

**7210****NHL-4****6610****NHL-4U**

Service Manual

Service Level 1&2

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Introduction

The purpose of this document is to help Nokia service levels 1 and 2 workshop technicians to carry out service to Nokia 7210 & 6610. This Service Manual is to be used **only** by authorized Nokia service partners, and the content of it is **confidential**. Please note that Nokia provides also other guidance documents (e.g. Service Bulletins) for service partners, 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, Nokia should be notified. Please keep in mind also that this documentation is continuously being updated and modified, so watch always out for the newest version.

Warnings and Cautions

Please refer to the phone's user guide for instructions relating to operation, care and maintenance including important safety information. Note also the following:

Warnings:

1. CARE MUST BE TAKEN ON INSTALLATION IN VEHICLES FITTED WITH ELECTRONIC ENGINE MANAGEMENT SYSTEMS AND ANTI-SKID BRAKING SYSTEMS. UNDER CERTAIN FAULT CONDITIONS, EMITTED RF ENERGY CAN AFFECT THEIR OPERATION. IF NECESSARY, CONSULT THE VEHICLE DEALER/MANUFACTURER TO DETERMINE 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. Ensure solder, wire, or foreign matter does not enter the telephone as damage may result.
4. Use only approved components as specified in the parts list.
5. Ensure all components, modules screws and insulators are correctly re-fitted after servicing and alignment. Ensure all cables and wires are repositioned correctly.
6. All PC's used with NMP Service Software for this produce must be bios and operating system "Year 2000 Compliant".

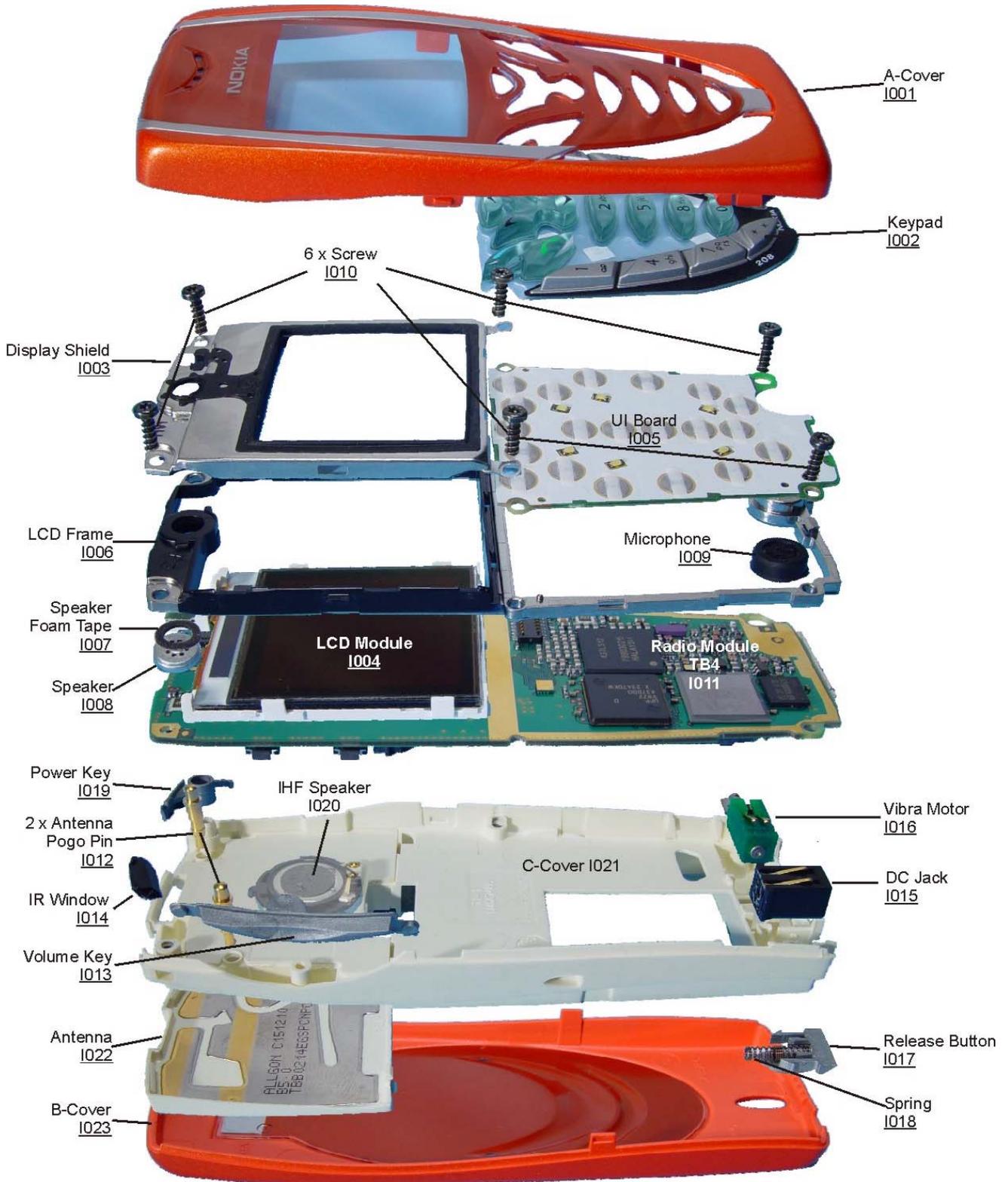
Table of content

- 1. **EXPLODED VIEW**..... 4
- 2. **SPARE PARTS LIST**..... 5
- 3. **7210<>6610 COMPARISON**..... 8
- 4. **INFRARED GONOGO TEST** 9
- 5. **SW-UPDATE** 10
- 6. **GENERAL REPAIR INFORMATION** 11
- 7. **DISASSEMBLY INSTRUCTIONS (SEE ALSO VIDEO CLIPS)** 12
- 8. **QUICK TROUBLE SHOOTER PART1** 14
- 9. **QUICK TROUBLE SHOOTER PART2** 15
- 10. **ESD PROTECTION REQUIREMENTS**..... 17
- 11. **SERVICE NOTES**..... 18
- 12. **GONOGO TESTER**..... 19
- 13. **BATTERY TESTER**..... 19

Change History

| Originator | Status | Version No. | Date | Comments |
|------------|----------|-------------|------------|-----------------|
| MWy | Draft | 0.1 | 01.08.2001 | Initial draft |
| MWy | Approved | 1.0 | 25.09.2002 | Approval by PHe |
| | | | | |
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| | | | | |
| | | | | |
| | | | | |

1. EXPLODED VIEW



Description: See corresponding ITEM/CIRCUIT REF of the SPL (Spare Parts List)

2. SPARE PARTS LIST

SPARE PARTS

| ITEM/ CIRCUIT REF. | QTY | PART NO | PART NAME |
|-----------------------|-----|---------|--|
| I003 | 1 | 9517173 | DISPLAY SHIELD DMC04171 NHL-4 |
| I004 | 1 | 4850261 | LCD MODULE 130X130 COG COLOURSTN |
| I005 | 1 | 0201827 | TK4 UI BOARD MODULE (7210) |
| I005 | 1 | 0201909 | TK7 UI BOARD MODULE (6610) |
| I006 | 1 | 9467076 | LCD FRAME DMC03935 NHL-4 |
| I007 | 1 | 9470283 | SPEAKER FOAM TAPE |
| I008 | 1 | 5140251 | SPEAKER105+-3DB32R D8.1X2.25 PICO |
| I009 | 1 | 5140263 | MIC+BOOT ASSY -42+-3DB D7.7X3MM |
| I010 | 6 | 6290107 | SCREW 1.8X7.0 FE T6+ DMD05791 BLK |
| I012 | 2 | 5400263 | ANTENNA POGO PIN L=8.7MM D=2.1MM |
| I013 | 1 | 9452236 | VOLUME KEY DMD07492 NHL-4 |
| I014 | 1 | 9452235 | IR WINDOW DMD07490 NHL-4 |
| I015 | 1 | 5400243 | CONN DC-JACK 3.5MM 3POL SPR 90DEG |
| I016 | 1 | 6800057 | VIB.MOTOR ASSY 1.3 VDC 11000 RPM |
| I017 | 1 | 9470205 | RELEASE BUTTON NHL-4 |
| I018 | 1 | 9510845 | SPRING NHL-4 |
| I019 | 1 | 9452237 | POWER KEY DMD07491 NHL-4 |
| I020 | 1 | XXXXXXX | SPEAKER HF 69+-2DB8R D16X4.36 |
| I022 | 1 | 0660264 | ANTENNA INT ANTENNA EGSM/PCN/PCS (7210) |
| I022 | 1 | 0660267 | ANTENNA INT ANTENNA EGSM/PCN/PCS (6610) |
| | | | |

SOLDERING COMPONENTS **ONLY FOR LEVEL 2**

| ITEM/ CIRCUIT REF. | QTY | PART NO | PART NAME |
|-----------------------|-----|---------|-----------------------------------|
| S300 | 1 | 5209001 | SM SW TACT SPST 12V 50MA SIDE KEY |
| S301 | 1 | 5209001 | SM SW TACT SPST 12V 50MA SIDE KEY |
| S302 | 1 | 5409235 | SM TACT SW TRAV 0.2 4.1X3.55X1.75 |
| F100 | 1 | 5119019 | SM FUSE F 1.5A 32V 0603 |
| G300 | 1 | 4700131 | CELL CAPACITOR 0.01MAH 3V3 |
| V101 | 1 | 4864573 | LED CL19WBVA WHITE |
| V102 | 1 | 4864573 | LED CL19WBVA WHITE |
| V103 | 1 | 4864573 | LED CL19WBVA WHITE |
| V104 | 1 | 4864573 | LED CL19WBVA WHITE |
| V105 | 1 | 4864573 | LED CL19WBVA WHITE |
| V106 | 1 | 4864573 | LED CL19WBVA WHITE |

VARIANT PARTS (7210)

| ITEM/ CIRCUIT REF. | QTY | PART NO | PART NAME |
|-----------------------|-----|---------|---------------------------------|
| I001 | | 9490782 | A-COVER ASSY DMC03934 ORANGE |
| I001 | | 9490783 | A-COVER ASSY DMC03934 TURQUOISE |
| I001 | | 9490784 | A-COVER ASSY DMC03934 BROWN |
| I002 | | 9790644 | KEYPAD LATIN DMC04451 NHL-4 |
| I002 | | 9790710 | KEYPAD ARABIC DMC05274 NHL-4 |
| I002 | | 9790711 | KEYPAD CYRILLIC DMC05275 NHL-4 |
| I002 | | 9790712 | KEYPAD GREEK DMC05276 NHL-4 |
| I002 | | 9790713 | KEYPAD HEBREW DMC05277 NHL-4 |
| I023 | | 9490773 | B-COVER ASSY DMC04484 ORANGE |
| I023 | | 9490774 | B-COVER ASSY DMC04484 TURQUOISE |
| I023 | | 9490775 | B-COVER ASSY DMC04484 BROWN |
| | | | |

VARIANT PARTS (6610)

| ITEM/ CIRCUIT REF. | QTY | PART NO | PART NAME |
|-----------------------|-----|---------|--------------------------------|
| I001 | | 9490826 | A-COVER ASSY DMC05091 BLACK |
| I001 | | 9490827 | A-COVER ASSY DMC05091 WHITE |
| I001 | | 9490888 | A-COVER ASSY DMC05091 GREY |
| I002 | | 9790719 | KEYPAD LATIN DMC05167 HDJ13 |
| I002 | | 9790726 | KEYPAD ARABIC DMC05296 HDJ13 |
| I002 | | 9790724 | KEYPAD CYRILLIC DMC05294 HDJ13 |
| I002 | | 9790725 | KEYPAD GREEK DMC05295 HDJ13 |
| I002 | | 9790727 | KEYPAD HEBREW DMC05297 HDJ13 |
| I023 | | 9490833 | B-COVER ASSY DMC05092 BLACK |
| I023 | | 9490832 | B-COVER ASSY DMC05092 WHITE |
| I023 | | 9490889 | B-COVER ASSY DMC08092 GREY |
| | | | |

SWAP UNITS (7210)

| | QTY | PART NO | PART NAME |
|--|-----|---------|--------------------------------|
| | | 0075544 | NHL-4 N7210 SWAP ENGINE |
| | | 0075545 | NHL-4 N7210 SWAP ENGINE RUSSIA |
| | | 0075546 | NHL-4 N7210 SWAP ENGINE POLAND |
| | | 0075547 | NHL-4 N7210 SWAP ENGINE FRANCE |
| | | 0075548 | NHL-4 N7210 SWAP ENGINE TURKEY |
| | | 0075549 | NHL-4 N7210 SWAP ENGINE CZECH |
| | | | |

SWAP UNITS (6610)

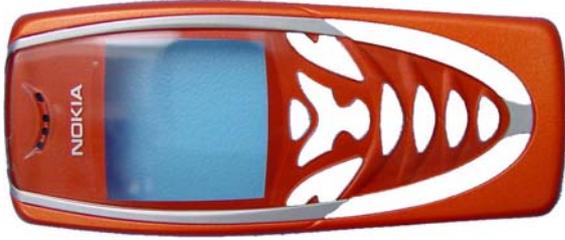
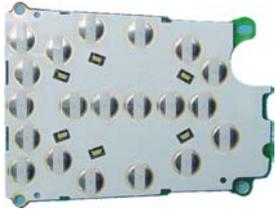
| | QTY | PART NO | PART NAME |
|--|-----|---------|---------------------------------|
| | | 0075812 | NHL-4U N6610 SWAP ENGINE CZECH |
| | | 0075813 | NHL-4U N6610 SWAP ENGINE TURKEY |
| | | 0075814 | NHL-4U N6610 SWAP ENGINE FRANCE |
| | | 0075815 | NHL-4U N6610 SWAP ENGINE POLAND |
| | | 0075816 | NHL-4U N6610 SWAP ENGINE RUSSIA |
| | | 0075817 | NHL-4U N6610 SWAP ENGINE |
| | | | |

SERVICE TOOLS

| TYPE | QTY | PART NO | PART NAME |
|------|-----|---------|--------------------------------|
| | | 0080541 | FLS-4S SALES PACK E&A |
| | | 0273460 | BLD-3 BATTERY PACK |
| | | 0770492 | FLA-27 POS FLASH ADAPTER |
| | | 0730218 | XCS-1 SERVICE CABLE |
| | | 0273636 | DCV-14 DESK TOP STAND |
| | | 0272169 | AC TRAVEL CHARGER ACP-8E (EUR) |
| | | 0272172 | AC TRAVEL CHARGER ACP-8X (UK) |
| | | 0273505 | HDS-3 STEREO HEADSET |
| | | 0770431 | SRT-6 OPENING TOOL 5510 |
| | | | |

3. 7210<>6610 COMPARISON

There are not many differences between these two products. Only some mechanical parts, the UI Board and Antenna are different (see Spare Parts Lists).

| 7210 | | 6610 | |
|---|---|--|---|
|  | |  | |
| A-Cover, Item 001 | | A-Cover, Item 001 | |
|  | |  | |
| B-Cover, Item 023 | | B-Cover, Item 023 | |
|  |  |  |  |
| Keypad, Item 002 | TK4, Item 005 | Keypad, Item 002 | TK7, Item 005 |
|  | |  | |
| Antenna, Item 022 | | Antenna, Item 022 | |

4. INFRARED GONOGO TEST

You need another infrared device (e.g. 6310i) to do a GoNoGo test. The infrared windows of the devices must be directed to each other and should have a distance of approximate 15 cm.

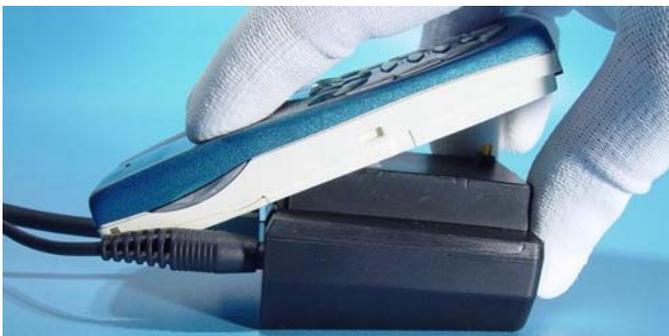
| | | |
|---|--------------------------------|---|
|  | <p>infrared connection</p> |  |
| Test unit | | Reference Unit |
| <ul style="list-style-type: none"> ○ From Home Menu, select ▼ key. This displays Phonebook entries. If phone and SIM memory is empty, create one new entry. ○ Choose one phonebook entry and select Details ○ Select Options ○ Select Send bus. card ○ Select Via Infrared ○ Sending in progress, please wait  ○ If sending of business card fails Sending failed STOP, make sure again, that infrared windows are directed to each other. If infrared is activated in reference device IR, try again sending. ○ Test was successful, if you get this message on receiver device Business card received. You will not get a confirmation on sender device. ○ Press  for Home Menu | | |

5. SW-UPDATE

To use FLS-4S Flash Dongle you have to follow the user guide inside the sales package. Please check always for the latest version of flash software, which is available on Nokia Partner Web Site.
Flash Concept – (Point of Sales)



It is very important to follow this insertion and removal procedure, otherwise the contact pins of Flash Adapter will be damaged.



Insert the Flash Adapter FLA-27 like a battery, start at the battery connector side.



Now, push down the bottom side of the phone, do not use too much force.



When removing the Flash Adapter, always start from the bottom side of the unit.



Take away the unit now.

6. GENERAL REPAIR INFORMATION

In this section the technician will get some general hints how to carry out repairs:

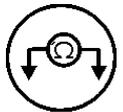
- Before starting the repair you must take care of ESD precautions like being in your ESD-area and connecting your wristband.
- Use gloves to avoid corrosion and fingerprints.
- Protect windows and displays with a foil to avoid dust and scratches.
- When cleaning the pads you have to use a soft cloth and isopropanol. It is not allowed to use a glass fiber pencil because it scratches the surface and will lead later on to corrosion.
- Mechanical parts, which didn't repair the failure, can be reused, if they are not soldered.
- Use always original Nokia parts or accessories.
- Meet the torque requirements when assembling the unit (see also the document "torques for transceiver assembly" on Partner Websites).
- Always use your own equipment for testing where you are sure that it works. E.g. if the customer complains about charger function, please test the phone with your own charger to be sure if phone or charger causes the malfunction.
- When doing the Faultlogger entries, always note the Item code, which caused the malfunction. Also, fill in the appropriate part code from the assembly, if needed.

Following General Service Bulletins have to be followed:

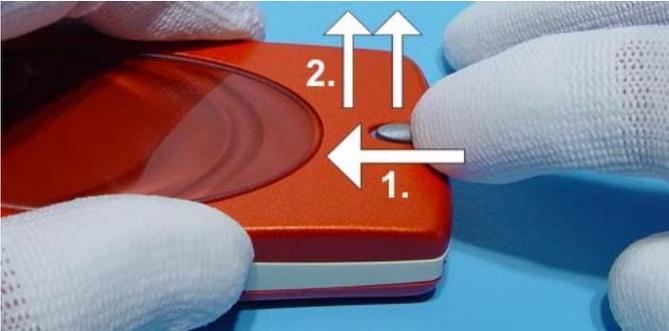
- SB-055 Common notice for good ventilation
- SB-089: Don't try to repair prototypes (indicated on Typelabel).
- SB-107: Be sure that you have minimum hardware requirements in place.
- SB-115: Handling of liquid damages.
- SB-121: If one of your service tools cause malfunction, return the defective part.
- SB-122: Soldering with manual hot air gun is totally forbidden because of the very sensitive μ BGA components and μ Via technology.**
- SB-124 Service Policy for packaging serviced products
- SB-131: Check these guidelines when refurbishing products.
- SB-132: You can use a **Golden Phone** for inspecting your measuring equipment.

Please check Nokia Partner Web Site (PWS) for latest news and files on a regular basis.

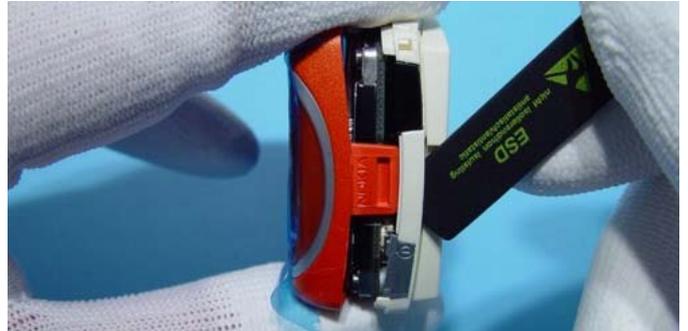
This legend is valid for all parts of the **Quick Trouble Shooter**

| | |
|---|--|
| Follow the steps until the problem is solved. If this doesn't help, you are not authorized to go forward. Only underlined components (e.g. <u>I007</u>) can be changed. | |
|  | Follow the arrows step by step |
|  | Pads or contacts: Check optical and mechanical condition as well as corrosion. Clean if necessary. |
|  | Measure component for electrical functionality and change, if needed. |
|  | No more actions possible, send product to the appropriate service partner with higher service level. |

7. DISASSEMBLY INSTRUCTIONS (SEE ALSO VIDEO CLIPS)



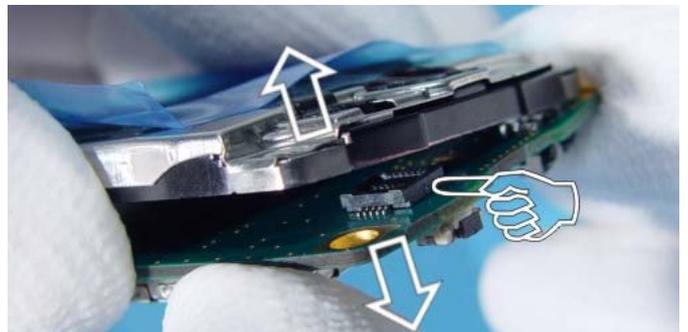
Push the *Release Button* to the left before pulling up the *B-Cover*.



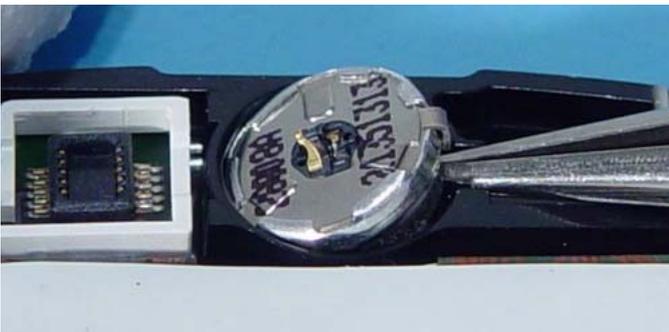
Unlock the top guidance to remove the *A-Cover*.



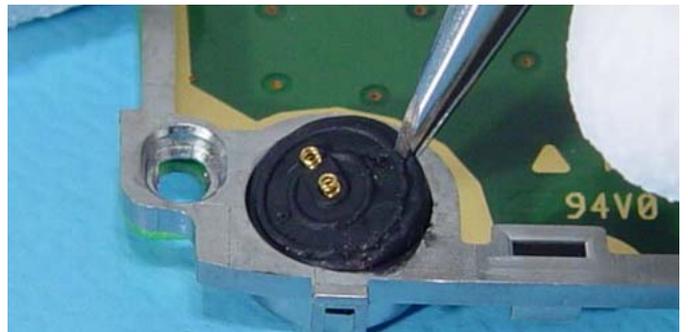
Unscrew the six T6 screws, using the order shown. **For assembly, the reverse order and a torque of 17Ncm have to be used.**



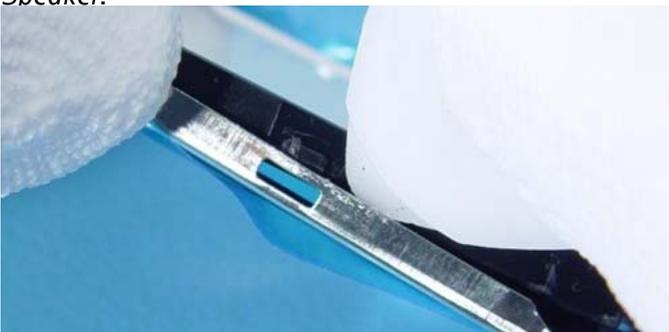
Take the modules from the *C-Cover* and unplug the display connector by pulling the modules apart carefully.



The *Speaker* is attached with double-sided adhesive Foam Tape. Always use new tape when mounting the *Speaker*.



Do not damage the spring contacts, when removing the *Microphone*.



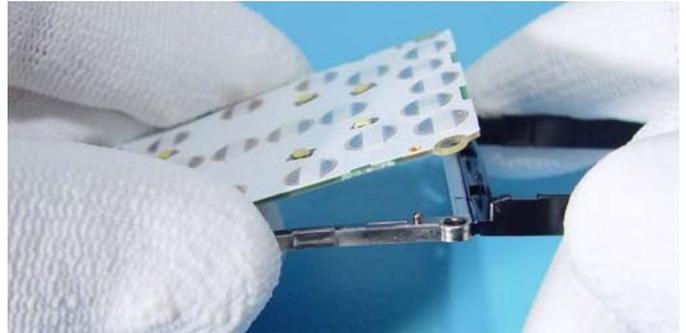
Open the snaps with *SRT-6* on both sides of the *Display Shield*.



The *Display Shield* is attached with hooks at its bottom side.



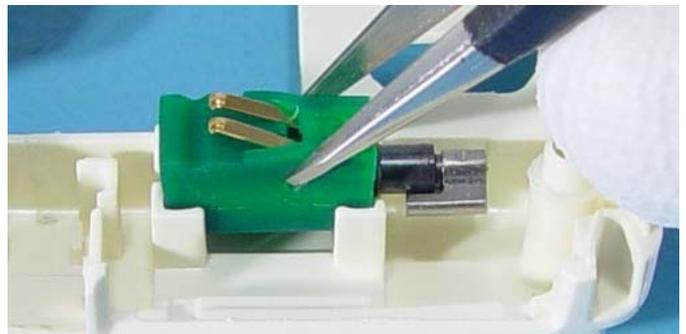
Take a clean cloth and press the *LCD* from the *LCD Frame*.



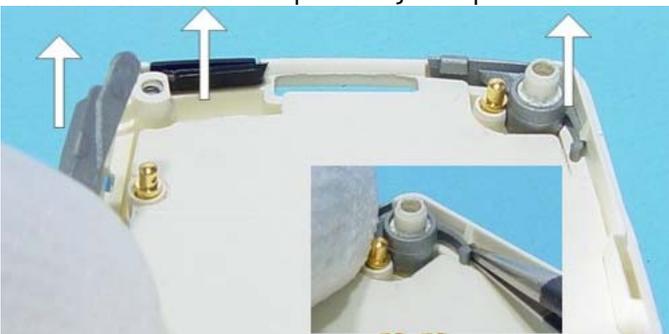
Bend the frame a bit, shift the *UI Board Module* to the right and then pull it up.



To remove the *DC Jack*, place tweezers between the spring contacts and under the jack. You'll need to use additional force to pull the jack upwards.



Remove the *Vibra Motor* with the rubber and pull it from its guidance.



Volume Key and the *Infrared Window* can be easily removed with your fingers. The *Power Key* has to be unlocked on the lower side first.



Unlock *Antenna* on both sides with *SRT-6*.

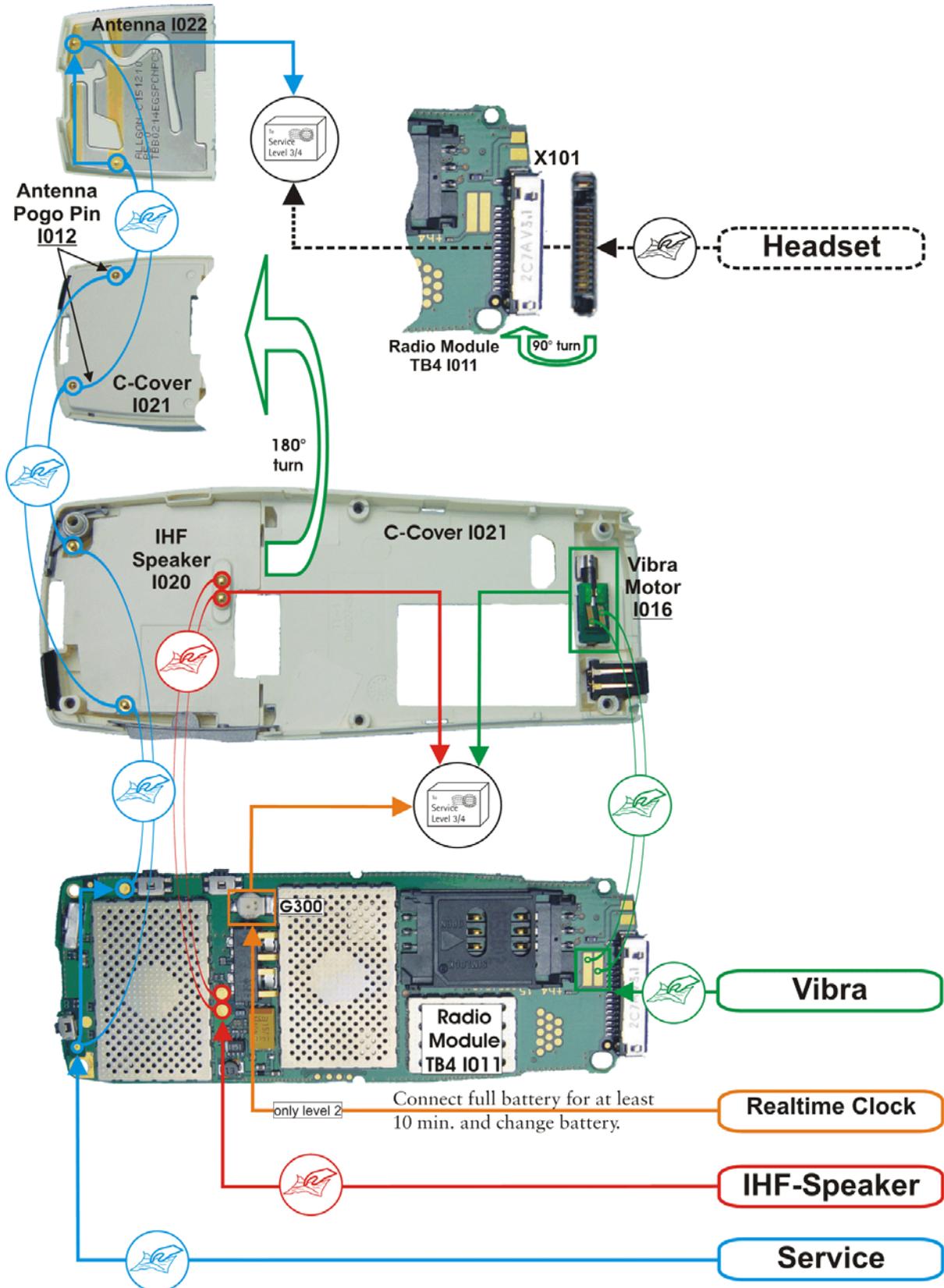


Antenna Pogo Pins can be removed by pushing with *Torx driver* through the *C-Cover*.

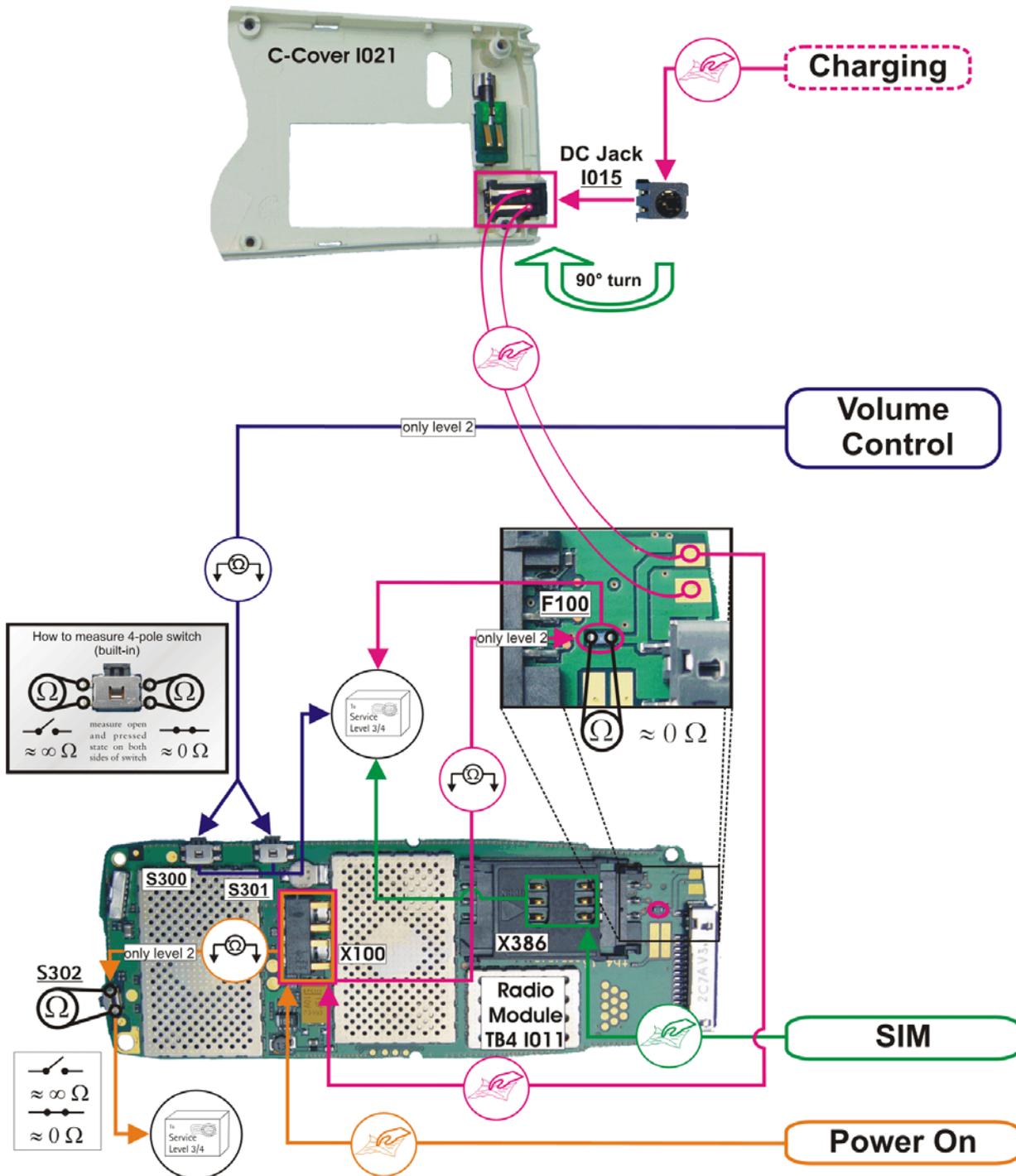


If there is a need to change the *Release Button*, also *SRT-6* can be used.

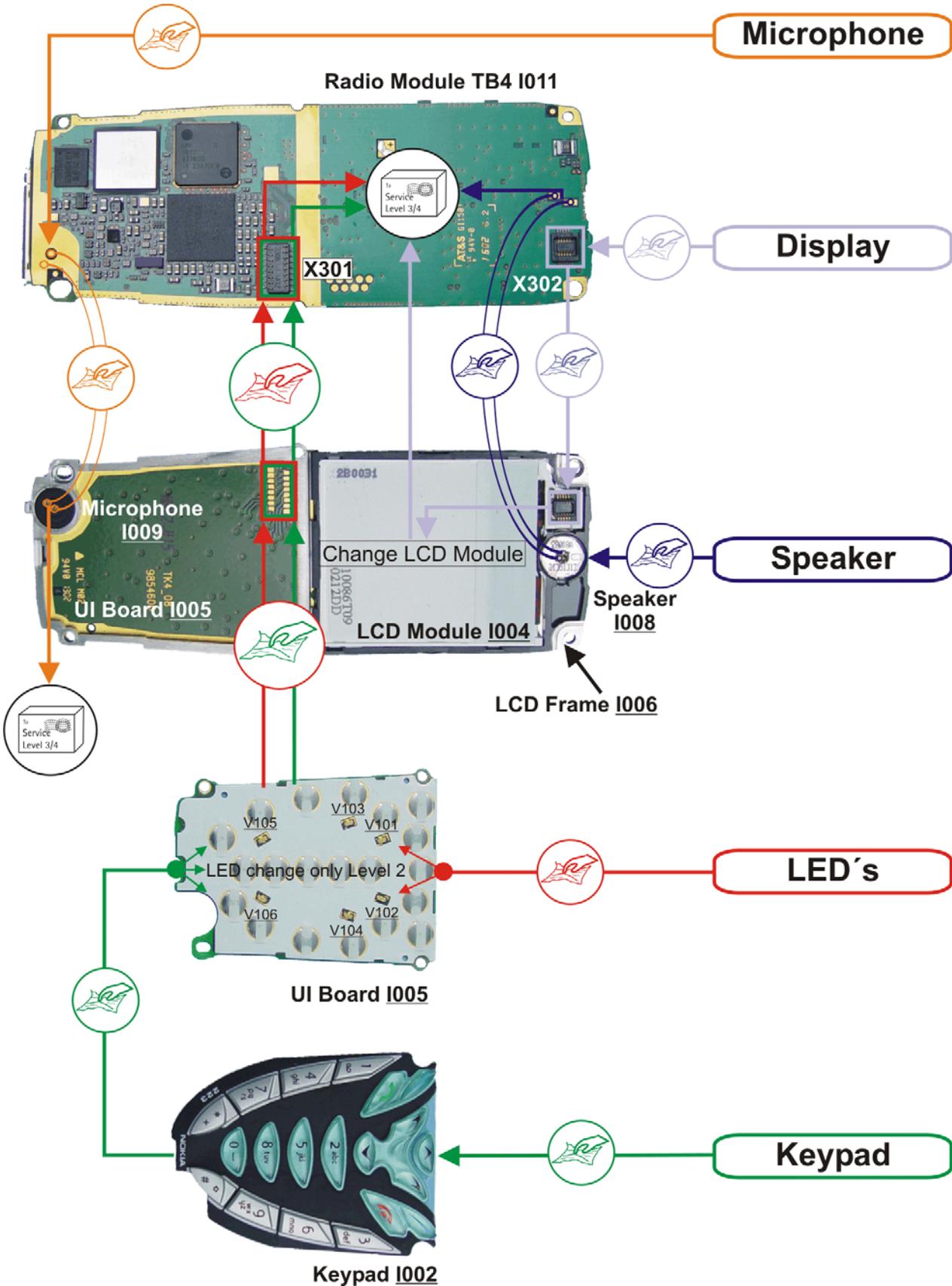
8. QUICK TROUBLE SHOOTER PART1



9. QUICK TROUBLE SHOOTER PART2



10. QUICK TROUBLE SHOOTER PART3



12. SERVICE NOTES

We recommend using Service Notes when shipping phones to other Service Partners. It prevents the product from scratches, it is ESD-neutral and has the possibility to give valuable feedback of the fault symptom through a structured form. Please refer to the document [Service Notes for faulty NMP transceiver](#) on Partner Web Site to get further information.

| | | | |
|---|--|--|--|
| Sender <i>Repair Center</i> | | Our Ref. <i>4711</i> | |
| Handled by _____ | | Product Code <i>050381</i> | |
| Serial n.o.: <i>449333/20/975406/2</i> | | Date <i>10.07.01</i> | |
| Yes <input checked="" type="checkbox"/> Warranty Case <input type="checkbox"/> No | | Inst <input type="checkbox"/> Instant Service <input type="checkbox"/> DOA | |

| | |
|---|---|
| <input checked="" type="checkbox"/> R Repair | <input type="checkbox"/> RR Repair and Refurbishment |
| <input type="checkbox"/> RO Refurbishment only | <input type="checkbox"/> SW Software update |
| <input type="checkbox"/> A Analysis | <input type="checkbox"/> C Claim |
| <input type="checkbox"/> 24h 24 h Service | <input checked="" type="checkbox"/> SR Special Request <i>Save User data</i> |

A) EXISTENCE OF FAULT

| | | |
|---|--|--|
| 1. <input checked="" type="checkbox"/> Continuous fault | 2. <input type="checkbox"/> Intermittent fault | 3. <input type="checkbox"/> Temperature |
| 4. <input type="checkbox"/> By shock or vibration | 5. <input type="checkbox"/> No clear fault | 6. <input type="checkbox"/> Only as portable |
| 7. <input type="checkbox"/> Only in a car | 8. <input type="checkbox"/> Only in desktop | |

B) SYMPTOM OF THE FAULT ON CMT-PART - Symptom Code _____

| | | |
|---|--|--|
| 1. <input type="checkbox"/> Totally dead | 2. <input type="checkbox"/> Selftest failure | 3. <input type="checkbox"/> SIM Fail |
| 4. <input checked="" type="checkbox"/> No service | 5. <input type="checkbox"/> No calls in | 6. <input type="checkbox"/> No calls out |
| 7. <input type="checkbox"/> Keypad failure | 8. <input type="checkbox"/> Display failure | 9. <input type="checkbox"/> Audio failure |
| 10. <input type="checkbox"/> Doesn't charge | 11. <input type="checkbox"/> Overcharging | 12. <input type="checkbox"/> Hand-free failure |
| 13. <input type="checkbox"/> Burns fuses | 14. <input type="checkbox"/> Accessory fail, which _____ | |
| 15. <input type="checkbox"/> Switches off | 16. <input type="checkbox"/> Other _____ | |

C) OBSERVED OR MEASURED FAULT

| |
|---|
| 1. <input checked="" type="checkbox"/> TX Power |
| 2. <input type="checkbox"/> TX Phase error |
| 3. <input type="checkbox"/> Bit Error Rate |
| 4. <input type="checkbox"/> Burst Template |
| 5. <input type="checkbox"/> Ramping spectra |
| 6. <input type="checkbox"/> RX Quality |
| 7. <input type="checkbox"/> RSSI |
| 8. <input type="checkbox"/> Other _____ |

D) SYMPTOM OF THE FAULT ON PDA-PART - Symptom Code _____

| |
|---|
| 1. <input type="checkbox"/> PDA doesn't start |
| 2. <input type="checkbox"/> Internal error |
| 3. <input type="checkbox"/> Keypad failure |
| 4. <input type="checkbox"/> Display failure |

NOKIA MOBILE PHONES LTD.
 Type: NPE-SNX Model: E210
 MADE IN GERMANY

CE 0168 X

449333/20/975406/2
 Code: 050381

Owner: R&D Bochum
 TTA

Phone: 04041 NMP-ENG

