



**MOTOROLA**

Level 1-2 Service Manual

# C155 / 156

## Dual Band Wireless Telephone



C155  
GSM 900/1800

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## Introduction

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

Available on a contract basis, Motorola Inc. offers comprehensive maintenance and installation programs that enable customers to meet requirements for reliable, continuous communications. To learn more about the wide range of Motorola service programs, contact your local Motorola products representative or the nearest Customer Service Manager.

## Product Identification

The model number on a label (usually on the housing) identifies Motorola products. 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, and
- this device must accept interference received, including interference that may cause undesired operation

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

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

## Computer Program Copyrights

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

## About This Service Manual

Using this service manual and the suggestions contained in it assures proper installation, operation, and maintenance of C155 telephones. Refer questions about this manual to the nearest Customer Service Manager. This manual contains mechanical service information required for the equipment described and is current as of the printing date.

### Audience

This document aids service personnel in testing and repairing C155 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 C155 telephones, and also provides procedures and processes for repairing the units at Level 1 and 2 service centers, including:

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

## Conventions

Special characters and typefaces, listed and described below, are used in this publication to emphasize certain types of information.



*Note:* Emphasizes additional information pertinent to the subject matter.




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



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



Keys to be pressed are represented graphically. For example, instead of "Press the Menu Key", you will see "Press .

Information from a screen is shown in text as similar as possible to what appears in the display. For example, ALERTS or ALERTS.

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

## Warranty Service Policy

The product is sold with the standard 12-month warranty terms and conditions. Accidental damage, misuse, and extended warranties offered by retailers are not supported under warranty.

Non-warranty repairs are available at agreed fixed repair prices.

### Out of Box Failure Policy

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

### Product Support

The customer's original phones 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 Transceiver 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 should be arranged through the local Motorola Support Center.

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## 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. In the U.S.A., to contact Motorola, Inc. on your TTY, call: 800-793-7834

### Accessories and Aftermarket Division (AAD)

Replacement parts, test equipment, and manuals can be ordered from AAD.

**U.S.A.**

Phone: 800-422-4210

FAX: 800-622-6210

**Outside U.S.A.**

Phone: 847-538-8023

FAX: 847-576-3023

For EMEA spare parts call +49 461 803 1638.

For Asia spare parts call +65 648 62995.

## Specifications

General Function	Specification
Dimensions	104.08mm x 49.25mm x 22.78 mm
Weight	Not exceed 85 grams
External LCD	4K Color CSTN , Active Area:27.92mm x 19.082mm, Pixel Resolution: 98(RGB)x67
Band	GSM900/1800 or GSM850/PCS1900
Battery	920mAh Li Ion Battery
Product type	Bar type
Antenna	Internal Antenna
Frequency Range (EGSM)	880-915 MHz Tx, 925-960 MHz Rx
Frequency Range (DCS)	1710 – 1785 MHz Tx, 1805-1880 MHz Rx
Frequency Range (GSM850)	824-849 MHz Tx, 869-894 MHz Rx
Frequency Range (PCS)	1850-1910MHz Tx, 1930-1990 MHz Rx
Channel Spacing	200KHz
Channels	174 WGSN, 374 DCS carrier with 8ch, per carrier
Modulation	GMSK at BT=0.3
Transmitter Phase Accuracy	5 Degrees RMS, 20 Degrees peak
Duplex spacing	45 MHz GSM, 95 MHz DCS
Frequency Stability	±0.1PPM of the downlink frequency (Rx)
Operating voltage	3.53V ~4.2V
Average Transmit Current	Power Level 5: 230mA Power Level 19: 105mA
Average Standby Current	DRX 2: 6mA DRX 9: 3mA
Temperature Range	-20°C to 55°C



Transmitter Function	Specification
RF Power Output	32.5 dBm nominal GSM900 30 dBm nominal DCS1800
Output Impedance	50 ohms nominal
Spurious Emissions	-36 dBm from 0.1 to 1GHz, -30 dBm from 1 to 4 GHz

Receiver Function	specification
Receiver Sensitivity	-107 dBm GSM 850/GSM900 -106 dBm DCS1800/PCS1900
RX Bit Error Rate (100K bits) type II	<2%
Channel Hop Time	500 microseconds
Time to Camp	Approximately 6~10 Second

Speech Coding Function	Specification
Speech Coding Type	Regular pulse excitation/linear predictive coding with long term prediction (PRE 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

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## Product Overview

The Motorola C155 features a global system for mobile communications wireless interface and general packet radio service (GPRS) transport technology. It also features a simplified icon and graphical user interface (UI) for easier operation in addition to short message service text messaging (SMS), speed dialing, quick dialing, an alarm, a calculator, games, and an address book.

C155 telephones support GPRS and SMS in addition to traditional circuit switched transport technologies. GPRS, where available, provides substantial increases in mobile data communications performance and the efficient use of radio spectrum. Data transmission rates for GSM networks can potentially increase from the current rate of 9.6 kbps up to a theoretical maximum of 171.2 kbps. An increased data rate is by no means the only benefit provided by GPRS. A key advantage is the provision of a permanent virtual connection to the network. This "always on" connection is possible because GPRS uses packet data transfer so that, for example, email can be downloaded in "background mode." There is no need for the user to reconnect before requesting a service, eliminating connection set-up delays and adding convenience and immediacy to data services access. The "virtual" nature of this connection means that network resources are not consumed during periods when a user is not actually sending or receiving data.

The telephones are made of polycarbonate plastic with a metal enclosure. The display and speaker, as well as the 21-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 user-replaceable 730 mAh Lithium-Ion (Li-Ion) battery provides up to 180 minutes of talk time with up to 250 hours of standby time. The phone accepts 3V mini subscriber identity module (SIM) cards that fit into the SIM holder next to the battery. These telephones feature a 96 x 64 pixel high-resolution color graphics display and an internal antenna.

## Features

C155 telephones use advanced, self-contained, sealed, custom integrated circuits to perform the complex functions required for GSM GPRS 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:

- A 96 x 64 pixel high-resolution color graphics display
- Internal antenna
- Lower voltage technology that provides increased standby and talk times
- Extended GSM (EGSM) channels
- Tri-coder/decoder (CODEC) that allows full rate, half rate, and enhanced full rate modes of transmission
- Display animation
- VibraCall® vibrating alert
- 5-Way navigation key
- SIM Toolkit™ Class 2 (STK) (Network, subscription and SIM card or service provider dependent feature. Not available in all areas.)
- Backlight
- Speed-, Quick- and One-Touch dialing
- Call Forwarding and Holding
- Customized Menus

- Personal management tools calculator with currency converter, real time clock with date, reminders, and caller profiling
- Other features

### **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, an incoming call message is displayed.

### **SIM 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.

# General Functions

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

The C155 phone's controls are located on the front side of the device and on the keyboard as shown in below. Indicators icons are displayed on the LCD.



Figure 1.

### Menu Navigation

C155 telephones are equipped with a simplified icon and graphical-based user interface. See the table below for details of the C155 menu structure. A five-way navigation key allows you to move easily through menus and confirm your selection.

### Liquid Crystal Display (LCD)

The LCD provides a 700 square millimeter multicolor backlit color display with user-adjustable contrast settings for optimum readability in all light conditions. The bit-map 96 x 64 pixel display includes up to 3 lines of text, 1 line of icons, and 1 line of prompts.

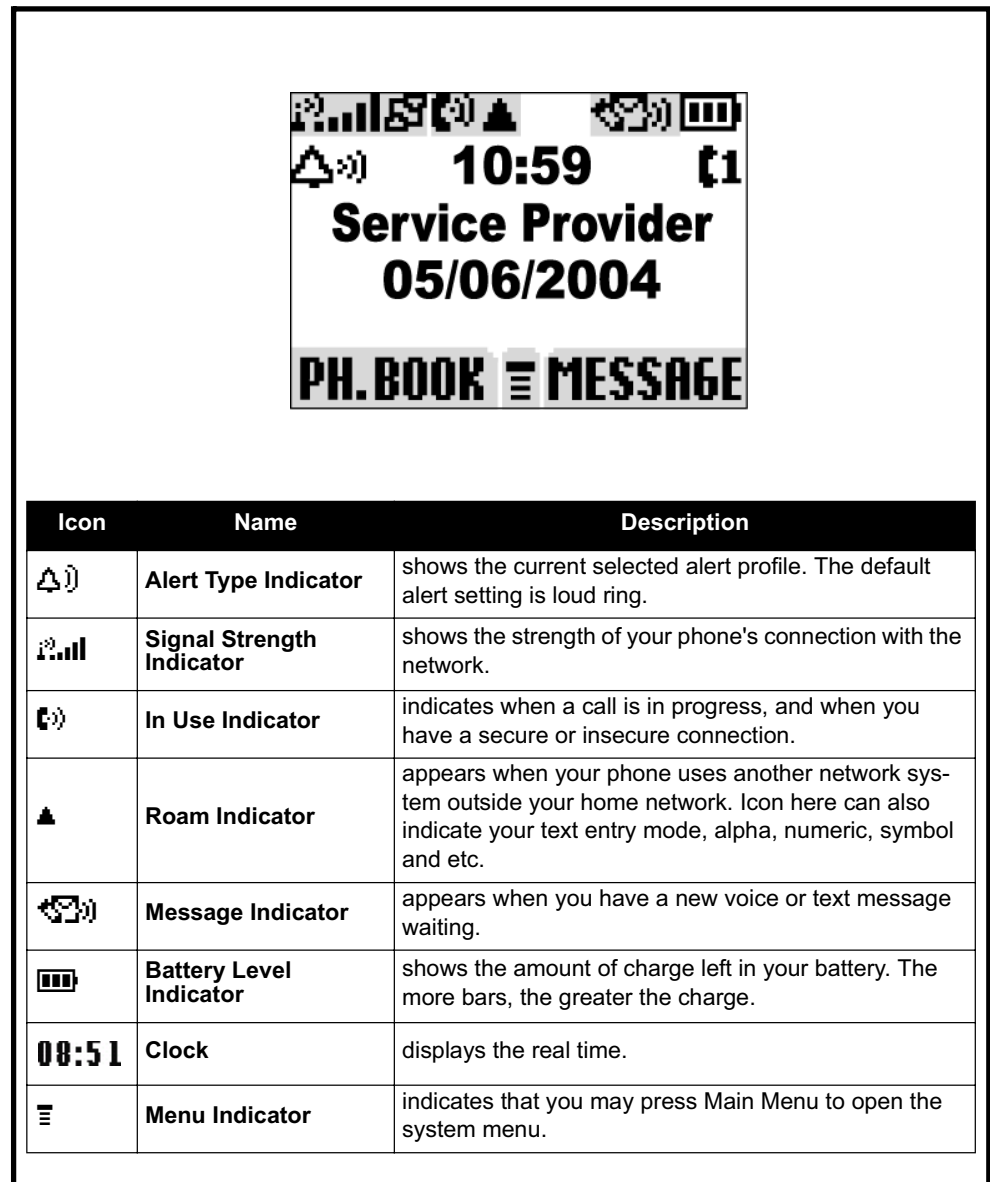


Figure 2.

## User Interface Menu Structure

The table below shows a portion of the C155 telephone menu structure.

<b>Menu Map</b>	
<ul style="list-style-type: none"> <li>• <b>Call Forward *</b> <ul style="list-style-type: none"> <li>• Voice Calls</li> <li>• Cancel All</li> </ul> </li> <li>• <b>Phone Status</b> <ul style="list-style-type: none"> <li>• My Numbers *</li> <li>• Active Line *</li> </ul> </li> <li>• <b>In Call Setup</b> <ul style="list-style-type: none"> <li>• In-Call Timer</li> <li>• Call Cost Setup *</li> <li>• My Caller ID</li> <li>• Answer Options</li> <li>• Call Waiting</li> </ul> </li> <li>• <b>Security</b> <ul style="list-style-type: none"> <li>• Phone Lock</li> <li>• Lock Keypad</li> <li>• Fixed Dial</li> <li>• Call Barring *</li> <li>• SIM PIN</li> <li>• New Passwords</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>Other Settings*</b> <ul style="list-style-type: none"> <li>• Personalise               <ul style="list-style-type: none"> <li>• Main Menu</li> <li>• Keys</li> <li>• Greeting *</li> <li>• Banner</li> <li>• Main Menu Animation</li> <li>• Quick Dial *</li> <li>• Wallpaper</li> <li>• Colour Setting</li> </ul> </li> <li>• Initial Setup               <ul style="list-style-type: none"> <li>• Time and Date</li> <li>• Power On/Off</li> <li>• 1-Touch Dial</li> <li>• Backlight</li> <li>• Scroll</li> <li>• Screen Saver</li> <li>• Language</li> <li>• Battery Save</li> <li>• Contrast</li> <li>• DTMF</li> <li>• Master Reset</li> <li>• Master Clear</li> </ul> </li> <li>• Network               <ul style="list-style-type: none"> <li>• New Network</li> <li>• Network Setup</li> <li>• Avail. Networks</li> <li>• My Network List</li> <li>• Service Tone</li> <li>• Call Drop Tone</li> <li>• Band Selection</li> </ul> </li> <li>• Headset               <ul style="list-style-type: none"> <li>• Auto Answer</li> </ul> </li> </ul> </li> </ul>
<p>* Optional Network, SIM card, or subscription-dependent features.</p>	

Figure 3.

## Battery Function

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

Removing the battery causes the phone to shut down immediately and lose any pending work (partially entered phone book entries or outgoing messages, for example).



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



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



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

## Tools and Test Equipment

The table below lists the tools and test equipment used on C155 telephones. Use either the listed items or equivalents.

**Table 1: General Test Equipment and Tools**

Motorola Part Number <sup>1</sup>	Description	Application
See Table 6	Charger	Used to charge battery and power phone
0180386A82	Antistatic Mat Kit (includes 66-80387A95 antistatic mat, 66-80334B36 ground cord, and 42-80385A59 wrist band)	Provides protection from damage to phone caused by electrostatic discharge (ESD)
8102430Z04	GSM / DCS / PCS Test SIM	Used to enable manual test mode
6680388B67	Disassembly tool, plastic with flat and pointed ends (manual opening tool)	Used during assembly/disassembly
6680388B01	Tweezers, plastic	Used during assembly/disassembly
-	Torque Driver Bit T-5 Plus, Apex 440-6IP Torx Plus or equivalent	Used with torque driver
HP34401A2	Digital Multimeter	Used to measure battery voltage

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

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

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## Disassembly

This section describes how to disassemble a C155 telephone. Tools and equipment used are listed on the preceding page.



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



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

### Removing and Replacing the Battery



*All batteries can cause property damage and/or bodily injury such as burns if a conductive material such as jewelry, keys, or beaded chains touches 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. Remove the battery by first removing the battery cover and then sliding the battery up and away from the battery compartment.



Figure 4.



Figure 5.





*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.*

3. To replace the battery, insert it with the 2 tabs on its bottom end into the phone's battery slots.
4. Click the battery into place, then slip the battery cover over it.

## Removing and Replacing the SIM Card

1. Remove the battery, as described earlier.
2. Remove the SIM from its holder by sliding it in the direction shown below.



**Figure 6.**

3. To replace, carefully slide the SIM into position in its socket. The latch secures the SIM when correctly positioned over the terminals in the phone.
4. Replace the battery.

---

## Removing and Replacing the Front Housing

1. Remove the battery and SIM as described earlier.
2. Grip the phone firmly with one hand.



**Figure 7.**

3. Use a flat wedge tool or screwdriver to pry the case open along the central seam.
4. Remove the front housing.



**Figure 8.**

5. (Optional) Remove and replace the rubber keypad. It slips out of the front housing.
6. To replace, simply snap the two halves together again.
7. Replace the SIM card and battery.

---

## Removing and Replacing the Transceiver Board

1. Remove the front housing as described earlier.
2. Using a size T5 screwdriver, remove 4 screws from the transceiver board mounted in the back housing.

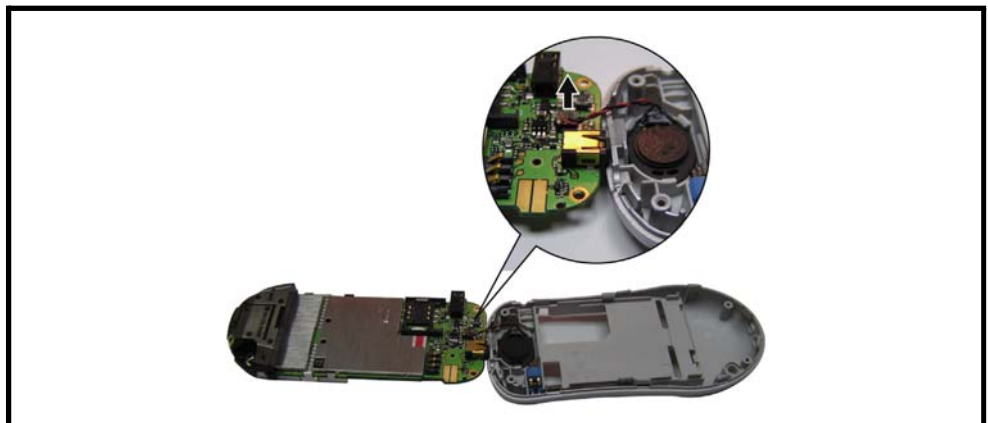


**Figure 9.**

3. Pry open the side latches securing the transceiver board to the back housing and then remove it.
4. To replace, mount the transceiver board in the back housing until the side latches snap into place, and then secure it with four screws.
5. Restore the front housing and other parts.

## Removing the Speaker Unit

1. Remove the transceiver unit as described earlier.
2. Disconnect the speaker wire from the transceiver board.



**Figure 10.**

3. Remove the speaker unit.



Figure 11.

4. To replace, mount the speaker unit in the speaker bay of the back housing
5. Connect the speaker wire to the transceiver board.
6. Restore the back housing and other parts.

## Removing and Replacing the Vibrator Motor

1. Remove the transceiver board as described earlier.
2. Gently pry up the vibrator motor on the inside of the back housing then remove it.



Figure 12.

3. To replace it, gently insert the vibrator into the slot, then press down until it sits firmly in the back housing.
4. Restore the transceiver and other parts.

---

## Removing and Replacing the Power Light

1. Remove the speaker unit as described earlier.
2. Gently pry up the power light from lower edge of the back housing then remove it.



Figure 13.

3. To replace it, gently insert the power light into the slot, then press down until it sits firmly in the back housing.
4. Restore the speaker unit and other parts.

## Removing and Replacing the Antenna Module

1. Remove the transceiver board as described earlier.
2. Gently remove the antenna module from the transceiver board.

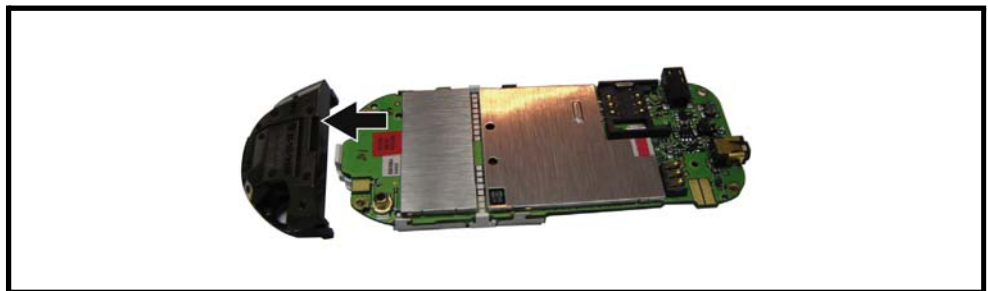


Figure 14.

3. To replace it, gently snap the antenna module into place on the transceiver board.
4. Restore the back housing and other parts.

---

## Removing and Replacing the Shielding Cases

1. Remove the antenna module as described earlier.
2. Pry off the top and bottom shielding cases, which are on the opposite side of the transceiver board as the LCD module.

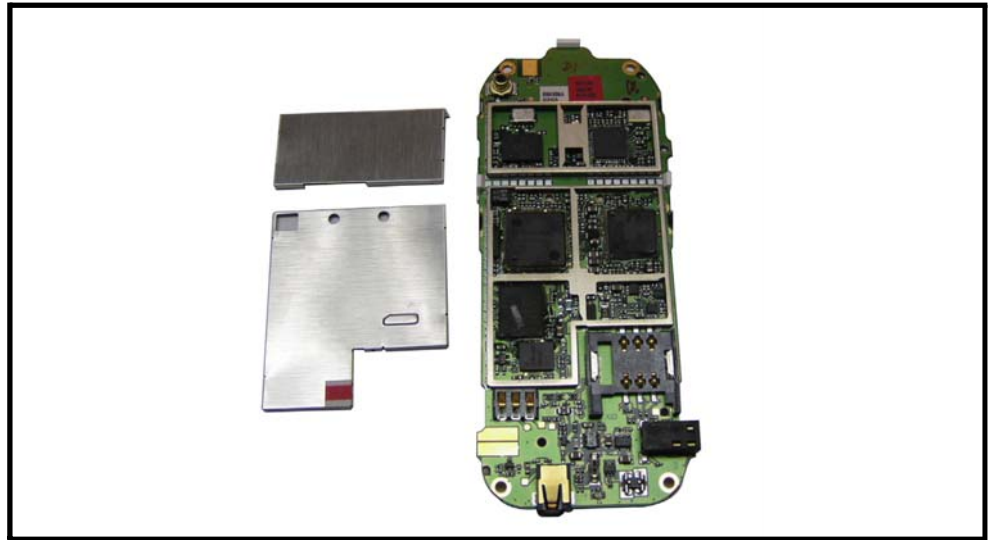


Figure 15.

3. To replace, gently snap the shielding cases back into place on the transceiver board.
4. Restore the antenna module and other parts.

## Removing and Replacing the LCD Screen Module

1. Remove the antenna module as described earlier.
2. Gently pry the LCD screen away from the transceiver board. Seven latches hold it in place (three on each side and one by the speaker at the top).

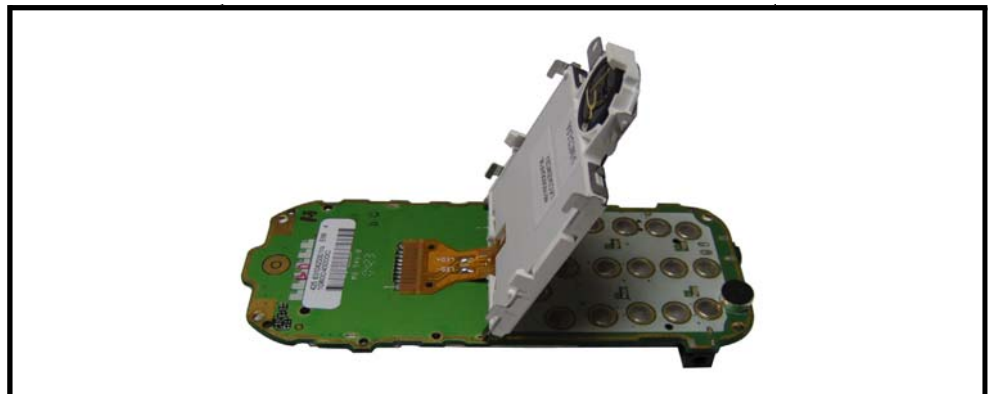


Figure 16.

3. Detach the cable connecting the LCD screen to the transceiver board.
4. To replace it, gently solder the cable to the transceiver board then mount the LCD.
5. Restore the antenna module and other parts.

## Removing and Replacing the LCD Shielding Case

1. Remove the LCD screen module as described earlier.
2. Gently pry the LCD shielding case away from the LCD screen module.



Figure 17.

3. To replace it, mount the LCD shielding case over the LCD screen module.
4. Restore the LCD screen module and other parts.

## Removing and Replacing the Receiver

1. Remove the LCD shielding case as described earlier.
2. Pop out the receiver. It rests in the circular space atop the LCD screen module.

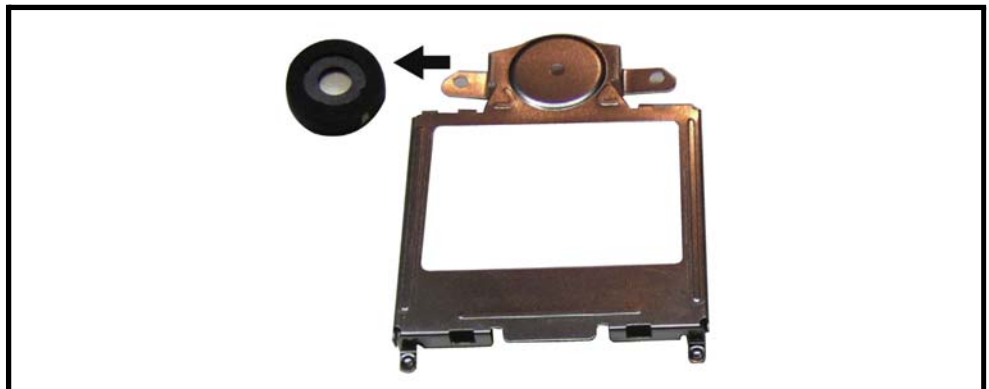
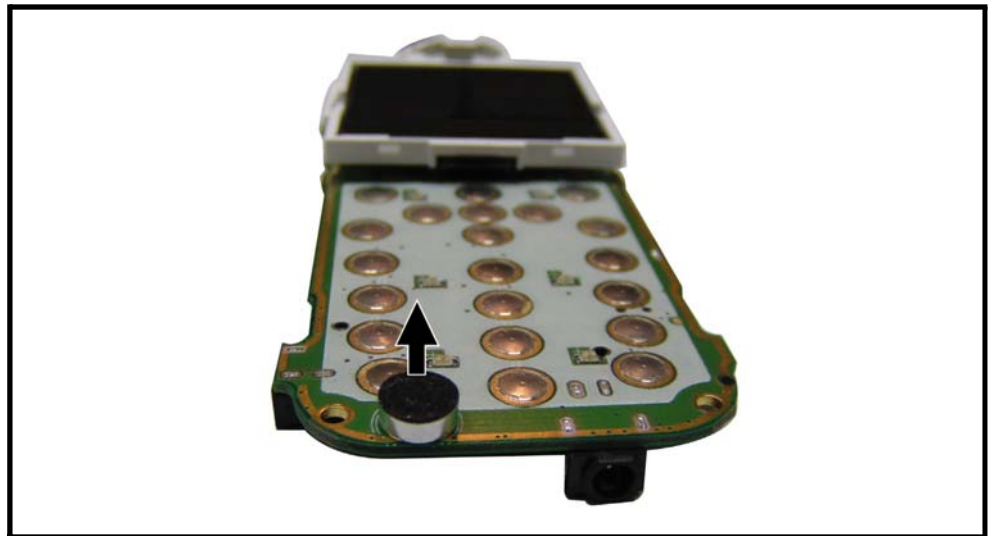


Figure 18.

3. To replace it, gently insert the receiver into the circular space atop the LCD screen module.
4. Restore the antenna module and other parts.

## Removing and Replacing the Microphone

1. Remove the transceiver board as described earlier.
2. Pop out the microphone. It rests in the circular space at the lower end of the transceiver board.



**Figure 19.**

3. To replace it, gently insert the microphone into the circular space at the lower end of the transceiver board.
4. Restore the transceiver board and other parts.



## Subscriber Identity Module (SIM) and Identification Label

### 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

### Identification

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

Mechanical Serial Number (MSN)

- The MSN is an individual unit identity number and remains with the unit throughout its life.
- The MSN can be used to log and track a phone on Motorola's Service Center Database.
- The MSN is divided into 4 sections as shown in Figure 13.

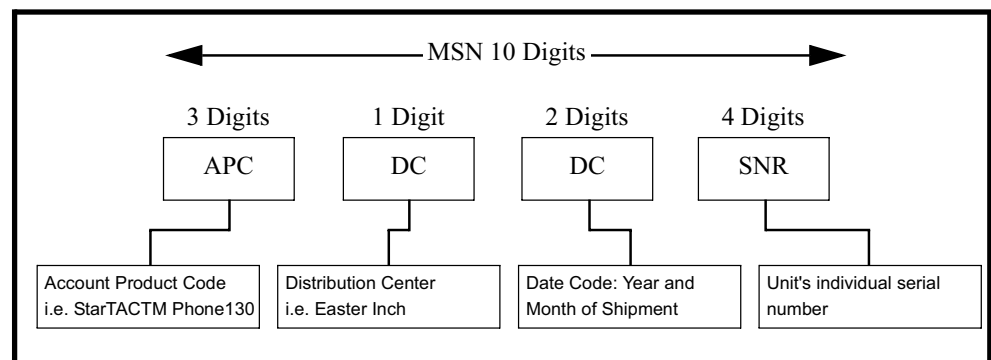


Figure 20.

### International Mobile Station Equipment Identity (IMEI)

The International Mobile Station Equipment Identity (IMEI) number is an individual number unique to the Transceiver 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 the table below.

**Table 2: IMEI Number Breakdown**

TAC	Serial Number	Check Digit
NNXXXX YY	ZZZZZZ	A

Where

- TAC** Type Allocation Code, formerly known as Type Approval Code
- NN** Reporting body identifier
- XXXX** Type Identifier
- YY** YY is set to 00 from 01/01/2003 until 31/03/2004
- ZZZZZZ** Individual unit serial number
- A** Phase 1 = 0.  
Phase 2 & 2+= check digit and is 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 V690 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/PCS test SIM must be used.

1. Press and hold  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 and hold  to turn the phone ON.

## Manual Test Mode Commands

**Table 3: Manual Test Commands**

Key Sequence	Test Function/Name	Remarks
#02#	Handset information	
#03#	RF information	
#04#	ADC information	
#08#	Engineer Field Test Mode	
#09#	Simple Test mode	
**0102#	FFS format	
**0105#	Disable EFEM mode	
*#06#	IMEI number	

## 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 terminals open or mis-aligned.	Visually inspect the battery terminals 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 terminals are not at fault, proceed to c.
	c) keypad defective.	Replace the keypad. Temporarily connect a +3.6 Vdc supply to the battery terminals. Press and hold the PWR button. If unit turns on and stays on, disconnect the dc power source and reassemble with the new keypad.
2. Telephone exhibits poor reception or erratic operation such as calls frequently dropping or weak or distorted audio.	Connections to or from lower PCB defective.	Check connection between the antenna and the lower PCB.
3. Display is erratic, or provides partial or no display.	LCM defective.	Replace the LCM. Verify that the fault has been cleared and reassemble the unit with the new LCM.
4. Incoming call alert transducer audio distorted or volume is too low.	Speaker defective.	Replace the speaker as described in the procedures. Verify that the fault has been cleared and reassemble the unit with the new speaker.
5. Telephone transmit audio is weak. (usually indicated by called parties complaining of difficulty in hearing voice).	Microphone defective.	Replace the microphone as described in the procedures. Verify that the fault has been cleared and reassemble the unit with the new microphone.
6. Receive audio from earpiece speaker is weak or distorted.	a) Connections to or from lower PCB defective.	Check connection between the antenna and the lower PCB. If the connection is OK, proceed to b.
	b) Speaker defective.	Temporarily replace the speaker with a known good speaker. Ensure good connection. Place a call and verify improvement in earpiece audio. If fault is cleared, reassemble the telephone with the good speaker.

**Table 4: Level 1 and 2 Troubleshooting Chart (Continued)**

Symptom	Probable Cause	Verification and Remedy
7. Telephone will not recognize or accept SIM card.	SIM card defective.	Check the SIM card contacts for dirt. Clean if necessary, and check if fault has been cleared. If the contacts are clean, insert a known good SIM card into the telephone. Power up the unit and confirm that the card has been accepted. If the fault no longer exists, replace the defective SIM card.
8. Keypad not functioning.	Keypad defective.	Use alcohol to wipe the keypad metal dome. Check if fault has been cleared. If the fault is still present, either replace the keypad or refer to a Level 3 Service Center for the keypad metal dome replacement.
9. Vibrator feature not functioning.	a) Vibrator faulty.	Check general condition of vibrator. If it is good, proceed to b.
	b) Vibrator defective.	Replace the defective vibrator.
10. No or weak audio when using headset.	Headset plug not fully pushed.	Ensure the headset plug is fully seated in the jack.

**Programming: Software Upgrade and Flexing**

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

# Part Number Charts

The following section provides a reference for the parts associated with C155 telephones.

## Exploded View Diagram

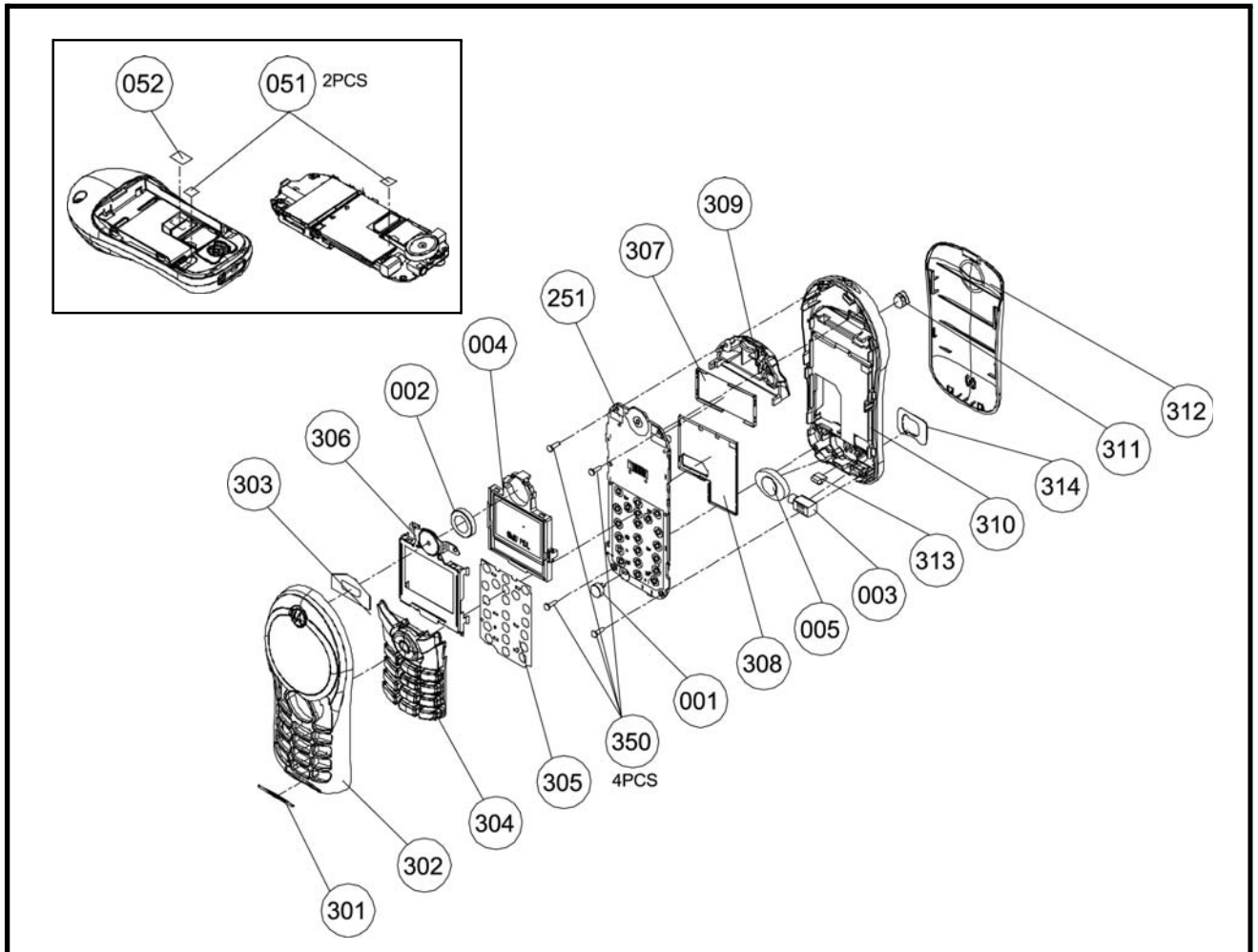


Figure 21.

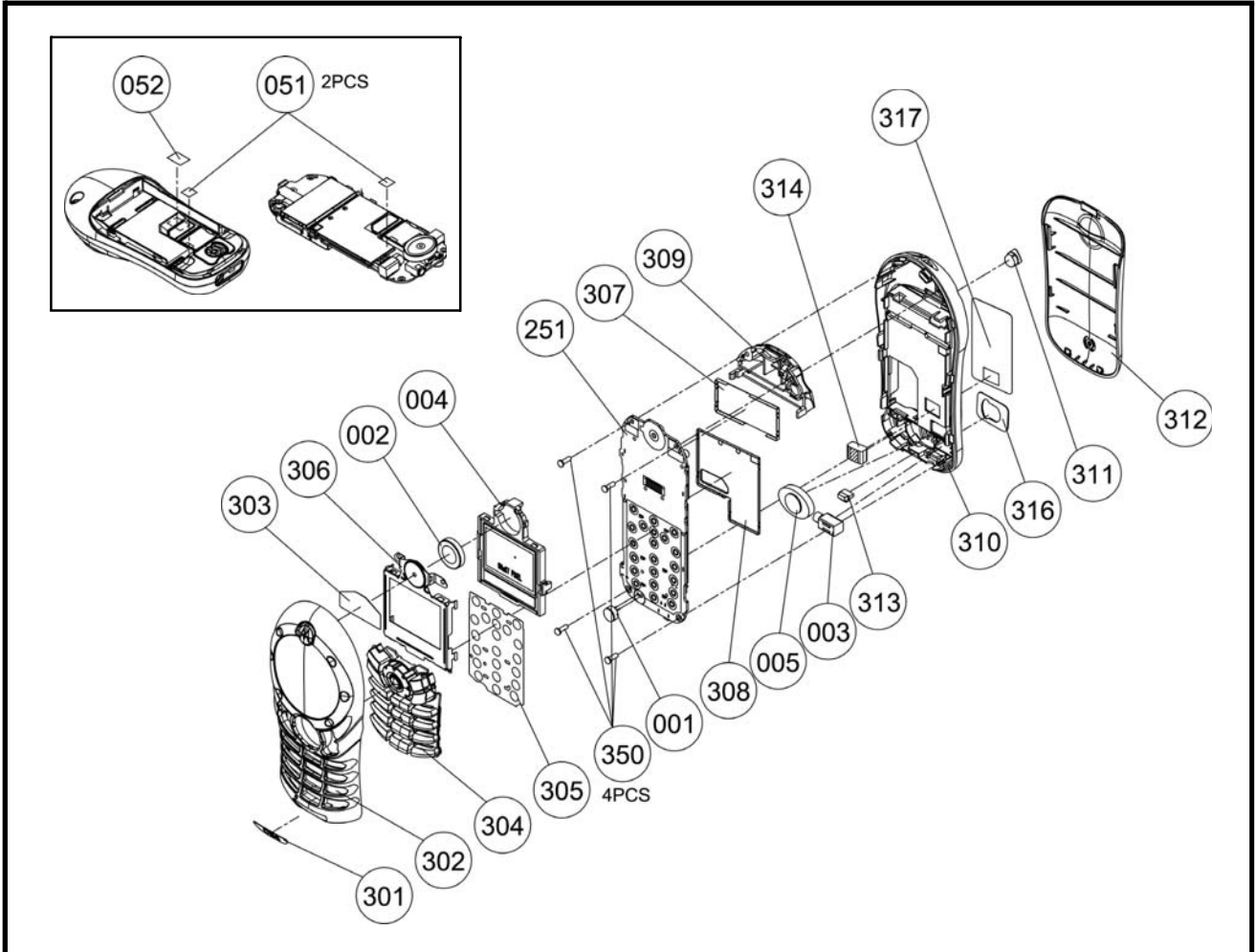


Figure 22.

## Exploded View Parts List

Table 5: Exploded View Parts List

Item Number	Part Number	Description
001	2220602201W	MIC
001	2220602201W	MIC
001	2220602201W	MIC
001	2220602201W	MIC
002	2241332001W	RECEIVER
002	2241332001W	RECEIVER
002	2241332001W	RECEIVER
002	2241332001W	RECEIVER
003	3930408010W	SPR-VIB
003	3930408010W	SPR-VIB
003	3930408010W	SPR-VIB
003	3930408010W	SPR-VIB
004	76300034D3W	LCM
004	76300034D3W	LCM
004	76300034D3W	LCM
004	76300034D3W	LCM
005	2250131802W	SPEAKER
005	2250131802W	SPEAKER
005	2250131802W	SPEAKER
005	2250131802W	SPEAKER
051	82C6960001W	LABEL
051	82C6960001W	LABEL
051	82C6960001W	LABEL
051	82C6960001W	LABEL
051	831AR12001W	STICKER
052	831AR12001W	STICKER
052	831AR12001W	STICKER
052	831AR12001W	STICKER

Item Number	Part Number	Description
304	3101E99041W	DIAL-KEY
304	3101E990A1W	DIAL-KEY
305	3109E99001W	MET-DOME
305	3109E99001W	MET-DOME
305	3109E99001W	MET-DOME
305	3109E99001W	MET-DOME
306	3012E88001W	SHIELDASY
306	3012E88001W	SHIELDASY
306	3012E88001W	SHIELDASY
306	3012E88001W	SHIELDASY
307	3052E99003W	SHIELD-C
307	3052E99003W	SHIELD-C
307	3052E99003W	SHIELD-C
307	3052E99003W	SHIELD-C
308	3052E99004W	SHIELD-C
308	3052E99004W	SHIELD-C
308	3052E99004W	SHIELD-C
308	3052E99004W	SHIELD-C
309	23A1E99001W	ANT-ASSY
309	23A1E99001W	ANT-ASSY
309	23A1E99001W	ANT-ASSY
310	2523E99001W	LOW-CASE
310	2523E99001W	LOW-CASE
310	2523E99001W	LOW-CASE
310	2523E99001W	LOW-CASE
310	2523E99002W	LOW-CASE
310	2523E99002W	LOW-CASE



Table 5: Exploded View Parts List

Item Number	Part Number	Description
251	6910423301W	F/WMB 33
251	6910423301W	F/WMB 33
251	6910423301W	F/WMB 33
251	6910423301W	F/WMB 33
300	5500533301W	ME/PT 33
300	5500533311W	ME/PT 33
300	5500533321W	ME/PT 33
300	5500533A01W	ME/PT 33
300	5500533A21W	ME/PT 33
300	5500533I01W	ME/PT 33
300	5500533I21W	ME/PT 33
300	5500533T01W	ME/PT 33
300	5500533T21W	ME/PT 33
301	3062E99001W	NAMEPLATE
301	3062E99001W	NAMEPLATE
301	3062E99001W	NAMEPLATE
301	3062E99001W	NAMEPLATE
301	3062E99001W	NAMEPLATE
301	3062E99002W	NAMEPLATE
301	3062E99002W	NAMEPLATE
301	3062E99002W	NAMEPLATE
301	3062E99002W	NAMEPLATE
301	3062E99002W	NAMEPLATE
301	3062E99003W	NAMEPLATE
302	2511E99001W	UPP-ASSY
302	2511E99001W	UPP-ASSY
302	2511E99001W	UPP-ASSY
302	2511E99001W	UPP-ASSY
302	2511E99002W	UPP-ASSY
302	2511E99002W	UPP-ASSY
302	2511E99002W	UPP-ASSY

Item Number	Part Number	Description
310	2523E99002W	LOW-CASE
310	2523E99002W	LOW-CASE
310	2523E99003W	LOW-CASE
311	3028E99001W	RF-COV
311	3028E99001W	RF-COV
311	3028E99001W	RF-COV
311	3028E99001W	RF-COV
311	3028E99002W	RF-COV
311	3028E99002W	RF-COV
311	3028E99002W	RF-COV
311	3028E99002W	RF-COV
311	3028E99002W	RF-COV
311	3028E99003W	RF-COV
312	252AE99001W	BATT-COV
312	252AE99001W	BATT-COV
312	252AE99001W	BATT-COV
312	252AE99001W	BATT-COV
312	252AE99002W	BATT-COV
312	252AE99002W	BATT-COV
312	252AE99002W	BATT-COV
312	252AE99002W	BATT-COV
312	252AE99003W	BATT-COV
313	254AE99001W	LED-LENS
313	254AE99001W	LED-LENS
313	254AE99001W	LED-LENS
313	254AE99001W	LED-LENS
314	302FE99001W	SPK-GASKE
314	302FE99002W	SPK-GASKE
314	302FE99002W	SPK-GASKE
314	302FE99002W	SPK-GASKE

**Table 5: Exploded View Parts List**

Item Number	Part Number	Description
302	2511E99002W	UPP-ASSY
302	2511E99003W	UPP-ASSY
303	303FE98001W	REC-COV
303	303FE98001W	REC-COV
303	303FE98001W	REC-COV
303	303FE98001W	REC-COV
304	3101E99001W	DIAL-KEY
304	3101E99001W	DIAL-KEY
304	3101E99012W	DIAL-KEY
304	3101E99041W	DIAL-KEY

Item Number	Part Number	Description
314	302FE99002W	SPK-GASKE
314	302FE99003W	SPK-GASKE
314	302FE99003W	SPK-GASKE
314	302FE99003W	SPK-GASKE
314	302FE99003W	SPK-GASKE
350	3501760102W	SCREW
350	3501760102W	SCREW
350	3501760102W	SCREW
350	3501760102W	SCREW

Notes:

**Table 6:**

Item Number	Part Number	Description
001	2220602201C	MIC
001	2220602201W	MIC
002	2241332001C	RECEIVER
002	2241332001W	RECEIVER
003	3930408010C	SPR-VIB
003	3930408010W	SPR-VIB
004	76300034D3C	LCM
004	76300034D3W	LCM
005	2250131802C	SPEAKER
005	2250131802W	SPEAKER
051	82C6960001W	LABEL
052	831AR12001W	STICKER
251	6910423301C	F/WMB 33
251	6910423301W	F/WMB 33
300	5500563301N	ME/PT 33

Item Number	Part Number	Description
302	2511E98002W	UPP-ASSY
303	303FE98001W	REC-COV
304	3101E98001W	DIAL-KEY
304	3101E98012W	DIAL-KEY
304	3101E98013W	DIAL-KEY
305	3109E99001W	MET-DOME
306	3012E99001W	SHIELDASY
307	3052E99003W	SHIELD-C
308	3052E99004W	SHIELD-C
309	23A1E99001W	ANT-ASSY
310	2523E98001W	LOW-CASE
310	2523E98002W	LOW-CASE
311	3028E98001W	RF-COV
311	3028E98002W	RF-COV
312	252AE98001W	BATT-COV

Table 6:

Item Number	Part Number	Description
300	5500563301W	ME/PT 33
300	5500563311N	ME/PT 33
300	5500563B11W	ME/PT 33
301	3062E98001W	NAMEPLATE
301	3062E98002W	NAMEPLATE
302	2511E98001W	UPP-ASSY

Item Number	Part Number	Description
312	252AE98002W	BATT-COV
313	254AE99001W	LED-LENS
314	302FE98001W	SPK-GASKE
314	3068E88001W	GASKET
317	3052E99009W	SHIELD-C
350	3501760102W	SCREW

**Notes:**

*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.*

To order parts please use the following Link:

<https://servicelink3.motorola.com>

(Password is required)

For information on ordering parts please contact EMEA at +49 461 803 1638.

## Accessories

**Table 7: List of Accessories**

Description	Part Number
<b>Power Solutions</b>	
Titanium battery 740 mAh Lilon (English label)	SNN5733A
Titanium battery 740 mAh Lilon (PRC label)	SNN5731A
Andonised brown battery 740 mAh Lilon (English label)	SNN5730A
Andonised brown battery 740 mAh Lilon (PRC label)	SNN5732A
Switchmode charger - US plug	SPN5150A
Switchmode charger	SPN5151A
Switchmode charger - HK plug	SPN5152A
Klaus adaptor - Euro plug	SYN7456A
Klaus adaptor - Aus/NZ plug	SYN8127A
<b>Audio &amp; Connectivity</b>	
One touch headset	SYN8419B
Black mono headset	SYN8390B
Silver mono headset	AAYN4264B
Cheerful pink universal FM stereo headset	CHYN4391B
Zest blue universal FM stereo headset	CHYN4392B/C
Psuedo USB data cable	CHKN4565A
Mobile phone tools CD-ROM	9988076Z02
<b>Consumer Personalization</b>	
Silver lanyard (rest of Asia)	AAYN4402
Silver lanyard (PRC)	CHYN4546
Silver wristyard (rest of Asia)	AAYN4403
Carrying case & lanyard	TBD

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