

CONFIDENTIAL

SERVICE MANUAL

Level 1&2

NOKIA E70

RM-10 / RM-24



Transceiver characteristics:

Band:

RM-10: Tri-band phone for EGSM 900/1800/1900MHz, WCDMA 2000

RM-24: Tri-band phone for EGSM 850/1800/1900MHz, EDGE

Camera: Integrated 2.0 Mega pixel camera;

Resolution up to 1600x1200 pixel

Display: Active matrix color display with up to 16M colors,

resolution 352 x 416 pixel

IrDA

Bluetooth

WLAN

FM radio

Connector: Pop Port™ connector

Memory card: miniSD™

Transceiver with BL-6C Li-Ion battery pack

Talk time	Standby	Note
GSM: 3.6 to 7.3h WCDMA: 2.5 to 3.9h	GSM: 7.2 to 9.3 days WCDMA: 7.0 to 9.2 days	Depends on network parameters

Environmental characteristics:

- Lead-free soldered

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CHANGE HISTORY

Status	Version No.	Date	Comments
Draft	0.1	27.Mrz.2006	Initial draft
Approved	1.0	27.Apr.2006	Approval
Approved	2.0	28.Apr.2006	Domesheet exchange instruction added
Approved	3.0	02.Mai.2006	Travel charger in the Service Tools chapter changed (AC-4 -> ACP-8)

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 -->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.

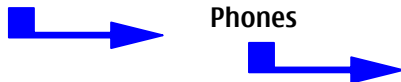
Please also check NOKIA Online (NOL) for latest news and files on a regular basis.

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



- Service Manuals
- Service Bulletins
- Software
- Repair Information

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

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

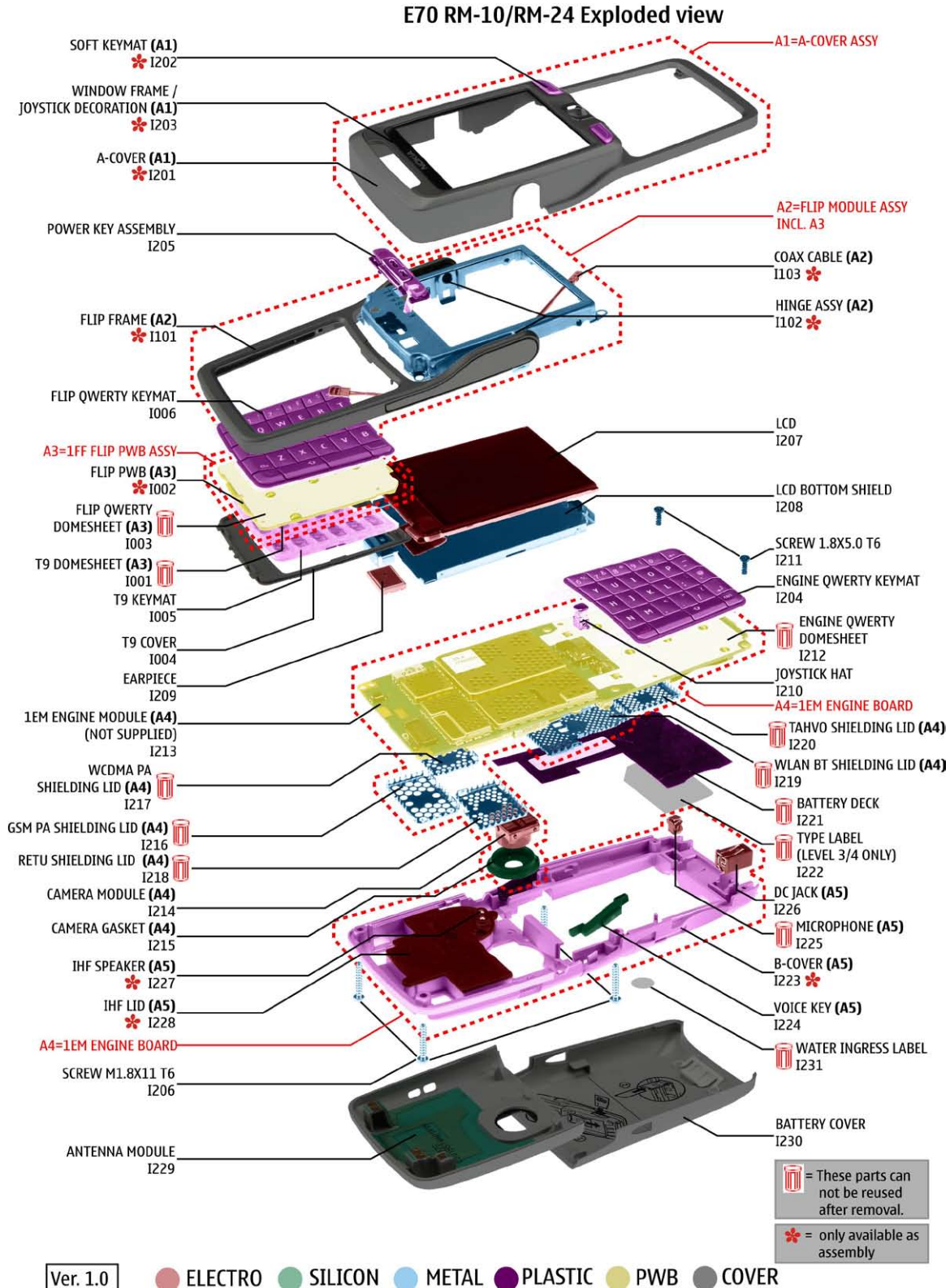
Level 1&2 e-learning courses offer a quick overview of the NOKIA phone and support for how to repair and use the phone:

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

4. EXPLODED VIEW AND COMPONENT DISPOSAL

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



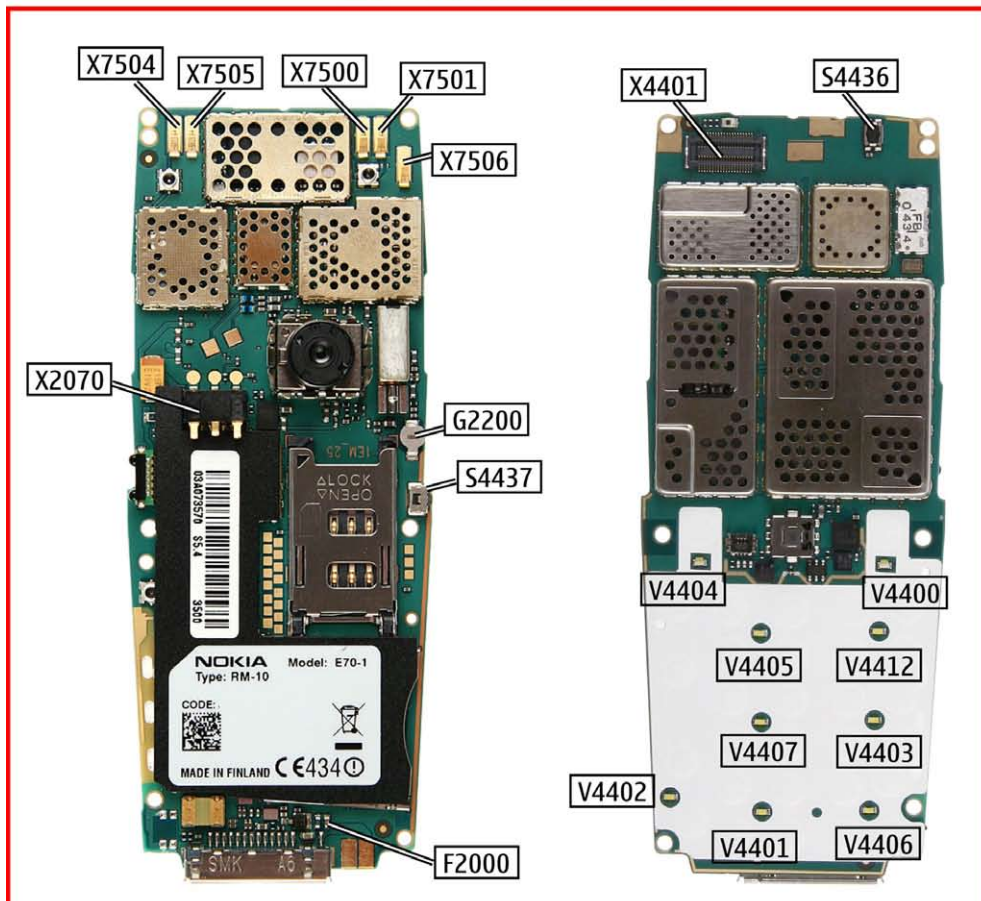
5. COMPONENT OVERVIEW

E70 RM-10/ RM-24 Component overview

A3 = 1 FF FLIP PWB ASSY



A4 = 1EM ENGINE MODULE




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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Files for Service level 1 Date:16.02.2005





- XXXXXXXXXXXXXXXXXXXX
- XXXXXXXXXXXXXXXXXXXX
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Service Manual E70 RM-10 / RM-24

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7. SERVICE TOOLS

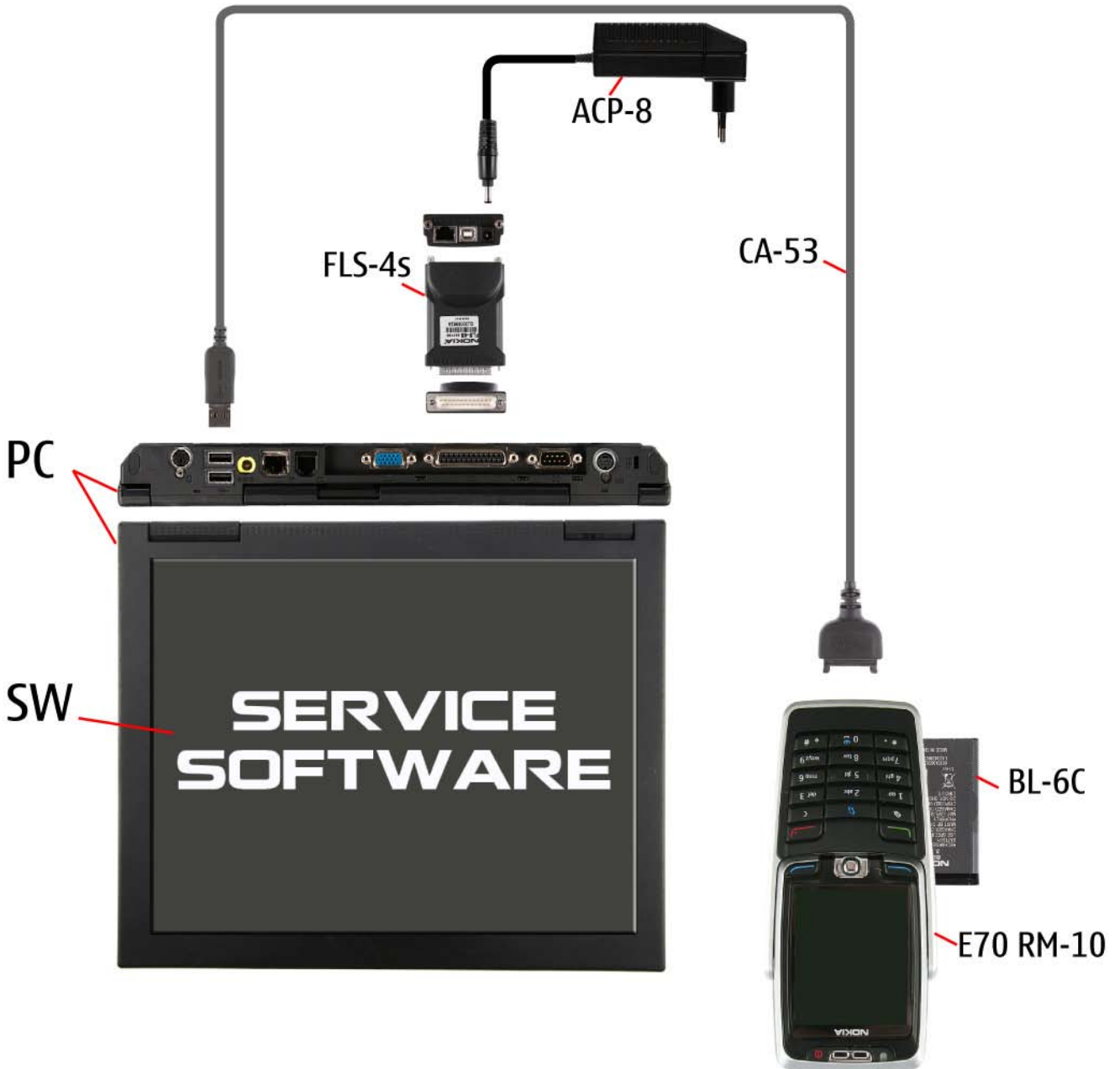
	<p>FLS-4S incl. ACF-8, Driver and User Guide Dongle and flash device incorporated into one package, developed specifically for POS use.</p>
	<p>ACF-8 Universal Power Supply is used to power FLS-4S.</p>
	<p>Travel Charger ACP-8 Small and lightweight charger for fast charging of your phone battery.</p>
	<p>Internal Battery BL-6C Inserted under the back cover, this Li-Ion battery provides power in a lightweight package.</p>
	<p>Headset HS-23 Small and lightweight stereo headset with handsfree call handling, volume control, push to talk support, and comfortable earpieces for listening to the FM radio or music player.</p>
	<p>SS-15 Camera removal tool. One side is for disassembly, the other side for assembly.</p>
	<p>CA-53 Service Cable to connect the PC with the Pop-Port™ connector.</p>

	<p>RJ-82 Soldering Jig</p>
	<p>SS-70 Domesheet Jig</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"> • NOKIA opening tool SRT-6 NOKIA No. 0770431 • Tonichi torque driver NOKIA No. 6901525 • Hoya micro Fibre cloth MX304 • Dastex gloves S, M, XL • Artilux goggles AH166 • Wera bit T5 867/4TX 5x50 • Wera 867/4 6IP; 50mm (Torx 6 PLUS®) • Wera 867/4TX 6x50 • Wera 867/1 5IP; 25mm (Torx 5 PLUS®) • Wera bit T6 PLUS® 867/4TX 6IP • Facom side cutter 416E • Facom T5 driver SP.14032 • Facom T6 driver SP.14033 • Facom slot screwdriver AEF. 2x35.E • Wetec tweezers 7abb SA-ESD • Wetec tweezers 22 SA-ESD • Wetec tweezers 13 SA-SMD ESD • Wetec tweezers PSF SA-ESD • Wetec ESD brush E1211 • Kaiser Fototechnik airbrush 6315 • Wetec dental tool DEM83266/0 • RS Components Scissors 323-5732

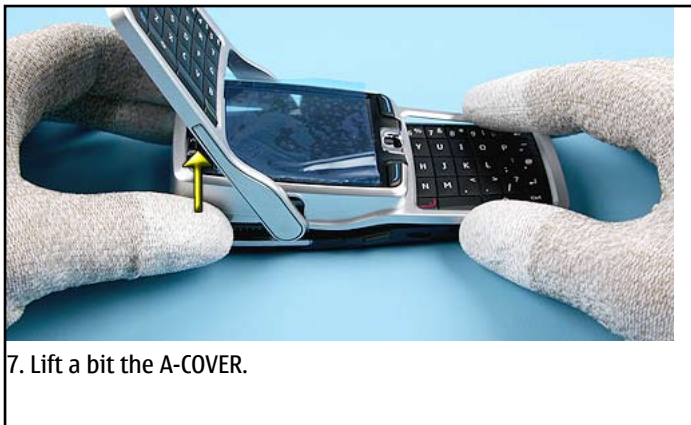
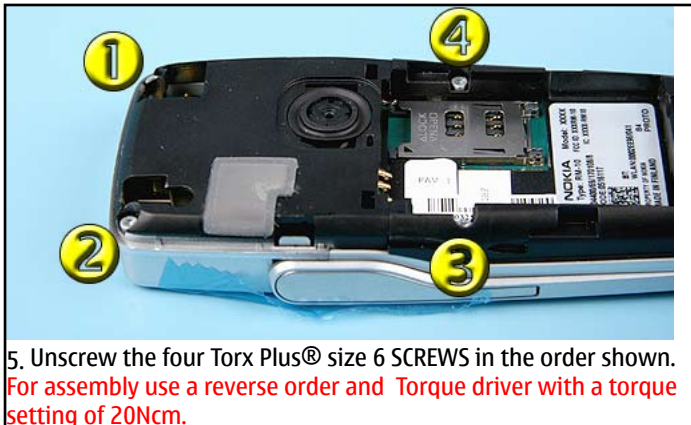
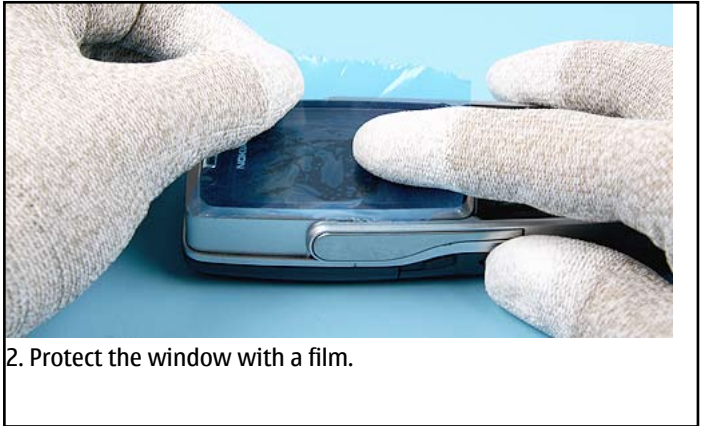
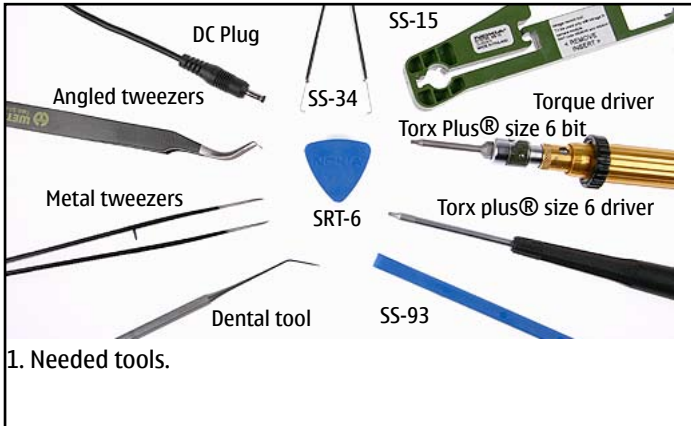
8. SW-UPDATE

Flash Concept – (Point of Sales)

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



9. DISASSEMBLY INSTRUCTION





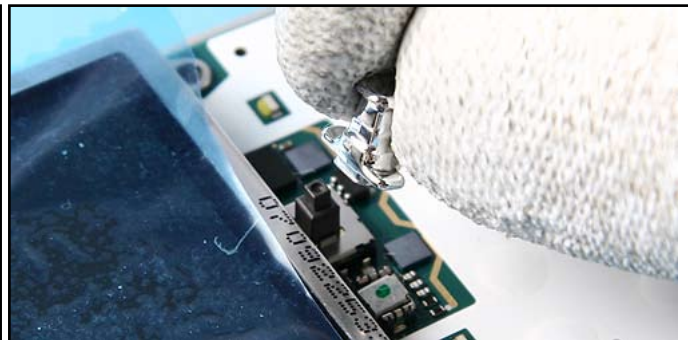
9. Cover the LCD MODULE with a protective film.



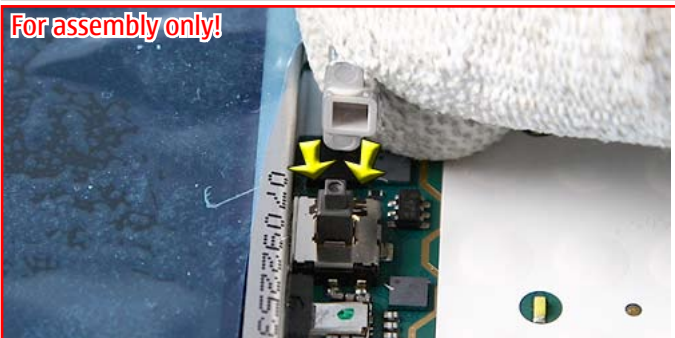
10. Remove the ENGINE QWERTY KEYPAT.



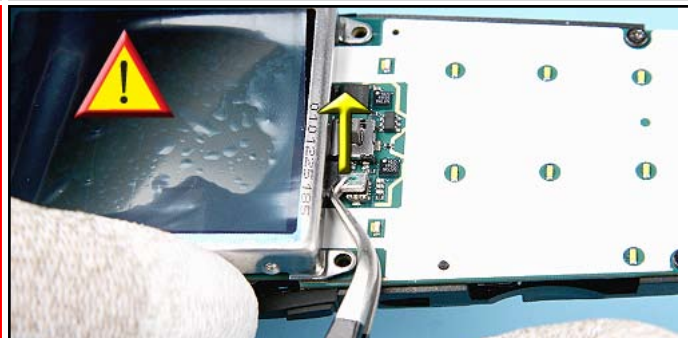
11. Remove the POWER KEY.



12. Remove the JOYSTICK HAT.



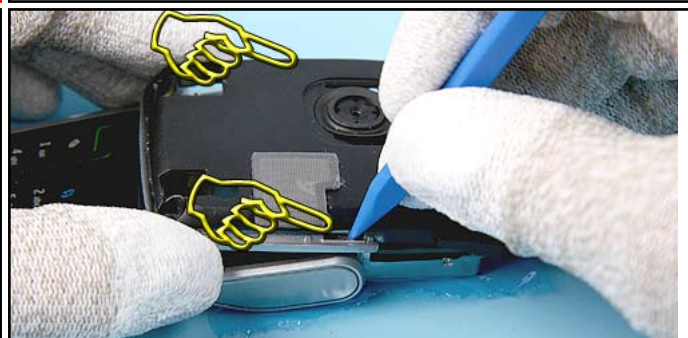
13. Note the correct position when reassembling the JOYSTICK.



14. The FLIP HINGE is connected with the COAX CABLE to the ENGINE MODULE.



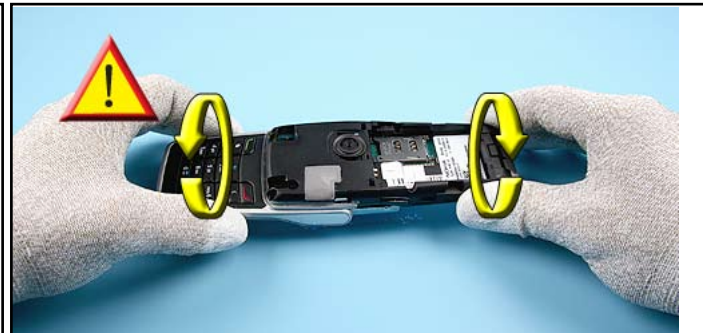
15. Very gently, open the COAX CONNECTOR by using angled tweezers.



16. The FLIP MODULE is attached to the B-COVER with two snaps.



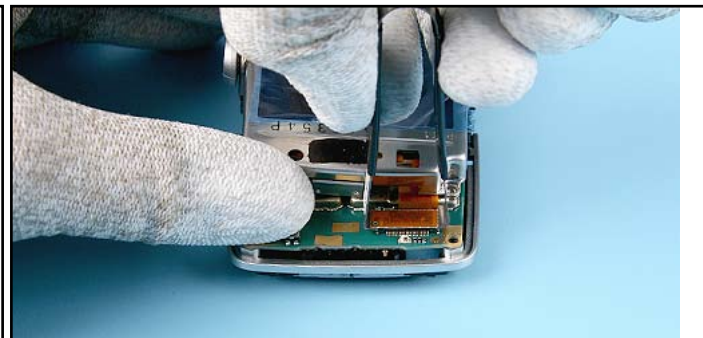
17. Place the SS-93 between the B-COVER edge and the clip of the FLIP MODULE and release it carefully.



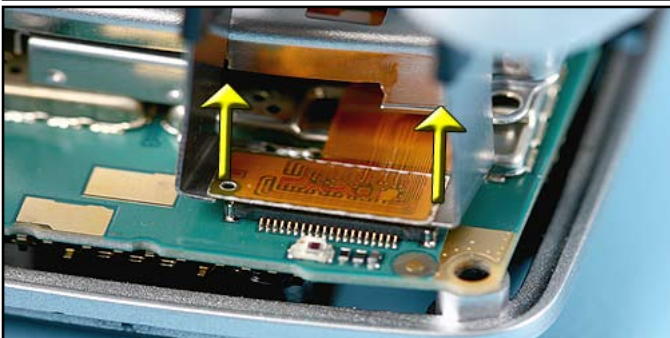
18. Carefully, turn over the unit securing the FLIP MODULE. Do not yet separate the parts from each other.



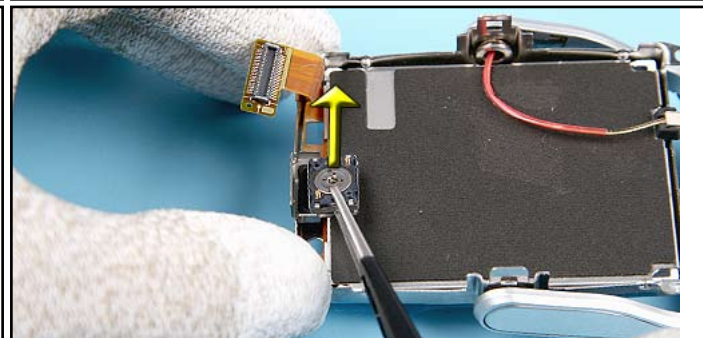
19. Unlock another clip of the FLIP MODULE carefully.



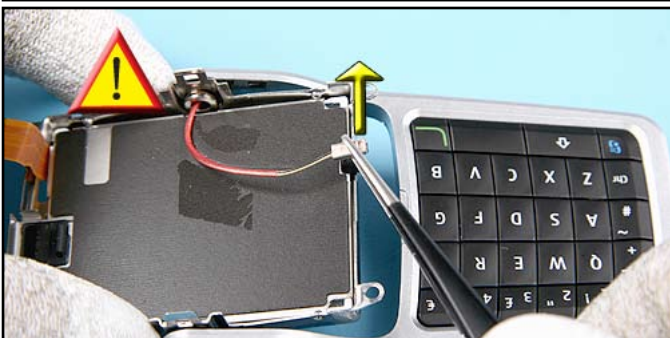
20. Lift the FLIP MODULE a bit and place the flex connector opening tool as shown.



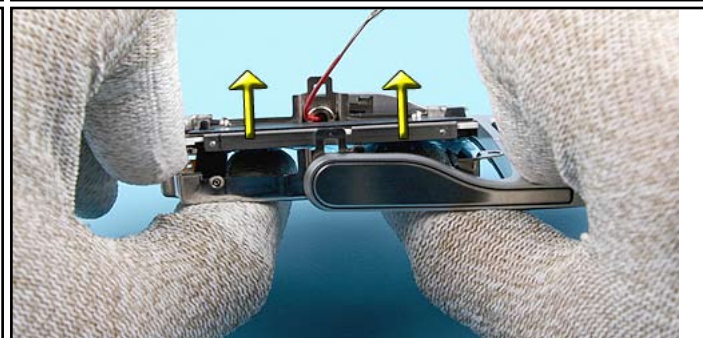
21. Gently open the flex connector.



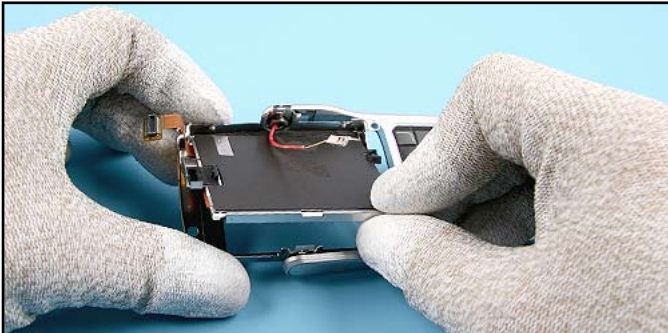
22. Remove the EARPIECE.



23. Lift the COAX CABLE connector a bit from its holder with tweezers.



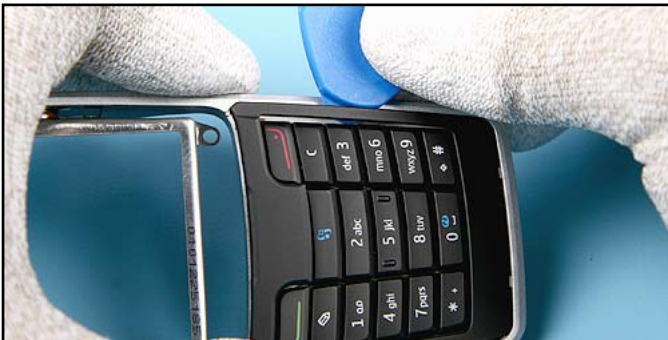
24. Gently, press out the LCD MODULE from the HINGE ASSEMBLY.



25. Remove the LCD MODULE paying attention to the COAX CABLE.



26. Unlock the T9 COVER in the order shown.



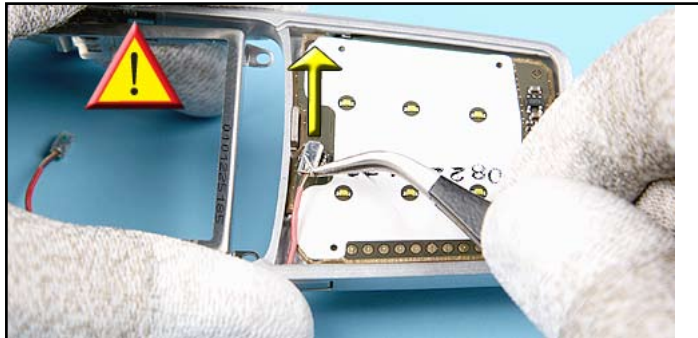
27. Continue on the other side.



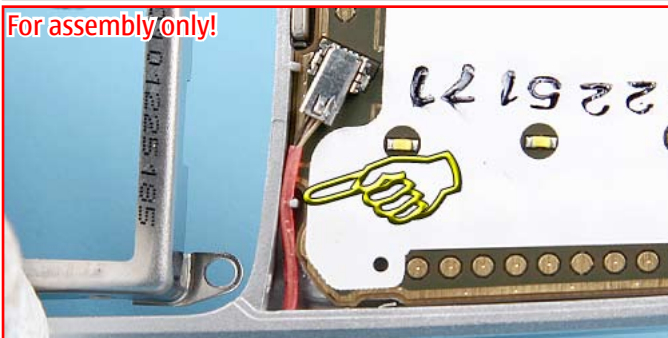
28. Pull up the T9 COVER and remove it.



29. Remove the T9 KEYMAT.



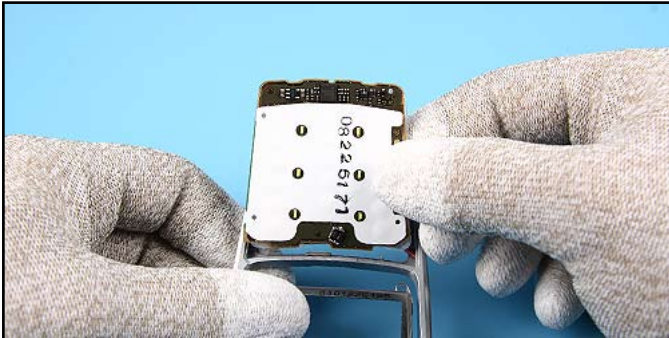
30. Open the COAX CABLE connector with angled tweezers.



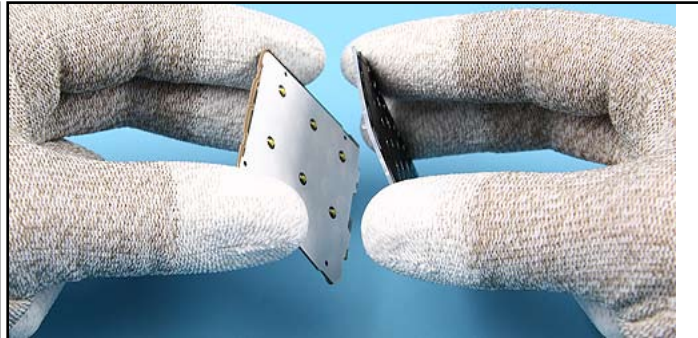
31. Note the correct position of the COAX CABLE when reassembling the unit.



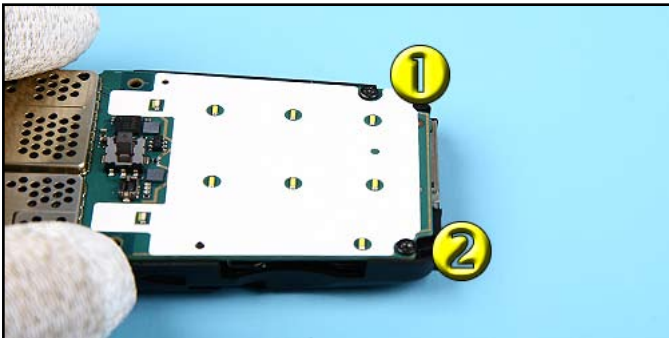
32. Press out the FLIP PWB ASSEMBLY.



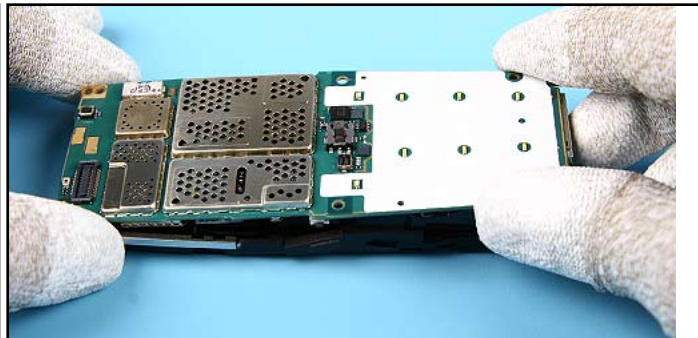
33. Remove the modules from the FLIP FRAME.



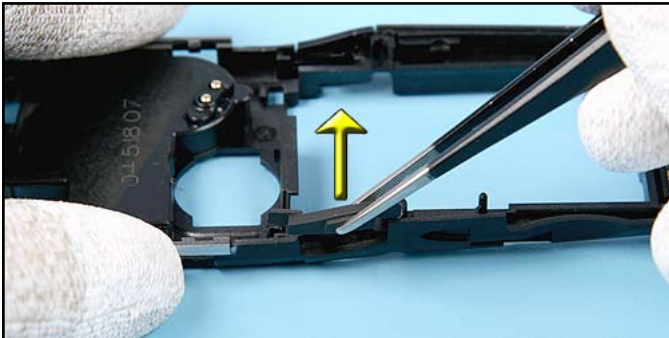
34. Separate the FLIP QWERTY KEYMAT from the FLIP PWB ASSEMBLY



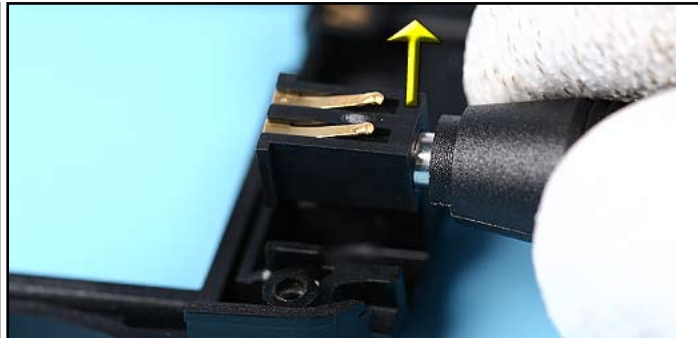
35. Unscrew the two Torx Plus size 6 SCREWS in the order shown.
For assembly use a reverse order and Torque driver with a torque setting of 21Ncm.



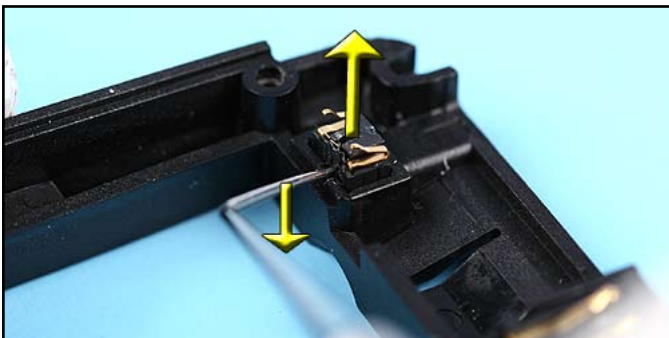
36. Remove the ENGINE MODULE from the B-COVER.



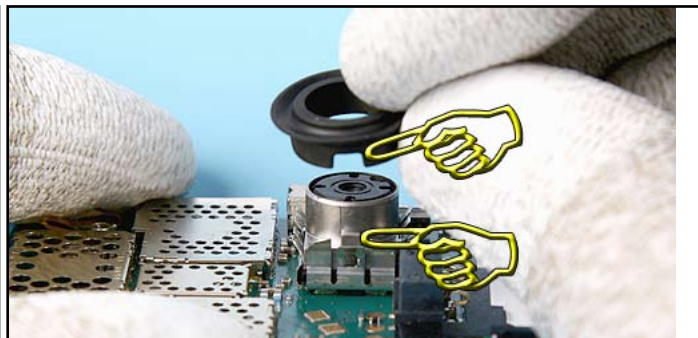
37. Remove the VOICE KEY.



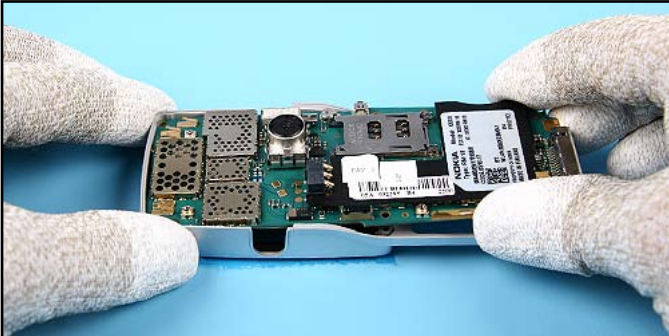
38. Remove the DC- JACK with the DC-Plug.



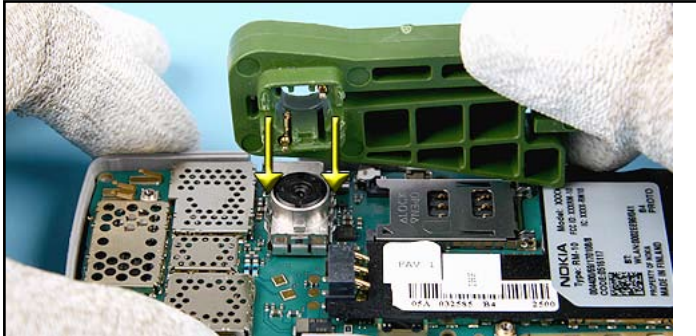
39. Use the dental tool as a lever to remove the MICROPHONE.
Do not reuse the MICROPHONE.



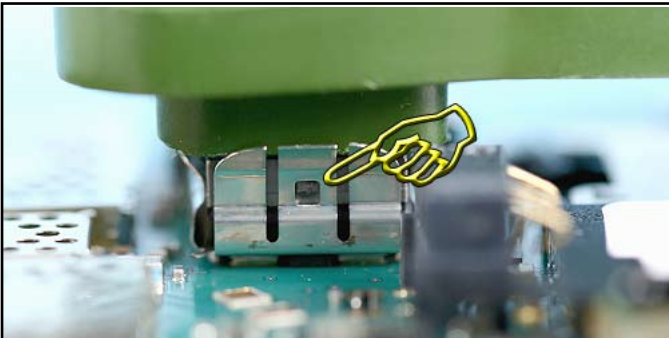
40. Remove the CAMERA GASKET.



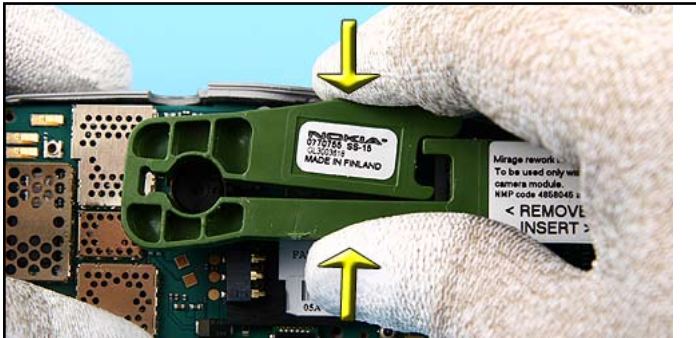
41. Use the A-COVER as a support when removing the CAMERA MODULE.



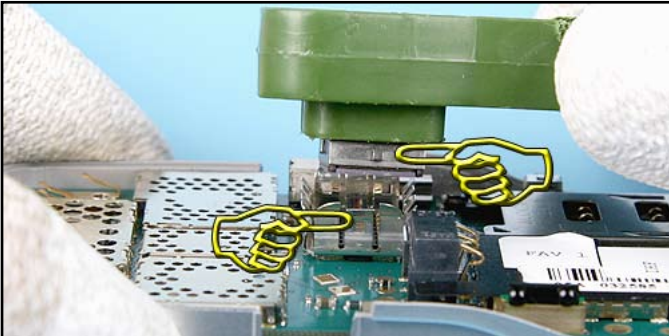
42. Note the correct position of the SS-15 before placing it over the CAMERA MODULE.



43. Press the SS-15 lightly in shown direction until the CAMERA MODULE have been unlocked.



44. Press the Camera removal tool together.

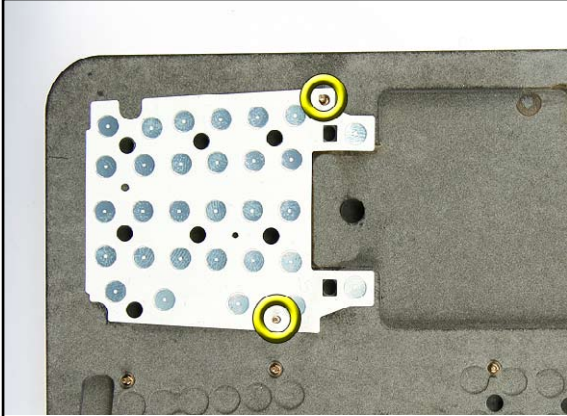


45. Gently, remove the CAMERA MODULE. **Note the correct position of the Camera when reassembling the unit.**



46. Remove the BATTERY DECK. Do not use too much force.

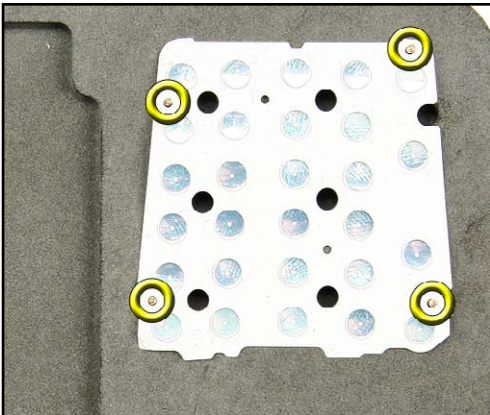
10. DOMESHEET EXCHANGE INSTRUCTION



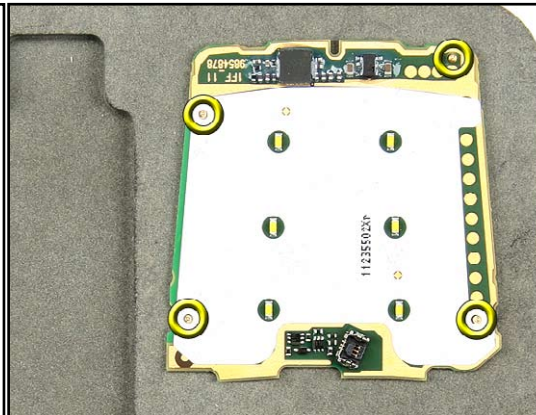
1. Place the new ENGINE QWERTY DOMESHEET on the SS-70. Align it with the two guide pins and remove the protection foil.



2. Place the 1EM ENGINE MODULE over the SS-70 and align it with the two guide pins. Now press the module on the domesheet and remove the assembly.



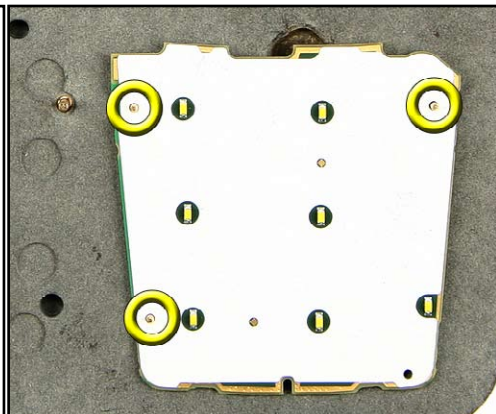
3. Place the new FLIP QWERTY DOMESHEET on the SS-70. Align it with the four guide pins and remove the protection foil.



4. Place the FLIP PWB over the SS-70 and align it with the four guide pins. Now press the FLIP PWB on the domesheet and remove the assembly.



5. Place the new T9 DOMESHEET on the SS-70. Align it with the three guide pins and remove the protection foil.



6. Place the FLIP PWB over the SS-70 and align it with the three guide pins. Now press the FLIP PWB on the domesheet and remove the assembly.

11.GONOGO TEST

To test the Camera, Bluetooth and IRDA functionality refer to the E70 User`s guide.

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

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



Bluetooth test

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

Infrared test

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

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



Bluetooth connection



infrared connection



Reference unit, Bluetooth /infrared activated

Test unit

12. 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/>