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# Herald

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## Service Manual

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HTC Proprietary  
Confidential Treatment Requested

**Rev. A01**

Nov 24, 2006

**HTC Corp.**

*Engineering Mobility*

## Revision Control Table

Rev	Date	Contents	Dept.	Revised	App Dept	Stage/Per
AX01	2006/10/16	First Draft	PSE	Jerry W. Lin	GSD	DVT
AX02	2006/11/16	Add Procedure	PSE	Jerry W. Lin	GSD	PVT
AX03	2006/11/17	Add description	PSE	Jerry W. Lin	GSD	PVT
A01	2006/11/24	Add L2.5, update keyboard upper cover combine description	PSE	Jerry W. Lin	GSD	MV

## TABLE OF CONTENTS

<b>CHAPTER 1 – INTRODUCTION .....</b>	<b>4</b>
<b>1.1 PRODUCT SPECIFICATION .....</b>	<b>4</b>
<b>CHAPTER 2 – TOOLS .....</b>	<b>8</b>
<b>2.1 REPAIR LEVEL DEFINITION .....</b>	<b>8</b>
<b>2.2 LIST OF SERVICING TOOLS.....</b>	<b>8</b>
<b>CHAPTER 3 –DISASSEMBLING AND ASSEMBLING .....</b>	<b>9</b>
<b>3.1 DISASSEMBLING .....</b>	<b>9</b>
<b>3.2 ASSEMBLING.....</b>	<b>18</b>
<b>CHAPTER 4 – DIAGNOSTIC PROGRAM .....</b>	<b>27</b>
<b>4.1 LIST OF DIAGNOSTIC / WINCE TEST ITEMS.....</b>	<b>27</b>
<b>4.2 TEST PROCEDURE.....</b>	<b>28</b>
<b>CHAPTER 5 –SOFTWARE UPGRADE PRCEDURE.....</b>	<b>31</b>
<b>5.1 RUU (RE-FLASH UPGRADE UTILITY).....</b>	<b>31</b>
<b>5.2 SD CARD UPGRADE .....</b>	<b>34</b>
<b>CHAPTER 6 –LEAKAGE CURRENT MEASUREMENT.....</b>	<b>36</b>
<b>CHAPTER 7 – COSMETIC INSPECTION CRITERIA.....</b>	<b>41</b>
<b>7.1 CLASSES DEFINITION OF INSPECTIVE AREA.....</b>	<b>41</b>
<b>7.2 MAIN UNIT INSPECTION.....</b>	<b>42</b>
<b>7.3 COSMETIC OF CAMERA.....</b>	<b>45</b>
<b>CHAPTER 8 –TROUBLESHOOTING AND REPAIR.....</b>	<b>46</b>
<b>CHAPTER 9 –GENERIC SPARE PART LIST .....</b>	<b>51</b>
<b>9.1 SPL FOR REPAIR.....</b>	<b>51</b>
<b>9.2 BOARD LEVEL .....</b>	<b>52</b>
<b>APPENDIX.....</b>	<b>53</b>
<b>A. GENERIC LABELING PLAN .....</b>	<b>53</b>
<b>B. RF ANTENNA TEST SPECIFICATION .....</b>	<b>55</b>

## CHAPTER 1 – INTRODUCTION

### 1.1 Product Specification

Item	Specification
Soldering status	<ul style="list-style-type: none"> <li>● Meet Lead-free requirement</li> </ul>
Platform	<ul style="list-style-type: none"> <li>● Microsoft Windows Pocket PC phone edition</li> <li>● Thin and Elegant PPC phone with integrated quad-band GSM/EDGE, Bluetooth, WiFi, 2.0 mega-pixel camera, sliding QWERTY keyboard</li> </ul>
Dimensions	<ul style="list-style-type: none"> <li>● 59mm(W) x 109mm(H) x 17mm (T)</li> </ul>
Weight	<ul style="list-style-type: none"> <li>● Less than 168 g (Main unit with battery pack)</li> </ul>
Processor/Chipset	<ul style="list-style-type: none"> <li>● TI OMAP 850 + TI E-Syren</li> </ul>
Memory	<ul style="list-style-type: none"> <li>● ROM: 128/256MB (for programs and users' storage)</li> <li>● RAM: 64 MB DDR SDRAM</li> </ul>
LCD Module	<ul style="list-style-type: none"> <li>● 65K-color TFT LCD with white LED back light</li> <li>● 2.8" 240 x 320 dots resolution</li> <li>● Sensitive Touch Screen</li> </ul>
GPRS/GSM module (Tri-band)	<ul style="list-style-type: none"> <li>● Internal Antenna</li> <li>● Quad-Band ( 850/900/1800/1900)MHz</li> <li>● Audio codec: AMR, EFR, FR, HR</li> <li>● Supplement services               <ul style="list-style-type: none"> <li>* Call holding/waiting/forwarding</li> <li>* Call barring</li> <li>* CLI (Call line Identity)</li> <li>* SMS (Short Message Service)</li> <li>* Display own number</li> <li>* Network selection(3GPP T2 23.122 V3.6.0)</li> <li>* Cell broadcast</li> <li>* Multi-party conference call</li> <li>* Spool Icon</li> <li>* Network lock</li> </ul> </li> </ul>

EDGE functionality	<ul style="list-style-type: none"> <li>● EGPRS Class B,</li> <li>● Multi-slot Class 10</li> <li>● PBCCH</li> <li>● PPP over GPRS</li> </ul>
SIM	<ul style="list-style-type: none"> <li>● 1.8V/3 V SIM Operation</li> <li>● SIM Application Tool Kit release 98 class 3</li> <li>● Over the Air (OTA) provisioning</li> <li>● FDN/AND/SDN</li> <li>● Support SIM+</li> </ul>
Stylus	<ul style="list-style-type: none"> <li>● Lock type mechanism</li> </ul>
Keyboard/Button/Switch	<ul style="list-style-type: none"> <li>● Power button (on top)</li> <li>● Comm. Manager (right side button)</li> <li>● Voice dial/Voice recorder button (right side button)</li> <li>● Camera capture (left side button)</li> <li>● Sliding Volume Up/Down(left side switch)</li> <li>● 2 soft keys (left and right)</li> <li>● Five way navigation pad</li> <li>● 2 phone button, Send &amp; End</li> <li>● 2 AP buttons, Start &amp; OK</li> <li>● Reset Switch</li> <li>● Sliding QWERTY keyboard + 2 soft keys</li> </ul>
Interface	<ul style="list-style-type: none"> <li>● 1.8V/3V SIM card</li> <li>● Micro-SD card slot</li> <li>● External RF connector with cover</li> <li>● 11 pins HTC specific mini-USB (Slave USB, Power IN, Audio)</li> </ul>
Notification	<ul style="list-style-type: none"> <li>● One Bi-color LED for GSM standby, GSM message, GSM network status, notification, and charging status.</li> <li>● Two respective (blue and green) LEDs for for Bluetooth/ WiFi notification.</li> <li>● Vibration for notificaiton</li> <li>● Notification by sound, message on the display.</li> </ul>

CMOS Camera	<ul style="list-style-type: none"> <li>● CMOS 2.0 mega Pixel</li> <li>● Preview Mirror effect</li> </ul>
Audio	<ul style="list-style-type: none"> <li>● Build-in Microphone</li> <li>● Receiver</li> <li>● Loud speaker for Hands-free supported</li> <li>● WAV/WMA/AMR/AAC/MP3 codec.</li> <li>● 16 bits with 8KHz, 11 KHz, 22KHz, 44.1 KHz, sampling rate</li> <li>● Audio Path Routing for VoIP over WLAN</li> <li>● Audio Echo Cancellation for VoIP over WLAN</li> </ul>
Bluetooth	<ul style="list-style-type: none"> <li>● Compliant with V2.0 without EDR</li> <li>● Class 2 transmit power</li> <li>● Supported profiles: <ul style="list-style-type: none"> <li>➢ Serial Port profile</li> <li>➢ Object Push profile</li> <li>➢ DUN profile</li> <li>➢ Generic Object Exchange profile</li> <li>➢ Headset profile</li> <li>➢ Heads-free profile</li> <li>➢ A2DP</li> <li>➢ Audio/Video Remote Control profile</li> <li>➢ Human Interface Device profile</li> <li>➢ Service Discovery Application profile</li> <li>➢ SIM Access profile</li> <li>➢ File Transfer profile</li> </ul> </li> <li>● Co-exist with WiFi</li> </ul>
WiFi	<ul style="list-style-type: none"> <li>● IEEE 802.11b/g compliant</li> <li>● Internal WLAN Antenna</li> <li>● Data rate auto fallback for extended range</li> <li>● ELP mode</li> <li>● Security <ul style="list-style-type: none"> <li>* WPA authentication</li> </ul> </li> <li>● QoS <ul style="list-style-type: none"> <li>*Fast AP to AP handover (currently support Cisco AP)</li> </ul> </li> </ul>

Battery	<ul style="list-style-type: none"> <li>● Removable rechargeable Lithium Polymer battery</li> <li>● 1130 mAH</li> <li>● Battery Life: <ul style="list-style-type: none"> <li>* WMA: 12 hours</li> <li>* WMV: 8 hours</li> </ul> </li> <li>● Talk time: 3.5 ~ 5 hrs</li> <li>● Standby Time: 150 ~ 200 hrs</li> </ul>
AC Adapter	<ul style="list-style-type: none"> <li>● AC input 100 ~ 240 V AC, 50/60 HZ</li> <li>● DC output : 5V / 1A</li> </ul>
Regulatory	<ul style="list-style-type: none"> <li>● GCF certification</li> <li>● R&amp;TTE: EMC/EMI, CEM, Safety SAR</li> <li>● WiFi Certification</li> <li>● FCC</li> <li>● PTCRB</li> <li>● Bluetooth Qualification Body Certification</li> <li>● Microsoft Windows Mobile logo (NTSL)</li> <li>● USB Certification</li> </ul>
Accessories	<ul style="list-style-type: none"> <li>● Carrying Case</li> <li>● AC adapter with mini-USB plug</li> <li>● Sync. Cable (mini-USB)</li> <li>● Battery (rechargeable and replaceable)</li> <li>● Stereo wired headset with microphone</li> <li>● User Manual, quick start guide, sync. Software CD</li> <li>● Car adapter</li> <li>● Car holder</li> <li>● Wrist Strap</li> <li>● Cradle (optional)</li> <li>● Car Kit (optional)</li> <li>● Water resistant cover (optional)</li> </ul>

## CHAPTER 2 – TOOLS

### 2.1 Repair Level Definition

#### Unit

- L0 Accessory test and unit swap
- L1 Unit Test and ROM Re-flash
- L2 Refurbishment and Module Swap +L1
- L2.5 M/B Repair(connector, button, MIC...) +L2

Note : These level is for reference only depends on service model

### 2.2 List of Servicing Tools

level	No.	Item	Use for	Remark
L 1	1	Mini USB DATA interface Cable	Check for mini USB communication; RUU re-flash	
	2	Earphone Headset	For Audio test.	
	3	AC Adapter	Transfer AC to DC for Unit	
	4	WLAN AP	For WiFi test	
	5	Micro SD Card with Diagnostic test program (must be encoded by HTC)	For unit diagnostic test	HTC design
	6	128MB micro SD memory card ( must be encoded by HTC)	For unit ROM code transfer to SD card for re-flash	HTC design
	7	Unit current consumption test fixture	Measure Unit current consumption	HTC design
	8	Power supply		Local purchase
	9	Current Meter		Local purchase
		10	Mobile tester	For RF test
L 2	11	Special Made Plastic Stick	Assembly & Disassembly	HTC special tools
	12	Hand tools	Assembly & Disassembly	Local purchase
	13	Label printer	Print agency label if replacing M/B	Local purchase
L 2.5	14	Lead-free Soldering station	Board level repair	Local purchase
	15	Air heater	Board level repair	Local purchase

## CHAPTER 3 –DISASSEMBLING AND ASSEMBLING

### 3.1 Disassembling

	<p>Tools needed for Assembling and Disassembling</p> <ol style="list-style-type: none"> <li>1. Glove &amp; Lens Cleaning Tissue.</li> <li>2. Plastic type tweezers.</li> <li>3. Philip Screw Driver 000X40.</li> <li>4. Philip Screw Driver T6X40</li> <li>5. Flat Plastic Stick</li> </ol>
	<p>Main Unit</p>
	<ol style="list-style-type: none"> <li>1. Eject the Stylus.</li> <li>2. Eject the micro SD card if available.</li> </ol>



Release rear cover lock by pressing to right



Release battery



Unfasten 4 screws located on rear of unit





Release the antenna & speaker module



Disassembly C & D parts.

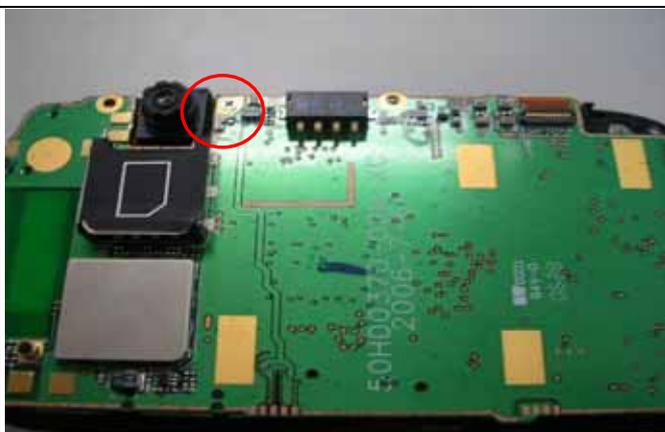
Carefully insert flat plastic stick into the gap between C & D part. Be noticed this action should be performed very carefully.



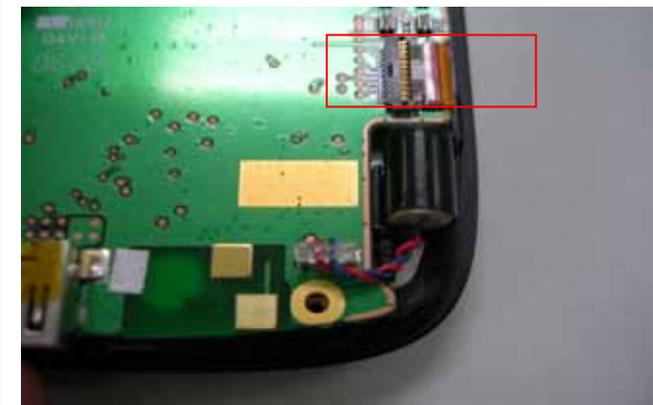
Using the flat stick and move along the gap of the unit.



Release the housing



Unfasten one screw which fix the MB



Disassemble vibrator, and release keyboard FPC





Release board from its hook

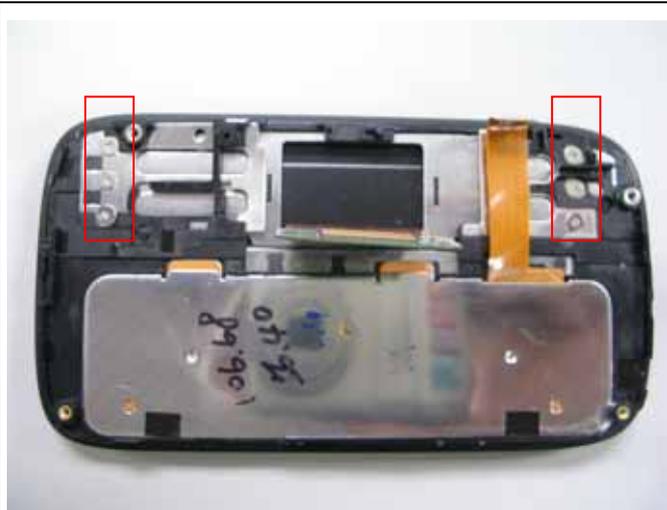


Lift up the main board, release the LCM FPC and take out the MB



Release Camera from its connector





Unfasten 6 screws located on C & D part (rear housing)



Release keyboard



Unfasten 4 screws as shown on picture

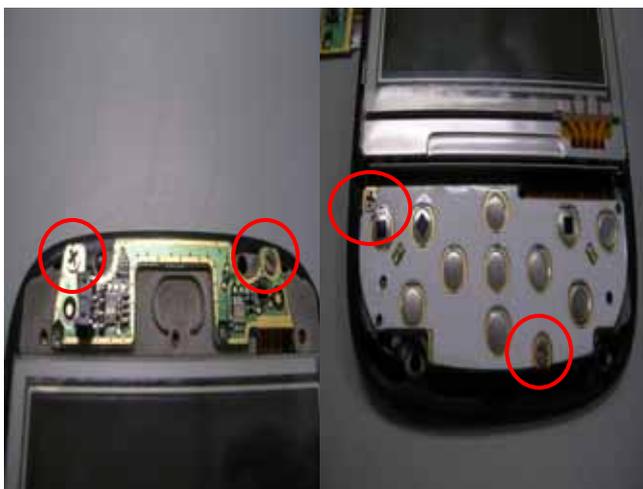




Upper part dis-assembly



Release receiver



Unfasten two screws of RF board and two located on metal dome





Release LCM FPC, separate RF board from LCM



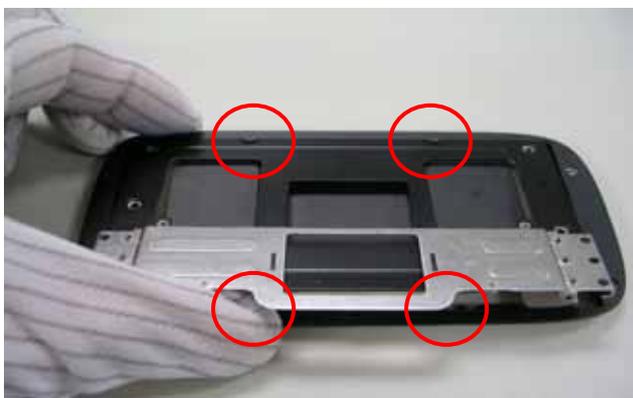
Release keypad from Bezel



Disassemble display bottom COVER



Unfasten the screws



Remove slider from bottom cover



Remove slider from its hinge



----- Disassembly process is done-----

### 3.2 Assembling



Assemble slider hinge



Align to its position



Put Slider into bottom cover



Assemble slider and fasten 6 screws  
72H01701-00M  
Torque: 1.1 +0.1 kg-cm



Assemble LCM and connect its FPC into RF board



Put the RF board FPC to pass through slider hole



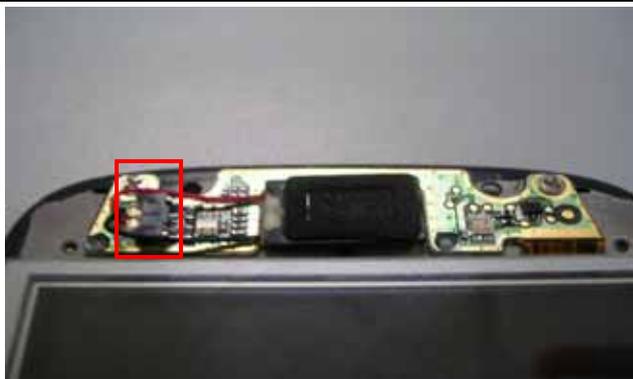
Maker sure FPC through the Slider



Fasten 4 screws of RF board to display bottom cover

72H1715-00M

Torque: 0.8 +- 0.1kg-cm



Assemble receiver, put one tape to fix its wire



Put keypad on it



Continue with assemble the bezel,



Starting from left and right then to the top

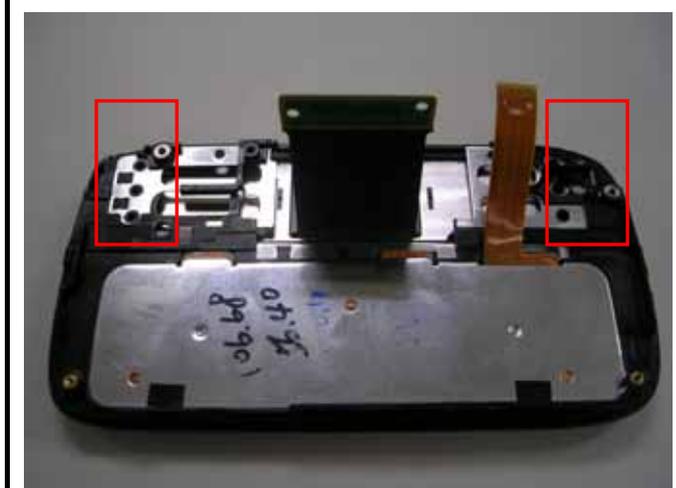


Fasten 4 screws on display bottom cover  
 72H01706-00M  
 Torque: 0.8 +- 0.1kg-cm



Combine keyboard upper cover with display bezel

**keyboard upper cover**  
**(combine with FPC/Keypad Qwerty key)**  
**Need Fixture to assemble**



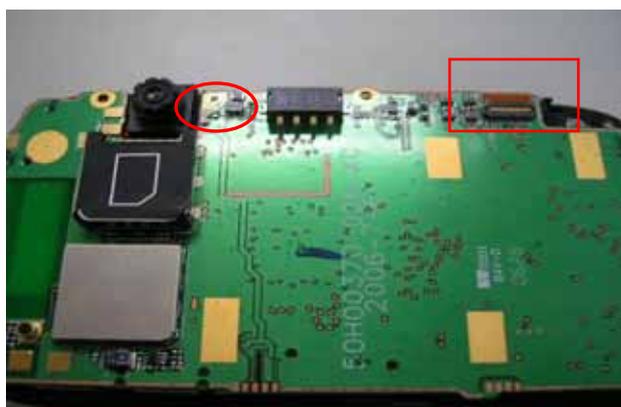
Fasten 6 screws of keyboard upper cover  
 72H1696-00M  
 Torque: 0.8 +- 0.1kg-cm



Assemble Camera



Pull out the slider and connect LCM FPC into MB  
Then stick LCM FPC with adhesive tape, plus  
one tape to fix LCM FPC

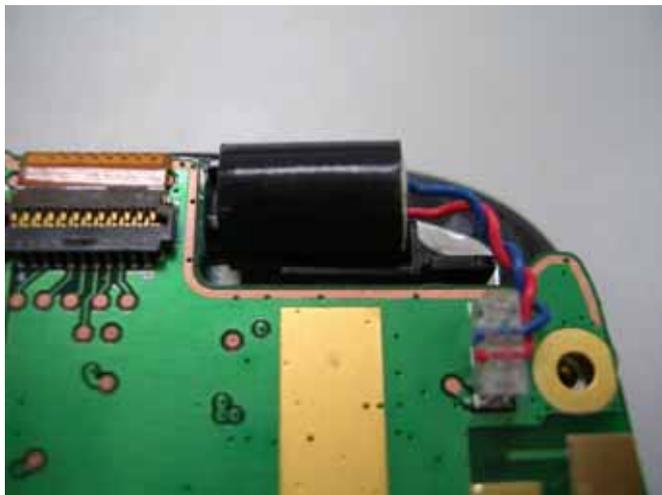


Assemble MB by inserting into ring, put MB into  
keyboard upper cover and fasten one screw on  
it.(below camera)

Next, fasten the keypad FPC connector

72H1715-00M

Torque: 0.8 +/- 0.1kg-cm



Assemble vibrator into MB and put it in keyboard upper cover.



Then assemble MB into housing starting from its USB connector



Check each button is assembly properly into its position



Assemble antenna and speaker module starting from its right lower part



Fasten 4 screws on rear side  
72H01691H-00M  
Torque 1.2 ± 0.1 kg-cm



Put battery in.



Assemble battery cover and lock it into position



Insert Stylus

----- Assembly process is done-----

## CHAPTER 4 – DIAGNOSTIC PROGRAM

### 4.1 List of Diagnostic / WinCE Test Items

Mode	No	Item	Description	Remark
Diagnostic	<b>Function Test</b>			
	1	SDRAM Test	RAM memory test.	
	2	Display Test	Color bar/R/G/B/ White/Black/ /Gray pattern.	
	3	LED Test	Red/Green/ Blue/Key Pad.	
	4	Key Test	Capture/Volume up,down/Talk/Soft1/Start/Up/Right /Down/Left/Action/Soft2/OK/End/PTT/WLAN/	
	5	B. L Test	Front light test	
	6	Timer Test	RTC (Real time clock) test.	
	7	SD Card Test	SD card Read/Write test.	
	8	Mega SIM Test	Mega SIM card test.	
	9	Checksum Test	ROM checksum test.	
	10	Battery Test	Battery info check.	
	11	Vibrator Test	Vibrator on test.	
	12	Headset Play Test	Headset out test.	
	13	Speaker Play Test	Speaker out test.	
	14	Receiver Play Test	Receiver out test.	
	15	Int. Rec-Spk out Test	Internal MIC record and play to Speaker test.	
	16	Int. Rec-HST out Test	Internal MIC record and play to Headset test.	
	<b>Run-in Test</b>			
	1	1 Hour	1 Hour Run-in Test/Press Soft1 key.	Option
	2	2 Hours	2 Hours Run-in Test/Press Soft 2 key.	Option
3	4 Hours	4 Hours Run-in Test/Press Start key.	Option	
4	8 Hours	8 Hours Run-in Test/Press OK key.	Option	
<b>Format FAT / Clear PIN (Personal information, talk times)</b>				
<b>Device Info</b>				
Win CE	1	USB Test	USB link test (Microsoft ActiveSync).	
	2	Camera Test	Camera test.	
	3	Bluetooth Test	Bluetooth test.	

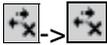
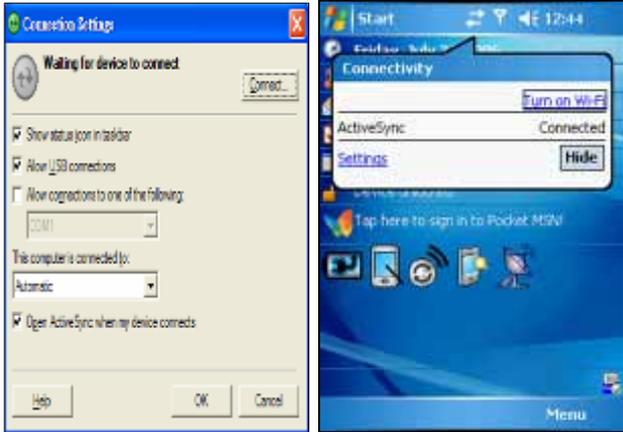
	4	WLAN Test	WLAN test.	
	5	GPS Test	GPS test.	

## 4.2 Test Procedure

How to select test item: Using navigation button -"Up" or "Down" or to select the test items

How to execute the test program: Press "Action" button to start each of test items.

### WinCE Test

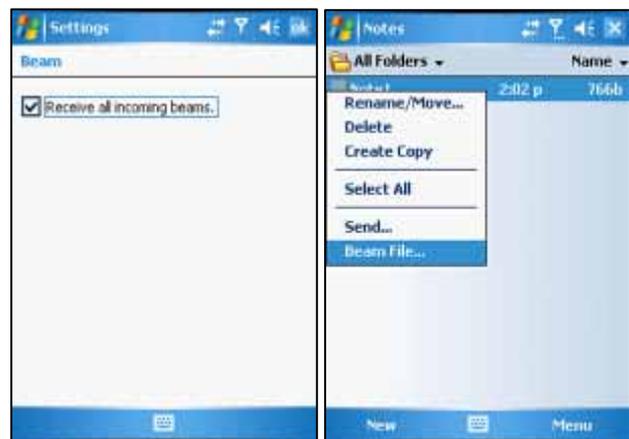
USB Test	
<ol style="list-style-type: none"> <li>I. Start up the Microsoft® ActiveSync® program in the PC.</li> <li>II. Insert USB cable and connect unit to desktop/ or laptop.</li> <li>III. The USB to PC icon  is appears on the Today screen when your device is connected to your desktop/ or laptop.</li> </ol>	
Camera Test	
<ol style="list-style-type: none"> <li>I. Tap <u>Start-&gt;Program-&gt;Camera</u> or Press Camera button to turn on the Camera.</li> <li>II. Make sure the device will present and enter the preview display.</li> <li>III. Check camera pre-view and image quality.</li> </ol>	
Bluetooth Test - 1	

- I. Tap icon Comm Manager on the Today screen and turn on Bluetooth.
- II. Tap the icon “Settings” down-right the corner of the screen and select the “Make this device....” Checkbox.
- III. Press Action key (Jog-ball) to go next test pattern.



### Bluetooth Test - 2

- I. Tap Start->Settings->Connections->Beam and select “Receive all....” Checkbox.
- II. To create a file, tap Start->Programs ->Notes->New.
- III. Tap and select the “Beam file...”



### Bluetooth Test - 3

- IV. Once device is searched, tap the device to send the file.
- V. Return to Today screen and tap Start->Program->Comm Manager ->Bluetooth to turn off Bluetooth.



### WLAN Test

- I. Tap icon Comm Manager on the Today screen and turn on WLAN.
- II. Select the hot-spot/ or access point which searchable and appears on screen.
- III. Once the hot-spot (access point) is connected, press the IE button and logon Internet.



## CHAPTER 5 –SOFTWARE UPGRADE PRCEDURE

### System Requirement:

- Windows 2000/XP
- USB Cable
- ActiveSync 4.0 above
- Master Unit
- 128 MB Mini SD card

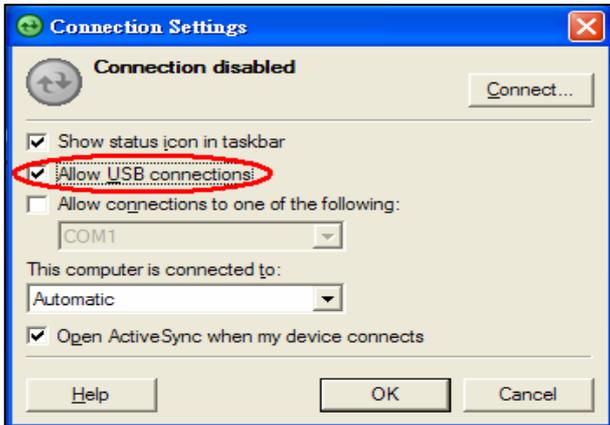
**Caution:** The unit must have at least 70% of battery capacity before starting the re-flash process. Charge the battery in advance if necessary.

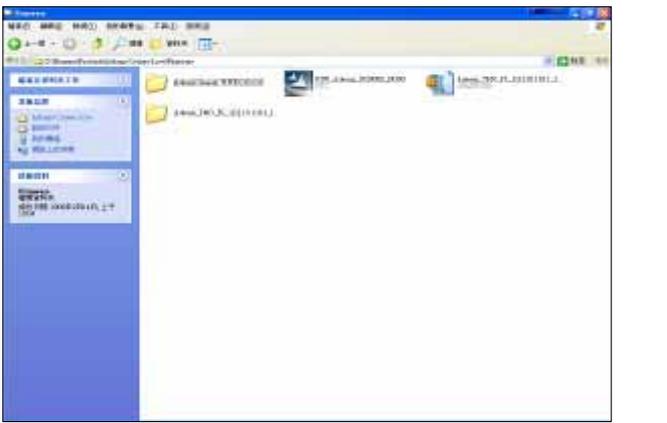
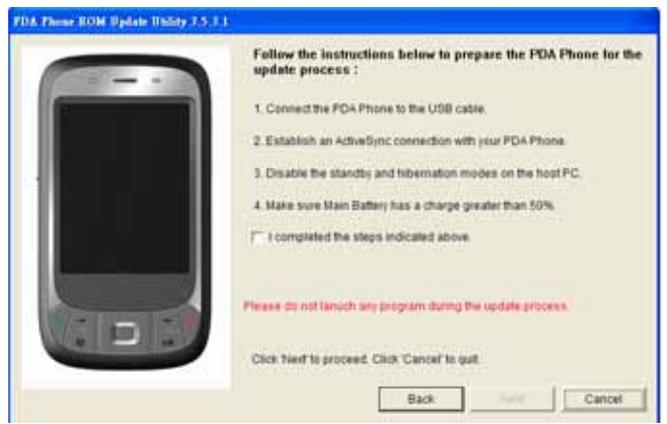
For the master unit, you could prepare it in the following ways:

- Take one from Swap unit with the most up to date Rom Code.
- Build one first by connecting to SDO for OS Upgrade/ Download via RUU.

HTC RMAIII – Service Document Online: <https://rma.htc.com.tw/rmaiii/home/index.asp>

### 5.1 RUU (Re-flash Upgrade Utility)

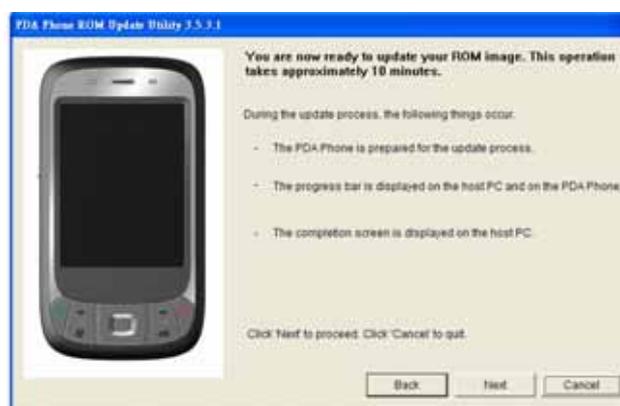
Connect device to PC	
<ol style="list-style-type: none"><li>I. Setting and allow USB connections in Microsoft ActiveSync.</li><li>II. Connect your device and desktop/ or laptop via USB cable.</li><li>III. Check the pop-up message from Microsoft ActiveSync when device is synchronized with PC.</li></ol>	 <p>The screenshot shows the 'Connection Settings' dialog box with the following options:</p> <ul style="list-style-type: none"><li><input checked="" type="checkbox"/> Show status icon in taskbar</li><li><input checked="" type="checkbox"/> Allow USB connections: (This option is circled in red in the original image)</li><li><input type="checkbox"/> Allow connections to one of the following:<ul style="list-style-type: none"><li>COM1</li></ul></li><li>This computer is connected to: Automatic</li><li><input checked="" type="checkbox"/> Open ActiveSync when my device connects</li></ul> <p>Buttons: Help, OK, Cancel</p>
Download OS Image from SDO	

<p>I. Download OS image from SDO.  <a href="http://htcscm10.htc.com.tw/SDO">http://htcscm10.htc.com.tw/SDO</a></p> <p>II. Un-zip the file and execute RUU program.</p>	
<p>III. Follow instruction on your PC, complete check box and "NEXT"</p>	
<p>IV. On process will show your device current ROM version, choose "UPDATE"</p>	

V. Confirm your ROM version and new update version, then choose "NEXT"

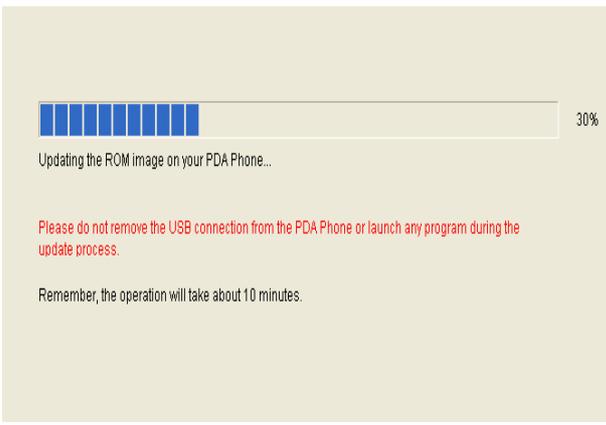


VI. Click "Next" to proceed.



VII. Read the information from pop-up message and the OS update procedure will take 10 minutes long.

Click "Next" to proceed.

<p>VIII. You can see the update progress from your PC and in your device.</p>	
<p><b>RUU - 7</b></p>	
<p>IX. The OS upgrade is finished, click "Finish" to close the utility.</p>	<p>Congratulation</p>

## 5.2 SD card upgrade

<p><b>Download OS Image from SDO</b></p>	
<p>I. Download OS image from SDO.  <a href="http://htcscm10.htc.com.tw/SDO">http://htcscm10.htc.com.tw/SDO</a></p> <p>II. Un-zip the image file.</p>	
<p><b>Format SD card and copy image file to SD card</b></p>	

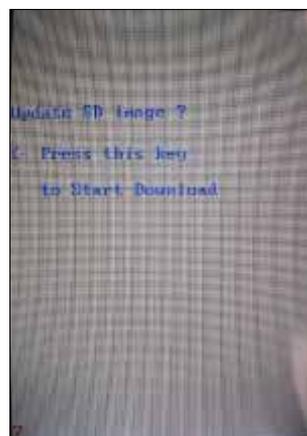
- III. Select file system and format the SD card to FAT32 mode.
- IV. Copy the image file XXX.nbh to Micro SD card and rename to **HERAIMG.NBH**.



### SD Upgrade - 1

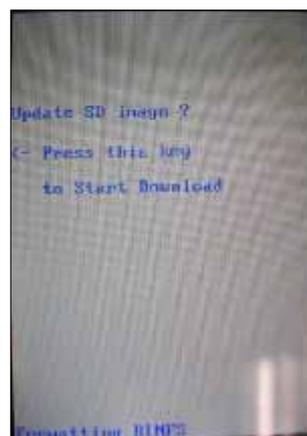
- V. Turn the device power off and insert Diagnostic SD card.
- VI. Press and hold **Capture + Comm MGR** button, and **Reset** button to entry Boot loader mode.
- VII. Press power key to start upgrade procedure.

[Note]: This process will takes 5 mins, please don't power off the device.



### SD Upgrade - 2

- VIII. Take out the SD card.
- IX. Cold boot the device.



**Now the upgrade is done!**

**Note: Due to security issue, it is not allowed to re-flash different customer ID.**

## CHAPTER 6 –LEAKAGE CURRENT MEASUREMENT

This is a quick method to measure if any abnormal leakage current on main board which caused high power consumption compare to GOOD main board.

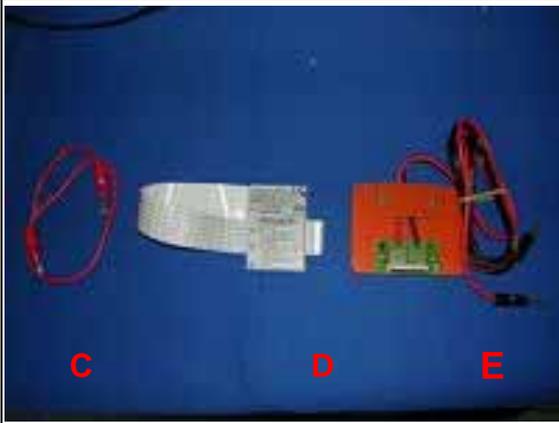
(1) Requirement :

- Power Supply
- Micro-current Meter
- Current series JIG
- CABLE
- Battery JIG



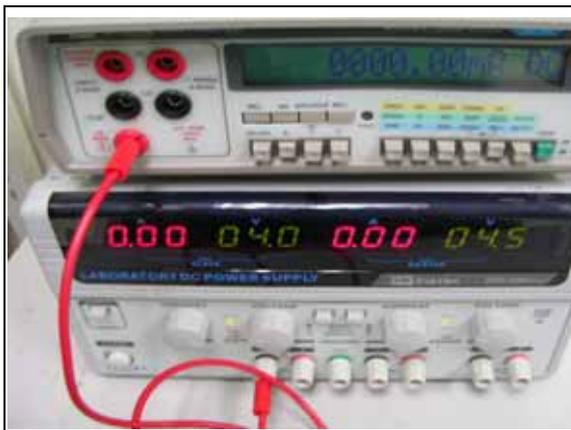
1. Equipment need:

- A. Power Supply (set at 4 V /1A).
- B. Micro-Current Meter (support 0.5mA ~ 1A).

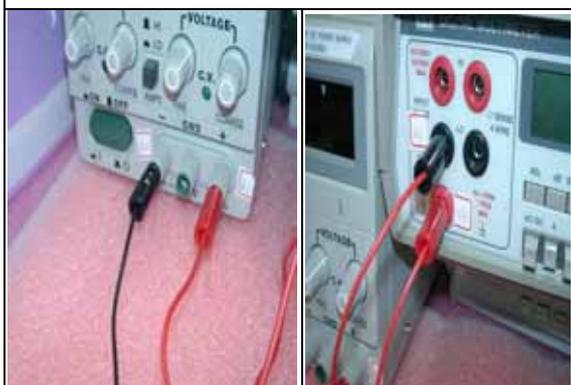


2. Fixture needed

- C. Cable
- D. Battery with extension cable
- E. Current series jig.( with black and red cable)

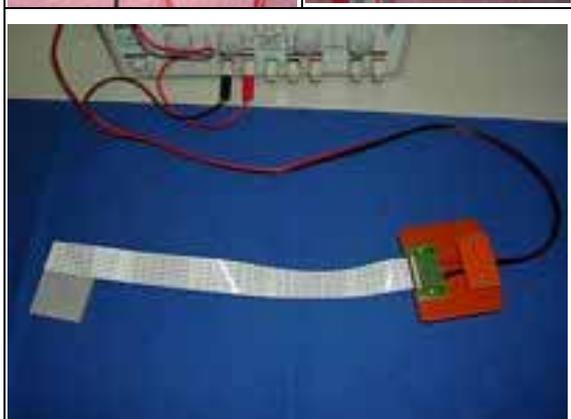


3. Connect cable (C) to positive polarity of power supply (A) and current meter (B)



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)



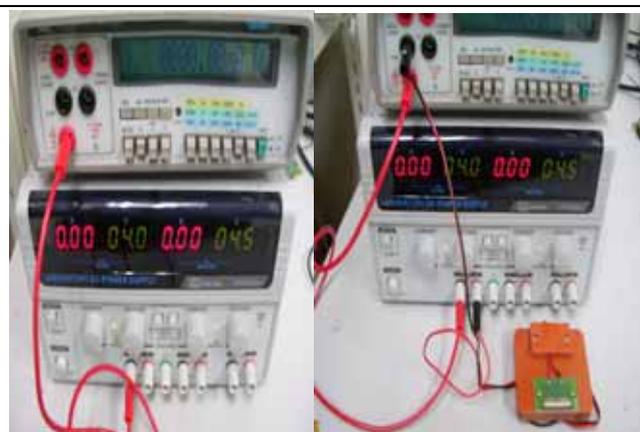
5. Setting is **Ready for testing**

Assemble Battery into device.  
 ( Don't turn the power on at this moment )

Assemble Battery into device.



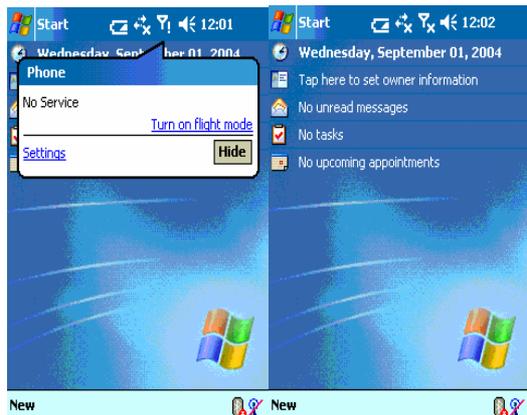
3. Connect cable (C) to positive polarity of power supply (A) and current meter (B)



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



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

	<p><b>6. Turn on power supply ( 4V) and current meter ( 2A)</b></p> <p><b>Set the unit to :</b></p> <ul style="list-style-type: none"> <li>* Flight mode</li> <li>* Turn off Bluetooth</li> </ul>
	<p><b>7. Measure flight mode current</b></p> <p>Choice Setting/System/Backlight/Brightness Adjust brightness level to power save. Current value must under <b>78mA</b>, if over, it means M/B failed, please replace M/B for repair.</p>
	<p>8. Switch OFF the unit. Unit is turn off and no display.</p> <p>9. Measure power off current Check current value on the current meter, Current value must under <b>4.5 mA</b>, if over, it means M/B failed, please replace M/B for repair.</p>
<p><b>Conclusion</b></p>	

- I. If current consumption test PASS when UUT in Flight and Sleep mode, it means that the M/B works normal.
- II. If current consumption test FAIL when UUT in Flight or Sleep mode, it means that the M/B works abnormal, please replace M/B and re-test again.

## CHAPTER 7 – COSMETIC INSPECTION CRITERIA

1.1 This document based on the experience of customer's requirements is designated as HTC internal quality inspection standard of HERALD series products for HTC.

1.2 These cosmetic criteria should be applied in QC1, QC2 and CDIT stations. Regarding functional inspection of CDIT, please refer to CDIT SIP.

### 7.1 Classes definition of inspective area

7.2.1 (Class 1 area ):

Class 1 area => The front side of main unit involve all buttons and LED lens except

7.2.2 (Class 2 area ):

Class 2 area =>The view of Qwerty keyboard after slid out main unit (involve stylus)

7.2.3 (Class 3 area ):

Class 3 area => 4 sides and back views of main unit.

7.2.4 (Class 4 area ):

Class 4 area =>Socket of battery, inner side of battery cover and back side of upper part.

\*. **Figure 1** : ( Photo of inspection areas )



## 7.2 Main unit inspection

### 7.3.1 System assembly inspection :

- Exposure of substratum is not acceptable for peeling. (Area 4 is included)If not exposure of substratum, please checked by SPEC. of dot or scratch. (Area 4 is not included)
- Logo may not have blurred or double print., the peeling on logo is not acceptable.
- The character printing of main unit does not allow bad printing,scratch,dirty, lacquer peeling ,dark/white dot on it)
- Camera lens dot, particle D 0.25mm ; burr 1.5mm , W 0.2mm ,

1. (Gap inspection )			
Description		Accept criteria	Level
1.	Status of main unit assembly.	Defective assembly and deformed shape were nor allowed.	Minor
2.	Gap between touch panel and bezel.	Gap between touch panel and bezel < 0.7 mm (Skip corner and Enter the material to click)	Minor
3.	Gap between upper / lower slid parts.	Gap between upper / lower slid parts < 1..0 mm	Minor
4.	Qwerty key Gap and around Gap	Between key Gap<0.35 mm, Edge of key and C-part Gap <0.4 mm	Minor
5.	Gap between navigation key and AP keys assembly.	(gap) <0.35 mm Key stuck are not allowed.	Minor
6.	Gap around power button, record button, volume key, camera button	(gap) <0.35 mm Key stuck are not allowed	Minor
7.	Stylus	Stylus assembly protruding, loose, missing, falling and deformed is not allowed.	Minor
8.	Gap between battery cover and main unit.	D,E parts(gap) <0.50 mm	Minor

9	<p>Gap between other mating parts.</p>  <p>Stylus near key (gap)</p>	<p>A,B part (gap) &lt;0.3 mm, around stylus (gap) &lt;0.65 mm  C part (gap) &lt;0.3 mm  A,B parts (gap) &lt;0.3 mm, Stylus near key (gap) :0.4mm  Edge of C-part (gap) &lt;0.3 mm  B/C-part front and rear GAP Tolerance&lt;0.1mm</p>	Minor
10	 <p>APP KEY around GAP</p>	<p>GAP 0.9mm(Key stuck are not allowed)  &amp; APP key hight 0.9mm</p>	Minor

## 2. (Step inspection )

Description		Accept criteria	Level
1.	Step between upper / lower slid parts.	(Step) < 0.50 mm	Minor
2.	Others between upper / lower parts.	(Step) < 0.40 mm	Minor

## Cosmetic inspection:

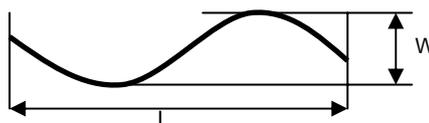
### 1. (Scratch )

Description	Accept criteria	Level
Class 1/Class 2 /Class 3		
Class 2/ stylus	<p>Exposure of substratum is not acceptable  Scratch : L 7mm ,W 0.25mm ,N 3, S 10mm  Bright mark area should be less than 1 mm x 10 mm</p>	Minor
Class 4	Any damaged marks, shortage of plating and printing are not acceptable.	Minor
label	Wrong printing or illegible print be not allowed.	Minor

2. (Contamination dot/Granule dot/Cave granule )		
Description	Accept criteria	Level
Class 1/Class 2 /Class 3		
MS logo Spot	D 0.25mm,N 1	Minor
3. (Burr....etc.)		
Description	Accept criteria	Level
Edge damage on all mating parts	$L \leq 3\text{mm}$ , $W \leq 0.254\text{mm}$	Minor
2. Burr.	W: 0.25mm Max, sharp edge is not acceptable	Minor
4. (Imprint mark )		
Description	Accept criteria	Level
Class 1/Class 2 /Class 3 Cosmetic inspection refer to IS-3047		
5. (Bright mark )		
Description	Accept criteria	Level
Class 1/Class 2 /Class 3 Cosmetic inspection refer to IS-3047		
6. (Lint)		
Description	Accept criteria	Level
Class 1/Class 2 /Class 3 Cosmetic inspection refer to IS-3047		

P.S. Definition of lint identification

This definition is not applicable to LCM.



### 7.3 Cosmetic of Camera

Symptom		Standard	Defect model
Glue	Inner glass	Accept	Minor
	Out side glass	Over to black area not accept	
Line, Lint	Inner glass	W 0.25 mm and L 3.0 mm , N 1  Should not affect to picture quality	Minor
	Out side glass	Over to black area not accept	
Spot	Inner glass	D 0.25, N 1	Minor

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## CHAPTER 8 –TROUBLESHOOTING AND REPAIR

### Before repairing, please try to duplicate if the symptom exist or Customer mishandling

#### **1 - A . Main Unit Does Not Respond to Power Button**

#### **1 - B . Main Unit Does Not Respond to Battery Switch**

#### **1 - C . Charge light is red when plug in AC adapter**

- (1) Make sure the Battery is installed properly to activate the battery pack.
- (2) Connect the AC Adapter, maybe the battery pack is exhaust.
- (3) Check the Battery cover is close properly.
- (4) Try with another battery pack.
- (5) Replace battery pack if necessary.
- (6) Try to enter boot loader mode, Perform Re-flash OS if successfully.
- (7) CMOS Camera is not assembled properly.
- (8) Check all connections including LCD FPC to Main Board. Try with another Main Board.
- (9) Fuse blown .
- (10) Customer abuse caused the power button fallen off
- (11) Both item 9 & 10 , MB replacement is necessary unless you are authorized to do board level repair.
- (12) If Charge light is red when plug in AC adapter, it means the main battery is not charge enough and can't power on,  
You just need to continue charge unit the light become Amber.
- (13) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.

#### **2 - A . Touch Panel Does Not Respond to Screen Tap**

- (1) Dismantle the unit, check the perimeter of Display between display Bezel and Touch Panel surface for unusual foreign objects. Clean it, reassemble the unit and check the panel's function again.
- (2) Check the connection of LCM FPC whether is properly connected.
- (3) Try with another LCM.
- (4) Try with another Rigid-Flex board.
- (5) Try with another Main Board.
- (6) Replace LCM if necessary
- (7) Replace Main Board if necessary.
- (8) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.

## **2 - B . Buttons Do Not Respond**

- (1) Dismantle the unit, check the status of switches on the Main Board and the plastic parts of button of the Button not responding.
- (2) Try with another Main Board, rigid-Flex or keypad.
- (3) Replace Main Board, rigid-Flex or keypad if necessary.
- (4) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.
- (5) Hard Reset The unit.

## **3 - A . Unusual Vertical / Horizontal lines or partial display**

- (1) Check the connection of LCM FPC whether is properly connected.
- (2) Try with another LCM.
- (3) Try with another Rigid-Flex board
- (4) Try with another Main Board.
- (5) Replace LCM if necessary
- (6) Replace rigid-Flex board if necessary
- (7) Replace Main Board if necessary.
- (8) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.

## **3 - B . Back Light Does Not Turn ON/OFF**

- (1) Check the connection of FPC whether is properly connected.
- (2) Try with another LCM.
- (3) Try with another Rigid-Flex board
- (4) Try with another Main Board.
- (5) Replace LCM if necessary
- (6) Replace rigid-Flex board if necessary
- (7) Replace Main Board if necessary.
- (8) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.

#### **4 - A-SD Card cannot be used**

- (1) Check whether SD is fully inserted to the slot until you hear a click.
- (2) Try with another SD Card
- (3) Try with another Main Board.
- (4) Replace Main Board if necessary.
- (5) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.

#### **5 - A . PC Connection (USB) not possible**

- (1) Check whether "Connection Settings" in the MS ActiveSync is properly set.
- (2) Check whether it connects with other cables or cradle, customer's cable might be damaged.
- (3) Check the external appearance of the connector on the unit whether it is physically damaged.
- (4) Replace Main Board if necessary.
- (5) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.

#### **5 - B . Wireless Connection (GSM / GPRS / BT / WLAN) not possible**

- (1) Make sure the user has been contacting the Carrier for SIM Card validation and activation.
- (2) Make sure the Wireless Connection Settings has been properly set.
- (3) Make sure the SIM Card is properly inserted to the SIM compartment. Make a life call or test it with the RF Test Station (Antenna Test).
- (4) Dismantle the Main Unit and check whether the Antenna cover is properly installed.
- (5) Try with another Antenna cover.
- (6) Try with another Main Board if necessary.
- (7) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.

### **5 - C . IrDA Connection not possible**

- (1) Make sure the IrDA port settings on the Notebook or PC are properly set.
- (2) Make sure the IrDA function is properly activated on the Pocket PC and on the other device.
- (3) Make sure there's no obstruction between the two devices in connection and within the distance.
- (4) Check the IrDA window whether it is broken or cracked. Replace Front Bezel if necessary.
- (5) Replace Main Board if necessary.
- (6) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.

### **6 - A . Main Battery does not start**

- (1) Make sure the Battery cover is closed properly.
- (2) Connect to the AC Adapter and see if it takes charge. Also check AC Adapter condition.
- (3) Check whether AC Adapter is functioning properly.
- (4) Check whether the condition of Battery Charging status is correct.
- (5) Dismantle the unit and check the appearance of Battery cover.
- (6) Try with another Main Board or Replace Main Board if necessary.
- (7) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.

### **6 - B . Battery discharges quickly even after fully charged**

- (1) Make sure the Battery Pack takes fully charge with AC Adapter.
- (2) Check whether the condition of Battery Charging status is correct.
- (3) Dismantle the unit and check the appearance of Battery cover.
- (4) Try with another Battery or Replace Battery if necessary
- (5) Try with another Main Board or Replace Main Board if necessary.
- (6) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.

### **7 - C . Main Battery does not recharge**

- (1) Make sure the Battery takes fully charge with AC Adapter.
- (2) Check whether the condition of Battery Charging status is correct. Charge should be done in no more than 3 hours.
- (3) Dismantle the unit and check the appearance of Battery cover.
- (4) Try with another Battery or Replace Battery if necessary
- (5) Try with another Main Board or Replace Main Board if necessary.
- (6) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.

### **8 - A . No Sound from Speaker or Distorted sound**

- (1) Check "Sound & Notifications" Settings in the unit for Sound Enabling.
- (2) Make sure it's not MUTED.
- (3) Dismantle and Check whether the Speaker is properly installed (Orientation)
- (4) Make sure the connection point between MB and Speaker is free from contamination or dust.
- (5) Replace Speaker if necessary.
- (6) Replace Main Board if necessary.
- (7) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.
- (8) Replace Camera if camera function was defect at the same time.

### **9 - A . No Recorded Sound or Distorted sound**

- (1) Check "Sound & Notifications" Settings in the unit for Sound Enabling.
- (2) Make sure it's not MUTED.
- (3) Dismantle and Check whether the Microphone is properly installed (check or missing rubber)
- (4) Replace Microphone if necessary.
- (5) Replace Main Board if necessary.
- (6) Once the defective part has been identified, verify it again with the defective part whether the symptom could be duplicated.

### **10 - A . Bezel, Housing Cosmetic damage**

- (1) Unless it is for Refurbishment, all Bezel, housing replacement due to cosmetic damage shall treat as out of warranty

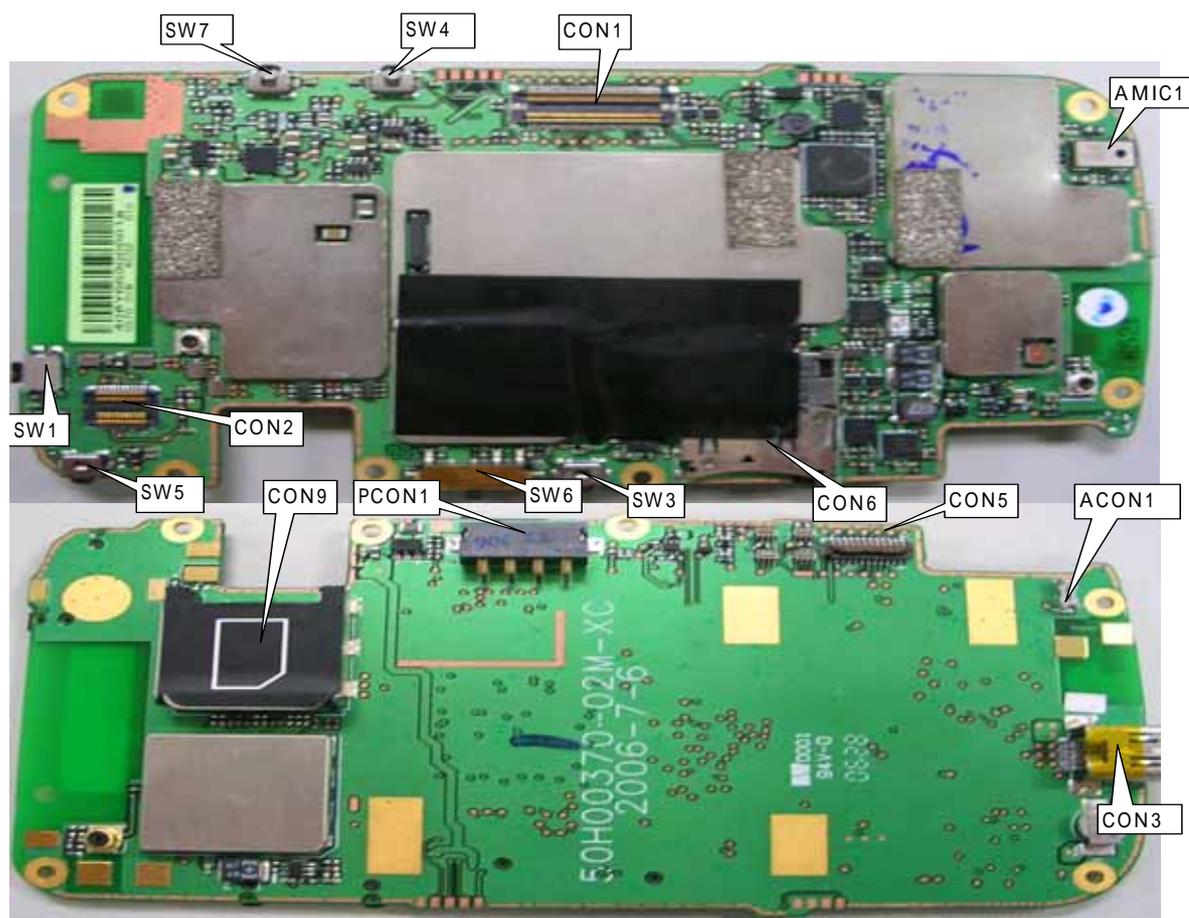
## CHAPTER 9 –GENERIC SPARE PART LIST

### 9.1 SPL for Repair

Item	HTC P/N	Description	Using Q'ty
1	36H00468-00M	Receiver, MERRY, DTR882-001	1
2	36H00486-00M	Speaker, MERRY, DSH962-002	1
3	36H00488-00M	Wifi-Edge Antenna Pre-Assy -W/O Elec Inspection, AMPHENOL, H	1
4	36H00490-00M	Vibrator, JT05508-30NC1, JNTECH, Reted speed 125003000 RPM	1
5	51H00370-01M	PCBA-MAIN BOARD, Herald	1
6	51H10048-00M	Rigid-Flex Board ASSY, 5Layers, HERALD	1
7	54H00188-00M	Module Assy, Camera, PRIMAX, 50-70407HTT0; Sensor: Samsung	1
8	60H00062-00M	LCD Module, ACX357AKM-8, SONY, 73.7*52.9*3.3mm	1
9	72H01691-00M	Screw, M1-6, L3-5, T5(2.8*0.7), Black, Herald	4
10	72H01696-00M	Screw, M1.4, L2-0(3.5*0.2), Cross, Herald	6
11	72H01701-00M	Screw, M1.6, L2.0(2.7*0.5), T5, Herald	6
12	72H01706-00M	Screw, M1-6, L2-8, T5, Herald	4
13	72H01712-00M	EMI Gasket, RF board, Herald	2
14	72H01715-00M	Screw, HAMA NAKA SHOUKIN, T1.6, DELTA TP	5
15	72H01787-00M	EMI Gasket, for SONY LCM, Herald	1
16	73H20074-09M	FPC Pre-Assy, QWERTY KEY, CAREER, Herald	1
17	74H00755-00M	Bezel Pre-Assy, keyboard upper cover assy, Herald	1
18	74H00756-00M	Slider-Hinge Pre-Assy, Semi-Auto, Herald	1
19	74H00758-XXM	Keypad Pre-Assy, Qwerty key, Generic WWE, Herald	1
20	74H00759-00M	Bezel Pre-Assy, Display, Bottom Cover, Herald	1
21	74H00760-00M	Cover Pre-Assy, Battery, Herald	1
22	74H00763-00M	Housing Pre-Assy, keyboard bottom cover assy, Herald	1
23	74H00764-00M	Keypad Pre-Assy, AP function key, Herald	1
24	74H00767-02M	Bezel Pre-Assy, display upper cover assy, Herald	1
25	76H01586-00M	Rubber, Silicone, Rf Conn., Herald	1
26	76H01587-00M	Film, Label, SIM connector, Herald	1
27	76H01590-00M	Rubber, Silicone, Microphone, Herald	1
28	76H01593-00M	Absorber, CA20, Camera FPC, Herald	1
29	76H01594-00M	Mylar, 749B, on PCBA, Herald	2
30	76H01597-00M	Mylar, anti-short, on RFBD, 749B, Herald	1
31	76H01600-00M	Tape, KAPTON, on B2B conn RFBD, Herald	1
32	76H01651-00M	Tape, Kapton, Qwerty FPC conn, Herald	1
33	77H00116-02M	LCD Film for EULA, PDA, 85*55mm, ENG/CHT/CHS, Himalayas	1
34	77H00203-00M	Water Sensitive Label, 4*2.5mm, Ming Jye, BlueAngels	1
35	77H00385-10M	Regulation Label, DOPOD-ASIA, 41.8*62.1mm, CHENG MAY, Hera	1
36	77H00460-XXM	Tamper-Evident Label, VOID wording, black background, 3*3mm, M	1
37	77H30025-00M	BLANK LABEL, 48*93mm	2

## 9.2 Board Level

Item	HTC P/N	Description	Using Q'ty	Location	Remark
1	36H00129-00M	SWITCH BUTTON,PTS-106,HCH,4.7*4.5*1.65,70/-20degC,BLUE ANGELS	1	(SW1)	Power
2	36H00160-00M	Slide_Switch,HSS112,HCH	1	(SW6)	Slide_Switch
3	36H00208-00M	MIC,SP0103NB3-SB-3,EMKAY,Pb-FREE,100/-40degC,6.15*3.76*1.45 mm	1	(AMIC1)	Mic
4	36H00230-00M	SWITCH,SOH-213HST,MITSUMI,70/-20degC	3	(SW4,5,7)	Voice command, Capture, COMM
5	36H00308-00M	Switch,Reset switch,SOH-213HNT,MITSUMI	1	(SW3)	Reset
6	75H00420-00M	Connector B to B,Female,22P,0.4Pitch,AXI7L22227,MATSUSHITA,6.8*5.0*0.87mm	1	(CON2)	Main Camera Module
7	75H00554-00M	Connector,4Pin,2.5mm,250037MB004G511ZL-C,SUYIN,40mohm,2A,12V	1	(PCON1)	Battery connector
8	75H00465-00M	Connector I/O,Reverse,11P,0.4Pitch,MJE21-11K7P20,ACON	1	(CON3)	Mini USB
9	75H00467-11M	Connector SD Card,10P,1.1Pitch,100053FB010S402ZL,SUYIN,100mohm,0.5A,5V	1	(CON6)	Micro SD Card
10	75H00565-00M	Connector SIM Card,8P,2.54Pitch,HAMBURG,ICC-439,Herald	1	(CON9)	Connector SIM Card
11	75H00566-00M	Connector B to C,2P,1Pitch,1A,30V,KYOCERA,248000002000829+,Herald	1	(ACON1)	Vibrator connector
12	75H00578-00P	Connector B to B,60P,0.4Pitch,24 5801 060 003 829,KYOCERA	1	(CON1)	LCM
13	75H00579-00M	Connector FPC,23P,0.3Pitch,FH26-23S-0.3SHW(05),HIROSE	1	(CON5)	Keypad



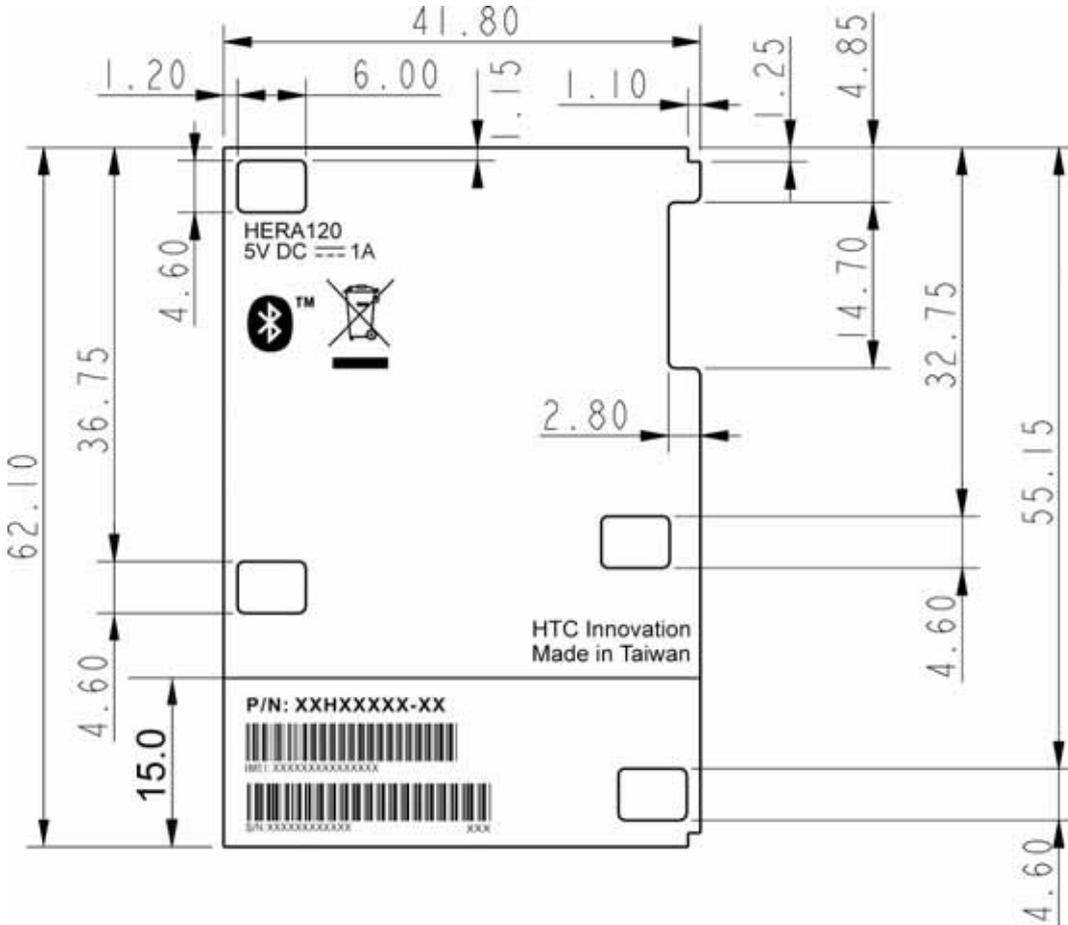


**A2 Agency label-W/O WiFi**

HTC P/N: **77H00385-04M**

Size: 41.8 X 62.1mm

The brand name is shown on Bezel.



HTC P/N	Countries supported

## B. RF Antenna Test Specification

Item	Test Name	Tx level	TCH	1 <sup>st</sup> Download cell power	Note
1	Camp @DCS Band	0	512	-75	BCH=600
2	BS Originate call	0	512	-75	
<b>E-GSM 900 RECEIVER TEST</b>					
3	Fast Bit Error Rate	5	975	-104	
4	Fast Bit Error Rate	5	42	-104	
5	Fast Bit Error Rate	5	124	-104	
<b>E-GSM 900 Transmitter TEST</b>					
6	TX Phase RMS Error	5	975	-104	
7	TX Phase Peak Error	5	975	-104	
8	TX Frequency Error	5	975	-104	
9	TX Phase RMS Error	5	42	-104	
10	TX Phase Peak Error	5	42	-104	
11	TX Frequency Error	5	42	-104	
12	TX Phase RMS Error	5	124	-104	
13	TX Phase Peak Error	5	124	-104	
14	TX Frequency Error	5	124	-104	
15	Check TX Power	5	975	-104	
16	Check TX Power	5	42	-104	
17	Check TX Power	5	124	-104	
<b>DCS 1800 Receiver Test</b>					
1	Fast Bit Error Rate	0	512	-104	
2	Fast Bit Error Rate	0	698	-104	
3	Fast Bit Error Rate	0	885	-104	
<b>DCS 1800 Transmitter Test</b>					
4	TX Phase RMS Error	0	512	-104	
5	TX Phase Peak Error	0	512	-104	
6	TX Frequency Error	0	512	-104	
7	TX Phase RMS Error	0	698	-104	

8	TX Phase Peak Error	0	698	-104	
9	TX Frequency Error	0	698	-104	
10	TX Phase RMS Error	0	885	-104	
11	TX Phase Peak Error	0	885	-104	
12	TX Frequency Error	0	885	-104	
13	Check TX Power	0	512	-104	
14	Check TX Power	0	698	-104	
15	Check TX Power	0	885	-104	
<b>PCS 1900 Receiver Test</b>					
1	Fast Bit Error Rate	0	512	-104	
2	Fast Bit Error Rate	0	661	-104	
3	Fast Bit Error Rate	0	810	-104	
<b>PCS 1900 Transmitter Test</b>					
4	TX Phase RMS Error	0	512	-104	
5	TX Phase Peak Error	0	512	-104	
6	TX Frequency Error	0	512	-104	
7	TX Phase RMS Error	0	661	-104	
8	TX Phase Peak Error	0	661	-104	
9	TX Frequency Error	0	660	-104	
10	TX Phase RMS Error	0	810	-104	
11	TX Phase Peak Error	0	810	-104	
12	TX Frequency Error	0	810	-104	
13	Check TX Power	0	512	-104	
14	Check TX Power	0	661	-104	
15	Check TX Power	0	810	-104	
<b>GSM 850 Receiver Test</b>					
1	Fast Bit Error Rate	5	128	-104	
2	Fast Bit Error Rate	5	189	-104	
3	Fast Bit Error Rate	5	251	-104	
<b>GSM 850 Transmitter Test</b>					
4	TX Phase RMS Error	5	128	-104	

5	TX Phase Peak Error	5	128	-104	
6	TX Frequency Error	5	128	-104	
7	TX Phase RMS Error	5	189	-104	
8	TX Phase Peak Error	5	189	-104	
9	TX Frequency Error	5	189	-104	
10	TX Phase RMS Error	5	251	-104	
11	TX Phase Peak Error	5	251	-104	
12	TX Frequency Error	5	251	-104	
13	Check TX Power	5	128	-104	
14	Check TX Power	5	189	-104	
15	Check TX Power	5	251	-104	

