



# Working Instruction, Electrical

Applicable for F500 and K500 family

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# 1 Replacement of parts

## 1.1 Battery connector

### Process tools

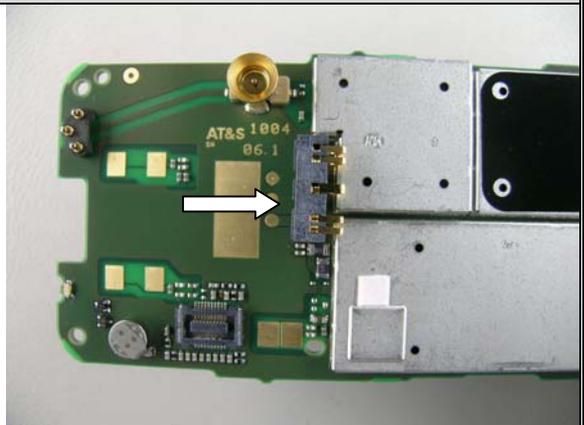
- BGA replacement equipment
- Pair of tweezers
- Solder cleaning wiper (Tin wick)
- Solder paste
- Gel flux

### Equipment

- ESD-gloves (cotton gloves)
- ESD-wristband

### Instruction

- Disassemble the phone as described in *Working Instruction 3/00021-1/FEA 209 544/86*

Step-by-Step Instructions		
1	<p>Replace the component. Use BGA repair equipment.</p> <p>No special treatment due to through pins.</p>	

- Reassemble the phone as described in *Working Instruction 3/00021-1/FEA 209 544/86*

## 1.2 Board to board connector

### Process tools

- BGA replacement equipment
- Pair of tweezers
- Solder cleaning wiper (Tin wick)
- Solder paste
- Gel flux

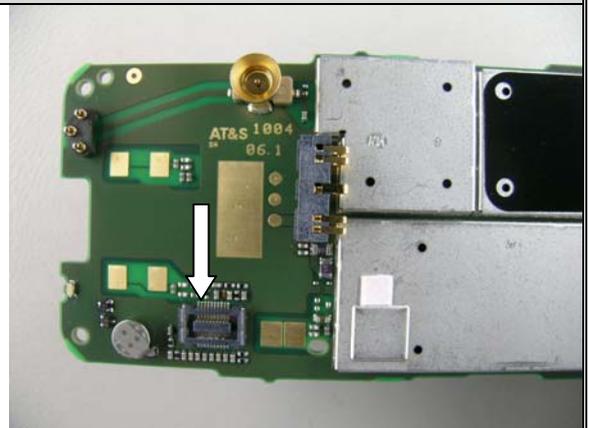
### Equipment

- ESD-gloves (cotton gloves)
- ESD-wristband

### Instruction

- Disassemble the phone as described in *Working Instruction 3/00021-1/FEA 209 544/86*

Step-by-Step Instructions	
1	<p>Replace the component. Use BGA repair equipment.</p> <p>After soldering check for solder bridges between solder joints.</p>



- Reassemble the phone as described in *Working Instruction 3/00021-1/FEA 209 544/86*

## 1.3 FPC connector

### Process tools

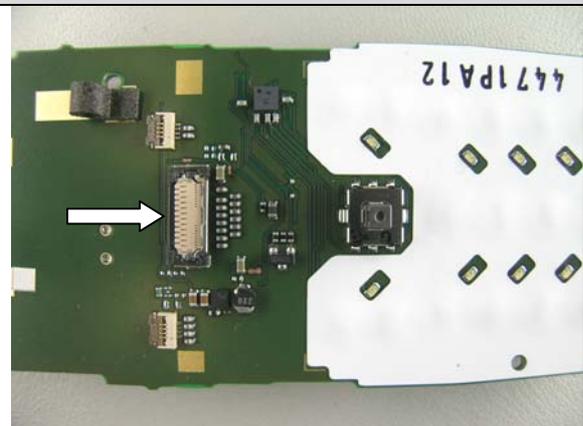
- Dentist hook
- BGA replacement
- Pair of tweezers
- Solder cleaning wiper (Tin wick)
- Solder paste
- Gel flux

### Equipment

- ESD-gloves (cotton gloves)
- ESD-wristband

### Instruction

- Disassemble the phone as described in *Working Instruction 3/00021-1/FEA 209 544/86*

Step-by-Step Instructions		
1	<p>Replace the component. Use BGA repair equipment.</p> <p>After soldering check for solder bridges between solder joints.</p>	

- Reassemble the phone as described in *Working Instruction 3/00021-1/FEA 209 544/86*

## 1.4 Form shield can fence

### Process tools

- Dentist hook
- Cutting pliers
- Shield fence pliers NTZ 112 537

### Equipment

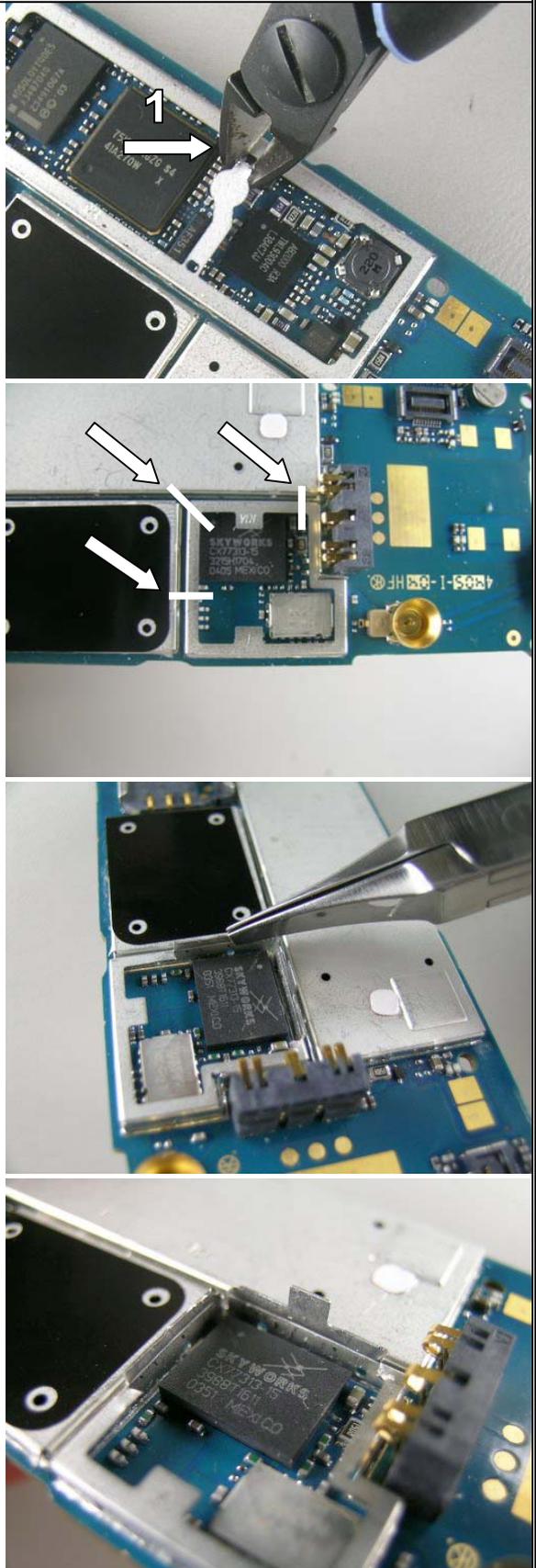
- ESD-gloves (cotton gloves)
- ESD-wristband

### Instruction

- Disassemble the phone as described in *Working Instruction 3/00021-1/FEA 209 544/86*

	<b>Step-by-Step Instructions</b>	
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Step-by-Step Instructions		
1	<p>Remove the shield can lid.</p> <p>If needed it is allowed to remove the pick up area with a cutting pliers (1). This pick up area is only used when machine mounting the can and there is no need to put it back again.</p> <p><b>NOTE!</b> Assure that the cutting pliers is sharp-edged to prevent damaging the shield can fence.</p> <p>Cut the fence according to the red lines in the picture.</p> <p>Form the frame carefully without bending the shield can fence wall. Use Shield fence pliers NTZ 112 537.</p> <p>Replace the component and gently fold back the fence. Be very cautious with the shield can fence wall.</p> <p>Put back a <b>new</b> shield can lid. Press on all sides of the lid until you hear a “click” sound.</p>	

- Reassemble the phone as described in *Working Instruction 3/00021-1/FEA 209 544/86*

## 1.5 Replacing shield can fence if damage at repair centers

### Process tools

- Dentist hook
- BGA repair equipment
- Hot air soldering station
- Pair of tweezers
- Solder cleaning wiper (Tin wick)
- Solder paste
- Solder wire
- Gel flux
- Cutting pliers

### Equipment

- ESD-gloves (cotton gloves)
- ESD-wristband

### Instruction

- Disassemble the phone as described in *Working Instruction 3/00021-1/FEA 209 544/86*

Step-by-Step Instructions	
1	<p><b>NOTE!</b>            Replacing shield can fence is only done at repair centers when a shield can fence is damaged after bending the frame.</p> <p>This operation is very time consuming and must be performed by very skilled repair operators.</p> <p>Remove the shield can fence by using hot air (or preferably with BGA repair equipment).</p> <p>Most often it is necessary to remove the shield can fence in pieces by using cutting pliers.</p> <p>Assemble a new shield can fence with BGA repair equipment.</p>

- Reassemble the phone as described in *Working Instruction 3/00021-1/FEA 209 544/86*



## 2 BGA Equipment reflow profiles

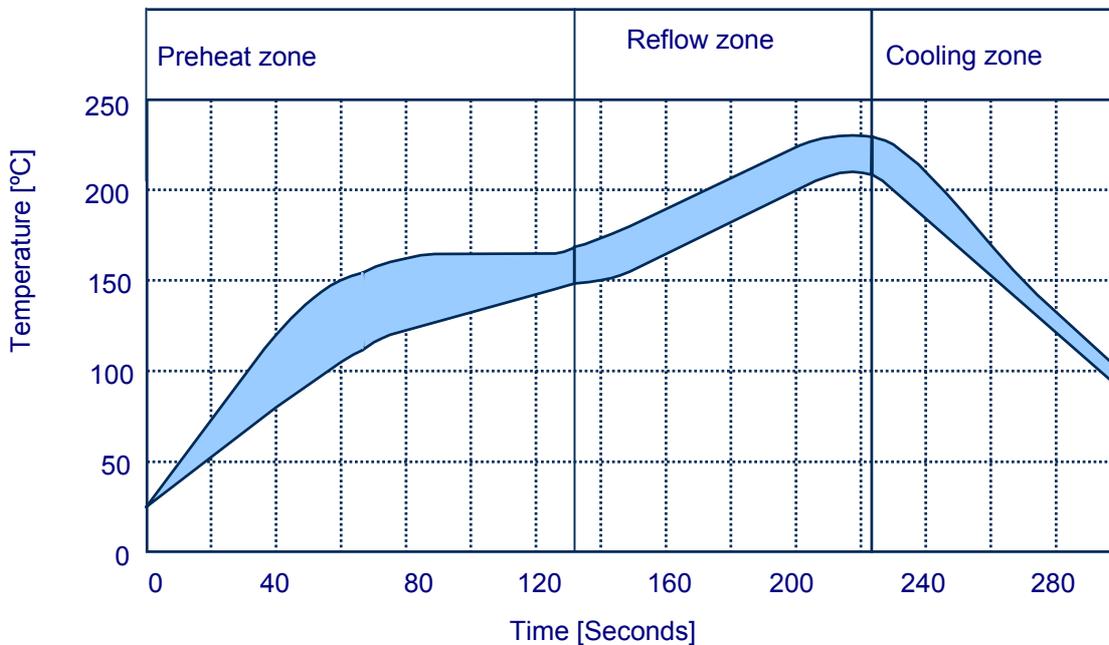
These values are strongly depending on the BGA replacement equipment.

Nozzle type will be chosen after the outer size of the actual component. Make sure the nozzle does not affect any near placed components.

**NOTE:**

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

### General reflow profile sn/pb



Ramp rate	< 3°C/sec
Ramp rate cooling zone	< 6°C/sec
Time above liquidus	60-150 sec
Minimum temperature	215°C
Maximum temperature	225°C or 235°C for 10-20 sec
Total time	Appr. 4-7 min

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

### 3 Revision History

<b>Rev.</b>	<b>Date</b>	<b>Changes / Comments</b>
A	2004-06-30	Initial release
B	2004-07-13	Revision update due to publishing problems
C	2004-08-19	K500 Added