



MOTOROLA

Level 2 Service Manual

680910A65-A

MOTO QTM 9h

Digital Wireless Telephone



WCDMA 850/1900/2100, GSM 850/900/1800/1900, HSDPA, GPRS, EDGE

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Introduction

Motorola® Inc. maintains a worldwide organization that is dedicated to provide responsive, full-service customer support. Motorola products are serviced by an international network of company-operated product-care centers as well as authorized independent service firms.

Available on a contract basis, Motorola Inc. offers comprehensive maintenance and installation programs that enable customers to meet requirements for reliable, continuous communications.

To learn more about the wide range of Motorola service programs, contact your local Motorola products representative or the nearest Customer Service Manager.

Product Identification

Motorola products are identified by the model number on the housing. Use the entire model number when inquiring about the product. Numbers are also assigned to chassis and kits. Use these numbers when requesting information or ordering replacement parts.

Product Names

Product names are listed on the front cover. Product names are subject to change without notice. Some product names, as well as some frequency bands, are available only in certain markets.

Regulatory Agency Compliance

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions:

- This device may not cause any harmful interference
- This device must accept interference received, including interference that may cause undesired operation

This class B device also complies with all requirements of the Canadian Interference-Causing Equipment Regulations (ICES-003).

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Computer Program Copyrights

The Motorola products described in this manual may include Motorola computer programs stored in semiconductor memories or other media that are copyrighted with all rights reserved worldwide to Motorola. Laws in the United States and other countries preserve for Motorola, Inc. certain exclusive rights to the copyrighted computer programs, including the exclusive right to copy, reproduce, modify, decompile, disassemble, and reverse-engineer the Motorola computer programs in any manner or form without Motorola's prior written consent. Furthermore, the purchase of Motorola products shall not be deemed to grant either directly or by implication, estoppel, or otherwise, any license or rights under the copyrights, patents, or patent applications of Motorola, except for a nonexclusive license to use the Motorola product and the Motorola computer programs with the Motorola product.

About this Service Manual

Using this service manual and the suggestions contained in it assures proper installation, operation, and maintenance. Refer questions about this manual to the nearest Customer Service Manager.

Audience

This service manual aids service personnel in testing and repairing MOTO Q™ 9h telephones. Service personnel should be familiar with electronic assembly, testing, and troubleshooting methods, and with the operation and use of associated test equipment.

Use of this manual assures proper installation, operation, and maintenance of Motorola products and equipment. It contains all service information required for the equipment described and is current as of the printing date.

Scope

This manual provides basic information relating to MOTO Q 9h telephones, and provides procedures and processes for repairing the units at Level 1 and 2 service centers including:

- Unit swap out
- Repairing of mechanical faults
- Basic modular troubleshooting
- Testing and verification of unit functionality
- Initiate warranty claims and send faulty modules to Level 3 or 4 repair centers

Conventions

The following special characters and typefaces are used in this manual to emphasize certain types of information.



Note: Emphasizes additional information pertinent to the subject matter.




Caution: Emphasizes information about actions that may result in equipment damage.



Warning: Emphasizes information about actions that may result in personal injury.



Keys to be pressed are represented graphically. For example, instead of “Press the End key”, you will see “Press 

Information from a screen is shown in text as similar as possible to what displays on the screen. For example, ALERTS.

Information that you need to type is printed in **boldface type**.

Warranty Service Policy

The product is sold with the standard 12-month warranty terms and conditions. Accidental damage, misuse, and extended warranties offered by retailers are not supported under warranty. Non warranty repairs are available at agreed fixed repair prices.

Out-of-Box Failure Policy

The standard out of box failure criteria applies. Customer units that fail very early on after the date of sale, are to be returned to Manufacturing for root cause analysis, to guard against epidemic criteria. Manufacturing will bear the costs of early life failure.

Product Support

Customer's original units will be repaired but not refurbished as standard. Appointed Motorola Service Hubs will perform warranty and non-warranty field service for level 2 (assemblies) and level 3 (limited PCB component). The Motorola High Technology Centers will perform level 4 (full component) repairs.

Customer Support

Customer support is available through dedicated Call Centers and in-country help desks. Product Service training is available through the local Motorola Support Center.

Parts Replacement

When ordering replacement parts or equipment, include the Motorola part number and description used in the service manual.

When the Motorola part number of a component is not known, use the product model number or other related major assembly along with a description of the related major assembly and of the component in question.

Replacement Parts Service Division (RPSD)

Order replacement parts, test equipment, and manuals from RPSD.

U.S.A.

Phone: 800-422-4210

FAX: 800-622-6210

Website: <http://businessonline.motorola.com>

Outside U.S.A.

Phone: 847-538-8023

FAX: 847-576-3023

EMEA

Phone: +49 461 803 1404

Website: <http://emeaonline.motorola.com>

Asia

Phone: +65 648 62995

Website: <http://asiaonline.motorola.com>

Specifications

Table 1. Specifications

Function	Specification
Frequency Range EGSM	TX: 880 - 915 MHz Frequency (MHz) = $880 + (0.2 \times n)$ where: $0 \leq n \leq 124$ Frequency (MHz) = $880 + (0.2 \times (n - 1024))$ where: $975 \leq n \leq 1023$ RX: 925 - 960 MHz Frequency (MHz) = $925 + (0.2 \times n)$ where: $0 \leq n \leq 124$ Frequency (MHz) = $925 + (0.2 \times (n - 1024))$ where: $955 \leq n \leq 1023$
Frequency Range DCS	TX: 1710 to 1785 MHz Frequency (MHz) = $1710.2 + (0.2 \times (n - 512))$ where: $512 \leq n \leq 885$ RX: 1805.2 to 1879.8 MHz Frequency (MHz) = $1805.2 + (0.2 \times (n - 512))$ where: $512 \leq n \leq 885$
Frequency Range PCS	TX: 1850 to 1910 MHz Frequency (MHz) = $1850.2 + (0.2 \times (n - 512))$ where: $512 \leq n \leq 810$ RX: 1930 to 1990 MHz Frequency (MHz) = $1930.2 + (0.2 \times (n - 512))$ where: $512 \leq n \leq 810$
Frequency Range WCDMA 2100	TX: 1920 to 1980 MHz Frequency (MHz) = $\text{UARFCN}^1 \div 5$, where: $9612 \leq \text{UARFCN}^1 \leq 9888$ RX: 2110 to 2170 MHz Frequency (MHz) = $\text{UARFCN}^1 \div 5$, where: $10562 \leq \text{UARFCN}^1 \leq 10838$
GSM 850 (North America)	TX: 824 - 849 MHz Frequency (MHz) = $824.2 + (0.2 \times (n - 128))$ where: $128 < n < 251$ RX: 869 - 894 MHz Frequency (MHz) = $869.2 + (0.2 \times (n - 128))$ where: $128 < n < 251$
WCDMA 850 (North America)	TX: 824 to 849 MHz Frequency (MHz) = $\text{UARFCN} \div 5$, where: $4132 < \text{UARFCN} < 4233$ Frequency (MHz) = $\text{UARFCN} \div 5 + 670.1$, where: $\text{UARFCN} = 782, 787, 807, 812, 837, 862$ RX: 869 to 894 MHz Frequency (MHz) = $\text{UARFCN} \div 5$, where: $4357 < \text{UARFCN} < 4458$ Frequency (MHz) = $\text{UARFCN} \div 5 + 670.1$, where: $\text{UARFCN} = 1007, 1012, 1032, 1037, 1062, 1087$
WCDMA 1900 (North America)	TX: 1850 to 1910 MHz Frequency (MHz) = $\text{UARFCN} \div 5$, where: $9262 < \text{UARFCN} < 9538$ Frequency (MHz) = $\text{UARFCN} \div 5 + 1850.1$, where: $\text{UARFCN} = 12, 37, 62, 87, 112, 137, 162, 187, 212, 237, 262, 287$ RX: 1930 to 1990 MHz Frequency (MHz) = $\text{UARFCN} \div 5$, where: $9662 < \text{UARFCN} < 9938$ Frequency (MHz) = $\text{UARFCN} \div 5 + 1850.1$, where: $\text{UARFCN} = 412, 437, 462, 487, 512, 537, 562, 587, 612, 637, 662, 687$
Channel Spacing	200 kHz (GSM, EGSM, DCS, PCS), 5 MHz UMTS 45 MHz WCDMA 850, 80 MHz WCDMA 1900
Channels	124 GSM, 174 EGSM, 374 DCS, 299 PCS carriers with 8 channels per carrier, 11 UMTS
Duplex Spacing	45 MHz GSM, 45 MHz EGSM, 95 MHz DCS, 80 MHz PCS, 1900 MHz UMTS 45 MHz WCDMA 850 (North America), 80 MHz WCDMA 1900 (North America)
Modulation	GMSK AT BT = 0.3 (GSM, DCS, PCS), QPSK (UMTS), 8PSK for EDGE (GSM, EGSM, DCS, PCS)

Table 1. Specifications (Continued)

Transmitter Phase Accuracy	5 degrees RMS, 20 Degrees peak
Frequency Error	± 0.1 ppm
Input/Output Impedance	50 ohms (nominal)
Nominal Operating Voltage	3.6 Vdc $\pm 10\%$ (battery) +4.4 Vdc $\pm 10\%$ (external connector)
Dimensions (xyz)	118.9 mm, 66.7mm, 11.8mm
Size	85 cc
Weight	132 g
Display	65K color, 320 x 240, 2.4"
Battery Life (1100mAh) ²	WCDMA Talk Time: Up To 279 Min. WCDMA Standby: Up To 543 Hrs GSM Talk Time: Up To 489 Min. GSM Standby: Up To 500 Hrs
Nominal Operating Temperature Range	-10° C to +55° C

GSM System Functions	Specification
Speech Coding Type	Regular Pulse excitation / linear predictive coding with long term prediction (RPE LPC with LTP)
Bit Rate	13.0 kbps
RF Power Output	32 dBm nominal GSM/EGSM, 29 dBm nominal DCS / PCS
Spurious Emissions	-36 dBm from 0.1 to 1 GHz, -30 dBm from 1 to 4 GHz
Receive Sensitivity	-102 dBm GSM, -102 dBm DCS / PCS
RX Bit Error Rate	< 2%

UMTS System Functions	Specification
Speech Coding Type	Adaptive Multirate (AMR)
RF Power Output	21 dBm
Spurious Emissions	-36 dBm from 0.1 to 1 GHz, -30 dBm from 1 to 4 GHz
Error Vector Magnitude	< 17.5%
PN9 Bit Error Rate (BER)	PN9 Bit Error Rate (BER) 0.1% @ 12.2Kbps, -106.7 dBm (WCDMA2100) PN9 Bit Error Rate (BER) 0.1% @ 12.2Kbps, -104.7 dBm (WCDMA1900) PN9 Bit Error Rate (BER) 0.1% @ 12.2Kbps, -104.7 dBm (WCDMA850)
ACLR	-33 dBm @ ± 5 MHz, -43 dBm @ ± 10 MHz

Bluetooth System Functions	Specification
Frequency Range	2.402 GHz - 2.480 GHz in 79 1-MHz channels
Modulation	GFSK @ 1 MHz (base rate), pi/4 DQPSK @ 2EDR, 8DQPSK @ 3EDR
Transmitter Power	Class 2, -6 dBm to +4 dBm (+0 dBm nominal)
Compliance	Bluetooth Core Specification 2.0 + EDR

GPS System Functions	Specification
Receiver Input, L1 channel	1.575 GHz \pm 0.001 GHz

Product Overview

MOTO Q 9h mobile telephones feature Wideband Code Division Multiple Access (WCDMA) technology. MOTO Q 9h also supports High Speed Downlink Packet Access (HSPDA) a wireless radio broadband data standard adopted by many WCDMA mobile phone service providers. Compared to 1xEV-DO networks currently being used by CDMA operators, HSPDA is significantly faster, providing mobile devices with air interface speeds from 384kbps to 3.6Mbps.

The MOTO Q 9h uses the Microsoft Windows Mobile operating system. Windows Mobile is a compact operating system for mobile devices based on the Microsoft Win32 API.

The MOTO Q 9h mobile device provides Short Message Service (SMS) text messaging, and includes clock, alarm, datebook, calculator, and caller profiling personal management tools. The MOTO Q 9h also has a built in 2.0 Megapixel camera with 8X digital zoom, Bluetooth wireless connectivity and GPS on North American models. The phone provides 32 Embedded ring tones including VibraCall vibrating alert and 32 Downloadable/Customizable iMelody ring tones. The phone also contains a Secure Data (SD) removable memory expansion slot. The MOTO Q 9h is a dual mode phone that allows roaming within the UMTS 2100 MHz bands and GSM 900/1800 and 1900 MHz bands. In the North America region, the MOTO Q 9h will allow roaming within the UMTS 850/1900MHz bands and GSM 850/1800, and 1900 MHz bands.

The MOTO Q 9h phone consists of a main housing assembly that contains the battery, battery cover, accessory connector, main circuit board, chassis, keypad, and internal antenna. The main display, speaker, control keys, and a QWERTY keyboard are located on the front of the device. QWERTZ and AZERTY keypad variants are also available. The camera, battery compartment, and rf connectors are located at the rear of the device.

The main circuit board contains the Receiver, Transmitter, Synthesizer and Control Logic Circuitry which together comprise the phone electronics.

The main display is a 2.4" 320 x 240 65k TFT LCD. The camera is a 2.0 mega pixel, with 8X digital zoom.

The telephones are made of polycarbonate plastic. The 1100 mAh Lithium Ion (Li Ion) battery provides up 260 minutes of talk time and up to 480 hours of standby time in WCDMA mode, and up to 390 minutes of talk time and up to 380 hours of standby time in GSM mode¹.

Features

Q telephones use advanced, self-contained, sealed, custom integrated circuits to perform the complex functions required for WCDMA communication. Aside from the space and weight advantage, microcircuits enhance basic reliability, simplify maintenance, and provide a wide variety of operational functions.

Features available in this product include:

- Thinnest Converged Device on the market – 11.8mm
- Windows Mobile™ 6 software with email, calendar, contacts and tasks
- Enabled for leading corporate email solutions

1. All talk and standby times are approximate and depend on network configuration, signal strength, and features selected. Standby times are quoted as a range from DRX=2 to DRX=9. Talk times are quoted as a range from DTX off to DTX on.

- Receive and view documents, spreadsheets, presentations and more
- QWERTY / QWERTZ / AZERTY keyboard options
- Video capture and playback
- Connectivity via ActiveSync®, Bluetooth™ wireless technology 2.0+EDR wireless technology
- 2.0 mega pixel camera
- Multi-Media Messaging (MMS)
- Dual stereo quality speakers
- Audio formats supported: iMelody, MIDI, MP3, AAC, WAV, WMA, WAX, QCELP
- Image formats supported: GIF87a, GIF89a, JPEG, WBMP, BMP, PNG
- Video formats supported: H.263, MPEG-4, GSM-AMR, AAC, WMV
- Micro-SD removable memory
- Large, high-resolution display (65K 320 x 240 pixels, 2.4")
- GPS receiver with built-in antenna (North America model only)

Personal Information Management

The MOTO Q 9h leverages Microsoft Windows Mobile software and is among the first devices to run on the new Windows Mobile 6 platform which delivers scalable and cost-effective mobile messaging support with Exchange 2003 out of the box.

Enabled for leading corporate email solutions, the MOTO Q 9h can meet the diverse needs of the enterprise.

The user can receive and view documents, spreadsheets, presentations and more.

General Operation

Controls, Indicators, and Input/Output (I/O) Connectors

The MOTO Q 9h telephones' controls are on the front and sides of the device, and on the keyboard as shown in Figures 1 and 2.



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Figure 1. Controls and Indicators Locations, Front and Right



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Figure 2. Controls and Indicator Locations, Left and Back

Menu Navigation

A 5-way navigation key allows you to move easily through menus. Figure 3 provides a view of the Home screen display.



070304o

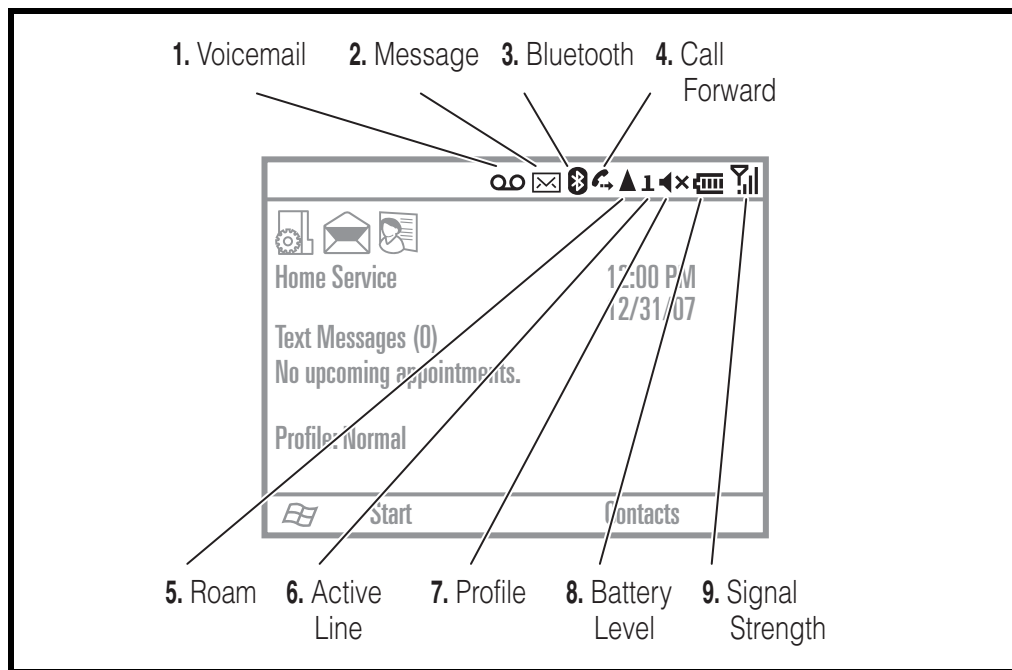
Figure 3. Home Screen Display

Status Icons

The main display provides constant graphical representations of battery capacity and signal strength, as well as the real-time clock. The MOTO Q 9h user guide provides more information about icons shown on the main display.




Whether a phone displays all indicators depends on the programming and services to which the user subscribes.



0600210


Figure 4. Home Screen Status Icons

1 Data Indicator Shows connection status. Other indicators can include:

 = secure data transfer

 = Bluetooth™ wireless connection

2 Message Indicator Shows when you receive a new message. Indicators can include:



 = new e-mail or text message


 = voicemail message


3 Roam Indicator The roam indicator shows when your phone is seeking or using a network outside your home network. Other indicators can include:

 = 2G home

 = roaming unavailable



4 Active Line Indicator Shows  to indicate an active call, or  to indicate when call forwarding is on. Indicators can include:

 = line 1 active

 = line 2 active






 = line 1 active, call forward on



 = line 2 active, call forward on

5 Signal Strength Indicator Vertical bars show the strength of the network connection. You can't make or receive calls when  or  displays.

6 Battery Charge Indicator Vertical bars show the battery charge level. Recharge the battery when your phone shows **Low Battery**.

7 Profile Indicator Shows the call alert (ring) setting. When the profile is normal, outdoor, or automatic, no indicator is displayed.

	= meeting		= speakerphone
	= car	(no icon)	= normal
	= silent	(no icon)	= outdoor
	= headset	(no icon)	= automatic

8 Location Indicator Shows when your phone can send location information  or not .

Battery Function

Battery Charge Indicator

The telephone displays a battery charge indicator icon in the idle screen to indicate the battery charge level. The gauge shows four levels: 100%, 66%, 33%, and Low Battery.

Battery Removal

Removing the battery causes the device to shut down immediately and lose any pending work (partially entered phone book entries or outgoing messages, for example). If battery is removed before the unit is fully powered down, the display will not display properly until the unit is powered down correctly and then powered up. (Snowy screen).



All batteries can cause property damage and / or bodily injury, such as burns if a conductive material, such as jewelry, keys, or beaded chains touch exposed terminals. The conductive material may complete an electrical circuit (short circuit) and become quite hot. Exercise care in handling any charged battery, particularly when placing it inside a pocket, purse, or other container with metal objects.



If the battery is removed while receiving a message, the message is lost.



To ensure proper memory retention, turn the phone OFF before removing the battery. Immediately replace the old battery with a fresh battery.

Operation

For detailed operating instructions, refer to the appropriate User Guide listed in the Related Publications section toward the end of this manual.

Tools and Test Equipment

The following table lists tools and test equipment recommended for disassembly and reassembly of MOTO Q 9h telephones. Use either the listed items or equivalents.

Table 2. General Test Equipment and Tools

Motorola Part Number ¹	Description	Application
RSX4043-A	Torque Driver	Used to remove and replace screws
—	Torque Driver Bit T-5, Apex 440-6 Torx or equivalent. Torque setting is 1.6 in-lbs or 18 Ncm	Used with torque driver
See Table 7	Rapid Charger	Used to charge battery and power phone
0180386A82	Antistatic Mat Kit (includes 66-80387A95 antistatic mat, 66-80334B36 ground cord, and 42-80385A59 wrist band)	Provides protection from damage to device caused by electrostatic discharge (ESD)
19501980 (AMS) ²	Generic Press Tool	
0-00-00-40866 (AMS)	MOTO Q 9h Camera lens press fixture	Attaching the camera lens
0-00-00-30005 (AMS) ²	Disassembly tool, plastic with flat and pointed ends (manual opening tool)	Used during assembly/disassembly of phone

1. To order in North America, contact Motorola Aftermarket and Accessories Division (AAD) at (800) 422-4210 or FAX (800) 622-6210; Internationally, AAD can be reached by calling (847) 538-8023 or by fax (847) 576-3023.

2. Not available from Motorola. To order, contact: AMS Software & Elektronik GmbH, c/o Holger Grube, Lise-Meitner-Straße 9 D-24941 Flensburg Tel.: +49-461-90398-0 Fax: +49-461-90398-50

Disassembly

The procedures in this section provide instructions for the disassembly of a MOTO Q 9h telephone. Tools and equipment used for the phone are listed in Table 2, preceding.



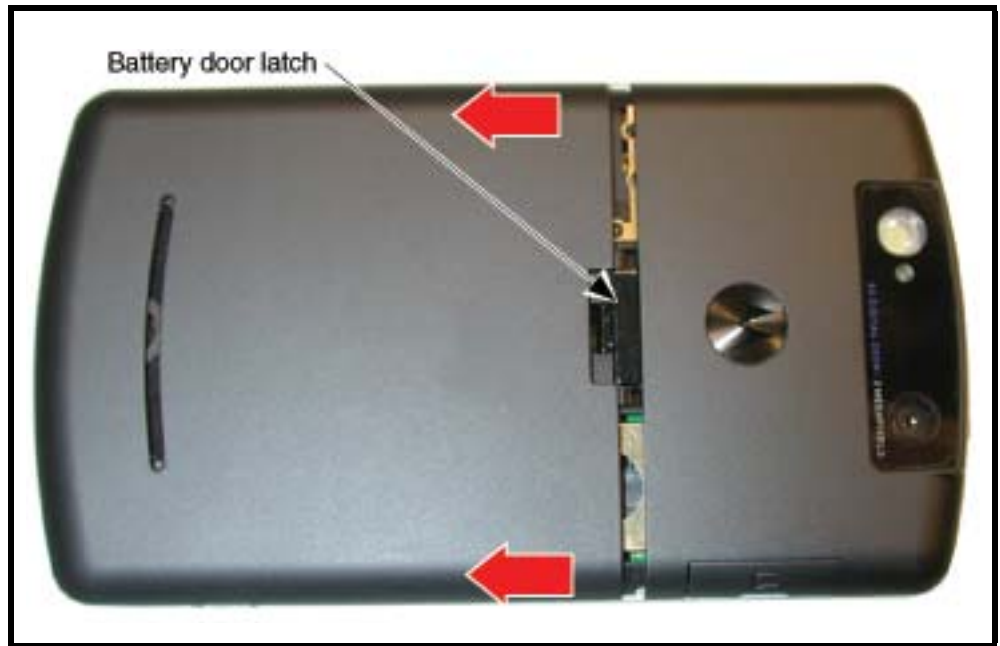
Many of the integrated devices used in this phone are vulnerable to damage from electrostatic discharge (ESD). Ensure adequate static protection is in place when handling, shipping, and servicing the internal components of this equipment.



Avoid stressing the plastic in any way to avoid damage to either the plastic or internal components.

Removing the Battery Door

1. Ensure the phone is turned off.
2. Press down on the battery door latch.
3. Slide the battery door as shown in Figure 5.
4. Gently lift the battery door away from the phone.



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Figure 5. Removing the Battery Door

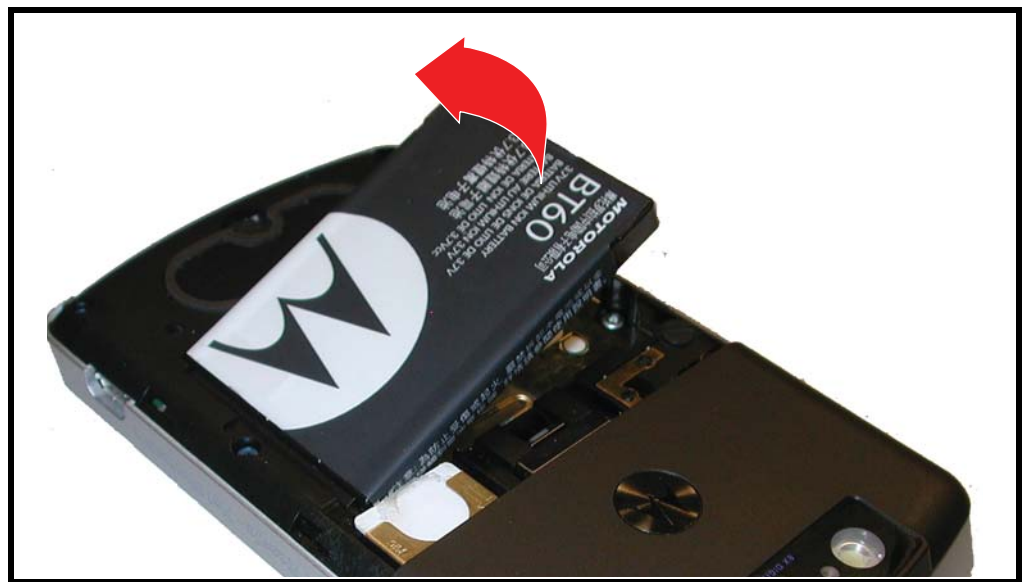
5. To replace, align the battery door to the phone.
6. Slide the battery cover into the phone until the battery door latch snaps into place.

Removing and Replacing the Battery



All batteries can cause property damage and / or bodily injury, such as burns if a conductive material, such as jewelry, keys, or beaded chains touch exposed terminals. The conductive material may complete an electrical circuit (short circuit) and become quite hot. Exercise care in handling any charged battery, particularly when placing it inside a pocket, purse, or other container with metal objects.

1. Remove the battery cover as described in the procedures.
2. Lift up the edge of the battery near the side of the phone, as shown in Figure 6.
3. Lift the battery out of the phone.



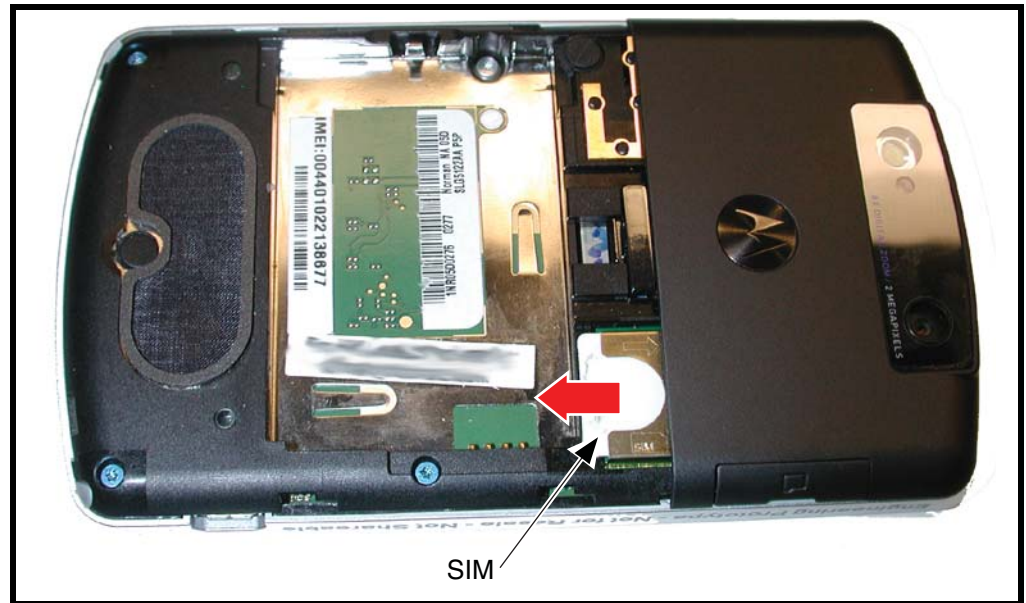
0703290

Figure 6. Removing the Battery

4. To replace, align the battery with the battery compartment so the contacts on the battery match the battery contacts in the phone.
5. Insert the left edge of the battery into the battery compartment.
6. Lower the right edge of the battery into the battery compartment until the battery is completely seated.
7. Replace the battery door as described in the procedures.

Removing and Replacing the Subscriber Identity Module (SIM)

1. Remove the battery door and battery as described in the procedures.
2. Slide the SIM out of the slot as indicated by the arrow (see Figure 7).
3. Carefully remove the SIM from the phone.



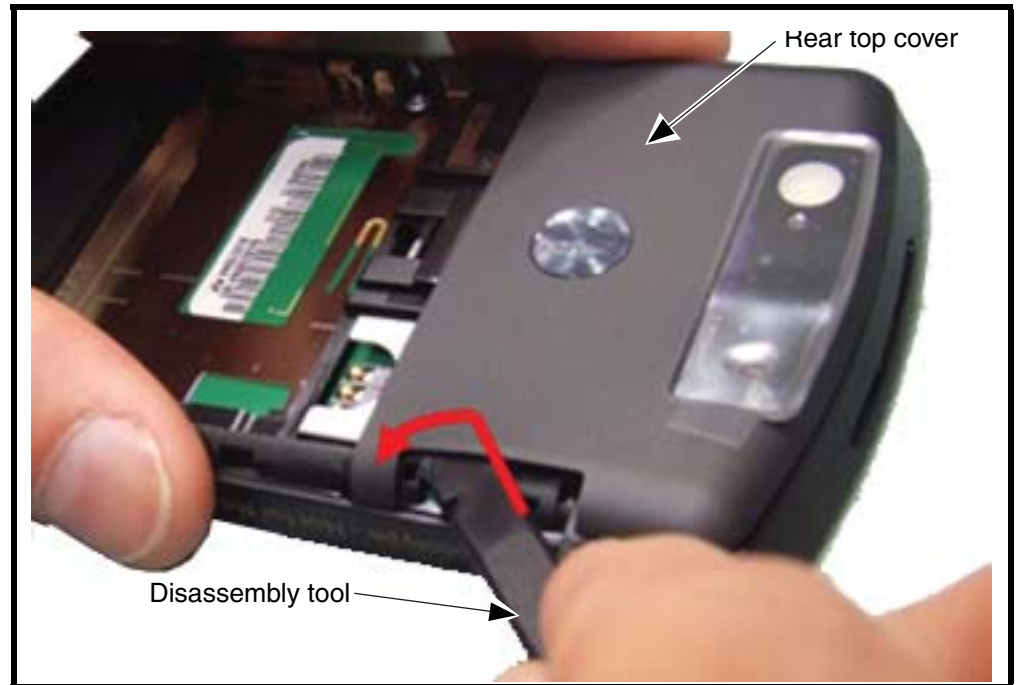
0703280

Figure 7. Removing the SIM

4. To replace, slide the SIM into the holder, ensuring the notched corner of the SIM aligns with the notch molded into the holder.
5. Replace the battery and battery door as described in the procedures.

Removing and Replacing the Rear Housing

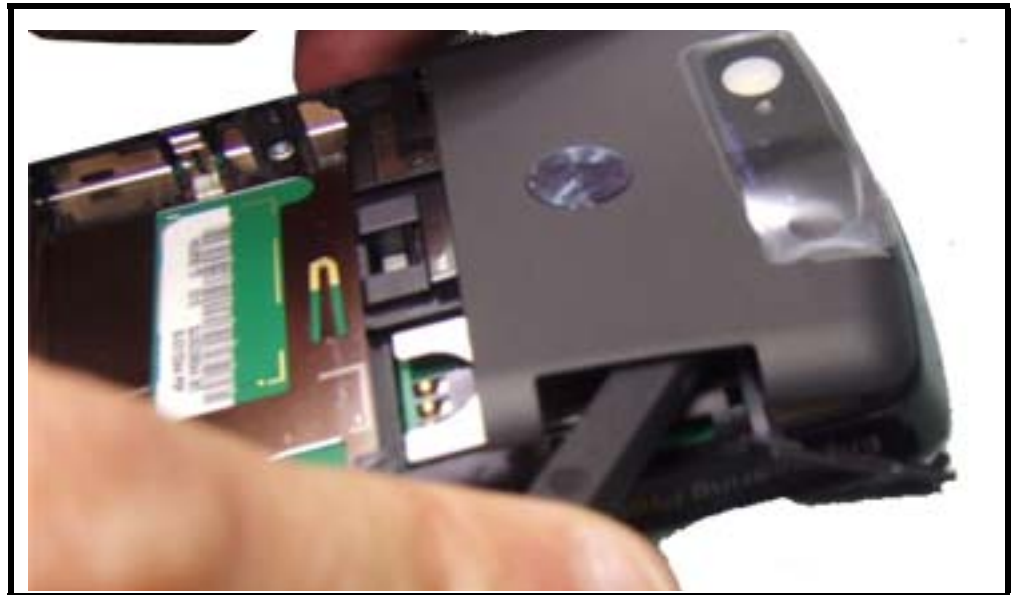
1. Remove the battery door, and the battery as described in the procedures.
2. Open trans-flash card cover.
3. Use the disassembly tool just below the memory card door, insert as shown and force top cover wall outward to disengage the lower-side snap.



v462586

Figure 8. Removing the Rear Top Cover

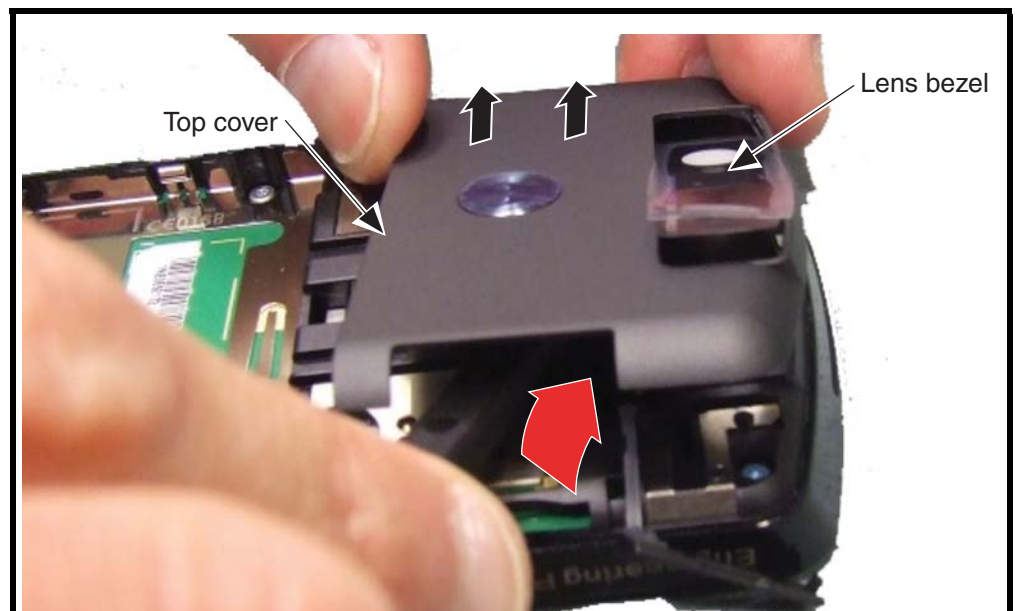
4. Insert tool as shown and pry upward to disengage snap in top corner of phone.



0704120

Figure 9. Removing the Rear Top Cover

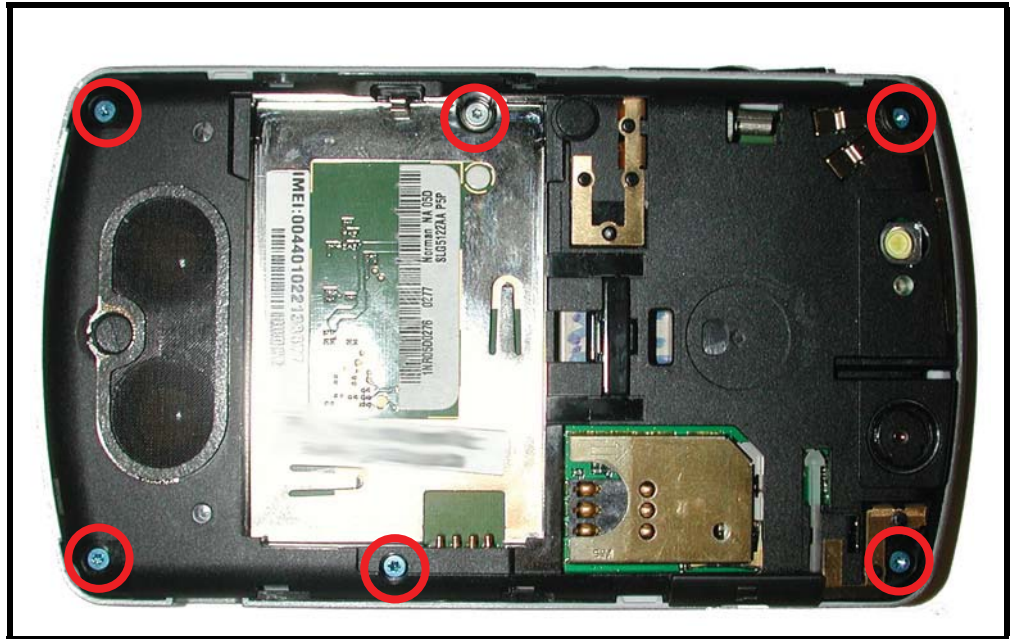
5. Insert tool further to pry open center snap, located in lens area, then slide and remove Top Cover as shown. Scrap the top cover and Lens Bezel.



v462587

Figure 10. Removing the Rear Top Cover

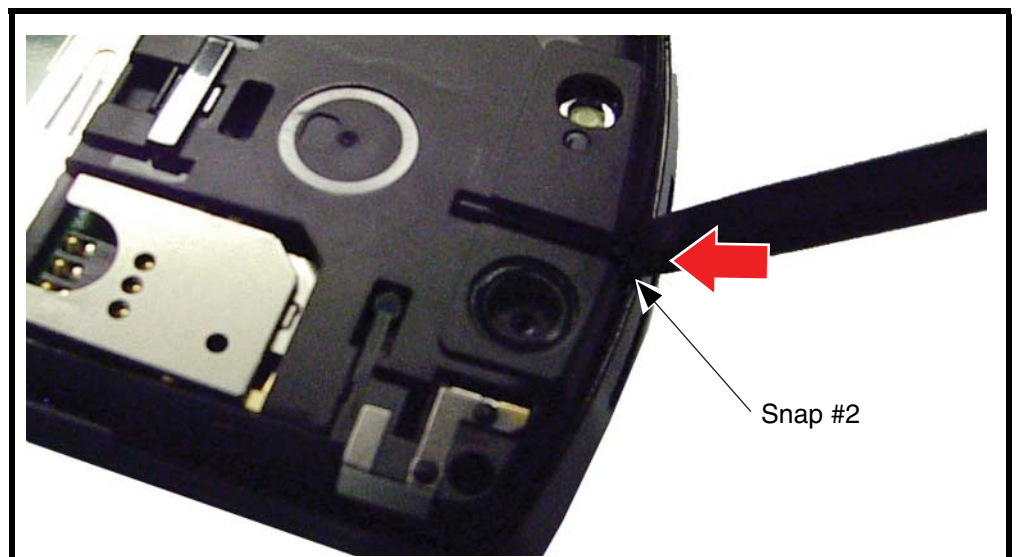
6. Use a T-5 driver to remove the six housing screws on the back of the phone (see Figure 11). Retain the screws for reassembly.



0703310

Figure 11. Removing the Rear Housing Screws

7. Using moderate force, insert the disassembly tool between the rear housing and front bezel at the top center of the phone. Once the tool has been inserted, push inwards to undo the snap (see Figure 12).



0703340

Figure 12. Removing the Top Rear Housing Snap

8. Next, insert the disassembly tool along the lower side wall and slide down the side of the phone towards the lower side snap (see Figure 13).



070431o

Figure 13. Removing the Rear Housing Snaps

9. At the lower side snap location, wedge open the lower side snap (see Figure 14). Use caution to avoid damaging the display flex tail located next to this snap.



070432o

Figure 14. Removing the Rear Housing Snaps

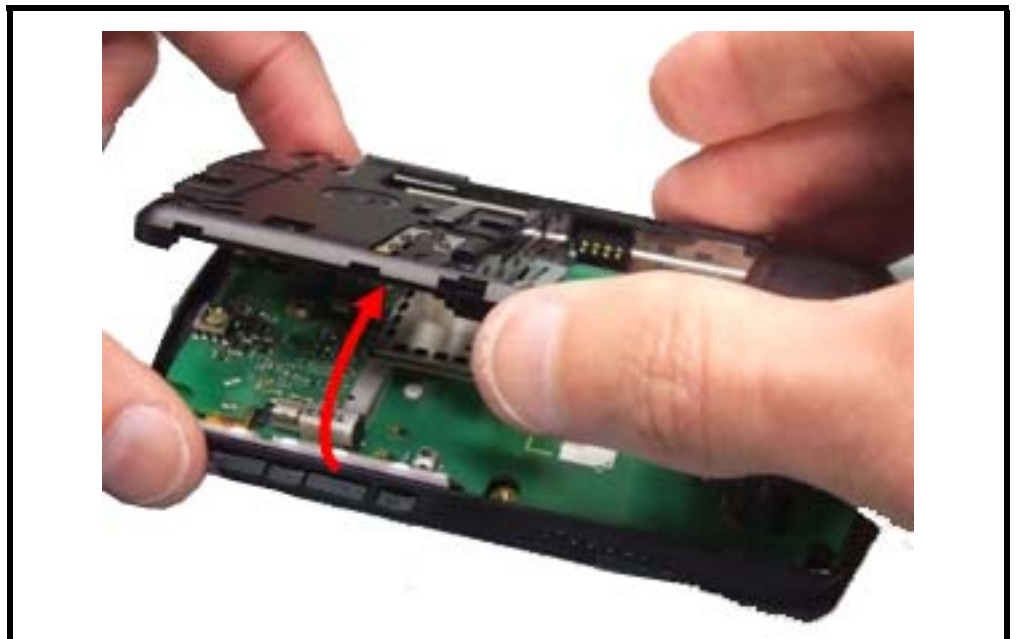
10. Next, insert the disassembly tool as shown in the bottom corner of the phone and slide towards the center until the bottom snap disengages (see Figure 15).



070436o

Figure 15. Removing the Rear Housing Snaps

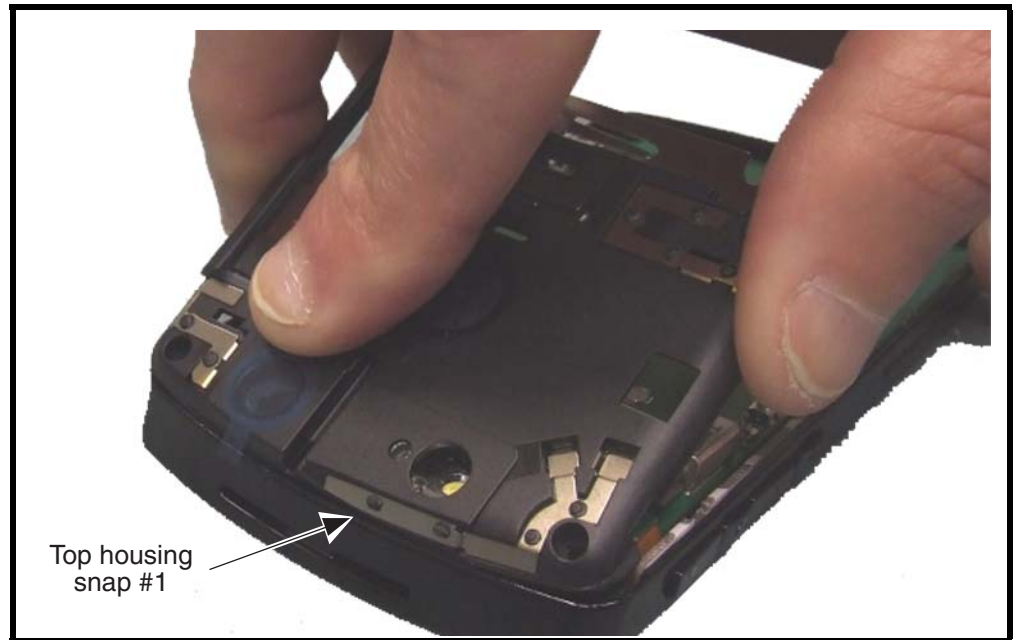
11. With the top, lower side, and bottom snaps disengaged, remove the rear housing by carefully rotating the housing up and off (see Figure 16).



070437o

Figure 16. Removing the Rear Housing

12. Inspect the rear housing snaps for damage. If there is any damage to the snaps, please change the housing.
13. To replace, align the rear housing to the phone.
14. Ensure the camera lens inner surface is free from any dust or foreign matter.
15. Engage and pivot in the top housing snap (see Figure 17).



070455o

Figure 17. Engaging the Top Housing Snap

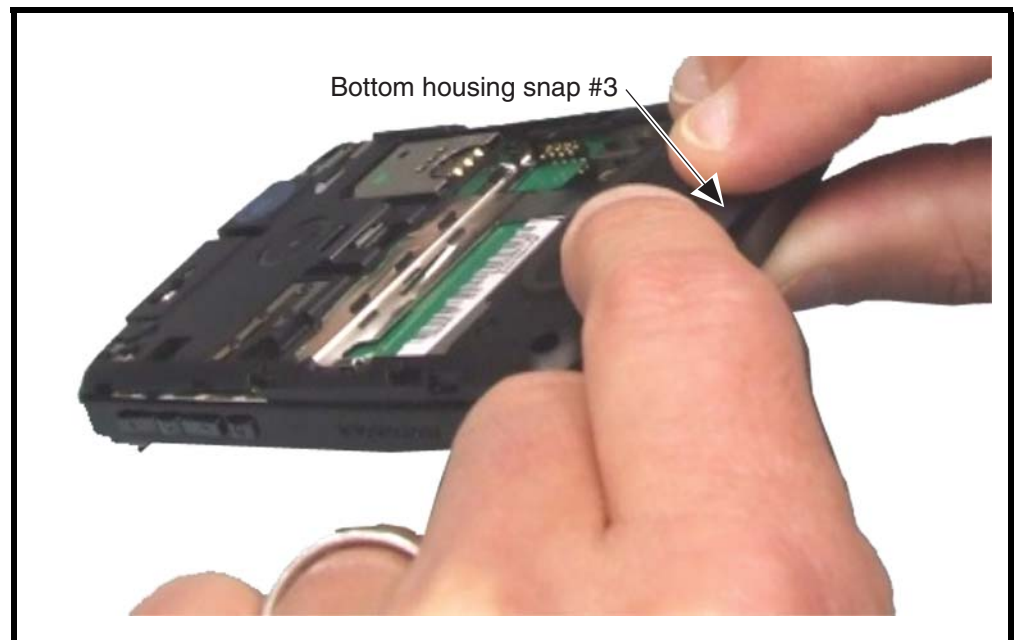
16. Engage the upper side snap (see Figure 18).



0704560

Figure 18. Engaging the Upper Side Snap

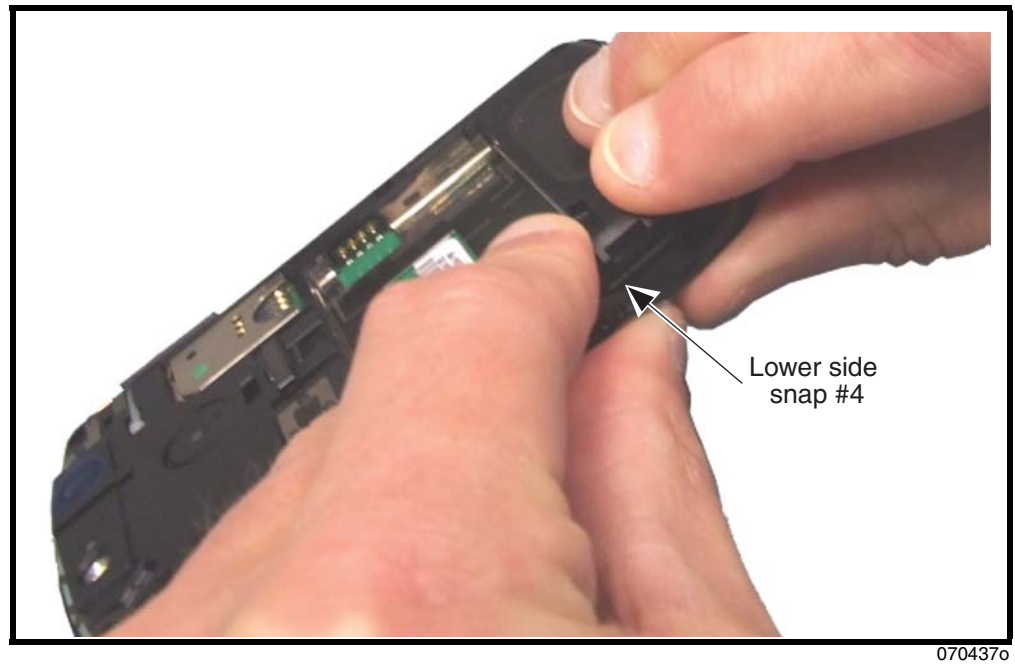
17. Engage the bottom snap (see Figure 19).



0704370

Figure 19. Engaging the Bottom Snap

18. Engage the lower side snap (see Figure 20).



070437o

Figure 20. Engaging the Lower Side Snap

19. Carefully press the rear housing onto the phone until all the housing snaps are fully engaged.

20. Insert 6 T5 screws into the rear housing assembly in the order shown, and tighten to 18 Ncm (1.6 inch-pounds) (see Figure 21).

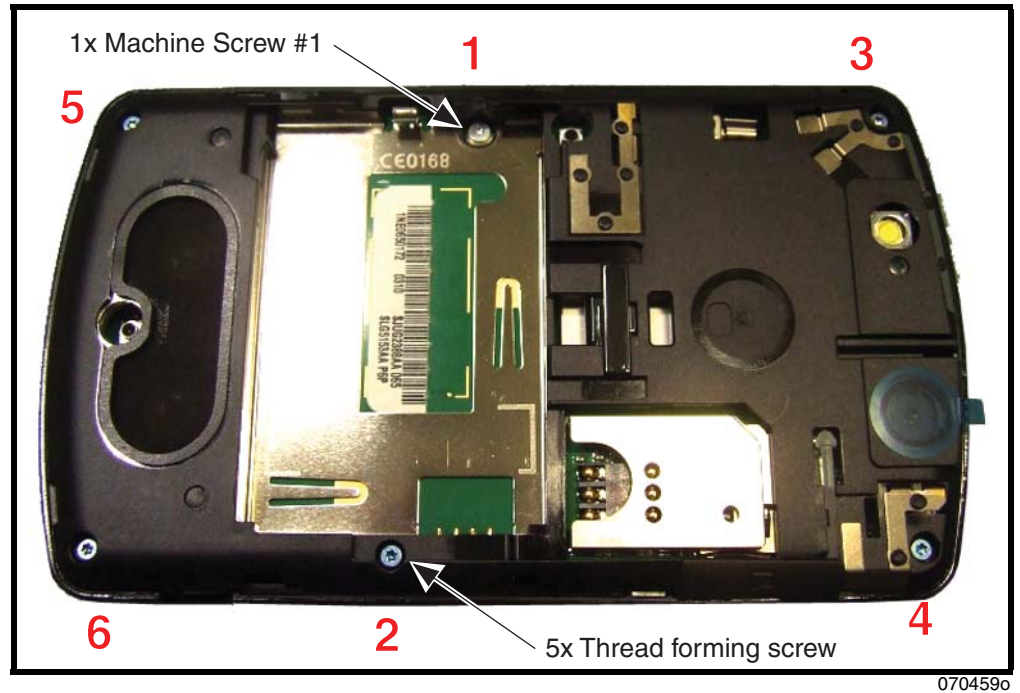
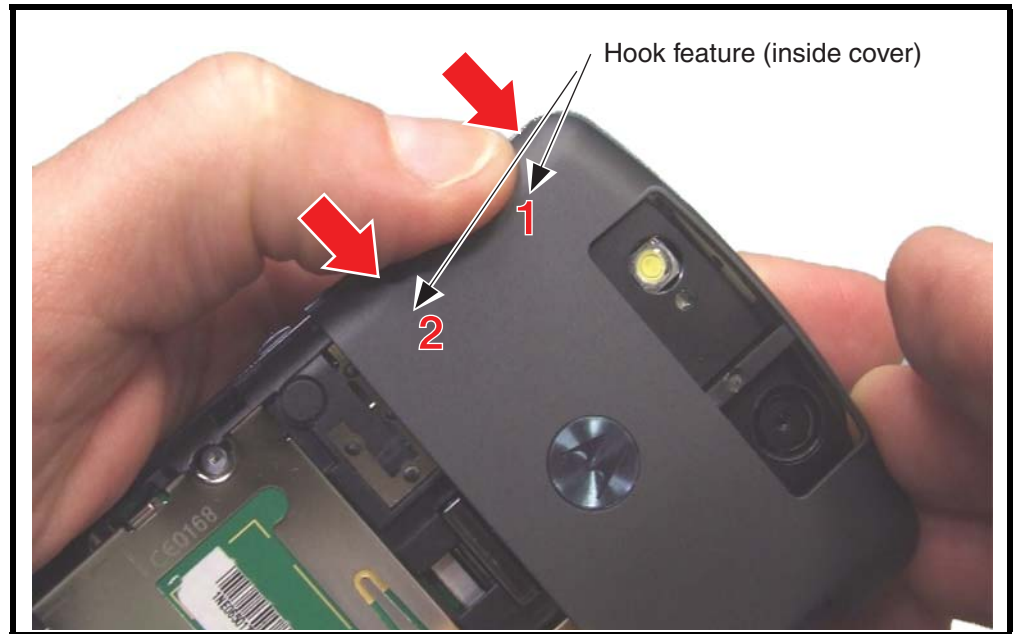


Figure 21. Inserting Rear Housing Screws

21. Engage the two hook features (1 & 2) of the top cover to the rear housing by aligning and sliding sideways as shown.



v462590

Figure 22. Engaging the Top Rear Cover Hook Feature

22. Firmly press downward to engage center snap feature as shown. Snap feature is located under the cross beam between camera & flash.

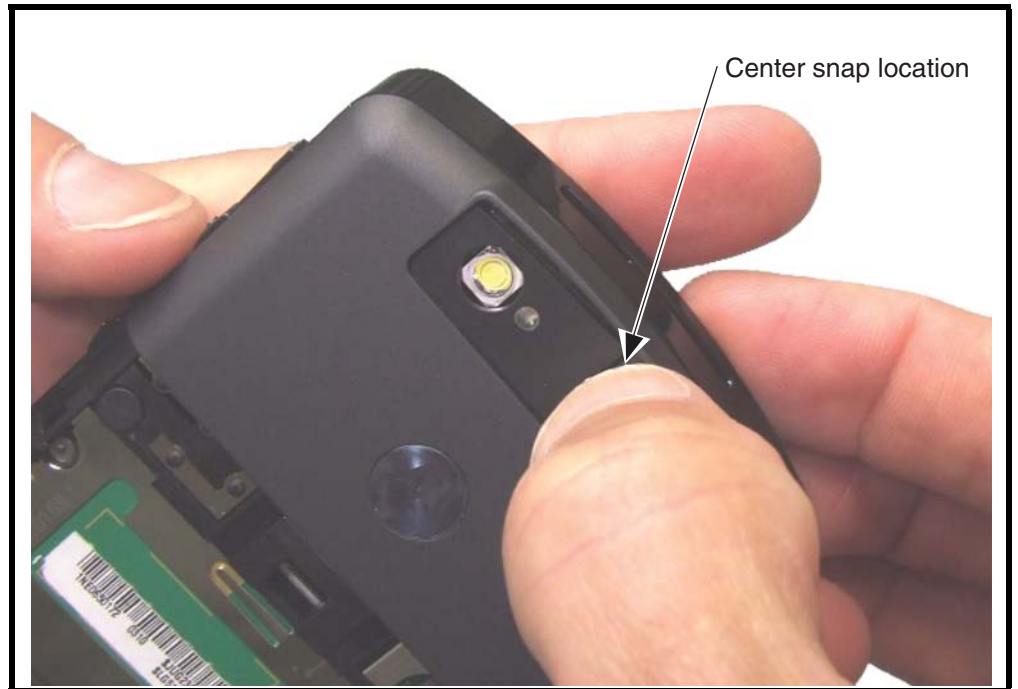
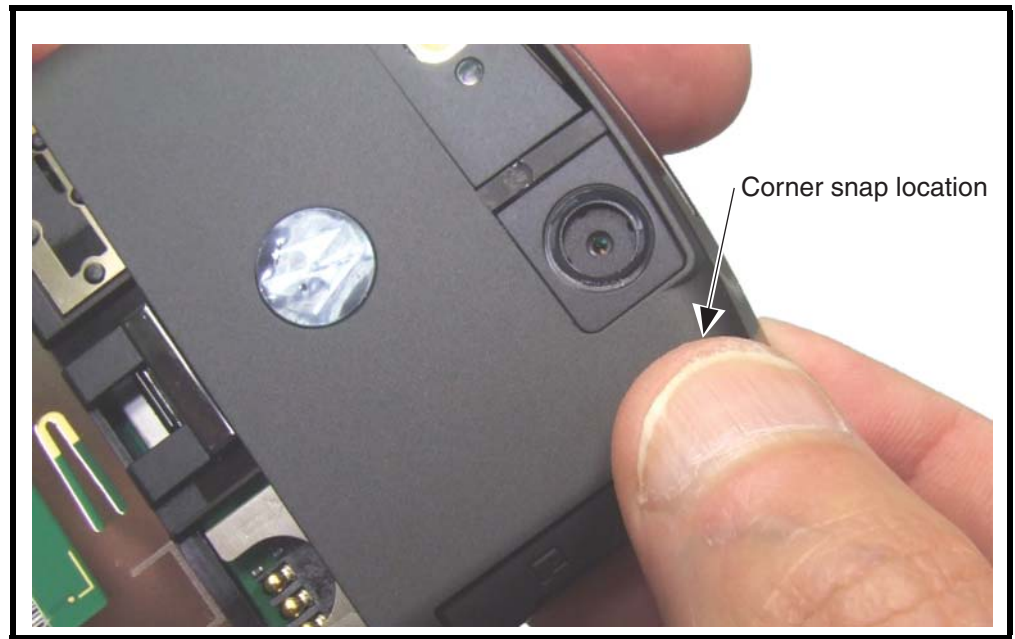


Figure 23. Engaging the Center Snap

0704210

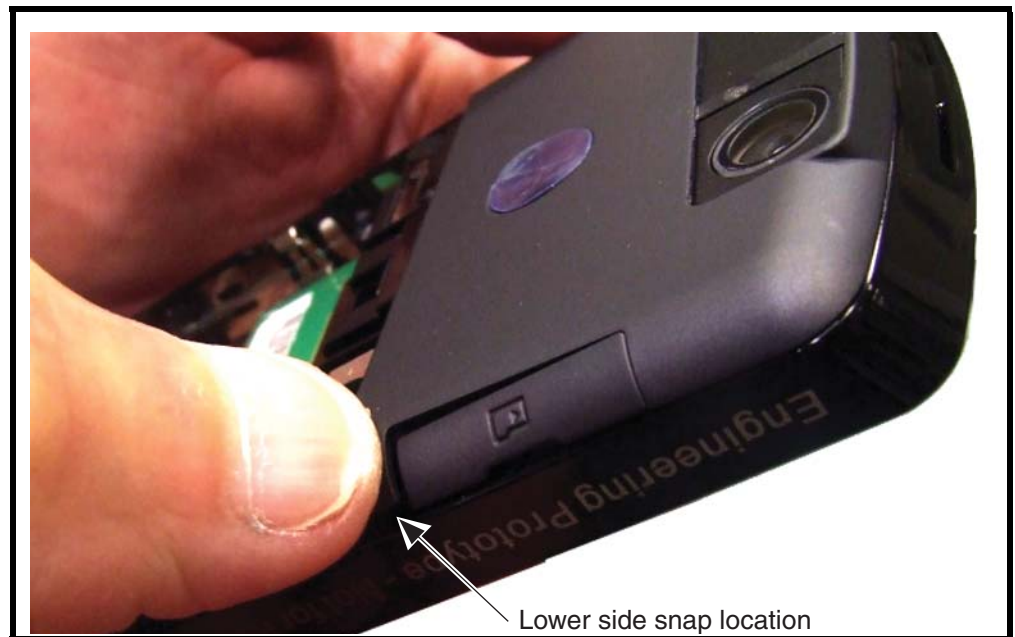
23. Firmly press downward to engage corner snap feature as shown.



070422o

Figure 24. Engaging the Corner Snap

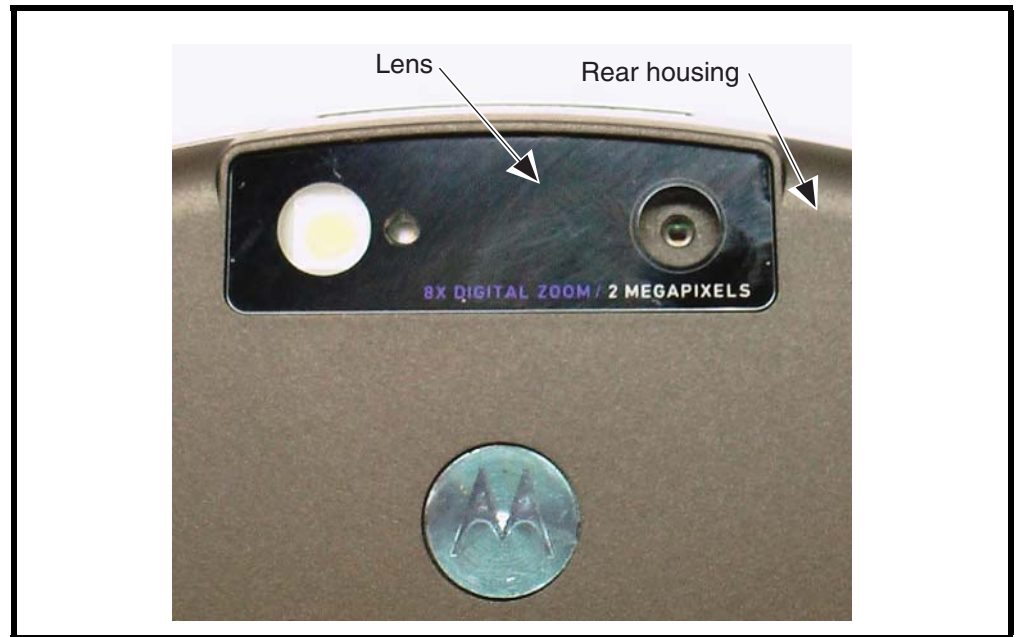
24. Firmly press inward to engage the lower-side snap feature as shown. Inspect to ensure all 5 snaps are engaged.



070423o

Figure 25. Engaging the Lower Side Snap

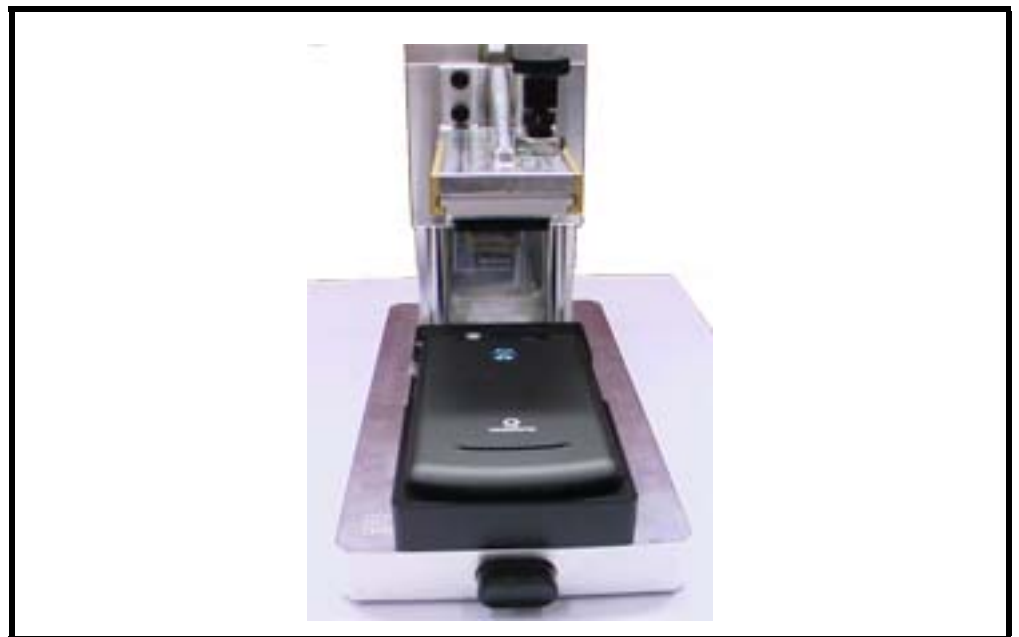
25. Place the camera/flash lens onto the rear housing.



v463101

Figure 26. Installing the Camera/Flash Lens

26. Place the entire assembly onto the camera lens press fixture



v463108

Figure 27. Camera/Flash Lens Press Fixture

-
27. Close the fixture until it locks, hold for 8 seconds and release.



v463109

Figure 28. Pressing the Camera/Flash Lens

28. Replace the SIM, battery and battery door as described in the procedures.

Removing and Replacing the Daughter Board

1. Remove the battery door, battery, and rear housing, as described in the procedures.
2. Use a T5 Torx bit, remove the two daughter board screws in order as shown (see Figure 29).

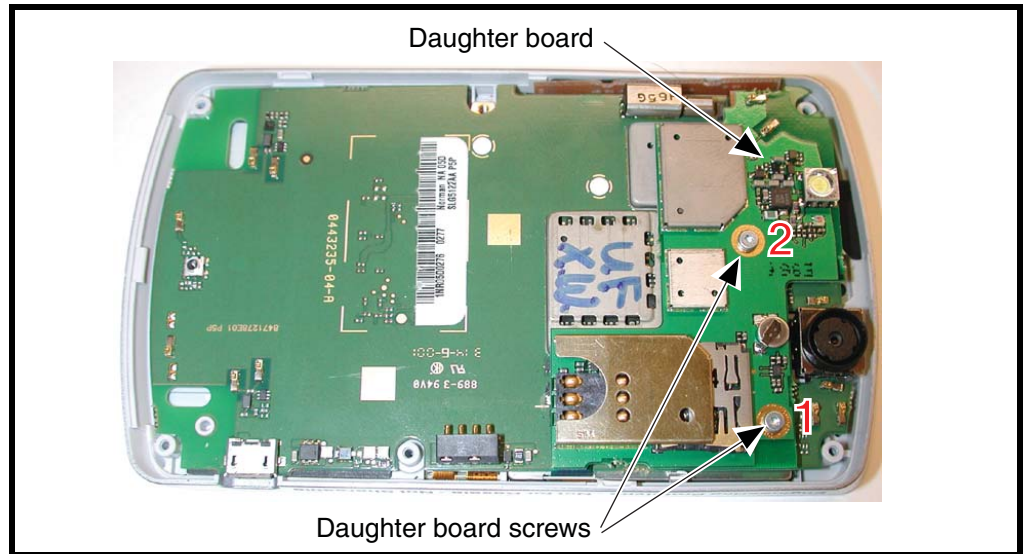


Figure 29. Removing the Daughter Board Assembly Screws

070354o

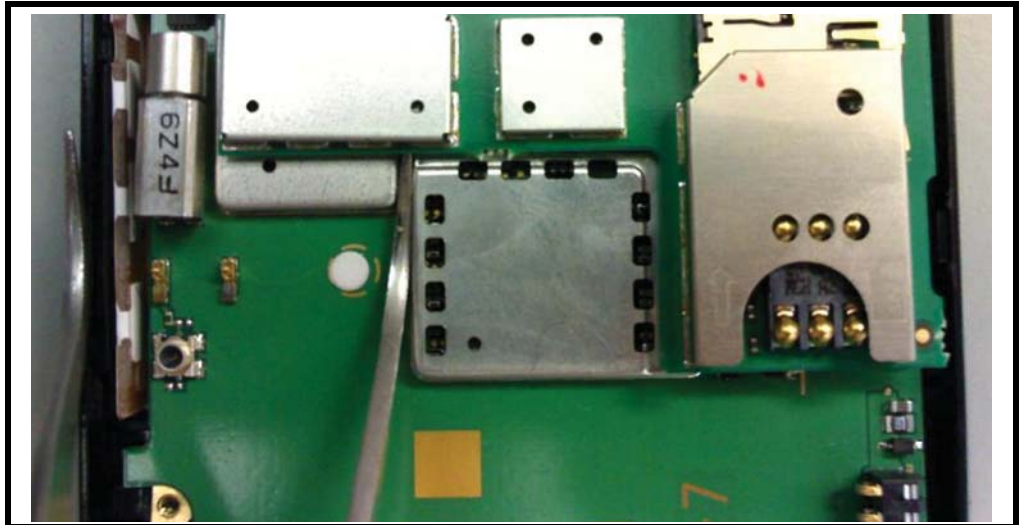
3. Use angled sharp tip tweezers or equivalent tool as shown.



Figure 30. Daughter Board Removal Tools

v513238

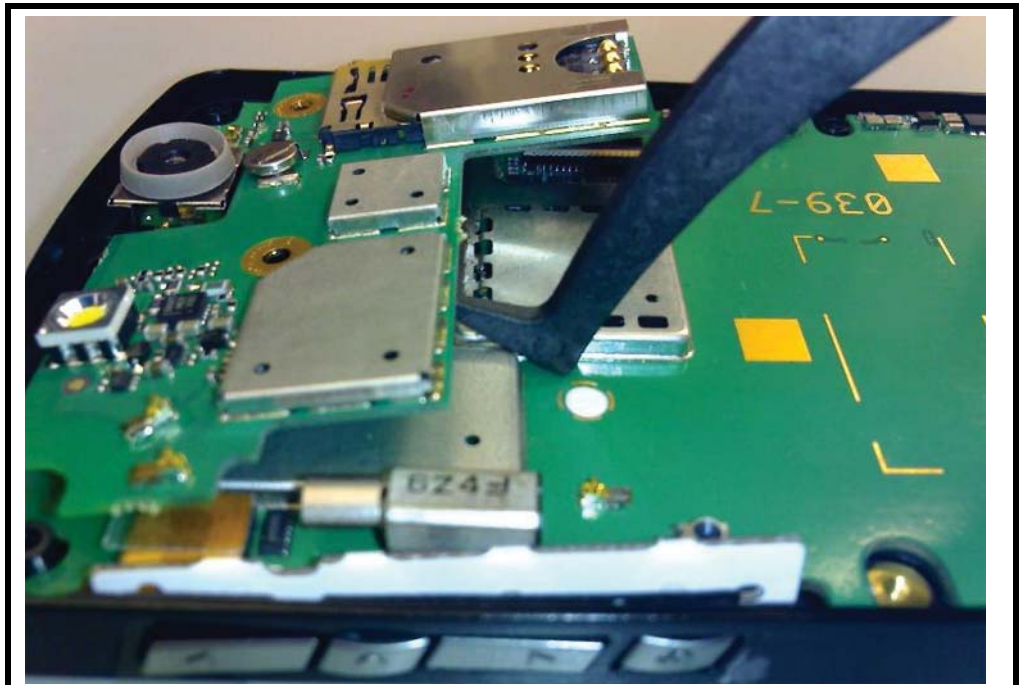
4. Insert the tip of the curved tweezers between the OMAP and Atlas shields.



v513239

Figure 31. Inserting Curved Tip Tweezers for Daughter Board Removal

5. Hold the transceiver board securely, and slowly pry upward until the adhesive bond breaks.



v513240

Figure 32. Carefully Pry Daughter Board Upward

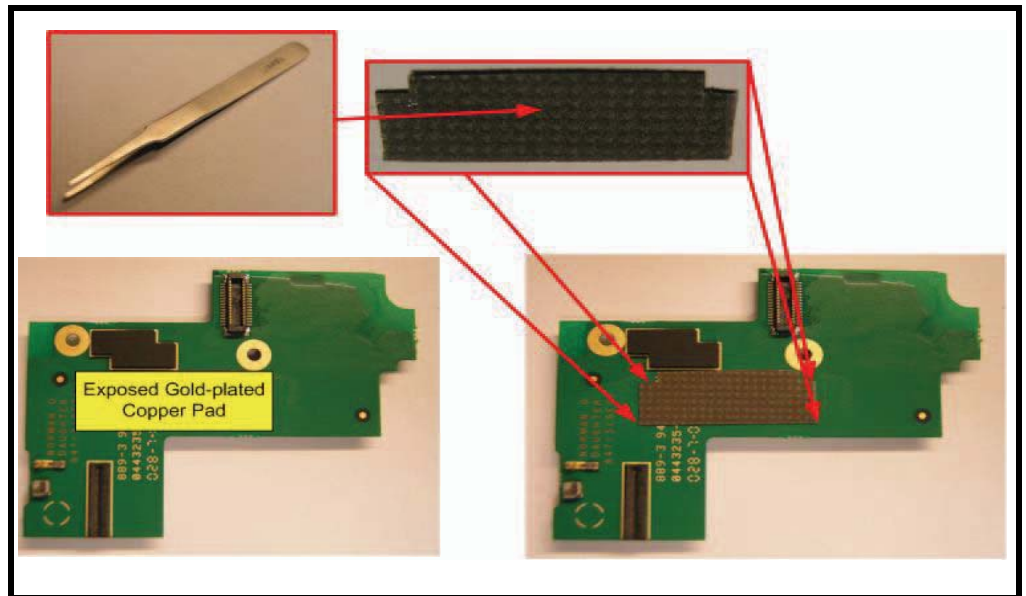
6. Carefully remove the daughter board by hand from the phone.



v513241

Figure 33. Removing the Daughter Board Assembly

7. To replace, use the tweezers to peel away the first liner from the 7810 adhesive.

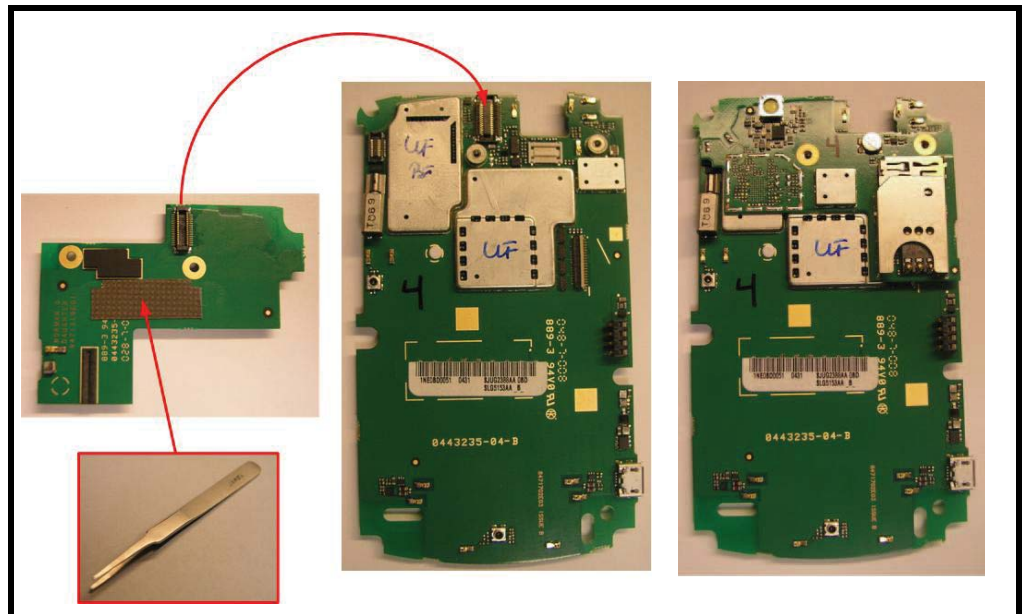


v513242

Figure 34. Placing Adhesive on the Daughter Board Assembly

8. Use the tweezers to place the adhesive over the exposed metal on the daughter board (see Figure 34).
9. Use the tweezers to peel away the second liner from the adhesive pad.

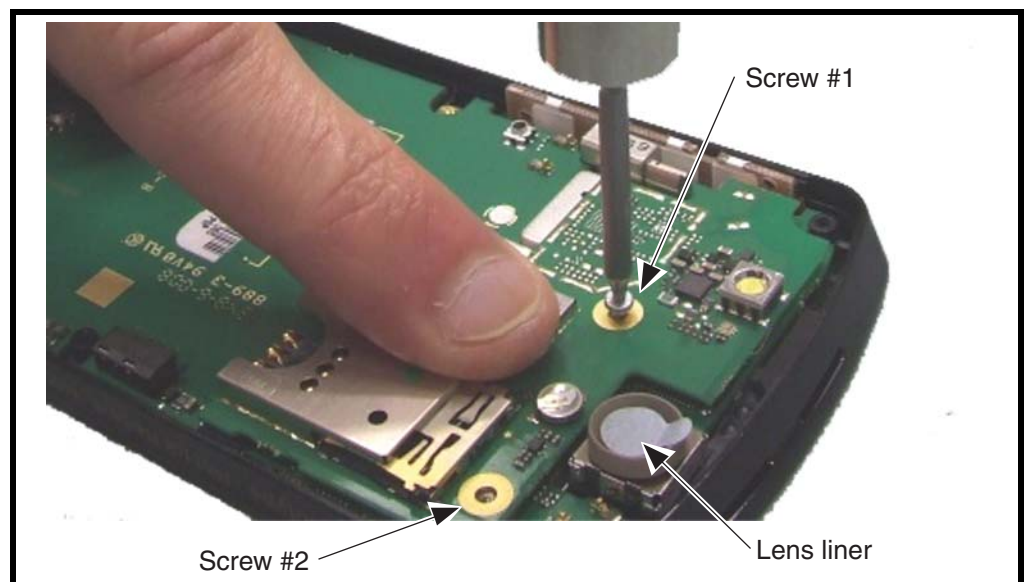
10. Assemble the daughter board to the main board as shown.



v513242

Figure 35. Placing Adhesive on the Daughter Board Assembly

11. Apply approximately 26 PSI to the daughterboard for approximately 3 seconds.
12. Insert and tighten the center daughter board screw with the T5 Torx bit to 1.6 in.-lbs. torque (see Figure 36).



070443o

Figure 36. Driving the Daughter Board Assembly Screws

13. Insert and tighten the second daughter board screw with the T5 Torx bit to 1.6 in.-lbs. torque (see Figure 36).
14. Remove and discard the top lens liner (see Figure 36).
15. Replace the rear housing assembly, SIM, battery, and battery door as described in the procedures.

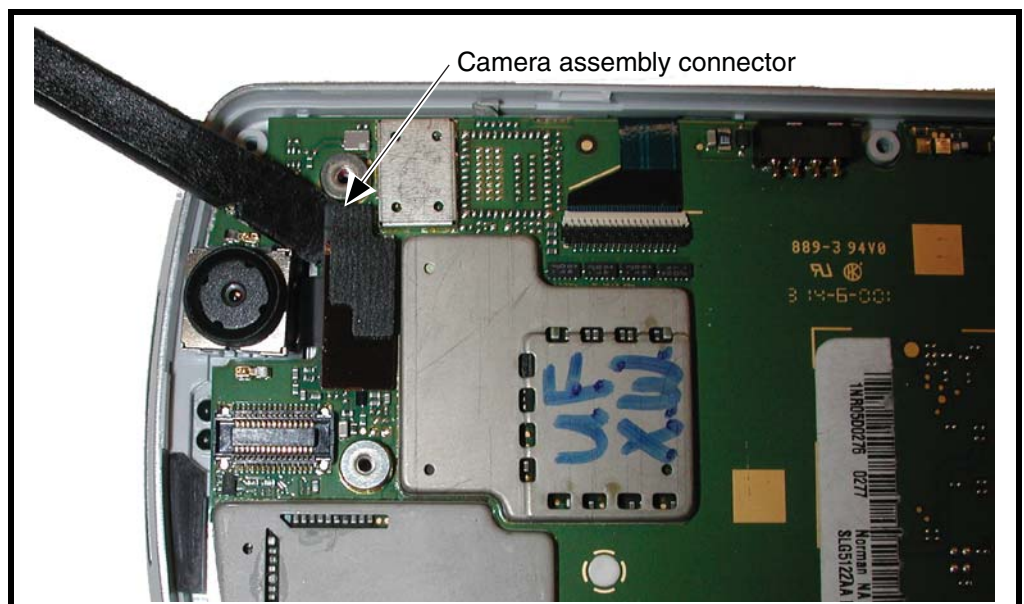
Removing the Camera Assembly

1. Remove the battery door, battery, rear housing, antenna, and daughter board as described in the procedures.



The flexible printed cable (FPC) (flex) is easily damaged. Exercise extreme care when handling.

2. Insert the flat end of the disassembly tool under the edge of the camera connector and rotate the tool to unseat the camera connector from the socket (see Figure 37).



0703560

Figure 37. Removing the Camera Assembly Connector

3. Grasp the camera module firmly and pull upward to unseat from adhesive mounting.

4. To replace, remove and discard the adhesive liner from the bottom of the camera to expose the adhesive (see Figure 38). Do not remove the top lens liner yet.

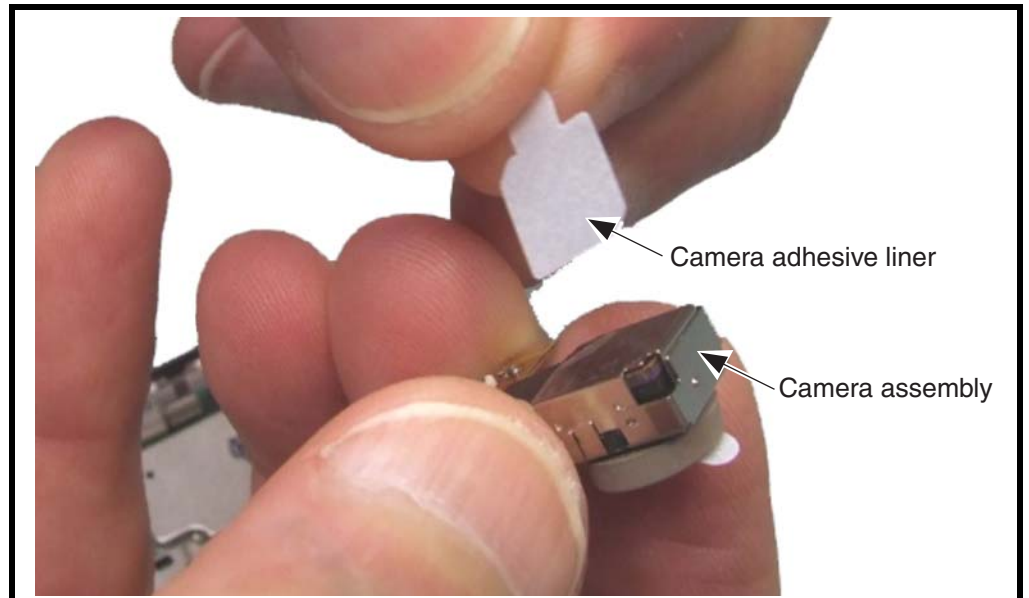


Figure 38. Removing the Camera Assembly Adhesive Liner

070439o

5. Align the camera body to the two corner locating features in the housing, then seat and apply firm pressure for 3 seconds to adhere the camera body to the housing (see Figure 39).

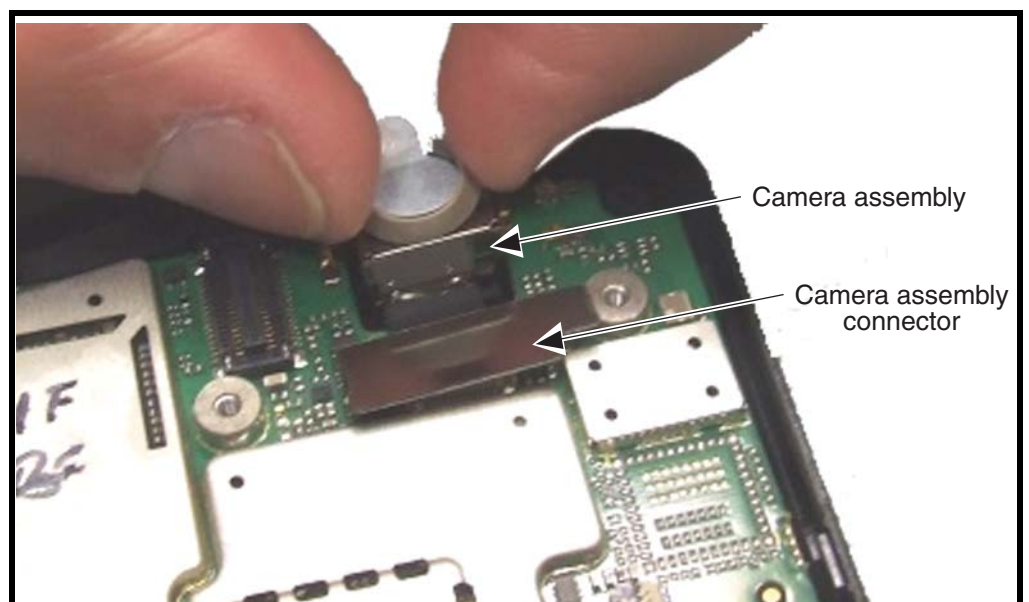
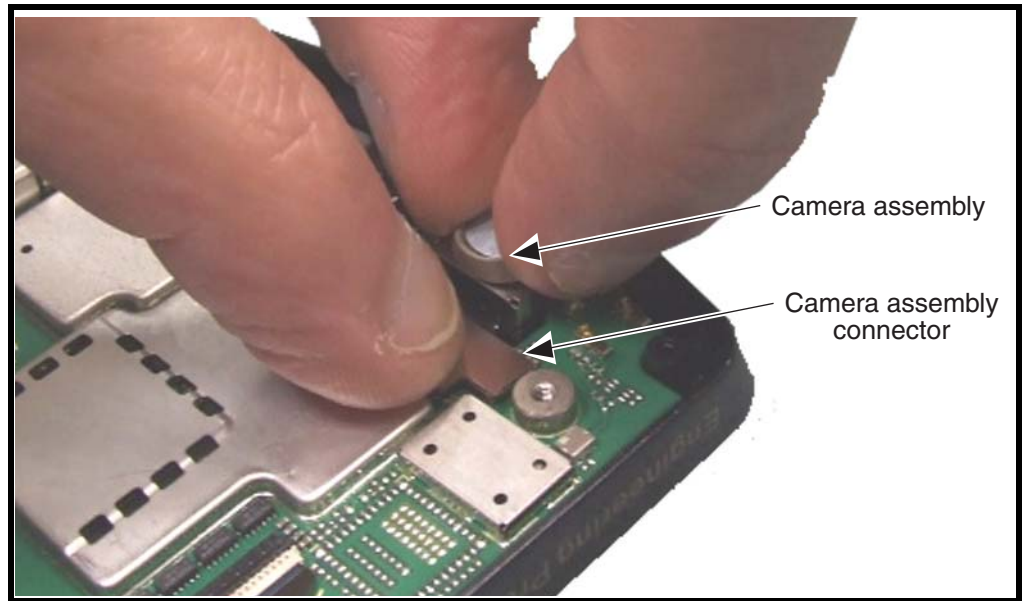


Figure 39. Installing the Camera Assembly

070440o

6. While securing the camera body, align the camera board-to-board (flex) connector and connect it (see Figure 40).



070441o

Figure 40. Seating the Camera Assembly

7. Replace the daughter board, rear housing, SIM, battery, and battery door as described in the procedures.

Removing and Replacing the Side Keys Flex

1. Remove the battery door, battery, and rear housing, as described in the procedures.
2. Insert the flat edge of the disassembly tool under the side keys flex and unseat the flex connector from its socket (see Figure 41).

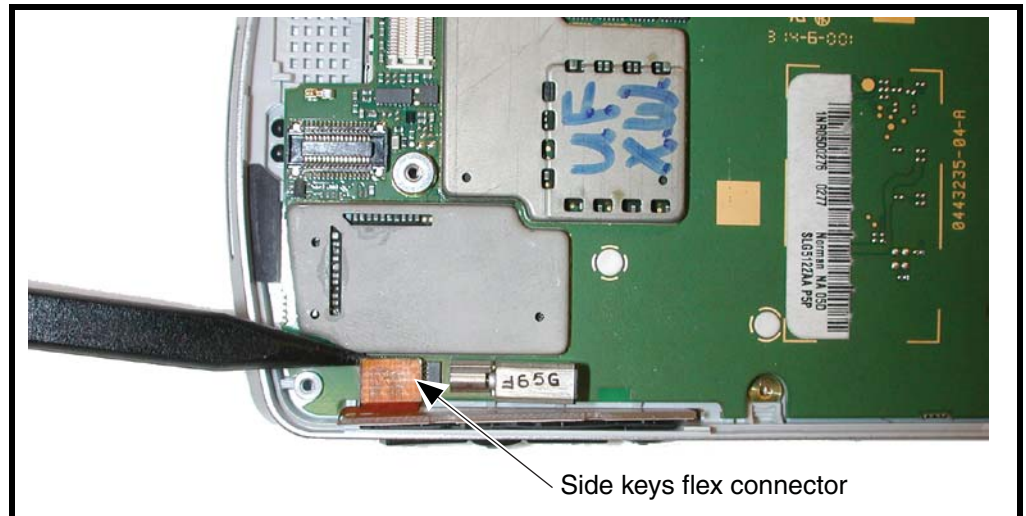


Figure 41. Removing the Side Keys Flex

3. Carefully lift the side keys flex out of the phone with the plastic tweezers.
4. To replace, align the side keys flex to the socket connector on the transceiver board.
5. Gently press down on the connector until it snaps into the socket.
6. Ensure the side keys make proper contact with the side keys flex.
7. Replace the camera assembly, daughter board assembly, rear housing, SIM, battery and battery door as described in the procedures.

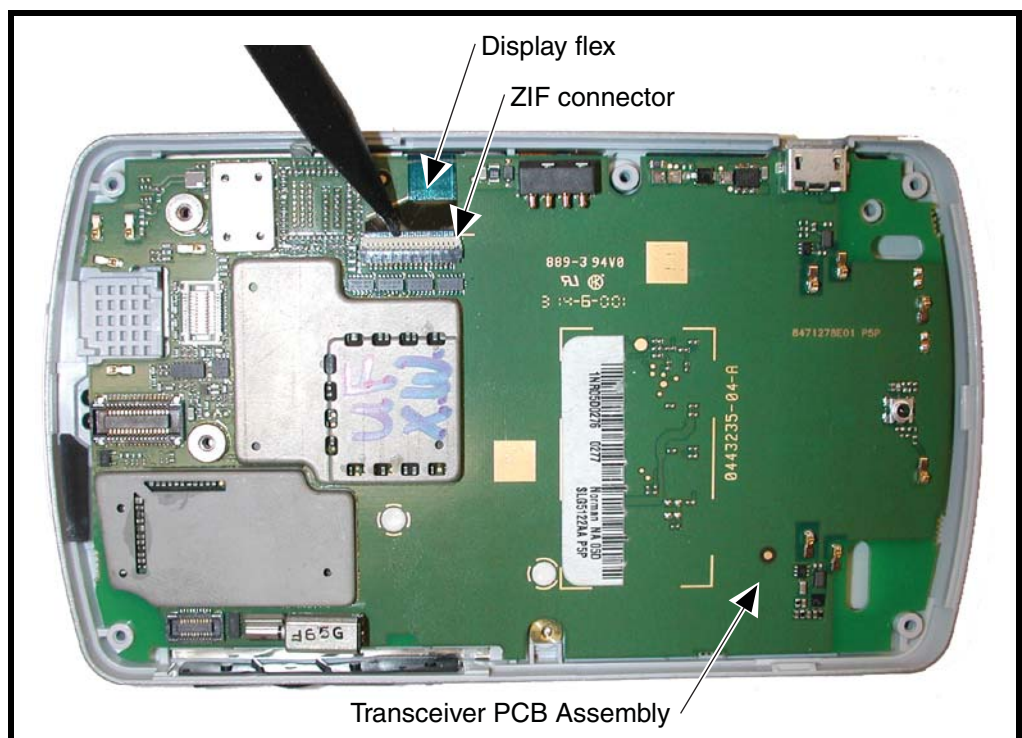
Removing and Replacing the Main Board

1. Remove the battery door, battery, rear housing, antenna, keypad bezel, daughter board, keyboard stiffener, and speaker carrier, as described in the procedures.



The flexible printed cable (FPC) (flex) is easily damaged. Exercise extreme care when handling.

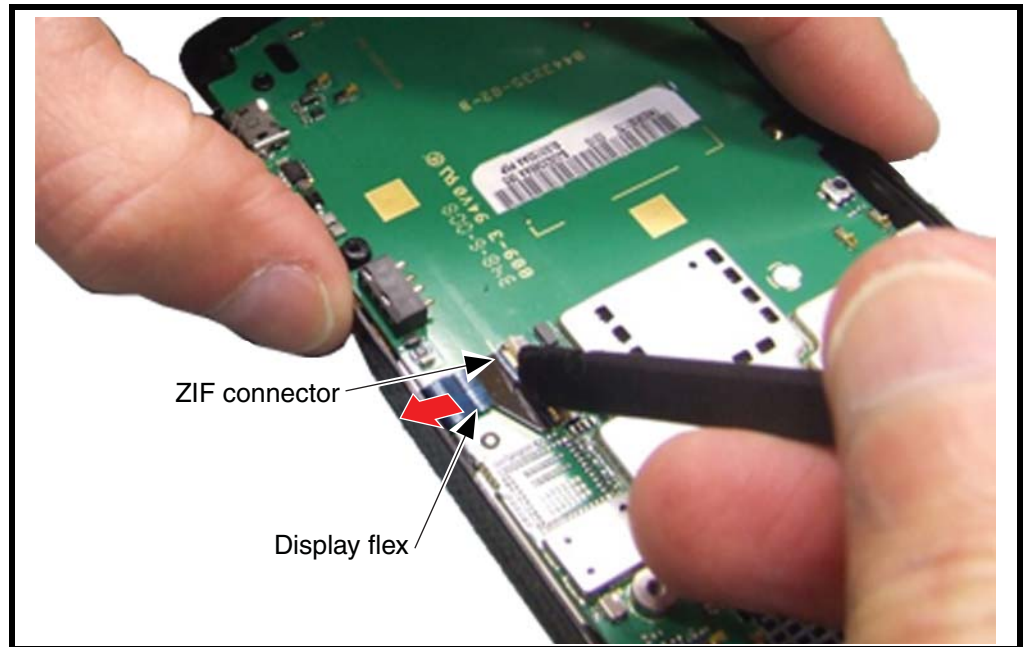
2. Carefully lift the retaining door to unlock the display flex ZIF connector (see Figure 42).



0703750

Figure 42. Unlocking the Display FLEX ZIF Connector

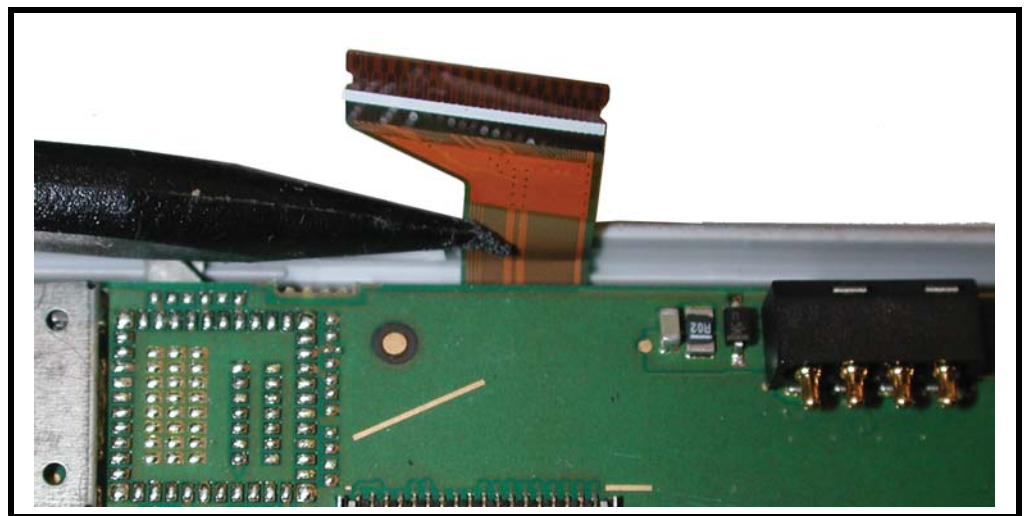
3. Use the disassembly applied to the edge of the flex stiffener, carefully slide the flex straight out of the ZIF connector (see Figure 43).



v462591

Figure 43. Removing the Display FLEX from the ZIF Connector

4. Move the display flex out of the way and inspect the flex for damage to the display flex tail before moving the transceiver PC board.



070377o

Figure 44. Inspecting the Display FLEX

5. Rotate the left side of the transceiver PC board assembly out of the front housing and use the disassembly tool to unseat the keypad flex connector (see Figure 45).

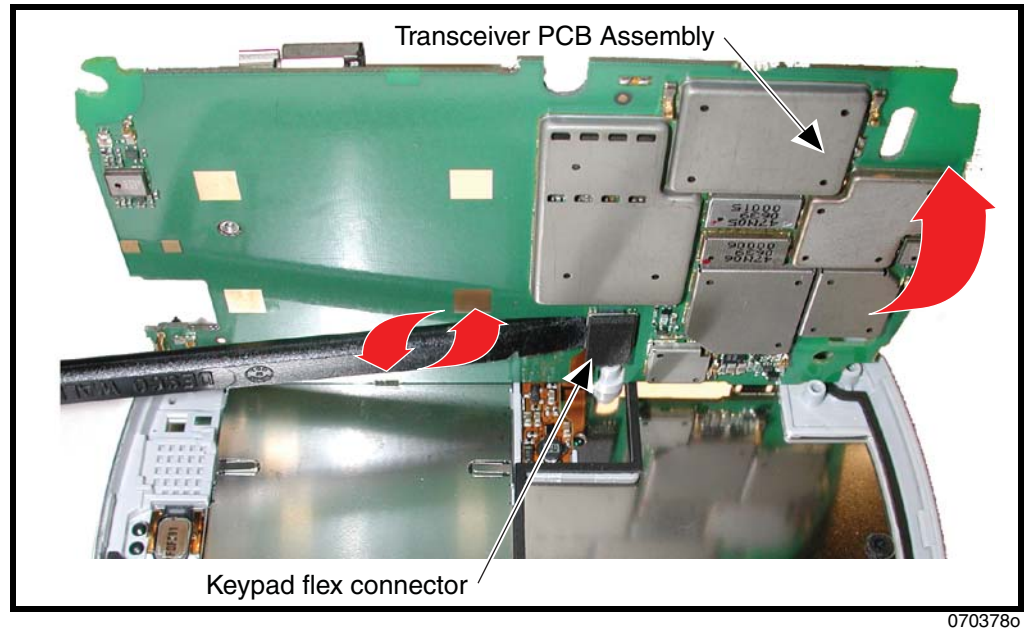
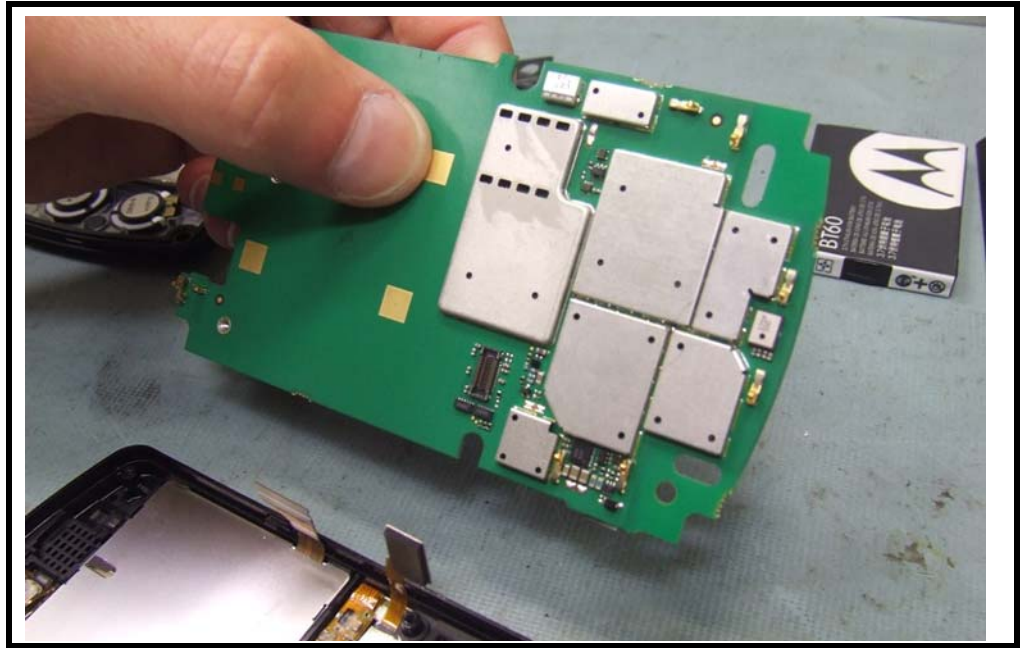


Figure 45. Disconnecting the Keypad Flex Connector



This product contains static-sensitive devices. Use anti-static handling procedures to prevent electrostatic discharge (ESD) and component damage.

6. Carefully remove the main board out of the front housing.



0704760

Figure 46. Removing the Main Board

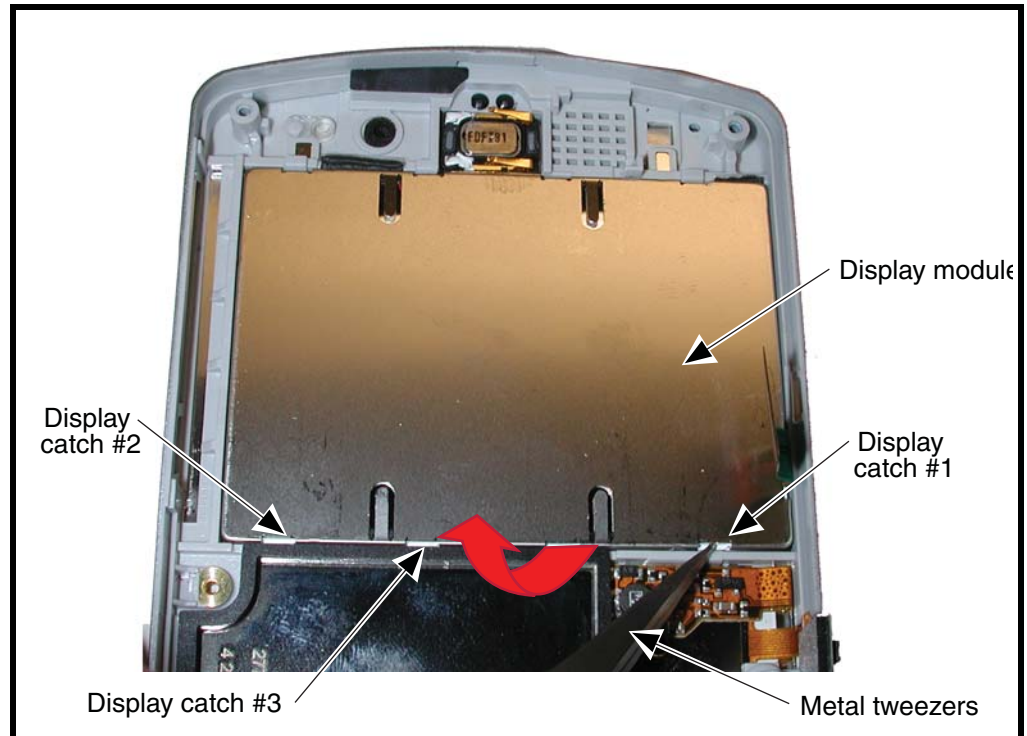


This product contains static-sensitive devices. Use anti-static handling procedures to prevent electrostatic discharge (ESD) and component damage.

7. To replace, place the side edge of the main board into the front housing.
8. Connect the keypad flex to the socket on the main board.
9. lower the main board into place in the front housing.
10. Reconnect the display flex to its socket on the main board.
11. Press display flex connector onto its socket.
12. Replace the side keys flex, camera assembly, daughter board, rear housing SIM, battery, and battery cover as described in the procedures.

Removing the Display Assembly

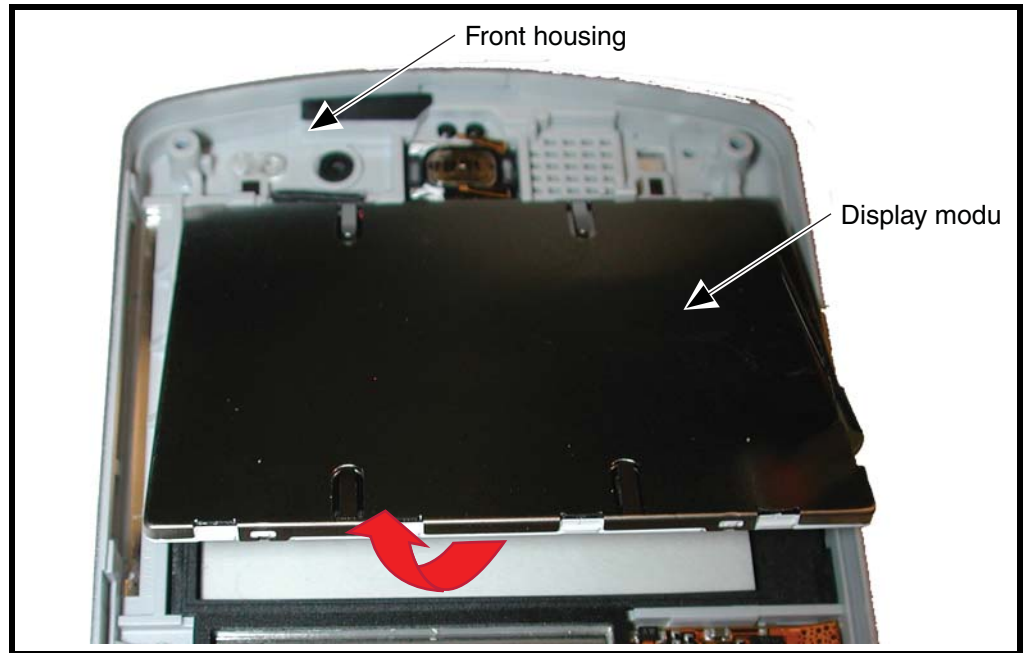
1. Remove the battery door, battery, rear housing, daughter board, camera assembly, main board, as described in the procedures.
2. Using flat, round-tip tweezers, carefully insert between display bezel and front housing wall in corner as shown to disengage snap #1. Move to other corner as shown and repeat to disengage snap #2. Repeat again at snap #3. With snaps #1,2, & 3 disengaged, the display will simply rotate up and out of the front housing (see Figure 47).



0703790

Figure 47. Removing the Display Assembly Catches

3. Rotate the bottom edge of the display upward out of the front housing (see Figure 48).



070380o

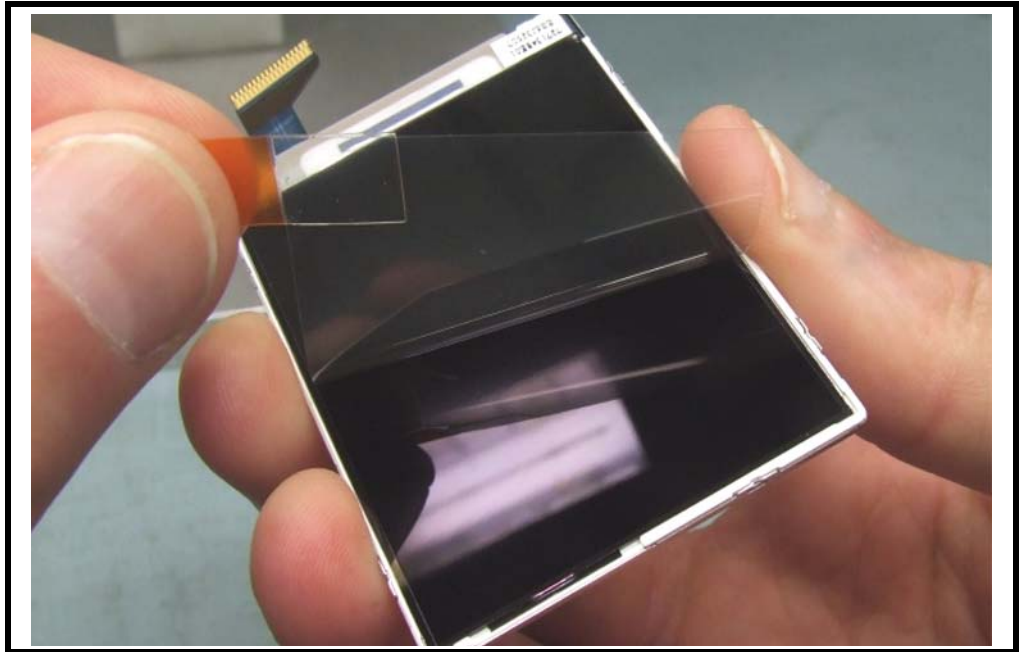
Figure 48. Removing the Display Assembly



The flexible printed cable (FPC) (flex) is easily damaged. Exercise extreme care when handling.

4. Carefully lift the display assembly out of the front housing.

-
5. To replace, remove and discard the LCD lens liner (see Figure 49).

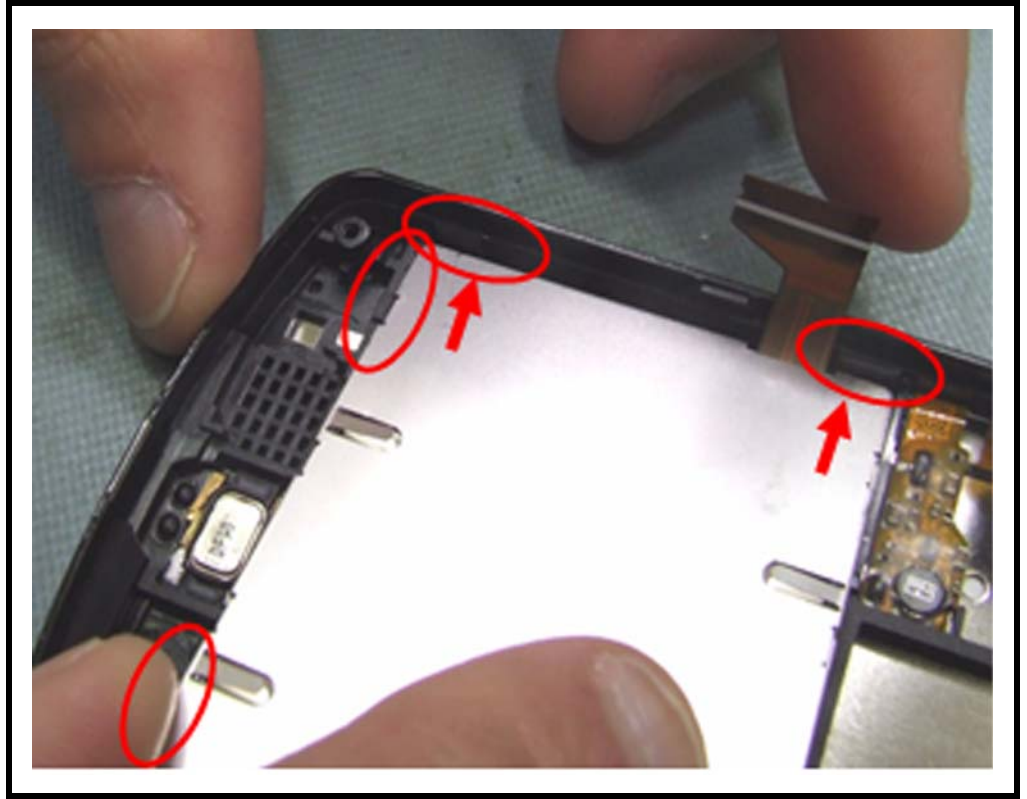


070493o

Figure 49. Removing the LCD Liner

6. Ensure the LCD is free from any dust or foreign matter.
7. Align the display assembly to the front housing.

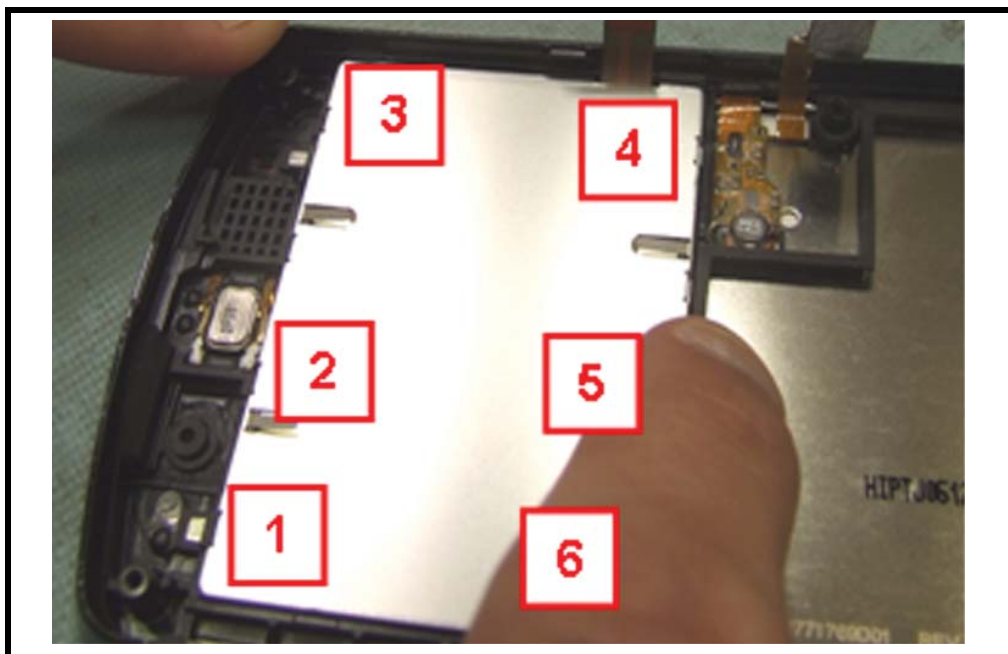
8. Tilt display, insert the flex edge of the display assembly first, then lower the display assembly into the front housing. Ensure that all four poron bias tabs (indicated by ovals) are not crushed under the LCD (see Figure 50).



0704790

Figure 50. Securing the Display Assembly

9. By carefully applying force along LCD outer perimeter, engage the snaps in order 1 through 6 as indicated.



070494o

Figure 51. Inserting the Display Assembly

10. Replace the main board, daughter board, rear housing, battery and battery door as described in the procedures.

UMTS Subscriber Identity Module (USIM) and Identification

SIM Card

A USIM is required to access the existing local UMTS and GSM networks, or remote networks when traveling (if a roaming agreement has been made with the provider). The USIM contains:

- All the data necessary to access UMTS and GSM services.
- The ability to store user information, such as phone numbers.
- All information required by the network provider to provide access to the network.

Personality Transfer

A personality transfer is required when a phone is express exchanged or when the main board is replaced. Personality transfers reproduce the customer's original personalized details, such as menu and stored memory, such as phone books, or even just program a unit with basic user information such as language selection. MOTO Q 9h telephones use ActiveSync to effect a personality transfer.

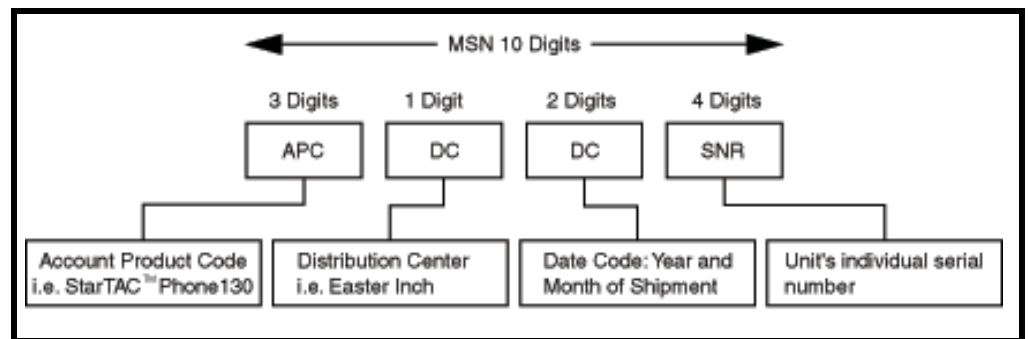
Identification

Each Motorola UMTS device is labeled with a variety of identifying numbers. The following information describes the current identifying labels.

Mechanical Serial Number (MSN)

The Mechanical Serial Number (MSN) is an individual unit identity number and remains with the unit throughout the life of the unit.

The MSN can be used to log and track a unit on Motorola's Service Center Database. The MSN is divided into 4 sections as shown in Figure 52.



000807a

Figure 52. MSN Label breakdown

International Mobile Station Equipment Identity (IMEI)

The International Mobile station Equipment Identity (IMEI) number is an individual number unique to the PCB and is stored within the unit's memory.

The IMEI uniquely identifies an individual mobile station and thereby provides a means for controlling access to UMTS networks based on mobile station types or individual units. The full IMEI structure is listed in Table 3.

Table 3. IMEI Number Breakdown

TAC	Serial Number	Check Digit
NNXXXXXX	ZZZZZZ	A

Where

TAC Type Allocation Code, formerly known as Type Approval Code

NN Reporting body identifier

XXXXXX Type Identifier

ZZZZZZ Individual unit serial number

A Phase 1 = 0.

Phase 2 = check digit defined as a function of all other IMEI digits

Other label number configurations present are:

- **TRANSCIVER NUMBER:** Identifies the product type. Normally the SWF number. (i.e. V100).
- **PACKAGE NUMBER:** Identifies the equipment type, mode, and language in which the product is shipped.

Troubleshooting

Table 4. Level 1 and 2 Troubleshooting Chart

Symptom	Probable Cause	Verification and Remedy
1. Telephone will not turn on or stay on.	a) Battery either discharged or defective.	Measure battery voltage across a 50 ohm (>1 Watt) load. If the battery voltage is <3.25 Vdc, recharge the battery using the appropriate battery charger. If the battery will not recharge, replace the battery. If battery is not at fault, proceed to b.
	b) Battery connectors open or misaligned.	Visually inspect the battery connectors on both the battery and the telephone. Realign and, if necessary, either replace the battery or refer to a Level 3 Service Center for the battery connector replacement. If battery connectors are not at fault, proceed to c.
	c) Transceiver board defective.	Refer service to authorized Level 3 service center for replacement.
	d) Front housing failure.	Replace the front housing assembly. Temporarily connect a +3.6 Vdc supply to the battery connectors. Depress the PWR button. If unit turns on and stays on, disconnect the dc power source and reassemble with the new front housing assembly.
2. Telephone exhibits poor reception or erratic operation such as calls frequently dropping or weak or distorted audio.	a) Antenna assembly defective.	Check to make sure that the antenna pin is properly connected to the transceiver board assembly. If connected properly, substitute a known good antenna. If the fault is still present, proceed to b.
	b) Transceiver board defective.	Refer service to authorized Level 3 service center for replacement.
3. Display is erratic, or provides partial or no display.	a) Connections to or from transceiver board defective.	Check general condition of flex and flex connector. If the flex and connector are good, check that the flex connector is fully connected. If not, check connector to transceiver board connections. If faulty connector, replace the transceiver board. If connector is not at fault, proceed to b.
	b) Transceiver board assembly defective.	Refer service to authorized Level 3 service center for replacement.
4. Incoming call alert transducer audio distorted or volume is too low.	Faulty transceiver board assembly.	Replace the transceiver board (refer to 1c). Verify that the fault has been cleared and reassemble the unit with the new transceiver board.
5. Telephone transmit audio is weak. (usually indicated by called parties complaining of difficulty in hearing voice).	a) microphone obstructed by user while holding the phone	Verify transmit audio quality. If transmit audio quality is still weak and microphone is not obstructed, proceed to b.
	b) Transceiver board assembly defective.	Refer service to authorized Level 3 service center for replacement.
6. Receive audio from earpiece speaker is weak or distorted.	a) Earpiece speaker defective.	Check speaker connections. If connections are at fault, replace speaker. If connection is not at fault, proceed to b.
	b) Antenna assembly defective.	Check to make sure the antenna is installed correctly. If the antenna is installed correctly, substitute a known good antenna assembly. If this does not clear the fault, reinstall the original antenna assembly and proceed to c.
	c) Transceiver board assembly defective.	Refer service to authorized Level 3 service center for replacement.

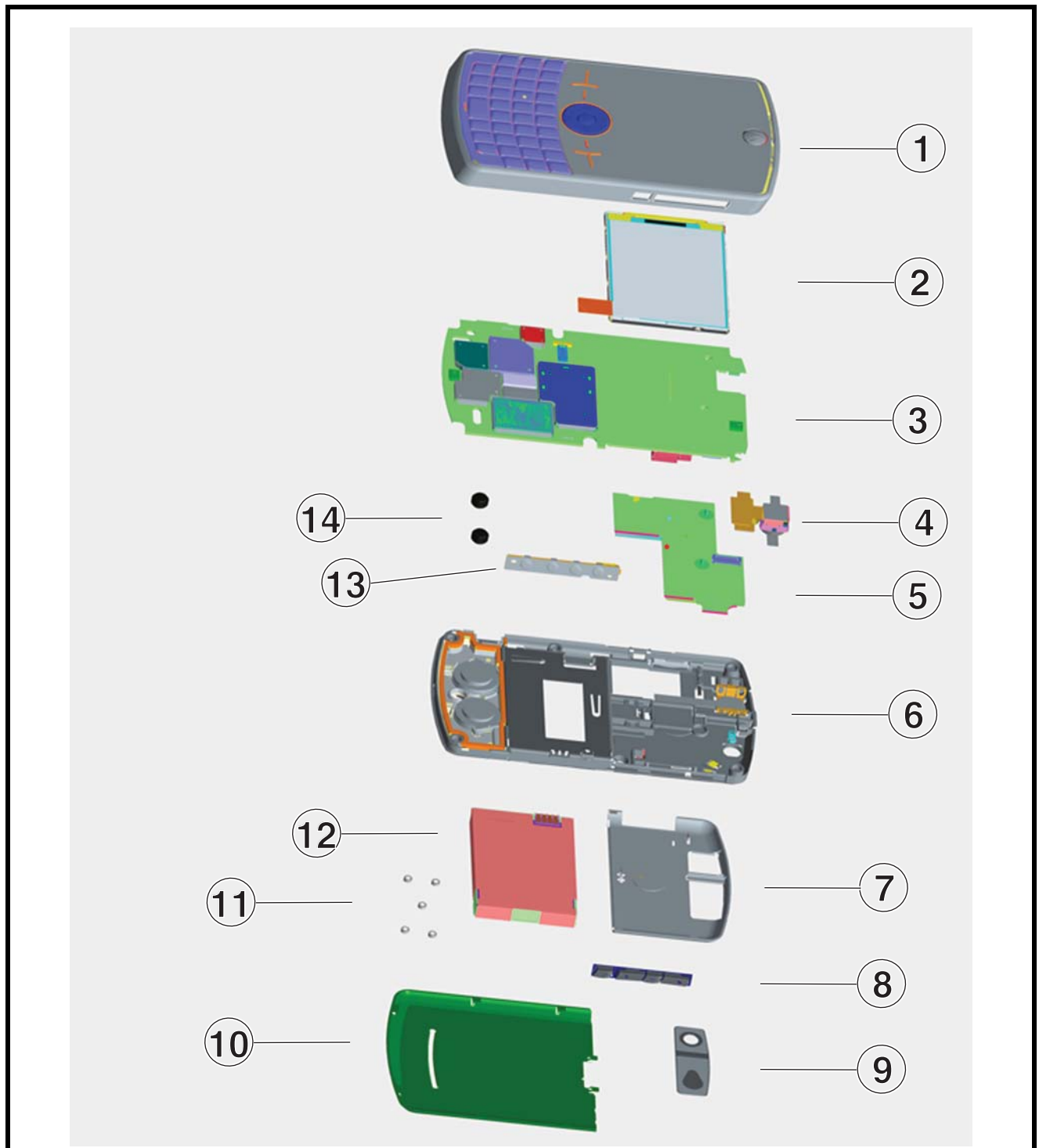
Table 4. Level 1 and 2 Troubleshooting Chart (Continued)

Symptom	Probable Cause	Verification and Remedy
7. Vibrator feature not functioning.	Motor/Vibrator assembly defective.	Replace the Motor/Vibrator assembly. Verify that the fault has been cleared and reassemble the unit with the new Motor/Vibrator assembly.
8. Internal Charger not working.	Faulty charger circuit on transceiver board assembly.	Test a selection of batteries in the rear pocket of the desktop charger. Check LED display for the charging indications. If these are charging properly, then the internal charger is at fault. Refer service to authorized Level 3 service center for replacement.
9. No or weak audio when using headset.	a) Headset not fully pushed home.	Ensure the headset plug is fully seated in the jack socket. If fault not cleared, proceed to b.
	b) Faulty jack socket on transceiver board assembly.	Refer service to authorized Level 3 service center for replacement.
10. GPS functionality does not work on North America model.	GPS receiver or lineup could be damaged.	Inspect the back cover as shown in figure 21 is as is, if not replace back cover. Inspect antenna for damage on back cover. If so, replace back cover. Inspect Daughter card. Verify there are no loose or damaged components. If so, replace with North America daughter card

Programming: Software Upgrade and Flexing

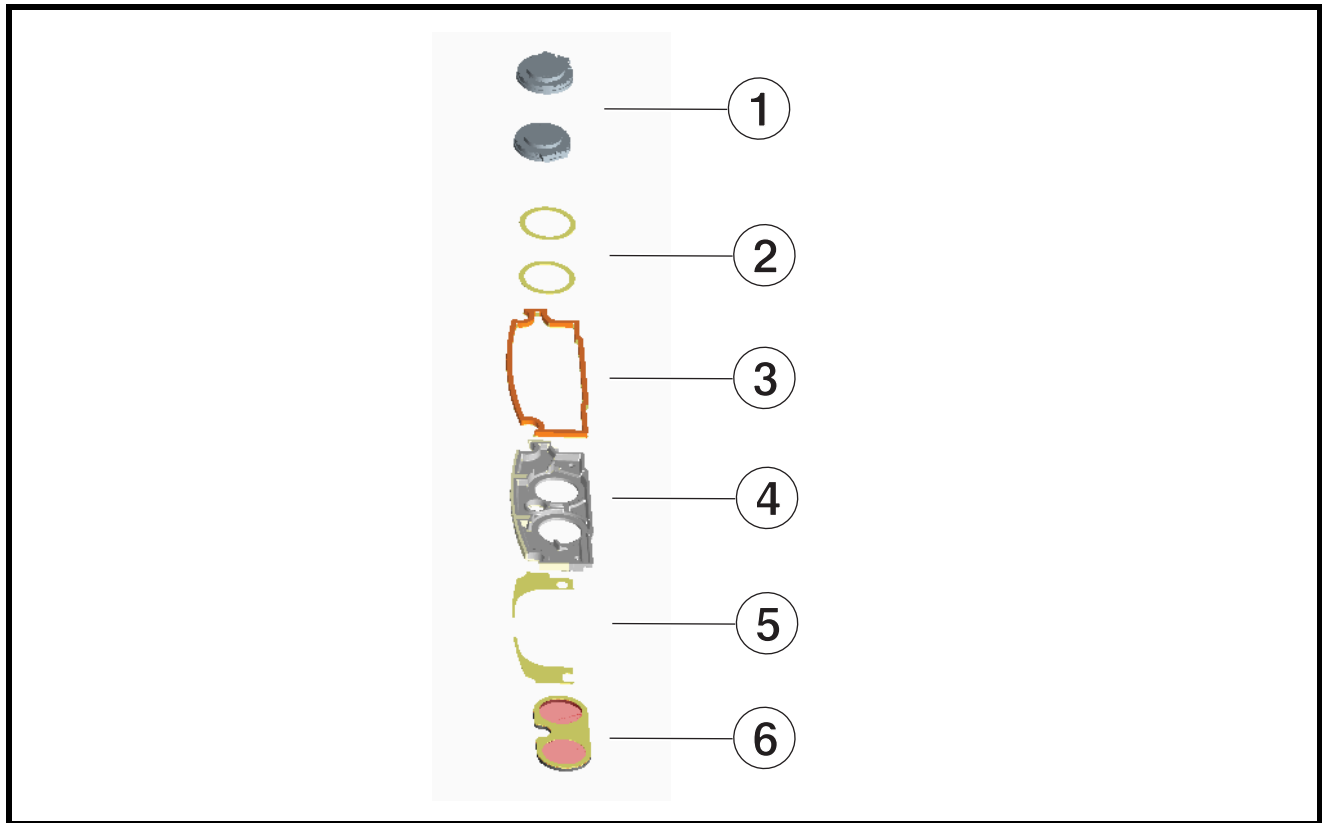
Contact your local technical support engineer for information about equipment and procedures for flashing and flexing.

Exploded View Diagram



v462595

Figure 53. Exploded View



v462596

Figure 54. Speaker/Antenna Assembly Exploded View

Exploded View Parts List

Table 5. Parts List

Item Number	Part Number	Description
1	0171384E01	ASSY,HSG,FRNT
	0171384E02	ASSY,HSG,FRNT,ENG,AT&T
	0171384E03	ASSY,HSG,FRNT,AZERTY
	0171384E04	ASSY,HSG,FRNT,QWERTZ
	0171384E05	ASSY,HSG,FRNT,RUS
	0171384E06	ASSY,HSG,FRNT,ARA
	0171384E07	ASSY,HSG,FRNT,HEB
	0171384E08	ASSY,HSG,FRNT,KOR
	0171384E09	ASSY,HSG,FRNT,CHI
	0171384E10	ASSY,HSG,FRNT,NORDIC
2	7271348E01	Display, Module 2.4" QVGA
3	SLG5122AA	ASSY,PCB,XCVR,NORMAN
	SLG5153AA	ASSY,PWA,MN,NORMAN EMEA
4	0171454D01	CAMR,ASSY,2MP AUTO FOCUS IMGR
5	0171791F01	ASSY,PCB,BABY BRD,XCVR,UMTS NORMAN
	0171602F01	DAUGHTER NA ASSY,PWA,BABY BRD,NORMAN DAUGHTER EMEA SPEC
6	0171240E01	ASSY,HSG,REAR
	0171240E02	ASSY,HSG,REAR,AT&T
7	1571806E01	CVR ASSY, TOP, REAR
8	3871940D01	BTN, SIDE, SLCN
9	1371013E01	BZL, CAMR, PC, SCPLQWERTY
10	1571637E01	CVR, BAT, PLAS, PNTD
	1571637E02	CVR, BAT, PLAS, DK PRL GRY, VODAPHONE
	1571637E03	CVR, BAT, BLKSLATE, PNTD CING
	1571637E04	CVR, BAT, PLAS, PF5 PNTD TIM
	1571637E05	CVR, BAT, PF5 PNTD H3G
	1571637E06	CVR, BAT, PLAS, PF5 PNTD TMOB
	1571637E07	CVR, BAT, PLAS, PF5 PNTD MVSTR
11	0371613E01	SCR, SLFTP, M1.6X.35, 4.2MM, STAR, BTN, STL, THREAD FORMING
12	SNN5819A	ASSY, BAT, LI ION, BT60, 1140MAH
12	SNN5782B	ASSY, PWR/AUTO, BAT, PF5 LTD LIION
13	0171624F01	ASSY, FLXCKT, KYPD, SIDE CONTROLS
14	3271641E01	SEAL, RF PROBE PORT
N/A	0371545E01	SCR, MACH, M1.6X.35, 2.5MM, STAR, BTN, STL
N/A	7571789E01	PAD, CMPSN, DISP CONN
N/A	7571683F01	PAD, CMPSN, PORON, 2MP CONN RETN

Table 6. Speaker/Antenna Assembly Parts List

Item Number	Part Number	Description
1	5071710C01	LOUD, DYNAMIC, 800- 5000, 8OHM, .5W, 16MM, PLAS FRNT
2	1171104E01	ADHES, PS, LOUD

Table 6. Speaker/Antenna Assembly Parts List (Continued)

Item Number	Part Number	Description
3	3271086E01	GSKT,ACSTC,URETH FM,BCK VOL
4	8571822G01 8571338E01	ANT,850MHZ MIN,2.1GHZ MAX,GSM-UMTS ANT,850MHZ MIN,1.9GHZ MAX,2.2DBI,GSM-UMTS
5	1171699E01	DIE CUT,ADHES,ACRYL,FICA RETN
6	3271085E01	GSKT,ACSTC,URETH FM,SPKR

Accessories

Table 7. Accessories

Part Description	Part or KIT #
Batteries	
Battery (standard capacity) 1100mAh	SNN5782
Battery (updated standard capacity) 1140mAh	SNN5819
Battery (Extended Li ION PF10) 1620mAh	SNN5759
Battery (updated Extended Li ION PF10) 1800mAh	SNN5826
Battery Doors	
Generic Standard Battery Door (No Logo)	SHN9901A
Vodafone Standard Battery Door	SHN0010A
AT&T Standard Battery Door	SHN0007A
Vodafone Standard Battery Door (France)	SHN0498A
T-Mobile NA Standard Battery Door	SHN0520A
T-Mobile Int'l Standard Battery Door	SHN0519A
TIM Standard Battery Door	SHN0522A
H3G Standard Battery Door	SHN0524A
Telefonica Standard Battery Door	SHN0521A
Orange Standard Battery Door	SHN0523A
Generic Extended Capacity Battery Door (No Logo)	SHN0008A
AT&T Extended Capacity Battery Door	SHN0009A
Vodafone Extended Capacity Battery Door	SHN0011A
H3G Extended Capacity Battery Door	SHN0777A
Connectivity	
Data Cable (Micro USB)/USB/Serial	SKN6238A
Mass Storage	
4 GB microSD card & Mot SD adapter	SYN1408
2 GB microSD card & Mot SD adapter	SYN1407
1 GB microSD card & Mot SD adapter	SYN1406
512MB microSD card & Mot SD adapter	SYN1405
256MB microSD card & Mot SD adapter	SYN1404
128MB microSD card & Mot SD adapter	SYN1403
Audio	
Headset Mono One Touch w/ Send-End (Micro USB) - Nirvana	SYN1472A
Stereo Headset - (Micro USB) - Nirvana	SYN1458A
Micro USB to 2.5mm TTY Adapter	SYN2112A
Micro USB to 3.5mm Adapter	SYN2113A
Bluetooth Devices	
Bluetooth integrated apparel - Audex™ Tantrum Snow Helmet	R61461014
Bluetooth Headset (Medusa - Pearl Dark Gray) - H300	SYN1297

Table 7. Accessories (Continued)

Bluetooth Headset (Medusa - Pink) - H300	SYN1417
Bluetooth Headset (Medusa - Pure White) - H300	SYN1416
Bluetooth Headset - Grey - HS820	SYN1106
Bluetooth Headset (H350) - Black	SYN1439
Bluetooth Headset (H350) - Silver Sail	SYN1764
Bluetooth Headset (H350) - Sapphire Blue	SYN1738
Bluetooth Headset (H350) - Dark Gray	SYN1763
Bluetooth Headset (H350) - Silver Quartz	SYN1765
Bluetooth Headset - (H500) Nickel	SYN1290
Bluetooth Headset - (H500) Black Soft touch	SYN1374
Bluetooth Headset - (H500) Hot Pink	SYN1525
Bluetooth Headset - (H500) Blue	SYN1523
Bluetooth Headset - (H500) Spa Blue	SYN1527
Bluetooth Headset - (H500) Pink	SYN1436
Bluetooth Headset RAZR H3 Black	SYN1437
Bluetooth Headset RAZR H3 Silver	SYN1438
Bluetooth Headset - HS850 (Paladin Refresh - Blue)	SYN1226
Bluetooth Headset - HS850 (Paladin Refresh - Black)	SYN1107
Bluetooth Headset (Persephone) - H605	SYN1303
Bluetooth Headset (MiniBlue) - H9	SJ0095A
Bluetooth Headset (Aphrodite) - H700	SYN1311
Bluetooth Headset (Aphrodite Refresh) - H7xx	TBD
Saturn - H670 - Blue	SYN1855B
Saturn - H555 - Silver/Black	SYN1821B
Saturn - H555 - Black/Black	SYN1854B
Saturn - H550 - Silver	SYN1822B
Venus - H800 - Green	SYN1641A
Venus - H800 - Blue	SYN1639A
Venus - H800 - Red	SYN1640A
Venus - H800 - Black	SYN1626A
Venus - H800 - Gray	SYN1642A
Adonis	TBD
Bluetooth Modular Helmet Headset + lanyard and helmet adapter - HS830	98697H
Bluetooth Stereo Headset HT820 (Neptune)	SYN0948
Bluetooth Stereo Headset S805 (PDiddy)	SYN1673
Bluetooth Stereo Headset S9 (Snoop) Black	SYN2035A
Bluetooth Stereo Headset S9 (Snoop) Red/Black	SYN1902A
Bluetooth Stereo Headset S9 (Snoop) White	SYN1638A

Table 7. Accessories (Continued)

Bluetooth Stereo Headset S9 (Snoop) Dark Blue Pearl	SYN1634A
Bluetooth Stereo Headset S9 (Snoop) FAD	SYN1668A
Bluetooth Stereo Headphones (Neptune 2.0 Street 50-Cent)	TBD
Bluetooth Stereo Headphones (Neptune 3.0 DJ Sting)	TBD
Sound Pilot (Outkast) S705	SYN1711
Bluetooth Stereo Transceiver DC800 (Triton)	SYN1001
Oakley RAZRWIRE Mercury	98679H
Oakley RAZRWIRE Pewter/Black	98677H
Oakley RAZRWIRE Platinum/Rootbeer	98678H
O ROKR (Oakley Stereo Bluetooth Eyewear - BLK)	SYN1552A
O ROKR (Oakley Stereo Bluetooth Eyewear - WHT)	SYN1553A
O ROKR (Oakley Stereo Bluetooth Eyewear RB)	SYN1554A
Bluetooth Module (Stereo Music and Telephony)	SYN1447
Bluetooth Car Kit - HF850 (Pro-Install)	SJ0014
Bluetooth Car Kit - T605	SYN1782A
Bluetooth Car Kit - IHF1000r - Americas/Asia (Pro-Install)	98676K
Bluetooth Speaker (Quadrant Refresh) - HF820 (Self-Install Car Kit)	SYN0736C
Bluetooth Speaker (Low tier) - T305 (Mustang)	SYN1716
Bluetooth Speaker (High tier) - T505 (McLaren)	SYN1717
Bluetooth Class 1 USB Adapter PC850	SYN1244
Charging Accy's	
EMU/uEMU Adapter (Old Version)	SKN6245A
EMU/uEMU Adapter (Updated Version)	SKN6252A
Norman Desktop Charger (English)	SPN5420A
Norman Desktop Charger (Chinese)	SPN5421A
Standard VPA	SYN1830A
Fast-Rate Loop VPA	SPN5400A
Charger Adapter - Aust/NZ Plug	SYN8127
Charger Adapter - Euro Plug	SYN7456
Charger Adapter - UK Plug	SYN7455
Travel Charger Micro USB Rapid Switcher - US	SPN5328A
Travel Charger Micro USB Rapid Switcher - MEX	SPN5329A
Travel Charger Micro USB Rapid Switcher - TWN	SPN5332A
Travel Charger Micro USB Rapid Switcher - PRC	SPN5333A
Travel Charger Micro USB Rapid Switcher - JAPAN	SPN5335A
Travel Charger Micro USB Rapid Switcher - BRAZIL	SPN5331A
Travel Charger Micro USB Rapid Switcher - ARG	SPN5327A
Travel Charger Micro USB Rapid Switcher - HK	SPN5330A
Travel Charger Micro USB Mid-Rate Switcher - US	SPN5334A

Table 7. Accessories (Continued)

Travel Charger Micro USB Mid-Rate Switcher - MEX	SPN5337A
Travel Charger Micro USB Mid-Rate Switcher - TWN	SPN5338A
Travel Charger Micro USB Mid-Rate Switcher - PRC	SPN5336A
Travel Charger Micro USB Mid-Rate Switcher - JAPAN	SPN5341A
Travel Charger Micro USB Mid-Rate Switcher - BRAZIL	SPN5345A
Travel Charger Micro USB Mid-Rate Switcher - EURO	SPN5342A
Travel Charger Micro USB Mid-Rate Switcher - UK/HK	SPN5340A
Travel Charger Micro USB Mid-Rate Switcher - ARG	SPN5339A
Travel Charger Micro USB Mid-Rate Switcher - AUS	SPN5344A
Travel Charger Micro USB Mid-Rate Switcher - INDIA	SPN5346A
Travel Charger Micro USB Mid-Rate Switcher - KOREA	SPN5343A
Travel Charger Micro USB Fast Rate Fixed - US	SPN5358A
Travel Charger Micro USB Fast Rate Fixed- MEX	SPN5362A
Travel Charger Micro USB Fast Rate Fixed - TWN	SPN5363A
Travel Charger Micro USB Fast Rate Fixed - JAPAN	SPN5365A
Travel Charger Micro USB Fast Rate Fixed - BRAZIL	SPN5366A
Travel Charger Micro USB Fast Rate Fixed - EURO	SPN5383A
Travel Charger Micro USB Fast Rate Fixed - UK/HK	SPN5376A
Travel Charger Micro USB Fast Rate Fixed- ARG	SPN5370A
Travel Charger Micro USB Fast Rate Fixed- AUS/NZ	SPN5371A
Travel Charger Micro USB Fast Rate Fixed- INDIA	SPN5372A
Travel Charger Micro USB Fast Rate Fixed- KOREA	SPN5373A
Travel Charger Micro USB Fast Rate Adapter - US	SPN5375A
Travel Charger Micro USB Fast Rate Adapter - MEX	SPN5369A
Travel Charger Micro USB Fast Rate Adapter - TWN	SPN5377A
Travel Charger Micro USB Fast Rate Adapter - PRC	SPN5368A
Travel Charger Micro USB Fast Rate Adapter - JAPAN	SPN5378A
Travel Charger Micro USB Fast Rate Adapter - BRAZIL	SPN5379A
MISC Accessories	
Screen Cleaning Cloth	SYN1745
Soft Carry Case	SYN1611B
Getting Started Disc per Region Description	Part Number
EMEA Multi-Language Disc	8288236X01
SOFTWARE,3G,9h,CD-ROM,GETTING STARTED DISC ATT	8288236X05
SOFTWARE,3G,9h,CD-ROM,GETTING STARTED DISC CANADA	8288236X04
SOFTWARE,3G,9h,CD-ROM,GETTING STARTED DISC Global	8288236X06
SOFTWARE,3G,9h,CD-ROM,GETTING STARTED DISC V2 Global	8288236X09
Bluetooth Headset - (H500) Cosmic Blue	SYN1617
Saturn – H670 - Black Slate	SYN1853
Saturn – H670 – Silver Quartz	SYN1852

Table 7. Accessories (Continued)

Saturn – H670 – Dark Pearl Gray	SYN1628
Bluetooth Headset (Aphrodite) – H700 – Black (EMEA only)	SYN1509
Bluetooth Headset (Aphrodite) – H700 – Blue/Black (AT&T only)	SYN1508
Bluetooth Headset (Aphrodite) – H700 – Blue (Verizon NA only)	SYN1618
Oakley Reverb (Oakley Stereo Bluetooth Eyewear – Black)	98763H
Bluetooth Stereo Headset S9 (Snoop) Mandarin Orange	SYN2324
Sound Pilot (Outkast) S705 – Pink Global	SYN2031
Sound Pilot (Outkast) S705 – Silver Global	SYN2032
Bluetooth Stereo Headset HT820 (Neptune) - Black	SYN1967
Standard VPA	SYN1380A
Travel Charger Micro USB Fast Rate w/Adapter - HK	SPN5381
Travel Charger Micro USB Standard – Brazil US Blades	SPN5402
Pro Install Bluetooth Carkit – T605 - Americas	98799N
Bluetooth Pro Install Music & Handsfree Car Kit T605	CFLN6400AA

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