



**NOKIA**  
**5100**  
NPM-6

**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 5100. 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".

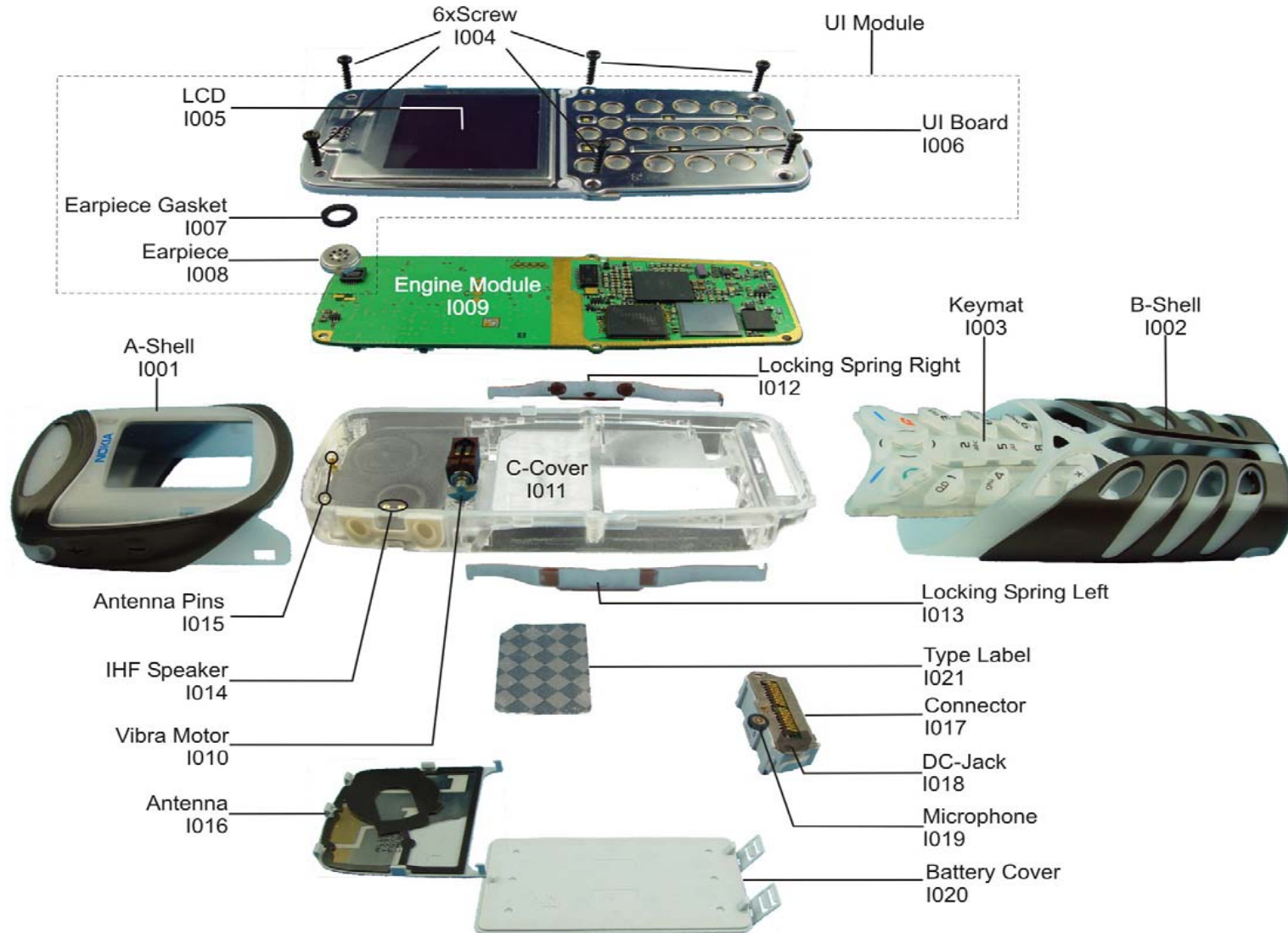
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## Change History

Originator	Status	Version No.	Date	Comments
DJk	Draft	0.1	24.11.2002	Initial draft
DJk	Draft	0.2	28.01.2003	SPL included
DJk	Approved	1.0	14.02.2003	Approval

## 1. EXPLODED VIEW



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

## 2. SPARE PARTS LIST

ITEM/ CIRCUIT REF.	QTY	PART NO	PART NAME
I004	6	6150099	SCREWS
	1	<b>9458503</b>	<b>UI MODULE ASSY (I005-I008)</b>
I005	1	XXXXXXX	LCD
I006	1	XXXXXXX	UI BOARD ASSY
I007	1	9470283	EARPIECE GASKET
I008	1	5140251	EARPIECE
I010	1	6800055	VIBRA MOTOR
	1	<b>5400257</b>	<b>CONNECTOR ASSY (I017-I019)</b>
I017	1	XXXXXXX	CONNECTOR
I018	1	XXXXXXX	DC-JACK
I019	1	XXXXXXX	MICROPHONE
I020	1	9458473	BATTERY-COVER

## SOLDERING COMPONENTS **ONLY FOR LEVEL 2**

ITEM/ CIRCUIT REF.	QTY	PART NO	PART NAME
S300		5200025	SM TACT SW SIDE TRAVEL 0.2 MM
S301		5200025	SM TACT SW SIDE TRAVEL 0.2 MM
S302		5200025	SM TACT SW SIDE TRAVEL 0.2 MM
V318		4860321	LED LWY87C-S2T2-1 >224 WHITE SMD2
V319		4860315	LED LWY87C-S2T2-1 >224 WHITE SMD2
X100		5409253	SM BATTERY CONN 3POL SPR 12V 2A
F100		5119019	SM FUSE F 1.5A 32V
G300		4700131	CELL CAPACITOR 0.01MAH 3V3

## VARIANT PARTS

ITEM/ CIRCUIT REF.	QTY	PART NO	PART NAME
I001	1	9458884	A-SHELL ASSEMBLY DARK GREY
I001	1	9458885	A-SHELL ASSEMBLY GREEN
I002	1	9458890	B-SHELL ASSEMBLY DARK GREY
I002	1	9458891	B-SHELL ASSEMBLY GREEN
I003	1	9458517	PRINTED KEYMAT LATIN
I003	1	9790847	PRINTED KEYMAT ARABIC
I003	1	9790851	PRINTED KEYMAT CYRILLIC
I003	1	9790852	PRINTED KEYMAT GREEK
I003	1	9790853	PRINTED KEYMAT HEBREW

## SWAP UNITS

	QTY	PART NO	PART NAME
		0076462	NPM-6 N5100 SWAP EUROPE
		0076463	NPM-6 N5100 SWAP POLAND
		0076464	NPM-6 N5100 SWAP TURKEY
		0076465	NPM-6 N5100 SWAP RUSSIA
		0076466	NPM-6 N5100 SWAP CZECH
		0076467	NPM-6 N5100 SWAP FRANCE
		0076468	NPM-6 N5100 SWAP SOUTH AFRICA






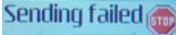


## SERVICE TOOLS

TYPE	QTY	PART NO	PART NAME
Accessory		0273560	BL-4C BATTERY BLOCK LI-ION 720MAH
Accessory		0272169	AC TRAVEL CHARGER ACP-8E (EURO)
Accessory		0272172	AC TRAVEL CHARGER ACP-8X (UK)
Accessory		0273505	HDS-3 STEREO HEADSET
		0770459	FLA-42 POS FLASH LOADING ADAPTER
		0730218	XCS-1 SERVICE CABLE
		<b>0080541</b>	<b>FLS-4S SALES PACK E&amp;A (inclusive 0680032)</b>
		0680032	UNIV. POWERSUPPLY ACF-8
		0770431	SRT-6 OPENING TOOL 5510
		0770450	FLA-48 TESTPINS (10 PCS)

### 3. 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. Make sure that infrared is activated in receiver device.

**Warning:** Do not point the IR (infrared) beam at anyone's eye or allow it to interfere with other IR devices. This device is a Class 1 Laser product.

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



## 4. SW-UPDATE

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

### Flash Concept – (Point of Sales)

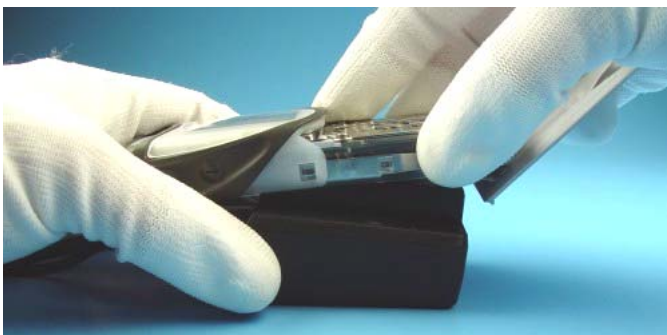
**It is very important to follow this insertion and removal procedure, otherwise the contact pins of Flash Adapter will be damaged.**



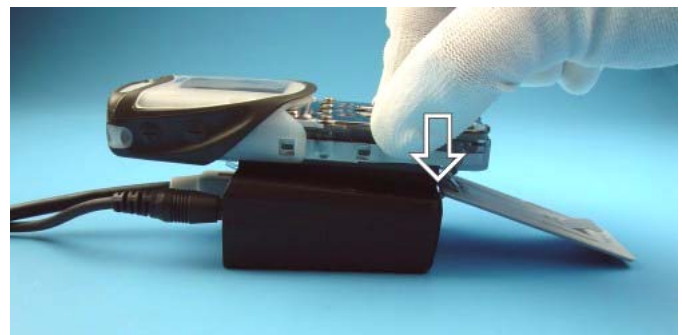
Standard installation for software updates.



Open the Battery Cover.



Insert the Flash Adapter FLA-42 like a battery, start at the battery connector site.



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.

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

## 5. GENERAL REPAIR INFORMATION

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




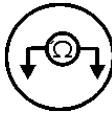

- Before starting the repair you must take care of ESD precautions like being in your ESD Protected Area and connecting your wristband.
- Use gloves to avoid corrosion and fingerprints.
- Protect windows and displays with a foil to avoid dust and scratches.
- When cleaning the pads you have to use a soft cloth/ESD brush 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 (ex. shielding lids), 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 Nokia Partner Web Site).
- 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.
- Please be aware that some malfunctions could be software related and solved by an update.

*Following General Service Bulletins have to be followed:*

- SB-055 Common notice for good ventilation
- SB-089: Do not try to repair prototypes (indicated on Type Label).
- SB-107: Be sure that you have minimum hardware requirements in place.
- SB-115: Handling of liquid damages.
- SB-121: Return the defective part, if one of your service tools causes malfunction.
- SB-122: Soldering with manual hot air gun is totally forbidden because of the very sensitive  $\mu$ BGA components and  $\mu$ 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 does not help, you are not authorized to go forward. Only underlined components ( e.g. <b><u>1007</u></b> ) can be changed.	
	Follow the arrows step by step
	Pads or contacts: Check optical and mechanical condition as well as corrosion. Clean if necessary.
	Check optical and mechanical condition of contacts as well as corrosion. Clean with ESD brush only, 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.

## 6. DISASSEMBLY INSTRUCTIONS (ALSO SEE VIDEO CLIPS)

**Do not open the unit, if you don't have a torque driver, which is capable of 40 Ncm, but send the product to the appropriate service partner with higher service level.**

### Attention!

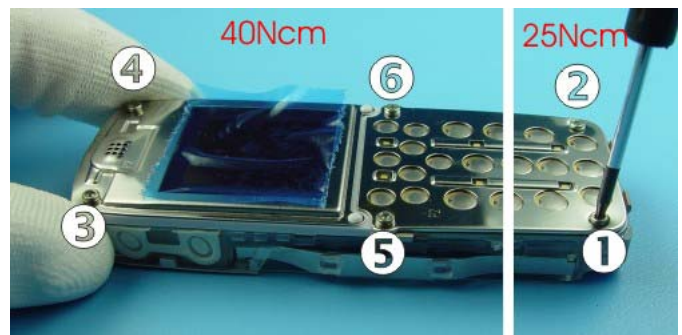
**It is not allowed to open the unit more than once, otherwise the unit is not splash proofed any more and has to be sent to Level 3/4 service partner. Always use new screws for assembly.  
(SB-006 for NPM-6)**



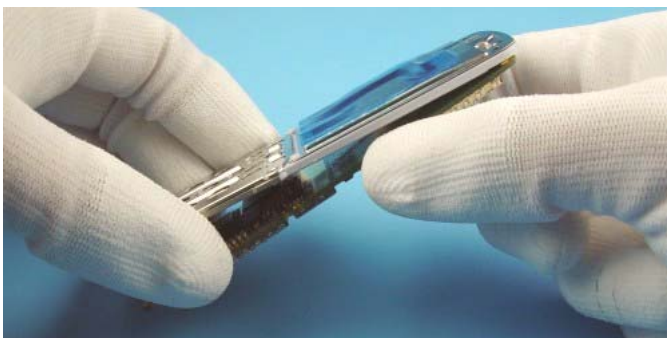
Press the grip markings on both sides of the B-Shell and remove B-Shell.



To remove the A-Shell press Locking Springs as shown and pull A-Shell from the unit.



Unscrew the six screws, using the order shown and a screwdriver TORX PLUS® size 6. **For assembly, the reverse order has to be used. For screws around Display a torque of 40Ncm and for Connector screws a torque of 25Ncm have to be used.**



Separate the UI-Module from Radio Module carefully, because of the board-to-board-connector.



Use tweezers to remove Vibra Motor.

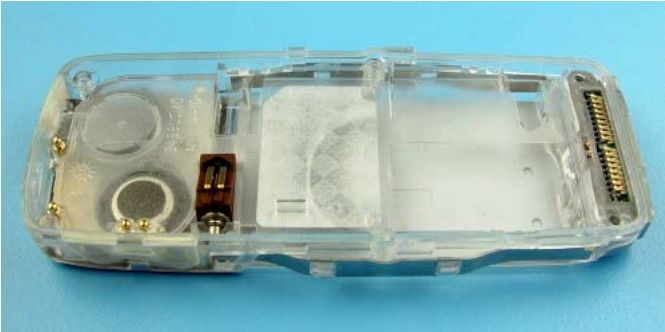


Remove Earpiece. Note the guiding pin when assembling.



Remove Keypad.

## 7. EXCHANGE OF SYSTEM CONNECTOR



The System Connector is attached with double-sided adhesive gasket to C-Cover. Also note the gasket on C-Cover.



Press SRT-6 between C-Cover and System Connector and remove Battery Cover.



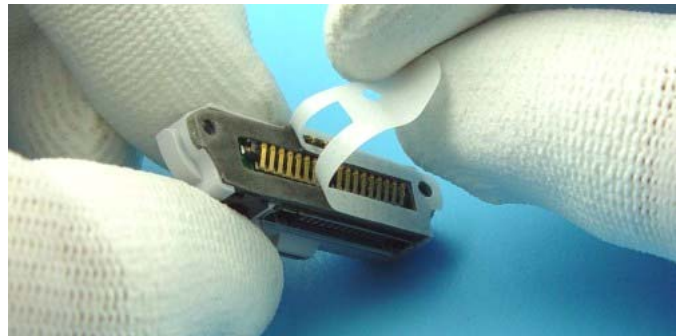
Press again SRT-6 between C-Cover and System Connector and remove System Connector.



Remove System Connector.



To remove the remaining adhesive gasket use SRT-6 only.  
**Do not use sharp-edged tools for this procedure.**



Remove protection foil from System Connector.

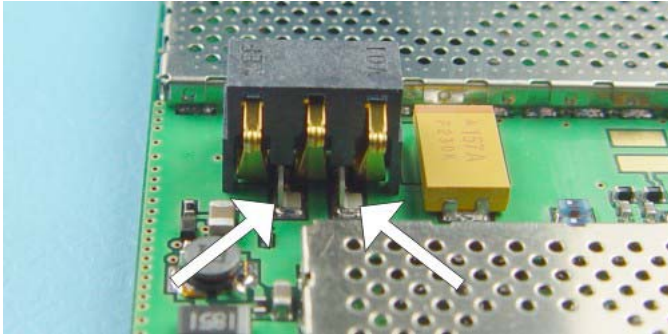


Place System Connector to its guidance exactly.

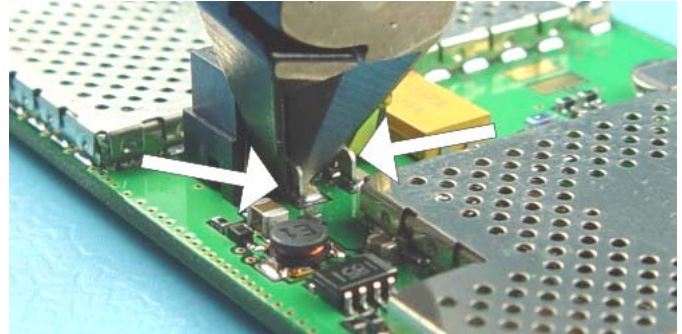


Now press connector to C-Cover firmly, while taking care not to slip C-Cover on your table.

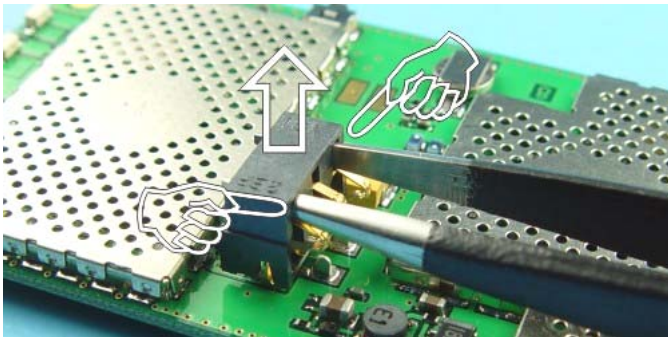
## 8. EXCHANGE OF BATTERY CONNECTOR



These are the two soldered support angles.



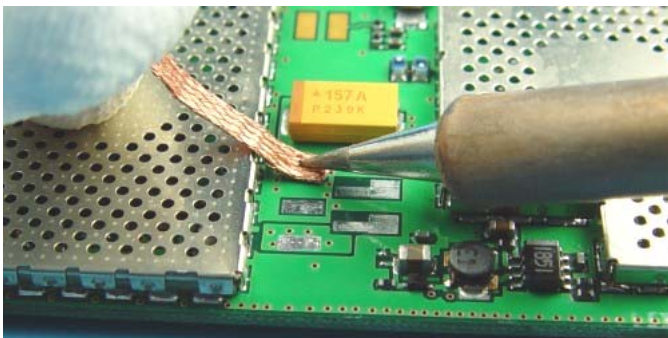
Use a side cutter to cut the support angles.



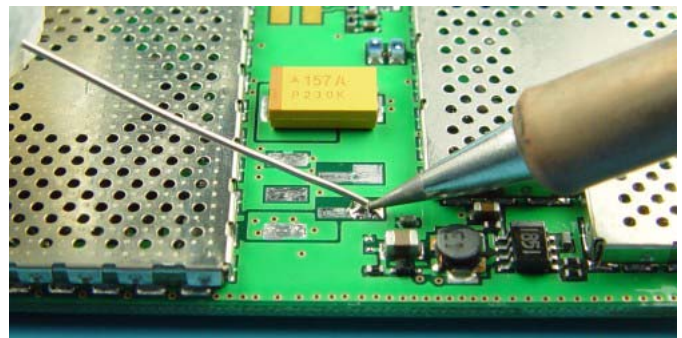
Push tweezers in outer openings of battery connector and lift up the plastic cover.



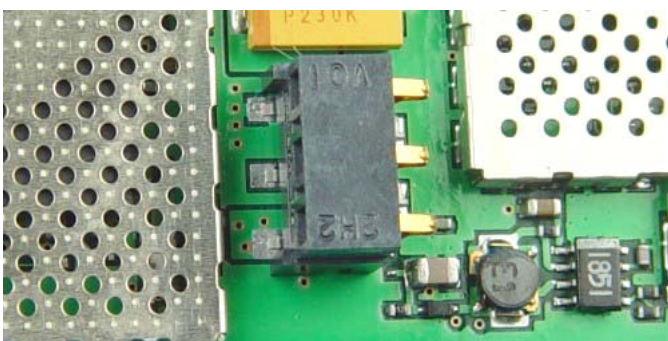
Desolder all pins and clean the pads.



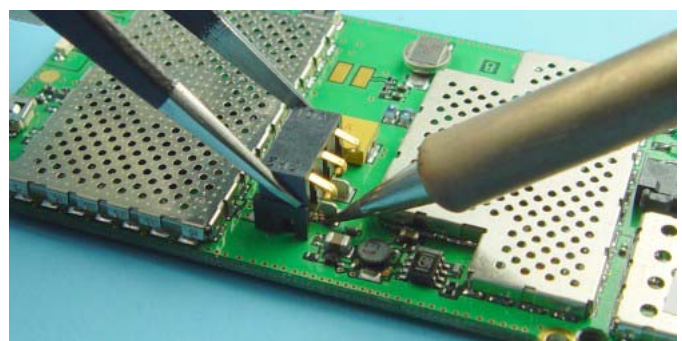
Note that you need a soldering iron with higher temperature, when cleaning or soldering the grounding pad.



Tin one of pads to fix the connector before soldering the following pins.

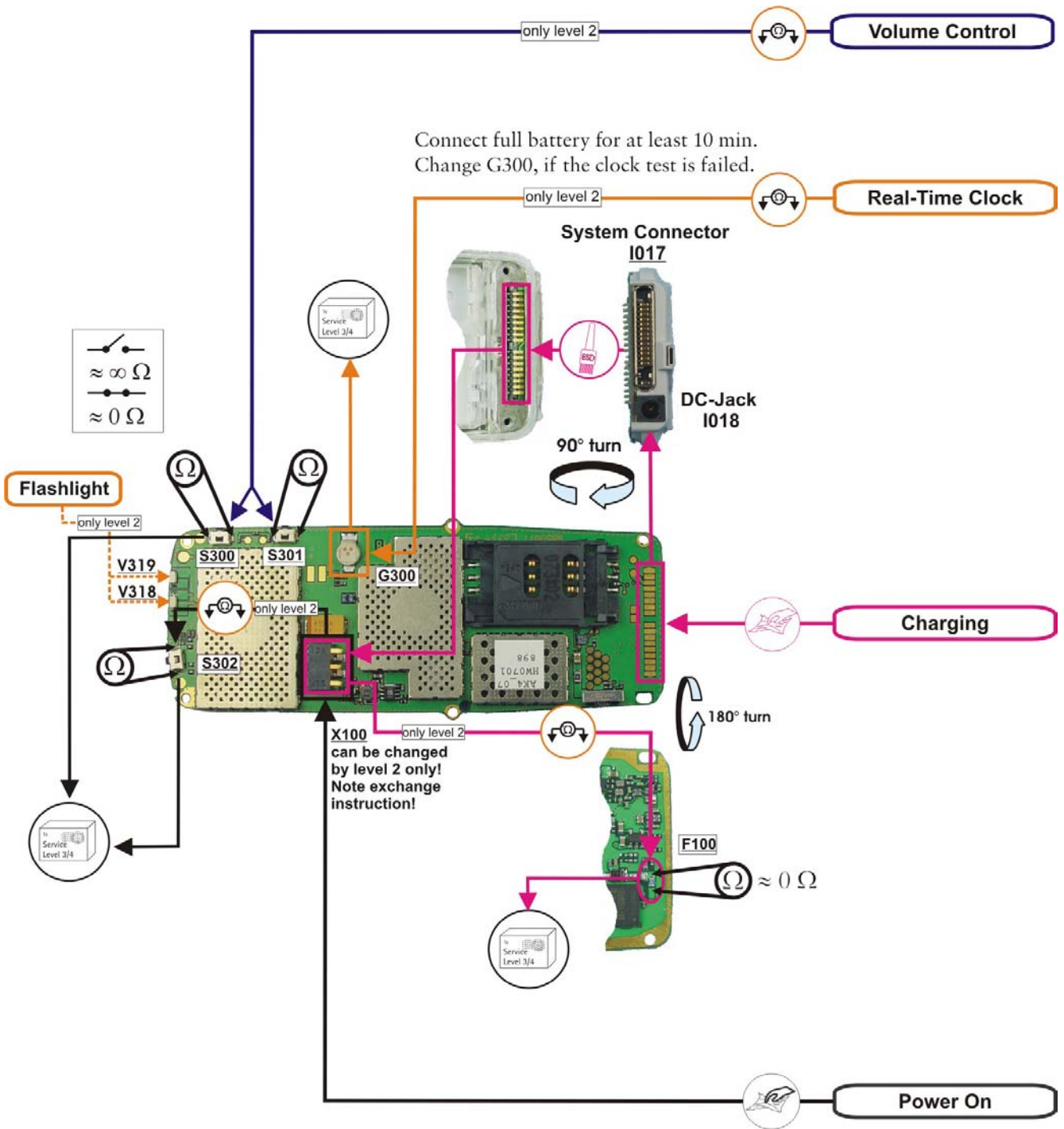


Note location of connector pins and support angles to fit them precisely.

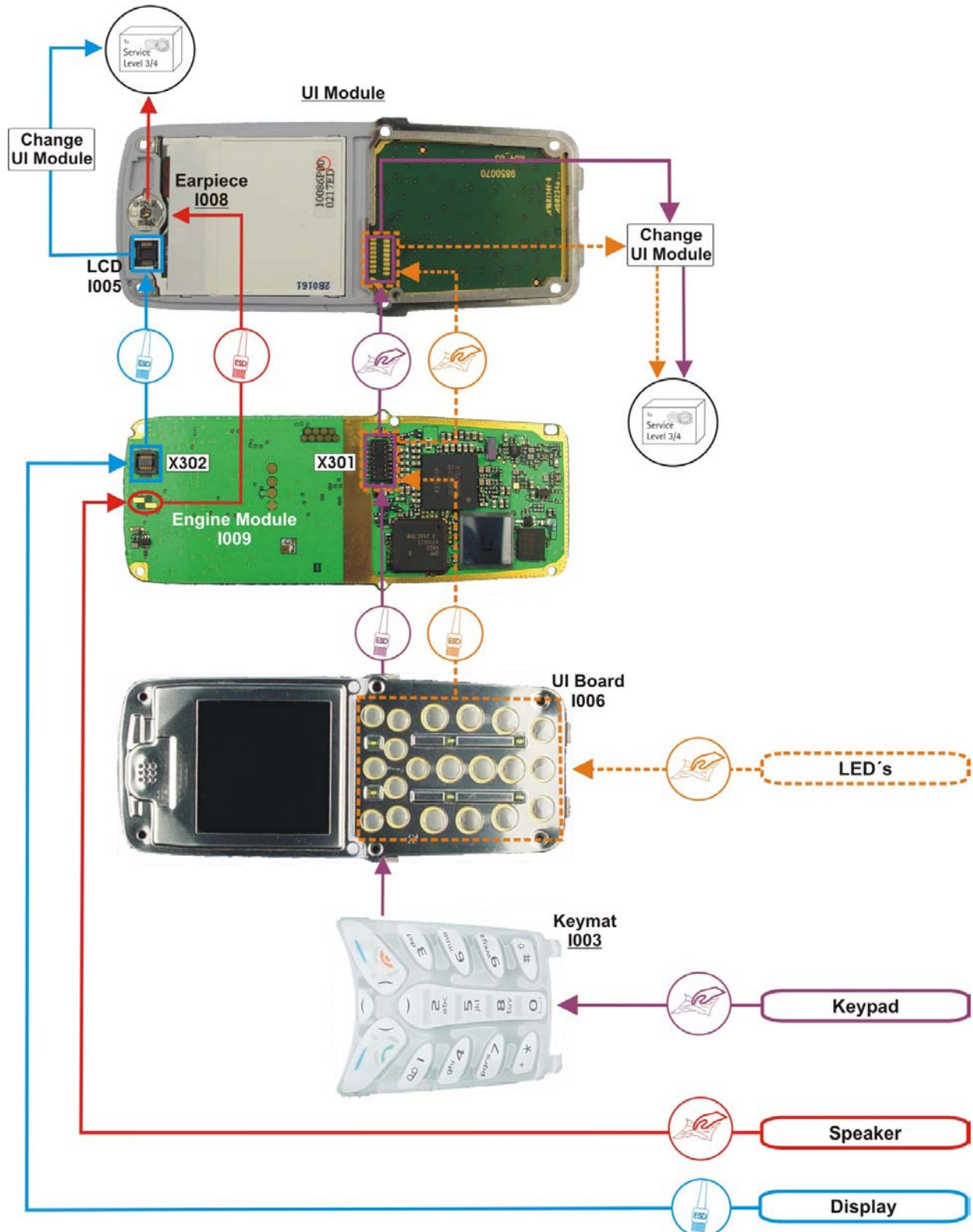


Solder first support angle. When position is exactly, solder the other pins.

### 9. QUICK TROUBLE SHOOTER PART1

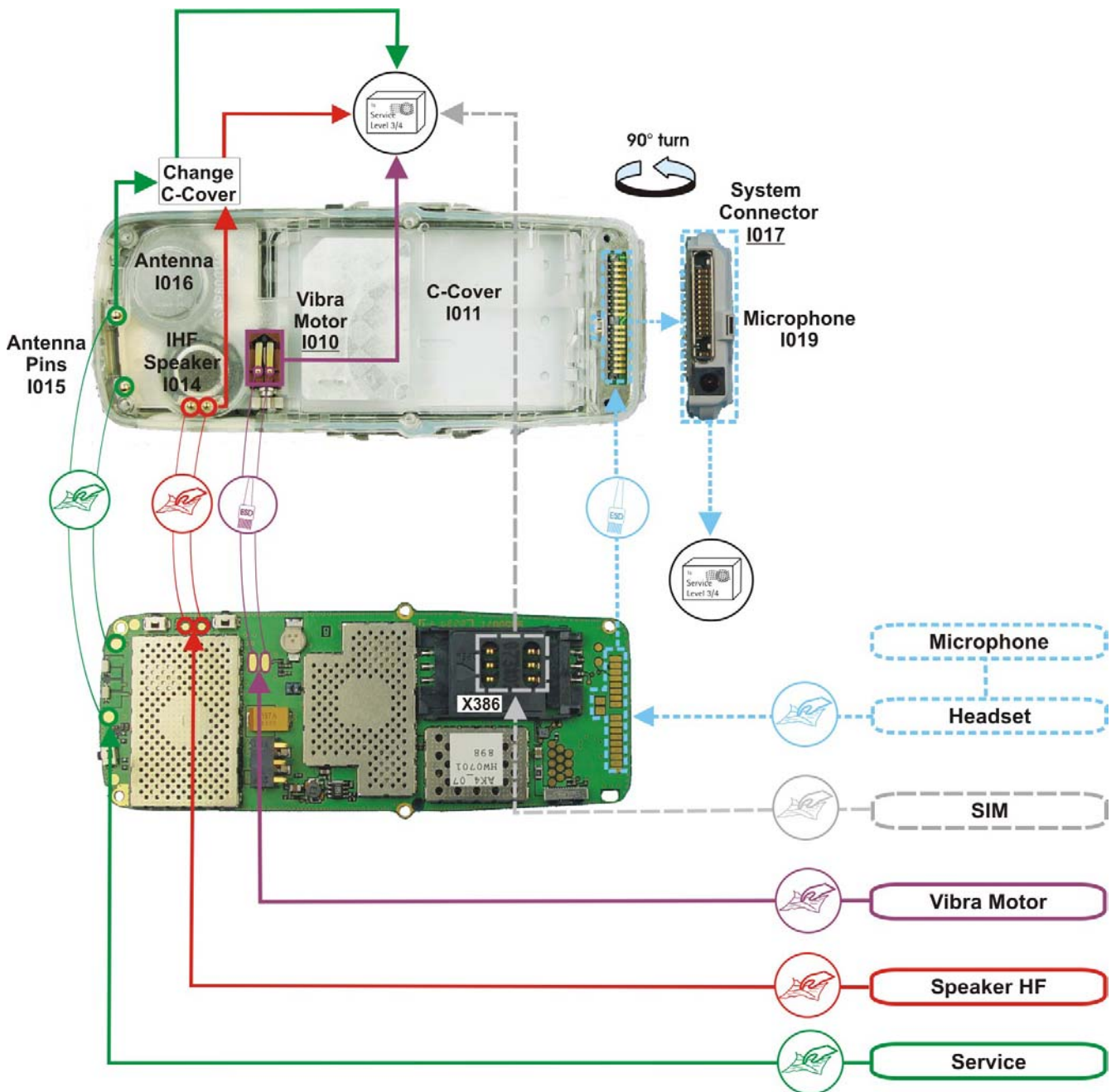


## 10. QUICK TROUBLE SHOOTER PART2






## 11. QUICK TROUBLE SHOOTER PART3



## 12. ESD PROTECTION REQUIREMENTS

	<p>Electrostatic discharge can easily damage the sensitive components of electronic products. Therefore every Service Partner has to take care of at least some precautions like ESD restricted area, floor, table, covering, chair(s), shoes or arm wrist.</p>
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Please refer to the Partner Website document

[ESD protection requirements for NMP Service Level 1/2 Service Suppliers](#)

	
<p>example configuration of an epa-area source: <a href="http://www.armeka.com">www.armeka.com</a></p>	<p>example configuration of a workbench source: <a href="http://www.warmbier.com">www.warmbier.com</a></p>
	
<p>example workbench and testers source: <a href="http://www.armekaengineering.com">http://www.armekaengineering.com</a></p>	

### 13. 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 Website to get further information.

Sender <u>Repair Center</u>	Our Ref. <u>4711</u>
Handled by _____	Product Code <u>050381</u>
Serial n.o.: <u>449333/20/975406/2</u>	Date <u>10.07.01</u>
Yes <input checked="" type="checkbox"/> Warranty Case <input type="checkbox"/> No	Inst <input type="checkbox"/> Instant Service <input type="checkbox"/> DOA
R <input checked="" type="checkbox"/> Repair	RR <input type="checkbox"/> Repair and Refurbishment
RO <input type="checkbox"/> Refurbishment only	SW <input type="checkbox"/> Software update
A <input type="checkbox"/> Analysis	C <input type="checkbox"/> Claim
24h <input type="checkbox"/> 24 h Service	SR <input checked="" type="checkbox"/> Special Request <u>Save User data</u>

**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

## 14. GONOGO TESTER

The will'tek GoNoGo Tester has to be used to carry out the final test after your service action to guarantee the functionality of the phone.

**Please refer to the actual information in the Nokia Care Point Extranet within the Partner Web Site.**



## 15. BATTERY TESTER

The Astratec battery tester lets you test the capacity of Nokia batteries.

**Please refer to the actual information in the Nokia Care Point Extranet within the Partner Web Site.**

