



Working Instruction, Electrical

Applicable for G700, G700c, G700 Business Edition

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1 Read this first!

CAUTION

- *Before you start replacing any components, make sure you have read and fully understood the contents of section 2 and 3!*
- *Also make sure you have access to the mechanical Working Instruction and the equipment listed on the first page of section 4!*
- *Use Electrostatic Discharge (ESD) equipment to avoid damaging the PBA.*
- *Use gloves or finger cots to avoid contaminating the PBA with skin oil.*

2 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 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*

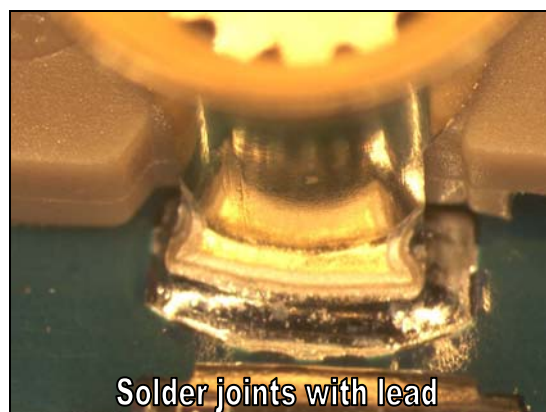
LFS (lead-free solder paste) characteristics:

- 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.



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 ΔT 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

and

Heat treatment document; Space ID: 1209-6311

4 Shield fence instruction

This instruction shows how to cut and bend the shield can fence to be able to replace components under the fence.
Use a sharp-edged pliers to cut the fence.
Use Shield fence pliers NTZ 112 537 to bend the fence.



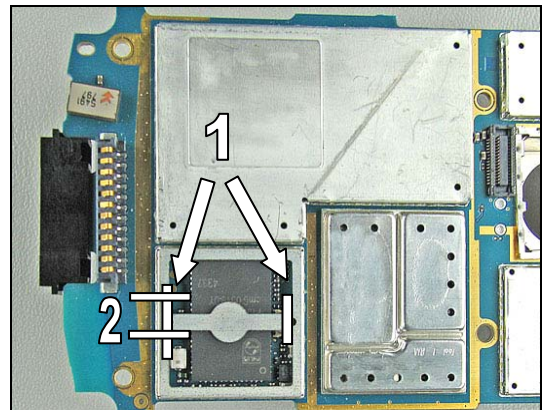
MAKE SURE THAT CUTTING PLIERS IS SHARP-EDGED TO PREVENT DAMAGING THE SHIELD CAN FENCE.

Remove the shield can lid, use a dentist hook.

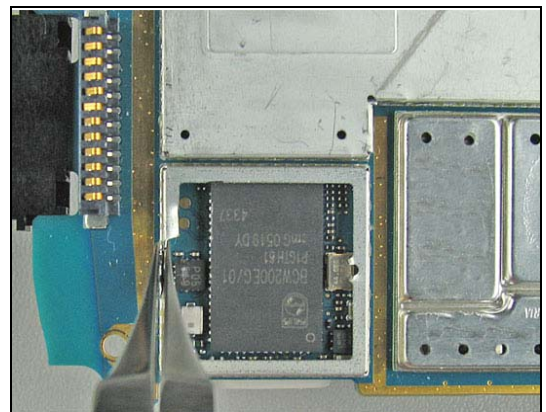
Remove the pick up area according to the white lines with a cutting plier. (1)

This pick up area is only used when machine mounting and there is no need to put it back again.

Cut the shield can fence according to the white lines with a cutting plier. (2)



Carefully bend the shield fence with a shield fence plier.
Replace the components.

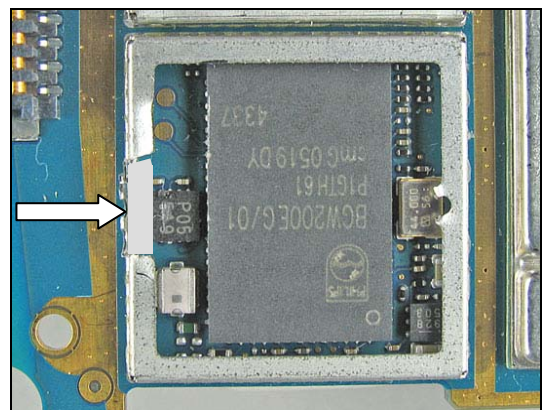


Replace the components.

Bend carefully back the shield fence.

Put back a **new** shield can lid.

Press on all sides of the lid until you hear a "click" sound.



5 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

CAUTION

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

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 1209-6321*.

5.1 B2000

MAKE SURE THAT CUTTING PLIERS IS SHARP-EDGED TO PREVENT DAMAGING THE SHIELD CAN FENCE.

Remove the shield can lid, use a dentist hook.

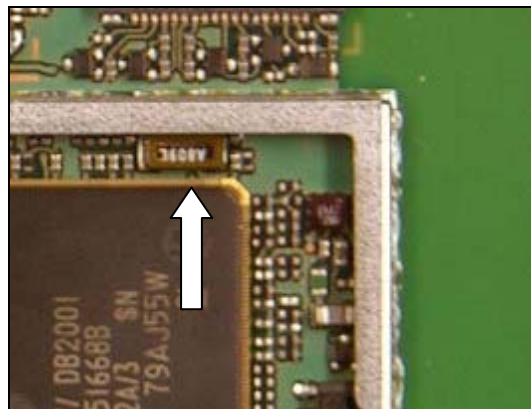
Replace the Quartz/Crystal 32768Hz.

Use Hot air repair equipment.

Put back a **new** shield can lid.

Press on all sides of the lid until you hear a “click” sound.

Quartz/Crystal 32768Hz



5.2 B2500

Remove the shield can lid.

Use a dentist hook.

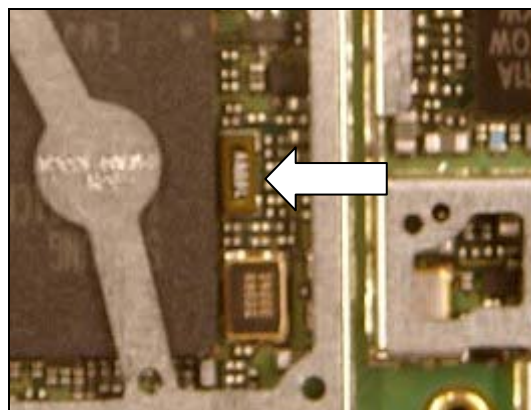
Replace the Quartz/Crystal 32768Hz.

Use Hot air repair equipment.

Put back a **new** shield can lid.

Press on all sides of the lid until you hear a “click” sound.

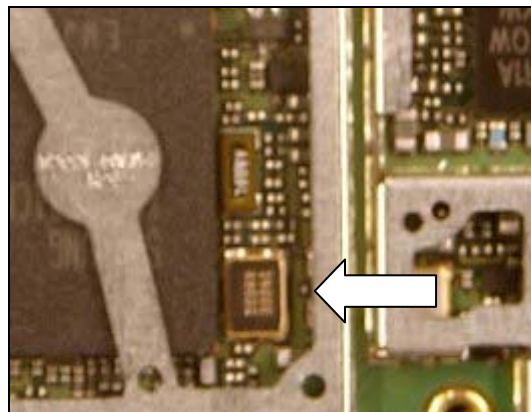
Quartz/Crystal 32768MZ



5.3 B2510

Remove the shield can lid.
 Use a dentist hook.
 Replace the Crystal 13MHz.
 Use Hot air repair equipment.
 Put back a **new** shield can lid.
 Press on all sides of the lid until you hear a "click" sound.

Crystal 26 MHz

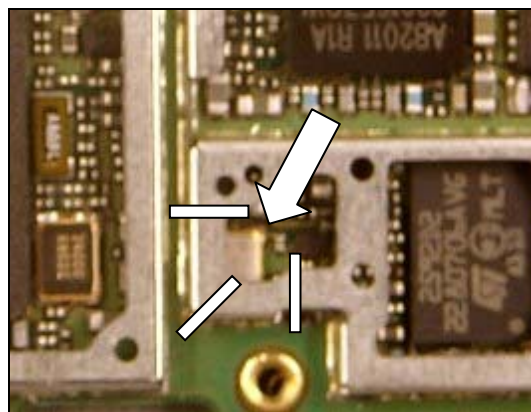


5.4 B3000

MAKE SURE THAT CUTTING PLIERS IS SHARP-EDGED TO PREVENT DAMAGING THE SHIELD CAN FENCE.

Remove the shield can lid, use a dentist hook.
 Remove the pick up area according to the white lines with a cutting plier.
 This pick up area doesn't have to be replaced.
 Replace the 12.000 MHz Crystal osc.
 Use Hot air repair equipment.
 Put back a **new** shield can lid.
 Press on all sides of the lid until you hear a "click" sound.

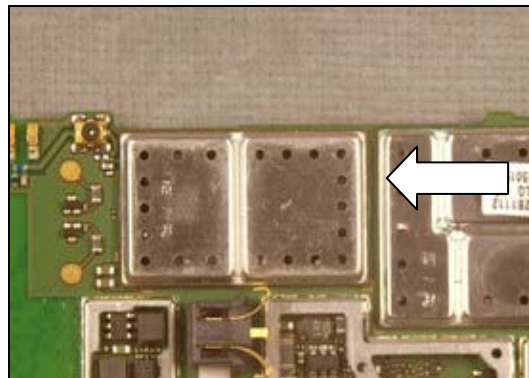
26,0 MHz TCXO osc



5.5 D1100

Replace the Marlin.
Use BGA repair equipment.

Marlin



5.6 D2005

MAKE SURE THAT CUTTING PLIERS IS SHARP-EDGED TO PREVENT DAMAGING THE SHIELD CAN FENCE.

Remove the shield can lid, use a dentist hook.

Remove the pick up area according to the white lines with a cutting plier.

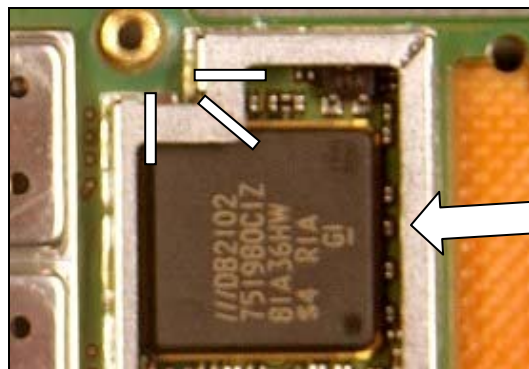
This pick up area doesn't have to be replaced.

Replace the Asic Wanda.

Use BGA repair equipment.

Put back a **new** shield can lid.

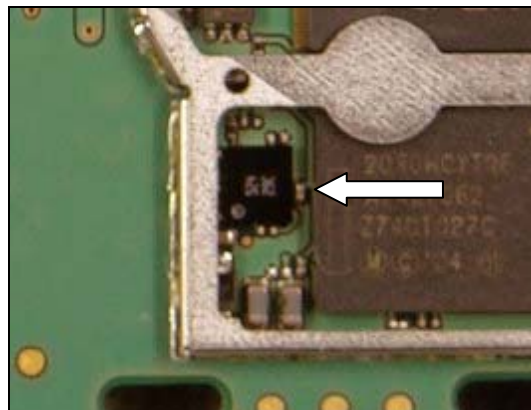
Asic Wanda



5.7 D2665

Remove the shield can lid.
 Use a dentist hook.
 Replace the ASIC Elin.
 Use Hot air repair equipment.
 Put back a **new** shield can lid.
 Press on all sides of the lid until you hear a “click” sound.

ASIC Elin

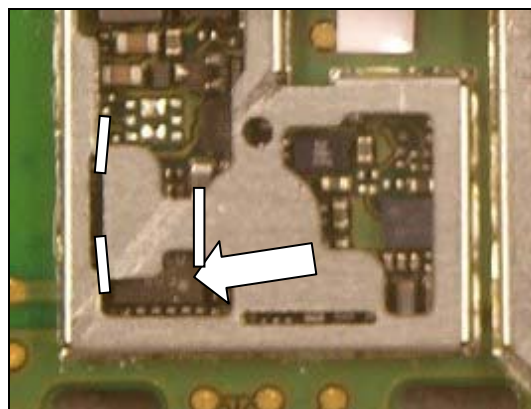


5.8 D2670

MAKE SURE THAT CUTTING PLIERS IS SHARP-EDGED TO PREVENT DAMAGING THE SHIELD CAN FENCE.

Remove the shield can lid, use a dentist hook.
 Remove the pick up area according to the white lines with a cutting plier.
 This pick up area doesn't have to be replaced.
 Replace the USB OTG Transceiver.
 Use Hot air repair equipment.
 Put back a **new** shield can lid.
 Press on all sides of the lid until you hear a “click” sound.

IC IF ISP1508



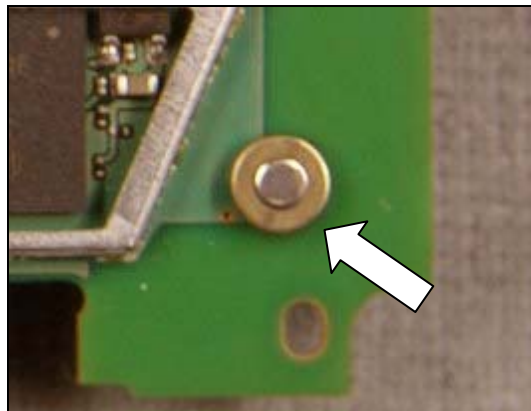
5.9 D5001

Replace the Microphone.

Use Hot air repair equipment applied from the side.

Protect the new component with Capton tape when soldering it on.

Microphone

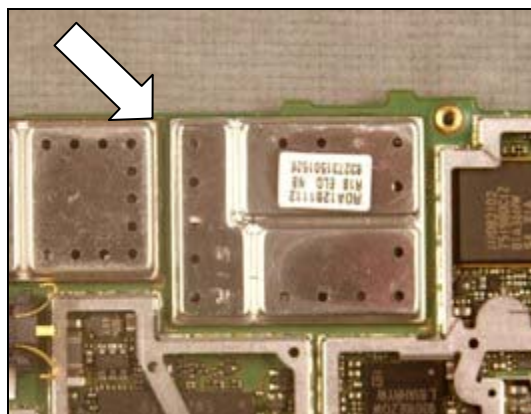


5.10 N1400

Replace the Ray.

Use BGA repair equipment.

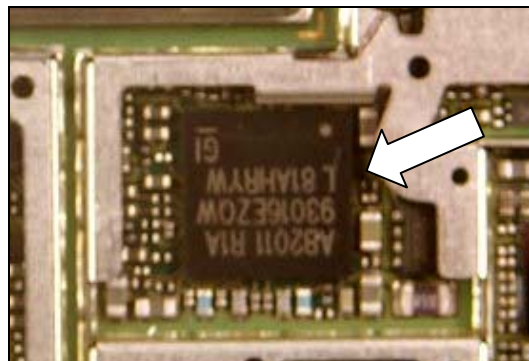
Ray/UMTS-Module



5.11 N2000

Remove the shield can lid.
 Use a dentist hook.
 Replace the Asic Vincenne2.
 Use BGA repair equipment.
 Put back a **new** shield can lid.
 Press on all sides of the lid until you hear a “click” sound.

Asic Vincenne2

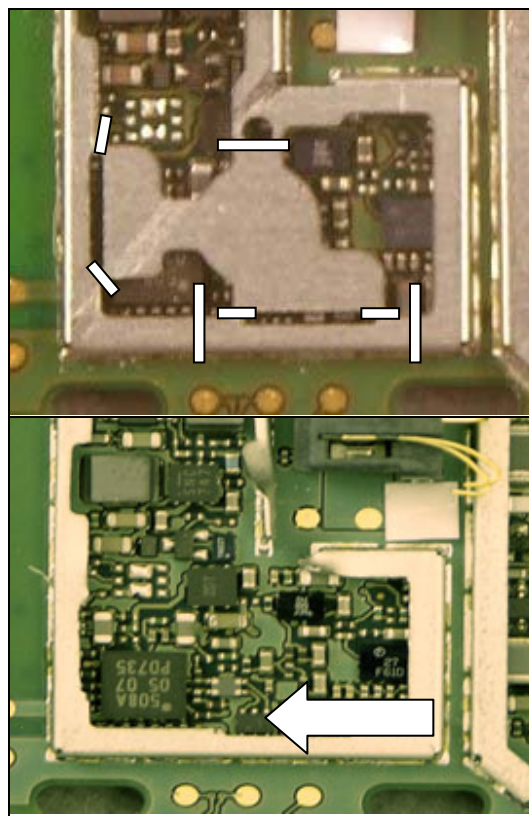


5.12 N2662

MAKE SURE THAT CUTTING PLIERS IS SHARP-EDGED TO PREVENT DAMAGING THE SHIELD CAN FENCE.

Remove the shield can lid, use a dentist hook.
 Remove the pick up area according to the white lines with a cutting plier.
 This pick up area doesn't have to be replaced.
 Replace the ESD protection for USB.
 Use Hot air repair equipment.
 Put back a **new** shield can lid.
 Press on all sides of the lid until you hear a “click” sound.

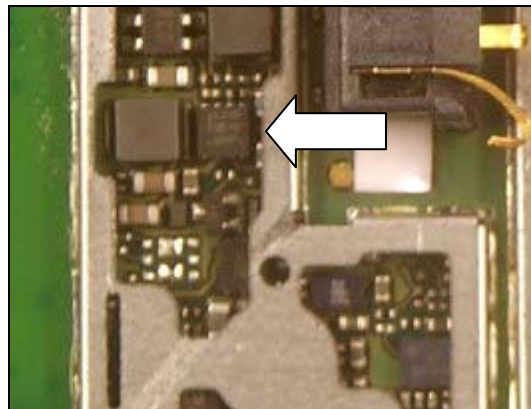
ESD Protection



5.13 N2664

Remove the shield can lid.
 Use a dentist hook.
 Replace the ESD Protection.
 Use Hot air repair equipment.
 Put back a **new** shield can lid.
 Press on all sides of the lid until you hear a “click” sound.

ESD Protection

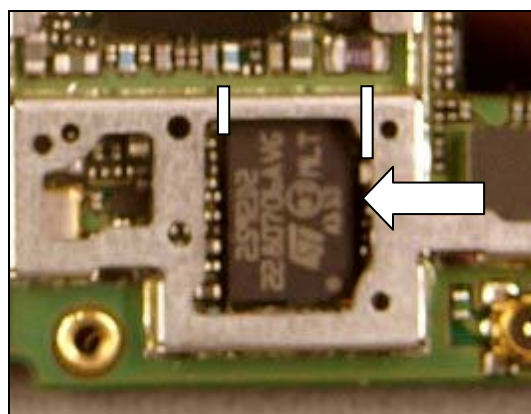


5.14 N3001

MAKE SURE THAT CUTTING PLIERS IS SHARP-EDGED TO PREVENT DAMAGING THE SHIELD CAN FENCE.

Remove the shield can lid, use a dentist hook.
 Remove the pick up area according to the white lines with a cutting plier.
 This pick up area doesn't have to be replaced.
 Replace the Bluetooth module.
 Use Hot air repair equipment.
 Put back a **new** shield can lid.
 Press on all sides of the lid until you hear a “click” sound.

Bluetooth module



5.15 N4021, N4040

MAKE SURE THAT CUTTING PLIERS IS SHARP-EDGED TO PREVENT DAMAGING THE SHIELD CAN FENCE.

Remove the shield can lid, use a dentist hook.

Remove the pick up area according to the white lines with a cutting plier.

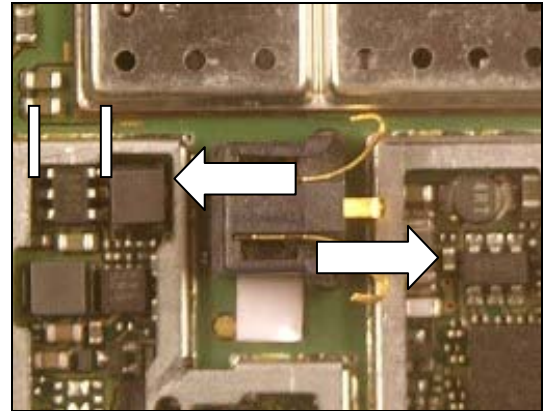
This pick up area doesn't have to be replaced.

Replace the Step-down DC/DC Converter.

Use Hot air repair equipment.

Put back a **new** shield can lid.

Step-down DC/DC



5.16 N4030

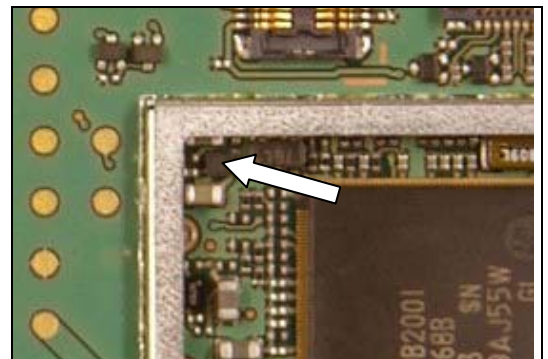
Remove the shield can lid, use a dentist hook.

Replace the 2,8V 150mA Line Regulator.

Use Hot air repair equipment.

Put back a **new** shield can lid.

2,8V 150mA Line regulator



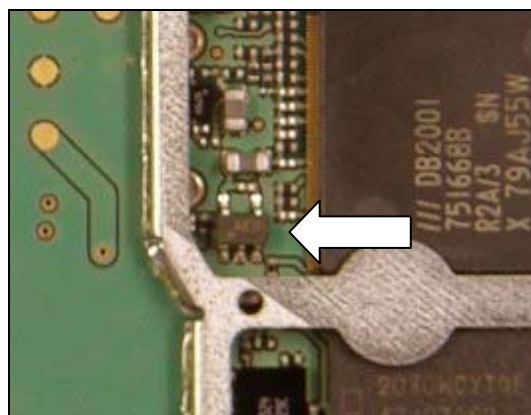
5.17 N4050

1209-6322 Rev4

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LDO 120mA Line regulator

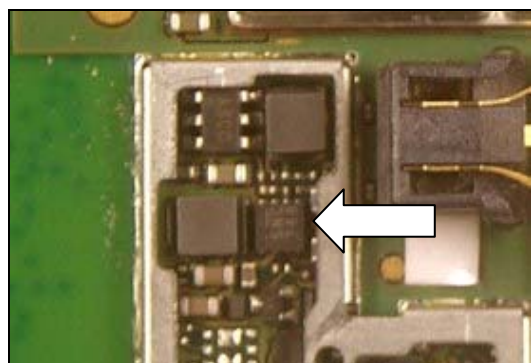
Remove the shield can lid, use a dentist hook.
 Replace the LDO 120mA Line regulator.
 Use Hot air repair equipment.
 Put back a **new** shield can lid.
 Press on all sides of the lid until you hear a “click” sound.



5.18 N4070

Remove the shield can lid, use a dentist hook.
 Replace the LED Driver.
 Use Hot air repair equipment.
 Put back a **new** shield can lid.

LED Driver



5.19 N4071

MAKE SURE THAT CUTTING PLIERS IS SHARP-EDGED TO PREVENT DAMAGING THE SHIELD CAN FENCE.

Remove the shield can lid, use a dentist hook.

Remove the pick up area according to the white lines with a cutting plier.

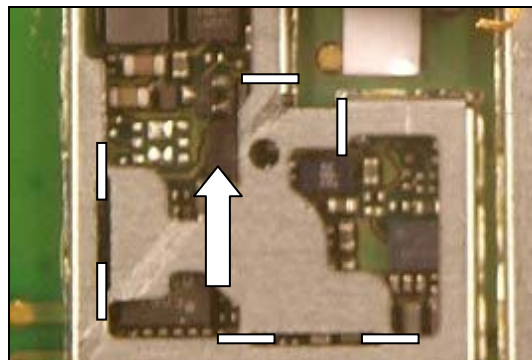
This pick up area doesn't have to be replaced.

Replace the Single Gate.

Use Hot air repair equipment.

Put back a **new** shield can lid.

Single Gate



5.20 N5010

MAKE SURE THAT CUTTING PLIERS IS SHARP-EDGED TO PREVENT DAMAGING THE SHIELD CAN FENCE.

Remove the shield can lid, use a dentist hook.

Remove the pick up area according to the white lines with a cutting plier.

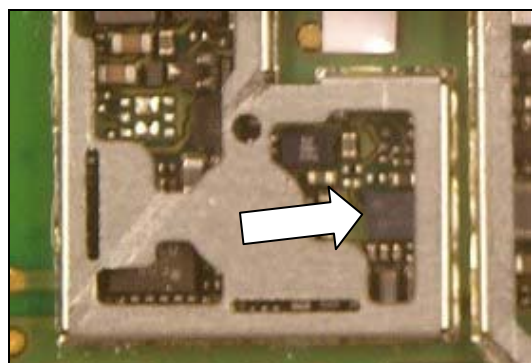
This pick up area doesn't have to be replaced.

Replace the Asic Tjatte3.

Use Hot air repair equipment.

Put back a **new** shield can lid.

Asic Tjatte3



5.21 N5500

MAKE SURE THAT CUTTING PLIERS IS SHARP-EDGED TO PREVENT DAMAGING THE SHIELD CAN FENCE.

Remove the shield can lid, use a dentist hook.

Remove the pick up area according to the white lines with a cutting plier.

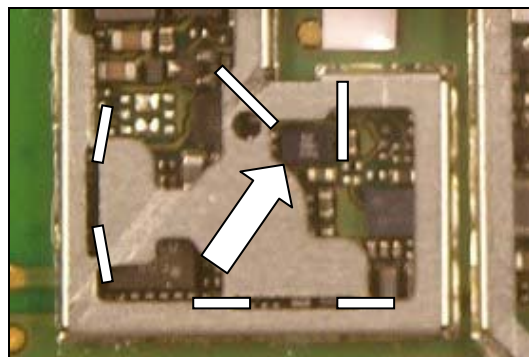
This pick up area doesn't have to be replaced.

Replace the Stereo Headphone Amplifier.

Use Hot air repair equipment.

Put back a **new** shield can lid.

Stereo Headphone Ampl.



5.22 N5505

MAKE SURE THAT CUTTING PLIERS IS SHARP-EDGED TO PREVENT DAMAGING THE SHIELD CAN FENCE.

Remove the shield can lid, use a dentist hook.

Remove the pick up area according to the white lines with a cutting plier.

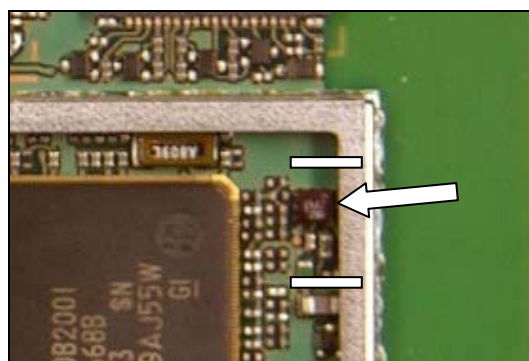
This pick up area doesn't have to be replaced.

Replace the Audio Amplifier.

Use Hot air repair equipment.

Put back a **new** shield can lid.

Audio Amplifier



5.23 N6001

MAKE SURE THAT CUTTING PLIERS IS SHARP-EDGED TO PREVENT DAMAGING THE SHIELD CAN FENCE.

Remove the shield can lid, use a dentist hook.

Remove the pick up area according to the white lines with a cutting plier.

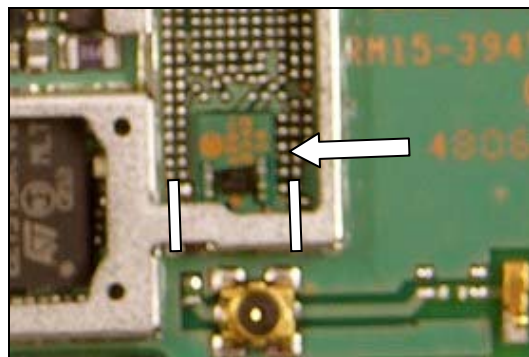
This pick up area doesn't have to be replaced.

Replace the PBA Justine Edge.

Use Hot air repair equipment + bottom heat.

Put back a **new** shield can lid.

PBA Justine Edge

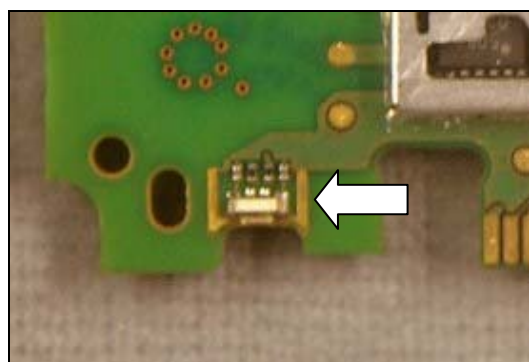


5.24 V2181

Remove LED Red + Green Everlight.
Use Hot air device.

Install new LED Red + Green Everlight.
Use Soldering Iron

LED Red + Green Everlight



5.25 V4001

MAKE SURE THAT CUTTING PLIERS IS SHARP-EDGED TO PREVENT DAMAGING THE SHIELD CAN FENCE.

Remove the shield can lid, use a dentist hook.

Remove the pick up area according to the white lines with a cutting plier.

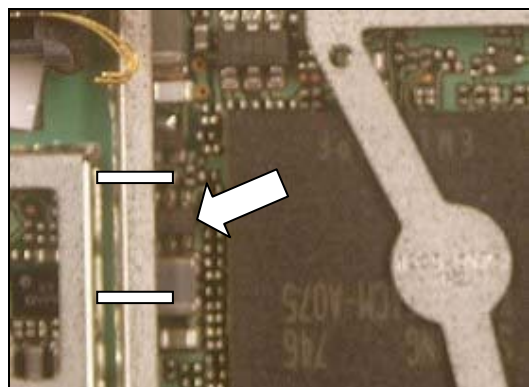
This pick up area doesn't have to be replaced.

Replace the Diode Rectifier.

Use Hot air repair equipment.

Put back a **new** shield can lid.

Diode Rectifier



5.26 V4002, V4005

MAKE SURE THAT CUTTING PLIERS IS SHARP-EDGED TO PREVENT DAMAGING THE SHIELD CAN FENCE.

Remove the shield can lid, use a dentist hook.

Remove the pick up area according to the white lines with a cutting plier.

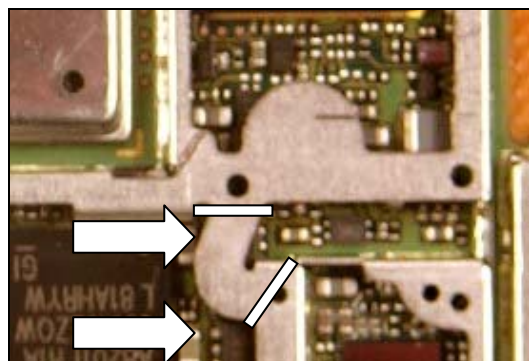
This pick up area doesn't have to be replaced.

Replace the Trans P-channel Mosfet.

Use Hot air repair equipment.

Put back a **new** shield can lid.

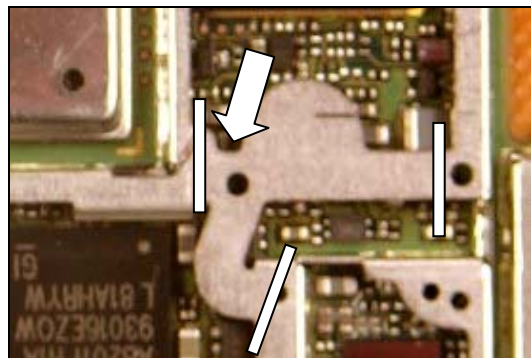
Trans P-channel Mosfet



5.27 V4004

Remove the shield can lid.
 Use a dentist hook.
 Replace the Diode, Shottky.
 Use Hot air repair equipment.
 Put back a **new** shield can lid.
 Press on all sides of the lid until you hear a “click” sound.

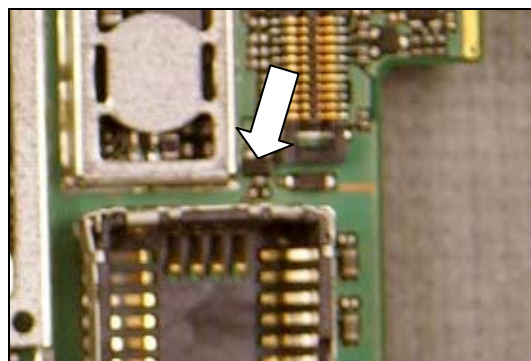
Diode, Shottky



5.28 V5000

Remove the shield can lid.
 Use a dentist hook.
 Replace the Diode, Protection.
 Use Hot air repair equipment Protect the camera socket with capton tape while soldering.
 Put back a **new** shield can lid.
 Press on all sides of the lid until you hear a “click” sound.

Diode, Protection

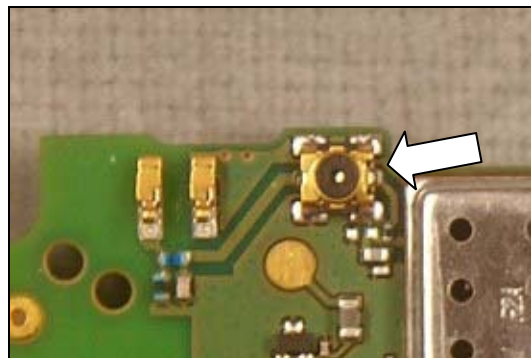


5.29 X1001

Remove External RF Connector.
Use Hot air device.

Install new External RF Connector.
Use Soldering Iron

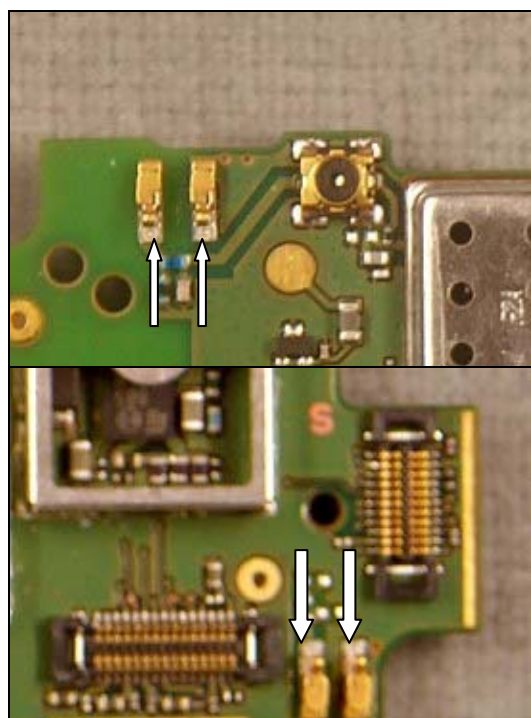
External RF Connector



5.30 X1010, X1011, X6001, X6002

Replace the Internal antenna connector.
Use Hot air repair Equipment.

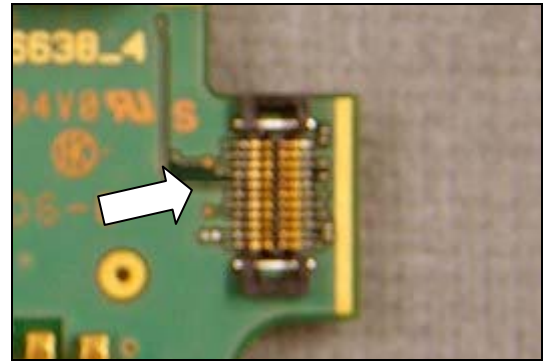
Internal antenna connector



5.31 X2741

Replace the Connector BtB.
Use Hot air repair equipment Max 330° C + Bottom heat.

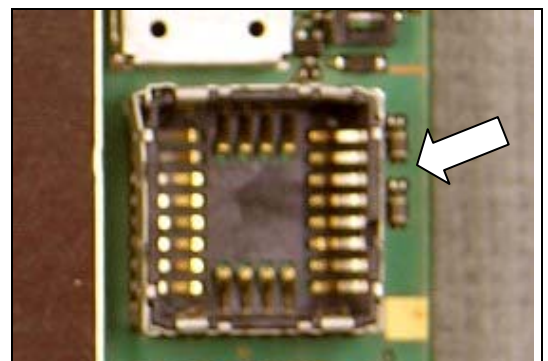
Connector BtB



5.32 X2743

Replace the Camera Socket.
Use BGA repair equipment.

Camera Socket

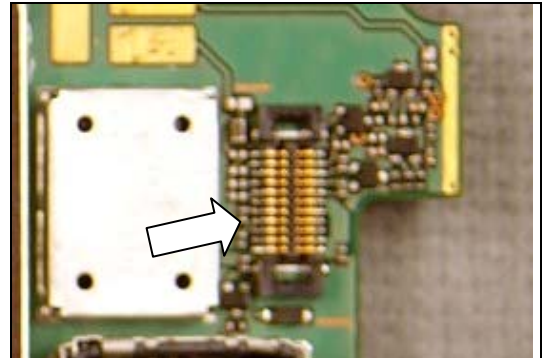


5.33 X2745

Replace the Connector BtB.

Use Hot air repair equipment Max 330° C + Bottom heat.

Connector BtB

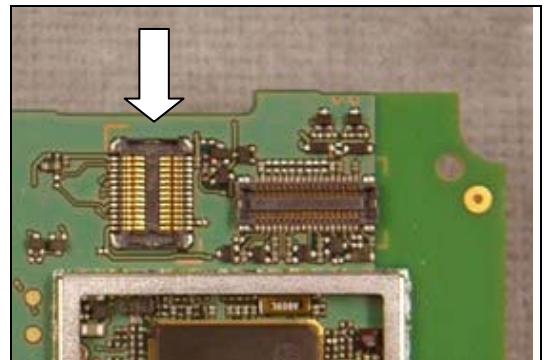


5.34 X2820

Replace the Display Connector.

Use Hot air repair equipment Max 330° C + Bottom heat.

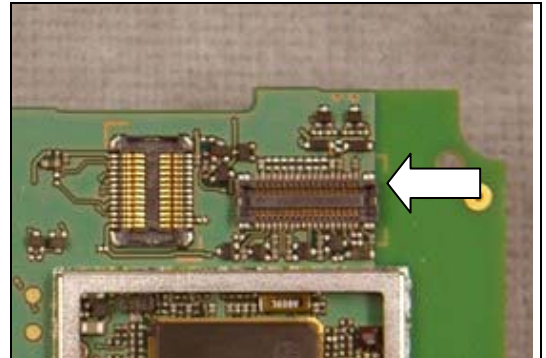
Display Connector



5.35 X2821

Replace the Keyboard Connector.
Use Hot air repair equipment Max 330° C + Bottom heat.

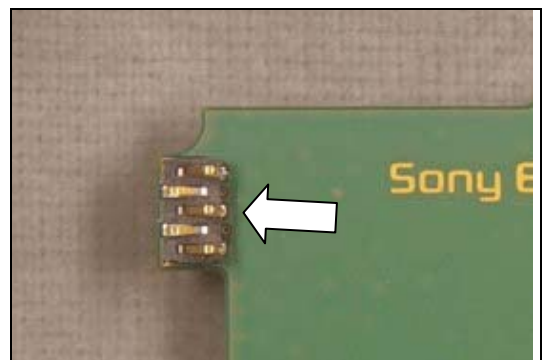
Keyboard Connector



5.36 X2825

Replace the Spring Connector, 5 pins.
Use Hot air repair equipment Max 330° C + Bottom heat.

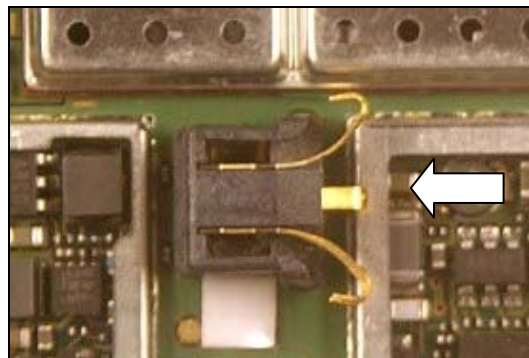
Spring Connector, 5 Pins



5.37 X4000

Replace the Battery connector.
Use BGA repair equipment.

Battery Connector

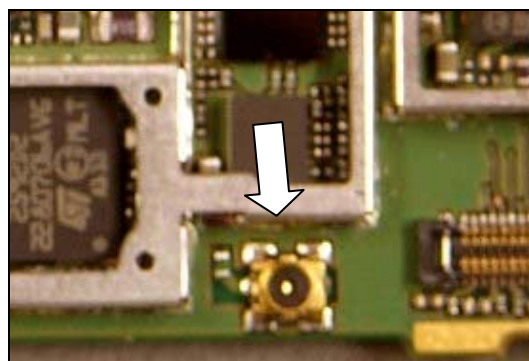


5.38 X6000

Remove Antenna Connector.
Use Hot air device.

Install new Antenna Connector.
Use Soldering Iron

Antenna Connector



6 Revision history

Rev.	Date	Changes / Comments
1	2008-05-07	Initial release
2	2008-09-02	G700 Business Edition Added
3	2008-10-30	D2500 added
4	2009-01-09	D2500 Removed