

# SERVICE MANUAL

## Level 1&2

**NOKIA**  
**6111**

RM-82



### Transceiver characteristics:

**Band:** Tri-band phone for GSM 900/1800/1900MHz

**Camera:** 1 Megapixel camera with 6x digital zoom and landscape camera mode

**Display:** Active matrix color display with 262.144 colors, resolution 128 x 160 pixel

**Bluetooth**

**FM radio**

**IrDa**

**Vibra Alert:** Standart Vibra motor

**Connector:** Pop Port connector

Transceiver with BL-4b 700mAh 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	01.08.2005	Initial draft
Approved	1.0	23.11.2005	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
2. THE IMMUNITY OF VEHICLE ELECTRONIC SYSTEMS TO RF ENERGY. 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](http://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

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"> <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>

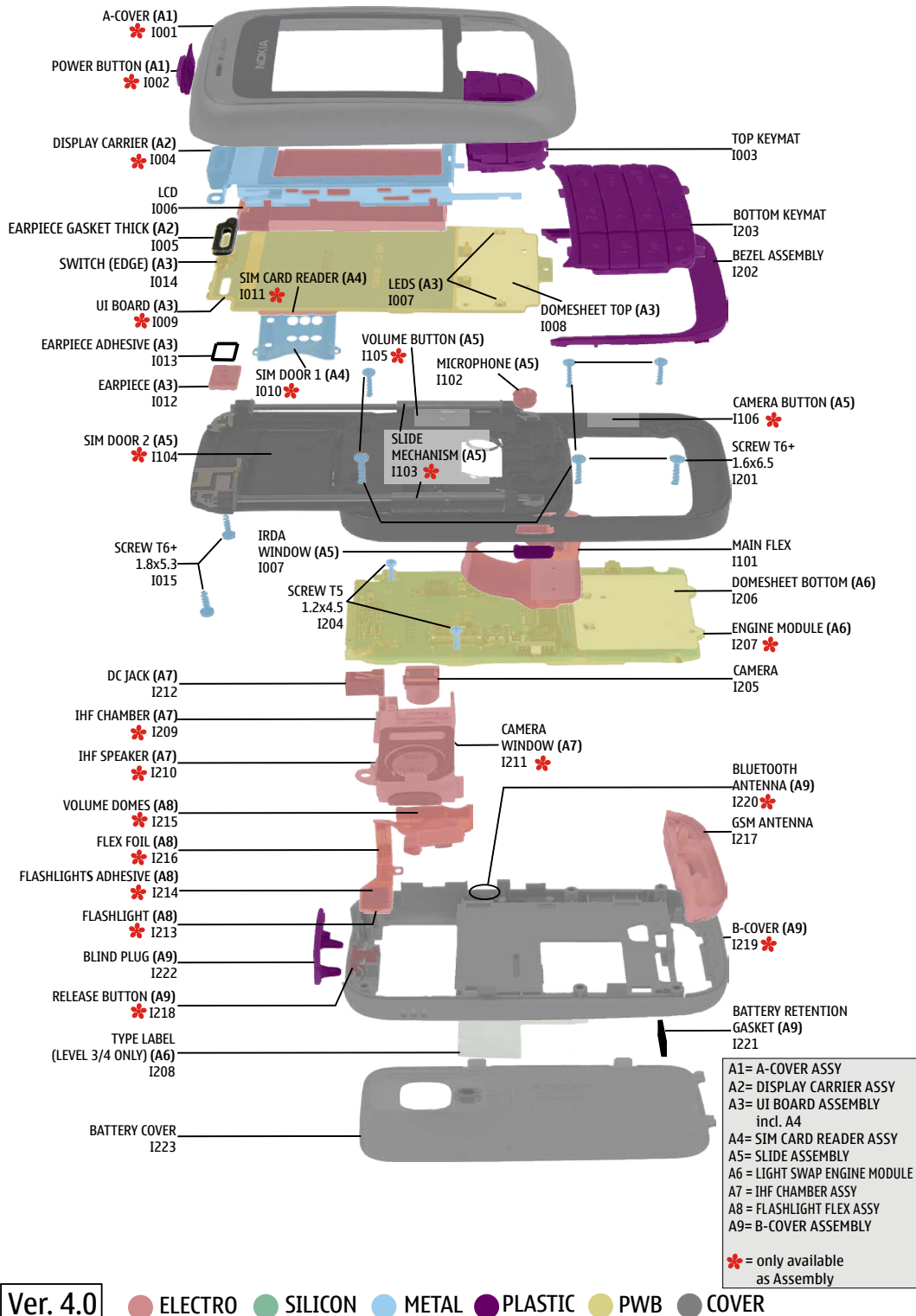
Level 1&2 e-learning courses offer a quick overview of the NOKIA phone and support for how to repair and use the phone:

<p><b>Overview &amp; Guides</b></p> <p>Basic information about the phone, features and technologies</p>	<p><b>Disassembly &amp; Assembly</b></p> <p>Instructions how to disassemble and assemble the phone</p>	<p><b>Troubleshooting</b></p> <p>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.



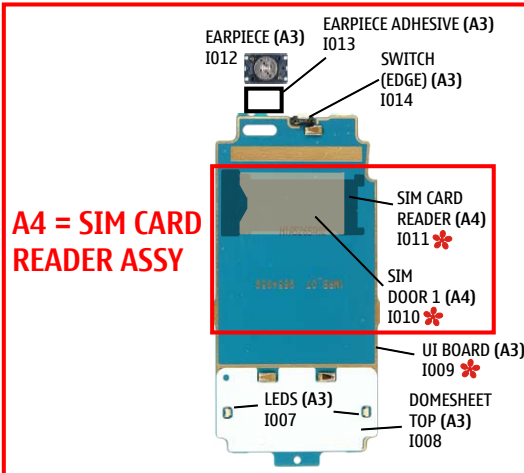


## 5. SPARE PARTS OVERVIEW

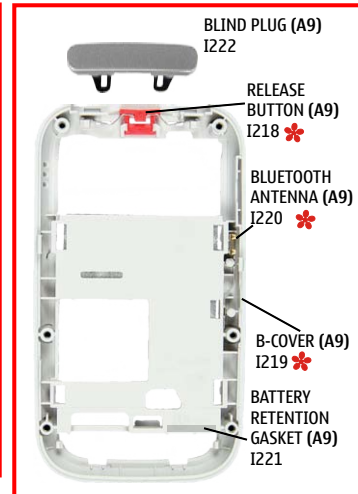
### A1 = A-COVER ASSY



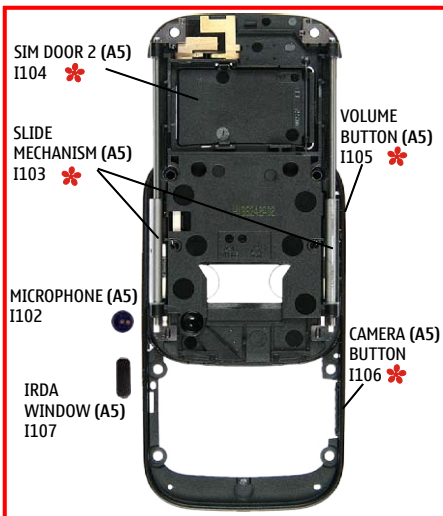
### A3 = UI BOARD ASSEMBLY



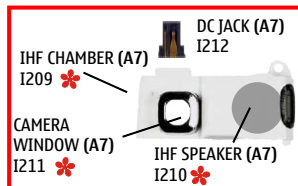
### A9 = B-COVER ASSEMBLY



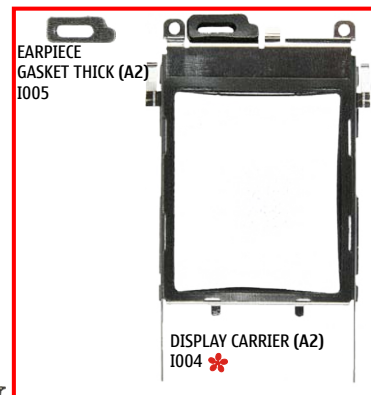
### A5 = SLIDE ASSEMBLY



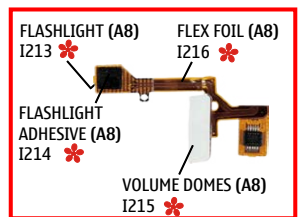
### A7 = IHF CHAMBER ASSY



### A2 = DISPLAY CARRIER ASSY



### A8 = FLASHLIGHT FLEX ASSY

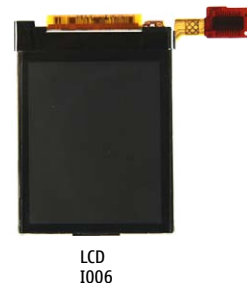
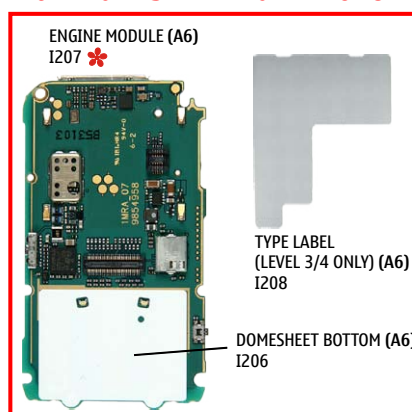


SCREW T5  
1.2x4.5  
I204

SCREW T6+  
1.6x6.5  
I201

SCREW T6+  
1.8x5.3  
I015

### A6 = LIGHT SWAP ENGINE MODULE



A1= A-COVER ASSY  
A2= DISPLAY CARRIER ASSY  
A3= UI BOARD ASSEMBLY  
incl. A4  
A4= SIM CARD READER ASSY  
A5= SLIDE ASSEMBLY  
A6= LIGHT SWAP ENGINE MODULE  
A7= IHF CHAMBER ASSY  
A8= FLASHLIGHT FLEX ASSY  
A9= B-COVER ASSEMBLY

\* = only available  
as Assembly

Ver. 4.0

## 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.

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**NOKIA**  
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### Support Library

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Select subcategory:   
Select subcategory:   
Date range from  /  /   
until:  /  /   
Search


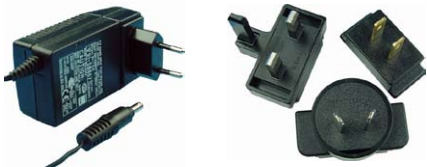





**Files for Service level 2** Date: 03.02.2005  
■

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

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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 ACP-12</b> Small and lightweight charger for fast charging of your phone battery.</p>
	<p><b>Internal Battery BL-4B</b> Inserted under the back cover, this Li-Ion 700 mAh battery provides power in a lightweight package.</p>
	<p><b>Headset HS-5</b> An easy and convenient handsfree solution with remote control.</p>
	<p><b>SS-45</b> Camera removal tool. The metal side is for disassembly, the plastic side for assembly.</p>
	<p><b>SS-55</b> POS Flash Adapter is used in POS (Point of Sales) environment for software updating. It provides controlled supply voltage and necessary connections between the phone and the Flash Device. It substitutes for the phone's standard battery during the software update.</p>

	<p><b>Test Pins</b> for Flash Adapter SF-55</p>
	<p><b>RJ-98</b> Soldering Jig</p>
	<p><b>Lead-free Solder Wire</b> Mandatory for lead-free products (Level 2 only).</p>
	<p><b>0772040 NMP Standard Toolkit</b></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="#">Artlux</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 bit T6 867/4TX 6x50</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 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](#).



**It is very important to follow this insertion and removal procedure, otherwise the contact pins of Flash Adapter will be damaged.**



1.) Insert the POS Flash Adapter SF-55 like a battery. **Note the contact pins. Do not bend them.**



2.) Start inserting the SF-55 at the opposite side of the battery connector and test pins.



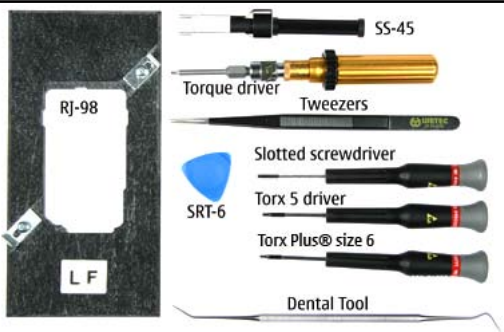







3.) Press down the bottom side of the phone, do not use too much force.



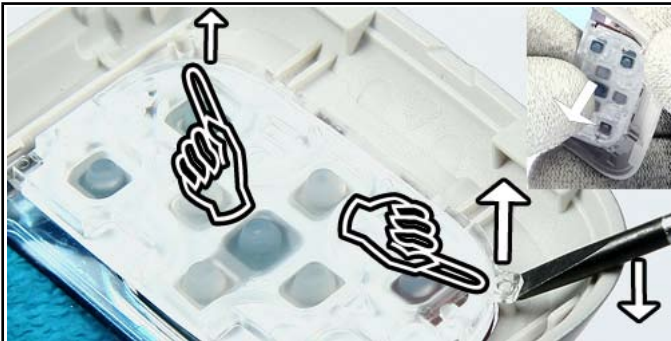
4.) When removing the phone, always start from the bottom side of the unit.



## 9. DISASSEMBLY INSTRUCTION

 <p>1.) Needed tools for disassembly and assembly.</p>	 <p>2.) Protect the window with a plastic film.</p>
 <p>3.) Open the Blind Plug with the SRT-6.</p>	 <p>4.) Press the red Release Button to open the Battery Cover.</p>
 <p>5.) Open the Battery Cover with the SRT-6.</p>	 <p>6.) Unscrew the two Torx Plus® size 6 screws. <b>For assembly use the reverse order and a torque driver with a torque of 15Ncm.</b></p>
 <p>7.) Release the snaps on both sides of the A-Cover with the SRT-6.</p>	 <p>8.) Remove the A-Cover.</p>





9.) Remove the Top Keymat. First use a slotted screwdriver and lever out the Keymat at the marked positions.



10.) Release the snap on the right side of the Display Carrier Assy with the Dental Tool.



11.) Release the snap on the left side of the Display Carrier Assy with the Dental Tool.



12.) Open the Main Flex connector with the SRT-6. **Note!** Take care of the surrounding components.

**For Assembly only!**



13.) Round the Main Flex over your finger and fit the UI Board Assembly with the Main Flex connector together.

**For Assembly only!**



14.) Hold the UI Board Assembly and the Slide Assembly at the top together. Move them both slowly to the shown direction

**For Assembly only!**



15.) When moving the Slide Assembly be careful not to damage the Main Flex.

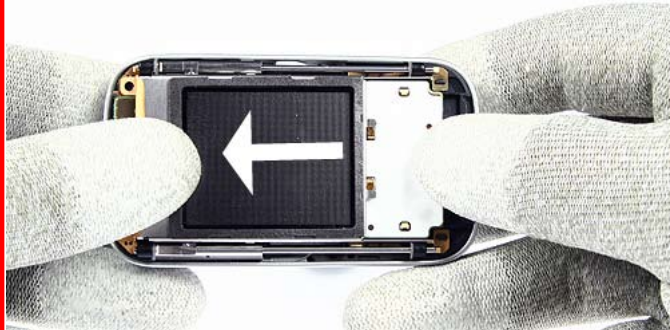
**For Assembly only!**



16.) When the Slide Assembly reach the end the UI Board Assembly close automatically the rest.

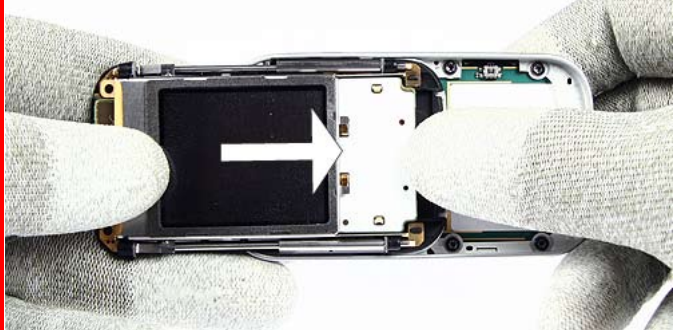


**For Assembly only!**



17.) After assembling the Slide Assembly and the UI Board Assembly ....

**For Assembly only!**



18.) ... check the Slide Assembly function by opening and closing it carefully.



19.) Open the display connector from both sides with the SRT-6.



20.) **Note!** Take care not to damage the surrounding components.



21.) Remove the Display Carrier Assy from the UI Board Assembly. Use a screwdriver to remove the adhered Earpiece Gasket Thick from the UI Board. **Do not scratch the surface.** Use a new Earpiece Gasket Thick if necessary.



22.) Remove the LCD from the Display Carrier Assy with the SRT-6.



23.) Protect the LCD with the plastic film.



24.) The Earpiece is glued to the UI Board Assembly with the Earpiece Adhesive. Use SRT-6 to separate these parts from each other. Use a new Earpiece Adhesive if necessary.





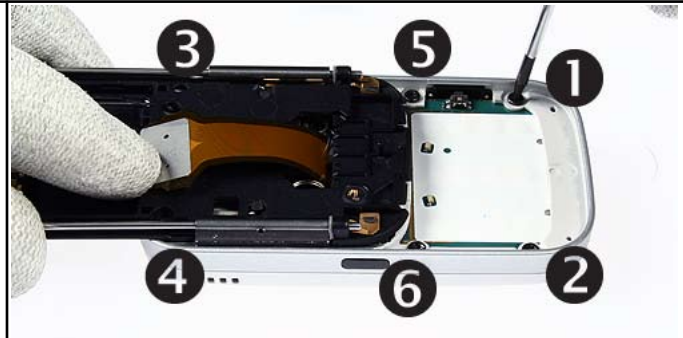
25.) The Bezel Assembly is glued to the Slide Assembly. Use the SRT-6 to separate both parts. If necessary remove the rest of the adhesive. Always use a new Bezel Assembly.



26.) Open the two snaps of the Bottom Keymat with the SRT-6.



27.) Remove the Bottom Keymat.



28.) Unscrew the six Torx Plus® size 6 screws. **For assembly use the reverse order and a torque driver with a torque of 15Ncm.**



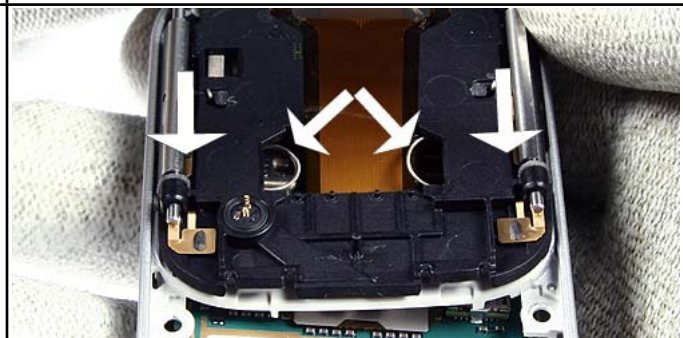
29.) Protect the Camera Window with a plastic film.



30.) Open the snaps of the B-Cover Assembly on both ...

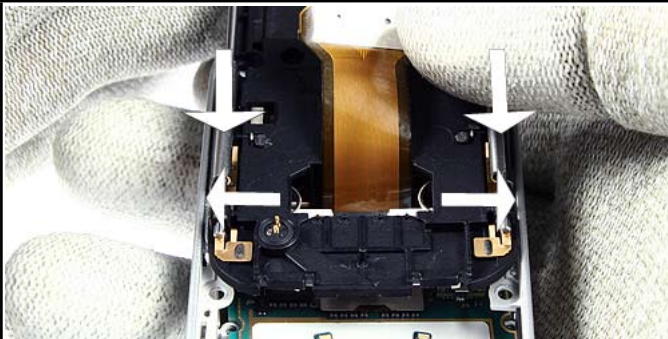


31.) ... sides with the SRT-6.



32.) To remove the Main Flex the Slide Assembly has to be closed a little bit.





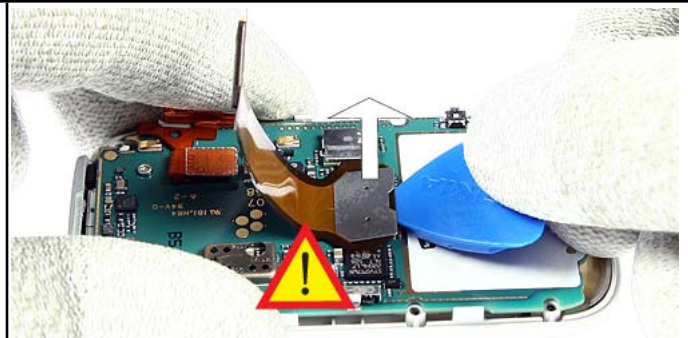
33.) Close the Slide Assembly till the springs moved away to the left and right.



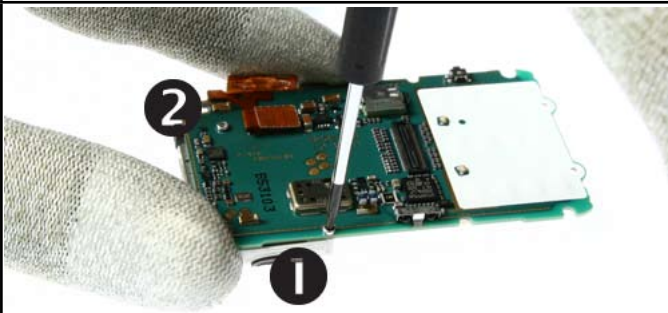
34.) Separate the Slide Assembly from the B-Cover Assembly slowly not to damage the Main Flex.



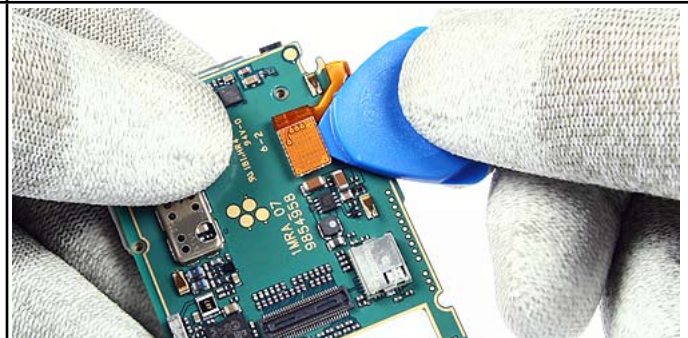
35.) Remove the Microphone with the Dental Tool.



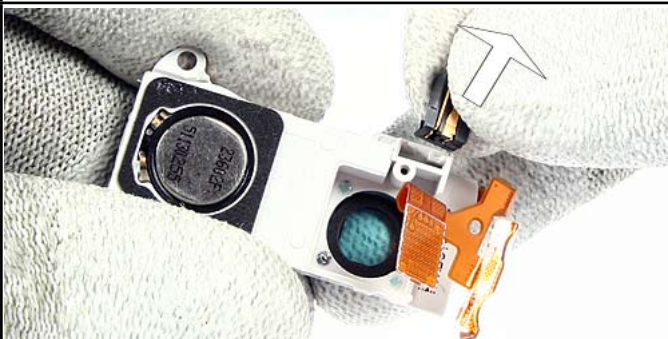
36.) Remove the Main Flex with the SRT-6. **Note!** Do not damage the surrounding components. Now remove the Engine Module.



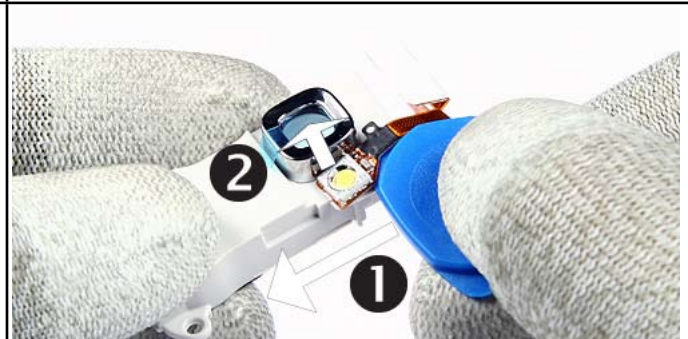
37.) Unscrew the two Torx size 5 screws. **For assembly use the revers order and a torque driver with a torque of 5Ncm.**



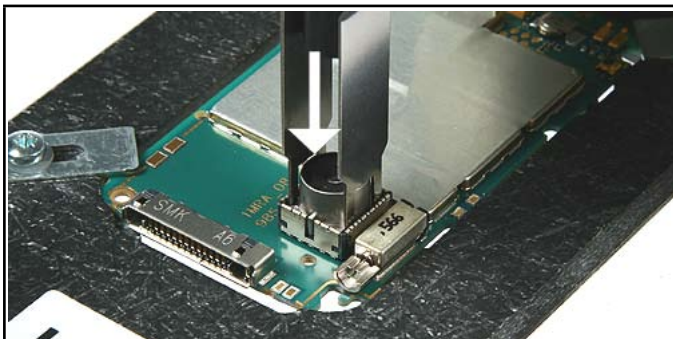
38.) Open the Flash Light Flex Assy with the SRT-6. Now remove the Flash Light Flex Assy from the Engine Module.



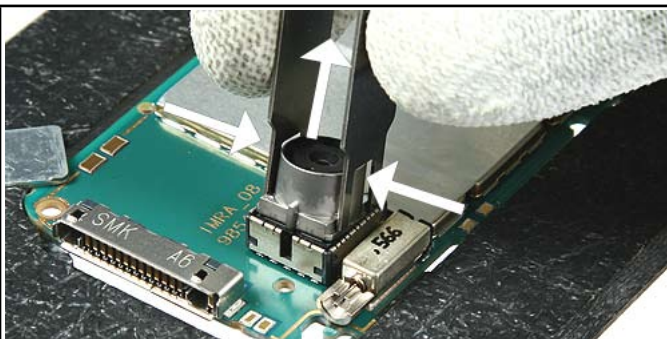
39.) Remove the DC-Jack from the IHF Chamber Assy.



40.) Separate the glued Flash Light Flex Assy from the IHF Chamber Assy with the SRT-6. Move the SRT-6 from the right edge to the flash light.



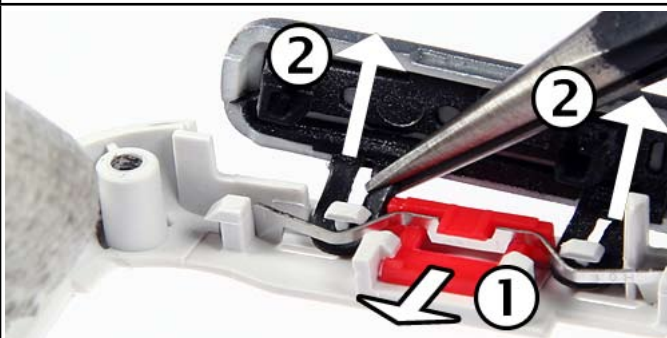
41.) Place the Engine Module to the RJ-98 Soldering Jig. Remove the Camera with the SS-45. To release all snaps of the camera connector press down the tool.



42.) Press the endings of the SS-45 together and lift up the Camera.



43.) To remove the GSM Antenna press from the opposite side while releasing the snap with tweezers.



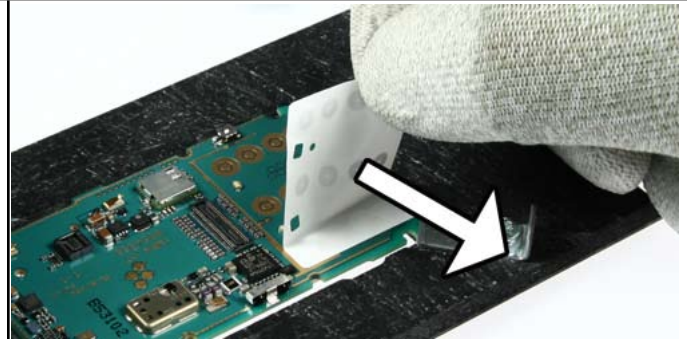
44.) Remove the Blind Plug with tweezers while pressing the red Release Button.



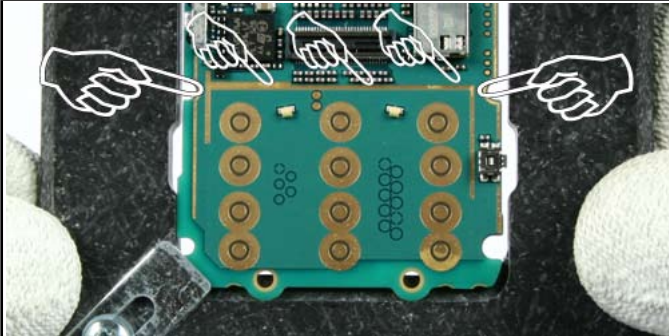
## 10. DOMESHEET EXCHANGE INSTRUCTION



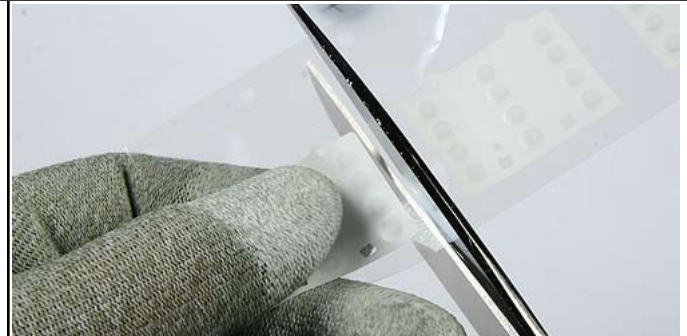
1.) Place the Engine Module in to the Soldering Jig RJ-98. Remove the Domesheet with the SRT-6. Do not scratch the surface.



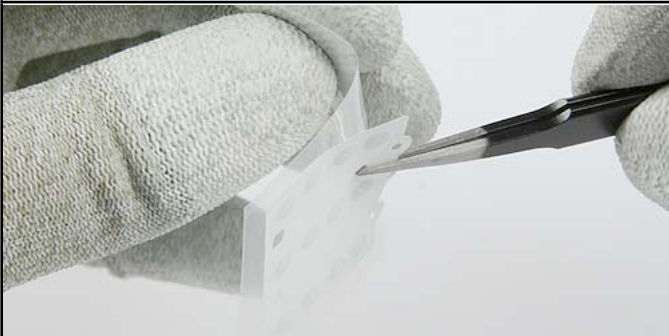
2.) Remove the complied Domesheet with your fingers.



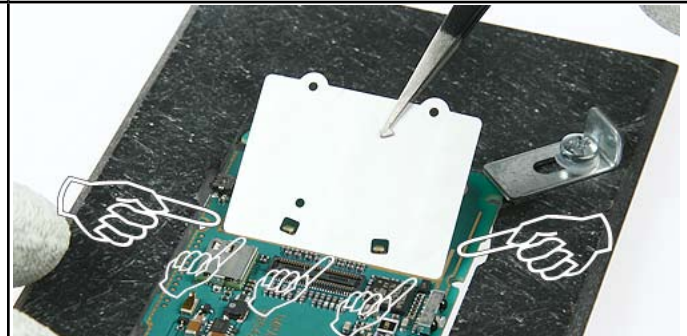
3.) Be sure that no dust and residue is on the surface. Note the guidelines on the Engine Module.



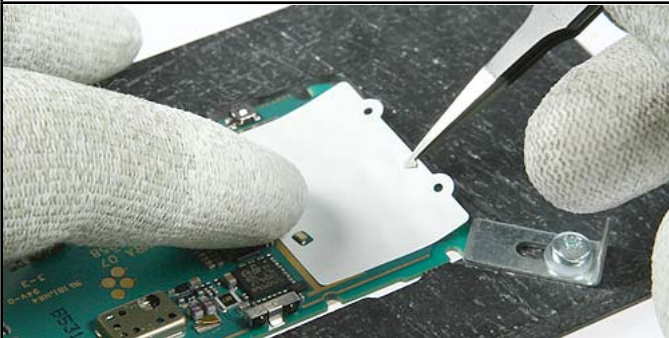
4.) Cut off on new Domesheet with a scissors.



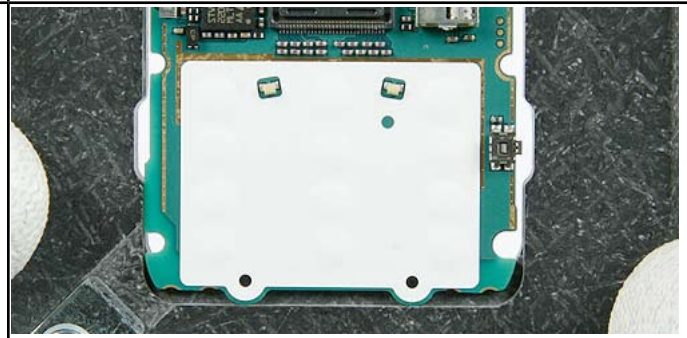
5.) Remove the protection foil with tweezers. Do not touch the protected side of the Domesheet with your fingers.



6.) Use tweezers to place the Domesheet to the correct position on the Engine Module. (Note the guidelines!)



7.) When the Domesheet is at the right position fix it with your finger on the Engine Module.



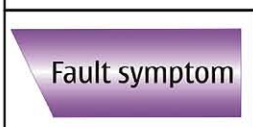





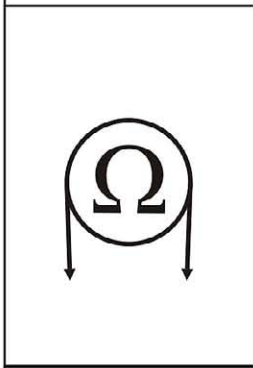

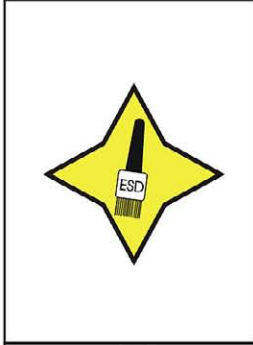

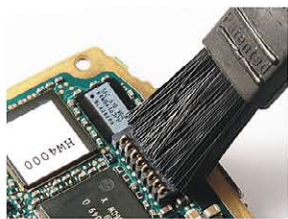

8.) Check the correct position of the Domesheet.

## 11.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.

	<p>The start point of repair activities regarding the appeared fault symptoms.</p>
	<p>Only marked components (e.g. I002 ) can be replaced.</p>
	<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>  
	<p>No more action possible - send product to the appropriate service supplier with higher service level.</p>

## 12. QUICK TROUBLE SHOOTER PART 1

**Will be  
implemented  
soon!**



## 13. QUICK TROUBLE SHOOTER PART 2

**Will be  
implemented  
soon!**

## 14. QUICK TROUBLE SHOOTER PART 3



**Will be  
implemented  
soon!**

## 15. CAMERA GONOGO TEST

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



### CAMERA TEST

- Press the red receiver button to reach the Home Menu
  - Open the Slide Cover
  - From Home Menu, select  (Menu)
  - Select the Media Icon
  - Select Camera
  - Press the  (Capture) or the Camera Key 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
  - Close the Slide Cover
  - Press the red receiver button to reach the Home Menu
- If the test is failed see Quick Trouble Shooter.

## 16. BLUETOOTH & INFRARED TEST

### Bluetooth test

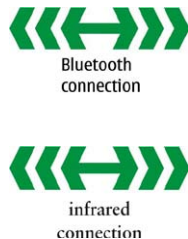
You need another Bluetooth device (e.g. 6230) to do a GoNoGo test.

Make sure that Bluetooth is activated in the reference unit. The distance 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.



Reference unit, Bluetooth /infrared activated

Test unit

Settings on the test unit:

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

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 to reach the Home Menu

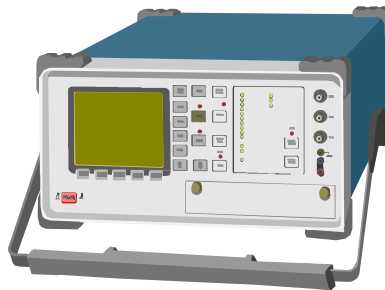
**Note:** If the Bluetooth is activated, switch it off!

## 17. GONOGO TEST

After the optical check, a GoNoGo test has to be carried out if the unit has been unscrewed to guarantee the functionality of the phone.

Please refer to the actual information on NOKIA Online. When using delivered tester support files, take care of the right setup according to the tester type and product type.

Please refer to "Recommended Service Equipment" on NOKIA Online.



Mobile Phone Tester

## 18. BATTERY TEST

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

Please refer to the actual information on NOKIA Online.



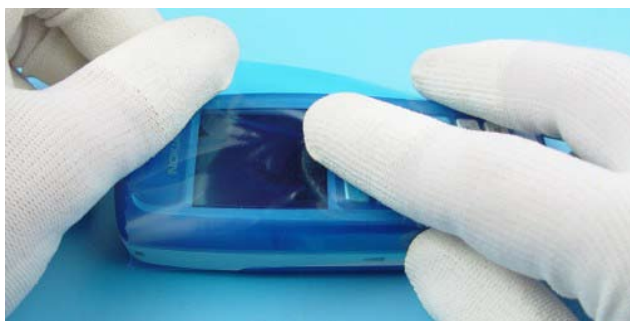
<http://www.astratec.co.uk/>



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

## 19. FORWARDING OF REPAIRS

When it is necessary to forward of repairs to appropriate service supplier with higher service level we recommend using the offered swap phone cartons as described in Spare Parts SB-004.



Always Protect the window with a protection film.



Put the unit under the stretch film.



Add repair documentation e.g. filled-in service note into the swap carton.



Fold the swap carton as shown in Spare Parts SB-004.

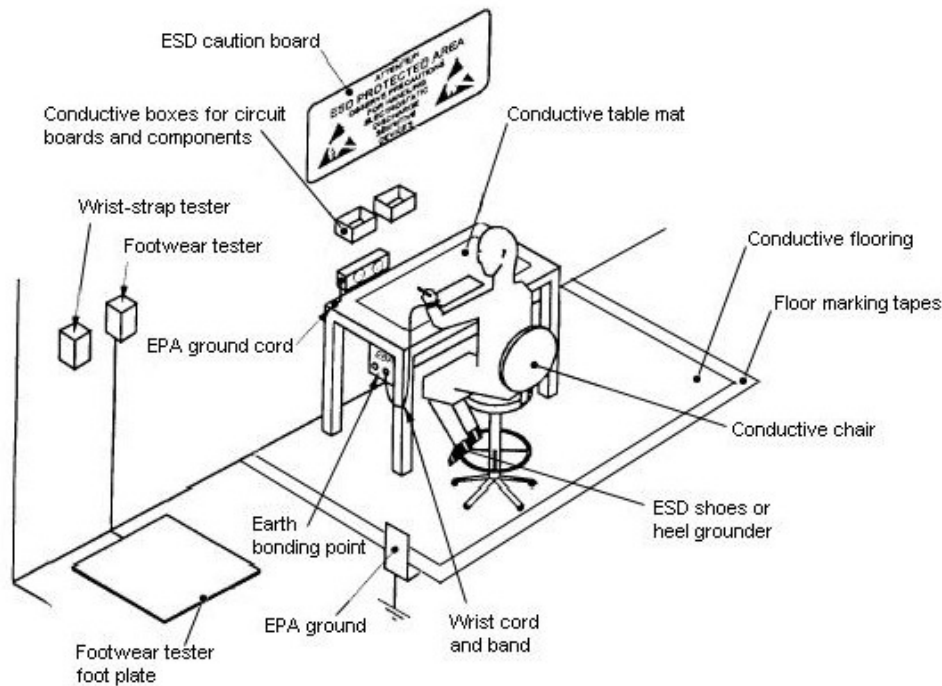


There are two different sizes of swap cartons for common mobile phones.



## 20.ESD PROTECTION REQUIREMENTS

Please refer to the NOKIA Online document [Service Supplier Requirements](#) in folder General instructions.



- USE** Conductive bags and boxes
- USE** ESD compatible service tools
- USE** Conductive wastebaskets
- USE** ESD gloves when handling PWBs/PCBs
- USE** Cleaning material without changing el. Characteristics
- USE** Grounded service equipment, i.e. soldering station
- USE** ESD clothes such as coat or frock

- NO** Smoking
- NO** Drinking
- NO** Eating
- NO** Dust
- NO** Useless Items
- NO** Normal pressured air for cleaning modules/displays



The video covers general issues concerning Electro-Static Discharge (ESD)