

SERVICE MANUAL  
Level 1&2

**NOKIA**  
**N97**

RM-505/RM-506/RM-507



**Transceiver characteristics**

**Band:**

RM-505:  
WCDMA HSDPA 900/1900/2100  
EGSM 850/900/1800/1900

RM-507:  
WCDMA HSDPA 850/1900/2100,  
EGSM 850/900/1800/1900

RM-506:  
EGSM 850/900/1800/1900

**Display:**

3.5" nHD 16:9 widescreen, 640x360 pixel resolution ,  
16M colour TFT

**Camera:**

Main camera: 5MPix CMOS, Dual LED Flash, Auto focus  
Secondary camera: 640x480 VGA

**Operating System:**

Symbian OS ver. 9.4 Series60 5th Edition

**Connections:**

WLAN IEEE802.11 b/g with UPnP support (not in RM-506), USB 2.0 (micro USB), Bluetooth 2.0 + EDR + A2DP, 3.5mm AV connector

Transceiver with BP-6MT battery pack

Talk time	Standby	Note
<b>GSM:</b> Up to 400 min	<b>GSM:</b> Up to 430 hours	Talk times are dependant on network parameters and phone settings
<b>WCDMA:</b> Up to 320 min	<b>WCDMA:</b> Up to 400 hours	

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**1. CHANGE HISTORY**

Status	Version No.	Date	Comments
Approved	1.0	10.05.2009	
Approved	1.1	14.05.2009	Charger and screw size updated
Approved	1.2	14.05.2009	Service devices updated

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

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

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

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

## 2. COPYRIGHT

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The availability of particular products may vary by region.

### **IMPORTANT**

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

### 3. WARNINGS AND CAUTIONS

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

#### 3.1 Warnings

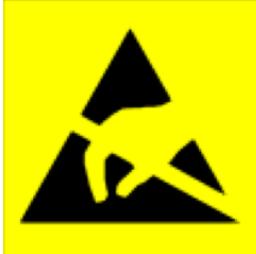
1. CARE MUST BE TAKEN ON INSTALLATION IN VEHICLES FITTED WITH ELECTRONIC ENGINE MANAGEMENT SYSTEMS AND ANTI-SKID BRAKING SYSTEMS. UNDER CERTAIN FAULT CONDITIONS, EMITTED RF ENERGY CAN AFFECT THEIR OPERATION. IF NECESSARY, CONSULT THE VEHICLE DEALER/MANUFACTURER TO DETERMINE THE IMMUNITY OF VEHICLE ELECTRONIC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

#### 3.2 Cautions

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

#### 4. ESD PROTECTION

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



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

To replace the covers ESD protection must be applied.

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

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

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

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

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

## 5. CARE AND MAINTENANCE

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

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

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

## 6. BATTERY INFORMATION

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

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

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

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

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

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

Never use any charger or battery which is damaged.

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

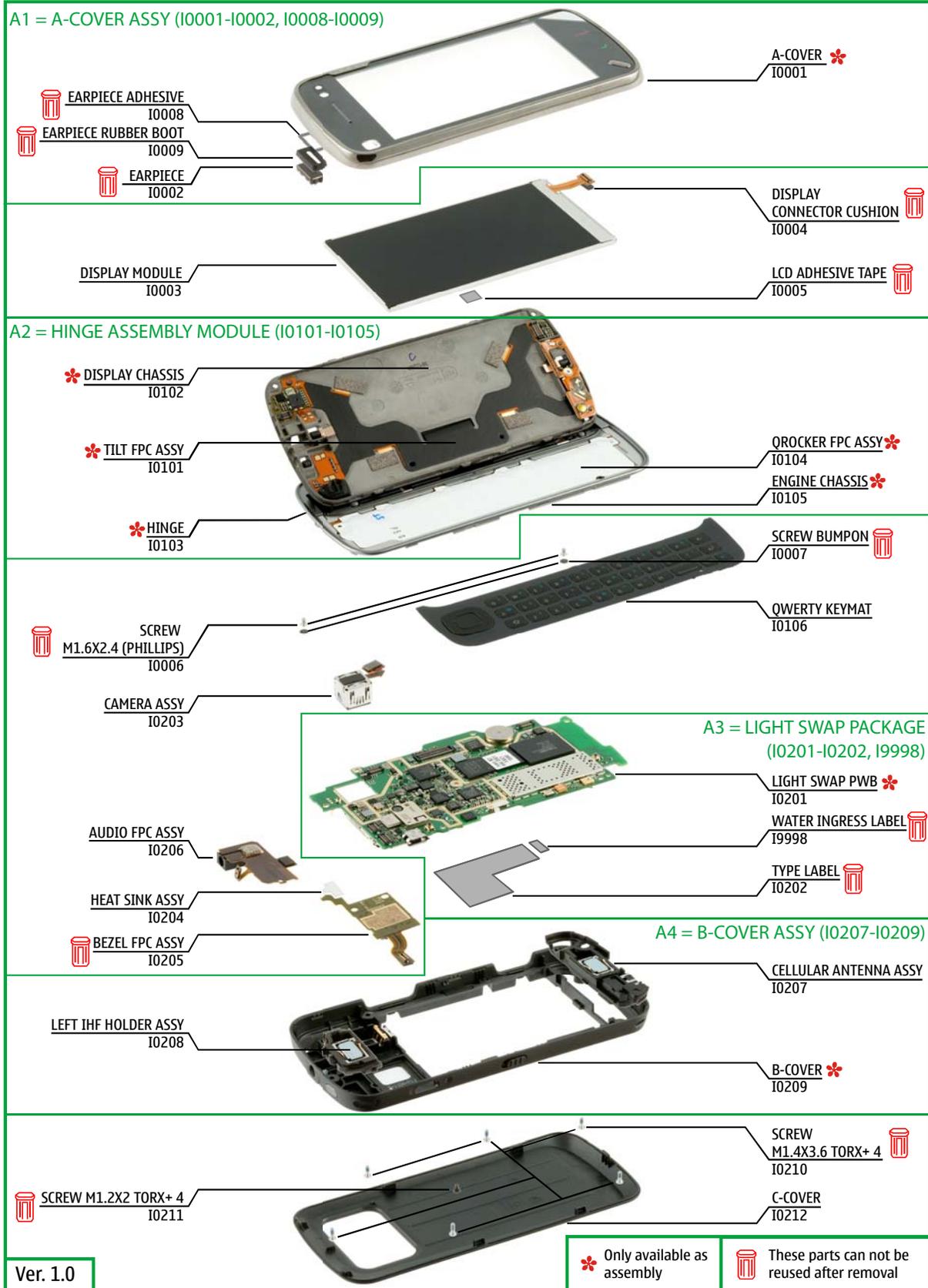
Leaving the battery in hot or cold places, such as in a closed car in summer or winter conditions, will reduce the capacity and lifetime of the battery. Always try to keep the battery between 15°C and 25°C (59°F and 77°F).

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

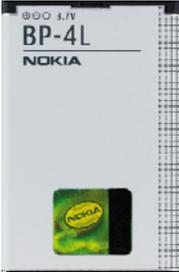
Do not dispose batteries in a fire! Dispose of batteries according to local regulations (e.g. recycling).

Do not dispose as household waste.

## 7. EXPLODED VIEW



**8. SERVICE DEVICES**

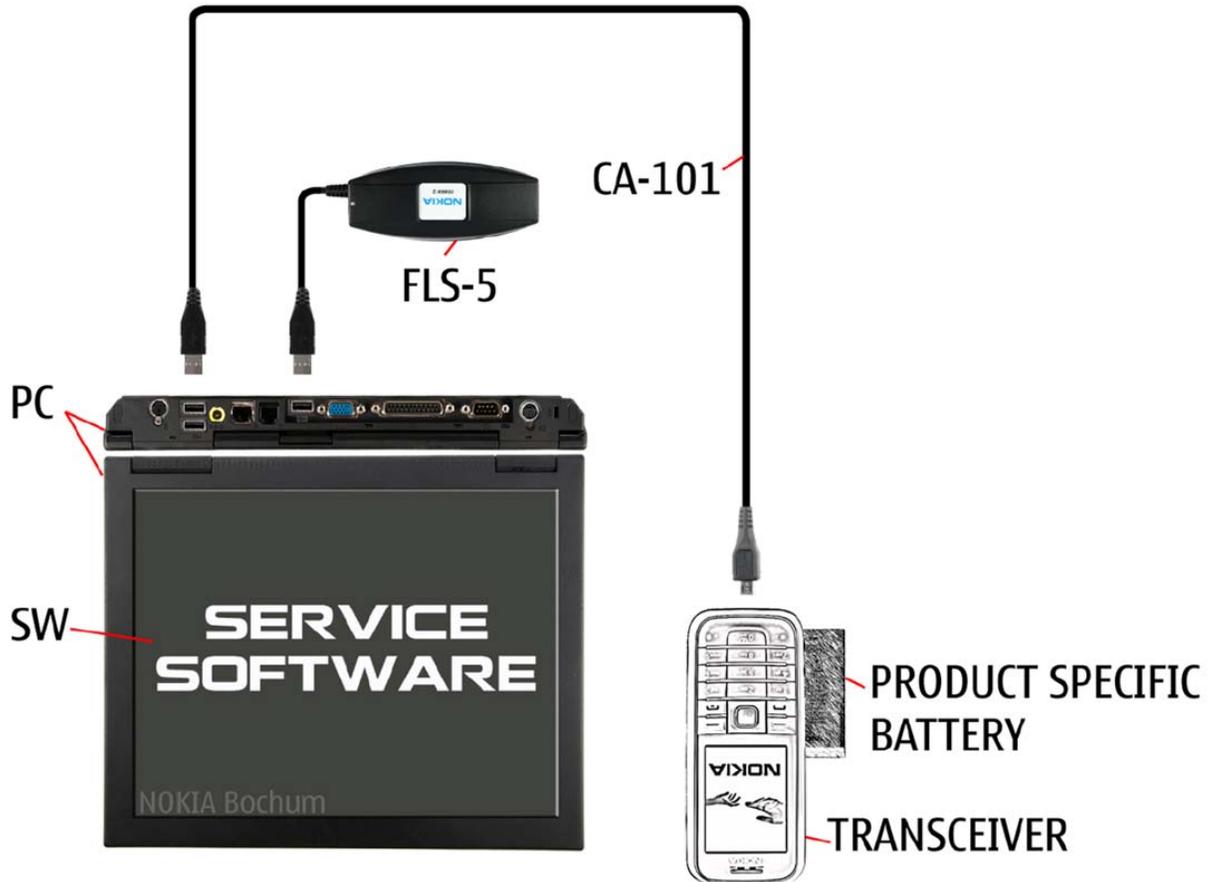
 <p>FLS-5</p> <p>FLS-5 POS Flash Dongle</p>	 <p>CA-101 100cm</p> <p>CA-101 Service Cable</p>	 <p>AC-10 Travel Charger</p>
 <p>BP-4L Battery</p>		 <p><b>NMP standard toolkit (v2)</b> For more information, refer to the Service Bulletin (SB-011) on NOKIA Online. Supplier or manufacturer contacts for tool re-order can be found in "Recommended service equipment" document on NOKIA Online.</p>

## 9. SW-UPDATE

### Flash concept- (Point of Sales)

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

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



## 10. DISASSEMBLY INSTRUCTIONS



1) Nokia N97 disassembly.



2) You must use the Nokia Standard Toolkit version 2.



3) Protect the front cover with protective film.



4) Press release button and remove the BATTERY COVER.



4) Remove the BATTERY COVER.



6) If there is a battery inserted, remove it also.



7). Unscrew the six TORX + size 4 screws in the order shown. Do not use them again.



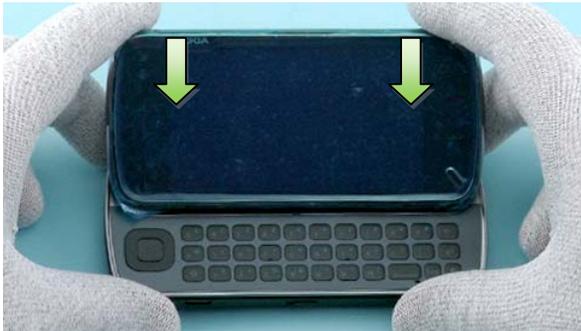
8) Then unscrew this TORX + size 4 screws. Do not use it again.



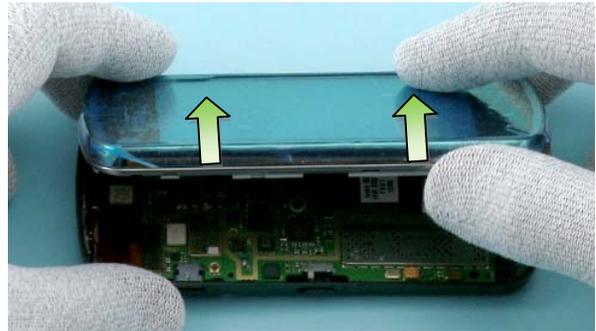
9) Open the slide and use the SRT-6 to release the clips of the lower part.



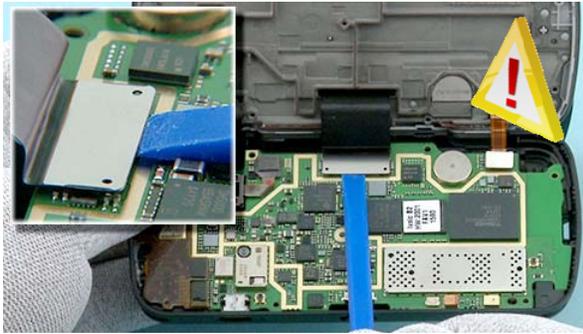
10) Slide the SRT-6 along the cover to release all the clips.



11) Close the slide.



12) Carefully lift up the upper part to gain access to the TILT FPC ASSEMBLY connector.



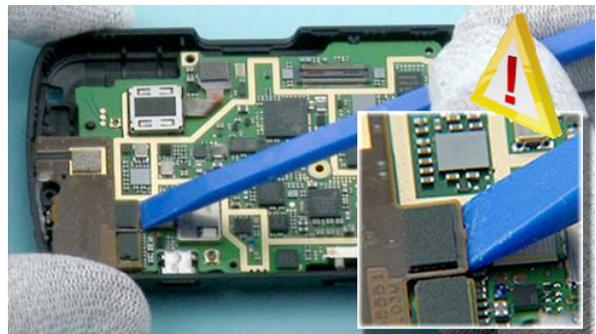
13) Open the TILT FPC ASSEMBLY connector with the SS-93. Be careful not to damage the connector - or components nearby.



14) Then open carefully the Q-ROCKER FPC ASSEMBLY CONNECTOR with the SS-93.



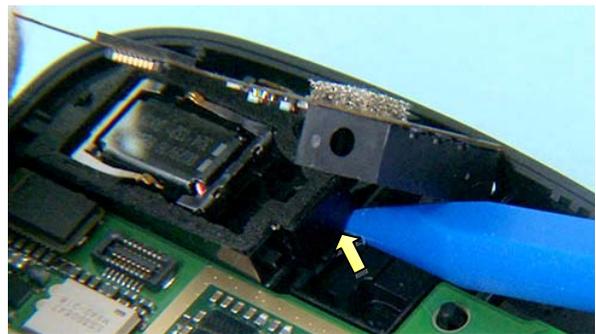
15) Separate the upper part and the B-cover with the engine board.



16) Use the SS-93 to open the connector of the AUDIO FPC ASSEMBLY. Be careful not to damage the connector - or components nearby.



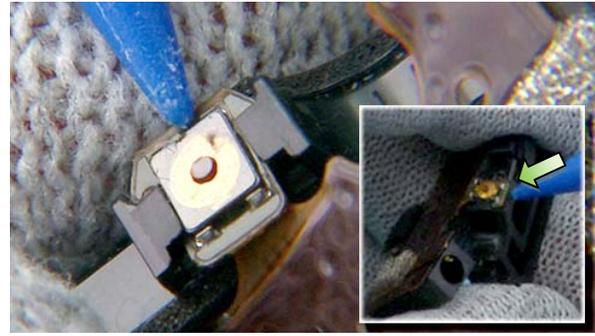
17) Next, lift up the AUDIO ASSEMBLY with the SS-93.



18) Then release the IHF HOLDER ASSEMBLY with the SS-93.



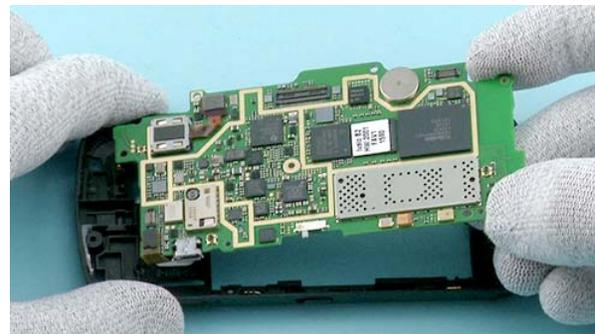
19) Remove the AUDIO ASSEMBLY and the IHF HOLDER ASSEMBLY with the tweezers.



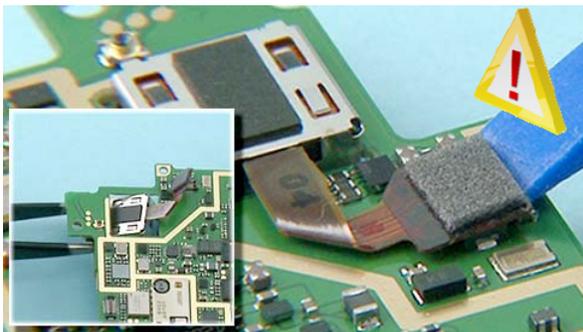
20) Use the SS-93, to separate the AUDIO ASSEMBLY and the IHF HOLDER ASSEMBLY.



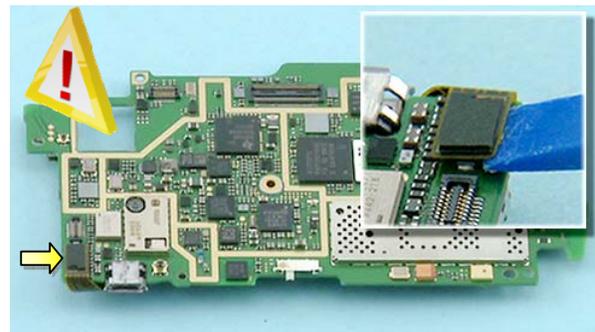
21) Release the engine board with the SS-93.



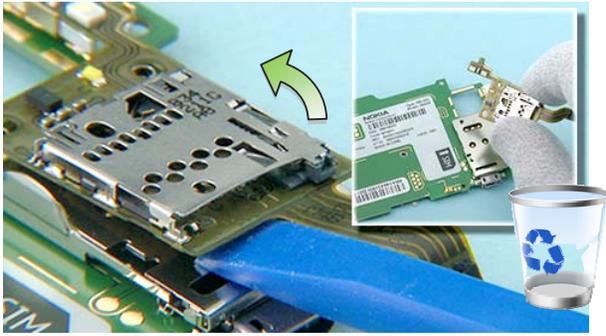
22) The engine board can be separated as shown.



23) Carefully open the camera connector with the SS-93. Then remove the camera with the tweezers by pulling it through the hole.



24) Next, open the connector of the BEZEL FPC ASSEMBLY with the SS-93.



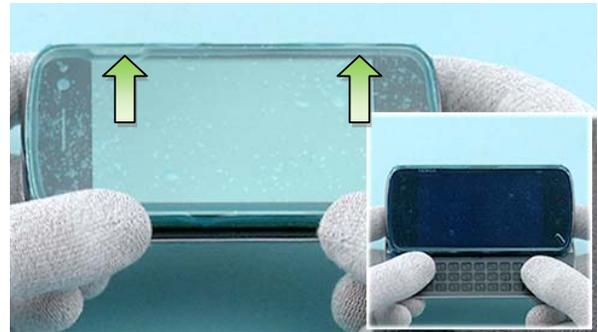
25) Turn the ENGINE BOARD over and use the SS-93 to release the BEZEL FPC. Then remove it. Do not use the BEZEL FPC again.



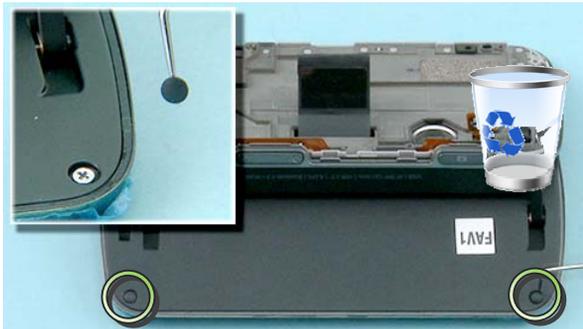
26) Release the HEAT SINK ASSEMBLY with the SS-93 and then remove the assembly.



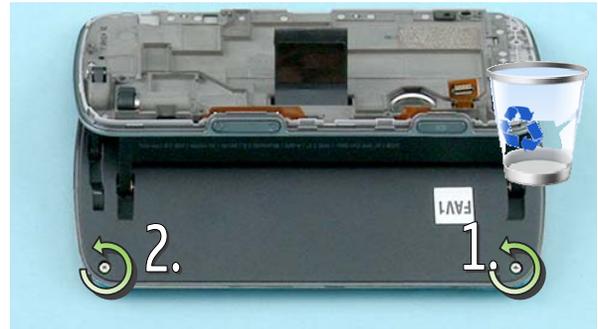
27) Use the SS-93 to detach the antenna assembly and then remove it.



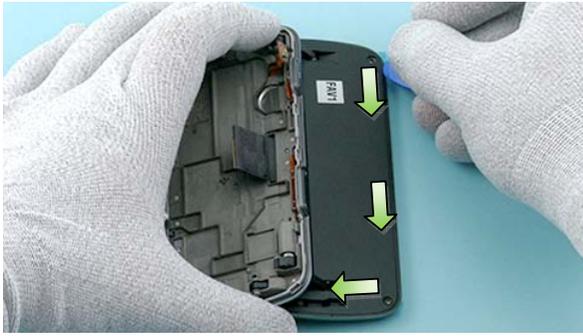
28) Slide the phone open.



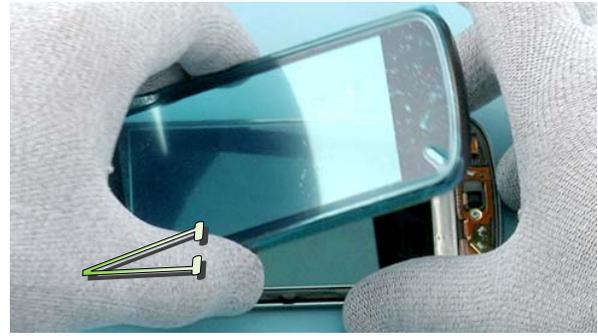
29) Remove the two screw bumpons with the dental tool. Do not use them again.



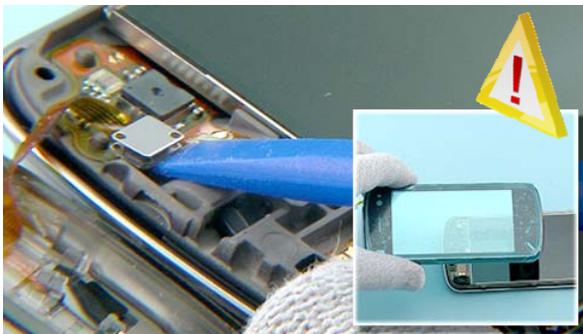
30) Unscrew the two Phillips size 00 screws in the order shown. Do not use them again.



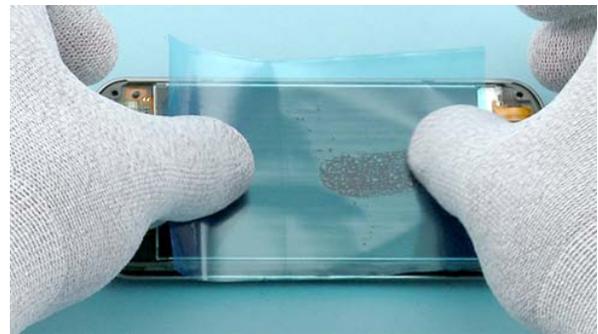
31) Detach the A-cover assembly with the SRT-6 as shown.



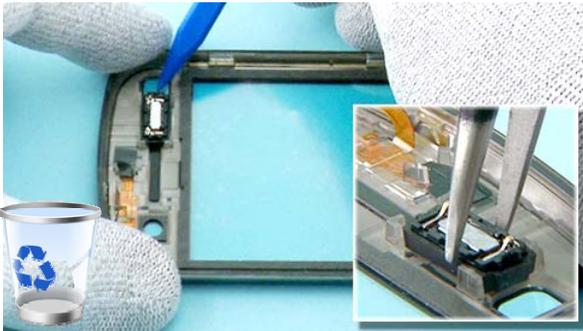
32) Then carefully lift up the right side of the A-cover assembly.



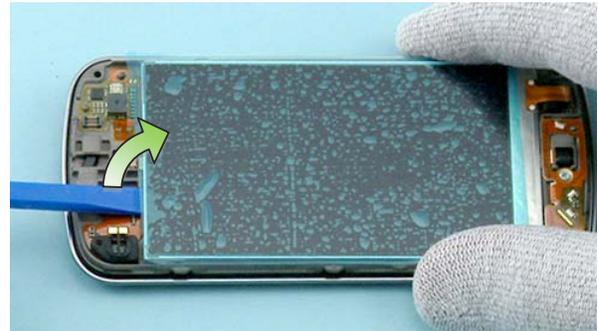
33) Disconnect the A-COVER ASSEMBLY CONNECTOR with the SS-93. Remove the A-COVER ASSEMBLY.



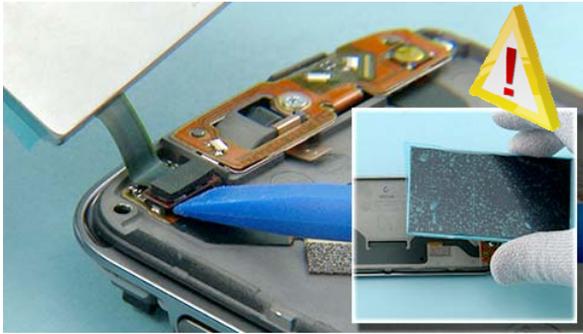
34) Remember to protect the LCD with protective film.



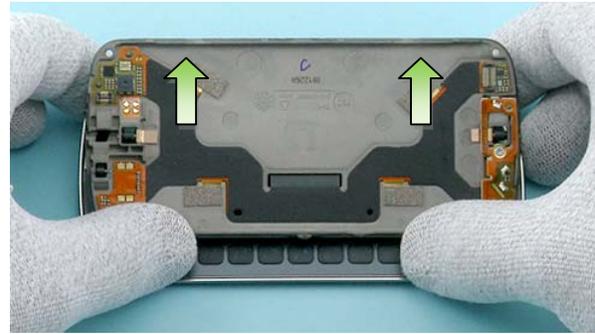
35) Use the sharp end of the SS-93 to release the EARPIECE. Remove the EARPIECE with the tweezers. Do not use it again.



36) Use the SS-93 to lift up the LCD.



37) Disconnect the LCD connector with the SS-93. Then remove the LCD.



38) Open the slide.



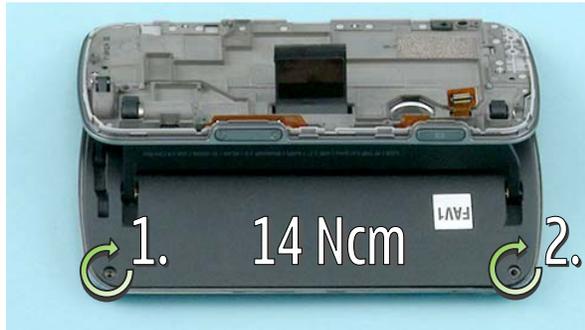
39) Start releasing the QWERTY KEYMAT with the dental tool. Remove the keymat by peeling it as shown.



40) Nokia N97 disassembly is now complete.

-END OF DISASSEMBLY-

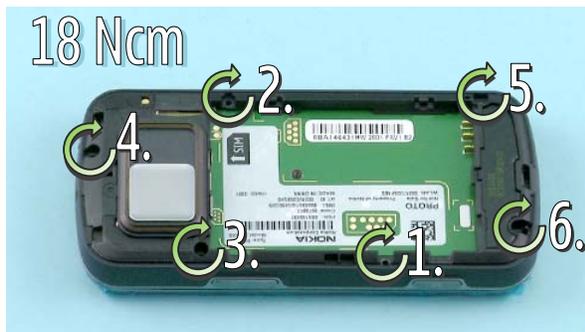
## 11. ASSEMBLY HINTS



1) Tighten the two Phillips size 00 screws to the torque of 14 Ncm in the order shown.

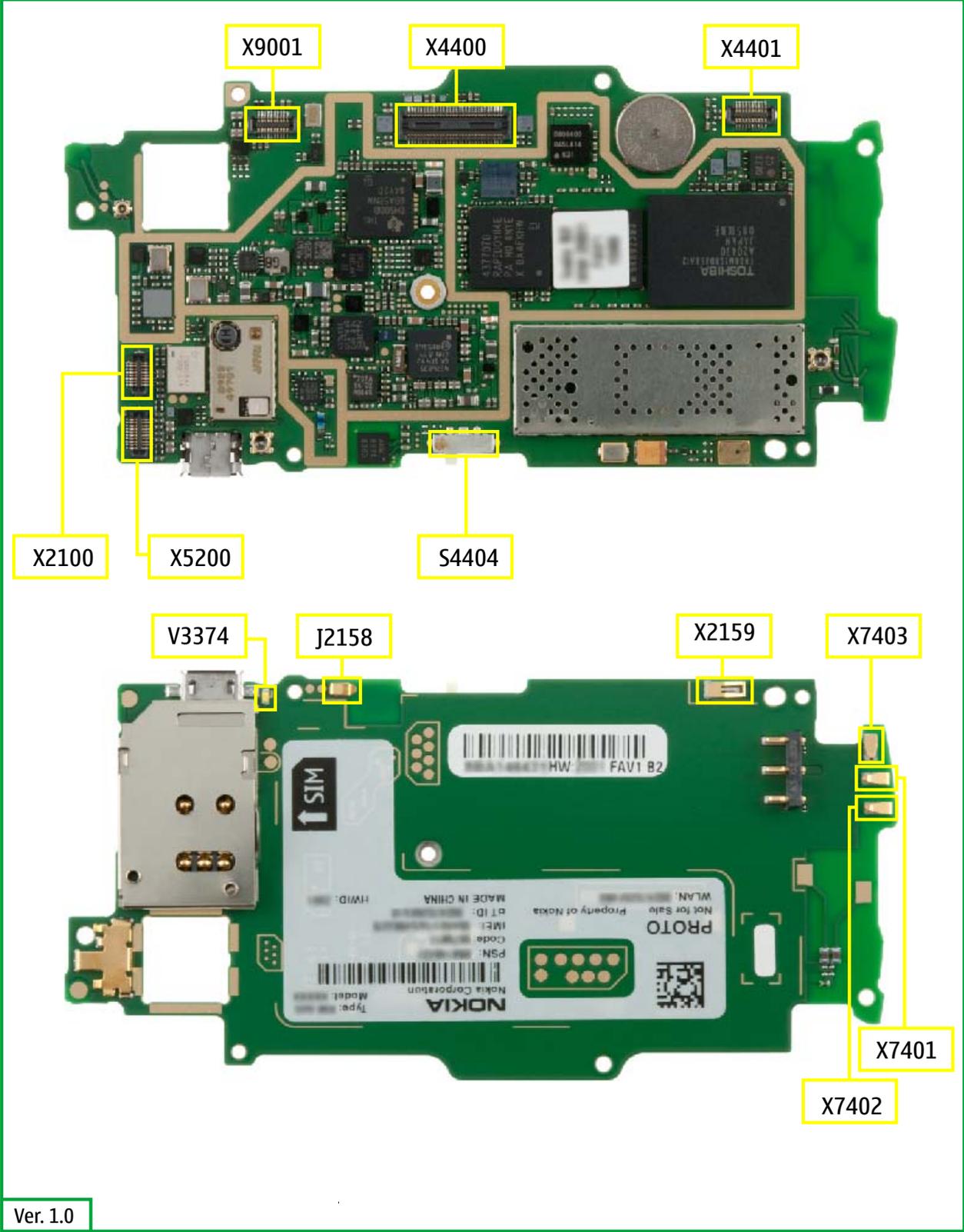


2) Tighten the TORX + size 4 screw to the torque of 7 Ncm.



3) Tighten the six TORX + size 4 screws to the torque of 18 Ncm in the order shown.

12. SOLDER COMPONENTS



Ver. 1.0