

# Pixel Fold Repair manual

Version 2.0



## Google recommends that you seek professional assistance for all device repairs.

Self service repair is not recommended unless you are an adult with the technical expertise to safely repair electronic devices. If you choose to perform self repair, you agree to assume the risk associated with such repair.



#### Use caution if engaging in repair.

Opening and/or repairing your device can present electric shock, device damage, fire and personal injury risks, and other hazards. Before servicing the product, read the full set of precautions in this document.

## Welcome!

## We are here to help.

At Google, we innovate, design and build in order to create helpful and sustainable products. Product longevity is really important to us and repairability is part of that. Repair enables our products to stay in-use and out of landfills.

If you have any questions or need support, please reach out.

support.google.com

#### This manual is organized into sections for easy and intuitive navigation.



#### **Precautions**

Safety is a top priority for Google. Users should work in a safe environment and have the skills and training necessary to safely complete repairs.



#### Repair flows

Here, we have a flow chart of the most efficient repair methods.



#### Disassembly

Each section contains a list (in the order of device disassembly) of prerequisite steps, tools, fixtures and parts to complete the repair.



#### Assembly

For each disassembly, we provide a guide to reassembly. This may include rework steps for certain components.



#### Troubleshooting & Software

Use the diagnostic steps and Software recommended in this section to identify the source of device problems and issues.



#### Glossary

All the terms and acronyms you need to communicate with the same language.

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#### Repair flows

Disassembly order

Assembly order



#### Disassembly-Base

BG sub

Logic board replacement

UWB fpc

Rear camera

Graphite sheet

IF fpc

Base Bottom cowling

Base battery Base vibrator

mmWave module

Bottom speaker

Inner display sub

Inner front camera



#### Disassembly-Flip

Outer display

Outer front camera

Lower board

Detune board

Flip cowling with vibrator

Receiver

Top speaker

Flip battery

Upper board

Inner display sub



#### <sup>Y</sup>o<sup>K</sup> Assembly-Base

BG sub

Logic board replacement

UWB fpc

Rear camera

Graphite sheet

IF fpc

Base Bottom cowling

Base battery Base vibrator

Bottom speaker mmWave module

Inner display sub

Inner front camera

#### Assembly-Flip

Flip cowling with vibrator

Outer display

Outer front camera

Lower board

Detune board

Receiver

Top speaker Upper board Flip battery

Inner display sub

Disassembly-Base Assembly-Base Assembly-Flip Software Welcome Precautions Introduction Repair Flows Disassembly-Flip Troubleshooting

### Table of contents (continued)



**Connectors Location** Sensor

FPS (Power Button) Power

Wireless Charge Volume Button

Mic 1 Rear Camera

Outer Front Camera Mic 2

Mic 3 Inner Front Camera

Receiver USB

**Bottom Speaker** mmWave

Base/ Flip Vibrator Top Speaker (Speaker 3)

Outer Display Inner Display

Outer Display Touch Panel Inner Display Touch Panel

UWB RF (BT, WiFi, GPS, NFC)

Battery Hinge

SIM



Software tool

## **Revision history**

Version	Date	Change description
v1.0	May, 2023	First release
v2.0	Nov, 2023	New format release



Pixel Fold Repair Manual

## Precautions

### Important: Before you begin



## Be careful if engaging in repair

Opening and/or repairing a device can present electric shock, device damage, fire and personal injury risks, and other hazards.

Always perform repairs in a clean work space with good ventilation and no combustible materials.

Ensure no additional screws or small parts are left in the device after assembly.

Always ensure that screws are securely fastened.

Before servicing the product, read the full set of precautions in this document.



#### Caution:

## Batteries should be carefully handled, and can be dangerous when damaged

- Fully discharge device battery before attempting repair.
- Never bend, dent, puncture, or use tools to pry the battery.
- Store batteries in the replacement part packaging as soon as possible after removal to prevent damage.
- If a battery begins to vent, immediately cover in sand or use gloves and tongs to place battery in a fire safe.
- Take care to prevent shorting of battery terminals or damaging the battery, as fire or overheating could result.
- Dispose of the battery in a manner in accordance with local regulations.



#### Caution:

#### Pixel 8 contains a Class 1 laser module

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

Laser modules in this product comply with 21 CFR 1040.10 and 1040.11; except for conformance with IEC 60825-1 Ed. 3., as described in Laser Notice No. 56, dated May 8, 2019.

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

#### Laser Module:

Made in Austria. ams AG, Tobelbader Str. 30, 8141 Oberpremstätten, Austria

Disassembly-Base

### Important: Before you begin



#### Caution:

#### Part handling – Glass

- Wear protective gloves and safety glasses when handling damaged parts.
- Use protective film when removing damaged parts.
- Once removed, immediately store the damaged part in the replacement part packaging to prevent injury.



## Tools and fixtures

The use of Google-authorized tools and fixtures is **strongly recommended** in order to repair a device in a safe and effective manner.

#### Caution:

- We don't recommend performing repairs without the specified tools and fixtures.
- Improper use of tools and fixtures may result in injury to yourself, the user of the device or other third parties, as well as damage to the product, tools, fixtures, replacement parts and/or other spare parts.

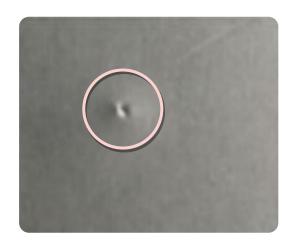


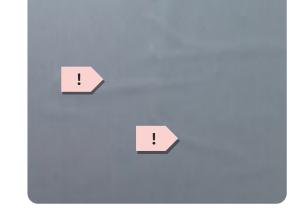
## Important: Before Disassembling the Device

- Disconnect the device from all power sources before any disassembly.
- Make sure the battery is fully discharged before any disassembly.
- If the phone battery shows signs of <u>swelling or damage</u>, or if the phone feels hot or emits strong odor, don't attempt disassembly. Please reach out to Google <u>customer support</u>.
- Take care not to expose the phone or its components to liquids once disassembled.

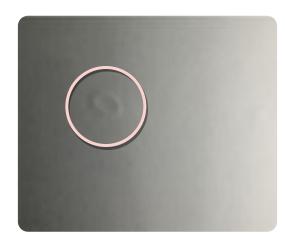


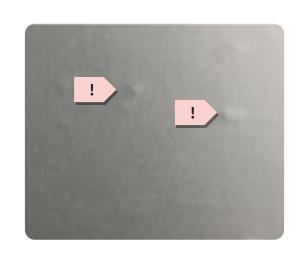
## Examples of unacceptable battery conditions - Not suitable for repair\*











Pouch damage

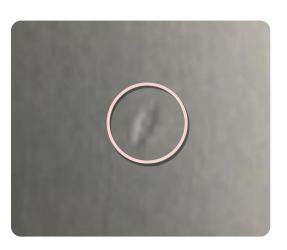
Dent

Line protrusion

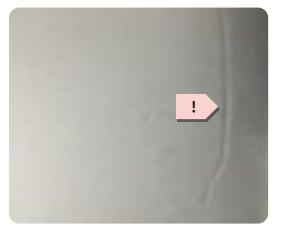
Scratch

Contamination marking

Dot protrusion









Bubbling

Imprinted line Swelling or electrolyte leakage

<sup>\*</sup>These are examples of potentially dangerous battery conditions but don't reflect all possible dangerous conditions. Please follow general safety guidance outlined in this document.

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#### Pixel Fold Repair Manual

## Introduction

Expanded Views Turning Pixel On and Off

Screw Map Tools and Fixtures

Screen Calibration Replacement parts

ESD Protection Glossary

Liquid Damage Indicators Inner Display Protective Film Swap

## Pixel Fold: Expanded view



#### **Pixel Fold Part ID**

1 • Inner Display sub	8 • Upper Board	15 Base Right cowling	22 SIM Tray	29 • Graphite sheet
2 • Flip Battery	9 PL Rubber	16 OD PSA	23 • Logic Board	30 Flip Bottom cowling
3 Rear Camera	<b>10</b> • IF fpc	<b>17</b> • OD sub	24 Bottom Speaker	<b>31</b> • Rubber 1
4 • Receiver	11 • Mmwave Module	<b>18</b> ● BG PSA	25 • Lower Board	<b>32</b> • Rubber 2
5 Outer FCAM	12 Flip Vibrator	<b>19</b> • BG sub	26 Base Bottom cowling	33 • Thermal Sheet
6 ● BG Support	13 • Top Speaker	20 Base Vibrator	<b>27</b> • Die Cut	<b>34</b> • UWB
7 • Detune Board	14 Base Top cowling	21 Base Battery	<b>28</b> ● Block	<b>35</b> ● Screw

Repair Flows

## **Screw map**

These are the screws used in the Pixel Fold:

**Screw** G250-06697-00



**Screw** G250-06696-00



**Screw** G250-06623-00



**Screw** G250-05955-00



**Screw** G250-06709-00





## Screws are a single use item

Screws are a single use item and if removed from the device - should be replaced with a new screw.



## After removal, replace with a new screw

Each screw is critical to the safe continued operation of the phone. Since thread locking adhesive can not be reactivated - replace each used screw with a new screw after removal.



## Inner & Outer Touch Screen Calibrations

#### **Important!**

## Complete the following before booting up the device:

- Except inner display (ID) pre-installed user protective film, nothing can be touching the Inner and Outer display (this includes 3rd party protective films, cases, fingers, tape, labels, scratch cover, adhesives, debris, etc.)
- Device should be in unfold mode and opened completely.
- Device should be on a flat surface, and not held in your hands. It
  is recommended that the Pixel Fold-Holder is used during this
  process to hold the device, and a Universal Disassembly Stick
  is used to elevate the device so that the power button is
  accessible.

Once the above conditions are met, the device can be powered on by pressing the power button. Don't touch the device until it is fully booted into the user operating system.





## Display touch calibration

After any repair that requires opening the phone, complete the display touch calibration during first boot.



## Touch function

The touch function of the screen may not work as intended, if this process is not followed.

## **ESD** protection

ESD (Electro Static Discharge) can damage components so it is important to work in an ESD safe environment during repair.

#### Follow these 4 steps to keep ESD-safe:



#### Stay grounded

Repairs should be carried out on an ESD mat, while the person repairing the device wears a grounded ESD strap.



#### Avoid static buildup

Users should avoid wearing synthetic fibers such as fleeces that can generate static.



#### **Protective bags**

All ESD-sensitive parts should be packed in metalized protective bags during shipping.



#### Avoid touching pins

Users should avoid touching pins by using ESD-safe tools to handle components.



#### Did you know?

ESD is the sudden flow of electricity through two electrically charged objects. For example, walking across a carpet, then touching a metal door handle and feeling a shock is ESD.

Repair Flows

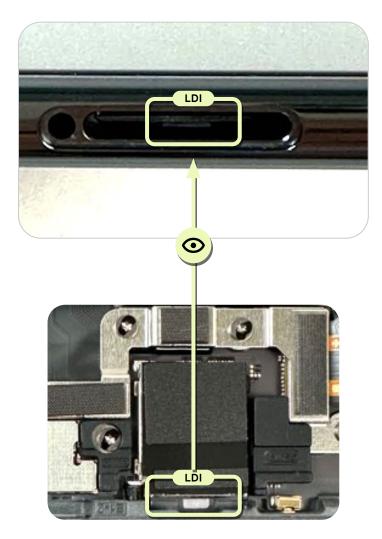
## Liquid damage indicators

Liquid damage indicators are strips that change colors when a phone has been exposed to water or other liquids.

- Exposure to liquids may lead to the device malfunctioning, such as overheating or short circuits.
- There are two Liquid Damage Indicators (LDI) on this device.
- The device is considered to have been exposed to liquid, if either indicator has turned red.



On Logic board, near charge port



In the SIM card tray (on the flip enclosure) visible without disassembling the device.

## Turning Pixel on / off



## Turn the power on or off

- To turn on a device when it's powered off, press and hold the Power button for a few seconds. <u>See where</u> the Power button is located.
- To power off phone when it's turned on:
- To power off phone, press and hold the Power and volume up buttons for a few seconds. Then, tap Power off on screen.
- For further information, see this Google Help page (<u>link</u>).

**Tip:** Before you turn on phone, charge it. <u>Learn how to charge.</u>



## Turn screen off and back on

• To turn screen on and off while phone is turned on, press the Power button once.

**Tip:** On some Pixel phones, you can see the time and some other information even when screen is off.
Learn which Pixel phones and how to turn "Always show time & info" off or on.



## Restart (reboot)

- On most phones, press phone's power button for about 30 seconds, or until phone restarts.
- 2. On the screen, you might need to tap Restart.

Repair Flows



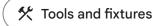
## **Tools and fixtures**

The use of Google-authorized tools and fixtures is strongly recommended in order to repair a device in a safe and effective manner.



#### **Caution:**

- We don't recommend performing repairs without specified tools and fixtures.
- Improper use of tools and fixtures may result in injury to yourself, the user of the device or other third parties, as well as damage to the product, tools, fixtures, replacement parts and/or other spare parts.



## Google approved fixtures: Pixel Fold

Google approved fixtures are Google tested and are strongly encouraged to ensure high quality and safe repairs.

#### Pixel Fold-PSA Align

NEW G940-00738-00 WAS G980-14538-00



#### Pixel Fold-Holder

NEW G940-00737-00 WAS G980-14535-00



#### Pixel Fold-OD Press

NEW G940-00739-00 WAS G980-14540-00



## Pixel Fold-Battery Press (Base)

NEW G940-00741-00 WAS G980-14536-00



#### Pixel Fold-Battery Press (Flip)

NEW G940-00742-00 WAS G980-14537-00



#### Pixel Fold-BG Press

NEW G940-00740-00 WAS G980-14539-00



#### Pixel Fold-BG Screw Cover

NEW G940-00788-00 WAS G980-14541-00



#### Pixel Fold-OD Screw Cover

NEW G940-00789-00 WAS G980-14542-00



## Pixel Fold-Thermal Grease Alignment

NEW G940-00749-00 WAS G980-14544-00



#### **Universal Base**

NEW G940-00735-00 WAS G980-14549-00



#### Universal Press

NEW G940-00733-00 WAS 940-00426-01



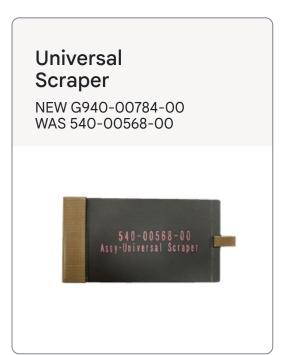
### Universal Disassembly Fixture

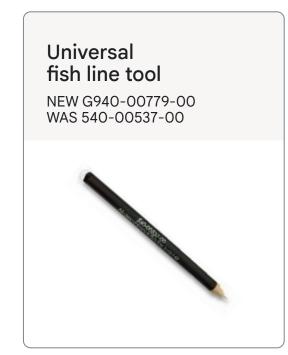
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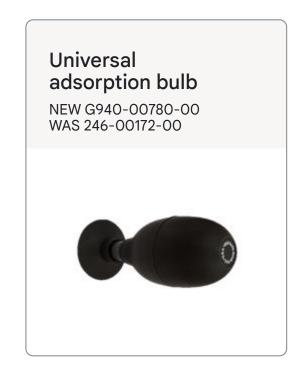


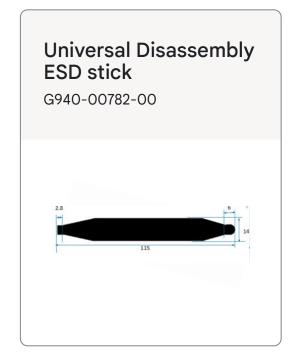
## Google approved fixtures: Pixel Fold

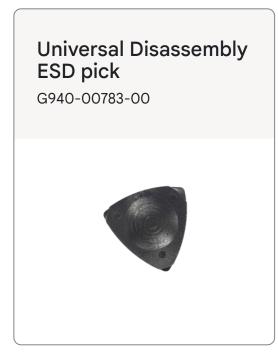
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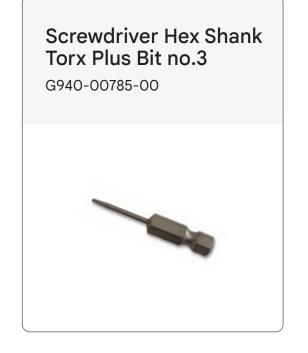




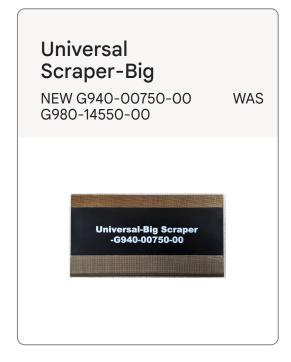








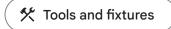






#### Note

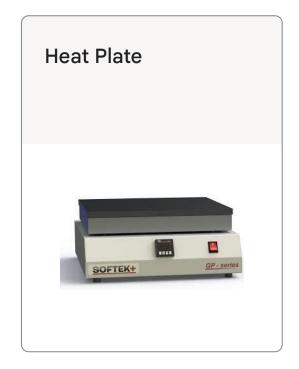
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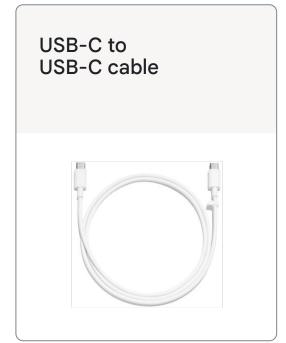


### **Standard tools**

Standard tools are suggested to ensure high quality and safe repairs. These items don't need to be purchased from a Google recommended supplier.

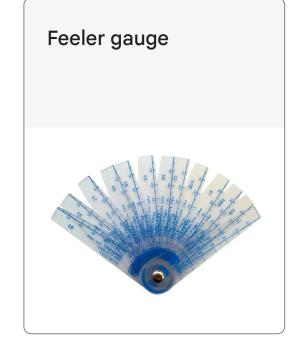


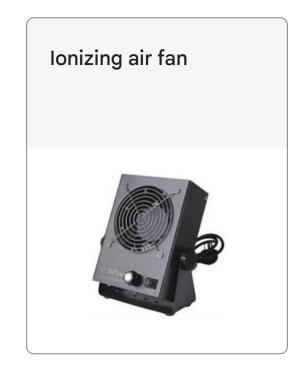


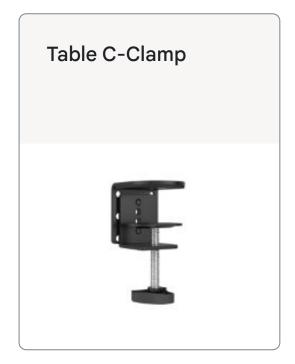




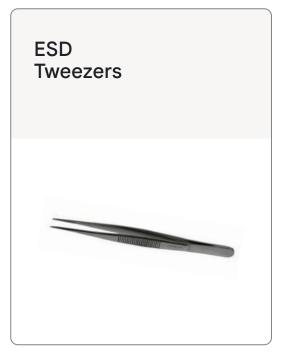




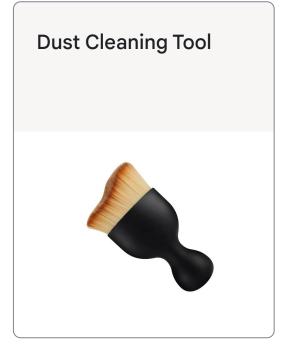


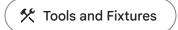












### **Standard Consumables**

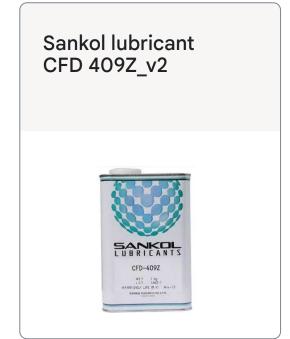
Standard consumables are suggested to ensure high quality and safe repairs. These items don't need to be purchased from a Google recommended supplier.





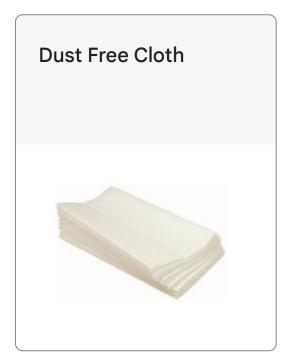


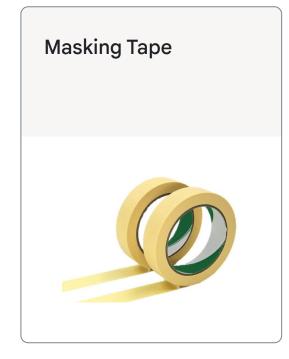


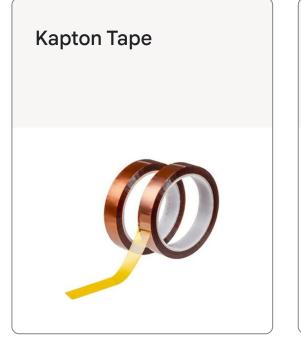


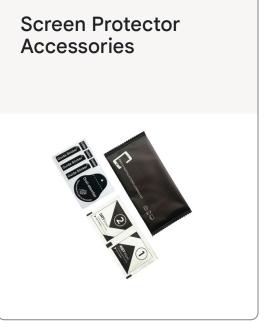










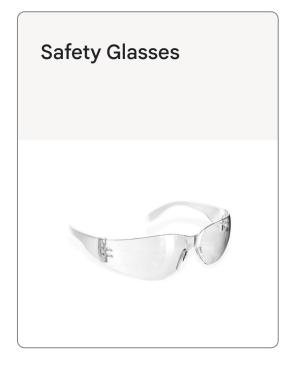


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## Safety items

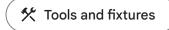
Safety items are suggested to ensure high quality and safe repairs. These items don't need to be purchased from a Google recommended supplier.











## **Repair Fixture Recommendations**

Google approved fixtures are Google tested and are strongly encouraged to ensure high quality and safe repairs.

Type of Repair	Fixtures Recommended
All Pixel Fold Repairs	Pixel Fold Inner Display   Flip Battery   Base Battery Tool Bundle, Universal Press, Universal Disassembly Fixture, Universal Base, Universal Fish line Tool, Universal Adsorption Bulb, Universal Disassembly ESD stick, Universal Disassembly ESD pick, Universal Scraper, Screwdriver Hex Shank Torx Plus Bit no.3, Universal Protective Film
Pixel Fold Outer Display (This repair only)	Pixel Fold Outer Display Tool Bundle, Universal Press, Universal Disassembly Fixture, Universal Base, Universal Fish line Tool, Universal Adsorption Bulb, Universal Disassembly ESD stick, Universal Disassembly ESD pick, Universal Scraper, Screwdriver Hex Shank Torx Plus Bit no.3, Universal Protective Film
Pixel Fold Back Glass (This repair only)	Pixel Fold Back Glass Tool Bundle, Universal Press, Universal Disassembly Fixture, Universal Base, Universal Fish line Tool, Universal Adsorption Bulb, Universal Disassembly ESD stick, Universal Disassembly ESD pick, Screwdriver Hex Shank Torx Plus Bit no.3



#### Important notice about replacement parts

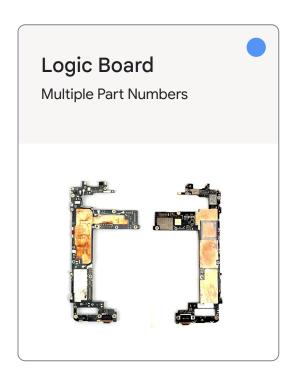
- The use of Google authorized replacement parts is strongly recommended.
- Performance within product specifications cannot be assured if Google authorized replacement parts are not used.

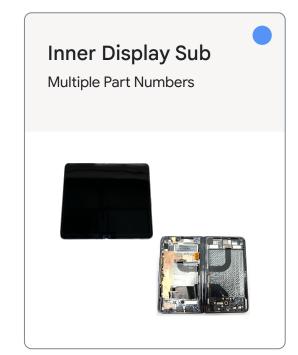


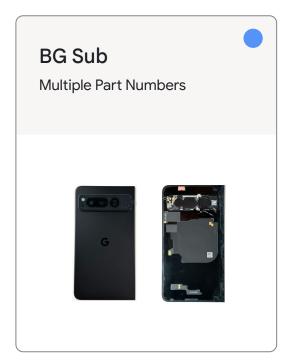
#### **Caution:**

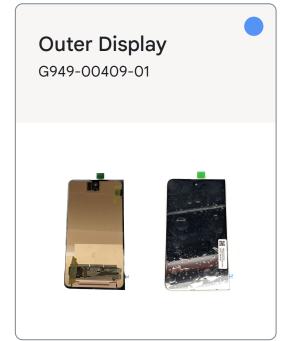
Use of replacement parts other than Google authorized replacement parts, such as aftermarket batteries, may impact device safety, reliability and performance.

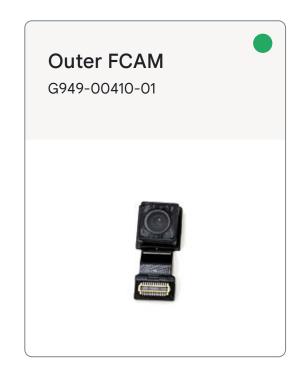


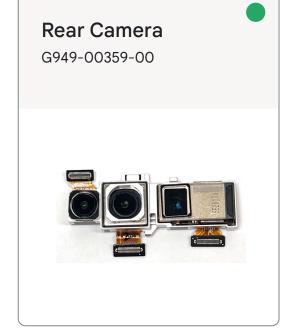


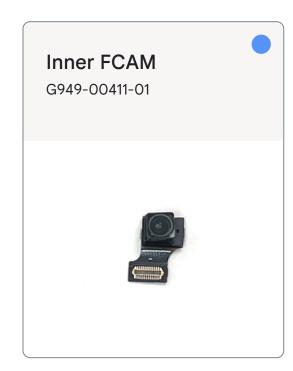


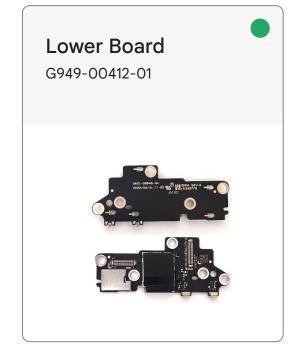


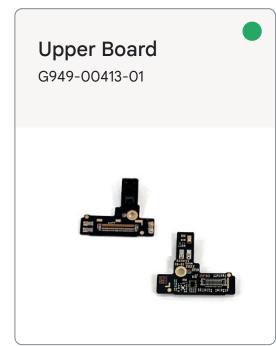


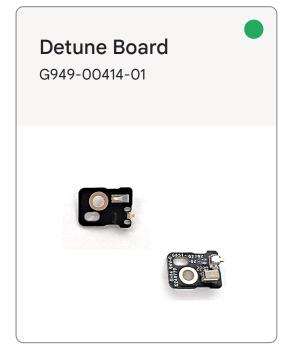


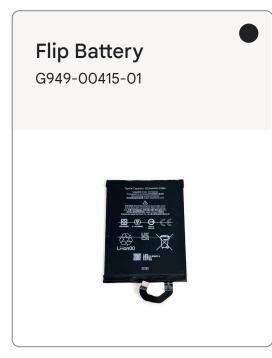


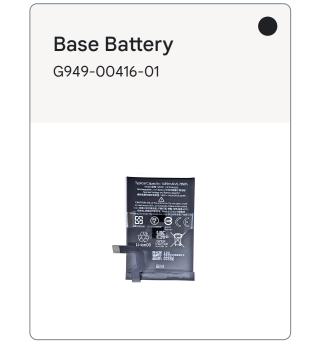










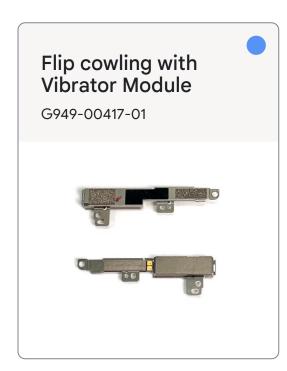


Reuse indications

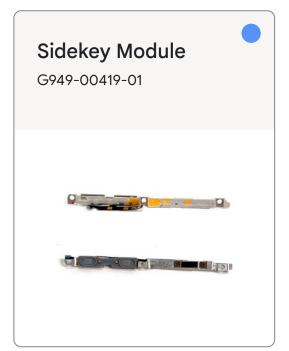
Reusable without Cleaning

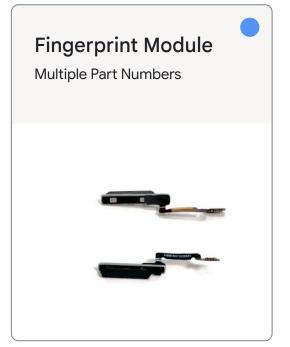
Reusable after Cleaning

Not Reusable after disassembly



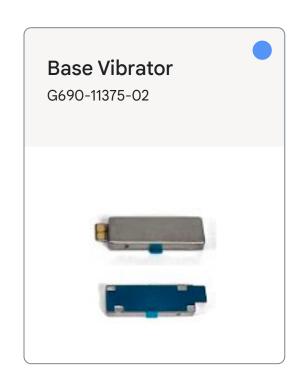


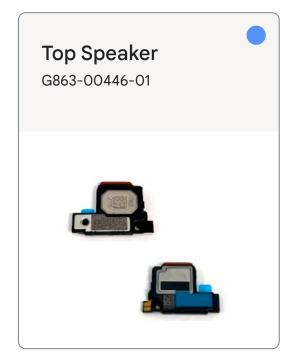


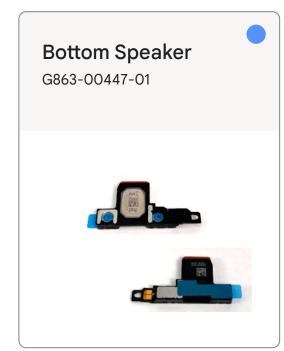


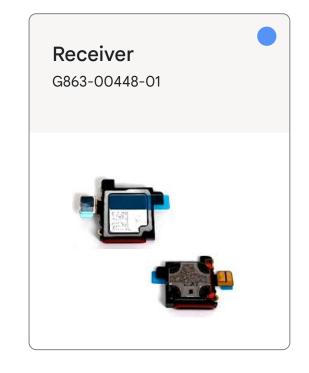


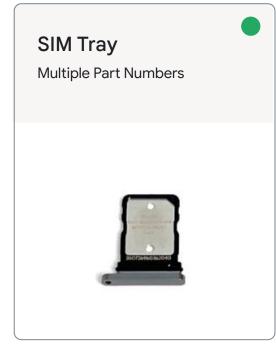


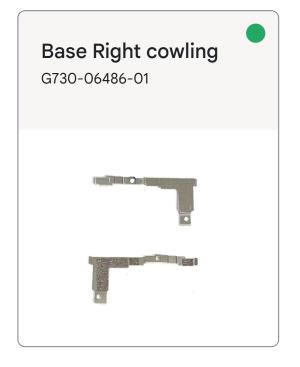






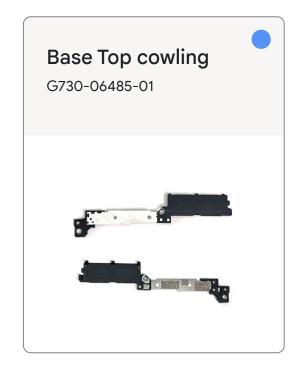


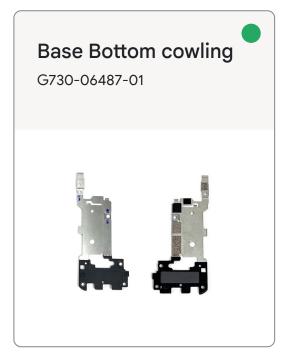


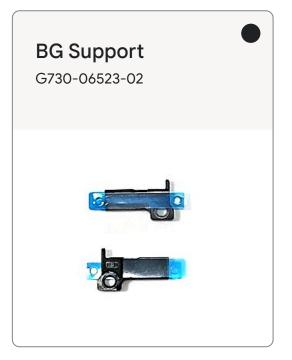




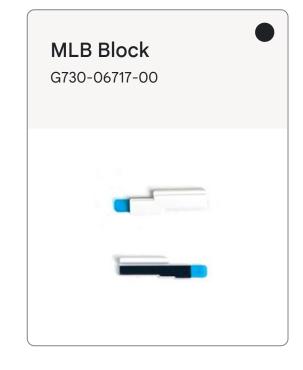


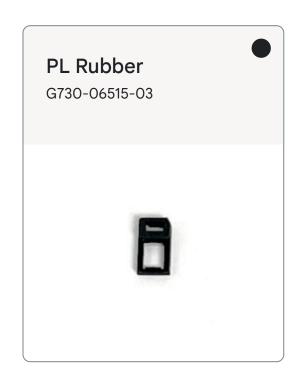


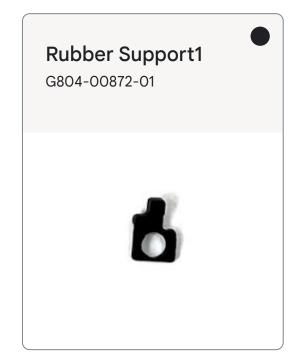


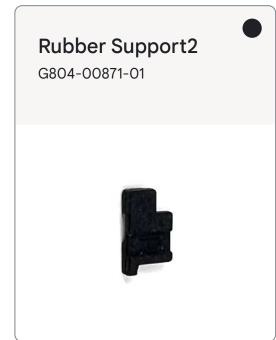


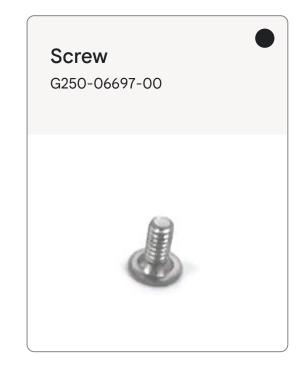


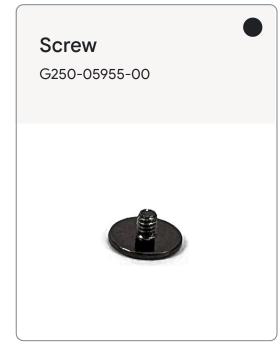


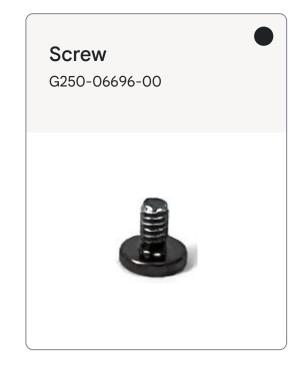




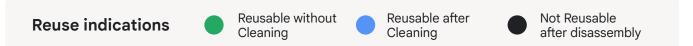


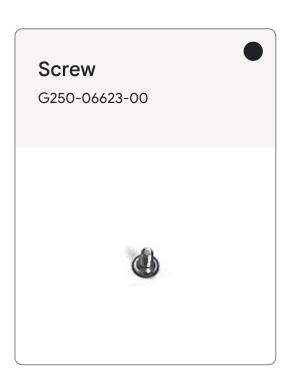






Welcome Precautions Introduction Repair Flows Disassembly-Base Disassembly-Flip Assembly-Flip Troubleshooting Software



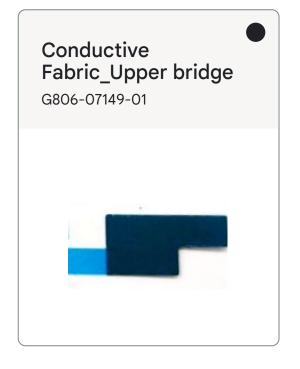


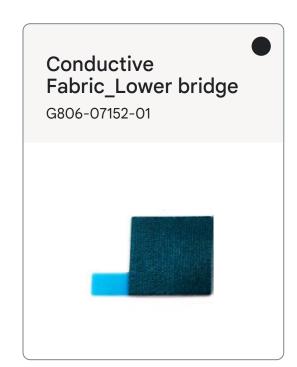




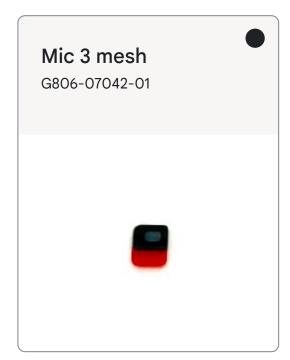


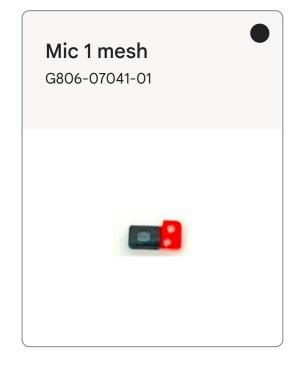








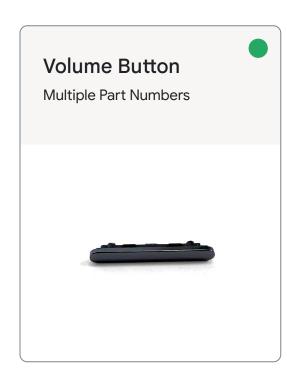


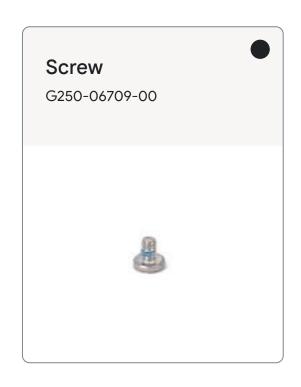


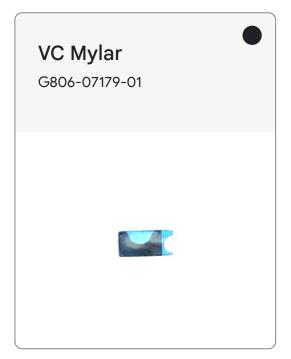






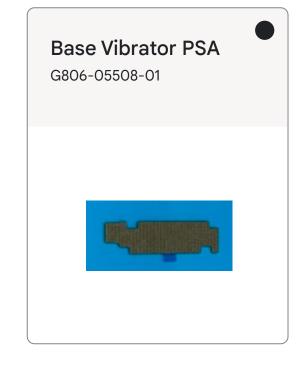














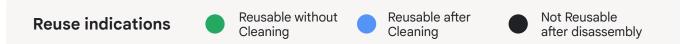




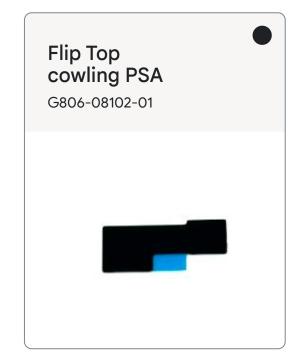


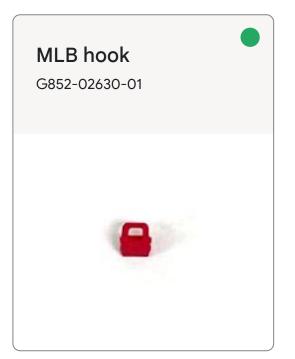




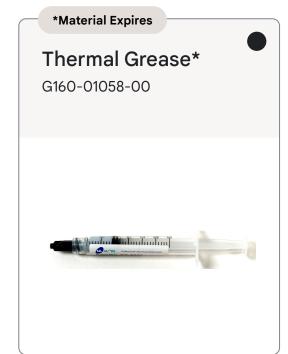








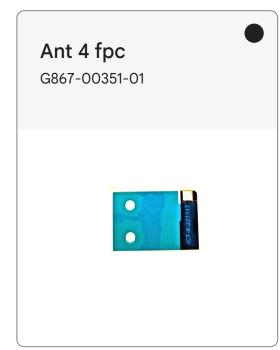


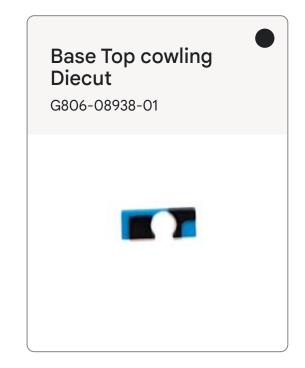


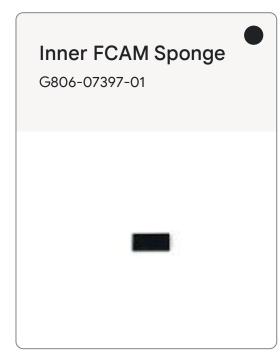














Reuse indications

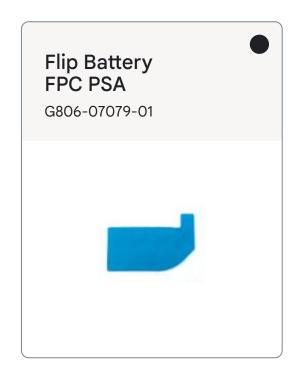
Reusable without Cleaning

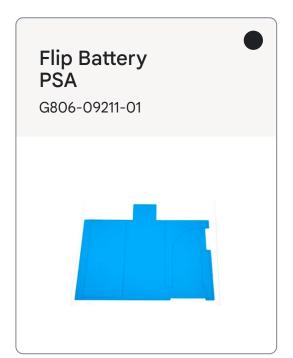
Reusable after Cleaning

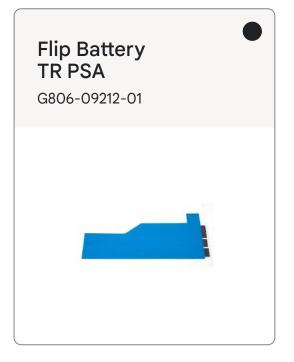
Reusable after Cleaning

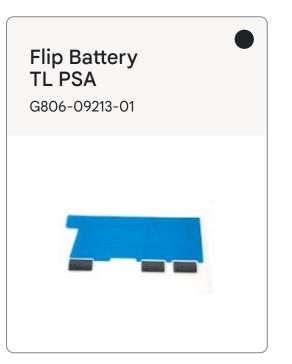
Not Reusable after disassembly









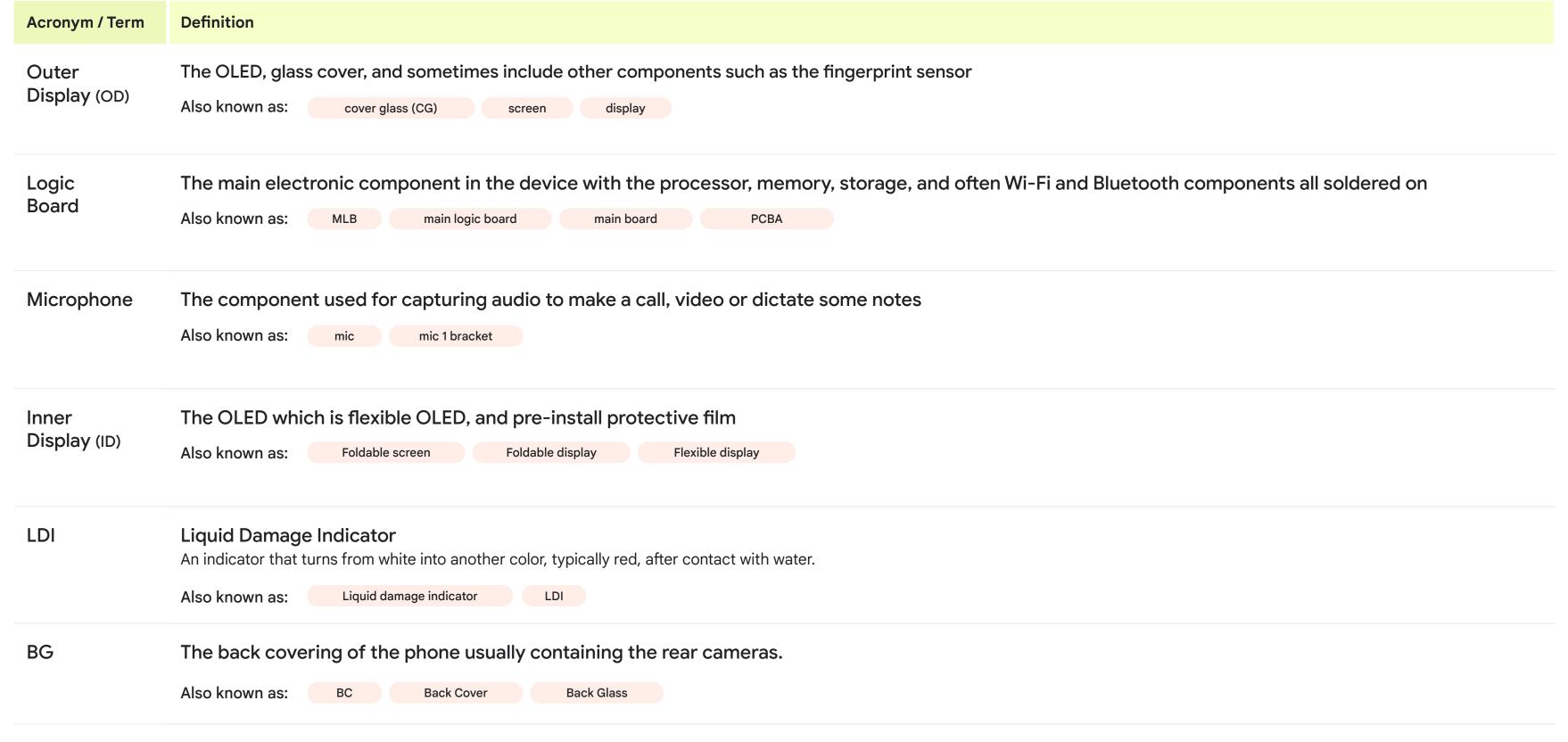




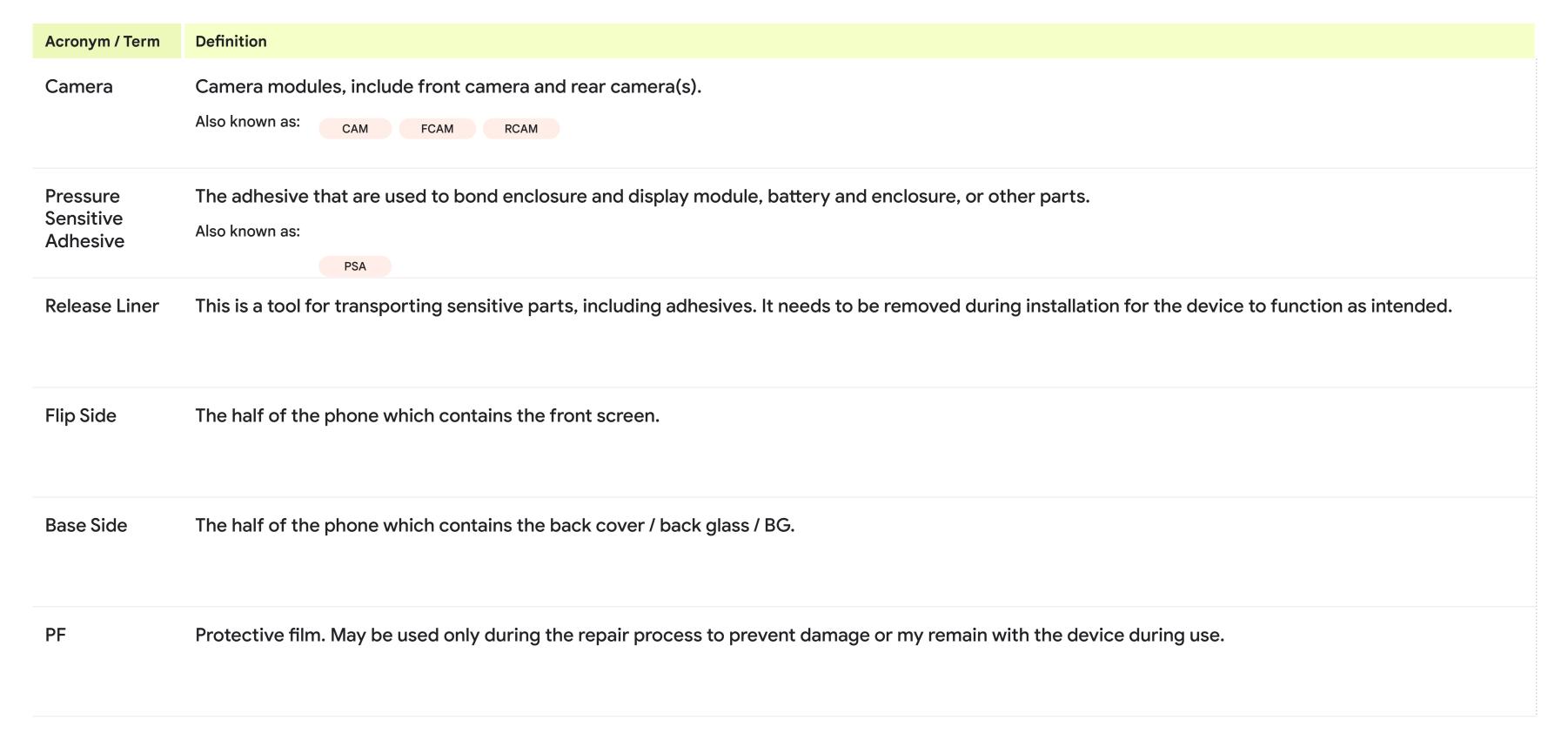
Welcome Precautions Introduction Repair Flows Disassembly-Base Assembly-Base Disassembly-Flip Assembly-Flip Troubleshooting Software

Acronym / Term	Definition
ESD	Electro Static Discharge The sudden flow of electricity through two electrically charged objects.
IPA	Isopropyl Alcohol (99.8% recommended) Used for cleaning components and enclosures. Comes as pads or a solution.
FPC	Flexible Printed Circuit  A type of low profile and flexible printed circuit.
OLED	Organic Light-Emitting Diode (OLED) A type of flat panel display which OLED to show images.
mmWave	Millimeter Wave The radio waves used to build a 5G network, providing fast, reliable mobile data.
Sub6	Sub-6GHz Refers to mid and low-frequency bands under 6GHz
NG	Not good - usually referring to a condition that is not acceptable
SBOM	Service Bill of Materials

Welcome Precautions Introduction Repair Flows Disassembly-Base Disassembly-Flip Assembly-Flip Troubleshooting Software



Welcome Precautions Introduction Repair Flows Disassembly-Base Disassembly-Flip Assembly-Flip Troubleshooting Software



## Inner Display Protective Film Swap

## **ID Protective Film**

The User ID PF is intended to provide additional protection to the inner display during use of the device.



#### Use caution!

Use safety gloves to handle damaged back glass as some splinter during removal and could cause injury.

Apply protective film to broken glass before removal.

Review all **safety precautions** before beginning work.



### Prerequisites

Before beginning a repair, be sure to **power off** the device and disconnect any charging cables.



Pixel Fold-Holder

Universal Scraper-Big

Screen Protector Accessories

**Dust Free Cloth** 

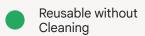


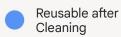
### **BG** Sub replacement

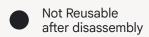
The parts listed are for the BG Sub disassembly.











### Remove User PF

- Make sure the device is turned off before the process.
- Place the device in the **Pixel Fold-Holder** with the ID facing up.
- Use the 0.2mm feeler gauge to remove the User PF starting at the top corner.



### **Use Caution**

Use safety gloves to handle damaged displays as they could splinter during removal and cause injury. Apply protective liner to broken glass before removal.

Review all <u>safety precautions</u> before beginning work.





### Clean the screen

• Use a dust free cloth and **Screen protector accessories** to remove all residue and dust from the screen.



### **Use Caution**

Ensure the environment is clean for this process.



### Remove Release Liners

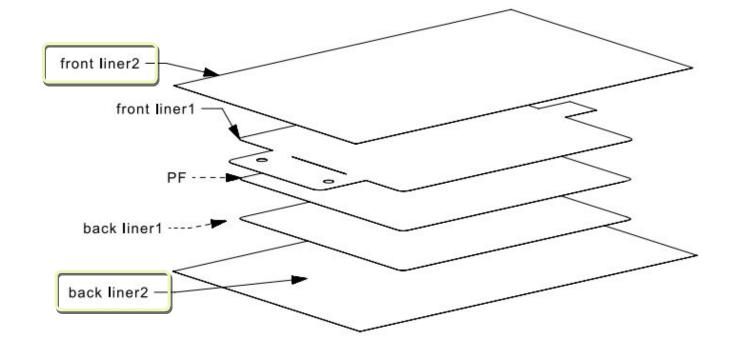
• Slowly peel off Front Liner 2 and Back Liner 2 from the User PF.

Part: G806-07119-99 (User PF)



### **Use Caution**

Ensure the environment is clean for this process.



### Remove Back Liner 1

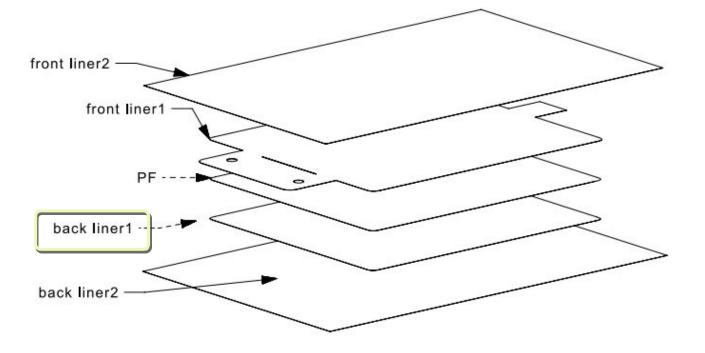
Adhere a piece of tape on the corner of Back Liner 1. Slowly peel
the tape off at a 45 degree angle. Pay extra attention to ensure
only 1 layer is being removed from the User PF.

Part: G806-07119-99 (User PF)



### **Use Caution**

Ensure the environment is clean for this process.



### Align PF onto Fixture

• Align the User PF onto the two Pixel Fold-Holder alignment pins.

Part: G806-07119-99 (User PF)



### **Use Caution**

Ensure the environment is clean for this process.





### Adhere the PF

- With one hand, hold the non-alignment pin edge of the **User PF** at approximately a 75 degree angle in relation to the Fold ID.
- Gently use the thicker side of the **Universal Scraper-Big** in the other hand to slowly lay down the User PF onto the screen.
- The width of the **Universal Scraper-Big** is similar to the width of the **User PF**. Alignment of the scraper to the center of the screen and consistent pressure will aid in installation.

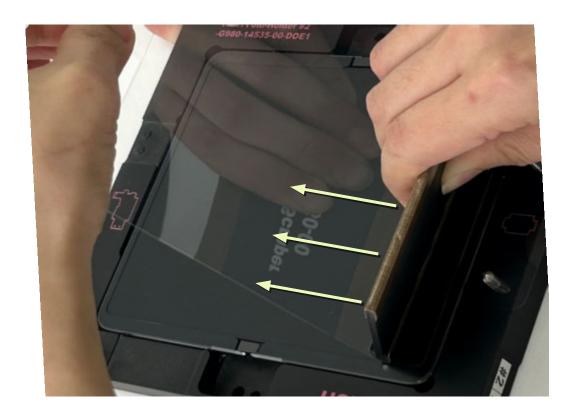
Part: G806-07119-99 (User PF)



#### **Use Caution**

Ensure the environment is clean for this process.





Inner Display Sub

### Adhere the PF - continued

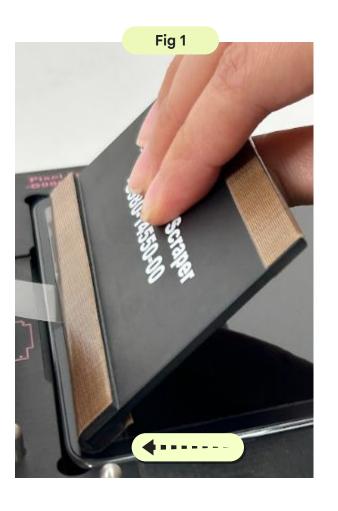
- Continue to gently push the **Universal Scraper-Big** along the top of the **User PF** to push bubbles outward toward the edges of the PF (Fig 1).
- Use a **cleaning cloth** to gently press the hinge area (Fig 2), and the four sides to ensure the **User PF** is adhering well (Fig 3).

Part: G806-07119-99 (User PF)



### **Use Caution**

Ensure the environment is clean for this process.







### **5 Min Before Liner Removal**

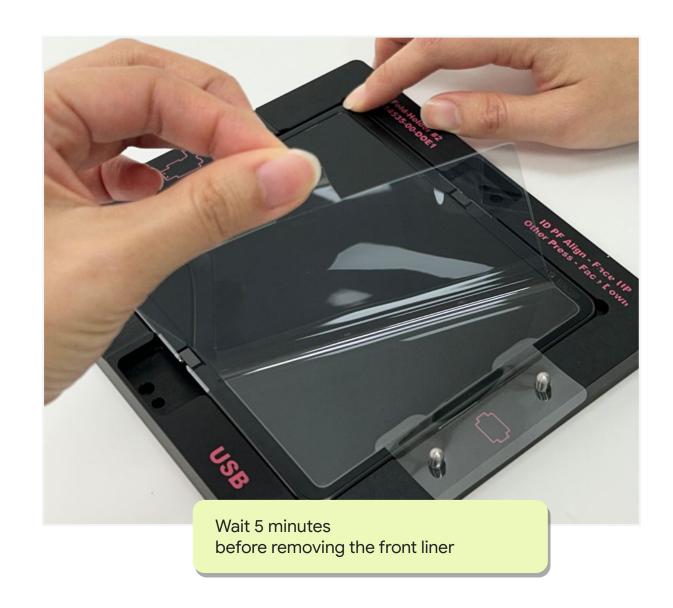
- Once the **User PF** is adhered to the inner display, wait 5 minutes.
- After 5 minutes, peel off the front liner.

Part: G806-07119-99 (User PF)



### **Use Caution**

Don't wait less than 5 minutes before removing the front liner.



### **Keep Device Unfolded**

- Keep device unfolded for at least 1 hour before folding it.
- Do not fold the device during the 1 hour after User PF application.
- Do not use scrapers, cleaning cloths, or any tools on the screen during the 1 hour dwell time.



### **Use Caution**

It is important to keep the device unfolded for at least 1 hour after PF application





Pixel Fold Repair Manual

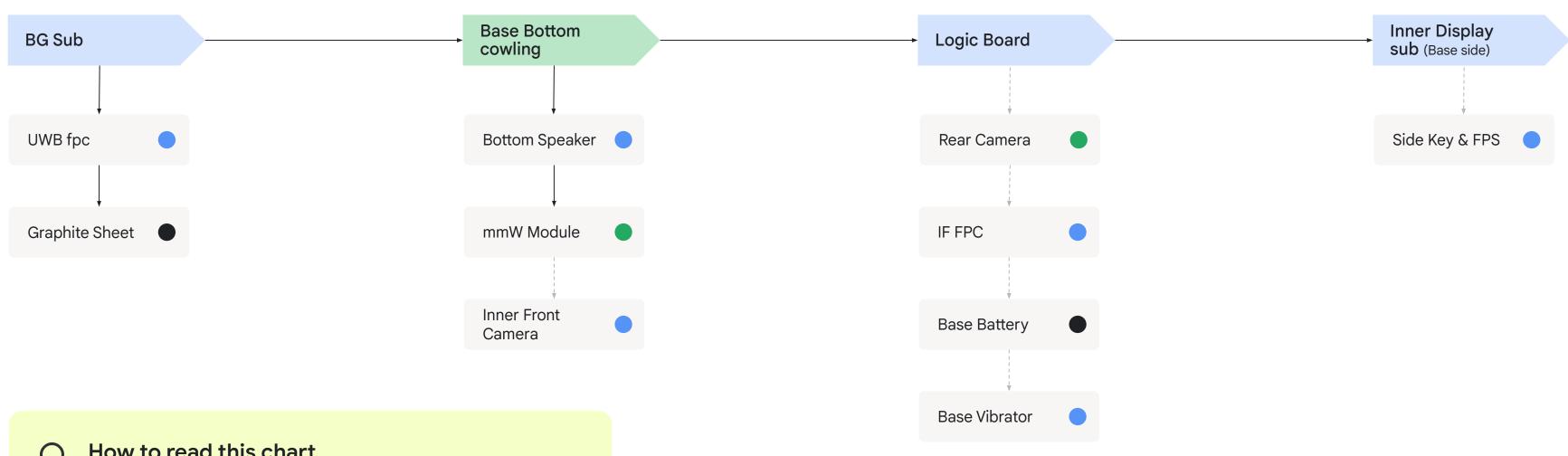
# Repair flows

Disassembly order

Assembly order

### Pixel Fold-Base side disassembly flowchart







#### How to read this chart

#### To replace the base battery:

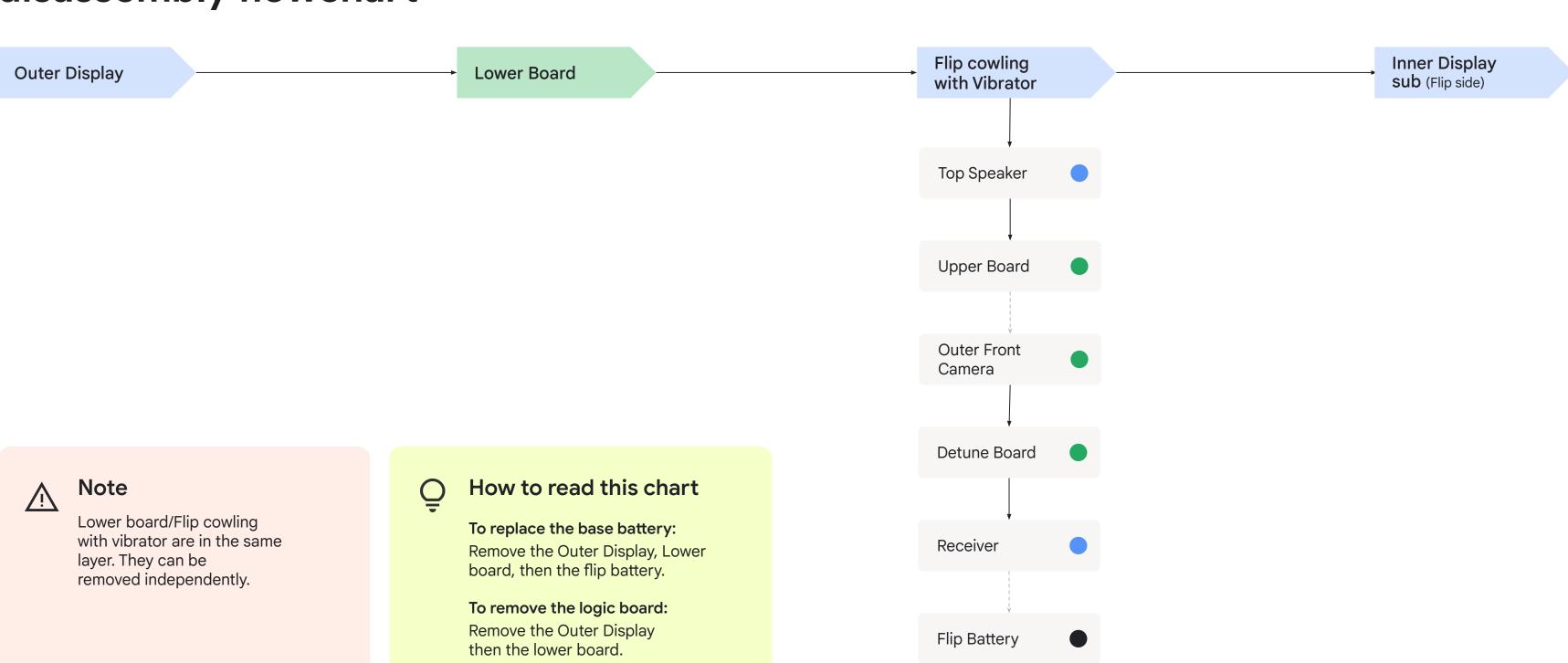
Remove the BG sub, UWB fpc, Graphite sheet, Base Bottom cowling, Bottom speaker, mmW module, Logic board, then the base battery.

#### To remove the logic board:

Remove the BG sub, UWB fpc, Graphite sheet, Base bottom cowling, Bottom speaker, mmW module then the logic board.

## Pixel Fold-Flip side disassembly flowchart





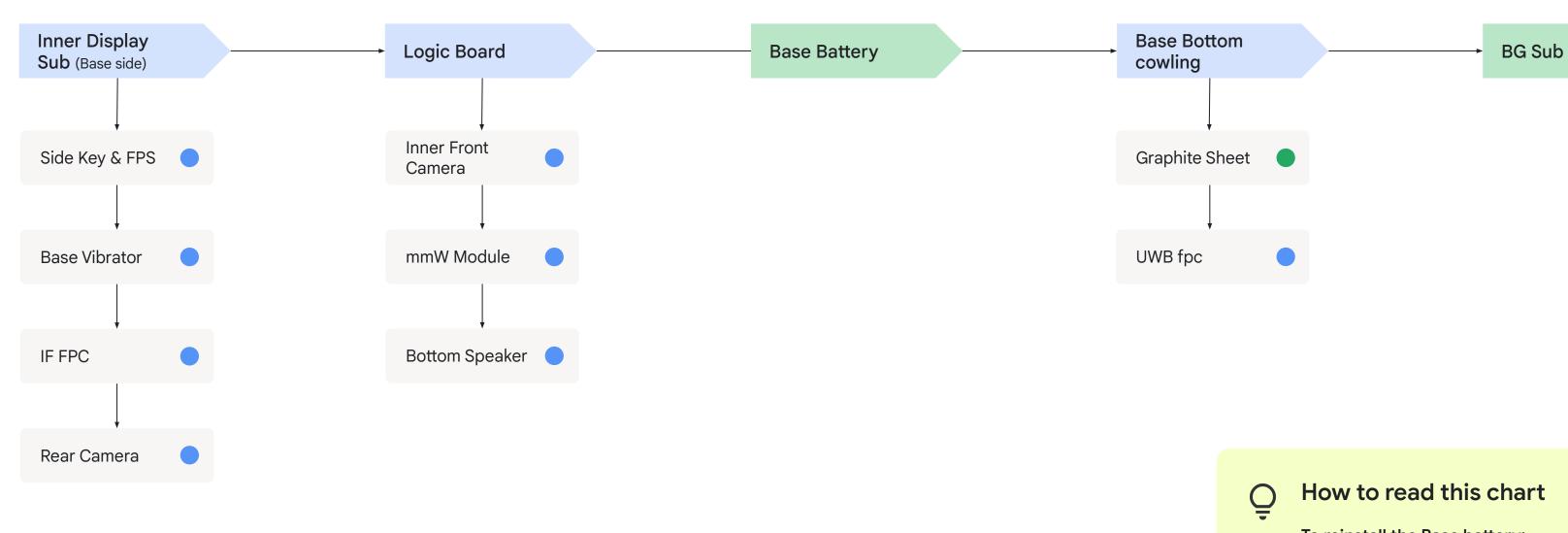
fixture

Assembled without a

Assembled with a

fixture

### Pixel Fold-Base side assembly flowchart



#### To reinstall the Base battery:

Base Battery, Base bottom cowling, graphite sheet, UWB fpc then BG sub.

#### To reinstall the logic board:

Logic board, mmW module, Bottom speaker, Base Battery, Base bottom cowling, graphite sheet, UWB fpc then BG sub.

fixture

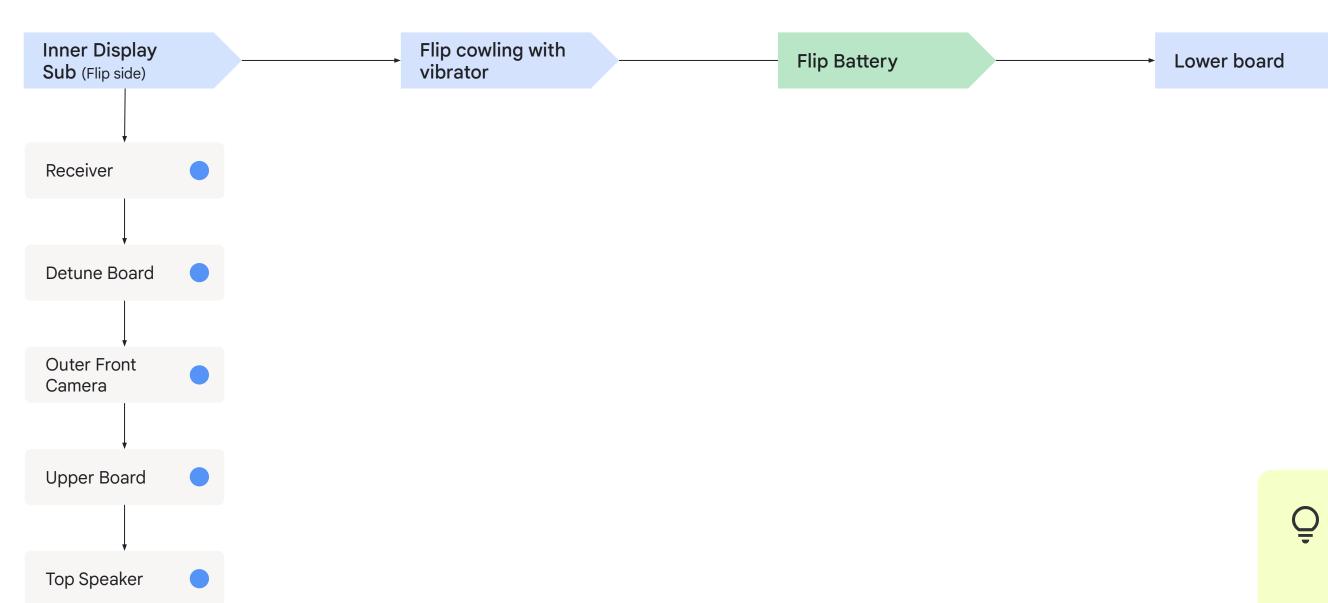
Assembled without a

Assembled with a

fixture

**Outer Display** 

## Pixel Fold-Flip side assembly flowchart



#### How to read this chart

To reinstall the Flip battery:
Flip Battery, Lower board then Outer Display.

#### To reinstall the Upper board:

Upper board, Top speaker, Flip cowling w/vibrator, Flip battery then Outer Display.



Pixel Fold Repair Manual

## Disassembly-Base

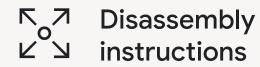
BG sub mmWave module IF fpc

UWB fpc Inner front camera Base battery

Graphite sheet Logic board replacement Base vibrator

Base Bottom cowling Rear camera Inner display sub

**Bottom speaker** 



## **BG** sub

The Base Bottom cowling ensures connectors remain engaged with the Logic Board and acts as a heatsink.



#### Use caution!

Use safety gloves to handle damaged back glass as some splinter during removal and could cause injury.

Apply protective film to broken glass before removal.

Review all **safety precautions** before beginning work.



### **Prerequisites**

Before beginning a repair, be sure to **power off** the device and disconnect any charging cables.



### **Tools**

**Heat Plate** 

Universal Disassembly Fixture

Ionizing Air Fan

Pixel Fold-Holder

Pixel Fold-PSA Align

Pixel Fold-BG Press

Pixel Fold-BG Screw Cover

Universal Base

Universal Press

Adjustable torque screwdriver

Screwdriver Hex Shank Torx Plus Bit no.3.

Universal fish line tool

**ESD Tweezers** 

Universal Disassembly ESD stick

Universal Disassembly ESD pick

3M AP111 Primer

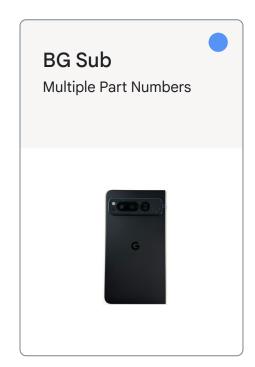
Deglue Machine

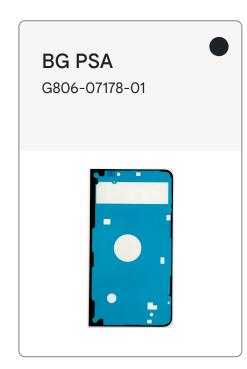
Universal adsorption bulb



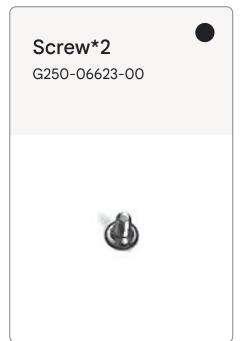
### **BG** Sub replacement

The parts listed are for the BG Sub disassembly.











**Reuse indications** 

Reusable without Cleaning

Reusable after

Cleaning

Not Reusable after disassembly

### **Cover Inner Display**

- Make sure the device is turned off before disassembly.
- Cover the Inner Display sub with Universal protective film.
- Cover the flip trim and base trim with **Masking tape**.

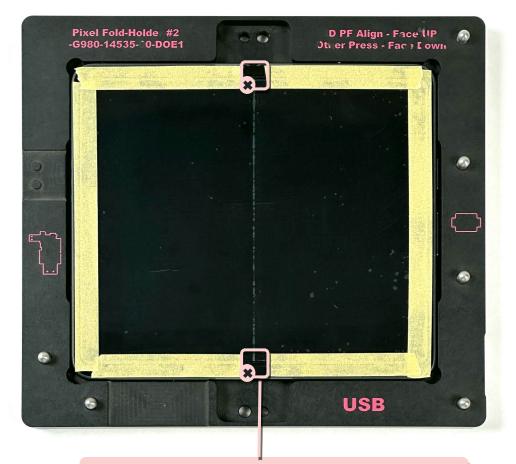
Part: G806-09214-01 (Inner Display protective film)



#### **Use Caution**

Use safety gloves to handle damaged displays as they could splinter during removal and cause injury. Apply protective liner to broken glass before removal.

Review all <u>safety precautions</u> before beginning work.



Don't cover the hinge area with tape

# Cover Back Glass & Outer Display

- Place **Universal protective film** over the Back Glass and Visor.
- Cover the Outer Display with Universal protective film.
- Fold the device and cut a piece of the **Universal protective film** to cover the **hinge area**, and unfold the device.





Inner Display Sub

### Soften adhesive

With the device folded, place the device back down on the **Heat** plate set to 158°F/70 °C for 10 mins to soften the adhesive.

To ensure even heating, don't rest the camera visor on the heating surface.



#### **Use Caution**

Heat plate is a hot surface. Use caution as it could cause burns.



#### Note

Ensure the **Visor** area is not touching the **Heat plate**.



### Avoid spring damage

- Before removing the BG sub, be aware that there are springs underneath (refer to the locations).
- Avoid damaging these springs during the disassembly process.



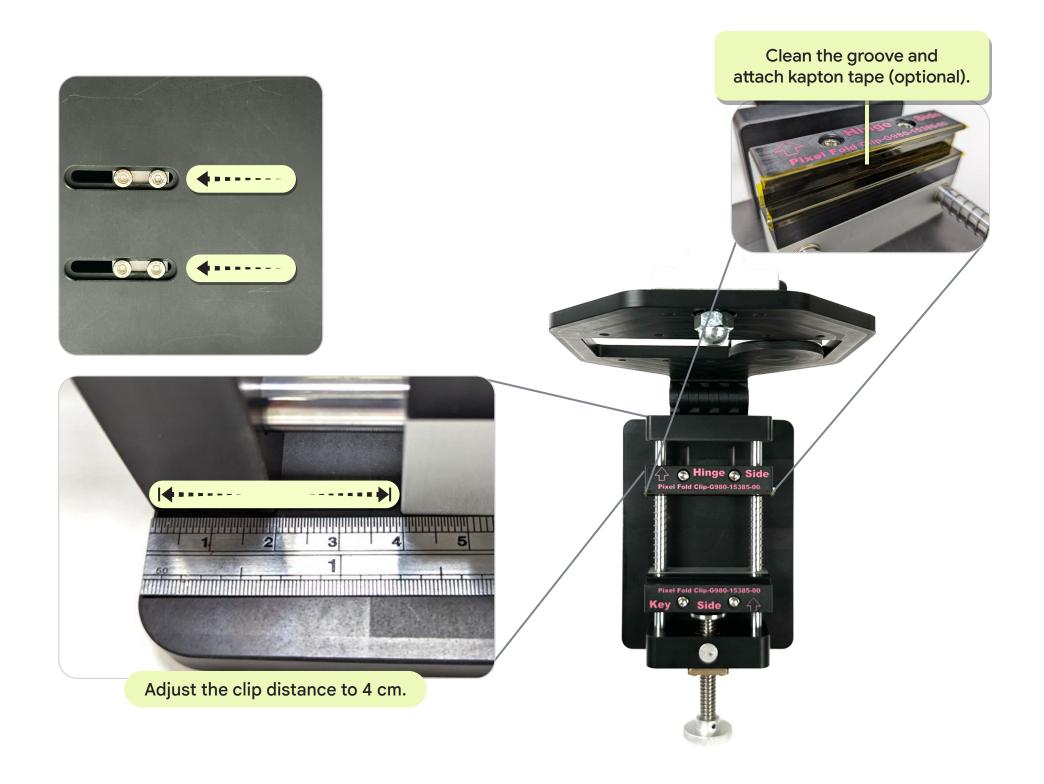
### Adjust fixture

- Check that Fold clips are installed in the **Universal Disassembly Fixture** on the Hinge and Key Sides.
- Align the suction cup for Back Glass, Outer Display, and Flip Battery removal by adjusting the device clip distance. Ensure the Hinge side clip is 4 cm from the back edge of the fixture.
- Clean the groove with alcohol using a dust free cloth, as needed.



#### Note

Lock the distance for BG, OD and flip battery disassembly.



BG Sub

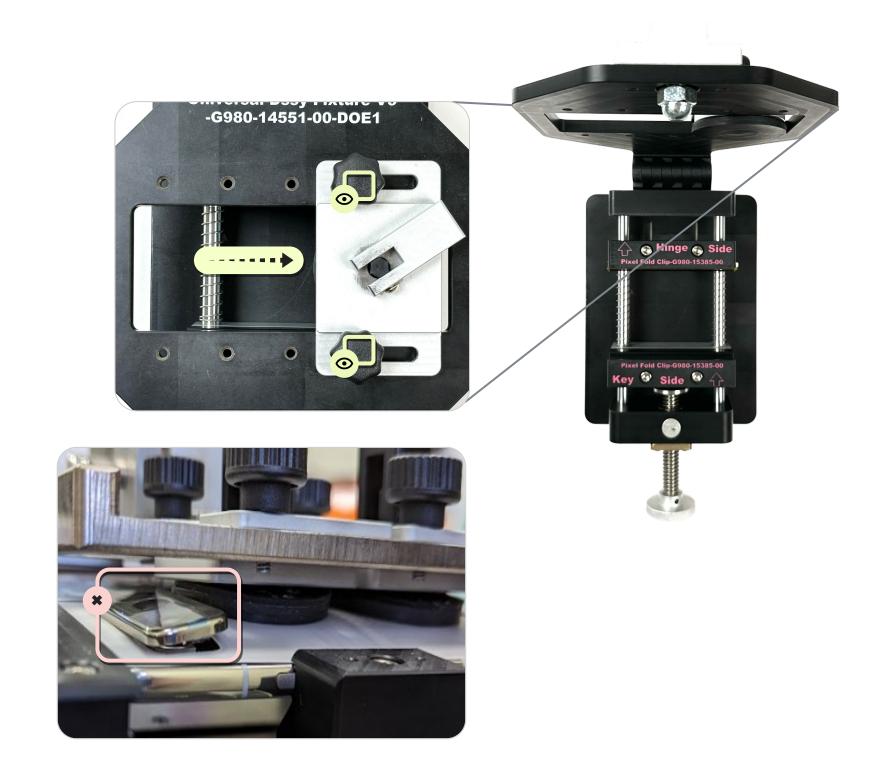
### Adjust fixture-continued

- Use one suction cup only to prevent separating the visor glass from the BG.
- Adjust the suction cup so that it aligns with the second hole from the right under the lid.



#### **Use Caution**

If the suction cup is not located in the proper position, the device could be damaged.



### Use fixture

- Remove the protective film from the Back Glass.
- To prevent scratches to the hinge, place the device in the holder of the **Universal Disassembly Fixture**, as shown in Fig 1.
- Align the edge of the visor with the fixture, as shown in Fig 2.
- Lock the device in place with the screw handle, as shown in Fig 3.

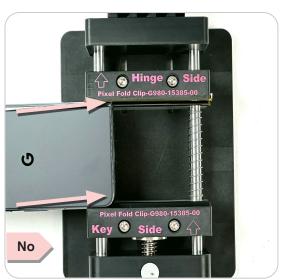


#### Note

Remove the protective film to allow the suction cup to attach to the BG.

Clean the hinge and side key groove area with a dust free cloth with IPA before use.







Inner Display Sub

### Close fixture

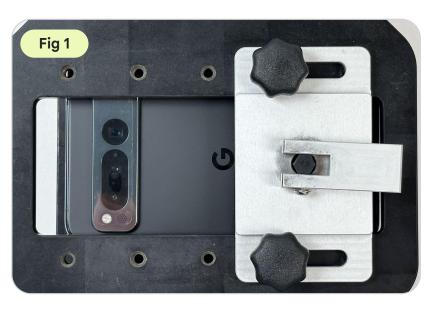
- Close the hinged top and align the suction cup so that it makes contact with the **Back Glass**, as shown in Fig 1.
- Lift the suction cup lever to create a suction, as shown in Fig 2.



#### **Use Caution**

Use safety gloves to handle damaged displays as they could splinter during removal and cause injury. Apply protective liner to broken glass before removal.

Review all <u>safety precautions</u> before beginning work.





### Separate Back Glass

- Slowly rotate the knob to separate the **BG sub** from the **Enclosure** (Fig 1).
- Slide the **Universal Disassembly ESD Stick** through the USB side, as shown in Fig 2.
- Once there is a gap on the USB side, insert the Universal Disassembly Stick to prevent the adhesive from sticking back.



#### **Use Caution**

Be careful not to push the Universal Disassembly ESD stick beyond the adhesive surface to avoid damaging the Display, Battery, or any other internal components.



**BG Sub** 

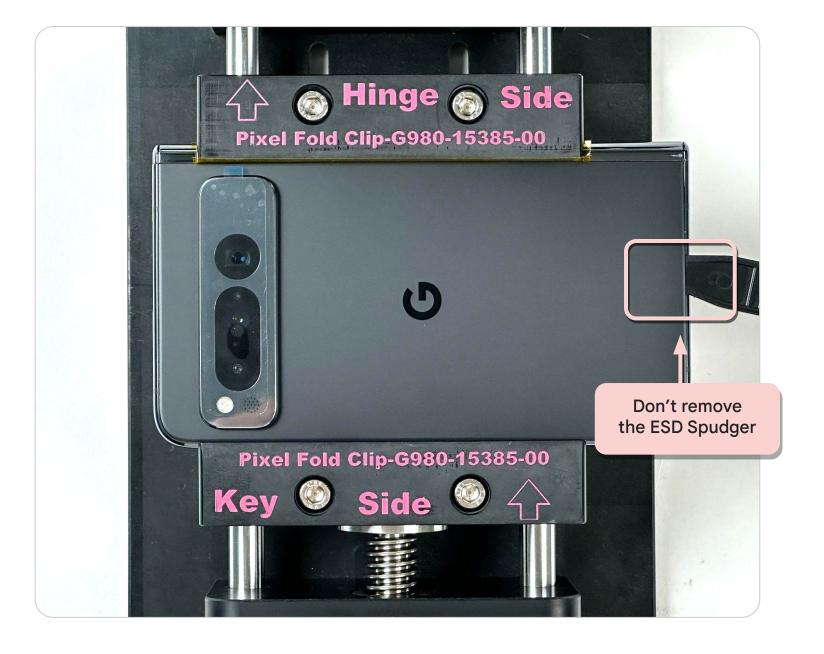
# Release suction cup and hinged top

- Release the suction cup and open the hinged top.
- Don't remove the ESD Spudger from the device.



#### Note

After you take out the device from the fixture, reattach the BG protective film.



**BG Sub** UWB fpc Graphite Sheet Base Bottom Cowling

Bottom Speaker

mmW Module

Inner Front Camera

Logic Board

Rear Camera

fpc

Welcome

### Separate Back Glass

### Manually slide clockwise in the sequence:

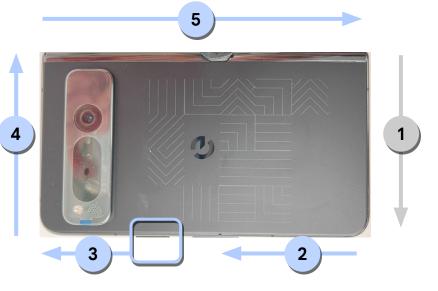
2 → 3 (left side) → 4 (top side) → 5 (right side) with a Universal Disassembly ESD pick (3.5 mm).



#### **Use Caution**

To avoid damage to the spring, be careful near the power key area.





#### Disassemble Sequence:

1 (in fixture)  $\rightarrow$  2  $\rightarrow$  3  $\rightarrow$  4  $\rightarrow$  5 (out of fixture)



Inner Display Sub

### Hold BG

After the device is open, use the **Universal adsorption bulb** to hold the BG.



### **Use Caution**

Be careful not to stretch the flam board flex to prevent part damage.



### Remove screws

Remove two Base Right Cowling Screws with a **Adjustable torque screwdriver** with **Screwdriver Hex Shank Torx Plus Bit no.3**.

Part: G250-06623-00\*2 (Screw)

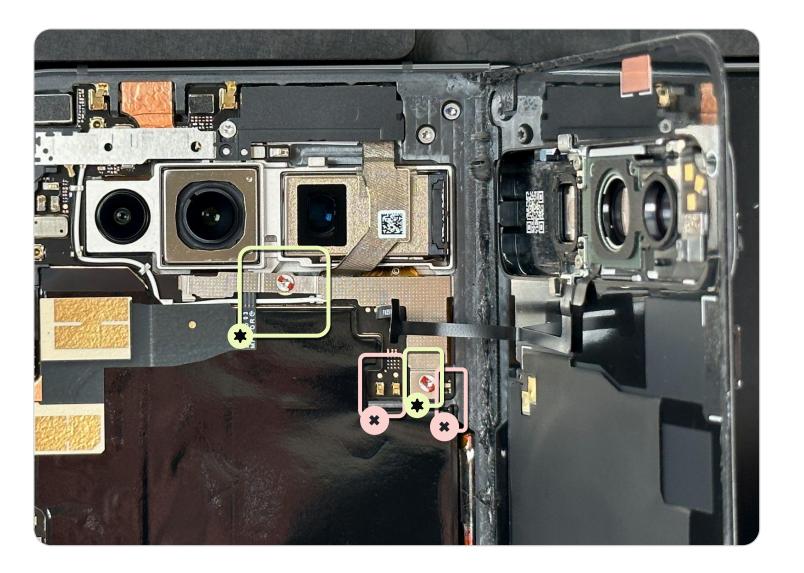


### **Use Caution**

Be careful not to damage the adjacent battery, components, and springs.

Incorrect use of the screwdriver could cause injury to you or third persons or damage to the battery and/or the product.

Don't reuse the part.



### Remove cowling

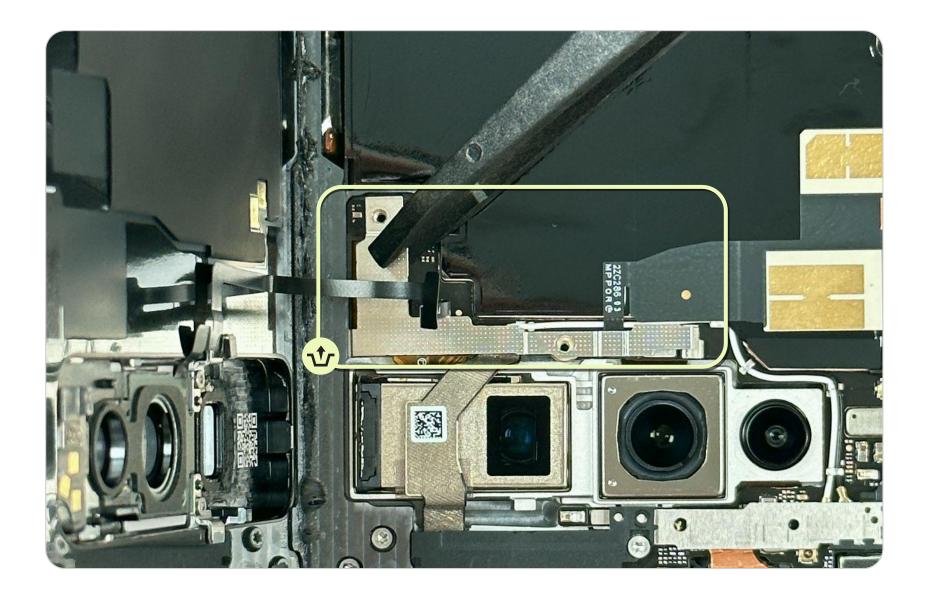
Remove the Base Right cowling with ESD Tweezers.

**Part: G730-06486-01** (Base Right cowling)



### **Use Caution**

Don't damage the flam board flex.



Welcome Precautions Introduction Repair Flows **Disassembly-Base** Assembly-Base Disassembly-Flip Assembly-Flip

Finished! Need assembly instructions? →

### Disconnect flam fpc

- Loosen the Flam Board connector with the **Universal fish line tool.**
- Remove the **BG sub**.



#### **Use Caution**

Ensure that the environment is clean for this process.



#### Note

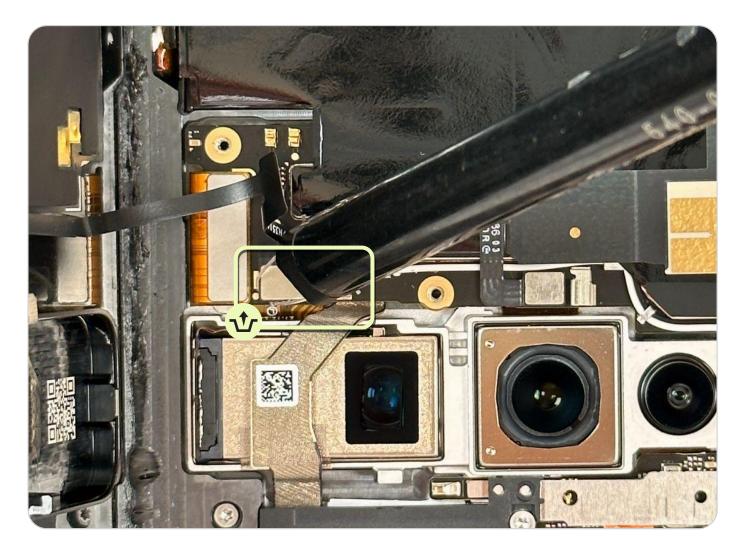
To avoid damage to the components, use the **Universal fish line**.



#### Note

Don't touch the lenses.





Troubleshooting

Software



## **UWB** fpc

**UWB fpc** is adhered on the Graphite sheet. It is simply connected to the Logic Board.



### Use caution!

Review all **safety precautions** before beginning work.



### Prerequisites

Remove the following components first:

**BG** sub



Pixel Fold-Holder

**ESD Tweezers** 

**ESD Spudger** 

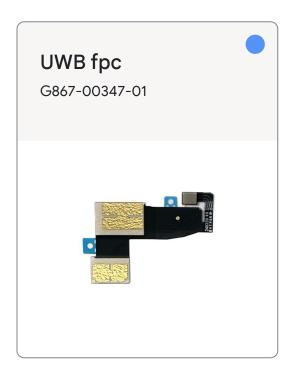
IPA and cloth

Universal fish line tool



## **UWB** fpc

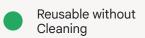
The parts listed are for the UWB fpc disassembly.

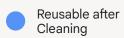


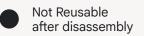




**Reuse indications** 







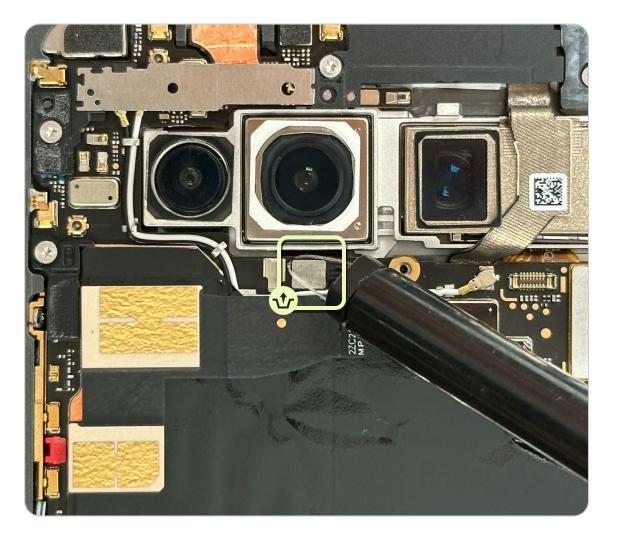
## **Disconnect UWB**

Loosen the **UWB** flex connector from the **Logic Board** with a **Universal fish line tool**.



#### Note

To avoid damage to the components, use the **Universal fish line tool**.



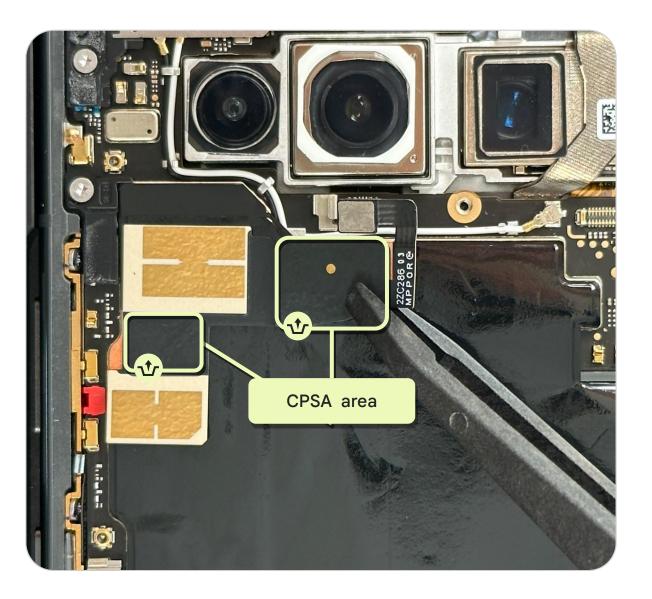
Finished! Need assembly instructions? →

## **Remove UWB**

- Part of the flex is adhered to the thermal graphite sheet, so slowly peel it away using **ESD Tweezers**.
- Remove the **UWB** fpc.

Part: G867-00347-01 (UWB fpc)

BG Sub





# Graphite sheet

Graphite sheets are used to conduct heat and provide electromagnetic shielding.



#### Use caution!

Review all **safety precautions** before beginning work.



#### **Prerequisites**

Remove the following components first:

- BG sub
- UWB fpc



Pixel Fold-Holder

**ESD Tweezers** 

Universal Scraper



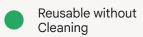
## **Graphite sheet**

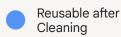
The parts listed are for the Graphite sheet disassembly.

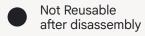




**Reuse indications** 







Finished! Need assembly instructions? →

## Remove Graphite

- Lift the Graphite sheet and then remove slowly by hand.
- Part of the sheet is adhered to the copper foil on the **Logic Board**, so slowly peel it away to prevent damaging the copper foil.

Part: G864-00537-08 (Graphite sheet)



#### **Use Caution**

Be careful not to damage or puncture the battery.

Don't reuse the part.







# Base bottom cowling

The Base Bottom cowling ensures connectors remain engaged with the Logic Board and acts as a heatsink.



#### Use caution!

Review all <u>safety precautions</u> before beginning work.



### **Prerequisites**

Remove the following components first:

- BG sub
- UWB fpc
- Graphite sheet



#### **Tools**

Pixel Fold-Holder

Pixel Fold-BG Screw Cover

**ESD Tweezers** 

Universal Disassembly ESD stick

ESD Spudger

Adjustable torque screwdriver

Screwdriver Hex Shank Torx Plus Bit no.3.

IPA and cloth

Dust-free Cotton swabs

Universal fish line tool



## **Base Bottom cowling**

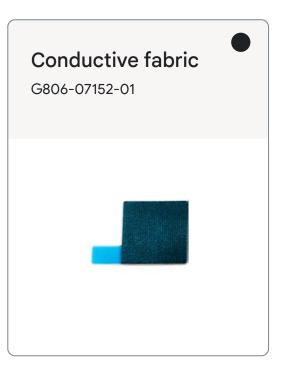
The parts listed are for the Base Bottom cowling disassembly.











Reusable without Cleaning

**Reuse indications** 

Reusable after

Cleaning

Not Reusable after disassembly

# Remove die cut and place screw cover

- Remove the Die cut with ESD Tweezers.
- Place the **Pixel Fold-BG Screw cover** on the **Pixel Fold-Holder.**The two alignment pins are to avoid removing the wrong screws.

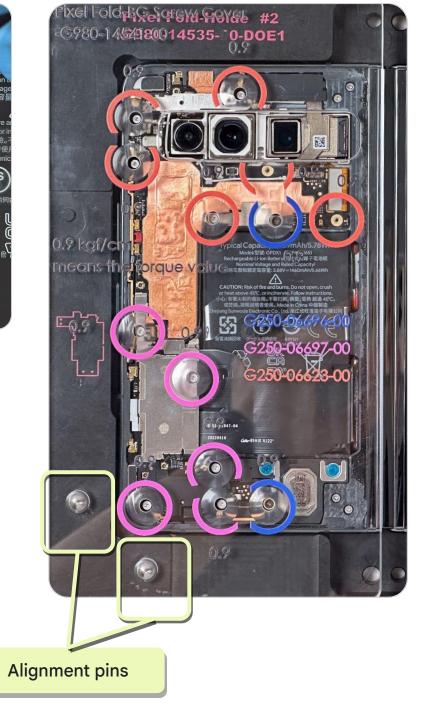
Part: G806-08167-00 (Die cut)



Note

Don't reuse the part.





## Remove screws

- Remove five Screws with an Adjustable torque screwdriver with Screwdriver Hex Shank Torx Plus Bit no.3.
- Remove the Pixel Fold-BG Screw cover.

Part: G250-06697-00 \*5 (Screw)



#### **Use Caution**

Be careful with the screwdriver. Don't damage the adjacent battery.

Incorrect use of the screwdriver can cause injury to you, others, or damage to the battery or the product.



#### Note

Don't reuse the part.



## Remove base bottom cowling

Remove base bottom cowling with ESD tweezers.

Part: G730-06487-01 (Base Bottom cowling)



## **Disconnect batteries**

Loosen the Base Battery B2B connector and Bottom Bridge FPC\_Flip Battery B2B connector from the Logic Board with the Universal fish line tool.



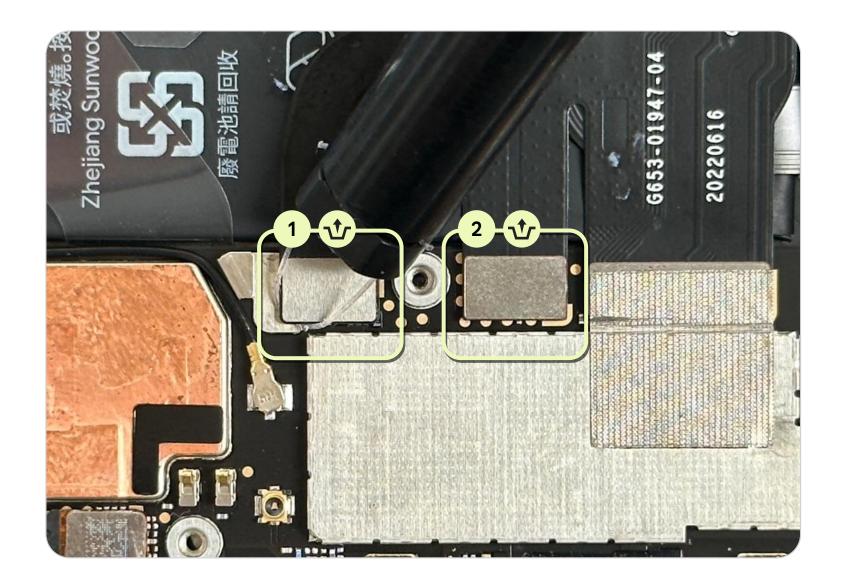
#### Use caution

Avoid the short circuit of the base battery B2B connector and bottom bridge FPC\_flip battery B2B connector.



#### Note

To avoid damage to the components, use the **Universal fish line tool**.



## Disconnect bottom bridge FPC

- Tear off the conductive fabric from the Bottom Bridge FPC B2B with ESD Tweezers.
- Loosen Bottom Bridge FPC B2B connector from the **Logic Board** with the **Universal fish line tool**.

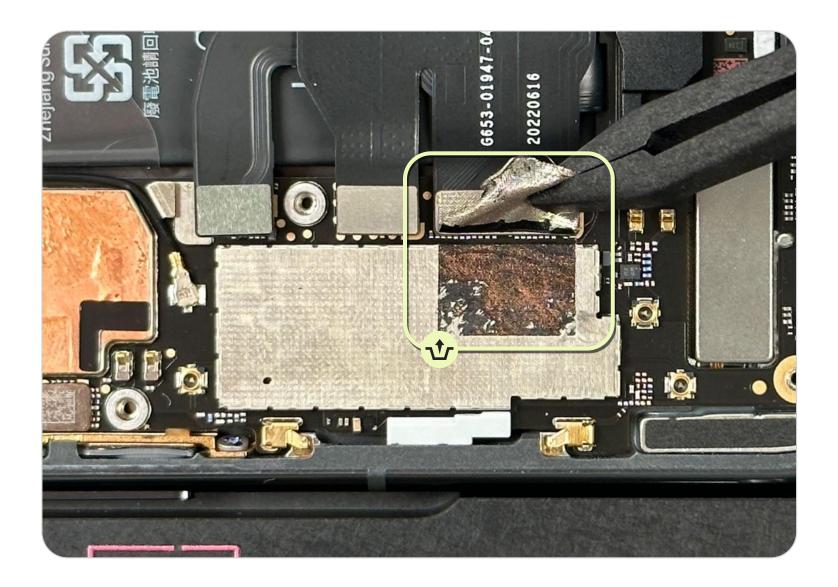
**G806-07152-01** (Conductive fabric)



#### Note

To avoid damage to the components, use the **Universal fish line tool**.

Don't reuse the part.



Welcome

Finished! Need assembly instructions? →

## **Disconnect FPS**

Loosen the FPS B2B connector from the **Logic Board** with the **Universal fish line tool.** 



#### Note

To avoid damage to the components, use the **Universal fish line tool**.





# **Bottom speaker**

The Bottom Speaker is adhered to the Enclosure. Be careful not to damage the speaker membrane.



#### Use caution!

Review all **safety precautions** before beginning work.



### **Prerequisites**

Remove the following components first:

- BG sub
- UWB fpc
- Graphite sheet
- Base Bottom cowling



Pixel Fold-Holder

**ESD Tweezers** 

Universal Disassembly ESD stick

**ESD Spudger** 

IPA and cloth

Dust-free Cotton swabs

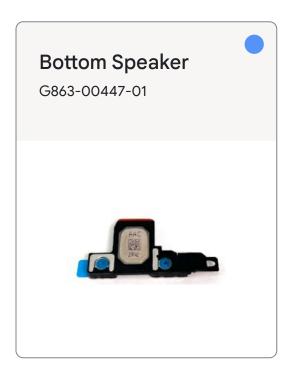
Troubleshooting

Software



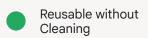
## **Bottom speaker**

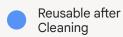
The parts listed are for the Bottom Speaker disassembly.

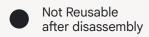












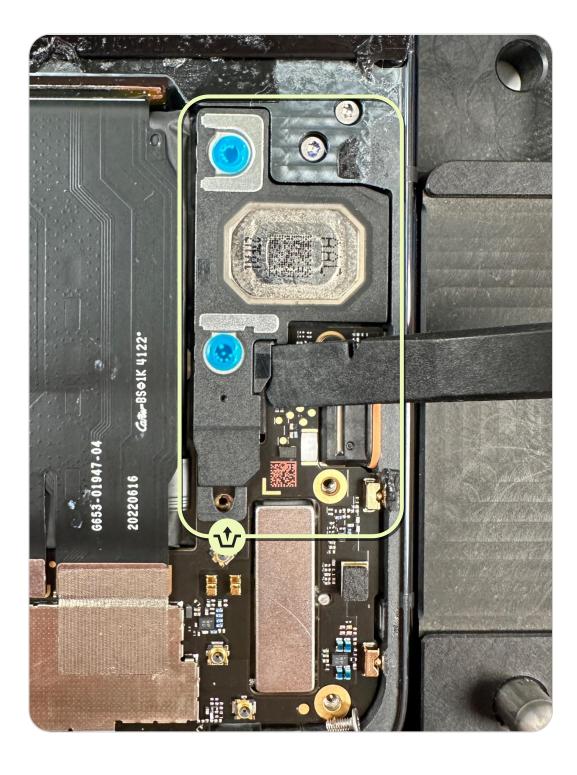
Welcome Precautions Introduction Repair Flows **Disassembly-Base** Assembly-Base Disassembly-Flip Assembly-Flip

Finished! Need assembly instructions? →

## Remove bottom speaker

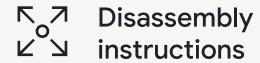
Place the **Universal Disassembly ESD Stick** under the **Bottom Speaker** to remove it.

Part: G863-00447-01 (Bottom Speaker)



Troubleshooting

Software



## mmWave module

Millimeter waves (mmWave) are the radio waves used to build a 5G network, providing fast, reliable mobile data with low latency for the latest devices.



#### Use caution!

Review all **safety precautions** before beginning work.



### **Prerequisites**

Remove the following components first:

BG sub



Pixel Fold-Holder

Pixel Fold-BG Screw Cover

**ESD Tweezers** 

Universal Disassembly ESD stick

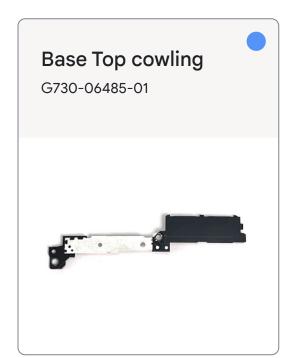
Adjustable torque screwdriver

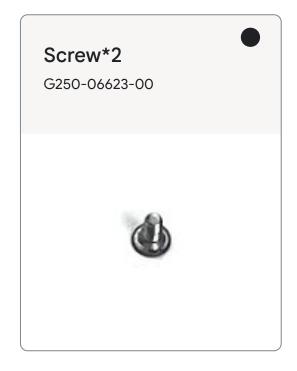
Screwdriver Hex Shank Torx Plus Bit no.3.



### mmWave module

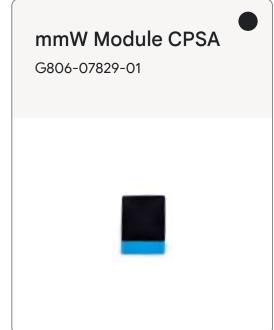
The parts listed are for the mmWave module disassembly.







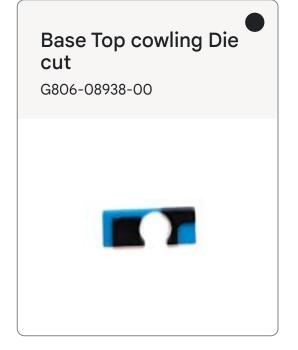




Reusable without Cleaning

**Reuse indications** 

Reusable after Cleaning



Not Reusable after disassembly

## Remove screws

- Place the Pixel Fold-BG Screw cover on the Pixel Fold-Holder.
- Remove the Base Top cowling screw with an Adjustable torque screwdriver with Screwdriver Hex Shank Torx Plus Bit no.3., then remove the Pixel Fold-BG Screw Cover.

Part: G250-06623-00\*2 (Screw)



#### Note

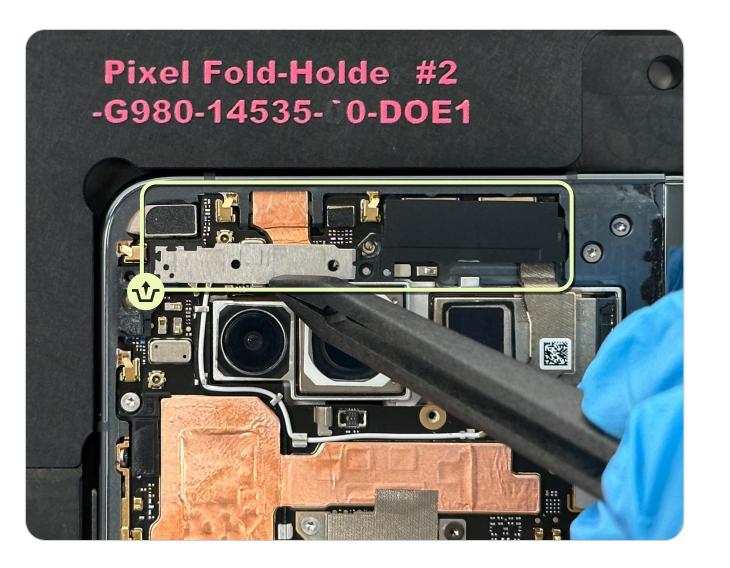
Don't reuse the part.



## Remove base top cowling

Remove the Base Top cowling with ESD Tweezers.

Part: G730-06485-01 (Base Top cowling)

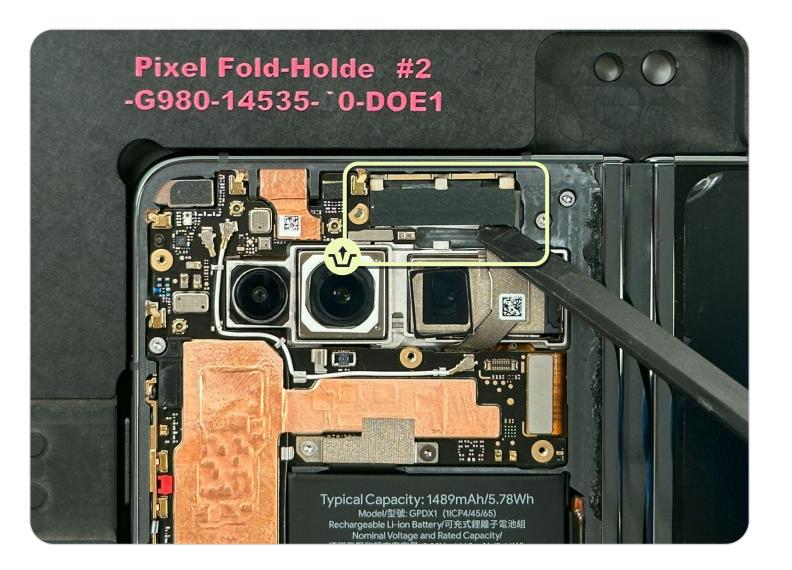


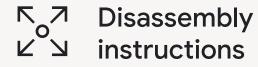
Finished! Need assembly instructions? →

## Remove mmWave module

Remove the **mmWave Module** from **IF fpc B2B connector** with the **ESD Spudger.** 

Part: G949-00418-01 (mmWave Module)





## Inner front camera

The Inner Front Camera is fastened to the Enclosure. It's connected to the Logic Board.



#### Use caution!

Review all **safety precautions** before beginning work.



### Prerequisites

Remove the following components first:

- BG sub
- mmW Module



Pixel Fold-Holder

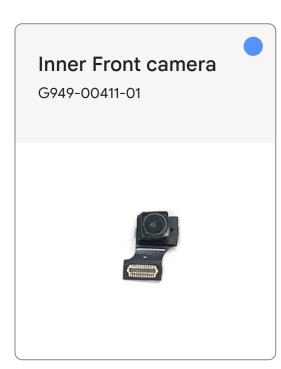
**ESD Tweezers** 

Universal fish line tool



## **Inner front camera**

The parts listed are for the Inner Front Camera disassembly.







## Disconnect the inner FCAM

Loosen the Inner Front Camera with a Universal fish line tool.



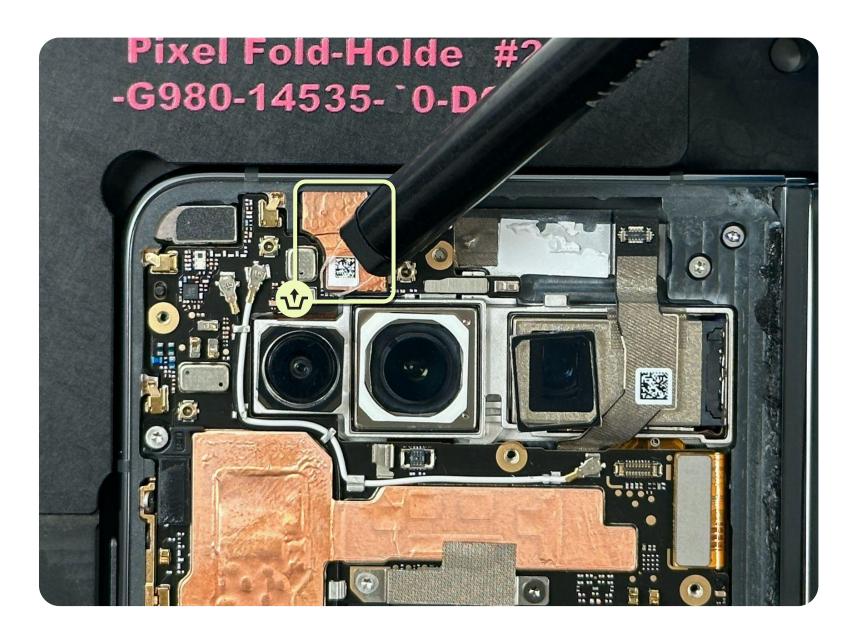
#### Use caution

Note that the inner display sub includes the Inner FCAM. This and next three steps are only to change the inner FCAM if it's damaged.



#### Note

To avoid damage to the components, use the **Universal fish line tool**.



## Remove inner FCAM

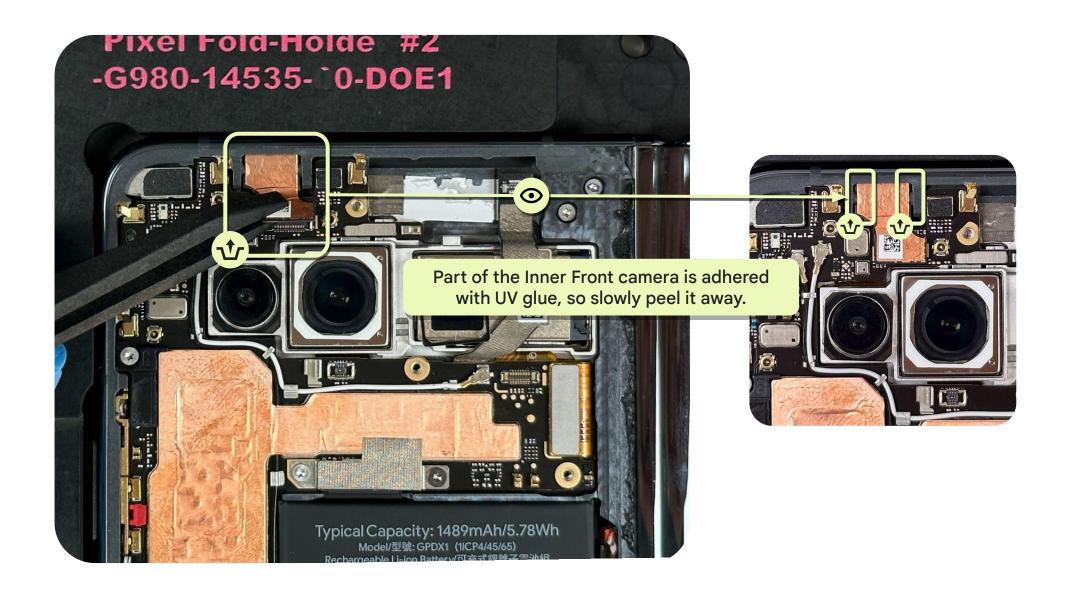
Remove the Inner Front Camera with ESD Tweezers.

Part: G949-00411-01 (Inner Front Camera)



#### **Use Caution**

Ensure that the environment is clean for this process.



Welcome

Finished! Need assembly instructions? →

## Clean inner FCAM area

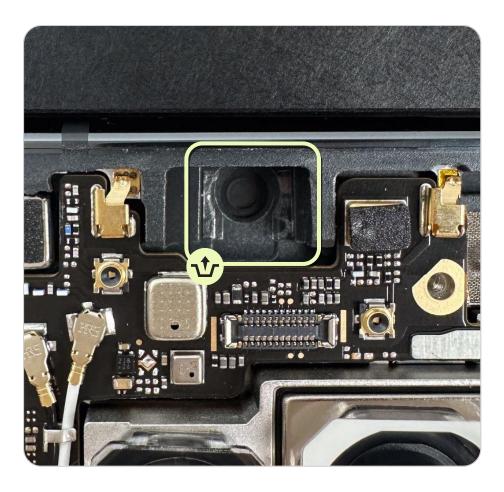
• Clean the residual glue out of the slot with **ESD Tweezers**.



#### **Use Caution**

Ensure the slot contains no residual glue.

The protective film comes with FCAM PSA. Don't touch the adhesive while picking up the liner.





# Logic board

The Logic Board consists of memory, storage, the processor, and communication components such as Wi-Fi and mmWave.



#### Use caution!

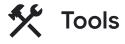
Review all **safety precautions** before beginning work.



### **Prerequisites**

Remove the following components first:

- BG sub
- UWB fpc
- Graphite sheet
- Base Bottom cowling
- Bottom Speaker
- mmW Module



Pixel Fold-Holder

Pixel Fold-BG Screw Cover

Pixel Fold-Thermal Grease Alignment

Adjustable torque screwdriver

Screwdriver Hex Shank Torx Plus Bit no.3.

**ESD Tweezers** 

Universal Disassembly ESD stick

**ESD Spudger** 

Universal fish line tool

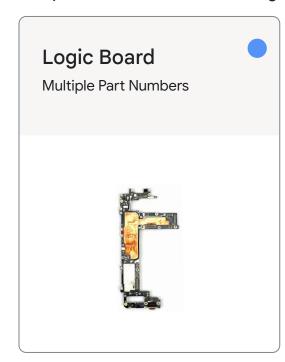
**Dust-free Cotton swabs** 

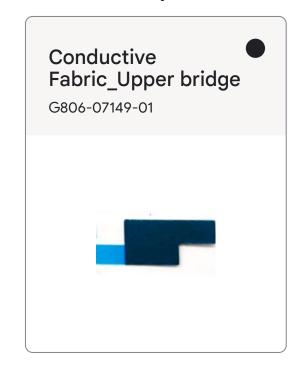
IPA and cloth

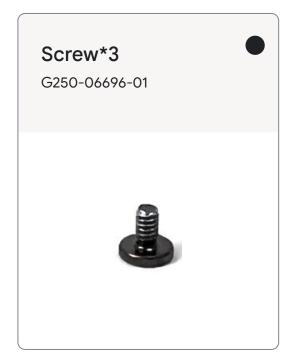


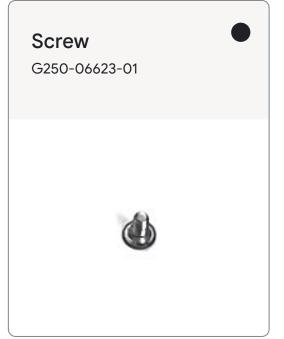
## Logic board

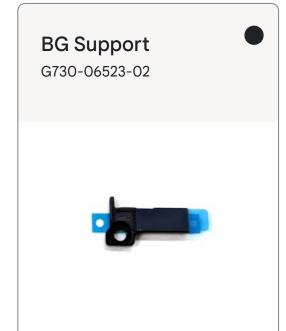
The parts listed are for the Logic Board disassembly.











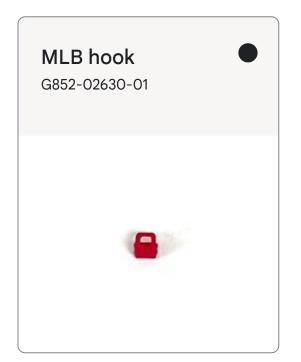
Reusable without Cleaning

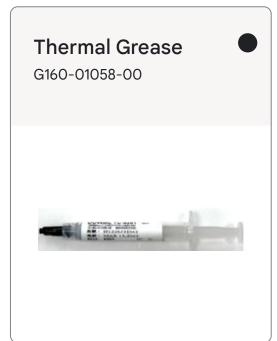
**Reuse indications** 

Reusable after Cleaning



Not Reusable after disassembly





## Tear off conductive fabric

- Tear off the Conductive Fabric\_Upper bridge with ESD Tweezers from the corner.
- Part of the **Conductive Fabric\_Upper bridge** is adhered to the copper foil on the Logic Board. To avoid breaking the copper foil, slowly peel the fabric.

Part: G806-07149-01 (Conductive Fabric Upper bridge)



Note

Don't reuse the part.



## Remove screw

- Place the Pixel Fold-BG Screw Cover on the Pixel Fold-Holder.
- Remove the two Screws with an Adjustable torque screwdriver with Screwdriver Hex Shank Torx Plus Bit no.3., then remove the Pixel Fold-BG Screw Cover.

Part: G250-06696-01 (Screw)

Part: G250-06623-01 (Screw)



Note

Don't reuse the part.



## Disconnect upper bridge

Disconnect Upper bridge FPC B2B connector from the Logic Board with a Universal Disassembly ESD Stick.



#### Note

To avoid damage to the components, use the Universal Disassembly ESD stick.



## Disconnect inner display

Loosen the Inner Display B2B connector to disconnect from the **Logic Board** with the **Universal fish line tool.** 



#### Note

To avoid damage to the components, use the **Universal fish line tool**.



## Remove the screw

- Place the Pixel Fold-BG Screw Cover on the Pixel Fold-Holder.
- Remove the two MLB screws with an Adjustable torque screwdriver with Screwdriver Hex Shank Torx Plus Bit no.3., then remove the Pixel Fold-BG Screw Cover.

Part: G250-06696-00 (Screw)

Part:G250-06623-00 (Screw)



#### Note

Don't reuse the part.



## Remove logic board

- Gently pry the Logic Board up with an **ESD spudger**, as shown in Fig 1.
- Gently push the Logic Board toward the hinge to release it from the hook, as shown in Fig 2.

Part: Multiple Part Numbers (Logic Board)

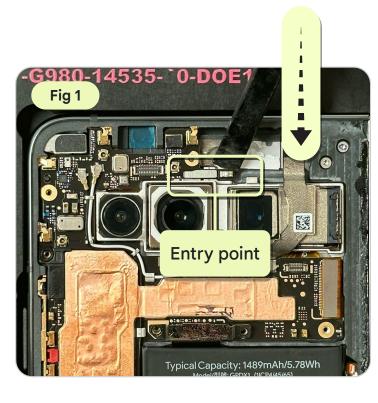


#### **Use Caution**

Be careful to avoid damage to the components on the logic board.

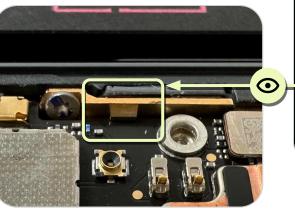
Part of the logic board is adhered to thermal grease.
Use caution during removal.







G980-14535- 0-DOE1



Finished! Need assembly instructions? →

## Hold logic board

Three acceptable ways to hold the **Logic Board**.



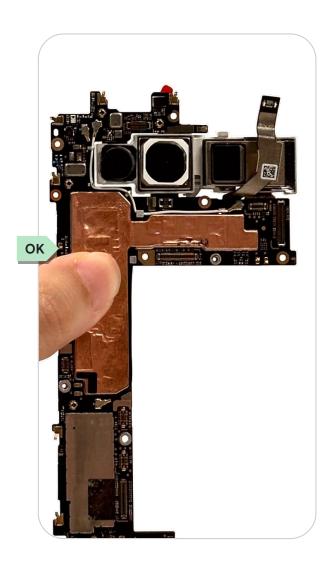
#### Use caution

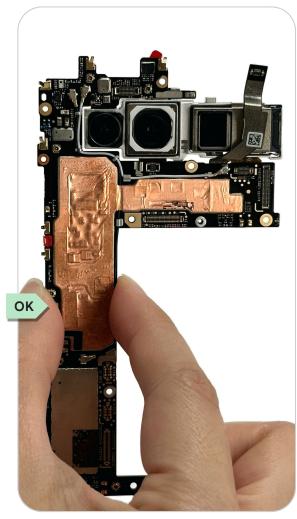
Be careful to avoid damage to the to the components on the logic board.

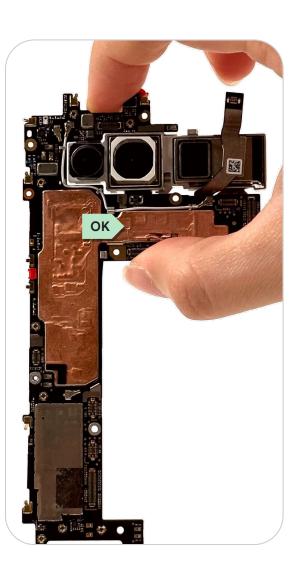


#### Note

Don't wear gloves when handling the Logic Board.









### Rear camera

The Rear Camera module carries all the rear cameras. It's not possible to replace a single camera and lens.



#### Use caution!

Review all **safety precautions** before beginning work.



### Prerequisites

Remove the following components first:

- BG sub
- UWB fpc
- Graphite sheet
- Base Bottom cowling
- Bottom Speaker
- mmW Module
- Logic Board



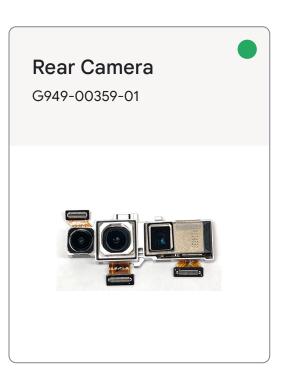
Universal fish line tool

Pixel Fold-Holder

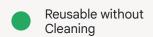


### Rear camera

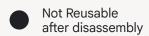
The parts listed are for the Rear camera disassembly.











Welcome Precautions

Finished! Need assembly instructions? →

### **Disconnect Rear Cam**

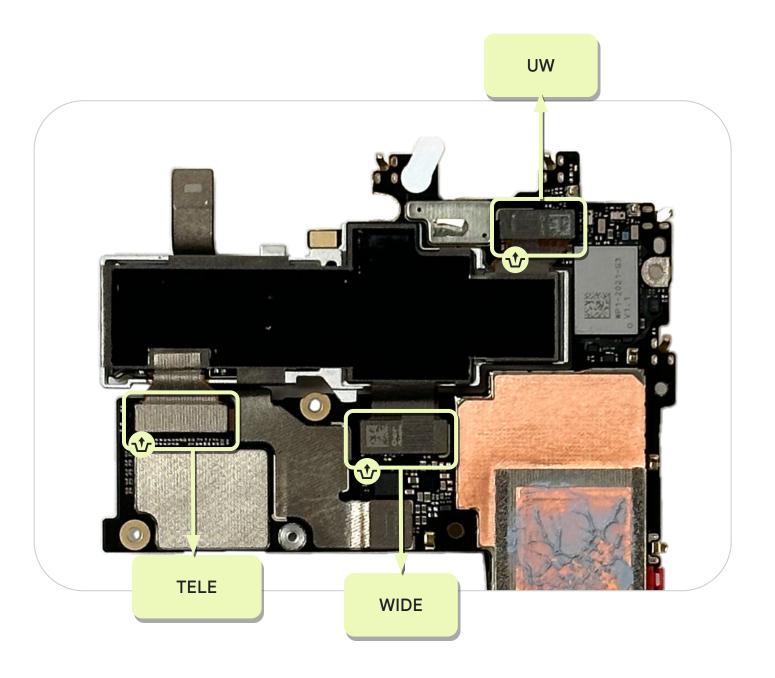
Loosen three Rear Camera connectors and disconnect from the Logic Board with the Universal fish line tool.

Part: G949-00359-01 (Rear Camera)

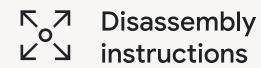


#### Note

To avoid damage to the components, use the Universal fish line tool.



BG Sub UWB fpc Graphite Sheet mmW Module Inner Front Camera Logic Board Rear Camera Base Vibrator Inner Display Sub Base Bottom Cowling **Bottom Speaker** Base Battery



# IF fpc

IF FPC is used for high frequency signal transfer and provides reliable data transfer between the mmWave module and logic board.



#### Use caution!

Review all **safety precautions** before beginning work.



### Prerequisites

Remove the following components first:

- BG sub
- UWB fpc
- Graphite sheet
- Base Bottom cowling
- Bottom Speaker
- mmW Module
- Logic Board
- Rear Camera



Pixel Fold-Holder

**ESD Tweezers** 

**ESD Spudger** 

Universal fish line tool

IPA and cloth



### IF fpc replacement

The parts listed are for the IF fpc disassembly.





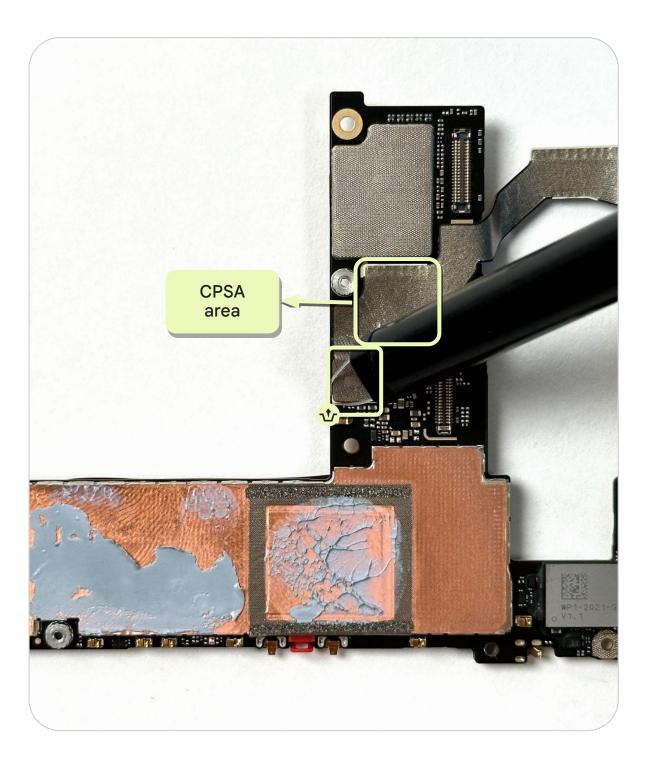


Finished! Need assembly instructions? →

### Remove IF fpc

- Loosen the connector with the **Universal fish line tool** to disconnect from the **Logic Board**.
- Part of the flex is adhered to the **Logic Board** at the CPSA area. Slowly peel it away.

Part: G652-01954-03 (IF fpc)



Introduction



# **Base battery**



#### Use caution!

Use caution if engaging in repair.

Opening and/or repairing a device can present electric shock, device damage, fire and personal injury risks, and other hazards.

Before servicing the product, read the full set of **precautions** in this document.

#### **Confirm Before Proceeding**

- Battery is fully discharged
- Inspect the battery if the phone battery shows signs of swelling or damage, or if the phone feels hot or emits strong odor, don't attempt disassembly.
- Take care not to expose the phone or its components to liquids once disassembled.



# **Base battery**

It's recommended to use the Universal Disassembly Fixture to hold the device while removing the Battery.



#### Use caution!

Review all **safety precautions** before beginning work.



#### **Prerequisites**

Remove the following components first:

- BG sub
- UWB fpc
- Graphite sheet
- Base Bottom cowling



Heat Plate

**ESD Tweezers** 

Pixel Fold-Holder

Pixel Fold-Battery Press (Base)

Universal Base

**Universal Press** 

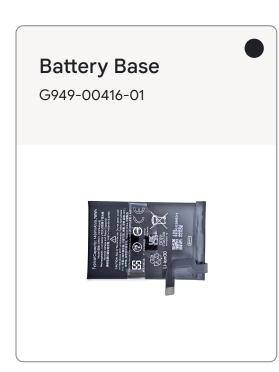
Universal Disassembly Fixture

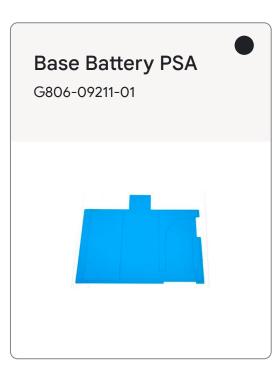
Table C-Clamp



### **Base battery**

The parts listed are for the Base battery disassembly.



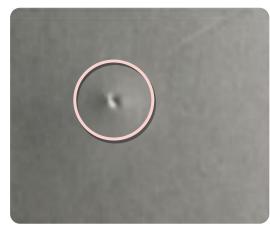




Disassembly-Base Welcome Precautions Introduction Repair Flows Assembly-Base Disassembly-Flip Assembly-Flip Troubleshooting Software

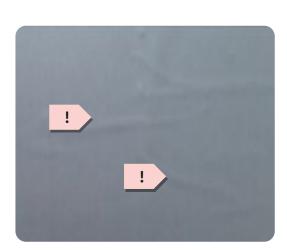


### Examples of unacceptable battery conditions - Not suitable for repair\*



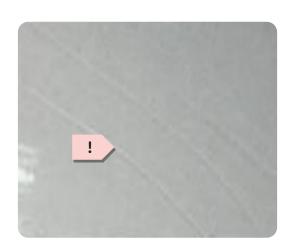


**Dent** 

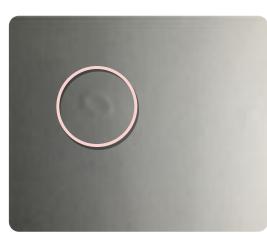


Line protrusion

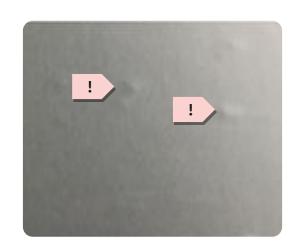
**Bubbling** 



Scratch



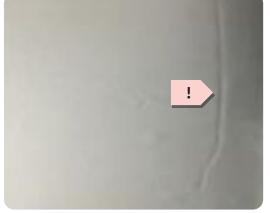
Contamination marking



Dot protrusion













Swelling or electrolyte leakage

mmW Module Base Vibrator BG Sub UWB fpc **Graphite Sheet** Base Bottom Cowling **Bottom Speaker** Inner Front Camera Logic Board Rear Camera IF fpc **Base Battery** Inner Display Sub

<sup>\*</sup>These are examples of potentially dangerous battery conditions but don't reflect all possible dangerous conditions. Please follow general safety guidance outlined in this document.

### Lift pull jacket

Lift the pull jacket with ESD Tweezers.



#### **Use Caution**

Be careful not to puncture the battery.



### Soften glue

Unfold the device. Place the inner folding screen face down onto the **Heat Plate** set to **158°F/70 °C for 10 mins** to soften the **Base Battery** adhesive.



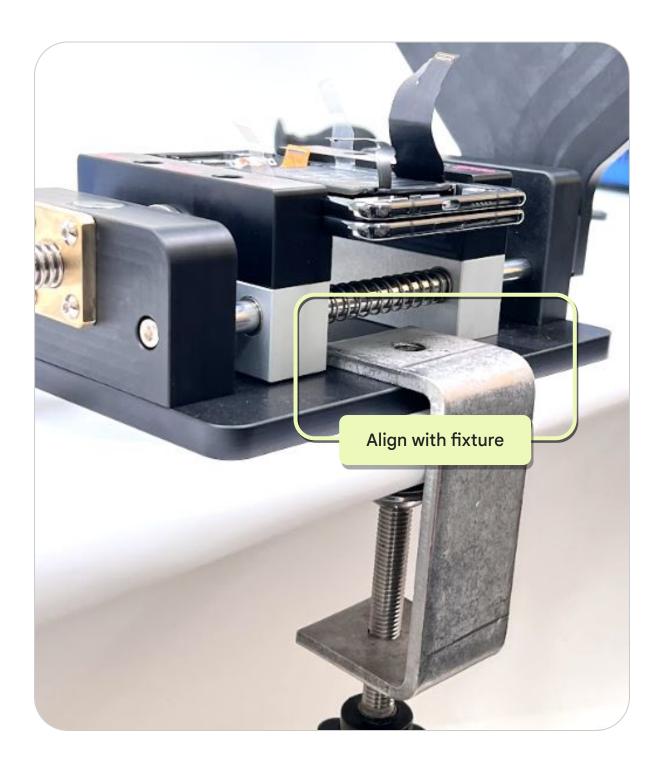
#### **Use Caution**

Heat plate is a hot surface. Use caution as it could cause burns.



### Clamp fixture

- Place the **Universal Disassembly Fixture** on a flat surface and fasten down with a clamp.
- Align the **Table C-Clamp** with the fixture and make sure it's fastened tightly.



### Secure the device

- To remove the base battery, use the **Universal Disassembly Fixture**.
- Place the device in the fixture and adjust so the device is centered.
- Turn the handle clockwise to lock the device in position.



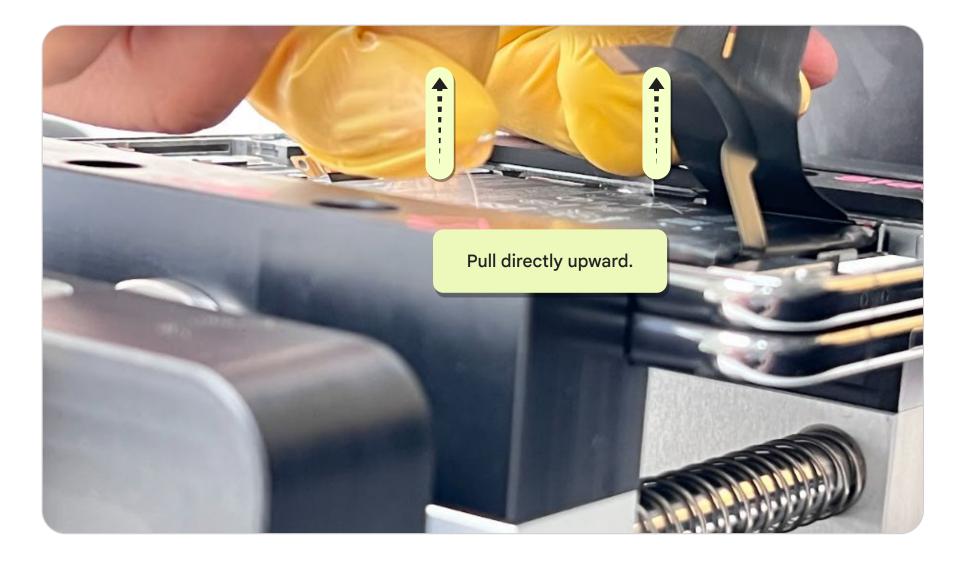
### Lift battery

- Wear **ESD finger cots** to increase friction to prevent the pull jacket from slipping.
- Pull both sides of the jacket perpendicularly to remove the **Battery**.



#### **Use Caution**

The battery is easier to remove if you lift the battery as soon as the device leaves the heat plate before the adhesive cures.



Welcome

Precautions

Introduction

Repair Flows

Finished! Need assembly instructions? →

### Remove battery

- Gently remove the **Base Battery**.
- Store the battery safely and dispose of the battery in a manner in accordance with local regulations.

Part: G949-00416-01 (Base Battery)



#### **Use Caution**

Keep small screws and sharp objects away from the Battery.

For your safety, we don't recommend reinstalling the battery after removal. After removal, install a new battery.





### **Base vibrator**

The Base Vibrator is adhered to the Enclosure. If it is removed, replace with a new PSA and conductive tape.



#### Use caution!

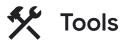
Review all **safety precautions** before beginning work.



#### Prerequisites

Remove the following components first:

- BG sub
- UWB fpc
- Graphite sheet
- Base Bottom cowling
- Bottom Speaker
- Logic Board



Pixel Fold-Holder

**ESD Spudger** 

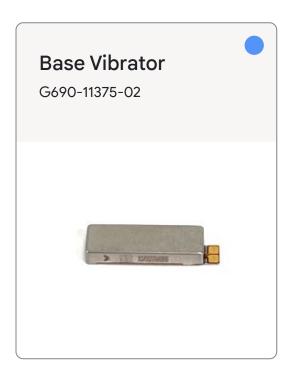
**ESD Tweezers** 

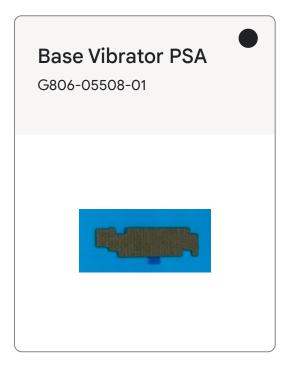
IPA and cloth

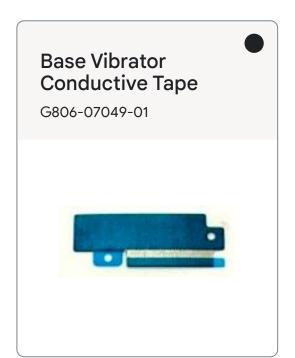


### **Base vibrator**

The parts listed are for the Base Vibrator disassembly.







Reuse indications

Reusable without Cleaning

Reusable after Cleaning

Not Reusable after disassembly

Finished! Need assembly instructions? →

### Remove base vibrator

Remove the **base vibrator** with an **ESD Spudger**.

Part: G690-11375-02 (Base Vibrator)





# Inner display sub

Base Side

If re-using the ID sub, ensure that any thermal paste or adhesive residue is completely removed.



#### Use caution!

Review all **safety precautions** before beginning work.



#### **Prerequisites**

Remove the following components first:

- BG sub
- UWB fpc
- Graphite sheet
- **Base Bottom cowling**
- Bottom Speaker
- mmW Module
- Logic Board
- Rear Camera
- IF fpc
- Base Battery
- Base Vibrator



BG sub

UWB fpc

Graphite sheet

Base Bottom cowling

**Bottom Speaker** 

mmW Module

Logic Board

Rear Camera

IF fpc

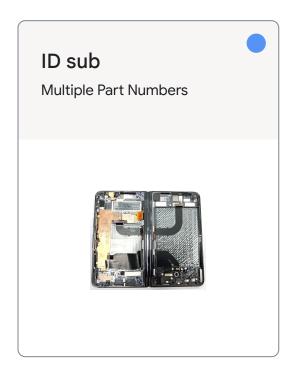
Base Battery

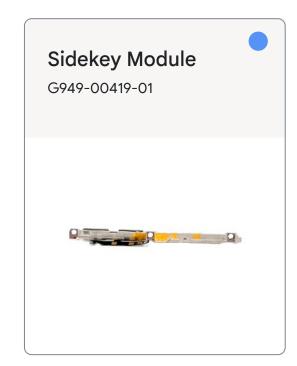
**Base Vibrator** 

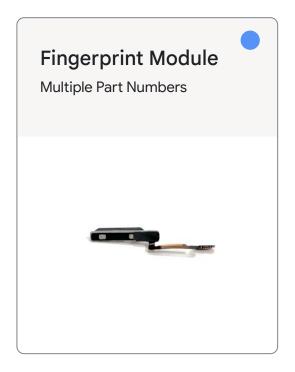


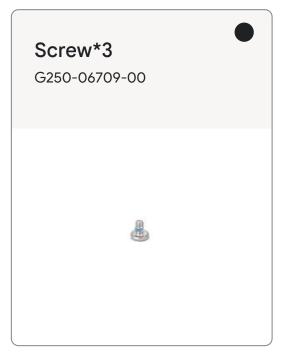
### Inner display sub (base side)

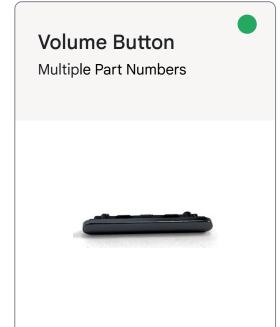
The parts listed are for the Inner display sub (base side) disassembly.











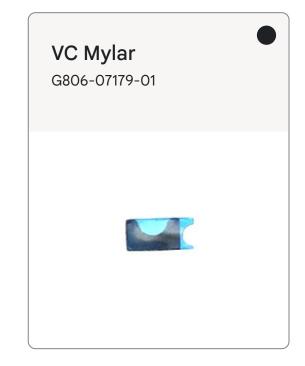
Reusable without

Cleaning

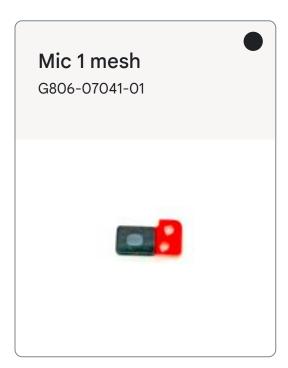
**Reuse indications** 

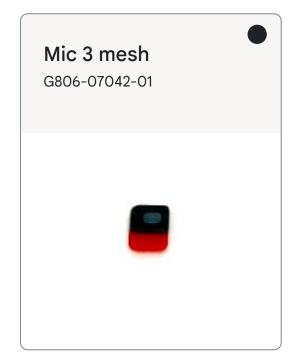
Reusable after

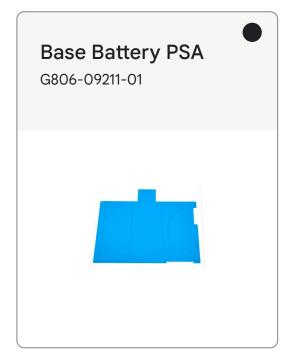
Cleaning



Not Reusable after disassembly











### Remove screws

- Part of the flex is adhered to the **Side Key**, so slowly peel it away, as shown in Fig 1.
- Lift the FPS fpc with ESD Tweezers, as shown in Fig 2.
- Remove the Side key screws\*3 with an Adjustable torque screwdriver with Screwdriver Hex Shank Torx Plus Bit no.3., as shown in Fig 3.

Part: G250-06709-00\*3 (Screw)



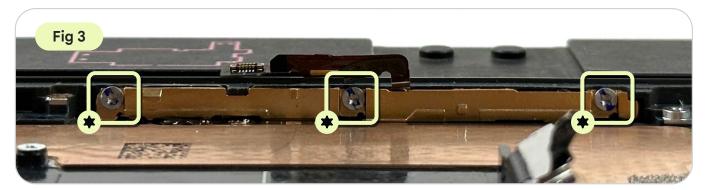
#### Note

Don't reuse the part.

The Inner Display sub includes the Side Key. This and the next step are only if the Side Key is damaged.







### Remove side key

- Part of the flex is adhered to the **Enclosure**, so slowly peel it away, as shown in Fig 1.
- Remove the **Side key** module with **ESD Tweezers**, as shown in Fig 2.
- Push outward to remove the **Volume Button**, if it's damaged.

Part: G949-00419-01 (Sidekey)

Part: Multiple Part Numbers (Volume Button)







Finished! Need assembly instructions? →

### Remove FPS (power button)

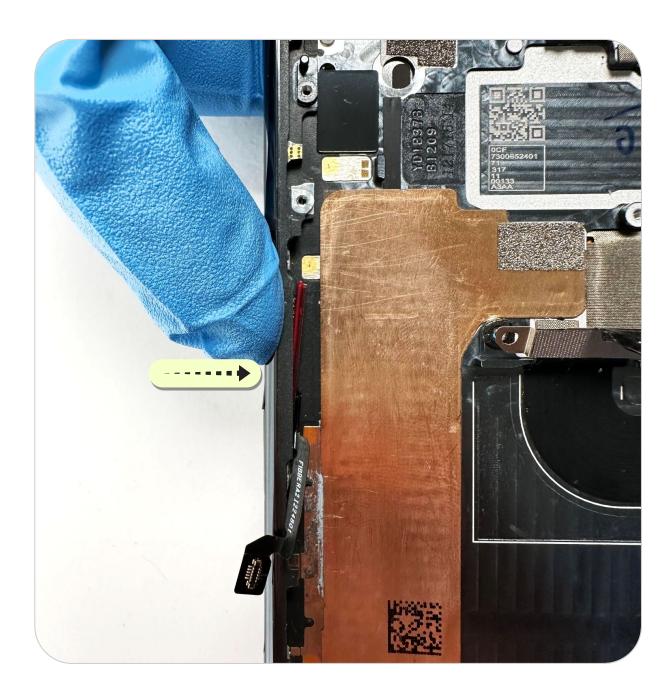
Push the Power Button inward to remove the FPS module.

Part: Multiple Part Numbers (FPS)



#### Note

The Inner Display sub includes the FPS. This step is only to change the FPS if it's damaged.





### Pixel Fold Repair Manual

# Assembly-Base

Inner display sub Inner front camera

Graphite sheet

Base vibrator

mmWave module

UWB fpc

IF fpc

**Bottom speaker** 

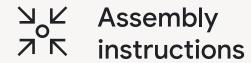
BG sub

Rear camera

Base battery

Logic board

**Base Bottom cowling** 



# Inner display sub

Base Side

### Clean thermal grease area

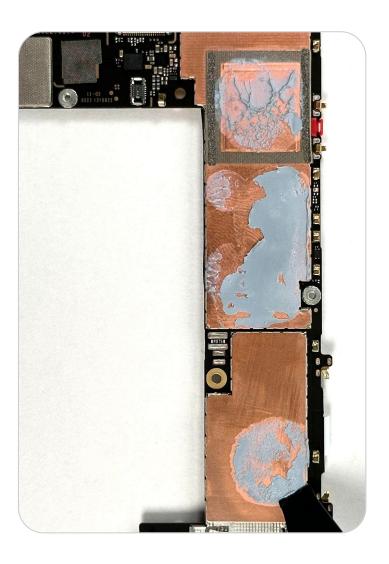
- Use an ESD Spudger to scrap off the Thermal Grease from the **Logic Board**.
- For any residue, gently clean the surface with a dust free cloth.



#### **Use Caution**

Don't get conductive Thermal Grease on other components.

Don't use IPA.





### Re-using enclosure

- Use an **ESD Stick** or **Deglue Machine** to clean the residual glue off the **Enclosure**.
- Use a dust free cloth with **IPA** to clean the surface where needed.





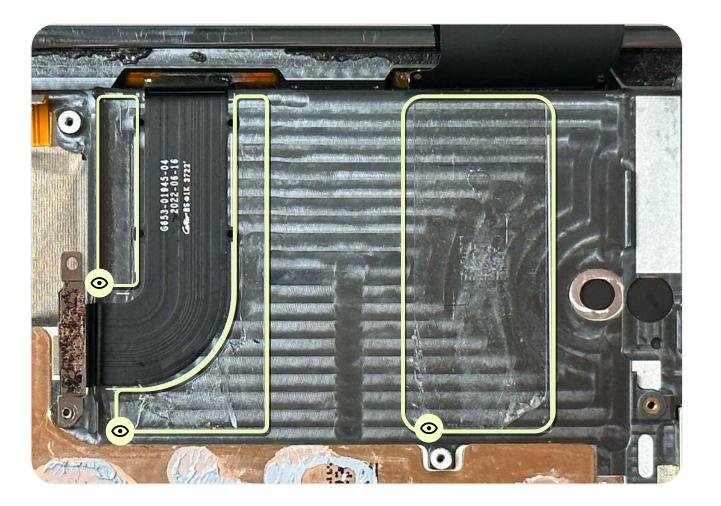
### Clean battery PSA residue

- Remove any PSA residue in the Base Battery area with an ESD Stick.
- Use a dust free cloth to clean the **Base Battery** area with IPA.



#### Note

The Inner Display sub includes the Base Battery PSA. This step and the next are only if the ID sub is being reused and the Base Battery was removed.



### Paste base battery PSA

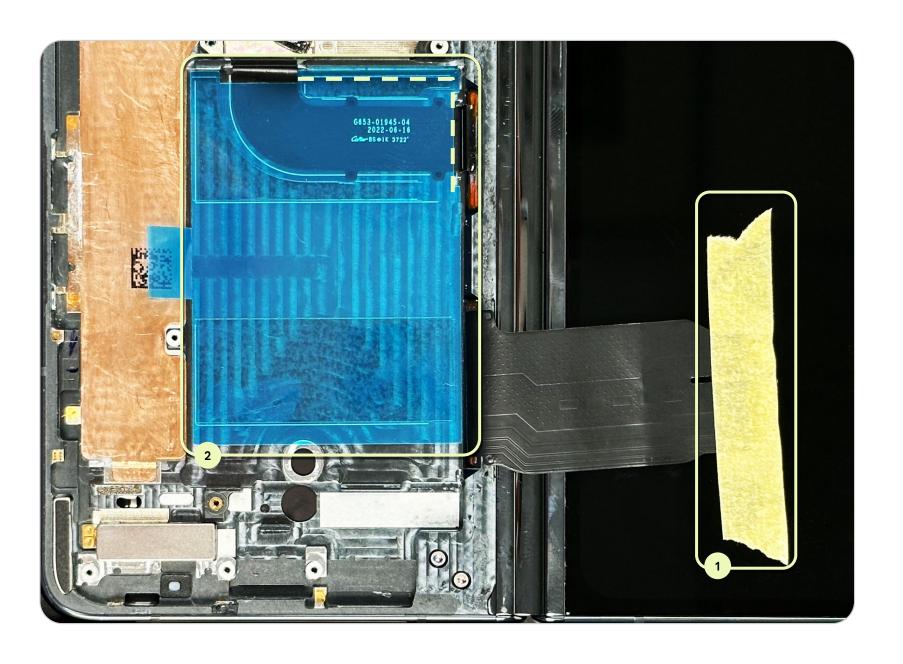
- Apply masking tape over the lower bridge fpc to prevent interference during battery installation process.
- Gently press with fingers to attach the **Base Battery PSA** beginning at the upper right corner.

Part: G806-09211-01 (Base Battery PSA)



#### Note

Don't remove the release liner just yet.



### Re-using FPS

- Remove the adhesive with **ESD Tweezers**, as shown in Fig 1.
- Wrap the ESD Spudger with a dust free cloth. Dip it in IPA and clean up any residue.
- Attach the **FPS CPSA** to the FPS beginning at the lower right corner, as shown in Fig 2.

Part: G806-07531-01 (FPS CPSA)

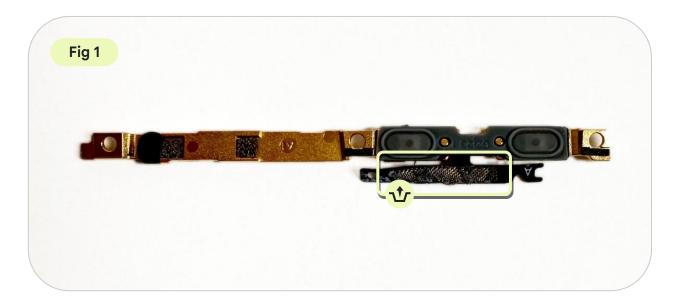


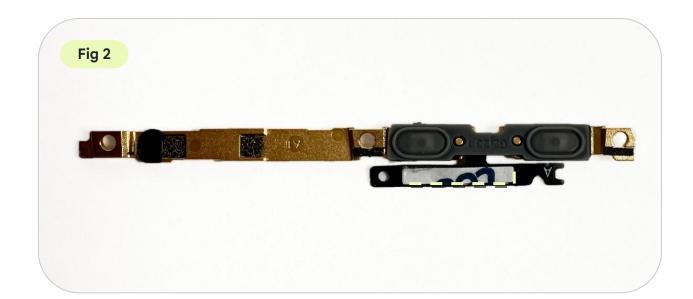


### Re-using the sidekey

- Remove the adhesive with **ESD Tweezers**, as shown in Fig 1.
- Wrap the ESD Spudger with a dust free cloth.
   Dip it in IPA and clean up any residue.
- Attach the **Sidekey CPSA** to the Sidekey beginning at the lower right corner, as shown in Fig 2.

Part: G806-05480-01 (Sidekey CPSA)





### Assemble FPS (power button)

Press the FPS into the ID sub.

Part: Multiple Part Numbers (FPS)

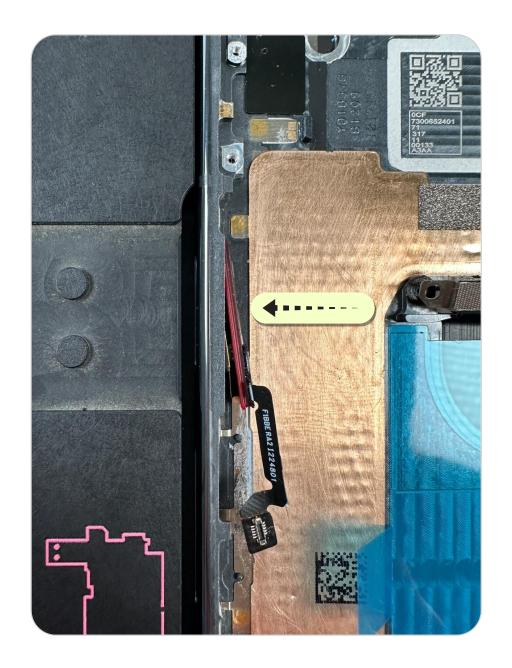


#### Note

The Inner display sub includes the FPS and Side Key. This and the next 3 steps only if the FPS and Side Key are damaged.

Clean the rubber surface with dust-free cotton swabs before installation.





### Assemble sidekey

Install the Side key into the Enclosure.

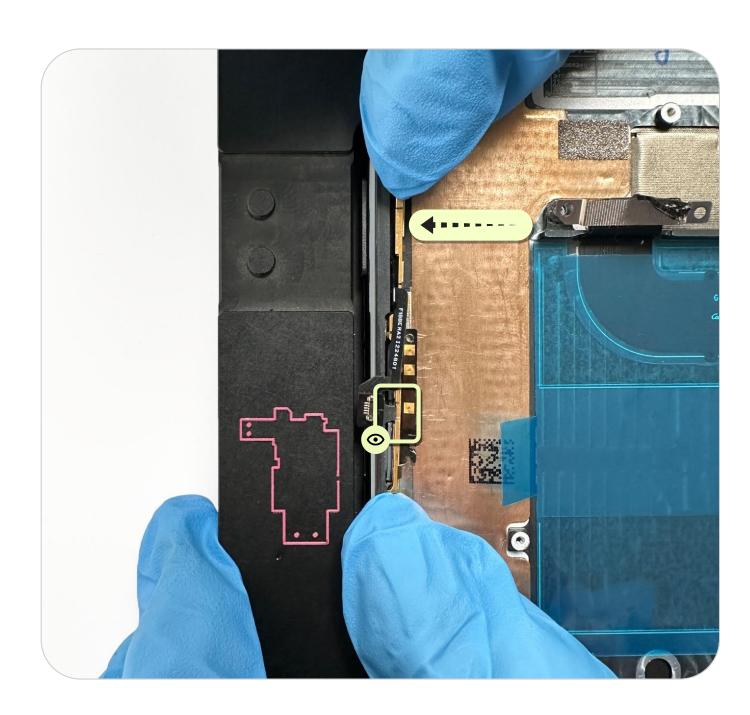
Part:G949-00419-01 (Sidekey)



#### Note

Clean the rubber surface with dust-free cotton swabs before installation.

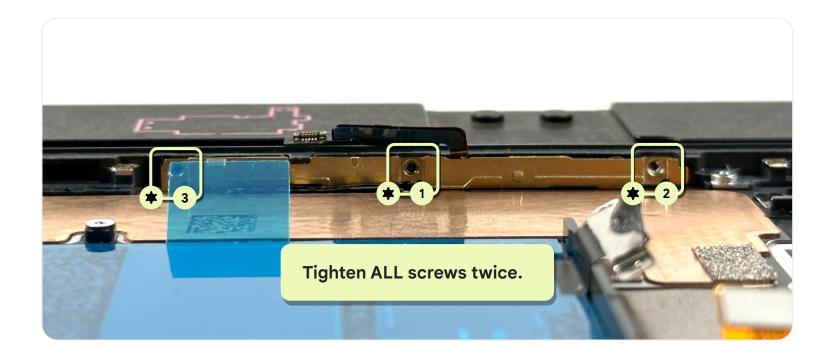




### Screw in sidekey

- Tighten the Sidekey Screws with an Adjustable torque screwdriver with Screwdriver Hex Shank Torx Plus Bit no.3.
- Tighten the screws a second time to secure them in place.

Part: G250-06709-00\*3 (Screws)





#### Note

Torque force: 0.7 ± 0.07 kgf-cm

### Assemble volume button

Install the Volume Button into the Enclosure.

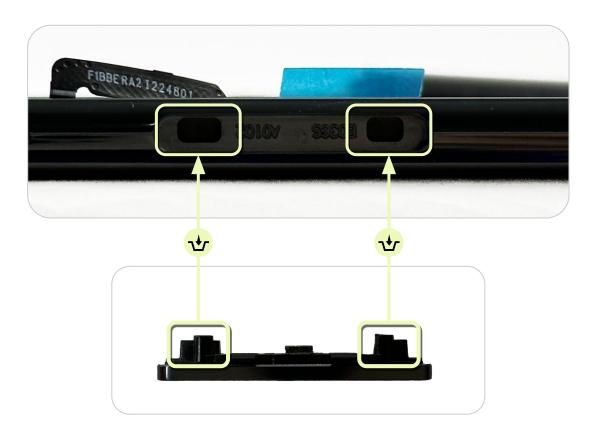
Part: Multiple Part Numbers (Volume Button)



#### Note

Check the orientation before installation.

The two volume button slots have different dimensions. The left one is slightly larger.



Inner Display Sub

Base Vibrator IF fpc Rear Camera Logic Board Inner Front Camera mmWave Module Bottom Speaker Base Battery Base Bottom Cowling Graphite Sheet UWB fpc

BG Sub

### Assemble side key

- Remove the release liner behind the Sidekey fpc using **ESD Tweezers**, as shown in Fig 1.
- Attach the Sidekey fpc to the Enclosure, and apply a mylar to the indicated position, as shown in Fig 2.

Part: G806-07179-01 (Mylar)



#### Note

Make sure the Sidekey fpc sits correctly around the two positioning posts.

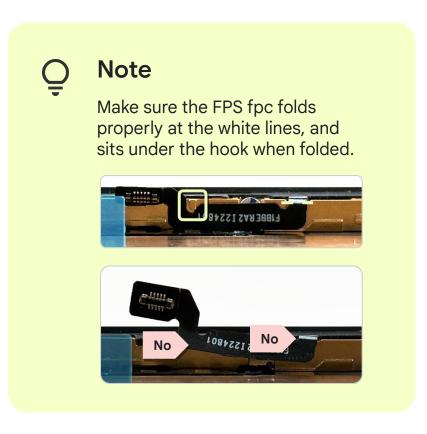


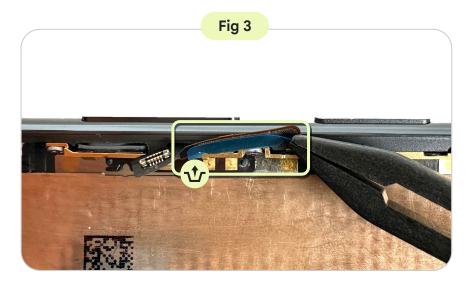




### Assemble side key-cont.

- Remove the release liner on the FPS fpc using **ESD Tweezers**, as shown in Fig 3.
- Fold the fpc downwards to attach it to the Sidekey, as shown in Fig 4.







#### Paste mic 1 and 3 meshes

- Remove damaged Mic 1 & Mic 3 meshes.
- Wrap the ESD Spudger with a dust free cloth.
- Dip it in IPA and clean any residue.
- Attach new meshes.

Part: G806-07041-01 (Mic 1 mesh)

Part: G806-07042-01 (Mic 3 mesh)

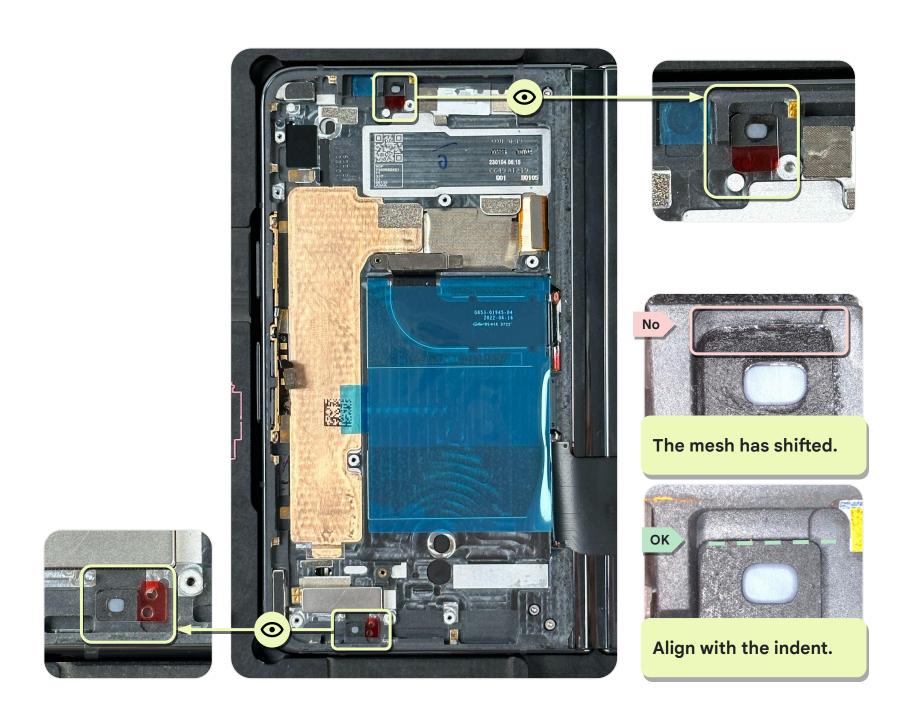


#### **Use Caution**

Check the two meshes and swap out for new ones if damaged.

Ensure that the environment is clean for this process.

Use an ionizing air fan to remove any debris.



BG Sub

### **Check bridge FPC**

- Tear off **Upper Bridge fpc** release liner, as shown in Fig 1.
- Check the Upper and Lower bridge. There should be no damage or breaks.



#### Use caution

Skip the step (Fig 1) if you re-use the ID sub.



#### Note

Make sure there is no damage or breakage to the bridge FPCs.



**Inner Display Sub** 

Base Vibrator

IF fpc

Rear Camera

Logic Board

Inner Front Camera

mmWave Module

Bottom Speaker

Base Battery

Base Bottom Cowling

**Graphite Sheet** 

UWB fpc

BG Sub

### Tear off tapes and wrap

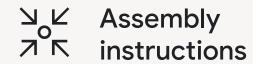
- Tear off all masking tape on the enclosure.
- Remove the wrap on the hinge.



#### **Use Caution**

Skip this step if re-using the ID sub.





# **Base vibrator**

### Clean enclosure

- Remove the damaged conductive tape, as shown in Fig 1.
- Attach a new one along the lines, as shown in Fig 2.

Part: G806-07049-01 (Conductive tape)

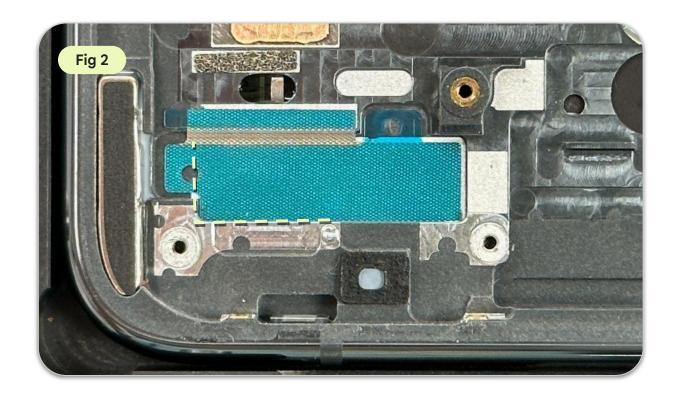


#### **Use Caution**

Inner Display Sub

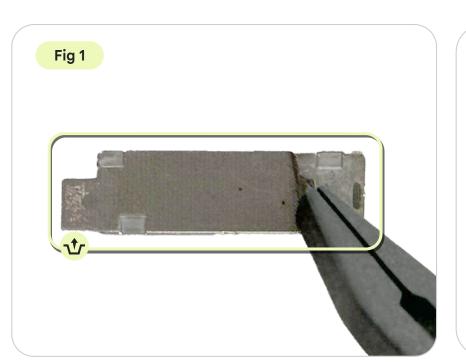
Skip this step if the conductive tape is not damaged or broken.





### Clean base vibrator

- Remove the adhesive with the **ESD tweezers**, as shown in Fig 2.
- Wrap the ESD spudger with a dust-free cloth. Dip it in IPA and clean up any residue, as shown in Fig 2.



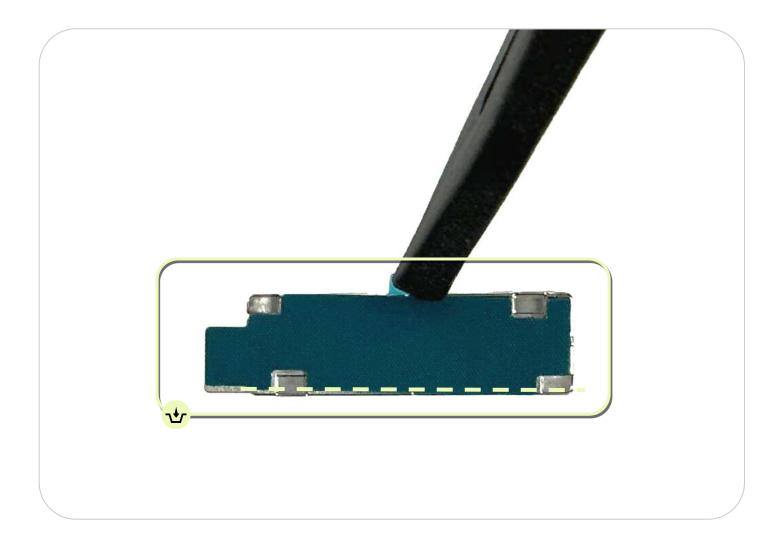


### Re-using base vibrator

Attach the **Vibrator adhesive** beginning at the lower edge.

Part: G806-05508-01 (Vibrator adhesive)

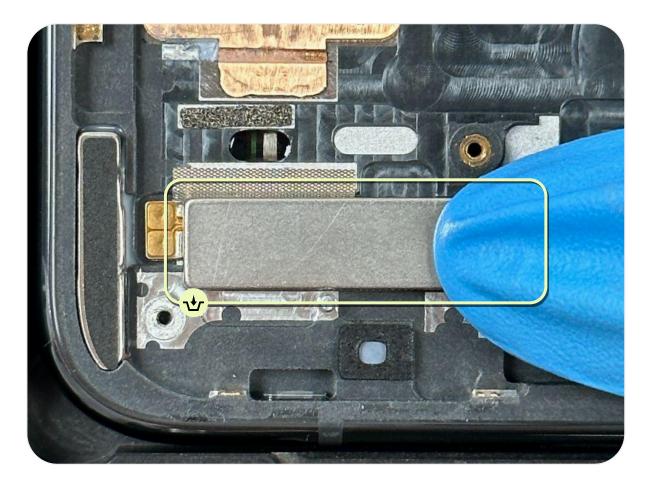
Part: G690-11375-02 (Base Vibrator)

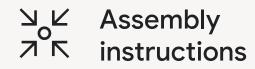


### Assemble base vibrator

- Tear off the release liner and install the Base Vibrator into the Enclosure.
- Press down for six seconds to activate the adhesive.

Part: G690-11375-02 (Base Vibrator)

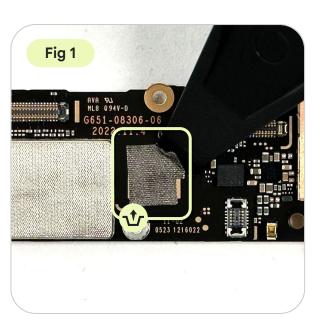


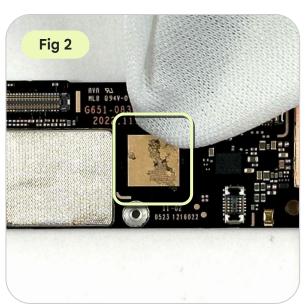


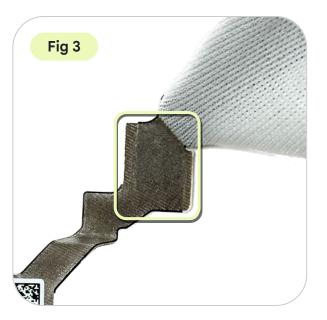


### Clean adhesive

- Remove the adhesive with **ESD tweezers**, as shown in Fig 2.
- Wrap the **Universal Disassembly ESD stick** with a dust-free cloth.
- Dip it in IPA to clean up any residue on the **Logic Board** and **IF FPC**, as shown in Fig 2 and Fig 3.







### Re-using IF fpc

Adhere the IF CPSA to the IF fpc.

Parts: G652-01954-03 (IF fpc)

Parts: G806-07194-01 (IF CPSA)



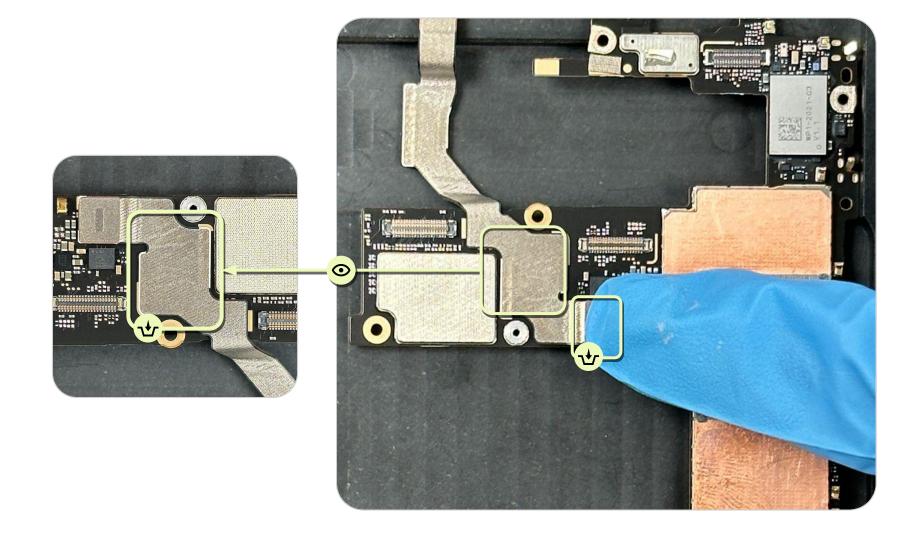
### Attach IF fpc

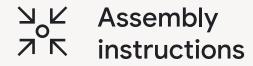
- Place the Logic board on the Pixel Fold-Holder.
- Remove the release liner and connect the **IF fpc** to the **Logic Board**.



#### Note

Check that every connector is fully attached to the Logic Board.





# Rear camera

#### Attach rear camera

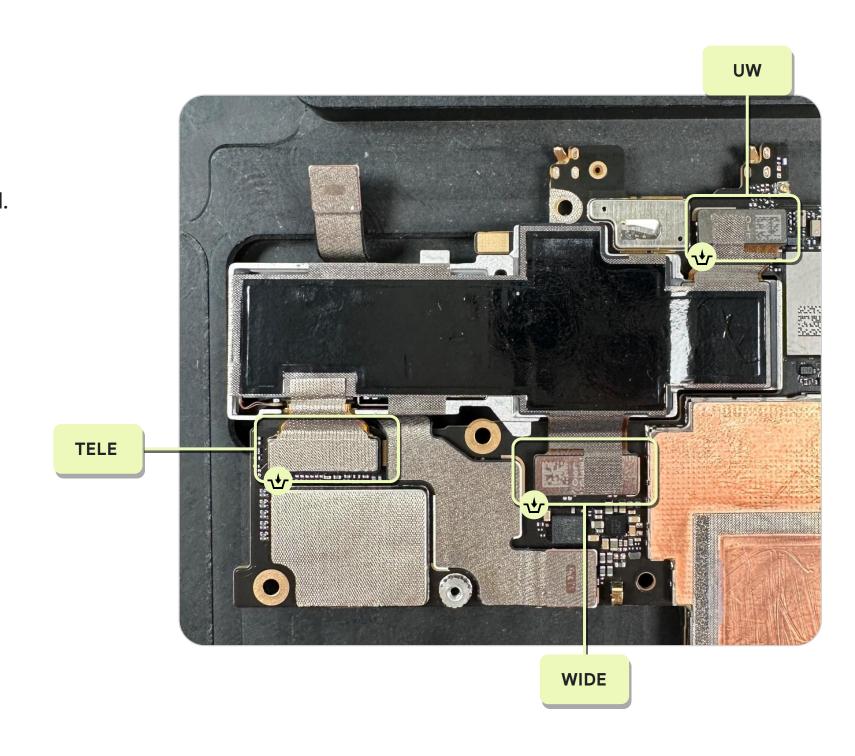
- Place the **Logic Board** on the **Pixel Fold-Holder**.
- Attach the three rear camera connectors to the **Logic Board**. Apply pressure evenly across the connectors to ensure they are fully engaged.

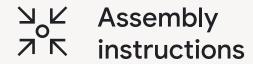
Part: G949-00359-01 (Rear Camera)



#### Note

Check that every connector is fully attached to the Logic Board.





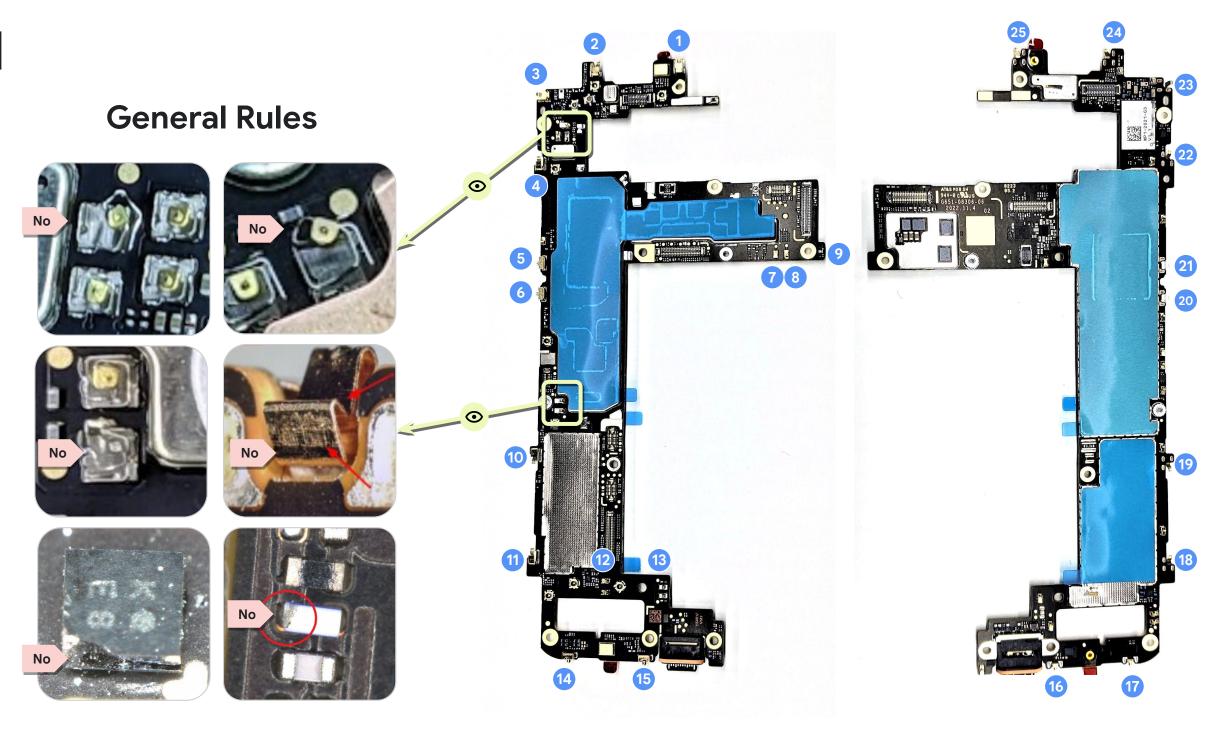
# Logic board

### **Check Logic Board**



#### **Use Caution**

Before assembling the MLB, check for spring deformation and damage to components near the edges. Pay extra attention to the springs during assembly to avoid damage to them.



### Re-using logic board

- Remove residual adhesive with **ESD Tweezers**.
- Attach the conductive donuts\*3 to the referenced locations.
- Fit MLB Hook onto the MLB with ESD Tweezers, as shown in Fig 1 and Fig 2.

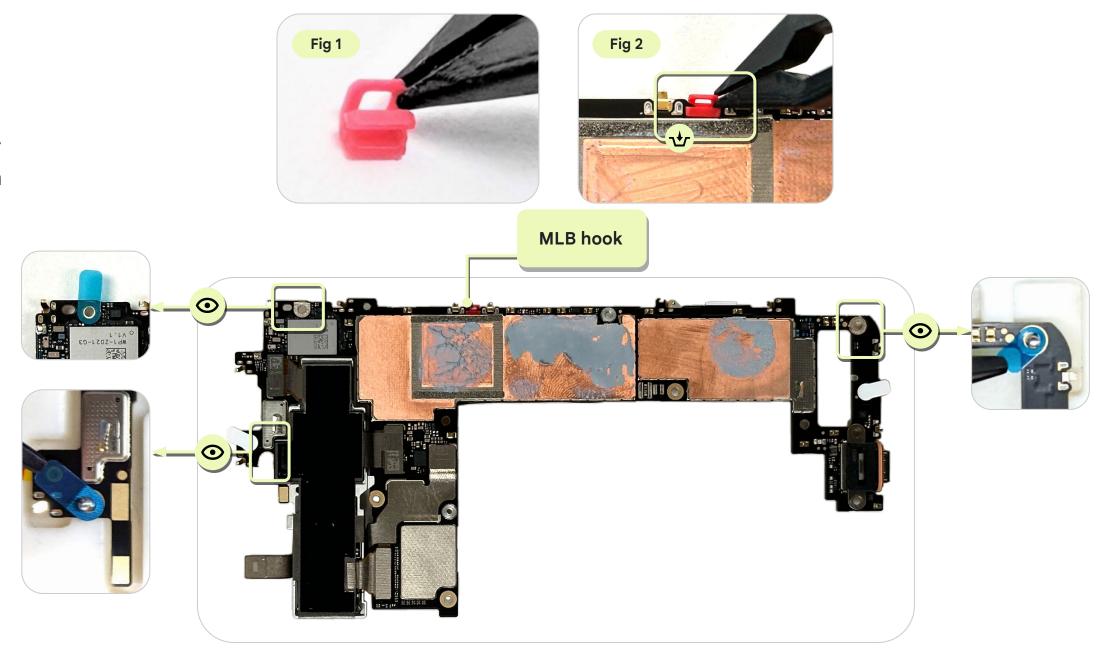
Part: G806-07315-01\*3 (Conductive Donut)

Part: G852-02630-01 (MLB hook)



#### Note

Check if the MLB hook is secured. If not, replace with a new one.



### Apply masking tape

Apply a piece of masking tape on the liner tab to avoid interfering with the thermal grease.

Part: G806-09211-01 (Base Battery PSA)



#### **Use Caution**

The Inner display sub comes with Base Battery PSA, and its tab won't interfere with the thermal grease.

This step is only needed when Base Battery PSA is replaced.



### Apply thermal grease

- Attach the **Pixel Fold-Thermal Grease Alignment** to the enclosure using **masking tape**.
- Squeeze a fair amount (0.3 g  $\pm$  5%) of Thermal Grease inside each cutout.
- Use the ESD Spudger in a single direction to distribute the Thermal Grease across all the cutouts. Ensure each cut out is fully covered.
- When complete, lift the **Pixel Fold-Thermal Grease Alignment** straight up.

Part: G160-01058-00 (Thermal Grease)



#### **Use Caution**

Review all <u>safety precautions</u> before beginning work.

Be sure to clean the Pixel Fold-Thermal Grease Alignment and ESD spudger after each use.

Don't get the conductive Thermal Grease on any of the nearby components.







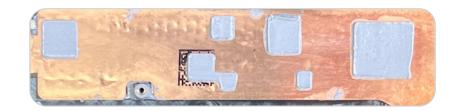






Optionally, cut the ESD Spudger in half.





### Remove protective liner

- Remove Mic 1, Mic 3, and vent hole protective **liners** from the **Enclosure**, as shown in Fig 1.
- If installed, peel off mic 1 and mic 3 release liners from the Logic Board, as shown in Fig 2.

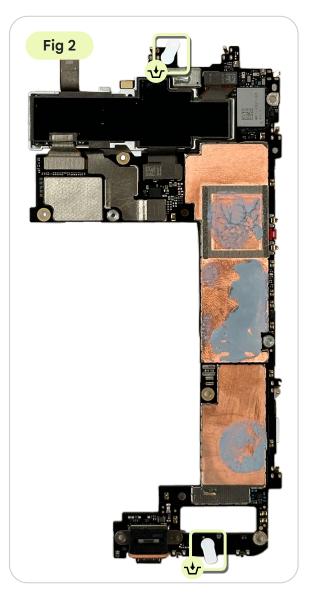


#### Note

Clean the rubber surface with dust-free cotton swabs before installation.







### Lift logic board

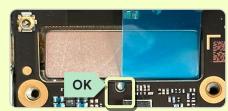
Cut a piece of release liner (10 mm \* 40 mm) and stick it through the base vibrator hole on the Logic Board to cover the mic 1 sponge.



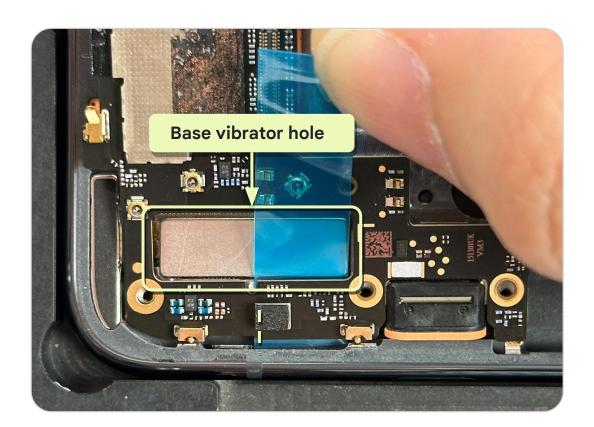
#### Note

Don't wear gloves when handling the Logic Board.

Make sure the liner doesn't exceed the positioning post.







### Assemble logic board

- Insert the USB-C port into the USB slot.
- Pull out the release paper upwards and lay the Logic Board flat.



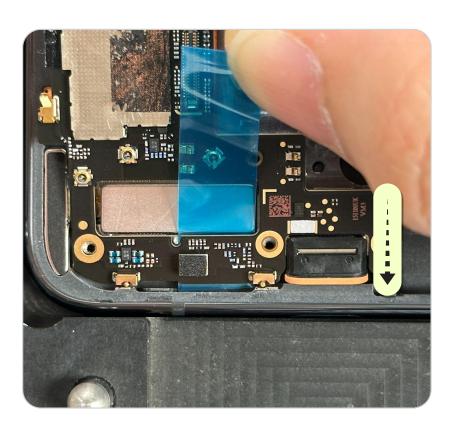
#### **Use Caution**

Be careful to avoid damaging components on the Logic Board.



#### Note

Don't wear gloves when handling the Logic Board.





#### Lift connectors

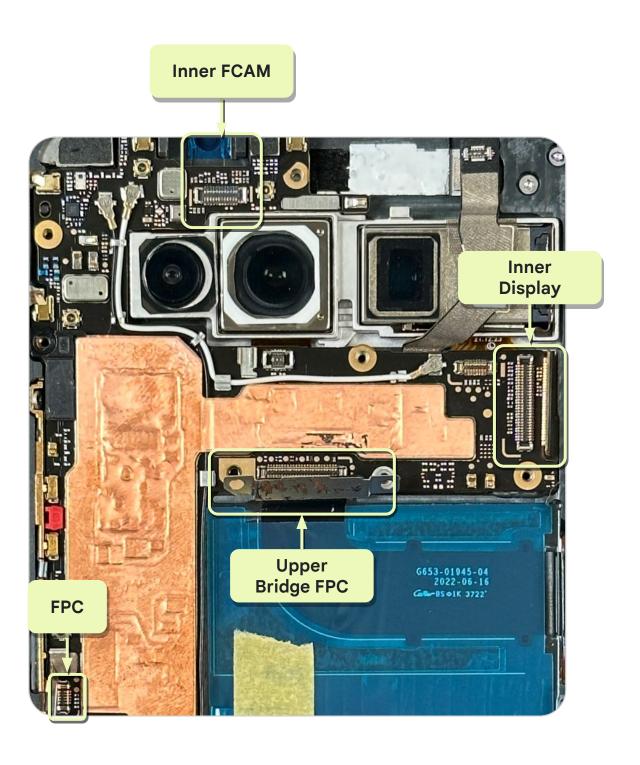
Lift the FPS, Upper Bridge FPC, Inner Display, (and Inner FCAM Connector if using a new Enclosure) in the Enclosure with an ESD spudger to avoid trapping them under the Logic Board.



#### Note

Be careful to avoid damage to the hook near the RCAM slot during assembly.





### Assemble logic board

- Push the **Logic Board** downward toward the USB slot of the **Enclosure**.
- Push the **Logic Board** straight down to align it flush against the retaining wall. Use caution to avoid damaging the Sidekey area.

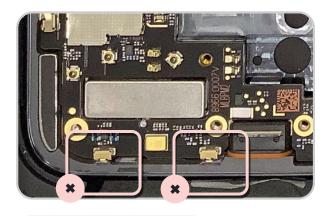


#### **Use Caution**

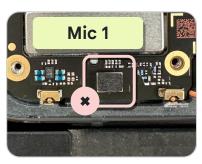
Be careful to avoid damaging components on the Logic Board.

Don't apply pressure to the Mic 1 and Mic 3 areas and the two springs.









### **Check seating**

Make sure the Logic Board sits against (not on top) of the retaining walls.



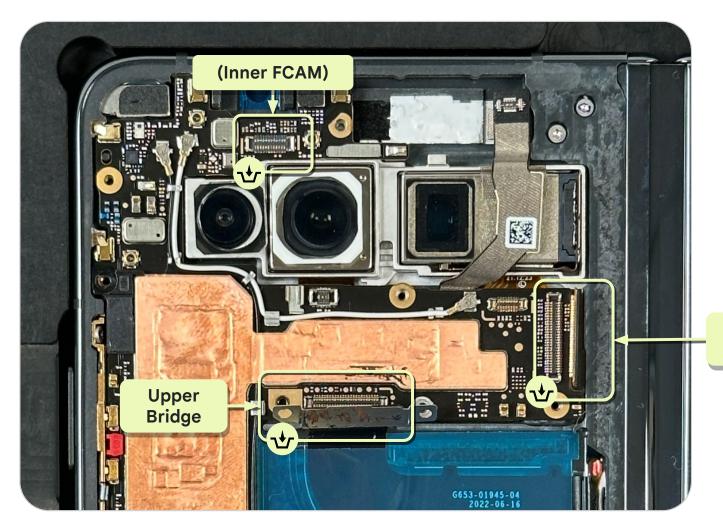
#### **Attach connectors**

- Attach the Inner Display, Upper Bridge Connector (and Inner FCAM if using a new Enclosure) to the Logic Board.
- Applying even pressure across the connectors to ensure they are fully engaged.



#### Note

Check every connector is fully attached to the **Logic Board**.



Inner Display

### Screw in logic board

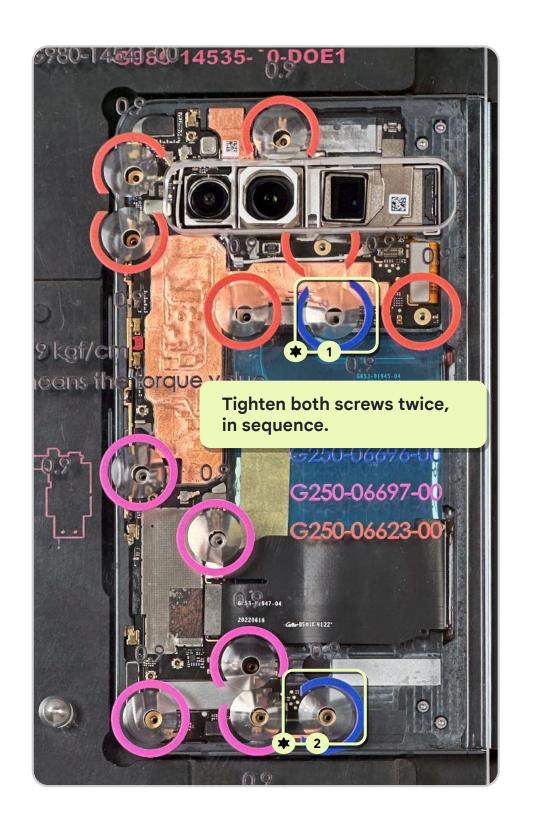
- Place the Pixel Fold-BG Screw Cover on the Pixel Fold-Holder.
- Tighten the Screw with an Adjustable torque screwdriver with Screwdriver Hex Shank Torx Plus Bit no.3. in sequence.
- Tighten the Screws a second time.
- Remove the Pixel Fold-BG Screw Cover.

Part: G250-06696-00\*2 (Screw)



#### Note

Torque force: 0.9 ± 0.09 kgf-cm



### Attach BG support

Attach the BG Support to the Logic Board and remove the release liner.

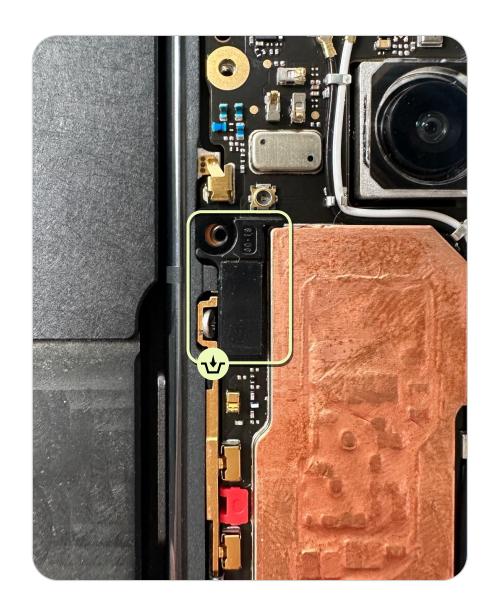
Part: G730-06523-02 (BG Support)



#### **Use Caution**

If BG Support PSA got stuck on the BG during removal or when using a new Logic Board, use a new BG Support.



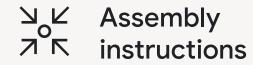


### Attach conductive fabric

Attach the conductive tape to the upper bridge connector.

Part: G806-07149-01 (Conductive Fabric\_Upper bridge)





# Inner front camera

#### **Buckle front camera**

- If installed, remove the Inner FCAM cap and the protective film.
- Assemble the Inner FCAM into the **Enclosure** slot.
- Attach the Inner FCAM connector to the **Logic Board**.

Part: G949-00411-01 (Inner Front Camera)



#### **Use Caution**

The Inner display sub includes the Inner FCAM. Only perform this step and the next step if the Inner FCAM was damaged.



#### Note

Check that every connector is fully attached to the Logic Board.



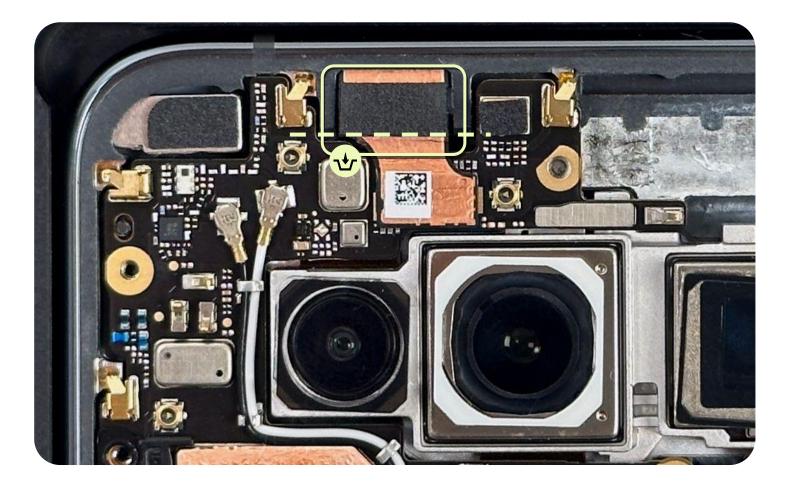


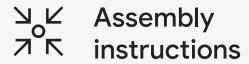


### Attach sponge

Attach the sponge and align it with the lower edge of the inner **FCAM**.

Part: G806-07397-01 (Sponge Inner Fcam)





# mmWave module

### Re-using mmWave module

- Use IPA to clean residue off the **Enclosure**.
- Attach the CPSA and PSA to the appropriate locations. Align the PSA beginning with the lower left corner.
- Tear off the release liners.

Part: G806-07829-01 (mmW Module CPSA)

Part: G806-07830-01 (mmW Module PSA)



#### Note

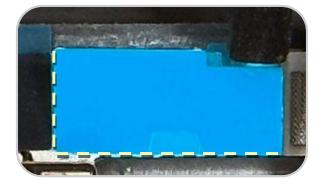
ONLY replace the CPSA if it is damaged or broken.





A:G806-07829-01

B: G806-07830-01



# Connect to IF fpc

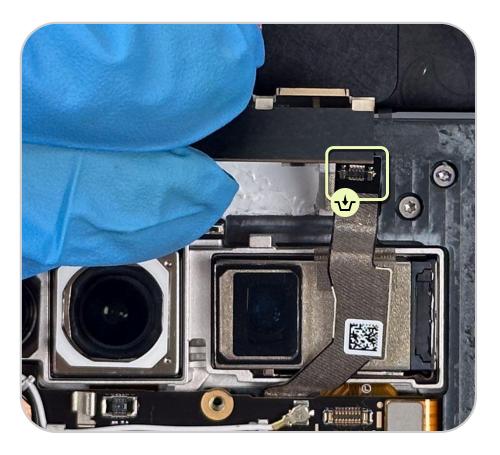
Connect **mmWave Module** to the IF fpc connector.

Part: G949-00418-01 (mmW Module)



## Note

Check that every connector is fully attached.





## Assemble mmWave module

- Attach the mmW Module onto the Enclosure.
- Gently press for six seconds.



# Re-using base top cowling

- Remove adhesive residue with a **Universal Disassembly ESD stick**, as shown in Fig 1.
- Attach the diecut, as shown in Fig 2.

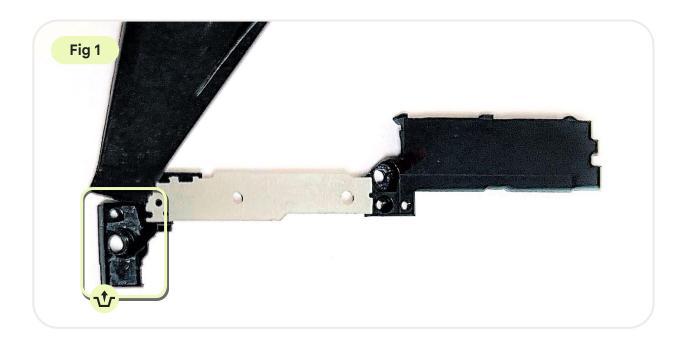
**Part: G730-06485-01** (Base Top cowling)

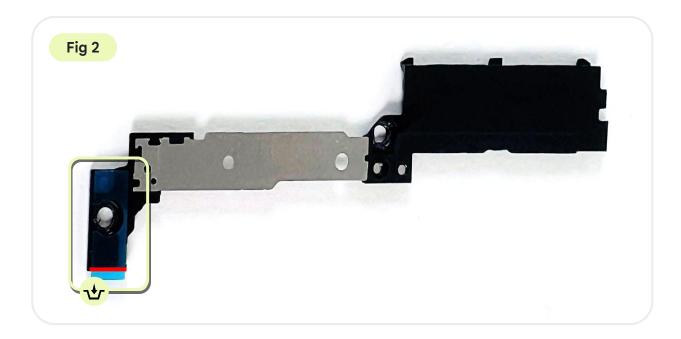
Part: G806-08938-00 (Base Top cowling Die cut)



#### Note

Replace the die cut only if it's damaged or broken.





# Assemble base top cowling

- Remove the Base Top Cowling Diecut release liner.
- Install the **Base Top cowling** from the right to the left.

**Part: G730-06485-01** (Base Top cowling)



# Install base top cowling

- Place Pixel Fold-BG Screw Cover on the Pixel Fold-Holder.
- Tighten the Base Top cowling, Logic Board and Upper Bridge FPC Screws with a Torx Plus (3IP) in sequence.
- Tighten the **Screws** a second time, and then remove the **Pixel Fold-BG Screw Cover.**

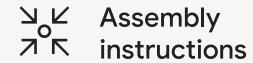
Part: G250-06623-00\*4 (Screw)



#### Note

Torque force: 0.9 ± 0.09 kgf-cm

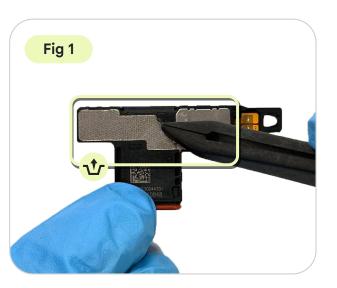




# **Bottom speaker**

# Re-using bottom speaker

- Remove the adhesive with the **ESD tweezers**, as shown in Fig 1.
- Wrap the ESD spudger with a dust-free cloth. Dip it in IPA to clean up any residue, as shown in Fig 2 and Fig 3.



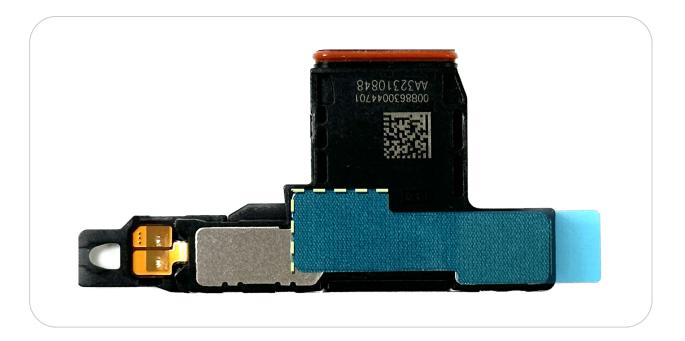




# Re-using bottom speaker

Attach the Bottom Speaker PSA beginning at the top left corner.

Part: G806-07888-01 (Bottom Speaker PSA)



## Attach bottom speaker

Place the **Bottom Speaker** at an angle inside the **Enclosure**.

Part: G863-00447-01 (Bottom Speaker)

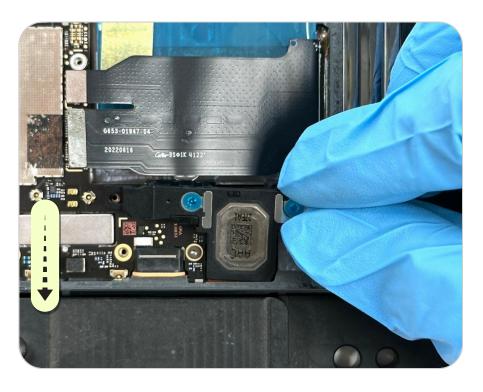


## Note

Ensure the speaker goes completely under the enclosure rim.

Clean the rubber surface with dust-free cotton swabs before installation.

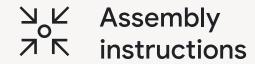












# **Base battery**

## Tear off the liner

- Before installation, ensure any debris and loose screws are removed from the Enclosure.
- Gently press an **ESD Spudger** along the Upper Bridge fpc to smooth out any lifting.
- Remove masking tape and remove the Base Battery PSA release liner using **ESD Tweezers**.

Part: G806-09211-01 (Base Battery PSA)



#### **Use Caution**

Review all <u>safety precautions</u> before beginning work.

Ensure that the <u>Battery cosmetic</u> <u>checks</u> are completed.



# Align base battery

Place a **0.1 mm Feeler gauge** against the wall, touching points A and B.



## **Use Caution**

Review all <u>safety precautions</u> before beginning work.



# Align base battery

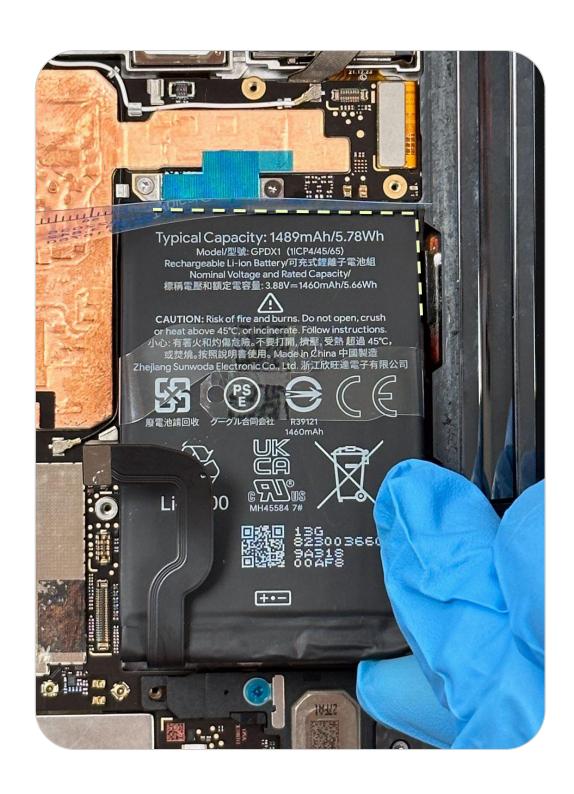
- Install the **Base Battery** into the enclosure beginning with the upper right corner.
- Remove the **0.1 mm Feeler gauge.**

Part: G849-00416-01 (Base Battery)



#### **Use Caution**

Review all <u>safety precautions</u> before beginning work.



## Prepare to press

- Gently fix the **bottom bridge FPC** with masking tape to prevent damage.
- Place the Pixel Fold-Holder on the Universal Base.
- Place the Pixel Fold-Battery Press (Base) on the Pixel Fold-Holder. The two alignment pins are to avoid misalignment.

Part: G949-00416-01 (Base Battery)



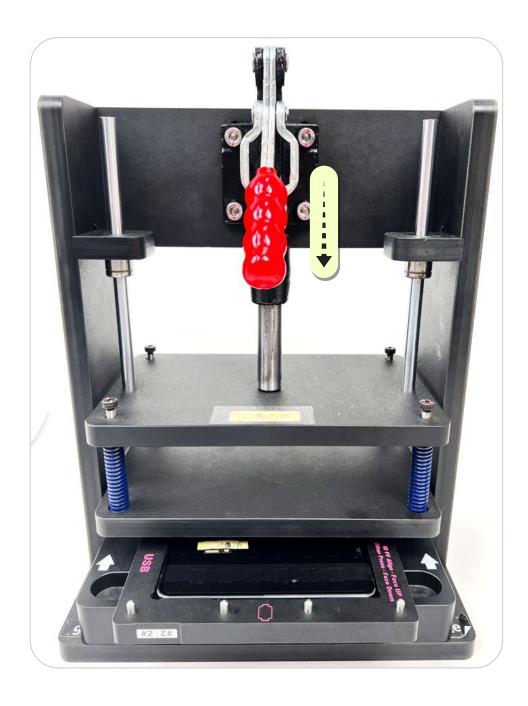
# Press together in fixture

- Place the Pixel Fold-Holder in the Universal Press.
- Press the handle down for **30** seconds.



## **Use Caution**

Pinch point. Keep your hands clear during operation.



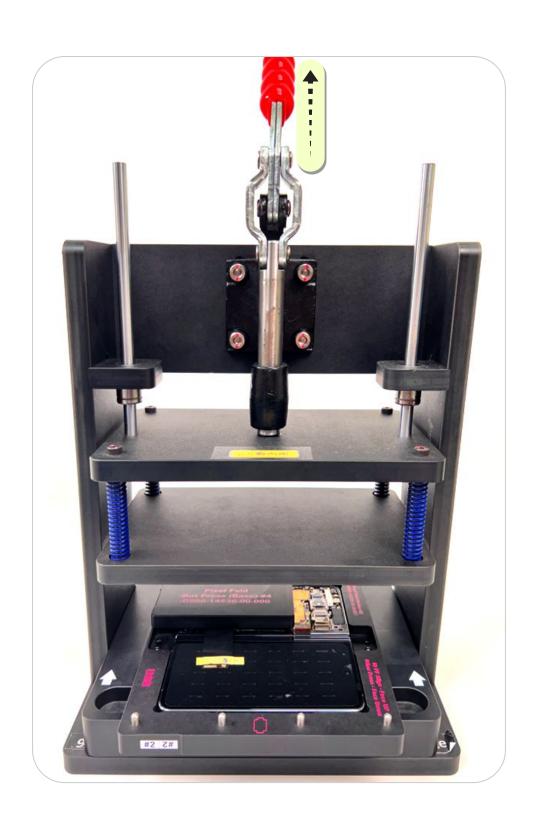
## Lift handle

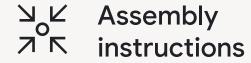
Restore the handle to the original position and remove the **Pixel Fold-Holder.** 



## **Use Caution**

Pinch point. Keep your hands clear during operation.





# Base bottom cowling

## Clean the residue

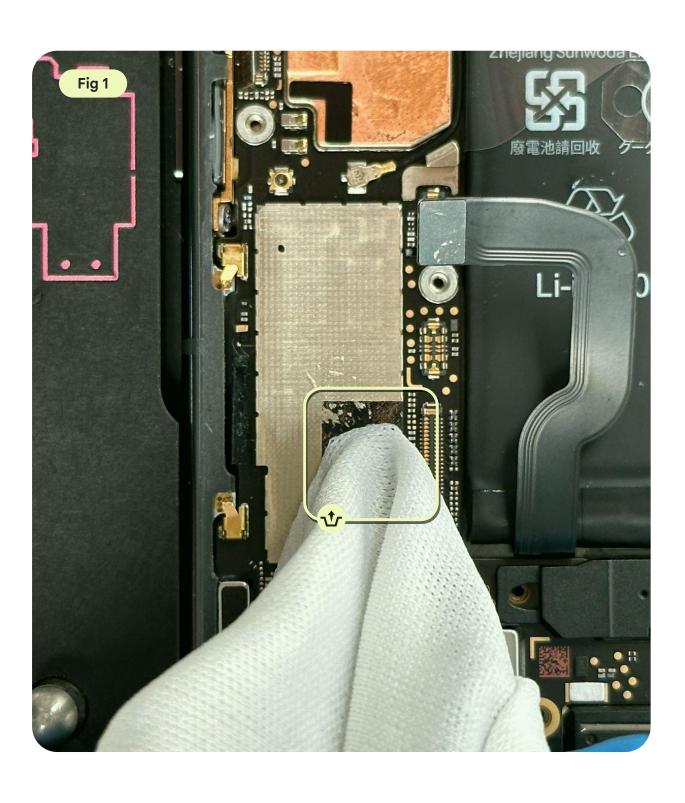
Wrap the ESD spudger with a dust-free cloth. Dip it in IPA to clean up any residual adhesive, as shown in Fig 1.



## Note

Tear off masking tape from the base battery.





## Connect to logic board

- Connect FPS, Bottom Bridge FPC and Base Battery FPC to the Logic Board in sequence.
- Attach conductive fabric over the Bottom Bridge FPC according to the right side of the connector.

Part: G806-07152-01 (Conductive fabric)



#### Use caution

Base battery FPC is under the bottom bridge FPC.



#### Note

Check that every connector is fully attached to the logic board.



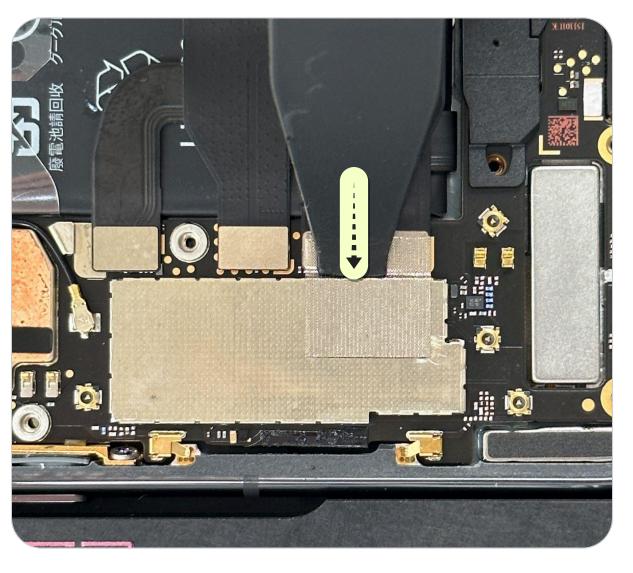
## Secure conductive fabric

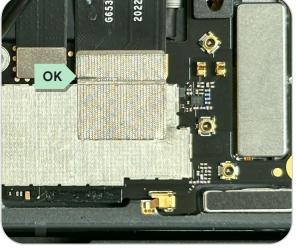
Run an ESD Spudger between the connector and the shielding cover to crease the conductive fabric.



## Note

Make sure there are no additional wrinkles on the conductive fabric.





# Assemble base bottom cowling

Assemble the **Base Bottom cowling** to the enclosure.

Part: G730-06487-01 (Base Bottom cowling)



## Note

Secure the base bottom cowling under the two hooks.



## Fasten base bottom cowling

- Place the Pixel Fold-BG Screw cover on the Pixel Fold-Holder.
- Tighten the five Screws with an Adjustable torque screwdriver with Screwdriver Hex Shank Torx Plus Bit no.3. in sequence.
- Tighten the **Screws** a second time.
- Take out the Pixel Fold-BG Screw cover.

Part: G250-06697-00\*5 (Screws)



#### Use caution

Be careful with the screwdriver.

Don't damage the adjacent battery.

Incorrect use of the screwdriver can cause injury to you, others, or damage to the battery or the product.



## Note

Torque force: 0.9 ± 0.09 kgf-cm



## Assemble block

Place MLB Block and press into place with an ESD spudger.

Part: G730-06717-00 (MLB Block)



## **Use Caution**

Be careful to avoid damaging components on the Logic Board.

Only attach a new MLB Block while replacing the Logic Board.

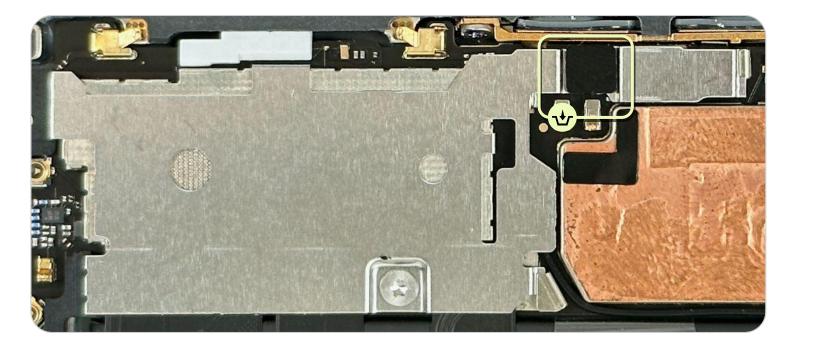


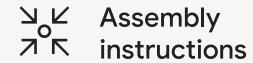


## Assemble the die cut

Paste the **Die cut** onto the top of the screw.

Part: G806-08167-00 (Die cut)



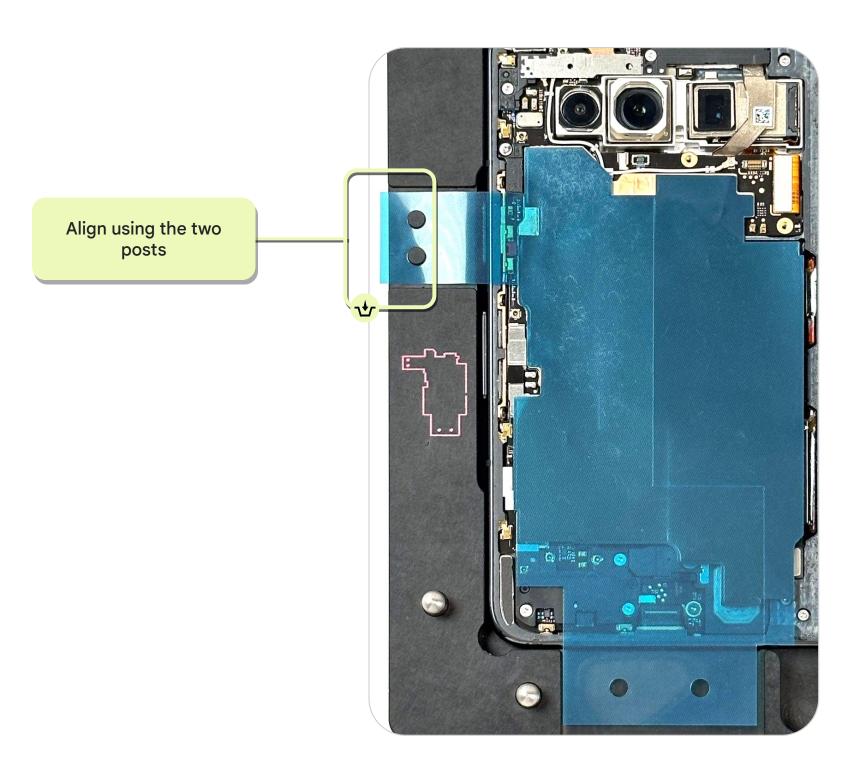


# Graphite sheet

# Place graphite sheet

With the device in the **Pixel Fold-Holder**, align the **Graphite sheet** with the positioning posts on the Holder.

Part: G864-00537-08 (Graphite sheet)



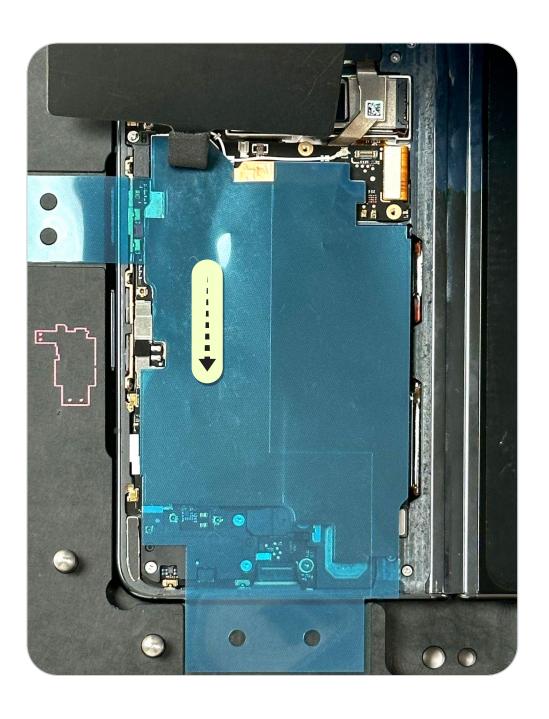
# Adhere graphite sheet

• Part of the graphite sheet is adhesive. Gently press the **Universal Scraper** vertically across the **Graphite sheet** to make sure there are no air pockets.



## **Use Caution**

Avoid rolling over the gaskets, as it may deform them.



# Adhere graphite sheet

Remove the release liner slowly.



## **Use Caution**

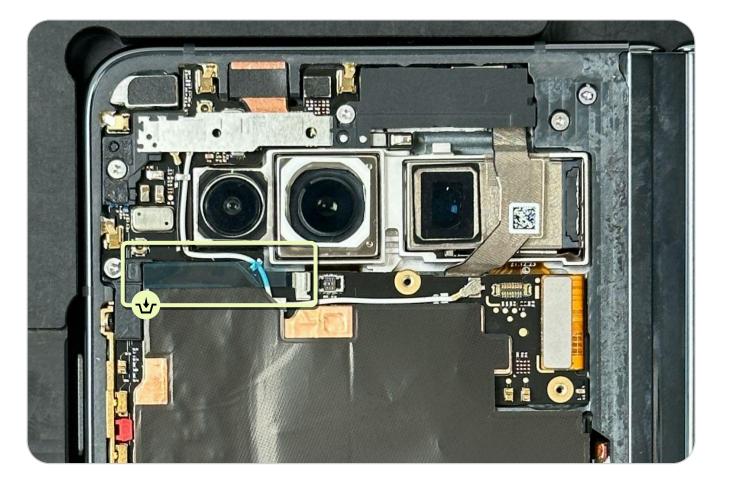
Ensure there are no wrinkles or creases in the graphite sheet.

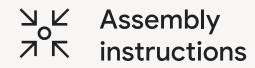


## Paste insulation sheet

- Adhere the insulation sheet to the designated position.
- Remove the release liner.

Part: G864-00541-01 (Insulation sheet)



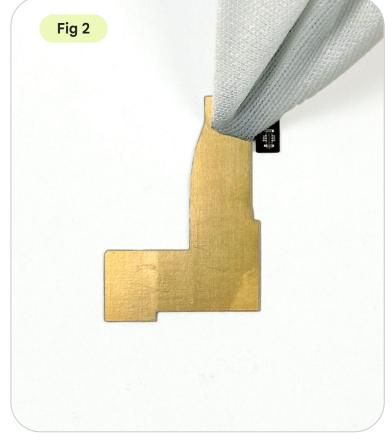


# **UWB fpc**

# Re-using UWB fpc

- Remove the adhesive with an ESD spudger, as shown in Fig 1.
- Wrap the ESD spudger with a dust-free cloth. Dip it in IPA to clean up any residue, as shown in Fig 2.





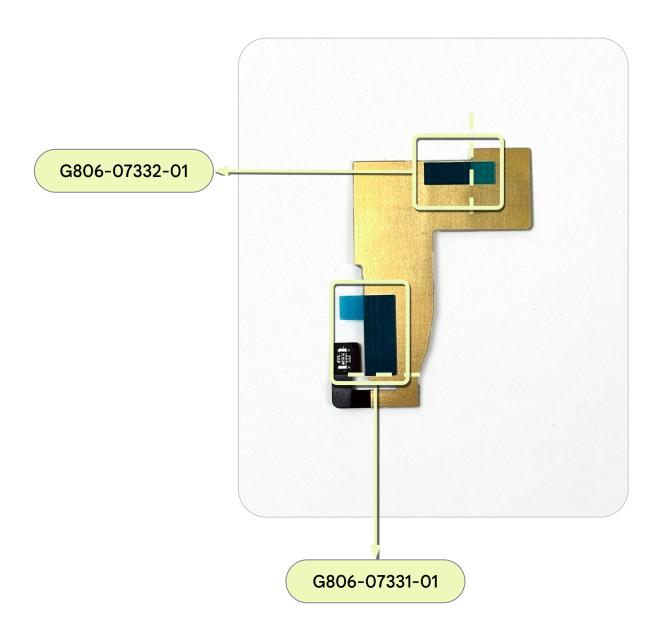
UWB fpc

# Re-using UWB fpc - continued

Adhere the two CPSAs to the appropriate locations.

Part: G806-07331-01 (UWB CPSA-1)

Part: G806-07332-01 (UWB CPSA-2)



UWB fpc BG Sub

# Assemble UWB fpc

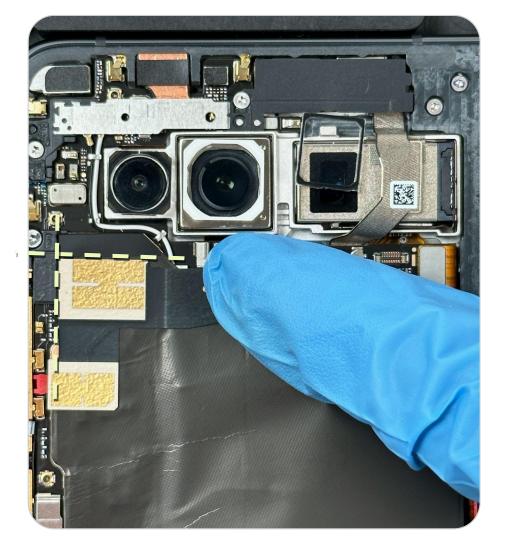
- Remove the two release liners.
- Attach the **UWB FPC**, beginning at the top left corner of the graphite sheet outline.
- Connect the **UWB FPC** to the logic board.

Part: G867-00347-01 (UWB fpc)



## Note

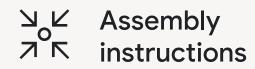
Check every connector is fully attached to the Logic Board.







t **UWB fpc** BG Sub



# BG sub

Disassembly-Base Assembly-Base Welcome Precautions Introduction Repair Flows Disassembly-Flip Assembly-Flip Troubleshooting Software

# Use deglue machine

Wrap tape on the tip of the deglue machine to avoid damage to the parts and enhance adhesiveness.



**BG Sub** UWB fpc

# Re-using the BG

- Use an **ESD spudger** or **Deglue Machine** to clean the residual glue and BG support PSA off the **BG**.
- If there is additional residue, use a dust free cloth with **IPA** to clean the surface.
- If BG support PSA is stuck on the **Ant 4 fpc** (Fig 1) or there is Ant 4 fpc peeling (Fig 2), replace the **Ant 4 fpc** (Fig 3).

Part: Multiple Part Number (BG sub)

Part: G867-00351-01 (Ant 4 fpc)



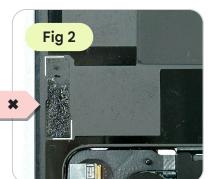
#### Use caution

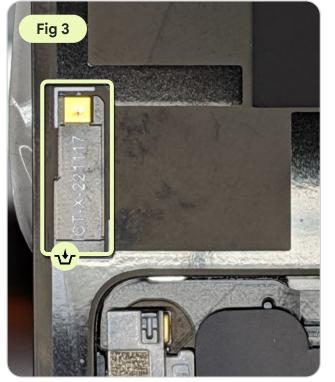
The red highlight is where the residual adhesive exists. Note that the BG sub includes the ant 4 FPC. This step is only to change the ant 4 FPC if it's damaged.











Inner Display Sub

Base Vibrator

IF fpc

Rear Camera

Logic Board

Inner Front Camera

mmWave Module

Bottom Speaker

Base Battery

Base Bottom Cowling

Graphite Sheet

UWB fpc BG Sub

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## Apply 3M AP111 primer

- Apply IPA around the edges of the Enclosure with Dust-free Cotton swabs. Use an ionizing air fan to blow over.
- Apply 3M AP111 Primer around the edges of the Enclosure with the Dust-free Cotton swabs.
   Use an lonizing air fan to blow over.



### Use caution

After you apply the primer, complete assembly in 25 mins.



neet UWB fpc BG Sub

## Align adhesive

- Slowly remove the liner from the **adhesive** with **ESD Tweezers**.
- Place the **adhesive** in the **Pixel Fold-PSA Align** with ESD Tweezers.

Part: G806-07178-01 (BG PSA)



### **Use Caution**

Don't touch the adhesive.

If it gets dirty, change to another one.



Inner Display Sub Base Vibrator IF fpc Rear Camera Logic Board Inner Front Camera mmWave Module Bottom Speaker Base Battery Base Bottom Cowling Graphite Sheet UWB fpc BG Sub

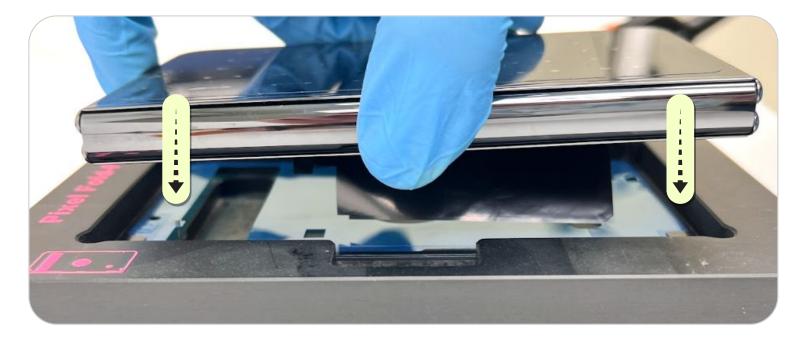
## **Enclosure to adhesive**

- Fold the device with the OD side face up.
- Place the **Enclosure** perpendicularly into the pocket.



### Note

Place it perpendicularly.







Inner Display Sub Base Vibrator IF fpc Rear Camera Logic Board Inner Front Camera mmWave Module Bottom Speaker Base Battery Base Bottom Cowling Graphite Sheet UWB fpc BG Sub

Repair Flows Disassembly-Base Assembly-Base Disassembly-Flip Assembly-Flip Troubleshooting Software Welcome Precautions Introduction

## **Activate PSA**

Gently press around the edges by hand to enhance bonding between **Enclosure** and **adhesive**.



**BG Sub** UWB fpc

Base Battery

Disassembly-Base Welcome Precautions Introduction Repair Flows Assembly-Base Disassembly-Flip Assembly-Flip Troubleshooting Software

## **Use Pixel Fold-Holder**

- Remove the **device** from the Pixel Fold-PSA Align perpendicularly.
- Unfold the device and place it into the **Pixel Fold-Holder**.



### Note

Take out the device perpendicularly.

Don't put the other side of the device in the fixture at any time, else BG PSA or OD may be damaged.



UWB fpc

## Remove the liner (1st layer)

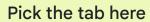
Pull the tab carefully to remove the liner. Avoid lifting the adhesive.



**Use Caution** 

Don't remove the second layer of the liner.







## Apply AP111 primer on BG

- Apply IPA around the edges of the BG sub with **Dust-free** Cotton swabs.
- Use an **lonizing air fan** to blow over.
- Apply 3M AP111 Primer around the edges of the BG sub with **Dust-free Cotton swabs.**

Part: Multiple Part Number(BG sub)



### **Use Caution**

After you apply the primer, complete the assembly in 25 mins.



**BG Sub** UWB fpc

Disassembly-Base Welcome Precautions Introduction Repair Flows Assembly-Base Disassembly-Flip Assembly-Flip Troubleshooting Software

## **Connect flam board FPC**

- Use the **Universal adsorption bulb** to prop up the **BG sub**.
- Connect the Flam Board fpc to the Logic Board. Apply even pressure across the connector to ensure it is fully engaged.



### **Use Caution**

When attaching the BG, don't damage or deform the fpc.

Check that every connector is fully attached to the Logic Board.



## Check display

- Remove the Outer display protective film and Inner Display process protective film.
- Place the device inside the **Pixel Fold-Holder**, as shown in Fig 1.
- Power on with an ESD spudger and **wait at least 10 seconds** to check if the device is working properly. Power off after check, as shown in Fig 2.



### **Use Caution**

Don't touch the Inner or Outer display until it turns to the **Welcome page,** because the touch panel self calibration is in progress.







## Attach base right cowling

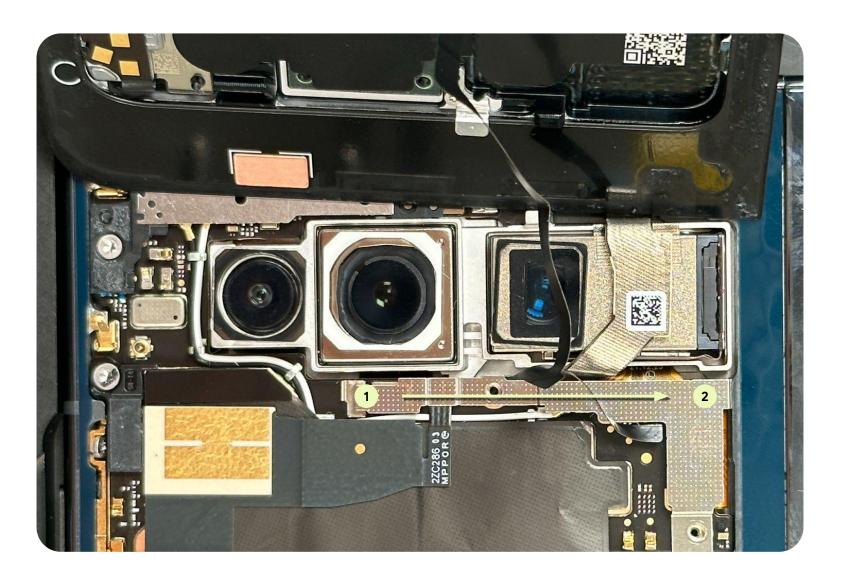
Attach the Base Right cowling and install from the left to the right.

Part: G730-06486-01 (Base Right cowling)



### **Use Caution**

Make sure that the Base Right cowling sits under the hooks.



Inner Display Sub Base Vibrator IF fpc Rear Camera Logic Board Inner Front Camera mmWave Module Bottom Speaker Base Battery Base Bottom Cowling Graphite Sheet UWB fpc BG Sub

## Fasten the base right cowling

Fasten the Base Right cowling Screw with a Torx Plus (3IP) in sequence.

Part: G250-06623-00\*2 (Screw)



### Use caution

Be careful not to damage nearby screws' battery, components, and springs.



### Note

Torque force: 0.9 ± 0.09 kgf-cm



Inner Display Sub Base Vibrator IF fpc Rear Camera Logic Board Inner Front Camera mmWave Module Bottom Speaker Base Battery Base Bottom Cowling Graphite Sheet UWB fpc BG Sub

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## Remove liner

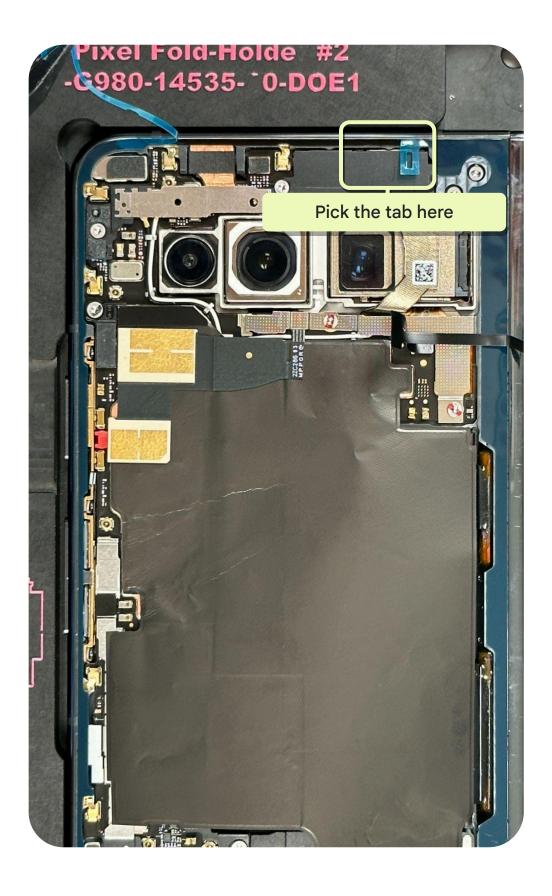
Use **ESD Tweezers** to grab the PSA release liner and carefully pull it away.

Part: G806-07178-01 (BG PSA)

Inner Display Sub

Base Vibrator

Rear Camera



Base Battery

**BG Sub Graphite Sheet** UWB fpc

**Bottom Speaker** 

mmWave Module

Inner Front Camera

## Remove film/cap

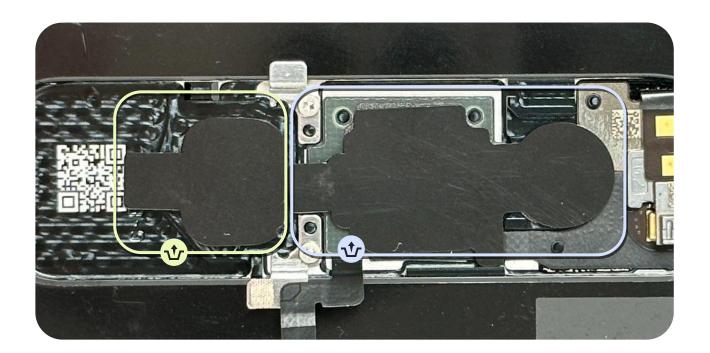
If there are protective caps or film in the camera areas, remove them before proceeding.



### **Use Caution**

Ensure that the environment is clean for this process.





Inner Display Sub Base Vibrator IF fpc Rear Camera Logic Board Inner Front Camera mmWave Module Bottom Speaker Base Battery Base Bottom Cowling Graphite Sheet UWB fpc BG Sub

Repair Flows Disassembly-Base Assembly-Base Disassembly-Flip Assembly-Flip Troubleshooting Software Welcome Precautions Introduction

## **Attach BG**

- Align the **BG sub** on the **Enclosure vertically.**
- Remove the **Universal adsorption bulb**.





## Press in Pixel Fold-Holder

Press around the BG sub.



### Note

Inner Display Sub

Base Vibrator

IF fpc

Rear Camera

Logic Board

Inner Front Camera

First, press the top side middle, and then follow on the two long sides and the bottom side.



Base Battery

Base Bottom Cowling

Graphite Sheet UWB fpc BG Sub

**Bottom Speaker** 

mmWave Module

## Place in Pixel Fold-Holder

- Place the Pixel Fold-Holder on the Universal Base.
- Ensure the Pixel Fold-Holder is placed on the correct pins, as shown in Fig 1.
- Place the **Pixel Fold-BG Press** on top of the **Pixel Fold-Holder**.

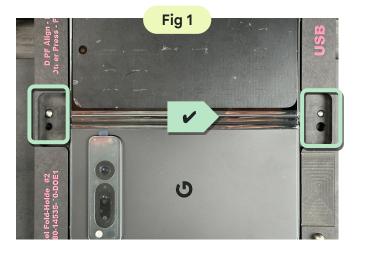


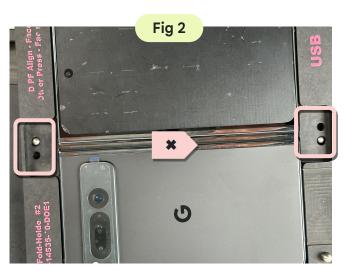
### **Use Caution**

Ensure the Pixel Fold-Holder is aligned on the correct pins.

See Fig 2 as an example of incorrect alignment.







Inner Display Sub

Base Vibrator

IF fpc

Rear Camera

Logic Board

Inner Front Camera

mmWave Module

Bottom Speaker

Base Battery

Base Bottom Cowling

**Graphite Sheet** 

UWB fpc



## Place in press

- Place it in the **Universal Press** and press the handle down for 45 seconds.
- Push back the handle to the original position and remove the device.



### **Use Caution**

Inner Display Sub

Pinch point. Keep your hands clear during operation.

Base Vibrator

IF fpc

Rear Camera

Logic Board

Inner Front Camera



Base Bottom Cowling

Graphite Sheet UWB fpc **BG Sub** 

**Bottom Speaker** 

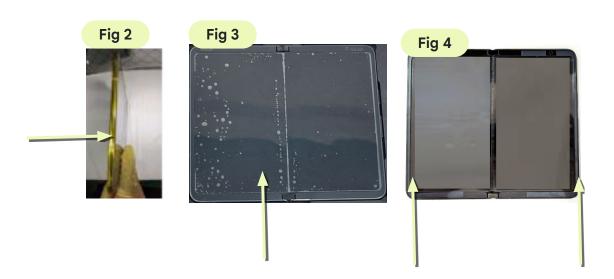
Base Battery

mmWave Module

## Remove the Protective Film

Remove all remaining Universal Protective Film from the device.









### Pixel Fold Repair Manual

# Disassembly-Flip

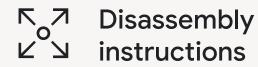
Outer display Outer front camera

Lower board Detune board

Flip cowling with vibrator Receiver

Top speaker Flip battery

Upper board Inner display sub



# Outer display

The Outer Display Module is connected to the Lower Board, so be careful with the flex when you open the device.



### Use caution!

Use **safety gloves** to handle damaged displays as splinters during removal could cause injury.

Apply **protective film** to broken glass before removal.

Review all **safety precautions** before beginning work.



### **Prerequisites**

Before beginning a repair, be sure to **power off** the device and disconnect any charging cables.



**Heat Plate** 

Universal Disassembly Fixture

Ionizing Air Fan

Pixel Fold-Holder

Pixel Fold-PSA Align Pixel Fold-OD Press

Pixel Fold-OD Screw Cover

Universal Base

Universal Press

Adjustable torque screwdriver

Screwdriver Hex Shank Torx

Plus Bit no.3.

Universal fish line tool

**ESD Tweezers** 

**ESD Spudger** 

Universal Disassembly ESD pick

3M AP111 Primer

Deglue Machine

Universal adsorption bulb



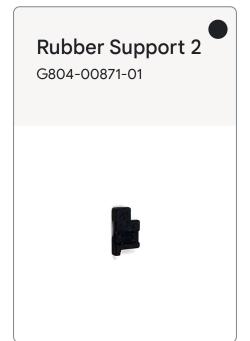
## **Outer display**

The parts listed are for the Outer display disassembly.



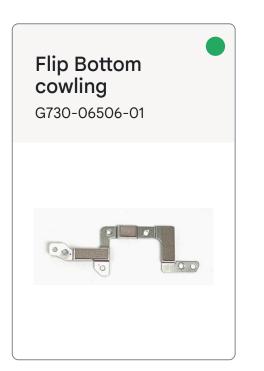








**Reuse indications** 



Reusable without Cleaning

Reusable after

Cleaning

Not Reusable after disassembly

Disassembly-Flip Welcome Precautions Introduction Repair Flows Disassembly-Base Assembly-Base Assembly-Flip Troubleshooting Software

## Cover inner display

- Make sure the device is turned off before disassembly.
- Cover the Inner Display sub with Universal protective film.
- Cover the flip trim and base trim with masking tape.

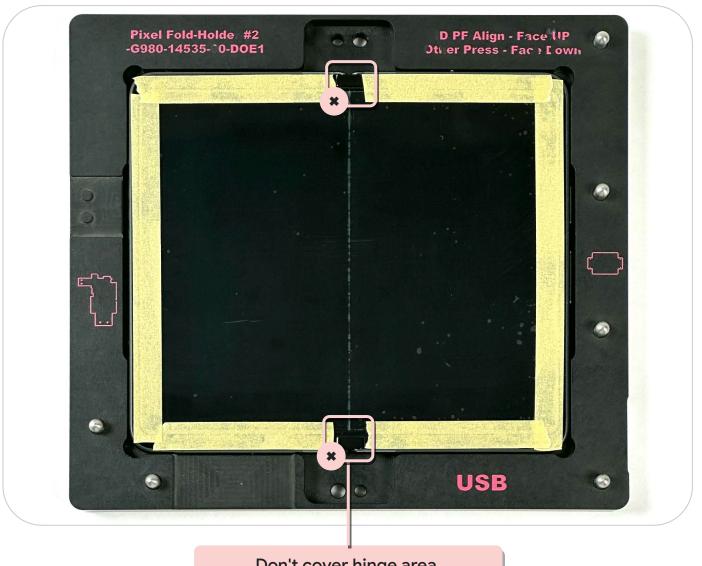


### Use caution

Use **safety gloves** to handle damaged displays as some displays might splinter during removal and could cause injury.

Apply Universal protective film to broken glass before removal.

Review all safety precautions before you begin work.

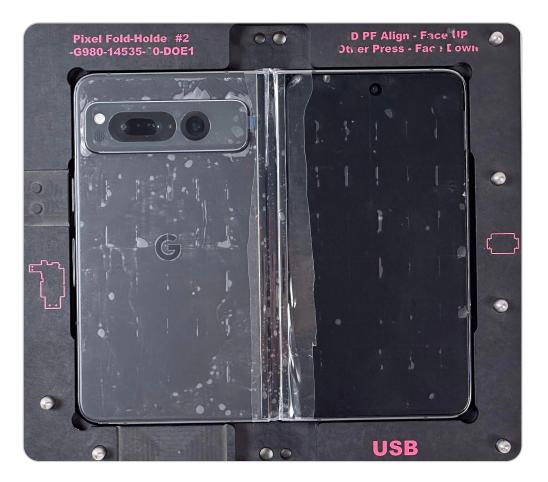


Don't cover hinge area.

**Outer Display** Flip Cowling with Vibrator Lower Board Top Speaker Upper Board Outer Front Camera Detune Board Receiver Flip Battery Inner Display Sub

## Cover back glass / outer display

- Place Universal protective film over the Back Glass and Visor.
- Cover the Outer Display with Universal protective film.
- Fold the device and cut a piece of the Universal Protective film to cover the **hinge area** before unfolding the device.





Replace if the protective film is broken. Tear off the PF with device folded.

**Outer Display** 

Lower Board

Flip Cowling with Vibrator

Top Speaker

Upper Board

Outer Front Camera

Detune Board

Receiver

Flip Battery

Inner Display Sub

Disassembly-Base Assembly-Base Disassembly-Flip Welcome Precautions Introduction Repair Flows Assembly-Flip Troubleshooting Software

## Soften adhesive

- Fold the device, and place it on the **Heat Plate** with the Outer Display facing down.
- Set the Heat Plate to 158°F (70 °C) for 10 mins to soften the adhesive.



### Use caution

Heating plate is a hot surface. Use caution as it can cause burns.



### Note

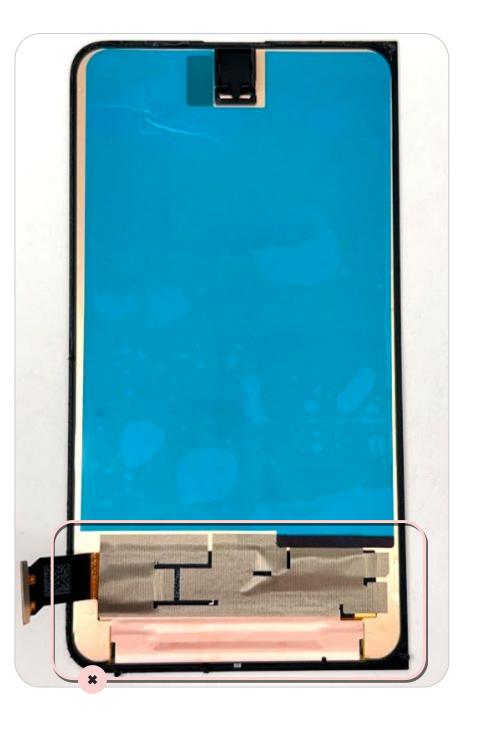
Remove the OD protective film to allow the suction cup attach to the OD.



Flip Battery

## Locate driver IC

- Before you remove the **Outer Display module**, be aware that there is a sensitive component (driver IC) on the bottom of the screen.
- Pay extra attention to avoid damage to the **driver IC (COF area)** during the disassembly process.



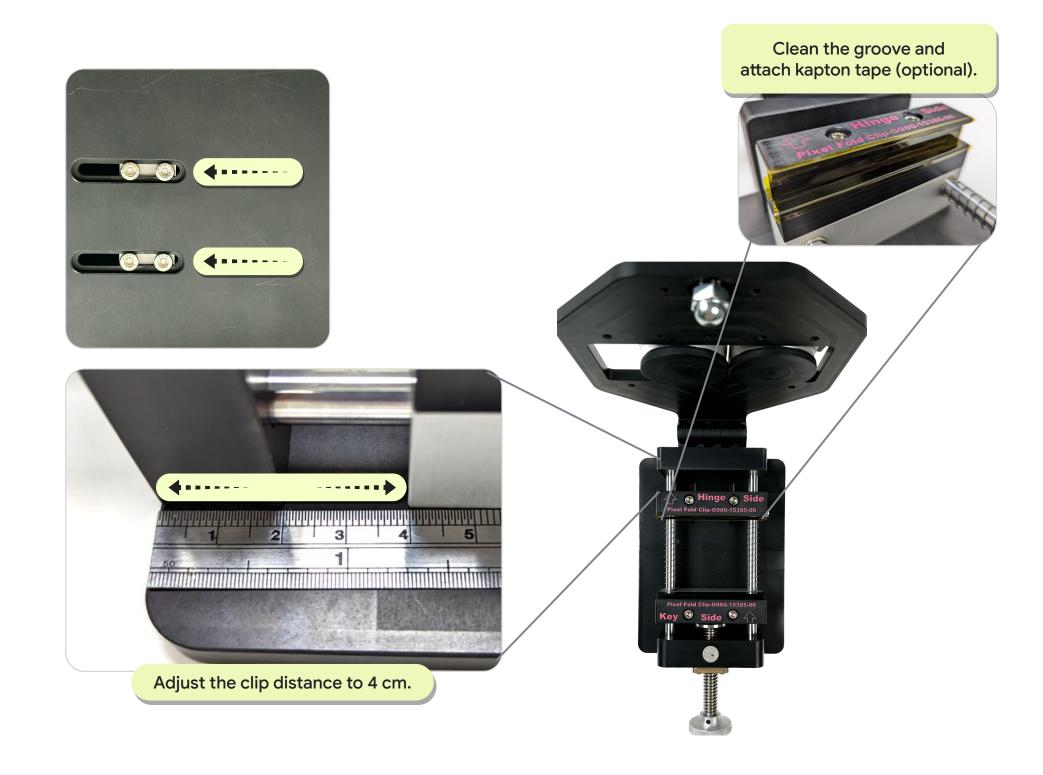
## Adjust fixture

- Adjust the device clip distance to 4 cm before removing BG, OD and flip battery.
- Clean the groove with IPA and a dust free cloth.



### Note

Lock the distance for BG, OD and flip battery disassembly.



**Outer Display** 

Lower Board

Flip Cowling with Vibrator

Top Speaker

Upper Board

Outer Front Camera

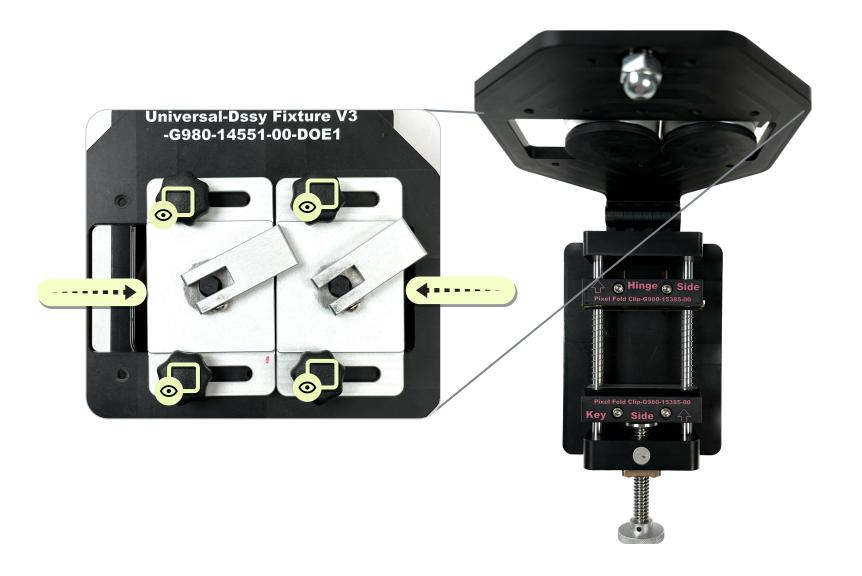
Detune Board

Receiver Flip Battery

/ Inner Display Sub

## Adjust fixture-continued

Adjust the right suction cup to the second hole from the right and adjust the left suction cup to align with the second hole from the left as shown in the figure.



## **Use fixture**

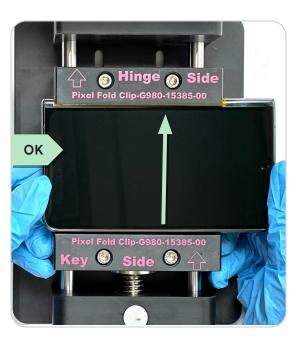
- Place the device on the holder of the **Universal Disassembly Fixture** and align the device, as shown in Fig 1.
- Fix the device and lock with the screws.

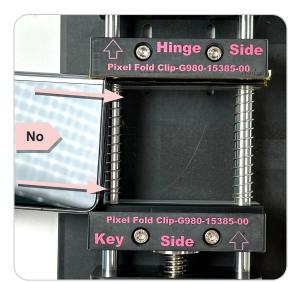


### Note

Remove the protective film from the Outer Display to allow the suction cup attach.

There's a groove that can help you avoid pressing the power button accidentally. Clean the groove area with the dust-free cloth and IPA before using it.







## Close the fixture

- Close the lid and align the suction cup underneath with the OD, as shown in Fig 1.
- Lift the suction cup lever, as shown in Fig 2.

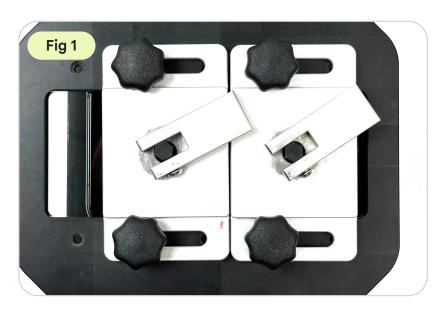


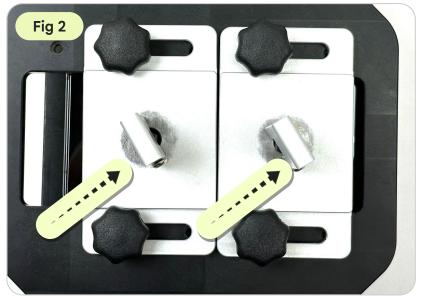
### **Use caution**

Use **safety gloves** to handle damaged displays as some displays might splinter during removal and could cause injury.

Apply **Universal protective film** to broken glass before removal.

Review all **safety precautions** before you begin work.





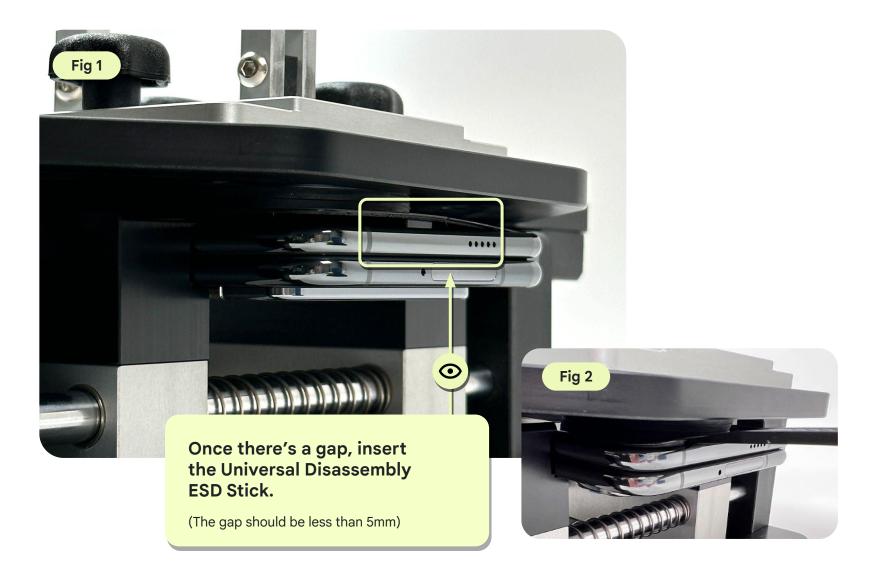
## Use the fixture

- Rotate the knob slowly to separate the outer display from the enclosure, as shown in Fig 1.
- Until there's a gap (gap <=5 mm), insert the ESD spudger to slide the top side thoroughly, as shown in Fig 2.
- After they are separated from the top side, insert the ESD spudger to prevent the adhesive from sticking back.



### Use caution

Be careful not to push the Universal Disassembly ESD stick beyond the adhesive surface to avoid damage to the screen, battery, or internal components.



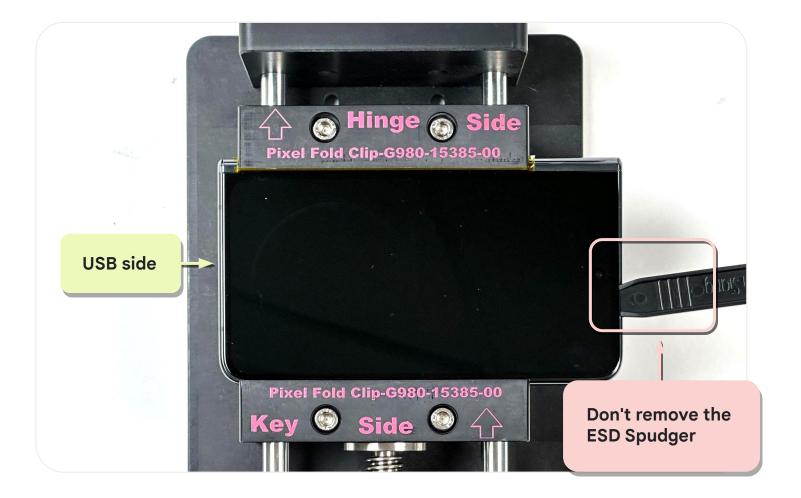
## Release suction cup and lid

- Release the suction cup and open the lid.
- Don't remove the ESD Spudger from the device.



### Note

Reattach the OD protective film after taking out the device from the fixture.



Welcome

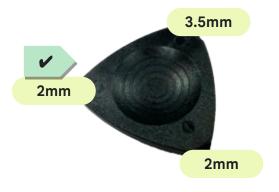
Precautions

## **Separate OD**

### Manually slide the pick in this sequence:

2 → 3 → 4 → 5 around the left side → bottom side → right side. (Clockwise) with **Universal Disassembly ESD pick** (2.0mm)





### Disassemble Sequence:

1 (in fixture)  $\rightarrow$  2  $\rightarrow$  3  $\rightarrow$  4  $\rightarrow$  5 (out of fixture)

Outer Display

Lower Board

Flip Cowling with Vibrator

Top Speaker

Upper Board

Outer Front Camera

Detune Board

Receiver

Flip Battery

Inner Display Sub

## Hold the OD

Once the device is open, use the **Universal adsorption bulb** to hold the OD.



### **Use Caution**

Pay special attention to the driver IC (COF) area to avoid damaging it.



### Remove the screw

- Place the Pixel Fold-OD Screw cover on the Pixel Fold-Holder.
- Remove five Flip Bottom cowling Screws with an Adjustable torque screwdriver with Screwdriver Hex Shank Torx Plus Bit no.3., then remove the Pixel Fold-OD Screw cover.

Part: G250-06696-00\*5(Screw)



### Note

Don't reuse the part



## Remove the flip bottom cowling

- If Rubber Support 1 or Rubber Support 2 are damaged, remove it with ESD Tweezers.
   (Skip this step if the two Rubbers are not damaged.)
- Remove the Flip Bottom cowling with ESD Tweezers.

Part: G804-00872-01 (Rubber Support 1)

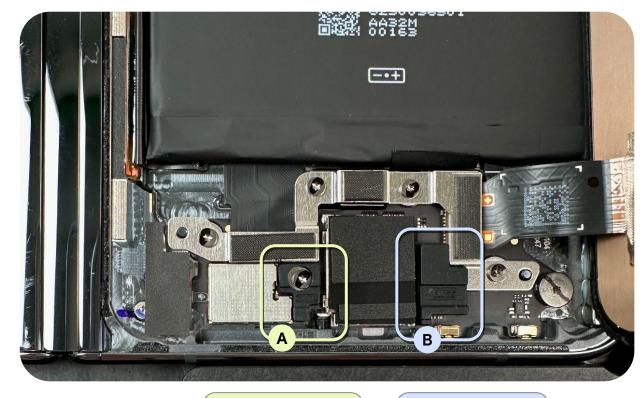
Part: G804-00871-01 (Rubber Support 2)

Part: G730-06506-01 (Flip Bottom cowling)



### Note

Don't reuse Rubber Support 1 or Rubber Support 2 if they were removed.



A: G804-00872-00

B: G804-00871-00

Finished! Need assembly instructions? →

## Disconnect bottom bridge fpc and OD

- Loosen the two **Bottom Bridge fpc** B2B connectors from the **Lower Board** with a **Universal fish line tool**.
- Loosen the **OD** B2B connector with the **Universal fish line** and then remove the **OD**.



### Use caution

Avoid the short circuit of the flip battery.



### Note

Use the **Universal fish line tool** to avoid damage to the components.



Disassembly-Flip Welcome Precautions Introduction Repair Flows Disassembly-Base Assembly-Base Assembly-Flip Troubleshooting Software



# Lower board

The Lower Board communicates with components such as the SIM card and Outer Display.

Be aware that a replacement SIM Tray will not have the IMEI number present.



#### Use caution!

Review all **safety precautions** before beginning work.



### Prerequisites

Remove the following components first:

**Outer Display** 



Pixel Fold-Holder

Adjustable torque screwdriver

Screwdriver Hex Shank Torx Plus Bit no.3.

**ESD Spudger** 

Universal fish line tool

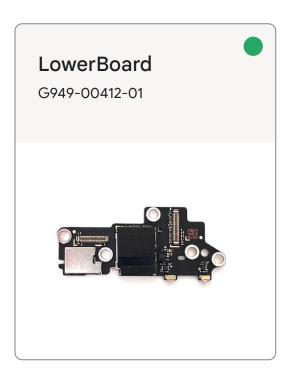
Dust-free Cotton swabs

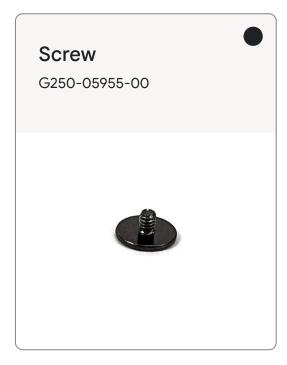
Sankol lubricant CFD 409Z\_V2

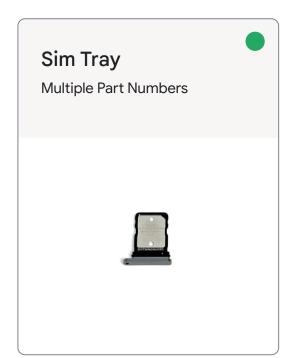


### Lower board

The parts listed are for the Lower Board disassembly.







Reuse indications

Reusable without Cleaning

Reusable after Cleaning

Not Reusable after disassembly

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## Remove SIM tray

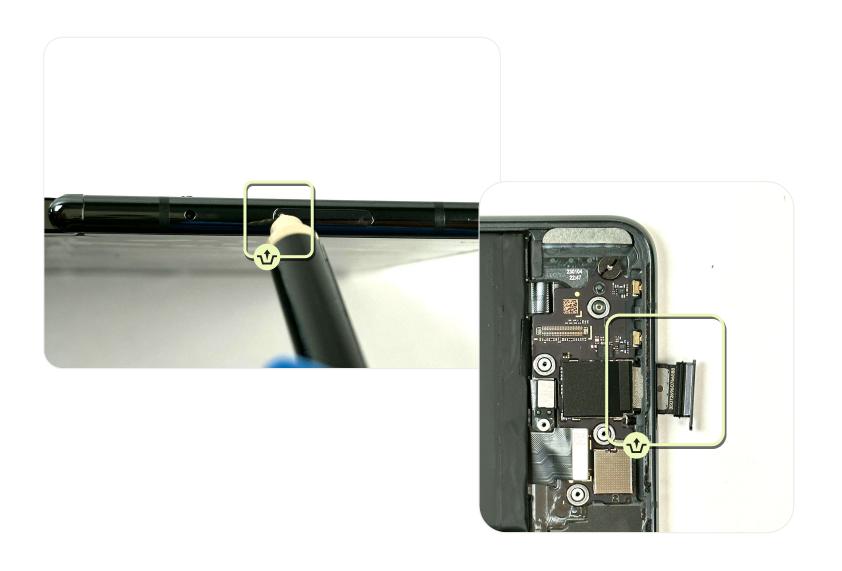
Remove the SIM Tray with a Universal fish line tool.

Part: Multiple Part Numbers (SIM Tray)



#### **Use Caution**

Be careful to avoid scratches on the **Enclosure**.



### Remove the screw

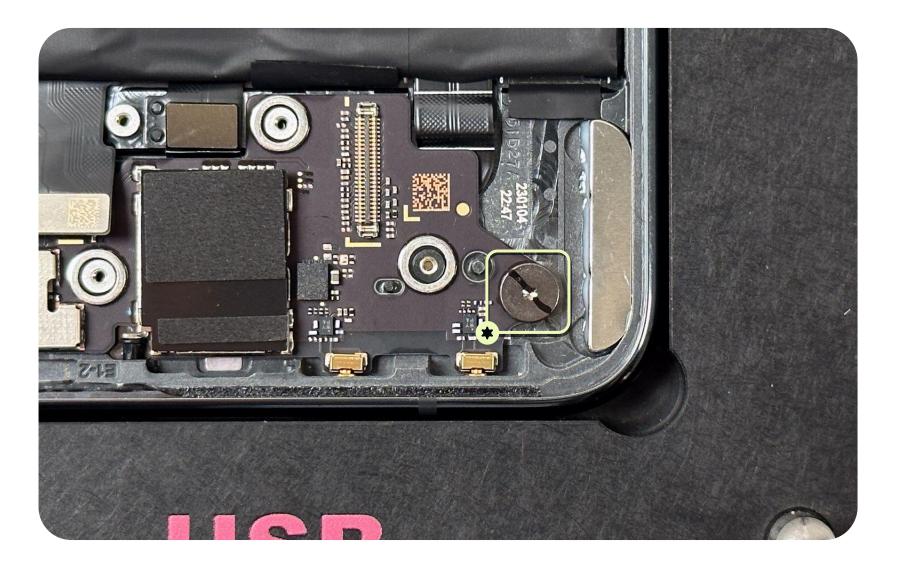
Remove the Lower Board **Screw** with an **Adjustable torque screwdriver** with **Screwdriver Hex Shank Torx Plus Bit no.3**.

Part: G250-05955-00 (Screw)



### Note

Don't reuse the part.



Welcome Precautions Introduction

Finished! Need assembly instructions? →

### Remove lower board

Remove the Lower Board from the **Upper Right Corner** with **ESD Tweezers**.

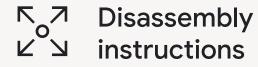
Part: G949-00412-01 (Lower Board)



### Note

To avoid damage to the components, use **ESD tweezers**.





# Flip cowling with vibrator

Flip top cowling PSA must be replaced by a new one after the flip cowling with vibrator is disassembled.



#### Use caution!

Review all **safety precautions** before beginning work.



### **Prerequisites**

Remove the following components first:

**Outer Display** 



Pixel Fold-Holder

Pixel Fold-OD Screw Cover

Adjustable torque screwdriver

Screwdriver Hex Shank Torx Plus Bit no.3.

**ESD Spudger** 

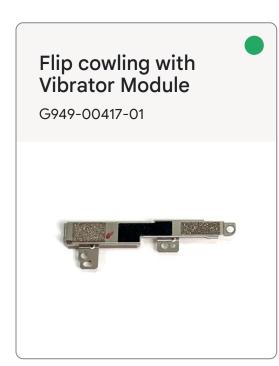
**ESD Tweezers** 

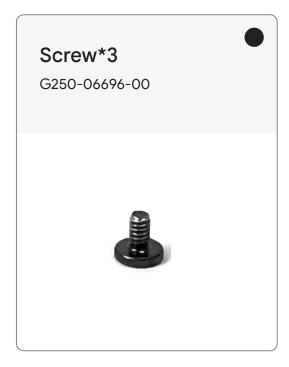
IPA and cloth

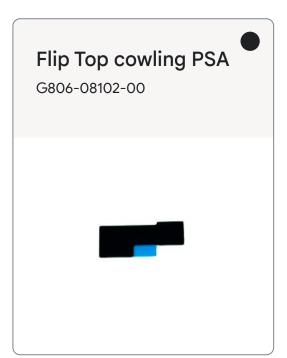


### Flip cowling with vibrator

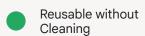
The parts listed are for the Flip cowling with vibrator disassembly.

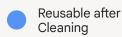


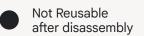




**Reuse indications** 







### Remove the screw

- Place the Pixel Fold-OD Screw Cover on the Pixel Fold-Holder.
- Remove three Flip cowling Screws with an Adjustable torque screwdriver with Screwdriver Hex Shank Torx Plus Bit no.3., then remove the Pixel Fold-OD Screw Cover.

Part: G250-06696-00\*3 (Screw)



#### Note

Don't reuse the part.



Welcome Precautions Introduction

Assembly-Base

Finished! Need assembly instructions? →

## Remove Flip cowling with Vibrator

Remove the Flip cowling with Vibrator with ESD Tweezers.

Part: G949-00417-01 (Flip cowling with Vibrator)



Disassembly-Base Assembly-Base Disassembly-Flip Welcome Precautions Introduction Repair Flows Assembly-Flip Troubleshooting Software



# Top speaker

The Top Speaker is used as a third speaker for music and video.



### Use caution!

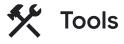
Review all **safety precautions** before beginning work.



### Prerequisites

Remove the following components first:

- Outer Display
- Flip Top cowling w/Vibrator



Pixel Fold-Holder

**ESD Spudger** 

**ESD Tweezers** 

Universal fish line tool

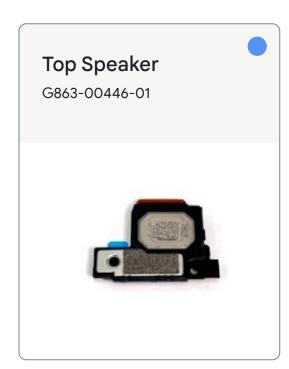
IPA and cloth

Dust-free Cotton swabs



### Top speaker

The parts listed are for the Top Speaker disassembly.





Reuse indications

Reusable without Cleaning

Reusable after Cleaning

Not Reusable after disassembly

## Disconnect upper board

Loosen the Upper Board B2B connector with a Universal fish line tool.



#### Use caution

Disconnect the flip battery first before any upper board area repair.





#### Note

To avoid damage to the components, use the **Universal fish line tool**.



Outer Display

Lower Board

Flip Cowling with Vibrator

Top Speaker

Upper Board

Outer Front Camera

Detune Board

Receiver

Welcome

Finished! Need assembly instructions? →

### Remove top speaker

Remove Top Speaker from the right with ESD Tweezers.

Part: G863-00446-01 (Top Speaker)



#### **Use caution**

Be careful not to push the ESD tweezers beyond the top speaker to avoid damage to the springs of the upper board.





Outer Display Lower Board Flip Cowling with Vibrator

**Top Speaker** 

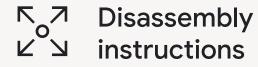
Outer Front Camera

Detune Board

Receiver

Flip Battery

Inner Display Sub



# Upper board

The Upper Board consists of P Sensor, Light Sensor and communication components such as Upper Bridge fpc and Outer Front Camera.



### Use caution!

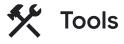
Review all **safety precautions** before beginning work.



### Prerequisites

Remove the following components first:

- Outer Display
- Flip Top cowling w/Vibrator
- Top Speaker



Pixel Fold-Holder

**ESD Spudger** 

**ESD Tweezers** 

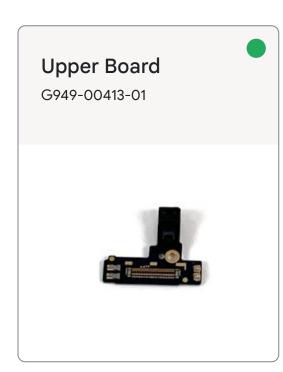
Troubleshooting

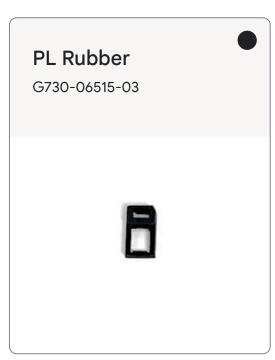
Software



### **Upper board**

The parts listed are for the Upper Board disassembly.







## Remove upper board

Remove **Upper Board** with an **ESD spudger**.

Part: G949-00413-01 (Upper Board)



Welcome

Finished! Need assembly instructions? →

### Remove P sensor rubber

Remove P Sensor Rubber with ESD Tweezers.

Part: G730-06515-03 (P Sensor Rubber)



#### Use caution

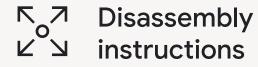
Skip this step if the P sensor rubber has no damage.



#### Note

Don't reuse the part.





# Outer front camera

The Outer Front Camera is not fastened to the enclosure. It's connected to the Upper Board.



### Use caution!

Review all **safety precautions** before beginning work.



### Prerequisites

Remove the following components first:

- Outer Display
- Flip Top cowling w/Vibrator
- Top Speaker
- Upper Board



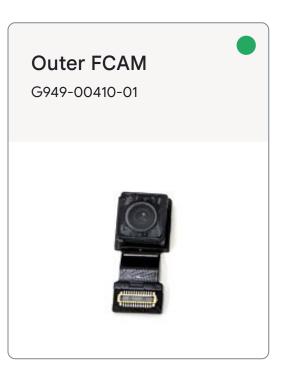
Universal fish line tool

Software

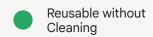


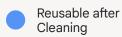
### **Outer front camera**

The parts listed are for the Outer Front camera disassembly.



**Reuse indications** 





Not Reusable after disassembly

Welcome

Precautions

Introduction

Repair Flows

Disassembly-Base

Assembly-Base

Disassembly-Flip

Finished! Need assembly instructions? →

### Remove outer front camera

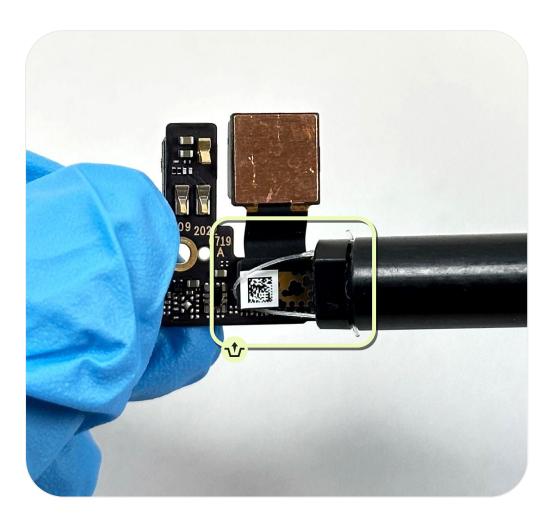
Loosen Outer Front Camera connector and disconnect from the Upper Board with a Universal fish line tool.

Part: G949-00410-01 (Outer Front Camera)

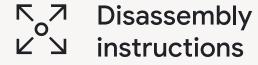


#### Note

To avoid damage to the components, use the **Universal fish line tool**.



Disassembly-Flip Welcome Precautions Introduction Repair Flows Disassembly-Base Assembly-Base Assembly-Flip Troubleshooting Software



## Detune board

The Detune Board is enhancing the RF signal when device is in fold mode and adhered to the Enclosure. Replace with a new PSA if it is removed.



#### Use caution!

Review all **safety precautions** before beginning work.



### Prerequisites

Remove the following components first:

- Outer Display
- Flip Top cowling with **Vibrator**



Pixel Fold-Holder

Universal Disassembly ESD stick

**ESD Spudger** 

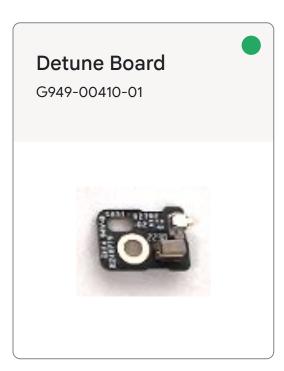
**ESD Tweezers** 

IPA and cloth



### **Detune board**

The parts listed are for the Outer Front camera disassembly.







Finished! Need assembly instructions? →

### Remove detune board

Remove **Detune Board** from **the Gap**, as shown in Fig 1, with an **ESD Stick**.

Part: G949-00414-01 (Detune Board)



Disassembly-Base Assembly-Base Disassembly-Flip Assembly-Flip Welcome Precautions Introduction Repair Flows Troubleshooting Software



# Receiver

The Receiver is used as an ear speaker to make calls. Be careful not to damage the Receiver fpc.



### Use caution!

Review all **safety precautions** before beginning work.



### Prerequisites

Remove the following components first:

- Outer Display
- Flip Top cowling w/Vibrator
- Top Speaker
- Upper Board



Pixel Fold-Holder

Universal Disassembly ESD stick

**ESD Spudger** 

**ESD Tweezers** 

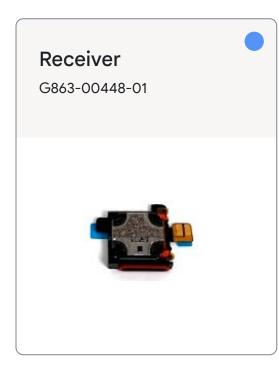
IPA and cloth

Dust-free Cotton swabs



### Receiver

The parts listed are for the UWB fpc disassembly.







Reuse indications

Reusable without Cleaning

Reusable after Cleaning

Not Reusable after disassembly

Finished! Need assembly instructions? →

### Remove receiver

- Remove the **Receiver** with an **ESD spudger**.
- Part of the fpc is adhered to the enclosure, so slowly peel it away. Otherwise the metal sheet will separate from the fpc. Refer to Fig 1 and Fig 2.

Part: G863-00448-01 (Receiver)



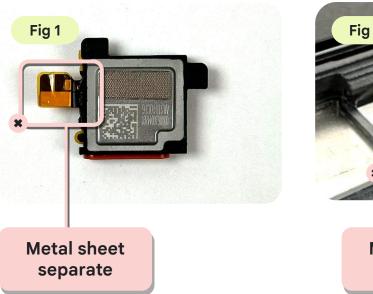
#### **Use caution**

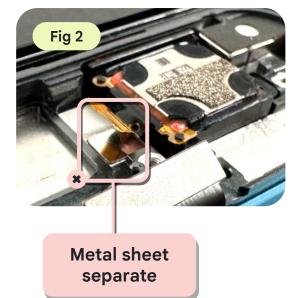
Be careful to avoid damage to the components on the **receiver**.

### CPSA area









Outer Display

Lower Board

Flip Cowling with Vibrator

Top Speaker

Upper Board

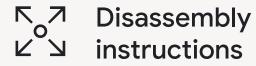
Outer Front Camera

Detune Board

Receiver

Flip Battery

Inner Display Sub



# Flip battery



### Use caution!

Use caution if engaging in repair.

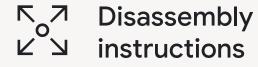
Opening and/or repairing a device can present electric shock, device damage, fire and personal injury risks, and other hazards.

Before servicing the product, read the full set of **precautions** in this document.



### **Confirm Before Proceeding**

- Battery is fully discharged
- Inspect the battery if the phone battery shows signs of <u>swelling or damage</u>, or if the phone feels hot or emits strong odor, don't attempt disassembly.
- Take care not to expose the phone or its components to liquids once disassembled.



# Flip battery

We recommend that you remove the flip battery PSA with ESD Tweezers in Pixel Fold-Holder.



### Use caution!

Review all **safety precautions** before beginning work.



### Prerequisites

Remove the following components first:

- Outer Display
- Lower Board



Universal Disassembly Fixture

Pixel Fold-Holder

Pixel Fold-Battery Press (Flip)

Universal Base

**Universal Press** 

**ESD Tweezers** 

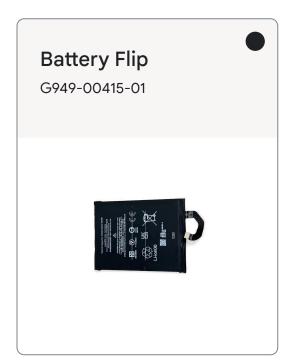
**ESD Spudger** 

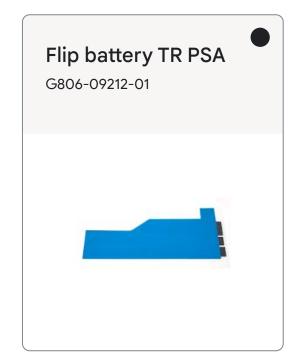
Table C-Clamp



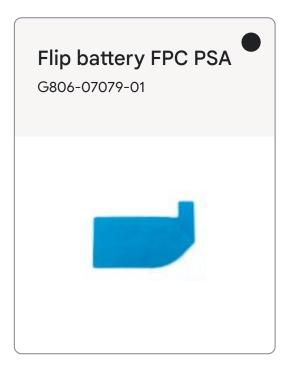
### Flip battery

The parts listed are for the Flip battery disassembly.









Reusable without Cleaning

**Reuse indications** 

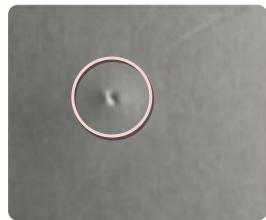
Reusable after Cleaning Not Reusable after disassembly



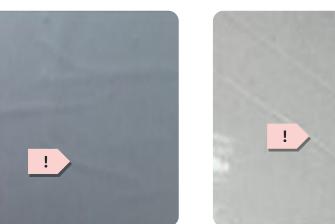
Pouch damage

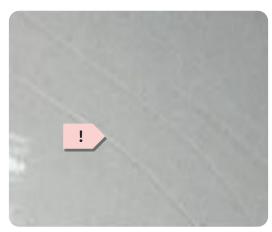
**Dent** 

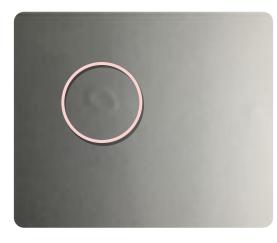
### Examples of unacceptable battery conditions - Not suitable for repair\*

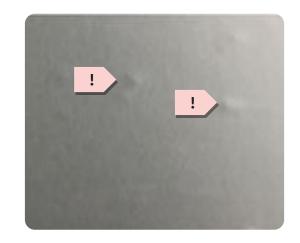








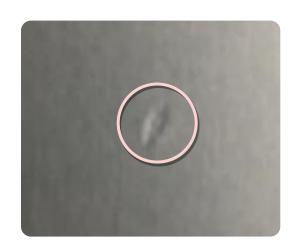




Scratch

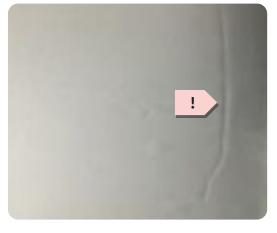
**Contamination marking** 

Dot protrusion





Line protrusion





Swelling or electrolyte leakage

Outer Display

Lower Board

Flip Cowling with Vibrator

Top Speaker

Imprinted line

Upper Board

Outer Front Camera

Detune Board Receiver

Flip Battery

Inner Display Sub

<sup>\*</sup>These are examples of potentially dangerous battery conditions but don't reflect all possible dangerous conditions. Please follow general safety guidance outlined in this document.

## Where are battery PSA tabs

- There are six battery PSAs between the Flip Battery and the Enclosure.
- Each adhesive strip has a black pull-tab at the end, which is lightly adhered to the edge of the battery.
- PSA #5 is **under** the Flip Battery fpc.





## Remove battery PSA

Grab the first pull-tab with ESD Tweezers then pull out a certain length and wrap it around the ESD Tweezers. Continue the same procedure until the PSA pull-tabs are completely removed.

Part: G806-09212-01 (Flip Battery TR PSA)

Part: G806-09213-01 (Flip Battery TL PSA)



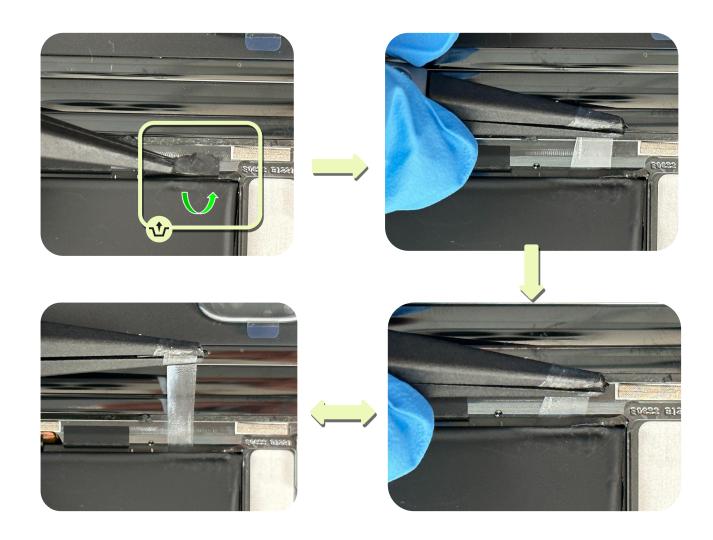
#### **Use caution**

The **ESD tweezers** help avoid damage to the battery.



#### Note

Don't reuse the part.



Outer Display

Lower Board

Flip Cowling with Vibrator

Top Speaker

Upper Board

Outer Front Camera

Detune Board

Receiver



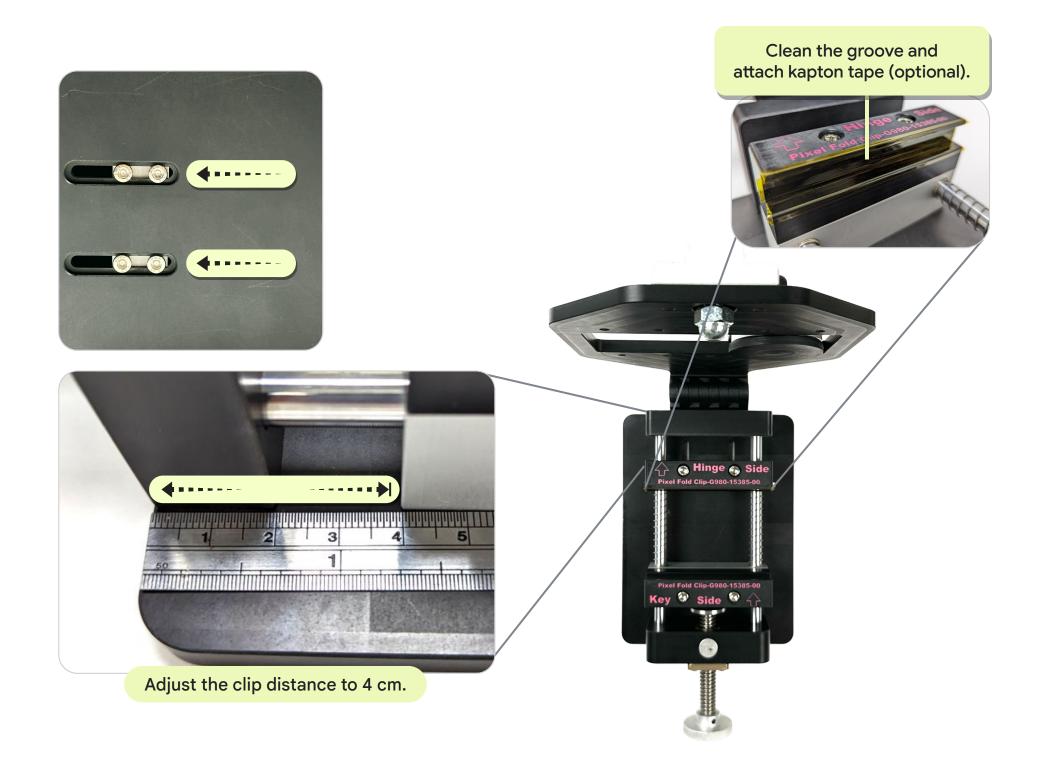
## Adjust fixture

- If the Flip Battery PSAs breaks off, adjust the device clip distance to 4 cm before removing the flip battery.
- Clean the groove with alcohol using a dust free cloth.



### Note

Lock the distance for BG, OD, and flip battery disassembly.



Outer Display

Lower Board

Flip Cowling with Vibrator

Top Speaker

Upper Board

Outer Front Camera

Detune Board Receiver

Flip Battery

Inner Display Sub



## Adjust fixture- continued

- Use **one** suction cup.
- Adjust the right suction cup to the 2nd hole from the right, as shown in Fig 1.





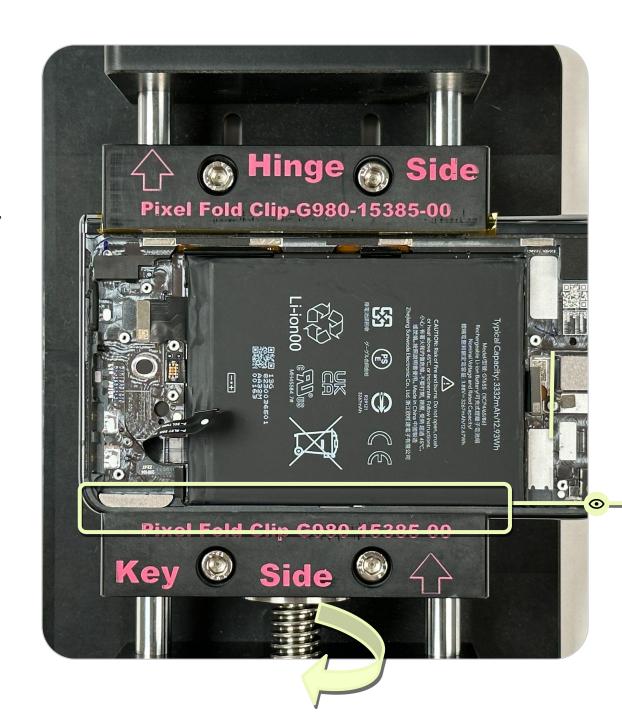
### Use fixture

- Place the device in the Universal Disassembly Fixture.
- Align the line on the shell edge with the fixture (the yellow line), as shown in Fig 1.
- Tighten the screw to secure the device in the holder.



#### Note

There is a groove which can help avoid accidental press of the power button.







Outer Display

Lower Board

Flip Cowling with Vibrator

Top Speaker

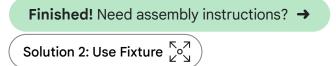
Upper Board

Outer Front Camera

Detune Board Receiver

Flip Battery

Inner Display Sub



## Remove battery

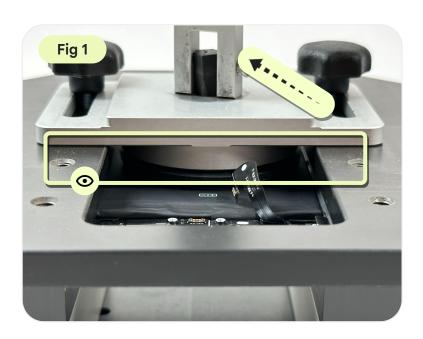
- Close the lid and align the suction cup underneath with the Flip Battery. Lift up the suction cup, as shown in Fig 1.
- Remove the Flip Battery, as shown in Fig 2.

Part: G949-00415-01 (Flip Battery).



#### Note

Don't reuse the part.





Outer Display

Lower Board

Flip Cowling with Vibrator

Top Speaker

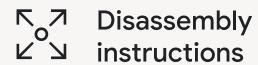
Upper Board

Outer Front Camera

Detune Board

Receiver Flip Battery

Inner Display Sub



## Inner display sub

If re-using the Inner Display sub (Flip Side), ensure that any adhesive residue is completely removed.



#### Use caution!

Review all **safety precautions** before beginning work.



#### **Prerequisites**

Remove the following components first:

- Outer Display
- Lower Board
- Flip Top cowling with **Vibrator**
- Top Speaker
- Upper Board
- Outer FCAM
- Detune Board
- Receiver
- Flip Battery



Pixel Fold-Holder

Universal Disassembly ESD stick

**ESD Tweezer** 

**ESD Spudger** 

Dust-free Cotton swabs

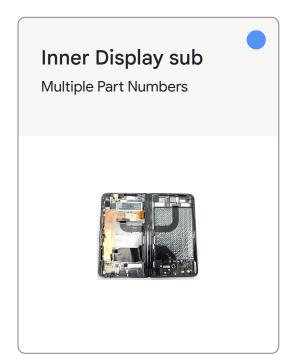
IPA and cloth

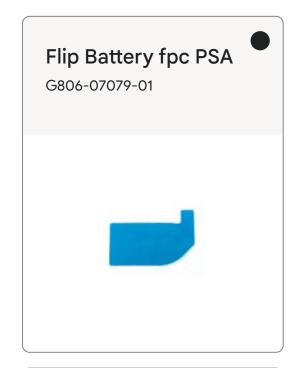
Deglue Machine

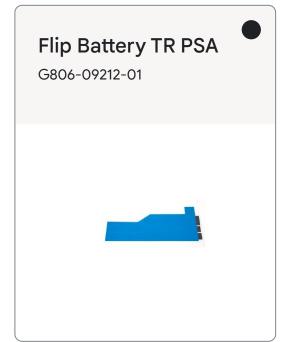


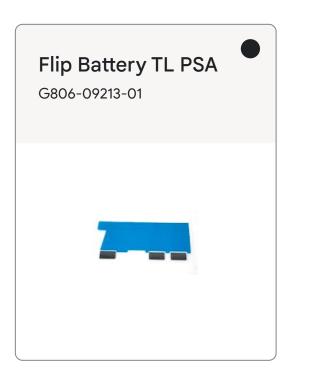
### Inner display sub (Flip side)

The parts listed are for the Inner Display sub disassembly.

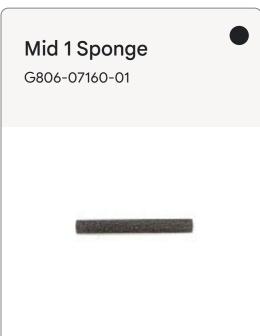


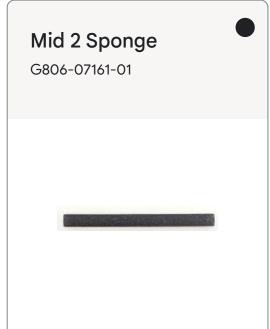






**Reuse indications** 







Not Reusable after disassembly

Reusable without

Cleaning

Reusable after

Cleaning



#### Pixel Fold Repair Manual

## Assembly-Flip

Inner display sub Flip cowling with vibrator

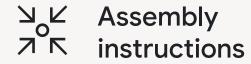
Receiver Flip battery

Detune board Lower board

Outer front camera Outer display

Upper board

Top speaker



## Inner display sub

lip side

## Using deglue machine

Wrap tape on the head of the deglue machine to avoid damage to the parts. It also makes the residual glue easier to roll up.



#### Re-use the enclosure

- Use an **ESD spudger** or deglue machine to clean the residual glue out of the **Enclosure**.
- If any residue remains, use a dust-free cloth with IPA to clean the surface.



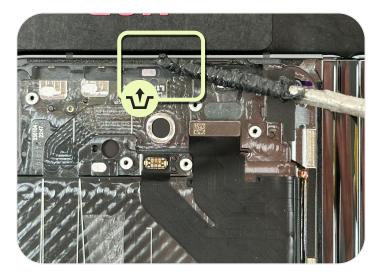
#### Use caution

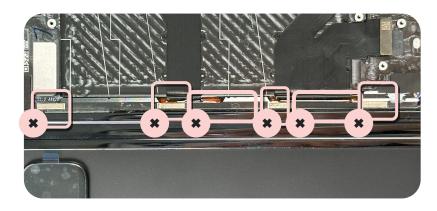
Be careful to avoid damage to the sponge and foam on the enclosure side while you deglue the residual glue.



#### Note

The yellow highlight is where the residual adhesive exists.







#### Re-use the enclosure

Replace the sponge or foam with new ones, if they are broken or damaged.

**G806-07160-01** (Mid 1 sponge)

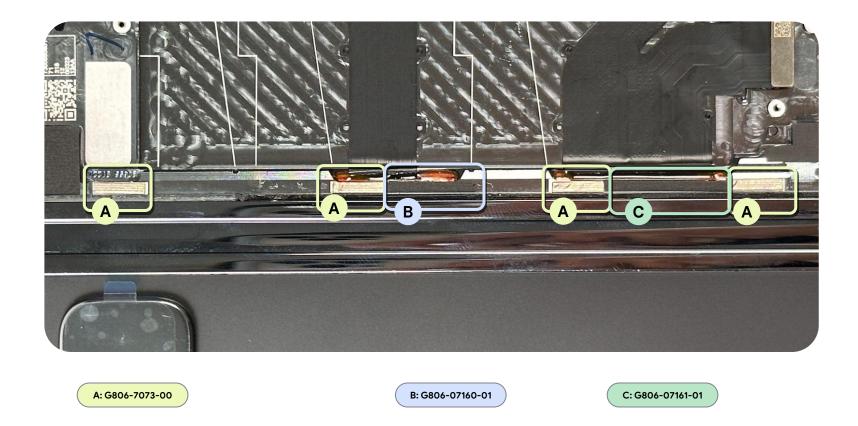
**G806-07161-01** (Mid 2 sponge)

G806-07073-01\*4 (Foam)



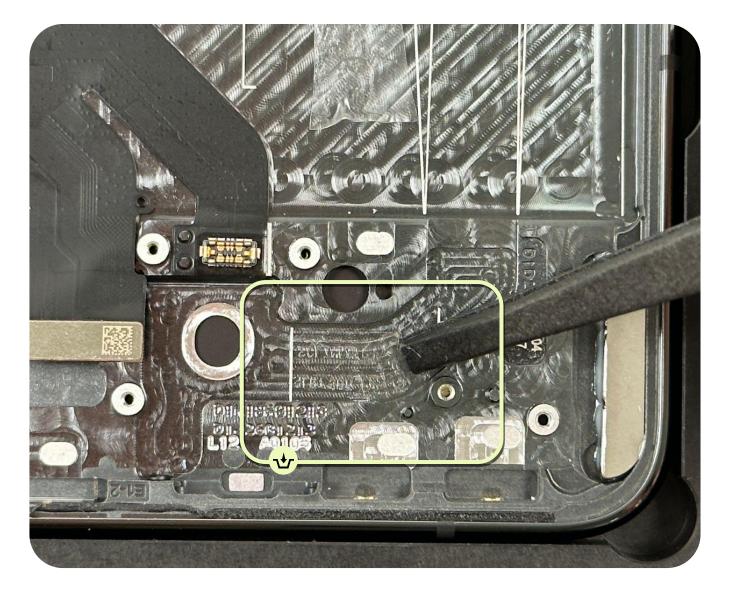
#### Note

Skip this step if the sponge and foam are not damaged or broken.



## Clean the battery FPC area

- Clean the residual on the flip battery FPC area with the **ESD tweezers**.
- Clean the **flip battery** FPC area with a dust-free cloth with IPA.



## Paste the flip battery PSA

Paste the flip battery FPC's PSA to the designated position.

Part: G806-07079-01 (Flip battery FPC PSA)



#### Note

The inner display sub includes the flip battery FPC PSA. This and the next step are only to change the flip battery if it's damaged.



## Clean the battery area

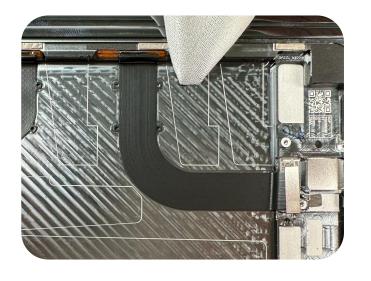
- Clean the residual in the **flip battery** area with an **ESD spudger**.
- Clean the **flip battery** area with a dust-free cloth with IPA.



#### Note

The inner display sub includes the flip battery PSA. This and the next three steps are only to change the flip battery if it's damaged.



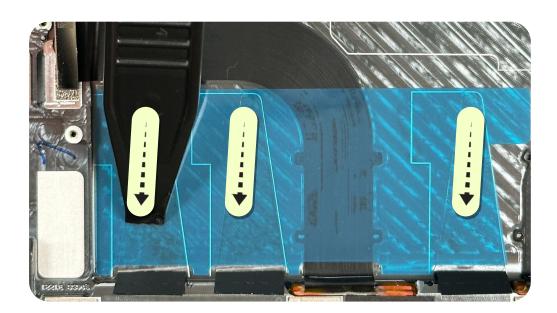


## Paste the flip battery PSA

- Paste the **flip battery TL PSA**, starting with the **bottom-left corner**.
- Scrape the PSA with an ESD spudger.

**Part: G806-09213-01** (Flip battery TL PSA)

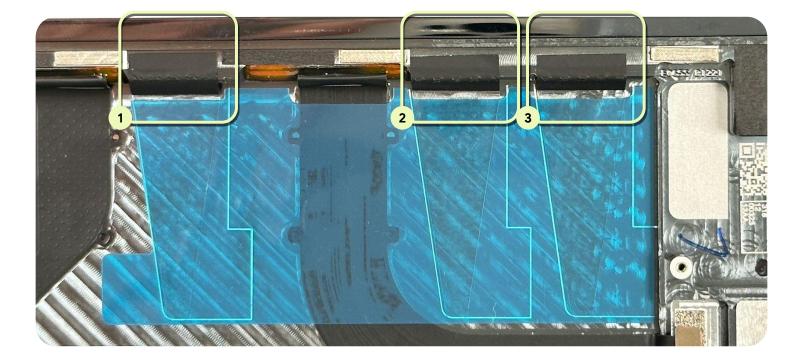




## Paste the flip battery PSA

Fold the three tabs and attach them to the enclosure.

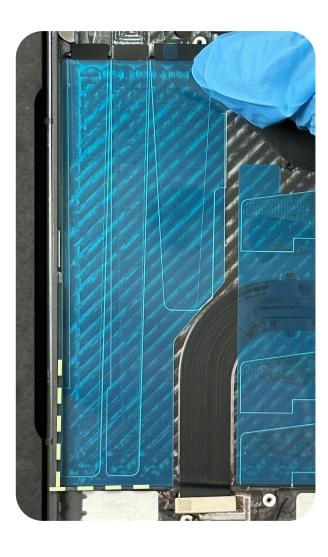
**Part:G806-09213-01** (Flip battery TL PSA)



## Paste the flip battery PSA

- Paste the **flip battery TR PSA**, starting with the **bottom-left** corner.
- Press the flip battery PSA with an ESD spudger.

Part:G806-09212-01 (Flip battery TR PSA)

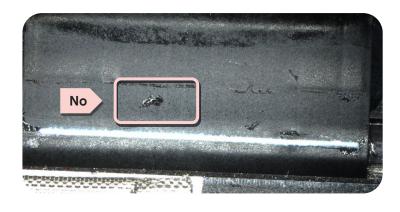


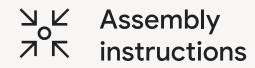


## Check the bridge FPC

Check that the upper and lower bridge aren't damaged or broken.



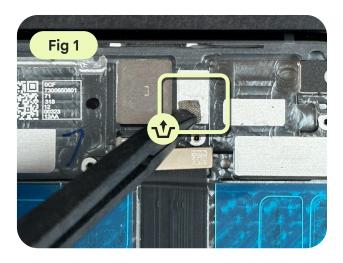


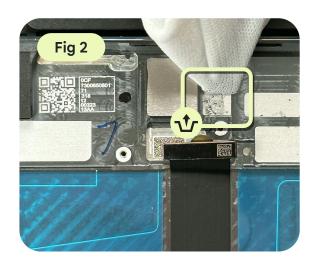


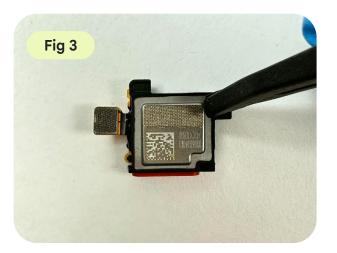
## Receiver

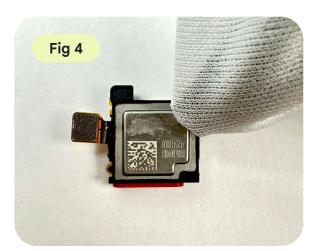
#### Clean the residual adhesive

- Remove the adhesive with the **ESD tweezers**, as shown in Fig 1 and Fig 3.
- Wrap the ESD spudger with a dust-free cloth and IPA to clean up the residual adhesive, as shown in Fig 2 and Fig 4.







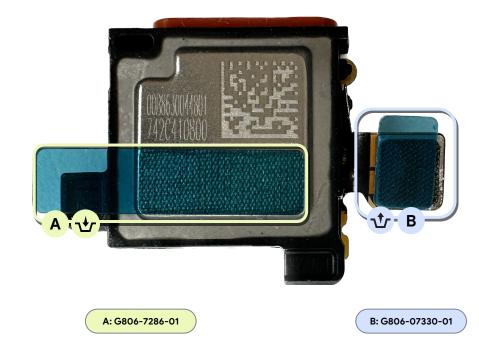


### Re-use the receiver

Attach the two CPSAs to the Receiver.

Part: G806-07286-01 (Receiver CPSA)

Part: G806-07330-01 (Receiver FPC PSA)



Disassembly-Base Assembly-Base Disassembly-Flip Assembly-Flip Software Welcome Precautions Introduction Repair Flows Troubleshooting

#### Attach the receiver

- Tear off the **orange liner** before you attach the **receiver**.
- Tear off the two release liners.
- Tilt the receiver and install into the enclosure.
- Press for **six** seconds.

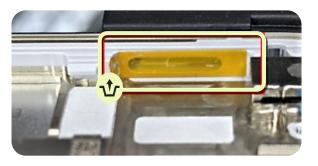
Part: G863-00448-01 (Receiver)

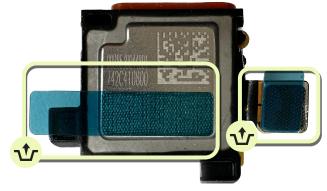


#### Note

Clean the rubber surface with dust-free cotton swabs before the installation.











Inner Display Sub

Detune Board

Outer Front Camera

Upper Board

Top Speaker

Flip cowling with vibrator

Flip Battery

Lower Board

Outer Display

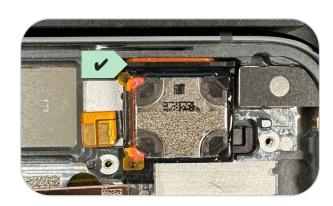
### Assemble the receiver

Check the receiver and pad are assembled well with the gasket fully seated.



#### Note

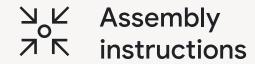
Make sure the receiver goes under the enclosure rim and pad over the wall.











## Detune board

#### Re-use the detune board

- Remove the adhesive with the **ESD tweezers**, as shown in Fig 1.
- Wrap the **ESD spudger** with a dust-free cloth with IPA to clean up the residual adhesive.
- Stick the **Detune board PSA** to the designated position, as shown in Fig 2.

Part: G806-07811-01 (Detune board PSA)



#### Use caution

Skip this and the next step if the adhesive has no damage.





### Assemble the detune board

Remove the release liner from the flip enclosure. Assemble the **detune board** to the enclosure. Be sure to push the **detune board** into the retaining wall, as shown in Fig 2.

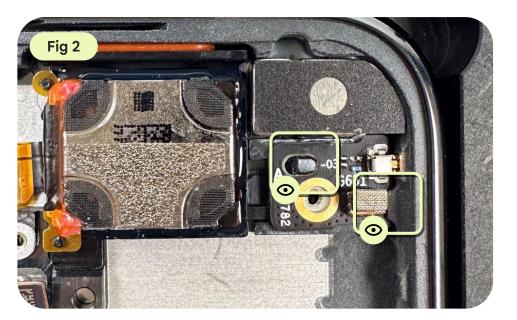
Part: G949-00414-01 (Detune board)

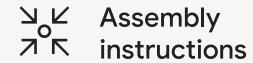


#### Note

Install the detune board into the hook from right side.







## Outer front camera

### Connect outer front camera

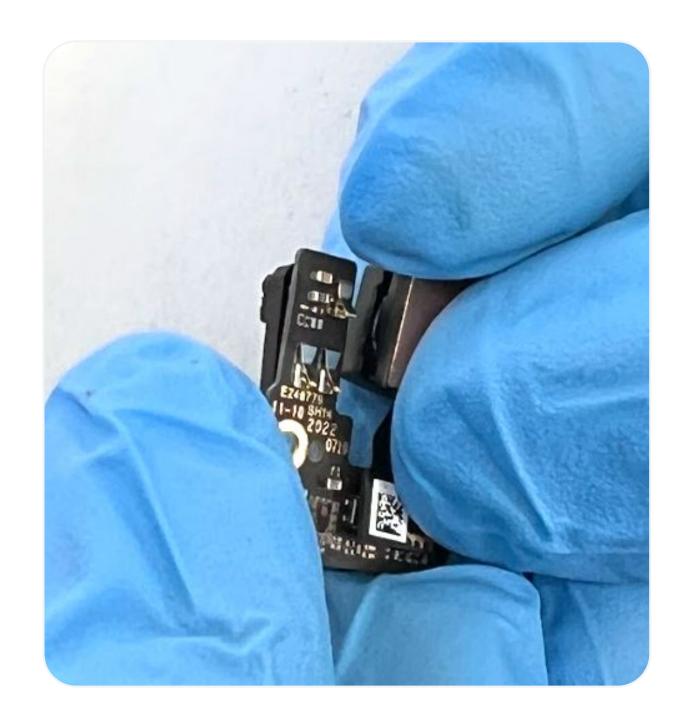
Attach the Outer FCAM connector to the Upper Board,

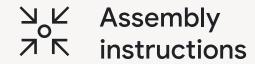
Part: G949-00410-01 (Outer Front Camera)



#### Note

Check that every connector is fully attached to the **Upper board.** 





## Upper board

## Assemble the upper board

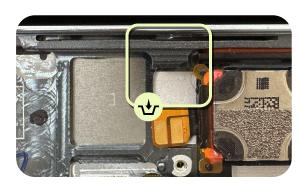
Install the upper board to the enclosure.

Part: G949-00413-01 (Upper board)



#### Note

Install the upper board under the hook. Refer to the relative position shown in the images.







Disassembly-Base Assembly-Base Assembly-Flip Welcome Precautions Introduction Repair Flows Disassembly-Flip Troubleshooting Software

### Assemble the P sensor rubber

- Assemble the P sensor rubber to the upper board with the ESD tweezers.
- Check whether the rubber is deviated or missing, as shown in Fig 1, Fig 2, and Fig 3.

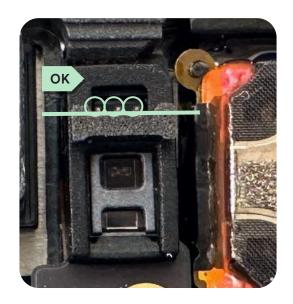
Part: G730-06515-03 (P sensor rubber)

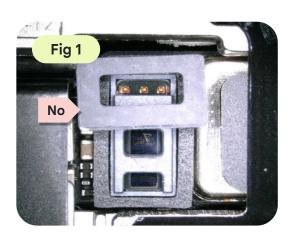


#### Note

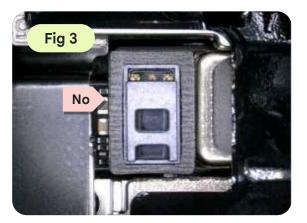
Skip this step if the rubber has no damage or breaks.











Inner Display Sub

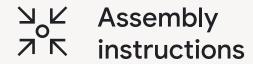
Top Speaker

Flip cowling with vibrator

Flip Battery

Lower Board

Outer Display



## Top speaker

### Clean residual adhesive

- Remove the adhesive by the **ESD tweezers**, as shown in Fig 1.
- Wrap the ESD spudger with a dust-free cloth with IPA to clean up the residual adhesive, as shown in Fig 2.





## Re-use the top speaker

Adhere the **Top SPK CPSA** to the **Top Speaker** beginning at the bottom right corner.

Part: G806-07350-01 (Top SPK CPSA)



## Attach the top speaker

Tear off the liner. Install the **Top speaker** to the **Enclosure** and press, as shown in Fig 1.

Part: G863-00446-01 (Top speaker)



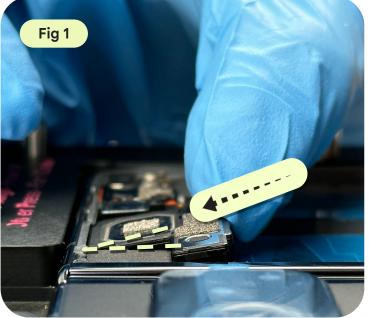
#### Note

Make sure the speaker goes under the enclosure rim.

Clean the rubber surface with the dust-free cotton swabs before the installation.







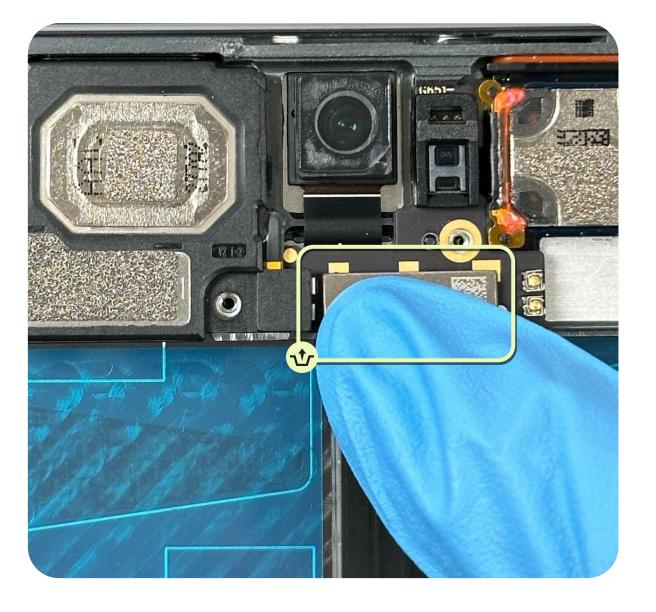
## Connect the upper bridge FPC

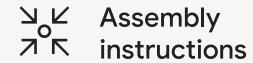
Attach the upper bridge B2B connector with the upper board.



#### Note

Check that every connector is fully attached.





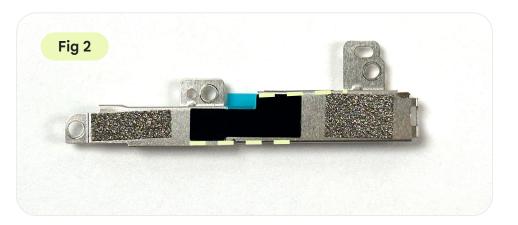
# Flip cowling with vibrator

## Re-use the flip top cowling

- Remove the adhesive with the **ESD spudger**, as shown in Fig 1.
- Wrap the ESD spudger with a dust-free cloth. Dip it in IPA to clean up any residue.
- Adhere the **Flip top cowling CPSA** to the designated position, as shown in Fig 2.

**Part: G806-08102-00** (Flip top cowling PSA)





## Assemble the flip top cowling

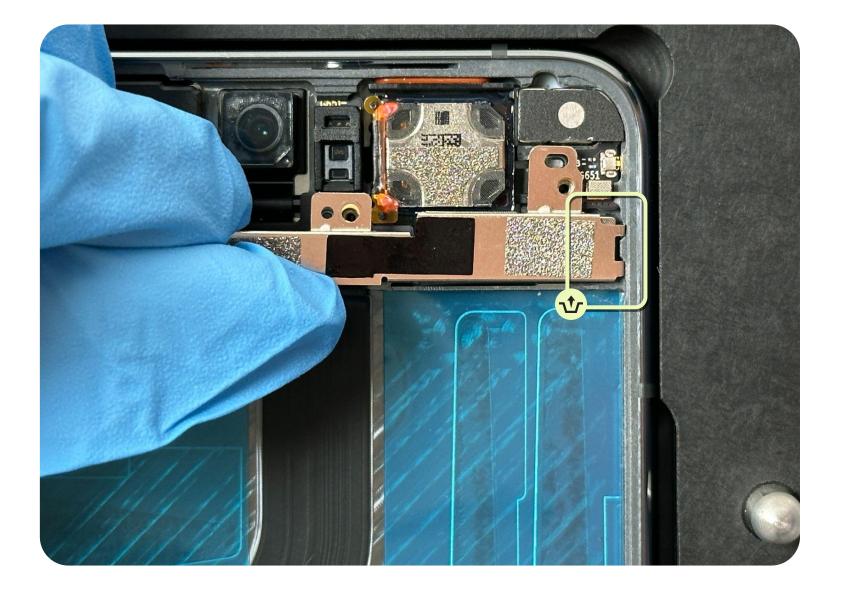
Assemble the **flip top cowling** to the enclosure from the **right side**.

Part: G949-00417-01 (Flip top cowling)



#### Note

Install the flip top cowling into the hook. Refer to the relative position shown in the image.



## Fasten the flip top cowling

- Place the Pixel Fold-OD screw cover on the Pixel Fold-Holder.
- Tighten the three screws with an **Adjustable torque screwdriver** with **Screwdriver Hex Shank Torx Plus Bit no.3**. in sequence.
- Re-tighten the screws, as shown in the figure.
- Take out the Pixel Fold-OD screw cover.

Part: G250-06696-00\*3 (Screws)



#### Use caution

Be careful that, when you use the screwdriver, you don't accidentally damage the adjacent battery.

Incorrect use of the screwdriver can cause injury to you, others, or damage to the battery or the product.



#### Note

Torque force: 0.9 ± 0.09 kgf-cm



Inner Display Sub

Receiver

Detune Board

Outer Front Camera

Upper Board

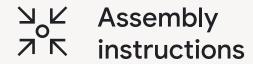
Top Speaker

Flip cowling with vibrator

Flip Battery

Lower Board

Outer Display



# Flip battery

### Tear off the liners

- Before installation, remove any debris or loose screws from the **enclosure**.
- Tear off the two flip battery PSA liners.
- Check the **bottom bridge FPC** position.

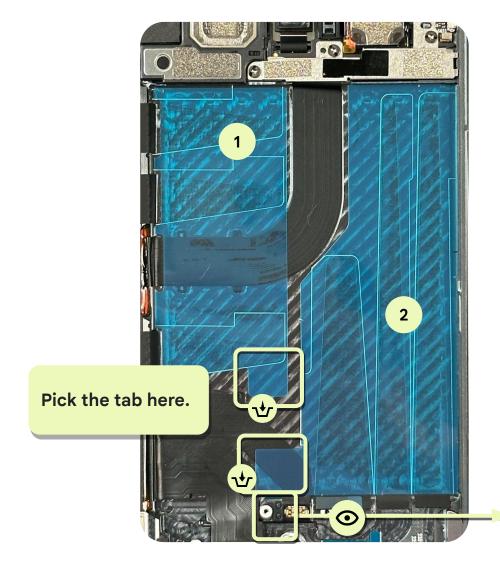
**Part:G806-09212-01** (Flip battery TR PSA)

Part: G806-09213-01 (Flip battery TL PSA)



#### Use caution

The **bottom bridge FPC** shouldn't cover the screw hole.





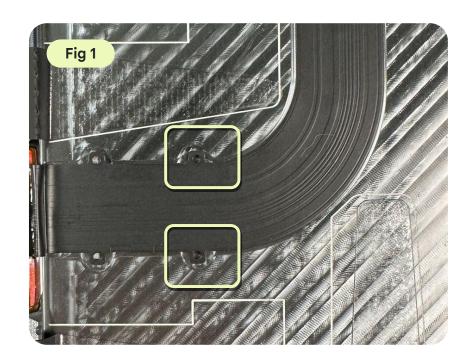
### Check the bridge FPC

- Check that the **upper bridge FPC** is in the designated position, as shown in Fig 1.
- Press the **upper bridge FPC** and make sure that the FPC is close to the side wall of the middle frame with an **ESD spudger**, as shown in Fig 2.



#### Use caution

Skip this step if you re-use the ID sub, or if the upper bridge FPC status check is OK.



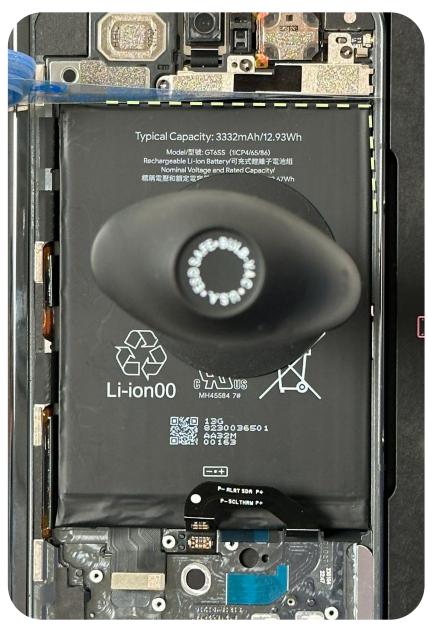


## Align the flip battery

- Place 0.1 mm feeler gauge against the wall (contact the locations A and B accordingly).
- Use the **Universal adsorption bulb** to pick up the **flip battery.** Align the upper-right corner of the enclosure and install the **flip battery** into the enclosure.
- Remove the 0.1 mm feeler gauge and Universal adsorption bulb.

Part:G949-00415-01 (Flip battery)

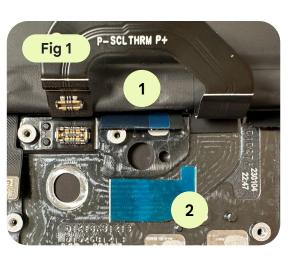




## Align the flip battery

- Tear off the **liner** from the flip battery TR PSA, as shown in Fig 1, and **fold** it up to the flip battery, as shown in Fig 2.
- Tear off the **flip battery FPC PSA's liner** from the enclosure, as shown in Fig 1.
- Attach the flip battery connector, then press the flip battery FPC to the enclosure.

Part: G806-07079-01 (Flip battery FPC PSA)







Outer Display

### Prepare to press

- Place the Pixel Fold-Holder on the Universal Base.
- Place the **Pixel Fold-Battery Press (Flip)** on the **Pixel Fold-Holder** with the two alignment pins in the appropriate locations.

Part: G949-00415-01 (Flip Battery)



### **Use Caution**

Make sure the two alignment pins are in the appropriate locations.



## Press together in fixture

- Place the Pixel Fold-Holder in the Universal Press.
- Press the handle down for **30** seconds.



### **Use Caution**

Pinch point. Keep your hands clear during operation.



## Press together in fixture

Return the handle to the original position and remove the **Pixel Fold-Holder**.



### Use caution

Keep your hands clear during operation.



Disassembly-Base Assembly-Base Assembly-Flip Welcome Precautions Introduction Repair Flows Disassembly-Flip Troubleshooting Software

# Tear off all of the masking **tape**Tear off all of the masking tape from the enclosure.

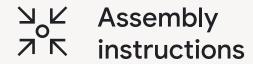


#### Use caution

Skip this step if you re-use the ID sub.



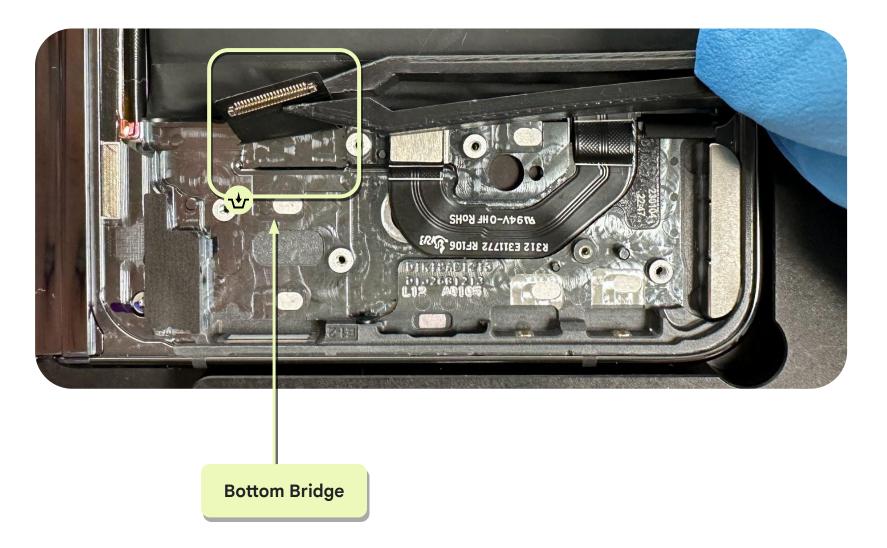
Inner Display Sub Flip cowling with vibrator Flip Battery Lower Board Outer Display Receiver Detune Board Outer Front Camera Upper Board Top Speaker



# Lower board

### Lift the connector

Lift up the **Bottom Bridge fpc** from the **Enclosure** with an **ESD Tweezer** to avoid trapping them under the **Lower Board**.



### Assemble lower board

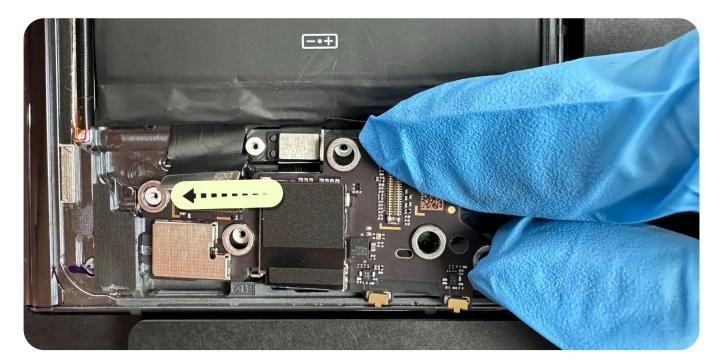
- Assemble the Lower Board to the enclosure from the Left Side.
- Make sure the two springs are contact the metal sheet from the enclosure, as shown in Fig 1.

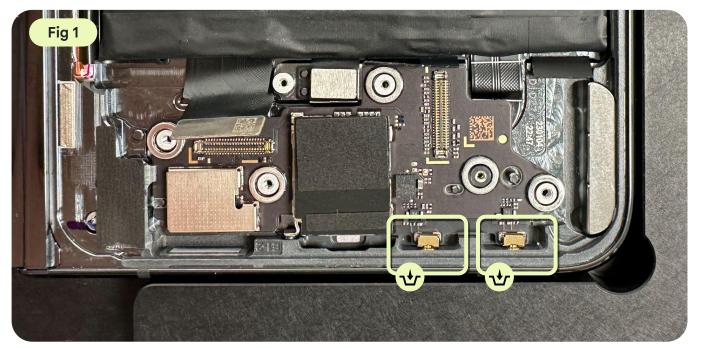
Part: G949-00412-01 (Lower Board)



#### Note

Install the Lower Board into the hook (yellow arrow).





Inner Display Sub

Receiver

Detune Board

Outer Front Camera

Upper Board

Top Speaker

Flip cowling with vibrator

Flip Battery

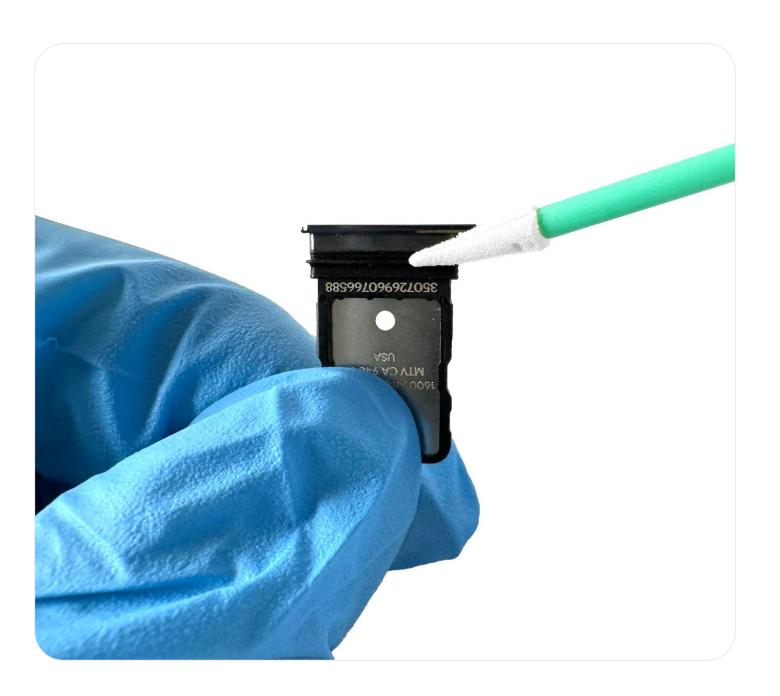
Lower Board

Outer Display

## **SIM tray**

Apply Sankol lubricant CFD 409Z\_V2 to the rubber of the SIM Tray with a dust-free cotton swab.

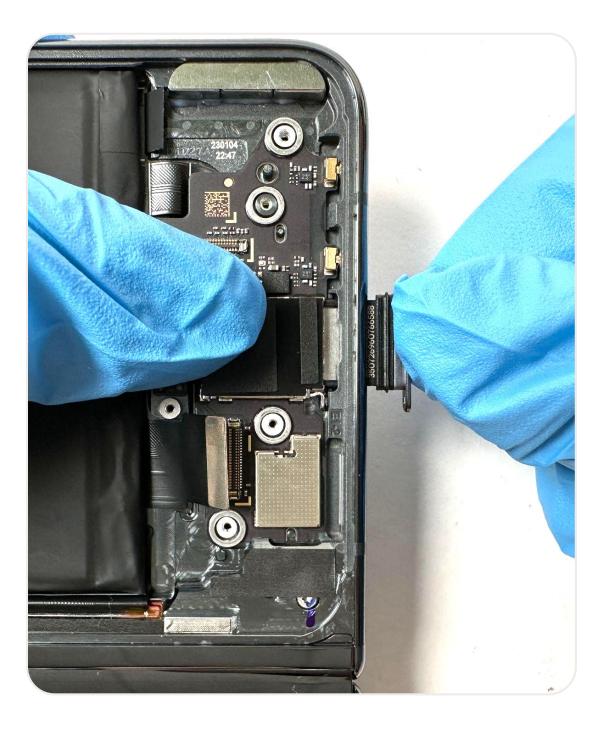
Part: Multiple Part Numbers (SIM Tray)



## **Insert SIM tray**

Hold the **Lower Board** and insert the **SIM Tray** with your hand.

Part: Multiple Part Numbers (SIM Tray)



### Fasten the screw

• Tighten the Screw with an Adjustable torque screwdriver with Screwdriver Hex Shank Torx Plus Bit no.3..

Part: G250-05955-00 (Screw)



### Note

Torque force: 0.9 ± 0.09 kgf-cm



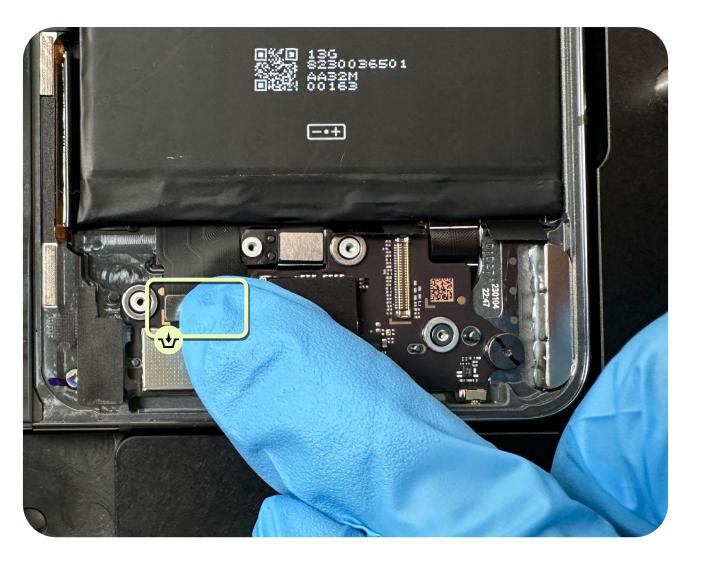
## Connect bottom bridge fpc

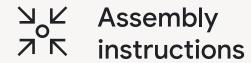
Attach the Bottom Bridge B2B connector to the Lower Board.



#### Note

Check that every connector is fully attached to the lower board.





# Outer display

Solution 1: Re-using outer display

Solution 1: Re-using outer display  $^{3}_{7}^{6}_{5}^{6}$ 

### Use the deglue machine

Wrap the tape on the head of the deglue machine to avoid damage to the parts and to make the residual glue easier to roll up.



#### Use caution

Keep your hands clear during operation.



Inner Display Sub

ceiver

Detune Board

Outer Front Camera

Upper Board

Top Speaker

Flip cowling with vibrator

Flip Battery

Lower Board

Outer Display



## Re-using the OD

- Use an **ESD spudger** or **Deglue Machine** to clean the residual glue out of the **OD**.
- If there is any residue remaining, use a dust free cloth with **IPA** to clean the surface.



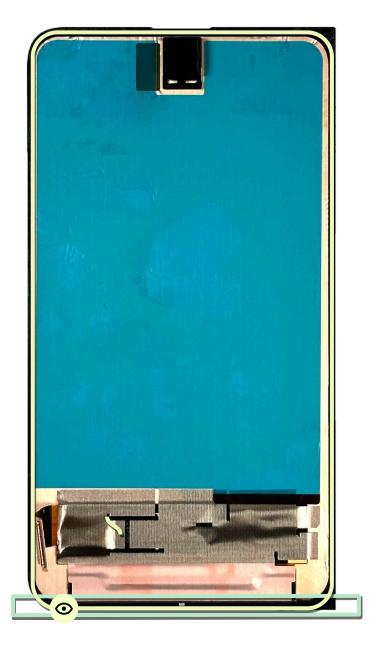
#### Use caution

Don't use deglue machine on the green area.



#### Note

The highlight is where the residual adhesive exists.





Inner Display Sub

Receive

Detune Board

Outer Front Camera

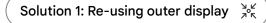
Upper Board

Top Speaker

Flip cowling with vibrator

Flip Battery

Lower Board



## Apply 3M AP111 primer

- Apply **IPA** around the edges of the **enclosure** with the **dust-free cotton swabs**. Use an **ionizing air fan** to blow over.
- Apply 3M AP111 primer around the edges of the enclosure with the dust-free cotton swabs. Use an ionizing air fan to blow over.



#### Use caution

After you apply the **primer**, complete the assembly in 25 mins.



Inner Display Sub

Receiver

Detune Board

Outer Front Camera

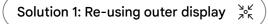
Upper Board

Top Speaker

Flip cowling with vibrator

Flip Battery

Lower Board



## Adhesive alignment

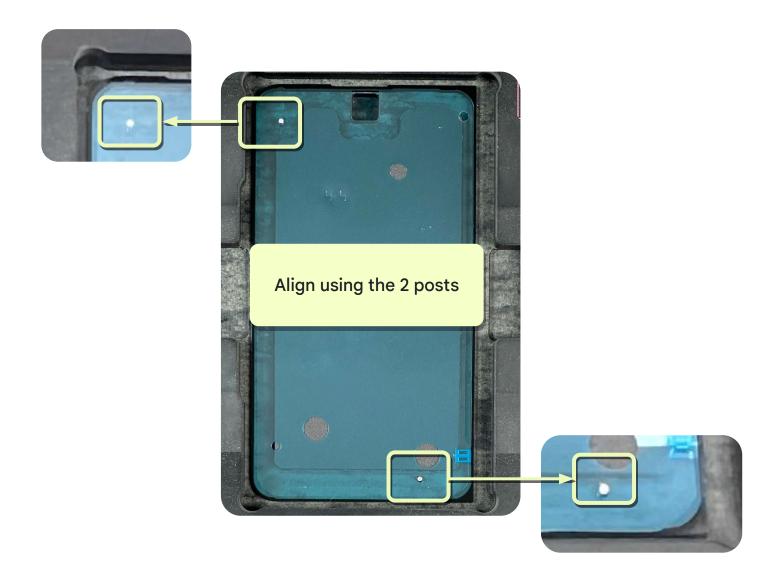
- Slowly remove the liner from the **Adhesive** with **ESD Tweezers**.
- Place the **Adhesive** in the **Pixel Fold-PSA Align** with the ESD Tweezers.

Part: G806-07074-02 (OD PSA)



#### **Use Caution**

Don't touch the adhesive. If it gets dirty, change for another one.





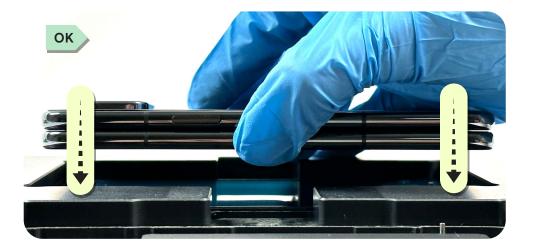
### **Enclosure to adhesive**

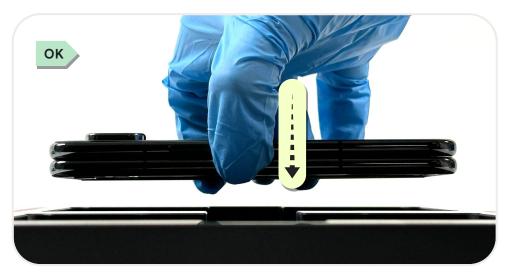
- Fold the device OD side face up.
- Vertically place the **Enclosure** into the pocket in the indicated direction.



### Note

Place it vertically.











Inner Display Sub

Receiver

Detune Board

Outer Front Camera

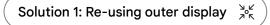
Upper Board

Top Speaker

Flip cowling with vibrator

Flip Battery

Lower Board



### **Activate the PSA**

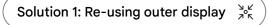
To enhance the bonding between the **enclosure** and **adhesive**, gently press all around the **adhesive** by hand.



### Note

Don't press on the visor area during the process.





### **Use Pixel Fold-Holder**

- Remove the **device** from the **Pixel Fold-PSA Align** vertically.
- Unfold the device and place into the Pixel Fold-Holder.



#### Note

Take the device out of the Enclosure vertically.

Don't put the device back inside the fixture, otherwise OD PSA and BG may be damaged.



Inner Display Sub

Receiver

Detune Board

Outer Front Camera

Upper Board

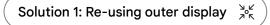
Top Speaker

Flip cowling with vibrator

Flip Battery

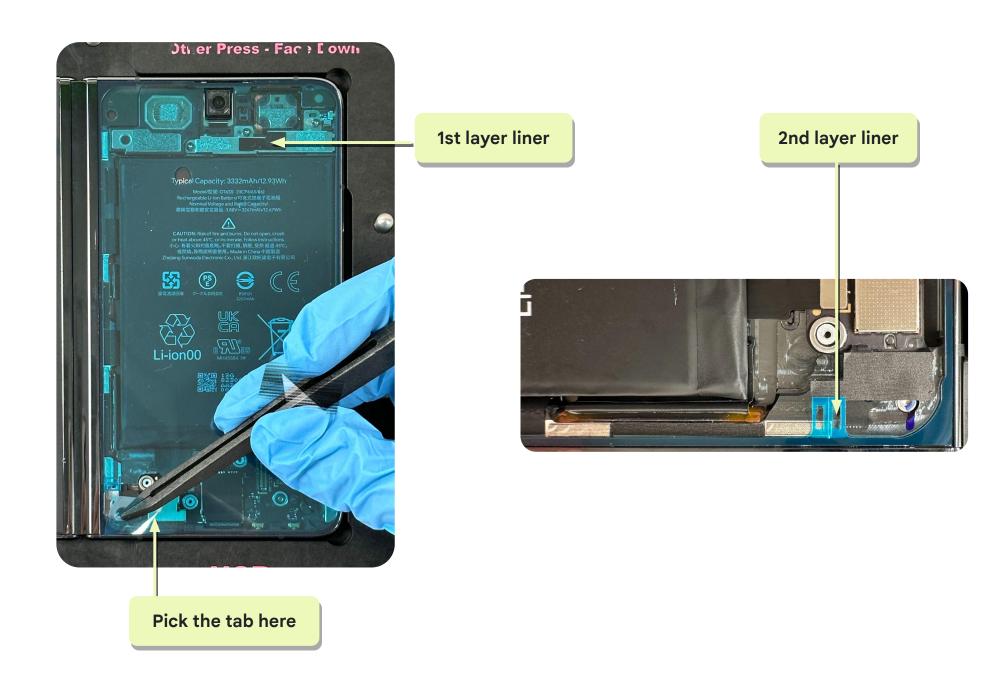
Lower Board

Outer Display



### Remove the liner

- Cut the tab, then use the pull tab on the bottom side to slowly pull the liner to avoid lifting the adhesive.
- Don't remove the second layer of the liner yet.



Inner Display Sub

Receiver

Detune Board

Outer Front Camera

Upper Board

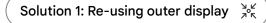
Top Speaker

Flip cowling with vibrator

Flip Battery

Lower Board

Outer Display



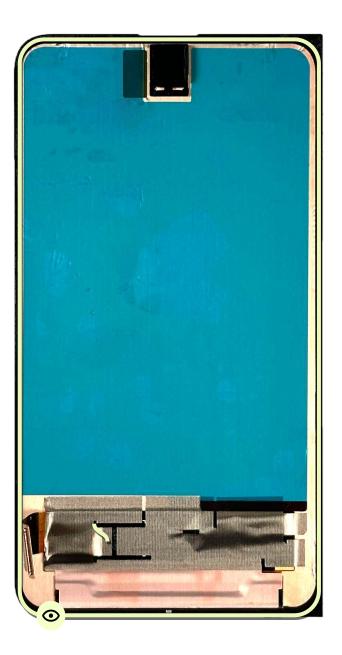
## Apply 3M AP111 primer on OD

- Apply IPA around the edges of the OD sub with the dust-free cotton swabs. Use an ionizing air fan to blow over.
- Apply 3M AP111 primer around the edges of the OD sub with the dust-free cotton swabs. Use an ionizing air fan to blow over.



#### Use caution

After you apply the **primer**, complete assembly in 25 mins.





### Connect the OD sub

- Use the **Universal adsorption bulb** to prop up the **OD**, as shown in Fig 1.
- Connect the **OD Flex** to the **lower board**; apply even pressure across the connector to ensure it's fully engaged.

Part: G949-00409-01 (OD sub)



#### Use caution

During the step to attach the OD, don't damage or deform the driver IC (COF).

Check that every connector is attached fully to the lower board.





Inner Display Sub

Receiver

Detune Board

Outer Front Camera

Upper Board

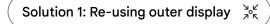
Top Speaker

Flip cowling with vibrator

Flip Battery

Lower Board

Outer Display



### Check the display

- Remove the **outer display protective film** and **inner display process protective film**.
- Place the device into the **Pixel Fold-Holder**, as shown in Fig 1.
- Power on with an ESD spudger and wait at least 10 seconds to check whether the device works properly. Power off the device after checking, as shown in Fig 2.



#### Use caution

Don't touch the ID and OD's TP until it turns to the **welcome page**, because the touch panel self calibration is in progress until that point.





Inner Display Sub

eceiver

Detune Board

Outer Front Camera

Upper Board

Top Speaker

Flip cowling with vibrator

Flip Battery

Lower Board

Solution 1: Re-using outer display  $^{3}_{7}^{\kappa}$ 

## Attach the flip bottom cowling

Install the flip bottom cowling to the lower board.

Part: G730-06506-01 (Flip bottom cowling)



#### Use caution

Align the two alignment posts.





## Fasten the flip bottom cowling

- Place the Pixel Fold-OD screw cover on the Pixel Fold-Holder.
- Tighten the left five screws with an Adjustable torque screwdriver with Screwdriver Hex Shank Torx Plus Bit no.3. in sequence, re-tighten the screws, as shown in figure.
- Take out the Pixel Fold-OD screw cover.

Part: G250-06696-00\*5 (Screws)



#### Note

Torque force: 0.9 ± 0.09 kgf-cm



Inner Display Sub Receiver Detune Board Out

Outer Front Camera

Upper Board

Top Speaker

Flip cowling with vibrator

Flip Battery

Lower Board

Solution 1: Re-using outer display  $^{3}_{7}$  $^{\kappa}_{5}$ 

### Attach the two rubbers

Tear off the two rubbers' liner. Attach the **two rubber supports** to the lower board. Skip this step if the two rubbers don't need to be removed.

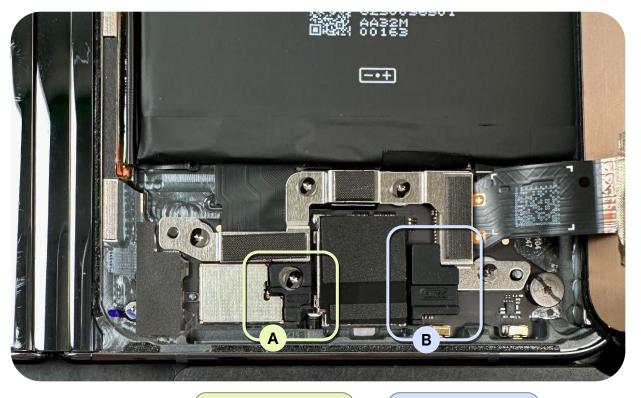
Part: G804-00872-01 (Rubber support 1)

Part: G804-00871-01 (Rubber support 2)



#### Use caution

Make sure the two rubber supports aren't under the flip bottom cowling.



A: G804-00872-00

B: G804-00871-00

Inner Display Sub

Receiver

Detune Board

Outer Front Camera

Upper Board

Top Speaker

Flip cowling with vibrator

Flip Battery

Lower Board

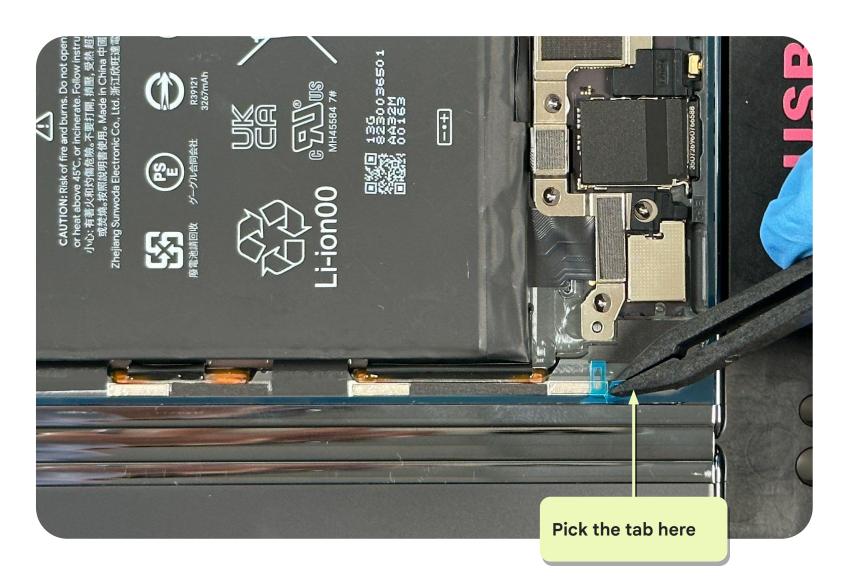
**Outer Display** 

Solution 1: Re-using outer display  $^{3}_{7}$ 

### Remove the liner

Use the **ESD tweezers** to cut the tab. Grab the PSA **liner** and carefully pull it away.

Part: G806-07074-02 (OD PSA)





## Remove protective items

If installed, remove protective films and caps before proceeding to the next step.



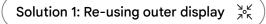
### Use caution

Ensure that the environment is clean for this process.



Inner Display Sub Receiver Detune Board Outer Front Camera Upper Board Top Speaker Flip cowling with vibrator Flip Battery Lower Board

**Outer Display** 



### Fix down the OD

- Align the **OD sub** on the **enclosure vertically.**
- Remove the **Universal adsorption bulb.**



Solution 1: Re-using outer display  $^{3}_{7}$  $^{\kappa}_{5}$ 

### Press in holder

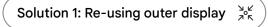
Press around the OD sub with both hands.



### Note

Press the top side middle first, and then follow on the two long sides and the bottom side.





### Place in holder

- Place the Pixel Fold-Holder on the Universal Base.
- Place the **Pixel Fold-Holder** on the appropriate pins, as shown in Fig 1.
- Place the **Pixel Fold-OD Press** on top of the **Pixel Fold-Holder.**







Inner Display Sub

Receiver

Detune Board

Outer Front Camera

Upper Board

Top Speaker

Flip cowling with vibrator

Flip Battery

Lower Board

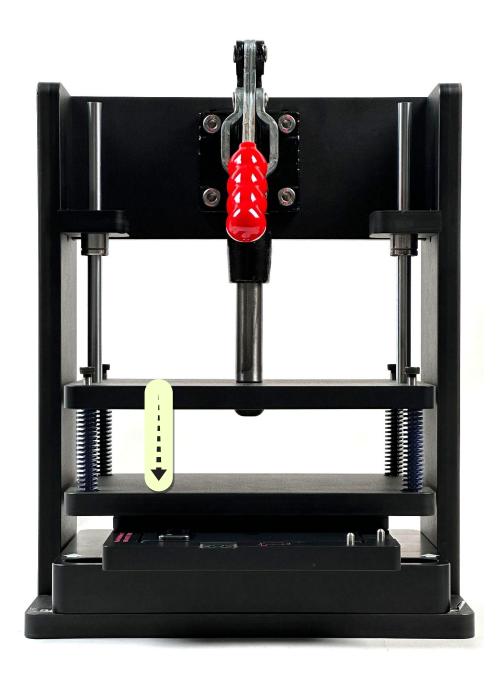
# Place in holder

- Place it in the **Universal Press** and press the handle down for **45** seconds.
- Push back the handle to the original position and remove the device.



#### **Use Caution**

Pinch point. Keep your hands clear during operation.

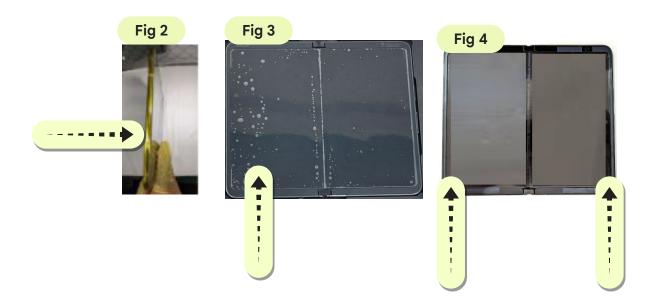


Inner Display Sub Receiver Detune Board Outer Front Camera Upper Board Top Speaker Flip cowling with vibrator Flip Battery Lower Board Outer Display

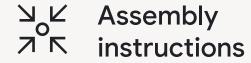
# Remove the protective film

Remove all the PFs as shown in the figures, including the hinge area (Fig 1), enclosure area (Fig 2), process PF (Fig 3), and trim PF liner (Fig 4).





Inner Display Sub Receiver Detune Board Outer Front Camera Upper Board Top Speaker Flip cowling with vibrator Flip Battery Lower Board **Outer Display** 



# Outer display

Solution 2: Using a new outer display sub

Solution 2: Using new outer display sub



# Apply 3M AP111 primer

- Apply IPA around the edges of the Enclosure with Dust-free Cotton swabs.
- Use an **lonizing air fan** to blow over.
- Apply 3M AP111 Primer around the edges of the Enclosure with Dust-free Cotton swabs.



#### Use caution

After you apply the **primer**, complete assembly in 25 mins.



Inner Display Sub

Receiver

Detune Board

Outer Front Camera

Upper Board

Top Speaker

Flip cowling with vibrator

Flip Battery

Solution 2: Using new outer display sub



# **Connect OD sub**

- Use the **Universal adsorption bulb** to prop up the **OD**, as shown in Fig 1.
- Connect the **OD Flex** to the **Lower Board**, and apply even pressure across the connector to ensure it's fully engaged.

Part: G949-00409-01 (OD sub)



#### Use caution

During the step to attach the OD, don't damage or deform the driver IC (COF).

Check that every connector attaches fully to the lower board.





Inner Display Sub

Receiver

Detune Board

Outer Front Camera

Upper Board

Top Speaker

Flip cowling with vibrator

Flip Battery

Lower Board

Outer Display

Solution 2: Using new outer display sub



- Remove the **outer display protective film** and **inner display process protective film**.
- Place the device into the **Pixel Fold-Holder**, as shown in Fig 1.
- Power on with an ESD spudger and wait at least 10 seconds to check whether the device works properly. Power off the device after you check, as shown in Fig 2.



#### Use caution

Don't touch the ID and OD's TP until it turns to welcome page because the touch panel self calibration is in progress.





Inner Display Sub

eceiver

Detune Board

Outer Front Camera

Upper Board

Top Speaker

Flip cowling with vibrator

Flip Battery

Solution 2: Using new outer display sub



Install the flip bottom cowling to the lower board.

Part: G730-06506-01 (Flip bottom cowling)



#### Use caution

Align the two alignment posts.



Inner Display Sub

Receiver

Detune Board

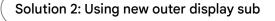
Outer Front Camera

Upper Board

Top Speaker

Flip cowling with vibrator

Flip Battery





- Place the Pixel Fold-OD screw cover on the Pixel Fold-Holder.
- Tighten the left five screws with an Adjustable torque screwdriver with Screwdriver Hex Shank Torx Plus Bit no.3. in sequence. Re-tighten the screws, as shown in the figure.
- Take out the Pixel Fold-OD screw cover.

Part: G250-06696-00\*5 (Screws)



#### Note

Torque force: 0.9 ± 0.09 kgf-cm



Inner Display Sub

Receiver

Detune Board

Outer Front Camera

Upper Board

Top Speaker

Flip cowling with vibrator

Flip Battery

Solution 2: Using new outer display sub

# Attach two rubbers

Tear off the two rubbers' liner. Attach the **2 Rubber Support** to the **Lower Board**. Skip this step if the two Rubbers do not need to be removed.

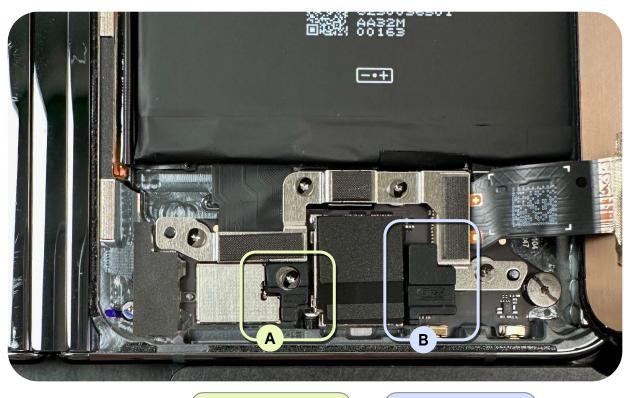
Part: G804-00872-01 (Rubber Support 1)

Part: G804-00871-01 (Rubber Support 2)



#### **Use Caution**

Make sure the Rubber Support 2 is not under the Flip bottom cowling.



A: G804-00872-00

B: G804-00871-00

Inner Display Sub

Receiver

Detune Board

Outer Front Camera

Upper Board

Top Speaker

Flip cowling with vibrator

Flip Battery

Lower Board

Outer Display

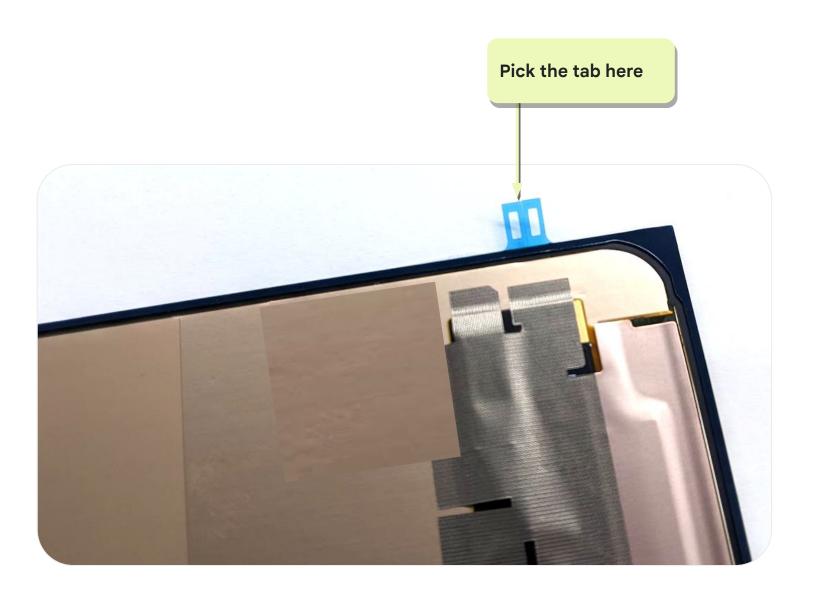
Solution 2: Using new outer display sub



# Remove liner

Use **ESD Tweezers** to carefully pull the PSA release liner away.

Part: G949-00409-01 (OD sub)



Inner Display Sub Receiver Detune Board Outer Front Camera Upper Board Top Speaker Flip cowling with vibrator Flip Battery Lower Board Outer Display

Solution 2: Using new outer display sub



# Remove protective items

If installed, remove any protective films and caps before proceeding to the next step.

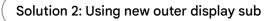


#### **Use Caution**

Ensure that the environment is clean for this process.



Inner Display Sub Receiver Detune Board Outer Front Camera Upper Board Top Speaker Flip cowling with vibrator Flip Battery Lower Board Outer Display





- Put the device in the Pixel Fold-Holder.
- Vertically place the **OD PSA in the Enclosure** in the indicated direction.



#### Note

Place it vertically.









Inner Display Sub

Receiver

Detune Board

Outer Front Camera

Upper Board

Top Speaker

Flip cowling with vibrator

Flip Battery

Solution 2: Using new outer display sub



# Adhere the OD

- Align the **OD sub** on the **Enclosure vertically**.
- Remove the **Universal adsorption bulb**.



Inner Display Sub Receiver Detune Board Outer Front Camera Upper Board Top Speaker Flip cowling with vibrator Flip Battery Lower Board Outer Display

Solution 2: Using new outer display sub



# Press in holder

Press around the OD sub with both hands.

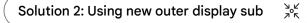


#### Note

Press the top side middle first, and then follow on the two long sides and bottom side.



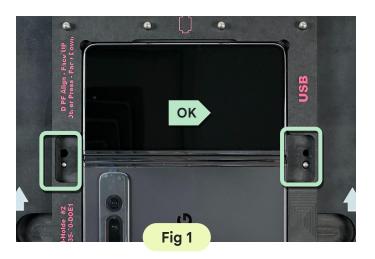
Inner Display Sub Receiver Detune Board Outer Front Camera Upper Board Top Speaker Flip cowling with vibrator Flip Battery Lower Board Outer Display



# Place in holder

- Place the Pixel Fold-Holder on the Universal Base.
- Make sure to place the **Pixel Fold-Holder** on the appropriate alignment pins, as shown in Fig 1.
- Place the **Pixel Fold-OD Press** on top of the **Pixel Fold-Holder**.







Inner Display Sub

Receiver

Detune Board

Outer Front Camera

Upper Board

Top Speaker

Flip cowling with vibrator

Flip Battery

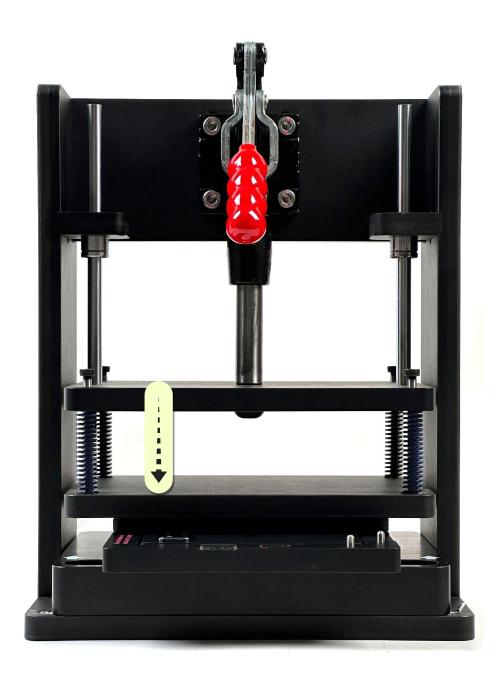
# Place in holder

- Place it in the **Universal Press** and press the handle down for **45** seconds.
- Push back the handle to the original position and remove the device.



#### **Use Caution**

Pinch point. Keep your hands clear during operation.



Inner Display Sub Receiver Detune Board Outer Front Camera Upper Board Top Speaker Flip cowling with vibrator Flip Battery Lower Board Outer Display



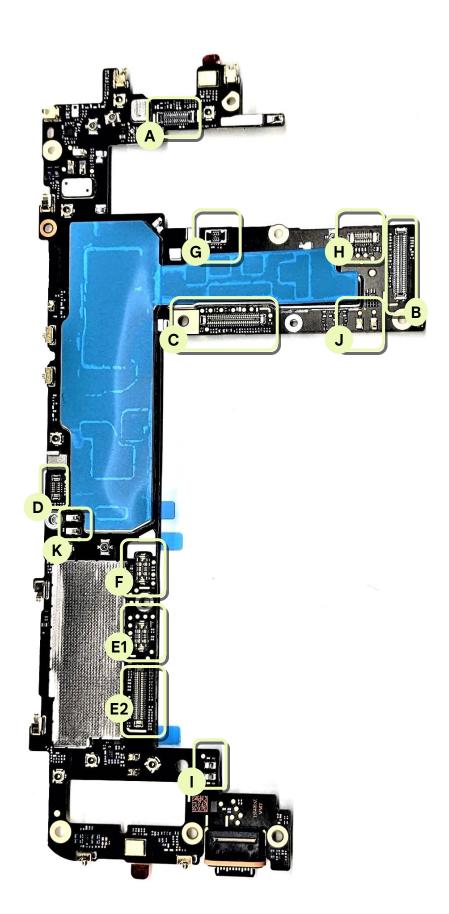
#### Pixel Fold Repair Manual

# Troubleshooting

Connectors Location	Base/ Flip Vibrator	FPS (Power Button)	Inner Display
Power	Outer Display	Volume Button	Inner Display Touch Pane
Wireless Charge	Outer Display Touch Panel	Rear Camera	UWB
Mic 1	RF (BT, WiFi, GPS, NFC)	Outer Front Camera	Hinge
Mic 2	Battery	Inner Front Camera	
Mic 3	SIM	USB	
Receiver	Sensor	mmWave	
Bottom Speaker		Top Speaker (Speaker 3)	

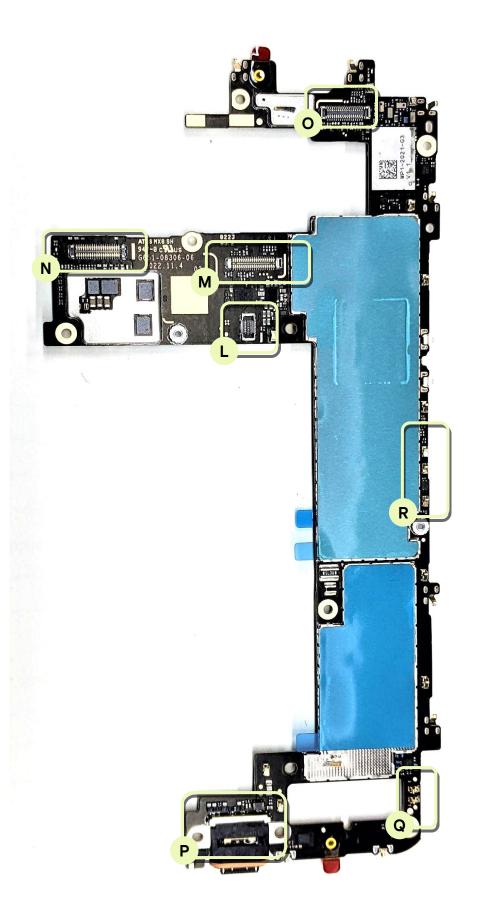
### **Connectors location**

# **Location & Description** Inner Front Camera Connector Inner Display Connector Upper Bridge FPC Connector FPS(Power button) Connector D Bottom Bridge FPC Connector (for Flip Battery) Bottom Bridge FPC Connector Base Battery Connector **UWB** Connector G Flam Board Connector Bottom SPK Spring NFC Spring WC Spring



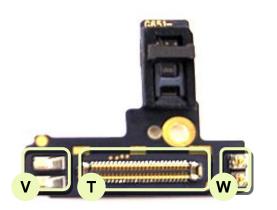
## **Connectors location**

# Location & Description L mmWave Connector M WIDE Camera Connector N TELE Camera Connector O UW Camera Connector P USB Port Q Base Vibrator Spring R Sidekey Spring

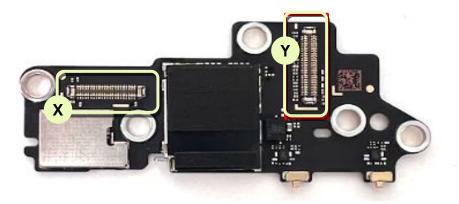


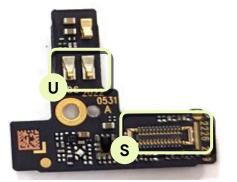
# **Connectors location**

Loc	ation & Description
S	Outer Front Camera Connector
Т	Upper Bridge FPC Connector
U	Receiver Spring
V	Top Speaker Spring
W	Flip Vibrator Spring
X	Lower Bridge FPC Connector
Υ	Outer Display Connector
Z	Upper Board Connector (to T)
а	Logic Board Connector (to C)
b1	Logic Board Connector (to E1)
b2	Logic Board Connector (to E2)
С	Lower Board Connector (to X)
d	Flip Battery Connector
е	Inner Display Connector
f	NFC contact pad
9	WIFI antenna pad
h	Wireless charge pad
i	Phone antenna pad



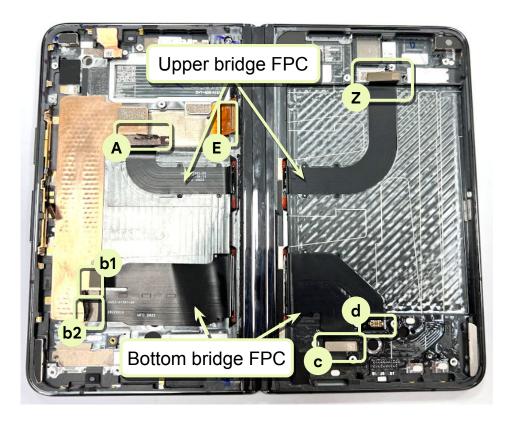


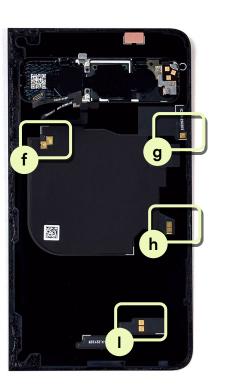












# Power

Symptom	Potential root cause	Procedure	
T001: Doesn't power on T002: Powers off suddenly T004: Wired charging failure	Damage  Battery capacity problem	<ul> <li>Inspect the USB-C connector for debris that prevents charging.</li> <li>Inspect device for damage.</li> <li>Inspect liquid damage indicators.</li> <li>Insert the USB cable and try to charge the device for at least 10 minutes or a dummy battery to see if the device is out of battery capacity.</li> <li>If not, go to the next step.</li> <li>Check whether the base side's connectivity between the base battery</li> </ul>	Connectors location
	Connectivity problem	<ul> <li>Check whether the base side's connectivity between the base battery connector, bottom bridge FPC connector (for flip battery), and logic board are normal.</li> <li>Check whether the flip side's connectivity between the flip battery connector and bottom bridge FPC connector are normal.</li> <li>If they aren't fully attached, re-assemble and then retest.</li> </ul>	Connectors location
	Module problem	<ul> <li>Use a good base or flip battery, logic board, and inner display sub to cross-check with the original ones.</li> <li>Replace the defective component.</li> </ul>	<ul><li>Disassembly</li><li>Logic board</li><li>Base battery</li><li>Flip battery</li></ul>

# Wireless charge

Symptom	Potential root cause	Procedure	
	Connectivity problem	<ul> <li>Check whether there's connectivity between the BG sub's WC pad and the logic board. If there's no mark on the pin contact pads, it shows poor connectivity.</li> <li>If marks are present, clean the contact pad and test again.</li> </ul>	Connectors location
T003: Wireless charging failure			
	Module problem	<ul> <li>To cross-check with the original, use a good BG sub and logic board.</li> <li>Replace the defective component.</li> </ul>	Disassembly  • Logic board  • Base battery

# Mic 1

Symptom	Potential root cause	Procedure	
<b>Q</b>	Mesh not clean	<ul> <li>To check whether the mic hole is blocked by burrs or overflow of glue, use a microscope.</li> <li>Clean the hole and test the audio.</li> </ul>	
T010: Mic 1 no sound T011: Mic 1 low sound T012: Mic 1 distorted sound	Assembly problem	<ul> <li>Disassemble the device to check whether mic 1's mesh is fully seated, as shown in Fig 1.</li> <li>Check whether the logic board mic 1 liner is removed, as shown in Fig 2. If not, go to the next step.</li> </ul>	(Fig 1)
		Test mic 1 again.	(Fig 2)
1	Module problem	To cross-check with the original, use a good logic board.	Disassembly
1 Mic 1		Replace the defective component.	Logic board
2 Mic 2			
3 Mic 3			

Software

# Mic 2

Symptom	Potential root cause	Procedure	
T013: Mic 2 no sound T014: Mic 2 low sound T015: Mic 2 distorted sound	Connectivity problem	<ul> <li>Check whether there's connectivity between the flam board connector and logic board.</li> <li>If they aren't fully buckled, re-assemble and then test again.</li> </ul>	Connectors location
3	Module problem	<ul> <li>To cross-check with the original, use a good BG sub and logic board.</li> <li>Replace the defective component.</li> </ul>	Disassembly  • Logic board  • BG sub
<ul><li>1 Mic 1</li><li>2 Mic 2</li></ul>			
3 Mic 3			

# Mic 3

Symptom	Potential root cause	Procedure	
<b>\$</b>	Mesh not clean	<ul> <li>To check whether the mic hole is blocked by burrs or an overflow of glue, use a microscope.</li> <li>Clean the hole and test the audio.</li> </ul>	
T016: Mic 3 no sound T017: Mic 3 low sound T018: Mic 3 distorted sound	Assembly problem	<ul> <li>To check whether mic 3's mesh is fully seated, disassemble the device, as shown in Fig 1.</li> <li>Check whether the MLB mic 3 liner is removed, as shown in Fig 2. If not, go to the next step.</li> <li>Test mic 3 again.</li> </ul>	(Fig 1)
3			(Fig 2)
	Module problem	<ul> <li>To cross-check with the original, use a good logic board.</li> <li>Replace the defective component.</li> </ul>	<b>Disassembly</b> Logic board
1 Mic 1			
<ul><li>2 Mic 2</li><li>3 Mic 3</li></ul>			
3 Mic 3			

# Receiver

Symptom	Potential root cause	Procedure	
Ф	Connectivity problem	<ul> <li>Check whether there's connectivity between the receiver pad and upper board.</li> <li>If they aren't fully buckled, re-assemble and then test again.</li> </ul>	Connectors location
T019: Top speaker no sound T020: Top speaker low sound T021: Top speaker distorted sound	Module problem	<ul> <li>If sound quality is still poor, use a good receiver, upper board, and inner display sub to cross-check with the original parts.</li> <li>Replace the defective component.</li> </ul>	Disassembly  • Upper board  • Receiver

# **Bottom speaker**

Symptom	Potential root cause	Procedure	
<b>Q</b>	Mesh problem	<ul> <li>To check for a polluted mesh on the bottom speaker port, visually inspect the exterior. Use a soft ESD brush to remove any debris.</li> <li>Test audio.</li> </ul>	
T023: Bottom speaker no sound T024: Bottom speaker low sound T025: Bottom speaker distorted sound	Internal debris	<ul> <li>If sound quality is still poor, inspect the mesh and speaker with a microscope.</li> <li>Disassemble the device and inspect the speaker. Use an ionizing air fan to remove any debris and test audio.</li> </ul>	
	Connectivity problem	<ul> <li>Check whether there's connectivity between the bottom SPK pad and logic board.</li> <li>If they aren't fully buckled, reassemble and then test again.</li> </ul>	Connectors location
	Module problem	<ul> <li>If sound quality is still poor, use a good bottom speaker and logic board to cross-check with the original parts.</li> <li>Replace the defective component.</li> </ul>	Disassembly  Logic board  Bottom speaker

# Base or flip vibrator

Symptom	Potential root cause	Procedure	
T026: Vibrator failure (flip vibrator) T154: Vibrator_2 failure (base vibrator)	Connectivity problem	<ul> <li>Check the base vibrator connectivity with the logic board.</li> <li>Check the flip cowling with vibrator connectivity between the upper boards.</li> <li>Test vibrator again. Check the function by triage test.</li> </ul>	Connectors location
	Component problem	<ul> <li>Use a good base vibrator and logic board to cross-check with the original parts.</li> <li>Use a good flip cowling with vibrator module, upper board, and inner display sub to cross-check with the original parts.</li> <li>Replace the defective component.</li> </ul>	<ul> <li>Disassembly</li> <li>Logic board</li> <li>Base vibrator</li> <li>Upper board</li> <li>Flip cowling with vibrator</li> </ul>

# **Outer display**

Symptom	Potential root cause	Procedure	
	Damage	Inspect display for damage and replace, if necessary.	
T027: Display blank T028: Display dead pixel, dark spots, or foreign material			
T029: Display bright pixel, bright or colored spots  T030: Display vertical or horizontal lines  T031: Display black, white, or colored screen  T032: Display flickering or abnormal	Connectivity problem	<ul> <li>Check whether there's connectivity between the outer display connector, lower board, and the lower bridge connector.</li> <li>If they aren't fully buckled, reassemble and then test again.</li> </ul>	Connectors location
<ul> <li>T033: Display image quality</li> <li>T034: Display color mura</li> <li>T035: Display light leakage</li> <li>T036: Display backlight issue</li> <li>T037: Display shadow</li> <li>T038: Display permanent burnin</li> <li>T039: Display temporary burnin</li> </ul>	Dead pixels Distorted graphics Flickering Color issues	<ul> <li>Remove the outer display module and fit a replacement part without adhesive and test.</li> <li>If the issue is resolved, apply adhesive and fit a new outer display module.</li> </ul>	Disassembly  • Outer display

# Outer display (continued)

Symptom	Potential root cause	Procedure	
	Dimple issues	To check the display copper, remove the outer display module.	<b>Disassembly</b> Outer display
T040: Display single crack T041: Display multiple cracks T042: Display to back cover gap T043: Display cosmetic defects	Component problem	<ul> <li>To cross-check with the original parts, use a good outer display, lower board, and an inner display sub.</li> <li>Replace the defective component.</li> </ul>	Disassembly  Lower board  Outer display

# Outer display touch panel

Symptom	Potential root cause	Procedure	
T044: Multi-touch poor response T045: Multi-touch no response T046: Multi-touch erratic response	Touch screen Fingerprint sensor	<ul> <li>Check whether there's connectivity between the outer display connector and the lower board.</li> <li>If they aren't fully buckled, reassemble and then test again.</li> <li>Remove the outer display module and fit a replacement part without adhesive and test.</li> <li>If the issue is resolved, apply adhesive and fit a new outer display module.</li> </ul>	Connectors location  Disassembly Outer display
	Dead pixels Distorted graphics Flickering Color issues	<ul> <li>To cross-check with the original parts, use a good outer display and inner display sub.</li> <li>Replace the defective component.</li> </ul>	<ul><li>Disassembly</li><li>Lower board</li><li>Outer display</li></ul>

# **RF** (BT, WiFi, GPS, NFC)

Symptom	Potential root cause	Procedure
T047: RF failure T048: Wi-Fi connectivity issues T049: Bluetooth connectivity T050: GPS failure T051: NFC connectivity Issues	Connectivity problem	<ul> <li>Check if the screws are loose or springs are damaged.</li> <li>Check whether there's connectivity between the BG sub, inner display sub, and logic board.</li> <li>If there's no mark on the pin contact pads, it shows poor connectivity.</li> <li>Check the installation of the detune board and its contact to the spring, as shown in Fig 1.</li> <li>If marks are observed, clean the contact pad and test again.</li> <li>If not, go to the next step.</li> </ul>
	Module problem	<ul> <li>Use a good BG sub, logic board, and inner display sub to cross-check with possibly failing parts.</li> <li>Disassembly</li> <li>BG sub</li> <li>Logic board</li> <li>ID sub (Base enclosure)</li> </ul>

# **Battery**

Symptom	Potential root cause	Procedure	
T053: Battery damage T054: Battery draining fast T055: Device overheats	Connectivity problem	<ul> <li>Check whether there's base side connectivity between the base battery connector, bottom bridge FPC connector (for flip battery), and logic board.</li> <li>Check whether there's flip side connectivity between the flip battery connector and bottom bridge FPC connector.</li> <li>If they aren't fully attached, reassemble and then test again.</li> </ul>	Connectors location
	Module problem	<ul> <li>To cross-check with the original parts, use a good base battery and logic board.</li> <li>To cross-check with the original parts, use a good flip battery and an inner display sub.</li> <li>When confirmed that a battery is abnormal, replace the two batteries together.</li> </ul>	<ul><li>Disassembly</li><li>Logic board</li><li>Base battery</li><li>Flip battery</li></ul>

# SIM

Symptom	Potential root cause	Procedure	
!::	Connectivity problem	<ul> <li>Check whether there's connectivity between the SIM slot and SIM tray.</li> <li>If they aren't fully buckled, reassemble and then test again.</li> </ul>	Connectors location
T056: SIM failure			
	Component problem	<ul> <li>To cross-check with the original parts, use a good lower board and inner display sub.</li> <li>Replace the defective component.</li> </ul>	<b>Disassembly</b> Logic board

# Sensor

Symptom	Potential root cause	Procedure	
T059: Proximity sensor failure T060: Ambient light sensor failure	SW problem	Make sure SW has the latest version update.	
	Assembly issue	Check P-sensor rubber to ensure that it's in the correct position.  Make sure there's no foreign substance on the P-sensor area.	<b>Assembly</b> P-sensor rubber status
	Connectivity problem	Check the function by triage test.	
T061: Accelerometer sensor failure T062: Gyroscope sensor failure	Module problem	<ul> <li>Check whether the rainbow sensor of the back cover drops down, as shown in Fig 1.</li> </ul>	No OK
T063: Hall sensor failure T066: Pressure sensor failure		<ul> <li>Disassemble and check that the appearance of the proximity sensor isn't abnormal.</li> </ul>	
T099: Rainbow sensor defect T108: LDAF laser module		<ul> <li>Use a good upper board, logic board, and inner display sub to cross-check with the P-sensor, light sensor 1 and 2 failures.</li> </ul>	
T118: Magnetometer failure		<ul> <li>Use a good lower board, logic board, and inner display sub to cross-check with the accelerometer 2 and gyro sensor 2 failures.</li> </ul>	(Fig 1)
T148: Magnetometer_2 failure T149: Accelerometer sensor_2 failure	<ul> <li>To cross-check with rainbow or flicker sensor and LDAF failures, use a good back cover.</li> <li>Replace the defective components.</li> </ul>	Disassembly  • Upper board (P-sensor rubber)	
T150: Gyroscope sensor_2 failure T155: Ambient light sensor_2 failure		Replace the defective components.	<ul><li>Upper board (P-sensor rubber)</li><li>Logic board</li></ul>
		Note	Lower board
		P-sensor, light sensor 1 and 2 @upper board.	BG sub
		Accelerometer 2 and gyro sensor 2 @lower board.	
		Accelerometer 1, gyro sensor 1, magnetic sensor 1 and 2 (e-compass), and hall sensor @logic board.	
		Rainbow sensor and LDAF @back cover sub.	

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# FPS (power button)

Symptom	Potential root cause	Procedure	
T064: Fingerprint sensor failure T068: Power button failure	Interference issue	Remove any screen protector before tests related to display function.	
	Damage	Inspect display for damage and replace, if necessary.	
	Connectivity issue	<ul> <li>Check whether there's connectivity between the fingerprint connector and logic board.</li> <li>If they aren't fully buckled, reassemble and then test again.</li> </ul>	Connectors location
	Component issue	<ul> <li>To cross-check with the original parts, use a good fingerprint module and logic board.</li> <li>Replace the defective component.</li> </ul>	Disassembly  Logic board  Outer display

### **Volume button**

Symptom	Potential root cause	Procedure	
<b>4</b> )	Interference issue	Remove any screen protector before the tests related to display function.	
T069: Volume button failure	Damage	Inspect display for damage and replace, if necessary.	
	Connectivity issue	<ul> <li>Check whether there's connectivity between the sidekey module and logic board.</li> <li>If they aren't fully assembled, reassemble and then test again.</li> </ul>	Connectors location
	Component issue	<ul> <li>To cross-check with the original parts, use a good sidekey module and logic board.</li> <li>Replace the defective component.</li> </ul>	Disassembly  Logic board  Inner display sub

### Rear camera

Symptom	Potential root cause	Procedure	
	SW problem	Make sure SW has the latest version update.	
T072: Camera AR failure T073: Camera rear photo quality T074: Camera rear video quality T077: Camera flash not working	Cosmetic problem	<ul> <li>Inspect for damage on the camera lens area.</li> <li>Check the function by triage test.</li> <li>To check whether the camera connector is installed properly, disassemble the device. Power on the unit and check for failure symptoms again.</li> </ul>	
T078: Can't switch between cameras T079: Camera damage T111: Main RCAM crashes T112: UW RCAM crashes	Connectivity problem	Check the rear camera BTB and logic board side to identify whether the assy is deformed or flex cracked. To check if the fail symptoms persist, reboot the device again.	Connectors location
<ul><li>T114: Main RCAM no preview</li><li>T115: UW RCAM no preview</li><li>T116: Ultrawide rear camera photo quality</li><li>T117: Ultrawide rear camera video quality</li></ul>	Module problem	If a fail symptom still exists, cross-check the logic board or camera module to determine if the fail symptom is because of the camera module or logic board.	Disassembly  Logic board  Rear camera

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### **Outer front camera**

Symptom	Potential root cause	Procedure	
T075: Camera front photo quality T076: Camera front video quality	Cosmetic problem	<ul> <li>Inspect the camera lens area for damage.</li> <li>Check the function by triage test.</li> <li>To check whether the camera connector is installed properly, disassemble the device. To check for the camera failure symptoms, power on the unit again.</li> </ul>	
T078: Can't switch between cameras T079: Camera damage T110: FCAM crashes T113: FCAM no preview	Connectivity problem	Check the outer front camera BTB, upper board, and upper bridge connector side to identify whether the assy is deformed or flex cracked. To check if the failure symptoms still exist, reboot the device again.	Connectors location
	Module problem	If a fail symptom still exists, use a good logic board, outer camera module, and inner display sub to cross-check with the original parts.	<ul><li>Disassembly</li><li>Upper board</li><li>Outer front camera</li></ul>

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### Inner front camera

Symptom	Potential root cause	Procedure	
T078: Can't switch between cameras T079: Camera damage T156: Camera front_inner photo quality T157: Camera front_inner video quality T158: Inner FCAM crashes T159: Inner FCAM no preview	Connectivity problem	<ul> <li>Inspect the camera lens area for damage.</li> <li>Check the function by triage test.</li> <li>Disassemble the device to check whether the camera connector is seated properly. Power on unit and check camera fail symptom again.</li> <li>Check the inner front camera BTB and logic board side to identify whether the assy is deformed or flex crack. Reboot device again to check whether fail symptom exists.</li> </ul>	Connectors location
	Module problem	If fail symptom is still exists, cross-check the logic board itself or camera module to determine whether the fail symptom is caused by the camera module or logic board.	Disassembly  Upper board  Inner front camera

### **USB**

Symptom	Potential root cause	Procedure	
T085: USBc_failure	Connectivity problem	<ul> <li>Inspect the camera lens area for damage.</li> <li>Check the function by triage test.</li> <li>To check whether the camera connector is installed properly, disassemble the device. To check whether the camera failure symptoms persist, power on the unit.</li> </ul>	Connectors location
	Module problem	Check the inner front camera BTB and logic board side to identify whether the assy is deformed or flex cracked. To check whether the failure symptoms still exist, reboot the device again.	<b>Disassembly</b> Logic board

### mmWave

Symptom	Potential root cause	Procedure	
T105: 5G_low_med_band_failure T106: 5G_high_band_failure	Connectivity problem	<ul> <li>Inspect the mmWave module and check that the mmWave flex is correctly seated.</li> <li>Check whether connectivity between the mmWave flex and logic board are normal.</li> <li>Check whether connectivity between the BG sub, inner display sub, and logic board are normal. If there's no mark on the pin contact pads, it shows poor connectivity.</li> <li>If they are not fully buckled, re-assemble and then retest.</li> </ul>	Connectors location
	Module problem	Use a good mmWave module and logic board to cross-check with the original ones.	<ul><li>Disassembly</li><li>mmWave</li><li>Logic board</li></ul>

## Top speaker (speaker 3)

Symptom	Potential root cause	Procedure	
<b>√</b> ;	Mesh not clean	<ul> <li>Inspect the top speaker mesh and use a soft ESD brush to remove any debris.</li> <li>Test audio.</li> </ul>	
T151: Speaker 3 no sound T152: Speaker 3 low sound T153: Speaker 3 distorted sound	Internal debris	<ul> <li>If sound quality is still poor, inspect the mesh and speaker with a microscope.</li> <li>Disassemble the device and inspect the speaker. To remove any debris, use an ionizing air fan and then test the audio.</li> </ul>	
	Connectivity problem	<ul> <li>Check whether there's connectivity between the top SPK pad and the upper board.</li> <li>If they aren't fully buckled, reassemble and then test again.</li> </ul>	
	Module problem	<ul> <li>If the sound quality is still poor, use a good top speaker, upper board, and inner display sub to cross-check with the original parts.</li> <li>Replace the defective component.</li> </ul>	Disassembly  Upper board  Top speaker

## Inner display

Symptom	Potential root cause	Procedure
	Damage	Inspect inner display for damage and replace, if necessary.
T160: Inner display blank T161: Inner display dead pixel, dark spots, or foreign material	Connectivity problem	<ul> <li>Check whether there's connectivity between the inner display connector and logic board.</li> <li>If they aren't fully buckled, reassemble and then test again.</li> </ul>
T162: Inner display bright pixel, bright, or colored spots  T163: Inner display vertical or horizontal lines  T164: Inner display black, white, or colored screen	Dead pixels Distorted graphics Flickering Color issues	<ul> <li>Remove the inner display sub module, fit a replacement part without adhesive, and test.</li> <li>If the issue is resolved, apply adhesive and fit a new inner display sub module.</li> </ul>
T165: Inner display flickering or abnormal T166: Inner display image quality T167: Inner display color mura T168: Inner display light leakage T169: Inner display backlight issue T170: Inner display shadow	Module problem	<ul> <li>If sound quality is still poor, use a good top speaker, upper board, and inner display sub to cross-check with the original parts.</li> <li>Replace the defective component.</li> </ul> Disassembly Inner display sub

## Inner display (continued)

Module problem  • To cross-check with the original parts, use a good inner display sub and logic board. • Replace the defective component.  T171: Inner display permanent burnin  T172: Inner display temporary burnin  T173: Inner_display_display single crack  T174: Inner_display_display multiple cracks	Symptom	Potential root cause	Procedure
T175: Inner_display_display cosmetic defects T176: Inner_display_screen is broken but display is working	T172: Inner display temporary burnin T173: Inner_display_display single crack T174: Inner_display_display multiple cracks T175: Inner_display_display cosmetic defects T176: Inner_display_screen is broken but	Module problem	logic board.  • Logic board  • Replace the defective component

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## Inner display touch panel

Symptom	Potential root cause	Procedure	
	Connectivity problem	<ul> <li>Check whether the connectivity between the inner display connector and logic board are normal.</li> <li>If they aren't fully buckled, reassemble and then test again.</li> </ul>	Connectors location
T177: Inner display multi-touch poor response T178: Inner display multi-touch no response	Touch screen Fingerprint sensor	<ul> <li>Remove the inner display sub module, fit a replacement part without adhesive, and test.</li> <li>If the issue is resolved, apply adhesive and fit the new inner display sub module.</li> </ul>	<b>Disassembly</b> Inner display sub
<b>T179:</b> Inner display multi-touch erratic response	Module problem	<ul> <li>To cross-check with the original parts, use a good inner display sub and logic board.</li> <li>Replace the defective component.</li> </ul>	Disassembly  Logic board  Inner display sub

#### **UWB**

Symptom	Potential root cause	Procedure	
$\widehat{\mathbf{S}}$	Connectivity problem	<ul> <li>Check whether there's connectivity between the UWB and logic board.</li> <li>If they aren't fully buckled, reassemble and then test again.</li> </ul>	Connectors location
T181: Ultra-wideband (UWB) failure	Module problem	<ul> <li>Use a good UWB FPC and logic board to cross-check with the original ones.</li> <li>Replace the defective component.</li> </ul>	<ul><li>Disassembly</li><li>UWB FPC</li><li>Logic board</li></ul>

## Hinge

Symptom	Potential root cause	Procedure	
T188: Hinge function abnormal T189: Hinge function abnormal_CID	Component problem	<ul> <li>Follow the table in the next slide to check whether hinge function is abnormal.</li> <li>To cross-check with the original parts, use a good inner display sub.</li> <li>Replace the defective component.</li> </ul>	Disassembly Inner display sub

## Hinge (continued)

Check item	Verification method	Verification photo	
Open angle	To check whether the hinge areas have any humps or sunken areas, unfold the device completely and then put the device on the Pixel Fold-Holder (ID face down and up).		
		ID face down	ID face up
Hinge torque	To check whether the device can hold at 45 and 135 degrees, put the device on a desk and open it at 45 and 135 degree angles.		
		45 degree	135 degree
Hinge noise	Remove ID process PF before the test.		
	Find a quiet area to listen at a 30 cm distance to check whether there's any noise when the phone is folded and unfolded three times.		30 cm



Pixel Fold Repair Manual

# Software

## **Software tools**

Description	Documentation
Update or reinstall the software on Pixel devices (see link for additional details)	<u>LINK</u>