



Trouble Shooting Guide, Electrical

Applicable for K790, K800

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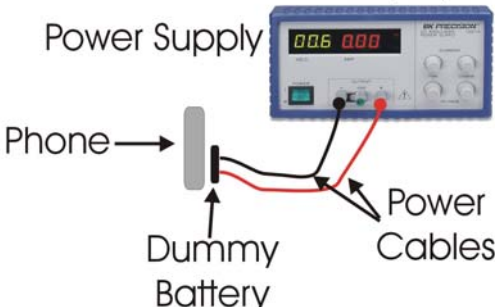

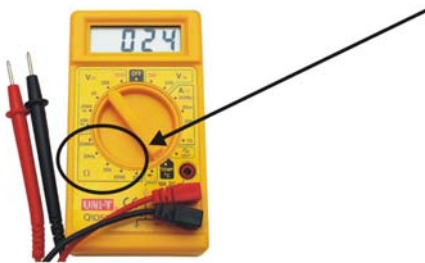
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1 General

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.

<p>Measure Current in Milliamps (mA)</p>  <p>Power Supply</p> <p>Phone</p> <p>Dummy Battery</p> <p>Power Cables</p>	<p>Perform current measurements using a dummy battery and power supply with digital current display. The phone should be fully assembled.</p>
<p>Measure Diode Voltage (VDC →)</p>  <p>Multimeter</p>	<p>Perform voltage measurements with a multimeter.</p>
<p>Measure Resistance in Ohms (Ω)</p>  <p>Multimeter</p>	<p>Perform resistance measurements with a multimeter.</p>

2 Repair Actions for Manual Test Failures

Failure	Failure Symptom	Repair Action
2.1 Power On / Off	Current draw greater than 300 mAmps	<ul style="list-style-type: none"> • N2000 • C22109 • K790 ONLY – N1100 • K800 ONLY – • A1200 – Approved Centers Only
	Current draw when powered off	<ul style="list-style-type: none"> • C22109 • K790 ONLY – N1100 • K800 ONLY – • A1200 – Approved Centers Only • A1300 – Approved Centers Only
	Hangs at gray display. Constant vibration. Will not power off.	<ul style="list-style-type: none"> • B2100
	Draws current when pushing power key, returns to zero	<ul style="list-style-type: none"> • Run pre-configuration using EMMA • N2000 • D2301 • N2200
	Powers on by itself after installing battery. Will not power off.	<ul style="list-style-type: none"> • Replace S2500 if damaged • V2504
	No response when pushing power key (no current change)	<ul style="list-style-type: none"> • Replace S2500 if damaged
	Phone hang when Bluetooth is turned on. If you can't recreate the phone hang problem, you should check that Bluetooth is switched on to eliminate this possibility	<ul style="list-style-type: none"> • D1400
	Permanent phone hangs at start up or in standby	<ul style="list-style-type: none"> • K790 ONLY (ROA revision R3A and R3B only) – Replace R1404 and R1405
	Other symptoms	<ul style="list-style-type: none"> • Replace X2200 if damaged • N2000, D2301
2.2 Software Flash	USB icon does not flash Error message "USB device not recognized"	<ul style="list-style-type: none"> • N2300, D2304 • D2301
	USB icon flashes Progress indicator appears with red X	<ul style="list-style-type: none"> • V2301
	No response from computer or phone Measure V2201 with positive lead on the Anode. VDC should equal 0.15 to 0.19.	<ul style="list-style-type: none"> • If VDC is outside of range, then replace V2201 • V2220
	Other symptoms	<ul style="list-style-type: none"> • D2301, D2304



Failure	Failure Symptom	Repair Action
2.3 Charging	Charging from power outlet	<ul style="list-style-type: none"> • V2202 • N2000
	Charging from computer via USB Measure V2201 with positive lead on the Anode. VDC should equal 0.15 to 0.19.	<ul style="list-style-type: none"> • If VDC is outside of range, then replace V2201 • V2220
2.4 Charging indicator (RED LED)		<ul style="list-style-type: none"> • V3110
2.5 Hands-Free connection (PHF)		<ul style="list-style-type: none"> • N4202 • N2000
2.6 SIM		<ul style="list-style-type: none"> • Replace X2302 if damaged • N2000
2.7 Display		<ul style="list-style-type: none"> • Replace X3102 if damaged
2.8 Display /Keypad LED Illumination	Display and keys work, but they are dark. Measure V3102 with the Positive (red) probe on the anode = 0.16 to 0.19	<ul style="list-style-type: none"> • Replace X3102 if damaged • Replace X2501 if damaged • If VDC is outside of range, then replace V3102 • V3101 • N2000 • R3101
	Display light works, but keys are dark	<ul style="list-style-type: none"> • V3103
2.9 Keypad Keys		<ul style="list-style-type: none"> • Replace X2501 if damaged
2.10 Volume Down/Up Keys		<ul style="list-style-type: none"> • Replace S2502, S2503 if damaged
2.11 Camera Key		<ul style="list-style-type: none"> • Replace X2501 if damaged
2.12 On/Off key		<ul style="list-style-type: none"> • Replace S2500 if damaged
2.13 Gaming (A and B) Keys		<ul style="list-style-type: none"> • Replace S2505, S2506 if damaged
2.14 Media Player Key		<ul style="list-style-type: none"> • Replace S2507 if damaged
2.15 Navigation Key (Joystick)		<ul style="list-style-type: none"> • Replace S2504 if damaged • V2500 • V2503 • V2506 • V2507 • V2508 • V2509
2.16 Vibrator		<ul style="list-style-type: none"> • N2000
2.17 Earphone (Speaker, Receiver)		<ul style="list-style-type: none"> • N2000
2.18 Polyphonic Speaker (Alert, Speakerphone)		<ul style="list-style-type: none"> • V4101 • N4100 • N2000
2.19 Backup Battery		<ul style="list-style-type: none"> • C2217
2.20 Microphone		<ul style="list-style-type: none"> • B4100 • N4202 • N2000
2.21 Real Time Clock		<ul style="list-style-type: none"> • B2100



Failure	Failure Symptom	Repair Action
2.22 Camera (Large, Rear)		<ul style="list-style-type: none">• Replace X2505 if damaged• N2202• N3100 (Can't take picture)
2.23 VGA Camera (Small, Front)		<ul style="list-style-type: none">• K800 ONLY. K790 does not include this camera.• Replace X2510 if damaged• D3100, D3101• N2210
2.24 Camera Flash		<ul style="list-style-type: none">• Replace X2550 if damaged• V3113• V2552
2.25 Camera Lens Cover Sensor		<ul style="list-style-type: none">• Replace X2550 if damaged• V2500
2.26 IR		<ul style="list-style-type: none">• H2300
2.27 Bluetooth		<ul style="list-style-type: none">• N2204• N2000• D1400
2.28 FM Radio		<ul style="list-style-type: none">• N2203• N2600• N2000
2.29 Memory Card		<ul style="list-style-type: none">• Replace X2301 if damaged

3 Repair Actions for Go/No Go Test Failures

Failure	Repair Action
Fails any part of Go/No Go testing	<ul style="list-style-type: none"> run the calibration routine
Fails Go/No Go test, but passes calibration	<ul style="list-style-type: none"> replace the antenna Replace X1002 if damaged rerun the phone through Go/No Go testing
Fails Go/No Go test after passing calibration	<ul style="list-style-type: none"> change X1000 and retest

4 Repair Actions for Calibration Failures

4.1 K790

Failure	Repair Action
Fails any part of the calibration routine	<ul style="list-style-type: none"> Replace X1002 if damaged Replace X1000 if damaged N1100

4.2 K800

Failure	Repair Action
Fails any part of the calibration routine	<ul style="list-style-type: none"> Replace X1002 if damaged Replace X1000 if damaged A1200 UMTS – Approved Centers Only A1300 GSM – Approved Centers Only

5 Revision History

Rev.	Date	Changes / Comments
A	2006-Jun-09	Initial release
B	2006-July-17	Added support for K790
C	2006-Sep-01	Added A1200 and A1300 to Power On section Added D1400 to Bluetooth section Added Calibration section
D	2006-11-06	Added D1400 to Power On section (phone hang) Added R1404 and R1405 to Power On section (K790 ONLY, phone hang) Added A1300 to Power On section and calibration failures
E	2007-07-03	Added N3100 to Camera
F	2007-08-22	Updated instructions power on/off
G	2007-10-03	R3101 and C22109 added
8	2008-03-07	Added V2503, V2506, V2507, V2508, V2509