Trouble Shooting Guide, SP/Mechanical

Applicable for F500 and K500 family

Contents

1 Explanations

1.1 Service functions in the software

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

$\Rightarrow*\Leftarrow\Leftarrow*\Leftarrow*$

They are as follows:

Service info

Service tests

Text labels

The phones software has a built in service functionality that allows you to test some of the phones functions. *(See point 2 above)* It looks like this:

Main display

Camera

LED/illumination

Keyboard

Vibrator

Earphone

Speaker

Microphone

Real time clock

Total call time

1.2 Misuse and other no warranty issues

Misuse is not covered by warranty. This chapter will explain what's <u>not</u> covered by warranty. Phones that have been exposed to misuse will not be covered by warranty.

This means: if it is possible to repair the phone, the customer will have to pay for the repair. SEMC will not allow any of these phones to be claimed into WCMS. Some local perspectives may interfere with this. Please reference to local directives.

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1.2.1 Action

Make a general visual inspection for misuse.

Below are some **examples** of what is not covered by warranty.

Pixel fault:

- It will not be allowed to claim LCD's with one dead pixel or up to 2 white or 2 black Pixels as warranty repair.
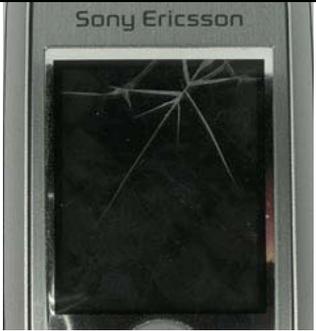
Front window broken due to misuse.	LCD cracked due to drop.	Clear scratches
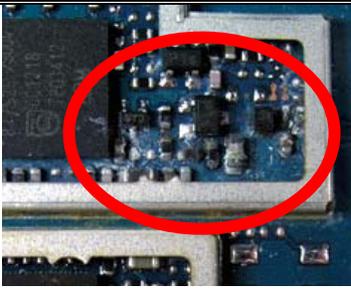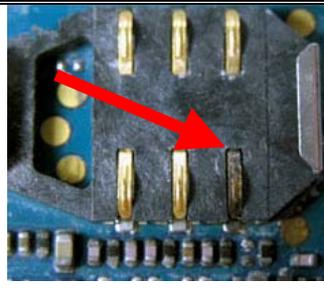
Corrosion components on the PCB.	Corrosion components on the PCB.	SIM reader damaged by liquid.
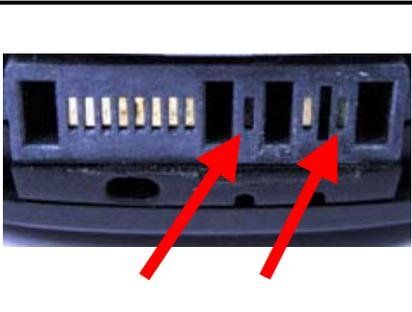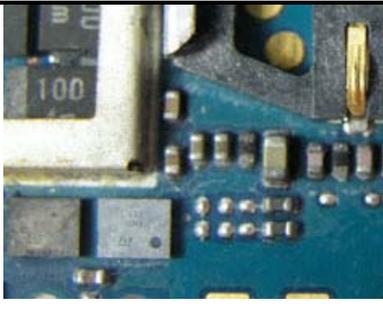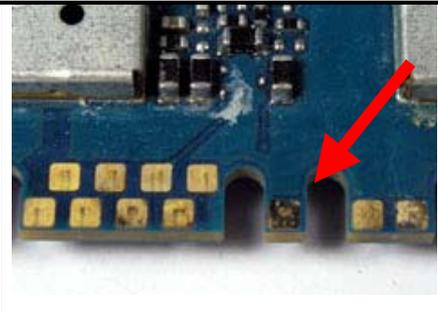
System connector damaged by liquid	Components around system connector damaged by liquid	System connector pad(s) damaged by liquid

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1.2.2 Liquid damage sticker

In the phone there is placed a sticker that can give you a hint to see if the phone is damage by liquid or not. This sticker is located near the SIM reader (Fig. 1.2.1) and it is possible to see it without disassemble the phone.
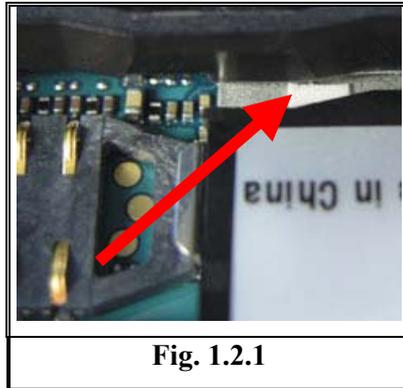
Fig. 1.2.1

On the pictures below you will see the different between a sticker that has been in contact with liquid (Fig. 1.2.3) and with one that hasn't (Fig. 1.2.2).

This sticker is ok

Fig. 1.2.2

This sticker has not been in contact with liquid.

This sticker <u>is not</u> ok

Fig. 1.2.3
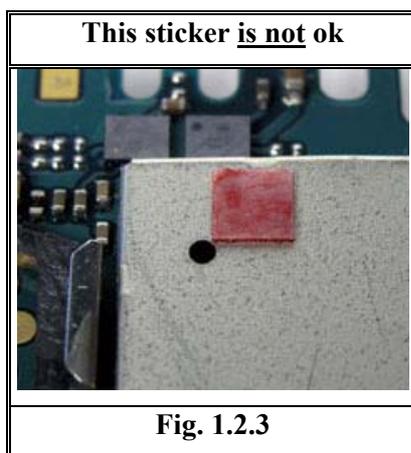
This sticker has been in contact with liquid. As you can see it has turn into a red or pink label. In this case you should check the phone for liquid damage *(See point 1.2.2)*.
Note: There must be clear marks after liquid on the PCB before rejecting the phone for repair.

1.2.3 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 directives.

2   Appearance Problems

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

- Check the front assembly (Fig. 2.1), the battery cover assembly (Fig.2.2), the frame assembly (Fig. 2.3), for damage, scratches and if the parts fit correct. Replace faulty components if necessary.

- Check the keyboard (Fig. 2.1), the camera button + volume button (Fig. 2.4) the internet button (Fig. 2.5) and the On/Off button (Fig. 2.6) for damage, scratches and if the parts fit correct. Replace faulty components if necessary.

- Check the external antenna plug (Fig. 2.2) and the Co-brand inlay, (Fig. 2.1) for damage, scratches and if the parts fit correct. Replace faulty components if necessary.

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

Fig. 2.1	Fig. 2.2	Fig. 2.3

| Fig. 2.4 | Fig. 2.5 |

Fig. 2.6

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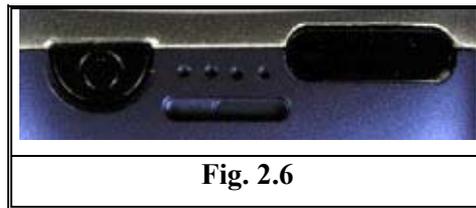
3 Alert Problems

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

3.1 Vibrator

- Turn on the phone. Go to the service test menu; choose "Vibrator". Press any key to check the vibrator works properly.

- Check if the vibrator pads (Fig. 3.1) are dirty or oxidized. Clean them if necessary.

- Check if the vibrator (Fig. 3.2) is mechanical damaged, dirty or oxidized. Replace it if necessary.

If the fault still occurs, try to update the phone to the latest available software version. If this doesn't solve the problem, handle the unit according to the local directives.

| **Fig. 3.1** | **Fig. 3.2** |
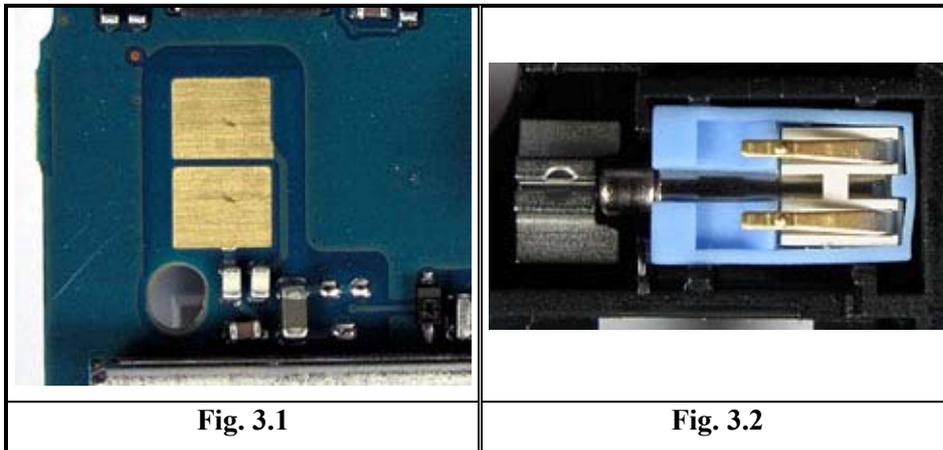
3.2 Dual Speaker

- Turn on the phone. Go to the service test menu; choose "Speaker". Press any key to check the polyphonic ring signal works properly.

- Check if the speaker pads (Fig. 3.3) is dirty or oxidized. Clean them if necessary.

- Check if the dual speaker (Fig. 3.4) is mechanical damaged, dirty or oxidized. Replace it if necessary.

- Check if the speaker grommet (Fig. 3.5) is mechanical damaged or if it fits correct. Replace it if necessary.

If the fault still occurs, try to update the phone to the latest available software version. If this doesn't solve the problem, handle the unit according to the local directives.

Company Internal © Sony Ericsson Mobile Communications AB
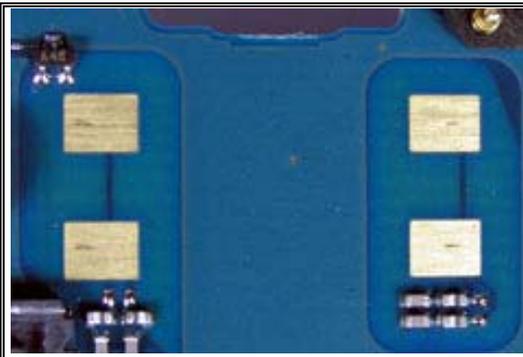
Fig. 3.3	**Fig. 3.4**	**Fig. 3.5**

4 Audio Problems

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

4.1 Dual Speaker

- Turn on the phone. Go to the service test menu; choose "Earphone" press any key to check the speaker works properly.

- Check if the speaker pads (Fig. 4.1) is dirty or oxidized. Clean them if necessary.

- Check if the dual speaker (Fig. 4.2) is mechanical damaged, dirty or oxidized. Replace it if necessary.

- Check if the speaker grommet (Fig. 4.3) is mechanical damaged or if it fits correct. Replace it if necessary.

If the fault still occurs, try to update the phone to the latest available software version. If this doesn't solve the problem, handle the unit according to the local directives.

Fig. 4.1	Fig. 4.2	Fig. 4.3
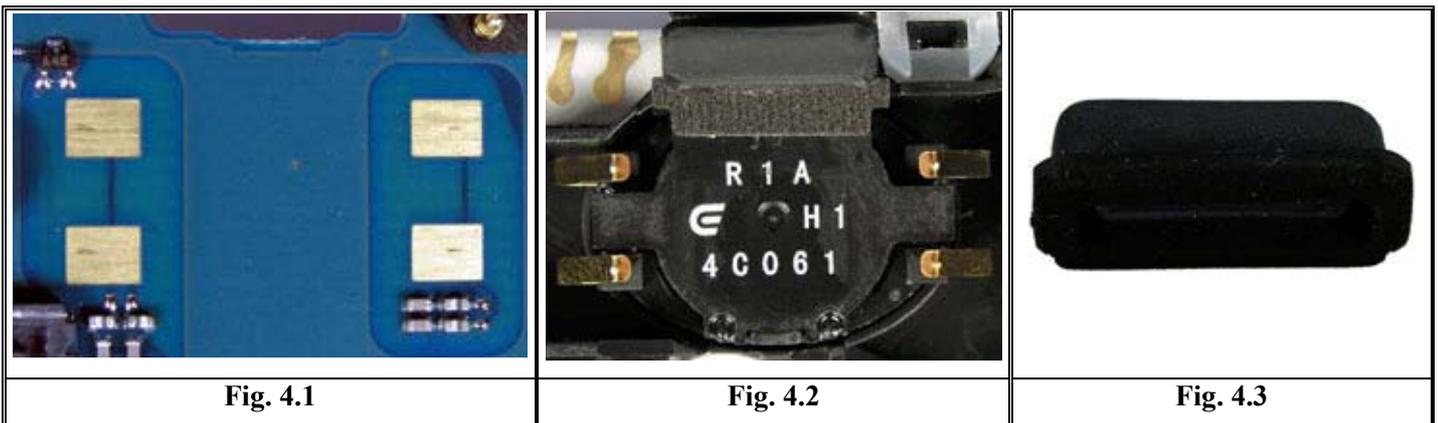
4.2 Microphone problems

- Turn on the phone. Go to the service test menu; choose "Microphone". Check if the microphone works properly.

- Check if the microphone pads (Fig. 4.4) are dirty or oxidized. Clean it if necessary.

- Check if the microphone assy (Fig. 4.5) is mechanical damaged, dirty or oxidized. Replace it if necessary.

If the fault still occurs, try to update the phone to the latest available software version. If this doesn't solve the problem, handle the unit according to the local directives.

Fig. 4.4	**Fig. 4.5**
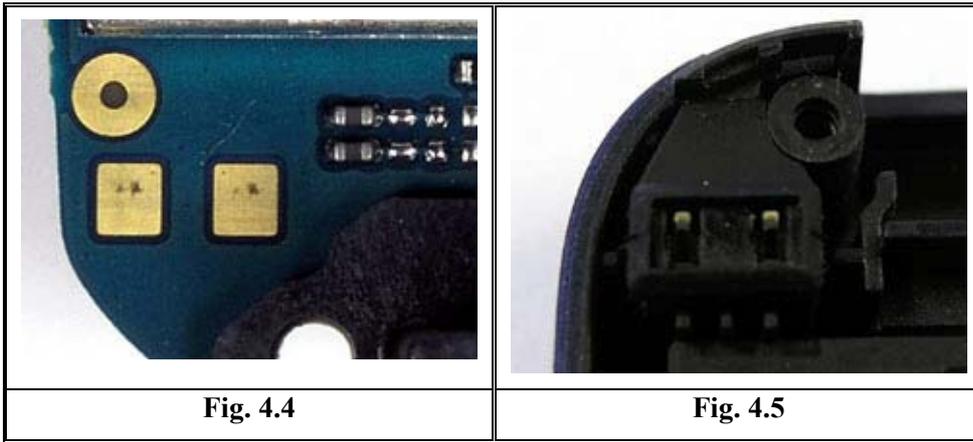
5 Charging/Capacity Problems

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

5.1 Charging

- Insert a working battery and connect a working charger to the phone. If the battery voltage is too low the phone will 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 LCD.

- Check if the system connector (Fig 5.1) is mechanical damaged, dirty or oxidized. Clean it if necessary.

If the fault still occurs, try to update the phone to the latest available software version. If this doesn't solve the problem, handle the unit according to the local directives.

5.2 Capacity

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

- The batteries BKB 193 202/11, BKB 193 202/12, BKB 193 202/21, BKB 193 202/22, BKB 193 202/31 and BKB 193 202/32 being shipped together with phones from W440 and onwards require R2Y or later software otherwise the unit will warn for low battery too early. If earlier SW is present with batteries mentioned above, upgrade the phone in EMMA II to solve capacity problem.

6 Data Communication Problems

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

- If there is a problem with the communication through the system connector, e.g. if it is not possible to synchronizing with MS Outlook, check if the system connector (Fig. 5.1) is mechanical damaged, dirty or oxidized. Clean it if necessary.

If the fault still occurs, try to update the phone to the latest available software version. If this doesn't solve the problem, handle the unit according to the local directives.


Fig. 5.1

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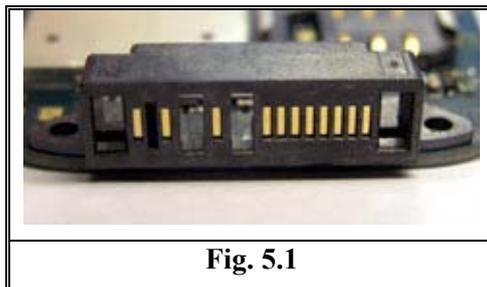
7 Key/Joystick Problems

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

7.1 Side keys

- Turn on the phone. Go to the service test menu; choose "Keyboard". Press all the side keys. The pressed key will be indicated in the LCD and a DTMF tone is heard.

- Check if the camera button + volume button (Fig. 7.1), the internet access button (Fig. 7.2), and the on/off button (Fig. 7.3) are working properly and if the mechanical response feels normal. Replace the faulty component if necessary.

- Check if the flex film volume and camera keys (Fig. 7.4) and flex film internet access key (Fig.7.5) are mechanical damaged or dirty. Replace the faulty component if necessary.

- Check if the FPC Connectors 4 pin (Fig. 7.6), are closed properly and if the flex films are mounted right in the FPC connectors.

Note: It is important to place the zif tape correct after checking the zif connectors.

If the fault still occurs, try to update the phone to the latest available software version. If this doesn't solve the problem, handle the unit according to the local directives.

Fig. 7.1	**Fig. 7.2**	**Fig. 7.3**

Fig. 7.4	**Fig. 7.5**	**Fig. 7.6**
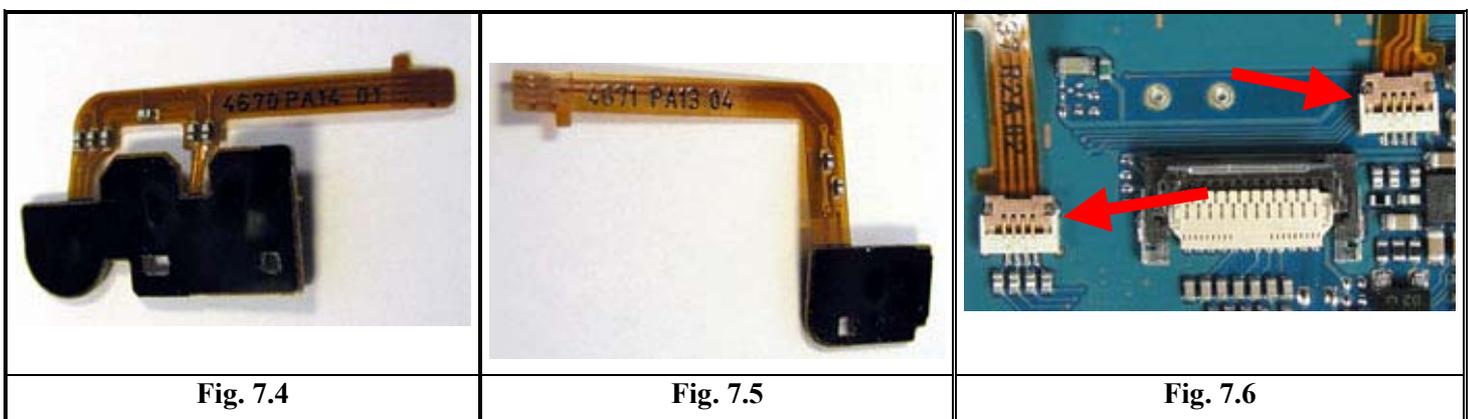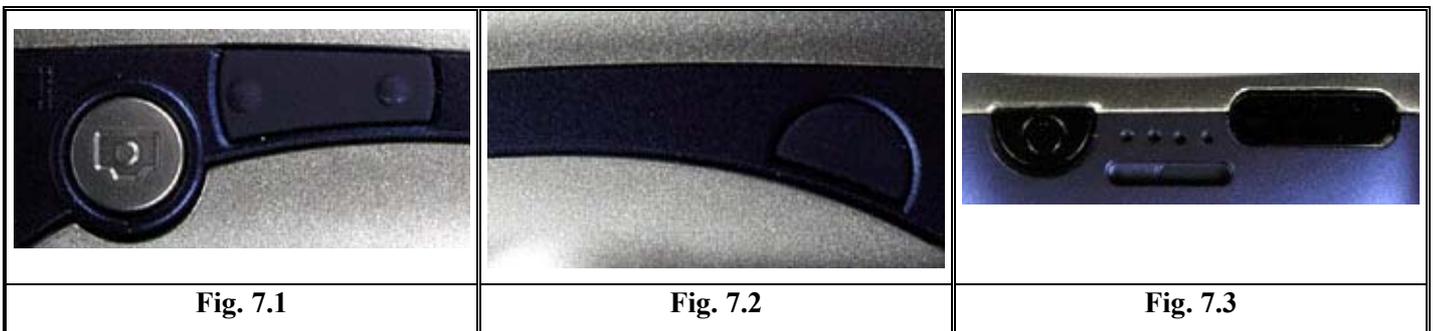
7.2 Keyboard

- Turn on the phone. Go to the service test menu; choose "Keyboard". Press all the keys. The pressed key will be indicated in the LCD and a DTMF tone is heard.

- Check if the mechanically response feels normal and that all the keys have been showed in the LCD.

- Check if the dome switch foil (Fig. 7.7) is mechanical damaged, dirty or oxidized. Replace it if necessary.

- Check if the keyboard flex-film is fitting correct into the FPC connector (Fig. 7.8) and check if the FPC connector is closed.

Note: It is important to place the zif tape correct after checking the zif connectors.

- Check if the keyboard (Fig. 7.9) is mechanical damaged or dirty. Replace it if necessary.

If the fault still occurs, try to update the phone to the latest available software version. If this doesn't solve the problem, handle the unit according to the local directives.
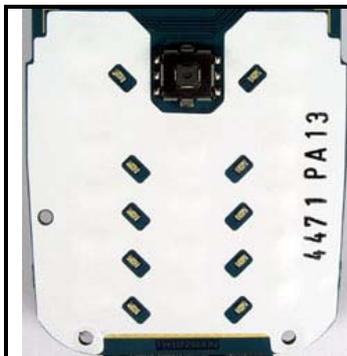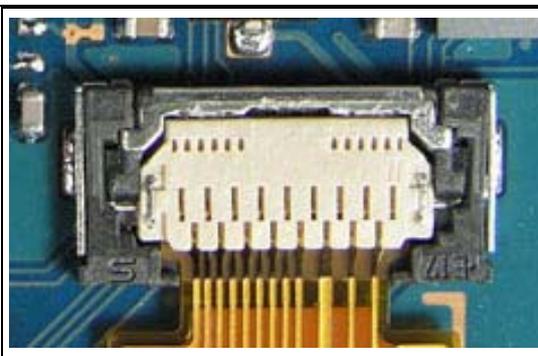
Fig. 7.7	Fig. 7.8	Fig. 7.9

7.3   Joystick

- Turn on the phone. Go to the service test menu; choose "Keyboard". Move the joystick in all directions *(do not forget to press it downwards)*. The moved direction will be indicated in the LCD and a DTMF tone is heard.

- Check if the mechanically response feels normal and that all directions have been indicated in the LCD.

- Check if the joystick (Fig. 7.10) is mechanical damaged or dirty. Replace it if necessary.

  Note: When replacing the joystick remember to replace the joystick dust gasket as well.

If the fault still occurs, try to update the phone to the latest available software version. If this doesn't solve the problem, handle the unit according to the local directives.


Fig. 7.10

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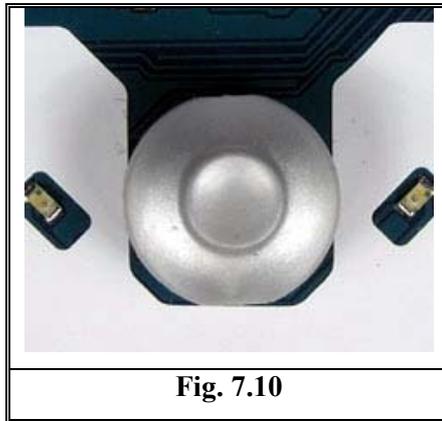
8 LCD/Illumination Problems

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

8.1 LCD

- Turn on the phone. Go to service test menu; choose "Display". You should see a colour pattern.

- Check if the display assy works properly and if there are missing lines or discolours. Replace it if necessary.

- Check if the LCD flex-film is fitting correct into the FPC connector (Fig. 8.1) and check if the FPC connector is closed.

  Note: It is important to place the zif tape correct after checking the zif connectors.

If the fault still occurs, try to update the phone to the latest available software version. If this doesn't solve the problem, handle the unit according to the local directives.

8.2 Illumination

- Turn on the phone. Go to service test menu; choose "LED/Illumination". The illumination should start blinking ~1Hz.

- Check if the display assy is lighting up properly. Replace it if necessary.

- Check if the keyboard flex-film is fitting correct into the FPC connector (Fig. 8.2) and check if the FPC connector is closed.

  Note: It is important to place the zif tape correct after checking the zif connectors.

If the fault still occurs, try to update the phone to the latest available software version. If this doesn't solve the problem, handle the unit according to the local directives.

Fig. 8.1	**Fig. 8.2**

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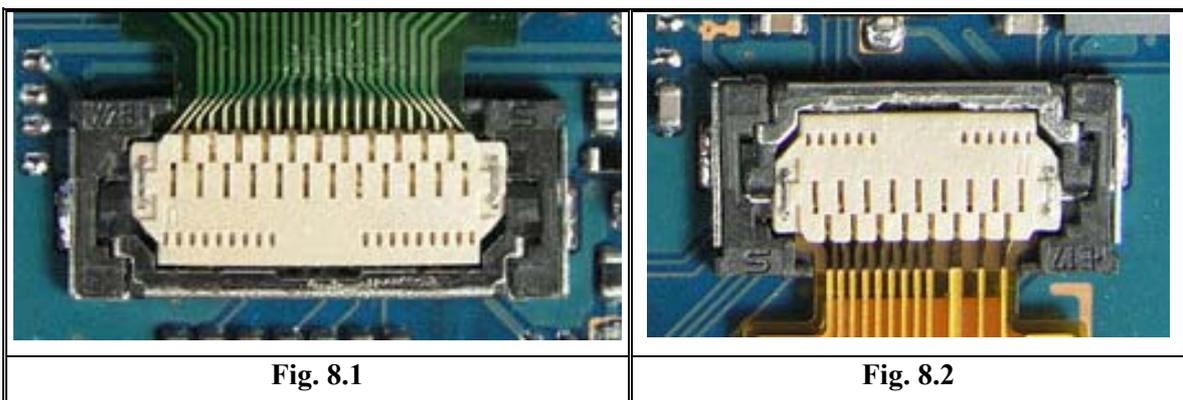
9 Network Problems

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

- Insert a correct working SIM-card in the phone and turn it on. Check if the phone gets service and if the signal strength indicator shows a correct value at the display. Compare the value with a working phone.

- Check if the antenna assembly (Fig. 9.1-9.2) is mechanical damaged, dirty or oxidized. Replace it if necessary.

If the fault still occurs, try to update the phone to the latest available software version. If this doesn't solve the problem, handle the unit according to the local directives.
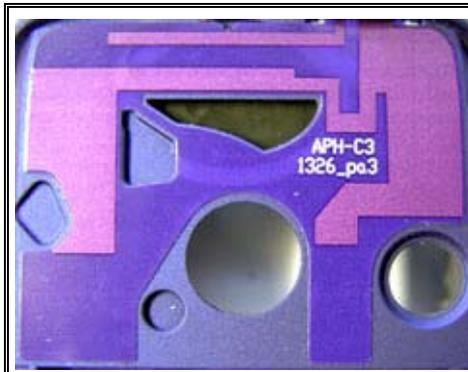
Fig. 9.1	**Fig. 9.2**

10 On/Off Problems

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

10.1 Battery

- Insert a working battery and connect a working charger to the phone. If the battery voltage is too low the phone will 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 LCD.

- Check if the battery pads (Fig. 10.1) are mechanical damaged, dirty or oxidized. Replace the battery if necessary.

If the fault still occurs, try to update the phone to the latest available software version. If this doesn't solve the problem, handle the unit according to the local directives.

10.2 On/Off key

- Insert a fully charged battery and turn the phone on. If it fails;

- Check if the Power on/off button (Fig. 10.2) is mechanical damaged or dirty. Replace it if necessary.

If the fault still occurs, try to update the phone to the latest available software version. If this doesn't solve the problem, handle the unit according to the local directives.

| Fig. 10.1	Fig. 10.2

11 Other Problems

11.1   Camera Problems

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

- Turn on the phone. Go to the service test menu; choose "Camera". The viewfinder will be visible in the LCD.

- Check if the camera VGA part for mobile phone (Fig. 11.1) is working properly; verify the viewfinder functionality in the LCD. Check if there are black spots and if the picture is in focus.

- Go to software info in the service menu. Check the camera software version. If there isn't camera software (Fig. 11.1) the most likely failure is connection problem. Follow the next 3 steps.

Note: Fig. 11.1 shows a working camera.

1. Press on the connector.

2. Disconnect and then re-connect the connecter.

3. Check if the camera works in another phone.

4. If the fault still occurs, replace the camera module (Fig. 11.2).

- Note: When replacing the camera VGA part for mobile phone, check if the conductive gasket camera (Fig. 11.3) is damaged in any way. Replace it if necessary.

If the fault still occurs, try to update the phone to the latest available software version. If this doesn't solve the problem, handle the unit according to the local directives.

| Fig. 11.1 | Fig. 11.2 | Fig. 11.3 |
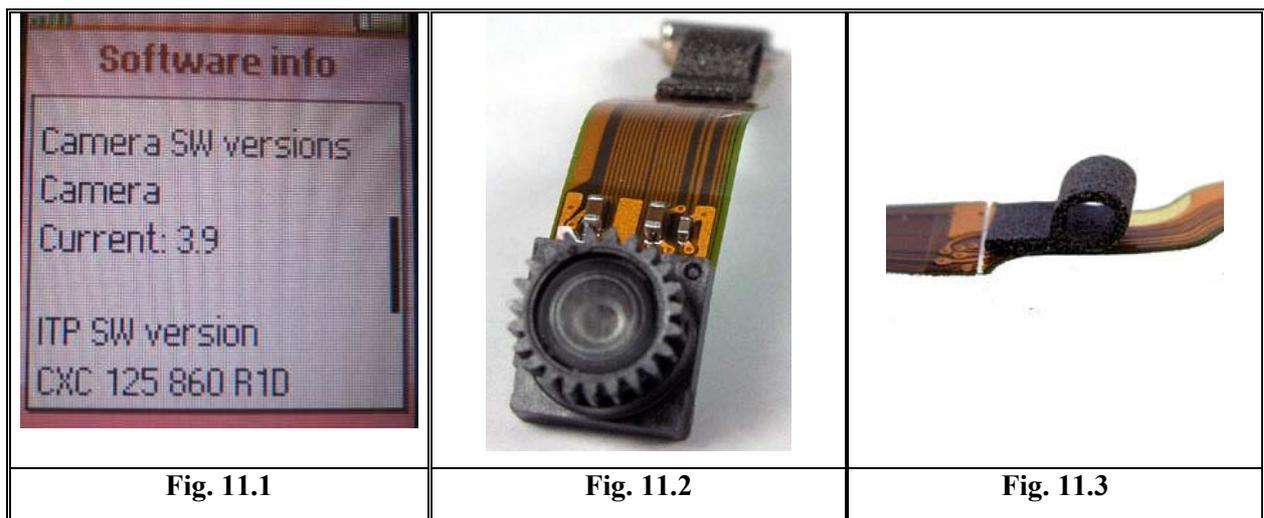
12 Software Problems

- If there are problems with the response of the keypad commands, or spelling errors in the menu, if they 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 will be shown in the display.

Note: Do a SW upgrade before sending the unit to a higher level. Do **not** scrap a phone that hasn't been upgraded.

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

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Revision History

Rev.	Date	Changes / Comments
A	2004-06-30	First Release
B	2004-07-13	Revision update due to publishing problems
C	2004-08-19	K500 Added
D	2004-10-06	Changes in camera and capacity problems