Zebra®
MZ™ Series
Mobile Printers
User Guide

UMAN-MZS-004 rev. A
January, 2007

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continued

Proprietary Statements

This manual contains proprietary information of Zebra Technologies Corporation. It is intended solely for the information and use of parties operating and maintaining the equipment described herein. Such proprietary information may not be used, reproduced, or disclosed to any other parties for any other purpose without the expressed written permission of Zebra Technologies Corporation.

Product Improvements

Since continuous product improvement is a policy of Zebra Technologies Corporation, all specifications and signs are subject to change without notice.

FCC Compliance Statement

NOTE: This equipment has been tested and found to comply with the limits or a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet or circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

WARNING: Exposure to Radio Frequency radiation. To conform to FCC RF exposure requirements this device shall be used in accordance with the operating conditions and instructions listed in this manual. Note that there are several radio options available with this printer. Additional regulatory information is contained in later sections devoted to each radio individually.

NOTE: This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to insure compliance.

Changes or modifications to this unit not expressly approved by Zebra Technologies Corporation could void the user's authority to operate this equipment.

Canadian Compliance Statement

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme á la norme NMB-003 du Canada.

"IC:" before the equipment certification number signifies that the Industry Canada technical specifications were met. It does not guarantee that the certified product will operate to the user's satisfaction.

Agency Approvals and Regulatory Information

- Design certified by TUV
- Canadian STD RSS-210
- EN60950: 2000 Safety Standard
- C-Tick (Australia)
- FCC part 15
- EN55024:1998 European Immunity Standard
- NOM/NYCE (Mexico)
- EN55022:1998 Class B European Electromagnetic Radiation Standard

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Inasmuch as every effort has been made to supply accurate information in this manual, Zebra Technologies Corporation is not liable for any erroneous information or omissions. Zebra Technologies Corporation reserves the right to correct any such errors and disclaims liability resulting therefrom.

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In no event shall Zebra Technologies Corporation or anyone else involved in the creation, production, or delivery of the accompanying product (including hardware and software) be liable for any damages whatsoever (including, without limitation, damages for loss of business profits, business interruption, loss of business information, or other pecuniary loss) arising out of the use of or the results of use of or inability to use such product, even if Zebra Technologies Corporation has been advised of the possibility of such damages. Because some states do not allow the exclusion of liability for consequential or incidental damages, the above limitation may not apply to you.

continued

Copyrights

Document Conventions

The following conventions are used throughout this document to convey certain information:

If you are viewing this guide online, click the *underlined text* to jump to a related Web site. Click on *italic text* (not underlined) to jump to that location in this manual.

Cautions, Important, and Note

Caution • Warns you of the potential for electrostatic discharge.

Caution • Warns you of a potential electric shock situation.

Caution • Warns you of a situation where excessive heat could cause a burn

Caution • Advises you that failure to take or avoid a specific action could result in physical harm to you.

Caution • Advises you that failure to take or avoid a specific action could result in physical harm to the hardware.

Important • Advises you of information that is essential to complete a task.

Note • Indicates neutral or positive information that emphasizes or supplements important points of the main text.

Introduction to the MZ Series

Thank you for choosing one of our Zebra® MZ™ series Mobile Printers. These rugged printers are sure to become productive and efficient additions to your workplace thanks to their innovative design. Because they are made by Zebra Technologies, you're assured of world-class support for all of your bar code printers, software, and supplies.

- This user's guide gives you the information you will need to operate any MZ series printer.
- The MZ series uses the CPCL programming language. To create and print labels using the CPCL language, refer to the Mobile Printer Programming Guide and our Label Vista™ label creation program which are both available on our Web site at *www.zebra.com*.

Unpacking and Inspection

Inspect the printer for possible shipping damage:

- Check all exterior surfaces for damage.
- Open the media cover (refer to "Loading the Media" in the Getting Ready to Print section) and inspect the media compartment for damage.

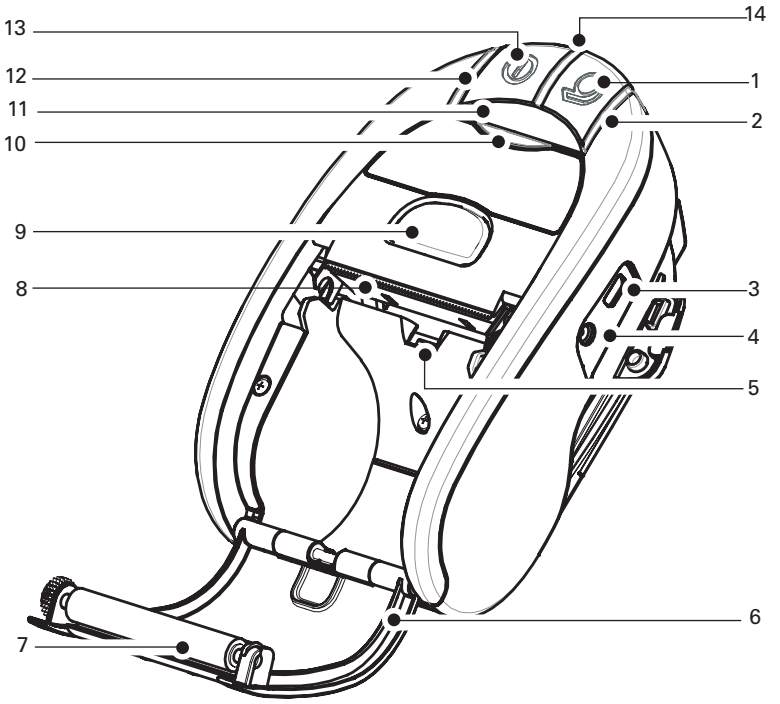
In case shipping is required, save the carton and all packing material.

Reporting Damage

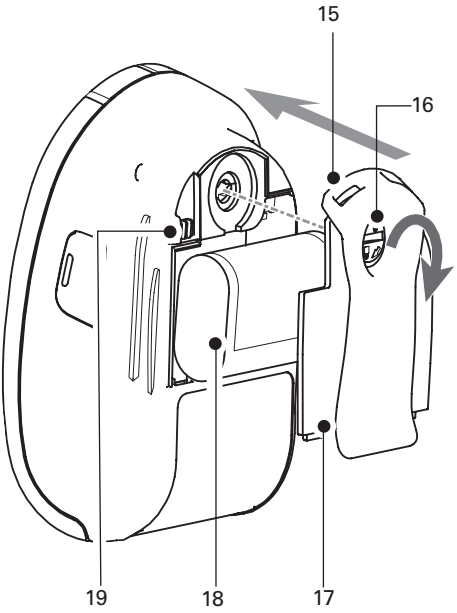
If you discover shipping damage:

- Immediately notify and file a damage report with the shipping company. Zebra Technologies Corporation is not responsible for any damage incurred during shipment of the printer and will not cover the repair of this damage under its warranty policy.
- Keep the carton and all packing material for inspection.
- Notify your authorized Zebra re-seller.

Figure 1: MZ Series Overview (MZ 220 Illustrated)



1. Feed Switch
2. Media Status Light
3. USB Port
4. Battery Charging Receptacle
5. Media Sensor
6. Media Cover
7. Platen
8. Printhead
9. Latch Release Button
10. Communications Status Indicator
11. IR window
12. Charge Status Indicator
13. Power Switch
14. Power Indicator
15. Belt Clip
16. Battery Door Latch
17. Battery Compartment Cover
18. Battery Pack
19. External Charge Contacts

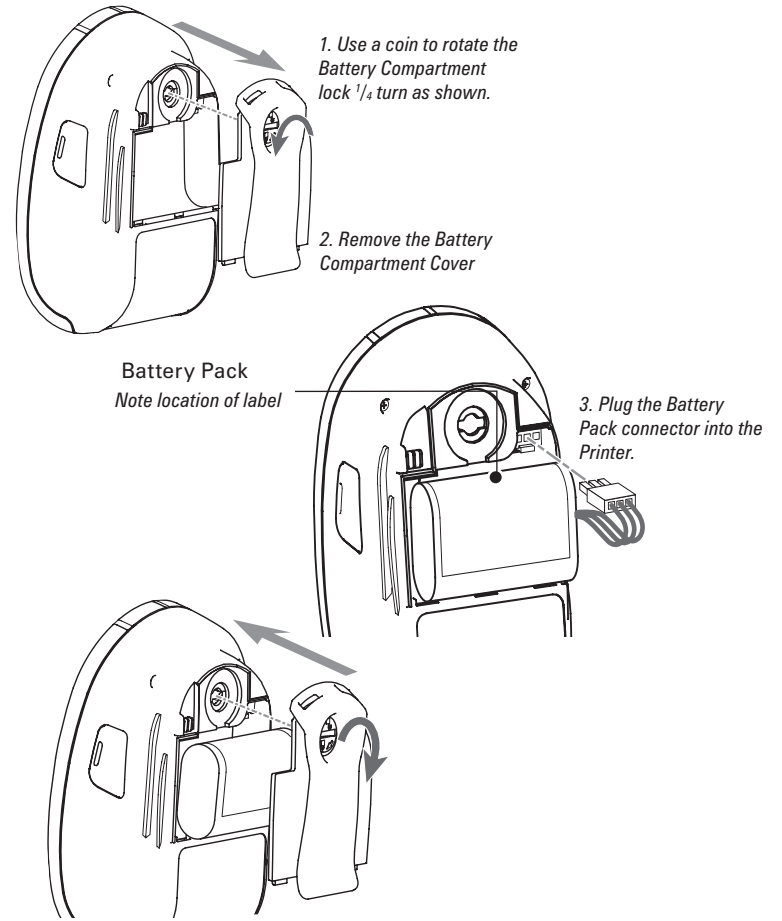


Battery

Installing the Battery

Important • Batteries are shipped partially charged. Remove any protective packaging from new battery packs prior to use.

Figure 2: Installing the Battery



Ensure the battery leads are not pinched prior to replacing the battery cover.

When the battery is first installed, the printer power and charge indicators should indicate the battery is not fully charged (see “Charging the Battery” below and “Operator Controls”).

You must charge the battery fully before using the printer for the first time.

Charging the Battery

Preparing the Charger Power Supply

Before charging the battery for the first time, you must prepare the Charger Power Supply. Refer to Figure 3

Figure 3: Preparing the Charger Power Supply

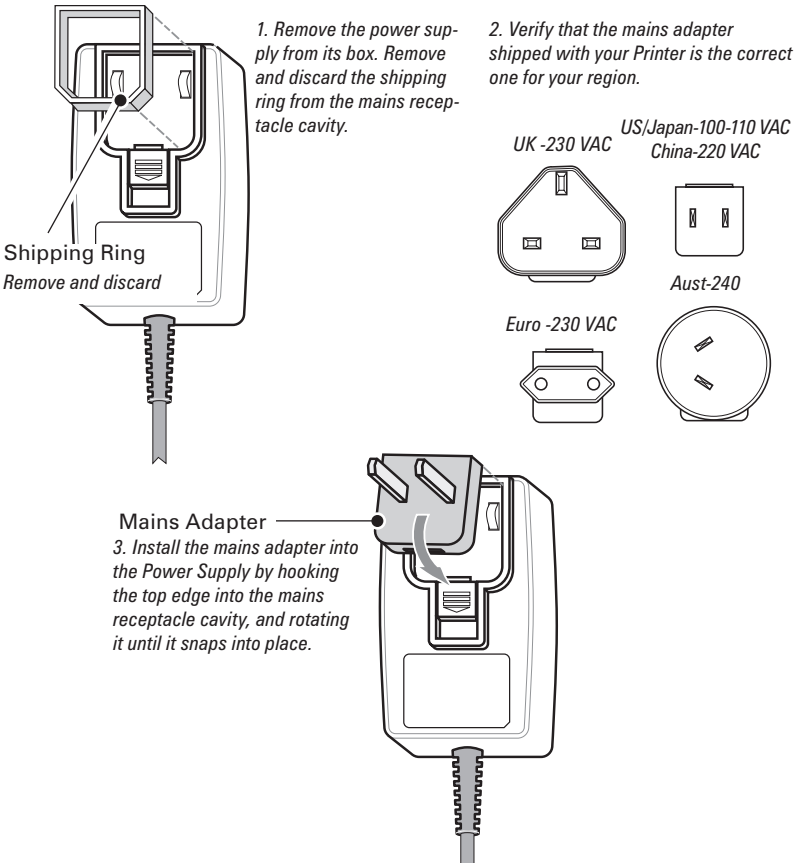


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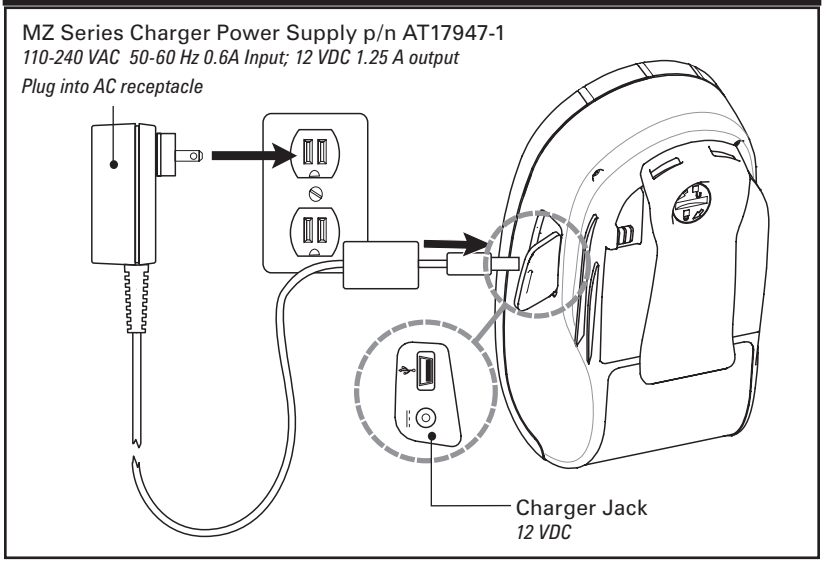
Figure 4: Charging the Battery



Charging the battery

Refer to Figure 4.

1. Plug the Charger Power Supply into the appropriate A.C. wall receptacle. Then insert the charge cable into the printer's charger jack.
2. The printer's charger indicator will indicate the status of the charger as follows:

- An amber light indicates the battery is charging, and that the battery is less than 90% charged.
- A green light indicates the battery is fully charged. The battery is ready for use.

Approximate Charge Times :

Batteries are fully charged after 2.5 hours from the low-battery shut-off state. Partially discharged batteries will take less time to charge.

NOTES: Use of the printer while charging will increase charge times. Charge times are for completely discharged batteries. As a safety feature the battery will stop charging after 4.5 hours regardless of the battery's charge state.

MZ Series Quad Power Station

The MZ series Quad Power Station is designed to dock and charge up to four MZ series printers of either type simultaneously.

1. Ensure that the Power Station has been installed properly per its instruction manual. Ensure that the power supply is properly connected and its power indicator light is on.
2. Slide a printer into any one of the four docking bays as shown in Figure 5.

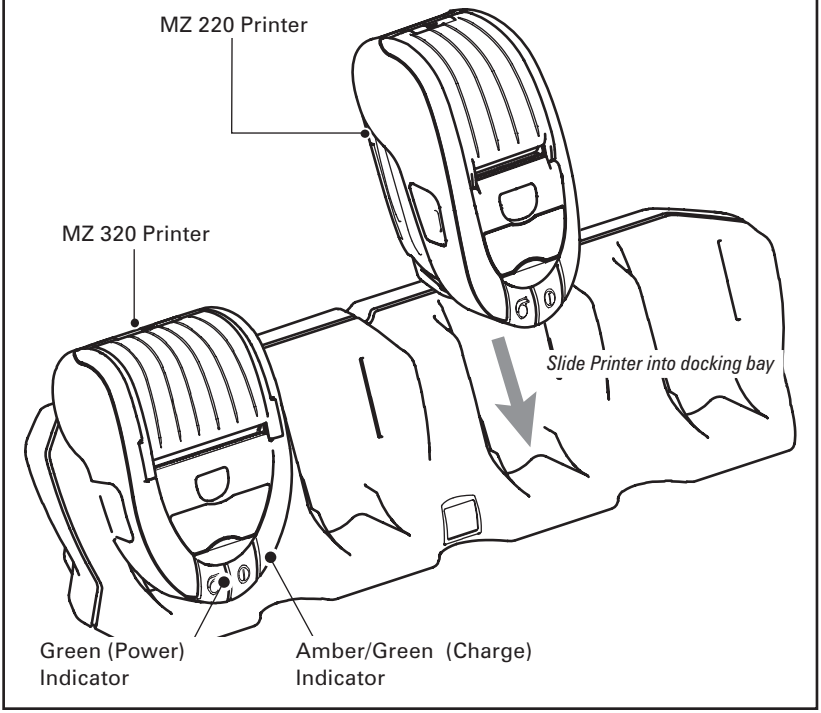
NOTES: ***If you are using a shoulder strap, ensure it is pulled away from the printer when installing in the Power Station.***

Do not use the printer when it is installled in the Power Station

The printer's charge status indicator will turn amber if the printer is properly inserted and the battery is less than 90% charged.

The printer's charge indicators will allow you to monitor the

Figure 5: MZ Series Quad Power Station



charging process. Refer to the Controls section of this manual for more information.

Battery Safety

Caution • Avoid accidental short circuiting of any battery. Allowing battery terminals to contact conductive material will create a short circuit which could cause burns and other injuries or could start a fire.

Important • Always dispose of used batteries properly. Refer to Appendix D for more battery recycling information.

Caution • Use of any charger not approved specifically by Zebra for use with its batteries could cause damage to the battery pack or the printer and will void the warranty.

Read carefully and always observe the safety guidelines for Li-Ion batteries provided with each Battery Pack.

Charger Safety

Do not place the Power Station in locations where liquids or metallic objects may be dropped into the charging bays.

Use care when installing either the Charger Power Supply shipped with the printer or the power supply supplied with the MZ series Power Station. Do not block the ventilating slots on the top and bottom covers of either power supply.

Ensure that the Charger Power Supply is plugged into a power source which will not accidently be turned off if you will be charging batteries overnight.

Loading the Media (All models)

1. Open the printer: Refer to Figure 6.
   - Press the latch release button on the top of the printer as shown at "1" below. The media cover will flip open automatically revealing the media compartment.
2. Load the media: Refer to Figure 7
   - Insert the roll of media into the media compartment. Ensure that the media pulls off the core in the direction shown in Figure 6.
3. Close the Media Cover: Refer to Figure 8.
   - Pull a short length of media out of the printer
   - Close the Media Cover firmly and ensure it is securely latched on both sides..
   - Turn on the printer and press the Feed button. The printer will advance media until the Feed button is released. Verify the media is feeding properly and without binding or skewing sideways

Figure 6: Opening the MZ Printer (MZ 220 shown)

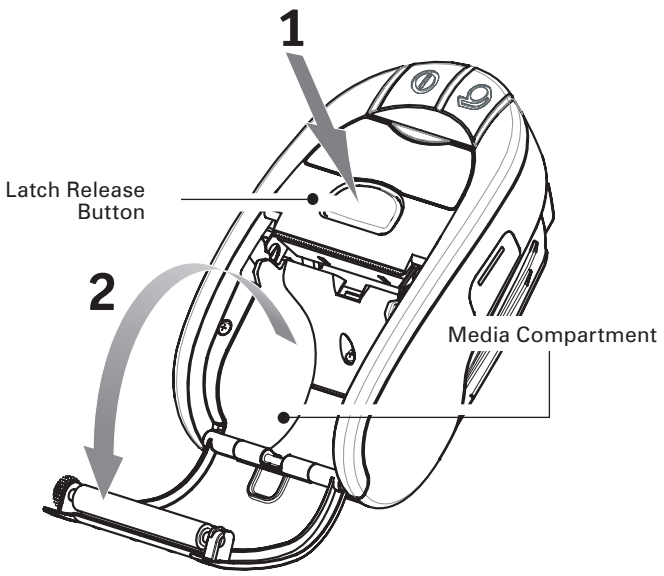


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Figure 7: Installing Media

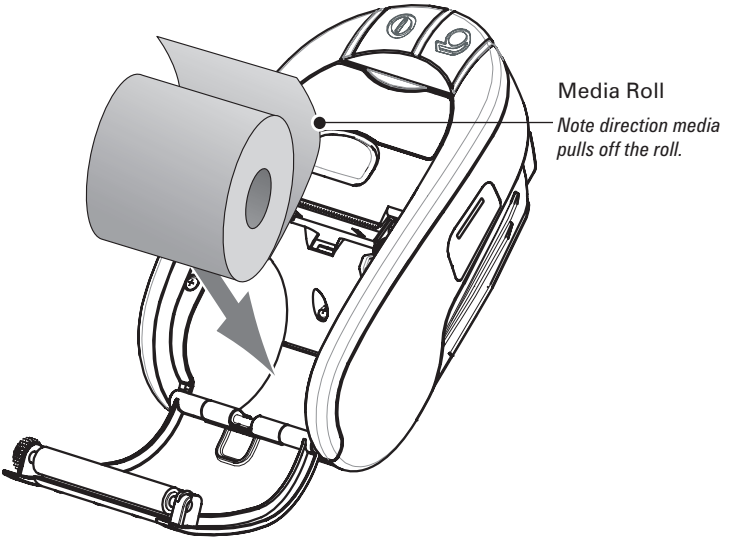
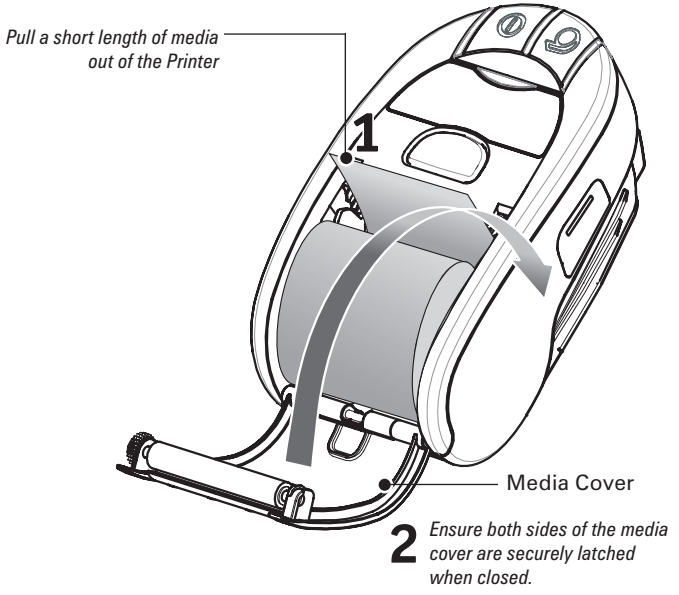


Figure 8: Closing the Media Cover



Operator Controls

MZ series printer controls are detailed below and in Figure 9.

The printer has two control buttons and four multipurpose indicators.

The **Power Button** turns the printer on and off.

The **Feed Button** advances a length of media until it is released.

The **Green/Amber indicator** to the left of the Power Button indicates the status of the printer's built-in charger:

- The indicator is off indicates the battery is not being charged.
- If the indicator is amber the battery is being charged.
- If the indicator is green, the battery is fully charged.

The **Green Indicator** between the Power and Feed buttons has two states:

- A rapidly blinking light indicates a low battery condition.
- A steadily lit indicator means that power is on and the battery charge level is sufficient for use

The **Amber Indicator** to the right of the Feed button is an error indicator.

- An un-lit indicator means there is no error condition and the printer can be used.
- A blinking indicator could mean one of two conditions exist, which will inhibit printer operation:
  1. There is no media loaded.
  2. The media cover is open.
  3. If both the above conditions are met and the error light is still flashing, there could be no application loaded in the printer, or the application could have become corrupted.

The **Blue Indicator** just above the product I.D. label is a communications indicator. Its functions vary depending on the wireless communications option installed in the printer.

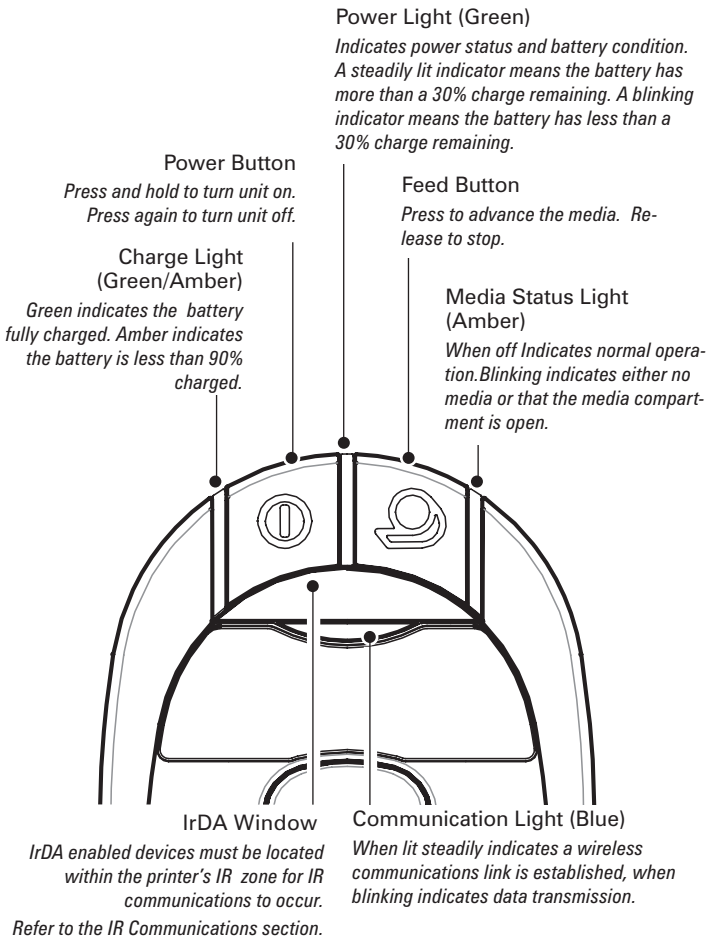
- If the printer uses only standard IrDA® wireless communication:
  A blinking light indicates data is being received from a linked IrDA device.
- If the printer has a Bluetooth™ radio option:
  1. A steady light indicates the printer has paired with an-

other Bluetooth device.

2. A blinking light indicates that the printer is receiving data via Bluetooth communications.

- If the printer has an 802.11b/g radio installed:
  1. A steady light indicates the printer has associated with a wireless Local Area Network (WLAN).
  2. A blinking light indicates that the printer is attempting to associate with a WLAN.

Figure 9: Printer Controls



Verify the Printer Is Working

Before you connect the printer to your computer, portable data terminal or wireless LAN, make sure that the printer is in proper working order. You can do this by printing a configuration label using the "two key reset" method. If you can't get this label to print, refer to "Troubleshooting".

Printing a Configuration Label

1. Turn the printer off. Load the media compartment with journal media (media with no black bars printed on the back)
2. Press and hold the Feed Button.
3. Press and release the Power button and keep the Feed button pressed. When printing starts, release the Feed button.

The unit will print a line of interlocking "x" characters to ensure all elements of the print head are working, print out the version of software loaded in the printer and then print two reports.

The first report indicates model, ROM version, serial number, etc. The second report prints out more detailed information on the printer's configuration and parameter settings. If no second report appears, there is no application loaded. (See the Troubleshooting Section for sample printouts and a further discussion on how to use the configuration label as a diagnostic tool.)

Connecting the Printer

The printer must establish communications with a host terminal which sends the data to be printed. Communications occur in four basic ways:

- Via a cable using the USB 2.0 protocol. USB drivers are included in the Zebra Universal Driver which can be downloaded from *www.zebra.com.*
- Via the industry standard IrDA protocol. IR capability is standard with MZ series printers.
- By means of an optional Bluetooth short range radio link.
- By means of a wireless LAN (Local Area Network) using an optional radio per 802.11b/g specifications.

Cable Communication

Caution • The printer should be turned off before connecting or disconnecting the communications cable.

The small connector on the USB cable plugs into the printer. The connectors are keyed to assure correct alignment; do not try to force the cable if it does not plug in. The other end of the cable must be plugged into the host terminal as shown in Figure 10, or the USB port on a computer as shown in Figure 11. The MZ series utilizes the USB Open HCI interface driver allowing it to communicate with Windows® based devices.

USB drivers are included in the Zebra Universal Driver which can be downloaded from the Zebra Web site. Other terminals or communications devices may require the installation of special drivers to use the USB connection. Consult the factory for further details.

Figure 10: Cable Communications

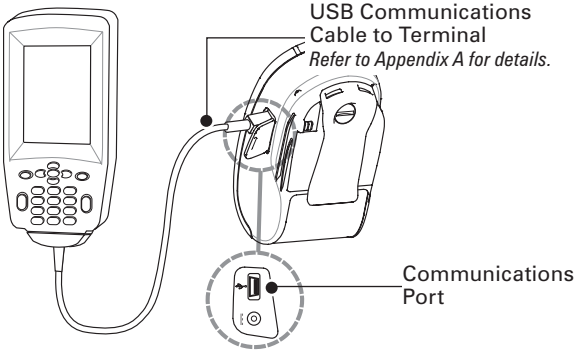
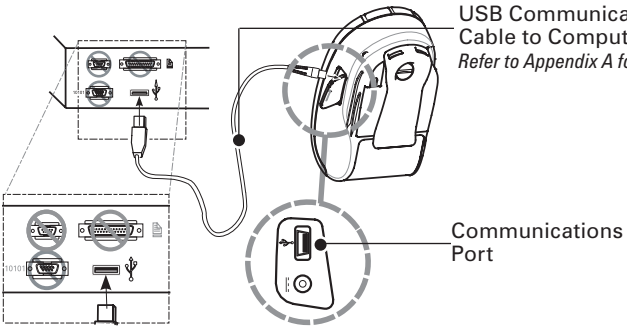


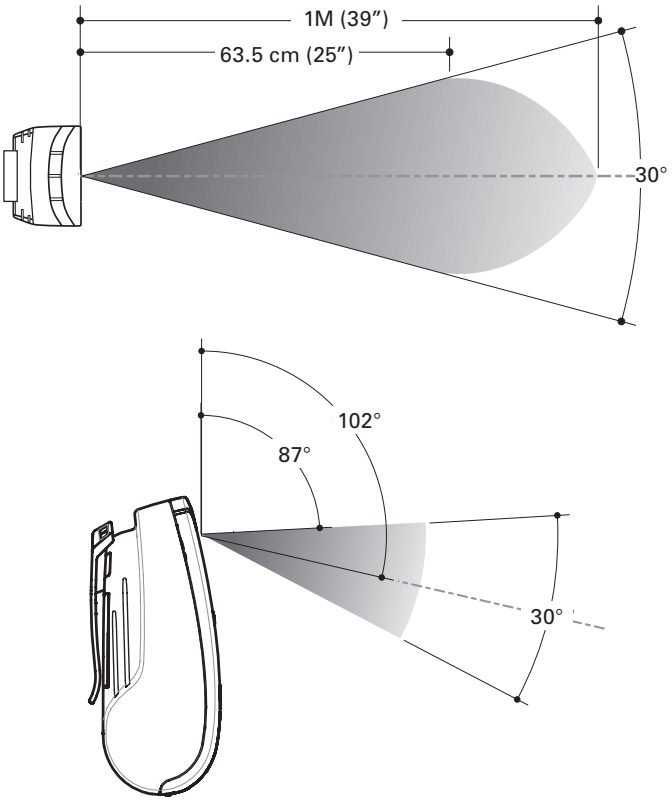
Figure 11: Communications with a P.C.



IR Communications

Ensure that the terminal sending and receiving data is within the shaded zone depicted in Figure 12. The IR window on the front of the printer must face the corresponding window on the terminal to properly send and receive signals. The maximum distance IrDA signals can be transmitted reliably is 1M (39″).

Figure 12: IR Communication Zone



Wireless Communications with Bluetooth™

Bluetooth is a worldwide standard for the exchange of data between two devices via radio frequencies. Bluetooth radios are relatively low powered to help prevent interference with other devices running at similar radio frequencies. This limits the range of a Bluetooth device to about 10 meters (32 feet). Both the printer and the device it communicates with must follow the Bluetooth standard. Only one of the radio options can be installed in the printer at one time and the antenna used for these transmitters must not be co-located or must not operate in conjunction with any other antenna.

Bluetooth Networking Overview

Each Bluetooth enabled MZ series printer is identified by a unique Bluetooth Device Address (BDA) loaded into the printer when manufactured. In order to exchange data, two Bluetooth enabled devices must establish a connection.

Bluetooth software is always running in the background, ready to respond to connection requests. One device (known as the *master*) must request a connection with another. The second device (the *slave*) then accepts or rejects the connection. A Bluetooth enabled MZ series printer will normally act as a slave creating a miniature network with the terminal sometimes referred to as a "piconet.".

For the most part, communications using the Bluetooth protocol are initiated and processed without any operator intervention.

WLAN Overview

All MZ series printers can be equipped with radios using the industry standard 802.11b/g protocol. MZ series printers will have the FCC I.D. number of the radio on the serial number label on the back of the unit.

MZ series printers with the Zebra 802.11b/g WLAN radio option can be identified by the FCC ID: ***I28MD-ZLAN11G*** on the serial number label on the back of the printer.

Methods of establishing communications to MZ series printers will vary with each LAN application. General information on establishing WLAN communications can be found in either the "CPCL Programmers Manual" or the "Zebra Mobile Printer Wireless Configuration Guide" both available on-line at *www.zebra.com*.

More information and LAN configuration utilities are included in Zebra's Label Vista™ program (version 2.8 and later). Label Vista may be downloaded from the Zebra Web site.

Setting Up the Software

MZ series printers use Zebra's CPCL Programming language which was designed for mobile printing applications. CPCL is fully described in the "CPCL Programmers Manual", available on-line from the Zebra Web site.

You can also use Label Vista™, Zebra's Windows® based label creation program which uses a graphical interface to create and edit labels in the CPCL language.

Refer to Appendix F for tips on downloading the Label Vista application from Zebra's Web site.

Radio Regulatory Information

Zebra Bluetooth Radios MZ-ZBR3

Caution • Exposure to Radio Frequency Radiation. The radiated output power of this internal Bluetooth radio is far below the FCC radio frequency exposure limits. The internal Bluetooth radio operates within guidelines found in radio frequency safety standards and recommendations. Do not use the printer in an unauthorized manner.

Note • The following section only applies when the MZ-ZBR3 (FCC ID: I28MD-BTC2TY6) Bluetooth Radio is installed in a MZ series printer. The antenna used for this transmitter must not be co-located or must not operate in conjunction with any other antenna.

European Regulatory Information for this Radio

This device is intended for use in all EU and EFTA member states.

Europe – EU Declaration of Conformity

This device complies with the essential requirements of the R&TTE Directive 1999/5/EC. The following test methods have been applied in order to prove presumption of compliance with the R&TTE Directive 1999/5/EC:

- EN55022:1998

European Immunity Standard

- EN 60950: 2000

Safety of Information Technology Equipment

- EN 300 328-2 V1.4.1 (2003-04)

Technical requirements for spread-spectrum radio equipment

- EN 301 489-1/-17 V1.5.1/1.2.1 (2003-12) -17 v1.2.1 (2002-08)

EMC requirements for spread-spectrum radio equipment.

This device is a 2.4 GHz wireless LAN transceiver, intended for indoor home and office use in all EU and EFTA member states.

CE	**Important Notice**: This device is a portable RF printer intended for commercial and industrial use in all EU and EFTA member states.

WLAN Module Using 802.11b/g Radio

The following section only applies when the 802.11b/g WLAN module (With FCC ID: I28MD-ZLAN11G) is installed in a MZ series printer. Only one of the radio options can be installed in the printer at one time and the antenna used for these transmitters must not be co-located or must not operate in conjunction with any other antenna.

MZ series printers have the FCC ID number on a label on the back of the unit.

Caution • Use of a MZ series printer with the radio module marked with FCC ID: I28MD-ZLAN11G meets the FCC requirements for radio frequency (RF) radiation exposure in the standard body worn configuration with no minimum separation. In this configuration, which applies whether the belt clip or shoulder strap is used, the face of the printer from which paper is transported is facing away from the user's body. The standard configuration must always be used when the printer is body worn.

The MZ 220 and MZ 320 printers with this radio option have been SAR tested. The maximum SAR value measured for each model is listed below:

Model	SAR value W/Kg 1g average)
MZ 220	.049
MZ 320	.038

European Regulatory Information for this Radio

AT	BE	CY	CZ	DK
EE	FI	~~FR~~	DE	GR
HU	IE	IT	LV	LT
LU	MT	NL	PL	PT
SK	SI	ES	SE	GB

Note: -Member states in the EU with restrictive use for this device are crossed out!
This device is also authorized for use in all EFTA member states (**CH, IS, LI, NO**)

CE

Important Notice:
This device is a portable RF printer intended for commercial and industrial use in all EU and EFTA member states except in France where restrictive use applies.

continued

Europe – EU Declaration of Conformity

This device complies with the essential requirements of the R&TTE Directive 1999/5/EC. The following test methods have been applied in order to prove presumption of compliance with the R&TTE Directive 1999/5/EC:

- EN55022:1998

European Immunity Standard

- EN 60950: 2000

Safety of Information Technology Equipment

- EN 300 328-2 V1.2.1 (2001-12)

Technical requirements for spread-spectrum radio equipment

- EN 301 489-17 V1.2.1 (2002-08)

EMC requirements for spread-spectrum radio equipment.

This device is a 2.4 GHz wireless LAN transceiver, intended for indoor home and office use in all EU and EFTA member states, except in France where restrictive use applies.

The use of this frequency band in France is subject to restrictions. You may only use channels 10 and 11 (2457 and 2462 MHz) on French territory, except in those French departments as listed in the table below where channels 1-13 (2412-2472 MHz) may be used. For more information see http://www.anfr.fr/ and/or http://www.art-telecom.fr

01	Ain	36	Indre	69	Rhone
02	Aisne	37	Indre et Loire	70	Haute Saone
03	Allier	39	Jura	71	Saone et Loire
05	Hautes Alpes	41	Loir et Cher	72	Sarthe
08	Ardennes	42	Loire	75	Paris
09	Ariege	45	Loiret	77	Seine et Marne
10	Aube	50	Manche	78	Yvelines
11	Aude	54	Meurthe et Moselle	79	Deux Sievres
12	Aveyron	55	Meuse	82	Tarn et Garonne
16	Charente	57	Moselle	84	Vaucluse
19	Correze	58	Nievre	86	Vienne
2A	Corse Sud	59	Nord	88	Vosges
2B	Haute Corse	60	Oise	89	Yonne
21	Cote d'Or	61	Orne	90	Territoire de Belfort
24	Dordogne	63	Puy de Dome	91	Essonne
25	Doubs	64	Pyrenees Atlantique	92	Hauts de Seine
26	Drome	65	Hautes Pyrenees	93	Seine St Denis
27	Eure	66	Pyrenees Orientales	94	Val de Marne
32	Gers	67	Bas Rhin		
35	Ille et Vilaine	68	Haute Rhin		

Belt Clip

Refer to Figure 13. All MZ series printers are have a belt clip installed as a standard feature. To use: hook the clip over your belt, and ensure that the clip is securely attached to the belt. The belt clip will pivot slightly to allow you to move freely while wearing the printer.

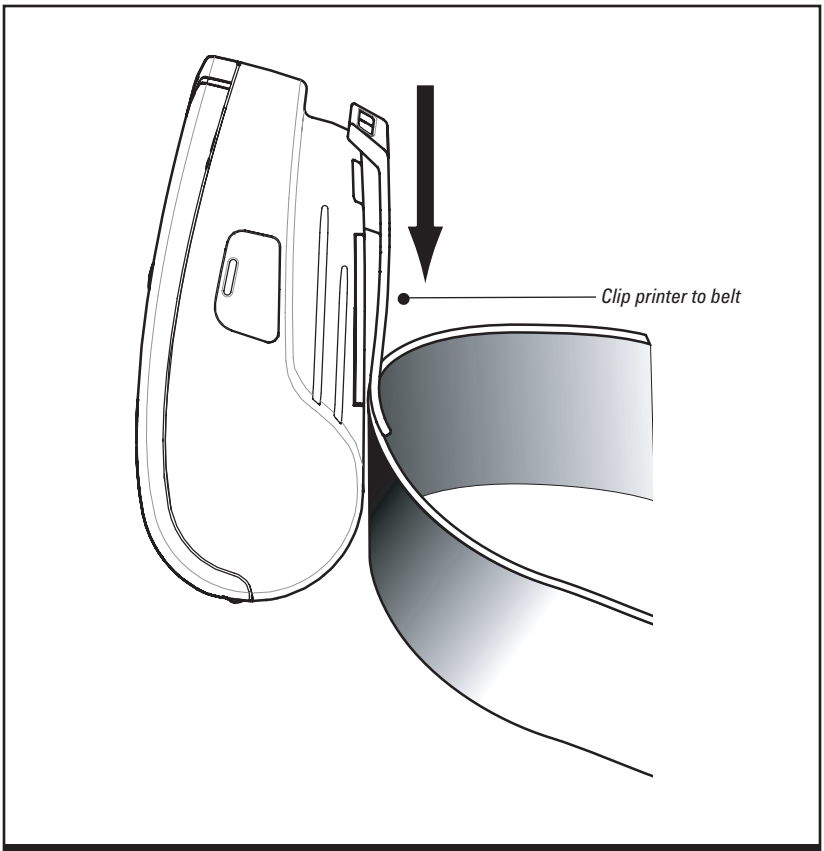


Figure 13: Using the Belt Clip

continued

Adjustable Shoulder Strap

Refer to Figure 14 if you have ordered the shoulder strap option for your printer. Secure each end of the shoulder strap as shown below. Use the main buckle on the shoulder strap to adjust to the desired length.

NOTE: If you are using a shoulder strap, ensure it is pulled away from the printer when installing in the Power Station. See page 13.

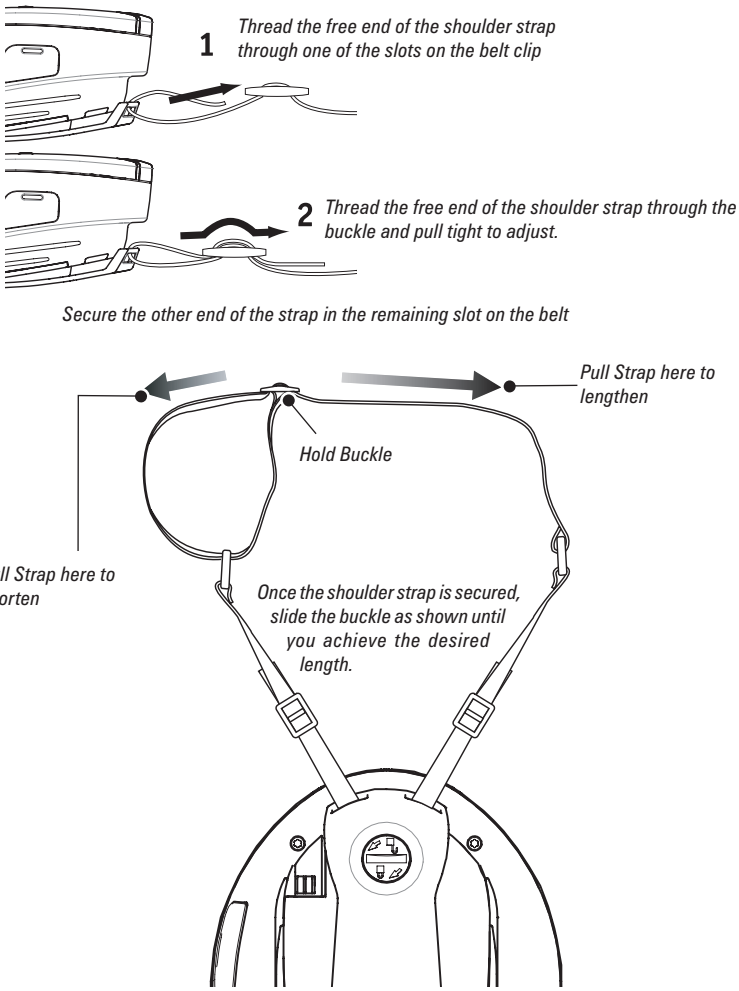


Figure 14: Using the Optional Shoulder Strap

Extending Battery Life

- Always observe the safety precautions in the Lithium-Ion Battery Technical Bulletin included with each Battery Pack.
- Never expose the battery to direct sunlight or temperatures over 104° F (40° C).
- Do not charge the battery when the temperature exceeds 113° F (45° C).
- Always use a Zebra power supply designed specifically for the MZ series printers. Use of any other kind of power supply may damage the battery.
- Use the correct media for your printing requirements. An authorized Zebra re-seller can help you determine the optimum media for your application.
- If you print the same text or graphic on every label, consider using a pre-printed label.
- Choose the correct print darkness, and print speed for your media.

NOTE: Use of label media in an MZ series printer requires a "Tone" setting of 50 for best results. The Tone setting can be modified by connecting the printer to a PC and using the Label Vista application. Refer to the Cable Communications section of "Connecting the Printer" in this manual.

- Use software handshaking (XON/XOFF) whenever possible.
- Remember that any rechargeable battery will lose its ability to maintain a charge over time. It can only be recharged a finite number of times before it must be replaced. Always dispose of batteries properly. Refer to Appendix D for more information on battery disposal.
- If you print while charging the battery, charge times will be prolonged. Extensive printing while charging could deplete the battery enough to cause the low battery warning indicator to turn on. You should suspend printing at that time and allow the battery to re-charge completely.

continued

General Cleaning Instructions

Caution • To avoid possible personal injury or damage to the printer, never insert any pointed or sharp objects into the printer.

Always turn the printer off before performing any cleaning procedures.

Use care when working near the tear bar. The edges are very sharp.

Caution • The printhead can be very hot after prolonged printing. Allow it to cool off before attempting any cleaning procedures.

Only use the cleaning pen supplied with the printer or a cotton swab saturated with alcohol for cleaning the printhead.

Caution • Use only cleaning agents specified in the following tables. Zebra Technologies Corporation will not be responsible for damage caused by any other cleaning materials used on this printer.

MZ Series Cleaning Instructions

Area	Method	Interval
Printhead	Use a Zebra cleaning pen or a 70% isopropyl alcohol solution on a cotton swab to clean the print elements from end to end (the print elements are located in the thin gray line on the printhead).	After every five rolls of media (or more often, if needed)
Platen	Rotate the platen roller and clean it thoroughly with a Zebra cleaning pen or a 70% isopropyl alcohol solution and a cotton swab.	
Tear bar	Clean thoroughly with a Zebra cleaning pen or a 70% isopropyl alcohol solution and a cotton swab.	
Exterior	Water dampened cloth	As needed
Media Compartment Interior	Brush/air blow.	After every five rolls of media (or more often, if needed)

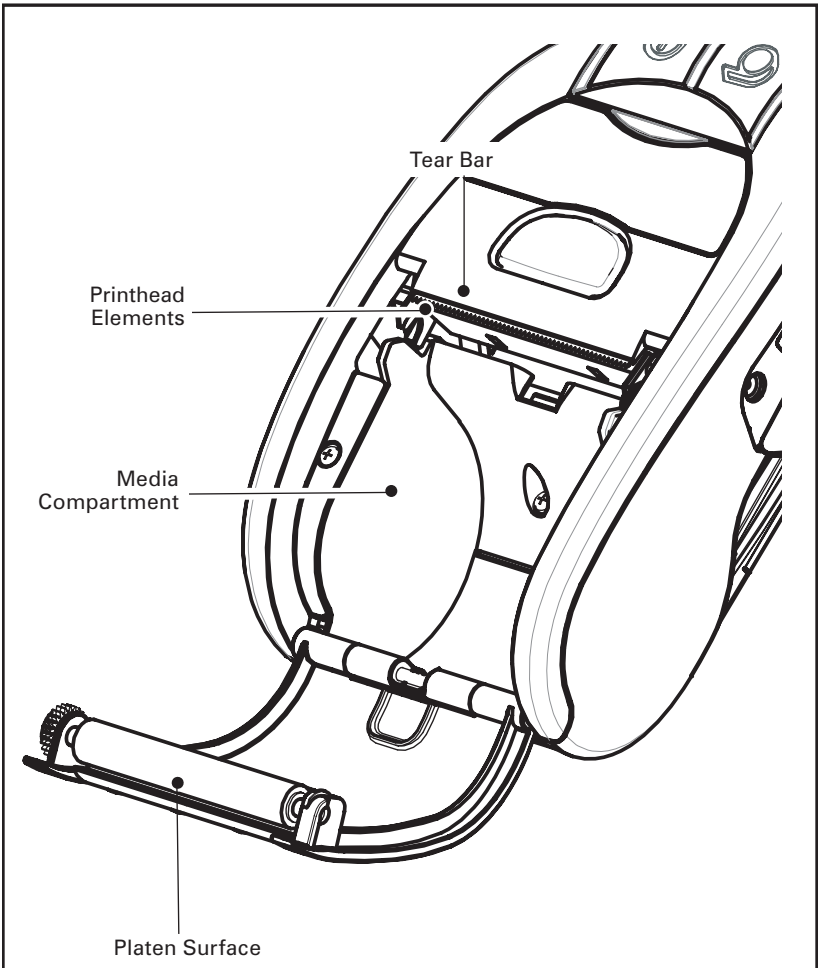


Figure 15: MZ Series Cleaning

Note • Twelve packs of approved cleaning pens are available from Zebra as p/n AN11209-1.

Caution • To avoid possible personal injury or damage to the Printer, never insert any pointed or sharp objects into the Printer.

continued

Troubleshooting

Interpreting Indicators

The printer's indicators display various printer functions and their status. Check the indicator status, then refer to the Troubleshooting topic referenced in the chart.

Function	Indicator Color	Indicator Status: Steady	Indicator Status: Blinking	Troubleshooting Topic
Power	Green	Indicates printer is on and battery condition is OK to use.	Blinking signifies Low Battery	3
Charger	Amber/ Green	Off indicates battery is not charging. Amber indicates battery is charging. Green indicates battery is charged.	N/A	1,6,10
Error	Amber	Off indicates no error condition	No media or media door is open. Application may be missing or corrupted	2,4,7,9
Communications	Blue	**Cable/IrDA:** N/A	Data is being received	5,8
		Bluetooth: Printer has paired with another Bluetooth device.	Data is being received	5,8
		802.11b/g: Radio is associated with a WLAN	Radio is trying to associate with a WLAN.	5,8

Troubleshooting Topics

1. No power:

- Ensure you press and hold the Power switch until the Power light comes on.
- Check that battery is installed properly.
- Recharge or replace battery as necessary.

2. Media does not feed:

- Be sure Media Cover is closed and latched.
- Check media compartment. Ensure media is not binding on the sides of the compartment.

3. Poor or faded print

- Clean printhead.
- Check battery for possible damage. Recharge or replace as necessary.
- Check quality of media.
- If using label media, ensure the "Tone" setting is set to 50.

4. Partial or missing print:

- Check media alignment.
- Clean printhead.
- Ensure Media Cover is properly closed and latched.

5. No print:

- Replace battery.
- Check cable to terminal.
- (Wireless units only) Restore wireless connection.

6. Reduced battery life:

- Check battery date code — if battery is one to two years old, short life may be due to normal aging.
- Recharge or replace battery.

7. Flashing Amber indicator:

- Check that media is loaded and that printhead is closed and securely latched.
- If media is present and latch is closed, indicates that no application is present or application is corrupted. Program must be re-loaded.

8. Communication Error:

- (Wireless units only) Check that media is loaded, head is closed and blue communication link light is on.
- (USB) Replace cable to terminal.

9. Label Jam:

- Open media cover.
- Generously apply alcohol to Printer in area of jammed label.

10. Battery Pack Is Hard to Install

- Do not force the battery into place. Verify you have not pinched any wires between the battery and the printer.
- Verify you are plugging the battery connector into the printer correctly.

Resetting an MZ Series Printer

If the printer has locked up and is not responding to any operator inputs or external commands, either from a connected terminal or from a linked LAN, you can perform a forced reset as follows:

1. ***Open the media compartment and remove any media.***
2. ***Press the Feed button and hold it approximately ten seconds until the Power, Communications and Error indicators turn off and stay off.***
3. ***After the three indicators turn off, reload the media and close the media compartment cover.***
4. ***Wait at least ten more seconds and press the Power button. The Printer will restart and normal operation can resume.***

Troubleshooting Tests

Printing a Configuration Label

To print out a listing of the printer's current configuration follow these steps:

1. Turn the printer off. Load the media compartment with journal media (media with no black bars printed on the back)
2. Press and hold the Feed Button.
3. Press and release the Power button and keep the Feed button pressed. When printing starts, release the Feed button.

Refer to Figures 16 and 16a for a sample configuration printout.

Communications Diagnostics

If there is a problem transferring data between the computer and the printer, try putting the printer in the Communications Diagnostics Mode (also referred to as the "DUMP" mode). The printer will print the ASCII characters and their text representation (or the period '.', if not a printable character) for any data received from the host computer

To enter Communications Diagnostics Mode:

1. Print a configuration label as described above.
2. At the end of 2nd diagnostics report, the printer will print: "Press FEED key to enter DUMP mode".
3. Press the FEED key. The printer will print: "Entering DUMP mode".

Note • If the FEED key is not pressed within 3 seconds, the printer will print "DUMP mode not entered" and will resume normal operation.

4. At this point, the printer is in DUMP mode and will print the ASCII hex codes of any data sent to it, and their text representation (or "." if not a printable character).

Additionally, a file with a ".dmp" extension containing the ASCII information will be created and stored in the printer's memory. It can be viewed, "cloned" or deleted using the Label Vista application. (Refer the Label Vista documentation for more information.)

To terminate the Communications Diagnostics Mode and return the printer to normal operations:

1. Turn the printer OFF.
2. Wait 5 seconds.
3. Turn the printer ON.

Calling Technical Support

If the printer fails to print the configuration label, or you encounter problems not covered in the Troubleshooting Guide, contact Zebra Technical Support. Technical Support addresses and phone numbers for your area can be found in Appendix D of this manual. You will need to supply the following information:

- Model number and type (e.g. MZ 220)
- Unit serial number (Found on the large label on the back of the printer, also found in the configuration label printout. Refer to Figures 23 and 24)
- Product Configuration Code (PCC) (15 digit number found on the label on the back of the unit)

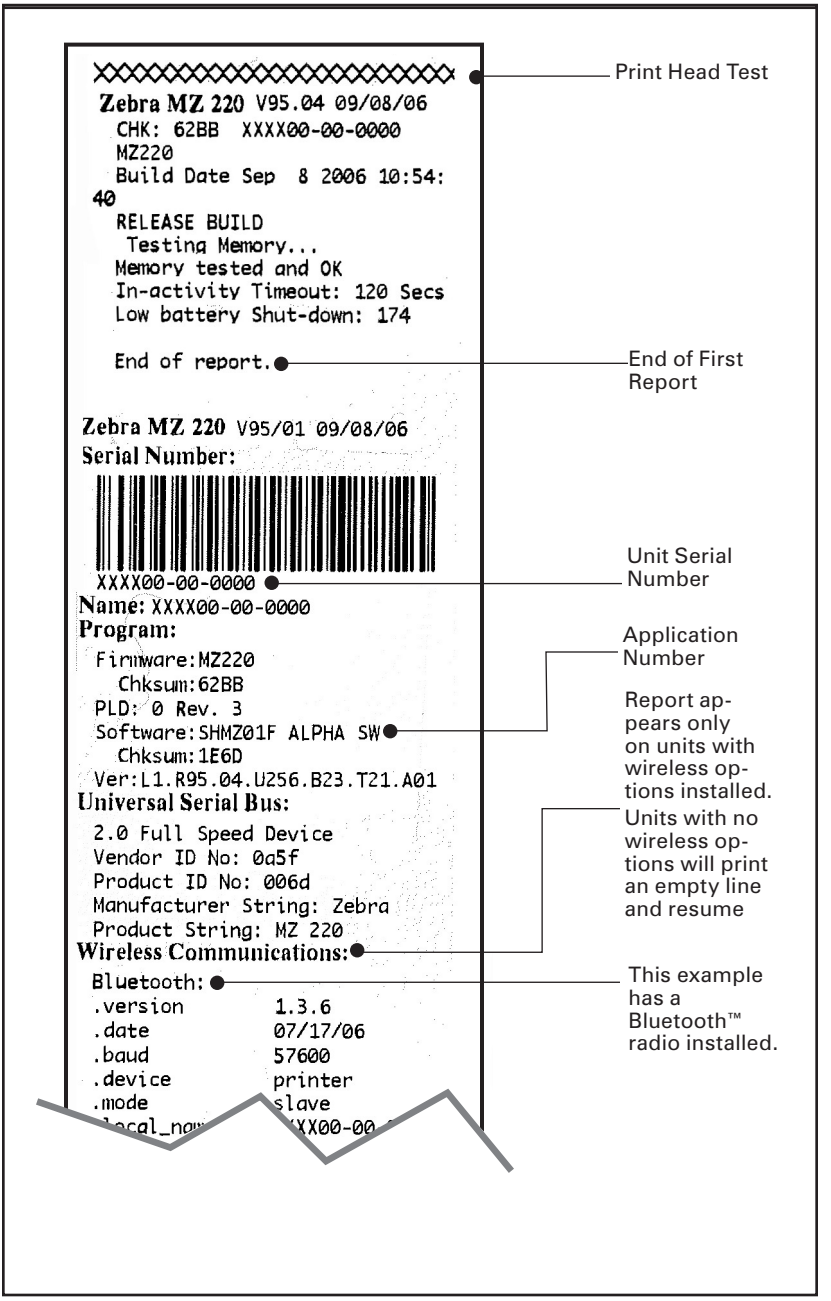


Figure 16: Configuration Label Example (MZ 220 illustrated)

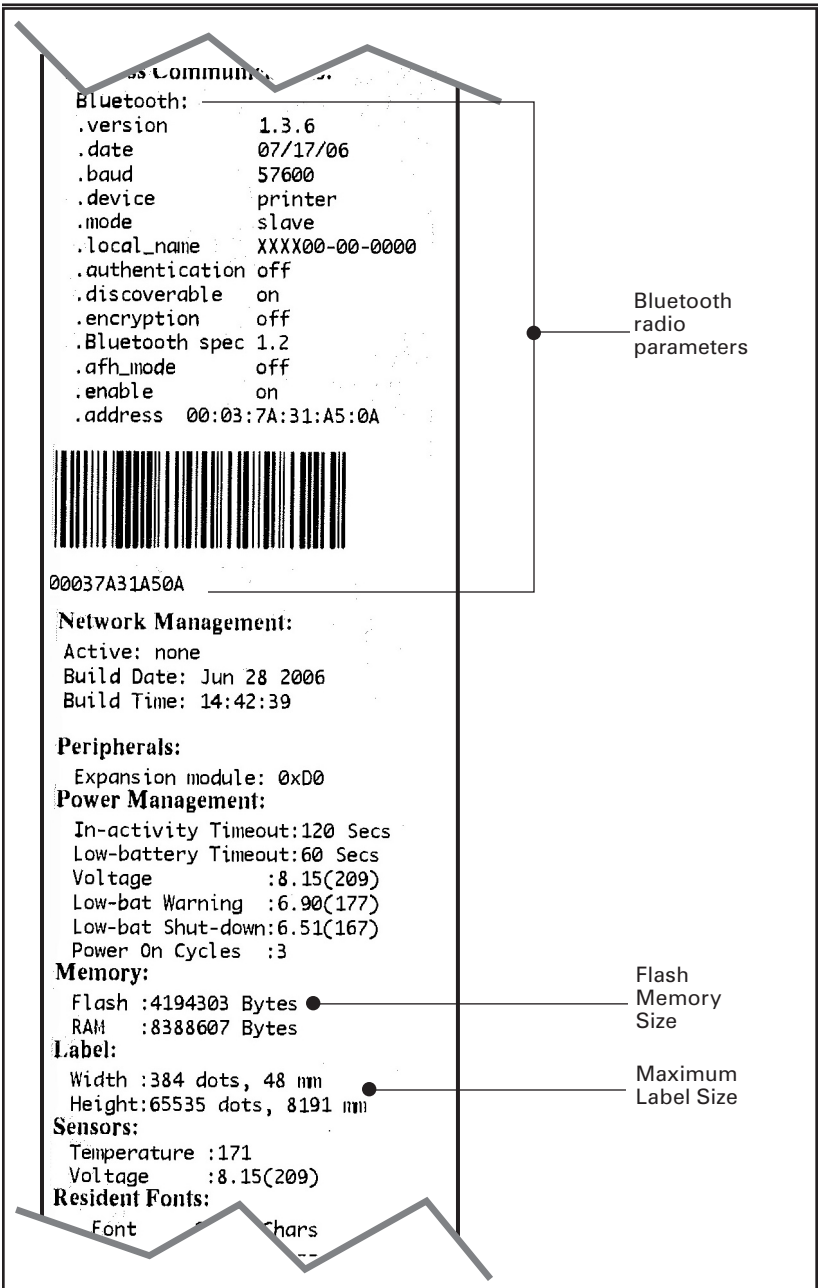


Figure16a: Configuration Label Example (continued)

continued

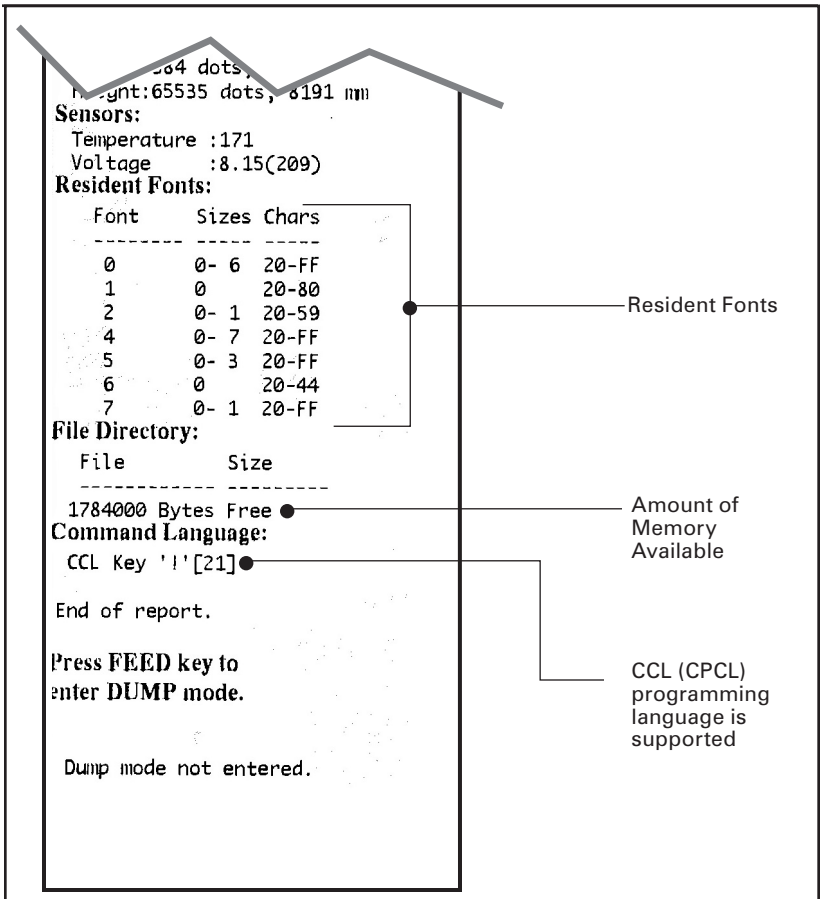


Figure 16c: Configuration Label Example (continued)

Specifications

Note.- Printer specifications are subject to change without notice.

Printing Specifications

	MZ 220	MZ 320
Print Width	Up to 1.89 in. (48,0 mm)	Up to 2.9 in. (71,2 mm)
Print Speed (max)	3" per second (76,2 mm/second)	
Print Speed (normal)	2" per second (5.0 mm/second)	
Print Head Life, calculated	1 x 10^6 in. (25.4 Km) nominal	
Print Density	203 dots/inch (8 dots/mm)	
Printhead Burn Line to Tear Edge	0.2 in. (5,08 mm)	

Memory and Communications Specifications, MZ series

Flash Memory	4 MB
SRAM	8 MB
Standard Communications	USB 2.0 Full Speed Interface (12 Mbps) & Infrared wireless link (meets IrDA 1.1 communications specifications)
Optional Wireless Communications	Optional Bluetooth compatible module Optional 802.11b/g SRRF module *Only one wireless option may be installed in a printer.*

Media Specifications

		MZ 220	MZ 320
Width		2.0 ± .03 in. (50,8 ±0.8 mm)	3.0 ± .03 in. (76,2 mm ±0.8 mm)
Max. Printable Area	Width	1.9" (48,3 mm)	2.9" (73,7 mm)
	Length	Maximum length will vary with the size of loaded applications. Refer to the configuration label for actual maximum label size.	
Label Thickness		.002 in to .004 in (0,050 mm to 0,102 mm)	
Max. Media Roll dia.		1.88 in. (47,8 mm) O.D.	
Label Inner Core Diameter		0.40 to 0.75 in.. (10,2 to 19 mm)	

Use Zebra brand direct thermal or UV resistant coated media that is outside wound. Refer to Appendix "B" for more details.

Font and Bar Code Specifications for MZ Series

Linear & 2-D Bar Bar Codes Available	Codabar (NW-7)
	UCC/EAN 128
	Code 39
	Code 93
	EAN 8/JAN 8, 2 and 5 digit extensions
	EAN 13/JAN 13, 2 and 5 digit extensions
	EAN 14/JAN 14, 2 and 5 digit extensions
	Interleaved 2 of 5
	MSI/Plessey
	FIM/POSTNET
	UPC-A, 2 and 5 digit extensions
	UPC-E, 2 and 5 digit extensions
	QR Code
	MaxiCode
	PDF 417
	RSS (Reduced Space Symbology®)
	Composite Symbology®
Rotation Angles	0°, 90°, 180°, and 270°
Fonts Available	Standard Fonts: 25 bit-mapped fonts; 1 scalable (CG Trimvirate Bold Condensed*)
	Downloadable optional bit-mapped & scalable fonts via Label Vista software
	International character sets: Chinese 16 x 16 (trad.), 16 x 16 (simplified), 24 x 24 (simplified); Japanese 16 x 16, 24 x 24 Korean Myang 16 x 16 Greek Hebrew/Arabic

**Contains UFST from Agfa Monotype Corporation*

USB Communications Port

Pin#	Signal Name	Type	Description
1	VBUS	-	USB Bus Power
2	USB -	bi-directional	I/O signals
3	USB +	bi-directional	I/O signals
4	USB_ID	-	Identifies A/B connector
5	Return	-	Ground

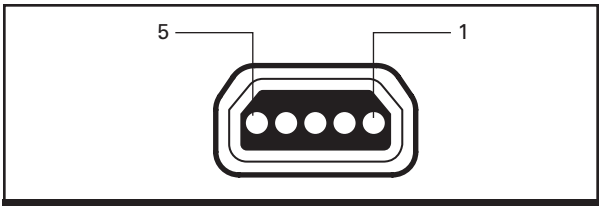


Figure 17: USB Communications Port

Physical, Environmental and Electrical Specifications

	MZ 220	MZ 320
Weight w/ battery, excluding media	.70 lbs. (317,5 g.)	.75 lbs. (340,2 kg.)
Temperature	Operating : 14° to 122° F (-10° to 50° C)	
	Charging: 32° to 104° F (-0° to 40° C)	
	Storage w/o battery: -4° to 140° F (-25° to 60° C)	
	Storage w/ battery: -4° to 113° F (-25° to 45°C)	
Relative Humidity	Operating: 10% to 90% (non-condensing)	
	Storage: 10% to 90% (non-condensing)	
Battery	Lithium-Ion, 7.4 VDC (nominal); 1500 mAHr.	
Printer Input Power	12.0 VDC; 1.25A	
Ingression Protection (IP) Rating	42	

continued

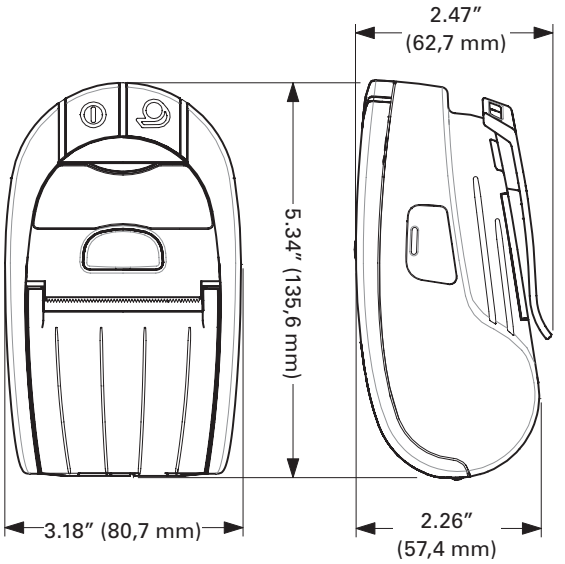


Figure 18: MZ 220 Overall Dimensions

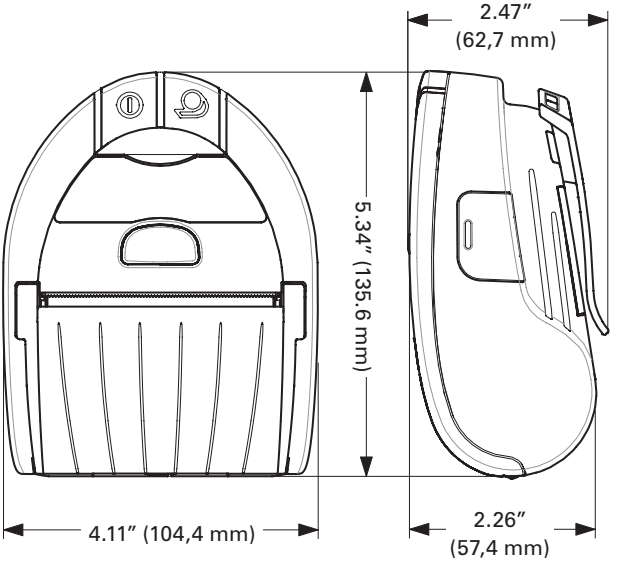


Figure 19: MZ 320 Overall Dimensions

MZ Series Accessories

Description	MZ 220	MZ 320
Adjustable shoulder strap	•	•
Protective soft case	•	•
Vehicle Adapter Cable	•	•
Extra battery packs	•	•
MZ Series Quad Power Station 100-240 VAC	•	•

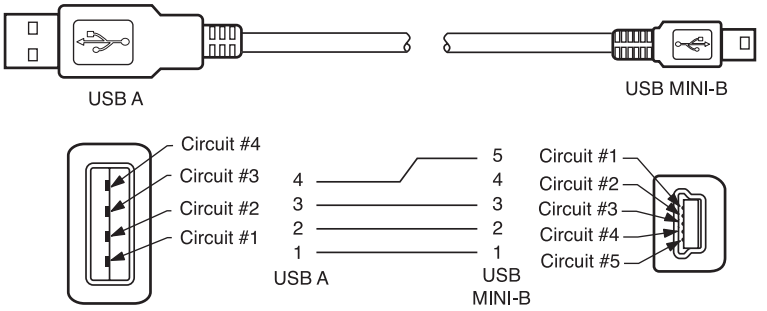
Refer to Appendix A for information on Data I/O Cables
For more details on available accessories, contact your authorized Zebra re-seller.

Appendix A

Interface Cables

USB Cable

Part Number AT17010-1; USB A to USB Mini B Cable



MORE INTERFACE CABLES

Contact the Factory or your Zebra Sales Representative for more information on interface cables to most major manufacturer's data terminals.

You may also visit the Zebra Web site at *http://www.zebra.com* ***for a listing of interface cables for all series of Zebra mobile printers***

Appendix B

Media Supplies

To insure maximum printer life and consistent print quality and performance for your individual application, it is recommended that only media produced by Zebra be used. Advantages include:

- Consistent quality and reliability of media products.
- Large range of stocked and standard formats.
- In-house custom format design service.
- Large production capacity which services the needs of many large and small media consumers including major retail chains world wide.
- Media products that meet or exceed industry standards.

MZ Series Media

Z-Select 4000D 3.2 mil Receipt				
Width x Length	**Part #**	**Length**	**Rolls/Carton**	**Wt/Carton**
2.00" (50,8 mm) x Cont.	LD-D2KV5E	48' (14,63 M)	36	9 lbs.
3.00" (76,2 mm) x Cont.	LD-D3KV5B	48' (14,63 M)	36	13 lbs.
Z-Select 1000D 2.4 mil Receipt				
Width x Length	**Part #**	**Length**	**Rolls/Carton**	**Wt/Carton**
2.00" (50,8 mm) x Cont.	LD-D2PX5E	66.7' (20,3 M)	36	9 lbs.
3.00" (76,2 mm) x Cont.	LD-D3PX5B	66.7' (20,3 M	36	13 lbs.

For more information call Zebra Technologies Corporation at +1.866.230.9495 (U.S., Canada and Mexico) and ask to speak to a Media Sales Representative.

Appendix C

Maintenance Supplies

In addition to using quality media provided by Zebra, it is recommended that the printer be cleaned as prescribed in the maintenance section. The following items are available for this purpose:

- Cleaning Pen (10 pack), Reorder No. AN11209-1
- Cleaning Kit with Cleaning Pen, and Cotton Swabs, Reorder No. AT702-1

Appendix D

Battery Disposal

The EPA certified RBRC® Battery Recycling Seal on the Lithium-Ion (Li-ion) battery supplied with your printer indicates Zebra Technologies Corporation is voluntarily participating in an industry program to collect and recycle these batteries at the end of their useful life, when taken out of service in the United States or Canada. The RBRC program provides a convenient alternative to placing used Li-ion batteries into the trash or the municipal waste stream, which may be illegal in your area.

Important • When the battery is worn out, insulate the terminals with tape before disposal

Please call 1-800-8-BATTERY for information on Li-ion battery recycling and disposal bans/restrictions in your area. Zebra Technologies Corporation's involvement in this program is part of our commitment to preserving our environment and conserving our natural resources.

Outside North America, please follow local battery recycling guidelines.

Product Disposal

Do not dispose of this product in unsorted municipal waste. This product is recyclable. Please recycle according to your local standards. For more information, please see our web site at: *http://www.zebra.com/recycle.*

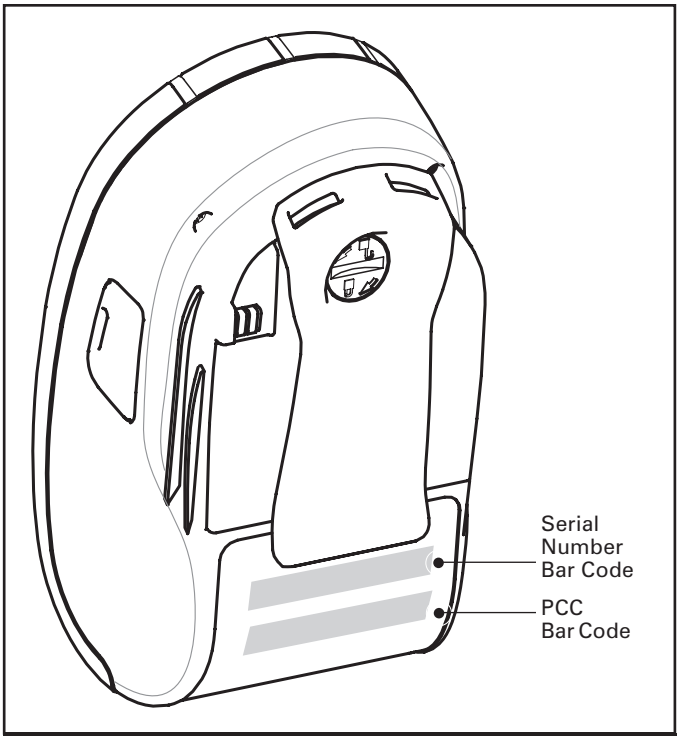
Appendix E

Product Support

When calling with a specific problem regarding your printer, please have the following information on hand:

- Model number/type (e.g. MZ 220)
- Unit serial number
- Product Configuration Code (PCC)

For Product Support Contacts, see the table at right or contact your local re-seller.



MZ Series Serial Number Label

MZ 220 illustrated

Product Support Contacts

In the Americas contact

Regional Headquarters	Technical Support	Customer Service Dept.
Zebra Technologies International,LLC 333 Corporate Woods Parkway Vernon Hills, Illinois 60061.3109 U.S.A T: +1 847 793 2600 Toll-free +1 800 423 0422	T: +1 847 913 2259 F: +1 847 913 2578 Hardware: hwtsamerica@zebra.com Software: swtsamerica@zebra.com	For printers, parts, media, and ribbon, please call your distributor, or contact us. T: +1 866 230 9494 F: +1 847 913 8766 E: VHCustServ@zebra.com

In Europe, Africa, the Middle East, and India contact

Regional Headquarters	Technical Support	Internal Sales Dept.
Zebra Technologies Europe Limited Zebra House The Valley Centre, Gordon Road High Wycombe Buckinghamshire HP13 6EQ, UK T: +44 (0)1494 472872 F: +44 (0) 1494 450103	Self Service Knowledgebase: *www.zebra.com/knowledgebase* Email Back Technical Library: Send email to: *emb@zebra.com* Subject: Emaillist On-Line case registration: *www.zebra.com/techrequest*	For printers, parts, media, and ribbon, please call your distributor, or contact us. T: +44 (0) 1494 768316 F: +44 (0) 1494 768244 E: mseurope@zebra.com

In the Asia Pacific region contact

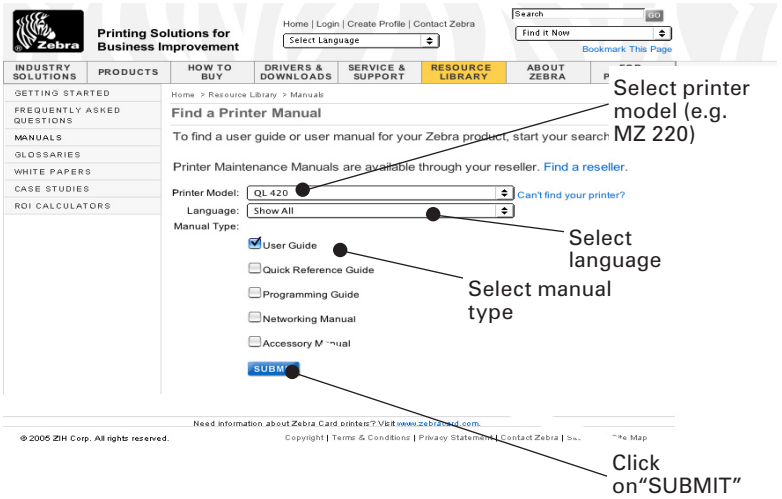
Regional Headquarters	Technical Support	Customer Service
Zebra Technologies Asia Pacific, LLC 16 New Industrial Road #05-03 Hudson TechnoCentre Singapore 536204 T: +65 6858 0722 F: +65 6885 0838	T: +65 6858 0722 F: +65 6885 0838 E: tsasiapacific@zebra.com	For printers, parts, media, and ribbon, please call your distributor, or contact us. T: +65 6858 0722 F: +65 6885 0837

Appendix F

Using zebra.com

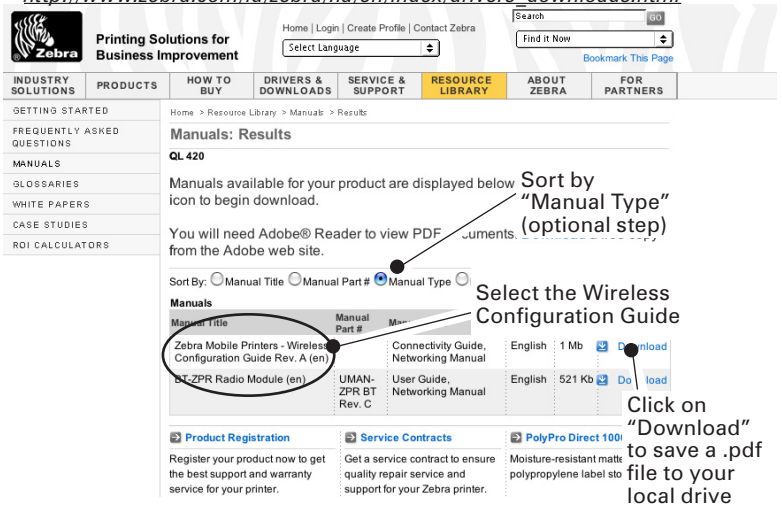
The following details using the search functions on Zebra's Web site *www.zebra.com* for finding specific documents .

Finding Manuals:
http://www.zebra.com/id/zebra/na/en/index/resource_library/manuals.html



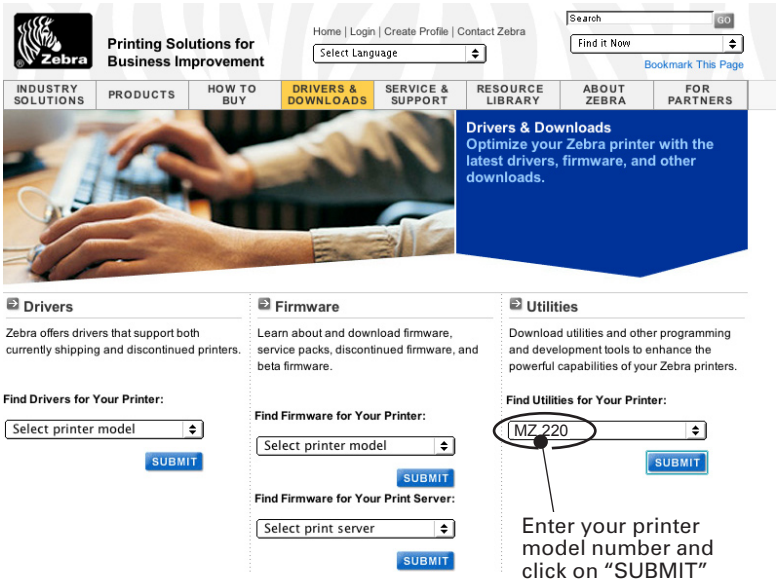
Example: FInd the Mobile Printer WIreless Configuration Guide.
Perform the above step and select as a manual type "Networking Manual"

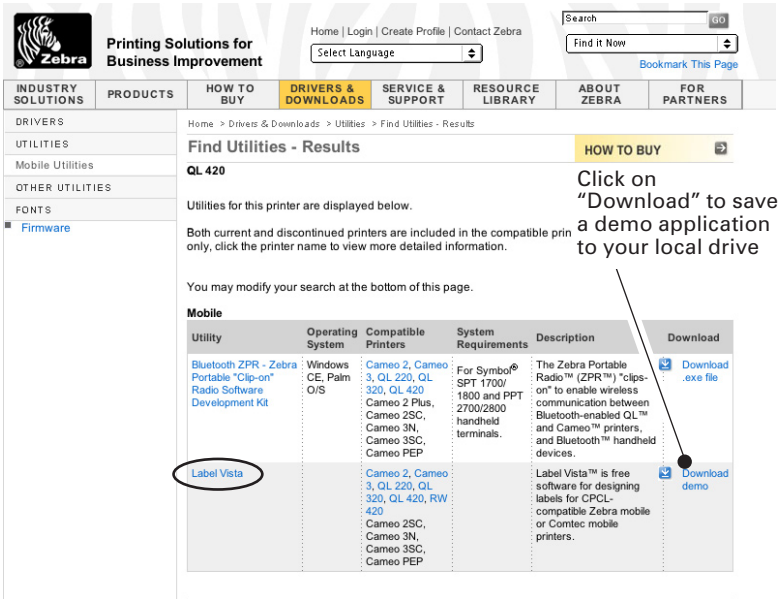
Finding the Label Vista Download page:
http://www.zebra.com/id/zebra/na/en/index/drivers_downloads.html



continued

At the resulting window select your printer model from the pull-down menu in the “Utilities” section.





Index

Patent Numbers

This product and/or its use may be covered by one or more of the following US patents and corresponding international patents worldwide

D275,286	5,047,617	5,372,439	5,570,123	6,068,415
D347,021	5,103,461	5,373,148	5,578,810	6,095,704
D389,178	5,113,445	5,378,882	5,589,680	6,109,801
D430,199	5,140,144	5,396,053	5,612,531	6,123,471
D433,702	5,132,709	5,396,055	5,642,666	6,147,767
3,964,673	5,142,550	5,399,846	5,657,066	6,151,037
4,019,676	5,149,950	5,408,081	5,768,991	6,201,255 B1
4,044,946	5,157,687	5,410,139	5,790,162	6,231,253 B1
4,360,798	5,168,148	5,410,140	5,791,796	6,261,009
4,369,361	5,168,149	5,412,198	5,806,993	6,261,013
4,387,297	5,180,904	5,415,482	5,813,343	6,267,521
4,460,120	5,229,591	5,418,812	5,816,718	6,270,072 B1
4,496,831	5,230,088	5,420,411	5,820,279	6,285,845 B1
4,593,186	5,235,167	5,436,440	5,848,848	6,292,595
4,607,156	5,243,655	5,444,231	5,860,753	6,296,032
4,673,805	5,247,162	5,449,891	5,872,585	6,364,550
4,736,095	5,250,791	5,449,893	5,874,980	6,379,058 B1
4,758,717	5,250,792	5,468,949	5,909,233	6,409,401 B1
4,816,660	5,262,627	5,479,000	5,976,720	6,411,397 B1
4,845,350	5,267,800	5,479,002	5,978,004	6,428,227 B2
4,896,026	5,280,163	5,479,441	5,995,128	6,530,705
4,897,532	5,280,164	5,486,057	5,997,193	6,540,122
4,923,281	5,280,498	5,503,483	6,004,053	6,607,316
4,933,538	5,304,786	5,504,322	6,010,257	6,609,844
4,992,717	5,304,788	5,528,621	6,020,906	6,874,958
5,015,833	5,321,246	5,532,469	6,034,708	6,899,477
5,017,765	5,335,170	5,543,610	6,036,383	
5,021,641	5,364,133	5,545,889	6,057,870	
5,029,183	5,367,151	5,552,592	6,068,415	

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