

# SERVICE MANUAL

## Level 1&2

# NOKIA

## N80

RM-91/RM-92



### Transceiver characteristics:

Dual-Mode-Mobile Phone for UMTS, GSM/EDGE networks

Quadband phone for GSM 850/900/1800/1900MHz

RM-91: WCDMA 1900 (Band II)

RM-92: WCDMA 2100 (Band I)

Camera: Integrated 3 megapixel camera sensor

Display: Active matrix color display with 262,144 colors,  
resolution 352 x 416 pixel

Integrated VGA camera on front

High-quality video capture

WLAN connectivity

Bluetooth

Infrared

Stereo FM radio

Vibra Motor

Transceiver with BL-5B 820mAh Li-Ion battery pack

Talk time	Standby	Note
up to 3h	up to 8 days	Depends on network parameters

### Environmental characteristics:

Lead-free soldered

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## CHANGE HISTORY

Status	Version No.	Date	Comments
Draft	0.1	02.3.2006	Initial draft
Approved	1.0	27.3.2006	Approval

## 1. INTRODUCTION

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

While every effort 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 always watch out for the newest version.

### Warnings and Cautions

Please refer to the phone's user's guide for instructions relating to operation, care, and maintenance, which include 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
2. THE IMMUNITY OF VEHICLE ELECTRONIC SYSTEMS TO RF ENERGY. THE CELLULAR 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 must observe the precautions, mentioned in the appropriate "Service Partner Requirements", available on NOKIA Online. Also see ESD Protection Requirements in this Service Manual.

## 2. GENERAL REPAIR INFORMATION

This section provides useful repair information how to carry out repairs:

- Make sure your testing equipment is functioning properly before beginning repair work.
  - To familiarize yourself with the NOKIA product read the tutorials or user's guide on [www.nokia.com](http://www.nokia.com) -->Support--> Phones, by selecting the Phone Model.
  - Before starting repairs you must observe ESD precautions such as being in your ESD Protected Area and connecting your wristband.
  - Use gloves to avoid corrosion and fingerprints.
  - Cover windows and displays with a protective film to avoid dust and scratches.
  - Use a lint-free cloth (e.g. Micro-Fibre cloth) to clean the LCD.
  - When cleaning the pads use a soft cloth/ESD brush and Isopropanol. Do not use a glass fiber pencil: this scratches the surface and will corrosion.
  - Non-faulty mechanical parts (except shielding lids and bent parts or soldered components), may 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 affect the device.
  - Always use original NOKIA spare parts.
  - Check the soldering joints of the parts concerned with regard to the fault symptom (e.g. soldered connectors or switches) and resolder them if necessary (Level 2 only).
  - Remove excess soldering flux after repair.
  - Observe the torque requirements when assembling the unit.
  - Preferably use your own equipment for testing. E.g. if the customer complains about charger function, please test the phone with your own charger to determine if the malfunction is being caused by 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 of the part that caused the malfunction. Also, fill in the appropriate part code from the assembly if needed.
  - Please be aware that some malfunctions may be software related and solved by an update.
- 
- There are several documents available on NOL which must be followed:
  - 
  - First, pay attention to the latest content pages of Service Bulletins, which are always available for each folder on NOKIA Online. Make sure your documentation is up to date.
  - 
  - The service level indicator at the bottom of each document displays the appropriate target group.

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.

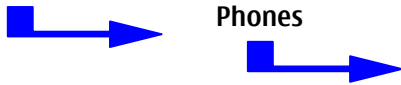
Please also check NOKIA Online (NOL) for latest news and files on a regular basis.

### 3. PATHFINDER FOR WORKSHOP STAFF

In addition to the information in this Service Manual, there are other instructions and data, which must 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"). New information must be processed and implemented as soon as possible. When logged into NOL you can also find needed information in different folders like:

Support Library



- 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"> <li>• Online Troubleshooting</li> <li>• Product Information</li> <li>• Videos – Disassembly/Assembly</li> </ul>	can be found on NOKIA Online
		<p><a href="#">NOKIA Online</a></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 on repair and testing.

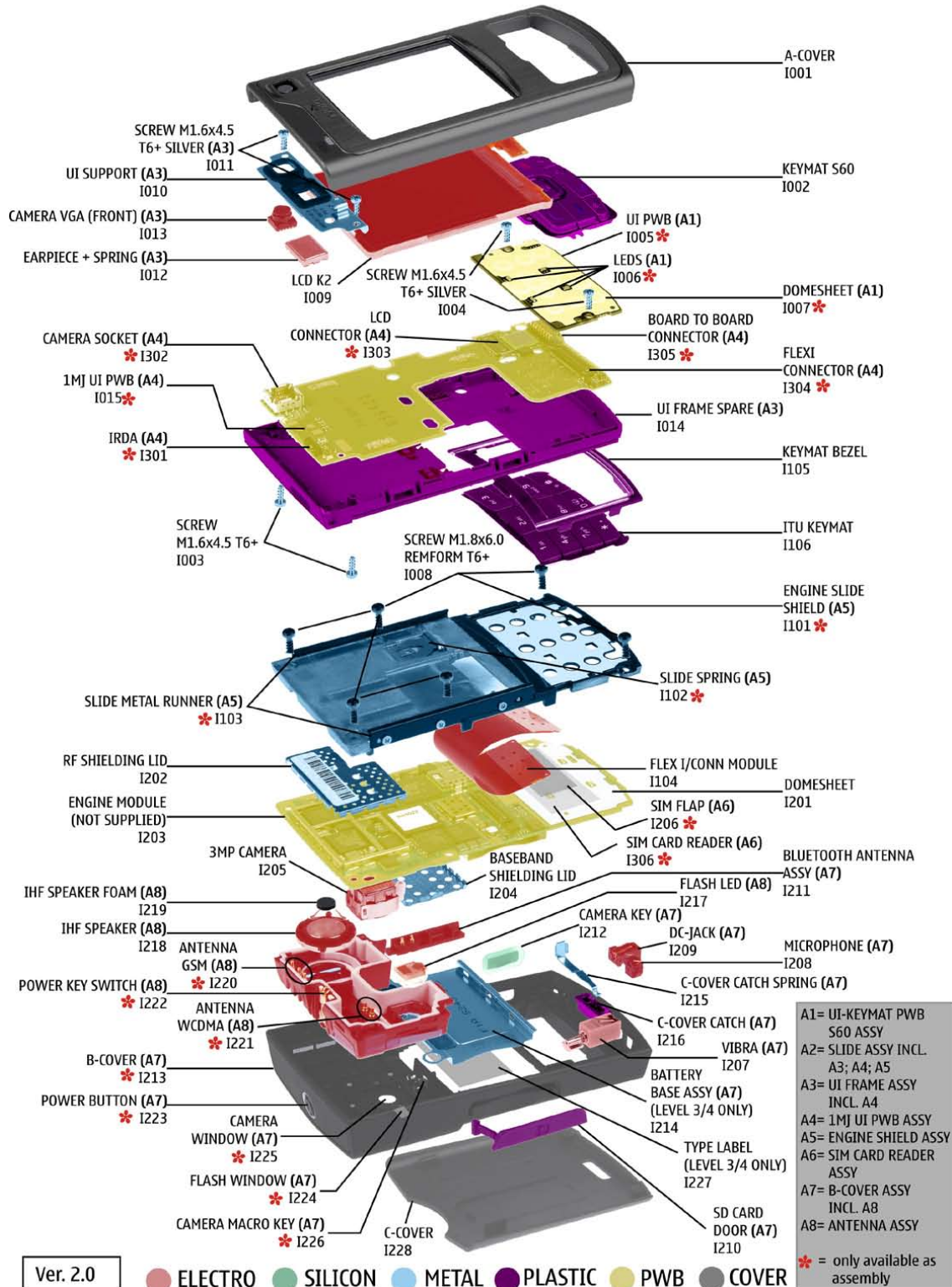
<p><b>Overview &amp; Guides</b>                  Basic information about the phone, features, and technologies</p>	<p><b>Disassembly &amp; Assembly</b>                  Instructions on disassembling and assembling the phone</p>	<p><b>Troubleshooting</b>                  Step-by-step instructions on locating and repairing the most common problems with the phone</p>
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To reduce the server traffic we recommend downloading the newest version of large files like videos, Phoenix packages, or Service Manuals only once to distribute it internally for further use.

## 4. EXPLODED VIEW AND COMPONENT DISPOSAL

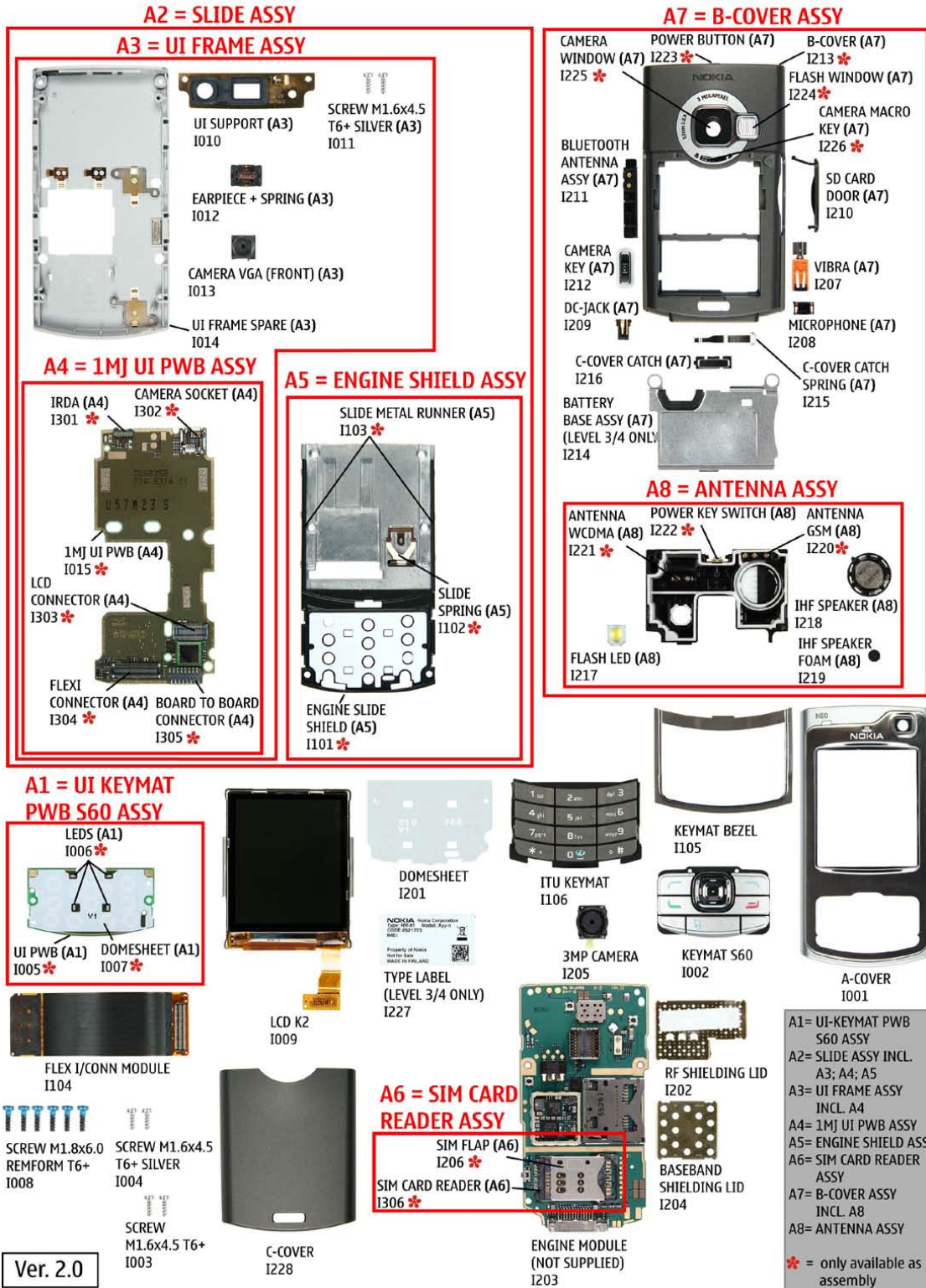
Recommendation for the ecologically friendly disposal of components. Colorized components show the different categories. See corresponding ITEM/CIRCUIT REF in the Spare Parts Service Bulletins on NOL.

### N80 RM-92 Exploded view



**5. SPARE PARTS OVERVIEW**

**N80 RM-92 Spare Parts overview**




## 6. SPARE PARTS LIST

Please replace this page (placeholder) with the 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 on NOL have to be checked on daily basis.

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**Files for Service level 1** Date:16.02.2005

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- XXXXXXXXXXXXXXXXXXXX
- XXXXXXXXXXXXXXXXXXXX

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## 7. SERVICE TOOLS

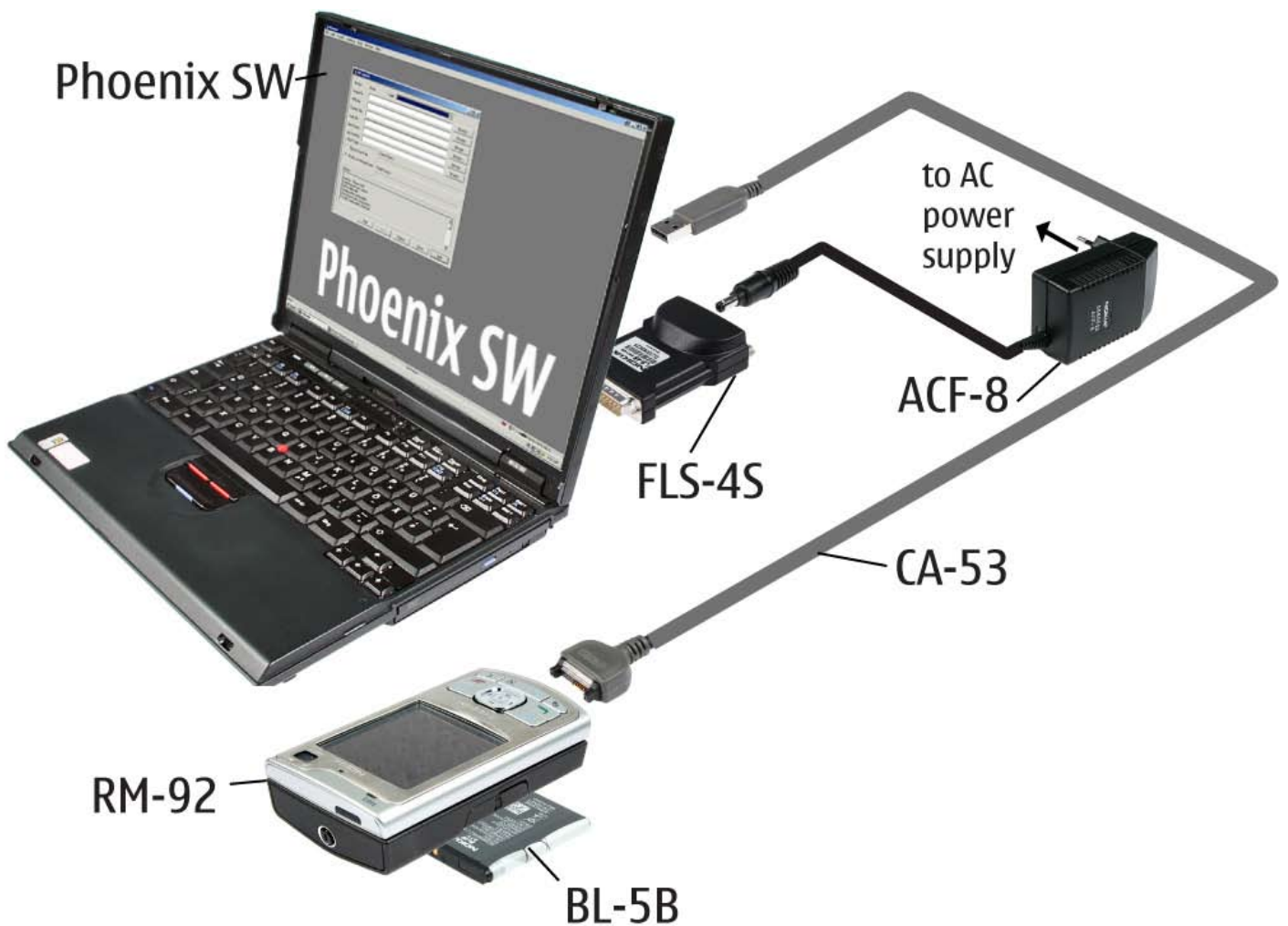
	<p><b>FLS-4S incl. ACF-8, Driver and User Guide</b>                  Dongle and flash device incorporated into one package, developed specifically for POS use.</p>
	<p><b>ACF-8</b>                  Universal Power Supply is used to power FLS-4S.</p>
	<p><b>Travel Charger AC-4</b>                  Small and lightweight charger for fast charging of your phone battery.</p>
	<p><b>Internal Battery BL-5B</b>                  Li-Ion 820 mAh battery provides power in a lightweight package.</p>
	<p><b>Headset HS-23</b>                  Small and lightweight stereo headset with handsfree functionality, volume control, push to talk support and comfortable earpieces for listening to the FM radio or MP3 player in compatible phones.</p>
	<p><b>SS-45</b>                  Camera removal tool for the 3 megapixel camera.</p>
	<p><b>SS-51</b>                  Camera removal tool for the VGA camera.</p>

	<p>RJ-75 Soldering Jig</p>
	<p>SS-93 Opening Tool</p>
	<p>Lead-free Solder Wire Mandatory for lead-free products (Level 2 only).</p>
	<p>0772040      NMP Standard Toolkit</p> <ul style="list-style-type: none"> <li>• NOKIA opening tool SRT-6 NOKIA No. 0770431</li> <li>• Tonichi torque driver NOKIA No. 6901525</li> <li>• <a href="#">Hoya</a> micro Fibre cloth MX304</li> <li>• <a href="#">Dastex</a> gloves S, M, XL</li> <li>• <a href="#">Artilux</a> goggles AH166</li> <li>• <a href="#">Wera</a> bit T5 867/4TX 5x50</li> <li>• Wera 867/4 6IP; 50mm (Torx 6 PLUS®)</li> <li>• Wera 867/1 5IP; 25mm (Torx 5 PLUS®)</li> <li>• Wera bit T6 PLUS® 867/4TX 6IP</li> <li>• <a href="#">Facom</a> side cutter 416E</li> <li>• Facom T5 driver SP.14032</li> <li>• Facom T6 driver SP.14033</li> <li>• Facom slot screwdriver AEF. 2x35.E</li> <li>• <a href="#">Wetec</a> tweezers 7abb SA-ESD</li> <li>• Wetec tweezers 22 SA-ESD</li> <li>• Wetec tweezers 13 SA-SMD ESD</li> <li>• Wetec tweezers PSF SA-ESD</li> <li>• Wetec ESD brush E1211</li> <li>• <a href="#">Kaiser</a> Fototechnik airbrush 6315</li> <li>• Wetec dental tool DEM83266/0</li> <li>• <a href="#">RS</a> Components Scissors 323-5732</li> </ul>

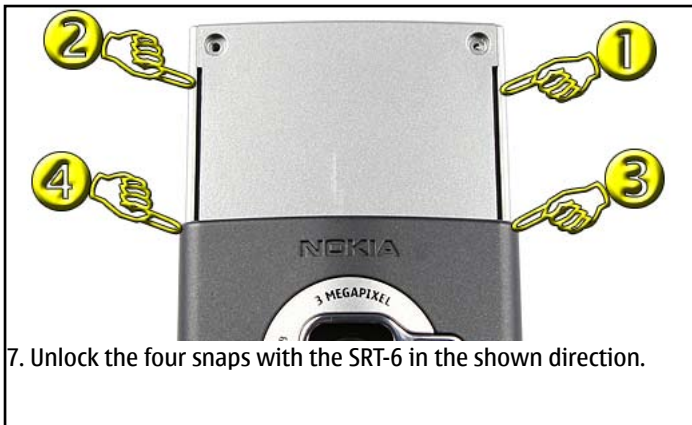
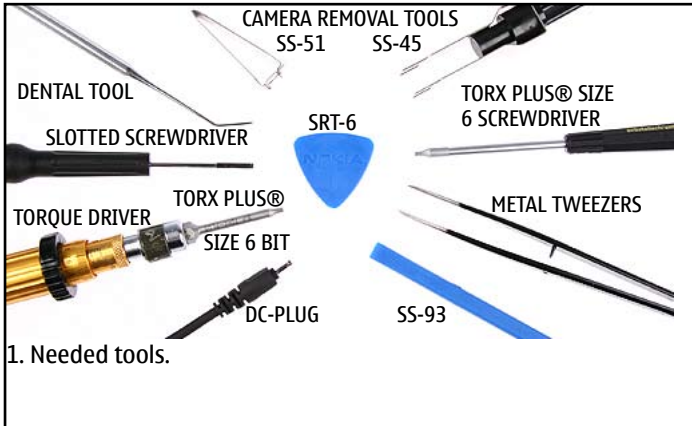
## 8. SW-UPDATE

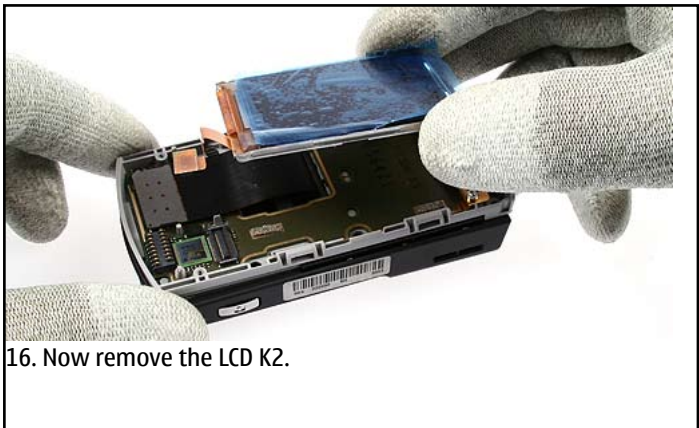
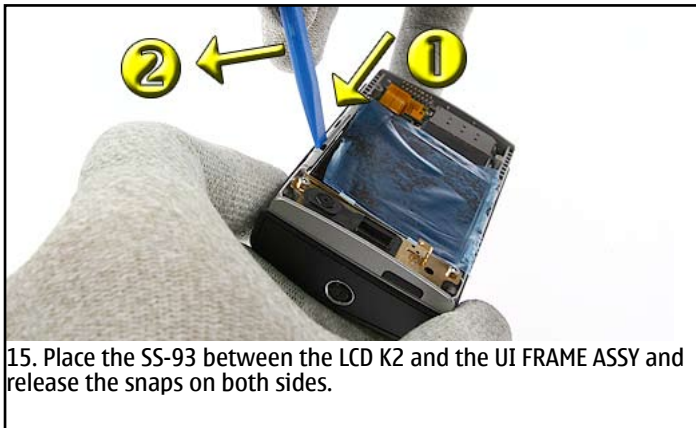
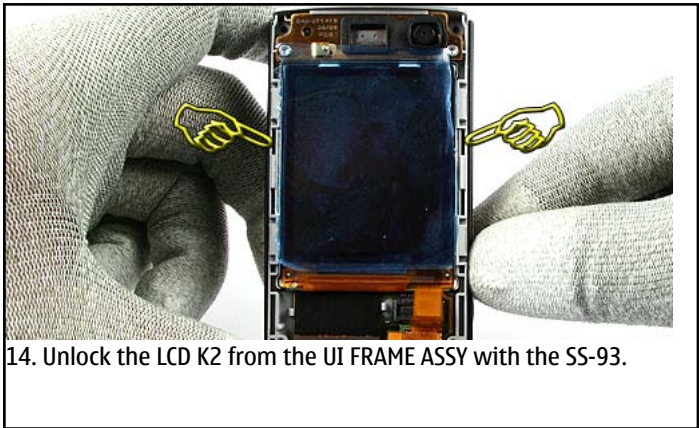
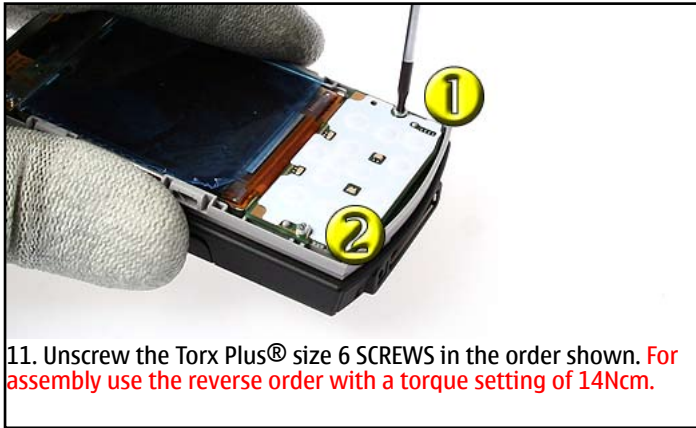
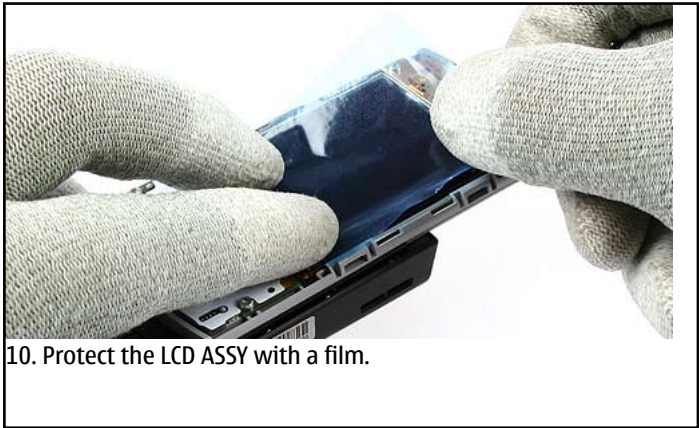
### Flash Concept – (Point of Sales)

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



## 9. DISASSEMBLY INSTRUCTION



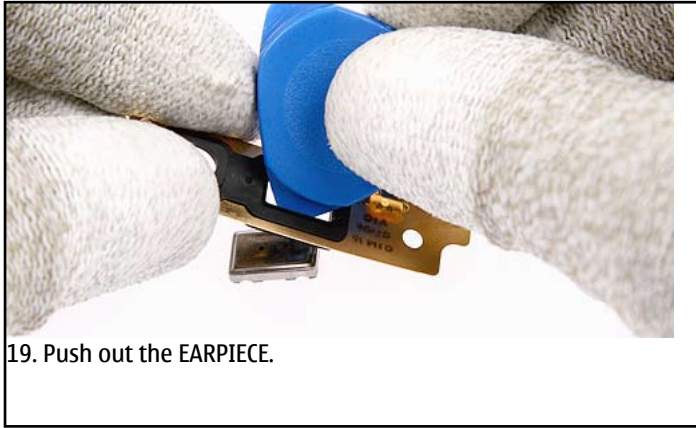




17. Unscrew the Torx Plus® size 6 SCREWS. For assembly: tighten the screws with a torque setting of 14Ncm.



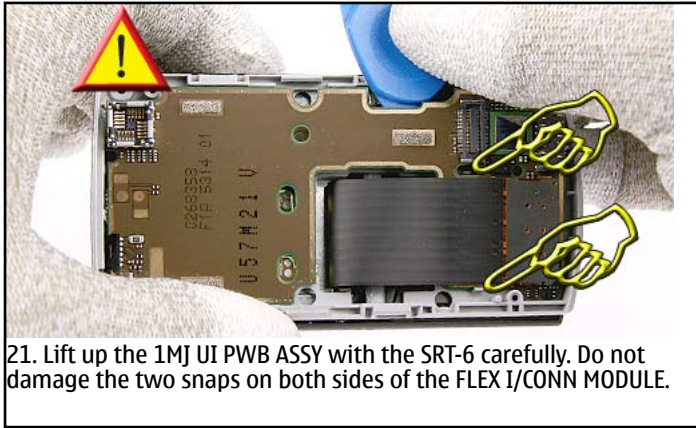
18. Remove the UI SUPPORT. NOTE! When assembling the UI SUPPORT it is important to place it under the marked edge.



19. Push out the EARPIECE.



20. Unlock and remove the VGA CAMERA with the SS-51. Note the guide pin when re-assembling the CAMERA.



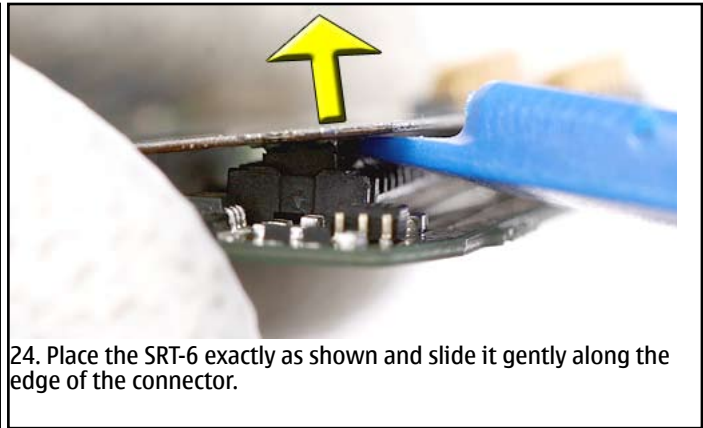
21. Lift up the 1MJ UI PWB ASSY with the SRT-6 carefully. Do not damage the two snaps on both sides of the FLEX I/CONN MODULE.



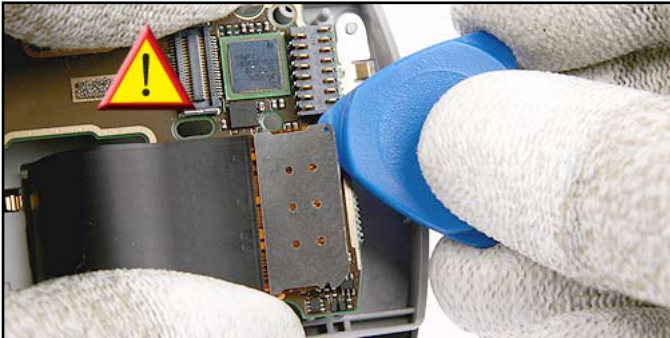
22. Gently, lift a bit the UI PWB.



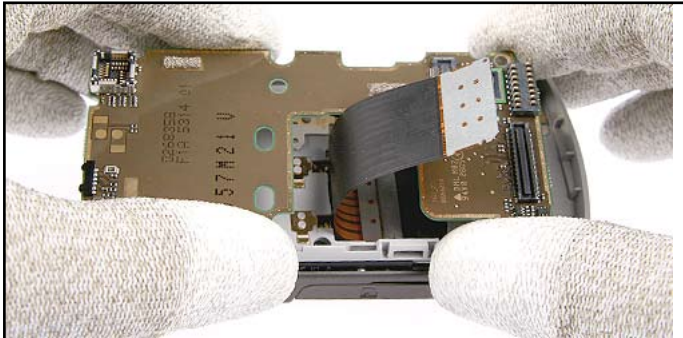
23. Take special care when opening the FLEX I connector.



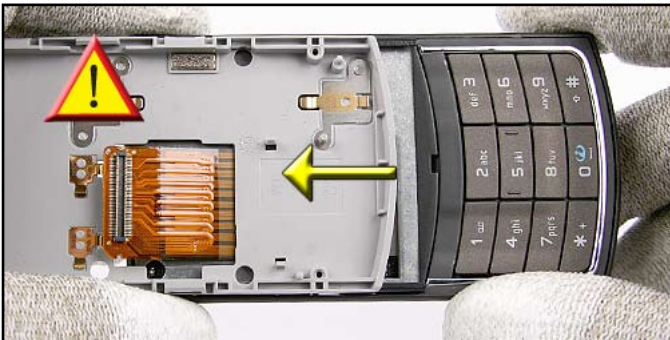
24. Place the SRT-6 exactly as shown and slide it gently along the edge of the connector.



25. Lift the other side of the connector as shown. Avoid bending the spring contacts of the BOARD TO BOARD CONNECTOR.



26. Now, remove the UI PWB ASSY.



27. Open the UI FRAME ASSY a bit as shown. **Do not separate the parts yet.**



28. First start to unlock the first snap and then follow the shown order in picture 29.



29. To unlock the KEYMAT BEZEL use the SRT-6 to open the 5 snaps in the shown order and at the correct place.



30. To open the snaps 2-5 **only** stick in the SRT-6 between ITU KEYMAT and KEYMAT BEZEL in the shown angle.



31. Open snap 3.



32. Open snap 4.



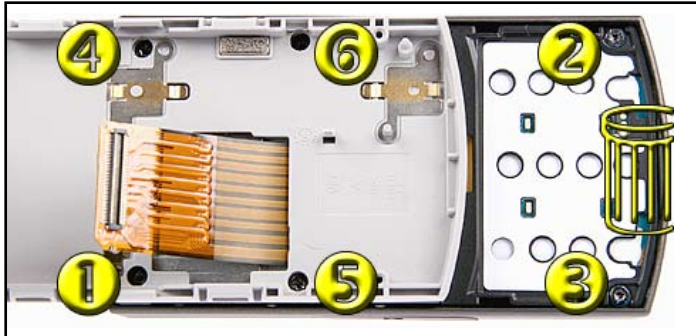
33. Open snap 5.



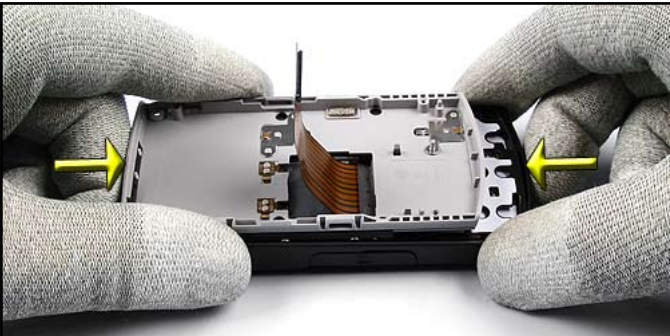
34. Remove the KEYMAT BEZEL.



35. Remove the ITU KEYMAT.



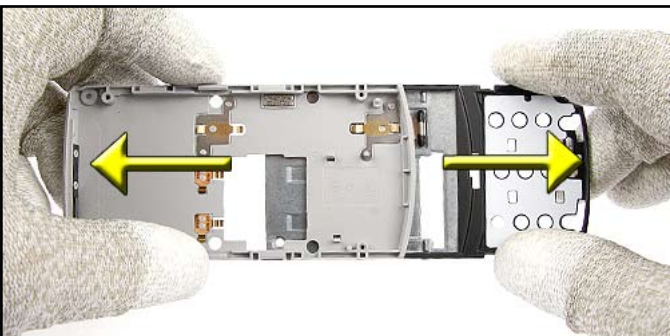
36. Unscrew the Torx Plus® size 6 SCREWS in the order shown. For assembly use the reverse order with a torque setting of 23Ncm. **Always use new SCREWS when re-assembling the unit.**



37. Close the SLIDE ASSY.



38. Remove the UI FRAME SPARE include the ENGINE SHIELD ASSY.



39. **Do not pull the SLIDE ASSY apart, unless replacement is necessary.**



40. **Mind the correct assembling when connecting the FLEX I/CONN MODULE to the ENGINE MODULE.**



41. Open the FLEX I connector carefully.



42. Lift up the ENGINE MODULE a bit, and remove it.

**For assembly only!**



43. Note! For assembling ensure the correct position of the CAMERA MACRO KEY in the B-COVER ASSY and ...

**For assembly only!**



44. ... the camera macro lever of the 3MP CAMERA on the ENGINE MODULE.

**For assembly only!**



45. Note! After placing the ENGINE MODULE into the B-COVER ASSY check the window inside the battery housing if the CAMERA MACRO KEY and camera macro lever correct fit together.



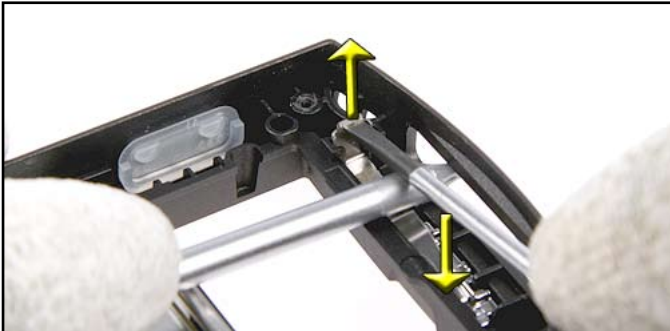
46. Remove the VIBRA.



47. Use the DC-Plug to remove the DC-JACK.



48. Use the dental tool to remove the MICROPHONE.



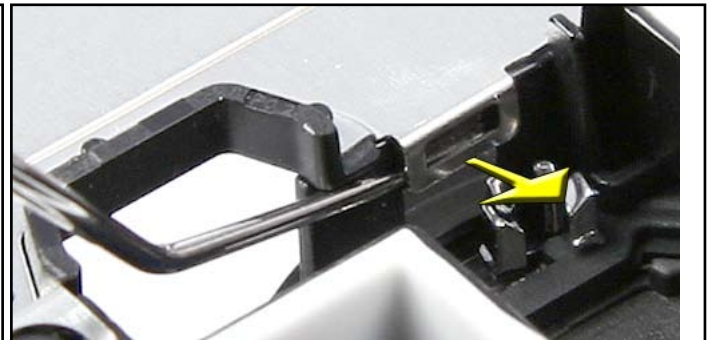
49. Use a torx driver as a fulcrum when removing the C-COVER CATCH SPRING.



50. The C-COVER CATCH drops out easily.



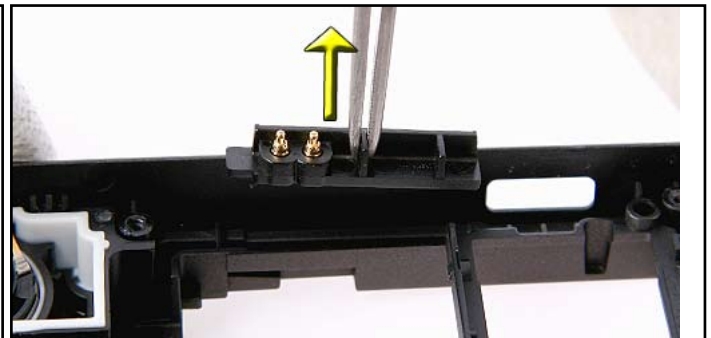
51. Push out the CAMERA KEY. Mind the correct assembling of the CAMERA KEY (small picture).



52. Unlock the snap of the BATTERY BASE ASSY.



53. Gently, remove the BATTERY BASE ASSY.



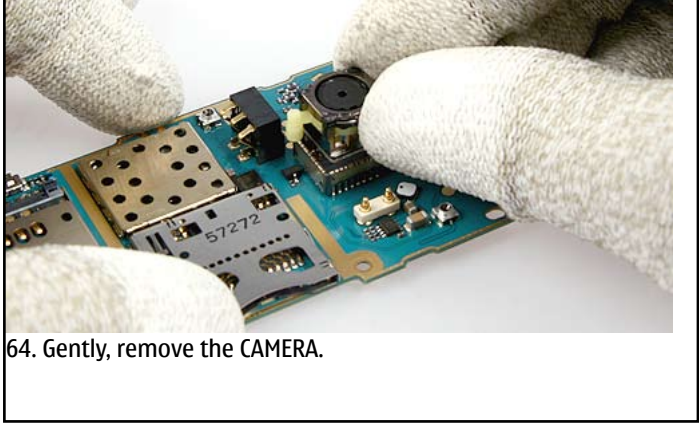
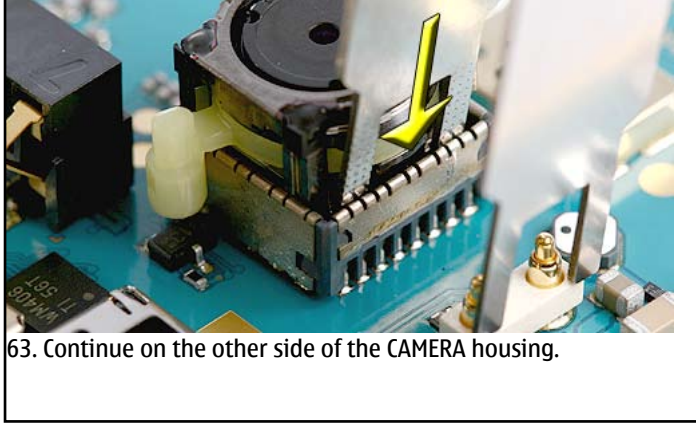
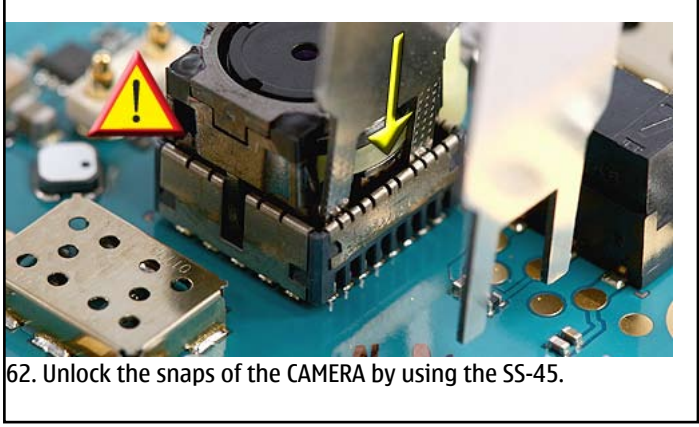
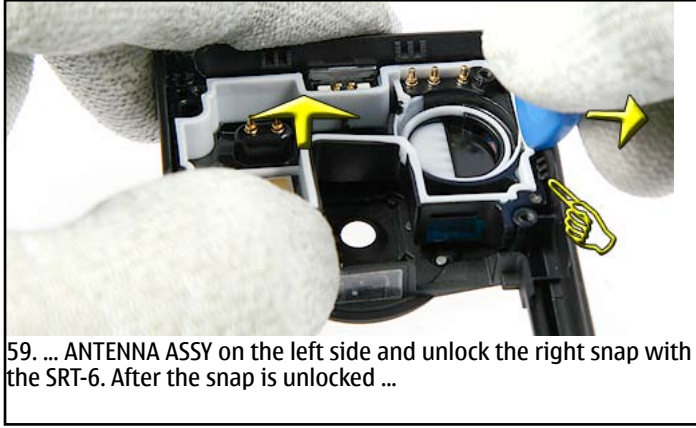
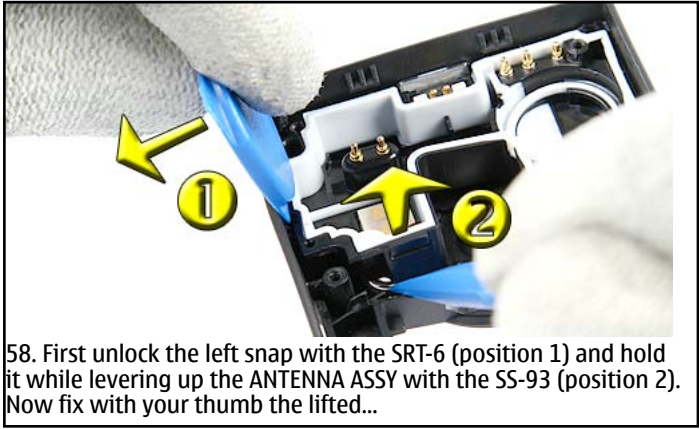
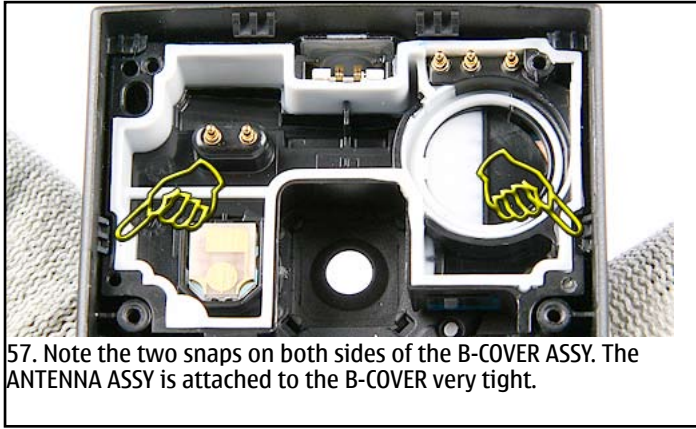
54. Remove the BLUETOOTH ANTENNA ASSY.









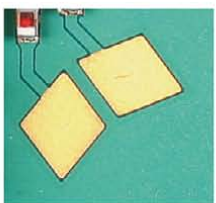



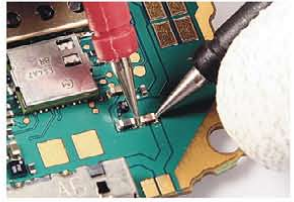






55. Remove the SD CARD DOOR.



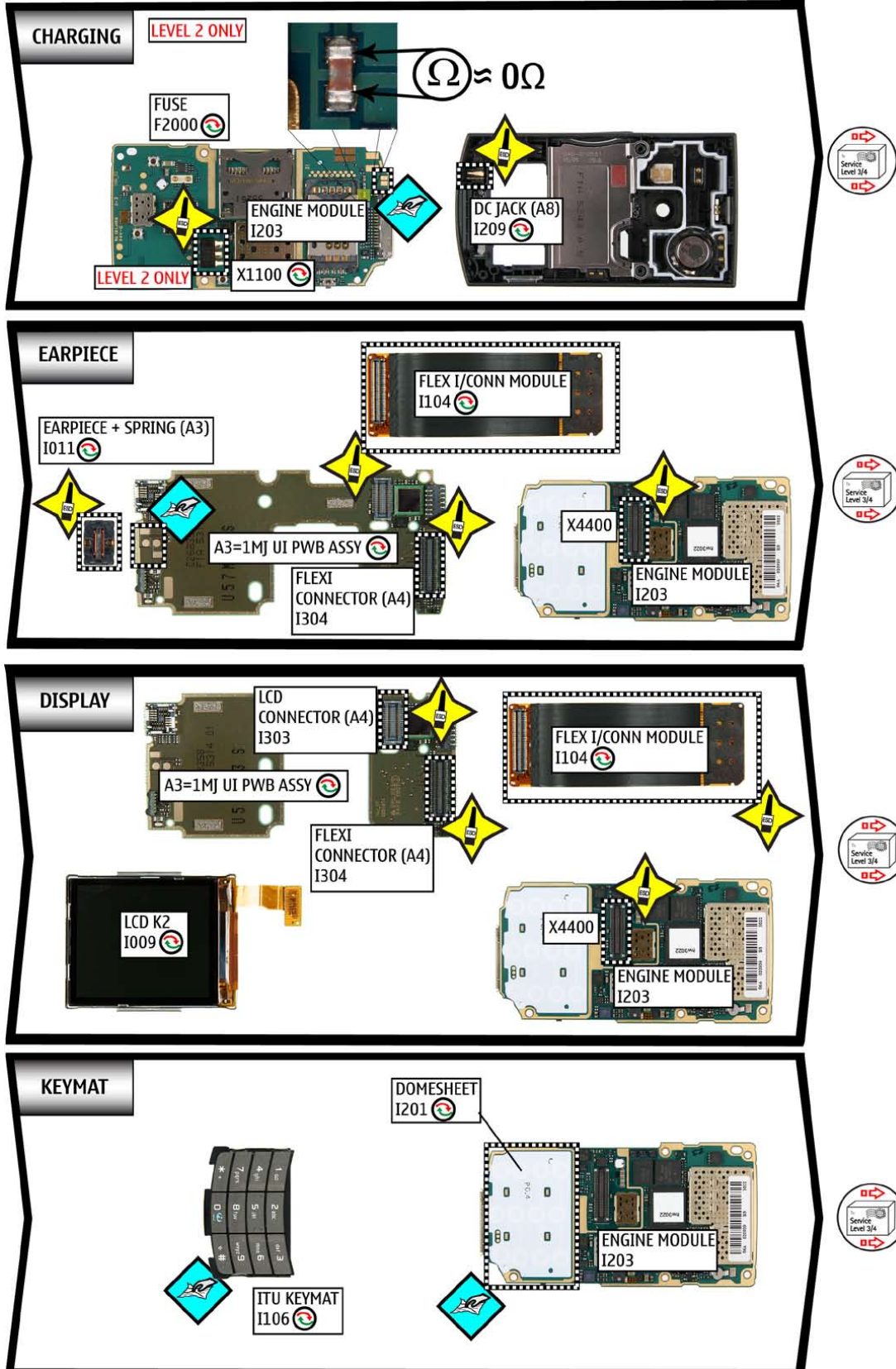
56. Lift up the IHF SPEAKER a bit, and remove it. Note the guide pin when re-assembling the IHF SPEAKER.



## 10.LEGEND FOR QUICK TROUBLE SHOOTER

Legend for Quick Troubleshooter	
This legend is valid for all parts of the Quick Troubleshooter	
Follow the steps until the problem is solved. If this doesn't help, you are not authorized to go forward.	
	The start point of repair activities regarding the appeared fault symptoms.
	Only marked components (e.g. I002  ) can be replaced.
	<p><b>Cloth usage:</b> 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><b>ESD Brush usage:</b> Check pads or contacts for optical and mechanical condition particularly regarding to corrosion. Clean it if necessary.</p>    
	No more action possible - send product to the appropriate service supplier with higher service level.

### 11. QUICK TROUBLE SHOOTER PART 1



**12. QUICK TROUBLE SHOOTER PART 2**

**SERVICE**

A8=ANTENNA ASSY

ANTENNA WCDMA I221

ANTENNA GSM I220

ENGINE MODULE I203

**KEYMAT S60**

A1=UI-KEYMAT PWB S60 ASSY

180°

DOMESHEET I007

BOARD TO BOARD CONNECTOR (A4) I305

A3=1MJ UI PWB ASSY

FLEXI CONNECTOR (A4) I304

KEYMAT S60 I002

FLEX I/CONN MODULE I104

X4400

ENGINE MODULE I203

**IHF SPEAKER**

IHF SPEAKER (A8) I218

ENGINE MODULE I203

**POWER**

A8=ANTENNA ASSY

POWER KEY SWITCH (A8) I222

ENGINE MODULE I203

X1100

**LEVEL 2 ONLY**

How to measure 2-pol switch (built-in)

open

pressed

MEASURE OPEN AND PRESSED STATE OF THE SWITCH

**13. QUICK TROUBLE SHOOTER PART 3**

**MICROPHONE**

MICROPHONE (A7) I208

ENGINE MODULE I203

Service Level 3/4

**SIM**

SIM CARD READER (A6) I306

ENGINE MODULE I203

A6=SIM CARD READER ASSY

SIM FLAP (A6) I206

Service Level 3/4

**3MP CAMERA**

3MP CAMERA I205

180°

X6500

ENGINE MODULE I203

Service Level 3/4

**CAMERA VGA (FRONT)**

CAMERA VGA (FRONT) (A3) I012

180°

CAMERA SOCKET (A4) I302

A3=1MJ UI PWB ASSY

FLEXI CONNECTOR (A4) I304

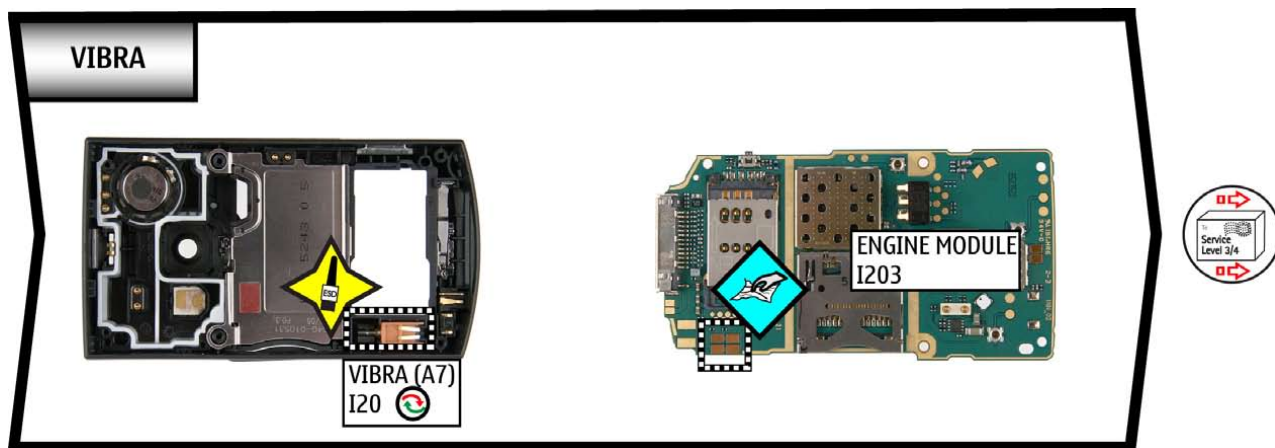
FLEX I/CONN MODULE I104

X4400

ENGINE MODULE I203

Service Level 3/4

## 14. QUICK TROUBLE SHOOTER PART 4



## 15. CAMERA GONOGO TEST

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





Main Camera





VGA Camera

### Main Camera Test

- Press the red receiver button to reach the Home Menu
- Press the **Camera Button**  to open the camera mode
- Select "Use main camera"
- Press the **Camera Button**  to take a photo  
This image will be saved to Gallery into the Photos folder automatically.  
Test was successful, if the image appears on your display. The camera is ok.
- Select **Options**
- Select **Delete**
- Select **Yes**

### VGA Camera Test

Press the red receiver button to reach the Home Menu

- Press the **Camera Button**  to open the camera mode
- Select "Use secondary camera"
- Press the  **Button** to take a photo  
This image will be saved to Gallery into the Photos folder automatically.  
Test was successful, if the image appears on your display. The camera is ok.
- Select **Options**
- Select **Delete**
- Select **Yes**

If the test is failed see Quick Trouble Shooter.

## 16. BLUETOOTH & INFRARED TEST

### Bluetooth test

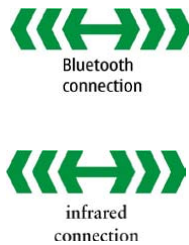
You need another Bluetooth device (e.g. 6230) to do a GoNoGo test.

Make sure that Bluetooth is activated in the reference unit. The distance between the devices should not be more than 5m.

### 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.



Reference unit, Bluetooth /infrared activated

Test unit

Settings on the test unit:

- Press the red End key to reach the Home Menu
- Press the Menu key and select **Contacts** for an entry  
If phone and SIM memory is empty, create one new entry.
- **Select** an entry
- Select **Options**
- Select **Send**

A) - for infrared test: Select **Via infrared**

If sending of business card fails, make sure again that infrared windows are directed to each other and infrared is activated in reference unit. Then try again sending.

Test was successful, if you get the message "**Business card received**" on the Reference unit.

You will not get a confirmation on sender device.

B) - for Bluetooth test: Select **Via Bluetooth**

Search window appears and shows all Bluetooth units in range.

Choose one unit and press **Select**

Press **Accept** on the Reference unit.

Test was successful, if you get the message "**Business card received**" on the Reference unit.

- Press red **End** key of the Test unit to reach the Home Menu

**Note:** If the Bluetooth is activated, switch it off!

## 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/>