



Motorola MPx200 Service Manual

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CONTENTS

PREFACE	2
CHAPTER 1 PRODUCT SPECIFICATIONS	3
CHAPTER 2. CONFIGURATION	6
2-1 FRONT	6
2-2 SIDE	7
2-3 OPEN	8
CHAPTER 3 TROUBLE SHOOTING	9
3-1. TEST EQUIPMENT AND TOOLS	9
3-2. PC UPGRADEWIZARD	9
3-3 INITIAL INSPECTION	16
3-4 LEVEL 1 AND LEVEL 2 REPAIR	16
CHAPTER 4 MECHANICAL EXPLODED DIAGRAM OF MPX200	19
CHAPTER 5 DISASSEMBLY AND ASSEMBLY TIPS	20
5.1 LEVEL 1 DISASSEMBLY	21
5.2 LEVEL 1 ASSEMBLY	23
5.3 LEVEL 2 DISASSEMBLY	25
5.4 LEVEL 2 ASSEMBLING	37
CHAPTER 6 SPARE PART LIST	48

Preface

This service manual is designed for experienced technicians to support basic servicing on Motorola MPx200. It consists product specification, configuration, level 1 and level 2 troubleshooting , and disassembly of MPx200.

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Chapter 1 Product Specifications

Overview	Clam Shell Style Phone
	Internal Antenna
	Tri-band E-GSM 900, GSM 1800, GSM 1900
	GPRS Class B, 4+1 Slot (Class 8)
	2.2 " 65K Color Display with 0.8" Monochrome LCD
	Five Way Navigation Key
	SD/MMC Slot
	Infrared & USB Connectivity
	Polyphonic Ring (16 voices)
	Image & Sound Personalization
	Multimedia Messaging (MMS)
	Microsoft Smart Phone 2002 Messaging (SMS, Email, MSN Messenger) Telephony Contacts Calendar Tasks ActiveSync Internet Explore (Web and WAP Browser) Media Player Game
Features & Specifications	General Style: Clam Shell Size: 89 x 48 x 27mm, 98cc Weight: 117.8g OS: Microsoft Smart Phone 2002 Processor: TI OMAP Available Storage: 10 MB
	Battery Information 860mAHr Talk Time: Up to 4.5 hours Standby Time: Up to 112 hours

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	<p>GSM</p> <p>Tri-band Operation: E-GSM 900, GSM 1800, and GSM 1900 GSM Phase 2+ GSM Data: Up to 14.4 kbps</p> <p>GPRS</p> <p>Class: B Slots: 4+1 Coding Scheme: CS-1, CS-2, CS-3, CS-4 Downlink Rate: Up to 53.6 kbps (CS-2) Uplink Rate: Up to 13.4 kbps (CS-2)</p> <p>Main Display</p> <p>Type: TFT Transflective Size: 176 x 220 pixels, 2.2 inch Pixel Size: 0.198mm Color Depth: 16-bit (65K colors)</p>
	<p>Display</p> <p>Type: Monochrome STN Size: 80 x 48 pixels, 0.8 inch</p> <p>Input</p> <p>ITU-T Numeric Keypad: Send, End, Numeric Input (0-9), or Characters (A-Z, a-z) supported Two Soft Keys Five Navigation Key Dedicated HOME & RETURN Key Smart Input: T9 Speaker-dependent Voice Recognitions Jag-Dial (Vol up/ down, Recorder)</p> <p>Phone</p> <p>Mobile Originated and Terminated Call Speakerphone SIM Manager (Phonebook in SIM) Speed Dialling Polyphonic Ring (16 Voices): WAV and MIDI File supported Radio Off: Use PDA functions only during Flight SIM Tool Kit: Class 3 USSD</p>

	<p>Personal Organizer</p> <ul style="list-style-type: none"> Contacts Calendar Tasks Voice Notes Calculator Management
	<p>Personalization</p> <ul style="list-style-type: none"> Home Screen Ring Tones (MIDI and WAV Format) Alarm Tones
	<p>Messaging</p> <ul style="list-style-type: none"> SMS MMS Email MSN Messenger
	<p>Internet Explore</p> <p>Language: WAP, HTML, cHTML Supported</p> <p>Images and Sounds Supported, but Frames on a Web Page is NOT Supported</p>
	<p>Media Player</p> <p>Supported File Format: MP3 (.mp3) and Windows Media (.asf, .asx, .wax, .wm, .wma, .wmv, .wmx, .wvx)</p> <p>Supported Codecs: Media Audio/Video Codec, MP3, Microsoft MPEG-4, and ISO MPEG-4</p>
	<p>Connectivity</p> <ul style="list-style-type: none"> USB 1.1 Client Infrared: Serial IrDA (SIR)
	<p>Synchronization</p> <ul style="list-style-type: none"> Synchronizing Information: Inbox, Contacts, Calendar, Tasks PC Applications: ActiveSync Bearer: IrDA, USB, Over the Air (OTA)
	<p>Game</p> <ul style="list-style-type: none"> Solitaire

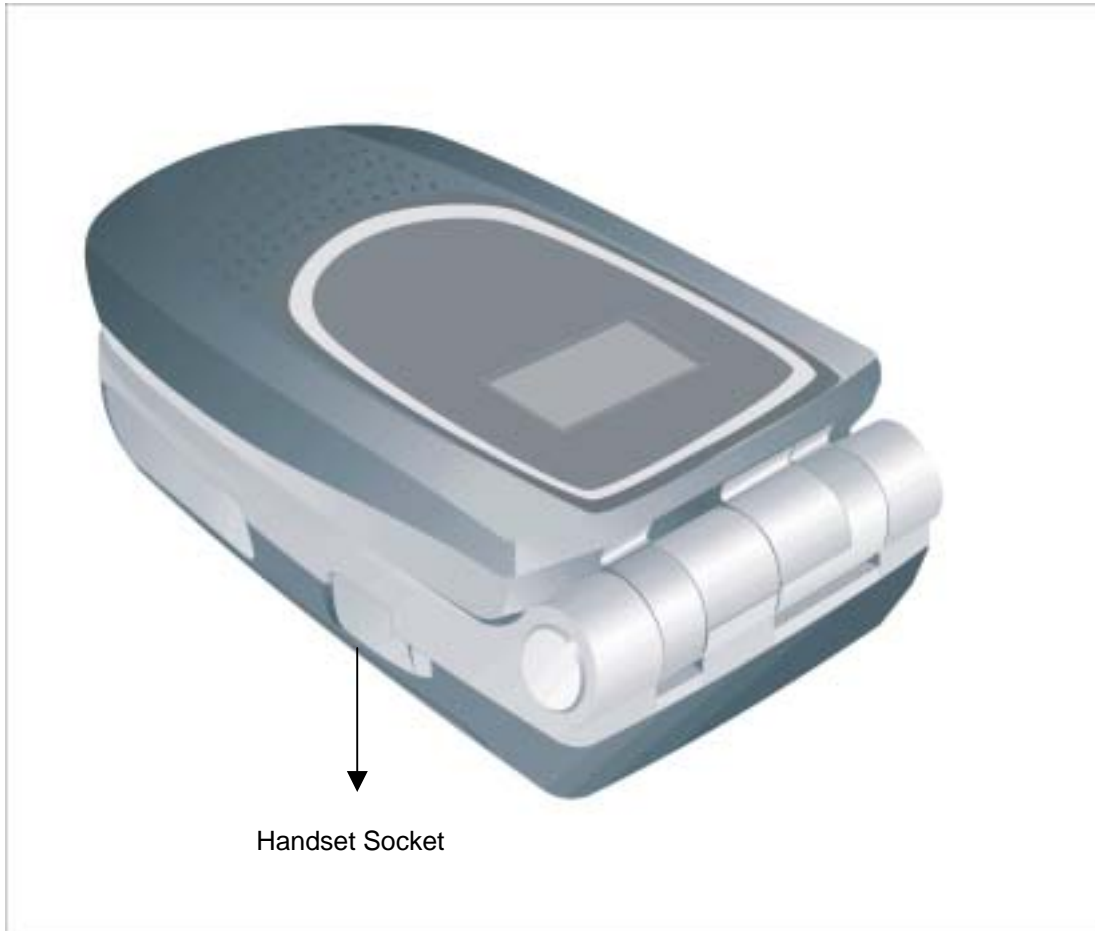
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Chapter 2. Configuration

2-1 Front



2-2 Side



2-3 Open



Chapter 3 Trouble Shooting

3-1. Test equipment and tools

- ✧ PC
- ✧ PC UpgradeWizard
- ✧ TORX T5 screwdriver
- ✧ Tweezers

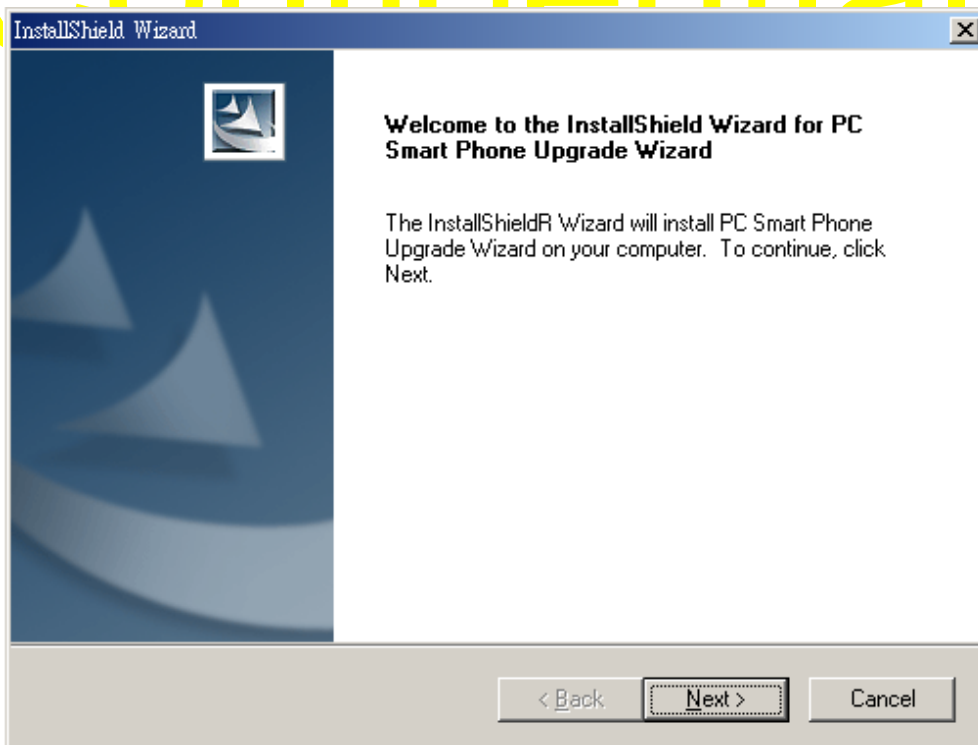
3-2. PC UpgradeWizard

PC UpgradeWizard is an application that lets engineers to re-download Smartphone on the local system. The main function of PC UpgradeWizard is to update newest software version.

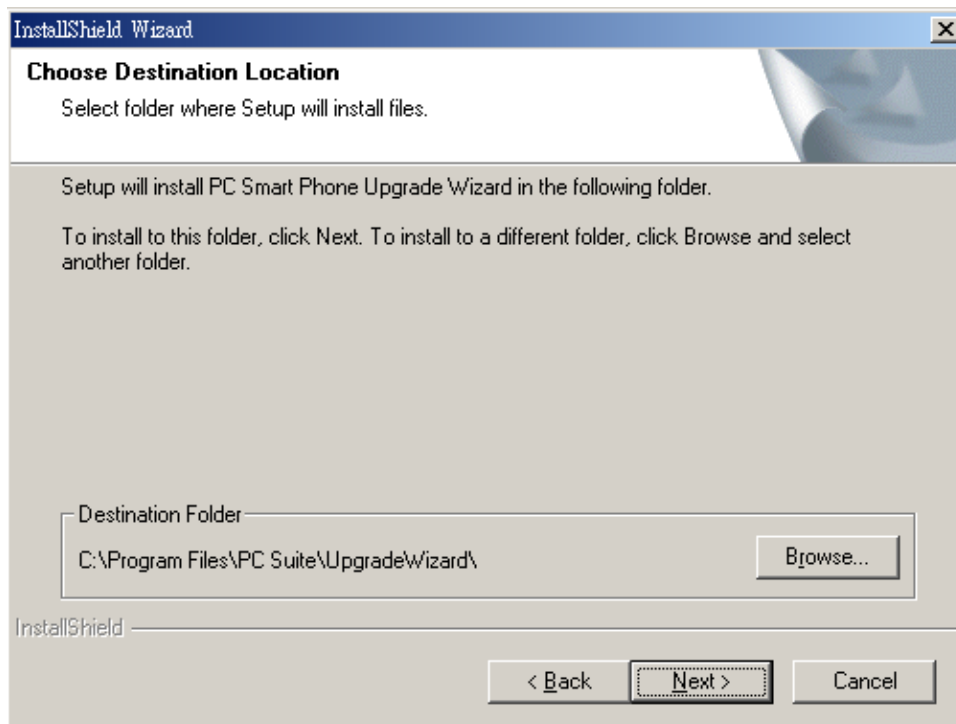
PC UpgradeWizard works on Windows 2000 and Window XP.

3.2.1 Install PC UpgradeWizard

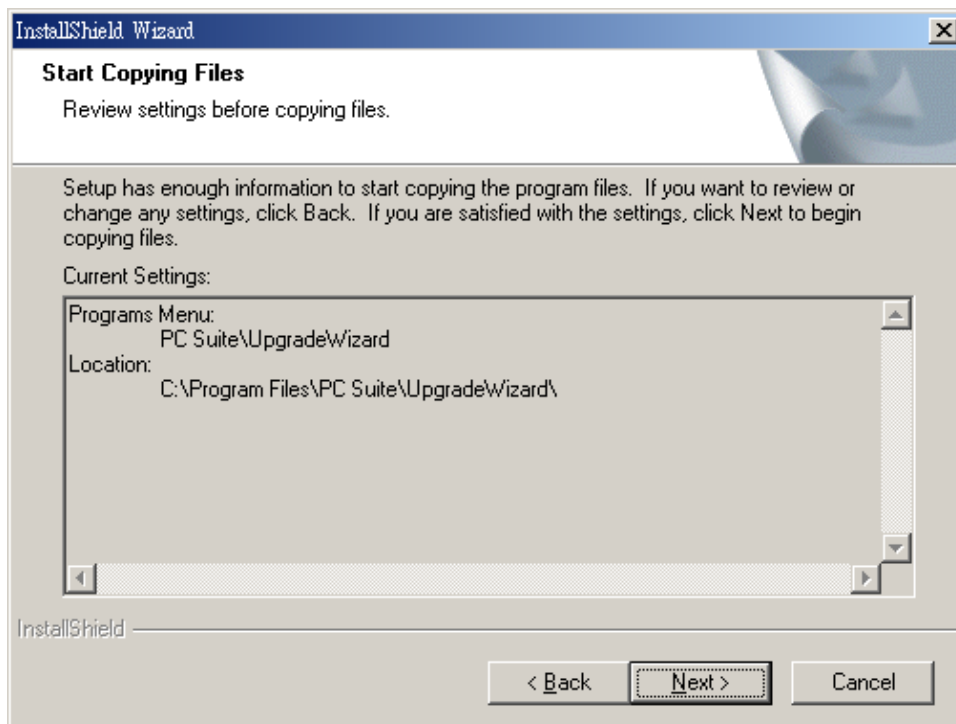
Double click the PC UpgradeWizard setup file and follow the instruction to install the PC Suite -PC UpgradeWizard Package.



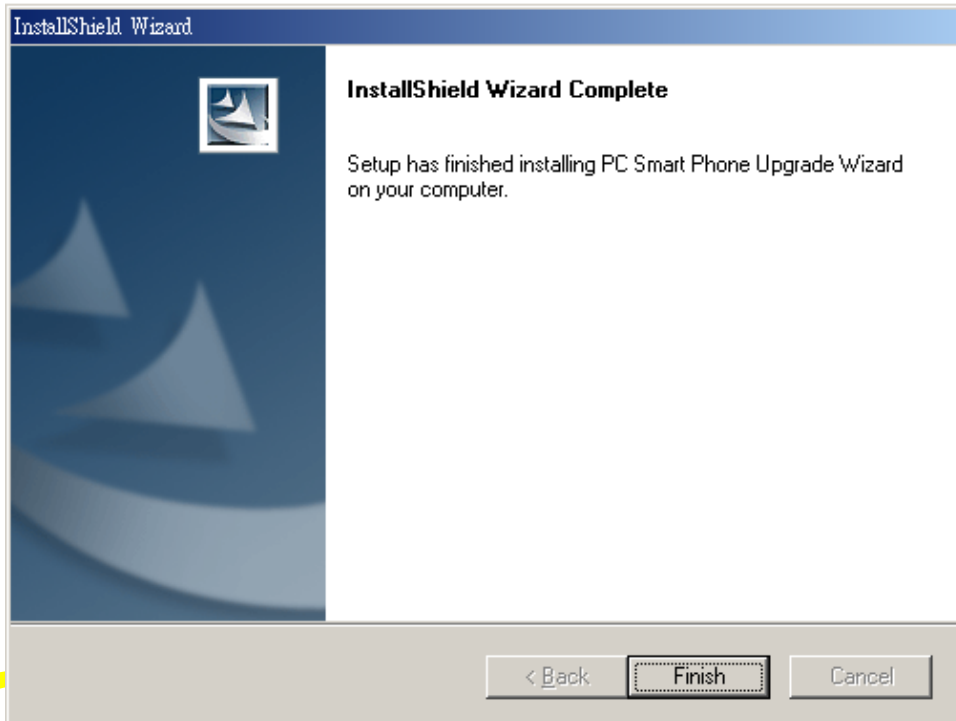
Choose your destination directory to setup, then press "Next" button.



Press "Next" for starting copying files



Press “Finish” to finish setup process.



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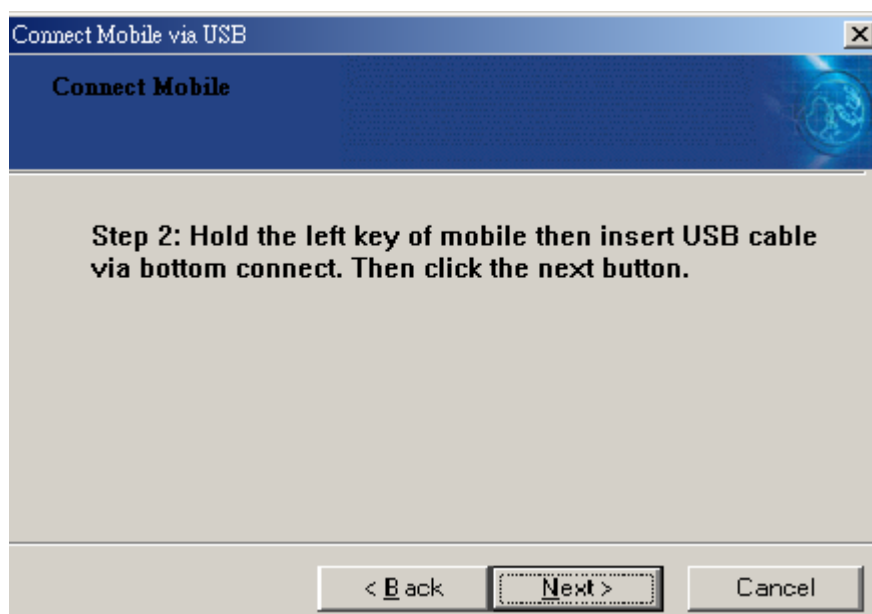
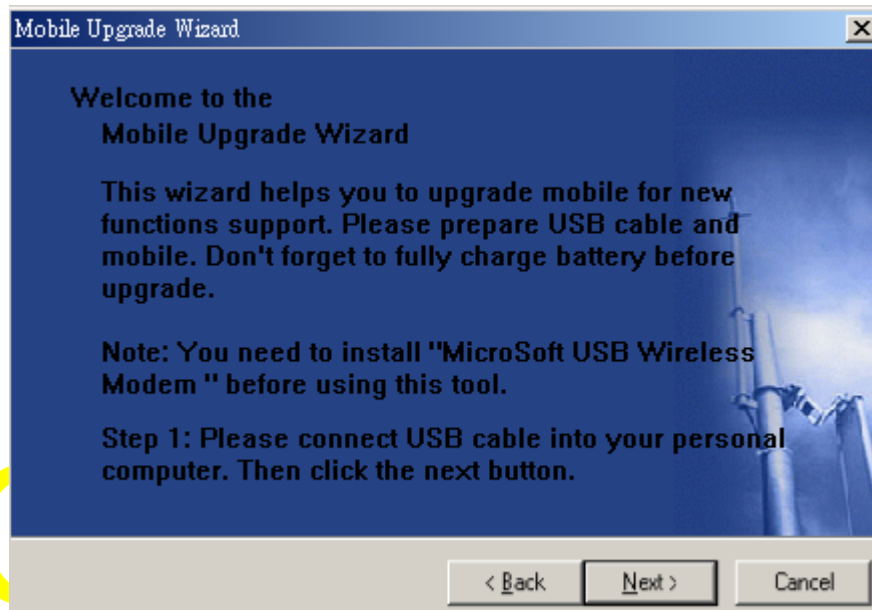
3.2.2 Installation of USB driver for Handset

Power off the Smartphone. Hold the left direction key then plug in the USB cable. Windows 2000 should launch a splash that indicates that a new USB device is found.

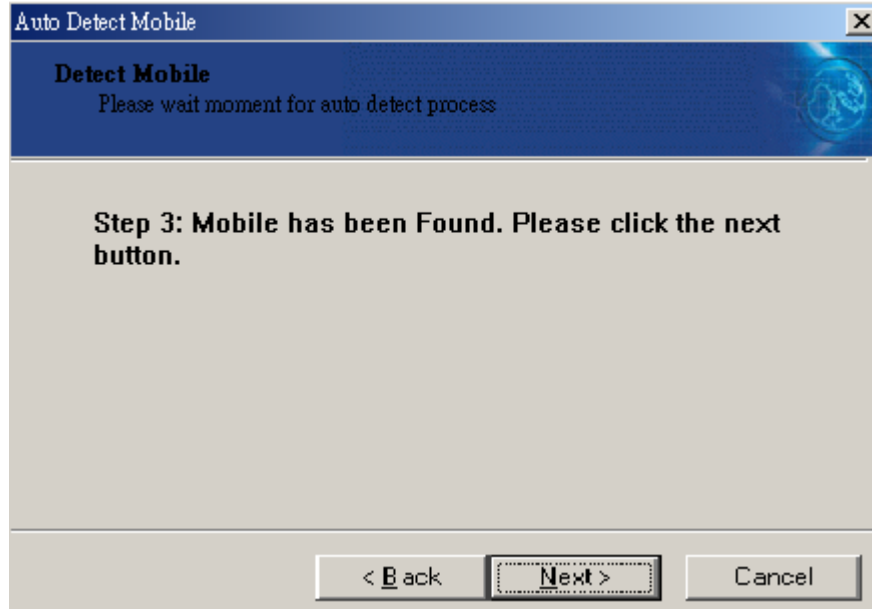


3.2.3 Starting PC UpgradeWizard

Connect the smartphone via USB cable. Then, Simply execute the PC UpgradeWizard (UpgradeWizard.exe) to start up application, and the following screen will come out.

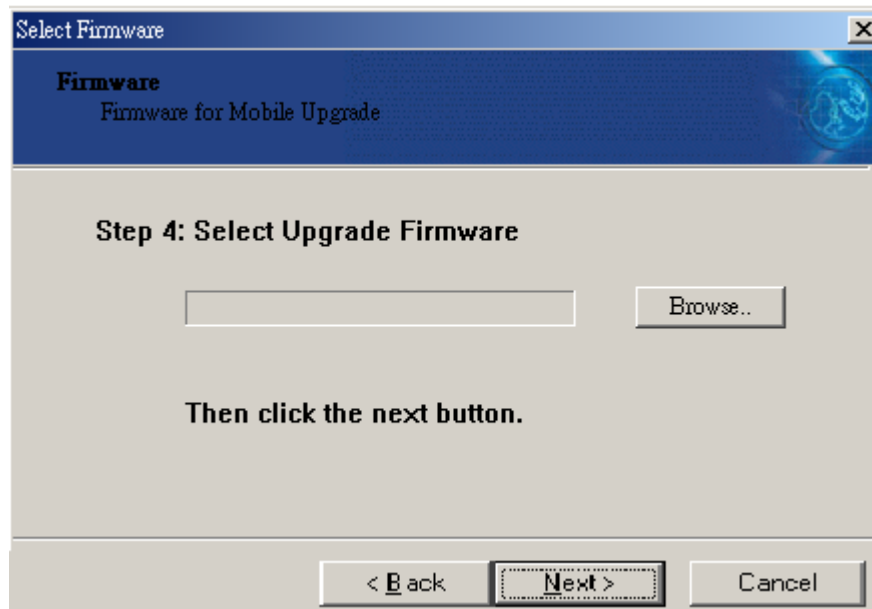


Release the left key when the mobile has been found.

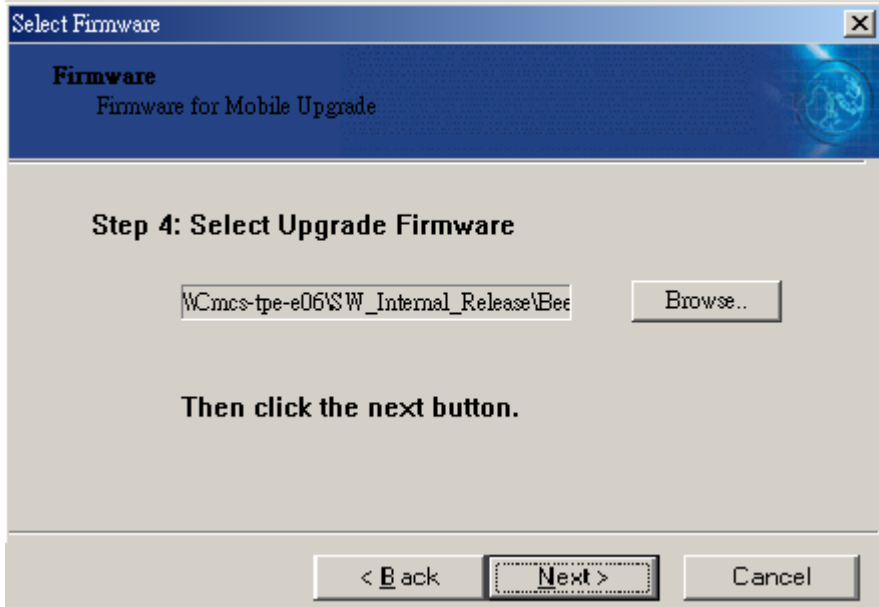


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Browse the directory to select the files to download

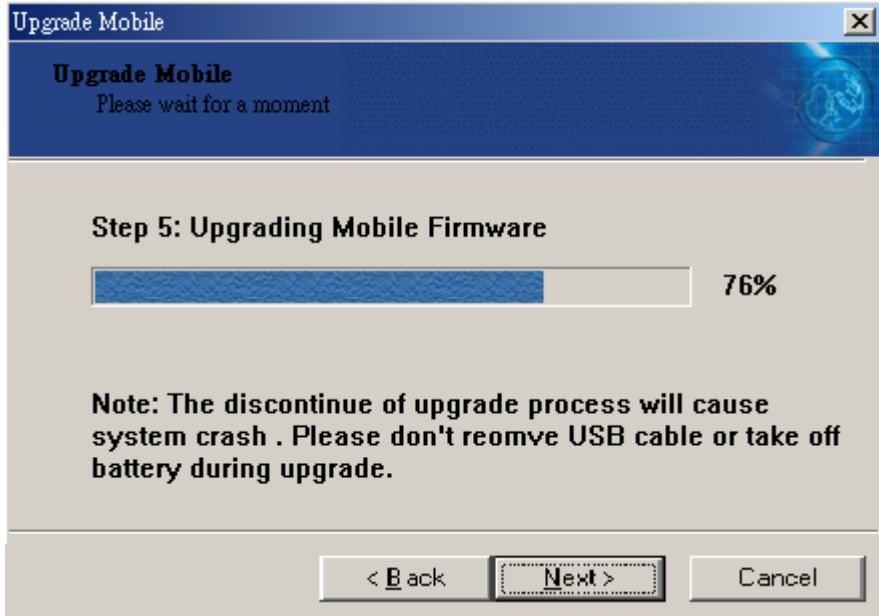


Click OK bottom after selecting the IMG to proceed the job.

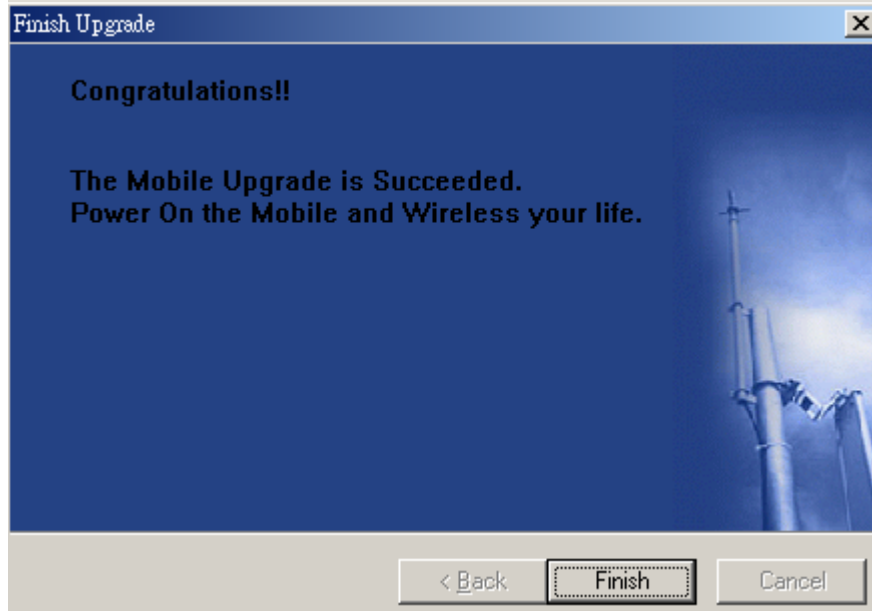


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The process events will be displayed, include process status and messages

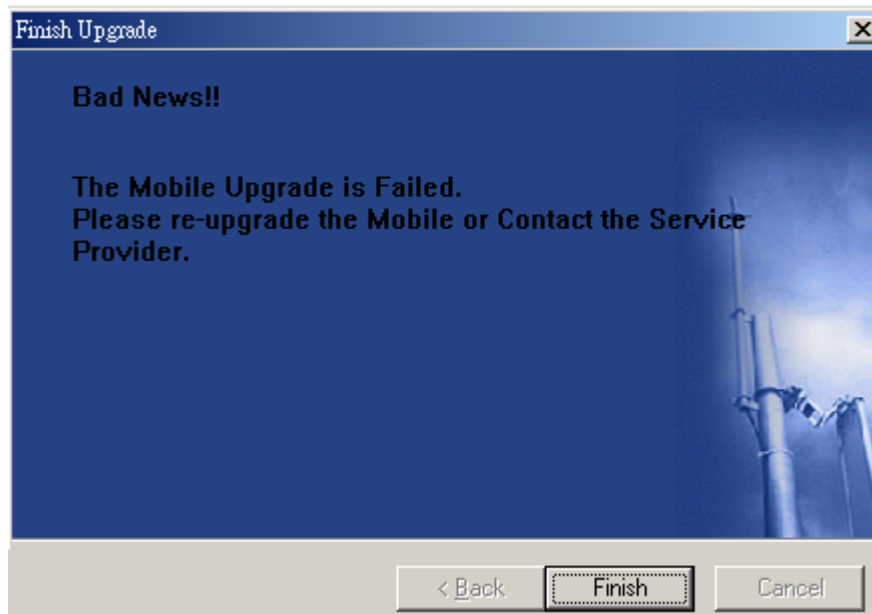


Click "Finish" to complete the download



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If any error occurs during process, error messages will show on the screen.



3-3 Initial Inspection

Input these format string in idle state and <Send> key to check status

- ✧ **Check IMEI: * # 0 6 #**
- ✧ **Check FQC mode: * # * * 3 7 2 #**
- ✧ **Check Engineering menu: * # * * 3 6 4 #**
- ✧ **Set As Data Com port: * # * * 2 6 6 * 0 #**
- ✧ **Set As Log Com port: * # * * 2 6 6 * 1 #**

3-4 Level 1 and Level 2 Repair

Level 1 Repair (No screwdriver needed)			
Item	Failure Description	Root cause	Repaired process
1	Phone can't turn on	Battery is discharged or defective.	Measure the voltage of battery. 1. Charging the battery 2. Replace a new one.
2	Earphone can't work	The earphone is damaged	Replace an earphone set.
3	Battery Door damage	Scratch or damage	Replace a new battery door
Level 2 Repair (Unscrew the phone but no PCBA repair needed)			
Item	Failure Description	Root cause	Repaired process
1	Keypad doesn't function	Keypad bottom short	1. Using alcohol to wipe the keypad metal dome. 2. Replace a new metal dome
2	Vibrator doesn't function	Component shift	1. Visually inspect if the vibrator deformed. 2. Replace a new vibrator
3	Speaker doesn't function	Component shift	1. Visually inspect if the connection between FPC cable of speaker

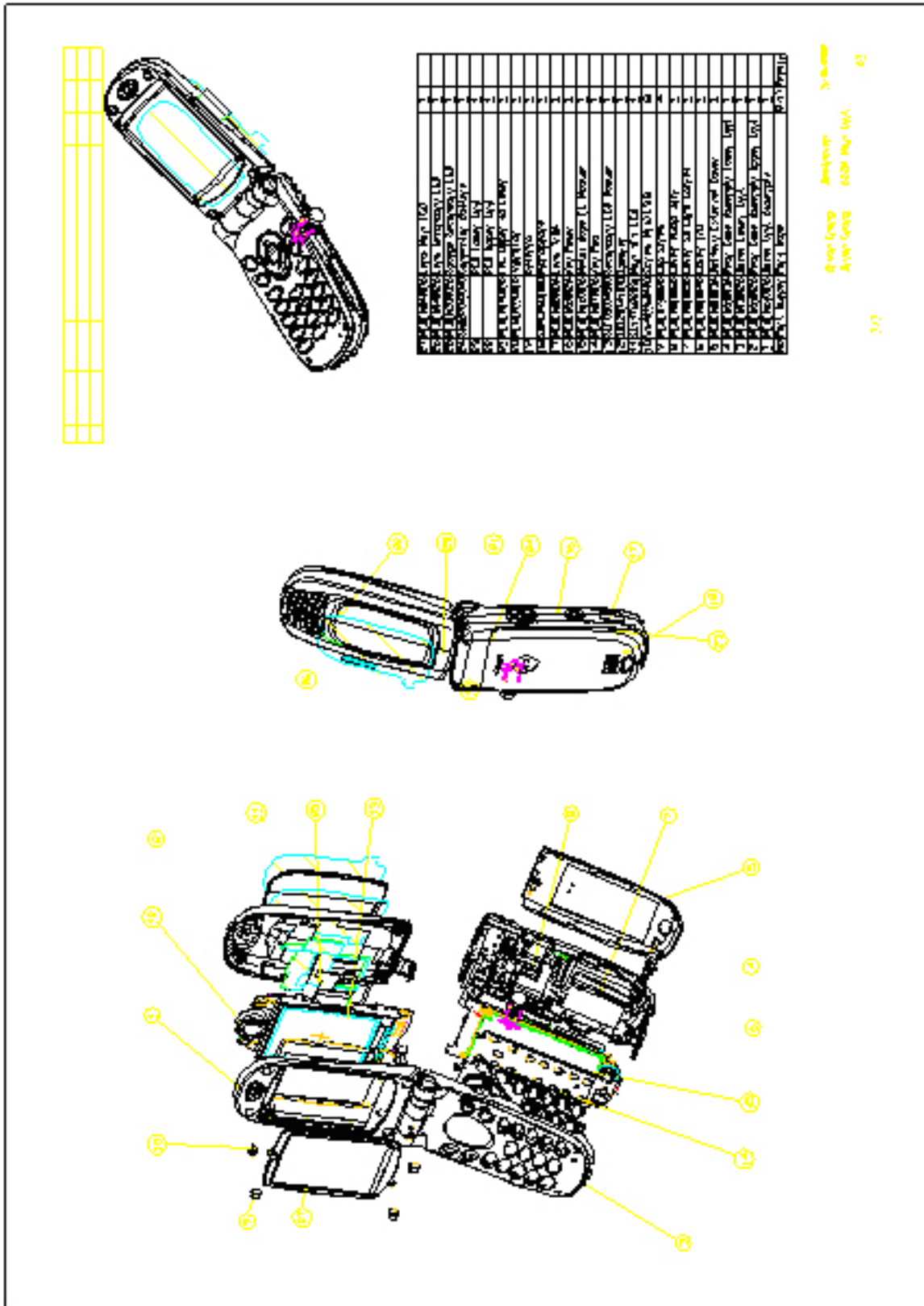
			<p>and PCB is ok or not</p> <ol style="list-style-type: none"> 2. Reconnect the FPC cable 3. Replace a new speaker
4	Microphone doesn't function	Component shift	<ol style="list-style-type: none"> 1. Visually inspect if the contact point between microphone and PCB pads is contacting well 2. Replace a new microphone

Level 2 Mechanical Parts Repair

Item	Failure Description	Repaired process
1	Lens-Main LCD scratch	Replace new Lens-Main LCD and Adhesive-Main LCD
2	Lens-Secondary LCD scratch	Replace new Lens-Secondary LCD , Adhesive-Secondary LCD and Sponge Secondary LCD.
3	Case-A, B, C, or D scratch	Replace with new Case-A, B, C, or D (Referring to Chapter 6 Disassembly and Assembly Tips)
4	Key power Cover SD card Socket, Cover Audio Jack Cover I/O Lens IrDA Name plate	Any of these mechanical parts are scratch, damage, or fall off, It can be repaired by replacing a new one. (Referring to Chapter 6 Disassembly and Assembly Tips)

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Chapter 4 Mechanical Exploded Diagram of MPx200



Chapter 5 Disassembly and Assembly Tips

This chapter serves as a guideline to help the respective service personnel in the repairing of MPx200 up to level 2. At Level 1 stage, technician can repair those components without using screwdriver or any special devices.

Precautions:

Please use tools appropriate to the specification set disassembly.

Do not press the unreasonable force at disassembly. The set may be damaged

A screwdriver is needed to assemble or disassemble the MPx200's Case-A, Case-B, Case-C and Case-D. We should use electrical screwdriver with TORX T5 head. Please notice that the torque is 1.5 Kg-cm.



Electrical screwdriver with torque and rotation speed controller.



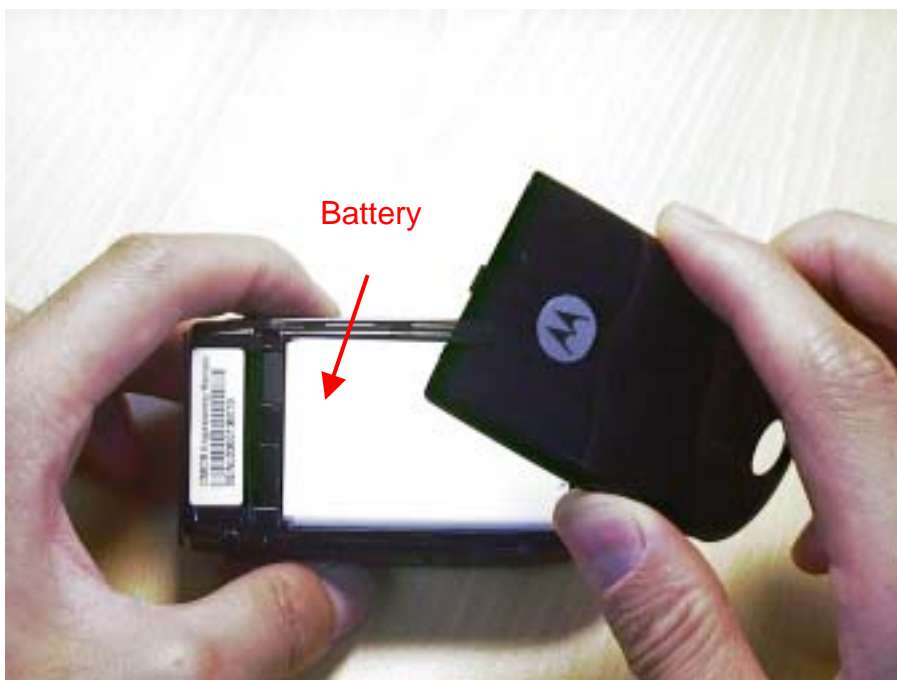
TORX T5 screwdrivers.

5.1 Level 1 Disassembly

Step 1: Push the battery latch downward at the position (illustrated in the photo)



Step 2: Remove battery cover completely.



Step 3: Press the surface of battery illustrated in the photo by finger.



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Step 4: Remove battery completely.



Step 5: Completely disassemble the battery and battery cover.



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5.2 Level 1 Assembly

Step1: Insert the battery with a small angle into the handset. Notice that the 2 hooks at the front of the battery must be insert into the corresponding holes of case at first.



Step 2: Press the battery downward.



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Step 3: Put battery cover upon Case-D at the position.



Step 4: Push the battery cover forward and hear a click sound to make sure the latch of battery cover can lock Case-D. Thus complete the assembly process.



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5.3 Level 2 Disassembly

Step 1: Remove 4 screws illustrated in the photo by screwdriver.



Step 2: Press the specified point of Case-D above the Case-C's hook outward strenuously by screwdriver and pull Case-D upward. Do same action to the opposite side (dotted line circle).



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Step 3: Open Case-D by pulling it upward.



Step 4: Remove the Case-D as shown in the photo.



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Step 5: Release the FPC connector from PCB.



Step 6: Remove PCB from Case-C.



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Step 7: Remove keypad from Case-C.



Step 8: Remove power-key from Case-C.

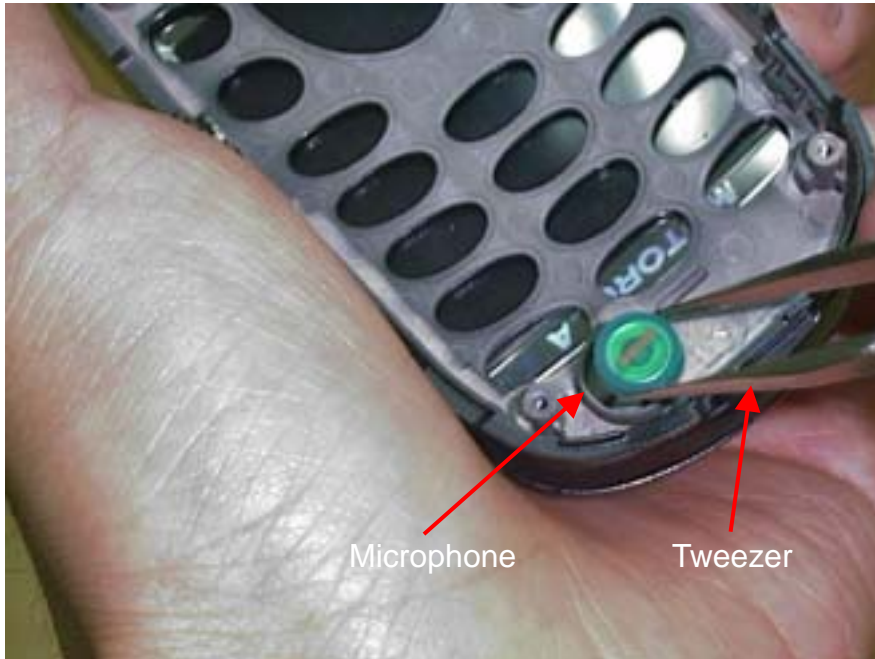


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Step 9: Remove Lens IrDA from Case-C.

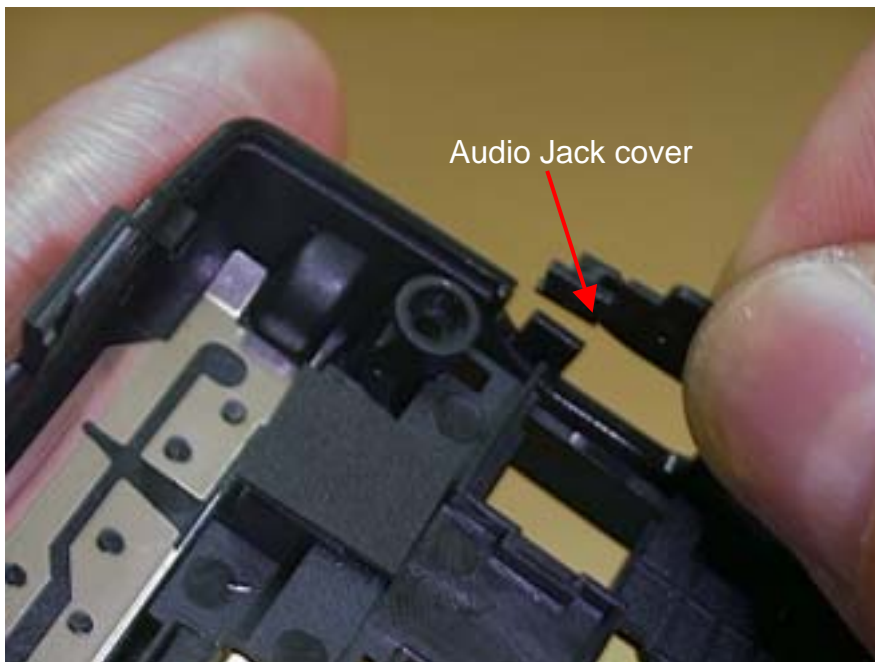


Step 10: Use a tweezers to remove microphone from Case-C.

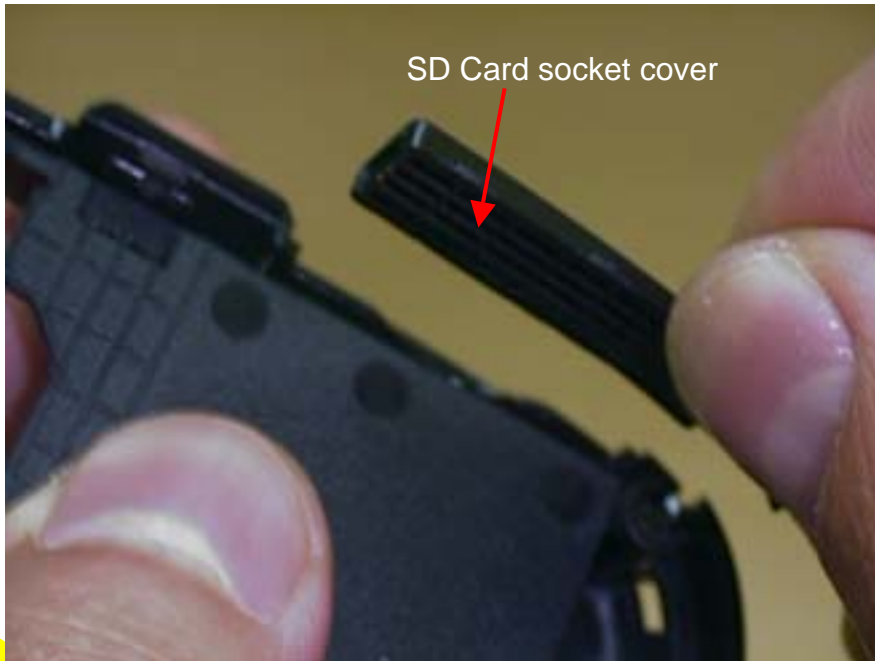


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Step 11: Remove Audio Jack Cover from Case-D.

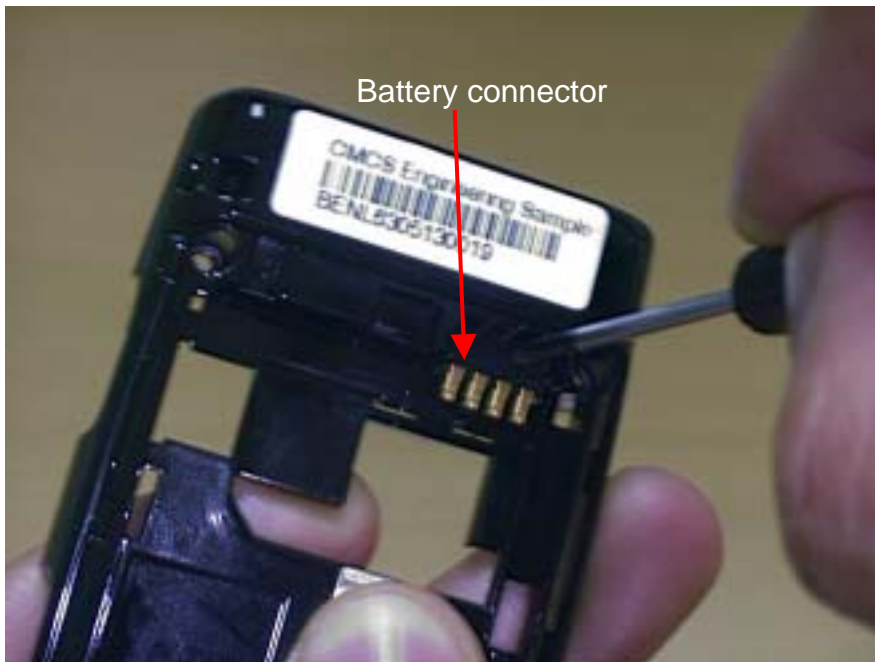


Step 12: Remove the SD Card Socket cover from the Case-D.



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Step 13: Press battery connector by screwdriver and remove it.



Step 14: Use a tweezers or a knife to remove 4 screw caps from Case-B.
Screw caps can't be recycled.



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Step 15: Remove the 4 screws from Case-B.



Step 16: Separated Case-A and Case-B by fingernail.



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Step 17: Unlock the hook at the position illustrated in the photo and remove Case-A from Case-B completely.

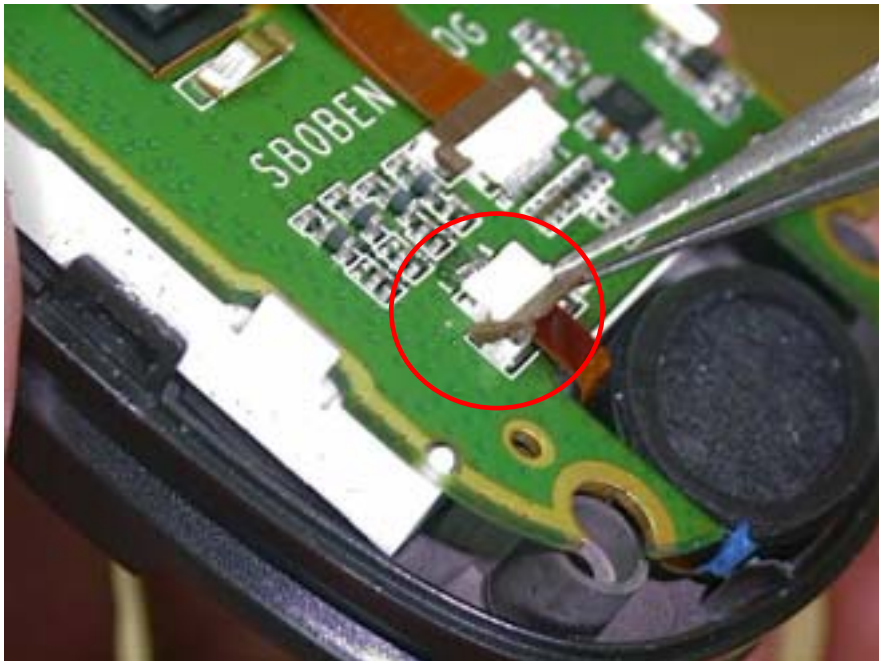


Step 18: Remove FPC connector from LCM.



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Step 19: Use a tweezers to open the connector on LCM illustrated in the photo.

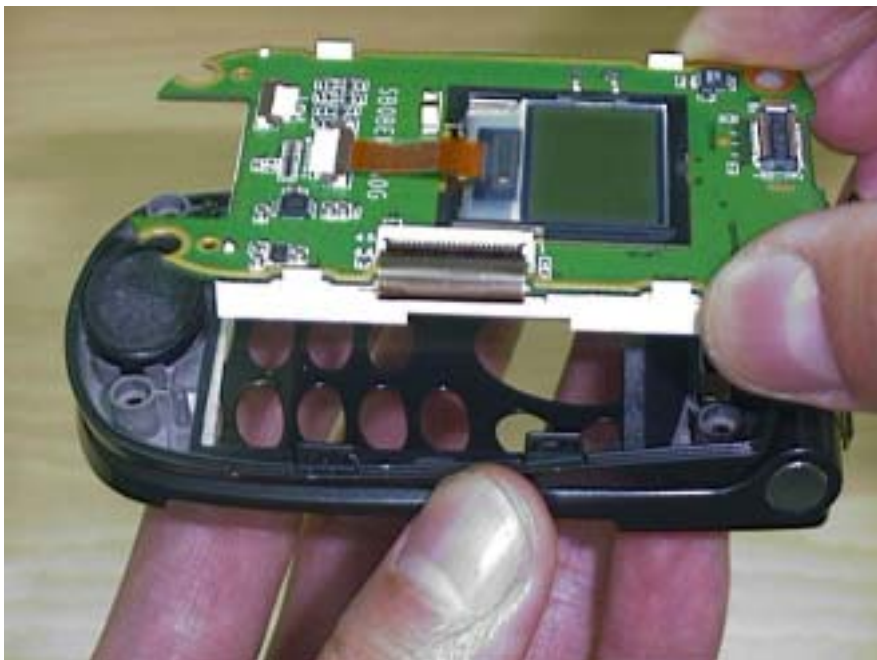


Step 20: Use a tweezers to remove FPC from the connector on LCM.

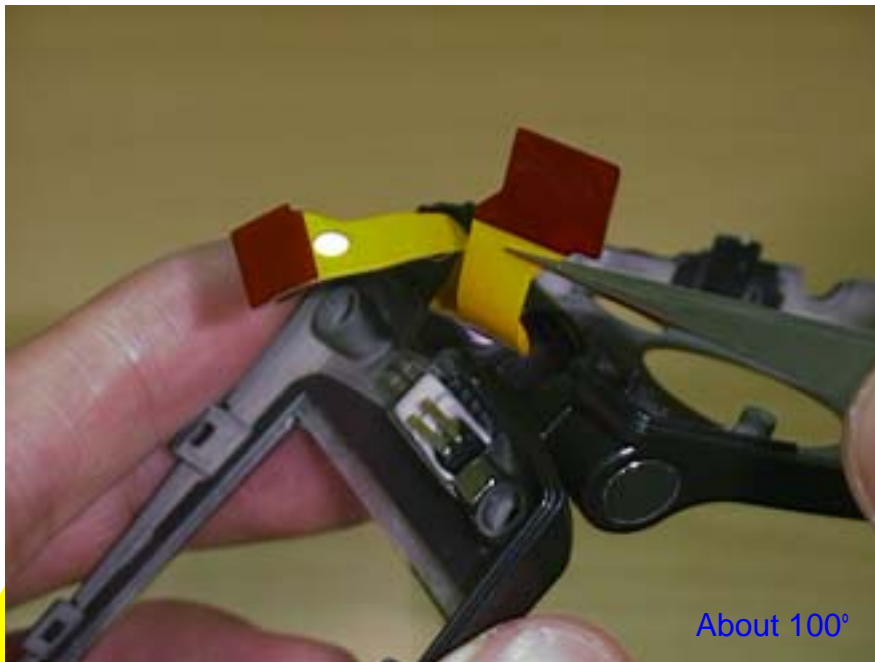


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Step 21: Remove LCM from Case-B completely.



Step 22: Remove FPC from Case-B and Case-C completely when the angle between the cases are about 100°.



Step 23: Remove vibrator from the Case-B (If there is a plastic tape on the magnet, please don't remove it.)



Step24: Remove receiver from Case-B.



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5.4 Level 2 Assembling

Step 1: Insert battery connector into the specified hole illustrated in the photo



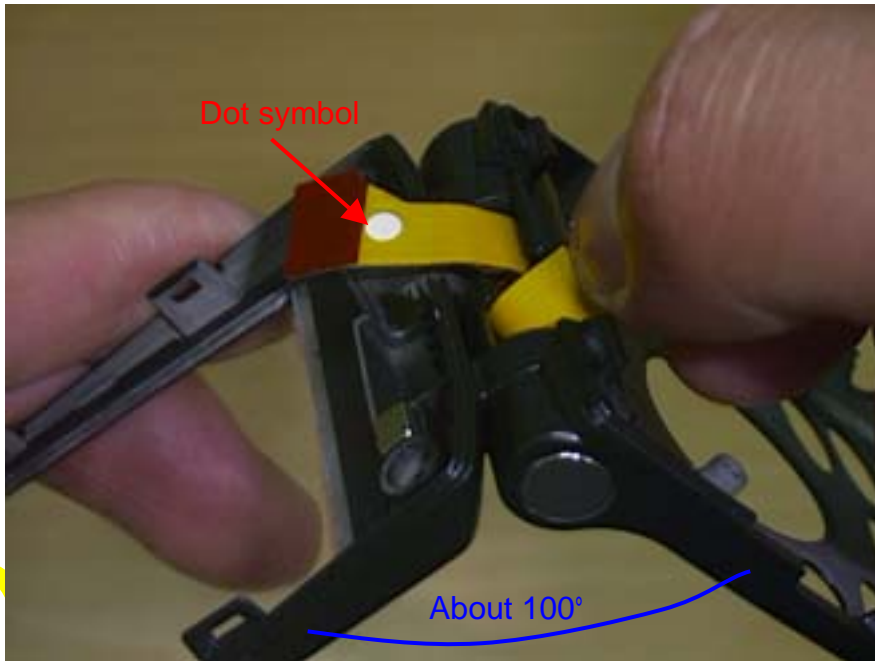
Step 2: Place SD card socket cover into Case-D.



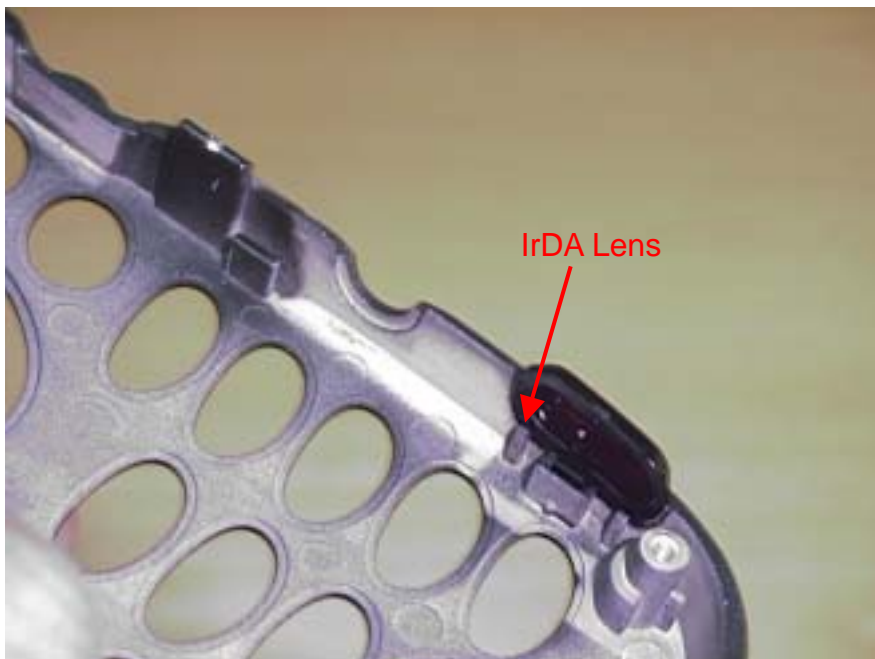
Step 3: Place audio jack cover into Case-D.



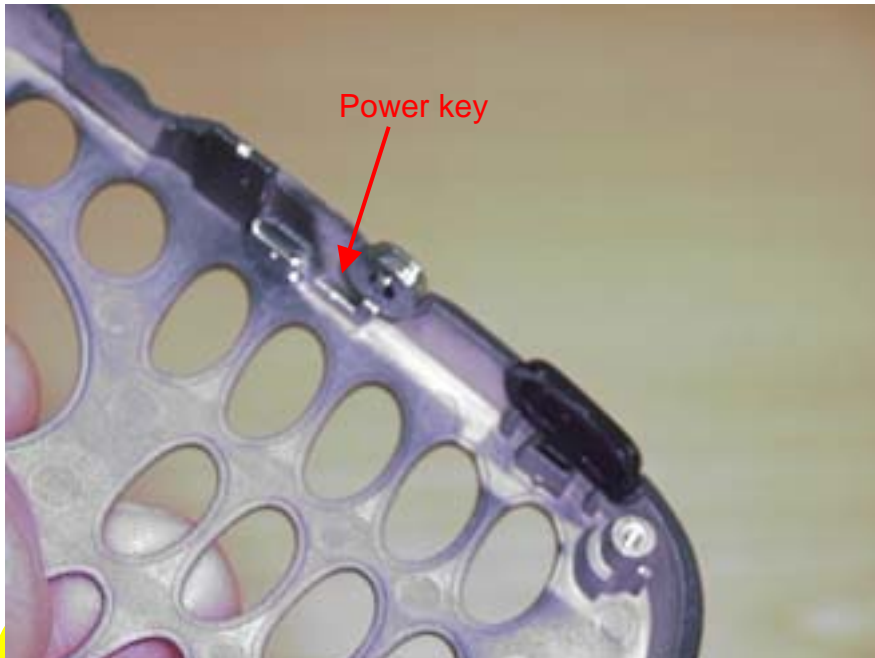
Step 4: Place FPC into the cave of Case-B and Case-C when the angle between the cases are about 100°. Notice that the white dot symbol is located at the Case-B side.



Step 5: Place IrDA lens into the Case-C.



Step 6: Place power key into the Case-C.



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Step 7: Put microphone into the hole of Case-C.



Step 8: Place keypad on the Case-C.

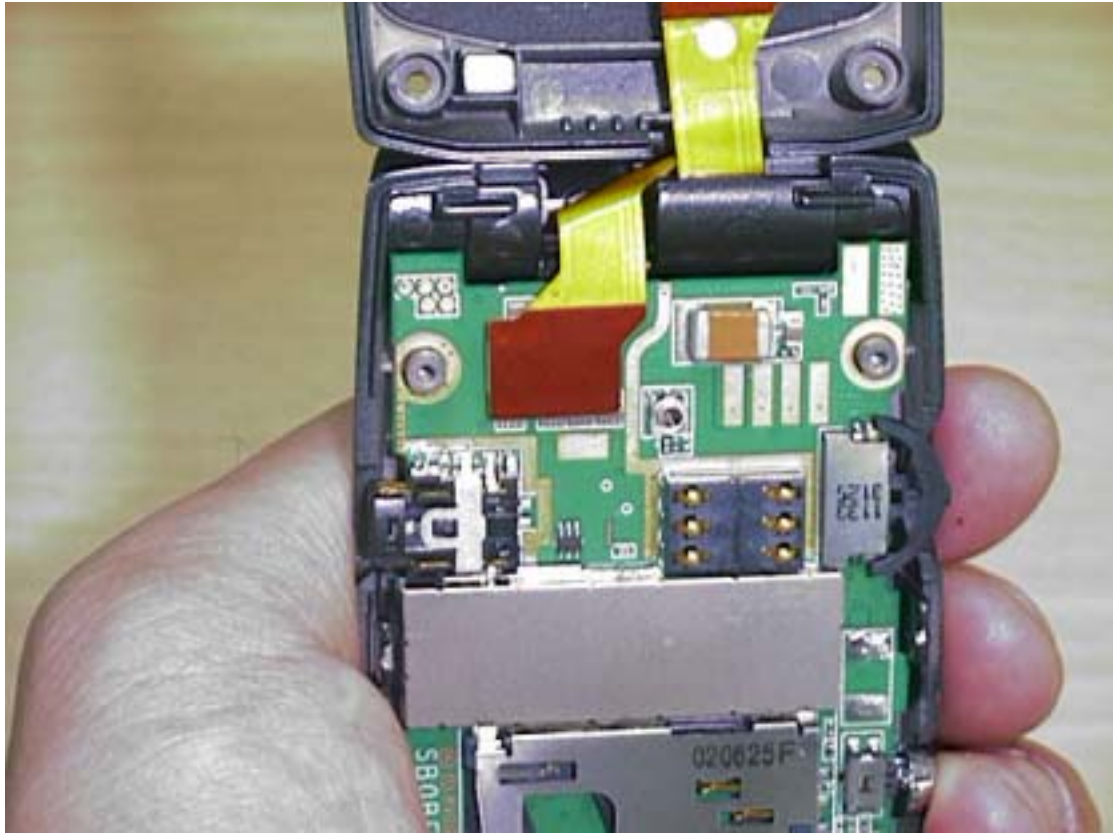


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Step 9: Place PCB on the Case-C.



Step 10: Assemble FPC connector to PCB.



Step 11: Assemble Case-D and Case-C.



Step 12: Fasten the 4 screws illustrated in photo with screwdriver.



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Step 13: Place receiver on Case-B.



Step 14: Put vibrator into the hole of Case-B.



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Step 15: Place LCM on the Case-B.

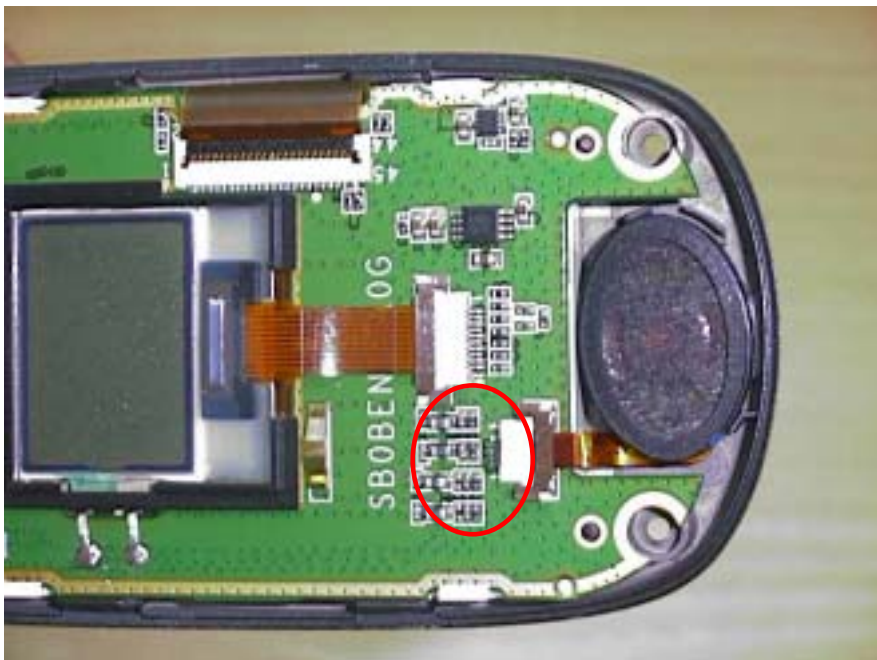


Step 16: Mate FPC connector to LCM.



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Step 17: Mate the FPC to PCB connector.



Step 18: Assemble Case-A to Case-B by hooking the point which at the front side.



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Step 19: Fasten the 4 screws illustrated in photo with screwdriver



Step 20: Assemble 4 new screw caps on the holes of Case-B.



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Chapter 6 Spare Part List

Item	Part Number	Description	Q'ty
1	MEBEN61005B	ASSEMBLY BAZEL UNIT-Orange	1
2	MEBEN61001B	ASSEMBLY BAZEL UNIT-Generic EMEA	1
3	MEBEN61004B	ASSEMBLY BAZEL UNIT-AWS	1
4	MEBEN61002B	Rear Case Assembly Upper Unit	1
5	20BENB10001	Rear Case Assembly Lower Unit (Including Antenna)-Dualband	1
6	20BENB20001	Rear Case Assembly Lower Unit (Including Antenna)-Triband	1
7	MEBEN71002B	CAP SCREW_SILICON RUBBER	4
8	20BENB00001	Battery External Cover+ M mark	1
9	MEBEN01004B	Cover I/O_TPU	1
10	MEBEN01005B	Cover SD Card Socket_TPU	1
11	MEBEN01006B	Cover Audio Jack_TPU	1
12	MEBEN51002B	KEY POWER	1
13	MEBEN08001B	Lens IrDA_PC	1
14	MEBEN07001B	Key Pad	1
15	MEBEN16001A	METAL DOME EL MODULE_Metal Dome+Pet Layer	1
16	W6401160420	SCREW	8
17	MEBEN11001A	Vibrator_3VDC_Dimension:.0*11.5mm_KHN4NB3	1
18	MEBEN04003B	Lens Main LCD_PMMA	1
19	MEBEN04004B	Lens Secondary LCD_PMMA	1
20	SN0B7041040	CONN_Main Battery Socket_4	1

		PIN_AB7041-A0E1G_SMT4	
21	MEBEN14001A	FPC Upper to Lower_40 pins X 0.4p BTB Connector_FPC thickness =0.1mm	1
22	S0S2014T010	Speaker	1
23	S0BML614090	LITHIUM BACKUP BATTERY_3.4mAH_Dimension: 6.8mm*1.8mm_ML614	1
24	S0MFPT22030	Microphone	1
25	MEBEN33002B	Sponge Secondary LCD	1
26	MEBEN05001A	Name Plate	1
27	MEBEN84001B	Adhesive Main LCD	1
28	MEBEN84002B	Adhesive Secondary LCD	1
29	PKBEN15005A	Label Spec for North America_SUG3562AA (1set of 5000 pcs)	1
30	PKBEN15006A	Label Spec for EMEA_SUG3104AA (1set of 5000 pcs)	1
31	PKBEN15012A	Label Spec for HK_SUG3687AA_SE7910AE7B1 (1set of 5000 pcs)	1
32	PKWAG15001A	Label Brittle Handset (1 set of 200)	1

