3M™ Parking

Barcode Ticket Dispenser and Exit Verifier Manual

Version 1

3M

Safety Notice

WARNING!

Before performing any equipment maintenance or repair, set the equipment power to OFF, set the main circuit breaker to OFF, and lockout and tag the main circuit breaker; failure to follow this warning can result in injury or death to personnel and damage to equipment.

Note: Damage to equipment that occurs as a result of performing maintenance or repairs while power is ON, is not covered by the warranty.

Note: Before performing any equipment maintenance or repair, refer to the equipment operation and maintenance manuals.

Equipment Safety

- **Inspection**—frequently inspect the equipment to ensure that it is operating properly.
- **Maintenance**—ensure that maintenance is performed by an authorized technician at least twice a year.

System Safety

- **Vibrant Colors**—use vibrant colors on parking equipment at entrance and exit lanes, to make it more visible to patrons.
- **Signage**—provide clear signage on the roadway and other equipment, to assist patrons in easily and safely moving through the facility.
- **Equipment Warnings**—maintain manufacturer's warning stickers on gate arms and other equipment, to ensure that operators and patrons are aware of potential hazards.
- **Safety Devices**—encourage the use of safety devices (e.g., buzzers, flashing lights), to ensure that operators and patrons are alerted to potential hazards.
- **Sidewalks**—should be parallel to entrance and exit lanes, to eliminate the need for pedestrians to cross the lanes. This decreases the risk of pedestrian accidents in the lanes.
- **Monitor Lanes**—operators must monitor remote entrance and exit lanes, to be aware of patron activity in these areas, especially when raising and lowering gates or operating other remote equipment.

Icons (Pictograms)

3M strongly recommends the use of universally identifiable icons (pictograms), for all entrance and exit lanes, roadways, posts, and walls. It is recommended that the following icons be displayed on the roadway, immediately adjacent to the parking barrier gate:

- No Pedestrians
- No Wheelchairs
- No Bicycles
- No Motorcycles
- No Trucks

Safety Is Good Business

It is important to be aware of the potential liabilities that can occur during normal parking operations. Adopting a "Safety First" policy provides you and your patrons with a safer environment

Warranty Statement

The products and services are provided “as is” and “where is,” and 3M disclaims any and all warranties, whether expressed or implied, including, but not limited to, any implied warranties of merchantability, fitness for a particular purpose, non-infringement, and those arising from trade usage or a course of dealing (“3M Warranty”). Without limiting the foregoing, 3M does not warrant that any software is free from bugs, errors or omissions.

Limitation of Liability: Except where prohibited by law, 3M will not be liable for any loss or damage from the 3M product, whether direct, indirect, special, incidential or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability.

Table of Contents

List of Figures

List of Tables

CHAPTER 1

Introduction

This manual provides 3M Barcode Ticket Dispenser and Exit Verifier installation, programming, and maintenance information. The Ticket Dispenser issues bar code and man-readable tickets for use in 3M parking systems. The Exit Verifier reads the bar code tickets.

Note: This manual my reference legacy part numbers and product names. Please refer to the ***3M Parking Price Book*** for product names or contact your customer service representative.

Related Publications

Refer to the following publications for information about devices and systems that interface with the Ticket Dispenser.

- *ScanNet Operations Manual*—programming and operation.
- *Cashier Station Manual*—installation, programming, and operation.
- *Communication Devices Manual*—Port Controller and NetPort communication devices and protocols.
- *Barrier Gate Manual*—installation, programming, operation, maintenance, and troubleshooting.

Minimum System Requirements

To operate a system that includes the Barcode Ticket Dispenser and Exit Verifier, the following ScanNet and Cashier Station versions are required:

- ScanNet version 6.0.6.34/6.1.1.34 and higher
- Cashier Station version C5.2.2.X and higher

Operational Overview

Ticket Dispenser

The Barcode Ticket Dispenser (Figure 1.1) is used at the parking facility entrance in conjunction with other entry lane devices (e.g., gate). The slim, rugged, weather resistant, and simple design make it easy to install in confined areas, reliable, and easy to service. The Ticket Dispenser quickly dispenses bar code and man-readable tickets on demand—a 3.35 inch (85 mm) ticket is dispensed in approximately one second.

The Ticket Dispenser sends ticket information to ScanNet via the Reader Controller - Barcode TD/EVPort Controller or NetPort. ScanNet stores all ticket information. All information collected from the vehicle entry is used at exit to determine the parking fee, prevent theft, and maintain parking statistics. The Ticket Dispenser can continue to

operate offline if there is a communication failure with ScanNet. When a ticket is taken at the Ticket Dispenser, the gate opens to allow the vehicle to enter.

Figure 1.1 Barcode Ticket Dispenser

The Ticket Dispenser can be programmed to issue tickets either automatically or manually using the push for ticket button, which is activated by the patron. Tickets are printed and encoded (via bar code) with the following information:

- Ticket number
- Entry date and time
- Lane number
- Ticket count

The LCD display presents standard messages to the patron, based on particular lane activities. The optional ADA compliant intercom provides a means for attendants to communicate remotely with patrons. The Ticket Dispenser is programmed using a personal digital assistant (PDA) (e.g., Palm™ handheld models m125, m500, Zire, and Tungsten E) via infrared serial communication, or from ScanNet via RS-422 serial communication.

The Ticket Dispenser operates in one of the following three modes:

- **Push Button—**The patron drives up to the Ticket Dispenser. The vehicle presence is detected on the arming loop. An enable signal is received, which causes the push for ticket button to illuminate. When the patron pushes this button, a ticket is issued and an audible signal is sounded. When the patron removes the ticket from the ticket chute, the audible signal stops and the gate raises.
- **Auto Issue—**The patron drives up to the Ticket Dispenser. The vehicle presence is detected on the arming loop, the ticket is automatically issued, and an audible signal

is sounded. When the patron removes the ticket from the ticket chute, the audible signal stops and the gate raises.

- **Test—**Used for various maintenance and service functions (refer to “Maintenance,” page 97 and “Troubleshooting,” page 125).

Lot Full

When a lot full state occurs, the enable signal, activated by a vehicle presence on the arming loop (refer to “Electrical Connections,” page 27, and Figure 2.7 and Figure 2.9) is not sent from the gate Omega LCD Controller (gate controller) to the Ticket Dispenser—the push for ticket button does not illuminate. ScanNet sends the “full” signal to the gate controller via the gate Connection Panel. The gate routes the “full” signal to the Ticket Dispenser Reader Controller - Barcode TD/EV—the “LOT FULL” message is displayed at the LCD Display.

Paper Jam

If a paper jam occurs when a ticket is being issued, the printer initiates a recovery process to clear the jam. If the recovery attempt fails, the Ticket Dispenser enters an out of service state, and a corresponding “OUT OF SERVICE” message is displayed on the LCD Display. To clear a paper jam, refer to “Clearing a Paper Jam,” page 103.

Paper Low/Out

A photo interrupter detects when the ticket roll decreases to a certain diameter (approximately 330 tickets are left on the ticket roll). When this occurs, if the Ticket Dispenser is online with ScanNet, a paper low message is sent to ScanNet and “PAPER LOW” is displayed at the LCD Display. The LCD Display backlight and push for ticket button lamp blink—this makes it easy to identify Ticket Dispensers that require ticket roll replacement. The Ticket Dispenser then counts down 260 tickets. At this time, if the Ticket Dispenser is online with ScanNet, the out of paper message is sent to ScanNet and “OUT OF SERVICE” is displayed at the LCD Display.

ScanNet Communication Loss

If the Ticket Dispenser loses communication with ScanNet, messages are buffered for transmission when communication is restored.

Backout, Ticket Not Issued

If a patron drives up to the Ticket Dispenser and then backs out of the entry lane without pushing the push for ticket button, the enable signal is removed and the Ticket Dispenser returns to the idle state.

Backout Without Ticket

If a patron presses the push for ticket button, but does not take the ticket, and backs out of the entry lane, a back out message is sent from the gate to the Ticket Dispenser. The ticket stays in the ticket chute and the audible signal continues. If the Ticket Dispenser is online with ScanNet, it sends a backout message to ScanNet, indicating the ticket number associated with the backout. The next patron must remove the backout ticket from the ticket chute and then press the press for ticket button to dispense a new ticket and raise the gate to enter the facility.

Backout With Ticket

If a patron presses the push for ticket button, takes the ticket, and backs out of the lane, a back out message is sent from the gate to the Ticket Dispenser. If the Ticket Dispenser is online with ScanNet, it sends a backout message to ScanNet, indicating the ticket number associated with the backout.

Second Push for Ticket Signal

If a patron presses the push for ticket button twice, the Ticket Dispenser ignores the second signal because the vehicle is still on the arming loop.

Exit Verifier

At exit, the bar code ticket is read by a Barcode Exit Verifier (Figure 1.2) or Cashier Station with a Barcode Bar Code Package (refer to the *Cashier Station Manual*). The Exit Verifier can continue to operate offline if there is a communication failure with ScanNet.

Figure 1.2 Barcode Exit Verifier

Normal Operation

Preconditions:

- The lane is open and all devices are operating normally and in the ready mode.
- The Exit Verifier is in the idle state, with no pending events.
- ScanNet is connected and communicating with the Exit Verifier.

1. Patron enters the exit lane; the vehicle presence is detected by the A-loop.
2. Exit Verifier receives an enable signal (field input) and displays the message “Please Insert Ticket”.
3. Patron inserts the ticket into the Exit Verifier; the ticket is read.

4. Exit Verifier checks the ScanNet online status.

   Note: If the Exit Verifier is programmed to operate offline with ScanNet (refer to Exit Verifier, page 85**)**, it still sends a query to ScanNet. If ScanNet is online, continue with step 5. If ScanNet is offline, go to step 8.

5. The Exit Verifier sends a ticket request to ScanNet; ScanNet queries the ticket issued and ticket paid stacks.

6. ScanNet sends a ticket response to the Exit Verifier with either the ticket paid time or entry time (if the ticket was not paid).

   Note: If ScanNet replies with the unpaid ticket entry time and the ticket is within the grace time, go to step 8.

7. Exit Verifier checks the ticket grace time [in this example, the ticket is within the grace time].

8. Exit Verifier:

   a. Sends a vend signal to the gate (field output); the gate is raised.

   b. Displays the message “Please Proceed”.

   c. Transports the ticket to the **ticket box**.

   d. Sends a ticket accepted message to ScanNet.

9. Patron drives forward, off the A-loop, through the raised gate, and exits the facility.

10. Exit Verifier returns to the idle state.

Ticket Not Read

If the ticket is not read within a specified time, the motor is turned off and the Exit Verifier does one of the following (depending on the sensor status):

- Sends a ticket jam message to ScanNet and displays the message “Ticket Jam”.
- Activates the buzzer and prompts the patron to reinsert the ticket; the message “ROTATE/REINSERT” is displayed.

If the ticket cannot be read, a retry occurs. If the Exit Verifier still fails to read the ticket, the Exit Verifier does the following:

- Returns the ticket to the patron.
- Sends a ticket rejected message to ScanNet, indicating the reason for rejection.
- Displays the message “UNREADABLE TKT ROTATE/REINSERT”.

Bar Code Data Format Check Failed

If the ticket bar code data format check fails, the Exit Verifier does the following:

- Returns the ticket to the patron.
- Sends a ticket rejected message to ScanNet, indicating the reason for rejection.
- Displays the message “Invalid Ticket”.

Facility Code Wrong

If the ticket facility code is wrong, the Exit Verifier does the following:

- Returns the ticket to the patron.
- Sends a ticket rejected message to ScanNet, indicating the reason for rejection.
- Displays the message “BAD FAC. CODE”.

Invalid Ticket

If ScanNet replies with an invalid ticket response, the Exit Verifier does the following:

- Returns the ticket to the patron.
- Displays the message “Invalid Ticket”.

Unpaid Ticket

If the ticket is unpaid, ScanNet replies with the entry time of the unpaid ticket. If the grace time is exceeded, the Exit Verifier does the following:

- Returns the ticket to the patron.
- Displays the message “See Cashier”.

Out of Grace Time

If the ticket is out of the grace time, the Exit Verifier does the following:

- Returns the ticket to the patron.
- Sends a ticket rejected message to ScanNet, indicating the reason for rejection.
- Displays the message “See Cashier”.

Offline With ScanNet

If the Exit Verifier is not programmed to operate offline with ScanNet (refer to Exit Verifier, page 85) and the Exit Verifier is offline with ScanNet, the Exit Verifier is out of service; the message “Out of Service” is displayed.

Power Requirement

The Ticket Dispenser and Exit Verifier input power requirement is 115 VAC/5 A (2.5 A for heater) or 220 VAC/3 A. The input voltage is applied to the power supply (refer to “Universal Power Supply,” page 8) and cabinet heater (refer to “Cabinet Heater and Thermostat-Hydrostat,” page 10).

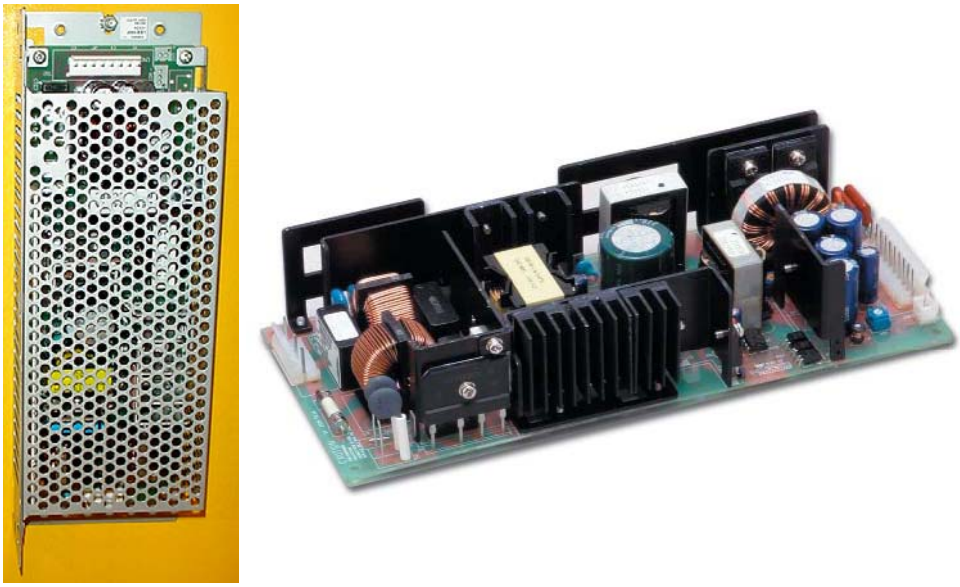
Components

Ticket Dispenser/Exit Verifier Common Components

Universal Power Supply

The universal power supply (85-260 VAC, 50/60Hz) (Figure 1.3) supplies +24 VDC to the Reader Controller - Barcode TD/EV (controller), printer, intercom, LCD display, and push for ticket push button lamp. It also supplies +5V for local inputs.

Figure 1.3 Power Supply



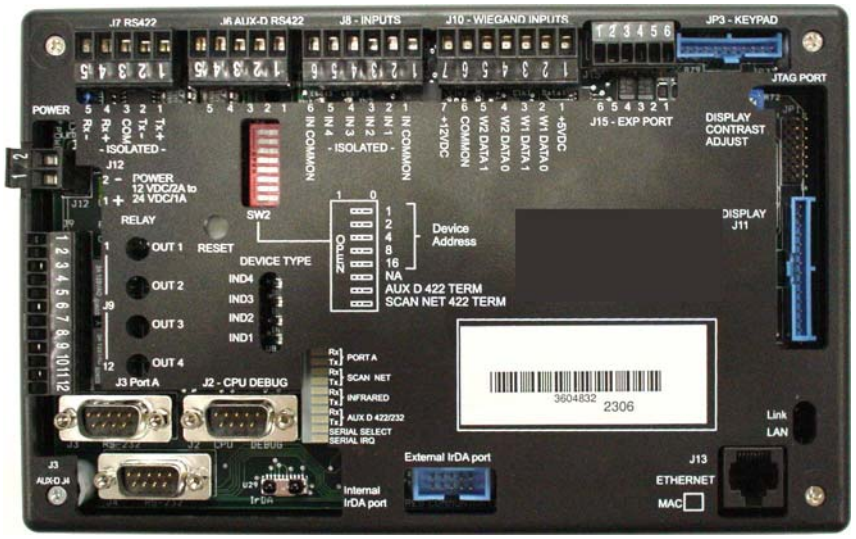
Reader Controller - Barcode TD/EVReader Controller - Barcode TD/EV

The Reader Controller - Barcode TD/EV (Figure 1.4) controls all Ticket Dispenser functions. The Ticket Dispenser program is installed in the controller’s flash memory. The Reader Controller - Barcode TD/EV contains the central processing unit (CPU) and all associated circuitry, including the following:

- Battery backed Reader Controller - Barcode TD/EV SRAM
- Programmable flash memory
- Crystal controlled Reader Controller - Barcode TD/EV clock with battery backup
- Four 12-24 VDC inputs

- Reader Controller - Barcode TD/EV Wiegand interface
- Four sets of single-pole double-throw (SPDT) relay contact outputs for vend signals
- Reader Controller - Barcode TD/EV Display interface
- Reader Controller - Barcode TD/EV RS-422 interface for ScanNet communication
- Reader Controller - Barcode TD/EV IrDA (Infrared Data Association) infrared sensor port for PDA communication

Figure 1.4 Reader Controller - Barcode TD/EV (controller)



Cabinet Heater and Thermostat-Hydrostat

The cabinet heater, which is controlled by a combination thermostat-hydrostat (Figure 1.5), provides an optimal cabinet environment for printing and dispensing tickets in cold and high humidity weather. The thermostat-hydrostat is adjustable and is factory set at 75^{o}F (24°C) and 65% RH.

Figure 1.5 Cabinet Heater and Thermostat-Hydrostat

Ticket Dispenser

Cabinet

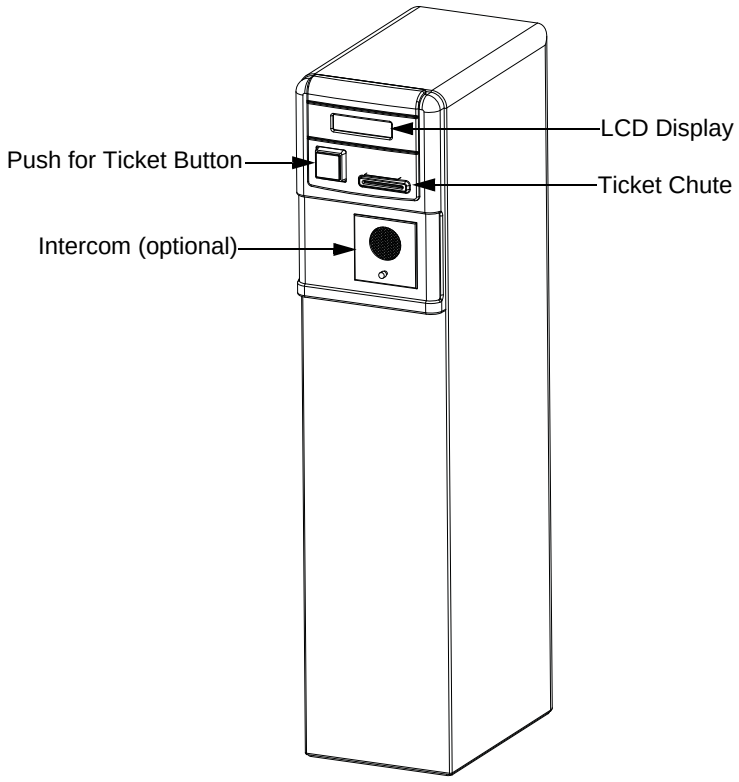
The cabinet (Figure 1.6) is thermally insulated and includes a heater that allows it to operate in cold and high humidity environments—the Ticket Dispenser can operate under the following conditions:

Temperature: -30°F (-34°C)–122°F (50°C)

Humidity: 20–100% relative humidity (RH)

Note: When powering up the Ticket Dispenser in temperatures below 32°F (0°C), allow it to warm up for a minimum of one hour and then cycle the power before operating it—cycling the power clears printer errors.

Figure 1.6 Barcode Ticket Dispenser Cabinet (Front)



The following major components are mounted inside the cabinet (refer to Figure 1.7 and Figure 1.9):

- Input power junction box (115/220 VAC) with switch. The 115 VAC option includes dual receptacles.
- Power supply
- Reader Controller - Barcode TD/EV, with infrared transceiver for PDA communications
- Paper roller (for ticket roll)

- Printer
- Heater
- Thermostat-hydrostat
- Ticket chute

The following components are mounted on the casting (Figure 1.9):

- LCD Display
- Push for ticket button
- Intercom (optional)

Figure 1.7 Barcode Ticket Dispenser, Interior (top)

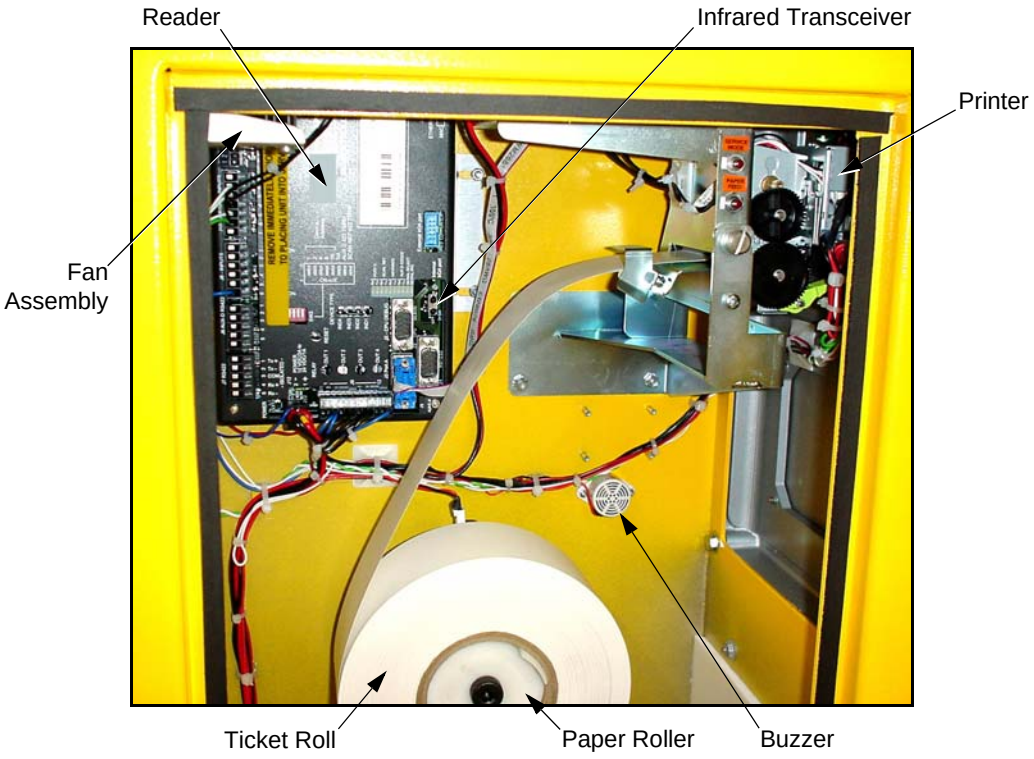


Figure 1.8 Barcode Ticket Dispenser, Interior (bottom)

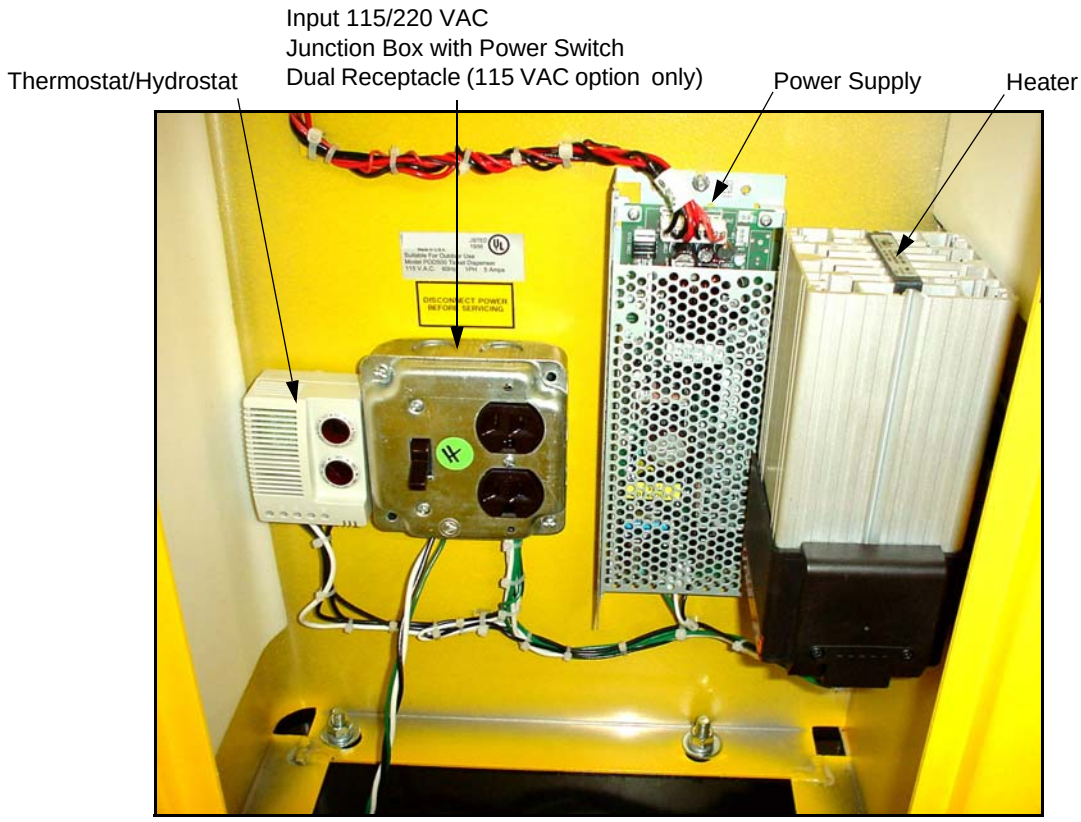
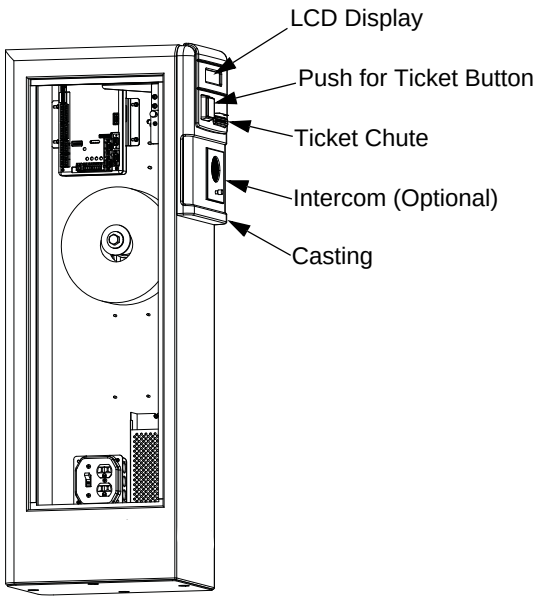


Figure 1.9 Barcode Ticket Dispenser (Cabinet Front)



Printer

The Epson M-T500 thermal printer (Figure 1.10) prints, cuts, and dispenses the tickets. It consists of the following major components:

- Reader Controller - Barcode TD/EV
- Paper feed mechanism
- Thermal head
- Auto cutter

- Sensors: paper-end, print-head temperature, platen-open, and black mark

Figure 1.10 Epson M-T500 Thermal Printer

Exit Verifier

Note: The Barcode Exit Verifier is not currently available in the US domestic market.

Cabinet

The Exit Verifier cabinet (Figure 1.11) is constructed of 0.125 inch (3.2 mm) sheet aluminum. The overall cabinet dimensions are 10×44×17 inches (W×H×D)(254×1118×431 mm). The cabinet is thermally insulated and includes a heater that allows it to operate in cold and high humidity environments—the Exit Verifier can operate under the following conditions:

Temperature: -30°F (-34°C)–122°F (50°C)

Humidity: 20–100% relative humidity (RH)

Figure 1.11 Barcode Exit Verifier Cabinet

The following major components are mounted inside the cabinet (refer to Figure 1.7 and Figure 1.9):

- Input power junction box (115/220 VAC) with switch. The 115 VAC option includes dual receptacles.
- Power supply
- Reader Controller - Barcode TD/EV, with infrared transceiver for PDA communications
- Heater
- Thermostat-hydrostat
- Barcode reader assembly
- Barcode scanners (upper and lower)

The following components are mounted on the casting (Figure 1.11):

- LCD Display
- Intercom (optional)

Figure 1.12 Barcode Exit Verifier Interior (Top)

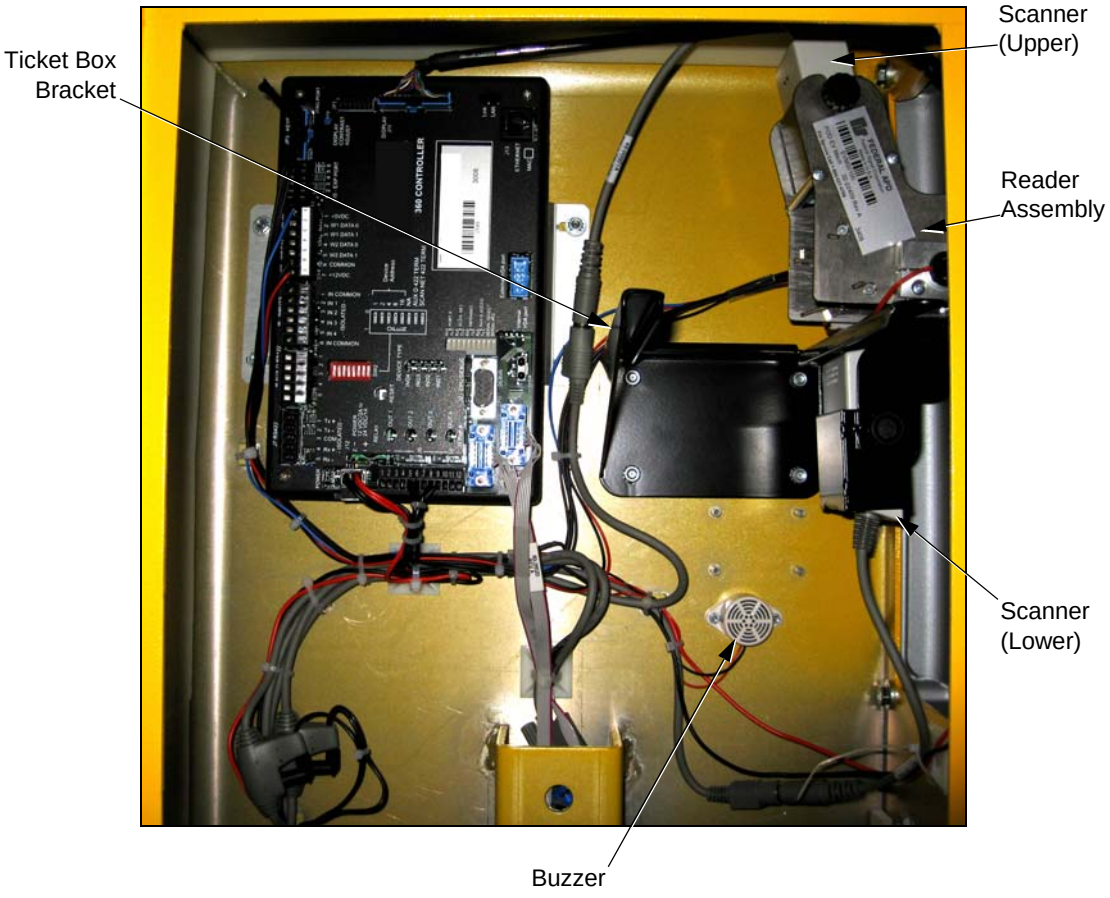


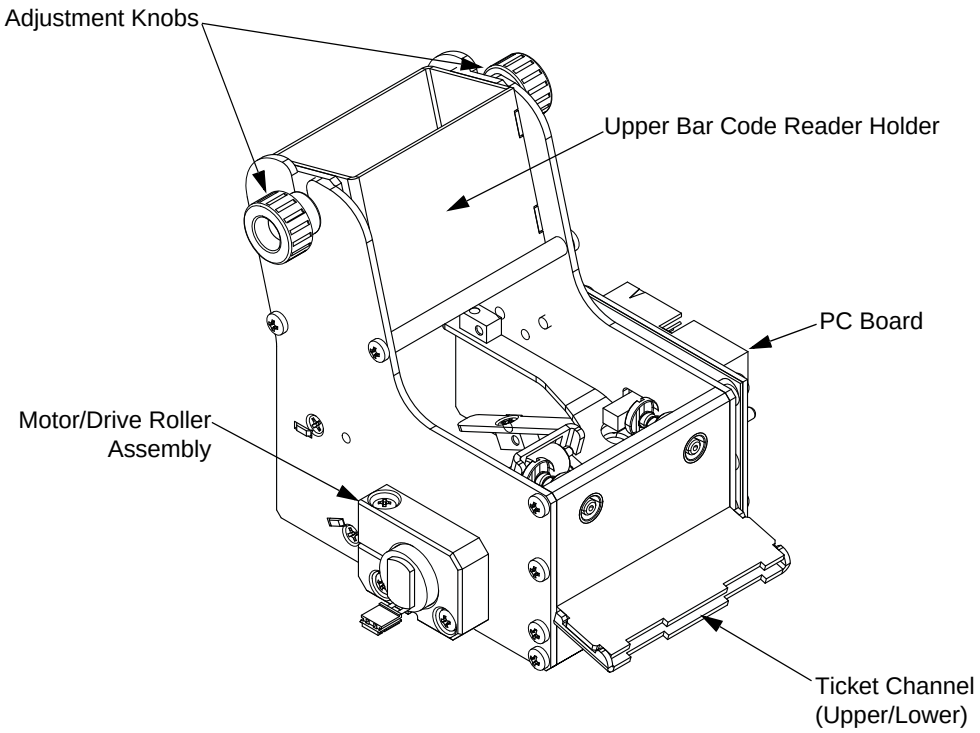
Figure 1.13 Barcode Exit Verifier, Interior (Bottom)

Bar Code Reader Assembly

The bar code reader assembly (Figure 1.14) includes the following components:

- **Ticket Channel**—Guides the ticket into the device.
- **Motor/Drive Roller Assembly**—Pulls the ticket into the read position and then either drives the ticket into the ticket box or returns the ticket to the patron (refer to PDA Device Log, page 150 for error conditions).
- **Upper Bar Code Holder**—Holds the upper bar code reader in position. The reader angle can be adjusted by turning the adjustment knobs.

Figure 1.14 Bar Code Reader Assembly



Ticket Overview

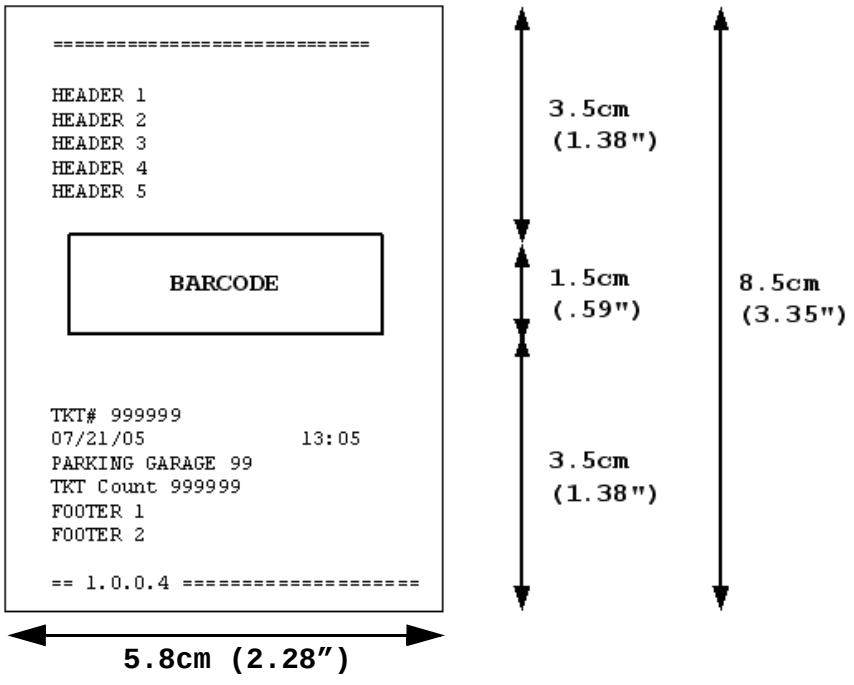
The Ticket Dispenser prints, cuts, and dispenses tickets (Figure 1.15) from a 2.3 inch (5.8 cm) wide thermal paper roll (Figure 8.9). It dispenses approximately 3,000 3.35 inch (8.5 cm) tickets and 2,500 3.94 inch (10 cm) tickets from a standard 10.0 inch (25.4 cm) diameter ticket roll. For instructions on replacing the ticket roll, refer to "Ticket Dispenser Ticket Roll," page 37.

Note: If the bar code is not required, printing the bar code can be disabled, refer to "General Options," page 82.

The Ticket Dispenser prints man-readable and bar code information on the ticket; this information includes the following:

- Header (e.g., facility name), five lines, 25 characters per line
- Bar code (when enabled)
- Ticket number
- Entry date
- Entry time
- Lane number
- Ticket count
- Footer (e.g., Thank you!), two lines, 25 characters per line

Figure 1.15 Ticket Layout and Dimensions



CHAPTER 2

Installation

This chapter provides instructions for installing the Barcode Ticket Dispenser and Exit Verifier.

Warning! **When you install this 3M device, the outlet becomes permanently connected to a power source. As a result, the device must have a readily accessible disconnect device incorporated into the fixed wiring. The disconnect device must have a control separation of at least 3 mm.**

Cabinet

The Ticket Dispenser and Exit Verifier cabinets are identical. Review the engineering drawings to identify the Ticket Dispenser or Exit Verifier installation location. The overall cabinet dimensions are 10×44×17 inches (W×H×D) (254×1118×431 mm).

To install the cabinet, do the following:

***Caution!* Use care when removing the shipping packaging and installing the cabinet to avoid damaging the cabinet.**

---

1. Remove the shipping carton and packaging from the Ticket Dispenser or Exit Verifier.
2. Remove the access panel (refer to “Removing and Installing the Cabinet Access Panel,” page 98).
3. Remove the bolts that fasten the cabinet to the pallet.
4. Position the cabinet on the curb (refer to Figure 2.1 and Figure 2.2).

Figure 2.1 Barcode Ticket Dispenser/Exit Verifier Center Cabinet Alignment (inches[mm])

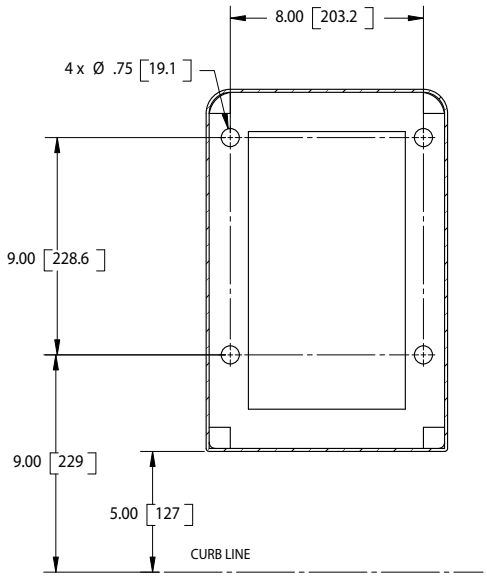
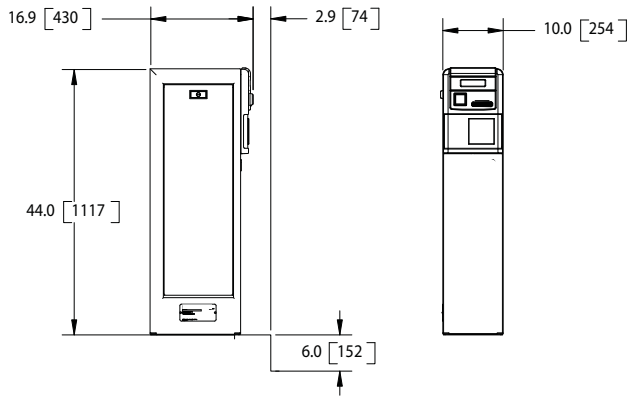


Figure 2.2 Barcode Ticket Dispenser/Exit Verifier Dimensions (inches/mm)



5. Mark the four stud anchor hole locations on the concrete. Make sure that the cabinet base curb line (Figure 2.1) is 5 inches (152 mm) from the curb line.
6. Move the cabinet so that the stud anchor holes can be drilled.

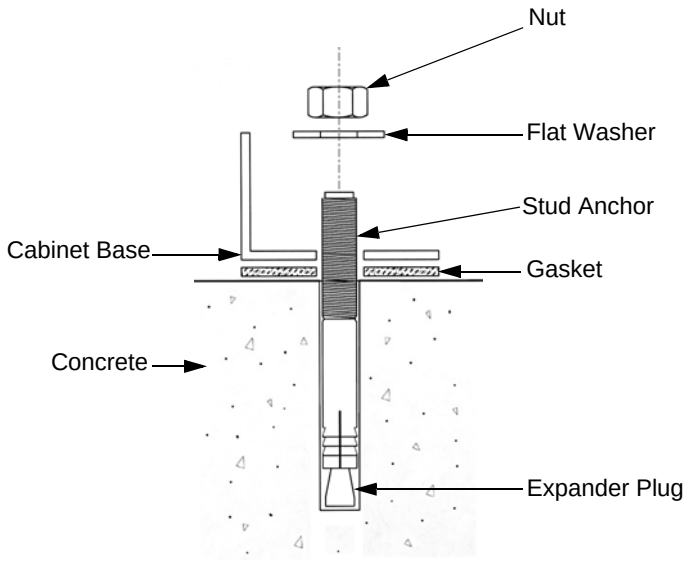
Note: The recommended stud anchor is the Red Head 3/8×3 inch (76.2 mm) stud anchor, part number JS-38H, or equivalent. Follow the manufacturer's instructions for installing the stud anchors.

7. Drill the four stud anchor holes.
8. Remove the debris from the holes.

Note: For steps 9–13, refer to Figure 2.3.

9. Install the four stud anchors in the holes that were drilled in step 7.

Figure 2.3 Stud Anchor Installation



10. Position the mounting gasket; align the gasket mounting holes with the stud anchors.

11. Set the cabinet on top of the gasket; align the cabinet mounting holes with the stud anchors.

12. Install the flat washers and nuts on each stud anchor.

13. Tighten the nuts.

Electrical Connections

This section describes the Ticket Dispenser and Exit Verifier electrical connections.

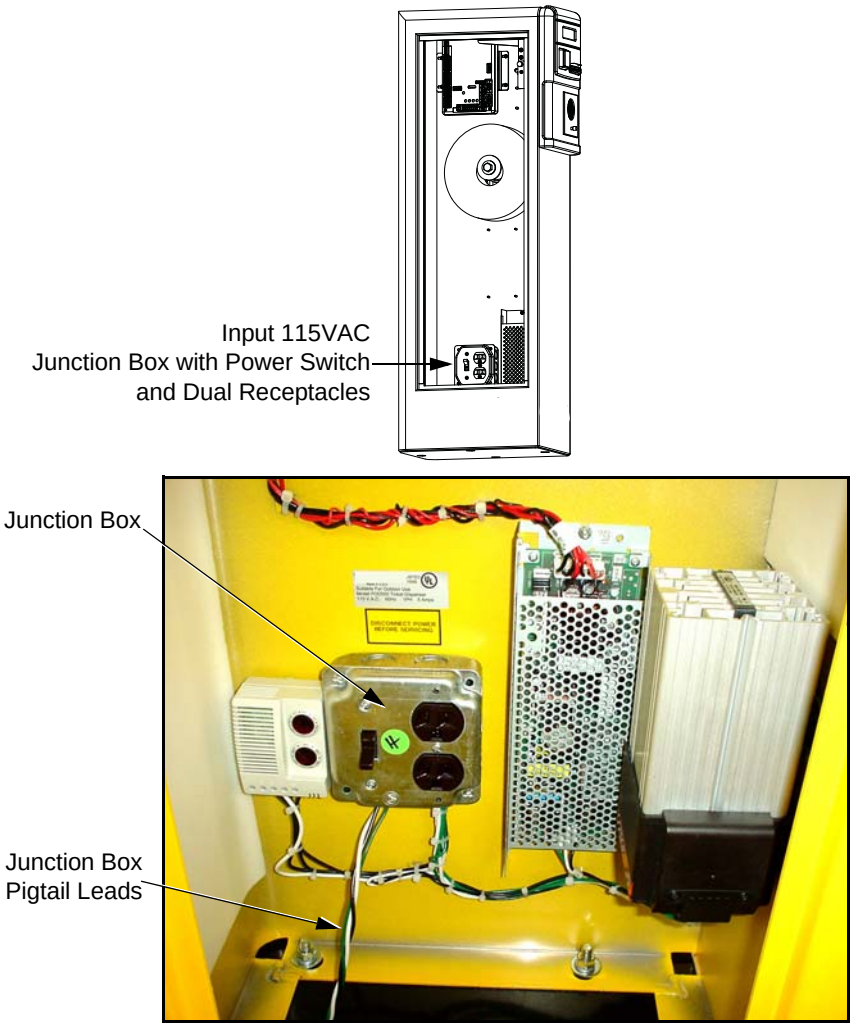
Main Input Power (115VAC)

The main 115VAC input power connections are made at the junction box (Figure 2.4).

Warning! **To reduce the risk of severe personal injury or damage to equipment, set the main circuit breaker to OFF before making the main input power connections. Failure to heed this warning could result in personnel injury or death.**

To connect 115VAC main input power to the Ticket Dispenser or Exit Verifier, connect the three main input power wires (black-hot, white-neutral, green-safety ground) to the corresponding three junction box pigtail leads (Figure 2.4) using wire nuts.

Figure 2.4 Connecting the Main Input Power (115VAC) to the Junction Box



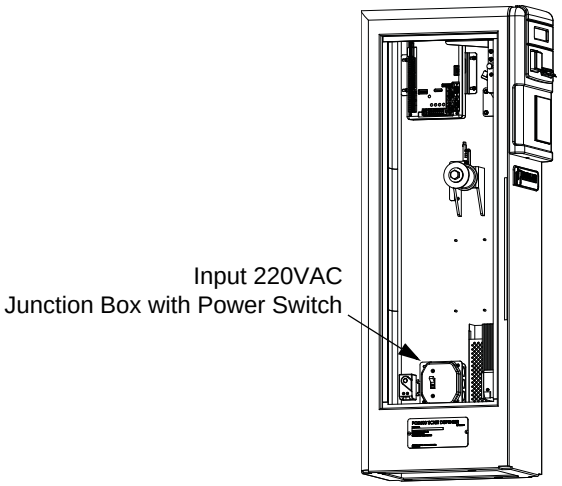
Main Input Power (220VAC)

The main 220VAC input power connections are made at the junction box (Figure 2.5).

Warning! **To reduce the risk of severe personal injury or damage to equipment, set the main circuit breaker to OFF before making the main input power connections. Failure to heed this warning could result in personnel injury or death.**

To connect 220VAC main input power to the Ticket Dispenser or Exit Verifier, connect the three main input power wires (black-hot, black-hot, green-safety ground) to the corresponding three junction box pigtail leads using wire nuts (Figure 2.5).

Figure 2.5 Connecting the Main Input Power (220VAC) to the Junction Box



Reader Controller - Barcode TD/EV

This section describes the Ticket Dispenser and Exit Verifier Reader Controller - Barcode TD/EV electrical connections.

Ticket Dispenser

This section describes the Ticket Dispenser Reader Controller - Barcode TD/EV electrical connections. If any factory wiring is disconnected, refer to Table 2.1 on page 2-29, Figure 2.6, and Figure 2.7 for connection information.

Reader Controller - Barcode TD/EV

Table 2.1: Reader Controller - Barcode TD/EV Ticket Dispense Connections

Connector	Connected to	Signal Type	Description
J2 Debug port	PC	RS232	This port is dedicated to provide connection to a PC for installing firmware.
J3 Auxiliary port	Printer	RS232	This port is dedicated for thermal printer communication.
J5	IR PC board	IrDA	This port is used for infrared communication with the PDA.
J7	ScanNet	RS422	ScanNet communication
J8-Field Inputs	Gate Omega LCD Controller via the gate Connection Panel	Dry contact inputs	“Enable,” “Vend Ticket,” “Backout,” and “Full,” signals from the gate.
J9-Field Outputs	Gate Omega LCD Controller via the gate Connection Panel	Relay outputs	“Tkt Request” and “Vend Gate” outputs to the gate.
J10-Inputs	Local inputs (non-isolated)	TTL	This port is dedicated for local input signals.
J11	LCD display	Digital	Customer and programming messages.
J12	Power Supply	+24 VDC	
J13-RJ-45 Ethernet Port	PC	Ethernet	This port is dedicated to provide connection to a PC for installing firmware.

Note: Remove the battery insulator (Figure 2.6) immediately prior to placing the Barcode Ticket Dispenser or Exit Verifier into service.

Figure 2.6 Reader Controller - Barcode TD/EV Connectors

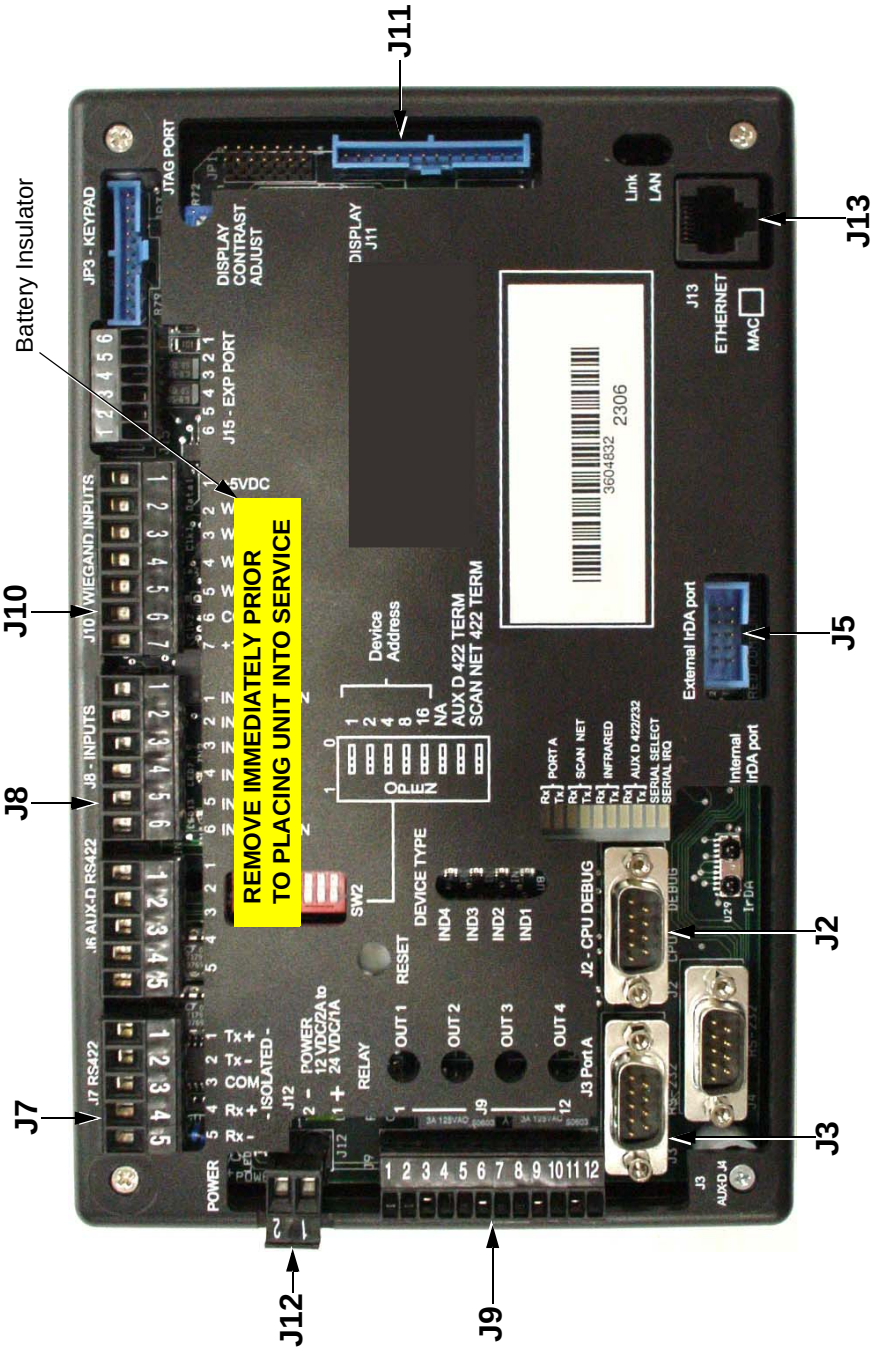
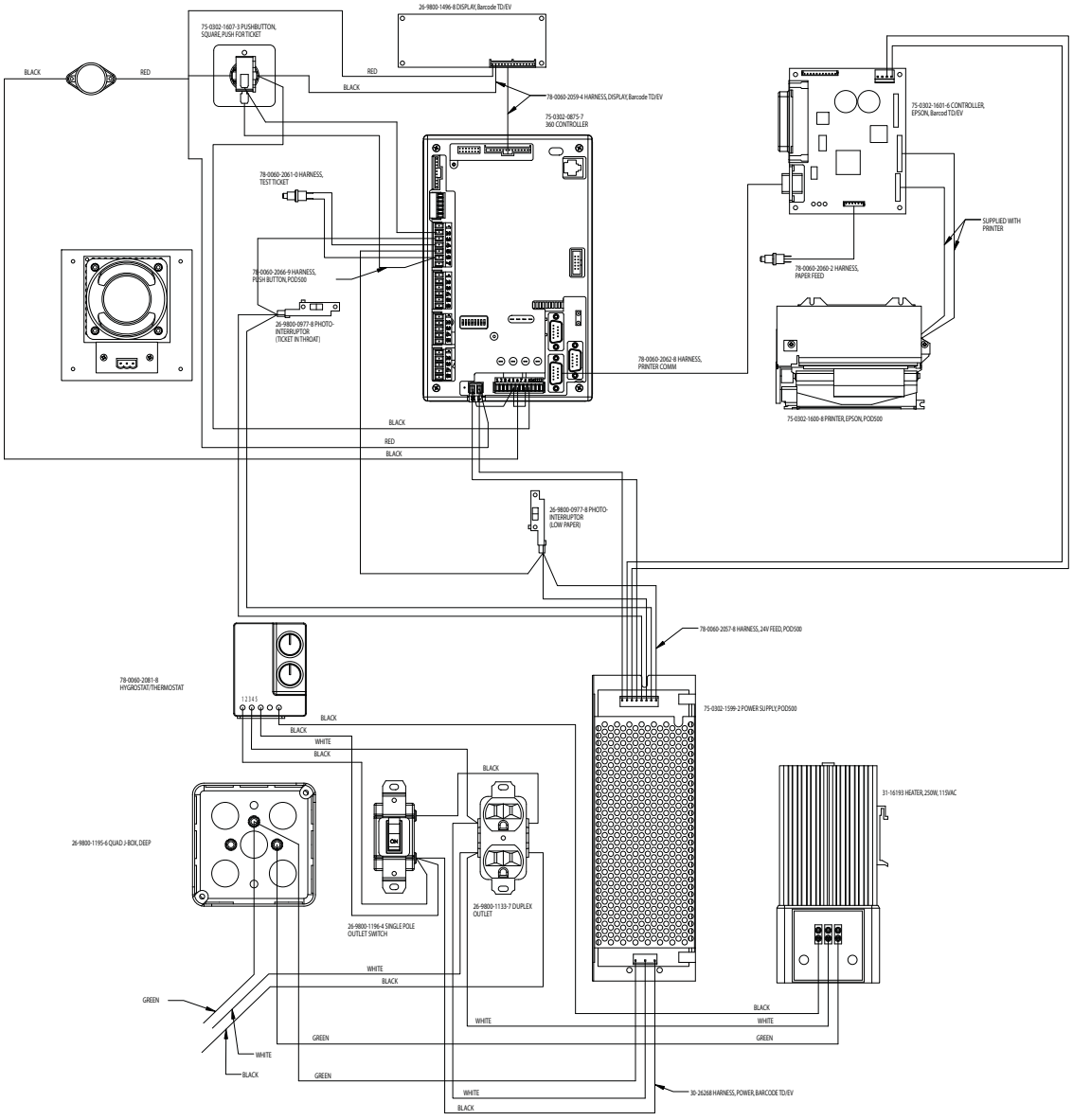


Figure 2.7 Barcode Ticket Dispenser Connections



Exit Verifier

This section describes the Exit Verifier Reader Controller - Barcode TD/EV electrical connections. If any factory wiring is disconnected, refer to Table 2.2 on page 2-32, Figure 2.6, and Figure 2.8 for connection information.

Reader Controller - Barcode TD/EV

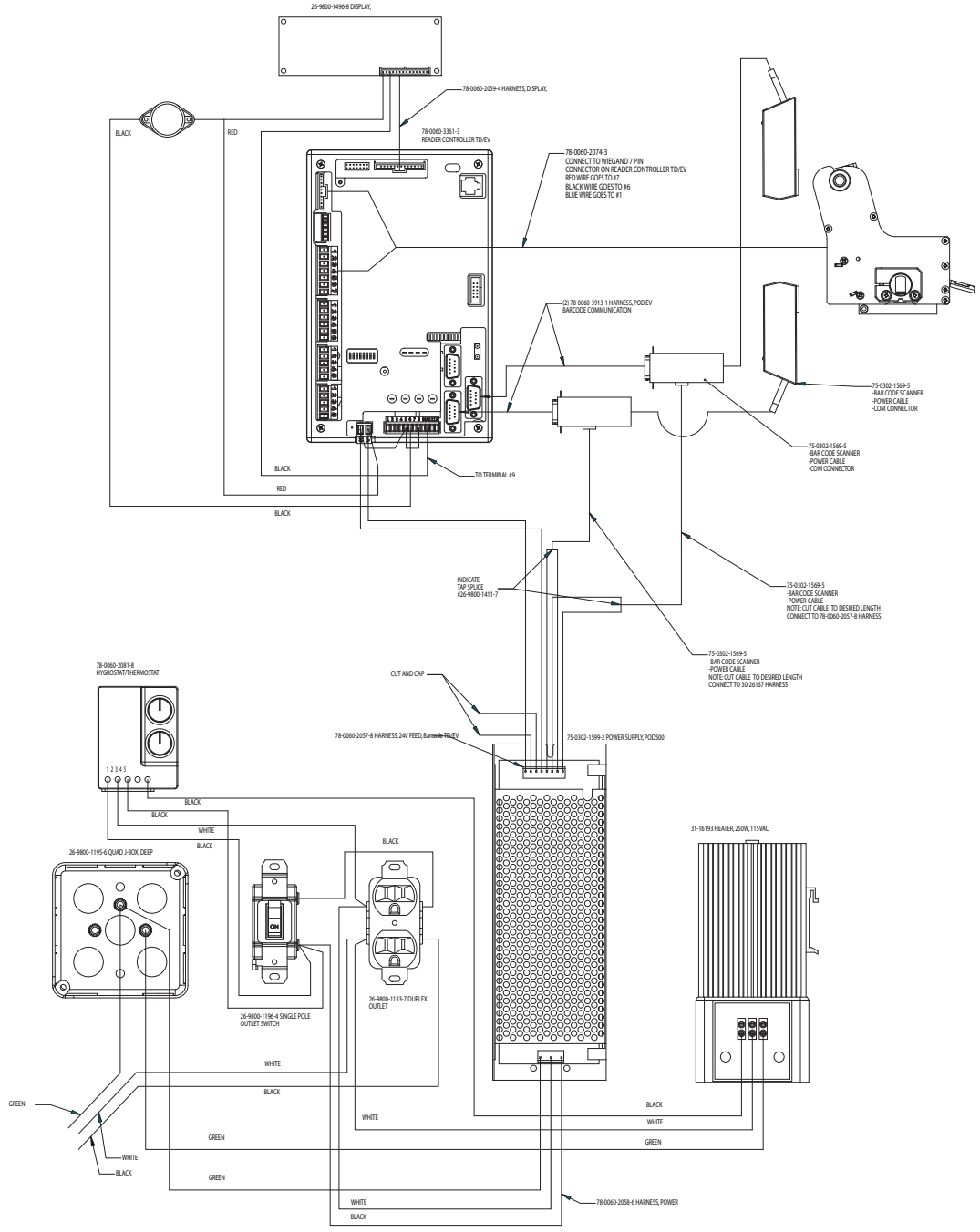
Table 2.2: Reader Controller - Barcode TD/EV Exit Verifier Connections

Connector	Connected to	Signal Type	Description
J2 Debug port	PC	RS232	This port is dedicated to provide connection to a PC for installing firmware. **Pin/Signal** 2 Tx 3 Rx 5 GND
J3 **Port A**	Bar Code Reader	RS232	This port is dedicated for bar code reader communication. **Pin/Signal** 2 Tx (Out) 3 Rx (In) 7 RTS (Out) 8 CTS (In) 5 GND
J4 **AUX-D**	Bar Code Reader (Optional)		
J7	ScanNet	RS422	ScanNet communication **Pin/Signal** 1 Tx+ 2 Tx- 4 Rx+ 5 Rx-
J8-Field Inputs (Isolated)	Gate Omega LCD Controller via the gate Connection Panel	Dry contact inputs	“Enable” signal from the gate. **Pin/Signal** 2 Enable 6 Common
J9-Field Outputs	Gate Omega LCD Controller via the gate Connection Panel	Relay outputs	**Pin/Signal** 2,3 Vend gate 5,6 Programmable output (buzzer) 8,9 Display backlight activation
J11	LCD display	Digital	Customer and programming messages.

Table 2.2: Reader Controller - Barcode TD/EV Exit Verifier Connections

Connector	Connected to	Signal Type	Description
J12	Power Supply	+24 VDC	
J13 RJ-45 Ethernet Port	PC	Ethernet	This port is dedicated to provide connection to a PC for installing firmware. **Pin/Signal** 1 Tx+ 2 Tx- 3 Rx+ 6 Rx-
JP3	Keypad	TTL In/Out	Used to drive the motor and provide input signals for ticket location. **Pin/Signal** 1 Motor Direction 2 Sensor 1 3 Motor Start 4 Sensor 0 (zero) 6,8 Exit Verifier Activation
U29	PDA	IrDA	This port is used for infrared communication with a Personal Digital Assistant (PDA).

Figure 2.8 Barcode Exit Verifier Connections

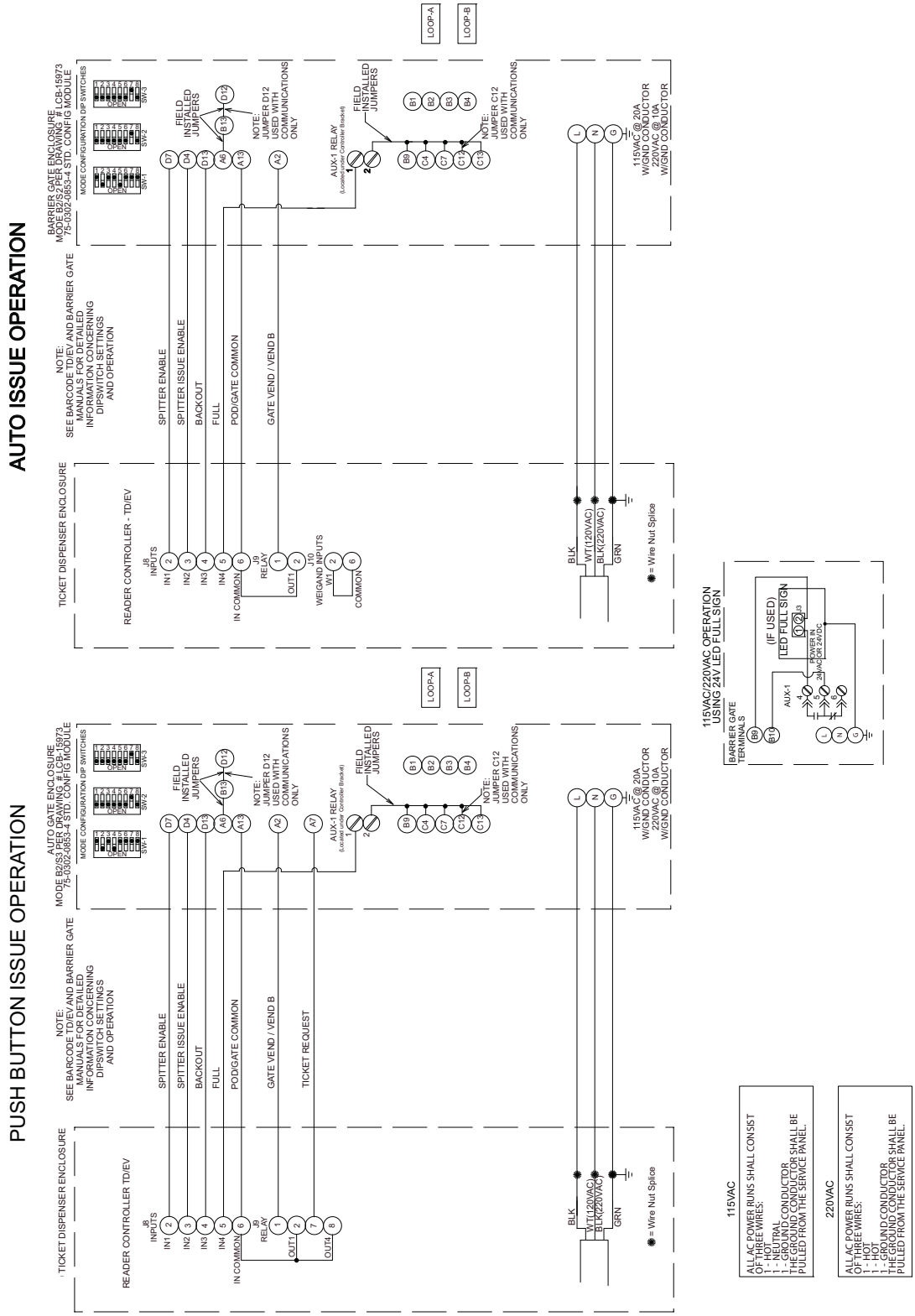


Barrier Gate Connections

Ticket Dispenser

For Ticket Dispenser to Barrier Gate connection information, refer to Figure 2.9.

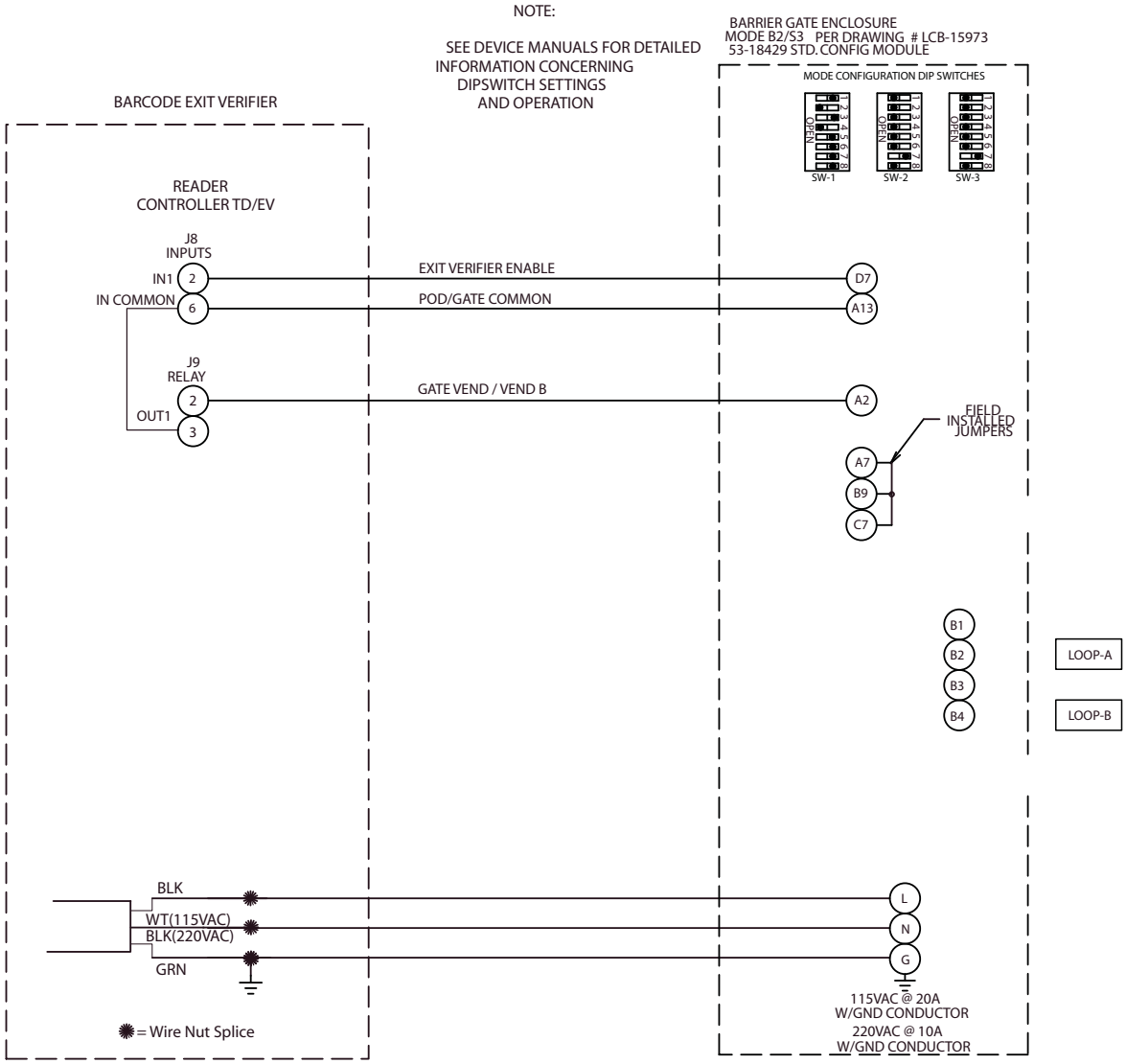
Figure 2.9 Barcode Ticket Dispenser to Gate Connections



Exit Verifier

For Exit Verifier to Barrier Gate connection information, refer to Figure 2.10.

Figure 2.10 Barcode Exit Verifier to Gate Connections



Ticket Dispenser Ticket Roll

To replace the Ticket Dispenser ticket roll, do the following:

1. Remove the cabinet access panel (refer to “Removing and Installing the Cabinet Access Panel,” page 98).

Warning! **Exercise caution when working near the cutter mechanism (Figure 2.11), the blades are sharp and can cause serious injury.**

---

2. Pull the printer bracket release (Figure 2.11) out and swing the printer bracket down to the maintenance position (Figure 2.12).

Figure 2.11 Replacing a Ticket Roll

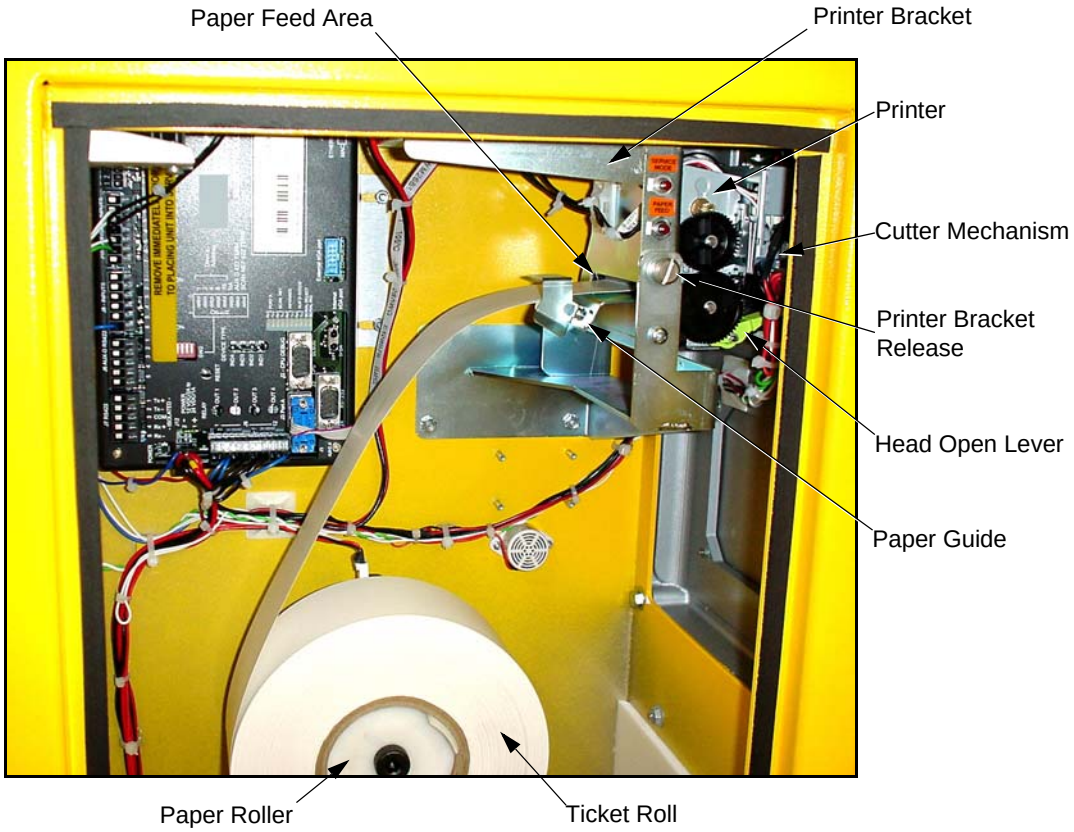
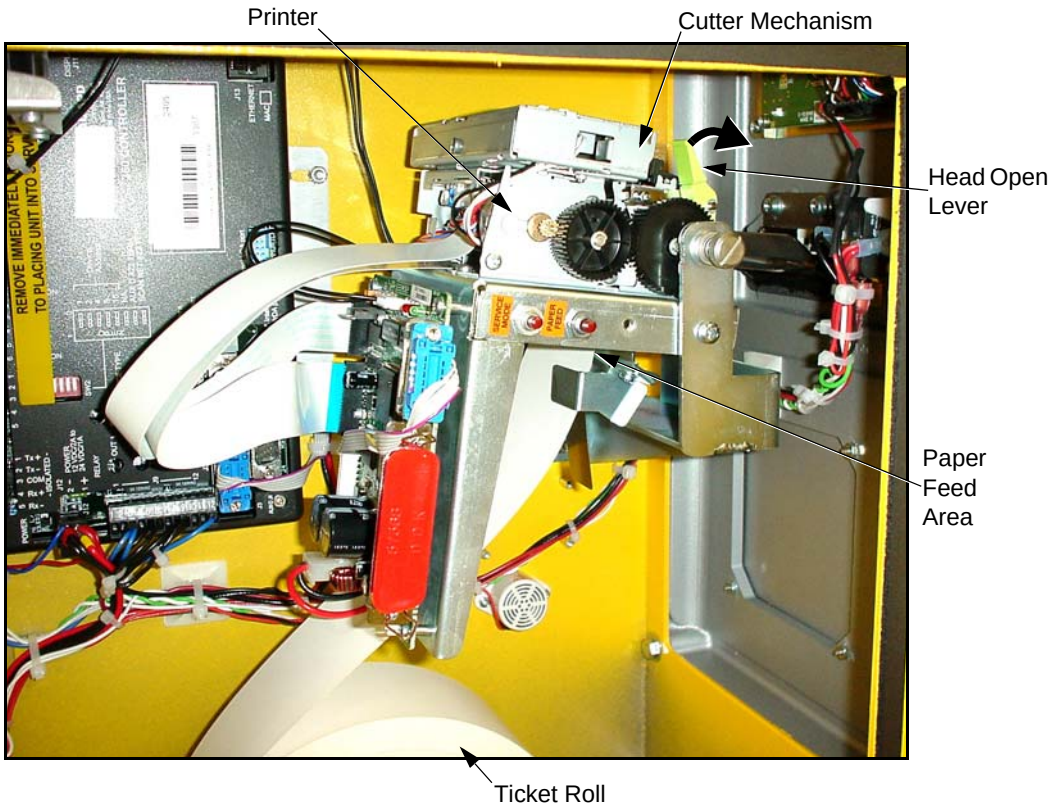
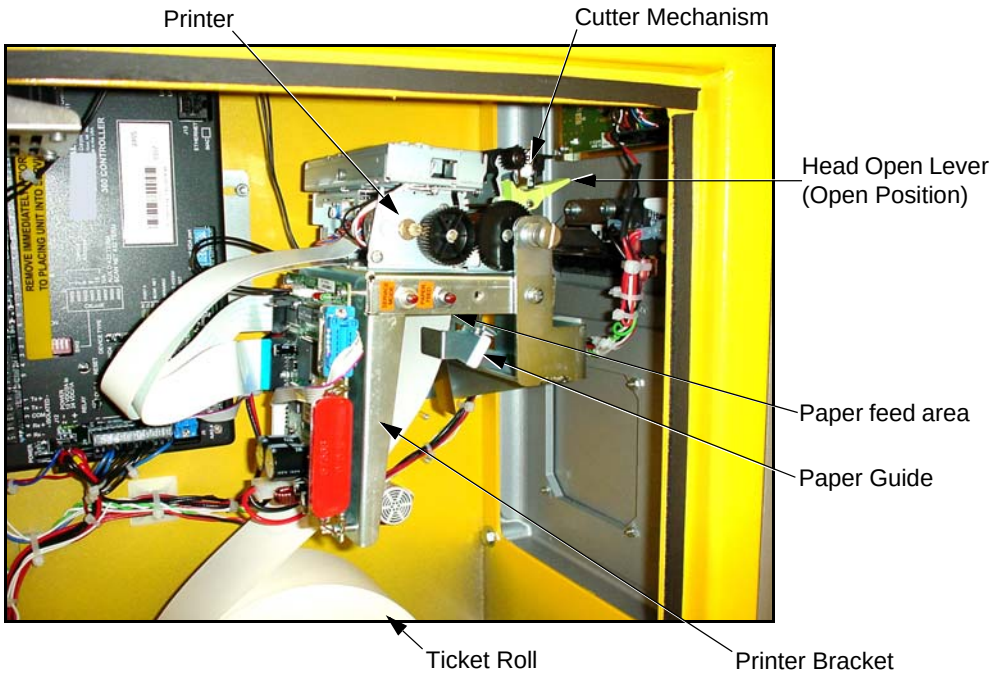


Figure 2.12 Printer Maintenance Position (Head Closed)



3. Push the Head Open Lever (Figure 2.12) to the open position (Figure 2.13).

Figure 2.13 Printer Maintenance Position (Head Open)



4. Remove the empty ticket roll.
5. Push the Head Open lever back to the closed position.
6. Place the new ticket roll on the paper roller.
7. Feed the end of the ticket roll into the printer paper feed mechanism and align it with the paper guide; the printer automatically feeds the paper into the printer.
8. Print a service ticket (refer to “Printing a Service Ticket,” page 137) to verify that the printer is functioning properly.
9. Reinstall the cabinet access panel (refer to “Removing and Installing the Cabinet Access Panel,” page 98).

CHAPTER 3

PDA Introduction

This chapter provides preliminary procedures for using a personal digital assistant (PDA) to program the Barcode Ticket Dispenser and Exit Verifier Reader Controller - Barcode TD/EV (controller).

PDA Minimum Requirements

The PDA must meet the following minimum requirements:

- 8 MB (or higher) internal memory
- Palm OS® software version 4.0 or higher. This has been tested by 3M for compatibility; other operating systems may be used, if compatible.
- Capability to synchronize data between the PDA and a PC, for Barcode Series Programming Utility installation. For example, if you are using a Palm PDA, you will use the Palm Desktop software with HotSync® Manager and a HotSync cradle.
- Infrared (IR) communication port

Palm™ handheld models m125, m500, Zire, and Tungsten E have been tested with the controller for compatibility. Other Palm models and other PDA brands may be used, if compatible. For specific PDA information, refer to the PDA user manual. This manual describes PDA functions that relate to controller programming only.

Infrared (IR) Communication

Infrared (IR) communication is a method of transmitting and receiving data via a beam of infrared light. Infrared (IR) communication between the PDA and controller is accomplished using built-in IR transceivers in both the PDA and controller. When communicating between the PDA and controller, follow these guidelines:

- Make sure the PDA and controller power are ON.
- Hold the PDA 4–39 inches (10–100 centimeters) from the controller IR port.
- Aim the PDA IR transceiver directly at the controller infrared transceiver.
- Make sure there is a clear path between the PDA and controller infrared transceivers.

Installing the Barcode Series Programming Utility

To install the Barcode Programming Utility on the PDA, do the following:

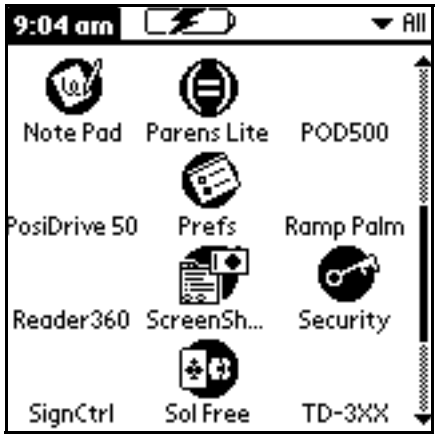
1. Obtain the Barcode Series Programming Utility program files from 3M.
2. Copy the Programming Utility program files to a PC.
3. Install the Barcode Series Programming Utility on the PDA; follow the PDA manufacturer's instructions for installing software on the PDA.

Logging In to the Barcode Series Programming Utility

To use the Barcode Series Programming Utility, you must first log in to the application.

To log in to the Barcode Series Programming Utility, do the following:

1. Tap the **Barcode** icon.



The Password Required window is displayed.

2. Type the ***password***.

   Note: The first time you log in, type "FAPD" (all uppercase).

3. Tap **OK**.

The Barcode Series main menu is displayed.

Note: Before logging into to the controller, "OFFLINE" is displayed in the upper right-hand corner of the Barcode Series main menu. After logging into the controller, "ONLINE" is displayed (refer to "Logging In to the Controller," below).

Logging In to the Controller

To transmit programming to the controller or download programming from the controller using the PDA, you must first log in to the controller.

To log in to the controller, do the following:

1. Point the PDA IR transceiver at the controller IR transceiver.
2. From the Barcode Series main menu, tap **LOGIN**.

The Password Entry screen is displayed.

3. Type the controller password.

   Note: The default password is "**FAPD**" (all uppercase).

4. Tap **OK**.

   The following Program Message is temporarily displayed.

“ONLINE” is displayed in the upper right-hand corner of the Barcode Series main menu.

Note: If there is no activity after approximately 5 minutes, the system will log you off and you will be prompted to re-enter the controller password before you can communicate with the controller.

Passwords

Passwords allow you to control who can program and access data from the PDA and controller. There are two types of Barcode Series Programming Utility passwords:

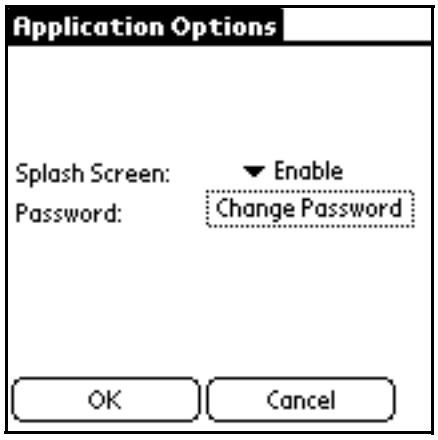
- **Application Password**—This password provides access to the PDA Barcode Series Programming Utility. The application password is stored on the PDA. There is one application password per PDA.
- **Reader Controller - Barcode TD/EV Password**—This password provides access to Barcode Series programming functions when the PDA is connected to the controller. The controller password is stored on the controller. There is one controller password per controller.

Changing the Application Password

To change the Barcode Series Programming Utility password, do the following:

1. From the Barcode Series main menu, tap **OPTIONS**.

The Application Options screen is displayed.



2. Tap **Change Password**.

The change password prompts are displayed.

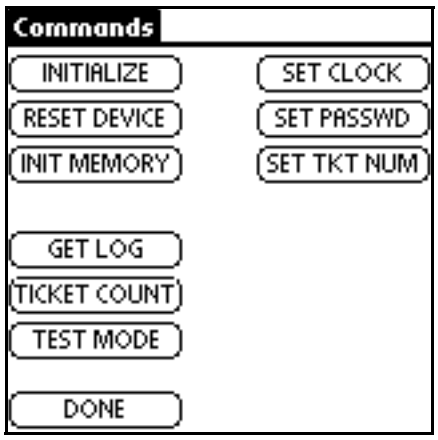
3. Type the **Old Password**.
4. Type the **New Password**.
5. Type the new password again in the **Confirm Password** field.
6. Tap **OK**.

Changing the Controller Password

To change the controller password, do the following:

1. From the Barcode Series main menu, tap **COMMANDS**.

The Commands menu is displayed.



2. Tap **SET PASSWD**.

   The Change Device Password screen is displayed.

3. Type the **Old Password**.
4. Type the **New Password**.
5. Type the new password again in the **Verify New Password** field.
6. Tap **OK**.

Disabling the Splash Screen

When the Barcode Series Programming Utility is accessed, a splash screen (Figure 3.1) is displayed, showing the program icon:

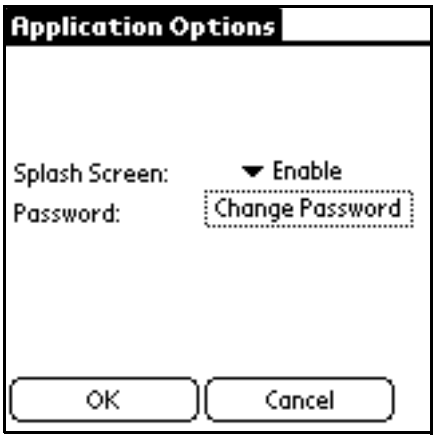
Figure 3.1
Splash Screen

If you do not want the splash screen to display, you can disable it so that when you access the program, the Password Required screen is the first screen displayed.

To disable the splash screen, do the following:

1. From the Barcode Series main menu, tap **OPTIONS**.

The Application Options screen is displayed.



2. From the **Splash Screen** drop-down menu, tap **Disable**.

   Note: To enable the splash screen again, tap **Enable**.

3. Tap **OK**.

CHAPTER 4

Programming

This chapter describes the procedures for programming the Barcode Ticket Dispenser and Exit Verifier Reader Controller - Barcode TD/EVReader Controller - Barcode TD/EV, using a personal digital assistant (PDA) and the Barcode Programming Utility.

Reader Controller - Barcode TD/EV Programming Overview

The following general controller functions and features can be controlled and programmed using the PDA:

- Reset the controller
- Initialize the controller
- Date and time
- Change password
- Viewing and clearing the Reader Controller - Barcode TD/EVcontroller error log
- Placing a controller in the Test Mode
- Power up message

These functions and features are controlled and programmed using the PDA. Some of these functions and features may also be controlled and programmed from ScanNet, including initializing the controller. In order to program the controller using the PDA, you must first log in to the controller (refer to “Logging In to the Controller,” page 44).

Controller programming is done from the Barcode Programming Utility COMMANDS function. This function is used to transmit programming to the controller and save controller programming to the PDA.

The following common functions are used throughout the Barcode Series Programming Utility:

- **Get From Device**—Download programming from the controller to the PDA.
- **Send To Device**—Transmit programming from the PDA to the controller.
- **Save**—Saves new or modified programming to the PDA.

Note: In order to download programming from the controller to the PDA, or transmit programming from the PDA to the controller, you must be logged in to the controller (refer to “Logging In to the Controller,” page 44).

Resetting the Controller

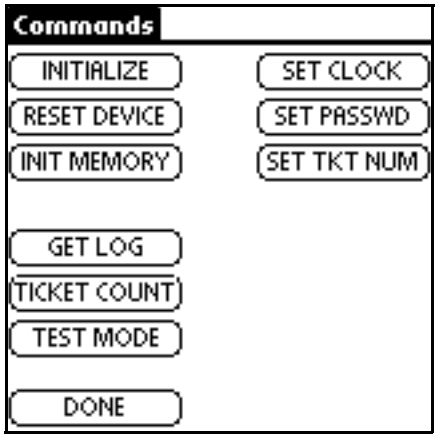
If a controller communication problem occurs, you can reset the controller to restore communication. To reset the controller, the reset command is sent from the PDA to the controller. Sending this command is the same as pressing the controller RESET button (refer to “Resetting the Controller,” page 132). Resetting the controller does not erase any programming; however, it does log you off the controller. You must log in to the controller again to continue programming or sending commands.

To reset the controller, do the following:

1. Log in to the controller (“Logging In to the Controller,” page 44).

2. From the Barcode (e.g., TD) Series Programming Utility main menu, tap **COMMANDS**;

the Commands screen is displayed.



3. Tap **RESET DEVICE**; the following Program Message is displayed:

4. Tap **OK**.

Initializing the Controller and/or PDA

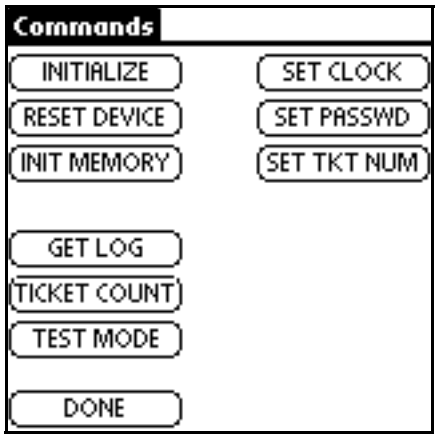
To reprogram the PDA and/or controller, the PDA and/or controller can be initialized.

Note: Using the "INITIALIZE" command erases all programming and sets the PDA and/or controller to its default parameters.

To initialize the controller, PDA, or both, do the following:

1. From the Barcode (e.g., TD) Series Programming Utility main menu, tap **COMMANDS**;

the Commands screen is displayed:



2. Tap **INITIALIZE**; the "Initialize..." prompt is displayed:

3. Select the device to initialize, do one of the following:
   - To initialize the PDA only, tap **Palm**;
   - To initialize the controller only, tap **POD**;
   - To initialize both the PDA and the controller, tap **Both**;

the following Program Message is displayed:

4. Tap **OK**.

Note: If you selected to initialize both the PDA (Palm) and the controller (POD), another Program Message is displayed, indicating that the second device has been initialized.

PDA and Controller Date and Time

When working in the Test Mode, the controller date and time should be correct. All controllers in the parking system should be programmed with the correct date and time, in order to provide useful event time data. To program the controller date and time, program the PDA date and time first.

To set the PDA and controller date and time, do the following:

1. From the PDA main menu, tap **Clock**;

the Clock screen is displayed:

2. Tap **Set Date & Time...;** the Preferences Date & Time screen is displayed:

3. Tap the **Set Date** field; the Select Date screen is displayed:

4. Tap the ***current date***; the Preferences Date & Time screen is displayed, with the selected date displayed:

5. Tap the **Set Time** field; the Set Time dialog box is displayed:

6. Set the time (e.g., 9:20) using the up and down arrows.
7. Tap **AM** or **PM** (e.g., AM).

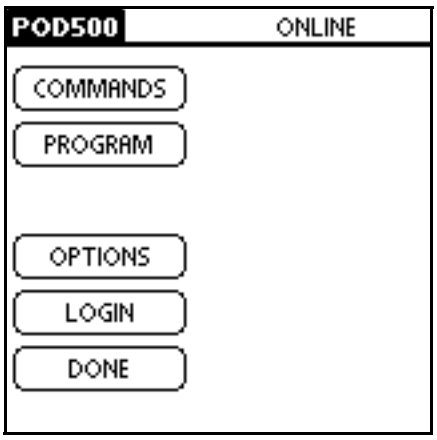
8. Tap **OK**; the Preferences Date & Time screen is displayed with the time that was set (e.g., 9:20 am) displayed:

9. Tap the **Set Time Zone** field; the Set Time Zone screen is displayed:

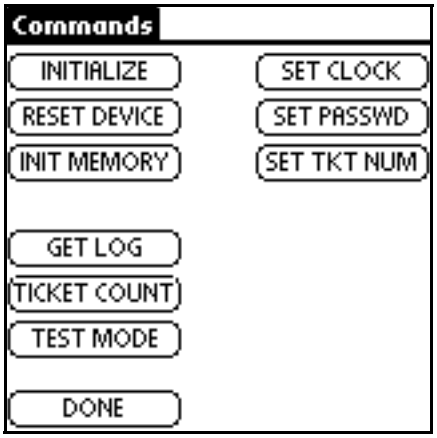
10. Tap the ***time zone*** (e.g., USA (Eastern)).

11. Tap **OK**; the Preferences Date & Time screen is displayed with the time zone that was selected (e.g., USA (Eastern)) displayed:

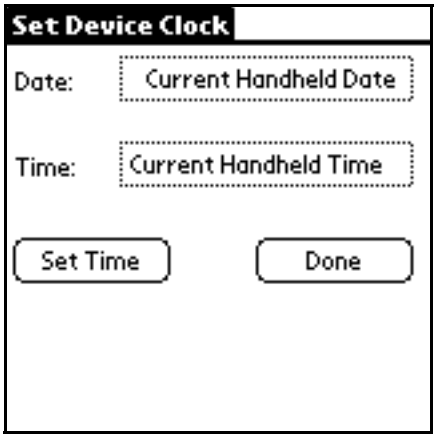
12. From the **Daylight Saving** drop-down list, select the daylight saving status (i.e., On or Off).
13. Tap **Done**.
14. From the Barcode Series Programming Utility main menu, tap **COMMANDS**;



the Commands screen is displayed:



15. Tap **SET CLOCK**; the Set Device Clock screen is displayed:



16. Tap **Current Handheld Date**; the Select Date screen is displayed:

17. Tap **Today** to select the current date**;** the Set Device Clock screen is displayed showing the date (e.g., Mon Oct 24, 2005) that was selected:

18. Tap **Current Handheld Time**; the Select Time dialog box is displayed:

19. Tap **OK**; the Set Device Clock screen is displayed, with the time displayed in the **Time** field:

20. Tap **Set Time** to send the date and time to the controller; the following Program Message is displayed, indicating that the device time has been set:

21. Tap **OK**.
22. Tap **Done**.

Reader Controller - Barcode TD/EV Ticket Dispenser

Programming Overview

In addition to the functions mentioned above (Reader Controller - Barcode TD/EV Programming Overview, page 54), the following ticket dispenser functions and features can be controlled and programmed using the PDA:

- Next ticket number
- Ticket header and footer
- Lane configuration (lane number, fee table number, facility code)
- Date format and field separator
- Time Format (AM-PM, military)
- Language (English, Spanish, Portuguese)
- Printer Type (Epson, Fujitsu)
- Ticket length 3.3 or 4.0 inches (8.5 or 10 cm)
- Output 2 (Ticket in Throat, Lot Full, Low Paper)
- Barcode (enable, disable)

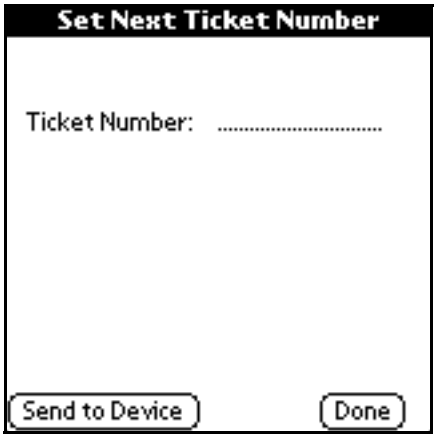
Next Ticket Number

To program the next ticket number, do the following:

1. From the Barcode Series Programming Utility main menu, tap **COMMANDS**;

the Commands screen is displayed:

2. Tap **SET TKT NUM**; the Set Next Ticket Number screen is displayed:



3. Type the next ticket number and tap **Send to Device**; the following Program Message is displayed:

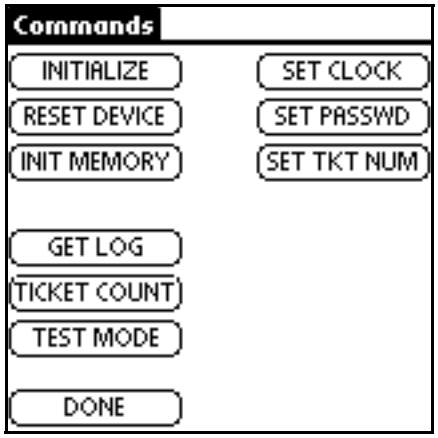
4. Click **OK**.
5. Click **Done**.

PDA Device Log

The PDA device log is downloaded from the Reader Controller - Barcode TD/EV. It can contain up to 14 different ticket dispenser messages. The messages and how to respond to these messages is explained in “PDA Device Log,” page 148.

1. From the Barcode Series main menu, tap **COMMANDS**;

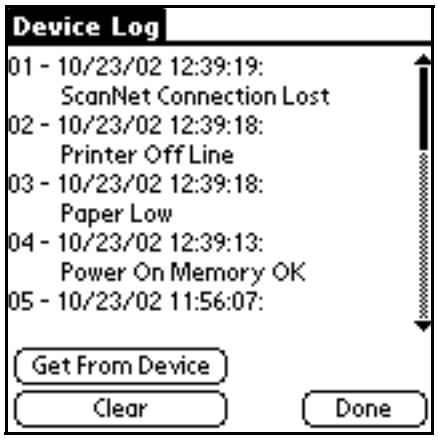
the Commands screen is displayed:



2. Tap **GET LOG**; the Device Log screen is displayed.

3. Tap **Get from Device**; the following Program Message is displayed:

4. Tap **OK**; the Device log is displayed.



5. When you are done reviewing the device log, tap **Clear** to delete the messages.
6. Tap **Done**.

Test Mode

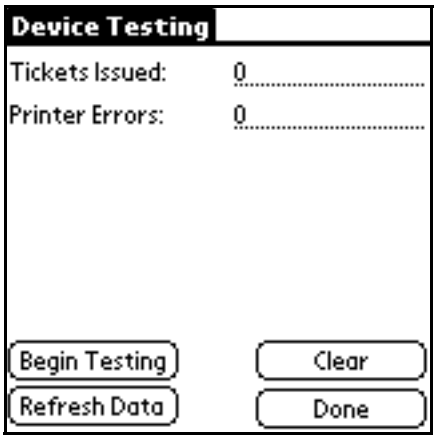
The Ticket Dispenser controller is placed in the Test Mode to perform certain maintenance and troubleshooting procedures.

To place the controller in the test mode, do the following:

1. From the Barcode Series Programming Utility main menu, tap **COMMANDS**;

the Commands screen is displayed:

2. Tap **TEST MODE**; the Device Testing screen is displayed:



3. Tap **Begin Testing**; the following Program Message is displayed:

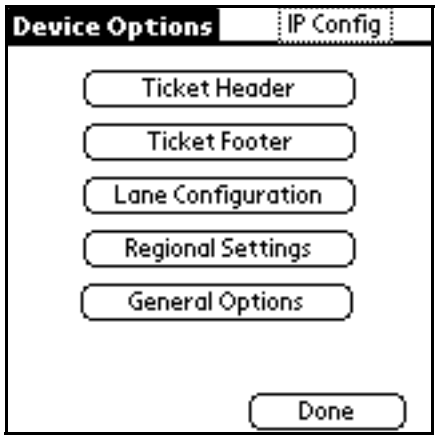
4. Tap **OK**.

Ticket Header and Footer

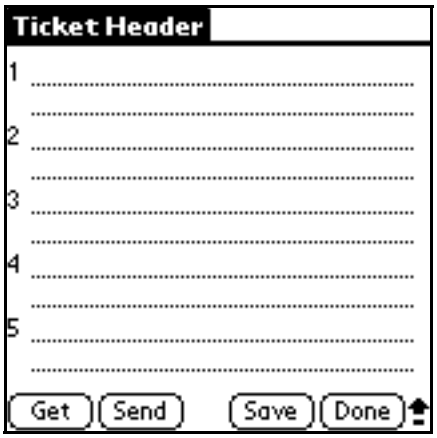
Five ticket header lines and two footer lines, with 25 characters per line, can be programmed using the Device Options Ticket Header and Ticket Footer options.

To program the headers and footers, do the following:

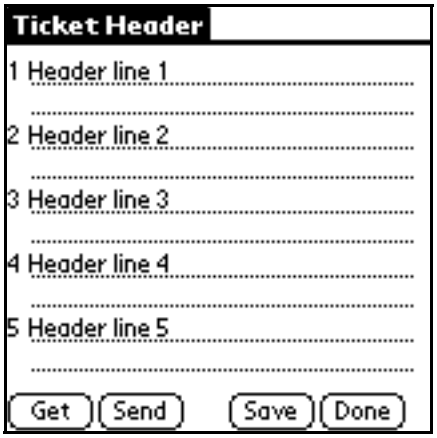
1. From the Barcode Series Programming Utility main menu, tap **PROGRAM**; the Device Options screen is displayed:



2. Tap **Ticket Header**; the Ticket Header screen is displayed.



3. Type header information on lines 1–5.



Note: When saving the controller options to the PDA (**Save**) or transmitting the controller options to the controller (**Send to Device**), all current Device Options are saved or sent, even if you modified only one setting. Before saving or transmitting the controller options, make sure that all settings are correct.

4. Tap **Save** to save the header information to the PDA; the following Program Message is displayed:

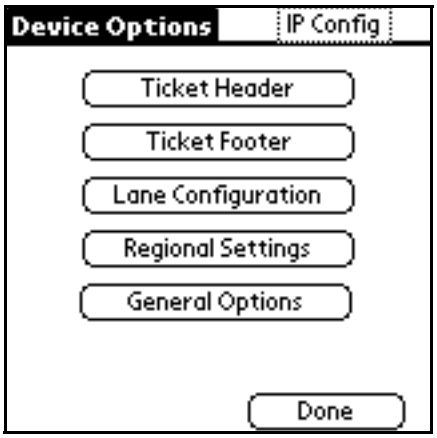
5. Tap **OK**.

6. Tap **Send** to send the header information to the controller; the following Program Message is displayed:

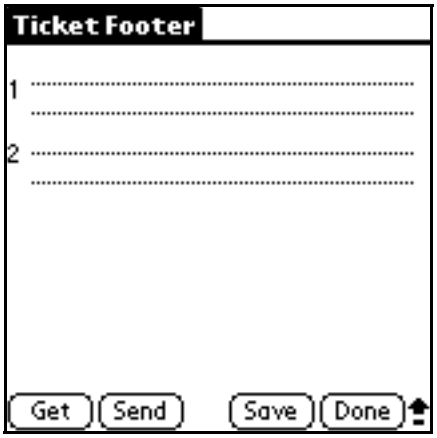
7. Tap **OK**.

8. Tap **Done**.

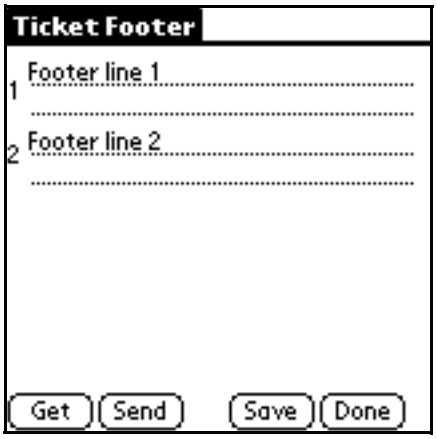
9. From the Device Options screen, tap **Ticket Footer**;



the Ticket Footer screen is displayed.



10. Type footer information on lines 1 and 2.



11. Tap **Save** to save the footer information to the PDA; the following Program Message is displayed:

12. Tap **OK**.

13. Tap **Send** to send the footer information to the controller; the following Program Message is displayed:

14. Tap **OK**.

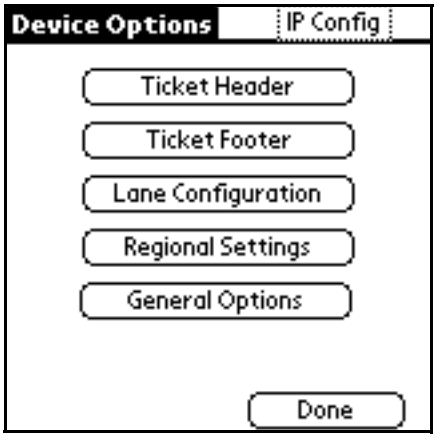
15. Tap **Done**.

Lane Configuration

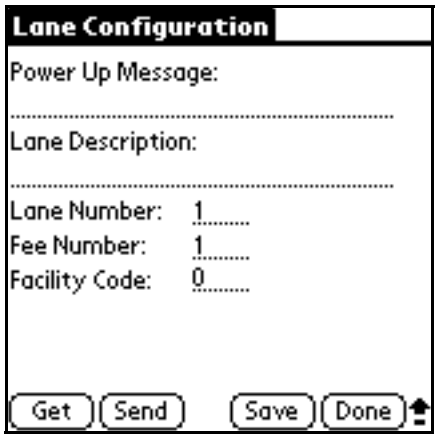
To program the lane configuration information, do the following:

1. From the Barcode Series Programming Utility main menu, tap **PROGRAM**;

the Device Options screen is displayed:



2. Tap **Lane Configuration;** the Lane Configuration screen is displayed:



3. Tap **Get** to download lane configuration data from the controller; the following Program Message is displayed:

4. Tap **OK;** the controller lane configuration data is displayed.

5. Modify the information, if required.

Note: The Power Up Message and Lane Description can contain up to 16 characters. The Lane Number and Fee Number can contain up to two characters. The Facility code can contain up to three characters.

Note: When saving the controller options to the PDA (**Save**) or transmitting the controller options to the controller (**Send to Device**), all current Device Options are saved or sent, even if you modified only one setting. Before saving or transmitting the controller options, make sure that all settings are correct.

6. Tap **Save** to save the lane configuration data to the PDA; the following Program Message is displayed:

7. Tap **OK**.

8. Tap **Send**; the following Program Message is displayed:

9. Tap **OK**.

10. Tap **Done**.

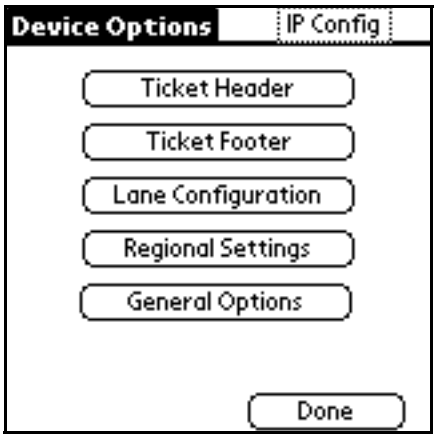
Regional Settings

Regional settings include: date and time formats and language (i.e., English, Spanish, or Portuguese).

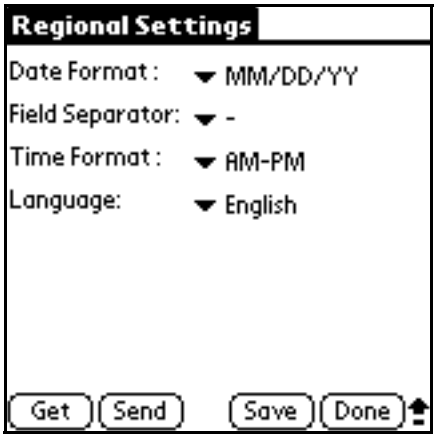
To set the regional settings, do the following:

1. From the Barcode Series Programming Utility main menu, tap **PROGRAM**;

the Device Options menu is displayed:



2. Tap **Regional Settings**; the Regional Settings screen is displayed:



3. Tap **Get** to download the regional settings from the controller; the following Program Message is displayed:

4. Tap **OK**.

5. Tap the **Date Format** drop-down list and select the date format (MM/DD/YY, DD/MM/YY, or YY/MM/DD).
6. Tap the **Field Separator** drop-down list and select the field separator format (- or /).
7. Tap the **Time Format** drop-down list and select the time format (AM-PM or Military).
8. Tap the **Language** drop-down list and select the language (English, Spanish, or Portuguese).

Note: When saving the controller options to the PDA (**Save**) or transmitting the controller options to the controller (**Send to Device**), all current Device Options are saved or sent, even if you modified only one setting. Before saving or transmitting the controller options, make sure that all settings are correct.

9. Do one of the following or both:
   a. Tap **Save** to save the programming to the PDA.

   b. Tap **Send to Device** to send the programming to the controller.

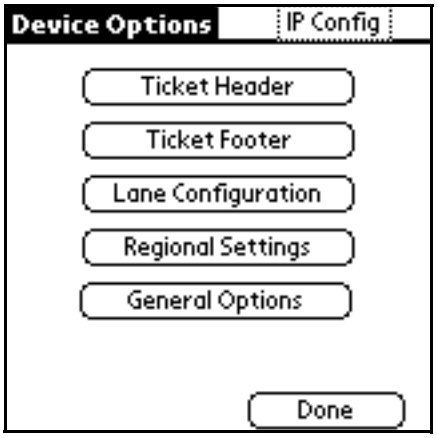
10. Tap **OK**.
11. Tap **Done**.

General Options

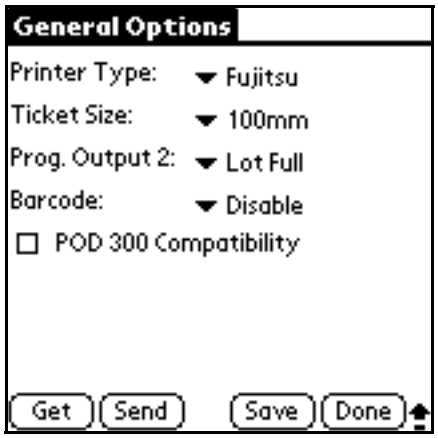
To program the general options, do the following:

1. From the Barcode Series Programming Utility main menu, tap **PROGRAM**;

the Device Options menu is displayed:



2. Tap **General Options;** the General Options screen is displayed:



3. Tap **Get** to download General Options from the controller; the following Program Message is displayed:

4. Tap the **Printer Type** drop-down list to select the printer type (Epson or Fujitsu).
5. Tap the **Ticket Size** drop-down list to select the ticket length (85mm or 100mm).
6. Tap the **Prog. Output 2** drop-down list to select the output 2 (Ticket in Throat, Lot Full, Low Paper).
7. Tap the **Barcode** drop-down list to select the print bar code option (Enable or Disable).

Note: When saving the controller options to the PDA (**Save**) or transmitting the controller options to the controller (**Send to Device**), all current Device Options are saved or sent, even if you modified only one setting. Before saving or transmitting the controller options, make sure that all settings are correct.

8. Do one of the following or both:

a. Tap **Save** to save the programming to the PDA; the following Program message is displayed:

b. Tap **Send to Device** to send the programming to the controller; the following Program Message is displayed:

Exit Verifier

Programming Overview

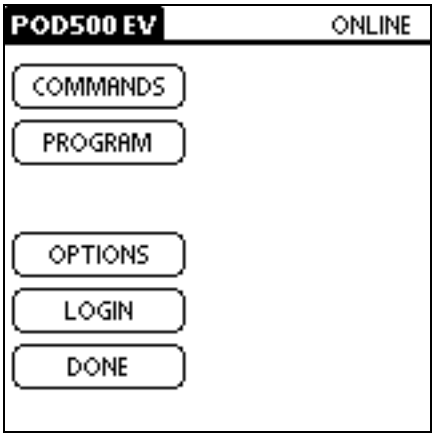
In addition to the functions described above (Reader Controller - Barcode TD/EV Programming Overview, page 54), the following Exit Verifier functions and features can be controlled and programmed using the PDA:

- Lane configuration (lane number, paid grace time, unpaid grace time, facility code)
- Date format and field separator
- Time Format (AM-PM, military)
- Language (English, Spanish, Portuguese)
- Offline operation

Viewing the PDA Device Log

The PDA device log is downloaded from the Reader Controller - Barcode TD/EV. It can contain up to 8 different exit verifier messages. The messages and how to respond to these messages is explained in “PDA Device Log,” page 150.

1. From the Barcode TD/EV main menu, tap **COMMANDS**;

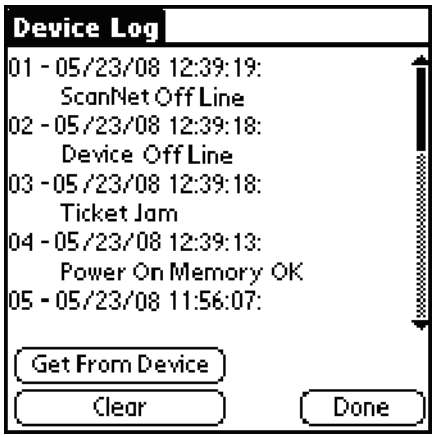


the Commands screen is displayed:

2. Tap **GET LOG**; the Device Log screen is displayed:

3. Tap **Get from Device**; the following Program Message is displayed:

4. Tap **OK**; the Device log is displayed:



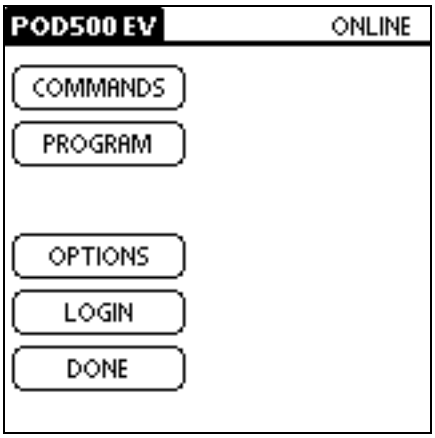
5. When done reviewing the device log, tap **Clear** to delete the messages.
6. Tap **Done**.

Test Mode

This section describes how to run the Exit Verifier in the two test modes: One Time Reading and Loop Reading. The test mode is used to check the Exit Verifier's ability to read tickets.

Note: In order to perform the following tests, test tickets printed from a Barcode Ticket Dispenser are required.

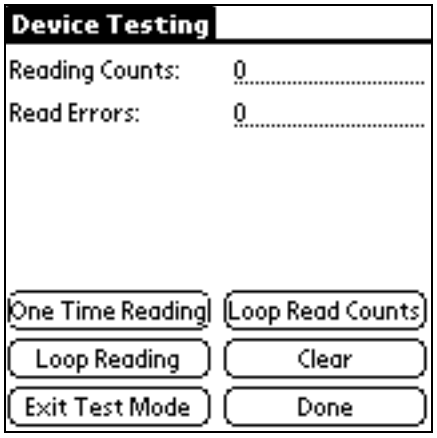
1. From the Barcode TD/EV Programming Utility main menu, tap **COMMANDS**;



the Commands screen is displayed:

2. From the Commands screen, tap **TEST MODE**;

the Device Testing screen is dispayed:



3. Tap one of the following:

   a. **One Time Reading**

      1) The Program Message “Test Mode 1 enabled.” is displayed:

      2) Tap **OK**.

      3) Insert a test ticket into the Exit Verifier; the ticket information is displayed on the exit verifier patron display; the ticket is returned.

      4) Take the ticket.

      5) Tap **Exit Test Mode**; the Program Message “Normal Mode enabled.” is displayed:

b. Loop Reading

The loop reading function is used to perform multiple reads.

1) The Program Message “Test Mode 2 enabled.” is displayed:

2) Tap **OK**.

3) Insert a test ticket into the Exit Verifier; the ticket information is displayed on the exit verifier patron display; the ticket is read continuously.

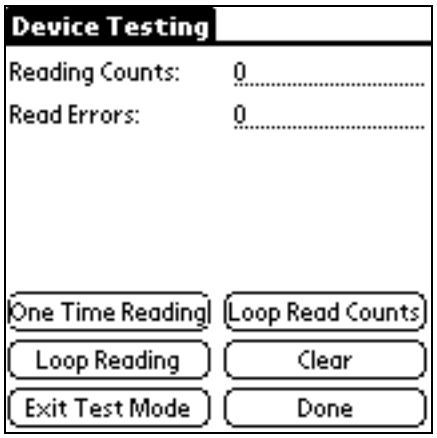
Note: The transport holds the ticket until another test mode is selected.

Note: The Loop Read Counts function is used to monitor the read count and errors.

4) Tap **Loop Read Counts**; the Program Message “Test log received successfully.” is displayed with the number of tickets read and the number of read errors since the last time the counts were cleared:

5) Tap **OK**.

6) Tap **Clear** to clear the counts.

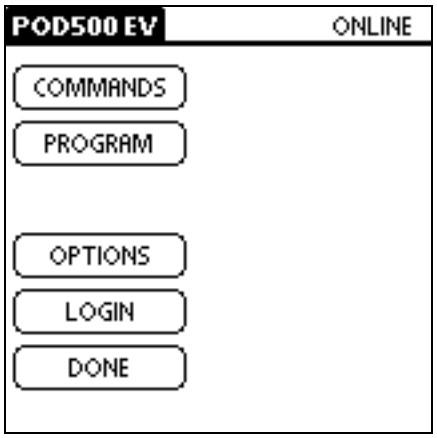


7) Tap **Exit Test Mode**; the ticket is returned; the Program Message "Normal Mode enabled." is displayed:

Lane Configuration

To program the various lane attributes, do the following:

1. From the Barcode TD/EV main menu, tap **PROGRAM;**



the Device Options screen is displayed:

2. Tap **Lane Configuration**; the Lane Configuration screen is displayed:

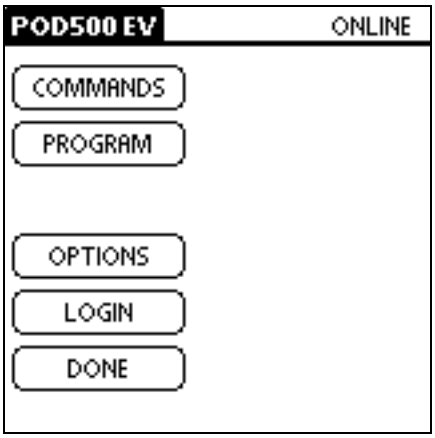
3. In the **Power Up Message** field, type the message that will be displayed when the Exit Verifier is powered up (e.g., 3M).
4. In the **Lane Description** field, type the lane information (e.g., Lane 1).
5. In the **Lane Number** field, type the lane number (e.g., 1).
6. In the **Paid Grace Time** field, type the time (in minutes)(e.g., 20).
7. In the **Unpaid Grace Time** field type the time (in minutes)(e.g., 10).
8. In the **Facility Code** fields, type the facility codes (e.g., 111, 222, 333, etc.).
9. Tap **Save** to save the programming to the PDA.
10. Tap **Send** to send the programming to the controller.
11. Tap **Done** to return to the previous menu.

Regional Settings

Regional settings include: date and time formats and language (i.e., English, Spanish, or Portuguese).

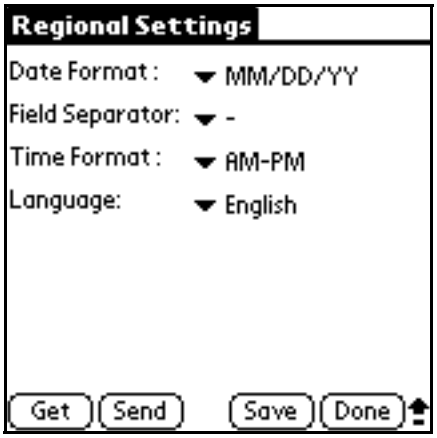
To set the regional settings, do the following:

1. From the Barcode TD/EV Series Programming Utility main menu, tap **PROGRAM**;



the Device Options menu is displayed:

2. Tap **Regional Settings**; the Regional Settings screen is displayed:



3. Tap **Get** to download the regional settings from the controller; the following Program Message is displayed:

4. Tap **OK**.

5. Tap the **Date Format** drop-down list and select the date format (MM/DD/YY, DD/MM/YY, or YY/MM/DD).
6. Tap the **Field Separator** drop-down list and select the field separator format (- or /).
7. Tap the **Time Format** drop-down list and select the time format (AM-PM or Military).
8. Tap the **Language** drop-down list and select the language (English, Spanish, or Portuguese).

Note: Before saving or transmitting the controller options, make sure that all settings are correct. When saving the controller options to the PDA (**Save**) or transmitting the controller options to the controller (**Send to Device**), all current Device Options are saved or sent, even if you modified only one setting.

9. Do one of the following or both:
   a. Tap **Save** to save the programming to the PDA.

   b. Tap **Send to Device** to send the programming to the controller.

10. Tap **OK**.
11. Tap **Done**.

CHAPTER 5

Maintenance

This chapter provides Barcode Ticket Dispenser and Exit Verifier maintenance information and procedures.

Removing and Installing the Cabinet Access Panel

The Ticket Dispenser and Exit Verifier cabinets and access panels are identical. To remove the cabinet access panel (Figure 5.1) to access the cabinet interior for loading a ticket roll (Ticket Dispenser), removing and emptying the ticket box (Exit Verifier), or performing other maintenance tasks, follow these steps:

Figure 5.1 Cabinet Access Panel

1. Insert the key into the lock.
2. Turn the key clockwise one-quarter turn until the handle releases.

Warning! **When the handle is turned counterclockwise to release the panel, the panel will fall if not supported; personnel injury and equipment damage can occur. Support the panel when releasing it.**

---

3. Turn the handle counterclockwise one-quarter turn to release the panel.

4. Let the top of the panel swing out slightly (Figure 5.2).

Figure 5.2 Removing the Cabinet Access Panel

5. Pull the panel up and out to remove it.

To install the access panel, do the following:

1. Insert the bottom of the access panel into the bottom area of the cabinet opening.
2. Swing the top of the panel into position and press it firmly into position.
3. While holding the panel in position, turn the handle clockwise one-quarter turn.
4. Push the handle in until it latches.
5. Turn the key counterclockwise one-quarter turn until it stops.
6. Remove the key.

Replacing the Push For Ticket Button Lamp

The push for ticket button (Figure 5.3) is lit with a 28 volt lamp (3M part number: 26-9800-0938-0).

Figure 5.3 Push for Ticket Button, Front View

Important! **When performing maintenance, do not work alone.**

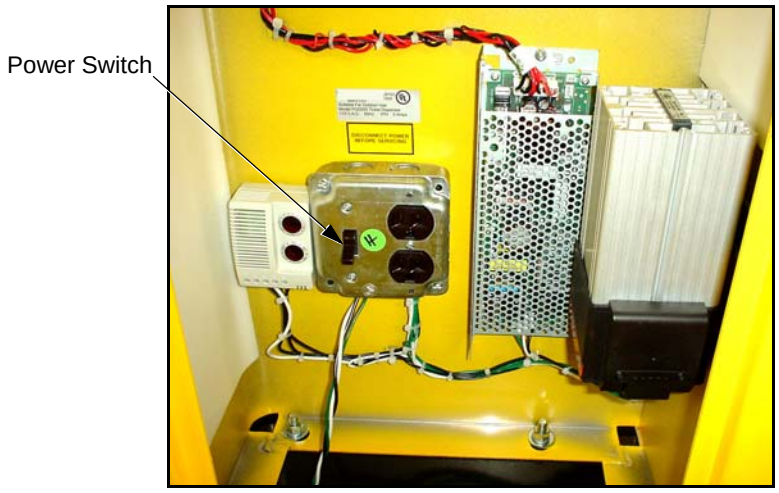
To replace the lamp, do the following:

1. Remove the access panel (refer to “Removing and Installing the Cabinet Access Panel,” page 98).

Warning! **To reduce the risk of severe personal injury or damage to equipment, set the power switch to OFF before performing any maintenance or repairs. Failure to heed this warning could result in personnel injury or even death.**

2. Set the power switch (Figure 5.4) to OFF (down position).

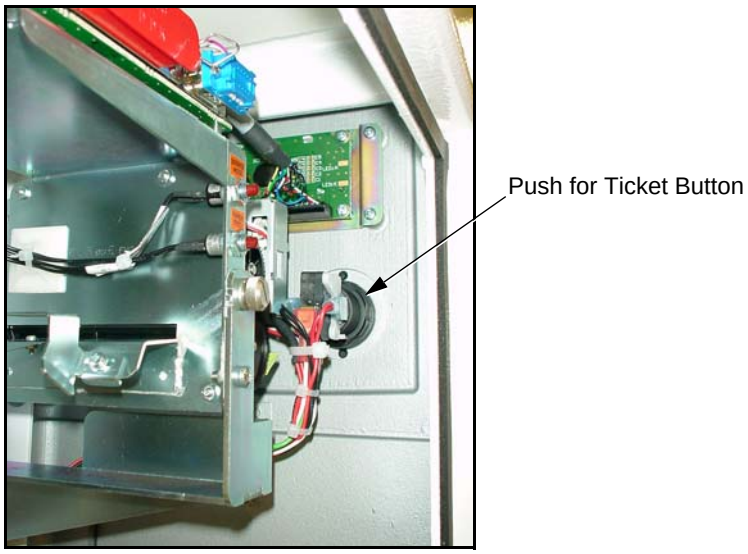
Figure 5.4 Power Switch, Cabinet Interior (Bottom)



3. Wait 30 seconds for the power supply to discharge.

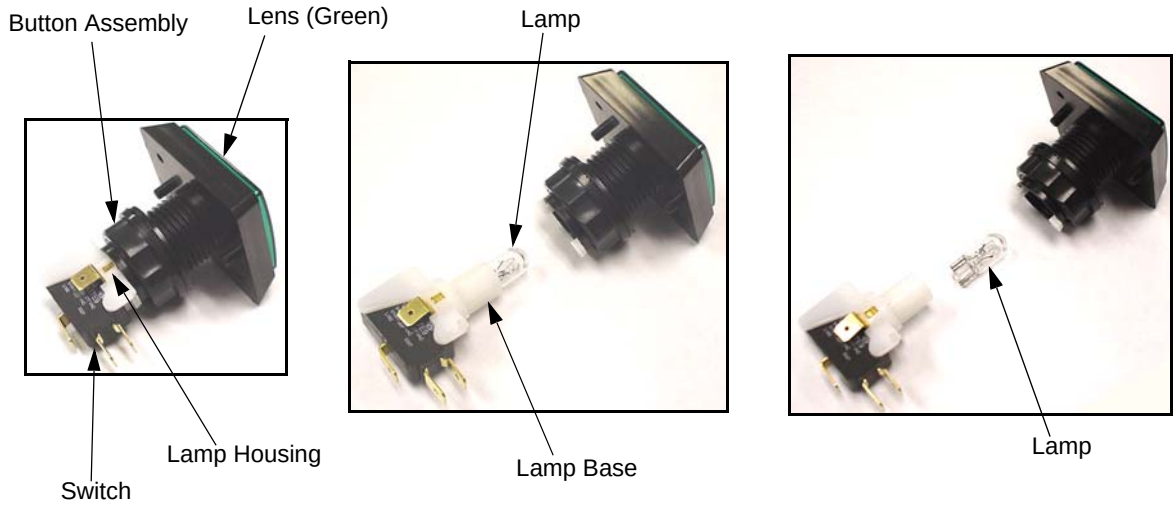
Note: The push for ticket button is mounted on the front panel (Figure 5.3 and Figure 5.5). Figure 5.6 is shown for illustration purposes only.

Figure 5.5 Push for Ticket Button, Interior View



4. Grasp the lamp housing (Figure 5.6) with your thumb and forefinger.

Figure 5.6 Push for Ticket Button, Lamp Removal



Note: The lamp housing is a snap fit with the button assembly.

5. Remove the switch/lamp housing from the button assembly—while pulling the switch/lamp housing straight out from the button assembly, gently wiggle it until it unsnaps.
6. Grasp the lamp base with your thumb and forefinger and pull the lamp straight out from the lamp base.
7. Insert the new lamp into the lamp base.
8. Insert the switch/lamp housing into the button assembly until it snaps into place.
9. Set the power switch (Figure 5.4) to ON (up position).
10. Verifiy that the lamp is lit.
11. Reinstall the access panel (refer to “Removing and Installing the Cabinet Access Panel,” page 98).

Clearing a Paper Jam

Required tools:

- Large slotted screwdriver (1/4”×6” or suitable substitute)
- Scissors

Important! **When performing maintenance, do not work alone.**

To clear jammed paper from the printer, do the following:

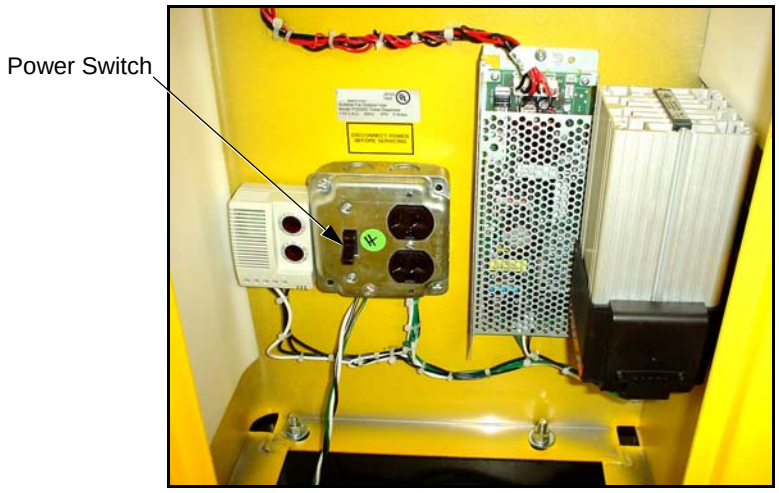
1. Remove the access panel (refer to “Removing and Installing the Cabinet Access Panel,” page 98).

Warning! **To reduce the risk of severe personal injury or damage to equipment, set the power switch to OFF before performing any maintenance or repairs. Failure to heed this warning could result in personnel injury or even death.**

---

2. Set the power switch (Figure 5.7) to OFF (down position).

Figure 5.7 Power Switch, Cabinet Interior (Bottom)



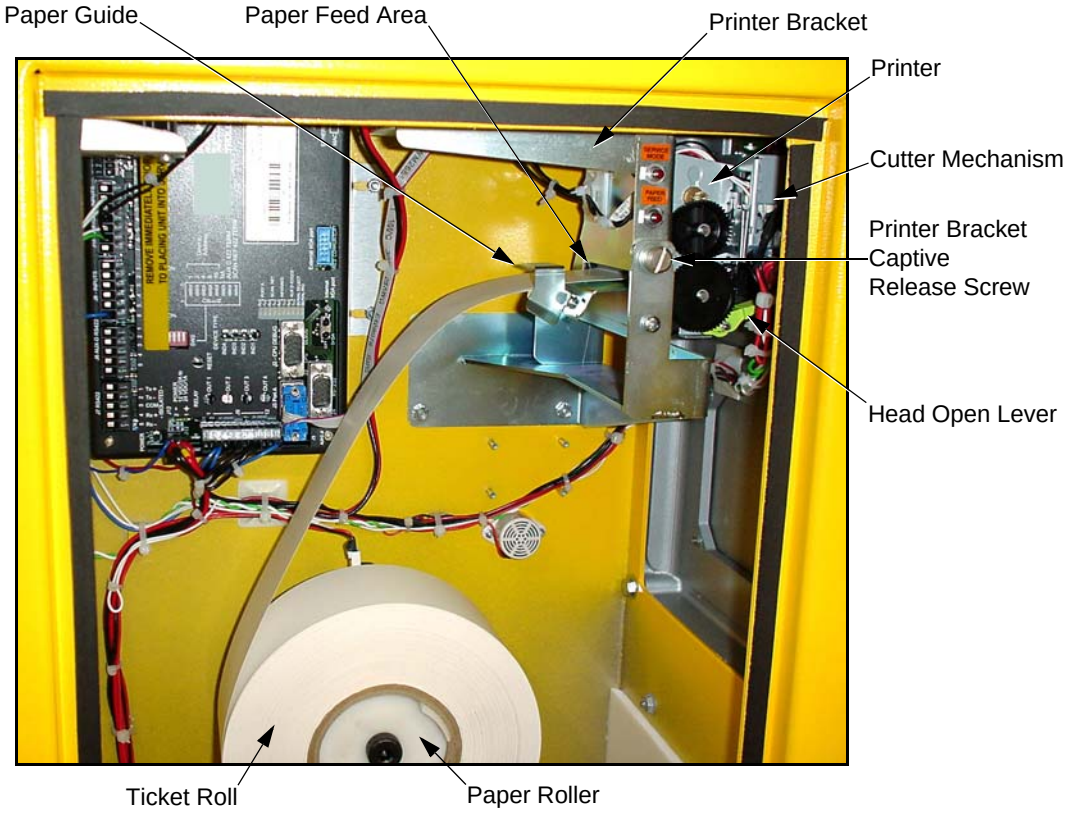
3. Wait 30 seconds for the power supply to discharge.

Caution! **Do not attempt to pry paper out of the printer or force paper into the printer, this can damage the thermal print mechanism.**

Note: The printer bracket release screw is a captive screw (i.e., the screw does not unscrew completely and is held in place).

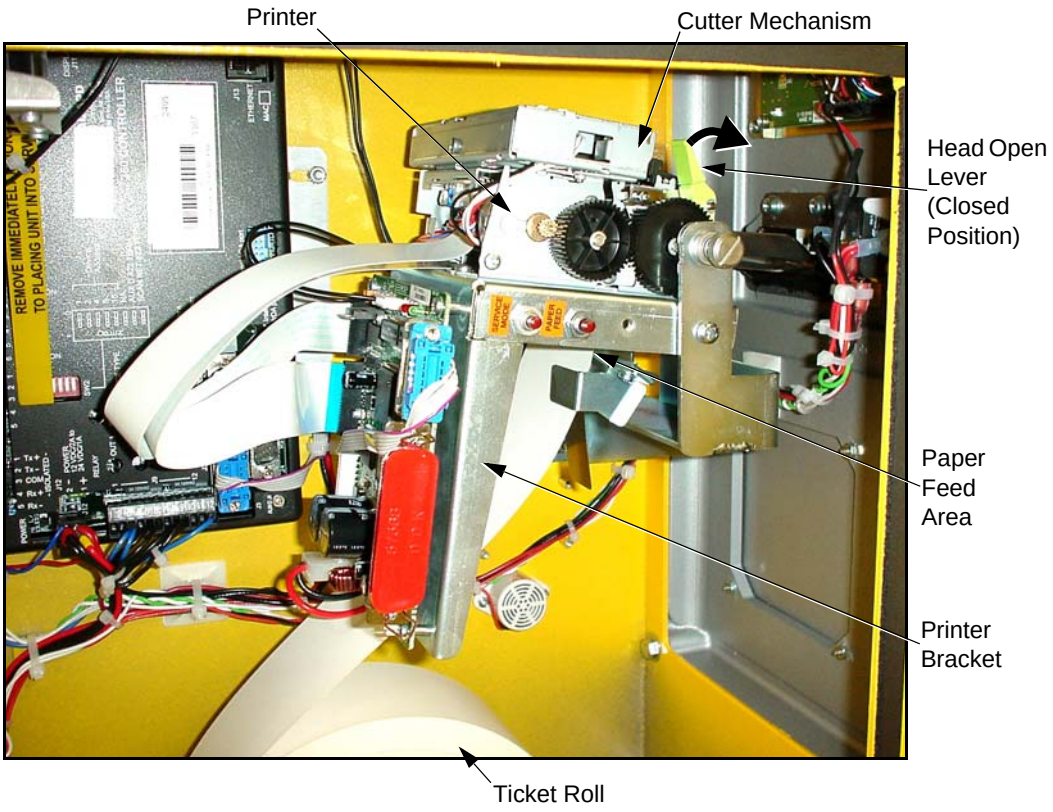
4. Using a large slotted screwdriver, turn the printer bracket captive release screw (Figure 5.8) counter-clockwise to loosen.

Figure 5.8 Printer, Normal Position



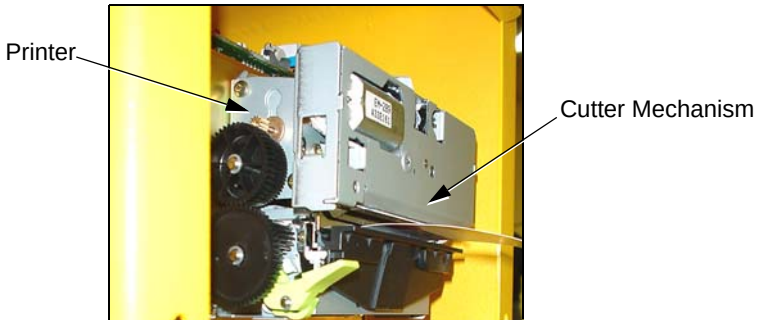
5. Swing the printer bracket down to the maintenance position (Figure 5.9).

Figure 5.9 Printer, Maintenance Position (Head Closed)



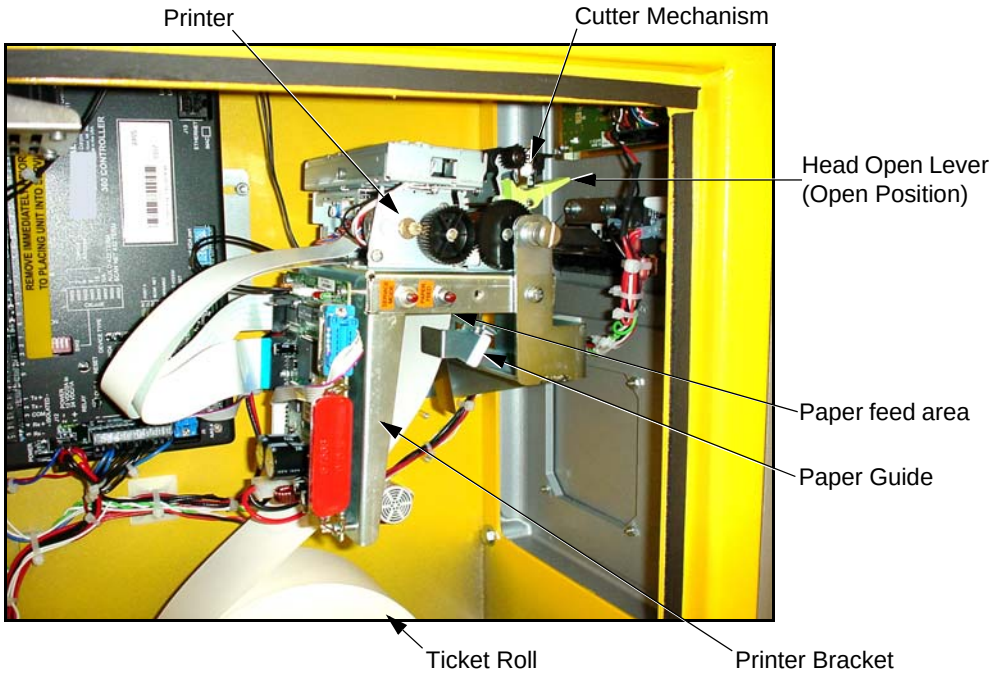
Warning! **Exercise caution when working near the cutter mechanism (Figure 5.10), the blades are sharp and can cause serious injury.**

Figure 5.10 Cutter Mechanism (Ticket Dispenser, Front Panel Removed)



6. Push the Head Open Lever to the open position (Figure 5.11).

Figure 5.11 Printer, Maintenance Position (Head Open)



7. Remove the ticket roll and any jammed paper from the paper feed area.

8. Push the Head Open lever back to the closed position.

9. Swing the printer bracket back to the normal position (Figure 5.8).

10. Using a large slotted screwdriver, turn the printer bracket captive release screw clockwise to tighten.

11. Set the power switch (Figure 5.7) to ON (up position).

Note: If the paper was jammed and the end of the ticket roll is damaged and/or uneven, trim the end of the roll using scissors so that the ticket roll feeds smoothly into the printer.

12. Feed the end of the ticket roll into the printer paper feed mechanism; the printer automatically feeds the paper into the printer.

13. Reset the Reader Controller - Barcode TD/EV (refer to "Resetting the Controller," page 132).

14. Print a service ticket (refer to "Printing a Service Ticket," page 137) to verify that the printer is functioning properly.

15. Reinstall the access panel (refer to "Removing and Installing the Cabinet Access Panel," page 98).

Replacing the Printer/Mounting Bracket Assembly

Required parts, tools, and equipment:

- Spare printer/mounting bracket assembly
- Large slotted screwdriver (1/4"×6" or suitable substitute)
- Small slotted screwdriver (3/32"×1-1/2" or suitable substitute)
- 8 mm box-end wrench
- 8 mm nutdriver
- Mechanics gloves (cut resistant)

Important! **When performing maintenance, do not work alone.**

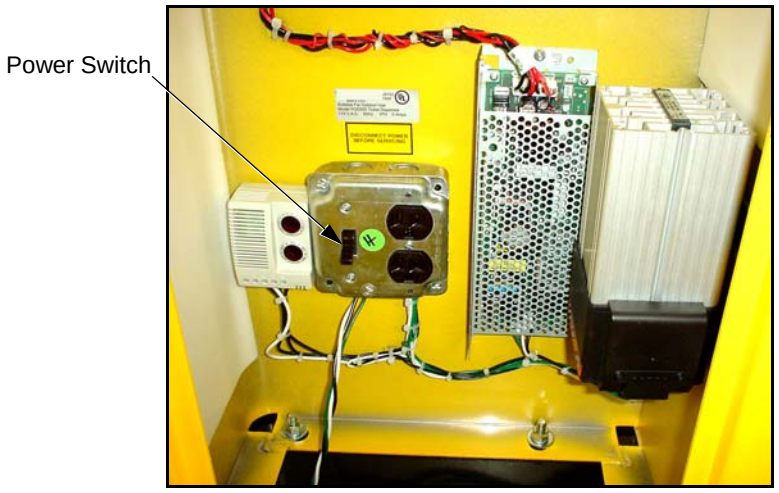
To replace the printer/mounting bracket assembly, do the following:

1. Remove the access panel (refer to "Removing and Installing the Cabinet Access Panel," page 98).

Warning! **To reduce the risk of severe personal injury or damage to equipment, set the power switch to OFF before performing any maintenance or repairs. Failure to heed this warning could result in personnel injury or even death.**

2. Set the power switch (Figure 5.12) to OFF (down position).

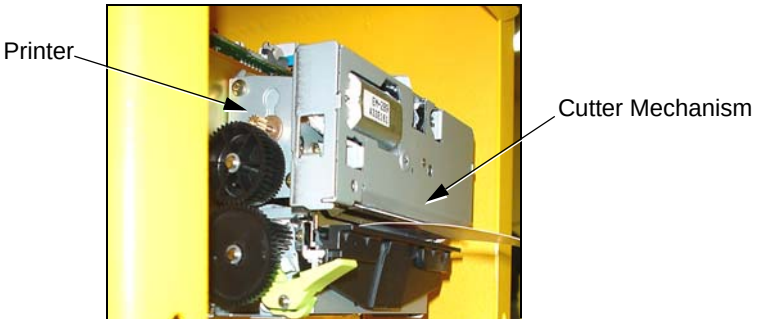
Figure 5.12 Power Switch, Cabinet Interior (Bottom)



3. Wait 30 seconds for the power supply to discharge.

Warning! **Exercise caution when working near the cutter mechanism (Figure 5.13), the blades are sharp and can cause serious injury.**

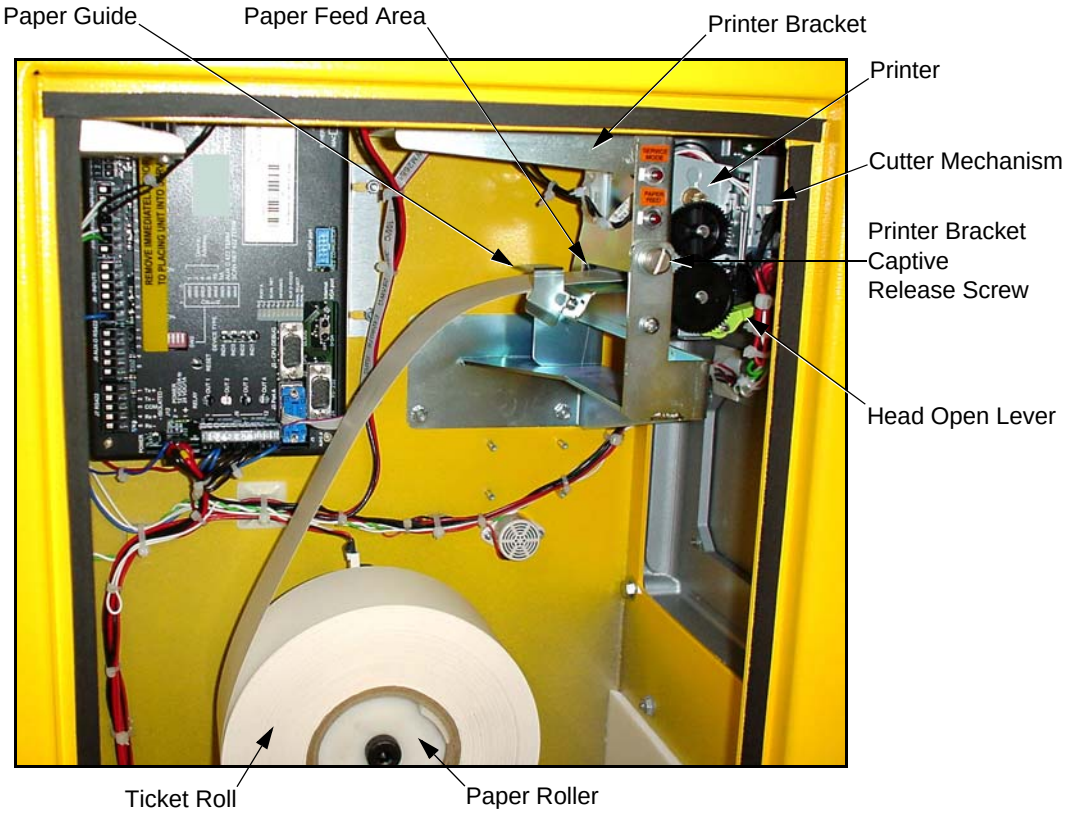
Figure 5.13 Cutter Mechanism (Ticket Dispenser, Front Panel Removed)



Note: The printer bracket release screw is a captive screw (i.e., the screw does not unscrew completely and is held in place).

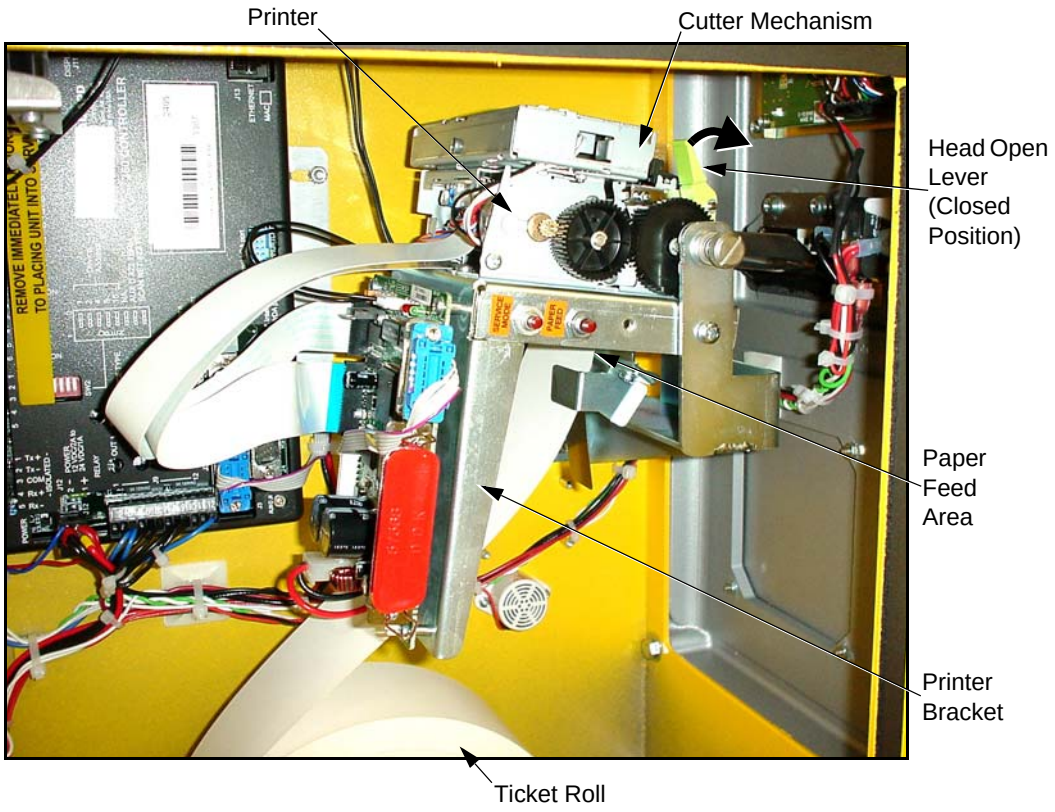
4. Using a large slotted screwdriver, turn the printer bracket captive release screw (Figure 5.14) counter-clockwise to loosen.

Figure 5.14 Printer, Normal Position



5. Swing the printer bracket down to the maintenance position (Figure 5.15).

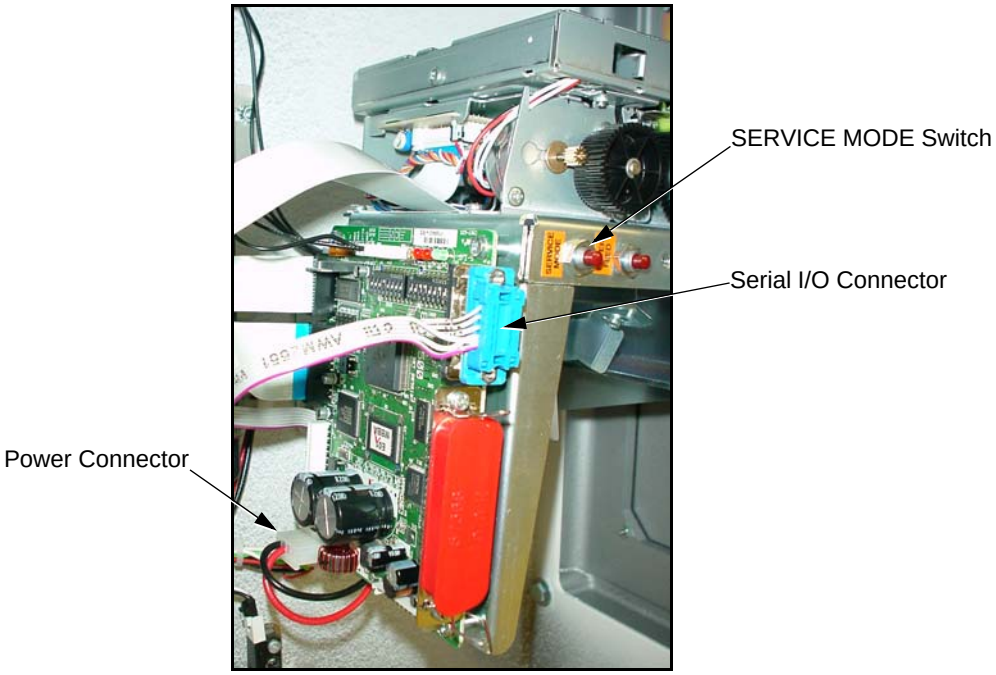
Figure 5.15 Printer, Maintenance Position



6. Push the Head Open lever to the open position.
7. Pull the end of the ticket roll out of the printer.
8. Push the Head Open lever back to the closed position.

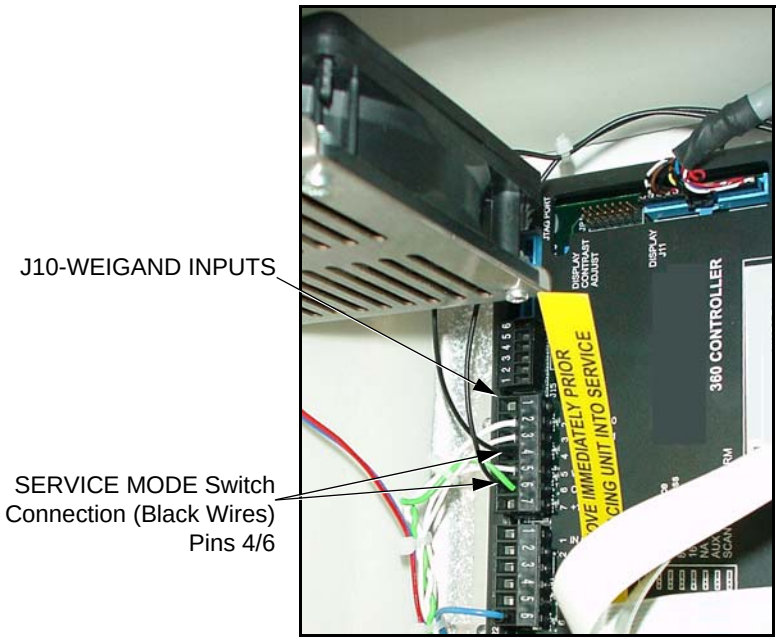
9. Disconnect the printer controller power and serial I/O connectors (Figure 5.16).

Figure 5.16 Printer Controller Power and Serial I/O Connections



10. Pull the Reader Controller - Barcode TD/EV plug-in type connector J10-WEIGAND INPUTS (Figure 5.16) out.

Figure 5.17 Reader Controller - Barcode TD/EV Connector J10, SERVICE MODE Switch Connection (Pins 4/6)



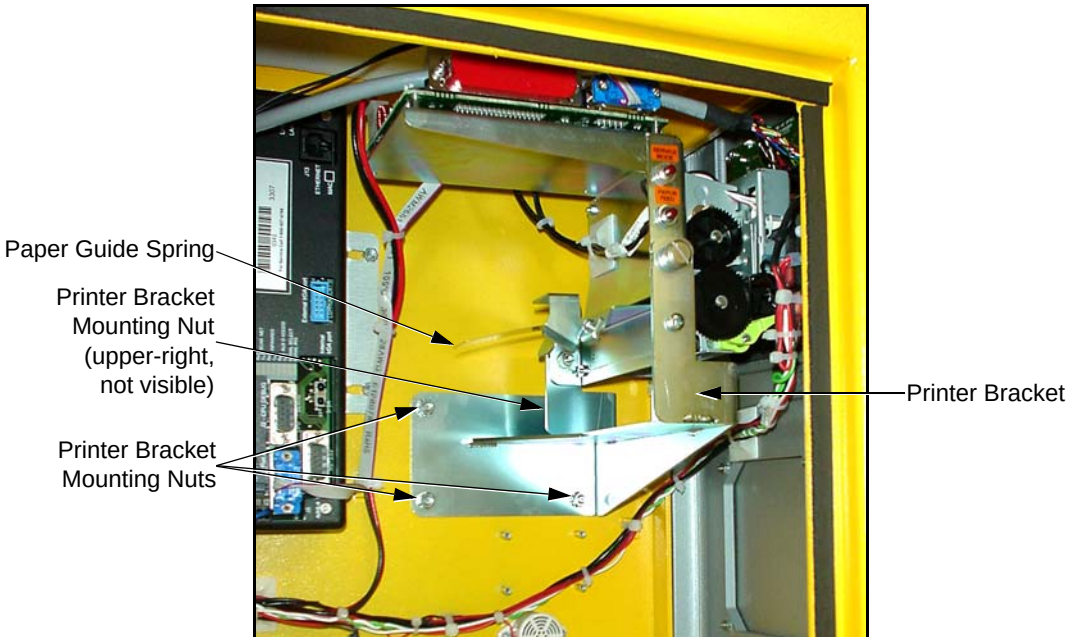
11. Using a small slotted screwdriver, disconnect the two black SERVICE MODE switch (Figure 5.16) wires from the Reader Controller - Barcode TD/EV, connector J10-WEIGAND INPUTS pins 4/6 (Figure 2.7 and Figure 5.16).
12. Swing the printer bracket back to the normal position (Figure 5.14).
13. Using a large slotted screwdriver, turn the printer bracket captive release screw (Figure 5.14) clockwise to tighten.

Warning! **The paper guide spring (Figure 5.18) has a sharp edge. To prevent injury, wear mechanics gloves when performing steps 14 and 15.**

---

14. While wearing mechanics gloves, bend the paper guide spring (Figure 5.18) down in order to access the upper-right printer bracket mounting nut (Figure 5.18).

Figure 5.18 Printer (Normal Position)



15. While bending the paper guide spring down, using an 8 mm box-end wrench, turn the upper-right printer bracket mounting nut counter-clockwise to loosen and remove the nut.
16. While holding the printer bracket, using an 8 mm nutdriver, remove the remaining three printer bracket mounting nuts.
17. Remove the printer/mounting bracket assembly.
18. Position the new printer/mounting bracket assembly, in the normal position (i.e., locked, with the printer bracket captive release screw (Figure 5.14) tightened), on the mounting studs.

Warning! **The paper guide spring (Figure 5.18) has a sharp edge. To prevent injury, wear mechanics gloves when performing steps 19 and 20.**

19. While wearing mechanics gloves, bend the paper guide spring down and start the upper-right mounting nut by hand, turning the nut clockwise to tighten.

20. While bending the paper guide spring down, using an 8 mm box-end wrench, continue to turn the upper-right printer bracket mounting nut clockwise to tighten completely.

21. Using an 8 mm nutdriver, install the remaining three printer bracket mounting nuts.

22. Move the printer bracket assembly to the maintenance position (steps 4–5 above).

23. Connect the two black SERVICE MODE switch (Figure 5.16) wires to connector J10 pins 4/6 (Figure 2.7 and Figure 5.17).

24. Plug connector J10 back into the Reader Controller - Barcode TD/EV (Figure 5.17).

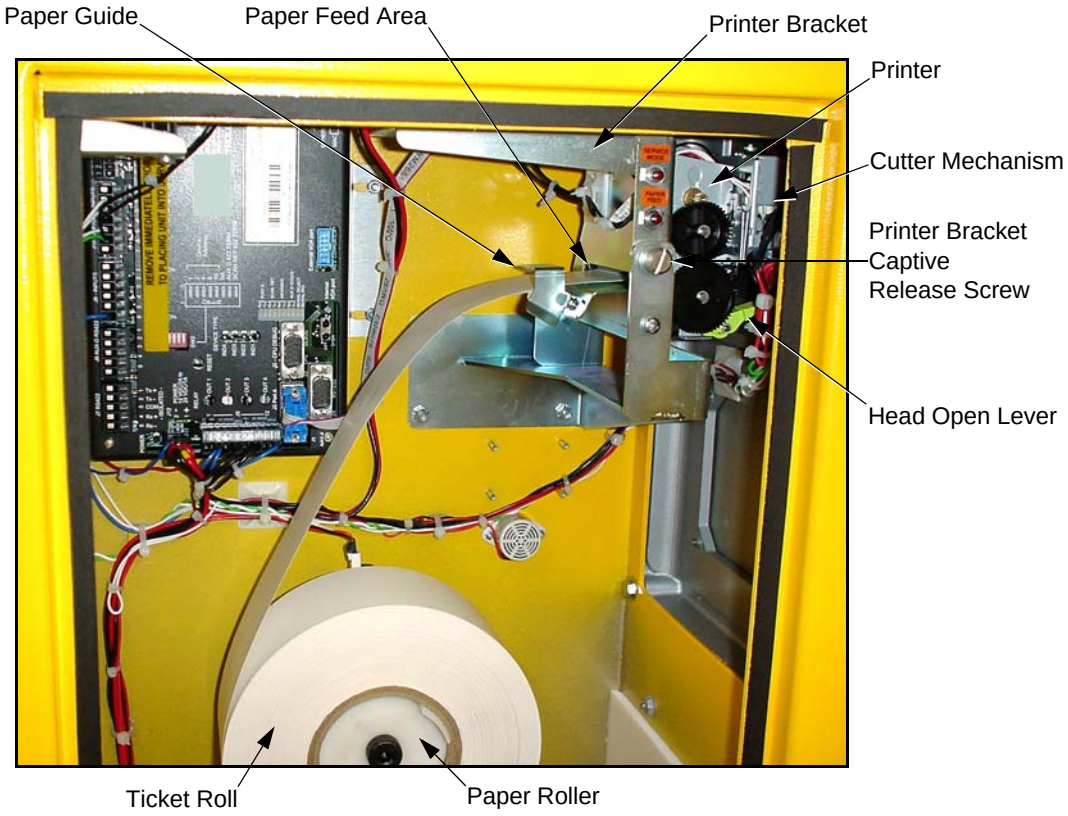
25. Connect the printer power and data cables (Figure 5.16).

26. Move the printer bracket assembly back to the normal position (steps 12–13 above).

27. Set the power switch (Figure 5.7) to ON (up position).

28. Feed the end of the ticket roll into the printer paper feed mechanism (Figure 5.19); the printer automatically feeds the paper into the printer.

Figure 5.19 Printer (Normal Position)



29. Print a service ticket (refer to "Printing a Service Ticket," page 137) to verify that the printer is functioning properly.

30. Reinstall the access panel (refer to "Removing and Installing the Cabinet Access Panel," page 98).

Exit Verifier

Emptying the Ticket Box

Equipment needed:

- Container to transport tickets
- Test ticket

To empty the ticket box, do the following:

1. Remove the access panel (refer to “Removing and Installing the Cabinet Access Panel,” page 98).
2. Grasp the ticket box handle (Figure 5.20) and pull the ticket box straight out from the bracket.

Figure 5.20 Exit Verifier, Cabinet Interior (Ticket Box)

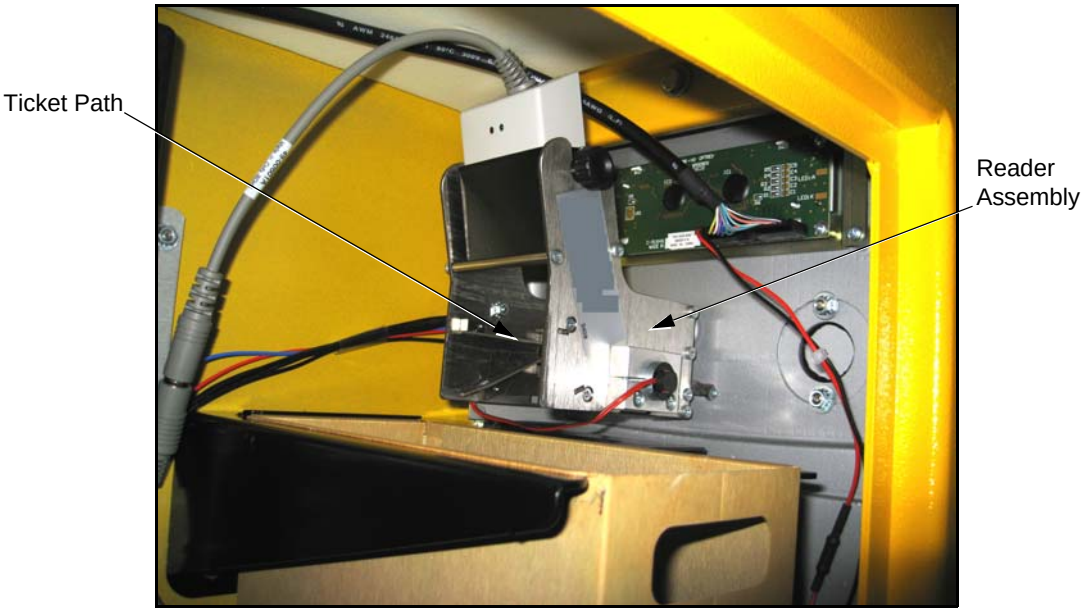
3. Empty the ticket box into the transport container.
4. Insert the ticket box back into the ticket box bracket.
5. Process a test ticket (refer to “Test Mode,” page 87).
6. Reinstall the access panel (refer to “Removing and Installing the Cabinet Access Panel,” page 98).

Clearing a Ticket Jam

If the PDA indicates “Ticket Jam” (PDA Device Log, page 150) or a ticket jam is suspected, do the following:

1. Open the access panel (refer to Removing and Installing the Cabinet Access Panel, page 98).
2. Locate the Bar Code Reader assembly ticket path..

Figure 5.21 Bar Code Reader Assembly, Ticket Path



3. Clear the jammed ticket from the reader assembly.
4. Install the access panel.

Preventive Maintenance

Ticket Dispenser

Weekly Maintenance

Visually inspect the “Push for Ticket” button lamp. If it is not lit or dim, replace it. See “Ticket Dispenser,” page 100.

Every 50,000 Tickets

Required tools/equipment:

Large slotted screwdriver (1/4”×6”, or suitable substitute)

- **Visually inspect the major components (Figure 5.23 and Figure 5.24) for loose electrical connections by doing the following:**

1. Remove the access panel (refer to “Removing and Installing the Cabinet Access Panel,” page 98).

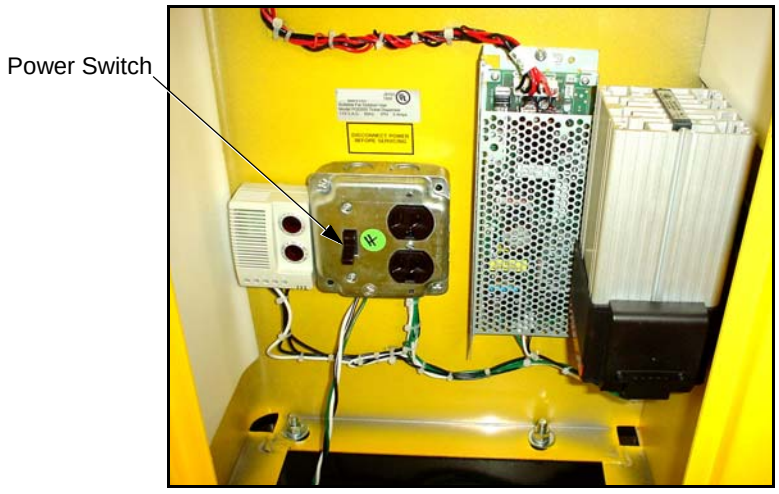
Warning! **To reduce the risk of severe personal injury or damage to equipment, set the power switch to OFF before performing any maintenance or repairs. Failure to heed this warning could result in personnel injury or even death.**

Warning! **When performing maintenance, do not work alone.**

---

2. Set the power switch (Figure 5.22) to OFF (down position).

Figure 5.22 Power Switch, Ticket Dispenser, Cabinet Interior (Bottom)



3. Inspect all major component electrical connections.

Figure 5.23 Barcode Ticket Dispenser, Major Components (Interior, Upper and Lower)

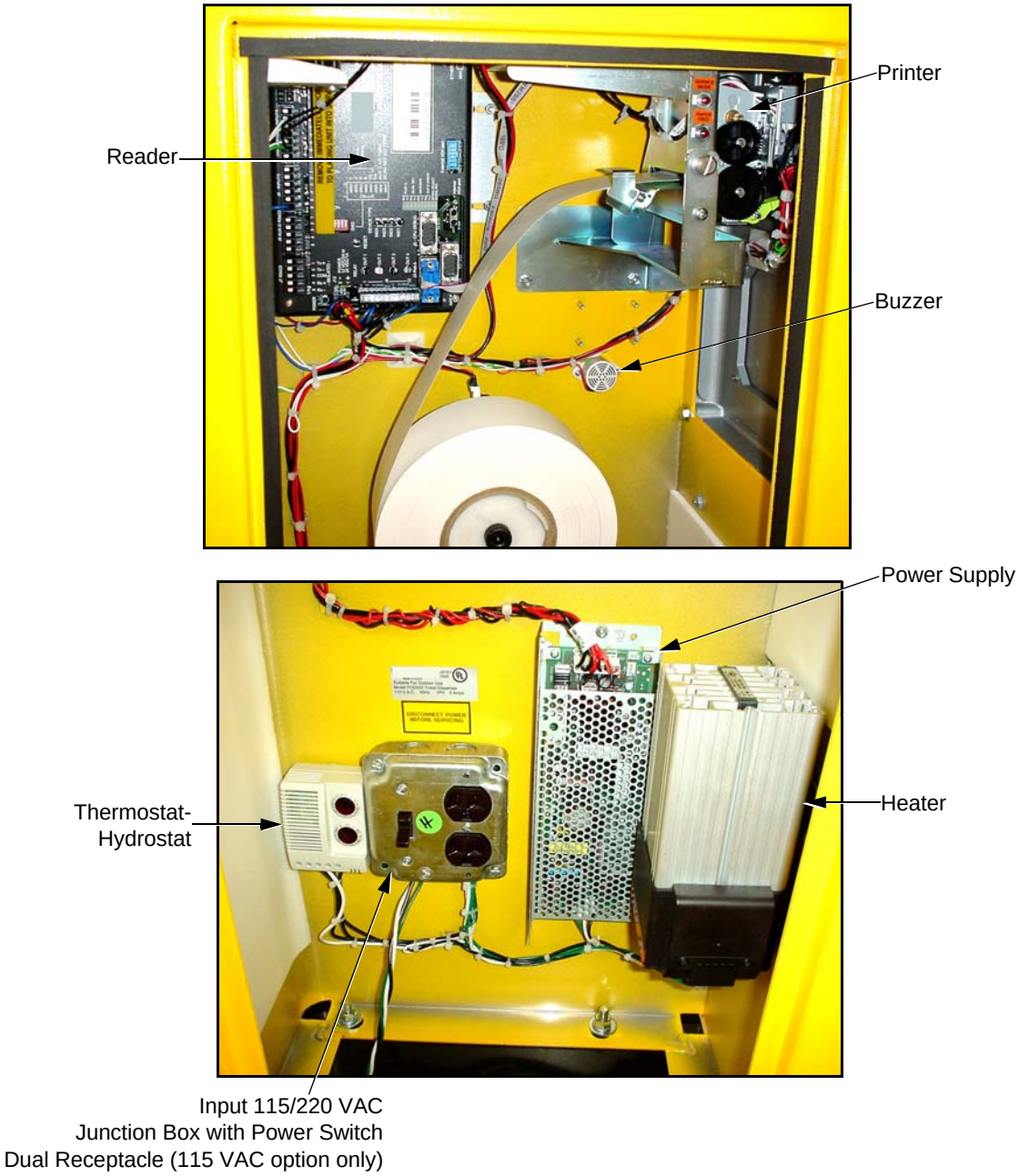
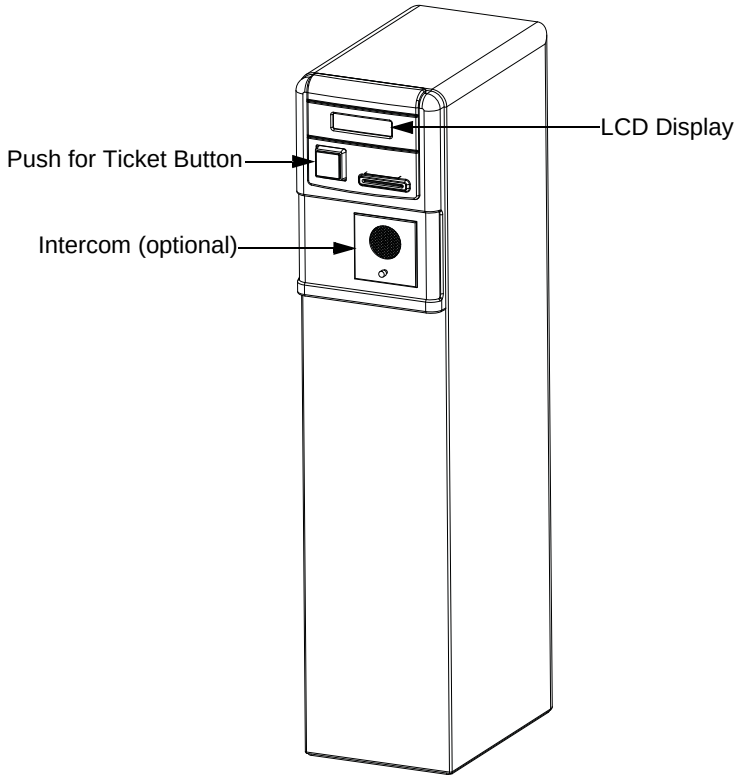


Figure 5.24 Barcode Ticket Dispenser Cabinet (Front)



- **Clear debris from the paper path using compressed air or nitrogen.**

To clear debris from the paper path, do the following:

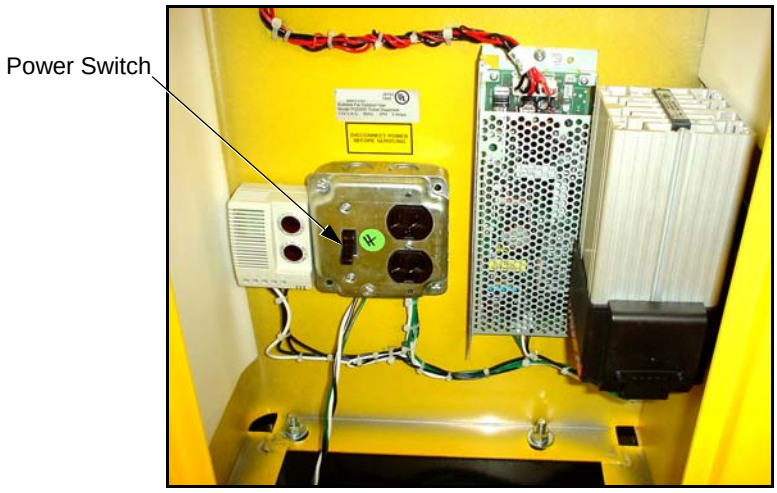
1. Remove the access panel (refer to “Removing and Installing the Cabinet Access Panel,” page 98).

Warning! **To reduce the risk of severe personal injury or damage to equipment, set the power switch to OFF before performing any maintenance or repairs. Failure to heed this warning could result in personnel injury or even death.**

Warning! **When performing maintenance, do not work alone.**

2. Set the power switch (Figure 5.25) to OFF (down position).

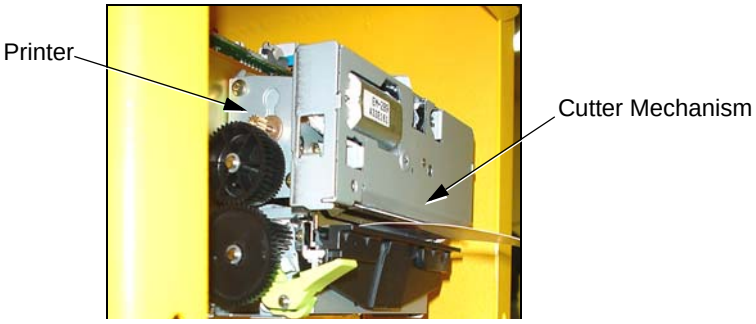
Figure 5.25 Power Switch, Ticket Dispenser, Cabinet Interior (Bottom)



3. Wait 30 seconds for the power supply to discharge.

Warning! **Exercise caution when working near the cutter mechanism (Figure 5.27), the blades are sharp and can cause serious injury.**

Figure 5.26 Cutter Mechanism (Ticket Dispenser, Front Panel Removed)

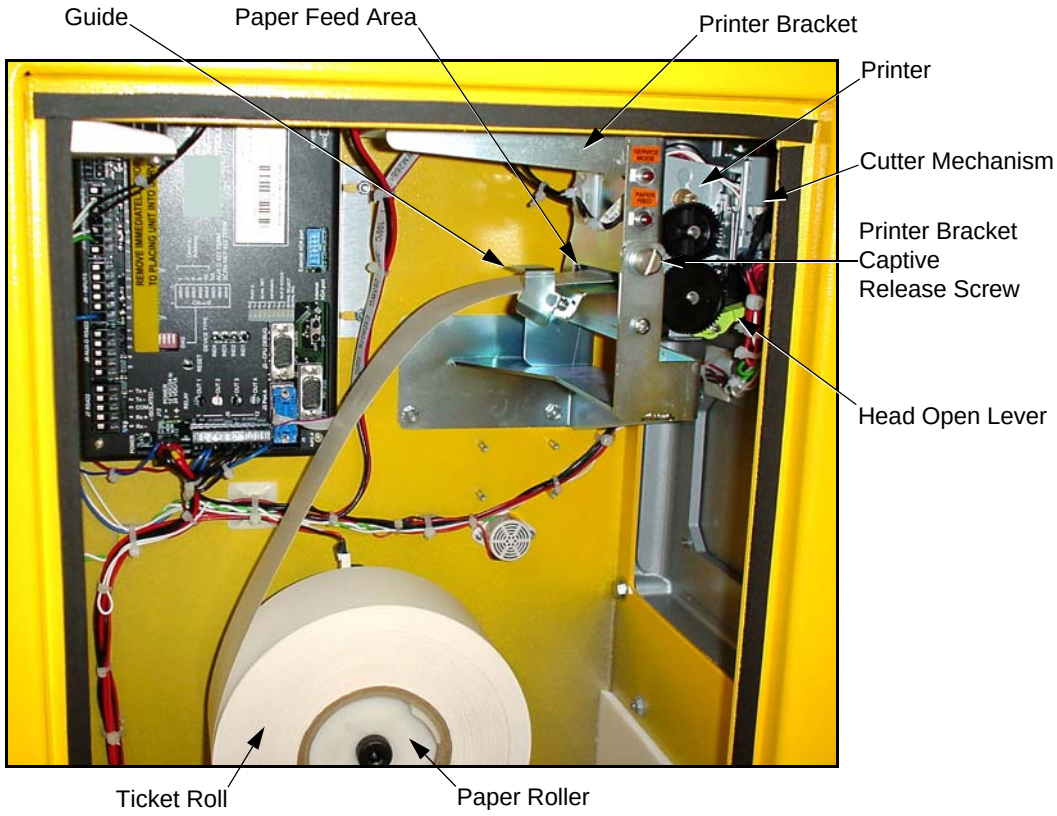


Caution! **Do not attempt to pry paper out of the unit or force paper into the unit, this can damage the thermal print mechanism.**

Note: The printer bracket release screw is a captive screw (i.e., the screw does not unscrew completely and is held in place).

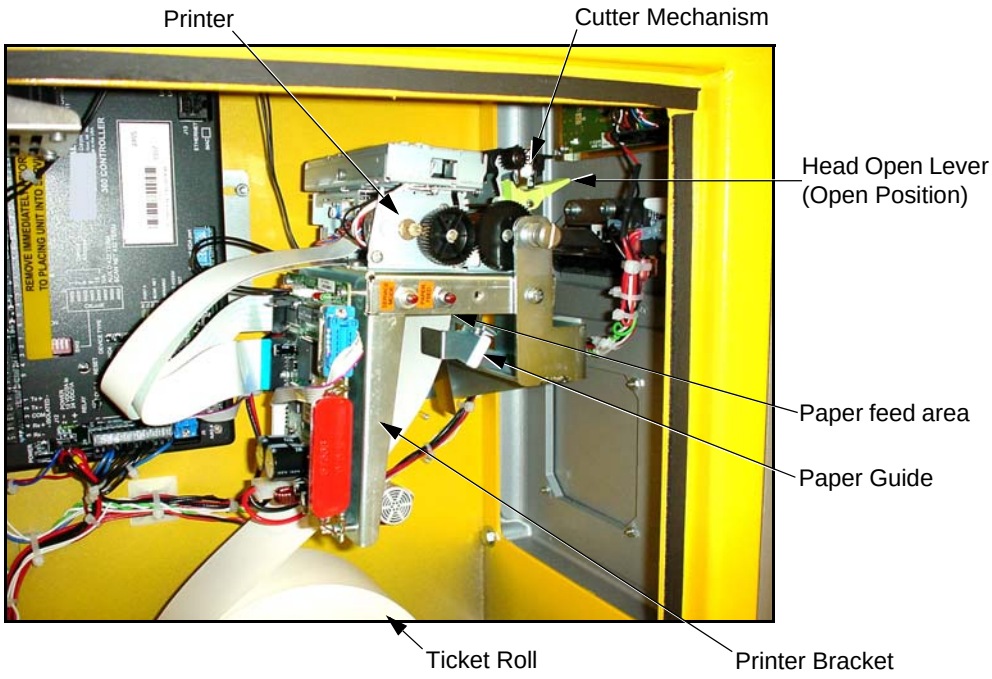
4. Using a large slotted screwdriver, turn the printer bracket captive release screw (Figure 5.27) counter-clockwise to loosen.

Figure 5.27 Printer, Clearing Debris from the Paper Path



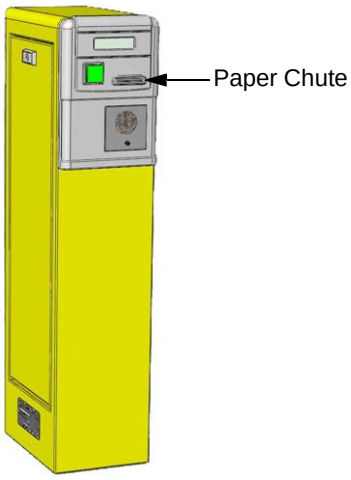
5. Push the Head Open Lever to the open position (Figure 5.28).

Figure 5.28 Printer Maintenance Position (Head Open)



6. Remove the ticket roll and any jammed paper from the paper feed area.
7. Push the Head Open lever to the closed position.
8. Set the power switch to ON.
9. Feed the end of the ticket roll into the printer paper feed mechanism; the printer automatically feeds the paper into the printer.
10. Move the printer bracket back to the normal position.
11. Reset the Reader Controller - Barcode TD/EV (refer to “Resetting the Controller,” page 132).
12. Print a service ticket (refer to “Printing a Service Ticket,” page 137) to verify that the printer is functioning properly.

Figure 5.29 Paper Chute



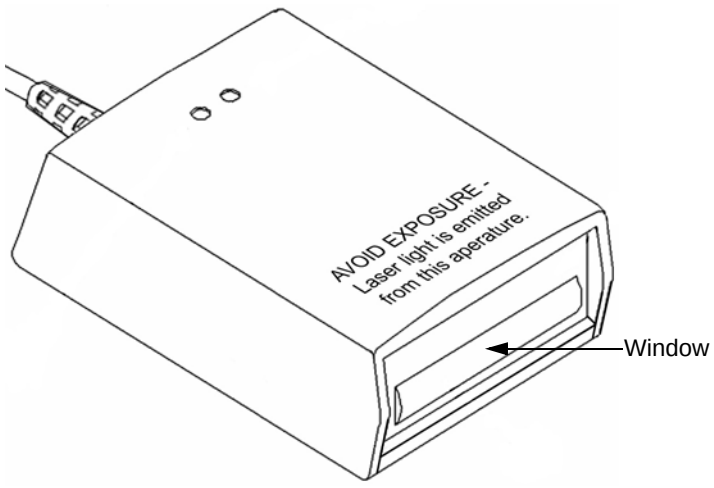
13. Push the Head Open lever to the closed position.
14. Set the power switch to ON.
15. Feed the end of the ticket roll into the printer paper feed mechanism; the printer automatically feeds the paper into the printer.
16. Reset the Reader Controller - Barcode TD/EV (refer to “Resetting the Controller,” page 132).
17. Issue a service ticket (refer to “Printing a Service Ticket,” page 137) to verify that the printer is functioning properly.
18. Reinstall the cabinet access panel (refer to “Removing and Installing the Cabinet Access Panel,” page 98).

Exit Verifier

Cleaning the Scanner Window

Dirt on the bar code scanner output windows (Figure 5.30) can interfere with proper scanning. The output windows may require occasional cleaning.

Figure 5.30 Bar Code Scanner



To clean the output windows, do the following:

1. Spray glass cleaner onto a clean, lint-free, non-abrasive cloth.
2. Gently wipe the output window.

CHAPTER 6

Troubleshooting

This chapter includes basic Barcode Ticket Dispenser and Exit Verifier troubleshooting information, including how to operate the Ticket Dispenser in the service mode. The service mode allows you to operate the Ticket Dispenser in an offline mode for testing and troubleshooting purposes. This chapter also provides information about running the Exit Verifier in the test mode to evaluate the Exit Verifier's ability to read tickets.

Note: This chapter is for trained technicians who are familiar with the electrical and mechanical Ticket Dispenser and Exit Verifier components and functions.

Reader Controller - Barcode TD/EV Troubleshooting

This section provides basic Reader Controller - Barcode TD/EVReader Controller - Barcode TD/EV troubleshooting information. The Reader Controller - Barcode TD/EV connections are shown in Figure 6.1 and Figure 6.2. Controller components and functions are described in Table 6.1 on page 6-128.

Figure 6.1 Reader Controller - Barcode TD/EV Connectors

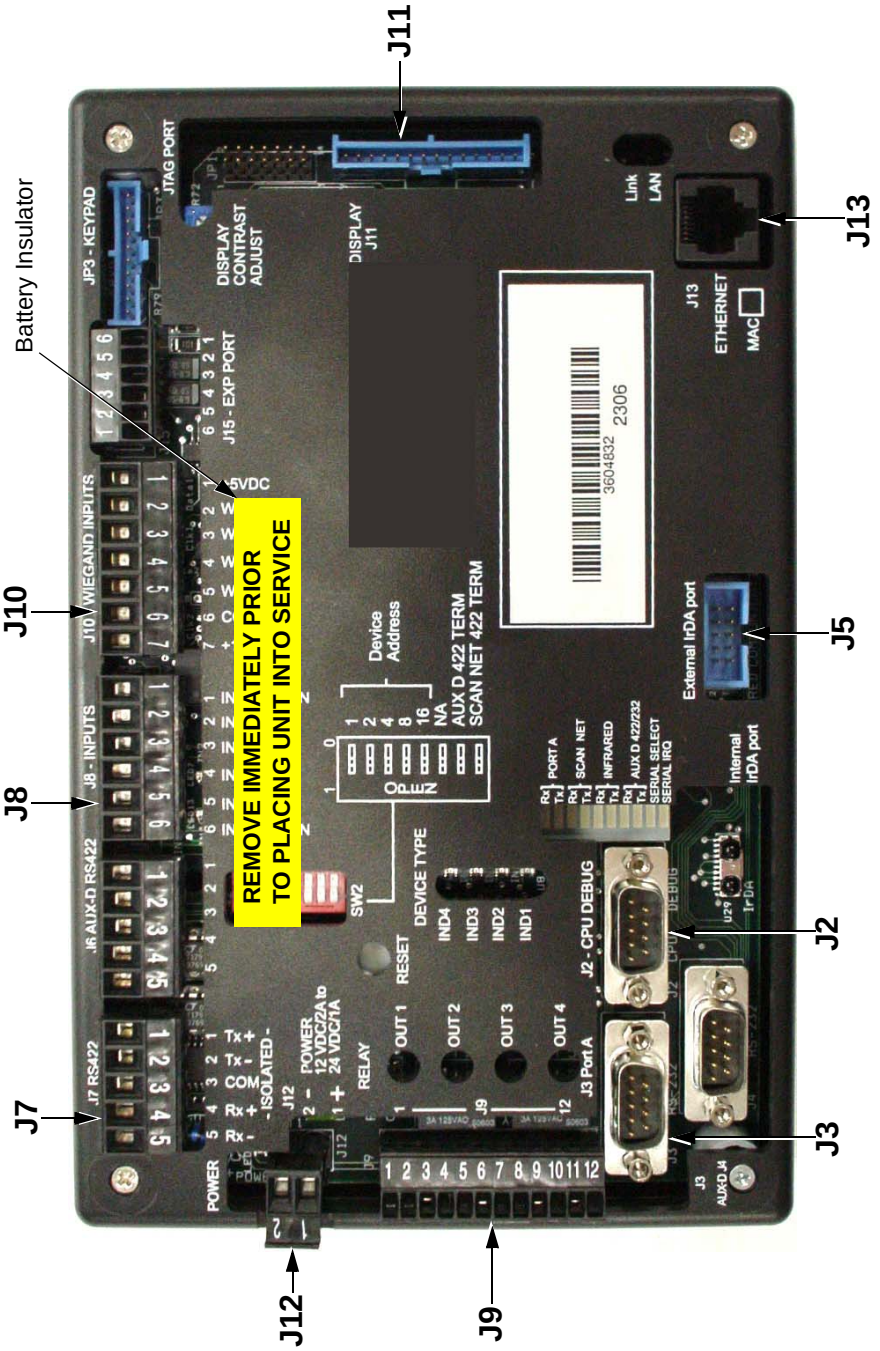


Figure 6.2 Reader Controller - Barcode TD/EV Layout

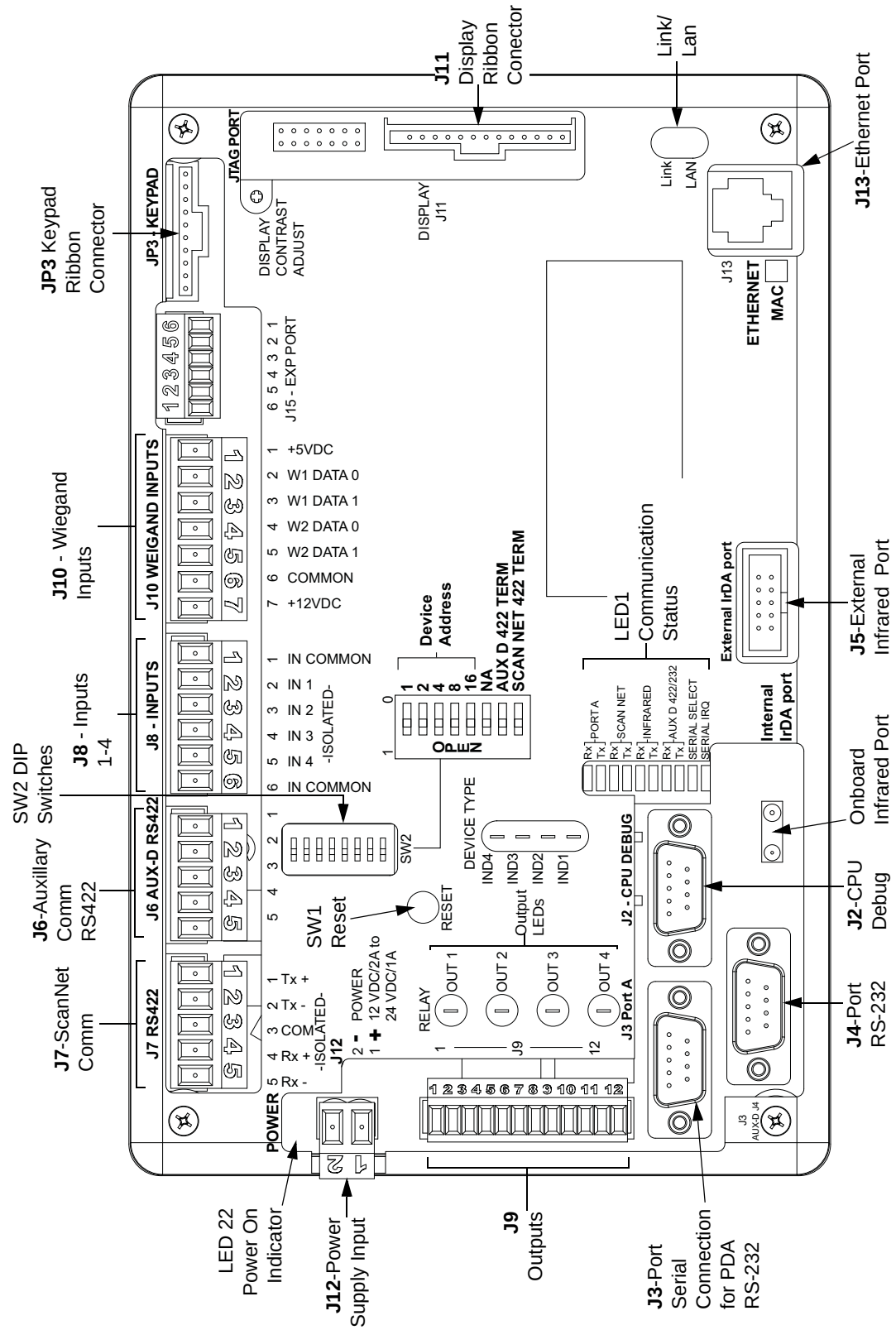


Table 6.1: Reader Controller - Barcode TD/EVReader Controller - Barcode TD/ EV Components

Component	Function
J2	CPU debug. This port is dedicated to provide connection to a PC for installing firmware. **Pin-Signal** 2-Tx 3-Rx 5-GND
J3	This RS232 port is dedicated for communication with the printer. **Pin-Signal** 2-Tx(Out) 3-Rx(In) 5-GND 7-RTS(Out) 8-CTS(In) 9-Vcc
J4	RS232 serial port
J5	External infrared port
J7	RS422 ScanNet Communication. **Pin-Signal** 1-Tx- 2-Tx+ 4-Rx+ 5-Rx-
J8	Dry contact inputs. This port is dedicated to receive field input signals. **Pin-Signal** 2-Enable 3-Issue Ticket 4-Back Out 5-Lot Full 6-Common

Table 6.1: Reader Controller - Barcode TD/EVReader Controller - Barcode TD/ EV Components

Component	Function
J9	Relay outputs. **Pin-Signal** 1,2-Vend gate 3,4-Programmable output 5,6-Display backlight activation 7,8-Ticket request
J10	This port is dedicated to receive local input signals. **Pin-Signal** 1- +5V 2-Push for ticket 3-Ticket in throat 4-Service ticket enable/disable 5-Paper low 6-Common 7- +12V
J11	Patron LCD display ribbon cable connector.
J12	+24 VDC power supply input connection.
J13	This Ethernet port is dedicated to provide connection to a PC for updating the firmware. **Pin-Signal** 1- +TX 2- -TX 3- +RX 6 - -RX
LED1, Rx Port A	Flashes during Port A activity.
LED1, Tx Port A	
LED1, Rx ScanNet	Flashes during ScanNet communication polling.
LED1, Tx ScanNet	
LED1, Rx Infrared	Flashes when using the personal digital assistant (PDA) infrared port.
LED1, Tx Infrared	
LED1, Rx Aux D 232/422	Flashes during RS 232/422 port activity.
LED1, Tx Aux D 232/422	
LED1, Serial Select	Flashes during serial port communication.
LED1, Serial IRQ	
LED2 (Out1)	Relay output 1 indicator

Table 6.1: Reader Controller - Barcode TD/EVReader Controller - Barcode TD/EV Components

Component	Function
LED5 (Out2)	Relay output 2 indicator
LED8 (Out3)	Relay output 3 indicator
LED11 (Out4)	Relay output 4 indicator
LED 14 (IND1)	not used
LED 16 (IND2)	not used
LED 18 (IND3)	not used
LED 20 (IND4)	not used
LED 22 (POWER)	Power indicator
SW1	Reset
SW2	DIP switch, ScanNet RS-422 communication settings. Refer to the next section “ScanNet Communication Settings (SW2),” page 131 for SW2 settings.

ScanNet Communication Settings (SW2)

The Reader Controller - Barcode TD/EVReader Controller - Barcode TD/EV DIP switch SW2 (Figure 6.2 and Table 6.2) is used to set the controller ScanNet RS-422 address and termination.

Note: If the Ticket Dispenser is the last device in the ScanNet communication chain, insert the terminator by setting DIP switch SW2-7 to the closed position. The terminator absorbs signals so they are not reflected back to the network.

Table 6.2: DIP Switch SW2 Settings

Switch	Definition	Value/Function	
		Open	Closed
1	Device address[1] [2]	1	0
2		2	0
3		4	0
4		8	0
5		16	0
6	Not used	—	—
7	RS-422 device termination for auxiliary port J6.	Not Connected	Connected
8	RS-422 device termination for ScanNet port J7.	Not Connected	Connected

1 A unique ScanNet RS-422 address must be set for each device (e.g., Barcode Ticket Dispenser) connected to the Port Controller.

2 The ScanNet RS-422 address can be 0–31. Each switch has a certain value when it is open; the value is zero when the switch is closed. To determine the device address setting, add the open switch values. If all switches are closed, the device address is 0 (zero). If all switches are open, the device address is 31 (i.e., 1+2+4+8+16=31).

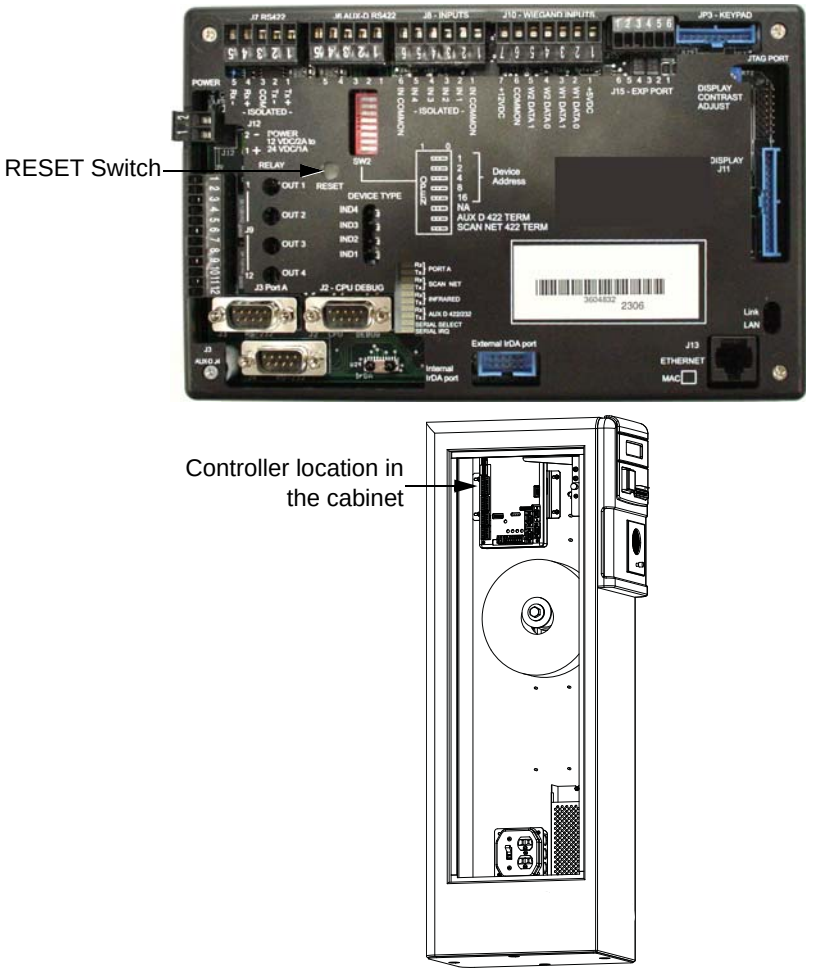
Resetting the Controller

If a controller communication problem occurs, you can reset the controller to restore communication.

Note: Resetting the controller does not erase any programming.

To reset the controller, you can either press the controller RESET switch (Figure 6.3), or transmit the reset command from the personal digital assistant (PDA) (refer to “Resetting the Controller,” page 54).

Figure 6.3 Reader Controller - Barcode TD/EV Reset Switch



Ticket Dispenser

Printer Troubleshooting

When powering up the Ticket Dispenser in cold temperatures, the printer may have an unrecoverable error—if this error occurs, the Ticket Dispenser is inoperable and the "OUT OF SERVICE" message is displayed at the LCD display.

Note: When powering up the Ticket Dispenser in temperatures below 32^{o}F (0^{o}C), allow it to warm up for a minimum of one hour and then cycle the power before operating it—cycling the power clears printer errors.

The following three test ticket types can be printed and used to evaluate the printer performance:

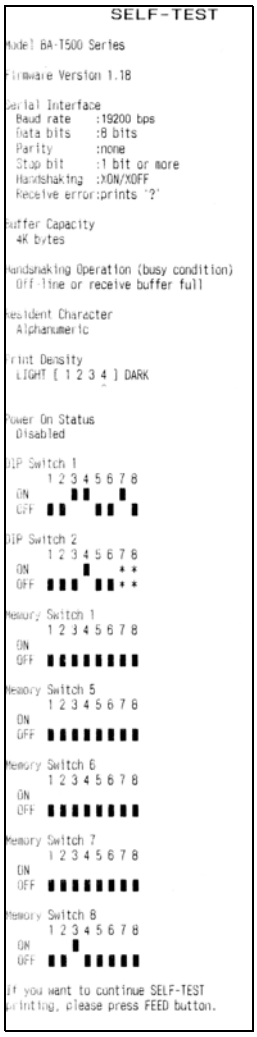
- **SELF-TEST**—provides a quick and easy method of checking the print quality and the current printer configuration settings.
- **Barber Pole Test**—barber pole print test pattern.
- **SERVICE**—similar to a normal ticket.

Self-Test Mode

The printer self-test mode is used to print, cut, and dispense a SELF-TEST ticket. The ticket (Figure 6.4) shows the printer configuration settings. After the SELF-TEST ticket is printed, you have the option to press the PAPER FEED switch to print a barber pole print test pattern (Figure 6.5) or cycle the power (set the power switch OFF/ON) to

terminate the self-test.

Figure 6.4 SELF-TEST Ticket



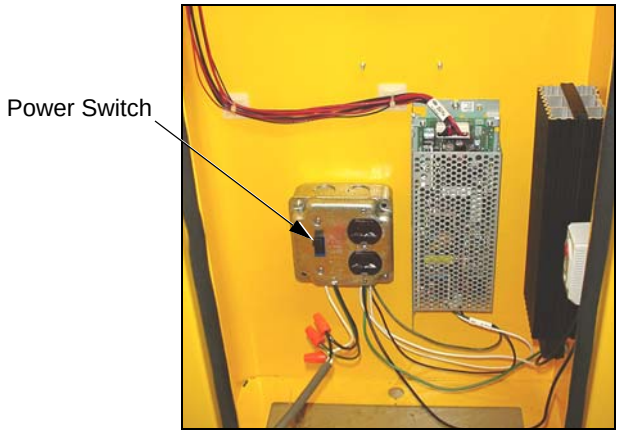
When the self-test starts, the printer switches to an off-line (BUSY) state and remains off-line until the self-test is finished. All electrical and mechanical printer functions are exercised and checked, except for the serial or parallel interfaces.

Figure 6.5 Barber Pole Test Pattern

To run the self-test and barber pole test, do the following:

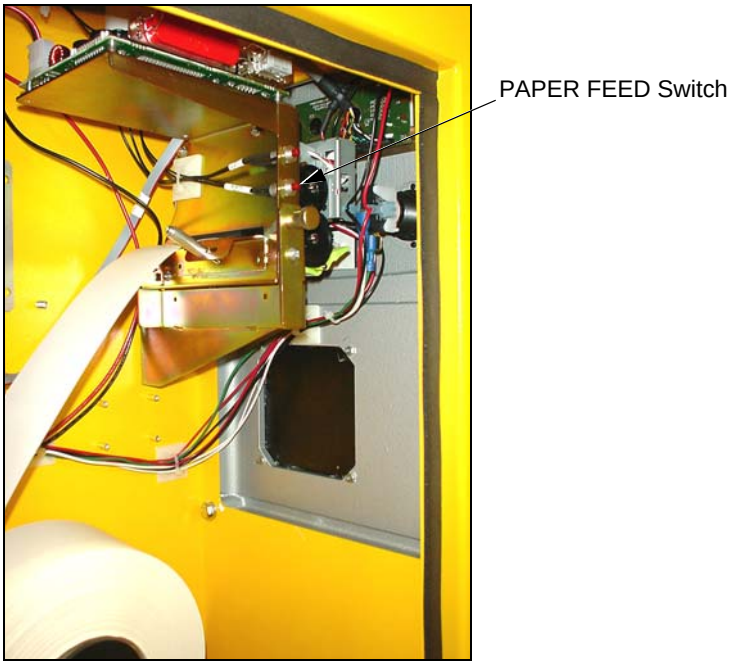
1. Set the power switch (Figure 6.6) to OFF.

Figure 6.6 Power Switch, Cabinet Interior (Bottom)



2. Press and hold the PAPER FEED switch (Figure 6.7).

Figure 6.7 PAPER FEED Switch



3. Set the power switch to ON; after the SELF-TEST ticket starts printing, release the PAPER FEED switch. When the SELF-TEST ticket is done printing, go to step 4.

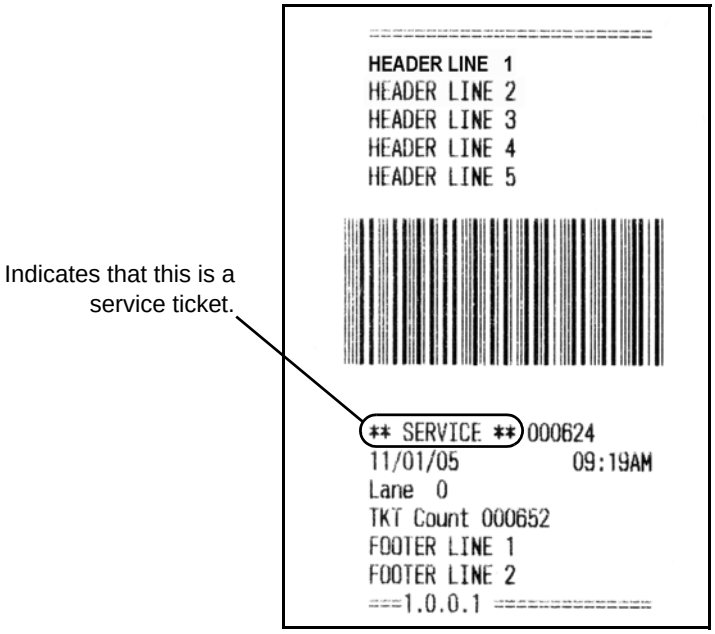
4. Press the PAPER FEED switch (Figure 6.7) to print the barber pole test ticket; after the printing starts, release the switch. The barber pole test ticket prints.

5. Set the power switch to OFF/ON to exit the test mode.

Printing a Service Ticket

A service ticket is printed by pressing the SERVICE MODE switch and then pressing the push for ticket button. The service ticket (Figure 6.8) is similar to a normal ticket, except it includes "** SERVICE **" before the ticket number.

Figure 6.8 Service Ticket



To print a service ticket, do the following:

1. Press the SERVICE MODE switch (Figure 6.9).

Observe that the patron LCD display indicates that the Ticket Dispenser is in the service mode (Figure 6.10 and Figure 6.11).

Figure 6.9 Service Mode Switch

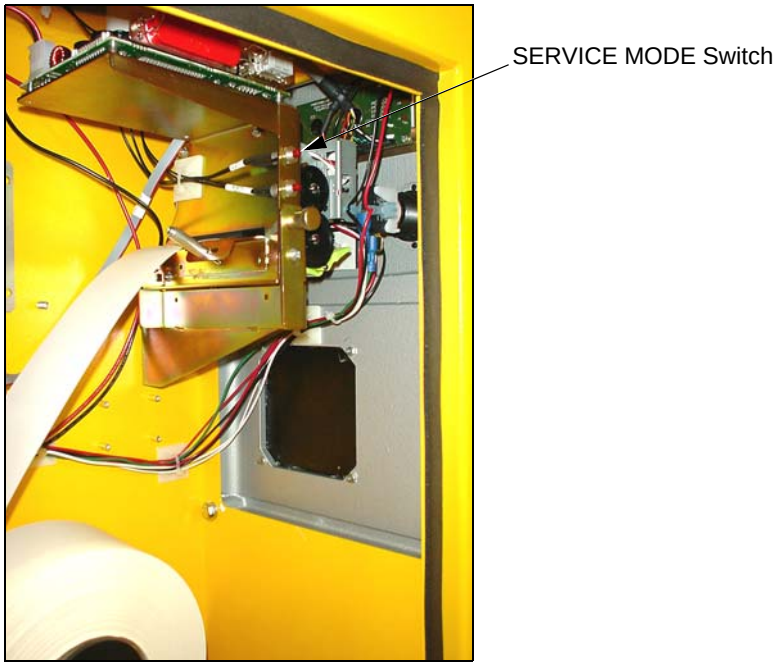


Figure 6.10 Barcode Ticket Dispenser (Front)

Figure 6.11 LCD Display, Service Mode Push for Ticket

2. Press the push for ticket button (Figure 6.10).

A ticket should be issued and an alarm should sound to inform you that a ticket has been issued and is ready to be taken.

3. Remove the ticket from the paper chute (Figure 6.10).

The alarm should stop.

4. Verify that the ticket is printing correctly (refer to Figure 6.8).

   Information should include the following:

   - Ticket number
   - Date
   - Time
   - Lane number
   - Ticket count

   If the date and time is incorrect, refer to “PDA and Controller Date and Time,” page 58 for information about setting the date and time.

5. Verify that the ticket data was properly transmitted to the ScanNet.

Printer Controller DIP Switch Settings

The printer controller DIP switches (Figure 6.12 and Figure 6.13) are used to configure various printer functions. All DIP switch DSW1 setting options are shown in Table 6.3; for proper Ticket Dispenser operation, DSW1 must be set according to Table 6.4. All DIP switch DSW2 setting options are shown in Table 6.5; for proper Ticket Dispenser operation, DSW2 must be set according to Table 6.6.

Figure 6.12 Printer Controller DIP Switches

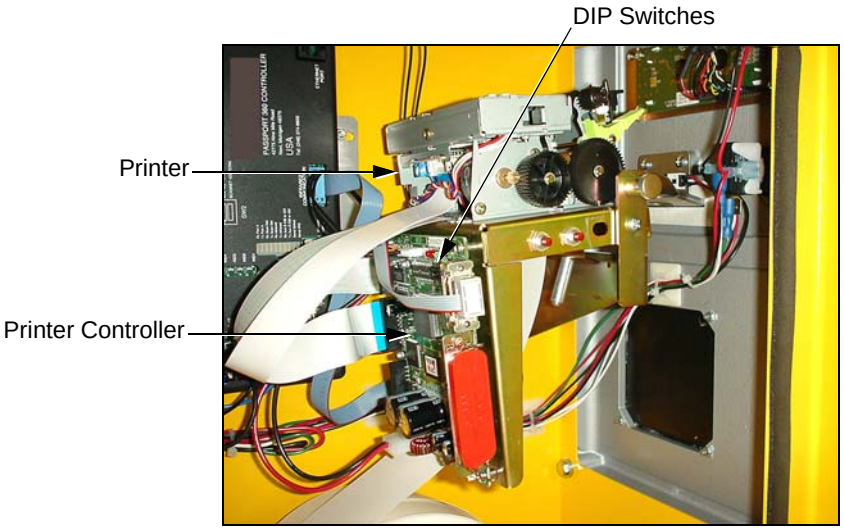


Figure 6.13 Printer Controller, DSW1 and DSW2

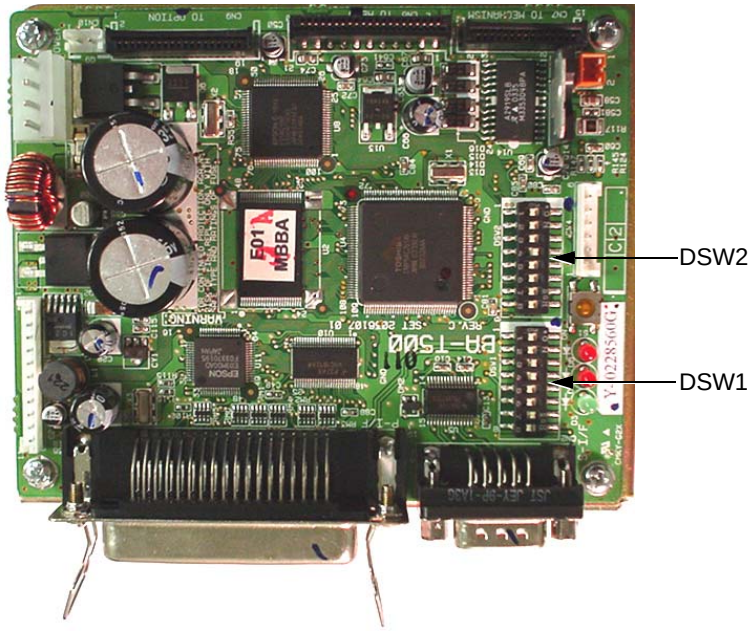


Table 6.3: DIP Switch DSW1

Bit	Function	Setting	State
1	Black mark sensor	OFF	Disabled
		ON	Enabled
2	Interface selection (serial/parallel)	OFF	Parallel
3		OFF	
2		OFF	Serial
3		ON	
4	Serial interface handshaking	OFF	DTR/DSR control
		ON	Xon/Xoff control
		ON	Even parity
		ON	Parity used
5	Parity (yes/no)	OFF	No
		ON	Yes
6	Parity (even/odd)	OFF	Odd
		ON	Even
7	Serial baud rate	ON	4800
8		ON	
7		OFF	9600
8		ON	
7		ON	19200
8		OFF	
7		OFF	38400
8		OFF	

Table 6.4: DIP Switch DSW1 Settings

Bit	Function	Setting	State
1	Black mark sensor	OFF	Disabled
2	Interface selection	OFF	Serial
3		ON	
4	Serial interface handshaking	ON	Xon/Xoff control
5	Parity (yes/no)	OFF	No
6	Parity (even/odd)	OFF	Odd
7	Serial baud rate	ON	19200
8		OFF	

Table 6.5: DIP Switch DSW2

Bit	Function	Setting	State
1	Printer Mechanism	OFF	MTP-1532
2		OFF	
1		ON	MTP-1530
2		OFF	
1		OFF	60 mm
2		ON	
1		ON	58 mm
2		ON	
3	Print Density	OFF	Normal
4		OFF	
3		ON	Slightly dark
4		OFF	
3		OFF	Dark
4		ON	
3		ON	Slightly light
4		ON	
5	Operation mode	OFF	Normal
		ON	Hex dump
6	Factory use	OFF	
		ON	
7	Serial I/O pin 6 = RESET	OFF	No reset
		ON	Reset
8	Parallel I/O pin 31 = RESET	OFF	No reset
		ON	Reset

Table 6.6: DIP Switch DSW2 Settings

Bit	Function	Setting	State
1	Printer Mechanism	OFF	MTP-1532
2		OFF	
3	Print Density	OFF	Dark
4		ON	
5	Operation mode	OFF	Normal
6	Factory use	OFF	
7	Serial I/O pin 6 = RESET	OFF	No reset
8	Parallel I/O pin 31 = RESET	OFF	No reset

Printer Controller LEDs

There are three printer controller LEDs: D3, D5, and D6 (Figure 6.14 and Figure 6.15). These LEDs provide various status and error condition indications, refer to Table 6.7 on page 6-147.

Figure 6.14 Printer Controller, LEDs

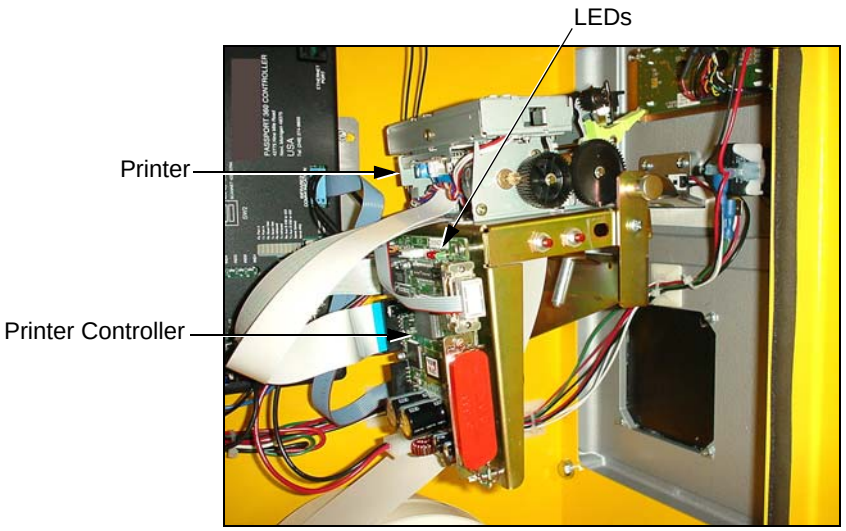


Figure 6.15 Printer Controller LEDs, D3, D5, and D6

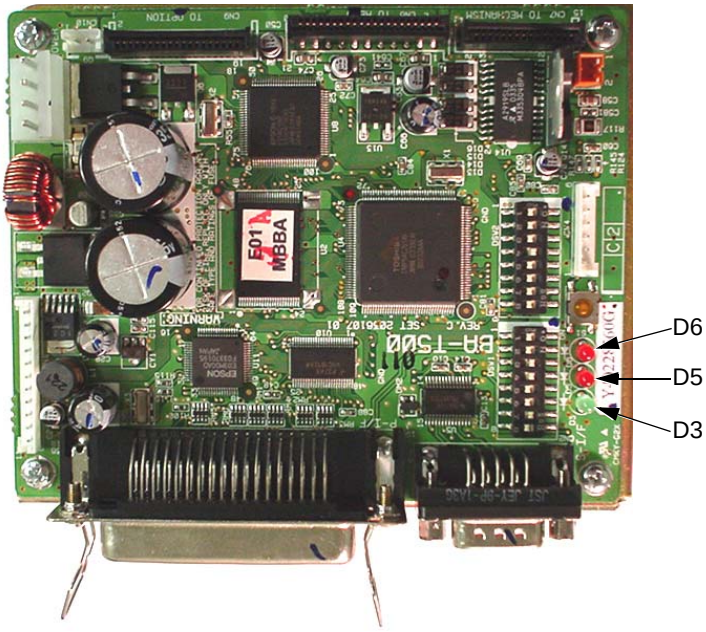


Table 6.7: Reader Controller - Barcode TD/EV Printer Controller LEDs

LED	Function	Color	Indication	
			LED is ON	LED is OFF
D3	Power	Green	Power is stable and the printer is ready for operation.	Power is either off or not stable.
D5	Paper Out	Red	There is no paper installed in the printer mechanism or the paper low sensor is activated. The PAPER OUT LED blinks steadily when the first part of the self test is completed—the PAPER FEED button can be pressed to print the “barber pole” test. The PAPER OUT LED also blinks to indicate that a MACRO is waiting for the user to press the PAPER FEED button to continue it’s execution (macro stand-by mode).	Paper is installed and the printer is ready for operation.
D6	Error	Red	The printer is off line (except during paper feeding using the PAPER FEED switch, during self-test printing, and in the error state). Blinks in a defined pattern (refer to Table 6.8) every 5 seconds to indicate various error conditions. When the LED is normally OFF and blinks ON, an error is indicated which may be recoverable. When the LED is normally ON and blinks OFF, an error is indicated which in not recoverable. ***Caution!*** **For any error that is not recoverable, power should be turned off as soon as possible.**	There are no errors and the printer is ready for operation.

Table 6.8: D6 Blink Patterns

Blink Rate	Error	Description	Recovery
Continuous	Print head temperature	The temperature exceeded 158°F (70°C)	Automatic when the print head cools.
1 blink ON	Cutter error	The cutter failed to complete a cut.	Recovers after the cutter jam has been corrected.
1 blink OFF	PCB error	The printer mechanism is not connected or the internal wiring in incorrect.	Set power to OFF. Check printer/ controller connections.
2 blinks ON	Black mark	N/A	N/A
2 blinks OFF	R/W error	The CPU has detected a memory R/W error	Cycle power OFF/ON.
3 blinks OFF	High voltage	The power supply voltage is too high.	Set power to OFF. Check the power supply +24V output.
4 blinks OFF	Low voltage	The power supply voltage is too low.	Set power to OFF. Check the power supply +24V output.
5 blinks OFF	CPU Error	Program execution error.	Cycle power OFF/ON.
6 blinks ON	Platen open	The platen is open.	Recovers after the platen is closed.

PDA Device Log

The PDA generates a device (Reader Controller - Barcode TD/EV) log that provides 14 different Ticket Dispenser status messages. Table 6.9 lists these messages, the cause for the messages, and how to correct the error conditions.

Table 6.9: PDA Device Log (Ticket Dispenser)

Status Message	Cause	Solution
“Printer Off Line”	The printer is off line.	Cycle power OFF/ON.
“Paper Low”	The low paper sensor is activated.	Replace the ticket roll (refer to “Ticket Dispenser Ticket Roll,” page 37).
“Out of Paper”	The out of paper ticket count (counts down from “Paper Low”) is reached. The Ticket Dispenser LCD indicates "OUT OF SERVICE".	Replace the ticket roll (refer to “Ticket Dispenser Ticket Roll,” page 37).
“Back Out with Ticket”	A patron has dispensed and taken a ticket, and backed out of the lane.	No action required.

Table 6.9: PDA Device Log (Ticket Dispenser)

Status Message	Cause	Solution
“Printer Power Error”	The printer lost power.	Check the printer power indicator (D3). Check the printer power connections (refer to “Electrical Connections,” page 27).
“Printer Head Temp. Error”	The print head is not up to operating temperature.	Allow the printer to get up to operating temperature, before placing the Ticket Dispenser in service.
“Printer Hardware Error”	Hardware problem.	Replace the printer.
“Printer Mark Check Error”	N/A	N/A
“Printer Cutter Error”	The cutter failed to complete a cut.	Clear the jam (refer to “Clearing a Paper Jam,” page 103) and reload the ticket roll (refer to “Ticket Dispenser Ticket Roll,” page 37).
“Printer Platen Open”	The head open lever is open.	Close the head open lever.
“ScanNet Connection Lost”	No communication between the Reader Controller - Barcode TD/EV and ScanNet.	Check the connections (refer to “Electrical Connections,” page 27). Reset the controller, if necessary; press the RESET switch (“Resetting the Controller,” page 132) or reset the controller using the PDA (“Resetting the Controller,” page 54).
“Power On Memory OK”	—	No action required.
“Power On Memory Error”	The memory is corrupt.	Reprogram the Reader Controller - Barcode TD/EV (refer to “Programming,” page 53).
“Ticket Jam”	The ticket roll is jammed.	Clear the jam (refer to “Clearing a Paper Jam,” page 103) and reload the ticket roll (refer to “Ticket Dispenser Ticket Roll,” page 37).

Exit Verifier

This section provides information about status messages that are downloaded from the Reader Controller - Barcode TD/EV, and how to correct any error conditions.

PDA Device Log

The PDA generates an Exit Verifier device (Reader Controller - Barcode TD/EV) log that provides 8 different status messages. Table 6.10 lists these messages, the cause for the messages, and how to correct the error conditions.

Table 6.10: PDA Device Log (Exit Verifier)

Status Message	Cause	Solution
“ScanNet Connection Lost”	Exit Verifier/ScanNet communication lost.	Check connections.
“Ticket Jam”	The bar code reader assembly transport mechanism sensor indicates that a ticket is in the transport mechanism.	Check the bar code reader transport mechanism.
“Barcode Scanner Initialize Error”	The bar code scanner initialization failed.	Check bar code scanner.
“Motor Initialize Error”	The motor initialization failed.	Check transport mechanism.
“Invalid Ticket Error”	The bar code format is not the 3M format.	The message “See Cashier” is displayed and the ticket is returned to the patron.
“Bad Facility Code Error”	The ticket facility code is incorrect.	The message “See Cashier” is displayed and the ticket is returned to the patron.
“Backout Ticket Error”	The ticket has been flagged as a backout ticket.	The message “See Cashier” is displayed and the ticket is returned to the patron.
“Unreadable Ticket Error”	The ticket does not have a bar code or is unreadable.	The message “See Cashier” is displayed and the ticket is returned to the patron. **IMPORTANT!** Ensure that the lower scanner is aligned vertically (i.e., perpendicular to the ticket); even a slight misalignment can cause a misread.

CHAPTER 7

Reader Controller Firmware Installation

There are several 3M devices, including the Barcode Ticket Dispenser and Exit Verifier, that use the Reader Controller - Barcode TD/EV (controller). Device firmware is stored in the controller's flash memory. Application firmware is installed on the controller using a PC with 3M's FlashProgrammer or FlashProgrammerE installation program. FlashProgrammer is used to install both boot and application firmware using a serial connection. FlashProgrammerE is used to install application firmware only, using an Ethernet connection.

Note: Boot firmware must be installed using FlashProgrammer and a serial connection.

Installation via an Ethernet connection is faster (less than 30 seconds) than installation via a serial connection (up to 7 minutes). Installation programs and device firmware are available on the 3M web site (http://www.3M.com).

Before You Start

The following hardware and software are required to install boot and application device firmware on the controller.

FlashProgrammer—to install device firmware using Flashprogrammer and a serial connection, the following are required:

- ❑ PC with a serial port
- ❑ FlashProgrammer installed on the PC
- ❑ RS-232 serial cable
- ❑ Device firmware

FlashProgrammerE—to install device application firmware using FlashProgrammerE and an Ethernet connection, the following are required:

- ❑ PC with an Ethernet port
- ❑ FlashProgrammerE installed on the PC
- ❑ Ethernet Category 5 crossover cable
- ❑ Device firmware

Firmware Versions

When installing device firmware, the following must be considered:

- ❑ Both a boot file and an application file are required. Boot versions may not be released as often as application versions. When installing a new application file, if a new boot file is available, install the new boot file.
- ❑ New PDA programming utility versions are often released in conjunction with device firmware releases. It is recommended that all devices be updated with the latest firmware. Before installing new device firmware, install the new PDA programming utility if it is available. A new PDA programming utility cannot be used to install older device firmware. Maintain the older PDA programming utility, in addition to the new one, until all device firmware is updated.

Determining the Firmware Version

Device Firmware Version

To determine the currently installed device firmware version, log in to the device controller using the PDA (refer to “Logging In to the Controller,” page 44). When the login is completed, the following Program Message is displayed showing the application and boot firmware versions that are currently installed on the controller.

PDA Firmware Version

Note: The method for viewing PDA software versions varies, depending on the PDA model; refer to the PDA manufacturer’s manual for the procedure to determine the software version.

For Palm Handheld PDAs (e.g., models m125 and m500), to determine the currently installed device programming utility version, do the following:

1. Tap the time (e.g., 1:02 pm) in the upper left corner of the Main screen.

The App Options (application options) screen is displayed.

2. Tap **App**.

   The application drop-down menu is displayed.

3. Tap **Info...**

   The Info screen is displayed, with the list of applications.

4. Scroll down to display the device application (e.g., Barcode).

5. Tap **Version**.

   The application versions are displayed (e.g., for the Barcode application, the version is v. 1.0).

Installing Firmware Using a Serial Connection

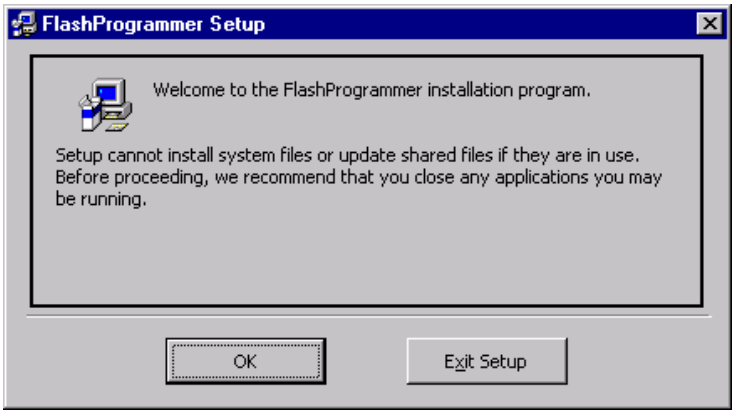
Installing FlashProgrammer

To install FlashProgrammer on a PC, do the following:

Note: FlashProgrammer files can be downloaded from the 3M web site (http://www.3M.com), or acquired from distributors or 3M support technicians.

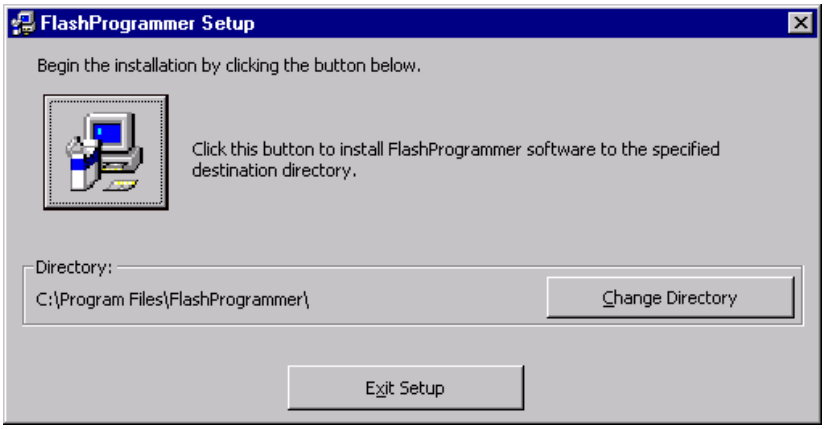
1. Close all applications.
2. Create a temporary directory on the PC (e.g., C:\temp).
3. Copy the FlashProgrammer files to the directory created in step 2.
4. Double-click **setup.exe** in the directory created in step 2.

   The following window is displayed:



5. Click **OK**.

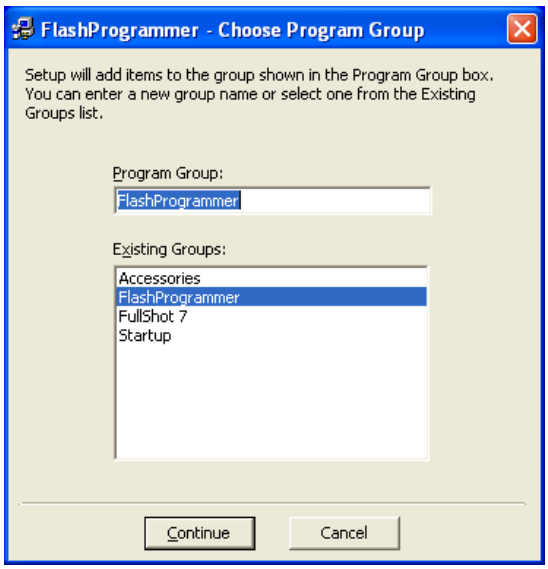
   The following window is displayed.



Note: The default installation directory is C:\Program Files\FlashProgrammer. To change the directory, click **Change Directory** and select the directory.

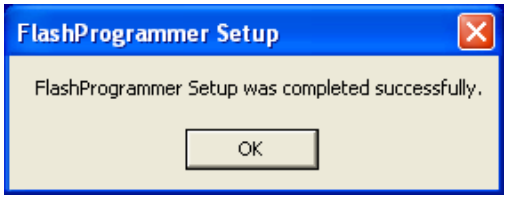
6. Click on the PC icon installation button to start the installation.

   The following window is displayed:



7. Select the program group that the application will reside in (i.e., FlashProgrammer), and then click **Continue**.

   The program is installed in the default C:\Program Files\FlashProgrammer directory, or the directory you specified. When the installation is complete, the following dialog box is displayed,



8. Click **OK**.

Connecting the PC to the Reader Controller - Barcode TD/EV

Connect an RS-232 serial cable (Figure 7.1) from the PC (with FlashProgrammer) serial port to the controller connector J2 (CPU DEBUG port) (Figure 7.2).

Figure 7.1 RS-232 Serial Cable Pin-Out

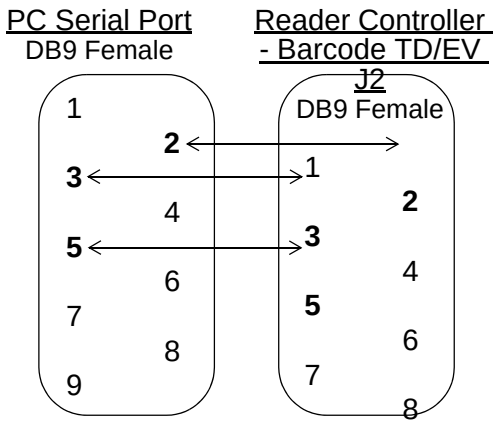
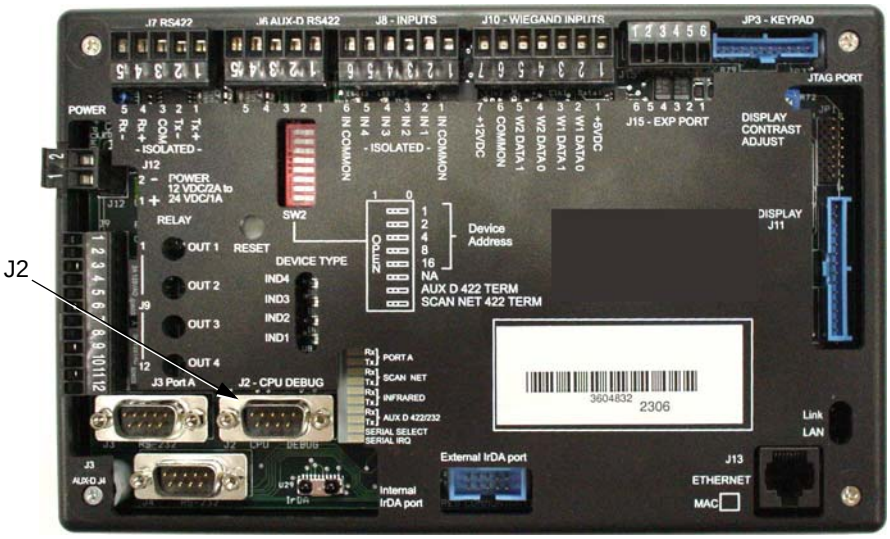


Figure 7.2 Reader Controller - Barcode TD/EV, CPU DEBUG Port, J2



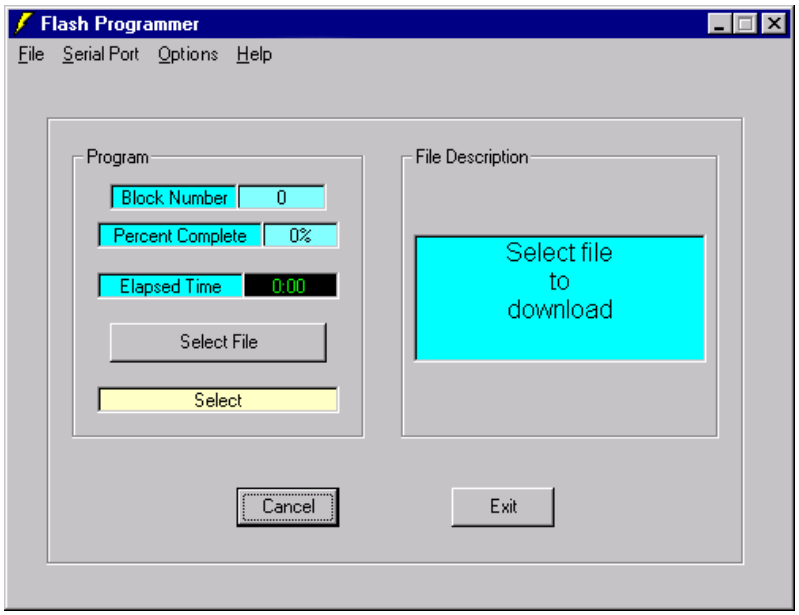
Reader Controller - Barcode TD/EV - Installing Device Firmware

After FlashProgrammer is installed on the PC and the PC is connected to the controller with the serial cable, the device firmware can be installed.

To install the device firmware, do the following:

1. Create a folder on the PC for the device firmware installation files (e.g., C:\360_Firmware).
2. Copy the device firmware installation files from the 3M web site (http://www.3M.com) to the folder created in step 1.
3. Reader Controller - Barcode TD/EV Start FlashProgrammer by clicking **Start>Programs>FlashProgrammer**.

   An introduction window and then the following window are displayed:



4. From the **Serial Port** menu, click **Setup**.

   Make sure that the correct COM port is selected (normally COM 1).
5. From the **Options** menu, select **68332 Flash Program**.

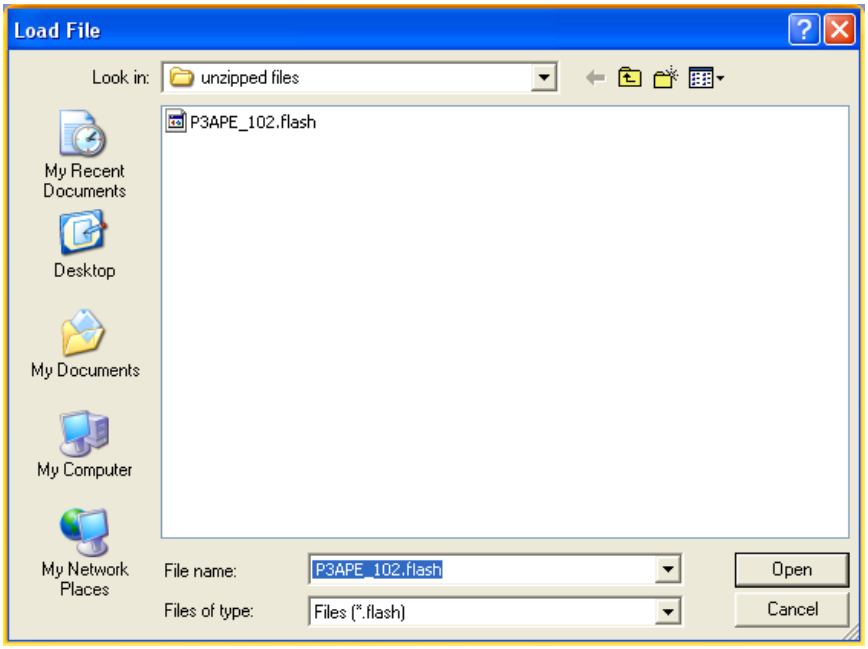
Note: If installing the boot software, complete steps 6–10 twice in order to install both the boot software and the application software. Install the boot.flash file first; if the installation fails, then install the application.flash file and then install the boot.flash file.

6. Do one of the following:
   a. Click the **Select File** button.
   b. From the File menu, click **Select File**.

      A warning window is displayed.

Note: Consider the warning carefully. The correct device (e.g., Barcode) firmware file must be selected. If the wrong firmware file is selected, the controller will not function correctly.

7. Click the warning window to close it, a window similar to the following is displayed:



Note: If installing the boot file, make sure that the installation is not interrupted. If the installation is interrupted, the controller will become inoperative.

Note: The firmware file must have a ".flash" extension.

8. Select the desired firmware file from the folder created in step 1, and then click **Open**.

A window is displayed, confirming the selection.

Note: If "Cancel" or "Exit" is selected during the download, the firmware will not be installed and the installation procedure must be restarted from step 3.

9. Click **Continue**.

   FlashProgrammer attempts to connect to the controller, the message “Connecting...” is displayed. When the connection is established, the message “Downloading...” is displayed.

   If an error occurs during the download, one of the following messages is displayed:

   - **Download Error**—an error occurred while installing the firmware. Click **Cancel** and restart this procedure from step 3.
   - **Error**—a connection error occurred. Make sure the serial cable is securely connected. Click **Cancel** and restart this procedure from step 3.

   When the installation is complete, the message “Download Complete” is displayed.

10. Click **Exit** to close FlashProgrammer.

Installing Firmware Using an Ethernet Connection

Firmware can be installed on 3M devices (e.g., Barcode Ticket Dispenser) using the FlashProgrammerE program via a direct Ethernet connection. Application firmware cannot be installed over a network, but it can be installed by connecting the PC directly to the controller. This method is faster than using a serial connection. The FlashProgrammerE program can be downloaded from the 3M web site (http://www.3M.com).

Installing the Boot Firmware

Note: Boot firmware must be installed using FlashProgrammer and a serial connection (refer to “Installing Firmware Using a Serial Connection,” page 156). If you attempt to install boot firmware using FlashProgrammerE via an Ethernet connection, the controller will not function properly.

Installing the FlashProgrammerE Program

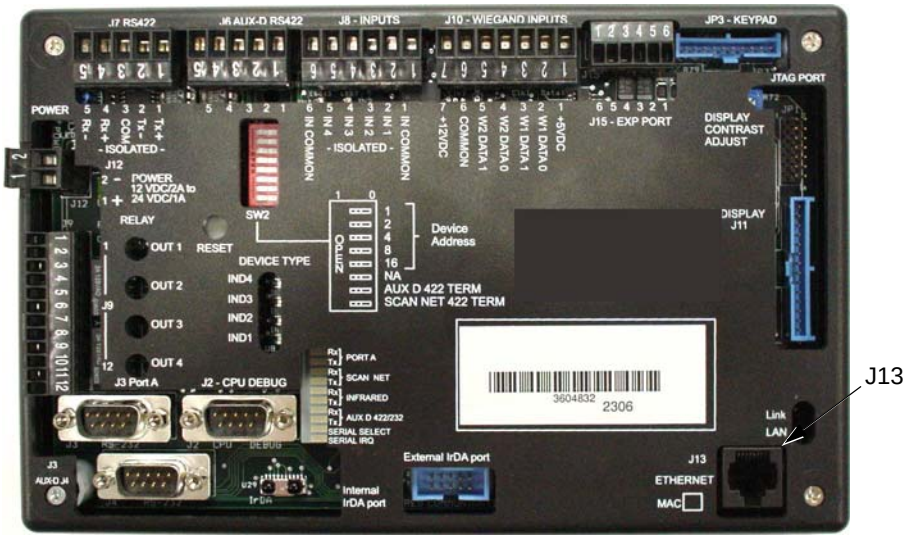
To install FlashProgrammerE on a PC, do the following:

1. Create a directory on the PC (e.g., C:\Program Files\FlashProgrammerE) for the FlashProgrammerE application (flashprogrammerE.exe).
2. Copy the flashprogrammerE.exe file from the 3M web site (http://www.3M.com) to the directory created step 1.

Connecting the PC to the Reader Controller - Barcode TD/EV

Connect an Ethernet Category 5 crossover cable from the PC to the controller connector J13 (RJ-45 Ethernet Port) (Figure 7.3).

Figure 7.3 Reader Controller - Barcode TD/EV, RJ-45 Ethernet Port, J13



Reader Controller - Barcode TD/EV - Installing Device Firmware

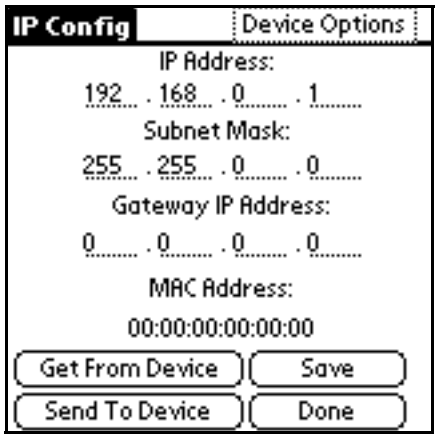
After FlashProgrammerE is installed on the PC and the PC is connected to the controller with the Ethernet cable, the device application firmware can be installed.

To install the device application firmware, do the following:

1. Create a folder on the PC for the device application firmware installation file (e.g., C:\360_Firmware).
2. Copy the device application firmware installation file from the 3M web site (http://www.3M.com) to the folder created in step 1.

Note: If you need to change the PC IP address and/or subnet mask, make sure you record the original settings, so you can restore them when you are done installing the device application firmware.

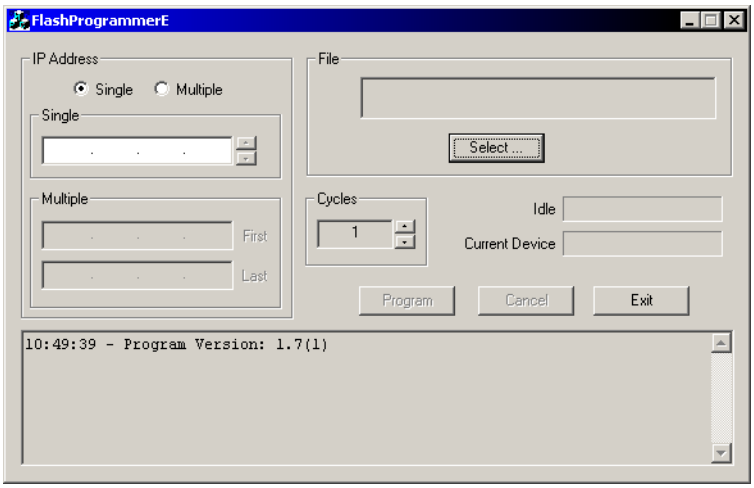
3. Set the PC IP address to 192.168.0.2. and subnet mask to 255.255.0.0.
4. Restart the PC.
5. Log in to the controller using the PDA (refer to “Logging In to the Controller,” page 44).
6. Set the controller IP Address (Program>IP Config) to 192.168.0.1 and the Subnet Mask to 255.255.0.0.



7. Click **Save**.
8. Click **Send To Device**.
9. Click **Done**.

10. In the folder created in step 1, double-click **flashProgrammerE.exe** to start FlashProgrammerE.

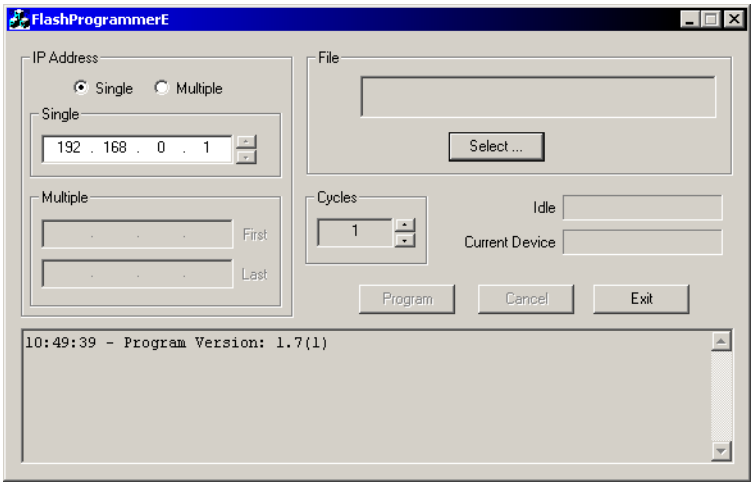
The following window is displayed:



11. Check the **Single** option in the IP Address box.

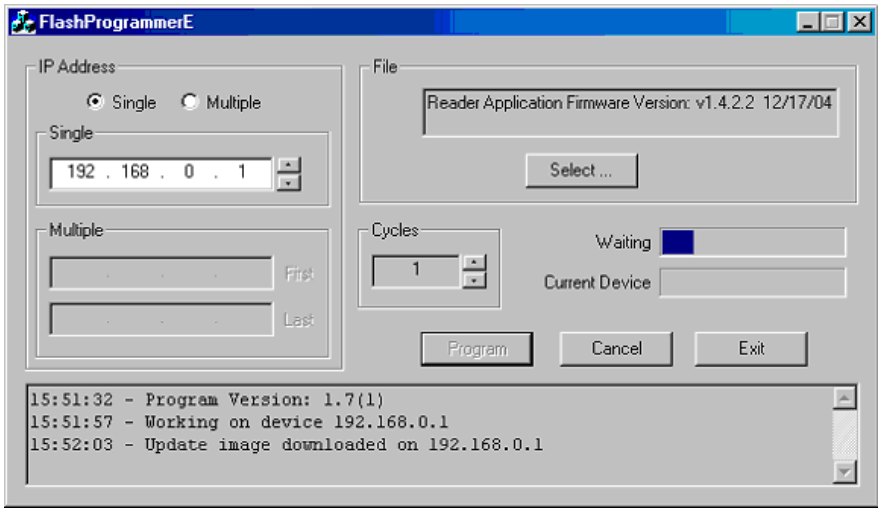
Note: The device address **192.168.0.1** must be used for all Barcode Ticket Dispenser Reader Controller - Barcode TD/EVs. FlashProgrammerE must be configured to communicate with the controller at this address.

12. Type **192.168.0.1** in the **Single** box.



13. Click the **Select...** button.
14. Select the device application firmware file that you want to install.
15. Click **Open**.
    The file name is displayed in the File box.
16. Click the **Program** button to start the installation.

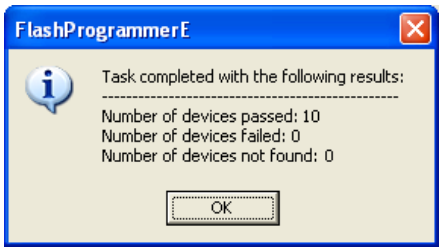
    The progress box title changes from “Waiting” to “Downloading” and the installation progress is indicated by a progress bar. The controller IP address is displayed in the Current Device box. The installation status is displayed in the message box at the bottom of the window.



Note: If the installation aborts, the message “Device x.x.x.x download CRC failed. Update FAILED!” is displayed (where x.x.x.x is the controller IP address). If the installation aborts, restart the installation starting at step 10.

Note: If you selected an application firmware file that is invalid, a message is displayed prompting you to cancel the update. Select **Cancel** and restart the installation starting at step 10.

When the installation is completed, the following message box is displayed, indicating the results:



17. Click **OK** to clear the message box.
18. Click **Exit**.

CHAPTER 8

Parts

Figure 8.1 Barcode Ticket Dispenser (120VAC) Overview Drawing 1

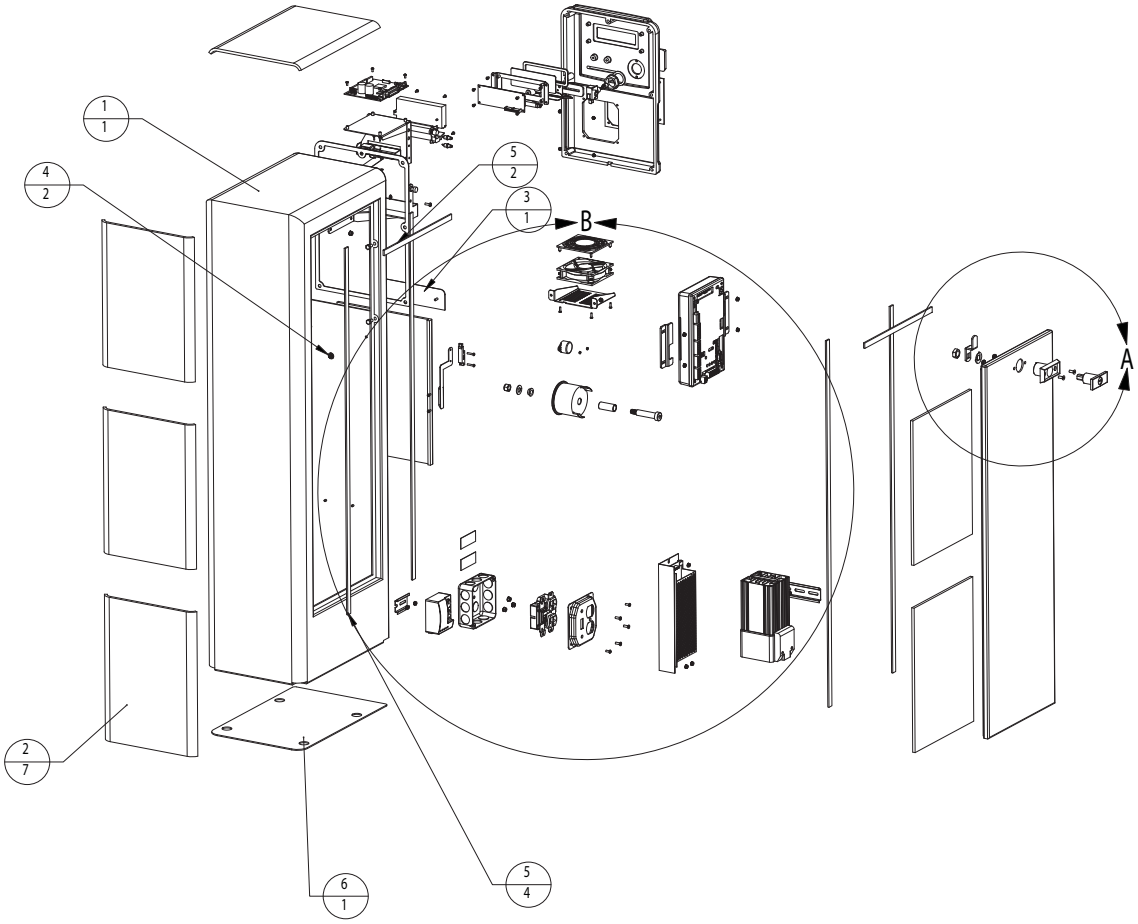


Figure 8.2 Barcode Ticket Dispenser (120VAC) Drawing, Detail A

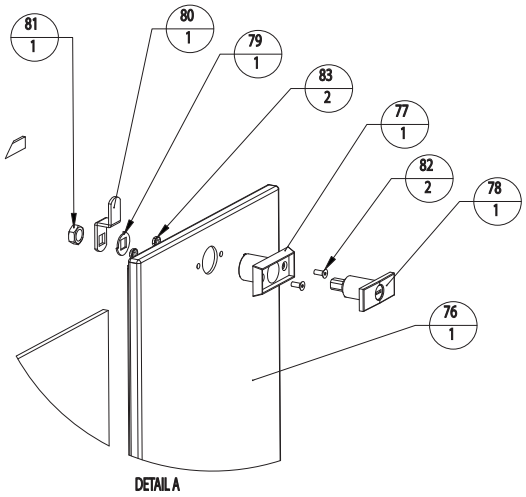


Figure 8.3 Barcode Ticket Dispenser (120VAC) Drawing, Detail B

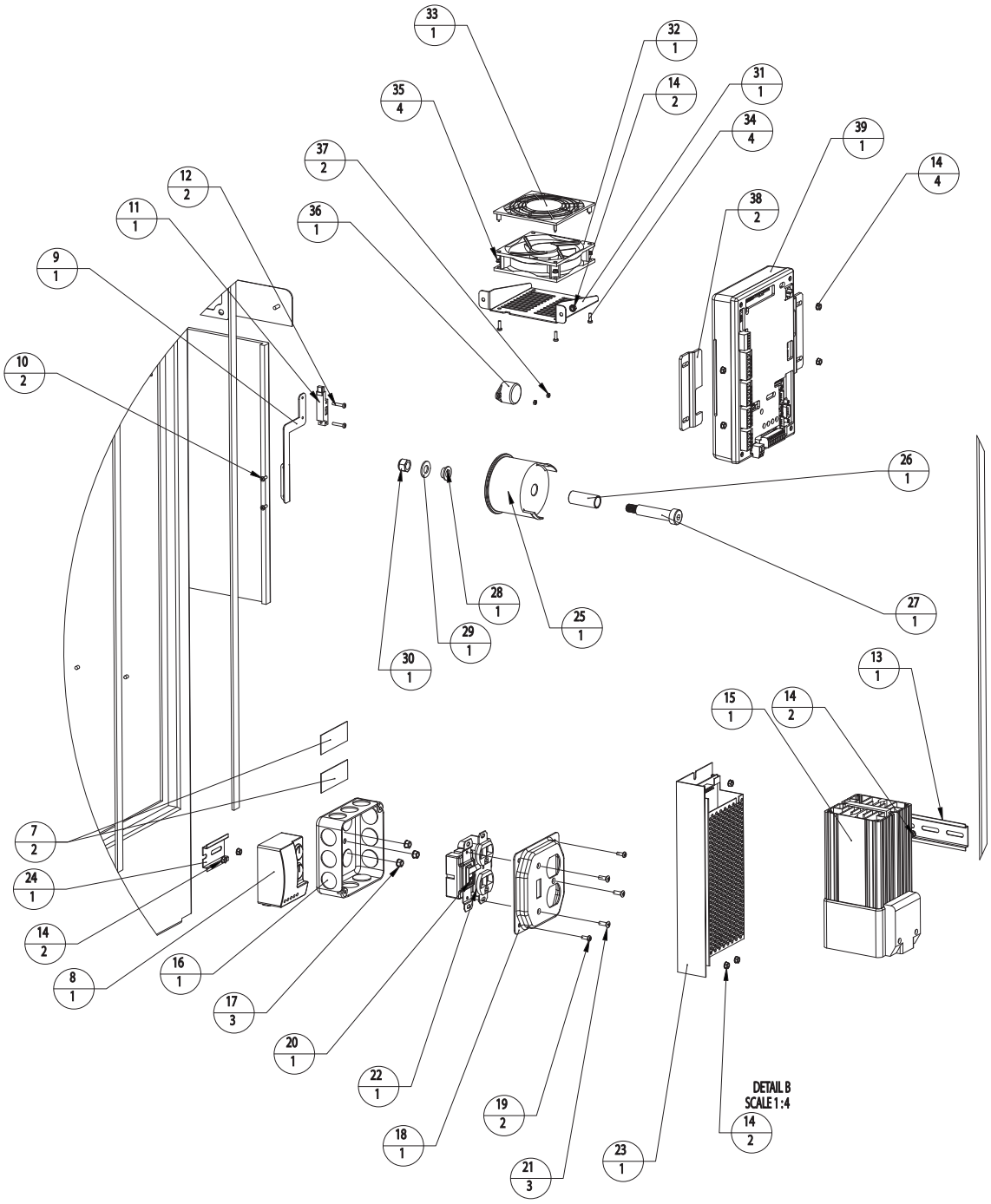


Figure 8.4 Barcode Ticket Dispenser (120VAC) Overview Drawing 2

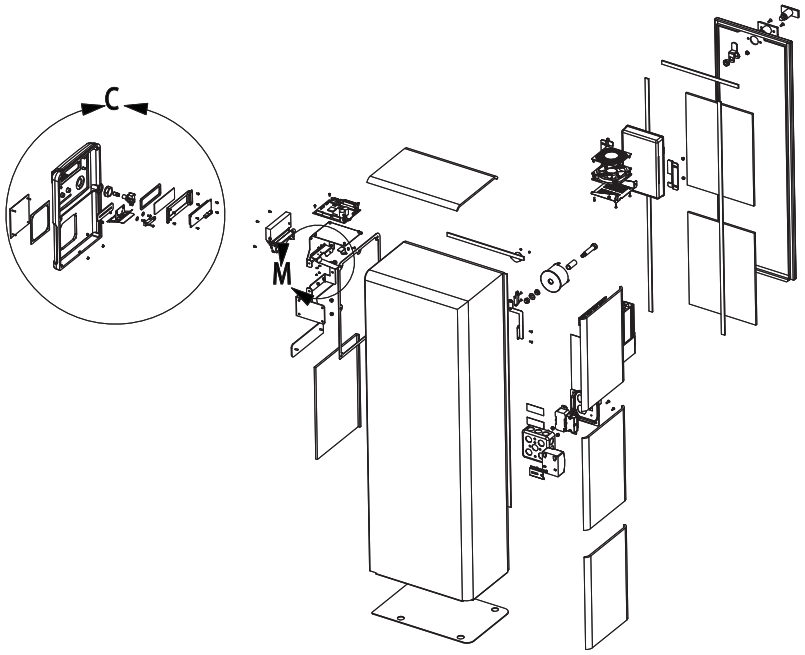


Figure 8.5 Barcode Ticket Dispenser (120VAC) Drawing, Detail C

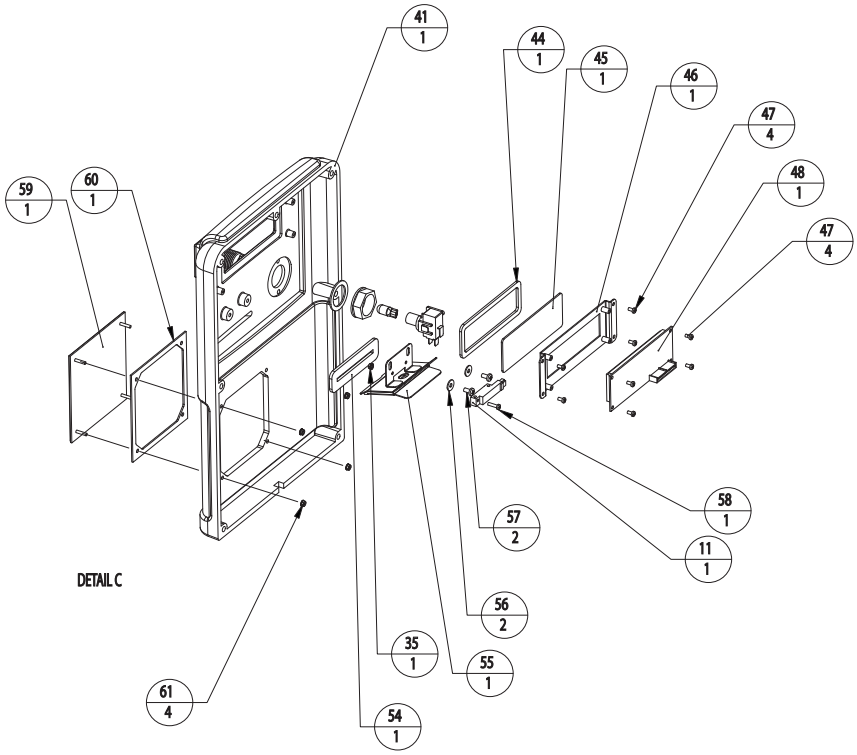


Figure 8.6 Barcode Ticket Dispenser (120VAC) Overview Drawing 3

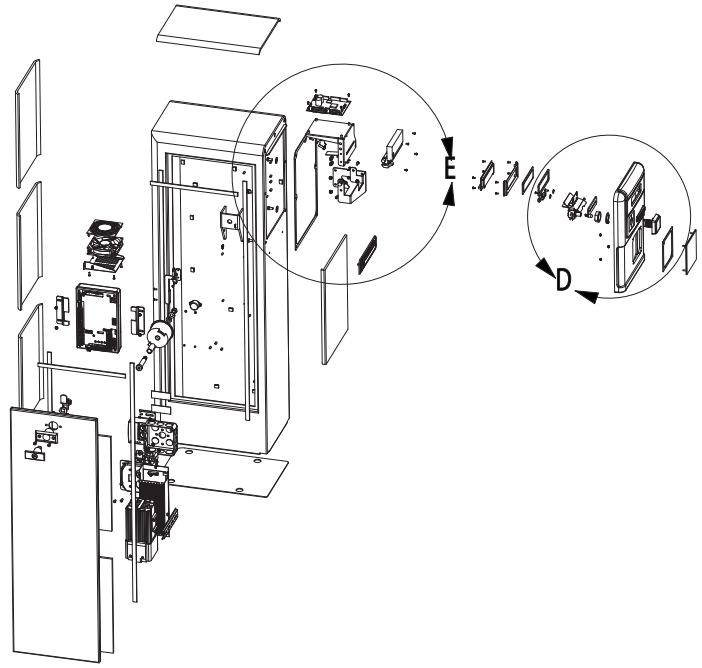


Figure 8.7 Barcode Ticket Dispenser (120VAC) Drawing, Detail D

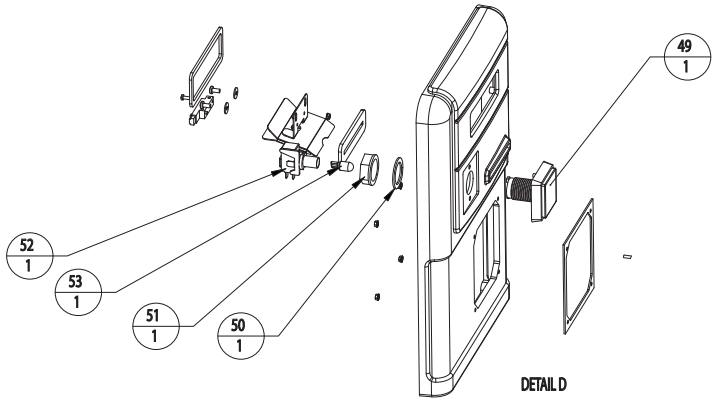


Figure 8.8 Barcode Ticket Dispenser (120VAC) Drawing, Detail E

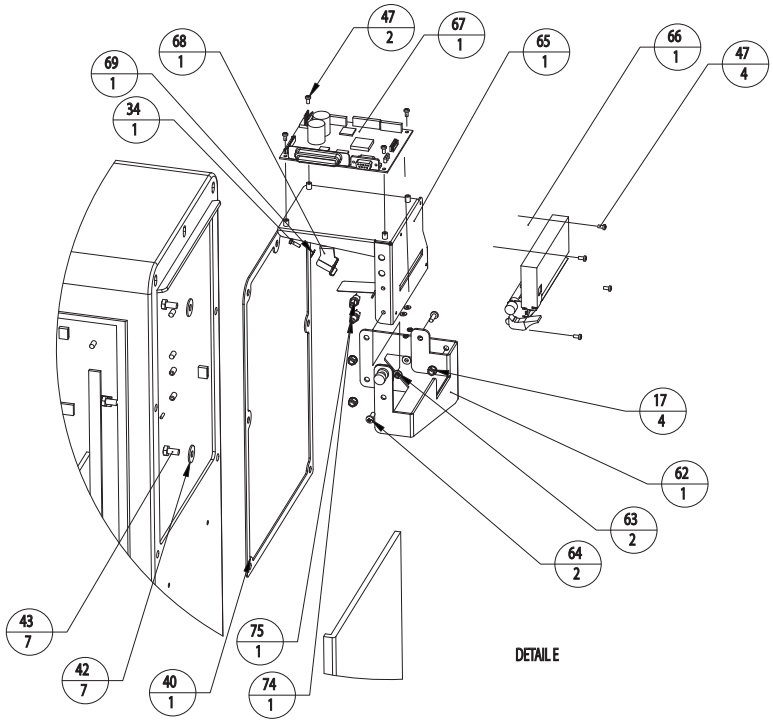


Figure 8.9 Ticket Roll, Barcode Ticket Dispenser

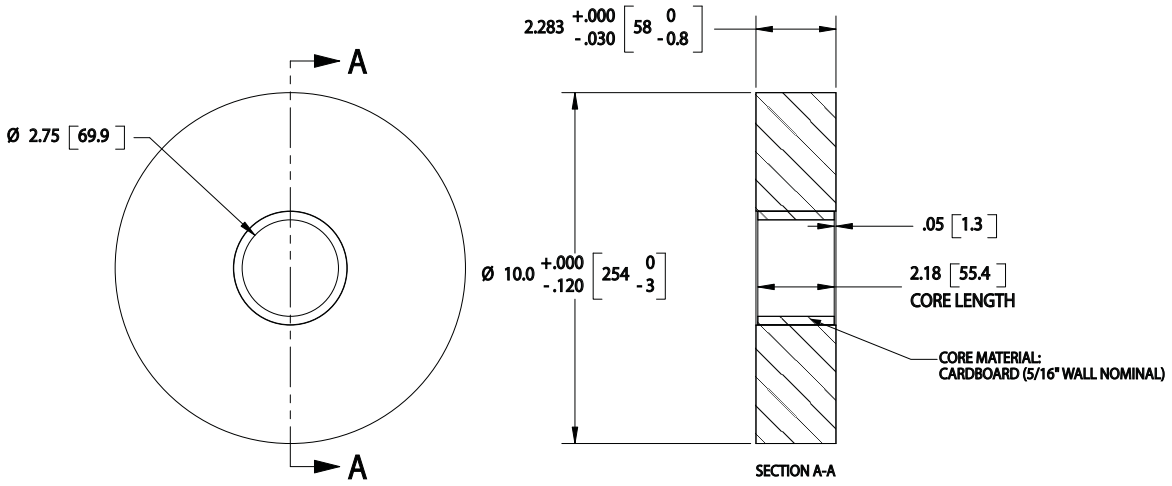


Figure 8.10 Barcode Ticket Dispenser (120VAC) Parts List

ITEM NO.	PART NUMBER	DESCRIPTION	33-22400 standard/QTY.
1	78-0060-2045-3	Enclosure, POD500	1
2	78-0060-2063-6	THERMAL INSULATION	7
3	10-4847	LARGE NAME PLATE	1
4	SEE DESCRIPTION	#6 Thread cutting nut	2
5	26-9800-0908-3	Weatherstripping, 1/8 x 1/2 Closed Cell	6
6	78-0060-2056-0	Base Gasket, POD500	1
7	26-9800-1134-5	BRADY LABEL (TO PRINT BC SERIAL TAGS)	2
8	78-0060-2081-8	hygrostat/thermostat	1
9	78-0060-2049-5	Low paper sensor bracket	1
10	SEE DESCRIPTION	M3 X 8mm PAN HEAD SCREW	2
11	26-9800-0977-8	PHOTO INTERRUPTER	2
12	SEE DESCRIPTION	M3 X 0.5 X 18mm Pan Head, Steel, Zinc	2
13	75-0302-1377-3	DIN RAIL, 35mm, 6in	1
14	SEE DESCRIPTION	M4 X 0.7 KEPS NUT ZINC PLATED STEEL	13
15	75-0302-1602-4	Heater, 250W, 115VAC w/fan	1
16	26-9800-1195-6	4" BOX X 1-1/2" DEEP	1
17	SEE DESCRIPTION	M5 X 0.8 KEPS NUT ZINC PLATED STEEL	7
18	26-9800-1194-9	COVER, ONE SWITCH, ONE OUTLET	1
19	SEE DESCRIPTION	6-32 X 0.375 PAN HEAD SCREW, STEEL, ZINC	2
20	26-9800-1196-4	Single Pole Switch	1
21	SEE DESCRIPTION	8-32 x 1/2 oval contersunk screw	3
22	26-9800-1133-7	15 AMP 125V DUAL RECEPTACLE	1
23	75-0302-1599-2	Power Supply, POD500	1
24	26-9800-1346-5	DIN RAIL, 35mm, 2IN	1
25	78-0060-2069-3	Spindle, Paper Roll, POD	1
26	26-9800-1354-9	Bushing, Bronze, 0.500 ID x 1.50in	1
27	26-9800-1353-1	Shoulder Screw, 0.375 x 2.00in	1
28	26-9800-1355-6	Bushing, Flanged Bronze, 0.375in	1
29	SEE DESCRIPTION	3/8 Plain Washer	1
30	SEE DESCRIPTION	3/8"-16 UNC HEX NUT ZINC PLATED STEEL	1
31	78-0060-2071-9	Fan bracket	1
32	75-0302-1583-6	24 VDC Fan	1
33	26-9800-1096-6	FAN GUARD	1
34	SEE DESCRIPTION	M3 X 0.5 X 10 PAN HEAD SCREW ZINC PLATED	5
35	SEE DESCRIPTION	M3 X 0.5 KEPS NUT, ZINC PLATED	5
36	78-0060-2059-4	Cable, Display, POD500	1
37	SEE DESCRIPTION	M2.5 x 0.45 Hex Nut	2
38	78-0060-2649-2	BRACKET, CONTROLLER	2
39	75-0302-0875-7	PASSPORT 360 CONTROLLER	1
40	78-0060-2038-8	Front Casting Gasket, POD500	1
41	30-26150	Casting, POD500, finished	1
42	SEE DESCRIPTION	M6 Flat Washer	7
43	SEE DESCIPTION	M6 x 12 HEX BOLT, ZINC PLATED	7
44	78-0060-2050-3	Display Lens Gasket,POD500	1
45	78-0060-2051-1	Display Lens, POD500	1
46	78-0060-2053-7	Display Lens Retainer, POD500	1
47	SEE DESCRIPTION	M3 X 6mm PAN HEAD SCREW, STEEL, ZINC	16
48	31-26133	Display, POD500	1
49	75-0302-1607-3	Pushbutton, univ, Square, Push For Ticket	1
50	80-20491 gasket	Large Push Button Gasket	1
51	80-20491 nut	Nut, Large Push Button	1
52	80-20491 lamp holder	80-20491 lamp holder	1
53	26-9800-0938-0	Lamp, 28Volt	1
54	78-0060-2064-4	Gasket, Ticket Chute	1
55	78-0060-2054-5 rev f		1
56	SEE DESCRIPTION	M4 X 12mm FLAT WASHER, ZINC PLATED	2
57	SEE DESCRIPTION	M4 X 0.7 X 8mm pan head screw	2
58	SEE DESCRIPTION	M3 X 0.5 X 12 PAN HEAD SCREW, ZINC PLATED	1
59	78-0060-4093-1	Intercom Cover Plate, silver	1
60	78-0060-2065-1	Gasket, Intercom	1
61	SEE DESCRIPTION	4-40 KEPS NUT, ZINC PLATED STEEL	4
62	78-0060-3917-2 rev d	Printer Support, Epson	1
63	26-9800-1523-9	Bearing, Printer Bracket	2
64	SEE DESCRIPTION	M4 X 0.7 X 12 PAN HEAD SCREW, ZINC PLATED STEEL	2
65	78-0060-2044-6	Printer Bracket, Epson, POD500	1
66	75-0302-1600-8	Printer, Epson, POD500	1
67	75-0302-1601-6	Controller, Epson, POD500	1
68	78-0060-3916-4 rev c	Paper Guide	1
69	SEE DESCRIPTION	M3 FLAT WASHER, ZINC PLATED	1
70	78-0060-2070-1	Ticket Spring, POD	1
71	See Description	2-56 X 0.312 Button Head Socket Screw	2
72	See Description	#4 Plain Washer	2
73	See Description	2-56 Hex Nut	2
74	78-0060-2060-2	Harness, Paper Feed Button	1
75	78-0060-2061-0	Harness, Test Ticket	1
76	78-0060-2055-2	Universal Door	1
77	26-9800-1053-7 body	T-Handle Lock - Body	1
78	26-9800-1053-7 handle	T-Handle Lock - Handle	1
79	26-9800-1053-7 cam	T-Handle Lock - Cam	1
80	26-9800-1053-7 tab	T-Handle Lock - Lock Tab	1
81	26-9800-1053-7 nut	T-Handle Lock - 1/2-13 hex nut	1
82	SEE DESCRIPTION	#10-24 UNC x 1/2 FLAT HEAD SCREW	2
83	SEE DESCRIPTION	#10-24 KEPS NUT ZINC PLATED STEEL	2

Figure 8.11 Barcode Ticket Dispenser (220VAC) Overview Drawing 1

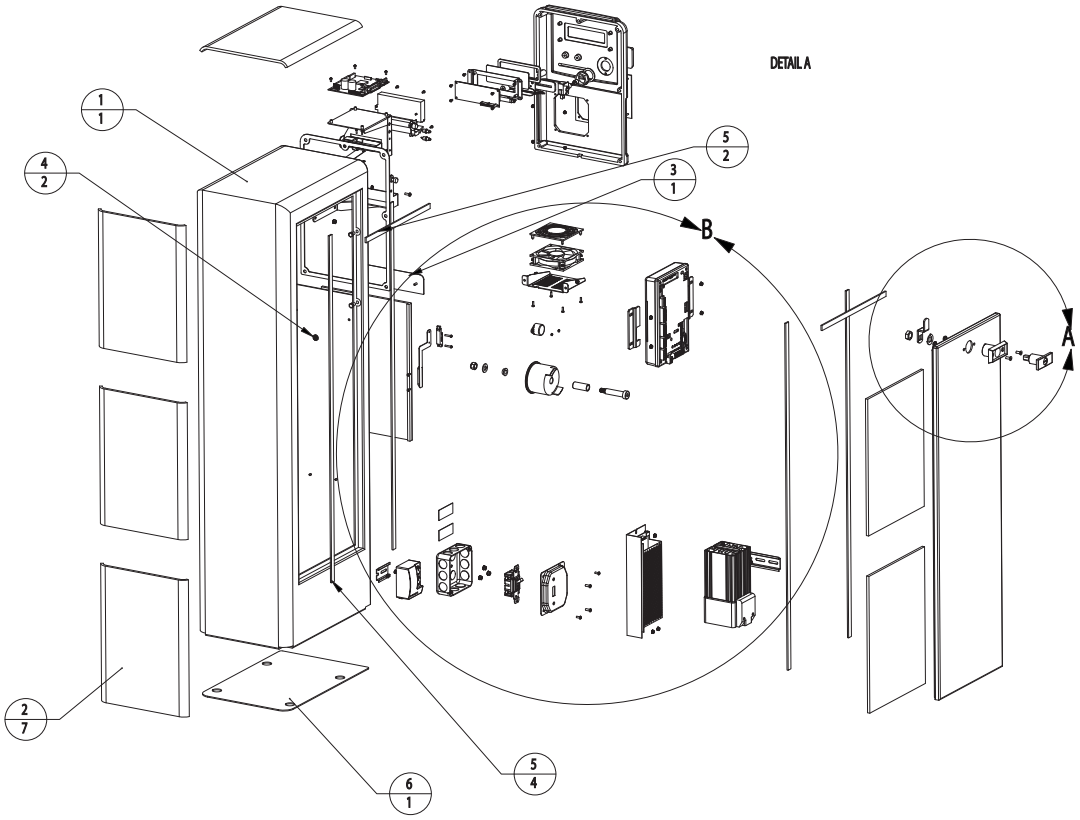


Figure 8.12 Barcode Ticket Dispenser (220VAC) Drawing, Detail A

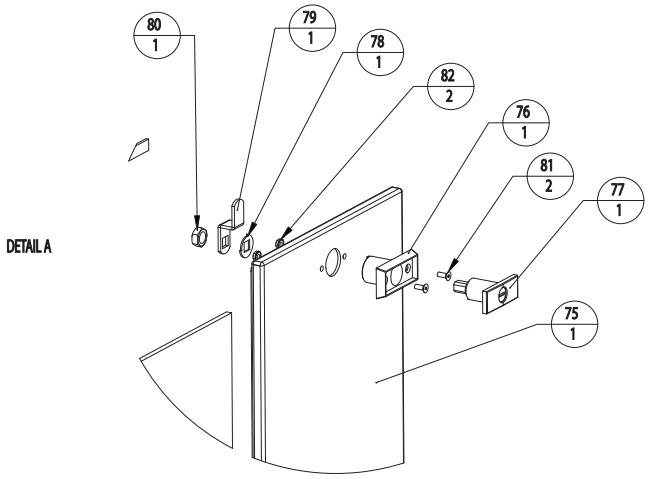


Figure 8.13 Barcode Ticket Dispenser (220VAC) Drawing, Detail B

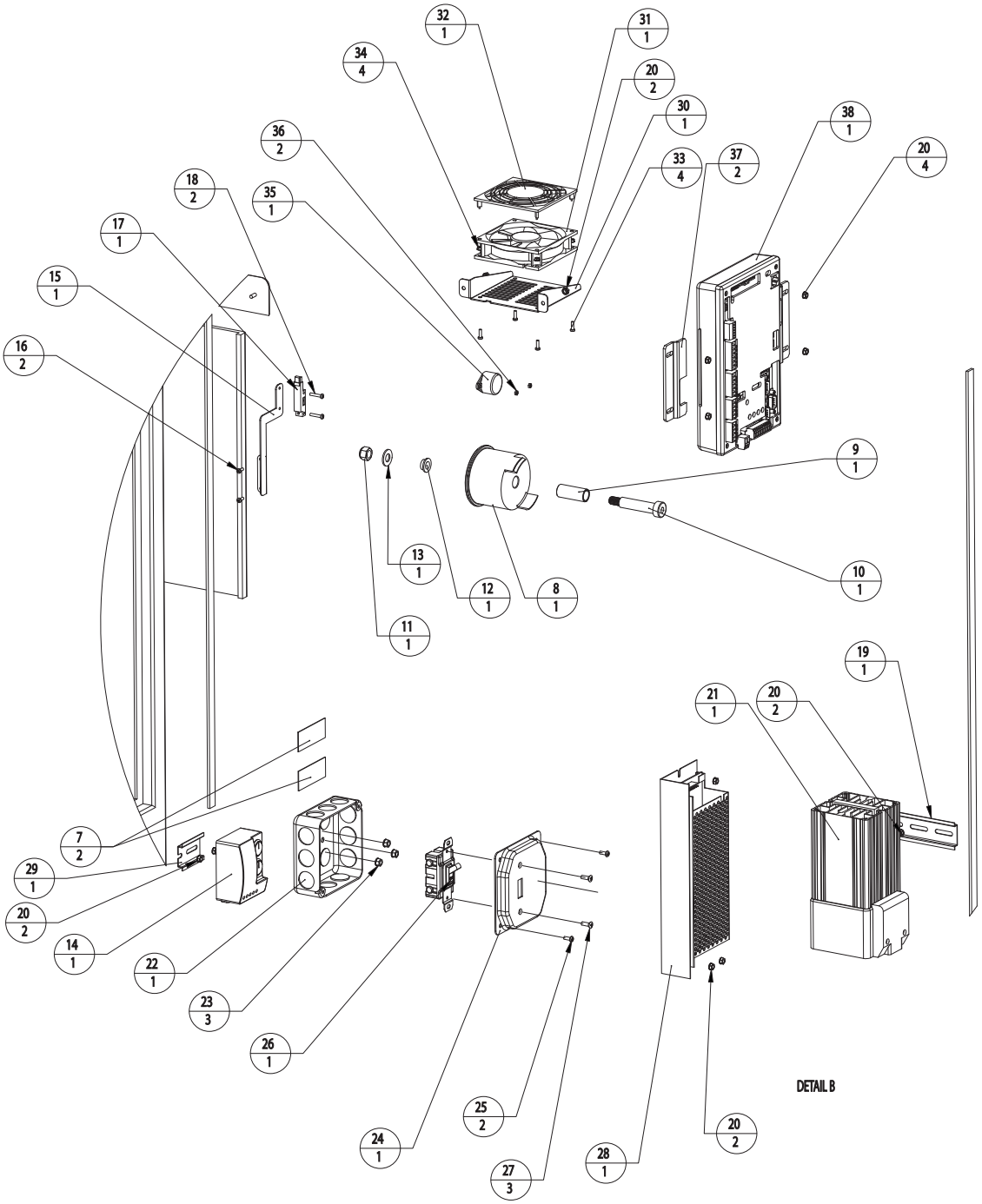


Figure 8.14 Barcode Ticket Dispenser (220VAC) Overview Drawing 2

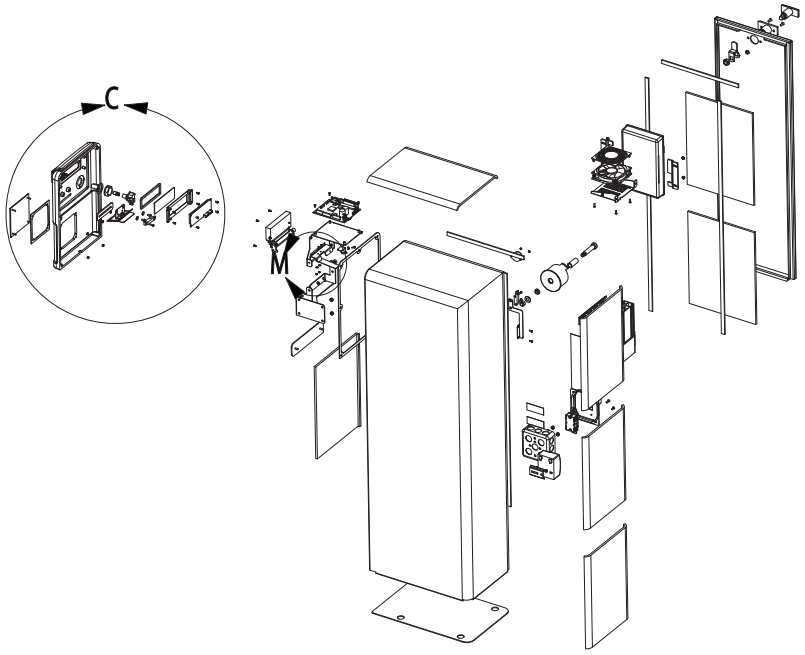


Figure 8.15 Barcode Ticket Dispenser (220VAC) Drawing, Detail C

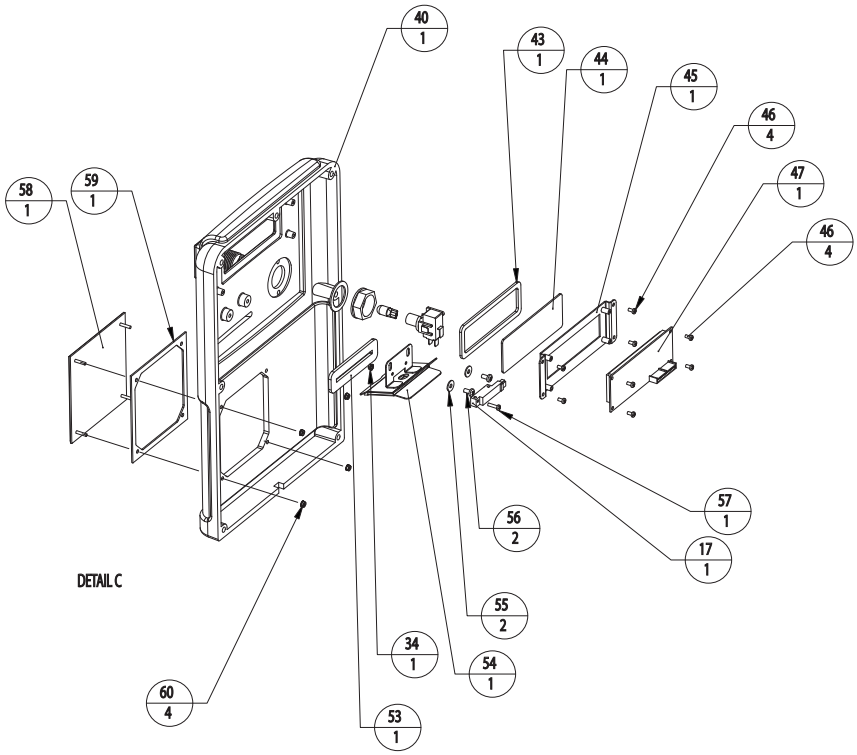


Figure 8.16 Barcode Ticket Dispenser (220VAC) Overview Drawing 3

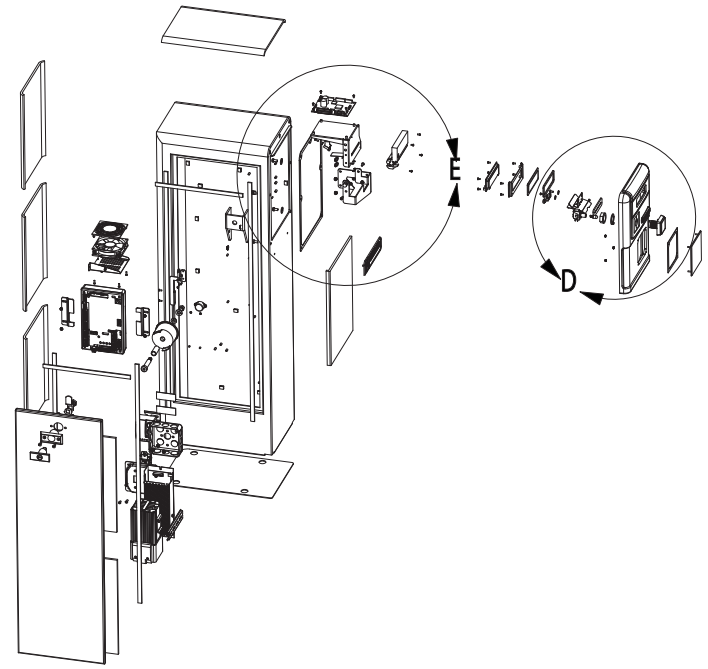


Figure 8.17 Barcode Ticket Dispenser (220VAC) Drawing, Detail D

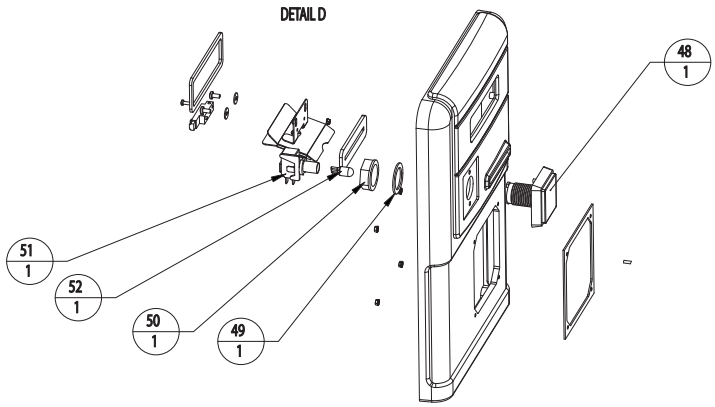


Figure 8.18 Barcode Ticket Dispenser (220VAC) Drawing, Detail E

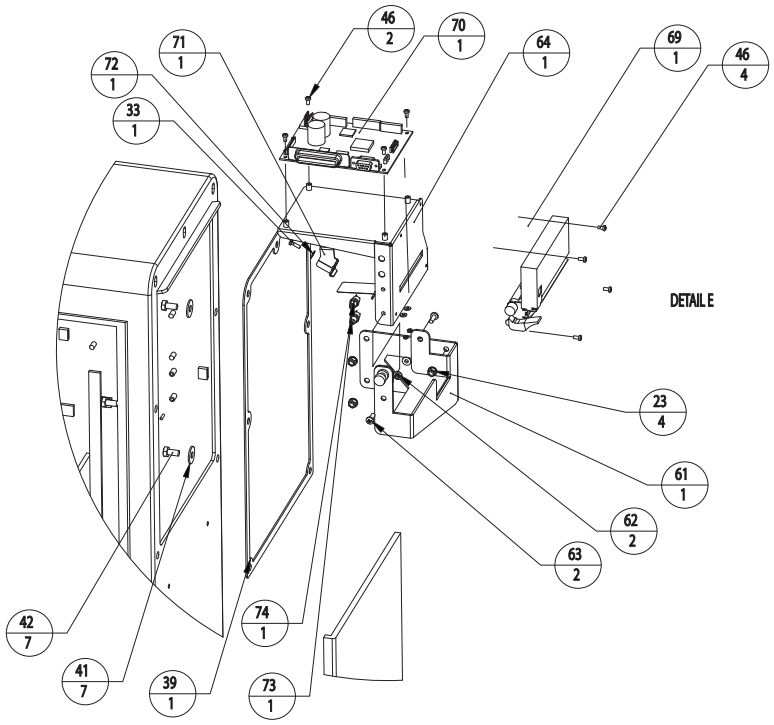


Figure 8.19 Barcode Ticket Dispenser (220VAC) Parts List

ITEM NO.	PART NUMBER	DESCRIPTION	33-22400 standard/QTY.
1	78-0060-2045-3	Enclosure, POD500	1
2	78-0060-2063-6	THERMAL INSULATION	7
3	10-4847	LARGE NAME PLATE	1
4	SEE DESCRIPTION	#6 Thread cutting nut	2
5	26-9800-0908-3	Weatherstripping, 1/8 x 1/2 Closed Cell	6
6	78-0060-2056-0	Base Gasket, POD500	1
7	26-9800-1134-5	BRADY LABEL (TO PRINT BC SERIAL TAGS)	2
8	78-0060-2069-3	Spindle, Paper Roll, POD	1
9	26-9800-1354-9	Bushing, Bronze, 0.500 ID x 1.50in	1
10	26-9800-1353-1	Shoulder Screw, 0.375 x 2.00in	1
11	SEE DESCRIPTION	3/8"-16 UNC HEX NUT ZINC PLATED STEEL	1
12	26-9800-1355-6	Bushing, Flanged Bronze, 0.375in	1
13	SEE DESCRIPTION	3/8 Plain Washer	1
14	78-0060-2082-6	thermostat/Hygrostat, 230VAC	1
15	78-0060-2049-5	Low paper sensor bracket	1
16	SEE DESCRIPTION	M3 X 8mm PAN HEAD SCREW	2
17	26-9800-0977-8	PHOTO INTERRUPTER	2
18	SEE DESCRIPTION	M3 X 0.5 X 18mm Pan Head, Steel, Zinc	2
19	75-0302-1377-3	DIN RAIL, 35mm, 6in	1
20	SEE DESCRIPTION	M4 X 0.7 KEPS NUT ZINC PLATED STEEL	13
21	26-9800-1525-4	Heater, 250W, 115VAC w/Fan	1
22	26-9800-1195-6	4" BOX X 1-1/2" DEEP	1
23	SEE DESCRIPTION	M5 X 0.8 KEPS NUT ZINC PLATED STEEL	7
24	26-9800-1335-8	COVER, ONE TOGGLE SWITCH	1
25	SEE DESCRIPTION	6-32 X 0.375 PAN HEAD SCREW, STEEL, ZINC	2
26	26-9800-1344-0	Double Pole Outlet Switch	1
27	SEE DESCRIPTION	8-32 x 1/2 oval contersunk screw	2
28	75-0302-1599-2	Power Supply, POD500	1
29	26-9800-1346-5	DIN RAIL, 35mm, 2IN	1
30	78-0060-2071-9	Fan bracket	1
31	75-0302-1583-6	24 VDC Fan	1
32	26-9800-1096-6	FAN GUARD	1
33	SEE DESCRIPTION	M3 X 0.5 X 10 PAN HEAD SCREW ZINC PLATED	5
34	SEE DESCRIPTION	M3 X 0.5 KEPS NUT, ZINC PLATED	5
35	78-0060-2059-4	Cable, Display, POD500	1
36	SEE DESCRIPTION	M2.5 x 0.45 Hex Nut	2
37	78-0060-2649-2	BRACKET, CONTROLLER	2
38	75-0302-0875-7	PASSPORT 360 CONTROLLER	1
39	78-0060-2038-8	Front Casting Gasket, POD500	1
40	30-26150	Casting, POD500, finished	1
41	SEE DESCRIPTION	M6 Flat Washer	7
42	SEE DESCIPTION	M6 x 12 HEX BOLT, ZINC PLATED	7
43	78-0060-2050-3	Display Lens Gasket,POD500	1
44	78-0060-2051-1	Display Lens, POD500	1
45	78-0060-2053-7	Display Lens Retainer, POD500	1
46	SEE DESCRIPTION	M3 X 6mm PAN HEAD SCREW, STEEL, ZINC	16
47	31-26133	Display, POD500	1
48	75-0302-1607-3	Pushbutton, univ, Square, Push For Ticket	1
49	75-0302-1607-3 gasket	Large Push Button Gasket	1
50	75-0302-1607-3 nut	Nut, Large Push Button	1
51	75-0302-1607-3 lamp holder	80-20491 lamp holder	1
52	26-9800-0938-0	Lamp, 28Volt	1
53	78-0060-2064-4	Gasket, Ticket Chute	1
54	78-0060-2054-5 rev f		1
55	SEE DESCRIPTION	M4 X 12mm FLAT WASHER, ZINC PLATED	2
56	SEE DESCRIPTION	M4 X 0.7 X 8mm pan head screw	2
57	SEE DESCRIPTION	M3 X 0.5 X 12 PAN HEAD SCREW, ZINC PLATED	1
58	78-0060-4093-1	Intercom Cover Plate, silver	1
59	78-0060-2065-1	Gasket, Intercom	1
60	SEE DESCRIPTION	4-40 KEPS NUT, ZINC PLATED STEEL	4
61	78-0060-3917-2rev d	Printer Support, Epson	1
62	26-9800-1523-9	Bearing, Printer Bracket	2
63	SEE DESCRIPTION	M4 X 0.7 X 12 PAN HEAD SCREW, ZINC PLATED STEEL	2
64	78-0060-2044-6	Printer Bracket, Epson, POD500	1
65	78-0060-2070-1	Ticket Spring, POD	1
66	See Description	2-56 X 0.312 Button Head Socket Screw	2
67	See Description	#4 Plain Washer	2
68	See Description	2-56 Hex Nut	2
69	75-0302-1600-8	Printer, Epson, POD500	1
70	75-0302-1601-6	Controller, Epson, POD500	1
71	78-0060-3916-4 rev c	Paper Guide	1
72	SEE DESCRIPTION	M3 FLAT WASHER, ZINC PLATED	1
73	78-0060-2060-2	Harness, Paper Feed Button	1
74	78-0060-2061-0	Harness, Test Ticket	1
75	78-0060-2055-2	Universal Door	1
76	26-9800-1053-7 body	T-Handle Lock - Body	1
77	26-9800-1053-7 handle	T-Handle Lock - Handle	1
78	26-9800-1053-7 cam	T-Handle Lock - Cam	1
79	26-9800-1053-7 tab	T-Handle Lock - Lock Tab	1
80	26-9800-1053-7 nut	T-Handle Lock - 1/2-13 hex nut	1
81	SEE DESCRIPTION	#10-24 UNC x 1/2 FLAT HEAD SCREW	2
82	SEE DESCRIPTION	#10-24 KEPS NUT ZINC PLATED STEEL	2

Figure 8.20 Barcode Exit Verifier (120VAC) Overview Drawing 1

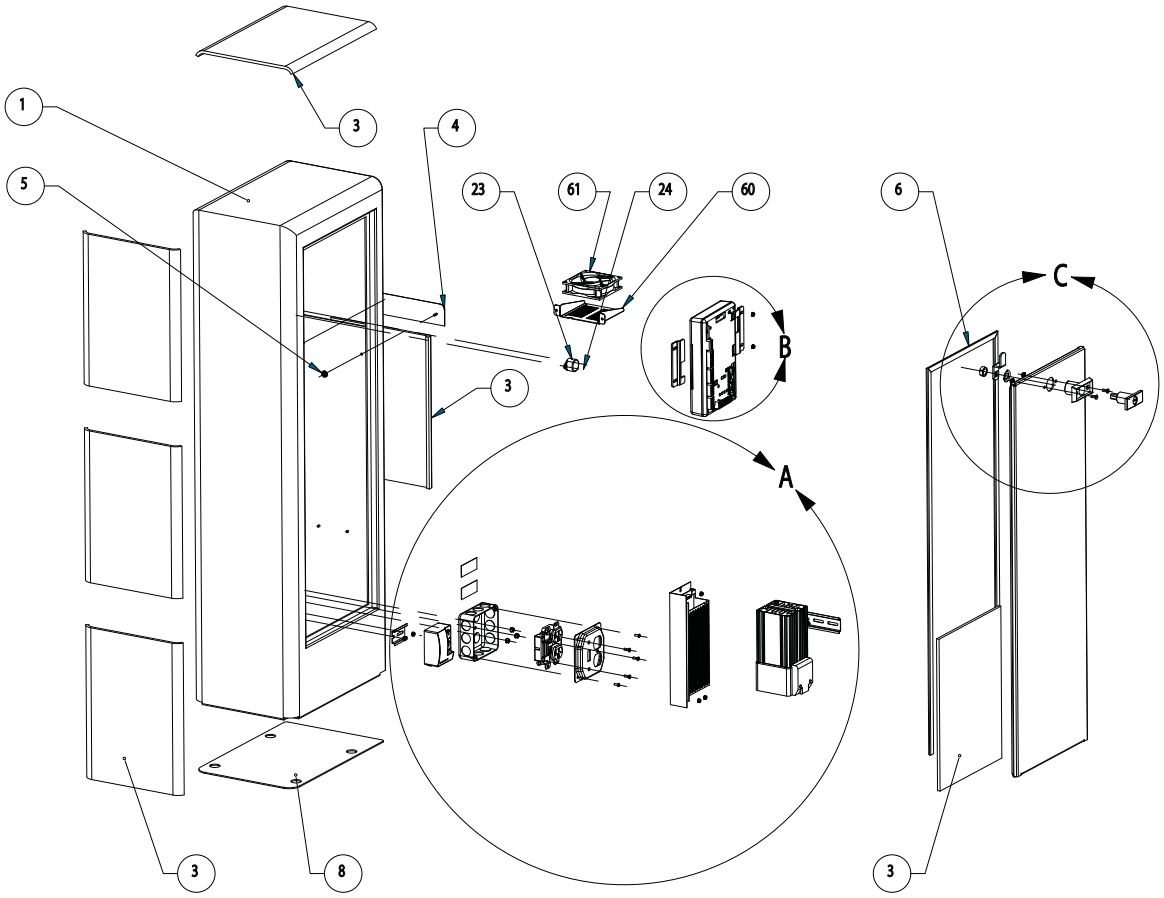


Figure 8.21 Barcode Exit Verifier (120VAC) Drawing, Detail A

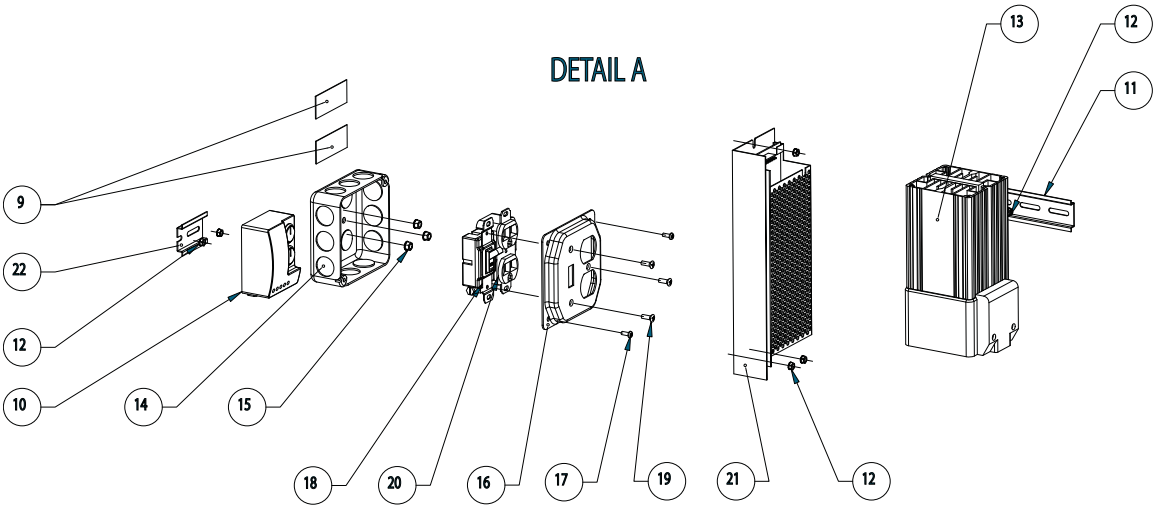


Figure 8.22 Barcode Exit Verifier (120VAC) Drawing, Detail B

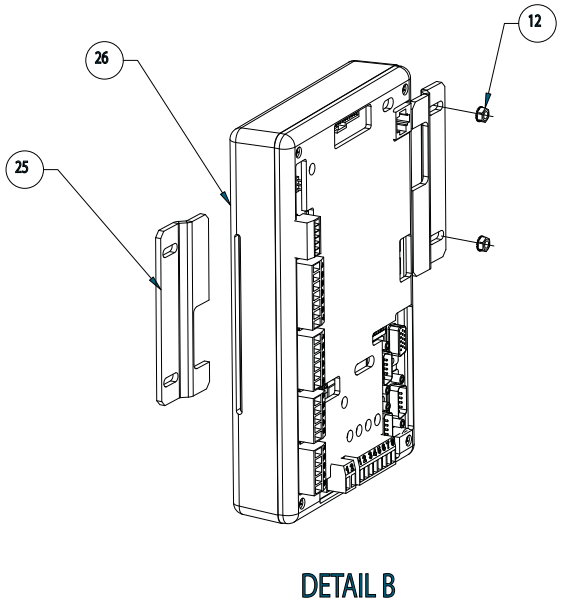


Figure 8.23 Barcode Exit Verifier (120VAC) Drawing, Detail C

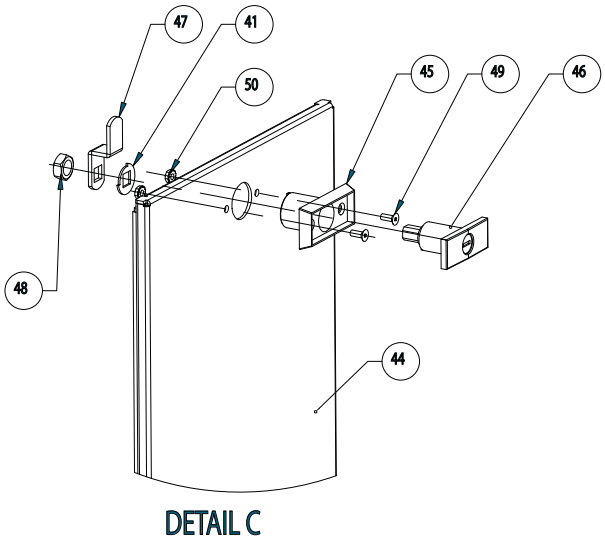


Figure 8.24 Barcode Exit Verifier (120VAC) Overview Drawing 2

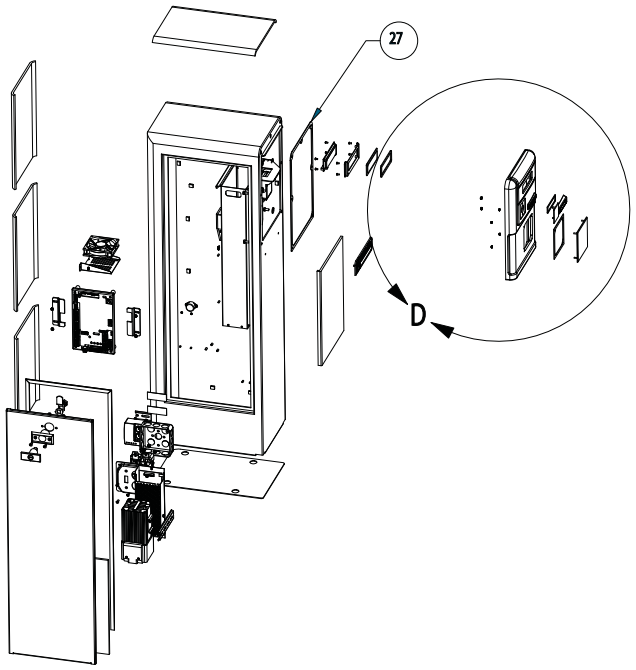


Figure 8.25 Barcode Exit Verifier (120VAC) Drawing, Detail D

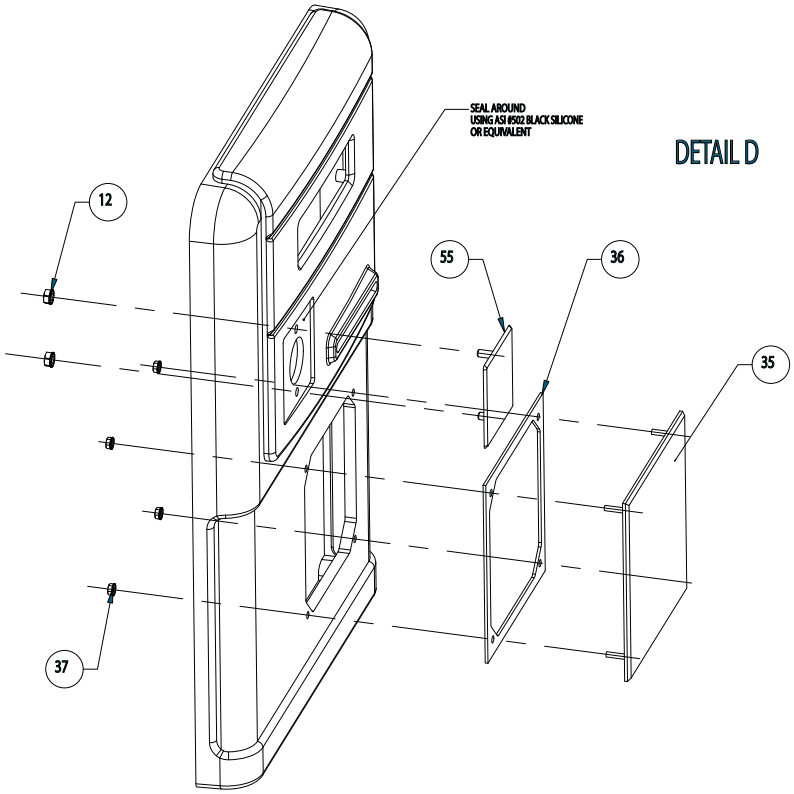


Figure 8.26 Barcode Exit Verifier (120VAC) Overview Drawing 3

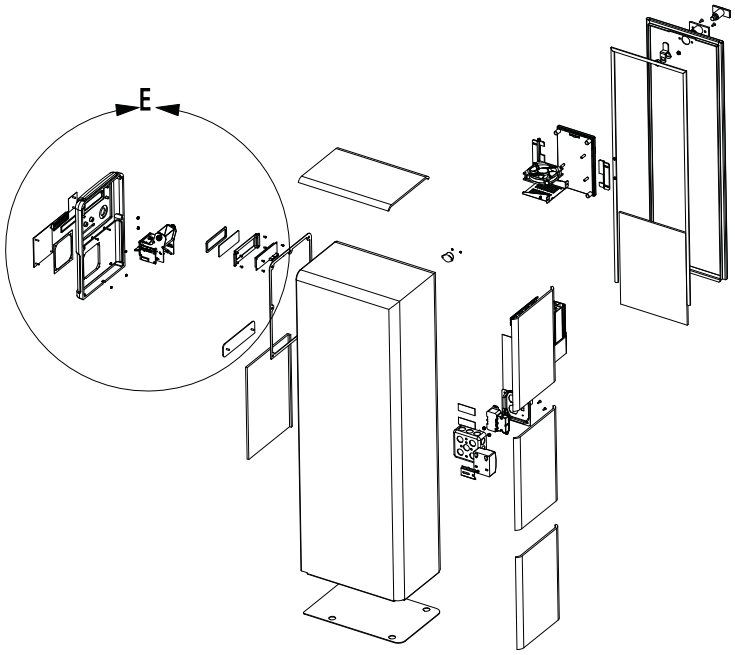


Figure 8.27 Barcode Exit Verifier (120VAC) Drawing, Detail E

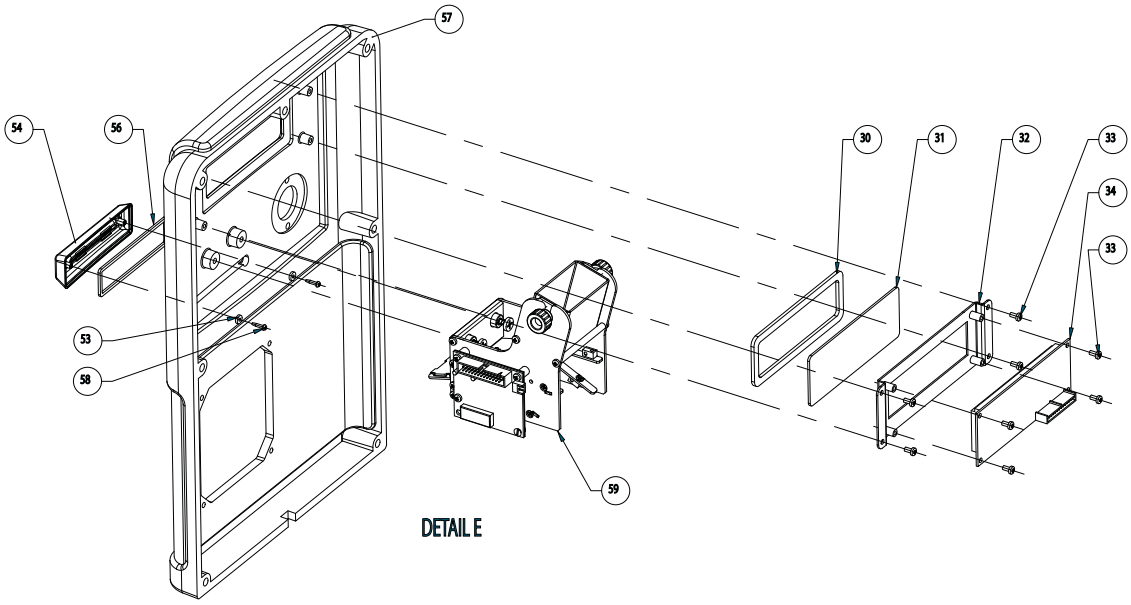


Figure 8.28 Barcode Exit Verifier (120VAC) Overview Drawing 4

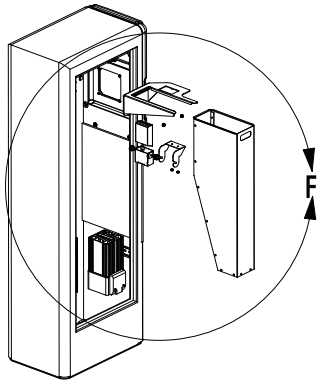


Figure 8.29 Barcode Exit Verifier (120VAC) Drawing, Detail F

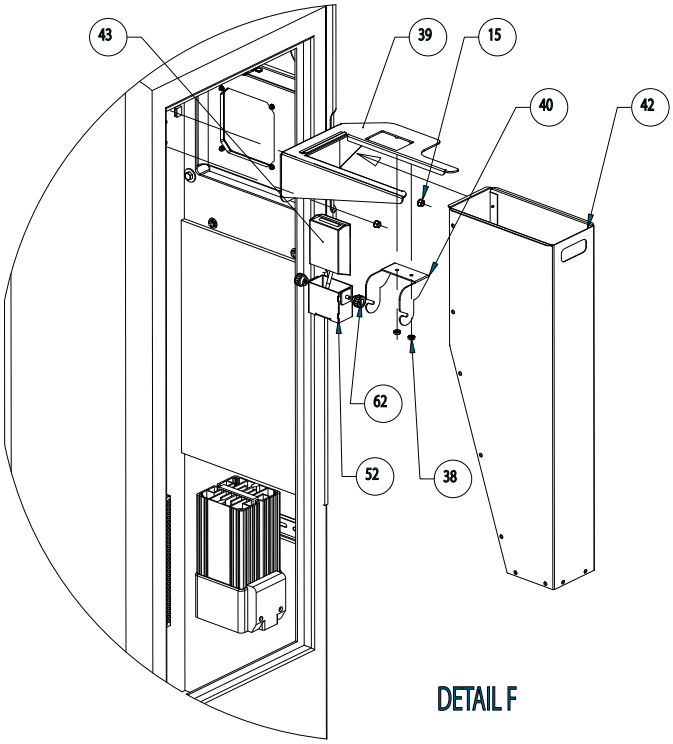


Figure 8.30 Barcode Exit Verifier (120VAC) Parts List

ITEM NO.	PART NUMBER	DESCRIPTION	33-22400 standard /QTY.
1	78-0060-2045-3	Enclosure, POD500	1
3	78-0060-2063-6	THERMAL INSULATION	7
4	10-4847	LARGE NAME PLATE	1
5	SEE DESCRIPTION	#6 Thread cutting nut	2
6	78-0060-1499-3	Gasket, Universal Door	1
8	78-0060-2056-0	Base Gasket, POD500	1
9	26-9800-1134-5	BRADY LABEL (TO PRINT BC SERIAL TAGS)	2
10	78-0060-2081-8	hygrostat/thermostat	1
11	75-0302-1377-3	DIN RAIL, 35mm, 6in	1
12	SEE DESCRIPTION	M4 X 0.7 KEPS NUT ZINC PLATED STEEL	12
13	75-0302-1602-4	Heater, 250W, 115VAC w/fan	1
14	26-9800-1195-6	4" BOX X 1-1/2" DEEP	1
15	SEE DESCRIPTION	M5 X 0.8 KEPS NUT ZINC PLATED STEEL	7
16	26-9800-1194-9	COVER, ONE SWITCH, ONE OUTLET	1
17	SEE DESCRIPTION	6-32 X 0.375 PAN HEAD SCREW, STEEL, ZINC	2
18	26-9800-1196-4	Single Pole Switch	1
19	SEE DESCRIPTION	8-32 x 1/2 oval contersunk screw	3
20	26-9800-1133-7	15 AMP 125V DUAL RECEPTACLE	1
21	75-0302-1599-2	Power Supply, POD500	1
22	26-9800-1346-5	DIN RAIL, 35mm, 2IN	1
23	78-0060-2059-4	Cable, Display, POD500	1
24	SEE DESCRIPTION	M2.5 x 0.45 Hex Nut	2
25	78-0060-2649-2	BRACKET, CONTROLLER	2
26	78-0060-3361-3	360 Controller POD500	1
27	78-0060-2038-8	Front Casting Gasket, POD500	1
28	SEE DESCRIPTION	M6 Flat Washer	7
29	SEE DESCIPTION	M6 x 12 HEX BOLT, ZINC PLATED	7
30	78-0060-2050-3	Display Lens Gasket,POD500	1
31	78-0060-2051-1	Display Lens, POD500	1
32	78-0060-2053-7	Display Lens Retainer, POD500	1
33	SEE DESCRIPTION	M3 X 6mm Pan Head Screw, Steel, Zinc	8
34	26-9800-1496-8	Display, POD500	1
35	78-0060-4093-1	Intercom Cover Plate, silver	1
36	78-0060-2065-1	Gasket, Intercom	1
37	SEE DESCRIPTION	4-40 KEPS NUT, ZINC PLATED STEEL	4
38	SEE DESCRIPTION	M4 KEPS NUT	2
39	78-0060-2668-2	BRACKET, BAR CODE AND TICKET BOX	1
40	78-0060-2670-8	BRACKET, POD BARCODE	1
41	26-9800-1053-7 cam	T-Handle Lock - Cam	1
42	78-0060-2669-0	TICKET BOX POD E.V.	1
43	75-0302-1569-5	BAR CODE SCANNER AND CABLE, MINUS GLOVE	2
44	78-0060-1503-2	Universal Door	1
45	26-9800-1053-7 body	T-Handle Lock - Body	1
46	26-9800-1053-7 handle	T-Handle Lock - Handle	1
47	26-9800-1053-7 tab	T-Handle Lock - Lock Tab	1
48	26-9800-1053-7 nut	T-Handle Lock - 1/2-13 hex nut	1
49	SEE DESCRIPTION	#10-24 UNC x 1/2 FLAT HEAD SCREW	2
50	SEE DESCRIPTION	#10-24 KEPS NUT ZINC PLATED STEEL	2
52	78-0060-2671-6	HOLDER, BARCODE READER	1
53	26-9800-1674-0	PLASTIC SPACER .25 OD x .092" ID x .062	2
54	78-0060-3914-9	PLASTIC THROAT COVER	1
55	80-26483	PLATE, BUTTON	1
56	78-0060-2075-0	GASKET THROAT COVER POD EV	1
57	30-26150	CASTING, POD500 E.V., FINISHED	1
58	26-9800-1673-2	Screw for Plastic Zinc-Plated Steel, 2-28 Thread, 3/8" Length	2
59	78-0060-3364-7	BARCODE READER ASSEMBLY	1
60	78-0060-2071-9	Fan bracket	1
61	75-0302-1583-6	24 VDC Fan	1
62	26-9800-1028-9	KNOB, 4M THEADED	2

Figure 8.31 Barcode Exit Verifier (220VAC) Overview Drawing 1

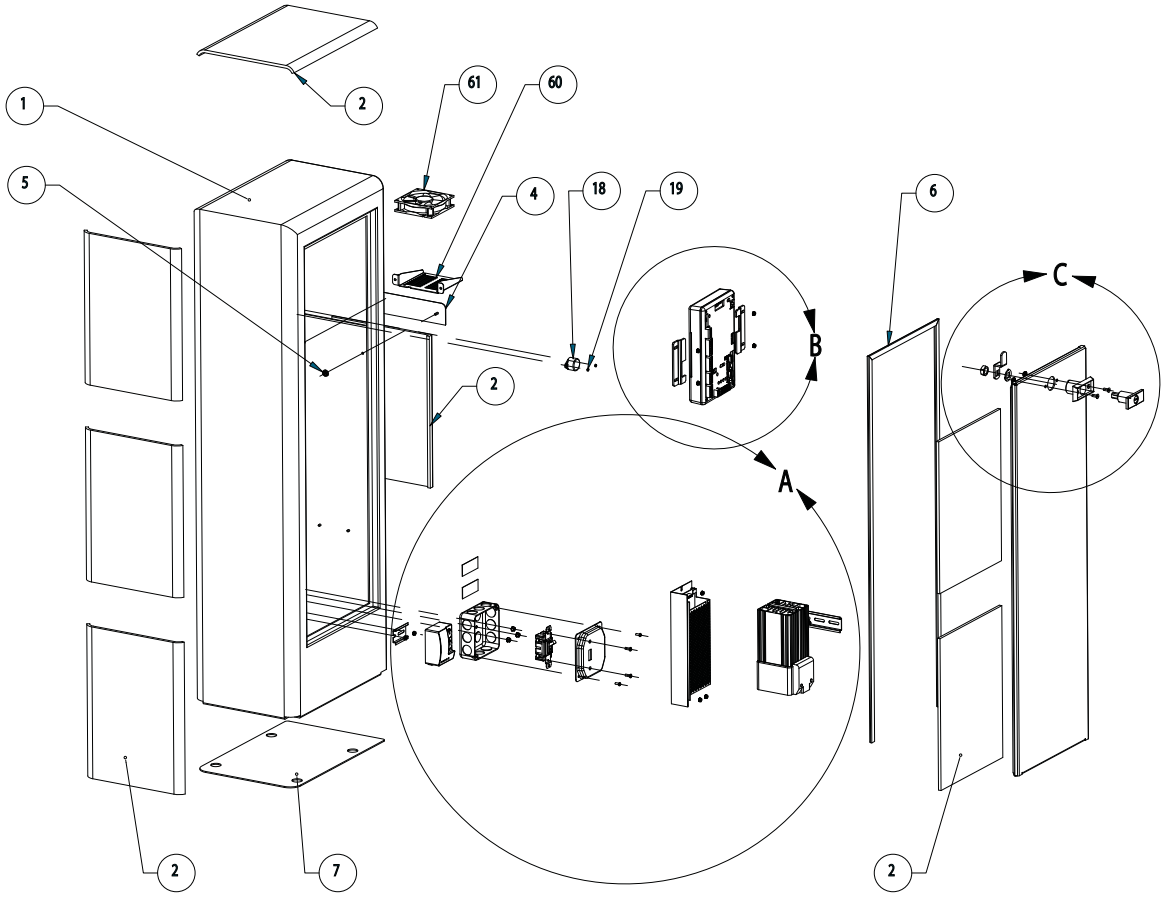


Figure 8.32 Barcode Exit Verifier (220VAC) Drawing, Detail A

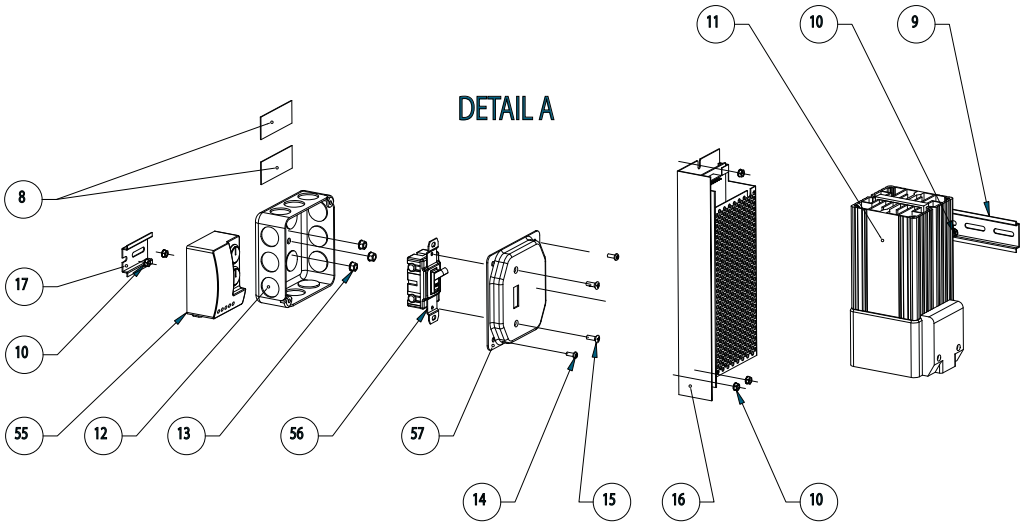


Figure 8.33 Barcode Exit Verifier (220VAC) Drawing, Detail B

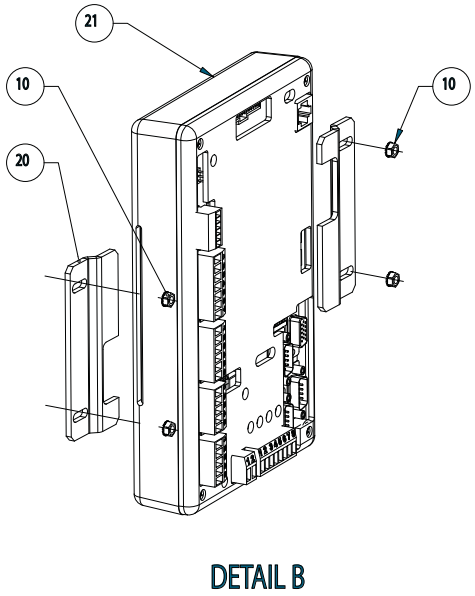


Figure 8.34 Barcode Exit Verifier (220VAC) Drawing, Detail C

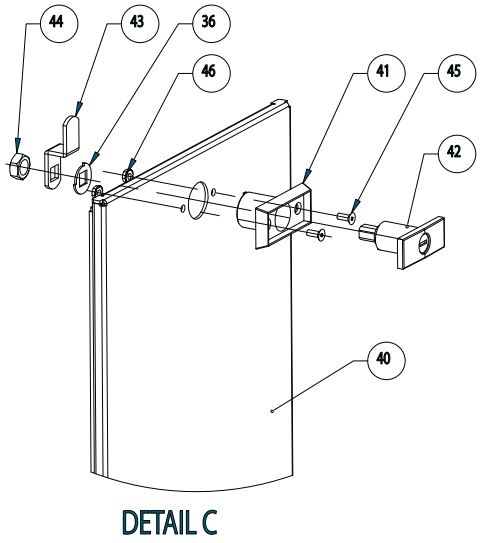


Figure 8.35 Barcode Exit Verifier (220VAC) Overview Drawing 2

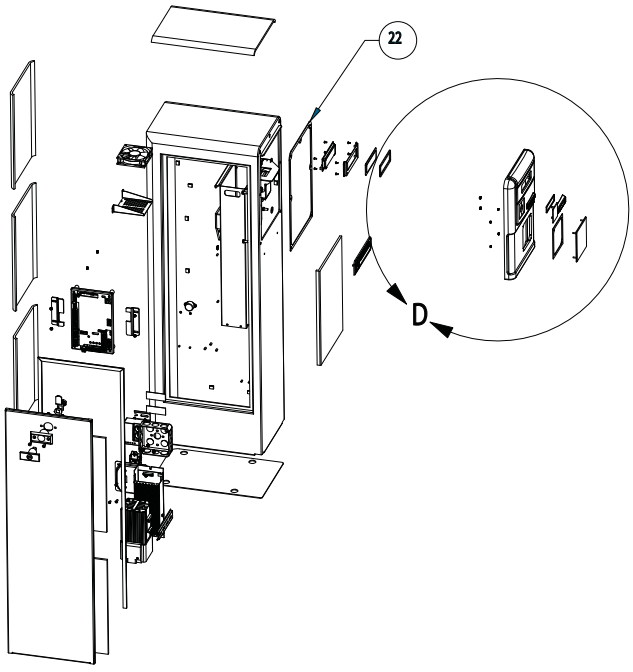


Figure 8.36 Barcode Exit Verifier (220VAC) Drawing, Detail D

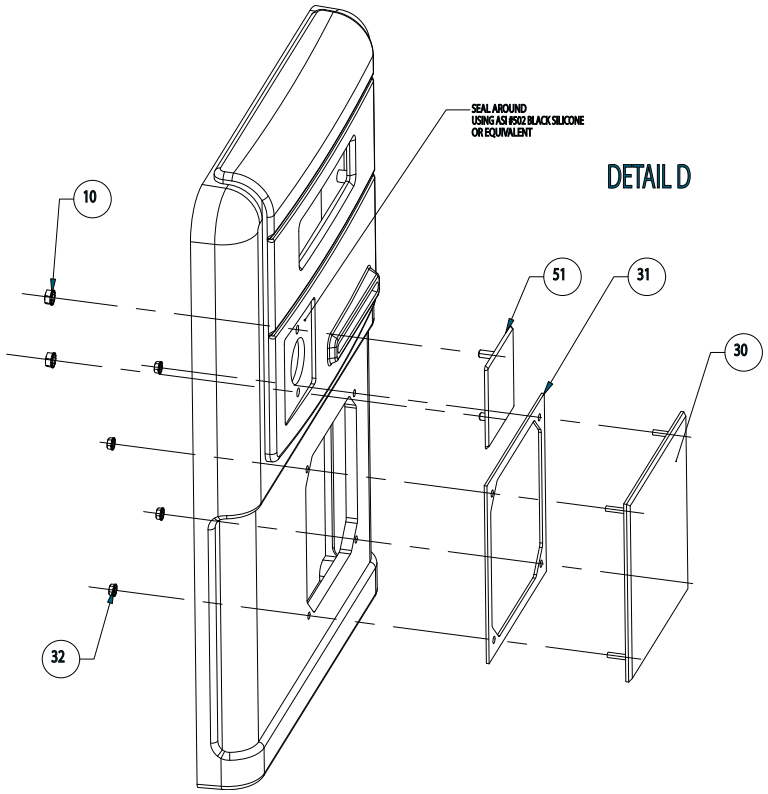


Figure 8.37 Barcode Exit Verifier (220VAC) Overview Drawing 3

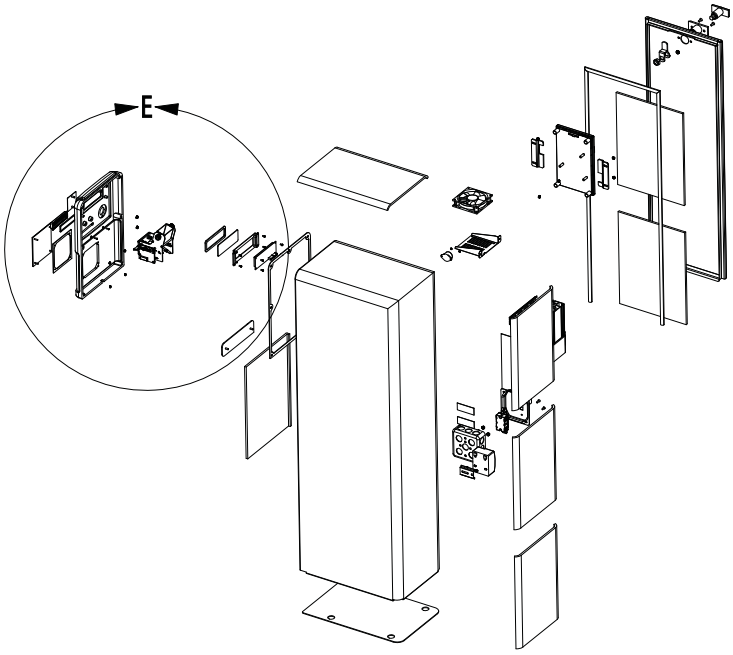


Figure 8.38 Barcode Exit Verifier (220VAC) Drawing, Detail E

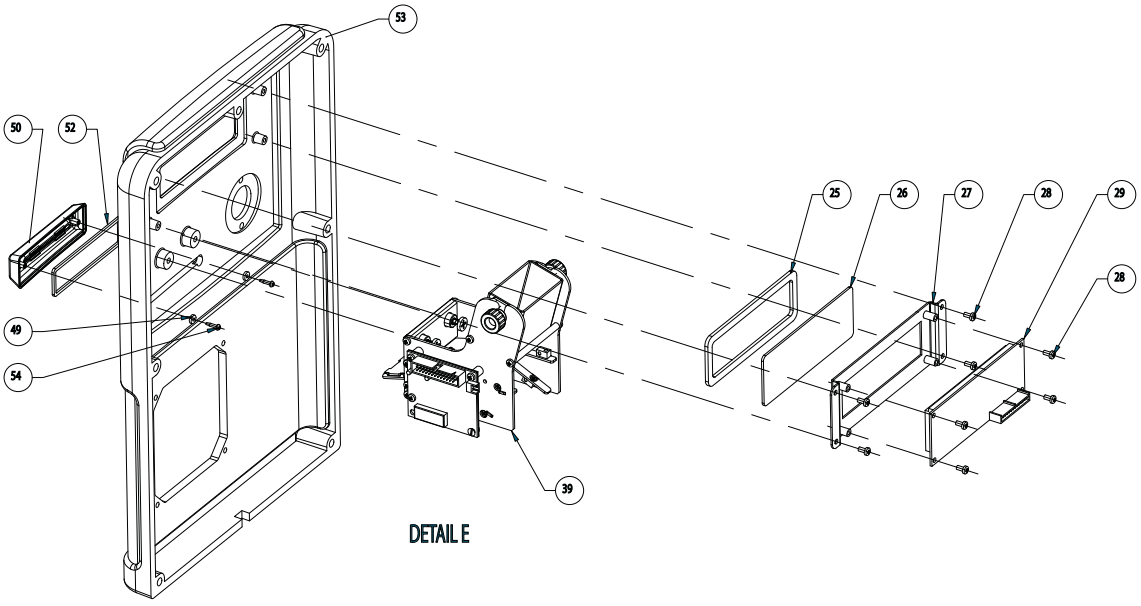


Figure 8.39 Barcode Exit Verifier (220VAC) Overview Drawing 4

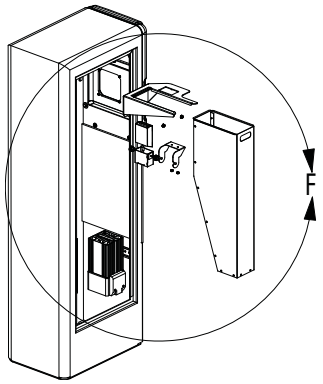


Figure 8.40 Barcode Exit Verifier (220VAC) Drawing, Detail F

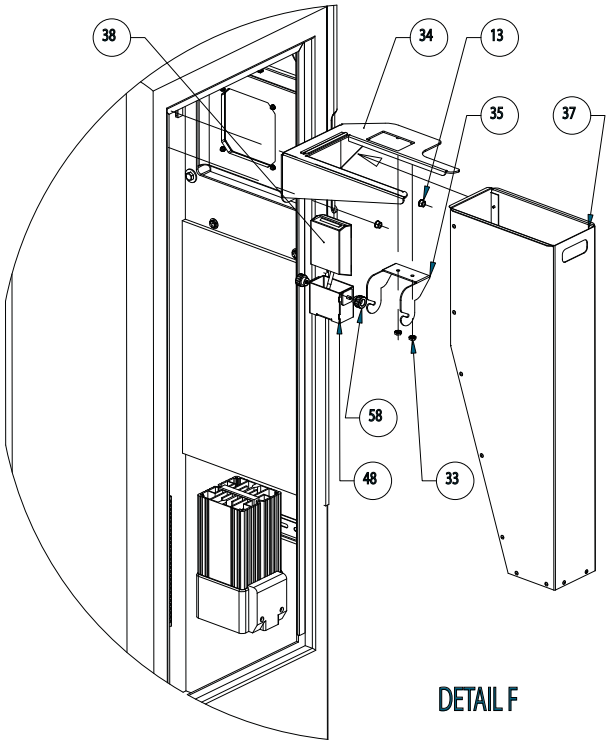


Figure 8.41 Barcode Exit Verifier (220VAC) Parts List

ITEM NO.	PART NUMBER	DESCRIPTION	33-22400 standard /QTY.
1	78-0060-2045-3	Enclosure, POD500	1
2	78-0060-2063-6	THERMAL INSULATION	7
4	10-4847	LARGE NAME PLATE	1
5	SEE DESCRIPTION	#6 Thread cutting nut	2
6	78-0060-1499-3	Gasket, Universal Door	1
7	78-0060-2056-0	BASE GASKET, POD500	1
8	26-9800-1134-5	BRADY LABEL (TO PRINT BC SERIAL TAGS)	2
9	75-0302-1377-3	DIN RAIL, 35mm, 6in	1
10	SEE DESCRIPTION	M4 X 0.7 KEPS NUT ZINC PLATED STEEL	15
11	26-9800-1525-4	Heater, 250W, 220VAC w/fan	1
12	26-9800-1195-6	4" BOX X 1-1/2" DEEP	1
13	SEE DESCRIPTION	M5 X 0.8 KEPS NUT ZINC PLATED STEEL	7
14	SEE DESCRIPTION	6-32 X 0.375 PAN HEAD SCREW, STEEL, ZINC	2
15	SEE DESCRIPTION	8-32 x 1/2 oval contersunk screw	2
16	75-0302-1599-2	Power Supply, POD500	1
17	26-9800-1346-5	DIN RAIL, 35mm, 2IN	1
18	78-0060-2059-4	Cable, Display, POD500	1
19	SEE DESCRIPTION	M2.5 x 0.45 Hex Nut	2
20	78-0060-2649-2	BRACKET, CONTROLLER	2
21	78-0060-3361-3	360 Controller POD500	1
22	78-0060-2038-8	Front Casting Gasket, POD500	1
23	SEE DESCRIPTION	M6 Flat Washer	7
24	SEE DESCRIPTION	M6 x 12 HEX BOLT, ZINC PLATED	7
25	78-0060-2050-3	Display Lens Gasket,POD500	1
26	78-0060-2051-1	Display Lens, POD500	1
27	78-0060-2053-7	Display Lens Retainer, POD500	1
28	SEE DESCRIPTION	M3 X 6mm Pan Head Screw, Steel, Zinc	8
29	26-9800-1496-8	Display, POD500	1
30	78-0060-4093-1	Intercom Cover Plate, silver	1
31	78-0060-2065-1	Gasket, Intercom	1
32	SEE DESCRIPTION	4-40 KEPS NUT, ZINC PLATED STEEL	4
33	SEE DESCRIPTION	M4 KEPS NUT	2
34	78-0060-2668-2	BRACKET, BAR CODE AND TICKET BOX	1
35	78-0060-2670-8	BRACKET, POD BARCODE	1
36	26-9800-1053-7 cam	T-Handle Lock - Cam	1
37	78-0060-2669-0	TICKET BOX POD E.V.	1
38	75-0302-1569-5	BAR CODE SCANNER AND CABLE, MINUS GLOVE	2
39	78-0060-3364-7	BARCODE READER ASSEMBLY	1
40	26-9800-1439-8	UNIVERSAL DOOR	1
41	26-9800-1053-7 body	T-Handle Lock - Body	1
42	26-9800-1053-7 handle	T-Handle Lock - Handle	1
43	26-9800-1053-7 tab	T-Handle Lock - Lock Tab	1
44	26-9800-1053-7 nut	T-Handle Lock - 1/2-13 hex nut	1
45	SEE DESCRIPTION	#10-24 UNC x 1/2 FLAT HEAD SCREW	2
46	SEE DESCRIPTION	#10-24 KEPS NUT ZINC PLATED STEEL	2
48	78-0060-2671-6	HOLDER, BARCODE READER	1
49	26-9800-1674-0	PLASTIC SPACER .25 OD x .092" ID x .062	2
50	78-0060-3914-9	PLASTIC THROAT COVER	1
51	80-26483	PLATE, BUTTON	1
52	78-0060-2075-0	GASKET THROAT COVER POD EV	1
53	30-26150	CASTING, POD500 E.V., FINISHED	1
54	26-9800-1673-2	Screw for Plastic Zinc-Plated Steel, 2-28 Thread, 3/8" Length	2
55	78-0060-2082-6	thermostat/Hygrostat, 230VAC	1
56	26-9800-1344-0	Double Pole Outlet Switch	1
57	26-9800-1335-8	COVER, ONE TOGGLE SWITCH	1
58	26-9800-1028-9	KNOB, 4M THEADED	2
60	78-0060-2071-9	Fan bracket	1
61	75-0302-1583-6	24 VDC Fan	1

Glossary

A

A—ampere

B

Bar Code—The special identification code printed as a set of vertical bars of differing widths. Used for rapid, error-free input. Bar codes represent binary information that can be read by an optical scanner. The coding can include numbers, letters, or a combination of the two.

C

Controller—A device that controls the transfer of data from a computer to a peripheral device (e.g., disk drives, display screens, keyboards, and printers) and vice versa.

D

DSR—Data Set Ready

DTR—Data Terminal Ready

E

Ethernet—A local area network (LAN) architecture which uses a bus or star topology. It is one of the most widely implemented LAN standards.

EV—Exit Verifier

I

Infrared (IR) Communication—Method for transmitting and receiving data via a beam of infrared light. Certain 3M devices are equipped with an infrared port for this purpose.

IP—Internet Protocol

IP Address—Network device identifier, which allows the device to communicate in the network using the TCP/IP protocol.

IR—InfraRed

IrDA—Infrared Data Association

ITF—Interleaved 2 of 5 is a bar code linear symbology that is most often used for encoding large amounts of information in a small area. Characters are paired together using bars to represent the first character and spaces to represent the second.

L

LED—light emitting diode

P

PC—personal computer

PCB—printed circuit board

PDA—Personal Digital Assistant. Handheld computer (e.g., Palm™ handheld). Used to interface with the Barcode Ticket Dispenser Reader Controller - Barcode TD/EV via infrared communication.

R

RH—relative humidity

S

SPDT—single-pole double-throw

SRAM—static random access memory

T

TD—Ticket Dispenser

Ticket Dispenser—The Ticket Dispenser is a unit which controls a vehicle's entry into a primary parking area or lot. The Ticket Dispenser issues tickets. It can be programmed to issue tickets either automatically or manually with a push button activated by the patron.

V

VAC—Volts Alternating Current

VDC—Volts Direct Current

Index

Toll Free: 877-777-3571
3M Global Number: 512-984-9255
www.3M.com/MVSS

For sales and service, contact your 3M Value Added Reseller: