

Trouble Shooting Guide, Mechanical

Applicable for W850

Contents

| | | |
|-----------|---|-----------|
| 1 | General | 2 |
| 1.1 | Service functions in the software | 2 |
| 1.2 | Misuse and other no warranty issues | 3 |
| 2 | Appearance Problems..... | 6 |
| 3 | Network/Signal Problems | 8 |
| 4 | On/Off Problems | 11 |
| 5 | Audio Problems | 13 |
| 6 | Key Problems..... | 18 |
| 7 | Slider Problems | 24 |
| 8 | Display Problems | 25 |
| 9 | Illumination Problems | 29 |
| 10 | Alert Problems | 30 |
| 11 | SIM Problems | 31 |
| 12 | Charging/Capacity Problems | 32 |
| 13 | Camera Problems | 34 |
| 14 | Data Communication Problems | 40 |
| 15 | Software Problems | 41 |
| 16 | Revision History | 42 |

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 navigation keys $\Rightarrow^* \Leftarrow^* \Leftarrow^* \Leftarrow^*$

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 2 above) It looks like this:

Main display

LED/illumination

Keyboard

Speaker

Earphone

Microphone

Vibrator

Camera

Flash LED

Video call camera

Memory Stick

FM Radio

Real time clock

Total call time

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

1.2 Misuse and other no warranty issues


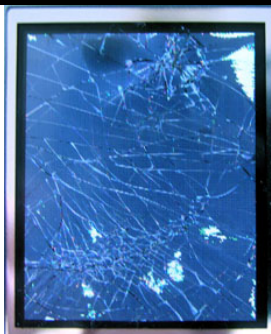


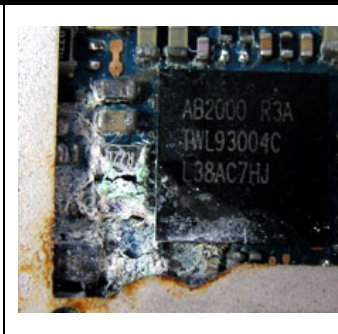
Misuse is not covered by warranty. This chapter will explain what's not covered by warranty. Phones that have been exposed to misuse will not be covered by warranty.

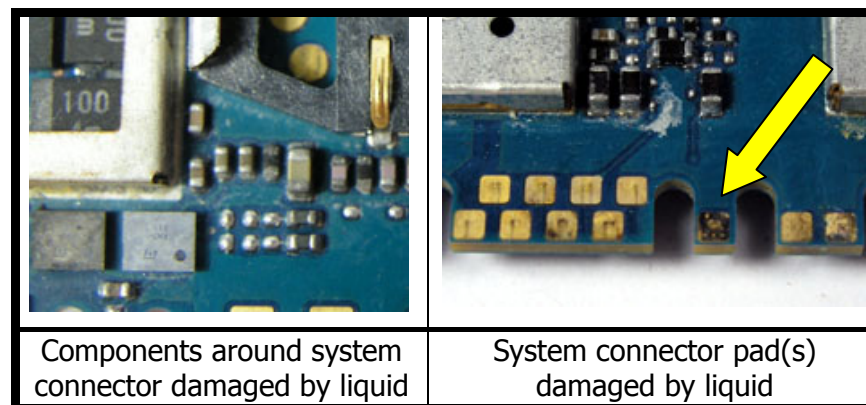
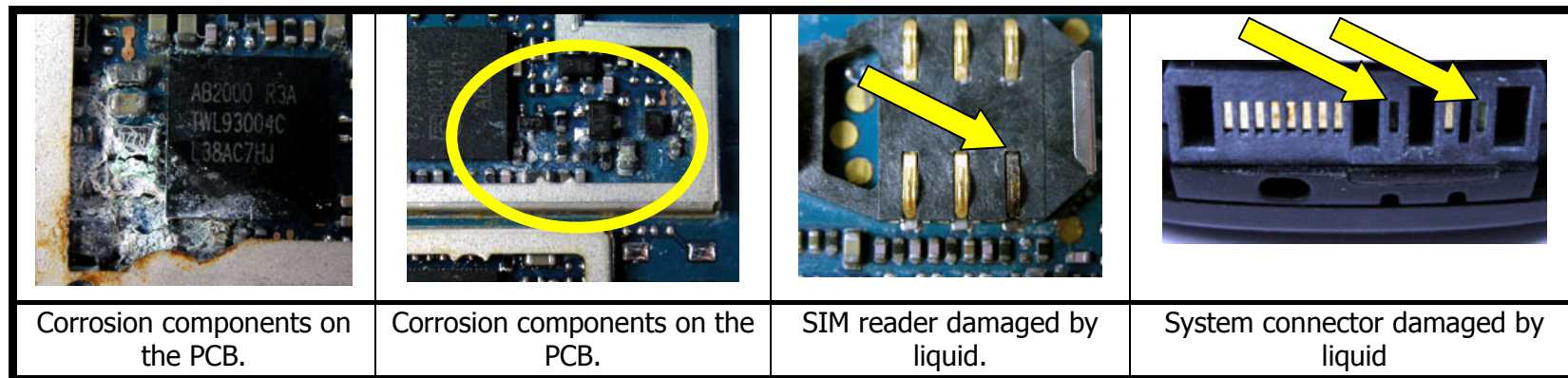
This means: if it is possible to repair the phone, the customer will have to pay for the repair. SEMC will not allow any of these phones to be claimed into WCMS. Some local perspectives may interfere with this. Please reference to local directives.

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 PCB. |



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.

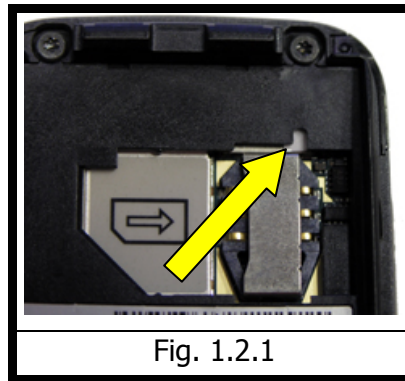
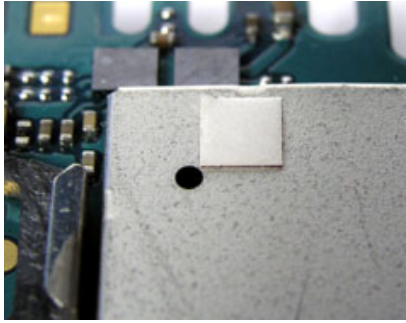
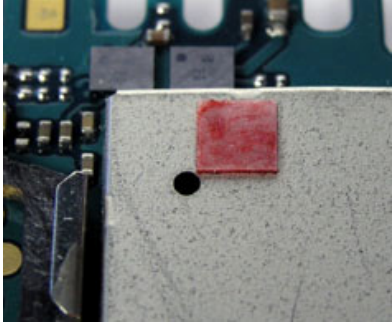


Fig. 1.2.1


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 | 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 (See point 1.1.1).</p> <p>Note: There must be clear marks after liquid on the PCB before rejecting the phone for repair.</p> |
| Fig. 1.2.2 | Fig. 1.2.3 | |




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.


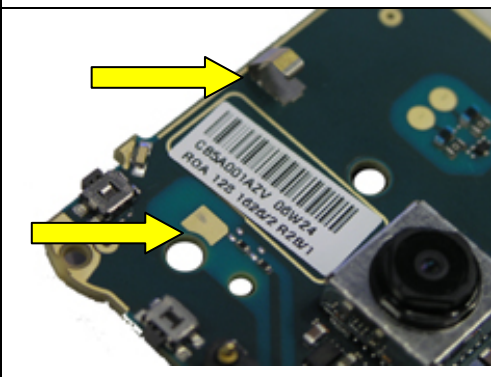
2 Appearance Problems

| 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 damage 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. | |

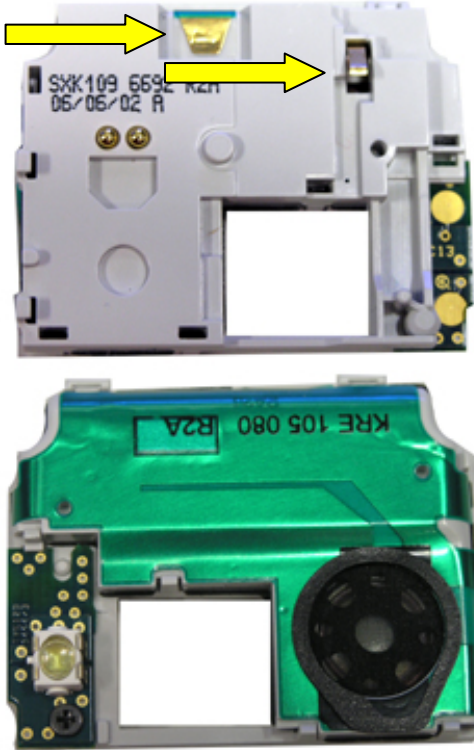
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| Problem Area | Items to Check | Repair Action | Reference Image |
|--------------|----------------|---------------|--|
| | | |    |

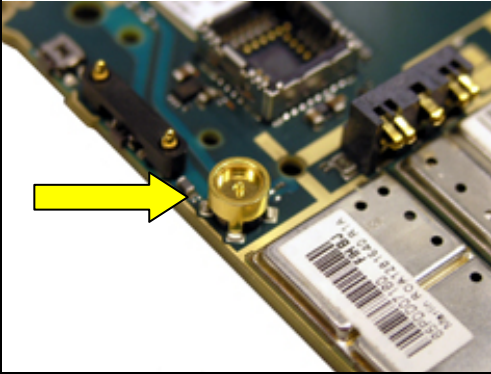
3 Network/Signal Problems

| Problem Area | Items to Check | Repair Action | Reference Image |
|--------------------------|--|---|--|
| | Before proceeding → | <ul style="list-style-type: none"> Do software update content refresh. <p>Note: this problem will not be solved by a regular software update.</p> <p>Note: Software Update Content Refresh will erase all user data.</p> | |
| No Signal or Poor Signal | Visually inspect SIM holder | <ul style="list-style-type: none"> If dirty or oxidized – Clean it If damaged – Send to electrical repair. |  |
| | Visually inspect antenna contact pads and the antenna connector. | <ul style="list-style-type: none"> If dirty or oxidized – Clean the pads and replace the antenna assembly. <p>Note: Do not bend the antenna connector.</p> |  |


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| Problem Area | Items to Check | Repair Action | Reference Image |
|--------------|--------------------------------------|--|--|
| | Visually inspect antenna | <ul style="list-style-type: none"> If dirty, oxidized or damaged – Replace it. |  |
| | If the issue has not been resolved → | <ul style="list-style-type: none"> Handle the unit according to local directives. | |



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| Problem Area | Items to Check | Repair Action | Reference Image |
|--|---|---|---|
| No signal when using external antenna (ex. Hands free in car). | Connect the phone to a handsfree car kit connected with external antenna. Visually inspect the antenna bar on the phone. | <ul style="list-style-type: none"> If no or only very less signal – Push the middle pin of the ext. antenna connector a few times <p>Note: Take care not to scratch the gold surface.</p> |  |
| | If the issue has not been resolved → | <ul style="list-style-type: none"> Handle the unit according to local directives. | |



4 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 activation of the vibrator or keypad are detected, refer to the “Display Problems” chapter 7 | |
| | Before proceeding → | <ul style="list-style-type: none"> Do software update content refresh. <p>Note: this problem will not be solved by a regular software update.</p> <p>Note: Software Update Content Refresh will erase all user data.</p> | |
| | Cannot be power on, Cannot be detected on USB cable on EMMA III. | <ol style="list-style-type: none"> Log on to EMMA as usual. Use SEPI A1 with power charger attached. Press keys 2 and 5 when you connect the phone. | |
| | Visually inspect contact pads on battery | <ul style="list-style-type: none"> If dirty or oxidized – Clean pads. If damaged – Replace the battery. |  |


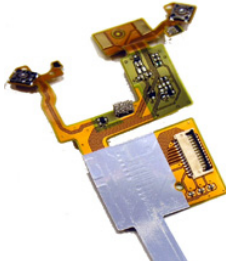
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| Problem Area | Items to Check | Repair Action | Reference Image |
|--------------|--------------------------------------|--|---|
| | Visually inspect battery connector | <ul style="list-style-type: none"> If dirty or oxidized – Clean it. <p>Note: Take care not to bend the connector pin's</p> <ul style="list-style-type: none"> If damaged – Send to an electrical repair location. |  |
| | Visually inspect the power key | <ul style="list-style-type: none"> If damaged – Replace on/off key. |  |
| | If the issue has not been resolved → | <ul style="list-style-type: none"> Handle the unit according to local directives. | |

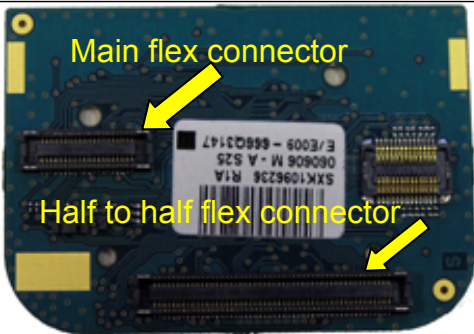

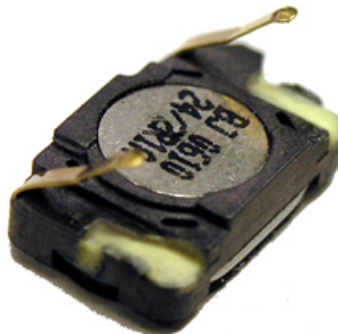
5 Audio Problems

| Problem Area | Items to Check | Repair Action | Reference Image |
|--------------------|---|--|--|
| Microphone: | Before proceeding → | <ul style="list-style-type: none"> Do software update content refresh. <p>Note: this problem will not be solved by a regular software update.</p> <p>Note: Software Update Content Refresh will erase all user data.</p> | |
| | Visually inspect the microphone's external port | <ul style="list-style-type: none"> If clogged – Clean. <p>Note: It can easily happen that the customer blocks the microphone port with their hand. If no fault found. Please inform the customer where the port is and that it is important not to cover it during calls</p> |  |
| | If the issue has not been resolved → | <ul style="list-style-type: none"> Replace microphone and microphone grommet. |  |
| | If the issue has not been resolved → | <ul style="list-style-type: none"> Handle the unit according to local directives. | |


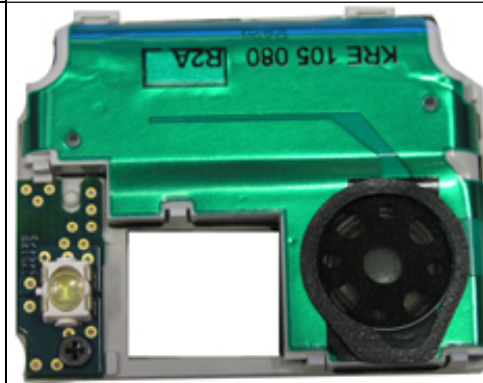
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| Problem Area | Items to Check | Repair Action | Reference Image |
|--|--|---|--|
| Receiver (earphone): No sound or poor quality sound | Before proceeding → | <ul style="list-style-type: none"> Do software update content refresh. <p>Note: this problem will not be solved by a regular software update.</p> <p>Note: Software Update Content Refresh will erase all user data.</p> | |
| | Visually inspect receiver's external port | <ul style="list-style-type: none"> If clogged – Clean or replace front. |  |
| | Visually inspect whether the main flex film is properly connected to its connector on the navigation key foil assy | <ul style="list-style-type: none"> If improperly connected – Re-establish proper connection. If main flex is damaged – replace it. |  |

Trouble Shooting Guide, Mechanical

| Problem Area | Items to Check | Repair Action | Reference Image |
|--------------|--|--|--|
| | Visually inspect whether the half to half flex film is properly connected to its connector on the navigation key foil assy and the PCB | <ul style="list-style-type: none"> • If improperly connected – Re-establish proper connection. • If half to half flex is damage – Replace it. • If BtB connector on the PCB is damaged - Send to electrical repair. |  <p>Main flex connector</p> <p>Half to half flex connector</p>  |
| | If the issue has not been resolved → | <ul style="list-style-type: none"> • Replace receiver |  |


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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"> Handle the unit according to local directives. | |
| Loudspeaker: No sound or poor quality sound | Before proceeding → | <ul style="list-style-type: none"> Do software update content refresh. <p>Note: this problem will not be solved by a regular software update.</p> <p>Note: Software Update Content Refresh will erase all user data.</p> | |
| | Visually inspect loudspeaker's external port | <ul style="list-style-type: none"> If clogged – Clean it. |  |
| | If the issue has not been resolved → | <ul style="list-style-type: none"> Replace loudspeaker box. |  |

Trouble Shooting Guide, Mechanical


| 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. | |

6 Key Problems


| Problem Area | Items to Check | Repair Action | Reference Image |
|---|---|---|--|
| Keyboard Numeric: A key on the main keyboard (1.2.3...) is not functioning or is intermittent | Visually inspect for debris between keypad and numeric key foil assy, and for damage to the keypad and the numeric key foil assy. | <ul style="list-style-type: none"> If damaged - Replace keypad and/or key foil assy as necessary. |  |
| | If the issue has not been resolved → | <ul style="list-style-type: none"> Replace keypad numeric and/or key foil assy, if it has not already been replaced. | |
| | If the issue has not been resolved → | <ul style="list-style-type: none"> Handle the unit according to local directives. | |

| Problem Area | Items to Check | Repair Action | Reference Image |
|--|---|---|---|
| Keyboard Navigation: A key on the sub keyboard (navi keys) is not functioning or is intermittent | Visually inspect for debris between keypad and navigation key foil assy, and for damage to the keypad and the navigation key foil assy. | <ul style="list-style-type: none"> If damaged - Replace keypad and/or navigation key foil assy as necessary. |  |

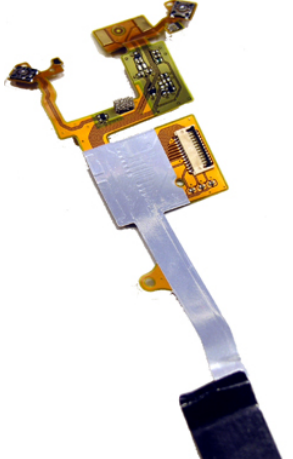
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| Problem Area | Items to Check | Repair Action | Reference Image |
|--------------|--|--|---|
| | Visually inspect whether the main flex film is properly connected to its connector on both PCB's | <ul style="list-style-type: none"> • If improperly connected – Re-establish proper connection. • If main flex is damage – Replace it. • If any of the BtB connector on the navigation key foil assy are damaged – Replace navigation key foil assy. |  |

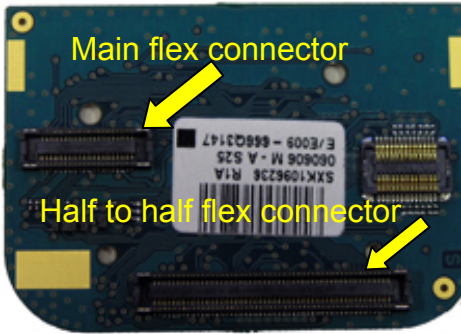

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| Problem Area | Items to Check | Repair Action | Reference Image |
|--------------|--------------------------------------|---|--|
| | If the issue has not been resolved → | <ul style="list-style-type: none"> Replace keypad, key foil assy and/or navigation key foil assy, if it has not already been replaced. |  |
| | If the issue has not been resolved → | <ul style="list-style-type: none"> Handle the unit according to local directives. | |

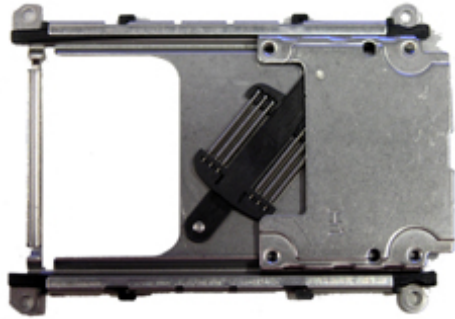

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| Problem Area | Items to Check | Repair Action | Reference Image |
|-----------------------|--|---|---|
| A & B keys | Visually inspect whether the main flex film is properly connected to its connector on the navigation key foil assy | <ul style="list-style-type: none"> • If improperly connected – Re-establish proper connection. • If main flex is damage – replace it. |  |

Trouble Shooting Guide, Mechanical

| Problem Area | Items to Check | Repair Action | Reference Image |
|--------------|--|---|--|
| | Visually inspect whether the half to half flex film is properly connected to its connector on the navigation key foil assy and the PCB | <ul style="list-style-type: none"> • If improperly connected – Re-establish proper connection. • If half to half flex is damage – Replace it. • If any of the BtB connector on the navigation key foil assy are damaged – Replace navigation key foil assy. • If BtB connector on the PCB is damaged - Send to electrical repair. |   |
| | If the issue has not been resolved → | <ul style="list-style-type: none"> • Handle the unit according to local directives. | |



7 Slider Problems

| Problem Area | Items to Check | Repair Action | Reference Image |
|---|--|---|--|
| Slider The slider can not open or close | Inspect whether the slider open and close properly | <ul style="list-style-type: none"> • If there are any problems – replace the slider • |  |
| | If the display do not change when open or close | <ul style="list-style-type: none"> • If damaged – Replace it |  |
| | If the issue has not been resolved → | <ul style="list-style-type: none"> • Handle the unit according to local directives. | |



8 Display Problems

| Problem Area | Items to Check | Repair Action | Reference Image |
|--------------|---|---|-----------------|
| | 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 4 | |
| | Before proceeding → | <ul style="list-style-type: none"> Do software update content refresh. <p>Note: this problem will not be solved be a regular software update.</p> <p>Note: Software Update Content Refresh will erase all user data.</p> | |


Trouble Shooting Guide, Mechanical

| Problem Area | Items to Check | Repair Action | Reference Image |
|----------------|--|---|--|
| Display | Visually inspect whether the LCD flex film is properly connected to its connector on the navigation keyfoil assy | <ul style="list-style-type: none"> • If improperly connected – Re-establish proper connection. • If damage – Replace navigation keyfoil assy or display as necessary. |   |

Trouble Shooting Guide, Mechanical

| Problem Area | Items to Check | Repair Action | Reference Image |
|--------------|--|--|---|
| | Visually inspect whether the half to half flex film is properly connected to its connector on both PCB's | <ul style="list-style-type: none"> • If improperly connected – Re-establish proper connection. • If half to half flex is damage – replace it. • If Half to half BtB connector is damaged – Replace navigation keyfoil assy. |   |

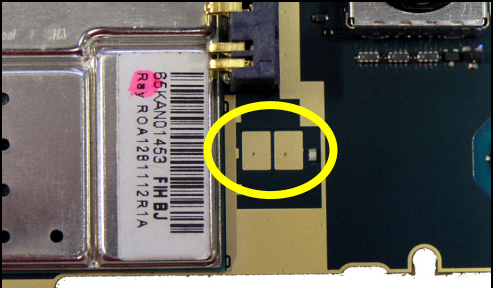

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| Problem Area | Items to Check | Repair Action | Reference Image |
|--------------|--------------------------------------|---|---|
| | If the issue has not been resolved → | <ul style="list-style-type: none"> Replace the main LCD. <p>NOTE: Misuse is not covered by warranty. Refer to chapter 1.2</p> |  |
| | If the issue has not been resolved → | <ul style="list-style-type: none"> Handle the unit according to local directives. | |


9 Illumination Problems

| Problem Area | Items to Check | Repair Action | Reference Image |
|------------------------------|--|---|-----------------|
| | Before proceeding → | <ul style="list-style-type: none"> Do software update content refresh. <p>Note: this problem will not be solved by a regular software update.</p> <p>Note: Software Update Content Refresh will erase all user data.</p> | |
| LCD illumination | Refer to “ Display ” section under “Display Problems” | | |
| Key numeric illumination: | Refer to “ Keyboard numeric ” section under “Key Problems” | | |
| Key navigation illumination: | Refer to “ Keyboard navigation ” section under “Key Problems” | | |



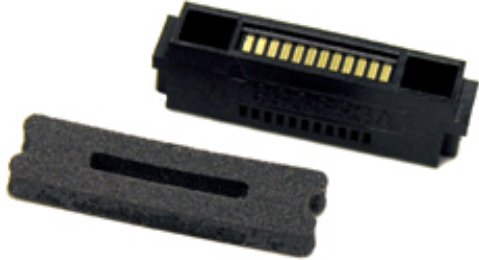
10 Alert Problems

| Problem Area | Items to Check | Repair Action | Reference Image |
|--------------------|--|---|--|
| Vibrator: | Before proceeding → | <ul style="list-style-type: none"> Do software update content refresh. <p>Note: this problem will not be solved by a regular software update.</p> <p>Note: Software Update Content Refresh will erase all user data.</p> | |
| | Visually inspect the vibrator pads on the PCB | <ul style="list-style-type: none"> If dirty or oxidized – Clean them. |  |
| | Visually inspect the vibrator | <ul style="list-style-type: none"> If dirty or oxidized – Replace it. If damaged – Replace it. |  |
| Loudspeaker | Refer to “loudspeaker” section under “Audio Problems” | | |


11 SIM Problems

| Problem Area | Items to Check | Repair Action | Reference Image |
|---|---|--|---|
| SIM undetected (Insert SIM) | Visually inspect SIM holder | <ul style="list-style-type: none"> If dirty, oxidized or damaged – Replace it. |  |
| 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 | <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 the unit according to local directives. | |



12 Charging/Capacity Problems

| Problem Area | Items to Check | Repair Action | Reference Image |
|-------------------------|--|--|---|
| Battery will not charge | Visually inspect the contact pads of the battery | <ul style="list-style-type: none"> If dirty or oxidized – Clean. If damaged – Replace battery. |  |
| | Visually inspect the battery connector | <ul style="list-style-type: none"> If dirty or oxidized – Clean. If damaged – Send to an electrical repair location. |  |
| | Visually inspect the system connector | <ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged – replace it. <p>Note: Remember to put back the dust gasket system connector before the system connector</p> |  |



Trouble Shooting Guide, Mechanical

| | | | |
|---|--|--|---|
| | If the issue has not been resolved → | <ul style="list-style-type: none"> Handle the unit according to local directives. | |
| Battery loses charge quickly/ standby time seems short | Before proceeding → Note: Some features noticeably reduce the amount of standby time if they are turned on. Some examples are the back light (when on all the time), Bluetooth and infrared. | <ul style="list-style-type: none"> Do software update content refresh. Note: this problem will not be solved by a regular software update. Note: Software Update Content Refresh will erase all user data. | |
| | If the issue has not been resolved → | <ul style="list-style-type: none"> Replace battery. |  |
| | If the issue has not been resolved → | <ul style="list-style-type: none"> Handle the unit according to local directives. | |

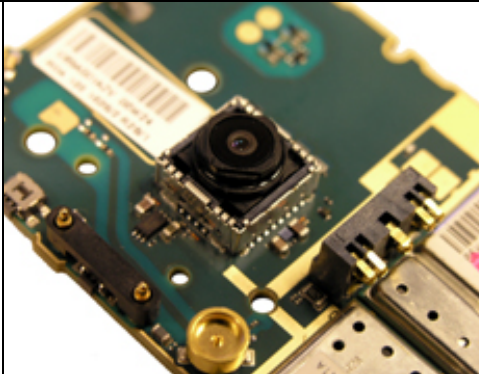

13 Camera Problems

| Problem Area | Items to Check | Repair Action | Reference Image |
|---|---|---|--|
| Camera rear (Mega pixels) Lines, marks, blurred or discolored picture/ Will not enter camera menu | Visually inspect the camera lens | <ul style="list-style-type: none"> If scratched or damaged – Replace upper case rear. |  |
| | Visually inspect whether the camera is properly connected to its socket on the PCB. | <ul style="list-style-type: none"> If improperly connected – Re-establish proper connection. If camera socket is damaged – Send to electrical repair. |  |


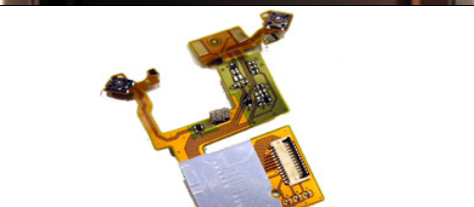
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| Problem Area | Items to Check | Repair Action | Reference Image |
|---------------------------|--|--|--|
| | If the issue has not been resolved → | <ul style="list-style-type: none"> Replace the camera rear. <p>Note: Remember to put back the camera rubber when replacing the camera.</p> |  |
| | If the issue has not been resolved → | <ul style="list-style-type: none"> Handle the unit according to local directives. | |
| Will not capture an image | Visually inspect for damage to the camera keys | <ul style="list-style-type: none"> If damaged – Replace them. |  |

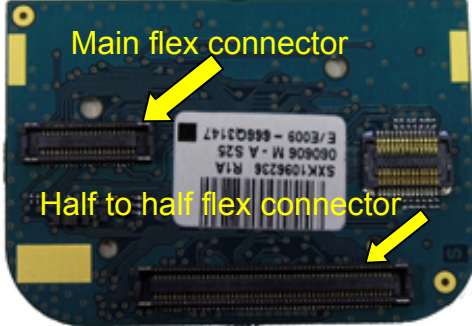

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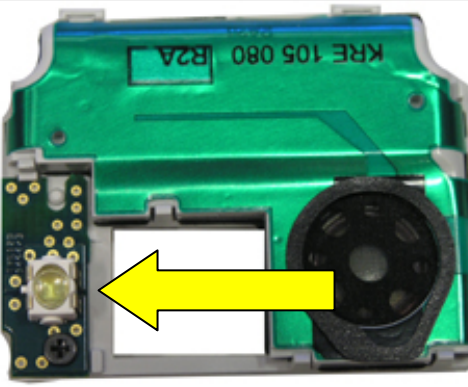
| Problem Area | Items to Check | Repair Action | Reference Image |
|--------------|---|--|--|
| | Visually inspect whether the camera is properly connected to its socket on the PCB. | <ul style="list-style-type: none"> • If improperly connected – Re-establish proper connection. • If camera socket is damaged – Send to electrical repair |  |
| | If the issue has not been resolved → | <ul style="list-style-type: none"> • Replace camera rear. |  |
| | If the issue has not been resolved → | <ul style="list-style-type: none"> • Handle the unit according to local directives. | |

Trouble Shooting Guide, Mechanical

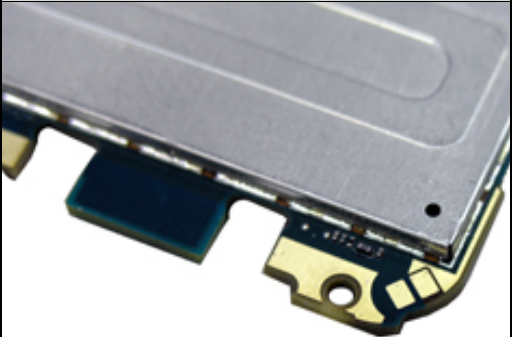
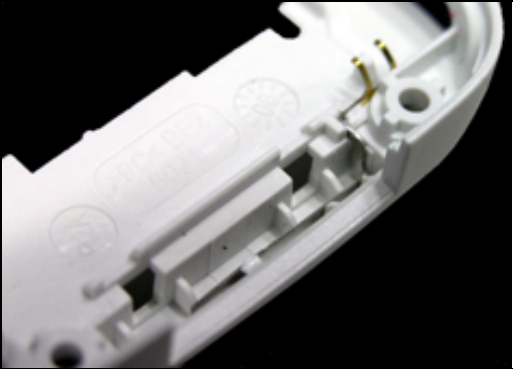
| Problem Area | Items to Check | Repair Action | Reference Image |
|--|--|--|---|
| Camera Front (Video call camera) | Visually inspect the camera lens | <ul style="list-style-type: none"> • If dirty – Clean camera lens. • If scratched or damaged – Replace sheet (Screw) Upper. |  |
| | Visually inspect whether the video call camera flex film is properly connected to its connector on the main flex film. | <ul style="list-style-type: none"> • If improperly connected – Re-establish proper connection. • If damage – Replace navigation key foil assy or video call camera as necessary. |  |

Trouble Shooting Guide, Mechanical

| Problem Area | Items to Check | Repair Action | Reference Image |
|--------------|---|--|--|
| | <p>Visually inspect whether the half to half flex film is properly connected to its connector on both PCB's</p> | <ul style="list-style-type: none"> • If improperly connected – Re-establish proper connection. • If half to half flex is damage – Replace it. • If any of the BtB connectors on the navigation key foil assy are damaged – Replace navigation key foil assy. • If main BtB connector on the PCB is damaged – Send to electrical repair |   |

| Problem Area | Items to Check | Repair Action | Reference Image |
|------------------|--------------------------------------|--|--|
| | If the issue has not been resolved → | <ul style="list-style-type: none"> Replace the camera front. |  |
| | If the issue has not been resolved → | <ul style="list-style-type: none"> Replace the main flex film, navigation key foil assy and the video call camera if not always replaced. | |
| LED flash | Visually inspect the flash LED | <ul style="list-style-type: none"> If no flash light – Replace LED- flash module <p>Note: Remember to put back the flash reflector when replacing flash LED.</p> |  |

14 Data Communication Problems

| Problem Area | Items to Check | Repair Action | Reference Image |
|---|--|--|--|
| Will not connect with a functional Bluetooth device | Visually inspect the system connector pads for dirt. | <ul style="list-style-type: none"> If dirty – Clean it. |  |
| | If the issue has not been resolved → | <ul style="list-style-type: none"> Replace the BT antenna |  |
| | If the issue has not been resolved → | <ul style="list-style-type: none"> Handle the unit according to local directives. | |

15 Software Problems

- If there are problems with the response of the keypad commands, spelling errors in the menu or the phone hang, 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 **Software Update Content Refresh** before sending the unit to a higher level. Do not scrap a phone that hasn't been upgraded with Software Update Content Refresh.

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

16 Revision History

| Rev. | Date | Changes / Comments |
|------|------------|--------------------|
| A | 2006-09-20 | Initial release |