



Working Instruction, Electrical

Applicable for Z520a, Z520c, Z520i, Z525a, Z525i

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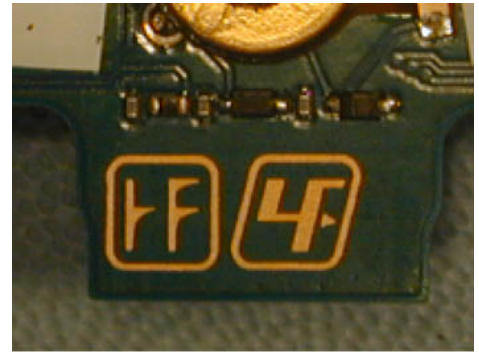


1 Lead-free Rework

1.1 Lead-free Symbol

NOTE!

- This is a lead-free product!
- Locate the lead-free symbol on the board. Of the two symbols shown in the picture, the lead-free symbol is on the right.
- 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.



1.2 Bottom Heat

Because of the higher temperatures required for lead-free solder, bottom heat is strongly recommended for rework of all ASICs. This does not include small transistors or chips, but it does include fine pitch components and BGA type components.



1.3 Reflow Profile

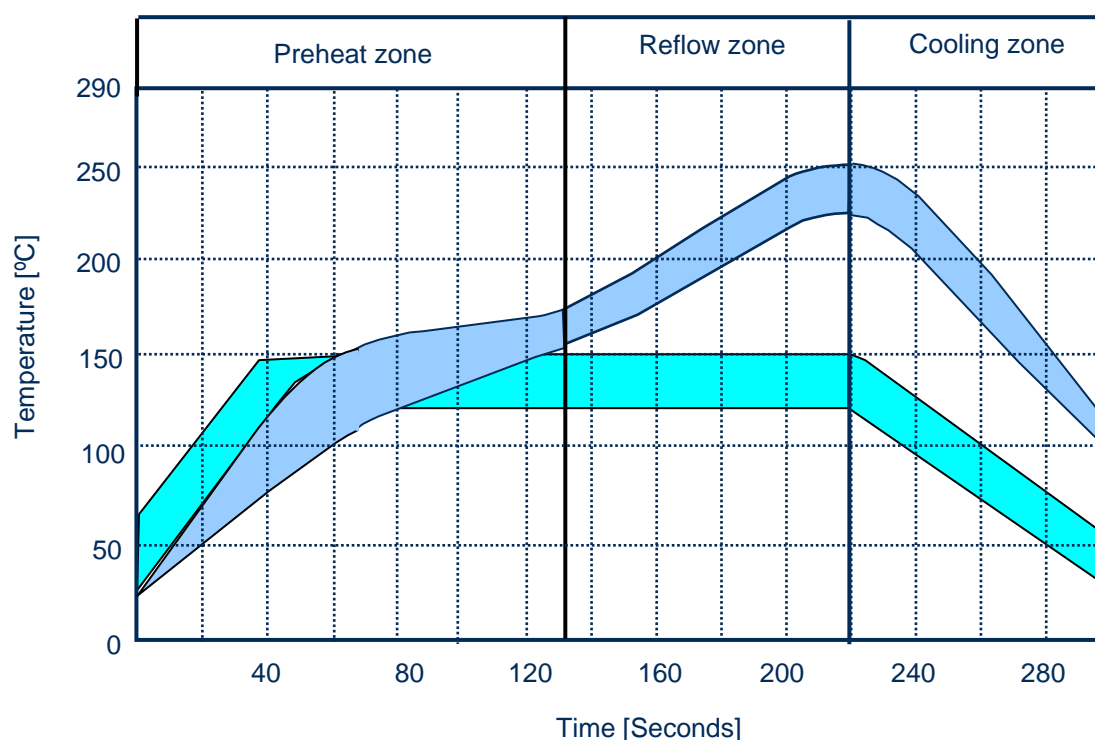
The general reflow profile for lead-free components is different than that of leaded components because lead-free solder has a higher melting point. The maximum temperature for any component must not exceed 250°C. The table below is a comparison borrowed from IPC/JEDEC J-STD-020B July 2002 (www.jedec.org).

Table 5-2 Classification Reflow Profiles

Profile Feature	Sn-Pb Eutectic Assembly		Pb-Free Assembly	
	Large Body	Small Body	Large Body	Small Body
Average ramp-up rate (T_L to T_p)	3°C/second max.		3°C/second max.	
Preheat				
– Temperature Min (T_{smin})	100°C		150°C	
– Temperature Max (T_{smax})	150°C		200°C	
– Time (min to max) (t_s)	60-120 seconds		60-180 seconds	
T_{smax} to T_L				
– Ramp-up Rate			3°C/second max	
Time maintained above:				
– Temperature (T_L)	183°C		217°C	
– Time (t_L)	60-150 seconds		60-150 seconds	
Peak Temperature (T_p)	225 +0/-5°C	240 +0/-5°C	245 +0/-5°C	250 +0/-5°C
Time within 5°C of actual Peak Temperature (t_p)	10-30 seconds	10-30 seconds	10-30 seconds	20-40 seconds
Ramp-down Rate	6°C/second max.		6°C/second max.	
Time 25°C to Peak Temperature	6 minutes max.		8 minutes max.	

Note: All temperatures refer to topside of the package, measured on the package body surface.

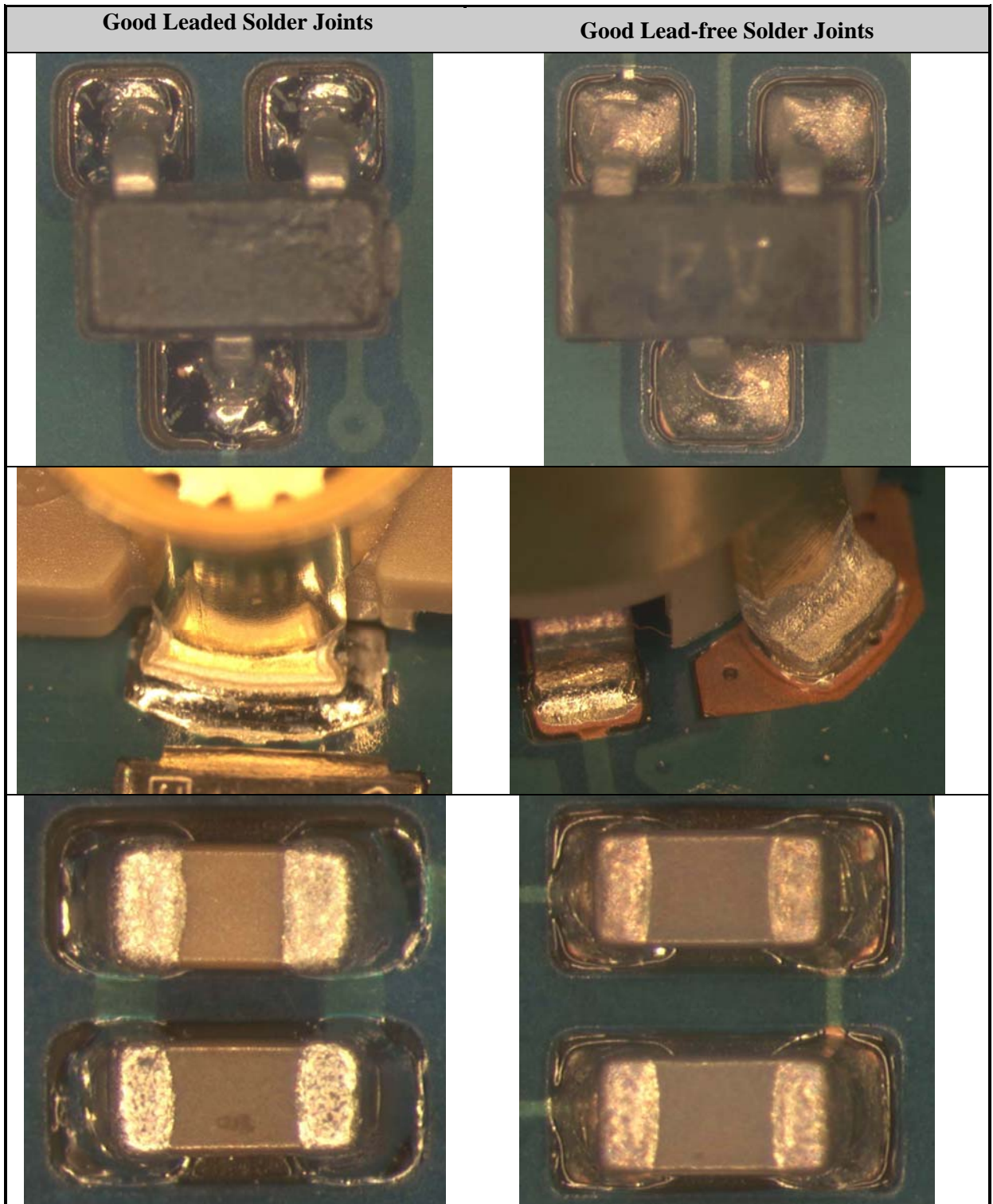
The following graph shows an example of a lead-free profile including bottom heat and top heat. The profile for specific parts and specific equipment will vary, but the maximum temperature must not be exceeded.





1.4 Inspection

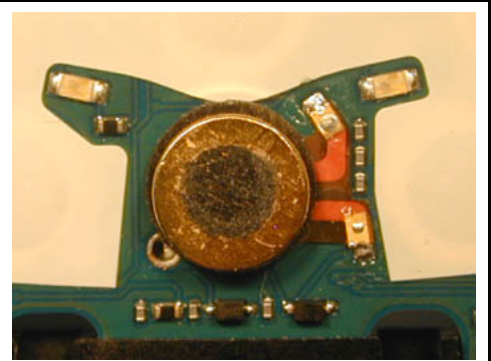
Lead-free solder joints are more difficult to inspect because they do not have shiny surfaces like leaded solder joints. Also, lead-free solder does not flow as well as leaded solder, so some of the solder pad area may remain exposed.





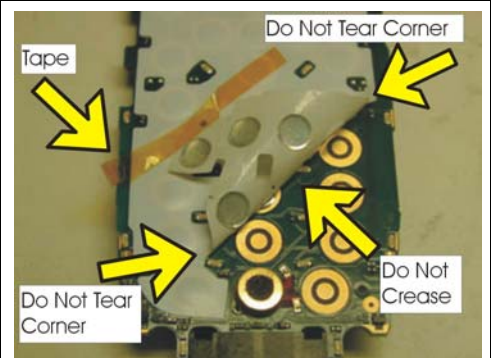
2 Microphone

The microphone for this product is soldered to the PCB at two points and adhered to the PCB under its center. The microphone can be replaced with a soldering iron, but be careful not to damage the dome foil.



Peel the bottom right corner of the dome foil back enough to fold it over and tape it to the board.

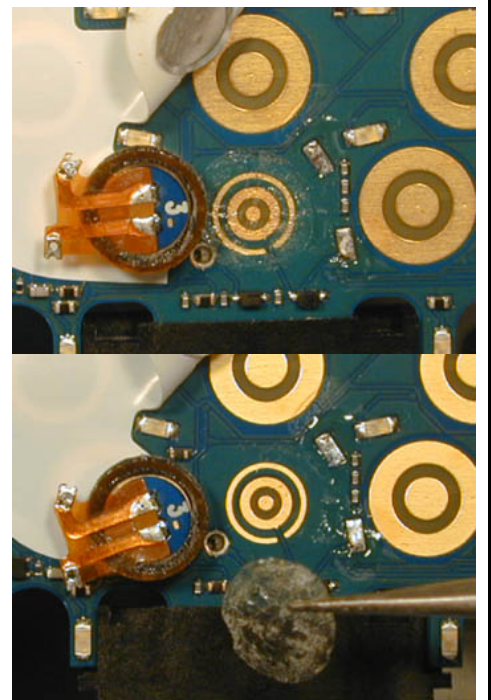
NOTE! Do not crease the dome foil, and do not tear the corners.



After desoldering the leads, remove the microphone and the adhesive layer.

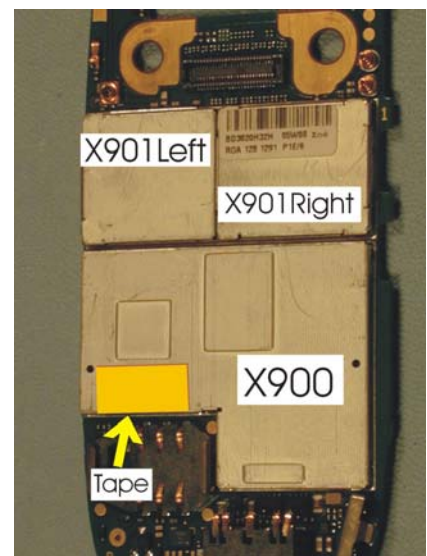
Remove the protective film from the adhesive on a new microphone, adhere the microphone to the board, and solder the leads.

Clean the flux off the board before putting the dome foil back into place.



3 Shield Can Lids

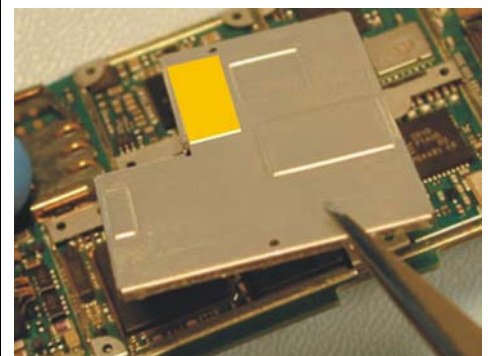
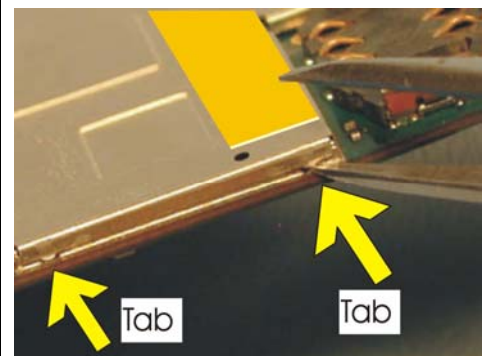
This product has three shield can lids as shown.



3.1 Bottom Shield Can Lid

Use a pry tool or tweezers beside one of the tabs on the side walls of the shield can lid to pry the corner up. Continue this action at the other tabs until the lid comes off.

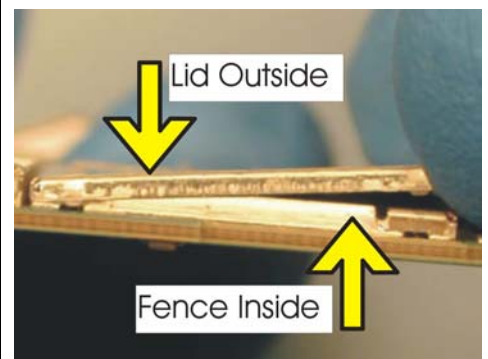
NOTE! Try not to bend the walls of the lid when removing it.



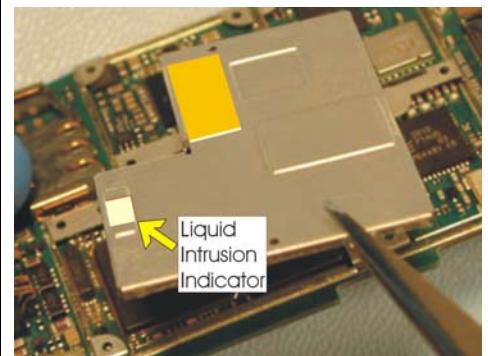


After repairing the phone, place the lid back onto the fence.

NOTE! The walls of the lid must be on the outside of the walls of the fence.



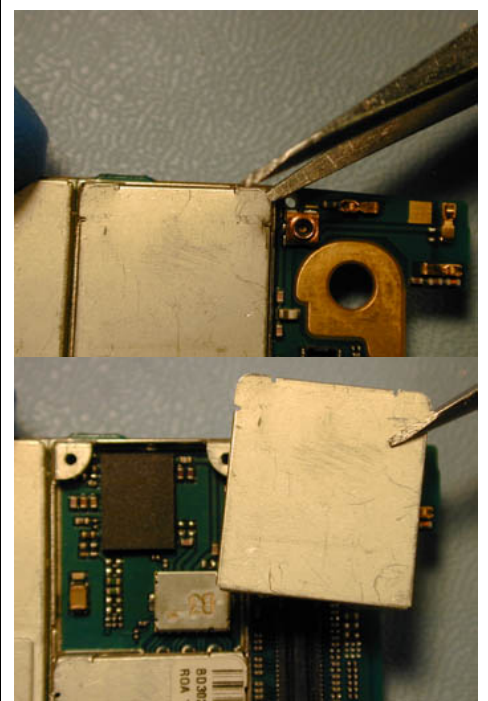
NOTE! FOR DPY1011464/83 ONLY.
Make sure there is a liquid intrusion indicator applied as shown. See Mechanical Part List for part number.



3.2 Top Left Shield Can Lid

Insert a pry tool or tweezers under one of the corners of the shield can lid to pry the corner up, and then remove the lid from the fence.

NOTE! Try not to bend the walls of the lid when removing it.

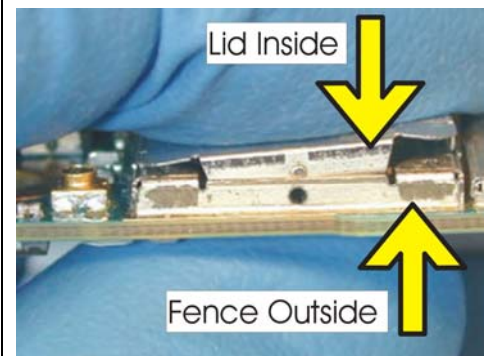
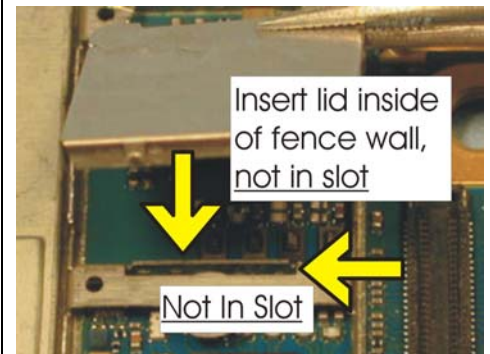
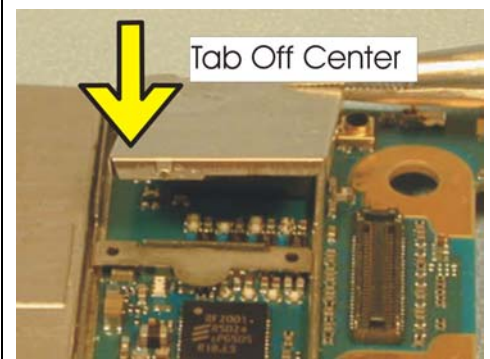




After repairing the phone, place the lid back onto the fence.

The lid had tabs on each end. On one end, the tab is centered. On the other end, the tab is shifted to one side. The end with the tab shifted off center goes toward the inside of the board. The end with the tab centered goes toward the outside edge of the board.

NOTE! The walls of the lid must be on the inside of the walls of the fence.



3.3 Top Right Shield Can Lid

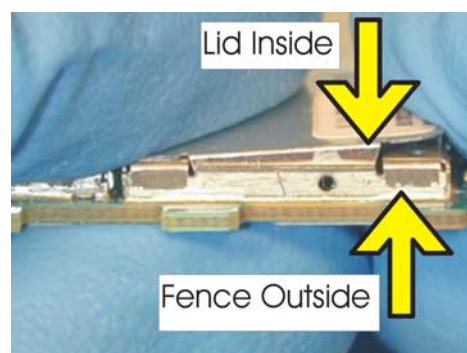
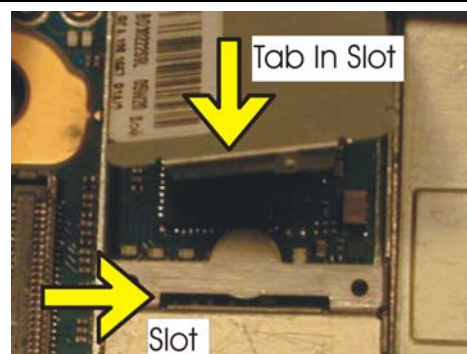
Insert a pry tool or tweezers under one of the corners of the shield can lid to pry the corner up, and then remove the lid from the fence.

NOTE! Try not to bend the walls of the lid when removing it.



After repairing the phone, place the lid back onto the fence by inserting the tab on one end of the lid into the slot on the fence.

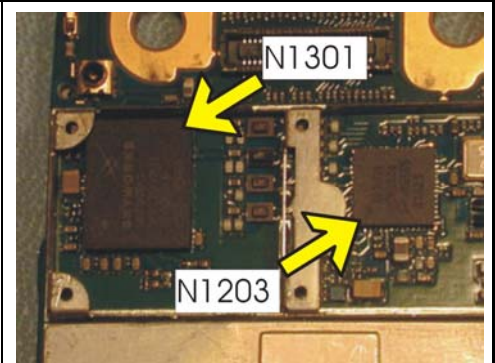
NOTE! The walls of the lid must be on the inside of the walls of the fence.



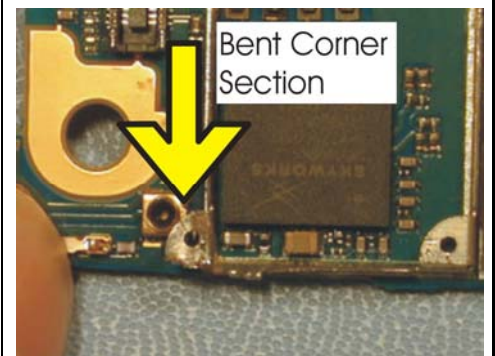
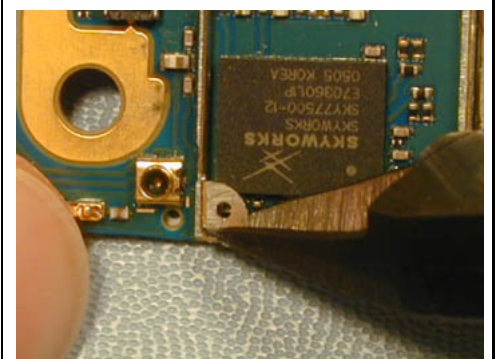


4 Components at Positions N1203 and N1301

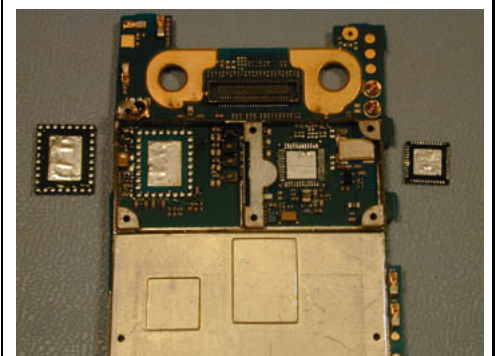
The components at positions N1203 and N1301 have large areas of solder under their centers for common ground pads. A large hot air device is required to get the solder on these slugs to flow. These parts are also difficult to lift off the board after the solder has flowed.



Cut and bend the top left corner of the shield fence as shown to remove N1301. Be careful to only bend the corner segment, not the side walls.



Both components removed.





5 Revision History

Rev.	Date	Changes / Comments
A	2005-Aug-11	Initial Release
B	2006-Apr-11	Added tape to baseband shield lid. Added Liquid Intrusion Indicator for Cingular DPY /83. Added model Z525a.
C	2006-Jun-27	Added model Z525i.