torque drivers will make it easier to work with small screws.
- The end of each flex cable must align with its connector. Press the end of each flex cable to its connector until it clicks to ensure that it's secure.



### Warning

Loose screws, extra screws, or small parts inside the device can damage the battery and cause safety issues. Set aside all parts and screws removed during the repair and account for them at the end of the repair.

# SIM Tray

## Important

iPhone 14 models purchased in the United States don't have SIM trays.

### Tools

- SIM-eject tool or paper clip

### Removal

1. [Find your model to locate the SIM tray.](#)
2. Insert a paper clip or SIM-eject tool into the hole next to the SIM tray.
3. Push the paper clip or SIM-eject tool toward the enclosure to eject the SIM tray.
4. Remove the SIM tray.

### Reassembly

1. Press the SIM tray back into the side of the enclosure.

# Back Glass

## Before You Begin



### Warning

- Read [Battery Safety](#) and follow workspace and battery handling guidelines before you begin.
- Read [Broken Glass](#) before you begin.
- Improper replacement, improper handling of parts, or failure to follow the provided instructions may cause malfunctions. Additionally, wireless charging may appear slow or the iPhone may not charge properly. These events could result in injury, or damage to the device, parts, or other property.

### Tools

- 6.1 inch heated display pocket
- 6.1-inch repair tray
- Adhesive cutter
- Display adhesive press plate
- Display press
- ESD-safe tweezers
- Ethanol wipes or isopropyl alcohol (IPA) wipes
- Heated display removal fixture
- Heat-resistant gloves
- Micro stix bit
- Nylon probe (black stick)
- Safety glasses with side shields
- Torque driver (black, 0.35 kgf cm)
- Torque driver (blue, 0.65 kgf cm)
- Torque driver (green, 0.45 kgf cm)
- Torx security bit



**Caution**

- This procedure requires [System Configuration](#). After you've completed all removal and reassembly steps, follow the instructions to initiate System Configuration.
- To avoid damaging the lenses, don't touch the camera assembly or nearby parts.

**Important**

Read [Heated Display Removal Fixture](#) if you're setting up the fixture for the first time.

## Removal

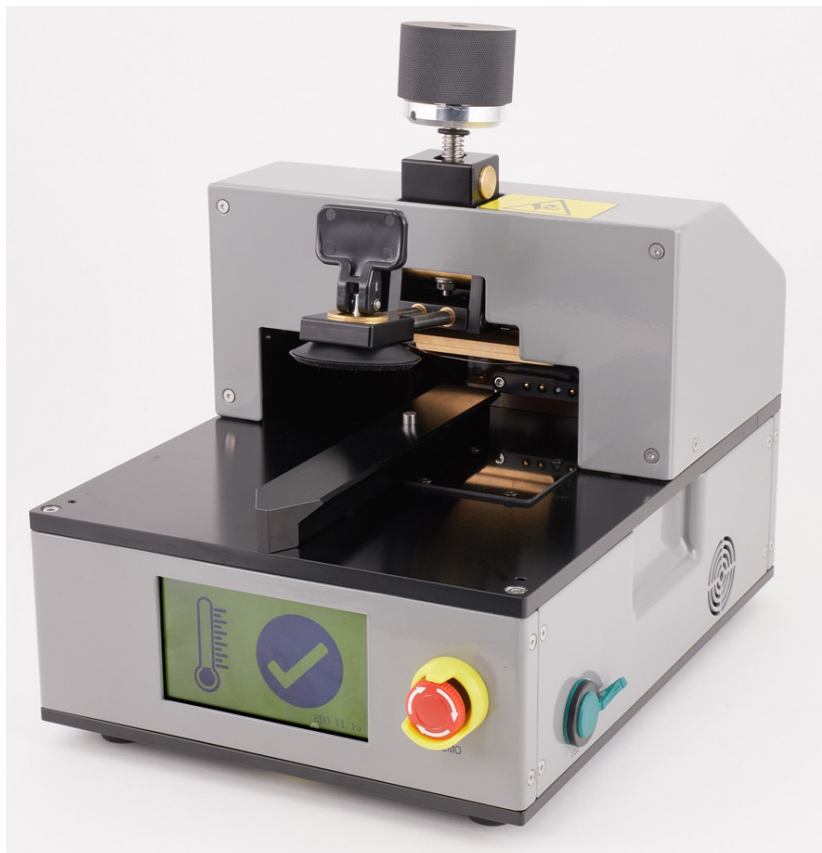
1. Place the enclosure in the repair tray with the Lightning connector facing the cutout.

2. Use a torque driver and the Torx security bit to remove the two security screws, one from each side of the Lightning connector. Set aside the screws.



3. Flip the switch on the back of the heated display removal fixture to turn it on. The internal fan will turn on. Wait for a check mark to appear on the screen.

**Note:** If an error code appears on the screen, turn off the fixture and turn it back on.



4. Take the iPhone out of the repair tray. Then gently insert it into the heated display pocket with the camera faceup and the Lightning connector facing the bottom of the pocket.

**Important**

Ensure that the clamp on the side of the pocket is flipped up.

**Caution**

Don't scratch the enclosure or the display as you insert the iPhone into the heated display pocket.



5. Flip down the clamp on the side of the pocket to lock the iPhone into place.



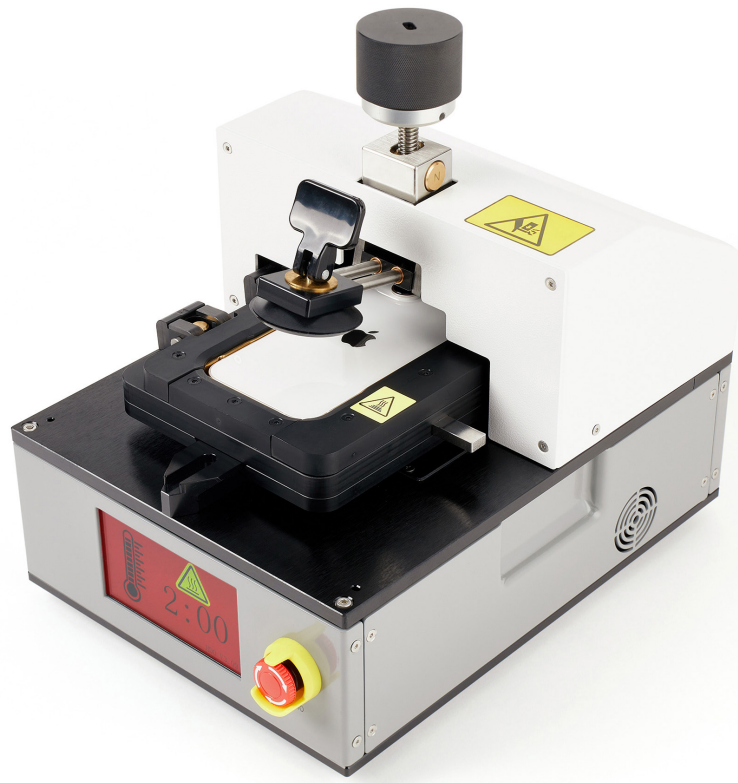
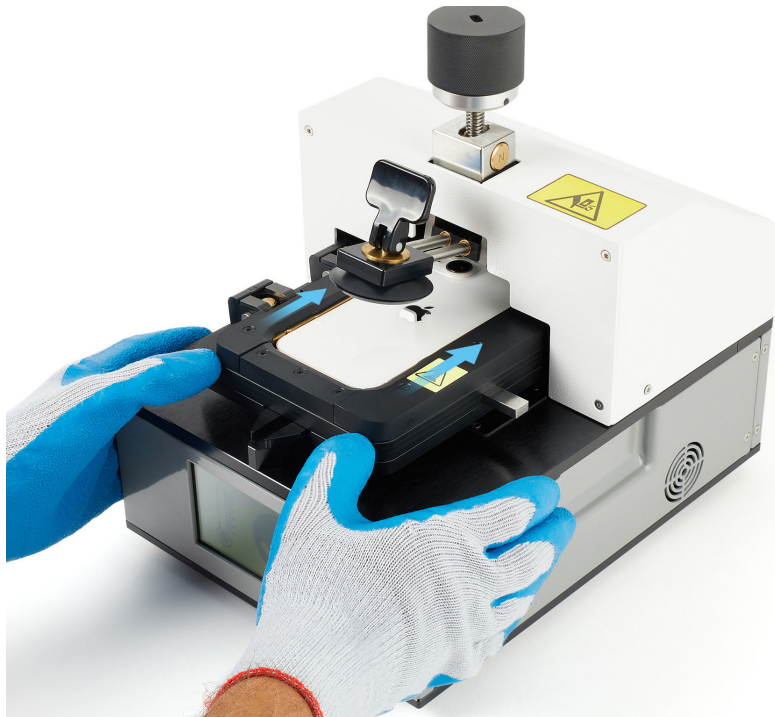
6. Put on the heat-resistant gloves. Align the cutout on the bottom of the pocket with the rail on the fixture. Slide the pocket with the iPhone onto the rail on the fixture.

**Warning**

Don't insert the pocket into the fixture without wearing the heat-resistant gloves.

7. Slide the pocket into the fixture until the pocket clicks into place.

**Note:** The screen on the fixture will turn red and the timer will count down from 2 minutes while the pocket heats to the correct temperature. When the timer shows 0, the fixture will start to beep and the screen will turn green.



- Turn the knob on the fixture to lower the suction cup as close to the iPhone as possible without touching the iPhone.

 **Caution**

To avoid damaging the iPhone, don't turn the knob before the timer ends.

**Note:** The fixture will beep until the suction cup is lowered.



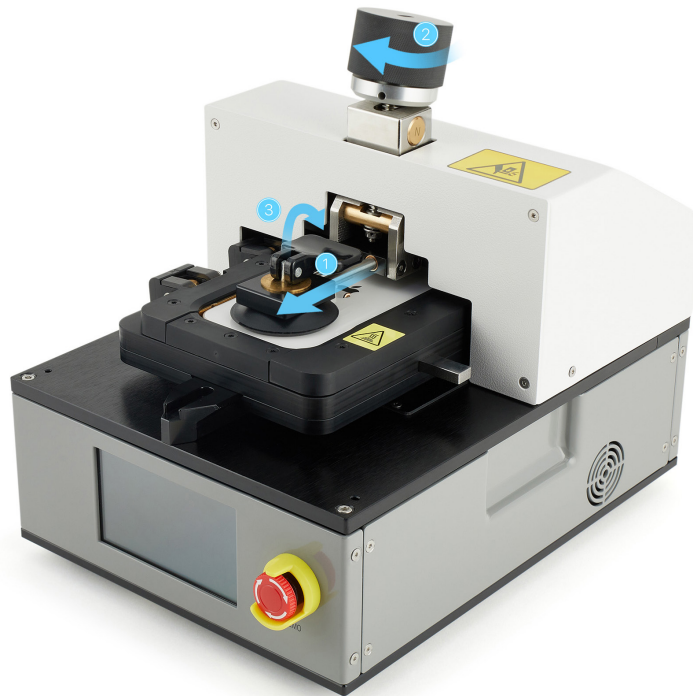
9. Grasp the handle and slide the suction cup straight out until the edge of the suction cup aligns with the bottom edge of the back glass (1).
10. Turn the knob on the fixture clockwise to lower the suction cup onto the back glass (2). Then flip down the handle on the suction cup to secure the suction cup to the back glass (3).

### **Caution**

Don't let the suction cup hang over the edge of the back glass or you may damage the iPhone. If damaged, stop the repair. You can find a service option at [support.apple.com/repair](https://support.apple.com/repair).

### **Important**

After the suction cup is lowered onto the iPhone, the screen will begin a 15 minute countdown. When the timer shows 0, the heated display removal fixture will turn off. Ensure that you complete steps 11 and 12 within this timeframe.



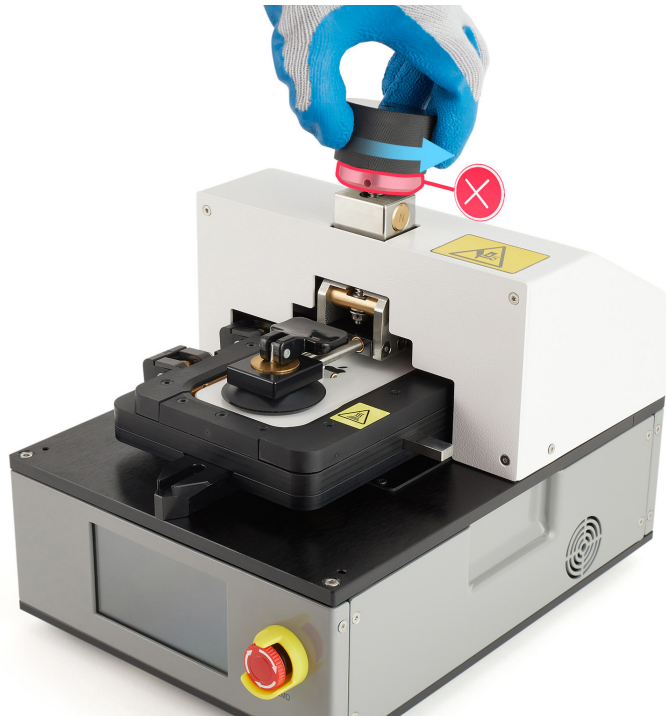
11. Slowly turn the black knob on the fixture counterclockwise until the back glass begins to separate from the enclosure.

### Important

If you don't see a gap between the back glass and the enclosure right away, wait 30 seconds. If you still don't see a gap, turn the silver part of the knob counterclockwise until the display begins to separate from the enclosure.

### ! Caution

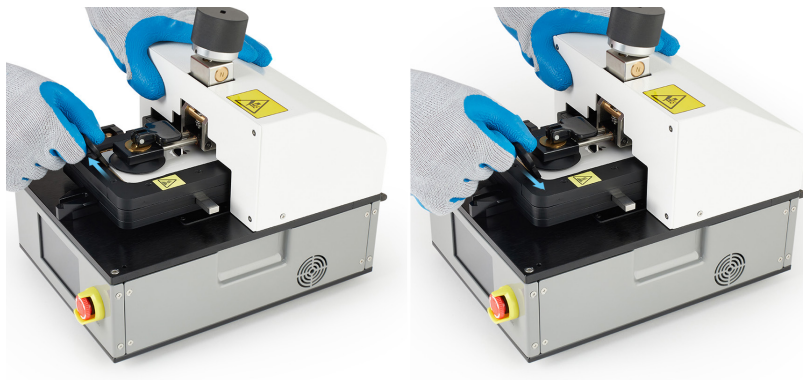
Only turn the silver knob if you haven't seen a gap after waiting for 30 seconds.



12. Insert the edge of the adhesive cutter between the back glass and the enclosure. Run the cutter between the back glass and the enclosure to the right and left as shown until the glass partially releases from the enclosure.

### ! Caution

To avoid damaging the flex connectors, don't tilt the back glass more than 5 degrees.



13. Flip up the handle to release the suction cup. Gently slide the flat end of the black stick under the edge of the suction cup to release it from the back glass.

 **Caution**

Don't turn the knob to release the suction cup. Turning the knob may damage the flex cables.

14. Press the eject button on the side of the pocket to release the pocket from the fixture.



15. Hold both sides of the pocket and slide it straight out of the fixture.



16. Flip up the clamp on the side of the pocket to release the iPhone. Hold the edge of the iPhone and gently remove the iPhone from the pocket.

**Caution**

Don't touch the camera lenses.



17. Place the iPhone into the repair tray with the camera faceup and the Lightning connector facing the cutout. Remove the gloves.

18. Slide the back glass slightly toward the bottom of the iPhone.

19. Insert the edge of the adhesive cutter into the top of the iPhone between the back glass and the enclosure. Hold the adhesive cutter at a 45-degree angle. Start at the middle and cut along the sides and tops of the iPhone until the back glass is free.

**Caution**

To avoid damaging the flex cables, don't tilt the back glass more than 5 degrees.



20. Insert the repair tray suction cups into the slots in the repair tray.

**Note:** The icon on the bottom of the tray indicates the direction to lift the back glass and the correct side to place the suction cups.



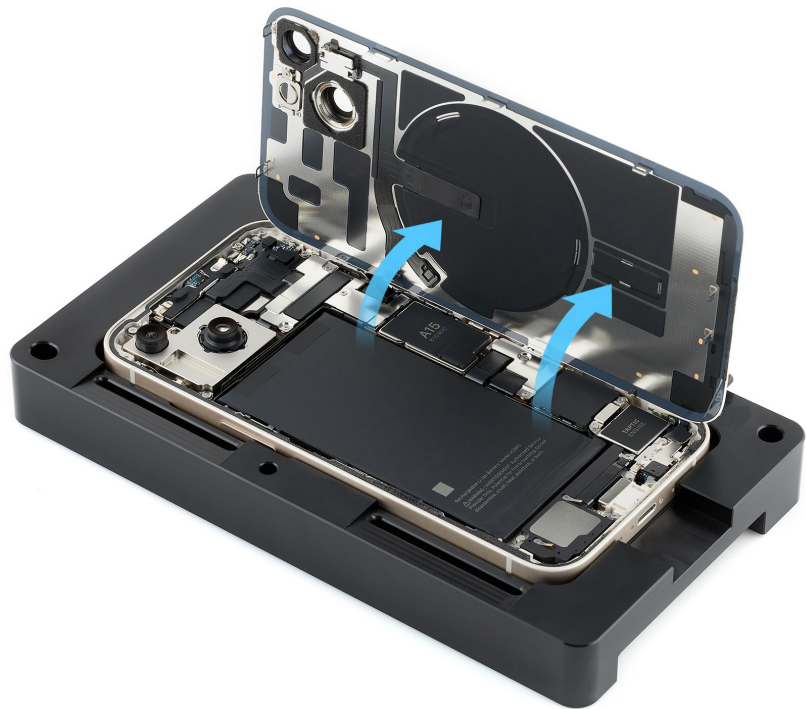
21. Tilt the back glass away from the suction cups. Press the top and bottom edges of the back glass to secure it to the suction cups.

 **Caution**

Don't damage the flex cables as you tilt up the back glass.

 **Warning**

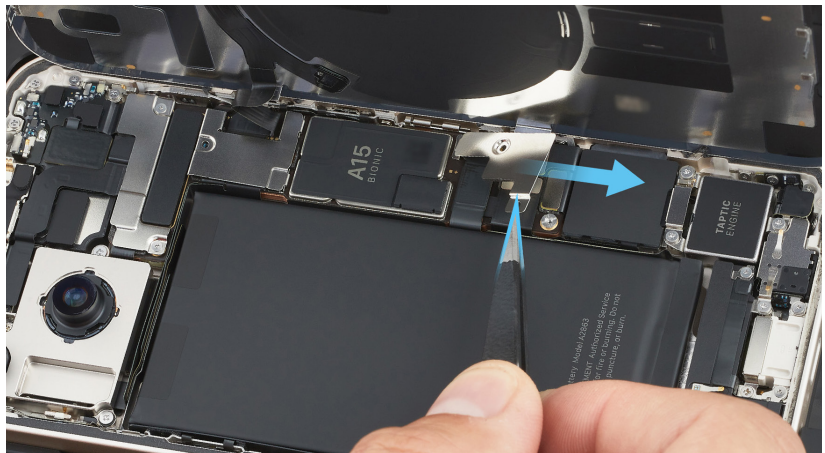
- If the battery is dented, punctured, or otherwise damaged, stop the repair. You can find a service option at [support.apple.com/repair](https://support.apple.com/repair).
- If the back glass is broken, inspect the enclosure. If there are shards of glass in the enclosure, put on the safety glasses with side shields and cut-resistant gloves. Use ESD-safe tweezers to remove the shards. Then use ethanol or IPA wipes to remove all remaining shards from the adhesive on the perimeter of the enclosure. Vacuum all shards of glass from the workspace.



22. Use a torque driver and the Micro stix bit to remove and set aside the trilobe screw from the upper cowl and two trilobe screws from the lower cowl.



23. Use ESD-safe tweezers to tilt up the lower cowl and slide it out in the direction of the Taptic Engine. Save the cowl for reassembly.



24. Use ESD-safe tweezers to tilt up the upper cowl and slide it out in the direction of the camera. Save the cowl for reassembly.



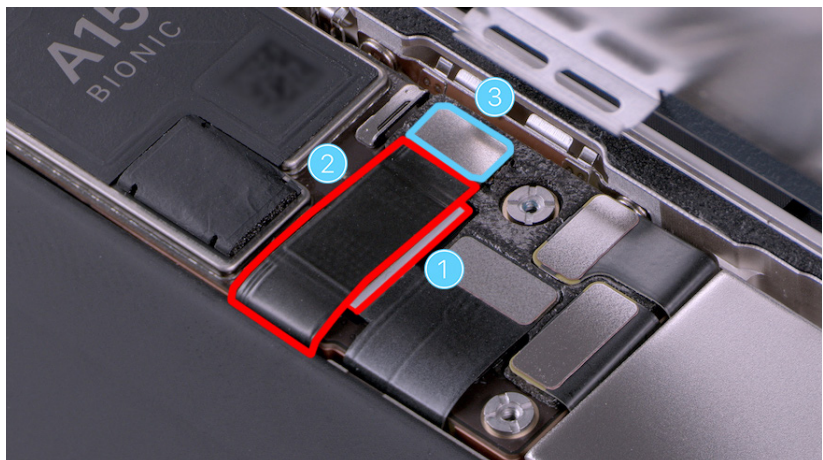
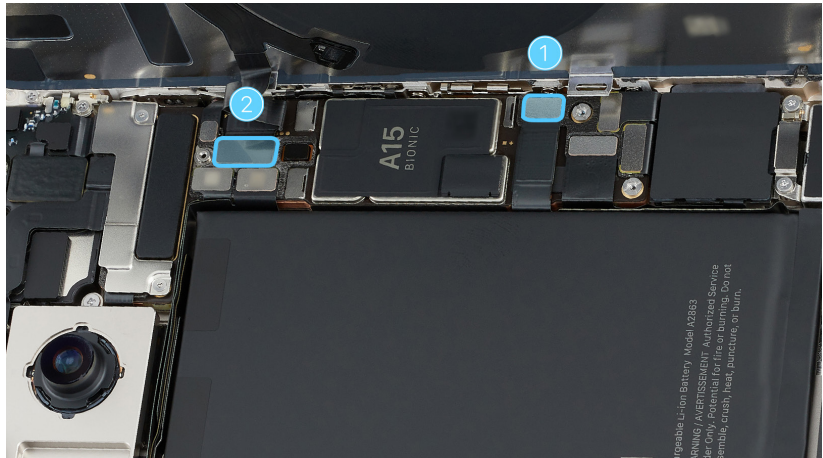
25. Lift the ends of the battery flex cable (1) and the back glass flex cable (2) off the connectors.

**Caution**

You must disconnect the battery flex cable first to ensure that the iPhone stays off.

**Important**

Some iPhone 14 models may have a white adhesive shim (1) under the battery flex cable. If you see a white adhesive shim, don't lift the battery flex cable (2) or touch the white adhesive shim while lifting the end of the flex cable (3) off the connector.



26. Hold the back glass by the edges. Pull the tabs on the suction cups to release them from the back glass. Then set the back glass facedown on a clean, flat surface.

27. Remove the suction cups from the repair tray.

28. Use ESD-safe tweezers to pick up the back glass adhesive. Then pull the adhesive at a 45-degree angle to remove it from the enclosure. Repeat this process until all the adhesive is removed from the perimeter of the enclosure.



 **Caution**

Don't touch the camera assembly, TrueDepth camera grounding springs, or nearby parts.

29. Use ethanol wipes or IPA wipes to clean all residual adhesive from the enclosure.

## Reassembly

1. Place the enclosure in the repair tray with the Lightning connector facing the cutout.

### Important

If you're installing a replacement back glass, peel the protective liner from the top and underside of it.

2. Inspect the TrueDepth camera. Ensure that the top edge of the TrueDepth camera is under the lip of the enclosure.



### Caution

If the TrueDepth camera is positioned incorrectly, use the black stick to move it into the correct position.



### Warning

Inspect the enclosure for loose or extra screws and small parts, which can damage the battery and cause safety issues.

3. Align the replacement back glass adhesive over the enclosure. Ensure that the top hole of the adhesive aligns over the camera.



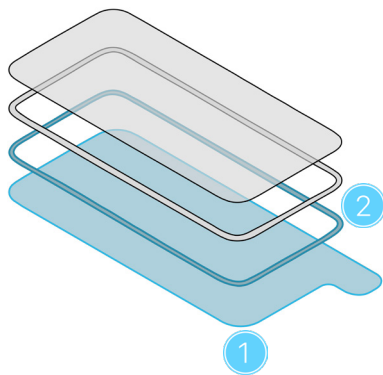
### Caution

Ensure that you've removed all adhesive residue from the back glass and the enclosure before you apply the replacement back adhesive.

4. The replacement back glass adhesive has a top release liner, a middle release liner, and a bottom release liner. Grasp the tab on the bottom release liner. Then slowly pull the bottom release liner out from under the adhesive while pressing the adhesive onto the enclosure.

### Important

Don't remove the top release liner yet.



1 Bottom release liner

2 Adhesive

**Note:** The replacement display adhesive for your model may look different from the illustration, but the steps are the same.



5. Inspect the back glass adhesive to ensure that it's positioned on the shelf of the enclosure. If the adhesive isn't correctly positioned on the enclosure, repeat removal steps 27 and 28. Then repeat reassembly steps 1 through 5.
6. Place the display adhesive press plate on top of the enclosure with the icon in the top right corner.

**Important**

Ensure that the back glass side of the iPhone is faceup in the repair tray.

**Note:** The replacement back glass adhesive for your model may look different from the illustration, but the steps are the same.



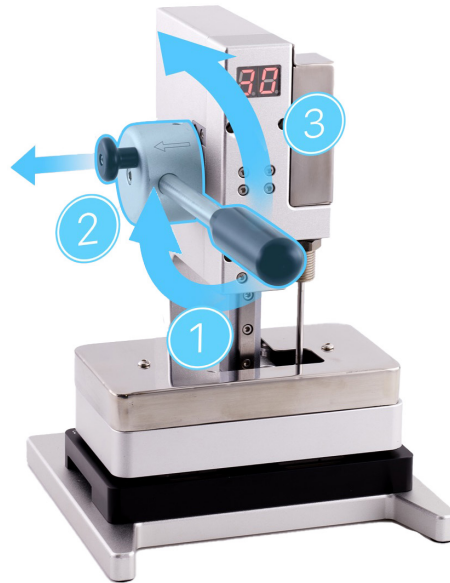
7. Position the repair tray with the iPhone in the display press. Pull down the lever until the display press locks.



8. Wait until the timer on the display press reaches 0. The display press will also beep. Pull down the lever (1) and pull out the release knob (2). Then lift the lever (3).

**Caution**

To ensure that the back glass adhesive bonds correctly to the enclosure, don't lift the lever until 30 seconds have passed.

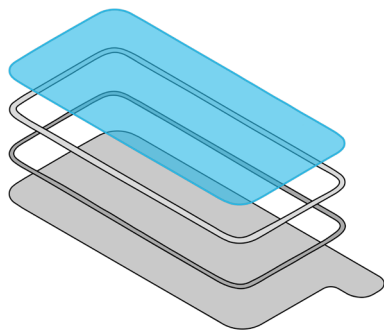


9. Remove the repair tray from the display press and remove the press plate.

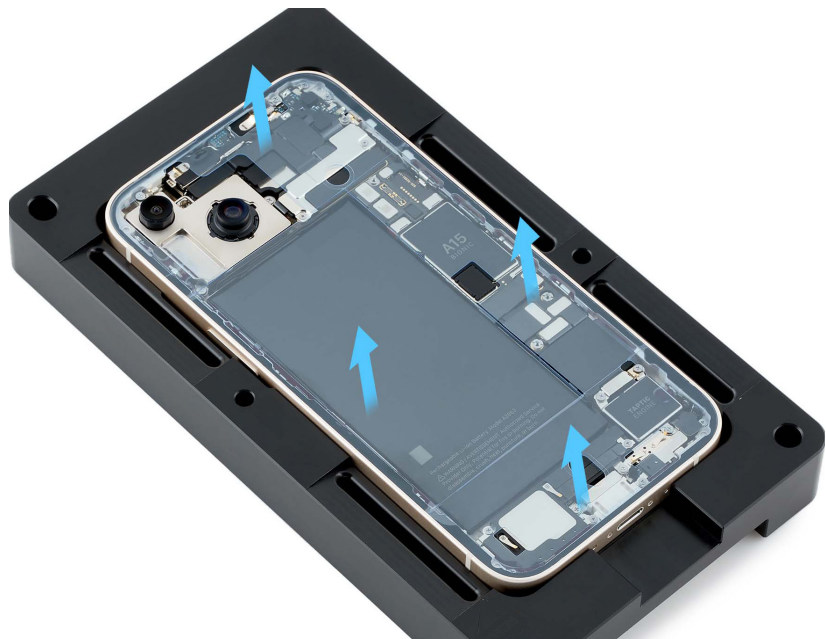
10. Remove the top release liner in a clockwise direction starting from the middle left side.

**Important**

Don't remove the remaining release liners located on the edge of the enclosure.



Top release liner



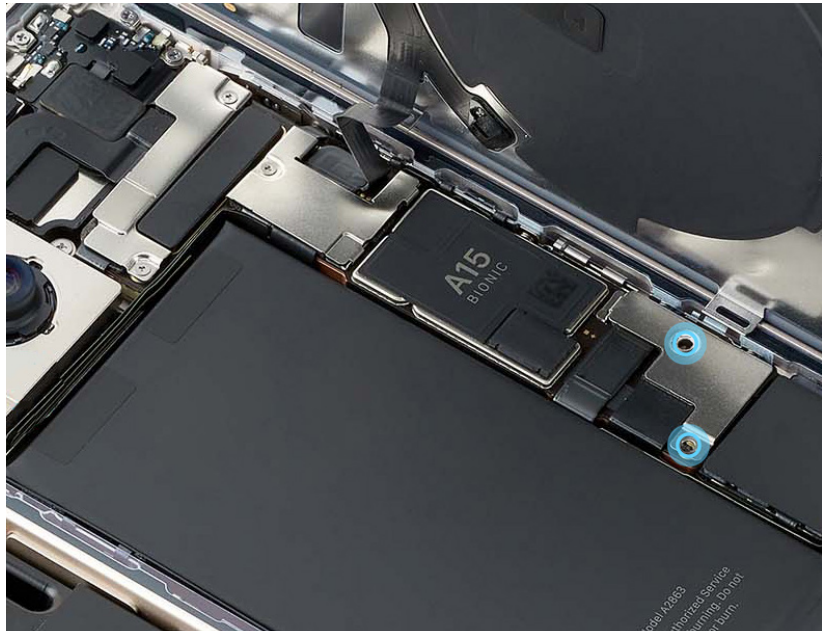
11. Insert the suction cups into the repair tray.
12. Align the right edge of the back glass with the right edge of the enclosure. Gently press along the edges of the back glass to secure it to the suction cups.

### Important

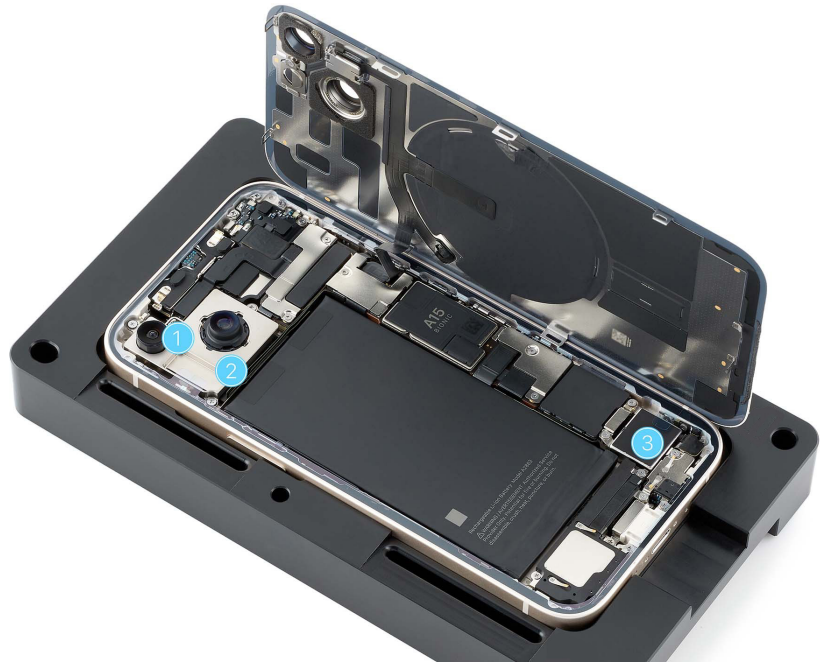
Don't press the back of the back glass to secure it to the suction cups. Pressing the back may affect functionality.



13. Press the ends of the back glass and battery flex cables to the connectors.
14. Position the upper and lower cowlings.

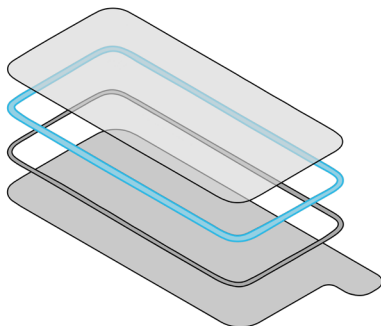


15. Peel the first strip of the middle release liner (1) clockwise, starting at the top left of the enclosure. Peel the second strip (2) counterclockwise, starting at the top left of the enclosure. Peel the third strip (3) counterclockwise, starting at the bottom right of the enclosure.
16. Use the green torque driver and the Micro stix bit to install two new trilobe screws (923-08382) into the lower cowling.
17. Use the black torque driver and the Micro stix bit to install one new trilobe screw (923-02584) into the upper cowling.



 **Caution**

The third strip of the middle release liner runs under one flex cable. Don't damage the flex cable while removing the release liner.



Middle release liner

18. Inspect the back glass adhesive to make sure it's in the correct position and not damaged or wrinkled. If the adhesive is damaged, remove it and apply replacement adhesive.
19. Repeat reassembly step 2 to ensure that the TrueDepth camera is in the correct position. Then continue to step 20.

 **Warning**

Inspect the enclosure for loose or extra screws and small parts, which can damage the battery and cause safety issues.

20. Pull the tabs on the suction cups to release them from the back glass. Tilt down the back glass to rest on the enclosure.
21. Remove the suction cups from the repair tray.

22. Press the back glass on the four areas shown simultaneously. Then press along the edges of the back glass until the back glass is flush with the enclosure.

 **Caution**

- Ensure that the flex cables aren't trapped between the back glass and the enclosure. Feel the edges of the back glass for variations or gaps. If the back glass isn't flush, repeat all removal steps and check the flex cables for damage. Then repeat reassembly steps 1 through 22 before continuing to step 23.
- Don't touch the camera lenses.



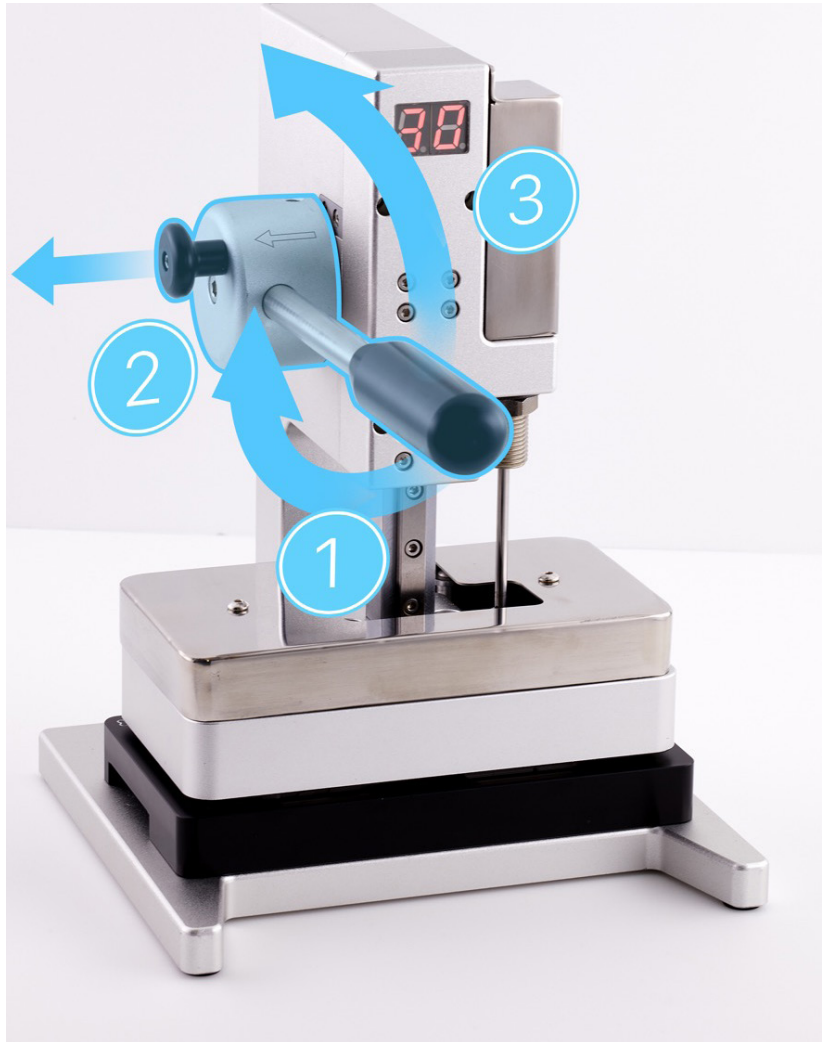
23. Turn the iPhone over in the repair tray so the display is faceup.



24. Position the repair tray with the iPhone display faceup in the display press. Pull down the lever until the display press locks.



25. Wait until the timer on the display press shows 0. The display press will also beep. Pull down the lever (1) and pull out the release knob (2). Then lift the lever (3).



26. Remove the repair tray from the display press.

27. Use the blue torque driver and Torx security bit to install two new security screws, one on each side of the Lightning connector. As you install the screws, press lightly on the display near the Lightning connector. Count five clicks as you install each new screw to ensure that the screw is fully installed.



 **Caution**

If the screws aren't flush, remove and set aside the screws. Then repeat step 27 to install a new set of security screws. If the new screws still aren't flush, repeat all removal and reassembly steps.

**Note:** Use the correct screw color for your model.

- Blue, purple, red, starlight (923-08388)
- Midnight, yellow (923-08387)

 **Caution**

- [System Configuration](#) is required if you've installed a replacement back glass, battery, camera, display, or TrueDepth camera. Disregard notifications about iPhone features on the Lock Screen until you complete System Configuration.
- After you've completed all removal and reassembly steps, initiate System Configuration. The method of initiating System Configuration will vary depending on the part or parts replaced.
  - **If you replaced the back glass, battery, camera, or display**, initiate System Configuration by [putting the device into diagnostics mode](#). Tap Start Diagnostics and follow onscreen prompts.
  - **If you replaced the TrueDepth camera**, you will need the following:
    - The latest version of [Apple Service Utility](#) installed on a Mac running macOS 12.4 or later
    - Internet access
    - A Lightning cable

After you've installed Apple Service Utility on a Mac, learn how to initiate the System Configuration process at [support.apple.com/self-service-repair](https://support.apple.com/self-service-repair)

# Display

## Before You Begin

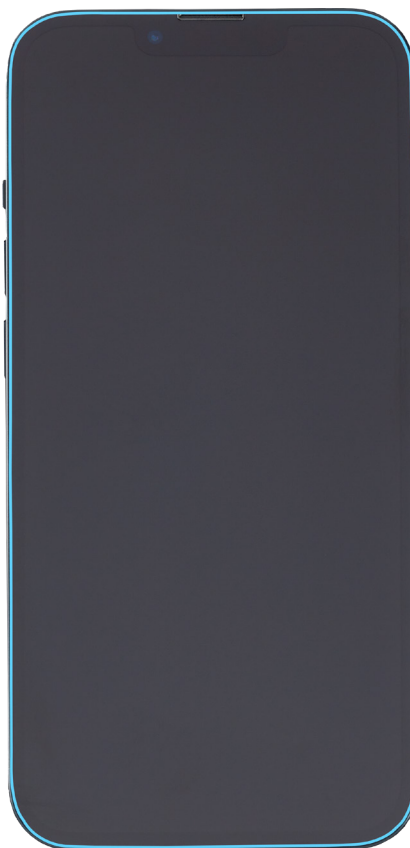


### Warning

- Read [Battery Safety](#) and follow workspace and battery handling guidelines before you begin.
- Read [Broken Glass](#) before you begin.

### Tools

- 6.1-inch heated display pocket
- 6.1-inch repair tray
- Adhesive cutter
- Display adhesive press plate
- Display press
- ESD-safe tweezers
- Ethanol wipes or Isopropyl alcohol (IPA) wipes
- Heated display removal fixture
- Heat-resistant gloves
- Kapton tape
- Micro stix bit
- Nylon probe (black stick)
- Torque driver (black, 0.35 kgf cm)
- Torque driver (blue, 0.65 kgf cm)
- Torx security bit



 **Caution**

- To avoid damaging the lenses, don't touch the TrueDepth camera assembly or nearby parts.
- Don't touch the back of the display. Touching the back of the display may affect image quality.
- This procedure requires System Configuration. After you've completed all removal and reassembly steps, follow the instructions to initiate [System Configuration](#).

**Important**

Read [Heated Display Removal Fixture](#) if you're setting up the fixture for the first time.

## Removal

### Important

If you're able to [turn off the iPhone](#), skip to step 6. If you're unable to turn off the iPhone, continue to step 1.

1. Complete all removal steps in the [back glass](#) section. Then continue to step 2.
2. Place the enclosure in the repair tray with the camera faceup and the Lightning connector facing the cutout.
3. Place Kapton tape over the battery flex cable connector on the logic board.



4. Press the end of the back glass flex cable to the connector.

### Caution

- Don't reconnect the battery flex cable at this time.
- Don't reinstall the upper and lower cowlings or back glass adhesive at this time.

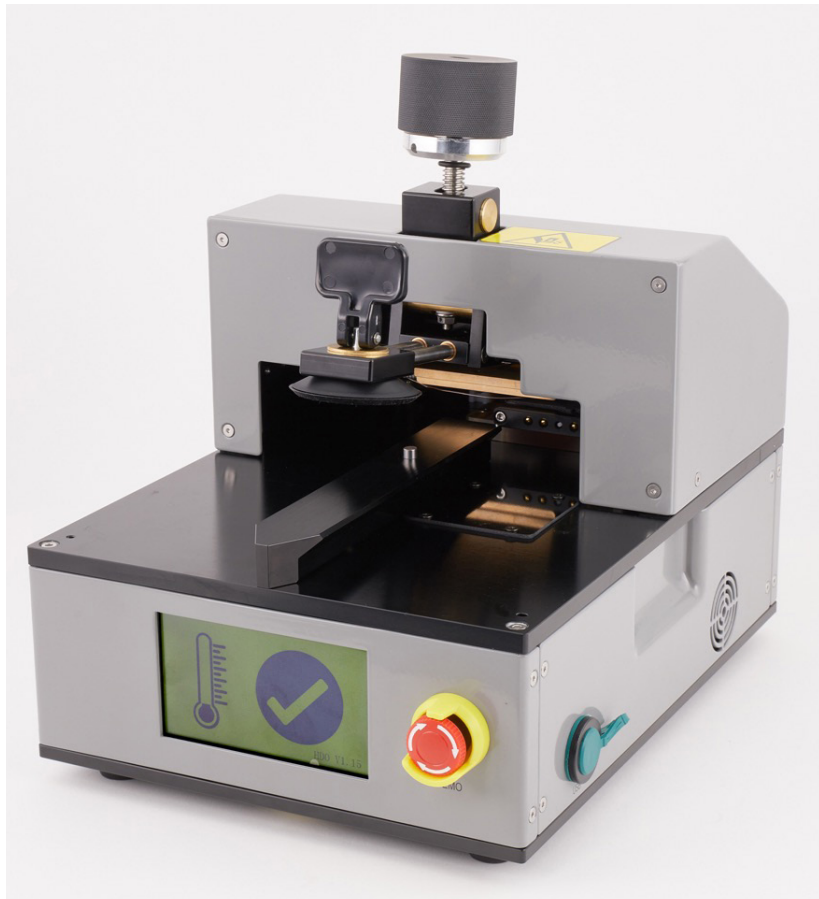
5. Position the back glass on top of the enclosure. Remove the enclosure from the repair tray. Then place the enclosure back in the repair tray with the display faceup and the Lightning connector facing the cutout.

6. Use a torque driver and the Torx security bit to remove the two security screws, one from each side of the Lightning connector. Set aside the screws.



7. Flip the switch on the back of the heated display removal fixture to turn it on. The internal fan will turn on. Wait for a checkmark to appear on the screen.

**Note:** If an error code appears on the screen, turn off the fixture and turn it back on.



- Take the iPhone out of the repair tray. Then gently insert the iPhone into the heated display pocket with the display faceup and the Lightning connector facing the bottom of the pocket.

**Important**

Ensure that the clamp on the side of the pocket is flipped up.

**Caution**

Don't scratch the iPhone as you insert it into the heated display pocket.



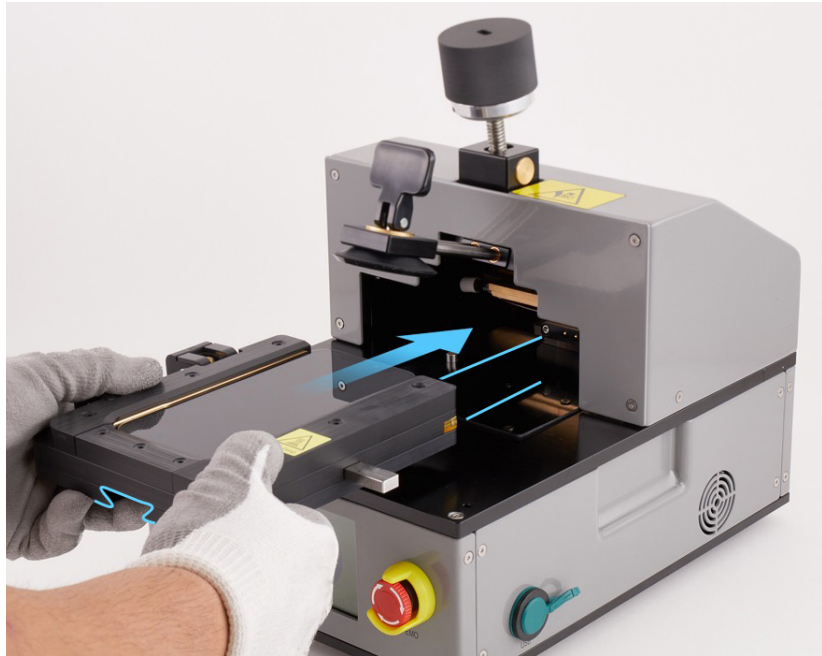
- Flip down the clamp on the side of the pocket to lock the iPhone into place.



10. Put on the heat-resistant gloves. Align the cutout on the bottom of the pocket with the rail on the fixture. Slide the pocket with the iPhone onto the rail on the fixture.

**Warning**

Don't insert the pocket into the fixture without wearing the heat-resistant gloves.



11. Slide the pocket into the fixture until you feel the pocket click into place.



**Note:** The screen on the fixture will turn red and the timer will count down from 2 minutes while the pocket heats to the correct temperature. When the timer shows 0, the fixture will start to beep and the screen will turn green.



12. Turn the knob on the fixture clockwise to lower the suction cup as close to the iPhone as possible without touching the iPhone.

 **Caution**

To avoid damaging the iPhone, don't turn the knob before the timer ends.

**Note:** The fixture will beep until the suction cup is lowered.



13. Grasp the handle and slide the suction cup straight out until the edge of the suction cup aligns with the bottom edge of the display.

 **Caution**

Failure to align the edges of the suction cup and the display may damage the iPhone.



14. Turn the knob on the fixture clockwise to lower the suction cup onto the display (1). Then flip down the handle on the suction cup to secure the suction cup to the display (2).

### Important

After the suction cup is lowered onto the iPhone, the screen will begin a 15-minute countdown. When the timer shows 0, the heated display removal fixture will turn off. Ensure that you complete steps 15 and 16 within this time frame.



15. Slowly turn the knob on the fixture counterclockwise until the display begins to separate from the enclosure.

### Important

If you don't see a gap between the display and the enclosure immediately, wait 30 seconds. If you still don't see a gap, turn the silver part of the knob counterclockwise until the display begins to separate from the enclosure.

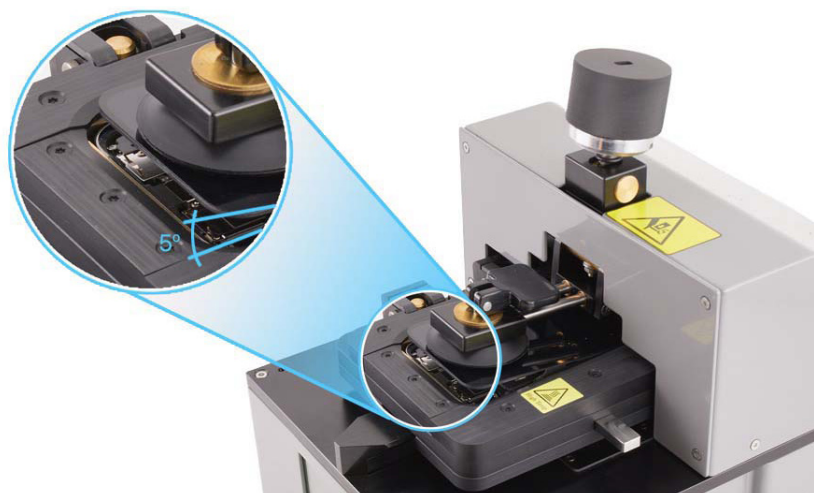


16. Insert the edge of the adhesive cutter between the display and the enclosure. Run the cutter between the display and the enclosure to the right and left as shown until the display partially releases from the enclosure.



 **Caution**

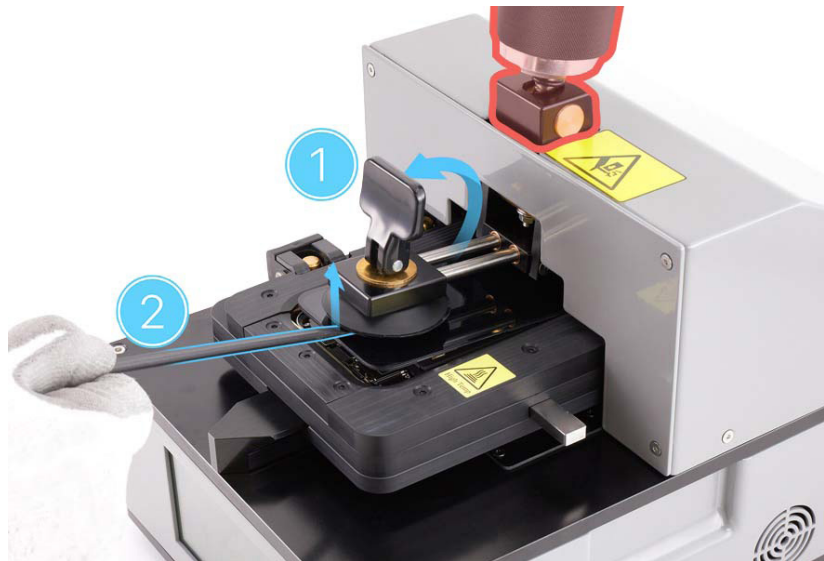
To avoid damaging the flex cables, don't tilt up the bottom of the display more than 5 degrees.



17. Flip up the handle to release the suction cup (1). Gently slide the flat end of the black stick under the edge of the suction cup to release it from the display (2).

 **Caution**

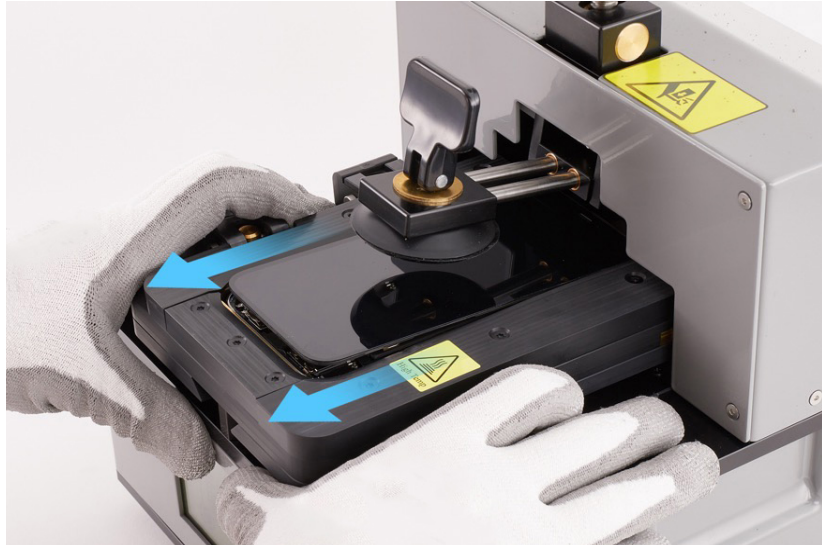
Don't turn the knob.  
Turning the knob may  
damage the flex cables.



18. Press the eject button on the side of the pocket to release the pocket from the fixture.



19. Hold both sides of the pocket and slide it straight out of the fixture.



20. Flip up the clamp on the side of the pocket to release the iPhone (1). Hold the area outlined in blue and gently remove the iPhone from the pocket (2).

 **Caution**

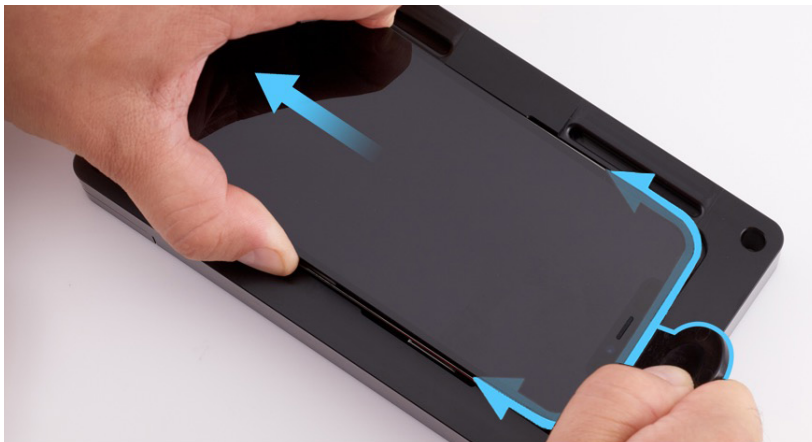
Don't scratch the iPhone as you remove it from the heated display pocket.



21. Place the iPhone into the repair tray with the display faceup and the Lightning connector facing the cutout. Remove the gloves.

22. Slide the display slightly toward the bottom of the iPhone.

23. Insert the edge of the adhesive cutter into the top of the iPhone between the display and the enclosure. Hold the adhesive cutter at a 45-degree angle. Start at the middle and cut along the top and sides of the iPhone until the display is free.



### Caution

To avoid damaging the display flex connectors, don't tilt the display more than 5 degrees.



24. Insert the repair tray suction cups into the slots in the repair tray.

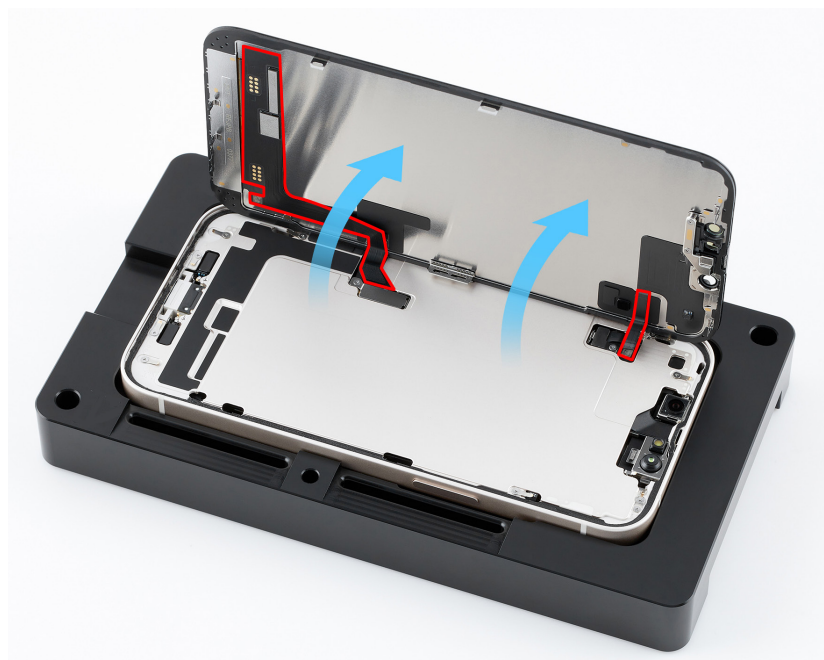
**Note:** The icon on the bottom of the tray indicates the direction to lift the display and the correct side to place the suction cups.



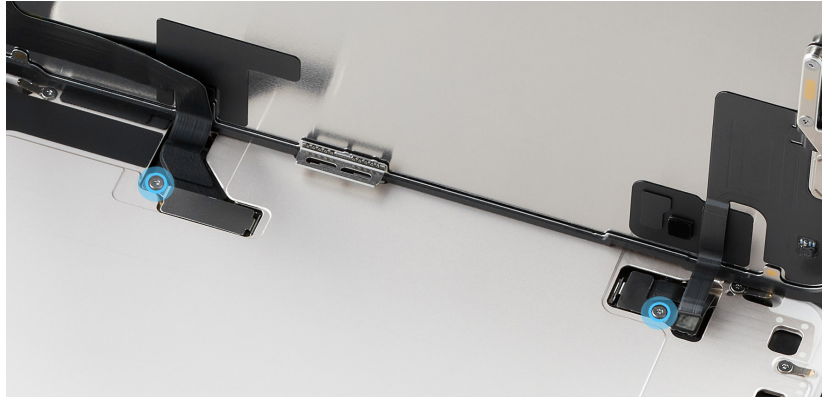
25. Tilt up the display toward the suction cups. Press the top and bottom edges of the display to secure it to the suction cups.

 **Caution**

- To avoid damaging the enclosure or display, ensure that the internal display clips are released before you tilt up the display.
- Don't damage the flex cables as you tilt up the display.

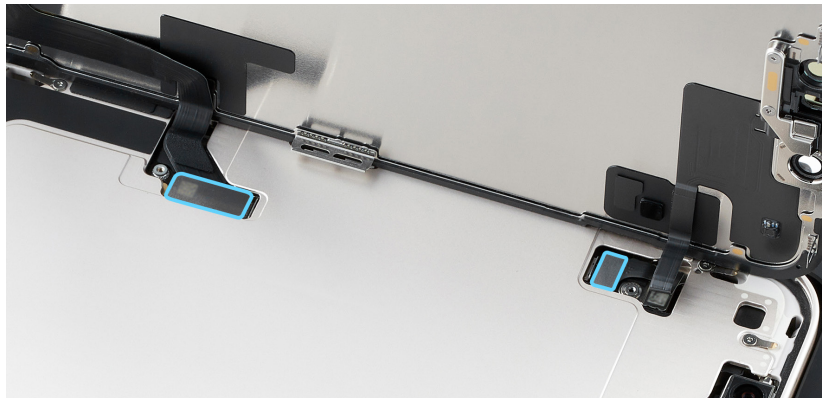


26. Use a torque driver and Micro stix bit to remove the two trilobe screws, one from the display connector cowlings and one from the ambient light sensor connector cowlings. Set aside the screws.



27. Remove the display connector and ambient light sensor connector cowlings. Save the cowlings for reassembly.

28. Lift the ends of the display and sensor flex cables from the connectors.



29. Hold the display by the edges. Pull the tabs on the suction cups to release them from the display. Then set the display facedown on a clean, flat surface.

30. Remove the suction cups from the repair tray.

31. Use ESD-safe tweezers to pick up the display adhesive. Then pull the adhesive at a 45-degree angle to remove it. Repeat this process until all the adhesive is removed from the perimeter of the enclosure.

**Caution**

Don't touch the TrueDepth camera assembly, grounding springs, or nearby parts.



32. Use ESD-safe tweezers to remove the grounding foam from the top of the enclosure.



33. Use ethanol wipes or IPA wipes to clean any adhesive residue from the enclosure.

**Caution**

Don't use ethanol wipes or IPA wipes on the display. Ethanol or isopropyl alcohol may damage the display and affect image quality.

## Reassembly

1. Inspect the internal display clips for damage before reassembly. Ensure that the internal display clips are at a 90-degree angle and aren't bent or damaged.

### Important

- If the internal display clips are damaged, you may need to replace the display.
- If you're installing a replacement display, peel the protective liner from the top and underside of it

2. Place the enclosure in the repair tray with the Lightning connector facing the cutout.
3. Align the replacement display adhesive over the enclosure with the grounding foam on top. Ensure that the top holes of the adhesive align over the TrueDepth camera assembly.



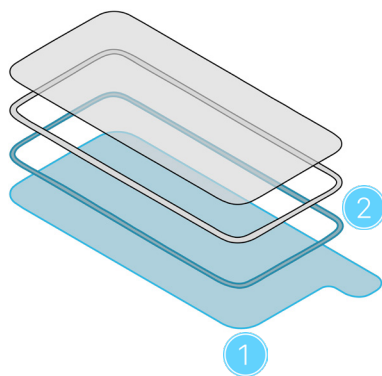
### Caution

Ensure that you've removed all adhesive residue from the display and the enclosure before you apply the replacement display adhesive.

4. The replacement display adhesive has a top release liner, a middle release liner, and a bottom release liner. Grasp the tab on the bottom release liner. Then slowly pull the bottom release liner (1) out from under the adhesive (2) while pressing the adhesive onto the enclosure.

### Important

Don't remove the top release liner yet.



1 Bottom release liner

2 Adhesive

**Note:** The replacement display adhesive for your model may look different from the illustration, but the steps are the same.



5. Inspect the display adhesive to ensure it's positioned on the lip of the enclosure. If the adhesive isn't positioned correctly, repeat steps 31 through 33. Then repeat reassembly steps 1 through 5 with a new display adhesive.
6. Use the black stick to gently adhere the grounding foam.

 **Caution**

- Don't touch the TrueDepth camera assembly while adhering the grounding foam.
- Failure to adhere the grounding foam may damage the display, Wi-Fi, or TrueDepth camera.



7. Place the display adhesive press plate on top of the enclosure with the icon in the top right corner and the display facing up.



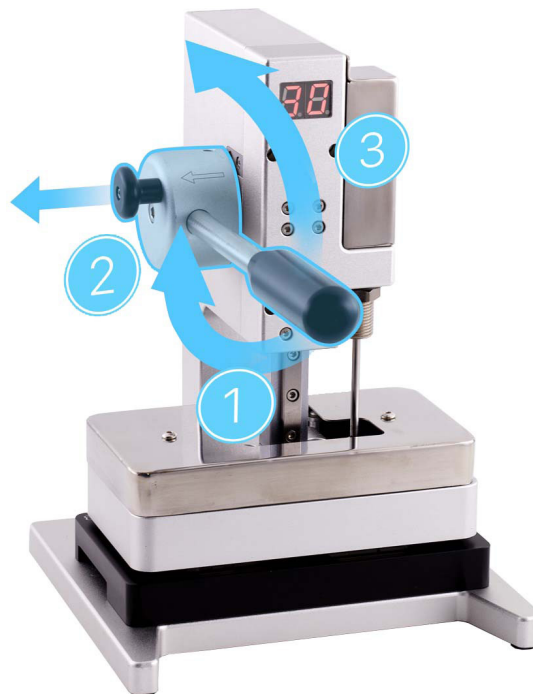
8. Position the repair tray with the iPhone in the display press. Pull down the lever until the display press locks.



- Wait until the display press beeps and the timer shows 0. Pull down the lever (1) and pull out the release knob (2). Then lift the lever (3).

 **Caution**

To ensure that the display adhesive bonds correctly to the enclosure, don't lift the lever until 30 seconds have passed.

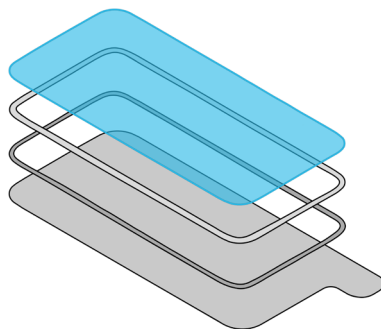


- Remove the repair tray from the display press and remove the press plate.

- Use ESD-safe tweezers to remove the top release liner as shown.

**Important**

Don't remove the middle release liner yet.

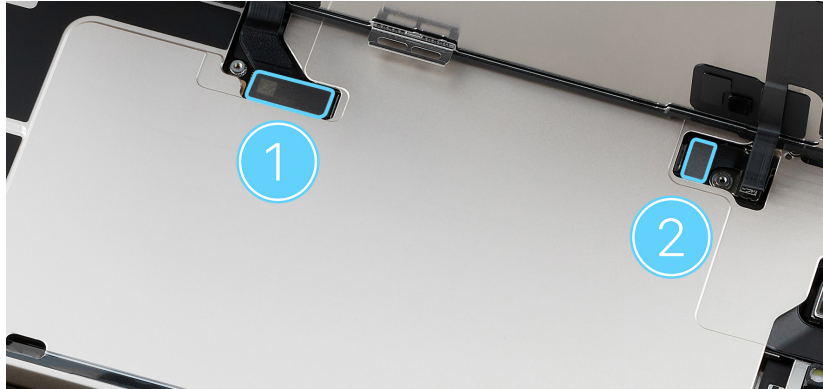


Top release liner



12. Insert the suction cups into the repair tray.
13. Align the left edge of the display with the left edge of the enclosure. Then gently press along the edges of the display to secure it to the suction cups.

14. Press the ends of the display flex cable (1) and sensor flex cable (2) to the connectors. Press evenly along the length of the connectors.



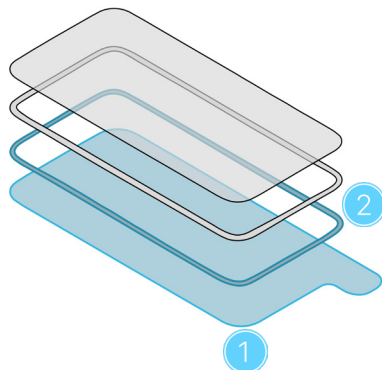
15. Position the display connector cowling (1) and ambient light sensor connector cowling (2) over the ends of the flex cables.
16. Use the black torque driver and Micro stix bit to install two new trilobe screws (923-08503), one into the ambient light sensor connector cowling and one into the display connector cowling.



17. Peel the first strip of the middle release liner (1) clockwise, starting at the bottom right of the enclosure. Peel the second strip (2) counterclockwise, starting at the bottom right of the enclosure. Peel the third strip (3) clockwise, starting at the bottom left of the enclosure.

**Caution**

The third strip of the middle release liner runs under two flex cables. Don't damage the flex cables while removing the release liner.



1 Bottom release liner

2 Adhesive



18. Inspect the display adhesive to make sure it's in the correct position and isn't damaged or wrinkled. If the adhesive is damaged, remove the adhesive and reapply.
19. Pull the tabs on the suction cups to release them from the display. Tilt down the display to rest on the enclosure.
20. Remove the suction cups from the repair tray.

21. Press all four corners of the display simultaneously. Then press along the edges of the display until it clicks and the display is flush with the enclosure.



### Caution

Ensure that the flex cables aren't trapped between the display and the enclosure. Feel the edges of the display for variations or gaps. If the display isn't flush, repeat all removal steps and check the flex cables for damage. Then repeat reassembly steps 1 through 21 before continuing to step 22.

**Raised edges**



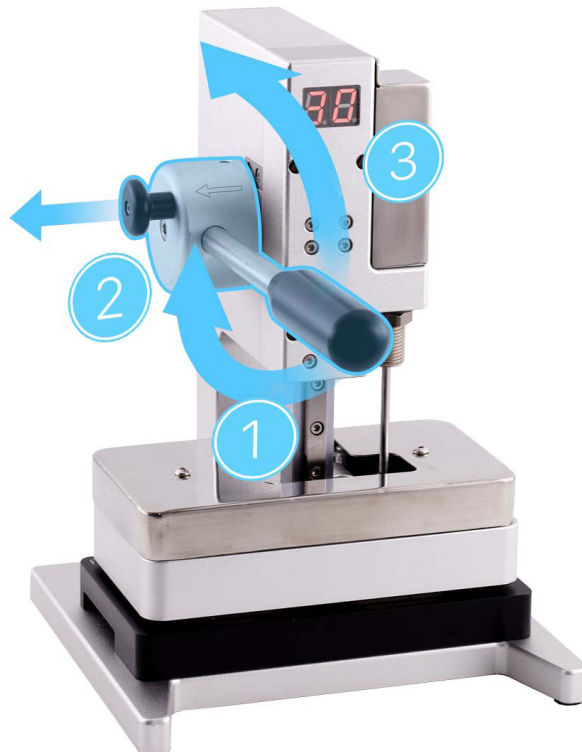
**Edges in correct position**



22. Position the repair tray with the iPhone in the display press. Pull down the lever until the display press locks.



23. Wait until the display press beeps and its timer shows 0. Pull down the lever (1) and pull out the release knob (2). Then lift the lever (3).



24. Remove the repair tray from the display press.

25. Use the blue torque driver and Torx security bit to install two new security screws, one on each side of the Lightning connector. As you install the screws, press lightly on the display near the Lightning connector. Count five clicks as you install each screw to ensure that the screw is fully installed.

**Note:** Use the correct screw color for your model.

- Blue, purple, red, starlight (923-08388)
- Midnight, yellow (923-08387)



### Caution

If the screws aren't flush, remove and set aside the screws. Then repeat step 25 to install a new set of security screws. If the new screws still aren't flush, repeat all removal and reassembly steps.

### Important

If you've completed removal steps 1 through 5, continue to step 26. If it wasn't necessary for you to complete steps 1 through 5, skip to the Caution alert at the end of this section.

26. Take the iPhone out of the repair tray. Then gently insert it into the heated display pocket with the camera faceup and the Lightning connector facing the bottom of the pocket.

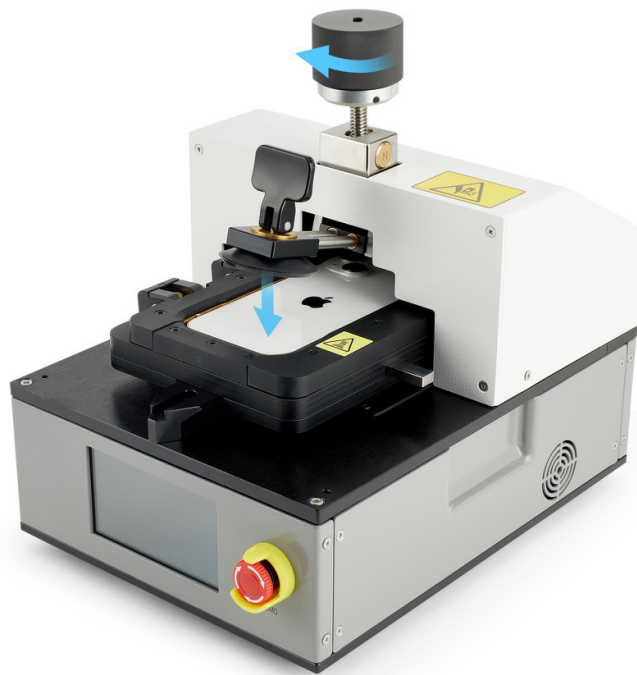


27. Place the heated display pocket into the heated display removal fixture. Don't turn on the fixture.

28. Turn the knob on the fixture clockwise to lower the suction cup onto the back glass. Then flip down the handle on the suction cup to secure the suction cup to the back glass.

 **Caution**

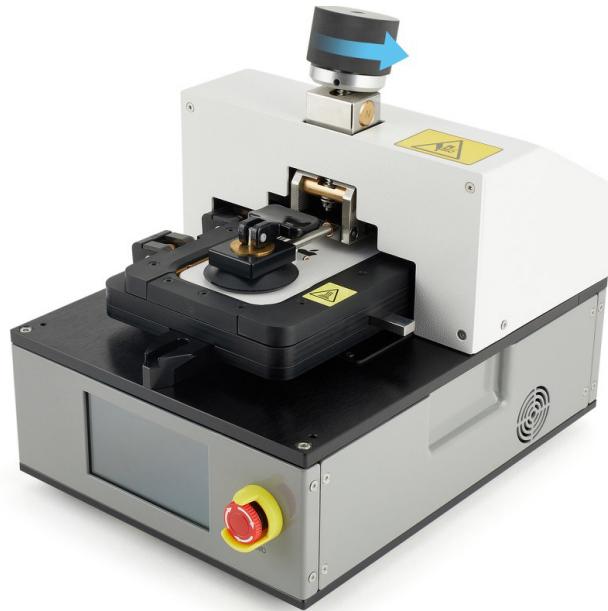
Don't let the suction cup hang over the edge of the back glass or you may damage the iPhone. If damaged, stop the repair. You can find a service option at [support.apple.com/repair](https://support.apple.com/repair).



29. Slowly turn the knob on the fixture counterclockwise until the back glass separates from the enclosure.

**Important**

To avoid damaging the back glass flex cable, don't tilt up the back glass more than 5 degrees.



30. Flip up the handle to release the suction cup. Then gently slide the end of the black stick under the edge of the suction cup to release it from the back glass.
31. Press the eject button on the side of the pocket to release the pocket from the fixture.
32. Place the enclosure in the repair tray with the camera faceup and the Lightning connector facing the cutout. Set aside the back glass on a clean surface.
33. Remove the Kapton tape from the battery flex cable connector.
- Note:** Don't reconnect the battery flex cable at this time.
34. Complete all reassembly steps in the [back glass](#) section. Then read the Caution alert on the following page.

 **Caution**

- [System Configuration](#) is required if you've installed a replacement back glass, battery, camera, display, or TrueDepth camera. Disregard notifications about iPhone features on the Lock Screen until you complete System Configuration.
- After you've completed all removal and reassembly steps, initiate System Configuration. The method of initiating System Configuration will vary depending on the part or parts replaced.
  - **If you replaced the back glass, battery, camera, or display**, initiate System Configuration by [putting the device into diagnostics mode](#). Tap Start Diagnostics and follow onscreen prompts.
  - **If you replaced the TrueDepth camera**, you will need the following:
    - The latest version of [Apple Service Utility](#) installed on a Mac running macOS 12.4 or later
    - Internet access
    - A Lightning cable

After you've installed Apple Service Utility on a Mac, learn how to initiate the System Configuration process at [support.apple.com/self-service-repair](https://support.apple.com/self-service-repair)

# Camera

## Before You Begin



### Warning

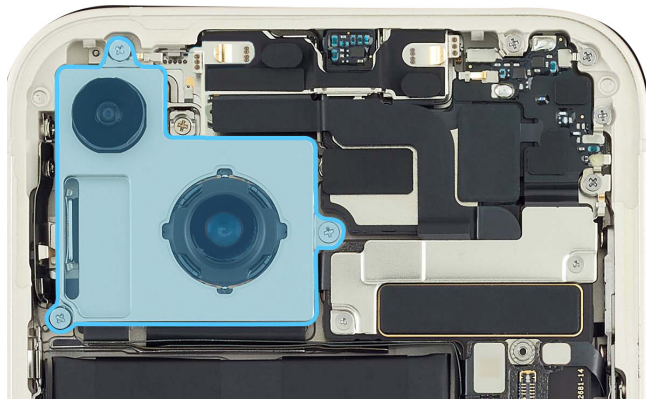
Read [Battery Safety](#) and follow workspace and battery handling guidelines before you begin.

### Remove the following part before you begin:

- [Back glass](#)

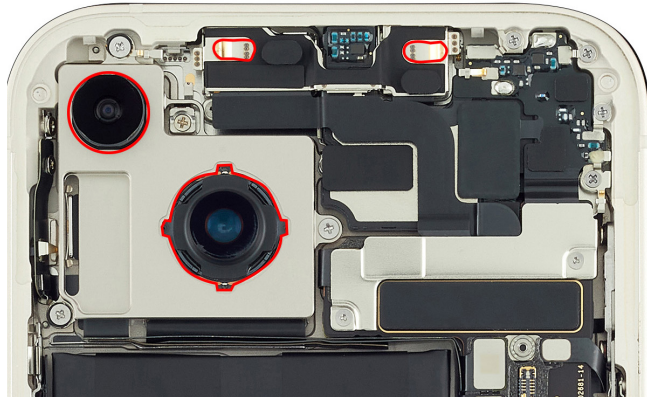
### Tools

- 6.1-inch repair tray
- ESD-safe tweezers
- JCIS bit
- Nitrile or lint-free gloves
- Nylon probe (black stick)
- Torque driver (teal, 0.75 kgf cm)

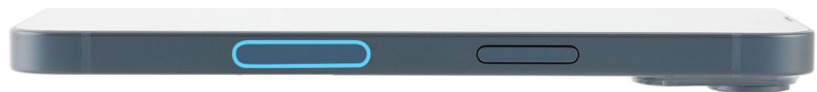


 **Caution**

Avoid touching the camera lenses, TrueDepth camera grounding springs, or nearby parts.

**Important**

If the iPhone has an mmWave antenna, you'll need to disconnect an extra flex cable. Check the side of the iPhone to determine if it has an mmWave antenna.



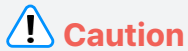
**mmWave antenna**

 **Caution**

This procedure requires [System Configuration](#). After you've completed all removal and reassembly steps, follow the instructions to initiate System Configuration.

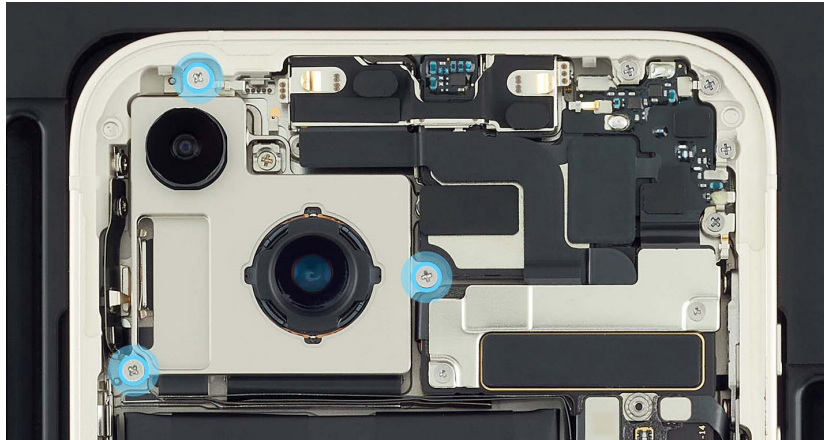
## Removal

1. Place the enclosure in the repair tray with the Lightning connector facing the cutout.
2. Put on the gloves to prevent contamination of the camera lenses.
3. Use a torque driver and the JCIS bit to remove the three crosshead screws from the camera cowling. Set aside the screws.



### Caution

Avoid touching the camera lenses.



4. Lift the ends of the two camera flex cables from the connectors.

### Important

If you're working on an iPhone that has an mmWave antenna, lift the end of the mmWave antenna flex cable off the connector.



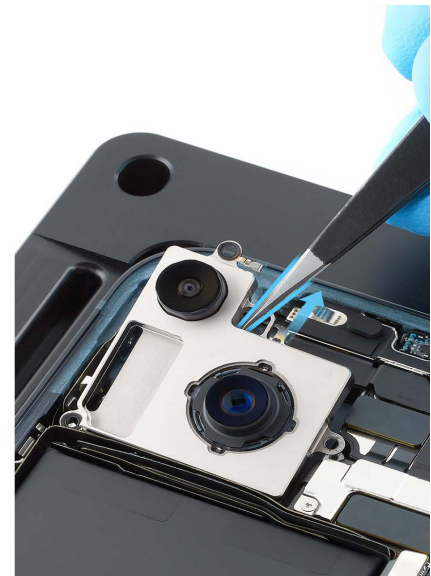
5. Use the black stick to loosen the adhesive between the lower camera flex cable and the camera well.



6. Use the black stick or ESD-safe tweezers to tilt up the top side of the camera. Then remove the camera from the enclosure.

### Important

If the iPhone has an mmWave antenna, lift the mmWave antenna flex cable and place it slightly to the side. Then use ESD-safe tweezers to lift the camera and the camera flex cables out of the enclosure.



### ⚠ Caution

The mmWave antenna stays in the enclosure. Don't remove it.

## Reassembly

### Important

A protective cover is included with a replacement camera. Leave the cover on while installing the new camera.



1. Put on the gloves to prevent contamination of the camera lenses.

2. Use ESD-safe tweezers to position the camera in the enclosure. Ensure that the camera flex cables are inside the channel between the battery and the camera well.



### Important

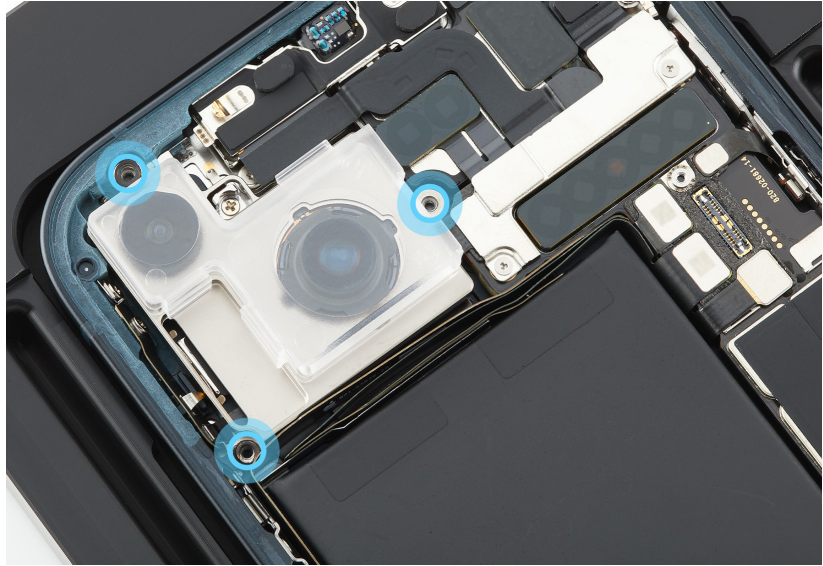
If your iPhone has an mmWave antenna, position the mmWave antenna flex cable (1) and camera flex cables (2, 3) inside the channel between the battery and the camera well as shown.

3. Press the ends of the camera flex cables to the connectors.

### Important

If the iPhone has an mmWave antenna, press the end of the mmWave antenna flex cable to the connector.

4. Use the teal torque driver and JCIS bit to install three new crosshead screws (923-08383) into the camera.



**Reinstall the following part to complete reassembly:**

- [Back glass](#)

### Important

Remove the protective cover from the replacement camera before you reinstall the back glass.



### Caution

After you've completed all removal and reassembly steps, initiate System Configuration by [putting the device into diagnostics mode](#). Tap Start Diagnostics and follow the onscreen prompts.

# Taptic Engine

## Before You Begin



### Warning

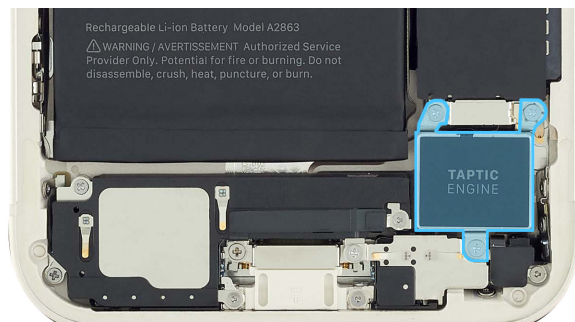
Read [Battery Safety](#) and follow workspace and battery handling guidelines before you begin.

### Remove the following part before you begin:

- [Back glass](#)

### Tools

- 6.1-inch repair tray
- ESD-safe tweezers
- JCIS bit
- Nylon probe (black stick)
- Torque driver (blue, 0.65 kgf cm)



## Removal

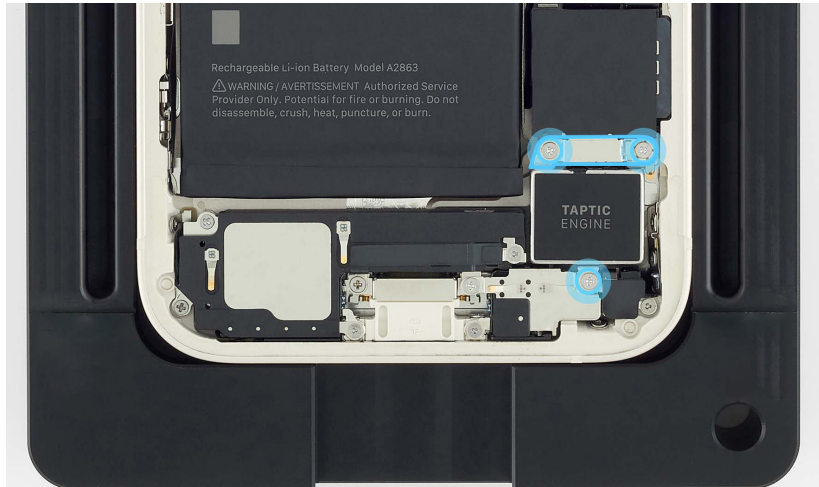
1. Place the enclosure in the repair tray with the Lightning connector facing the cutout.

2. Use a torque driver and the JCIS bit to remove two crosshead screws from the Taptic Engine connector cowling. Set aside the screws.
3. Use a torque driver and the JCIS bit to remove one crosshead screw from the Taptic Engine. Set aside the screw.



### Caution

Don't damage the grounding spring on the cowling.



4. Remove the Taptic Engine connector cowling and save it for reassembly.
5. Lift the end of the Taptic Engine flex cable off the connector.



6. Use ESD-safe tweezers to remove the Taptic Engine.

## Reassembly

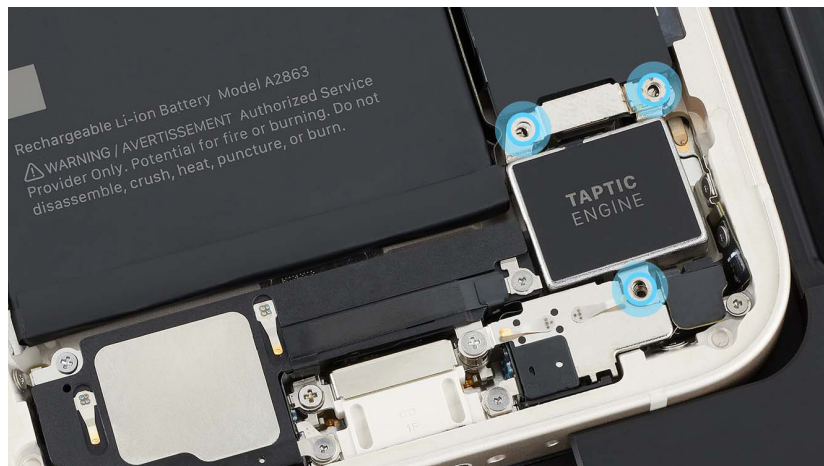
1. Position the Taptic Engine in the enclosure.

2. Press the end of the Taptic Engine flex cable to the connector.



3. Position the Taptic Engine connector cowling over the end of the flex cable.

4. Use the blue torque driver and the JCIS bit to install two new crosshead screws (923-08378) into the Taptic Engine.
5. Use the blue torque driver and the JCIS bit to install one new crosshead screw (923-08378) into the Taptic Engine connector cowling.



**Reinstall the following part to complete reassembly:**

- [Back glass](#)

# TrueDepth Camera

## Before You Begin

### **Warning**

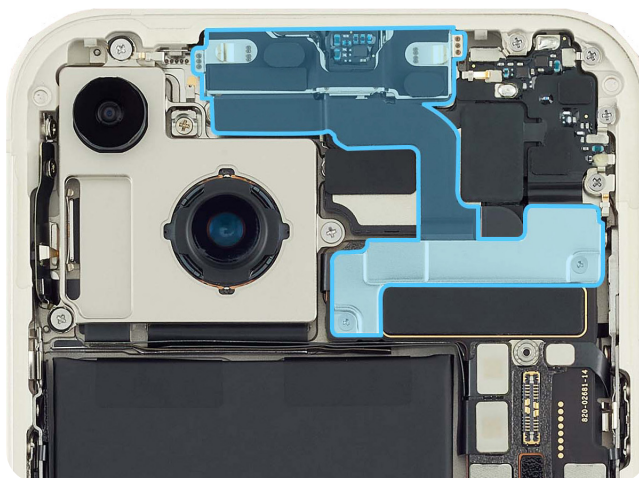
- Read [Battery Safety](#) and follow workspace and battery handling guidelines before you begin.
- The TrueDepth camera includes one or more lasers. Disassembly of the TrueDepth camera, damage to the TrueDepth camera, or failure to use genuine Apple parts could expose you to hazardous infrared laser emissions, possibly resulting in injuries to eyes or skin.

### Remove the following part before you begin:

- [Back glass](#)

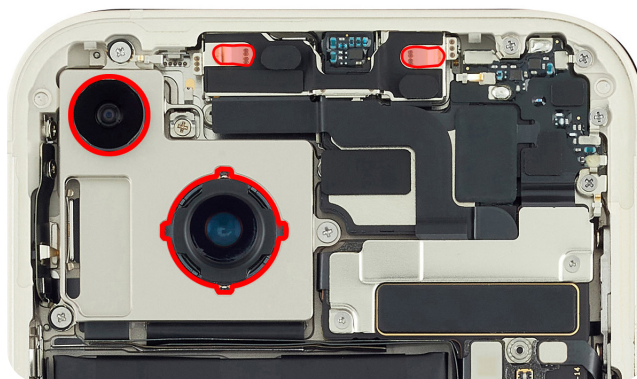
### Tools

- 6.1-inch repair tray
- ESD-safe tweezers
- Micro stix bit
- Nitrile or lint-free gloves
- Nylon probe (black stick)
- Torque driver (green, 0.45 kgf cm)



### **Caution**

Avoid touching the grounding springs on the TrueDepth camera.



 **Caution**

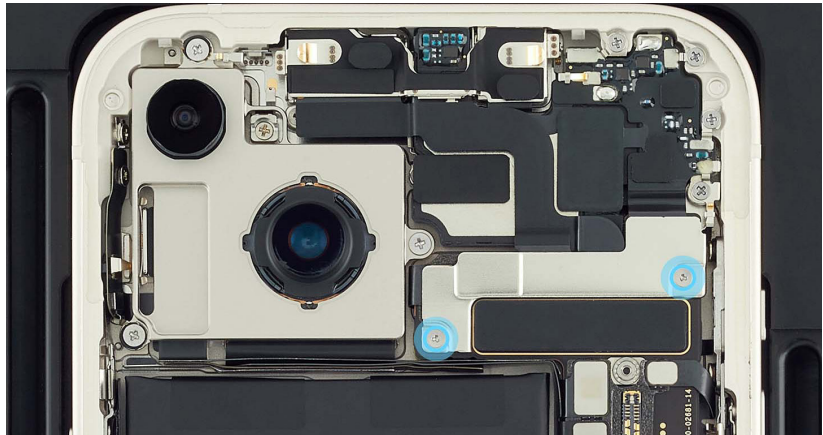
This procedure requires System Configuration [System Configuration](#). To perform System Configuration you will need the following:

- The latest version of [Apple Service Utility](#) installed on a Mac running macOS Monterey 12.4 or later
- Internet access
- A Lightning cable

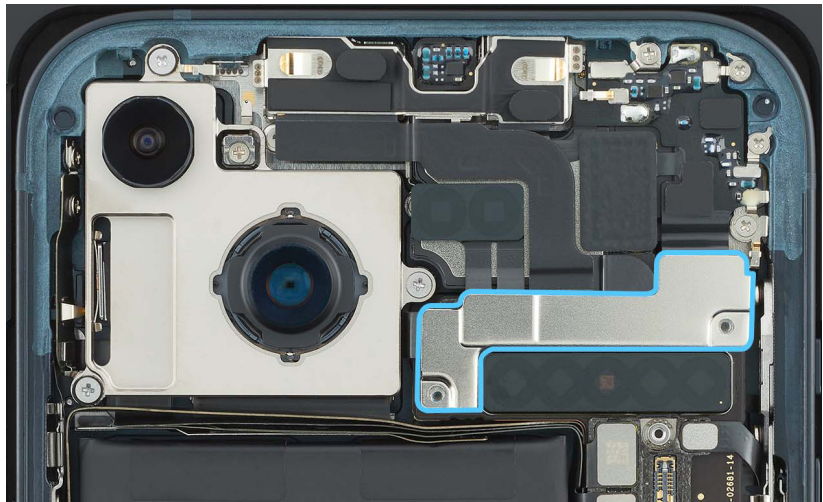
After you've completed all removal and reassembly steps and installed Apple Service Utility on a Mac, learn how to initiate the System Configuration process at [support.apple.com/self-service-repair](https://support.apple.com/self-service-repair).

## Removal

1. Place the enclosure in the repair tray with the Lightning connector facing the cutout.
2. Put on the gloves to prevent contamination of the camera lenses.
3. Use a torque driver and the Micro stix bit to remove the two trilobe screws from the TrueDepth camera connector cowl. Set aside the screws.



4. Remove the TrueDepth camera connector cowl and save it for reassembly.



5. Lift the ends of the two TrueDepth flex cables from the connectors.



6. Gently hold the flex cables together and lift the TrueDepth camera out of the enclosure.



## Reassembly

1. Put on the gloves to prevent contamination of the camera lenses.

2. Inspect the TrueDepth camera module and make sure the grounding foams and the grounding springs are intact. If either is missing or damaged, replace the TrueDepth camera.

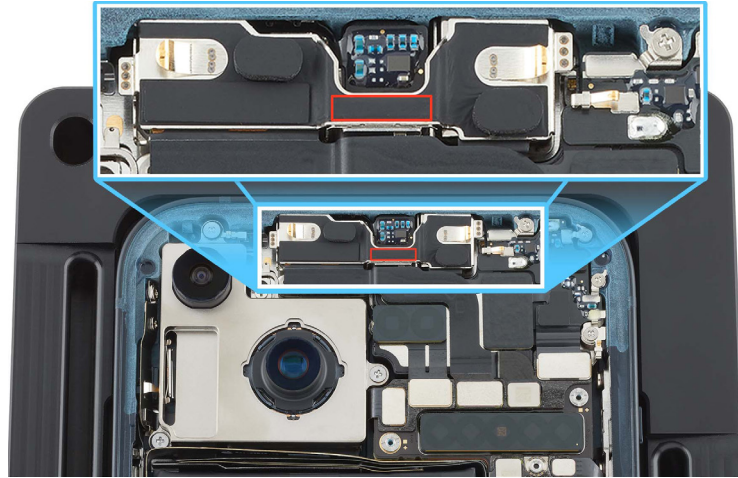


3. Use ESD-safe tweezers to remove the protective cover from the TrueDepth camera.

4. Position the TrueDepth camera in the enclosure. Ensure that the top edge is fitted under the lip of the enclosure. If the camera isn't positioned correctly, use your finger or the black stick to move it into the correct position.

 **Caution**

- Don't press on the bridge of the TrueDepth camera when positioning it in the enclosure.
- Don't touch the front of the TrueDepth camera assembly after you remove the protective cover.



5. Press the ends of the two TrueDepth camera flex cables to the connectors.

6. Position the TrueDepth camera connector cowling over the ends of the flex cables as shown.
7. Use the green torque driver and Micro stix bit to install two new trilobe screws (923-08382) into the TrueDepth camera connector cowling.



**Reinstall the following part to complete reassembly:**

- [Back glass](#)

**Caution**

- After you've completed all removal and reassembly steps, learn how to initiate the System Configuration process at [support.apple.com/self-service-repair](https://support.apple.com/self-service-repair).
- You will need a Mac with [Apple Service Utility](#) installed to complete System Configuration.

# Battery

## Before You Begin

### Warning

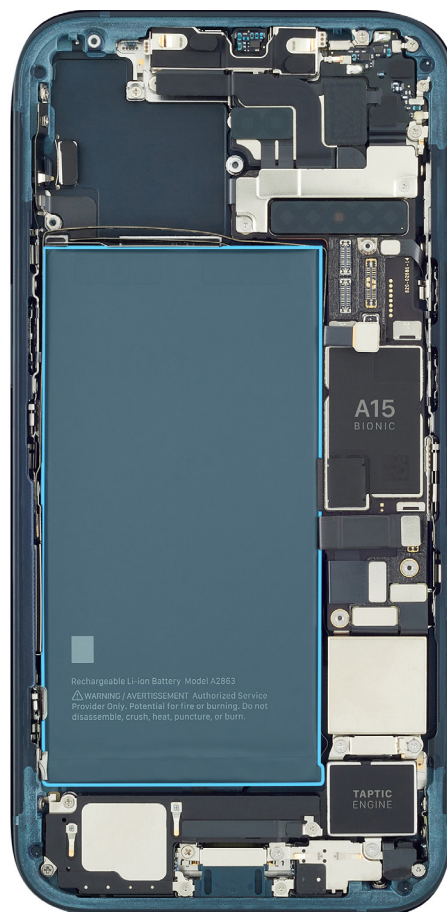
- A battery should be replaced only by individual technicians with the knowledge and experience to repair electronic devices. Improper battery replacement, improper handling of parts, or failure to follow the provided instructions could result in fire, injury, data loss, or damage to the device, parts, or other property.
- Read [Battery Safety](#) and follow workspace and battery handling guidelines before you begin.

### Remove the following parts before you begin:

- [Back glass](#)
- [Camera](#)

### Tools

- 6.1-inch repair tray
- Battery press
- ESD-safe cleaning solution
- ESD-safe tweezers
- Ethanol or isopropyl alcohol (IPA) wipes
- Heat-resistant gloves
- Nylon probe (black stick)
- Safety glasses with side shields
- Sand
- Sand container



**Caution**

Avoid touching the TrueDepth camera assembly, grounding springs, or nearby parts.

**Caution**

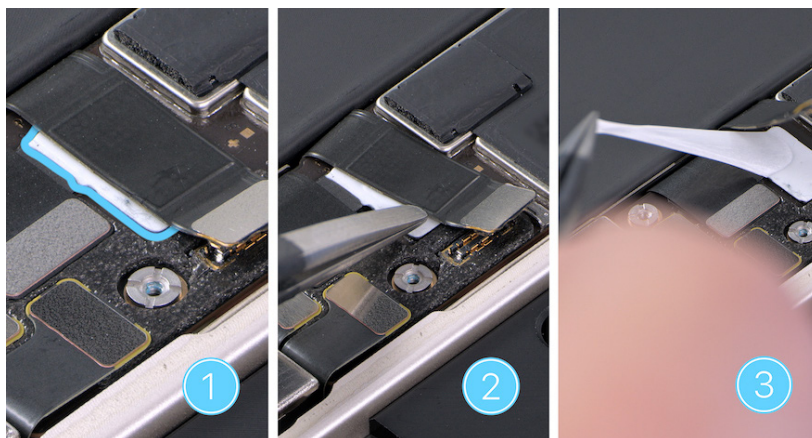
This procedure requires [System Configuration](#). After you've completed all removal and reassembly steps, follow the instructions to initiate System Configuration.

## Removal

1. Place the enclosure in the repair tray with the Lightning connector facing the cutout.

### Important

Some iPhone 14 models may have a white adhesive shim under the battery flex cable. If you see a white adhesive shim (1), use ESD-safe tweezers to gently lift the flex cable from the adhesive shim (2). Then use the tweezers to remove the shim and discard it (3).



2. Use ESD-safe tweezers to grasp the top right battery adhesive tab. Gently peel the adhesive tab away from the battery.



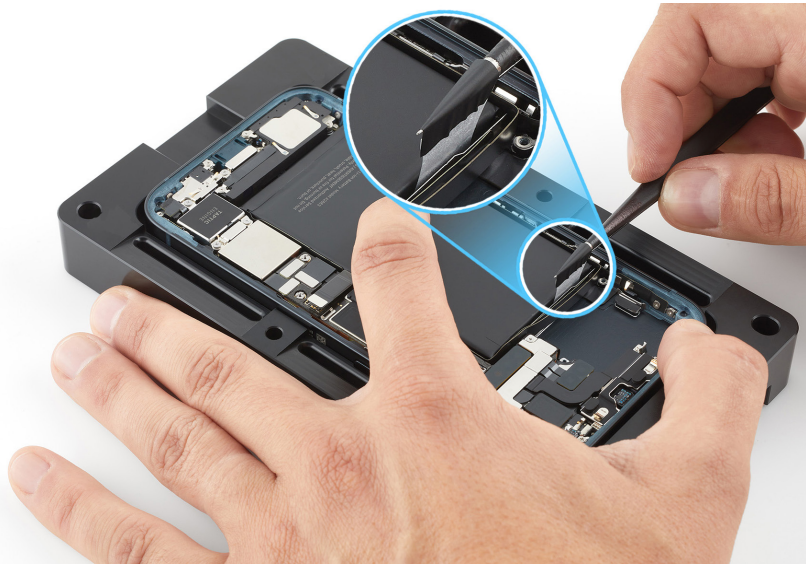
### Warning

Don't scrape or puncture the battery with the tweezers.

**Note:** The battery has two adhesive tabs.



3. Twist the tab around the tweezers and pull up one inch until you see white adhesive strip on the tweezers.



4. Keep the tweezers close and parallel to the battery. Then pull the tweezers toward the top of the iPhone and continue to twist and pull the adhesive until you've removed the entire strip.

### **Caution**

Don't pull the adhesive strip against the parts or screws.

### **Important**

If the battery adhesive tab or strip breaks off and you can still see it, attempt to retrieve it with the tweezers. Wrap the tab or strip around the tweezers and repeat step 4. If you can't see the tab or strip, continue to step 5.

5. Use ESD-safe tweezers to grasp the top left battery adhesive tab. Gently peel the adhesive tab away from the battery.
6. Repeat steps 3 and 4.

### **Important**

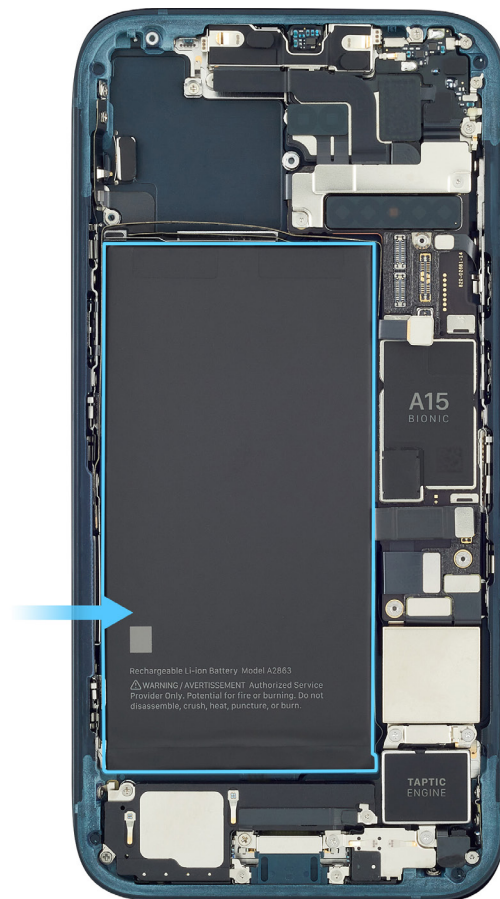
If the battery adhesive tab or strip breaks off and you can still see it, attempt to retrieve it with the tweezers. Wrap the tab or strip around the tweezers and repeat step 4. If you can't see the tab or strip, continue to step 7.

7. If both battery adhesive strips were fully removed, continue to step 10. If at least one strip was fully removed, continue to step 8.

 **Warning**

If both strips were broken and can't be retrieved, don't forcibly pry the battery. Stop the repair. You can find a service option at [support.apple.com/repair](https://support.apple.com/repair).

8. Insert the flat end of the black stick only into the insertion point as shown. Don't insert the black stick into a point where the battery tab or strip is broken.



9. Slightly lift the battery with black stick just enough to grasp underneath the battery.

 **Caution**

To avoid damage, don't press the black stick on the edge of the enclosure as you lift the battery.

10. Remove the battery from the enclosure. Then inspect the enclosure for damage. If the enclosure is damaged, replace the iPhone.

**Warning**

If you can't remove the battery, stop the repair. You can find a service option at [support.apple.com/repair](https://support.apple.com/repair).

## Reassembly

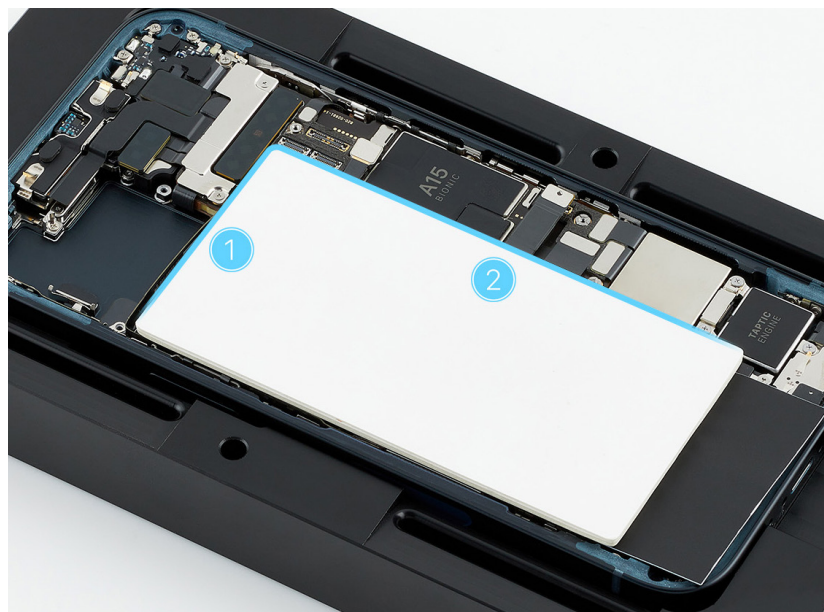
1. Use ethanol wipes or IPA wipes to remove all residual adhesive from the enclosure underneath the battery.
2. Peel the pink release liner from the underside of the replacement battery.

### Important

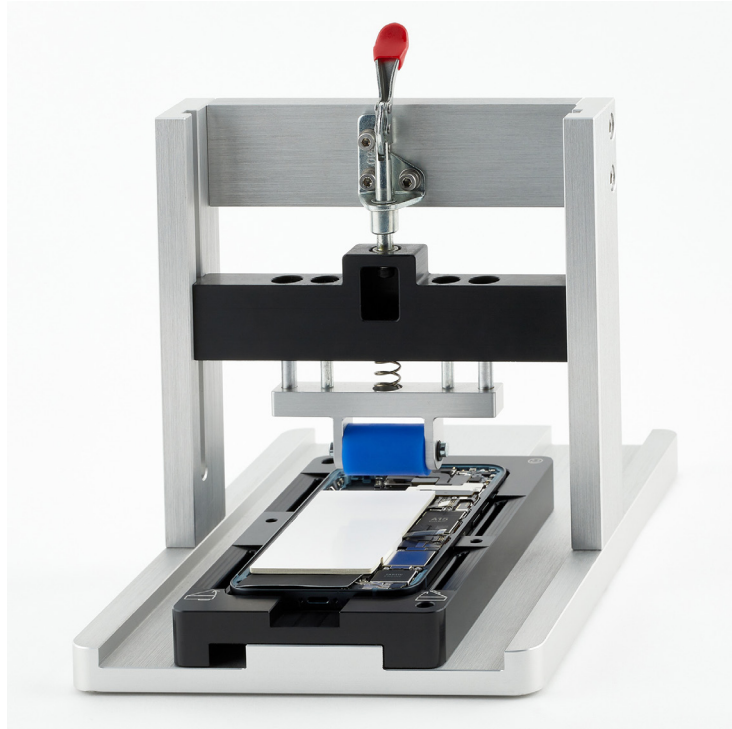
Don't remove the protective cover from the top of the battery yet.



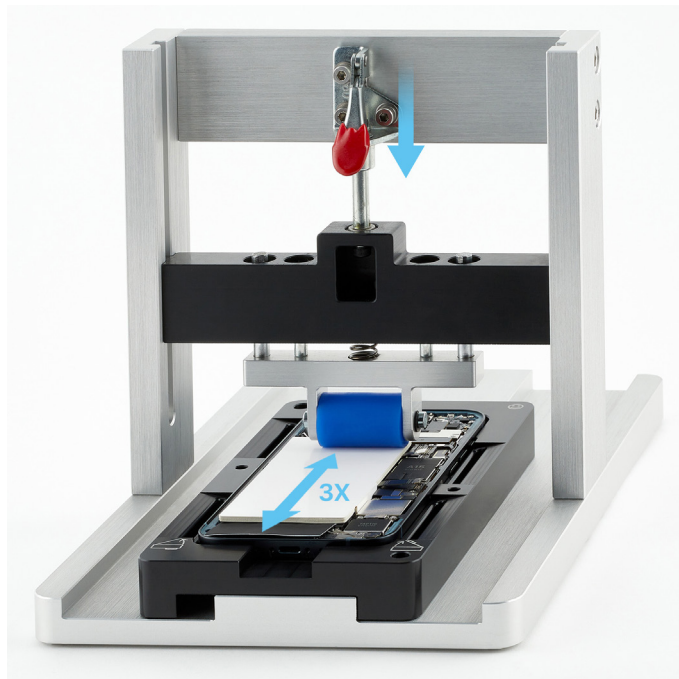
3. Hold the battery over the enclosure with the protective cover faceup. Align the top of the battery with the camera sidewall (1) and the right edge with the logic board (2). Then lower the battery into the enclosure.



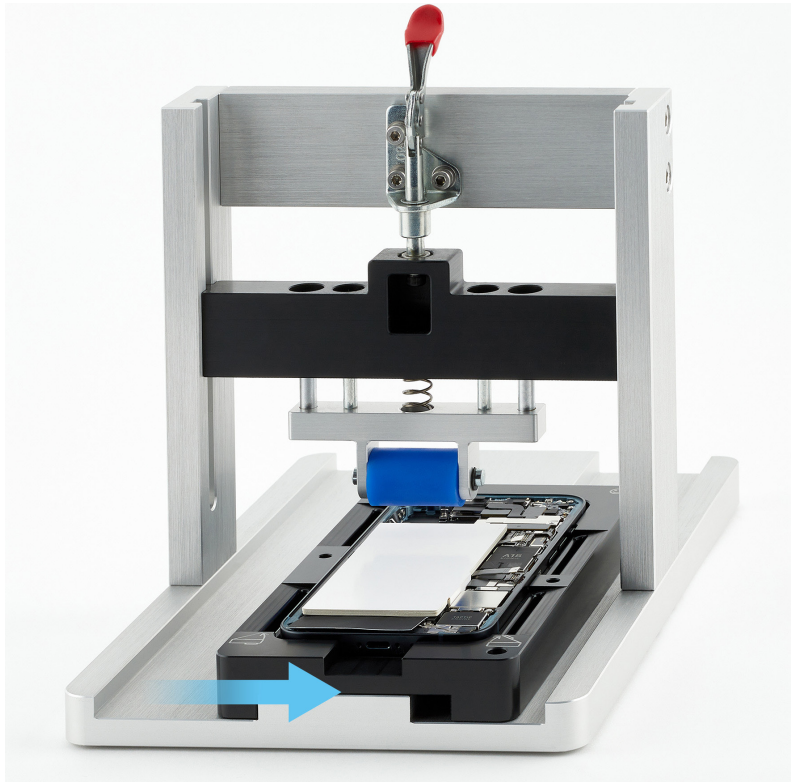
4. The center of the repair tray has two slots. Position the repair tray and enclosure onto the battery press with one slot of the repair tray on one side of the battery press.



5. Flip down the lever at the top of the battery press to lower the roller onto the battery.
6. Slide the repair tray back and forth through the battery press three times to adhere the battery to the enclosure.



7. Flip up the red lever at the top of the battery press.
8. Position the repair tray and enclosure to the other side of the battery press.

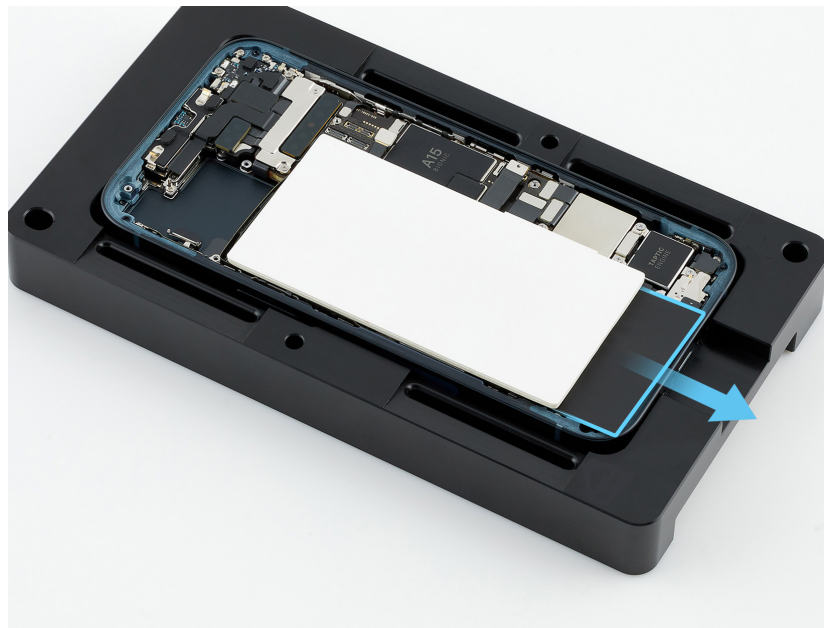


9. Repeat steps 5 through 7. Then continue to step 10.
10. Remove the repair tray from the battery press.

11. Hold the edges of the protective cover. Pull the release tabs on the protective cover to remove the cover from the battery.

### Important

Don't press the area over the tab you're releasing.



**Reinstall the following parts to complete reassembly:**

- [Camera](#)
- [Back glass](#)

### Warning

Gently shake the iPhone. If the battery sounds loose, remove the [back glass](#) and the [battery](#). Then complete battery reassembly with another replacement battery.

### Important

A new battery is not charged. After you've completed all removal and reassembly steps, [charge the device](#) for a few minutes.

### Caution

After you've completed all removal and reassembly steps, initiate System Configuration by [putting the device into diagnostics mode](#). Tap Start Diagnostics and follow onscreen prompts.

# Bottom Speaker

## Before You Begin

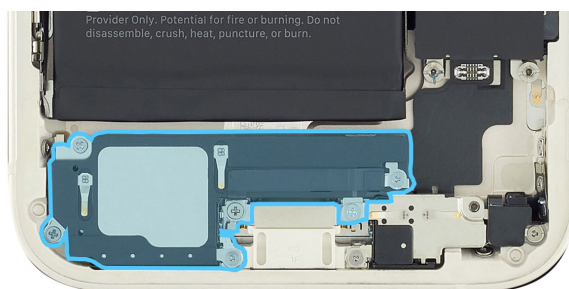


### Warning

Read [Battery Safety](#) and follow workspace and battery handling guidelines before you begin.

### Remove the following parts before you begin:

- [Back glass](#)
- [Taptic Engine](#)



### Tools

- 6.1-inch repair tray
- ESD-safe tweezers
- JCIS bit
- Micro stix bit
- Nylon probe (black stick)
- Torque driver (blue, 0.65 kgf cm)
- Torque driver (gray, 0.55 kgf cm)
- Torque driver (green, 0.45 kgf cm)



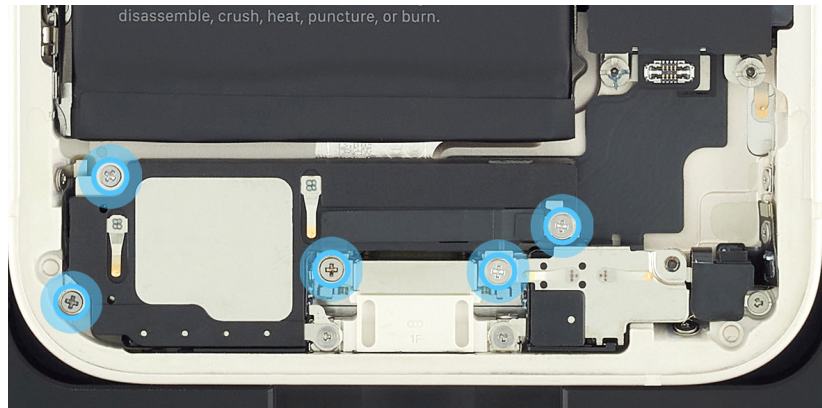
### Caution

Avoid touching the grounding springs on and near the bottom speaker.

## Removal

1. Place the enclosure in the repair tray with the Lightning connector facing the cutout.

2. Use a torque driver and the JCIS bit to remove the five crosshead screws from the bottom speaker. Set aside the screws.



3. Use a torque driver and the Micro stix bit to remove the trilobe screw from the bottom speaker. Set aside the screw.



4. Remove the bottom speaker from the enclosure.

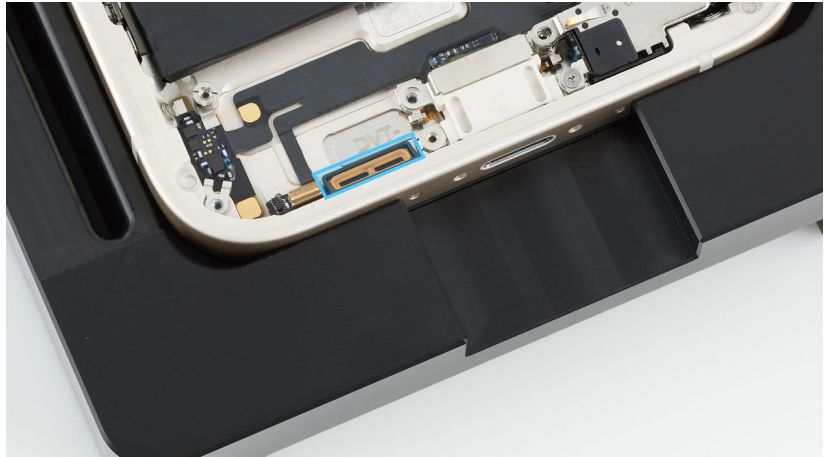
 **Caution**

- Don't lift the vent cowling (1) while removing the bottom speaker.
- Don't damage the grounding spring (2) on the bottom speaker.



## Reassembly

1. Ensure that the rubber gasket is positioned as shown. If the gasket is out of position, use ESD-safe tweezers to reposition it.



2. Position the bottom speaker in the enclosure. Slide the bottom right screw hole of the bottom speaker under the vent cowling screw hole as shown.

### **Caution**

Don't lift the vent cowling while positioning the bottom speaker.



3. Use the green torque driver and Micro stix bit to install one new trilobe screw (923-08382) into the bottom speaker.

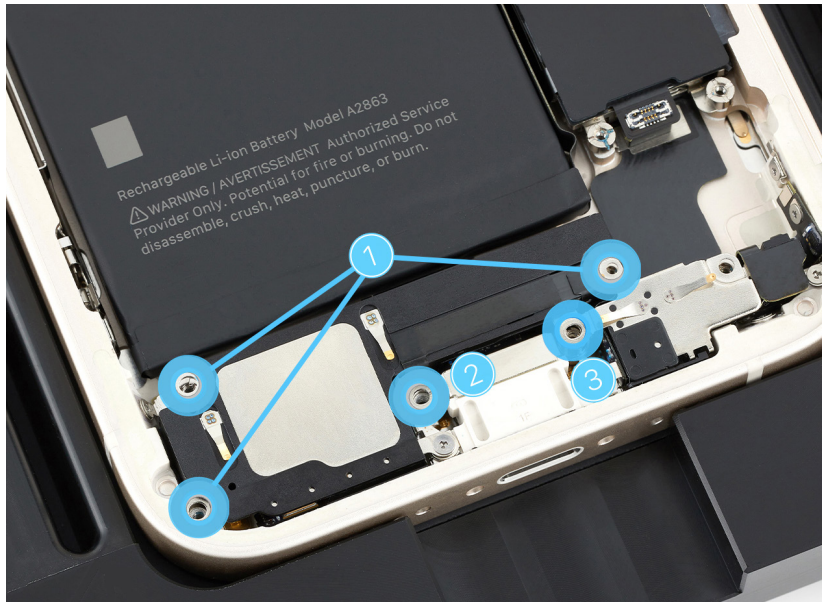


4. Use the gray torque driver and the JCIS bit to install four new crosshead screws (923-08386) (1) (923-08379) (2).

5. Use the blue torque driver and JCIS bit to install one new crosshead screw (923-08380) (3) into the bottom speaker.

 **Caution**

Don't damage the grounding springs on the bottom speaker.



**Reinstall the following parts to complete reassembly:**

- [Taptic Engine](#)
- [Back glass](#)

# Top Speaker

## Before You Begin



### Warning

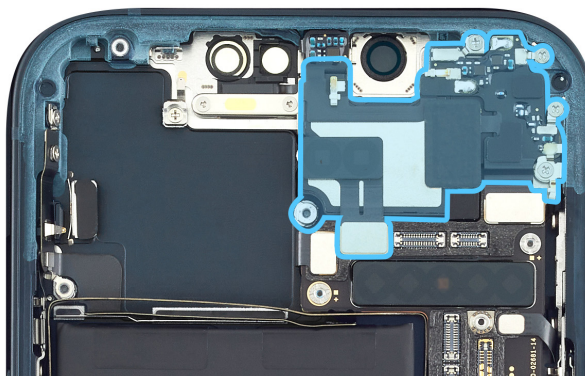
Read [Battery Safety](#) and follow workspace and battery handling guidelines before you begin.

### Remove the following parts before you begin:

- [Back glass](#)
- [Camera](#)
- [TrueDepth camera](#)

### Tools

- 6.1-inch repair tray
- ESD-safe tweezers
- JCIS bit
- Nylon probe (black stick)
- Torque driver (gray, 0.55 kgf cm)

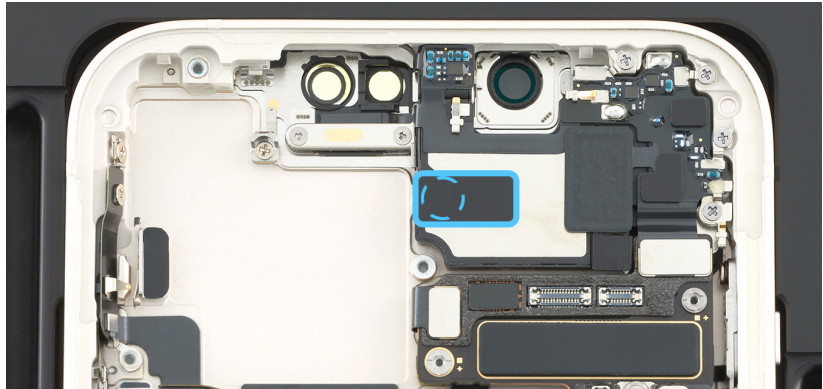


## Removal

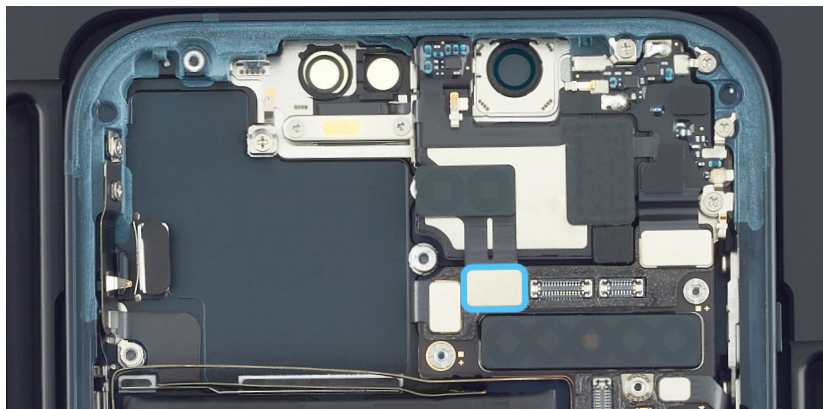
1. Place the enclosure in the repair tray with the Lightning connector facing the cutout.

### Important

- If the iPhone doesn't have an mmWave antenna, skip to step 4.
- iPhone models that don't have an mmWave antenna will have a piece of foam covering one of the five crosshead screws in the top speaker. Remove the foam to access the screw. Save the foam for reassembly. If the foam is lost or damaged, a replacement foam is required.

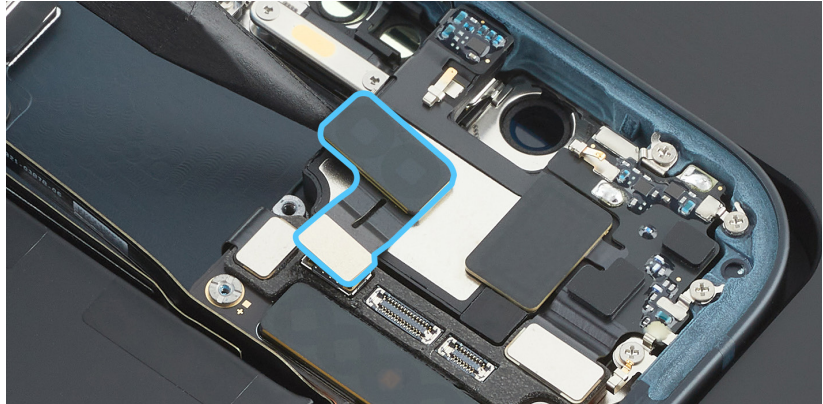


2. Lift the end of the back glass antenna flex cable from the connector.



3. Use the pointed end of a black stick to lift the upper end of the back glass antenna off the top speaker. Remove the antenna to access a top speaker screw. Save the antenna for reassembly.

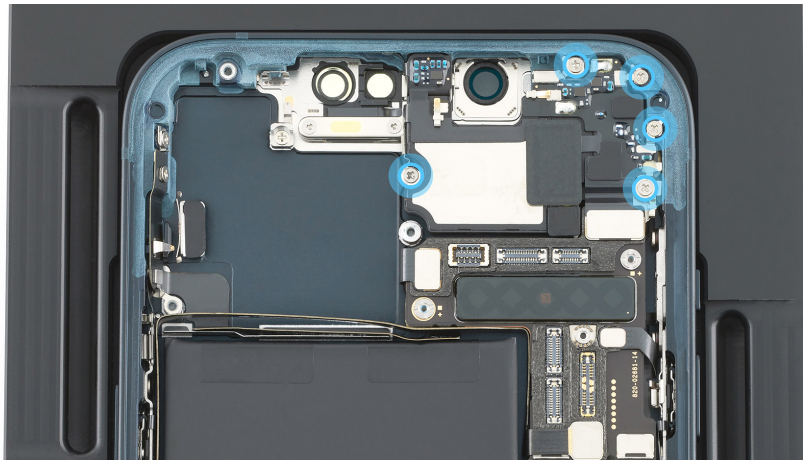
**Note:** The back glass antenna flex cables are connected to the antenna.



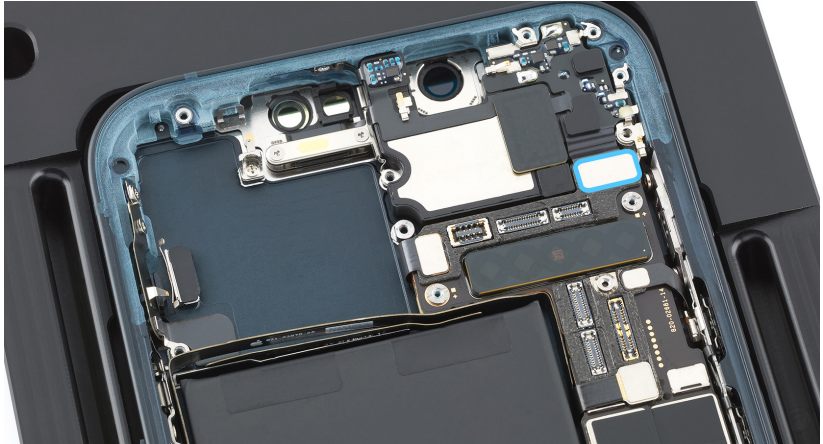
4. Use a torque driver and the JCIS bit to remove one crosshead screw from the sidewall of the enclosure. Keep the torque driver as perpendicular as possible to avoid stripping the screw. Set aside the screw.



5. Use a torque driver and the JCIS bit to remove the five crosshead screws from the top speaker. Set aside the screws.



6. Lift the end of the top speaker flex cable from the connector.



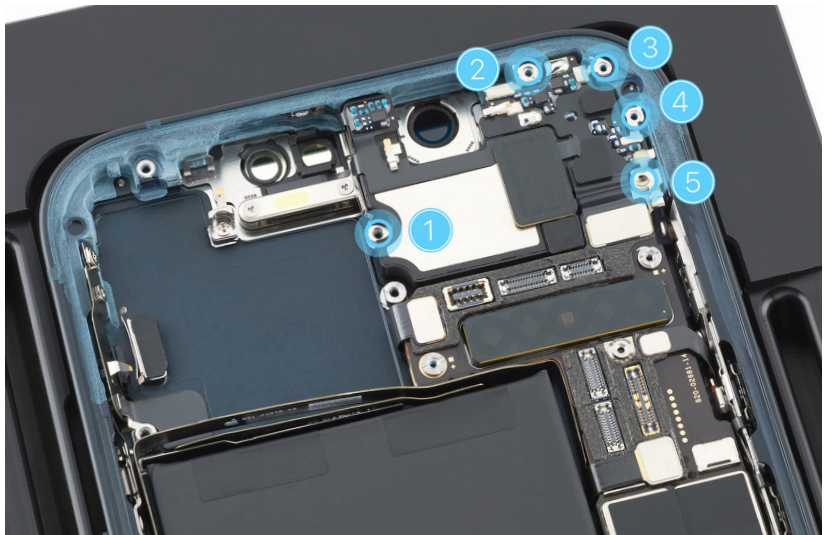
7. Remove the top speaker from the enclosure.

## Reassembly

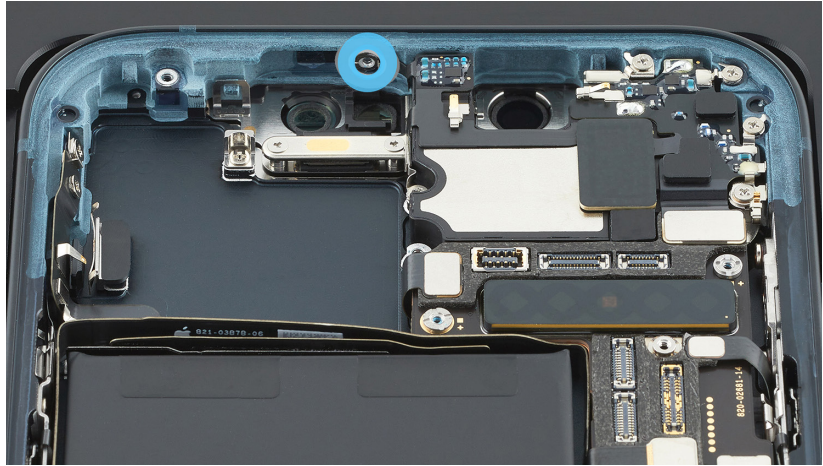
1. Position the top speaker in the enclosure.
2. Press the end of the top speaker flex cable to the connector.



3. Use the gray torque driver and the JCIS bit to install five new crosshead screws (923-08386) in the order shown.



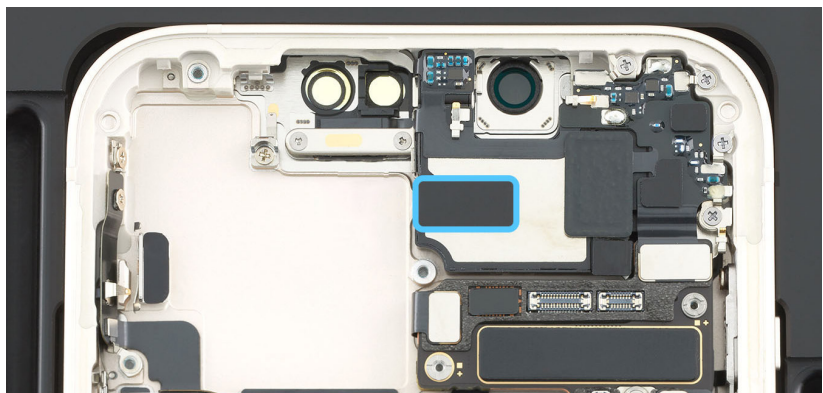
4. Use the gray torque driver and the JCIS bit to install one new crosshead screw (923-08504) into the sidewall of the enclosure. Keep the driver as perpendicular as possible to avoid stripping the screw.



5. Press the end of the back glass antenna flex cable to the connector.

 **Caution**

If the back glass antenna is lost or damaged, repeat top speaker removal steps 2 and 3. Then complete back glass reassembly step 4 with a new back glass antenna.



6. If the iPhone doesn't have an mmWave antenna, reinstall the piece of foam.

**Important**

If the foam is lost or damaged, replace it.

**Reinstall the following parts to complete reassembly:**

- [TrueDepth camera](#)
- [Camera](#)
- [Back glass](#)

Micro stix® is a registered trademark of OSG CORPORATION. Torx® is a registered trademark of Acument Intellectual Properties, LLC.