

# SERVICE MANUAL

## Level 1&2

# NOKIA

## E61

RM-89



**Transceiver characteristics:**

**Band:** Quad-band phone for GSM 850/900/1800/1900MHz and WCDMA 2100

**Display:** Active matrix color display with up to 16M colors, resolution 320 x 240 pixel

**Bluetooth**

**WLAN**

**IrDA**

**Connector:** Pop Port™ connector

**Memory card:** miniSD

**Black Berry compatible**

Transceiver with BP-5L 1500mAh Li-Ion battery pack

Talk time	Standby	Note
4 to 7h	9 to 11 days	Depends on network parameters

**Environmental characteristics:**

- Lead-free soldered

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**CHANGE HISTORY**

Status	Version No.	Date	Comments
Draft	0.1	13.Apr.2006	Initial draft
Approved	1.0	20.Apr.2006	Approval
Approved	2.0	27.Apr.2006	SS-76 Domesheet alignment tool added

## 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.

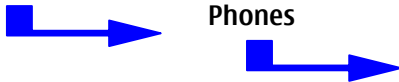
Please also check NOKIA Online (NOL) for latest news and files on a regular basis.

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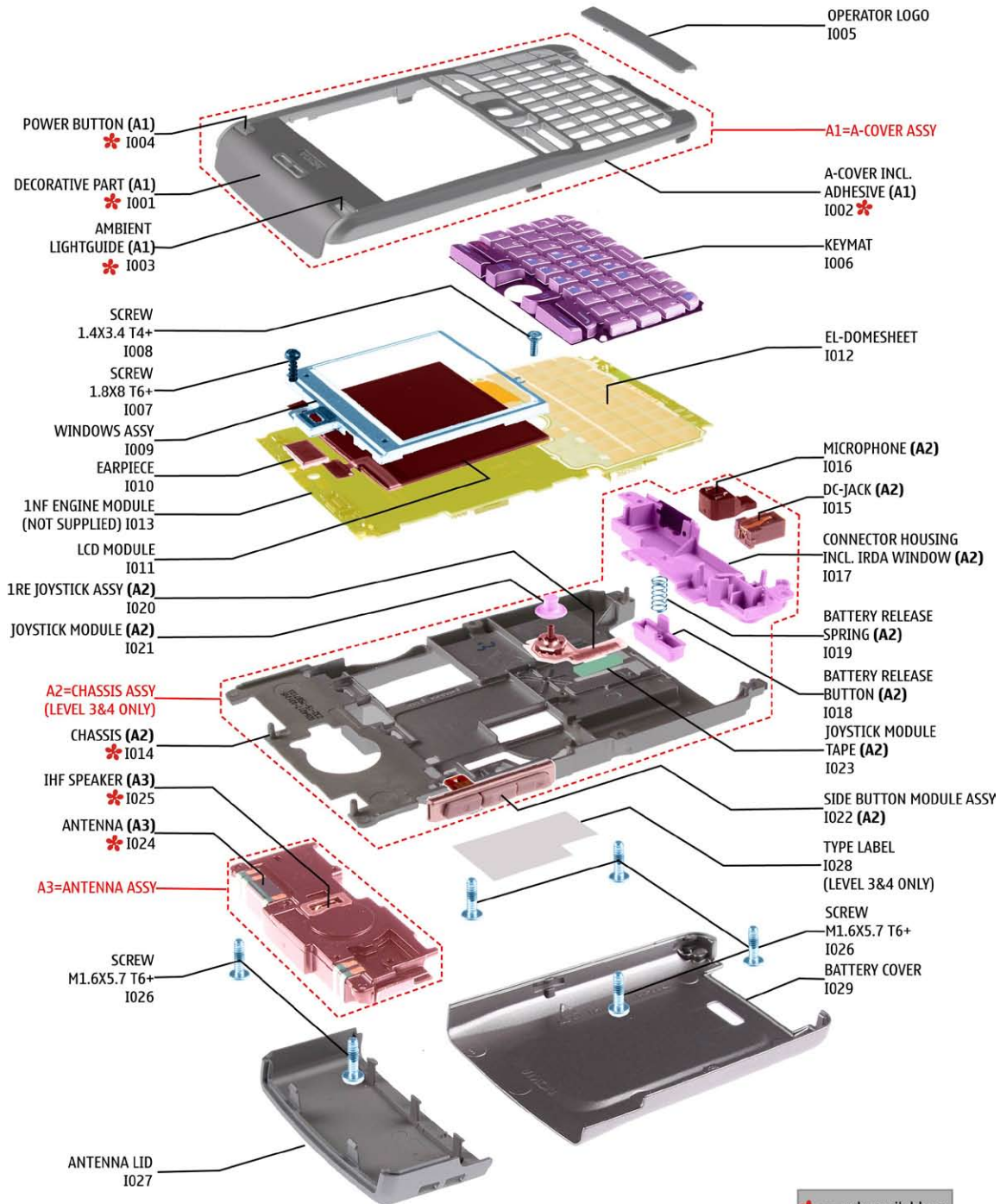
To reduce the server traffic we recommend downloading the newest version of large files like videos, Phoenix packages, or Service Manuals only once to distribute it internally for further use.



## 4. EXPLODED VIEW AND COMPONENT DISPOSAL

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

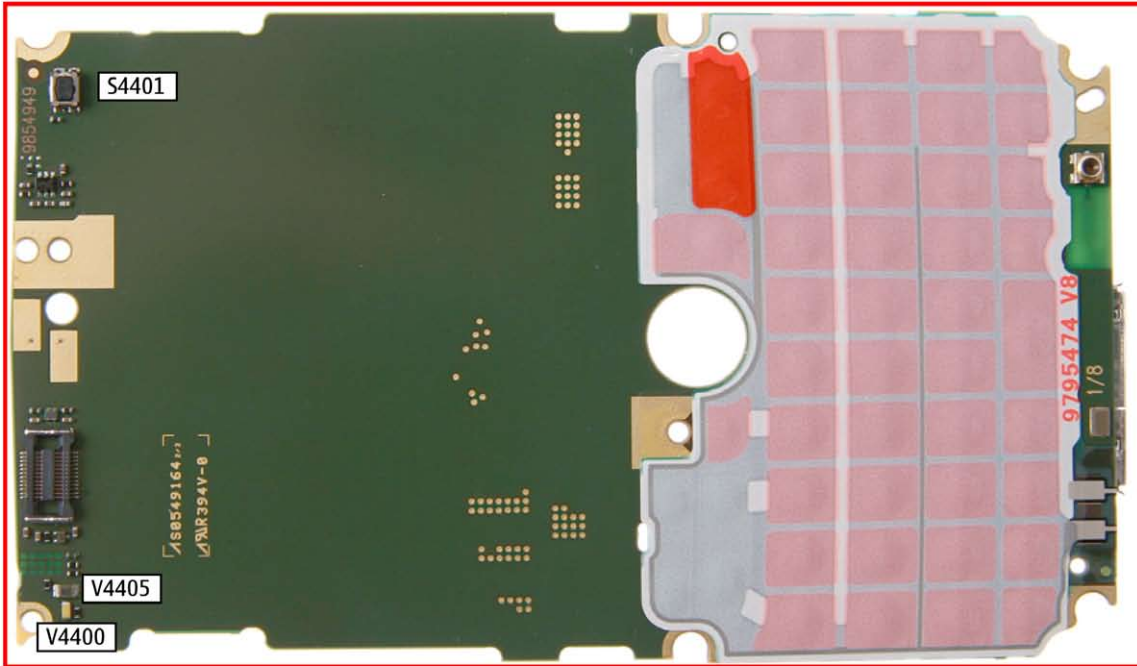
### E61 RM-89 Exploded view



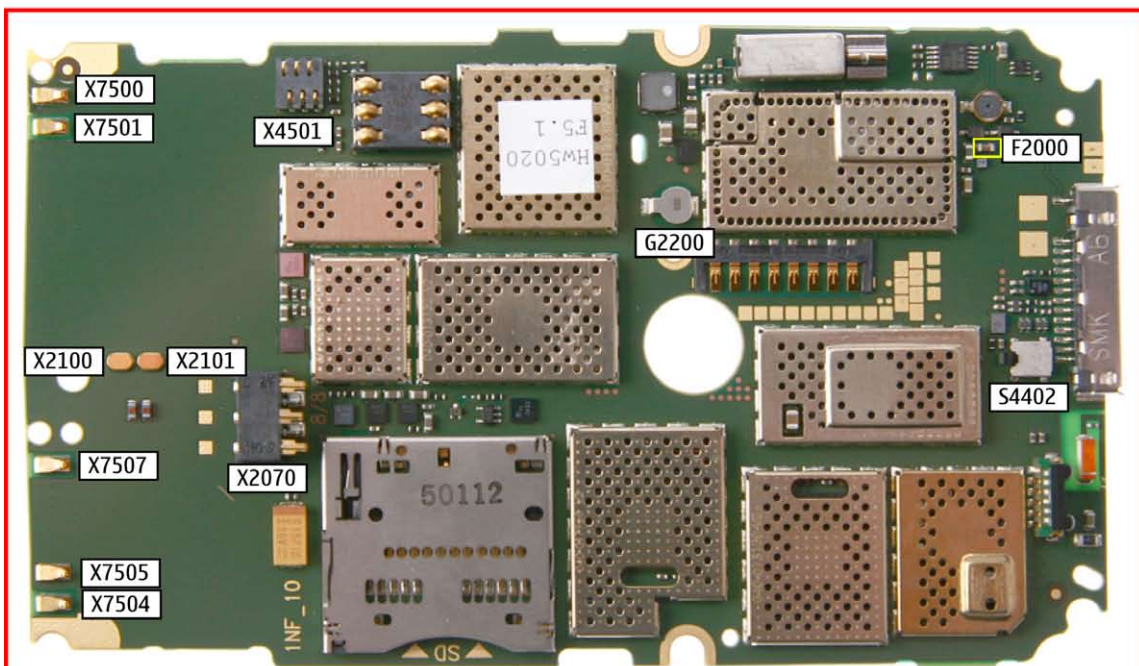
## 5. COMPONENT OVERVIEW

### E61 RM-89 Components overview

#### 1NF ENGINE MODULE TOP



#### 1NF ENGINE MODULE BOTTOM



## 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 a daily basis.

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




- XXXXXXXXXXXXXXXXXXXX
- XXXXXXXXXXXXXXXXXXXX
- XXXXXXXXXXXXXXXXXXXX

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## 7. SERVICE TOOLS

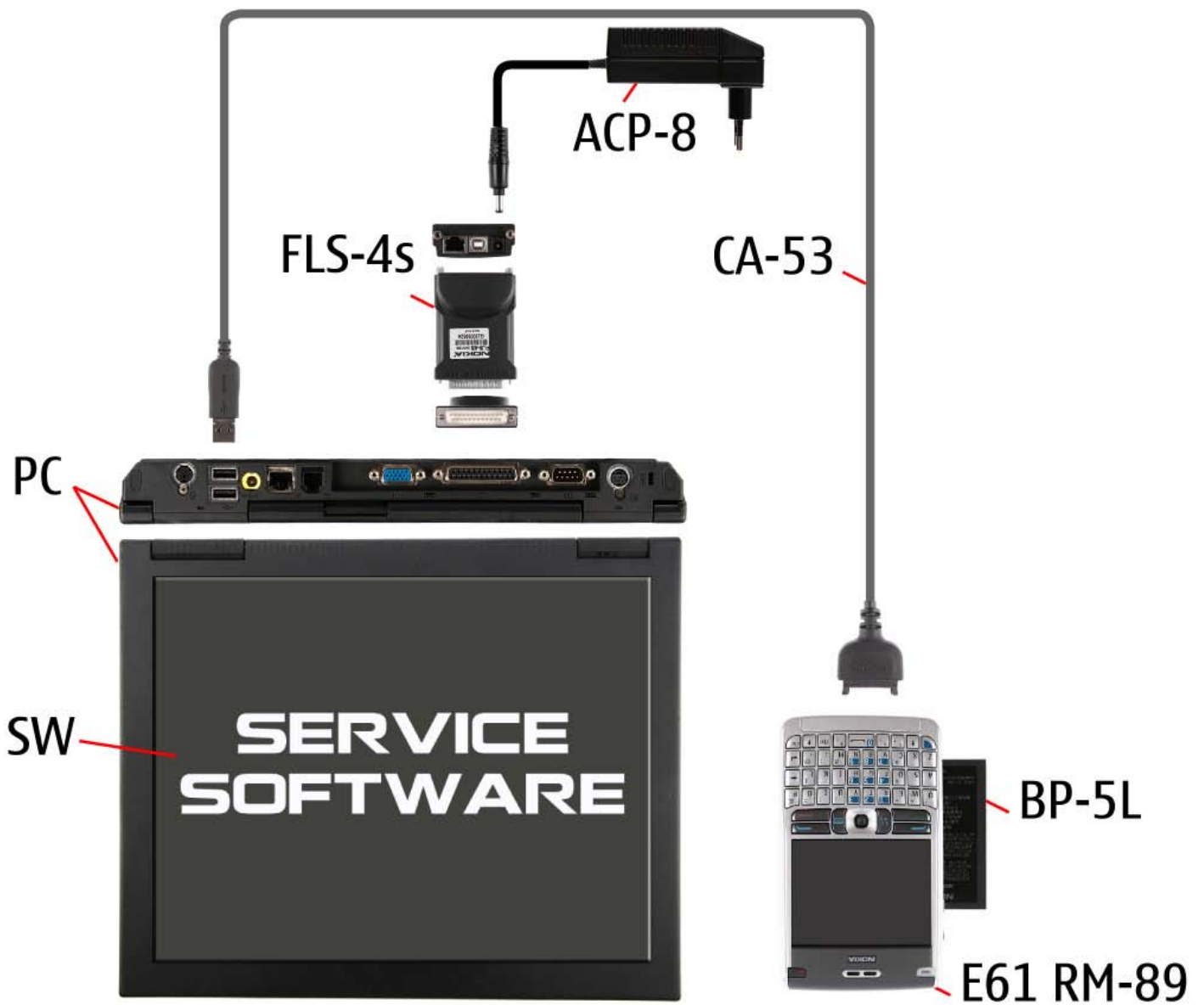
	<p><b>FLS-4S incl. ACF-8, Driver and User Guide</b>                  Dongle and flash device combined, developed specifically for POS use.</p>
	<p><b>ACF-8</b>                  Universal Power Supply for FLS-4S.</p>
	<p><b>Travel Charger AC-4</b>                  Small and lightweight charger for fast charging of your phone battery.</p>
	<p><b>Internal Battery BP-5L</b>                  Inserted under the back cover, this Li-Ion 1500 mAh battery provides power in a lightweight package.</p>
	<p><b>Headset HS-3</b>                  Provides convenient handsfree use and the pleasure of listening to music in stereo from your compatible Nokia phone. Available in black and white.</p>
	<p><b>CA-53</b>                  Service Cable to connect the PC with the Pop-Port™ connector.</p>
	<p><b>RJ-86</b>                  Soldering Jig</p>

	<p><b>Lead-free Soldering Wire</b>                  Mandatory for lead-free products (Level 2 only).</p>
	<p>SS-76                  Domesheet alignment tool</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 fiber 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>

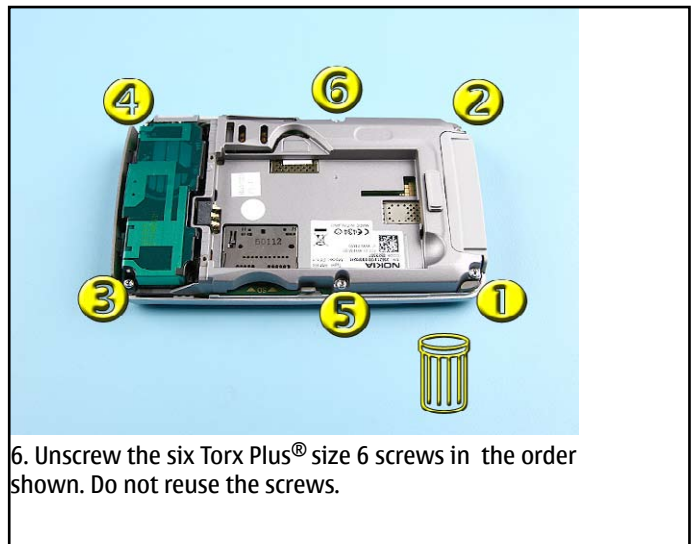
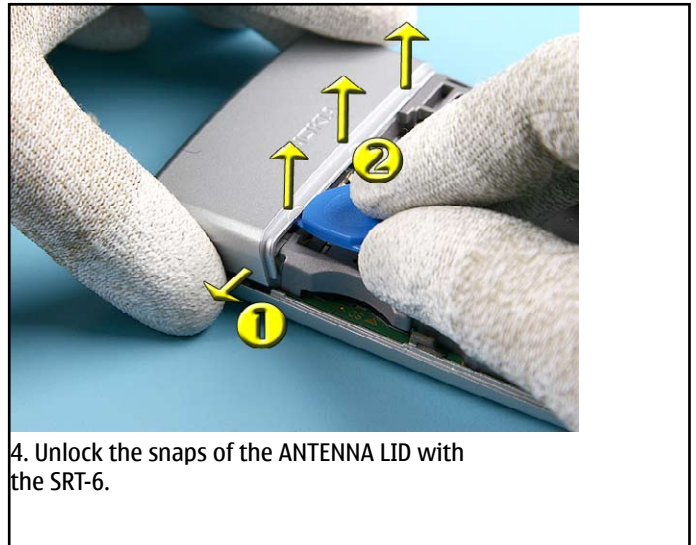
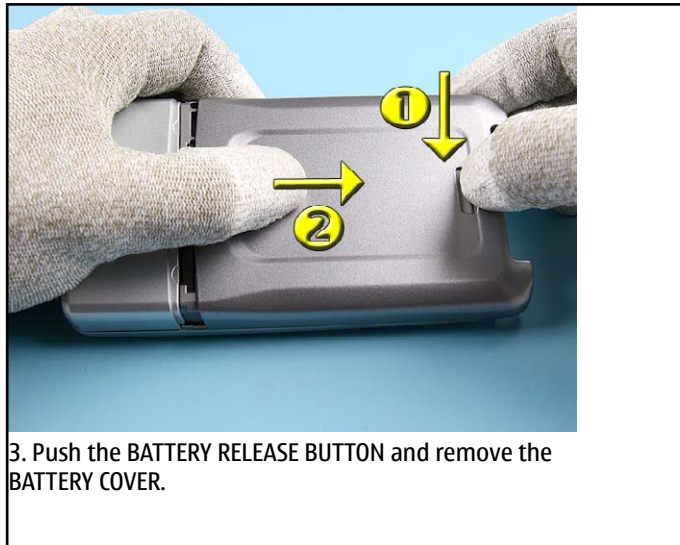
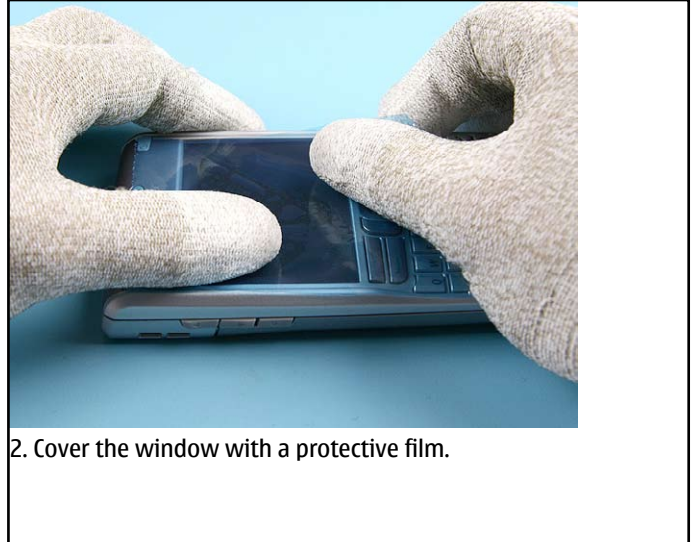
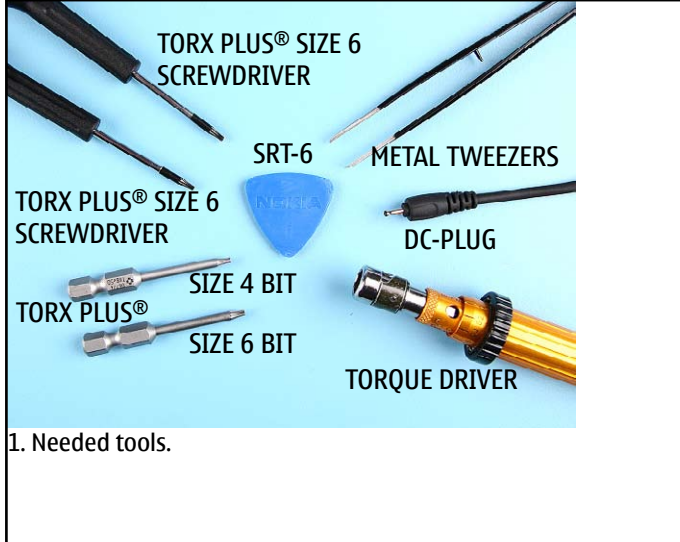
## 8. SW-UPDATE

### Flash Concept – (Point of Sales)

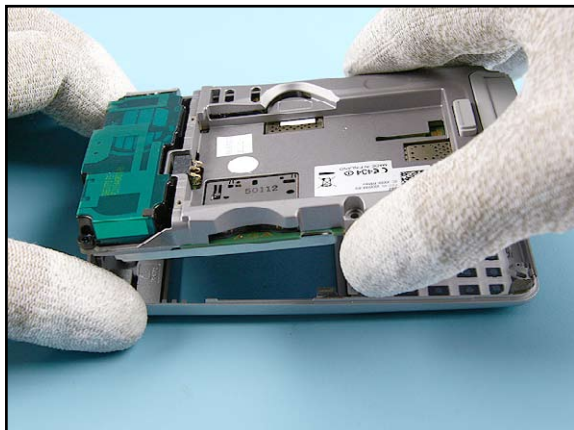
To use the FLS-4S Flash Dongle you should follow the user's guide inside the sales package. Always check for the latest version of flash software, which is available on [NOKIA Online](#).



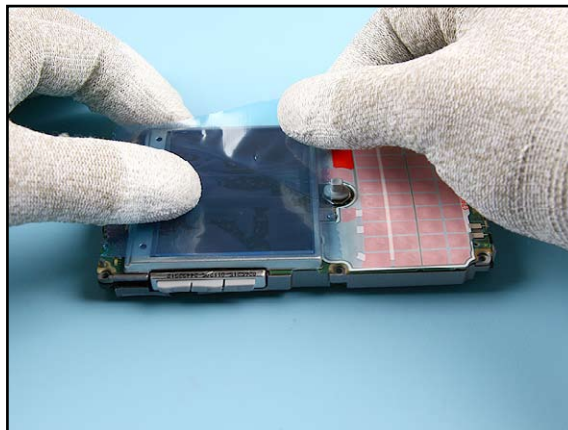
## 9. DISASSEMBLY INSTRUCTION



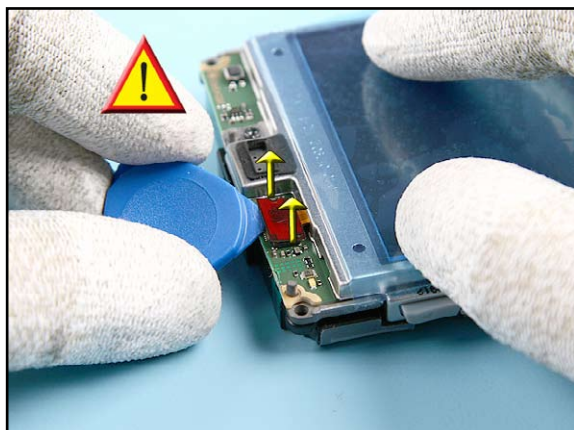




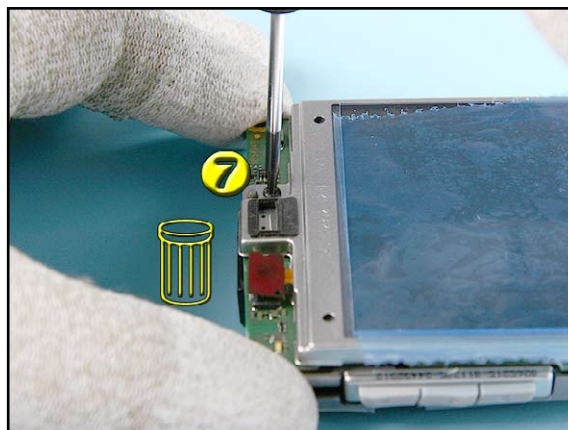
7. Remove the assemblies from the A-COVER ASSY.



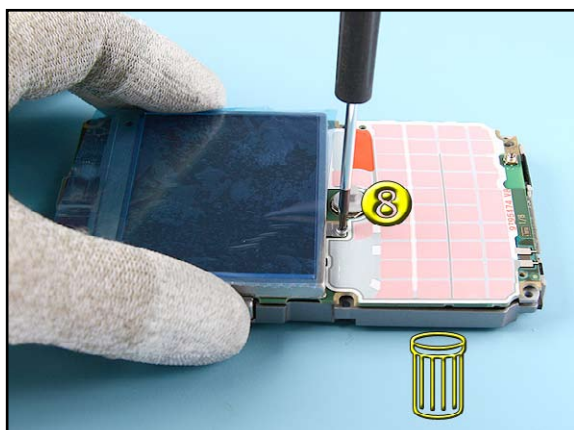
8. Cover the WINDOW ASSY with protective film.



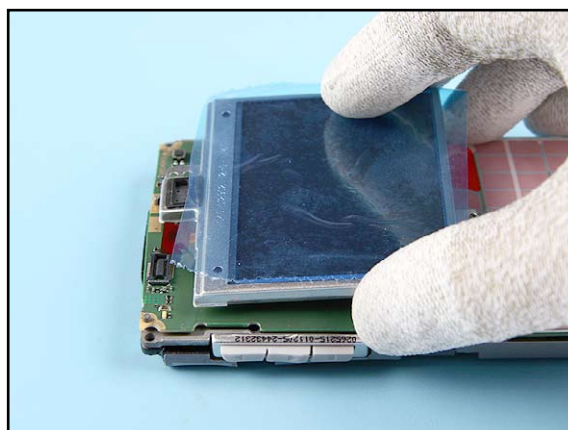
9. Gently, open the LCD connector with the SRT-6.



10. Unscrew the Torx Plus ® size 6 screw. Do not reuse the screw.

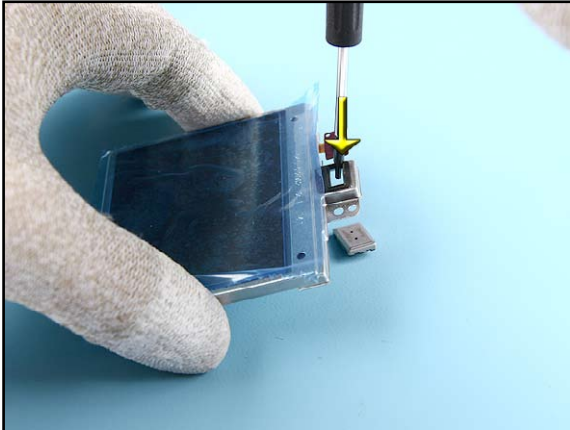


11. Unscrew the Torx Plus ® size 4 screw. Do not reuse the screw.

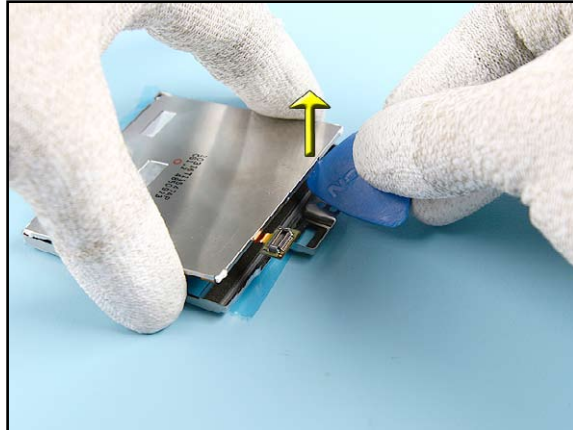


12. Remove the LCD MODULE and the WINDOWS ASSY.

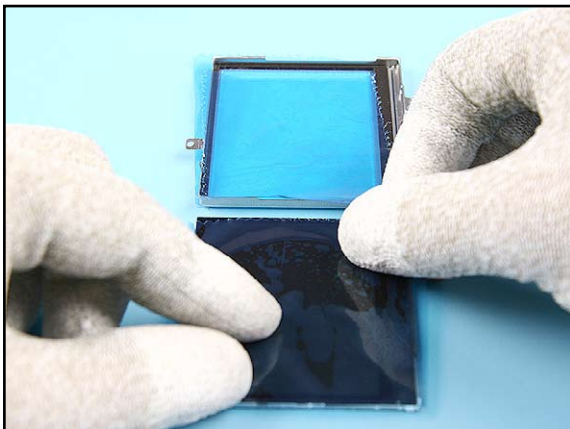




13. The EARPIECE drops out easily by pushing it down with a screwdriver.



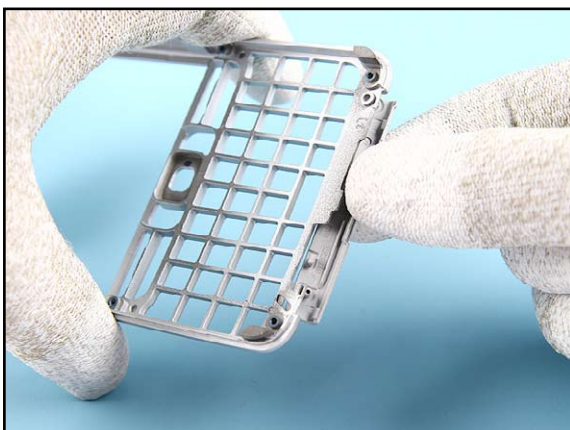
14. Use the SRT-6 to separate LCD-MODULE from the WINDOWS ASSY.



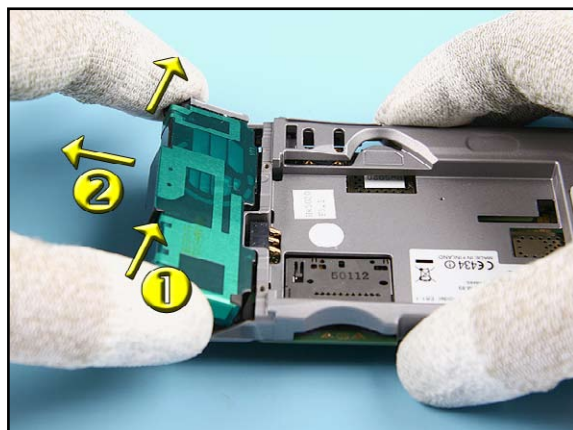
15. Remember to cover the inner side of the WINDOW ASSY and the LCD MODULE with protective film.



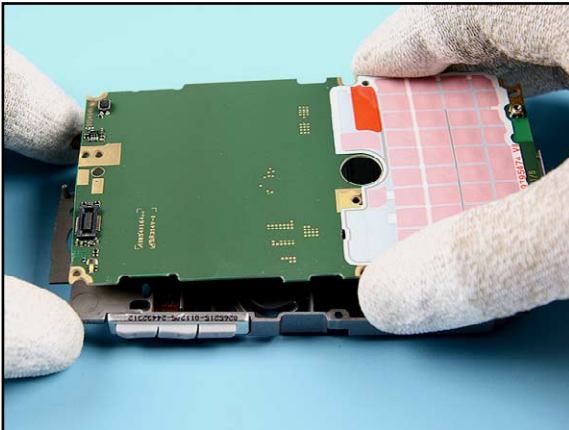
16. Separate the KEYMAT from the A-COVER ASSY.



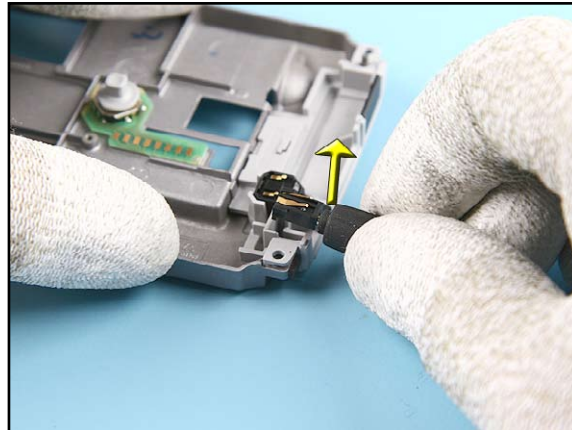
17. If needed, carefully unlock and remove the OPERATOR LOGO.



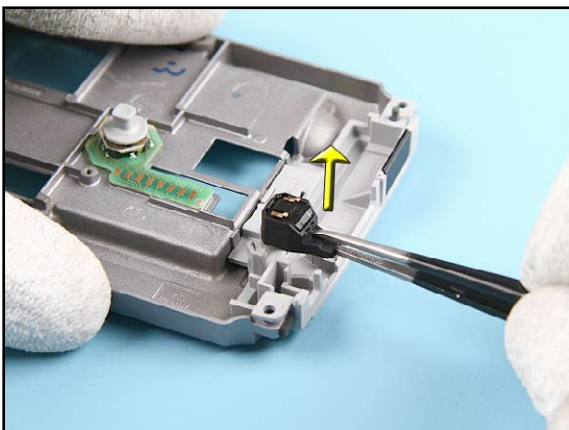
18. First lift up the ANTENNA ASSY and then pull it out.



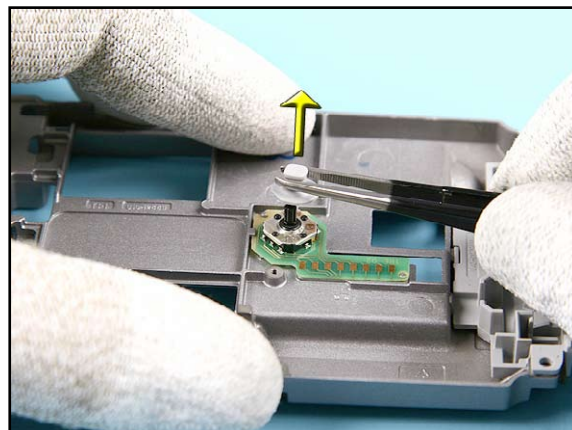
19. Remove the 1NF ENGINE MODULE from the CHASSIS.



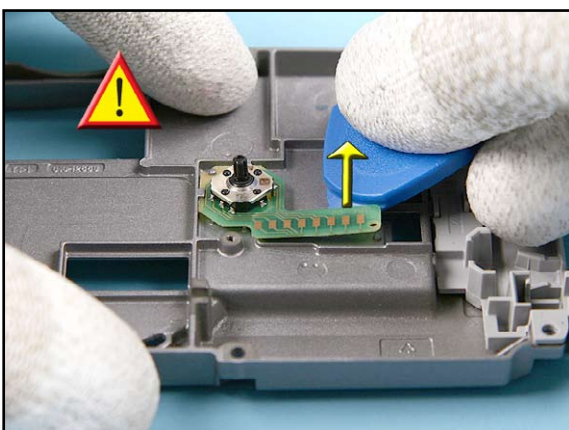
20. Use the DC plug to remove the DC-JACK.



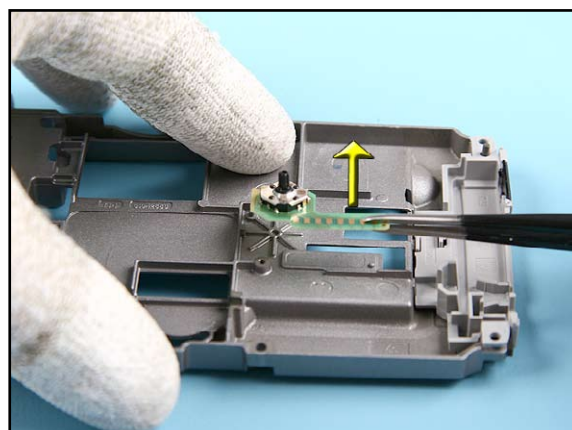
21. Remove the MICROPHONE with tweezers.  
Avoid bending the spring contacts.



22. Remove the JOYSTICK MODULE.

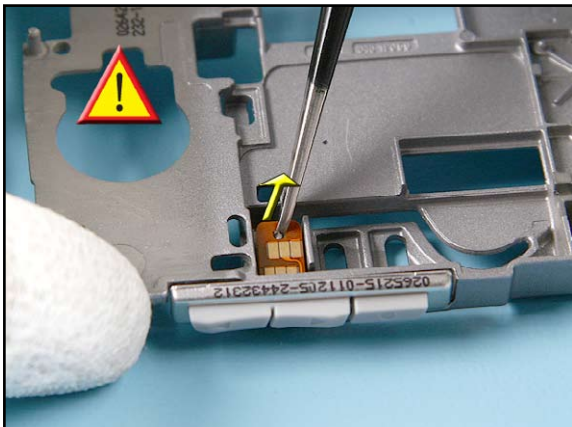


23. Note: The 1RE JOYSTICK ASSY is glued to the CHASSIS  
with the JOYSTICK MODULE TAPE. Carefully, separate the  
parts from each other with SRT-6.

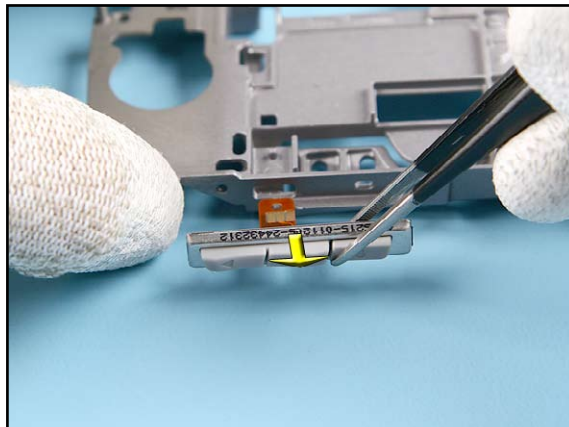


24. Remove the 1RE JOYSTICK ASSY with tweezers.

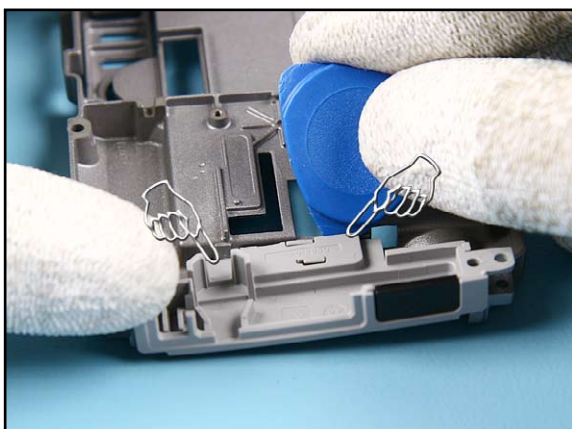




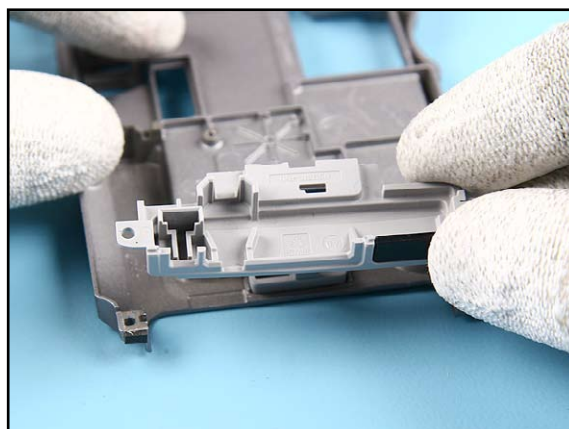
25. Unlock the SIDE BUTTON MODULE ASSY...



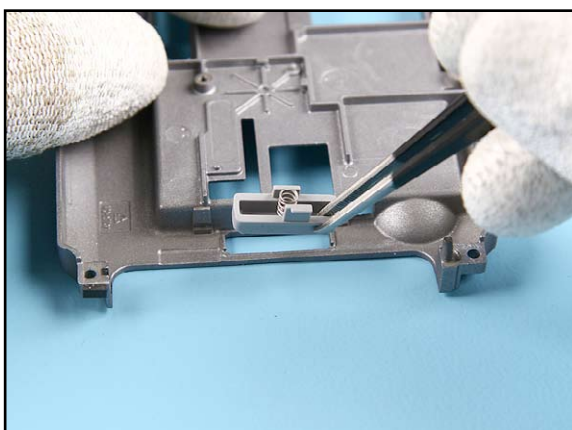
26. ...and remove it from its socket.



27. Unlock the both snaps of the CONNECTOR HOUSING INCL. IRDA WINDOW...

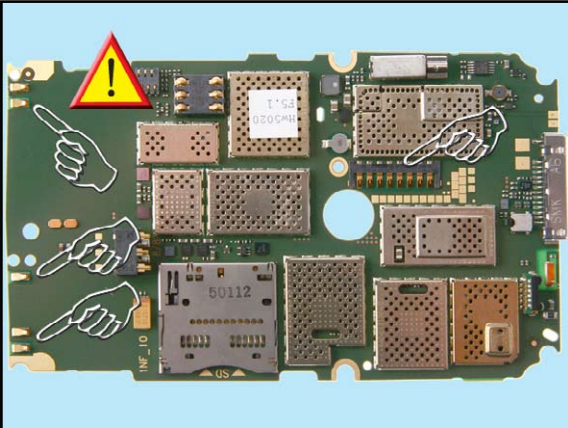


28. ...and remove it.

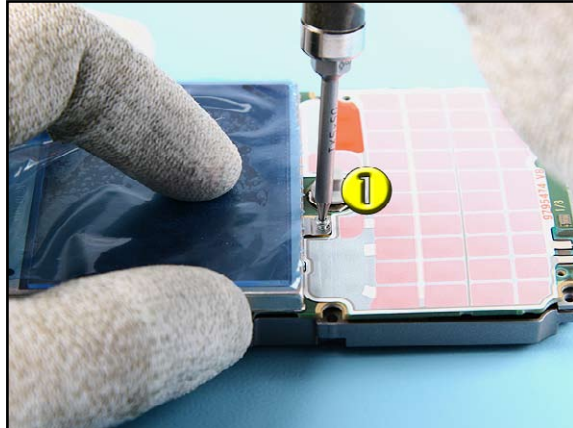


29. Remove the BATTERY RELEASE BUTTON and the BATTERY RELEASE SPRING.

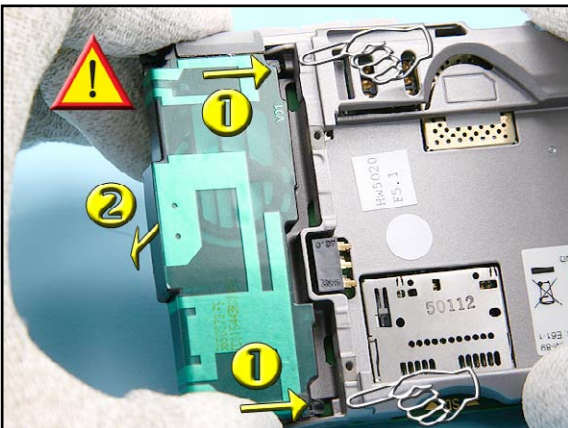
**10.ASSEMBLY HINTS**



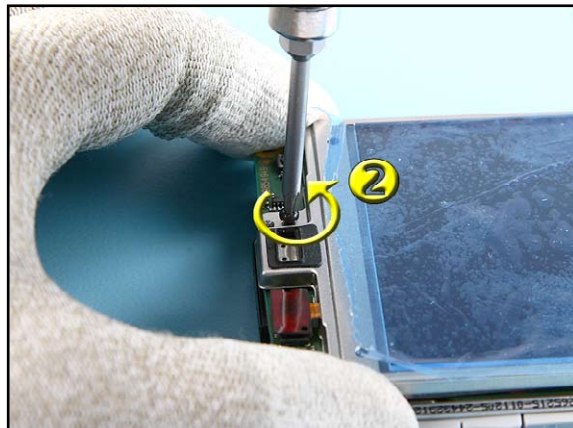
1. Take special care to all spring contacts on the ENGINE MODULE when assembling the unit.



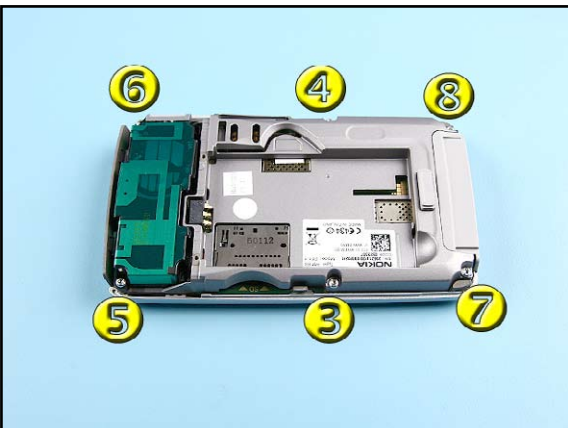
2. Always use a new screw. Tighten the Torx Plus size 4 screw to the torque of 17 Ncm.



3. First insert the guide pins of the ANTENNA ASSY into the recesses of the CHASSIS, then place the ANTENNA ASSY into its socket.



4. Always use a new screw. To avoid damaging the plastic thread, first turn the screw slightly left to engage the thread and then tighten it to the torque of 22 Ncm.



5. Always use new screws. Tighten the six Torx Plus size 6 screws to the torque of 17 Ncm in the order shown.

## 11. GONOGO TEST

To test the Bluetooth and IRDA functionality refer to the User`s guide.

The User`s Guide is available on [www.nokia.com](http://www.nokia.com).

### Bluetooth test

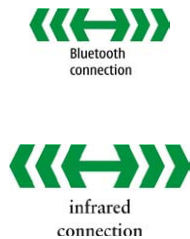
You need another Bluetooth device (e.g. 6230) to do a GoNoGo test.

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

**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



## 12. BATTERY TEST

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

Please refer to the latest information on NOKIA Online.



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



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