

# SERVICE MANUAL

## Level 1&2

# NOKIA

## E90

RA-6

### Transceiver characteristics:

#### Band:

**EGSM:** Quad-band 850/900/1800/1900MHz

**WCDMA:** 2100MHz

#### Display:

**Inner - LCD:** Active matrix color display (800x352 pixels); 16M colors

**Outer - LCD:** Active matrix color display (240x320 pixels); 16M colors

#### Camera:

**Main Camera:** 3.2 Megapixel with flash and autofocus

**Sub Camera:** QCIF camera for video calling

#### Operating System:

Series 60

#### Connections:

**Wireless:** WLAN, Bluetooth, IRDA, GPS

**Connector:** Mini USB Connector; AV Connector

#### Memory:

MicroSD™ (max 2GB)



### Transceiver with BP-4L Li-Ion battery pack

Talk time	Standby	Note
up to 5h	up to 14days	Depends on network parameters

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## 1. CHANGE HISTORY

Status	Version No.	Date	Comments
Draft	0.1	05.Apr.2007	Initial draft
Approved	1.0	07.May.2007	Approval

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.Manual@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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**IMPORTANT**

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

### 3. WARNINGS AND CAUTIONS

#### 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 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.

#### 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. Short-circuiting 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.

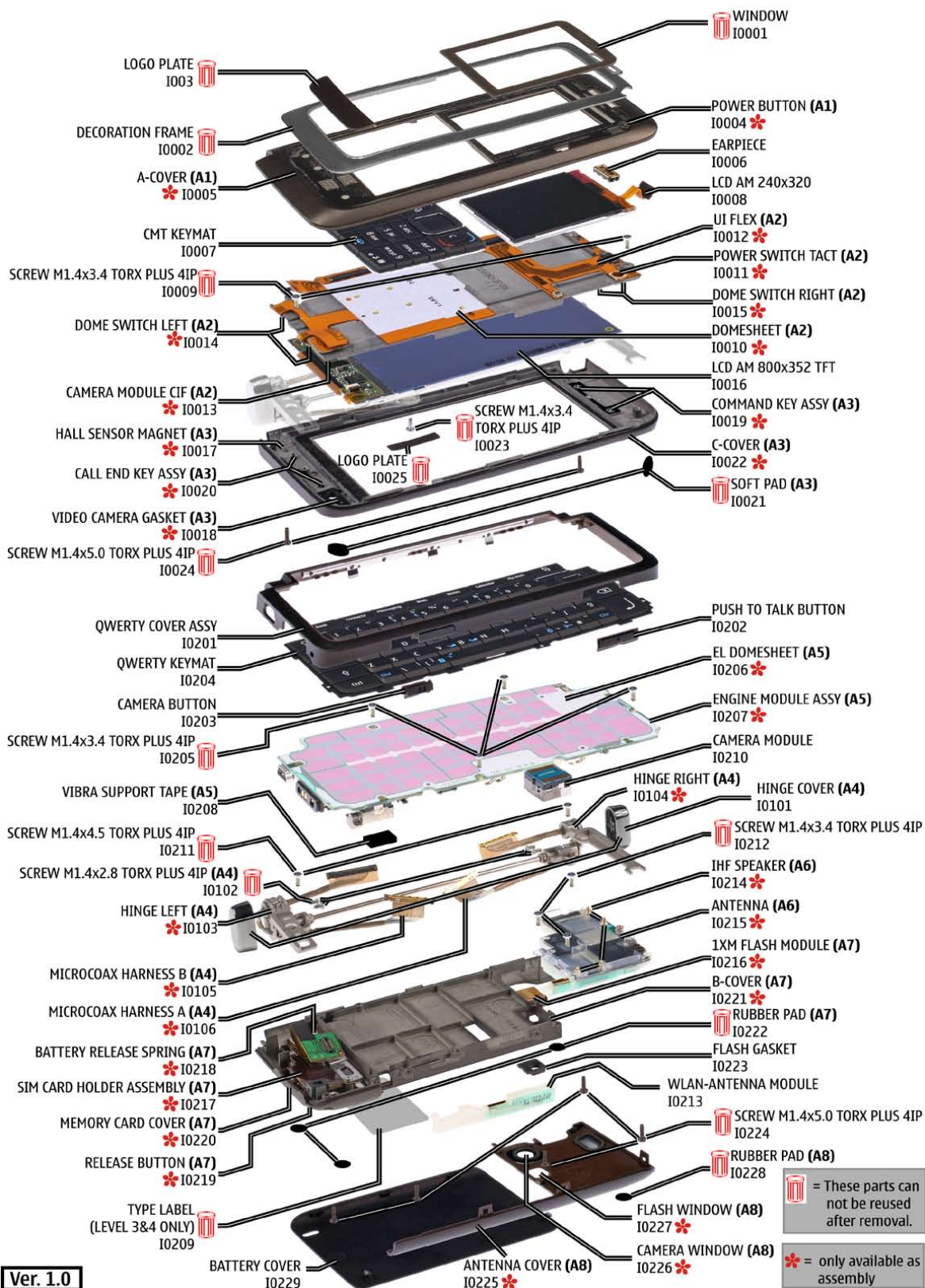
Do not dispose batteries in a fire! Dispose of batteries according to local regulations (e.g. recycling). Do not dispose as household waste.



## 7. EXPLODED VIEW

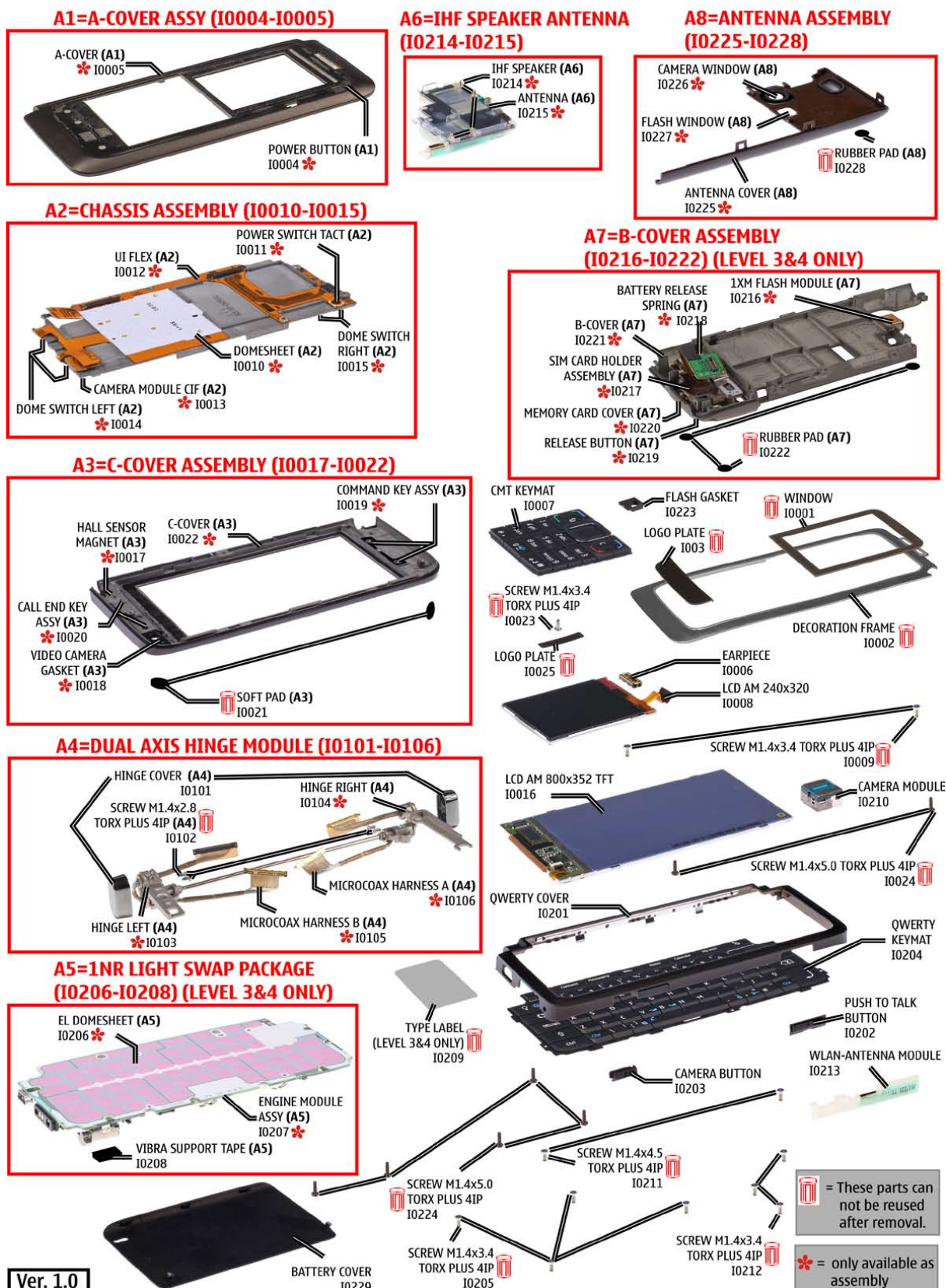
See corresponding ITEM/CIRCUIT REF in the Spare Parts Service Bulletins on NOL.

### E90 RA-6 EXPLODED VIEW



## 8. SPARE PARTS OVERVIEW

### E90 RA-6 SPARE PARTS OVERVIEW



Ver. 1.0



## 9. GENERAL RECYCLING RECOMMENDATION

**NOKIA**

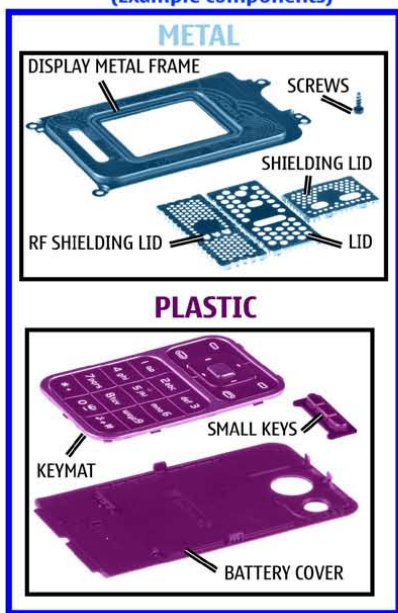
CMO Operations & Logistics  
Training and Vendor Development  
Multimedia Creation & Support

Confidential

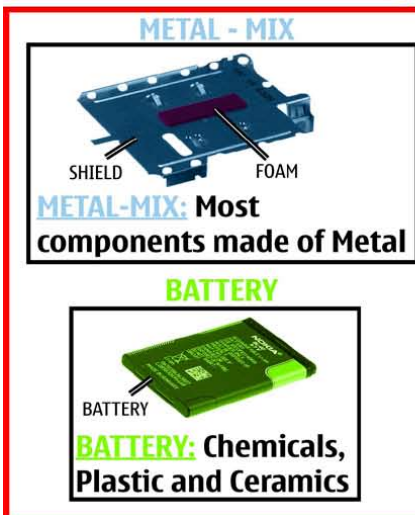
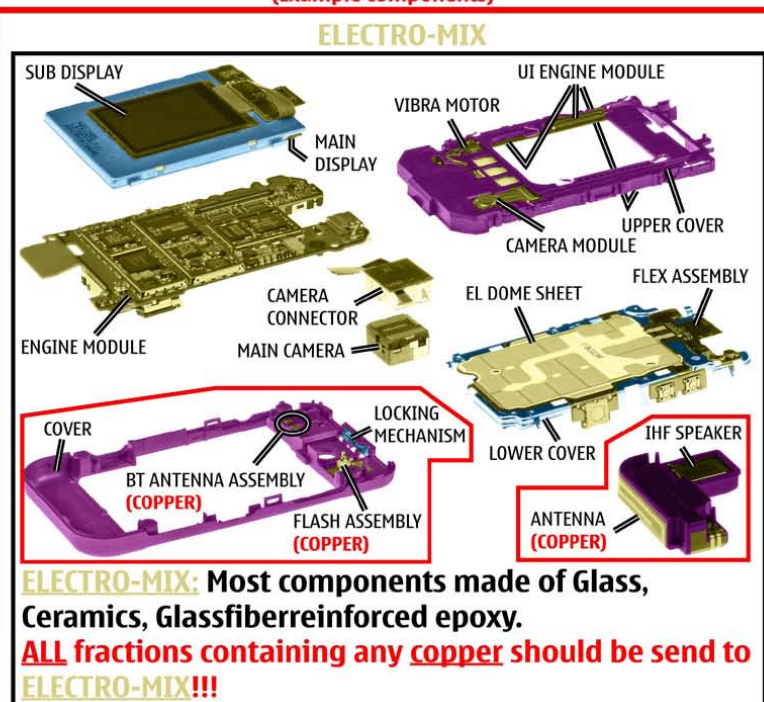
13.11.2006  
MGR

### General Recycling recommendation

**100% - only one Material**  
(Example components)



**Mixed components**  
(Example components)



Some of these options can be utilized directly and some need pretreatment as for instance dismantling, grinding, milling, etc.  
For sorting the waste into fractions for recycling, your recycler will offer you more specific information, but a **GENERAL RULE** is:  
**Electronic Equipment:** There are recyclers that can process this "multimaterial" for high recycling yields.  
**Metals:** Fractions containing metals must always be collected and sent for (metal) material recycling.  
**Plastics:** Pure plastics fractions (i.e. covers) can be sent for (plastics) materials recycling.  
**Mixed Plastic/Metals:** A metal fraction contaminated with plastics does not represent a problem for metal recycling/recovery whereas recycling/recovery of plastics is generally sensitive for contamination by other materials.

● ELECTRO ● METAL ● PLASTIC ● BATTERY

Ver. 3.0

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## 10.LEVEL 2 SOLDER COMPONENTS

**No solder able components for Level 2**

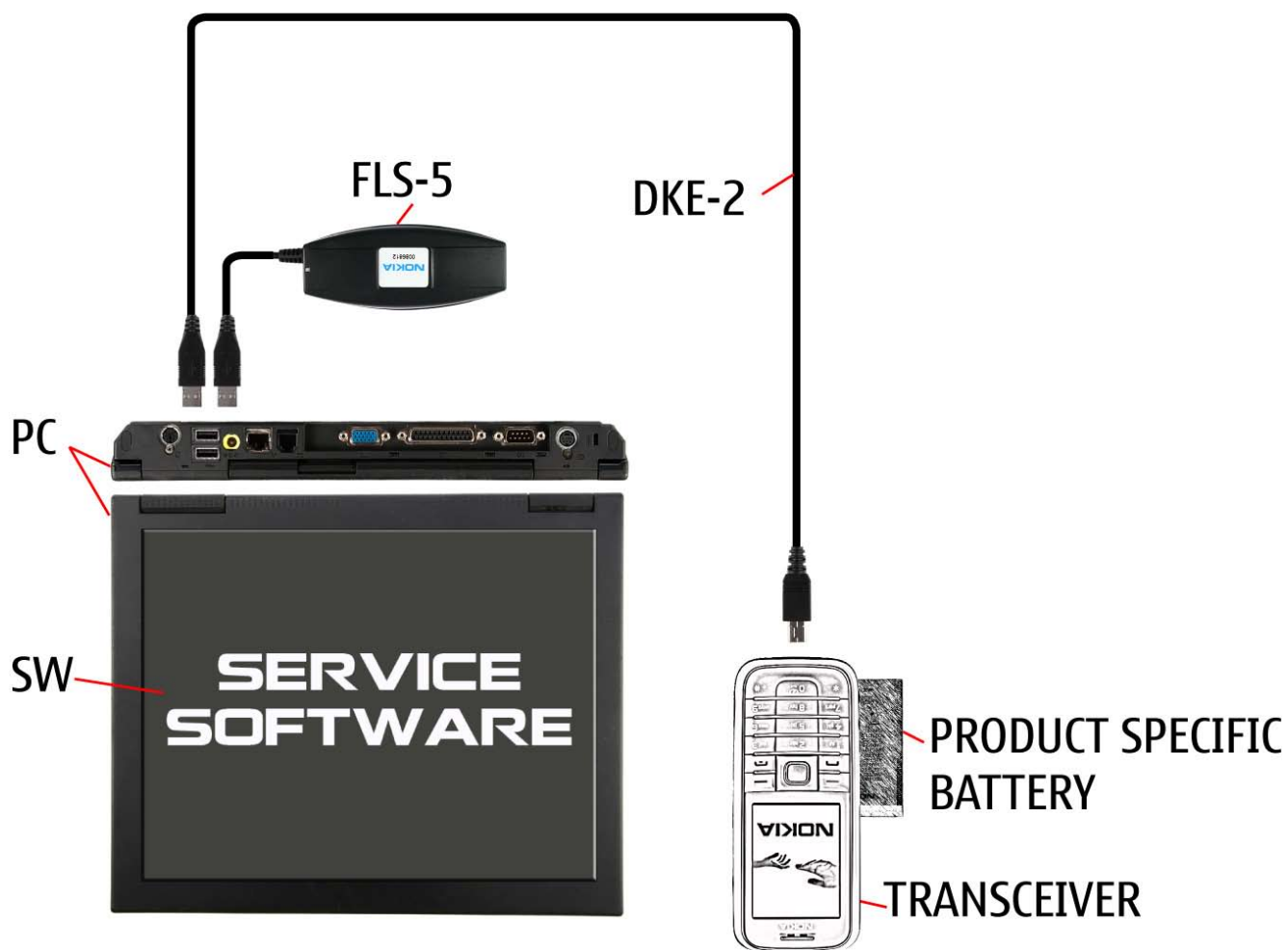
## 11.SERVICE TOOLS

 <p><b>FLS-5</b></p> <p><b>FLS-5 incl. ACF-8, Driver and User Guide</b> Dongle and flash device incorporated into one package, developed specifically for POS use.</p>	 <p><b>ACF-8</b> Universal Power Supply is used to power FLS-4S.</p>	 <p><b>Travel Charger AC-4</b> Small and lightweight charger for fast charging of your phone battery.</p>
 <p><b>DKE-2</b> Service Cable to connect the PC with the mini USB connector.</p>	 <p><b>SS-45</b> Camera removal tool. One side is for disassembly, the other side for assembly.</p>	 <p><b>RJ-150</b> Soldering Jig</p>
 <p><b>BP-4L</b></p> <p><b>Internal Battery BP-4L</b> Inserted under the back cover, this Li-Ion battery provides power in a lightweight package.</p>	 <p><b>Lead-free Solder Wire</b> Mandatory for lead-free products (Level 2 only).</p>	 <p><b>0772040</b> <b>NMP Standard Toolkit (V2)</b> For more informations refer to the Service Bulletin (SB-011) on NOKIA Online. Supplier or manufacturer contacts for tool re-order can be found in “<b>Recommended service equipment</b>” document on NOKIA Online.</p>

## 12.SW-UPDATE

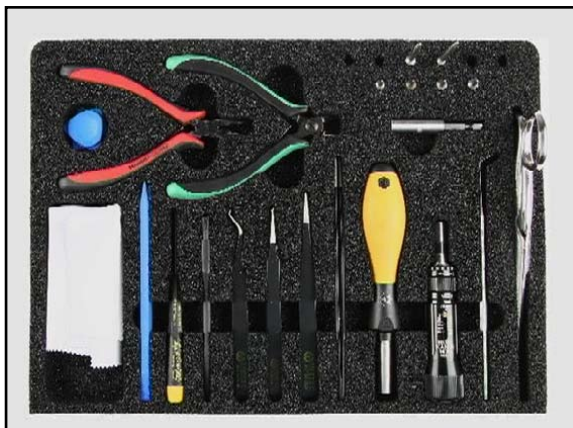
### Flash Concept – (Point of Sales)

To use FLS-5 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](#).





### 13. UPPER BLOCK DISASSEMBLY



1. You will need the Nokia Standard Toolkit version 2. Also refer the General Mechanical Guideline video for additional hints about the tools and component handling.



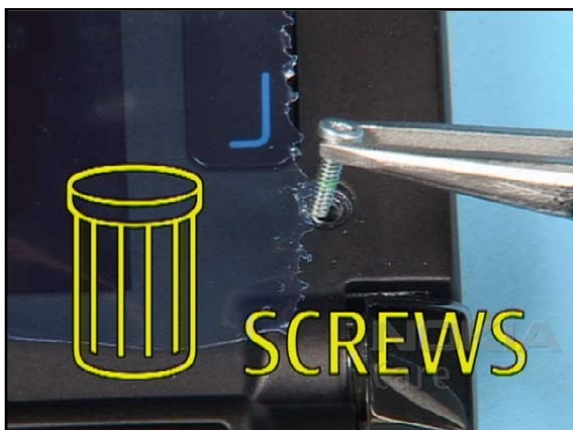
2. Open the assembly. Peel up the LOGO PLATE with the dental pick.



3. Discard the LOGO PLATE. Do not use it again when reassembling.



4. Unscrew the 3 Torx Plus size 4 screws in the order shown.



5. Discard these screws. Do not use them again when reassemble.



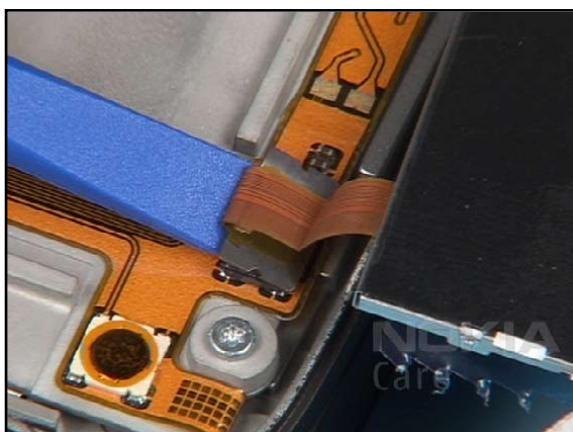
6. Close the assembly again. Lift up the A-COVER at the hinge side. Move it away from the hinge side. Now it can be removed easily.



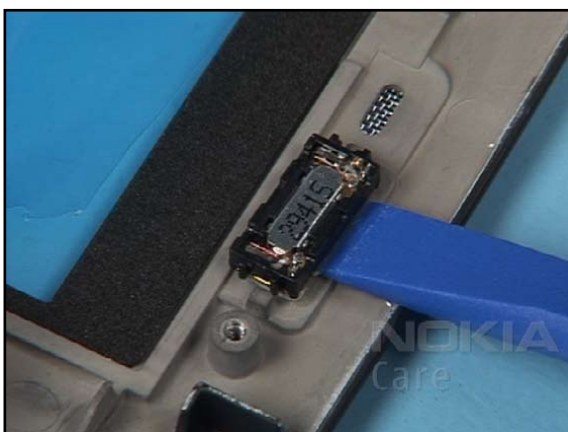
7. Remove the CMT KEYMAT.



8. Lift up the LCD AM.



9. Carefully open the flex connector of the display with the SS-93.



10. Ease out the glued in EARPIECE with the SS-93.

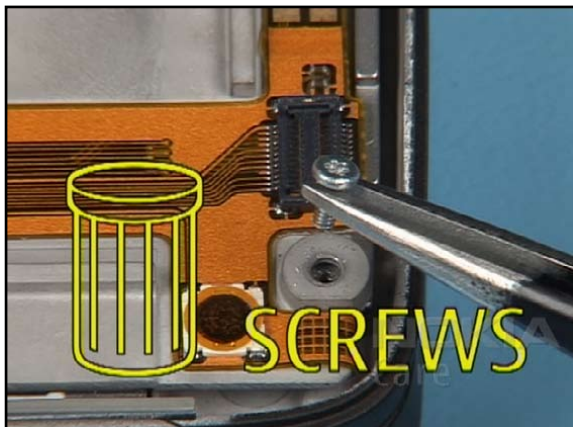


11. Discard it, do not use this part again when reassemble.



12. Unscrew these 2 Torx Plus size 4 screws.





13. Discard them. Do not use them again.



14. Gently lever up the flex connector of the LCD AM 800x352.



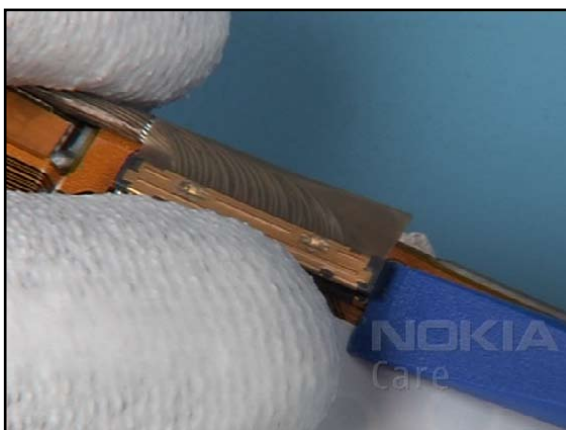
15. Open the assembly. Lift up the C-COVER, beginning at the QWERTY KEYMAT side.



16. It is important to protect the surface with a piece of cloth before continuing. Flip over both parts of the hinge.

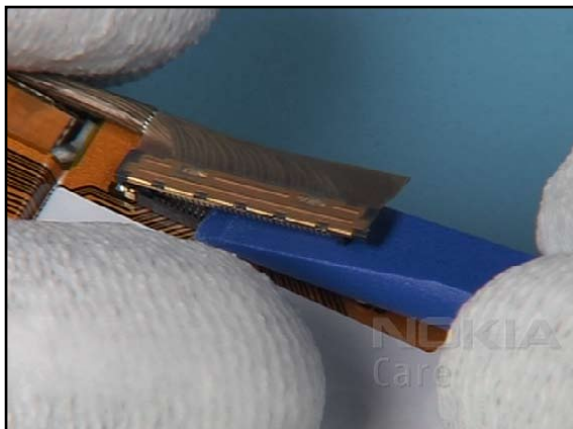


17. Now turn the CHASSIS ASSEMBLY.



18. Be double carefully while opening these 2 MICROCOAX HARNESS connectors.





19. It is very important not to bend these connectors while opening. Otherwise the connectors become unusable.



20. Now the CHASSIS ASSEMBLY can be removed.



21. The disassembly procedure is now complete.

## 14. UPPER BLOCK ASSEMBLY



1. Assembly.



2. Bring the hinge parts in the position shown.



3. Fit the C-COVER. Note the correct alignment to the mounting parts of the hinge.



4. Flip over the C-COVER ASSEMBLY together with the mounting parts of the hinge.



5. Now place the CHASSIS ASSEMBLY.



6. Close both MICROCOAX HARNESS connector. Check for correct fitting of the connectors before going on.



7. Close the LCD connector.



8. Use the short ones of the screws.



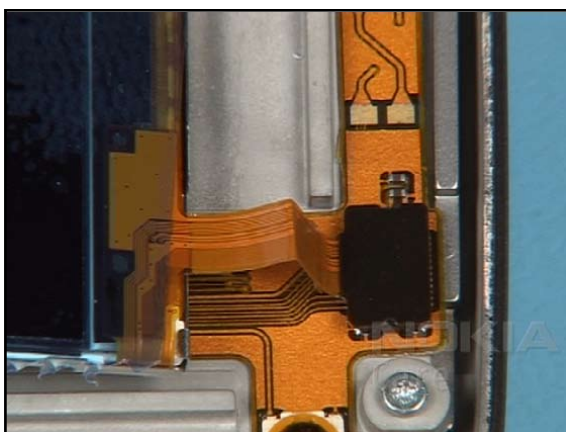
9. Insert the two screws.



10. Set the correct torque.

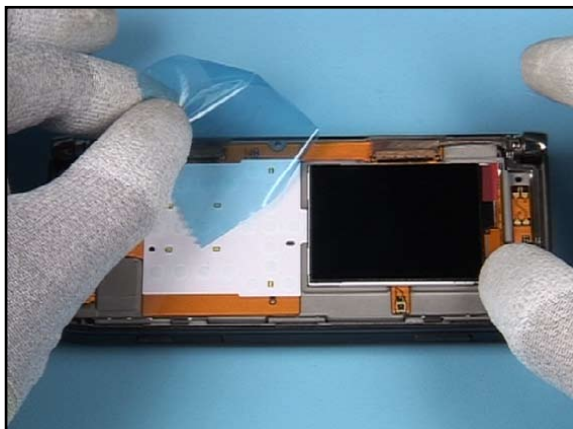


11. Apply the torque to the screws in the shown order.



12. Place the LCD AM 240x320. Close the flex foil connector.





13. Touch the LCD at the shown edge only. Otherwise the delicate driver of the display will be damaged and becomes unusable.



14. Place the CMT KEYMAT.



15. Place the new EARPICCE into the A-COVER ASSEMBLY.



16. Carefully push it down at the plastic frame with the SS-93 as shown. Never push at the metal capsule, otherwise it will be impressed and the IHF SPEAKER becomes unusable.



17. Place the A-COVER ASSEMBLY, beginning at the opposite side of the hinge.



18. Do not mismatch these screws. Place this short screw...



19. ...in the middle...



20. ...and these longer ones...



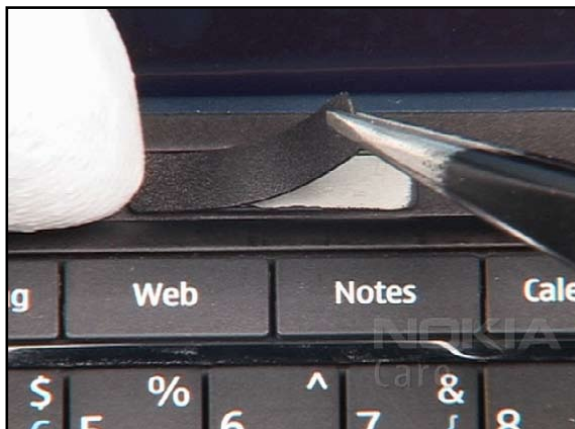
21. ...at both edges of the A-COVER ASSEMBLY.



22. Set the correct torque.



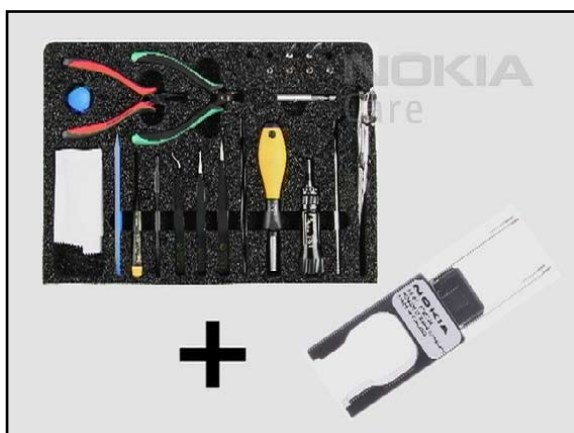
23. Apply the correct torque in the order shown.



24. Align the new LOGO PLATE first. Then smooth it down evenly.



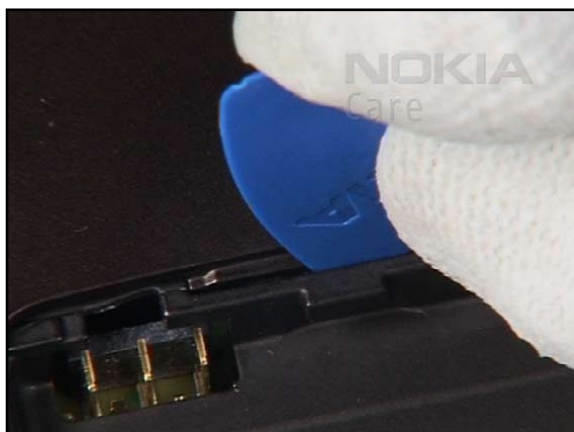
## 15. LOWER BLOCK DISASSEMBLY



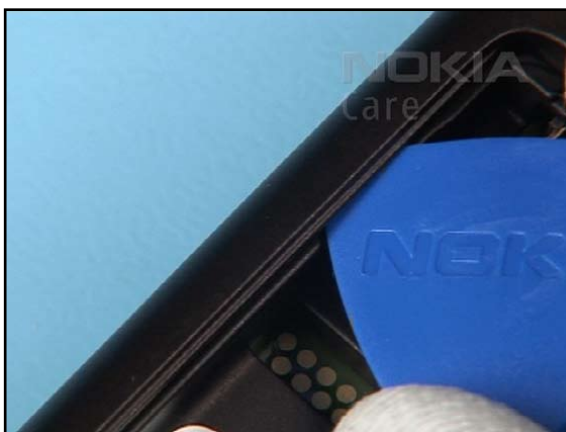
1. You will need the Nokia Standard Toolkit version 2 and the SS-81 camera removal tool. Also refer to the General Mechanical Guideline video for additional hints about the tools and component handling.



2. Remove the BATTERY COVER.



3. Release this clip of the ANTENNA COVER with the SRT-6 first.



4. Now release the two clips on the side of the assembly.



5. Release the clip located on the edge.



6. Now the ANTENNA COVER can be removed easily.





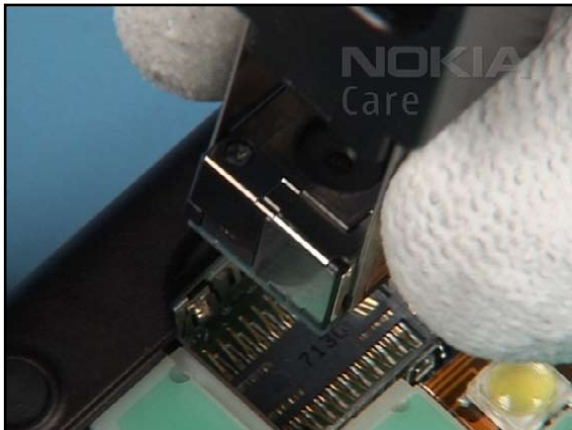
7. Pull up the FLASH GASKET.



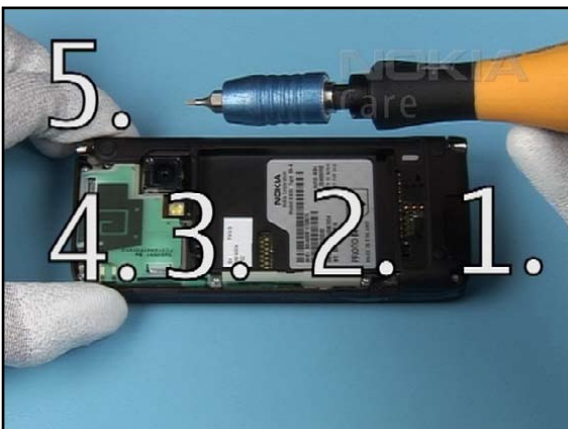
8. Insert the SS-81 into the housing of the CAMERA MODULE. Note the correct positioning of the tool.



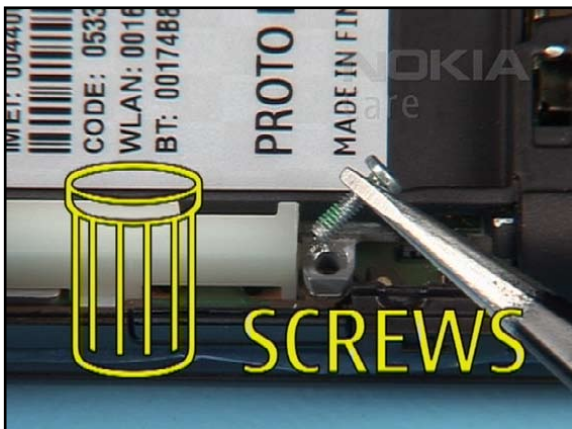
9. Gently push it down. The clips of the housing are released now.



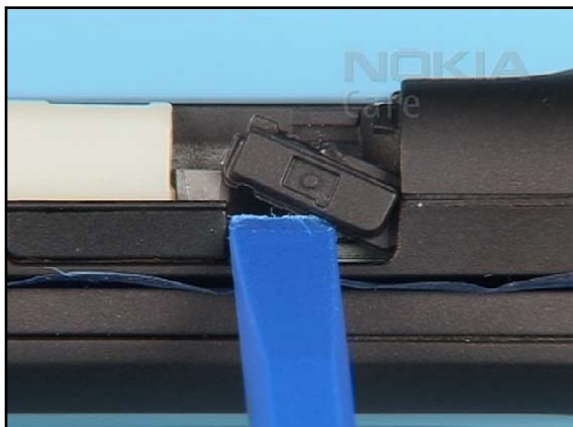
10. Lift out the CAMERA MODULE now.



11. Unscrew these 5 TORX PLUS size 4 screws in the order shown.



12. Discard the screws. Do not use them again when reassembling.



13. Lever out the CAMERA BUTTON...



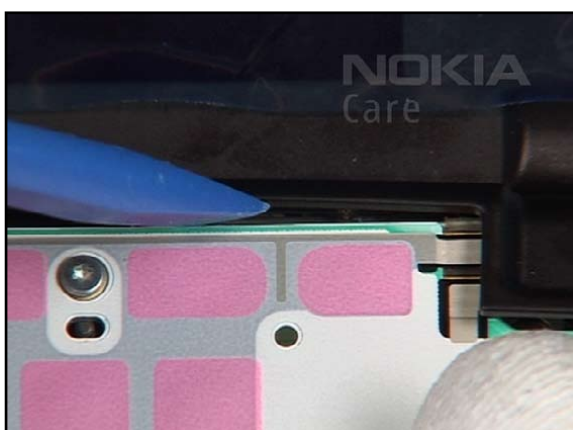
14. ...and the PUSH TO TALK BUTTON.



15. Open the assembly and lift the QWERTY COVER.



16. It is possible to remove the QWERTY KEYMAT without unlocking the QWERTY COVER.



17. Carefully release the hidden clips of the QWERTY COVER, located on the right side...



18. ...on the middle near the LOGO PLATE...





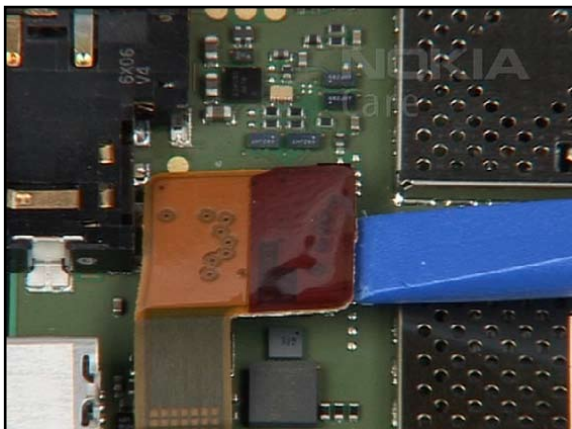
19. ...and on the left side near the hinge. After that, the QWERTY COVER can be removed easily.



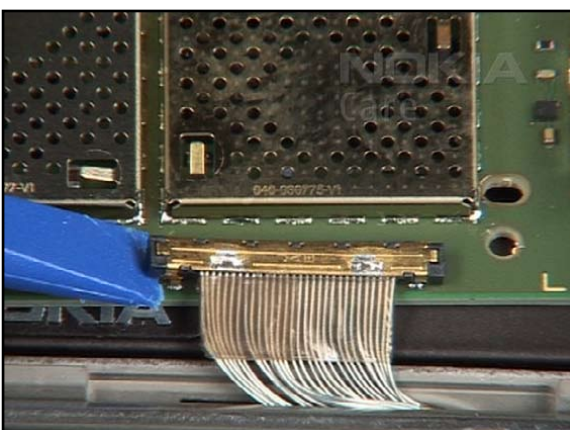
20. Unscrew these 4 Torx Plus size 4 screws in the order shown.



21. Also discard these screws. Do not use them again.



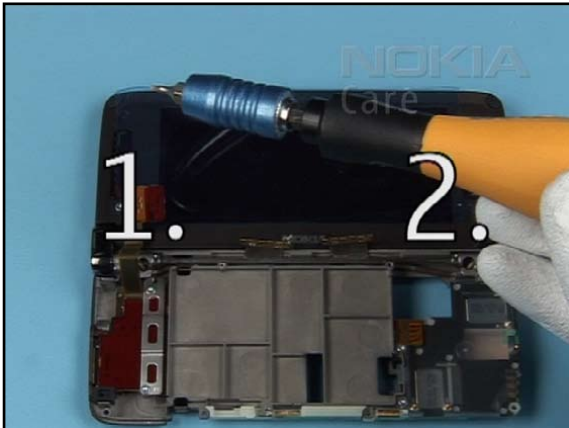
22. Mind the hidden components underneath when opening the flex foil connector.



23. The MICROCOAX HARNESS connectors are very delicate. Be double careful when releasing these 2 connectors.



24. The ENGINE MODULE can be removed now.



25. Unscrew this 2 Torx Plus size 4 hinge screws.



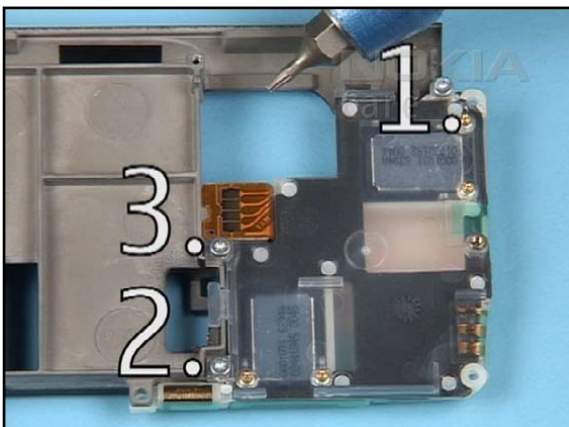
26. Discard them. Do not use them again when reassemble.



27. The upper assembly can be removed now.



28. The WLAN ANTENNA MODULE can be removed.

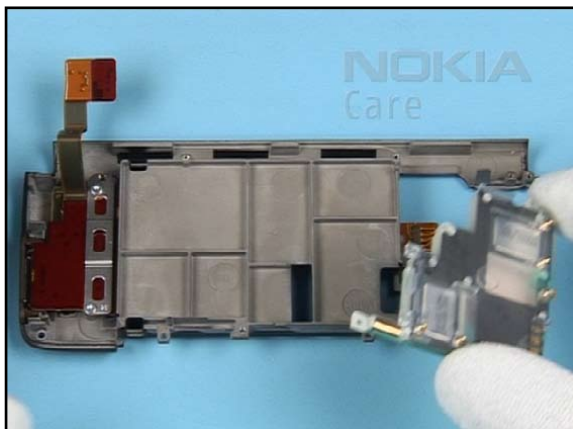


29. Unscrew these 3 Torx Plus size 4 screws in the shown order.



30. Discard them, do not use them again.





31. Remove the ANTENNA/IHF MODULE.



32. The disassembly of the lower block is now complete.

## 16. LOWER BLOCK ASSEMBLY



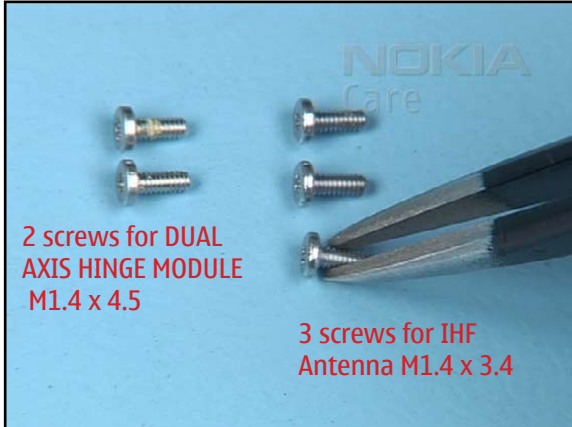
1. Assembly.



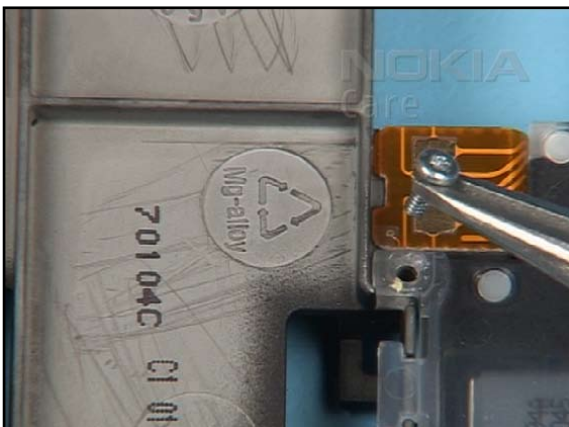
2. Note that the FLASH MODULE is very delicate and becomes useless in consequence of mechanical stress.



3. Replace the ANTENNA/IHF MODULE.



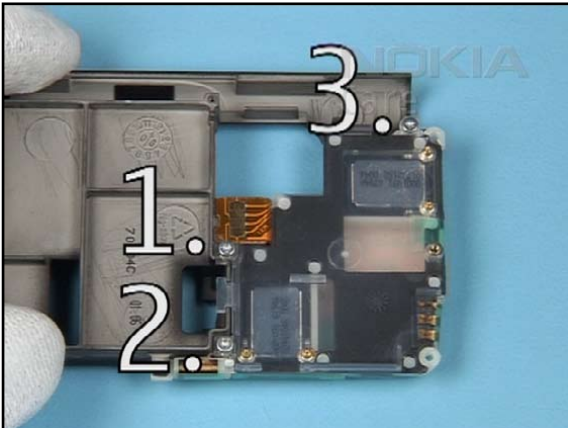
4. First take the 3 new screws 1.4M x 3.4 ...



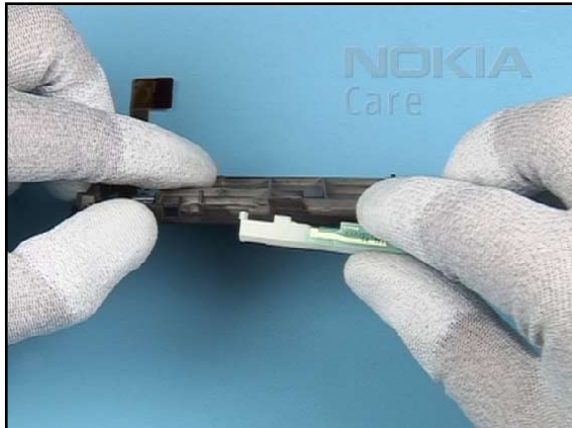
5. ...and place them.



6. Set the correct torque.



7. Apply the correct torque to the screws in the order shown.



8. Replace the WLAN-ANTENNA MODULE.



9. Replace the upper assembly. Mind the correct positioning of the cables.



10. Note: False placement will destroy the delicate MICROCOAX cables.



11. Insert the 2 hinge screws. **Note! Use the correct length - M1.4 x 4.5**

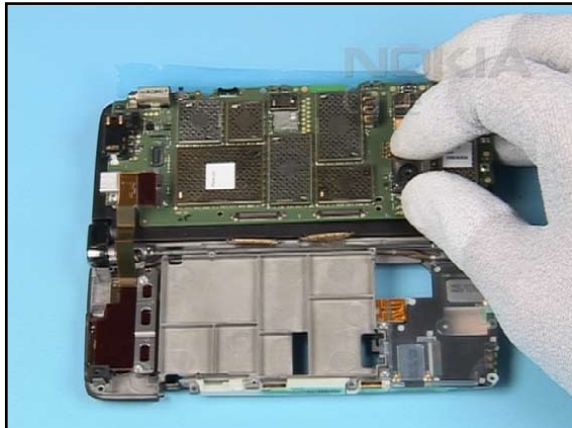


12. Set the correct torque.

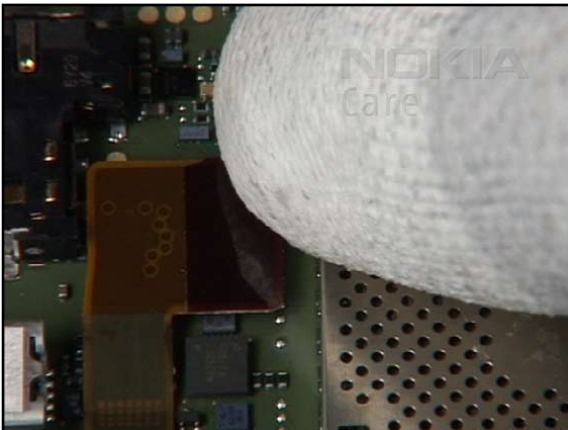




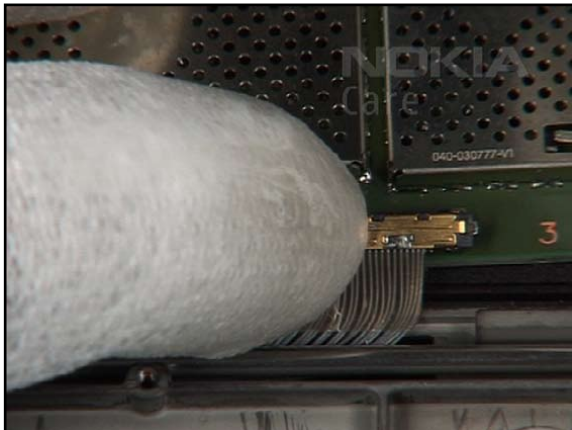
13. Apply the torque to both screws.



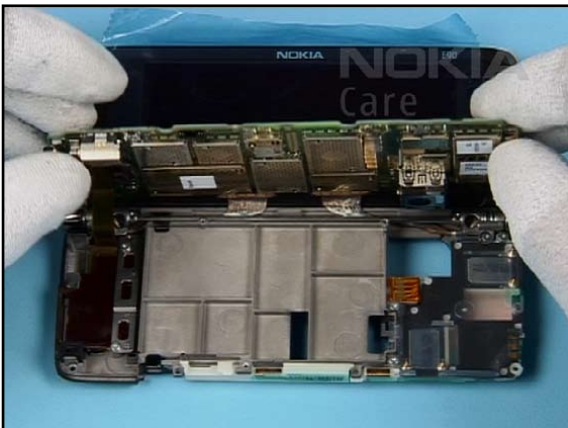
14. Place the ENGINE MODULE over the protected display of the upper part.



15. Close the flex foil connector.



16. Be double accurate while closing this 2 MICROCOAX HARNESS connectors.



17. Flip over the ENGINE MODULE.



18. Check the correct placement of the cables before going on.



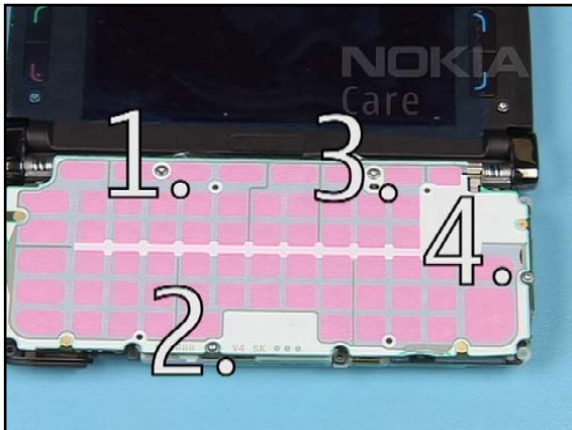
19. Take these 4 screws...



20. ...and place them into their recesses.



21. Set the correct torque.



22. Apply the torque to these screws in the order shown.



23. Replace the QWERTY COVER, beginning on the left side, where the connectors are located.



24. Close the clips, check that no cables will be squeezed, otherwise the DUAL AXIS HINGE MODULE becomes unusable.





19. Insert the QWERTY KEYMAT.



20. Mind the correct positioning of the key mat before going on.



21. Click the snaps into their places.



22. Replace the CAMERA BUTTON...



23. ...and the PUSH TO TALK BUTTON.



24. Take these 5 new screws.

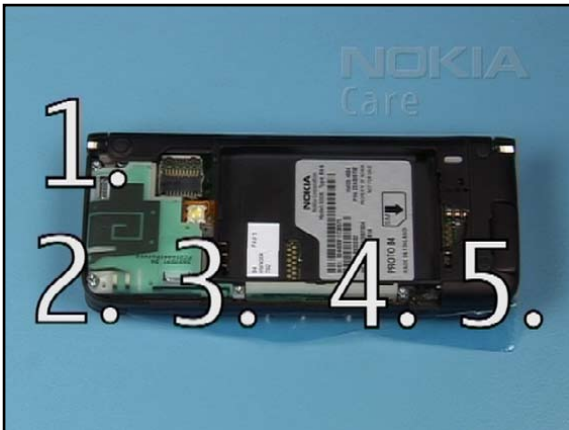




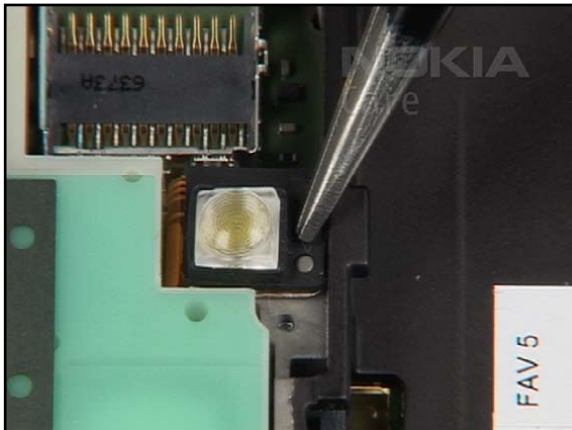
25. Place them into their threads.



26. Set the correct torque.



27. Apply the torque to the screws in the shown order.



28. Replace the FLASH GASKET.



29. Mind the alignment tab while replacing the CAMERA MODULE.



30. Push it into its housing evenly.



31. Mind the cleanness of the camera and window when replacing the ANTENNA COVER, beginning at the hinge side.



32. Close this clip first...



33. ...then the clip on the edge...



34. ...followed by the 2 snaps at this side.













35. The last clip is located close to the CAMERA BUTTON. Click it into its place slightly.



36. Replace the BATTERY COVER.




## 17.LEGEND FOR QUICK TROUBLE SHOOTER

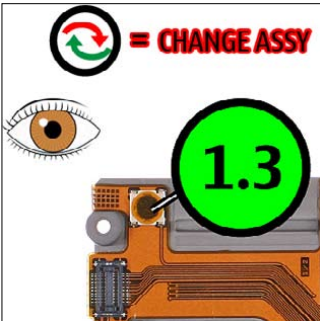
Legend for Quick Trouble Shooter	
This legend is valid for all parts of the Quick Trouble Shooter	
Follow the steps until the problem is solved. If this doesn't help, you are not authorized to go forward.	
	Check the mechanical condition of the component (bent, broken or missing).
	Only marked components can be replaced. If additionally " <b>=CHANGE ASSY</b> " appears, then change the whole assembly (e.g. A4=D-COVER ASSEMBLY).
	<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 contacts for optical and mechanical condition particularly regarding to corrosion. Clean it if necessary.</p> 
	<p>Explanation</p> <div style="border: 1px solid red; padding: 5px;">  <p><b>Symtom (3)</b></p> <p>Zoom position (Note! First zoom starts with 1.2)</p> <p>Fault name</p> <p>Count of fault positions</p> </div>



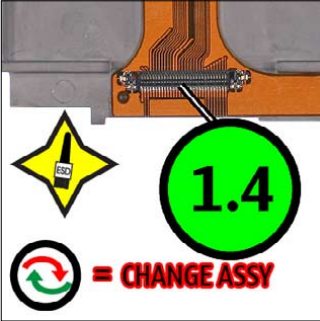
## 18. QUICK TROUBLE SHOOTER - POWER ON




**1.2**



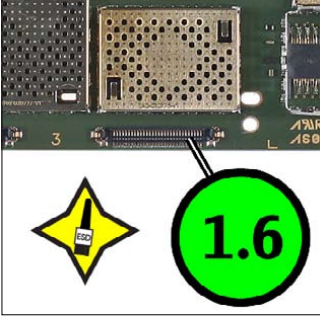
**1.3**



**1.4**



**1.5**



**1.6**

Explanation


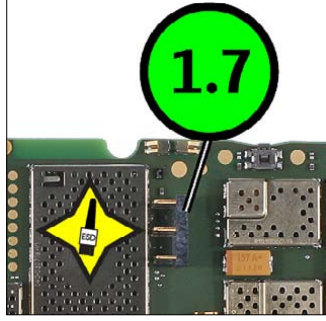
**1.1 Symtom (3)**

Zoom position (Note! First zoom starts with 1.2)

Fault name

Count of fault positions

1.1 POWER ON (6)

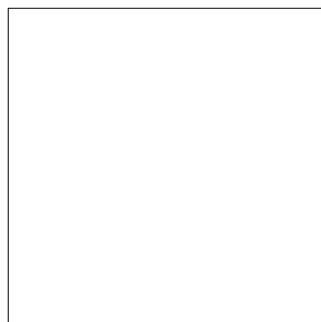
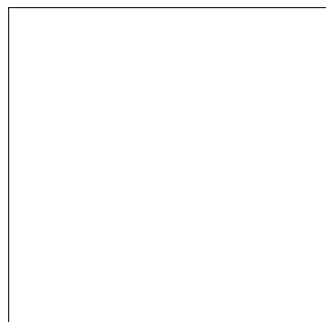
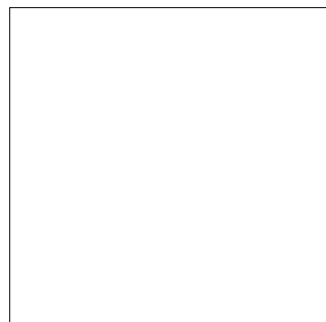
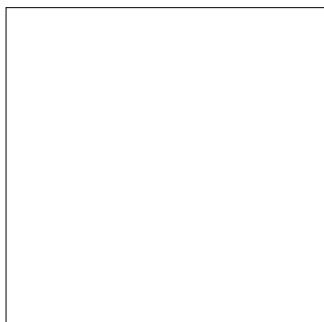
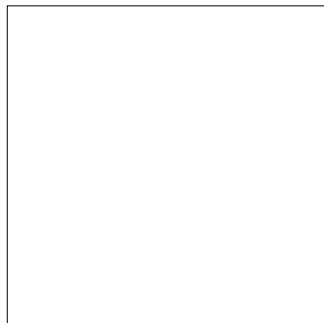
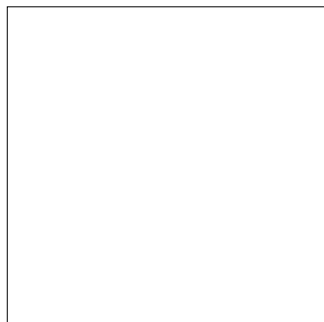
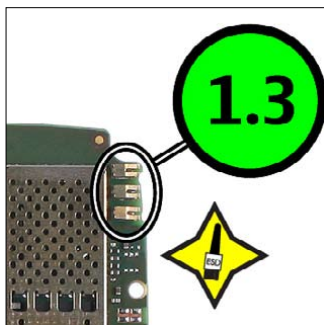



**1.7**

## 19. QUICK TROUBLE SHOOTER - CHARGING

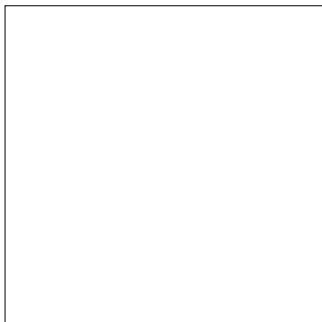
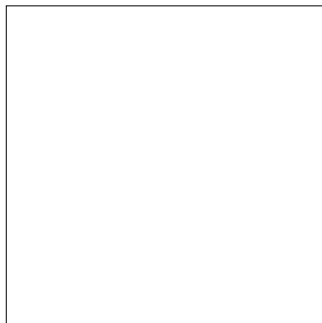
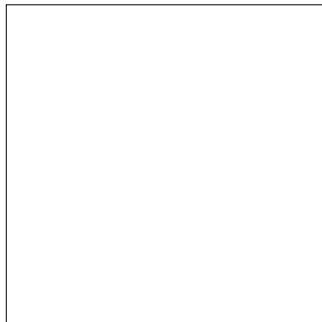
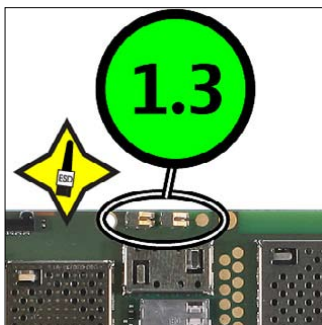
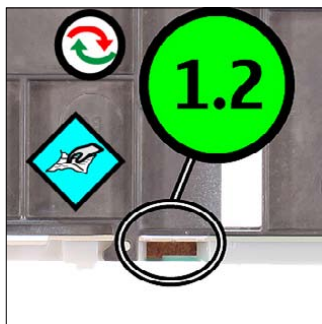
		<p>Explanation</p> <p><b>1.1 Symtom (3)</b></p> <p>Zoom position (Note! First zoom starts with 1.2)</p> <p>Fault name</p> <p>Count of fault positions</p>	
		<p><b>1.1 CHARGING (3)</b></p>	
			
			

## 20. QUICK TROUBLE SHOOTER - NO SERVICE





## 21. QUICK TROUBLE SHOOTER - WLAN/BLUETOOTH



## 22. QUICK TROUBLE SHOOTER - GPS





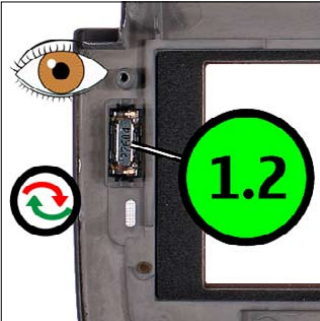
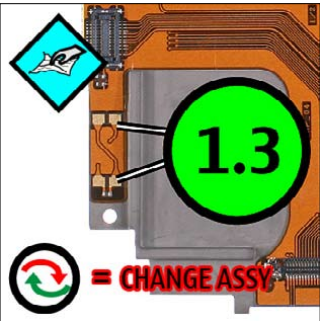
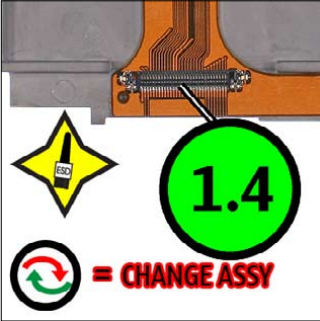

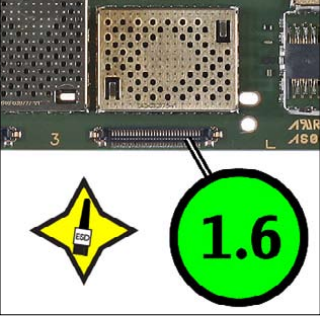

Explanation

1.1	Symtom (3)	Fault name	Count of fault positions
Zoom position (Note! First zoom starts with 1.2)			

1.1

**GPS (2)**

## 23. QUICK TROUBLE SHOOTER - EARPIECE








Explanation

1.1 Symptom (3)	Fault name	Count of fault positions
Zoom position (Note! First zoom starts with 1.2)		

1.1

EARPIECE (5)





## 24. QUICK TROUBLE SHOOTER - IHF SPEAKER



**1.2**



**1.3**



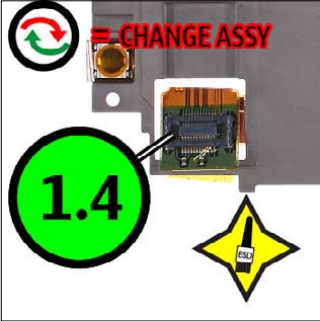

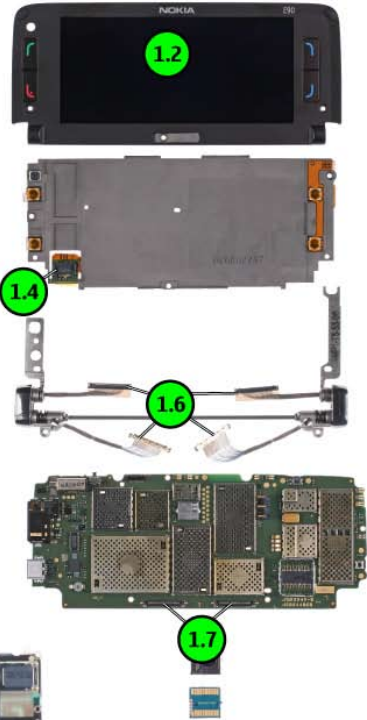
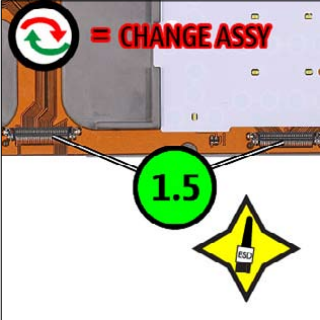
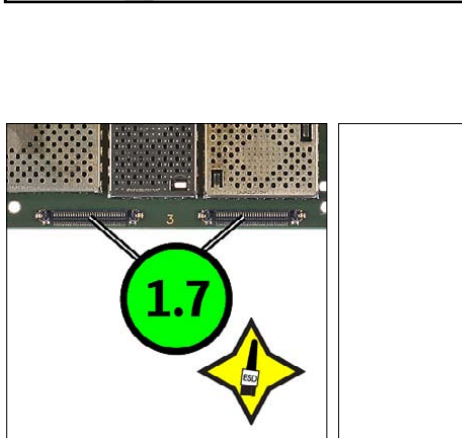
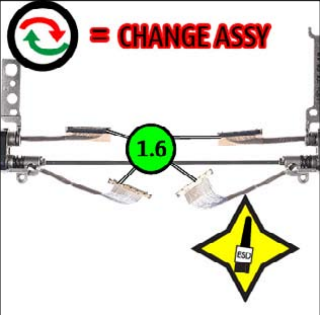
Explanation

<p><b>1.1</b> Symtom (3)</p> <p>Zoom position (Note! First zoom starts with 1.2)</p>	<p>Fault name</p>	<p>Count of fault positions</p>
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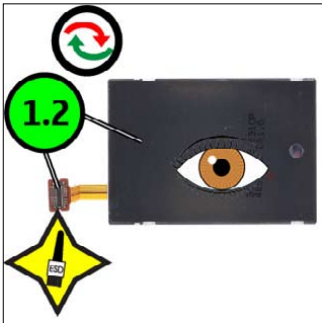
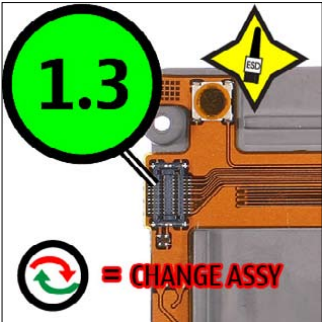

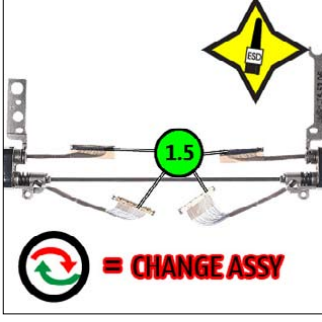
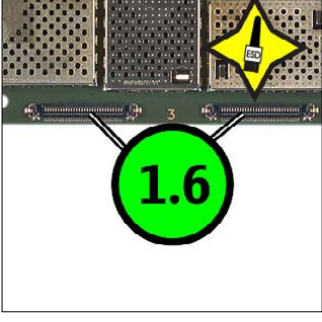
1.1 IHF SPEAKER (2)




## 25. QUICK TROUBLE SHOOTER - DISPLAY

		Explanation	
		1.1 Symtom (3)	Count of fault positions
 <p>1.2</p>	 <p>1.3</p>	<p>Zoom position (Note! First zoom starts with 1.2)</p> <p><b>LCD AM</b> <b>800x352 (6)</b></p>	
 <p>1.4</p> <p>= CHANGE ASSY</p>	 <p>1.5</p>	 <p>1.6</p>	
 <p>1.5</p> <p>= CHANGE ASSY</p>	 <p>1.7</p>		
 <p>1.6</p> <p>= CHANGE ASSY</p>			

## 26. QUICK TROUBLE SHOOTER - SUB DISPLAY



Explanation

1.1 Syptom (3)	Fault name	Count of fault positions
Zoom position (Note! First zoom starts with 1.2)		

**LCD AM**




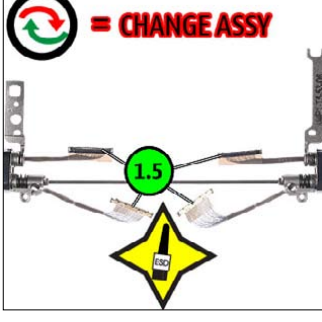
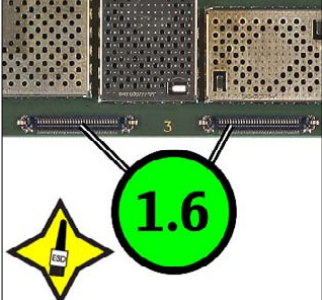
**320x240 (5)**



## 27. QUICK TROUBLE SHOOTER - MICROPHONE


 <p><b>1.2</b></p>	<div style="text-align: right;"> <p>Explanation</p> <table border="1"> <tr> <td><b>1.1</b></td> <td><b>Symtom (3)</b></td> </tr> <tr> <td>Zoom position (Note! First zoom starts with 1.2)</td> <td>Fault name Count of fault positions</td> </tr> </table> </div> <p><b>1.1 MICROPHONE (2)</b></p> 			<b>1.1</b>	<b>Symtom (3)</b>	Zoom position (Note! First zoom starts with 1.2)	Fault name Count of fault positions
<b>1.1</b>	<b>Symtom (3)</b>						
Zoom position (Note! First zoom starts with 1.2)	Fault name Count of fault positions						
 <p><b>1.3</b></p> <p> = CHANGE ASSY</p>							


## 28. QUICK TROUBLE SHOOTER - CMT KEYMAT

Explanation

1.1	Symtom (3)	Count of fault positions
Zoom position (Note! First zoom starts with 1.2)	Fault name	




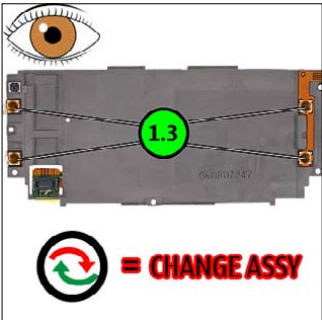
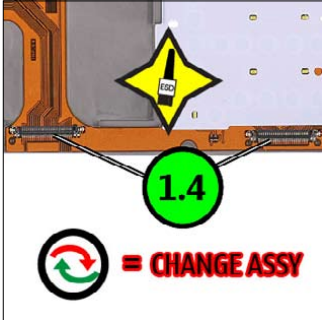
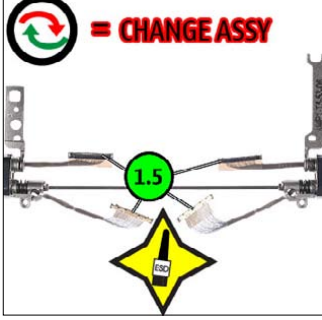
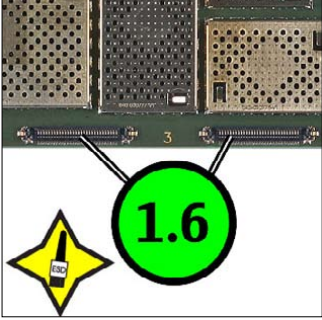



## 29. QUICK TROUBLE SHOOTER - QWERTY KEYMAT

	<div style="text-align: right;"> <p>Explanation</p> <p><b>1.1 Symtom (3)</b></p> <p>Zoom position (Note! First zoom starts with 1.2)</p> <p>Fault name</p> <p>Count of fault positions</p> </div> <div style="text-align: center;"> <p><b>1.1 QWERTY KEYMAT (2)</b></p> </div> 		
			



## 30. QUICK TROUBLE SHOOTER - SEND/END/SOFT KEYS



Explanation

**1.1 Symtom (3)**

Zoom position (Note! First zoom starts with 1.2)

Fault name

Count of fault positions

1.1 SEND/END/  
SOFT KEYS (5)

## 31. QUICK TROUBLE SHOOTER - PUSH TO TALK KEY





Explanation

**1.1** Symptom (3)

Zoom position  
(Note! First zoom starts with **1.2**)

Fault name

Count of fault positions

**1.1** **PUSH TO TALK (1)**

## 32. QUICK TROUBLE SHOOTER - CAMERA KEY





Explanation

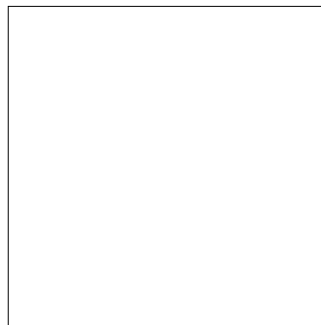
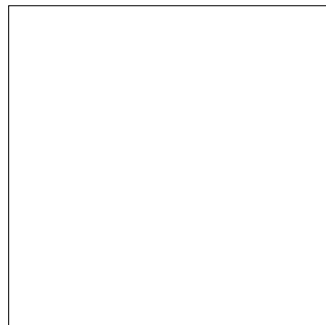
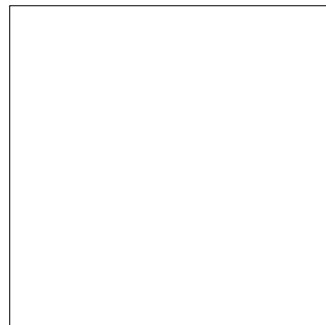
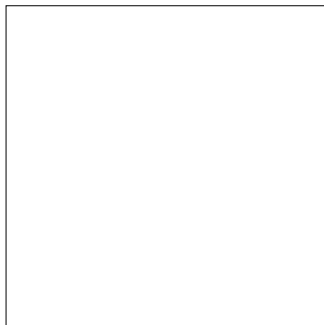
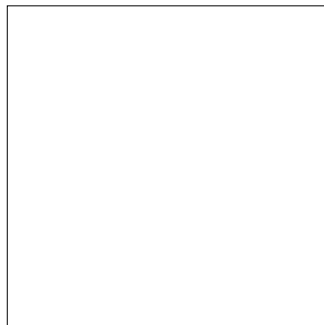
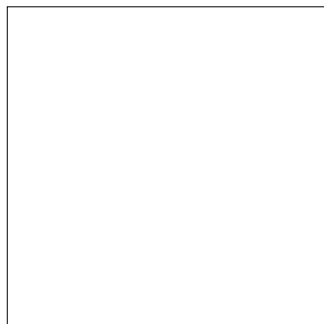
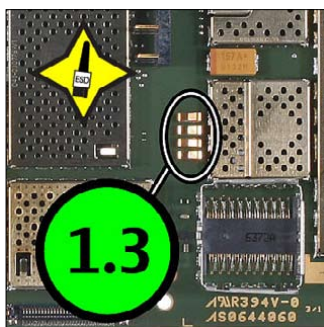
<div style="background-color: green; color: white; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">1.1</div> <p style="margin: 0;">Zoom position (Note! First zoom starts with <span style="background-color: green; color: white; border-radius: 50%; width: 15px; height: 15px; display: flex; align-items: center; justify-content: center;">1.2</span>)</p>	<p style="margin: 0;"><b>Symtom (3)</b></p>	<p style="margin: 0;">Fault name</p>	<p style="margin: 0;">Count of fault positions</p>
--	---	--------------------------------------	--

1.1



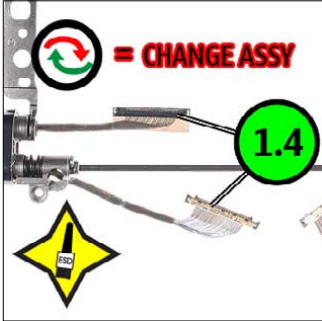
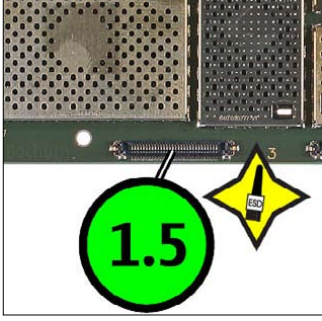
### CAMERA KEY (1)



### 33. QUICK TROUBLE SHOOTER - FLASH LIGHT



## 34. QUICK TROUBLE SHOOTER - SUB CAMERA

 <p><b>1.2</b></p> <p>= CHANGE ASSY</p>	<div style="text-align: right;"> <p>Explanation</p> <p><b>1.1 Symtom (3)</b></p> <p>Zoom position (Note! First zoom starts with 1.2)</p> <p>Fault name</p> <p>Count of fault positions</p> </div> <p><b>1.1 SUB CAMERA (4)</b></p> 		
 <p><b>1.3</b></p> <p>= CHANGE ASSY</p>			
 <p><b>1.4</b></p> <p>= CHANGE ASSY</p>			
 <p><b>1.5</b></p> <p>= CHANGE ASSY</p>			

## 35. QUICK TROUBLE SHOOTER - CAMERA

 <p>1.2</p>	<div style="text-align: right;"> <p>Explanation</p> <p><b>1.1 Symptom (3)</b></p> <p>Zoom position (Note! First zoom starts with 1.2)</p> <p>Fault name</p> <p>Count of fault positions</p> </div> <p><b>1.1 CAMERA (2)</b></p>  <p>1.2</p> <p>1.3</p>		
 <p>1.3</p>			