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SkyWriter

Service Manual



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TITLE: Service Manual for SkyWriter Pocket PC Phone

REV. NO.	DATE	CONTENTS	DEP.	REVISED	APP'D	STGE.PER.
Ax01	03/18/2008	First Draft	GSD Technical Support	Joy Lu		DVT
Ax02	04/15/2008	Second edition/ add WLAN/BT/GPS level 4 repair/ update ch4, ch5, ch7	GSD Technical Support	Joy Lu		DVT
Ax03	06/13/2008	Third edition/ update Ch3 by listing only useful fixture for customer/ change Panther to SkyWriter/ delete battery label in Ch8.3& 8.4	GSD Technical Support	Joy Lu		DVT
Ax04	07/31/2008	Fourth edition/ update Ch5.3/ 5.4 for modified MMI test items	GSD Technical Support	Joy Lu		DVT3-3
A01	08/15/2008	Fifth edition/ update Ch8.1& 8.2 agency label	GSD Technical Support	Joy Lu		DVT4-1

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Chapter 1 Introduction

This manual provides the technical information to support the service activities of **SkyWriter Pocket PC Phone**. It contains highly confidential information, so any or all of this document should not be revealed to any third party.

Chapter 2 Product Specifications

Feature	Description
OS Release	Crossbow 6.1 AKU 1.0
Dimensions and ID	ID intent is to create an update design with a flush front surface.
Processor and Baseband	Dual-Core MSM7201 at 400MHz
RF	RTR6275/RFR6500
Memory	Flash Storage – 256MB RAM – 128MB
Power (Talk and Standby time)	Talk Time: 5 hours typical (typical measured with PCL7 or CDG35 with LCD/keyboard at minimum setting) Standby: > 250 hours UMTS with partial refresh enabled (partial refresh to be controlled by Polish customization) Carrier targets must be achieved: Vodafone, AT&T, Orange
Antenna	Internal antenna design. Two antenna SKUs will be used to optimize for NA and EU bands. Co-existence between WI-FI and Bluetooth must be optimized. Must meet Palm Engineering specifications for RF performance. <ul style="list-style-type: none"> Desense when using Wi-Fi, Bluetooth, GPS Head/Hand effect

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	<ul style="list-style-type: none">• Desense with support peripherals (e.g. extended battery if available)• Desense in all audio modes.• Desense when other functions are in use (e.g. camera) <p>GPS location determination can be made when a phone call is active.</p>
Display / Controller	TFT, 320x320 display. Supports displaying 16 bits (+65,536) of colors out of a palette of 256,000 colors. Partial refresh will be supported.
Wi-Fi Radio	802.11 b/g (TI chipset) Co-existence of WLAN data with BT hands-free call or A2DP streaming is required.
IR	Supported.
Bluetooth Radio	BT 2.0 + EDR. TI chipset. Co-existence with WLAN data during hands-free call or A2DP streaming is required.
LED	Red and Green Led's will be required on the left hand corner of the front plastics. The LED must be visible in bright daylight.
Connector	Micro-USB All audio routed to 3.5mm
Camera	2MP FF camera Flash not supported No camera SKU required by AT&T
Stylus	Stylus included
Hardware buttons	<ul style="list-style-type: none">• Five-way navigation button• The application buttons will be backlit• 2 soft keys for Windows Mobile platforms (non-tactile LSK/RSK activates touch

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window)

- Dedicated Power Button
- Dedicated Send and End keys
- 4 application buttons (2 application buttons, OK, and Start Key)
- Ringer silence switch
- Wi-Fi push button
- Volume control – the two buttons appear on the left- side of the device to control volume
- Side center Button: Voice Dialing/PTT/MP3 Button

Expansion

Micro SD card

Max capacity: 32GB SDHC

Battery

- Rechargeable 1500 mAh, Li-ion
- Removable Battery
- USB Charge not to exceed 500mA
- Heavy User Scenario: Charging limited to 45C for battery safety concerns. Note:
Battery pack may be raised by vendor to 50C.
- Charge time will be 90 minutes based on 1A wall charger specification.

In box wall charger should be specification listed in comments.

Heavy user scenarios must be met with the standard battery to prevent the need of an Extended Life Battery.

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Audio	<p>Audio experience based on the following priorities:</p> <ul style="list-style-type: none"> • Exceptional voice quality. First priority is a great experience of using the receiver against your ear. Receiver must pass Palm's audio spec. Ergonomics of the earpiece are critical – for example, provide a targetable and comfortable landing area of your ear. • Second larger speaker for the application of speakerphone, audio/video playback (MP3), and loud ringtone playback. The speakerphone (off the back of the device) must be clear and audible even when the device is placed on a table with the screen facing up. • >32 polyphonic MIDI support (SW) required for ringtones and system sounds. • Two-speaker architecture One receiver (front facing) optimized for voice and one speaker (rear facing) for loud system sounds and speakerphone mode. The speaker cavity must be designed to minimize the audio leaks and maximize the space necessary to provide a rich audio experience (benchmark the products against Moto Q and Nokia E61/62). • Microphone support from the built-in mic and headset. Improve the design and placement so that the ambient noise is reduced while the user's voice is clear at the receiver's end. • Headset 3.5mm interface (refer to later section on pinout) • Bluetooth Hands free call management with SCO and eSCO headsets, and stereo media with wireless stereo A2DP headsets. The requirements for range and clarity (listed in the performance section in the Bluetooth FRD) must be met in stand-alone mode, and with simultaneous data traffic on cellular network (for UMTS networks) or Wi-Fi. The simultaneous data must not impact the range and/or clarity of the voice call on BT hands free.
Keyboard	<p>Skywriter keyboard usability is critical for messaging centric business customers.</p> <p>QWERTY / AZERTY / QWERTZ required.</p>

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	Keyboard will be LED backlit.
Real Time Clock	The real time clock must be included to meet a Microsoft LTK requirement.
Accessories	Micro-USB and 3.5mm audio connector. Accessories are defined in a separate document.

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Chapter 3 Servicing Equipment and Tools

Please refer service tools list for detail.

No.	Test for	Setup for	Detail tools/ equipment	Photo
1	Soldering tools	Component level	Lead-free Soldering station	
2	General tools list	System level	Disassembly/assembly tools	
			USB Cable	
			Headset	
			AC Adapter	
			Micro SD Card	
			PC + monitor	

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			Label Printer	
3	Handset Current consumption	System level	Power supply	
			Current series jig	
4	Battery	Component level	Voltage meter	
5	All functions	Board level	Manual test fixture	
			Control box	

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Chapter 4 Assembling and Disassembling

4.1 Debug fixture

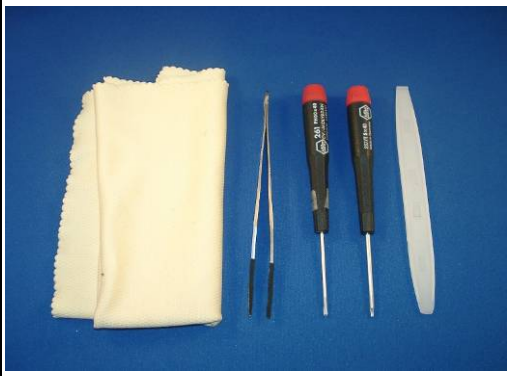


Reference pictures	Purpose	Lead time (day)
	Function test fixture	14
	Control box	14

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4.2 Disassembling

	<p>Tools requirement for Assembling and Disassembling the PDA Phone</p> <ol style="list-style-type: none"> 1. Lens Cleaning Tissue. 2. Tweezers (plastic head) 3. Philip Screw Driver PH00. 4. Torex Screw Driver T5 5. Special Made Plastic Stick.
	<p>Disassembly Process:</p> <p>Follow the arrow direction to remove the battery cover.</p>
	<p>Remove stylus</p>

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From the hook remove the battery.



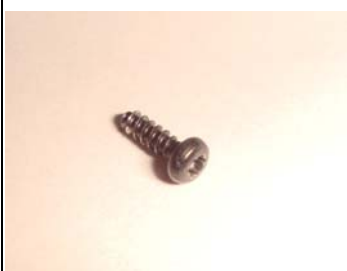
Warning: To reduce risk of fire or burns, do not disassemble, crush, puncture, short external contacts, or dispose of in fire or water. Replace only with specified batteries. Recycle or dispose of used batteries properly.



Remove the battery by following the direction of the arrow.



Unfasten four screws.
(They are the longer ones.)

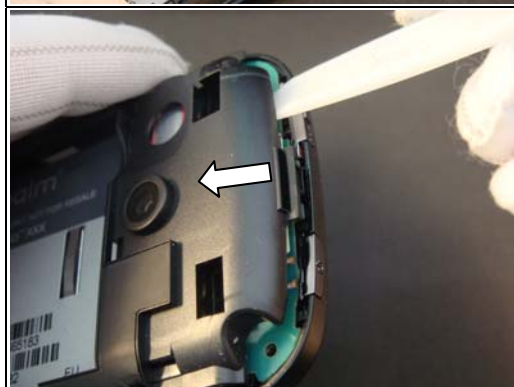


Unfasten one shorter screw.
(at the middle edge of the housing location)





From upper side of the unit (Antenna cover) remove the antenna cover.



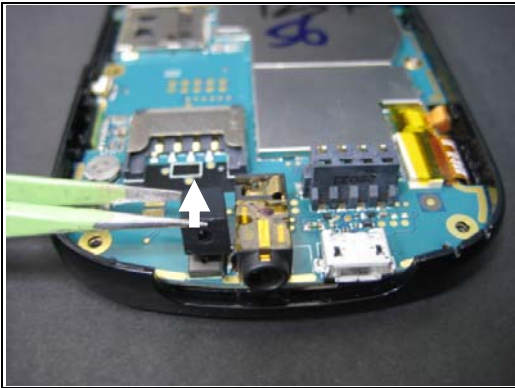
From left upper side of unit, use plastic stick tool to release the hooks to remove the housing.



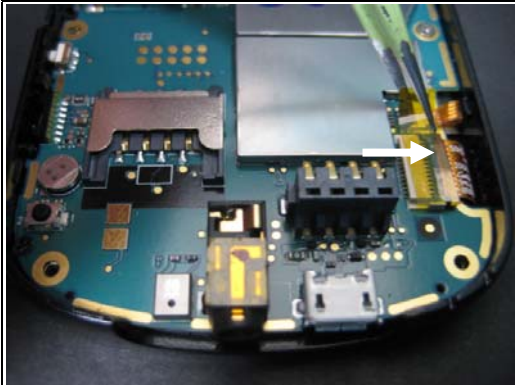
Pull the front part of housing upward to separate the frame from the bezel.



Turn the housing counterclockwise to separate the frame from the bezel.



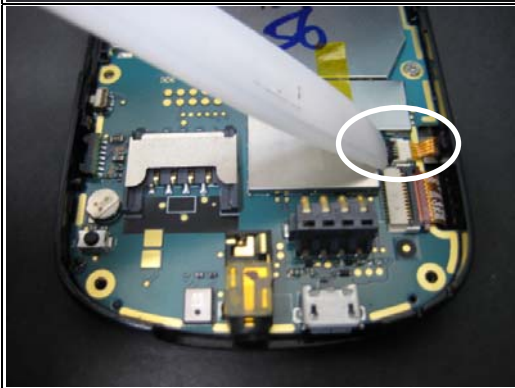
Remove the microphone rubber from main board.



Remove the tape on Keypad and Touch window FPC connector.



Leave the yellow tape in the white circle area to prevent from forgetting to put it back (if you plan to reuse the kapton tape.)



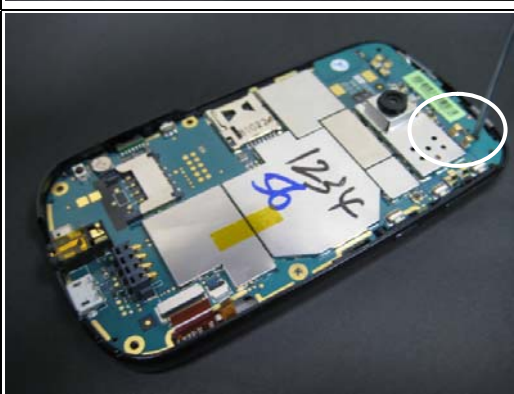
Use plastic stick to unhook the Keypad FPC connector.



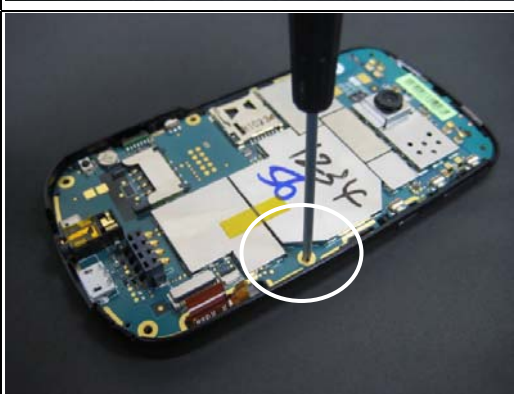
Use plastic stick to unhook the Touch window FPC connector.



Pull the FPCs out of both connectors.
(Note: Don't damage or prick the FPCs.)

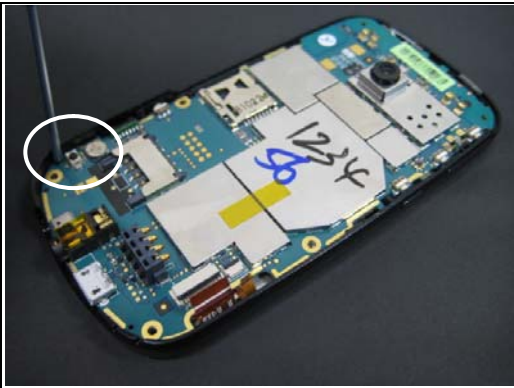


Unfasten three screws on the PCBA. (Positions of them please refer to the white circles.)

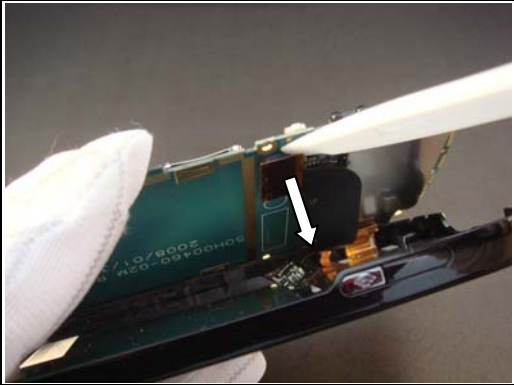


Unfasten three screws on the PCBA. (Positions of them please refer to the white circles.)





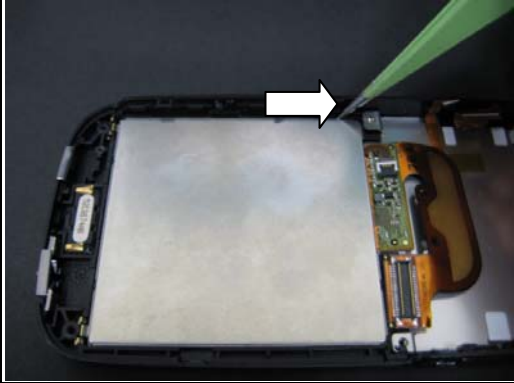
Unfasten three screws on the PCBA. (Positions of them please refer to the white circles.)



Lift the PCBA up and use the plastic stick to unlock the LCM connector.
(Carry out this action before the PCBA is levered too far from the LCM.)



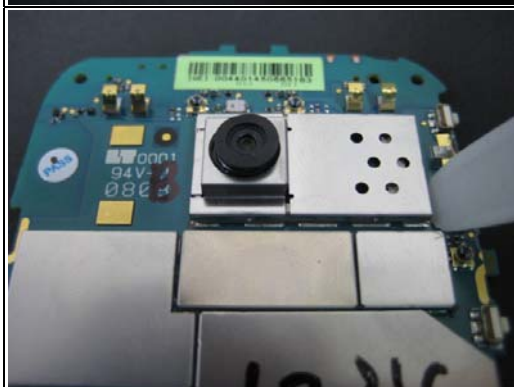
Divide the front bezel+LCM and the PCBA.



Use tweezers to remove LCM from Bezel.



Pull one side up only and then take out all LCM from Bezel.
(Don't scratch the touch panel in anyway.)



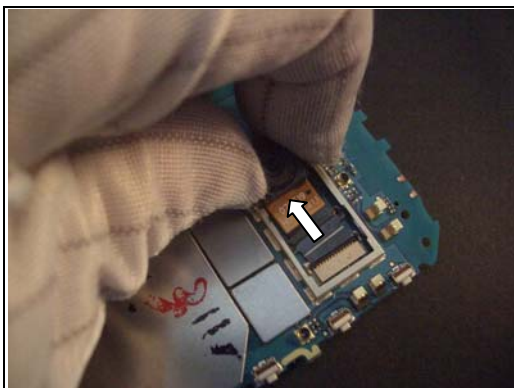
Use plastic stick to remove camera shielding cover.



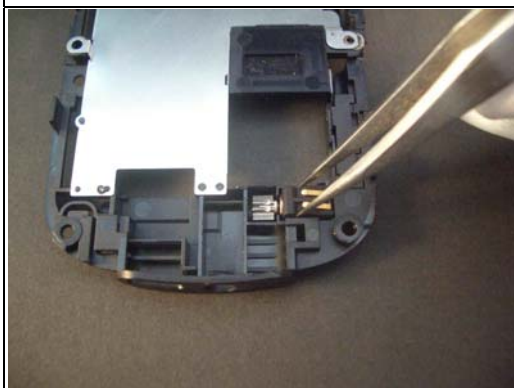
Use tweezers to remove the kapton tape on the camera FPC connector.



Use plastic stick to unlock the FPC connector.



Remove camera module from main board.



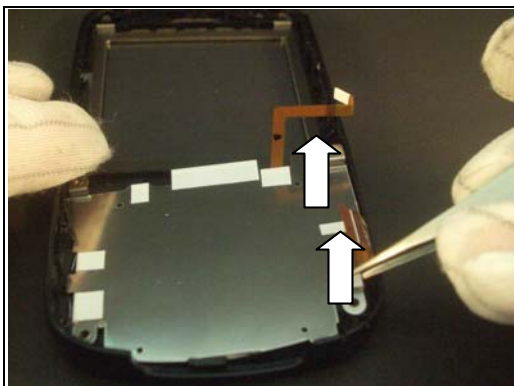
Use tweezers to remove the vibrator on the housing.



Use tweezers to remove the loudspeaker on the housing.



Use tweezers to take the receiver out.



Remove the keypad FPC on the bezel.
Step1. move the right side of keypad FPC upwards.



Step2. move the left side of keypad FPC out of the bezel.



Remove keypad from the Bezel.



Remove AP key from the Bezel.

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Take out the keypad frame from the Bezel.
(1. right side 2. left side, 3. down side, 4. upper side)



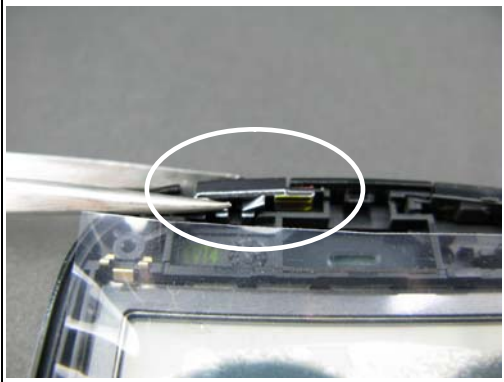
The disassembling is done.

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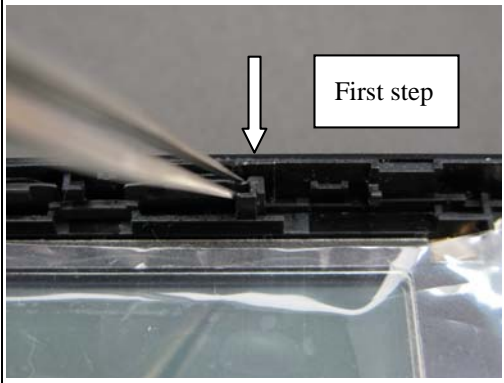
4.3 Assembling



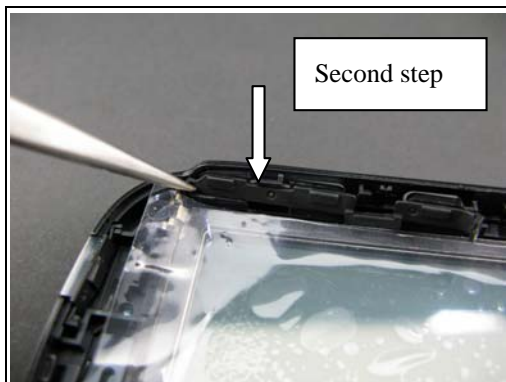
Put 4 buttons into the Bezel.
Power button



Mute button



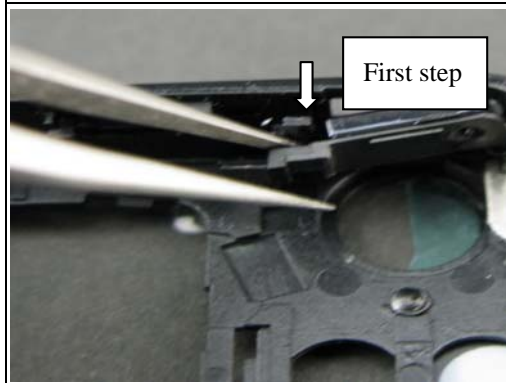
Volume+ Camera button(First step: Insert the lower part.)



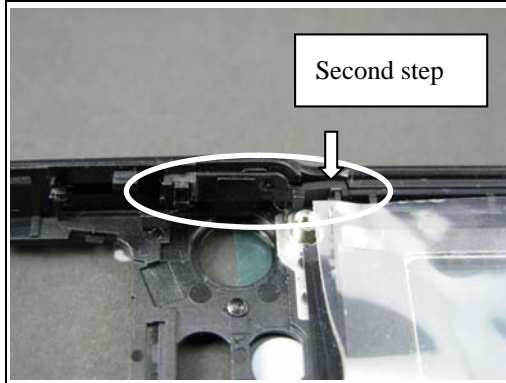
Volume+ Camera button(Second step: Insert the upper part.)



Volume+ Camera button(Complete picture)



Wi-Fi button (First step: Insert the lower part.)



Wi-Fi button (Second step: Insert the upper part.)



Assemble the keypad frame on the Bezel.
(1. Upper side, 2. down side, 3. left side, 4. right side.)



Put two spacers on the two bottom hooks of the Bezel.



Put two spacers on the two bottom hooks of the Bezel.



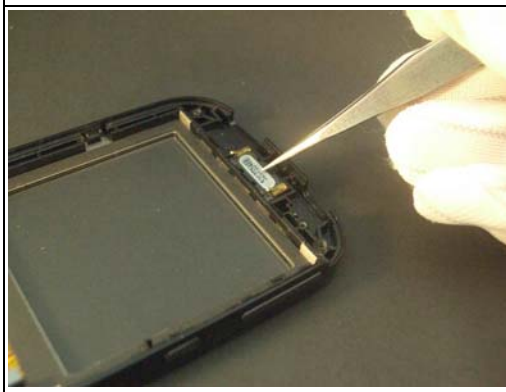
Lift the touch window FPC to insert the AP key into the Bezel. (Green key is on the right side facing you.)



Put keypad into the Bezel

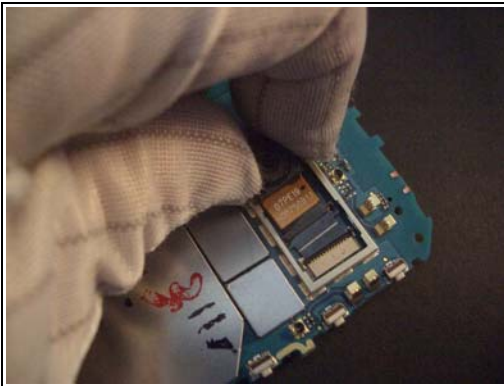


Assemble keypad FPC on the Bezel. (1. insert left upper hook, 2. insert right upper hook, 3. insert left down hook, 4. insert right down hook)

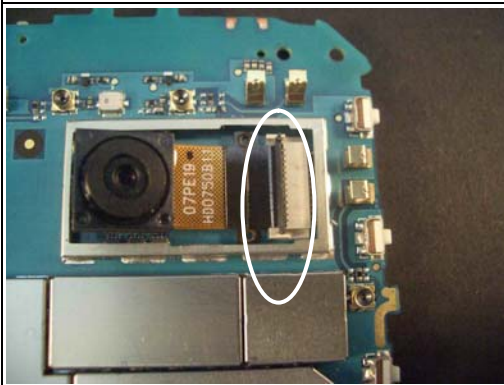


Assemble the receiver on the Bezel. (**Attention:** two springs must be downward.)





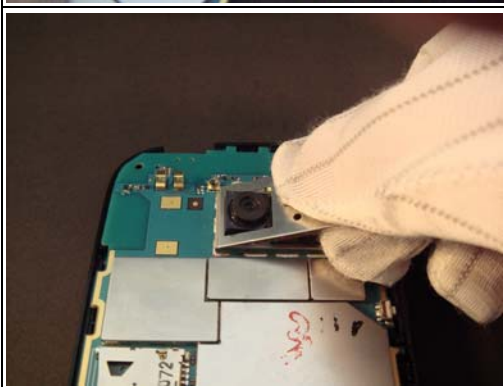
Assemble camera FPC into camera socket.
(Attention: Insert FPC to the end, and the white line on FPC should be reached the edge of the switch to make sure your camera assembled correctly.)



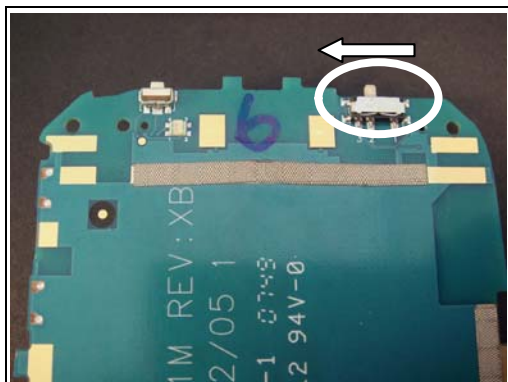
Insert FPC to the end, and the white line on FPC should be reached the edge of the switch to make sure your camera assembled correctly.



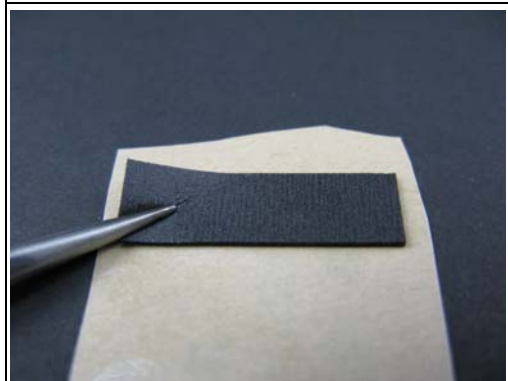
Close the FPC socket and stick the kapton tape on the FPC connector.



Close the camera shielding case on the shielding frame.
(Attention: Make sure the camera is seated correctly in the shielding case to prevent damaging the camera module)



Make sure the mute button push to the left side.
(Purpose: To prevent damaging the switch by assembling process.)



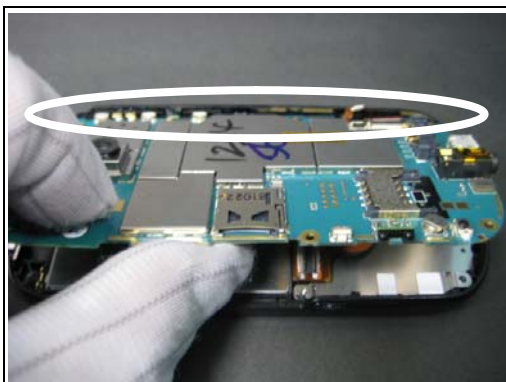
Stick one poron on the LCM FPC.



Stick one poron on the LCM FPC.



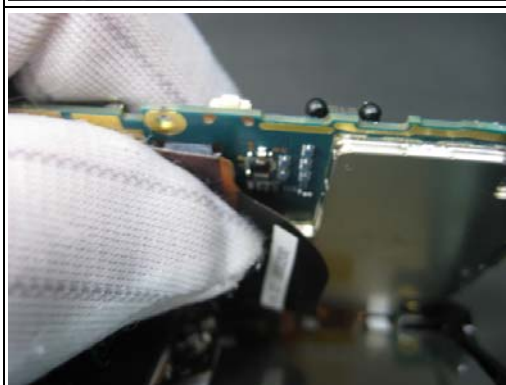
Put LCD module in the Bezel.
(Top side first, and don't scratch the Touch Panel.)



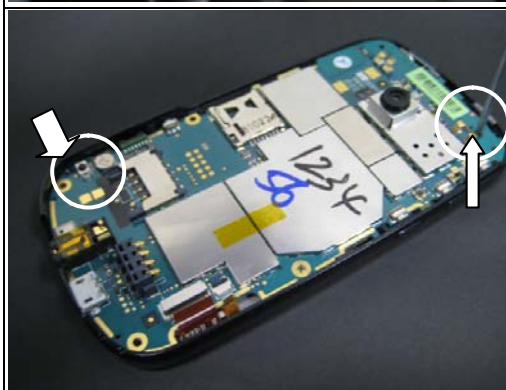
Put the PCBA into the Bezel+ LCM assembly.
(Right side first.)



Use point finger to press down the PCBA in the area of the white circle.

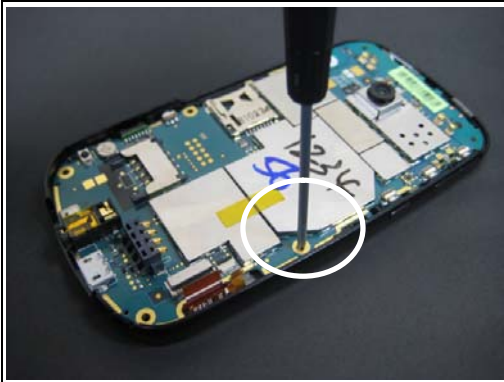


Lift the PCBA and use fingers to make sure the connection between PCBA and LCM is good.

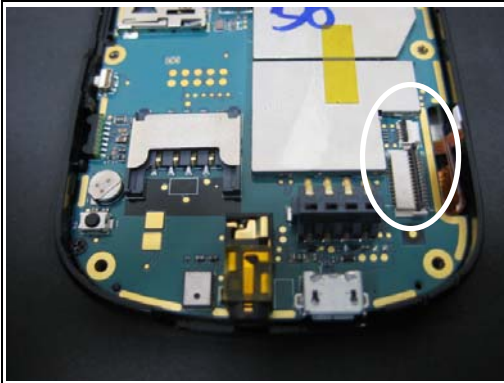


Fasten two screws on the marked positions by white circles.(Torque: 0.3±0.05kgf-cm)





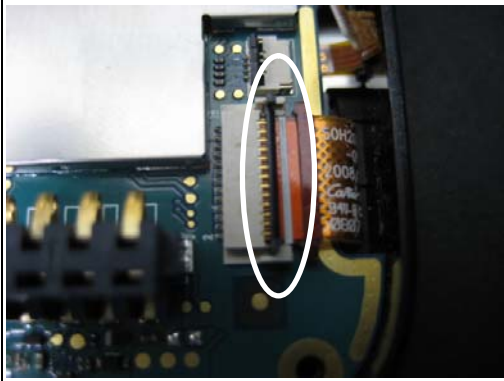
Fasten the last one screws on the marked positions by white circles. (Torque: 0.4±0.05kgf-cm)



Open Touch window FPC connector and the keypad FPC connector.



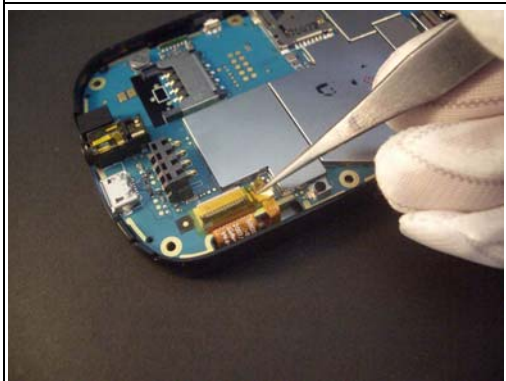
Insert touch window FPC and Keypad FPC into connector.
(3M waterproof glue)



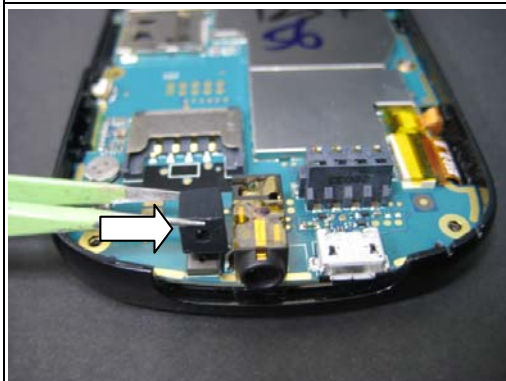
Make sure the Keypad FPC is located in the right position.



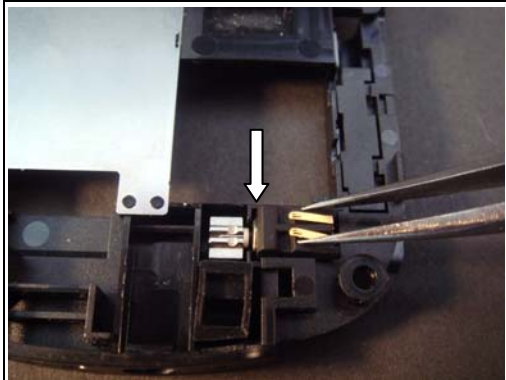
Use tweezers to lift the kapton tape up.



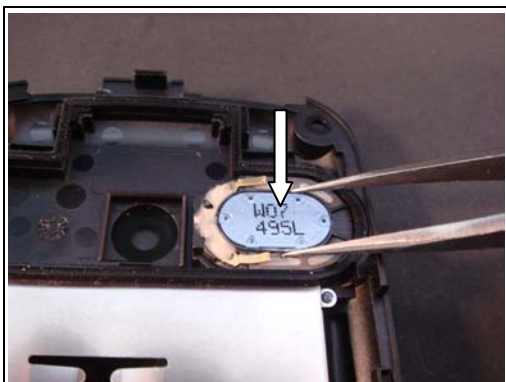
Stick the kapton tape on the FPC connector.



Place Microphone rubber on microphone.
(The position of microphone, please refer to the pointing arrow.)
Microphone rubber P/N: 76H02481-00M



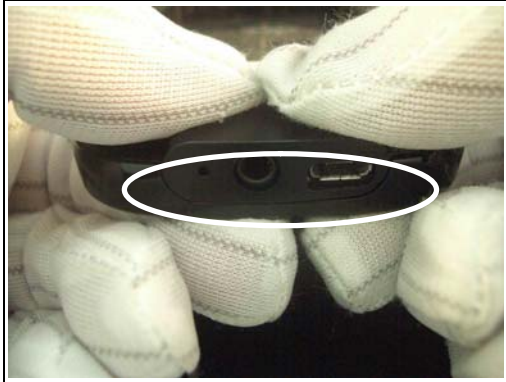
Put the vibrator into the housing.



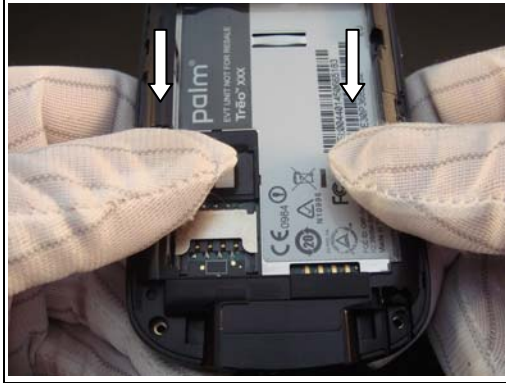
Put the speaker into the housing.



Assemble the housing on the Bezel.
Step1. insert the down hook of audio jack,



Step 2. Press down the bottom of the housing to close the hook between the housing and Bezel.



Step3. Press down the middle part of the housing.



Step4. Press down the upper part of the housing.



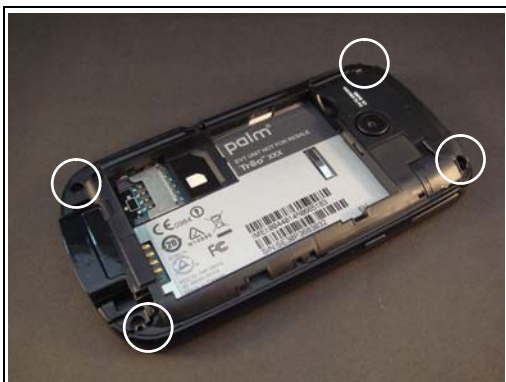
Before assembling the antenna, please make sure the rubber gasket is not deformed, especially on the right edge.



Assemble the antenna cover into the housing.
Step1. Insert the lower hook of the cover into the housing.

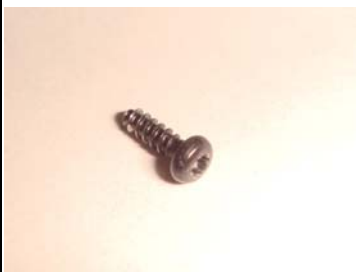


Step2. Put the upper side of the antenna cover down on the housing.



Fasten 4 longer screws into 4 corners.

(Torque: 0.8±0.05kgf-cm)



Fasten 1 shorter screw into the middle screw holes. (Torque: 0.8±0.05kgf-cm)

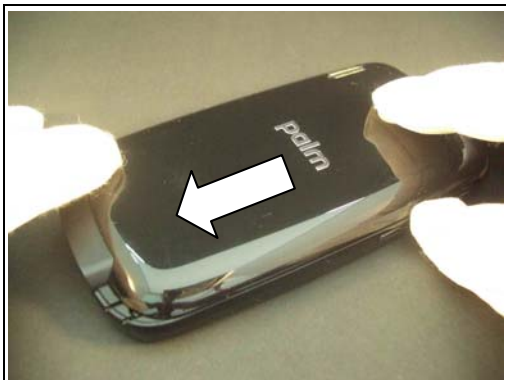


Place battery into the housing.



Insert stylus into the unit


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Place battery cover into the unit.

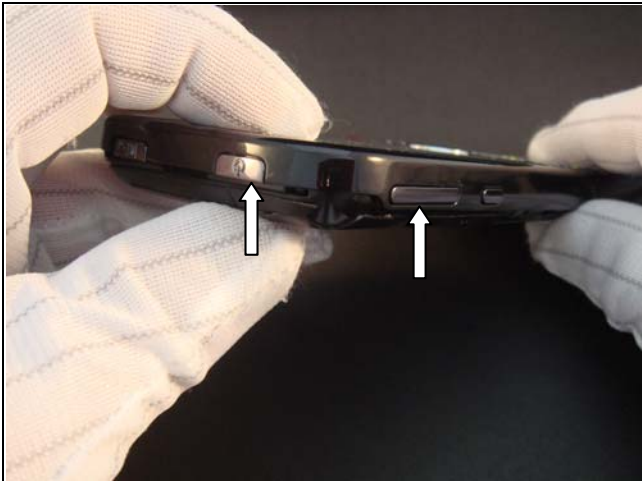


The assembling is done.

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Chapter 5 Diagnostic Program

5.1 How to enter Boot-load mode

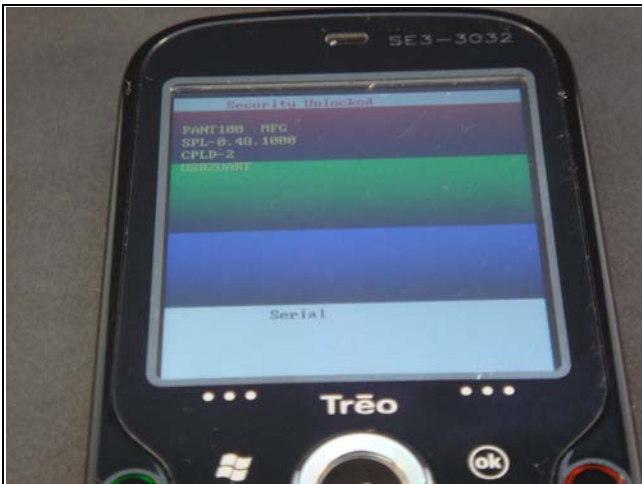


1. Press Power on and Volume up button, in the same time.



2. And then install battery into the device.

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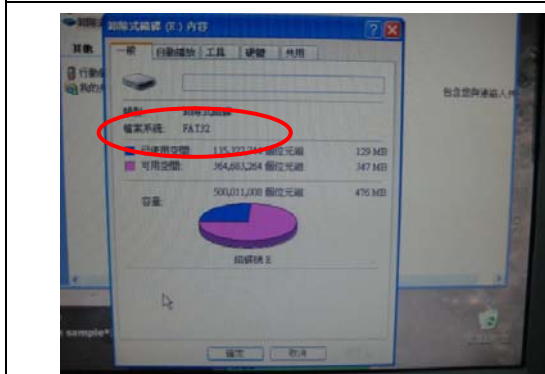
3. Enter Boot-loader mode

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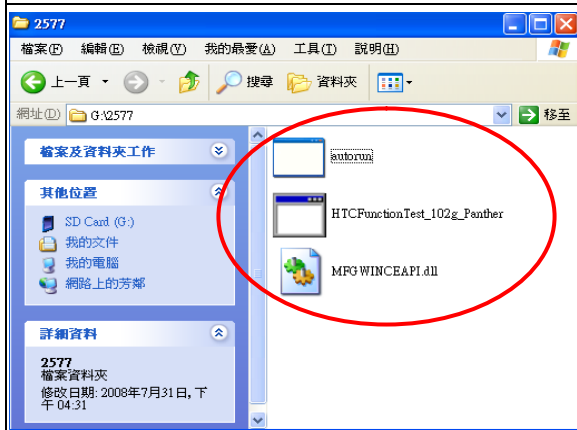
5.2 How to make Diagnostic card



1. Prepare one micro SD card.(>128MB)




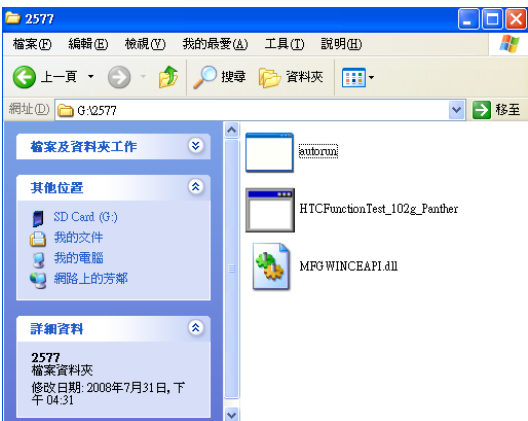

2. Format it with FAT 32.



3. Copy three function test items into 2577 folder in micro SD card.
(Autorun, HTCFunctionTest_102g_Panther, MFGWINCEAPI.dll)

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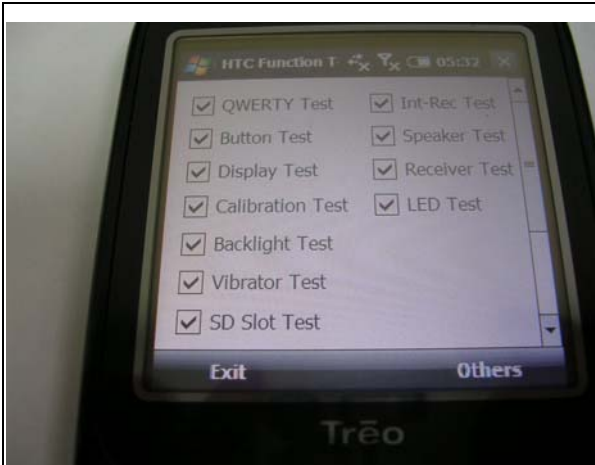
5.3 How to enter Diagnostic Program

	1. Power on the handset into OS mode.
	2. Create the folder, "2577", in the Micro SD card, and copy the WinCE diagnostic program into Micro SD card.
	3. Insert the Micro SD card into the device then the program will execute automatically.

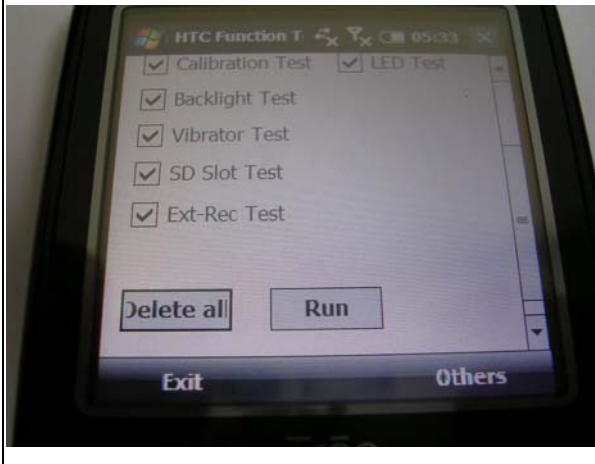
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4. 1 Test items (Detail descriptions of the test items please refer to the Chapter 5.4 List of diagnostic test Items)



4.2 Test items (Detail descriptions of the test items please refer to the Chapter 5.4 List of diagnostic test Items)


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5.4 List of diagnostic test Items

No.	Item	Description	Remark
	Function Test	All manual function test item by item	
A	QWERTY Test	QWERTY keys	
B	Button Test	Send key/Calendar key/Windows/ Left/ Up/ Right/ Down/ Action key/ Messaging/ OK/ End/ Camera/ Vol_Up/ Vol_Down/ WIFI/ Mute/ Unmute	
C	Display Test	LCD pattern display test. Red – Green – Blue – Black/White chequered chess board 7*7 – Grey scale	
D	Calibration Test	Touch panel calibration test.	
E	Backlight Test	LCM back light level Off, 1~4	
F	Vibrator Test	Vibrator on test	
G	SD Slot Test	SD card read/ write/ compare test	
H	Ext-Rec Test	Record from headset and play to earphone.	Microsoft built-in “Busy sound”
I	Int-Rec Test	Record from internal MIC and play to speaker.	
J	Speaker Test	Speaker test	
K	Receiver Test	Receiver test	
L	LED Test	AMBER Blink/ QKey on/ RED On/ RED Blink/ GREEN On/ GREEN Blink	


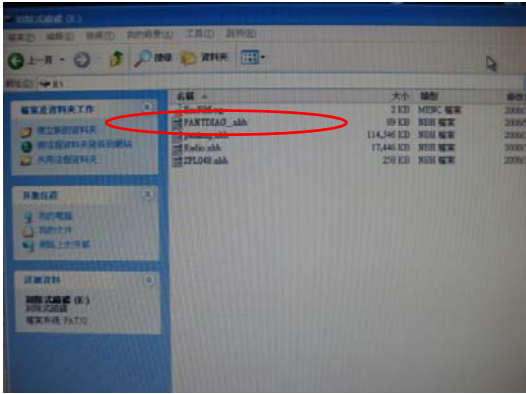

The following items need to be tested by manual function test			
No.	Item	Description	Remark
1	USB TEST	Linking with PC/Notebook to check USB Linking function	USB TEST
2	SIR Test	Infrared port test, Link with PC/Notebook to check IR Link function	SIR Test
3	Camera	Camera viewing test	Camera
4	Bluetooth	Bluetooth communication test	Bluetooth
5	Wi-Fi	Wireless LAN test	Wi-Fi

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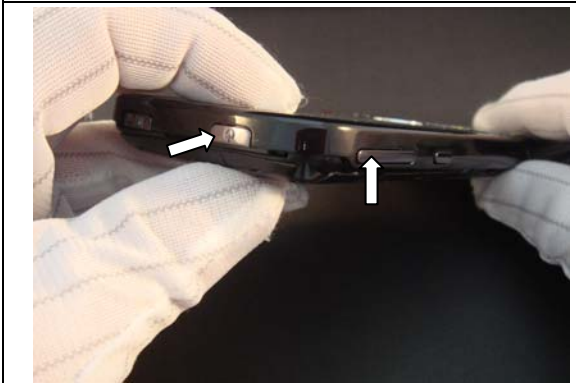
6	GPS	Global Positioning System test	GPS
---	-----	--------------------------------	-----

5.5 How to perform the OS upgrading process via Micro-SD card?

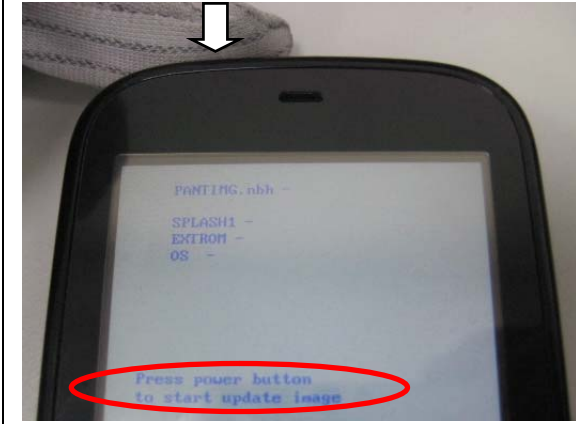
	1. Formatting the micro-SD card with FAT32 format.
	2. Changing the file name from OS090.nbh to pantimg.nbh
	3. Saving the pantimg.nbh into micro-SD card.



4. Inserting the micro-SD card.


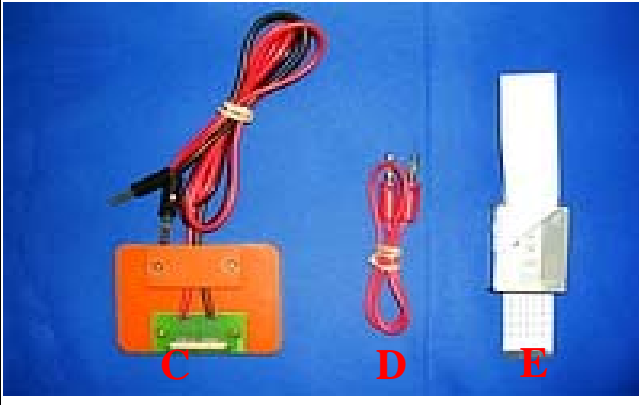



5. Making the handset into boot loader mode by pressing power and volume up button.

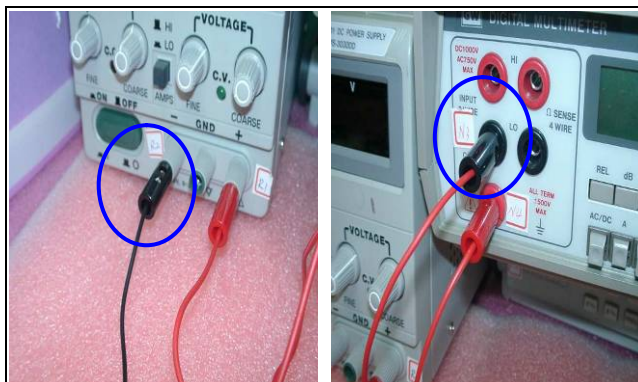


6. Pressing power button to activate the re-flash procedure.

Chapter 6 Device current consumption measure

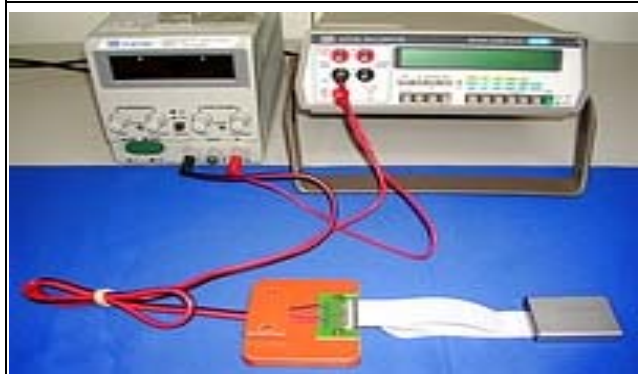
	1. Equipment requirement A. Power Supply (set at 3.8 V /1A). B. Micro-Current Meter (support 0.5mA ~ 1A).
	2. Fixture requirement C. Current series jig.(with black and red cable) D. Cable E. Battery with extension cable
	3. Connect cable (D) to positive polarity of power supply (A) and current meter (B)

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4. Connect cable of fixture(C) to negative polarity of power supply (A) and current meter (B)

Note : black cable to power supply (A) and red cable to current meter (B)



5. Ready for testing
(Don't turn the power on at this moment)



6. Install battery fixture (E) into the unit.



7. Turn on power supply and current meter.



8. Measure device current at awake mode (LCM back light on and keypad backlight on), Flight mode and sleep mode.

Charge current	Conditions
40mA < Ib < 55mA	Pre-charge current set at Vb < (3.0+0.2V)
0.4A < Ib < 0.5A	USB host is detected and configured.
0.8A < Ib < 1.0A	When charger is under software control, and AC adapter is plugged in.
Ib is the charge current pass through the charger (PAU3). Vb is the main battery voltage.	

Current value	Type of Mode
0.01~0.04A	Sleep mode (Press power on key)
0.06~0.12A	Flight mode (Flight mode on, LCM, Keypad light on)
0.08~0.15A	Wake up mode (Phone on, LCM, Keypad light on)
0.8A~1.0A	Charging mode (Main battery capacity < 40%)

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Chapter 7 Trouble Shooting Guide

7.1 Identify reported failure symptom before repair

Before attempt repairing the unit, make sure the type of reported failure could be clearly reproduced; otherwise, check with the customer or distributor once again to identify the problem correctly. The following are failure symptoms that are typical by misjudgment.

No.	Item	Possibility
1	No Power even the power button is pressed	Main Battery low power exhausted.
		While Back Light is turned OFF, the surrounding lighting will be reflected on the panel and in a dim location; it looks like the unit is turned OFF.
		According to the Power Management settings, the units will be switched OFF automatically.
2	Battery discharges quickly	The battery life depends on the devices being used in SD Card Slot, and frequency of use of the Backlight. These functions consume a lot of energy.
		Operating with front light ON, or using high-energy consumption devices such as SD Memory Card will drain out the battery pack faster.
3	Battery cannot be charged	Using AC adapter that is NOT supplied with the unit.
		Charging the battery while operating the unit with heavy loadings could cause the temperature inside the unit to build up which could cause the unit stop charging. At this moment, the LED indicator will flash Yellow to notify user that the charging has been stopped. Or the temperature is extremely low will also stop charging. Since the extreme high or low temperature will cause the battery to discharge quickly, it has been designed to cut battery charge below TBD°C and above TBD°C to protect the battery pack.
4	Cannot make communications via mobile phones through exclusive cable.	If the unit could pass the test with Loop back Interface card, the possibility of unit malfunction becomes low. Then the following items could be the reason of problem such as location, timing, signal strength, service provider's mixed up, or problem with the mobile itself. Or could be incompatibility issue.
5	Cannot use Micro SD Memory Card	Card is not being pre-formatted.
		Micro SD card has been switched to Write Protect mode.
		Card is not inserted completely or bad contact between connector contacts.

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6	Black or White dot on the screen.	For LCD panel's normal behavior, it is hard to find a panel without any bad pixel. Once the numbers of dots and the distance between them are within the specifications, it is allowed.
7	Touch Screen or Program Buttons are not reacting.	Could be wrong operation.
		Screen not properly aligned with the stylus calibration.
8	Front Light dim, cannot turn ON, or shuts OFF automatically.	Check the Front Light settings in Power Management settings
9	Cannot playback music, RF function; No sound or volume is low.	When Battery low, the music playback and RF function becomes difficult and the volume could become lower.
10	Cannot execute installed application programs	Could be an incompatible software
11	Operation is slow in response	Could be insufficient memory. Check amount of system memory.
12	Hang up	Software being used sometimes is not fully compatible with the system.
		Execute many application programs simultaneously
		Software that requires big amount of memory spaces or the system memory is low or the file being used is fragmented.
13	System Memory is enough, but is shows insufficient.	Software that requires big amount of memory spaces or the system memory is low or the file being used is fragmented.
14	Wireless connection (WLAN/BT) not functioning	Make sure the wireless environment is OK before connecting to WLAN.
		*Note: Nevertheless, the above symptoms could be solved by a software reset or hardware reset, make sure the Warm /Cold boot has been executed and try to reproduce the symptom reported.

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7.2 How to perform Warm Boot and Cold Boot

Soft Boot: Reset the unit by pressing reset button.

Hard reset process:

1. Press the end button and then insert the battery. (Hold your finger on the end button for about 5 seconds after you inserting the battery or by pressing the reset button.)



2. The device will display the following picture and then tap upper of navigation button to erase all data. After tapping upper button of the navigation key, the handset will reboot by itself.



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7.3 Trouble shooting process/Faulty tree

7.3.1 Power / Battery **

Problem Area	Items to Check	Repair Action	Remark
No Power On/Can't boot	Exclude software issue.	<ul style="list-style-type: none"> Try to hard reset the unit and try again. 	
	Check if the battery is official battery or not.	<ul style="list-style-type: none"> If not— Replace battery. 	
	Use voltage meter to check if the battery voltage is too low.	<ul style="list-style-type: none"> If voltage is under 3.8V, insert charger to handset. 	
	Visually inspect the contact pads of Battery	<ul style="list-style-type: none"> If dirty or oxidized – Clean pads If damaged – Replace Battery 	
	Visually inspect Battery Connector	<ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged –Use hot air to change it. 	
	Check the power on key works normally or not.	<ul style="list-style-type: none"> If dirty – Clean If damaged – Replace power on switch. 	
	Check all connectors including LCD FPC to Main Board.	<ul style="list-style-type: none"> If the connection status is not good, assemble the Unit again. 	
	Software re-download.	<ul style="list-style-type: none"> Try to start boot-loader mode [refer to section 5.1]. Re-flash ROM if boot loader mode is enabled. 	

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Problem Area	Items to Check	Repair Action	Remark
		<ul style="list-style-type: none"> Replace Main Board if necessary. 	

7.3.2 Network/Signal Problems **

Problem Area	Items to Check	Repair Action	Remark
No Signal or Poor Signal	Exclude software issue.	<ul style="list-style-type: none"> Try to hardware reset the unit and try again. 	
	Check if the phone function is active.	<ul style="list-style-type: none"> If it disabled, please turn it on. 	
	Visually inspect SIM Holder	<ul style="list-style-type: none"> If dirty or oxidized– Clean If damaged – Send to an electrical repair location to change it. 	
	Visually inspect the Antenna Connector	<ul style="list-style-type: none"> If dirty or oxidized– Clean If damaged – Send to an electrical repair location to change it. 	
	Visually inspect the Antenna Cover. (Make sure the antenna is the correct part for region.)	<ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged – Replace the Antenna cover 	
	Visually inspect the Antenna spring	<ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged – Change the Antenna spring. 	
	Visually inspect the Antenna switch	<ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged – Change the Antenna spring. 	

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Problem Area	Items to Check	Repair Action	Remark
	Exclude software issue.	<ul style="list-style-type: none">Try to hardware reset the unit and try again.	
	Check if the phone function is active.	<ul style="list-style-type: none">If it disabled, please turn it on.	
		<ul style="list-style-type: none">Replace Main Board if necessary.	

7.3.3 Audio Problems **

Problem Area	Items to Check	Repair Action	Remark
Receiver	Exclude software issue.	<ul style="list-style-type: none">Try to hardware reset the unit and try again.	
	Check the audio volume setting.	<ul style="list-style-type: none">If disabled--Turn the volume on.	
	Check the mute button status.	<ul style="list-style-type: none">Make the mute button turns off.	
	Visually inspect the Bezel	<ul style="list-style-type: none">If clogged – Replace Bezel Assy	
	Check the audio jack connector.	<ul style="list-style-type: none">If pin2 is short to GND– Replace the audio jack.	
	Visually inspect the receiver pads	<ul style="list-style-type: none">If dirty or oxidized – Clean	
	Visually inspect the receiver.	<ul style="list-style-type: none">If damaged, dirty or oxidized - Replace Earphone Speaker	
		<ul style="list-style-type: none">Replace Main Board if necessary.	
Microphone	Exclude software issue.	<ul style="list-style-type: none">Try to hardware reset the unit and try again.	

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Problem Area	Items to Check	Repair Action	Remark
	Visually inspect the Microphone.	<ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged or oxidized - Replace Microphone. 	
		<ul style="list-style-type: none"> Replace Main Board if necessary. 	
Recording	Exclude software issue.	<ul style="list-style-type: none"> Try to hardware reset the unit and try again. 	
	Check the record key works normally or not.	<ul style="list-style-type: none"> If dirty – Clean If damaged – Replace record switch. 	
Headset	Exclude software issue.	<ul style="list-style-type: none"> Try to hardware reset the unit and try again. 	
	Check the headset	<ul style="list-style-type: none"> If headset is damaged, change another one. 	
	Check the audio jack status	<ul style="list-style-type: none"> If dirty – Clean If damaged – Replace audio jack. 	

7.3.4 No sound from Loudspeaker or Distorted sound**

Problem Area	Items to Check	Repair Action	Remark
No sound/High pitch noise from Loudspeaker	Exclude software issue.	<ul style="list-style-type: none"> Try to hardware reset the unit and try again. 	
	Check the audio volume setting.	<ul style="list-style-type: none"> If disabled--Turn the volume on. 	

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Problem Area	Items to Check	Repair Action	Remark
	Visually inspect the Speaker pads	<ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged – Send to an electrical repair location 	
	Visually inspect the Loudspeaker Assembly.	<ul style="list-style-type: none"> If damaged, dirty or oxidized - Replace Loudspeaker Assembly. 	
		<ul style="list-style-type: none"> Replace Main Board if necessary. 	

7.3.5 Vibrator Problems**

Problem Area	Items to Check	Repair Action	Remark
Vibrator	Exclude software issue.	<ul style="list-style-type: none"> Try to hardware reset the unit and try again. 	
	Check the vibrator function setting.	<ul style="list-style-type: none"> If disabled--Turn the vibrator function on. 	
	Visually inspect the Vibrator pads	<ul style="list-style-type: none"> If dirty or oxidized – Clean 	
	Visually inspect the Vibrator Assembly	<ul style="list-style-type: none"> If damaged, dirty or oxidized - Replace Vibrator Assembly 	
		<ul style="list-style-type: none"> Replace Main Board if necessary. 	

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7.3.6 Key Problems**

Problem Area	Items to Check	Repair Action	Remark
Keypad board and Keypad.	Exclude software issue.	<ul style="list-style-type: none"> Try to hardware reset the unit and try again. 	
	Check the keypad FPC assembly	<ul style="list-style-type: none"> If the connection status is not good, assemble the Keypad FPC again. 	
	Visually inspect the Key board	<ul style="list-style-type: none"> If damaged, dirty or oxidized - Replace the key board Ass'y 	
	Visually inspect the Keypad	<ul style="list-style-type: none"> If damaged, dirty or oxidized - Replace the keypad 	
		<ul style="list-style-type: none"> Replace Main Board if necessary. 	
Power on key	Power on key switch	<ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged, dirty or oxidized - Replace the power on switch. 	
Volume keys	Volume keys switch	<ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged, dirty or oxidized - Replace the volume keys switch. 	
Camera key	Camera key switch	<ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged, dirty or oxidized - Replace the camera key switch. 	

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Problem Area	Items to Check	Repair Action	Remark
WiFi key	WiFi key switch	<ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged, dirty or oxidized - Replace the WiFi key switch. 	

7.3.7 SIM Problems**

Problem Area	Items to Check	Repair Action	Reference Image
SIM connector	Exclude software issue.	<ul style="list-style-type: none"> Try to hardware reset the unit and try again. 	
	Inspect SIM holder	<ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged – Send to an electrical repair location to change it. 	
Unit indicates the incorrect SIM is inserted	Check whether the phone is locked to a particular carrier and whether the correct carrier's SIM is being used	<ul style="list-style-type: none"> Use Correct Carrier SIM or test SIM 	
		<ul style="list-style-type: none"> Replace Main Board if necessary. 	

7.3.8 Display Problems**

Problem Area	Items to Check	Repair Action	Remark
No display	Exclude software issue.	<ul style="list-style-type: none"> Try to hardware reset the unit and try again. 	

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Problem Area	Items to Check	Repair Action	Remark
	Visually inspect whether the Flex Film is properly connected into the LCD connector	<ul style="list-style-type: none"> If improperly connected - Reestablish proper connection If dirty or oxidized – Clean If damaged – Replace the LCD 	
	Visually inspect the LCD Flex Film	<ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged – Replace the LCD 	
	Visually inspect the LCD connector	<ul style="list-style-type: none"> If damaged – Send to an electrical repair location to change it. 	
	If issue has not been resolved →	<ul style="list-style-type: none"> Replace the LCD 	
		<ul style="list-style-type: none"> Replace Main Board if necessary. 	
LCD no backlight	Exclude software issue.	<ul style="list-style-type: none"> Try to hardware reset the unit and try again. 	
	Check the Backlight setting in power management.	<ul style="list-style-type: none"> If turned off, please turn it on. 	

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Problem Area	Items to Check	Repair Action	Remark
	Visually inspect whether the Flex Film is properly connected into the LCD connector	<ul style="list-style-type: none"> If improperly connected - Reestablish proper connection If dirty or oxidized – Clean If damaged – Replace the LCD 	
	Visually inspect the LCD Flex Film	<ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged – Replace the LCD 	
	Visually inspect the LCD connector	<ul style="list-style-type: none"> If damaged – Send to an electrical repair location to change it. 	
	If issue has not been resolved	<ul style="list-style-type: none"> Replace the LCD 	
		<ul style="list-style-type: none"> Replace Main Board if necessary. 	
Touch panel function abnormally	Exclude software issue.	<ul style="list-style-type: none"> Try to hardware reset the unit and try again. 	
	Visually inspect whether the Flex Film is properly connected into the LCD connector	<ul style="list-style-type: none"> If improperly connected - Reestablish proper connection If dirty or oxidized – Clean If damaged – Replace the LCD 	

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Problem Area	Items to Check	Repair Action	Remark
	Visually inspect the LCD Flex Film	<ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged – Replace the LCD 	
	Visually inspect the LCD connector	<ul style="list-style-type: none"> If damaged – Send to an electrical repair location to change it. 	
	If issue has not been resolved	<ul style="list-style-type: none"> Replace the LCD 	
		<ul style="list-style-type: none"> Replace Main Board if necessary. 	

7.3.9 Charging/Capacity Problems**

Problem Area	Items to Check	Repair Action	Remark
Battery connector and Mini-USB connector.	Exclude software issue.	<ul style="list-style-type: none"> Try to hardware reset the unit and try again. 	
	Visually inspect the contact pads of the Battery	<ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged – Replace the Battery 	
	Visually the Battery Connector	<ul style="list-style-type: none"> If dirty or oxidized– Clean If damaged –change Battery connector. 	
	Visually inspect the Mini-USB Connector	<ul style="list-style-type: none"> If damaged, dirty or oxidized – Change Mini-USB connector. 	
Battery looses	NOTE - Some features	<ul style="list-style-type: none"> Replace the Battery 	

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charge quickly/ standby time seems short	noticeably reduce the amount of standby time if they are turned on. Some examples are the back light (when turn on all the time), Blue tooth, WiFi, and IR. Perform the following repair action →		
		<ul style="list-style-type: none"> Replace Main Board if necessary. 	

7.3.10 Data Communication Problems**

Problem Area	Items to Check	Repair Action	Remark
Data communication error via USB cable	Exclude software issue.	<ul style="list-style-type: none"> Try to hardware reset the unit and try again. 	
	Check whether it connects with other cables or cradle, customer's cable might be damaged.	If cable is damaged, change another one.	
	Visually inspect the Mini USB Connector	<ul style="list-style-type: none"> If damaged, dirty or oxidized – replace it. 	
		<ul style="list-style-type: none"> Replace Main Board if necessary. 	
Data communication error via IR	Visually inspect the IR component.	<ul style="list-style-type: none"> If dirty or oxidized – clean. If damaged, dirty or oxidized – replace it. 	

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	Exclude software issue.	<ul style="list-style-type: none"> Try to hardware reset the unit and try again. 	
		<ul style="list-style-type: none"> Replace Main Board if necessary. 	

7.3.11 Camera Video/ Picture problem**

Problem Area	Items to Check	Repair Action	Remark
Camera function NG	Exclude software issue.	<ul style="list-style-type: none"> Try to hardware reset the unit and try again. 	
	Visually inspect whether the Camera FPC is properly connected into FPC connector	<ul style="list-style-type: none"> If improperly connected - Reestablish proper connection If dirty or oxidized – Clean If damaged – Replace the Camera module. 	
	Visually inspect the Camera FPC	<ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged – Replace the Camera module 	
	Visually inspect the FPC connector	<ul style="list-style-type: none"> If damaged –change it. 	
	If issue has not been resolved →	<ul style="list-style-type: none"> Replace the Camera module 	
		<ul style="list-style-type: none"> Replace Main Board if necessary. 	

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7.3.12 LED indicator problem**

Problem Area	Items to Check	Repair Action	Remark
LED indicator	Exclude software issue.	<ul style="list-style-type: none"> Try to hardware reset the unit and try again. 	
	Visually inspect the LED.	<ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged – Replace the Battery 	
		<ul style="list-style-type: none"> Replace Main Board if necessary. 	

7.3.13 Storage card problem**

Problem Area	Items to Check	Repair Action	Remark
Can't read Storage card	Exclude software issue.	<ul style="list-style-type: none"> Try to hardware reset the unit and try again. 	
	Visually inspect the Micro SD card.	<ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged – Replace the Micro SD card. 	
	Visually inspect the Micro SD card socket.	<ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged – Replace the Micro SD card socket. 	
		<ul style="list-style-type: none"> Replace Main Board if necessary. 	

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Problem Area	Items to Check	Repair Action	Remark
Micro SD card can't eject or insert.	Visually inspect the Micro SD card socket.	<ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged – Replace the Micro SD card socket. 	

7.3.14 Bluetooth problem

Problem Area	Items to Check	Repair Action	Remark
Bluetooth	Exclude software issue.	<ul style="list-style-type: none"> Try to hardware reset the unit and try again. 	
	Visually inspect the Antenna Cover.	<ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged – Replace the Antenna cover 	
	Visually inspect the Antenna spring	<ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged – Change the Antenna spring. 	
	Visually inspect the Antenna switch	<ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged – Change the Antenna spring. 	
		<ul style="list-style-type: none"> Replace Main Board if necessary. 	

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7.3.15 Wireless LAN problem

Problem Area	Items to Check	Repair Action	Remark
WLAN	Exclude software issue.	<ul style="list-style-type: none"> Try to hardware reset the unit and try again. 	
	Visually inspect the Antenna Cover.	<ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged – Replace the Antenna cover 	
	Visually inspect the Antenna spring	<ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged – Change the Antenna spring. 	(ANT1, ANT1GND)
	Visually inspect the Antenna switch	<ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged – Change the Antenna spring. 	(CON_SW1)
		<ul style="list-style-type: none"> Replace Main Board if necessary. 	

7.3.16 GPS problem

Problem Area	Items to Check	Repair Action	Remark
GPS	Exclude software issue.	<ul style="list-style-type: none"> Try to hardware reset the unit and try again. 	
	Visually inspect the Antenna Cover.	<ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged – Replace the Antenna cover 	

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Problem Area	Items to Check	Repair Action	Remark
	Visually inspect the Antenna spring	<ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged – Change the Antenna spring. 	(RFANT2, RFANT2GND)
	Visually inspect the Antenna switch	<ul style="list-style-type: none"> If dirty or oxidized – Clean If damaged – Change the Antenna spring. 	(RFSW2)
		<ul style="list-style-type: none"> Replace Main Board if necessary. 	

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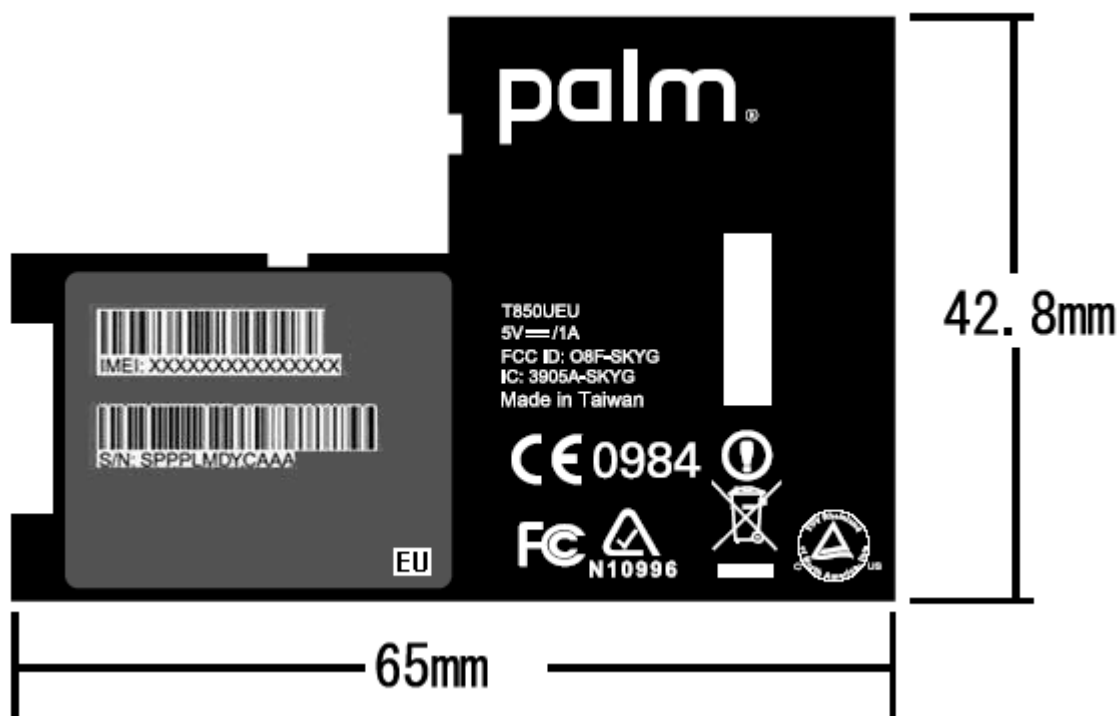
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Chapter 8 Labeling Plan

8.1 Agency Label- T850UEU

HTC P/N: 77H00648-00M

Size: 65.00 x 42.80 mm



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HTC P/N	Palm P/N	Unit P/N (80H)	UPC code	Product code	NA/EU
99HN41065EU-000	1065EU	80H00645-20	805931035585	P4GUE	EU
99HN41065IT-000	1065IT	80H00645-20	805931035615	P4GUE	EU
99HN41065DE-000	1065DE	80H00645-21	805931035561	P4GUG	EU
99HN41065FR-000	1065FR	80H00645-22	805931035592	P4GUA	EU
99HN41065ES-000	1065ES	80H00645-20	805931035578	P4GUE	EU
99HN41065LA-020	1065LA-PT2	80H00645-20	805931036094	P4GUE	EU
99HN41065DE-K00	1065DE-VFN	80H00645-31	805931036032	P4NUG	EU
99HN41065IT-K00	1065IT-VFN	80H00645-30	805931036070	P4NU0	EU
99HN41065ES-K00	1065ES-VFN	80H00645-30	805931036049	P4NU0	EU
99HN41065UK-K00	1065UK-VFN	80H00645-30	805931036155	P4NU0	EU
99HN41065NL-K00	1065NL-VFN	80H00645-30	805931036148	P4NU0	EU
99HN41065AP-000	1065AP	80H00645-20	805931035547	P4GUE	EU
99HN4BP65LA-020	180-10639-00-BLK	80H00645-20	805931037541	P4GUE	EU
99HN4BP65AP-000	180-10633-00-BLK	80H00645-20	805931037411	P4GUE	EU

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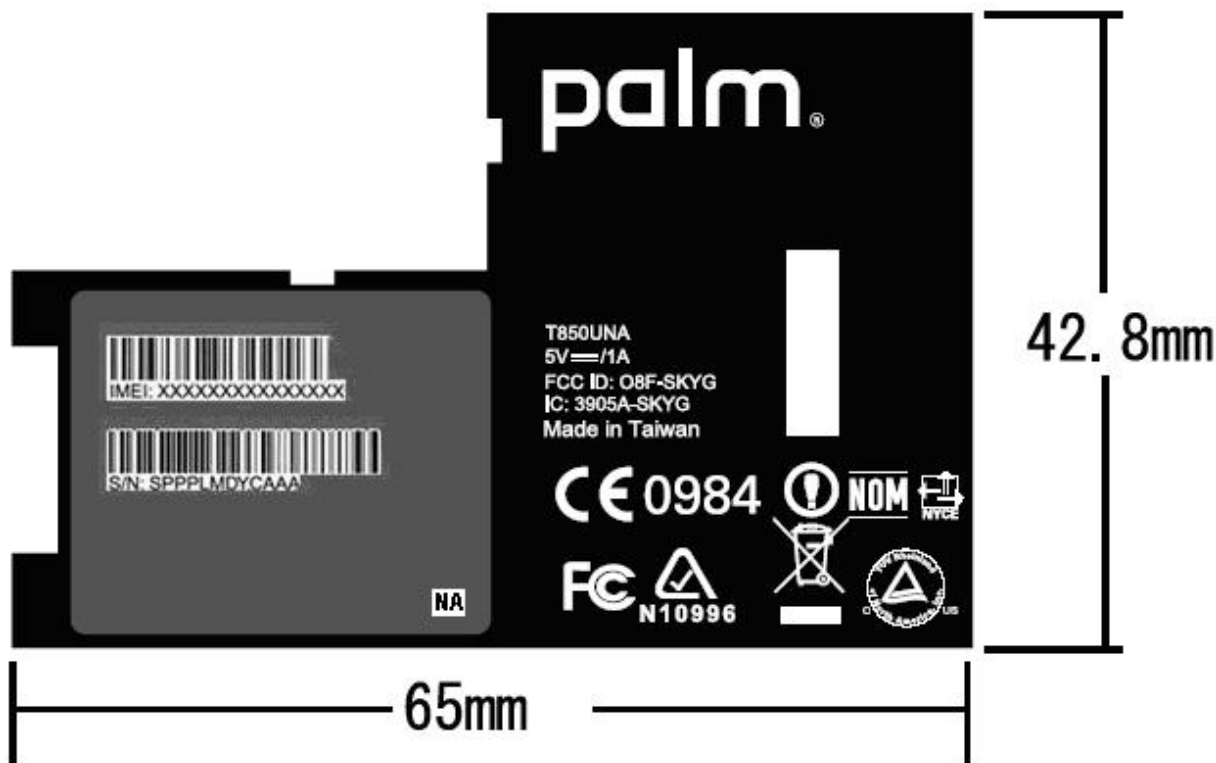
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8.2 Agency Label-T850UNA

HTC P/N: 77H00648-01M

Size: 65.00 x 42.80 mm



HTC P/N	Palm P/N	Unit P/N (80H)	UPC code	Product code	NA/EU
99HN41065NA-000	1065NA	80H00645-00	805931035639	P4GU0	NA
99HN41065LA-000	1065LA	80H00645-00	805931035622	P4GU0	NA
99HN41065LA-010	1065LA-PT	80H00645-00	805931036087	P4GU0	NA
99HN41065NA-800	1065NA-RO	80H00645-00	805931036131	P4GU0	NA
99HN4BP65LA-000	180-10637-00-BLK	80H00645-00	805931037527	P4GU0	NA
99HN4BP65LA-010	180-10638-00-BLK	80H00645-00	805931037534	P4GU0	NA
99HN4BP65AU-P00	180-10634-00-BLK	80H00645-00	805931037497	P4GU0	NA
99HN4BP65NA-000	180-10635-00-BLK	80H00645-00	805931037503	P4GU0	NA
99HN4BP65NA-800	180-10636-00-BLK	80H00645-00	805931037510	P4GU0	NA
99HN41065AU-P00	1065AU-TST	80H00645-00	805931036025	P4GU0	NA

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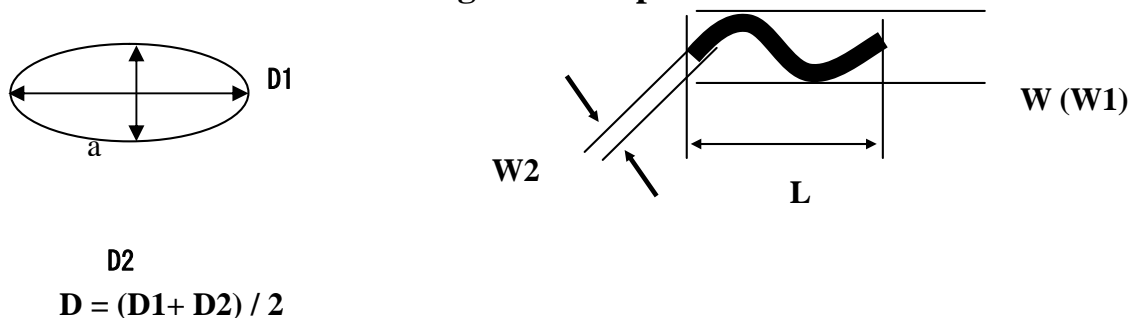
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Chapter 9 LCM inspection criteria (for new LCM)

Definition:

D : diameter , **W** : width , **L** : length , **S** : separation



LCM Electrical Characteristic inspection standard

Inspection Defects			Accept Level
Electrical Characteristic Defects	Bright Dots	Single	Red+ Green+ Blue ≤ 3
			S ≥ 5 mm
		2 adjacent	0
		3 or more adjacent	0
	Dark Dots	Single	Total number ≤ 2
			S ≥ 5 mm
		2 adjacent	0
	Dark or Bright lines		0
	All Allowable Dots Defects		Total Number ≤ 3 S ≥ 5 mm
Shift and tilt of screen viewed area		The black edge around display area must be detected by front view	

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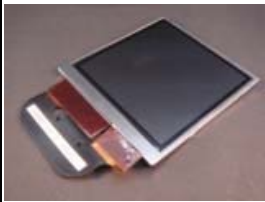
Foreign scratch, objects or lint on power off status	Scratch	$0.03 < W \leq 01\text{mm}$ $L \leq 5 \text{ mm}$ $N \leq 2$
	Lint(linear foreign objects)	$0.03 < W \leq 0.1 \text{ mm}$ $0.3 < L \leq 3.0$ $N \leq 5$
	Spots	$0.1 < D \leq 0.3 \text{ mm}$ $N \leq 4$
	Fish eye on film	$0.1 < D \leq 0.4 \text{ mm}$ $N \leq 4$
	Breakage on film surface	Not acceptable
	Total acceptable defect quantity ≤ 10	

* The LCM criteria follow Document IS-3364, Issued date: 16 May, 06'

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Chapter 10 Spare parts list and photo

10.1 Photos of spare parts

36H00710-00M	51H00460-20M	72H00609-00M	72H02548-00M	74H01106-00M
Vibrator	MAIN BOARD	Screw	Screw	Keypad Pre-Assy, AP
				
74H01173-00M	76H02467-00M	76H02468-00M	76H02481-00M	36H01863-00M
Stylus	Tape, camera, connector	Tape, TW, connector	Rubber, Mic	Receiver, PHILIPS
				
73H20161-09M	36H01864-00M	74H01190-00M	35H00114-00M	54H00286-00M
Keypad FPC	Speaker	Keypad Pre-Assy	BATTERY_LI-POLYMER	Camera Module
				
60H00151-00M	80H00720-00	74H01191-00M	74H01231-00M	74H01215-00M
TFT-LCD	Touch Window+ Bezel	Keypad Frame	Middle Frame	Cover Pre-Assy, Battery
				

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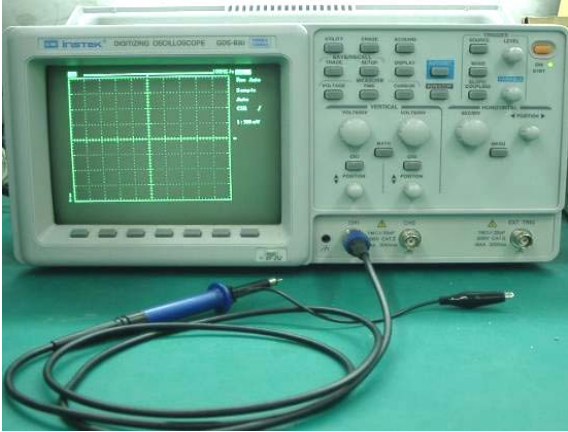



72H02590-00M	36H00722-00M	36H00722-01M	72H01051-00M	71H02376-00M
Screw, 0.35x4.3	Additional Antenna NA	Additional Antenna EU	Screw, 1.6x3.5	Mute button
				
74H01177-00M	74H01180-00M	74H01181-00M	76H02778-00M	76H02780-00M
Volume button	Power button	WiFi button	LCM Poron	Keypad frame spacer
				
77H00610-00M		76H02986-00M		
Water sensitive Label		SIM Mylar		
				


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Chapter 11 Board level repair

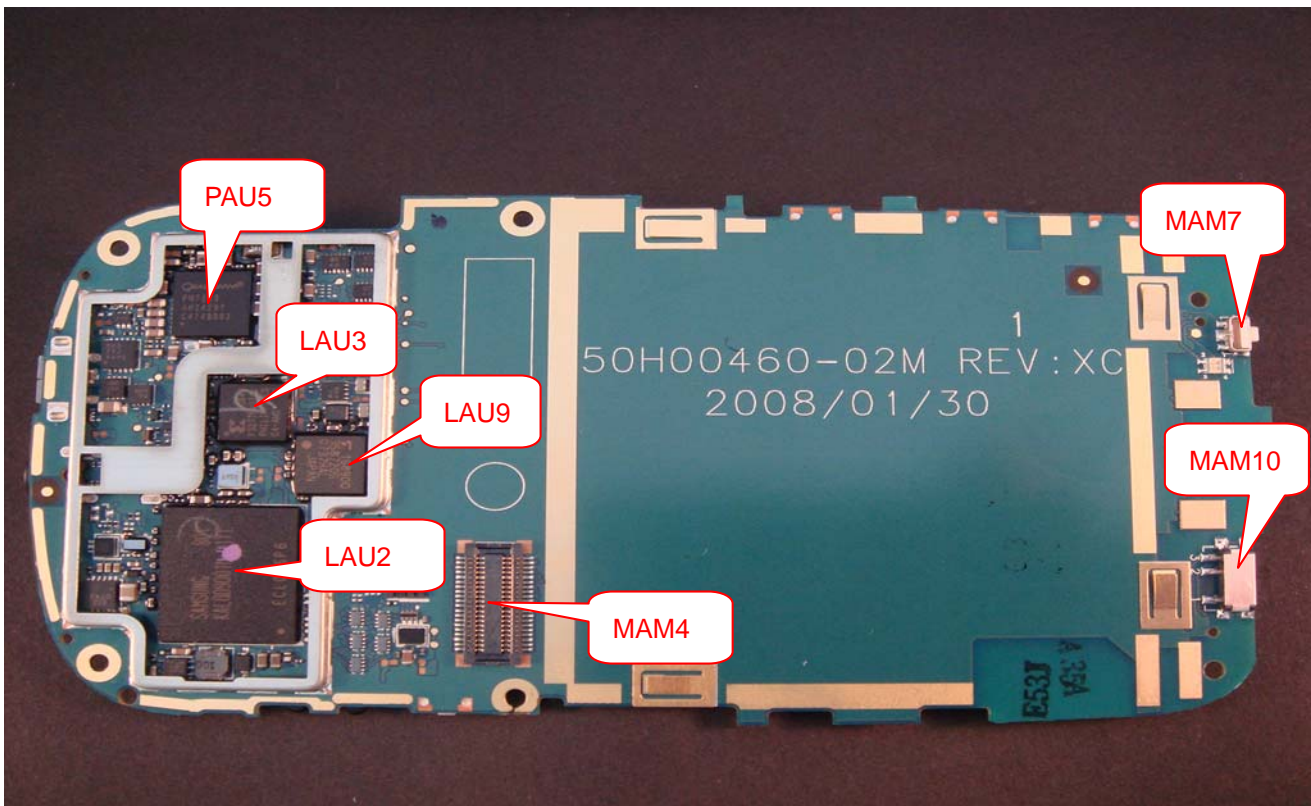
11.1 Equipment and hand tools

Oscilloscope	Digital DC Power Supply
	
Digital Multi-Meter	Air Heater
	

Soldering Station	USB Cable
	

11.2 Main board Key component Block:

Top side





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Location	Description	HTC p/n
ANT1/RFANT1GND1/ANT1 GND1/RFANT1/RFANT2GN D1/RFANT2	Spring,RH-PR-CP-A0059,RAY HOME ,Antenna,Kaiser	72H02020-00M
CON_SW1/RFSW1/R FSW2	Connector RF,6P,2Pitch,MM8130-2600,MURATA,2.5*2.5*1.5mm	75H00734-00M
MAM12/13/14/15	Switch,LS12K2-T,CITIZEN,3.85*2.9*1.55mm	36H00515-00M
MAM3	Switch,SKRKAEE010,ALPS	36H00410-00M
MAM18	Connector FPC,4P,0.5Pitch,FH34S_4S_0.5SH,HIROSE	75H00709-00M
MAM9	Connector FPC,27P,0.3mmPitch,FH23-27S-0.3SHW(05),HIROSE,CAVALIER	75H00583-00M
MAM16	Connector Device, Spring battery connector,4P,2.5pitch,250042MB004G322ZR,SUYIN	75H00758-00M
MAM1	Connector I/O,5P,0.65pitch,ZX62D-AB-5P8,HIROSE	75H00789-00M
MAM6	Audio Jack,JP011-D4BA-3602XT,3.5mm,T-MEC	36H00218-11M
AAMIC1	Microphone,SPM0206HE3,KNOWLES,4.72*3.76*1.27mm	36H00457-00M
MBM1	Connector SIM Card,8P,2.54Pitch,1A,50V,50mohm,ICC-425-8Pin,HAMBURG	75H00547-00M
LAU10	IR,HSDL3208,AGILENT,85/-25degC,7*2.8*1.6mm	29H00085-00M
MAM11	Connector SD Card,11P,1.1pitch,502702-0891,MOLEX,0.5A,10V	75H00760-10M
MAM2	Connector FPC,27P,0.3mmPitch,FH23-27S-0.3SHW(05),HIROSE,CAVALIER	75H00583-00M
WRU1	RF-IC,TI,WL1251FEBRSCR,QFN,85/-30degC	30H60156-00M
BTU1	RF-IC,TI,BRF6300,BGA,85/-40degC	30H60158-00M
WBU1	RF+NON RF,TI,WL1251,ZQZ,85/-30degC	30H70017-00M
WPU1	Misc IC,Power management IC,TI,WL1251PM,ZQS,85/-30degC	30H90113-00M
RFU3	RF-IC,LMSM32AA-533,MURATA,8-pin Module,85/-10degC	30H60165-00M
RFU8	RF-IC,TRIQUINT,TQM7M5008,LGA,85/-25degC	30H60202-00M
RFU1	RF-IC,QUALCOMM,RTR6275,QFN-56	30H60173-00M
RFU2	Linear IC,CXM3512EQ,SONY,LQFN30P,90/-20degC	30H30614-00M
RFU4	RF-IC,RFR6500,56QFN,QUALCOMM,85/-30degC	30H60162-00M
RFU10	RF-IC,AVAGO TECH.,ACPM-7381-OR1,surface mount,90/-20degC	30H60204-00M
RFU11	RF-IC,AVAGO TECH,ACPM-7331-OR1,MSL3,125/-55degC	30H60207-00M
RFU12	RF-IC,ANADIGICS,AWT6273R,M20,90/-10degC	30H60180-00M
LAU1	CPU,400MHz,QUALCOMM,CP90-VG555-2,CSP-543,MSM7201	30H00100-02M
PCG1	Gold Cap,0.07F,70ohm,3.3V,XH414H IV01E,SEIKO,70/-25degC,-50%,4.8*4.8*1.8mm	16H00017-00M

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11.3 WLAN/ BT/GPS trouble shooting process

Wireless LAN function:

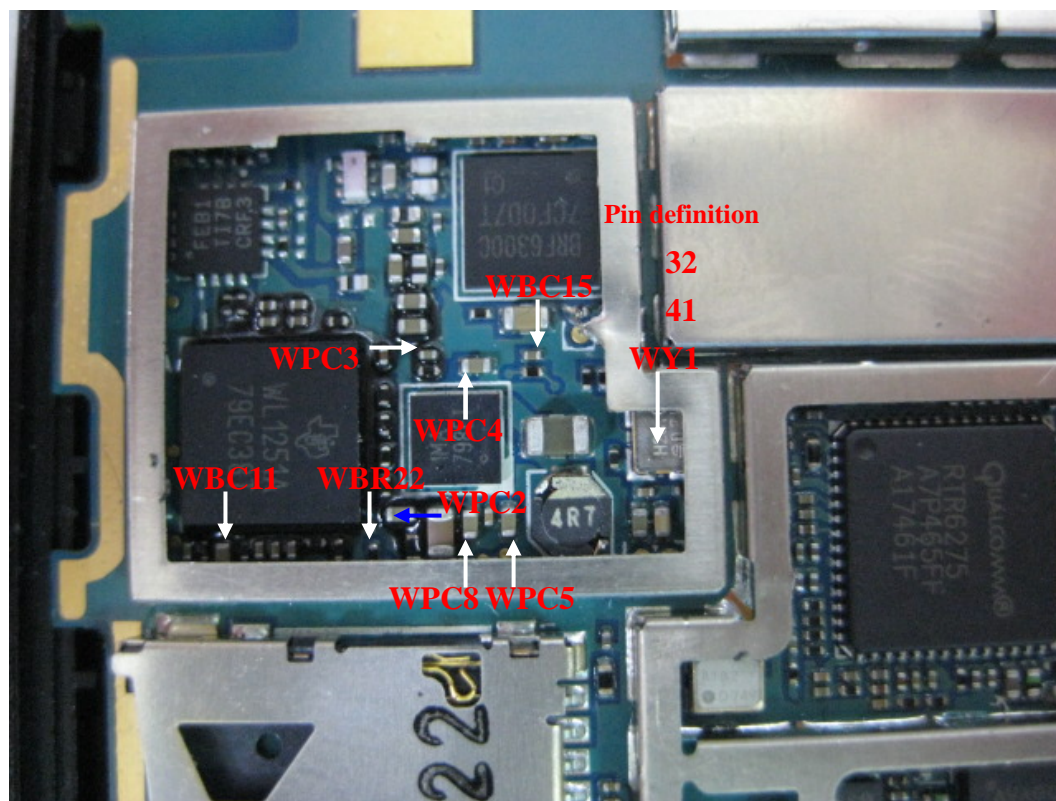
Make sure wireless LAN mode is enabled in OS mode.

WLAN block (ANT1, ANT1GND, CON_SW1)


1. ->XOSC_EN~WY1_pin1 (1.8V)
2. ->WL_OSC_Out~WY1_pin3 (26MHz)
3. ->BT_WLAN_32K~WBU1_H9/WBR22_pin1&2 (32 KHz)

WLAN power management:

4. -> WIFI PMEN~WPU1_C3/WBC15_pin1—left side
5. ->VREG12~WPU1_D1/WPC5_pin1 (1.2V)—upper side
6. ->VREG19~WPU1_E2/WPC4_pin1 (1.9V)—left side
7. ->VREG_WLANIO~WPU1_E5/WPC3_pin1 (1.8V) —left side
8. ->V_DC_IN~WPU1_A2/WPCB8_pin1 **(1.8V)** —upper side
9. ->VREG_WLAN_PA~WPU1_A5/WPC2_pin1 (2.85V) —right side
10. ->VREG_MSMP~WBU1_L3/WBC11_pin1 (2.6V) —upper side

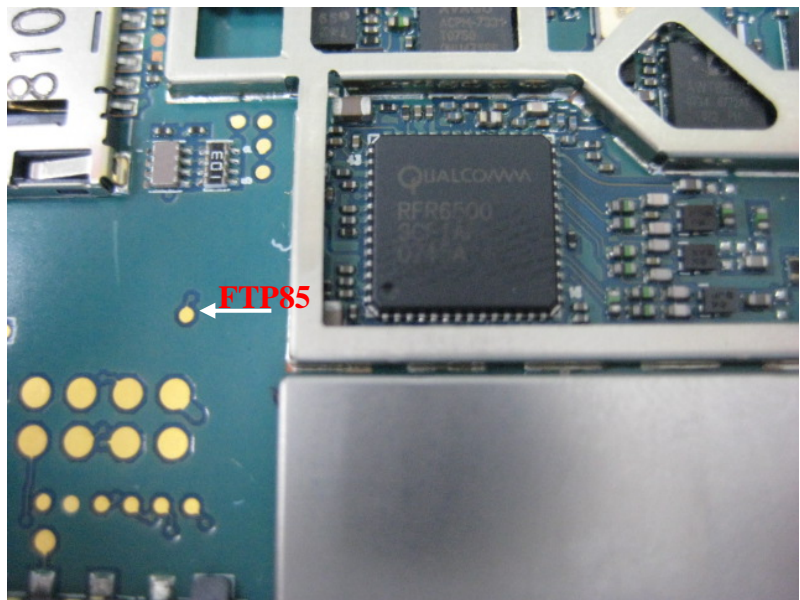


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Bluetooth function/BT block (ANT1, ANT1GND, CON_SW1)

1. BT reset low-> it is active high~FTP85.



2. RTS low/CTS high

3. Clock

-> WL_REF_CLK~BTC17_pin1&pin2 (26MHz)

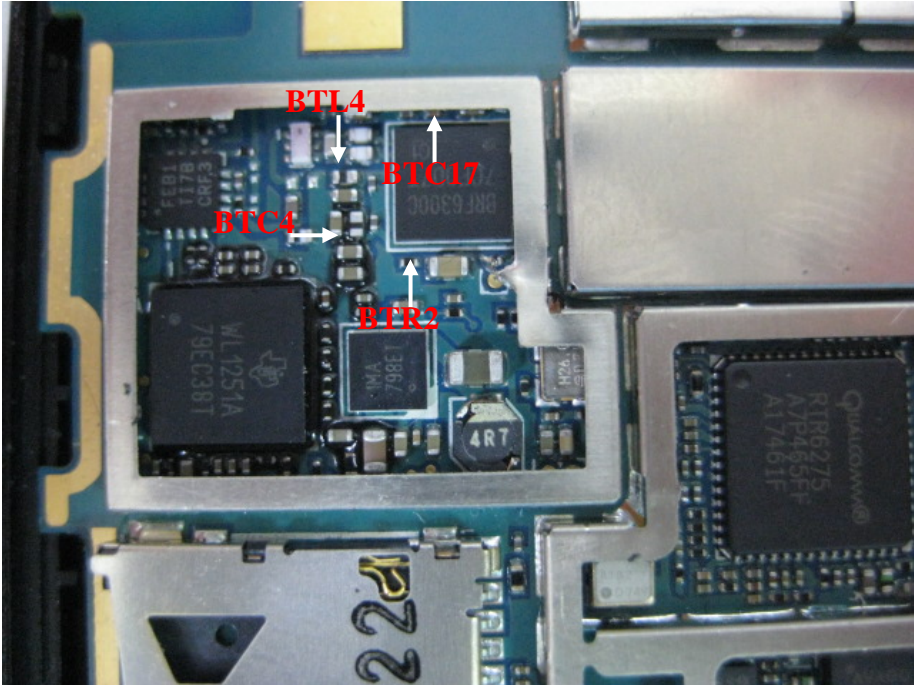
->B T_WLAN_32K~BTR2_pin1&pin2 (32KHz)

4. BT Power management

->VREG_MSME/VDD_IN~BTL4_pin1&2(1.8V)

->VDD_IO~BTC4_pin1 (1.8V)—down side

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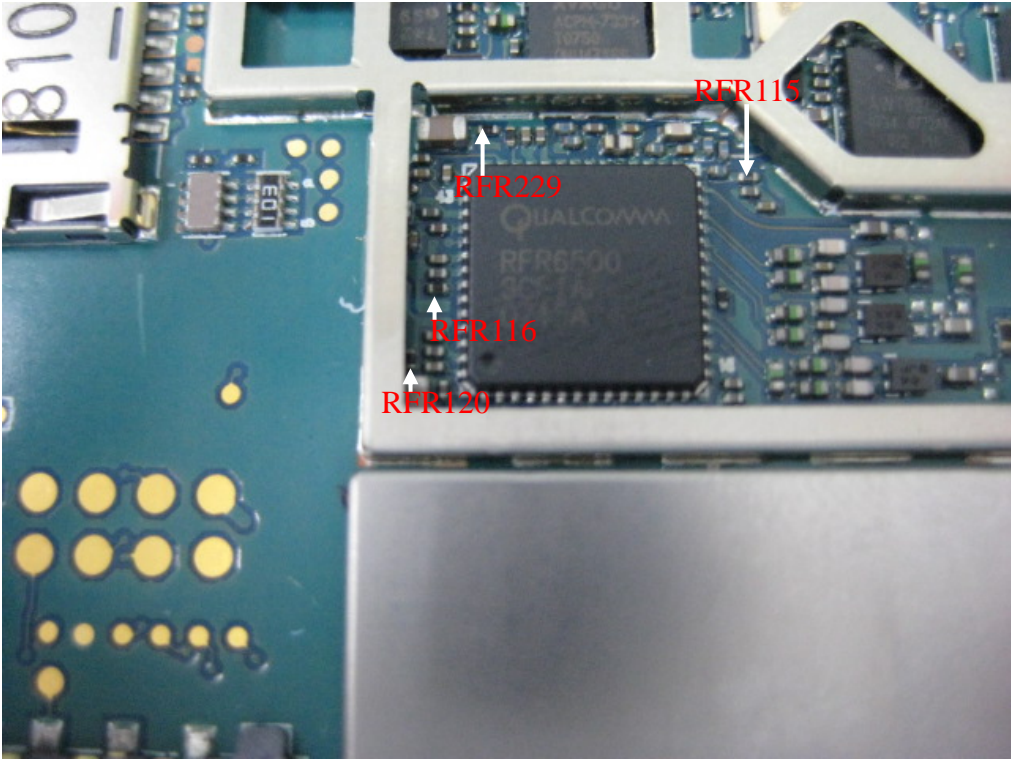


GPS block

Check the antenna on the frame first and the antenna pad.

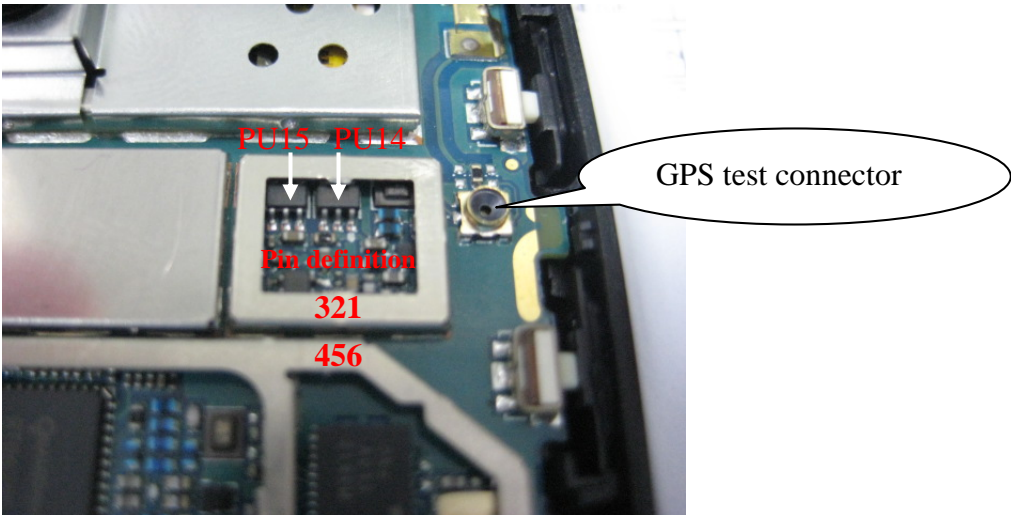
All voltages of RFR6500 (RFU4) must be turned on

1. VREG_RFRX_0~ RFR117(RFC136_pin1)& RFR115_pin1&2&RFR120/RFR229_pin1&2
2. VREG_MSMP~ RFR116_pin1&2



GPS LNA On:

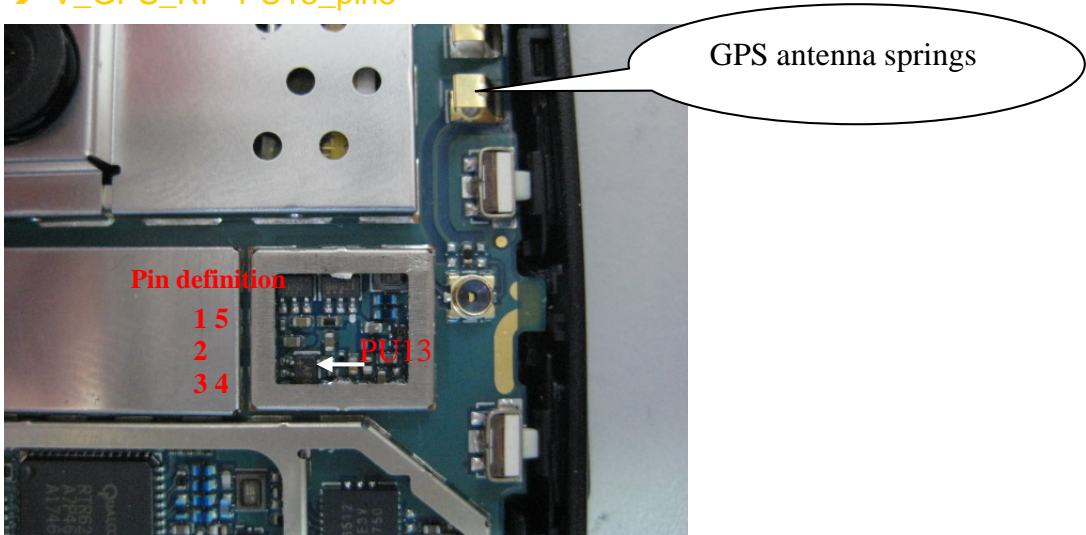
- > VCC for PU14_pin5 and PU15_pin5
- > GSM_PA_EN& GSM_PA_BAND~PU14_pin1&6
- > GPS_BB_EN~PU15_pin6




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GPS LDO EN:

- ➔ V_DC_IN~PU13_pin1
- ➔ LDO_EN~PU13_pin3
- ➔ V_GPS_RF~PU13_pin5



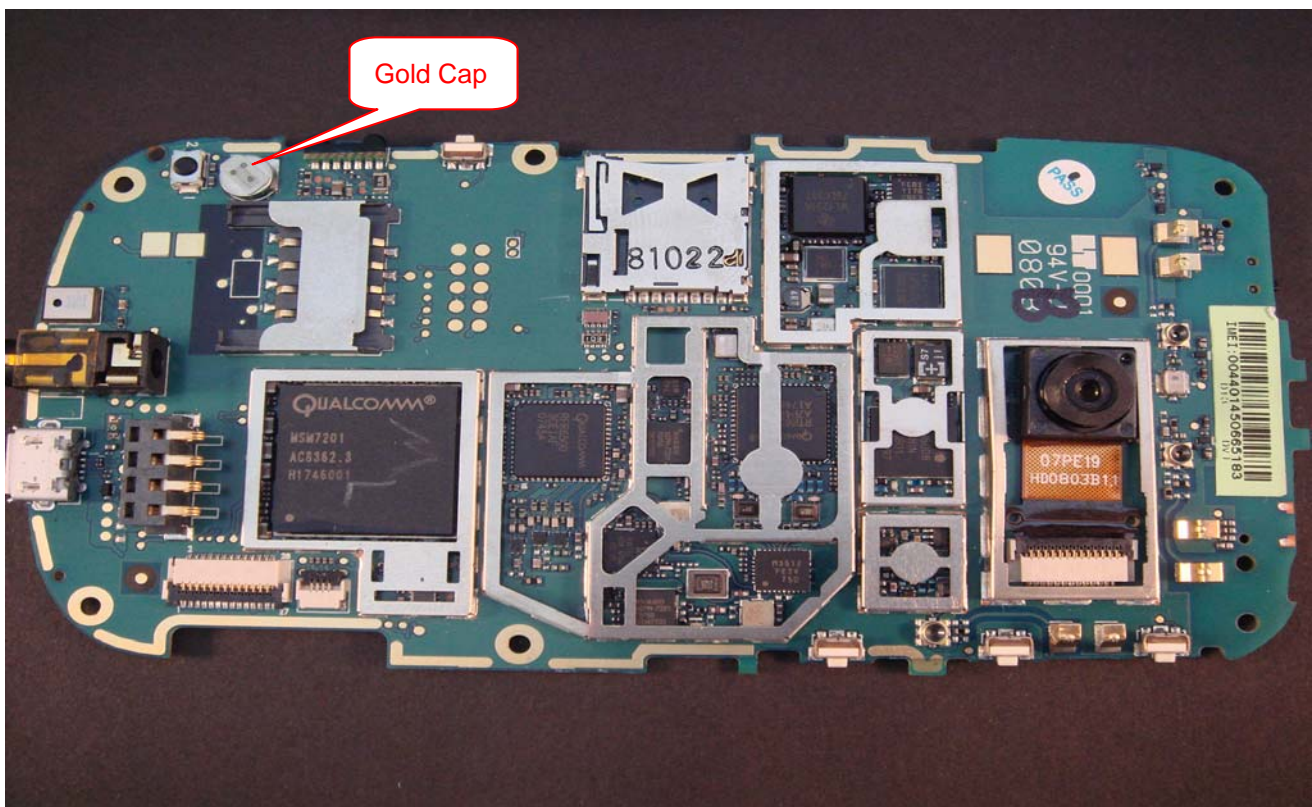
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Appendix 1

Notification once performing Golden cap replacement

If you perform M/B replacement, must take care for following notices:

1. If you use hot gun to replace any component or use solder iron to replace component that next to G/C .Please use solder iron to remove golden capacitor before repairing. **Prohibit using hot gun to remove golden capacitor to prevent damage.**
2. If repaired M/B was removed G/C before repairing. Please use solder iron to change new G/C to M/B after repaired. The condition of solder iron as bellow:
 - (1) The temperature of solder iron must be under 350 degree C (for lead-in model) , 380 degree C (for lead-free model).
 - (2) The heating time of solder iron must be under 5 seconds.
 - (3) Solder iron can not contact with the body of G/C.
 - (4) **Prohibit recycling use golden capacitor to product.**

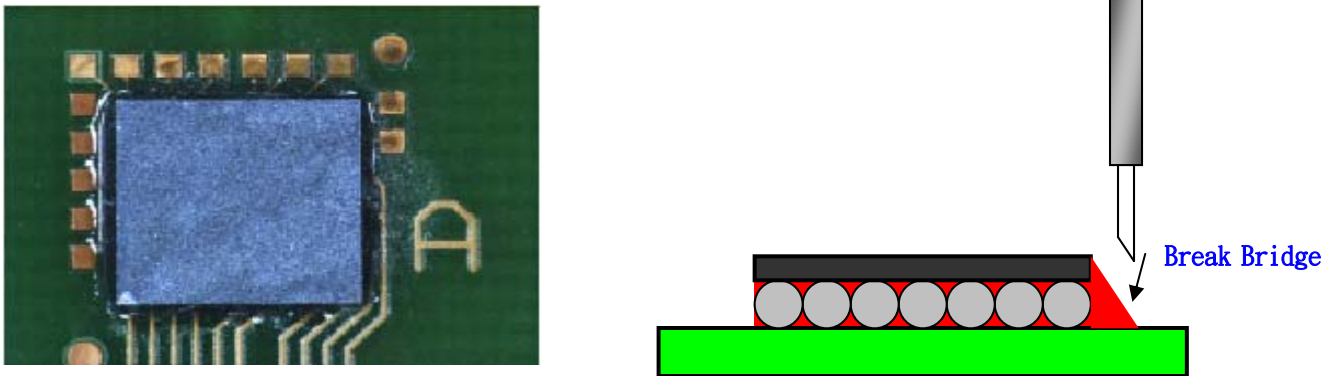


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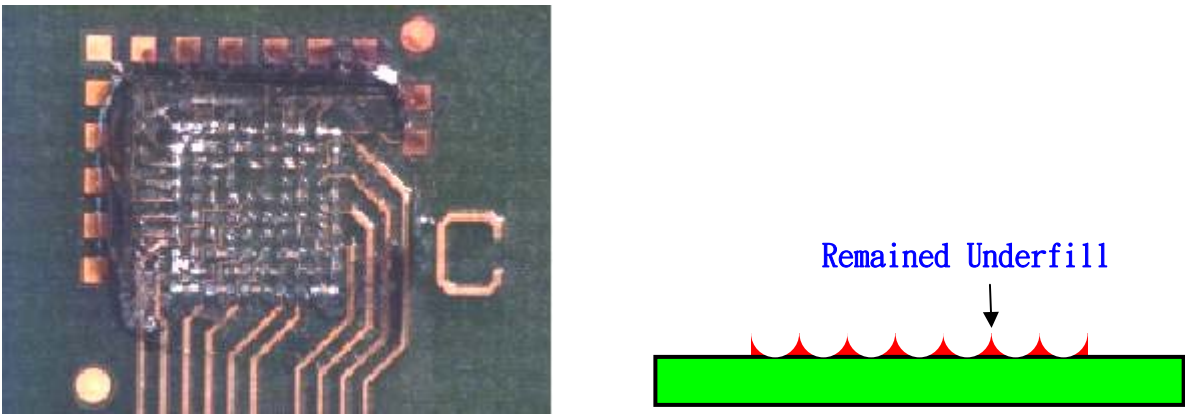
Underfill re-work process

There are five components with underfill process, BU1,U1,U4, U345,U374 these component are not suggested to be Re-worked, but if it is requested to do re-work, the following re-work process must be followed –up.

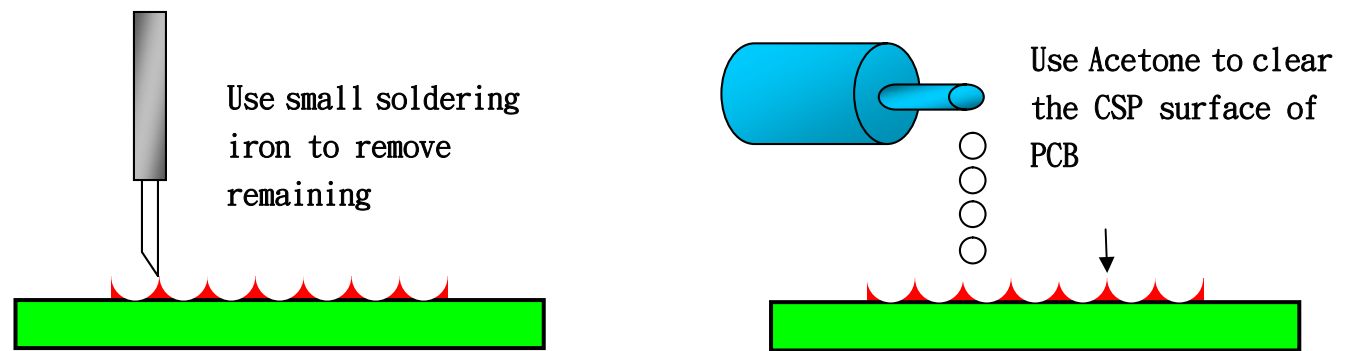
1. Use the sharp hand of soldering iron to break the bridge of CSP.



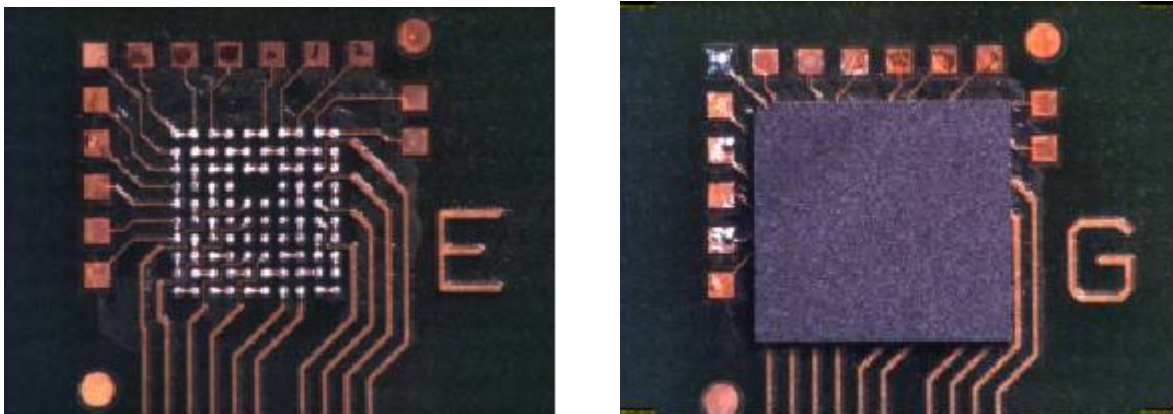
2. After the Bridge be broken, Use SMD rework station to remove CSP, the temperature must be set in 210~240℃,there are a litter underfill remained on the surface of PCB.



3. Use small soldering iron to remove remaining underfill, then use chemistry liquid of Acetone to clear the CSP surface of PCB.



4. All the remaining underfill be cleared, the CSP can be re-solder in place.



5. Send the PCB to Underfill machine to do re-underfill.

