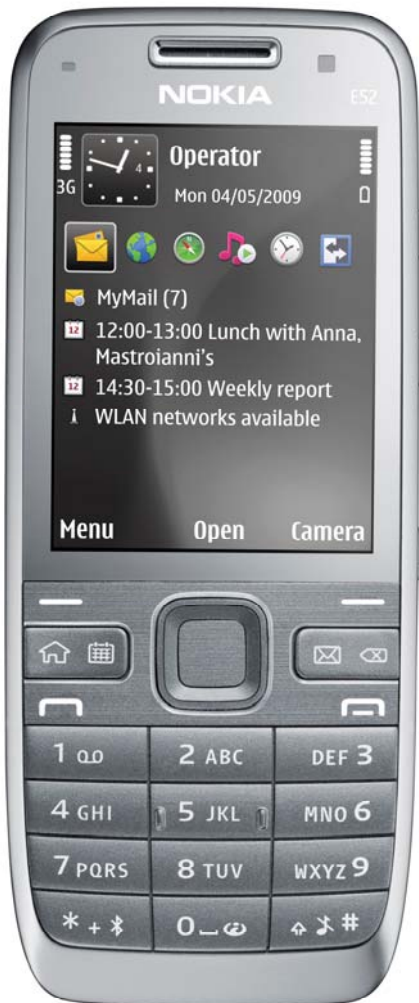


SERVICE MANUAL
Level 1&2

NOKIA E52

RM-469, RM-481



Transceiver characteristics

Band:

RM-469: EGSM 850/900/1800/1900 and WCDMA 900/2100 and HSDPA

RM-481: EGSM 850/900/1800/1900 and WCDMA 850/2100 HSDPA (E52-2)

Display:

2.4" TFT QVGA, 240 x 320 pixels, 16 million colours

Camera:

3.2 Mpix EDOF

Operating System:

S60 Edition 3.2 (+Eseries SW package)

Connections:

WLAN 802.11 b/g, USB high speed (480 Mbits), 3.5 mm Nokia audio connector, Bluetooth 2.0, A2DP, Micro USB charging, MicroSD card

Transceiver with BP-4L battery pack

Talk time	Standby	Note
GSM up to 8 h WCDMA up to 6 h	GSM up to 23 days WCDMA up to 29 days	Depends on network parameters and phone settings

1.	Change history	3
2.	Copyright	4
3.	Warnings and cautions	5
3.1	Warnings	5
3.2	Cautions	5
4.	ESD protection	6
5.	Care and maintenance	7
6.	Battery information	8
7.	Exploded view	9
8.	Service devices	10
9.	SW-update	12
10.	Disassembly instructions	13
11.	Assembly hints	22
11.1	Assembling the LCD	22
11.2	Assembling the earpiece and earpiece gasket	24
11.3	Assembling the A-COVER	25
11.4	Screw order and torque	25
12.	Solder components	26

1. CHANGE HISTORY

Status	Version No.	Date	Comments
Draft	0.1	14.05.2009	First draft
Approved	1.0	11.6.2009	First approved version

The purpose of this document is to help NOKIA service levels 1 and 2 workshop technicians to carry out service to NOKIA products. This Service Manual is to be used only by authorized NOKIA service suppliers, and the content of it is confidential. Please note that NOKIA provides also other guidance documents (e.g. Service Bulletins) for service suppliers, follow these regularly and comply with the given instructions.

While every endeavor has been made to ensure the accuracy of this document, some errors may exist. If you find any errors or if you have further suggestions, please notify NOKIA using the address below:

CMO Operation & Logistics
Training and Vendor Development
Multimedia Creation & Support
<mailto:Service.Manuals@nokia.com>

Please keep in mind also that this documentation is continuously being updated and modified, so watch always out for the newest version.

2. COPYRIGHT

Copyright © 2008 Nokia. All rights reserved.

Reproduction, transfer, distribution or storage of part or all of the contents in this document in any form without the prior written permission of Nokia is prohibited.

Nokia, Nokia Connecting People, and Nokia X and Y are trademarks or registered trademarks of Nokia Corporation. Other product and company names mentioned herein may be trademarks or tradenames of their respective owners.

Nokia operates a policy of continuous development. Nokia reserves the right to make changes and improvements to any of the products described in this document without prior notice.

Under no circumstances shall Nokia be responsible for any loss of data or income or any special, incidental, consequential or indirect damages howsoever caused.

The contents of this document are provided "as is". Except as required by applicable law, no warranties of any kind, either express or implied, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose, are made in relation to the accuracy, reliability or contents of this document. Nokia reserves the right to revise this document or withdraw it at any time without prior notice.

The availability of particular products may vary by region.

IMPORTANT

This document is intended for use by qualified service personnel only.

3. WARNINGS AND CAUTIONS

Please refer to the phone's user guide for instructions relating to operation, care and maintenance including important safety information. Note also the following:

3.1 Warnings

1. CARE MUST BE TAKEN ON INSTALLATION IN VEHICLES FITTED WITH ELECTRONIC ENGINE MANAGEMENT SYSTEMS AND ANTI-SKID BRAKING SYSTEMS. UNDER CERTAIN FAULT CONDITIONS, EMITTED RF ENERGY CAN AFFECT THEIR OPERATION. IF NECESSARY, CONSULT THE VEHICLE DEALER/MANUFACTURER TO DETERMINE THE IMMUNITY OF VEHICLE ELECTRONIC SYSTEMS TO RF ENERGY.
2. THE HANDPORTABLE TELEPHONE MUST NOT BE OPERATED IN AREAS LIKELY TO CONTAIN POTENTIALLY EXPLOSIVE ATMOSPHERES, EG PETROL STATIONS (SERVICE STATIONS), BLASTING AREAS ETC.
3. OPERATION OF ANY RADIO TRANSMITTING EQUIPMENT, INCLUDING CELLULAR TELEPHONES, MAY INTERFERE WITH THE FUNCTIONALITY OF INADEQUATELY PROTECTED MEDICAL DEVICES. CONSULT A PHYSICIAN OR THE MANUFACTURER OF THE MEDICAL DEVICE IF YOU HAVE ANY QUESTIONS. OTHER ELECTRONIC EQUIPMENT MAY ALSO BE SUBJECT TO INTERFERENCE.

3.2 Cautions

1. Servicing and alignment must be undertaken by qualified personnel only.
2. Ensure all work is carried out at an anti-static workstation and that an anti-static wrist strap is worn.
3. Use only approved components as specified in the parts list.
4. Ensure all components, modules screws and insulators are correctly re-fitted after servicing and alignment.
5. Ensure all cables and wires are repositioned correctly.

4. ESD PROTECTION



Nokia requires that service points have sufficient ESD protection (against static electricity) when servicing the phone.

Any product of which the covers are removed must be handled with ESD protection. The SIM card can be replaced without ESD protection if the product is otherwise ready for use.

To replace the covers ESD protection must be applied.

All electronic parts of the product are susceptible to ESD. Resistors, too, can be damaged by static electricity discharge.

All ESD sensitive parts must be packed in metallized protective bags during shipping and handling outside any ESD Protected Area (EPA).

Every repair action involving opening the product or handling the product components must be done under ESD protection.

ESD protected spare part packages **MUST NOT** be opened/closed out of an ESD Protected Area.

For more information and local requirements about ESD protection and ESD Protected Area, contact your local Nokia After Market Services representative.

5. CARE AND MAINTENANCE

This product is of superior design and craftsmanship and should be treated with care. The suggestions below will help you to fulfil any warranty obligations and to enjoy this product for many years.

- Keep the phone and all its parts and accessories out of the reach of small children.
- Keep the phone dry. Precipitation, humidity and all types of liquids or moisture can contain minerals that will corrode electronic circuits.
- Do not use or store the phone in dusty, dirty areas. Its moving parts can be damaged.
- Do not store the phone in hot areas. High temperatures can shorten the life of electronic devices, damage batteries, and warp or melt certain plastics.
- Do not store the phone in cold areas. When it warms up (to its normal temperature), moisture can form inside, which may damage electronic circuit boards.
- Do not drop, knock or shake the phone. Rough handling can break internal circuit boards.
- Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the phone.
- Do not paint the phone. Paint can clog the moving parts and prevent proper operation.
- Use only the supplied or an approved replacement antenna. Unauthorised antennas, modifications or attachments could damage the phone and may violate regulations governing radio devices.

All of the above suggestions apply equally to the product, battery, charger or any accessory.

6. BATTERY INFORMATION

Note: A new battery's full performance is achieved only after two or three complete charge and discharge cycles! The battery can be charged and discharged hundreds of times but it will eventually wear out.

When the operating time (talk-time and standby time) is noticeably shorter than normal, it is time to buy a new battery. Use only batteries approved by the phone manufacturer and recharge the battery only with the chargers approved by the manufacturer.

Unplug the charger when not in use. Do not leave the battery connected to a charger for longer than a week, since overcharging may shorten its lifetime.

If left unused a fully charged battery will discharge itself over time. Temperature extremes can affect the ability of your battery to charge.

For good operation times with Ni-Cd/NiMh batteries, discharge the battery from time to time by leaving the product switched on until it turns itself off (or by using the battery discharge facility of any approved accessory available for the product).

Do not attempt to discharge the battery by any other means. Use the battery only for its intended purpose.

Never use any charger or battery which is damaged.

Do not short-circuit the battery. Accidental short-circuiting can occur when a metallic object (coin, clip or pen) causes direct connection of the + and - terminals of the battery (metal strips on the battery) for example when you carry a spare battery in your pocket or purse. Short-circuiting the terminals may damage the battery or the connecting object.

Leaving the battery in hot or cold places, such as in a closed car in summer or winter conditions, will reduce the capacity and lifetime of the battery. Always try to keep the battery between 15°C and 25°C (59°F and 77°F).

A phone with a hot or cold battery may temporarily not work, even when the battery is fully charged. Batteries' performance is particularly limited in temperatures well below freezing.

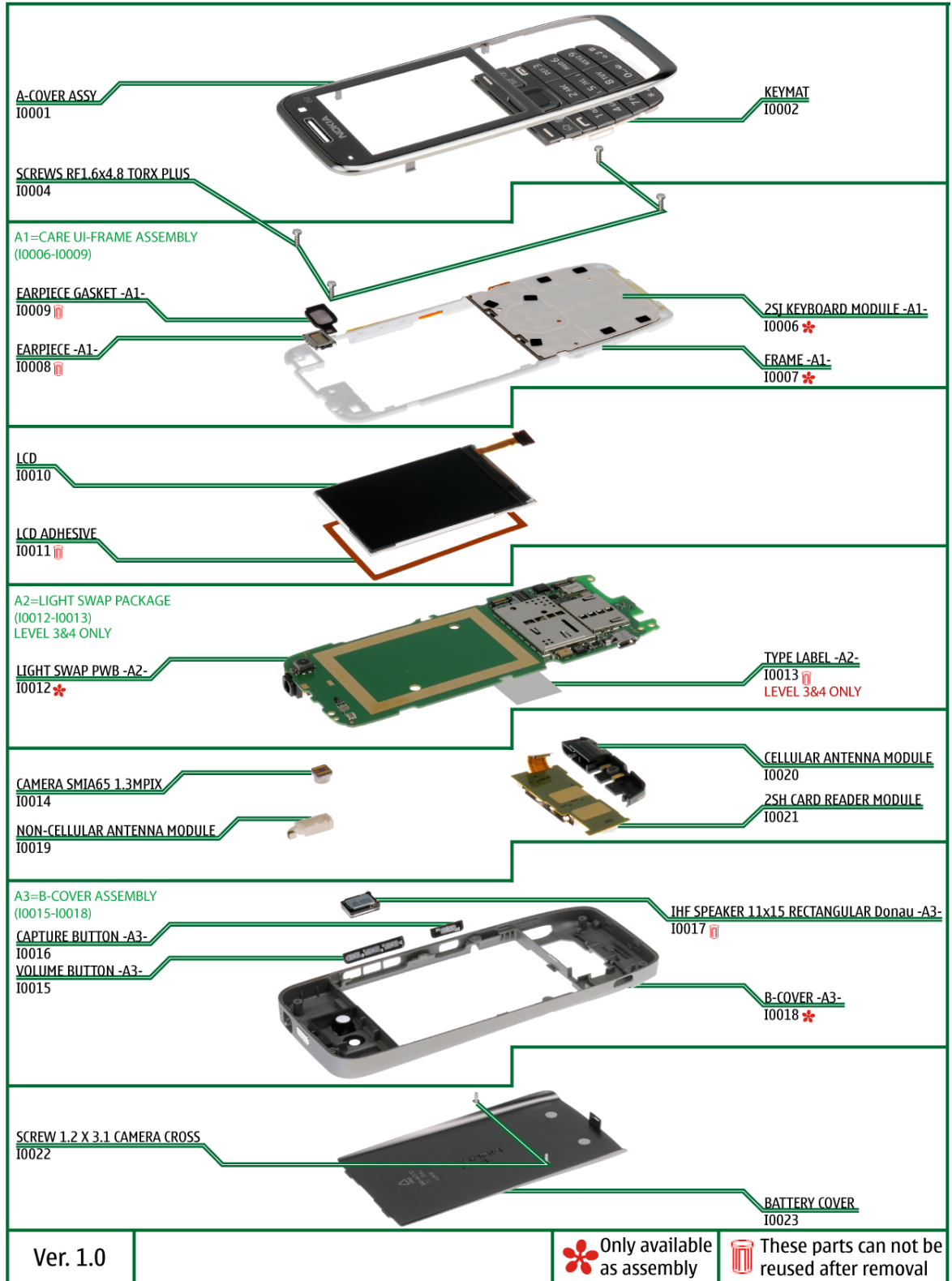
Do not dispose batteries in a fire! Dispose of batteries according to local regulations (e.g. recycling).

Do not dispose as household waste.



7. EXPLODED VIEW

See corresponding ITEM/CIRCUIT REF in the Spare Parts Service Bulletins on NOL.

E-52 RM-469, RM-481 EXPLODED VIEW



8. SERVICE DEVICES

<p>FLS-5</p>  <p>FLS-5 Flash device</p>	<p>ACF-8</p>  <p>AC-8 Universal power supply</p>	<p>SS-88</p>  <p>SS- 88 Camera removal tool</p>
<p>BP-4L</p>  <p>BL-4L Internal battery</p>	<p>SS-112</p>  <p>SS-112</p>	<p>RJ-230</p>  <p>RJ-230 Soldering Jig</p>

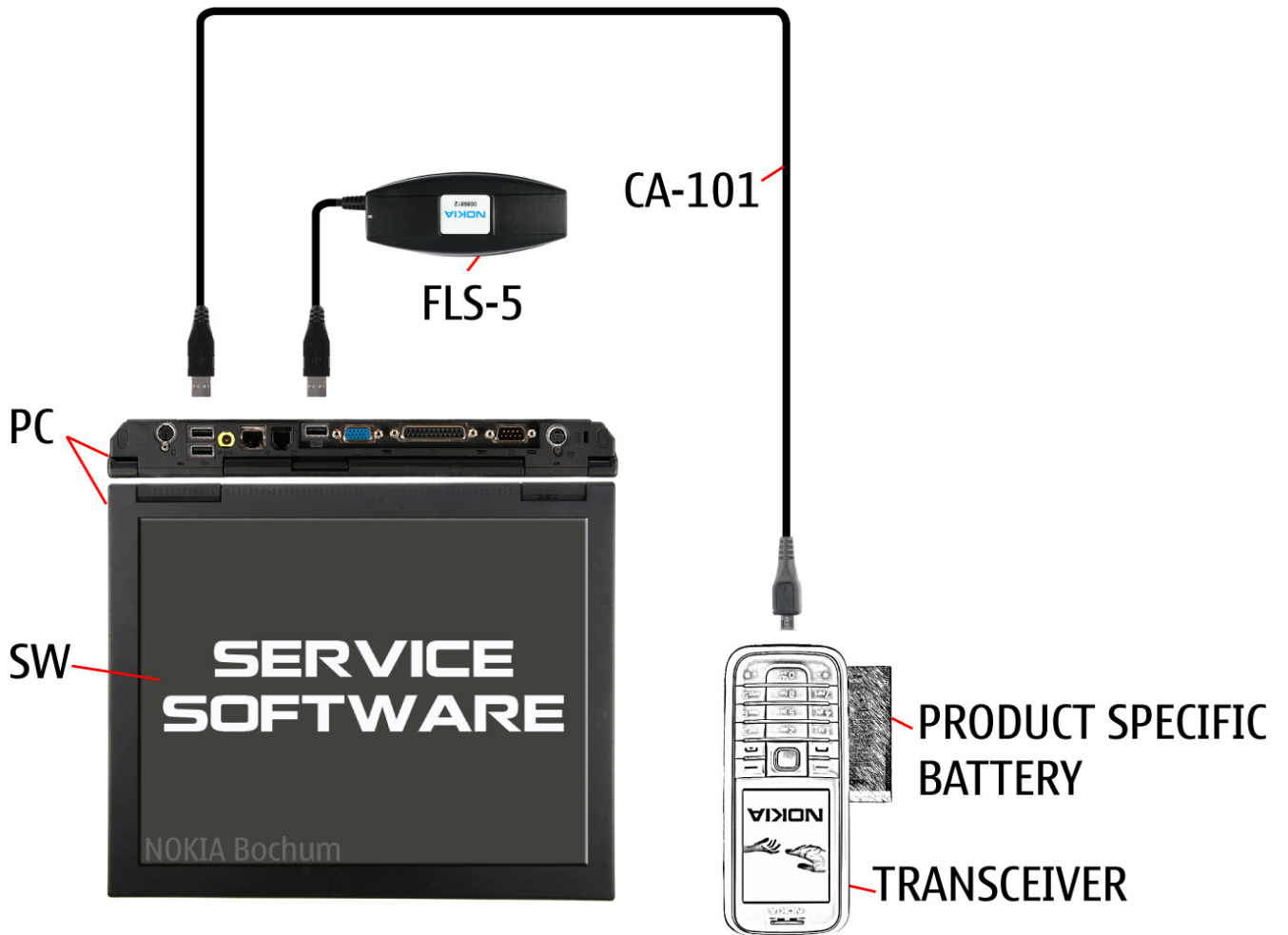
 <p>CA-101 100cm</p> <p>CA-101 Service cable</p>	 <p>NMP Standard toolkit (v2)</p> <p>For more information, refer to the Service Bulletin (SB-011) on NOKIA Online. Supplier or manufacturer contacts for tool re-order can be found in "Recommended service equipment" document on NOKIA Online.</p>	 <p>AC-10 Travel Charger</p>
 <p>SS-195</p>		

9. SW-UPDATE

Flash concept – (Point of Sales)

To use the FLS-5 Flash Dongle, you have to follow the user guide inside the sales package.

Please check always for the latest version of flash software which is available on Nokia Online.



10. DISASSEMBLY INSTRUCTIONS

1



Slide the BATTERY COVER release button to the direction shown in the picture.

2



Lift up the BATTERY COVER and...

3



...remove it.

4



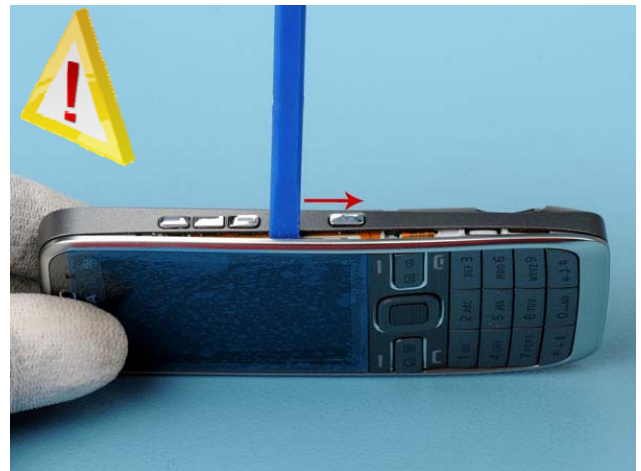
Remove the battery.

5



Release the cross slotted screws with the SS-112 tool.

6.1



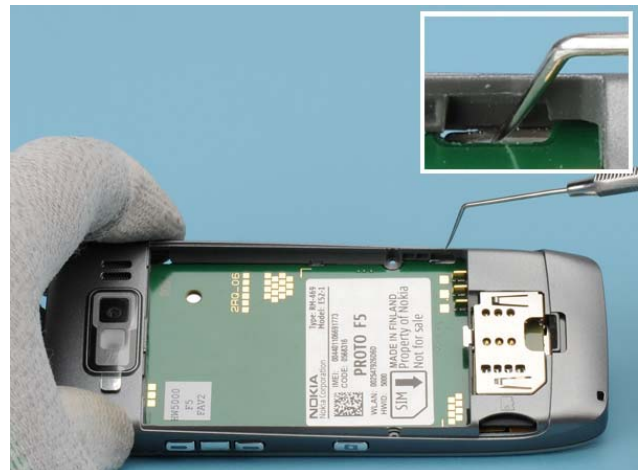
Release the A-COVER using the SS-93 tool. Start from the middle of the side. Be careful not to damage the connectors.

6.2



Slide SS-93 around the bottom to the other side to open the cover.

6.3



After you have released the A-COVER, press the keymat release slot at the bottom of the phone with the dental tool.

7



After you have released the keymat, the A-COVER can be taken off by tilting it from the bottom and pulling it towards the keymat.
Note: Check that the screw towers in the A-COVER are intact before using the A-COVER in assembly.

8.1



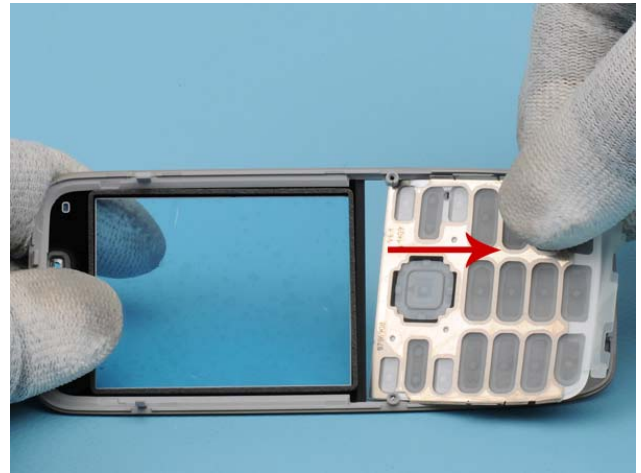
Separate the KEYMAT from the A-COVER.

8.2



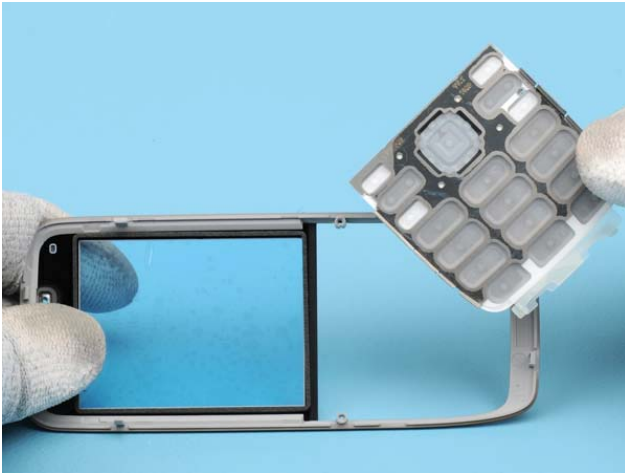
Start separating the KEYMAT from the bottom.

8.3



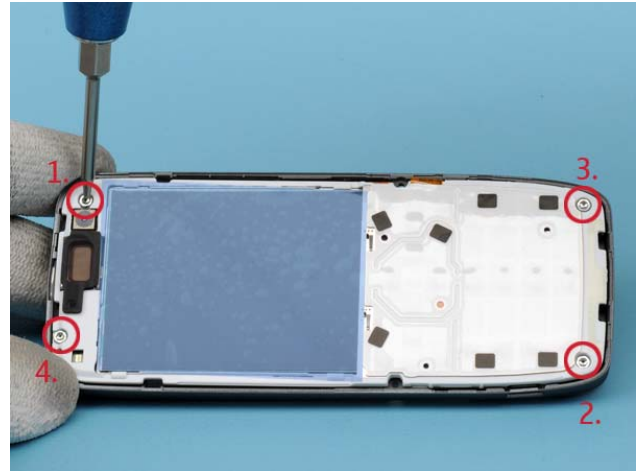
Pull the KEYMAT to the direction shown in the picture.

8.4



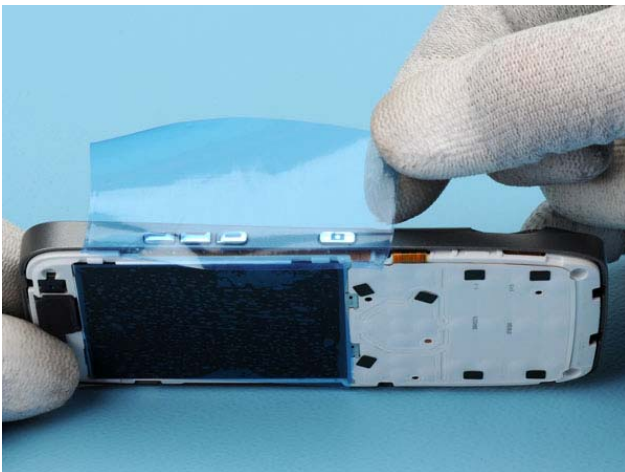
Remove the KEYMAT.

9



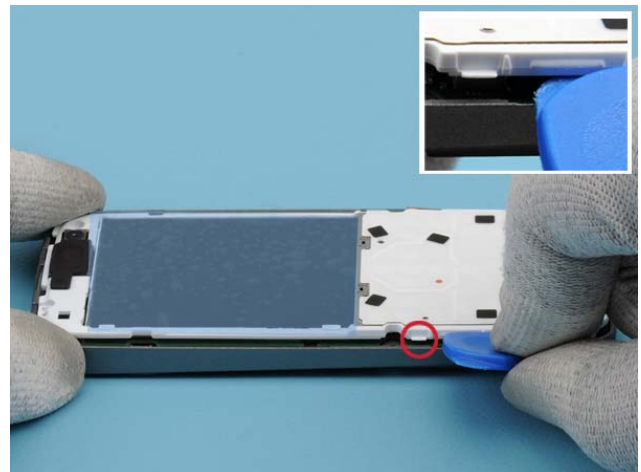
Unscrew the 4 Torx 6 plus screws.
Protect the LCD with a protection foil to avoid scratches.

10



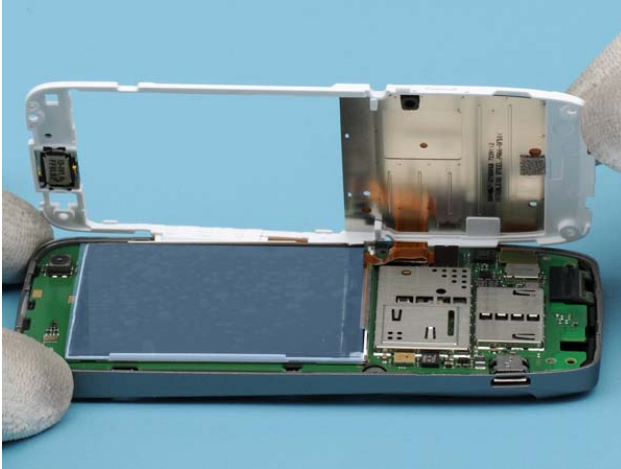
Use protection foil for fixing the keys in the B-COVER.

11



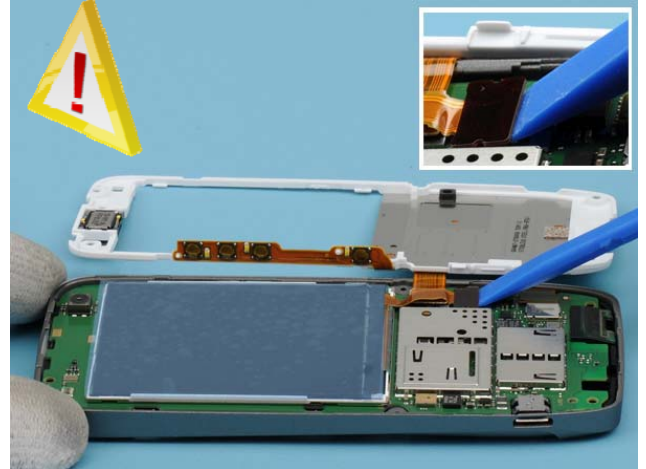
Release the FRAME ASSY using a SRT-6 tool...

12



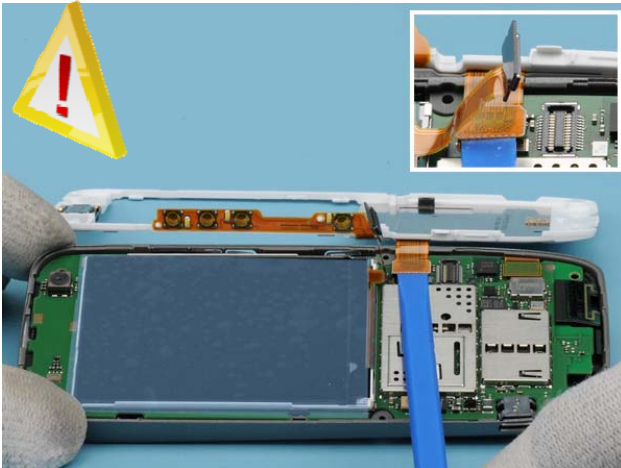
... and flap it as shown in the picture.

13



Release the LCD Connector with an SS-93 tool. Be careful with the mechanical sensitive ASIPS close to the connector.

14



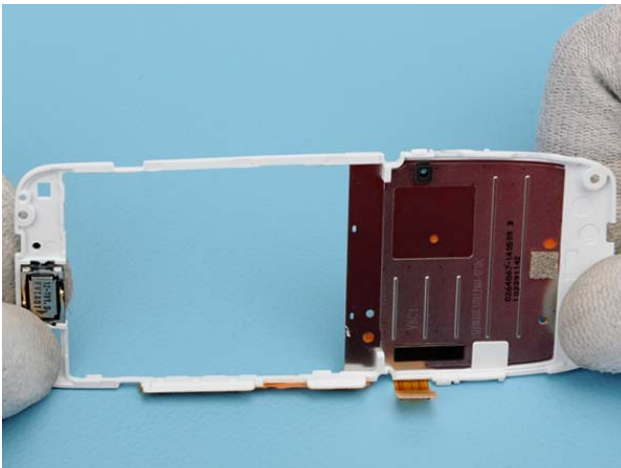
Do the same with the Connector in the KEYBOARD MODULE.

15



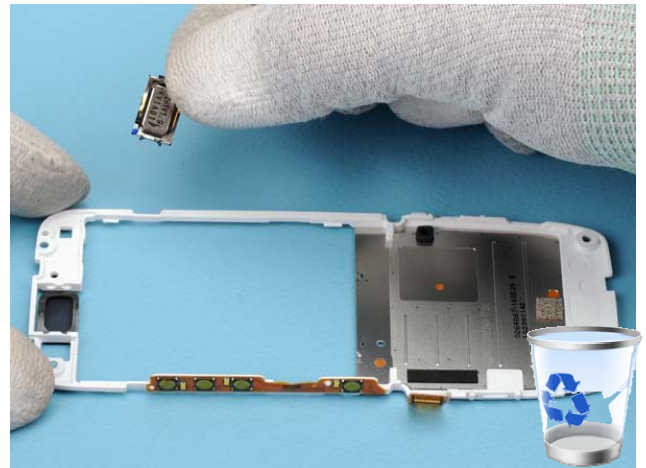
Remove the FRAME ASSY.

16.1

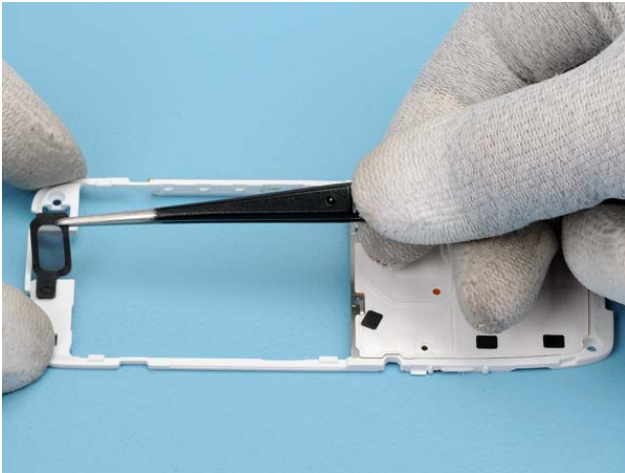


Remove the EARPIECE.

16.2



16.3

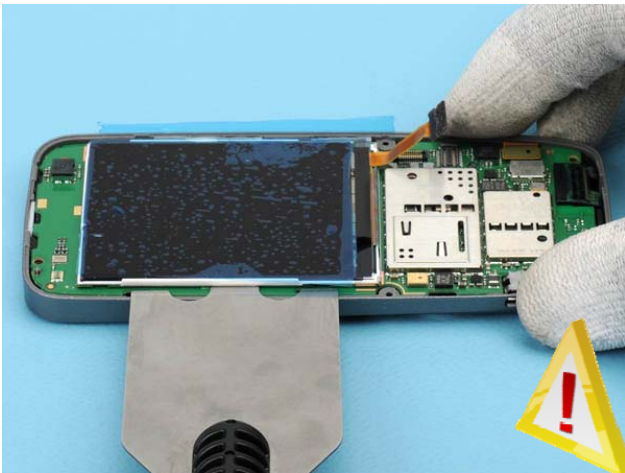


Remove the EARPIECE GASKET.

16.4

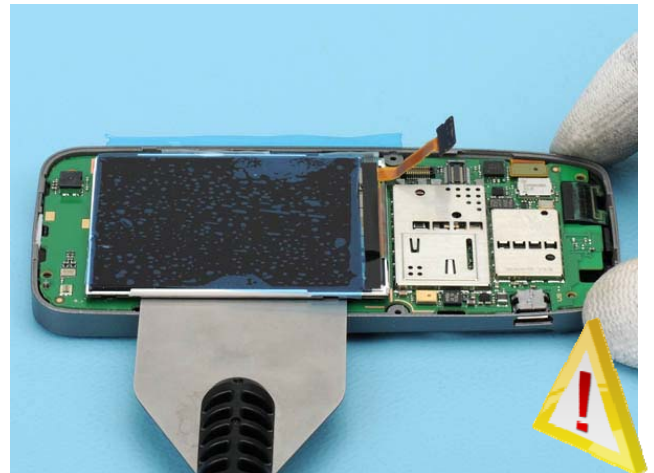


17.1



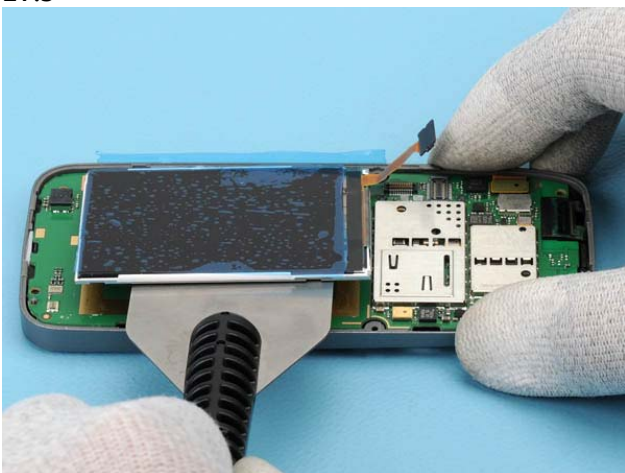
Release the glued LCD carefully with the SS-195 tool. Start from the side of the LCD.

17.2



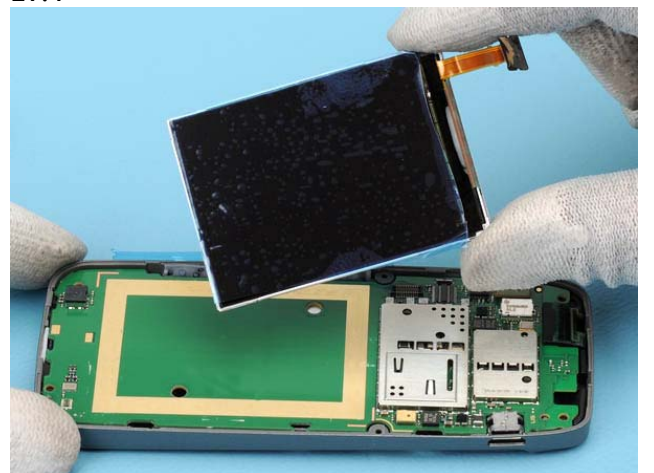
Slide SS-195 carefully under the LCD...

17.3



... and lift it upwards.

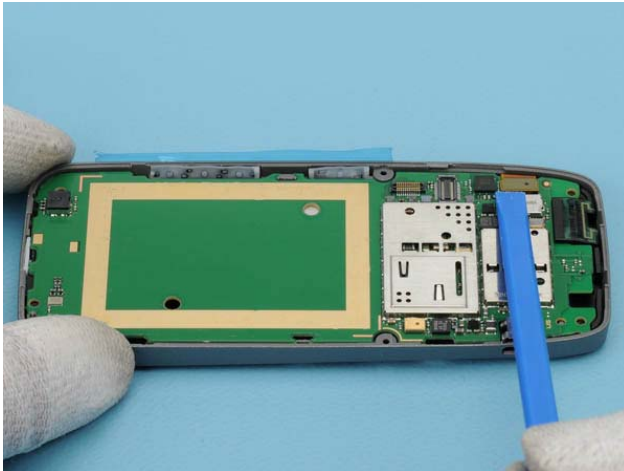
17.4



Remove the LCD.

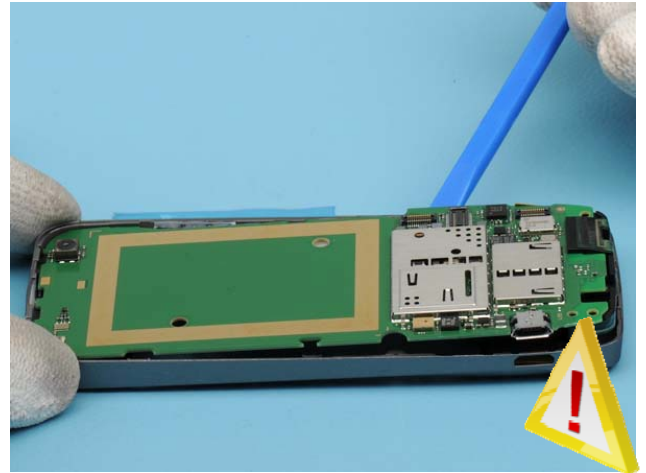
Note: LCD ADHESIVE cannot be re-used. Change it into a new one before re-assembly.

18



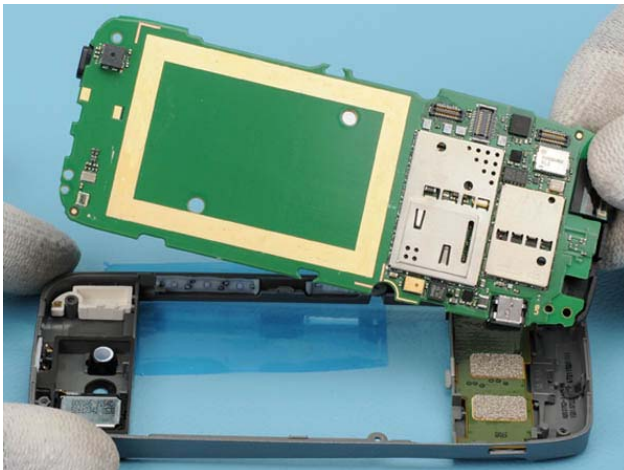
Release the CARD READER MODULE connector.

19



Carefully lift up the PWB using SS-93.

20



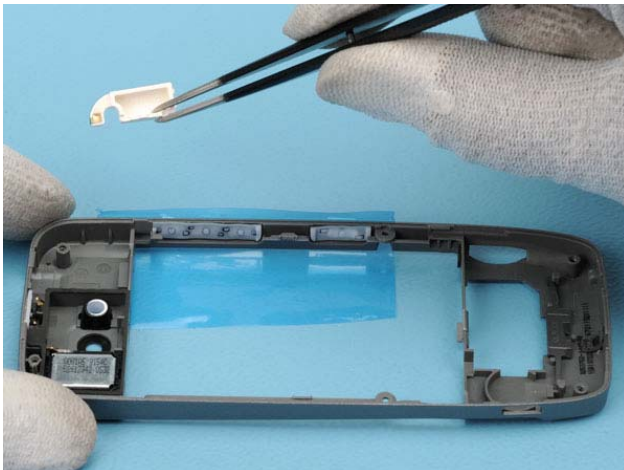
Remove the PWB.

21



Remove the CARD READER MODULE from the B-COVER.

22



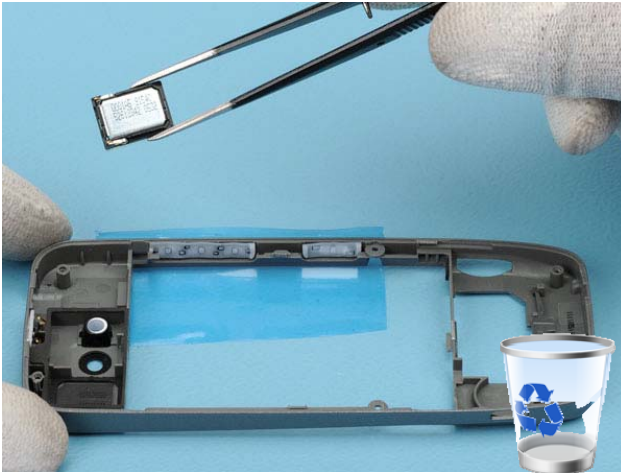
Remove the NON-CELLULAR ANTENNA MODULE with tweezers.

23



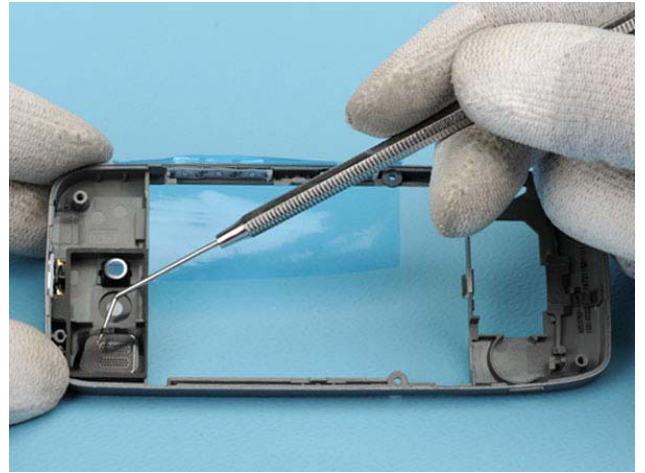
Lift up the IHF SPEAKER using a dental tool.

24



Remove the IHF SPEAKER.

25.1



Remove the IHF GASKET using dental tool...

25.2



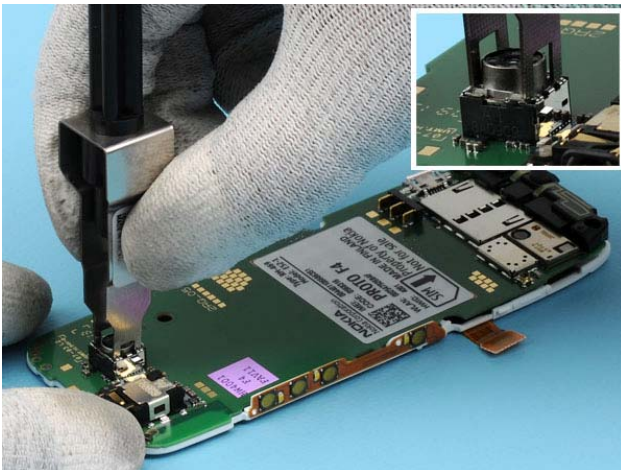
..and throw it away.

26



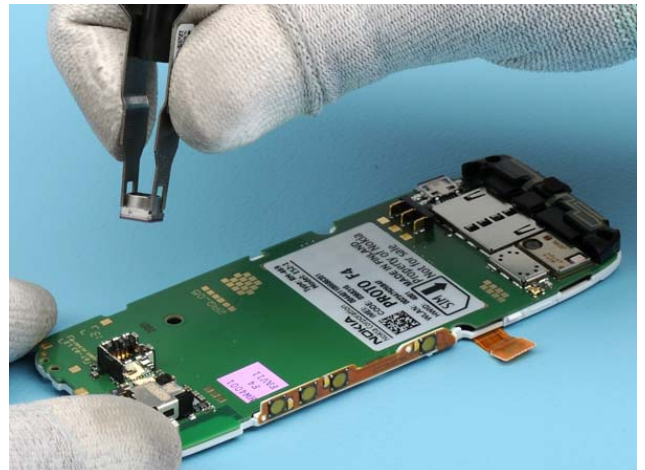
Place the FRAME ASSY under the PWB so that the PWB will not bend while removing the camera.

27



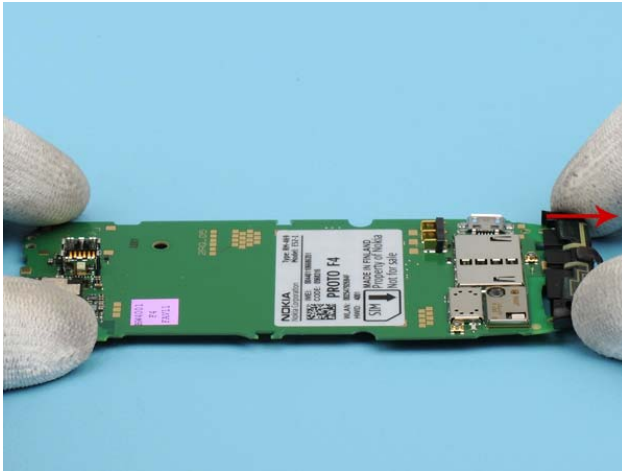
Release the CAMERA using the SS-88 Camera removal tool.

28



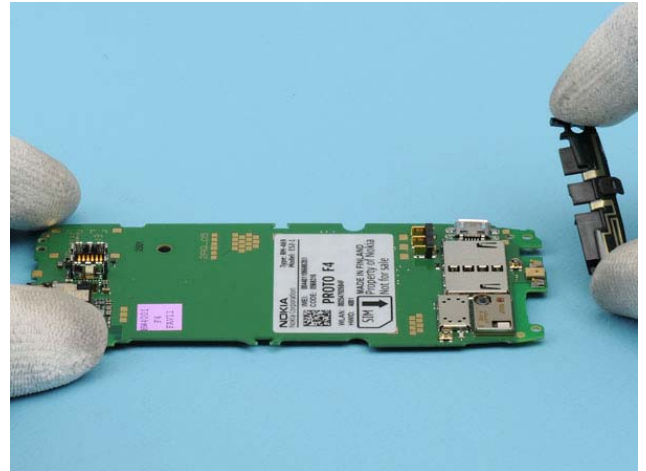
Remove the CAMERA.

29



Pull the ANTENNA MODULE into the direction shown in the picture.

30



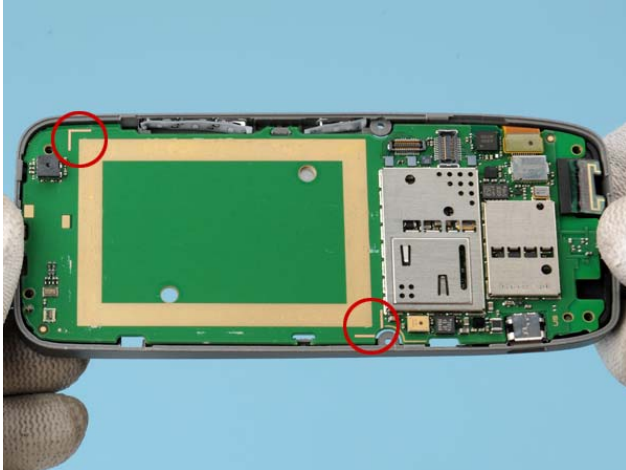
Remove the ANTENNA MODULE.
Check that the MIC GASKET in the ANTENNA MODULE is intact. If the MIC GASKET is, for example, loose the whole ANTENNA MODULE needs to be replaced with a new one.

End of disassembly

11. ASSEMBLY HINTS

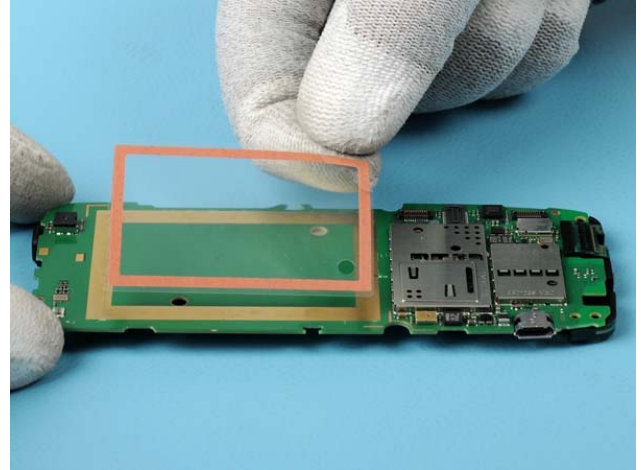
11.1 Assembling the LCD

1



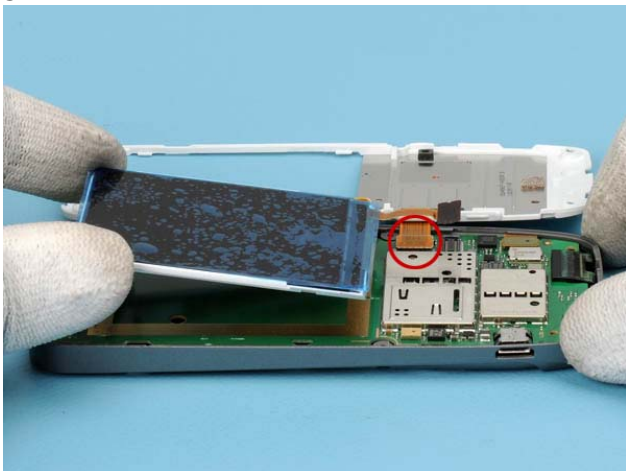
Note that there are 2 thin corner marking lines (as shown in the picture) on the PWB for LCD alignment.

2



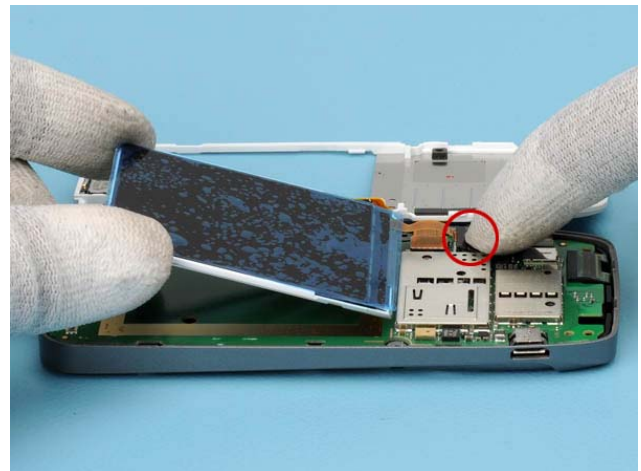
Place the LCD ADHESIVE on the PWB and make sure that the ADHESIVE is properly glued to the PWB.

3



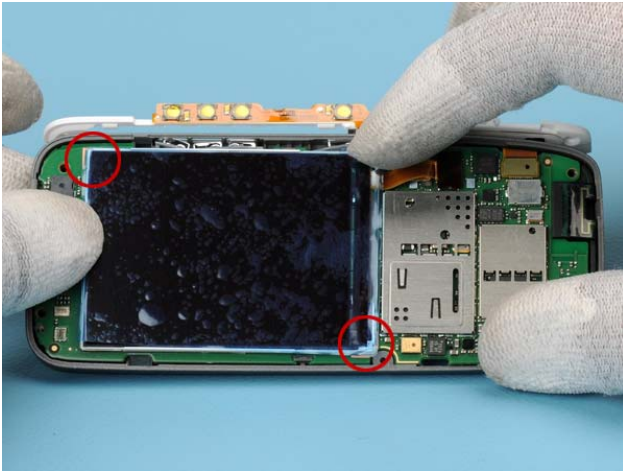
Protect the LCD with protection foil and attach the connector of the FRAME ASSY to the PWB before assembling the LCD.

4



Attach the LCD connector.

5



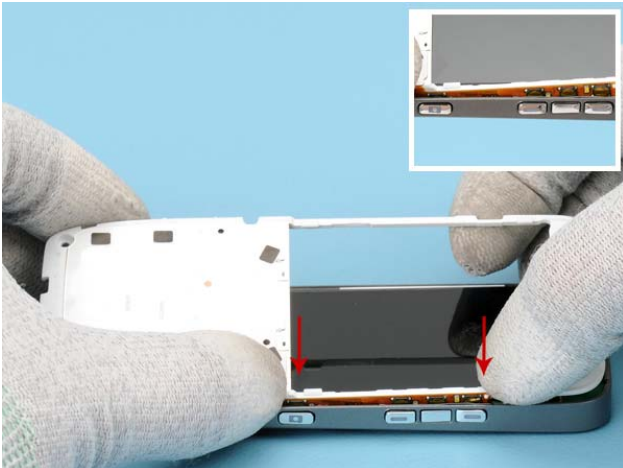
Align the LCD using the corner marking lines.

6



Remove the protection foil.

7



Attach the FRAME ASSY to the B-COVER starting from the side where the keys are.

8



Attach the FRAME ASSY in place by pressing the clip as shown in the picture.

11.2 Assembling the earpiece and earpiece gasket

1



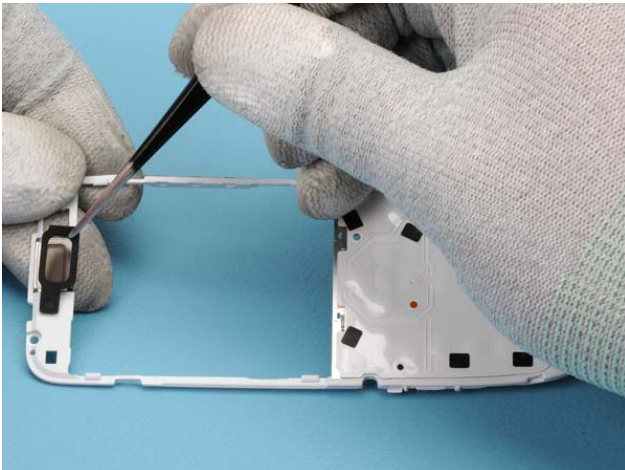
Assemble the EARPIECE in place.

2



Turn the UI FRAME ASSY over and support the EARPIECE with your fingers to keep it in place.

3



Assemble the EARPIECE GASKET in place with the help of the positioning hole in the GASKET.

4



This is the position of the EARPIECE GASKET in place.

11.3 Assembling the A-COVER



Before attaching the old/used A-COVER, check that the screw towers (shown in the picture) are intact and use the correct moment when tightening the screws.

11.4 Screw order and torque



Tighten the screws to the torque of 15 Ncm in the order shown.



Tighten the screws to the torque of 5 Ncm in the order shown.

12. SOLDER COMPONENTS

Solder components only for Level 2

