



Pixel 9 Pro Fold Recycling Guide

Version 1.0



Environmental sustainability at Google

At Google, operating in an environmentally sustainable way has been a core value from our beginning.

As our business has evolved to include the manufacturing of electronic products, we've continually expanded our efforts to improve each product's environmental performance and minimize Google's impact on the world around us.

This report details how recyclers can disassemble the Pixel 9 Pro Fold to recover raw materials.

To provide feedback or for questions about this guide, please email Recycling@Google.com.

Who is this Guide for?

This guide is intended for professional recyclers who are trained in electronics recycling and understand the risks involved with doing so. This recycling guide is not intended in any way to serve as repair instructions.

Please follow all relevant local-federal regulations and applicable international standards for electronic recycling as you follow this guide.

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Directive 2012/19/EU Annex VII Components Requiring Selective Treatment

The Google Pixel smartphone contains the following materials and components as listed in Annex VII in the European Union WEEE (recast) Directive 2012/19/EU.

Substance or Component	Location	Removal Instructions
Display & Cover Glass Cover glass and organic light-emitting diode (OLED) display if the surface is greater than 100 cm ²	Main Display	Step 3 and Step 15
PCB Printed circuit board if the surface area is greater than 10 cm ²	Main Logic Board This device employs a mid-frame architecture. MLB is located within the device enclosure and can be accessed through the back cover.	Steps 1 - 10
PCB (Other) Printed circuit board if the surface area is greater than 10 cm ²	OLED FPC Organic light-emitting diode flexible printed circuit	Step 1 - 12
Battery	Battery Battery is located within the device enclosure and can be accessed through the back cover.	Steps 1 - 8
Charger External electric cables	Charge Cable External charging cable is removable.	Step 1

Give Your Device New Life

Before you recycle this device to recover materials, please consider whether the useful lifespan of this device can be extended in other ways.

Repair your device



[Link](#)

Trade-In your device



[Link](#)

Sell your device



[Link](#)

Google Mail-In
Take-Back Program



[Link](#)

Recycle Properly

Again, this guide is intended for technicians and operators who are trained in electronics recycling and understand the risks involved with electronic recycling.

If you are not trained, equipped and capable of properly recycling this device, please use Google's complementary take back program.

Personal Safety

Operators should always wear personal protective equipment (PPE) including protection from thermal events, fires and hazardous materials.

Hand protection



Protective Clothing



Eye protection



Burn Protection



Breathing protection



HazMat Protection



Environmental Health & Safety

Operate in a safe, well-ventilated environment. Follow safety and ergonomic best practices. Outfit your workspace with fire and hazardous material mitigation equipment.¹

Ergonomics



Fire Equipment



Ventilation



HazMat Equipment



Training



Always remember to ensure strict compliance with all local applicable health and safety rules.

Battery Safety

Improper disassembly can be dangerous—especially if individuals are unfamiliar with safety critical components, such as lithium ion batteries.

Discharge Battery



Do not inhale hazardous fumes



Do not damage battery



Be fully prepared for thermal runaway



Other Battery Handling Tips

Battery must be carefully handled, and can be dangerous when damaged.

- Fully discharge device battery before attempting disassembly.
- Never bend, dent or puncture battery.
- Do not use tools that may accidentally damage battery.
- Store batteries in a safe environment to prevent inadvertent damage.
- Take care not to store large quantities of batteries together.
- Take care to prevent shorting of battery terminals.
- If a battery begins to vent or a thermal runaway occurs, immediately cover in sand or use gloves and tongs to place battery in a fire safe.

Battery Transport and Storage Safety

Follow regulations and best practices for lithium-ion battery safety.

Here are some resources that may help recyclers.

Topic

Damaged, Defective or Recalled (DDR) lithium cell batteries

Learn how to identify a lithium cell battery that may be swollen, damaged, defective or recalled. Follow all Department of Transportation guidelines.

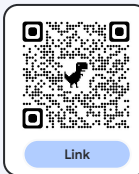
This QR code links to a PDF file from the United States Department of Transportation entitled "Understanding the Risks of Damaged, Defective or Recalled (DDR) Lithium Batteries"

Resource



Transporting Lithium Batteries

This QR code links to a webpage from the United States Department of Transportation entitled "Transporting Lithium Batteries"



Device Specific Warnings



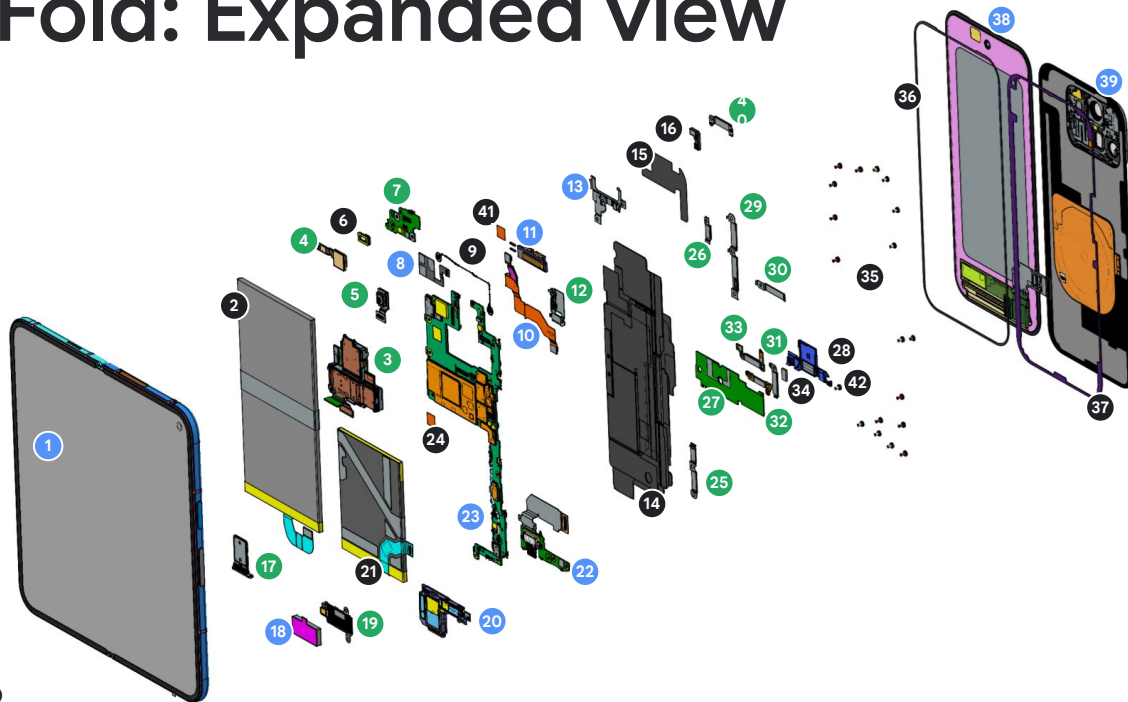
Caution

Pixel 9 Pro Fold contains a class 1 laser module

The design of the device incorporates optics and protective housing such that there's no access to a level of laser radiation above class 1 during normal use or approved servicing.

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Pixel 9 Pro Fold: Expanded view



Pixel 9 Pro Fold part ID

1 ● Inner display sub	8 ● UWB	15 ● Graphite sheet top SPK	22 ● USB board	29 ● Base top bridge cowling	36 ● OD PSA
2 ● Flip battery	9 ● Coaxial cable	16 ● OD rubber	23 ● Logic board	30 ● Base bottom bridge cowling	37 ● BG PSA
3 ● Rear camera	10 ● IF FPC	17 ● SIM tray	24 ● FPS mylar	31 ● OD cowling	38 ● OD sub
4 ● Outer FCAM	11 ● mmWave module	18 ● Vibrator	25 ● Base battery cowling	32 ● Flip bottom bridge cowling	39 ● BG sub
5 ● Inner FCAM	12 ● FCAM cowling	19 ● Vibrator cowling	26 ● BG cowling	33 ● Flip battery cowling	40 ● Flip top bridge cowling
6 ● PL rubber	13 ● mmWave cowling	20 ● Bottom speaker	27 ● Lower board	34 ● OD cowling FOF	41 ● 5G B2B sponge
7 ● Upper board	14 ● Graphite sheet MLB	21 ● Base battery	28 ● Rubber support	35 ● Screw	42 ● OD left bottom FOF

Battery Location











There are two lithium-ion cobalt batteries located in this device.

The approximate location of these batteries is outlined.



Screw map



These are the screws used in the Pixel 9 Pro Fold:

Screw G250-06985-01	Screw G250-06988-01	Screw G250-06989-01	Screw G250-07521-00	Screw G250-06986-00
				
				
Torx Plus 3IP	Torx Plus 3IP	Torx Plus 3IP	Torx Plus 3IP	Torx Plus 3IP



Note

This is what the device looks like once the back cover and outer display are removed.

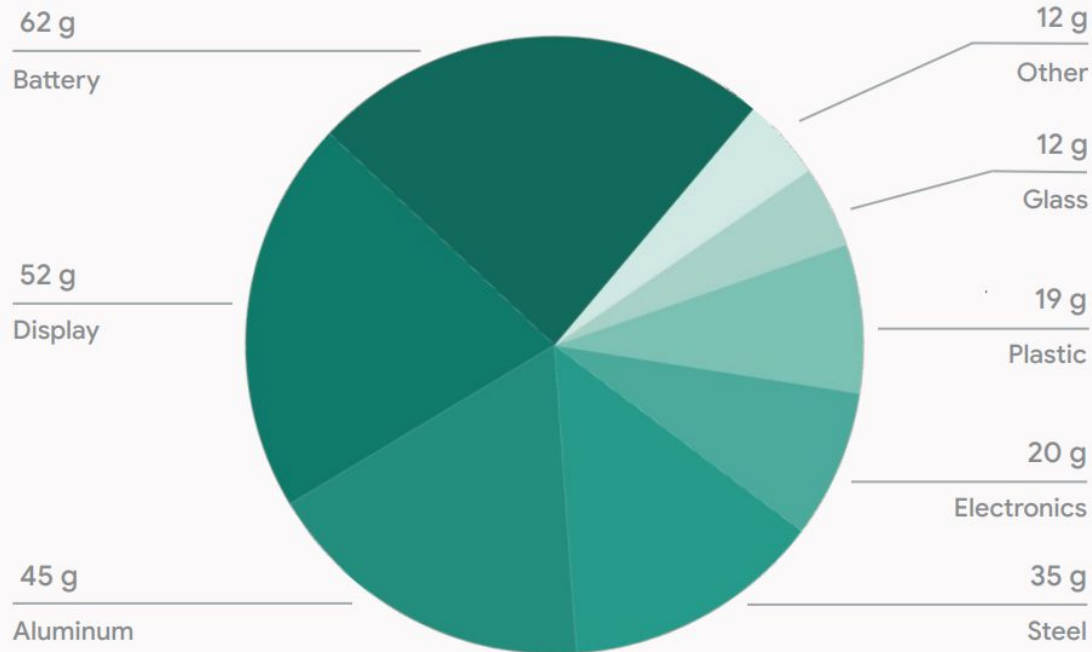
-  - Not Hidden
-  - Hidden



What materials can be found in this device?

Materials used in
Pixel 9 Pro Fold

Total materials:¹¹
257 g



What Tools Are Recommended to Disassemble This Device?

Flat Head Screwdriver



Prying Implement



Pliers



99.9% Isopropyl Alcohol



Torx IP 3 Driver



Universal disassembly shim or miniature pry tool



SIM Card Tray Ejector Pin



Heat Gun, Heat Pad or Heating Tools



01

Remove Charge Cable

Turn off device. Unplug Charge cable and allow the device to drain battery charge.

Target Recyclable Materials:

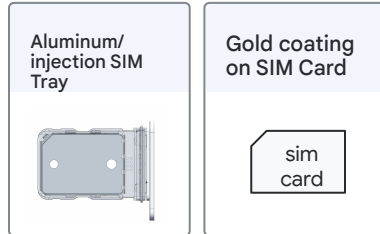
- Copper in Cable



02

Remove SIM Tray

Use Small Push Pin Ejector.



03

Remove Back Cover and Outer Display

If possible, heat device to loosen adhesive. Use prying device with thin edge to lift back cover off of the enclosure. Do the same with outer display.

Target Recyclable Materials:

- Aluminum Visor
- Glass
- Copper (charging coil)

**Note**

Do not insert prying device too far into device as doing so may damage the battery pack.



04

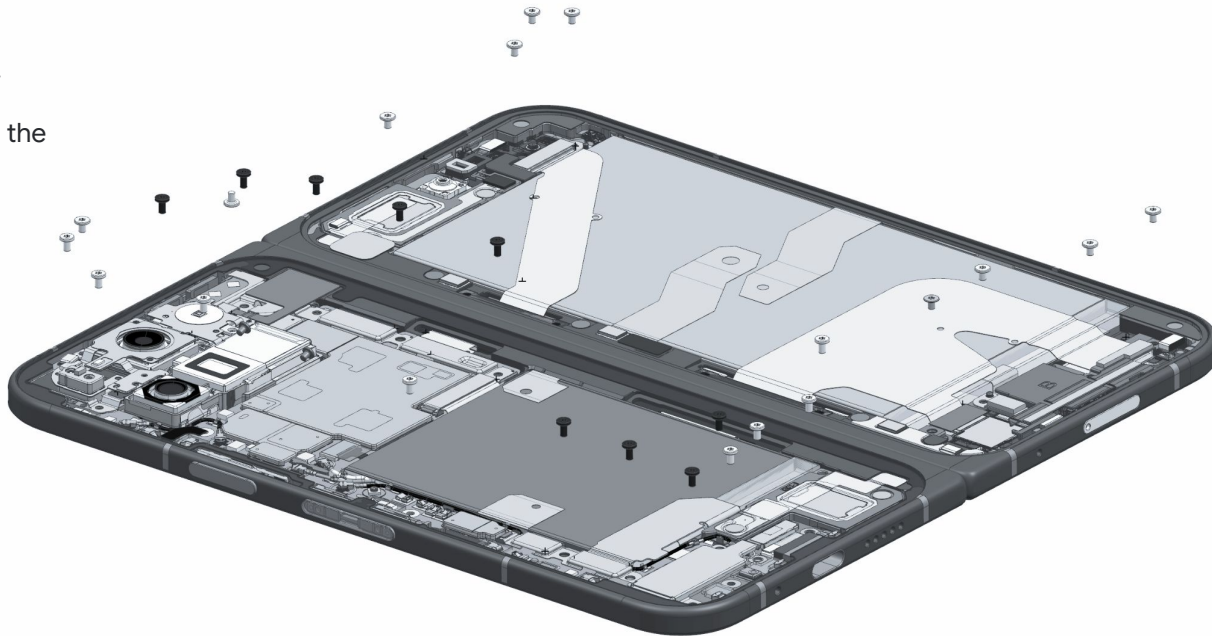
Remove Screws

Tear off graphite sheet covering the MLB.

Using a Torx Plus 3IP screwdriver, remove the 26 visible screws

Target Recyclable Materials:

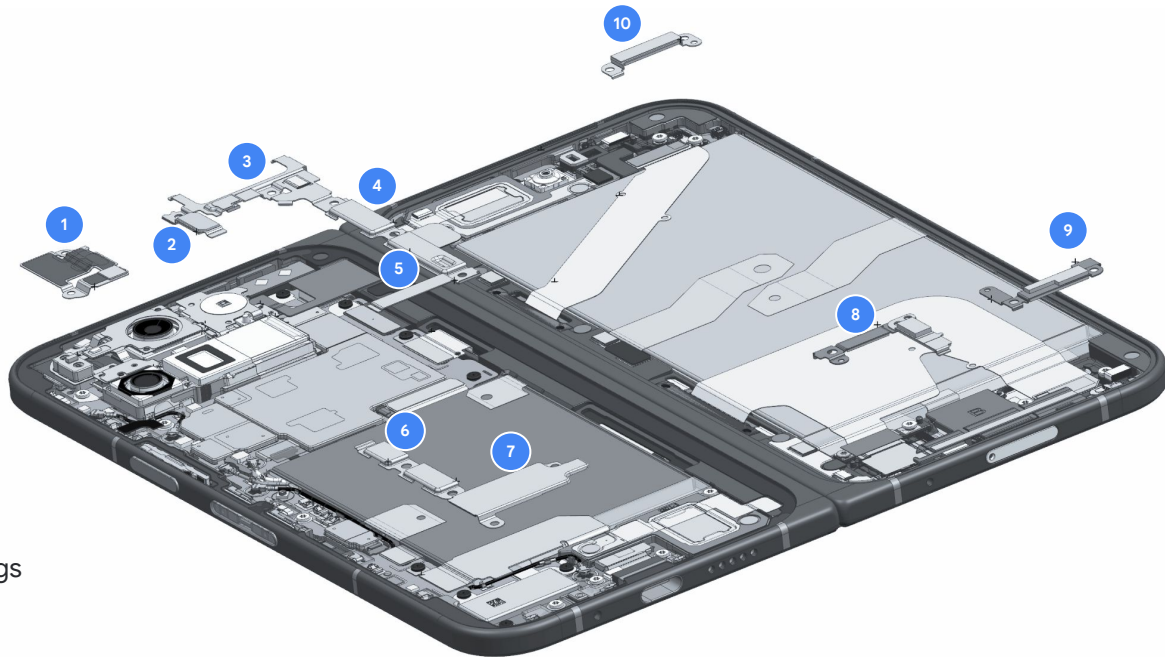
- SUS Steel



05

Remove Cowlings

- 1 Remove the FCAM cowling.
- 2 Remove the flam FPC cowling.
- 3 Remove the mmWave cowling.
- 4 Remove the base top bridge cowling.
- 5 Remove bottom bridge cowling.
- 6 Remove the base battery cowling.
- 7 Remove the vibrator cowling.
- 8 Remove the flip battery and OD FOF cowlings
- 9 Flip bottom bridge cowling
- 10 Flip top bridge cowling



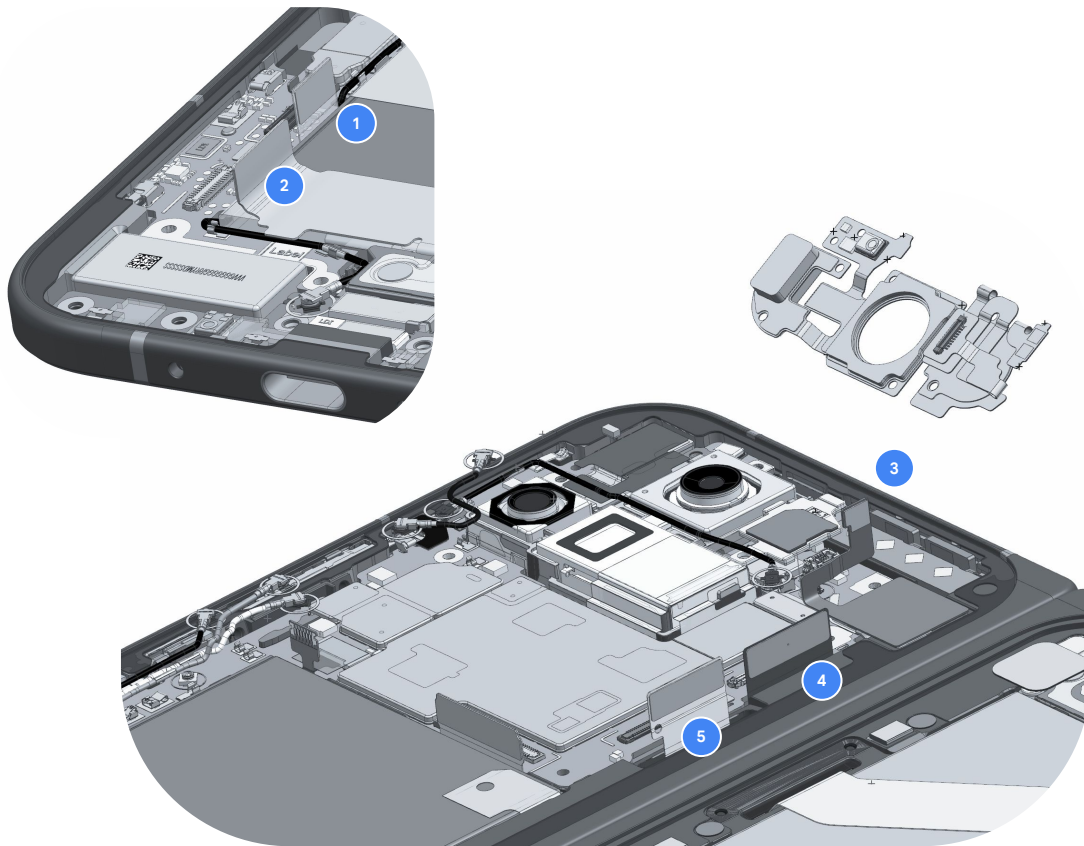
06

Remove Flex Cables

- 1 Detach the base battery B2B connector and the USB board B2B connector from the logic board.
- 2 Disconnect the bottom bridge FPC B2B connector from the logic board
- 3 Detach and remove the UWB flex connector from the logic board
- 4 Disconnect the top bridge FPC B2B connector and the inner display B2B connector.
- 5 Remove the yellow mylar from the FPS. Open the black zif connector and remove the FPC.

Target Recyclable Materials:

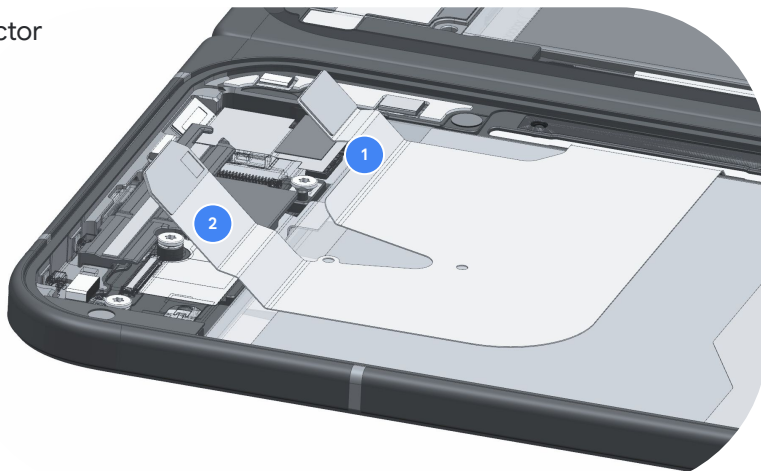
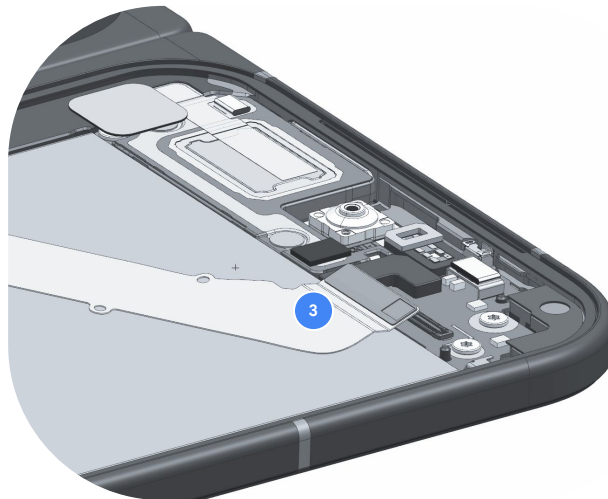
- Gold plating on flex cable
- Copper Flex Cable



07

Remove Flex Cables on Flip Side

- 1 Detach the flip battery B2B connector
- 2 Detach the flip bottom bridge B2B connector
- 3 Detach the flip top bridge B2B connector



08

Remove Base & Flip Batteries

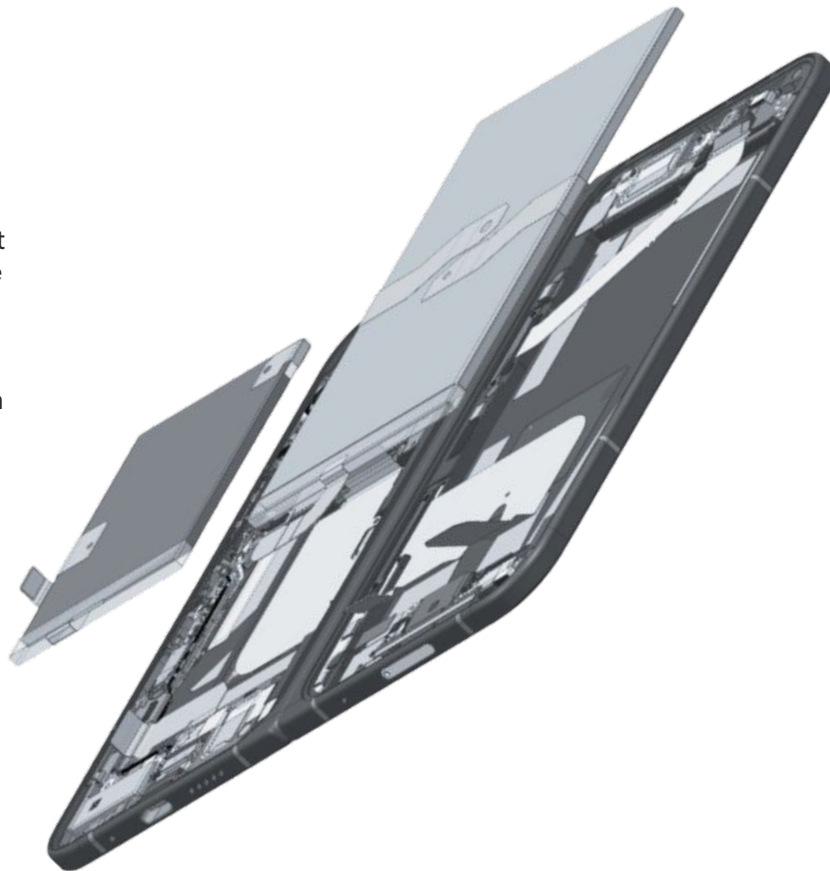
Although some recyclers may pry the battery out, we recommend first applying 99.9% isopropyl alcohol under the battery to compromise the adhesive.

Alternatively, a recycler could heat the adhesive under the battery to 158°F (70 °C) to weaken the adhesive bond. We recommend a duration of 10 minutes on the hot plate. Use caution. The heating plate is a hot surface and it could cause burns.

Battery must be recycled with specialized processes such as pyrometallurgy or hydrometallurgy.

Target Recyclable Materials:

- Cobalt
- Lithium
- Nickel
- Copper
- Precious Metals
- Gold plating on connectors of flex cable



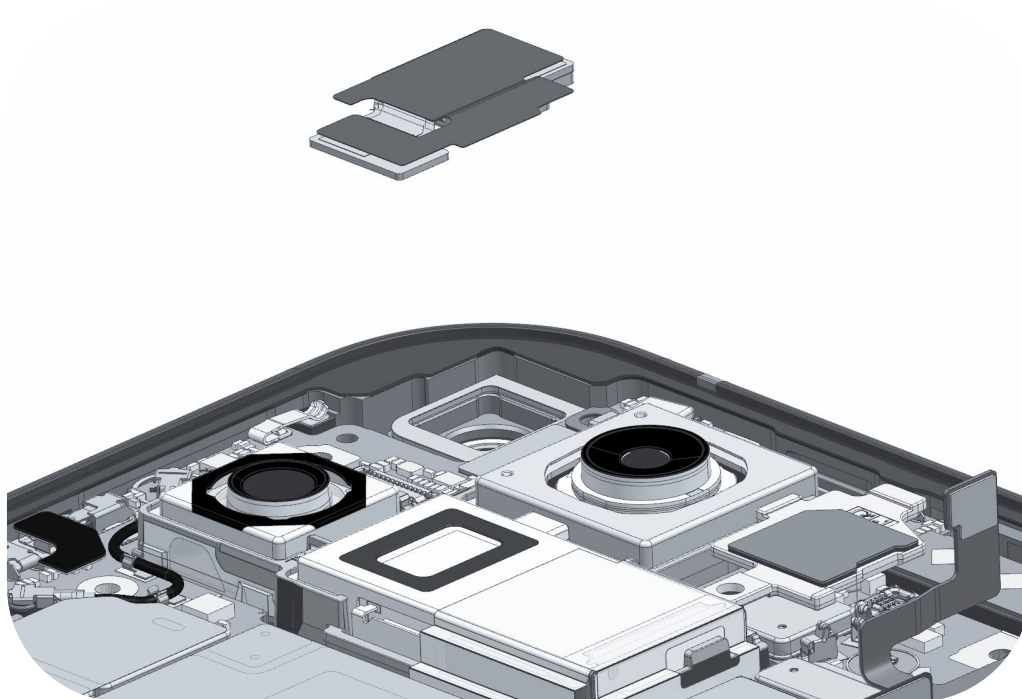
09

Base Front Camera

Detach the inner FCAM connector from the logic board. Remove FCAM.

Target Recyclable Materials:

- SUS (sheet) Front Cam Backer
- Minimal Amount Rare Earth Element in Front Cam Magnet



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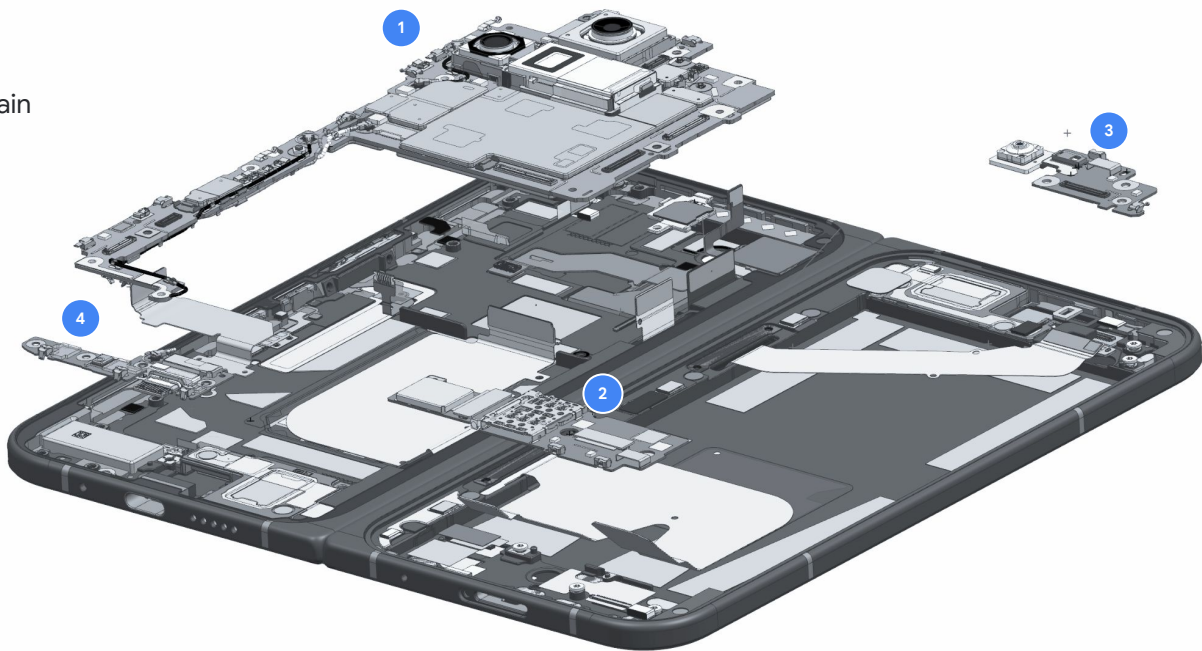
Remove Logic Boards

- 1 Use Prying tool, if necessary, to lift the main logic board and components out of enclosure from the base side
- 2 Remove the lower board from the upper right corner.
- 3 Remove the upper board on the flip side
- 4 Pry up and remove the USB board

These components include small quantities of a number of notable materials that could be recovered, including:

Target Recyclable Materials:

- Copper
- Precious metal coatings
- Silicone
- Neodymium (Rare Earth Element) Magnets in Wide Rear Cam



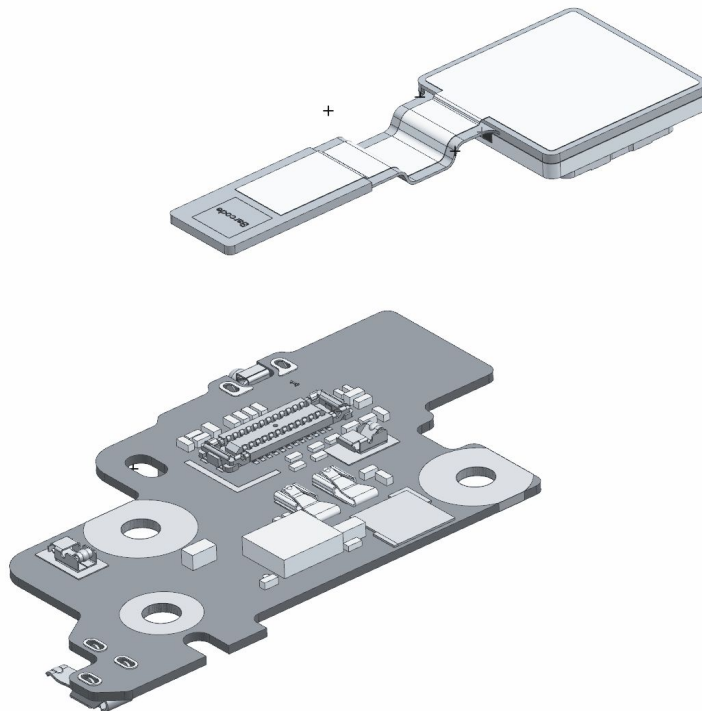
11

Outer Front Camera

Detach the outer FCAM connector from the upper logic board. Remove FCAM.

Target Recyclable Materials:

- Copper foil
- Precious metal coatings
- Neodymium (Rare Earth Element) Magnets in FCAM.



12

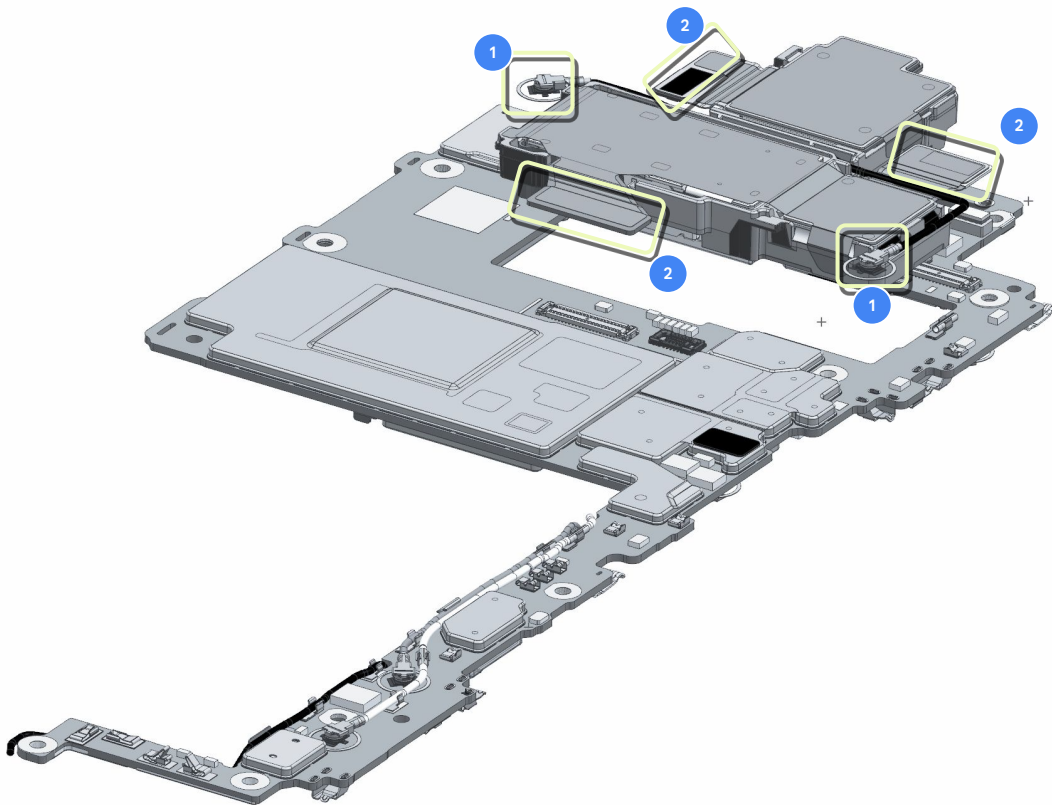
Remove Rear Camera

- 1 Remove the two RCAM coaxial cable ANT3 connectors from the logic board.
- 2 Loosen the three rear camera connectors and disconnect from the logic board.

Pull Rear Camera off of logic board.

Target Recyclable Materials:

- SUS (sheet) Rear Cam Backer
- Minimal Amount Copper
- Minimal Amount Rare Earth Element in Front Cam Magnet
- Gold plating on flex cable



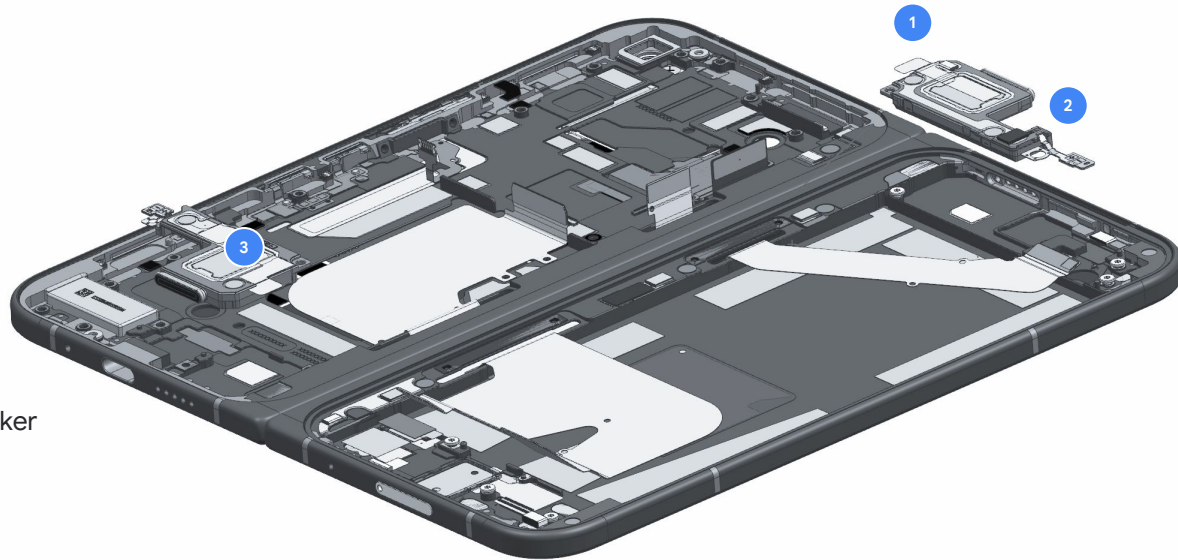
13

Top & Bottom Speaker

- 1 Peel up the graphite sheet covering the top speaker
- 2 Insert the spudger to pry up the top speaker
- 3 Insert the spudger to pry up the bottom speaker

Target Recyclable Materials:

- Neodymium (Rare Earth Element) Magnets in Speaker



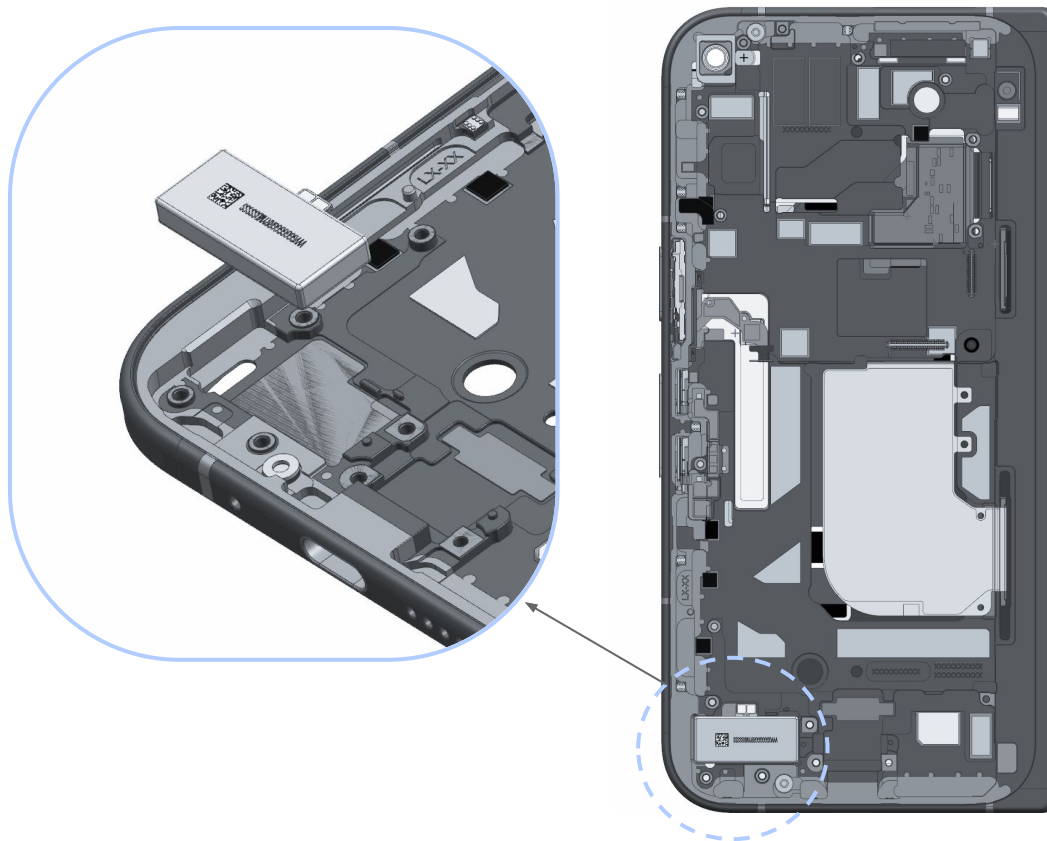
14

Haptics / Vibrator

Apply Isopropyl Alcohol to loosen vibrator adhesive. Use the prying tool to remove the haptics vibrator from the enclosure.

Target Recyclable Materials:

- Neodymium (Rare Earth Element) Magnets in Speaker
- SUS (sheet)
- Copper



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Remove Display & Cover Glass

If possible, heat device to loosen adhesive. Use prying device with thin edge to lift back cover off of the enclosure.

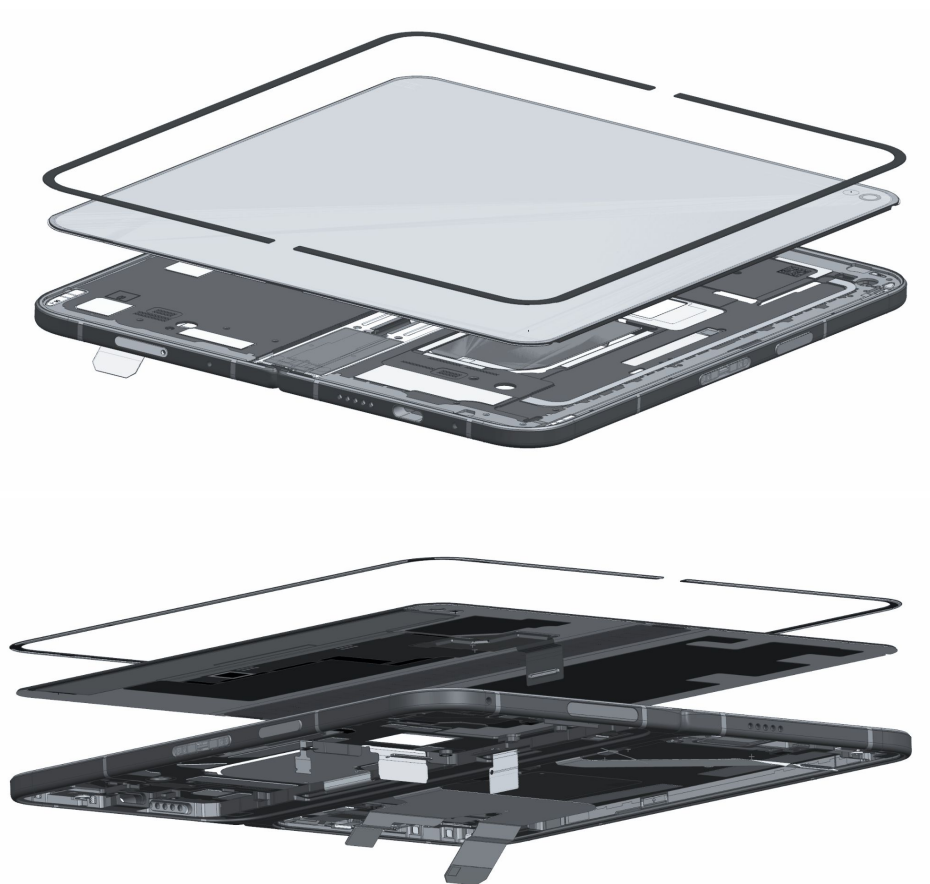
The display also includes a number of flexible printed circuit boards, which can be pried off.

Target Recyclable Materials:

- Glass
- Copper Film Backing
- Copper Display Flex Cable
- Steel
- Gold plating on flex cable

**Note**

Wear protective gloves and safety glasses when handling damaged parts.



Frequently Asked Questions

Questions

Answer

Is there information related to repair?

This recycling guide is for professional recyclers and is not intended in any way to serve as repair instructions.

For repair information or access to repair manuals, please visit:
<https://store.google.com/magazine/repaircenter>



Does Google offer spare parts to recyclers to refurbish or repair smartphones?

This recycling guide is for recyclers and is not intended in any way to serve as instructions to test, refurbish or repair.

For access to Pixel spare parts, please visit:
https://www.ifixit.com/Parts/Google_Phone



How long does it take on average to recycle this device?

Recycling times vary widely and depend on the how thoroughly the device is disassembled for material recovery and the specific tools and operational processes employed. To follow the steps in this guide, we estimate the device processing time will take approximately 1:30 - 5:00 minutes for a well-trained recycling technician.

What hazards might there be when disassembling a device?

The main hazards related to the end-of-life processing of this device are:

01. Damaging the battery in such a way that a thermal runaway occurs;
02. Broken glass causing cuts or abrasions;
03. Chemical inhalation—especially if thermal runaway occurs and
04. Exposure to the class 1 laser module