



**MOTOROLA**

Level 1-2 Service Manual

# C113

## Dual Band Wireless Telephone



C113  
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 C113 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 C113 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 C113 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.

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## 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	101mm X 47.8mm X 21.9mm
Weight	Not exceed 80 grams
LCD Display	B&W, Active Area: 28.58 X 19.35mm, Pixel: 96 X 65
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 WGSM, 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	-20C to 55°C

Transmitter Function	Specification
RF Power Output	32 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
Receive 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 C113 features a global system for mobile communications wireless interface. 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.

C113 telephones support SMS in addition to traditional circuit switched transport technologies. 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.

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 920 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 1.8v and 3V mini subscriber identity module (SIM) cards that fit into the SIM holder next to the battery. These telephones feature a black and white mode FSTN LCD Graphic 96 X 65 Dot-matrix , display and an internal antenna.

## Features

C113 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:

- Telephones feature a black and white mode FSTN LCD Graphic 96 X 65 Dot-matrix 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 C113 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.

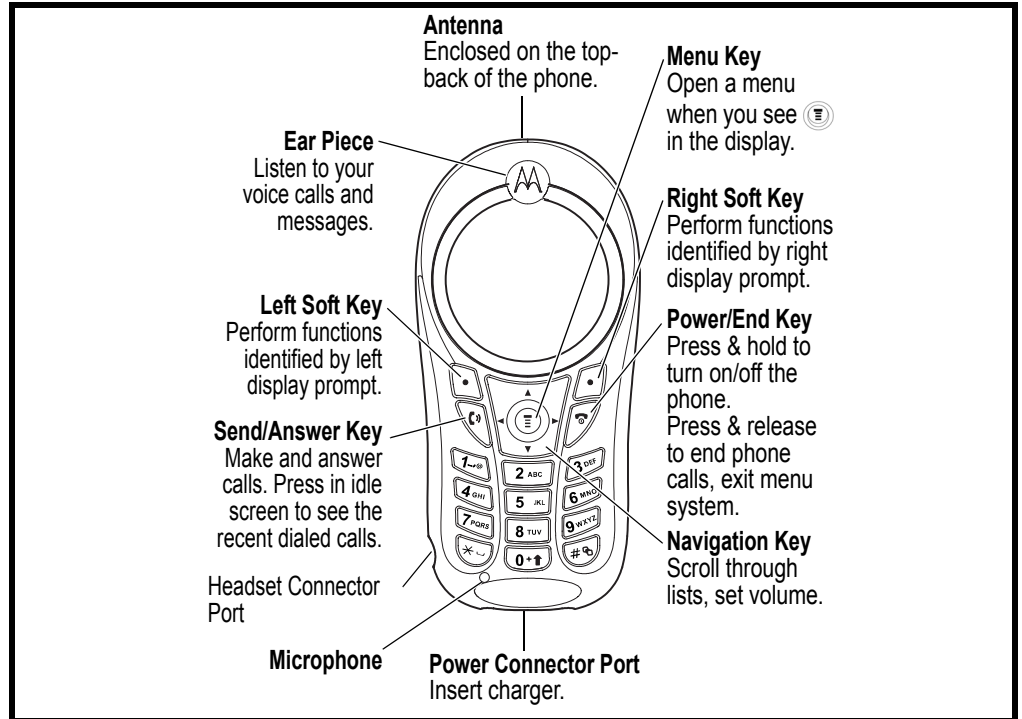


Figure 1. C113 Telephone Controls Locations

### Menu Navigation

C113 telephones are equipped with a simplified icon and graphical-based user interface. See the table below for details of the C113 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.

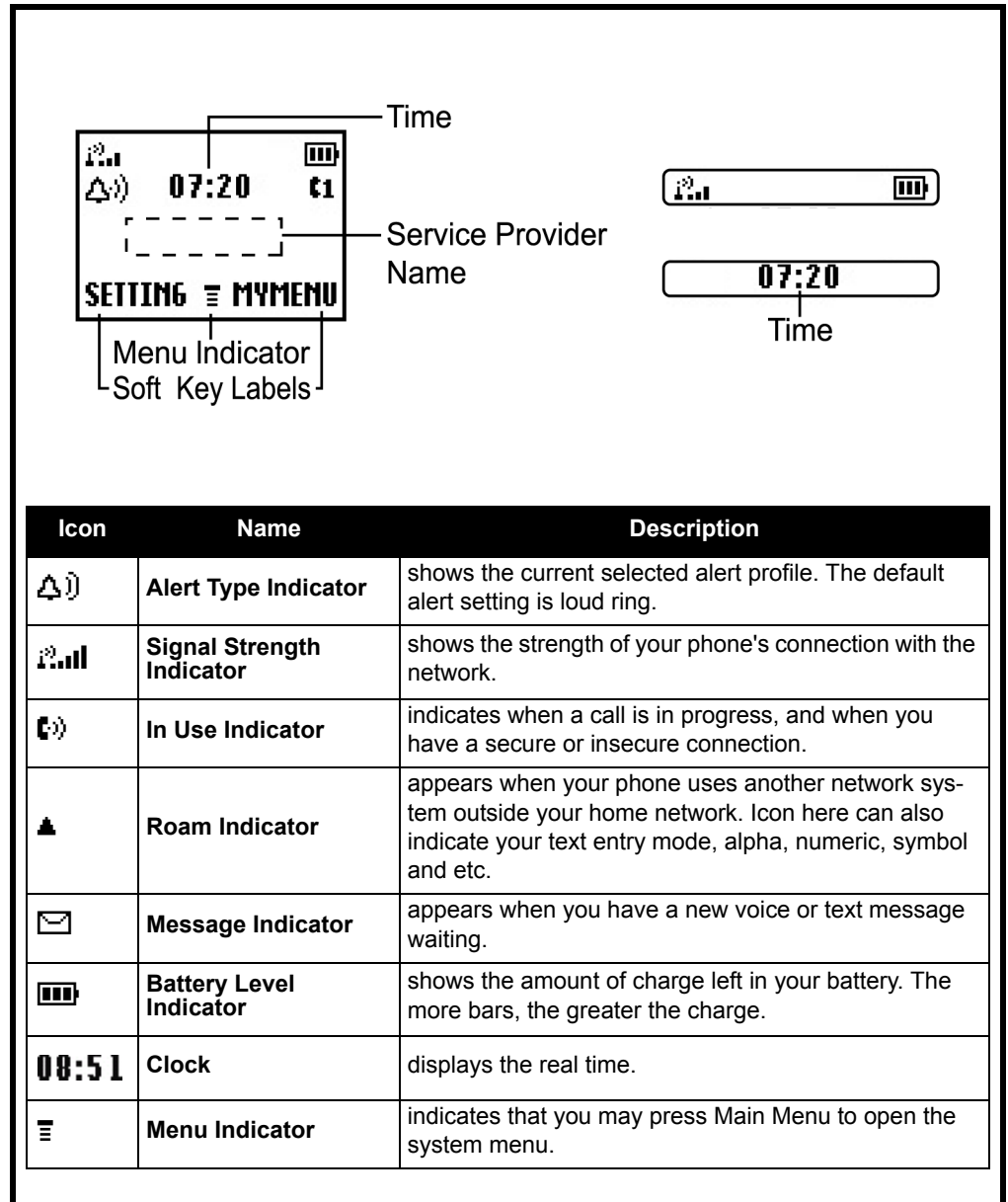


Figure 2. C113 Display Icon Indicators

## User Interface Menu Structure

The table below shows a portion of the C113 telephone menu structure.

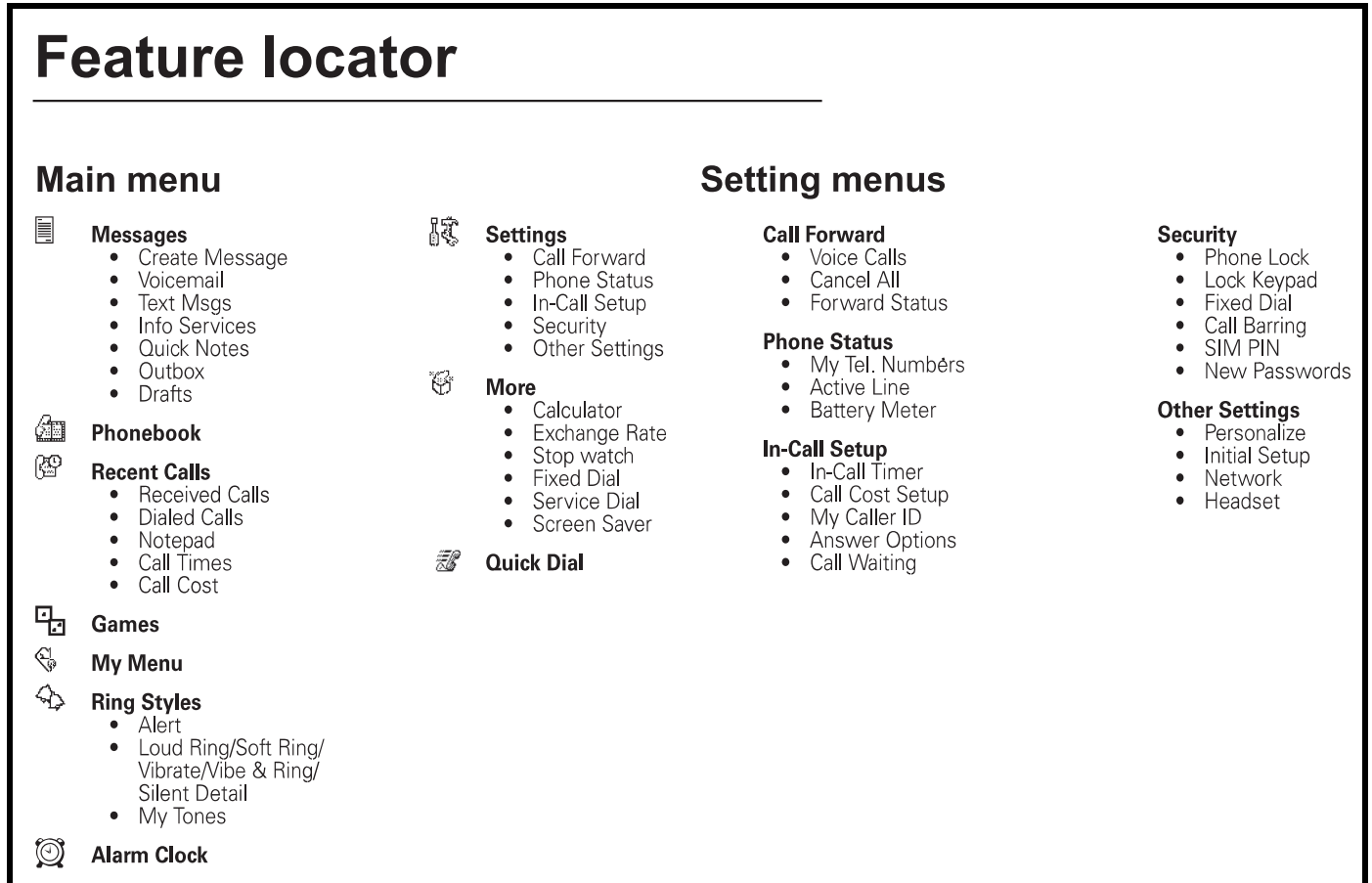


Figure 3. C113 Menu Structure

## 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 C113 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.

Please wear ESD protection wrist or gloves in the entire procedure

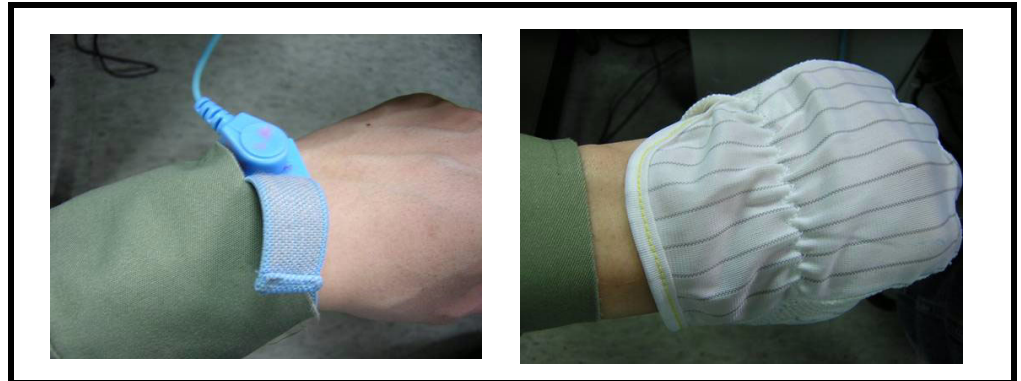


Figure 4. Antistatic wrist band and Antistatic gloves



Figure 5. A screwdriver (T5), a pair of tweezers, and a wedge tool

## Disassembly

This section describes how to disassemble a C113 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 as shown in Figure 4.



Figure 6. 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.

3. To replace, insert the battery with 2 tabs on its bottom end into the battery slots of the phone as shown in Figure 5.

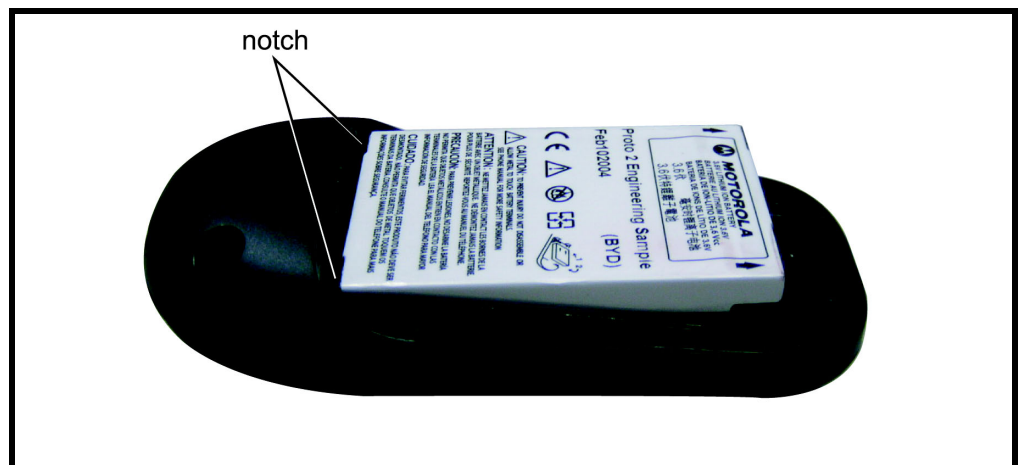


Figure 7. Replacing the Battery

4. Click the battery into place, then slip the battery cover over it.



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## 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.

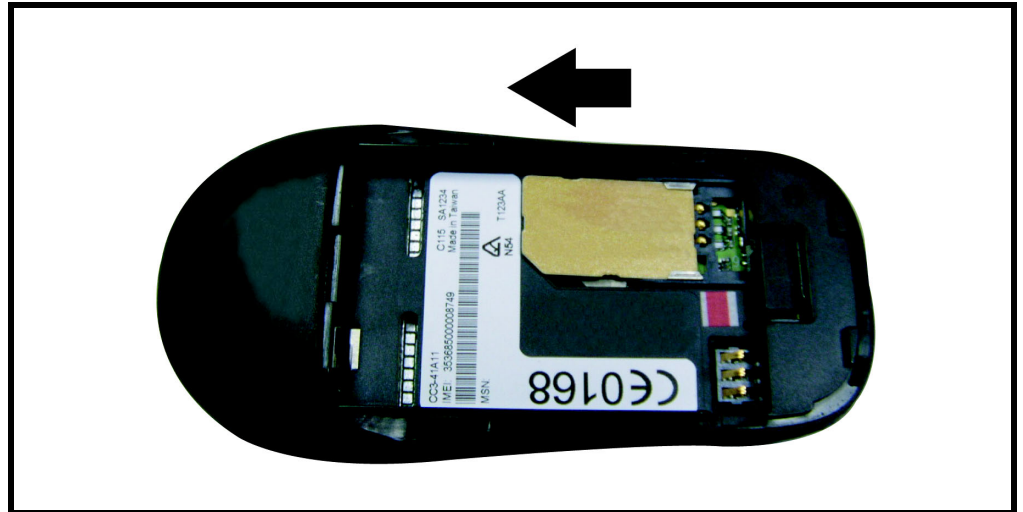


Figure 8. Removing the SIM

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.

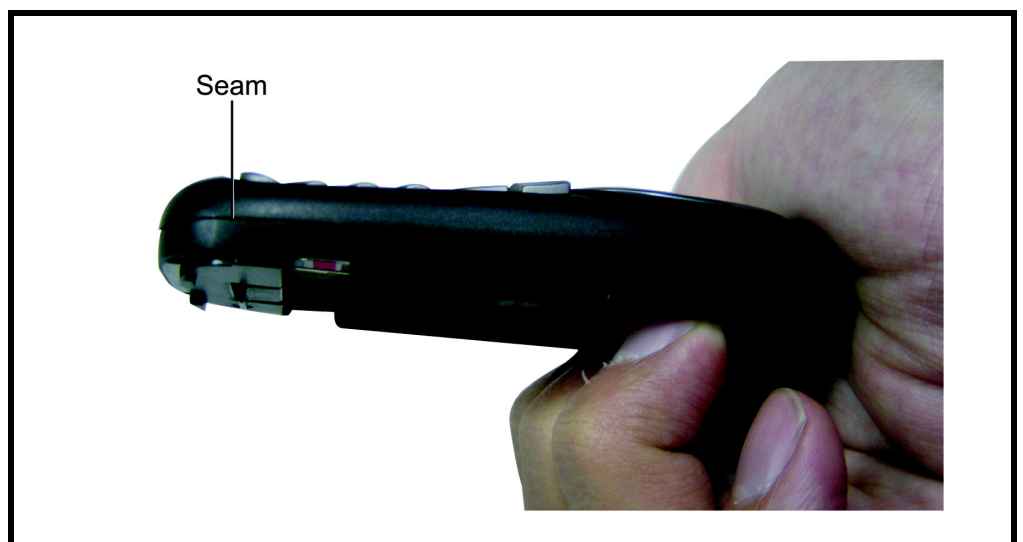


Figure 9. Grip the phone firmly with one hand

3. Use a flat wedge tool to pry the case open along the central seam.



**Figure 10. Use a flat wedge tool to pry the case**

4. Remove the front housing.



**Figure 11. Remove the front housing**

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 Back Housing

1. Remove the front housing as described earlier.
2. Remove the sticker covering the screw in the upper right corner.



Figure 12. Remove the sticker

- Using a size T5 screwdriver, remove 4 screws from the Transceiver board mounted in the back housing.



Figure 13. Remove 4 screws

4. Pry open the side latches securing the Transceiver board to the back housing and then remove the Transceiver board.



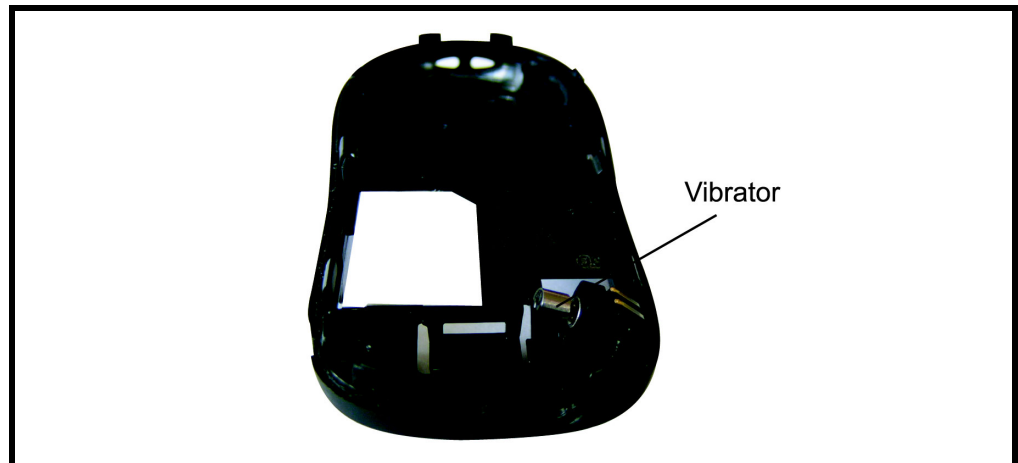
**Figure 14. Pry open the side latches securing the Transceiver board to the back housing**

5. To replace, mount the Transceiver board in the back housing until the side latches snap into place, and then secure it with four screws.
6. Restore the front housing and other parts.

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## Removing and Replacing the Vibrator Motor

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

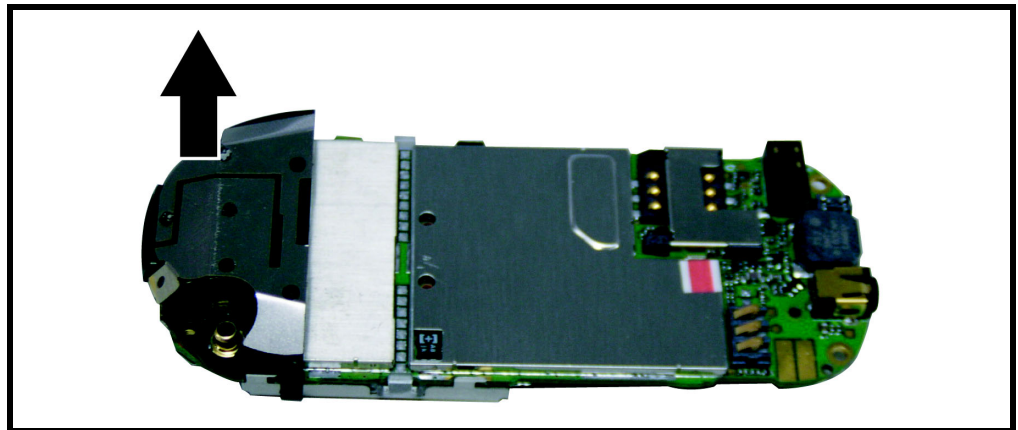


**Figure 15. Gently pry up the vibrator motor on the inside of the back housing**

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 back housing and other parts.

## Removing and Replacing the Antenna Module

1. Remove the back housing as described earlier.
2. Gently pry off the antenna module from the Transceiver board.



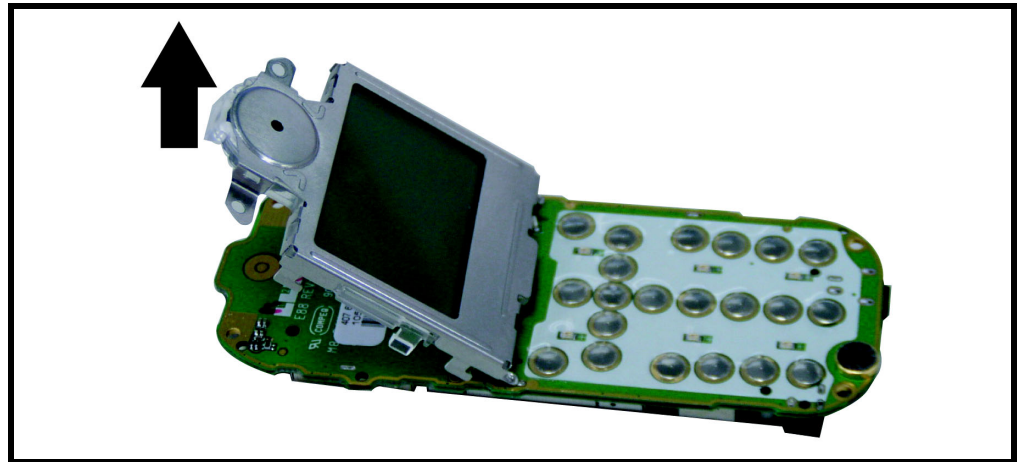
**Figure 16. Gently pry off the antenna module from the Transceiver board**

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 LCD Screen

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).

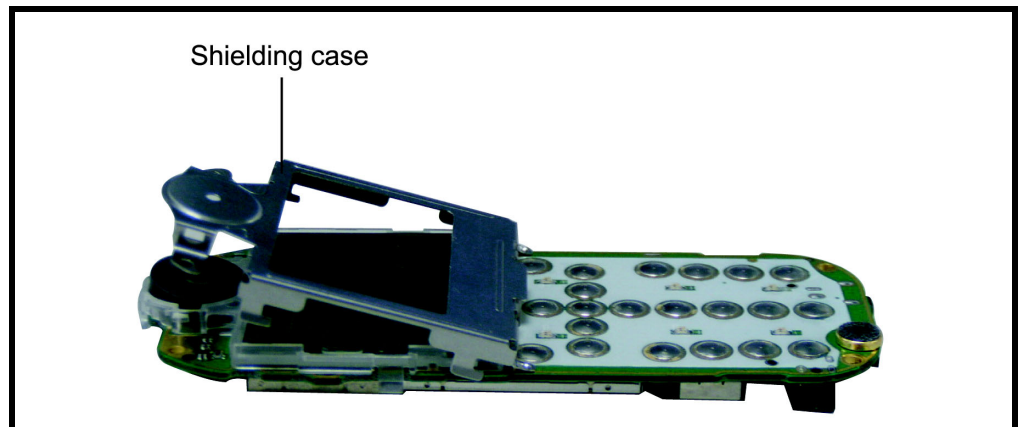


**Figure 17. Pry the LCD screen away from the Transceiver board**

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



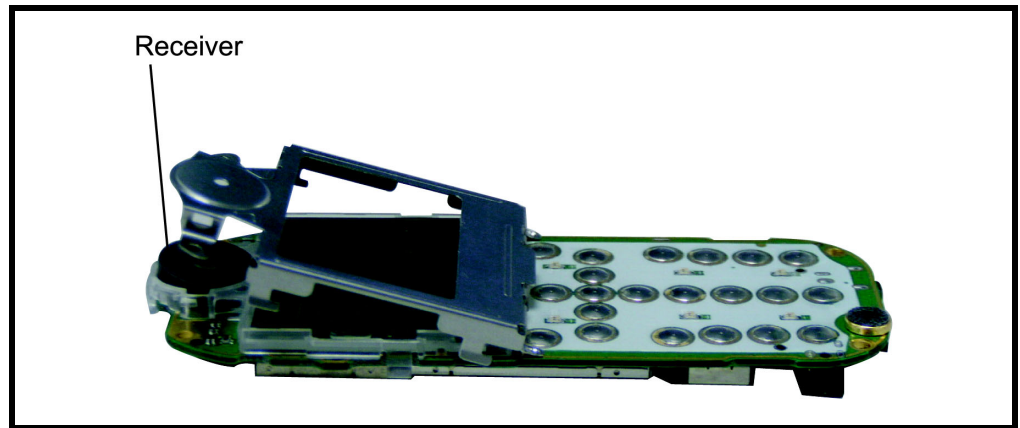
**Figure 18. Pry the LCD shielding case away**

3. To replace it, mount the LCD shielding case over the LCD screen.
4. Restore the LCD screen 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.



**Figure 19. Pop out the receiver**

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

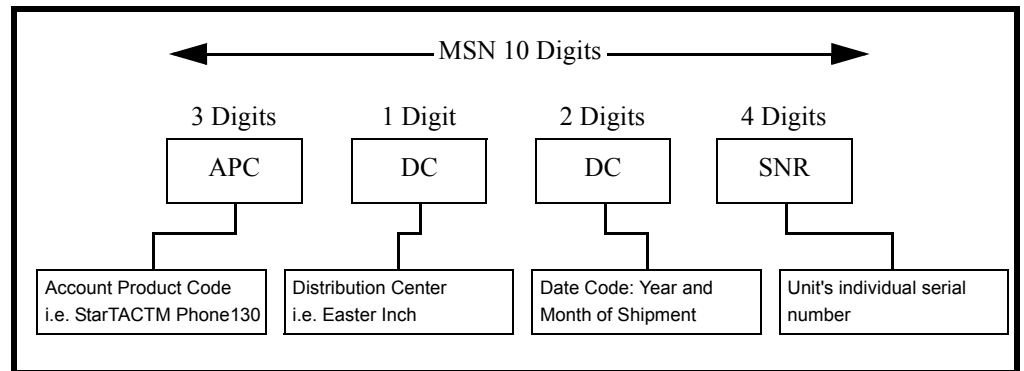


Figure 20. MSN Label Breakdown

### 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
NNXXXXXX	ZZZZZZ	A

Where

**TAC** Type Allocation Code, formerly known as Type Approval Code

**NN** Reporting body identifier (BABT or CTIA)

**XXXXXX** Type Identifier (defined by BABT or CTIA)

**ZZZZZZ** Individual unit serial number

Phase 1 = 0.

**A** Phase 2 & 2+= check digit and is defined as a function of all other IMEI digits

Other label number configurations present are:



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

# Troubleshooting

## Manual Test Mode

Motorola C113 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  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	
#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 misaligned.	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 (Continue)**

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 C113 telephones.

## Exploded View Diagram

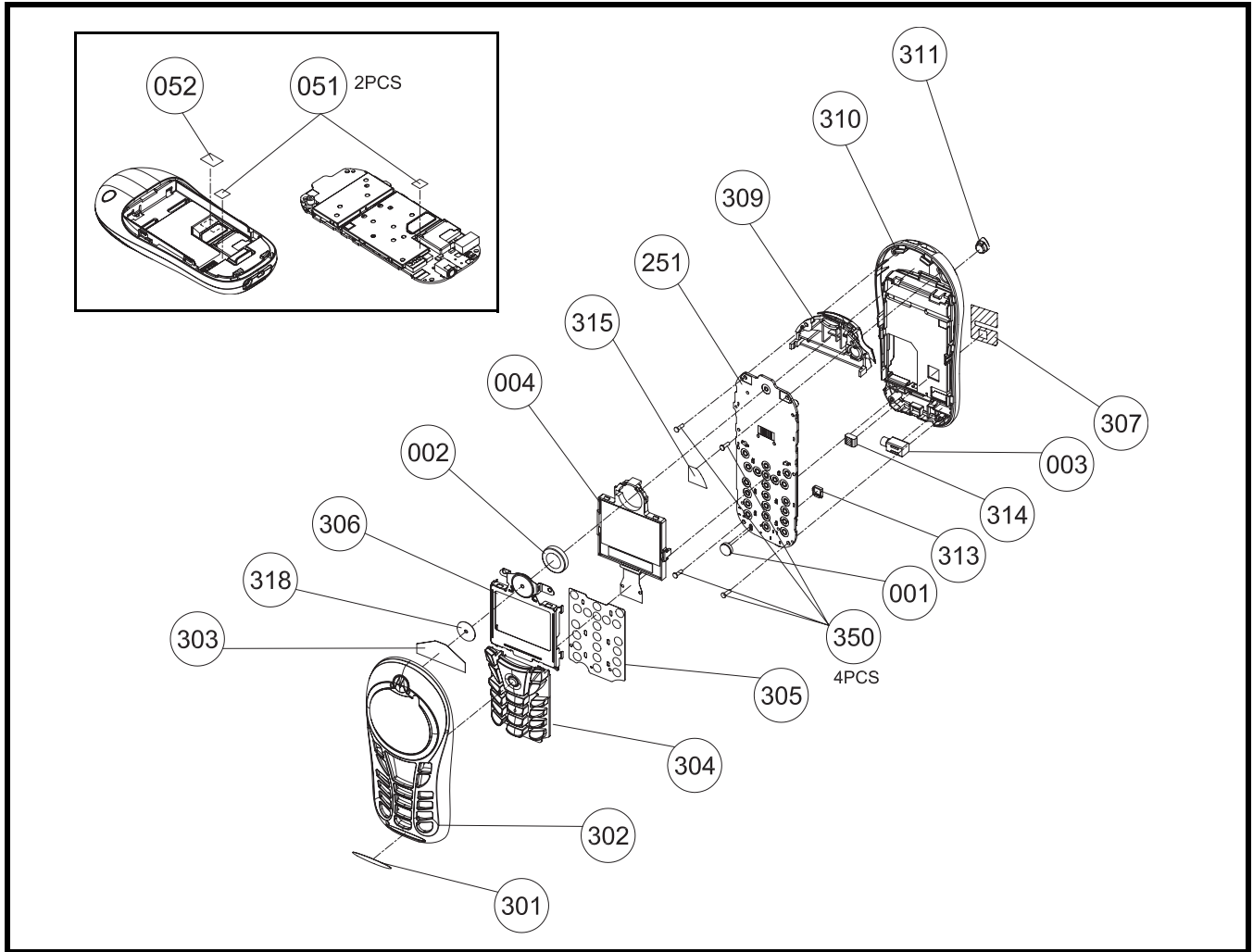


Figure 21. C113 Exploded View Diagram

## Exploded View Parts List

Table 5: C113 Exploded View Parts List

Item Number	Part Number	Description	Specification
001	2220601304W	MIC	ACMG6013-02P28-402-0.4T -40 DI
002	2240133203W	RECEIVER	SDR1332-03J01-F06-G AAC
003	3930408012W	SPR-VIB	Ω 4*L8 1.3V LA4-459ED COPAL
004	76300388C1W	LCM	L88 GPM503A0 MONO 96*65 G_PLUS
051	82C6960001W	LABEL	C699 WATERPROOF LABEL FOR H/S
052	831AR12001W	STICKER	AR11 FOR H/S 8*6mm
251	6910663301W	F/WMB 33	L88 GA-079
300	5500983301W	ME/PT 33	L88 BLACK
301	3062E88001W	NAMEPLATE	E88-21.81*6.02*0.3-BLACK
302	2511E88002W	UPP-ASSY	E88-BLACK
303	303FE88001W	REC COVER	E88-FELT+26.6*12.4*0.15
304	3101E88002W	DIAL-KEY	E88-RUBBER-SILVER-E STECH
305	3109E88001W	MET-DOME	E88- Ω 4*160g*21KEY PRINTECH
306	3012E88001W	SHIELDASY	E88-SHIELD+SPONGE ASSY
307	3052R89001W	SHIELD-C	R89-SUS301-25*16.3*0.1-C
309	2301L88001W	ANTENNA	L88-ANT 900/1800 AMPHENOL
310	2523E88005W	LOW-CASE	E88-PC-BLACK(LOGO HOLE)
311	3028E88001W	RF-COV	E88-SILICONE-BLACK
313	3035E88001W	BUZ-SPON	E88-SILICONE-10*11.15*2.7
314	3068E88001W	GASKET	E88-4*2*3
315	3069L88001W	ABSORBER	L88 CA19 0.5mm CATERON
318	3033E88002W	REC-SPON	E88-PORON-10* □ 0.25
350	3501760104W	SCREW_G	PH T5 M1.7*6.0 TP-B KL



*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.



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