

SERVICE MANUAL Level 1&2



RM-230 RM-302



Transceiver characteristics:

Band:

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

WCDMA: 2100MHz (RM-230 only!)

Display:

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

Camera:

Camera: 2.0 Megapixel SMIA95, 4x digital zoom

Operating System:

Series 60

Connections:

Wireless: Bluetooth, IRDA

Connector: Mini USB Connector; AV Connector

Memory:

MicroSD™ (max 4GB)

Transceiver with BP-5M Li-Ion battery pack

Talk time	Standby	Note	
up to 3.4h	up to 11days	Depends on network parameters	



1. CHANGE HISTORY

Status	Version No.	Date	Comments
Draft	0.1	13.Mrz.2007	Initial draft
Approved	1.0	30.Mrz.2007	Approval
Approved	2.0	30.May.2007	RM-302 added

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.

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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.

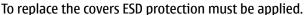
Cautions:

- 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.



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.



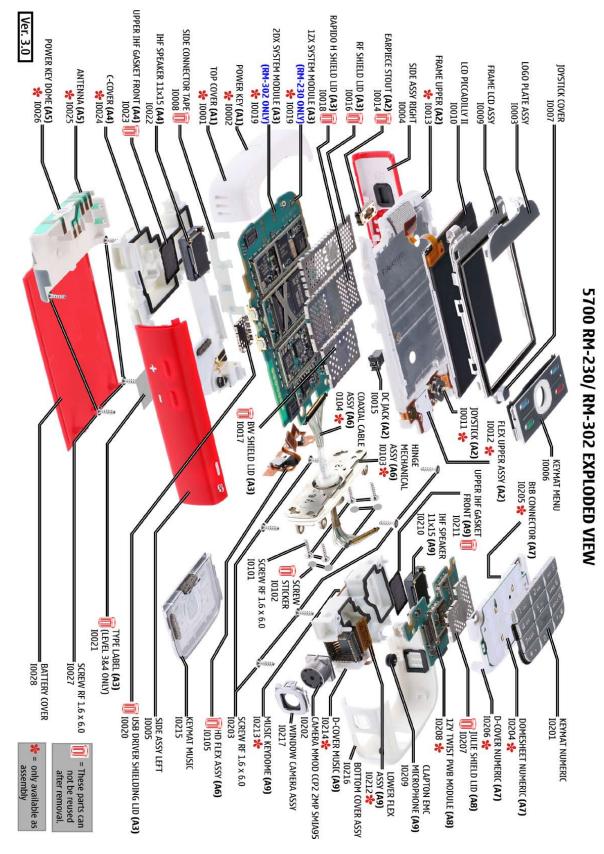
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7. EXPLODED VIEW

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



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8. SPARE PARTS OVERVIEW



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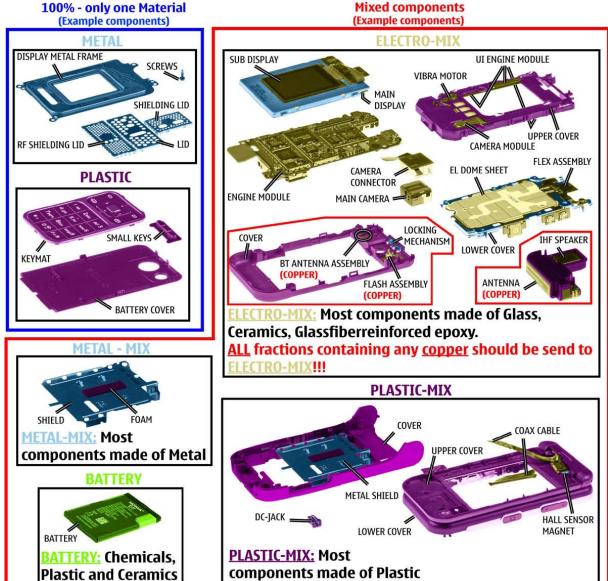
9. GENERAL RECYCLING RECOMMENDATION

NOKIA Confidential CMO Operations & Logistics

Training and Vendor Development **Multimedia Creation & Support**

General Recycling recommendation





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:

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.

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🤍 ELECTRO 🧶 METAL 🌑 PLASTIC 🛑 BATTERY Ver. 3.0

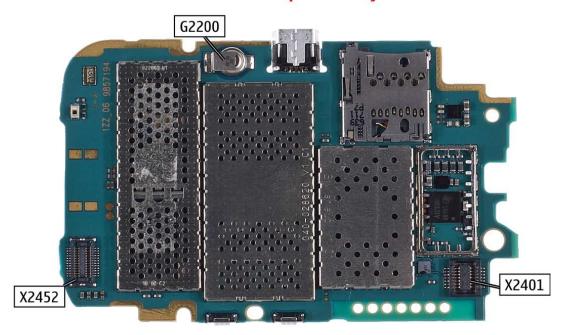
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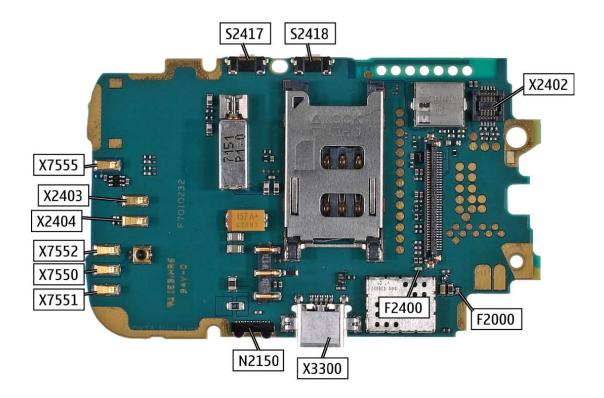


10.LEVEL 2 SOLDER COMPONENTS

5700 RM-230/ RM-302 Level 2 solder components

Solder components only for LEVEL 2





Ver. 3.0



11. SERVICE DEVICES



FLS-5 incl. ACF-8, Driver and User Guide

Dongle and flash device incorporated into one package, developed specifically for POS use.



ACF-8

Universal Power Supply is used to Small and lightweight charger for power FLS-4S.



Travel Charger AC-4

fast charging of your phone battery.



DKE-2

Service Cable to connect the PC with the mini USB connector.



SS-45

Camera removal tool. One side is for disassembly, the other side for assembly.



RJ-135 Soldering Jig



Internal Battery BP-5M

Inserted under the back cover, this Li-Ion battery provides power in a lightweight package.



Lead-free Solder Wire

Mandatory for lead-free products (Level 2 only).



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NMP Standard Toolkit (V2)

For more informations refer to the Service Bulletin (SB-011) on NOKIA Online.

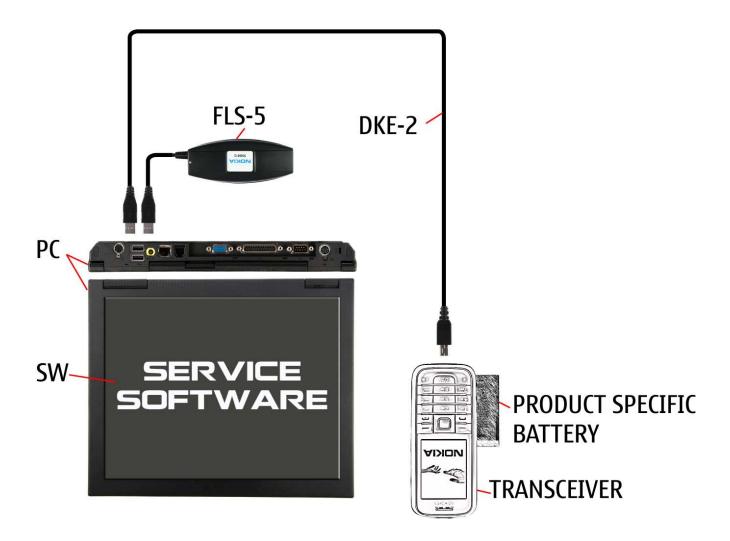
Supplier or manufacturer contacts for tool re-order can be found in "Recommended service equipment" document on NOKIA Online.



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. Needed tools: A Torx driver, the bit holder, a Torx Plus size 5 2. Cover all windows with a protective film. bit, a torque driver, angled tweezers, the SS-93, a dental pick, metal tweezers, and the DC-plug.





3. Unlock and remove the BATTERY COVER. Remove the battery if inserted.



4. Use the SS-93 to unlock the TOP COVER. Always start on the shown side. Avoid damaging the ANTENNA.

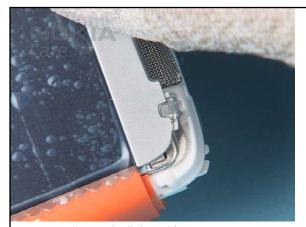


5. Remove the TOP COVER.



6. Remove the LOGO PLATE ASSY.





7. Pay attention to the light guide.



8. Use the SS-93 to unlock the SIDE ASSY RIGHT by pushing the SIDE ASSY upwards at the same time.



9. Remove the SIDE ASSY RIGHT.



10. Unlock the SIDE ASSY LEFT by pushing it as shown.



11. Remove the SIDE ASSY LEFT.



12. Lift the KEYMAT MENU a bit and remove it.

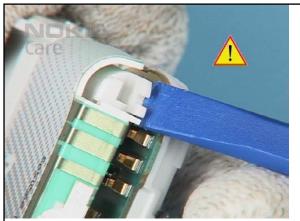




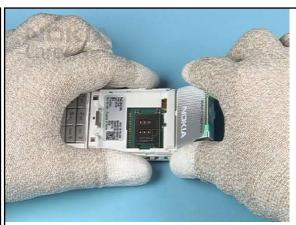
13. Remove the JOYSTICK COVER.



14. Gently unlock the ANTENNA ASSY hooks...



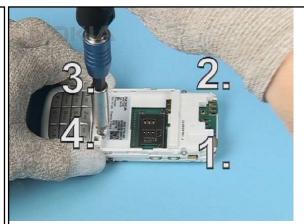
15. ... release hooks also on both sides of the ANTENNA ASSY.



16. Remove the ANTENNA ASSY.



17. Now, open the unit.



18. Undo the screws in the order shown...





19. ...and remove them.



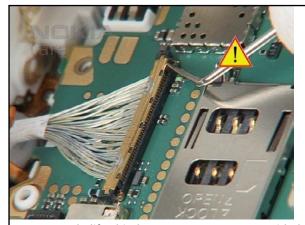
20. remove the SIDE CONNECTOR TAPE and discard it.



21. Gently open the covers as shown. Do not separate the parts from each other yet.



22. Carefully open the HD FLEX connector.



23. Very gently, lift a bit the COAX CABLE connector with the dental pick...



24. ...and open it with angled tweezers. Now, the FRAME UPPER ASSY with the SYSTEM MODULE can be separated from the C-COVER ASSY.





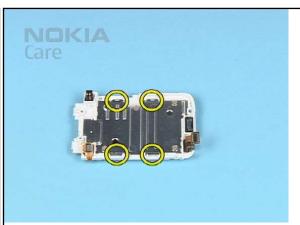
25. Hold the parts as shown.



26. First open the FLEX UPPER connector...



27. ...and then open LCD connector, avoiding touching the surrounding components. Separate the parts from each other.



28. The Frame LCD assy is secured with four clips to the FRAME UPPER ASSY.



29. Release the clips...



30. ...and remove the parts from the FRAME UPPER ASSY as shown.





31. Remove the LCD from the FRAME LCD.



32. Take care to the LCD connector.



33. Always cover the sensitive surfaces with the protective film



34. Remove the IHF SPEAKER



35. Remove the UPPER IHF GASKET and the adhesive residues.



36. Turn the LOWER BLOCK to the shown position. Remove all SCREW STICKERS and discard them.





37. Undo the screw in the order shown.



38. Remove the screws.



39. Separate the C-COVER ASSY from the LOWER BLOCK.



40. Remove the HD FLEX ASSY and discard it.



41. The assembly procedure is now finished.



14. UPPER BLOCK ASSEMBLY HINTS



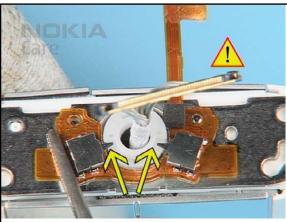
1. Assembly hints



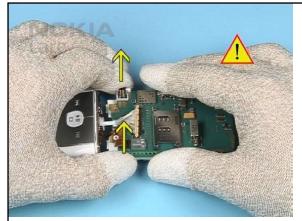
2. Align the FLEX UPPER connector with the connector on the SYSTEM MODULE. Close it carefully.



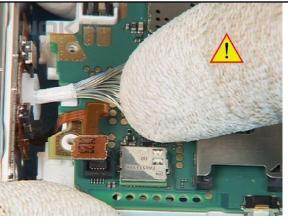
3. Take special care to the JOYSTICK during assembly.



4. Gently, position the HD FLEX ASSY onto the HINGE ASSY. Take special care to the switches and to the right position of the HINGE MECHANICAL ASSY.

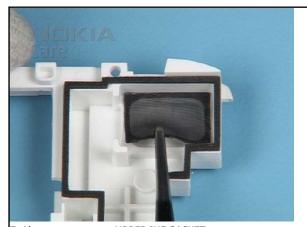


5. Lift the FRAME UPPER ASSY with the SYSTEM MODULE as shown...



6. ...and close the COAX CABLE connector and the HD FLEX connector.





7. Always use a new UPPER IHF GASKET.



8. Insert the IHF SPEAKER, paying attention to the right position of the spring contacts.



9. Align the HINGE MECHANICAI ASSY with the UPPER BLOCK...



10. ...and assemble the unit starting on the shown side.

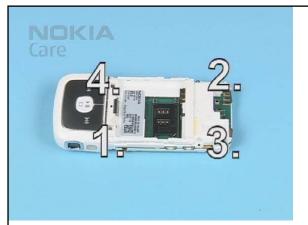


11. Do the same on the other side.



12. Set the torque driver to the correct torque...





13. ...and tighten the screws in the order shown.



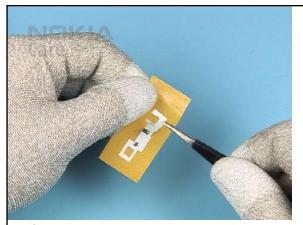
14. Tighten the HINGE screws to the same torque in the order shown.



15. Always use new SCREW STICKERS when assembling the



16. Cover the HINGE screws as shown.



17. Always use a new SIDE CONNECTOR TAPE...



18. ...and position it exactly into its place.





19. Close the LCD connector.



20. Place the LCD into the FRAME UPPER ASSY, starting on the shown side.



21. Gently fit the FRAME LCD ASSY. Take care to the LCD flex...



22. ...and secure the FRAME LCD into its place.



23. Fit the JOYSTICK COVER. Note its correct position.



24. Place the KEYMAT MENU.





25. Insert the ANTENNA ASSY, paying attention to the guide pin. Secure the ANTENNA ASSY by pressing it into place.



26. Fit the LOGO PLATE.



27. Align the SIDE ASSY LEFT with the UPPER BLOCK.



28. Check the correct position of the guide pins. Slide the SIDE ASSY LEFT into its place.



29. Align the SIDE ASSY RIGHT with the UPPER BLOCK.



30. Check the correct position of the guide pins...





31. ...and slide the SIDE ASSY RIGHT into its place.



32. Fit the TOP COVER at the shown side first...



33. ...and then press it into place.



34. Finally, check that no gaps remain.



15.LOWER BLOCK DISASSEMBLY



1. Needed tools: a Torx driver, a bit holder, a Torx Plus size 5 bit, a torque driver, metal tweezers, the SS-93, a dental pick, angled tweezers and the SS-45 camera removal tool.



2. Open the BATTERY COVER and remove the battery if inserted.



3. Unlock the BOTTOM COVER ASSY with this SS-93.



4. Turn the unit and unlock the rear snaps.



5. Unlock the clips on the CAMERA side.



6. Remove the BOTTOM COVER ASSY.





7. Remove the WINDOW CAMERA ASSY.



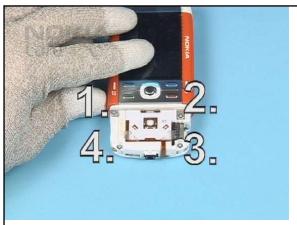
8. Unlock and remove the CAMERA with the SS-45.



9. Remove the KEYMAT MUSIC.



10. Remove the KEYMAT NUMERIC paying attention to the guide pins.



11. Undo the screws in the order shown...



12. ...and remove them.





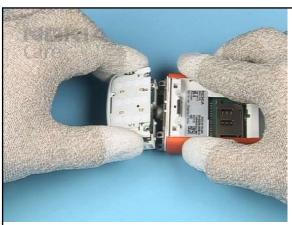
13. Undo the last two screws in the order shown and remove them, too.



14. Gently separate the Lower Block from the Upper Block, starting at the shown side.



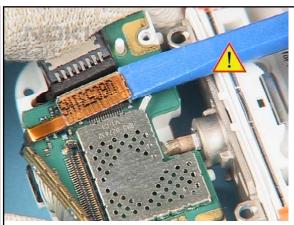
15. Now, separate the other HINGE side. Take care to the COAX CABLE.



16. Remove the D-COVER NUMERIC.



17. Very gently open the COAX connector...

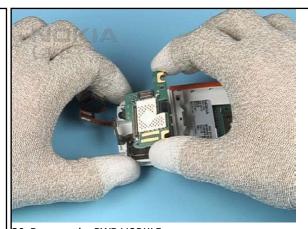


18. ...and the CAMERA connector.

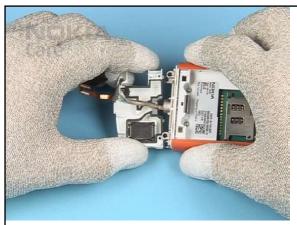




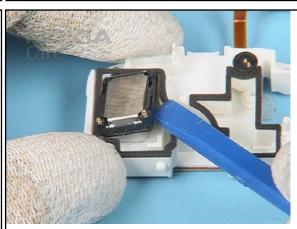
19. Lift the CAMERA housing from its position.



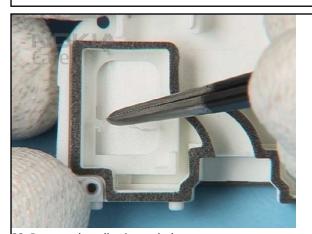
20. Remove the PWB MODULE.



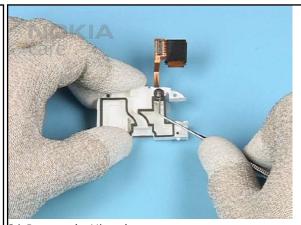
21. Separate the D-COVER MUSIC from the UPPER BLOCK.



22. Remove the IHF SPEAKER.



23. Remove the adhesive resiodues.



24. Remove the Microphone.





25. The disassembly procedure is now finished.



16.LOWER BLOCK ASSEMBLY HINTS



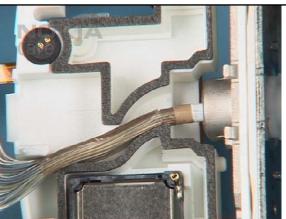
1. Assembly hints.



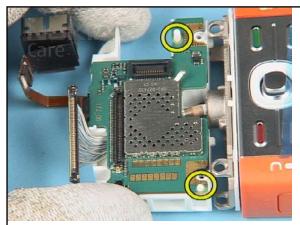
2. Always use a new UPPER IHF GASKET.



3. Ensure the correct position of the spring contacts when inserting the IHF SPEAKER.



4. Take special care to the correct position of the COAX CABLE when fitting the D-COVER MUSIC ASSY.

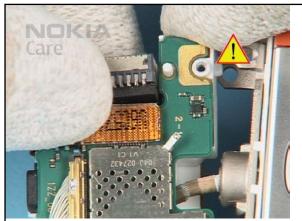


5. Place the PWB MODULE on the D-COVER MUSIC paying attention to the guide pins.



6. Carefully close the COAX CABLE connector. Note the correct position of the COAX CABLE.





7. Place the LOWER FLEX ASSY with the CAMERA housing into its 8. Fit the D-COVER NUMERIC ASSY. place and close the connector.





9. Fit the LOWER BLOCK to the HINGE MECHANICAL ASSY starting 10. Continue on the other side. on the shown side.





11. Set the torque driver to the correct torque...



12. Tighten the screws in the order shown, starting on the D-COVER NUMERIC side.





13. Continue on the D-COVER MUSIC side.



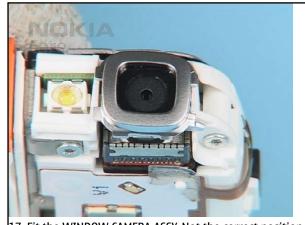
14. Note the aligment tab of the CAMERA when reassembling the unit.



15. Insert the CAMERA into its housing...



16. ... and secure it by pushing it into its place.



17. Fit the WINDOW CAMERA ASSY. Not the correct position.



18. Fit the KEYMAT NUMERIC paying attention to the guide pins.





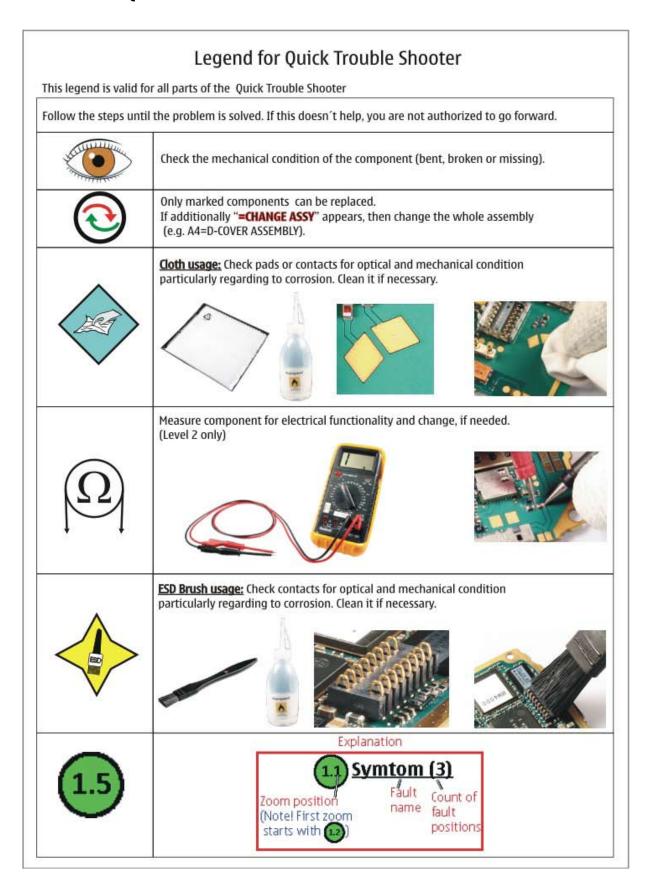
19. Fit the BOTTOM COVER ASSY.



20. Finally, check the mechanical functionality of the HINGE and that no gaps remain.

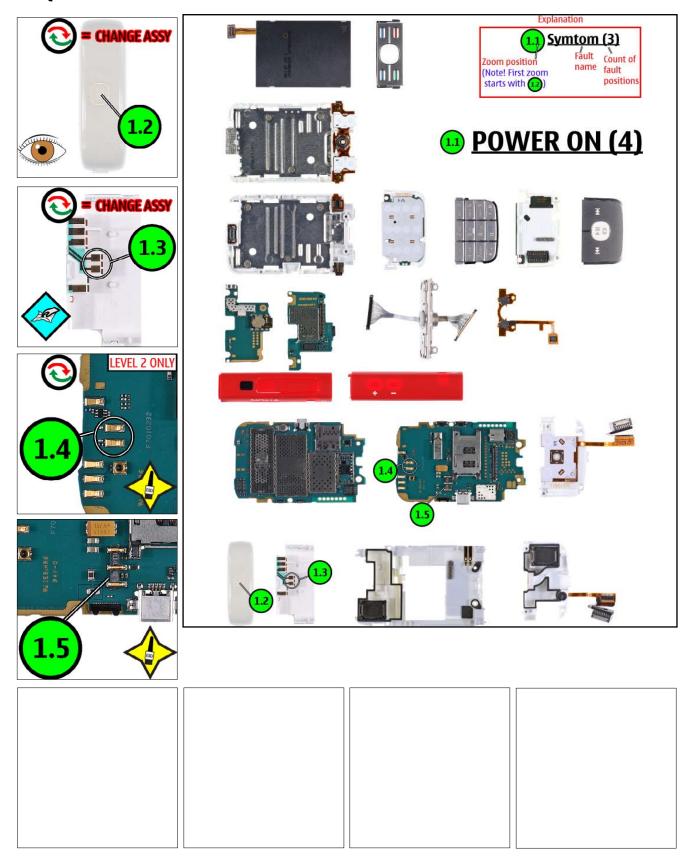


17.LEGEND FOR QUICK TROUBLE SHOOTER





18. QUICK TROUBLE SHOOTER - POWER ON

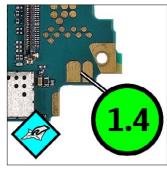




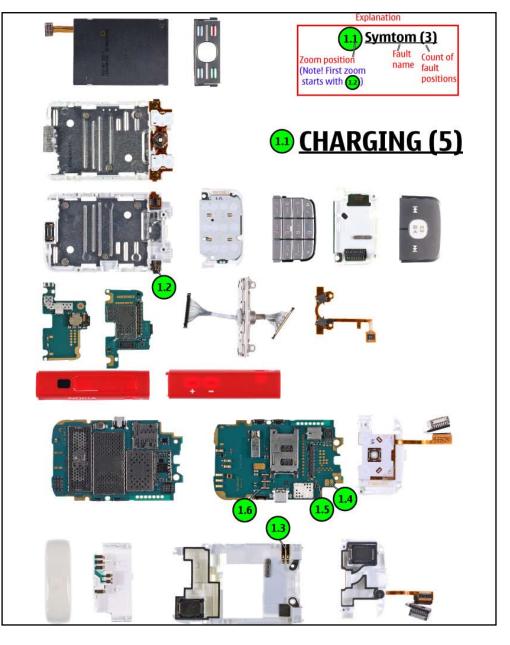
19. QUICK TROUBLE SHOOTER - CHARGING



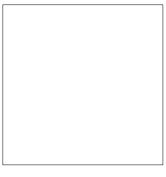


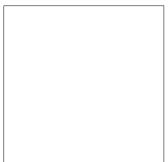


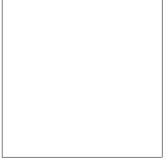






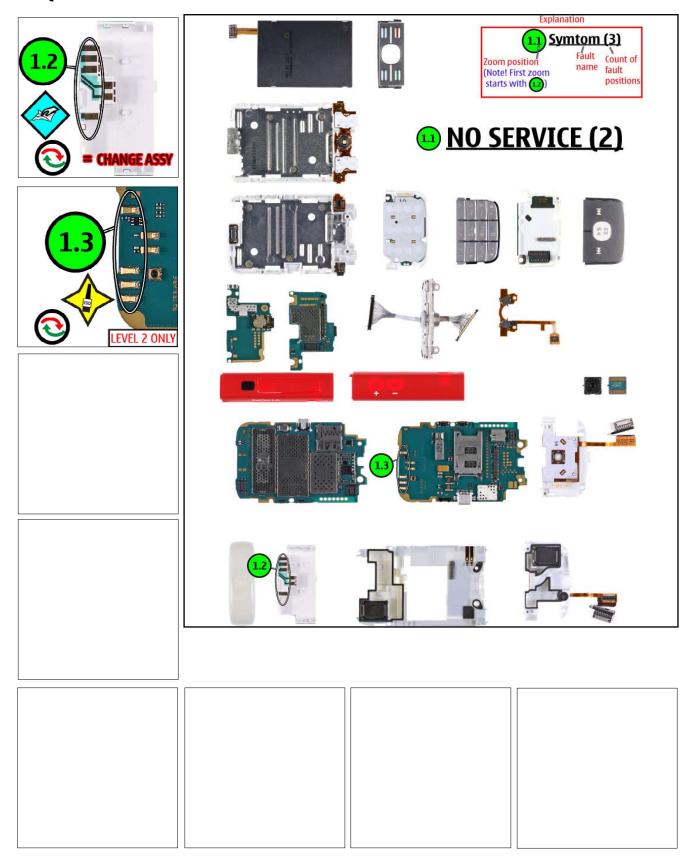






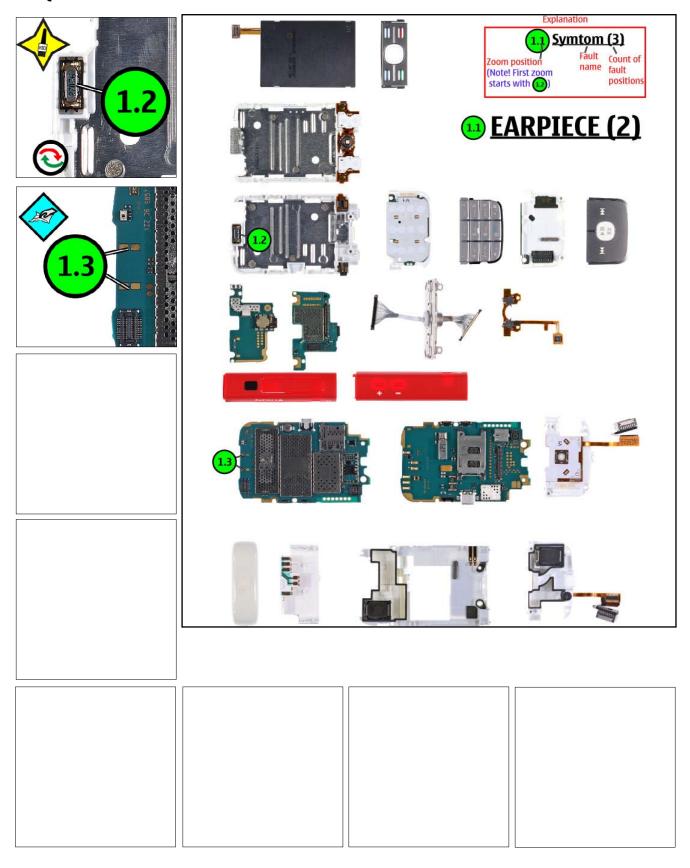


20.QUICK TROUBLE SHOOTER - NO SERVICE



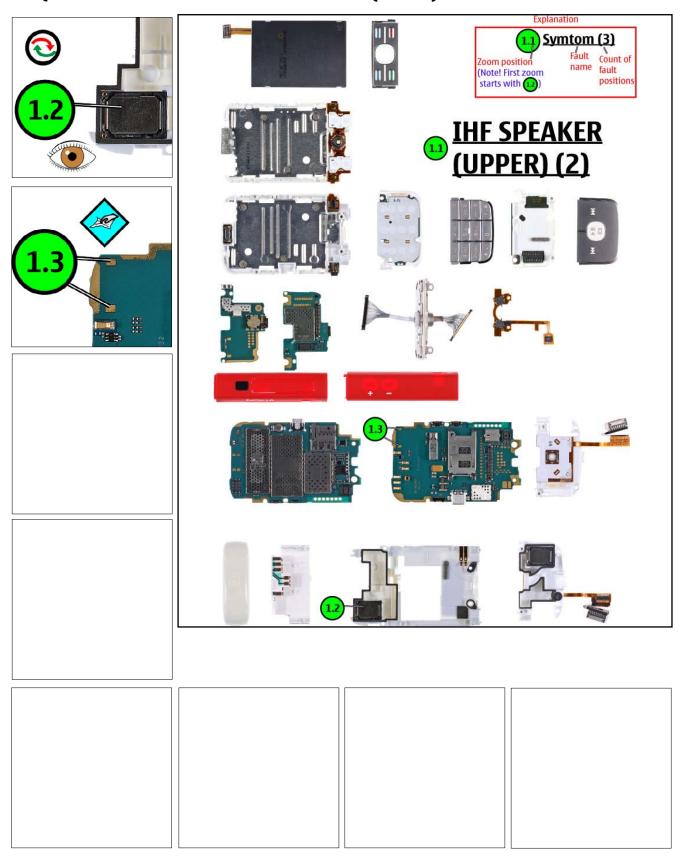


21.QUICK TROUBLE SHOOTER - EARPIECE



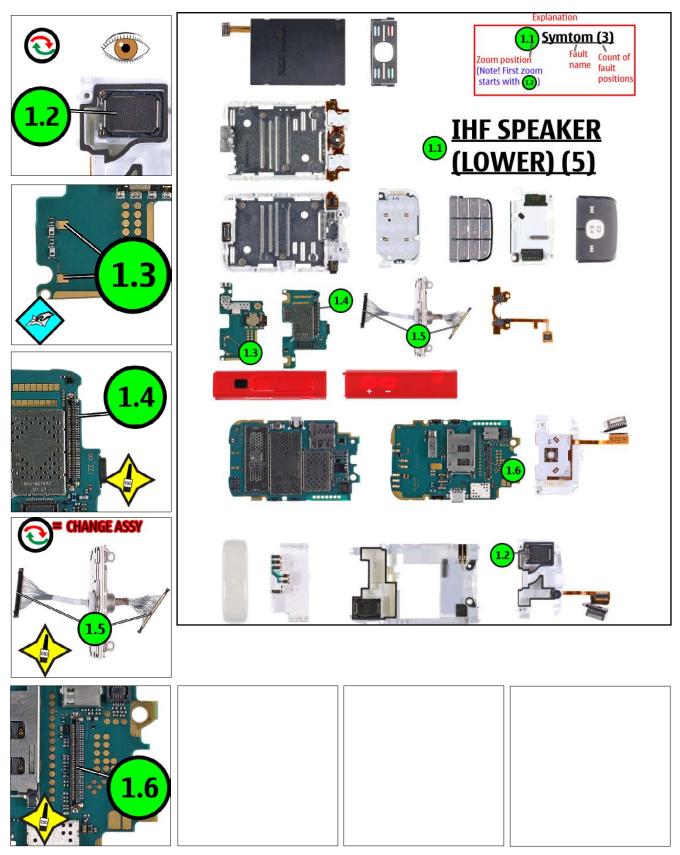


22.QUICK TROUBLE SHOOTER - IHF SPEAKER (UPPER)



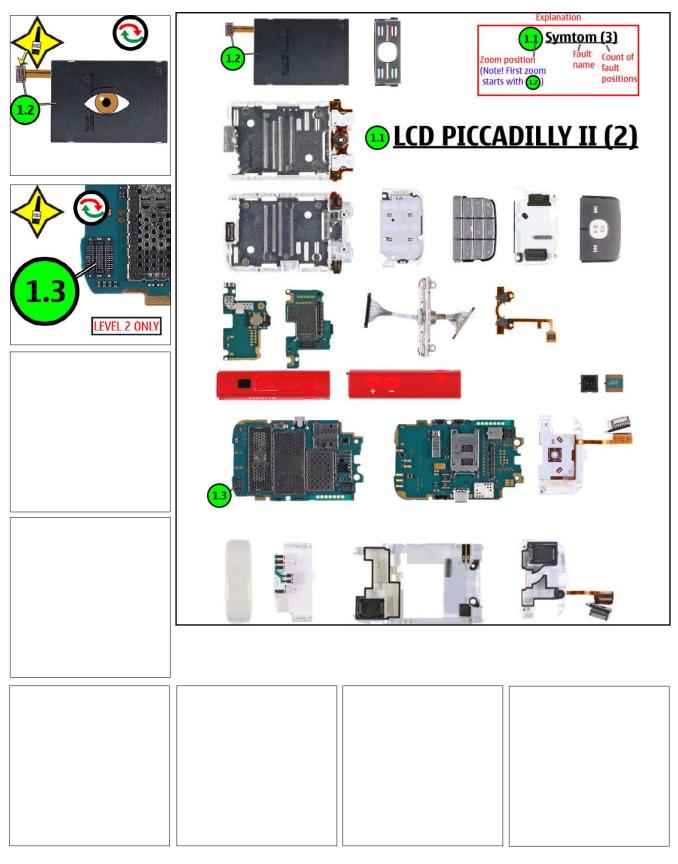


23.QUICK TROUBLE SHOOTER - IHF SPEAKER (LOWER)



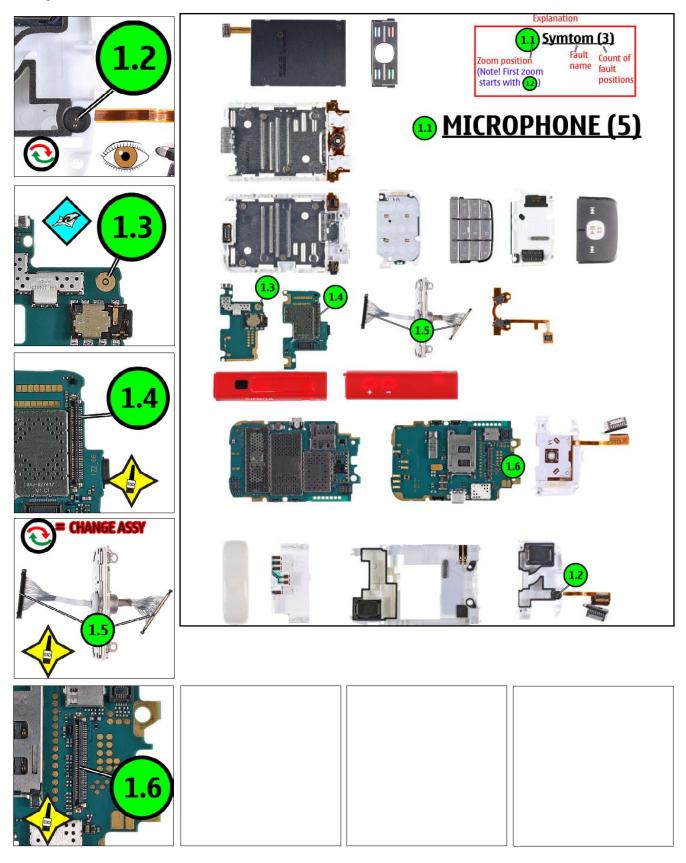


24.QUICK TROUBLE SHOOTER - DISPLAY





25.QUICK TROUBLE SHOOTER - MICROPHONE



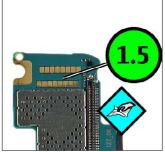


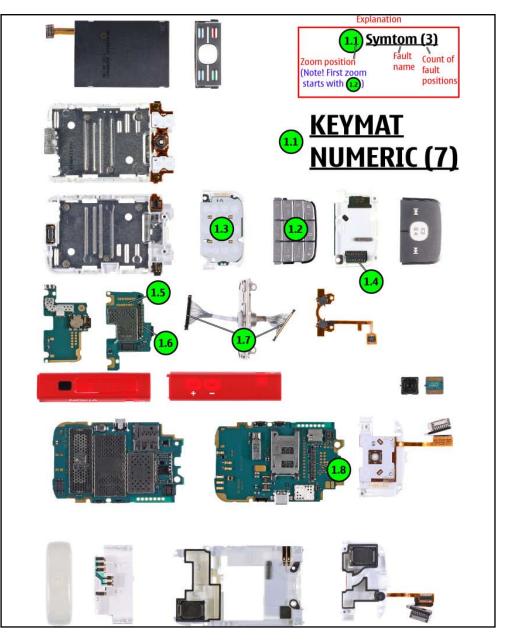
26.QUICK TROUBLE SHOOTER - KEYMAT NUMERIC







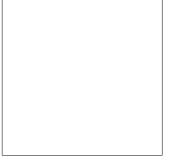






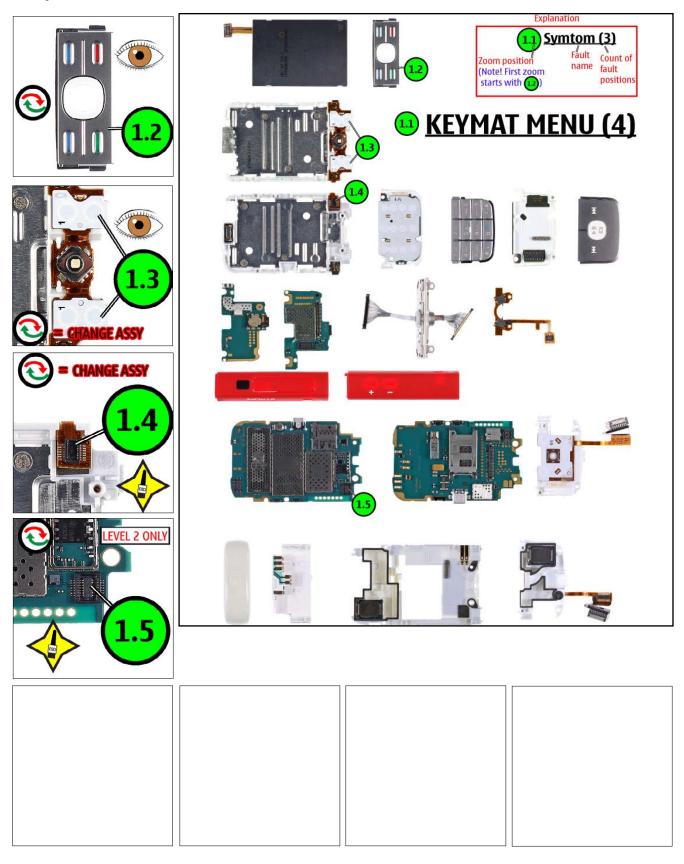








27.QUICK TROUBLE SHOOTER - KEYMAT MENU



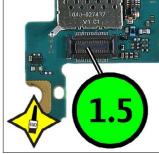


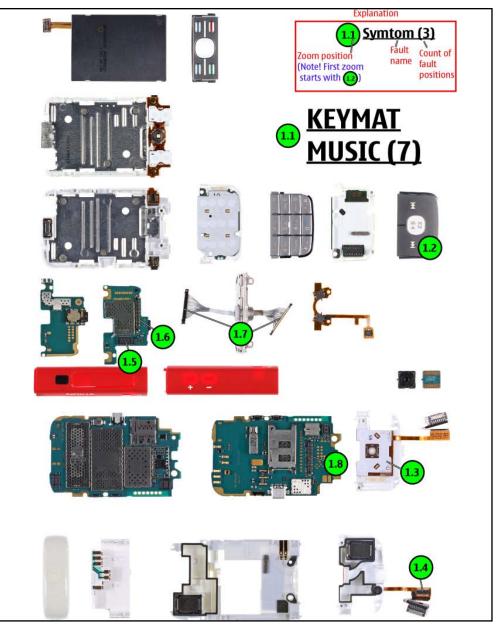
28.QUICK TROUBLE SHOOTER - KEYMAT MUSIC

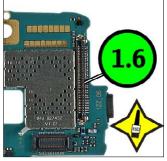




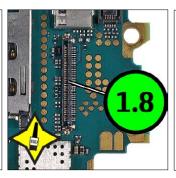












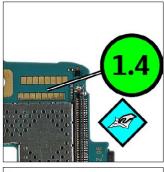




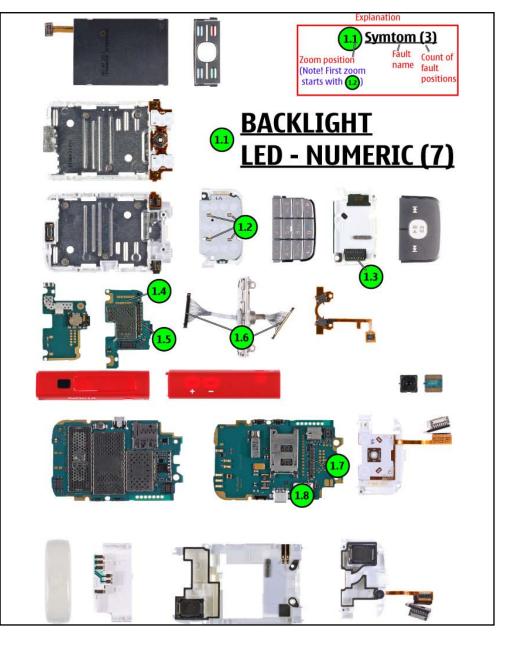
29. QUICK TROUBLE SHOOTER - BACKLIGHT LEDS (NUMERIC)



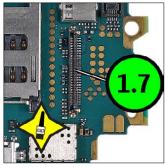








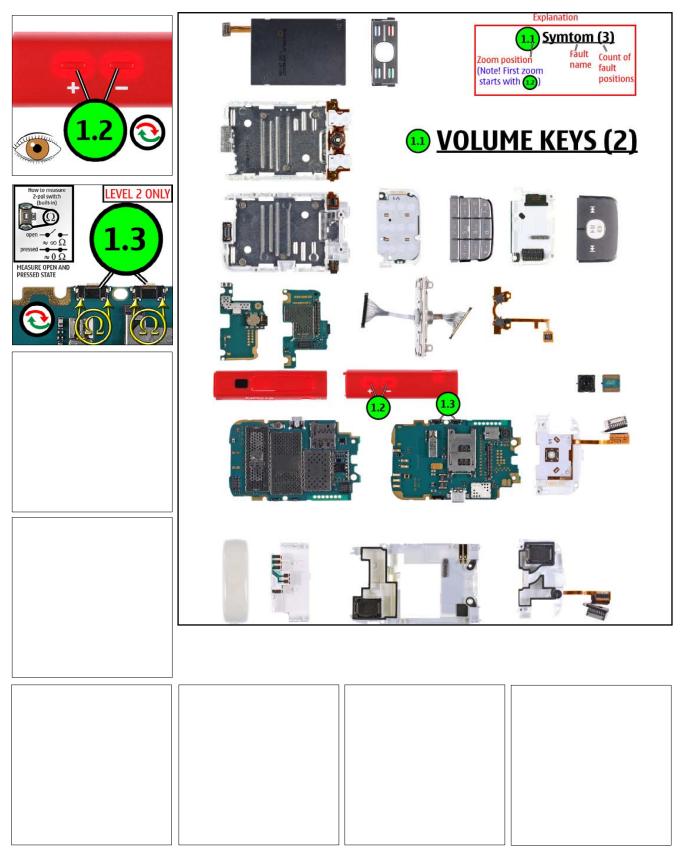






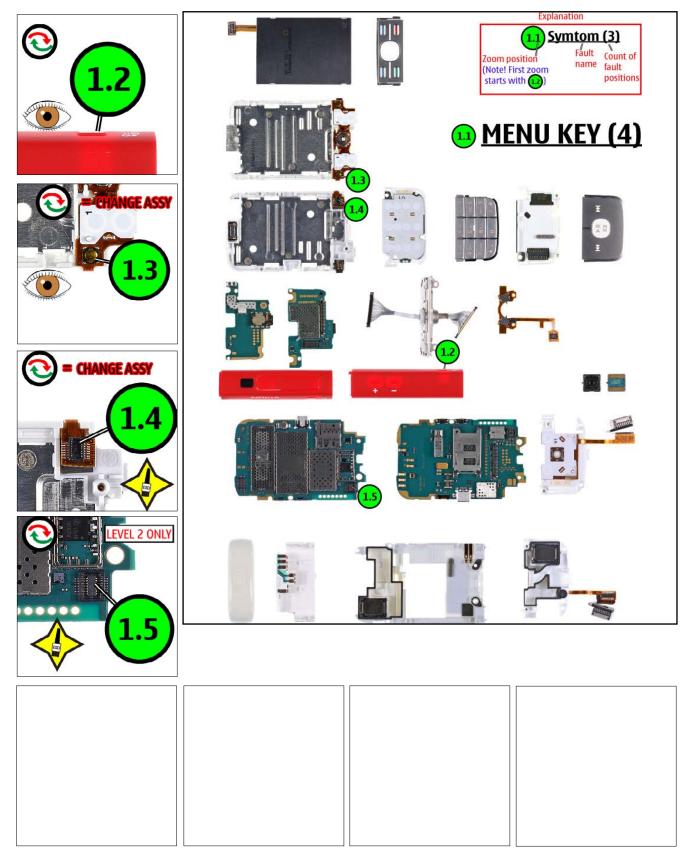


30.QUICK TROUBLE SHOOTER - VOLUME KEYS



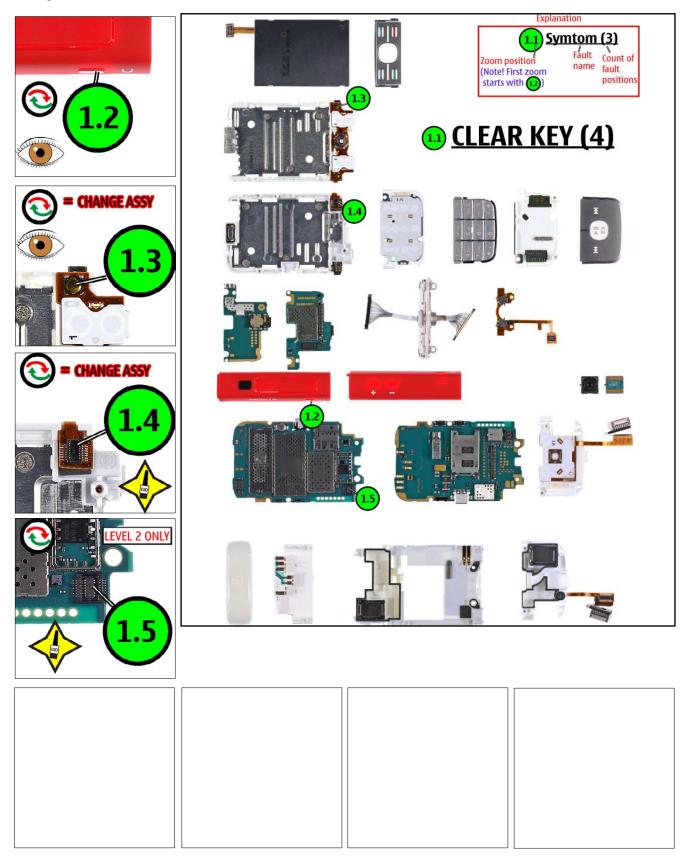


31.QUICK TROUBLE SHOOTER - MENU KEY



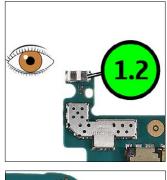


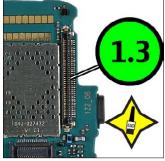
32.QUICK TROUBLE SHOOTER - CLEAR KEY



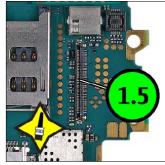


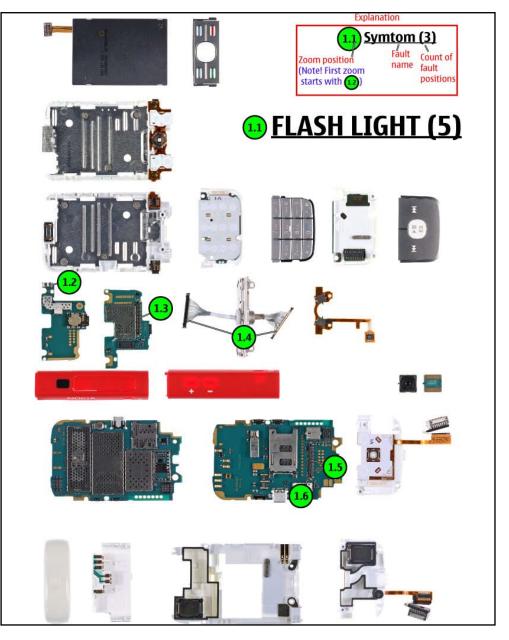
33.QUICK TROUBLE SHOOTER - FLASH LIGHT





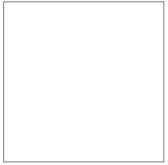








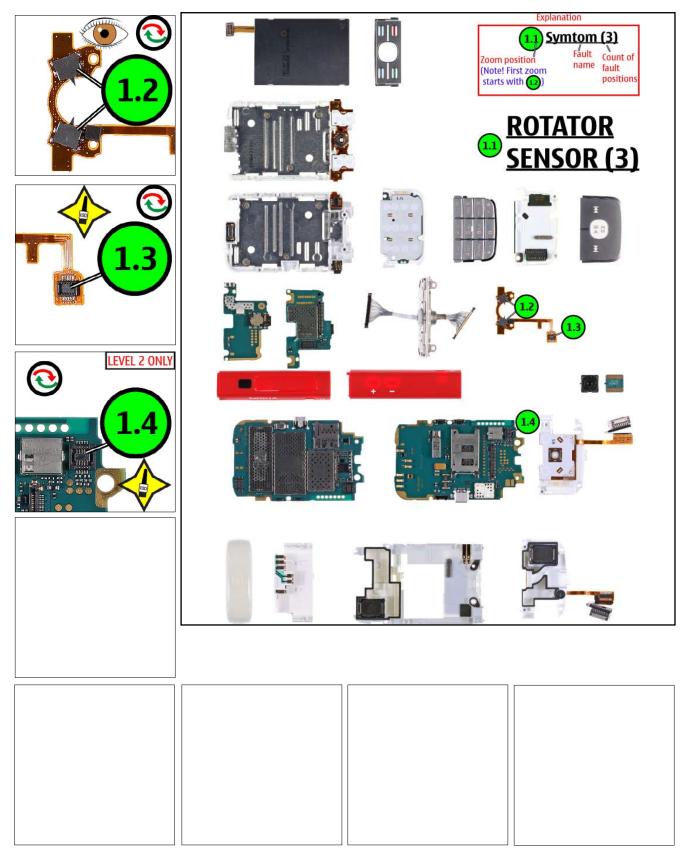






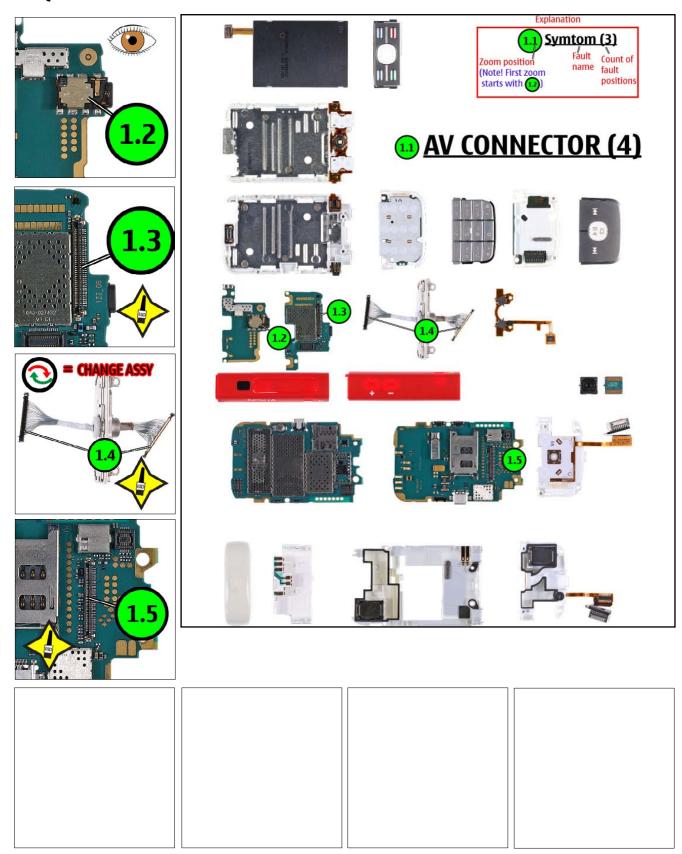


34.QUICK TROUBLE SHOOTER - ROTATOR SENSOR





35.QUICK TROUBLE SHOOTER - AV CONNECTOR





36.QUICK TROUBLE SHOOTER - CAMERA







