



# Trouble Shooting Guide, Electrical

Applicable for Z200/Z208

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# 1 Explanations

The Go / No Go test has to be performed with a mounted phone.

## 1.1 Service function in the software

The service menu will be accessed with the following key combination.

→ \* ← ← \* ← \*

There are as follows:

1. Service info
2. Service settings
3. Service tests
4. Text labels

In the software of the phone there is a built in service functionality that allows you to test some of the functions of the phone. (See point 3 above) This is how it looks:

1. Display
2. LED/Illumination
3. Keyboard
4. Buzzer
5. Earphone
6. Microphone
7. Vibrator
8. Real time clock
9. Flip counter
10. Total call time

## 1.2 Liquid damage

### 1.2.1 Water damage indicator

In the phone there is placed a Water Damage Indicator that can give you a hint to see if the phone is damage by liquid or not. This Water Damage Indicator is located near the SIM reader (Fig.1.1) and it is possible to see it without disassemble the phone.

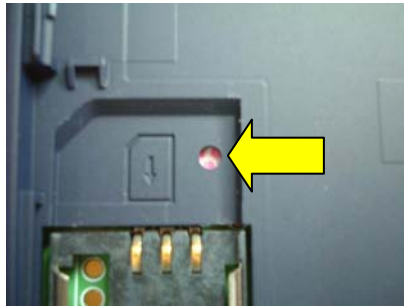
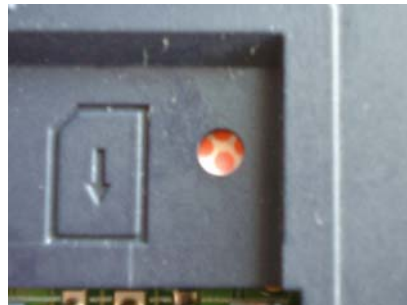


Fig1.1

On the pictures below you will see the difference between a Water Damage Indicator that has been in contact with liquid (Fig.1.3) and one which has not been exposed to liquid (Fig.1.2)



This Water Damage Indicator has not been in contact with liquid.

Fig1.2



This Water Damage Indicator has been in contact with liquid. The colour has been changed, the red dots has turn into pink dots. In this case you should check the phone for liquid damage.

Fig1.3

### 1.2.2 Action

Make a general visual inspection for corrosion or oxidation from liquid damage. No further action should be taken for a liquid damaged phone. Handle the unit according to local company or GSP directives.

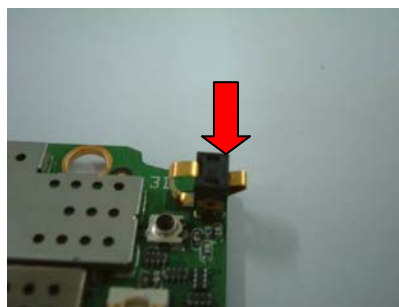
## 2 Network Problems

- Make a general visual inspection for corrosion or oxidation from liquid damage according to point 1.2.
- Check that the antenna flex film is properly fitted and undamaged (Fig.2.1). Replace the antenna flex film if necessary.
- Check that the Antenna Connector (Fig 2.2) is not mechanical damaged, dirty or oxidized. Replace it if necessary.
- Check that the Antenna Connector and Antenna Flex film (Fig2.3) is well connected.

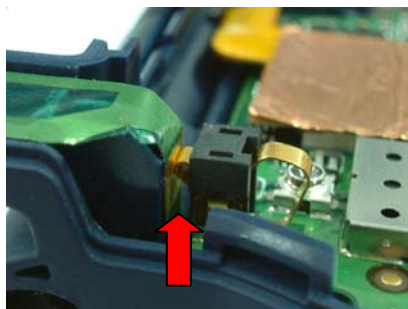
If the failure still occurs, handle the unit according to the local company or the GSP directives.



*Fig 2.1*



*Fig 2.2*



*Fig2.3*



### 3 On/Off problems

- Make a general visual inspection for oxidation or corrosion from liquid damage according to point 1.2.
- Check that the battery pads (Fig.3.1.) are not mechanical damaged, dirty or oxidized. If necessary replace the battery.
- Check that the Battery Connectors (Fig.3.2.) are not mechanical damaged, dirty or oxidized. Replace it if necessary.
- Check the Keypad or Dome Foil or “On” key (Fig.3.3) is not mechanical damaged dirty or oxidized. Replace it if necessary.
- Check that the System Connector (Fig.3.4) is not incorrectly soldered, mechanical damaged, dirty or oxidized. Replace it if necessary.
- Check that the battery connector pads (Fig.3.5.) are not dirty or oxidized. Clean them if necessary.
- If the phone powers on by it self. Check that the Q3 and R29 are not incorrectly soldered or mechanically damaged. Replace the Q3 Transistor (Fig 3.7) if necessary. If this does not solve the problem, replace the 1M ohm resistor, located on position R29 (Fig 3.6), on the PCB.

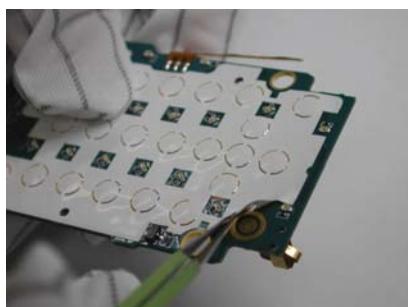
If the failure still occurs, handle the unit according to the local company or the GSP directives.



*Fig.3.1*



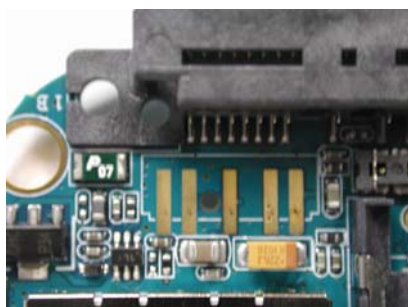
*Fig.3.2*



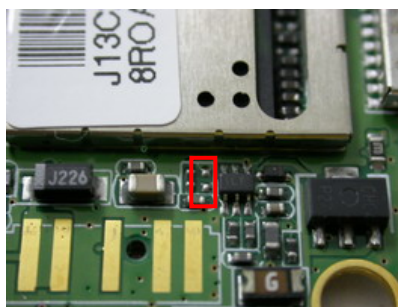
*Fig.3.3*



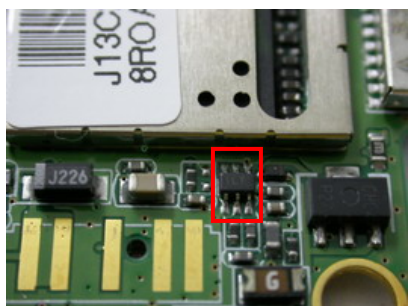
*Fig.3.4*



*Fig.3.5*



*Fig.3.6*



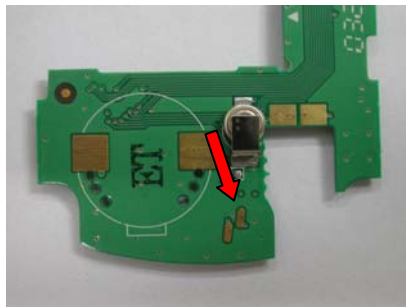
*Fig.3.7*

## 4 Audio problems

- Make a general visual inspection for oxidation or corrosion from liquid damage according to point 1.2.

### 4.1 Earphone

- Turn on the phone. Go to service test menu; choose “5.Earphone” press any key to check that the Earphone is working properly.
- Check Earphone pads on the PCB (Fig 4.1) are not dirty or oxidized. Clean them if needed.
- Check that the Earphone connectors (Fig.4.2) are not mechanical damaged, dirty or oxidized. Replace it if necessary.



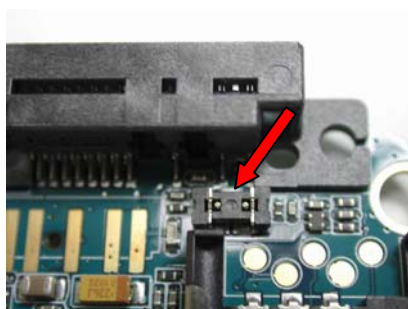
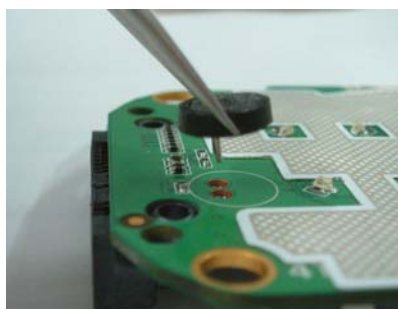
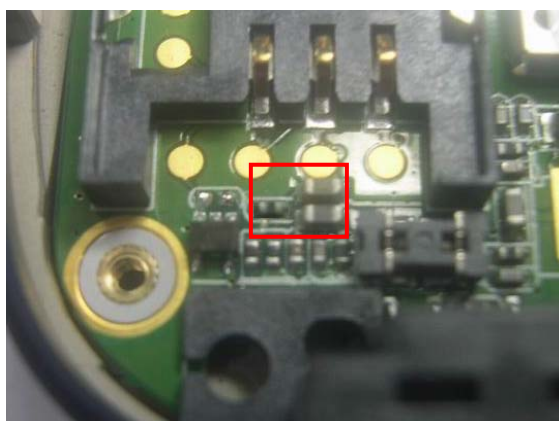
*Fig.4.1*



*Fig.4.2*

### 4.2 Microphone

- Turn on the phone. Go to service test menu; choose “6.Microphone” (an audio loop is activated) check that the Microphone Assy is working properly.
- Check that the Microphone Connector (Fig.4.3) is not oxidized or mechanical damage. Replace it if necessary.
- Check that the Microphone Assy (Fig.4.4) is not mechanical damaged, dirty or oxidized. Replace it if necessary...
- Check that the Components L1, L7, C71 (Fig.4.5) are not damaged, or missing. Replaced it if necessary.

*Fig.4.3**Fig.4.4**Fig.4.5*

If the failure still occurs, handle the unit according to the local company or the GSP directives.

## 5 Display/Illumination problems

- Make a general visual inspection for corrosion or oxidation from liquid damage according to point 1.2.
- Turn the phone on. Check the LCD and the illumination. The illumination is lightened when the phone starts and will continue for approximately 20 seconds if the settings/Display/Light/Automatic is selected.
- Turn the phone on. Go to service test menu; choose “1.Display”. You should see a pattern check that no lines or pixels are missing and that there are no discolourations. If necessary replace the Display Assy.
- If all segments are missing check that the LCD connector (Fig.5.1 & Fig.5.2) and Flex film (BTB to FPC) (Fig 5.3) is not mechanical damaged, dirty or oxidized. Replace the Upper PCB Assy (Fig 5.4) or Flex film (BTB to FPC) if necessary.
- Turn the phone on. Go to service test menu; choose “2.LED/Illumination”. The illumination should start flashing~1Hz.
- Check that all 16 Keypad LEDs have the same illumination strength. If necessary replace the LED with the weakest light. Repeat this step until all LEDs light ever over the keypad.
- Check that both displays are lighting up properly. Replace the Upper PCB Assy or the Main Display if necessary.
- Check that the top led is flashing (Red light). Replace the Upper PCB Assy if necessary.

If the failure still occurs, handle the unit according to the local company or the GSP directives.

Note: When replacing the displays the contrast should be checked. If necessary, adjust the contrast in service settings menu. Remember to store the setting with”YES”.



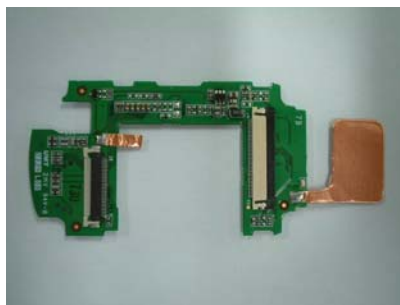
*Fig.5.1*



*Fig.5.2*



*Fig 5.3*



*Fig 5.4*



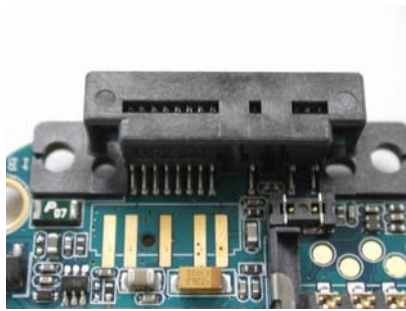
## 6 Capacity/Charging Problems

- Make a general visual inspection for oxidation or corrosion from liquid damage according to point 1.2.

### 6.1 Charging

- Insert a working battery and connect a working charger to the phone. If the battery voltage is too low, you must charge the battery without turning on the phone (this will usually take less than 10 minutes) and when the battery voltage is high enough the phone will be able to turn on and show charging in the display.
- Check that the system connector (Fig.5.1) is incorrectly soldered, not mechanical damaged, dirty or oxidized. Replace it if necessary.

If the failure still occurs, handle the unit according to the local company or the GSP directives.



*Fig.5.1*

### 6.2 Capacity

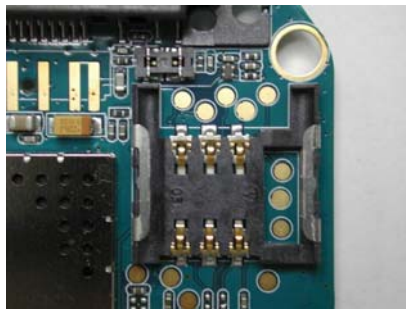
- The standby time will be reduced if the backlight is turned on all the time, or if the infrared port is turned on.



## 7 SIM Problems

- Make a general visual inspection for corrosion or oxidation from liquid damage according to point 1.2.
- Insert a SIM card with known function. If the display shows “Insert card” there is a SIM problem. If it shows “Insert correct card” the phone might be SIM locked in this case use a test SIM card.
- Check that the SIM reader (Fig.7.1) is incorrectly soldered, not mechanical damaged, dirty or oxidized. Replace it if necessary.

If the failure still occurs, handle the unit according to the local company or the GSP directives.

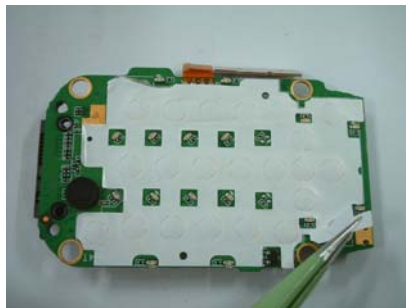


*Fig.7.1*

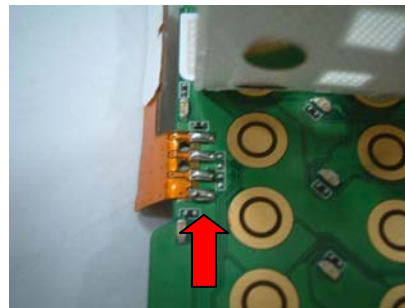
## 8 Key Problems

- Make a general visual inspection for corrosion or oxidation from liquid damage according to point 1.2.
- Turn the phone on. Go to service test menu; choose “3.Keyboard”. Press all the buttons. The pressed key will be shown in the Main display.
- Check that the mechanical response feels normal and that all the keys had been shown in the Main display. If necessary replace the Dome Foil (Fig.8.1.).
- Turn the phone on. Go to service test menu; choose “3.Keyboard”. Check the Sidekey (no click should be heard). Check that the mechanical response feels normal.
- Check that the Sidekey PCB (Fig.8.2.) is incorrectly soldered, not mechanical damaged, dirty or oxidized. Replace it if necessary.
- If the Dome Foil will be replaced, clean the PCB surface, glue and dust must be removed before new dome foil will be mounted.

If the fault still remains, send the unit on according to the local company directives.



*Fig.8.1*



*Fig.8.2*

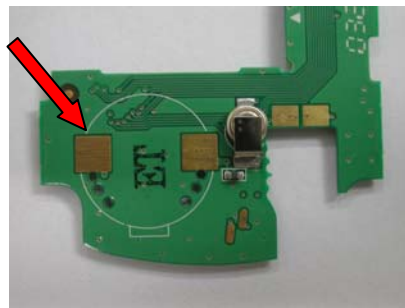
## 9 Alert Problems

- Make a general visual inspection for corrosion or oxidation from liquid damage according to point 1.2.
- Turn on the phone. Go to service test menu; choose “4.Buzzer” use the arrows or the Sidekey to increase or decrease the ring volume. Check that all steps are working properly (the tune heard is the selected one in the menu).
- Check that the Loudspeaker (Polyphonic) (Fig.9.1) is not mechanical damaged, dirty or oxidized. Replace it if necessary.
- Check that Loudspeaker (Polyphonic) pads on the PCB (Fig.9.2) are not dirty or oxidized. Clean them if necessary.
- Turn on the phone. Go to service test menu; choose “7.Vibrator” press any key to check that the vibrator is working properly.
- Check that the vibrator (Fig.9.3) is not mechanical damaged, dirty or oxidized. Replace it if necessary.
- Check that vibrator pads on the PCB (Fig.9.4) are not dirty or oxidized. Clean them if necessary.

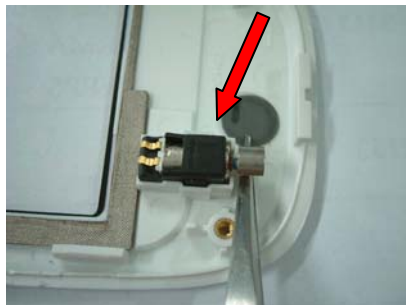
If the fault still occurs, handle the unit according to the local company or the GSP directives.



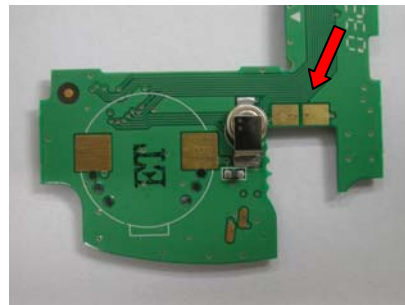
*Fig.9.1*



*Fig.9.2*



*Fig.9.3*



*Fig.9.4*



## 10 Data Communication Problems

If no communication is accomplished with the system connector:

- Make a general visual inspection for corrosion or oxidation from liquid damage according to point 1.2.
- Check that the system connector (Fig.10.1.) is incorrectly soldered, not mechanical damaged, dirty or oxidized. Replace it if necessary.

If the fault still occurs, handle the unit according to the local company or the GSP directives.



*Fig.10.1*

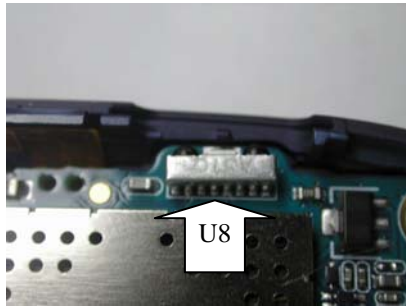


## 11 Infrared Port Problems

If no communication is accomplished with the Infrared port:

- Make a general visual inspection for corrosion or oxidation from liquid damage according to point 1.2.
- Check that the U8 IrDA (Fig.11.1.) is incorrectly soldered, not mechanical damaged, dirty or oxidized. Replace it if necessary.
- Check there is no dust in the IrDA window, or scratches. Replace it if necessary.

If the fault still occurs, handle the unit according to the local company or the GSP directives.



*Fig.11.1*

## 12 Flip Problems

- Make a general visual inspection for corrosion or oxidation from liquid damage according to point 1.2.
- Turn on the phone. Go to service test menu; choose “9.Flip Counter”. Open the shell; the flip counter value will be increased in the display.
- Check that the U9 Hall sensor (Fig.12.1.) is incorrectly soldered, not mechanical damaged, dirty or oxidized. Replace it if necessary.
- Turn the phone on without SIM card. It's no any problem. But when the phone insert a SIM, then power on, the Main Display shows nothing and no keyboard light. But the Sub Display is working normally. Check that the D22 (Fig.12.2.) is incorrectly soldered, not mechanical damaged. Replace it if necessary.

If the fault still occurs, handle the unit according to the local company or the GSP directives.

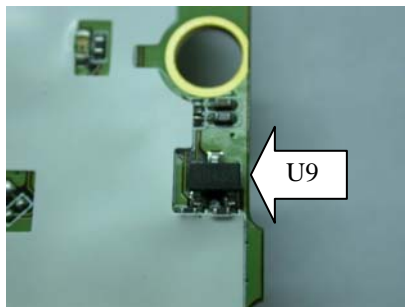


Fig.12.1

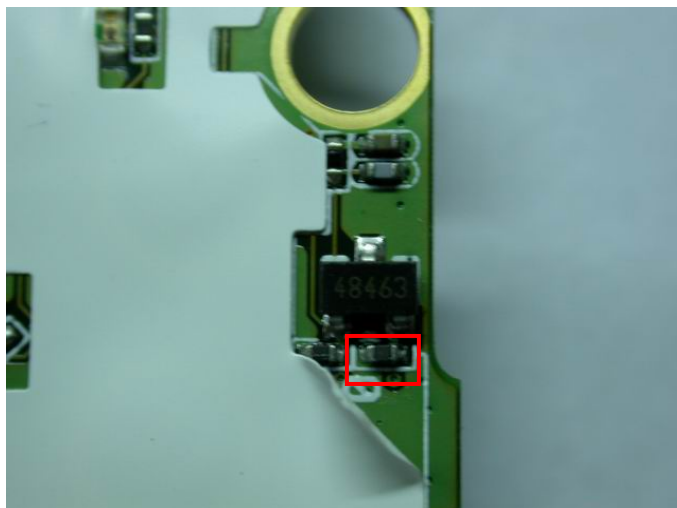


Fig.12.2

## 13 Software Problems

- If there are problems with the response of the key board commands or spelling errors in the menu, which are not related to mechanical damage, make a master reset and flash the phone with the latest software from EMMA II.
- Checking the software revision can be done in the Service info, see chapter *Service functions in the software*.

Choose: Service info / SW information.

The Software revision and date are shown in the display.

If the fault still remains, send the unit on, according to the local company directives.

## 14 Other Problems

- Make a general visual inspection for corrosion or oxidation from liquid damage according to point 1.2.

### 14.1 RTC Problem

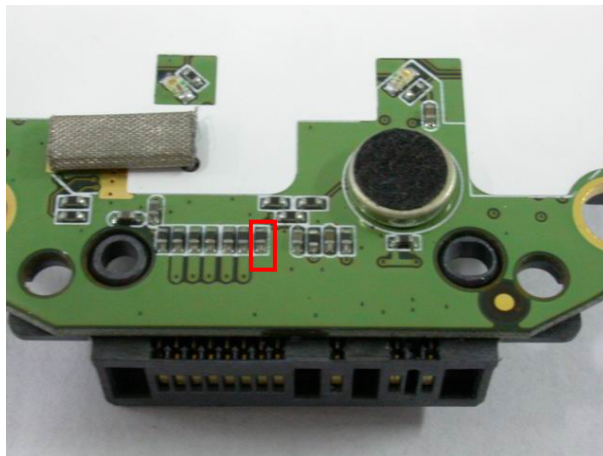
- Turn on the phone. Go to service test menu; choose “8.Real Time Clock” press any key to check that the RTC is working properly.
- Check that the clock is working and that it does not start up with 00:00 when a battery is mounted. Replace the Upper PCB Assy if necessary (Fig.14.1).



*Fig.14.1*

### 14.2 Handfree Problem

- If the handfree malfunction, or remove the handfree the phone still remains with handfree mode. Check that the D8 is not incorrectly soldered or mechanical damaged. Replace it if necessary. (Fig 14.2)



*Fig 14.2*

If the fault still remains, send the unit on, according to the local company directives.



## 15 Revision History

Rev.	Date	Changes / Comments
A	2003-10-30	First release
B	2004-03-03	Components L1, L7, C71 added
C	2004-07-28	Component R29 (page 5, reg “On/Off”), D22 (page 17, reg “Flip probl”) and D8 (page 19, reg “Handsfree”)
D	2005-08-23	Component Q3 (page 5, reg “On/Off”)