

SERVICE MANUAL Level 1&2

NOKIA N78

RM-235

RM-236

RM-342



Transceiver characteristics:

Band:

RM-235: -EGSM: Qud-band 850/900/1800/1900MHz

-WCDMA: 900/2100MHz

RM-236: -EGSM: Qud-band 850/900/1800/1900MHz

-WCDMA: -----

RM-342: -EGSM: Qud-band 850/900/1800/1900MHz

-WCDMA: 850/1900MHz

Display:

LCD: 6,096cm QVGA (2.4") (240x320 pixel); 16M colors

Camera:

Main Camera: 3.2 Megapixel (2048x1536)

Secondary Camera: CIF (352x288)

Operating System:

Series 60

Connections:

Wireless: Bluetooth, WLAN (only RM-235 & RM-342), A-GPS

Connector: Micro USB Connector; AV Connector

Memory:

MicroSD™

Transceiver with BL-6F Li-Ion battery pack

Talk time	Standby	Note
up to 4h	up to 13days	Depends on network parameters and phone settings

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1. CHANGE HISTORY

Status	Version No.	Date	Comments
Draft	0.1	04.Jan.2008	Initial draft
Approved	1.0	17.Apr.2008	Approved

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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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.

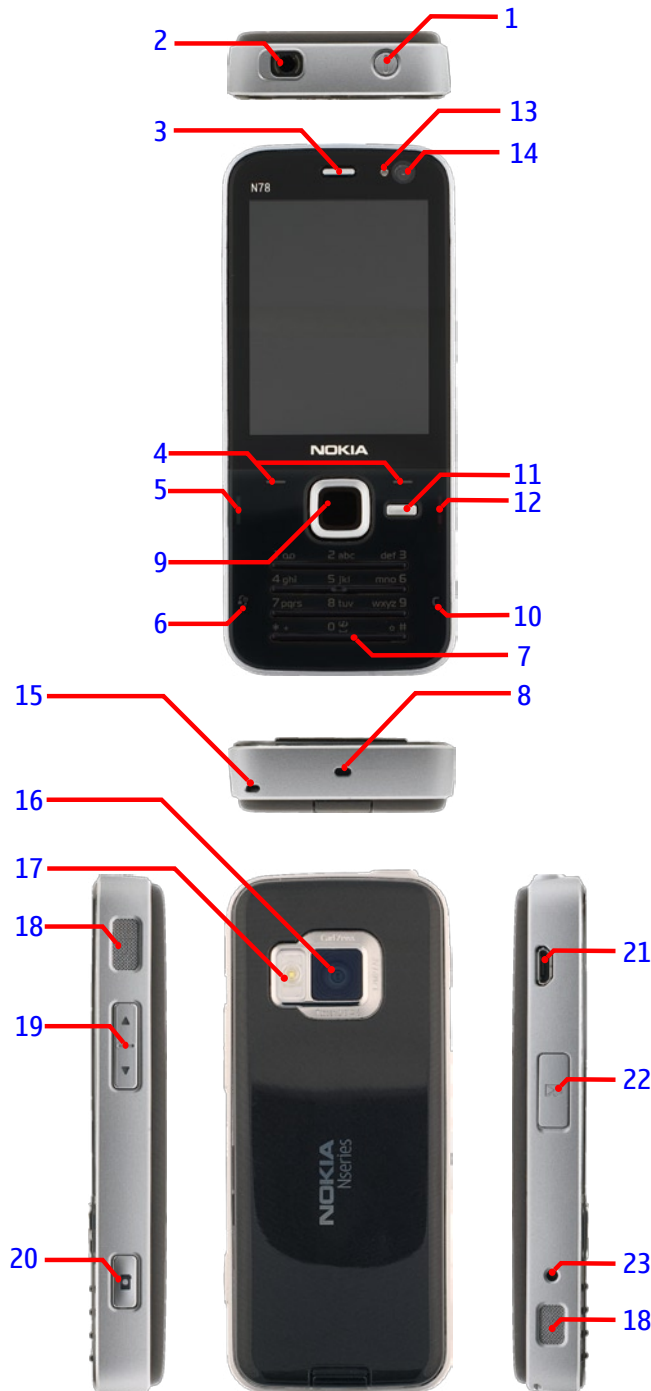
Do not short-circuit the battery. Accidental short-circuiting can occur when a metallic object (coin, clip or pen) causes direct connection of the + and - terminals of the battery (metal strips on the battery) for example when you carry a spare battery in your pocket or purse. Short-circuiting the terminals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

N78 RM-235/RM-236/RM-342 Product Controls & Interfaces



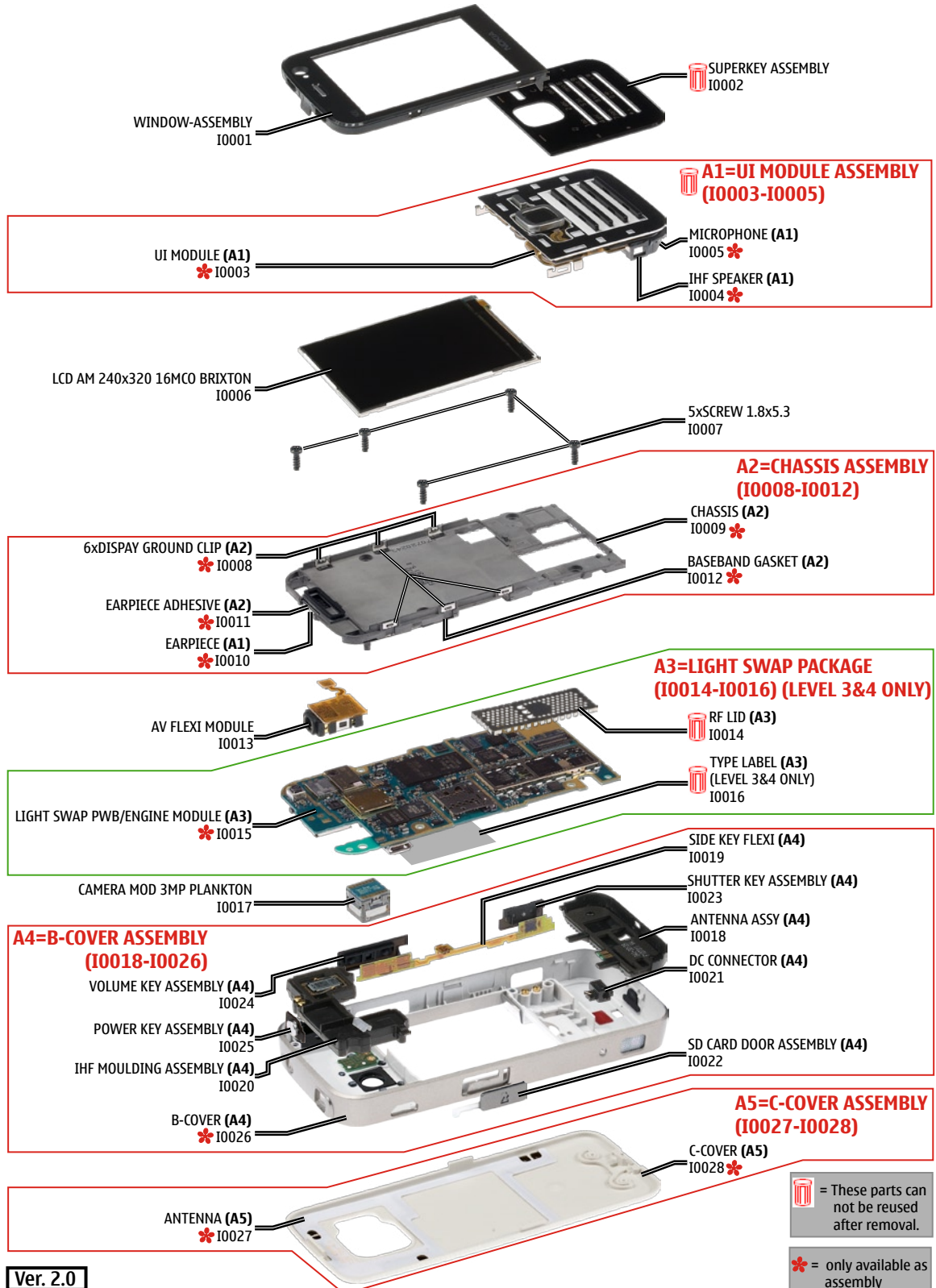
- 1 — Power key
- 2 — Nokia AV Connector (3.5 mm) for compatible headsets, and headphones
- 3 — Earpiece
- 4 — Selection keys
- 5 — Call key
- 6 — Menu key 
- 7 — Numeric keypad
- 8 — Microphone
- 9 — Navi™ wheel. Hereinafter referred to as the scroll key.
- 10 — Clear key c
- 11 — Multimedia key
- 12 — End key
- 13 — Light sensor
- 14 — Secondary camera
- 15 — Hole for a wrist strap
- 16 — Main camera for high resolution (up to 3.2Mpix) image capture and video recording
- 17 — LED flash
- 18 — Stereo speakers with 3D sound effect
- 19 — Zoom/Volume key
- 20 — 2-stage capture key for auto-focus, still image capture, and video recording
- 21 — Micro USB connector to connect to a compatible PC
- 22 — Memory card slot for a compatible microSD card
- 23 — Charger connector

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8. EXPLODED VIEW

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

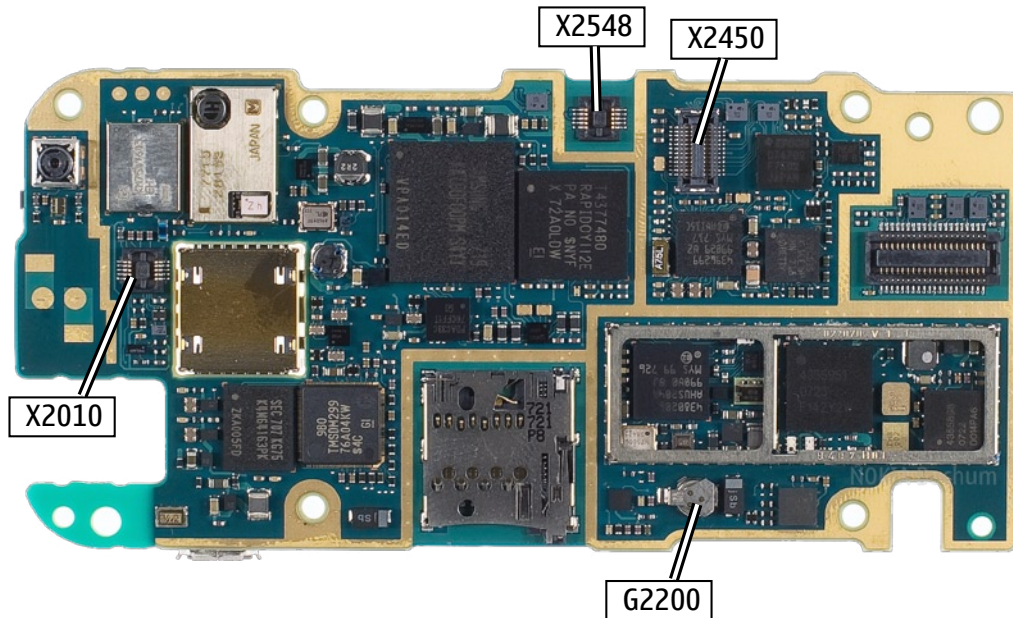
N78 RM-235/RM-236/RM-342 EXPLODED VIEW



9. LEVEL 2 SOLDER COMPONENTS

N78 RM-235/RM-236/RM-342 Components overview

Solder components only for LEVEL 2



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10. SERVICE DEVICES

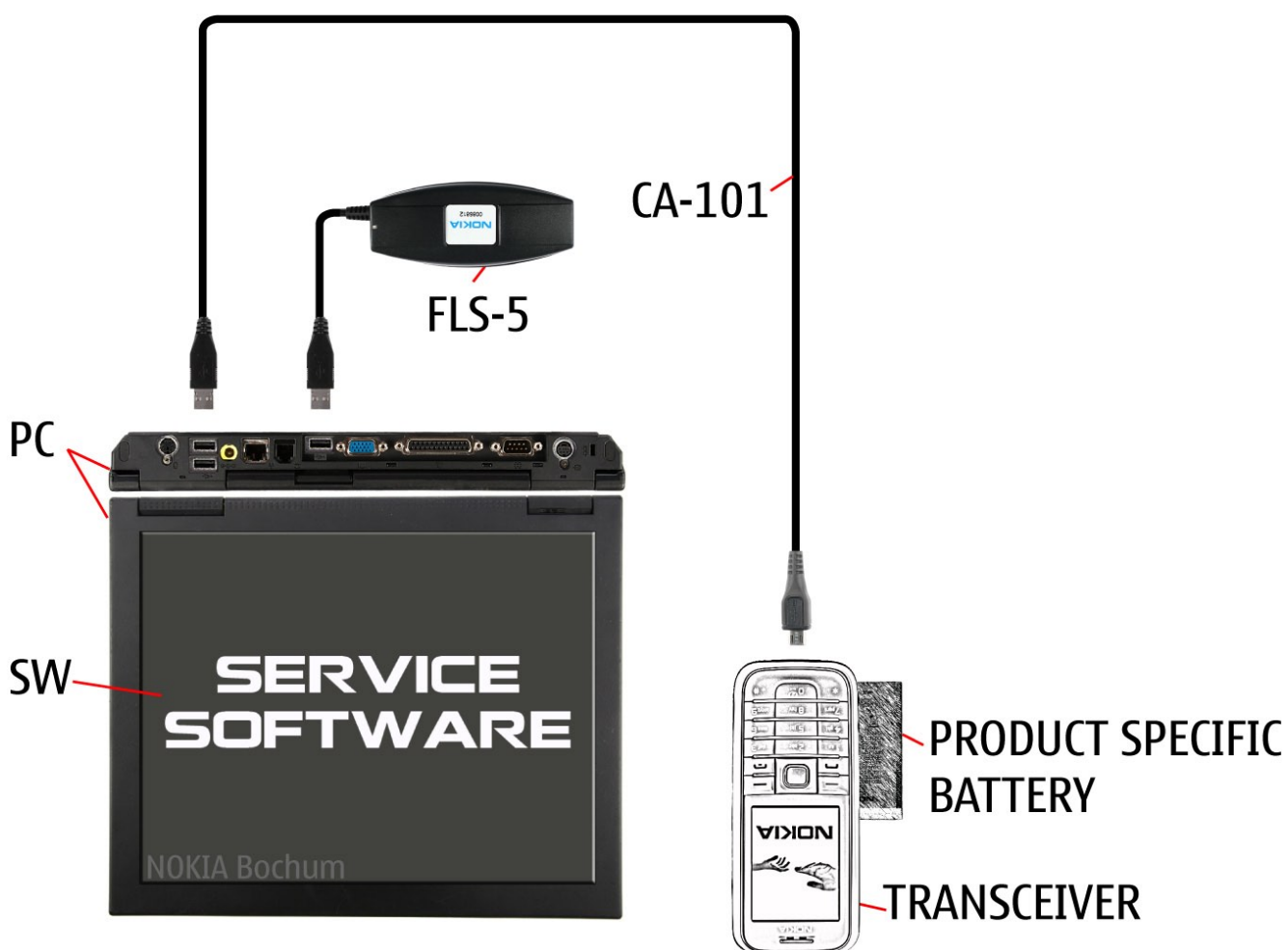
 <p>FLS-5</p> <p>FLS-5 incl. ACF-8, Driver and User Guide Dongle and flash device incorporated into one package, developed specifically for POS use.</p>	 <p>ACF-8 Universal Power Supply is used to power FLS-5.</p>	 <p>Travel Charger AC-4 Small and lightweight charger for fast charging of your phone battery.</p>
 <p>CA-101 100cm</p> <p>CA-101 Service Cable to connect the PC with the Micro USB connector.</p>	 <p>SS-100 Camera removal tool. One side is for disassembly, the other side for assembly.</p>	 <p>RJ-178 Soldering Jig</p>
 <p>RJ-230</p> <p>Order code: 0780264 RJ-230 Universal Soldering Jig.</p>	 <p>BL-6F Inserted under the back cover, this Li-Ion battery provides power in a lightweight package.</p>	 <p>Order code: 0772040 NMP Standard Toolkit (V2) 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 "Recommended service equipment" document on NOKIA Online.</p>

<p>SS-149</p>  <p>SS-149 Cover opening tool</p>	<p>SS-159</p>  <p>SS-159 Cover opening tool</p>	<p>SS-153</p>  <p>SS-153 Superkey assembly tool</p>
<p>SS-184</p>  <p>SS-184 Oval side: Cover opening tool.</p>		

11. 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](#).



12. DISASSEMBLY INSTRUCTION



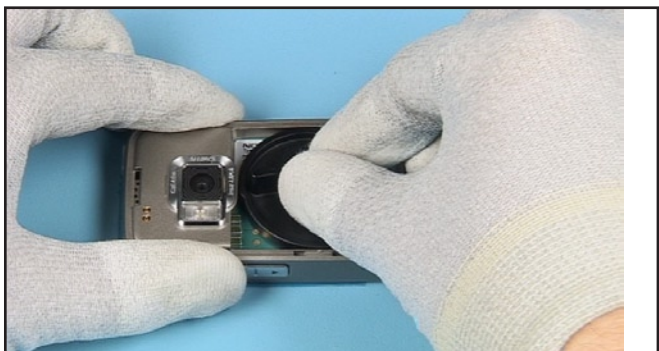
1. Nokia N78 Disassembly.



2. You will need the Nokia Standard Toolkit Version 2 and the SS-100, SS-184, SS-149 and the SS-159.



3. Open the C-COVER.



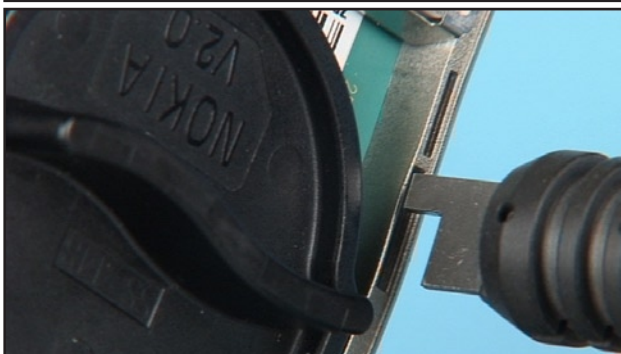
4. Insert the SS-148 - Opening Tool as shown.



5. Slightly turn it clockwise into the shown positioning.



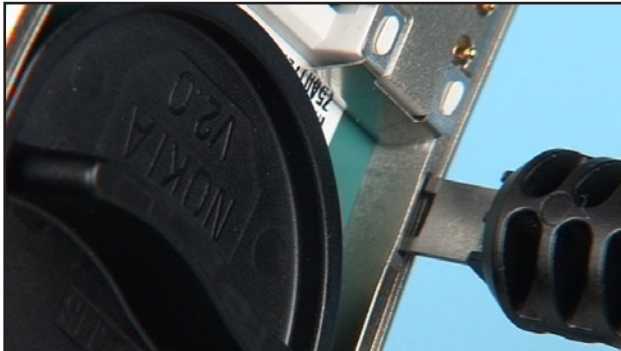
6. Start unlocking the clips of the WINDOW ASSEMBLY with the SS-159...



7....on both sides.



8. Insert the SS-149 Tool in order to unlock the clips of the UI MODULE ASSEMBLY...



9....also on the opposite side.



10. Gently pry open the clips of the WINDOW ASSEMBLY.



11. Also open the clips at the opposite side, too.



12. Gently lift up and remove the WINDOW ASSEMBLY.



13. Gently pry open the clips at the shown side.



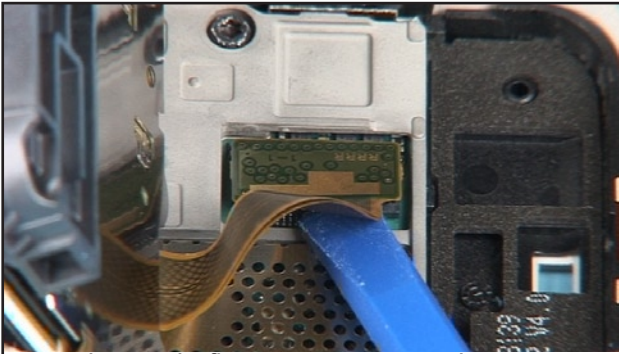
14. Push the UI MODULE ASSEMBLY sideways in order to reach a recess as shown.



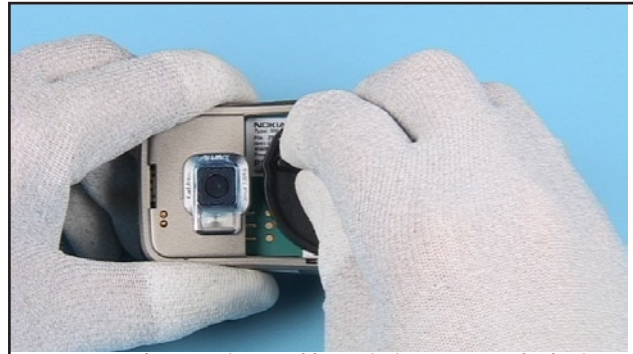
15. Insert the SS-93 into the recess and pry open the 2 clips.



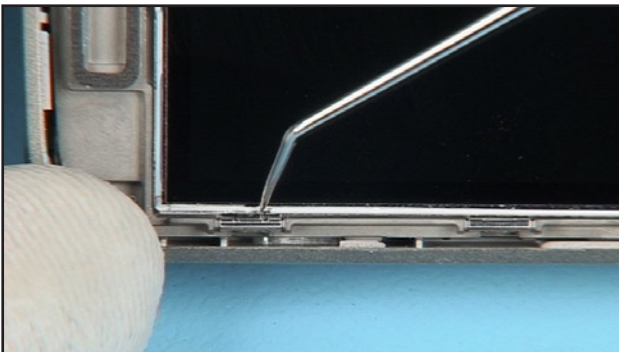
16. If the clips are released properly, the UI MODULE ASSEMBLY can be lifted up.



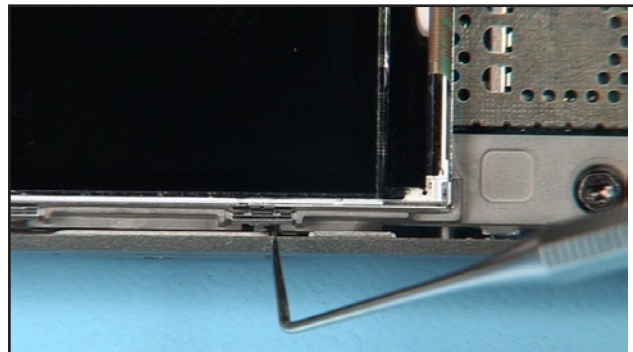
17. Gently open the flex connector. Remove the UI MODULE ASSEMBLY.



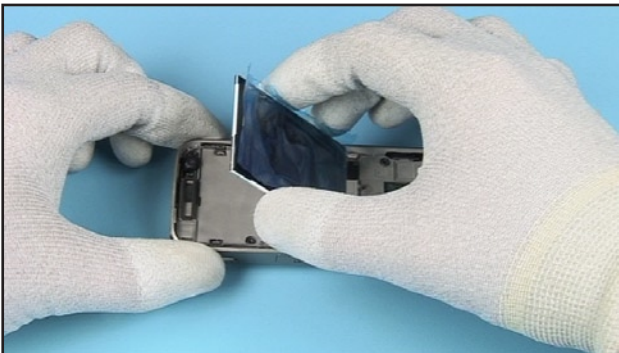
18. Remove the opening tool by twisting counterclockwise.



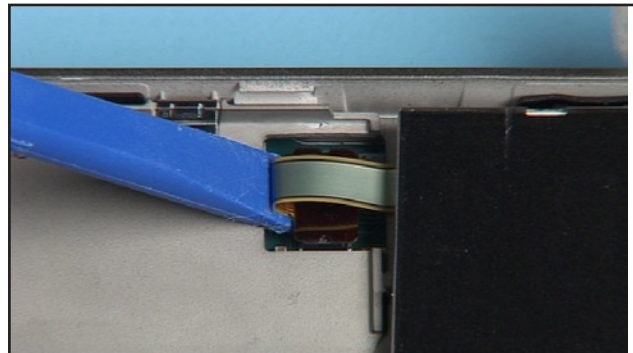
19. Insert the dental pick and lever open the clip at the upper...



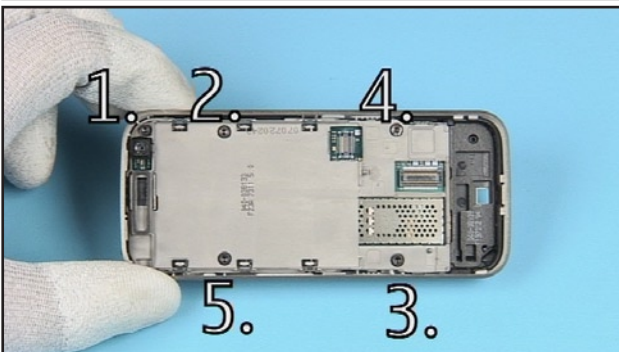
20....and lower corner of the LCD.



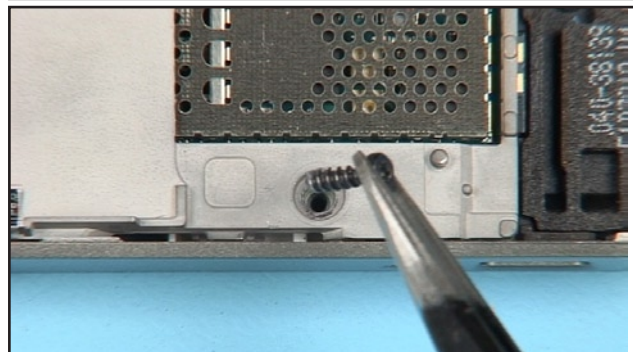
21. Lift up and flip over the LCD.



22. Lever open the LCD flex connector.



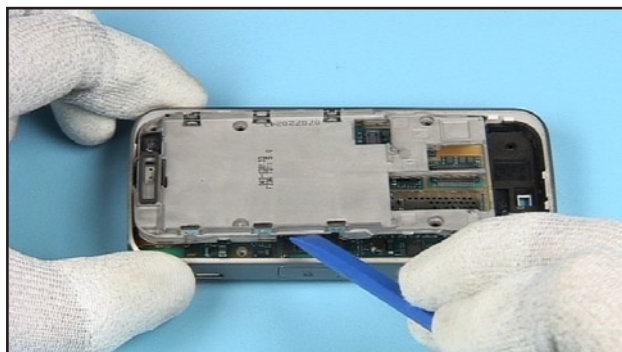
23. Unscrew these 5 Torx Plus size 6 screws in the order shown.



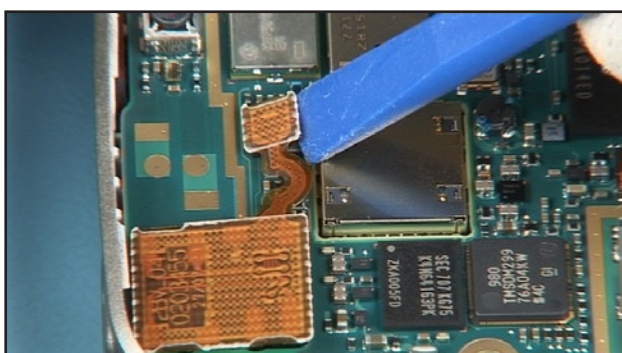
24. Remove these screws before continuing.



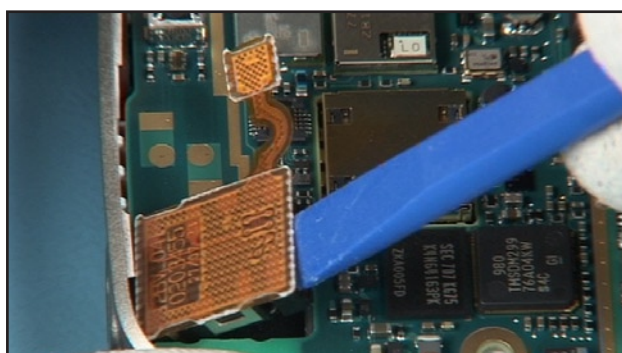
25. Gently pry open the clips of the cover.



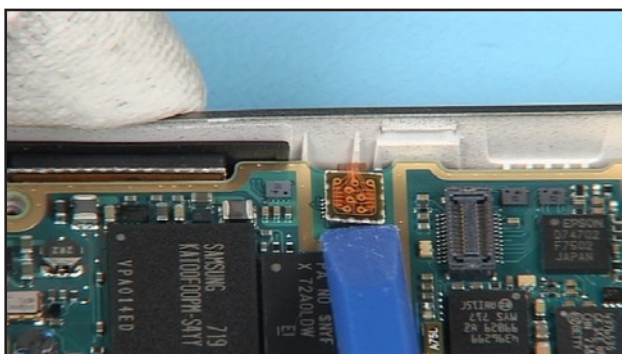
26. Lever out the CHASSIS ASSEMBLY evenly.



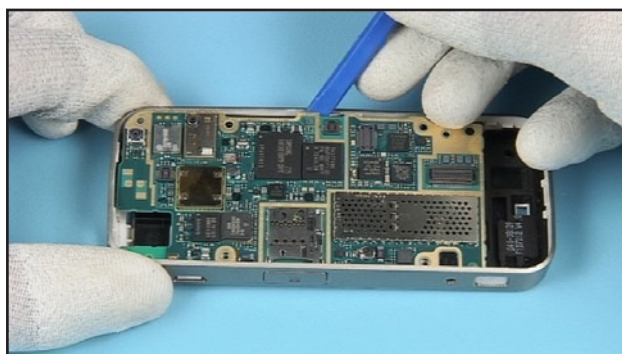
27. Disconnect the flex connector of the AV FLEXI MODULE.



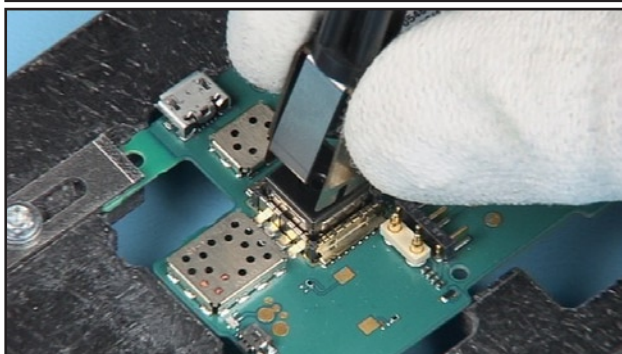
28. Lever out the AV FLEXI MODULE.



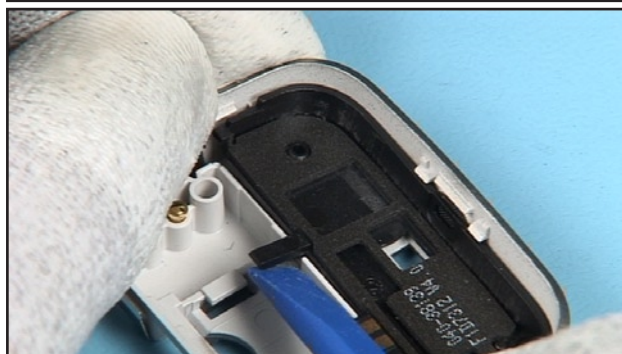
29. Disconnect the connector of the SIDE KEY FLEXI.



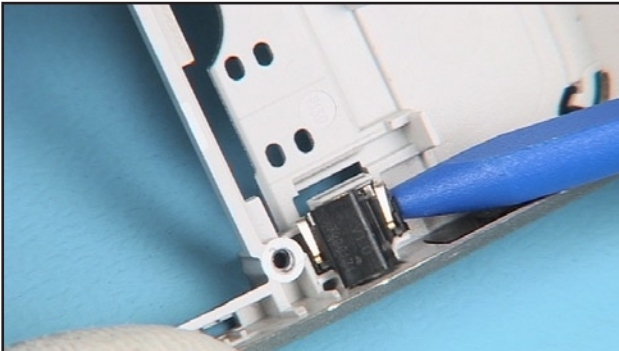
30. Lift out the ENGINE MODULE evenly.



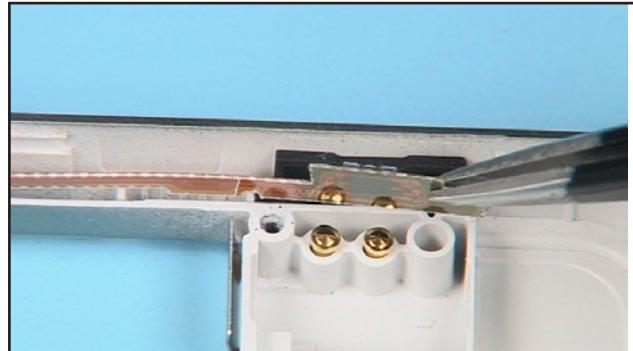
31. Use a appropriate soldering jig for camera removal to avoid mechanical stress to the PWB and the components.



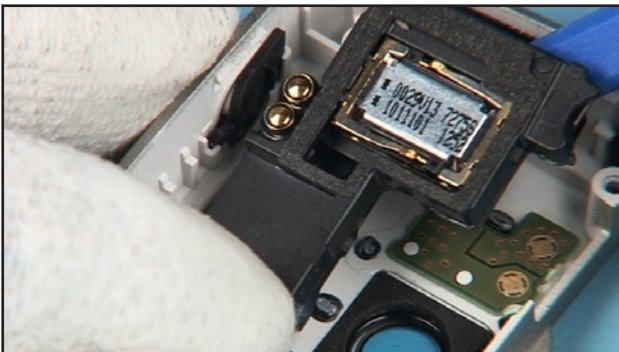
32. Lever out the ANTENNA ASSY.



33. Lift out the DC CONNECTOR.



34. Gently pull out the SIDE KEY FLEXI.



35. Pry open the clips of the IHF HOLDING ASSY.



36. The keys can be pushed out easily.

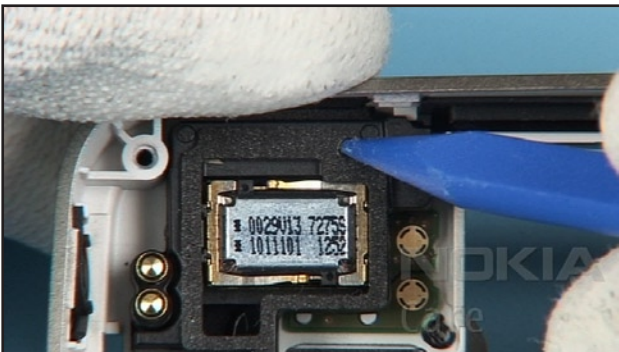
13. ASSEMBLY INSTRUCTION



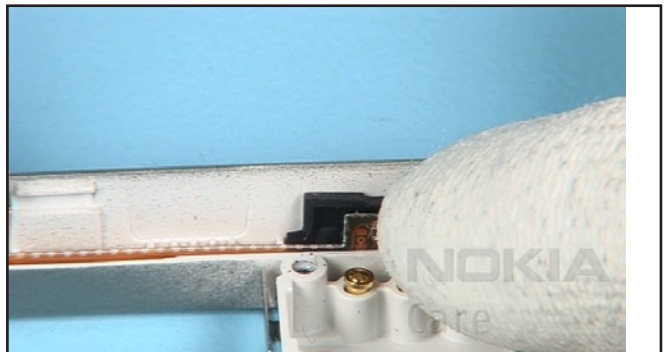
1. Nokia N78 Assembly.



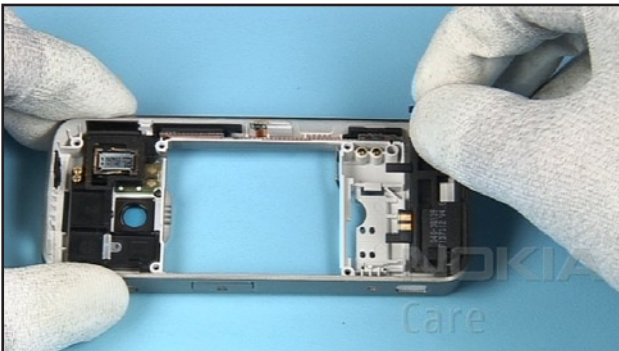
2. You will need the Nokia Standart Toolkit Version 2 and the SS-153 in case of replacing the SUPERKEY ASSEMBLY.



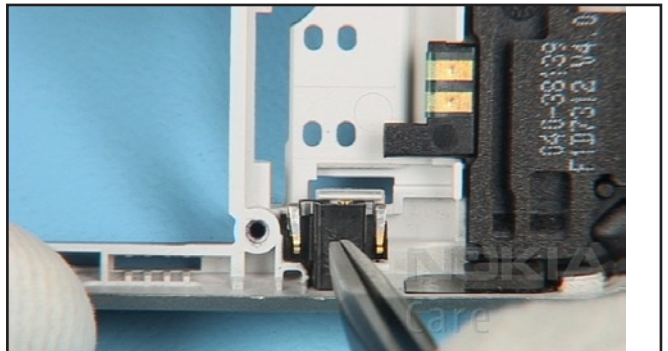
3. Insert the IHF MOULDING ASSEMBLY. Slightly push it into its place.



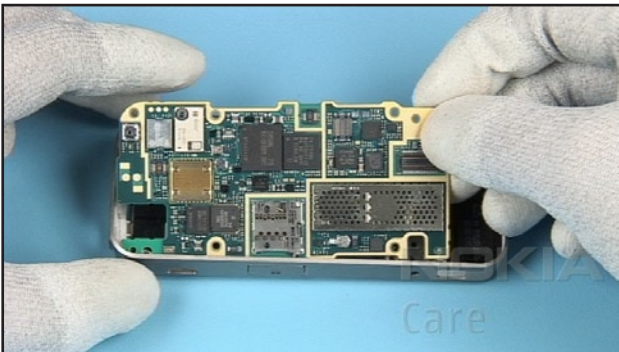
4. Insert the SIDE KEY FLEXI. Mind the correct positioning.



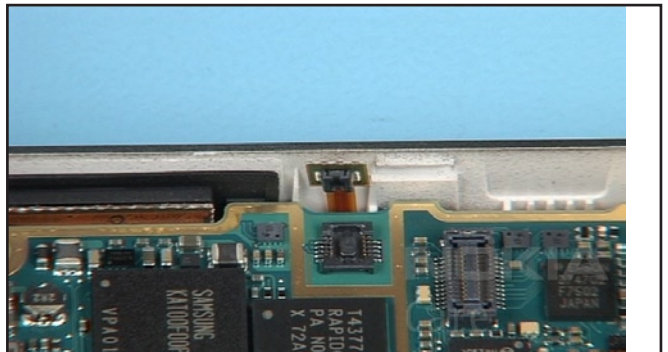
5. Note the correct positioning while placing the ANTENNA ASSY.



6. Do not bend the spring contacts of the DC CONNECTOR.



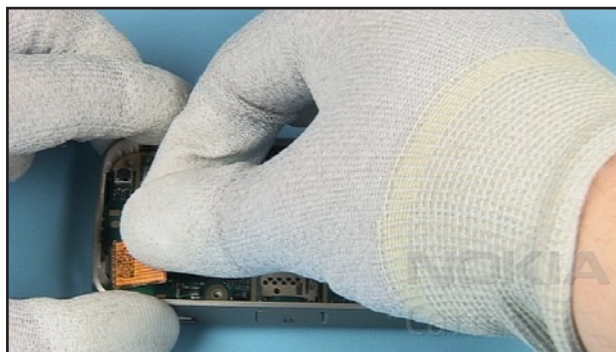
7. Insert the ENGINE MODULE, beginning at the connector's side.



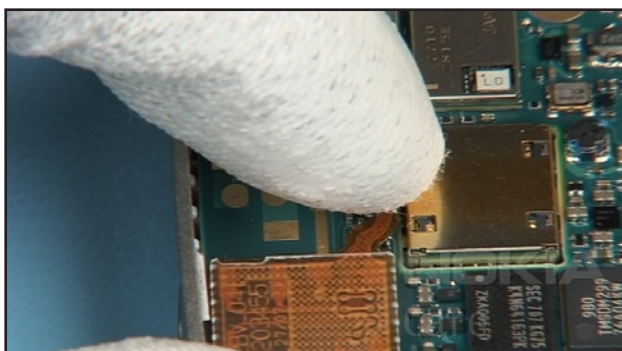
8. Mind the correct positioning of the flex foil.



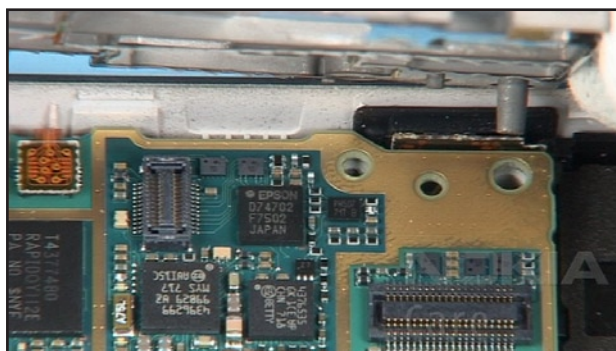
9. Close this flex foil connector.



10. Insert the AV FLEXI MODULE.



11. Close the flex connector of the AV FLEXI MODULE.



12. Place the CHASSIS ASSEMBLY. Mind the guide.



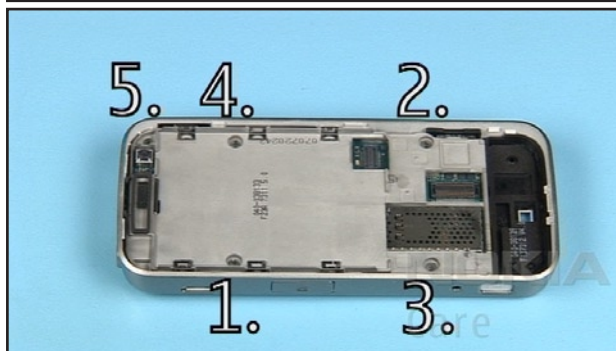
13. Slightly push it into its place.



14. Check the correct positioning before continuing.



15. Set the correct torque.



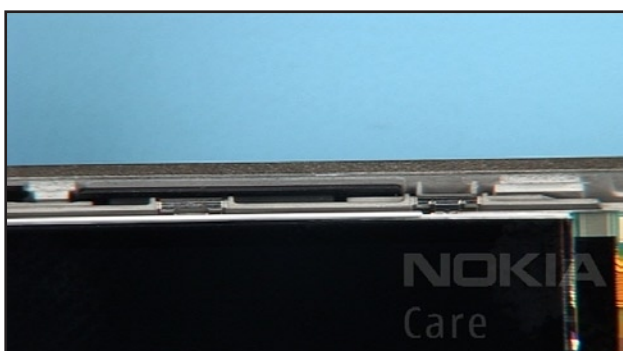
16. Apply the correct torque to all screws in the order shown.



17. Bring the LCD near the Flex connector. Close the connector.



18. Position the LCD into its compartment.



19. Click all clips into their places. Remove the protection film.



20. Click in the top snaps of the WINDOW ASSEMBLY.



21. Close the flex connector of the UI MODULE ASSEMBLY.



22. Gently push the rear clips of the UI MODULE ASSEMBLY into their places



23. Align the UI MODULE ASSEMBLY with the WINDOW ASSEMBLY as shown.



24. Click the snaps into their places now.



25. Check that no gaps remain.



26. In case that the UI MODULE ASSEMBLY must be replaced, the SUPERKEY ASSEMBLY must be ordered separately. Check that the Keys operate before placing the SUPER KEY ASSEMBLY.



27. Remove the protective film. Align the SUPERKEY exactly to the UI MODULE ASSEMBLY.



28. Insert the Assembly into the SS-153.



29. Slowly push down the lever completely.



30. Wait at least 5 seconds to activate the adhesive before releasing the lever.