MOTOROLA

Level 1 and 2 Service Manual

6809517A42-O

MOTO**ROKR E8**

GSM 850/900/1800/1900 MHz EDGE, GPRS

Mobile Devices Business,
Sawgrass International Concourse
789 International Parkway
Room S2C
Sunrise, FL 33325-6220

Contents

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 allow 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 a label usually located under the battery. 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.

Product Changes

When electrical, mechanical or production changes are incorporated into Motorola products, a revision letter is assigned to the chassis or kit affected, for example; -A, -B, or -C, and so on.

The chassis or kit number, complete with revision number, is imprinted during production. The revision letter is an integral part of the chassis or kit number and is also listed on schematic diagrams and printed-circuit board layouts.

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

About This Service Manual

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. Refer questions about this manual to the nearest Customer Service Manager.

Audience

This manual aids service personnel in testing and repairing E8 telephones. Service personnel should be familiar with electronic assembly, testing, and troubleshooting methods, and with the operation and use of associated test equipment.

Scope

This manual provides basic information relating to E8 telephones, and also provides procedures and processes for repairing the phones 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 which may result in equipment damage.

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

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. Return customer units that fail very early on after the date of sale to Manufacturing for root cause analysis, to guard against epidemic criteria. Manufacturing to 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). Motorola High Tech 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

Outside U.S.A.

Phone: 847-538-8023

FAX: 847-576-3023

Website: http://businessonline.motorola.com

EMEA

Phone: +49 461 803 1404

Website: http://emeaonline.motorola.com

Asia

Phone: +65 648 62995

Website: http://asiaonline.motorola.com

Specifications

General Function	Specification
Frequency Range GSM 850	824-848 MHz Tx 869-893 MHz Rx
Frequency Range GSM 900	880-915 MHz Tx (with EGSM) 925-960 MHZ Rx
Frequency Range DCS 1800	1710-1785 MHz Tx 1805-1880 MHz Rx
Frequency Range PCS 1900	1850-1910 MHz Tx 1930-1990 MHz Rx
Channel Spacing	200 kHz
Channels	174 EGSM, 374 DCS, 374 PCS, 124 GSM 850 carriers with 8 channels per carrier
Modulation	GMSK at BT = 0.3
Transmitter Phase Accuracy	5 Degrees RMS, 20 Degrees peak
Duplex Spacing	45 MHz
Frequency Stability	± 0.10 ppm of the downlink frequency (Rx)
Operating Voltage	+3.2V dc to +5.5V dc (battery) +4.8V dc to +6.5V dc (external connector)
Transmit Current Drain	101-260 mA average talk current drain
Stand-by Current drain	5 mA (DRX2), 2 mA (DXR9) typical
Temperature Range	-10° C to +55° C (+15° F to +130° F)
Dimensions, with 950 mAh Li Ion battery	53mm x 115mm x 10.6mm
Size (Volume)	60 cc
Weight	100 grams with battery
Battery Life, with standard 950 mAh Li-Ion Battery	Talk Time up to 180-360 minutes Standby time up to 160-300 hours Audio playback time: up to 13 hours 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.
Battery Charge Time	4 hours to 90% of 950 mAh capacity
Alert volume	Max 95 dB @5cm, 0.5 Watts input

Transmitter Function	Specification
RF Power Output	32 dBm nominal GSM 850/900, 29 dBm nominal GSM 1800/1900
Output Impedance	50 ohms nominal
Spurious Emissions	-36 dBm from 0.1 to 1 GHz, -30 dBm from 1 to 4 GHz

Receiver Function	Specification
Receive Sensitivity	Better than -103 dBm
RX Bit Error Rate (100k bits) Type II	< 2%

Speech Coding Function	Specification
Speech Coding Type	Regular pulse excitation/linear predictive coding with long term prediction (RPE LPC with LTP)
Bit Rate	13.0 kbps

Speech Coding Function	Specification
Frame Duration	20 ms
Block Length	260 bits
Classes	Class 1 bits = 182 bits; Class 2 bits = 78 bits
Bit Rate with FEC Encoding	22.8 kbps

Product Overview

MOTOROKR E8 telephones represent the thinnest, compact and lightweight global system for mobile communications (GSM) general packet radio service (GPRS) wireless application protocol (WAP)-enabled mobile phones. The E8 phones incorporate an improved user interface for easier operation, allows multimedia message service (MMS) messaging, and includes personal information manager (PIM) functionality.

The E8 is a quad-band phone that allows roaming within the GSM 900 MHz, GSM 850 MHz, 1800 MHz digital cellular system (DCS), and 1900 MHz PCS bands.

E8 telephones support GPRS and Enhanced Data rates for GSM Evolution (EDGE) in addition to traditional circuit switched transport technologies.

The E8 phone consists of the 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 morphing keypad are located on the front of the device. The camera, battery compartment, and rf connectors are located at the rear of the device. The standard 950 mAh Lithium Ion (Li Ion) battery fits behind a removable back cover and provides up to 500 minutes of talk time with up to 280 hours of standby time[1]. The display module consists of 240 x 320 pixel, Active Matrix Liquid Crystal Display (AMLCD) with white pixels on a black background. The CLI screen is a 2.0" transflective sub display, and the primary screen is a 2.2" transmissive main display.

The camera module is a 2.0 mega pixel VGA CMOS camera.

The main housing assembly includes a battery cover, chassis, main circuit board, keypad plastic front housing, and internal antenna.

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

The telephones are made of polycarbonate plastic. The display and speaker, as well as the 23-key keypad, transceiver printed-circuit board (PCB), microphone, charger and headphone connectors, and power button are contained within the candy bar form-factor housing.

The phone accepts both 3V and 1.8V mini subscriber identity module (SIM) cards which fit into the SIM holder next to the battery. The antenna is mounted internally. Direct connection to a computer or handheld device provided by USB or Bluetooth® for data and fax calls, and for synchronizing phonebook entries with Mobile Phone Tools software, can be accomplished by using the optional data cable and soft modem.

Features

E8 telephones use advanced, self-contained, sealed, custom integrated circuits to perform the complex functions required for GSM 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 model include:

- Messaging: MMS, EMS 5.0, IM Wireless Village, Email (POP3, SMTP, IMAP4)
- Music: MIDI, MP3, AAC, AAC+, Enhanced AAC+, WMA, WAV, AMR-NB, Real

1. All talk and standby times are approximate and depend on network configuration, signal strength, and features selected.

Audio (RA) v10
- Video: capture and playback
- Camera: 2MP with 8x zoom on capture; video capture & PB (H.263)
- Memory: 2GB internal memory, MicroSD external memory (up to 4GB)
- Connectivity: 3.5mm stereo headset jack, Stereo Bluetooth Class 2 (A2DP), USB 2.0 Hi-speed, GPRS Class 12, EDGE Class 12
- Morphing, Multi-modal Lighting Technology (TNLC, Segmented EL, etc.)

Speaker Dependent Voice Activation and Voice Note Recording

Voice tags can be used for voice dialing up to 20 phone numbers in the phone book and for creating up to 5 voice shortcuts for menu items. The phone must be "trained" by the voice tag being read into the phone's memory twice before it is recognized.

You can add voice tags to the phone's memory using the usual name addition methods (i.e., via the phone book menu structure or with the shortcut editor).

You cannot place or receive calls while adding voice tags to the phone's memory.

Because the GSM standard does not provide the option to store voice tags onto the SIM card, voice tags are added to the phone's memory.

E8 telephones also include a voice recorder that allows up to 2 minutes of personal messages to be recorded. This feature has a complete set of record, playback, and management tools that make it easy to store and maintain a list of personal memos.

Wireless Access Protocol (WAP) 1.1 Compliancy

In the WAP environment, access to the Internet is initiated in wireless markup language (WML), which is derived from hypertext markup language (HTML). The request is passed to a WAP gateway that retrieves the information from the server in standard HTML (subsequently filtered to WML) or directly in WML if available. The information is then passed to the mobile subscriber via the mobile network.

The E8 microbrowser can be configured for baud, idle timeout, line type, phone number, and connection type.

Bitmap image data will download as text. If the image is larger than the screen, only part of the image will display.

When the user receives a call while in browser mode, the browser will pause and allow the user to resume after completing the call.

Caller Line Identification

Upon receipt of a call, the calling party's phone number is compared to the phone book. If the number matches a phone book entry, that name will be displayed. If there is no phone book entry, the incoming phone number will be displayed. In the

event that no caller identification information is available, the Incoming Call message is displayed.

User must subscribe to a caller line identification service through their service provider.

Other Features

Detailed descriptions of these and other E8 features can be found in the user's guide.

General Operation

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

The E8 controls are located on the sides of the phone. See Figure 1.

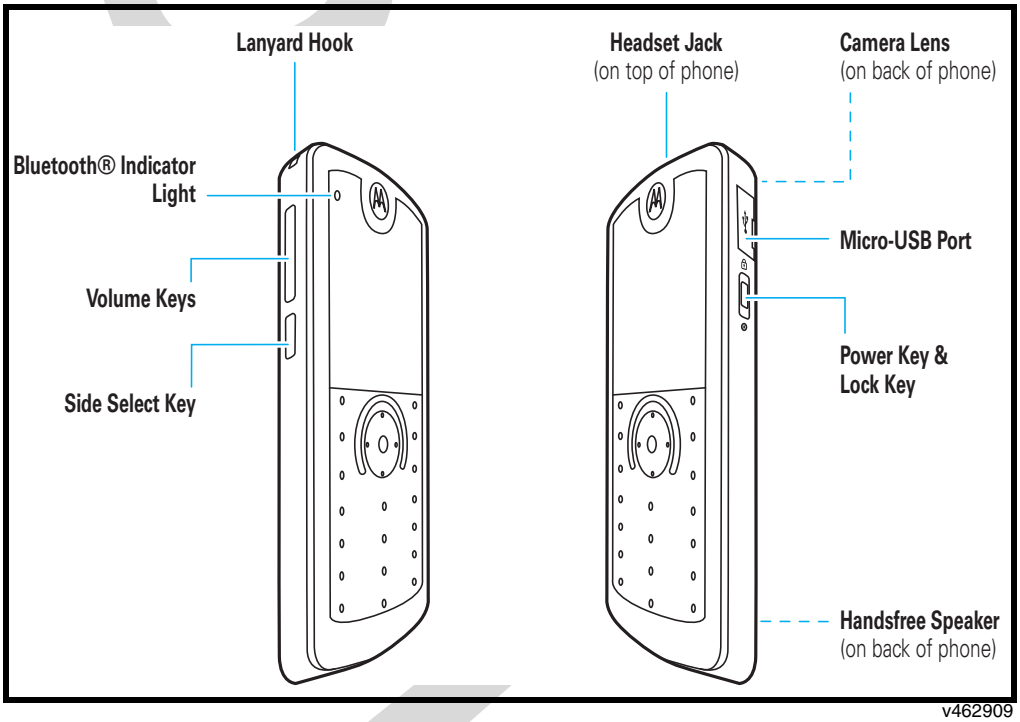

Figure 1. Controls, indicators, and I/O

The E8 phone has a large external display. The phone's charging indicator, camera lens, and Bluetooth indicator are also located on the front along with other external controls. The phone has a micro USB port, located on the left side of the phone.

Color Display

The E8 wireless phones feature a 2.0" QVGA 240x320 262K TFT Main Display.

The center key opens the initial menu structure, or allows access to a submenu.

"Soft keys" refer to non-labeled keys that correspond to text options displayed on the screen. The left and right soft keys perform the function shown in the corners of the display. The right key will usually select an option whereas the left key will usually exit a function or return to a previous screen (see Figure 2).

Indicators, in the form of icons, display on the LCD. Figure 2 shows some of the icons that display on the LCD.

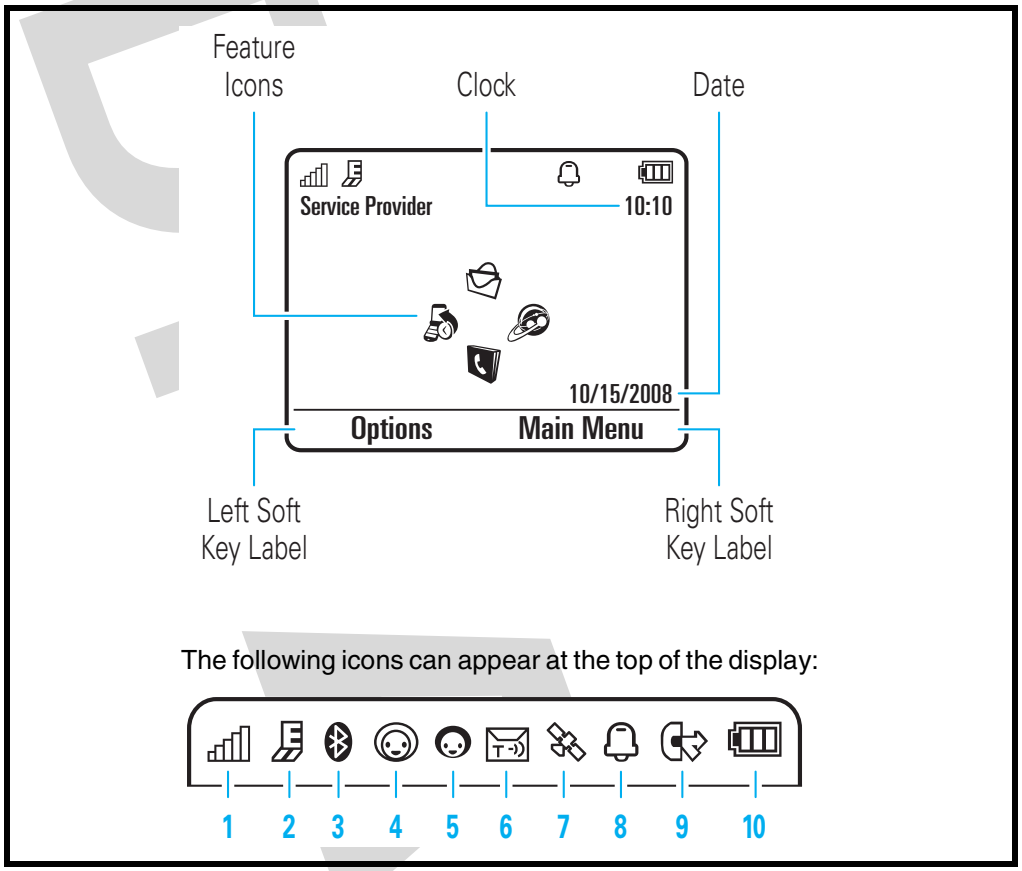

Figure 2. Icon Indicators

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

1. Signal Strength Indicator – Show the strength of the wireless network connection.
2. EDGE/GPRS Indicator – Shows when your phone is using a high-speed Enhanced Data for GSM Evolution (EDGE) network connection Z, or General Packet Radio Service (GPRS) network connection g.
3. Bluetooth Indicator – Shows Bluetooth status:
   - (solid blue) = Bluetooth powered on
   - (solid green) = Bluetooth connected
   - (flashing blue) = Bluetooth discoverable mode
4. Messaging Presence Indicator – Shows your instant messaging (IM) status:
   - (green) = online
   - = offline
   - = busy
   - = discrete
   - (gray) = invisible to IM
5. IM Indicator – Shows when you receive a new IM message.

6. Message Indicator – Shows when you receive a new text or voice message. Other indicators can include:
   = email message = voicemail message
7. Location Indicator – Shows when your phone is providing location information to the network, or when location information is turned off.
8. Profile Indicator – Shows the alert profile setting:
   = ring only = ring and vibrate
   = vibrate only = vibrate then ring
   = silent
9. Active Line Indicator – Shows to indicate an active call, or to indicate when call forwarding is on.
10. Battery Level Indicator – Vertical bars show the battery charge level. Recharge the battery when your phone shows **Low Battery**.

Battery Function

Battery Gauge

The telephone displays a battery level 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 immediately shut down and any pending work (for example, partially entered phone book entries or outgoing messages) is lost.

To ensure proper memory retention, turn OFF the phone before removing the battery.

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

Operation

For detailed operating instructions, refer to the appropriate User's Guide.

Tools and Test Equipment

The following table lists tools and test equipment recommended for disassembly and reassembly of E8 telephones. Use either the listed items or equivalents.

Table 1. 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 Plus, Apex 440-6IP Torx Plus or equivalent	Used with torque driver
See Table 7	Rapid Charger	Used to charge battery and to power device
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)
6680388B67	Disassembly tool, plastic with flat and pointed ends (manual opening tool)	Used during assembly/disassembly of device
6680388B01	Tweezers, plastic	Used during assembly/disassembly
—	Digital Multimeter, HP34401A[2]	Used to measure battery voltage
8102430Z04	GSM / DCS Test SIM	Used to enable manual test mode
19501980	Generic Press	
0-00-00-40869	P-Flex and CLI lens Press Fixture	
0-00-00-40870	Main Lens Press Fixture	
0-00-00-40871	Hand Held Speaker Press Fixture	
0-00-00-40872	Hinge Shaft Key Press Fixture	
0-00-00-40873	K-Flex / Rear Housing gasket / Earpiece gasket alignment fixture kit	
0-00-00-40877	Keypad Tab Bend Fixture	

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 faxing (847) 576-3023.
2. Not available from Motorola. To order, contact Hewlett Packard at (800) 452-4844.

Disassembly

The procedures in this section provide instructions for the disassembly of E8 telephones. Tools and equipment used for the phone are listed in Table 1, preceding.

Many of the integrated devices used in this equipment 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.

T5 screws are silver. T3 screws are black. See Figure 6 for screw locations.

Removing and Replacing the Battery Cover and 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. Ensure the phone is turned off.
2. Slide the battery cover up (toward the top of the phone) to release (see Figure 1).

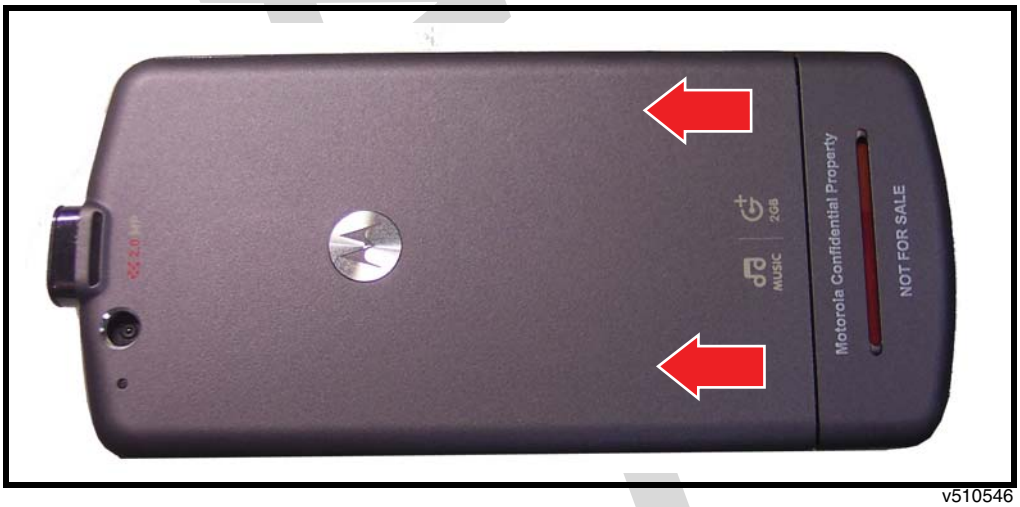

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Figure 1. Removing the Battery Cover

3. Lift up and remove the battery cover.

4. Remove the headphone cover at the top of the phone (see Figure 3).

v510563

Figure 2. Removing the Headphone Cover

5. Set the headphone cover aside for reassembly.
6. Lift up the battery near the bottom end of the phone, then remove the battery from the phone. See Figure 3.

v510547

Figure 3. Removing the Battery

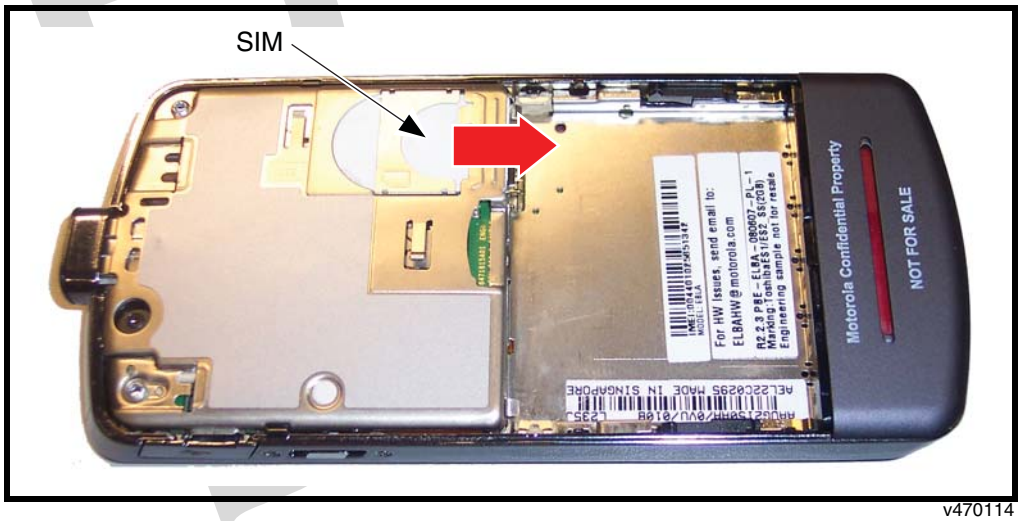
There is a danger of explosion if the Lithium Ion battery is replaced incorrectly. Replace only with the same type of battery or equivalent as recommended by the battery manufacturer. Dispose of used batteries according to the manufacturer's instructions.

7. To replace, align the battery with the battery compartment so the contacts on the battery match the battery contacts in the phone.

8. Insert the battery, contacts side first, into the battery compartment and push down followed by the opposite edge of the battery.
9. Insert the bottom edge of the of the battery cover into the rear housing, then push the top edge of the cover down and snap it into place.

Removing and Replacing the Subscriber Identity Module (SIM)

1. Remove the battery cover and battery as described in the procedures.
2. Slide the SIM card out of the SIM holder, as shown in Figure 4.



v470114

Figure 4. Removing the SIM

3. Carefully lift the SIM from the phone.
4. To replace, insert the SIM into the holder, ensuring the notched corner of the SIM is inserted first.
5. Replace the battery and battery cover as described in the procedures.

Removing and Replacing the Antenna Cover

1. Remove the battery cover, battery, and SIM as described in the procedures.

The antenna is fastened with plastic latches. These are fragile and should be released with care.

2. Insert the disassembly tool under the antenna cover as shown in Figure 5 and release the first latch under the antenna cover.

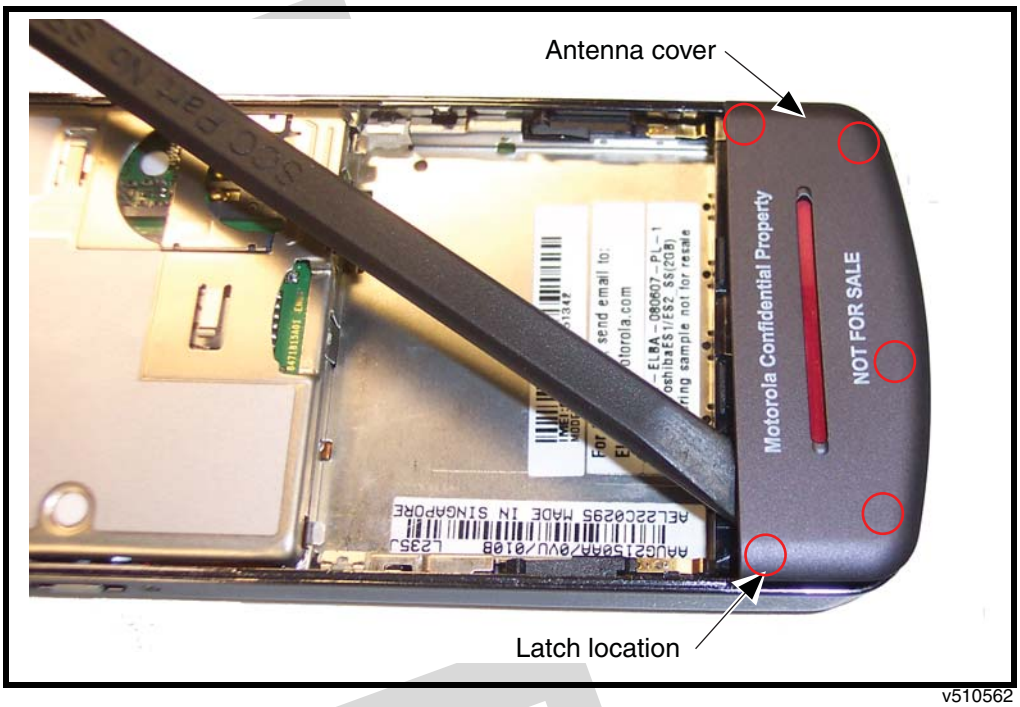


Figure 5. Removing the Antenna Cover

3. Insert the disassembly tool along the outer edges of the antenna cover and carefully release the latches at the locations shown in Figure 5.
4. Remove the antenna cover from the phone.
5. To replace, peel the liner away from new antenna cover adhesive.
6. Carefully align the antenna cover to the rear of the phone.
7. Gently press down on the antenna cover until all 5 antenna cover latches are engaged.
8. Replace the SIM, battery, and battery cover as described in the procedures.

Removing and Replacing the PCB Cover

1. Remove the battery cover, battery, SIM, and antenna cover as described in the procedures.

2. Use the T5IP driver to remove the two screws that secure the PCB cover. See Figure 6. **T5 screws are silver. T3 screws are black.**

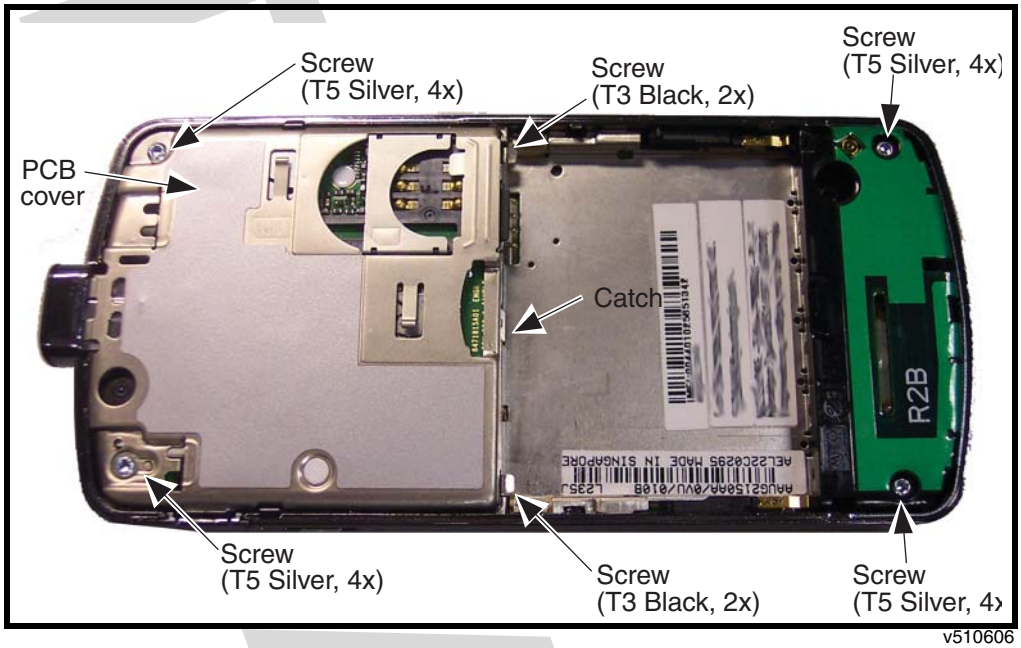


Figure 6. Removing the PCB Cover

3. Use metal tweezers to release the catch on the PCB cover.
4. Remove the PCB cover from the phone.

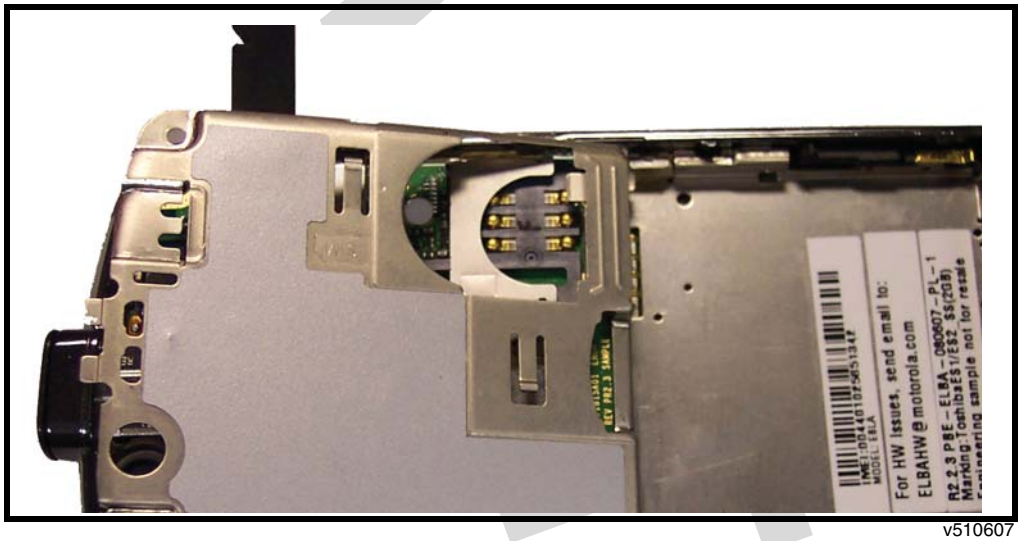


Figure 7. Removing the PCB Cover

5. To replace, align the PCB cover to the phone.
6. Attach one side of the PCB cover to the latch.

7. Insert and tighten the two PCB cover screws (T5, silver) with the T5IP driver.
8. Replace the antenna cover, SIM, battery, and battery cover as described in the procedures.

Removing and Replacing the Acoustic Chamber Assembly

1. Remove the battery cover, battery, SIM, antenna cover, and PCB cover as described in the procedures.
2. Remove the two acoustic chamber assembly screws (T5 silver) with the T5IP driver.

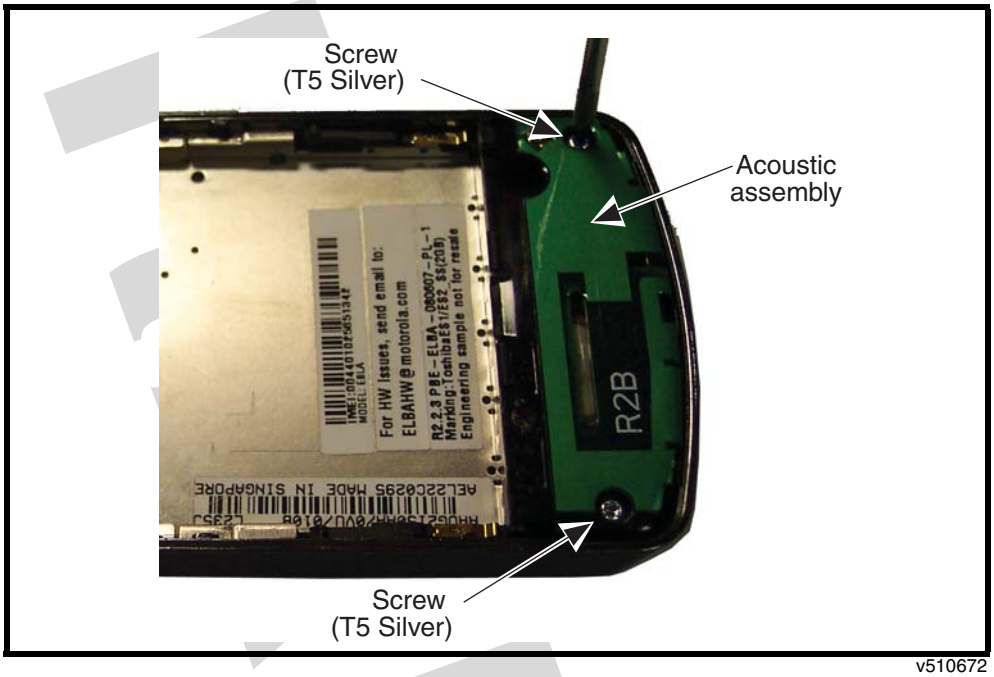


Figure 8. Removing the Acoustic Chamber Assembly Screws

3. Use tweezers to release the catches along the sides of the chassis.

4. Insert the disassembly tool between the acoustic chamber and the chassis to pry with a downward motion to lift the acoustic chamber assembly up from the phone chassis.

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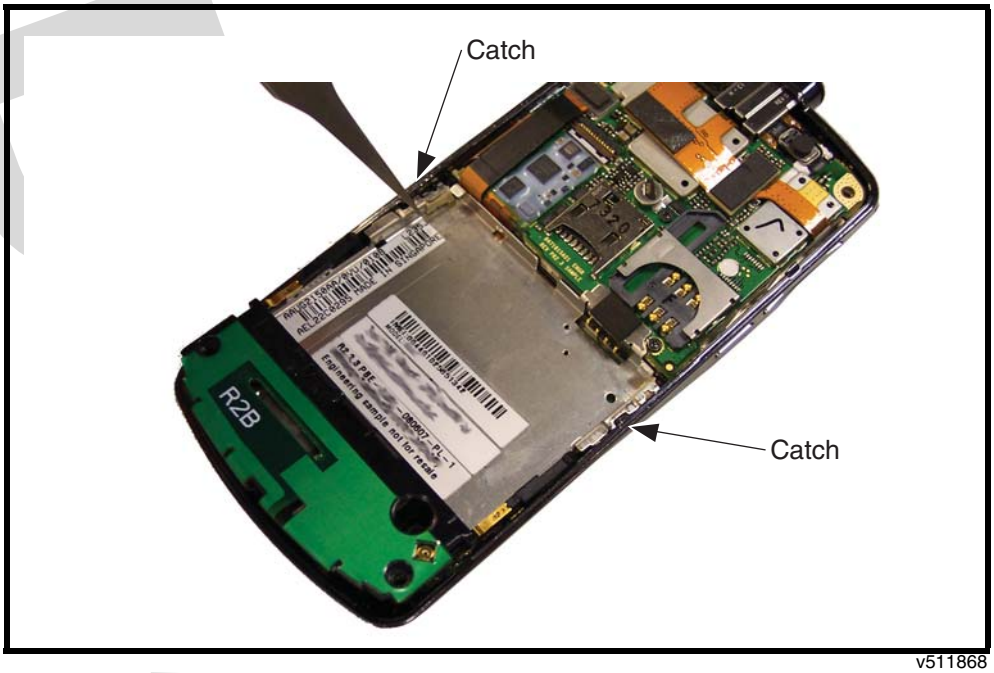
Figure 9. Removing the Acoustic Chamber Assembly

5. Use the metal tweezers to release the catch at the top of the battery compartment.

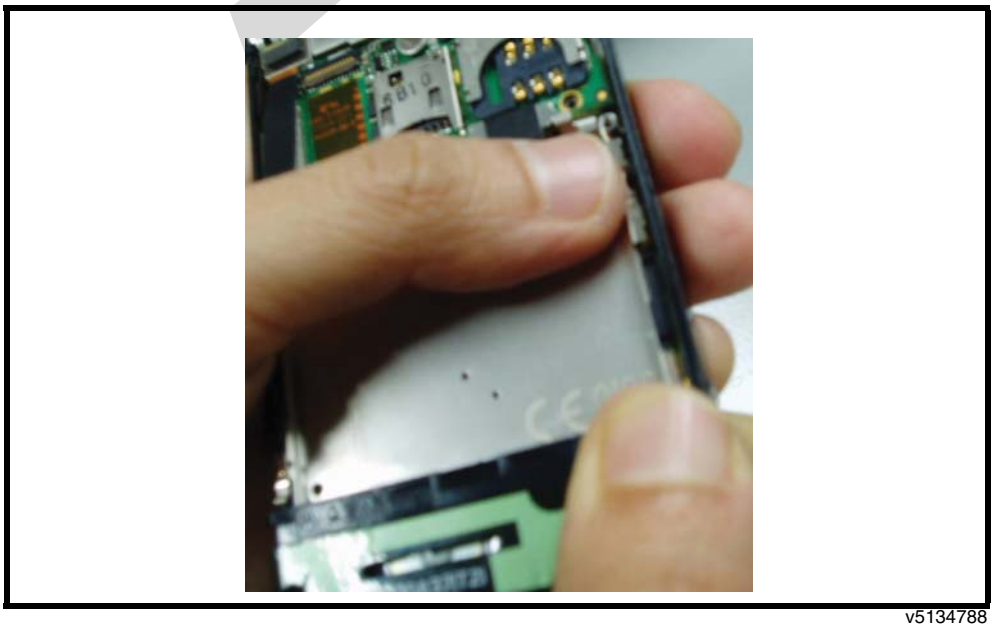
6. Release the catches along the sides with the metal tweezers.



v511868

Figure 10. Releasing the Battery Compartment Catches

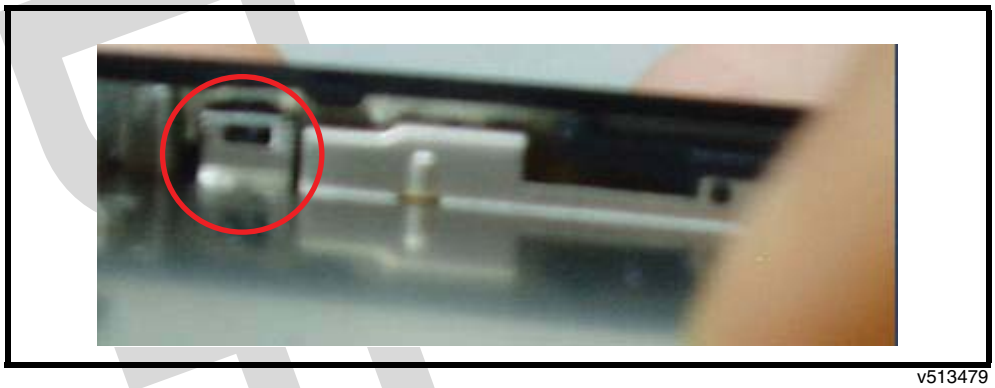
7. Remove the acoustic chamber from the chassis.
8. To replace, align the acoustic chamber assembly to the side of the coaxial cable as shown.



v5134788

Figure 11. Aligning the Acoustic Chamber Assembly

9. Engage and snap the catch on the right side.
10. Ensure that the hole on the battery floor matches the protrusion on the chassis.



v513479

Figure 12. Checking Acoustic Chamber Alignment

11. Snap the catch on the left side of the acoustic chamber.

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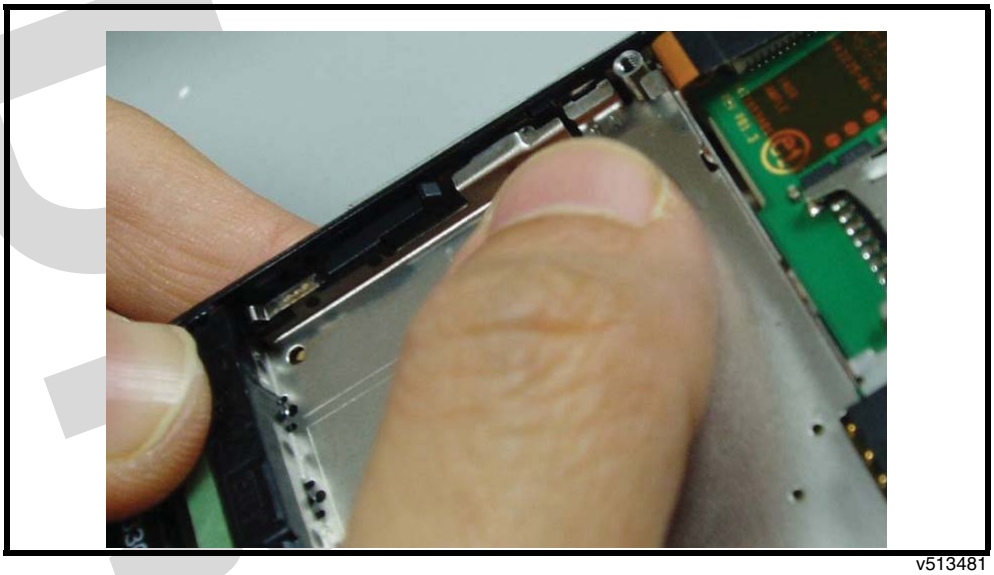
Figure 13. Installing the Acoustic Assembly

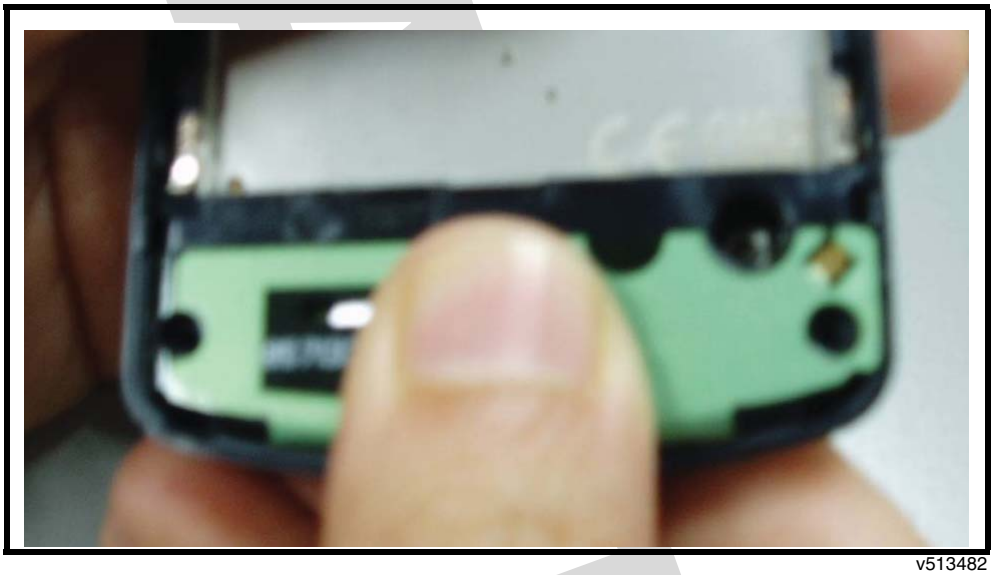
12. Snap the catch on the upper left side of the acoustic chamber assembly.



v513481

Figure 14. Installing the Acoustic Chamber Assembly

13. Snap the catch at the bottom of the acoustic chamber assembly.



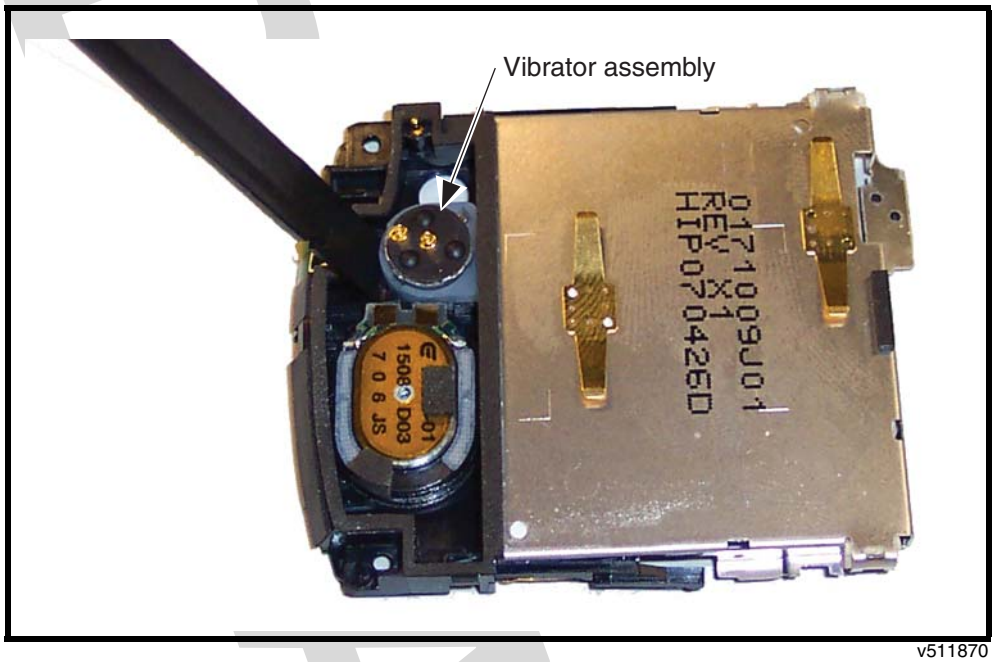
v513482

Figure 15. Installing the Acoustic Chamber Assembly

14. Insert and tighten 2 T5IP screws (silver) at each side of the acoustic chamber assembly.
15. Replace the PCB cover, antenna cover, SIM, battery, and battery cover as described in the procedures.

Removing the Vibrator Assembly

16. Insert the disassembly tool between the acoustic chamber and the rubber housing and pry with a downward motion to remove the vibrator assembly.



v511870

Figure 16. Removing the Assembly

17. Insert the disassembly tool between the rubber grommet and the vibrator assembly to remove the grommet.
18. Use the tweezers to remove the adhesive from the vibrator assembly.

19. To replace, use the tweezers to pick up the double-sided vibrator adhesive.

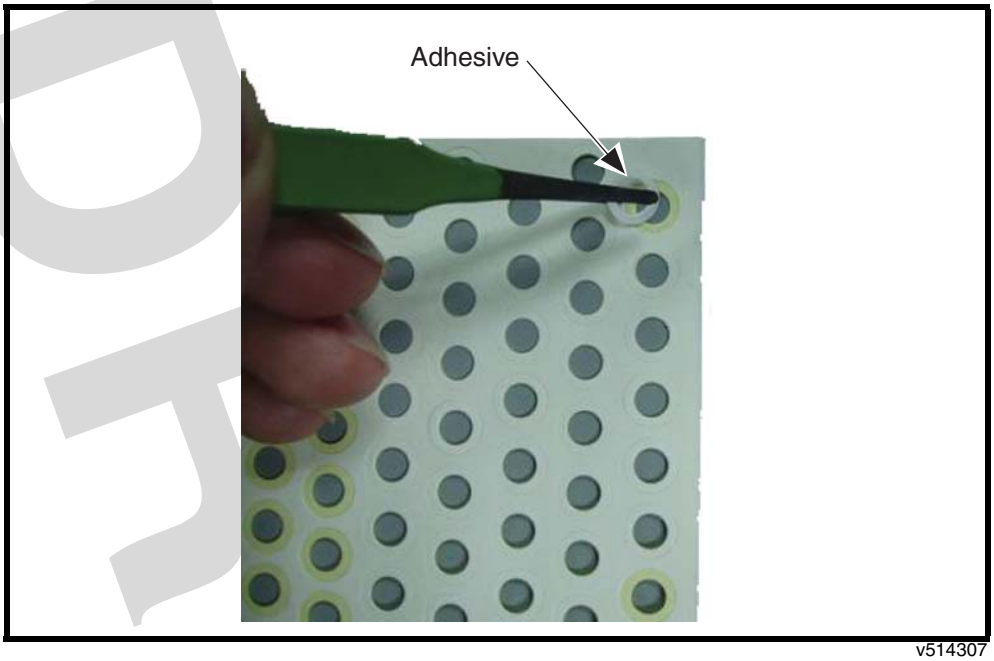


Figure 17. Double Sided Adhesive

20. Place the adhesive on the back of the vibrator assembly. Ensure the adhesive is centered on the vibrator assembly, with none of the adhesive extending past the edges.

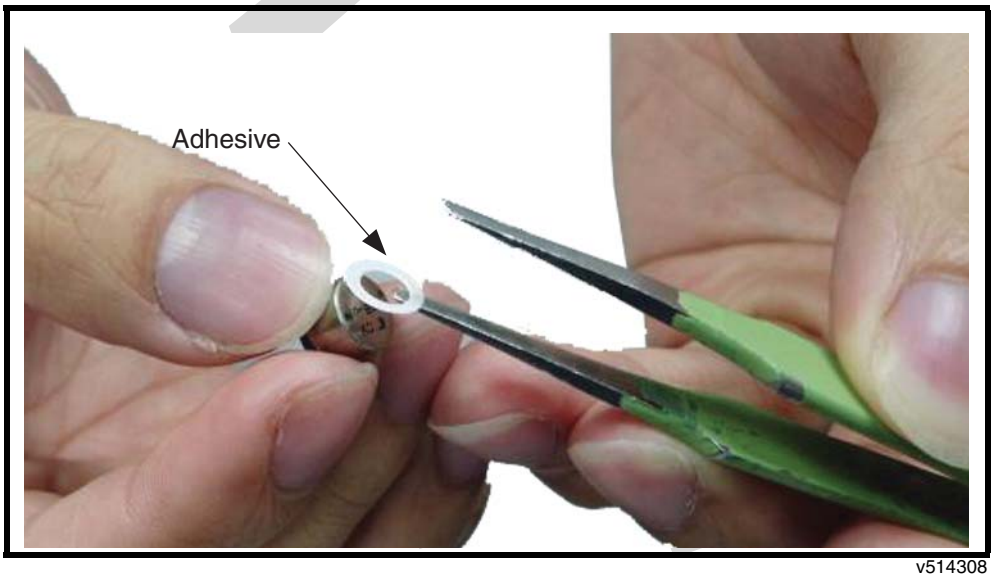


Figure 18. Placing the Double Sided Adhesive on the Vibrator

21. Use the tweezers to remove the adhesive liner leaving the exposed adhesive intact on the vibrator.

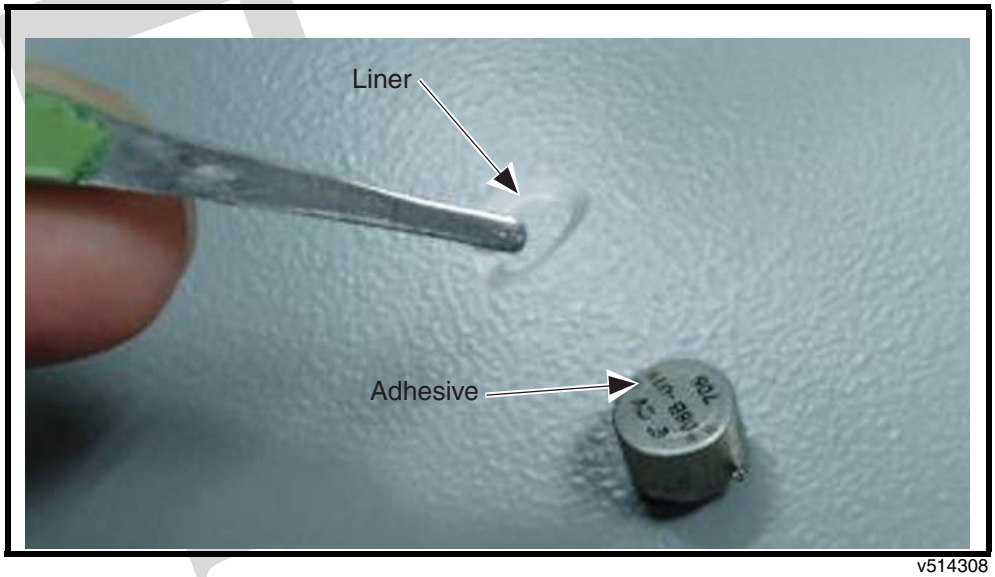


Figure 19. Removing the Adhesive Liner from the Vibrator

22. Use the tweezers to place the rubber vibrator grommet into the acoustic chamber. Ensure that the small indent feature on the grommet is at the lower right corner.

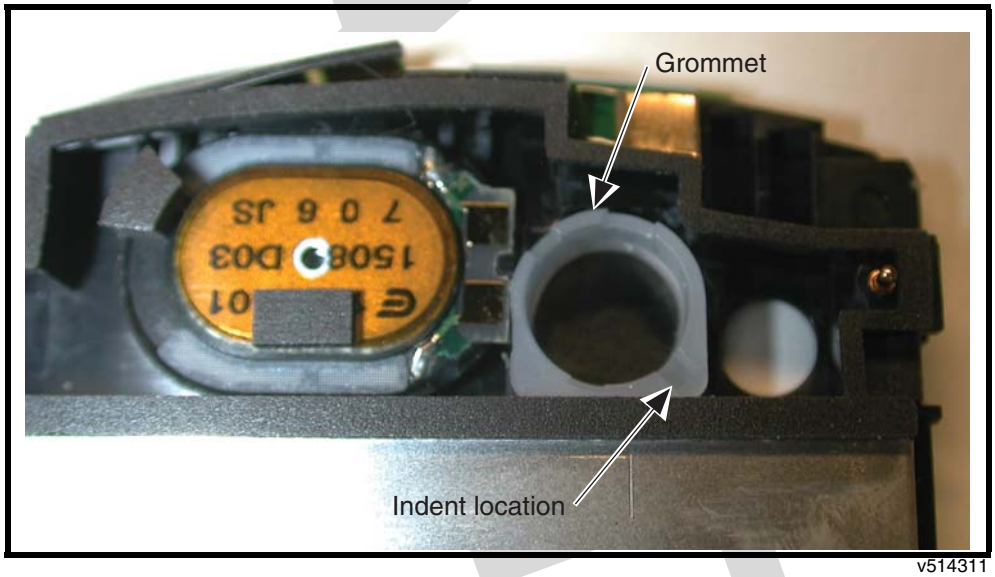


Figure 20. Placing the Vibrator Grommet into the Acoustic Chamber

23. Hold the acoustic chamber assembly at the top and bottom edges and place the assembly into the press fixture using the alignment pin to position the assembly.

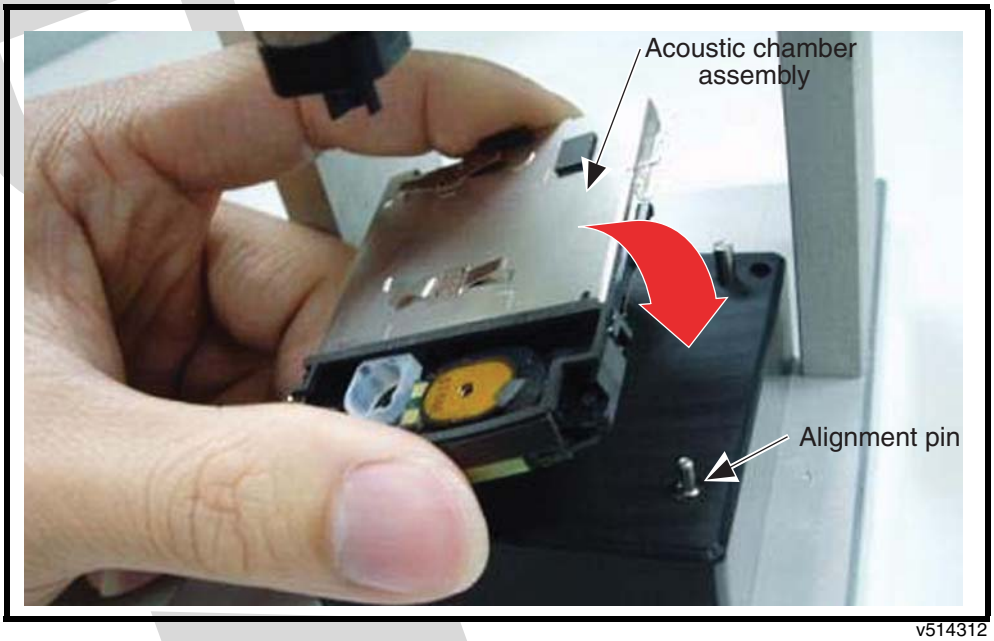


Figure 21. Placing the Vibrator Grommet into the Acoustic Chamber

24. Hold the vibrator with the tweezers and place it into the rubber grommet. Align the protruding pin on the vibrator to the indent on the grommet.

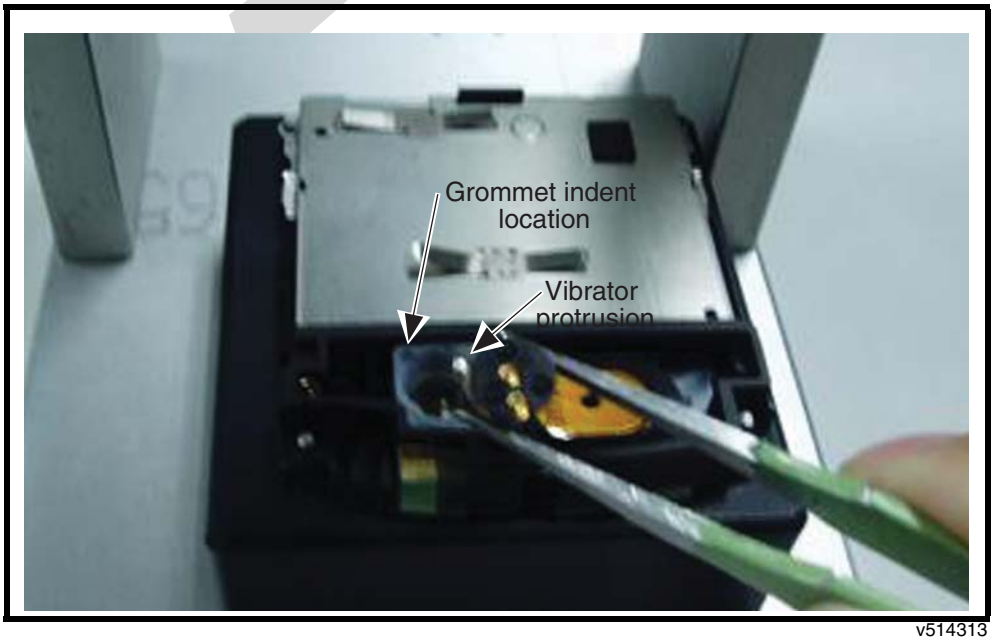


Figure 22. Placing the Vibrator into the Acoustic Chamber

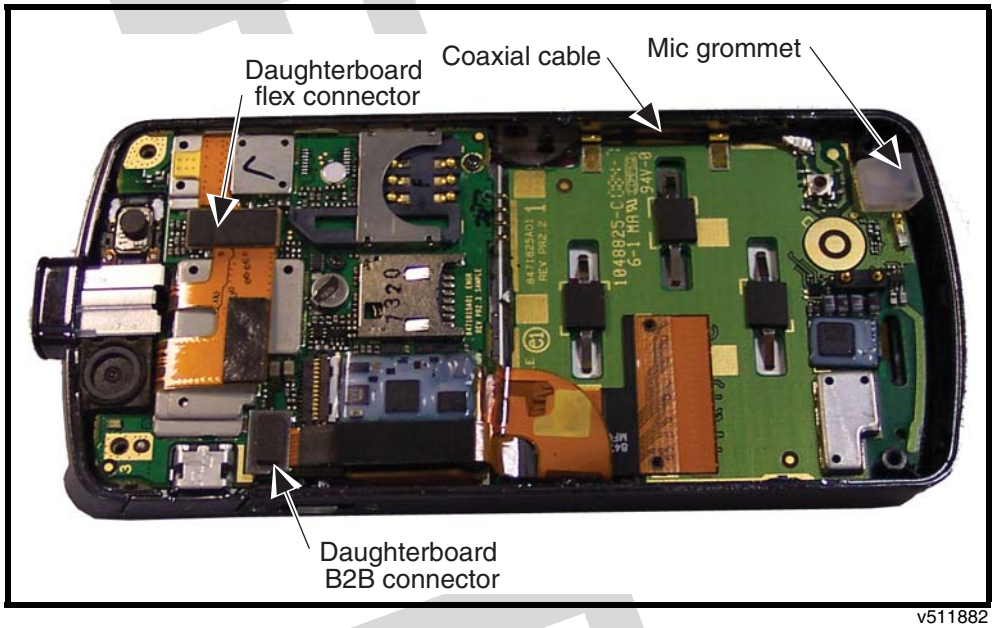
25. Ensure the vibrator sits flat in the acoustic chamber.

Removing and Replacing the Transceiver Board

1. Remove the battery cover, battery, SIM, antenna cover PCB cover, antenna assembly/acoustic chamber as described in the procedures.

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

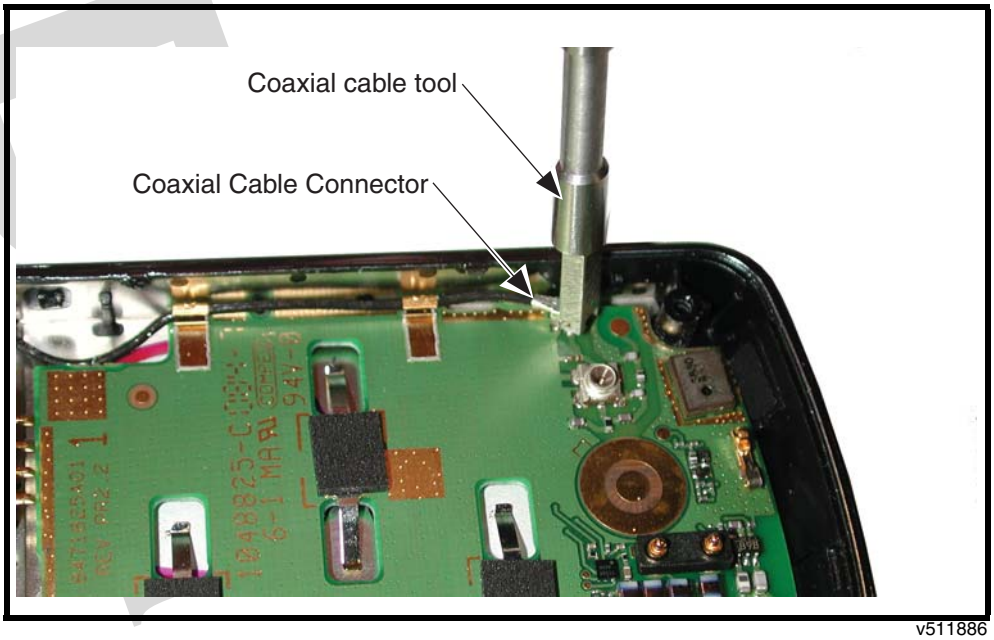
1. Remove the microphone grommet from the transceiver board.



v511882

Figure 23. Removing the Transceiver Board Connectors

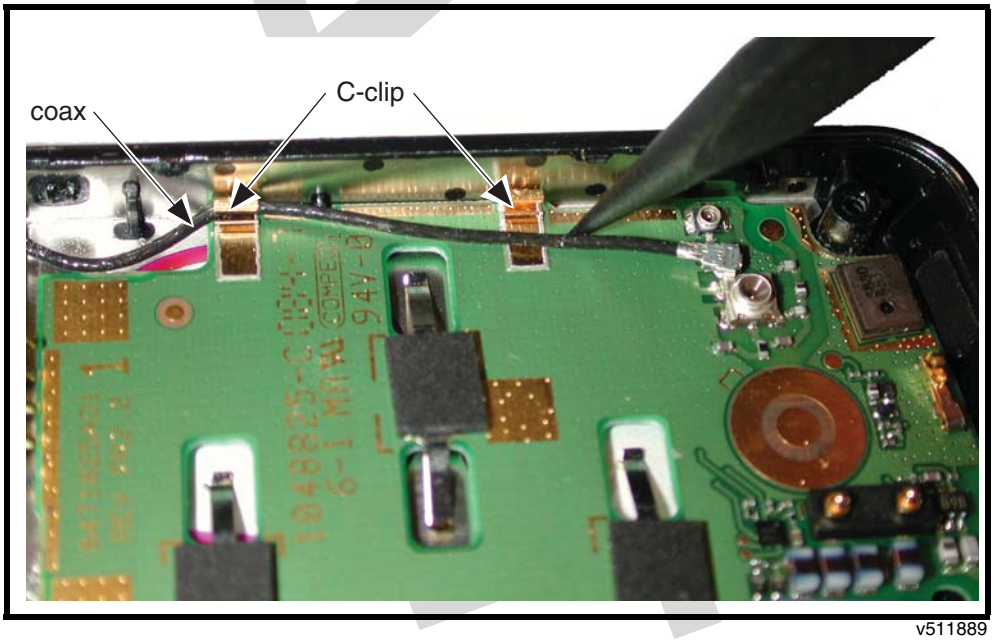
2. Use the coaxial cable tool to unseat the coaxial cable.



v511886

Figure 24. Removing Coaxial Cable

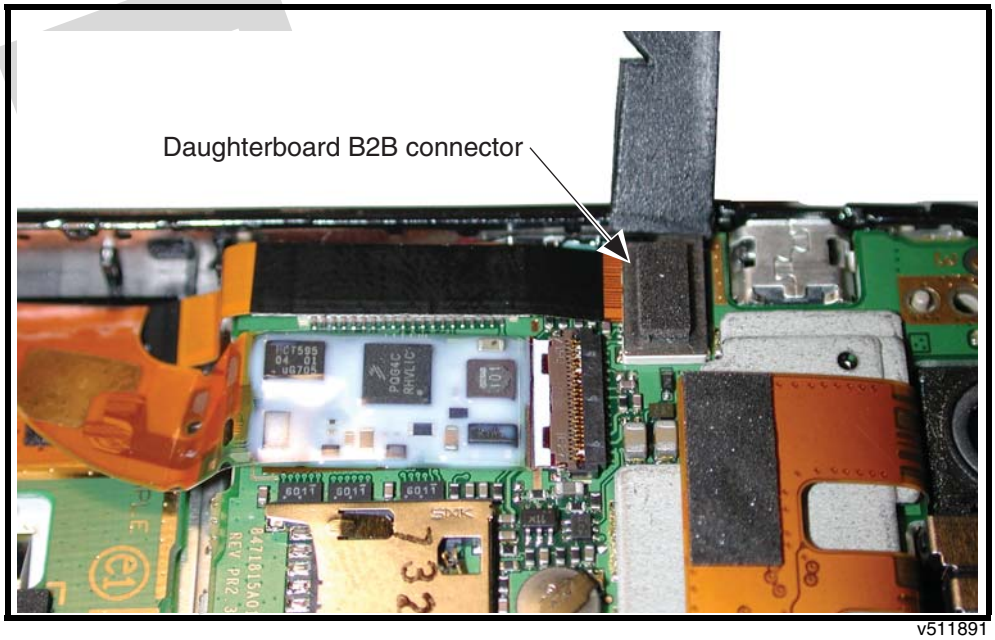
3. Remove the coaxial cable from the c-clips on the daughter board.



v511889

Figure 25. Removing Coaxial Cable from C-Clip

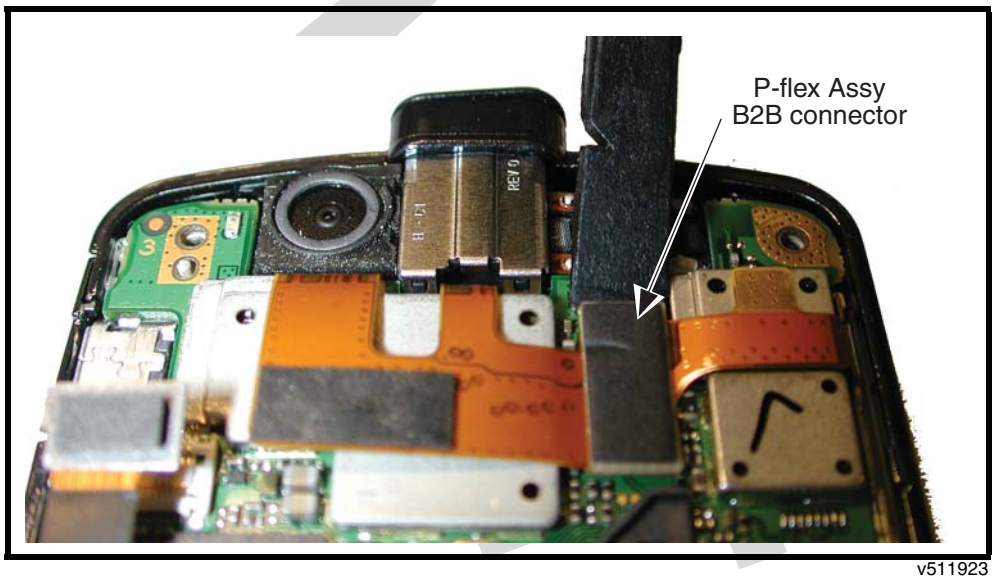
4. Disengage the daughterboard board-to-board (B2B) flex connector.



v511891

Figure 26. Removing the Daughterboard B2B Connector

5. Disconnect the P-flex B2B connector by lifting up the flex connector using a black stick or similar tool. It is important to disconnect the flex carefully to prevent damage to the receptacle pins (see Figure 27).

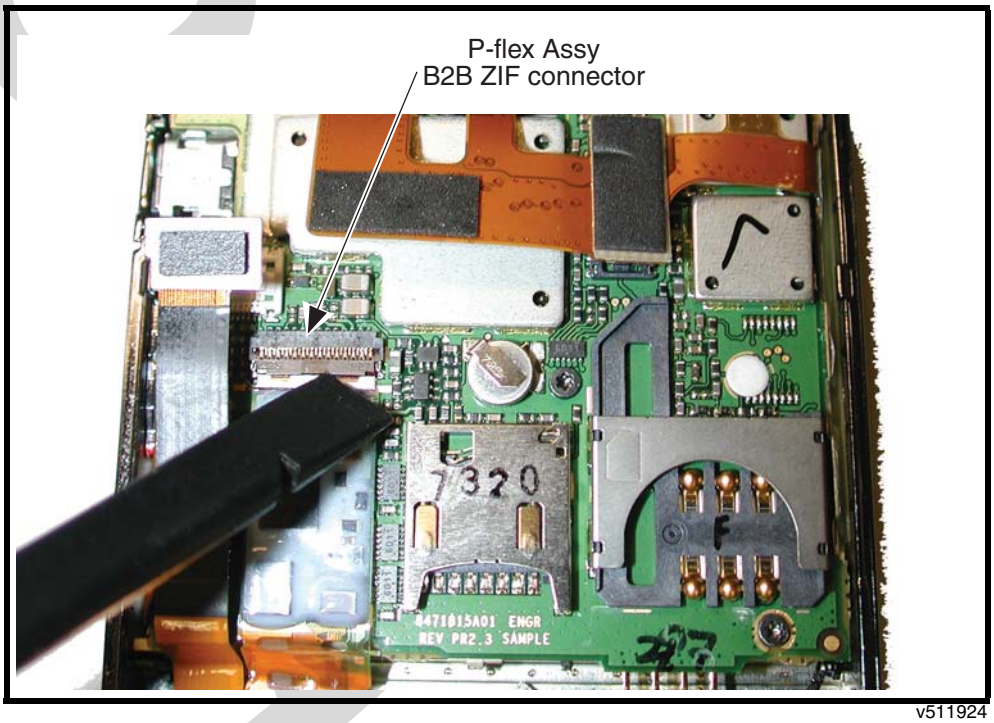


v511923

Figure 27. Removing the P-Flex B2B Connectors

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

6. Lift up the TNLC ZIF connector with the disassembly tool.

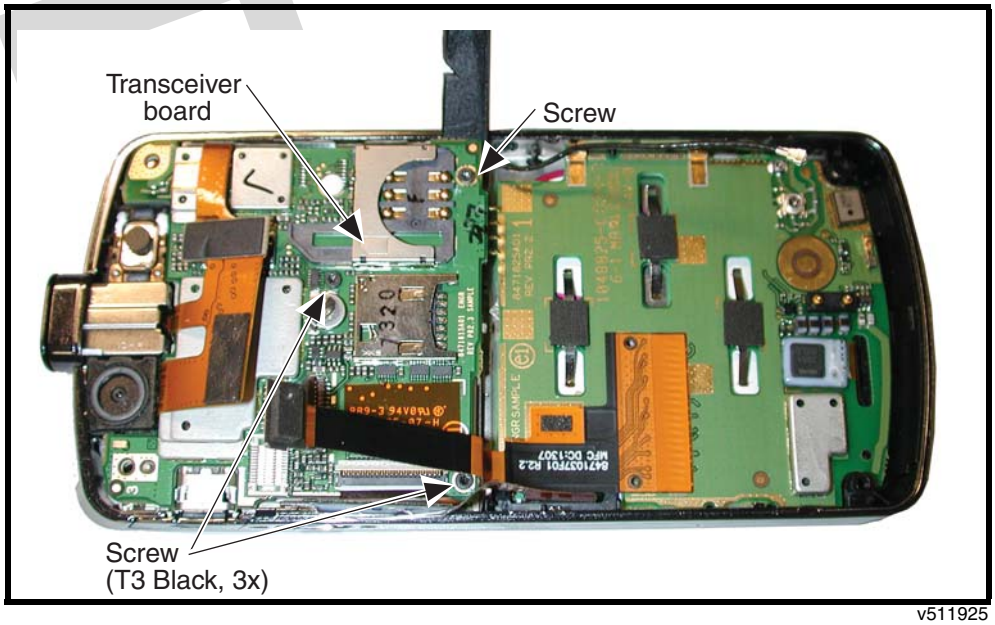


v511924

Figure 28. Removing the P-Flex B2B Connectors

7. Carefully slide the TNLC flex out of the ZIF connector using your fingers.

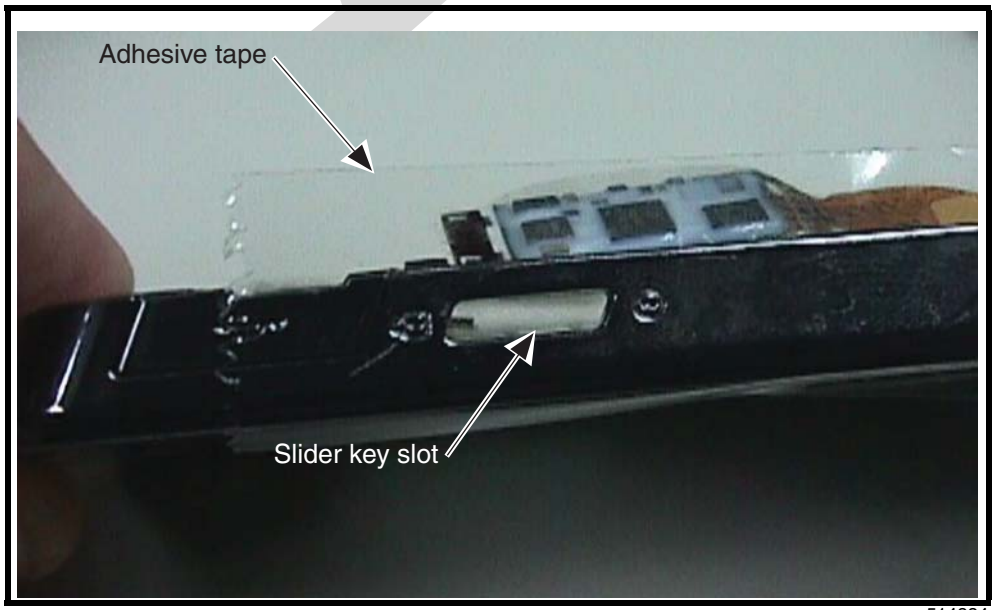
8. Insert the disassembly tool under the transceiver board assembly and lift the board up.



v511925

Figure 29. Removing Transceiver PCB

9. Carefully remove the transceiver board assembly out of the phone.
10. To replace, place adhesive over the outside of the slider key slot.



v514334

Figure 30. Preparing the Slider Key Slot

11. Place the slider key into the slider key slot. Ensure that the slider key is centered on the alignment pin below the slider key. The adhesive will temporarily hold the slider key in place.

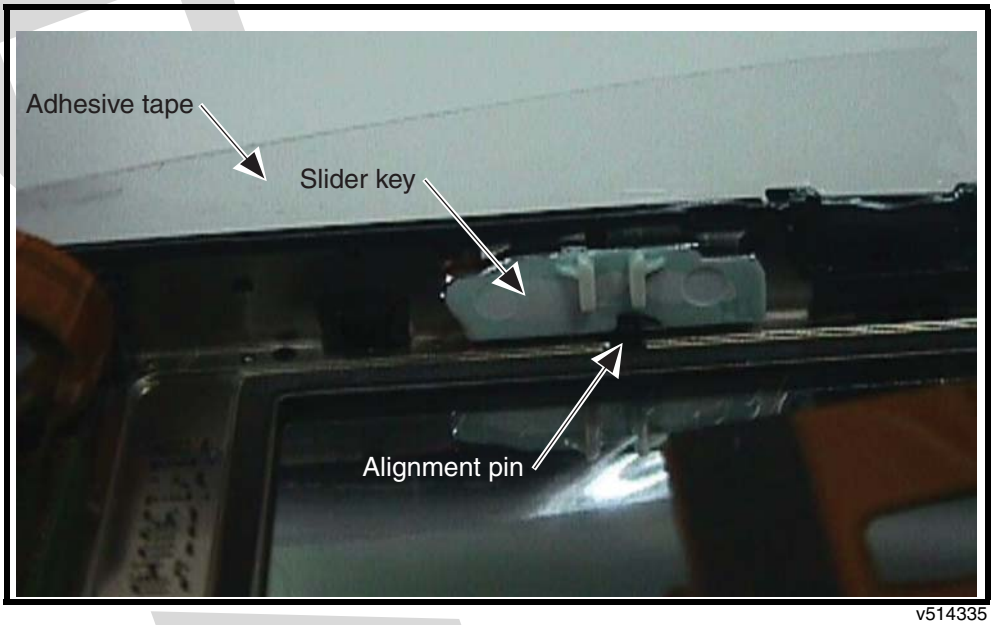


Figure 31. Installing the Slider Key

12. Ensure the slider switch on the transceiver PCB is in the center or unlocked position.

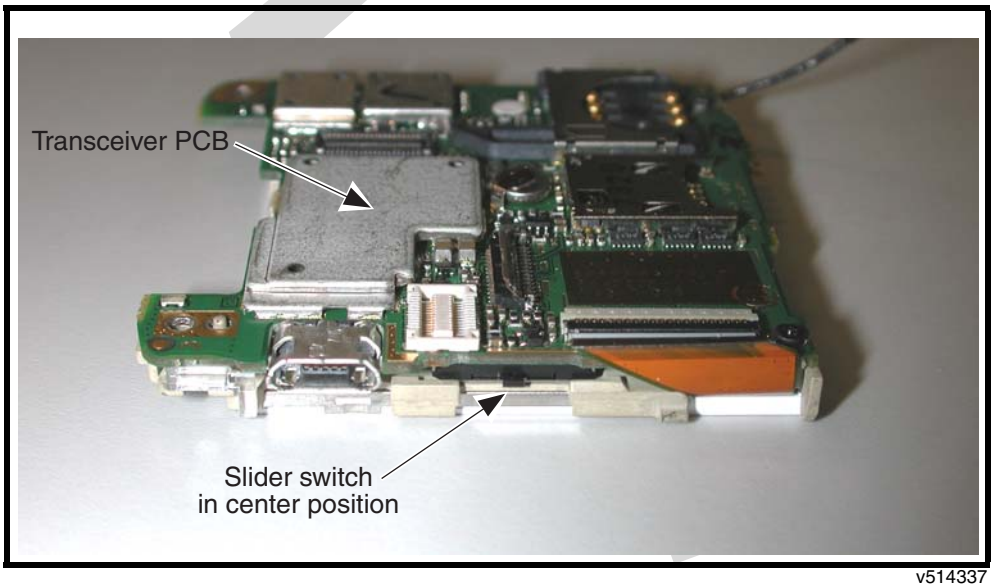
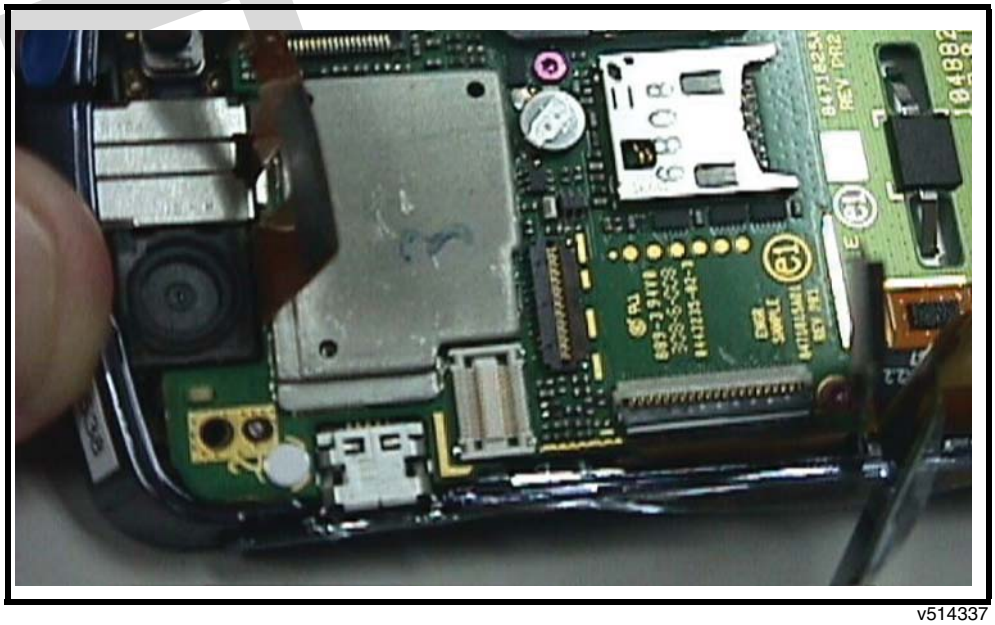


Figure 32. Installing the Slider Key

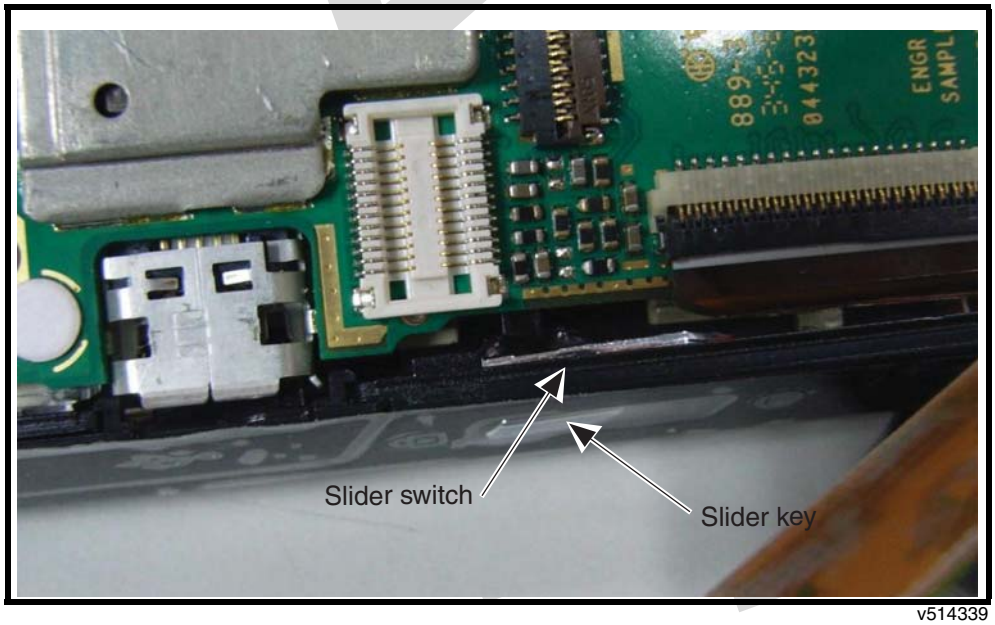
13. Place the transceiver PCB into the chassis. Ensure screw holes align with screw bosses under the transceiver board.



v514337

Figure 33. Installing the Transceiver PCB

14. Ensure the slider switch fits in the slot on the back of the slider key.



v514339

Figure 34. Installing the Transceiver PCB

15. Connect the daughter board B2B connector to the main PCB.

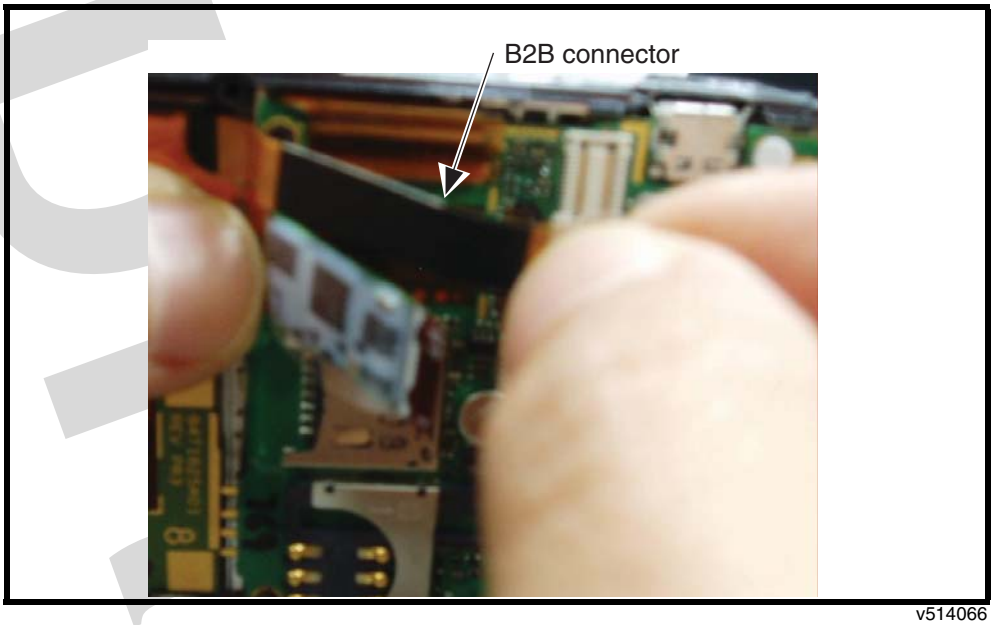


Figure 35. Connecting B2B Connector to the Transceiver PCB

16. Align and then connect the TNLC flex to the ZIF connector.

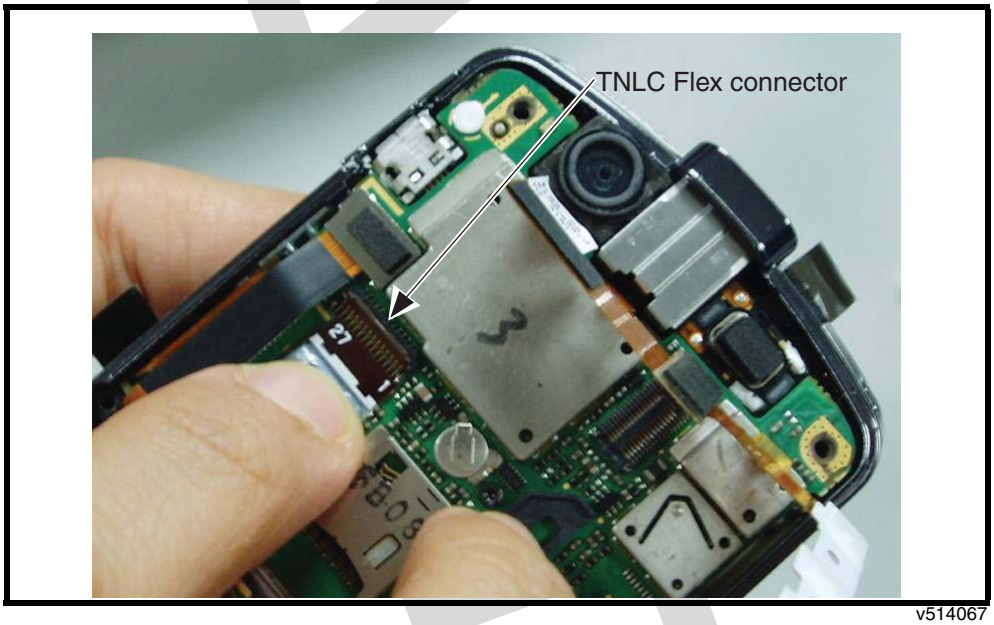


Figure 36. Connecting TNLC Flex to the Transceiver PCB

17. Engage the TNLC flex to the connector. When correctly engaged, the flex and connector will appear as shown below.

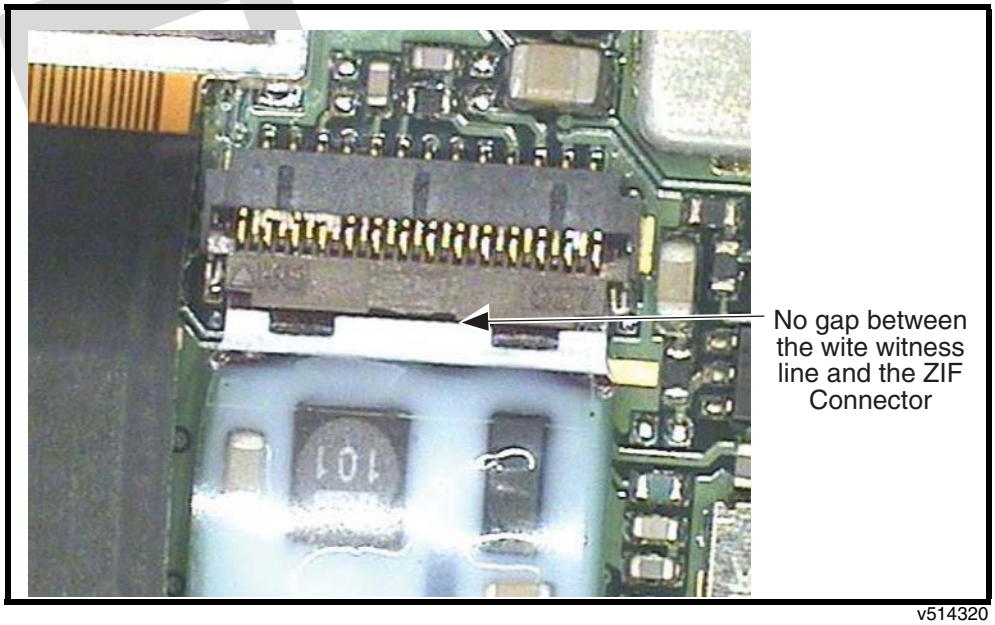


Figure 37. TNLC Flex Connector

18. Paste TNLC ZIF Kapton tape onto the TNLC ZIF and Flex. The Kapton tape must align to the white witness line. Use the disassembly tool to press the Kapton tape onto the flex.

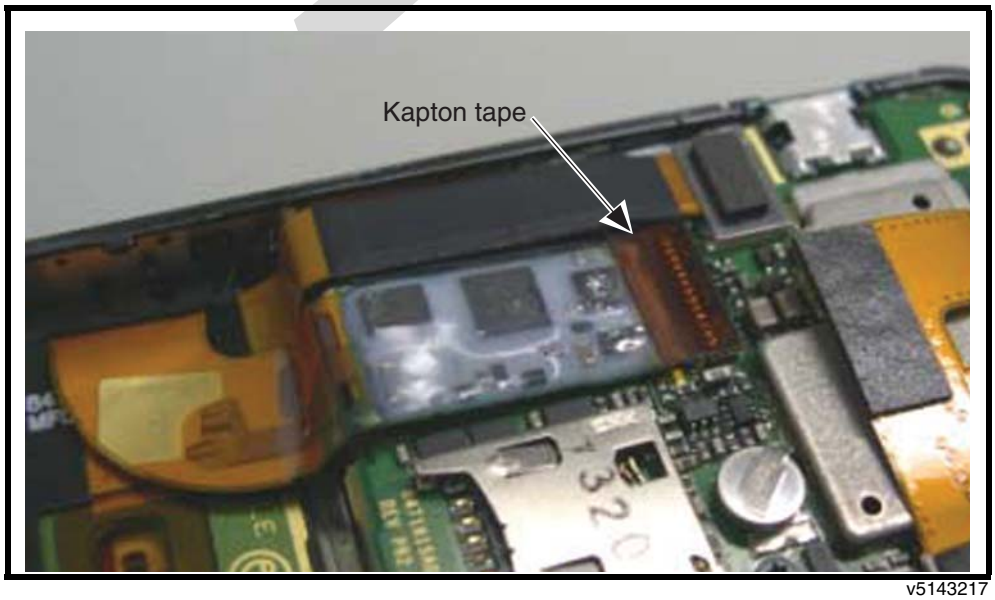


Figure 38. Applying Kapton Tape onto the TNLC Flex and ZIF Connector

19. Attach the board to board connector.

20. Insert the side dome flex into the slot on the side of the phone chassis.
21. Carefully attach the coaxial cable tool to end of the coaxial cable.
22. Use the coaxial cable tool to attach the cable to the cable connector on the daughter board.
23. Carefully remove the coaxial cable tool from the coaxial cable.
24. Use the disassembly tool to attach the coaxial cable to the C clip.
25. Dress the coaxial cable so it does not obstruct the ribs or the screw boss.

Removing and Replacing the Daughter Board

1. Insert the disassembly tool under the UI flex and twist the tool to separate the UI flex from the daughter board.

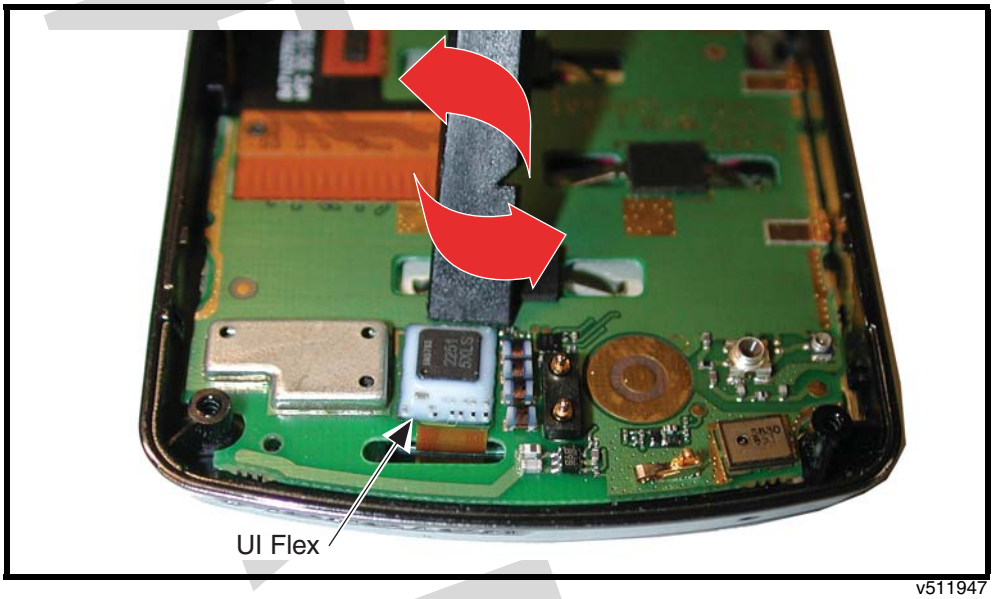


Figure 39. Separating the UI Flex From the Daughter Board

2. Insert the disassembly tool under the daughter board and lift it up carefully to allow the UI flex to pass through the daughter board.

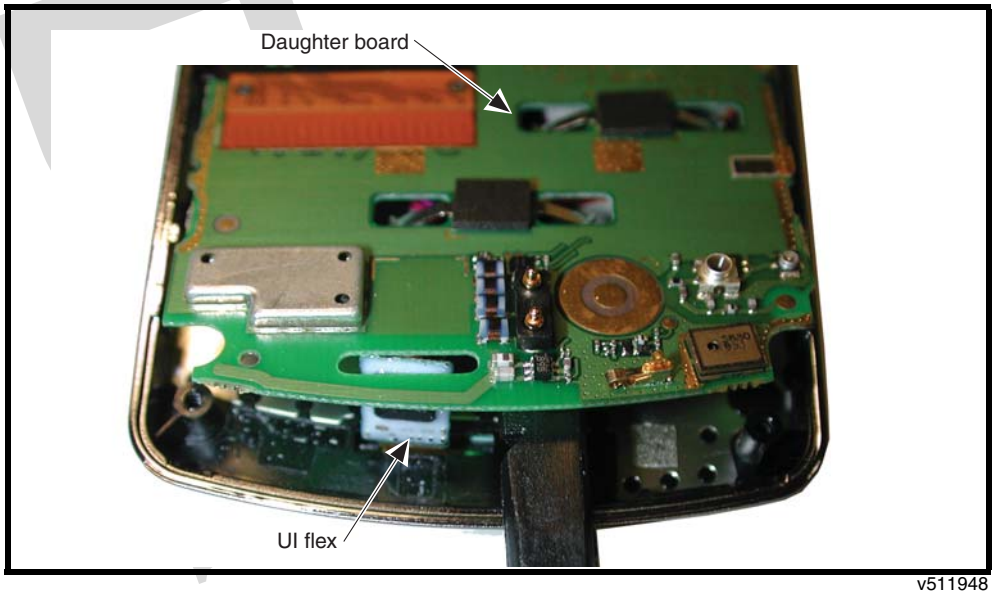


Figure 40. Removing the Daughter Board

3. Remove the daughter board from the phone.
4. To replace, Align the daughter board to the chassis,
5. Insert the UI flex through the slot on the daughter board.

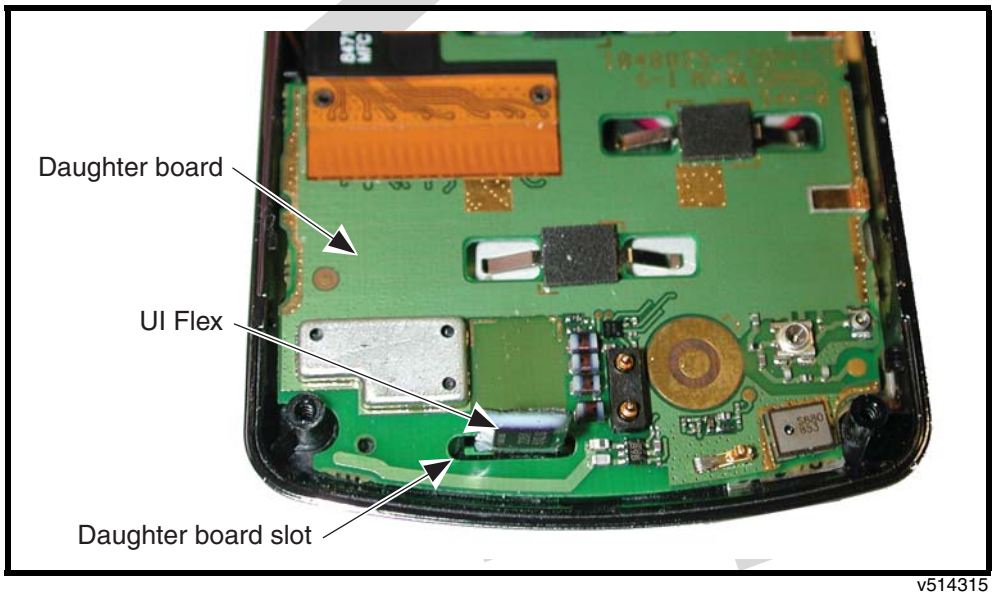


Figure 41. Inserting the UI Flex

6. Use the tweezers to remove the liner from the UI flex.

7. Press the UI flex onto the daughter board. Ensure that the UI flex is attached within the rectangular box on the daughter board.

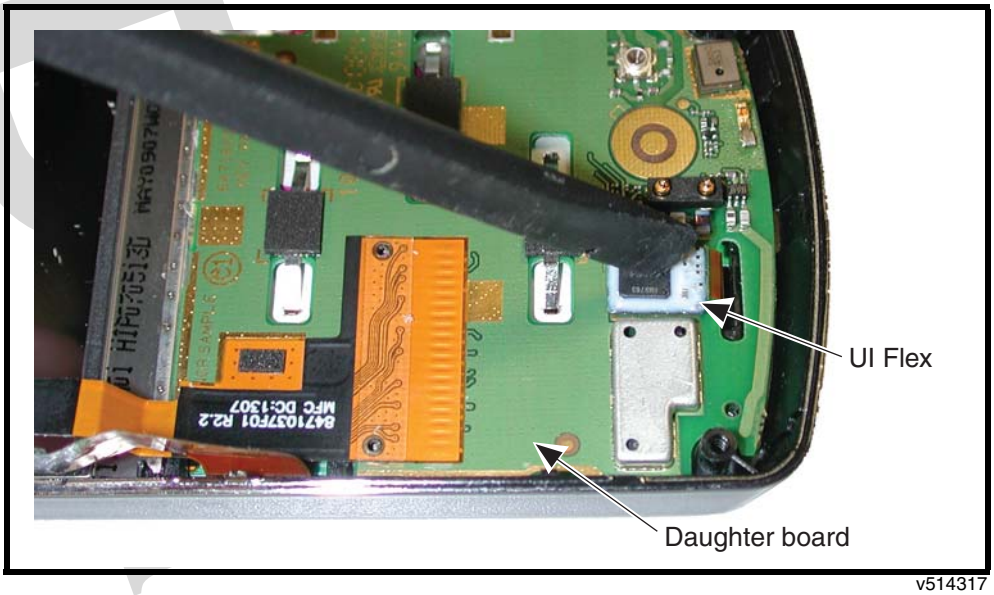
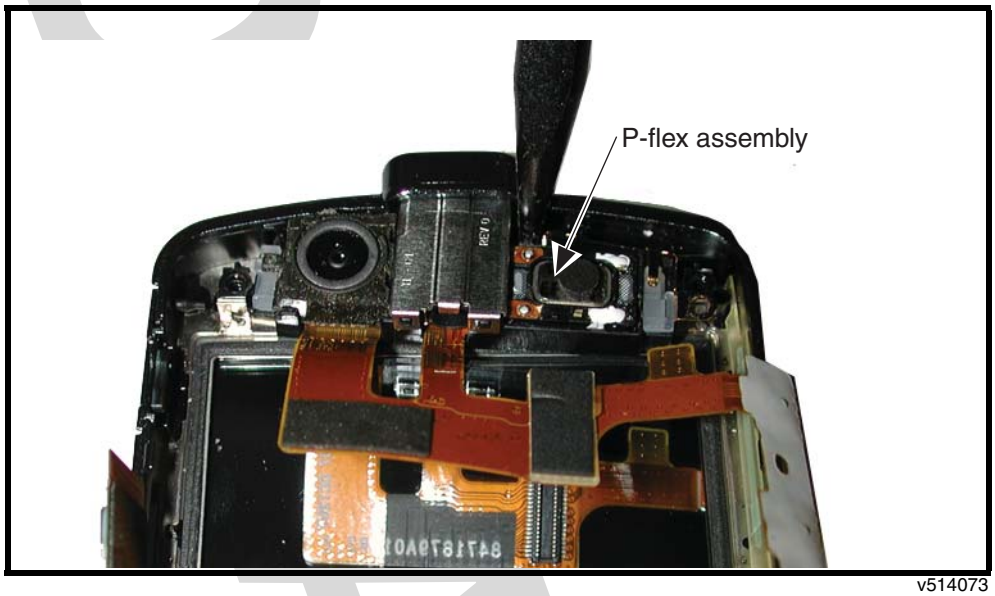


Figure 42. Adhereing the UI Flex to the Daughter Board

Removing and Replacing the P-Flex Assembly

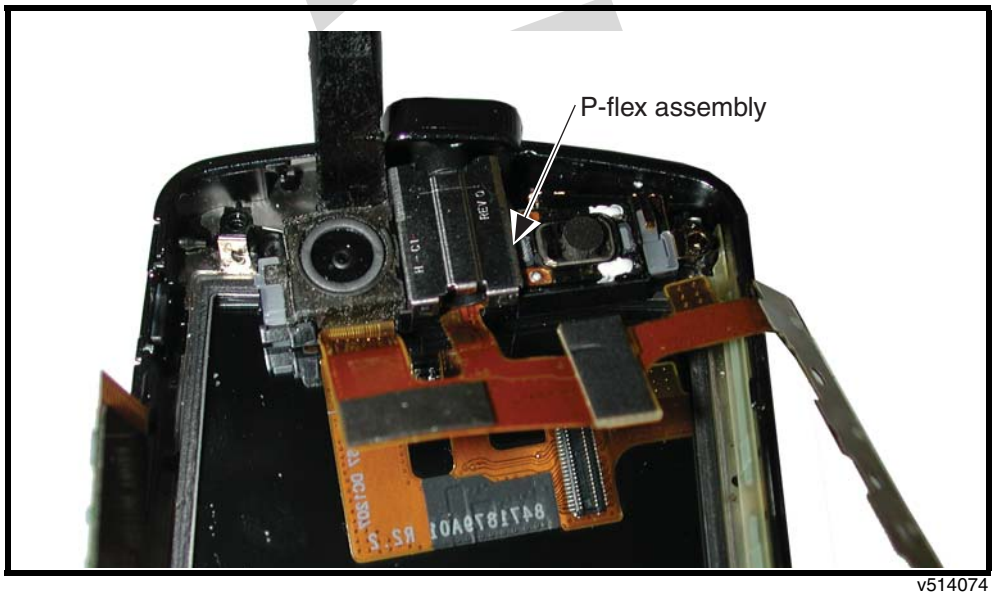
1. Remove the daughter board as described in the procedures.
2. Insert the pointed end of the disassembly tool into the gap next to the headphone jack on the p-flex assembly and push the p-flex assembly out of the housing.



v514073

Figure 43. Removing the P-flex Assembly

3. Use the flat edge of the disassembly tool to push the p-flex assembly out of it's location in the phone chassis.



v514074

Figure 44. Removing the P-flex Assembly

4. Remove the p-flex assembly from the phone.
5. To replace, align and insert the p-flex assembly into the phone chassis.

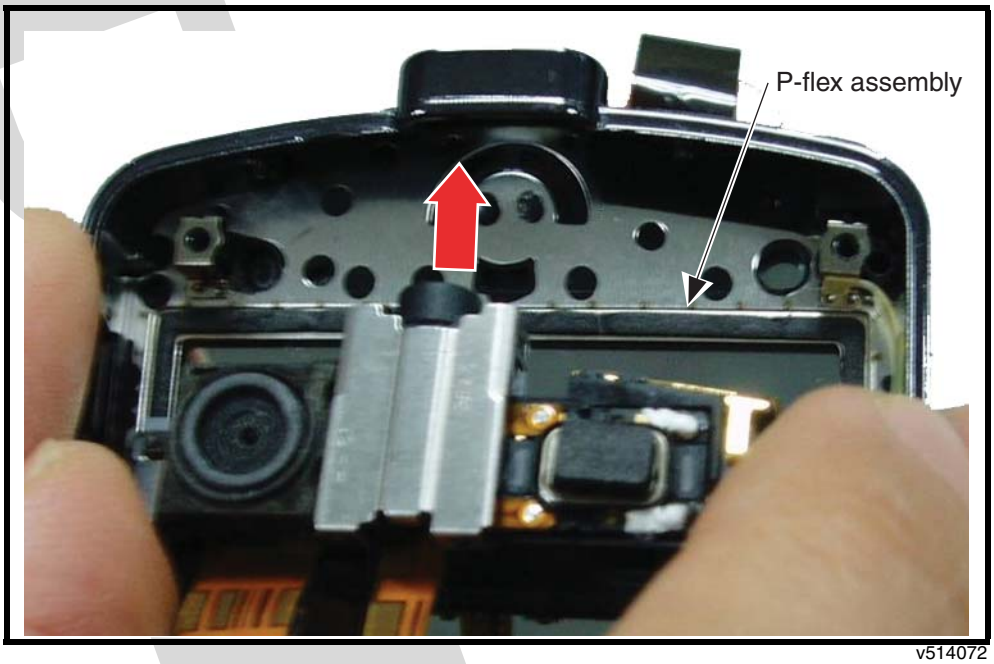


Figure 45. Installing the P-flex Assembly

6. Replace the transceiver board, acoustic chamber assembly, PCB cover, antenna cover, SIM, battery, and battery cover as described in the procedures.

Removing and Replacing the Volume Keys

1. Remove the battery cover, battery, SIM, antenna cover, PCB cover, acoustic chamber assembly, transceiver board, and P-flex assembly as described in the procedures.

2. Use the metal tweezers to remove the volume keys as shown in Figure 46.

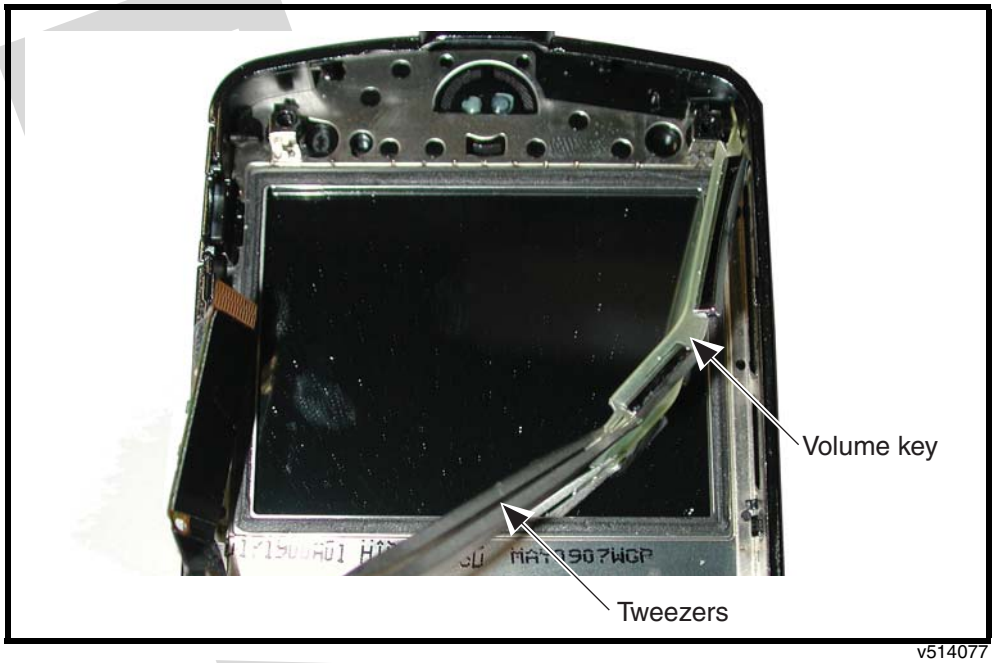


Figure 46. Removing the Volume Keys

3. To replace,

Subscriber Identity Module (SIM) and Identification

SIM Card

A SIM is required to access the existing local GSM network, or remote networks when traveling (if a roaming agreement has been made with the provider).

The SIM contains:

- All the data necessary to access 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. E8 telephones use TrueSync® synchronization software to effect a personality transfer.

Identification

Each Motorola GSM 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 47.

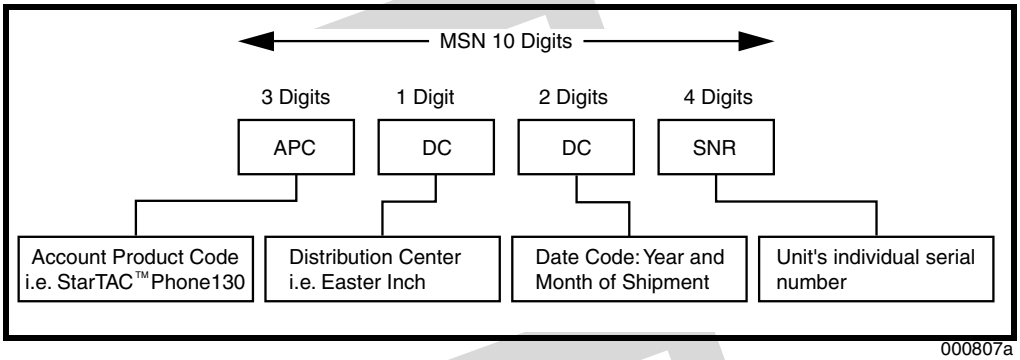


Figure 47. MSN Label breakdown

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 GSM networks based on mobile station types or individual units. The full IMEI structure is listed in Table 2.

Table 2. 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:

- **TRANSCEIVER 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

Manual Test Mode

Motorola E8 telephones are equipped with a manual test mode capability. This allows service personnel to verify functionality and perform fault isolation by entering keypad commands.

To enter the manual test command mode, a GSM / DCS test SIM must be used.

1. Press ⏻ to turn the phone OFF.
2. Remove the battery as described in the procedures.
3. Remove the customer's SIM card from the phone as described in the procedures.
4. Insert the test SIM into the SIM slot.
5. Replace the battery as described in the procedures.
6. Press ⏻ to turn the phone ON.

Manual Test Mode Commands

Table 3. Manual Test Commands

Key Sequence	Test Function/Name	Remarks
<Menu>048263*	Enter manual test mode	
"End" Key	Exit manual test mode	
54*	Suspend	Required for all Test Mode Operations
0*0*0	Select tone 0	
0*0*1	Select tone 1	
0*0*2	Select tone 2	
0*0*3	Select tone 3	
0*0*4	Select tone 4	
0*0*5	Select tone 5	
0*0*6	Select tone 6	
0*0*7	Select tone 7	
0*0*8	Select tone 8	
0*0*9	Select tone 9	
0*1*X	Disable tone X	
3*0*1	Enable vibrator	
3*0*0	Disable vibrator	
5*0*0	Set audio level 0	
5*0*1	Set audio level 1	
5*0*2	Set audio level 2	
5*0*3	Set audio level 3	
5*0*4	Set audio level 4	
5*0*5	Set audio level 5	
5*0*6	Set audio level 6	
5*0*7	Set audio level 7	

Table 3. Manual Test Commands (Continued)

Key Sequence	Test Function/Name	Remarks
5*0*8	Set audio level 8	
5*0*9	Set audio level 9	
5*0*10	Set audio level 10	
5*0*11	Set audio level 11	
5*0*12	Set audio level 12	
5*0*13	Set audio level 13	
5*0*14	Set audio level 14	
5*0*15	Set audio level 15	
6*2*2*0*0	Set Audio Path. Int Mic, IntSpk, RX unmute, TX unmute	
6*4*6*0*0	Set Audio Path. Boom Mic, Boom Spk, RX unmute, TX unmute	
10*0*3	Set band GSM 900	
10*0*4	Set band DCS 1800	
10*0*5		
10*0*6	Set dual band GSM 900 / 1800	
10*1*0	Read band	3= GSM 4= DCS 5= PCS 6 =GSM/DCS
18*0	Initialize non-volatile memory (Master Reset)	
18*1	Initialize non-volatile memory (Master Clear)	
55*2*001	Test Display. All pixels ON	
55*2*000	Test Display. All pixels OFF	
55*2*002	Test Display. Checkerboard pattern A	
55*2*003	Test Display. Checkerboard pattern B	
55*2*004	Test Display. Border pixels ON	
*#06#	IMEI Check	No Test Mode Required
Phone Set up --> Phone Status --> Other Information	Flex Version / Technology / S-W Version / Readiness Status	No Test Mode Required

Troubleshooting Chart

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 assembly defective.	Remove the transceiver board assembly. Substitute a known good assembly and temporarily reassemble the unit. Press and hold the PWR button; if unit turns on and stays on, disconnect the dc power source and reassemble the telephone with the new transceiver board assembly. Verify that the fault has been cleared.
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 assembly defective.	Replace the transceiver board assembly (refer to 1c). Verify that the fault has been cleared and reassemble the unit with the new transceiver board assembly.
3. Display is erratic, or provides partial or no display.	a) Transceiver board connections faulty.	Remove rear chassis assembly from unit, check general condition of flexible printed cable (flex). If the flex is good, check that the flex connector is fully pressed down. If not, check connector to transceiver board connections. If faulty connector, replace the transceiver board assembly. If connector is not at fault, proceed to b.
	b) Transceiver board assembly defective.	Replace the transceiver board assembly (refer to 1c). Verify that the fault has been cleared and reassemble the unit with the new transceiver board assembly.
4. Incoming call alert transducer audio distorted or volume is too low.	Faulty transceiver board assembly.	Replace the transceiver board assembly (refer to 1c). Verify that the fault has been cleared and reassemble the unit with the new transceiver board assembly.
5. Telephone transmit audio is weak. (usually indicated by called parties complaining of difficulty in hearing voice).	a) Transceiver board assembly defective.	Replace the transceiver board assembly (refer to 1c). Verify that the fault has been cleared and reassemble the unit with the new transceiver board assembly.
6. Receive audio from earpiece speaker is weak or distorted.	a) Connections to or from transceiver board assembly defective.	Gain access to the transceiver board assembly as described in the procedures. Check flex and the flex connector to the transceiver board assembly. If flex is at fault, replace flex assembly. If flex connector is at fault, proceed to d. If connection is not at fault, proceed to b.

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

SYMPTOM	PROBABLE CAUSE	VERIFICATION AND REMEDY
	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.	Replace the transceiver board assembly (refer to 1c). Verify that the fault has been cleared and reassemble with the new transceiver board assembly.
7. Telephone will not recognize or accept SIM.	a) SIM defective.	Check the SIM contacts for dirt. Clean if necessary and check if fault has been cleared. If the contacts are clean, insert a known good SIM into the telephone. Power up the unit and confirm that the SIM has been accepted. If the fault no longer exists, replace the defective SIM. If the SIM is not at fault, proceed to b.
	b) Transceiver board assembly defective.	Replace the transceiver board assembly (refer to 1c). Verify that the fault has been cleared and reassemble the unit with the new transceiver board assembly.
8. Vibrator feature not functioning.	Transceiver board assembly defective.	Replace the transceiver board assembly (refer to 1c). Verify that the fault has been cleared and reassemble the unit with the new transceiver board assembly.
10. 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. Replace the transceiver board assembly (refer to 1c). Verify that the fault has been cleared and reassemble the unit with the new transceiver board assembly.
11. Real Time Clock resetting when standard battery is removed.	Lithium button cell in the display board may be depleted.	Refer service to a Level 3 service center for replacement.

Programming: Software Upgrade and Flexing

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

Part Numbers

The following information is provided as a reference for the parts associated with E8 telephones.

Exploded View Diagram

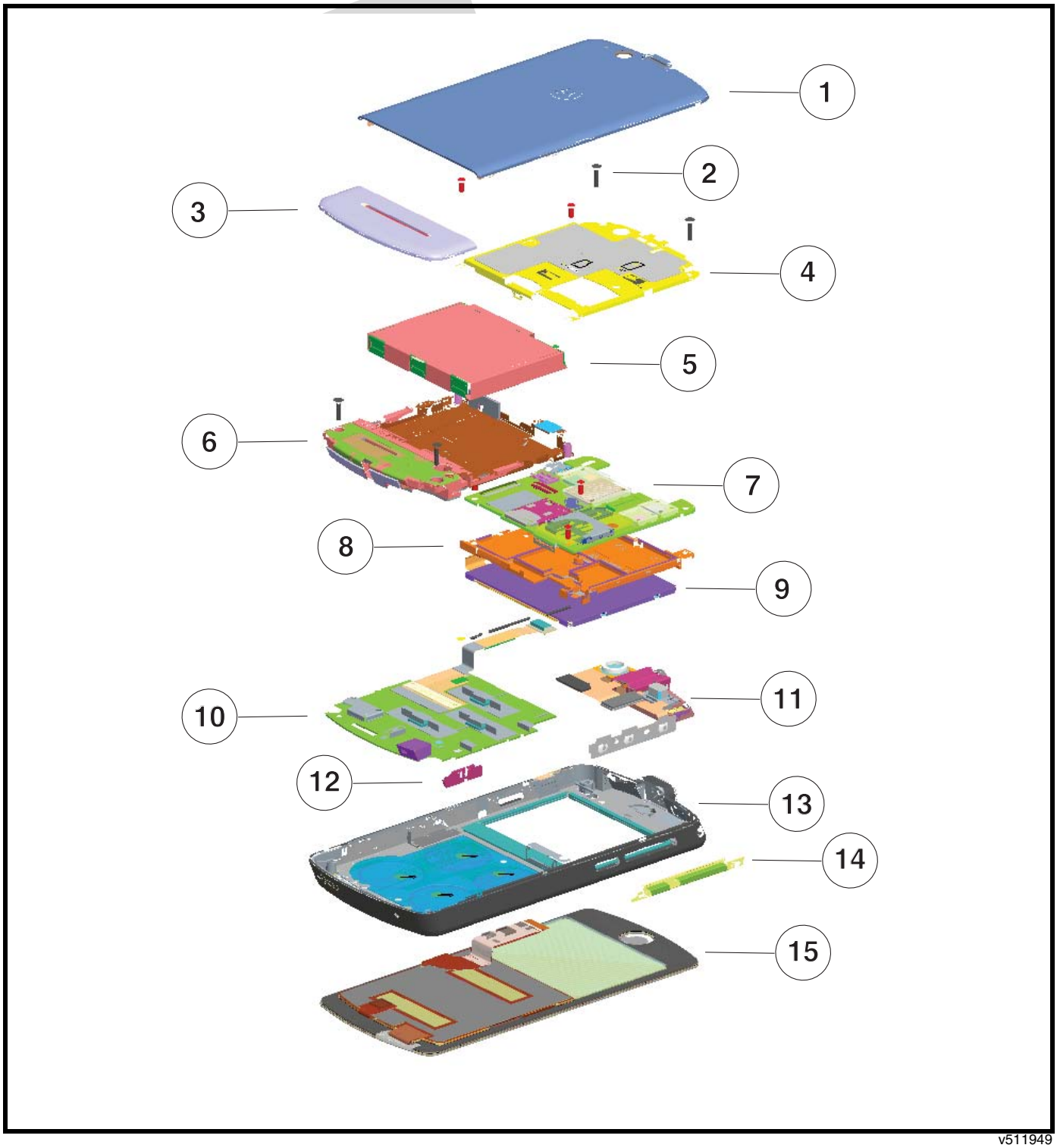


Figure 48. Exploded View Diagram

Exploded View Parts List

The following part numbers are provided only for reference. Please contact your local Motorola parts organization for current part number information.

Table 5. Parts List

Item	Motorola Part Number	Description
1	0171905A02	Antenna Cover Assembly Dark Navy
2	0170386F38	Acoustic Chamber Housing Assy (incl. Battery Floor Assy)
9	5971886E01	Vibrator Alert (Linear VIBR Device)
9	3771324A21	Vibrator Grommet (Linear VIBR Grommet
9	1170315F09	Vibrator Adhesive (Linear VIBR Adhesive)
9	5071508D03	Midi Speaker (Dynamic Loud Speaker)
9	7570382C14	Cap sense Support Pad
9	1170315F08	Kapton, Midi speaker Tape
9	3271233A49	Speaker Support Poron
9	3271233A48	MIDI Speaker Seal
3	0170392R01	Magnesium Shield Assy
4	3070338B03	Coaxial Cable
5	0170386F40	Daughter Bd PCB Assy
6	3771324A20	Mic Grommet
7	3871955A01	Side Slider Key - Power
8a	AAHN5886A	Front Housing Assy (Play Time Module + FH) Generic
8b	AAHN5992A	Front Housing Assy (Play Time Module + FH) BPMF
8c	AAHN5993A	Front Housing Assy (Play Time Module + FH) Stroke
8d	AAHN5994A	Front Housing Assy (Play Time Module + FH) Stroke CMCC
8e	AAHN5995A	Front Housing Assy (Play Time Module + FH) Hebrew
8f	AAHN5996A	Front Housing Assy (Play Time Module + FH) Arabic
8g	AAHN5997A	Front Housing Assy (Play Time Module + FH) Cyrillic
8h	AAHN5998A	Front Housing Assy (Play Time Module + FH) Thai
9	3871954A01	Side Key - Volume
10	3771005J02	HSJ Grommet
11	0170386F39	3-in-1 Front Holder Assy (P-Flex Holder Assy)
9	5088902Y01	Earpiece Receiver
9	7570382C04	Earpiece Receiver Pad
9	3270341K01	Earpiece Receiver Seal
9	3270341K02	Earpiece Receiver Gasket
12	7271217F01	LCD Module
13	AALG4373AA	Main PCB ASSY
14	0371383A05	Screw (T3, Black, 5x)
15	0170392P01	PCB Cover Assy
16	0371025J01	Screw (T5, Silver, 4x)
17a	AAHN6040A	Battery Door, DARK NAVY, GENERIC

Table 5. Parts List

17b	AAHN6041A	Battery Door, DARK NAVY, CMCC

The "Replacement Parts Service Division (RPSD)" section on page 7 provides information about ordering replacement parts.

There is a danger of explosion if the Lithium Ion battery pack is replaced incorrectly. Replace only with the same type of battery or equivalent as recommended by the battery manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Accessories

Table 6. Accessories

Description	Kit Number
Bluetooth Car Kit - High Tier, Self Install, T5	SYN1717
Bluetooth Car Kit, T305 Portable Hands-Free Speaker	SYN1716
Pro Install Bluetooth Car kit T605 Americas	98799N
BT Pro-Install Car kIt IHF1000r	98676K
Bluetooth Pro Install Music & Handsfree Car Kit T605	CFLN7400AA
Bluetooth Car Kit, T305 Portable Hands-Free Speaker Co-Branded Telefonica	SYN1869
Bluetooth GPS T805 Phone-based Navigation	EU / NA = CFLN6401AA / SJ0474A
Bluetooth Pro Install Car kit IHF1700 OEM	CKG171V010
BT Pro Install Car Kit T605 Asia Pac	80169
128MB microSD card with jewel case	SYN2010
1GB microSD card with jewel case	SYN2013
256MB microSD card with jewel case	SYN2011
2GB microSD card with jewel case	SYN2014
512MB microSD card with jewel case	SYN2012
DATA CHARGING CABLE Micro USB	SKN6254
4GB microSD card & Mot SD adapter	SYN1408
Data cable Micro USB	SKN6238
1GB microSD card & Mot SD adapter	SYN1406
1GB microSD card (bulk)	8289105W01
2GB microSD card & Mot SD adapter	SYN1407
512MB microSD card & Mot SD adapter	SYN1405
512MB microSD card (bulk)	8289104W01
Motorola Phone Tools Phase 4	SVN5539
Bluetooth Headset H505 EZ Pair - Black Gloss	SYN1949
Bluetooth Headset H505 EZ Pair - Pink	SYN1965
Bluetooth Headset -Black Licorice-H800	SYN1626
Bluetooth Headset-Fire Red-H800	SYN1640
Bluetooth Headset-Silver Moss-H800	SYN1641
Bluetooth Headset-Silver Quartz-H800	SYN1642
Bluetooth Headset - Plum - H700	SYN1818
Bluetooth Headset - Fire Red - H700	SYN1820
Bluetooth Headset - Pale Lilac - H350	SYN1948
Bluetooth Headset - Project (RED) - H500	SYN1966
Bluetooth Headset - Dark Pearl Blue - H800	SYN1639
Bluetooth Headset H555 Dark Pearl Grey	SYN1971
Bluetooth Headset Black H700 (not available in North America)	SYN1509
Bluetooth Headset H700 Blue/Black Cingular Only	SYN1508

Table 6. Accessories (Continued)

Description	Kit Number
Bluetooth Headset - MiniBlue H9 (Includes headset, charger base, and extra eartips)	SJ0095
Bluetooth Headset Blue H700 (Verizon only in North America)	SYN1618
BT Headset and Charging case H680 Midnight	SYN2168
BT Headset and Charging Case H680 Frost	SYN2237
BT Headset and Charging case H680 Espresso	SYN2238
BT HSET, H375,FLSH, BLK	SYN2257A
Bluetooth Headset Black H375 Low Tier	SYN2162
Bluetooth Headset H12	SJ0607
Bluetooth Headset H710	SYN2305
Bluetooth Headset - Dark Pearl Grey - H670	SYN1628
Bluetooth Headset - Gold - H550	SYN2082
Bluetooth Headset - Pink - H550	SYN2109
Bluetooth Headset - Red - H670	SYN2208
Bluetooth Headset - Rose - H550	SYN2209
Bluetooth Headset - Stone Grey - H550	SYN2172
Bluetooth Headset H350 Pink	SYN1627
Bluetooth Headset H550 Black Bezel	SYN1970
Bluetooth Headset - H700 (silver)	SYN1311
Bluetooth Headset - H605	SYN1303
Bluetooth Headset (Pearl Dark Gray) - H300	SYN1297
Bluetooth Headset (Pink) - H300	SYN1417
Bluetooth Headset (Pure White) - H300	SYN1416
Bluetooth Mono Headset, Nickel- H500	SYN1290
Bluetooth Headset H700 D&G Gold	SYN1769
Bluetooth Headset H350 Dark Pearl Grey	SYN1763
Bluetooth Headset H350 Sapphire Blue	SYN1738
Bluetooth Headset H350 Silver Quartz	SYN1765
Bluetooth Headset H350 Silver Sail	SYN1764
Bluetooth Headset H350 Black	SYN1439
Bluetooth Headset H500 Black Soft Touch Japan	SYN1685
Bluetooth Headset Softtouch Black H500	SYN1374
Bluetooth Headset H500 Celery	SYN1732
Bluetooth Headset H500 Cosmic Blue	SYN1617
Bluetooth Headset H500 Fire Red	SYN1667
Bluetooth Headset H500 Hot Pink	SYN1525
Bluetooth Headset H500 Oi Branded	SYN1735
Bluetooth Headset H500 Pumpkin	SYN1733
Bluetooth Headset H500 Steel Teal	SYN1734
Bluetooth Headset H500 Nickel Japan	SYN1441
Bluetooth Headset H500 Pink	SYN1436

Table 6. Accessories (Continued)

Description	Kit Number
Bluetooth Headset H550 Silver (SLVR)	SYN1822
Bluetooth Headset H555 Black/Black (RAZR)	SYN1854
Bluetooth Headset H555 Silver/Black (RAZR)	SYN1821
Bluetooth Headset H670 Black Slate (Canary)	SYN1853
Bluetooth Headset H670 Cosmic Blue (Canary)	SYN1855
Bluetooth Headset H670 Silver Quartz (Canary)	SYN1852
BT HSET,H375,FLSH BLK	SYN2257
ACCY,MOB/VOICE,BT HSET,H371,ROM ATT	SYN2347
ASSY,MOB/VOICE,BT HSET,H371,FLSH ATT	SYN2341
BT Electronics Audex Motorola Jacket Series for Japan - Deep Spruce	SYN1842
BT Electronics Audex Motorola Jacket Series for PRC - Deep Spruce	SYN1841
BT Electronics Audex Motorola Jacket Series for PRC - Fire Red	SYN1843
BT Electronics Audex Motorola Jacket Series for Japan - Fire Red	SYN1844
BT Stereo Sun glasses O ROKR Pro Black	SYN2253
BT Stereo Sun glasses O ROKR Pro Non-Black	SYN2255
BT Stereo Sun glasses Oakley Reverb - BLK	98763H
Bluetooth Stereo Oakley Eyewear Reverb - WHT	SYN1553
Bluetooth Stereo Oakley Eyewear Reverb Brown Smoke	SYN1554
BT Electronics Audex Motorola Jacket Series - Deep Spruce	SYN1712
BT Electronics Audex Motorola Jacket Series - Fire Red	SYN1713
BT Sunglasses Oakley RAZRWIRE (Mercury: NA) - H7	98679H
BT Sunglasses Oakley RAZRWIRE (Pewter/Black: NA) - H7	98677H
BT Sunglasses Oakley RAZRWIRE (Platinum/Rootbeer: NA) - H7	98678H
JBL Black On Tour Portable Speaker	SYN1451
JBL On Tour Mobile European Kit	OnTourMBBLKE
JBL On Tour Mobile portable speaker US Kit	OnTourMBBLK
JBL On Tour Mobile speaker PRC kit	CH1414A
JBL On Tour Mobile speaker UK kit	OnTourMBBLKU
Wired MonoHeadset (mUSB)	SYN1472
Wired Stereo Headset (mUSB)	SYN1458
Bluetooth DJ Headset - Music and Telephony - S805	SYN1673
3.5 MM STEREO HEADSET (gray) SEND/END/MIC	CHYN4705
3.5mm Stereo Earphones (packaged w/S705)	SYN1327
Bluetooth Stereo Active Headphones S9 -VZW	SYN1668
BT ACTIVE STEREO HDST, S9, BLACK/RED	SYN1902
Adapter uUSB (m) to 2.5mm stereo/mono/TTY (f)	SYN2112
Adapter uUSB (m) to 3.5mm (f)	SYN2113
Headset Stereo 3.5mm (black) send/end/mic	SYN1302
JBL (3.5mm) Wired Stereo Earphones R220 Black	SYN2222
JBL (3.5mm) Wired Stereo Earphones R220 White	SYN2223

Table 6. Accessories (Continued)

Description	Kit Number
3.5mm Hdst -FM enhanced (Nirvana)	SYN2356
BT ACTIVE STEREO HDST, S9, BLK	SYN2035
Bluetooth Active Stereo Headphones S9 Mandarin Orange	SYN2324
Charger Adapter - MU/MU	SKN6258
EMU PLUG /MU RECEPTACLE ADAPTER	SKN6257
Charger Adapter - Euro Plug	SYN7456
Charger Adapter - UK Plug	SYN7455
Travel Charger MicroUSB DualRate Rapid - ARG	SPN5327
Travel Charger MicroUSB DualRate Rapid - BRAZIL	SPN5331
Travel Charger MicroUSB DualRate Rapid - HK	SPN5330
Travel Charger MicroUSB DualRate Rapid - JAPAN	SPN5335
Travel Charger MicroUSB DualRate Rapid - MEX	SPN5329
Travel Charger MicroUSB DualRate Rapid - TWN	SPN5332
Travel Charger MicroUSB DualRate Rapid - US	SPN5328
Travel Charger MicroUSB Fast Rate Fixed Blade- ARG	SPN5370
Travel Charger MicroUSB Fast Rate Fixed Blade- AUS	SPN5371
Travel Charger MicroUSB Fast Rate Fixed Blade- EURO	SPN5383
Travel Charger MicroUSB Fast Rate Fixed Blade- INDIA	SPN5372
Travel Charger MicroUSB Fast Rate Fixed Blade- JAPAN	SPN5365
Travel Charger MicroUSB Fast Rate Fixed Blade- KOREA	SPN5373
Travel Charger MicroUSB Fast Rate Fixed Blade- MEX	SPN5362
Travel Charger MicroUSB Fast Rate Fixed Blade- TWN	SPN5363
Travel Charger MicroUSB Fast Rate Fixed Blade- UK/HK	SPN5376
Travel Charger MicroUSB Fast Rate Fixed Blade- US	SPN5358
Travel Charger MicroUSB Fast Rate w/Adapter - ARG	SPN5380
Travel Charger MicroUSB Fast Rate w/Adapter - BRAZIL	SPN5379
Travel Charger MicroUSB Fast Rate w/Adapter - HK	SPN5381
Travel Charger MicroUSB Fast Rate w/Adapter - JAPAN	SPN5378
Travel Charger MicroUSB Fast Rate w/Adapter - MEX	SPN5369
Travel Charger MicroUSB Fast Rate w/Adapter - PRC	SPN5368
Travel Charger MicroUSB Fast Rate w/Adapter - US	SPN5375
Travel Charger MicroUSB Standard- ARG	SPN5339
Travel Charger MicroUSB Standard- AUS	SPN5344
Travel Charger MicroUSB Standard- EURO	SPN5342
Travel Charger MicroUSB Standard- INDIA	SPN5346
Travel Charger MicroUSB Standard- JAPAN	SPN5341
Travel Charger MicroUSB Standard- KOREA	SPN5343
Travel Charger MicroUSB Standard- MEX	SPN5338
Travel Charger MicroUSB Standard- PRC	SPN5336
Travel Charger MicroUSB Standard- TWN	SPN5338

Table 6. Accessories (Continued)

Description	Kit Number
Travel Charger MicroUSB Standard- UK/HK	SPN5340
Travel Charger MicroUSB Standard- US	SPN5334
Battery BK60 Li-Ion 930 mAh	SNN5795
Charger Adapter - Aust/NZ Plug	SYN8127
Travel Charger MicroUSB Standard- Brazil US Blades	SPN5402
Travel Charger MicroUSB Fast Rate Fixed Blade- Brazil US Blades	SPN5403
Travel Charger BASE ONLY Standard- PRC COMMON USBA	SPN5440
Charger Adapter REFRESH - EMU/MU	SKN6252
Adaptor-cable, MicroUSB-TTA, Korea	SYN1895
Dual Charging Adapter - EMU/EMU/MU YCABLE	SKN6243
battery insert, KC(BK) battery, wallmount BOC	SYN1703
BATTERY-ONLY-CHARGER FOR KC/BK BATTERIES US PLG	SYN1699
P513 VPA MicroUSB High Performance "Loop"	SPN5400
P313 Standard Car Charger Micro Connector	SYN1830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