Service Manual
Nokia 8310
NHM-7

Service Level 2

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Introduction

The purpose of this document is to give Nokia service level 2 workshops aids to carry out service for 8310. The use of this Service Manual is only for Nokia authorized service partners additionally to other service documentation like Service Bulletins.

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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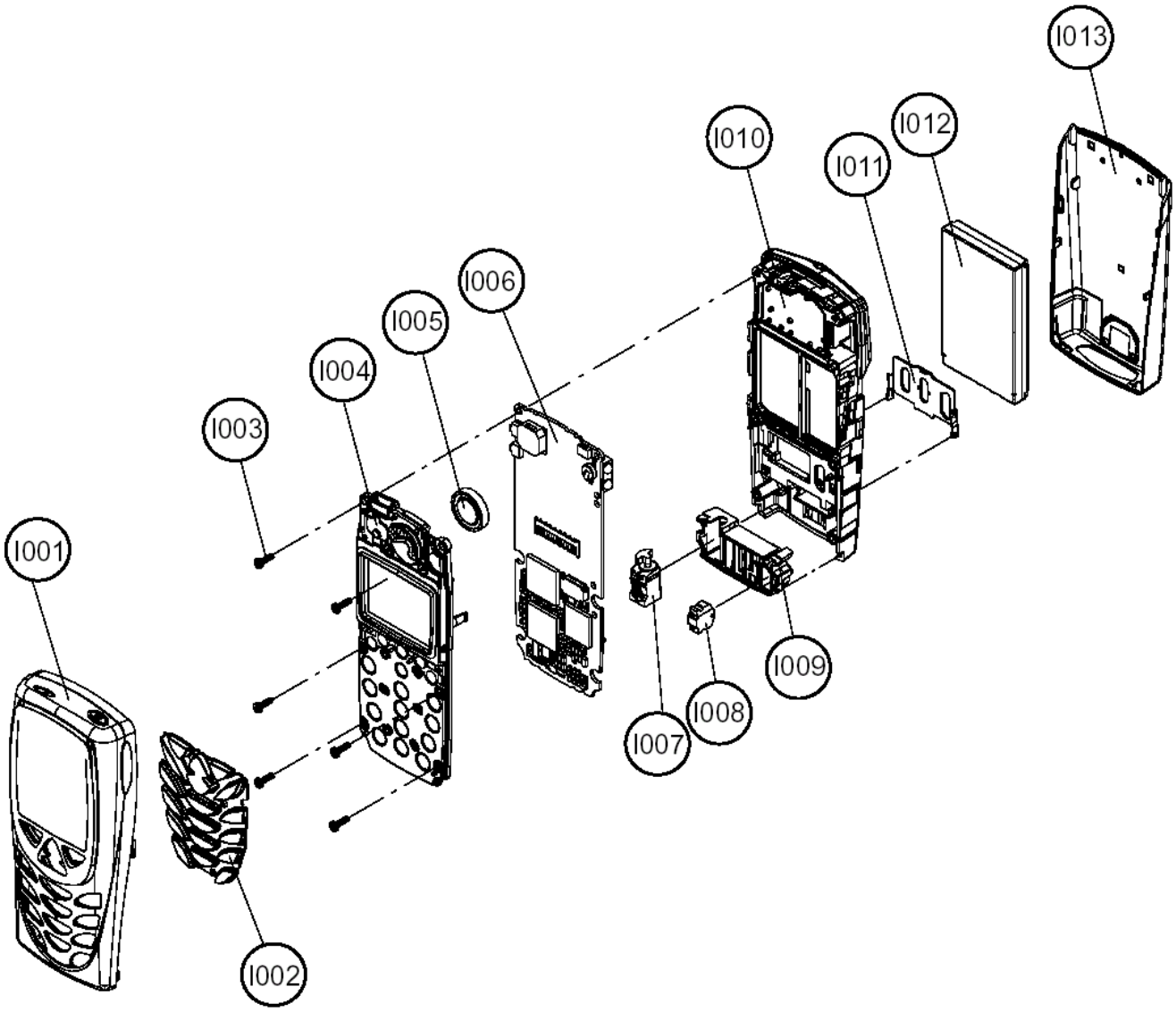
1. EXPLODED VIEW



Description: See corresponding ITEM/CIRCUIT REF of the BOR (Bill Of Repair)

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2. BILL OF REPAIR

ITEM/ CIRCUIT REF.	QTY	PART NO	PART NAME	UNIT
I003	6	6150051	SCREW M1.6X5.5 T6	PC
I004	1	9490306	UI-MODULE	PC
I005	1	5140067	SPEAKER WITH SPRING	PC
I007	1	6800055	VIBRA MOTOR ASSY	PC
I008	1	5140205	MICROPHONE ASSY	PC
I009	1	5460049	SYSTEM-CONNECTOR	PC
I011	1	9460377	SIM CARD COVER	PC
G300	1	4700131	RTC-BATTERY	PC
S300	1	5200025	POWER SWITCH	PC
S301/S302	2	5200025	SIDE SWITCH	PC
VARIANT PARTS				
				PC
I001	1		A-COVER ASSY BLUE/TW	PC
I013	1		BATTERY COVER ASSY TOKIO WHITE	PC
	1	0273135	SKR-110 PINK SPOT A+B COV N8310	PC
I001	1		A-COVER ASSY PINK SPOT	PC
I013	1		BATTERY COVER ASSY PINK SPOT	PC
I001	1		A-COVER ASSY DEMI HOT	PC
I013	1		BATTERY COVER ASSY TOKIO WHITE	PC
I001	1		A-COVER ASSY DEMI LIGHT	PC
I013	1		BATTERY COVER ASSY TOKIO WHITE	PC
	1	0273132	SKR-113 ICE FROST A+B COV N8310	PC
I001	1		A-COVER ASSY ICE FROST	PC
I013	1		BATTERY COVER ASSY ICE FROST	PC
	1	0273136	SKR-109 RED HOT A+B COV N8310	PC
I001	1		A-COVER ASSY RED HOT	PC
I013	1		BATTERY COVER ASSY RED HOT	PC
	1	0273131	SKR-114 GLACIER A+B COV N8310	PC
I001	1		A-COVER ASSY GLACIER	PC
I013	1		BATTERY COVER ASSY GLACIER	PC
	1	0273134	SKR-111 SIZZLING A+B COV N8310	PC

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ITEM/ CIRCUIT REF.	QTY	PART NO	PART NAME	UNIT
I001	1		A-COVER ASSY SIZZLING	PC
I013	1		BATTERY COVER ASSY SIZZLING	PC
	1	0273133	SKR-112 ETERNITY A+B COV N8310	PC
I001	1		A-COVER ASSY ETERNITY	PC
I013	1		BATTERY COVER ASSY ETERNITY	PC
I002	1	9790536	KEYPAD LATIN ALL BLUE	PC
I002	1	9790516	KEYPAD LATIN RED	PC
I002	1	9790517	KEYPAD LATIN WHITE	PC
I002	1	9790537	KEYPAD LATIN ALL RED	PC
I002	1	9790433	KEYPAD LATIN BLUE	PC

SERVICE TOOLS

ITEM/ CIRCUIT REF.		PART NO	PART NAME	UNIT
		XXXXXXX	DCD-1 DESK STAND	PC
		XXXXXXX	HEAD-SET DOUBLE MONO HDD-1	PC
		XXXXXXX	BATTERY BLB-2 LI-ION 650 MAH	PC
		XXXXXXX	STANDARD CHARGER ACP-7E (EUR)	PC
		XXXXXXX	STANDARD CHARGER ACP-7X (UK) 207 - 253 VAC	PC
		0081483	POS FLASH DONGLE FLS-4	PC
		XXXXXXX	AC TRAVEL CHARGER ACP-8E (EUR)	PC
		XXXXXXX	AC TRAVEL CHARGER ACP-8X (UK)	PC
		0730218	POS SERVICE CABLE XCS-1	PC
		0770318	POS FLASH LOADING ADAPTER FLA-18	PC
		XXXXXXX	SERVICE SW PHOENIX	PC

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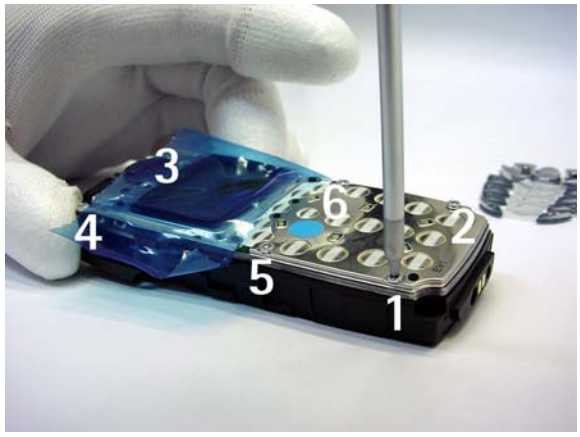
3. DISASSEMBLY INSTRUCTIONS

Attention: Before starting this procedure you must take care of ESD precautions like being in your ESD-area and connecting your arm wrist. For more information please look at chapter 7.

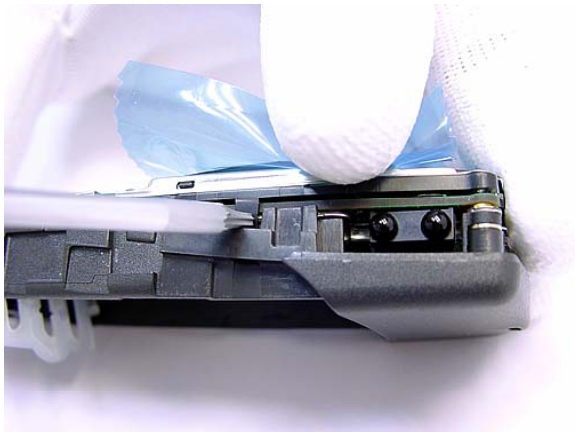
Press the lock-button and push the Battery Cover in direction to the System Connector.

Pull back the A-Cover from the bottom side on and remove it.

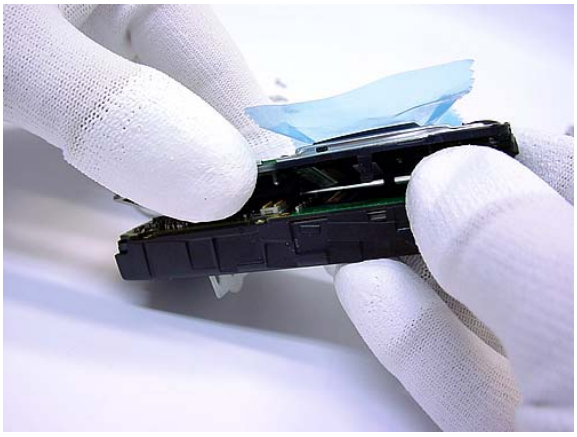
Protect the display with a foil against dust and scratches.



Remove the six screws with screwdriver Torx T6 in the predefined order. When assembling you must take the reverse order and 17Ncm torque.



Push out the clip.



Remove the UI-Module LK5.

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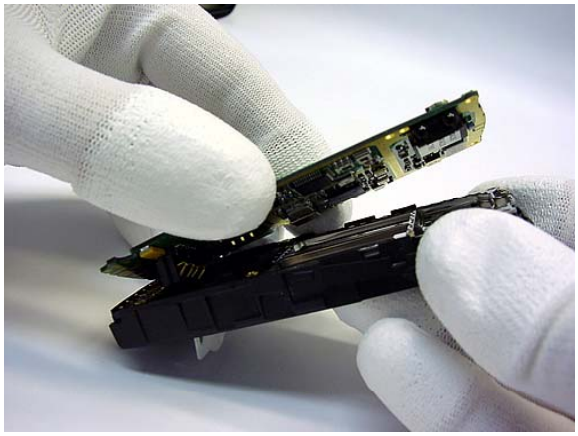
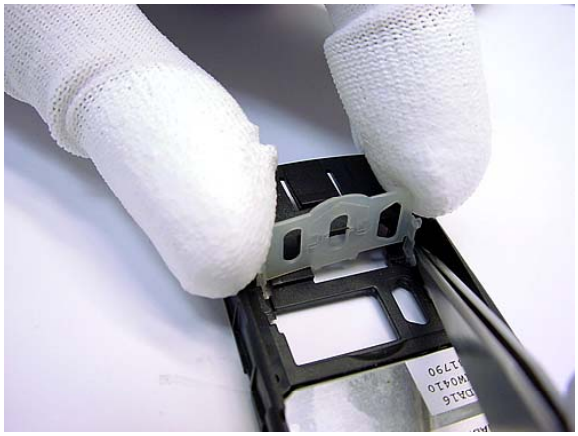
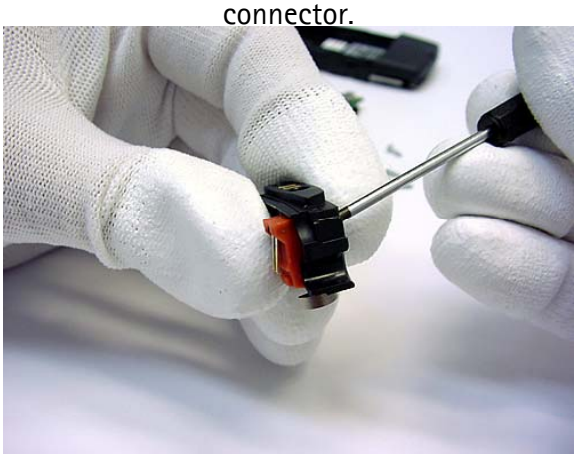


Remove the Radio Module LA5.

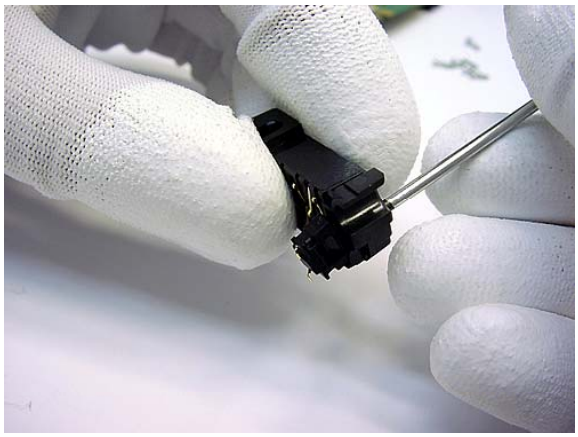
Turn round the B-Cover. If the System Connector is jammed, press with tweezers between cover and connector.



Press with tweezers one side from the SIM Card Holder and remove it.



Press the Vibra Motor with a screwdriver out of the System Connector.

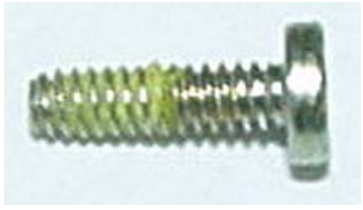


Press the Microphone with a screwdriver out of the System Connector.

Press the speaker with tweezers out of the UI-Module.

When assembling the phone, new screws with a torque of 17 Ncm must be used!

The final GoNoGo test verifies that the electrical specifications will be fulfilled.



New screws have a special locking compound on the thread. Never take used screws a second time!

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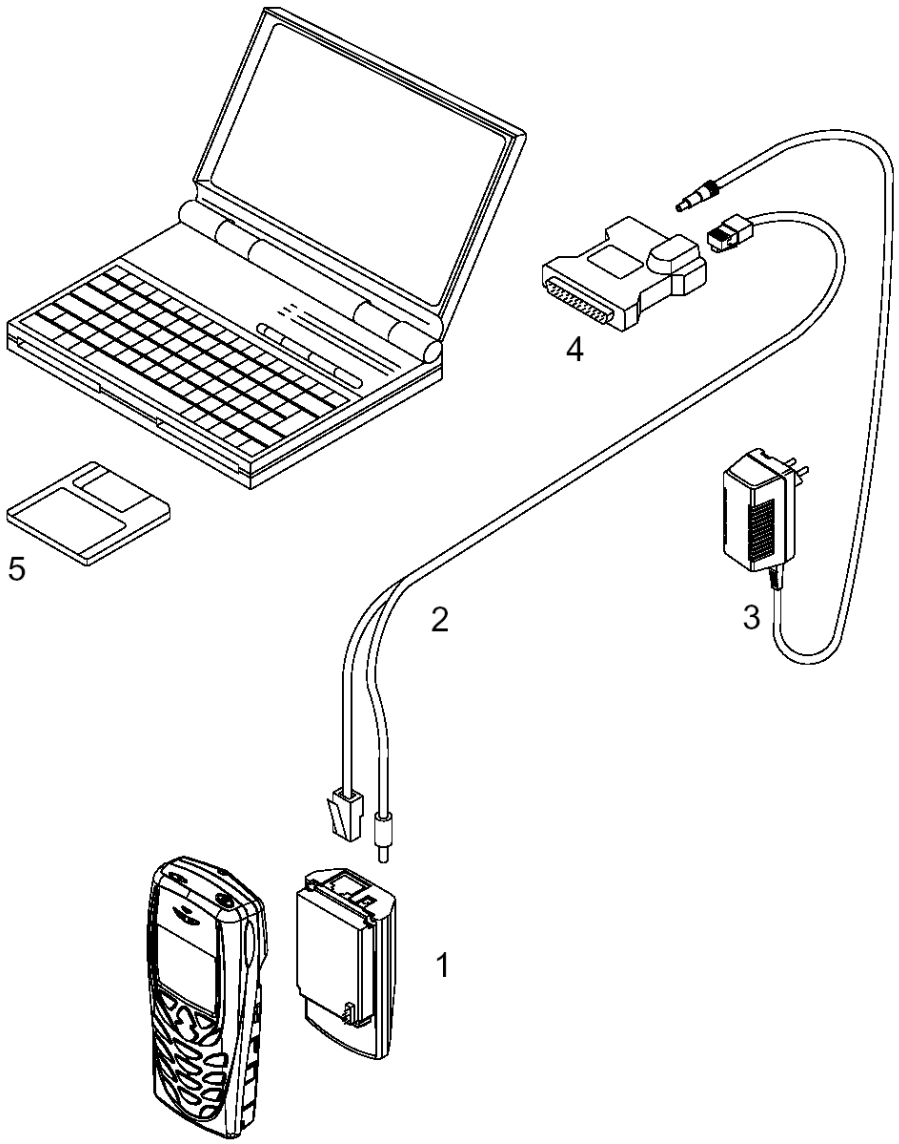
4. SW-UPDATE

To use FLS-4 Flash Dongle you have to follow the instructions of the user guide inside the sales package. Please check always the latest version, which is available on Partner Pages/PWS.

Flash Concept – (Point of Sale)



Item:	Service accessory:	Product code:
1 FLA–18,	Point Of Sales flash loading adapter	0770318
2 XCS–1,	service cable	0730218
3 ACP–8E	Travel Charger Euro	XXXXXXX
ACP–8X	Travel Charger UK	XXXXXXX
4 FLS–4,	POS flash dongle for E/A area	0081483
5 Service SW		XXXXXXX

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Phoenix

Phoenix is the next generation Service Software. It has been designed to meet the challenges in servicing modern cellular phone technology.
The Phoenix program has been built using component architecture. This means that the actual program is small and most of the program's functionality is divided into dynamically loaded modules (DLLs).

Supported Operating Systems

Windows 95, 98, 2000, ME and NT 4.0 (SP4).

Hardware requirements for using Phoenix

Minimum:
Processor 233 MHz, RAM memory 64 MB, Disk space 50–100 MB.
Recommended for Windows 2000:
Processor 700 MHz, RAM memory 512 MB, Disk space 50–100 MB.

Introduction

This section briefly describes how to install the Phoenix software and includes some basic information on how to use the program. For more detailed information, please refer to Phoenix's **Help –files**. Each feature in Phoenix has its own Help function, which can be activated while running the program.
Press the F1 key or the feature's Help–button to activate a Help –file.

Installing Phoenix

1. Download the latest release. Please check always the latest version, which is available on Partner Pages/PWS. Download and read the release notes, which have useful information on the software version you are using.
2. Download the latest data packages for the products you will be using.
3. Before you start installing the program, check that:
– the dongle is attached to parallel port. Contact your supervisor in order to obtain a suitable dongle.
– you have administrator rights (Windows 2000 or NT only).
This is required in order to be able to install Phoenix.
4. Install Phoenix by executing the Phoenix installation package and follow the instructions on the screen.
Program files are stored under " C:\Program Files\Nokia\Phoenix" (default).
5. The installation checks that the latest supported dongle driver version is installed. The dongle driver is installed if there is no previous installation of the dongle driver or if the installed dongle driver is older than the latest supported version.
Note: If the dongle driver is installed during installation, you need to reboot your PC and restart the installation after reboot.
6. Reboot your PC before using Phoenix, if you are requested to do so.
Note: In some products the setup may require you to reboot the computer. In either case, the setup will register Phoenix components. This process can take few minutes.
7. Install the data package by executing the installation package and follow the instructions on the screen.
The data packages will create product specific directories under the installation directory.
Data files are stored under " C:\Program Files\Nokia\Phoenix" (default).

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Uninstalling Phoenix

If you need to remove Phoenix Service Software from your computer:
1. Make sure that the dongle is attached (unregistration).
2. Go to the Control Panel and select **Add/Remove Programs**.
3. Select NHM–7 / NPE–4 RELEASE for uninstallation and click **Add/Remove**.
4. Click **OK** to remove the application

You may be required to reboot your PC after uninstallation.
Note: If you have different product packages installed, the components are uninstalled only if they are not included in other product packages.

Data Packages

Data Packages (DP) is a name for a helpful feature in the Phoenix software. This type of feature provides a flexible way of distributing and installing Phoenix and its data files. All product–specific data is separated from the program code and installed separately. This means that the installation is performed in at least two steps.
Each product will have its own Data Package (DP), which you get from the Partner Websites.

Starting a session

Concepts

In the Phoenix context, Product means the cellular phone attached to a PC. More specifically, it is a particular type of phone.
Connection means the type of cable used to attach the phone to the port to which the other end of the cable is attached.

Selecting a product

Many of Phoenix's features are product–specific. It is, therefore, mandatory to choose the product you will be working on at the beginning of the session.
Select the menu item File – Choose Product. You will be presented with a list of available products.
After the product selection, you will see an additional menu item on the main menu. If you take a look at the available menu items, you will see that their number has increased.

Selecting a connection

The connection defines the cable and the communications port that will be used when connecting to the phone.
1. Active connections are listed in the toolbar's Connection pull–down menu. You should make sure that the connection is correct before using the software. Change it, if necessary. In case the connection is the wrong, you need to create a new one.
2. Select Settings from the pull–down menu .
3. Select Add in the Connection List Dialog and in fill the relevant fields in the Connection setup dialog.

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Phoenix environment

You can configure the program's main toolbar and the product or tool – specific options to your liking. You can control which toolbars are visible by selecting **View** and **Toolbars** from the pull–down menu. The visible toolbars are marked with a check.

The rest of the options are product or tool –specific. The tool–specific options are set using the associated toolbar.

Using components

When working with Phoenix, each task generally has its own component that will perform the task. The first thing, therefore, is to open the desired component.

Opening a component means that you open a tool window within Phoenix. When this window is opened, Phoenix also opens a toolbar for it and adds component–specific menu items in the **View** menu.

Using profiles

A Profile is a useful feature in the software. Product, connection and currently open components can be stored into a permanent storage (a disk file called profile, *.nmp) for later retrieval.

Opening and saving profiles is done via menu commands found in the **File** menu. Select Open Profile and Save Profile.

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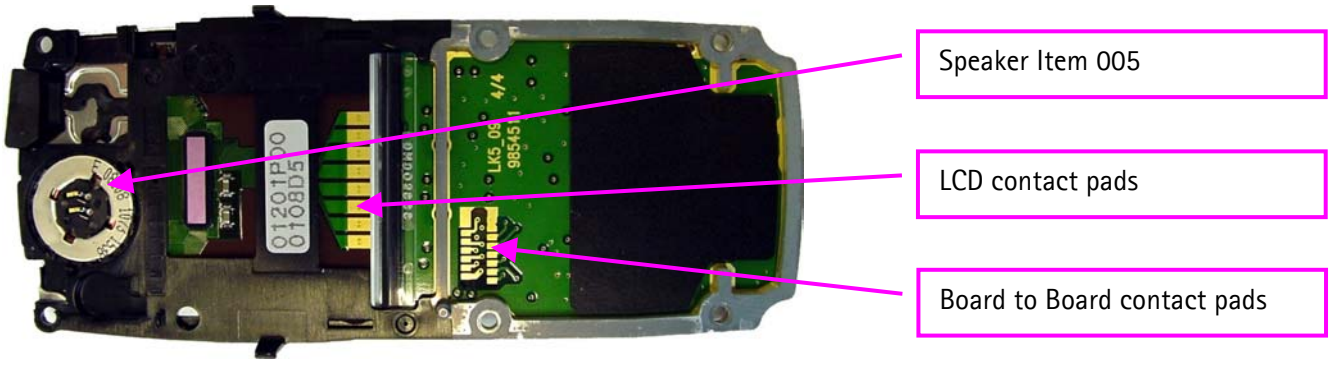
5. TROUBLESHOOTING

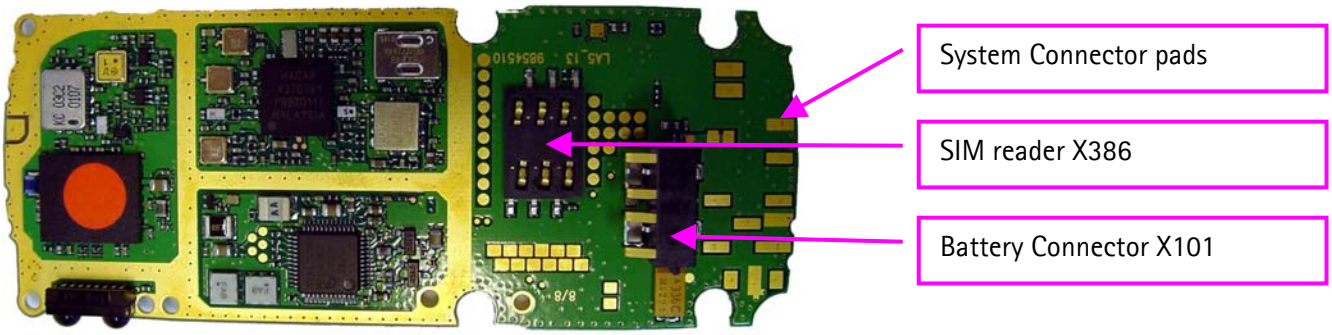
5.1 LAYOUTS

- In this section you will get some general hints how to repair the 8310.
- 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.
- The 3 switches and the RTC-Battery have to be desoldered with two solder irons.
- Soldering with **hot air gun** is totally forbidden because of the very sensitive µBGA components and µVia technology.
- **Note**: 5V SIM cards are no longer supported by NHM-7 baseband.

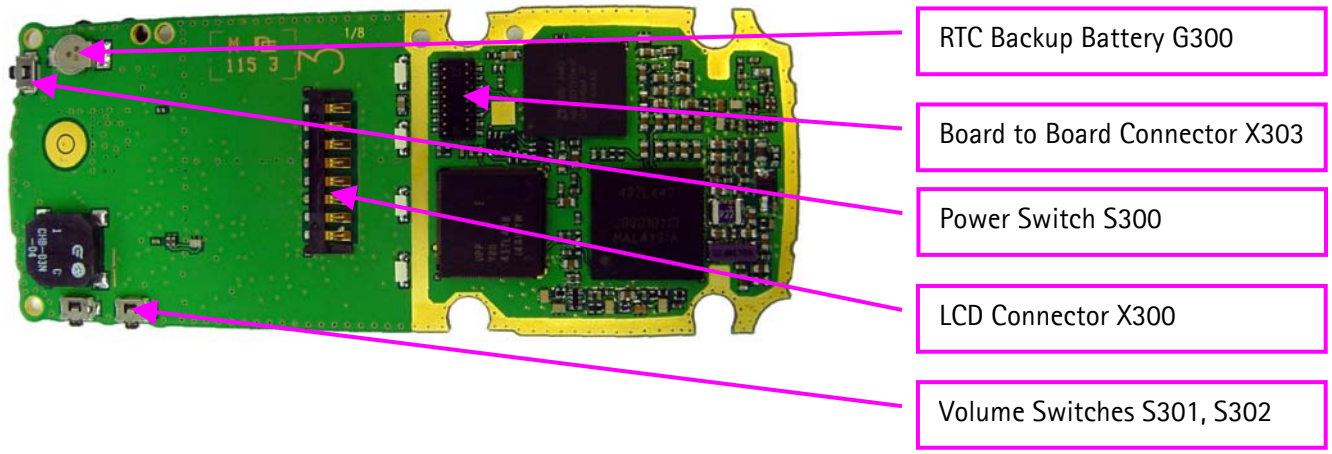
bottom side UI module LK5



bottom side radio module LA5



top side radio module LA5



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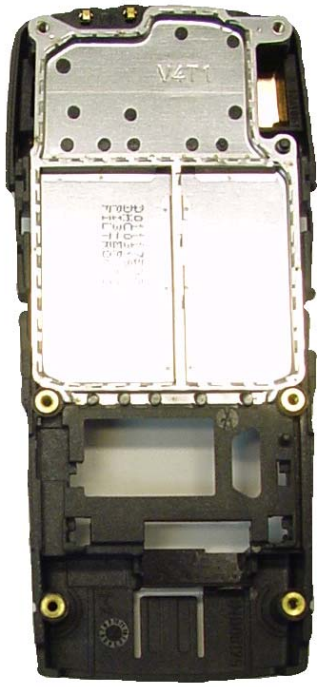
Battery Cover
Item 013

A-Cover
Item 001



B-Cover Item 002
not allowed to change

Keypad
Item 001

SIM Card Cover
Item 011

Vibra Motor
Item 007

Microphone
Item 008

Speaker
Item 005

System Connector
X100

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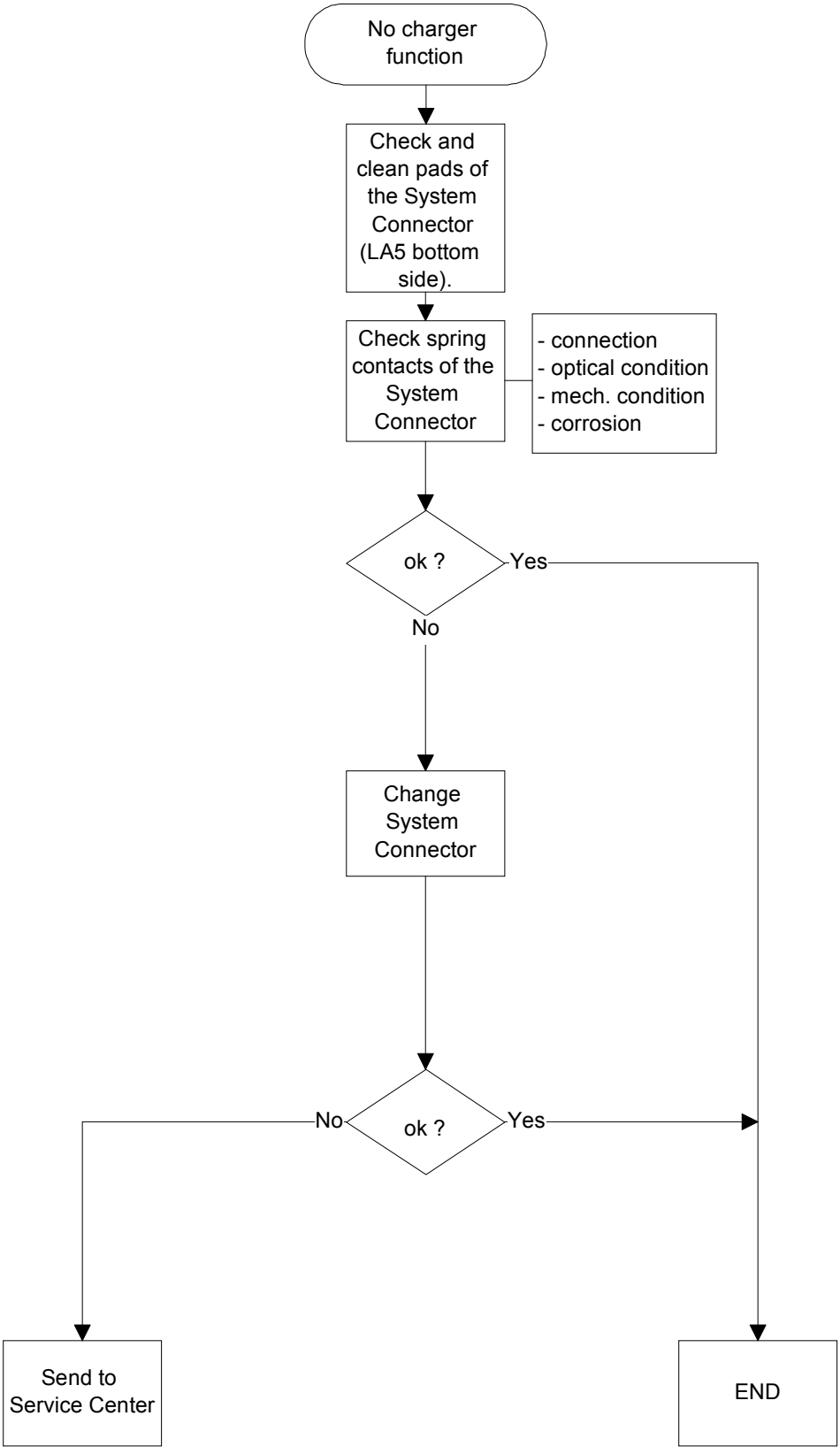
5.2 NO CHARGER FUNCTION



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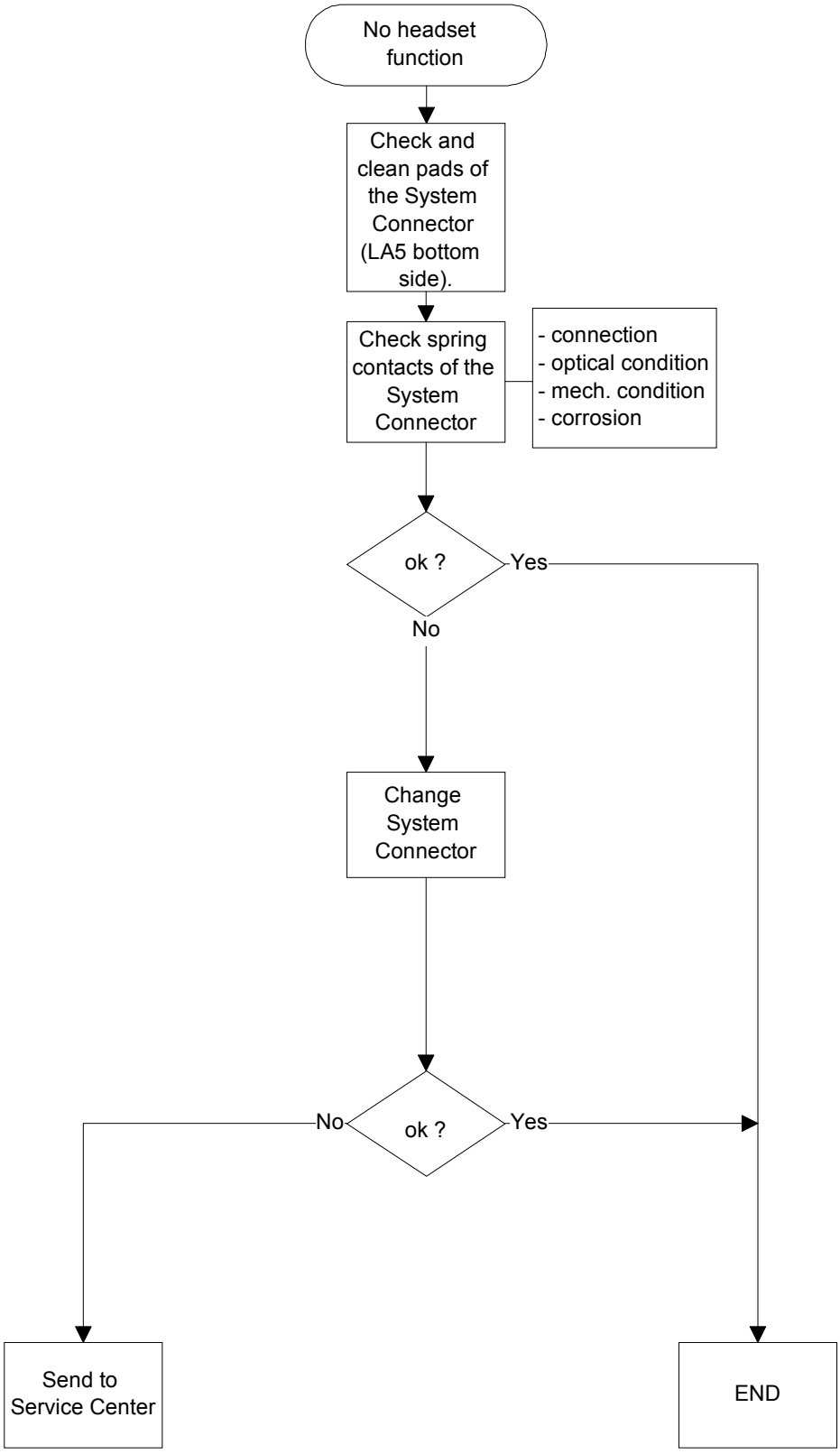
5.3 NO HEADSET FUNCTION



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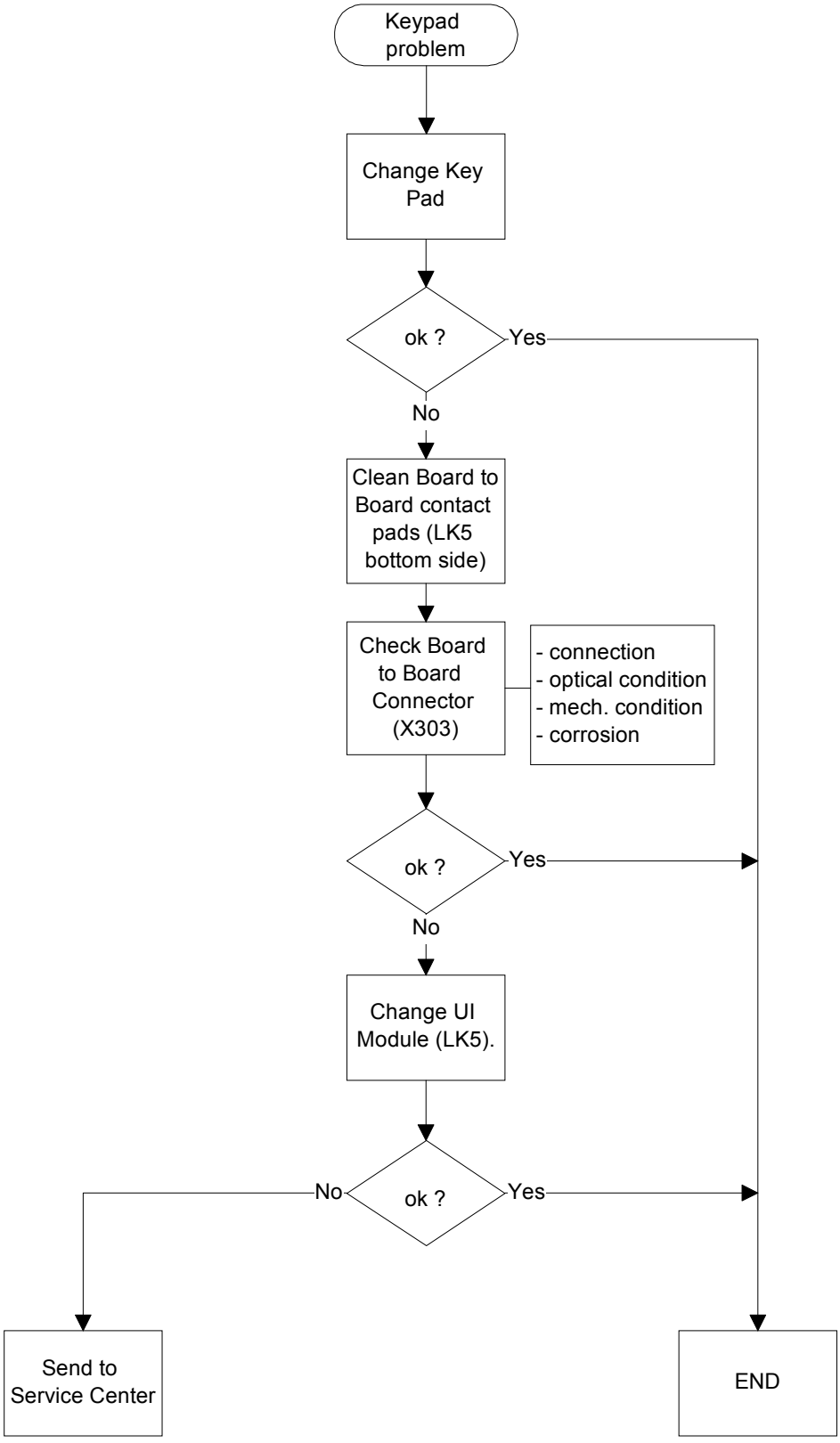
5.4 KEYPAD PROBLEM



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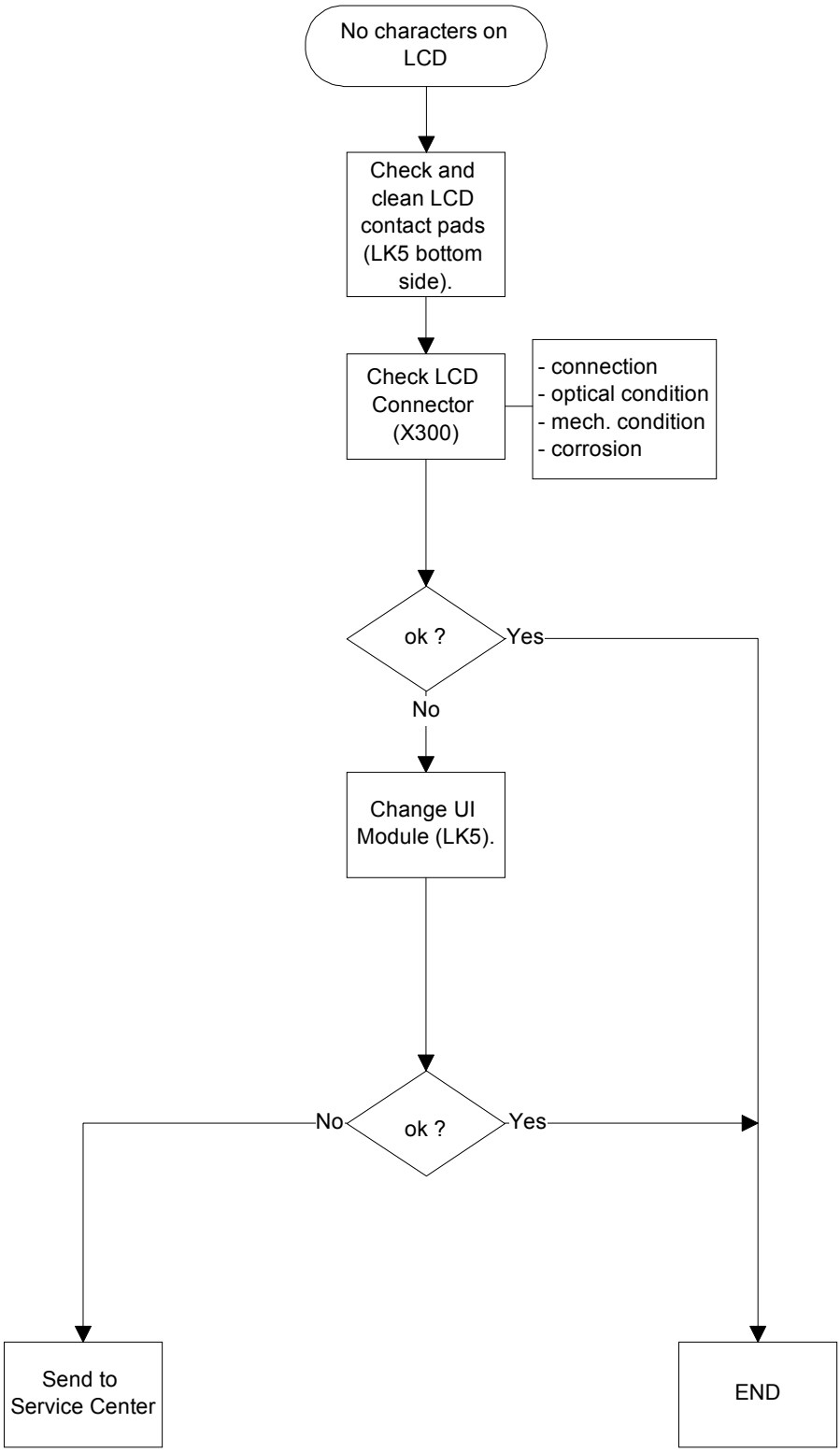
5.5 NO CHARACTERS ON LCD



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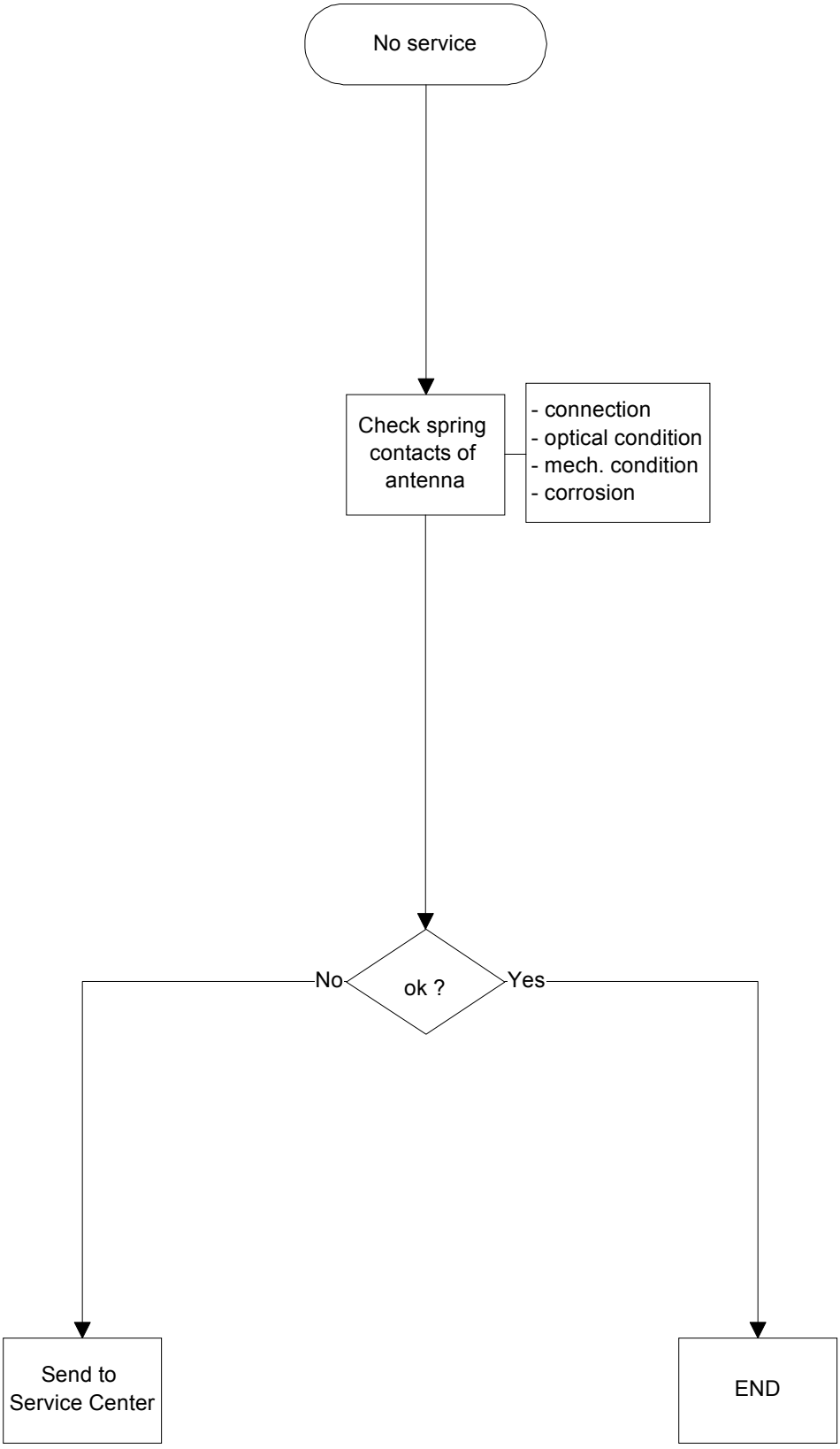
5.6 NO SERVICE



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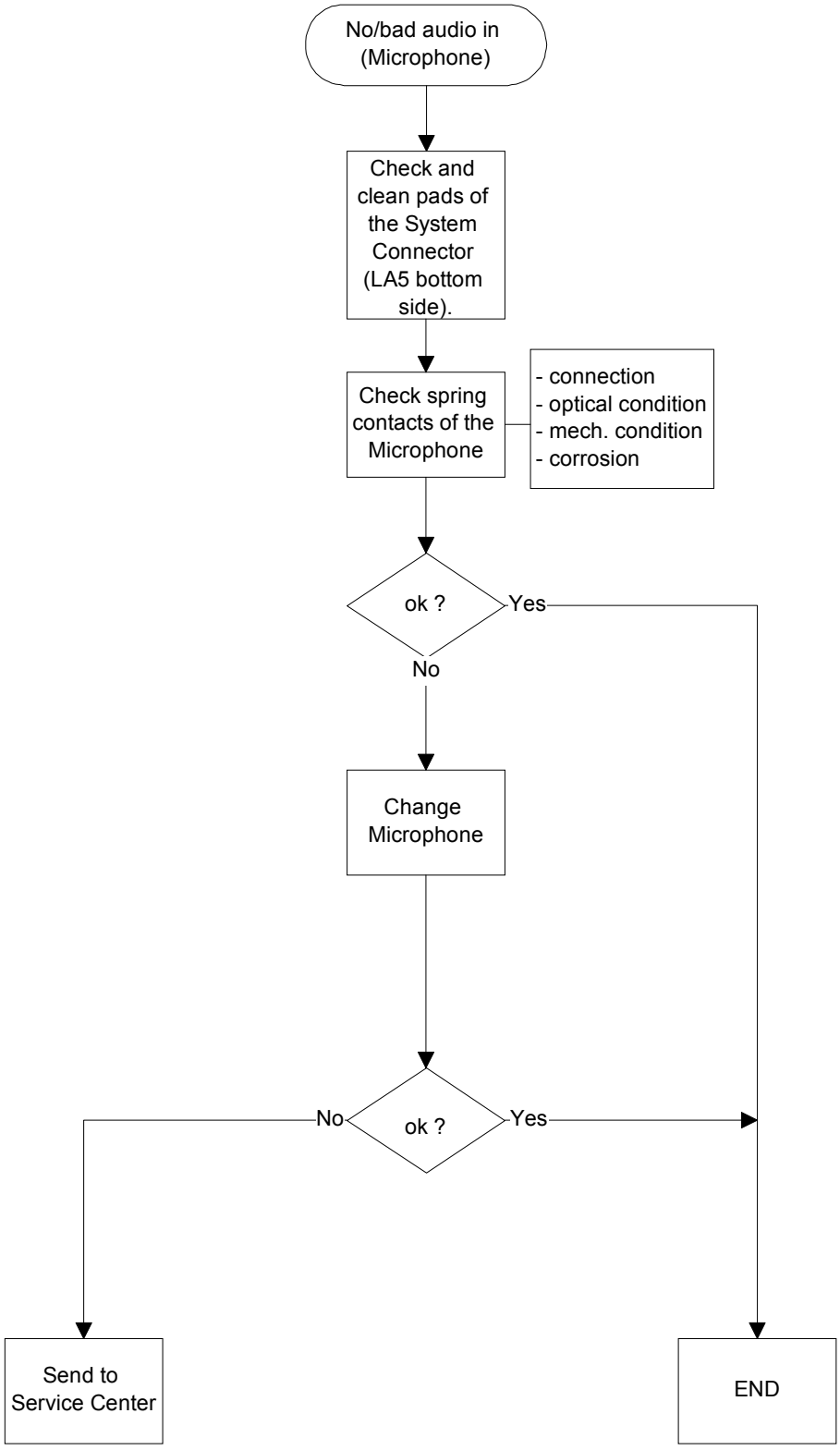
5.7 NO/BAD AUDIO IN



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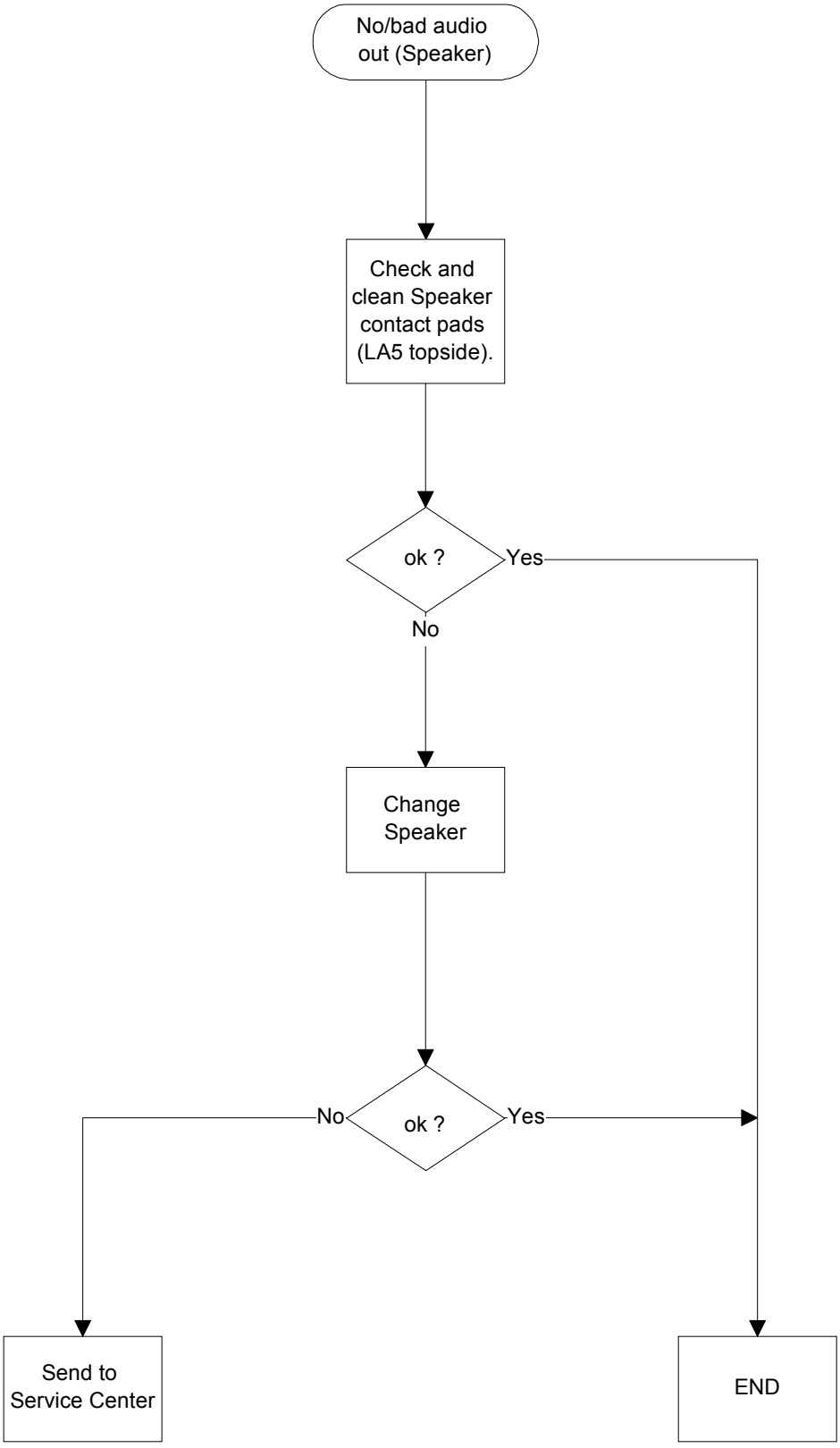
5.8 NO/BAD AUDIO OUT



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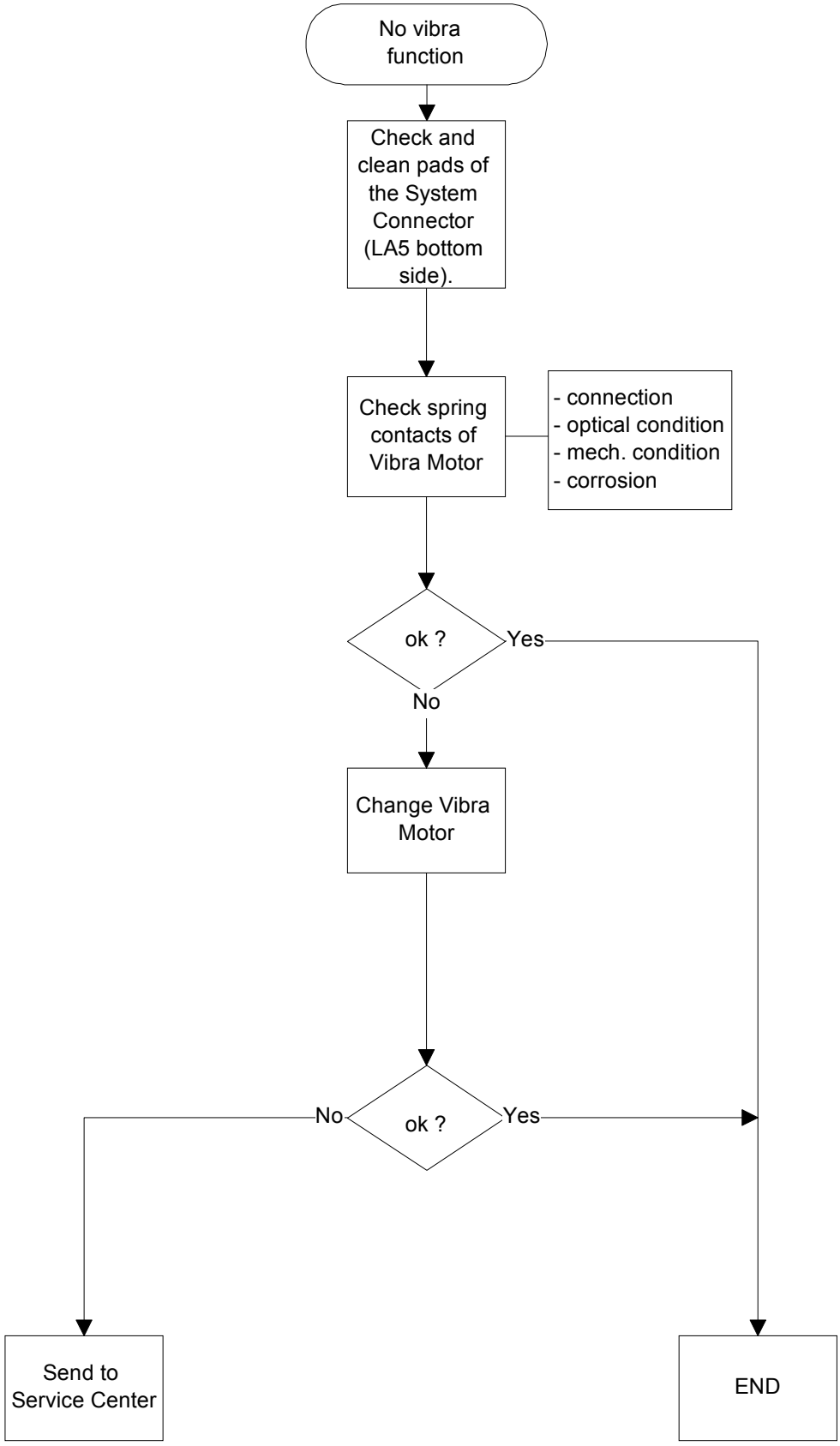
5.9 NO VIBRA FUNCTION



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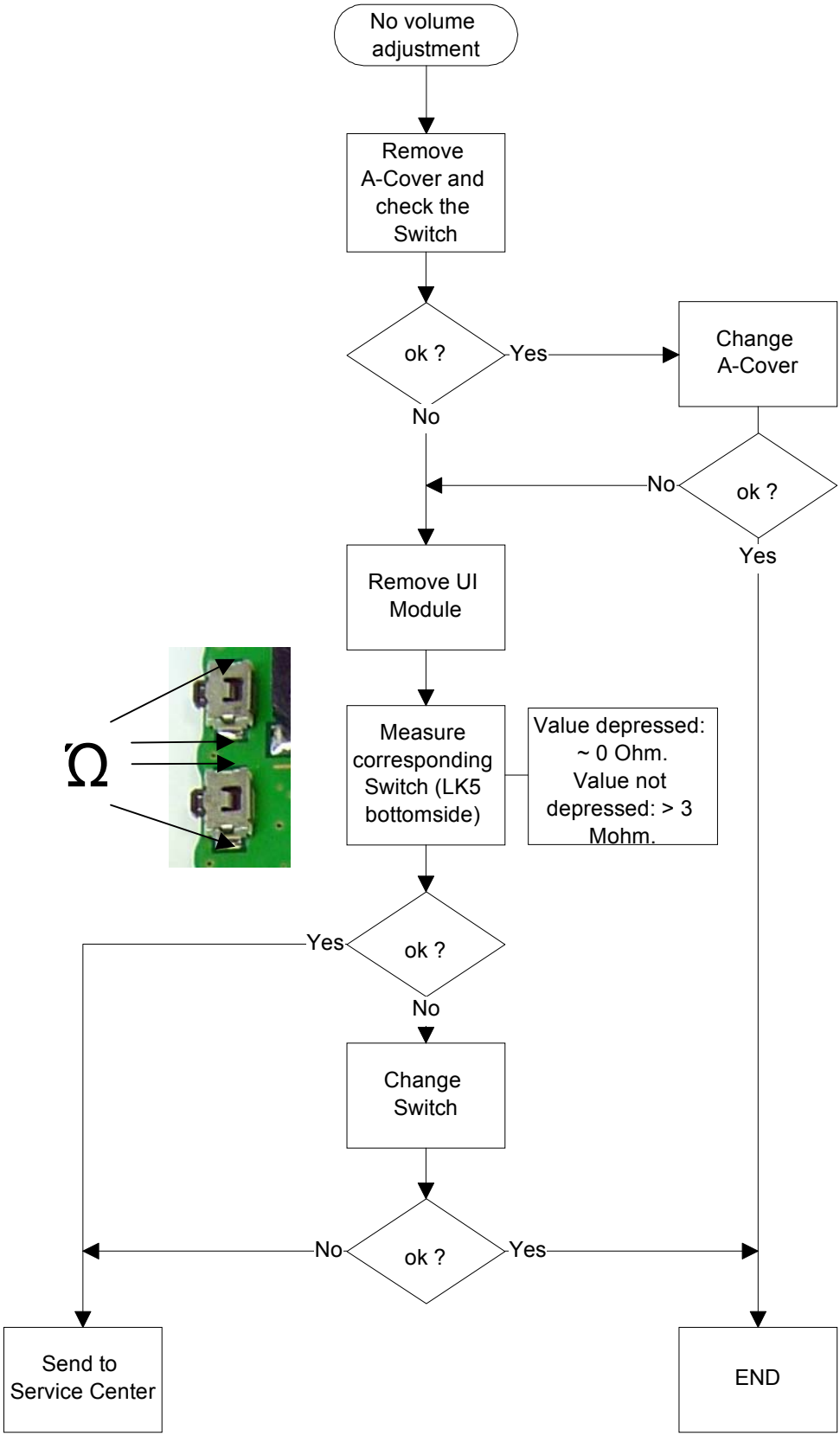
5.10 NO VOLUME ADJUSTMENT



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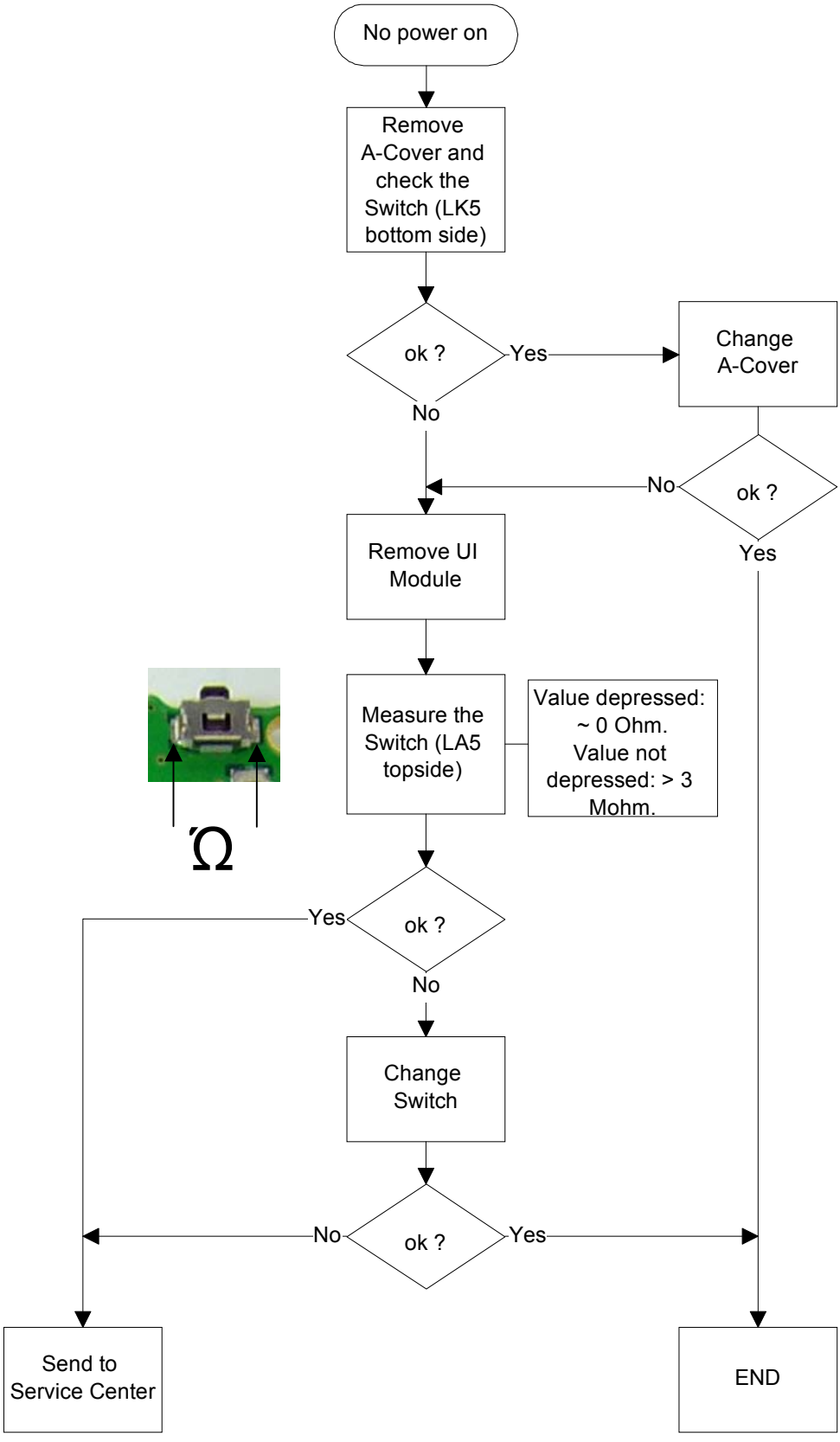
5.11 NO POWER ON



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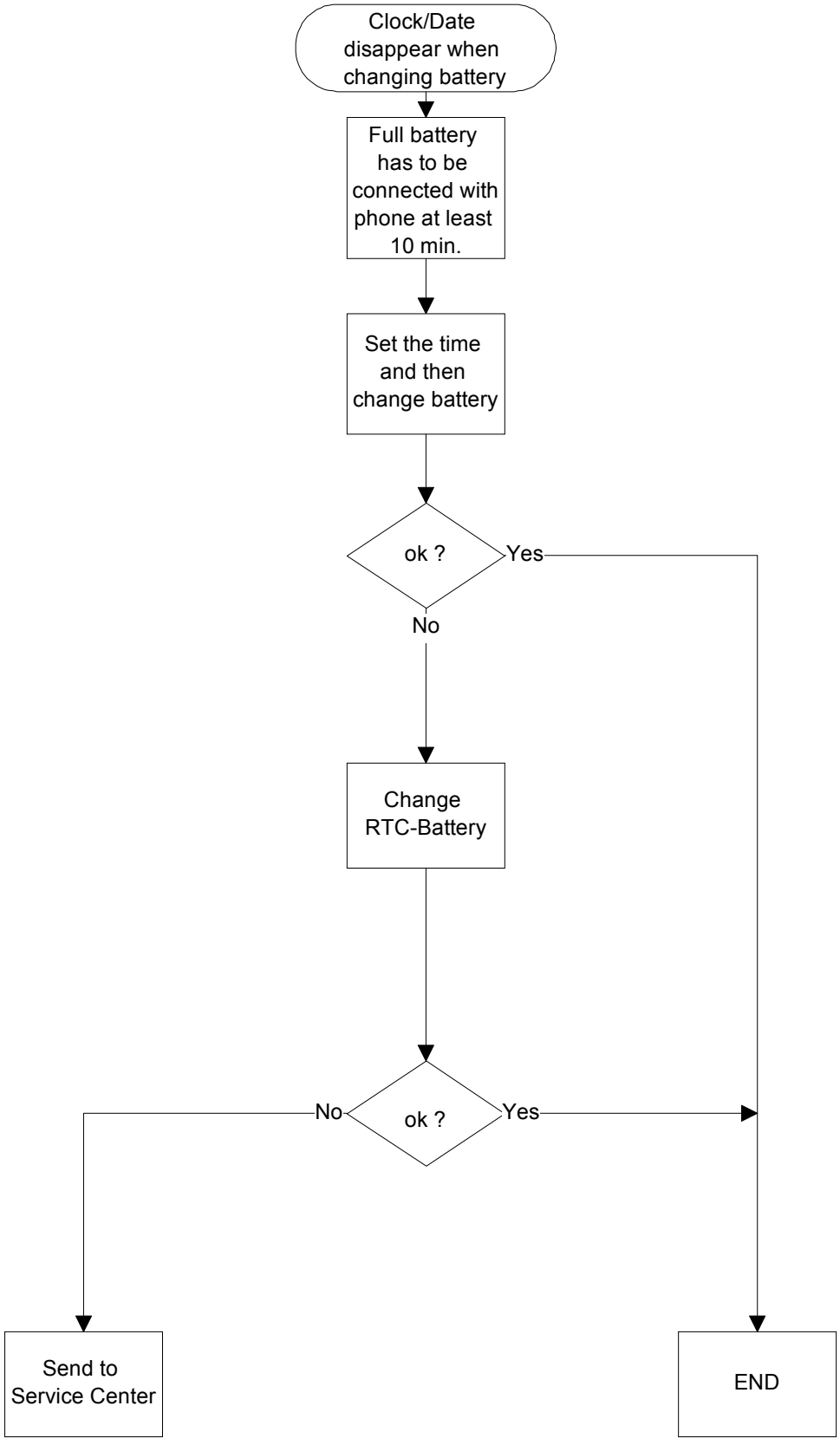
5.12 CLOCK/DATE DISAPPEAR



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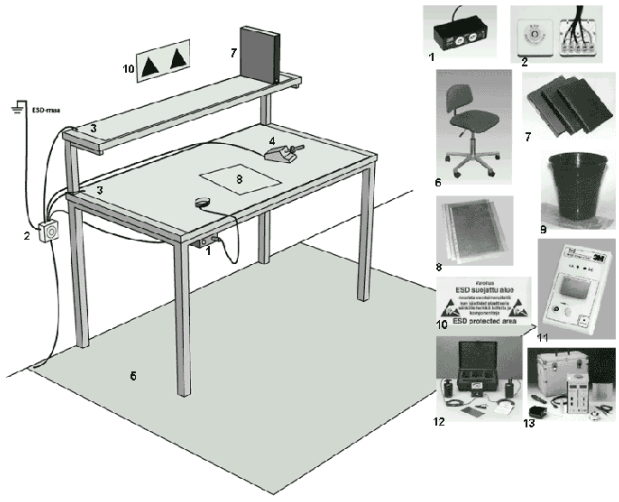
6. ESD PROTECTION REQUIREMENTS

	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.

Please refer to the Partner Pages document
ESD protection requirements for NMP Service Level 1/2 Service Suppliers

example configuration of an epa-area
source: www.armeka.com

example configuration of a workbench
source: www.warmbier.com



example workbench and testers
source: http://www.armekaengineering.com

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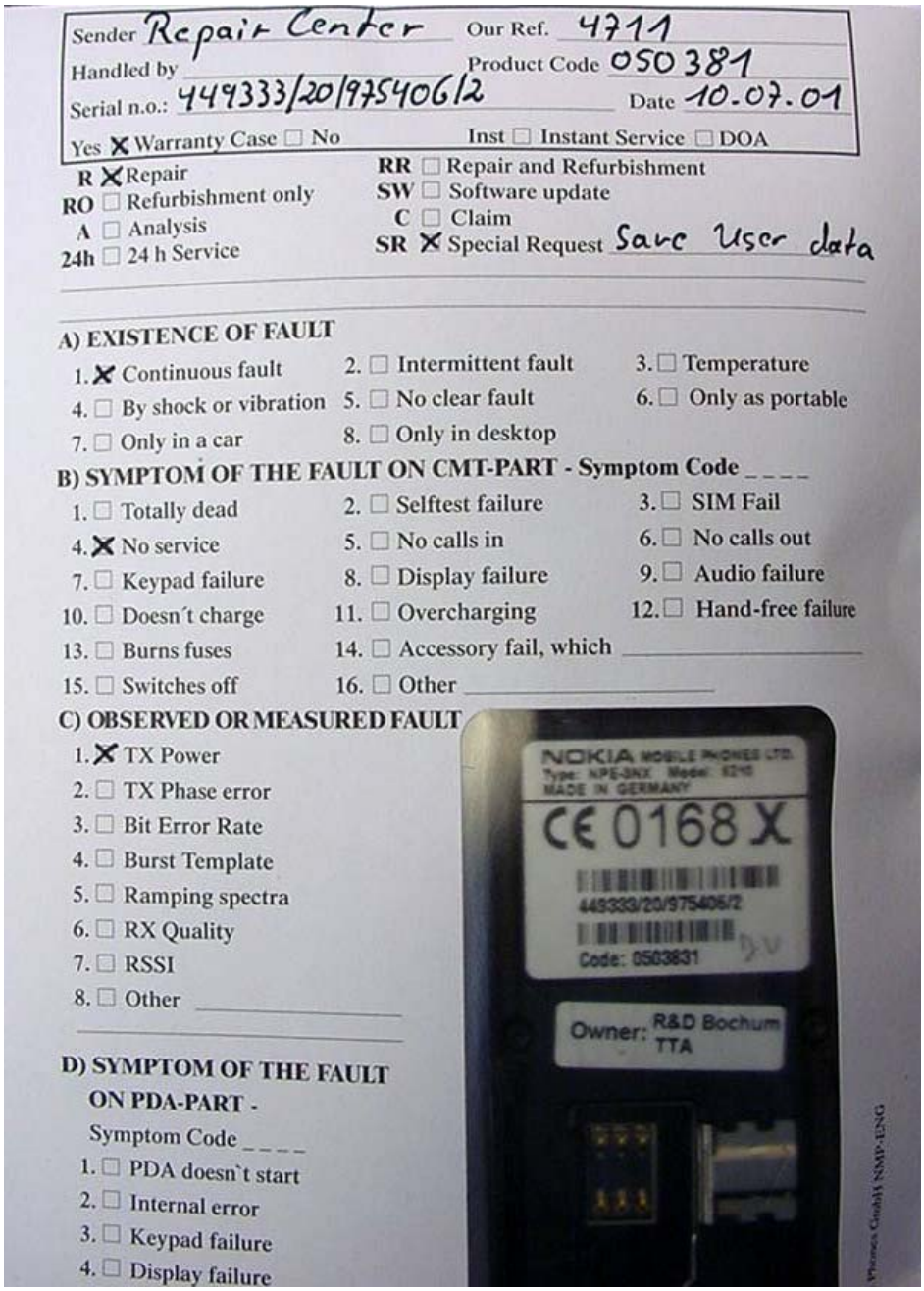
7. SERVICE NOTES

We recommend using Service Notes when shipping phones to other Service Partners. It prevents the product from scratches, it is ESD-proved 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 Pages to get further information.



Sender Repair Center Our Ref. 4711
Handled by Product Code 050381
Serial n.o.: 449333/20/975406/2 Date 10.07.01
Yes X Warranty Case ☐ No Inst ☐ Instant Service ☐ DOA

R X Repair
RO ☐ Refurbishment only
A ☐ Analysis
24h ☐ 24 h Service
RR ☐ Repair and Refurbishment
SW ☐ Software update
C ☐ Claim
SR X Special Request Save User data

A) EXISTENCE OF FAULT
1. X Continuous fault 2. ☐ Intermittent fault 3. ☐ Temperature
4. ☐ By shock or vibration 5. ☐ No clear fault 6. ☐ Only as portable
7. ☐ Only in a car 8. ☐ Only in desktop

B) SYMPTOM OF THE FAULT ON CMT-PART - Symptom Code ____
1. ☐ Totally dead 2. ☐ Selftest failure 3. ☐ SIM Fail
4. X No service 5. ☐ No calls in 6. ☐ No calls out
7. ☐ Keypad failure 8. ☐ Display failure 9. ☐ Audio failure
10. ☐ Doesn´t charge 11. ☐ Overcharging 12. ☐ Hand-free failure
13. ☐ Burns fuses 14. ☐ Accessory fail, which ____
15. ☐ Switches off 16. ☐ Other ____

C) OBSERVED OR MEASURED FAULT
1. X TX Power
2. ☐ TX Phase error
3. ☐ Bit Error Rate
4. ☐ Burst Template
5. ☐ Ramping spectra
6. ☐ RX Quality
7. ☐ RSSI
8. ☐ Other ____

D) SYMPTOM OF THE FAULT ON PDA-PART -
Symptom Code ____
1. ☐ PDA doesn`t start
2. ☐ Internal error
3. ☐ Keypad failure
4. ☐ Display failure

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8. GONOGO TESTER

The Acterna/Wavetek 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 Pages/PWS.**	

9. BATTERYTESTER

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 Pages/PWS.**	

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