



# **ZEBRA<sup>®</sup> ZQ500<sup>™</sup> Series Vehicle Cradle**

## **Installation Guide**

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## 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

Class B digital device. Tested to comply with FCC standards.

**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.

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 15 Class B
- Canadian STD ICES-003 Class B
- EN55022 Class B European Electromagnetic Radiation Standard
- EN55024 European Immunity Standard
- EN60950 Safety Standard
- RCM (Australia/New Zealand)
- CU (Russia, Kazakhstan, Belarus)
- SII (Israel)
- CE (EU/EFTA)
- E-Mark (EU/EFTA)
- SABS (South Africa)

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## Document Conventions

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



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**Caution • Warns you of the potential for electrostatic discharge.**

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**Caution • Warns you of a potential electric shock situation.**

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**Warning • 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 the electrical circuitry and be familiar with standard practices for preventing accidents.**

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

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

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

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

---



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

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## Installation Safety



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

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**Warning • It is very important to ensure that the correct power adaptor is connected to the cradle.**

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**Note • Zebra Technologies Corporation 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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**Caution • This equipment should be installed in accordance with this installation guide and under the supervision of properly trained and qualified personnel.**

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**Caution • Do not place coins, keys, paper clips, or other objects on the cradle or the 12-pin connectors.**

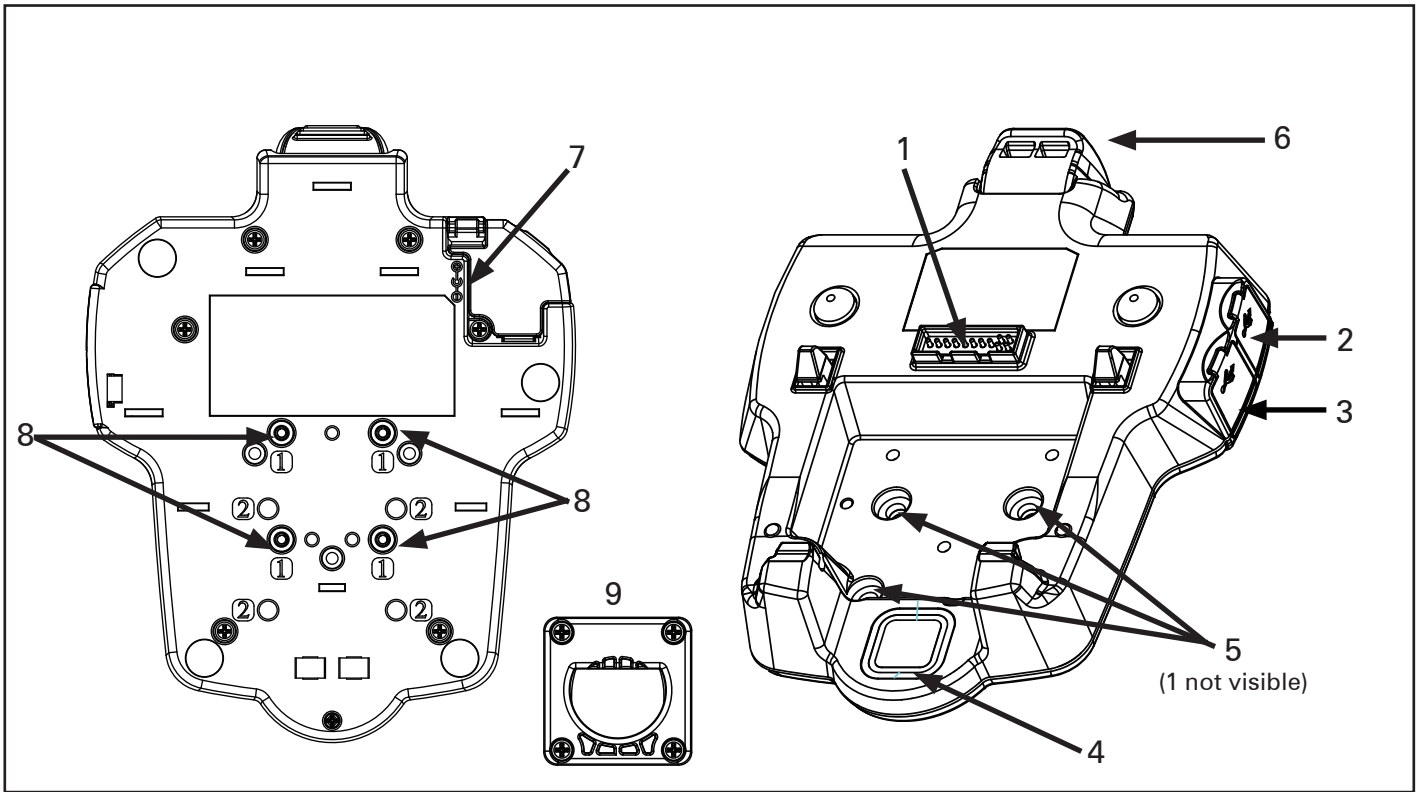
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**Caution • Use only the approved power supply for the ZQ500VC. Use of an alternative power supply will void the product warranty and may cause product damage.**

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## Indicator and Parts Descriptions

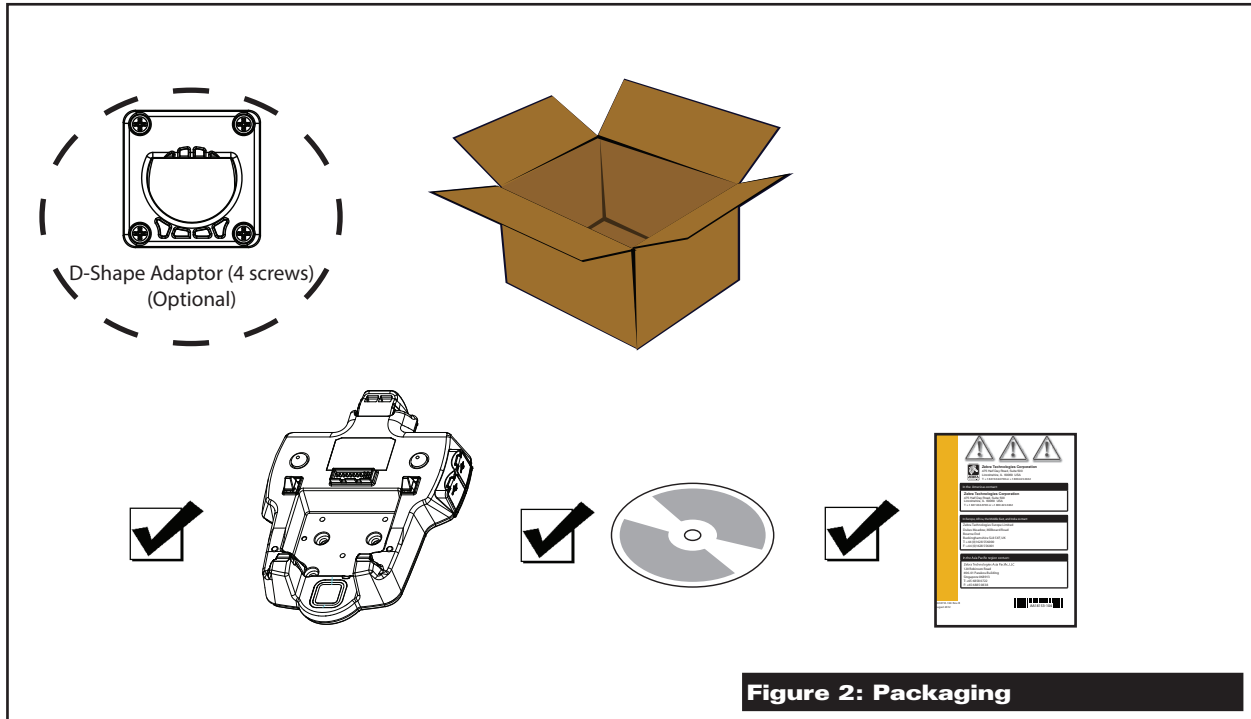


**Figure 1: ZQ500 Vehicle Cradle**

## Descriptions

1. 12-pin docking port connector for printer
2. USB port Type A Host
3. USB port Micro B
4. Power Indicator
5. RAM mount fixing holes (4)
6. Printer release button
7. DC power supply input jack (Open cover to expose)
8. D-shape adaptor mounting holes (4)
9. D-shape adaptor (4 screws)

# Packaging



## Introduction

The ZQ500VC allows the user to dock a ZQ510 or ZQ520 printer in a vehicle. The cradle provides battery charging power while still maintaining all of the printer's functionality.

The cradle has 3 input connections:

- A DC power supply input connects to the power adapter (not included).
- A standard USB connector.
- A micro USB connector connects with an input device (i.e. PC, tablet, smartphone, etc.).

## Power Adaptors

Part #	Description
P1031365-024	KIT ACC Mobile AC ADAPTER US (type A) cord
P1031359	KIT, ACC, CHARGER, LIGHTER PLUG, VEHICLE ADAPTOR MOBILE
P1050667-026	KIT ACC QLn420-VC – 15V – 60V to 12V
P1063406-030	KIT, ACC DC-DC VEHICLE ADAPTER, OPEN ENDED, 12~24V, ZQ500/QLn Series
P1063406-031	KIT, ACC DC-DC VEHICLE ADAPTER, CIG, 12~24V
P1063406-034	KIT, ACC CONVERT CABLE, 6 inch, ZQ500 Series

## USB Cables

Part #	Description	"L" DIM
P1063406-045	KIT, ACC MICRO,USB,B, to,USB,A,PLUG,1.8M, ZQ500 SERIES	1.8 m +/- 6 mm
P1063406-046	KIT, ACC MICRO,USB,B to USB,A,PLUG, 3.5M, ZQ500 Series	3.5 m +/- 6 mm



The following instructions detail the installation and use of the cradle. Following these instructions closely will ensure safe, reliable performance of the printer when docked on the cradle.

The printer runs off its own battery, which is monitored and charged by circuitry within the printer.

The user should always refer to the ZQ500 Series Printer Users Guide (P1064404-001) for complete information on using the printer.

## Required for Installation

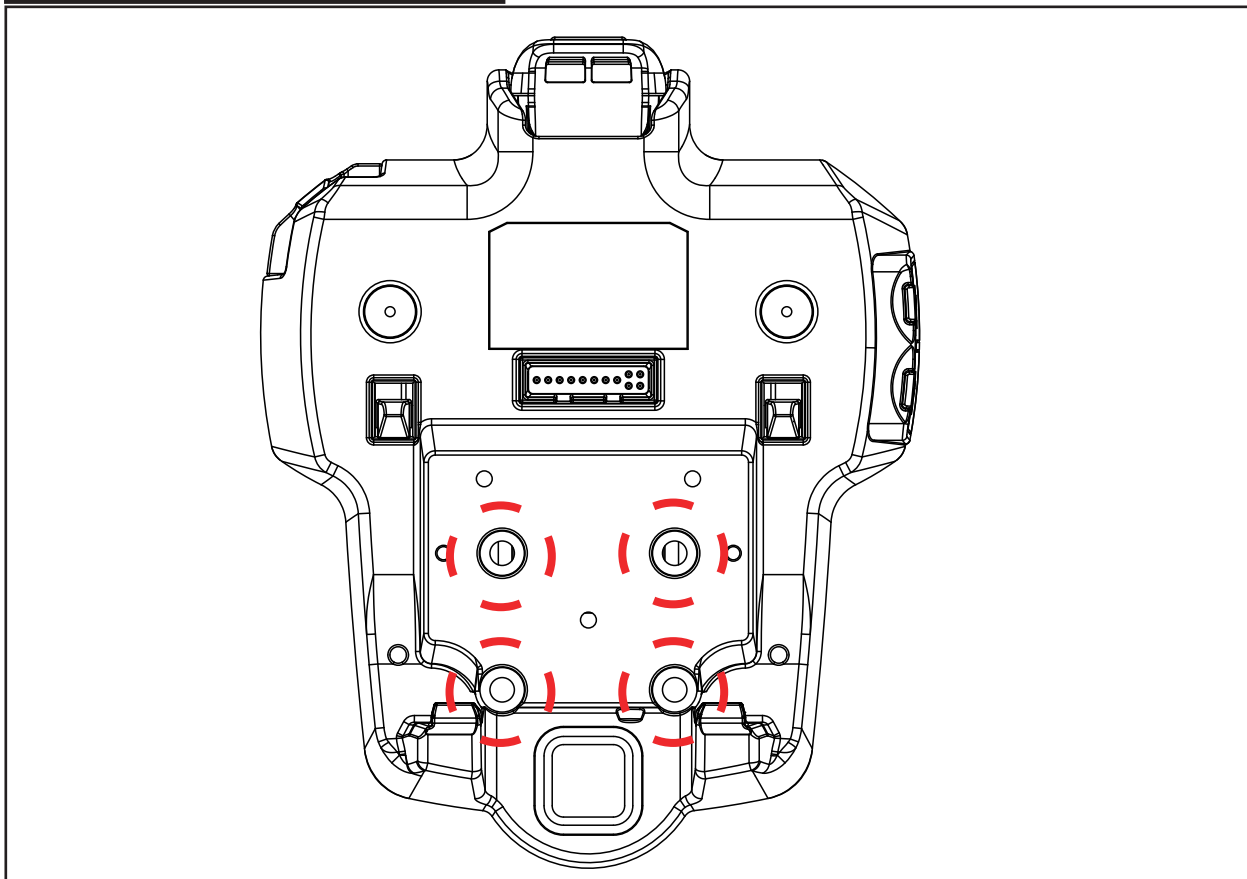
When attaching the ZQ500VC on the desktop, use the four (4) through holes circled below along with the following tools and parts:

- An electric drill with a 1/4" (6 mm) drill bit
- Common hand tools
- Wood screws (4)



**Note** • Use of appropriate hardware to secure the cradle to the desktop or wall is the responsibility of the installer. Hardware used to secure the cradle on the desktop is not supplied in the installation kits.

**Figure 3: Mounting Holes**



## Installation

The ZQ500VC allows you to dock a ZQ510 or ZQ520 printer. The installation of the cradle includes an AC/DC power adapter, which provides power to run the printer and charge its battery. A USB cable is required to connect the cradle to the PC if applicable.

## Tasks for Installation

- Mechanically prepare and install the Vehicle Cradle.
- Connect the power adapter to the cradle.



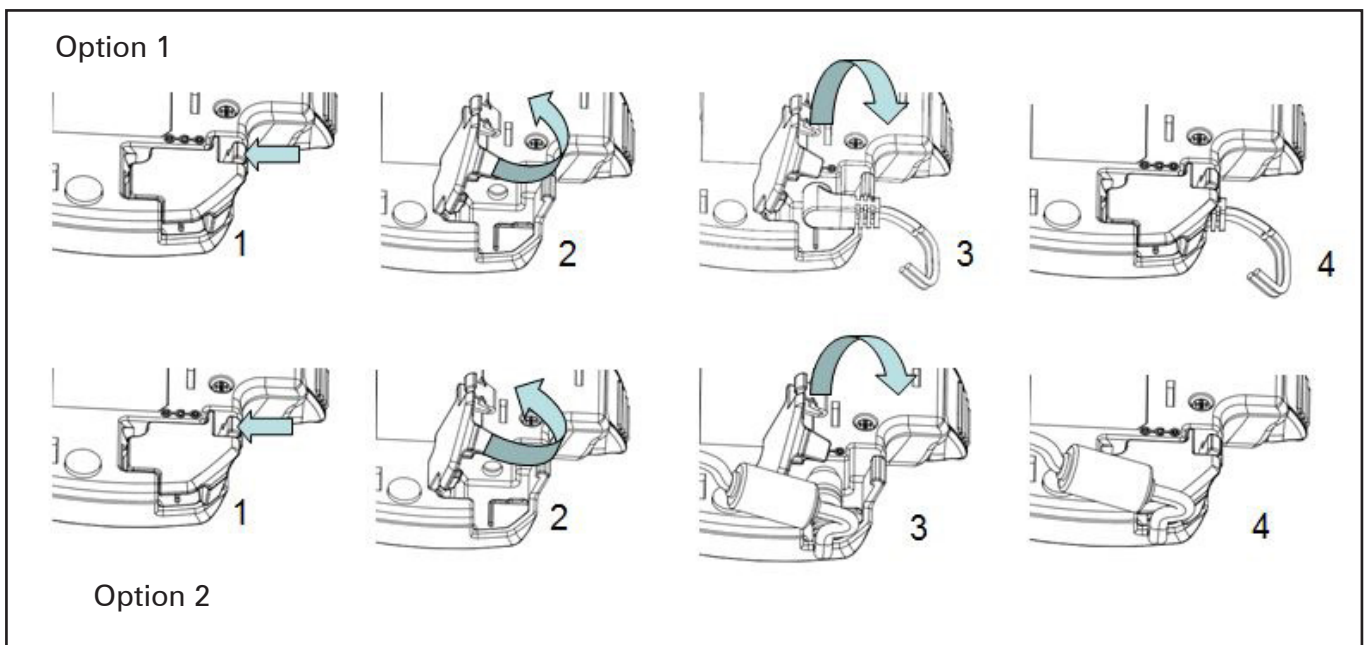
**Note** • *It is important to leave a free zone around the printer to allow the loading of media.*

## Cradle Preparation

Plan your installation with the above considerations in mind. Locate the printers and cradle so that the operator can easily load printing media and operate the printer's controls.

1. Select a location with flat surface with a free zone around the printer to allow for the loading of media.
2. Plug the power adapter into the bottom of the cradle (Figure 1 #7).
3. Plug the USB cable into the micro USB port of the cradle if applicable. (Figure 1 #3).
4. Make sure that the AC power adapter cable routing does not invite damage to the cable. To avoid unintentional contact between the wire and any sharp edges, provide the cable with proper bushings and clamping where it passes through openings.

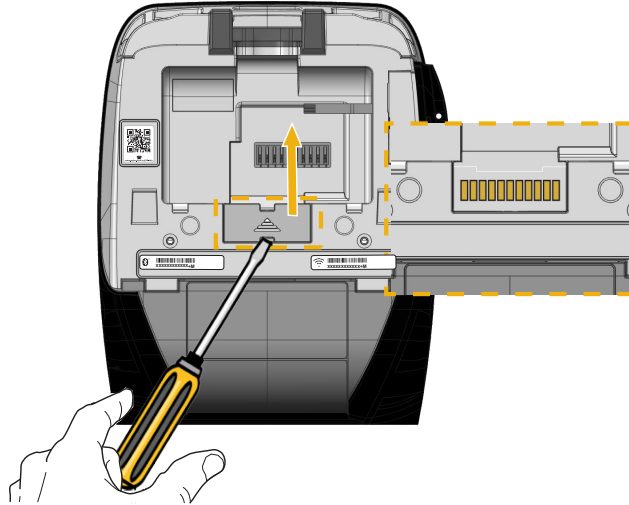
## Cable Routing



## Using the Printer on the Cradle

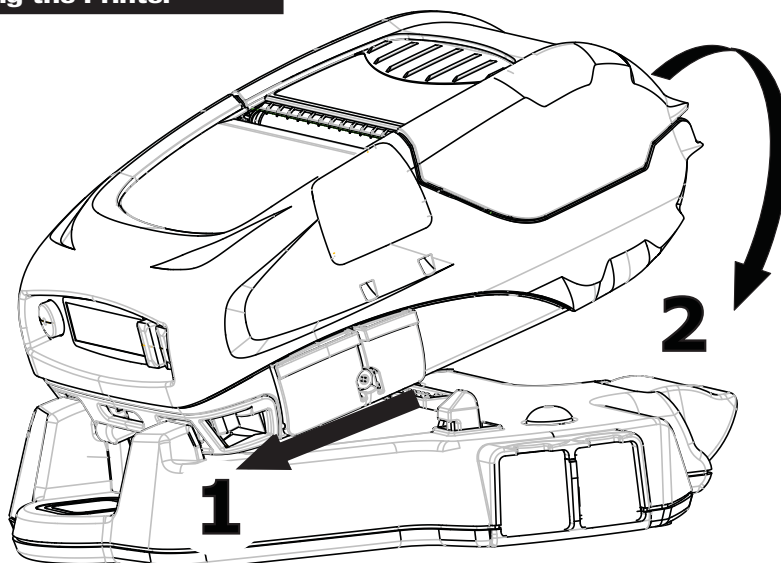
Prepare the printer for docking onto the cradle by doing the following:


- Remove the battery.
- Use a coin or small screwdriver to remove the plastic Docking Contacts Cover on the bottom of the printer.
- Re-install the battery.



- If necessary, clean any residue from the docking contacts using a Zebra cleaning pen or a cotton swab with 70% Isopropyl alcohol.
- Angle the front of the printer toward the two (2) guide prongs on the front of the cradle as shown in Step 1 below. Gently slide the printer onto the cradle.
- Press the printer down and onto the cradle until the latches lock it firmly in place (Step 2).

**Figure 4: Docking the Printer**



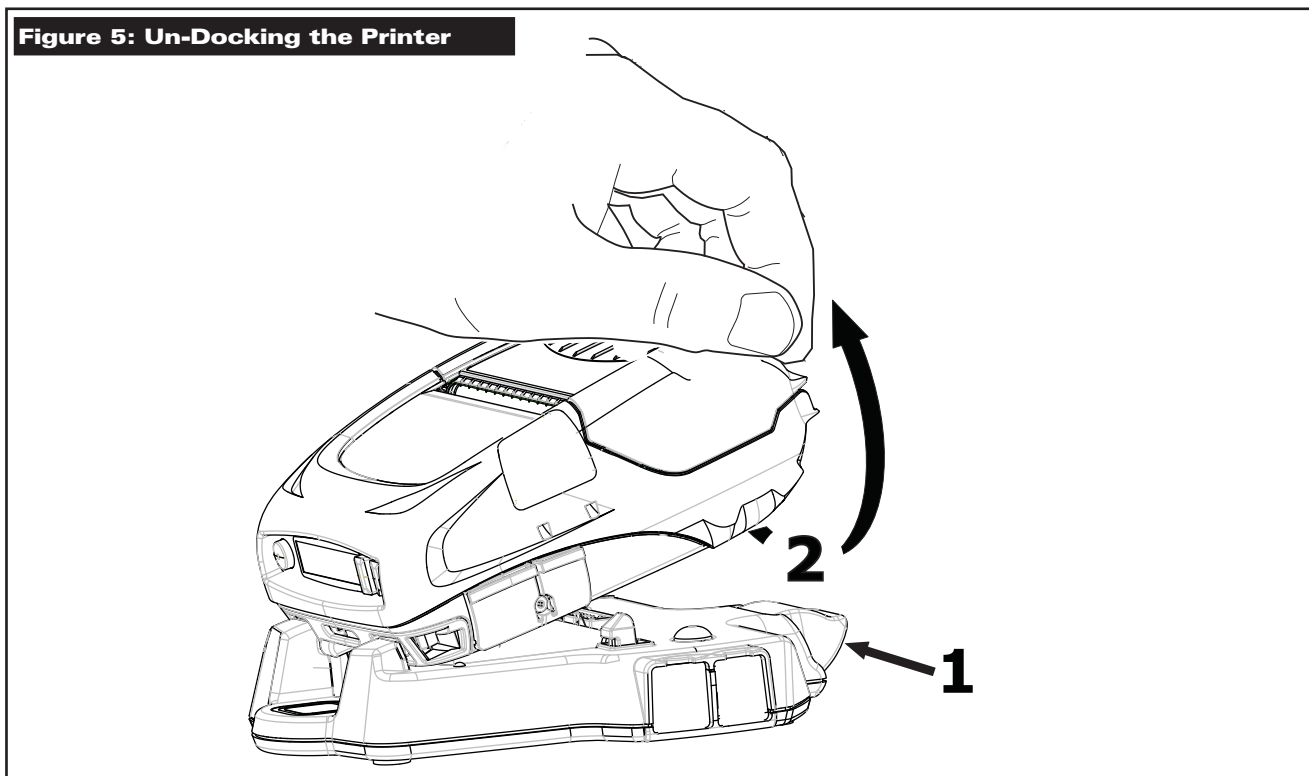
- Verify that the charge LED indicator  on the front of the printer and power indicator LED (Figure 1 #4) on the cradle's panel are lit.
- The printer will turn on automatically when docked if the cradle is powered on.

All ZQ500 Series printers will charge when docked on the cradle. See the ZQ500 Series User Guide for instructions.

## Printer Removal

Remove the printer from the Vehicle Cradle by following the steps below:

1. Push the Eject Button (Figure 1 #6) on the back of the cradle in the direction shown below.
2. Pivot the printer up and out of the cradle.



## Operational Notes

The media compartment and operator controls can be reached while the printer is secured to the cradle. If you need to take out the printer, follow the removal procedure detailed above in the Printer Installation and Removal section.

If using a printer that has a Bluetooth or 802.11 radio, that radio can be used while the printer is docked.

The USB ports on the printer can be used while the printer is docked.

The DC input barrel jack connection on the printer can NOT be used while the printer is in the cradle.

## Cradle Indicators

The cradle has LED indicators on the front panel. The power LED (Figures 1 #4 ) is green when power is supplied to the cradle. Charging status will be displayed on the charge LED on the front of the printer.

A fault condition could be caused by the battery's internal temperature exceeding its specified limits (too hot or too cold), or could be caused by an internal short in the battery. Allow the battery to return to specified charging temperature range and try to recharge. If the fault condition persists, discontinue use of the battery.



**Note** • *If the charge LED on the printer is not illuminated, the printer is not seated properly in the cradle. Eject and re-dock the printer and observe if the charging LED is illuminated.*

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## USB Connectors

The cradle has two (2) USB ports:

- A standard USB connector.
- A micro USB connector connects with an input device (i.e. PC, tablet, smartphone, etc.).

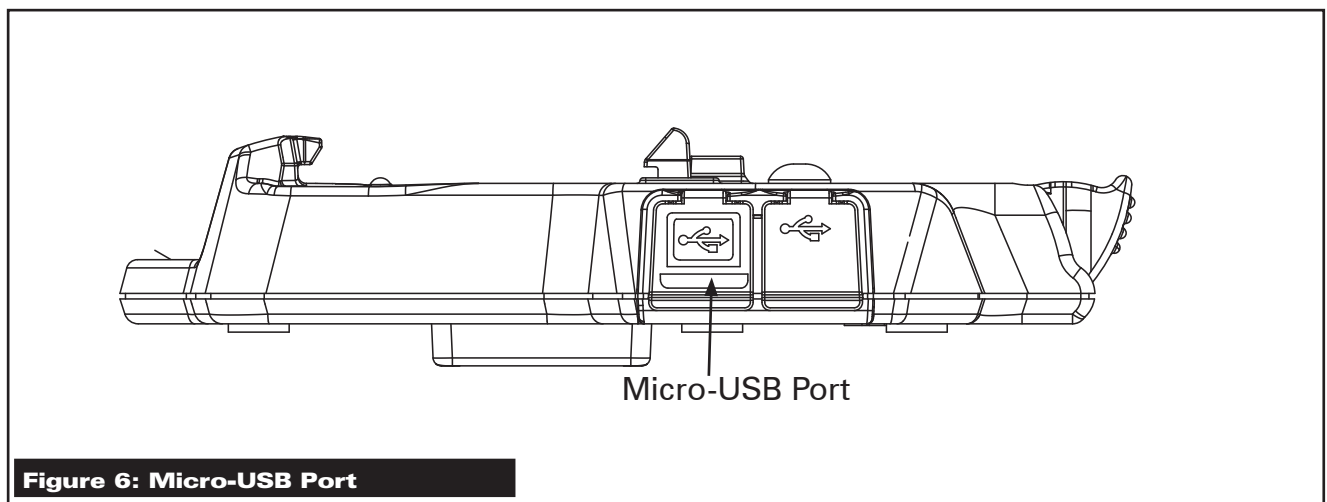


**Note** • *Under normal circumstances, the Micro-USB port requires the user to install a separate driver. Drivers are available on <http://www.ftdichip.com/Drivers/VCP.htm>.*

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### Connecting a PC/Laptop to the Cradle Micro-USB Port

- Plug 12VDC adapter into Vehicle Cradle. The power LED (Figures 1 #4 ) is green when power is supplied to the cradle.
- Connect the PC/Laptop to the cradle Micro-USB port via a micro-USB cable (see Fig. 6).
- Install the driver on PC/Laptop.
- Install a battery in the printer. Dock the printer into the cradle and power on the printer.
- On the application of PC/Laptop, select the virtual COM port named "USB Serial Port (COMx)".
- The setting of the virtual COM port has to be matched with the ZQ500 printer's default Settings. (Available Choices and SGD commands listed in the table on Page 14.)
- The printer is now ready to accept print jobs.



**Figure 6: Micro-USB Port**



**Note • Refer to the table below for serial port settings.**

Parameters	ZQ500 Default Settings	Available Choices	SGD Commands
Baud Rate	9600	9600 19200 38400 57600 115200	cradle.comm.baud
Flow Control	rts/cts	xon/xoff rts/cts none	cradle.comm.handshake
Data Bits	8	N/A	N/A
Parity	N	N/A	N/A
Stop Bits	1	N/A	N/A
DSR	on	N/A	N/A

## Installing the Mounting Arm

### Description

An optional mounting arm (Zebra p/n P1010338) is offered for use with the Vehicle Cradle which allows a more versatile method of positioning the ZQ500 Series printers. It consists of an arm with a ball and socket joint at either end, which in turn are terminated with a mounting flange. One flange is secured to the Cradle by the four mounting holes provided on the bottom plate, and the other is secured to the desired mounting surface. A clamp on the arm locks the Cradle in the desired position.

### Installation

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**Caution:** Mount the Printer and Vehicle Cradle where it will not hit the operator in case of an accident.

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**Warning:** Do not connect the input power cable to the Vehicle Cradle until the Cradle and Mounting Arm installation has been completed.

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For ease of installation, the Arm can be disassembled by loosening the clamp enough to remove the two ball and socket flanged ends. These end flanges can then be easily secured to the Vehicle Cradle and the desired mounting surface. Then the arm can be slipped over the two ends and the clamp tightened to secure the Cradle in position.

When installing the mounting arm, remember that the arm provides a considerable range of movement for the Vehicle Cradle and Printer. Extra clearance should be provided for this movement if it is desired in the installation.

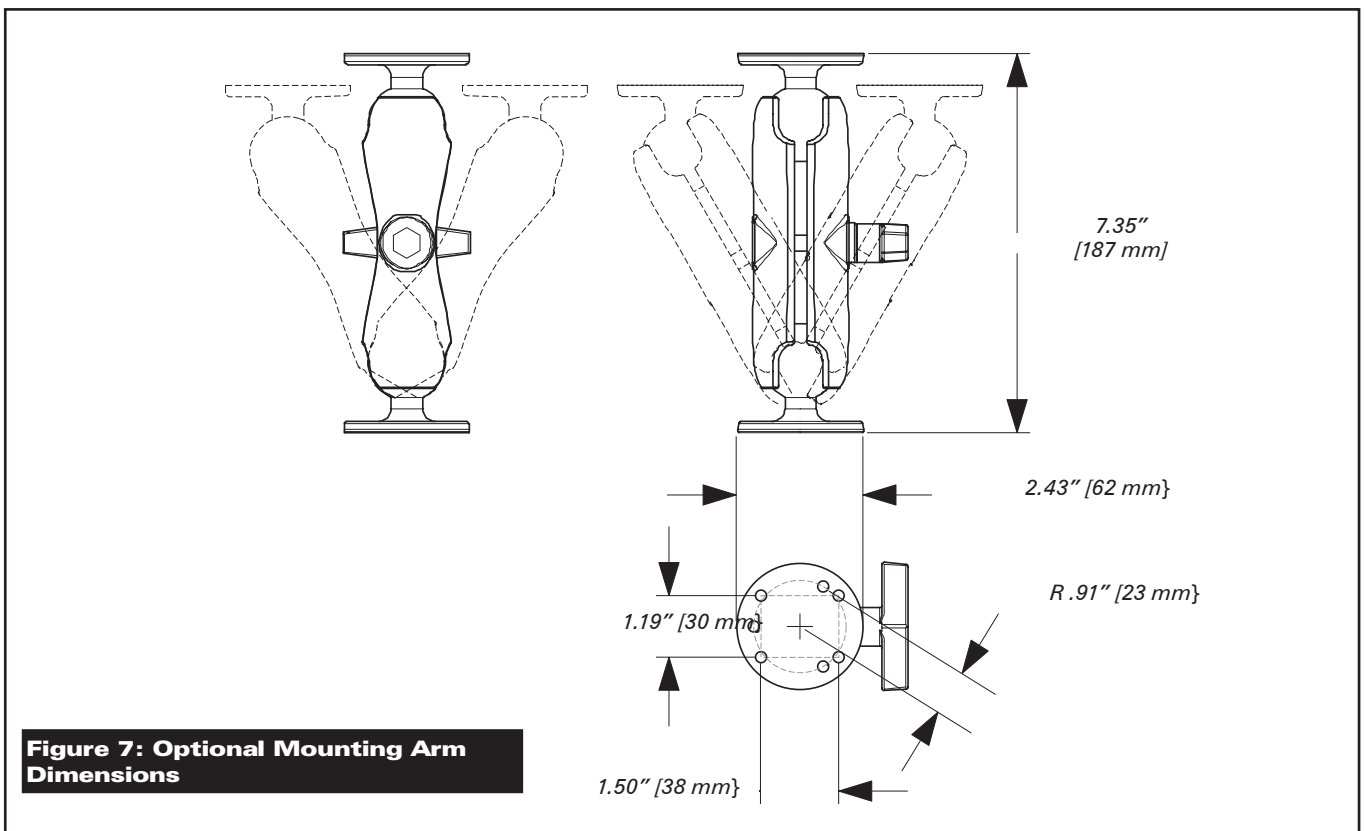
## Mounting Hardware

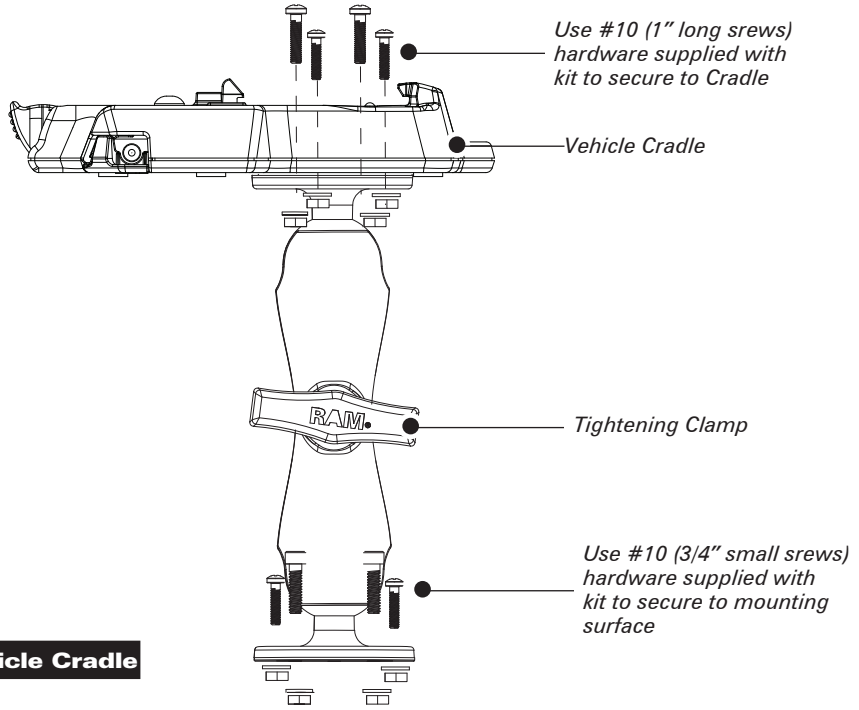
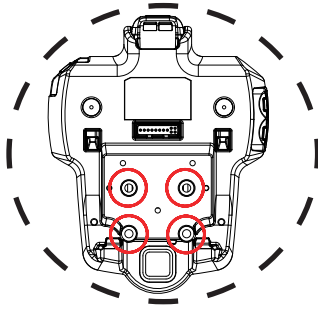
Mounting hardware is supplied with the Mounting Arm Kit. The #10-32 or #10-24 screws should be used to secure one end of the arm to the bottom of the Vehicle Cradle. The #10-24 x 3/4" screws and associated hardware may be used to secure the other end of the arm to the desired mounting surface.

## Vehicle Cradle Preparation

Refer to the section on Vehicle Cradle Preparation earlier in this manual for more specific instructions and illustrations on securing the power cable to the Cradle. Locate the Printer and Cradle so the operator can easily load printing media when installed with the Mounting Arm, operate the printer's controls and perform routine maintenance such as cleaning the printhead. Follow these steps:

1. Select a location in the vehicle that will avoid personal contact in case of an accident.
2. Turn the Cradle upside down and plug the input power cable into the bottom of the Cradle.
  - Route the input power cable out of the Cradle. Note that it can be routed out either side of the Cradle and that there are retaining features in the Cradle to keep the cable in place. Refer to Figure 3.
  - Be sure to leave enough slack in the power cable to allow the Mounting Arm to pivot freely without putting strain on the power connections.
  - Make sure that the input power cable routing does not invite damage to the cable when the Vehicle Cradle is pivoted.
3. Secure one of the mounting flanges from the movable arm to the bottom of the Vehicle Cradle with the four (4) #10-32 or #10-24 screws supplied with the Mounting Arm.
4. Secure the other mounting flange on the movable arm to the desired mounting surface. You can use the #10-24 x 3/4" screws and associated hardware supplied in the Mounting Arm Kit or use other hardware as the mounting conditions dictate.





**Figure 8: Securing the Vehicle Cradle**



## **Appendix A: Technical Specifications**

### Physical

- Height: 36.9 mm (1.45 in.)
- Length: 183.5 mm (7.22 in.)
- Width: 145.5 mm (5.72 in.)
- Weight (cradle only): 0.253 kg (0.55 lb.)

### Environmental

- Operating Temp: -4°F (-20°C) to 104°F (40°C)
- Storage Temp: -22°F (-30°C) to 150.8°F (66°C)
- Humidity: 10% to 90% non-condensing
- Drop 3 ft. (0.9 m) to concrete (with printer)
- Drop: 4 ft (1.2 m) to concrete (without printer)
- Vibration: Per Mil-Std-810

# Technical Support

## U.S. Only

Zebra maintains a help line for questions involving installation and use of the EC Quad Cradle. Please have as much information as possible regarding your particular application ready when you call to enable the technical support personnel to help you. The number in the U.S. is (800)-423-0442 and is open Monday through Friday from 8:00 am to 4:30 P.M. E.S.T.

## All Others

For technical support, please contact your local Zebra sales representative listed below:

### ***Zebra Technologies Europe Limited***

Dukes Meadow  
Millboard Road  
Bourne End  
Buckinghamshire SL8 5XF, UK  
T: +44 (0)1628 556000  
F: +44 (0)1628 556001



### Zebra Technologies Asia Pacific, LLC

120 Robinson Road  
#06-01 Parakou Building  
Singapore 068913  
T: +65 6858 0722  
F: +65 6885 0838



Zebra Technologies  
Latin America Sales Office  
9800 NW 41 Street  
Suite 220  
Doral, Florida 33178 USA  
T: +1.305.558.8470  
F: +1.305.558.8485



**Zebra Technologies Corporation**  
3 Overlook Point  
Lincolnshire, IL 60069 USA  
电话: +1 847.634.6700 或 +1 800.423.0442