

Trouble Shooting Guide, Mechanical

Applicable for W960

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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.

Press the sequence **↑*↓↓*↓*** with the Jog Dial (**➡**), and (*****) on the keyboard.

They are as follows:

Service information

Service tests

Format internal disk

Under the “**Service tests**” option, the phone’s software has a built in service functionality that allows you to test some of the phones functions. It looks like this:

Display

Camera

Touch screen

Illumination

LED’s

Keyboard

Vibrator

Speaker’s

Microphone

FM Radio

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.


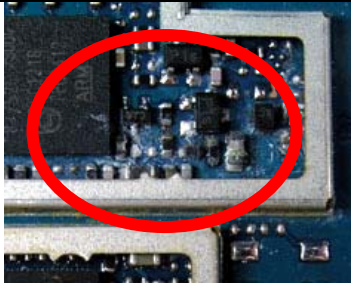
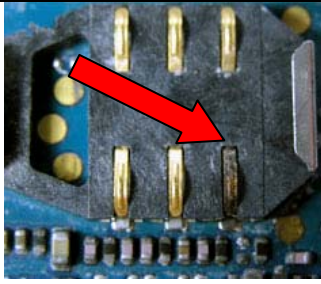
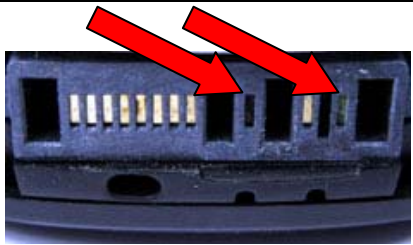
This means: if it is possible to repair the phone, the customer will have to pay for the repair. SEMC will not allow any of these phones to be claimed into WCMS. Some local perspectives may interfere with this. Please reference to local directives.

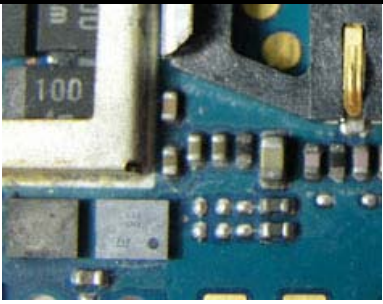
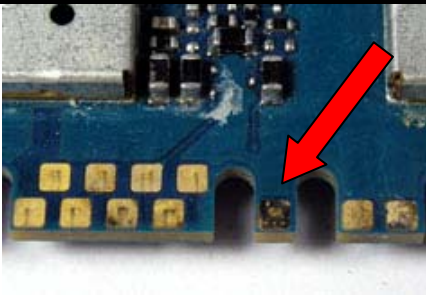
1.2.1 Action

Make a general visual inspection for misuse.

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

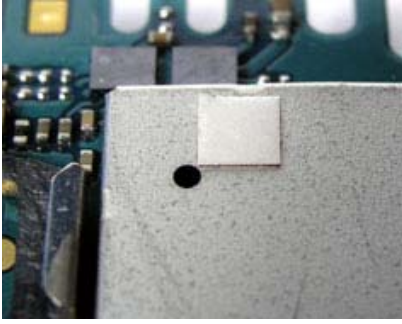
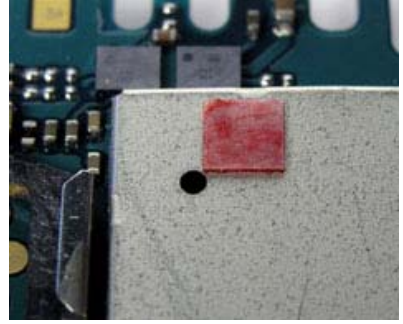
				
<p>Front window broken due to misuse.</p>	<p>LCD cracked due to drop.</p>	<p>Clear scratches</p>	<p>Mark after drop</p>	<p>Corrosion components on the PCB.</p>

			
<p>Corrosion components on the PCB.</p>	<p>Corrosion components on the PCB.</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

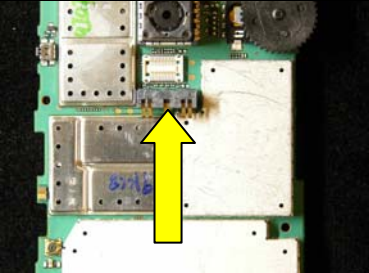
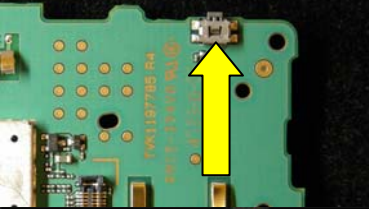
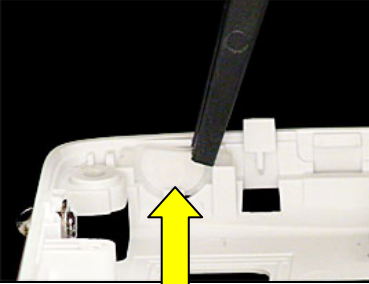
On the pictures below you will see the different between a sticker that has been in contact with liquid (Fig. 1.2.2) and with one that hasn't (Fig. 1.2.1).

This sticker is ok	This sticker <u>is not</u> ok	
		<p>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.</p> <p>Note: There must be clear marks after liquid on the PCB before rejecting the phone for repair.</p>
Fig. 1.2.1	Fig. 1.2.2	

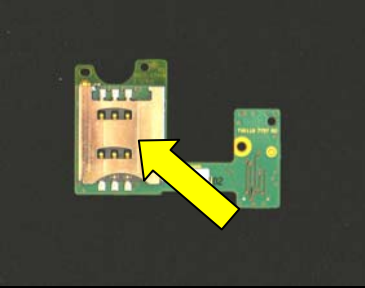
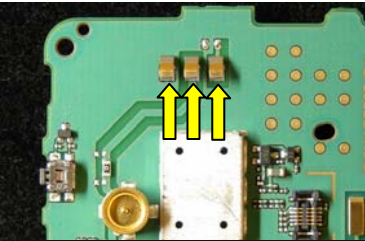
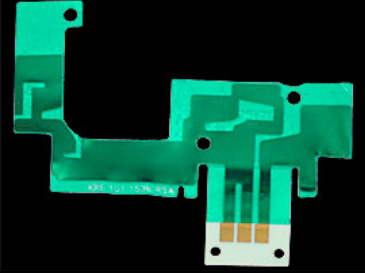
1.2.3 Action

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.


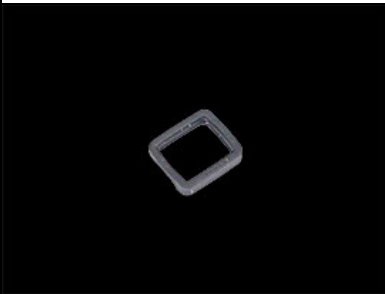
2 Power Problems

Problem Area	Items to Inspect	Repair Action	Inspection Reference
Unit will not Power On	Check whether the keyboard illuminates 15 to 20 seconds after pressing the power key	If illumination of the keyboard is detected, refer to the "Display Problems" section	
	Inspect battery connector	<ul style="list-style-type: none"> • If dirty or oxidized – Clean • If damaged – Send to an electrical repair location 	
	Inspect the power key and the power key's switch	<ul style="list-style-type: none"> • Make sure the power key is properly positioned in the phone. • If dirt or debris is detected – Clean both the key and the switch • If the key is damaged – Replace it • If the switch is damaged – Escalate to an electrical repair level 	 
	If the issue is still not resolved →	<ul style="list-style-type: none"> • Escalate to an electrical repair level 	


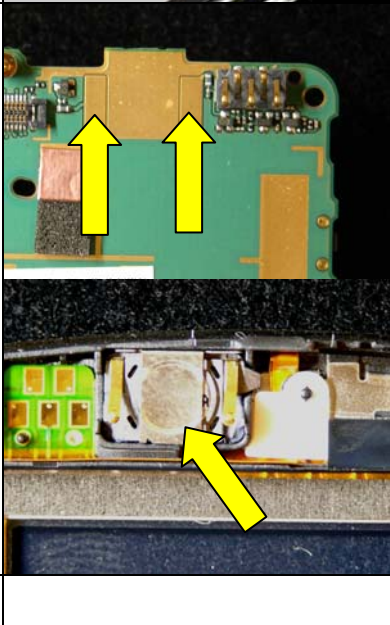
3 Network/Signal Problems


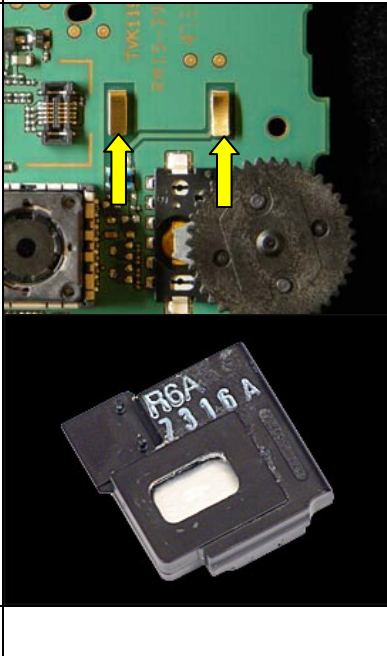
Problem Area	Items to Inspect	Repair Action	Inspection Reference
No Signal or Poor Signal	Inspect SIM holder	<ul style="list-style-type: none"> • If dirty or oxidized – Clean • If damaged – replace the PCB Sub Asm 	
	If the issue has not been resolved→	<ul style="list-style-type: none"> • Clean the antenna-to-board connectors on the circuit board and replace the antenna flex 	 
	If the issue is still not resolved→	<ul style="list-style-type: none"> • Escalate to an electrical repair level 	

4 Audio Problems

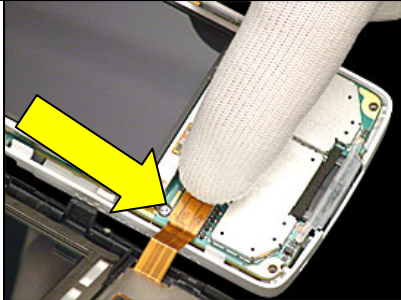
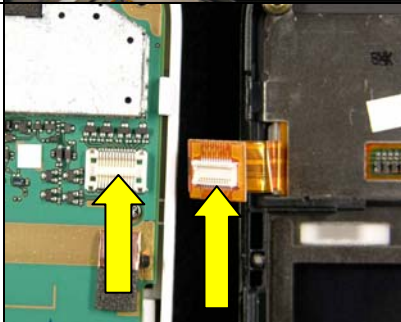
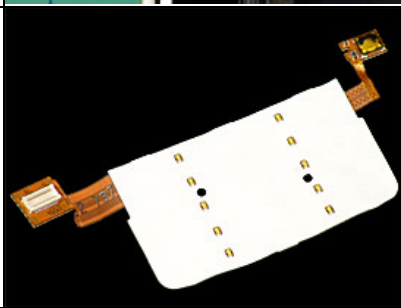
Problem Area	Items to Inspect	Repair Action	Inspection Reference
Microphone:	Before proceeding →	<ul style="list-style-type: none"> Perform a setting reset 	
	Inspect the microphone's external port	<ul style="list-style-type: none"> If clogged - Clean microphone gasket mounted on frame inside. 	
	Visually inspect the microphone grommet	<ul style="list-style-type: none"> If improperly mounted - Secure properly connection If damaged. Replace it 	
	If the issue is still not resolved →	<ul style="list-style-type: none"> Escalate to an electrical repair level 	




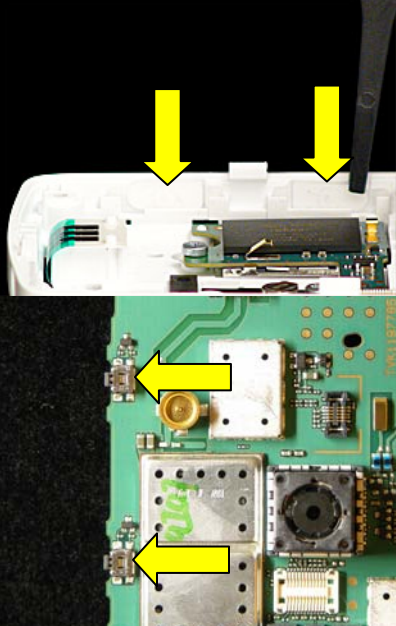
Problem Area	Items to Inspect	Repair Action	Inspection Reference
Receiver: No sound or poor quality sound	Before proceeding → Check if the receiver's external ports are clogged	<ul style="list-style-type: none"> • Perform a setting reset • If clogged – Clean the external ports in the front cover complete or replace the front assy and/or earspeaker as determined necessary 	
Receiver: No sound or poor quality sound (Cont.)	If the issue has not been resolved→	Clean the receiver's contact pads on the circuit board and replace receiver	
	If the issue is still not resolved→	<ul style="list-style-type: none"> • Escalate to an electrical repair level 	

Problem Area	Items to Inspect	Repair Action	Inspection Reference
Rear Speaker: No sound or poor quality sound	Before proceeding →	<ul style="list-style-type: none"> • Perform a setting reset 	
	Inspect whether the rear speaker's external ports are clogged	<ul style="list-style-type: none"> • If clogged – Clean out the rear speaker's external ports and replace the Antenna lid 	
	If the issue has not been resolved→	<ul style="list-style-type: none"> • Check if spring clips are depressed, re-elevate the springs if needed • Clean the rear speaker's contact pads on the circuit board and replace Acoustic box. 	
	If the issue is still not resolved→	<ul style="list-style-type: none"> • Escalate to an electrical repair level 	

5 Key Problems

Problem Area	Items to Inspect	Repair Action	Inspection Reference
Keyboard: None of the keys on the keyboard are functioning (excluding the navigation key)	Inspect whether the keyfoil assembly is properly connected to the circuit board	<ul style="list-style-type: none"> If improperly connected - Reestablish proper connection 	
	Inspect each half of the keyfoil to circuit board connection	<ul style="list-style-type: none"> If dirty or oxidized – Clean both halves of the connection If the portion of the connection on the key foil complete is damaged - Replace the key foil complete If the portion of the connection on the circuit board is damaged – Send to an electrical repair location 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> Replace the key foil complete, if it has not already been replaced 	
	If the issue is still not resolved →	<ul style="list-style-type: none"> Escalate to an electrical repair level 	

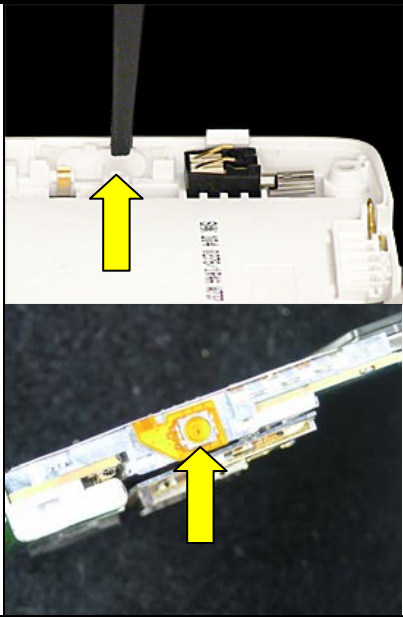
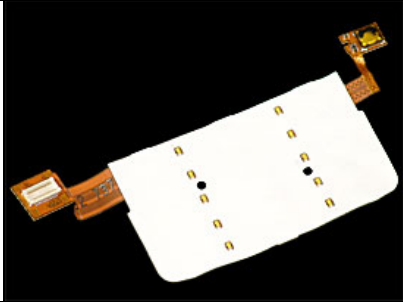


Problem Area	Items to Inspect	Repair Action	Inspection Reference
<p>Numeric Keyboard: A key on the numeric keyboard is not functioning or is intermittent</p>	<p>Inspect for debris between and/or damage to the numeric keyboard and the corresponding portion of the keyfoil assembly.</p> <p>If the issue has not been resolved →</p> <p>If the issue is still not resolved→</p>	<ul style="list-style-type: none"> • If debris is found – Clean both parts • If damage is seen – Replace the numeric keyboard and/or the key foil complete as necessary • Replace the numeric keyboard and the key foil complete, if they have not already been replaced • Escalate to an electrical repair level 	
<p>Volume key: A direction of the key is not functioning or is intermittent</p>	<p>Inspect the portion of the volume key that is not functioning and its corresponding switch.</p>	<ul style="list-style-type: none"> • Make sure the volume key is properly positioned in the Antenna assembly. • If dirt or debris is detected – Clean the volume key and both switches • If the key is damaged – Replace it • If the switch is damaged – Escalate to an electrical repair level 	

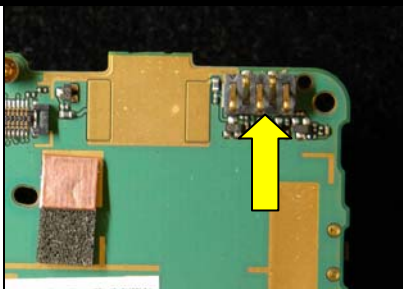
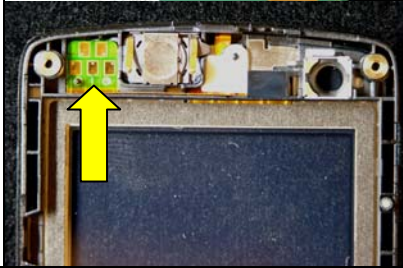



Problem Area	Items to Inspect	Repair Action	Inspection Reference
	If the issue has not been resolved →	<ul style="list-style-type: none"> Escalate to an electrical repair level 	
		<ul style="list-style-type: none"> 	
		<ul style="list-style-type: none"> 	
Power Key:	Inspect the power key and the power key's switch	<ul style="list-style-type: none"> Make sure the power key is properly positioned in the phone. If dirt or debris is detected – Clean both the key and the switch If the key is damaged – Replace it If the switch is damaged – Escalate to an electrical repair level 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> Escalate to an electrical repair level 	

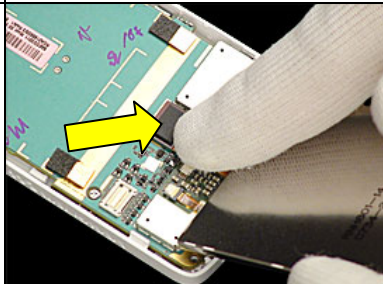
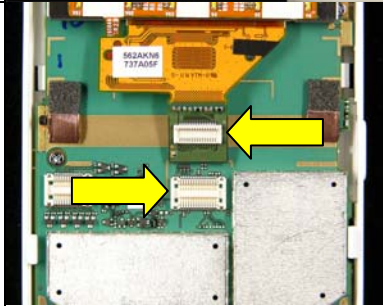
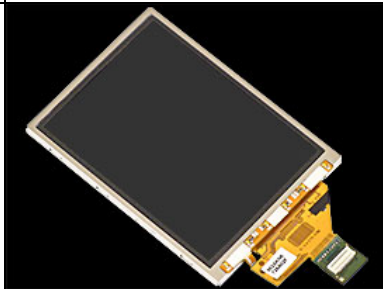



Problem Area	Items to Inspect	Repair Action	Inspection Reference
Camera Key:	Inspect the camera key and its switch	<ul style="list-style-type: none"> • Make sure the camera key is properly positioned in the front cover. • Make sure the camera switch is properly positioned in the Frame assy. • If dirt or debris is detected – Clean both the camera key and its switch • If the camera key is damaged – Replace it 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> • Replace the key foil complete 	
	If the issue is still not resolved→	<ul style="list-style-type: none"> • Escalate to an electrical repair level 	



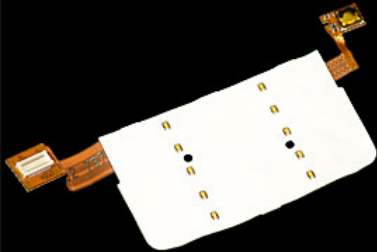
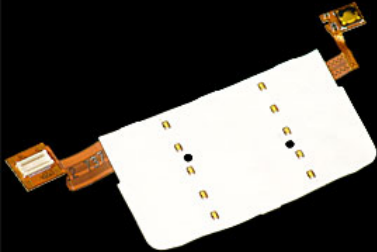
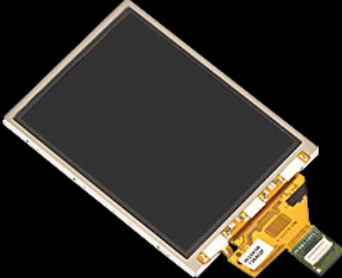
Touch screen:	Inspect the Touch screen contact pin on the circuit board.	<ul style="list-style-type: none">• Clean the Touch screen contact pin on the circuit board.• Clean the Touch screen contact pad on the Front	
	If the issue has not been resolved →	<ul style="list-style-type: none">• Replace the Front	
	If the issue is still not resolved →	<ul style="list-style-type: none">• Escalate to an electrical repair level	

6 Display Problems



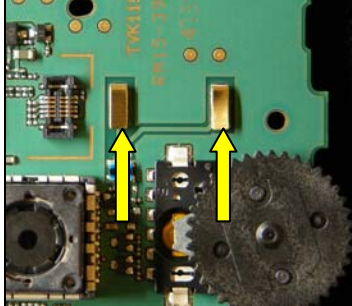

Problem Area	Items to Inspect	Repair Action	Inspection Reference
If a display is not functioning	Check whether the keyboard illuminates 15 to 20 seconds after pressing the power key	<ul style="list-style-type: none"> If the keyboard does not illuminate, refer to the “Power Problems” section 	
	Inspect whether the LCD assembly’s flex film is properly connected to the circuit board	<ul style="list-style-type: none"> If improperly connected - Reestablish proper connection 	
	Inspect each half of the LCD to circuit board connection	<ul style="list-style-type: none"> If dirty or oxidized – Clean both halves of the connection If the portion of the connector on the LCD is damaged - Replace the LCD If the portion of the connector on the circuit board is damaged – Escalate to an electrical repair level 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> Replace the LCD if it has not been replaced 	
	If the issue is still not resolved →	<ul style="list-style-type: none"> Escalate to an electrical repair level 	

Problem Area	Items to Inspect	Repair Action	Inspection Reference
If a display has lines or missing pixels	Perform the following action →	<ul style="list-style-type: none"> • Replace the LCD 	
	If the issue is still not resolved →	<ul style="list-style-type: none"> • Escalate to an electrical repair level 	

7 Illumination Problems

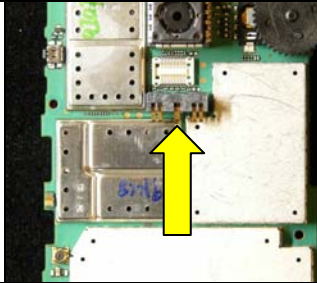
Problem Area	Items to Inspect	Repair Action	Inspection Reference
Keyboard Illumination: If the numeric keyboard illuminates	Perform the following action →	<ul style="list-style-type: none"> Replace the key foil complete 	
	If the issue is still not resolved→	<ul style="list-style-type: none"> Escalate to an electrical repair level 	
Keyboard Illumination: A portion of the numeric keyboard does not illuminate	Perform the following action →	<ul style="list-style-type: none"> Replace the key foil complete 	
	If the issue is still not resolved→	<ul style="list-style-type: none"> Escalate to an electrical repair level 	
Display Illumination:	Before proceeding →	<ul style="list-style-type: none"> Perform a setting reset 	
	Perform the following action →	<ul style="list-style-type: none"> Replace the LCD 	
	If the issue is still not resolved →	<ul style="list-style-type: none"> Escalate to an electrical repair level 	

8 Alert Problems

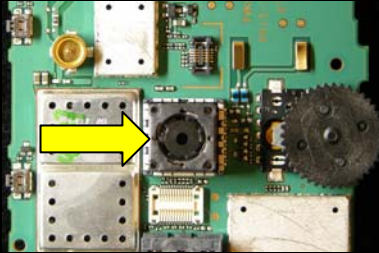
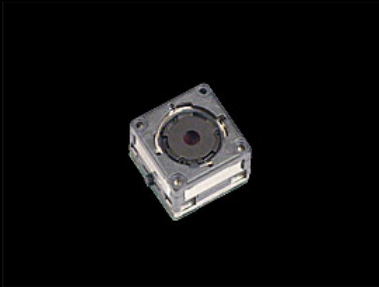
Problem Area	Items to Inspect	Repair Action	Inspection Reference
Rear speaker: No sound or poor quality sound	Before proceeding → Inspect whether the rear speaker's external port is clogged	<ul style="list-style-type: none"> Perform a setting reset If clogged – Clean out the rear speaker's external ports and replace the rear speaker cloth 	 
	If the issue has not been resolved →	<ul style="list-style-type: none"> Re-elevate the connector springs if they are depressed Clean the rear speaker's contact pads on the circuit board and replace Acoustic box 	 

Problem Area	Items to Inspect	Repair Action	Inspection Reference
	If the issue is still not resolved →	<ul style="list-style-type: none"> Escalate to an electrical repair level 	

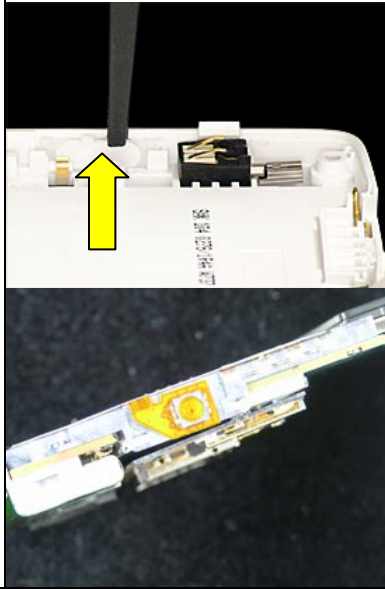
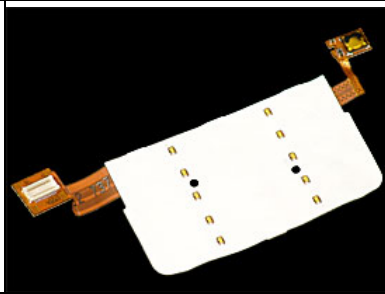
9 Charging/Capacity Problems

Problem Area	Items to Inspect	Repair Action	Inspection Reference
Phone is not charging properly	Inspect the battery connector	<ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged – Send to an electrical repair location 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> Replace the system connector 	
	If the issue is still not resolved →		<ul style="list-style-type: none"> Escalate to an electrical repair level

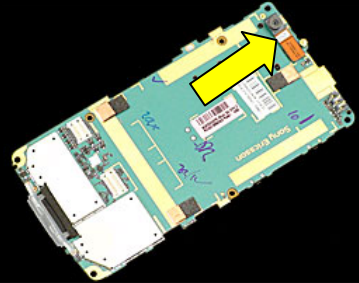
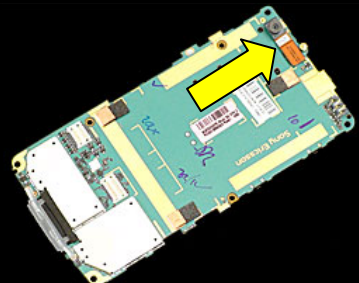
10 Rear Camera Problems

Problem Area	Items to Inspect	Repair Action	Inspection Reference
Lines or marks in picture	Visually inspect the rear camera's lens	<ul style="list-style-type: none"> • If dirty – Clean the camera's lens • If scratched or damaged – Replace the camera module 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> • Replace the rear camera module, if it has not yet been replaced 	
	If the issue is still not resolved →	<ul style="list-style-type: none"> • Escalate to an electrical repair level 	

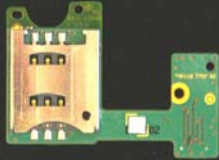


Problem Area	Items to Inspect	Repair Action	Inspection Reference
Will not capture an image when pressing the camera key	Inspect the camera key and its switch	<ul style="list-style-type: none"> • Make sure the camera key is properly positioned in the front cover. • Make sure the camera switch is properly positioned in the board frame. • If dirt or debris is detected – Clean both the camera key and its switch • If the key is damaged – Replace it 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> • Replace the key foil complete 	
	If the issue is still not resolved →	<ul style="list-style-type: none"> • Escalate to an electrical repair level 	

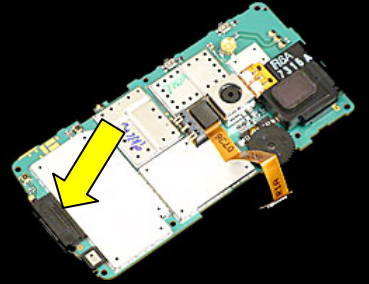
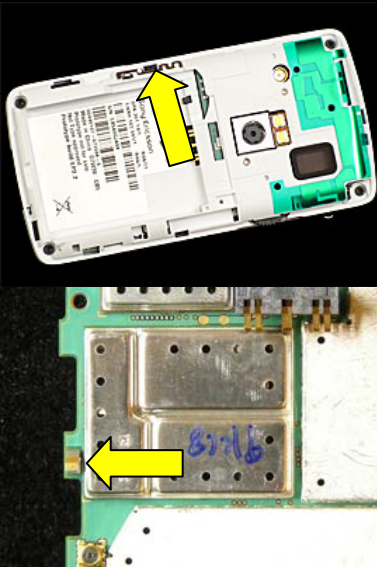
11 Video Call Camera Problems

Problem Area	Items to Inspect	Repair Action	Inspection Reference
Lines or marks in picture	Visually inspect the VGA camera window	<ul style="list-style-type: none"> • If dirty – Clean the VGA camera window • If scratched – Replace VGA camera window • If damaged – Replace VGA Camera 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> • Escalate to an electrical repair level 	
Do not see image when in video call mode	Perform the following action →	<ul style="list-style-type: none"> • Replace VGA Camera 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> • Escalate to an electrical repair level 	

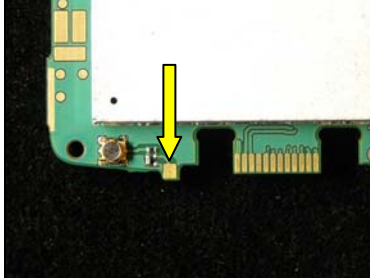

12 SIM Problems

Problem Area	Items to Inspect	Repair Action	Inspection Reference
SIM undetected	Inspect SIM holder Inspect BTB flex + connectors	<ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged – replace the PCB Sub Asm 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> Escalate to an electrical repair level 	
Unit indicates the incorrect SIM is inserted	Check whether the phone is locked to a particular carrier and whether the correct carrier's SIM is being used	<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"> Escalate to an electrical repair level 	

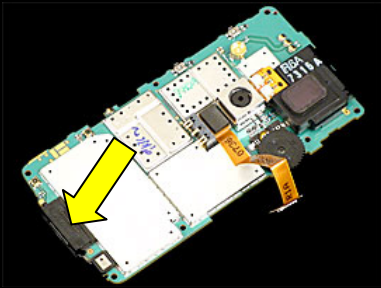
13 Data Transfer Problems using a Data Cable

Problem Area	Items to Inspect	Repair Action	Inspection Reference
Problem transferring data using a direct connection	Perform the following action →	<ul style="list-style-type: none"> Replace the system connector 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> Escalate to an electrical repair level 	
Will not connect with a functional WLAN device	Visually inspect WLAN antenna	<ul style="list-style-type: none"> If damaged. Replace Frame Sub Asm. Check and clean contact pad on PCB 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> Escalate to an electrical repair level 	

14 Bluetooth Problems

Problem Area	Items to Inspect	Repair Action	Inspection Reference
Will not connect with a functional Bluetooth device	Inspect the Bluetooth antenna's contact pads on the circuit board	<ul style="list-style-type: none"> If dirty – Clean 	
	Inspect the spring fingers of Bluetooth antenna	<ul style="list-style-type: none"> If bent or damaged – Replace the Frame Sub Asm 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> Escalate to an electrical repair level 	

15 Hands-Free Problems

Problem Area	Items to Inspect	Repair Action	Inspection Reference
Hands-free will not work	Perform the following action →	<ul style="list-style-type: none"> • Replace the system connector • Check connector pads on PWB, clean if necessary 	
	If the issue has not been resolved→	<ul style="list-style-type: none"> • Escalate to an electrical repair level 	

16 Revision History

Rev.	Date	Changes / Comments
1	2007-11-29	Initial Release