

SERVICE MANUAL

Level 1&2



RM-328

RM-387



Transceiver characteristics:

Band:

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

WCDMA: 900/2100MHz

Display:

LCD: 5.588cm QVGA (2.2") (240x320 pixel); 16M colors

Camera:

Main Camera: 5.0 Megapixel with Carl Zeiss autofocus lens, Xenon integrated flash and autofocus light

2nd Camera: CIF camera (384x320) for video call

Operating System:

Series 60 3rd Edition

Connections:

Wireless: Bluetooth, A-GPS

Connector: Micro USB Connector; AV Connector 2.5mm

Memory:

MicroSD™ (max 8GB)

Transceiver with BP-5M Li-Ion battery pack

Talk time	Standby	Note
up to 3.5h	up to 10days	Depends on network parameters and phone settings

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1. CHANGE HISTORY

Status	Version No.	Date	Comments
Draft	0.1	05.May.2008	Initial draft
Approved	1.0	15.May.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.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.



Xenon flash - Handling instruction

With an undamaged module there is no possibility of an electric shock. However, the possible damage cannot always be seen and therefore insulating gloves should be always worn, when handling the Xenon module. Disassembling the module is never allowed, because there is no way to fully discharge the module and also repairing is impossible.

Care must be taken, when module is removed from the phone, because the flex is quite sensitive and can be broken during removing. The flex should also not be bended or twisted unnecessarily.

The Xenon module includes electrolytic capacitor charged to voltage of 320V. Energy stored in the capacitor is 1.0...1.5J immediately after charging. If exposed to an electric shock it will most likely feel very nasty on fingers. Possible risks causing an electric shock in a xenon module are:

- Broken flex between capacitors and lamp unit. The damage may be not visual.
- Broken molding on the lamp unit or capacitors.
- Cover window broken and xenon lamp exposed to the user.

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.

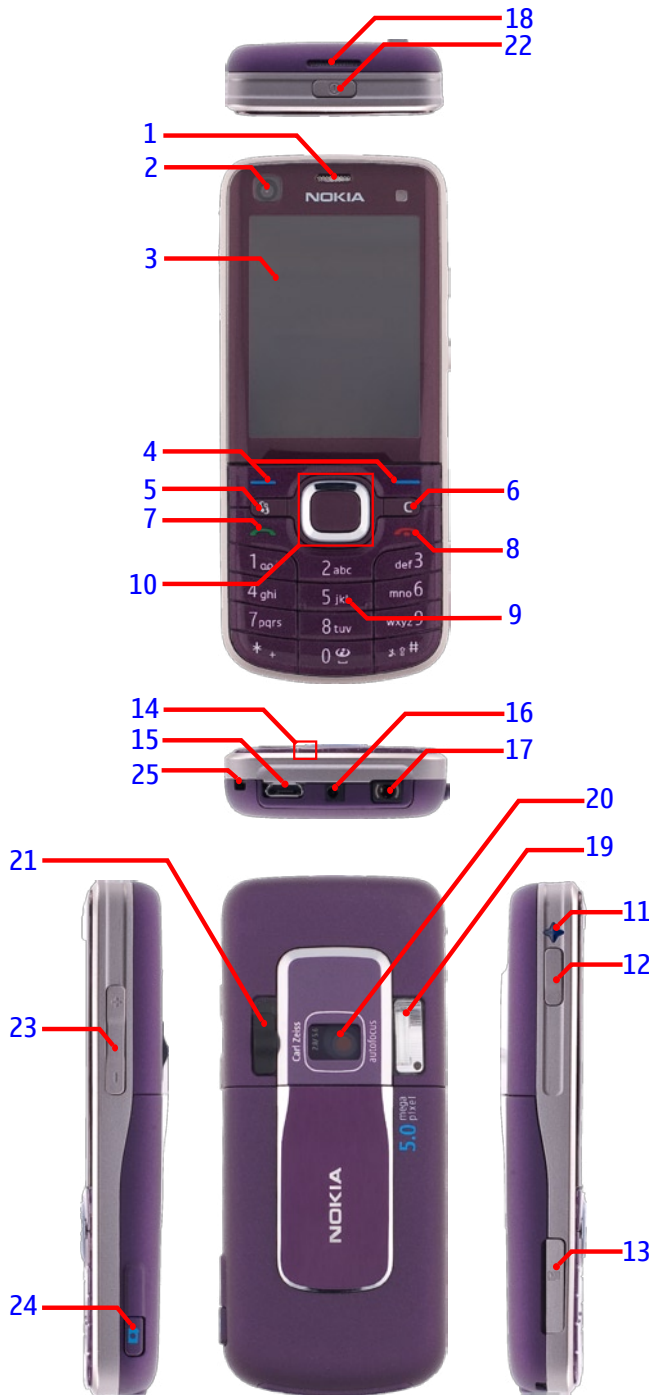
Do not short-circuit the battery. Accidental short-circuiting can occur when a metallic object (coin, clip or pen) causes direct connection of the + and - terminals of the battery (metal strips on the battery) for example when you carry a spare battery in your pocket or purse. Short-circuiting the terminals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

**6220classic RM-328/RM-387
Product Controls & Interfaces**



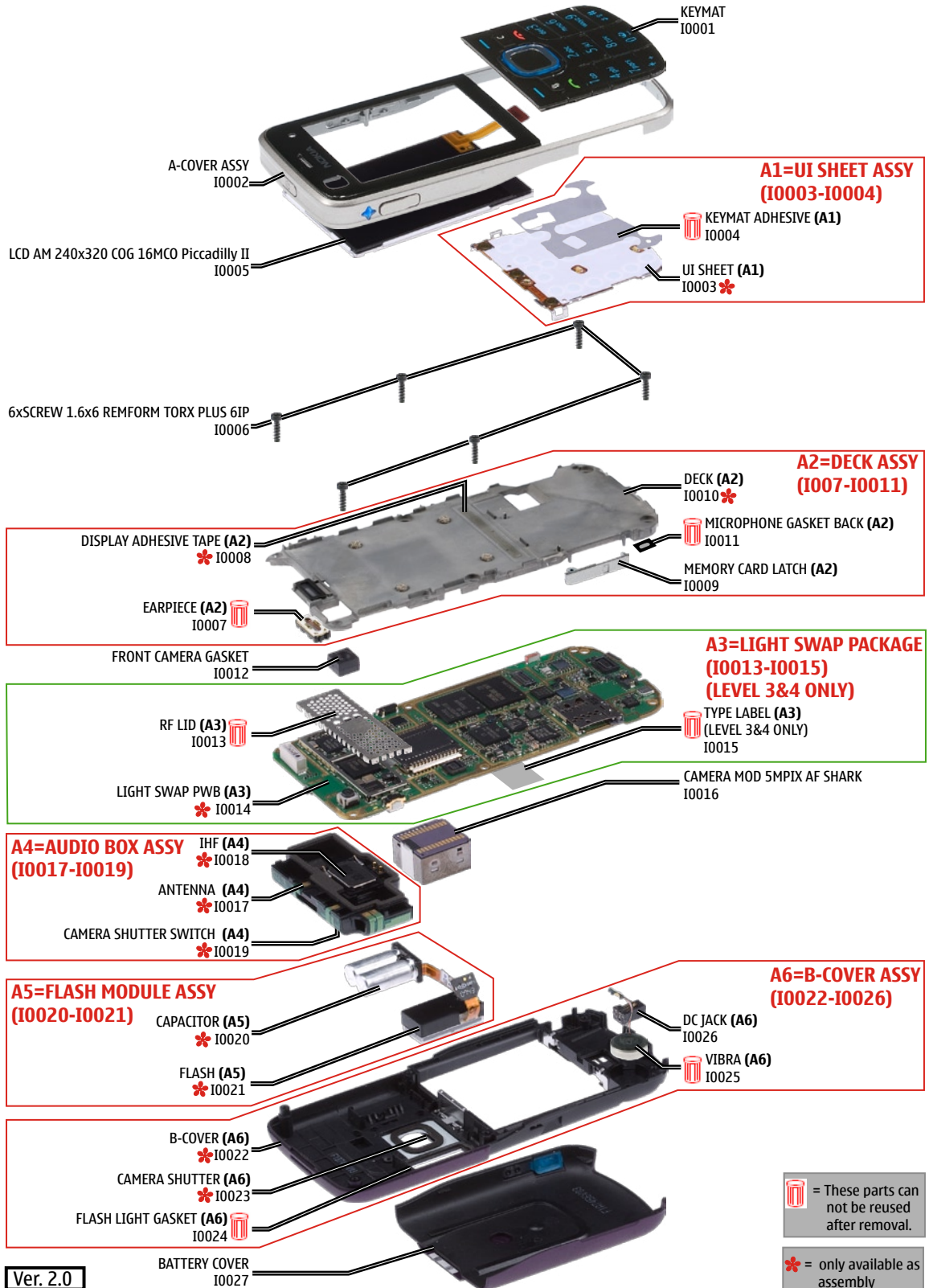
- 1 — Earpiece
- 2 — Secondary camera lens
- 3 — Display
- 4 — Left and right selection keys
- 5 — Menu key (hereafter described as “select  ”)
- 6 — Clear key C
- 7 — Call key
- 8 — End key
- 9 — Number keys
- 10 — Navi™ scroll key, hereafter referred to as scroll key and status light around it).
- 11 — GPS light
- 12 — My own key
- 13 — MicroSD card slot
- 14 — Microphone
- 15 — Micro USB connector
- 16 — Charger connector
- 17 — Nokia AV Connector (2.5mm)
- 18 — Loudspeaker
- 19 — Camera flash
- 20 — Main camera lens
- 21 — Camera lens cover opening slide
- 22 — Power key
- 23 — Volume key
- 24 — Camera key
- 25 — Strap holder

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8. EXPLODED VIEW

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

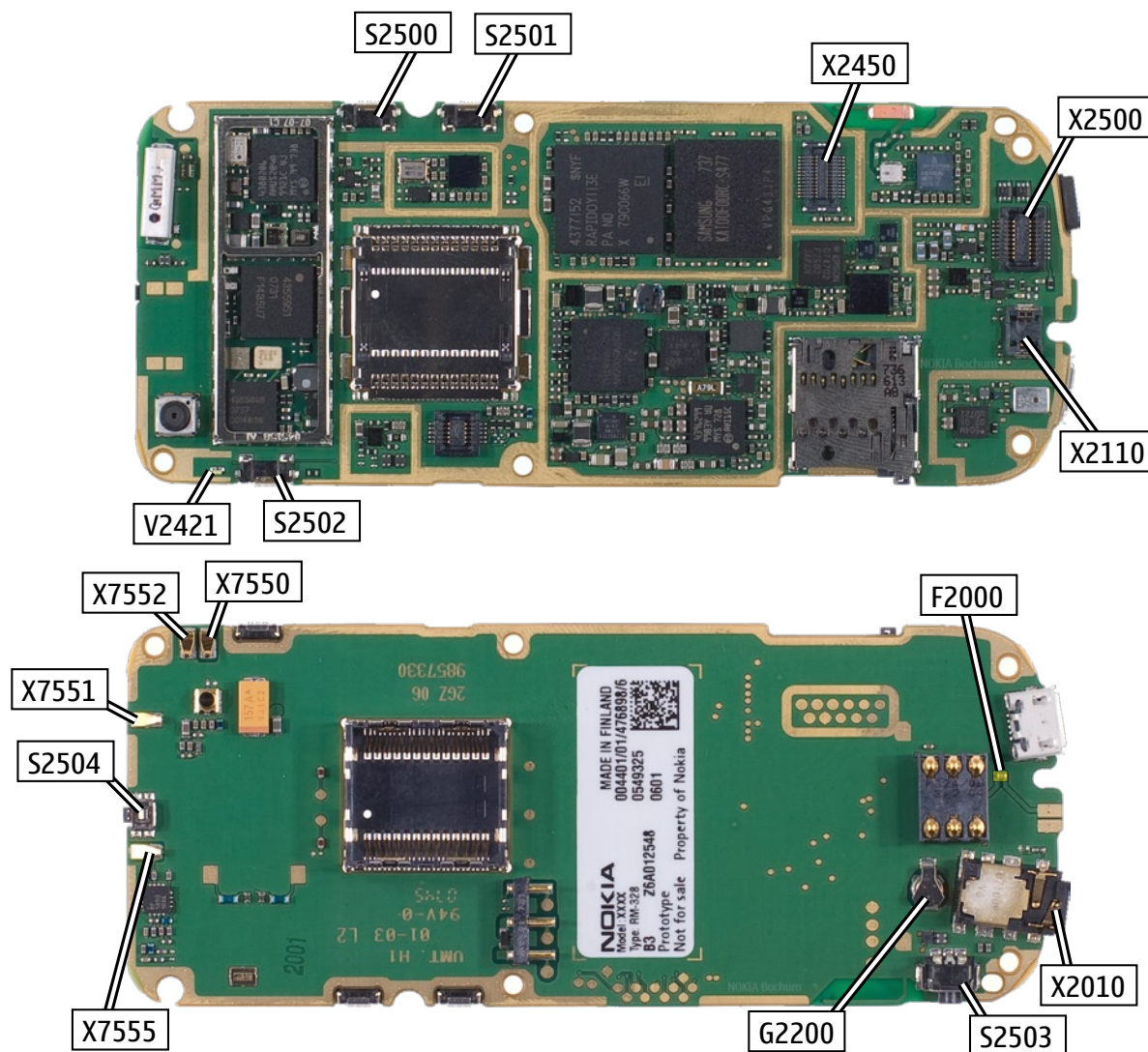
6220classic RM-328/387 EXPLODED VIEW



9. LEVEL 2 SOLDER COMPONENTS

6220 RM-328/RM-387 Components overview

Solder components only for LEVEL 2



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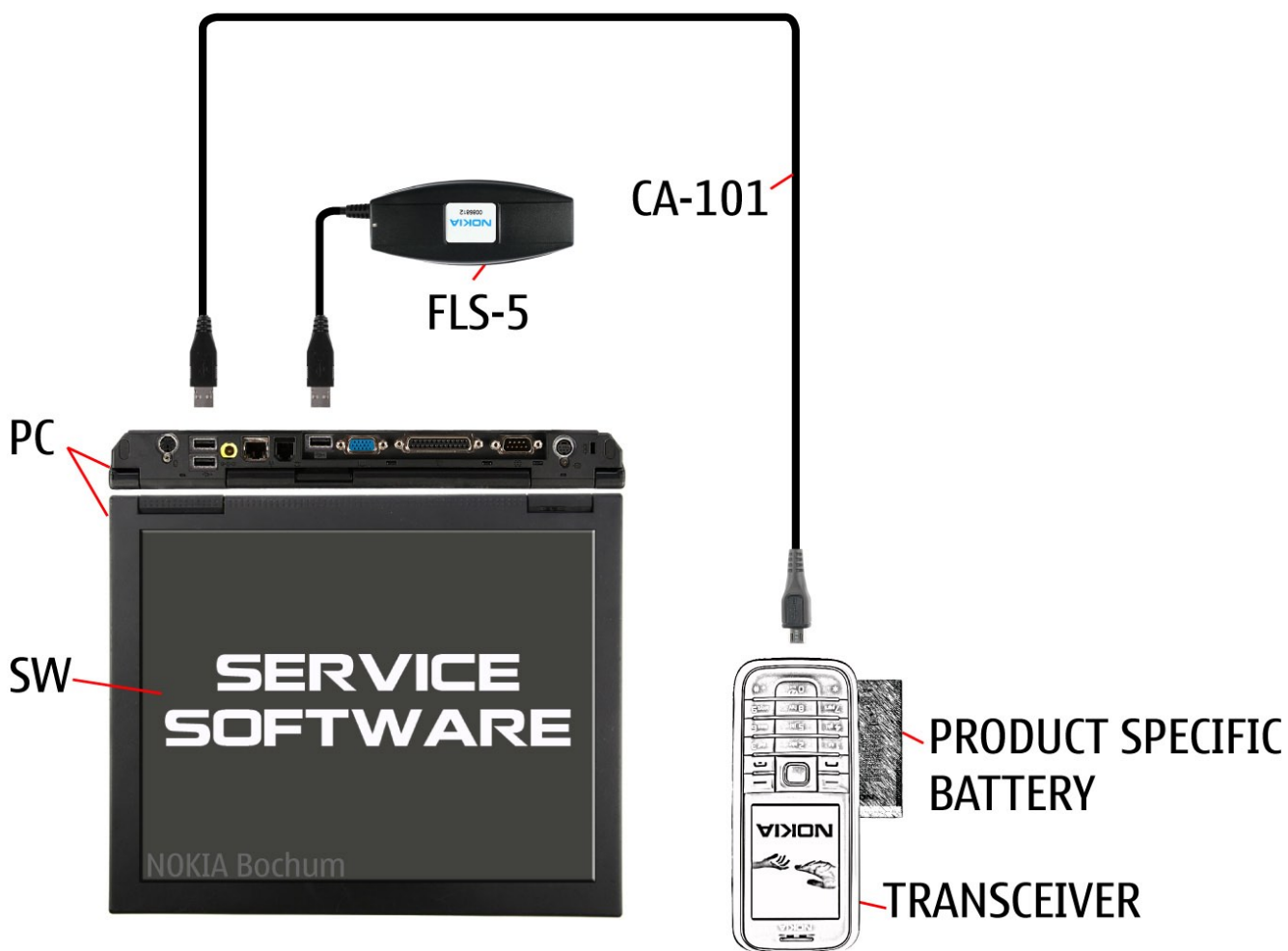
10. SERVICE DEVICES

 <p>FLS-5</p> <p>FLS-5 incl. Driver and User Guide Dongle and flash device incorporated into one package, developed specifically for POS use.</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-155</p> <p>SS-155 Camera removal tool. One side is for disassembly, the other side for assembly.</p>	 <p>RJ-230</p> <p>RJ-230 Soldering Jig</p>
 <p>BP-5M</p> <p>Internal Battery BP-5M Inserted under the back cover, this Li-Ion battery provides power in a lightweight package.</p>		 <p>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>

11. SW-UPDATE

Flash Concept – (Point of Sales)

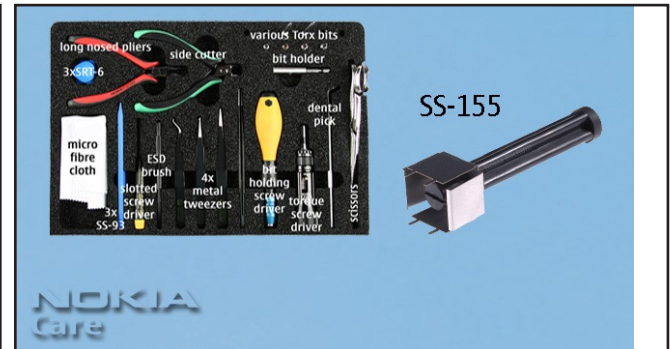
To use FLS-5 Flash Dongle you have to follow the user guide inside the sales package. Please check always for the latest version of flash software, which is available on [NOKIA Online](#).



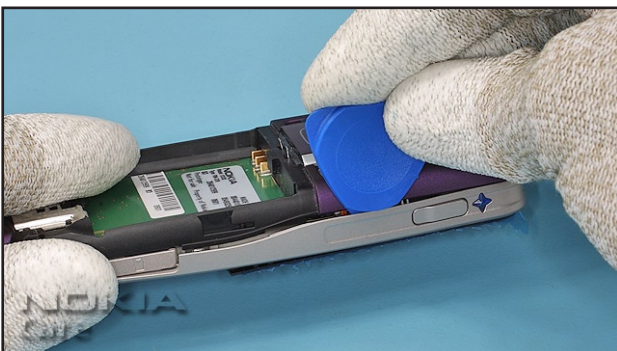
12. DISASSEMBLY



1. Nokia 6220 Classic Disassembly.

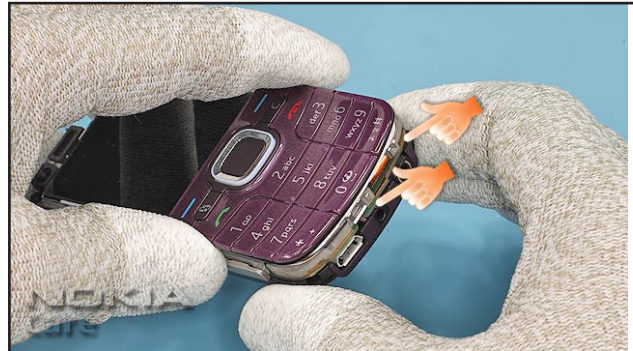


2. You will need the Standard Tool Kit v2 and the Camera Removal Tool SS-155.

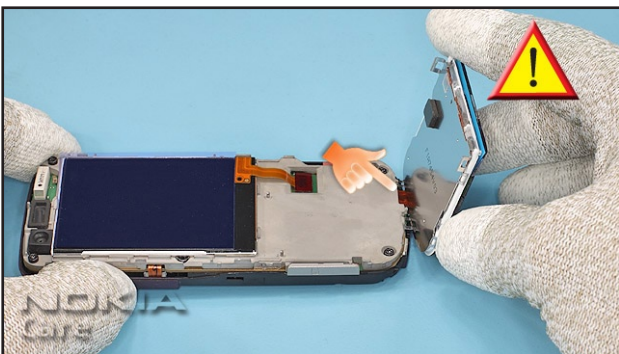




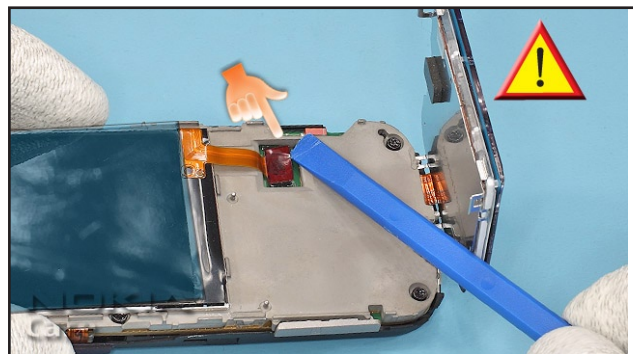
9. Unlock all snaps of the UI SHEET ASSY with the dental pick.



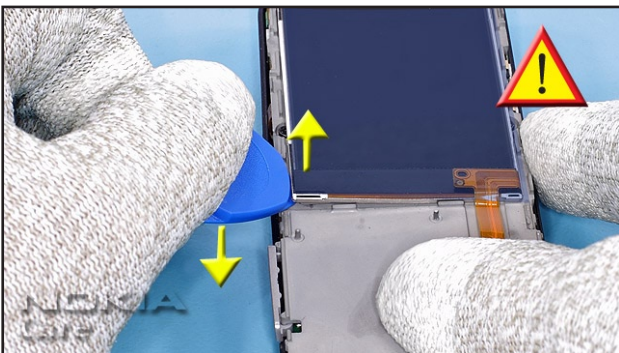
10. Carefully lift the UI SHEET ASSY together with the KEYMAT.



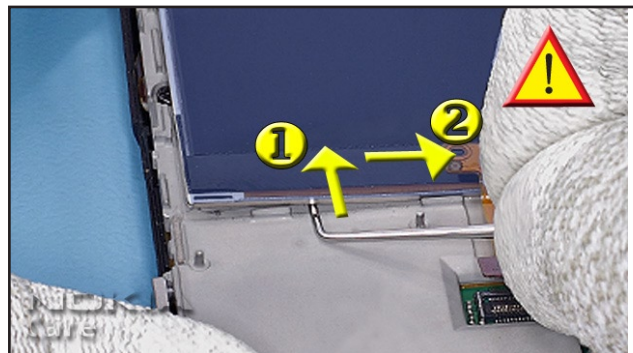
11. Take special care to the UI flex.



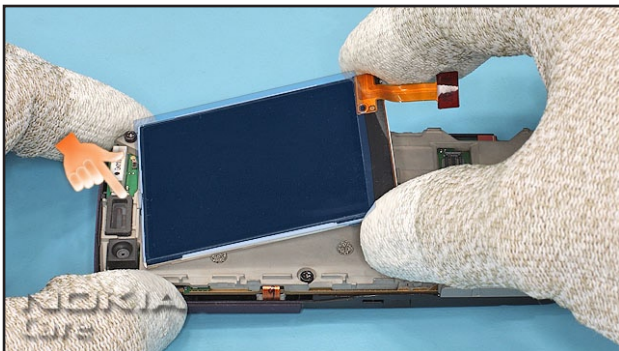
12. Gently, open the LCD connector.



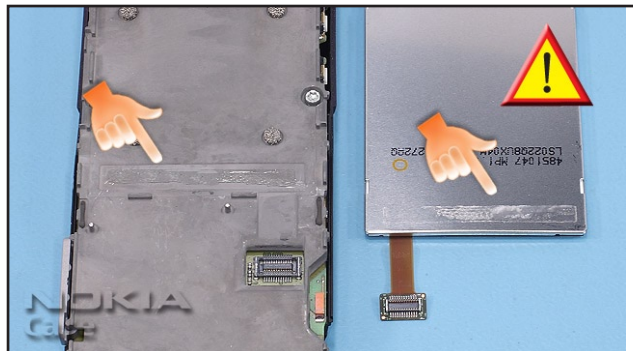
13. The LCD is glued onto the DECK ASSY. Carefully place the SRT-6 between the LCD and the DECK, and gently lift a bit the LCD.



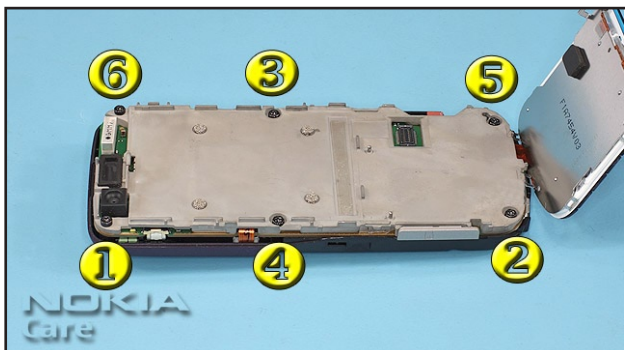
14. Place the dental tool between the LCD and the DECK ASSY and move it along the ADHESIVE to separate the parts.



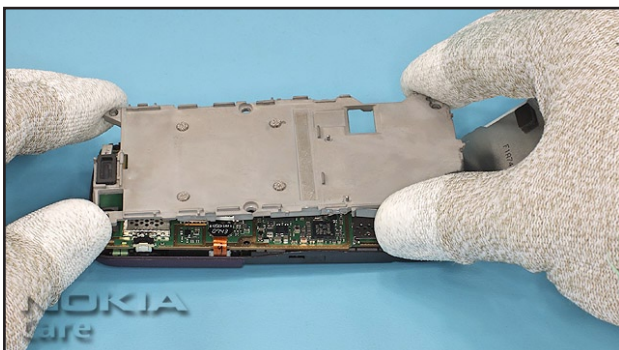
15. First lift the LCD partly, then remove it carefully.



16. Do not remove the ADHESIVE from the LCD and from the DECK, when the LCD is not damaged and can be re-used together with original DECK. In case new DECK ASSY is replaced adhesive residues must be cleaned from the original LCD.



17. Undo the six screws in the order shown.



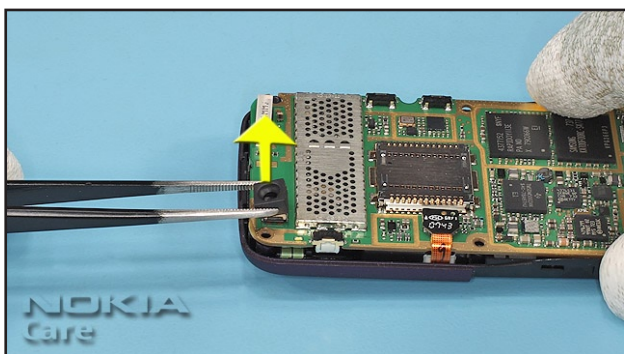
18. Remove the DECK ASSY.



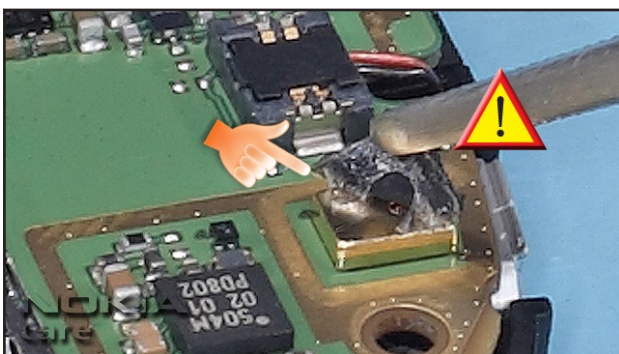
19. Remove the MEMORY CARD LATCH.



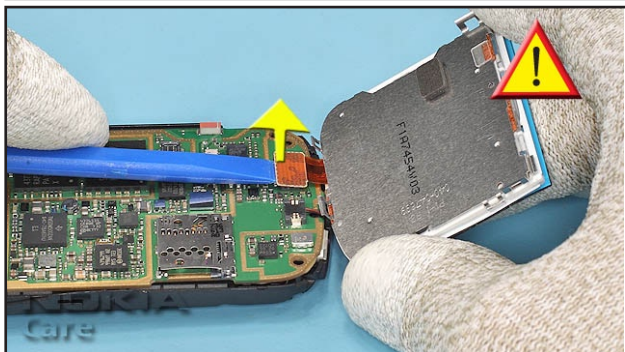
20. Remove and discard the MICROPHONE GASKET.



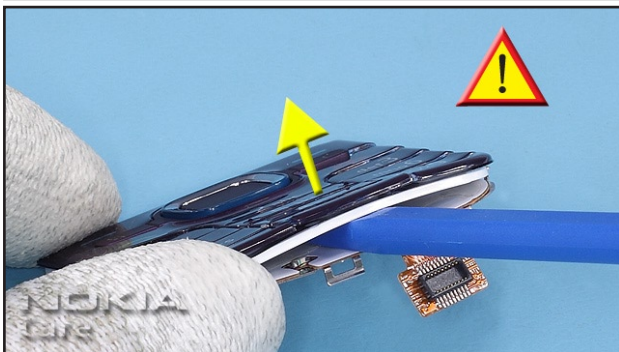
21. Remove the FRONT CAMERA GASKET.



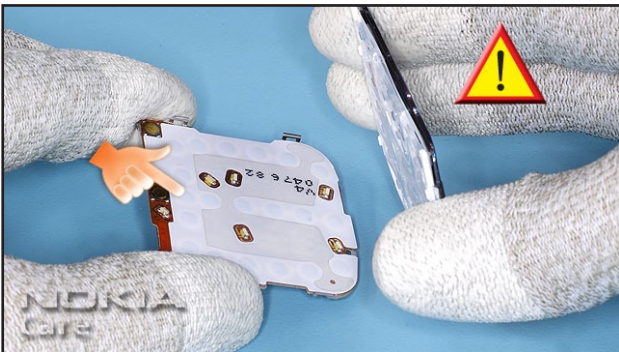
22. Carefully remove the adhesive residues from MICROPHONE.



23. Open the UI connector paying attention to the surrounding components.



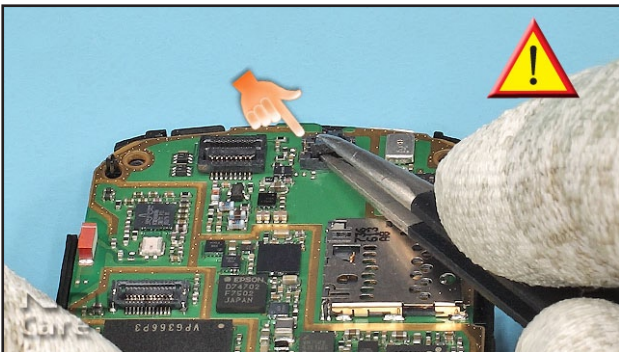
24. Remove KYEAMT from UI-SHEET ASSY by using SS-93.



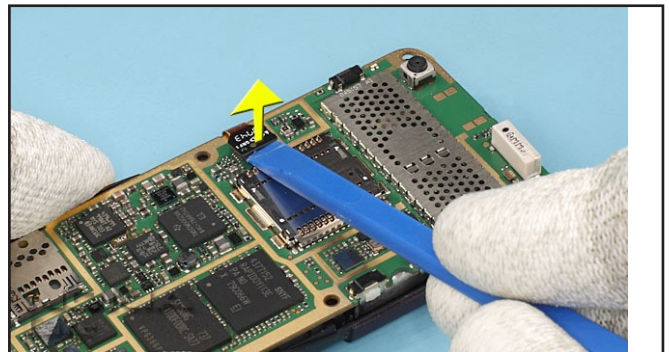
25. Remove the KEYMAT from the UI ASSY. Do not touch the KEYMAT ADHESIVE.



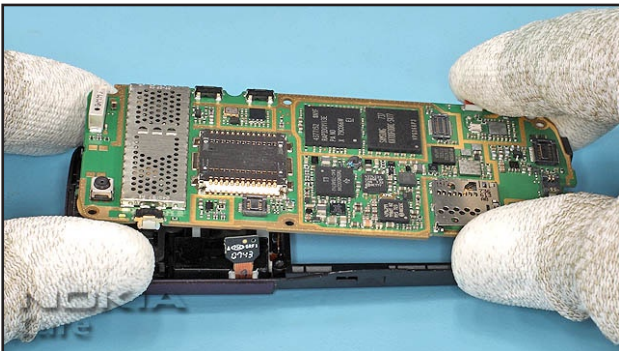
26. In case the KEYMAT has been removed more than two times or the keymat adhesive is even slightly dirty or dusty, remove the KEYMAT ADHESIVE paying attention to the LEDs and discard it.



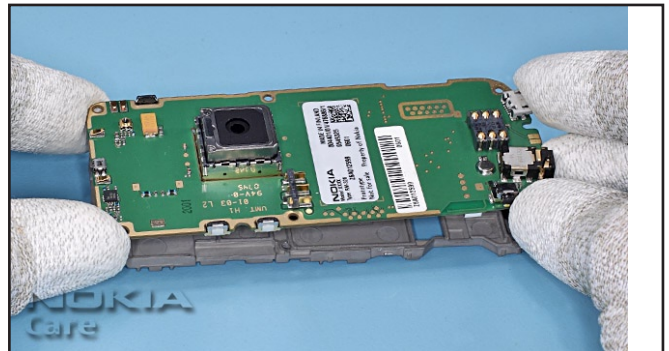
27. Carefully open the VIBRA connector.



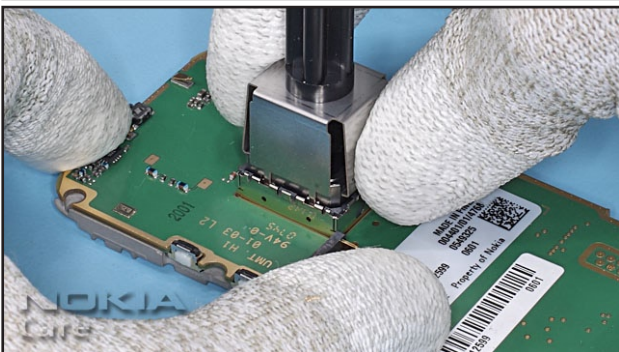
28. Open the FLASH MODULE connector paying attention to the surrounding components.



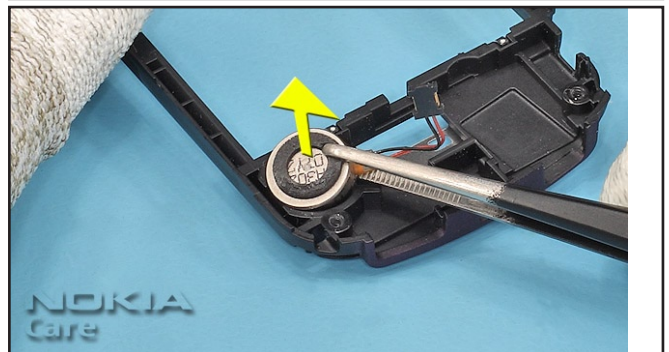
29. Remove the LIGHT SWAP.



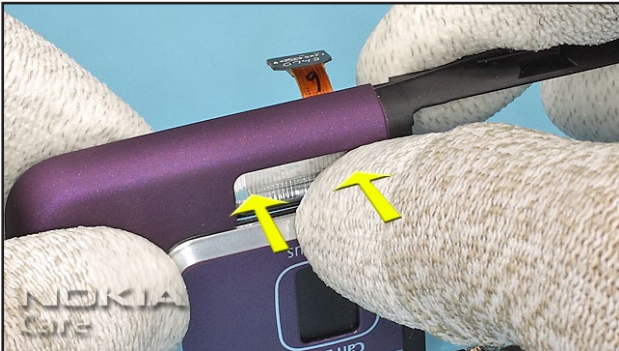
30. Use DECK ASSY as a support for the LIGHT SWAP when removing the CAMERA.



31. Unlock and remove the CAMERA with the SS-155.



32. The VIBRA is glued onto the B-COVER. Use tweezers to remove the VIBRA and discard it.



33. Gently push onto the FLASH LIGHT to remove the FLASH MODULE from the B-COVER.



34. **Attention - Please read the Handling instruction in the chapter 3. Warnings & Cautions.**
Take special care to the flex when removing the FLASH MODULE. The flex must not be bended or twisted.

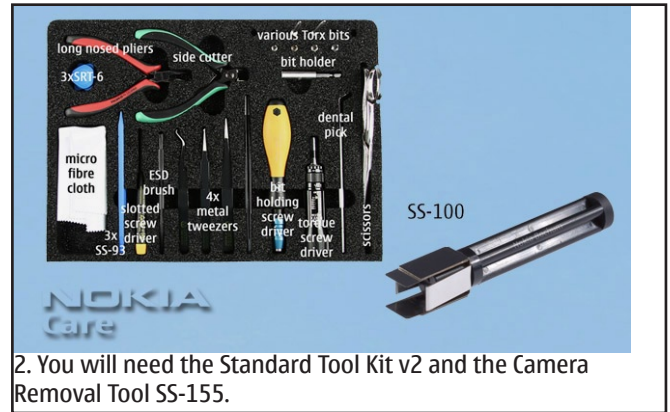


35. Carefully remove the AUDIO BOX ASSY.

13. ASSEMBLY HINTS



1. Nokia 6220 Classic, Assembly Hints.



2. You will need the Standard Tool Kit v2 and the Camera Removal Tool SS-155.



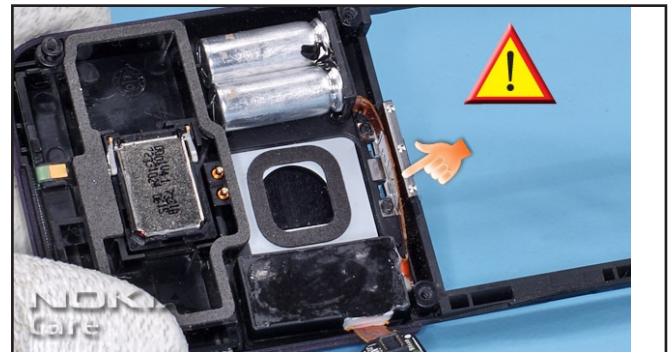
3. **Attention - Please read the Handling instruction in the chapter 3. Warnings & Cautions.**
Take special care to the flex when Remove the adhesive residues. Use always a new FLASH LIGHT GASKET when re-fitting the FLASH.



4. Take care to the switch on the ANTENNA.



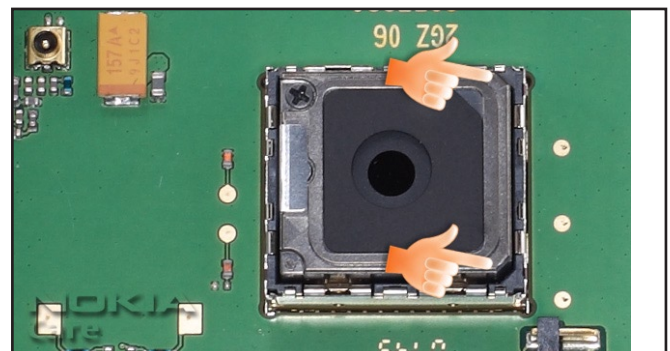
5. Fit the ANTENNA BOX paying attention to the IHF gasket.



6. **Attention - Please read the Handling instruction in the chapter 3. Warnings & Cautions.**
Take special care to the flex when Ensure that the FLASH flex is positioned correctly. The flex must not be bended or twisted.



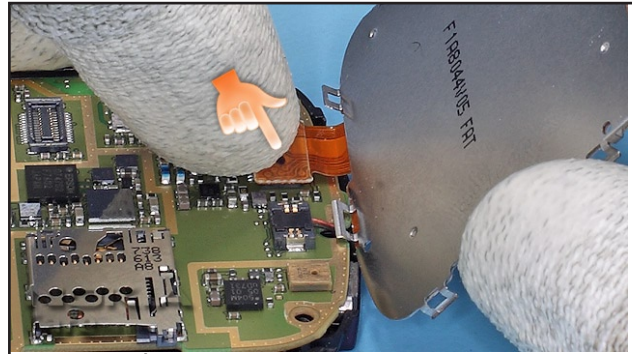
7. Remove the adhesive remains.



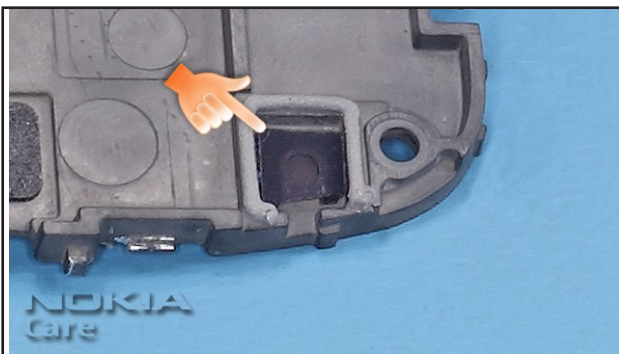
8. Pay attention to the right position of the CAMERA MODULE.



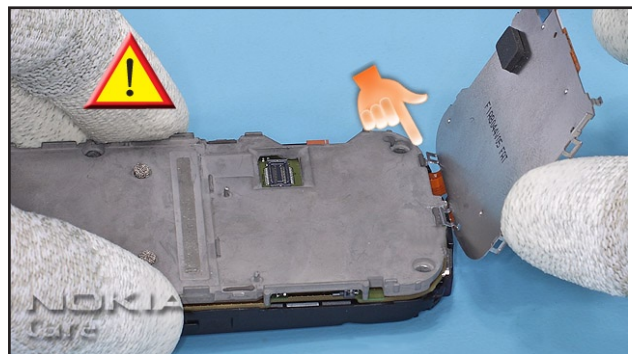
9. Align the markings of the new KEYMAT ADHESIVE with the UI ASSY. Ensure that the ADHESIVE is glued well and carefully remove the carrier foil.



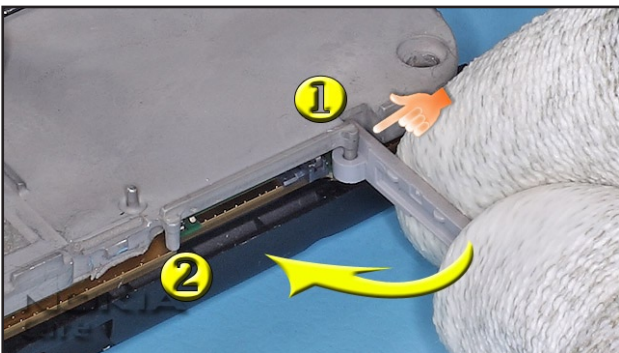
10. Connect the UI SHEET ASSY.



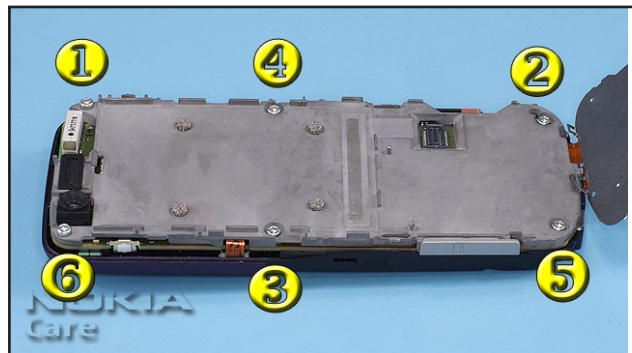
11. Always use a new MICROPHONE GASKET when assembling the unit.



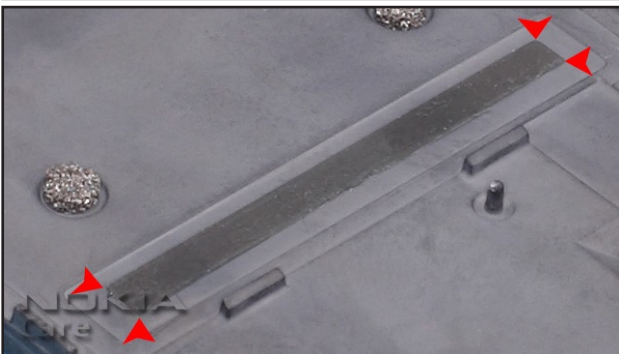
12. Place the DECK ASSY on the PWB.



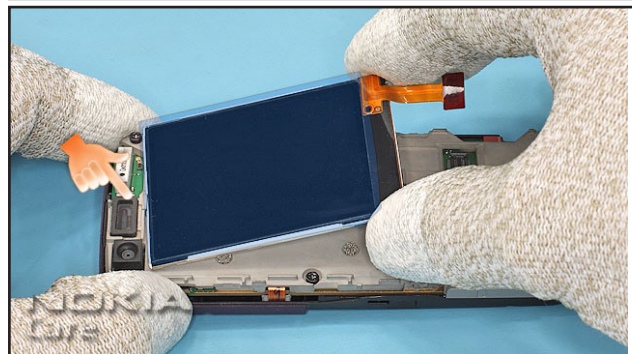
13. Fit the MEMORY CARD LATCH to the DECK ASSY (1) and close it (2).



14. Tighten the screws to the torque of 18Ncm in the order shown.



15. If the DISPLAY ADHESIVE has been re-used more than TWO times or it is dirty, dusty or partly missing, then use a new DECK ASSY. Remember to clean adhesive residues from LCD when using new DECK.



16. Secure the LCD on the top side first and then place it onto the DECK ASSY.



17. Carefully place the left side first so that KEYMAT locking snaps does not get damaged. KEYMAT must be pressed at least 3 seconds from number key area to ensure that adhesive sticks on the KEYMAT.