

Equipment List, Mechanical

Applicable for EC400 and EC400g

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1 General

This document describes the equipment required to repair the product(s) listed in the “Applicable for” section of this document at the Mechanical Repair Level and to upgrade the products(s)’s software. The first section is equipment that can be purchased from a Sony Ericsson Parts and Tools warehouse. The second section is equipment that must be purchased from other vendors.

2 Column Definitions

2.1 Description Columns



- Description = The name of the equipment.
- Part Number = The Sony Ericsson part number to use when ordering from a Sony Ericsson Parts and Tools warehouse.
- Comments = Additional information that helps to specify or clarify the equipment.




2.2 Process Columns

These columns show which processes use the equipment. An “X” in a column indicates that the equipment must be used, and a “Z” in a column indicates that the use of that equipment is optional.

- Test = A manual and/or automated method of evaluating the functionality of a device.
- Repair = A method of fixing a device.

3 Sony Ericsson-Provided Repair Equipment



				Test	Repair
Description	Part Number	Comments	Picture		
Adjustable Manual Torque Screwdriver	NTZ 112 459	Any torque driver may be used as long as the driver meets the following requirements: <ul style="list-style-type: none"> The driver must be capable of applying the specified torque value +/- 6% The driver must be set so that the maximum torque speed of the driver does not exceed 670 rpm 			X
Extended length T6 Torx Bit	NTZ 112 288/1				X

				Test	Repair
Description	Part Number	Comments	Picture		
USB Smartcard Reader and CD	LZY 213 1191	This USB Smartcard Reader provides the means of reading a Service Card. This item is required for using the LabelMake II application.			X
Service Card	LZY 213 595	This item is required for using the LabelMake II application.			X
Zebra Printer Ribbon	LZK 102 734/1	This is the ribbon that should be used in the Zebra printer when generating labels for this product.			X

4 Equipment Provided by Other Suppliers

			Test	Repair
Description	Comments	Picture		
EC400 Card	Optional, to be used to verify test setup.		Z	
Computer for testing	Computer requirements for Testing: <ul style="list-style-type: none"> Windows compatible laptop computer 1 GHz or higher processor Windows 2000(SP4), XP or Vista USB based ExpressCard slot or a CardBus slot NOTE: A CARDBUS SLOT REQUIRES USE OF AN EXPRESSCARD 34 ADAPTOR 1 Gb RAM 		X	
Computer for LabelMake II	NOTE: YOU MAY USE THE SAME COMPUTER FOR THE LABELMAKE II APPLICATION AS IS USED FOR TESTING AS LONG AS IT MEETS BOTH THE TESTING AND LABELMAKE REQUIREMENTS. Computer requirements for LabelMake: <ul style="list-style-type: none"> An IBM compatible 400 MHz or higher processor A minimum of 64 MB RAM or the minimum RAM specified by the operating system's manufacturer One extra USB port – one for the Smartcard reader A com port for the Zebra Printer A connection for barcode scanner Must use one of the following operating systems – Windows 98SE, 2000, and XP 			X




			Test	Repair
Description	Comments	Picture		
CardBus to ExpressCard 34 adaptor	<p>A CardBus to ExpressCard 34 adaptor is needed if the CardBus slot on the computer is going to be used for testing.</p> <p>If a repair center plans to test large quantities of ExpressCards, it is recommended that an adapter or an extender be used so that the connector in the Laptop does not wear out.</p>		Z	Z
Active SIM Card	The network subscription you use in conjunction with your PC Card depends on the functions and features the local network can provide. Contact your local network operator or service provider to make sure that data options are included in your subscription.		X	
Style 2A Tweezers	This device must be conductive or electrostatic-dissipative. This part can be ordered from Contact East (1-800-432-2223 or www.contacteast.com).			X
Brush	This device must be electrostatic-dissipative.			X



			Test	Repair
Description	Comments	Picture		
Isopropyl Alcohol	<p>Only isopropyl alcohol that is 99% concentration by volume should be used.</p> <ul style="list-style-type: none"> Other names used for this material include rubbing alcohol, IPA, 2-Propanol, and Isopropanol. Products named using any of the names mentioned are acceptable as long as they meet the 99% concentration by volume requirement. There is no specific supplier that this material needs to be obtained from, but a list of web sites that sell products that meet the 99% by volume requirement are provided below for convenience. <ul style="list-style-type: none"> * http://www.jnj-industries.com * http://www.first-aid-product.com/industrial/isopropyl-alcohol.htm * http://www.sigmaaldrich.com/ 			X
Gloves	This device must be electrostatic-dissipative.			X
Finger Cots	This device must be electrostatic-dissipative.			X
Lint-free wipes				X
Hot Air Device	This kind of device may be needed to assist in removing the label from this product.			Z



			Test	Repair
Description	Comments	Picture		
Nylon Pointer	This part can be ordered from Stanley Supply & Services (www.stanleysupplyservices.com). The Stanley Supply & Services Part Number is 151-168 .			X
Zebra Printer (Must be 300 dpi)	<p>Current Model Options: 110XIIIPlus Z4MPlus These models use a DB9 Male-DB9 Female Null Modem Cable to connect to the computer (POS 42).</p> <p>Discontinued Model Options: <i>NOTE: THE FOLLOWING MODELS MAY ALSO BE USED, BUT ZEBRA HAS DISCONTINUED SELLING THEM.</i></p> <ul style="list-style-type: none">• 90xi Series• Z4M• Z4000 deluxe <p>These models use a DB25 Male-DB9 Female Null Modem Cable to connect to the computer (POS 42).</p>			X



			Test	Repair
Description	Comments	Picture		
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>			X

4.1 Equipment Options for GPS Testing

The ability to test the GPS functionality on this product is required, but two options are available: 1) re-radiated GPS System or 2) Satellite Signal Simulator System. Repair centres may select the option that best fits their spatial, financial, operational needs, etc. Once a repair centre selects an option, the centre must be able to perform that option reliably as determined by SEMC certification standards.

After installing the equipment per manufacturer's instructions, the repair centre will need to use a satellite signal meter to measure the signal strength being radiated from the antenna. The signal strength should be between -140dBm and -130dBm.

			Test	Repair
Description	Comments	Picture		
GPS Receiving Device	Optional equipment used to confirm if the test equipment is radiating appropriate signal strength. If test units continually fail to receive signal, then use a known-good GPS receiving device to ensure the equipment is setup correctly. GPS receiving devices include watches, navigators, etc.		Z	



4.1.1 Option 1: Re-radiating GPS System

NOTE: Repair Centres located inside the USA must meet FCC regulatory standards for re-radiating satellite signals. Other regions may have similar regulations. Repair centres are responsible for knowing and following these regulations.

The FCC regulatory policy that is currently in effect in the U.S.A. allows GPS Re-Radiating Kits to be sold to the following:



- International Customers (outside the U.S.A.)
- Agencies of the US Federal Government
 - All Branches of the US Military or Parties Operating under the Direction of US Federal Government
- Parties that have received an STA or Experimental License under part 5 of the FCC rules
- Parties that will be operating GPS Re-Radiators in a shielded room or under an approved GPS Networking Re-Radiating Hood

Centres in the U.S.A. that do not think they are eligible under any of the above criteria should visit the FCC link below to ask for more information about how to file for an Experimental License under part 5 of the FCC rules or see the second link below to file an application.



http://wireless.fcc.gov/index.htm?job=rules_and_regulations

Option 1: Re-radiating GPS System Continued



Several manufacturers sell re-radiating kits. Below are links to some. Important considerations are environmental protection for the external antenna, signal radiating radius of the internal antenna, and length of the transmission cable. Excessive cable lengths will attenuate the signal too much.

			Test	Repair
Description	Comments	Picture		
Aucon AS-47 and 48	Wireless GPS ReRadiating-System / GPS-Repeater with up to 12 meters transmission distance or with up to 30 meters transmission distance with the AS-48! http://www.aucon.de/technical_data_sheet(70k)pattern(33k)demonstration_pics(300_kb)		X	
GPS Source GPSRKL1	The GPSRKL1 Repeater kit is a low power GPS frequency repeater for areas where the GPS signal is not present. www.gpssource.com		X	
Continued on next page				

Option 1: Re-radiating GPS System Continued

			Test	Repair
Description	Comments	Picture		
GPS Networking HNRRKIT	<p>The HNRRKIT is a complete re-radiating system to allow you to re-radiate the GPS L1 carrier signal indoors. The HNRRKIT consists of a Roof Antenna, a plug-in re-radiating amplifier & a re-radiating antenna.</p> <p>www.gpsnetworking.com</p>		X	
Mobile GPS Online RK-304	<p>GPS L1 Band GPS Reradiator Kits with reradiating range 30 meters</p> <p>http://mobilegpsonline.com/mgpsos/index.php?main_page=index&zenid=58babc16b365ad58702c1a87f7f37f90</p>		X	

4.1.2 Option 2: Satellite Signal Simulator System

			Test	Repair
Description	Comments	Picture		
Spirent STR4500	12 Channel GPS Simulator with Simplex Software (scenario replay units) www.spirentcom.com http://www.spirentcom.com/documents/67.pdf?wt=2&z-c=dc		X	
Synergy Systems PN-05	Passive GPS antenna. Part number 10001703G Bare 15mm sq element, 15mm coax, ra SMA plug http://www.synergy-gps.com/component/option,com_frontpage/Itemid,1/		X	

5 Revision History

Rev.	Date	Changes / Comments
1	July 8, 2008	Initial Release