



iPad 2 Wi-Fi

iPad 2 Wi-Fi + 3G

iPad (3rd generation) Wi-Fi

iPad (3rd generation) Wi-Fi + Cellular

iPad (4th generation) Wi-Fi

iPad (4th generation) Wi-Fi + Cellular

Apple Recycler Guide

April 2023

Contents

3	About This Guide
4	Identification
5	Directive 2012/19/EU Annex VII Components
6	Safety Considerations
8	Recommended Tools
9	Disassembly Instructions
25	Material Categorization of Output Fractions

About This Guide

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

To conserve important resources, we work to reduce the materials we use and aim to one day source only recycled or renewable materials in our products. A key path to reaching that goal is resource recovery from end-of-life electronics.

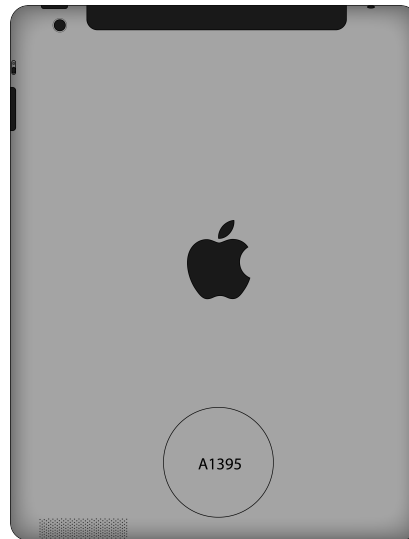
Disassembly procedures are intended to be performed only by trained electronics recycling professionals. The recycler is responsible for independently evaluating and ensuring compliance with all applicable environmental, health, and safety laws related to the work. These include but are not limited to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

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

Note: This guide may show images from other similar models, but the procedures are the same.

Identification

You can find the model number on the back of the iPad.



Model numbers:
(Wi-Fi) A1395, A1416, A1458
(Wi-Fi + Cellular) A1396, A1397, A1403, A1430, A1459, A1460

Directive 2012/19/EU Annex VII Components

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

Substance/Component	Apple Part Name	Removal Instructions
Printed circuit board if the surface is greater than 10 square centimeters	Display logic board, main logic board	Follow steps 1–15
External electric cables	Charge cable	Follow step 1
Battery	Lithium-ion polymer batteries	Follow steps 1–5
Cover glass and liquid crystal display (LCD) cell if the surface is greater than 100 square centimeters	LCD cell	Follow steps 1–4
No further substances or components as listed in Annex VII		

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.

Personal Protective Equipment

Personal protective equipment should be worn during the entire recycling process.



Wear hand protection



Wear protective clothing



Wear eye protection



Wear foot protection

Battery Safety

This product uses a lithium-ion polymer battery. Before beginning any disassembly work, ensure that a safe working procedure for handling lithium-ion batteries has been established, which could include discharging the batteries so that they can be more safely managed. The following considerations may also be included:

- Remove anything from your person that could conduct energy, such as jewelry and watches, to avoid electric shock to yourself or the logic board.
- 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.
- Don't use tools that are sharp or 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 one 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/CO₂ fire extinguisher on a thermal runaway battery or a device containing one. Water and ABC/CO₂ 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 touchless thermometer to measure the battery temperature. Only touch the battery when the event has finished.

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

Hazard Warnings



Broken glass hazard



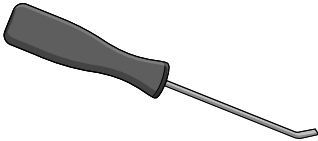
Rechargeable battery hazard



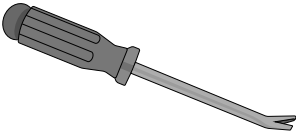
Chemical exposure hazard

Recommended Tools

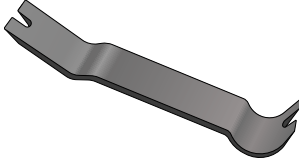
Miniature pry bar



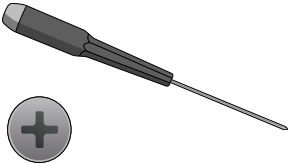
Nail-pulling screwdriver



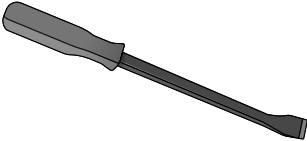
Plastic pry bar



Precision Phillips screwdriver



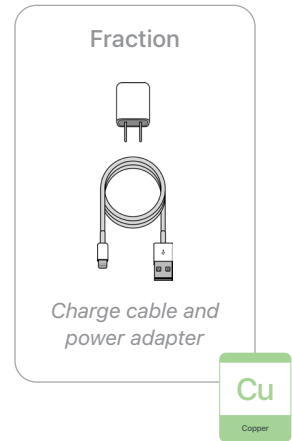
Screwdriver-handle pry bar



Disassembly Instructions

1. Remove the power adapter and the charge cable.

- » *Ensure that the iPad is turned off.*
- » *Unplug the power adapter. Disconnect both ends of the charge cable.*



2. Remove the display.

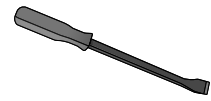


Broken glass hazard

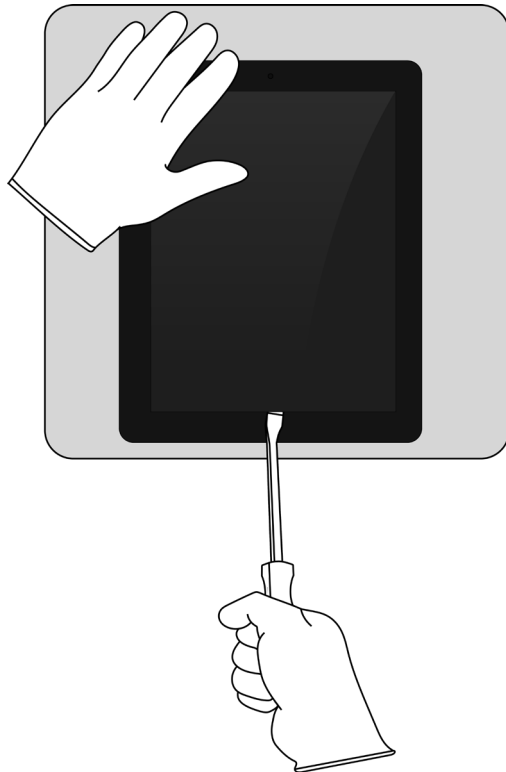


Chemical exposure hazard

Tools Used



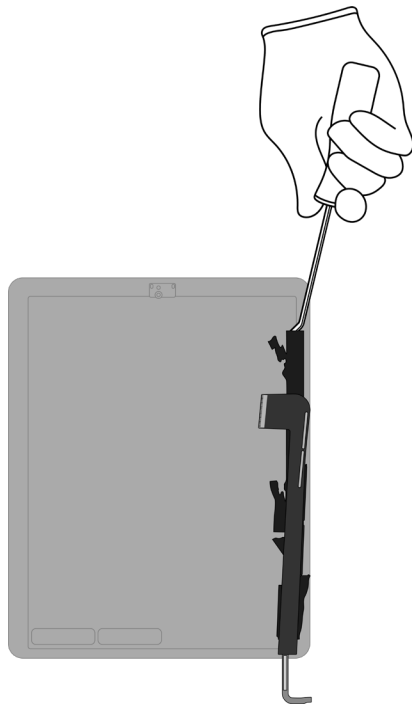
- » *Hold the iPad at the edge of a counter with the display facing up.*
- » *Insert the tool tip into the Home button. Push the handle down to pry the display from the enclosure.*



- » *Separate the display from the enclosure by hand. Set the enclosure aside.*

3. Remove the display logic board.

- » *Lay the display facedown.*
- » *Pry off the display logic board.*



Tools Used



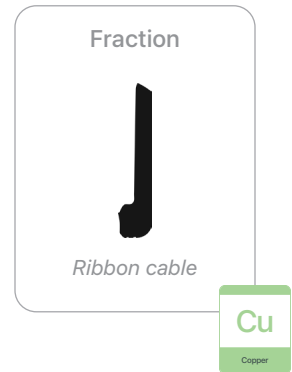
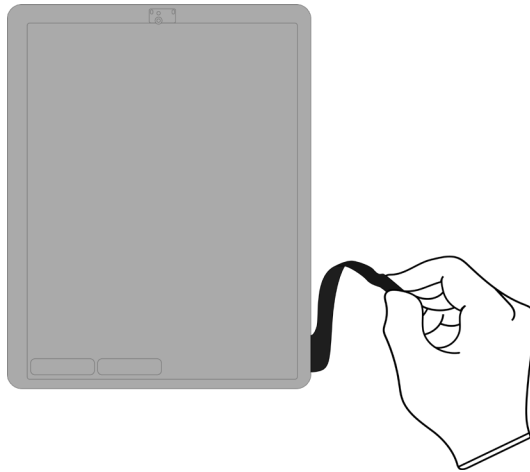
Fraction



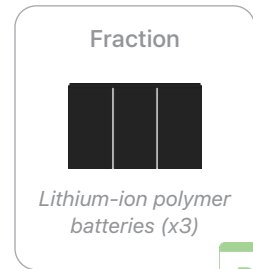
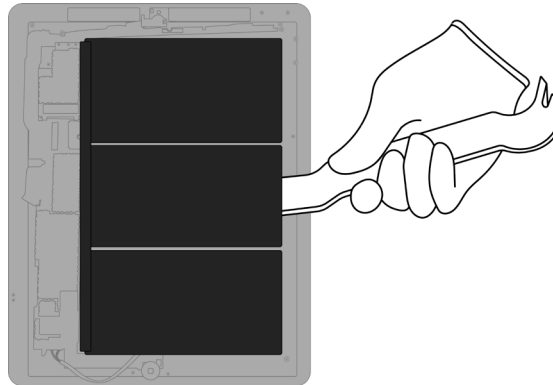
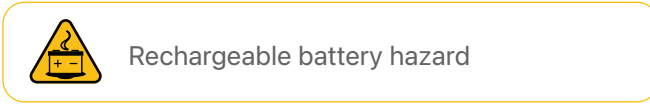
Display logic board



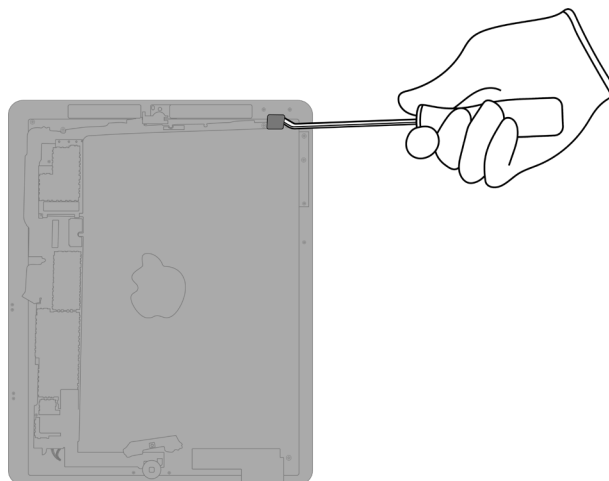
4. Pull the ribbon cable off the LCD cell.



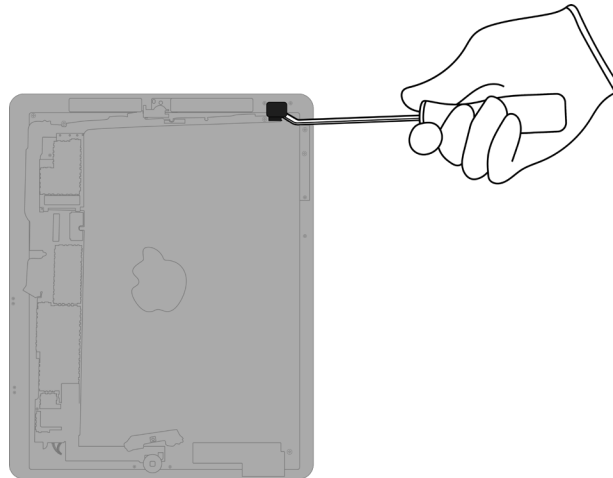
5. From the enclosure, carefully remove the lithium-ion polymer batteries.



6. Pry off the rear camera cover.



7. Pry off the rear camera.



Tools Used



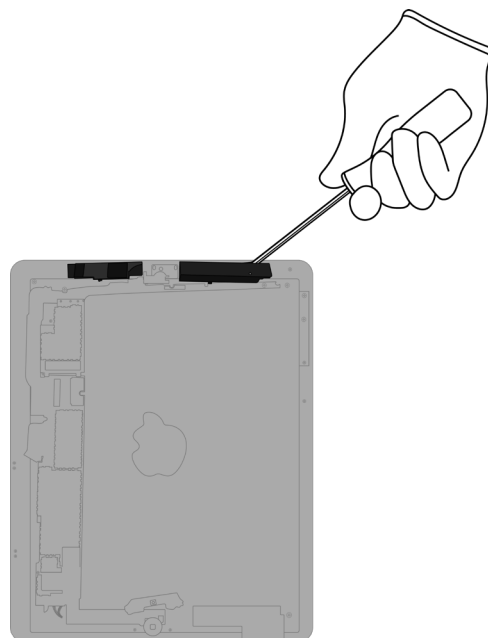
Fraction



Rear camera

PMs
Precious Metals

8. Pry off the two antennas.



Tools Used



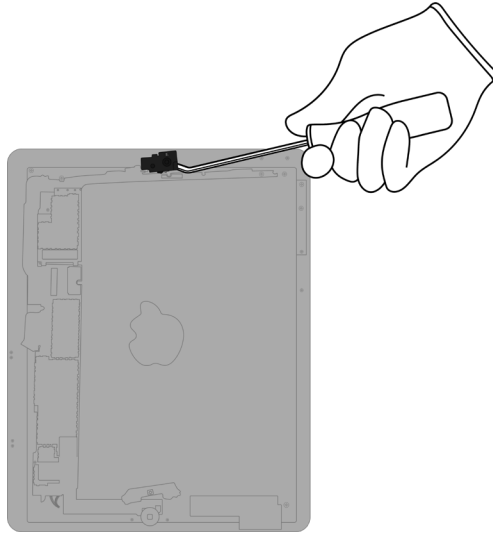
Fraction



Antennas

Cu
Copper

9. Pry off the front camera.



Tools Used



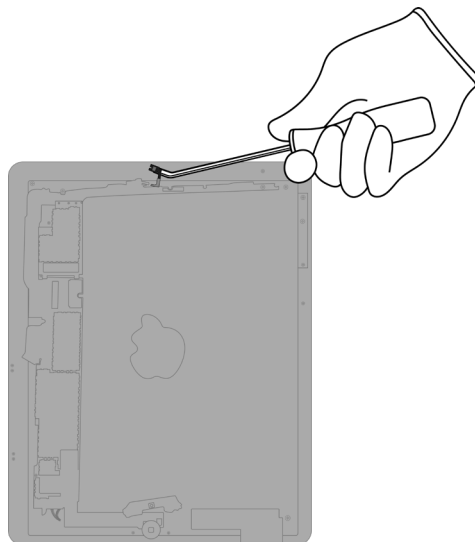
Fraction



Front camera



10. Pry off the microphone array.



Tools Used



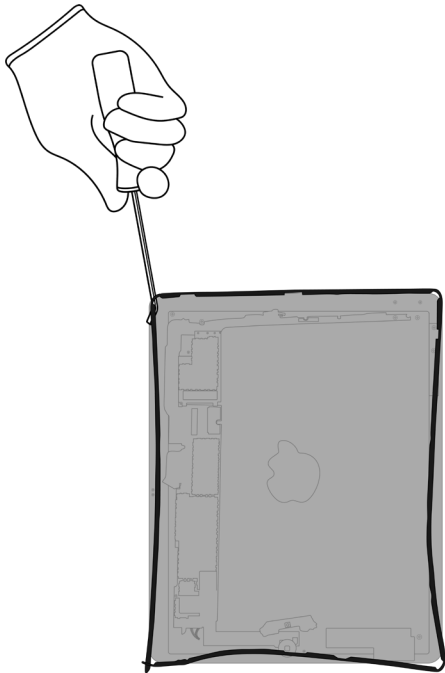
Fraction



Microphone array



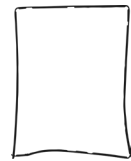
11. Pry off the enclosure frame.



Tools Used



Fraction

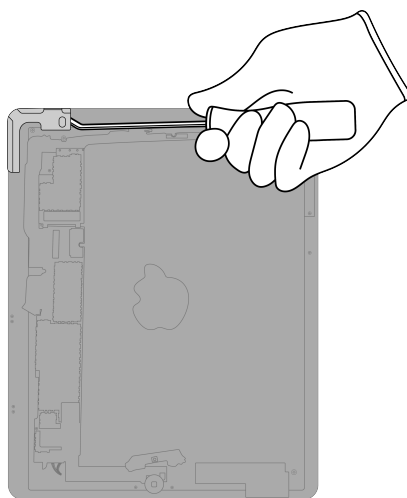


Enclosure frame

PL

Plastics

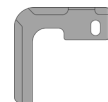
12. Pry off the display bracket.



Tools Used



Fraction

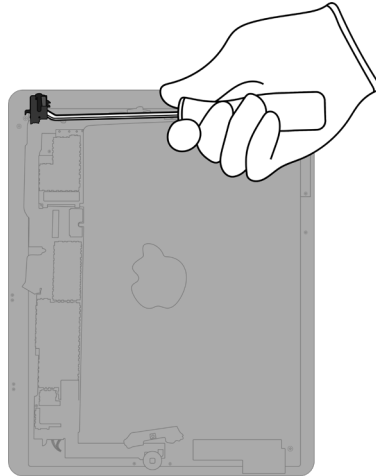


Display bracket

Fe

Ferrous

13. Pry off the headphone jack.



Tools Used



Fraction

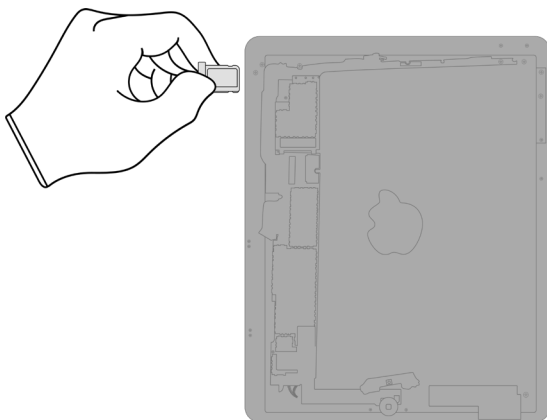


Headphone jack

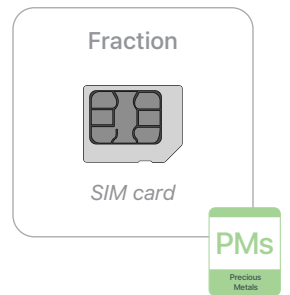
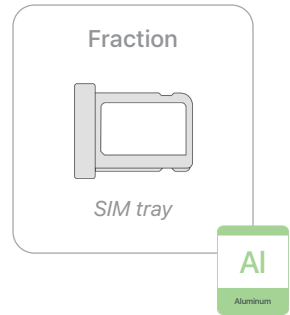
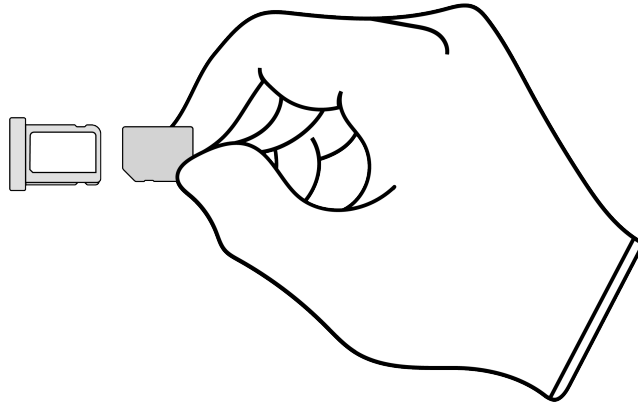
Cu
Copper

14. (Wi-Fi + Cellular models only) Remove the SIM tray and the SIM card.

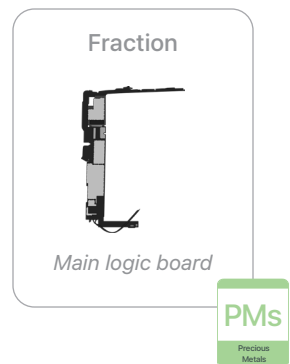
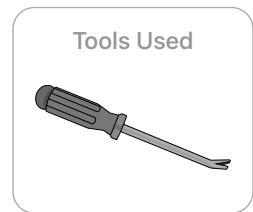
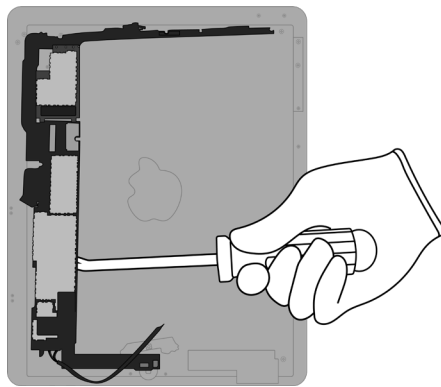
» Remove the SIM tray.



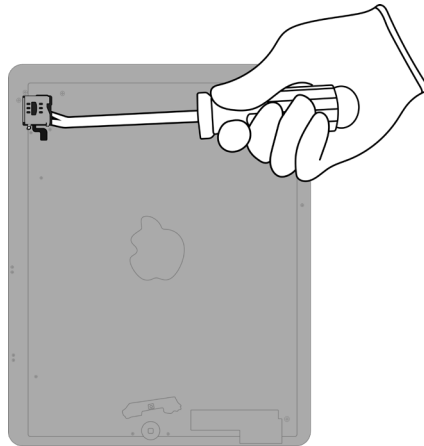
» Remove the SIM card from the SIM tray.



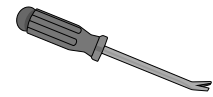
15. Pry off the main logic board.



16. (Wi-Fi + Cellular models only) Pry off the SIM reader.



Tools Used



Fraction

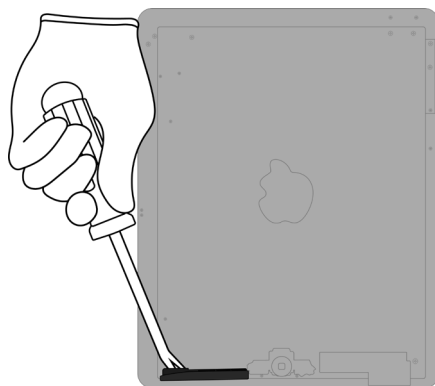


SIM reader

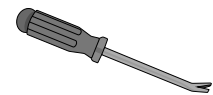
Cu

Copper

17. Pry off the spacer.



Tools Used



Fraction

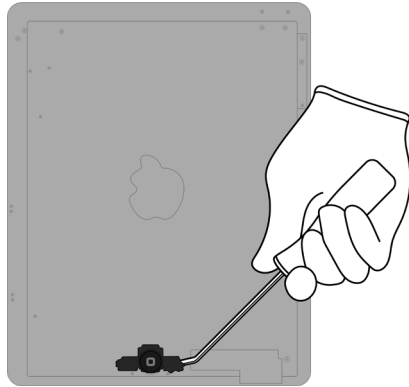


Spacer

PL

Plastics

18. Pry off the Home button.



Tools Used



Fraction



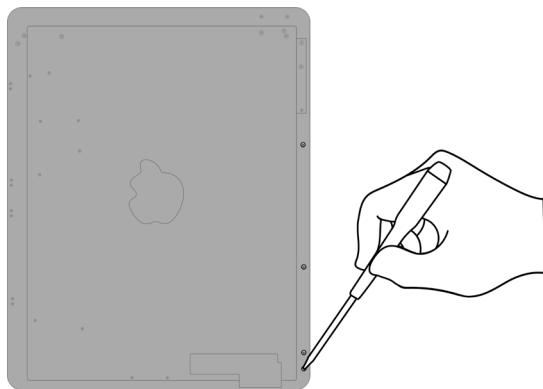
Home button

Cu

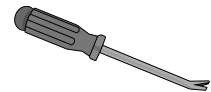
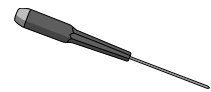
Copper

19. Remove the speaker.

» Unscrew the four fasteners.



Tools Used



Fraction

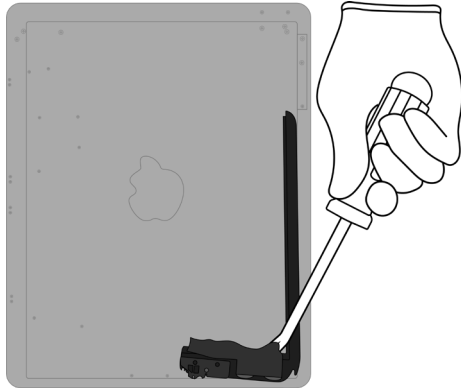


Fasteners (x4)


Fe

Ferrous

» *Pry off the speaker.*



Fraction



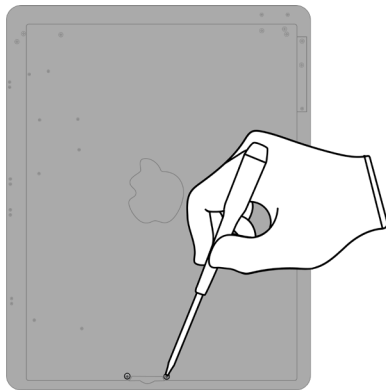
Speaker

REE
Rare Earth Elements

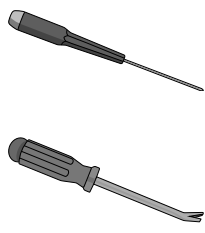
A diagram showing a black speaker component. Below it is a green box with the text 'REE' and 'Rare Earth Elements'.

20. Remove the Lightning connector.

» *Unscrew the two fasteners*




Tools Used

A diagram showing two screwdrivers: a standard Phillips screwdriver and a flathead screwdriver.

Fasteners (x2)

Fraction

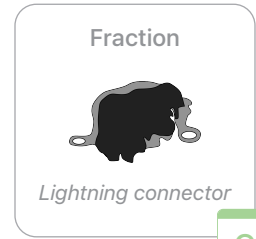
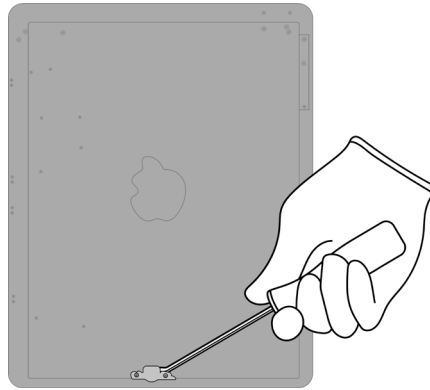


Fasteners (x2)

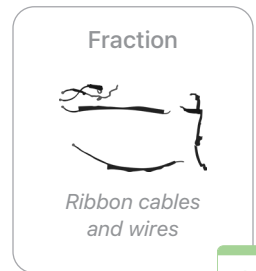
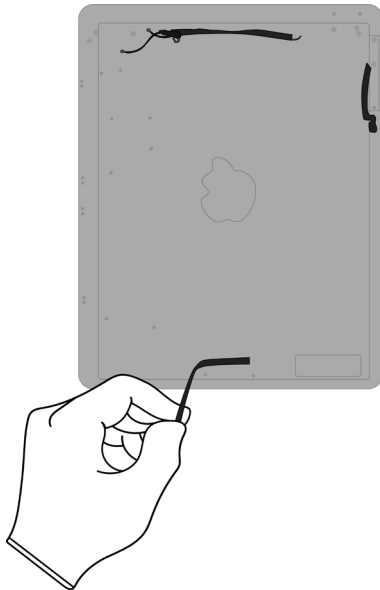
Fe
Ferrous

A diagram showing a plus sign (+) inside a circle. Below it is a green box with the text 'Fe' and 'Ferrous'.

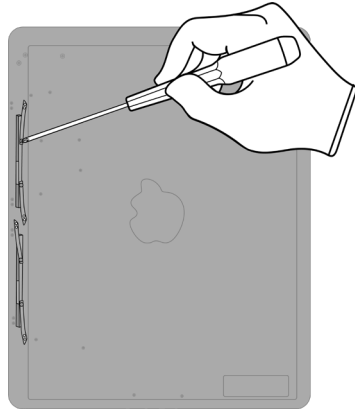
» Pry off the Lightning connector.



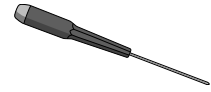
21. Pull off the remaining ribbon cables and wires.



22. Unscrew four fasteners to release two magnets.



Tools Used



Fraction

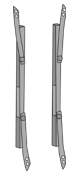


Fasteners (x4)

Fe

Ferrous

Fraction

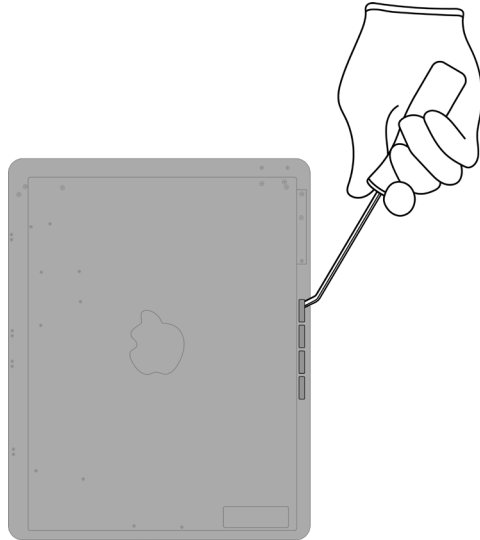


Magnets(x2)

REE

Rare Earth
Elements

23. Pry off the four remaining magnets.



Tools Used



Fraction



Magnets (x4)

REE

Rare Earth
Elements

Fraction








Enclosure

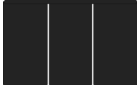

Al

Aluminum

Material Categorization of Output Fractions

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.

Fraction	Downstream Processing
<p data-bbox="435 554 568 579">Aluminum</p>  <p data-bbox="461 739 540 762"><i>SIM tray</i></p>  <p data-bbox="451 987 550 1010"><i>Enclosure</i></p>	<p data-bbox="966 554 1276 579">Primary Target Material</p>  <p data-bbox="925 779 1317 804">Potential Additional Materials</p>  

<p data-bbox="440 1106 561 1131">Batteries</p>  <p data-bbox="404 1281 599 1331"><i>Lithium-ion polymer batteries (x3)</i></p>	<p data-bbox="966 1106 1276 1131">Primary Target Material</p> 
--	--

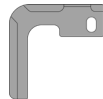
Fraction

Downstream Processing

Ferrous



Rear camera cover



Display bracket



Fasteners (x10)

Primary Target Material



Glass



LCD cell

Primary Target Material



Potential Additional Materials



Fraction

Downstream Processing

Logic Boards



Display logic board



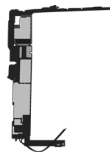
Rear camera



Front camera



SIM card



Main logic board

Primary Target Material



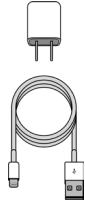
Potential Additional Materials



Fraction

Downstream Processing

Mixed Electronics



Charge cable and adapter



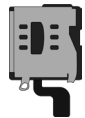
Antennas



Microphone array



Headphone jack



SIM reader



Home button

Primary Target Material



Potential Additional Materials



Fraction

Downstream Processing

Mixed Electronics (cont.)

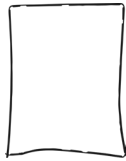


Lightning connector



Ribbon cables and wires

Mixed Plastics



Enclosure frame



Spacer

Primary Target Material



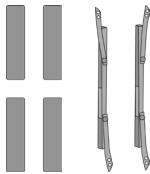
Fraction

Downstream Processing

Rare Earth Magnets



Speaker



Magnets (x6)

Primary Target Material



Potential Additional Materials

