

Equipment List, Electrical

Applicable for K660i

Contents

1	General	2
2	Column Definitions.....	2
3	Repair Equipment, Electrical	3
3.1	Sony Ericsson Provided Repair Equipment.....	3
3.2	Picture of equipments orderable from Sony Ericsson.....	5
3.3	Equipment Provided by Other Supplier	7
3.4	Lead-free Solder Equipment.....	22
4	Revision History	24

1 General

This document describes the minimum required equipments for the Electrical Repair Process of the K660i mobile phone.

Equipment listed without a part number is not orderable from Sony Ericsson and must be bought locally.

2 Column Definitions

The matrix in the end of the equipment tables describe where the actual equipment is needed (marked with an X) or may be needed/optional (marked with a Z).

Flash upgrade: Equipment for downloading software to the unit, both signalling and test-program.

Manual test: Equipment necessary to perform a manual test.

Repair: Equipment necessary for replacing components.

Go/No Go test: Equipment necessary for Go/No Go test.

Calibration with SERP: Equipment necessary to perform a calibration with SERP. **Calibration can only be done by authorized repair centers.**

The column that assist a specifying and/or clarifying the equipment needed are considered description type columns.

- Description The name of the equipment
- Part Number The Sony Ericsson part number to use when ordering from Sony Ericsson.
- Description Additional information that helps to specify the equipment.

3 Repair Equipment, Electrical

Some of the required equipment will be provided by Sony Ericsson and some equipment has to be sourced locally. This chapter will separate these equipments.

3.1 Sony Ericsson Provided Repair Equipment

			Flash Upgrade	Go/No Go Test	Manual Test	Calibration in SERP	Repair
Description	Part Number	Comments					
SonyEricsson programming interface - SEPI	LTN 214 1484	USB/Interface Box+CD	X			X	
DCU-65/USB Cable	RPM 131 12	Used for SonyEricsson programming interface cable - SEPI	X			X	
SEPI Flash Cable	KRY 101 1119	SonyEricsson programming interface cable				X	
Torque Screwdriver *	NTZ 112 459	Torque set to 20 Ncm +/- 1 Ncm for Torx Bit 6 Torque set to 10 Ncm +/- 2 Ncm for Torx JCIS Bit					X
Front opening tool	NTZ 112 302/2	Opening tool					X
Bits (T6)	NTZ 112 288	Spare part to screwdriver					X
Bits(JCIS No 0)	NTZ 112 1052	Spare part to screwdriver					X
Flex film assembly tool	NTZ 112 521	Tweezers					X
Shield Fence Plier	NTZ 112 537	For use when repair under shield fence is necessary					X
Lead-free labels (sheet of 24)	SVF 930 1379	These lead-free labels must be applied to all materials and tools that contact the solder.					X
Dummy Battery	NTZ 112 533	Battery Eliminator (BST-33 Hans)	Z			X	

Description	Part Number	Comments	Flash Upgrade	Go/No Go Test	Manual Test	Calibration in SERP	Repair
Rework fixture	LTD 260 273	For PBA (Printed Board Assembly)					X
PCB Repair Fixture	1204-1013	For BGA Station					X
RF Holder for K660i	1201-2590	Used together with antenna connector and RF cable. Reuse from V640&K630		Z		X	
RF Connector SMK	SXA1097057			Z		X	
RF Test Cable Flexible 1M	RPM 119 855	This is the only approved RF cable!		Z		X	
MEGA Pixel Camera Tool	NTZ 112 1067	Camera removal tool					X
Camera Tool	NTZ 112 1077	VGA Camera Tool					X
USB Activation Dongle	NTZ 112 1071		X				
256MB Memory Stick Micro(M2)	KDR 109 171/256	This item is needed to test the applicable product's memory slot.			X		
Plectrum/SVC & Repair	NTZ 112 590	Guitar Pick			X		
30.5MM RF CABLE	RPM119891				X		
Cable Adapters for WCDMA calibration	1206-9888					X	

3.2 Picture of equipments orderable from Sony Ericsson


Pictures of tools that is orderable from Sony Ericsson.

				
<i>LTN 214 1484</i>	<i>KRY 101 1119</i>	<i>NTZ 112 1071</i>	<i>KDR 109 171/256</i>	<i>SVF 930 1379</i>
				
<i>NTZ 112 302/2</i>	<i>SXA1097057</i>	<i>NTZ 112 459</i>	<i>NTZ 112 288</i>	<i>NTZ 112 1067</i>

				
NTZ 112 590	NTZ 112 521	NTZ 112 533	NTZ 112 1077	LTD 260 273
				
RPM 131 12	NTZ 112 537	RPM 119 855	1201-2590	1204-1013
				
RPM119891	1206-9888			

3.3 Equipment Provided by Other Supplier

This is the list of equipments provided by other suppliers than Sony Ericsson

Pos	Description	Comments	Picture	Test	Repair
27	Battery Charger (Standard SEMC charger applicable for Z770i)	The battery charger needs to be connected to the Sony Ericsson Programming Interface Cable during calibration.			X
43	USB Computer Cable	Type A to Type B USB cable. This is part of the hardware needed for performing calibration.			X

Pos	Description	Comments	Picture	Test	Repair
	Agilent 8960 Required Components: <ul style="list-style-type: none"> • E5515C (8960 Series 10 Mainframe) • Option E5515C-002 (2nd RF source) • Option E5515C-003 WCDMA HW Option Required Software <ul style="list-style-type: none"> • E1985B or E1987A TA Fast Switching • E1963A WCDMA Test Application • E1968A-101 GSM Test Application • E1968A-410 Application <i>required for GSM Calibration</i>	Some older versions of the 8960 Series 10 mainframes may need to have a hardware upgrade in order to have WCDMA capabilities. See your local Agilent representative for details. Note: It is strongly recommended that the instrument vendor be contacted before ordering this setup to ensure that the options stated are still valid or that no part numbers have changed.		X	X

Pos	Description	Comments	Picture	Test	Repair
	Willtek 4403/4405 Required Components: <ul style="list-style-type: none"> • 440x (4403 or 4405) • Option 4460 GSM/GPRS/EDGE HW • Option 4457 GSM Call Mode • Option 4458 GSM Non-Call Mode • Option 4468 EDGE Call Mode • Option 4449 EDGE Non-Call Mode • Option 4475 ACPM for 440x • Option 4479 Baseband processing HW • Option 4466 WCDMA/UMTS Non-Call Mode • Option 4467 WCDMA/UMTS Call Mode • WMain 52 MHZ clock for 4400/3100 • Firmware Version 14.00 or higher 	Note: It is strongly recommended that the instrument vendor be contacted before ordering this setup to ensure that the options stated are still valid or that no part numbers have changed.		X	X

Pos	Description	Comments	Picture	Test	Repair
	Rohde & Schwarz CMU200 Required Components <ul style="list-style-type: none"> • CMU200 mainframe (Base Unit) • Options CMU-B11, CMU-B21, CMU-B52, CMU-B54, CMU-B56, CMU-B68, CMU-B95 and CMU-U65 • Required SW package: CMU-PK100 	Note: It is strongly recommended that the instrument vendor be contacted before ordering this setup to ensure that the options stated are still valid or that no part numbers have changed.		X	X
77	Power Supply (w/digital readout) NOTE! If using the Power Supply in conjunction with the Battery Eliminator (Dummy Battery) to power the phone during the GNG test or Calibration routine a high quality DC source that meets the following requirements <u>must</u> be used.	Device Requirements: <ul style="list-style-type: none"> • Output Voltage: 0-5 volt minimum. • Output Current: 0-2 amps minimum. • Transient response time: < 100 μs Some examples of Power Supplies that meet these requirements are as follows: <ul style="list-style-type: none"> • Agilent 66xx series • Agilent 663x series 		Z	Z

Pos	Description	Comments	Picture	Test	Repair
78	Small Convection (Hot Air) Device	Device Requirements: <ul style="list-style-type: none"> The device should allow variable adjustment over a temperature range. The device should be capable of reaching an upper temperature of 426.7°C (800°F) or more. The range of airflow the device is capable of generating should fall under 20 litre/minute.			X
79	Large Convection (Hot Air) Device	Certain components on the parts list can only be replaced using this device. These parts are specified in the parts list. <ul style="list-style-type: none"> The device should allow variable temperature adjustment and be capable of reaching an upper temperature of 426.7°C (800°F) or more. The range of airflow the device is capable of generating should be above 20 litre/minute. 			X


Pos	Description	Comments	Picture	Test	Repair
80	Nozzles for Large Convection (Hot Air) Device	NOTE: Only necessary if you have a large convection device.			X
81	Digital Multi-meter	Used for troubleshooting failures			Z
82	Microscope	Minimum magnification required is 10x			X
83	GPIB Card	National Instruments or Keithley NOTES: <ul style="list-style-type: none"> Drivers are required and should be supplied with a card. A GPIB card is not required if testing is being performed using the Willtek 420x instrument. 		Z	X
84	GPIB Cable	This cable is only required if a GPIB card is used.		Z	X

Pos	Description	Comments	Picture	Test	Repair
88	Power cable – Red <i>NOTE: Only necessary if using the Battery Eliminator (Dummy Battery).</i>	Cable Requirements: <ul style="list-style-type: none">• Minimum cross sectional area of conductor = 1.2mm²• Maximum length = 1.5 m• One end of cable must have a male banana-type connector to be able to interface with the battery eliminator.• The other end of the cable needs whatever connection is necessary to connect to the power supply that you have.		Z	Z
89	Power cable – Black <i>NOTE: Only necessary if using the Battery Eliminator (Dummy Battery).</i>	Cable Requirements: <ul style="list-style-type: none">• Minimum cross sectional area of conductor = 1.2mm²• Maximum length = 1.5 m• One end of cable must have a male banana-type connector to be able to interface with the battery eliminator.• The other end of the cable needs whatever connection is necessary to connect to the power supply that you have.		Z	Z

Pos	Description	Comments	Picture	Test	Repair
90	Component baking oven	<p>Temperature requirements: 125°C +5°C/-0°C Required for drying moisture sensitive components.</p> <p>Below are links to several companies that sell convection ovens.</p> <p>http://www.cascadetek.com/forcedlist.php</p> <p>http://www.wisoven.com/lab1.htm</p> <p>http://www.shellab.com/products.html</p> <p>http://www.terrauniversal.com/products/ovens/imperiaivmechcon.php</p> <p>http://www.labsynergy.com/products_laboratoryovens.asp?keyword=*laboratoryovens</p>			X


Pos	Description	Comments	Picture	Test	Repair
91	RF Shield Package Rohde&Schwarz RF Shield Package <ul style="list-style-type: none"> CMU-Z10 – Antenna Coupler (Partnr: 1150.0801.10) CMU-Z11 – RF Shield Cover (Partnr. 1150.1008.02) 	Using an RF shield package is one of the options for testing the applicable product(s). Testing of the applicable product(s) can also be performed by using the combination of an RF Probe and an RF cable. <i>Spare parts for mobile phone fixation for R&S CMU-Z10 are available for purchase from Rohde&Schwarz:</i> <ul style="list-style-type: none"> Grid Positioning Plate – 1158.9789.00 L-shaped bracket – 1158.9808.00 Stabilizing pieces – 1158.9820.00 <p>NOTE: The Rohde & Schwarz package will require the use of a precision N-type male to SMA female RF adapter to mate with the SEMC RF cable.</p> <p>NOTE: If you are using a different RF Shield Package than Rohde & Schwartz, special attenuation factors for Go/No-Go test are required.</p>		Z	

Pos	Description	Comments	Picture	Test	Repair
92	Flux	Lead-free solder does not require a special flux. The “No Clean” flux used with leaded products is acceptable. Although some manufacturers are developing fluxes specially made for use with lead-free solder (higher evaporation temperatures, less smoke, etc.), these are not required.			X
93	Low Static Heat Protection Tape	This tape is required to protect adjacent components from hot air.			X
96	Computer	<p>One of the following operating systems must be used:</p> <ul style="list-style-type: none"> Windows 2000 with service pack 2 or higher Windows XP <p>Minimum Requirements:</p> <ul style="list-style-type: none"> One unused PCI slot for GPIB card 3 USB Ports The processor and RAM of the computer should at least meet the the minimum requirements specified by the operating system’s manufacturer. 		Z	X

Pos	Description	Comments	Picture	Test	Repair
99	Test U-SIM	According to your Instrument supplier		X	
109	Printer	Optional, but recommended		Z	Z
110	RF adapter for RF shield box <ul style="list-style-type: none"> The adapter for a Rohde & Schwarz Shield box must be a precision N-type male to SMA female adapter. 	This adapter is used to connect the RF shield box to the RF cable and is only required if a shield package is going to be used for testing. Recommended source: <ul style="list-style-type: none"> Pasternack Enterprises – (949) 261-1920 or www.pasternack.com Part number: PE9430 		Z	
111	Cutting Pliers				Z
112	ESD Gloves				Z
113	ESD Wristband				Z
114	Nylon Pointer				Z




Pos	Description	Comments	Picture	Test	Repair
115	Zebra Printer	Current Model Options: <ul style="list-style-type: none"> • 110XIIIPlus or Z4Mplus These models use a DB9 Male-DB9 Female Null Modem Discontinued Model Options: <i>NOTE – The following models may also be used, but Zebra has discontinued selling them.</i> <ul style="list-style-type: none"> • 90xi Series • Z4M • Z4000 deluxe These models use a DB25 Male-DB9 Female Null Modem			Z





Pos	Description	Comments	Picture	Test	Repair
116	Null Modem Cable	<p>This cable connects the Zebra printer to the computer. Two companies that carry this type of cable are CDW (www.cdw.com) and QVS (www.qvs.com).</p> <p>Part numbers for the DB9 Male-DB9 Female version: CDW – 361875 (6 Feet Long)</p> <p>Part numbers for the DB25 Male-DB9 Female version: CDW – 375939 (6 Feet Long) QVS – CC314-06 (6 Feet Long) QVS – CC314-10 (10 Feet Long)</p>			Z
117	<p>Willtek 4921 Shield Enclosure</p> <p>With modified rear panel and N terminator</p> <ul style="list-style-type: none"> • 248718 (Wiltek Part number) 	<p>Used for WCDMA or GSM Calibration</p> <p>Used for WCDMA or GSM Calibration. A Service Tool Test Interface (1206-9888) is also required.</p>		Z	

Pos	Description	Comments	Picture	Test	Repair
118	Modified rear panel and N terminator Willtek <ul style="list-style-type: none"> 300872 (Wiltek Part number) 	Used with existing Willtek Shield boxes Replace rear panel with modified rear panel and place N terminator on RF connection. Remove RF coupler. A Service Tool Test Interface (1206-9888) is also required.		Z	
119	Metal Cutters	Use these to trim shield can fences when they obstruct access to parts. Cutters should be small enough to cut fences without damaging parts on the board. Cutters should be sharp enough to cut fences without twisting or pulling the fence. Recommended cutters available at www.MSCDirect.com : Knipex (left) - Mfr Part #: KN7803-5, MSC #: 32997462 Xuron (right) - Mfr Part #: 2175AS, MSC #: 88356431			Z

3.4 Lead-free Solder Equipment

The items in this table, and any other soldering tools or material that make physical contact with the solder, must remain lead-free. They must be adequately labelled to make their lead-free status clearly and easily recognized.

Pos	Description	Comments	Picture	Test	Repair
	Lead-free Solder Note: The solder must be composed of Tin, Silver, and Copper, and nothing else. The exact composition ratio may vary, but it must be Tin, Silver, and Copper only. This composition may also be known as SnAgCu or SAC.	Manufacturers of LF Solder: - Tamura (www.tamura-kaken.co.jp) Part # TLF-206-93F - Multicore (www.multicore.com) Part # 96SC - Senju (www.senju-m.co.jp) Part # M705			X
	Lead-free labels (sheet of 24) SEMC Part # SVF9301379 (These labels are available from the Sony Ericsson Parts and Tools Warehouse.)	Required for labeling all soldering tools and materials that contact the solder.			X
	Soldering Tips				X

Pos	Description	Comments	Picture	Test	Repair
	Soldering Iron If one work bench is divided to accommodate both leaded and lead-free solder, then each side of the bench should have its own iron.	<ul style="list-style-type: none"> The device should allow variable temperature adjustment and be capable of reaching an upper temperature of 426.7°C (800°F) or more. 			X
	Wicking Tape				X
	Tip Tinner				X
	Tip Cleaner (steel wool)				X

4 Revision History

Rev.	Date	Changes / Comments
1	2008-02-29	First release
2	2008-03-07	Willtek Updated
3	2008-03-13	No Update
4	2008-04-25	Tools Update
5	2008-04-29	PCB Repair Fixture added