



Trouble Shooting Guide, Mechanical

Applicable for S500, W580

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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 unit, this document should be used in conjunction with the Test Instructions, Mechanical and the Working Instructions, Mechanical.

NOTE! *A unit should always be inspected for liquid damage and flashed with latest software before using the Mechanical Trouble Shooting Guide. Refer to the Mechanical Test Instructions for details regarding upgrading software.*

NOTE! *If all of the repair actions listed in this document for addressing a problem have been performed and a unit still is not working, handle the unit according to your local Sony Ericsson Representative.*

View of S500 and W580





Service functions in the software

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

⇒*←←*←*

The service menu options are:

Service info

Service Settings

Service tests

Text labels

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:

Main display

LED/illumination

Keyboard

Speaker

Earphone

Microphone

Vibrator

Camera

Accelerometer (W580 only)

Memory Stick

FM Radio (W580 only)

Real time clock

Total call time

Security


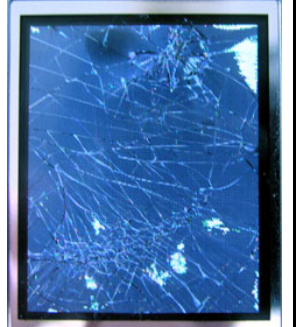


NOTE: Different names may occur depending on language setting and customization.

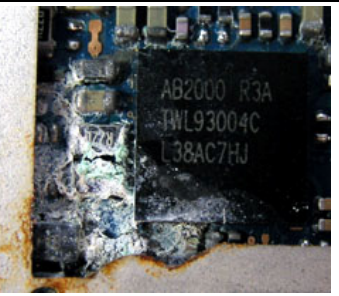
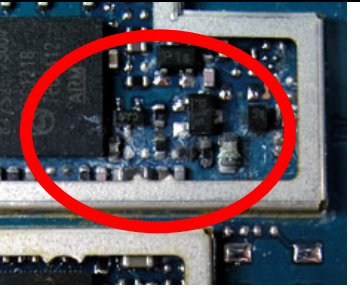
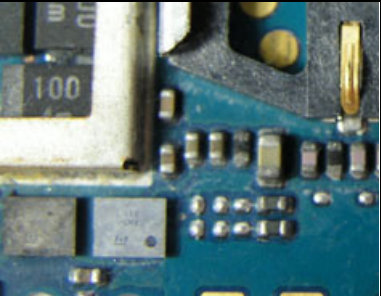
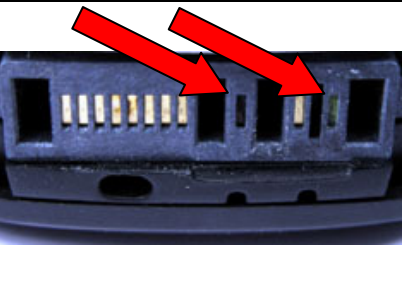


Misuse and other no warranty issues

A phone that is damaged due to misuse is not covered by warranty. This section shows many of the signs of misuse that are seen in the field. Please refer to local directives on how a phone that appears to be damaged due to misuse should be handled.

Below are some **examples** of damage due to misuse that are not covered by warranty.

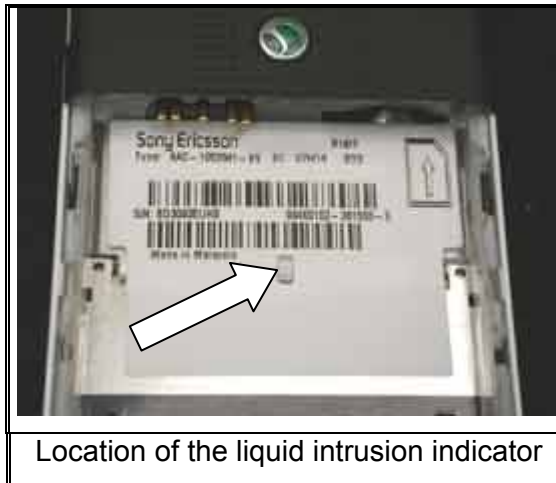
			
Front window broken due to misuse.	LCD cracked due to drop.	Clear scratches	Mark after drop

			
Corrosion components on the PCB.	Corrosion components on the PCB.	Components damaged by liquid	System connector damaged by liquid

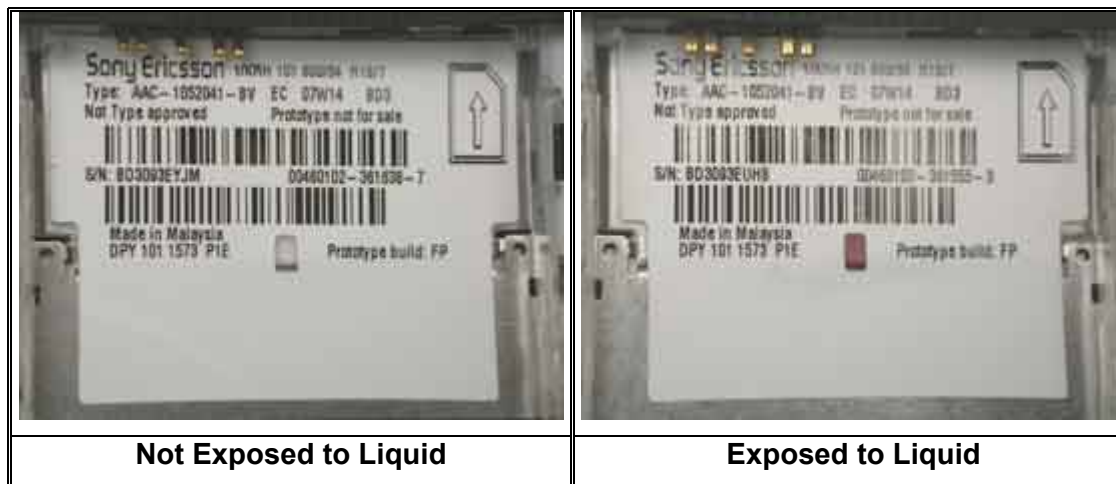


Liquid Damage Inspection

Before any tests are performed, an inspection of the liquid intrusion indicator should be made. If the liquid intrusion indicator is red, this is an indication of possible liquid exposure. If the liquid intrusion indicator suggests liquid exposure, please consult your local SEMC representative for handling instructions.


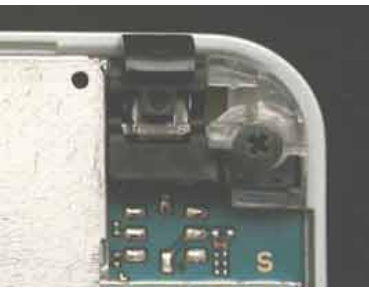


The following pictures show the difference between an indicator that has been in contact with liquid and one that has not.



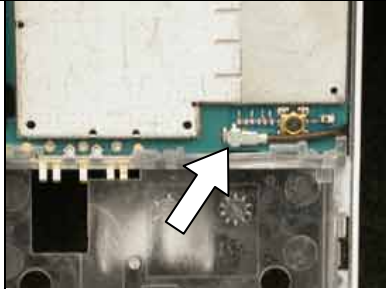



2 Power On/Off problems

Problem Area	Items to Inspect	Repair Action	Inspection Reference
Unit will not Power On	Check whether the phone vibrates when you press the power key and whether the navigation keypad illuminates 15 to 20 seconds after the phone vibrates	If activation of the vibrator and illumination of the navigation keypad are detected, refer to the "Display Problems" section	
	Inspect battery connector	<ul style="list-style-type: none"> • If dirty or oxidized, clean the connector's contact pins • If adhesive is detected on the contact pins, use an eraser to rub off the adhesive • If damaged, send to an electrical level repair location 	
	Inspect the power key and the power switch	<ul style="list-style-type: none"> • If debris is detected around the power key or between the power key and the power switch, clean the power key, the power switch and the surrounding area • If the power key is damaged, replace it • If the power switch is damaged, send to an electrical level repair location 	
	If the issue is still not resolved→	<ul style="list-style-type: none"> • Send to an electrical level repair location 	


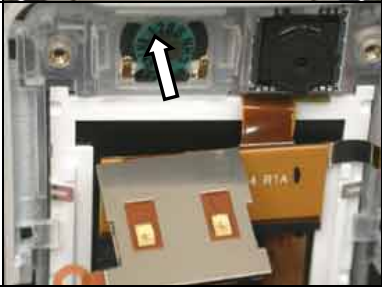
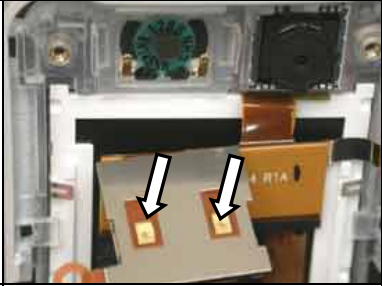


3 Network/Signal Problems



Problem Area	Items to Inspect	Repair Action	Inspection Reference
No Signal or Poor Signal	Inspect antenna coax cable-to-board connection (NOTE: Only use the coax removal tool to disconnect the antenna coax cable from the connector on the circuit board) Use 10Ncm when Rear Frame Screw are Installed	<ul style="list-style-type: none">• If the connector on the circuit board is damaged, send to an electrical level repair location• If the coax cable is damaged, replace the antenna coax cable and the antenna assembly	
	If the issue has not been resolved →	<ul style="list-style-type: none">• Replace the antenna coax cable and the antenna assembly, if they have not already been replaced.	
	If the issue is still not resolved→	<ul style="list-style-type: none">• Send to an electrical level repair location	




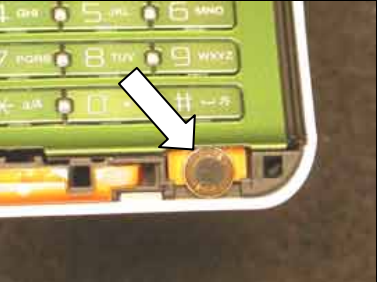
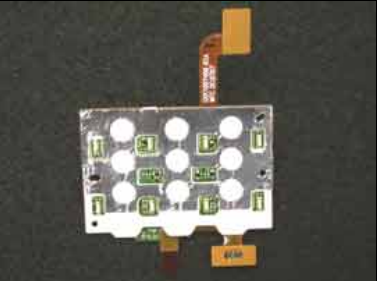
4 Audio Problems

Problem Area	Items to Inspect	Repair Action	Inspection Reference
Receiver: No sound or poor quality sound	Before proceeding →	<ul style="list-style-type: none"> Perform a setting reset 	
	Inspect the receiver's external port	<ul style="list-style-type: none"> If clogged or partially blocked – Clean the cloth of the external port. Try installing a front cover that provides proven good receiver sound quality. If the sound quality issue is resolved install a new front cover. 	
	Check the quality of the sound.	<ul style="list-style-type: none"> If the quality of the sound is still poor, then replace the receiver 	
	Inspect the two connections where the receiver connects to the bonzer flex	<ul style="list-style-type: none"> If the connection between the receiver and the bonzer flex are dirty or damaged – replace the bonzer flex 	
	If the issue is not resolved →	<ul style="list-style-type: none"> Send to an electrical level repair location 	




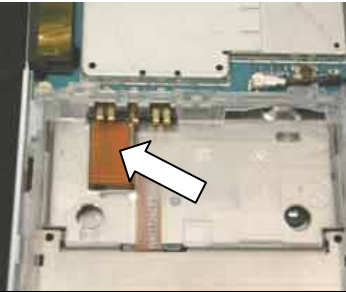

Problem Area	Items to Inspect	Repair Action	Inspection Reference
Polyphonic Speaker: No sound or poor quality sound	Before proceeding →	<ul style="list-style-type: none">Perform a setting reset	
	Inspect whether the rear speaker's external port is clogged	<ul style="list-style-type: none">If clogged – Replace the navigation keypad	
	If the issue is not resolved →	<ul style="list-style-type: none">Replace the bonzer flex	
	If the issue is still not resolved→	<ul style="list-style-type: none">Send to an electrical level repair location	





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 or replace the decorative chin cover 	
	Inspect the microphone	<ul style="list-style-type: none"> If dirty – Clean the microphone and replace the microphone grommet If damaged – Replace the microphone 	
	If the issue is not resolved →	<ul style="list-style-type: none"> Replace the microphone and microphone grommet, if they have not already been replaced 	
	If the issue is still not resolved→	<ul style="list-style-type: none"> Replace the keypad flex. 	
	If the issue is still not resolved→	<ul style="list-style-type: none"> Send to an electrical level repair location 	



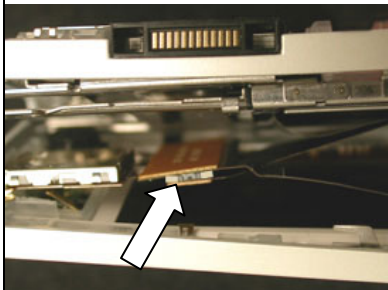


5 Key Problems

Problem Area	Items to Inspect	Repair Action	Inspection Reference
Keypad: A key on the keypad is not functioning or is intermittent	Perform the following action→	<ul style="list-style-type: none"> Replace the numeric keypad and the main keypad flex 	
	If the issue is still not resolved→	<ul style="list-style-type: none"> Send to an electrical level repair location 	
Entire keypad or a portion of the keypad is not functioning or is intermittent	Inspect the main keypad flex connection to hinge flex <i>(Refer to Appendix A for helpful inspection information)</i>	<ul style="list-style-type: none"> If the connector is improperly connected – Reestablish proper connection If the connection is dirty – Clean both halves of that connection If either half of the connection is damaged – replace the hinge assembly 	
	If the issue is not resolved→	<ul style="list-style-type: none"> Replace the hinge assembly, if it has not been replaced 	
	If the issue is still not resolved→	<ul style="list-style-type: none"> Send to an electrical level repair location 	


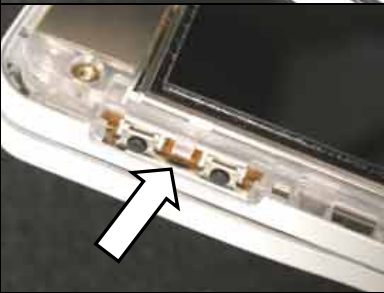



Problem Area	Items to Inspect	Repair Action	Inspection Reference
Navigation Keypad: A key on the navigation keypad is not functioning or is intermittent	Visually inspect for debris between and/or damage to the navigation keypad and its dome foil.	<ul style="list-style-type: none"> If dirty – Clean both parts If damaged – Replace the navigation keypad and/or the bonzer flex as necessary 	
	If the issue is not resolved→	<ul style="list-style-type: none"> Replace the bonzer flex, if it has not already been replaced 	
	If the issue is still not resolved→	<ul style="list-style-type: none"> Send to an electrical level repair location 	
Portions of the Navigation keypad are highly sensitive	Verify that either a shimmed keypad or front cover with shims is being used.	<ul style="list-style-type: none"> For S500: If there are no shims on the front cover and the keypad is not shimmed, add shims to the front cover. <p>NOTE: DO NOT USE A SHIMMED FRONT COVER WITH A SHIMMED KEYPAD. DAMAGE TO THE PHONE CAN OCCUR.</p> <ul style="list-style-type: none"> For W580: If there are no shims on the front cover, add shims. 	





Problem Area	Items to Inspect	Repair Action	Inspection Reference
Entire navigation keypad or a portion of the navigation keypad is not functioning or is intermittent	Inspect the bonzer/hinge flex connection NOTE: WHENEVER THE BONZER/ HINGE FLEX CONNECTION IS UNPLUGGED, THE TWO PIECES OF TAPE THAT HELP HOLD THE CONNECTION TOGETHER MUST BE REPLACED!	<ul style="list-style-type: none">If the connector is improperly connected, reestablish proper connection NOTE: MAKE SURE THAT THE TWO PIECES OF TAPE ARE PRESENT THAT HELP HOLD THE CONNECTION TOGETHER. ADD THE TAPE IF ONE OR BOTH PIECES OF THE TAPE ARE MISSING. <ul style="list-style-type: none">If the connection is dirty, clean both halves of that connectionIf either half of the connection is damaged, replace both the bonzer flex assembly and the hinge assembly	
	If the issue is not resolved→	<ul style="list-style-type: none">Replace bonzer flex assembly, if it has not already been replaced	
	If the issue is still not resolved→	<ul style="list-style-type: none">Replace hinge assembly, if it has not already been replaced	
	If the issue is still not resolved→	<ul style="list-style-type: none">Send to an electrical level repair location	



Problem Area	Items to Inspect	Repair Action	Inspection Reference
Volume key:	Inspect the volume key	<ul style="list-style-type: none">If dirty or damaged, replace the volume key	
	Inspect the volume switch on the bonzer flex assembly	<ul style="list-style-type: none">If damaged, replace the bonzer flex assembly	
	If the issue has not been resolved →	<ul style="list-style-type: none">Replace bonzer flex assembly if it has not already been replaced	
	If the issue is still not resolved →	<ul style="list-style-type: none">Send to an electrical level repair location	

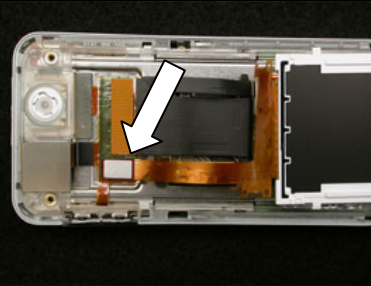
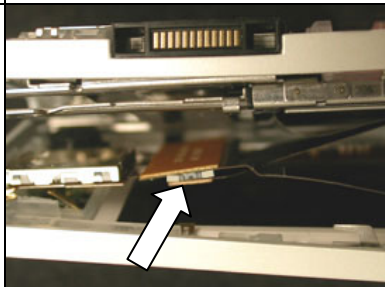


6 Random Menu Navigation


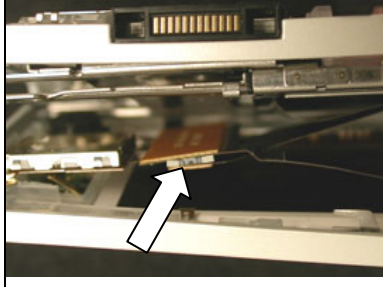

Problem Area	Items to Inspect	Repair Action	Inspection Reference
The phone randomly navigates through menus	Verify that either a shimmed keypad or front cover with shims is being used.	<ul style="list-style-type: none">For S500: If there are no shims on the front cover and the keypad is not shimmed, add shims to the front cover. <p>NOTE: DO NOT USE A SHIMMED FRONT COVER WITH A SHIMMED KEYPAD. DAMAGE TO THE PHONE CAN OCCUR.</p> <ul style="list-style-type: none">For W580: If there are no shims on the front cover, add shims.	 



7 Display Problems

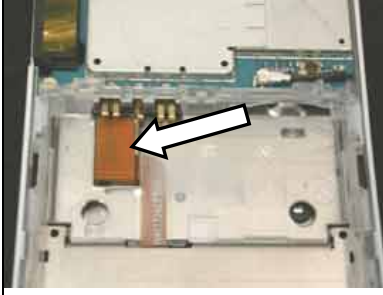

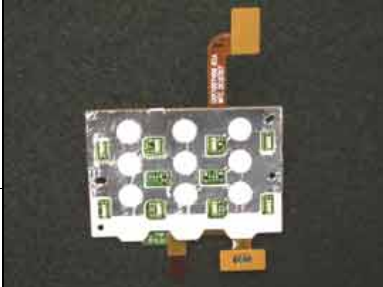
Problem Area	Items to Inspect	Repair Action	Inspection Reference
If display is not functioning	Check whether the phone vibrates when you press the power key and whether the navigation keypad illuminates 15 to 20 seconds after the phone vibrates	If activation of the vibrator and illumination of the navigation keypad are not detected , refer to the “Power Problems” section	
	Inspect the display flex film’s connection to the bonzer flex <i>(Refer to Appendix A for helpful inspection information)</i>	<ul style="list-style-type: none">• If improperly connected – establish proper connection• If dirty or oxidized – Clean both halves of the connection, using an ESD brush• If the display’s portion of the connection is damaged – replace the LCD assembly• If the portion of the connection on the bonzer flex is damaged – replace the bonzer flex	
	Visually inspect the bonzer/hinge flex connection for a proper connection NOTE: WHENEVER THE BONZER/HINGE FLEX CONNECTION IS UNPLUGGED, THE TWO PIECES OF TAPE THAT HELP HOLD THE CONNECTION TOGETHER MUST BE REPLACED!	<ul style="list-style-type: none">• If the connector is improperly connected, reestablish proper connection NOTE: MAKE SURE THAT THE TWO PIECES OF TAPE ARE PRESENT THAT HELP HOLD THE CONNECTION TOGETHER. ADD THE TAPE IF ONE OR BOTH PIECES OF THE TAPE ARE MISSING.	



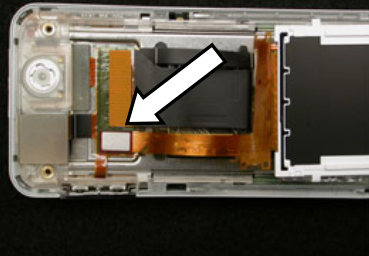

Problem Area	Items to Inspect	Repair Action	Inspection Reference
If display is not functioning (Cont)	If the issue has not been resolved →	<ul style="list-style-type: none">Replace the LCD assembly if it has not been replaced	
	If the issue is still not resolved →	<ul style="list-style-type: none">Check the bonzer/hinge flex connection for dirt or damage<ul style="list-style-type: none">* If the connection is dirty, clean both halves of that connection* If either half of the connection is damaged, replace both the bonzer flex assembly and the hinge assembly	
	If the issue is still not resolved →	<ul style="list-style-type: none">Replace the bonzer flex if it has not been replaced	
	If the issue is still not resolved →	<ul style="list-style-type: none">Send to an electrical level repair location	
Display is not Illuminating properly	Refer to the "Illumination Problems" section of this document		



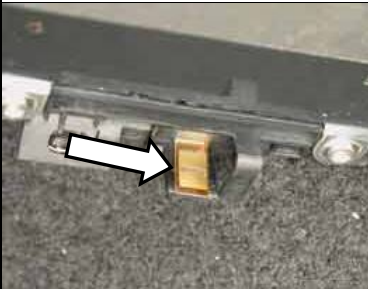

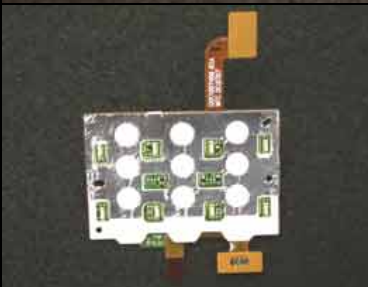
8 Illumination Problems

Problem Area	Items to Inspect	Repair Action	Inspection Reference
Keypad Illumination: The entire keypad will not illuminate	Before proceeding →	<ul style="list-style-type: none"> Perform a setting reset 	
	Inspect the main keypad flex connection to hinge flex <i>(Refer to Appendix A for helpful inspection information)</i>	<ul style="list-style-type: none"> If the connector is improperly connected – Reestablish proper connection If the connection is dirty – Clean both halves of that connection If either half of the connection is damaged – replace the hinge assembly 	
	If the issue is not resolved→	<ul style="list-style-type: none"> Replace the hinge assembly, if it has not been replaced 	
Keypad Illumination: A portion of the keypad does not illuminate	If the issue is still not resolved→	<ul style="list-style-type: none"> Send to an electrical level repair location 	
	Perform the following action →	<ul style="list-style-type: none"> Replace the keypad flex assembly 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> Send to an electrical level repair location 	





Problem Area	Items to Inspect	Repair Action	Inspection Reference
Display Illumination:	Before proceeding →	<ul style="list-style-type: none">Perform a setting reset	
	Inspect the display flex film's connection to the bonzer flex <i>(Refer to Appendix A for helpful inspection information)</i>	<ul style="list-style-type: none">If improperly connected – establish proper connectionIf dirty or oxidized – Clean both halves of the connectionIf the display's portion of the connection is damaged – replace the LCD assemblyIf the portion of the connection on the bonzer flex is damaged – replace the bonzer flex	
	If the issue has not been resolved →	<ul style="list-style-type: none">Replace the LCD assembly if it has not been replaced	
	If the issue is still not resolved →	<ul style="list-style-type: none">Send to an electrical level repair location	

9 Alert Problems


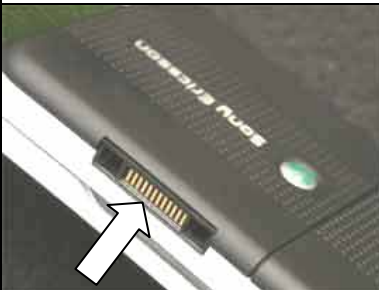
Problem Area	Items to Inspect	Repair Action	Inspection Reference
Vibrator:	Before proceeding →	<ul style="list-style-type: none"> Perform a setting reset 	
	Inspect the vibrator contact pads on the main keypad flex assembly	<ul style="list-style-type: none"> If dirty, clean If damaged, replace the main keypad flex 	
	Perform the following action →	<ul style="list-style-type: none"> Replace the vibrator 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> Replace the main keypad flex if it has not already been replaced 	
	If the issue is still not resolved →	<ul style="list-style-type: none"> Send to an electrical level repair location 	



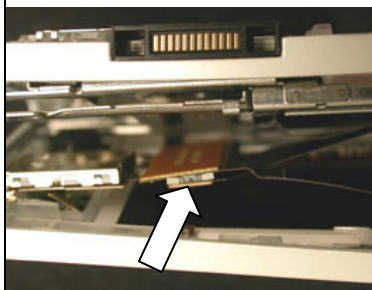

Problem Area	Items to Inspect	Repair Action	Inspection Reference
Polyphonic Speaker: No sound or poor quality sound	Before proceeding → Inspect whether the rear speaker's external port is clogged	<ul style="list-style-type: none">• Perform a setting reset• If clogged, replace the navigation keypad	
	If the issue is not resolved →	<ul style="list-style-type: none">• Replace the bonzer flex	
	If the issue is still not resolved→	<ul style="list-style-type: none">• Send to an electrical level repair location	



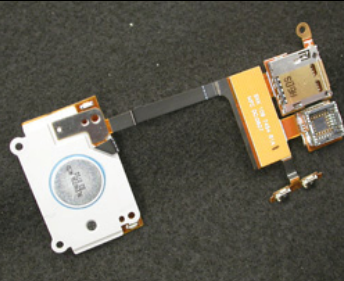


10 Charging/Capacity Problems

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 the connector's contact pins, using an ESD brush. If adhesive is detected on the contact pins, use an eraser to rub off the adhesive If damaged, send to an electrical level repair location 	
	Inspect the system connector	<ul style="list-style-type: none"> If dirty or oxidized, clean the connector's contacts If damaged, replace the system connector 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> Replace the system connector if it has not been replaced 	
	If the issue is still not resolved →	<ul style="list-style-type: none"> Send to an electrical level repair location 	

11 SIM Problems

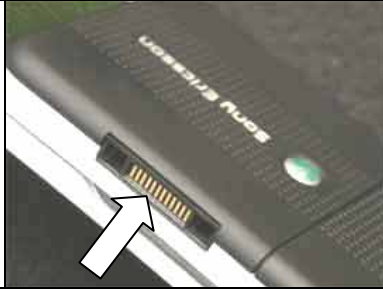
Problem Area	Items to Inspect	Repair Action	Inspection Reference
SIM undetected	Inspect the bonzer flex's connection to hinge flex	<ul style="list-style-type: none"> • If the connector is improperly connected – Reestablish proper connection • If the connection is dirty – Clean both halves of that connection, using an ESD brush. • If either half of the connection is damaged – replace both the bonzer flex assembly and the hinge assembly 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> • Replace the bonzer flex, if it has not been replaced 	
	If the issue is still not resolved →	<ul style="list-style-type: none"> • Send to an electrical level repair location 	
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 	

12 Memory Card Problems

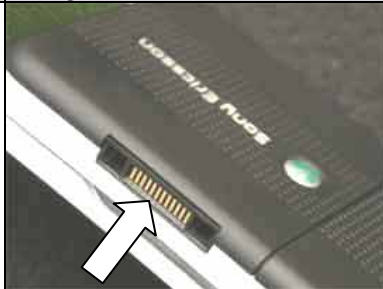
Problem Area	Items to Inspect	Repair Action	Inspection Reference
Memory card undetected	Inspect memory card reader	<ul style="list-style-type: none"> If dirty or oxidized, clean, using an ESD brush. If damaged, replace bonzer flex 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> Replace bonzer flex 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> Escalate to an electrical repair level 	
Memory card hard to access	Inspect seating of memory card holder	<ul style="list-style-type: none"> If out of alignment, reposition the memory card holder 	 






13 Data Transfer Problems using a Data Cable

Problem Area	Items to Inspect	Repair Action	Inspection Reference
Problem transferring data using a direct connection	Inspect the system connector	<ul style="list-style-type: none"> If dirty or oxidized, clean the connector's contacts, using an ESD brush. If damaged, replace the system connector 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> Replace the system connector, if it has not been replaced 	
	If the issue is still not resolved→	<ul style="list-style-type: none"> Send to an electrical level repair location 	

14 Hands-Free Problems

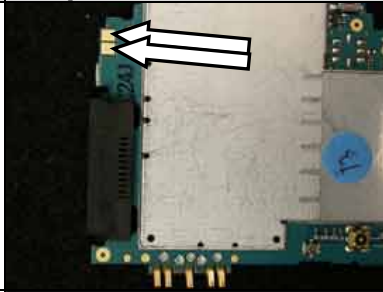
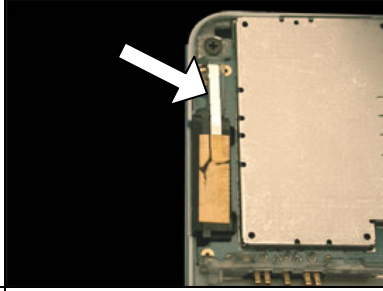
Problem Area	Items to Inspect	Repair Action	Inspection Reference
Hands-free not working	Inspect the system connector	<ul style="list-style-type: none"> If dirty or oxidized, clean the connector's contacts, using an ESD brush. If damaged, replace the system connector 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> Replace the system connector if it has not been replaced 	
	If the issue is still not resolved→	<ul style="list-style-type: none"> Send to an electrical level repair location 	

15 Camera Problems

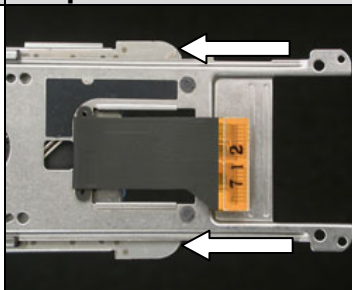
Problem Area	Items to Inspect	Repair Action	Inspection Reference
Lines or marks in picture	Visually inspect the camera window	<ul style="list-style-type: none"> If dirty, clean the camera window If scratched or damaged, replace the camera cover 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> Replace the bonzer flex 	
	If the issue is still not resolved→	<ul style="list-style-type: none"> Send to an electrical level repair location 	
Camera not functioning properly	Perform the following action →	<ul style="list-style-type: none"> Replace the bonzer flex 	
	If the issue has not been resolved→	<ul style="list-style-type: none"> Send to an electrical level repair location 	



16 Bluetooth Problems

Problem Area	Items to Inspect	Repair Action	Inspection Reference
Will not connect with a functional Bluetooth device	Inspect the Bluetooth antenna contact pads on the circuit board	<ul style="list-style-type: none">If dirty or oxidized – Clean the contact pads on the circuit board, using an ESD brush.If damaged – Send to a repair location allowed to perform electrical repairs on this product	
	Inspect the Bluetooth antenna spring fingers	<ul style="list-style-type: none">If damaged, replace the Bluetooth antenna	
	If the issue has not been resolved →	<ul style="list-style-type: none">Replace the Bluetooth antenna, if it has not already been replaced	
	If the issue is still not resolved→	<ul style="list-style-type: none">Send to an electrical level repair location	

17 Phone Opening/Closing Problems

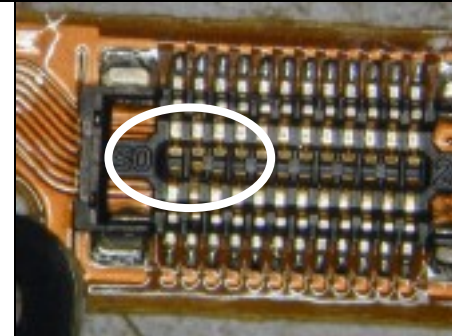
Problem Area	Items to Inspect	Repair Action	Inspection Reference
Phone does not slide open/closed smoothly	Inspect the hinge assembly.	<ul style="list-style-type: none"> If the sliding mechanism is dirty, clean with isopropyl alcohol If the Teflon tape is damaged, replace the hinge assembly 	
	If the issue has not been resolved →	<ul style="list-style-type: none"> Replace the hinge assembly 	



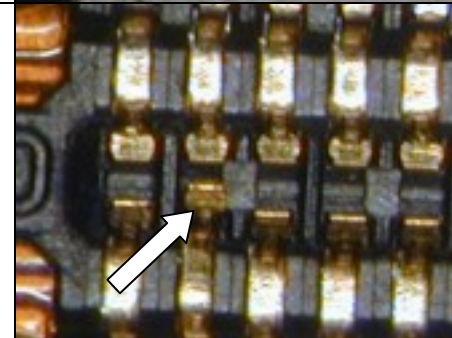
A Appendix - Inspecting LCD and Keypad Flex Film Connections

It is easy to over look a bent pin on the flex film connection used to connect the LCD to the bonzer flex or the keypad flex to the hinge flex which could be the cause of a phone not working properly. Due to the design of the flex film connection used to connect the LCD and the Keypad flex, all of the pins on the male half of the connection move in such a way that a bent pin will not appear to be shorted, but shorts once the connection is made. See the example below for further clarification. This kind of damage can be very difficult to see without the assistance of magnifying device.

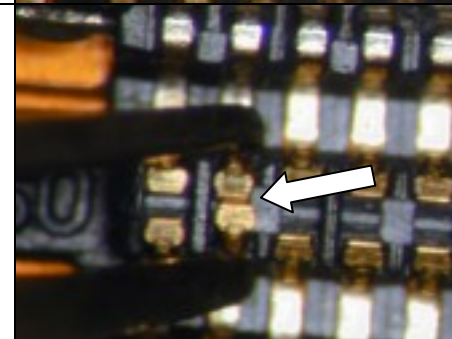
One of the pins on this connector is damaged.



This is a zoomed in view of the pin.



When the mating plug is inserted, all of the pins move. In this picture, the tweezers simulate the plug insertion and show the bent pin making contact with another pin.



Revision History

Rev.	Date	Changes / Comments
1	May 18, 2007	Initial Release
2	July 12, 2007	<ul style="list-style-type: none">Updated sections that were affected by the addition of the bonzer/hinge connector tape.Updated the picture showing the LCD connection to the bonzer flex
3	October 5, 2007	<ul style="list-style-type: none">Added replacement of keypad flex to microphone troubleshooting.Added phone opening/closing problems section.Added memory card problems section.
4	October 9, 2007	<ul style="list-style-type: none">Added the keypad sensitivity issue to Key Problems sectionAdded a "Random Menu Navigation" section
5	February 8, 2008	<ul style="list-style-type: none">Updated the camera problems section
6	April 22, 2008	<ul style="list-style-type: none">Updated the receiver port portion of the receiver audio problems section
7	August 14, 2008	<ul style="list-style-type: none">Added appendix and Inspecting LCD and Keypad Flex Film Connections section to appendix
8	2009-06-23	<ul style="list-style-type: none">Added to network/signal problems <i>Use 10Ncm when Rear Frame Screw are Installed</i>
9	2009-11-23	<ul style="list-style-type: none">The document has been revised and audio problem section is updated