

Doro Leva E20/E21/E22

Recycle Manual DFC-0610

English



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About this document

This document provides guidance for recycling workers during device disassembly.

Scope

This guide covers:

- Safe disassembly and reassembly procedures

Who can use this document

This guide is intended for:

- Recycling workers for safe disassembly of components before disposal or material recovery

How the guide is structured

The document is divided into the following main sections:

- General precautions
- Tools and materials required
- Component-specific replacements
- Disassembly Procedures

Each chapter includes checklists, simple step-by-step instructions, and references to related sections within this document.

General precautions

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

Use caution before you start to repair



CAUTION

Opening or repairing a device could cause electric shock, device damage, fire, personal injury risks, and other hazards.

- Make sure that the work surface is clean and free of debris to prevent contamination of internal components.
- Wear an ESD wrist strap to prevent electrostatic discharge damage to sensitive electronic components.
- Always perform repairs in a clean, dry space with good ventilation and no combustible materials.
- Make sure no cables or components are damaged during removal. Damaged cables and components must be replaced.
- Ensure that there are no additional screws or small parts left in the device after assembly.
- Always ensure that screws are securely fastened.
- Disconnect the device from all power sources before any disassembly.

Batteries

Batteries should be handled with care, and could be dangerous if not in normal condition.

**CAUTION**

- Discharge the battery before you attempt repair.
- Never bend, dent, puncture, or use tools to pry the battery.
- To prevent damage, store replaced batteries in the replacement packaging directly after being replaced.
- If the battery shows signs of swelling or damage, or if the device feels hot or emits a strong odour, don't attempt disassembly. Please reach out to Doro support.
- If a battery starts to vent, cover it in sand or use gloves and pliers to dispose the battery in a fire safe container as soon as possible.
- Be careful with the following unacceptable battery conditions: pouch damage, line protrusion, scratch, contamination mark, dot protrusion, dent, bubbling, imprinted line, swelling or electrolyte leakage.
- Do not shortcut the battery terminals or damage the battery, as it could result in fire or overheating.
- Do not throw the old battery in regular trash. Dispose of the battery according to local regulations.

Glass handling

**CAUTION**

- Wear protective gloves and safety glasses when you handle broken glass parts.
- Apply protective film when you remove damaged glass parts.
- Place the damaged glass part in the spare part packaging directly after replacement to prevent injury.

Tools and fixtures

The use of correct tools and fixtures is strongly recommended for all device repairs.

**CAUTION**

- We don't recommend repairs without the correct tools and fixtures.
- Improper use of tools and fixtures may result in injury, damage to the product, tools, fixtures, or spare parts.

Hinge separation precaution



CAUTION

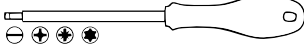


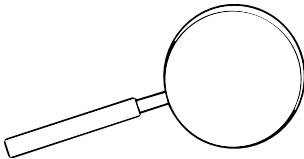
Separating the top and bottom halves is difficult, do not do it unless necessary. This task is not required for most repairs, even if pictures display the cabinets as separated. Separation is only needed to replace:

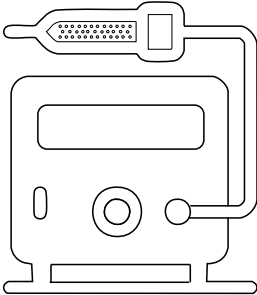
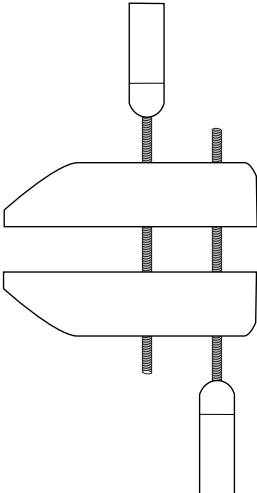
- The **Hinge** $\phi 5.8$
- The **Clamshell assembly**
- The **Main FPC**
- The **C-cover**

Tools and materials required

Tools

The tools listed are basic tools that can be used to do a repair, reuse or upgrade.

Tool type	Illustration (informative example)	Reference
Screwdriver (for slotted heads, cross recess or hexalobular recess heads)		ISO 2380, ISO 8764, ISO 10664
Prying lever		
Tweezers		
Magnifying glass		
Plectrum		
Suction cup with keyring		

Hot air rework station		
Fixture		

Materials

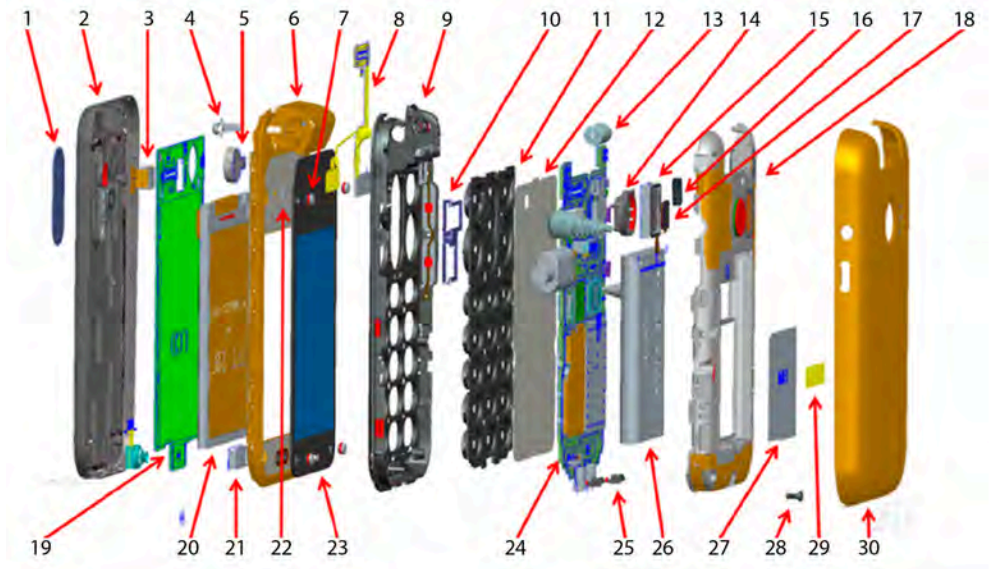
Material type	Illustration (informative example)	Reference
Isopropanol		

Spare parts list

This document does not include the complete Spare Parts List. The Spare Parts List covers all components of the product and can be found at:

<https://www.doro.com/repair/>

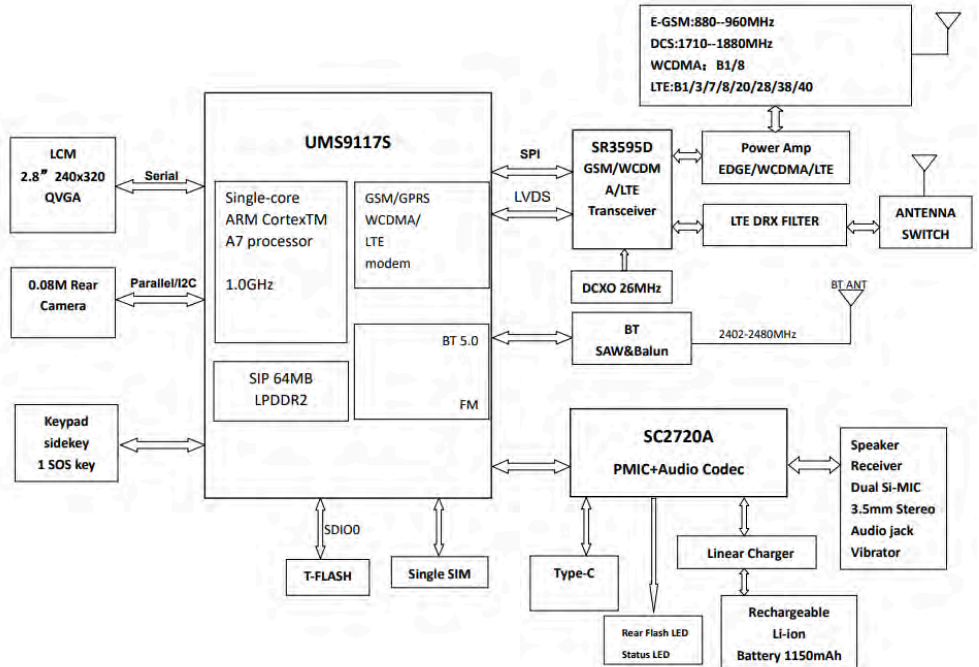
Exploded view



No	Part name	Qty
1	B_CAM WIN GF28A1 PMMA BK DORO RoHS	1
2	Clamshell up assembly	1
3	Camera	1
4	Sealing rubber hinge	1
5	Motor	1
6	Clamshell assembly	1
7	Screw rubber cover	4
8	Main FPC	1
9	C-cover	1
10	Sealing rubber USB jack	1
11	Keypad	1
12	Dome foil	1
13	Hinge $\phi 5.8$	1
14	SOS Key Frame	1
15	Speaker	1
16	Main FPC wrap foam	1

No	Part name	Qty
17	SOS FPC	1
18	Lower housing assembly	1
19	SUB PCB	1
20	Main LCD 2.8	1
21	Receiver	1
22	Magnet	1
23	Main LCD glass window	1
24	PCBA assembly HW3011	1
25	Sealing rubber cradle connectors	1
26	Battery LEVA DBAE-1150A	1
27	IMEI label	1
28	Screw T1.4*3.5	11
29	Waterproof label D=2,5mm SKD RoHS	1
30	Battery cover	1

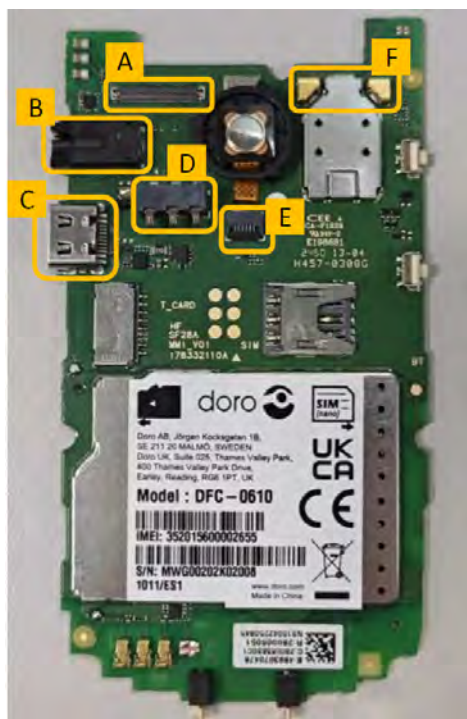
Block diagram



Parts location

Main PCB

- A. FPC Link connector
- B. Audio Jack 3.5 mm
- C. USB-C connector
- D. Battery connector
- E. SOS FPC connector
- F. Speaker Pad



Disassembly

Disassemble the Battery cover

Purpose

Removing the **Battery cover** is typically the first step in disassembling the phone. It allows access to the **Battery LEVA DBAE-1150A**, **SIM card**, and internal screws that secure the **Lower housing assembly**.

Tools and equipment

Type	Illustration (informative example)	Reference
Plectrum		

Spare parts

Qty	Spare part	Information
1	Battery cover	

Safety and precautions

See *General precautions*, p.3.

- Do not insert the tool too deep to avoid scratching internal components.
- Avoid forcing the cover to prevent breaking plastic clips.

Pre-removal checklist

- Turn off the phone.
- Disconnect from charger or any peripherals.

Procedure overview

Remove the back cover by inserting a **Plectrum** into the side notch and gently releasing the clips along the edges.

Step-by-step instructions

1. Turn the phone so that the back side faces up.
2. Locate the notch on the left side of the phone.



3. Insert a **Plectrum** into the notch and gently slide it along the edges to lift the **Battery cover**.



After-removal checks

- Check that no clips are broken.

Troubleshooting tips

- **The Battery cover is hard to remove:** Make sure you are using the notch on the left side of the phone. Slide the Plectrum gently along the edge.

Related information

Disassemble the Battery LEVA DBAE-1150A

Purpose

Removing the **Battery LEVA DBAE-1150A** is necessary to safely continue with internal repairs. It disconnects the power source and prevents short circuits or electrical damage. The battery also blocks access to components like the **SIM card** and other internal parts.

Tools and equipment

No tools are required for this procedure. Tools used in earlier procedures are listed in their respective chapters.

Spare parts

Qty	Spare part	Information
1	Battery LEVA DBAE-1150A	

Safety and precautions

See *General precautions*, p.3.

- Do not puncture or bend the **Battery LEVA DBAE-1150A**.
- Avoid contact with the battery terminals.

Pre-removal checklist

- Turn off the phone.
- *Disassemble the Battery cover*, p.13.

Procedure overview

Step-by-step instructions

1. Insert your finger into the notch below the **Battery LEVA DBAE-1150A**.



2. Push the **Battery LEVA DBAE-1150A** outward, then lift it out.



Note!

You can now access the SIM card, if one is installed. To remove the SIM card, slide it sideways into the battery compartment.

After-removal checks

- Make sure the battery compartment is clean and undamaged.
- Check the **Battery LEVA DBAE-1150A** for any signs of swelling or damage.

Troubleshooting tips

Related information

Disassemble the Lower housing assembly

Purpose

Removing the **Lower housing assembly** is required to access and replace internal components. It is a key step in most repairs after the battery has been removed.

Tools and equipment

Type	Illustration (informative example)	Reference
Plectrum		
Screwdriver		

Spare parts

Qty	Spare part	Information
1	Lower housing assembly	
7	Screw T1.4*3.5	

Safety and precautions

See *General precautions*, p.3.

- Do not use metal tools to pry open the housing, as they may damage the casing or internal components.
- Avoid applying excessive force that could crack the plastic.

Pre-removal checklist

- Turn off the phone.
- *Disassemble the Battery cover*, p.13.
- *Disassemble the Battery LEVA DBAE-1150A*, p.16.

Procedure overview

The **Lower housing assembly** is held in place by seven screws and plastic clips. The screws must be removed first, the housing can then be gently pried open using a **Plectrum**.

Step-by-step instructions

1. Remove the seven (7) **Screw T1.4*3.5**.



2. Insert the **Plectrum** at the bottom of the device and gently pry open the **Lower housing assembly**. Start at the bottom, continue along the sides, and work your way around.



3. Remove the **Lower housing assembly**.



After-removal checks

- Inspect the **Lower housing assembly** for cracks or damage.

Troubleshooting tips

- **The screws are hard to remove:** Use the correct screwdriver size and apply downward pressure while turning.

Related information

Disassemble the PCBA assembly HW3011

Purpose

Removing the **PCBA assembly HW3011** is necessary to complete the disassembly of the device or access internal components for repair or replacement.

Tools and equipment

Type	Illustration (informative example)	Reference
Tweezers		

Spare parts

Qty	Spare part	Information
1	PCBA assembly HW3011	

Safety and precautions

See *General precautions*, p.3.

- Avoid touching components directly.

Pre-removal checklist

- *Disassemble the Battery cover*, p.13
- *Disassemble the Battery LEVA DBAE-1150A*, p.16
- *Disassemble the Lower housing assembly*, p.19

Procedure overview

In this step, you disconnect the **FPC_LINK_SF28A_GF28A1_6L_HOLE_V01A**, the **PCBA assembly HW3011** can then be lifted using **Tweezers**.

Step-by-step instructions

1. Disconnect the **FPC_LINK_SF28A_GF28A1_6L_HOLE_V01A** using **Tweezers**.



2. Grip the edge of the **PCBA assembly HW3011** and lift it gently.



After-removal checks

Troubleshooting tips

Related information

Disassemble the components of the PCBA assembly HW3011

Purpose

Removing these components is necessary when replacing individual parts connected to the **PCBA assembly HW3011**. Disassembling them allows for targeted replacement or further breakdown of the device.

Tools and equipment

Type	Illustration (informative example)	Reference
Tweezers		

Spare parts

Qty	Spare part	Information
1	SOS FPC	
1	SOS Key Frame	
1	Sealing rubber USB jack	
1	Sealing rubber cradle connectors	
1	Dome foil	
1	PCBA assembly HW3011	

Safety and precautions

See *General precautions*, p.3.

- Avoid pulling on cables or components with force.
- Do not touch connector pins or contact surfaces.

Pre-removal checklist

- *Disassemble the Battery cover*, p.13
- *Disassemble the Battery LEVA DBAE-1150A*, p.16
- *Disassemble the Lower housing assembly*, p.19
- *Disassemble the PCBA assembly HW3011*, p.23

Procedure overview

This procedure describes how to remove components mounted on the **PCBA assembly HW3011**, including the **SOS FPC**, **Dome foil** and rubber parts. All components are removed using tweezers.

Step-by-step instructions

Remove the SOS FPC and SOS Key Frame

1. Open the ZIF connector that holds the flex **SOS FPC** cable in place. Use **Tweezers**.

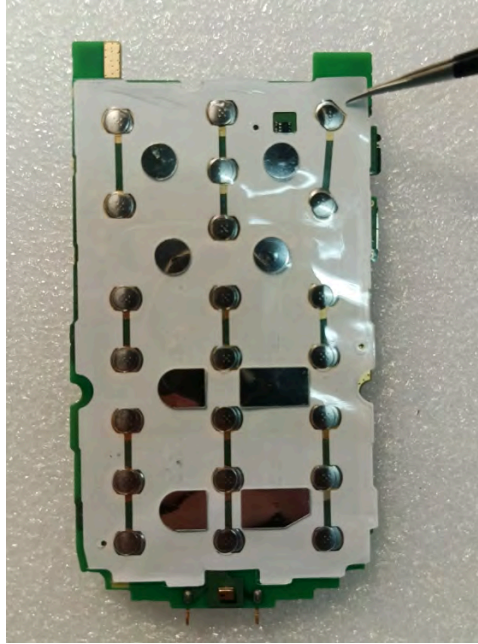


2. Disconnect the flex cable.
3. Remove the **SOS FPC** and the **SOS Key Frame**.

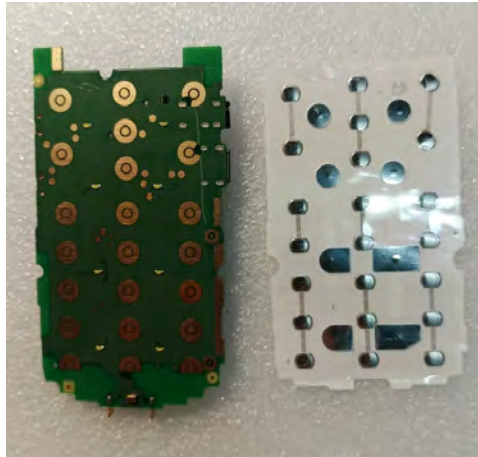


Remove the Dome foil

1. Grip one of the upper corners of the **Dome foil** using **Tweezers**.



2. Pull the **Dome foil** carefully downwards until it is fully removed.



Remove the rubber parts

1. Grip the **Sealing rubber USB jack** and remove it. Use **Tweezers**.



2. Grip the **Sealing rubber cradle connectors** and remove them.



After-removal checks

- Check that no adhesive residue remains on the **PCBA assembly HW3011**.
- Check that the ZIF connectors is undamaged.

Troubleshooting tips

- **The flex cable does not come out easily:** Make sure the ZIF connector is fully open.
- **The connector is hard to open:** Use a finer-tipped Tweezers and apply gentle upward pressure.

Related information

Disassemble the top half of the device

Purpose

This procedure describes how to disassemble the top half of the device to remove the **SUB PCB** and the **Camera**.

Tools and equipment

Type	Illustration (informative example)	Reference
Tweezers		
Screwdriver		
Plectrum		

Spare parts

Qty	Spare part	Information
1	C-cover	
4	Screw T1.4*3.5	
1	Screw rubber cover	
1	Camera	
1	SUB PCB	
1	Clamshell assembly	

Safety and precautions

See *General precautions*, p.3.



CAUTION

Separating the top and bottom halves is difficult, do not do it unless necessary. This task is not required for most repairs, even if pictures display the cabinets as separated. Separation is only needed to replace:

- The **Hinge** $\phi 5.8$
- The **Clamshell assembly**
- The **Main FPC**
- The **C-cover**

- Avoid excessive force when separating the housing to prevent deformation.

Pre-removal checklist

- *Disassemble the Battery cover, p.13*
- *Disassemble the Battery LEVA DBAE-1150A, p.16*
- *Disassemble the Lower housing assembly, p.19*
- *Disassemble the PCBA assembly HW3011, p.23*

Procedure overview

The procedure covers the disassembly of the **Clamshell assembly** to access and remove the **SUB PCB** and **Camera**. The steps involve separating the housing, removing screws and connectors, and detaching internal components.

Step-by-step instructions

Separating the Clamshell assembly from the C-cover

1. Use **Tweezers** to push the flap hinge into the **Clamshell assembly**.





2. Separate the **Clamshell assembly** and the **C-cover**.



Remove the Clamshell up assembly

Note!

You do not need to remove the **Main LCD glass window**. If the glass is damaged, replace the **Clamshell up assembly** instead.

1. Remove the four (4) **Screw rubber cover** using **Tweezers**.
2. Remove the four (4) **Screw T1.4*3.5** with a **Screwdriver**.



3. Carefully separate the **Clamshell up assembly** from the **Clamshell assembly** along the edge with a **Plectrum**.



Remove the Camera

1. Open the ZIF connector that holds the camera flex cable in place. Use **Tweezers**.



2. Disconnect the flex cable.



3. Lift the **Camera** using **Tweezers**.



Remove the SUB PCB

1. Separate the **SUB PCB** from the **Clamshell assembly**.



2. Disconnect the **FPC_LINK_SF28A_GF28A1_6L_HOLE_V01A** using **Tweezers**.



After-removal checks

Troubleshooting tips

- **The connector is hard to open:** Use a finer-tipped **Tweezers** and apply gentle upward pressure.
- **The flex cable does not come out easily:** Make sure the ZIF connector is fully open.

Related information

Disassemble the Main LCD 2.8

Note!

If the outer LCD glass is cracked or broken, the **Clamshell assembly** must be replaced.

Purpose

Removing the **Main LCD 2.8** is necessary when replacing a broken or malfunctioning screen, or when disassembling the phone completely.

Tools and equipment

Type	Illustration (informative example)	Reference
Tweezers		
Plectrum		

Spare parts

Qty	Spare part	Information
1	Main LCD 2.8	

Safety and precautions

See *General precautions*, p.3.

Do not separate the top and bottom halves unless necessary. See *Hinge separation precaution*, p.6.

- Avoid touching the display surface to prevent smudges or damage.

Pre-removal checklist

- *Disassemble the Battery cover*, p.13
- *Disassemble the Battery LEVA DBAE-1150A*, p.16
- *Disassemble the Lower housing assembly*, p.19
- *Disassemble the PCBA assembly HW3011*, p.23
- *Disassemble the top half of the device*, p.31

Procedure overview

In this step, you disconnect the LCD flex cable from the **SUB PCB** and remove the **Main LCD 2.8** itself.

Step-by-step instructions

1. Open and the ZIF connector that holds the LCD flex cable in place. Use **Tweezers**.



2. Disconnect the flex cable and feed it through the opening to the other side.
3. Separate the **Main LCD 2.8** from the **SUB PCB** using a **Plectrum**.



After-removal checks

Troubleshooting tips

- **The flex cable does not come out easily:** Make sure the ZIF connector is fully open.
- **The cable is hard to grip:** Use angled Tweezers for better control.

Related information

Disassemble the Receiver and Motor

Purpose

Removing the **Receiver** and **Motor** is necessary when replacing defective components or performing a full disassembly of the phone.

Tools and equipment

Type	Illustration (informative example)	Reference
Tweezers		

Spare parts

Qty	Spare part	Information
1	Receiver	
1	Motor	
1	Main FPC	

Safety and precautions

See *General precautions*, p.3.

Do not separate the top and bottom halves unless necessary. See *Hinge separation precaution*, p.6.

- Avoid applying excessive force when prying.

Pre-removal checklist

- *Disassemble the Battery cover*, p.13
- *Disassemble the Battery LEVA DBAE-1150A*, p.16
- *Disassemble the top half of the device*, p.31

Procedure overview

In this step, you remove the **Receiver**, **Motor** and **Main FPC** from the **Clamshell up assembly**. The components can be lifted out using **Tweezers**.

Step-by-step instructions

1. Remove the **Receiver** from the **Clamshell up assembly**, use **Tweezers**.



2. Remove the **Motor** from the **Clamshell up assembly**.



3. Remove the **Main FPC** from the **Clamshell up assembly**.



After-removal checks

Troubleshooting tips

- **The component feels stuck:** Rock it gently from side to side before lifting.

Related information

Disassemble the Keypad and Speaker

Purpose

Removing the **Keypad** and **Speaker** is necessary to complete the disassembly of the device or replace damaged components.

Tools and equipment

Type	Illustration (informative example)	Reference
Tweezers		

Spare parts

Qty	Spare part	Information
1	Speaker	
1	Keypad	

Safety and precautions

See *General precautions*, p.3.

Do not separate the top and bottom halves unless necessary. See *Hinge separation precaution*, p.6.

Pre-removal checklist

- *Disassemble the Battery cover*, p.13
- *Disassemble the Battery LEVA DBAE-1150A*, p.16
- *Disassemble the Lower housing assembly*, p.19
- *Disassemble the PCBA assembly HW3011*, p.23

Procedure overview

This procedure describes how to remove the **Keypad** and the **Speaker**. The **Keypad** is removed by lifting it out of the **C-cover**, and the **Speaker** is lifted from its slot in the **Lower housing assembly** using **Tweezers**.

Step-by-step instructions

1. Remove the **Keypad** from the **C-cover**.



2. Remove the **Speaker** from the **Lower housing assembly** using **Tweezers**.



After-removal checks

Troubleshooting tips

Related information

English

Version 1.0

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