Level 1 & 2 Service Manual

68000222001-B

MOTOZINE™ ZN5

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

Mobile Devices Business,
Mail Drop 42-16A
8000 West Sunrise Boulevard
Plantation, Florida 33322-9947

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

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. Table 1 shows the revision history of this service manual.

Table 1. Manual Revision History

Revision	Issue Date	Description
A	May 08, 2008	Initial Release
B	November 10, 2008	Torque setting changed from 14 Ncm to 16 Ncm

Audience

This manual aids service personnel in testing and repairing ZN5 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 ZN5 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 1346

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 970 mAh Li Ion battery	50.5mm x 117.95mm x 11.8mm (14.9 Bump at the battery door)
Size (Volume)	TBD cc
Weight	TBD grams with battery
Battery Life, with standard 970 mAh Li-Ion Battery	Standard Talk Time up to 342min Standard Standby Time up to 571 hours WLAN Talk Time up to 160min WLAN Standby Time up to 97 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 970 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
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

MOTOZINE™ ZN5 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 ZN5 phones incorporate an improved user interface for easier operation, allows multimedia message service (MMS) messaging, and includes personal information manager (PIM) functionality.

The ZN5 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.

ZN5 phones support GPRS and Enhanced Data rates for GSM Evolution (EDGE) in addition to traditional circuit switched transport technologies.

The ZN5 consists of the main housing assembly that contains the battery, battery cover, USB 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 770 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 camera module is a 5.0 mega pixel VGA CMOS camera with flash.

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 candybar 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. Inexpensive direct connection to a computer or handheld device provided by USB or Bluetooth® for data and fax calls, and for synchronizing phonebook entries with Motorola Phone Tools software, can be accomplished by using the optional data cable and soft modem.

Features

ZN5 phones 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 family of telephones include:

- 2.4” 240x320 262k TFT Display
- 5.0 megapixel VGA CMOS Camera A/F Low light optimized
- Browser: Full HTML open source browser
- Memory: 512 MB user available memory, 4 GB micro SD card

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

- Audio: 3.5 mm A/V jack, FM Radio, AAC, AAC+, AAC+ Enhanced, AMR NB, MIDI, MP3, WAV, WMA v10, WMA v9, XMF
- Video: Video-C/P >14fps, QCIF
- Polyphonic Speaker
- Messaging: SMS, MMS, WV
- Connectivity: Bluetooth® Class 2, USB-2.0 HS, Motorola Phone Tools, Over the Air Sync (OTA)
- AutoPairing with Motorola/Kodak BT
- WLAN: 802.11b/g/i

SIM Application Toolkit™ - Class 2

SIM Application Toolkit is a value-added service delivery mechanism that allows GSM operators to customize the services they offer their customers, from the occasional user who requests sports news and traffic alerts, to a high call time business user who receives stock alerts and checks flight times. Operators can now create their own value-added services menu quickly and easily in the phone. The customized menu will appear as the first menu and may be updated over-the-air with new services when customers request them.

Other Features

Detailed descriptions of these and other ZN5 features can be found in the user's guide.

General Operation

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

The ZN5 controls are located on the sides of the phone and on the keypad. See Figure 1.

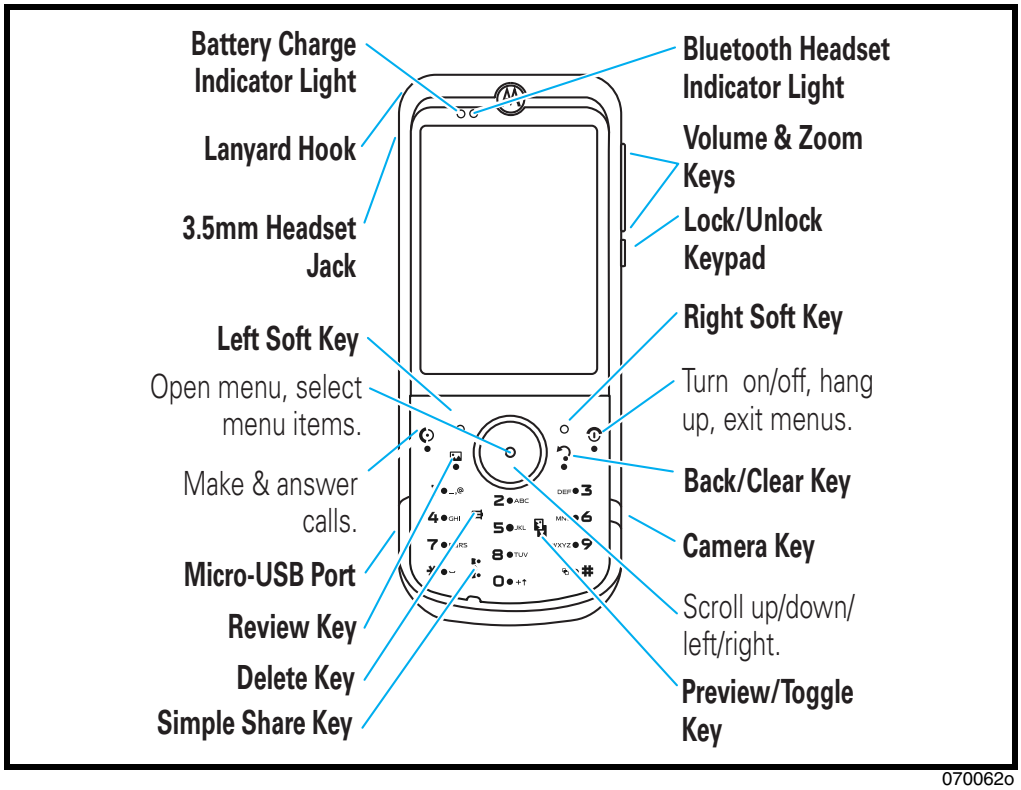

Figure 1. Controls, Indicators, and I/O

The ZN5 phone has a large main display on the front of the phone. The phone's camera lens, and flash are located on the rear. Along with other external controls. The phone has a micro USB port, located on the left side of the phone.

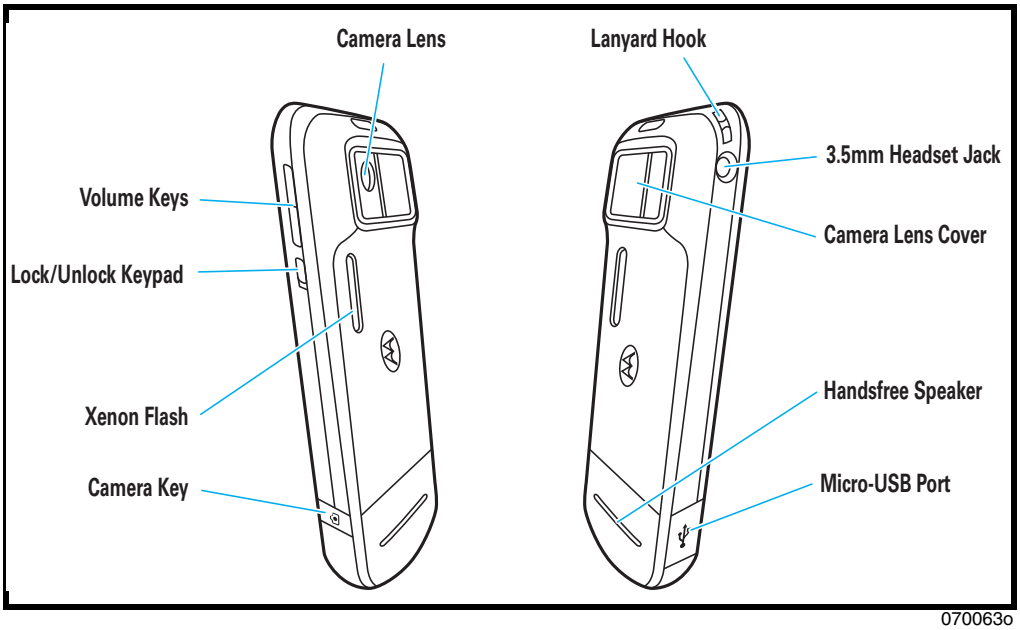

Figure 2. Additional Controls, Indicators, and I/O

Color Display

The ZN5 wireless phones feature a 240 x 320 262K TFT Display (2.4").

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 3).

Indicators, in the form of icons, display on the LCD. Figure 3 shows some of the icons that display on the LCD.

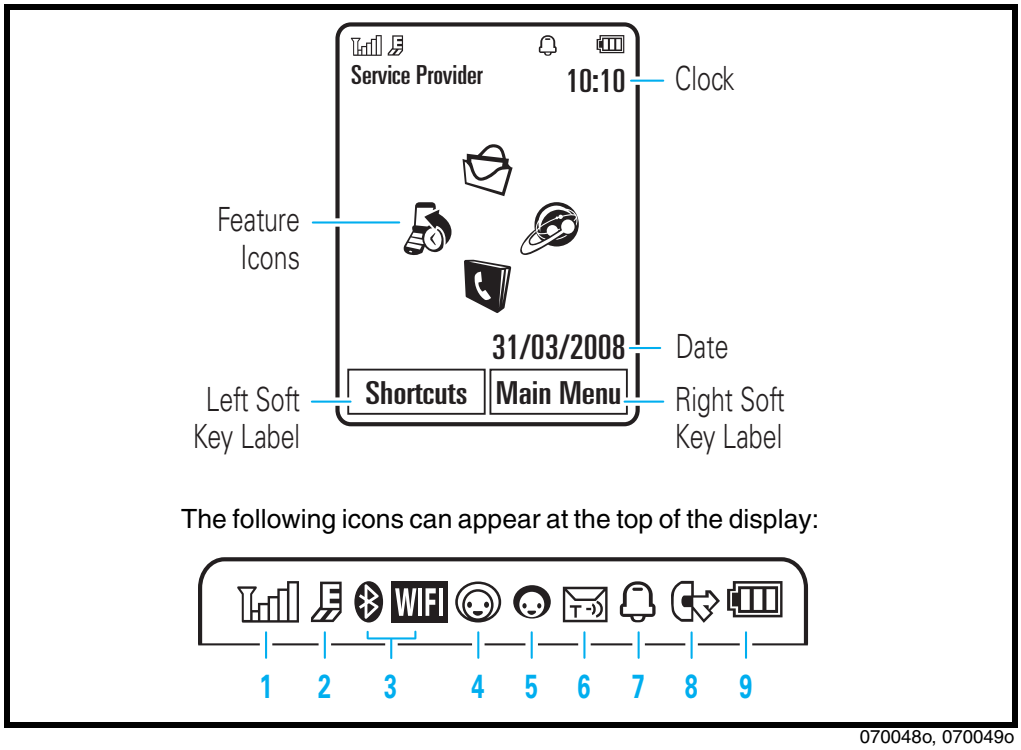

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Figure 3. Icon Indicators

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

1 **Signal Strength Indicator –** Vertical bars show the strength of the wireless network connection. You can't make or receive calls when ▽ or ▽⊘ shows. The roam indicator ◈ shows when your phone is seeking or using a network outside your home network.

2 **EDGE/GPRS Indicator –** Shows when your phone is using a high-speed *Enhanced Data for GSM Evolution* (EDGE) or *General Packet Radio Service* (GPRS) network connection. Indicators can include:

E = EDGE connection	G = GPRS connection
E = EDGE data transfer	G = GPRS data transfer
E = EDGE secure data transfer	G = GPRS secure data transfer
E = EDGE unsecure data transfer	G = GPRS unsecure data transfer

3 **Bluetooth® Indicator –** Shows Bluetooth power, connection, and discoverable status as follows:

solid blue = Bluetooth powered on

solid green = Bluetooth connected

flashing blue = Bluetooth discoverable mode

4 **Messaging Presence Indicator –** Shows your instant messaging (IM) status. Indicators can include:

= online = offline

= busy = discrete

= invisible to IM

5 **IM Indicator –** Shows when you receive a new IM message.

6 **Message Indicator –** Shows when you receive a new message. Indicators can include:

= text or voice message = email message

7 **Profile Indicator –** Shows the alert profile setting.

= ring only = silent

= vibrate only = vibrate then ring

8 **Active Line Indicator –** Shows to indicate an active call, or to indicate when call forwarding is on. Indicators for dual-line-enabled SIM cards can include:

= line 1 active = line 2 active

= line 1 call forward on = line 2 call forward on

9 **Battery Level Indicator –** Vertical bars show the battery charge level.

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 ZN5 phones. 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
--	#0 Cross Point Screwdriver	Used to remove cross point screws
—	Torque Driver Bit T-5 Plus, Apex 440-6IP Torx Plus or equivalent	Used with torque driver
—	Torque Driver Bit T-4 Plus, Apex 440-6IP Torx Plus or equivalent	Used with torque driver
SPN5202	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

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 the ZN5 telephone. 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.

Use extreme caution when handling this device to avoid scratching or blemishing the external finishes of the phone.

Removing and Replacing the Battery Door 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. Press on the latch and pull the battery cover up from the top.

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Figure 1. Removing the Battery Cover

3. Lift up and remove the battery cover.

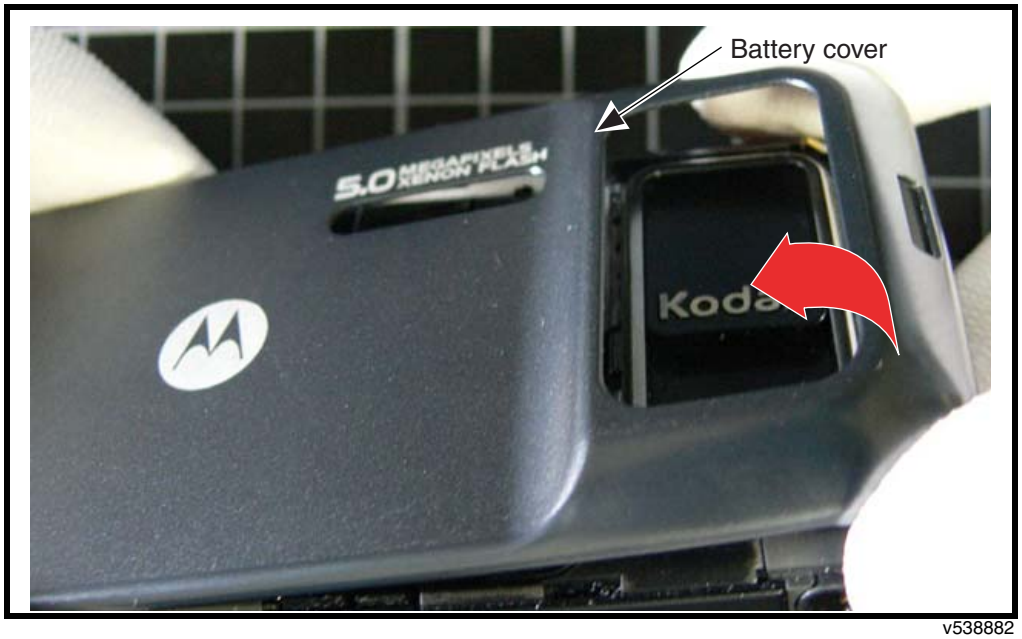

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Figure 2. Removing the Battery Door

4. Lift the battery door away from the phone.
5. Grasp the battery along the edges and lift up.

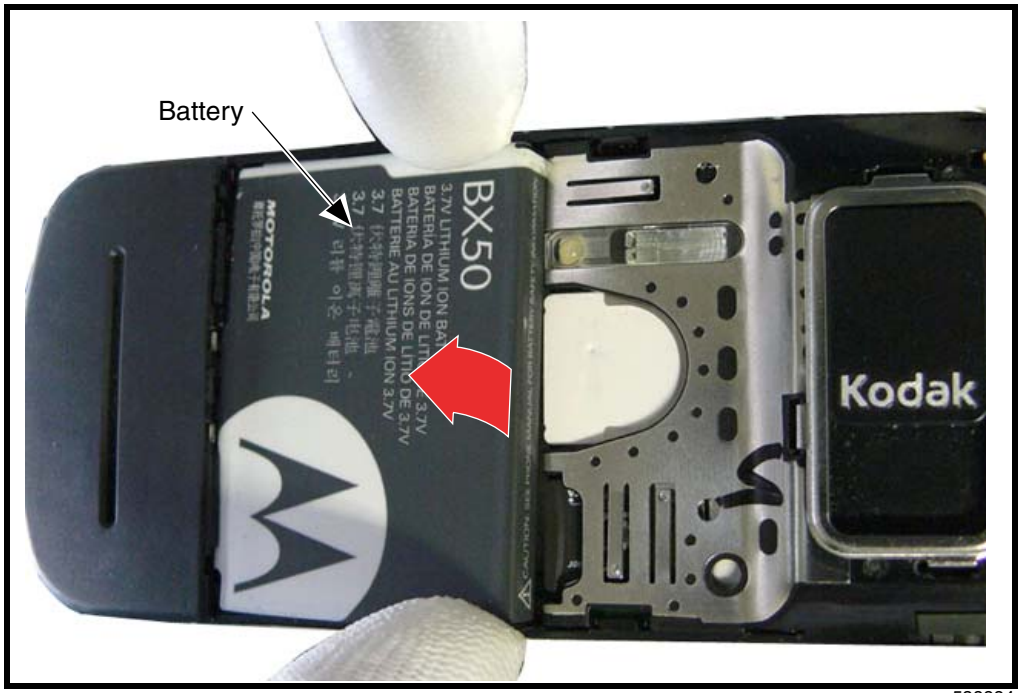

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Figure 3. Removing the Battery

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.

6. To replace, align the battery with the battery compartment so the contacts on the battery match the battery contacts in the phone.
7. Insert the battery, contacts side first, into the battery compartment.
8. Lower the opposite edge of the battery into the battery compartment.
9. Align and lower the battery cover onto the phone, then push the cover down and snap it into place.

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 SIM holder.

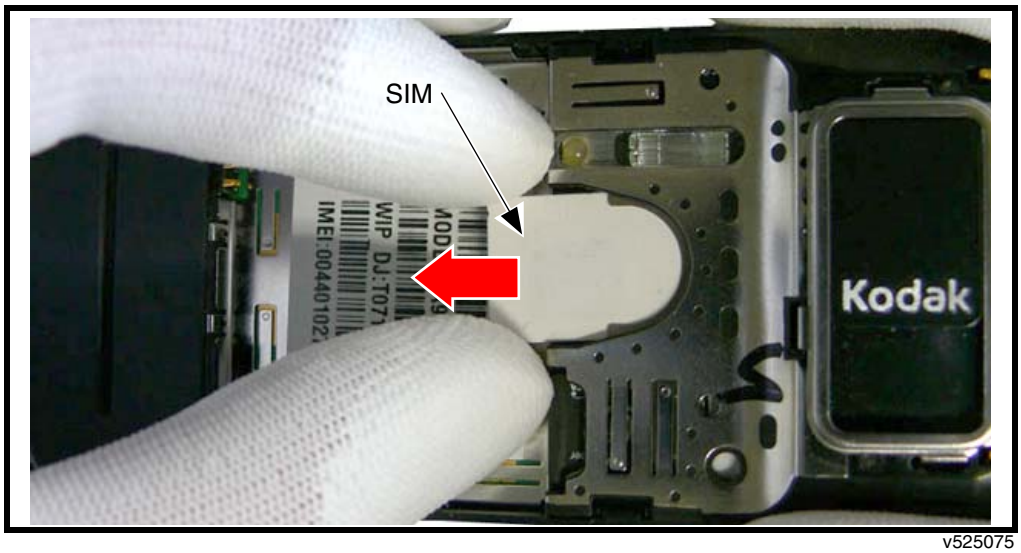

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Figure 4. Removing the SIM

3. Carefully lift the SIM from the phone.
4. To replace, insert the SIM into the holder, ensuring the cut corner of the SIM faces the top edge of the phone.
5. Replace the battery and battery door as described in the procedures.

Removing the Speaker Cover

1. Remove the battery door and battery as described in the procedures.
2. Insert the black stick tool with the flat end into the opening between the speaker cover and the front housing.

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Figure 5. Removing the Speaker Cover (Part One)

3. Move the black stick along the housing edge to disengage the 3 snaps.

4. Snaps must be pushed out (against battery compartment) to disengage.

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Figure 6. Removing the Speaker Cover (Part Two)

5. Press the speaker cover against the south end. Open to disengage the snaps at the bottom.

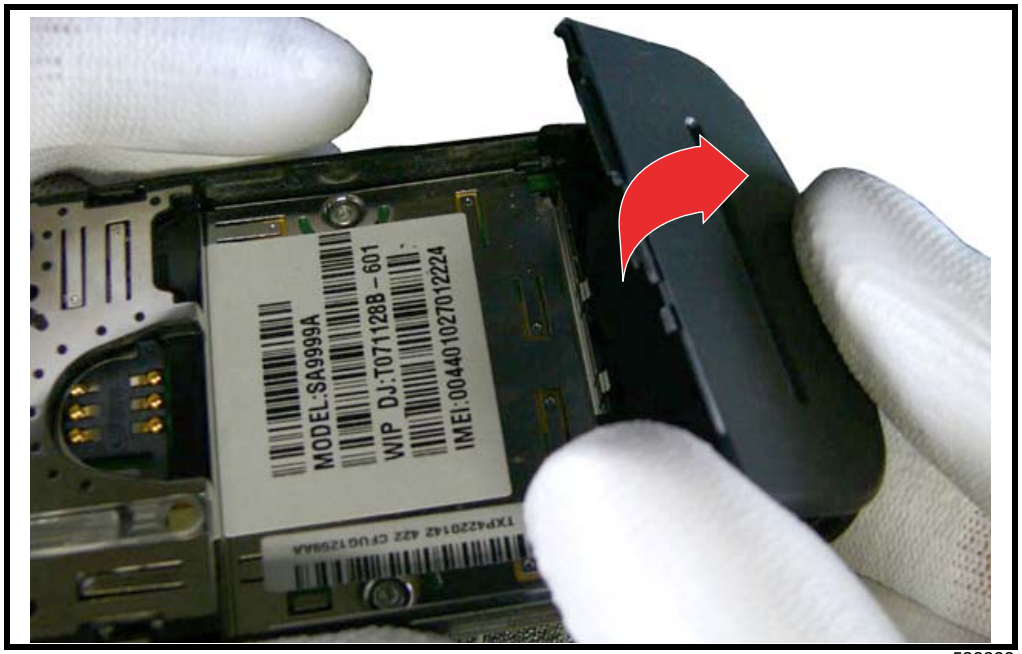

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Figure 7. Removing the Speaker Cover (Part Three)

6. Remove speaker cover from the housing.
7. Discard the speaker cover. Do not reuse the speaker cover for assembly.

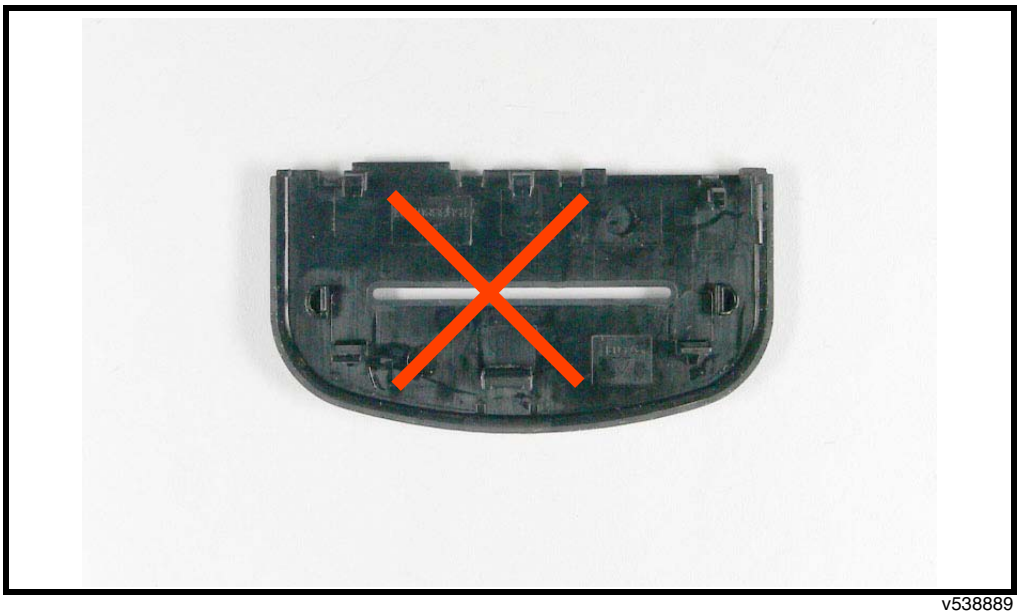

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Figure 8. Discard the Speaker Cover

Removing the USB Grommet

1. Pull the USB grommet out from housing, and then lift it up to remove.

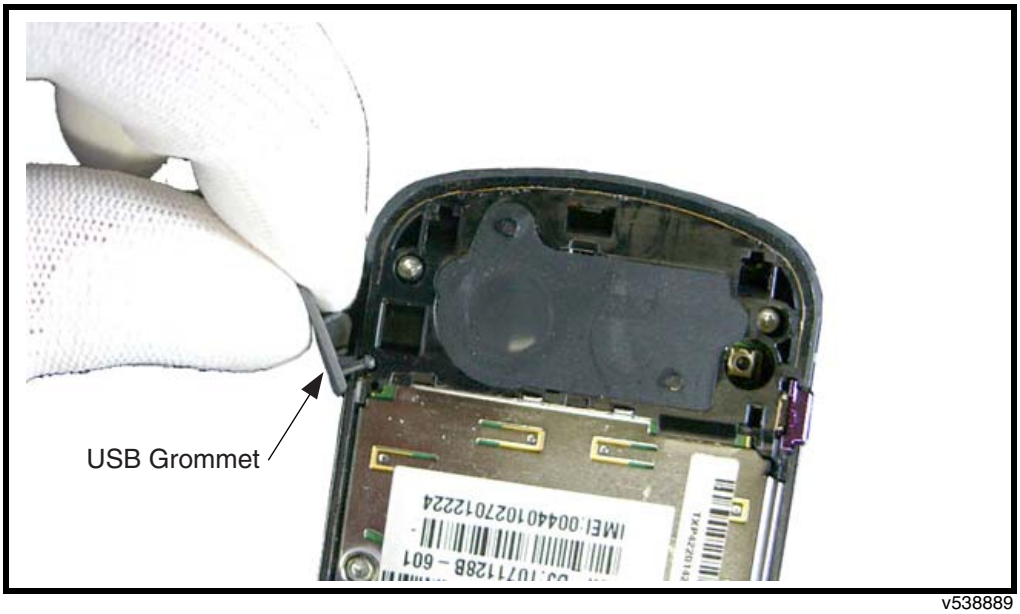

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Figure 9. Removing the USB Grommet

2. Remove the USB Grommet.

Removing the Rear Housing and Its Components

1. Using a Torx driver with a T-5 bit, remove the six housing screws. Retain the screws for reassembly.

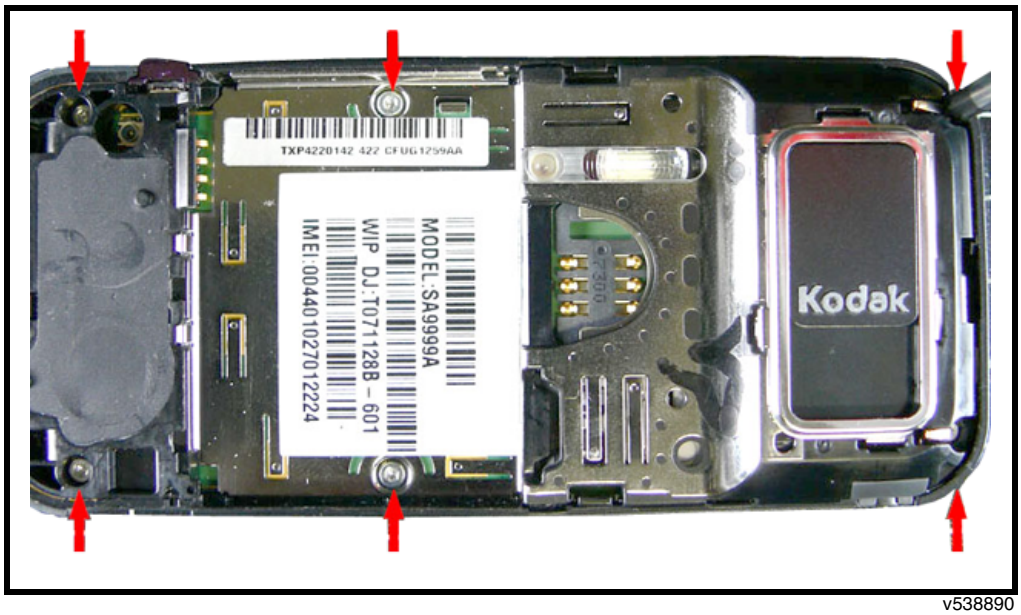

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Figure 10. Removing the Housing Screws

2. Insert black stick and release the rear housing snaps.

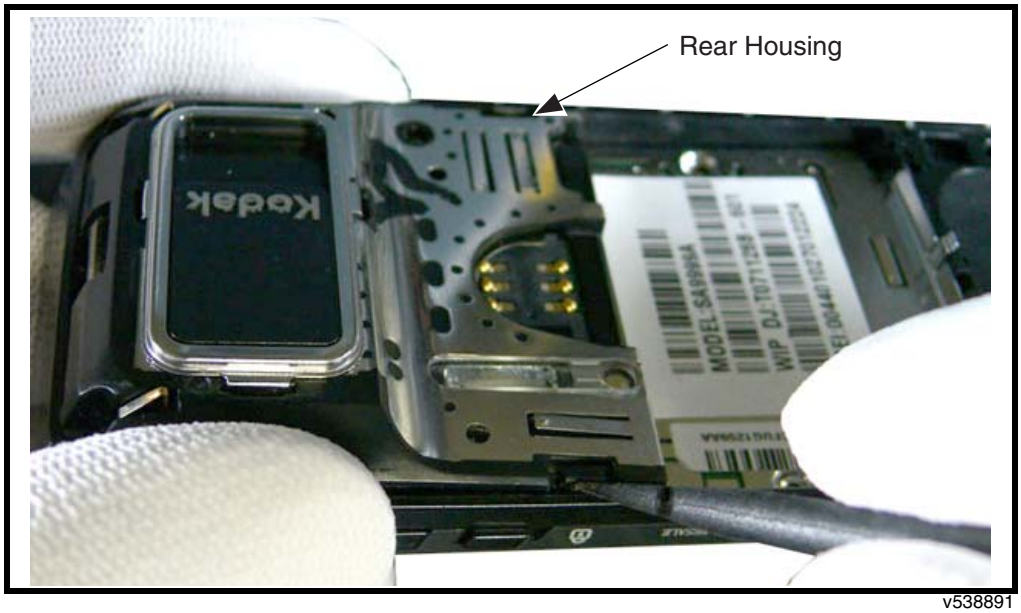

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Figure 11. Removing the Housing

3. Lift the rear housing from the phone.

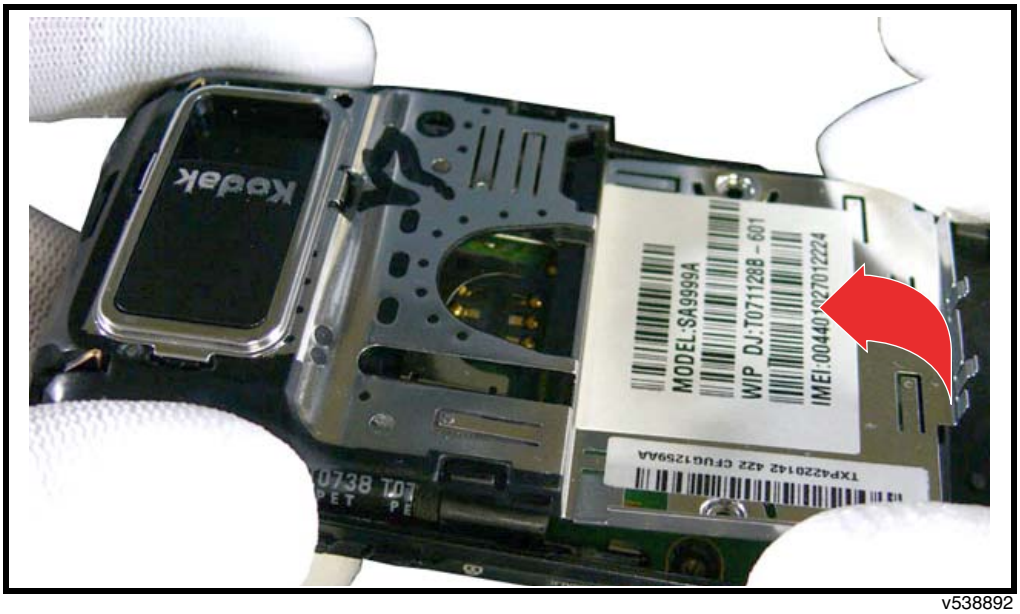

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Figure 12. Removing the Housing

4. Remove the rear housing from the phone.
5. Remove the headset jack connector from the rear housing.

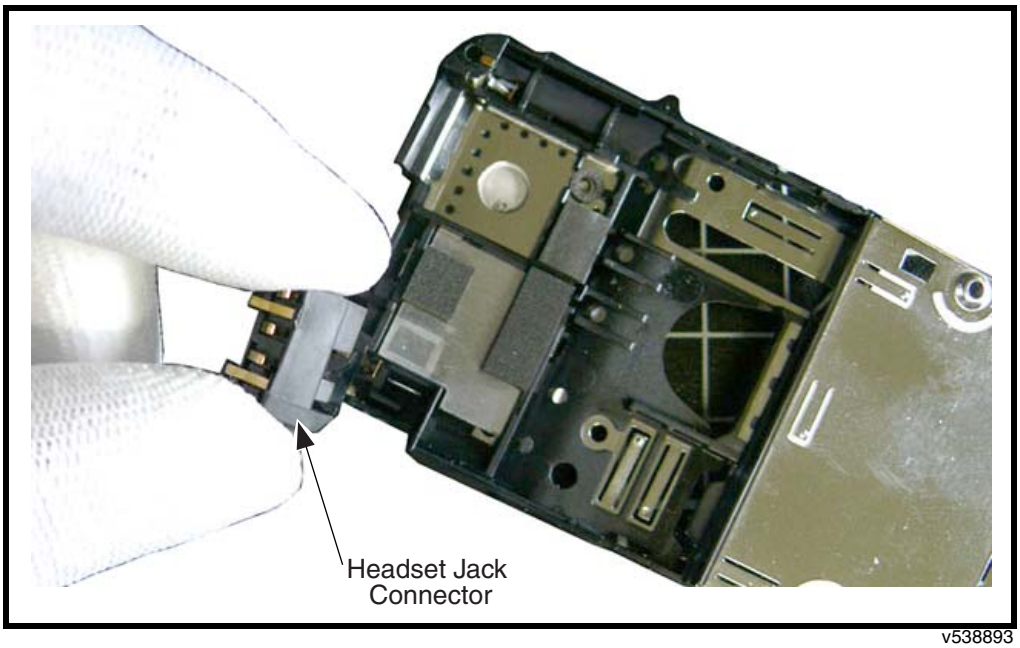

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Figure 13. Removing the Headset Jack Connector

Removing the Speaker Housing

1. Pull up the Speaker Housing from the battery area until the speaker housing snaps disengage.

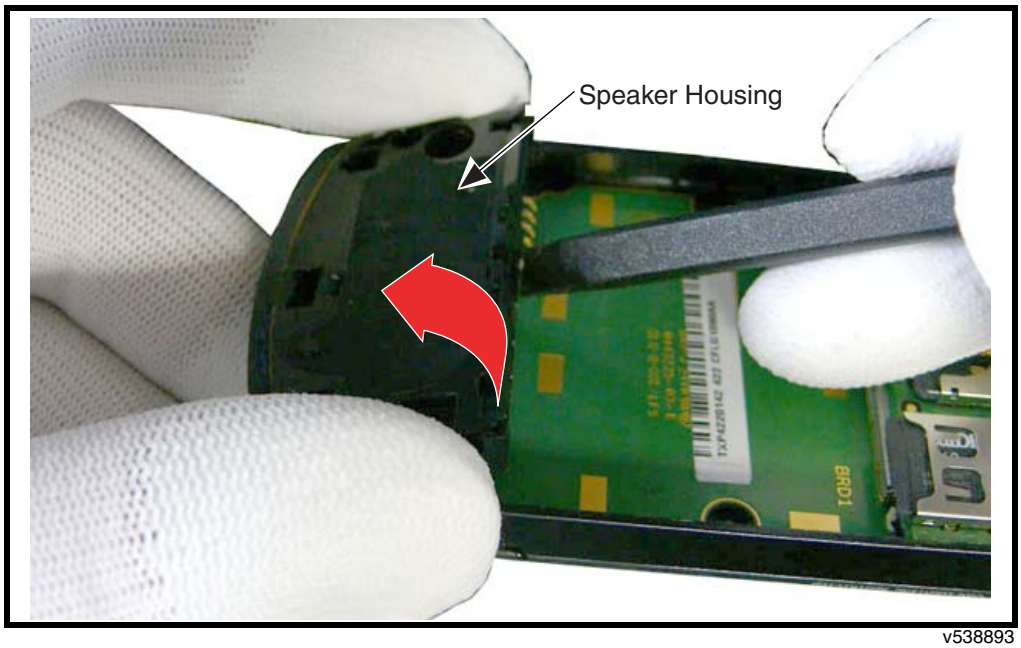

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Figure 14. Removing the Speaker Housing

2. Remove the speaker housing.

Removing the Side Key, Flash and Camera Flex

1. Insert the flat edge of a black stick under the side key flex connector and lift up to disengage it.

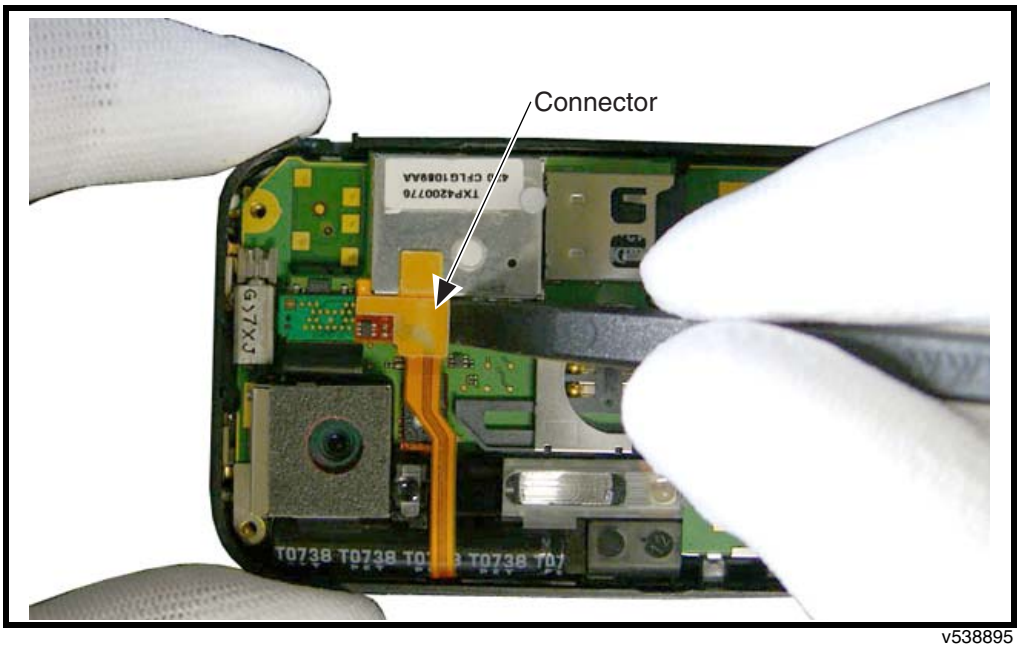

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Figure 15. Removing the Side Key Flex Connector

2. Insert the flat edge of a black stick under the camera flex connector and lift up to disengage it.

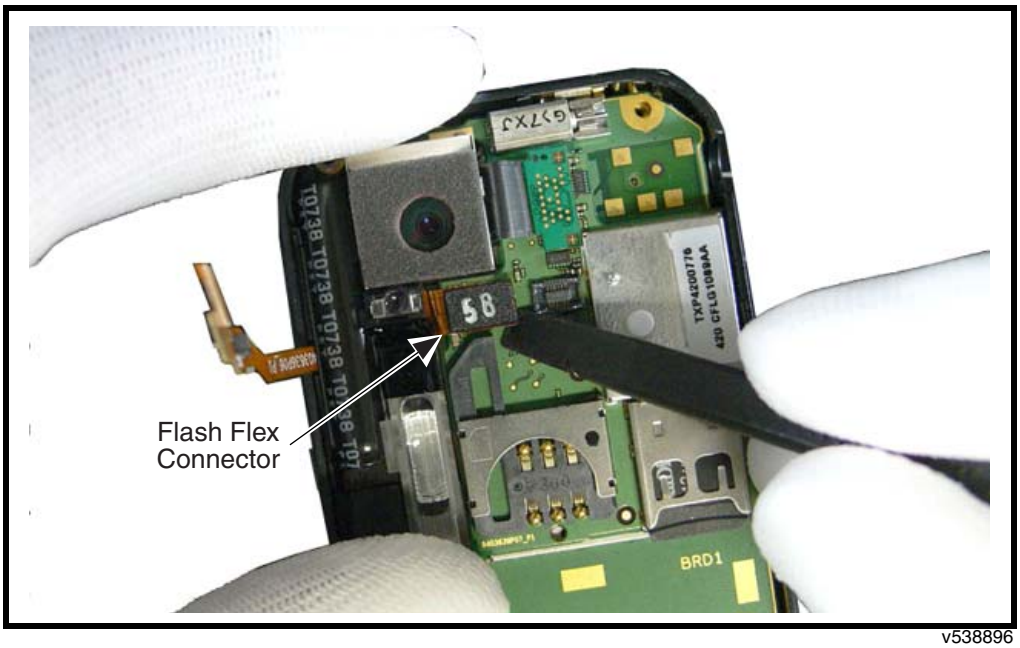

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Figure 16. Removing the Flash Flex Connector

3. Insert the flat part of a black stick under the camera flex connector and lift up to disengage it.

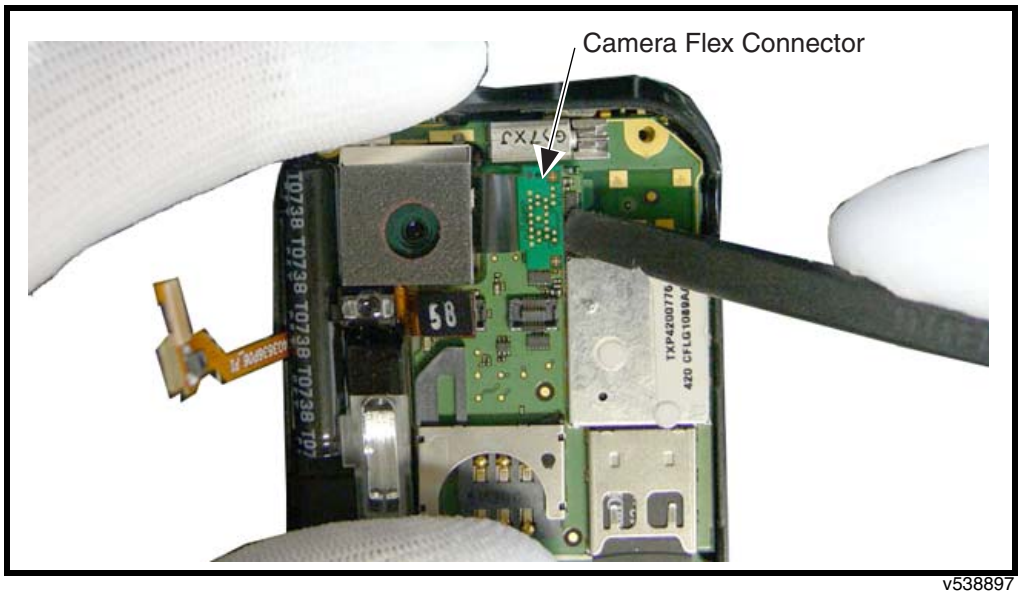

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Figure 17. Removing the Flash Flex Connector

4. Lift the flash and camera modules out of the phone.

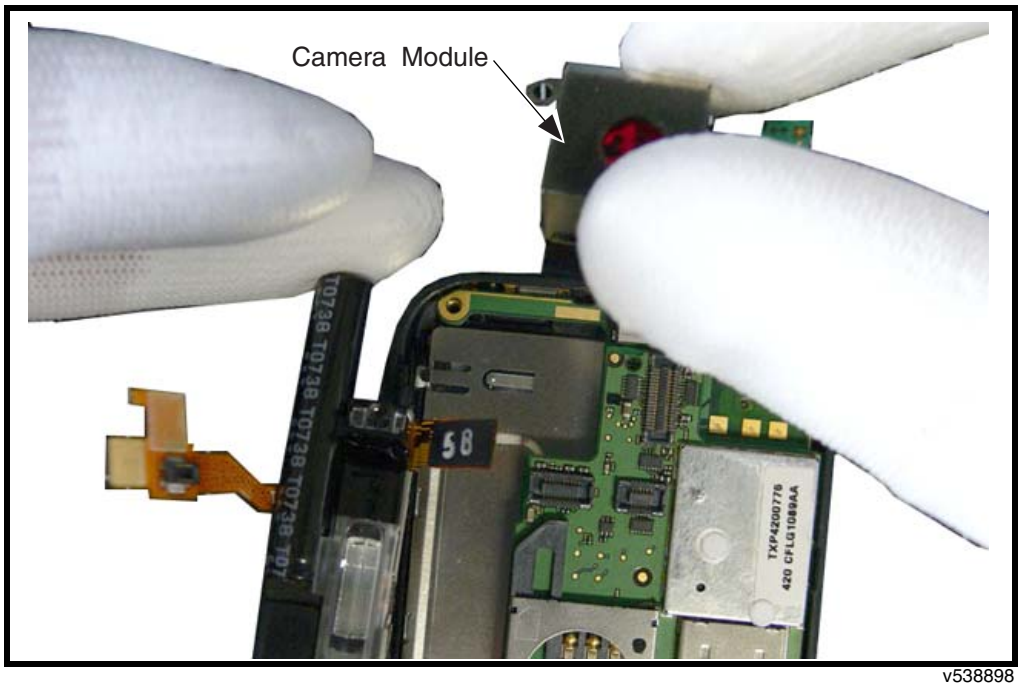

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Figure 18. Removing the Camera Module

Removing the Front Housing

1. Lift up the PCB to the right side. Do not stretch the keypad flex.

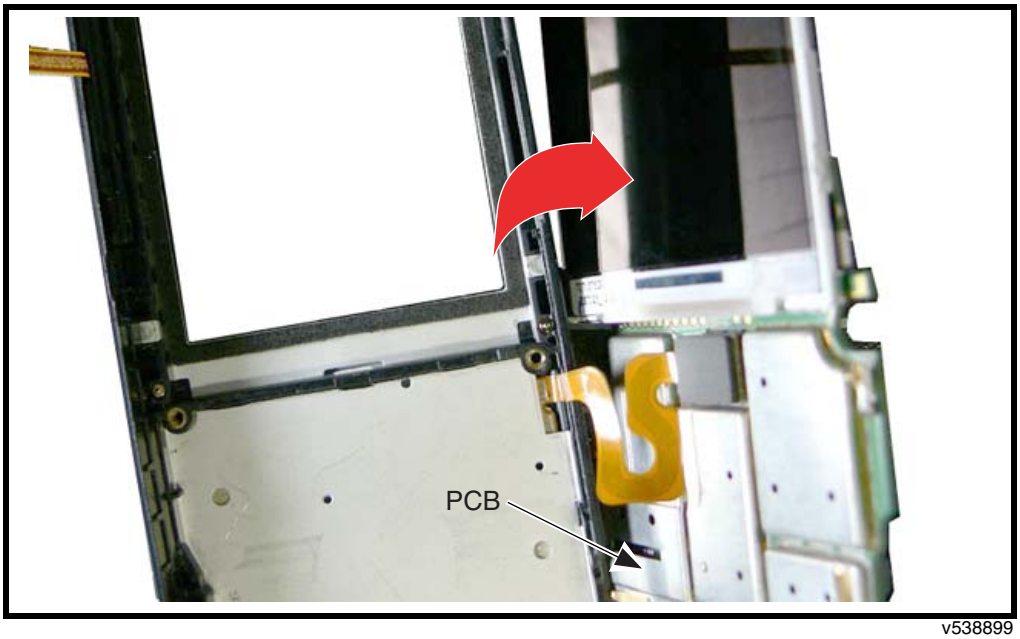

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Figure 19. Preparing to Remove the Front Housing

2. Insert the flat edge of a black stick under the keypad connector as shown in picture and lift up to disengage it.

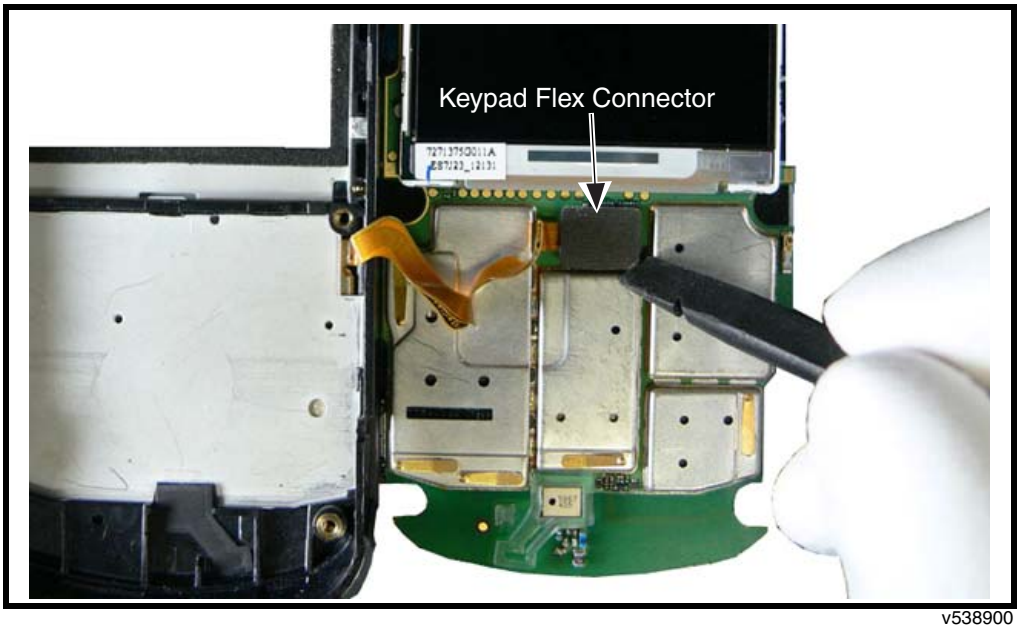

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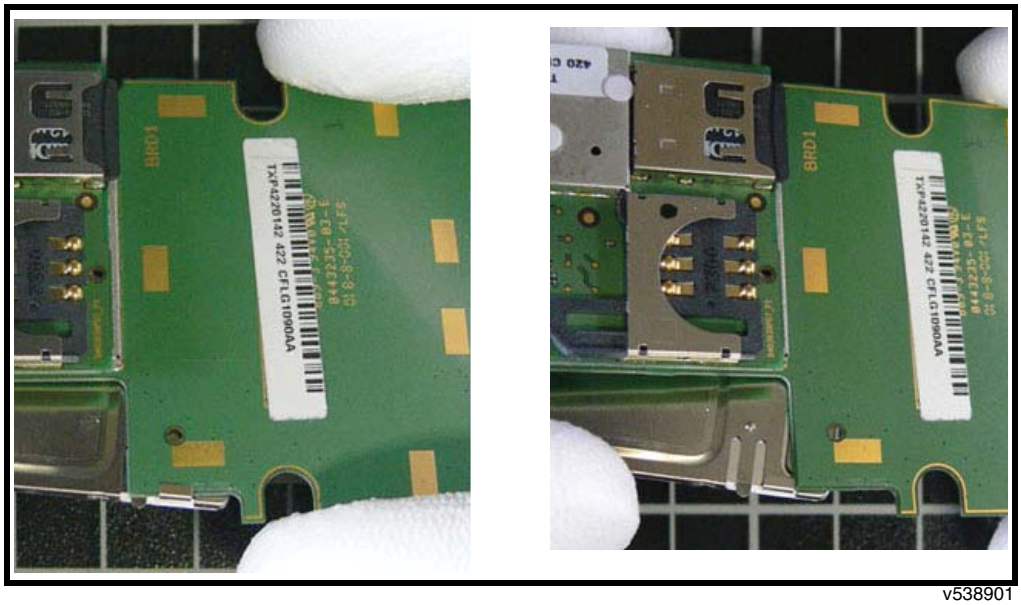
Figure 20. Removing the Keypad Flex Connector

3. Remove the front housing.

Removing the Display

1. Rotate the display until the hooks disengage. Do not touch the display glass.

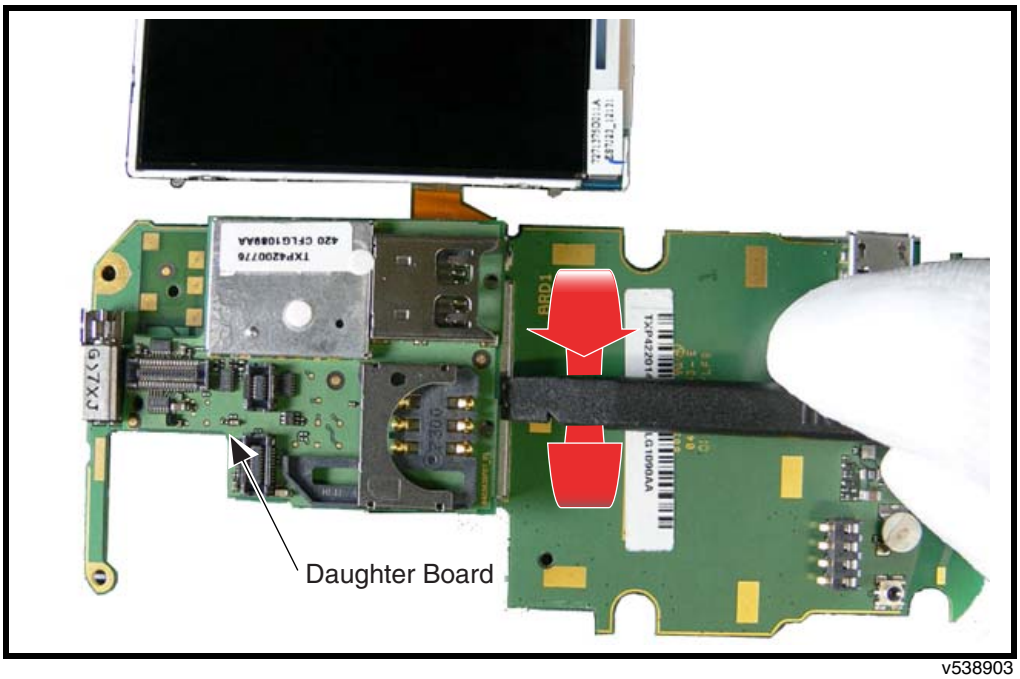


v538901

Figure 21. Removing the Display

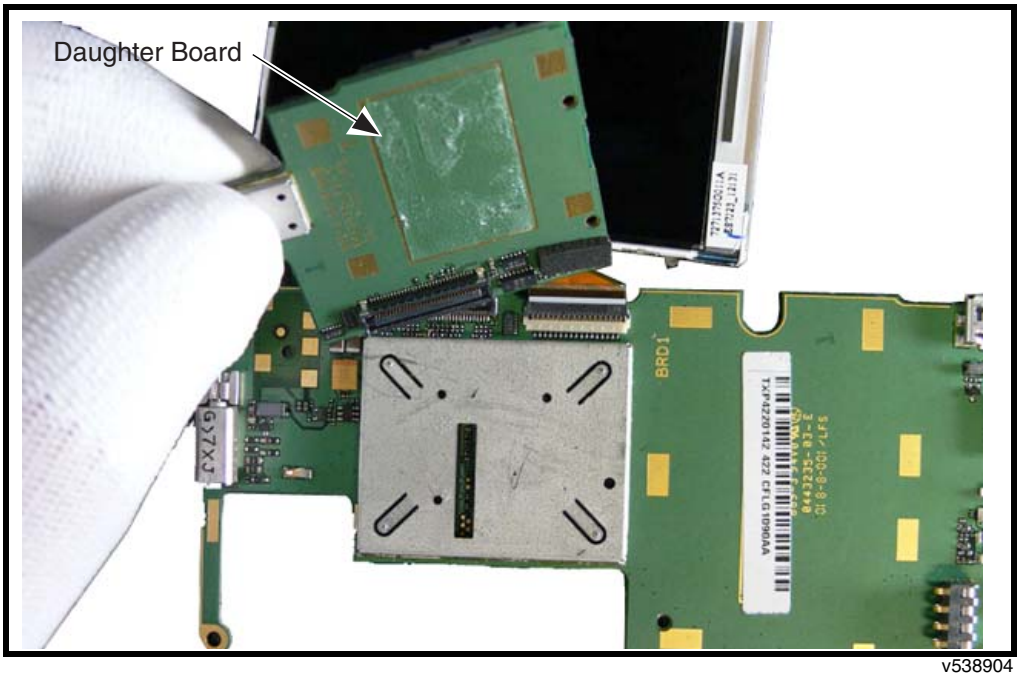
2. Place the display beside the PCB. Do not stretch the flex.

3. Using a black stick, disconnect the daughter board connector by rotating the black stick as shown. Be aware of the spring contacts on main board.



v538903

Figure 22. Removing the Daughter Board Connector

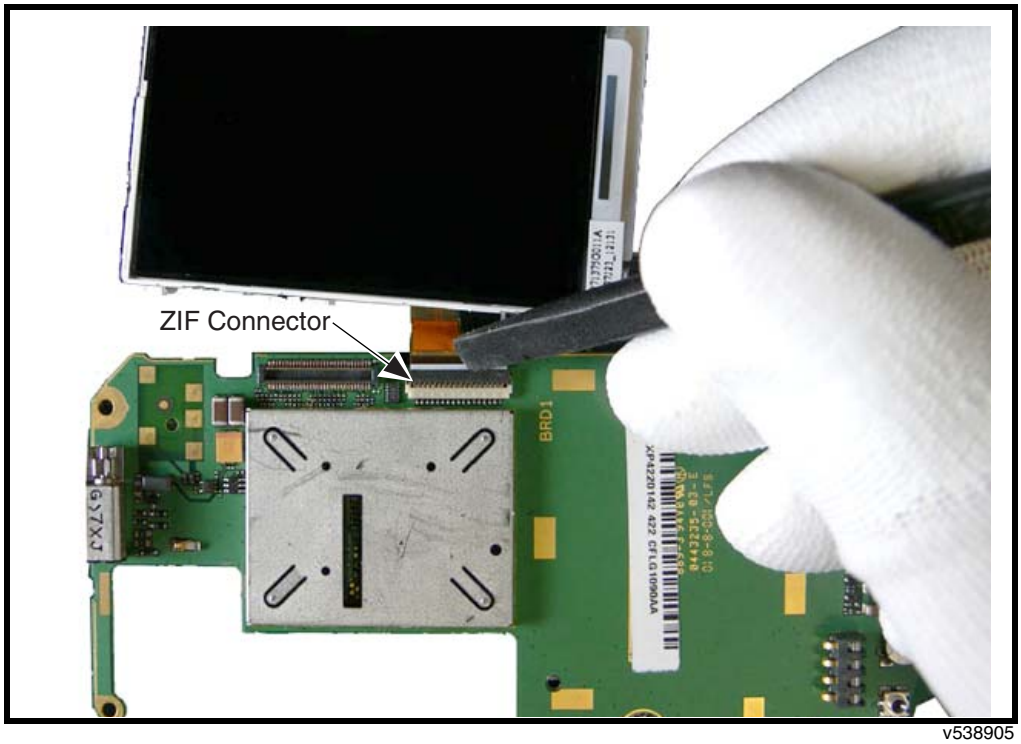


v538904

Figure 23. Removing the Daughter Board

Heating the daughter board with a heating gun at a temperature of 90 degrees allows the daughter board to be easily disconnected.

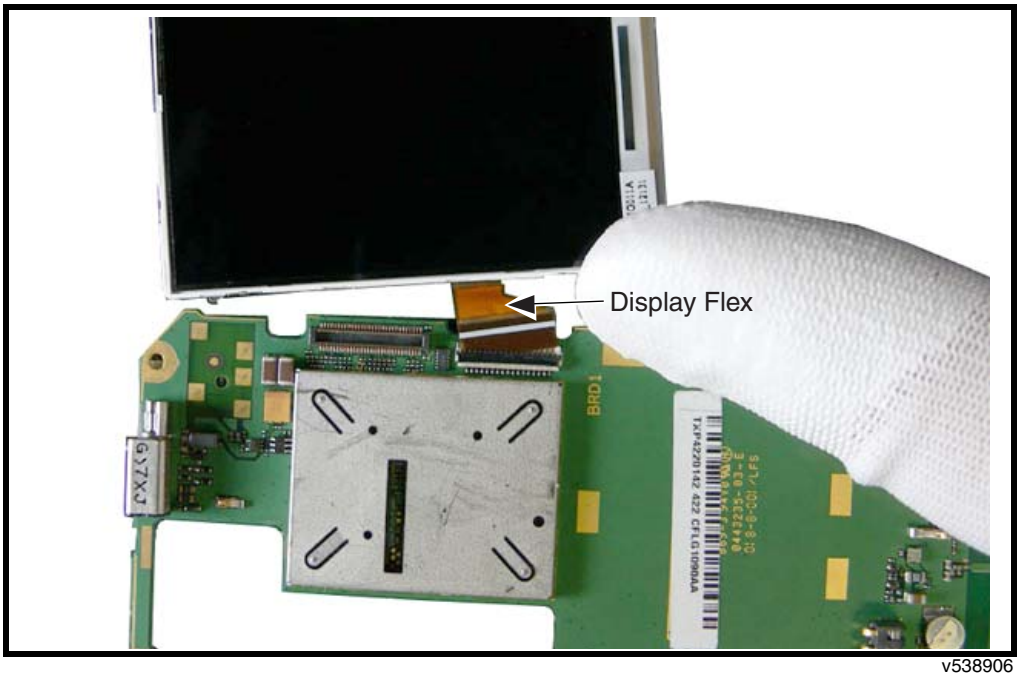
4. Use a black stick to open the ZIF door. Avoid damage to the door.



v538905

Figure 24. Opening the Daughter Board Connector

5. Remove the display flex from the ZIF connector.



v538906

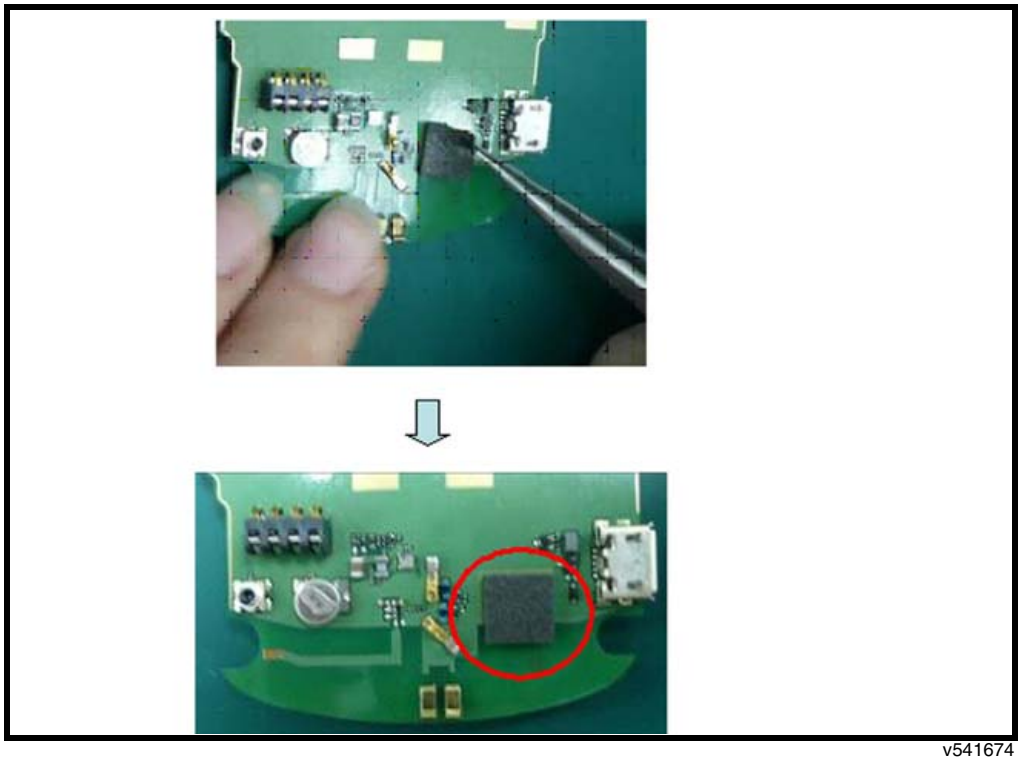
Figure 25. Removing the Display Module Flex Connector

6. Remove the display module.

Assembly

Installing Speaker Poron Pad and Mic Boot

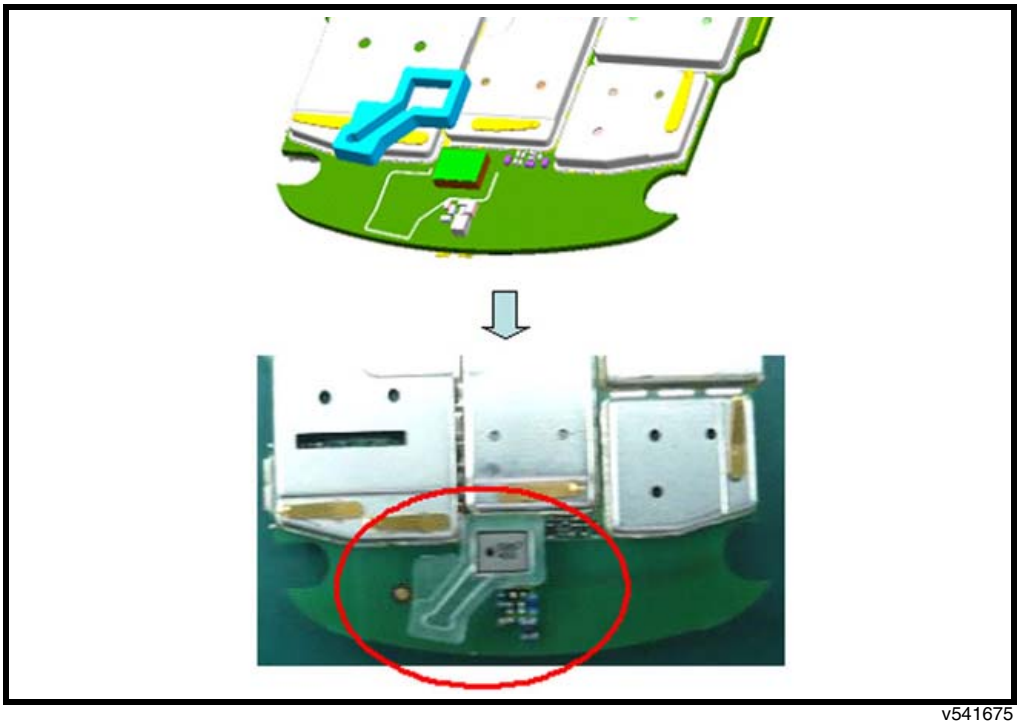
1. Place the Speaker Poron pad in the marked area on the main PCB.



v541674

Figure 26. Installing the Speaker Poron Pad

2. Press fit the Microphone Boot onto the Microphone.



v541675

Figure 27. Installing the Microphone Boot

Installing Poron Pad and labels

1. Place a Poron pad on the marked area of the Daughter Board.

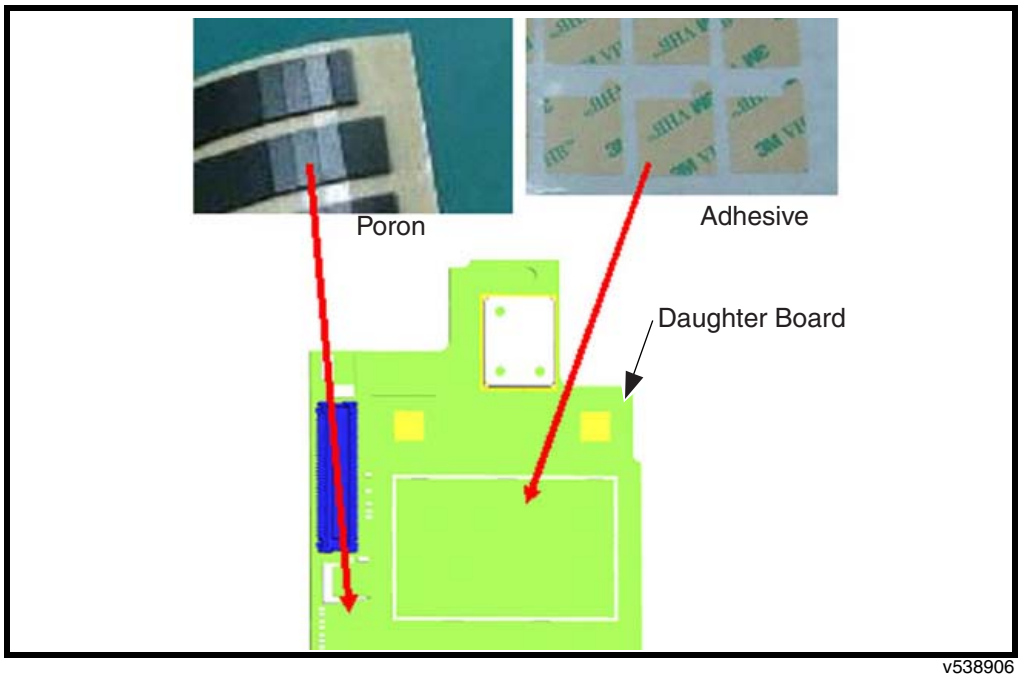


Figure 28. Placing the Poron Pad and Double Sided Adhesive

2. Place double sided adhesive tape on the marked area See Figure 28.

3. Place a water detection label on the marked area. Correct placement is important.

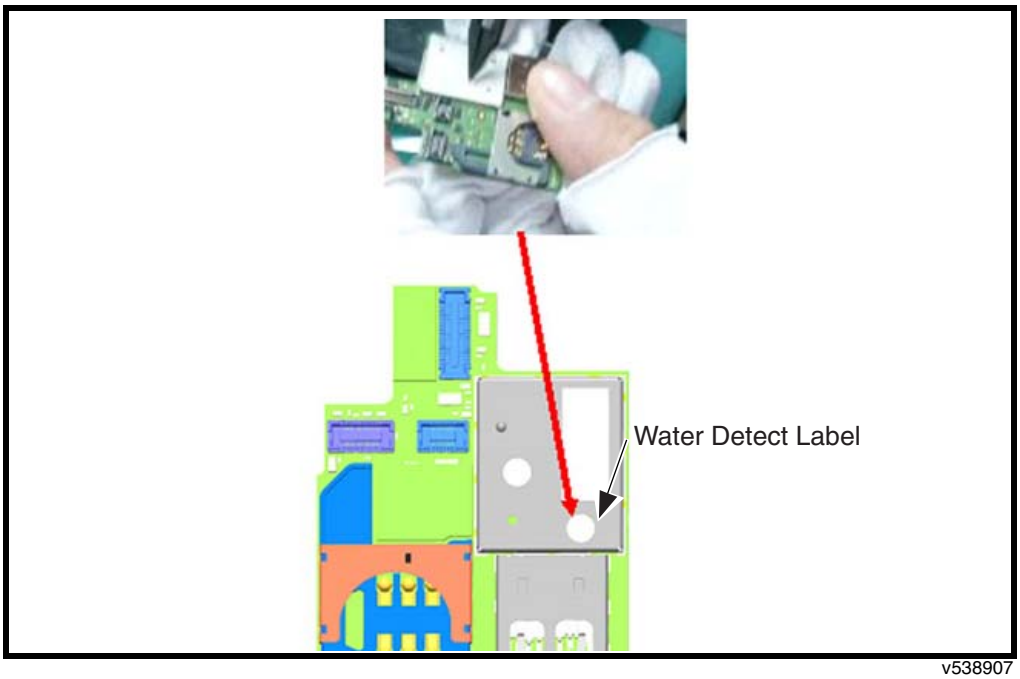
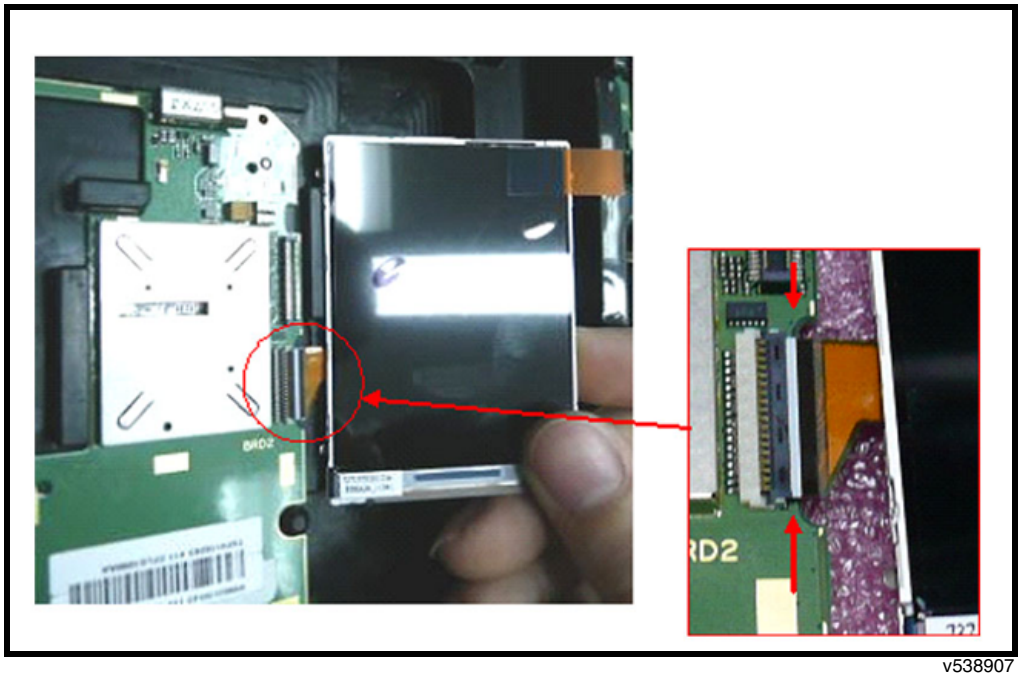


Figure 29. Placing the Water Detect Label

Installing the Display

Insert the display flex into the ZIF connector and close the ZIF door. Use the parallel white line to ensure the display flex is correctly inserted.



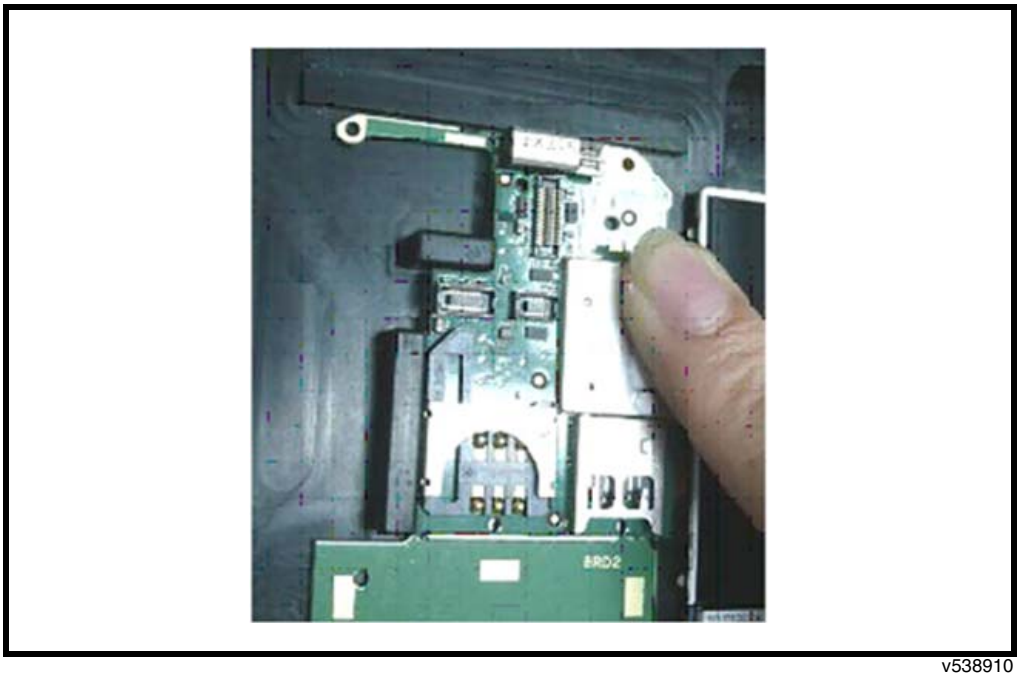
v538907

Figure 30. Inserting the Display Flex into ZIF Connector

Installing the Daughter Board

1. Remove the liner from double sided adhesive tape on the daughter board.
2. Place the Daughter PCB onto the Main PCB. Make contact with the Board To Board (BTB) connector first and then make contact to adhesive tape. Use wall as a guide.

3. Press firmly the BTB connectors together.

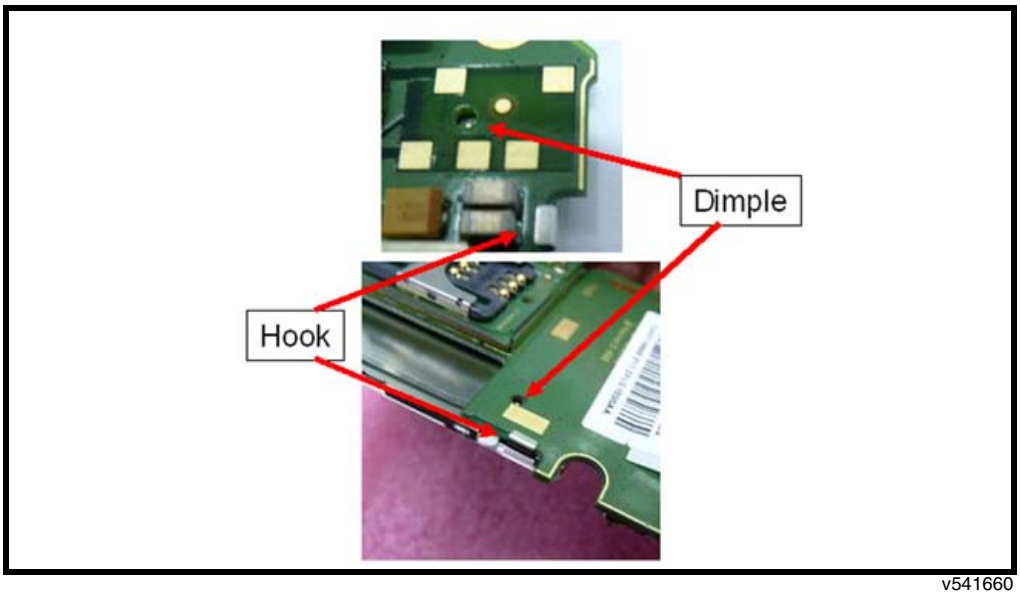


v538910

Figure 31. Connecting the BTB Connectors

Installing the Display Module

1. Place the display module on the PCB and turn the display until is locked in position.
2. Ensure hooks are around PCB edge and dimples are in guide holes.



v541660

Figure 32. Inserting the Display onto the Main PCB

Note! Do not stress the flex or press on the display glass.

Installing the PCB into the Front Housing

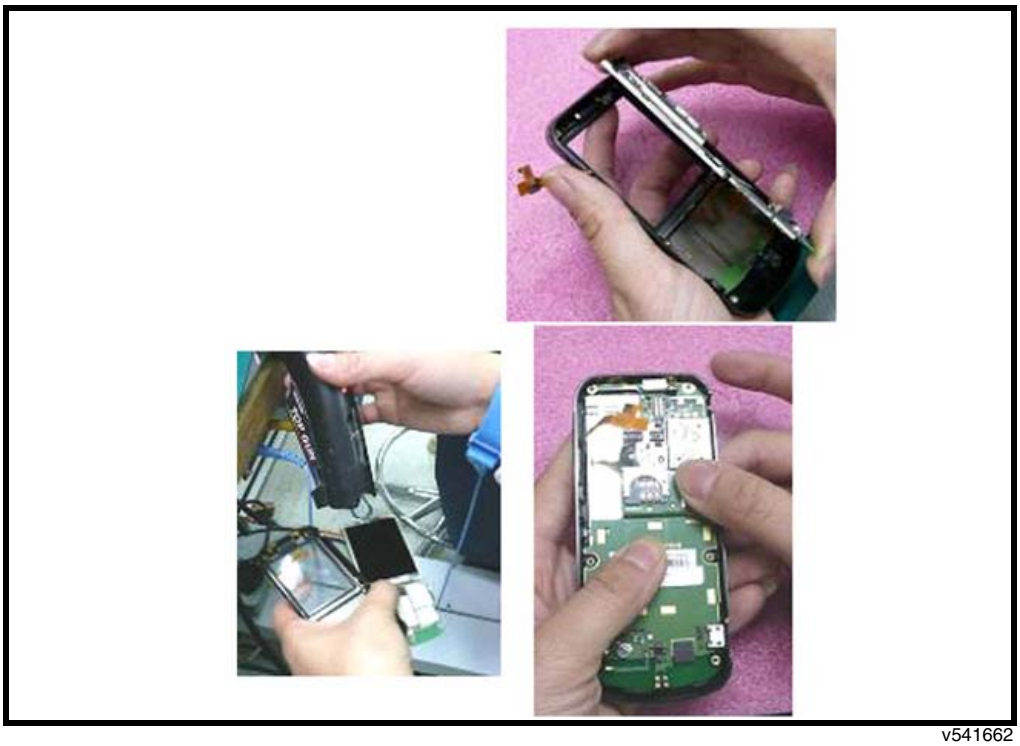
1. Remove the liner from the Mic Mesh in the front housing.
2. Place and Press the Keyboard connector firmly into the PCB BTB connector.
3. Remove the liner from the display and also from the inside of the front housing. (Do not touch glass with after removing the liners).

v541661

Figure 33. Attaching Flex Connectors to Main PCB

4. Clean the front housing lens and display with ionized air.

5. Lift up the side key flex and place the PCB into the front housing using the screw bosses as a guide.

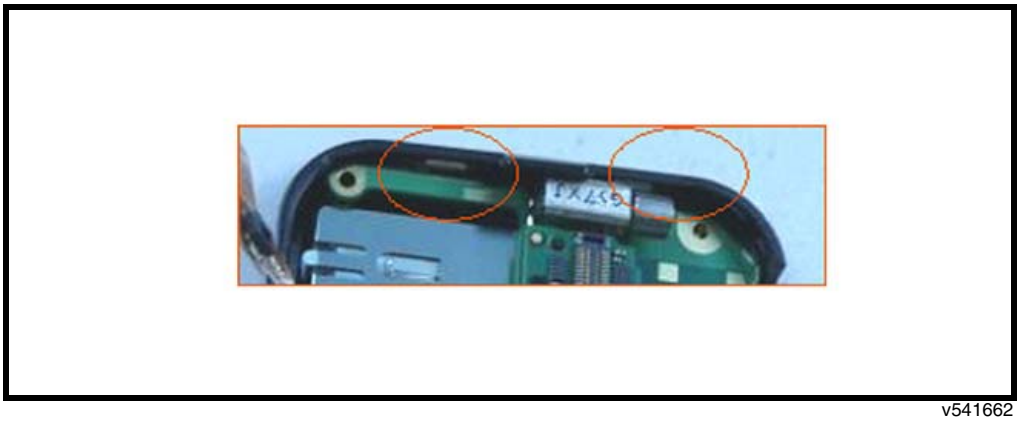


v541662

Figure 34. Installing the Main PCB into the Front Housing

Be aware of the correct placement of the PCB in top of housing

6. Earpiece speaker springs must be under the PCB.

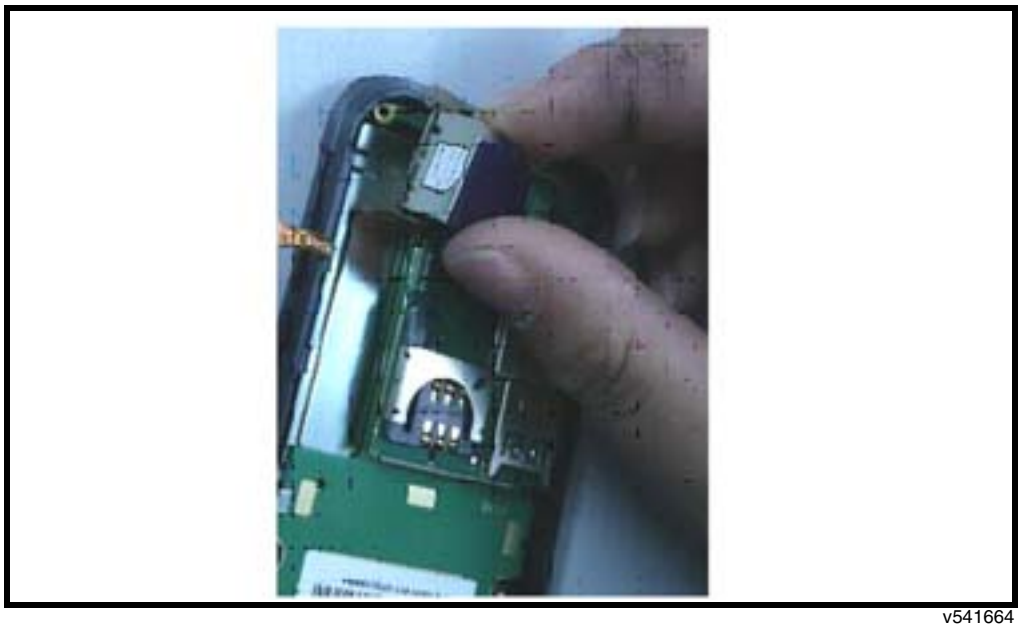


v541662

Figure 35. Installing the Main PCB into the Front Housing

Installing the Camera Module Assembly

1. Place the camera module into the opening on the main PCB. The camera must be angled under the daughter board.
2. Connect the camera module flex connector BTB to the daughter board.



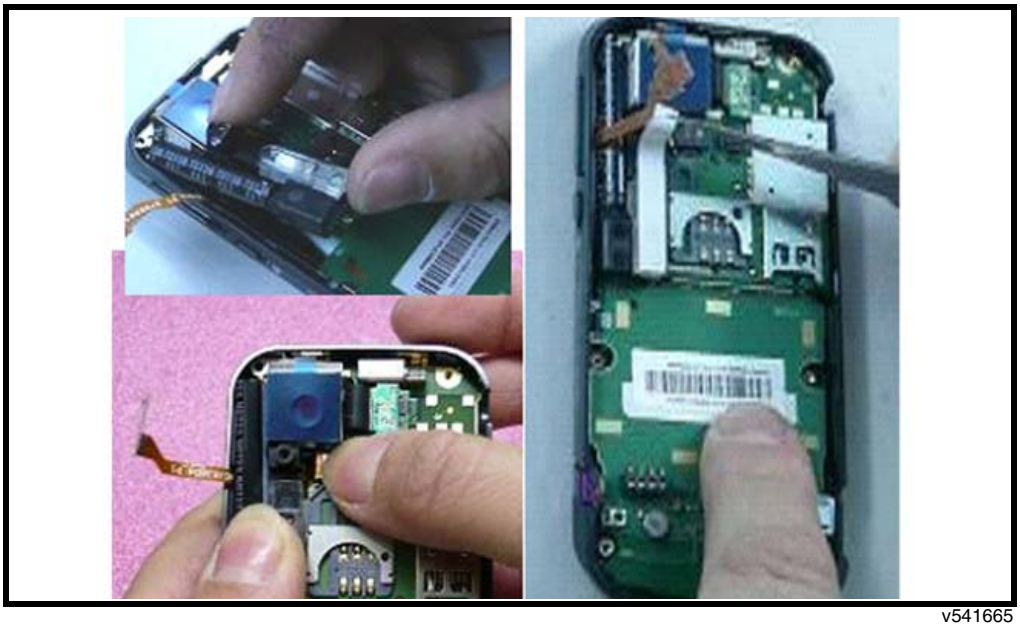
v541664

Figure 36. Installing the Camera Module to Main PCB

Installing the Flash Module

1. Place the flash module into the opening on the main PCB, sliding it from the south direction.
2. Connect the flash module flex connector to the daughter board.

3. Remove the liner from the flash module.

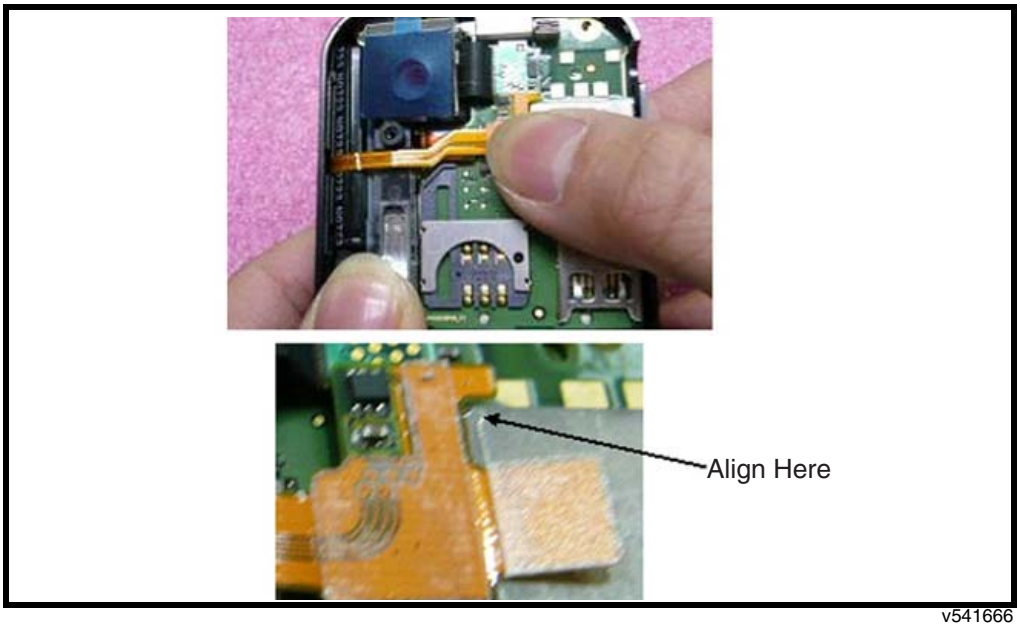


v541665

Figure 37. Installing the Flash Module to the Main PCB

Connecting the Side Key Flex Assembly

1. Connect the Side-key Flex to the daughter board. Use corner of the shield to align the connector.

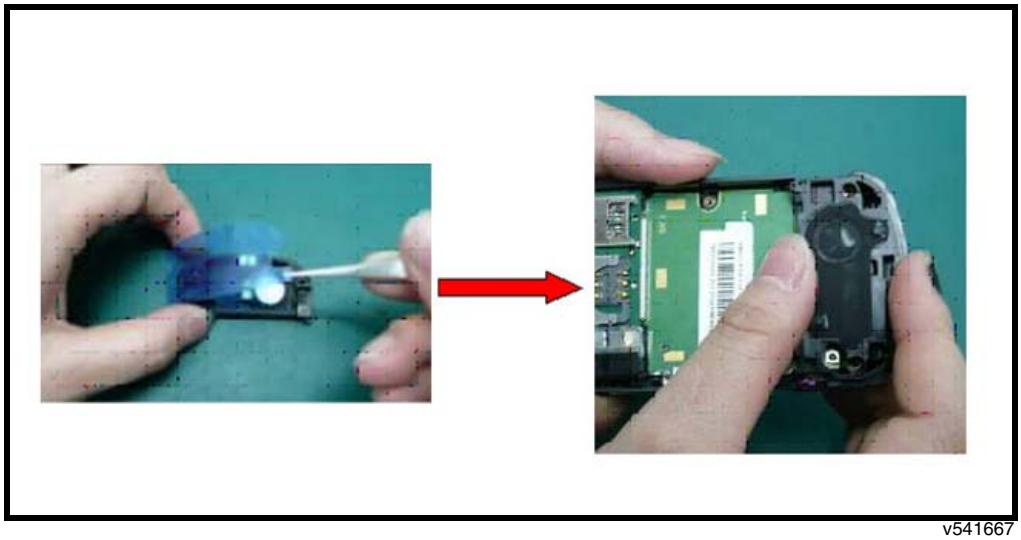


v541666

Figure 38. Connecting the Side Key Flex to Main PCB

Installing the Speaker Housing Assembly

1. Remove the liner from the speaker housing.
2. Place the speaker box assembly into the front housing using the bottom of housing as a guide.
3. Press on the speaker box until locked to front housing.

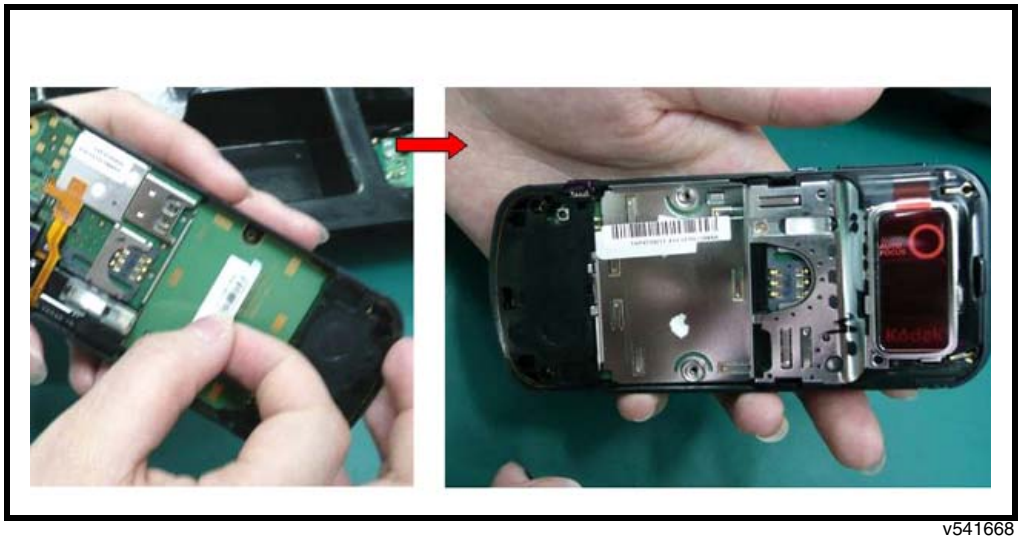


v541667

Figure 39. Installing the Speaker Housing Assembly

Installing the Rear Housing Assembly

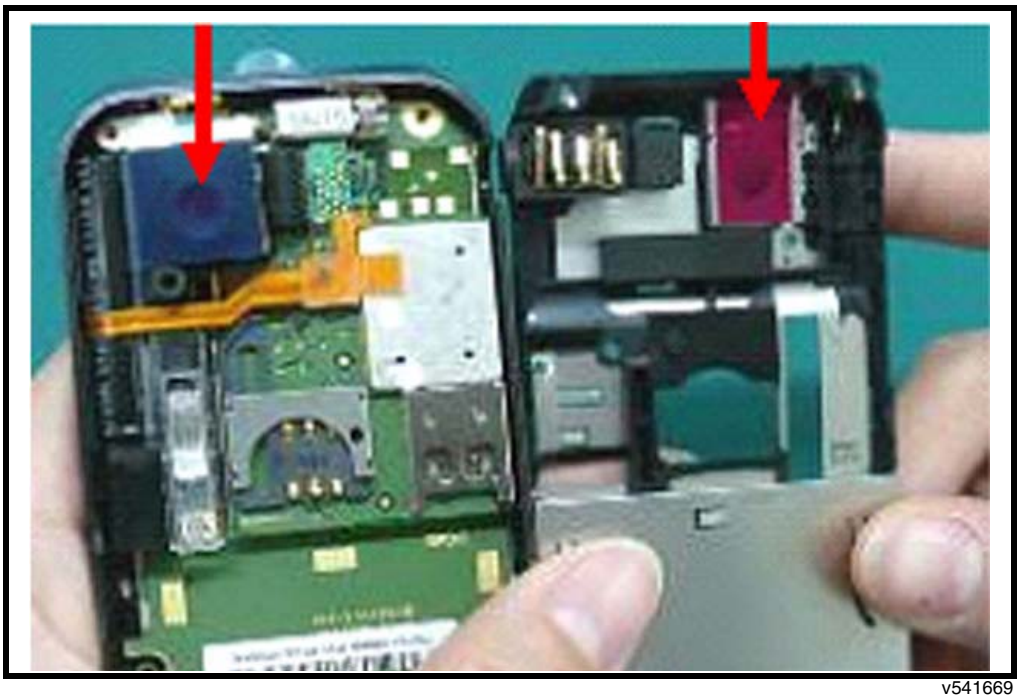
1. Remove half part of board label and place in the rear housing as shown.



v541668

Figure 40. Installing the Rear Housing Assembly

2. Remove the protection liner from the inside of the rear housing.
3. Remove the liner from the Camera module.



v541669

Figure 41. Installing the Rear Housing Assembly

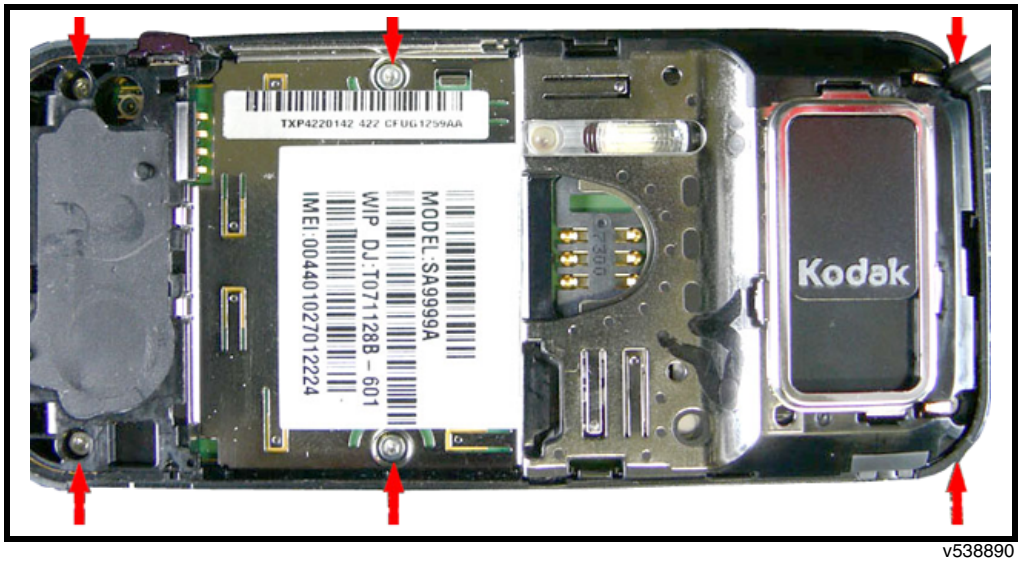
4. Slowly angle the rear side onto front with the north side first (Be aware there is guiding from the camera module, flash module and headset jack).
5. Press on side of Rear side to engage the hooks to the front housing.

6. Check that the flash module trough hole in the rear housing is level.

v541670

Figure 42. Installing the Rear Housing Assembly

7. Insert and drive the six housing screws. Start with screws at the top, then middle screws and then the screws at bottom (torque setting 16 Ncm).

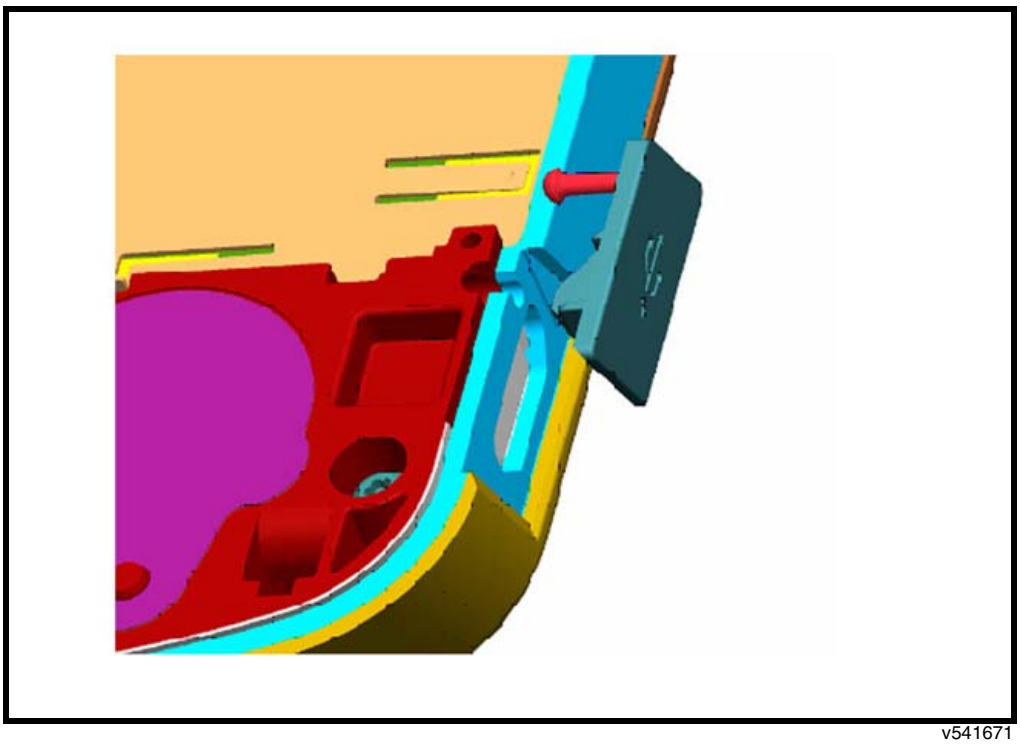


v538890

Figure 43. Installing the Rear Housing Screws

Installing the USB Grommet

1. Insert the tether of the USB Grommet into the opening within the housing.
2. Press the USB Grommet firmly into place to engage the retention feature to the housing.



v541671

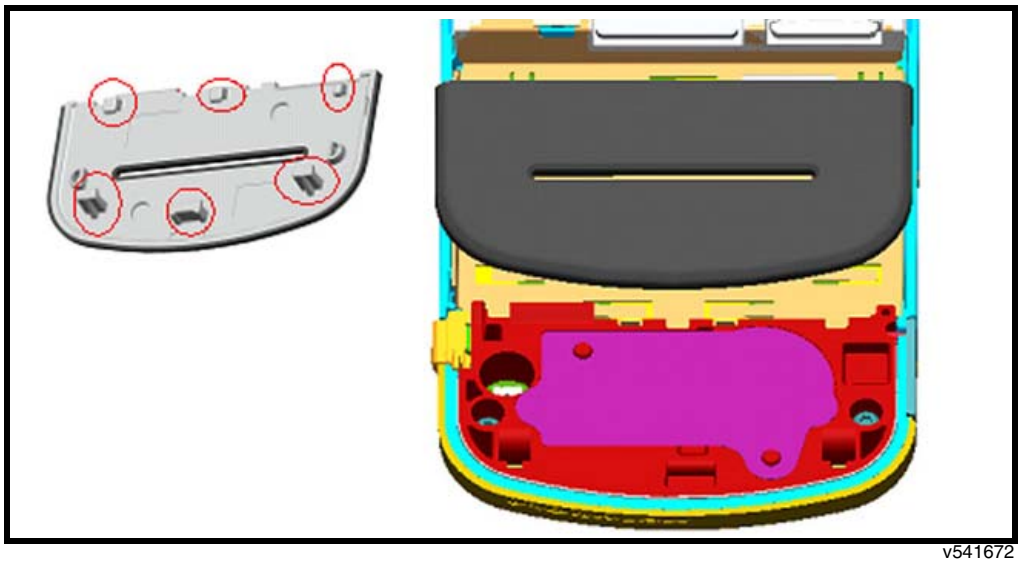
Figure 44. Installing the USB Grommet

Installing the Speaker Cover

1. Attach a new speaker cover near the battery chamber. Ensure all 3 hooks are engaged.

Note: Do not reuse old speaker cover for assembly.

2. Place the speaker cover over the guiding holes at the bottom and press until locked in place.



v541672

Figure 45. Installing the Speaker Cover

3. Install SIM, battery and battery cover.

Subscriber Identity Module (SIM) and Identification

SIM

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. ZN5 telephones use Motorola Phone Tools 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 46.

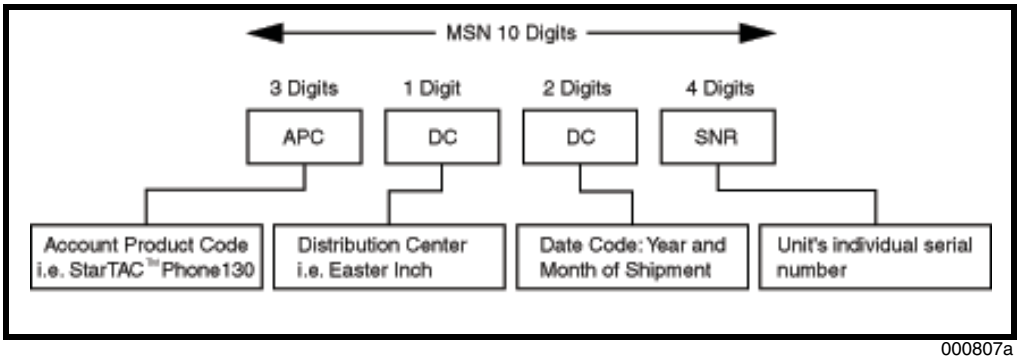


Figure 46. MSN Label Breakdown

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

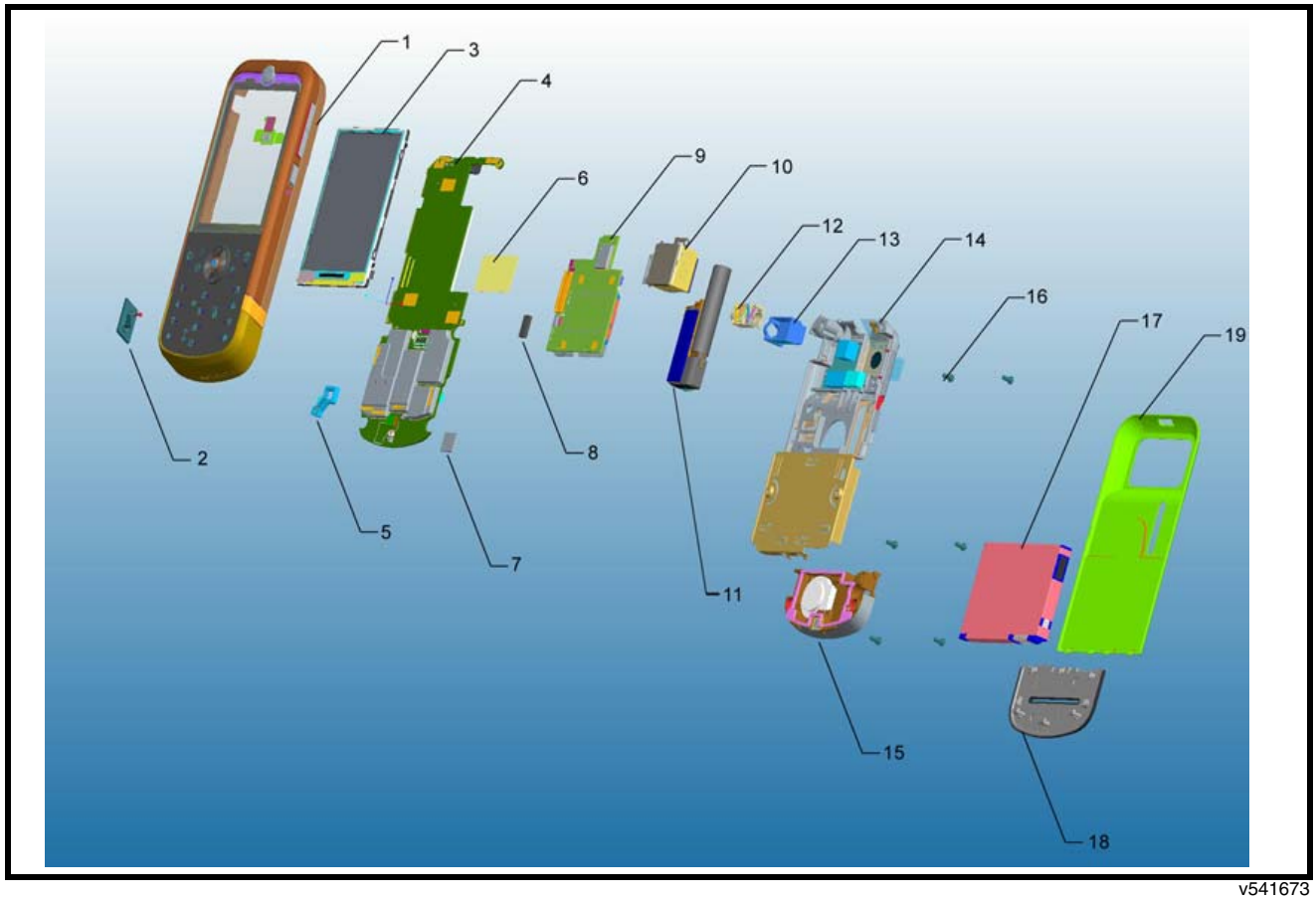
ZZZZZZ Individual unit serial number

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.

Part Numbers



v541673

Figure 47. Exploded View Diagram

Exploded View Parts List

Part numbers are only provided as a reference. Contact your local Motorola parts organization for current part number information.

Table 3. Parts List

Item #	Part Number	Part Description
1	0103619F01	FRONT HOUSING ASSY ENGLISH
1	0103619F04	FRONT HOUSING ASSY STROKE
1	0103619F02	FRONT HOUSING ASSY BOPOMOFO
1	0103619F06	FRONT HOUSING ASSY CYRILLIC
1	0103619F05	FRONT HOUSING ASSY ARABIC
2	0503580S01	GROMMET USB
3	7271375G01	DISPLAY ASSY
4	CFLG1090AA	PCBA MAIN
4	CHLG4635AA	PCBA MAIN
4	SLG5584AA	PCBA MAIN
5	3203571B97	GASKET ACOUSTIC
6	1103592S03	ADHESIVE DAUGHTER BOARD
7	7589902Z08	PORON PAD 7.0x7.0mm
8	7589902Z01	PORON PAD 8.00x3.00mm
9	CFLG1089AA	DAUGHTER BOARD
10	01004021001	CAMERA
11	0103618F01	FLASH LIGHT ASSY
12	0971177D01	CONNECTOR HSJ 3.5mm
13	1503579B49	GROMMET HSJ 3.5mm
14	0103622F01	REAR HOUSING ASSY
15	0103620F01	ALERT SPEAKER HOUSING ASSY
16	0303585S01	M1.6x3.3mm
17	SNN5807A	BATTERY
18	1503680P01	COVER ALERT SPEAKER
19	0103621F01	BATTERY DOOR
-	5471536C01	LABEL WATER DETECT 3mm

INDEX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