# FlipPhone 6

# Repair Manual


**How to contact us**

Email us at help@opelmobile.com or call

**0808 160 7167** in UK (8am to 4pm, Mon to Fri – excluding national holidays)

**1800 456 902** in Ireland (8am to 4pm, Mon to Fri – excluding national holidays)

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# 1. Repair Disclaimer

The Company does not recommend that you make your own repairs to the equipment. We are not responsible for any damage to or defective performance of the equipment resulting from operation by unauthorized service personnel, self-repair, or non-professional repair. We are not responsible for any damage, personal injury, or other safety issues that may result from attempting to repair the equipment without following these repair and maintenance instructions.

If you choose to repair the equipment yourself, you are deemed to have fully understood and voluntarily assumed all risks and responsibilities in the repair process.

# 2. Concerning the present document

This manual provides systematic step-by-step instructions for repairing and maintaining FlipPhone 6 devices, and is intended to provide technical support for professional technicians and users with independent repair needs.

## 2.1Coverage

### Contents included:

Safe Disassembly and Reassembly Process

Basic troubleshooting and visual inspection methods

### Contents not included:

Advanced Electrical System Diagnostics

Software level fixes or firmware issue handling

## 2.2Applicable to

This guide applies to:

**Professional and technical staff:** Qualified technicians and maintenance tradespeople for equipment maintenance.

**Self-maintained users:** Users interested in DIY repairs.

**Recovery operations staff:** Personnel responsible for equipment disposal or material recovery requiring safe dismantling of components.

## 2.3Structure of the guide

This document is organized into the following main sections：

Caveat

Tools required

Disassembly procedures

Assembly Instructions

Repair Instructions

Fault resolution

# 3. General precautions

Before servicing the product, please read all the precautions in this document.

## 3.1Please be careful before starting repairs

| ⚠ CAUTION |
| --- |
| Opening or servicing equipment may result in electric shock, equipment damage, fire, personal injury and other safety risks.<br>• Ensure that the work surface is clean and free of debris to prevent contamination of internal components.<br>• Ensure that the operating environment is ESD compliant by wearing an anti-static wrist strap before handling and connecting it to a grounded ESD safety mat.<br>• Wear safety goggles, safety gloves, and safety masks to ensure safety practices and reduce operational risks.<br>• Work in a dry, well-ventilated environment free of flammable materials.<br>• Ensure that cables and components are not damaged during disassembly, if damage is found it must be replaced immediately with new components.<br>• Make sure there are no additional screws or other foreign objects in the machine after assembly.<br>• Disconnect the unit from all power sources before disassembly. |

## 3.2Glass handling

**CAUTION**

Broken glass parts can cause cuts, scratches or damage to the interior of the unit

- When handling broken glass parts, be sure to wear safety gloves and goggles throughout to avoid direct contact with broken glass or flying particles.
- Immediately after replacing a glass part, place the damaged glass part in the spare parts package to prevent injury.

## 3.3Battery

**CAUTION**

- The battery needs to be discharged before servicing.
- Do not touch the battery contacts with metal tools.
- Do not bend, indent, puncture the battery or use tools to pry open the battery case.
- To prevent damage, replace the battery and place it in the replacement package immediately after replacing it.
- If the battery is swollen, broken, hot, abnormal odor or the device is abnormally hot, immediately stop operation and contact the support team, do not force disassembly.
- When battery venting (e.g. electrolyte leakage, smoke) is detected, it is necessary to immediately cover the battery with sand or wear insulated gloves and transfer the battery to a fireproof container with pliers.
- Do not damage the battery as this may cause fire or overheating.
- Do not dispose of old batteries in the regular trash. Please dispose of batteries according to local regulations.

## 3.4Tools

**The use of specialized tools is highly recommended for all equipment repairs.**

**CAUTION**

Do not perform maintenance operations without the proper tools, as this may result in personal injury, equipment damage, or component obsolescence.

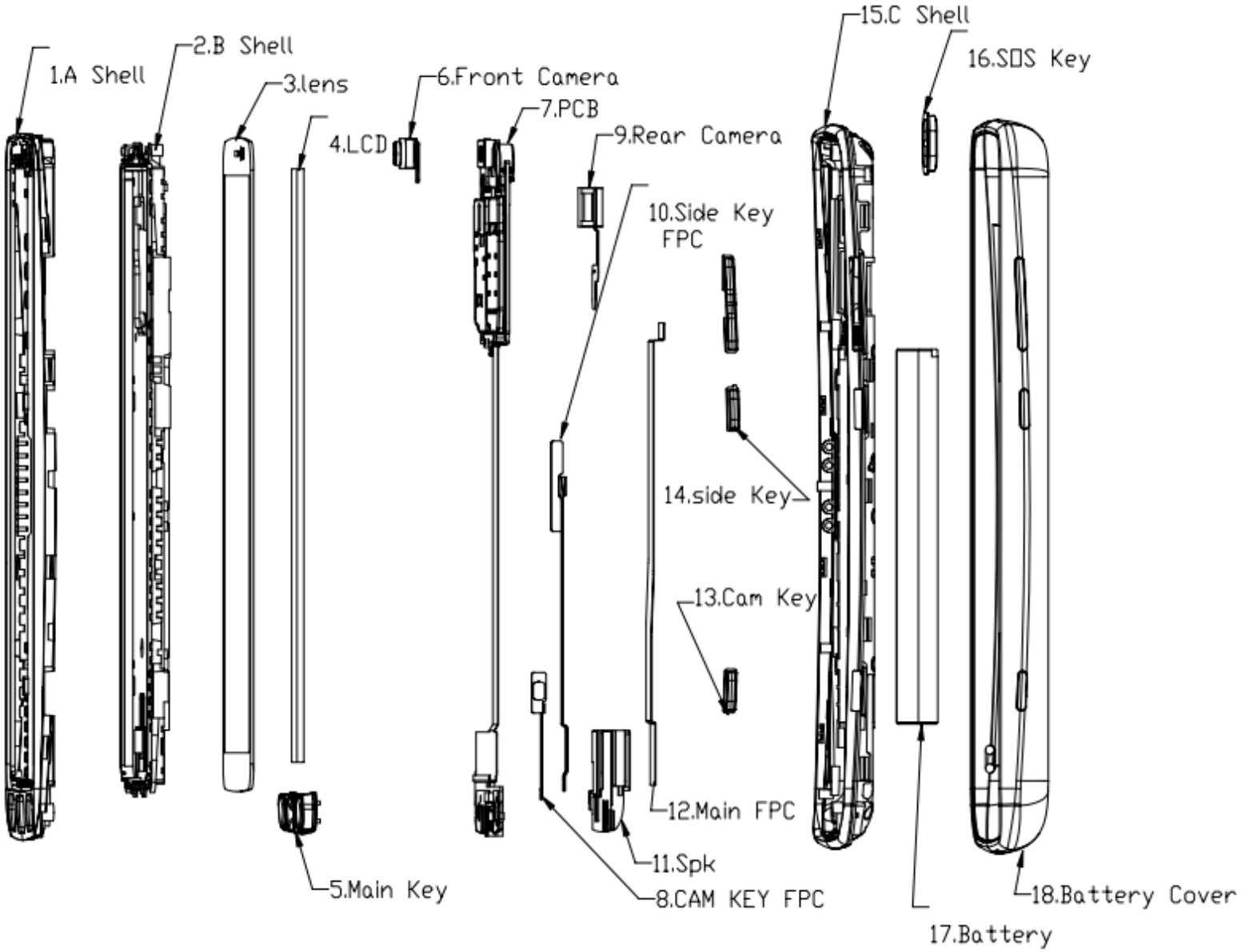
| |
|---|
| Improper use of tools can result in personal injury, damage to tools,damage to fixtures, or damage to spare parts. |

## 4. Tools and materials required

| Tools | imagery | descriptions |
|---|---|---|
| safety goggles |  | Prevention of accidents during maintenance (protective equipment) |
| safety gloves |  | Prevention of accidents during maintenance (protective equipment) |
| safety mask |  | Prevention of accidents during maintenance (protective equipment) |

| | | |
|---|---|---|
| tweezers |  | Tools for handling connectors, cables and other components |
| Antistatic Wrist Strap |  | Protection against electrostatic damage (recommended) |
| ESD Safety Mats |  | Protection against electrostatic damage (recommended) |
| heat gun |   | Soften modular adhesive layer |
| Phillips screwdriver (i.e. with cross slit) |  | For loosening Phillips head screws |
| prying piece |  | Tools for removing back cover, screen and other components |
| crowbar |  | Removing the Main Board Assembly |

# 5. Exploded views



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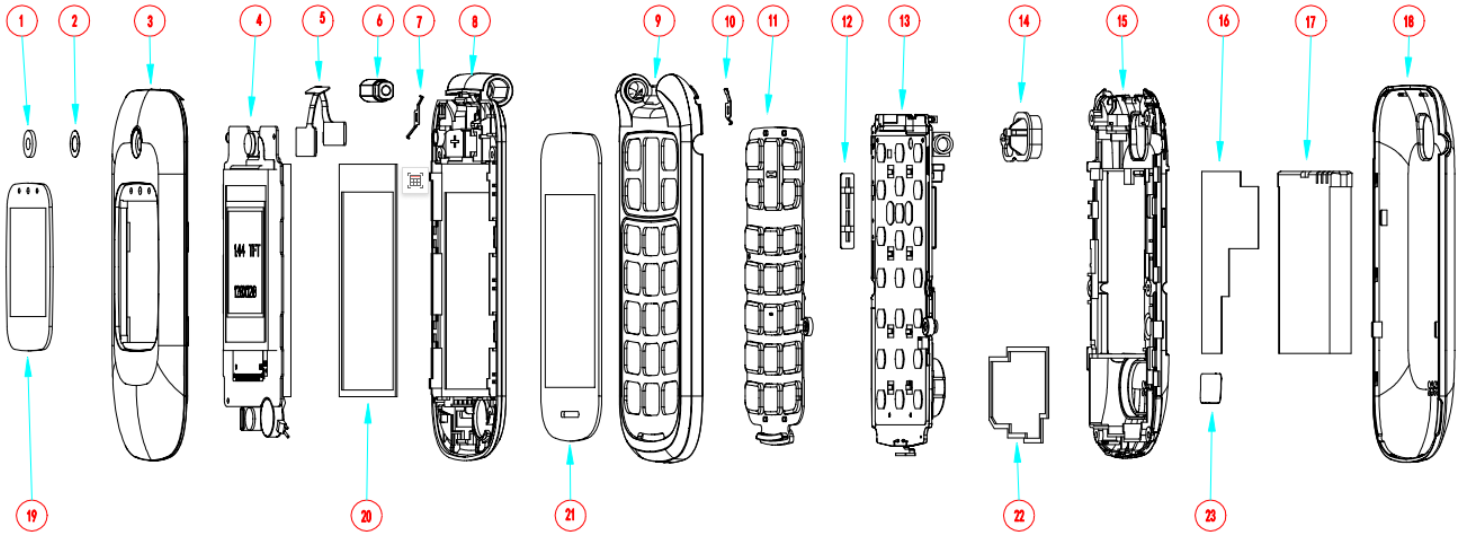



| | |
|---|---|
| 1 | Camera Lens |
| 2 | Camera Lens Back Chamber |
| 3 | Outer Shell |
| 4 | Components For Small Plates |
| 5 | Spindle FPC |
| 6 | Axis Of Rotation |
| 7 | Shaft Grounding Shrapnel A |
| 8 | B-shell |
| 9 | C-shell |
| 10 | Shaft Grounding Shrapnel B |
| 11 | Home Button |
| 12 | Side Button |
| 13 | Motherboard Assembly |
| 14 | SOS Button |
| 15 | D-shell |
| 16 | Body Tag |
| 17 | Batteries |
| 18 | Battery Cover |
| 19 | Small Screen Lens |
| 20 | LCD Foam |
| 21 | LCD Lens |
| 22 | Cavity Sealing Foam |
| 23 | Horn Dust Mesh |

# 6. How to turn on and off FlipPhone 6

Before performing any repairs, the unit must be turned off to prevent damage to internal components and to ensure safety during disassembly.

After completing repairs and completely reassembling the unit, you will need to turn the unit on again to verify that it is operating as intended.

## 6.1Turn on FlipPhone 6

Flip up the screen and press and hold the power button until the display lights up.

## 6.2Turn the screen on and off

When the phone is on, flip up the screen to light up the display interface, and snap shut the screen to automatically turn off the display interface.

## 6.3Turn off FlipPhone 6

Flip up the screen and press and hold the power button. Select “OK” from the options that appear to turn off the phone.

# 7. Dismantle

## Preparation for disassembly:

•Before performing maintenance, back up all important data stored in the device.

•Unplug and turn off the unit before disassembly.

•Wear safety goggles, safety gloves, and safety masks to ensure safety practices and reduce operational risks.

•Ensure that the operating environment is ESD compliant by wearing an anti-static wrist strap and connecting it to a grounded ESD safety mat.

## 7.1Removing the Battery Cover

### 7.1.1Purpose

Removing the battery cover is a fundamental step in the internal repair of a cell phone.

### 7.1.2Tools and equipment

| Name of the tool | Description of use |
|---|---|
| Prying piece | Used to insert the battery cover into the gap between the battery |

| | |
|---|---|
| | cover and the body, separating the connecting clips |

## 7.1.3Security and preventive measures

Need to wear anti-static wrist strap, safety gloves, goggles, operating environment in line with ESD specifications and no flammable materials.

## 7.1.4Pre-demolition inspection

Ensure that the device is completely turned off.

Safety protective gear has been worn, and the operating environment complies with ESD standards.

## 7.1.5Overview of the methodology

Insert the skid in the removal notch between the battery cover and the machine and carefully slide it along the edge to loosen the battery cover assembly.

## 7.1.6Step-by-step instructions

1.Locate the removal notch located at the bottom right corner of the battery cover and body.

2.Insert the tip of the prying piece into the notched gap to a depth of approximately 2 mm. using the insertion point as a pivot point, slowly slide the prying piece to both sides, loosening the clips in turn.

3.When the back cover is completely loose, carefully lift the battery cover.

**Description：**

When removing the battery cover, use the correct method and do not force the battery cover open, otherwise the battery cover may be cracked or deformed.

### 7.1.7Post-dismantling inspection

Inspect the phone to ensure that no parts were damaged during disassembly.

Check the battery cover for cracks or deformation.

### 7.1.8Relevant information

Assembling Battery Cover

## 7.2Remove Battery

### 7.2.1Purpose

Remove the battery to disconnect the device's power source, preventing short circuits caused by live operations and providing access for further repairs.

### 7.2.2Tools and equipment

| Name of the tool | Description of use |
|---|---|
| Prying piece | Prying Batteries |

### 7.2.3Security and preventive measures

Do not touch the battery contacts with metal tools.

Do not puncture, crush or bend the battery. A damaged battery may leak, catch fire, or even explode.

Do not dispose of old batteries in the regular trash. Please follow local e-waste and battery recycling regulations.

Need to wear anti-static wrist strap, safety gloves, goggles, operating environment in line with ESD specifications and no flammable materials.

## 7.2.4Pre-demolition inspection

Battery cover has been removed.

All power connections have been disconnected.

Safety gear has been worn and the operating environment is ESD compliant.

## 7.2.5Overview of the methodology

Insert the prying piece into the notch at the bottom of the battery and, using the notch as a pivot point, gently pry the prying piece upward to separate the battery from the body.

## 7.2.6Step-by-step instructions

1.Locate the removal notch in the lower right corner of the battery.


**2.**Insert a prying piece (or hard plastic piece) through the notch of the battery by 2-3mm. using the notch as a pivot point, gently pry the prying piece upward to separate the bottom of the battery from the body and gently remove the battery.


Description：

Inserting the prying piece more than 3mm may damage the battery.

Insulated tools without sharp edges must be used to avoid the tools from conducting electricity or cutting through the battery case due to sharp tips, resulting in battery leakage, fire and other risks.

## 7.2.7Post-dismantling inspection

Check that the battery is not scratched, flattened, bulging or leaking.

### 7.2.8Relevant information

Assembled Batteries

## 7.3Disassemble the D shell

### 7.3.1Purpose

Remove the D-shell to expose the internal critical components, facilitating subsequent maintenance operations.

### 7.3.2Tools and Equipment

| Name of the tool | Description of use |
|---|---|
| Prying piece | breakaway carabiner |
| Phillips screwdriver | Loosen the Phillips screws securing the D-shell. |
| tweezers | Disconnectable Connector |

### 7.3.3Security and preventive measures

Need to wear anti-static wrist strap, safety gloves, goggles, operating environment in line with ESD specifications and no flammable materials.

### 7.3.4Pre-demolition inspection

Battery cover and battery have been removed.

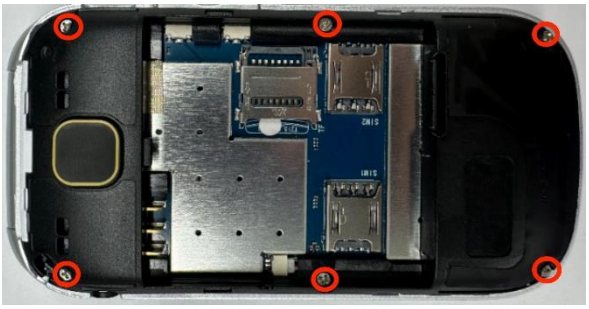
Safety gear has been worn and the operating environment is ESD compliant.

### 7.3.5Overview of the methodology

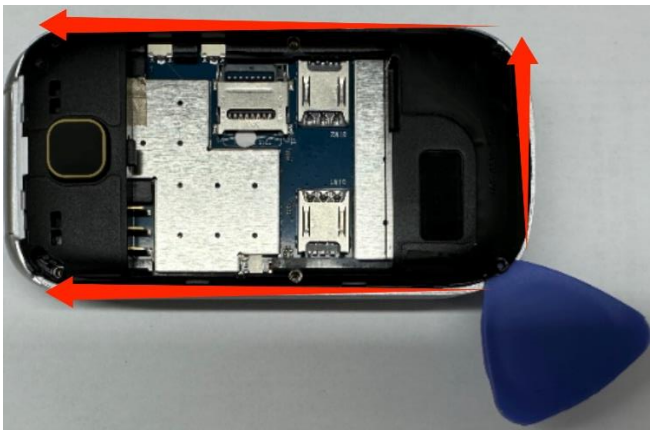
First, remove the screws securing the D-shell. Then, insert a pry tool along the edge into the gap to separate the body clips. Next, use tweezers to pull the male connector of the speaker out of the female connector socket on the motherboard. Finally, remove the buttons and speaker from the D-shell to complete its disassembly.

### 7.3.6Step-by-step instructions

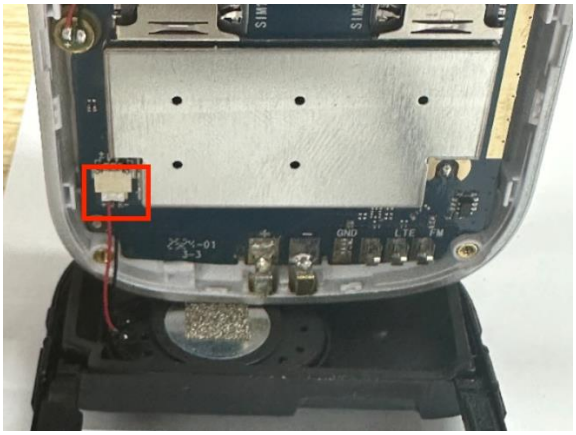
1. Locate the 6 screws on the rear housing and remove them using a Phillips head screwdriver.

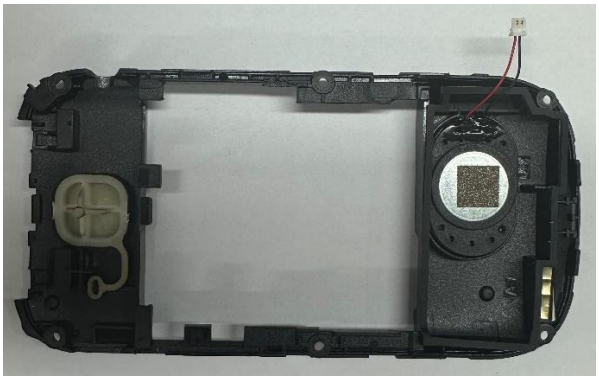


2. Insert the pry tool into the gap at the bottom of the D-shell and slowly slide it along the edge to release the clips one by one.

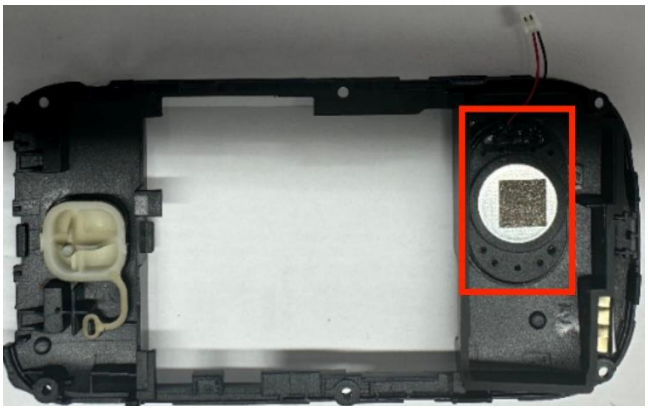


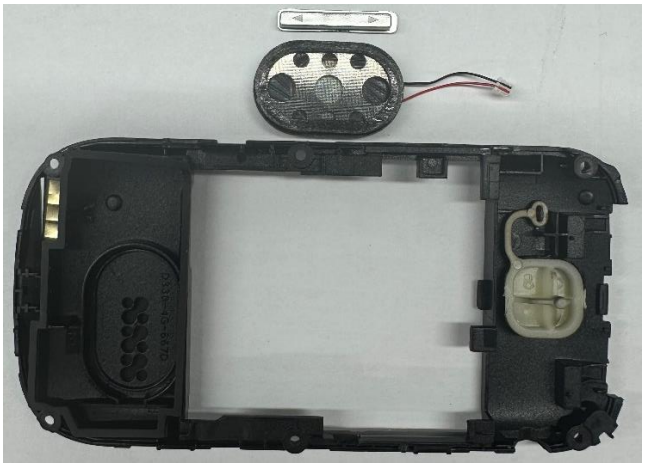
3. Use tweezers to remove the male connector from the speaker's female connector socket on the motherboard, then slowly lift the D-shell.





4.Locate the speaker's position, use the tip of the tweezers to pry the speaker out of its slot, then remove the volume button.





Description：

Check the number of screws removed and store them carefully to ensure that no screws remain in the body.

### 7.3.7Post-dismantling inspection

Check the inside of the phone to make sure that the motherboard, speakers, charging ports, and other components are not displaced or damaged.

Check the D-shell for cracks and broken clips.

### 7.3.8Relevant information

Assemble the D shell

## 7.4Removing the Main Board Assembly

### 7.4.1Purpose

Disassemble the motherboard assembly to create operational conditions for in-depth hardware troubleshooting while facilitating maintenance of components connected to the motherboard.

### 7.4.2Tools and equipment

| Name of the tool | Description of use |
| --- | --- |

| | |
|---|---|
| tweezers | Separation of FPC connectors, clamping of micro-components |
| crowbar | Remove the main board assembly |

## 7.4.3Security and preventive measures

Need to wear anti-static wrist strap, safety gloves, goggles, operating environment in line with ESD specifications and no flammable materials.

Do not touch the motherboard assembly pads or chip pins directly with metal tools.

## 7.4.4Pre-demolition inspection

The battery cover, battery and D shell assembly have been removed.

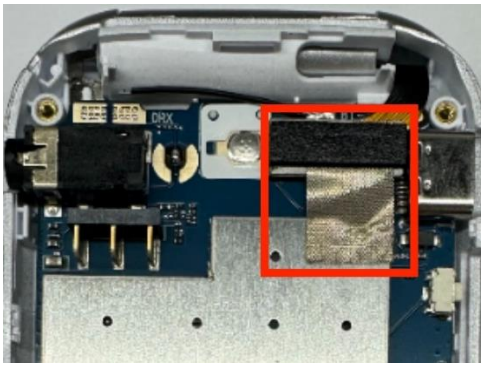
Safety gear has been worn and the operating environment is ESD compliant.

## 7.4.5Overview of the methodology

First, peel off the conductive fabric from the hinge FPC and disconnect its connector. Then separate the microphone and its connector. Next, use a pry tool to gently pry along the gap between the mainboard assembly and the C-shell edge to release the clips. Finally, carefully lift and remove the mainboard assembly.

## 7.4.6Step-by-step instructions

1. Locate the pivot FPC on the motherboard assembly. First, use tweezers to gently peel the conductive fabric of the pivot FPC away from the motherboard assembly. Then, insert the tweezers into the connector's edge and slowly pry the male connector out of the female socket, taking care not to tug on the ribbon cable.



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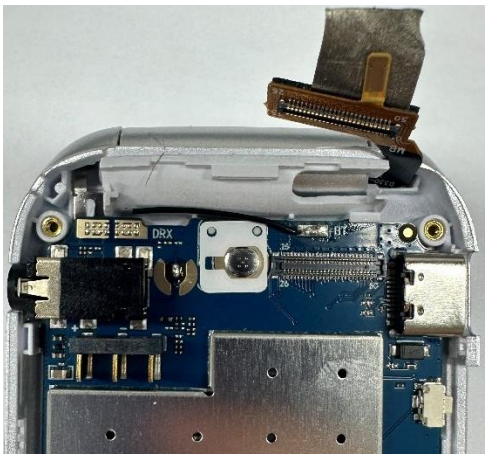
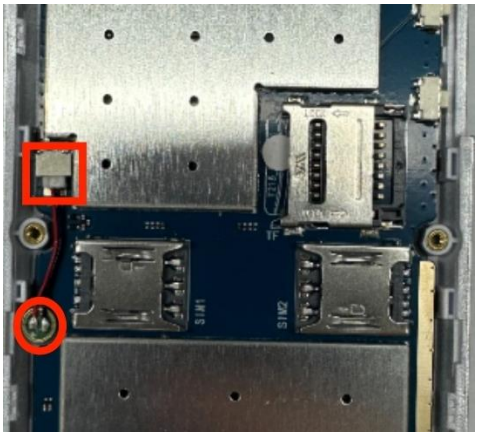
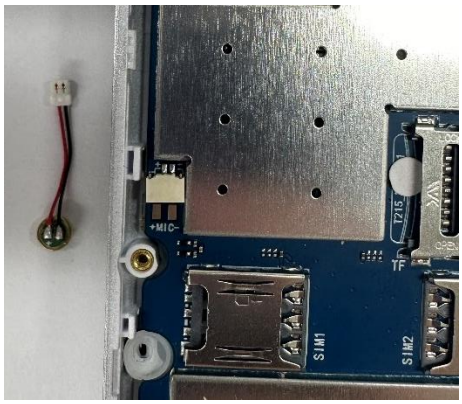
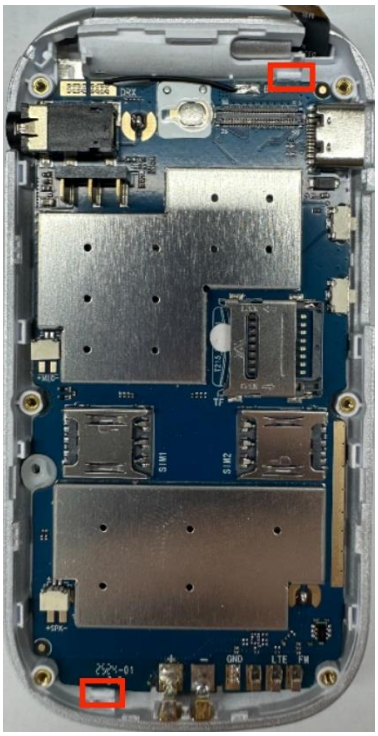


2. Locate the microphone. Gently insert the tip of the tweezers into the gap of the microphone groove. Slowly pry to separate the microphone from the C-shell assembly. Then use the tweezers to carefully pull the male connector of the microphone out of the female socket.

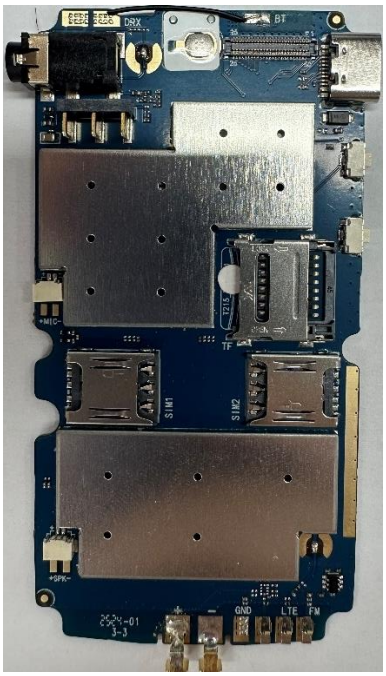





3. Insert the tip of the pry tool into the gap between the C-shell and the mainboard assembly. Slowly pry along the edge to release the clips one by one.



4. After confirming all clips are fully disengaged, grasp both sides of the motherboard assembly with both hands and lift it upward smoothly to remove the motherboard assembly.



## 7.4.7Post-demolition inspection

Inspect the motherboard assembly for deformation, check capacitors for bulging, verify solder pads for detachment, and examine circuit boards for burn marks.

Inspect chip surfaces for cracks and check pins for misalignment.

### 7.4.8Relevant information

Assemble the mainboard assembly

## 7.5Removing the LCD lens

### 7.5.1Purpose

Remove the LCD lens to replace shattered, scratched, or delaminated lens assemblies, or to repair issues such as display blurring caused by adhesive layer aging or foreign object intrusion. Simultaneously, removing the LCD lens exposes the screws securing the front bezel, facilitating subsequent bezel removal.

### 7.5.2Tools and Equipment

| Name of the tool | Description of use |
|---|---|
| tweezers | Remove the LCD lens |
| heat gun | Softening gel layer |
| suckers | Lift the edge of the screen to create a removal gap |

### 7.5.3Security and preventive measures

Need to wear anti-static wrist strap, safety gloves, goggles, operating environment in line with ESD specifications and no flammable materials.

The temperature of the hot air gun should be controlled below 70℃ to avoid high temperature damage to the screen or internal components of the body.

### 7.5.4Pre-demolition inspection

Safety gear has been worn and the operating environment is ESD compliant.

The battery cover and battery have been removed.

### 7.5.5Overview of the methodology

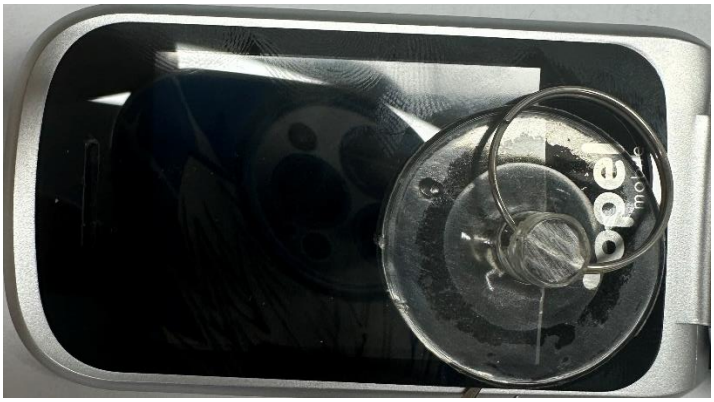
Heat the LCD lens with a heat gun until the adhesive layer softens. Use a suction cup to lift the edge of the LCD lens, creating a gap. Finally, use tweezers to carefully pry along the gap, gradually separating the LCD lens from the device body.

### 7.5.6Step-by-step instructions

1. Set the heat gun to 70° C and evenly heat the edges of the main screen for 2 minutes. Keep the heat gun perpendicular to the screen at a distance of approximately 10cm to prevent localized overheating.

2. Press the suction cup firmly against the edge of the LCD lens, ensuring complete contact with the surface. After pressing to expel air, use a strong, steady force to lift the suction cup, creating a gap between the LCD lens and the B-shell.

3.Insert the tweezers into the gap between the two surfaces, then slide them back and forth along the edge of the screen, using the edge of the tweezers to cut through the adhesive layer.



4.Repeat this process on all sides of the LCD lens, cutting through all adhesive layers. Slowly lift the LCD lens and gently remove it from the device.

Description：

1. If there is too much resistance when lifting the suction cup, reheat the corresponding area for 10-15 seconds, do not pull forcibly and cause the lens to break.

2.Never insert the tweezers more than 3mm due to possible damage to the internal screen.

## 7.5.7Post-dismantling inspection

Check the surface of the lens for cracks and scratches.

Observe the screen display layer for scratches and leaks.

### 7.5.8Relevant information

Assemble LCD lenses

## 7.6Remove the front cover

### 7.6.1Purpose

Remove the front cover to expose the internal components, providing access for subsequent disassembly.

### 7.6.2Tools and equipment

| Name of the tool | Description of use |
|---|---|
| prying piece | breakaway carabiner |
| Phillips screwdriver (i.e. with cross slit) | Loosen the Phillips screws in the rear housing |

### 7.6.3Security and preventive measures

Anti-static wrist straps, safety gloves, and goggles must be worn, and the operating environment must comply with ESD standards and be free of flammable materials.

### 7.6.4Pre-demolition inspection

Have removed the battery cover, battery, and LCD lens.

Safety gear has been worn and the operating environment is ESD compliant.

### 7.6.5Overview of the methodology

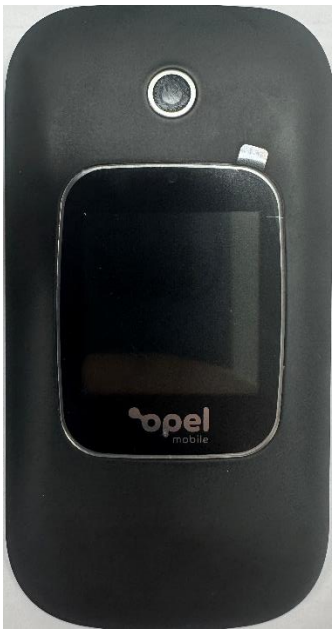
First, remove the four screws securing the front cover. Then, use a pry tool to separate the clips along the edge of the cover. Finally, remove the front cover.

### 7.6.6Step-by-step instructions

1. Locate the 4 screws behind the main screen lens and remove them using a Phillips head screwdriver.

2. Insert the pry tool into the gap at the bottom of the faceplate and slowly slide it along the edge to release the clips one by one.

3.After the latch is fully released, carefully lift the front cover.



Description：

Check the number of screws removed and store them carefully to ensure that no screws remain in the body.

## 7.6.7Post-dismantling inspection

Inspect the outer shell for cracks or deformation, and ensure the latches are intact without any breaks.

Check the internal components of the flip cover, such as the secondary display, earpiece, and motor, for displacement or damage.

## 7.6.8Relevant information

Assemble the front cover

# 7.7Disassembly of the Small Board Assembly

## 7.7.1Purpose

The small board assembly integrates core components such as the secondary display, earpiece, camera, motor, and main display. Disassembling the small board assembly allows for the inspection, replacement, or maintenance of these components to resolve device functionality issues caused by component damage or performance failures.

## 7.7.2Tools and equipment

| Name of the tool | Description of use |
| --- | --- |
| tweezers | Disconnect the connector |
| pry bar | Remove the motherboard assembly |

## 7.7.3Security and preventive measures

Anti-static wrist straps, safety gloves, and goggles must be worn, and the operating environment must comply with ESD standards and be free of flammable materials.

Do not touch the screen, earpiece diaphragm or camera lens with metal tools to prevent physical damage.

## 7.7.4Pre-demolition inspection

The battery cover, battery, LCD lens, and front cover have been removed.

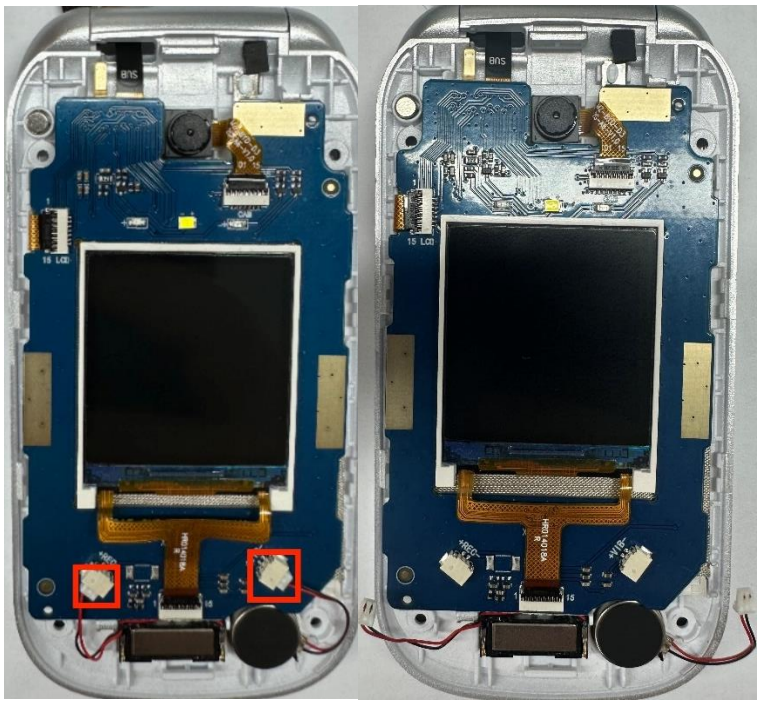
Safety gear has been worn and the operating environment is ESD compliant.

## 7.7.5Overview of the methodology

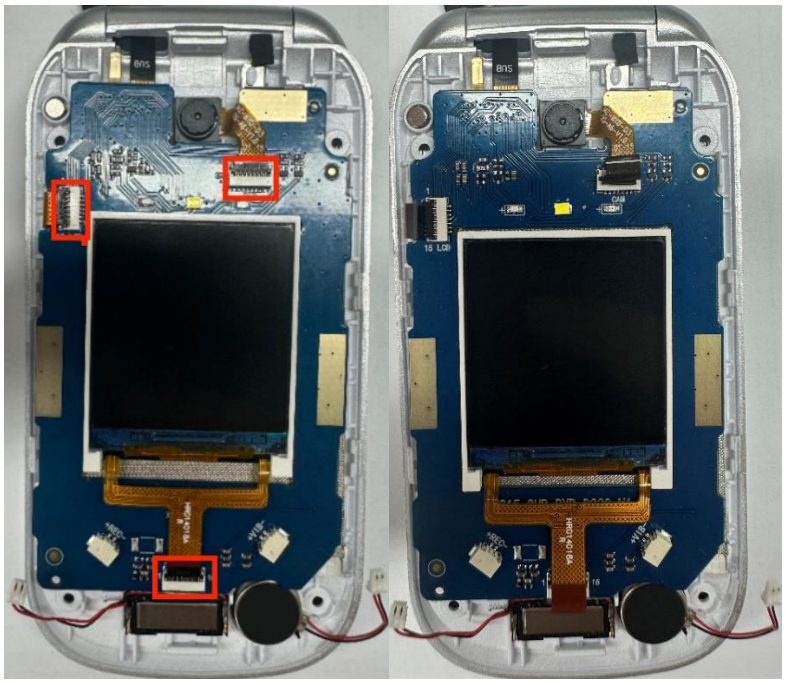
First, disconnect the connectors for the earpiece, motor, camera, main display, and secondary display. Then use a pry tool to remove the small board assembly. Next, disconnect the hinge FPC connector on the back of the small board assembly. Finally, remove the screen, earpiece, motor, camera, and other components along with the small board assembly.

## 7.7.6Step-by-step instructions

1.Locate the connector for the earpiece and motor. Using tweezers, gently pull the male connector out of the female socket.



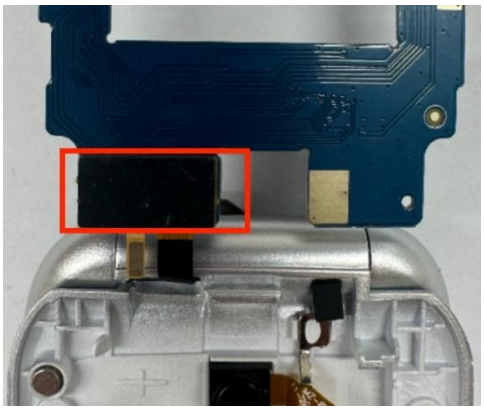
2.Locate the corresponding ZF connectors for the camera, secondary display, and primary display on the small board assembly. Lift the locking tabs on the ZF connectors (flip upward 90 ° ), then slowly pull out the FPC.



3. Remove the secondary display from the small board assembly. Insert the tip of the pry tool into the gap between the B-shell and the edge of the small board assembly. Slowly pry along the edge to release the clips one by one.

English


4. Gently flip the small board assembly over to locate the connector for the pivot FPC. Insert tweezers into the connector's edge and carefully pry the male connector out of the female socket to complete the disassembly of the small board assembly.



5. Locate the earpiece, motor, and camera. First, use the tip of the tweezers to gently pry up one corner from their edges. Then slowly remove them from the B-shell. Finally, take the main screen out of the B-shell.

### 7.7.7Post-demolition inspection

Inspect the circuit board for cracks, deformation, and detached solder pads.

Confirm the screen is free of cracks and the earpiece diaphragm is undamaged.

Check the connecting cables and ribbon cables for breaks or damage.

### 7.7.8Relevant information

Assembly of Small Board Subassemblies

# 8. Assembly

## Before reassembly：

Carefully inspect the body to ensure that there are no residual screws, solder debris, or other foreign objects.

Wear safety goggles, safety gloves, and safety masks to ensure safety practices and reduce operational risks.

Ensure that the operating environment is ESD compliant by wearing an anti-static wrist strap and connecting it to a grounded ESD safety mat.

## After reassembly:

After repairing and assembling the device, go to “Handset Test” to check if the components or sensors in the device are working properly. For more information, see Device Startup Options.

# 8.1Assembly of Small Board Subassemblies

## 8.1.1Purpose

Properly install the small board assembly onto the device body to restore screen display, earpiece audio, camera functionality, and motor vibration. Ensure stable electrical connections for all components.

## 8.1.2Tools and equipment

| Name of the tool | Description of use |
| --- | --- |
| tweezers | Auxiliary Connector Connection |

## 8.1.3Security and preventive measures

Anti-static wrist straps, safety gloves, and goggles must be worn, and the operating environment must comply with ESD standards and be free of flammable materials.

Do not touch the screen, earpiece diaphragm, camera lens, or FPC flex cable contacts with metal tools to prevent physical damage.

## 8.1.4Pre-assembly Inspection

Confirm that the small board has no cracks or deformation, the solder pads are intact, the FPC cable outer layer is undamaged, and the connector interfaces are in good condition.

Inspect the auxiliary screen, camera, and main screen to be installed for cracks, dust, or fingerprints.

Check the installation slots to ensure no foreign objects such as residual screws or debris remain.

## 8.1.5Overview of the methodology

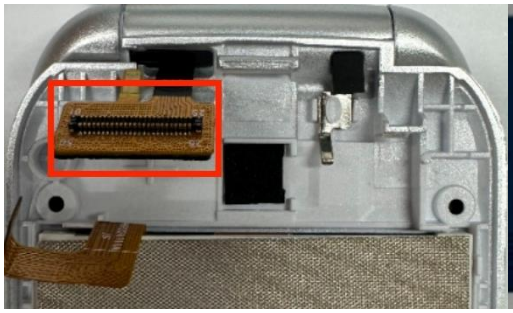
Install the main display into the recess of the B-shell. Next, insert the male connector of the hinge FPC into the female socket on the sub-board assembly. Then align and snap the sub-board assembly into place with the positioning clips on the B-shell. Subsequently, install the camera and secondary display, then insert the FPC cables for the camera and both displays into the corresponding ZF connectors on the sub-board assembly. Finally, embed the earpiece and motor, and insert their male connectors into the corresponding female sockets on the sub-board assembly.

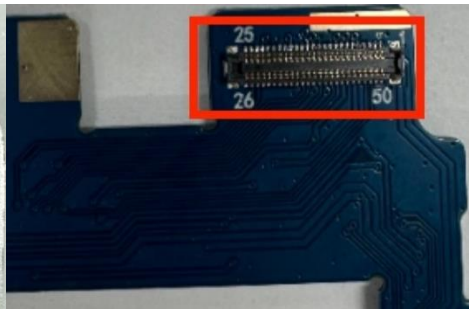
## 8.1.6Step-by-step instructions

1.Place the main screen into its corresponding recess in the B shell.

English

2. First, slowly insert the male connector of the rotary shaft FPC connector vertically into the female socket of the small board assembly until the contacts are fully seated. Then align the small board assembly with the latches on the B shell. Apply even pressure along the edge of the front small board assembly with your fingers to sequentially engage the latches on both sides.

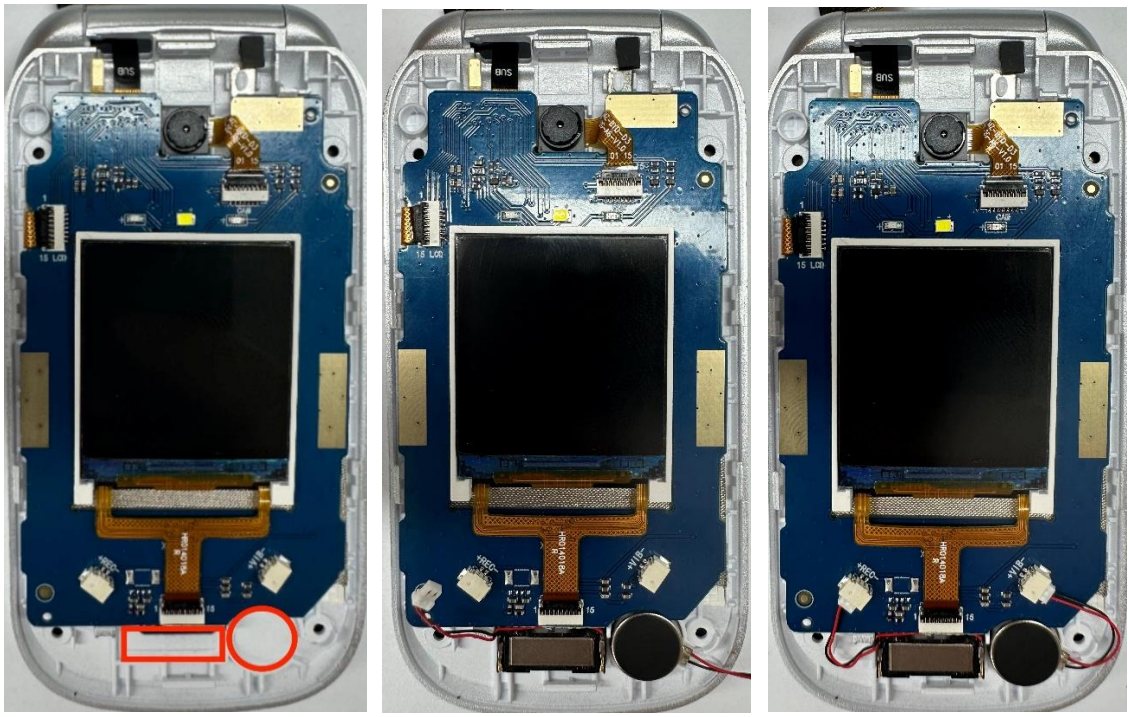






3.Place the camera and secondary display into their corresponding recesses on the B shell. Insert the FPC cables for the camera, primary display, and secondary display into their respective ZF connectors on the sub-board assembly until the contacts are fully seated. Finally, press the latches to secure them.


4. Place the earpiece and motor into their corresponding recesses on the B shell. Then insert the male connector of the earpiece and motor into the corresponding female socket on the small board assembly.



## 8.1.7Post-assembly inspection

Inspect the FPC cable for tight alignment, checking for twists, creases, or excessive tension. Ensure the connector plug is fully seated in the socket, with no exposed or misaligned parts.

Verify that the earpiece, motor, camera, secondary display, and primary display are securely seated in the B-shell grooves, with no lifting, wobbling, or misalignment.

Inspect the screen for scratches or liquid leakage; check the earpiece diaphragm for damage; examine the camera lens for fingerprints, dust, or cracks.

### 8.1.8Relevant information

Disassembly of the Small Board Assembly

## 8.2Assemble the front cover

### 8.2.1Purpose

Install the outer casing onto the equipment to protect the internal small board assemblies and components, ensuring structural integrity and restoring dustproof and waterproof performance.

### 8.2.2Tools and equipment

This procedure requires no tools.

### 8.2.3Security and preventive measures

Anti-static wrist straps, safety gloves, and goggles must be worn, and the operating environment must comply with ESD standards and be free of flammable materials.

Do not forcefully press the faceplate to prevent uneven stress causing snap-fit connectors to break or internal components to shift.

### 8.2.4Pre-assembly Inspection

Inspect the front bezel for cracks and check if any clips are broken.

Carefully examine the interior for any residual screws, debris, adhesive residue, or other foreign objects.

Safety gear is worn, and the operating environment complies with ESD standards.

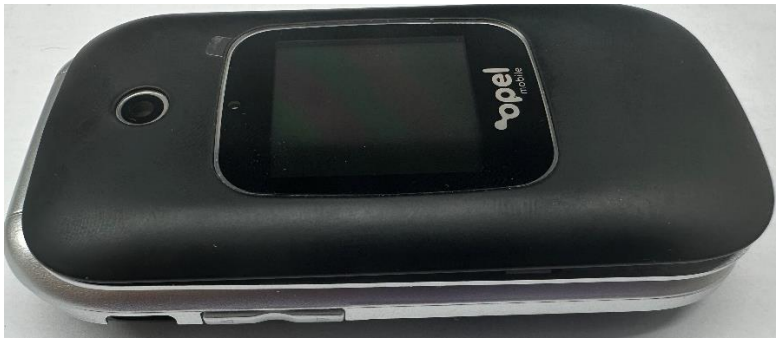
Confirm that the sub-board assembly and hinge are correctly installed.

### 8.2.5Overview of the methodology

First, insert the top latch of the cover into the corresponding slot on the body. Then, gradually snap the remaining latches into place along the edges.

### 8.2.6Step-by-step instructions

1. Pick up the front cover, align the clips on its top with the corresponding slots on the B cover, and insert it.



2.Starting from the bottom and working upward, gently press along the left and right edges of the faceplate, allowing the clips on both sides to snap into place sequentially.


### 8.2.7Post-assembly inspection

Inspect whether the front cover and B-shell edges are tightly bonded, checking for any noticeable gaps, misalignment, or lifting.

### 8.2.8Relevant information

Remove the front cover

## 8.3Assemble LCD lenses

### 8.3.1Purpose

Precisely install the LCD lens onto the B-shell to restore the screen surface's integrity and protective function.

### 8.3.2Tools and equipment

| Name of the tool | Description of use |
|---|---|
| Phillips head screwdriver (i.e. with cross slit) | Tighten the fixed Phillips screws |

### 8.3.3Security and preventive measures

Anti-static wrist straps, safety gloves, and goggles must be worn, and the operating environment must comply with ESD standards and be free of flammable materials.

## 8.3.4Pre-assembly Inspection

Carefully inspect the slot for any residual screws, debris, or other foreign objects.

Safety protective gear has been worn, and the operating environment complies with ESD standards.

Confirm that the sub-board assembly, pivot shaft, and front bezel are correctly installed.

Verify that the LCD lens is free of cracks, scratches, or deformation.

## 8.3.5Overview of the methodology

First, screw in the four screws securing the fixed faceplate. Next, align the lens with the mounting groove on the B-shell. Finally, press the lens evenly to ensure complete adhesion.

## 8.3.6Step-by-step instructions

1. Tighten the four screws securing the fixed faceplate evenly in a diagonal sequence.

2. Align the lens precisely with the mounting groove on the B shell, ensuring the lens edge fully matches the shell's positioning groove. Then press evenly from the center of the lens outward.


### 8.3.7Post-assembly inspection

Inspect whether the LCD lens is tightly bonded to the edge of the B shell, checking for any noticeable misalignment or lifting.

Examine the lens surface for bubbles, dust residue, or foreign objects.

### 8.3.8Relevant information

Removing the LCD lens

## 8.4Assemble the mainboard assembly

### 8.4.1Purpose

Precisely install the motherboard assembly into the chassis, restore the integrity of core circuit connections, and ensure all device functions operate normally.

### 8.4.2Tools and equipment

| Name of the tool | Description of use |
|---|---|
| tweezers | Clamping Microcomponents |

### 8.4.3Security and preventive measures

Anti-static wrist straps, safety gloves, and goggles must be worn, and the operating environment must comply with ESD standards and be free of flammable materials.

It is strictly prohibited to touch the motherboard assembly pads, chip pins or FPC cable contacts directly with metal tools to prevent short circuit or physical damage.

## 8.4.4Pre-assembly Inspection

Verify that no foreign objects such as residual screws, solder debris, or adhesive residue remain in the motherboard assembly mounting slot.

Confirm that the motherboard assembly shows no deformation, solder pads are intact, capacitors are free of bulging, and chip pins are not bent.

Inspect the microphone for cosmetic damage and verify the cable is free from breaks or tears.

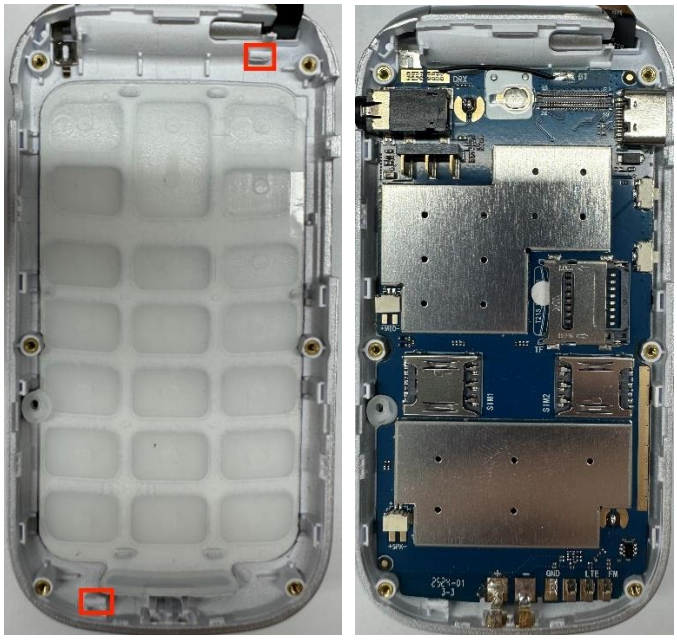
Anti-static wrist straps and safety gloves are worn, and the operating environment complies with ESD standards.

## 8.4.5Overview of the methodology

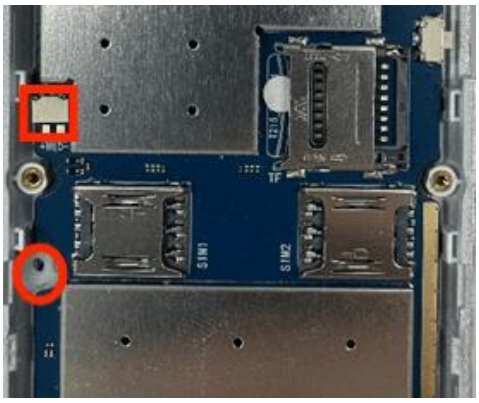
First, align the mainboard assembly with the mounting slot on the C-shell and insert it smoothly. Next, place the microphone into the corresponding recess and connect its connector. Then, insert the hinge FPC connector plug into the mainboard assembly socket and apply the conductive cloth.

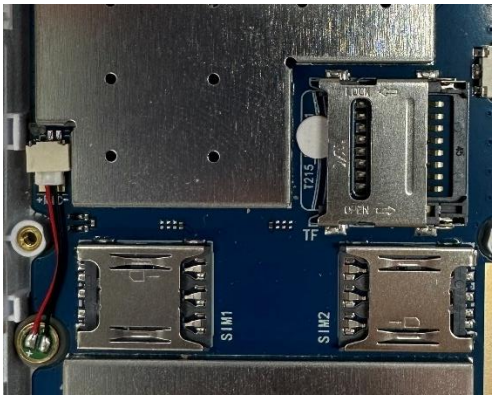
## 8.4.6Step-by-step instructions

1.Carefully lift the motherboard assembly with both hands and align it with the mounting slots and clips on the C-shell of the chassis. Ensure the edges of the motherboard are perfectly aligned with the edges of the slots to prevent tilting or misalignment.

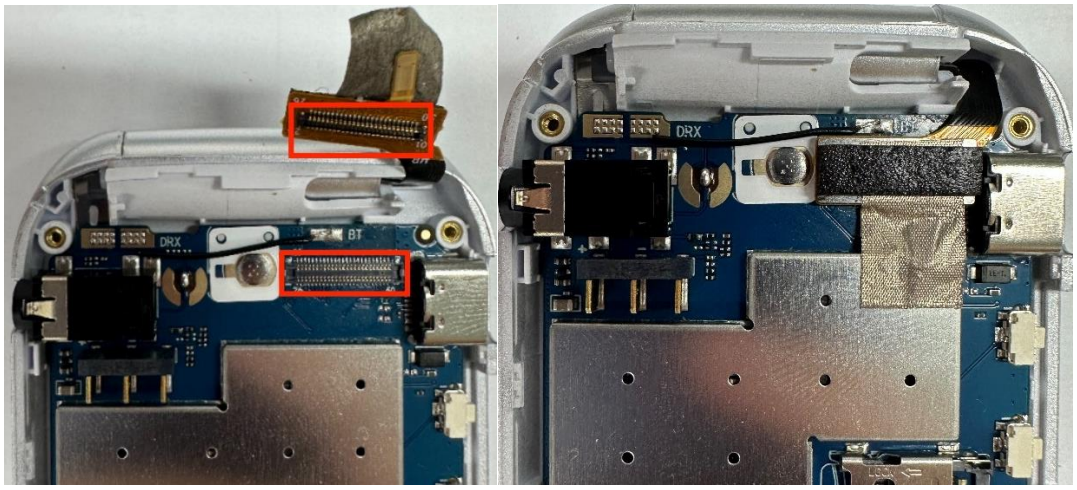


2. Locate the microphone and place it into the corresponding slot on the C-shell. Using tweezers, grasp the male connector of the microphone and align it with the female socket on the motherboard. Slowly insert it until it is fully seated, ensuring a secure connection.




3.Insert the male connector of the rotary shaft FPC connector vertically and slowly into the female socket of the mainboard assembly, and attach the conductive fabric to the shielding cover.




### 8.4.7Post-assembly inspection

Inspect whether the motherboard assembly fits snugly into the chassis mounting slots, checking for any noticeable gaps or lifting.

Verify that male connectors are fully seated in their female sockets, and ensure that ribbon cables show no signs of twisting, pulling, or excessive bending.

### 8.4.8Relevant information

Disassembly of the Mainboard Assembly

## 8.5Assemble D shell

### 8.5.1Purpose

Properly reinstall the D shell onto the chassis to restore the device's physical protection capabilities and secure the internal components.

### 8.5.2Tools and equipment

| Name of the tool | Description of use |
| --- | --- |

| | |
|---|---|
| Phillips screwdriver | Tighten the Phillips screws securing the D-shell. |
| tweezers | Auxiliary Connector Installation |

## 8.5.3Security and preventive measures

Anti-static wrist straps, safety gloves, and goggles must be worn, and the operating environment must comply with ESD standards and be free of flammable materials.

Do not forcefully press the D-shell to prevent uneven stress causing snap-fit connectors to break or internal components to shift.

## 8.5.4Pre-assembly Inspection

Inspect the D-shell for cracks and check if any clips are broken.

Thoroughly examine the interior for any residual screws, debris, or adhesive residue to ensure no foreign objects remain.

Safety protective gear has been worn, and the operating environment complies with ESD standards.

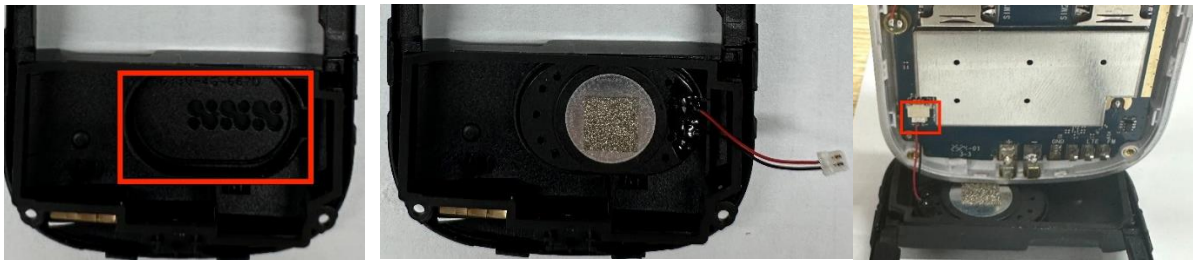
Confirm the motherboard assembly is correctly installed.

## 8.5.5Overview of the methodology

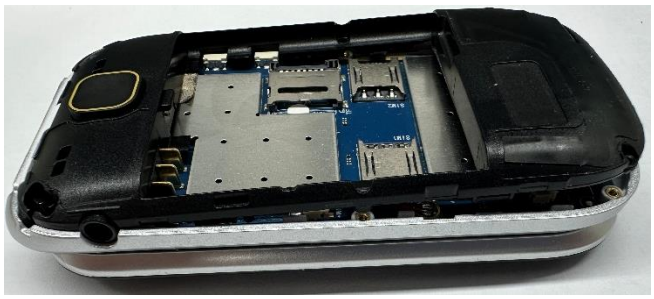
First, install the buttons and speaker into their corresponding slots on the D-shell, then insert the speaker's male connector into the female socket. Next, align the D-shell with the midframe clips on the device body, pressing along the edges to gradually snap it into place. Finally, tighten the securing screws in a diagonal sequence to ensure the shell fits snugly against the device body.

## 8.5.6Step-by-step instructions

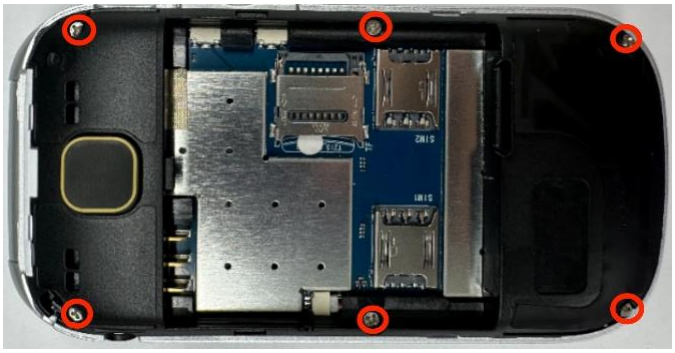
1.Slide the volume key into the corresponding positioning slot on the C shell. Place the speaker into the corresponding recess on the C shell. Using tweezers, grasp the male connector of the speaker and align it with the female socket on the motherboard. Slowly insert it until fully seated, ensuring a secure connection.



2.Align the top edge of the D-shell with the top of the device body, ensuring the shell's clips align with the corresponding slots. Gently press along the edge of the shell to snap the clips into place on all four sides (a distinct “click” sound indicates each clip is locked). Ensure the shell's edges are fully flush with the device body.



3. Using a Phillips screwdriver, evenly tighten the 6 mounting screws into the D-shell screw holes in a diagonal sequence.



### 8.5.7Post-assembly inspection

Inspect whether there are any noticeable gaps between the D-shell and the main body, whether the edges are flush, and whether any screws are loose or stripped.

### 8.5.8Relevant information

Disassemble the D shell

## 8.6Assemble the battery

### 8.6.1Purpose

Properly reinstall the battery into the device body to restore power supply, ensuring the battery contacts are securely connected to the device interface.

### 8.6.2Tools and equipment

This program does not require any tools.

### 8.6.3Security and preventive measures

Do not touch battery terminals with metal tools.

Do not puncture, crush, or bend the battery. Damaged batteries may leak, catch fire, or explode.

Dispose of used batteries according to local electronic waste regulations. Do not place them in regular trash bins.

Wear an anti-static wrist strap, safety gloves, and goggles. Ensure the operating environment complies with ESD standards and is free of flammable materials.

### 8.6.4Pre-assembly Inspection

Inspect the battery surface for dents, scratches, bulging, or signs of electrolyte leakage to ensure the battery is cosmetically intact.

Thoroughly examine the interior of the battery compartment for any residual screws, debris, or other foreign objects.

Safety protective gear has been worn, and the operating environment complies with ESD standards.

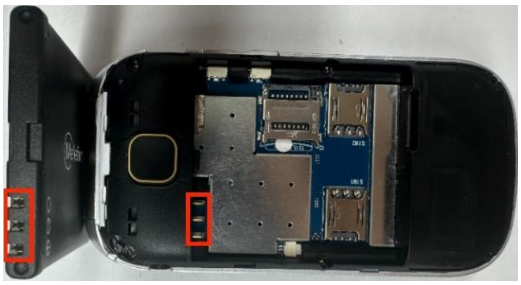
Confirm that components such as the mainboard assembly, sub-board assembly, D-shell, and LCD lens have been correctly installed.

### 8.6.5Overview of the methodology

Align the battery contacts with the positioning protrusions inside the device's battery compartment. Slowly insert the battery, ensuring the contacts align precisely with the interface and the battery is fully seated in the slot.

### 8.6.6Step-by-step instructions

Hold the battery and align the contacts on its top with the protrusions in the device's slot. Slowly insert the battery until it is fully seated in the slot. If resistance is encountered during insertion, do not force it. Instead, check whether the alignment is off.



### 8.6.7Post-assembly inspection

Check that the battery is fully seated in the battery compartment, with the contacts tightly aligned with the device's interface and the battery edges flush with the device body.

Inspect the battery surface to ensure there are no new dents, scratches, or bulges, and no signs of electrolyte leakage.

### 8.6.8Relevant information

Remove the battery

## 8.7Assemble the Battery Cover

### 8.7.1Purpose

Properly reinstall the battery cover onto the device body to restore its physical protective properties and ensure internal components are securely fastened in place.

### 8.7.2Tools and equipment

No tools are required for this process.

### 8.7.3Security and preventive measures

Anti-static wrist straps, safety gloves, and goggles must be worn, and the operating environment must comply with ESD standards and be free of flammable materials.

Do not forcefully press down on the battery cover to avoid uneven stress on the latches, which may cause breakage or internal component displacement.

### 8.7.4Pre-assembly Inspection

Inspect the battery cover for cracks and check if the latches are broken.

Carefully examine the interior for any remaining screws, debris, or other foreign objects.

Safety gear has been worn, and the operating environment complies with ESD standards.

Confirm that the battery and all internal components have been installed.

### 8.7.5Overview of the methodology

Align the body with the battery cover latch, starting from the top, and gradually press the battery cover along the edge to close it.

### 8.7.6Step-by-step instructions

1.Align the top of the battery cover with the body first, then gently press the top of the battery cover to initially snap the bottom clips together.

2.Press along the edges of the battery cover from left to right and from top to bottom to ensure that the edge tabs snap together one by one.

### 8.7.7Post-assembly inspection

Check that the battery cover is flat, with no warping or dents.

Gently run your fingernail along the edges of the battery cover to ensure all clips are fully engaged and there are no noticeable gaps between the cover edges and the device body.

### 8.7.8Relevant information

Remove the battery cover

# 9. Repair Instructions

## 9.1 How to replace the battery

### 9.1.1 Purpose

This process is designed to guide users in safely replacing device batteries, resolving issues such as battery aging, reduced battery life, and swelling that cause abnormal device power supply, and restoring normal device functionality.

### 9.1.2 Prerequisites

The battery cover has been removed.

The device has been completely shut down and disconnected from all external power sources.

Safety protective equipment has been worn, and the operating environment complies with ESD specifications.

### 9.1.3 Tools and equipment

| Name of the tool | Description of use |
|---|---|
| Prying piece | pry battery |

### 9.1.4 Security and preventive measures

Do not touch the battery terminals with metal tools.

Do not puncture, crush, or bend the battery. Damaged batteries may leak, catch fire, or explode.

Used batteries must be disposed of in accordance with local electronic waste recycling regulations and must not be placed in regular trash bins.

Anti-static wrist straps, safety gloves, and goggles must be worn, and the operating environment must comply with ESD standards and be free of flammable materials.

### 9.1.5 Overview of the methodology

Take a prying piece (or hard plastic sheet) and slowly insert it into the notch at the bottom of the battery. Using the notch as a fulcrum, gently pry the prying piece upward to separate the bottom of the battery from the device first. Then align the replacement battery contacts with the positioning protrusions in the device's battery compartment and slowly push the battery into place to complete the installation.

### 9.1.6 Step-by-step instructions

1.Locate the removal notch on the bottom of the battery.


2.Insert a pry tool (or rigid plastic card) 2-3mm into the notch on the battery. Using the notch as a fulcrum, gently pry upward to separate the battery base from the device body. Carefully lift along the battery's edge to remove the old battery completely.


3. Take the new battery and position it with the battery contacts facing the device's battery compartment. Align the contacts on the top of the battery with the raised tabs inside the

compartment. Gently push the battery into place until it is fully seated. If you encounter resistance, do not force it. Instead, check if the alignment is off.

Description：

Inserting the prying piece more than 3 mm may damage the battery.

It is essential to use insulated tools with no sharp edges to prevent the tools from conducting electricity or damaging the battery casing with sharp edges, which could puncture the battery cells and cause risks such as battery leakage or fire.

### 9.1.7 Reassembly reference

After replacing the battery, reinstall the battery cover.

### 9.1.8Check after replacement

Check that the battery is fully inserted into the battery compartment of the device, that the contacts are aligned with the device interface, and that the edges of the battery are flush with the device.

Observe the surface of the battery to ensure that there are no new dents, scratches, or bulges, and no signs of electrolyte leakage.

After turning on the device, confirm that the battery power display is normal and there are no charging abnormalities.

## 9.2 How to replace the display screen

### 9.2.1 Purpose

This procedure explains how to replace the device's display screen to resolve display malfunctions caused by issues such as screen cracks, liquid leakage, display abnormalities.

### 9.2.2 Prerequisites

The battery cover, battery, LCD lens, and front bezel have been disassembled in sequence.

Safety protective gear has been worn, and the operating environment complies with ESD standards.

### 9.2.3 Tools and equipment

| Name of the tool | Description of use |
| --- | --- |

| | |
|---|---|
| pry bar | Remove the motherboard assembly |
| tweezers | Clamp Connector |

## 9.2.4 Security and preventive measures

The unit has been completely shut down and disconnected from all external power sources.

Need to wear anti-static wrist strap, safety gloves, goggles, operating environment in line with ESD specifications and no flammable materials.

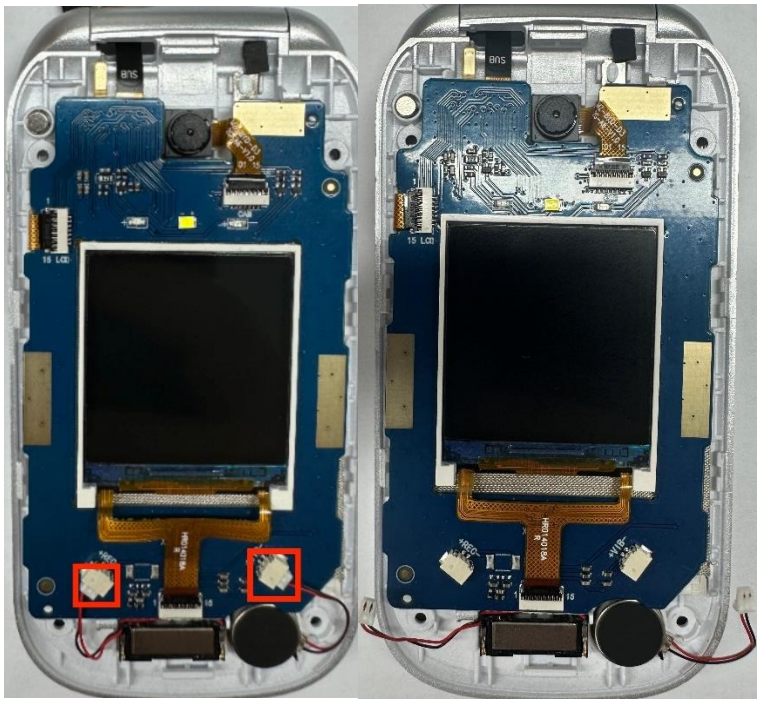
It is prohibited to touch the screen and cable contacts directly with metal tools to prevent physical damage.

## 9.2.5 Overview of the methodology

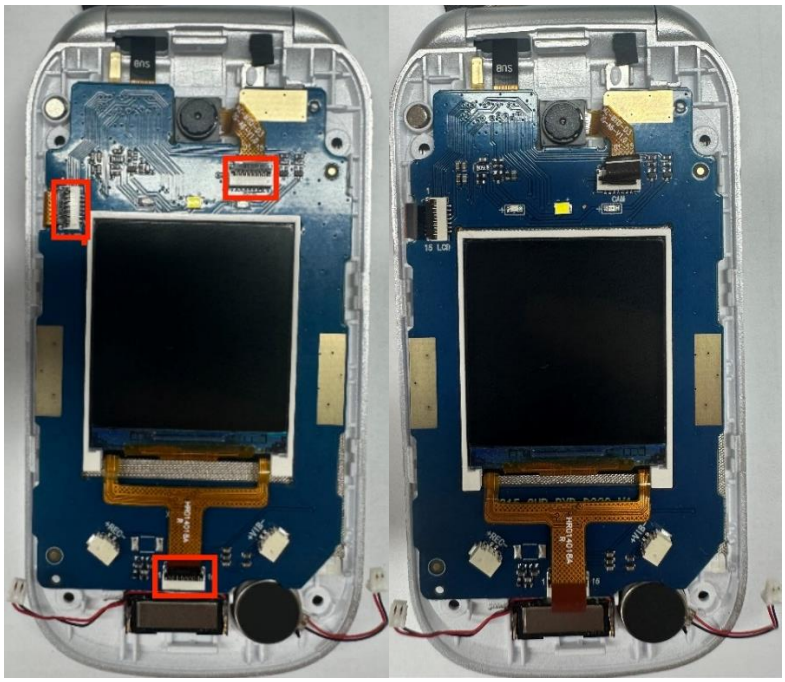
First disconnect the connectors for the screen, camera, earpiece, and motor. Remove the old secondary display, then use a pry tool to detach the small board assembly. Disconnect the hinge FPC connector, and finally remove the old primary display. Install the new main display into the B-shell groove, connect the hinge FPC connector, snap the small board assembly into place, install the camera and new secondary display, then connect the camera and display FPC cables. Finally, insert the earpiece and motor and connect their respective connectors to complete the display replacement.

## 9.2.6 Step-by-step instructions

1.Locate the connector for the earpiece and motor. Using tweezers, gently pull the male connector out of the female socket.

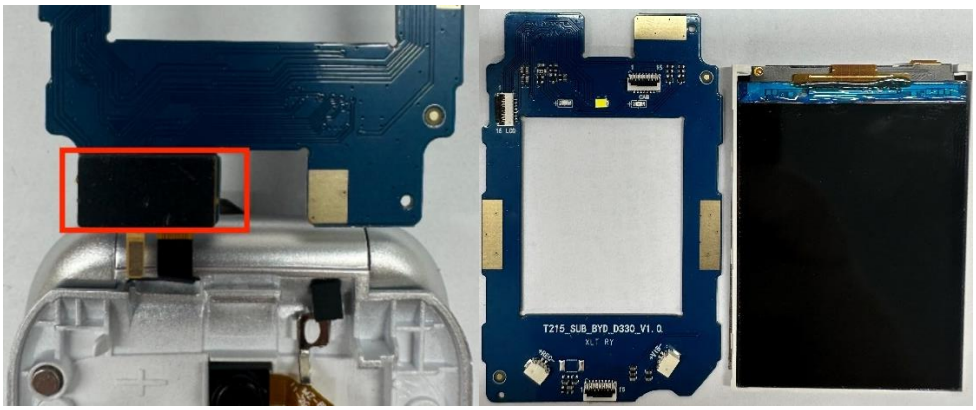


2.Locate the corresponding ZF connectors for the camera, secondary display, and primary display on the small board assembly. Lift the locking tabs on the ZF connectors (flip upward 90 ° ), then slowly pull out the FPC.



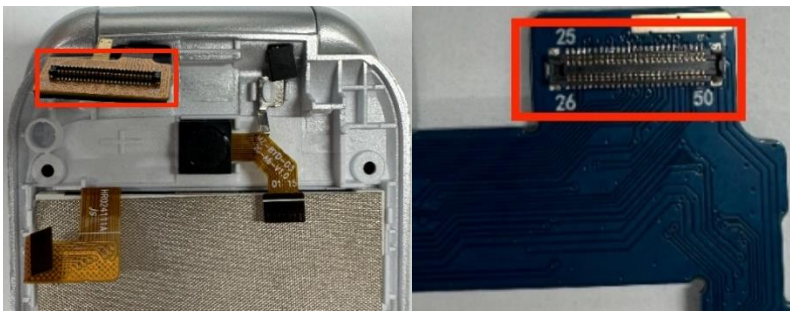
3. Gently remove the secondary display from its groove. Insert the tip of the pry tool into the gap between the B-shell and the small board assembly. Slowly pry along the edge to release the clips one by one.


4. Gently flip the small board assembly over to locate the connector for the hinge FPC. Insert tweezers into the connector's edge and carefully pry the male connector out of the female socket to complete the split of the small board assembly. Finally, carefully remove the old main display from the groove in the B shell.

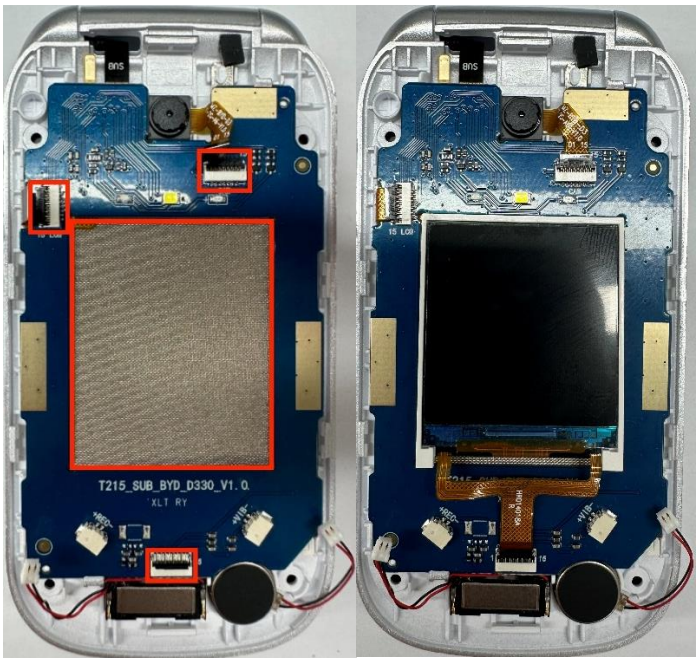



5. Place the new main screen into the corresponding groove on the B shell, ensuring the screen edges are perfectly aligned with the slot without any tilting or lifting.

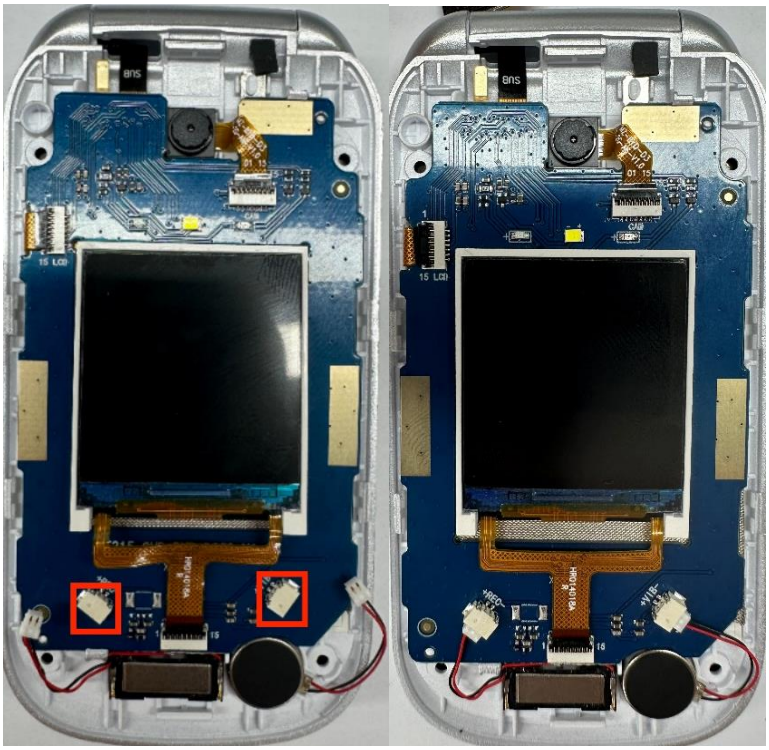
6. First, slowly insert the male connector of the rotary shaft FPC connector vertically into the female socket of the small board assembly until the contacts are fully seated. Then align the small board assembly with the latches on the B shell. Apply even pressure along the edge of the front small board assembly with your fingers to sequentially engage the latches on both sides.




7. Insert the secondary display into its corresponding recess. Then insert the FPC cables for the camera, primary display, and secondary display into the corresponding ZF connectors on the sub-board assembly. After ensuring the cable contacts are fully seated, press the latches to secure them.




8. Using tweezers, align the male connector of the earpiece and motor with the corresponding female socket on the small board assembly. Insert it vertically until fully seated, ensuring a stable electrical connection.



### 9.2.7 Reassembly reference

After completing the screen assembly replacement, reset the components in the following order:

Assembling the flip-up rear case → Assembling the LCD lens → Assembling the battery → Assembling the battery cover.

### 9.2.8 Check after replacement

Check the display surface for scratches and fluid leaks.

Turn on the power to make sure the display is normal, with or without splash screen, flickering or color blocks.

# 10. Troubleshooting

| ⚠ CAUTION |
| --- |
| This section is intended for technical personnel and maintenance professionals only. |

## 10.1 Reset software

### 10.1.1 Purpose

Through the reset software to solve the problems caused by system file corruption, configuration abnormality, application conflict, etc., such as device operation lag, abnormal function or system crash, to restore the normal operation status of the device software level.

### 10.1.2 Prerequisites

The device battery level must be kept above 50% to avoid system damage caused by power failure during the reset process.

Back up important data on your device in advance to prevent data loss due to reset operations.

Ensure that the device is disconnected from all external power sources and external devices (such as USB cables, headphones, etc.).

### 10.1.3 Security and preventive measures

The reset operation will erase all user data stored on the device. Please ensure that you have backed up your data.

Please refrain from performing frequent resets unless necessary, as this may affect the service life of the device and system stability.

Do not force shut down or interrupt the operation during the reset process, otherwise the device may not start up normally.

### 10.1.4 Normal factory reset

Turn on the device, then navigate to: Settings > Phone Settings > Restore Factory Settings. In the pop-up menu, select “OK.”

### 10.1.5Non-standard factory reset

After entering the phone's test mode, select “Restore factory settings,” then choose “OK” from the options that appear.

### 10.1.6 Check after reset

After restarting the device, confirm that the system interface loads normally, with no black screen, screen distortion, or repeated restarts.

Test whether each functional module (such as call, network, camera, touch screen, etc.) is operating normally.

## 10.2Device startup options

### 10.2.1 Purpose

Assist in troubleshooting hardware faults, repairing system problems, or conducting functional tests through different startup modes, providing technical support for fault diagnosis and repair.

### 10.2.2Safety precautions

When entering non-standard startup modes (such as safe mode or factory mode), it is essential to follow the steps carefully to avoid accidental touches that could cause system abnormalities.

### 10.2.3Normal startup

Operating Instructions：Press and hold the power button until the screen lights up and the startup animation appears. The device will start up the system using the default settings.

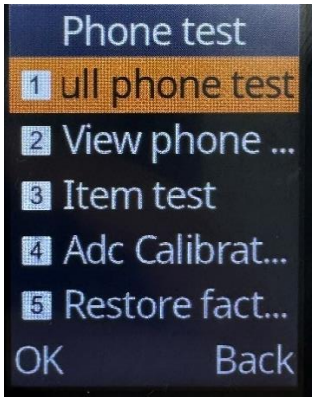
## 10.2.4Cell Phone Testing

**Access Methods：**

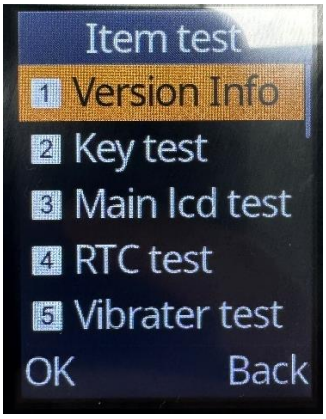
1.Open the device's “Phone” application (dialer)。

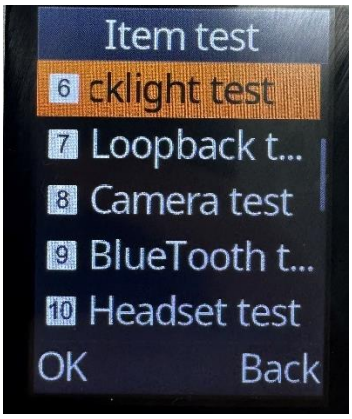
2.Enter the code:**#*8378#0#**. During the input process, the system will automatically jump to the cell phone test interface.

**Functional Description：**




**Customized Test Modules：** Corresponding test items can be selected for equipment functions or components, and the system will perform functional testing on the selected module.





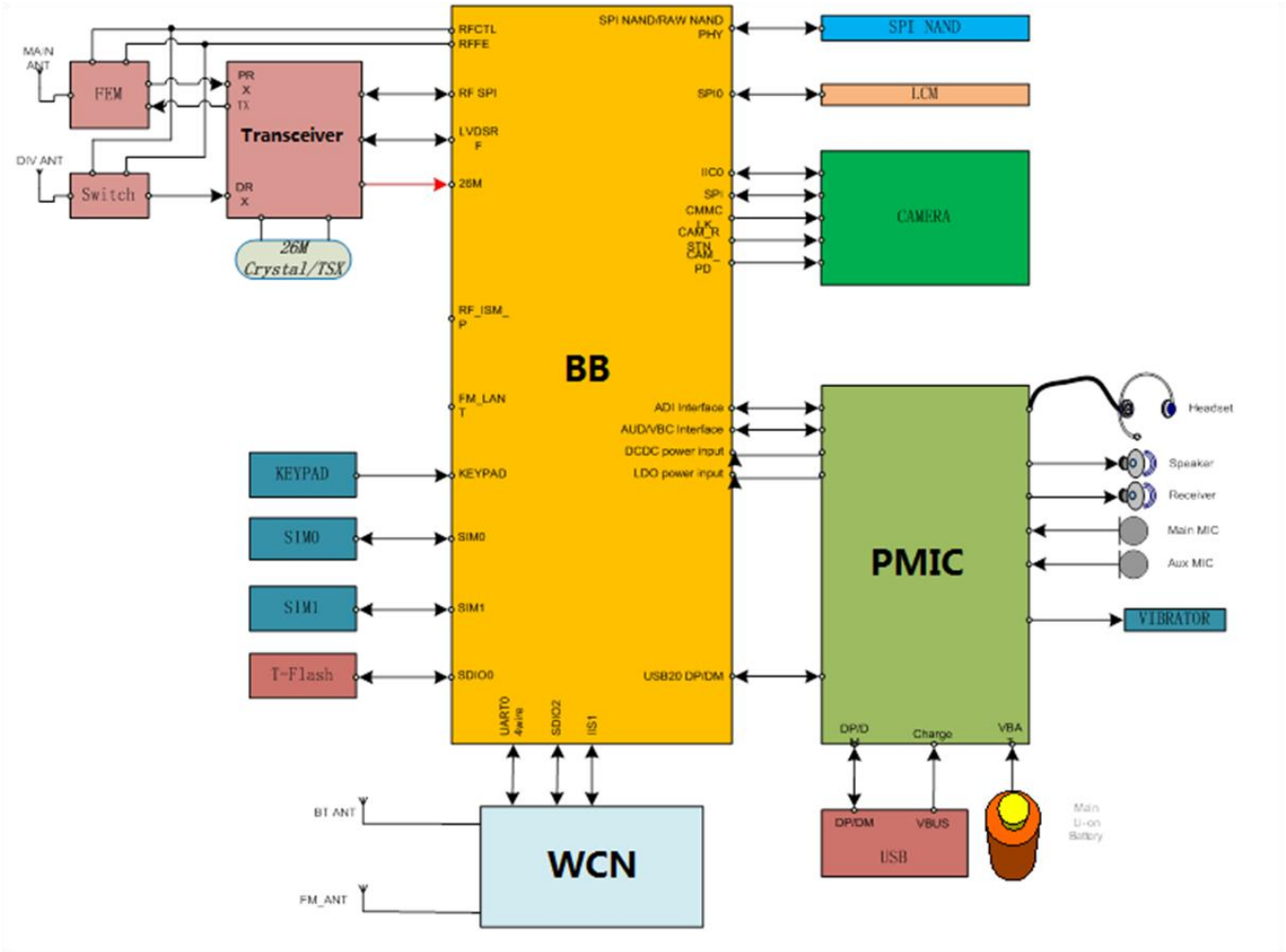

**Generate test reports：** Upon completion of the test, the system generates a detailed test report, making it easy to locate the problem.

**Restore Factory Settings**：Support to restore the device to factory state, the operation will clear all user data, applications and system settings.

**Exit Test**：When the test is complete, click the “Back” button on the device to exit the phone test interface.

# 11. Appendix

## 11.1 Block diagram



# FlipPhone 6
# Repair Manual

## How to contact us

Email us at help@opelmobile.com or call

**0808 160 7167** in UK (8am to 4pm, Mon to Fri – excluding national holidays)

**1800 456 902** in Ireland (8am to 4pm, Mon to Fri – excluding national holidays)