Trigger Handle

The TRG5500 Trigger Handle adds a gun-style handle with a scanning trigger to the MC55. It increases comfort when using the MC55 in scan-intensive applications for extended periods of time.
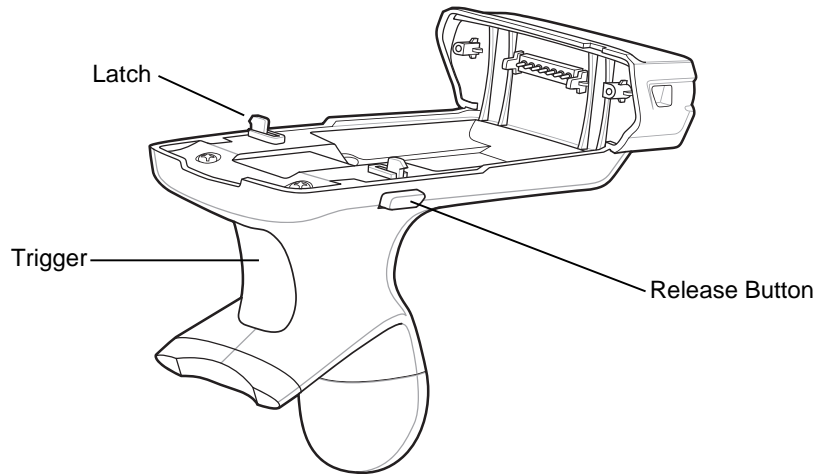

Figure 5-17   *Trigger Handle Features*

Inserting the MC55 into the Trigger Handle

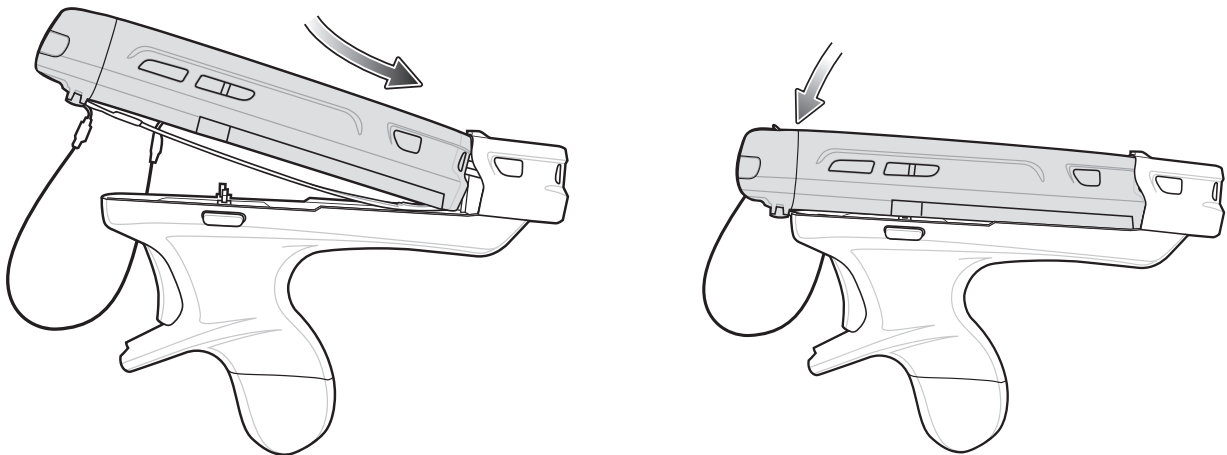Slide the MC55 into the Trigger Handle until it locks in place. The latches secure the MC55 to the Trigger Handle.

Figure 5-18   *Installing the MC55*

Removing the MC55

To remove the MC55, press the release buttons and pull the MC55 forward.

Scanning

To scan bar codes:

✓   **NOTE**   A scanning application must be installed prior to scanning a bar code.

1.   Start the MC55's scanning application.

2.   Aim the MC55 at the bar code.

3.   Press the trigger on the handle. The Scan/Decode LED lights and a beep sounds to indicate a successful decode.
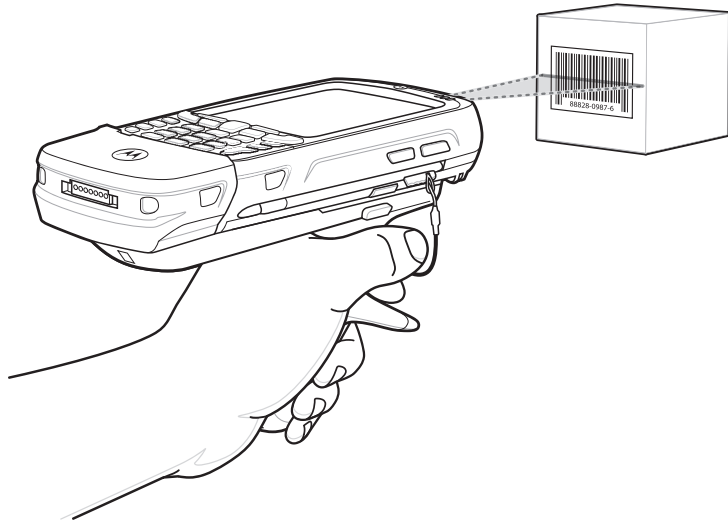
Figure 5-19   *Scanning with the Trigger Handle*

CHAPTER 6 MAINTENANCE & TROUBLESHOOTING

Introduction

This chapter includes instructions on cleaning and storing the MC55, and provides troubleshooting solutions for potential problems during MC55 operation.

Maintaining the MC55

For trouble-free service, observe the following tips when using the MC55:

- Do not scratch the screen of the MC55. When working with the MC55, 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 MC55 screen.

  Motorola recommends using a screen protector, p/n KT-67525-01R.

- The touch-sensitive screen of the MC55 is glass. Do not to drop the MC55 or subject it to strong impact.

- Protect the MC55 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 MC55 in any location that is dusty, damp, or wet.

- Use a soft lens cloth to clean the MC55. If the surface of the MC55 screen becomes soiled, clean it with a soft cloth moistened with a diluted window-cleaning solution.

- Periodically replace the rechargeable battery to ensure maximum battery life and product performance. Battery life depends on individual usage patterns.

- A screen protector is applied to the MC55. Motorola recommends using this to minimize wear and tear. Screen protectors enhance the usability and durability of touch screen displays. Benefits include:
  - Protection from scratches and gouges
  - Durable writing and touch surface with tactile feel
  - Abrasion and chemical resistance
  - Glare reduction
  - Keeping the device's screen looking new
  - Quick and easy installation.

Removing the Screen Protector

A screen protector is applied to the MC55. Motorola recommends using this to minimize wear and tear. Screen protectors enhance the usability and durability of touch screen displays.

To remove the screen protector, lift the corner using a thin plastic card, such as a credit card, then carefully lift it off the display.
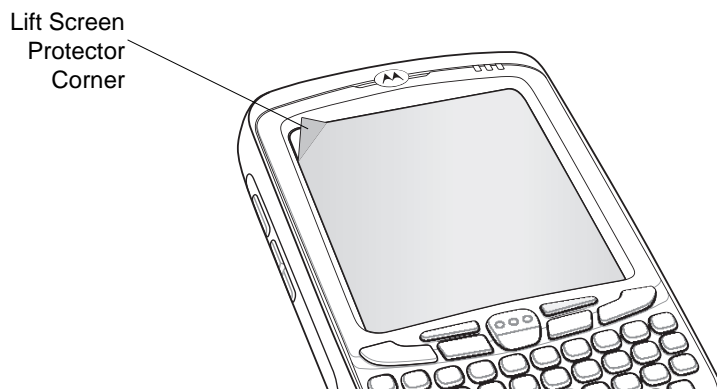
Lift Screen
Protector
Corner

Figure 6-1 *Removing the Screen Protector*

⚠ **CAUTION**   Do not use a sharp object to remove the protector. Doing so can damage the display.

✓ **NOTE**   Not using a screen protector can affect warranty coverage. To purchase replacement protectors, contact your local account manager or Motorola, Inc. These include screen protector installation instructions. Part number: KT-67525-01R Screen Protector 3/pk.

Battery Safety Guidelines

- The area in which the units are charged should be clear of debris and combustible materials or chemicals. Particular care should be taken where the device is charged in a non commercial environment.
- Follow battery usage, storage, and charging guidelines found in the user's guide.
- Improper battery use may result in a fire, explosion, or other hazard.

- To charge the mobile device battery, the battery and charger temperatures must be between +32 ºF and +104 ºF (0 ºC and +40 ºC)

- Do not use incompatible batteries and chargers. Use of an incompatible battery or charger may present a risk of fire, explosion, leakage, or other hazard. If you have any questions about the compatibility of a battery or a charger, contact Motorola Enterprise Mobility support.

- For devices that utilize a USB port as a charging source, the device shall only be connected to products that bear the USB-IF logo or have completed the USB-IF compliance program.

- To enable authentication of an approved battery, as required by IEEE1725 clause 10.2.1, all batteries will carry a Motorola hologram. Do not fit any battery without checking it has the Motorola authentication hologram.

- Do not disassemble or open, crush, bend or deform, puncture, or shred.

- Severe impact from dropping any battery-operated device on a hard surface could cause the battery to overheat.

- Do not short circuit a battery or allow metallic or conductive objects to contact the battery terminals.

- Do not modify or remanufacture, attempt to insert foreign objects into the battery, immerse or expose to water or other liquids, or expose to fire, explosion, or other hazard.

- Do not leave or store the equipment in or near areas that might get very hot, such as in a parked vehicle or near a radiator or other heat source. Do not place battery into a microwave oven or dryer.

- Battery usage by children should be supervised.

- Please follow local regulations to properly dispose of used re-chargeable batteries.

- Do not dispose of batteries in fire.

- In the event of a battery leak, do not allow the liquid to come in contact with the skin or eyes. If contact has been made, wash the affected area with large amounts of water and seek medical advice.
- If you suspect damage to your equipment or battery, contact Motorola Enterprise Mobility support to arrange for inspection.

Cleaning

CAUTION   Always wear eye protection.

Read warning label on compressed air and alcohol product before using.

If you have to use any other solution for medical reasons please contact Motorola for more information.

WARNING!   **Avoid exposing this product to contact with hot oil or other flammable liquids. If such exposure occurs, unplug the device and clean the product immediately in accordance with these guidelines.**

Approved Cleanser Active Ingredients

100% of the active ingredients in any cleaner must consist of one or some combination of the following: isopropyl alcohol, bleach/sodium hypochlorite, hydrogen peroxide or mild dish soap.

Harmful Ingredients

The following chemicals are known to damage the plastics on the MC55 and should not come in contact with the device: ammonia solutions, compounds of amines or ammonia; acetone; ketones; ethers; aromatic and chlorinated hydrocarbons; acqueous or alcoholic alkaline solutions; ethanolamine; toluene; trichloroethylene; benzene; carbolic acid and TB-lysoform.

Cleaning Instructions

Do not apply liquid directly to the MC55. Dampen a soft cloth or use pre-moistened wipes. Do not wrap the device in the cloth or wipe, but gently wipe the unit. Be careful not to let liquid pool around the display window or other places. Allow the unit to air dry before use.

Special Cleaning Notes

Many vinyl gloves contain phthalate additives, which are often not recommended for medical use and are known to be harmful to the housing of the MC55. The MC55 should not be handled while wearing vinyl gloves containing phthalates, or before hands are washed to remove contaminant residue after gloves are removed. If products containing any of the harmful ingredients listed above are used prior to handling the MC55, such as hand sanitizer that contain ethanolamine, hands must be completely dry before handling the MC55 to prevent damage to the plastics.

Materials Required

- Alcohol wipes
- Lens tissue
- Cotton tipped applicators
- Isopropyl alcohol
- Can of compressed air with a tube.

Cleaning the MC55

Housing

Using the alcohol wipes, wipe the housing including keys and in-between keys.

Display

The display can be wiped down with the alcohol wipes, but care should be taken not to allow any pooling of liquid around the edges of the display. Immediately dry the display with a soft, non-abrasive cloth to prevent streaking.

Scanner Exit Window

Wipe the scanner exit window periodically with a lens tissue or other material suitable for cleaning optical material such as eyeglasses.

Connector

1. Remove the main battery from mobile computer. See *Replacing the Battery on page 1-8*.

2. Dip the cotton portion of the cotton tipped applicator in isopropyl alcohol.

3. Rub the cotton portion of the cotton tipped applicator back-and-forth across the connector on the bottom of the MC55. Do not leave any cotton residue on the connector.

4. Repeat at least three times.

5. Use the cotton tipped applicator dipped in alcohol to remove any grease and dirt near the connector area.

6. Use a dry cotton tipped applicator and repeat steps 4 through 6.

⚠️ **CAUTION**   Do not point nozzle at yourself and others, ensure the nozzle or tube is away from your face.

7. Spray compressed air on the connector area by pointing the tube/nozzle about ½ inch away from the surface.

8. Inspect the area for any grease or dirt, repeat if required.

Cleaning Cradle Connectors

To clean the connectors on a cradle:

1. Remove the DC power cable from the cradle.

2. Dip the cotton portion of the cotton tipped applicator in isopropyl alcohol.

3. Rub the cotton portion of the cotton tipped applicator along the pins of the connector. Slowly move the applicator back-and-forth from one side of the connector to the other. Do not let any cotton residue on the connector.

4. All sides of the connector should also be rubbed with the cotton tipped applicator.

⚠️ **CAUTION**   Do not point nozzle at yourself and others, ensure the nozzle or tube is away from your face.

5. Spray compressed air in the connector area by pointing the tube/nozzle about ½ inch away from the surface.

6. Ensure that there is no lint left by the cotton tipped applicator, remove lint if found.

7. If grease and other dirt can be found on other areas of the cradle, use lint free cloth and alcohol to remove.

8. Allow at least 10 to 30 minutes (depending on ambient temperature and humidity) for the alcohol to air dry before applying power to cradle.

   If the temperature is low and humidity is high, longer drying time is required. Warm temperature and dry humidity requires less drying time.

Cleaning Frequency

The cleaning frequency is up to the customer's discretion due to the varied environments in which the mobile devices are used. They may be cleaned as frequently as required. However when used in dirty environments it may be advisable to periodically clean the scanner exit window to ensure optimum scanning performance.

Troubleshooting

MC55

Table 6-1 *Troubleshooting the MC55*

Problem	Cause	Solution
When pressing the power button the MC55 does not turn on.	Battery not charged.	Charge or replace the battery in the MC55.
	Battery not installed properly.	Install the battery properly. See *Installing the Battery on page 1-5*.
	System crash.	Perform a warm boot. If the MC55 still does not turn on, perform a cold boot. See *Resetting the MC55 on page 2-19*.
When pressing the power button the MC55 does not turn on but two LEDs blink.	Battery charge is at a level where data is maintained but battery should be re-charged.	Charge or replace the battery in the MC55.
Rechargeable battery did not charge.	Battery failed.	Replace battery. If the MC55 still does not operate, perform a warm boot, then a cold boot. See *Resetting the MC55 on page 2-19*.
	MC55 removed from cradle while battery was charging.	Insert MC55 in cradle. The 3600 mAh battery fully charges in less than six hours.
	Extreme battery temperature.	Battery does not charge if ambient temperature is below 0°C (32°F) or above 40°C (104°F).
Cannot see characters on display.	MC55 not powered on.	Press the **Power** button.
During data communication, no data transmitted, or transmitted data was incomplete.	MC55 removed from cradle or disconnected from host computer during communication.	Replace the MC55 in the cradle, or reattach the communication cable and re-transmit.
	Incorrect cable configuration.	See the system administrator.
	Communication software was incorrectly installed or configured.	Perform setup. Refer to the *MC55 Integrator Guide* for details.
No sound.	Volume setting is low or turned off.	Adjust the volume.

Table 6-1   *Troubleshooting the MC55 (Continued)*

Problem	Cause	Solution
MC55 shuts off.	MC55 is inactive.	The MC55 turns off after a period of inactivity. If the MC55 is running on battery power, set this period from 1 to 5 minutes, in one-minute intervals. If the MC55 is running on external power, set this period to 1, 2, 5, 10, 15, or 30 minutes. Check the **Power** window by selecting 🪟 > **Settings** > **System** > **Power**. Select **Advanced** and change the setting for a longer delay before the automatic shutoff feature activates.
	Battery is depleted.	Replace the battery.
	Battery is not inserted properly.	Insert the battery properly. See *Installing the Battery on page 1-5*.
Tapping the window buttons or icons does not activate the corresponding feature.	Screen is not calibrated correctly.	Re-calibrate the screen. Press **Blue** key - **Backspace** key or tap 🪟 > **Settings** > **System** > **Screen** > **Align Screen** button.
	The system is not responding.	Warm boot the system. See *Resetting the MC55 on page 2-19*.
A message appears stating that the MC55 memory is full.	Too many files stored on the MC55.	Delete unused memos and records. If necessary, save these records on the host computer (or use an SD card for additional memory).
	Too many applications installed on the MC55.	Remove user-installed applications on the MC55 to recover memory. Select 🪟 > **Settings** > **System Remove Programs**. Select the unused program and tap **Remove.**
The Charging/Battery Status LED flashes with the Power button is pressed and the MC55 does not turn on.	The MC55's battery is low.	Recharge the battery.

Table 6-1   *Troubleshooting the MC55 (Continued)*

Problem	Cause	Solution
The MC55 does not decode with reading bar code.	Scanning application is not loaded.	Load a scanning application on the MC55. See your system administrator.
	Unreadable bar code.	Ensure the symbol is not defaced.
	Distance between exit window and bar code is incorrect.	Place the MC55 within proper scanning range.
	MC55 is not programmed for the bar code.	Program the MC55 to accept the type of bar code being scanned. Refer to the EMDK or Control Panel application.
	MC55 is not programmed to generate a beep.	If the MC55 does not beep on a good decode, set the application to generate a beep on good decode.
	Battery is low.	If the scanner stops emitting a laser beam upon a trigger press, check the battery level. When the battery is low, the scanner shuts off before the MC55 low battery condition notification. Note: If the scanner is still not reading symbols, contact the distributor or Motorola.

Bluetooth Connection

Table 6-2   *Troubleshooting Bluetooth Connection*

Problem	Cause	Solution
MC55 cannot find any Bluetooth devices nearby.	Too far from other Bluetooth devices.	Move closer to the other Bluetooth device(s), within a range of 10 meters.
	The Bluetooth device(s) nearby are not turned on.	Turn on the Bluetooth device(s) to find.
	The Bluetooth device(s) are not in discoverable mode.	Set the Bluetooth device(s) to discoverable mode. If needed, refer to the device's user documentation for help.
When trying to connect a Bluetooth phone and MC55, the phone thinks a previously paired MC55 is used.	The phone remembers the name and address of the MC55 it last paired with via the Bluetooth radio.	Manually delete the pairing device and name from the phone. Refer to the phone's user documentation for instructions.

Single-slot USB Cradle

Table 6-3 *Troubleshooting the Single-slot USB Cradle*

Symptom	Possible Cause	Action
LEDs do not light when MC55 or spare battery is inserted.	Cradle is not receiving power.	Ensure the power cable is connected securely to both the cradle and to AC power.
	MC55 is not seated firmly in the cradle.	Remove and re-insert the MC55 into the cradle, ensuring it is firmly seated.
	Spare battery is not seated firmly in the cradle.	Remove and re-insert the spare battery into the charging slot, ensuring it is firmly seated.
MC55 battery is not charging.	MC55 was removed from cradle or cradle was unplugged from AC power too soon.	Ensure cradle is receiving power. Ensure MC55 is seated correctly. Confirm main battery is charging under 🏁 > **Settings** > **System** > **Power**. The 2400 mAh battery fully charges in less than four hours and the 3600 mAh battery fully charges in less than six hours.
	Battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
	The MC55 is not fully seated in the cradle.	Remove and re-insert the MC55 into the cradle, ensuring it is firmly seated.
	Extreme battery temperature.	Battery does not charge if ambient temperature is below 0°C (32°F) or above 40°C (104°F).
Spare battery is not charging.	Battery not fully seated in charging slot.	Remove and re-insert the spare battery in the cradle, ensuring it is firmly seated.
	Battery inserted incorrectly.	Re-insert the battery so the charging contacts on the battery align with the contacts on the cradle.
	Battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
During data communication, no data transmits, or transmitted data was incomplete.	MC55 removed from cradle during communications.	Replace MC55 in cradle and retransmit.
	Communication software is not installed or configured properly.	Perform setup as described in the *MC55 Integrator Guide.*

Four-slot Ethernet Cradle

Table 6-4   *Troubleshooting the Four-slot Ethernet Cradle*

Symptom	Cause	Solution
Attempt by the MC55 to ActiveSync failed.	MC55 removed from the cradle while the LED was blinking green.	Wait one minute and reinsert the MC55 in the cradle. This allows the cradle to attempt another synchronization.
	Using an outdated version of ActiveSync.	Visit http://www.microsoft.com for the latest ActiveSync software.
	ActiveSync on the host computer has not yet closed the previous ActiveSync session.	Wait one minute and reinsert the MC55 in the cradle. This allows the cradle to attempt another synchronization.
	Incorrect cable configuration.	Ensure the correct cable (Ethernet) is used with the cradle.
	Communication software improperly configured.	Perform setup as described in the *MC55 Integrator Guide*.
	MC55 ActiveSync disabled or not configured to accept network connection.	On the MC55, tap 🏁 > **ActiveSync** > **Tools** > **Options** > **Options** button. Then, uncheck the **Enable PC sync using this connection:** check box.
	Host ActiveSync disabled or not configured to accept network connection.	On the host computer, check **File** > **Connection Settings** > **Allow network (Ethernet) Server Connection with this desktop computer.**
During communication, no data transmits, or transmitted data was incomplete.	MC55 removed from cradle during communications.	Replace MC55 in cradle and retransmit.
	MC55 has no active connection.	An icon is visible in the status bar if a connection is currently active.

Table 6-4 *Troubleshooting the Four-slot Ethernet Cradle (Continued)*

Symptom	Cause	Solution
Battery is not charging.	MC55 removed from the cradle too soon.	Replace the MC55 in the cradle. The 2400 mAh battery fully charges in less than four hours and the 3600 mAh battery fully charges in less than six hours. Tap ⊞ > **Settings** > **System** > **Power** to view battery status.
	Battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
	MC55 is not inserted correctly in the cradle.	Remove the MC55 and reinsert it correctly. Verify charging is active. Tap ⊞ > **Settings** > **System** > **Power** to view battery status.
	Ambient temperature of the cradle is too warm.	Move the cradle to an area where the ambient temperature is between 0°C (32°F) and 35°C (95°F).

Vehicle Cradle

Table 6-5 *Troubleshooting the Vehicle Cradle*

Symptom	Possible Cause	Action
MC55 battery charging LED does not light up.	Cradle is not receiving power.	Ensure the power input cable is securely connected to the cradle's power port.
MC55 battery is not recharging.	MC55 was removed from the cradle too soon.	Replace the MC55 in the cradle. The 2400 mAh battery fully charges in four hours and the 3600 mAh battery fully charges in less than six hours.
	Battery is faulty.	Replace the battery.
	MC55 is not placed correctly in the cradle.	Remove the MC55 from the cradle, and re-insert correctly. If the battery still does not charge, contact customer support. The MC55 battery charging LED slowly blinks amber when the MC55 is correctly inserted and charging.
	Ambient temperature of the cradle is too warm.	Move to an area where the ambient temperature is between 0°C and 35°C.

Four-slot Battery Charger

Table 6-6   *Troubleshooting The Four-slot Battery Charger*

Symptom	Possible Cause	Action
Battery not charging.	Battery was removed from the charger or charger was unplugged from AC power too soon.	Re-insert the battery in the charger or re-connect the charger's power supply. The 3600 mAh battery fully charges in less than six hours.
	Battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
	Battery contacts not connected to charger.	Verify that the battery is seated in the battery well correctly with the contacts facing down.

Cables

Table 6-7   *Troubleshooting the Cables*

Symptom	Possible Cause	Action
MC55 battery is not charging.	MC55 was disconnected from AC power too soon.	Connect the power cable correctly. Confirm main battery is charging under ⊞ > **Settings** > **System** > **Power**. The 2400 mAh battery fully charges in less than four hours and the 3600 mAh battery fully charges in less than six hours.
	Battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
	The MC55 is not fully attached to power.	Detach and re-attach the power cable to the MC55, ensuring it is firmly connected.
During data communication, no data transmits, or transmitted data was incomplete.	Cable was disconnected from MC55 during communications.	Re-attach the cable and retransmit.
	Incorrect cable configuration.	See the system administrator.
	Communication software is not installed or configured properly.	Perform setup as described in the *MC55 Integrator Guide.*

Magnetic Stripe Reader

Table 6-8 *Troubleshooting the Magnetic Stripe Reader*

Symptom	Possible Cause	Action
MSR cannot read card.	MSR removed from MC55 during card swipe.	Reattach MSR to MC55 and reswipe the card.
	Faulty magnetic stripe on card.	See the system administrator.
	MSR application is not installed or configured properly.	Ensure the MSR application is installed on the MC55. Ensure the MSR application is configured correctly.
MC55 battery is not charging.	MC55 was removed from MSR or MSR was unplugged from AC power too soon.	Ensure MSR is receiving power. Ensure MC55 is attached correctly. Confirm main battery is charging under 🏴 > **Settings** > **System** > **Power**. The 2400 mAh battery fully charges in less than four hours and the 3600 mAh battery fully charges in less than six hours.
	Battery is faulty.	Verify that other batteries charge properly. If so, replace the faulty battery.
	The MC55 is not fully attached to the MSR.	Detach and re-attach the MSR to the MC55, ensuring it is firmly connected.
During data communication, no data transmits, or transmitted data was incomplete.	MC55 detached from MSR during communications.	Reattach MC55 to MSR and retransmit.
	Incorrect cable configuration.	See the system administrator.
	Communication software is not installed or configured properly.	Perform setup as described in the *MC55 Integrator Guide.*

Trigger Handle

Table 6-9 *Trigger Handle*

Problem	Cause	Solution
Scan line does not appear when trigger is pressed.	MC55 is not attached properly to the Trigger Handle and is not making contact with the connector.	Remove the MC55 from the Trigger Handle and reinsert.
	MC55 does not contain a scanning application.	Load a scanning application on the MC55. Refer to the *MC55A0/N0 Integrator Guide.*
	Scanning application is not active.	Start the scanning application.

Table 6-9   *Trigger Handle (Continued)*

Problem	Cause	Solution
MC55 battery does not charge when Trigger Handle is placed in a cradle.	Trigger Handle is not properly seated in the cradle.	Remove the Trigger Handle from the cradle and reinsert.
	Power is not available to the cradle.	Ensure that power connections to the cradle are connected properly.
Cannot print to printer.	Printer cable not connected properly.	Ensure cable is connected properly to the printer and Trigger Handle.
MC55 does not wake from suspend mode when trigger is pressed.	The trigger only wakes the MC55 from the suspend mode if a scanning application is active.	Press a key on the MC55 to wake from the suspend mode.

APPENDIX A TECHNICAL SPECIFICATIONS

MC55 Technical Specifications

The following tables summarize the MC55's intended operating environment and technical hardware specifications.

MC55

Table A-1 *MC55 Technical Specifications*

Item	Description
Physical Characteristics	
Dimensions	(2400 mAh battery): Height: 14.7 cm (5.78 in.) Width: 7.7 cm (3.03 in.) Depth: 2.7 cm (1.06 in.) (3600 mAh battery): Height: 14.7 cm (5.78 in.) Width: 7.7 cm (3.03 in.) Depth: 2.8 cm (1.10 in.)
Weight	315 g (11.1 oz.) with 2400 mAh battery 338 g (11.9 oz.) with 3600 mAh battery
Display	Pentile 3.5" VGA with backlight, TFT-LCD, 65k colors, 480 W x 640 H, 650+ Nits
Touch Panel	Glass analog resistive touch
Backlight	LED backlight
Battery	Rechargeable Lithium Ion 3.7V, 2400 or 3600 mAh Smart battery
Backup Battery	NiMH battery (rechargeable) 18 mAh 2.4 V (not user accessible).
Expansion Slot	User accessible microSD slot. Up to 32 GB.

Table A-1 *MC55 Technical Specifications (Continued)*

Item	Description
Network Connections	Full-speed USB, host or client, Bluetooth and WiFi. USB host mode available with appropriate cables only.
Notification	LED and audible alert
Keypad Options	26-key numeric; 44-key QWERTY, 44-key AZERTY, 44-key QWERTZ; PIM (available on the MC55N0 in a future release)
Audio	Speaker, microphone, receiver (for handset mode use), and Bluetooth audio headsets.
Performance Characteristics	
CPU	Marvell PXA 320 processor at 806 MHz
Operating System	Microsoft® Windows Mobile™ 6.5.3 Classic
Memory	256 MB RAM/1 GB Flash
Interface/Communications	USB 1.1 Full-speed
Output Power	USB: 5 VDC @ 500 mA max.
User Environment	
Operating Temperature	-10°C to 50°C (14°F to 122°F)
Storage Temperature	-40°C to 70°C (-40°F to 158°F)
Charging Temperature	32°F to 104°F / 0° C to 40° C
Humidity	95% non-condensing
Drop Specification	Multiple 1.8 m (6 ft.) drops per MIL-STD 810G specifications.
Tumble	1000 0.5 m (1.6 ft.) tumbles (2000 drops) per IEC tumble specifications
Electrostatic Discharge (ESD)	+/-15kVdc air discharge, +/-8kVdc direct discharge, +/-8kVdc indirect discharge
Sealing	IP64 per IEC sealing specifications
Wireless LAN Data and Voice Communications	
Wireless Local Area Network (WLAN) radio	MC55A0: Tri-mode IEEE® 802.11a/b/g MC55N0: Quad-mode IEEE® 802.11a/b/g/n
Data Rates Supported	1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps
Operating Channels	Chan 8 - 165 (5040 - 5825 MHz), Chan 1 - 13 (2412 - 2472 MHz), Chan 14 (2484 MHz) Japan only; actual operating channels/frequencies depend on regulatory rules and certification agency.

Table A-1   *MC55 Technical Specifications (Continued)*

Item	Description
Security	**Security Modes:** Legacy, WPA and WPA2
	Encryption: WEP (40 or 128 bit), TKIP and AES
	Authentication: TLS, TTLS (MS-CHAP), TTLS (MS-CHAP v2), TTLS (CHAP), TTLS (MD5), TTLS (PAP), PEAP-TLS, PEAP (MS-CHAP v2), PEAP (EAP-GTC), EAP-FAST-TLS, EAP-FAST (MS-CHAP v2), EAP-FAST (EAP-GTC) and LEAP
	Certifications: CCXv4 and FIPS 140-2
	Note: CCXv4 certified and FIPS 140-2 certified will be supported on the MC55N0 on a future release.
Spreading Technique	Direct Sequence Spread Spectrum (DSSS) and Orthogonal Frequency Division Multiplexing (OFDM)
Antenna	Internal
Voice Communication	**Note:** Currently supported on the MC55A0. It will be supported on MC55N0 in a future update.
	Voice-over-IP ready (with P2P, PBX, PTT clients), Wi-Fi™-certified, IEEE 802.11 a/b/g direct sequence wireless LAN, Wi-Fi Multimedia™ (WMM), Motorola Voice Quality Manager (VQM)
Wireless PAN Data and Voice Communications	
Bluetooth	Class II, v 2.1 EDR; on-board antenna. Supports StoneStreet One Bluetooth stack and Microsoft Bluetooth stack.
Data Capture Specifications	
Options	1D laser scanner
	2D imager
	1D laser scanner and color camera
	2D imager and color camera
Linear 1D Scanner (SE960) Specifications	
Optical Resolution	0.005 in. minimum element width
Roll	+/- 35° from vertical
Pitch Angle	+/- 65° from normal
Skew Tolerance	+/- 40° from normal
Ambient Light	Sunlight: 10,000 ft. candles (107640 Lux)
	Artificial Light: 450 ft. candles (4,844 Lux)
Shock	2,000 +/- 5% G
Scan Rate	104 (+/- 12) scans/sec (bidirectional)
Scan Angle	47° (typical)
Laser Power	1.7 mW nominal

Table A-1 *MC55 Technical Specifications (Continued)*

Item	Description
2D Imager Engine (SE4500-SR) Specifications	
Field of View	Horizontal - 39.6° Vertical - 25.7°
Optical Resolution	752 H x 480 V pixels (gray scale)
Roll	360°
Pitch Angle	+/- 60° from normal
Skew Tolerance	+/- 60° from normal
Ambient Light	9,000 ft. candles (96,900 Lux)
Shock	2,000 +/- 5% G
Aiming Element (VLD)	655 nm +/- 10 nm
Illumination Element (LED)	625 nm +/- 5 nm LEDs (2x)
2D Imager Engine (SE4500-HD) Specifications (MC55A0 only)	
Field of View	Horizontal - 38.4° Vertical - 24.9°
Optical Resolution	752 H x 480 V pixels (gray scale)
Roll	360°
Pitch Angle	+/- 60° from normal
Skew Tolerance	+/- 60° from normal
Ambient Light	9,000 ft. candles (96,900 Lux)
Shock	2,000 +/- 5% G
Aiming Element (VLD)	655 nm +/- 10 nm
Illumination Element (LED)	625 nm +/- 5 nm LEDs (2x)
2D Imager Engine (SE4500-DL) Specifications	
Field of View	Horizontal - 39.2° Vertical - 25.4°
Optical Resolution	752 H x 480 V pixels (gray scale)
Roll	360°
Pitch Angle	+/- 60° from normal
Skew Tolerance	+/- 60° from normal
Ambient Light	9,000 ft. candles (96,900 Lux)
Shock	2,000 +/- 5% G
Aiming Element (VLD)	655 nm +/- 10 nm

Table A-1   *MC55 Technical Specifications (Continued)*

Item	Description
Illumination Element (LED)	625 nm +/- 5 nm LEDs (2x)
Camera Specifications	
Resolution	3 Mega pixel with flash and auto focus.

Table A-2   *Data Capture Options*

Item	Description		
Laser Decode Capability	Code 39 Codabar Interleaved 2 of 5 MSI UPC/EAN supplementals Webcode GS1 DataBar Truncated GS1 DataBar Expanded GS1 DataBar Stacked Omni	Code 128 Code 11 EAN-8 UPCA Coupon Code Chinese 2 of 5 GS1 DataBar Limited GS1 DataBar Expanded Stacked	Code 93 Discrete 2 of 5 EAN-13 UPCE Trioptic 39 GS1 DataBar GS1 DataBar Stacked
Imaging Decode Capability	Code 39 Codabar Discrete 2 of 5 EAN-13 UPC/EAN supplementals Webcode Composite C Macro PDF-417 Data Matrix US Planet Canadian 4-state Chinese 2 of 5 microQR GS1 DataBar Truncated GS1 DataBar Expanded GS1 DataBar Stacked Omni	Code 128 Code 11 MSI UPCA Coupon Code TLC39 Micro PDF-417 (Macro) Micro PDF-417 Maxi Code UK 4-state Japanese 4-state USPS 4-state (US4CB) GS1 DataBar GS1 DataBar Limited GS1 DataBar Expanded Stacked	Code 93 Interleaved 2 of 5 EAN-8 UPCE Trioptic 39 Composite AB PDF-417 QR Code US Postnet Australian 4-state Dutch Kix Aztec GS1 DataBar Stacked
Camera Decode Capability	Code 39 Codabar Discrete 2 of 5 EAN-13 UPC/EAN supplementals Webcode Composite C Macro PDF-417 Data Matrix US Planet Canadian 4-state GS1 DataBar GS1 DataBar Truncated GS1 DataBar Expanded GS1 DataBar Stacked Omni	Code 128 Code 11 MSI UPCA Coupon Code TLC39 Micro PDF-417 (Macro) Micro PDF-417 Maxi Code UK 4-state Japanese 4-state GS1 DataBar Limited GS1 DataBar Expanded Stacked	Code 93 Interleaved 2 of 5 EAN-8 UPCE Trioptic 39 Composite AB PDF-417 QR Code US Postnet Australian 4-state Dutch Kix GS1 DataBar Stacked

MC55 Accessory Specifications

Single-slot USB Cradle

Table A-3 *Single-slot USB Cradle Technical Specifications*

Feature	Description
Dimensions	Height: 7.1 cm (2.80 in.) Width: 11.0 cm (4.33 in.) Depth: 15.0 cm (5.91 in.)
Weight	210 g (7.41 oz)
Input Voltage	12 VDC
Power Consumption	30 watts
Interface	USB
Operating Temperature	0°C to 50°C (32°F to 122°F)
Storage Temperature	-40°C to 70°C (-40°F to 158°F)
Charging Temperature	0°C to 40°C (32°F to 104°F)
Humidity	5% to 95% non-condensing
Drop	76.2 cm (30.0 in.) drops to vinyl tiled concrete at room temperature
Electrostatic Discharge (ESD)	+/- 15 kV air +/- 8 kV contact

Single-slot Ethernet/Modem/USB Cradle

Table A-4 *Single-slot Ethernet/Modem/USB Cradle Technical Specifications*

Feature	Description
Dimensions	Height: 7.1 cm (2.80 in.) Width: 11.0 cm (4.33 in.) Depth: 15.0 cm (5.91 in.)
Weight	210 g (7.41 oz)
Input Voltage	12 VDC
Power Consumption	30 watts
Interface	USB
Operating Temperature	0°C to 50°C (32°F to 122°F)
Storage Temperature	-40°C to 70°C (-40°F to 158°F)
Charging Temperature	0°C to 40°C (32°F to 104°F)

Table A-4   *Single-slot Ethernet/Modem/USB Cradle Technical Specifications (Continued)*

Feature	Description
Humidity	5% to 95% non-condensing
Drop	76.2 cm (30.0 in.) drops to vinyl tiled concrete at room temperature
Electrostatic Discharge (ESD)	+/- 15 kV air +/- 8 kV contact

Four-slot Battery Charger

Table A-5   *Four-slot Battery Charger Technical Specifications*

Feature	Description
Dimensions	Height: 4.7 cm (1.85 in.) Width: 15.5 cm (6.10 in.) Depth: 21.0 cm (8.27 in.)
Weight	384 g (13.55 oz)
Input Voltage	12 VDC
Power Consumption	30 watts
Operating Temperature	0°C to 40°C (32°F to 104°F)
Storage Temperature	-40°C to 70°C (-40°F to 158°F)
Charging Temperature	0°C to 40°C (32°F to 104°F)
Humidity	5% to 95% non-condensing
Drop	76.2 cm (30.0 in.) drops to vinyl tiled concrete at room temperature
Electrostatic Discharge (ESD)	+/- 15 kV air +/- 8 kV contact

Four-slot Charge Only Cradle

Table A-6   *Four-slot Charge Only Cradle Technical Specifications*

Feature	Description
Dimensions	Height: 13.7 cm (5.39 in.) Width: 46.8 cm (18.43 in.) Depth: 9.9 cm (3.90 in.)
Weight	1115 g (39.33 oz)
Input Voltage	12 VDC
Power Consumption	100 watts
Operating Temperature	0°C to 50°C (32°F to 122°F)

Table A-6 *Four-slot Charge Only Cradle Technical Specifications (Continued)*

Feature	Description
Storage Temperature	-40°C to 70°C (-40°F to 158°F)
Charging Temperature	0°C to 40°C (32°F to 104°F)
Humidity	5% to 95% non-condensing
Drop	76.2 cm (30.0 in.) drops to vinyl tiled concrete at room temperature
Electrostatic Discharge (ESD)	+/- 15 kV air +/- 8 kV contact

Four-slot Ethernet Cradle

Table A-7 *Four-slot Ethernet Cradle Technical Specifications*

Feature	Description
Dimensions	Height: 13.7 cm (5.39 in.) Width: 46.8 cm (18.43 in.) Depth: 9.9 cm (3.90 in.)
Weight	1115 g (39.33 oz)
Power	12 VDC
Operating Temperature	0°C to 50°C (32°F to 122°F)
Storage Temperature	-40°C to 70°C (-40°F to 158°F)
Charging Temperature	0°C to 40°C (32°F to 104°F)
Humidity	5% to 95% non-condensing
Drop	76.2 cm (30.0 in.) drops to vinyl tiled concrete at room temperature
Electrostatic Discharge (ESD)	+/- 15 kV air +/- 8 kV contact

Magstripe Reader

Table A-8   *Magstripe Reader (MSR) Technical Specifications*

Feature	Description
Dimensions	8.4 cm x 9.4 cm (3.3 inches x 3.7 inches)
Weight	79.4 g (2.8 oz.)
Interface	Serial with baud rate up to 19,200
Format	ANSI, ISO, AAMVA, CA DMV, user-configurable generic format
Swipe Speed	5 to 50 in. (127 to 1270 mm) /sec, bi-directional
Decoders	Generic, Raw Data
Mode	Buffered, unbuffered
Track Reading Capabilities	Tracks 1 and 3: 210 bpi Track 2: 75 and 210 bpi, autodetect
Operating Temperature	32° to 122° F (-10° to 50° C)
Storage Temperature	-40° to 158° F (-40° to 70° C)
Humidity	5% to 95% non-condensing
Drop	4 ft. (1.22 m) drops to concrete
Electrostatic Discharge (ESD)	+/- 15 kV air +/- 8 kV contact

Vehicle Cradle

Table A-9   *Vehicle Cradle Technical Specifications*

Feature	Description
Dimensions	Height: 10.4 cm (4.09 in.) Width: 11.1 cm (4.37 in.) Depth: 6.9 cm (2.72 in.)
Weight	240 g (8.47 oz)
Power	9 - 32 VDC
Operating Temperature	-20°C to 50°C (-4°F to 122°F)
Storage Temperature	-40°C to 70°C (-40°F to 158°F)
Charging Temperature	0°C to 40°C (32°C to 104°F)
Humidity	10% to 95% non-condensing
Drop	76.2 cm (30.0 in.) drops to vinyl tiled concrete at room temperature
Electrostatic Discharge (ESD)	+/- 15 kV air +/- 8 kV contact

Cables

Table A-10   *USB Charging Cable Technical Specifications*

Feature	Description
Length	161.9 cm (63.74 in.)
Input Voltage	5.4 VDC
Operating Temperature	-10°C to 50°C (14°F to 122°F)
Storage Temperature	-40°C to 70°C (-40°F to 158°F)
Humidity	10% to 95% non-condensing
Electrostatic Discharge (ESD)	+/- 15 kV air +/- 8 kV contact

Table A-11   *Charge Only Cable Technical Specifications*

Feature	Description
Length	28.0 cm (11.00 in.)
Input Voltage	5.4 VDC
Operating Temperature	-10°C to 50°C (14°F to 122°F)
Storage Temperature	-40°C to 70°C (-40°F to 158°F)
Humidity	10% to 95% non-condensing
Electrostatic Discharge (ESD)	+/- 15 kV air +/- 8 kV contact

Table A-12   *Auto Charge Cable Technical Specifications*

Feature	Description
Length	169.0 cm (66.54 in.)
Input Voltage	12 - 24 VDC
Operating Temperature	-10°C to 50°C (14°F to 122°F)
Storage Temperature	-40°C to 70°C (-40°F to 158°F)
Humidity	10% to 95% non-condensing
Electrostatic Discharge (ESD)	+/- 15 kV air +/- 8 kV contact

Table A-13 *DEX Cable Technical Specifications*

Feature	Description
Length	111.76 cm (44.0 in.)
Operating Temperature	-10°C to 50°C (14°F to 122°F)
Storage Temperature	-40°C to 70°C (-40°F to 158°F)
Humidity	10% to 95% non-condensing
Electrostatic Discharge (ESD)	+/- 15 kV air +/- 8 kV contact

APPENDIX B KEYPADS

The MC55 offers three types of keypad configurations: Numeric, alpha-numeric and PIM (available on the MC55N0 in a future release).

Numeric Keypad Configuration

The numeric keypad contains application keys, scroll keys, and function keys. The keypad is color-coded to indicate the alternate function key (blue) values. Note that an application can change keypad functions so the MC55's keypad may not function exactly as described. See *Table B-1* for key and button descriptions and *Table B-2 on page B-4* for the keypad's special functions.
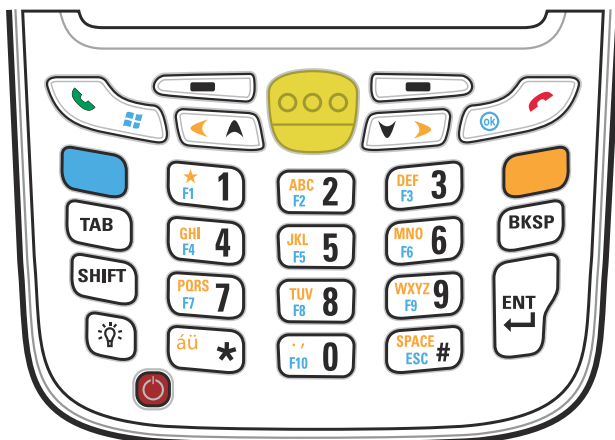
Figure B-1 *MC55 Numeric Keypad*

Table B-1   *MC55 Numeric Keypad Descriptions*
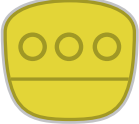
Key	Description
Blue Key	Use this key to launch applications or access items (shown on the keypad in blue). Press the Blue key once to activate this mode, followed by another key. A single press illuminates the key and displays the following icon at the bottom of the screen, until a second key is pressed:
Orange Key	Use this key to access the secondary layer of characters and actions (shown on the keypad in orange). Press the Orange key once to lock the keypad into Alpha state. A single press illuminates the key and displays the following icon at the bottom of the screen: Press the Orange key a second time to return to the normal state. Press the Orange key, then the Shift key to add a temporary shift (that applies only to the next key pressed) to the orange lock state. This displays the following icon at the bottom of the screen:

Talk/Start Menu	Use this key in conjunction with the Blue key to instantly display the **Start** menu from any application without tapping the screen. This function is user programmable.
	To use a key as an application key (APP key) on the keyboard, create and install a new keyboard remap table. However, to remap the green phone key as APP keys through the registry, create an XML provisioning file that includes the following entry:
	
	`<characteristic type="HKLM\Hardware\DeviceMap\KYBD">`
	    `<parm name="GreenKeyOverride" value="`*xx*`" datatype="integer" />`
	    [where *xx* is the new APP key code]
	
	Provision the file to the MC55 to send an APP key code, instead of the original key code, upon pressing the green phone key. Refer to the *MC55A0/MC55N0 Integrator Guide* for information on creating XML provisioning files.

Scan (yellow)	Activates the scanner/imager in a scan enabled application.

End/OK	Use this key in conjunction with the Blue key as an OK or close button. This function is user programmable.
	To use a key as an application key (APP key) on the keyboard, create and install a new keyboard remap table. However, to remap the red phone keys as APP keys through the registry, create an XML provisioning file that includes the following entry:
	
	`<characteristic type="HKLM\Hardware\DeviceMap\KYBD">`
	    `<parm name="RedKeyOverride" value="`*yy*`" datatype="integer" />`
	    [where *yy* is the new APP key code]
	
	Provision the file to the MC55 to send an APP key code, instead of the original key code, upon pressing the red phone key. Refer to the *MC55A0/MC55N0 Integrator Guide* for information on creating XML provisioning files.

Table B-1 *MC55 Numeric Keypad Descriptions (Continued)*

Key	Description
Scroll Up and Left	Moves up one item. Moves left one item when pressed with the Orange key.
Scroll Down and Right	Moves down one item. Moves right one item when pressed with the Orange key.
Soft Keys	Accesses the command or menu above it on the screen.
Star	Produces an asterisk in default state. Press and release the orange key, then press the Star key to create special characters. See *Special Character Key on page B-15* for more information.
Alphanumeric	In default state, produces the numeric value on the key. In Alpha state, produces the lower case alphabetic characters on the key. Each key press produces the next alphabetic character in sequence. For example, press and release the Orange key and then press the '4' key once to produce the letter 'g'; press and release the Orange key and then press the '4' key three times to produce the letter 'i'. Press the SHIFT key in Alpha state to produce the upper case alphabetic characters on the key. For example, press and release the Orange key, press and release the SHIFT key, and then press the '4' key once to produce the letter 'G'; press and release the Orange key, press and release the SHIFT key and then press the '4' key three times to produce the letter 'I'.
Backspace	Produces a backspace.
SHIFT	Press and release the SHIFT key to activate the keypad alternate SHIFT functions. A single press displays the following icon at the bottom of the screen, until a second key is pressed: Press the Orange key, then the Shift key to add a temporary shift (that applies only to the next key pressed) to the orange lock state. This displays the following icon at the bottom of the screen:
Enter	Executes a selected item or function.

Table B-2 *Numeric Keypad Input Modes*

Key	Numeric Mode			Orange Key (Alpha Lowercase Mode)				Orange + Shift Keys (Alpha Uppercase Mode)			
		Blue+ Key	SHIFT + Key	1st Press	2nd Press	3rd Press	4th Press	1st Press	2nd Press	3rd Press	4th Press
1	1	F1	!	*	*	*	*	*	*	*	*
2	2	F2	@	a	b	c		A	B	C	
3	3	F3	#	d	e	f		D	E	F	
4	4	F4	$	g	h	i		G	H	I	
5	5	F5	%	j	k	l		J	K	L	
6	6	F6	^	m	n	o		M	N	O	
7	7	F7	&	p	q	r	s	P	Q	R	S
8	8	F8	*	t	u	v		T	U	V	
9	9	F9	(	w	x	y	z	W	X	Y	Z
0	0	F10	)	.	,			>	<		
Up	Up	Up	Hilight Up	Left				Left			
Down	Down	Down	Hilight Down	Right				Right			
Enter	Action	Action	Action	Action				Action			

Note: An application can change the key functions. The keypad may not function exactly as described.

Alpha-numeric Keypad Configurations

The three types of alpha-numeric keypads (QWERTY, AZERTY and QWERTZ) produce the 26-character alphabet (A-Z, both lowercase and uppercase), numbers (0-9), and assorted characters. The keypad is color-coded to indicate which modifier key to press to produce a particular character or action. The keypad default is alphabetic, producing lowercase letters. See *Table B-3* for key and button descriptions and *Table B-4 on page B-8* for the keypad's special functions. AZERTY keypad is used on configurations installed with the French operating system. QWERTZ keypad is used on configurations installed with the German operating system.

Figure B-2   *QWERTY Keypad Configuration*

Figure B-3   *AZERTY Keypad Configuration*

Figure B-4   *QWERTZ Keypad Configuration*

Table B-3   *Alpha-numeric Keypad Descriptions*

Key	Action
Blue Key	Press and release the Blue key once to activate this mode temporarily, followed by another key. This displays the following icon at the bottom of the screen, until a second key is pressed: Press and release the Blue key twice to lock this mode. This displays the following icon at the bottom of the screen: Press and release the Blue key a third time to unlock.
Orange Key	Accesses the secondary layer of characters and actions (shown on the keypad in orange). Press and release the Orange key once to activate this mode temporarily, followed by another key. This displays the following icon at the bottom of the screen, until a second key is pressed: Press and release the Orange key twice to lock this mode. This displays the following icon at the bottom of the screen: Press and release the Orange key a third time to unlock.

Talk/Start Menu	Use this key in conjunction with the Blue key to instantly display the *Start* menu from any application without tapping the screen. This function is user programmable.
	To use a key as an application key (APP key) on the keyboard, create and install a new keyboard remap table. However, to remap the green phone key as APP keys through the registry, create an XML provisioning file that includes the following entry:
	
	<characteristic type="HKLM\Hardware\DeviceMap\KYBD">
	   <parm name="GreenKeyOverride" value="*xx*" datatype="integer" />
	   [where *xx* is the new APP key code]
	
	Provision the file to the MC55 to send an APP key code, instead of the original key code, upon pressing the green phone key. Refer to the *MC55A0/MC55N0 Integrator Guide* for information on creating XML provisioning files.