



# Working Instruction, Electrical

Applicable for K530i

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# 1 Moisture Sensitivity and Component Baking

Some components in this product are moisture sensitive and must be baked prior to use if they have been exposed to air. These components and their moisture sensitivity levels are specified in the Electrical Component Placing document. Below is a brief description of moisture sensitivity levels, but repair centers should visit the JEDEC website for more details before reworking moisture sensitive components. Search for the most recent version of the IPC/JEDEC J-STD-033A standard online at <http://www.jedec.org/>

**Level 1**     **unlimited floor life**; does not require dry pack or re-baking.

**Level 2**     **1 year floor life**;  $\leq 30^{\circ}\text{C}$ ; 60% relative humidity (rh); shipped in dry pack; must be re-baked after being opened if floor life is exceeded.

**Level 2A**   **4 weeks floor life**;  $\leq 30^{\circ}\text{C}$ ; 60% rh; shipped in dry pack; must be re-baked after being opened if floor life is exceeded.

**Level 3**     **168 hours floor life**;  $\leq 30^{\circ}\text{C}$ ; 60% rh; shipped in dry pack; must be re-baked after being opened if floor life is exceeded.

**Level 4**     **72 hours floor life**;  $\leq 30^{\circ}\text{C}$ ; 60% rh; shipped in dry pack; must be re-baked after being opened if floor life is exceeded.

Parts shipped from the Sony Ericsson Parts Warehouse are most likely NOT shipped in dry pack. This means the time elapsed between placing the order and receiving the parts must be considered as time exposed to the environment.

Different moisture sensitivity levels and exposure times create the need for different baking temperatures and times. More detailed information may be found in the most recent version of the IPC/JEDEC J-STD-033A standard. The standard is available online at <http://www.jedec.org/>.

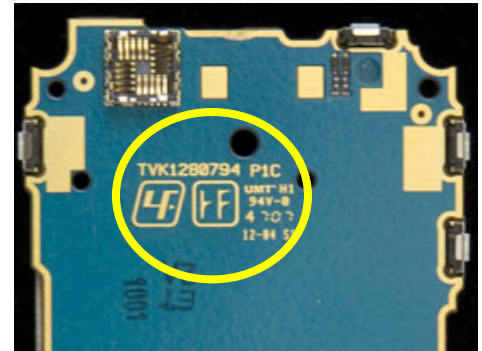


## 2 Lead-free Rework

### 2.1 Lead-free Symbol

**NOTE!**

- This is a lead-free product!
- All solder wire or paste used with this product must be lead-free.
- All rework tools that directly contact the solder must remain lead-free. They must only be used for lead-free repairs.



### 2.2 Bottom Heat

Because of the higher temperatures required for lead-free solder, bottom heat is strongly recommended for rework of all ASICs. This does not include small transistors or chips, but it does include fine pitch components and BGA type components.



## 2.3 Reflow Profile for BGA Rework Station

The profile shall be according to SEMC profiling specification below.  
Profile parameters are illustrated in table 2.3.

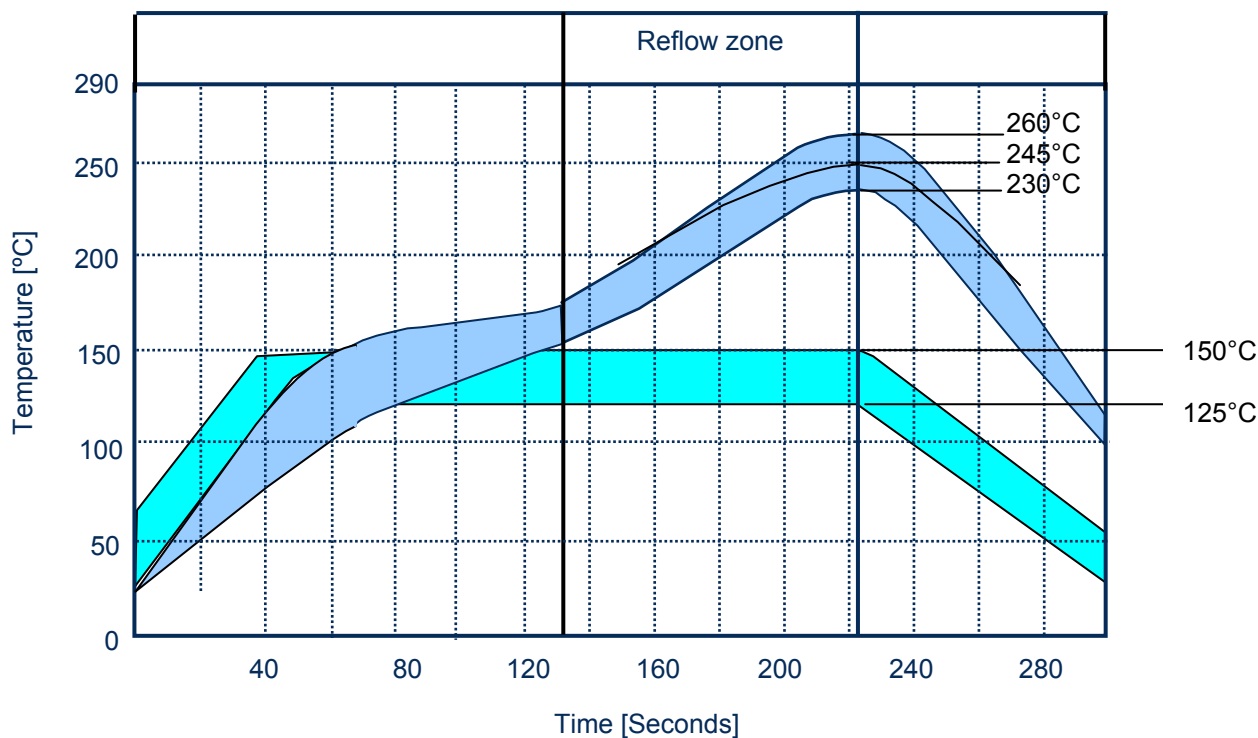
Reflow profile in this document always refers to the reflow profile which is measured on the board/component with thermocouples and do not refer to the BGA Rework Stations setting which can vary depending on the machine type and individual machine. Verification of reflow profile shall be done on each set of equipment.

**Table 2.3.1**

Ramp rate	< 3°C/sec
Ramp rate cooling	< 6°C/sec
Time above liquidus	40-70 sec
Minimum temperature	235°C
Maximum component temperature	260 °C
Time above 235°C	10-40 sec
Recommended Total time	Approx. 3-5min

The following graph, in table 2.3.2, shows an example of a lead-free profile including bottom heat and top heat. The profile for specific parts and specific equipment will vary, but the maximum temperature must not be exceeded.

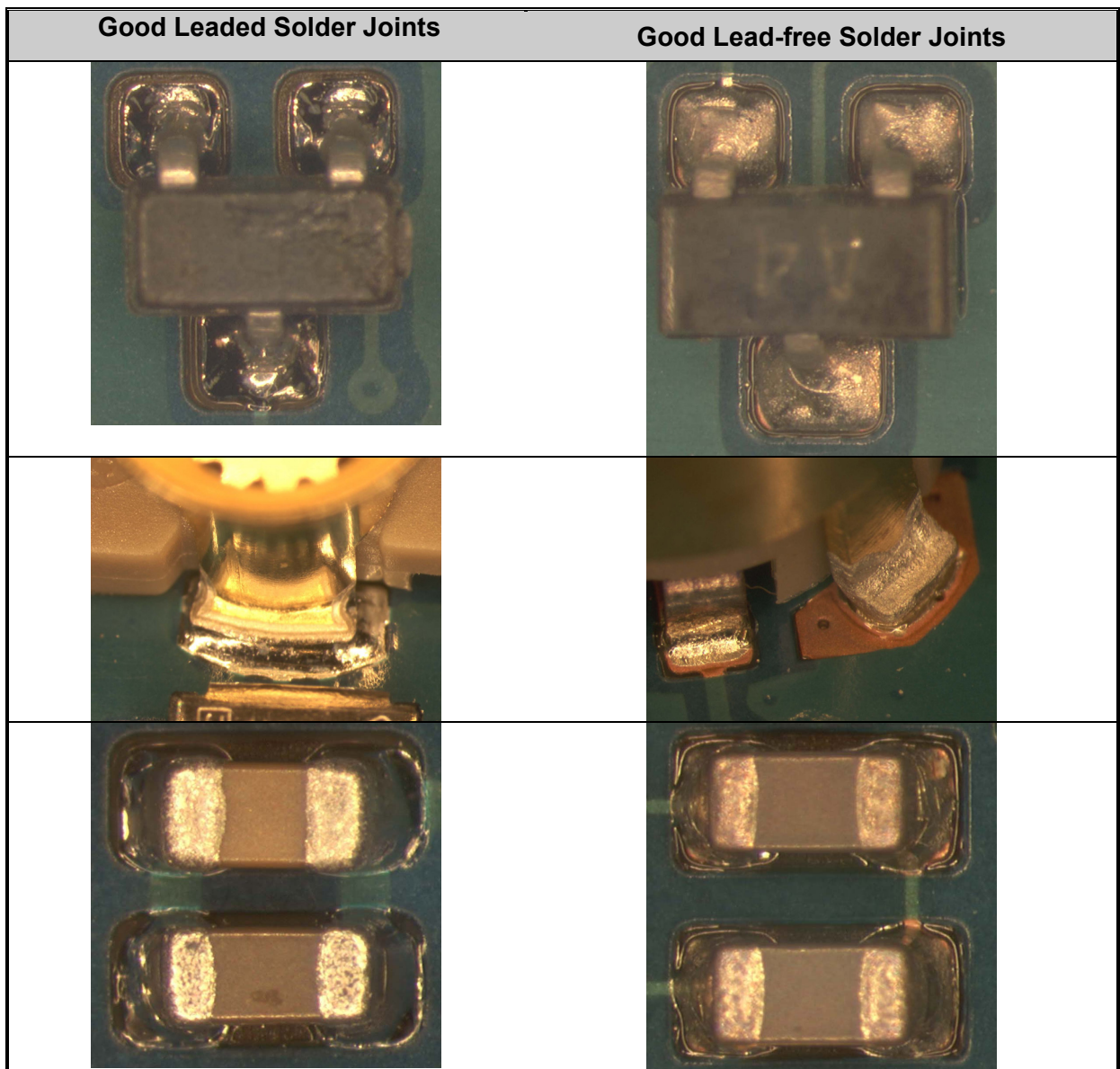
**Table 2.3.2**





## 2.4 Inspection

Lead-free solder joints are more difficult to inspect because they do not have shiny surfaces like leaded solder joints. Also, lead-free solder does not flow as well as leaded solder, so some of the solder pad area may remain exposed.





### 3 Replacement of components

#### EQUIPMENT

- Dentist hook
- ESD-gloves (cotton gloves)
- ESD-wristband
- Soldering tools
- Hot Air Station
- Bottom Heat
- BGA Rework Station
- Pair of tweezers
- Solder wick
- Solder paste lead-free (SN 96% Ag 3.5% Cu 0.5%)
- Flux, RMA no-clean flux

#### CAUTION

- ***Keep all contact surfaces clean of dirt and hand-grease!***
- ***Remove the Main Camera and the VGA Camera before starting repairing the board using hot air!***

#### MECHANICAL INSTRUCTIONS

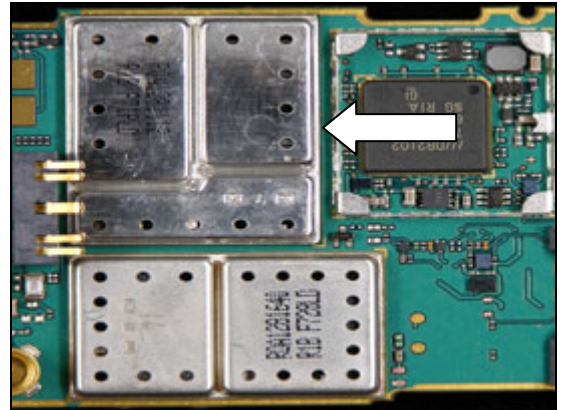
For all the following part replacements, disassemble and assemble the phone as described in *Working Instruction 3/00021-1/FEA 209 544/132*





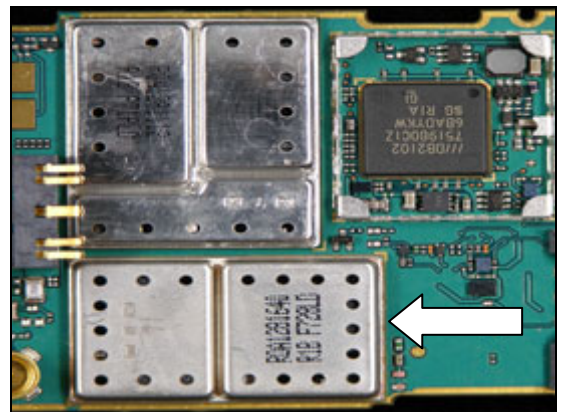
### 3.1 A1200: Ray/UMTS Module

Use BGA Station to replace the UMTS Module.



### 3.2 A1300: Marlin/GSM Module

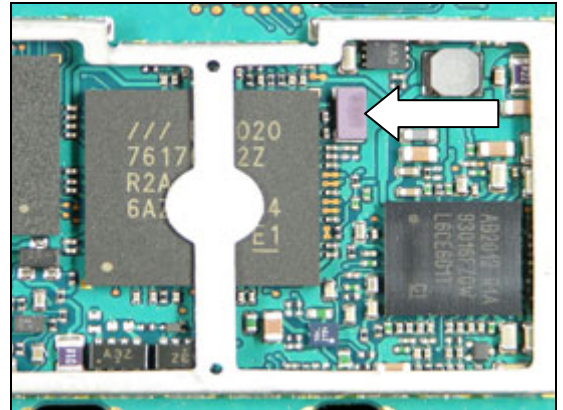
Use BGA Station to replace the GSM Module.





### 3.3 B2100: Crystal 32768Hz

Use BGA Station to replace the Crystal.

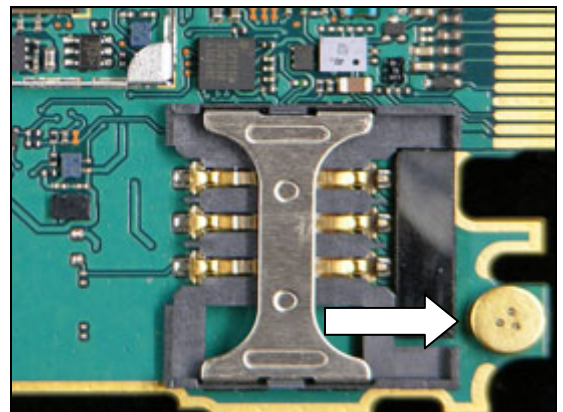


### 3.4 B4101: Microphone

**PROTECT THE SIM CONNECTOR WITH HEAT RESISTANT TAPE!**

Use a Hot Air Station to replace the Microphone.  
Apply a small piece of heat resistant tape to the top of the new part.

**NOTE: Use as little flux as possible to place the new part. Make sure flux does not get into the sound hole.**







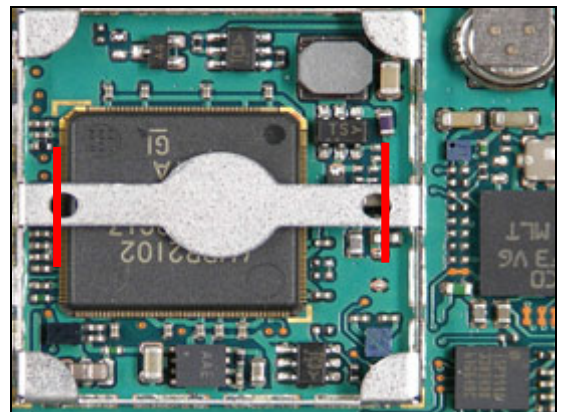
### 3.5 C2217: 0.07F 3.3V Capacitor

**PROTECT THE BTB CONNECTOR WITH HEAT RESISTANT TAPE!**  
Use BGA Station to replace the Capacitor.

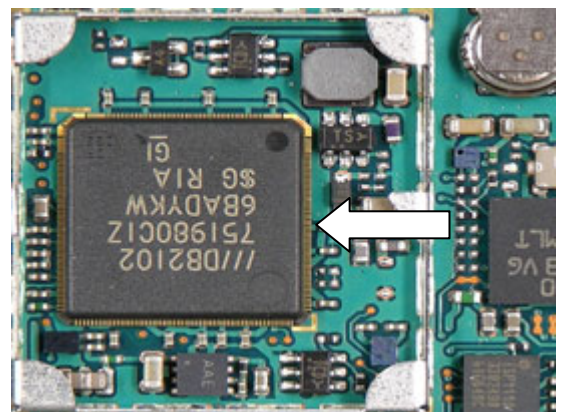


### 3.6 D2001: Wanda ASIC

Cut the shield frames pickup area.

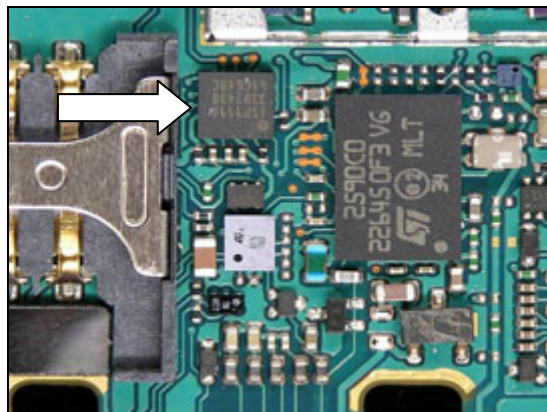


Use BGA Station to replace the Wanda ASIC.



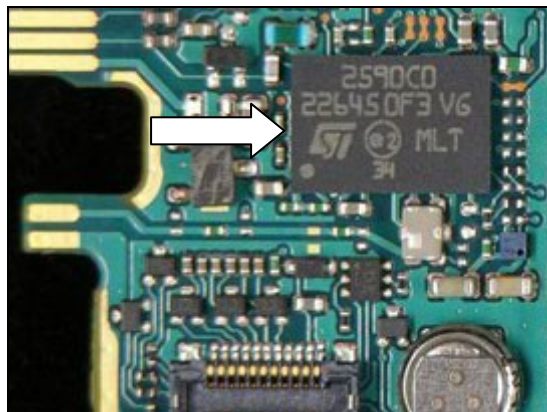
### 3.7 D2304: USB Transceiver

**PROTECT THE SIM CONNECTOR WITH HEAT RESISTANT TAPE!**  
Use BGA Station to replace the USB Transceiver.



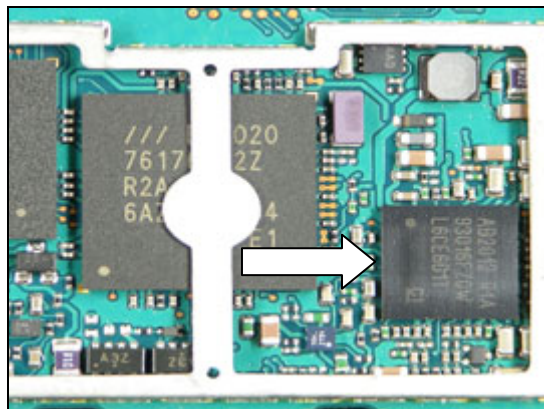
### 3.8 N1400: Combo BT/FM Module

Use BGA Station to replace the BT/FM Module.



### 3.9 N2000: Vincenne ASIC

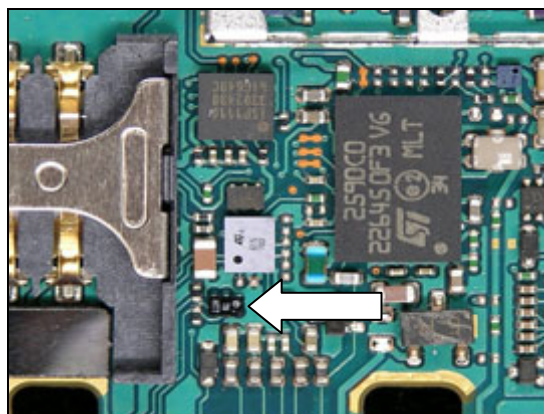
Use BGA Station to replace the Vincenne ASIC.



### 3.10 N2300: USB Filter Network

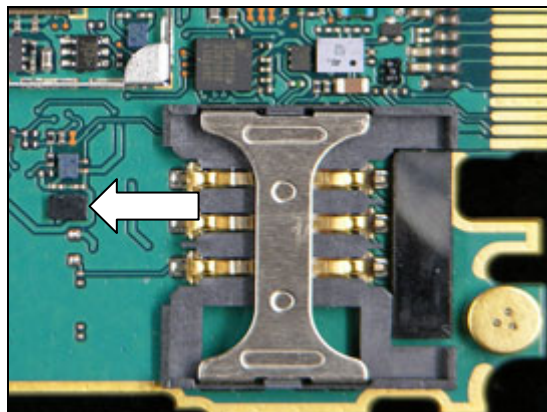
**PROTECT THE SIM CONNECTOR WITH HEAT RESISTANT TAPE!**

Use Hot Air Station to replace the USB Filter Network.



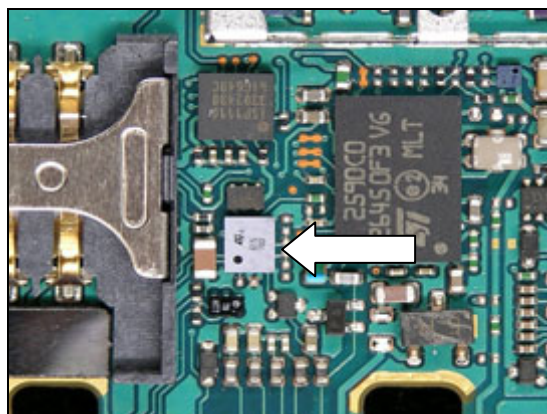
### 3.11 N2402: 1-Bit Level Translator

**PROTECT THE SIM CONNECTOR WITH HEAT RESISTANT TAPE!**  
Use Hot Air Station to replace the 1-Bit Level Translator.



### 3.12 N4202: ASIC Tjatte 3

**PROTECT THE SIM CONNECTOR WITH HEAT RESISTANT TAPE!**  
Use Hot Air Station to replace the ASIC Tjatte 3.





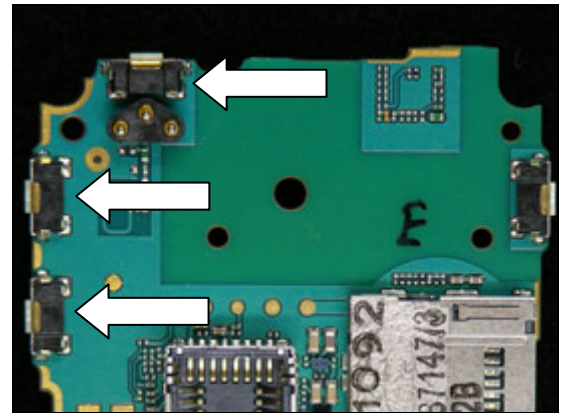


### 3.13 S2500, S2512, S2513: Side Push Switches

**PROTECT THE ANTENNA CONNECTOR WITH HEAT RESISTANT TAPE WHEN REPLACING S2500!**

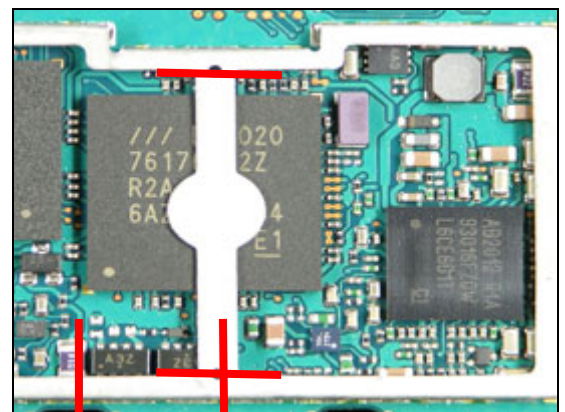
Use Hot Air Station to remove the Side Push Switch.  
Use Soldering Iron to place a new component.

**NOTE: Use as little flux as possible to place the new part. Make sure flux does not get on the component body.**

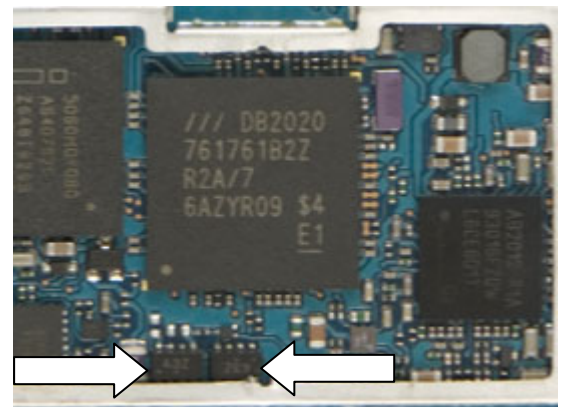


### 3.14 V2202, V2203: P-Channel Mosfet

Cut the pickup area first and then cut the edge of the fence to gain access to the part.



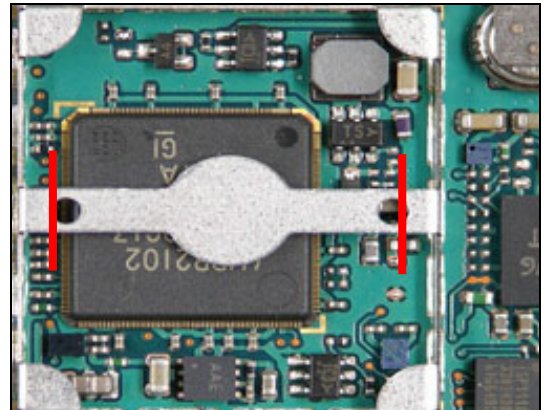
Use Hot Air Station to replace the P-Chanel Mosfet



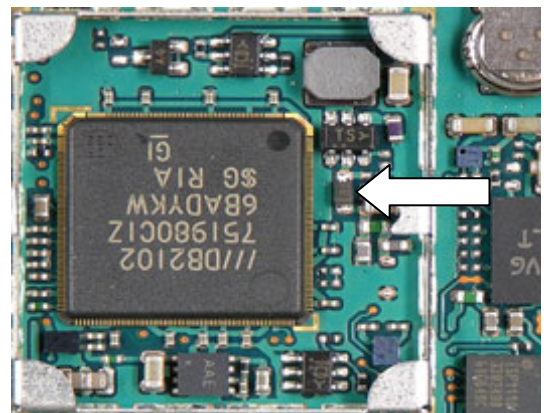


### 3.15 V3102: Schotty Diode

Cut the shield frames pickup area.



Use Hot Air Station to remove the Schotty Diode.  
Use Soldering Iron or Hot Air Station to place a new component.

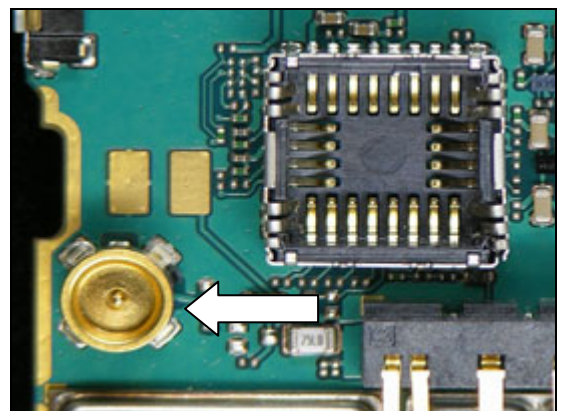


### 3.16 X1000: External Antenna Connector

**PROTECT THE CAMERA SOCKET WITH HEAT RESISTANT TAPE!**

Use Hot Air Station to remove the External Antenna Connector

Use Soldering Iron or BGA Rework Station to place a new component.



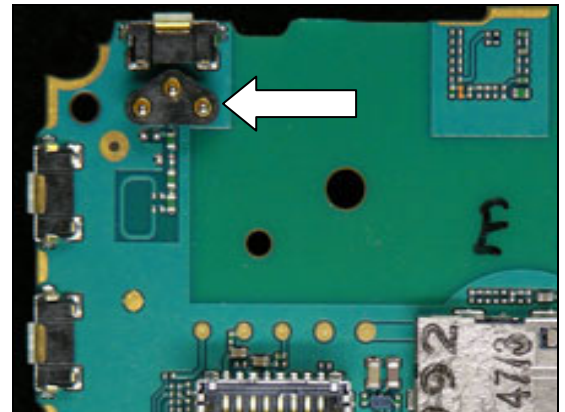




### 3.17 X1001: Antenna Connector 3-pol

**PROTECT THE SIDE SWITCH S2500 WITH HEAT RESISTANT TAPE!**

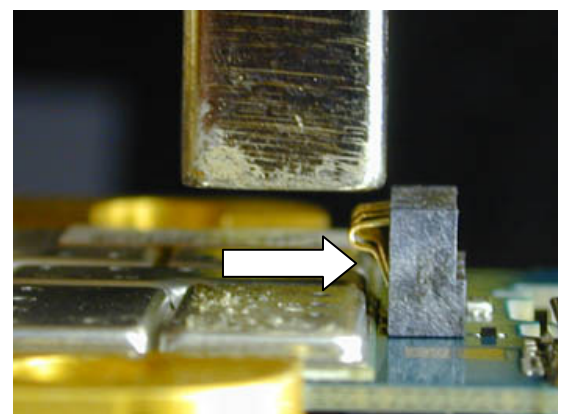
Remove the plastic part of component.  
Use Hot Air Station to remove the Antenna pins.  
Use Soldering Iron or Hot Air Station to place new pins.  
Be careful to align them right.  
Put a new plastic part.



### 3.18 X2200: Battery Connector

Remove the label from the part in front of X2200.  
Use BGA Station to replace the Battery Connector.

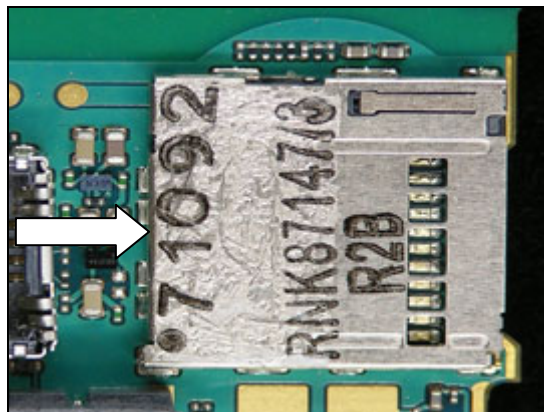
Position the nozzle in front of the part instead of over it.  
Place back the label.



### 3.19 X2301: M2 SMK Memory Card Reader

**PROTECT THE CAMERA SOCKET WITH CAPTON TAPE!**

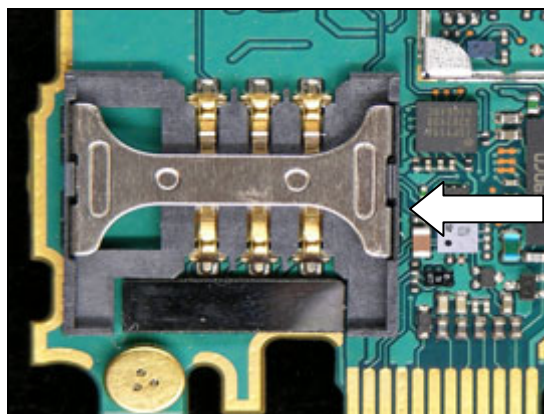
Use BGA Station to replace the M2 Reader.



### 3.20 X2302: SIM Connector

**PROTECT THE MICROPHONE WITH HEAT RESISTANT TAPE!**

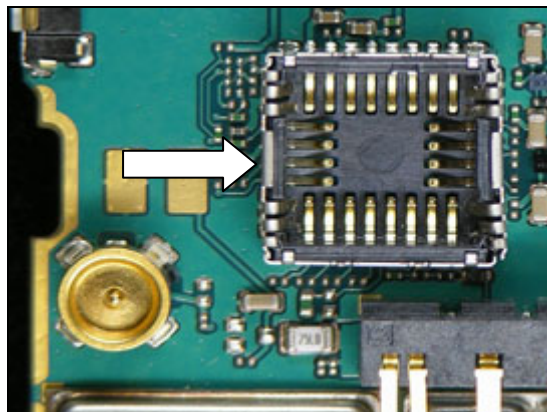
Use BGA Station to replace the SIM Connector.



### 3.21 X2505: Main Camera Socket

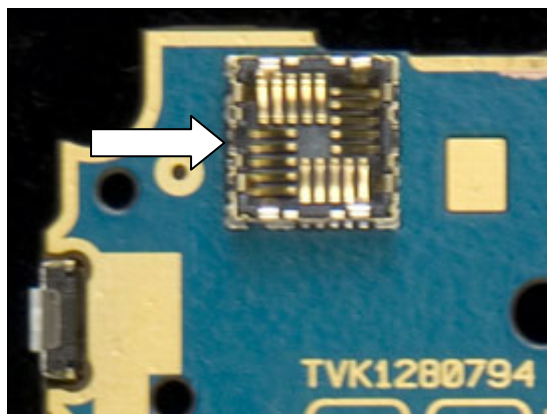
***PROTECT THE EXTERNAL ANTENNA CONNECTOR AND THE BATTERY CONNECTOR WITH HEAT RESISTANT TAPE!***

Use BGA Station to replace the Main Camera Socket.



### 3.22 X2510: VGA Camera Socket

Use BGA Station to replace the VGA Camera Socket.

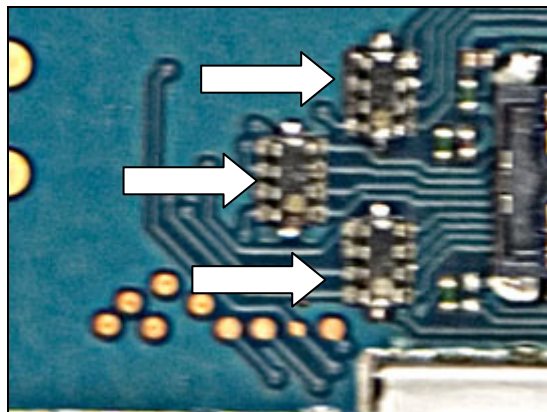


### 3.23 Z3100, Z3101, Z3102: LC Filter Array

***PROTECT THE BTB CONNECTOR WITH HEAT RESISTANT TAPE!***

Use Hot Air Station to remove the LC Filter.

Use Soldering Iron or Hot Air Station to place a new component.



## 4 Revision history

Rev.	Date	Changes / Comments
A	2007-07-10	First release