



# Working Instruction Additional Soldering Process/

Applicable for W902

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# 1 Read this first!

## CAUTION

KEEP ALL CONTACT SURFACES CLEAN, NO DIRT OR HAND GREASE!

**ATTENTION! D2100, D2800, AND OTHER COMPONENTS PLACED UNDERNEATH THE SHIELD CAN LID BB 2 (1201-9352) ARE UNDERFILLED!**

ALL REPAIR ACTION WITH HOT AIR SOLDERING EQUIPMENT OR BGA REPAIR EQUIPMENT AROUND THESE 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, THEN SOLDERING OF THESE COMPONENTS WILL BE DAMAGED.

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

- ESD-wristband
- ESD-gloves



## 2 Lead-free soldering

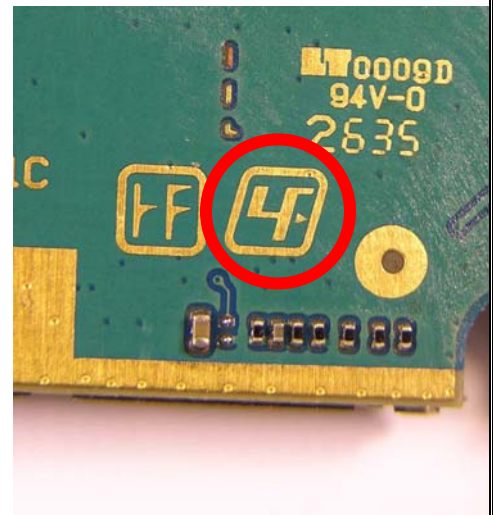
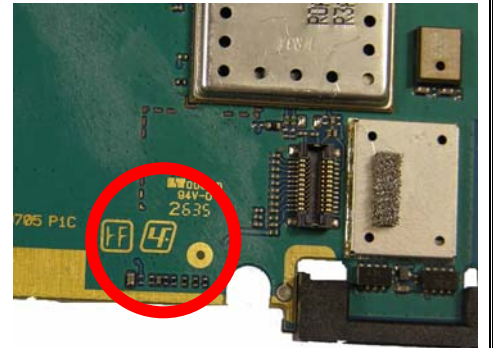
### 2.1 Lead-free Symbol

**NOTE!**

***This is a lead-free product!***

***All solder wire or paste used with this product must be lead-free.***

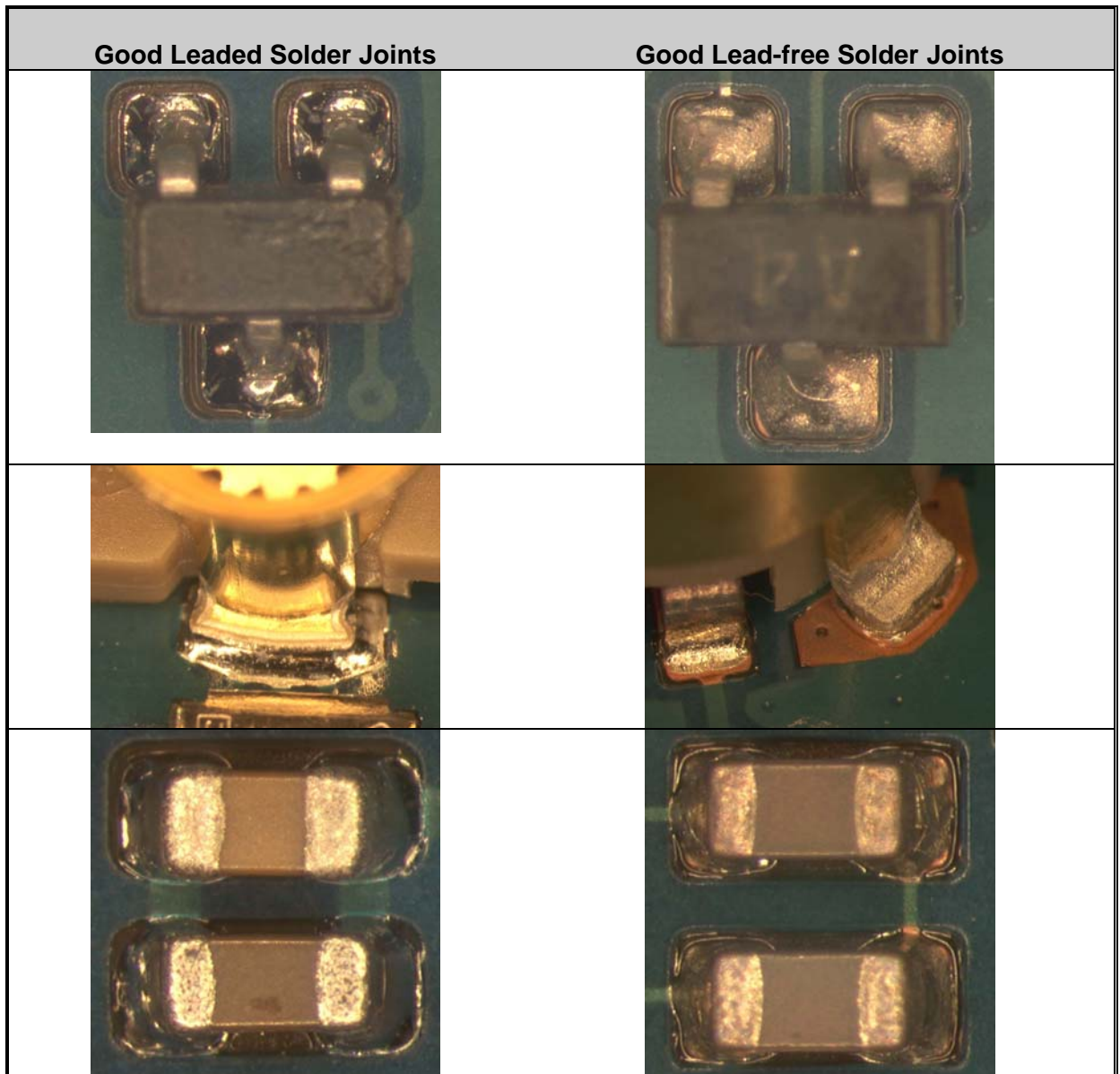
***All rework tools that directly contact the solder must remain lead-free. They must only be used for lead-free repairs.***





## 2.2 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 Soldering issues

### 3.1 Hot air gun temperature requirements

The air temperature must not exceed 360°C.

The temperature shall be measured 5 mm from the nozzle outlet.

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

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

### 3.2 Soldering tip temperature requirements

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

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

### 3.3 Bottom heat requirements

In certain cases some components may require a bottom heater during repair in order to pre-heat the board and to level out the  $\Delta T$  on the PBA.

This will also minimize the thermal stress.

The temperature on the PBA surface must not exceed 150°C to minimize inter-metallic growth and thermal stress on the PWB.

### 3.4 BGA rework specifications

For all components that require the use of a BGA Rework Station, follow the:

*Technical Requirement, Generic document; Space ID: 1207-2949*

## 4 Replacement of components

### EQUIPMENT

Dentist hook  
ESD-gloves (cotton gloves)  
ESD-wristband  
Soldering tool  
Hot air soldering station  
BGA replacement equipment  
Pair of tweezers  
Solder cleaning wiper (tin wick)  
Solder paste lead-free (SN 96% Ag 3.5% Cu 0.5%).  
Flux, RMA no-clean flux  
Cutting pliers

### MECHANICAL INSTRUCTIONS

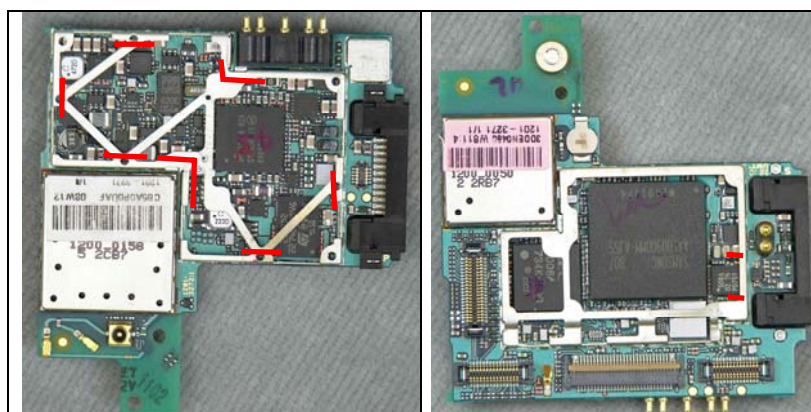
For all the following part replacements, disassemble and assemble the phone as described in *Working Instruction 1218-2845*

#### 4.1 Shield can fence modification

The arrows and the red lines show where the frame should be cut to enable rework.

After rework the **height of the frame should not be affected**.

On a reworked unit when the lid is mounted, it **should not be visible that rework has been performed** on the shield frame.





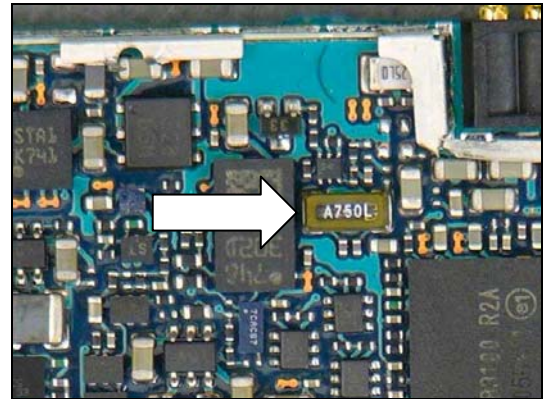


#### 4.2 B2100

#### Crystal 32,768 kHz

##### PERFORM SHIELD CAN MODIFICATION ACCORDING TO CHAPTER 4.1!

Use Hot air soldering station and Bottom Heat to replace component.

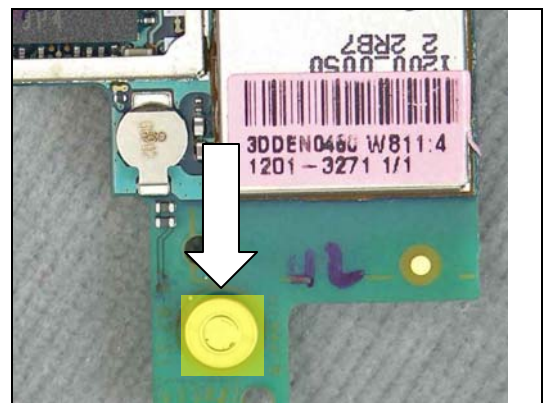


#### 4.3 B3105

#### Microphone

##### PROTECT THE MICROPHONE WITH CAPTON TAPE!

Use Hot air soldering station and Bottom Heat to replace component.



#### 4.4 C2217

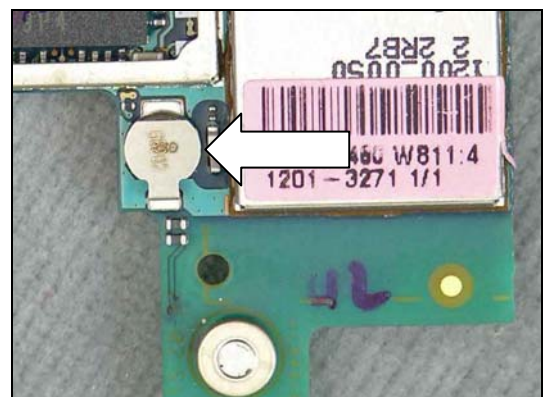
#### Capacitor 20.0 mF 3.3 V

##### MAXIMUM TEMPERATURE FOR THE HOT AIR SOLDERING STATION IS 330°C!

Use Hot air soldering station and Bottom Heat to remove the component.

Use Soldering Iron for **maximum 4 seconds** and replace the component.

**Caution! The component is polarized**



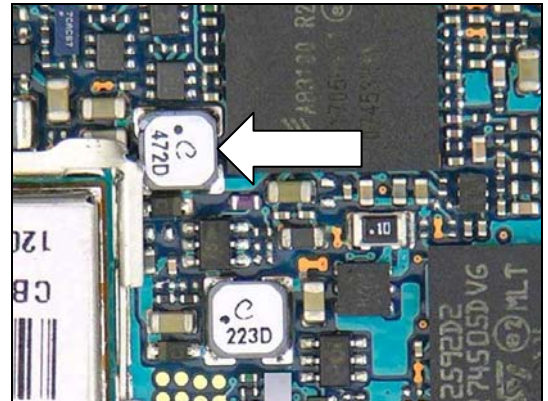


#### 4.5 L2200

#### Inductor Wirewound

**PERFORM SHIELD CAN MODIFICATION ACCORDING TO CHAPTER 4.1!**

Use Hot air soldering station to replace the component.

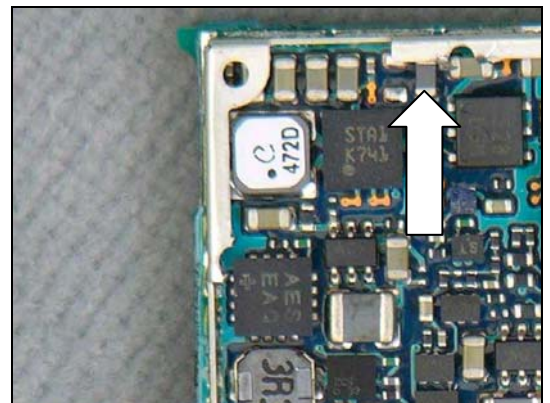


#### 4.6 L2260

#### Inductor

**PERFORM SHIELD CAN MODIFICATION ACCORDING TO CHAPTER 4.1!**

Use Hot air soldering station to replace the component.

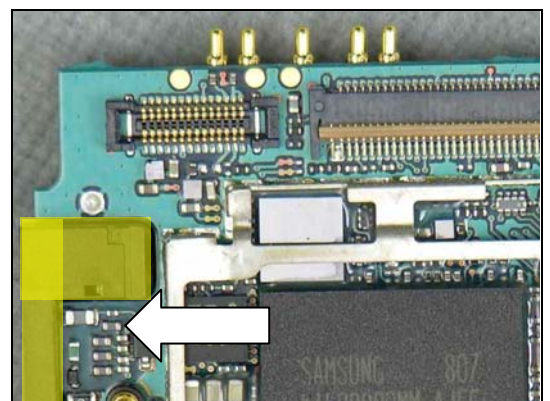


#### 4.7 L2401

#### Inductor

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

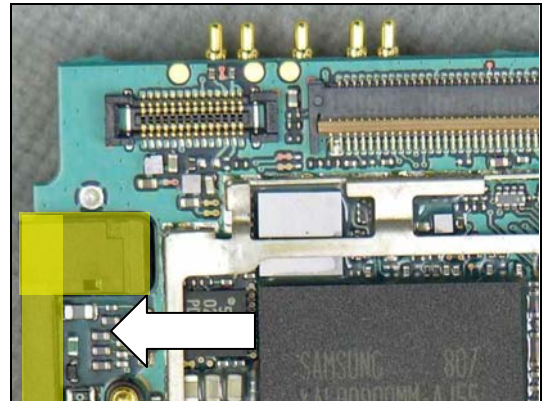
Use Hot air soldering station or soldering iron to replace the component.



#### 4.8 L2402 Inductor

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

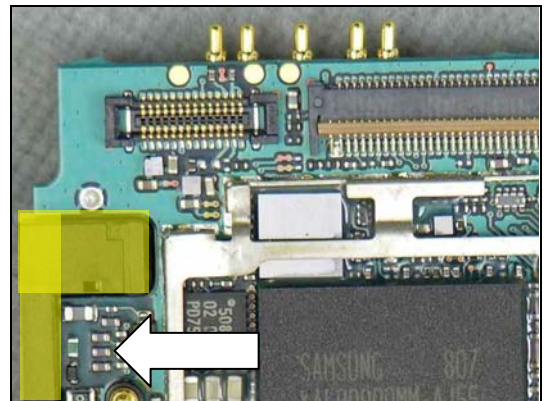
Use Hot air soldering station or soldering iron to replace the component.



#### 4.9 L2403 Inductor

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

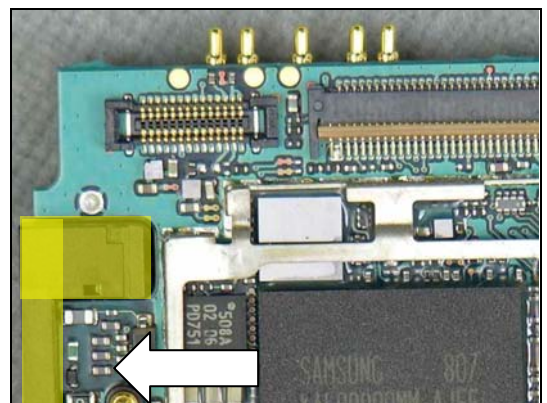
Use Hot air soldering station or soldering iron to replace the component.



#### 4.10 L2404 Inductor

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

Use Hot air soldering station or soldering iron to replace the component.

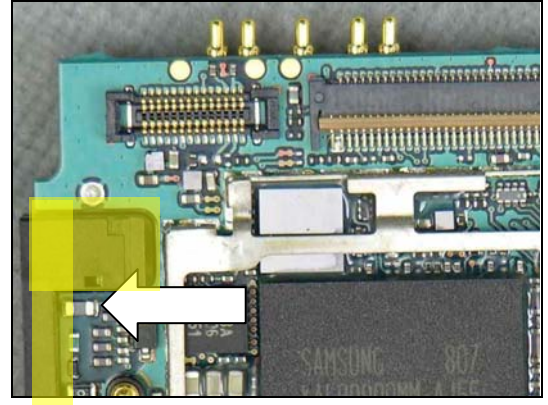


4.11 L2487

Chip Inductor 2.2uH +/-20% 0603

**PERFORM SHIELD CAN MODIFICATION ACCORDING TO CHAPTER 4.1!**

Use Hot air soldering station to replace the component.



4.12 E1

Shield can lid closed assembly

Use a Dentist Hook to remove the Shield Can Lid.

**DO NOT REUSE AN OLD SHIELD CAN LID!**

Use your fingers and press the Shield Can Lid to attach it.

**A CLICKING SOUND WILL CONFIRM A SECURE FIT!**

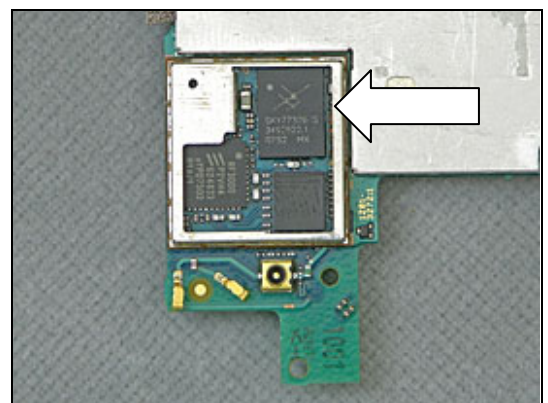
**THE FOIL 1208-8402 SHOULD BE PLACED AS A SIM CARD INSULATOR.**



4.13 N1002

GSM PA

Use BGA equipment to replace the component.



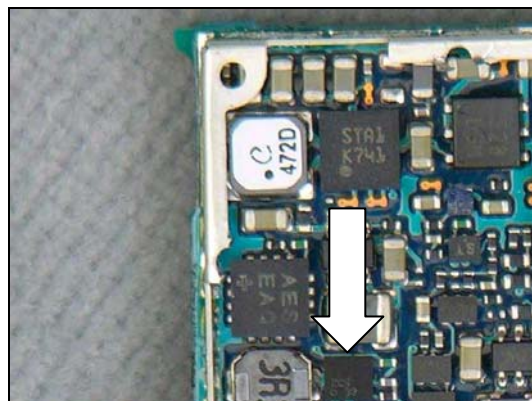


#### 4.14 N1220

#### DC/DC Converter

**PERFORM SHIELD CAN MODIFICATION ACCORDING TO CHAPTER 4.1!**

Use Hot air soldering station to replace the component.



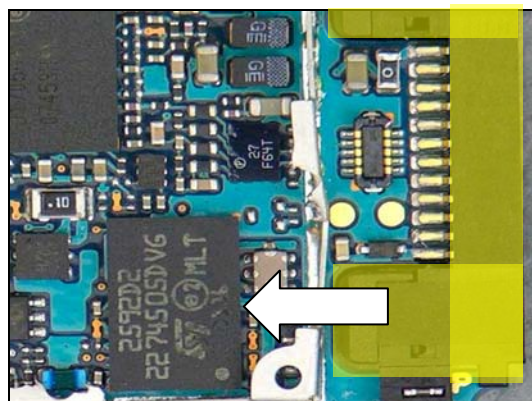
#### 4.15 N1300

#### Bluetooth Module

**PERFORM SHIELD CAN MODIFICATION ACCORDING TO CHAPTER 4.1!**

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

Use BGA equipment to replace the component.



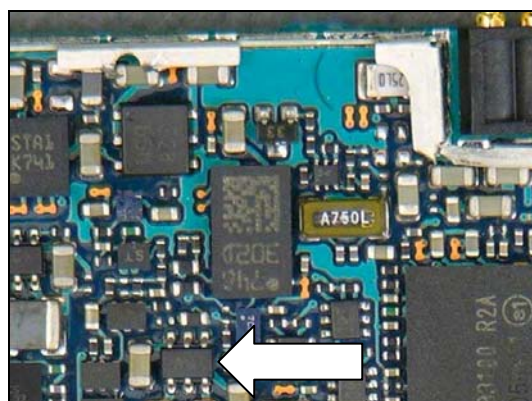
#### 4.16 N2202

#### IC Vreg MAX8640, 1.8V

**PERFORM SHIELD CAN MODIFICATION ACCORDING TO CHAPTER 4.1!**

Use Hot air soldering station to remove the component.

Use Soldering Iron to replace the component.

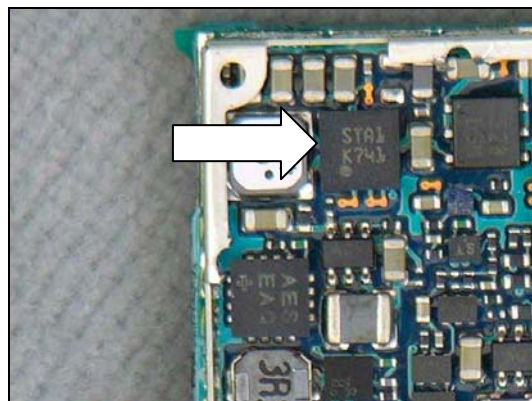


**4.17 N2203**

**IC Vreg**

**PERFORM SHIELD CAN MODIFICATION ACCORDING TO CHAPTER 4.1!**

Use Hot air soldering station to replace the component.

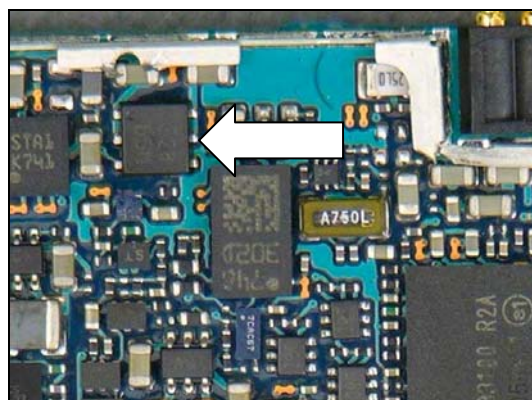


**4.18 N2206**

**Voltage regulator 2,8V**

**PERFORM SHIELD CAN MODIFICATION ACCORDING TO CHAPTER 4.1!**

Use Hot air soldering station to replace the component.



**4.19 N2400**

**1-Bit Level Translator**

Use Hot air soldering station to replace the component.

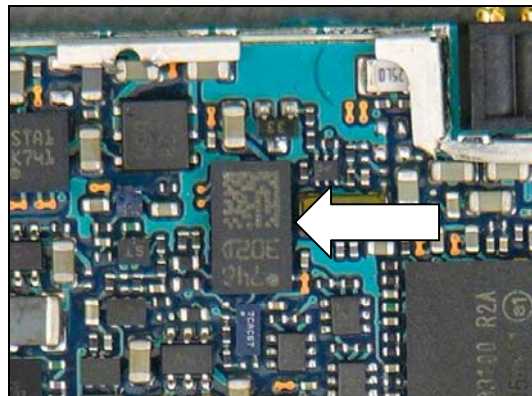


4.20 N2550

ASIC 3-axis accelerometer

**PERFORM SHIELD CAN MODIFICATION ACCORDING TO CHAPTER 4.1!**

Use Hot air soldering station and Bottom Heat to replace the component.



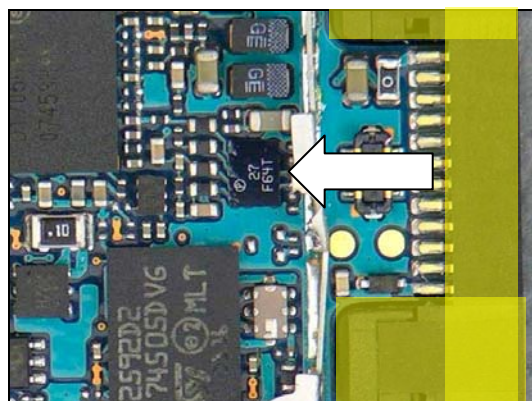
4.21 N3101

ASIC Tjatte3 CSP20

**PERFORM SHIELD CAN MODIFICATION ACCORDING TO CHAPTER 4.1!**

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

Use Hot air soldering station to replace the component.

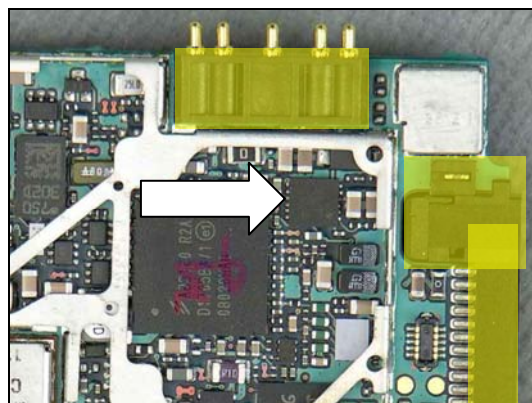


4.22 N4103

IC Driver

**PROTECT THE SYSTEM AND THE BATTERY CONNECTORS WITH CAPTION TAPE!**

Use Hot air soldering station to replace the component.

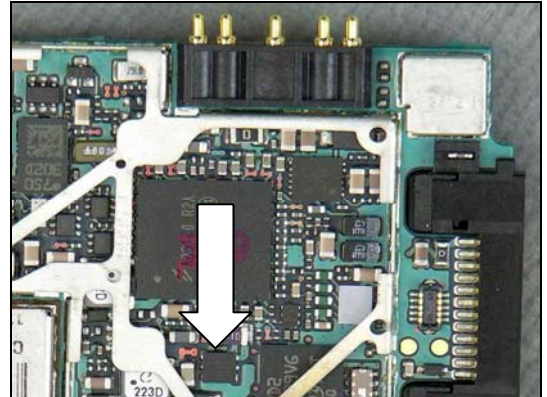




#### 4.23 V2202

#### TRANS V;DUAL\_PMOSFET;BYX101603\_A;REQ318

Use Hot air soldering station to replace the component.

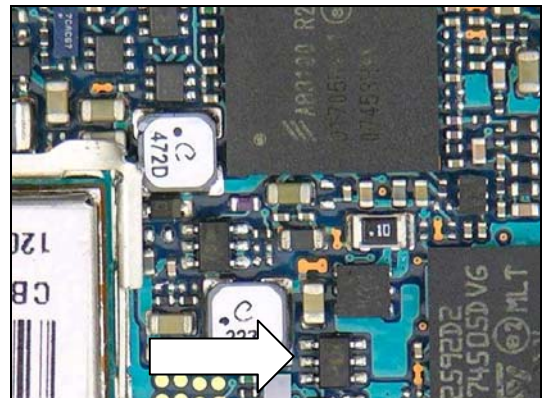


#### 4.24 V2405

#### Transistor

**PERFORM SHIELD CAN MODIFICATION ACCORDING TO CHAPTER 4.1!**

Use Hot air soldering station to remove the component.  
Use Soldering Iron to replace the component.



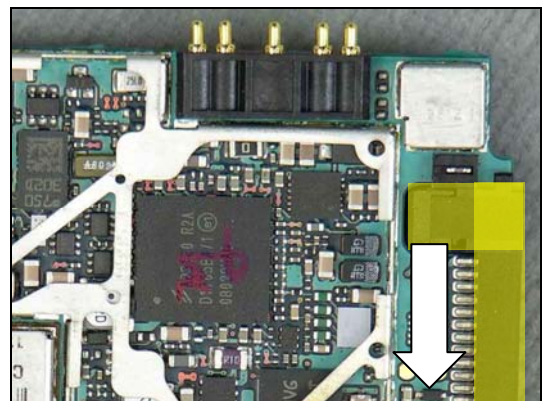
#### 4.25 V2421

#### Diode

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

Use Hot air soldering station or Soldering Iron to replace the component.

**Caution! The component is polarized.**



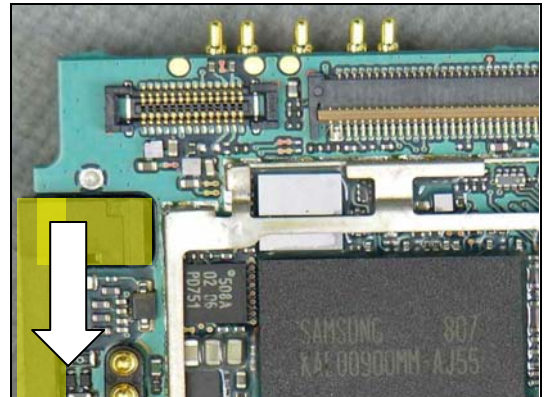
**4.26 V2426**

**Diode Protection 5, V SOD-923**

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

Use Hot air soldering station or Soldering Iron to replace the component.

**Caution! The component is polarized.**



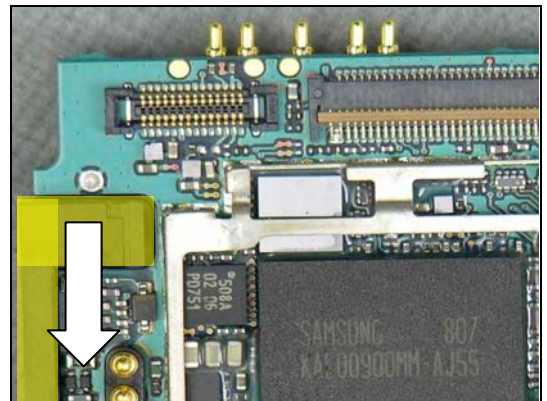
**4.27 V2427**

**Diode Protection 5, V SOD-923**

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

Use Hot air soldering station or Soldering Iron to replace the component.

**Caution! The component is polarized.**

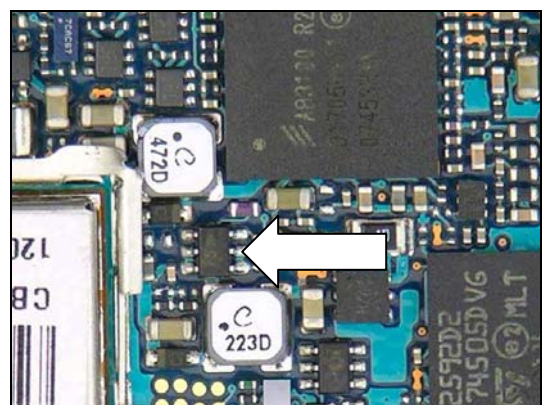


**4.28 V4200**

**Transistor, Mosfet, N-Channel**

**PERFORM SHIELD CAN MODIFICATION ACCORDING TO CHAPTER 4.1!**

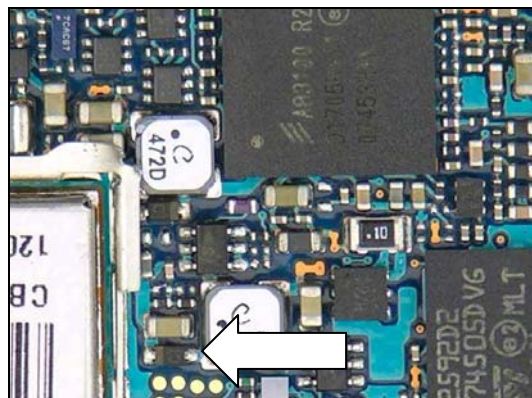
Use Hot air soldering station to remove the component.  
Use Soldering Iron to replace the component.



**4.29 V4201**
**Diode**

Use Hot air soldering station to replace the component.

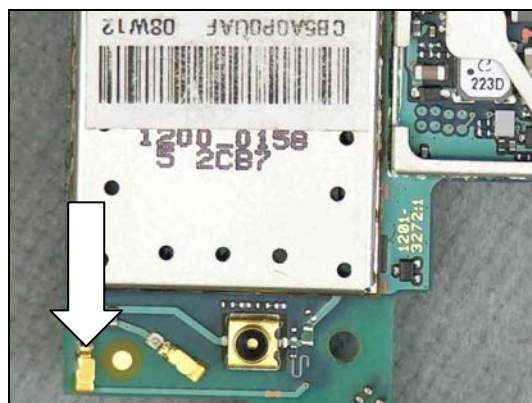
**Caution! The component is polarized.**


**4.30 X1100**
**Antenna connector**

**ANY CONTAMINATION OF SPRING HEAD WITH SOLDER IS NOT ALLOWED!**

Use Hot air soldering station to remove the component.

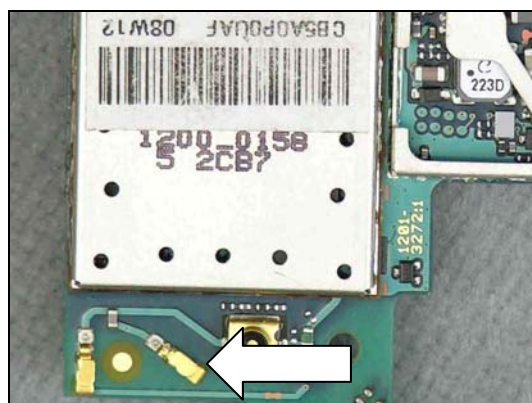
Use Soldering Iron to replace the component.


**4.31 X1101**
**Antenna connector**

**ANY CONTAMINATION OF SPRING HEAD WITH SOLDER IS NOT ALLOWED!**

Use Hot air soldering station to remove the component.

Use Soldering Iron to replace the component.

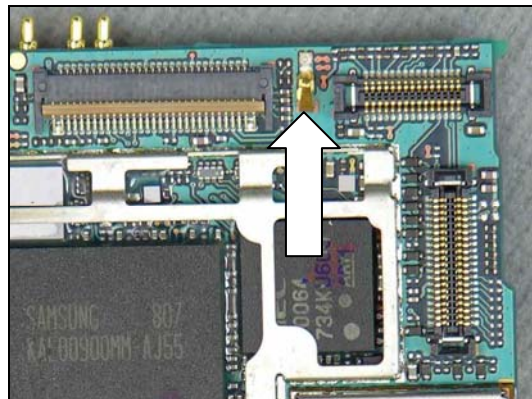




**4.32 X1102**

**Antenna connector**

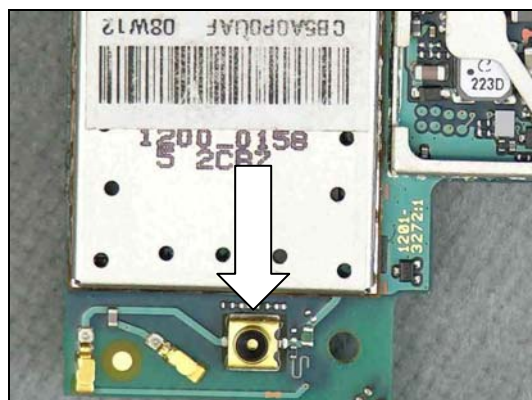
Use Hot air soldering station to remove the component.  
Use Soldering Iron to replace the component.



**4.33 X1200**

**RF test connector**

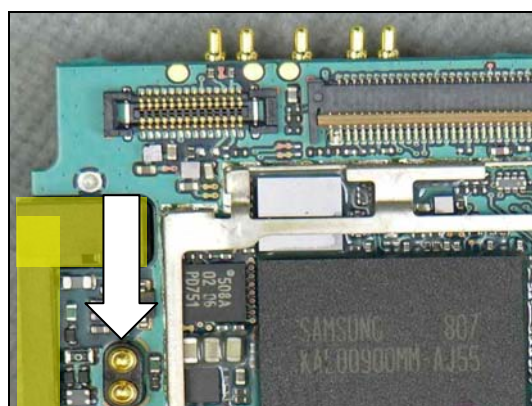
**DO NOT USE FLUX OR ISOPROPYL ALCOHOL!**  
Use Hot air soldering station to remove the component.  
Use Soldering Iron to replace the component.



**4.34 X1300**

**Connector BT Antenna**

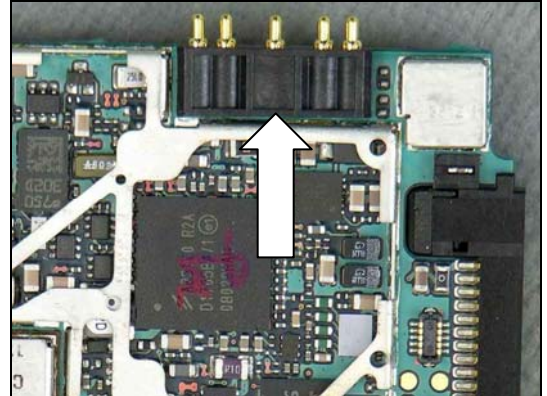
**PROTECT THE SYSTEM CONNECTOR WITH CAPTON TAPE!**  
**MAXIMUM TEMPERATURE FOR THE HOT AIR SOLDERING STATION IS 330°C!**  
Use Hot air soldering station and Bottom Heat to replace the component.



**4.35 X2201**

**Conn Pogopin Plug 5p battery connector**

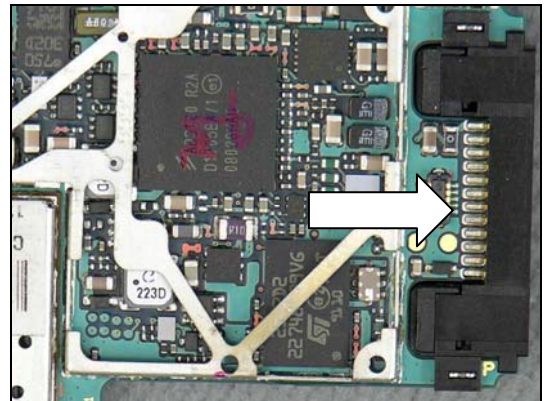
Use BGA equipment to replace this component.



**4.36 X2400**

**System connector I/O Receptacle 12p**

Use Hot air soldering station to remove the component.  
Use Soldering Iron to replace the component.

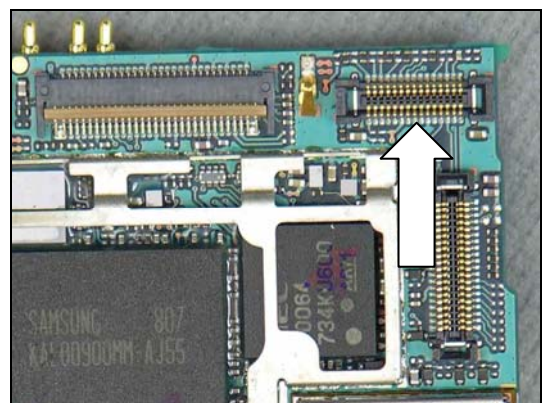


**4.37 X2409**

**Conn BtB 30 pin**

**MAXIMUM TEMPERATURE FOR THE HOT AIR SOLDERING STATION IS 330°C!**

Use Hot air soldering station and Bottom Heat to replace the component.

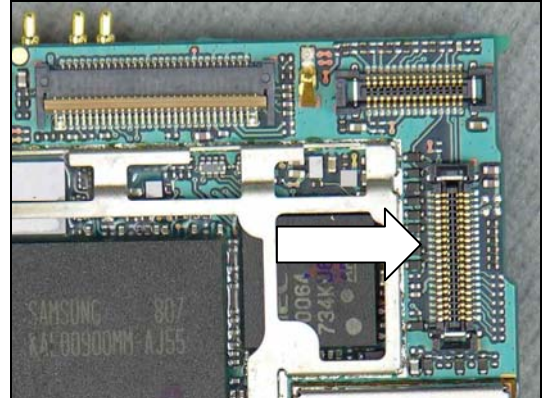


**4.38 X2410**

**Conn BtB 40 pin**

**MAXIMUM TEMPERATURE FOR THE HOT AIR SOLDERING STATION IS 330°C!**

Use Hot air soldering station and Bottom Heat to replace the component.



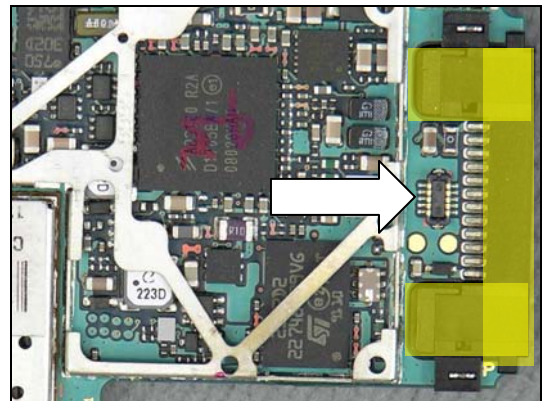
**4.39 X3100**

**Conn BtB 10 pin**

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

Use Hot air soldering station to remove the component.

Use Soldering Iron to replace the component.

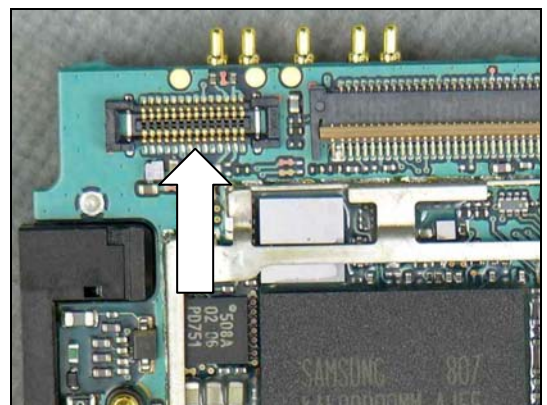


**4.40 X4200**

**Conn BtB 28 pin**

**MAXIMUM TEMPERATURE FOR THE HOT AIR SOLDERING STATION IS 330°C!**

Use Hot air soldering station and Bottom Heat to replace the component.

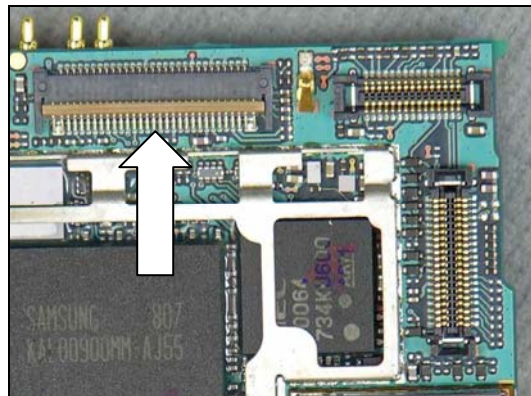




**4.41 X4300****Conn FPC 58 pin**

**MAXIMUM TEMPERATURE FOR THE HOT AIR SOLDERING  
STATION IS 330°C!**

Use Hot air soldering station and Bottom Heat to replace  
the component.



## 5 Revision history

Rev.	Date	Changes / Comments
1	2008-09-07	First Release