MC9090-G RFID Mobile Computer

RFID User Guide Supplement

symbol®
The Enterprise Mobility Company™

MC9090-G RFID User Guide

72E-89962-01
Rev A
December 2006

symbol®
The Enterprise Mobility Company ™

Symbol Technologies, Inc.
One Symbol Plaza
Holtsville, New York 11742-1300
http://www.symbol.com

Patents

This product is covered by one or more of the patents listed on the web site: www.symbol.com/patents

Revision History

Changes to the original manual are listed below:

Change	Date	Description
Rev A	12/06	Initial release.

Table of Contents

Patents ii
Revision History iii

About This Guide

Introduction v
Documentation Set v
Configurations vi
Chapter Descriptions vii
Notational Conventions vii
Related Documents and Software viii
Service Information viii
Symbol Support Center ix

Chapter 1: Getting Started

Introduction 1-1
MC909X User Guide 1-1
Unpacking the Mobile Computer 1-2
Accessories 1-3
Getting Started 1-4
Installing and Removing the Main Battery 1-4
Installing the Main Battery 1-4
Charging the Battery 1-5
Charging the Main Battery and Memory Backup Battery 1-5
Charging Spare Batteries 1-6
Removing the Main Battery 1-7
Starting the Mobile Computer 1-8
Calibrating the Screen 1-8
Checking Battery Status 1-8
Stylus 1-9
MC9090-G Strap 1-10
Battery Management 1-10
Battery Saving Tips 1-10
Changing the Power Settings 1-11
Changing the Display Backlight Settings 1-11

Changing the Keypad Backlight Settings 1-11
Turning the Radios Off 1-12
WLAN Radio on Windows Mobile 5.0 1-12
Bluetooth and WWAN Radios on Windows Mobile 5.0 1-12

Chapter 2: Operating the MC9090-G RFID
Introduction 2-1
Windows Mobile 5.0 Status Icons 2-1
Status Bar 2-1
Command Bar 2-3
Speaker Icon 2-4
Battery Icon 2-5
Connectivity Icon 2-5
Time Icon 2-6
Instant Message Icon 2-6
E-Mail Icon 2-6
Multiple Notification Icon 2-7
Locking the Mobile Computer 2-7
LED Indicators 2-8
Keypads 2-8
53-Key Keypad for MC9090-G RFID 2-9
Keypad Special Functions 2-12
Using the Power Button 2-13
Using a Headset 2-13
Data Capture 2-14
Imaging 2-14
Scanning Considerations 2-15
Scanning Bar Codes 2-15
Scan LED Indicator 2-16
Reading RFID Tags 2-17
Resetting the Mobile Computer 2-18
Windows Mobile 5.0 Devices 2-18
Performing a Warm Boot 2-18
Performing a Cold Boot 2-18
Waking the Mobile Computer 2-19
Bluetooth 2-19

Chapter 3: Accessories
Introduction 3-1
Keypads 3-1
Cradles 3-1
Snap-on Modules 3-2
Keypads 3-2
Keypad Removal 3-2
Multi Media Card (MMC) / Secure Device (SD) Card 3-4

Chapter 4: Maintenance & Troubleshooting
Introduction 4-1
Maintaining the Mobile Computer 4-1
Accessories 4-2
Troubleshooting 4-3
Mobile Computer 4-3

Appendix A: Specifications
Technical Specifications A-1
Mobile Computer A-1
Modem Module A-6
Mobile Computer Pin-Outs A-7
Accessory CAM and MSR Pin-Outs A-8

Appendix B: Keypad Special Keys
Introduction B-1
Keypad B-1

Appendix C: Regulatory
Introduction C-1
Accessory Power Supply Regulatory Compliance C-1

Index

Chapter i

About This Guide

Introduction

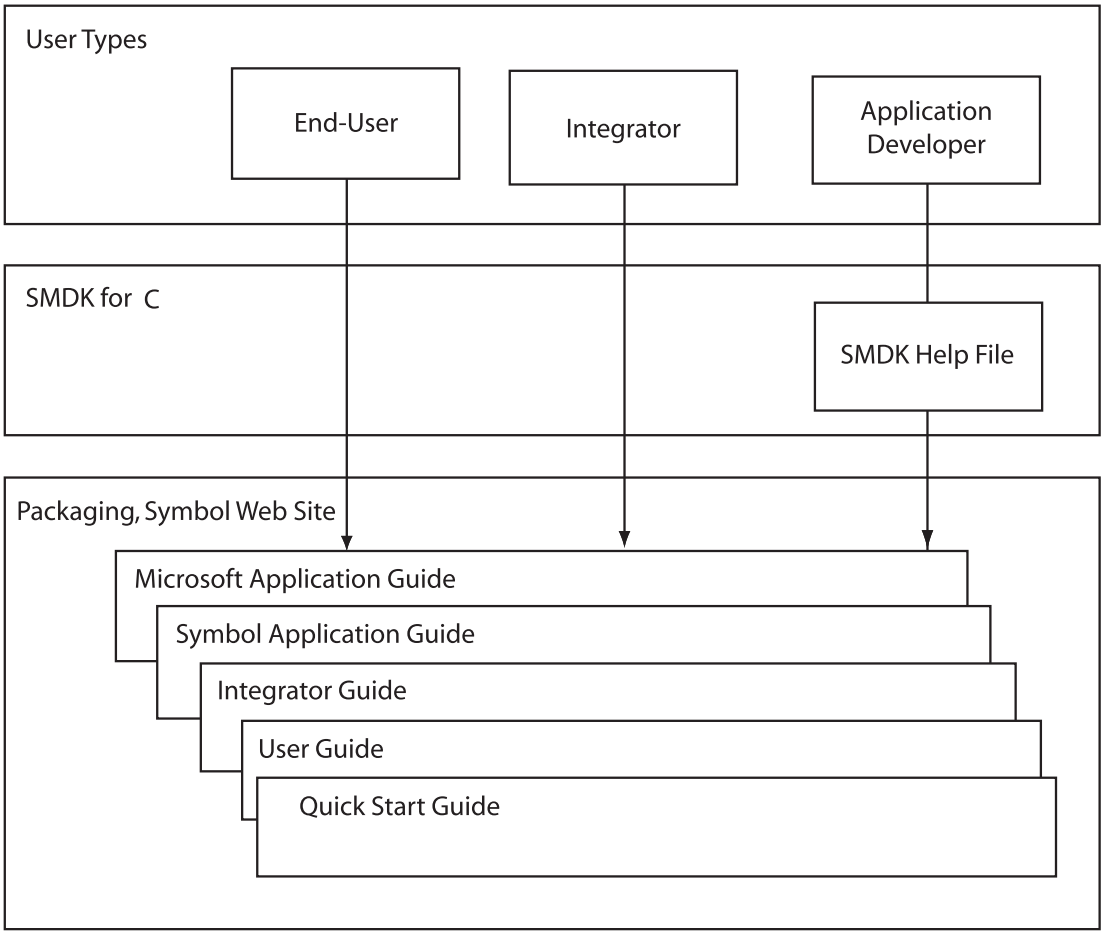
This MC9090-G RFID User Guide Supplement provides the unique set up and configuration procedures for the MC9090-G RFID mobile computers and accessories. This guide is intended as a supplement to the *MC909X User Guide, P/N: 72E-72215-xx.* Procedures common to the MC909X series of products are referenced to the *MC909X User Guide.*

NOTE Screens and windows pictured in this guide are samples and may differ from actual screens.

Documentation Set

The documentation set for the MC9090-G RFID is divided into guides that provide information for specific user needs.

- **Microsoft Application Guide** - describes how to use Microsoft developed applications.
- **Symbol Application Guide** - describes how to use Symbol developed applications.
- **MC909X User Guide** - describes how to use the MC909X mobile computers.
- **MC9090-G RFID User Guide Supplement**- describes how to use the MC9090-G RFID mobile computer.
- **MC909X Integrator Guide** - describes how to set up the MC909X mobile computers and the accessories.
- **MC9090-G RFID Integrator Guide Supplement** - describes how to set up the MC9090-G RFID mobile computer and the accessories.
- **SMDK Help File** - provides API information for writing applications.



Configurations

This guide covers the following configurations:

Configuration	Radios	Display	Memory	Data Capture	Operating System	Keypads
MC9090-G RFID	WLAN 802.11b/g and Bluetooth	Color	64 MB RAM/ 128 MB Flash	Imager	Windows Mobile 5.0 Professional	53-key RFID

Chapter Descriptions

Topics covered in this guide are as follows:

- *Chapter 1, Getting Started*, provides information on charging the mobile computer battery and resetting.
- *Chapter 2, Operating the MC9090-G RFID*, describes the MC9090-G RFID operating procedures.
- *Chapter 3, Accessories*, describes the accessories available for the mobile computer and how to use the accessories.
- *Chapter 4, Maintenance & Troubleshooting*, includes instructions on cleaning and storing the mobile computer, and provides troubleshooting solutions for potential problems during mobile computer operation.
- *Appendix A, Specifications*, includes a table listing the technical specifications for the mobile computer.
- *Appendix B, Keypad Special Keys*, includes a table listing the keypad special keys for the mobile computer.
- *Appendix C, Regulatory*, includes regulatory information for the mobile computer.

Notational Conventions

The following conventions are used in this document:

- “Mobile computer” refers to a Symbol MC909X hand-held computer.
- *Italics* are used to highlight the following:
  - Chapters and sections in this guide
  - Related documents
- **Bold** text is used to highlight the following:
  - Dialog box, window and screen names
  - Drop-down list and list box names
  - Check box and radio button names
  - Icons on a screen
  - Key names on a keypad
  - Button names on a screen
- Bullets (•) indicate:
  - Action items
  - Lists of alternatives
  - Lists of required steps that are not necessarily sequential
- Sequential lists (e.g., those that describe step-by-step procedures) appear as numbered lists

Related Documents and Software

The following documents provide more information about the MC909X mobile computers.

- *MC9090-G RFID Quick Start Guide,* p/n 72-89960-xx
- *MC9090-G RFID Windows® Mobile® 5.0 Regulatory Guide*, p/n 72-89961-xx
- *MC909X User Guide*, p/n 72E-72215-xx
- *MC909X Integrator Guide*, p/n 72E-72216-xx
- *Symbol Application Guide for Symbol Devices*, p/n 72E-68901-xx
- *Microsoft Applications for Mobile and WinCE 5.0 User Guide*, p/n 72E-78456-xx
- *Symbol Mobility Developer Kit (SMDK) Help File*, p/n 72E-38880-03
- *Symbol Mobility Developer Kits,* available at: http://devzone.symbol.com.
- Device Configuration Package (DCP for MC9090c50) and Platform SDK (PSDK9090c50) for MC9090-G, available at: http://devzone.symbol.com.
- ActiveSync software, available at: http://www.microsoft.com.

For the latest version of this guide and all guides, go to: http://www.symbol.com/manuals.

Service Information

If an equipment problem occurs, contact the appropriate regional Symbol Support Center for contact information. Before calling, have the model number, serial number and several bar code symbols at hand.

Call the Support Center from a phone near the scanning equipment so that the service person can try to talk through the problem. If the equipment is found to be working properly and the problem is symbol readability, the Support Center will request samples of bar codes for analysis at our plant.

If the problem cannot be solved over the phone, the equipment may need to be returned for servicing. If that is necessary, specific directions will be provided.

NOTE Symbol Technologies is not responsible for any damages incurred during shipment if the approved shipping container is not used. Shipping the units improperly can possibly void the warranty.

Symbol Support Center

For service information, warranty information or technical assistance contact or call the local Symbol Support Center:

Country/Region	Address	Telephone
United States	Symbol Technologies, Inc. One Symbol Plaza Holtsville, New York 11742-1300	1-800-653-5350
Canada	Symbol Technologies Canada, Inc. 5180 Orbitor Drive Mississauga, Ontario, Canada L4W 5L9	1-866-416-8545 (Inside Canada) 905-629-7226 (Outside Canada)
United Kingdom	Symbol Technologies Symbol Place Winnersh Triangle, Berkshire RG41 5TP United Kingdom	0800 328 2424 (Inside UK) +44 118 945 7529 (Outside UK)
Asia/Pacific	Symbol Technologies Asia, Inc. (Singapore Branch) 230 Victoria Street #12-06/10 Bugis Junction Office Tower Singapore 188024	Tel: +65-6796-9600 Fax: +65-6337-6488
Australia	Symbol Technologies Pty. Ltd. 432 St. Kilda Road Melbourne, Victoria 3004	1-800-672-906 (Inside Australia) +61-3-9866-6044 (Outside Australia
Österreich/Austria	Symbol Technologies Austria GmbH Prinz-Eugen Strasse 70 / 2.Haus 1040 Vienna, Austria 01-5055794-0 (Inside Austria)	+43-1-5055794-0 (Outside Austria)
Danmark/Denmark	Symbol Technologies AS Dr. Neergaardsvej 3 2970 Hørsholm	7020-1718 (Inside Denmark) +45-7020-1718 (Outside Denmark)
Europe/Mid-East Distributor Operations		Contact the local distributor or call +44 118 945 7360
Suomi/Finland	Oy Symbol Technologies Kaupintie 8 A 6 FIN-00440 Helsinki, Finland	9 5407 580 (Inside Finland) +358 9 5407 580 (Outside Finland)
France	Symbol Technologies France Centre d'Affaire d'Antony 3 Rue de la Renaissance 92184 Antony Cedex, France	01-40-96-52-21 (Inside France) +33-1-40-96-52-50 (Outside France)

Country/Region	Address	Telephone
Deutschland/ Germany	Symbol Technologies GmbH Waldstrasse 66 D-63128 Dietzenbach, Germany	6074-49020 (Inside Germany) +49-6074-49020 (Outside Germany)
Italia/Italy	Symbol Technologies Italia S.R.L. Via Cristoforo Columbo, 49 20090 Trezzano S/N Navigilo Milano, Italy	2-484441 (Inside Italy) +39-02-484441 (Outside Italy)
Latin America Sales Support	2730 University Dr. Coral Springs, FL 33065 USA	1-800-347-0178 (Inside United States) +1-954-255-2610 (Outside United States) 954-340-9454 (Fax)
México/Mexico	Symbol Technologies Mexico Ltd. Torre Picasso Boulevard Manuel Avila Camacho No 88 Lomas de Chapultepec CP 11000 Mexico City, DF, Mexico	5-520-1835 (Inside Mexico) +52-5-520-1835 (Outside Mexico)
Nederland/ Netherlands	Symbol Technologies Kerkplein 2, 7051 CX Postbus 24 7050 AA Varsseveld, Netherlands	315-271700 (Inside Netherlands) +31-315-271700 (Outside Netherlands)
Norge/Norway	Symbol's registered and mailing address: Symbol Technologies Norway Hoybratenveien 35 C N-1055 OSLO, Norway Symbol's repair depot and shipping address: Symbol Technologies Norway Enebakkveien 123 N-0680 OSLO, Norway	+47 2232 4375

Country/Region	Address	Telephone
South Africa	Symbol Technologies Africa Inc. Block B2 Rutherford Estate 1 Scott Street Waverly 2090 Johannesburg Republic of South Africa	11-809 5311 (Inside South Africa) +27-11-809 5311 (Outside South Africa)
España/Spain	Symbol Technologies S.L. Avenida de Bruselas, 22 Edificio Sauce Alcobendas, Madrid 28108 Spain	91 324 40 00 (Inside Spain) +34 91 324 40 00 (Outside Spain) Fax: +34.91.324.4010
Sverige/Sweden	“Letter” address: Symbol Technologies AB Box 1354 S-171 26 SOLNA Sweden Visit/shipping address: Symbol Technologies AB Solna Strandväg 78 S-171 54 SOLNA Sweden	Switchboard: 08 445 29 00 (domestic) Call Center: +46 8 445 29 29 (international) Support E-Mail: Sweden.Support@se.symbol.com

If the Symbol product was purchased from a Symbol Business Partner, contact that Business Partner for service.

Chapter 1

Getting Started

Introduction

This chapter lists the accessories for the mobile computer and explains how to install and charge the batteries, replace the strap and start the mobile computer for the first time.

NOTE This MC9090-G RFID User Guide Supplement is intended as a supplement to the MC909X User Guide, P/N: 72E-72215-xx. Procedures common to the MC909X series of products are referenced to the MC909X User Guide.

MC909X User Guide

The MC909X User Guide, P/N: 72E-72215-xx provides the following support information applicable to the MC9090-G RFID mobile computer:

- **Accessories**; describes the accessories available for the mobile computers and how to set up power connections and battery charging capabilities, where applicable.
- **Operating the MC909X**; explains how to use the mobile computer. This includes instructions for powering on and resetting the mobile computer, entering and capturing data.
- **Using Bluetooth**; explains how to perform Bluetooth functionality on the mobile computer.
- **Accessories**; describes the accessories available for the mobile computer and how to use the accessories with the mobile computer.
- **Maintenance & Troubleshooting**; includes instructions on cleaning and storing the mobile computer, and provides troubleshooting solutions for potential problems during mobile computer operation.

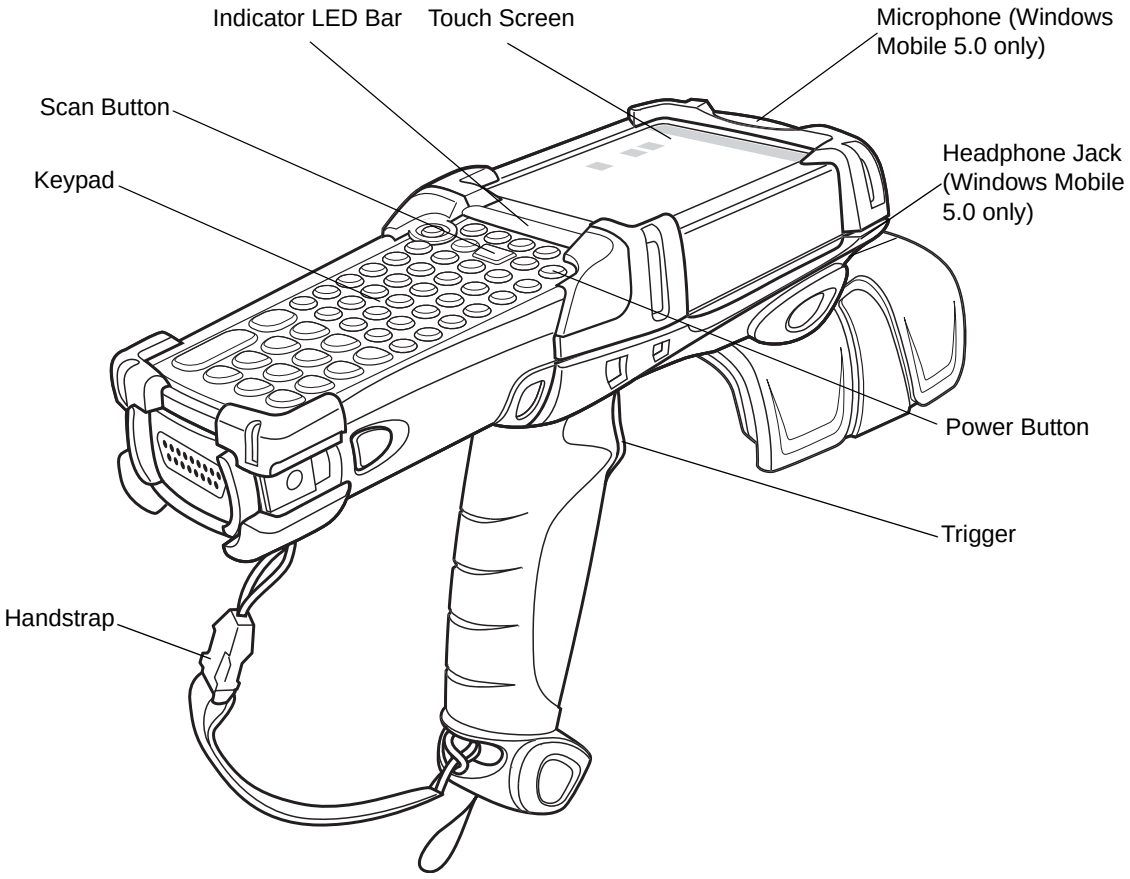


Figure 1-1 *MC9090-G RFID Mobile Computer*

Unpacking the Mobile Computer

Carefully remove all protective material from around the mobile computer and save the shipping container for later storage and shipping.

Verify that all equipment listed below was received:

- Mobile computer
- Lithium-ion battery
- Strap, attached to the mobile computer
- Stylus, in the stylus silo
- Regulatory Guide
- Quick Start Guide (poster)

Inspect the equipment for damage. If any equipment is missing or damaged, contact the Symbol Technologies Support Center immediately. See *page ix* for contact information.

Accessories

Table 1-1 lists the accessories available for the MC909X:

Table 1-1 *MC9090-G RFID Accessories*

Accessory	Description
Cable Adapter Module (CAM)	Snap-on required to connect the following cables to the mobile computer. • AC line cord (country-specific) and power supply, charges the mobile computer. • Auto charge cable, charges the mobile computer using a vehicle's cigarette lighter. • DEX cable, connects the mobile computer to a vending machine. • Serial cable, adds serial communication capabilities. • USB cable, adds USB communication capabilities. • Printer cable, adds printer communication capabilities.
Four Slot Charge Only Cradle	Charges the mobile computer main battery.
Four Slot Ethernet Cradle	Charges the mobile computer main battery and synchronizes the mobile computer with a host computer through an Ethernet connection.
Four Slot Spare Battery Charger	Charges up to four mobile computer spare batteries.
Keypads (Optional)	Application specific keypads.
Magnetic Stripe Reader (MSR)	Snaps on to the mobile computer and adds magstripe read capabilities.
Modem Module	Enables data communication between the mobile computer and a host computer, remotely through the phone lines, and synchronizes information between the mobile computer and a host computer.
Multimedia Card (MMC)	Provides secondary non-volatile storage.
Single Slot Serial/USB Cradle	Charges the mobile computer main battery and a spare battery. It also synchronizes the mobile computer with a host computer through either a serial or a USB connection.
Software	*Symbol Mobility Developer Kits* available at: http://devzone.symbol.com.
	Device Configuration Package (DCPforMC9090c50) and Platform SDK (PSDK9090c50) for MC9090-G, available at: http://devzone.symbol.com.
Spare lithium-ion battery	Replacement battery.
Stylus	Performs pen functions.
Universal Battery Charger Adapter	Adapts the UBC for use with the Series 9000 batteries.
Wall Mounting Bracket and Shelf Slide	Use for wall mounting applications.

Getting Started

In order to start using the mobile computer for the first time:

- Install the main battery
- Charge the main battery and backup battery
- Start the mobile computer
- Configure the mobile computer

The main battery can be charged before or after it is installed. Use one of the spare battery chargers to charge the main battery (out of the mobile computer), or one of the cradles to charge the main battery installed in the mobile computer.

Installing and Removing the Main Battery

Installing the Main Battery

Before using the mobile computer, install a lithium-ion battery by sliding the battery into the mobile computer as shown in *Figure 1-2*.

NOTE Ensure the battery is fully inserted. Two audible clicks can be heard as the battery is fully inserted. A partially inserted battery may result in unintentional data loss.

When a battery is fully inserted in a mobile computer for the first time, upon the mobile computer's first power up, the device boots and powers on automatically.

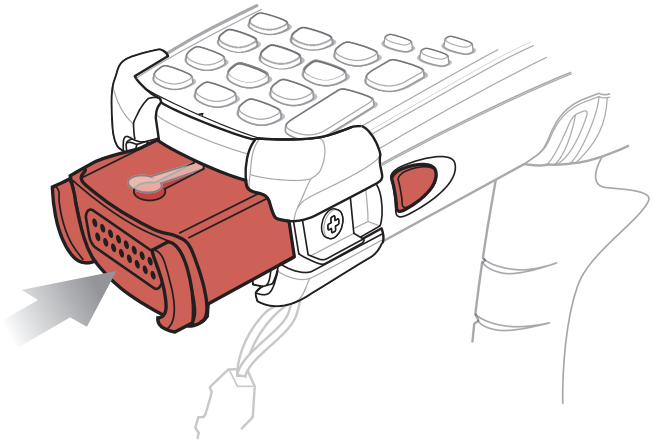


Figure 1-2 *Installing the Main Battery*

Charging the Battery

Charging the Main Battery and Memory Backup Battery

Before using the mobile computer for the first time, charge the main battery until the amber charge indicator light remains lit (see *Table 1-2 on page 1-6* for charge status indications). The main battery fully charges in less than four hours. The mobile computer can be charged using a cradle, the CAM, or the MSR with the appropriate power supply.

The mobile computer is also equipped with a memory backup battery which automatically charges from the main battery whether or not the mobile computer is operating or is in suspend mode. The memory backup battery retains data in memory for at least 30 minutes when the mobile computer's main battery is removed or fully discharged. When the mobile computer is used for the first time or after the memory backup battery has fully discharged, the memory backup battery requires approximately 15 hours to fully charge. Do not remove the main battery from the mobile computer for 15 hours to ensure that the memory backup battery fully charges. If the main battery is removed from the mobile computer or the main battery is fully discharged, the memory backup battery completely discharges in several hours.

When the main battery reaches a very low battery state, the combination of main battery and backup battery retains data in memory for at least 72 hours.

✓ ***NOTE*** Do not remove the main battery within the first 15 hours of use. If the main battery is removed before the backup battery is fully charged, data may be lost.

Use the following to charge batteries:

- Cradles: The mobile computer slips into the cradles for charging the battery in the mobile computer (and spare batteries, where applicable). For detailed cradle setup and charging procedures refer to the *MC909X User Guide*.
  - Single Slot Serial/USB Cradle.
  - Four Slot Ethernet Cradle
  - Four Slot Charge Only Cradle
- Accessories: The mobile computer snap-on accessories provide charging capability, when used with one of the accessory charging cables. For detailed snap-on setup and charging procedures refer to the *MC909X User Guide*.
  - CAM
  - MSR
- Chargers: The mobile computer spare battery charging accessories are used to charge batteries that are removed from the mobile computer. For detailed spare battery charging accessories setup and charging procedures refer to the *MC909X User Guide*.
  - Single Slot Serial/USB Cradle
  - Four Slot Spare Battery Charger
  - Universal Battery Charger (UBC) Adapter

✓ ***NOTE*** To achieve the best battery life in mobile computers with multiple radios, turn off the radios that are not being used. This can be accomplished via the SetDevicePower() API (refer to the SMDK Help File for Symbol Mobile Computers) or via the Control Panel application (tap *Start - 9000 Demo - Ctl Panel* icon).

To charge the main battery:

1. Ensure the accessory used to charge the main battery is connected to the appropriate power source.
2. Insert the mobile computer into a cradle or attach the appropriate snap-on module.
3. The mobile computer starts to charge automatically. The amber charge LED, in the Indicator LED Bar, lights to indicate the charge status. See *Table 1-2* for charging indications.

The main battery usually fully charges in less than four hours.

Table 1-2 *Mobile Computer LED Charge Indicators*

LED	Indication
Off	Mobile computer not in cradle or connected to a CAM or MSR. Mobile computer not placed correctly. Charger is not powered.
Fast Blinking Amber	Error in charging; check placement of the mobile computer.
Slow Blinking Amber	Mobile computer is charging.
Solid Amber	Charging complete.

Charging Spare Batteries

Use the following three accessories to charge spare batteries:

- Single Slot Serial/USB Cradle
- Four Slot Spare Battery Charger
- UBC Adapter

To charge a spare battery:

1. Ensure the accessory used to charge the spare battery is connected to the appropriate power source.
2. Insert the spare battery into the accessory's spare battery charging slot with the charging contacts facing down (over the charging pins) and gently press down on the battery to ensure proper contact.
3. The battery starts to charge automatically. The amber charge LED on the accessory lights to show the charge status.

The spare battery usually fully charges in less than four hours.

Removing the Main Battery

To remove the main battery:

1. Prior to removing the battery, press the red **Power** button. This sets the mobile computer to suspend mode.
2. Press the primary battery release(s). The battery partially ejects from the mobile computer.
3. Pause 3 to 4 seconds while the mobile computer performs battery removal shutdown.
4. Press the secondary battery release, on top of the battery, and slide the battery out of the mobile computer.

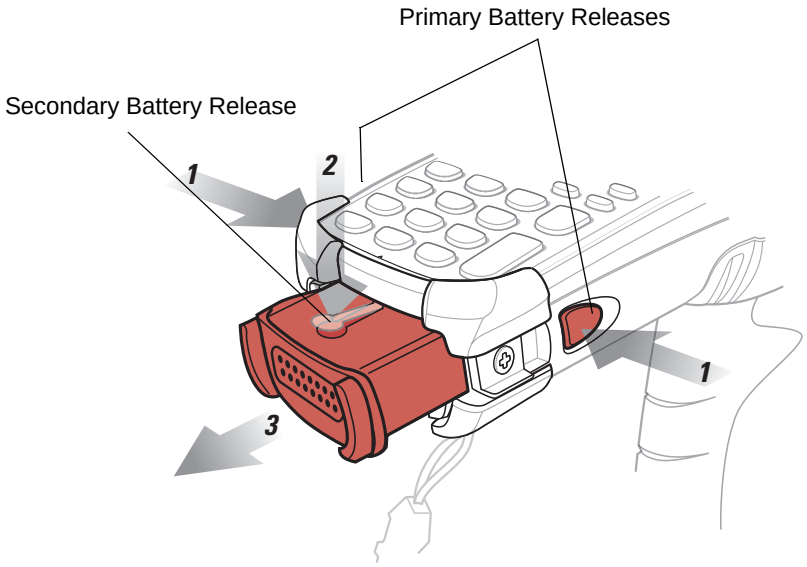


Figure 1-3 *Removing the Main Battery - MC9099-G RFID*

Starting the Mobile Computer

Press the red **Power** button to turn on the mobile computer. If the mobile computer does not power on, perform a cold boot. See *Resetting the Mobile Computer on page 2-18*.

NOTE When a battery is fully inserted in a mobile computer for the first time, upon the first power up, the mobile computer boots and powers on automatically.

When the mobile computer is powered on for the first time, it initializes its system. The *Symbol* splash screen (*Figure 1-4*) appears for a short period of time.

Figure 1-4 *Symbol Splash Window*

Calibrating the Screen

To calibrate the screen so the cursor on the touch screen aligns with the tip of the stylus:

1. Using the stylus carefully press and briefly hold the tip of stylus on the center of each target that appears on the screen.

NOTE To re-calibrate the screen at anytime, press the blue **FUNC** and **ESC** keys on the mobile computer to launch the calibration screen application.

2. Repeat as the target moves around the screen or press **ESC** to cancel.

Checking Battery Status

To check whether the main battery or backup battery in the mobile computer is charged:

- On Windows Mobile 5.0 devices: tap **Start** > **Settings** > **System** tab > **Power** icon to display the **Power** window.

To save battery power, set the mobile computer to turn off after a specified number of minutes.

Stylus

To remove the stylus, pull the stylus cord down and outward to remove the stylus.

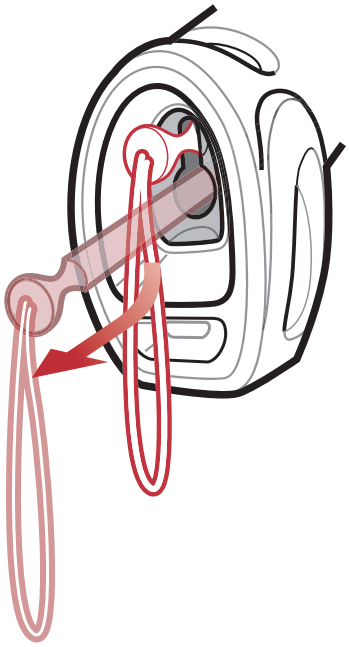


Figure 1-5 *Removing the Stylus*

Use the mobile computer stylus for selecting items and entering information. The stylus functions as a mouse.

- Tap: Touch the screen once with the stylus to press option buttons and open menu items.
- Tap and Hold: Tap and hold the stylus on an item to see a list of actions available for that item. On the pop-up menu that appears, tap the action to perform.
- Drag: Hold the stylus on the screen and drag across the screen to select text and images. Drag in a list to select multiple items.

MC9090-G Strap

The strap may be moved to either the left or right side of the mobile computer to suit user preferences.

To reposition the strap:

1. Disconnect the metal clip at the handle.
2. Open strap loop and slide the handstrap through the loop.
3. Slide the loop out of the connector post.
4. Reverse the procedure to re-attach the strap. Two strap connectors are provided on the mobile computer's main body. The handstrap may be attached to either connector.

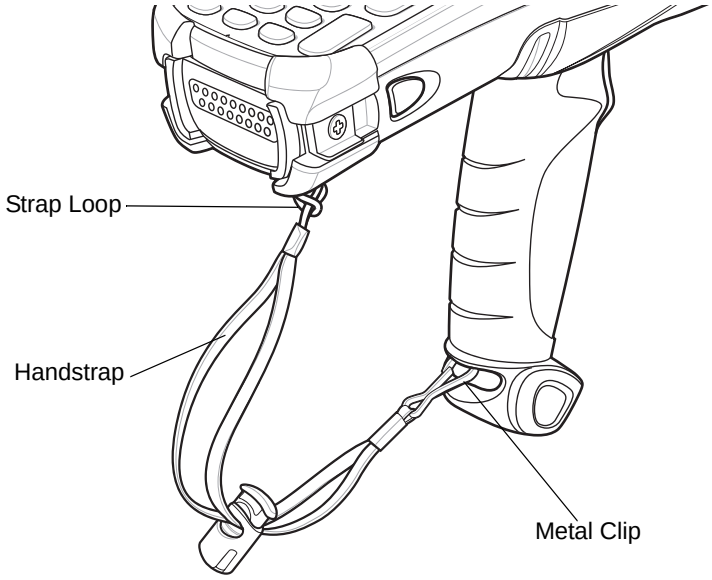


Figure 1-6 *Reposition the Strap*

Battery Management

Battery Saving Tips

- Leave the mobile computer connected to AC power at all times when not in use.
- Set the mobile computer to turn off after a short period of non-use.
- Set the display and keyboard backlight to turn off after a short period of non-use.
- Turn off all wireless radio activity when not in use.
- Power off the mobile computer when charging to charge at a faster rate.

Changing the Power Settings

To set the mobile computer to turn off after a short period of non-use:

1. On devices with Windows Mobile 5.0, tap **Start** > **Settings** > **System** tab > **Power** icon > **Advanced** tab.
2. Select the **On battery power: Turn off device if not used for:** check box and select a value from the drop-down list box.
3. Tap **OK**.

Changing the Display Backlight Settings

To change the display backlight settings in order to conserve more battery power:

1. On devices with Windows Mobile 5.0, tap **Start** > **Settings** > **System** tab > **Backlight** icon > **Battery Power** tab.
2. Select the **On battery power: Disable backlight if not used for:** check box and select a value from the drop-down list box.
3. Tap the **Brightness** tab.
4. Tap the **Disable backlight** check box to completely turn off the display backlight.
5. Use the slider to set the brightness of the backlight. Set it to a low value to save battery power.
6. Tap **OK**.

Changing the Keypad Backlight Settings

To change the keypad backlight settings in order to conserve more battery power:

1. Tap **Start** > **Settings** > **System** tab > **Keylight** icon > **Battery Power** tab.
2. Select the **On battery power: Disable keylight if not used for:** check box and select a value from the drop-down list box.
3. Tap the **Advanced** tab.
4. Tap the **Disable keylight** check box to completely turn off the display backlight.
5. Tap **OK**.

Turning the Radios Off

WLAN Radio on Windows Mobile 5.0

To turn off the WLAN radio tap the **Wireless Connection Status** icon at the bottom of the Today screen and select **Disable Radio**. A red X appears across the icon indicating that the radio is disabled (off).

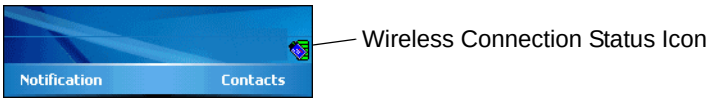


Figure 1-7 *Wireless Connection Status Icon*

To turn the radio back on, tap the **Wireless Connection Status** icon at the bottom of the Today screen and select **Enable Radio**. The red X disappears from the icon indicating that the radio is enabled (on).

Bluetooth and WWAN Radios on Windows Mobile 5.0

NOTE The Flight Mode feature only turns off the WWAN and Bluetooth radios. The WLAN radio must be turned off separately.

To turn off the Bluetooth and WWAN radios, tap the **Connectivity** icon (on non-WWAN devices) or the **Antenna/Signal** icon (on WWAN devices) and select **Turn On Flight Mode**.

NOTE On the MC9090, it takes two to five seconds for the radio to shut down.

To turn on the Bluetooth and WWAN radios, tap the **Connectivity** icon (on non-WWAN devices) or the **Antenna/Signal** icon (on WWAN devices) and select **Turn Off Flight Mode**.

NOTE On the MC9090, wait 20 to 40 seconds for the radio to power on. During this time do not suspend the mobile computer or remove the battery. If the mobile computer is suspended or the battery is removed, warm boot the mobile computer.

The *MC909X User Guide, P/N: 72E-72215-xx* provides the Bluetooth support information applicable to the MC9090-G RFID mobile computer.

Introduction

This chapter explains the physical buttons, status icons and controls on the mobile computer, how to use the mobile computer, including instructions for powering on and resetting the mobile computer, using the stylus and a headset, entering information and scanning.

Windows Mobile 5.0 Status Icons

Status Bar

The **Status Bar** at the top of the window displays the current time, battery status and communication status.

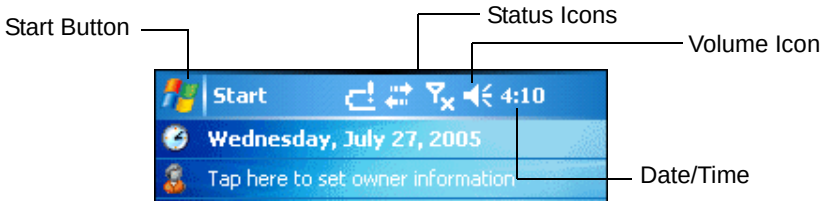


Figure 2-1 *Status Bar*

Status icons are shown in the **Status Bar** to indicate present status of the mobile computer. Tapping each status icon displays the corresponding dialog box the settings then be changed or adjusted. The status icons listed in *Table 2-1* on the **Status Bar** may be located at the top of the screen.

Table 2-1 *Status Icons*

Icon	Function	Description
	Speaker	Turns all sounds on and off.
	Battery	Backup battery is very low.
		Main battery is charging.*
		Main battery is low.
		Main battery is very low.
		Main battery is full.*
	Connectivity	Connection is active.
		GPRS available.
		GPRS in use.
		EGPRS available.
		EGPRS in use.
		Synchronization is occurring.
	WWAN	Call missed.
		Voice call.
		Voice call in progress.
		Calls are forwarded.
		Call on hold.
		Antenna/signal icon: wireless on/good signal.
		Antenna/signal icon: wireless off.
		Antenna/signal icon: no service or searching.
		Roaming icon. Outside of the home area.
		Missing SIM Card icon: SIM Card not installed or installed improperly.
	Instant Message	Notification that one or more instant messages were received.
	E-Mail	Notification that one or more e-mail messages were received.

* Only appears in the *Time and Next Appointment* dialog box.

Table 2-1 *Status Icons (Continued)*

Icon	Function	Description
	Voice Mail	Notification that one or more voice messages were received.
1:20	Time and Next Appointment	Displays current time in analog or digital format.
	Multiple Notifications	There are more notification icons than can be displayed. Tap to display remaining icons.

* Only appears in the *Time and Next Appointment* dialog box.

Command Bar

The icons listed in *Table 2-2* on the Command Bar may be located at the bottom of the screen.

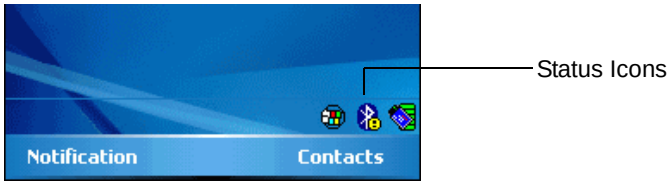


Figure 2-2 *Command Bar*

Table 2-2 *Command Bar Icons*

Icon	Description
	Wireless connection status icon. Indicates WLAN signal strength and opens the Wireless Applications menu.
	The **Bluetooth Enabled** icon appears in the task tray and indicates that the Bluetooth radio is on.
	The **Bluetooth Disabled** icon appears in the task tray and indicates that the Bluetooth radio is off.
	The **Bluetooth Communication** icon appears in the task tray and indicates that the mobile computer is communicating with another Bluetooth device.
	The **ActiveSync** icon appears in the task tray and indicates an active connection between the mobile computer and the development computer.

Speaker Icon

Adjust the system volume using the **Speaker** icon in the Status bar.

1. Tap the **Speaker** icon. The **Volume** dialog box appears.

Figure 2-3 *Volume Dialog Box*

NOTE When not in a call, the phone volume slider adjusts the volume of the ringer. When in a call, adjusts the volume of the call audio.

2. Tap and move the slide bar to adjust the volume.
3. Select the **On** or **Off** radio button to turn the volume on or off.

NOTE Use can also adjust the system volume using the **Sounds & Notifications** window or by pressing the Blue key and 6 or the Blue key and 7.

Battery Icon

Battery icons display on the **Title Bar** when the main battery or backup battery power falls below a predetermined level. A **Battery** dialog box also appears indicating the status of the main or backup battery.

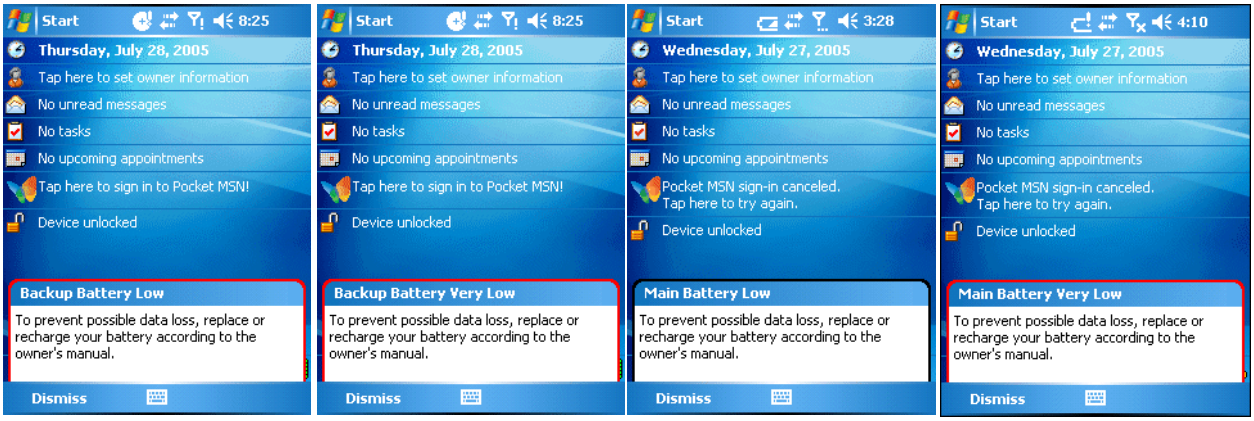


Figure 2-4 *Battery Status Dialog Box*

View the battery status using the **Power** window.

Connectivity Icon

The **Connectivity** icon indicates the communication status of the terminal when it's connecting to the internet or host computer.

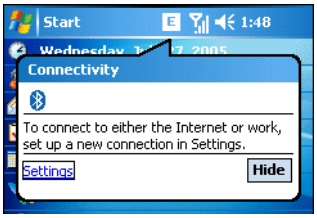


Figure 2-5 *Connectivity Dialog Box*

Time Icon

The **Time** icon displays the current time in a digital or analog format. To change the time format, tap and hold the **Time** icon until a menu appears. Select the desired format.

Figure 2-6 *Time Icon Format Menu*

To display current date, time and appointments:

1. Tap the **Time** icon to display the **Time and Next Appointment** dialog box.

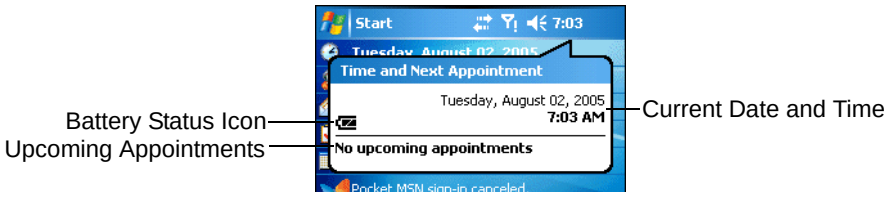


Figure 2-7 *Time and Next Appointment Dialog Box*

2. The dialog box displays the current date and time, the battery status and any upcoming appointments in the **Calendar**.

Instant Message Icon

The **Instant Message** icon provides a notification when **MSN Messenger** has received a new incoming message.

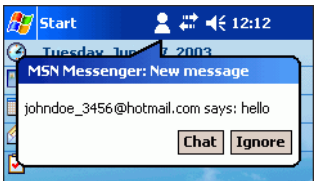


Figure 2-8 *MSN Messenger Dialog Box*

E-Mail Icon

The **E-Mail** icon provides a notification when an incoming e-mail is received.

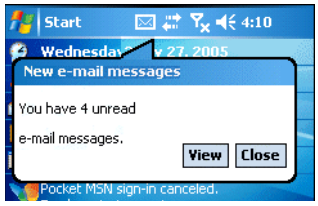


Figure 2-9 *New E-mail Messages Dialog Box*

Multiple Notification Icon

The **Multiple Notification** icon appears when two or more message notifications occur. Tap the icon to display the multiple notification icons.

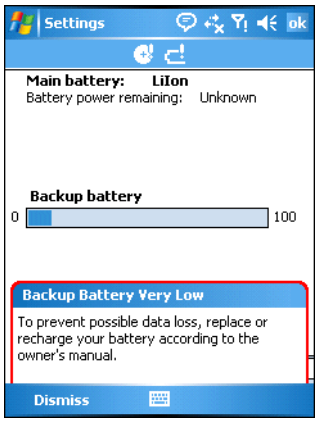


Figure 2-10 *Multiple Notifications Icon*

Locking the Mobile Computer

Use the Device Lock feature to prevent use of the device. When locked, the mobile computer does not respond to screen or keypad input. To lock the device, tap the **Device unlocked** icon. The icon changes to locked.

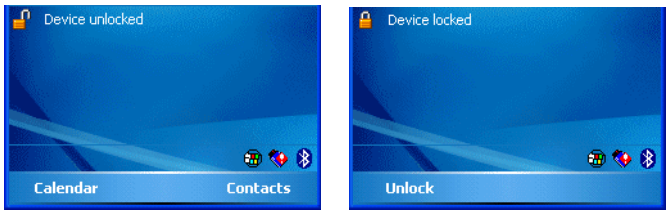


Figure 2-11 *Device Locked/Unlocked Icons*

To unlock the device and free it for use, tap **Unlock**.

Figure 2-12 *Unlock Device Window*

Tap **Unlock** on the **Unlock Device** window.

LED Indicators

The MC9090-G RFID has an LED Indicator Bar that contains LEDs that indicate scanning and charging status. *Table 2-3* describes the LED indications.

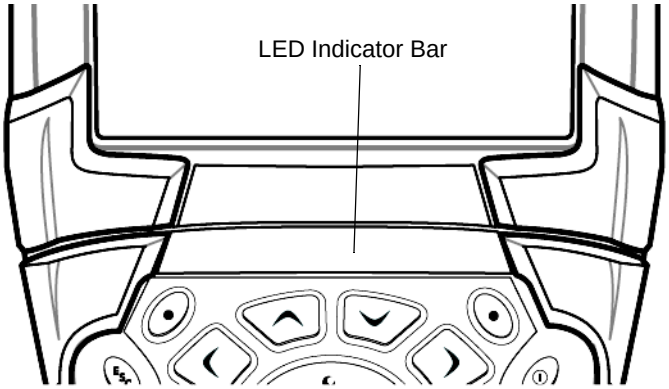


Figure 2-13 *MC909X LEDs Indicator Bar*

Table 2-3 *Mobile Computer LED Indications*

LED State	Indication
Solid Red	Laser enabled, scanning/imaging in process.
Solid Green	Successful decode/capture.
Slow Blinking Amber	Main battery in mobile computer is charging.
Fast Blinking Amber	Error in charging; check placement of the mobile computer.
Solid Amber	Main battery in mobile computer is fully charged.

NOTE The RFID read enabled and successful RFID tag read indications are displayed on the screen, not on the LED indicators.

Keypads

The mobile computer has the following modular keypad:

- 53-key keypad

The modular keypads can be removed in the field, as necessary. The *MC909X User Guide, P/N: 72E-72215-xx* provides the keypad support information applicable to the MC9090-G RFID mobile computer.

53-Key Keypad for MC9090-G RFID

The 53-key keypad contains a Power button, application keys, scroll keys and function keys. The keypad is color-coded to indicate the alternate function key (blue) values. Note that keypad functions can be changed by an application so the mobile computer's keypad may not function exactly as described. See *Table 2-4 on page 2-10* for key and button descriptions and *Table 2-5 on page 2-12* for the keypad's special functions.

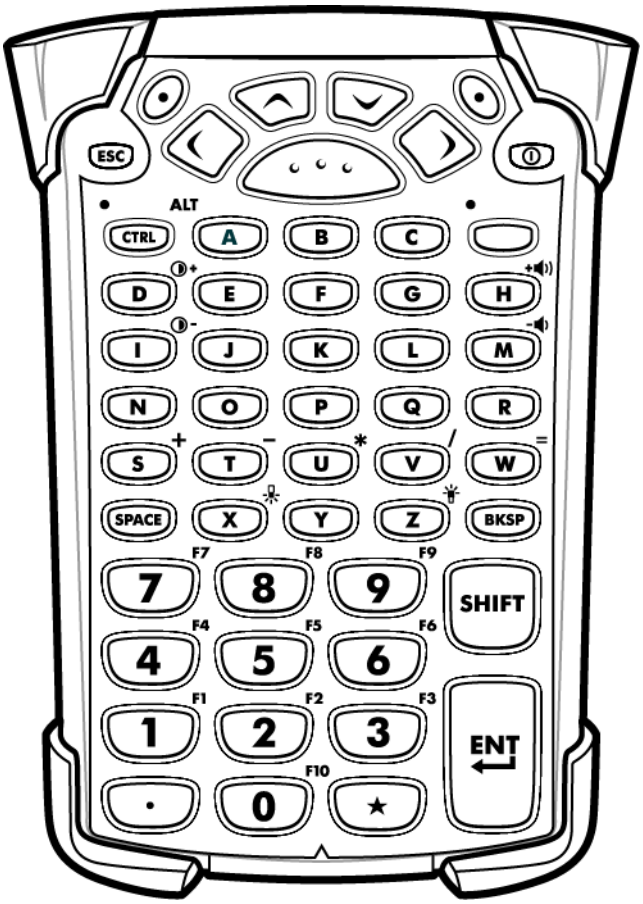


Figure 2-14 *53-Key Keypad for MC9090-G RFID*

Table 2-4 *53-Key Descriptions*

Key	Description
Power (red) 	Turns the mobile computer on and off. Performs a warm boot and a cold boot. See *Windows Mobile 5.0 Devices on page 2-18* for information about performing a warm and cold boot.
Green/Red Dot 	To use a key as an application key (APP key) on the keyboard, a new keyboard remap table must be created and installed. However, the Green/Red dot keys can be remapped as APP keys through the registry. Create an XML Provisioning file with the following entries: Characteristic type =“HKEY_LOCAL_MACHINE\HARDWARE\DEVICEMAP\KEYBD” Parm name = “GreenKeyOverride” value = “xx”, where xx is the new APP key code. Parm name = “RedKeyOverride” value = “xx”, where xx is the new APP key code. Refer to the *MC909X Integrator Guide* for instruction on updating the registry using XML Provisioning. This sends an APP key code, instead of their original key codes, when the green or red dot key is pressed.
Scan (yellow) 	Activates the scanner/imager in a scan enabled application.
Scroll Up and Down 	Moves up and down from one item to another. Increases/decreases specified values.
Scroll Left and Right 	Moves left and right from one item to another. Increases/decreases specified values.
ESC 	Exits the current operation.
Alpha 	Use the alpha keys for alphabetic characters.
SPACE/BKSP 	Space and backspace functions.
Numeric/Application 	Numeric value keys - can have applications assigned with function key(s). The **F6** and **F7** keys cannot be remapped and are dedicated by the Operating System to control volume level. When these keys are pressed, Shell.exe traps them and displays the volume adjustment window. To get these keys to an application, call GXOpenInput() at the beginning of the application and call GXCloseInput() at the end of the application. This redirects all of the key events to an application, including the **F6** and **F7** keys.

Table 2-4 *53-Key Descriptions (Continued)*

Key	Description
Function (blue) 	Press and release the blue function key to activate the keypad alternate functions (shown on the keypad in blue). The LED above the key lights and the F icon appears on the taskbar on WinCE devices or the icon appears at the bottom of the screen on Windows Mobile 5.0 devices. Press and release the blue function key again to return to the normal keypad functions.
Control 	Press and release the CTRL key to activate the keypad alternate CTRL functions. The LED above the key lights and the icon appears on the taskbar on WinCE devices or the CTRL icon appears at the bottom of the screen on Windows Mobile 5.0 devices. Press the Blue key followed by the CTRL key to activate the keypad alternate ALT functions. The ALT icon appears on the taskbar on WinCE devices or the ALT icon appears at the bottom of the screen on Windows Mobile 5.0 devices.
Shift 	Press and release the SHIFT key to activate the keypad alternate SHIFT functions. The icon appears on the taskbar on WinCE devices or the icon appears at the bottom of the screen on Windows Mobile 5.0 devices. Press and release the SHIFT key again to return to the normal keypad functions.
Period/Decimal Point 	Produces a period for alpha entries and a decimal point for numeric entries.
Star 	Produces an asterisk.
Enter 	Executes a selected item or function. The default behavior of the ENT (Enter) key sends an extra character, which causes a Microsoft Word or Notes application to exit. To make the applications work properly, create an XML Provisioning file with the following entries: Characteristic type ="HKEY_LOCAL_MACHINE\HARDWARE\DEVICEMAP\KEYBD" Para name = "SpecialEnterTabKey" value = 0 Refer to the *MC909X Integrator Guide* for instruction on updating the registry using XML Provisioning.

Keypad Special Functions

The keypad special functions are color coded on the keypads. For example, on the 53-key keypad, the display backlight icon is blue indicating that the blue function key must be selected first to access the display backlight.

Table 2-5 *Keypad Special Functions*

Icon	53-Key, Keypad	Special Function
	Blue key + **Z**	Turns on and off the display backlight.
	Blue key + **X**	Turns on and off the keypad backlight.
	Blue key + **D**	Color units: Increases display backlight intensity.
	Blue key + **I**	Color units: Increases display backlight intensity.
	Blue key + **H**	Increases scan decode beeper volume.
	Blue key + **M**	Decreases scan decode beeper volume.
ALT *	Blue key + **CTRL**	Enables Alt keypad functions.

NOTE Use of display and keypad backlighting can significantly reduce battery life.

Using the Power Button

Press the red Power button to turn the mobile computer screen on and off (suspend mode). The mobile computer is on when the screen is on and the mobile computer is in suspend mode when the screen is off. For more information, see *Starting the Mobile Computer on page 1-8*.

The Power button is also used to reset the mobile computer by performing a warm or cold boot.

- On Windows Mobile 5.0
  - Warm Boot (Soft Reset) - Resets the mobile computer. Operating system and all applications are restarted. File storage is preserved.
  - Cold Boot (Hard Reset) - Resets the mobile computer Operating system and all applications are restarted. File storage is preserved. Real-Time Clock (RTC) is reset. Normally only used when a Warm Boot does not initiate.

NOTE Applications that are added to the Application folder are not removed when a cold boot is performed. The Application folder is in flash memory.

For information about booting the mobile computer, see *Windows Mobile 5.0 Devices on page 2-18*.

Using a Headset

Use a stereo headset or a a Bluetooth headset for audio communication when an audio enabled application is used. To use a headset, plug the headset jack into the audio connector on the side of the mobile computer. Ensure that the mobile computer volume is set appropriately before putting the headset on. When a headset is plugged into the jack, the speakerphone is muted. The *MC909X User Guide, P/N: 72E-72215-xx* provides the headset support information applicable to the MC9090-G RFID mobile computer

Data Capture

The mobile computers use an integrated imager to collect data by decoding one dimensional bar codes (including RSS) and two dimensional bar codes (including PDF417 and DataMatrix), and capture and download images to a host for a variety of imaging applications.

Imaging

The mobile computers with an integrated imager have the following features:

- Omnidirectional reading of a variety of bar code symbologies, including the most popular linear, postal, PDF417 and 2-D matrix code types.
- The ability to capture and download images to a host for a variety of imaging applications.
- Advanced intuitive laser aiming for easy point-and-shoot operation.

The imager uses digital camera technology to take a digital picture of a bar code, stores the resulting image in its memory and executes state-of-the-art software decoding algorithms to extract the data from the image.

Aiming the Imager

The mobile computer integrated imager projects a laser aiming pattern (field of view) similar to those used on cameras. The aiming pattern is used to position the bar code or object within the field of view.

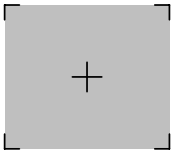


Figure 2-15 *Laser Aiming Pattern (Field of View)*

Operational Modes

Mobile computers with an integrated imager have three modes of operation: Decode Mode, Pick List Mode and Image Capture Mode. All modes are activated by pulling the trigger or pressing the Scan button.

Decode Mode

This mode allows the user to decode a bar code when a single bar code in the mobile computer's field of view. In this mode the Imager attempts to locate and decode enabled bar codes within its field of view. The Imager remains in this mode as long as the trigger is pulled, or until a bar code is decoded.

Pick List Mode

Pick List mode allows the user to selectively decode a bar code when more than one bar code is in the mobile computer's field of view. By moving the aiming crosshair over the wanted bar code the user can selectively read only the required bar code. This feature is particularly valued for pick lists containing multiple bar codes and manufacturing or transport labels containing more than one bar code type (either 1D or 2D).

Image Capture Mode

This mode allows the user to capture an image within the mobile computer's field of view. The user can use the mobile computer to capture signatures or images of items like damaged boxes.

Scanning Considerations

Typically, scanning is a simple matter of aim, scan/decode and a few quick trial efforts master it. However, two important considerations can be used to optimize any scanning performance:

- Range

  Any scanning device decodes well over a particular working range — minimum and maximum distances from the bar code. This range varies according to bar code density and scanning device optics.

  Scanning within range brings quick and constant decodes; scanning too close or too far away prevents decodes. Move the scanner closer and further away to find the right working range for the bar codes being scanned. However, the situation is complicated by the availability of various integrated scanning modules. The best way to specify the appropriate working range per bar code density is through a chart called a decode zone for each scan module. A decode zone simply plots working range as a function of minimum element widths of bar code symbols.

- Angle

  Scanning angle is important for promoting quick decodes. Do not scan at too sharp an angle; the scanner needs to collect the image to make a successful decode. Practice quickly shows what tolerances work.

NOTE Contact the Symbol Support Center if chronic scanning difficulties develop. Decoding of properly printed bar codes should be quick and effortless.

Scanning Bar Codes

1. Ensure that a scan enabled application is loaded on the mobile computer.
2. Aim the scan exit window at the bar code.
3. Pull the trigger.
   - Place the bar code in any orientation within the aiming pattern. Ensure the entire symbol is within the rectangular area formed by the brackets in the aiming pattern. The red laser aiming pattern turns on to assist in aiming. If necessary, the mobile computer turns on its red LED to illuminate the target bar code. The green scan LED lights and an audible beep sounds, by default, to indicate the bar code was decoded successfully. Note that when the mobile computer is in Pick List Mode, the bar code is not decoded until the crosshair is touching the bar code.

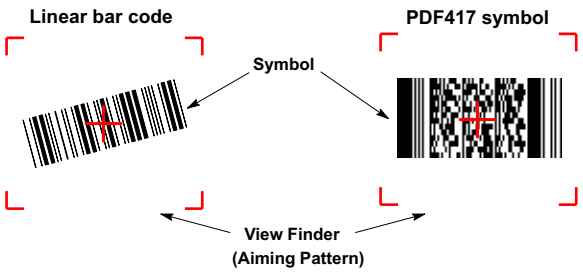


Figure 2-16 *Bar Code Centered in Aiming Pattern*

Figure 2-17 *Bar Code Not Centered in Aiming Pattern*

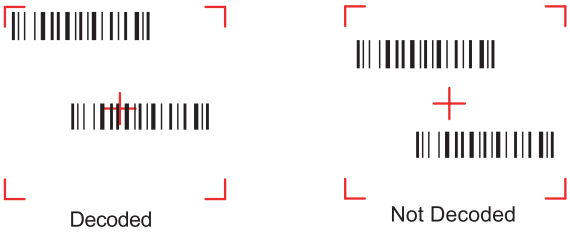


Figure 2-18 *Pick List Mode with Multiple Bar Codes in Aiming Pattern*

4. Release the trigger.

NOTE Imager decoding usually occurs instantaneously. The mobile computer repeats the steps required to take a digital picture (image) of a poor or difficult bar code, as long as the trigger remains pulled.

Scanning Tips

Optimal scanning distance varies with bar code density and scanner optics.

- Hold the scanner farther away for larger symbols.
- Move the scanner closer for symbols with bars that are close together.

NOTE Scanning procedures depend on the application and mobile computer configuration. An application may use different scanning procedures from the one listed above.

Scan LED Indicator

The Indicator LED bar on the mobile computer provides a visual indication of the scan status.

Table 2-6 *Scan LED Indicators*

LED Status	Indication
Off	Not scanning.
Solid Red	Laser enabled, scanning/imaging in process.
Solid Green	Successful decode.

Reading RFID Tags

When in the RFID read mode, press the trigger and the mobile computer interrogates all of the Gen2 (configurable for Class 0 and Class 1) RFID tags within the radio frequency (RF) field of view. The mobile computer captures data from each new tag found. When the trigger is released, the mobile computer stops interrogating tags. In addition, RFID tag data can be stored on the mobile computer. Using the MC9090-G RFID sample application, tags that are read display in the main RFID Tags window, **see Figure 5-24 on page 5-28**.

For more information about reading RFID tags and using MC9000-G RFID mobile computers, see RFID on page 5-28.

To Read RFID Tags:

1. Ensure that an RFID tag reader enabled application is loaded on the mobile computer.
2. Aim the scan exit window at the tag.

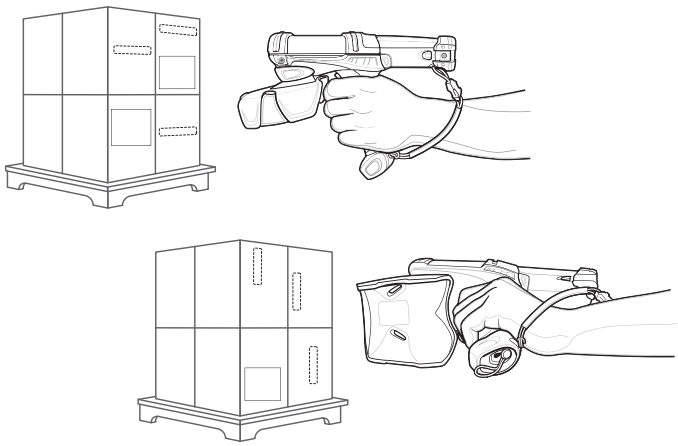


Figure 2-19 *RFID Tag Read*

NOTE For a successful tag read, the allowable read distance from the front of the mobile computer scan exit window to the tag is 0.2 ft. - 10 ft. (0.061 m to 3.1 m). Reader motion horizontally and/or vertically may enhance tag reading ability.

3. Position the mobile computer horizontally or vertically (as shown in Figure 2-19), depending on the orientation of the tag.
4. Pull the trigger.
5. An audible beep sounds, by default, and the Indicator LED bar flashes green one time to indicate the tag was decoded successfully.
6. Release the trigger.

NOTE Tag decoding usually occurs instantaneously. The mobile computer repeats the steps required to read a tag as long as the trigger remains pulled.

Resetting the Mobile Computer

Windows Mobile 5.0 Devices

There are two reset functions, warm boot and cold boot.

- A warm boot restarts the mobile computer and closes all running programs.
- A cold boot also restarts the mobile computer and closes all running programs but also resets the Real-Time-Clock (RTC).

Data saved in flash memory or a memory card is not lost. Perform a warm boot first. This restarts the mobile computer and saves all *stored* records and entries. If the mobile computer still does not respond, perform a cold boot.

Performing a Warm Boot

Hold down the Power button for approximately five seconds. As soon as the mobile computer starts to perform a warm boot release the **Power** button.

Performing a Cold Boot

A cold boot restarts the mobile computer. The operating system and all applications are restarted. File storage is preserved. The Real-Time-Clock (RTC) resets. *Only perform a cold boot if a warm boot does not solve the problem.*

To perform a cold boot:

1. Press the primary battery release on the mobile computer to partially eject the battery from the mobile computer.
2. On an MC9090-G, while the battery is partially released, simultaneously press and release the trigger and the **Power** button.
3. Push the battery to fully re-insert it in the mobile computer. One audible click can be heard as the battery is fully inserted.
4. The mobile computer initializes.

Waking the Mobile Computer

The wakeup conditions define what actions wakeup the mobile computer. These settings are configurable and the factory default settings shown in *Table 2-7* are subject to change/update.

Table 2-7 *Wakeup Conditions (Default Settings)*

Status	Description	Conditions for Wakeup
Power Off	When the mobile computer is set to the suspend mode by pressing **Power**, these actions wake the mobile computer.	1. **Power** button is pressed. 2. AC power added or removed. 3. Cradle/cable connect or disconnect.
		Key or scan button is pressed.
		Real Time Clock set to wake up.
Auto Off	When the mobile computer goes into suspend mode by an automatic power-off function, these actions wake the mobile computer.	1. **Power** button is pressed. 2. AC power added or removed. 3. Cradle/cable connect or disconnect.
		Key or scan button is pressed.
		Real Time Clock set to wake up.

Bluetooth

The mobile computer is a Bluetooth-equipped device that can communicate without wires, using frequency-hopping spread spectrum (FHSS) RF to transmit and receive data in the 2.4 GHz Industry Scientific and Medical (ISM) band (802.15.1). Bluetooth wireless technology is specifically designed for short-range (30 feet/10 meters) communications and low power consumption.

Mobile computers with Bluetooth capabilities can exchange information (e.g., files, appointments and tasks) with other Bluetooth enabled devices such as phones, printers, access points and other mobile computers. In addition, a dial-up modem connection can be created between the Bluetooth mobile computer and a Bluetooth enabled phone. The Bluetooth phone can then be used as a modem.

The *MC909X User Guide, P/N: 72E-72215-xx* provides the Bluetooth support information applicable to the MC9090-G RFID mobile computer.

Chapter 3

Accessories

Introduction

The series 9000 accessories provide a wide variety of product support capabilities. Accessories include cradles, keypads, Magnetic Stripe Reader (MSR) and Cable Adapter Module (CAM) snap-on, four slot spare battery charger, headphone, Multimedia Card (MMC), Secure Device (SD) card, Universal Battery Charger (UBC) adapter, wall mounting bracket and shelf slide.

Keypads

The mobile computer has interchangeable modular keypads. However, only the *53-Key RFID* keypad can be used with the MC9090-G RFID mobile computer. The modular keypad can be changed in the field as necessary. The *MC909X User Guide, P/N: 72E-72215-xx* provides the keypad support information applicable to the MC9090-G RFID mobile computer:

- 53-key RFID keypad

Cradles

The *MC909X User Guide, P/N: 72E-72215-xx* provides the cradle support information applicable to the MC9090-G RFID mobile computer.

- Single Slot Serial/USB cradle charges the mobile computer main battery and a spare battery. It also synchronizes the mobile computer with a host computer through either a serial or a USB connection.
- Four Slot Charge Only cradle charges the mobile computer main battery.
- Four Slot Ethernet cradle charges the mobile computer main battery and synchronizes the mobile computer with a host computer through an Ethernet connection.

Miscellaneous

The *MC909X Integrator Guide, P/N: 72E-72216-xx* provides the miscellaneous support information applicable to the MC9090-G RFID mobile computer:

- Four Slot Spare Battery Charger charges up to four mobile computer spare batteries.
- Headphone can be used in noisy environments.
- Modem Module enables data communication between the mobile computer and a host computer, remotely through the phone lines, and synchronizes information between the mobile computer and a host computer.
- Multimedia Card (MMC) provides secondary non-volatile storage. (An SD card may also be used.)
- UBC adapter adapts the UBC for use with the MC9000 batteries.
- Wall Mounting Bracket and Shelf Slide can be used for wall mounting applications.

Snap-on Modules

The *MC909X User Guide, P/N: 72E-72215-xx* provides the snap-on module support information applicable to the MC9090-G RFID mobile computer

- MSR snaps on to the mobile computer and adds magstripe read capabilities.
- CAM snaps on to the mobile computer and is used to connect cables to the mobile computer.

Both of the snap on modules use the cables listed below:

- AC line cord (country-specific) and power supply, charges the mobile computer.
- Auto charge cable, charges the mobile computer using a vehicle cigarette lighter.
- DEX cable, connects the mobile computer to a vending machine.
- Serial cable, adds serial communication capabilities.
- USB cable, adds USB communication capabilities.
- Printer cable, adds printer communication capabilities.

Keypads

The mobile computer has interchangeable modular keypads. However, only the *53-Key RFID* keypad can be used with the MC9090-G RFID mobile computer. The modular keypad can be changed in the field as necessary. The *MC909X User Guide, P/N: 72E-72215-xx* provides keypad support information applicable to the MC9090-G RFID mobile computer:

CAUTION Do not remove the keypad while the mobile computer is on and do not operate the mobile computer with the keypad detached. Follow proper Electro-Static Discharge (ESD) precautions to avoid damaging the MMC and SD card. Proper ESD precautions include, but are not limited to, working on an ESD mat and ensuring that the operator is properly grounded.

MC9090 keypads are not interchangeable with MC9090-G RFID keypad.

Keypad Removal

1. Press the **Power** button to suspend the mobile computer.
2. Remove the two keypad screws. Slide the keypad down and lift up.

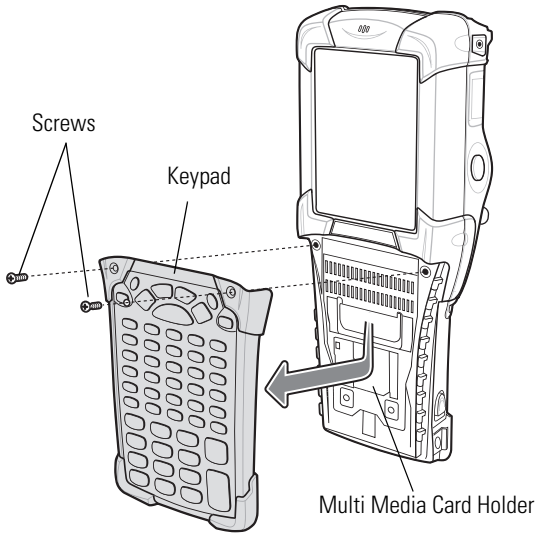


Figure 3-1 *Removing the Keypad*

CAUTION Do not apply more than 4 in-lbs of torque when tightening the keypad screws.

3. Replace the keypad and re-attach using the two screws.

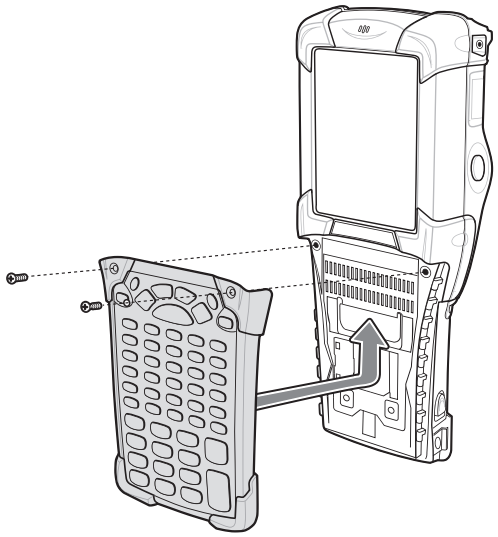


Figure 3-2 *Installing the Keypad*

4. Perform a cold boot. See *Resetting the Mobile Computer on page 2-18*.

Multi Media Card (MMC) / Secure Device (SD) Card

The MMC provides secondary non-volatile storage. The MMC is located under the keypad (see *Figure 3-1 on page 3-3*).

NOTE SD cards are inter-operable with MMC cards and can also be used in MC909X mobile computers.

CAUTION Do not remove the keypad while the mobile computer is on and do not operate the mobile computer with the keypad detached. Follow proper ESD precautions to avoid damaging the MMC/SD. Proper ESD precautions include, but are not limited to, working on an ESD mat and ensuring that the operator is properly grounded.

To insert the MMC/SD:

1. Suspend the mobile computer.
2. Remove the two keypad screws and slide the keypad down and lift off (see *Figure 3-1 on page 3-3*).
3. Lift the MMC/SD retaining door.
4. Position the MMC/SD, with the contacts down, into the MMC/SD holder. The MMC/SD corner notch fits into the holder only one way. Snap the retaining door closed.

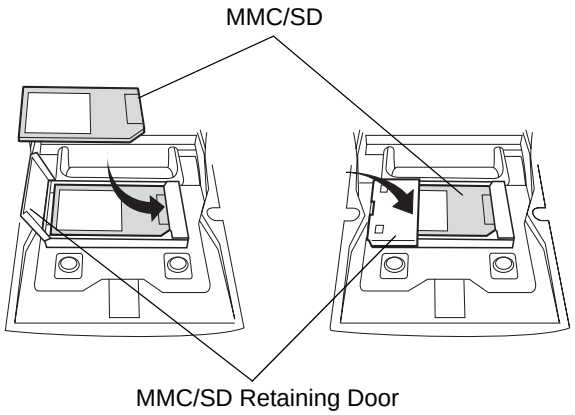


Figure 3-3 *Inserting the MMC/SD*

CAUTION Do not apply more than 4 in-lbs of torque when tightening the keypad screws.

5. Replace the keypad and re-attach using the two screws (see *Figure 3-2 on page 3-4*).

Chapter 4

Maintenance & Troubleshooting

Introduction

This chapter includes instructions on cleaning and storing the mobile computer, and provides troubleshooting solutions for potential problems during mobile computer operation.

Maintaining the Mobile Computer

For trouble-free service, observe the following tips when using the mobile computer:

- Protect the mobile computer from temperature extremes. Do not leave it on the dashboard of a car on a hot day, and keep it away from heat sources.
- Do not store or use the mobile computer in any location that is extremely dusty, damp, or wet.
- Use a soft lens cloth to clean the mobile computer. If the surface of the mobile computer screen becomes soiled, clean it with a soft cloth moistened with a diluted window-cleaning solution.
- Periodically replace the rechargeable Li-ion battery to ensure maximum battery life and product performance. Battery life depends on individual usage patterns.
- Take care not to scratch the screen of the mobile computer. When working with the mobile computer, use the supplied stylus or plastic-tipped pens intended for use with a touch-sensitive screen. Never use an actual pen or pencil or other sharp object on the surface of the mobile computer screen.
- The touch-sensitive screen of the mobile computer contains glass. Take care not to drop the mobile computer or subject it to strong impact.

Accessories

The *MC909X User Guide, P/N: 72E-72215-xx* provides the troubleshooting information applicable to the following MC9090-G RFID mobile computer accessories:

- Bluetooth Connection
- Four Slot Charge Only Cradle
- Four Slot Ethernet Cradle
- Four Slot Spare Battery Charger
- Single Slot Serial/USB Cradle
- Cable Adapter Module
- Magnetic Stripe Reader
- Modem Module

Troubleshooting

Mobile Computer

Table 4-1 *Troubleshooting the Mobile Computer*

Problem	Cause	Solution
Mobile computer does not turn on.	Lithium-ion battery not charged.	Charge or replace the lithium-ion battery in the mobile computer.
	Lithium-ion battery not installed properly.	Ensure battery is installed properly. See *Installing and Removing the Main Battery on page 1-4*.
	System crash.	Perform a warm boot. If the mobile computer still does not turn on, perform a cold boot. See *Resetting the Mobile Computer on page 2-18*.
Rechargeable lithium-ion battery did not charge.	Battery failed.	Replace battery. If the mobile computer still does not operate, try a warm boot, then a cold boot. See *Resetting the Mobile Computer on page 2-18*.
	Mobile computer removed from cradle while battery was charging.	Insert mobile computer in cradle and begin charging. The lithium-ion battery requires less than four hours to recharge fully.
Cannot see characters on display.	Mobile computer not powered on.	Press the **Power** button.
During data communication, no data was transmitted, or transmitted data was incomplete.	Mobile computer removed from cradle or unplugged from host computer during communication.	Replace the mobile computer in the cradle, or reattach the Synchronization cable and re-transmit.
	Incorrect cable configuration.	See the System Administrator.
	Communication software was incorrectly installed or configured.	Perform setup. Refer to the *MC909X Integrator Guide* for details.
		Ensure that Microsoft ActiveSync 4.1 or greater is installed on the host computer.
No sound is audible.	Volume setting is low or turned off.	Adjust volume.

Table 4-1 *Troubleshooting the Mobile Computer (Continued)*

Problem	Cause	Solution
Mobile computer turns itself off.	Mobile computer is inactive.	The mobile computer turns off after a period of inactivity. If the mobile computer is running on battery power, this period can be set to 30 sec., 1, 2, 3, 4, 5 or 6 minutes. If the mobile computer is running on external power, this period can be set to 1, 2, 3, 5, 10, 15 and 30 minutes. For Windows Mobile 5.0 devices, Check the power settings by tapping **Start** > **Settings** > **System** tab > **Power** icon > **Advanced** tab. Change the setting if a longer delay is required before the automatic shutoff feature activates.
	Battery is depleted.	Replace the battery.
	Battery is not inserted properly.	Insert the battery properly (see *Installing and Removing the Main Battery on page 1-4*).
Tapping the window buttons or icons does not activate the corresponding feature.	LCD screen not aligned correctly.	Re-calibrate the screen.
	The system is hung.	Warm boot the system. To perform a warm boot (see *Resetting the Mobile Computer on page 2-18*).
A message appears stating that the mobile computer memory is full.	Too many files stored on the mobile computer.	Delete unused memos and records. Save these records on the host computer.
	Too many applications installed on the mobile computer.	If additional applications have been installed on the mobile computer, remove them to recover memory. For Windows Mobile 5.0 devices, tap **Start** > **Settings** > **System** tab > **Remove Programs** icon. Select the unused program and tap **Remove.**

Table 4-1 *Troubleshooting the Mobile Computer (Continued)*

Problem	Cause	Solution
The mobile computer does not accept scan input.	Scanning application is not loaded.	Verify that the unit is loaded with a scanning application. See the System Administrator.
	Unreadable bar code.	Ensure the symbol is not defaced.
	Distance between exit window and bar code is incorrect.	Ensure mobile computer is within proper scanning range.
	Mobile computer is not programmed for the bar code.	Ensure the mobile computer is programmed to accept the type of bar code being scanned.
	Mobile computer is not programmed to generate a beep.	If a beep on a good decode is expected and a beep is not heard, check that the application is set to generate a beep on good decode.
	Battery is low.	If the scanner stops emitting a laser beam when the trigger is pressed, check the battery level. When the battery is low, the scanner shuts off before the mobile computer low battery condition notification. Note: If the scanner is still not reading symbols, contact the distributor or Symbol Technologies.
WLAN connection is lost when the mobile computer is connected to a host computer using ActiveSync.	Microsoft security feature prevents connection to two separate networks.	Disconnect from the WLAN network prior to connecting to a host computer using ActiveSync.

Appendix A

Specifications

Technical Specifications

The following tables summarize the mobile computer's intended operating environment and general technical hardware specifications.

Mobile Computer

The following table summarizes the mobile computer's intended operating environment.

Table A-1 *Technical Specifications*

Item	MC9090-G RFID
Physical and Environmental Characteristics	
Dimensions	9.1 in. L x 3.6 in. W x 7.6 in. H 23.1 cm L x 9.1 cm H x 19.3 cm H
Weight	25 oz.(includes battery, scanner and radio)
Keyboard	28-key; 43-key; 53-key Terminal Emulation (5250, 3270, VT)
Display	3.8 in. 1/4 VGA Color
Power	Removable, rechargeable 7.2 V Lithium Ion 2200 mAh battery pack, 15.8 watt hours
Performance Characteristics	
CPU	XScale Bulverde PXA270 processor at 624MHz
Operating System	Microsoft Windows Mobile 5.0 Premium Edition
Memory (RAM/ROM)	Windows Mobile: 64MB/128MB
Expansion	SD/MMC Card
Application Development	PSDK, DCP and SMDK available through Symbol Developer Zone Web Site
Data Capture Options	Omni-directional 1D and 2D imaging engine reads symbologies and captures grayscale images and signatures with intuitive laser aiming.

Table A-1 *Technical Specifications (Continued)*

Item	MC9090-G RFID
User Environment	
Operating Temperature	-4°F to 122°F (-20°C to 50°C)
Storage Temperature	-25°F to 160°F (-40°C to 70°C)
Battery Charging Temperature	32 °F to 104 °F (0 °C to +40 °C) ambient temperature range.
Humidity	5% to 95% non condensing
Drop Specification	Multiple 6 ft.(1.8m) drops to concrete across operating temperature range
Tumble	2,000 one-meter tumbles at room temperature (4,000 hits)
Environmental Sealing	IP64 (electronic enclosure)
ESD	+/-15kVdc air discharge +/-8kVdc direct discharge +/-8kVdc indirect discharge
Wireless Data Communications	
WLAN	Symbol 802.11b/g
Output Power	100mW U.S. and International
Data Rate	802.11b: 11Mb per second 802.11g: 54Mb per second
Antenna	Internal
Frequency Range:	802.11b: 2.4 GHz; country-dependent 802.11g: 2.4 GHz; country-dependent
Bluetooth	Bluetooth Version 1.2 with BTExplorer (manager) included
Peripherals and Accessories	
Cradles	Single-slot and 4-slot cradles available
Printers	Supports extensive line of Symbol approved printers, cables and accessories
Charger	4-Slot universal battery charger
Other Accessories	Cable Adapter Module; Magnetic Stripe Reader; Modem; Full set of holsters In accordance with the SymbolPlus partner program
Regulatory	
Electrical Safety	Certified to UL60950-1, CSA C22.2 No. 60950-1, EN60950-1, IEC 60950-1
RF & EMC	FCC PArt 2 (SAR), FCC Part 15, RSS210; EN 300 328 & EN 301 487, EN55022, EN55024

Table A-2 *Data Capture Options*

Item	Description		
Imaging Decode Capability	Code 39	Code 128	Code 93
	Codabar	Code 11	Interleaved 2 of 5
	Discrete 2 of 5	MSI	EAN-8
	EAN-13	UPCA	UPCE
	UPC/EAN supplementals	Coupon Code	Trioptic 39
	Webcode	TLC39	Composite AB
	Composite C	Micro PDF-417	PDF-417
	Macro PDF-417	(Macro) Micro PDF-417	QR Code
	RSS Expanded	RSS Limited	RSS-14
	Data Matrix	Maxi Code	US Postnet*
	US Planet	UK 4-state	Australian 4-state
	Canadian 4-state	Japanese 4-state	Dutch Kix
	*To be supported at a later date. Go to http://software.symbol.com/ for a list of the latest supported symbologies.		

Modem Module

Table A-3 *Environmental Parameters and Technical Hardware Specifications*

Item	Description
Asynchronous character format	Up to 10 bits, including data, start, stop, and parity bits
Asynchronous data rates	Transmission rate fallback through 300 bps
Chipset	Conexant SCM
Compatible public switched network jacks	RJ11
Dialing capability	Tone and rotary pulse
Line requirements	Public switched telephone network (PSTN) including international connections
Operating environment	Altitude: up to 20,000 ft. Humidity: 10% to 90% non-condensing
Operating temperature	Operating: 32^{o} to 122^{o}F / 0^{o} to 50^{o}C Storage: -4^{o} to 149^{o}F / -20^{o} to 65^{o}C
Operating modes	Asynchronous, full duplex, automatic and manual call originate

Table A-3 *Environmental Parameters and Technical Hardware Specifications (Continued)*

Item	Description
Performance	Line speed up to 33,600 bps HHC to modem speed (DTE speed) up to 57,600 bps V.42bis data compression V.42 LAPM error correction
Current consumption	100 mA active <10 mA sleep
Pulse dialing rate (except where prohibited under TBR-21 rules)	10 pulses per second Pulse dialing duty cycle: 39/61% (US) make-to-break ratio
Ringer equivalence	0.1 dBm
Standards & protocols	Bell 103, Bell 212A, Hayes AT command set, and ITU Vs. 17, 21, 22 A & B, 22bis, 23, 25bis, 27 ter, 29, 32, 32bis, 42bis
Tone detected	Dial, busy, ring back, modem answer tones. Blind dialing based on time-out periods available for incompatible tones.
AC Adapter	9V, 2 amp regulated AC/DC adapter allows unlimited modem use. Do NOT substitute an AC adapter; using an incorrect AC power supply causes electrical damage to the mobile computer and voids warranty.

Mobile Computer Pin-Outs

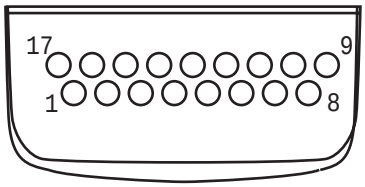


Figure A-1 *Pin Locations*

Table A-4 *Pin-Outs*

PIN Number	Signal Name	Function
1	USB_GND	USB
2	USB_D_PLUS	USB
3	TXD	RS232C
4	RXD	RS232C
5	DCD	RS232C
6	RTS	RS232C

Table A-4 *Pin-Outs (Continued)*

PIN Number	Signal Name	Function
7	DSR	RS232C
8	GND	Ground, 2.5A max.
9	RI	RS232C
10	CRADLE_DET	Grounded by cradle when in cradle
11	DTR	RS232C
12	Not connected	Not connected
13	POWER_IN	12V, 2.5A max
14	CTS	RS232C
15	USB_5V_DET	USB
16	USB_D_MINUS	USB
17	EXT_PWR_OUT	3.3V @500mA

Accessory CAM and MSR Pin-Outs

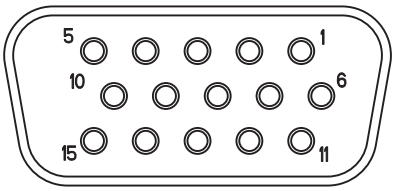


Figure A-2 *CAM and MSR Serial Connector*

Table A-5 *CAM and MSR Serial Connector Pin-outs*

Pin	Signal
1	USB_5V_DET
2	USB_D_MINUS
3	USB_D_PLUS
4	GND
5	GND
6	PWR_EXT_OUT
7	CRADLE_DET*

Table A-5 *CAM and MSR Serial Connector Pin-outs*

Pin	Signal
8	DSR
9	DCD
10	TXD
11	CTS
12	DTR
13	RI
14	RTS
15	RXD

Appendix B

Keypad Special Keys

Introduction

This appendix contains the keypad functions/special characters for the keypad. Each function/special character is included in the table along with how the function/special character is generated.

Keypad

The mobile computer is available with the following keypad:

- 53-key RFID keypad

The keypads contain a **Power** button, application keys, scroll keys and function keys. The keypad is color-coded to indicate the alternate function key (blue) values and the alternate ALPHA key (orange) values. See *Table B-1* for the special character generation. Characters can also be generated using the keyboard input panel.

Table B-1 *Special Character Generation Map*

Special Character	Description	53-Key Keypad
[	Open square bracket	Blue Key - **E**
]	Close square bracket	Blue Key - **F**
/	Forward slash	Blue Key - **L**, Blue Key - **V**
****	Backslash	Blue Key - **G**
=	Equal sign	Blue Key - **W**
;	Semi-colon	Blue Key - **R**
`	Apostrophe	Blue Key - **J**
,	Comma	Blue Key - **A**
.	Period	Blue Key - **B**
!	Exclamation point	**SHIFT** - **1**
@	At sign	**SHIFT** - **2**
#	Pound sign	**SHIFT** - **3**

Table B-1 *Special Character Generation Map (Continued)*

Special Character	Description	53-Key Keypad
$	Dollar sign	**SHIFT** - **4**
%	Percent sign	**SHIFT** - **5**
^	Carat	**SHIFT** - **6**
&	Ampersand	**SHIFT** - **7**
*****	Asterisk	Blue Key - **U**, **SHIFT** - Blue Key - **U**, **SHIFT** - **8**
(	Open parenthesis	**SHIFT** - **9**
)	Close parenthesis	**SHIFT** - **0**
‘	Single quote	Blue Key - **C**
“	Double quote)	**SHIFT** - Blue Key - **C**
+	Plus sign	Blue Key - **S**, **SHIFT** - Blue Key - **S**, **SHIFT** - Blue Key - **W**
-	Dash	Blue Key - **N**, Blue Key - **T**, **SHIFT** - Blue Key - **T**
:	Colon	**SHIFT** - Blue Key - **R**
<	Less than sign	**SHIFT -** Blue Key - **A**
>	Greater than sign	**SHIFT** - Blue Key - **B**
?	Question mark	**SHIFT -** Blue Key - **L**, **SHIFT** - Blue Key - **V**
_	Underscore	**SHIFT** - Blue Key - **N**
{	Open curly bracket	**SHIFT** - Blue Key - **E**
}	Close curly bracket	**SHIFT** - Blue Key - **F**
~	Tilde	**SHIFT** - Blue Key **- J**
|	Pipe	**SHIFT** - Blue Key - **G**

Introduction

This appendix contains the accessory power supply regulatory compliance statements.

Accessory Power Supply Regulatory Compliance

Table C-1 *Accessory Power Supplies, Regulatory Compliance Statements*

Accessory	Power Supplies Regulatory Compliance Statements
Single Slot Serial/USB Cradle Power Supply Magnetic Stripe Reader (MSR) Cable Adapter Module (CAM)	Use only a Symbol-approved power supply output rated 12 VDC and minimum 3.3 A. The power supply is certified to EN60950 with SELV outputs. Use of alternative power supply will invalidate any approval given to this device and may be dangerous. Benutzen Sie nur eine von Symbol Technologies genehmigte Stromversorgung mit einer Ausgangsleistung von 12 V (Gleichstrom) und mindestens 3.3 A. Die Stromversorgung ist nach EN60950 für die Verwendung in SELV-Stromkreisen zertifiziert. Bei Verwendung eines anderen Netzteils werden alle für das Gerät gewährten Genehmigungen außer Kraft gesetzt, und der Betrieb kann gefährlich sein.
Four Slot Charge Only Cradle Power Supply Four Slot Ethernet Cradle Power Supply	Use only a Symbol-approved power supply output rated 12 VDC and minimum 9 A. The power supply is certified to EN60950 with SELV outputs. Use of alternative power supply will invalidate any approval given to this device and may be dangerous. Benutzen Sie nur eine von Symbol Technologies genehmigte Stromversorgung mit einer Ausgangsleistung von 12 V (Gleichstrom) und mindestens 9 A. Die Stromversorgung ist nach EN60950 für die Verwendung in SELV-Stromkreisen zertifiziert. Bei Verwendung eines anderen Netzteils werden alle für das Gerät gewährten Genehmigungen außer Kraft gesetzt, und der Betrieb kann gefährlich sein.

Table C-1 *Accessory Power Supplies, Regulatory Compliance Statements*

Accessory	Power Supplies Regulatory Compliance Statements
Universal Battery Charger (UBC) Adapter Power Supply	Use only a Symbol-approved power supply output rated 15 VDC and minimum 1.5 A. The power supply is certified to EN60950 with SELV outputs. Use of alternative power supply will invalidate any approval given to this device and may be dangerous. Benutzen Sie nur eine von Symbol Technologies genehmigte Stromversorgung mit einer Ausgangsleistung von 15 V (Gleichstrom) und mindestens 1.5 A. Die Stromversorgung ist nach EN60950 für die Verwendung in SELV-Stromkreisen zertifiziert. Bei Verwendung eines anderen Netzteils werden alle für das Gerät gewährten Genehmigungen außer Kraft gesetzt, und der Betrieb kann gefährlich sein.
Four Slot Spare Battery Charger Power Supply	Use only a Symbol-approved power supply output rated 15 VDC and minimum 5 A. The power supply is certified to EN60950 with SELV outputs. Use of alternative power supply will invalidate any approval given to this device and may be dangerous. Benutzen Sie nur eine von Symbol Technologies genehmigte Stromversorgung mit einer Ausgangsleistung von 15 V (Gleichstrom) und mindestens 5 A. Die Stromversorgung ist nach EN60950 für die Verwendung in SELV-Stromkreisen zertifiziert. Bei Verwendung eines anderen Netzteils werden alle für das Gerät gewährten Genehmigungen außer Kraft gesetzt, und der Betrieb kann gefährlich sein.

Index

Numerics

2-D bar codes 2-14
53-key keypad 2-9

A

accessories 1-3
  accessory keyboard 1-3
  auto charge cable 3-2
  cables 1-3, 3-2
  CAM 1-3, 3-2
  DEX cable 1-3, 3-2
  four slot charge only cradle 1-3, 3-1
  four slot Ethernet/USB cradle 1-3, 3-1
  four slot spare battery charger 1-3
  holster, quick release 1-3
  keypad 3-1
  magnetic stripe reader 1-3, 3-2
  modem module 1-3
  multi media card 1-3
  printer cable 1-3, 3-2
  serial cradle 1-3
  serial/USB cradle 3-1
  shelf slide 1-3
  SMDK 1-3
  spare battery 1-3
  stylus 1-3
  UBC adapter 1-3
  USB charger cable 1-3, 3-2
  wall mounting bracket 1-3
accessory keyboard 1-3
ActiveSync
  icon 2-3
aiming options
  aiming pattern 2-14
aiming the imager 2-14
aligning screen 1-8
attaching MC9090-G strap 1-10
auto charge cable 3-2

B

backlight 2-12
backlight intensity 2-12
backup battery
  charging 1-5
bar codes
  two dimensional 2-14
battery
  backup charging 1-5
  charging 1-5
  check status 1-8
  installing 1-4
  removing 1-7
battery charging temperature A-2
battery management 1-10
beeper volume 2-12
Bluetooth 1-12, 2-19
bluetooth
  communicating icon 2-3
  disabled icon 2-3
  enabled icon 2-3
boot
  cold 1-8, 2-13, 2-18
  warm 2-13, 2-18
bullets vii
buttons
  power 2-13

C

Cable Adapter Module 1-3, 3-2
cables 1-3, 3-2
  auto charge cable 3-2
  DEX cable 1-3, 3-2
  printer cable 1-3, 3-2
  USB charger 1-3, 3-2
calibrating screen 1-8
CAM 1-3, 3-2
changing the power settings 1-11
characters, special B-1

charging
spare batteries 1-6
charging batteries 1-5
charging spare batteries 1-6
cleaning 4-1
cold boot 1-8, 2-13, 2-18
command bar
icons 2-2, 2-3
command bar icons 2-3
configuration 1-4
conventions
notational vii
CPU A-1
cradles
four slot charge only 1-3, 3-1
four slot Ethernet/USB 1-3, 3-1
serial 1-3
serial/USB 3-1

D

data capture
adjusting the distance 2-16
imager operational modes
decode mode 2-14
image capture mode 2-14
pick list mode 2-14
imaging 2-14
indicator 2-16
scan angle 2-15
scan range 2-15
scanning 2-15
two dimensional bar codes 2-14
DCP for MC9090w viii
Device Configuration Package for MC9090w viii
DEX cable 1-3, 3-2
dimensions A-1
display A-1
display backlight
saving power 1-11
display backlight intensity 2-12
drop specification A-2

E

electrical safety A-5
electro-static discharge
email notification icon 2-2
ESD 3-2, 3-4

F

flash card 1-3, 3-4
four slot charge only 1-3, 3-1
four slot Ethernet/USB 1-3, 3-1
four slot spare battery charger 1-3
frequency-hopping 2-19

G

getting started 1-4

H

hard reset 1-8, 2-13, 2-18
headset 2-13
holster 1-3
humidity A-2

I

icons
ActiveSync 2-3
battery 2-2
bluetooth communicating 2-3
bluetooth disabled 2-3
bluetooth enabled 2-3
connectivity 2-2
e-mail 2-2
instant message 2-2
phone edition 2-2
speaker 2-2
status 2-2, 2-3
wireless applications 2-3
WWAN 2-2
imager. *See* data capture, imaging, imagersample
imaging 2-14
information, service viii
installing main battery 1-4

K

key descriptions
    53-key 2-10
    special functions 2-12
keyboard A-1
keypad 3-1
    53-key B-1
keypad backlight
    saving power 1-11
keypad functions B-1
keypads
    53-key 2-9
    special functions 2-12
    types 2-8, 3-1

L

laser safety A-5
laser scanning
    See data capture 2-14
LED Indicator Bar 2-8
lithium-ion battery 1-2
locking the mobile computer 2-7

M

magnetic stripe reader 1-3, 3-2
main battery
    charging 1-4, 1-5
    installing 1-4
maintenance 4-1
MDM9000 1-3
memory A-2
MMC 1-3, 3-4
mobile computer
    power on 2-13
    starting 1-8
mobile computer configuration 1-4
modem module 1-3
MSR 1-3, 3-2
multi media card 1-3, 3-4

O

operating environment, mobile computer A-1
operating system A-2
operating temperature A-2

P

parts of the mobile computer 1-2
pin-outs
    accessory A-8
    mobile computer A-7
power button 2-13
power settings 1-11
power supply regulatory compliance C-1
printer cable 1-3, 3-2

Q

quick release holster 1-3

R

radios 1-12
regulatory compliance, power supply C-1
removing main battery 1-7
reset
    hard 1-8, 2-13, 2-18
    soft 2-13, 2-18
resetting 2-18

S

scan status 2-16
scan status *See also* data capture
scanning
    bar codes 2-15
    imaging 2-14
    LED indicators 2-16
    See data capture 2-14
screen
    calibration 1-8
    Symbol splash window 1-8
SD 3-4
SDK
    See SMDK for C 1-3
secure device card 3-4
serial cradle 1-3
serial/USB cradle 3-1
service information viii
shelf slide 1-3
SMDK for eVC4 viii
soft reset 2-13, 2-18
spare batteries
    charging 1-6
spare battery 1-3
    charging 1-6
special characters B-1
specifications A-1

starting the mobile computer 1-4, 1-8
status 2-1
status icon 2-1
phone 2-2
WWAN 2-2
status icons 2-2, 2-3
Windows Mobile 5.0 2-1
storage temperature A-2
strap 1-2, 1-10
attaching to the MC9090-G 1-10
stylus 1-2, 1-3, 1-9
suspend 1-7, 2-13
Symbol Mobility Developer Kit for C 1-3
Symbol Mobility Developer Kit for eVC4 viii
symbol support center ix

T

taskbar 2-1
technical specifications, mobile computer A-1
technical specifications, modem module A-6
troubleshooting 4-3
bluetooth 4-2
cable adapter module 4-2
four slot charge cradle 4-2
four slot ethernet cradle 4-2
four slot spare battery charger 4-2
magnetic stripe reader 4-2
mobile computer 4-2, 4-3
modem module 4-2
single slot serial/USB cradle 4-2
turn the radios off
saving power 1-12

U

UBC adapter 1-3
unlock the mobile computer 2-7
unpacking 1-2
USB charger 1-3, 3-2
using headset 2-13

V

volume 2-12

W

wall mounting bracket 1-3
warm boot 2-13, 2-18
weight A-1
wireless 1-12, 2-19
wireless status 2-3
WLAN 1-12

Symbol Technologies, Inc.
One Symbol Plaza
Holtsville, New York 11742-1300
http://www.symbol.com

72E-89962-01
Revision A - December 2006