

Trouble Shooting Guide, Mechanical

Applicable for Z780i, Z780a, TM506

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1 General

This document outlines the mechanical repairs that should be made in an attempt to fix the common failures that are seen in the field. To gain a complete understanding of how to test and repair a specific failure, this document should be used in conjunction with the Test Instructions, Mechanical and the Working Instructions, Mechanical.

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 settings

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 3 above*) It looks like this:

Main display

External display

LED/illumination

Keyboard

Speaker

Earphone

Microphone

Vibrating alert

Camera

Memory card

Real time clock

Total call time

Security

GPS

NOTE: Different names may occur depending on language setting and customization.

1.2 Misuse and other no warranty issues

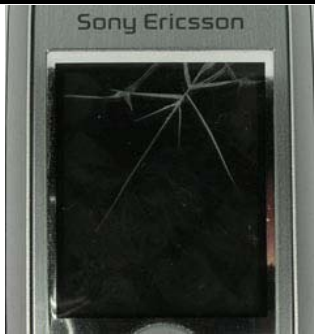




Misuse is not covered by warranty. This chapter will explain what's not covered by warranty. Phones that have been exposed to misuse will not be covered by warranty.

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.


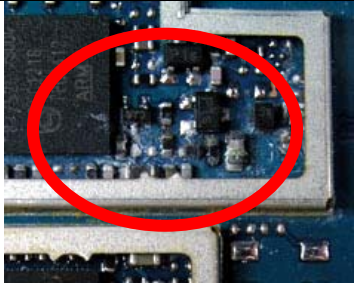
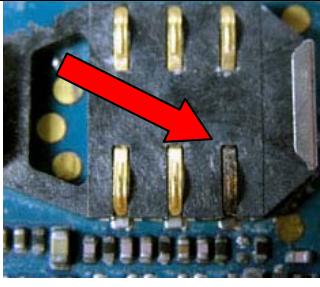

1.2.1 Action


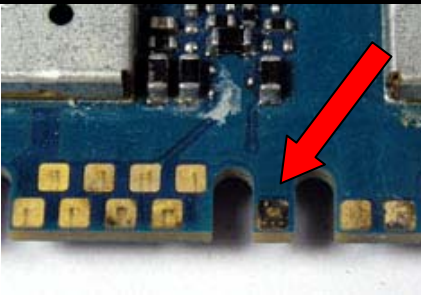
Make a general visual inspection for misuse.

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

				
Front window broken due to misuse.	LCD cracked due to drop.	Clear scratches	Mark after drop	Corrosion components on the PCBA.

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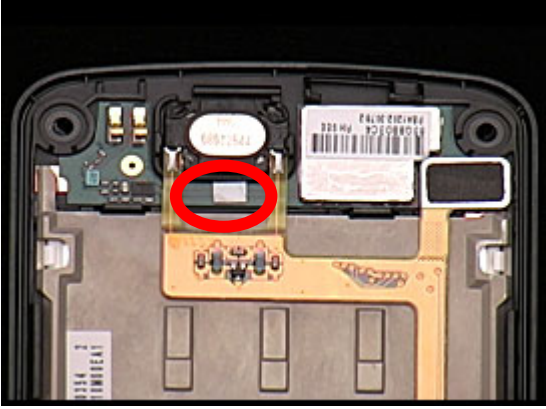
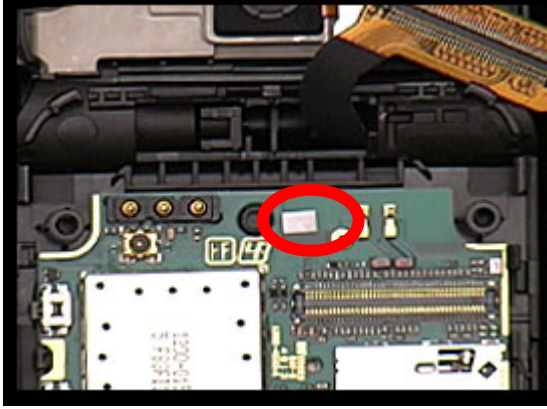

			
<p>Corrosion components on the PCBA.</p>	<p>Corrosion components on the PCBA.</p>	<p>SIM reader damaged by liquid.</p>	<p>System connector damaged by liquid</p>

	
<p>Components around system connector damaged by liquid</p>	<p>System connector pad(s) damaged by liquid</p>

1.2.2 Liquid damage sticker

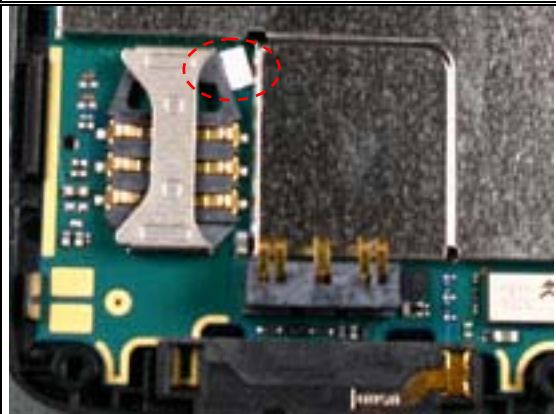
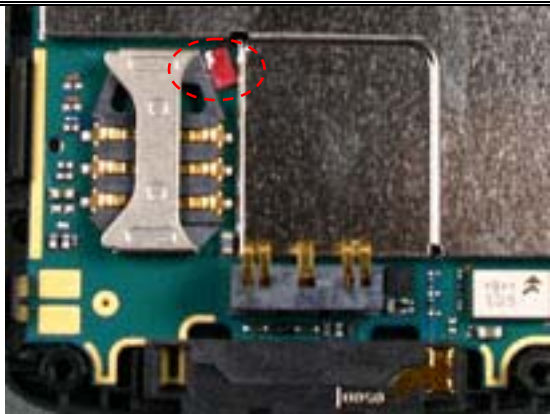
In the phone there are three liquid damage stickers that can give you a hint to see if the phone is damaged by liquid or not. The sticker that is possible to inspect without disassembling the phone is located near the SIM connector (fig 1.2.3). The other two stickers are located as in following positions as shown in fig. 1.2.1 and fig 1.2.2.

Note: indicator 3 is running change to right-upper side(shown in photo) instead of left-upper side.

Indicator 1	Indicator 2	Indicator 3
		
Fig. 1.2.1	Fig. 1.2.2	Fig. 1.2.3

On the pictures below you will see the different between a sticker that has been in contact with liquid (Fig. 1.2.5) and with one that hasn't (Fig. 1.2.4).


Note: indicator 3 is running change to right-upper side (shown in photo) instead of left-upper side.

This sticker is ok	This sticker <u>is not</u> ok	Comments
		The white sticker that has been in contact with liquid turns into a red or pink sticker. In this case you should check the phone for liquid damage. Note: There must be clear marks after liquid on the PCBA before rejecting the phone for repair.
Fig. 1.2.4	Fig. 1.2.5	

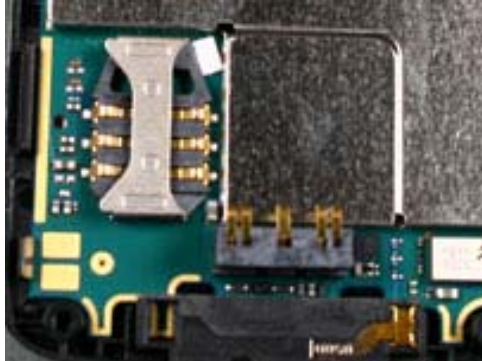
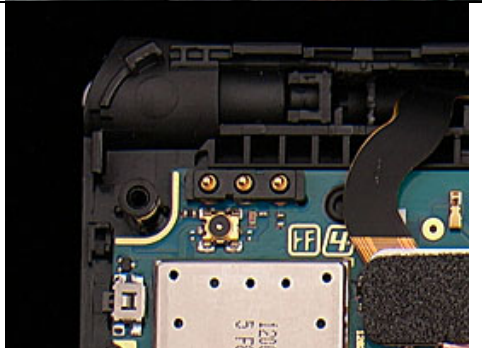
1.2.3 Action

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

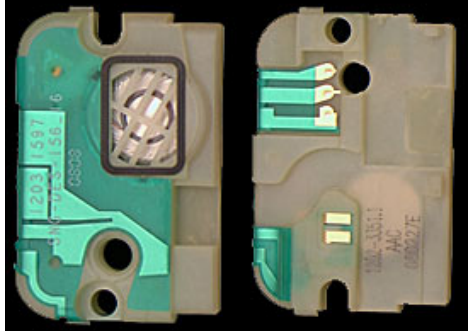
2 Appearance Problems

Problem Area	Items to Check	Repair Action	Reference Image
Appearance	Visually inspect the cosmetic quality of all user viewable surfaces	<ul style="list-style-type: none"> ● If dirty – Clean parts as necessary. ● If unacceptably scratched or damaged – Replace damaged parts as necessary. <p>Note: Misuse is not covered by warranty. Refer to chapter 1.2</p>	
	Visually inspect all keys	<ul style="list-style-type: none"> ● If dirty – Clean parts as necessary. ● If unacceptably scratched or damaged – Replace damaged parts as necessary. <p>Note: Misuse is not covered by warranty. Refer to chapter 1.2</p>	
	Visually inspect for improper gap between seams	<ul style="list-style-type: none"> ● Reassemble or replace damaged parts as necessary. 	

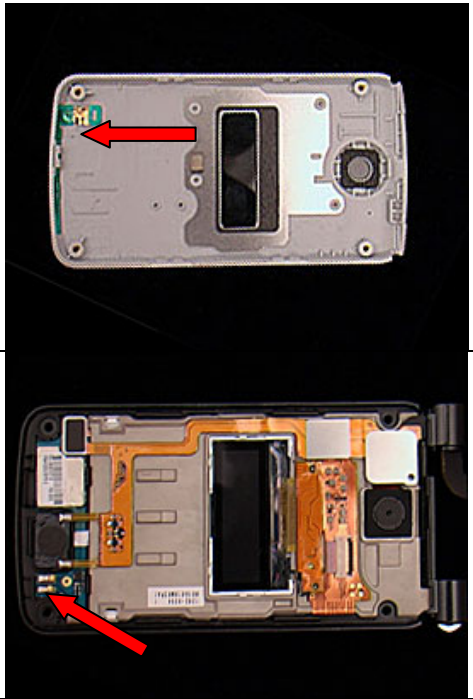
3 Network/Signal Problems

Problem Area	Items to Check	Repair Action	Reference Image
No Signal or Poor Signal	Before proceeding →	<ul style="list-style-type: none"> ● Perform a flash upgrade. 	
	Visually inspect SIM connector	<ul style="list-style-type: none"> ● If dirty or oxidized – Clean it ● If damaged – Send to an electrical repair location. 	
	Visually inspect antenna contact	<ul style="list-style-type: none"> ● If dirty, oxidized or damaged – Replace it. <p>Note: If the side snap hooks are damaged on Speaker Box it can be re-used as it does not affect performance when phone is reassembled.</p>	

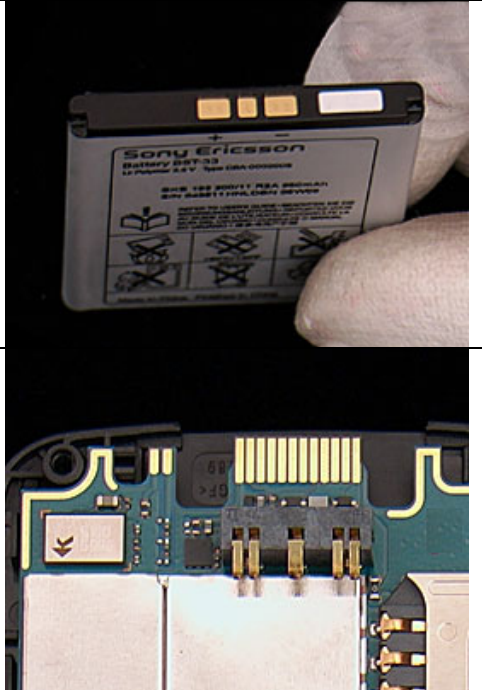
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Problem Area	Items to Check	Repair Action	Reference Image
	Visually inspect the antenna on speaker box.	<ul style="list-style-type: none"> ● If dirty or oxidized – Clean it. ● If damaged – Replace the antenna. 	



4 GPS Problems

Problem Area	Items to Check	Repair Action	Reference Image
No Signal or Poor Signal	Before proceeding →	<ul style="list-style-type: none"> ● Perform a flash upgrade. 	
	Visually inspect GPS antenna	<ul style="list-style-type: none"> ● If dirty or oxidized – Clean it ● If damaged – Replace it. 	
	Visually inspect the GPS PCBA	<ul style="list-style-type: none"> ● If the pins are dirty, oxidized or damaged – Replace it. 	
	Check the connectors on the FPC	<ul style="list-style-type: none"> ● If improperly connected – Re-establish the connection. ● If damaged – Replace the FPC. 	



5 On/Off Problems

Problem Area	Items to Check	Repair Action	Reference Image
Power On Problems	Check whether the phone vibrates 10 to 15 seconds after pressing the power key and whether the keypad illuminates.	<ul style="list-style-type: none"> If the phone vibrates or the keypad is illuminated, refer to the “Display Problems”, chapter 7. 	
	Before proceeding →	<ul style="list-style-type: none"> Perform a flash upgrade 	
	Visually inspect contact pads on battery	<ul style="list-style-type: none"> If dirty or oxidized – Clean pads If damaged – Replace the battery. 	
	Visually inspect battery connector	<ul style="list-style-type: none"> If dirty or oxidized – Clean it. <p>Note: Be gentle do not bend or damage the gold surface on connector pins.</p> <ul style="list-style-type: none"> If damaged – Send to an electrical repair location 	

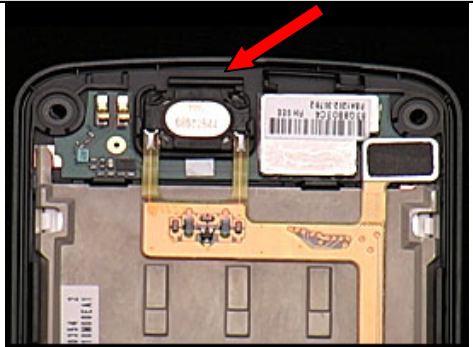
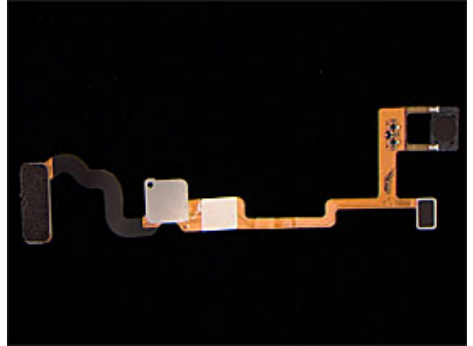
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Problem Area	Items to Check	Repair Action	Reference Image
	Visually inspect the power key	<ul style="list-style-type: none"> If damaged – Replace keypad. 	
	Visually inspect the dome sheet with guide light	<ul style="list-style-type: none"> If dirty or oxidized – Clean it. If damaged – Replace it. 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> Handle the unit according to local directives. 	



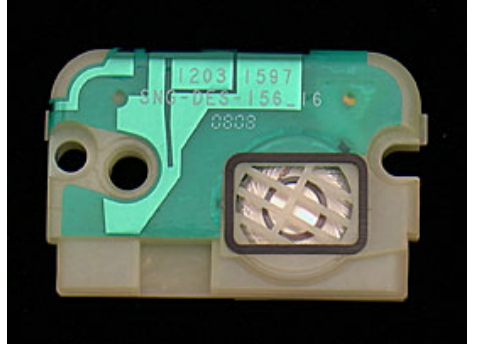
6 Audio Problems

Problem Area	Items to Check	Repair Action	Reference Image
Microphone	Before proceeding →	Perform a flash upgrade and a setting reset.	
	Visually inspect the microphone's external port	<ul style="list-style-type: none"> If clogged – Clean or replace keypad or lower inner cover assembly 	
	If the issue has not been resolved →	Handle the unit according to local directives.	
Receiver: No sound or poor Quality sound	Before proceeding →	Perform a flash upgrade and a setting reset.	
	Visually inspect receiver's external port.	<ul style="list-style-type: none"> If clogged – Clean or replace receiver cover. 	

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Problem Area	Items to Check	Repair Action	Reference Image
	If the issue has not been resolved →	<ul style="list-style-type: none"> ● Send to an electrical repair location – Replace receiver 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> ● Replace FPC. 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> ● Handle the unit according to the local directives. 	
Speaker: No sound or poor quality sound	Before proceeding →	<ul style="list-style-type: none"> ● Perform a flash upgrade and a setting reset. 	
	Visually inspect speaker's external port	<ul style="list-style-type: none"> ● If clogged – Clean it. 	

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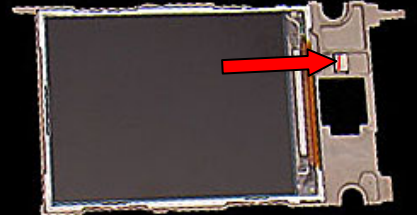
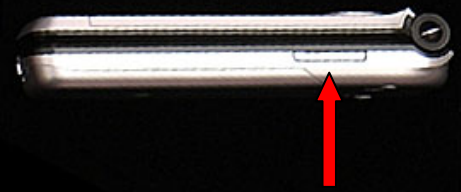
Problem Area	Items to Check	Repair Action	Reference Image
	Visually inspect the speaker's dust cloth	<ul style="list-style-type: none"> If dirty or damaged – Replace lower outer cover. <p>Note: If the snap hooks are damaged on speaker box it can be re-used as it does not affect performance when phone is reassembled.</p>	
	Visually inspect the contact pins on the PCBA board	<ul style="list-style-type: none"> If dirty – Clean it If damaged –Send to an electrical repair location 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> Replace speaker box <p>Note: If the side hooks are damaged on speaker box it can be re-used as it does not affect performance when phone is reassembled.</p>	

Problem Area	Items to Check	Repair Action	Reference Image
	If the issue has not been resolved →	<ul style="list-style-type: none"> ● Handle the unit according to local directives. 	



7 Key Problems

Problem Area	Items to Check	Repair Action	Reference Image
Keyboard: A key on the keyboard is not functioning or is intermittent	Visually inspect for debris between keypad and dome sheet and for damage to the keypad and the dome sheet.	<ul style="list-style-type: none"> ● If dirty – Clean both parts ● If damaged – Replace keypad and/or dome sheet as necessary. 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> ● Replace the dome sheet, if it has not already been replaced. 	

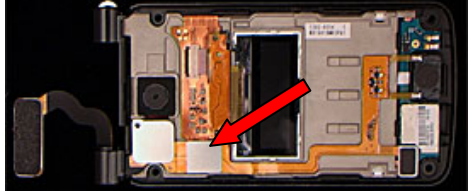
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Problem Area	Items to Check	Repair Action	Reference Image
	Visually inspect whether the FPC connector is properly connected to the PCBA.	<ul style="list-style-type: none"> If improperly connected – Re-establish a proper connection. 	
	Visually inspect if the Magnet is incorrectly located or missing, on the Display frame.	<ul style="list-style-type: none"> If incorrectly located, missing or installed in the wrong direction – Replace the magnet. 	
Side keys	Visually inspect for damage to the side keys.	<ul style="list-style-type: none"> If damaged – Replace it. 	



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Problem Area	Items to Check	Repair Action	Reference Image
Flip problems	Check whether the flip opens and closes properly.	<ul style="list-style-type: none"> If the flip does not open or close properly – Replace the hinge. 	
	If there is noise when opening and closing, check the hinge FPC.	<ul style="list-style-type: none"> Replace the hinge or the hinge FPC. 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> Handle the unit according to the local directives. 	

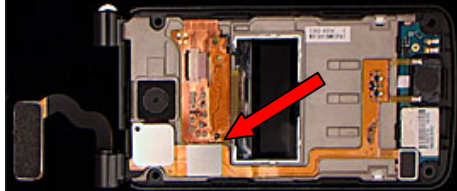
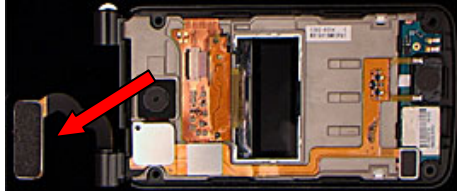
8 Display Problems

Problem Area	Items to Check	Repair Action	Reference Image
LCD module	Check whether the phone vibrates 10 to 15 seconds after pressing the power key and whether the keypad illuminates	<ul style="list-style-type: none"> If activation of the vibrator are not detected, refer to the On/Off Problems chapter 5. 	
	Before proceeding →	<ul style="list-style-type: none"> Perform a flash upgrade and a setting reset. 	
	Visually inspect whether the LCD is properly connected to its connector.	<ul style="list-style-type: none"> If improperly connected – Re-establish proper connection. 	
	Visually inspect whether the hinge FPC is properly connected to its connectors.	<ul style="list-style-type: none"> If improperly connected – Re-establish a proper connection. 	

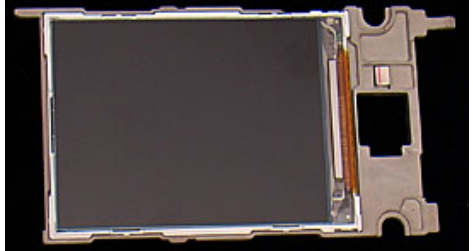

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Problem Area	Items to Check	Repair Action	Reference Image
	If the issue has not been resolved→	<ul style="list-style-type: none"> ● Replace the LCD 	
	If the issue has not been resolved→	<ul style="list-style-type: none"> ● Replace the hinge FPC. 	

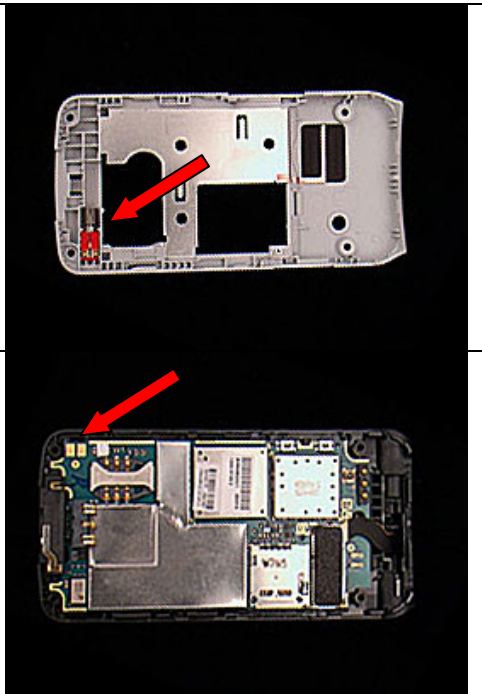
9 Illumination Problems

Problem Area	Items to Check	Repair Action	Reference Image
LCD module	Before proceeding →	<ul style="list-style-type: none"> ● Perform a flash upgrade and a setting reset. 	
	Visually inspect whether the main FPC is properly connected to its connector on the display	<ul style="list-style-type: none"> ● If improperly connected – Re-establish proper connection 	
	Visually inspect whether the hinge FPC is properly connected to its connectors.	<ul style="list-style-type: none"> ● If improperly connected – Re-establish a proper connection. 	

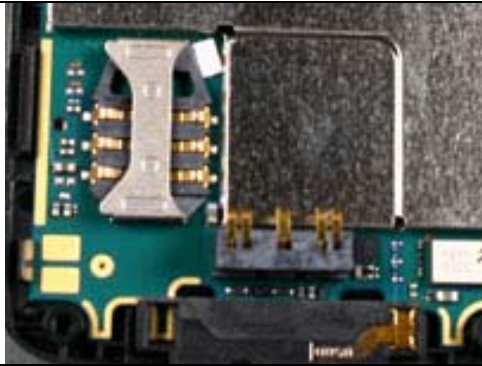
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Problem Area	Items to Check	Repair Action	Reference Image
	If the issue has not been resolved →	<ul style="list-style-type: none"> ● Replace the LCD 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> ● Replace the hinge FPC. 	


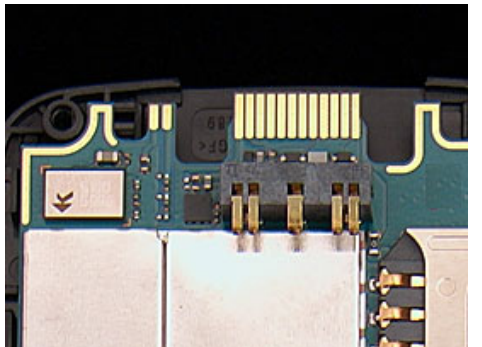
10 Alert Problems



Problem Area	Items to Check	Repair Action	Reference Image
Vibrator	Before proceeding →	<ul style="list-style-type: none"> ● Perform a flash upgrade and a setting reset. 	
	Visually inspect the vibrator	<ul style="list-style-type: none"> ● If dirty, oxidized or damaged – Replace it 	
	Visually inspect the contact pin on the PCBA board	<ul style="list-style-type: none"> ● If dirty – Clean it ● If damaged – Send to an electrical repair location 	

11 SIM Problems

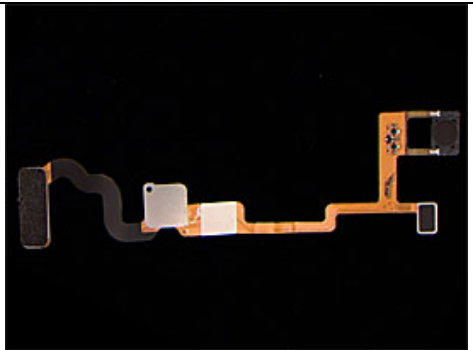

Problem Area	Items to Check	Repair Action	Reference Image
SIM undetected (insert SIM)	Before proceeding →	<ul style="list-style-type: none"> ● Perform an update content refresh. 	
	Inspect SIM connector	<ul style="list-style-type: none"> ● If dirty or oxidized – Clean it. ● If damaged – Send to an electrical repair location 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> ● Handle the unit according to local directives. 	
Unit indicates an incorrect SIM is inserted (Insert correct SIM)	Check whether the phone is locked to a particular carrier and whether the correct carrier's SIM is being used. Go to the service menu, service info and SIM lock to see the status of the SIM lock.	<ul style="list-style-type: none"> ● Use correct carrier SIM or test SIM 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> ● Handle it according to the local directives. 	

12 Charging/Capacity Problems

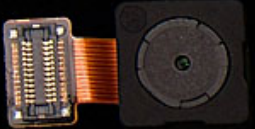
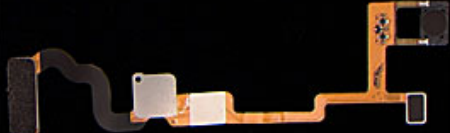
Problem Area	Items to Check	Repair Action	Reference Image
Battery will not Charge.	Before proceeding →	<ul style="list-style-type: none"> ● Perform an update content refresh. 	
	Visually inspect the contact pads of the battery	<ul style="list-style-type: none"> ● If dirty or oxidized – Clean them. ● If damaged – Replace the battery 	
	Visually inspect the battery connector	<ul style="list-style-type: none"> ● If dirty or oxidized – Clean it ● If damaged – Send to an electrical repair location. 	

Problem Area	Items to Check	Repair Action	Reference Image
	Visually inspect the system connector	<ul style="list-style-type: none"> ● If dirty –Clean it. ● If damaged – Clean or replace it. <p>Note: Misuse is not covered by warranty. Refer to chapter 1.2</p>	
Battery loses charge quickly standby time seems short	Before proceeding → Note: Some features noticeably reduce then amount of standby time if they are turned on. Some examples are the back light (when on all the time and), Bluetooth and infrared.	<ul style="list-style-type: none"> ● Perform a flash upgrade and a setting reset. 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> ● Replace the battery 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> ● Handle the unit according to local directives. 	


13 Camera Problems

Problem Area	Items to Check	Repair Action	Reference Image
Camera: Lines, marks, blurred or discoloured picture.	Visually inspect whether the camera is properly connected to the hinge FPC.	<ul style="list-style-type: none"> ● If improperly connected – Re-establish a proper connection. 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> ● If scratched or damaged – Replace the camera 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> ● If scratched or damaged – Replace the hinge FPC. 	
Will not capture an image.	Before proceeding →	<ul style="list-style-type: none"> ● Perform an update content refresh. 	
	Visually inspect for debris or damage to the camera caption keys	<ul style="list-style-type: none"> ● If dirty – Clean it ● If damaged – Replace the keypad 	
	Visually inspect whether the Camera is properly connected to its connectors.	<ul style="list-style-type: none"> ● If improperly connected – Re-establish a proper connection. 	


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Problem Area	Items to Check	Repair Action	Reference Image
	If the issue has not been resolved →	<ul style="list-style-type: none"> ● If scratched or damaged - Replace the Camera. 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> ● If scratched or damaged – Replace the Hinge FPC. 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> ● Handle the unit according to the local directives. 	

14 Data Communication Problems

Problem Area	Items to Check	Repair Action	Reference Image
Will not connect with a functional bluetooth device	Visually inspect bluetooth antenna on system connector	<ul style="list-style-type: none"> ● If dirty – Clean it ● If damaged – Replace the system connector 	
Will not connect through the system connector	Before proceeding →	● Perform an update content refresh.	
	Visually inspect the system Connector.	<ul style="list-style-type: none"> ● If dirty – Clean it. ● If damaged – Replace the system connector. 	

15 Hands-Free Problems

Problem Area	Items to Check	Repair Action	Reference Image
Will not connect with a functional Hands-Free device	Before proceeding →	<ul style="list-style-type: none"> ● Perform an update content refresh 	
	Visually inspect the system connector.	<ul style="list-style-type: none"> ● If dirty – Clean it ● If damaged – Replace the system connector 	
	If the issue has not been resolved →	Handle the unit according to local directives.	

16 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 III.
- 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.

17 Revision History

Rev.	Date	Changes / Comments
1	2008-06-2	First release
2	2008-07-04	Page 6,7: add notes about indicator 3 position.
3	2008-07-21	Adding TM506 project, indicator 3 photo updated.