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# RW 420 PRINT STATION SAFETY, INSTALLATION AND USER GUIDE

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## FCC Compliance Statement

Class B digital device. Tested to comply with FCC standards for home or office use.

**WARNING:** Exposure to Radio Frequency radiation with certain versions of the printer used with this product. To conform to FCC RF exposure requirements this device shall be used in accordance with the operating conditions and instructions listed in the printer's User Guide. There are several radio options available with the printer used in conjunction with this product. Additional regulatory information is contained in the printer's Users Guide in sections devoted to each radio option.

**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 à 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

- FCC part 15B: 2007
- Canadian STD ICES-003 Class B
- EN55022:2006 Class B European Electromagnetic Radiation Standard
- EN55022:1998 European Immunity Standard
- EN60950: 2001 Safety Standard
- NOM/NYCE (Mexico)

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## Special Notices

The following notices emphasize certain information in this guide. Each serves a special purpose and is displayed in the format shown:



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**NOTE:** Note is used to emphasize any significant information.

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**Caution:** Indicates information that, if not followed, can result in damage to software, hardware, or data.

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**Caution:** This symbol indicates a potentially hazardous situation which, if not avoided, can result in personal injury.

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**Caution:** This warning symbol indicates a potentially hazardous situation which, if not avoided, may be a shock hazard.

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**Warning:** This warning symbol indicates an imminently hazardous situation which, if not avoided will result in death or serious injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents

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## Vehicle Installation Safety

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**Caution:** Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

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**Caution:** DO NOT USE THE RW 420 PRINT STATION WHILE DRIVING, as this may result in property damage or personal injury. Zebra Technologies Corp. does not promote the use of these products except when parked or stationary, and is not responsible for any loss resulting from the use or misuse of our products. Most importantly, we do not want to see harm come to our customers or anyone else.

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**Caution:** Do not install the RW 420 Print Station where it will be exposed to precipitation or excessive condensation.

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**Caution:** Do not install the RW 420 Print Station on or near an airbag cover plate or within an airbag zone. Also, do not install the RW 420 Print Station in a location that will affect vehicle safety or operation.

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**Caution:** The means of routing and securing the Power Input cable from the RW 420 Print Station through to the vehicle power source is extremely important. Hazards associated with improper wiring can be severe. To avoid unintentional contact between the wire and any sharp edges, provide the cable with proper bushings and clamping where it passes through openings. If the wire is subjected to sharp surfaces and excess engine vibration, the wiring harness insulation can wear away, causing a short between the bare wire and the chassis. This can start a fire.

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**Caution:** It is very important to ensure you make the correct connections to the power source, because electrical energy from a vehicle's power system can harm equipment and people.

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**Caution: If you need to jump start your vehicle from another vehicle battery, disconnect the power cable running to the RW 420 Print Station. Failure to do so can result in damage to your mobile terminal and/or the RW 420 Print Station itself.**

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The safety instructions in this guide do not exclude all situations which could be dangerous. Common sense, caution and care should be exercised by the user or the person in charge of the maintenance service.



**Maintenance and repair of electric and electronic parts must be carried out only by qualified technicians after considering all the necessary safety measures.**

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**The standard RW 420 Print Station system is not designed to operate in environments with a potentially explosive atmosphere.**

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**NOTE: Zebra Technologies is not liable for personal injury or damage to any equipment caused by the improper installation of this equipment to any power source.**

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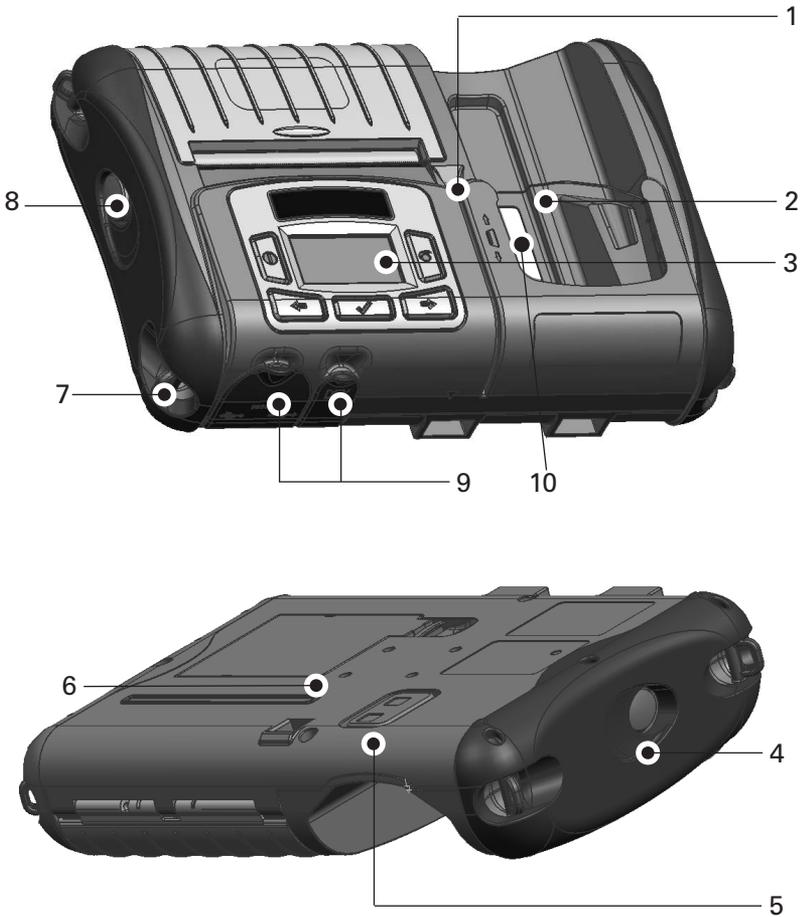
Carefully read the electric data stated on the identification nameplate placed on the device. In case such plate is missing or unreadable, contact a Zebra authorized service provider.

The purpose of this guide is to explain how to use and install the RW 420 Print Station system, by means of instructions, pictures and examples.

All the necessary operations are described in order to allow the correct use of the RW 420 Print Station and its options. Consult the user documentation supplied for the printer and terminal for more complete information on the operation of these components.

Non-qualified personnel should not handle or attempt repairs of the RW 420 Print Station system.

**Figure 1: RW 420 Print Station Overview**



*For the details of the printer mechanism refer to RW series printer*

1. Magnetic Stripe Reader (MSR) Slot
2. Terminal MC 70 Series Dock
3. Control Panel
4. Terminal Latch Release Button
5. Cradle Contacts
6. Battery
7. "D" Rings
8. Media Release Button
9. Communications and Charging Port Doors
10. Bluetooth Device Address (BDA) label

## DESCRIPTION

The RW 420 Print Station is a rugged, integrated device that provides easy storage and simultaneous charging of the printer and terminal.

The RW 420 Print Station provides housing for a Zebra RW 420 printer mechanism (integrated internally, non-removable) and the Motorola terminal (removable) MC70 (all versions; MC7004, MC7090, MC7094, MC7095, MC7098, MC75, all of which with/without the 2x extended battery pack).

The RW4-PS draws from the accessory suite developed for the RW printers and RW 420 Route Palettes.

The following table lists the Accessory Kits that may be used with the RW 420 Print Station as a stand-alone device:

Order Number	Description
AK18913-002	AC ADAPTER SINGLE w/US CORD
AK18913-007	AC ADAPTER, SINGLE w/EU CORD
AK18913-006	AC ADAPTER SINGLE w/UK CORD
AK18831-1	CABLE LIGHTER PLUG (vehicle directly to palette)
AK18312-001	DEX CABLE
BT11132-1	SHOULDER STRAP
P1017872	STRAP SHOULDER W/POCKET
P1022893	KIT, STRAP CARRYING HAND RW4-PS
AK18822-1	RW 420 ROUTE SOLUTIONS VEHICLE CRADLE
AK18823-1	ROUTE SOLUTIONS 4 BAY POWER STATION

More complete information on other available accessories for the RW 420 Print Station can be found in UMAN-RW4AK-103.

Physical	Units	
Dimensions	In. [cm]	11.12 [28,24] x 7.62 [19,35] x 2.83 [7.19]
Weight (w/ printer & battery; no terminal & media)	lbs. [Kg]	3.25 [1.47]
Working temperature	°F [°C]	-4 [-20] to 131 [55]
Charging temperature:	°F [°C]	32 [0] to 104 [40]
Storage temperature (w/ printer and battery)	°F [°C]	-22 [-30] to 149 [65]
Relative humidity (operating)	-	10-90% non-condensing 20%-80% non-condensing w/ power supply

<b>Electrical</b>		<b>Units</b>
<i>Input Voltage</i>	<i>Vdc</i>	<i>12-16 nominal, 20 max.</i>
<i>Maximum recharging current</i>	<i>A</i>	<i>5.0 (max.)</i>
<i>DC barrel jack</i>	<i>mm</i>	<i>2,5 x 5,5 x 9,5</i>
<i>Serial connector</i>		<i>RJ-45 10 position</i>
<i>USB connector</i>		<i>Mini type AB</i>
<i>DEX External connector:</i>		<i>1/4" Stereo Phone jack</i>
<b>Accessories</b>		<b>Units</b>
<i>AC Power supply</i>	<i>n/a</i>	<i>See Table 1 for Order Part Numbers</i>
<i>Input:</i>	<i>Vac</i>	<i>100-240 / 47-63 Hz / 1,5 A</i>
<i>Output:</i>	<i>Vdc</i>	<i>12 V/ 4,2A</i>
<i>Print Station Vehicle Cradle</i>	<i>n/a</i>	<i>Zebra p/n AK18822-1</i>
		<i>SAE Compliance SAE-J1113-11</i>
<i>Input</i>	<i>Vdc</i>	<i>15Vdc - 24Vdc</i>
<i>Output</i>	<i>Vdc</i>	<i>12Vdc nominal</i>

**Circuit protective devices:**

<i>Protected direct input power line</i>	<i>125V, 5Amps, slowblow fuse</i>
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# GETTING READY TO PRINT

## Battery Safety

The Battery Packs used on Zebra Mobile Printers contain a great deal of energy and can cause personal injury or start a fire if used improperly or carelessly. Please observe the following safety practices:



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

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**Caution • Batteries can explode or catch fire if improperly charged or exposed to high temperatures or fire. Do not disassemble, crush or expose batteries to water.**

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**Caution • Use of any charger or power adapter not approved specifically by Zebra for use with its batteries and systems could cause damage to the battery pack or the RW4-PS and will void the warranty.**

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

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## Charger Safety



**Do not place the UCLI72-4 Quad Charger in locations where liquids or metallic objects may be dropped into the charging bays.**

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**Use care in locating either the LI72 Single Charger or the UCLI72-4 Quad Charger. Do not block the ventilating slots on the top and bottom covers. Ensure that the Charger is plugged into a power source which won't accidentally be turned off if you will be charging batteries overnight.**

---



**Required Regulatory Text for Argentina**

**Only certified adaptors with the following electrical characteristics shall be used. The use of different adaptors could damage the device, present hazards to the user and declare the correspondent guaranty void.**

**LI72: Input ratings: 100-240 VAC 50/60Hz 200mA., Class 2**

**Output ratings: 8.4 VDC, 800 mA**

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## Smart Battery

The Print Station battery pack contains electronics which allow the printer to monitor its operating parameters. Among these are the battery's charge state, the number of charge cycles it has undergone, date of first use and its date of manufacture. Using these parameters, the Print Station software monitors the battery condition and alerts the user when to recharge, re-condition or remove the battery from service.

The Print Station battery pack is physically different from the battery which is used in the RW series printer. The battery charg-

ing jack is on the same side as the battery contacts. The charging contacts on the RW series battery pack are on the opposite side of the battery contacts. The Print Station, however, uses the same method for battery installation as RW series printer. The LI72 Single Charger, and UCLI72-4 Quad Charger can be used to charge (stand-alone) the battery outside the printer. Please refer to RW series printer User Guide. Additionally, the RW 420 Print Station has internal charging circuits which are designed for optional charging and monitoring of the battery pack, with the use of an external power adapter, which can be connected via the barrel jack power input. Power can also be applied to charge the battery via the Print station itself when its docked in the vehicle cradle.

## **Loading the Media**

The media loading procedure for the RW 420 Print Station is same as for the RW series printer. The latch release button is on the left side of the printer (Refer to figure 1). For more detailed instruction on media loading, please reference the RW series User's Guide.

## **Operator Controls**

### *CONTROL PANEL*

The printer control panel has buttons for the power on/off and media feed functions and a display which provides information regarding printer functions and application prompts. Two navigation keys provide easy selection of menu options.

The "Scroll Forward" button allows scrolling through the various options and settings. The "Scroll Back" button allows scrolling back through previously viewed menus. Pressing the "Select" button selects the currently highlighted option or function.

The status icons at the top of the screen indicate the state of various printer functions per the table below.

	Indicates a Bluetooth connection is established. This icon is functional only on Print Station Series printers with a Bluetooth wireless option installed.
	A flashing icon indicates that the printer does not detect any media. This could indicate an out of media condition, or improperly loaded media, or the media door is open.
	A flashing icon indicates that data is being transferred to the printer.
	A flashing outside element of the battery icon indicates low charge status. You should suspend any printing operations and recharge or replace the Battery Pack as soon as it is convenient.
	Cycling charge level elements within the battery icon indicate the Print Station Series battery is being charged, the cycling stops when the battery is fully charged. Refer to the Charger section of this manual.
Battery Charging %	The Print Station Series battery is being charged while the unit is off, "Battery Charging %" message displays on the screen.



***If the printer displays: "Please Recondition the Battery", the user should recondition the battery to return it to optimal operation. To recondition the battery, charge the battery fully overnight and then use the printer until the printer shuts down due to a low battery condition. Charge the battery again until it is fully charged. At that point the battery will be reconditioned. If the battery is not reconditioned properly the indicated battery charge level will be inaccurate. Reconditioning performed as prompted by the printer will ensure accurate capacity indication throughout the serviceable life of the battery pack.***

***Battery health is a parameter that determines the suitability of the pack for service. It is computed on power-up and displayed on a 2-key report. The battery health factor shall determine whether or not the printer can operate and what is communicated to the user via the display.***

***Health has three states: Good, Replace and Poor.***

***If health = Good, then no action is taken. Normal printing operation is permitted.***

***If Health = Replace, then a reminder message is displayed on the screen for 10 seconds at power-up. Normal operation shall then commence message.***

***"Please Replace Battery Pack"***

***The warning shall be accompanied by three beeps in rapid succession.***

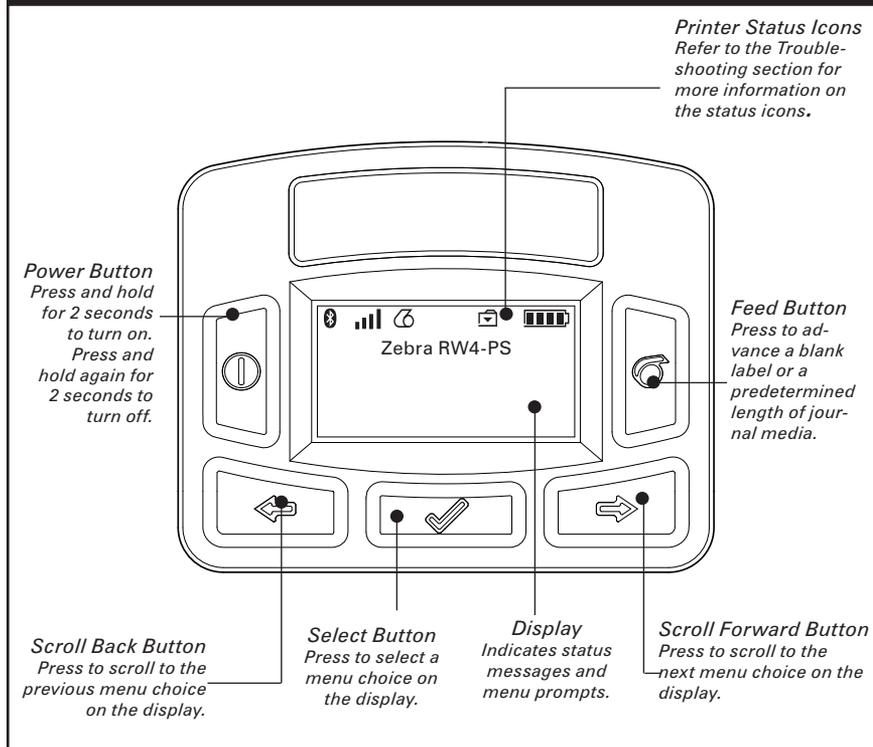
***"Warning - Battery is Past its Useful Life"***

***The warning shall be accompanied by a series of three double beeps in rapid succession.***

***If Health = Poor, then the following message is displayed on power-up for 30-Seconds. The message shall flash on and off and shall be accompanied by beeping at the rate of once per second. After the 30-second interval, the printer shall shut down.***

***"Please Replace Battery Before Proceeding – Shutting Down."***

**Figure 2: RW 420 Print Station  
Printer Controls & LCD Icons**



## PROGRAMMABLE LCD SETTINGS

In addition to the status icons, the LCD on the control panel can display many of the printer's settings and functions as text as determined by the printer's application. Applications can be written to allow the user to view and /or modify these settings using the scroll and select keys on the display. Refer to the following tables for a partial set of printer features that can be programmed to display on the LCD.

The LCD has a backlighting option which allows viewing of the screen in a dark environment, or provides better contrast in a very bright environment. Use of the display backlight will decrease the time the printer will run between charges. Refer to the section "Extending Battery Life" for more information.



**The power button requires a 2 second push for both on and off functionality.**

## Extended LCD Functions

<b>Table 3: LCD functions</b>		
<b>Function</b>	<b>Default setting</b>	<b>Scroll &amp; Select Options</b>
Sensor Type	Bar	<ul style="list-style-type: none"> <li>• Bar</li> </ul>
Baud Rate	19200	<ul style="list-style-type: none"> <li>• 9600</li> </ul>
		<ul style="list-style-type: none"> <li>• 19200</li> </ul>
		<ul style="list-style-type: none"> <li>• 32400</li> </ul>
		<ul style="list-style-type: none"> <li>• 57600</li> </ul>
		<ul style="list-style-type: none"> <li>• 115200</li> </ul>
Data Bits	8	<ul style="list-style-type: none"> <li>• 7</li> </ul>
		<ul style="list-style-type: none"> <li>• 8</li> </ul>
Parity	N (none)	<ul style="list-style-type: none"> <li>• E (Even)</li> </ul>
		<ul style="list-style-type: none"> <li>• N (None)</li> </ul>
		<ul style="list-style-type: none"> <li>• O (Odd)</li> </ul>
LCD Contrast (Adjustable On Display)	8	<ul style="list-style-type: none"> <li>• Increase (15 max.)</li> </ul>
		<ul style="list-style-type: none"> <li>• Decrease (15 max.)</li> </ul>
No-activity Timeout	120 sec. (Non Radio) 20 min. (Bluetooth)	<ul style="list-style-type: none"> <li>• Decrease (0 min.)<sup>2</sup></li> </ul>
		<ul style="list-style-type: none"> <li>• Increase (120 max.)</li> </ul>
Audio Volume	3	<ul style="list-style-type: none"> <li>• 1 – Low</li> </ul>
		<ul style="list-style-type: none"> <li>• 2 – Medium</li> </ul>
		<ul style="list-style-type: none"> <li>• 3 - High</li> </ul>
Media Type	Journal	<ul style="list-style-type: none"> <li>• Journal</li> </ul>
		<ul style="list-style-type: none"> <li>• Label</li> </ul>
LCD Backlight <sup>3</sup>	Momentary On	<ul style="list-style-type: none"> <li>• Momentary On w/ time delay</li> </ul>
		<ul style="list-style-type: none"> <li>• Off</li> </ul>



**1: LCD menu options are under specific application control. Not all options may be available in your printer's application.**

**2: A No-activity timeout value of "0" means the printer will remain on until powered off by the operator.**

**3: LCD Backlight turns on when any key other than FEED is pressed.**

### Display Functions Not Controlled from the Keypad

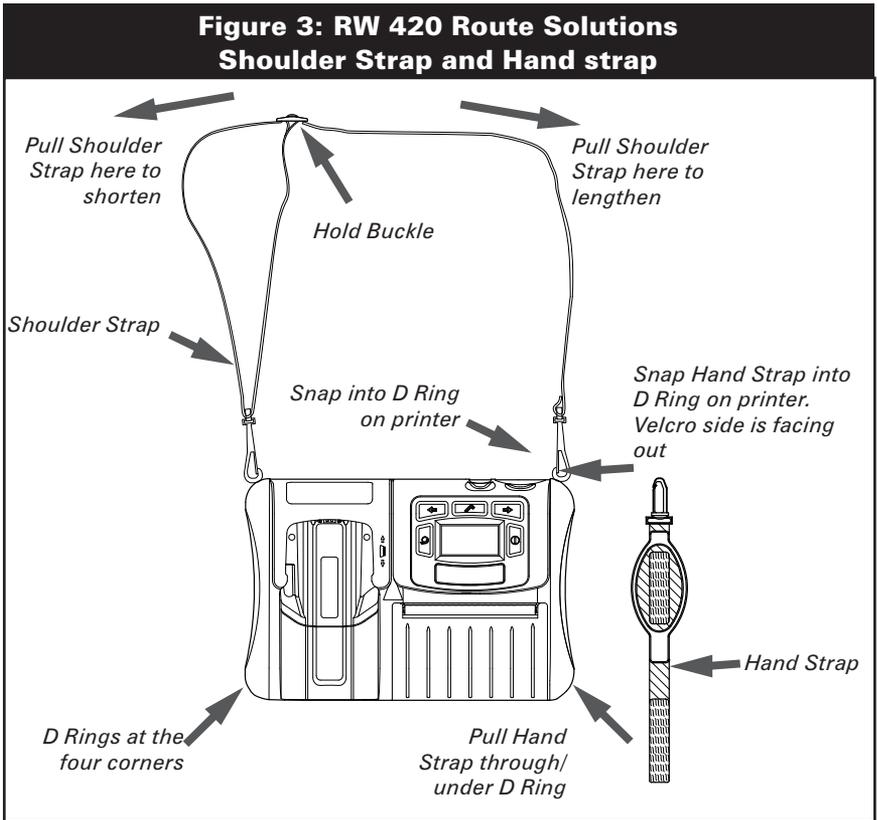
The backlight setting can be changed from the display, and is available in our standard WML script that ships with the product. Also, any documented setting can be changed by any communications program, and can be done wirelessly as well as via a serial cable.

*continued*

**Table 4: Display Functions**

Function	Default setting	Scroll & Select Options
Tear-off Position (Top of Form)	00	• Increase (max. = +10)
		• Decrease (min. = -120)
Bluetooth & RF Settings	n/a	• All protocols On
		• Protocols On or Off individually
DTR/VBUS-Power Off	On	• On
		• Off
Present-at	000	• Increase (max.= +120)
		• Decrease (min. = 000)
Bluetooth parameters	n/a	Displays current Bluetooth operating parameters
Media Type	Journal	•Journal
		•Label

## ADJUSTABLE SHOULDER STRAP AND HAND STRAP



Refer to figure above. Snap each end of the shoulder strap into the retaining features at the corners of the Print Station. Hold the buckle and adjust the strap as shown until you achieve the desired length.

Snap one end of the hand strap into the retaining features at the corners of the printer. Make sure the velcro side is facing out, and the leather side is facing the printer. Pull other side of the hand strap through/under the D ring and fold the strap to adjust it to the desired length.

### Verify the Printer Is Working

Before you connect the printer to your computer or portable data terminal, 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, same as performed with the RW series printer. For more information on this- please reference the RW User Guide.

## Connecting the Printer

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

- By a cable between the printer and its host terminal using either RS232C or USB protocols.
- By means of a Bluetooth short-range radio frequency link.

### Cable Communications

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**CAUTION • The printer should be turned off before connecting or disconnecting any communications cable.**

---

The table below illustrates the communications functions that can be used concurrently during the different usage scenarios. For instance: when the terminal is docked, and a DEX cable is not connected to the RW 420 Print Station, you can use the external serial port to send commands to the printer, but you can't use the external USB port.

Functionality of the various RW4-PS ports in different Usage Scenarios <sup>1,3,4,7</sup> :					
1. Terminal is docked, DEX port not in use		2. Terminal is docked, DEX port in use		3. Terminal is not docked <sup>2,5</sup>	
Port	Available?	Port	Available?	Port	Available?
External RJ-45 Serial Port to the Printer	Yes	External RJ-45 Serial Port to the Printer	Yes	External RJ-45 Serial Port to the Printer	Yes
External USB Port to the Printer	No	External USB Port to the Printer	No	External USB Port to the Printer	Yes
USB via the External RJ-45 Port (special cable required) <sup>8</sup>	No	USB via the External RJ-45 Port (special cable required) <sup>8</sup>	No	USB via the External RJ-45 Port (special cable required) <sup>8</sup>	Yes
Internal Serial Comms from Handheld to Printer	Yes	Internal Serial Comms from Handheld to Printer	No	Internal Serial Comms from Handheld to Printer	Not Applicable <sup>6</sup>
Internal USB Handheld to Printer	Not Supported	Internal USB Handheld to Printer	Not Supported	Internal USB Handheld to Printer	Not Supported



- 
- 1. While multiple interfaces can be connected, only one can be sending data at a time.**
  - 2. As the External USB and External RJ45 USB interfaces use the same USB port yet provide different connectors, only one connector can be connected at a time.**
  - 3. Current Motorola MC70/75 terminal products do not implement USB. When functionality is supported, it is assumed to be Host USB.**
  - 4. Terminal Bluetooth is assumed to be a host port.**
  - 5. DEX connection is not applicable in this case as there is no terminal present.**
  - 6. This is not applicable, as there is no terminal docked to send information to.**
  - 7. Bluetooth functionality of the printer and handheld are independent of terminal dock state or DEX usage.**
  - 8. Part number can be found on mobile printer price list.**
  - 9. The Dex cable is used to communicate directly with the terminal. While the Dex connector is plugged in, the serial communication between the terminal and the print station is unavailable.**
- 

### *Wireless Communications with Bluetooth*

Both the RW 420 Print Station and the terminal it communicates with must follow the Bluetooth standard. Each Bluetooth enabled RW 420 Print Station has a unique Bluetooth Device Address (BDA) loaded into its radio module when manufactured. The BDA label is located in the terminal MC 70 dock, and it can be used for scan-to-associate. A Bluetooth enabled RW 420 Print Station will normally act as a Bluetooth slave creating a miniature network with the terminal sometimes referred to as a “piconet”. Please refer to the RW series printer User Guide.

## **Setting Up the Software**

The RW 420 Print Stations support the same programming language as the RW series printer. Please refer to the RW series printer User Guide.

## **Card Reader**

The RW 420 Print Stations can be equipped with a Magnetic stripe reader. Please refer to the RW series printer User Guide.

## **INSTALLATION**

### **Installing the RW 420 Print Station in a Vehicle**

#### *INTRODUCTION TO INSTALLATION*

If you will be running the RW 420 Print Station from a vehicle’s electrical system you will need the following :

- An optional Vehicle Cradle (ref. Zebra p/n AK18822-1).

- One of two types of power cables running between the Vehicle Cradle (Part number listed Table 1) and the vehicle's power source:
  - An unterminated, fused power input cable (ref. Zebra p/n AK17463-006), or
  - A power input cable with a cigarette lighter adapter. The adapter is internally fused (ref. Zebra p/n AK17463-007).



---

**CAUTION:** *There must be a fuse between the vehicle's power source and the input power cable connection! If you are not using the cable provided by Zebra for use with the RW 420 Print Station, selecting the size and rating of this fuse is the installer's responsibility. Do not replace the fuse on either of the power input cables with a fuse with a different power rating.*

---

The Vehicle Cradle provides a source of power to run and charge the RW 420 Print Station from the vehicle's electrical system. In all installations, the power cable is wired to the vehicle's battery power indirectly through a power take-off point.

Since each situation or equipment type may pose unique requirements, mounting hardware selection and mechanical installation shall be the responsibility of the installer. Zebra recommends using self-locking (ESN) nuts, bolts, and/or lock washers for installing the mount.

Since the vehicle's electrical system is used to charge the entire RW 420 Print Station System, it is important that this system function properly. The vehicle's charging circuit must work properly and vehicle-generated electrical "noise" must be minimized and within specifications.

The vehicle charging circuit must neither undercharge nor over-charge the vehicle battery. Defective ignition wiring, damaged insulation, or faulty vehicle electrical components can cause excess electrical noise severe enough to defeat the electrical filtering that is built into the Print Station system components.



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**NOTE:** *Hardware used to secure the Route Solutions Vehicle Cradle to the vehicle is not supplied in the kit. Recommended fasteners are #8-32 (3 mm) hex head or socket head bolts with flat washers, lock washers, nuts and/or locking nuts. You may optionally elect to drill and tap for a #8-32 or M4 screw.*

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## **POSITION THE ROUTE SOLUTIONS VEHICLE CRADLE**

Your tasks are to:

- Route and install the input power cable to the vehicle's power source.

- Mechanically install the Route Solutions Vehicle Cradle.

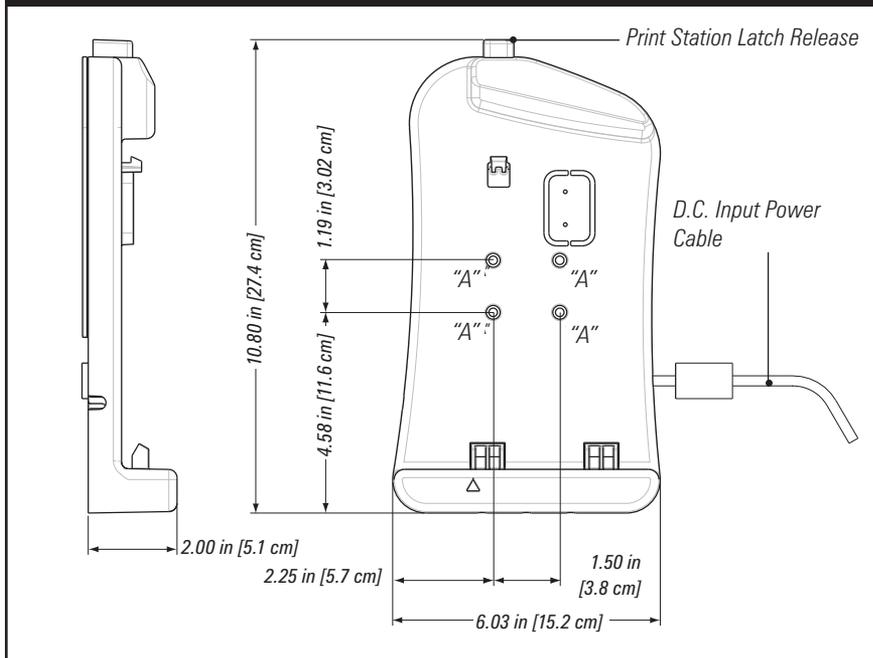
Decide where you will mount the RW 420 Print Station and the Route Solutions Vehicle Cradle, then proceed with the following instructions.

Always follow the Safety Guidelines at the beginning of this manual when deciding on the location of the Route Solutions Vehicle Cradle and the RW 420 Print Station.



**CAUTION:** Locate the Charger in the vehicle so that it will avoid contact with the operator in case of an accident.

**Figure 4: RW 420 Route Solutions Vehicle Cradle Mounting Dimensions**



Refer to Figure 4 for Route Solutions Vehicle Cradle mounting dimensions. Recommended fasteners for the Mobile Charger are #8-32 [M4] bolts, flat washers and lock washers. Refer to the RW 420 Print Station Accessory Installation Guide (p/n UMAN-RW4AK-001) supplied with the Vehicle Cradle for more complete installation and safety directions for this system component. Note that the Route Solutions Vehicle Cradle can also be mounted via a flexible arm assembly (Zebra p/n AK17463-002) Use of this option is also covered in the RW 420 Route Solutions Accessory Installation Guide.

Splicing onto the input power cable is not recommended due to

voltage drops encountered across splices and other discontinuities.

## Installation General Guidelines

Follow the general guidelines below and other safety instructions closely when installing the Input Power cables.

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**CAUTION:** Ensure that the input power cable you are using for this installation is clearly labeled for use with the vehicle's voltage.

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**NOTES:** 1. It is the installer's responsibility to insure correct wiring and installation.

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2. Zebra is not liable for damage to any equipment caused by improper installation or wiring of the Route Solutions Vehicle Cradle, or damage resulting from use of the wrong Route Solutions Vehicle Cradle for the intended application.

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3. Do not lengthen the input power cable. Extending the cable will affect the systems's reliability and radio frequency interference (RFI). Do not attach any ground wires to the Route Solutions Vehicle Cradle housing.

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4. Use care when attaching the converter's power cable to the power source. The red wire attaches to the positive (+) terminal and the black wire to the negative (-) terminal. If wired backwards, the Route Solutions Vehicle Cradle and/or the Print Station could be rendered inoperable and will need to be sent to an authorized service provider for repair.

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**CAUTION:** High voltages may be present. Always disconnect the vehicle's primary battery before installing any Print Station system component.

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- Completely install the input power cable before connecting the unit(s).
- Route the Input Power cable from the general area where the unit(s) will be mounted.
- Use a snap-in bushing if the Input Power cable passes through the vehicle's fire wall or other sheet-metal barriers.
- Ensure that cable routing does not interfere with other equipment or vehicle controls.
- Make sure that cable routing does not invite damage to the cable.
- Secure the Input Power at least every 12 inches [30 cm] throughout the cable run.

## Input Power Cable Installation (AK17463-006)

### CONNECTION TO POWER SOURCE WITH UN-TERMINATED CABLE

You must cut the cable to length and strip the individual wire ends of the cable. Finally, you must complete the connections

to the vehicle power source. The installer must find the nearest practical connection point to the main battery's voltage. It may be possible to use internal wiring supplied in the vehicle, but only if the wire gauge is equal to or greater than 18 AWG.

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**CAUTION: There must be a fuse between the vehicle's power source and the input power cable connection!**

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The capacity of the fuse between the vehicle's power source and the charger should not exceed 2.2A. Consult the vehicle manufacturer or a dealer to determine the best power connection location.



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**NOTE: Actual cable termination used must be compatible with the power source. The following is only a guideline.**

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1. Cut the RED wire as near to the power source as practical.
2. Cut the BLACK wire to length to the nearest practical chassis ground.
3. Strip 1/4" (6 mm) of insulation from the BLACK wire.
4. Securely crimp a 3/8" terminal ring onto the BLACK wire.
5. Strip 1/4" (6 mm) of insulation from the RED wire.
6. Securely crimp a 3/8" terminal ring onto the RED wire.
7. Ensure that cable terminals are well connected to the cable.
8. Connect black cable ground (-) terminal to vehicle ground location.
9. Connect red cable power (+) terminal to vehicle power source.

### **Cigarette Adapter Cable Installation (AK17463-007)**

No input power cable preparation is necessary. Plug the cigarette lighter adapter into the vehicle's cigarette lighter power socket. The appropriate fuse is integrated with the adapter. The LED on the adapter will light, indicating that power is applied to the charger. If the LED does not light, this may indicate that the internal fuse in the adapter is blown. A 5 Ampere, 250 Volt, Type 312 fuse is integrated with the adapter.

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**CAUTION: Do not attempt to replace this fuse with a higher amperage fuse. Damage to the charger and/or the printer may result.**

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## **Securing the Power Cable**

Secure the Input Power every 12 inches (30 cm) with adjustable cable clamps or nylon wire wraps. Make sure that the cable routing does not interfere with other equipment or vehicle controls. Ensure that the cable routing protects the cable from damage during vehicle use.

## **Finish the Route Solutions Vehicle Cradle Installation**

### *Route Solutions Vehicle Cradle Location*

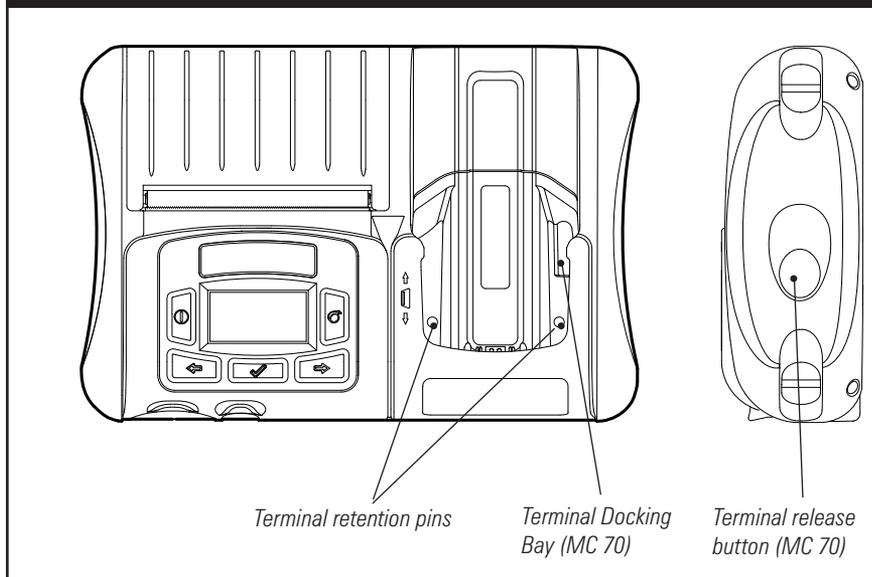
Locate the Route Solutions Vehicle Cradle in a location that allows convenient access to the system. Follow these guidelines:

- Allow adequate clearance for the removal and replacement of the RW 420 Print Station on the Route Solutions Vehicle Cradle.
- Locate the Route Solutions Vehicle Cradle and the RW 420 Print Station in the vehicle so that it will avoid contact with the operator in case of an accident.
- Make sure that cable routing does not invite damage to the cable.
- Plug the power input cable into the mating plug on the Route Solutions Vehicle Cradle. Use the cable retention features on the bottom of the charger and holder module to route the power input cable's exit from the module.
- Secure the Route Solutions Vehicle Cradle, with #8 [4 mm] hardware where indicated in Figure 2 at "A". Insure that the mounting hardware will not become loose due to vibration by using locking hardware or prevailing torque fasteners.
- Follow the installation and safety guidelines included in the Charger/Holder Installation manual.

# PREPARE THE RW 420 PRINT STATION

## Installation and Removal of the Terminal

**Figure 5: RW 420 Print Station (MC70 Terminal)**



### *MC 70 series Terminal (See Figure 5)*

To install an MC 70 series terminal in the RW 420 Print Station:

- Insert and push the terminal in the docking bay.
- Push the terminal in until you hear a click, indicating that the terminal is properly locked in place.

To remove the MC 70 terminal:

- Turn the terminal off.

Press the green terminal release button as shown in Figure 1.

The terminal will unlock from the Print Station and may be removed.

## RW 420 PRINT STATION USE

### *References:*

Print Station: RW series printer User Guide

Terminal : MC70 Users Manual



**NOTE: Do not attempt to use any power sources other than the ones supplied by Zebra for use with this product. Use of third party power supplies and/or charger modules will void the warranty and could cause irreparable damage to the Printer and the terminal.**

### *Installation with the Vehicle Cradle.*

When not in use, the RW 420 Print Station should be installed on its Route Solutions Vehicle Cradle. This will retain the Print Station securely, and ensure that the batteries of the terminal and Print Station are always at an optimum charge.

To install the Print Station on the Charger/Cradle:

- Align the two slots on the bottom edge of the Print Station with the retaining pins on the storage and charge module.
- Rock the top edge of the Print Station towards the storage and charge module until the locking latch on the module engages securely with the Print Station.

To remove the RW 420 Print Station from the Charger/Cradle:

- Press the green Latch Release Button on the Charger/Cradle module. (Refer to Figure 4)
- Rock the top edge of the Print Station away from the storage and charge module and lift the Print Station away from the Charger/Cradle.

### *Use of the External Power Supply*

The RW 420 Print Station may also be used with an optional external AC power source. (Refer to table on page. 7 for order part numbers and descriptions.)

To use the Print Station with the external power supply:

- Plug the output cable of the power supply into the power jack. The power jack is located under the protective flap in the lower left corner of the Print Station when viewed from the front.

- Plug the Power Supply into a compatible AC power source.

Ensure you have the correct AC power cable for use in your locality. The Power Supply will adjust to most AC voltages and frequencies automatically.

### *Charger status Indicators*

Whenever the Print Station is either charging in the Route solutions Vehicle Cradle, or has been attached to power through the external power supply, the battery icon on the LCD will cycle through the charge level bar. It stops when the battery is fully charged. The LED around the RW4-PS will illuminate when power is applied to the RW4-PS

### *Terminal Battery Recharging*

The yellow LED on the terminal indicates the status of the terminal battery recharging. The LED will normally light when recharging is complete.

## CARE AND MAINTENANCE

The RW 420 Print Station requires little maintenance other than routine cleaning.

Before performing any maintenance on the system, ensure it is disconnected from any source of power. Use a damp cloth with a mild detergent for cleaning and dry with a soft cloth. Do not use strong products (solvents or anything similar). Avoid any liquid infiltration into the system.

Do not use the RW 420 Print Station system if it shows evidence of the following :

- It has been visibly damaged or tampered with.
- The system indicates a malfunction.
- It has been stored for a long period in unsuitable conditions.

Switch the device off immediately, disconnect it from the power supply, and contact the authorized service provider.



**Warning:** To avoid possible personal injury or damage to the RW 420 Print Station, never insert any pointed or sharp object into it or the terminal.

**Caution:** Use only the cleaning agents indicated. Zebra will not be responsible for damage caused by any other cleaning materials used.

Any maintenance operation described below must be executed with the Print Station disconnected from its power source.

**Table 5: Maintenance Operations**

Part	Method	Interval
Exterior	Remove the printer and the terminal, then clean with water dampened cloth	6 months or as necessary
Printer connection contact	Release the printer. Remove any dust or other materials with compressed dry air. Then clean with cleaning swab and 70% isopropyl alcohol.	6 months or as necessary
Terminal connection contact	Remove the terminal. Remove any dust or other materials with compressed dry air. Then clean with cleaning swab and 70% isopropyl alcohol.	6 months or as necessary
Power connector and DEX connector	Remove dust or other materials with compressed dry air.	6 months or as necessary
Terminal release mechanism,	Visually check the connectors for any signs of damage	6 months or as necessary
	Check the hooks for terminal retention are elastic and return in rest position.	3 months or as necessary
Shoulder Strap (optional)	Visually inspect the optional shoulder strap for any signs of damage or excessive wear.	12 months or as necessary

## General considerations

For more consistent operation:

- Consult the RW printer series User Guide for complete information on maintenance and troubleshooting of the Printer. If you do not have access to the documentation supplied with the printer, the latest version may be found on-line at [www.zebra.com/manuals](http://www.zebra.com/manuals)
- Always observe the safety precautions in the Lithium-ion Technical Bulletin included with each printer battery pack. The rechargeable batteries of both the terminal and printer deteriorate in performance over time. Consider replacing the batteries at regularly scheduled intervals as part of a preventative maintenance procedure.

Always consult the specific manuals and other user documentation for both the terminal and printer for more complete operating procedures.

## TROUBLESHOOTING

### LCD Control Panel

The top of the display shows icons indicating the status of various printer functions. Check the icon's status and refer to the referenced Troubleshooting topic on the following pages.

**Table 6: Troubleshooting**

Icon	Status	Indication	Ref. to Troubleshooting Topic
	On	Bluetooth link established	n/a
	Off	No Bluetooth link	6,8
	Outer icon element flashing	Low Battery	4, 6,
		Number of bars indicates battery charge level. Display will cycle through the battery icons if it is undergoing a charge from the AC Adapter.	n/a
	Flashing	Battery too hot or too cold to charge	2
	Flashing	Out of Media	9

	Flashing	Data transfer in process	n/a
Blank Screen	n/a	Battery voltage too low to turn printer on or no application loaded	1

## *Troubleshooting Topics*

### **1. No power:**

- Check that battery is installed properly.
- Recharge or replace battery as necessary.
- If the battery voltage is outside of the range at which the printer will turn on and the AC Adapter is plugged into printer, the printer will not turn on. The battery will start to charge, but the user will have no indication that the battery is charging. When the battery reaches a valid operating voltage range, the printer will still not turn on unless the user manually turns it on, or unplugs and re-plugs the charge cable.

### **2. AC Adapter is plugged in and the battery icon is alternately flashing and .**

- Indicates that the battery is out of its safe charging temperature range. Charging will resume when the battery reaches a safe charging temperature.

### **3. Media does not feed:**

- Be sure printhead is closed and latched.
- Check media support components for any binding.
- If unit is equipped with label presence sensor, ensure the most recently printed label is removed.
- Ensure label sensor is not blocked.

### **4. Poor or faded print or low battery icon ( ) flashing:**

- Clean printhead.
- Check battery pack. Recharge or replace as necessary.

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***Always dispose of used battery packs properly. Refer to Appendix E for more information.***

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- Check quality of media.

### **5. Partial/missing print:**

- Load media improperly.
- Clean printhead.
- Ensure printhead is properly closed and latched.

## **6. No print:**

- Replace battery pack.
- Check cable to terminal.
- Wireless units only: Restore wireless connection.
- Units using Thermal Director media.

## **7. Reduced battery life:**

- Check battery pack date code. If battery is one to two years old, short life may be due to normal aging.
- Check printer display. If battery has exceeded a factory set number of charge cycles the printer will display a message that the battery needs re-conditioning or replacing.
- Replace battery pack.

## **8. icon off:**

- Units with Bluetooth only: Indicates no radio link has been established.

## **9. flashing:**

- Check that label media is loaded.
- Check that the printhead is closed and securely latched.

## **10. Skips labels:**

- Ensure correct media is being used.
- Ensure bar/gap sensor is not blocked.
- Ensure label design does not exceed actual media length.

## **11. Communication Error:**

- Check media is loaded, head is closed and all error indicators are off.
- Replace cable to terminal.

## **12. Screen blank:**

- No application loaded. Attempt to re-load application and restart printer.
- No power. See Topic "1" of this section.

## **13. Computer message display:**

"USB device not recognized"

- By design, docking and turning the terminal "On" disable the USB connection to the computer.

"Power surge on the Hub Port"

- It reflects 2 devices on the USB line. The computer will shut down its USB port when the terminal is docked and turned "On".

*Printing a Configuration Label*  
See RW Series printer User Guide.

*Performing a Forced Shutdown*  
See RW Series printer User Guide.

*Communications Diagnostics*  
See RW Series printer User Guide.

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