

Service Manual

C81

Level 1-3



Release	Date	Department	Notes to change
R 1.0	24.04.2006	BenQ Mobile CC S CES	New document

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1 Key Feature

SIM Card	<ul style="list-style-type: none"> • Small (=“Plug In”) 1.8 V or 3 V-SIM card
Battery	<ul style="list-style-type: none"> • Lition Battery Pack <ul style="list-style-type: none"> ◦ Nominal Capacity 780mAh ◦ GSM Capacity 750mAh
Stand – by Time	<ul style="list-style-type: none"> • > 250h
Talking Time	<ul style="list-style-type: none"> • > 5h
Display	<ul style="list-style-type: none"> • 132 x 176 • 262K colour • TFT • 1.8 inch
Keypad	<ul style="list-style-type: none"> • hard caps in IMF – technology • 12-key-block (0-9,#,*) • 2 function keys (SEND, END) • ON/OFF key combined with the END key; the symbol ⓘ (I inside O) is used as a symbol for ON/OFF • 5-way-navi-key • 2 soft – keys for different SW-enabled functions • 1 dedicated hard key (provider key) • white as illumination colour • tactile finder on key “5” • 6 white LEDs for keypad
Camera	<ul style="list-style-type: none"> • Integrated 1.3 Mega Pixel camera • Integrated camera flash light
Multimedia/Audio	<ul style="list-style-type: none"> • Three-in-one-earpiece for handset, handsfree and ringing tones • Uni-directional microphone • Loud signal emitter (soundringer) only for rectangular sound signals • Polyphonic ringer tones 64 voices • Hands free mode • Different selectable volume levels for handsfree, handset and ringer mode • MP3 (ringtones and music player), Real Audio 8, MPEG4 AAC/AAC+/AAC++, AMR-NB • Audio streaming: AMR-NB, AAC, AAC++, Real Audio 8 • 64 chords polyphonic ringtones • Video resolution: QCIF, subQCIF, decoding: H263, MPEG4, Real Video 8 (available within 2nd SW release); encoding (15fps): H263; streaming: Real Video 8, 3 GPP (H.263, MPEG4)

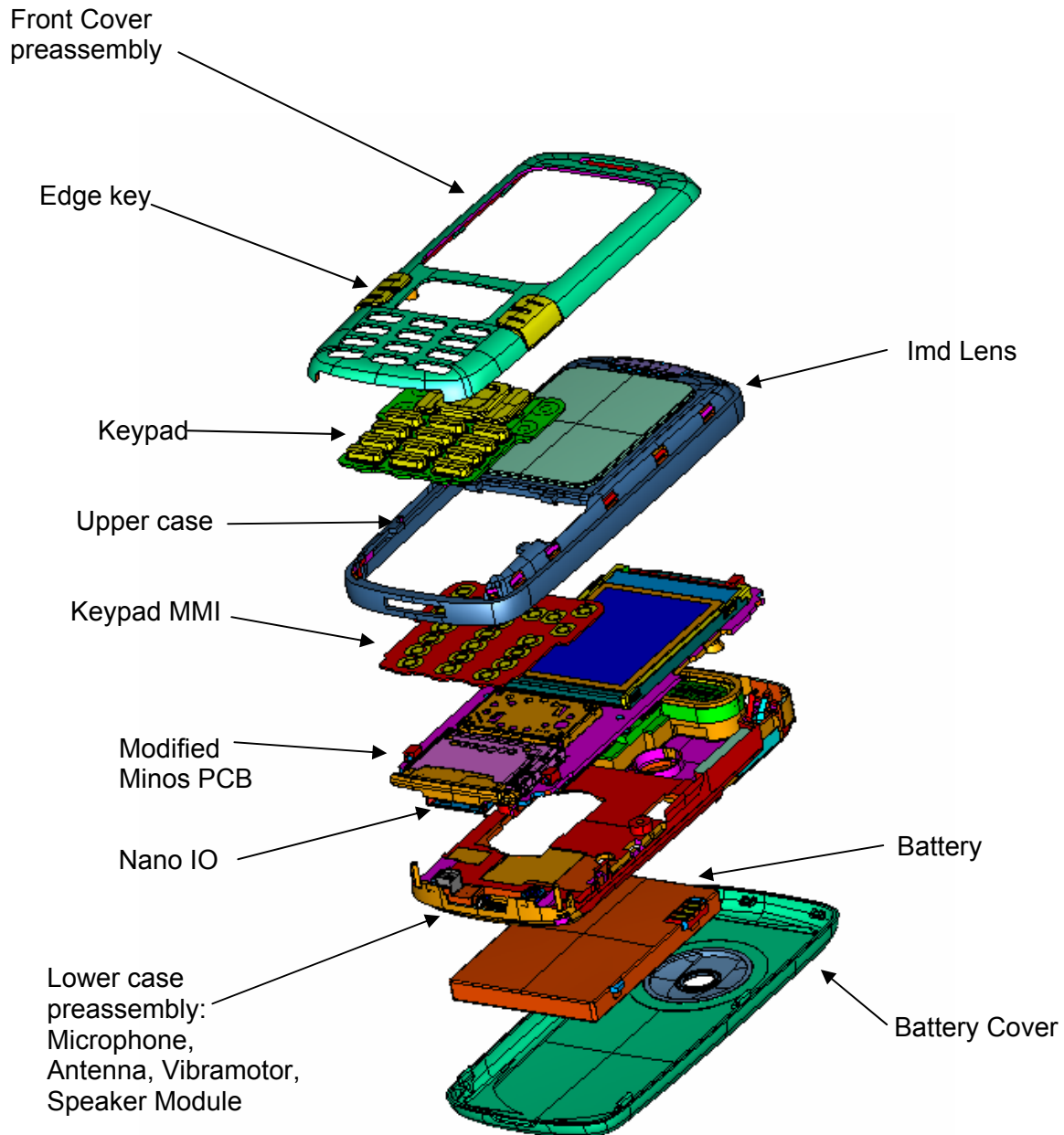
2 Unit Description of C81

The C81 is designed as a Bar phone with two PCBs. The whole unit consists of a NoID-Block and parts for the customization. The NoID-Block itself is made of the soldered PCBs and the preassembled upper and lower cases. It is full functional and testable. The parts for the customization are the keypad, the front cover and the battery cover, but only the battery cover will be exchangeable for the end user.

All plastic parts are 1 shot molded plastic parts. The Front cover and battery cover are lacquered with high glossy black (Hydra piano black). The Upper casing is lacquered silver.



3 Exploded View of C81





4 Disassembly of C81




All repairs as well as disassembling and assembling have to be carried out in an ESD protected environment and with ESD protected equipment/tools. For all activities the international ESD regulations have to be considered.

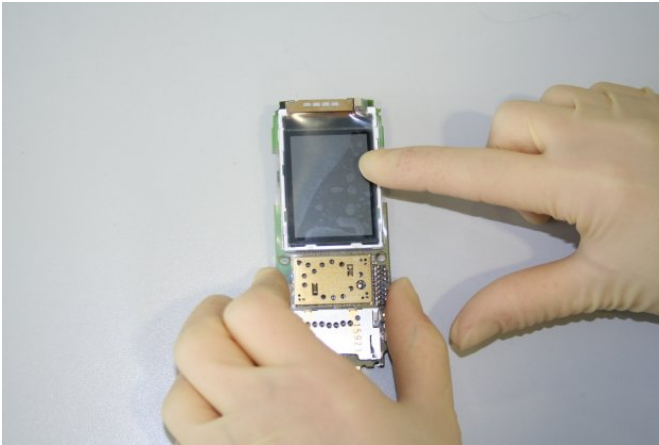
For more details please check information in c – market

<https://market.benqmobile.com/SO/welcome.lookup.asp>

There you can find the document “ESD Guideline”.

Step 1 	Remove Battery Cover.
Step 2 	Remove Battery.

Step 3 	
Step 4 	<p>Remove screws by using the Torque – Screwdriver T5+.</p>
Step 5 	<p>Disconnect Lower Case from Upper Case.</p>

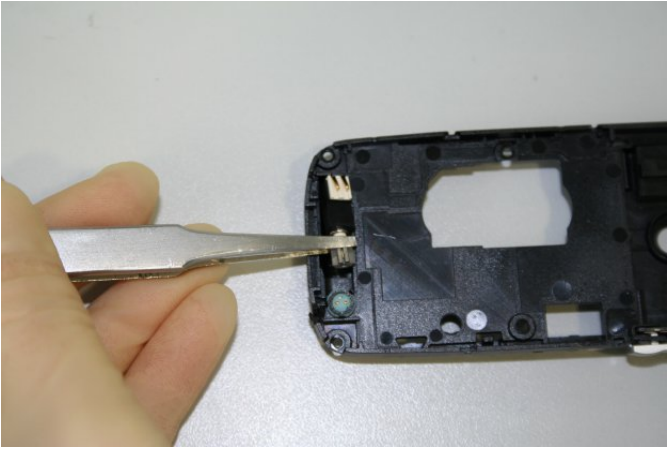

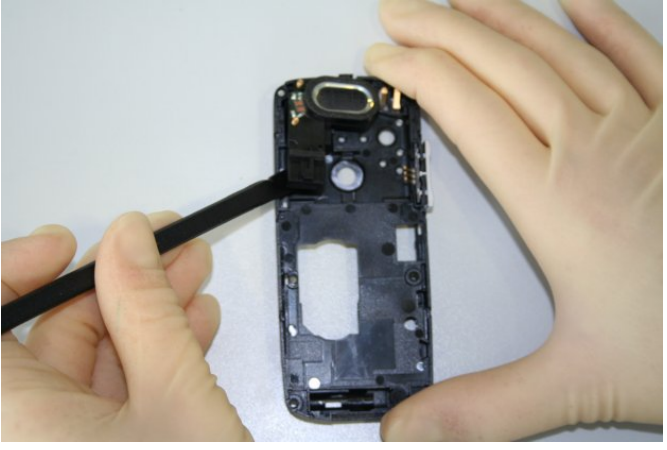
Step 6

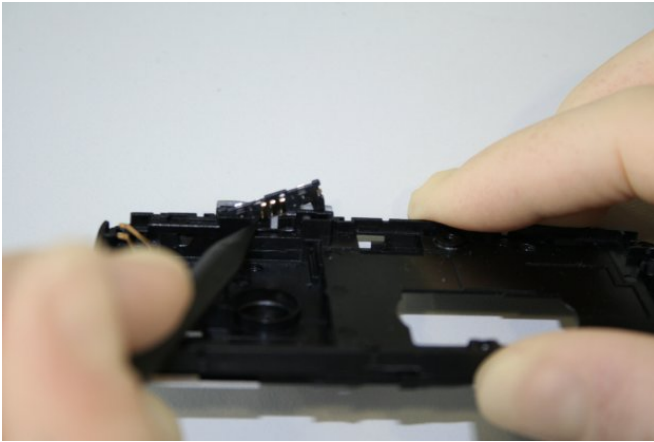
To avoid scratches it is mandatory to place a protection foil onto the Display!!!

Step 7

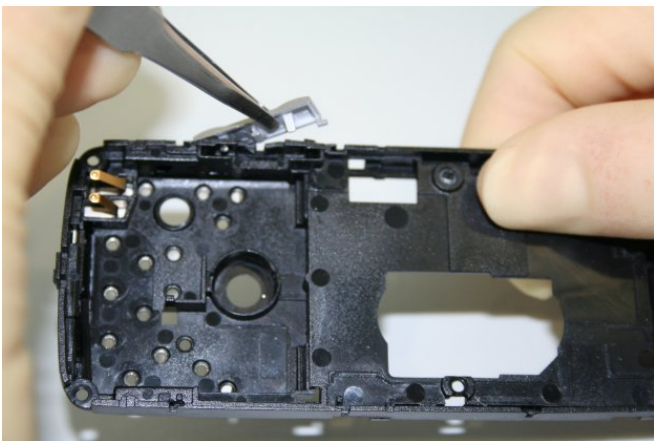
Remove MMC Holder.

Step 8

Step 9 	Remove Vibramotor by using Tweezers.
Step 10 	Remove Microphone by using Tweezers.
Step 11 	Remove Earpiece by using the Alternative Opening Tool.




Step 12



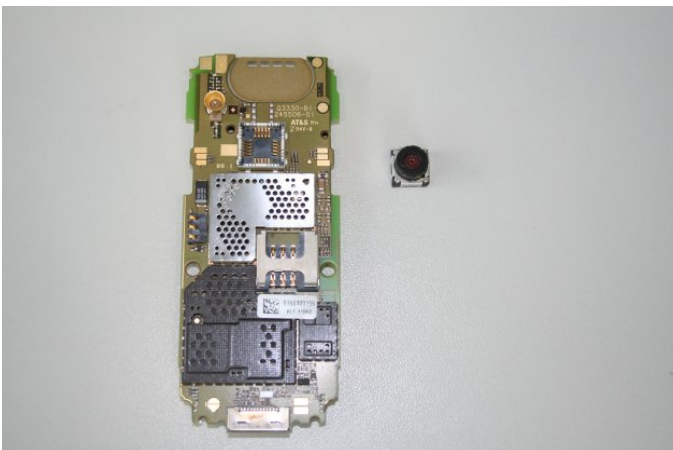
Take out the Side Key Connector by pushing it outside the frame.

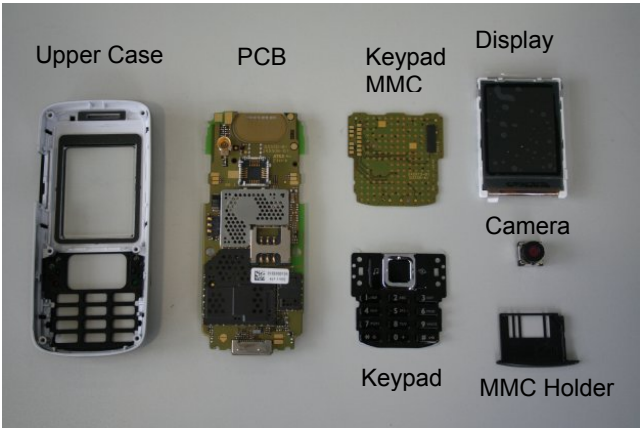

Step 13

Now you can remove the Side Key easily.


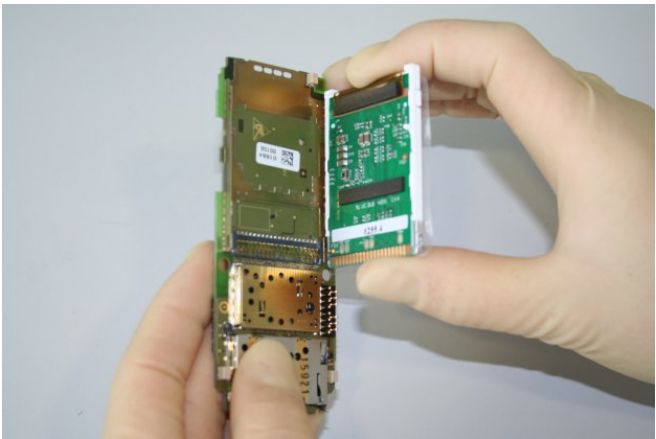
Step 14

Step 15 	<p>Remove the Keypad MMI by using the Alternative Opening Tool.</p>
Step 16 	
Step 17 	<p>Remove the Keypad.</p>

Step 18 	<p>Remove Display from PCB by using Alternative Opening Tool very carefully.</p>
Step 19 	<p>Put the Camera Ejector Jig professional through the four edges between the Camera and the Camera Connector. Now push the Ejector Jig and pull out the Camera carefully.</p>
Step 20 	

Overview Upper Parts	Overview Lower Parts
	

5 Assembly of C81



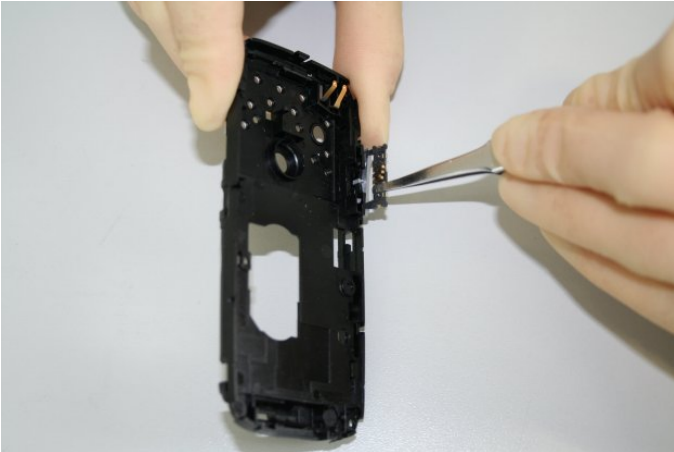
Step 1 	Assemble Camera.
Step 2 	Assemble Display Module very carefully.




Step 3**Step 4**




Assemble Keypad.

Step 5

Assemble Keypad MMI.

Step 6 	Assemble MMC Holder.
Step 7 	Assemble the Side Key into the given frame.
Step 8 	Now fix the Side Key Connector into the Side Key frame.

Step 9 	Assemble Earpiece.
Step 10 	Assemble Microphone by using Tweezers.
Step 11 	Assemble Vibramotor by using Tweezers.

Step 12 	<p>Before assembling the PCB in the Upper Case, it is mandatory to remove the Display Foil!</p>
Step 13 	<p>Assemble the PCB into the Upper Case.</p>
Step 14 	<p>Assemble the Lower Case with the before assembled Upper Case.</p>

Step 15 	Place screws by using the Torque – Screwdriver T5+.
Step 16 	Assemble Battery.
Step 17 	Assemble Battery Cover.

5 BenQ Service Equipment User Manual

Introduction

Every LSO repairing BenQ handset must ensure that the quality standards are observed. BenQ has developed an automatic testing system that will perform all necessary measurements. This testing system is known as:

BenQ Mobile Service Equipment

- For disassembling / assembling

	Torque – Screwdriver Part Number: F 30032 – P 228 – A1
	Opening tool (Case opening without destroying) Part Number: F 30032 – P 38 – A1
	Alternative Opening tool Part Number: F30032 – P583 – A1
	Tweezers
	Camera Ejector Tool Professional Part Number: F30032 – P514 – A1

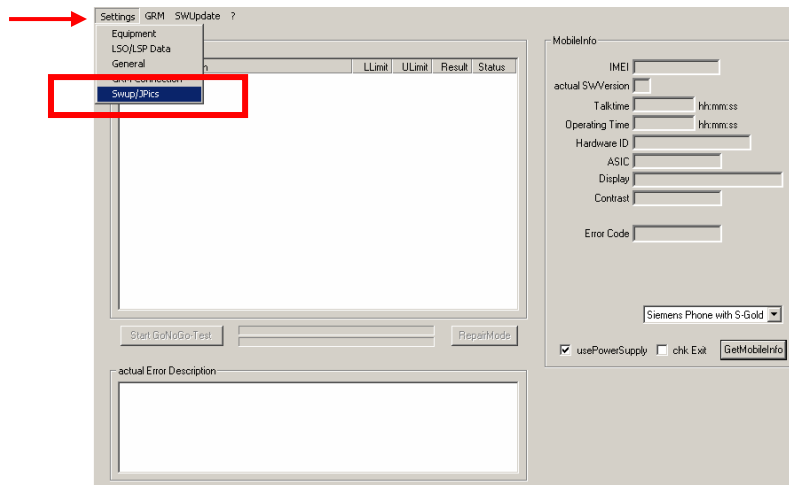
- For testing

All mobile phones have to be tested with the GRT – Software. The service partner is responsible to ensure that all required hardware is available.

For additional Software and Hardware options as well as the supported GRT equipment, please check the GRT User manual.

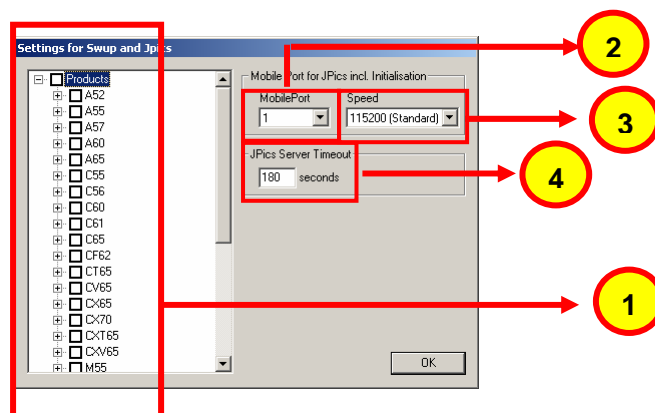
6 GRT Software: Functionality Configuration

Sep 1: Select „Settings >> SWUP / JPICS”



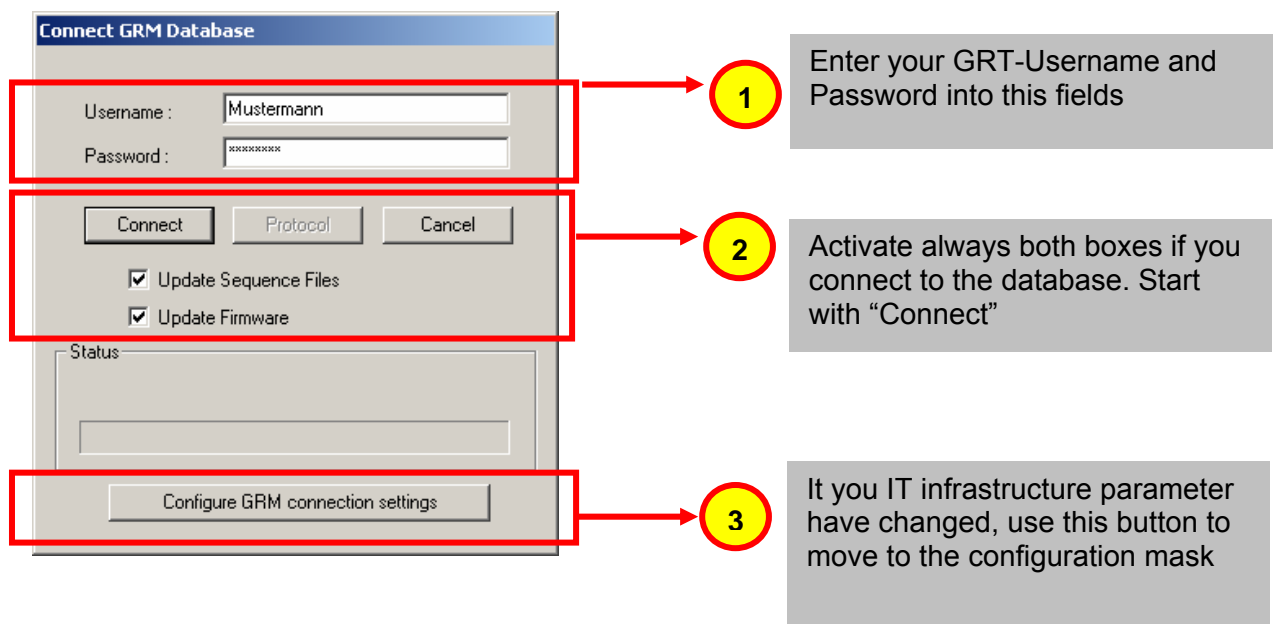
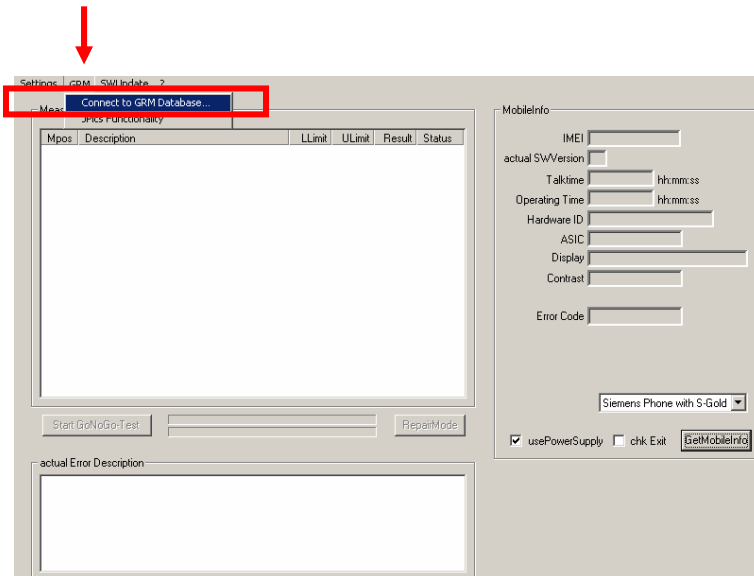
Step 2: Proceed as follows:

- Select all required Variants you need to repair (click onto the “+” in front of the product name).
- Check Com-Port setting. If necessary change it
- Check speed setting. Select always the lowest speed if your PC does not have a fast serial card
- Enter the value for “JPICS Server Timeout”. Be careful, this value defines how long GRT tries to reach the server until you get an error message. Do not select a very long time



Step 3: Connect to GRM Server

- Choose in the section „GRM” the „Connect to GRM Database“ functionality

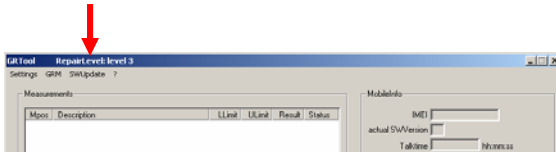


- End the connection with a click onto the „Exit button“ (appearing after successful data exchange)

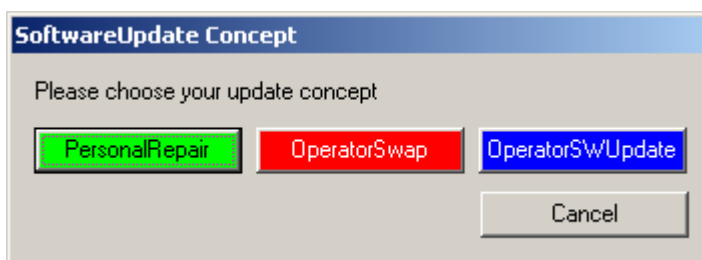
GRT Software has now finished all required settings and configuration tasks. All files have been down- and uploaded.
In dependency of the selected number of mobile phones and variants the volume of transferred date could be (~100MB)

7 GRT Software: Regular Usage

Step 1: Select the section SWUpdate



Step 2: Choose the area you want to work with



- **Personal Repair**

Personal Repair is always accessible. Basis for the decision if a SW-Update is authorised by Siemens is the so called Service Release-Table.

Example: Mobile Phone has already SW50. Service -Release-Table shows SW50

In this case SW-Update is not necessary and therefore not authorized

In any case customer data can be erased on request. (xfs and mapping have to be activated) Of course **JPICS** hardware and authorisation have to be available.

- **Operator SWAP**

This area is only accessible if you are released by the service management to perform SW-Updates for Net-Operators. Basis for the decision if a SW-Update is authorised by Siemens is the so called MasterTable.

Customer data will be erased without any exception and any chance to influence by the user. **JPICS** hardware and authorisation have to be available.

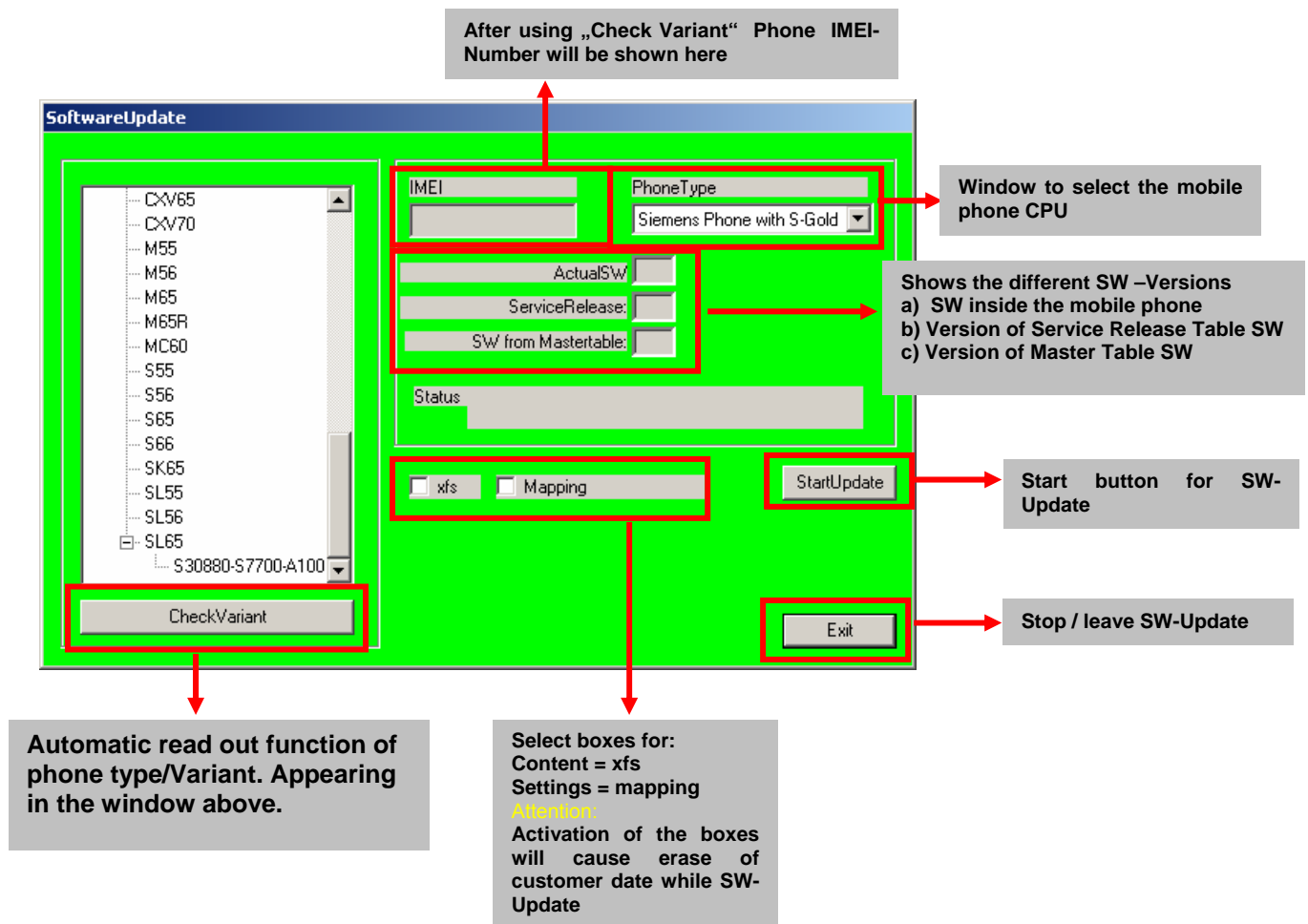
- **Operator SWUpdate**

This area is only accessible if you are released by the service management to perform SW-Updates for Net-Operators. Basis for the decision if a SW-Update is authorised by Siemens is the so called MasterTable.

Like in "Personal Repair" customer data can be erased on request. (xfs and mapping have to be activated) Of course **JPICS** hardware and authorisation have to be available.

Window explanation

This general explanation is valid for all SW-Update channels
(**Personal Repair**, **Operator SWAP**, **Operator SWUpdate**)



Remarks:

In case of malfunction please check

- Is the correct phone type selected
- Is the correct COM-Port selected
- If a variant is missing, move back to Settings select the missing variant and connect the GRM Server. Then continue with SW-Update.

Case 1: Personal Repair (green)

Step 1: Carry out step 1 – 4 to start SW-Update.

The screenshot shows the 'SoftwareUpdate' window. It has a green background. On the left is a list of phone models: CXV65, CXV70, M55, M56, M65, M65R, MC60, S55, S56, S65, S66, SK65, SL55, SL56, SL65. Below the list is a dropdown menu showing 'S30880-S7700-A100' and a 'CheckVariant' button. On the right, there are fields for 'IMEI', 'PhoneType' (a dropdown menu showing 'Siemens Phone with S-Gold'), 'ActualSW', 'ServiceRelease', 'SW from MasterTable', and 'Status'. There are checkboxes for 'xfs' and 'Mapping', and a 'StartUpdate' button. An 'Exit' button is at the bottom right. Four numbered callouts are present: 1 points to the 'PhoneType' dropdown; 2 points to the 'CheckVariant' button; 3 points to the 'xfs' and 'Mapping' checkboxes; 4 points to the 'StartUpdate' button.

1 Select the mobile phone CPU type

2 Read out phone type/Variant.
>>Appears in the window above.

3 Choose if customer data shall be erased.
If "Yes" activate the boxes in front of xfs and mapping

4 Start SW-Update

Remarks:

- The decision about a Siemens authorised SW-Update depends only on the Service Release-Table.
- The SW which is booted by GRT can be below the SW mentioned in the Service Release Table, if this SW is not released for the Net-Operator
- If **xfs** and **mapping** are activated, GRT will erase in any case the customer data even if the action is cancelled.
- If the user wants to download another variant then the automatically identified one, he has simply to select another variant from the list. Afterwards he has to start the SW-Update

Case 2: Operator SWAP (red)

Step 1: Carry out step 1 – 4 to start SW-Update.

The screenshot shows the 'SoftwareUpdate' window. It features a list of phone variants on the left, including CXV65, CXV70, M55, M56, M65, M65R, MC60, S55, S56, S65, S66, SK65, SL55, SL56, and SL65. Below the list is a 'CheckVariant' button. On the right, there are fields for 'IMEI', 'PhoneType' (set to 'Siemens Phone with S-Gold'), 'ActualSW', 'SW from Mastertable', and 'Status'. There are also checkboxes for 'xfs' and 'Mapping', and buttons for 'StartUpdate' and 'Exit'. Four numbered callouts are present: 1 points to the 'PhoneType' dropdown; 2 points to the 'CheckVariant' button; 3 points to the 'xfs' and 'Mapping' checkboxes; 4 points to the 'StartUpdate' button.

1 Select the mobile phone CPU type

2 Read out phone type/Variant.
>>Appears in the window above.

3 Choose if customer data shall be erased.
If "Yes" activate the boxes in front of xfs and mapping

4 Start SW-Update

Remarks:

- The decision about a Siemens authorised SW-Update depends only on the Master-Table.
- The user has no chance to influence the decision
- **Xfs** and **mapping** are always activated there is no chance to deactivate them. GRT will erase in any case the customer data even if the action is cancelled.
- If the user wants to download another variant then the automatically identified one, he has simply to select another variant from the list. Afterwards he has to start the SW-Update

Case 3 Operator SWUpdate (blue)

Step 1: Carry out step 1 – 4 to start SW-Update.

The screenshot shows the 'SoftwareUpdate' dialog box. It has a list of phone variants on the left, including CXV65, CXV70, M55, M56, M65, M65R, MC60, S55, S56, S65, S66, SK65, SL55, SL56, and SL65. Below the list is a 'CheckVariant' button. On the right, there are fields for 'IMEI', 'PhoneType' (a dropdown menu showing 'Siemens Phone with S-Gold'), 'ActualSW', 'SW from Mastertable', and 'Status'. There are also checkboxes for 'xfs' and 'Mapping', and a 'StartUpdate' button. An 'Exit' button is at the bottom right. Four numbered annotations are present: 1 points to the 'PhoneType' dropdown; 2 points to the 'CheckVariant' button; 3 points to the 'xfs' and 'Mapping' checkboxes; 4 points to the 'StartUpdate' button.

1 Select the mobile phone CPU type

2 Read out phone type/Variant.
>>Appears in the window above.

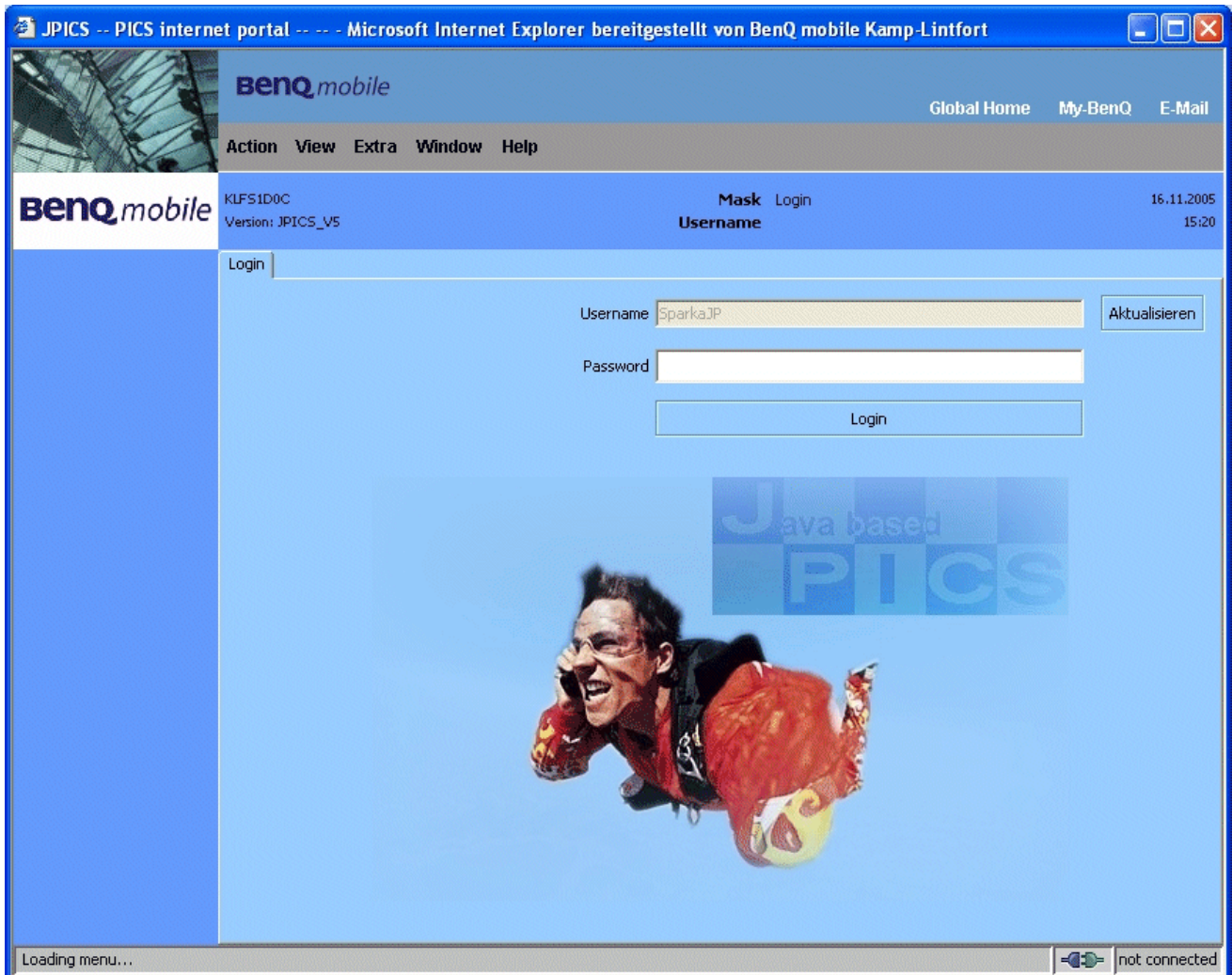
3 Choose if customer data shall be erased.
If "Yes" activate the boxes in front of xfs and mapping

4 Start SW-Update

Remarks:

- The decision about a Siemens authorised SW-Update depends only on the Master-Table.
- The user has no chance to influence the decision
- **Xfs** and **mapping** can be activated on demand. GRT will erase in any case the customer data even if the action is cancelled.
- If the user wants to download another variant then the automatically identified one, he has simply to select another variant from the list. Afterwards he has to start the SW-Update

8 JPICS (Java based Product Information Controlling System)



Overview

The following functions are available for the LSO:

- General mobile information
- Generate PINCODE
- Generate SIMLOCK – UNLOCK – Code
- Print IMEI labels



The access to the JPICS server which is located in Kamp – Lintfort is protected by chip card and in addition using secure socket layer (SSL) connection.

The JPICS server is only available for authorized users with a specially coded smart card. These smart cards and the administration of the JPICS web server and the PICS database – server can only be provided by the JPICS – TRUST – Center of the responsible department in Kamp – Lintfort.

In case of any questions or requests concerning smart cards or administration of the databases please ask your responsible BenQ Customer Care Manager.

Installation overview

The following installation description assumes that a web browser is already installed.

JPICS is tested with the following browsers:

1. Internet Explorer Version 5.5 and higher
2. Netscape Version 6 and higher

For further information regarding supported browsers, browser version and supported operating systems, see the Sun FAQ's.

Here is a step by step instruction to install all the required components:

It is necessary to follow this order!

1. Smart Card Reader (Omnikey: Cardman 2020 USB or Cardman 3121 USB)
2. CardOS interface (Siemens Version 3.0 B)
3. Java Runtime Environment (Sun)
4. Java additional components

Every user is responsible for a proper installation matching the license agreements.

For installation and further access you need the following:

1. The JPICS Installation – CD
2. The Smart Card JPICS.

Remark: We recommend using Cardman 2020 USB or Cardman 3121 USB. Serial card readers are not supported!!!

Generate Codes

In the JPICS application you can choose to generate:

- **Masterphone codes**
- **Simlock – Unlock – Codes**

Masterphone codes

The **Masterphone code** is used to unlock blocked mobiles.

Masterphone codes can only be supplied for mobiles which have been delivered in a regular manner.

JPICS -- PICS internet portal -- -- Microsoft Internet Explorer bereitgestellt von BenQ mobile Kamp-Lintfort

BenQmobile

Global Home My-BenQ E-Mail

Action JPICS user menu View Extra Window Help

KLFS1D0C Mask Masterphone-Code* 16.11.2005
Version: 1.0 Username SparkaJP 15:22

Troubleshooting Masterphone-Code

Mobile info

IMEI label printing

Masterphone codes

Simlock unlock co...

BFBus - Status

Input

IMEI 351630000011691 Execute DB-Location Kamp-Lintfort

Mobile data

Producttype SL55 Deliverypartnumber L36880-N4910-A150-31

SW version 000 Partnumber S30880-54910-A100-53

Warranty Status Normal

Delivery information

Deliverynote LC00001579 Deliverydate 15.09.05

Mobile codes

Mobile unlock code *#0003*40158737#

SL55

connected

Simlock – Unlock – Code

The **Simlock – Unlock – Codes** can only be generated if the following conditions are given:

- Mobile must have an active **Simlock** inside.
- The user must be given the authorization to obtain **Simlock – Unlock – Codes** for the variant of the operator to which the mobile was delivered last time.

The screenshot displays the JPICS internet portal in Microsoft Internet Explorer. The browser title bar reads "JPICS -- PICS internet portal -- -- - Microsoft Internet Explorer bereitgestellt von BenQ mobile Kamp-Lintfort". The page header includes the BenQmobile logo, navigation links (Global Home, My-BenQ, E-Mail), and a menu bar (Action, JPICS user menu, View, Extra, Window, Help). The main content area is titled "Simlock-Unlock-Code" and shows the following information:

- KLFS1D0C** (Version: 1.0)
- Mask:** Simlock-Unlock-Code
- Username:** SparkaJP
- Date/Time:** 16.11.2005 15:23

The interface is divided into several sections:

- Mobile info:** Includes links for "IMEI label printing", "Masterphone codes", "Simlock unlock co...", and "BFBus - Status".
- Get information for given IMEI:** A form with an IMEI field (350673547180612), an "Execute" button, and a DB-Location field (Kamp-Lintfort).
- Mobile data:** A table of device information:

Producttype	C45	Deliverypartnumber	L36880-S5100-X139-15
SW version	049	Partnumber	S30880-S5100-A139-14
Warranty	21.08.05	Status	Normal
- Delivery information:** A table with delivery details:

Deliverynote	0066015319	Deliverydate	22.08.03
--------------	------------	--------------	----------
- Mobile codes:** A table of various codes and mastercodes:

Networkcode		Network Mastercode	
S. Providercode		S. Provider Mastercode	
SIM-Mastercode		SIM-Reeanablecode	
Corporatecode		Corporate Mastercode	
Network Subnet Code		Network Subnet Mastercode	*#0004*28101158#

On the right side, there is an image of a blue BenQ C45 mobile phone. At the bottom right, a status bar indicates "connected".

Printing IMEI label

The module “**printing IMEI label**” offers the possibility to re-print IMEI labels for mobiles again.

The screenshot shows a web browser window titled "JPICS -- PICS internet portal -- -- Microsoft Internet Explorer bereitgestellt von BenQ mobile Kamp-Lintfort". The page features the BenQmobile logo and navigation links: "Global Home", "My-BenQ", and "E-Mail". A menu bar includes "Action", "JPICS user menu", "View", "Extra", "Window", and "Help". The main content area is titled "Reprint IMEI Label" and displays the following information:

- Mask: Reprint IMEI Label
- Username: SparkaJP
- Version: 1.4
- Date: 16.11.2005 15:24

The "Reprint IMEI Label" section contains an "Input" field for the IMEI number, which is currently set to "351630000011691". A "Print label" button is located next to the input field. The "DB-Location" is set to "Kamp-Lintfort". Below the input field, there is a checkbox labeled "Print test label(s)" which is checked. A progress bar is visible below the checkbox.

You are able to print 1 label in just one step.

To prevent that misaligned labels are being printed, the setting “Print test labels = ✓” is activated by default. After having printed a well aligned test label you can uncheck the setting and print the correct label.

Hint:

For correct printing of IMEI labels you must have a **Zebra – label printer** with special material that fits for label printing. This printer has to be connected to local LPT1 printer port (also see Installation of IMPRINT) and MUST feature a printing resolution of 300dpi.

9 International Mobile Equipment Identity, IMEI

The mobile equipment is uniquely identified by the International Mobile Equipment Identity, IMEI, which consists of 15 digits. Type approval granted to a type of mobile is allocated 6 digits. The final assembly code is used to identify the final assembly plant and is assigned with 2 digits. 6 digits have been allocated for the equipment serial number for manufacturer and the last digit is spare.

The part number for the C81 is S30880-S3330-#xxx where the last for letters specify the housing and software variant.

C81 series IMEI label is accessible by removing the battery.

Re – use of IMEI label is possible by using a hair – dryer to remove the IMEI label.

On this IMEI label, BenQ has also includes the data code for production or service, which conforms to the industrial standard DIN EN 60062. The data code comprises of 2 characters: first character denotes the **year** and the second character denotes the **month**.

For example: **S5**

CODE	Year	Month	CODE
P	2 0 0 2	M A R C H	3
R	2 0 0 3	A P R I L	4
S	2 0 0 4	M A Y	5
T	2 0 0 5	J U N E	6
U	2 0 0 6	J U L Y	7

To display the IMEI number, exit code and SW/HW version, key: * # 0 6 #

10 General Testing Information

General Information

The technical instruction for testing GSM mobile phones is to ensure the best repair quality.

Validity

This procedure is to apply for all from BenQ mobile authorized level 2 up to 3 workshops.

Procedure

All following checks and measurements have to be carried out in an ESD protected environment and with ESD protected equipment/tools. For all activities the international ESD regulations have to be considered.

Get delivery:

- Ensure that every required information like fault description, customer data a.s.o. is available.
- Ensure that the packing of the defective items is according to packing requirements.
- Ensure that there is a description available, how to unpack the defective items and what to do with them.

Enter data into your database:

(Depends on your application system)

- Ensure that every data, which is required for the IRIS-Reporting is available in your database.
- Ensure that there is a description available for the employees how to enter the data.

Incoming check and check after assembling:**!! Verify the customers fault description!!**

- After a successful verification pass the defective item to the responsible troubleshooting group.
- If the fault description can not be verified, perform additional tests to save time and to improve repair quality.
 - Switch on the device and enter PIN code if necessary unblock phone.
 - Check the function of all **keys** including **side keys**.
 - Check the **display** for error in line and row, and for illumination.
 - Check the **ringer/loudspeaker** acoustics by individual validation.
 - Perform a **GSM Test** as described on page 36.

Check the storage capability:

- Check internal resistance and capacity of the battery.
- Check battery charging capability of the mobile phone.
- Check charging capability of the power supply.
- Check current consumption of the mobile phone in different mode.

Visual inspection:

- Check the entire board for liquid damages.
- Check the entire board for electrical damages.
- Check the housing of the mobile phone for damages.

SW update:

- Carry out a software update and data reset according to the master tables and operator/customer requirements.

Repairs:

The disassembling as well as the assembling of a mobile phone has to be carried out by considering the rules mentioned in the dedicated manuals. If special equipment is required the service partner has to use it and to ensure the correct function of the tools.

If components and especially soldered components have to be replaced all rules mentioned in dedicated manuals or additional information e.g. service information have to be considered

GSM Test:

With the availability of the GRT Test /Alignment software, this tool has to be used to perform the outgoing test!

>Connect the mobile/board via internal antenna (antenna coupler) and external antenna (car cradle/universal antenna clip) to a GSM tester

>Use a Test SIM

For Triple Band phones use a separate test case, if the test software allows only one handover.

Skip the GSM Band test cases if not performed by the mobile phone

Example: 1. Test file Band 1 = GSM900 / Band 2 = GSM1800
 2. Test file Band 1 = GSM1900

Internal Antenna				
Test case		Parameter	Measurements	Limits
1	Location Update	<ul style="list-style-type: none"> • GSM Band 1 • BS Power = -55 dBm • middle BCCH 	<ul style="list-style-type: none"> • Display check 	<ul style="list-style-type: none"> • individual check
2	Call from BS	<ul style="list-style-type: none"> • low TCH • highest PCL • BS Power = -75 dBm • middle BCCH 	<ul style="list-style-type: none"> • Ringer/Loudspeaker check 	<ul style="list-style-type: none"> • individual check
3	TX GSM Band 1	<ul style="list-style-type: none"> • low TCH • highest PCL • BS Power = -75 dBm • middle BCCH 	<ul style="list-style-type: none"> • Frequency Error • Phase Error RMS • Phase Error Peak • Average Power • Power Time Template 	<ul style="list-style-type: none"> • GSM Spec.
4	Handover to GSM Band 2 Including Handover Check			
5	TX GSM Band 2	<ul style="list-style-type: none"> • low TCH • highest PCL0 • BS Power = -75 dBm • middle BCCH 	<ul style="list-style-type: none"> • Frequency Error • Phase Error RMS • Phase Error Peak • Average Power • Power Time Template 	<ul style="list-style-type: none"> • GSM Spec.
6	Call release from BS			

External Antenna				
7	Call from MS	<ul style="list-style-type: none"> • GSM900 • high TCH • second highest PCL • BS Power = -75 dBm • middle BCCH 	<ul style="list-style-type: none"> • Keyboard check 	<ul style="list-style-type: none"> • individual check
8	TX GSM Band 1	<ul style="list-style-type: none"> • high TCH • second highest PCL • BS Power = -75 dBm • middle BCCH 	<ul style="list-style-type: none"> • Frequency Error • Phase Error RMS • Phase Error Peak • Average Power • Power Time Template 	<ul style="list-style-type: none"> • GSM Spec.
9	RX GSM Band 1	<ul style="list-style-type: none"> • high TCH • BS Power = -102 dBm • 50 Frames • middle BCCH 	<ul style="list-style-type: none"> • RX Level • RX Qual • BER Class Ib • BER Class II • BER Erased Frames 	<ul style="list-style-type: none"> • GSM Spec.
10	Handover to GSM Band 2 Including Handover Check			
11	TX GSM Band 2	<ul style="list-style-type: none"> • high TCH • second highest PCL • BS Power = -75 dBm • middle BCCH 	<ul style="list-style-type: none"> • Frequency Error • Phase Error RMS • Phase Error Peak • Average Power • Power Time Template 	<ul style="list-style-type: none"> • GSM Spec.
12	RX GSM Band2	<ul style="list-style-type: none"> • high TCH • BS Power = -102 dBm • 50 Frames • middle BCCH 	<ul style="list-style-type: none"> • RX Level • RX Qual • BER Class Ib • BER Class II • BER Erased Frames 	<ul style="list-style-type: none"> • GSM Spec.
13	Call release from MS			

Final Inspection:

The final inspection contains:

- 1) A 100% network test (location update, and set up call).
- 2) Refer to point 3.3.
- 3) A random sample checks of:
 - Data reset (if required)
 - Optical appearance
 - complete function
- 4) Check if PIN-Code is activated (delete the PIN-Code if necessary).

Basis is the international standard of **DIN ISO 2859**.

Use Normal Sample Plan Level II and the Quality Border 0,4 for LSO.

Remark: All sample checks must be documented.

Annex 1

Test SIM Card

There are two different “Test SIM Cards” in use:

1) Test SIM Card from the company “**ORGA**”

Pin 1 number: 0000
PUK 1 : 12345678

Pin 2 number: 0000
PUK 2 : 23456789

2) Test SIM Card from the company “**T-D1**”

Pin 1 number: 1234
PUK : 76543210

Pin 2 number: 5678
PUK 2 : 98765432

Annex 2

Battery Date Code overview

Varta

Date code example → N 9 A VA

Year (N:2001, O:2002...)

Month (1:Jan, 2:Feb,...9:Sep, O:Oct, N:Nov, D:Dec)

Revision Letter (A, B,...)

Supplier Code
(Maker's marking)

Hitachi / Maxwell

Date code example → N 9 A MX

Year (N:2001, O:2002...)

Month (1:Jan, 2:Feb,...9:Sep, O:Oct, N:Nov, D:Dec)

Revision Letter (A, B,...)

Supplier Code
(Maker's marking)

Sanyo

Date code example → N 9 A SY

Year (N:2001, O:2002...)

Month (1:Jan, 2:Feb,...9:Sep, O:Oct, N:Nov, D:Dec)

Revision Letter (A, B,...)

Supplier Code
(Maker's marking)

NEC

Date code example → N 8 A NT

Year (N:2001, O:2002...)

Month (1:Jan, 2:Feb,...9:Sep, O:Oct, N:Nov, D:Dec)

Revision Letter (A, B,...)

Supplier Code
(Maker's marking)

Panasonic

Date code example → O N A PAN

Year (N:2001, O:2002...)

Month (1:Jan, 2:Feb,...9:Sep, O:Oct, N:Nov, D:Dec)

Revision Letter (A, B,...)

Supplier Code
(Maker's marking)

Sony

Date code example → P N A SO

Year (O:2002, P:2003...)

Month (1:Jan, 2:Feb,...9:Sep, O:Oct, N:Nov, D:Dec)

Revision Letter (A, B,...)

Supplier Code
(Maker's marking)

11 Introduction of Service Repair Documentation Level 3 (basic) – C81

Purpose

This part of Service Repair Documentation is intended to carry out repairs on BenQ Mobile repair level 3basic (only for workshops without level 3 equipment (special agreement required)). The described failures shall be repaired in BenQ authorized local workshops only.

The level 3basic partners are obliged to send exchanged boards (SWAP) to the next higher Service Repair Partner.

All repairs have to be carried out in an ESD protected environment and with ESD protected equipment/tools. For all activities the international ESD regulations have to be considered.

Assembling/disassembling has to be done according to the latest C81 Level 1-3 repair documentation.

The Service Partner has to ensure that every repaired mobile Phone is checked according to the latest released General Test Instruction document (both documents are available in the Technical Support section of the C-market).

Check at least weekly C-market for updates and consider all C81 related Customer Care Information

C81 Partnumber on IMEI label: S30880-S3330-#xxx

, while # may be any letter (A-Z) and xxx may be any number from 100, 101, 102....

Scrap Handling: All Scrap information given in this manual are related to the SCRAP-Rules and instructions.

Attention: Consider the new "LEAD-FREE" soldering rules (available in the communication market), avoid excessive heat.

Scope

This document is the reference document for all BenQ mobile authorised Service Partners which are released to repair BenQ mobile phones up to level 3basic.

Terms and Abbreviations

List of available Level 3 (basic) parts

Product	ID	Order Number	Description CM
C81	X1400	L36334-Z97-C213	CONNECTOR BATTERY 3-POL
C81	X1504	L50634-Z93-C364	IO-JACK NANO 12-POL
C81	X1604	L36334-Z97-C337	CONNECTOR SIM CARD READER K1
C81	X2200	L50634-Z97-C380	CONNECTOR DISPLAY 20POL
C81	X2705	L50634-Z97-C363	CONNECTOR BOARD TO BOARD 14-POL. X75
C81	X3500	L50634-Z97-C516	CONNECTOR HYDRA-CAMERA-SOCKET
C81	X3800	L36334-Z93-C297	CONNECTOR ANTENNA 6mm
C81	X4800	L50634-Z97-C348	CONNECTOR RS-MMC-READER X75
C81	Z1601	L50620-U6029-D670	FILTER EMI (Fi-Type6) PB Free

Hardware requirements

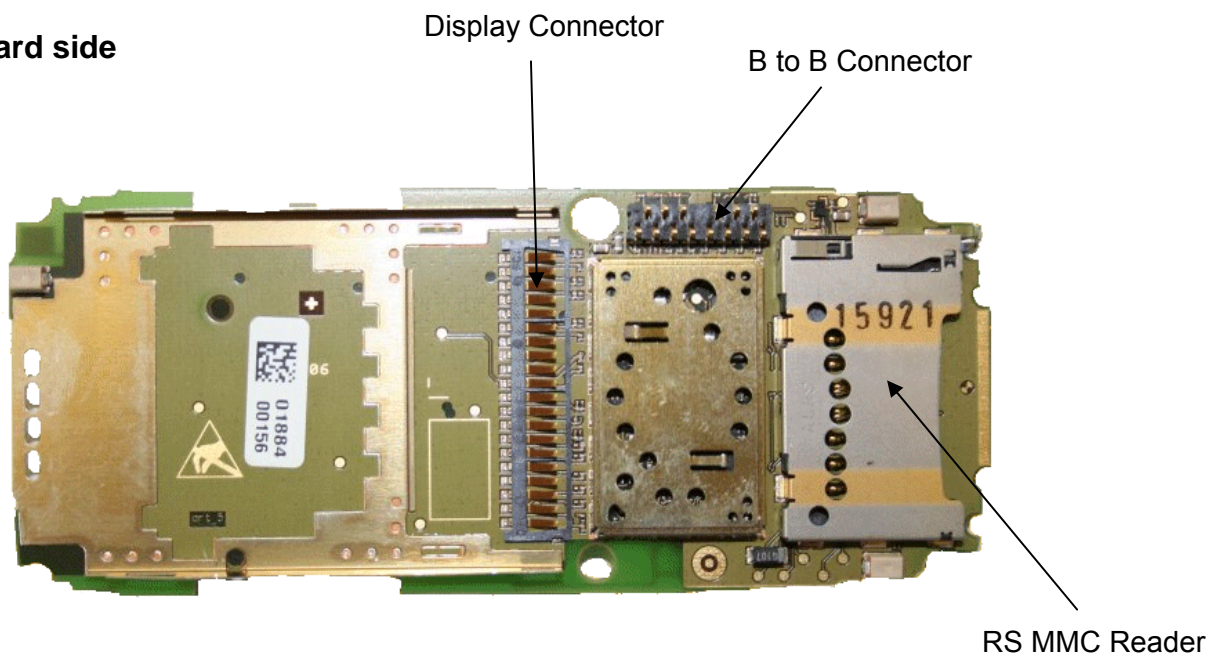
(According to General soldering information V1.3 - check C-market for updates)

Jigs, Tools and working materials for all described repairs:

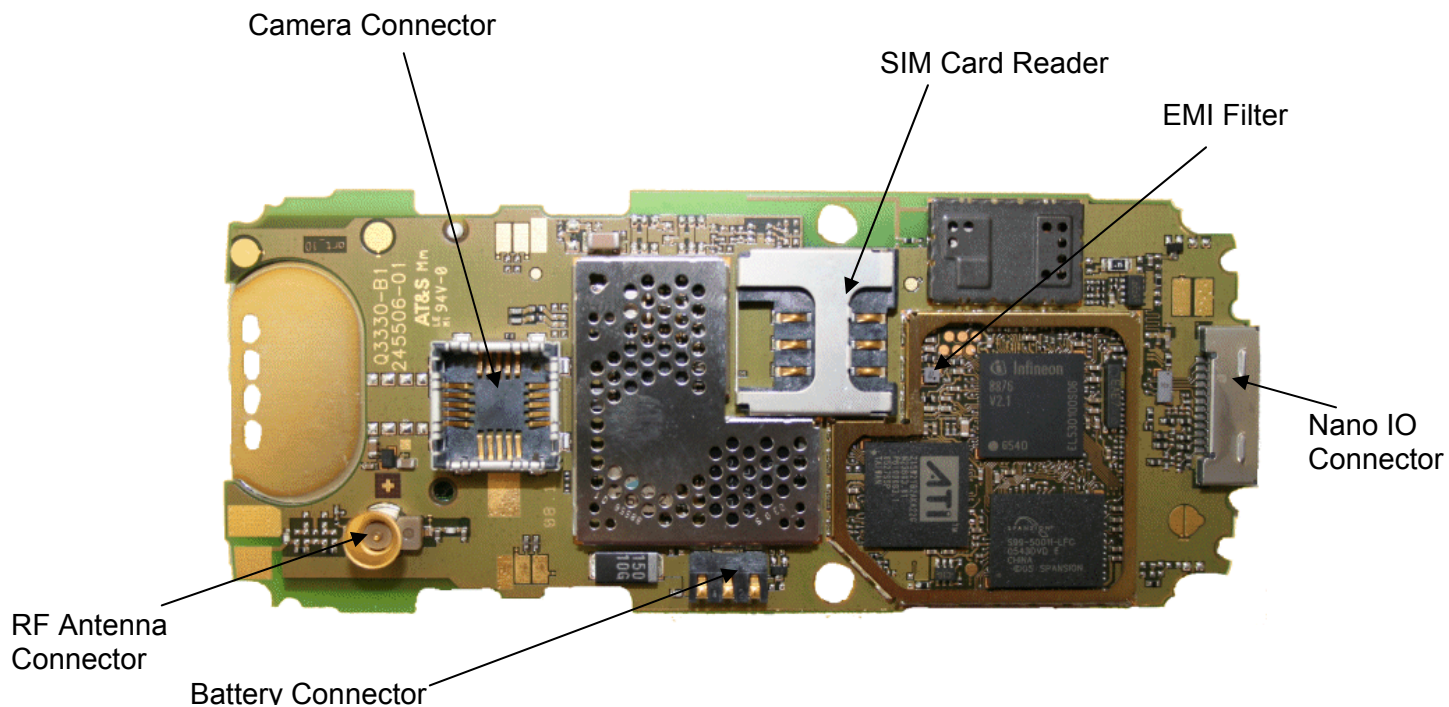
- hot air blower
- soldering gun
- tweezers
- flux
- solder

C81 Board Layout

Upper board side

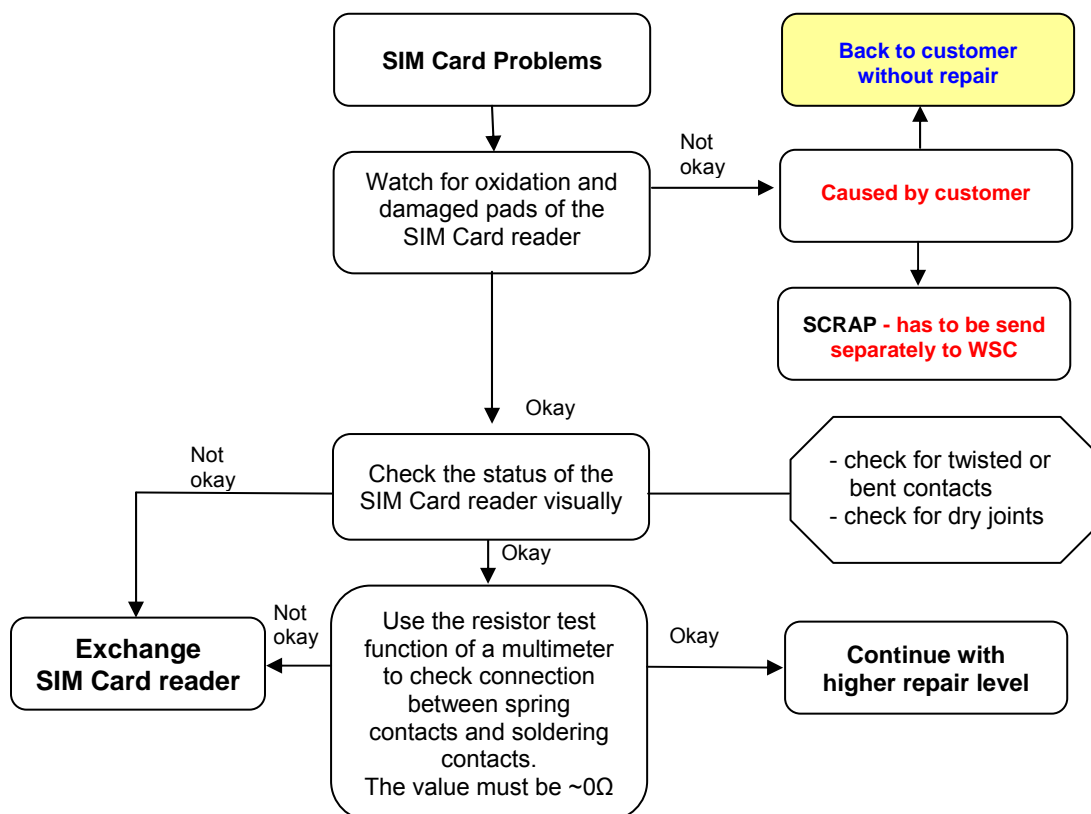


Lower Board Side



SIM Card Problems

Fault Symptoms
Customer: Handset does not accept SIM card



Connector SIM Card Reader

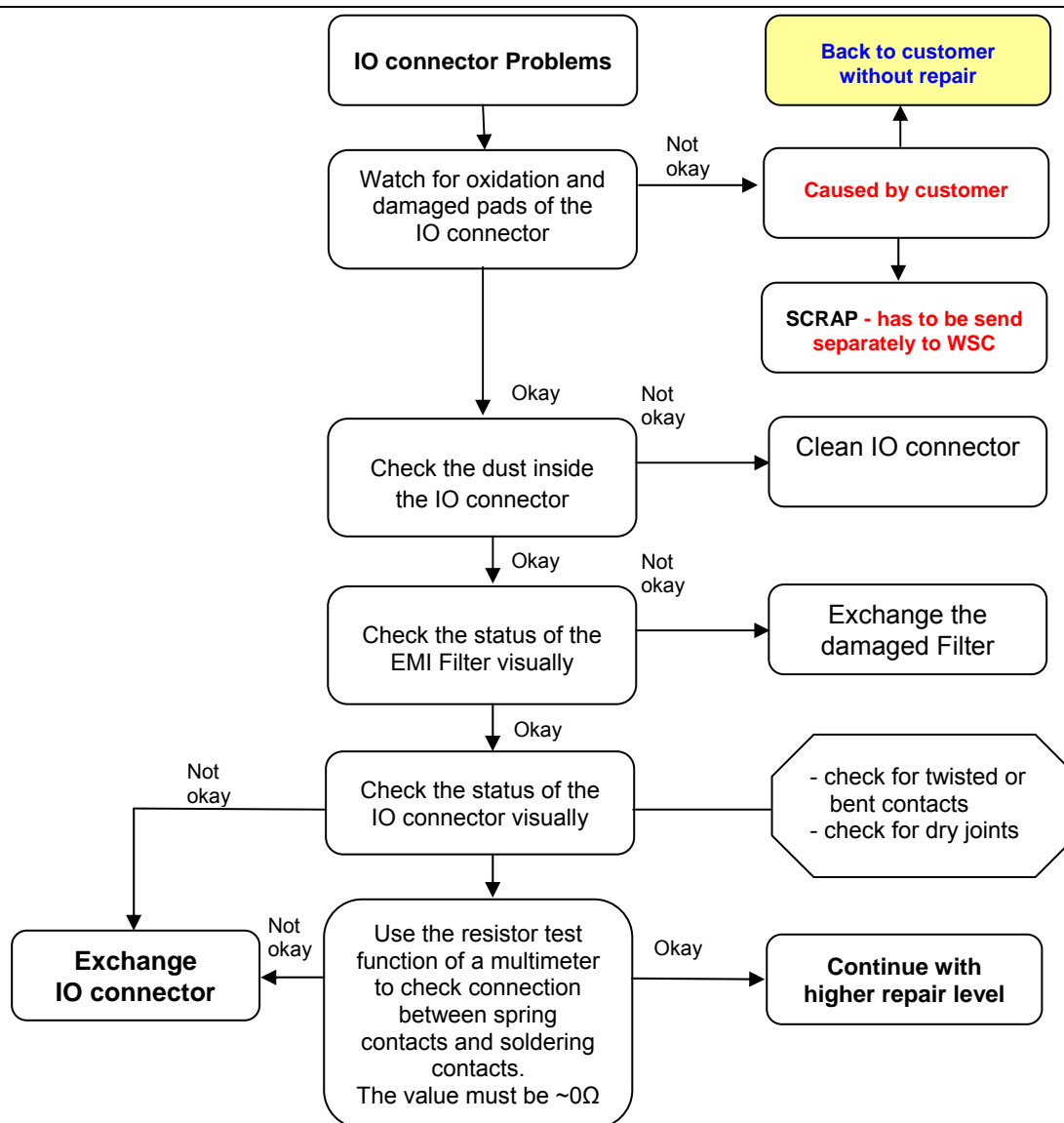
Use soldering iron to remove defective component. Avoid excessive heat! Watch surrounding components! Resolder new component afterwards.

E-commerce order number: L50634-Z97-C458
 E-commerce order name: CONNECTOR SIM CARD READER R65 SHORT
 Soldering temperature: ~ 360°C TIP Temp.

I/O Connector Problems

Fault Symptoms

Customer:
Problems with external loudspeaker or microphone when using a car kit
Problems with accessories connected at the IO connector



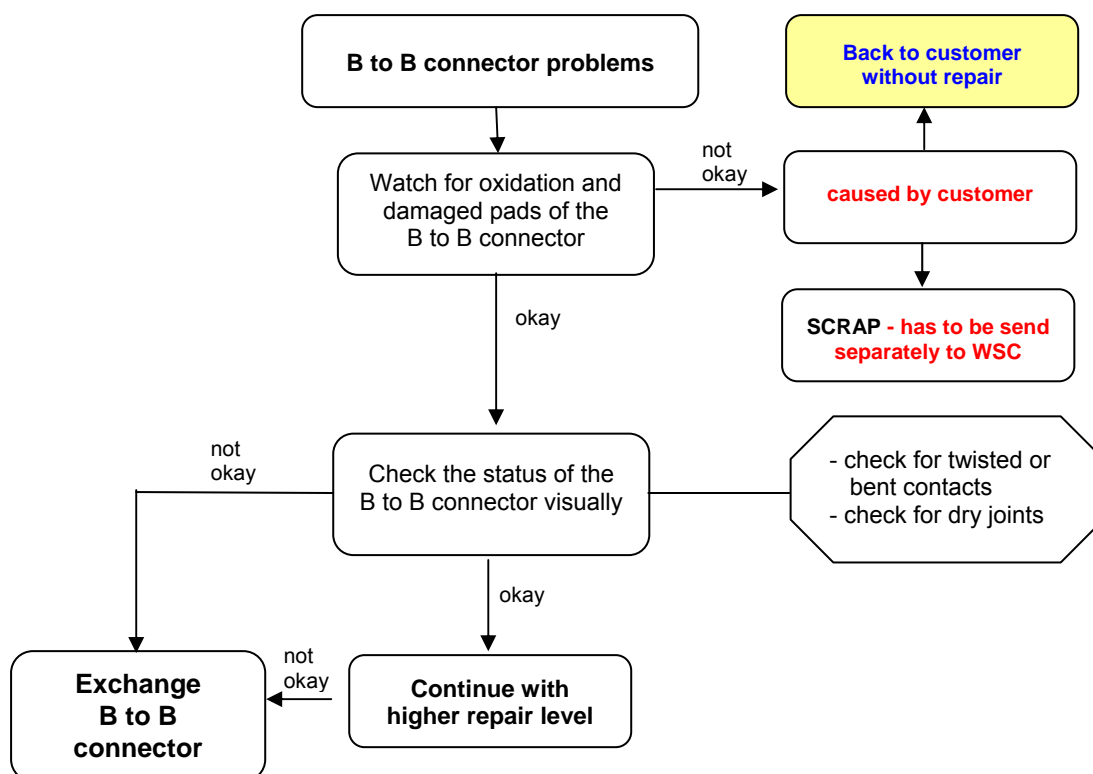
Connector IO Jack

Use soldering iron to remove defective component. Avoid excessive heat! Watch surrounding components! Resolder new component afterwards.

E-commerce order number: L50634-Z93-C364
E-commerce order name: IO-JACK NANO 12-POL
E-commerce order number: L50620-U6029-D670
E-Commerce name: FILTER EMI (Fi-Type6) PB Free
Soldering temperature: ~ 360°C TIP Temp.

Board to Board Connector Problems

Fault Symptoms	
Customer: Display problems Keypad illumination problems Keypad malfunction	GRT: Keypad malfunction Current measured failed



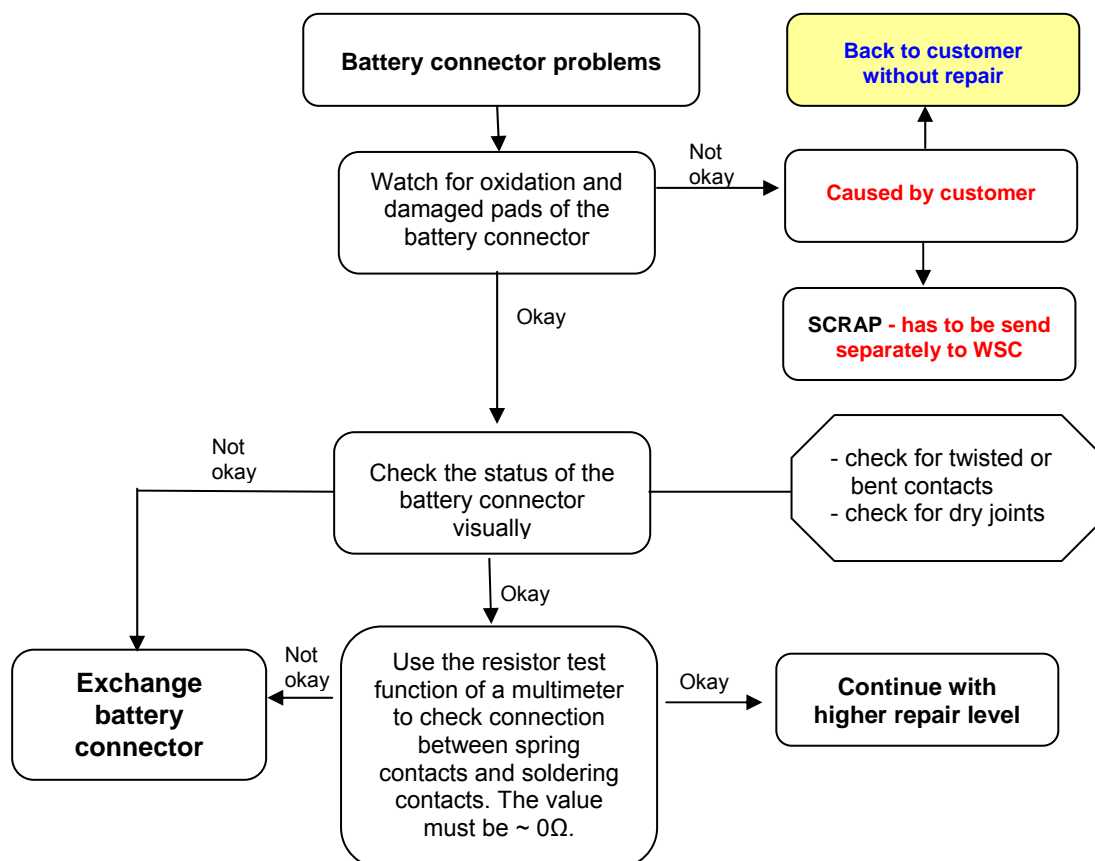
Connector BOARD TO BOARD

Use soldering iron/hot air blower to remove defective component. Avoid excessive heat! Watch surrounding components! Resolder new component afterwards.

E-commerce order number: L50634-Z97-C461
 E-commerce order name: CONNECTOR BOARD TO BOARD 40-POL 1,5MM
 E-commerce order number: L50697-F5008-F306
 E-commerce order name: CONNECTOR BOARD TO BOARD 16-POL
 E-commerce order number: L50634-Z97-C460
 E-commerce order name: CONNECTOR BOARD TO BOARD 40-POL 1MM
 Soldering temperature: ~ 360°C TIP Temp.

Battery Connector Problems

Fault Symptoms	
Customer: Mobile does not switch on	GRT: No connection to GRT



Connector BATTERY

Use hot air blower to remove defective component. Avoid excessive heat! Watch surrounding components! Resolder new component afterwards.

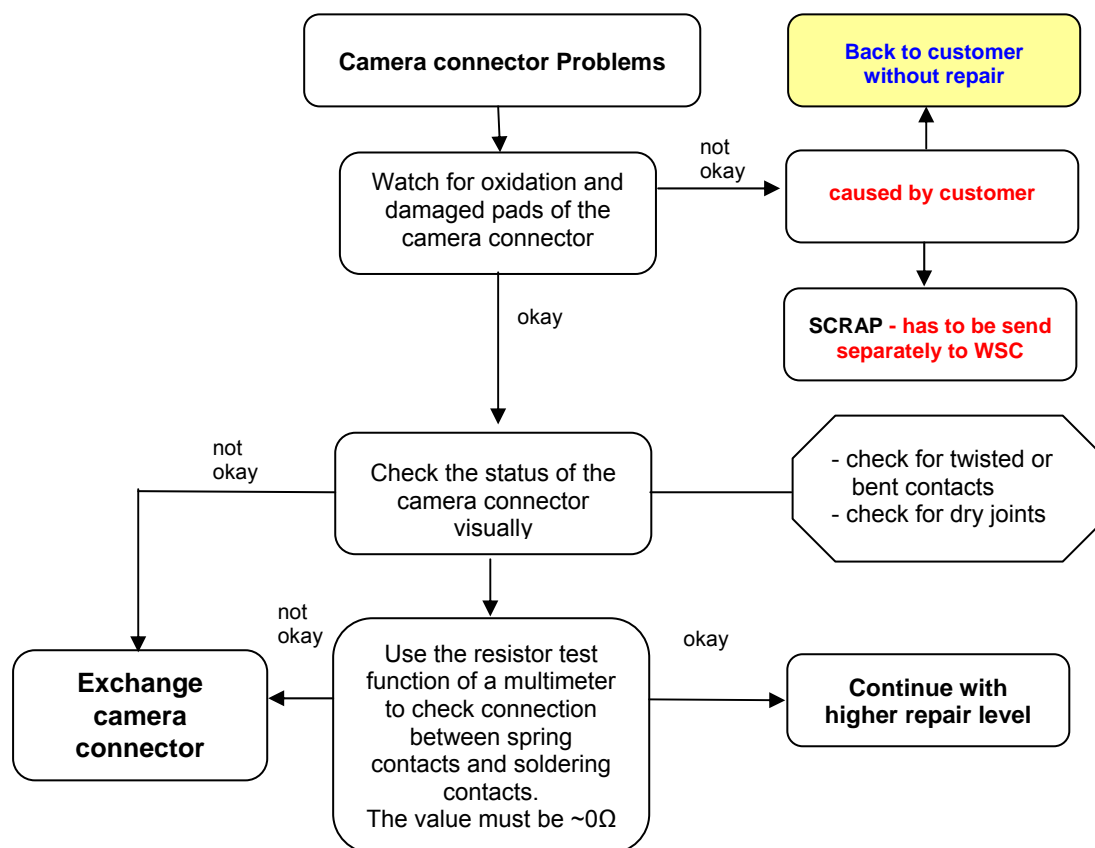
E-commerce order number: L50634-Z97-C482

E-Commerce name: CONNECTOR BATTERY 3-POL X85-2

Soldering temperature: 240 - 255°C

Camera Connector Problems

Fault Symptoms	
Customer:	
Camera malfunction	



Connector CAMERA

Use hot air blower to remove defective component. Avoid excessive heat! Watch surrounding components! Resolder new component afterwards.

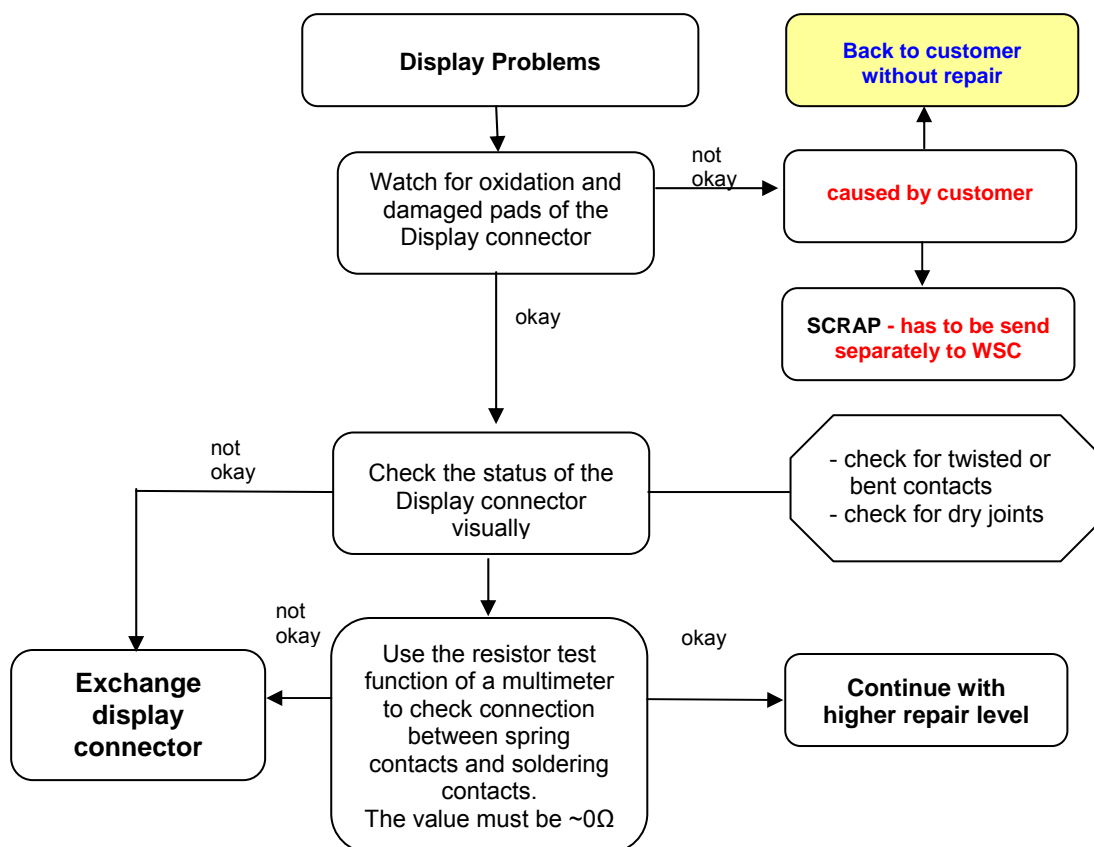
E-commerce order number: L50634-Z97-C634

E-commerce order name: CONN AXK7L30227

Soldering temperature: ~ 360°C TIP Temp.

Display Problems

Fault Symptoms	
Customer: Display problems	GRT: Current measured failed



Connector DISPLAY

Use hot air blower to remove defective component. Avoid excessive heat! Watch surrounding components! Resolder new component afterwards.

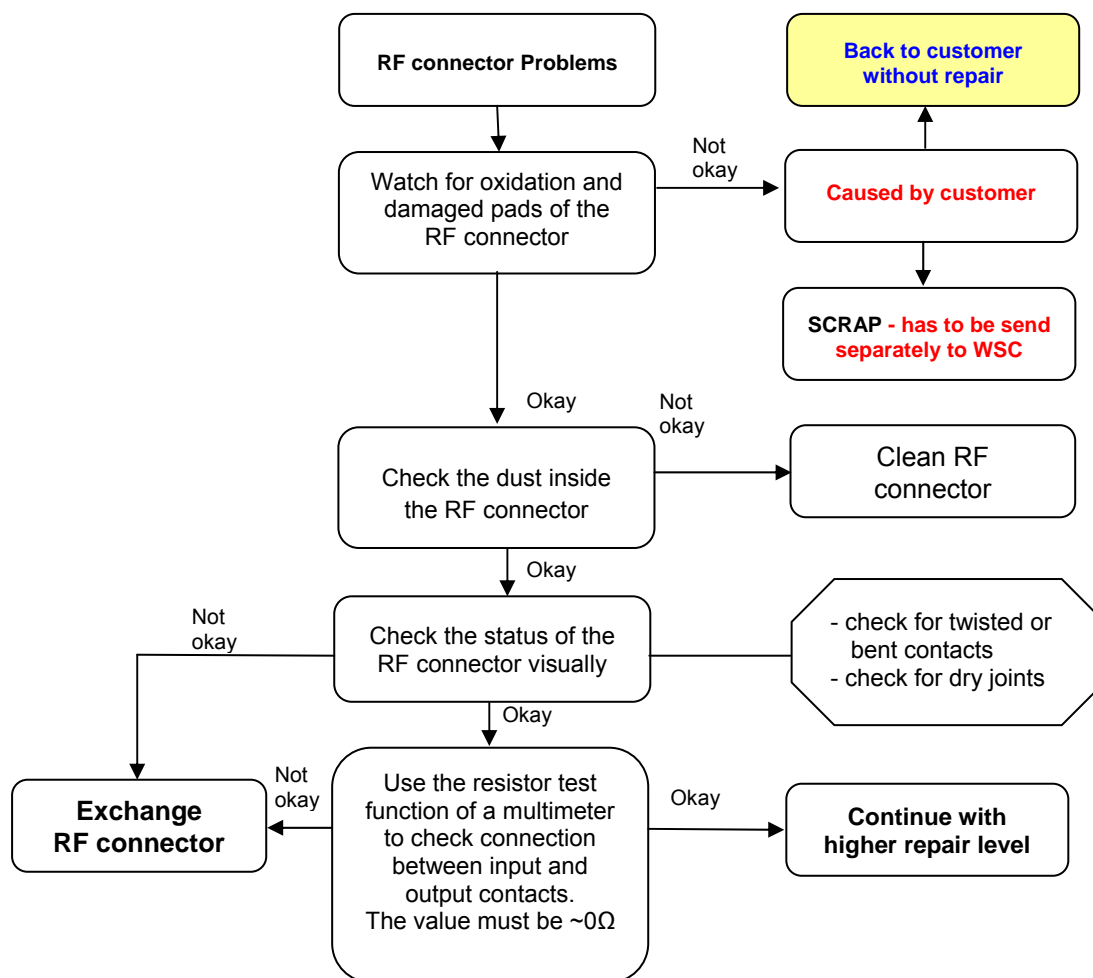
E-commerce order number: L50634-Z97-C635

E-commerce order name: CONN AXK734245

Soldering temperature: ~ 360°C TIP Temp.

RF Antenna Problems

Fault Symptoms	
Customer: Network search No location update possible	GRT: Failure by TX/RX measurements No location update possible



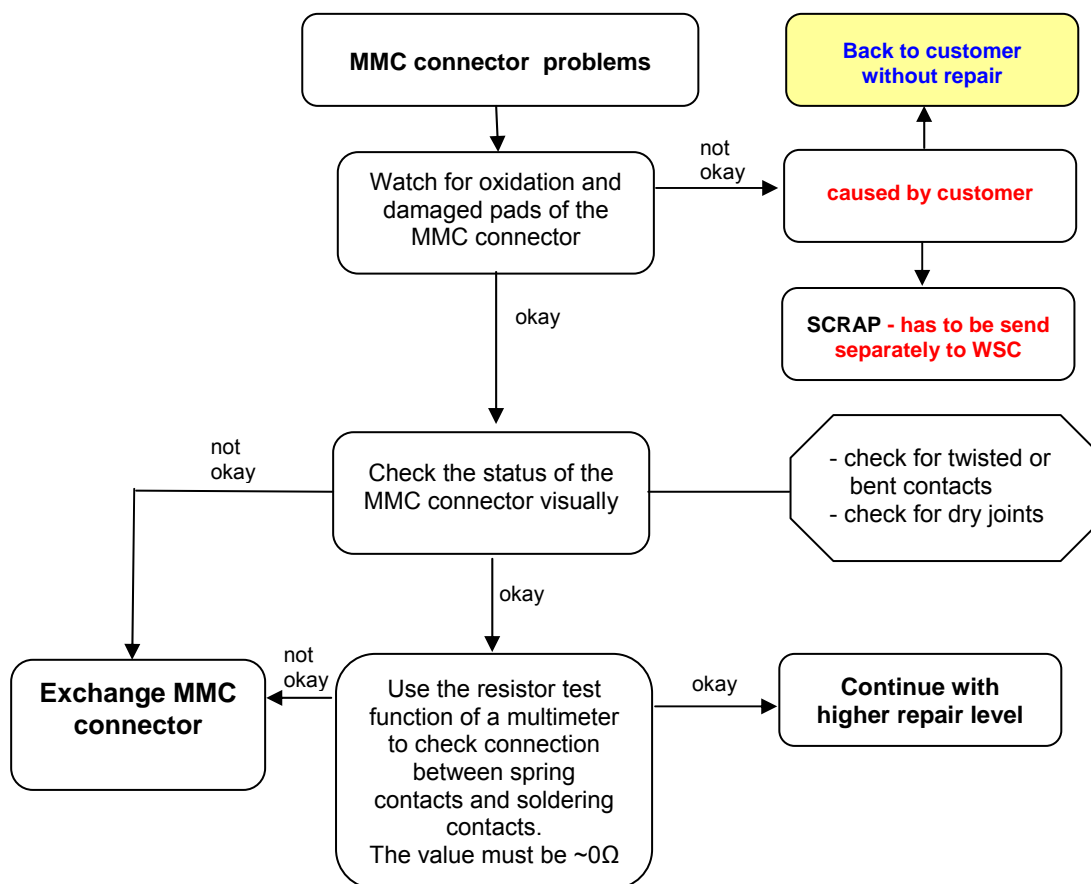
Connector RF

Use hot air blower to remove defective component. Avoid excessive heat! Watch surrounding components! Resolder new component afterwards.

E-commerce order number: L50634-Z97-C554
 E-commerce name: CONN ANT RF05301-PG
 E-commerce order number: L50615-Z77-C287
 E-commerce name: SWI RF ANTENNA MS-147
 Soldering temperature: 240 - 255°C

RS - MMC Connector Problems

Fault Symptoms	
Customer: MMC malfunction	



Connector MMC

Use soldering iron to remove defective component. Avoid excessive heat! Watch surrounding components! Resolder new component afterwards.

E-commerce order number: L50634-Z97-C415

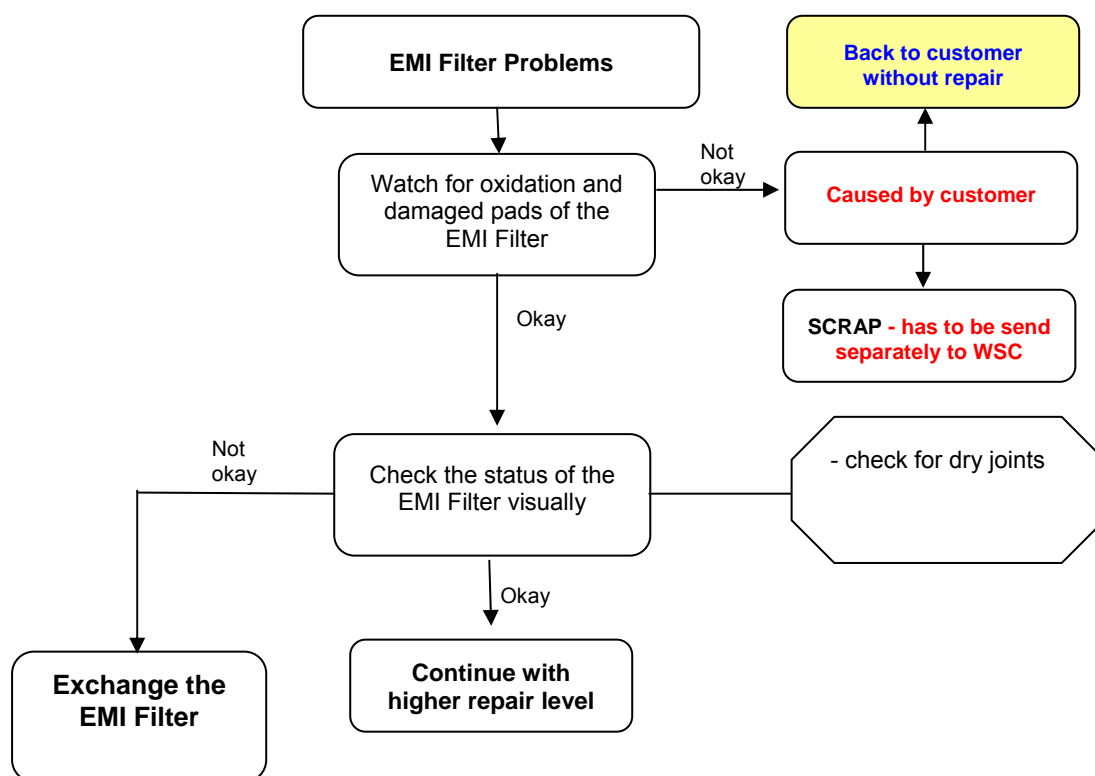
E-commerce order name: CONNECTOR RS MMC X75; CONNECTOR RS MMC X75

Soldering temperature: ~ 360°C TIP Temp.

Attention: Avoid excessive heat in order not to damage the plastic material of the connector

EMI Filter Problems

Fault Symptoms	
Customer: No Data Connectivity via I/O Connector	GRT: No Software Update possible Get Mobile Info Fails



EMI Filter

Use soldering iron to remove defective component. Avoid excessive heat! Watch surrounding components! Resolder new component afterwards.

E-commerce order number: L50620-U6029-D670

E-Commerce name: FILTER EMI (Fi-Type6) PB Free

Soldering temperature: ~ 360°C TIP Temp.