

SERVICE MANUAL

Level 1&2

NOKIA E50-1 **NOKIA E50-2**

RM-170

RM-171



Transceiver characteristics:

Band: Quad-band phone for GSM 850/900/1800/1900MHz

Camera: Integrated camera 1,3 Megapixel

Display: Active matrix color display with 262.144 colors,
 resolution 240 x 320 pixel

IrDA

Bluetooth

Connector: Pop-Port™ connector

Memory type: micro SD™

Transceiver with BL-5C Li-Ion battery pack

Talk time	Standby	Note
up to 6.8 h	up to 9 days	Depends on network parameters

Environmental characteristics:

- Lead-free soldered

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CHANGE HISTORY

Status	Version No.	Date	Comments
Draft	0.1	14.Jun.2006	Initial draft
Approved	1.0	4.Jul.2006	Approved

1. INTRODUCTION

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:

<mailto:cc-ts-rc.documentation@nokia.com>

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

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:

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.

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.



Electrostatic discharge can easily damage the sensitive components of electronic products. Therefore every Service Supplier has to take care of all precautions, which are mentioned in the service level related "Service Partner Requirements", available on NOKIA Online. Also see ESD Protection Requirements in this Service Manual.

2. GENERAL REPAIR INFORMATION

In this section the technician will get some general hints how to carry out repairs:

- To familiarize oneself with NOKIA product read the tutorials or user guide on www.nokia.com -->Support--> Phones, by selecting the Phone Model.
 - Before starting the repair you must take care of ESD precautions like being in your ESD Protected Area and connecting your wristband.
 - Use gloves to avoid corrosion and fingerprints.
 - Protect windows and displays with a film to avoid dust and scratches.
 - When cleaning the LCD Module any lint-free cloth can be used (e.g. Micro-Fibre cloth).
 - When cleaning the pads you have to use a soft cloth/ESD brush and Isopropanol. It is not allowed to use a glass fiber pencil because it scratches the surface and will lead later on to corrosion.
 - Mechanical parts (except shielding lids and bent parts), which didn't repair the failure, can be reused, if they are not soldered.
 - When removing the shielding lids make sure to replace them with new ones, otherwise the high-frequency leakage can have an influence on the device.
 - Always use original NOKIA spare parts.
 - Check the soldering joints of the parts, which are concerned regarding the indicated error (e.g. soldered connectors or switches) and resolder them if necessary (Level 2 only).
 - Remove redundant soldering flux after repair.
 - Meet the torque requirements when assembling the unit (see also the document "torques for transceiver assembly" on NOKIA Partner Web Site/NOKIA Online).
 - Always use your own equipment for testing where you are sure that it works. E.g. if the customer complains about charger function, please test the phone with your own charger to be sure if phone or charger causes the malfunction.
 - A SIM card is needed for all GoNoGo tests.
 - When doing the fault log entries, always note the Item code, which caused the malfunction. Also, fill in the appropriate part code from the assembly, if needed.
 - Please be aware that some malfunctions could be software related and solved by an update.
-
- There are several documents available on NOL, which have to be followed:
 -
 - First, take care for the latest content pages of Service Bulletins, which are always available for each folder on NOKIA Online. This is also important to recognize, if existing documents have become invalid.
 -
 - The service level indicator at the bottom of each document tells the appropriate destination.

Downloads > Support Library >

1. Instructions
 2. General Service Bulletins
 3. Product related documents
 4. Spare Part Service Bulletins
 5. Service Tools Service Bulletins
 6. Common Software Service Bulletins
- etc,...

Use General SB-217 as a reference or overview.

Please also check NOKIA Online (NOL) for latest news and files on a regular basis.

3. PATHFINDER FOR WORKSHOP STAFF

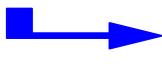
This is the NOL page (NOKIA Online) which is currently available in Europa, Middle East and Africa only!

In addition to the information in this Service Manual, there are several instructions and information, which have to be followed. Main documentation database is [NOKIA Online](#) with the purpose of serving different multimedia content, like video clips or interactive tutorials.

It is mandatory to watch for newest technical and organizational information on a daily basis to be updated as required (see "Latest files in Support Library"). Every new information has to be processed and implemented as soon as possible.

When logged into NOL you can also find needed information in different folder like:

Support Library



Phones



- Service Manuals
- Service Bulletins
- Software
- Repair Information

Level 1&2 e-learning (former NOKIA CarePoint) on NOKIA Online

Former NOKIA CarePoint content, such as	<ul style="list-style-type: none"> • Online Troubleshooting • Product information • Videos – Disassembly/Assembly 	can be found on NOKIA Online
		<p>NOKIA Online</p> <p>↓</p> <p>Care Services</p> <p>↓</p> <p>Training</p> <p>↓</p> <p>Phone Models</p>

Level 1&2 e-learning courses offer a quick overview of the NOKIA phone and support for how to repair and use the phone:

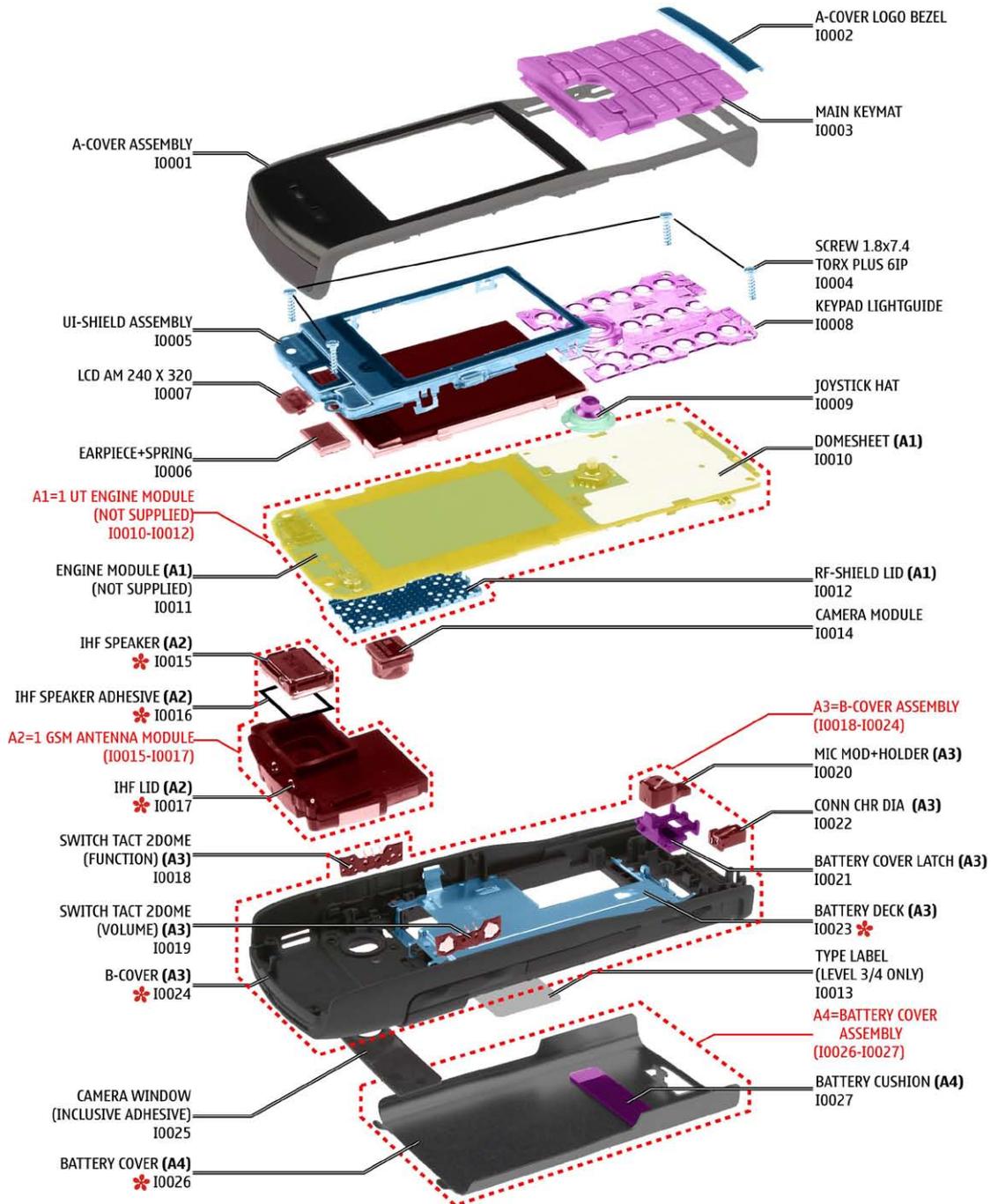
<p>Overview & Guides Basic information about the phone, features and technologies</p>	<p>Disassembly & Assembly Instructions how to disassemble and assemble the phone</p>	<p>Troubleshooting Step-by-step instructions on how to locate and repair the most common problems with the phone</p>
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To reduce the server traffic it is recommended to download newest version of huge files like videos, Phoenix packages or Service Manuals only once and distribute it internally for further use.

4. EXPLODED VIEW AND COMPONENT DISPOSAL

Recommendation for the ecologically friendly disposal of components. Colorized components show the different categories. See corresponding ITEM/CIRCUIT REF in the Spare Parts Service Bulletins on NOL.

E50-1/2 RM-170/171 Exploded view



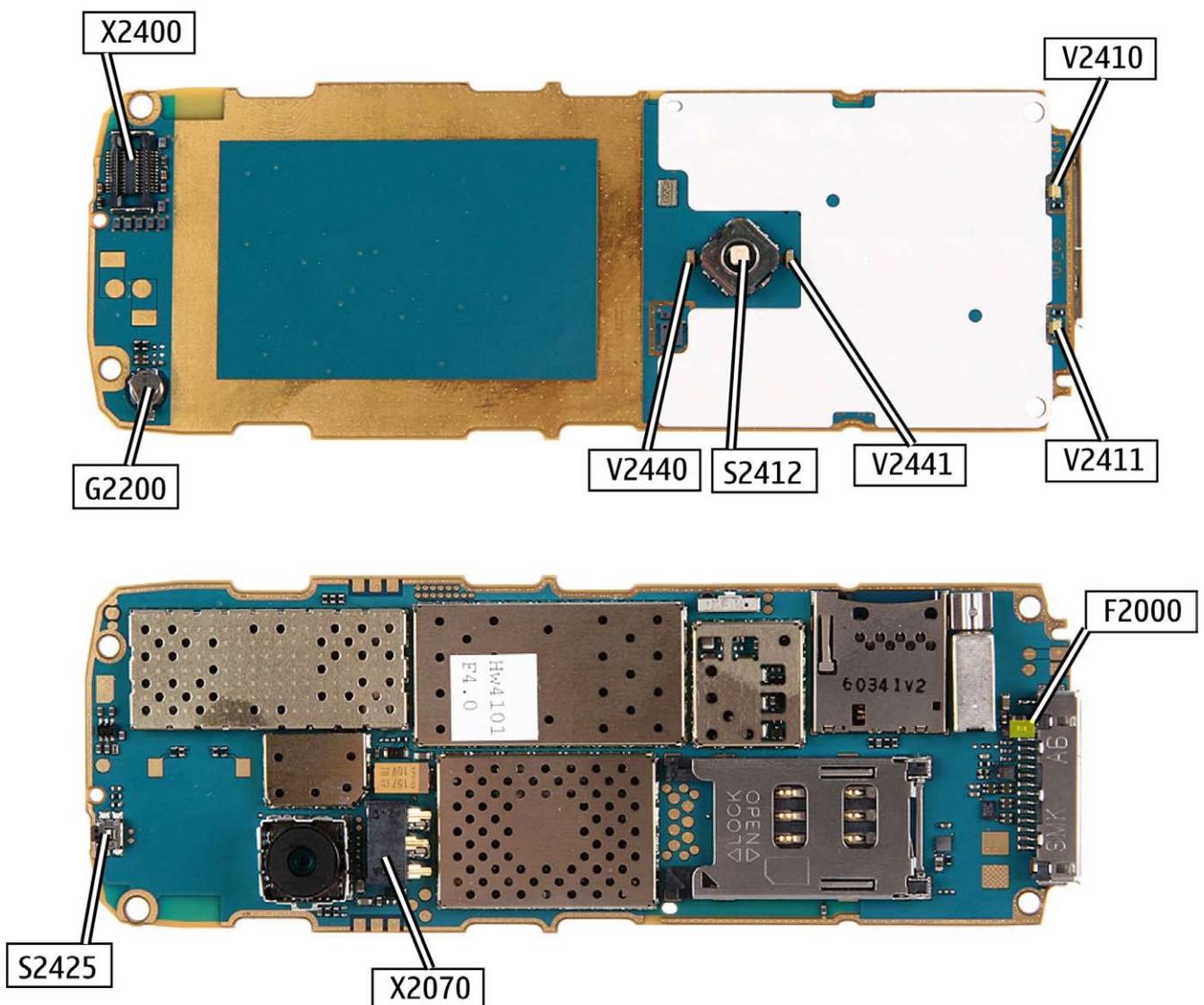
Ver. 1.0

ELECTRO SILICON METAL PLASTIC PWB COVER

* = only available as assembly

5. COMPONENT OVERVIEW

E50-1 RM-170 / E50-2 RM-171 Components overview



6. SPARE PARTS LIST

Please exchange this page (placeholder) with latest corresponding Service Bulletins (spare parts, SWAP units and service tools) from NOL!

This will ensure, that you are using up-to-date order codes only.

Therefore Service Bulletins have to be checked from NOL on daily basis.

[Home](#) | [User](#) | [Sitemap](#) | [Log Out](#)



Nokia Online

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- XXXXXXXXXXXXXXXXXXXX

Files for Service level 1 Date:16.02.2005

- XXXXXXXXXXXXXXXXXXXX
- XXXXXXXXXXXXXXXXXXXX
- XXXXXXXXXXXXXXXXXXXX

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7. SERVICE TOOLS

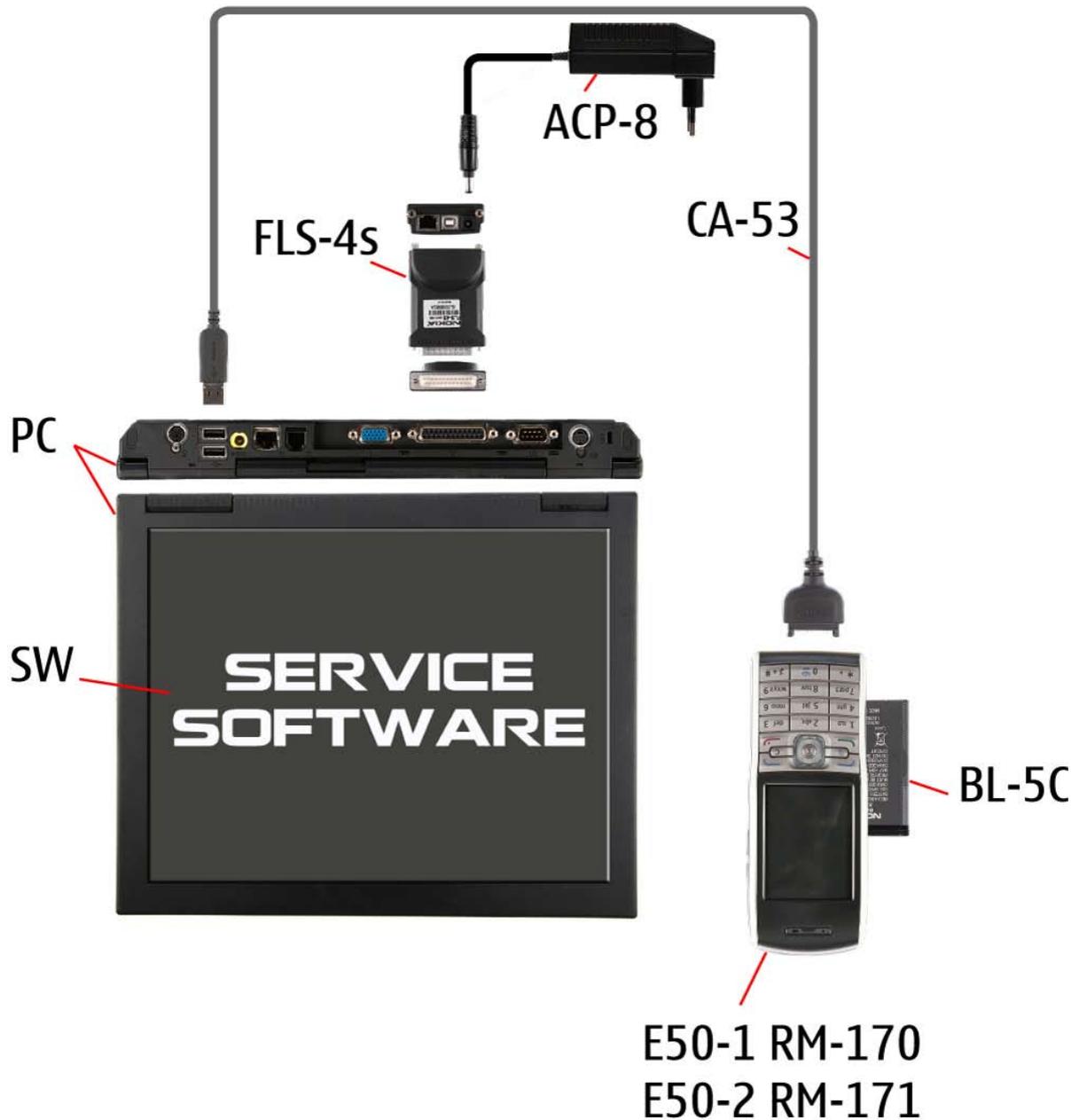
	<p>FLS-45 incl. ACF-8, Driver and User Guide Dongle and flash device incorporated into one package, developed specifically for POS use.</p>
	<p>ACF-8 Universal Power Supply is used to power FLS-45.</p>
	<p>Travel Charger AC-4 Small and lightweight charger for fast charging of your phone battery.</p>
	<p>Internal Battery BL-5C Inserted under the back cover, this Li-Ion battery provides power in a lightweight package.</p>
	<p>Headset HS-23 Small and lightweight stereo headset with handsfree call handling, volume control, push to talk support, and comfortable earpieces for listening to the FM radio or music player.</p>
	<p>SS-102 Camera removal tool.</p>
	<p>CA-53 Service Cable to connect the PC with the Pop-Port™ connector.</p>

	<p>RJ-136 Soldering Jig</p>
	<p>Lead-free Solder Wire Mandatory for lead-free products (Level 2 only).</p>
	<p>0772040 NMP Standard Toolkit (V2)</p> <p>For more informations refer to the Service Bulletin (SB-011) on NOKIA Online.</p> <p>Supplier or manufacturer contacts for tool re-order can be found in “Recommended service equipment” document on NOKIA Online.</p>

8. SW-UPDATE

Flash Concept – (Point of Sales)

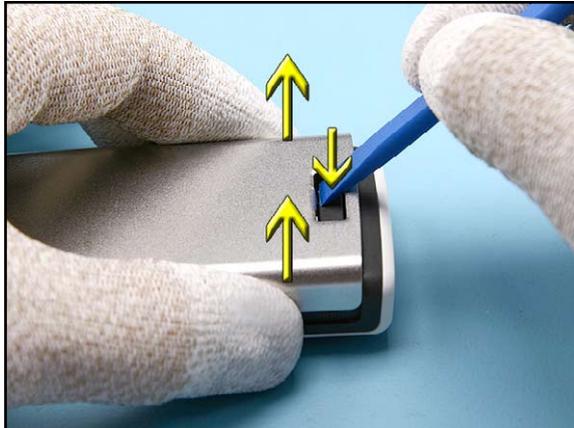
To use FLS-4S Flash Dongle you have to follow the user guide inside the sales package. Please check always for the latest version of flash software, which is available on [NOKIA Online](#).



9. DISASSEMBLY INSTRUCTION



1. Needed tools: a bit holding screwdriver, a Torque screwdriver, a Torx PLUS size 6 bit, metal tweezers, a DC plug, the SS-93 opening tool, the SS-102 camera removal tool and a dental pick.



2. Press the BATTERY COVER LATCH and lift a bit the BATTERY COVER ASSEMBLY.



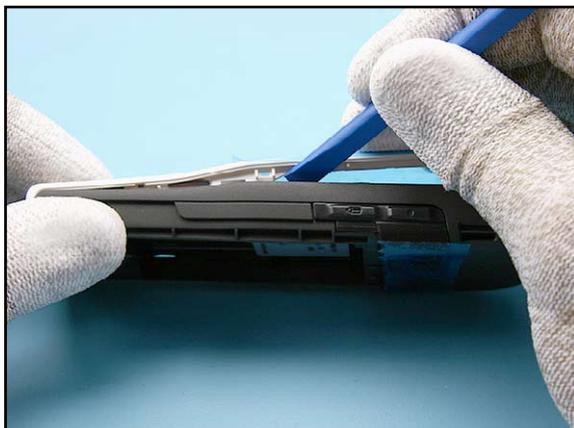
3. Now remove the BATTERY COVER ASSEMBLY.



4. Unlock the A-COVER with the SS-93 starting on the top side of the phone.



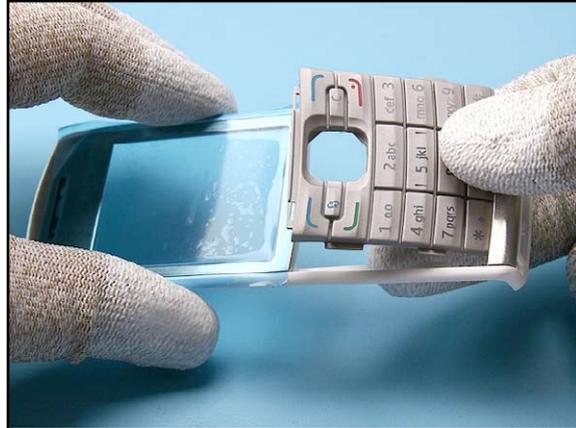
5. Slide the SS-93 along the edge to unlock the snaps.



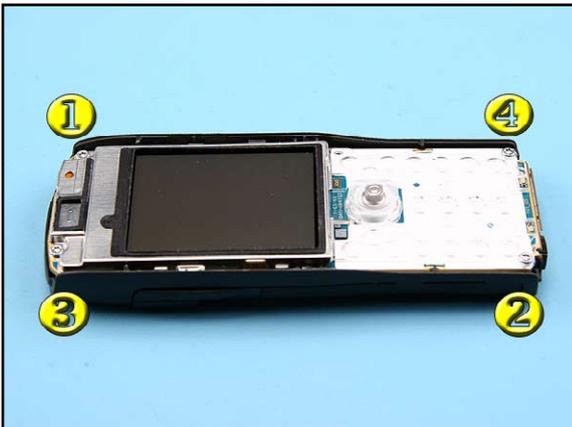
6. Do the same on the other side.



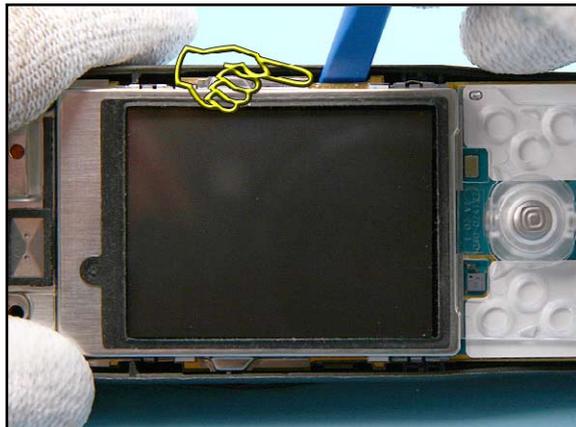
7. Separate the parts from each other.



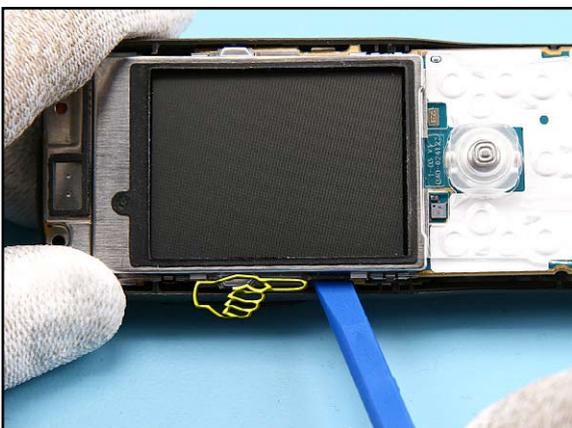
8. Remove the KEYMAT from the A-COVER.



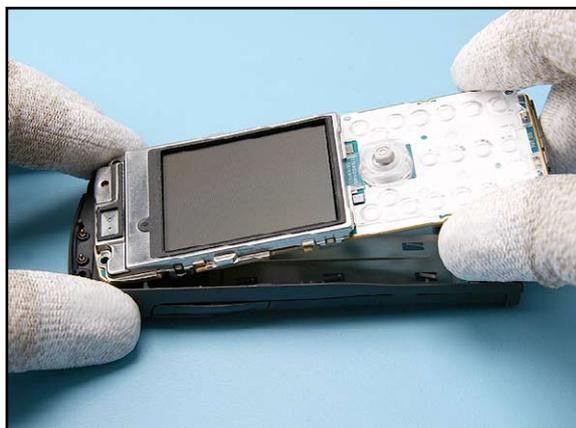
9. Undo the screws in the order shown and remove them. **For assembly: Use the same order and a torque of 20 Ncm for re-assembly.**



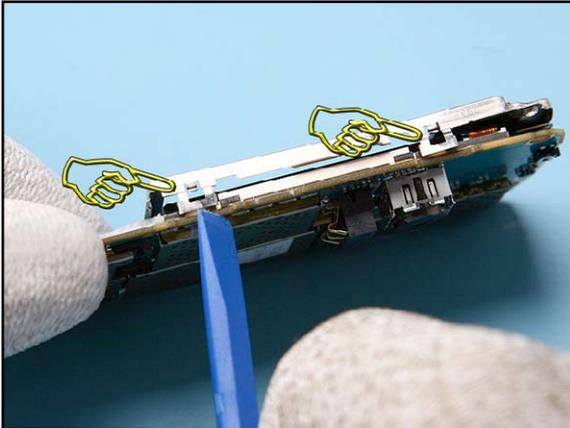
10. Unlock the UI SHIELD ASSEMBLY with the SS-93.



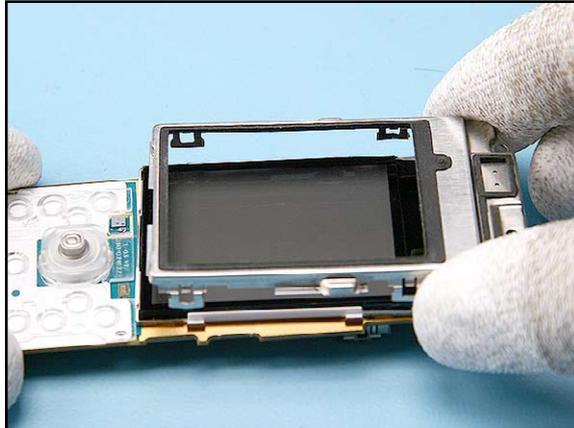
11. Unlock the second snap of the UI SHIELD.



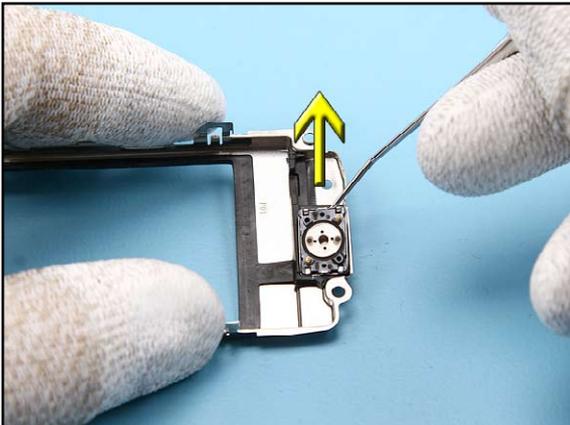
12. Remove the ENGINE MODULE from the B-COVER.



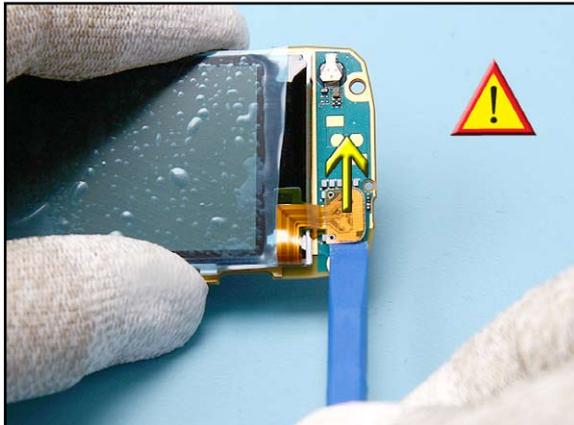
13. Use the SS-93 to open the snaps of the UI SHIELD.



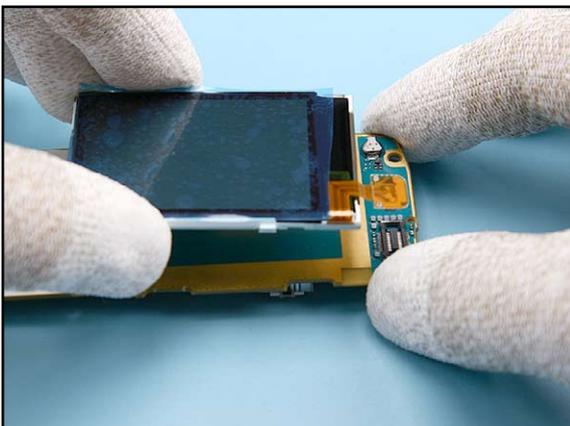
14. Now, remove the UI SHIELD.



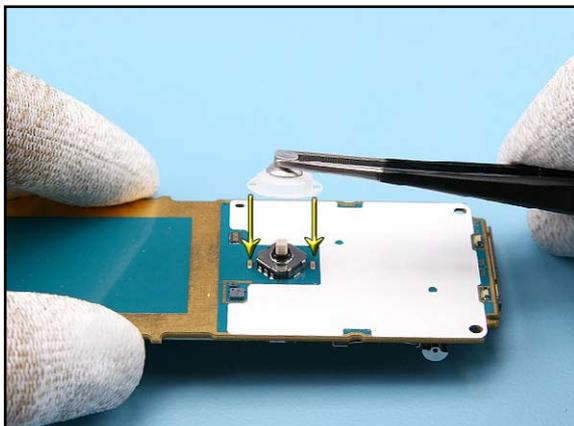
15. Remove the EARPIECE.



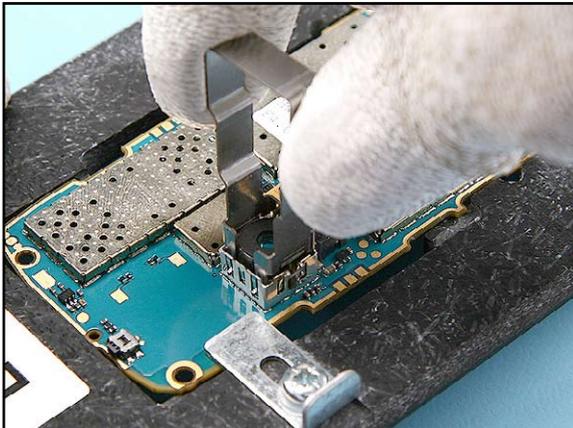
16. Carefully, open the LCD connector with the SS-93 paying attention to the surrounding components.



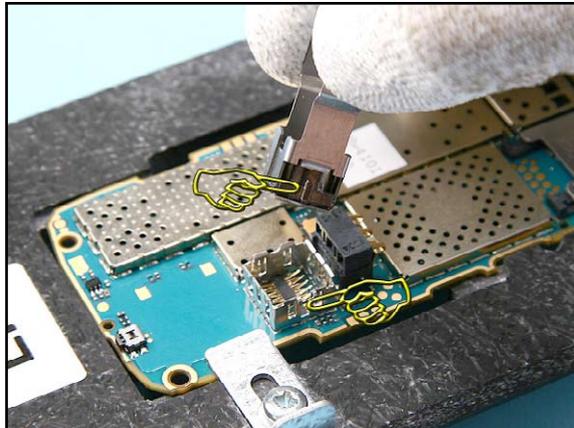
17. Remove the LCD.



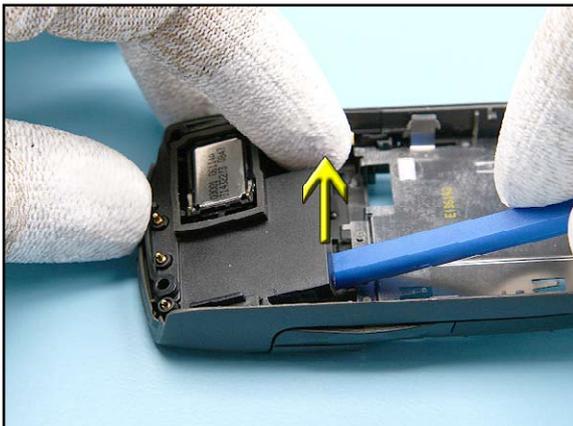
18. Use tweezers to remove the JOYSTICK HAT. Note the right position to JOYSTICK HAT when assembling the unit.



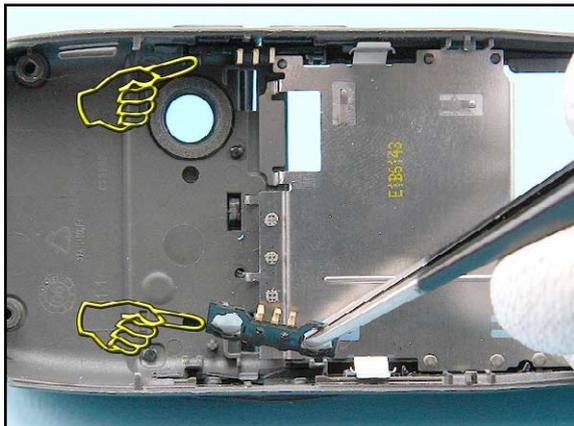
19. Unlock and remove the CAMERA MODULE with the SS-102 camera removal tool.



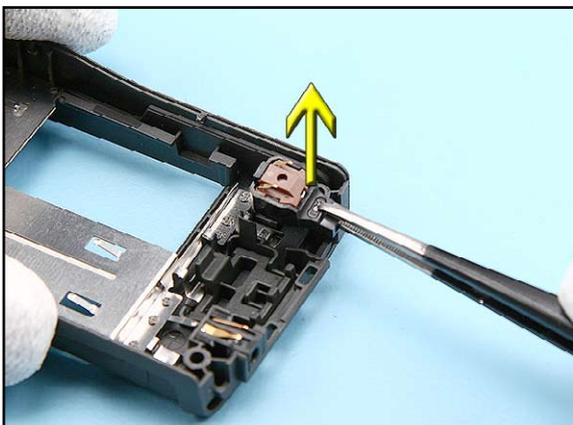
20. Note the right position of the CAMERA MODULE when assembling the unit.



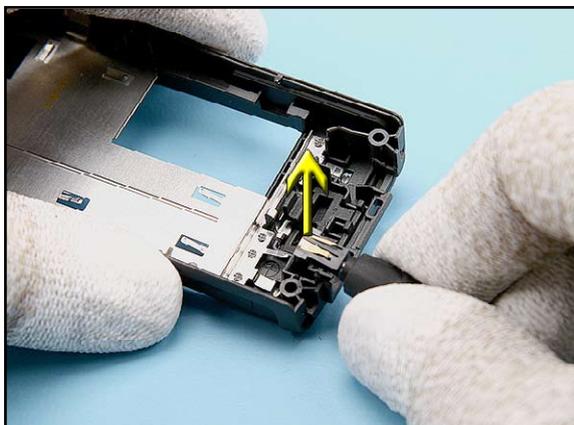
21. Remove the 1GSM ANTENNA MODULE.



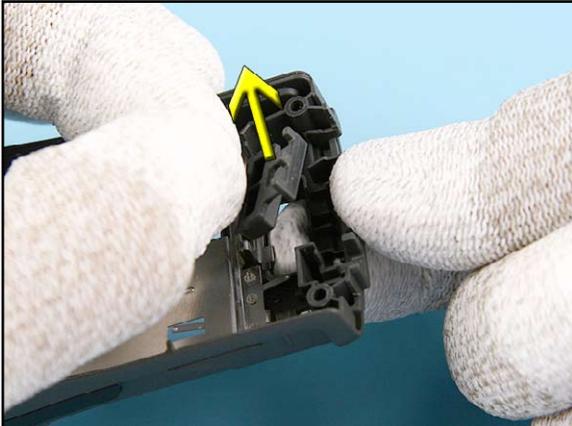
22. Gently, remove the VOLUME and FUNCTION switches using tweezers.



23. Remove the MICROPHONE avoiding bending the spring contacts.



24. Use the DC-plug to unlock and remove the DC-JACK.

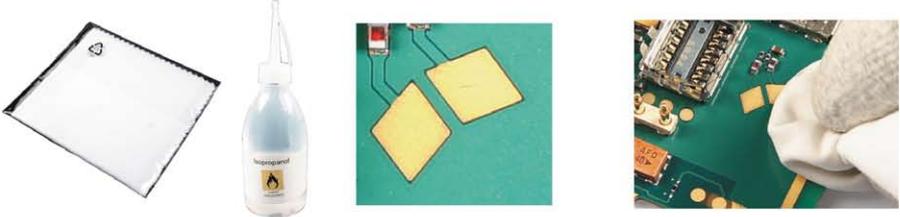
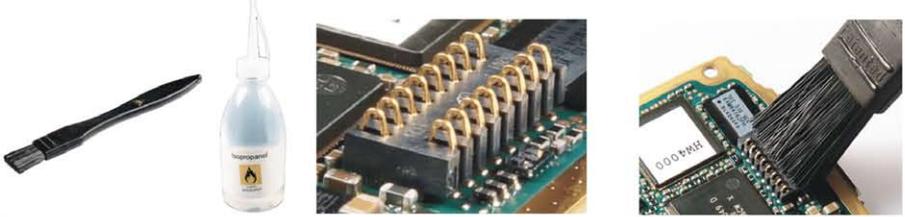
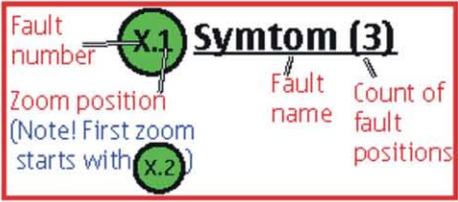


25. Remove the BATTERY COVER LATCH.



26. The disassembly procedure is now complete.

10. LEGEND FOR QUICK TROUBLE SHOOTER

Legend for Quick Trouble Shooter	
This legend is valid for all parts of the Quick Trouble Shooter	
Follow the steps until the problem is solved. If this doesn't help, you are not authorized to go forward.	
	Check the mechanical condition of the component (bent, broken or missing).
	Only marked components can be replaced.
	<p>Cloth usage: Check pads or contacts for optical and mechanical condition particularly regarding to corrosion. Clean it if necessary.</p> 
	<p>Measure component for electrical functionality and change, if needed. (Level 2 only)</p> 
	<p>ESD Brush usage: Check contacts for optical and mechanical condition particularly regarding to corrosion. Clean it if necessary.</p> 
	<p style="text-align: center;">Explanation</p>  <p>The diagram shows a red-bordered box containing the text 'System (3)'. To the left of 'System' is a green circle with 'x.1' inside, with a line pointing to 'System'. Below 'System' is another green circle with 'x.2' inside, with a line pointing to 'System'. To the right of 'System' is the number '3'. Labels with arrows point to these elements: 'Fault number' points to 'x.1', 'Zoom position (Note! First zoom starts with x.2)' points to 'x.2', 'Fault name' points to 'System', and 'Count of fault positions' points to '3'.</p>

11. QUICK TROUBLE SHOOTER

E50-1 RM-170 / E50-2 RM-171 Quick Trouble Shooter

The diagrams show the phone from the front, back, and internal views. Callout numbers are placed over various components: 1.3 (front left), 6.2 (front keypad), 11.3 (back top left), 7.2 (back top right), 9.2 (internal top left), 13.2 (internal top right), 5.2 (internal middle left), 1.2 (internal middle), 2.4 (internal middle), 4.2 (internal middle), 2.3 (internal right), 2.5 (internal right), 8.2 (internal right), 3.2 (internal left), 1.4 (internal left), 12.2 (internal bottom left), 10.2 (internal bottom left), 12.3 (internal bottom left), 7.3 (internal bottom left), 11.2 (internal bottom left), 6.3 (internal bottom right), 10.3 (back top), 5.3 (back top left), 8.3 (back top right), 3.3 (back bottom left), 9.3 (back bottom), and 2.2 (back bottom right).

Explanation

Fault number	X.1	Symtom (3)		
Zoom position (Note! First zoom starts with	X.2)	Fault name	Count of fault positions	

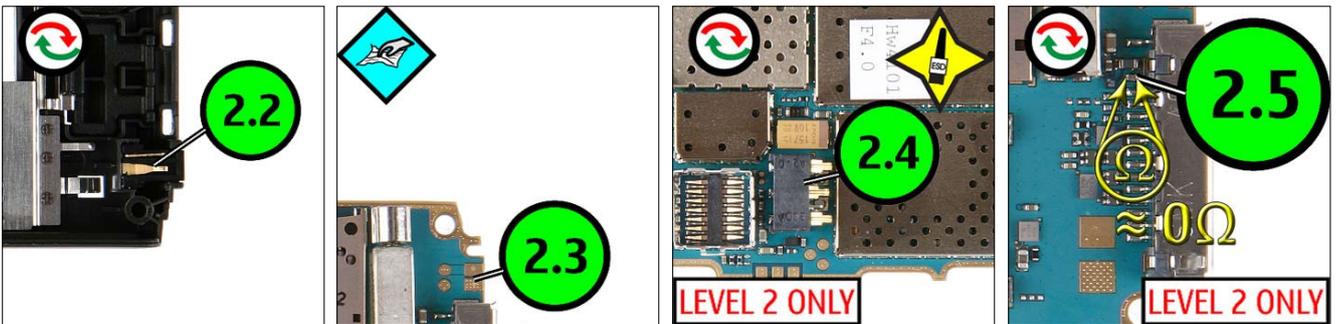
- 1.1 POWER (3)**
- 2.1 Charging (4)**
- 3.1 No Service (2)**
- 4.1 SIM (1)**
- 5.1 IHF Speaker (2)**
- 6.1 Keypad (2)**
- 7.1 Display (2)**
- 8.1 Microphone (2)**
- 9.1 Volume (2)**
- 10.1 Function Keys (2)**
- 11.1 Earpiece (2)**
- 12.1 Camera (2)**
- 13.1 Card Reader (1)**

12. QUICK TROUBLE SHOOTER - ZOOMS PART 1

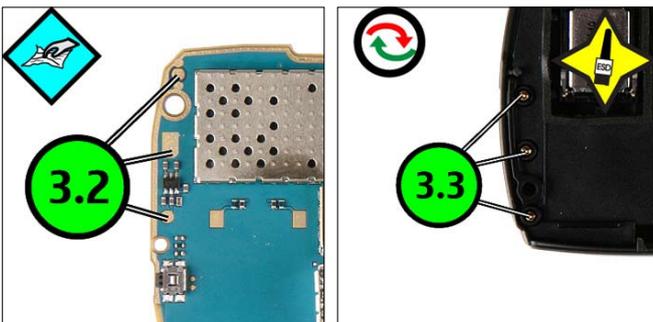
1.1 POWER (3)



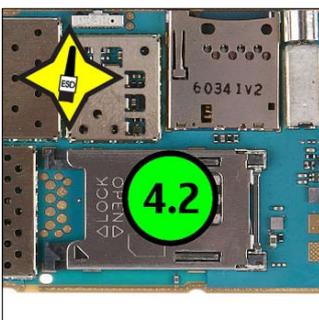
2.1 Charging (4)



3.1 NO SERVICE (3)

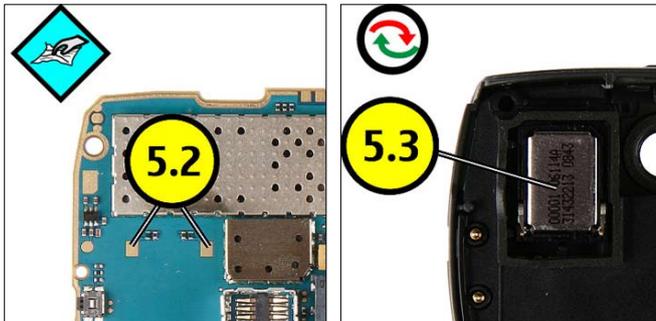


4.1 SIM (3)

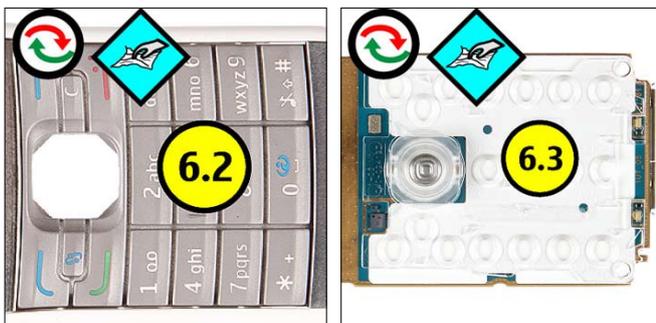


13. QUICK TROUBLE SHOOTER - ZOOMS PART 2

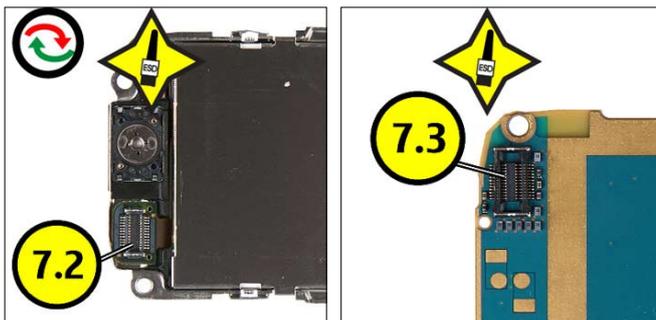
5.1 IHF SPEAKER (2)



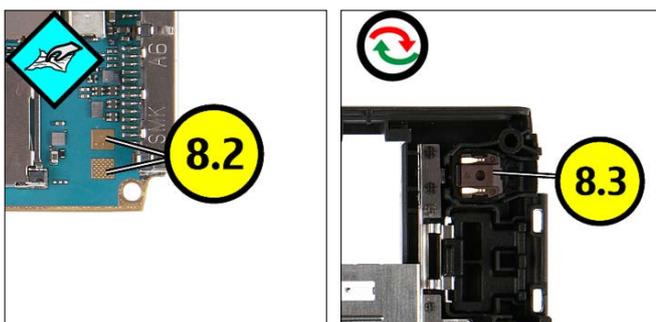
6.1 KEYPAD (2)



7.1 DISPLAY (2)

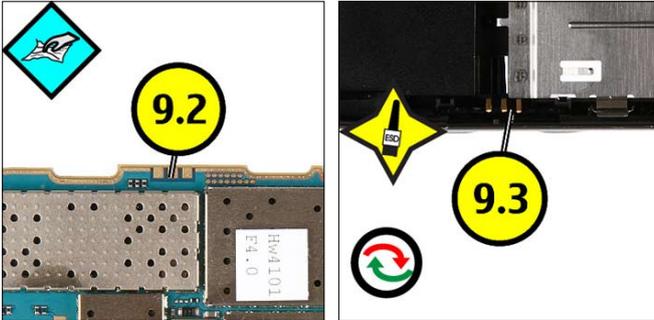


8.1 MICROPHONE (2)

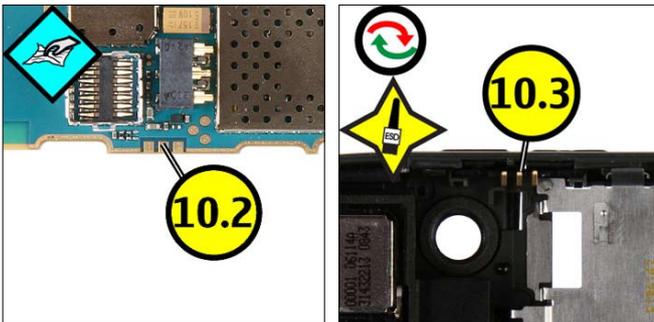


14. QUICK TROUBLE SHOOTER - ZOOMS PART 3

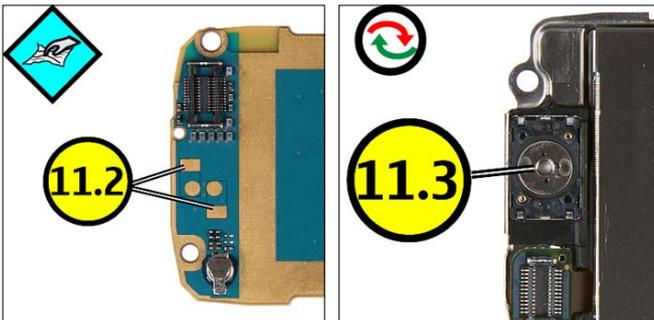
9.1 VOLUME (2)



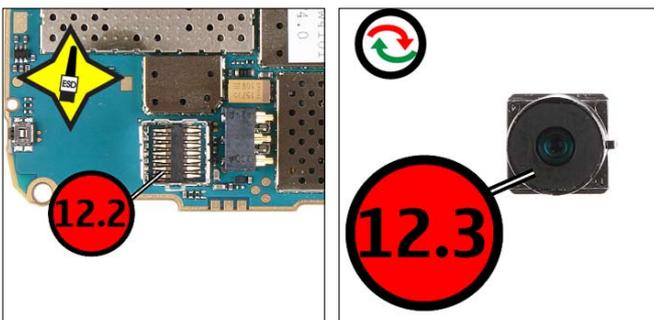
10.1 FUNCTION KEYS (2)



11.1 EARPIECE (2)

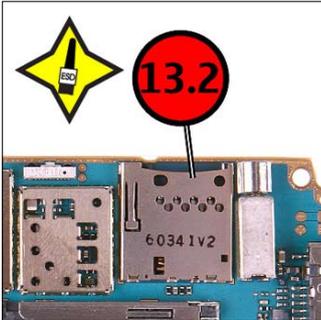


12.1 CAMERA (2)



15. QUICK TROUBLE SHOOTER - ZOOMS PART 4

13.1 CARD READER (1)



16. GONOGO TEST

To test the Camera, Bluetooth and IRDA functionality refer to the phone User's guide.

The User's Guide is available on www.nokia.com.

Before starting the GoNoGo test, check that camera window is clean. If not, clean the window with cloth.



Bluetooth test

You need another Bluetooth device (e.g. 6230) to do a GoNoGo test. Make sure that Bluetooth is activated in the reference unit. The distance of the devices should be not more than 5m from each other.

Infrared test

You need another infrared device (e.g. 6230) to do a GoNoGo test. The infrared windows of the devices must be directed to each other and should have a distance of approximate 15 cm. Make sure that infrared is activated in receiver device.

Warning: Do not point the IR (infrared) beam at anyone's eye or allow it to interfere with other IR devices. This device is a Class 1 Laser product.



Bluetooth connection



infrared connection



Reference unit, Bluetooth /infrared activated

Test unit

17. BATTERY TEST

A battery tester lets you test the capacity of NOKIA batteries.

Please refer to the actual information on NOKIA Online.



<http://www.astratec.co.uk/>



<http://www.cadex.com/>