

# Trouble Shooting Guide, Electrical

Applicable for Z520a, Z520c, Z520i, Z525a, Z525i

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# 1 General

The purpose of this document is to indicate the electrical level repair actions associated with the different failure symptoms.

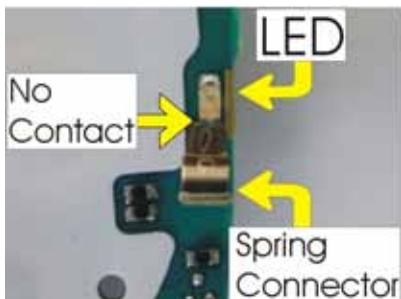
For symptoms that have multiple repair actions, the repair actions are listed in order of their probability of creating a successful repair. The first action has the highest probability, and subsequent actions have lower probabilities. The intention is for the repair technician to implement the first repair action and then retest the phone. If the phone continues to fail the same test, then the technician should continue to the second repair action. If the phone continues to fail the same test after all of the repair actions are exhausted, then the phone will be considered not reparable at this level.

This document should be used only after the actions from the Mechanical Trouble Shooting Guide have been exhausted for the specific symptom.

Voltage, current, and resistance information is provided for some symptoms to enable faster repairs. Perform current measurements using a dummy battery and power supply with digital current display. The phone should be fully assembled. Perform voltage and resistance measurements with a multimeter. Purchasing this equipment and performing these measurements is optional but recommended.

## 2 Repair Actions for Service Menu Test Failures

Problem Areas	Repair Action	
Power On	Current draw when powered off	<ul style="list-style-type: none"> <li>• N1302, N1301</li> </ul>
	Current draw greater than 30 mA in Standby	<ul style="list-style-type: none"> <li>• Camera Module – See Mechanical Repair</li> </ul>
	Power Cycling and current draw greater than 100 mA	<ul style="list-style-type: none"> <li>• Camera Module – See Mechanical Repair</li> </ul>
	Draws 50mA, but will not power on.	<ul style="list-style-type: none"> <li>• B300</li> </ul>
	Other symptoms	<ul style="list-style-type: none"> <li>• Replace X800 if damaged</li> <li>• V500</li> <li>• B1200</li> <li>• N1203</li> <li>• N602</li> </ul>
Flash	<ul style="list-style-type: none"> <li>• V600 and V601</li> <li>• V604 and N602</li> <li>• N801</li> </ul>	
Charging	<ul style="list-style-type: none"> <li>• V804 and V803</li> <li>• N602</li> <li>• V604</li> </ul>	
USB Charging	<ul style="list-style-type: none"> <li>• V808</li> <li>• N801</li> </ul>	
Portable Hands-Free connection (PHF)	PHF Fails	<ul style="list-style-type: none"> <li>• N700</li> </ul>
	Phone stuck in PHF mode when PHF is not attached	<ul style="list-style-type: none"> <li>• V600, V608</li> </ul>
SIM	<ul style="list-style-type: none"> <li>• Replace X701 if damaged</li> </ul>	
Large Internal Display	<ul style="list-style-type: none"> <li>• Inspect X750 leads for solder bridges and repair as necessary.</li> <li>• Replace X750 if damaged</li> </ul>	
Small External Display	<ul style="list-style-type: none"> <li>• Inspect X750 leads for solder bridges and repair as necessary.</li> <li>• Replace X750 if damaged</li> <li>• N400</li> </ul>	
Microphone	<ul style="list-style-type: none"> <li>• X706</li> <li>• Replace X1206 and X1207 if damaged</li> <li>• V600, V608</li> </ul>	
Vibrator	<ul style="list-style-type: none"> <li>• Inspect X750 leads for solder bridges and repair as necessary.</li> <li>• Replace X750 if damaged</li> </ul>	
Side Keypad	<ul style="list-style-type: none"> <li>• Replace X520 if damaged</li> </ul>	
Main Keypad	<ul style="list-style-type: none"> <li>• Replace X1206 and X1207 if damaged</li> </ul>	

Problem Areas	Repair Action	
Keypad LED/Illumination	Inspect parts to make sure the are not touching each other: X1206 and V506 X1207 and V503	<ul style="list-style-type: none"> <li>Move misplaced part as necessary</li> </ul>
		
	If a group of LEDs is not working, then replace the component specified for that group. If individual LEDs are not working, then replace them as necessary. Also check X1206 and X1207 and replace if damaged.	
	Group 1 Side LEDs (V501-V508)	<ul style="list-style-type: none"> <li>N500</li> <li>V501-V508</li> </ul>
	Group 2 Keypad LEDs (V510-V512)	<ul style="list-style-type: none"> <li>V538</li> <li>V510-V512</li> </ul>
	Group 3 Keypad LEDs (V513-V516)	<ul style="list-style-type: none"> <li>V539</li> <li>V513-V516</li> </ul>
	Group 4 Keypad LEDs (V519-V522)	<ul style="list-style-type: none"> <li>V540</li> <li>V519-V522</li> </ul>
	Power On LED	<ul style="list-style-type: none"> <li>V700</li> </ul>
Display LED Illumination	<ul style="list-style-type: none"> <li>Inspect X750 leads for solder bridges and repair as necessary.</li> <li>N802</li> </ul>	
Receiver (Earphone)	<ul style="list-style-type: none"> <li>Inspect X750 leads for solder bridges and repair as necessary.</li> <li>Replace X750 if damaged</li> <li>V600, V608</li> </ul>	
Speaker (Polyphonic Ringer)	<ul style="list-style-type: none"> <li>Replace X703, X704 if damaged</li> <li>N703 and N701</li> </ul>	
Real Time Clock	<ul style="list-style-type: none"> <li>B300</li> </ul>	
Camera	<ul style="list-style-type: none"> <li>Inspect X750 leads for solder bridges and repair as necessary.</li> <li>Replace X750 if damaged</li> </ul>	
IR	<ul style="list-style-type: none"> <li>D201</li> </ul>	
Bluetooth	<ul style="list-style-type: none"> <li>Replace X1101, X1102 if damaged</li> <li>B300</li> </ul>	

### 3 Repair Actions for Go/No Go Test Failures

Problem Areas	Repair Action
Phone fails Radiated Go/No Go test	1. Perform Conducted Go/No Go (Use RF probe for direct connection to X1201)
Phone passes Conducted Go/No Go test	Replace antenna L1206 <b>R1242, R1245, ROA1281667 Only</b> <b>L1207, L1208, ROA1281765 Only</b> Replace X1209, X1210, or X1211 if damaged
Phone fails Conducted Go/No Go test	1. Perform calibration routine 2. Replace X1201 if damaged

## 4 Repair Actions for Calibration Routine Failures

In the test names below, the symbol \_ \_ \_ represents different frequencies. Actual test failures will include GSM, 850, DCS, or PCS instead of this symbol.

Calibration is required after any of the parts in this section are reworked.

<b>Routine</b>	<b>Repair Action</b>
GSM 900_TXOutputPowerCheck	1. X1201 2. N1301 3. N1203
GSM 850_TXOutputPowerCheck	1. N1301 2. N1203 3. X1201
GSM 1800_TXOutputPowerCheck	1. X1201 2. N1301 3. N1203
GSM 1900_TXOutputPowerCheck	1. N1301 2. N1203 3. X1201
MdBitCalibration	1. N1203
CVCOCalibrationGSM_._.RX	1. N1203
CVCOCalibrationGSM_._.TX	1. N1203
LoopBandwidthCalibration_._.	1. N1203
RFVcxoCalibration	1. B1200, V1200, V1201 2. N1203
TXOutputPowerCalibration_._.	3. N1301
RSSICalibrationAndAGC	<b>1. Z1203</b> 2. N1203 3. N1301
RSSICalibrationAndAGCGsm850	<b>1. Z1204</b> 2. N1203 3. N1301
RSSICalibrationDCS	<b>1. Z1202</b> 2. N1203 3. N1301
RSSICalibrationPCS	<b>1. Z1201</b> 2. N1203 3. N1301

## 5 Revision History

Rev.	Date	Changes / Comments
A	2005-Aug-15	Initial Release
B	2006-Jan-09	Removed Bluetooth, position number N1101. This part must not be replaced. Restructured Go/No Go section and added R1242 and R1245.
C	2006-Apr-11	Added multiple updates based on initial field returns analyses. Added model Z525a.
D	2006-May-01	Added V608 to earphone and microphone. Added more detail to PHF.
E	2006-May-16	Added L1206 to Go No Go section.
F	2006-Jun-27	Added model Z525i.
G	2006-Mar-07	Modified Go/No Go section to include ROA1281765