



# Working Instruction, Electrical

Applicable for W910i and W908c

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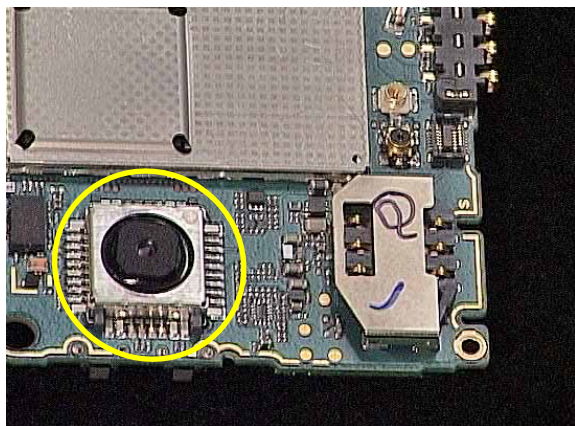
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# 1 Read this first!

## CAUTION

*Keep all contact surfaces clean, no dirt or hand grease!*

*Remove the Main Camera before you perform any repair action on the board by using Hot Air soldering equipment or BGA repair equipment.*



**ATTENTION! D2000, N2000, N1400 AND OTHER COMPONENTS PLACED INSIDE OF THE BASE BAND SHIELD FRAME (E1001) ARE UNDER-FILLED!**

**ALL REPAIR ACTION WITH HOT AIR SOLDERING EQUIPMENT OR BGA REPAIR EQUIPMENT AROUND AND ON THE OPPOSITE SIDE OF THESE COMPONENTS SHALL BE PERFORMED WITH CARE, IF THE SOLDERING JOINTS TEMPERATURE ON THESE UNDER-FILLED COMPONENTS ACHIEVES 210 °C, THAN SOLDERING OF THESE COMPONENTS WILL BE DAMAGED.**

**Protect the phone from ESD damages whenever it has been opened by using:**

- ESD-wristband
- ESD-gloves

## 2 Moisture Sensitivity and Component Baking

### **CAUTION!**

**THE W910 BOARD (PBA) ITSELF MUST BE BAKED PRIOR TO ANY REPAIRS ARE PERFORMED ON THE BOARD, WHEN USING HOT AIR SOLDERING STATION, BGA REPLACEMENT EQUIPMENT OR BOTTOM HEAT. THE BOARD SHOULD BE BAKED AT 125 DEGREES CELCIUS FOR 4 HOURS.**

Some components in this product are moisture sensitive and must be baked prior to use if they have been exposed to air.

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/>

<b>LEVEL 1</b>	<b>UNLIMITED FLOOR LIFE;</b> does not require dry pack or re-baking.
<b>LEVEL 2</b>	<b>1 YEAR FLOOR LIFE;</b> $\leq 30^{\circ}\text{C}$ ; 60% relative humidity (rh); shipped in dry pack; must be re-baked after being opened if floor life is exceeded.
<b>LEVEL 2A</b>	<b>4 WEEKS FLOOR LIFE;</b> $\leq 30^{\circ}\text{C}$ ; 60% rh; shipped in dry pack; must be re-baked after being opened if floor life is exceeded.
<b>LEVEL 3</b>	<b>168 HOURS FLOOR LIFE;</b> $\leq 30^{\circ}\text{C}$ ; 60% rh; shipped in dry pack; must be re-baked after being opened if floor life is exceeded.
<b>LEVEL 4</b>	<b>72 HOURS FLOOR LIFE;</b> $\leq 30^{\circ}\text{C}$ ; 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/>.

### 3 Lead-free soldering

**KEEP ALL CONTACT SURFACES CLEAN OF DIRT AND HAND GREASE!**

**THIS PRODUCT IS MANUFACTURED WITH LEAD-FREE SOLDER AND LEAD-FREE COMPONENTS!**

During electrical repair, it is critical to make sure that no lead is introduced.

This symbol indicates that the product is lead-free.



All lead-free PBA's will be marked with this symbol.



A lead-free work area must be set up completely separated from work areas that are used to make lead repairs.

The lead-free work area must also be clearly labeled with the lead free symbol as shown in the adjacent picture.

The items on this desk must remain lead-free.

They must be adequately labeled to make their lead-free status clearly and easily recognized.



## Lead-free soldering *continued*

LFS (lead-free solder paste) characteristics:

- High melting point (typically 220°C)
- Low wettability
- High surface tension
- Difficult to spread
- Recommended tip temperature = 360°C

**WHEN SERVICING PBA'S THAT HAVE BEEN MANUFACTURED WITH LFS (LEAD-FREE SOLDER PASTE), LFS MUST BE USED. IF NOT, THERE IS A HIGH RISK FOR UNRELIABLE SOLDERING JOINTS.**

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 areas may remain exposed.



## 4 Hot air gun temperature requirements

The air temperature shall not exceed 360°C. The temperature shall be measured 5 mm from the nozzle outlet.

If it's not possible to remove and/ or solder with 360°C a BGA Rework Station or another repair process shall be considered to ensure high process control.

Too high temperature can cause damage and cracks due to thermal stress on sensitive components, e.g. ceramic components like capacitors.

## 5 Soldering tip temperature requirements

The soldering tip temperature shall be minimum 310°C and maximum 360°C.

Too high temperature can cause damage and cracks due to thermal stress on sensitive components, e.g. ceramic components like capacitors.

## 6 BGA rework specifications

For all components that are required to be replaced using BGA Rework Station follow the Generic document Technical Requirement, Space ID: 1207-2949 and Heat treatment document Space ID: 1207-2955

## 7 Components not to be replaced!

Due to the under-fill following components shall not be replaced!

D2000	N2000	N1400
D2400	B2101	V2202
N1200	B4200	N2201
N1210		



## 8 Replacement of components

### EQUIPMENT

- Dentist hook
- Shield fence pliers NTZ 112 537
- Hot air soldering equipment
- Soldering iron
- BGA repair equipment
- Pair of tweezers
- Soldering cleaning wiper (tin wick)
- Solder paste lead-free (SN 96% AG 3.5% Cu 0.5 %)
- Flux, RMA no-clean flux
- Cutting pliers
- Shield fence pliers NTZ 112 537

### CAUTION

***Keep all contact surfaces clean, no dirt or hand grease!***

***Remove the Main Camera before you perform any repair action on the board by using Hot Air soldering equipment or BGA repair equipment!***

***Protect the phone from ESD damages whenever it has been opened by using:***

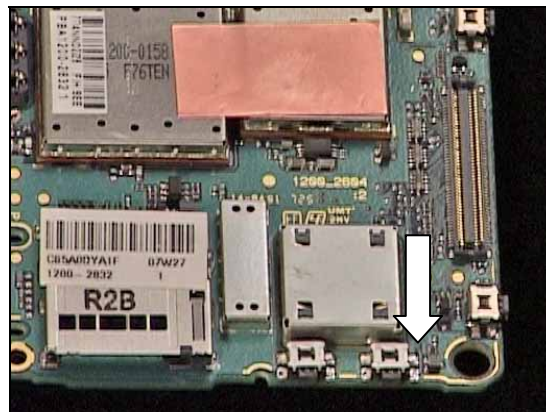
- ***ESD-wristband***
- ***ESD-gloves***

### MECHANICAL INSTRUCTIONS

For all the following part replacements, disassemble and assemble the phone as described in *Working Instruction 1001-5700*

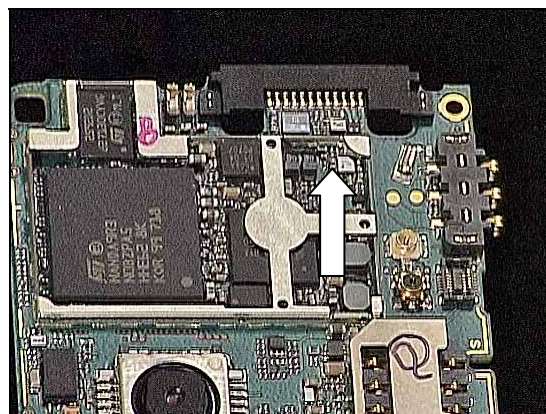
## 8.1 B4410: HALL SWITCH

Remove the Hall Switch with Hot air soldering equipment.  
Mount the Hall Switch with Soldering Iron or Hot Air.



## 8.2 C3137: Capacitor Ceramic 220,0 nF

Remove the shield can lid.  
Use a dentist hook.  
Replace Capacitor Ceramic 220,0 nF.  
Use Hot air soldering equipment.  
Put back a **new** shield can lid.  
Press on all sides of the lid until you hear a “click” sound.



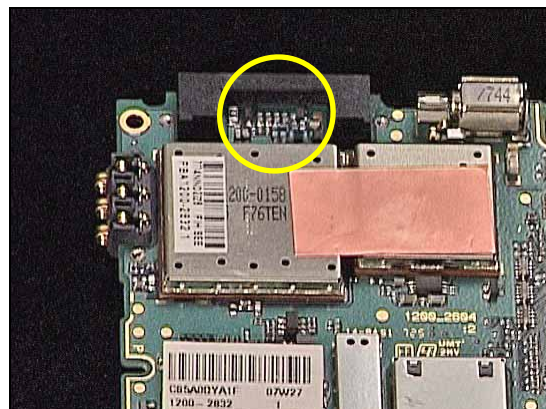


### 8.3 L2401-L2404: EMI Filter 1.8kohm

***PROTECT THE SYSTEM CONNECTOR WITH CAPTON TAPE***

Replace the EMI Filter.

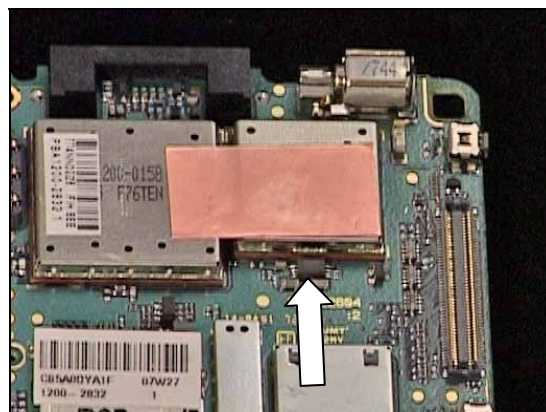
Use Hot air soldering equipment or Soldering Iron.



### 8.4 N2202: 3-MODE 300mA LDO REGULATOR

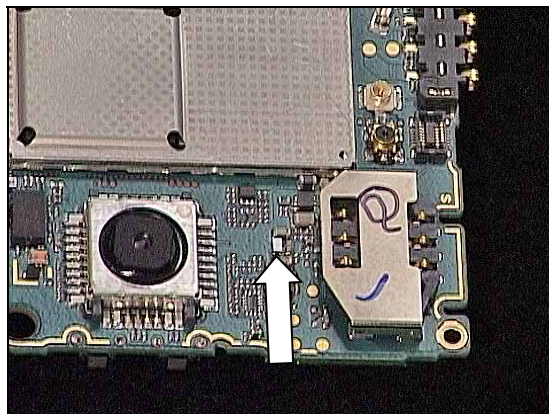
Remove the 3-Mode 300mA LDO Regulator with Hot air soldering equipment.

Mount the new component with Soldering Iron.



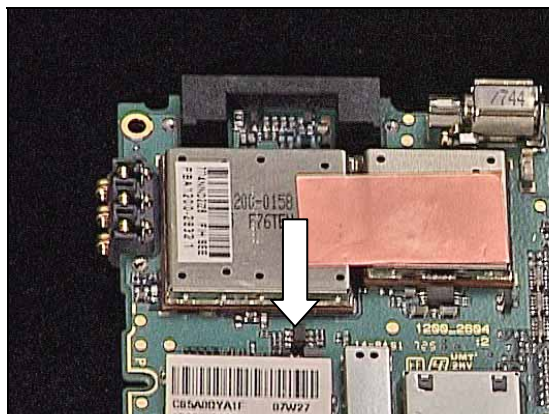
## 8.5 N2203: 2ch-LDO, Vout1=2.8V, Vout2=1.8V

Replace the 2ch-LDO.  
Use Hot air soldering equipment.



## 8.6 N2400: 1-BIT LEVEL TRANSLATOR

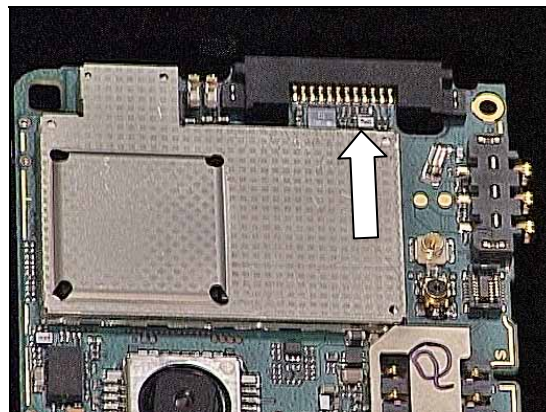
Replace the 1-Bit Level Translator.  
Use Hot air soldering equipment.



## 8.7 N2424: ESD/EMI protection for USB

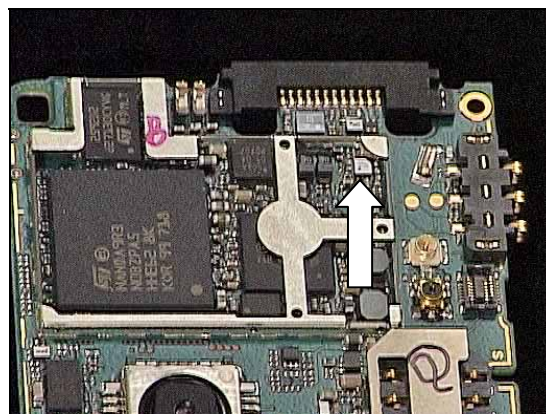
### ***PROTECT THE SYSTEM CONNECTOR WITH CAPTON TAPE***

Replace the ESD/EMI protection for USB.  
Use Hot air soldering equipment.



## 8.8 N3100: 1W OPAMP

Remove the shield can lid.  
Use a dentist hook.  
Replace the 1W OPAMP.  
Use Hot air soldering equipment.  
Put back a **new** shield can lid.  
Press on all sides of the lid until you hear a "click" sound.

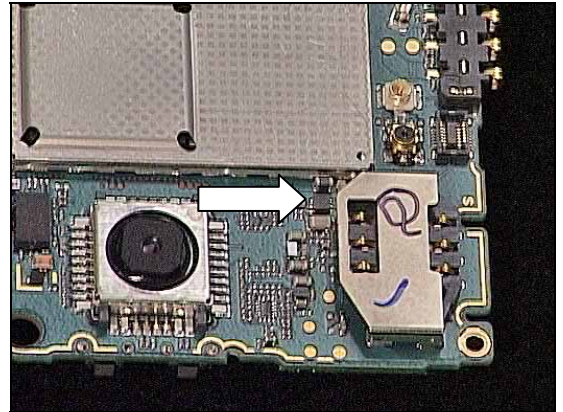




## 8.9 N4201: N-Channel MOSFET

**PROTECT THE SIM READER WITH CAPTON TAPE**

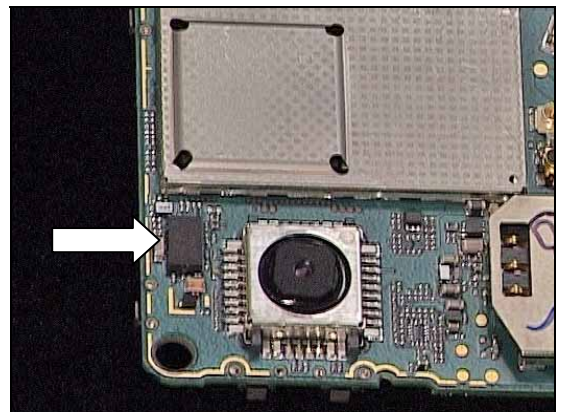
Replace the N-Channel Mosfet.  
Use Hot air soldering equipment.



## 8.10 N4410: ASIC 3-axis accelerometer

**PROTECT THE LED RED WITH CAPTON TAPE**

Replace the ASIC 3-axis accelerometer.  
Use Hot air soldering equipment.



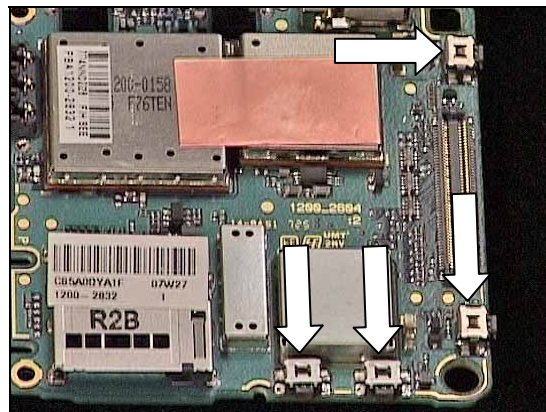


## 8.11 S2400, S2402-S2404: Switch side push

**DO NOT USE FLUX WHEN THE NEW COMPONENTS ARE SOLDERED.**

Remove the Switch side push with Hot air soldering equipment.

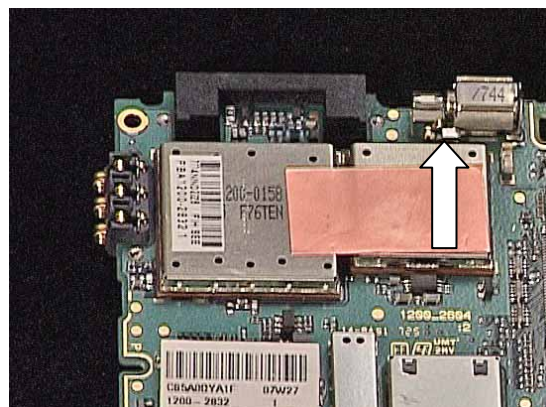
Mount the Switch side push with Soldering Iron.



## 8.12 X1002: Contact, Terminal

Replace the Contact, Terminal.

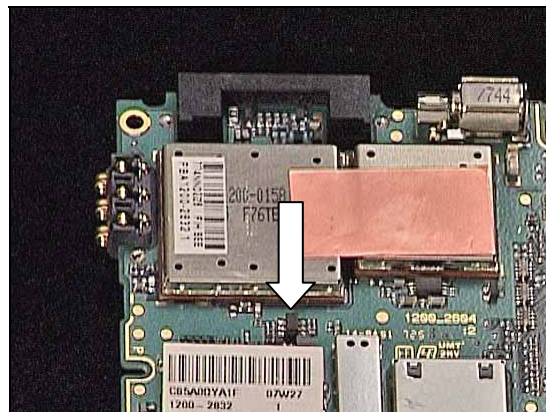
Use Hot air soldering equipment.



### 8.13 V2405: MOSFET Complementary N+P 20-V (D-S)

Remove the Mosfet Complementary N+P 20-V (D-S) with Hot air soldering equipment.

Mount the new component with Soldering Iron.

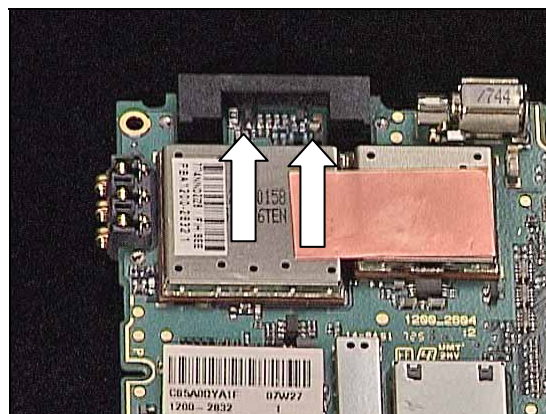


### 8.14 V2420, V2422: Zener Diode voltage regulator

**PROTECT THE SYSTEM CONNECTOR WITH CAPTON TAPE**

Replace the Zener Diode Voltage Regulator.

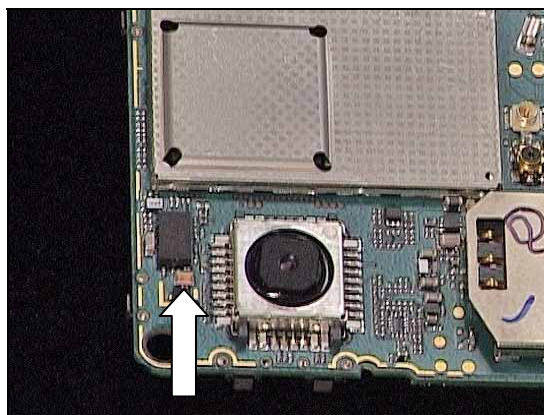
Use H Hot air soldering equipment or Soldering Iron.





## 8.15 V4208: LED Red

Remove the LED Red with Hot air soldering equipment.  
Mount the LED Red with Soldering Iron.

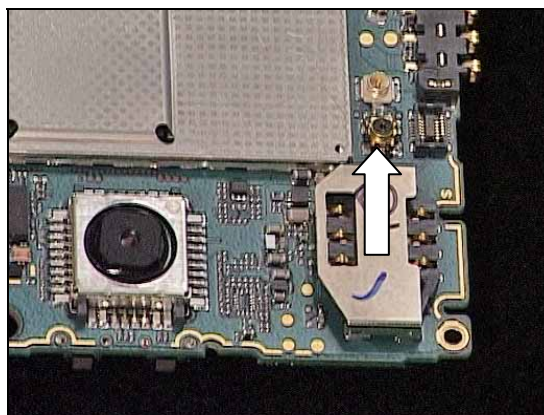


## 8.16 X1200: Mechanical antenna switch

***PROTECT THE BTB CONNECTOR AND THE BATTERY CONNECTOR WITH CAPTON TAPE***

Remove the Mechanical antenna switch with Hot air soldering equipment.

Mount the Mechanical antenna switch with Soldering Iron.

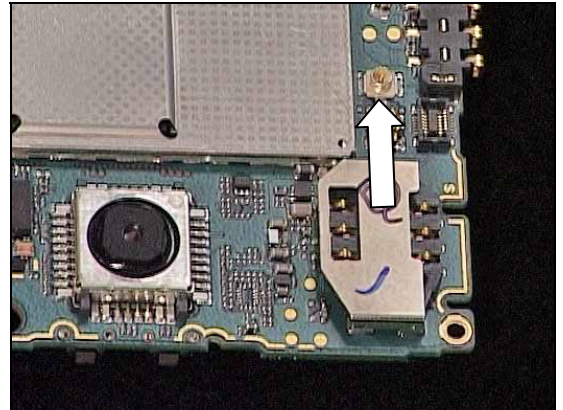


## 8.17 X1201: COAX CONNECTOR

**PROTECT THE BTB CONNECTOR AND THE BATTERY CONNECTOR WITH CAPTON TAPE**

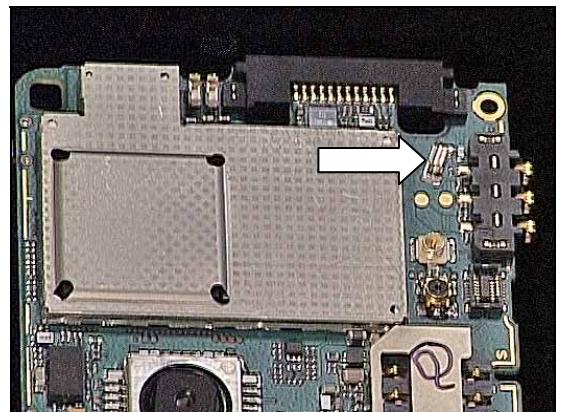
Remove the Coax Connector with Hot air soldering equipment.

Mount the Coax Connector with Soldering Iron.



## 8.18 X1202: On-board Clamp

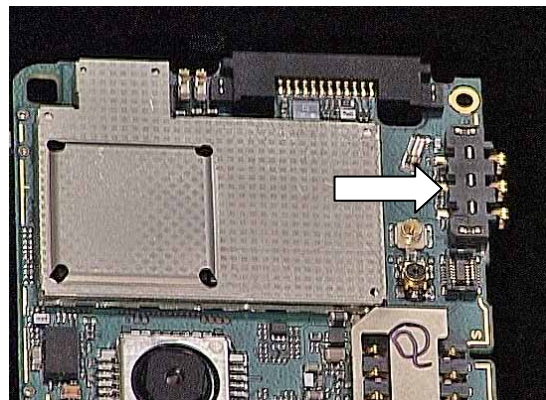
Replace the On-board Clamp.  
Use Soldering Iron.



## 8.19 X2200: Battery Connector L2401

Remove the Battery Connector with Hot air soldering equipment.

Mount the new component with Soldering Iron.

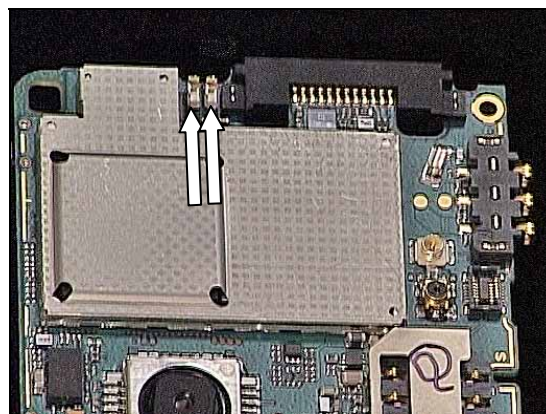


## 8.20 X1000, X1001, X1400, X1401: Contact, Terminal

**PROTECT THE SYSTEM CONNECTOR WITH CAPTON TAPE**

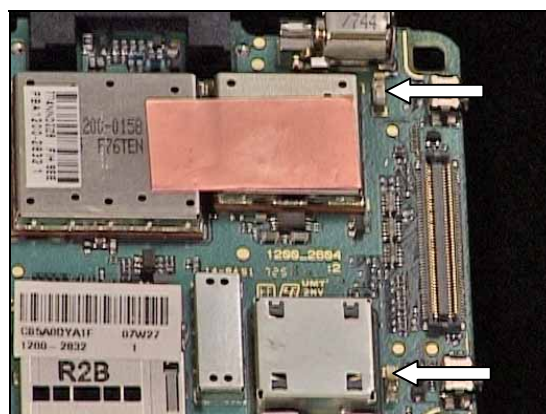
Replace the Contact, Terminal.

Use Hot air soldering equipment.



Replace the Contact, Terminal.

Use Hot air soldering equipment.

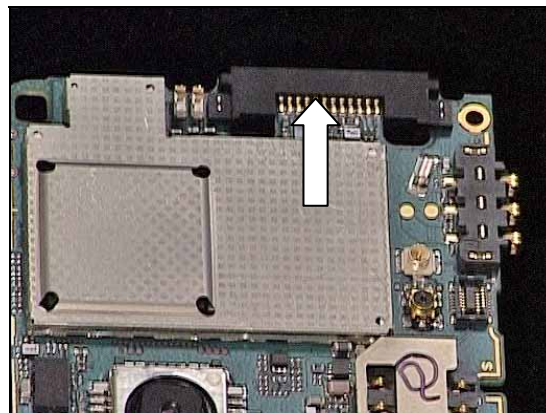




## 8.21 X2400: System Connector

Remove the System Connector with Hot air soldering equipment.

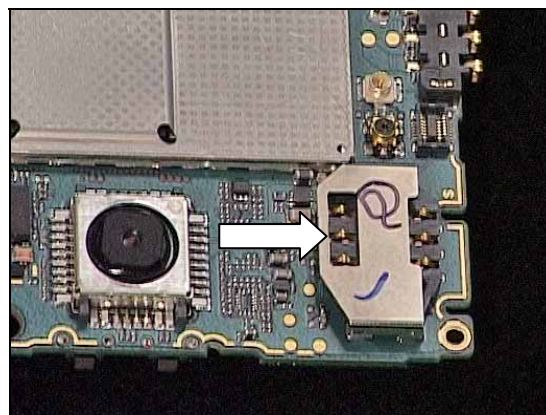
Mount the new component with Soldering Iron.



## 8.22 X2403: SIM Card Reader

Replace the SIM Card Reader.

Use BGA repair equipment.



## 8.23 X2405: M2 SMK Memory Card Reader

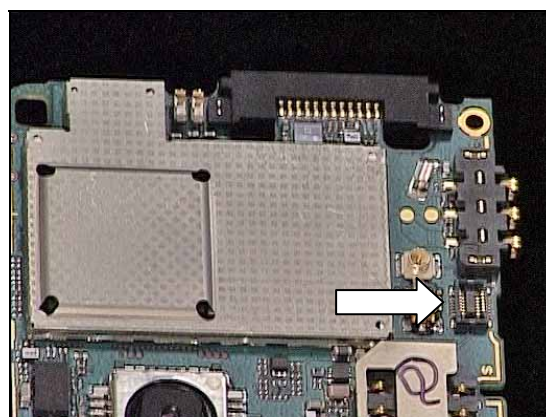
Replace the M2 SMK Memory Card Reader.  
Use BGA repair equipment.



## 8.24 X3100: Connector BtB

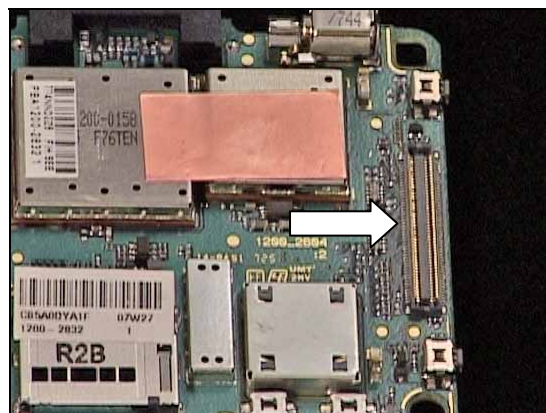
***PROTECT THE BATTERY CONNECTOR WITH CAPTON TAPE***

Replace the Connector BtB.  
Use Hot air soldering equipment.



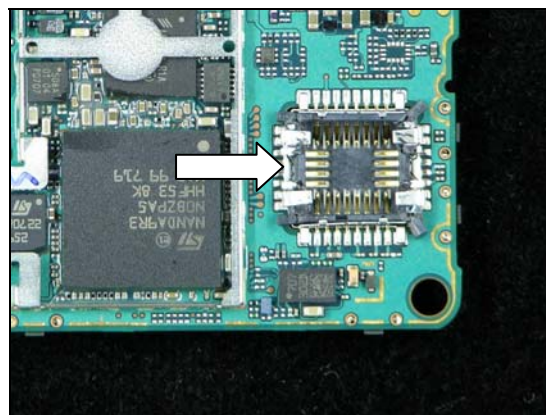
## 8.25 X4200: Connector BtB

Remove the BtB Connector with Hot air soldering equipment.  
Mount the new component with Soldering Iron.



## 8.26 X4300: Camera Socket

Remove the Camera socket with Hot air soldering equipment.  
Mount the Camera Socket with Soldering Iron.





## 9 Revision history

Rev.	Date	Changes / Comments
1	2008-01-18	Initial release
2	2008-11-11	Added Chapter 2