Apple Recycler Guide

iPhone 16 Pro
iPhone 16 Pro Max

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About this guide

Apple's goal is to one day make products using only recycled or renewable materials. A key path to reaching that goal is to improve resource recovery from end-of-use electronics.

Apple Recycler Guides provide guidance for electronics recyclers on how to disassemble Apple products to maximize recovery of resources. The guides provide step-by-step disassembly instructions and information on the product's material composition to help recyclers direct fractions to the appropriate material recycler.

Disassembly procedures are intended to be performed only by trained electronics recycling professionals. The recycler is responsible for independently evaluating and ensuring compliance with all applicable environmental, health, and safety laws related to the work. These include, but are not limited to, laws relating to the management, handling, shipping, and disposal of the outputs of this work as waste, and laws to ensure the health and safety of all employees who support this work.

For questions or feedback about this guide, email contactesci@apple.com.

Product identification

For more information about identifying your iPhone, please visit the following support pages:

support.apple.com/en-us/106343
support.apple.com/en-us/108044

Directive 2012/19/EU Annex VII Components

Directive 2012/19/EU Annex VII requirements apply to the following substances and components:

Substance/ Component	Part Name	Removal Instructions
Printed circuit board if the surface is greater than 10 square centimeters	Logic board	Follow steps 1-5
External electric cables	USB-C Charge Cable	Follow step 1
Battery	Battery	Follow steps 1-4
Cover glass and display if the surface is greater than 100 square centimeters	Display	Follow steps 1-7
No further substances or components as listed in Annex VII		

Note - For indication of the location of materials and components requiring selective treatment, refer to the image in the product components section on page 8 of this document. Location of additional items: the USB-C charge cable attaches to the bottom edge of the device where the ports are located, and the other end of the power cable attaches to the power adapter.

Safety considerations

The recycler is responsible for independently evaluating all activities undertaken by its employees to perform or support the work, and ensuring compliance with all applicable health and safety laws related to the work. These include, but are not limited to, laws relating to the health and safety of all employees who perform or support this work. The recycler is also responsible for evaluating the workspace, and ensuring that the area in which the work is to be undertaken is designed using ergonomic best practices and meets all ergonomic requirements to ensure the protection of its employees.

Broken OLEDs must be handled properly to ensure the safety of the recycler's employees and mitigate any hazards. Recyclers must package broken OLEDs in an appropriate container to properly manage the hazards associated with the materials, and store only with compatible materials. All waste must be properly classified, packaged, and labeled in accordance with all relevant laws and regulations.

Personal Protective Equipment (PPE)

Wear hand protection

Wear eye protection

Wear protective clothing

Wear foot protection

Wear a mask

Battery safety

This product uses a lithium-ion polymer battery. Follow these steps for safe removal and disposal of the battery:

- If possible, discharge the battery to less than 25 percent before beginning any disassembly. Thermal runaway is less likely to occur in a discharged battery.
- Remove anything from your person that could conduct energy, such as jewelry and watches, to avoid electric shock to yourself.
- To avoid the potential for thermal runaway and the release of potentially noxious fumes, don't puncture, strike, or crush lithium-ion polymer batteries or devices powered by them.
- Don't throw, drop, or bend the battery.
- Don't expose the battery to excessive heat or sunlight.
- Use only tools that are not sharp and do not conduct electricity.
- Keep your workspace clear of foreign objects and sharp materials.
- Dispose of batteries according to local environmental laws and guidelines.

Workspace safety guidelines

- Use heat-resistant gloves and safety glasses.
- Keep a sand dispenser within arm's reach (2 feet or 0.6 m) on either side of the workstation, not above the workstation. The dispenser should be a wide-mouthed, quick-pour metal container with a flip-top lid or tray that contains 8–10 cups (1.9–2.4 L) of clean, dry, untreated sand.
- Keep the battery at least 2 feet (0.6 m) from paper and other combustible materials.
- Work in an area with adequate ventilation.

Handling a thermal runaway

If you notice any of the following signs, a thermal runaway is likely underway, and you should act immediately:

- The lithium-ion polymer battery, or a device containing one, begins to smoke or emit sparks or soot.
- The battery pouch suddenly and quickly puffs out.
- You hear hissing or popping sounds.

Don't use water or an ABC/CO_2 fire extinguisher on a thermal runaway battery, or a device containing one. Water and ABC/CO_2 fire extinguishers will not stop the reaction.

Do smother the battery or device immediately with plenty of clean, dry sand, dumped all at once. Timing is critical; the faster you pour all the sand, the faster the thermal runaway will stop.

Do leave the room for 30 minutes if the thermal runaway causes any irritation.

Do wait 30 minutes before touching the battery. Wear heat-resistant gloves and safety glasses to remove the battery from the sand, or use a non-contact thermometer to measure the battery temperature. Do not touch battery until you have confirmed it is safe to do so.

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

Hazard Warnings

Chemical inhalation hazard

Broken glass hazard

Rechargeable battery hazard

Shredding safety

Certain enclosure metals, such as titanium, if shredded together in quantity and to a small particle size (where the particles become finely divided), are capable of igniting spontaneously on exposure to air, can create sparks during shredding, and can be potentially reactive with water or humid air under certain conditions. Develop and apply preventative measures to store in properly rated/designed non-flammable containers to minimize the potential for an event to occur. Evaluate potential for emergency situations and ensure proper plans and materials are available to respond if an event were to occur. Ensure an adequate dust collection system is in place which has been designed for the specific combustibility hazard and to minimize airborne concentrations. Avoid using water or halogenated extinguishing agents for fire extinguishing, as exposure could introduce additional hazards.

Disassembly instructions

Recommended tools

- Flat-blade screwdriver
- Miniature plastic pry bar
- Nail-Pulling screwdriver

Directions

Broken glass hazard

Rechargeable battery hazard

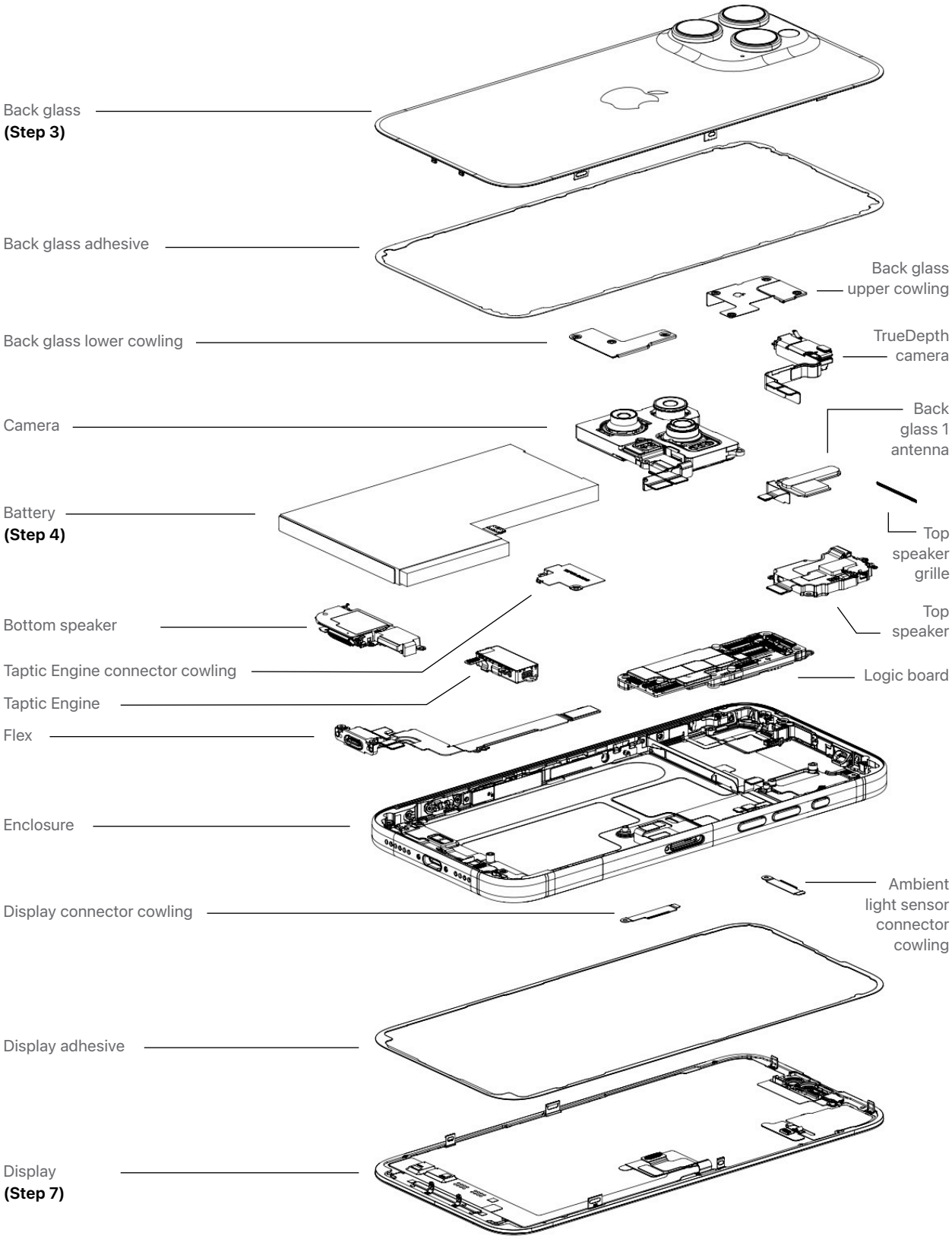
Broken glass hazard

Chemical inhalation hazard

1. Remove the USB-C charge cable.
2. With the back camera facing up, insert a flat-blade screwdriver into the USB-C connector and pry downward to separate the back glass from the main enclosure.
3. Remove the back glass by hand.
4. Using the miniature plastic pry bar, remove the lithium-ion battery from the enclosure.
5. Using the nail-pulling screwdriver, pry off the main logic board.
6. With the screen facing up, insert a flat-blade screwdriver into the USB-C connector and pry downward while holding the iPhone.
7. Remove the OLED display by hand.

Note: All outputs from this process must be managed, handled, and disposed of in accordance with applicable waste laws and regulations, including but not limited to the Waste Framework Directive and its national enactments in Europe.

Product components and location



Additional resources

Apple Trade-In and Recycling

Find Apple Trade-In and recycling options here.

Additional resources

Find disposal and recycling information for iPhone here.

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