



Working Instruction, Electrical

Applicable for W900i

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1 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.

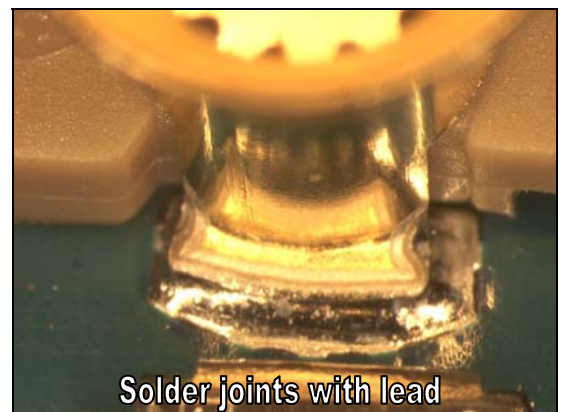
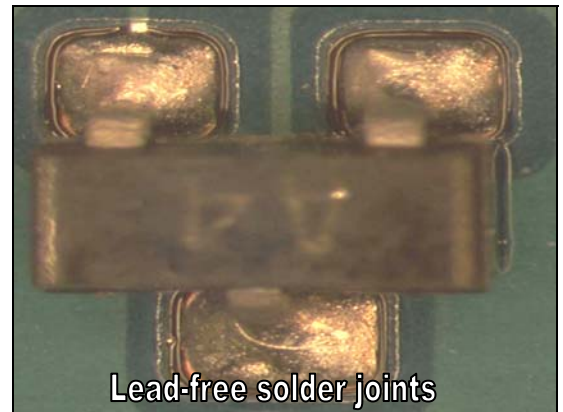




LFS (lead-free solder paste) characteristics:
High melting point (typically 220°C)
Low wettability
High surface tension
Difficult to spread
Recommended tip temperature = 370°C

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.





2 BGA equipment reflow profiles

2.1 General

This document contains reflow profile recommendations for mobile phones and similar products.

They are just general recommendations and considerations have to be taken for every single product.

The solder paste is secondary but could also affect the parameters.

In this document one alloy is specified:

SnAgCu (Lead free) melting point 217°C

2.2 Temperature measurement

At least four probes should be used.

They should be placed on components with the highest and lowest thermal mass.

The probes shall be located in the beginning, in the middle and at the end of the board/panel.

It is recommended that the probes are soldered on the board, but glue and capton tape could also be used, if necessary.

At least one probe shall be placed in the air or on top of a component.

These values are strongly depending on the BGA replacement equipment.

Nozzle type will be chosen after the outer size of the actual component.

Make sure the nozzle does not affect any nearby placed components.

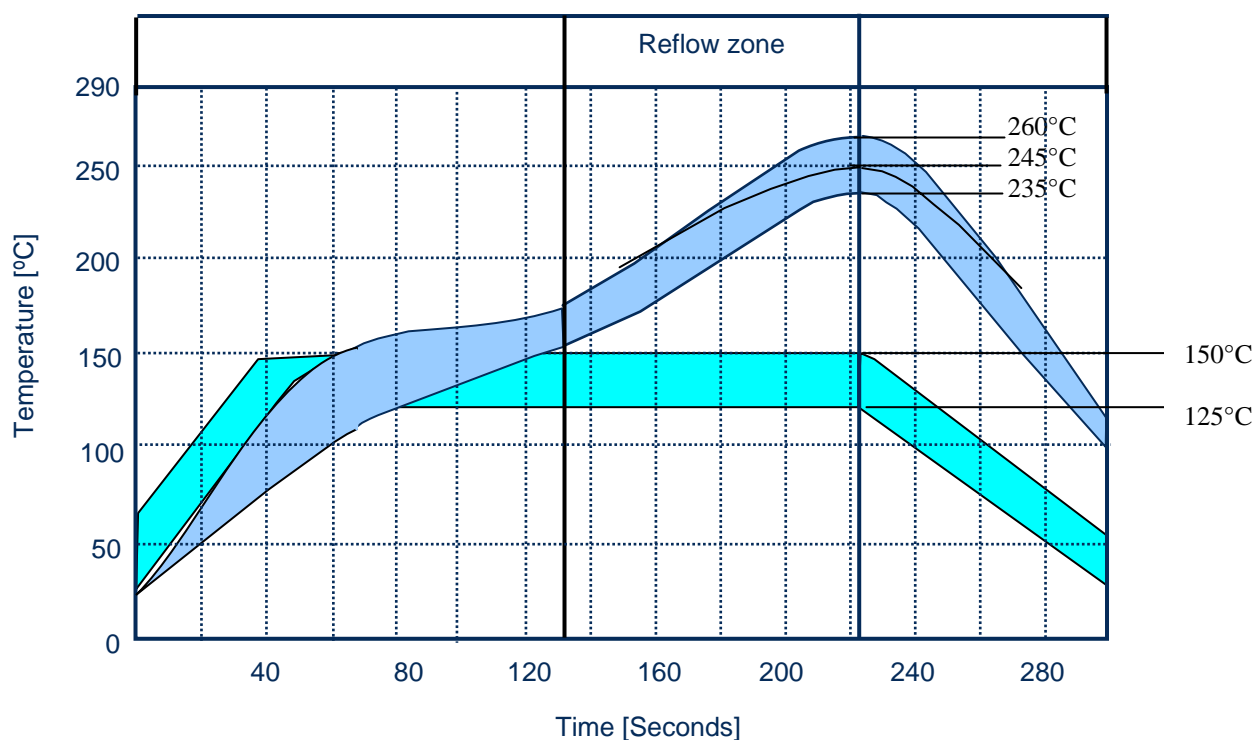
These values are recommendations and may have to be changed depending on the type of equipment.

The maximum temperature for any component must not exceed 250°C.



2.3 Reflow profiles

Sn/Ag/Cu (lead-free)



Ramp rate	< 4°C/sec
Ramp rate cooling zone	< 6°C/sec
Time above liquidus	60-150 sec
Minimum temperature	235°C
Maximum temperature	245°C or 260°C* for 10 sec
Bottom heat temperature	125°C-150°C
Total time	Approx. 4-7 min

* The higher temperature in case the board has extremely high ΔT .

3 Replacement of parts

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
- Shield fence pliers NTZ 112 537

CAUTION

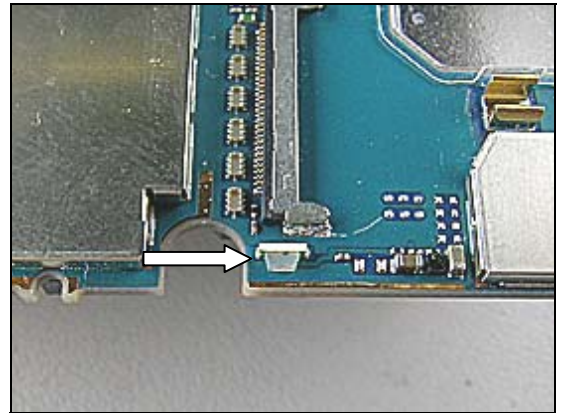
Keep all contact surfaces clean of dirt and hand-grease

INSTRUCTION

For all the following part replacements, disassemble and assemble the phone as described in *Working Instructions 3/00021-1/FEA 209 544/113*.

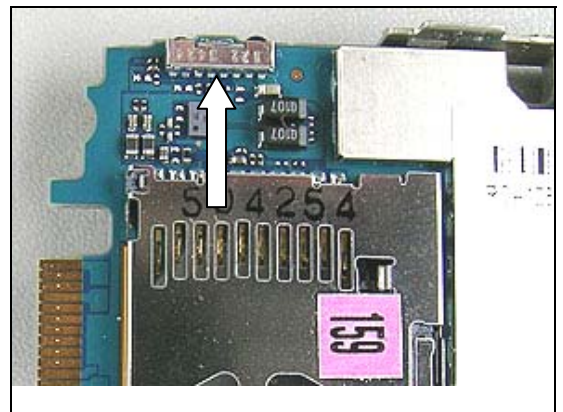
3.1 Red/green LED

Replace the Red/green LED flash.
Use a soldering iron.



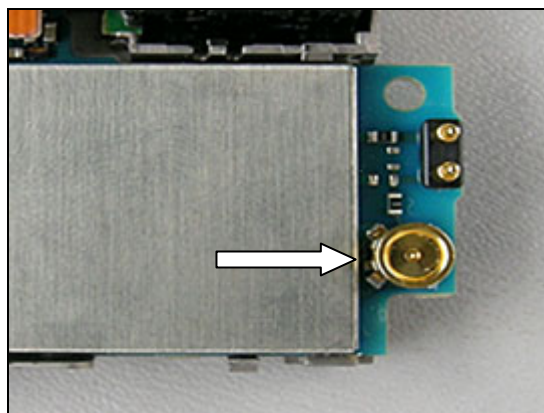
3.2 Irda Module

Replace the Irda module.
Use BGA repair equipment.



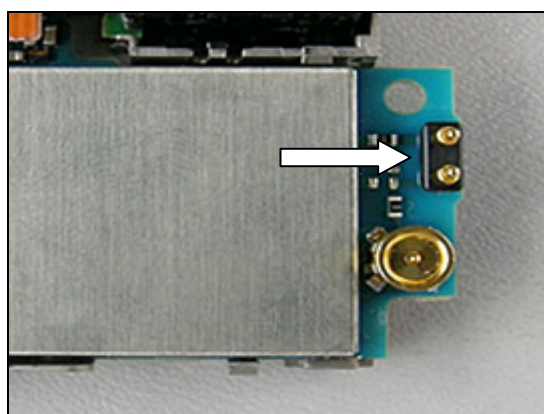
3.3 External antenna connector

Replace the External antenna switch.
Use BGA repair equipment.



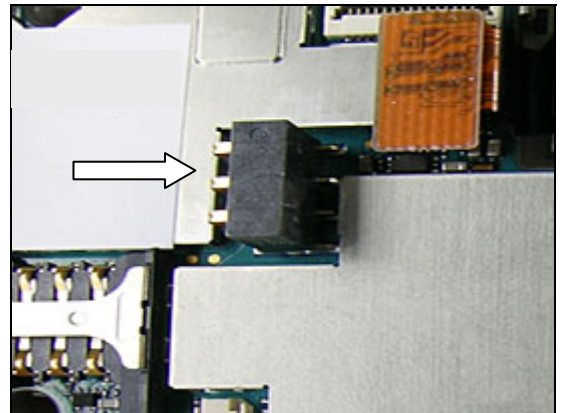
3.4 Connector/POGO/2P

Replace the POGO connector.
Use BGA repair equipment.



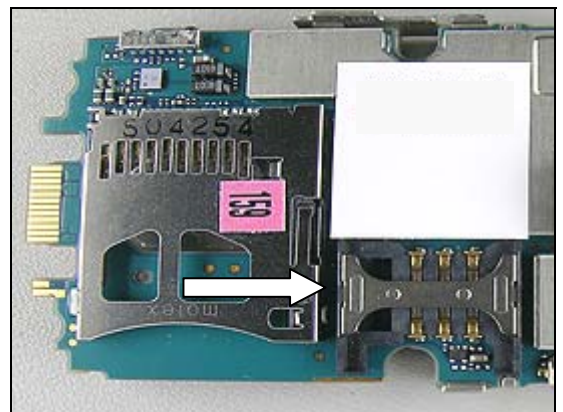
3.5 Battery connector

Replace the Battery connector.
Use BGA repair equipment.



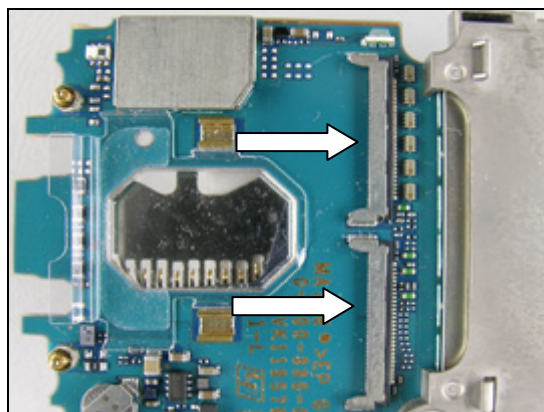
3.6 SIM connector

Replace the SIM connector.
Use BGA repair equipment.



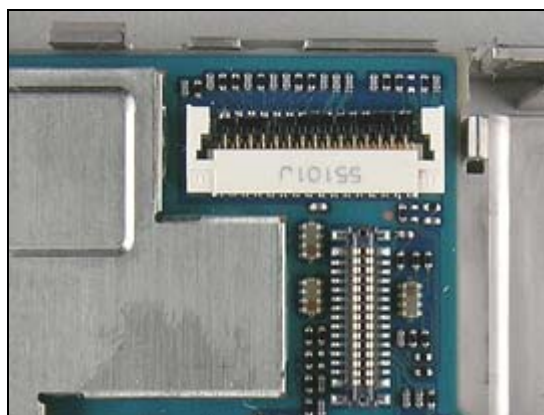
3.7 RECE/30P connector

Replace the RECE/30P connector.
Use BGA repair equipment.



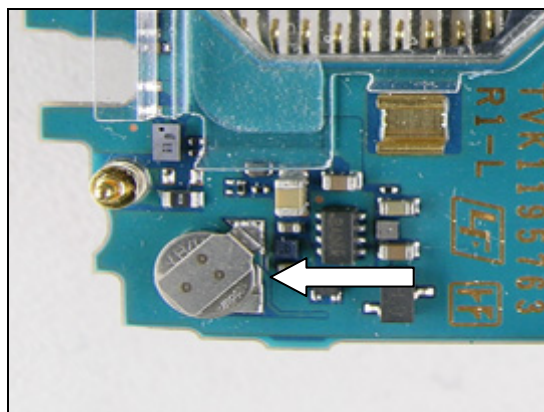
3.8 FCP Key connector

Replace the FCP key connector.
Use BGA repair equipment.



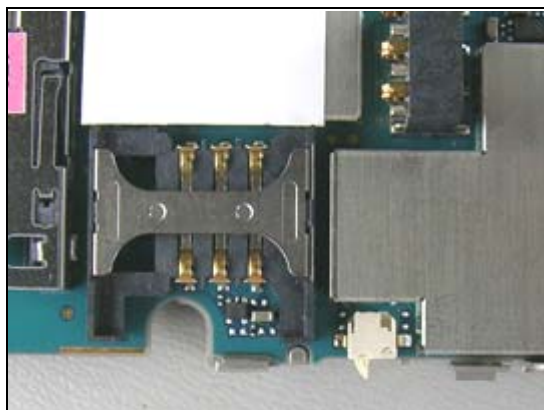
3.9 Back-up battery

Replace the Back-up battery.
Use BGA repair equipment.



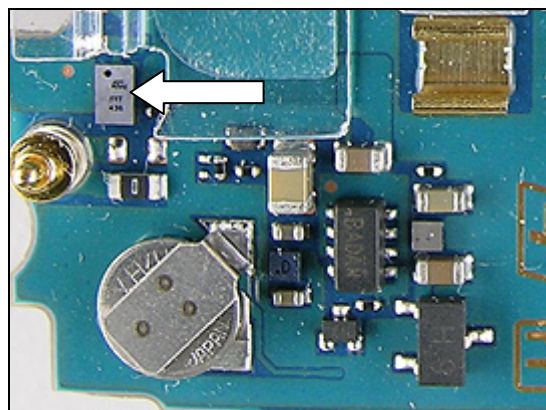
3.10 Key push switch

Replace the key push switch.
Use hot air soldering equipment or soldering iron.



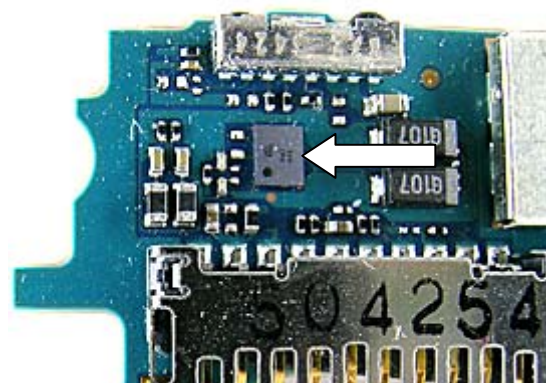
3.11 USB Emi filter (IC102)

Replace the USB Emi filter
Use BGA repair equipment.



3.12 ASIC Tjatte2 (IC107)

Replace the ASIC Tjatte2
Use BGA repair equipment.



4 Revision History

Rev.	Date	Changes / Comments
A	2005-11-23	First Release
B	2006-02-21	Added ASIC Tjatte2