



atmgurus



Triton[®]
ARGO*
ATM
SERVICE MANUAL

TDN 07103-00341

*RL1713, RL27XY, RL63XY



ATMGurus®

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Revision History

Date	Change
10/04/2013	Initial document

ATMGurus is the arm of the powerful Triton brand that serves as the epicenter for training, repair, and parts for Triton as well as many other top ATM brand products.

Training

- Field repair training on all major retail brands
- State-of-the-art training facilities
- A dedicated training staff

Repair

ATMGurus provides ATM repairs for all major retail brands and Guru-certified parts to ensure quality and reliability.

Over 10 dedicated bench technicians and a complete flat-rate repair offering on all retail ATMs means you get competitive service and pricing at one convenient location.

Parts

With over \$10 million in stocked ATM parts, whatever your parts requirement, ATMGurus has it. ATMGurus features a large selection of new, Guru-certified refurbished and clearance parts for your Triton as well as several other ATM brands. And with our online RMA program, you'll be able to generate warranty claims 24/7.

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The Triton ARGO ATM is a lobby terminal designed for indoor use only. The ARGO line includes models RL1713, RL27XY, and RL63XY. The following sections provide instructions and tips to understand and service the ARGO ATM. Only trained and certified technicians should be providing service to the Triton ARGO product line.

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SECTION 1: INTRODUCTION



ARGO SERVICE MANUAL

This service manual should be used in conjunction with the *ARGO User Manual* (TDN 07103-00339).

CONTACT INFORMATION

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Please include your RMA number on any return shipments. Your RMA is your tracking identification.

Hours:

Monday-Friday 8:00 am to 5:00 pm CST

Overnight Order Deadline: 4:00 pm CST

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Please include your RMA number on any return shipments. Your RMA is your tracking identification.

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ARGO MODEL SERIES

The ARGO line of ATMs by Triton includes a robust variety of features on the several models available. The table below is provided for service technicians to more easily identify models.

MODEL	CABINET/ VAULT	BUSINESS HOURS OR LEVEL 1 VAULT	DISPENSER	DISPLAY SIZE
RL1713	Shallow	Business Hour Cabinet	MiniMech	7"
RL2714	Deep	Business Hour Cabinet	SDD	7"
RL2724	Deep	Level 1 Vault	SDD	7"
RL2715	Deep	Business Hour Cabinet	NMD50	7"
RL2725	Deep	Level 1 Vault	NMD50	7"
RL271B	Deep	Business Hour Cabinet	SCDU	7"
RL271D	Deep	Business Hour Cabinet	HCDU	7"
RL272D	Deep	Level 1 Vault	HCDU	7"
RL6313	Shallow	Business Hour Cabinet	MiniMech	12"
RL6314	Deep	Business Hour Cabinet	SDD	12"
RL6324	Deep	Level 1 Vault	SDD	12"
RL6315	Deep	Business Hour Cabinet	NMD50	12"
RL6325	Deep	Level 1 Vault	NMD50	12"
RL631B	Deep	Business Hour Cabinet	SCDU	12"
RL631D	Deep	Business Hour Cabinet	HCDU	12"
RL632D	Deep	Level 1 Vault	HCDU	12"

A product label with the model number is normally located on the inside left top of the unit. If the lower cabinet is not open, the model number can indicate what dispenser type is located below. Any model numbers ending in zero (0) indicate that the unit was sold without a dispenser.

An XY reference may be seen throughout this manual when describing models shown. These are placeholder references to possible model numbers, "X" referring to the business hours cabinet (1) or 24 hours level 1 vault (2) and "Y" referring to the dispenser type (3 - MiniMech, 4-SDD, 5-NMD50, B-SCDU, or D-HCDU).

NOTE: In this document, the ARGO with the 7" display will be referenced as the ARGO 7 and the ARGO with the 12.1" display will be referenced as the ARGO 12.

PRODUCT OVERVIEW

Display

- ✧ 7" Touch screen
- ✧ Fully touch reactive
- ✧ LCD color

Printer

- ✧ 60 mm or 80 mm
- ✧ 7" available without printer

Magnetic Card Reader

- ✧ Magtek 215 dip Style
- ✧ Nidec Sankyo ICM330 EMV dip



ARGO 7



ARGO 12

Display

- ✧ 12.1" screen
- ✧ Touch reactive F keys
- ✧ LCD color

Keypad

- ✧ T7 Triple DES and PCI compliant EPP
- ✧ T5 Triple DES and PCI compliant EPP

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SHALLOW CABINET



(RL1713 shown above)

MiniMech

All shallow cabinet ARGO units have the MiniMech dispenser.

- ✧ 750-1000 note capacity
 - ✧ Single drawer cassette—no lock
 - ✧ < 100 reject bin capacity
 - ✧ 5 notes per second max dispense rate
-
- ✧ The MiniMech dispenser sits on a fixed tray.

DEEP CABINET

There are **four** dispenser options.



SCDU

- ✧ 1000 note capacity
- ✧ Single cassette
- ✧ 200 note reject
- ✧ 2 notes per second

SDD

- ✧ 1700-1800 note capacity
- ✧ Single cassette
- ✧ Rejects: 10% of total or 8 notes in one dispense.
- ✧ 5 notes per second max
- ✧ Dispenses 50 notes max for each transaction.



HCDU

- ✧ 1700 note capacity per cassette
- ✧ Two cassettes
- ✧ Deeper than the SCDU
- ✧ 200 note reject



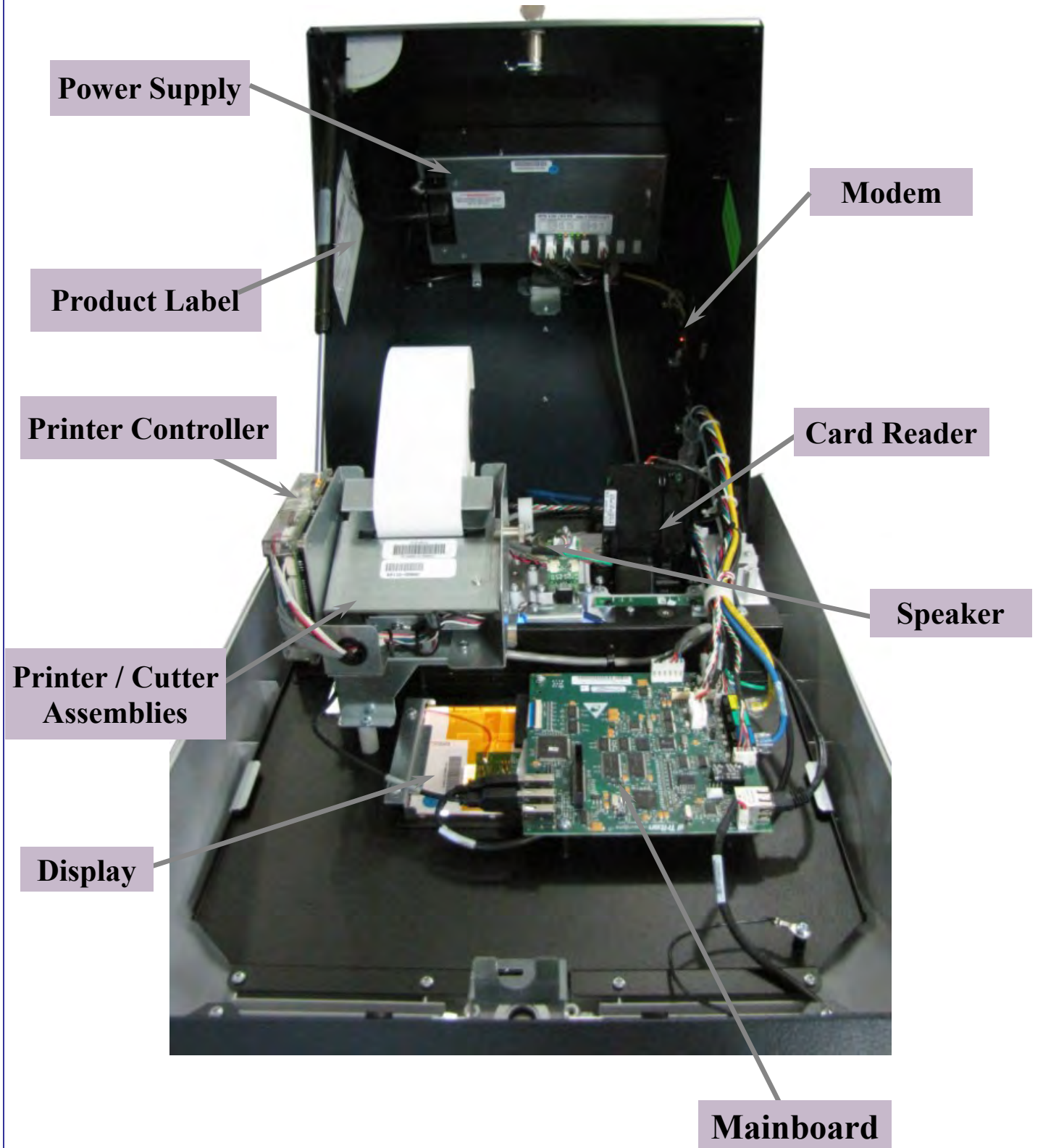
NMD50

- ✧ 1750 note capacity per cassette
- ✧ Two-Four cassettes
- ✧ 200 note reject
- ✧ 5 notes per second

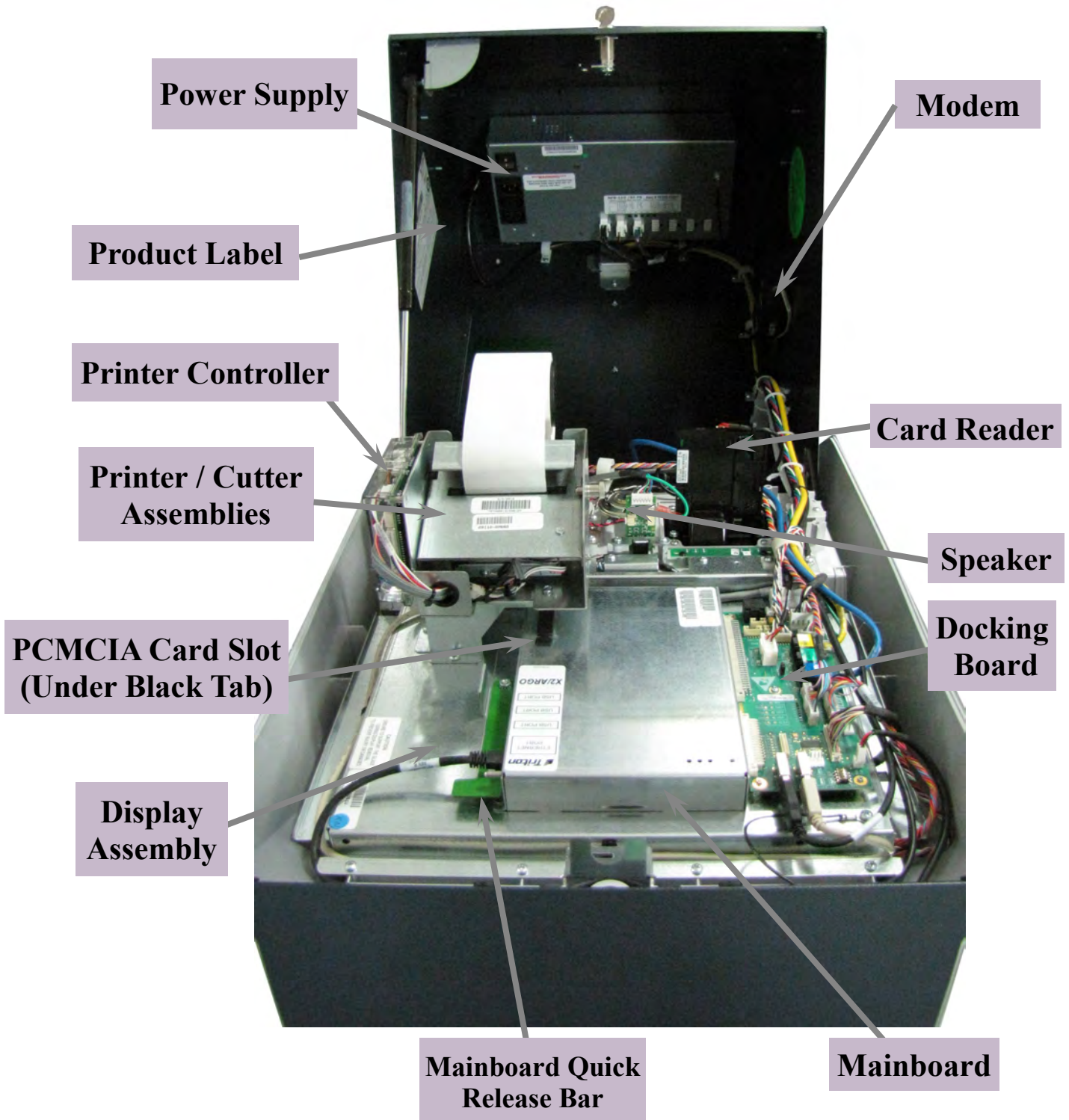


(RL6314 shown above)

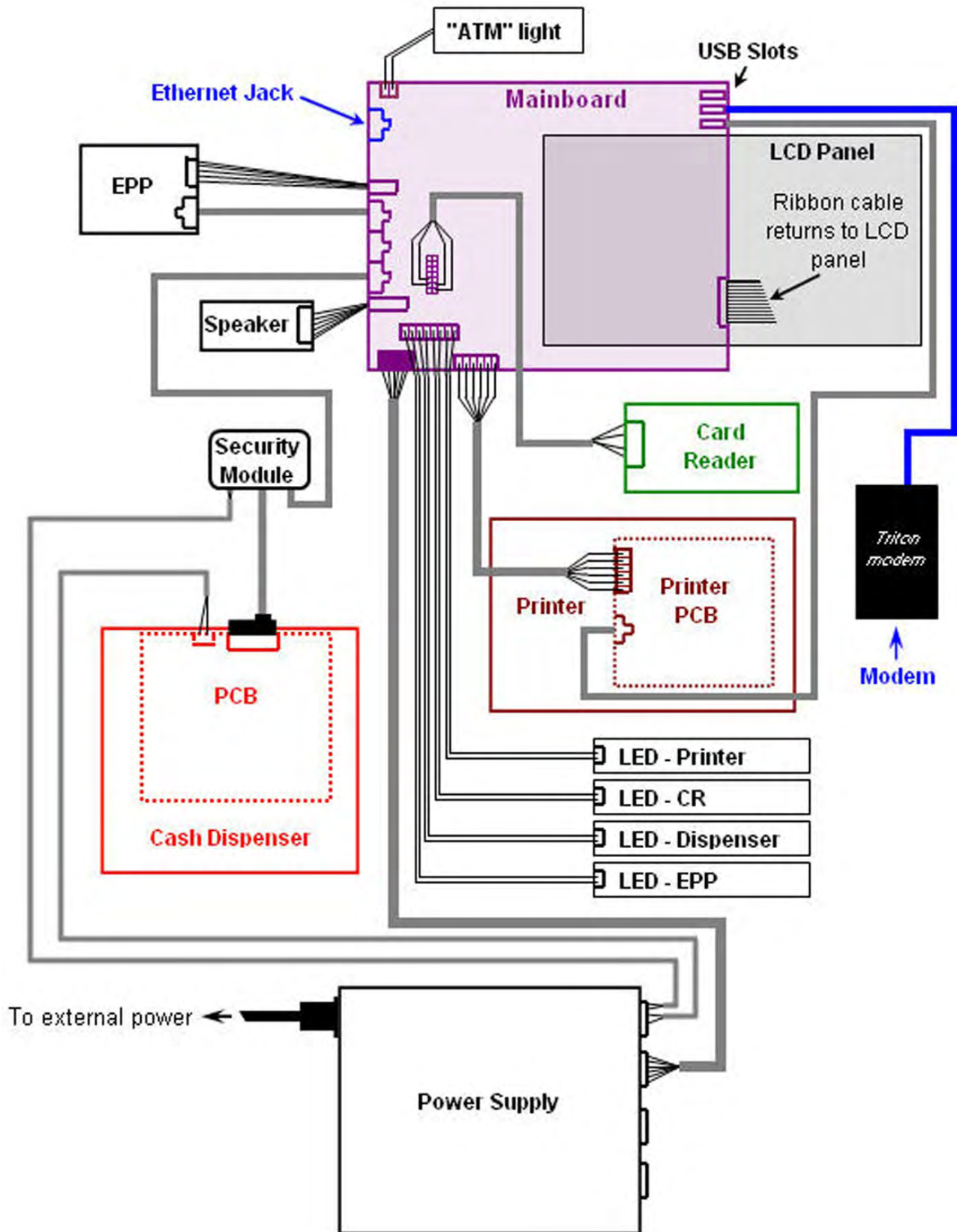
ARGO 7 CONTROL PANEL



ARGO 12 CONTROL PANEL

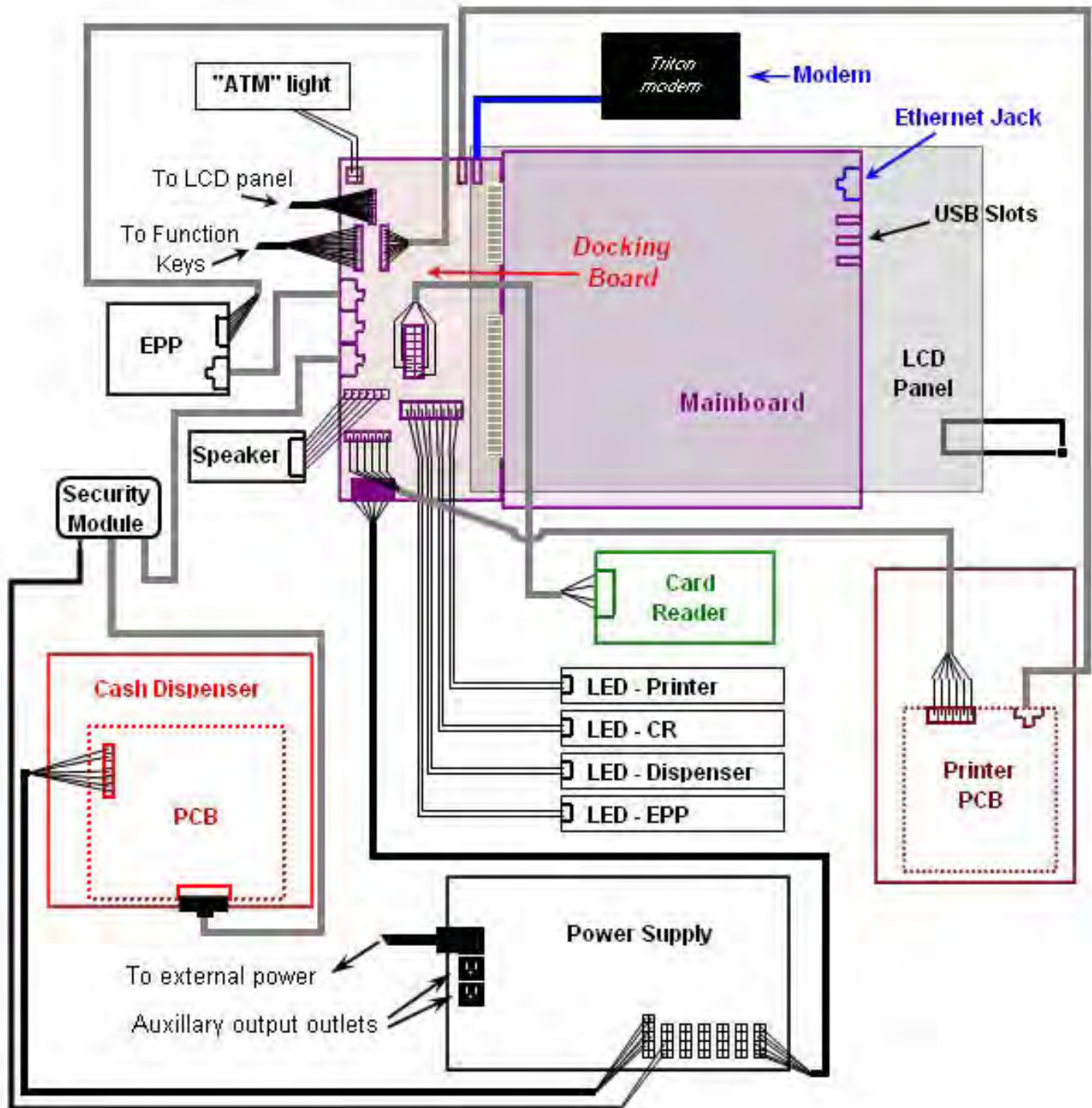


WIRING DIAGRAM: ARGO 7 MODELS



System interconnect (wiring) diagram ONLY. This may not reflect the actual physical location of the connectors on the subassembly.

WIRING DIAGRAM: ARGO 12 MODELS



System interconnect (wiring) diagram ONLY. This may not reflect the actual physical location of the connectors on the subassembly.

MAINBOARD -ARGO 7

Mainboard for ARGO 7:

- ✧Triton's X2T technology
- ✧Microsoft Windows® CE 5.0 OS
- ✧RAM: 64 MB
- ✧Flash Memory: 128 MB
- ✧TCP/IP - 10BASE-T/100BASE-TX



MAINBOARD & DOCKING BOARD—ARGO 12



Mainboard for ARGO 12:

- ✧ Triton's X2 technology
- ✧ Microsoft Windows® CE 5.0 OS
- ✧ RAM: 128 MB
- ✧ Flash Memory: 128 MB
- ✧ TCP/IP—10BASE-T/100BASE-TX

GENERAL TROUBLESHOOTING

The starting point of any repair is narrowing down the problem from all possibilities. First, you want to localize the problem to a general area and then focus on the specific issue. Below are some of the common sense ways of determining the general problem area. Also, some of the most common errors associated with the target area are noted.

THE INDICATORS

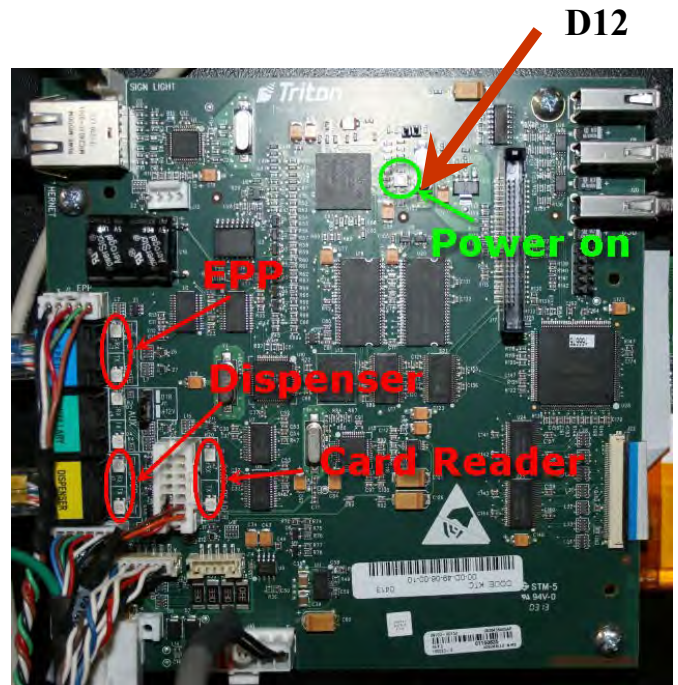
The ARGO has several checkpoints that are good indicators of the source of a problem. These are LED lights that may help to tell the story of what is going on with the machine.

✧ MAINBOARD (CE)

- **Mainboard for ARGO 7** - When the ATM is turned on, a green LED (D12) lights to indicate that the mainboard is receiving power. In addition, there are communication indicators for the keypad, dispenser and card reader on the mainboard. Note the two LEDs for each device circled in the photo. The top LED for each is a receive (RX) communication indicator and the one below that is a transmit (TX) communication indicator. These flash red when there is communication between the mainboard and the device.

The communication LEDs for the EEP, dispenser, card reader as well as the optionally used auxillary port perform the same as the corresponding LEDs on the ARGO 12 docking board. See that discussion for further information.

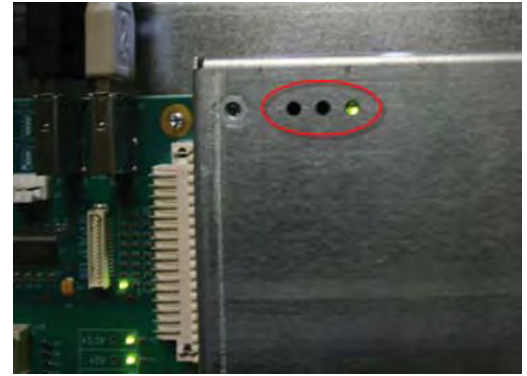
NOTE: The LEDs for the ARGO 7 mainboard were introduced on Rev. D version. The revision version may be found on the label on the mainboard as shown.



Mainboard for ARGO 7



- **Mainboard for the ARGO 12** - The LEDs for this board can be viewed through the openings in the cover. The green LED on the right indicates that the mainboard is receiving power and is ready for service. The left LED will be a steady red light if there is a problem with the processor. The middle LED has to do with the boot process. If the boot area of the flash is not programmed or is corrupt, a yellow LED will blink.

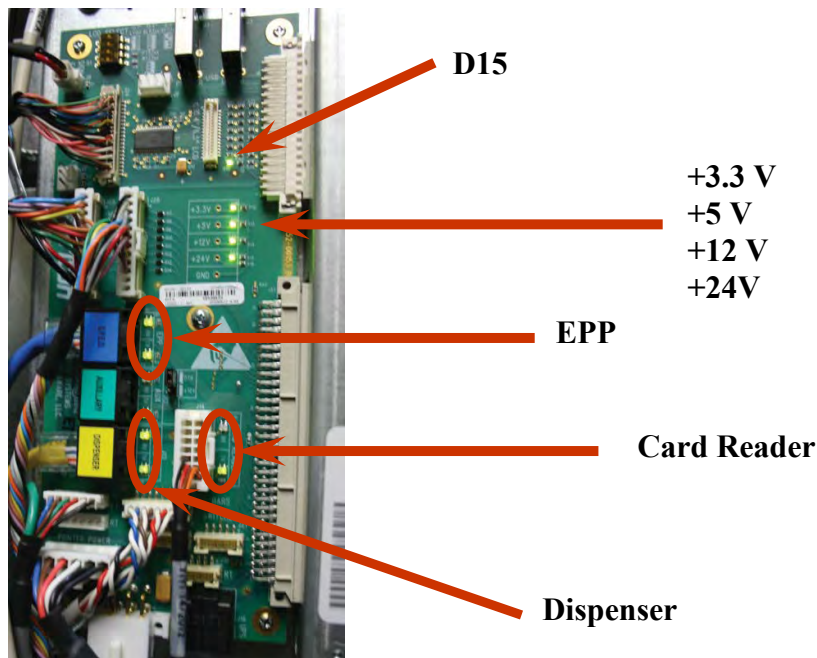


*Mainboard cover openings for
ARGO 12 revealing LEDs*

✧ DOCKING BOARD (12.1")

The docking board for the ARGO 12 has multiple LEDs.

- The solid green LED at D15 indicates that the mainboard has switched on the LCD power.
- The four green LEDs below that indicate that the associated voltages (+3.3, +5, +12, and +24) are receiving the appropriate voltage.



Docking board for the ARGO 12 mainboard

- The keypad (EPP), dispenser, and card reader each have two dual color LEDs. (The Auxillary connection also has similar LEDs with the same performance, but that optionally used feature is not discussed here.) These LEDs perform as follows:
 - ◆ Each of these has a TX and a RX LED. The TX indicates communicates with the applicable device and the RX indicates communication from the applicable device to the mainboard.
 - ◆ Each TX and RX LED has a dual color capacity of green and red.

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- ◆ Green is the idle state of the signal. If no data is being transmitted or received, but there is a valid connection, the LED will be green. If the LED is not lit, then there is a problem or the device is not connected. Even with no device connected, the TX LEDs on the mainboard should be green when the main board is powered. If a TX LED is not lit at all, then either there is a mainboard fault, or there is a short on that signal (either in the cable or on the peripheral). Disconnect the associated cable, and if the TX LED now lights green, then you know the cable or the peripheral is bad. The RX LEDs should light green if the peripheral is connected and has powered up. (Some card readers are an exception to this as some models do not provide enough power to drive the LED).
- ◆ When data is being transmitted (via TX) or received (via RX), these LEDs will have a tiny red flicker while still being mostly green. Generally speaking, the TX and RX LEDs should flicker red at about the same time, indicating that two way communications is occurring. While booting (during POST), all peripherals should see some communications.

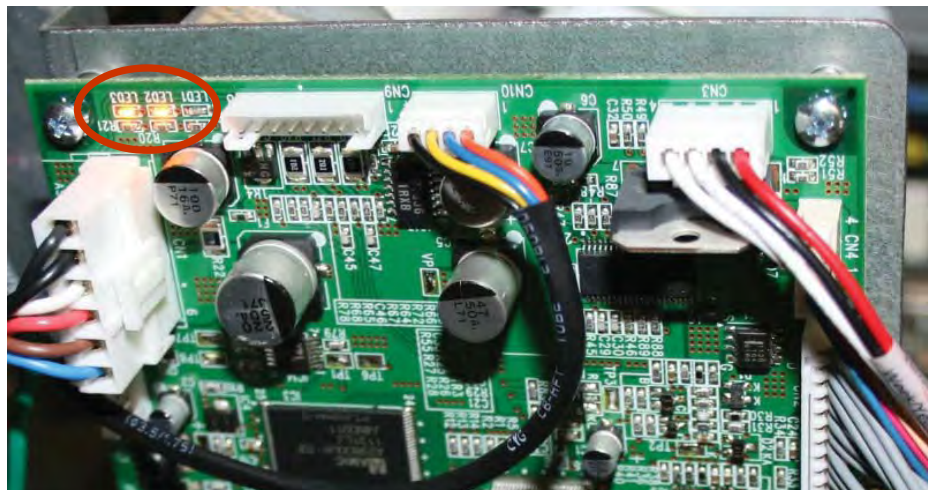
Example: Dispenser not found.

First verify that the TX and RX LEDs for “DISP” are both green. If they are, there is at least a connection to the security module. Reboot the ATM and watch to see if the TX and RX LEDs flicker red when the screen gets to the dispenser part of the POST. If only the TX LED, then it’s time to look at the security module. It has similar LEDs with the same meanings. Look to see if both the TX and RX LEDs for the dispenser port of the security module are green. Then check to see if they flicker red when attempting communication.

✧ RECEIPT PRINTER

The control board for the printer has three yellow LEDs at the top of the board, marked LED3, LED2, and LED1, in that order as you view it on the machine. LED3 and LED2 are steadily on to indicate readiness for service. When LED3 and LED1 are on while LED2 is off, this indicates a printer error has occurred, e.g., out of paper, and attention is needed.

*Printer control board showing
LED3 and LED2 on,
ready for service.
(Clear plastic cover removed.)*



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Printer LED Status Table

PRINTER STATUS	LED1	LED2	LED3	ERROR CODE
Print Ready Status (expected)	OFF	ON	ON	NONE
Hardware error	ON	ON	ON	139
Head-up error	ON	OFF	OFF	139
Vp (thermal head) voltage error	OFF	ON	OFF	139
Auto cutter error	ON	ON	OFF	NONE
Thermal head temperature error	OFF	ON	ON	139
Paper jam	OFF	OFF	BLINK	N/A
Out-of paper error	ON	OFF	ON	195
Out-of-paper during printing error	OFF	BLINK	BLINK	195
Low paper error	BLINK	OFF	ON	183

✧ CUSTOMER KEYPAD

- The T7 EPP has three LEDs:
 - ◆ P Green - Power
 - ◆ T Red - Tamper
 - ◆ C Amber - Communications

When on and ready for use, the green power LED should be lit. If the green LED fails to light, possible causes could be the EPP assembly, the mainboard, or the EPP communications. The amber communications LED blinks as communication is being processed. The red tamper LED should only light when a tamper condition is detected.



T7 EPP's three LEDs are P, T, C (left to right)

- The T5 metal EPP has two LEDs:
 - ◆ Green - Lights briefly when the terminal is powered on to indicate it is getting power.
 - ◆ Red - This lights briefly when the terminal is powered on, but it also blinks continually during operation to indicate readiness for use. When off, it may simply mean a sleep mode awaiting activity.

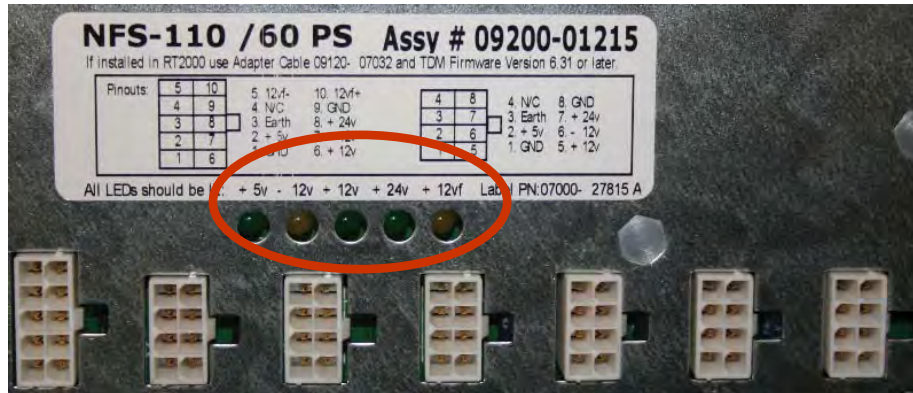


T5 EPP's two LEDs

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✧ DUAL POWER SUPPLY

If a dual power supply is serving the ARGO unit, a bank of LEDs are on the front of the power supply. There are 5 LED indicators just above the external DC output connectors. They effectively detect DC outputs from the primary quad output AC-DC power supply (+5v, -12v, +12v, +24v) and the secondary single output power supply (+12v or +36v). These should always be lit when the power supply is turned on.



When the power supply is turned on, these LEDs should be lit.

OUT OF SERVICE

If the ATM is out of service, find the error code.

- Check main screen for error code. Also, on the right side of the Management Functions menu, there is a “Current Terminal Error” box which will have the error code and an abbreviated description of the error.
- Error codes can be found on the Management Functions screens by performing these steps:
 1. Press **2** (Diagnostics) on the Main Menu.
 2. Press **1** (Terminal Status) on the Diagnostics menu.
 3. Press **1** (Current Terminal Error) on the Terminal Status menu.
- If a history of terminal errors could be of value for diagnosis, on the Terminal Status menu, press **2** (Terminal Error History).
- Once any resolution attempts are made to correct any error, press **3** (Reset Terminal Error) on the Terminal Status screen to attempt to reset the error to zero (0).

BLANK SCREEN

No power?

- Check AC voltage to power supply unit.
- Check voltages of pins on the power supply unit. Both the single and the dual power supply have a label that indicates the proper voltage for each pin.

If there is a problem with the power supply or the voltages, the unit cannot be serviced in the field. Replace the power supply unit.

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If the voltages are satisfactory:

- Unplug the printer and cash dispenser unit.
- Power the ATM back on, if possible.
- If the screen is restored, there is a short in the wiring harness to one of those units.

If screen still does not restore, check the cabling from the mainboard to the monitor (LCD) panel.

- Remove, and then replace, the cable.

NOTE: If the ATM powers on successfully (initializes and cycles the cash dispenser), but the screen is blank, the problem is usually the LCD unit.

If the problem remains after performing all the above, the video controller chip on the mainboard or docking board is the likely culprit. The mainboard/docking board should be replaced.

COMMUNICATION ISSUES

First, verify that all the programming settings are correct. This includes communication protocol, phone numbers, IP addresses ports (both local and host processor), terminal ID, master keys, etc. (See **Basic Setup of the Triton ATMs** or the **XScale/X2 Configuration Manual** for more information about the programming setup of the Triton ATMs.) Unless the communication is configured properly, expect communication issues!

❖ **BASIC TCP/IP COMMUNICATION CHECKS**

Check the RJ45 TCP/IP LAN connector on the mainboard or docking board to ensure that the cable is connected properly. Make sure the host can ping the terminal's IP address through the network. A trained technician can ping the host from the terminal's physical connection using a laptop with a network card and crossover cable. (It can be done also by local MIS or IT personnel.) Make sure there are no external firewall issues that hamper the terminal's ability to communicate with the host.

Perform Line Checks:

1. A laptop can be used to attach to the Ethernet cable that connects to the mainboard and attempt to connect to the internet.
2. If that cable does not seem to work, attach a new Ethernet cable to the wall outlet for the Ethernet and determine if there is connectivity. If so, the Ethernet cable on the unit may be bad.

Perform Setup Checks

1. Verify setup of Communications in Management Functions:

To Access:

Main Menu

6-Terminal Configuration

6-Communication

Confirm correct Host Address and IP Port.

**TDL TCP/IP with no CRC
or
TDL TCP/IP with EOT, if required.**

Main Menu/Terminal Configuration/Communication

1	Host Address	109.204.93.100	Enter
2	Host IP Port	7100	Cancel
3	☒ Permanent TCP/IP Connection		
4	☐ Enable Communication Header	5	
6	☐ Use 12-Digit Sequence Number	F4	☐ Enable SSL
7	Amount Type		
8	Communication Protocol	TCP/IP	
9	Communication Message Format	TDL TCP/IP	
0	Host Response Timeout	120	
Reversal Communications			
F1	☐ Enable Persistent Reversals		
F2	Reversal Attempts	0	
F3	☒ Enable Reversals For Protocol Errors		

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2. Verify setup of local Ethernet in Management Functions:.

To access:

Main Menu

2-Diagnostics

7-Modem/Ethernet

6-Configure Ethernet Settings

**Confirm correct IP Address,
Subnet Mask, and
Incoming Port.**

The screenshot shows a 'Configure Ethernet Settings' window. It has a list of settings on the left: 1 IP Address, 2 Subnet Mask, 3 Default Gateway, 4 Primary DNS, 5 Primary WINS, and 6 Enable DHCP. The IP Address field is filled with '215.148.105.120' and the Subnet Mask with '255.255.255.0'. Below these is a 'Local Ports' section with 'Incoming' set to '1000' and 'Outgoing' set to '0'. There are 'OK' and 'Cancel' buttons on the right side of the window.

✧ BASIC DIALUP COMMUNICATION CHECKS



VERIFY THE TERMINAL IS CONNECTED TO A DEDICATED, DATA QUALITY PHONE LINE (NON-SHARED).

The line must be free of noise or any form of interference. This includes non-audible static and electro-magnetic interference which are often the cause of line type errors.

Perform Line Checks:

1. Using a phone handset, check for a dial tone and line noise from the wall jack.
2. If successful, place a call to the host's primary and back-up numbers. Verify the host modem answers.
3. If a modem answers, the external connections to the host may be okay. If the call fails, contact the host to verify the numbers and the connections at that end.
4. If steps 1-2 are successful, connect the handset to the end of the phone cord closest to the modem and then repeat steps 1-2. If not successful, the phone cord is faulty and should be replaced.
5. If all of the above steps are successful, test the modem via the Management Functions software, by entering a number (e.g., your cell phone) on the test screen (Main Menu > Diagnostics > Modem/Ethernet > Test).
6. To verify data transfer between modem and host, download Working Keys (Main Menu > Key Management > Download Working Keys).

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Perform Line Checks:

1. Verify setup of Communications in Management Functions:

To access:

Main Menu

6— Terminal Configuration

6— Communications

**Confirm correct Host
primary & backup
phone numbers.**

Main Menu/Terminal Configuration/Communication

1	Primary Phone Number	7136000	Enter
2	Backup Phone Number	7137000	Cancel
3	☒ Predial		
4	☐ Enable Communication Header	5	
6	☐ Use 12-Digit Sequence Number		
7	Amount Type		
8	Communication Protocol	TDL	
9	Communication Message Format	TDL	
10	NPA Number		

Reversal Communications

F1	☐ Enable Persistent Reversals
F2	Reversal Attempts
F3	☒ Enable Reversals For Protocol Errors

TDL w/o EOT, if required.

2. Verify the default configuration of the modem:

To access:

Main Menu

2— Diagnostics

7—Modem/Ethernet

4—Configure Modem + ENTER

Device Properties

Port Settings | Call Options

☐ Manual Dial (user supplies dial strings)

Terminals

☐ Use terminal window before dialing

☐ Use terminal window after dialing

Connection Preferences

Baud Rate	115200
Data Bits	8
Parity	None
Stop Bits	1
Flow Control	Hardware

Device Properties

Port Settings | Call Options

Call Setup

☒ Cancel the call if not connected within 45 seconds

☒ Wait for dial tone before dialing

Wait for credit card tone 0 seconds

Extra Settings (special modem commands may be inserted into the dial string)

NO&H6&G4

KEYPAD ISSUES

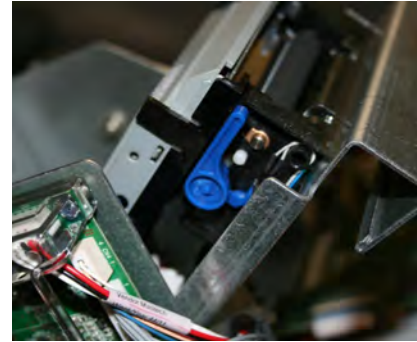
The keypad cannot be serviced in the field. However, if you can access the Management Functions menu, you can determine if a specific key is not working (Management Functions Main Menu > 2-Diagnostics > Keypad > 2-Test).

NOTE: DO NOT attempt to remove the back from the customer keypad to open the keypad! This will render the keypad useless.

PRINTER ASSEMBLY

Common printer error conditions:

- The platen is in the open position (blue lever). This is also referred to as a "Head Up" error. This condition results in one of several reasons for **Error Code 139** (Printer Controller Not Responding).
 - Return the platen to the closed position.
- The receipt printer is out of paper (not loaded). This condition results in **Error Code 195** (Out of Paper).
 - Make sure that the paper is fed into the printer correctly.
- The receipt paper is low. This condition results in **Error Code 183** (Low Paper).
 - Replace the receipt paper roll.



MISCELLANEOUS TROUBLE CONDITIONS

Surcharge amount does not match programmed amount.

- Verify programmed amount matches amount charged by the host.

Some cards are not being surcharged.

- Check the ISO list:
 1. On the Management Functions Main Menu, press **6** (Terminal Configuration).
 2. Press **5** (ISO/Surcharge Properties).
 3. Determine if the associated ISO number for the bank is setup properly and correct where necessary.

102743306
11/3/2010 09:54 AM
Prog 2.4.0
Screen File: DCSF0010

Exit Management Functions

Current Terminal 0
Error:
No Errors

ISO Number	Action	Value
6045368	Block Surcharge	None
08975682	Accept	None
6978543	Accept	None
4238756	Accept	None
84858689	Decline Card	None
3692581	Block Surcharge	None
5438975	Block Surcharge	None
77777777	Use Defined Surcharge	3.00
9876453	Block Surcharge	None
654321	Block Surcharge	None
123456	Block Surcharge	None

SECTION 2: ERROR CODES



Error codes are listed in the table below in numeric order. Suggested corrective actions to resolve the issue are noted along with each code. In addition, reference aids for many of the corrective actions are provided. These aids are found in the General Troubleshooting and Major Components sections of this manual. Options for resolution are listed in a normally preferred sequence. If early steps correct the problem, no need to continue with the steps.

A table of Communication Error Codes is found subsequent to the following table. are communication errors which may only be found in the journal and not on the terminal screen. These issues often are temporary, but when they become persistent, action steps are provided.

Error codes 900-922 are specific to the SCDU or HCDU dispenser.

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
0	No errors		
33	Empty Cassette (Normal error for empty cassette.) Unfit/jammed notes. Feed sensor or motor fault. Broken or worn locator clips. Fuse F1 Blown (SDD). Feed failure	1) Refill the cassette as needed. 2) Inspect the cassette and feed path for jammed currency. 3) If no jam is noted, remove the first note from the cassette. 4) Purge the dispenser and do several test dispense operations. 5) Clean the feed and pick rollers with mild soapy solution and clean soft cloth.	<i>General Access</i> <i>General Troubleshooting:</i> <i>Cash Dispenser Errors</i> <i>Major Components: Cash Dispenser Unit</i>
34	Double detect fault. Note transport belts misaligned. Tension spring off or loose. Jammed notes. Mistracked note at fee	1) Inspect the feed path for jammed currency. 2) Inspect both the feed sensor and the double detect sensor to ensure they are not blocked and operating correctly. Clean the sensors as needed. 3) Inspect the note transport belts. Verify they are not moved or broken. 4) Purge and perform several test dispenses.	
35	A note arrives at the double detect without being seen by the feed sensor. Mistracked note at double Detect	1) Inspect both the feed sensor and the double detect sensor to ensure they are not blocked and operating properly. 2) Clean the sensors as needed. 3) Purge the dispenser and perform several test dispenses.	
36	Notes are in the note transport before start of transaction or exit sensor is blocked. Mistracked note at exit	1) Verify that the diverter moves freely and is not binding. If the diverter has excessive binding or appears damaged, replace the dispenser. 2) Inspect the exit area to ensure nothing is blocking the exit sensor. 3) Clean the exit sensor. 4) If the problem is not resolved, replace the dispenser.	

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
37	Exit sensor is covered for a longer than allowed time for the current notes. Note too long at exit	1) Inspect the note transport and delivery throat. 2) Make sure all belts are on track and there are no documents jammed in the transport or exit areas. 3) Place all belts on their respective rollers and gears. 4) Clear the jammed documents. 5) Make sure the exit sensor has not been dislodged or disconnected. 6) Clean exit sensor with soft clean cloth.	<i>General Access</i> <i>General Troubleshooting: Cash Dispenser Errors</i> <i>Major Components: Cash Dispenser Unit</i>
38	Exit Sensor covered or defective. Blocked exit		
39	Sensor covered or defective. Too many notes		
42	A timing wheel or timing wheel sensor error, transport motor failure, fuse F2 or F3 blown (SDD). Timing wheel error	1) Examine the timing wheel for physical defect. Make sure the electrical connections to the timing wheel sensor are secure and the timing wheel sensor is clean. 2) Replace the timing wheel or the timing wheel sensors if they are defective. 3) Ensure all belts are on track and in good physical condition.	
44	Faulty or improperly calibrated double detect module. Jammed note at double detect. Bad roller profile		
45	Diverter is in the wrong position during a dispense. Diverter error	1) Clear any jammed notes and perform Purge/Test Dispense functions. 2) If these actions have no effect, replace the dispenser.	<i>General Access</i> <i>General Troubleshooting: Cash Dispenser Errors</i>
46	The count at the exit is greater than number requested. Exit quantified	1) A mechanical error has occurred. It may be necessary to replace the dispenser.	
47	Double detect fails to detect a note already seen by feed sensor. Note missing at double detect	1) Inspect or clear the note transport before the double detect for jammed notes. 2) Perform Purge/Test Dispense functions. 3) If these actions have no effect, replace dispenser.	<i>General Access</i> <i>Major Components: Cash Dispenser Unit</i>
48	Ten or more reject events during current dispense (more than 10 notes may be involved). Notes unfit or loaded incorrectly. (TDM Click Counter 24) Reject rate exceeded	1) Inspect or clear the note transport before the double detect for jammed notes. 2) Perform Purge/Test Dispense functions. 3) If these actions have no effect, replace dispenser.	

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CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
49	Exit sensor blocked or faulty <i>Jam at exit</i>	1) Remove any jammed notes at exit throat or sensor. 2) Clean exit sensor(s) and check wire connectivity.	<i>General Access</i> <i>Major Components: Cash Dispenser Unit</i>
50	Static discharge. <i>Interference recovery</i>	1) Check proper grounding for dispenser. If these actions have no effect, replace the dispenser.	<i>General Access</i> <i>General Troubleshooting: Cash Dispenser Errors</i> <i>Major Components: Cash Dispenser Unit</i>
51	Mechanical failure <i>RAM error</i>	1) Replace the dispenser.	
52	Mechanical failure <i>RAM error</i>		
53	Mechanical failure <i>Eprom error</i>		
54	Two Minute Timeout on all operations timer has been activated <i>(TDM Click Counter 185)</i> <i>Operation timeout</i>	1) Verify TDM firmware version is current. If not, update firmware. 2) Check reject bin for high number of rejects. If present, follow steps for error code 48. 3) If the error is not resolved, contact Tech Support for further troubleshooting assistance.	
55	Mechanical failure <i>RAM corruption</i>		
56	Configuration jumpers may have been changed (SDD). <i>Link error</i>	1) Inspect the jumper block LK5 on the dispenser mainboard. There should be no jumpers installed. 2) If the problem persists, replace the dispenser.	<i>General Access</i> <i>General Troubleshooting: Cash Dispenser Errors</i>
95	Multiple cassettes of same cassette ID installed <i>Multiple cassettes of same type installed</i>	1) Inject correct cassette IDs for each cassette, ensuring no two cassettes have the same ID. 2) Configure cassette correctly. 3) Reset Error.	
100	Jammed notes. Poor quality or folded note. Foreign debris. <i>(TDM Click Counter 118)</i> <i>Trailing edge timeout at skew 5</i>	1) Inspect for jams or blockage causing the note to turn sideways. 2) Remove any foreign debris. 3) Reset error. 4) If error is not resolved, contact Tech Support for further troubleshooting assistance.	<i>General Access</i> <i>General Troubleshooting: Cash Dispenser Errors</i> <i>Major Components: Cash Dispenser Unit</i>
101	Empty cassette (normal error for empty cassette). Unfit/ jammed notes. Broken detent clips. <i>(TDM Click Counter 34, Ch A and 146, Ch B)</i> <i>Feed failure</i>	1) Refill the cassette with fit notes. 2) Reset the error. 3) If error is not resolved and cassette is not empty, inspect the note feed path entry and cassette feed throat for currency that is stuck together, jammed, or folded.	

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
102	Clearance door open. Jammed note(s). Exit sensor dirty/faulty. <i>(TDM Click Counter 40 - TDM DC Motor Version)</i> <i>Dispenser-Timeout at exit sensor</i>	1) Check the clearance doors. Check the knobs that latch the doors in place. Replace any knobs that are cracked or broken. 2) Inspect for and remove jammed note(s) in feed path and at the diverter. 3) Inspect and clean exit sensor. 4) Inspect exit sensor wiring harness for loose or broken connections. 5) Reset error on terminal. 6) If error is not resolved: a) Print Dispenser Status Report. b) Block exit sensor and print Dispenser Status Report. c) Verify that TDM Click Counter XXX reads above 4500 when exit sensor is not blocked and reads below XXXX when exit sensor is blocked. d) Replace exit sensor if readings are not correct. 7) If error is not resolved, contact Tech Support for further troubleshooting assistance.	<i>General Access</i> <i>General Troubleshooting: Cash Dispenser Errors</i> <i>Major Components: Cash Dispenser Unit</i>
103	<i>Thickness sensor unstable</i>		
104	Jammed note(s). Dirty sensors. Foreign debris. <i>Unable to clear width sensor during reject</i> <i>(TDM Click Counter 79, Ch A and 173, Ch B)</i>	1) Remove cassette(s) and inspect for jammed currency in the width sensor and at the output of the cassette. 2) Clean the width sensors with compressed air. 3) Perform a Learn Operation (Relearn Bill Thickness found on the Cassette Parameters menu). 4) Run Purge/Test Dispense command. 5) Reset error on terminal.	<i>General Access</i> <i>General Troubleshooting: Cash Dispenser Errors</i> <i>Major Components: Cash Dispenser Unit</i>

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
105	Not enough notes picked during learn operation were within a specific range of thickness. Learn Error (TDM Click Counter 187 - Only in Management Functions)	1) Perform the Learn Operation (Relearn Bill Thickness found on the Cassette Parameters menu). The problem notes are probably already in the Reject Bin. 2) If the Learn still fails, inspect the currency and insure there are sufficient (9 or more) good quality notes in the cassette. 3) Verify that the notes are properly loaded and that there are no folded or jammed notes. 4) Retry the Learn Operation. 5) Reset error on terminal. 6) If several attempts to perform the Learn still fail, try several Test Dispense Commands. If Test Dispense is successful, Learn is not necessary. 7) If error is not resolved, contact Tech Support for further troubleshooting assistance.	<i>General Access</i> <i>General Troubleshooting:</i> <i>Cash Dispenser Errors</i> <i>Major Components: Cash Dispenser Unit</i>
106	Firmware error FIFO error (TDM Click Counter 188)	1) Reset error, properly shut down the ATM and restart. 2) Run Purge/Test Dispense commands (if possible). 3) If error is not resolved, contact Tech Support for further troubleshooting assistance.	
107	Jammed notes. Faulty/dirty reject or exit sensor. Timeout waiting for FIFO (TDM Click Counter 182)	1) Check for and clear any jammed notes in the feed path and at the diverter. 2) Inspect the doors and the knobs that latch the doors in place. Replace any knobs that are cracked or broken. 3) Inspect sensors and clean if necessary. 4) Inspect exit sensor wiring harness for loose/broken connections. 5) Reset error on terminal. 6) If error is not resolved: a) Print Dispenser Status Report. b) Block exit sensor and print Dispenser Status Report. c) Verify that TDM Click Counter XXX reads above 4500 when exit sensor is not blocked and reads below XXXX when exit sensor is blocked. d) Replace exit sensor if readings are not correct. 7) If error is not resolved, contact Tech Support for further troubleshooting assistance.	

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
108	Width sensor did not detect note. Skewed note. Broken wires on width sensor harness <i>Unexpected Note at thickness sensor (TDM Click Counter 25)</i>	1) Verify current TDM firmware version and load if necessary. 2) Remove the cassette(s) and inspect the note path for skewed note coming from the cassette. 3) Inspect double detect sensor for proper mounting. 4) Inspect for loose or broken connections on both the upper and lower width sensor circuit boards. 5) If error is not resolved, contact Tech Support for further troubleshooting assistance.	<i>General Access General Troubleshooting: Cash Dispenser Errors Major Components: Cash Dispenser Unit</i>
109	Clearance door open. Jammed note(s). Dirty/faulty exit sensor. <i>Timeout at exit sensor (TDM Click Counter 40 - TDM Stepper Motor)</i>	1) Inspect the door and knobs that latch the doors in place. Replace any knobs that are cracked or broken. 2) Inspect for and remove jammed currency in the feed path and at the diverter. 3) Inspect exit sensor and clean if necessary. 4) Inspect exit sensor wiring harness for loose/broken connections. 5) Reset error on terminal. 6) If error is not resolved: a) Print Dispenser Status Report. b) Block exit sensor and print Dispenser Status Report. c) Verify that TDM Click Counter XXX reads above 4500 when exit sensor is not blocked and reads below XXXX when exit sensor is blocked. d) Replace exit sensor if readings are not correct. 7) If error is still not resolved, contact Tech Support for further troubleshooting assistance.	
110	Jammed note(s). Dispenser tray not properly mounted. <i>Trailing edge timeout at exit (TDM Click Counter 41)</i>	1) Inspect for and remove jammed currency in the feed path and at the exit sensor. 2) Run Purge/Test Dispense commands. 3) Insure there is no interference in the bill tray. 4) Verify proper mounting of dispenser tray. 5) Reset error on terminal. 6) If error is not resolved, contact Tech Support for further troubleshooting assistance.	

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
111	Jammed note(s). Diverter sensor fault. Dispenser tray not properly mounted. Diverter Timeout <i>(TDM Click Counter 42)</i>	1) Inspect for and remove jammed currency at the diverter. Verify the diverter moves freely. 2) Inspect the diverter sensor and check that there is no damage and it is in the proper position. 3) Verify the shelf the dispenser is mounted on is level and in locked position; correct if necessary. 4) Verify the bill tray is properly mounted; correct if necessary. 5) Verify clearance at the diverter with the vault door closed by manually moving the diverter back and forth. 6) If diverter is contacting the bill tray, contact Tech Support for further troubleshooting assistance.	<i>General Access</i> <i>General Troubleshooting:</i> <i>Cash Dispenser Errors</i> <i>Major Components: Cash Dispenser Unit</i>
112	Jammed note(s). Clearance doors open. Dirty/faulty sensor. Timeout waiting for leading edge at reject <i>(TDM Click Counter 43)</i>	1) Inspect for jammed note(s) in the transport path between the width sensors and the reject sensor. 2) Verify all access doors are closed and secured. 3) Inspect reject sensor and clean if necessary. 4) Run Purge/Test Dispense commands. 5) Inspect reject sensor and clean if necessary. 6) Run Purge/Test Dispense commands. 7) Inspect reject sensor wiring harness for loose/broken connections. 8) If error is not resolved, the reject sensor may be faulty. 9) Contact Tech Support for further troubleshooting assistance.	
113	Full reject cassette. Jammed note(s). Reject jam clearance door open. Timeout waiting for trailing edge at reject <i>(TDM Click Counter 44)</i>	1) Inspect for jammed note(s) at the reject sensor and entrance to the reject bin. 2) Verify all access panels are closed and secured. 3) Insure the reject bin is empty or that there is enough room for the rejects and test notes to fall into the reject bin. 4) Reset error on terminal. 5) Run Purge/Test Dispense commands. 6) If error is not resolved, contact Tech Support for further troubleshooting assistance.	

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
114	Note detected at exit sensor during purge. Dirty/faulty exit sensor. Exit blocked at purge (TDM Click Counter 45)	1) Inspect for and remove note(s) or foreign objects at the exit sensor. 2) Inspect the exit sensor and clean if necessary. 3) Inspect the exit sensor wiring harness for loose/broken connections. 4) Reset error on terminal. 5) Run Purge command. 6) If error is not resolved, the exit sensor may be faulty. 7) Contact Tech Support for further troubleshooting assistance.	<i>General Access</i> <i>General Troubleshooting:</i> <i>Cash Dispenser Errors</i> <i>Major Components: Cash Dispenser Unit</i>
115	Jammed note(s). Diverter sensor fault. Dispenser tray not properly mounted. Diverter timeout on purge (TDM Click Counter 46)	1) Inspect for and remove jammed currency at the diverter. Verify the diverter moves freely. 2) Inspect the diverter sensor and check that there is no damage and it is in the proper position. 3) Verify the shelf the dispenser is mounted on is level and in locked position; correct if necessary. 4) Verify the bill tray is properly mounted; correct if necessary. 5) Verify clearance at the diverter with the vault door closed by manually moving the diverter back and forth. 6) If diverter is contacting the bill tray, contact Tech Support for further troubleshooting assistance.	
116	Jammed note(s). Damaged belts/timing wheel or sensor. Incorrect power supply. Main or extension motor unable to attain proper speed. Motor Fault (TDM Click Counter 115)	1) Verify current TDM firmware version and load if necessary. 2) Inspect for and remove jammed currency in the note path. 3) Inspect the drive belts and insure that all roller shafts are in proper position. 4) Insure the belts turn without requiring excessive force. 5) Inspect the timing wheels and timing wheel sensors to verify that they are undamaged and in the correct positions. 6) Inspect timing wheel sensor harness for loose/broken connections. 7) Reset error on terminal. 8) Run Purge/Test Dispense commands. 9) If error is not resolved, contact Tech Support for further troubleshooting assistance.	

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
117	Jammed note(s). Dispenser tray not properly mounted. Timeout waiting for notes to divert (TDM Click Counter 189)	1) Inspect for and remove jammed currency in the feed path and at the exit sensor. 2) Run Purge/Test Dispense commands. 3) Insure there is no interference in the bill tray. 4) Verify proper mounting of dispenser tray. 5) Reset error on terminal. 6) If error is not resolved, contact Tech Support for further troubleshooting assistance.	<i>General Access</i> <i>General Troubleshooting:</i> <i>Cash Dispenser Errors</i> <i>Major Components: Cash Dispenser Unit</i>
118	Jammed note(s). Object blocking exit sensor. Exit sensor blocked on start of dispense or learn (TDM Click Counter 48)	1) Inspect for and remove jammed currency or other object at the exit sensor. 2) Use a soft brush and vacuum cleaner to clean the exit sensor. 3) Perform several Purge/Test Dispense commands. 4) If error is not resolved, contact Tech Support for further troubleshooting assistance.	
119	Jammed note(s) at diverter. Obstructed diverter. Dispenser tray not level. Diverter in dispense position on start of dispense or learn (TDM Click Counter 49)	1) Inspect for and remove jammed note(s) or foreign objects at the diverter. 2) Verify that the diverter moves freely. 3) Verify that all access panels are closed and secured. 4) Run several Test Dispense commands. 5) Check the operation of the diverter solenoid by performing live dispenses. 6) Verify clearance at the diverter. If the Test Dispenses pass, but the error returns upon live dispenses, do dispenses with the vault door open. If it works with the door open, remove obstruction causing the diverter to contact the vault door. 7) Make sure the shelf that the dispenser is mounted on is level and seated at all four corners (rear of shelf may not be seated). 8) If error is not resolved, contact Tech Support for further troubleshooting assistance.	
120	Reject cassette not present	1) Install reject cassette.	
121	Note Cassette not present	1) Install/re-install cassette.	

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
122	Exit sensor loose. Interference at the exit sensor (may have been caused by customer having their hand in the bill tray or by foreign debris). Unexpected note at exit (TDM Click Counter 52)	1) Inspect the exit sensor for proper mounting. 2) Look for foreign objects near the exit sensor. 3) Run Purge/Test Dispense commands. 4) If error is not resolved, contact Tech Support for further troubleshooting assistance.	<i>General Access</i> <i>General Troubleshooting:</i> <i>Cash Dispenser Errors</i> <i>Major Components: Cash Dispenser Unit</i>
123	Connector unplugged - voltage supply problem. If there is a "116" in the click count, there will be a number immediately following that describes the error cause. Hardware Error (TDM Click Counter 116) (See Hardware Status Codes)	1) Print the Dispenser Status Report and scan the Click Count history, starting at the bottom. 2) Find the first occurrence of "116". The next entry, below 116 is the Hardware Status Code. 3) Look up the definition on the Hardware Status Codes listing. 4) Perform whatever corrective action is needed to resolve the error indicated by the Status Code. (This will likely be reinserting a loose connector.) 5) If error is not resolved, contact Tech Support for further troubleshooting assistance.	
124	Note(s) jammed at diverter. Diverter obstructed. Diverter sensor faulty. Outside interference (by user or operator pushing on the diverter). Diverter moved to exit position during Reject/Purge (TDM Click Counter 54)	1) Inspect for and remove jammed currency at the diverter. 2) Verify that the diverter moves freely. 3) Inspect the diverter sensor for damage and insure that it is in its proper position. 4) Run Purge/Test Dispense commands. 5) If error is not resolved, contact Tech Support for further troubleshooting assistance.	
125	Initial status check failed		
126	Note(s) jammed at diverter. Diverter obstructed. Dispenser tray not level. Diverter moved to reject position during dispense (TDM Click Counter 56)	1) Inspect for and remove jammed notes in the path. 2) Verify that the diverter moves freely (with safe door closed and open). 3) Test the dispenser by completing several test dispenses. Verify clearance at the diverter. 4) If the test dispenses pass, but the error returns upon live dispenses, do dispenses with the vault door open. 5) If it works with the door open, remove obstruction causing the diverter to contact the vault door. 6) Make sure the shelf that the dispenser is mounted on is level and seated at all four corners (rear of shelf may not be seated).	

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
127	Note(s) jammed in extension. Unfit notes. White pinch rollers not seated properly. <i>Jam in TDM Extension (TDM Click Counter 114)</i>	1) Inspect for and remove note(s) jammed in the extension; check for notes in the diverter area. 2) Inspect note quality in the cassette(s). Remove weak and/or damaged notes. 3) Check small black clips that secure white pinch rollers. Snap back in place if loose. 4) Execute Purge/Test Dispense commands. 5) If error is not resolved, contact Tech Support for further troubleshooting assistance.	<i>General Access General Troubleshooting: Cash Dispenser Errors Major Components: Cash Dispenser Unit</i>
128	A communications problem between the unit's CPU and dispenser has occurred. All cables that interface between the CPU and dispenser, as well as power to the dispenser, are suspect. <i>Error in reply from dispenser</i>	1) Inspect all cables and connections between the power supply and dispensing mechanism, mainboard. Replace any cables that appear damaged or frayed. 2) Verify that the power supply DC output voltages are correct. 3) Verify the fuses (3) for the dispenser (SDD) are good.	<i>See General Troubleshooting: Blank Screen for voltages. General Access General Troubleshooting: Cash Dispenser Errors Major Components: Cash Dispenser Unit</i>
129	Same as error 128 <i>Dispenser not responding</i>		
130	Same as error 128 <i>No acknowledge from dispenser</i>		
131	Same as error 128 <i>No CTS (Ready) from dispenser</i>		
132	Jammed notes, loose belts and/or springs. <i>Status reported bad double detect in previous dispense</i>	1) Clear any jammed notes/debris from the double detect assembly. 2) Check for loose or misaligned belts. 3) Ensure tension spring is attached. 4) Perform Purge/Test Dispense functions. 5) If these actions have no effect, replace the dispenser.	<i>General Access General Troubleshooting: Cash Dispenser Errors Major Components: Cash Dispenser Unit</i>
133	Power supply or cables (upper and lower) <i>5 volts not present from dispenser</i>	1) Inspect all cables and connections between the power supply and dispensing mechanism, mainboard. Replace any cables that appear damaged or frayed. 2) Verify that the power supply DC output voltages are correct. 3) Verify the fuses (3) for the dispenser (SDD) are good.	<i>See General Troubleshooting: Blank Screen for voltages. General Access General Troubleshooting: Cash Dispenser Errors Major Components: Cash Dispenser Unit</i>

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
134	Jammed notes, sensor dirty or faulty. Status reported exit blocked	1) Inspect the feed path and feed sensor for jammed currency and broken components.	<i>General Access</i> <i>General Troubleshooting: Cash Dispenser Errors</i> <i>Major Components: Cash Dispenser Unit</i>
135	Same as error 134 Status reported feed sensor blocked	2) Clean the sensor with soft brush or vacuum cleaner. 3) Purge the dispenser.	
136	Modem loose or improperly installed. Faulty modem cable, mainboard, or modem. Modem initialization failed	1) Check connectivity of modem cable at both ends. 2) If the problem persists, consider replacing the mainboard.	
137	Print failure to journal		
138	No receipt paper, paper jam, lever in open position, printer controller or cables connected to it faulty, mainboard Print failure to receipt	3) Verify that there is paper in the printer. 4) Verify that there are no jams in the printer or the paper path. 5) Verify the green lever is in the print position.	<i>General Access</i> <i>General Troubleshooting: Printer Errors</i> <i>Major Components: Receipt Printer</i>
139	Same as error 138 Print controller not responding	6) Inspect the all cables to/from the printer. Make sure they are securely connected at both ends.	
140	Same as error 138 Time out waiting for printer to be ready	7) Verify that all DC voltages applied to the printer controller board are correct. If the voltages are not within tolerance, the cable or power supply may be defective.	
141	Same as error 138 Status reported paper jam	8) If the voltages are correct, and the cables are undamaged and connected correctly, possible causes may be a defective cable, printer, printer controller, or mainboard.	
142	Power supply fault, data cables between mainboard and dispenser loose or faulty Dispenser returned bad command error	1) Verify the power supply is operating and the DC voltages being supplied to the mainboard and dispenser are correct. Seat connectors or replace the power supply as needed. 2) Verify that mainboard to electronic journal and the electronic journal to dispenser cables are securely seated at both ends of the cable. These cables may also be defective. 3) Other components that may cause this error are the mainboard or the dispenser.	<i>See General Troubleshooting: Blank Screen for voltages.</i> <i>General Access</i> <i>Major Components:</i> <i>- Power Supply Unit</i> <i>- Cash Dispenser Unit</i>
144	Cables loose or connected incorrectly. Dispenser firmware corrupt (TDM). Security module not responding	1) Inspect the electronic journal (EJ) communication cable from the EJ to the control panel connection. Ensure the connectors are seated securely and undamaged. 2) Inspect EJ to dispenser cable for damage and secure connection. 3) If the cables are undamaged, the main board or EJ may be defective.	<i>General Access</i>

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
156	Empty cassettes. Unfit or jammed notes. Excessive rejects. This occurs when the last cassette has been taken out of service. Cassettes are taken out of service because of feed failures or excessive rejects. Cassettes out of service	1) Inspect cassettes. Replenish cash, if needed. 2) If they are not empty, see corrective action for Error Codes 302 and 306. 3) If excessive rejects are suspected, see corrective action for Error Code 48 (under SDD). 4) Ensure cassettes are “In Service” (Management Functions).	<i>General Access</i> <i>General Troubleshooting:</i> <i>Cash Dispenser Errors</i> <i>Major Components: Cash Dispenser Unit</i>
163	Triton Connect (TC) reported error. This error is not displayed at the terminal. The Triton Connect host computer generates the error when the terminal does not respond to a telephone call from the Triton Connect host computer. Terminal did not answer Triton Connect	1) The ATM may be turned off; the modem may be defective; or the telephone line may be shared with another device that connects to the line before the terminal. 2) Check to ensure the “Triton Connect” function is enabled in Management Functions.	
164	Same as error 163 Terminal did not return call to Triton Connect	1) The ATM may be turned off; the modem may be defective; or the telephone line may be shared with another device that connects to the line before the terminal. 2) Check to ensure the “Triton Connect” function is enabled in Management Functions.	
166	Jammed/Unfit Note(s); Faulty Components or Assemblies on Dispenser Bad dispense	1) Inspect the cash dispenser for broken parts. 2) Check for and clear any foreign matter or jammed notes in the feed path. 3) Reset error and restart the ATM. 4) If error is not resolved, contact Tech Support for further troubleshooting assistance.	<i>General Access</i> <i>General Troubleshooting:</i> <i>Cash Dispenser Errors</i> <i>Major Components: Cash Dispenser Unit</i>
167	This is an indication that the cash in the cassette has gone below the threshold level set in the terminal configuration. The terminal reported this status to Triton Connect. Reported Low Cash to Triton Connect	1) Replenish the cassette(s) as needed.	
168	Communication line is shared with other devices, noisy, or bad. Software Download to Terminal failed	1) Check the communications link quality to the terminal. Verify no other devices (e.g., fax machine) are sharing. 2) Check the flash memory in the ATM device.	<i>General Access</i> <i>Communication</i> <i>Issues: Basic Dialup</i> <i>Communication Checks</i>

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CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
182	With the low currency feature enabled, this error condition will occur before the cassette is actually empty. There should be about 1/4 inch of currency (approximately 60 bills) in the cassette when the error is detected. Currency cassette low (SDD dispensers only)	1) Reset/restart the ATM. 2) Remove the cassette from the dispensing mechanism. 3) Press the reset error key. 4) Refill and install the cassette.	<i>General Access</i> <i>General Troubleshooting: Cash Dispenser Errors</i> <i>Major Components: Cash Dispenser Unit</i>
185	Host telephone number not entered. Phone number not configured	1) Enter the host phone number.	
186	Cassette denominations not configured. Bill size not configured correctly	1) Configure the fast cash and multiple amount (note value).	
187	The maximum withdrawal amount cannot exceed 50 notes. Maximum withdrawal not configured correctly	1) Configure multiple amount.	
188	PIN working keys not downloaded from host. Communications key not configured	1) Master keys must be loaded. Download working keys from host.	<i>See XScale/X2 Configuration Manual</i> <i>Or</i> <i>Basic Setup of the Triton ATMs</i> <i>Major Components: Customer Keypad</i>
189	Terminal ID not configured	1) Configure terminal ID.	
190	This error code is often caused by a SPED tamper. If you suspect SPED tamper or Error code 205, see the corrective action for EC 205. Master key not configured	1) Enter master keys.	
192	Communication parameters not entered or incorrect. Modem error. Phone or Ethernet cable fault. A problem exists at the host. CD communications error	1) Enter Management Functions > Communication menus and verify that all terminal parameters have been entered correctly. 2) Verify that the telephone or TCP/IP line is operational. 3) Reset or restart the terminal. Attempt to clear the error. 4) If the error persists, possible causes may be the modem or mainboard assembly.	<i>See XScale/X2 Configuration Manual</i> <i>General Access</i> <i>Communication Issues:</i> <i>- Basic Dialup Communication Checks</i> <i>- Basic TCP/IP Communication Checks</i>
195	No paper. Receipt printer out of paper	1) Replenish the paper. Clear the error.	<i>General Access</i> <i>General Troubleshooting: Printer Errors</i> <i>Major Components: Receipt Printer</i>

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CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
196	Card reader cable faulty or disconnected. Foreign matter in the card reader. Card reader dirty or faulty. Card reader error	1) Inspect the card reader. Make sure there is no foreign material in the card slot. 2) Clean the card reader with a cleaning card. 3) If present, (I65 Reader) verify the green LED on the card reader is blinking. 4) If the error persists, replace the card reader.	<i>General Access</i> <i>Major Components: Card Reader</i>
199	Mechanical fault. Cash dispenser width errors	1) A mechanical error has occurred. It may be necessary to replace the dispenser.	<i>General Access</i> <i>General Troubleshooting: Cash Dispenser Errors</i> <i>Major Components: Cash Dispenser Unit</i>
200	Mechanical fault. This status appears when the count at the exit cannot be verified. Dispenser fed extra note into its stacker.	1) A mechanical error has occurred. It may be necessary to replace the dispenser.	
201	Unfit currency. Jammed notes. Dispenser detected more than 6 errors in dispense	1) Inspect the currency for excessive wear. Remove any unacceptable currency from the cassette. 2) Inspect the feed path for jammed currency. 3) Perform several test dispenses. 4) If these actions have no effect, replace the dispensing mechanism.	
202	Exit sensor blocked or dirty. Dispenser is busy	1) Inspect the feed path for jammed currency. Remove any jammed currency. 2) Perform several test dispenses. 3) If these actions have no effect, replace the dispensing mechanism.	
203	SPED tampered, battery low or bad. SPED cables loose. SPED keypad is not replying to mainboard.	1) If accessible, check the battery voltage (3VDC). 2) Ensure the battery is seated securely in the battery holder. 3) Tighten all screws that secure SPED module to fascia. 4) Ensure data cable from SPED is securely connected and undamaged.	<i>General Access</i> <i>General Troubleshooting: Keypad Issues</i> <i>Major Components: Customer Keypad</i>
204	Number of bills dispensed not equal to bills requested		
205	SPED tampered, battery low or bad. SPED cables loose. SPED keypad reported tamper condition	1) If accessible, check the battery voltage (3VDC). 2) Ensure the battery is seated securely in the battery holder.	<i>General Access</i> <i>General Troubleshooting: Keypad Issues</i> <i>Major Components: Customer Keypad</i>
206	Same as error 205 SPED could not perform a successful command within SPED_MAX_ATTEMPTS tries	3) Tighten all screws that secure SPED module to fascia. 4) Ensure data cable from SPED is securely connected and undamaged.	

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
207	SPED not detected	1) Check the cable and connections from mainboard to the SPED board. 2) Verify that the SPED board has the correct DC voltages applied to it. 3) If the DC voltages applied to the SPED board are correct and the cables are in good condition and seated properly, replace the SPED.	<i>General Access</i> <i>General Troubleshooting:</i> <i>Keypad Issues</i> <i>Major Components:</i> <i>Customer Keypad</i>
208	Dispenser did not reply after a dispense command		
209	Check Number of notes delivered command failed		
210	The Dispenser Type is unknown		
211	The reply from the dispenser was invalid		
231	Customer left card or foreign object in reader. Card Reader Warning	This is a warning code. Software will sample the card reader for a timeout period before setting this warning condition. Once the card or foreign object is removed, this warning will be cleared.	
233	The software requires a smart card reader and a smart card reader is not detected. Smart card reader not installed or not communicating	1) Install smart card reader. 2) Trouble smart card reader if installed.	
234	SPED version number is not 3DES compatible. Incompatible SPED version	1) Replace SPED.	<i>General Access</i> <i>General Troubleshooting:</i> <i>Keypad Issues</i> <i>Major Components:</i> <i>Customer Keypad</i>
236	The mainboard does not see any activity on TCP/IP. Communication configuration is incorrect. There is a problem with the host network. Suspect the mainboard, docking board, or external TCP/IP modem. Lost TCP Host	1) Verify the quality of your incoming TCP/IP connection and your TCP/IP configuration. 2) Make sure all ports on your gateway (connecting router) are open for bi-directional communications. 3) If you are not using TCP/IP for transactions or Triton Connect, ensure you are configured for telephone operation.	<i>General Access</i> <i>General Troubleshooting:</i> <i>Communication Issues: Basic TCP/IP Communication Checks</i>
237	Out going communications seems to be successful, but there is no returning communications. Communications configuration may not be correct. Suspect the mainboard, docking board, or external TCP/IP modem. No TCP/IP device	1) Verify your communications settings and external TCP/IP equipment. 2) Verify the quality of your incoming TCP/IP connection and your TCP/IP configuration (e.g., gateway IP address, ports, etc.). Suspect the mainboard or the TCP/IP connection device.	

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
238	This occurs when the dispenser is turned off in the middle of a dispense command to try and get a note ejected on the next dispenser reset. Power failure during dispense	1) Perform a Purge command. <i>NOTE: In certain cases (depending on if and where a bill was located when the power was lost, an additional error could be returned from the initial purge. In this case, an additional Purge command from Management Functions may be required.</i>	
239	The serial number stored in the software does not match the serial number of the EPP. The keypad has been changed or a full software load has occurred. If the stored serial number doesn't match the serial number returned from the SPED	1) Clear tamper: Management Functions Main Menu > 2-Diagnostics > 8-Keypad > 4-Clear Serial Tamper.	<i>Steps for Tamper Error Codes or Tamper Related Errors</i>
240	Faulty SPED SPED Self Test error	1) Replace SPED.	<i>General Access General Troubleshooting: Keypad Issues Major Components: Customer Keypad</i>
241	The SPED has returned a warning message to Triton Connect that the SPED battery is low. SPED Warning	1) If accessible, check the battery voltage (3VDC). 2) Ensure the battery is seated securely in the battery holder. 3) Replace battery if low or bad.	
242	Key has been pressed longer than 15 seconds. Dirty or damaged key. Stuck Key	4) Perform a keypad test (Diagnostics > Keypad > Keypad Test). 5) Examine keypad for damage or water. 6) Check cables to keypad. 7) Clean keypad if required. 8) Replace keypad.	<i>General Access General Troubleshooting: Keypad Issues Major Components: Customer Keypad</i>
243	Surcharge message screen not selected. Unable to display user defined surcharge screen	1) No user defined surcharge screen is selected. Enter Management Functions Main Menu > 6-Terminal Configuration > 8-Optional Screens. Select/enable a user defined surcharge screen.	<i>See XScale/X2 Configuration Manual</i>
244	Minimum partial dispense enabled with no document count. Quantity of bills in the cassette not entered	1) Perform a Cassette Close. (Main Menu > 1-Terminal Close > 6-Cassette Close, select cassette) 2) Replenish cassette. 3) Enter the number of bills in the cassette.	
245	Minimizing partial dispense enabled with no usable bills. Cassette is empty		
246	The default master password has not been changed. Must change Master password from Default	1) Change the default password.	

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
301	Low number of notes in cassettes. This is a warning message. It will not place the cash dispenser out of service. This condition is also displayed on the configuration summary printout under “Dispenser” as a lower case a, b, c, or d for the cassette. Low level in cassette	1) Remove and refill the affected cassette(s). Refilling may be delayed for several transactions if the error code is the first warning that the cassette is nearly empty. However, actions to fill the cassette should be taken as soon as possible.	<i>General Access</i> <i>General Troubleshooting: Cash Dispenser Errors</i>
302	Empty cassette or unfit/ jammed notes. This error alone will not put the cash dispenser “out of service”. It will cause that cassette to be taken “out of service”. The cash dispenser will only be placed “out of service” when ALL cassettes are empty. Empty cassette	1) Refill the cassette as needed. 2) Inspect the cassette and feed path for jammed currency. 3) If no jam is noted, remove the first note from the cassette. 4) Purge the dispenser and do several test dispense operations.	<i>General Access</i> <i>General Troubleshooting: Cash Dispenser Errors</i> <i>Major Components: Cash Dispenser Unit</i>
303	Cassette(s) not locked. Faulty cassette, note feeder, or CMC module. Lifts are down.	1) Restart the ATM or unlock and lock the cassettes in Management Functions. 2) If the error persists, a faulty cassette, note feeder, or CMC may be the cause. Replace as needed.	
304	Notes rejected during transaction or test dispense. Rejected Notes	No action necessary.	
305	Mechanical or electrical fault of the Note Diverter (Note Transport Module) Wrong count	1) Inspect the note diverter in the note transport module. Verify that there are no documents jammed in the note diverter area. Make sure the note diverter moves freely. 2) Check to make sure that cables connecting the note transport and the CMC module are not damaged. 3) Make sure all connectors attached to the CMC are seated in their receptacles. 4) Remove and empty the reject cassette/ vault and reinstall. 5) Purge the dispensing mechanism. 6) Complete several test dispenses. 7) If the error clears, complete a live dispense to verify the note diverter moves the currency to the exit position. 8) If the error recurs, the most likely causes of the problem may be a faulty note transport or CMC.	<i>General Access</i> <i>General Troubleshooting: Cash Dispenser Errors</i> <i>Major Components: Cash Dispenser Unit</i>

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
306	Unfit notes or note feeder error Failure to feed	1) Check condition of the currency. 2) Verify that the cassettes are operating correctly. Replace cassettes as needed. 3) Check the operation of the note feeder sensors. Clean the note feeder sensors as needed. 4) Replace the note feeder or note feeder controller as necessary.	<i>General Access</i> <i>General Troubleshooting:</i> <i>Cash Dispenser Errors</i> <i>Major Components: Cash Dispenser Unit</i>
307	Dispenser comm cable faulty or not connected properly. Incorrect LRC character or parity error in message. Transmission error	1) Inspect all communication cables to make sure they are not damaged and are properly connected to their termination points. 2) Restart the cash dispenser. 3) Reset the dispenser and try to send command that caused error. 4) If the error code is reported again, replace the CMC module.	
308	Dispenser comm cable faulty or not connected properly. CMC faulty. Illegal command or command sequence	1) Inspect all communication cables to make sure they are not damaged and are properly connected to their termination points. 2) Restart the cash dispenser. 3) Reset the dispenser and try to send command that caused error. 4) If the error code is reported again, replace the CMC module.	
309	Jammed or unfit notes. Faulty note qualifier or note transport. This may be due to jammed documents in the transport path between the note qualifier and the note diverter. Jam in note qualifier	1) Inspect the documents in each cassette to insure they are in fit condition. 2) Ensure the note qualifier and note transport modules are mechanically aligned. Pay close attention to the gears where the note qualifier and note transport meet. 3) Open all access panels and inspect for jammed notes between the note qualifier and note transport. Remove any jammed notes. 4) Inspect the note qualifier and note transport for broken components (belts, gears, cables, or sensors). 5) Inspect the note diverter for proper operation and damage. 6) Replace the note qualifier or note transport if problem persists.	
310	Cassette(s) not properly installed, cassette(s) not locked, no cassette ID or a faulty cassette. Feed cassette not present	7) Verify the physical presence of each cassette. 8) Unlock and remove each cassette from its feed channel. Reinsert cassettes back into its feed channel.	

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
311	Dispenser Offline Config Record Size Invalid	1) Reset the dispenser and/or ATM.	
312	This is a warning code. No notes retracted	No action necessary.	
313	Cassette has no ID or is faulty. Dispenser offline. NMD cassette hopper map invalid.	1) Using inject cassette ID, send a new cassette ID to any cassette that is suspected until you have verified the ID of all cassettes. 2) If one or more cassette cannot have an ID present, that cassette is suspect.	
314	Dispenser offline. Cannot resolve dispense count.		
315	Reject cassette or vault is not properly installed or seated correctly. <i>NOTE: A common mistake with the NMD-50 is to tuck the green handle under the reject vault. This handle should just dangle.</i> Reject cassette not properly installed	1) Ensure reject cassette/vault is installed correctly. 2) Inspect the reject vault present sensor visually for proper operation. 3) If the sensor is properly connected and operating correctly the CMC module may be defective. 4) If the sensor is not operating normally, replace the note transport module.	<i>General Access</i> <i>General Troubleshooting: Cash Dispenser Errors</i> <i>Major Components: Cash Dispenser Unit</i>
317	Faulty reject cassette/vault, or CMC. Reject failure	1) Inspect the note diverter for single reject failures. 2) Inspect the transport path for damage. 3) Inspect the reject cassette. 4) Consider replacing the reject vault. 5) Reset the error code and utilize the dispenser diagnostic purge and test dispense functions to verify operation. 6) This can be an electrical or mechanical failure, including the reject vault or the CMC.	
318	More than 50 notes requested using NMD Tools software. Too many notes requested	1) This error code occurs while running the dispenser on the NMD test software and when too many notes are requested during a dispense command. The maximum number of notes that can be dispensed from the dispenser during a transaction is defaulted to fifty.	

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
319	Jammed notes. Note qualifier or note feeder faulty <i>Jam in note transport</i>	1) Check the cassettes. Make sure they are not overfilled. 2) Make sure the notes are in fit condition. 3) Open all access panels and remove any jammed notes from the transport path. 4) Inspect the note feeders and note qualifier for damage. 5) Reset the error. and complete several test dispenses. 6) If the error recurs, change the note feeder for the affected channel.	<i>General Access</i> <i>General Troubleshooting:</i> <i>Cash Dispenser Errors</i> <i>Major Components: Cash Dispenser Unit</i>
320	The number of reject events exceeded 37. Error code 320 will not put the cash dispenser out of service. It is not displayed directly to the operator or customer. The error code will be sent to the Triton Connect host if Triton Connect feature is enabled. <i>Reject cassette almost full</i>	1) The reject vault should be emptied as soon as possible in order to avoid an out of service condition (50 reject events). 2) The reject event counter can be reset by removing the reject vault from the dispenser and then putting it back into the dispenser while power is applied to the dispenser.	
321	Error in cassette ID. <i>Cassette data corrupted.</i>	1) Program the cassette by injecting a new cassette ID into the cassette. 2) If injecting a new cassette ID into the cassette does not correct the problem, replace the cassette.	
322	Jammed or unfit notes. Faulty power supply, timing wheel, or note qualifier. <i>Main motor failure</i>	1) Open all access panels and remove any jammed documents from the transport path. 2) Verify the notes are fit for dispensing. 3) Inspect the note qualifier for any damage (broken belts, broken gears, disconnected or damaged cables, broken timing wheel or timing wheel sensor not locked into place, etc.). 4) Make sure all access panels are closed. 5) Reset the error and perform several test dispenses. 6) If the error code repeats, verify the power supply output voltages are within expected values. 7) Replace the power supply if necessary. 8) If the power supply operates normally, replace the note qualifier.	<i>General Access</i> <i>General Troubleshooting:</i> <i>Cash Dispenser Errors</i> <i>Major Components: Cash Dispenser Unit</i> <i>Major Components: Power Supply</i>
323	<i>Dispense count check error</i>		

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
325	<i>Note qualifier faulty.</i> <i>Double detect sensor faulty, dirty, or disconnected.</i> <i>Note qualifier faulty</i>	1) Verify that the cable that connects the double detect module to the CMC module is undamaged and connected at both ends. 2) Make sure the access panel on the bottom of the note qualifier is closed and locked in position. 3) Use clean compressed air to remove any dust or dirt from the double detect sensor lenses. 4) Ensure all connections between the double detect module and the CMC are seated properly. 5) If at any time during the following checks, this error code recurs, it will be necessary to replace the note qualifier. a) Reset the error code. If it clears, initiate the learn note thickness operation. b) Perform a test dispense. If cash dispenser operates normally, it will pick from seven to fifteen notes from each cassette to calibrate the double detect to the document in each of the cassettes. Then it will complete the test dispense function. c) If these actions don't clear the error, replace the note qualifier.	<i>General Access</i> <i>General Troubleshooting: Cash Dispenser Errors</i> <i>Major Components: Cash Dispenser Unit</i>
326	Jammed notes. Sensor dirty or uncalibrated. Note feeder module faulty. <i>Cassette exit sensor failure</i>	1) Make sure there are no notes jammed at any of the note feeder exit sensors. 2) Check the calibration value for the pressure, empty, and exit sensors. If any sensor is out of its calibration limits, clean all of the sensors and attempt to do a transaction. 3) If error code recurs, replace the note feeder module.	

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
329	Jammed or unfit notes. Note transport faulty. <i>Notes in delivery throat</i>	1) Remove any notes blocking the throat opening and make sure the diverter is not jammed. 2) Inspect the note transport for damage and verify that all connectors are plugged into their respective receptacles. 3) Use the reject channel error code function to verify the operation of the sensors on the note transport module. 4) Clean the sensors in the note transport as needed. 5) Restart the cash dispenser. Reset the error code. Perform the test dispense function several times (two or three). Complete a live transaction. 6) If the error does not show again, put the dispenser into service. 7) If the error code returns, and a jam is not the cause; replace the note transport module.	<i>General Access</i> <i>General Troubleshooting:</i> <i>Cash Dispenser Errors</i> <i>Major Components: Cash Dispenser Unit</i>
330	The dispenser comm cable is damaged or not connected. There is incompatibility between the dispenser firmware and terminal software. <i>Communications time-out</i>	1) Inspect all cables for damage. 2) Verify that the both ends of each cable are securely connected. 3) This problem may be caused by incompatibilities between terminal software and dispensing mechanism firmware. 4) Contact Triton Technical Support.	
357	<i>Dispenser - Data size error</i>	1) Restart the terminal. 2) Attempt to reset the terminal error code. 3) This problem may be resolved by replacing the dispenser mechanism.	
358	<i>Dispenser - Read error</i>		
359	<i>Dispenser - Record error</i>		
360	<i>Dispenser - Invalid return ID</i>		
361	<i>Dispenser - Sequence error</i>		
362	<i>Dispenser - Device write error</i>		
363	<i>Dispenser - Device not found</i>		
364	<i>Dispenser - Device offline</i>		
365	<i>Dispenser - BCC Error</i>		
367	Dispenser data or power cable disconnected or faulty. <i>Dispenser - Comms error</i>	1) Check the dispenser data and power cable connections. 2) Restart the operating system. Clear terminal error code. 3) This problem may be resolved by replacing the dispenser mechanism.	<i>General Access</i> <i>General Troubleshooting:</i> <i>Cash Dispenser Errors</i> <i>Major Components: Cash Dispenser Unit</i>

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
368	Requested amount may have exceeded dispenser's capability (50 notes per request) Dispenser - Cannot dispense request	1) Enter a smaller value. 2) If error persists, it may be necessary to replace the dispenser mechanism.	<i>General Access</i> <i>General Troubleshooting: Cash Dispenser Errors</i> <i>Major Components: Cash Dispenser Unit</i> <i>See also XScale/X2 Configuration Manual</i>
369	Dispenser - Device reset	1) Check data and power connections to the dispenser device. 2) This problem may be resolved by replacing the dispenser mechanism.	
370	Dispenser - SDD EOT error		
371	Dispenser - SDD Comm error header-trailer		
372	Dispenser - Item value error		
373	Cassettes not locked. Dispenser - Machine not opened	1) Access the Management Functions menu and lock all cassettes. 2) Ensure all cassettes used are in service.	
374	Dispenser - Rejected cheque	1) Restart the terminal. Reset terminal error code and retry previous request. 2) This problem may be resolved by replacing the CMC board or by replacing the dispenser mechanism.	
375	Dispenser - Invalid Request		
376	Dispenser - Multiple errors		
377	Dispenser - Device Error	1) Check data and power connections to the dispenser device. 2) This problem may be resolved by replacing the dispenser mechanism.	
378	Dispenser - Cassette low	1) Replenish cash in cassette(s).	
379	Dispenser - Invalid Status	1) Check data and power connections to the dispenser device. 2) This problem may be resolved by replacing the dispenser mechanism.	
380	Cassette Parameters configuration incomplete. Dispenser - Setup Incomplete	1) Check and verify that all dispenser configurations have been entered into the terminal parameters.	
381	Error in cassette ID. Dispenser - Cassette map invalid	1) Program the cassette by injecting a new cassette ID into the cassette. (Main Menu > Diagnostics > Dispenser > Inject New Cassette ID) 2) If injecting a new cassette ID into the cassette does not correct the problem, replace the cassette.	
382	All cassettes are out of service. Cassettes are taken out of service for two reasons: 1. Feed failure (or empty) 2. Excessive rejects Dispenser - All cassettes disabled	1) Follow actions for Feed Failure (code 101), Empty Cassette (code 306), and Excessive Rejects (code 48). 2) Once the cause has been resolved, place the desired cassettes into service and reset the error. 3) If the error is not resolved, contact Tech Support for further troubleshooting assistance.	

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
383	All cassettes have reached low cash level. Dispenser - All cassettes low	1) Reload cassettes. 2) Clear terminal error code.	<i>General Access</i> <i>General Troubleshooting: Cash Dispenser Errors</i> <i>Major Components: Cash Dispenser Unit</i>
384	All cassettes are depleted. Dispenser - All Cassettes Empty		
385	Power or communications cables disconnected. Dispenser - Device Found No Reject No Hoppers		
386	Dispenser firmware or connection fault. Dispenser - Device and Reject Found No Hoppers		
387	Disconnected or faulty dispenser cables. Dispenser Offline - Error Validating Configuration	1) Verify that the dispenser mechanism has data and power cable connected. 2) Verify power is applied to the dispenser. 3) Check the computer area network connectors in the dispenser. 4) Restart operating system. Clear terminal error code. 5) If error persists, replace the dispenser mechanism.	
388	Reject and/or note cassette missing or not detected. Dispenser - NMD requires reject and 1 cassette	1) Verify that the reject vault and one cassette are present in the dispenser mechanism. 2) Clear terminal error code. 3) If error persists, replace the dispenser mechanism.	
389	Dispenser data corrupt. CMC fault. NMD detected offline Err Check Op status	1) Restart the operating system. 2) Verify the error code lights on the dispenser are operating in proper sequence. 3) Use the NMD test software (available to Triton Certified Service Technicians) and verify the operational error code of the dispenser.	
390	Dispenser data corrupt. CMC fault. Dispenser Offline - Storing config record		
391	Sensor dirty or faulty. Dispenser Sensor Failure	1) Access the Management function diagnostics menus to verify the operational error code of dispenser mechanism sensors. 2) Clean sensors as needed. 3) Replace dispenser components or dispenser if the error persists.	
392	CMC fault Error in last dispense	1) Check operational error code of dispenser. 2) This problem may be resolved by replacing the CMC board or by replacing the dispenser mechanism.	
393	Error in double detect	1) Clear any obstruction of double detect sensor(s). 2) Clean sensors.	
394	Cash dispenser purge failed upon power up.		

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
395	Same cassette IDs installed, e.g., 2 cassette "A"s. NMD dispenser allows for only one of each cassette ID to be installed. <i>Multiple cassettes of same type installed</i>	1) Verify each cassette ID. 2) Replace cassette or inject new cassette ID.	<i>See XScale/X2 Configuration Manual</i>
396	<i>Dispenser offline dev found no reject bin</i>		
397	<i>NMD 50 dispense status unknown at boot</i>		
400	Configuration of cassette parameters is not correct (UK) <i>Exchange rate not configured</i>	1) Reconfigure the cassette currency parameters in Management Functions.	<i>See XScale/X2 Configuration Manual</i>
401	Configuration of cassette parameters is not correct (UK) <i>Cassette currency configuration error</i>		
500	<i>SPED - Read error</i>	1) Verify all SPED connections. 2) Restart the operating system. 3) Clear any errors conditions (reference errors 205 and 239). 4) Inspect the battery for a voltage reading greater than 2.8 VDC. Replace SPED battery if below 2.8 VDC. 5) Replace SPED module if error persists.	<i>General Access General Troubleshooting: Keypad Issues Major Components: Customer Keypad</i>
501	<i>SPED - Invalid return record</i>		
502	<i>SPED - Invalid reader type</i>		
503	<i>SPED - Invalid command</i>		
504	<i>SPED - Invalid return ID</i>		
505	<i>SPED - Device busy</i>		
506	<i>SPED - Invalid request</i>		
507	<i>SPED - Sequence error</i>		
508	<i>SPED - LRC error</i>		
509	<i>SPED - No data</i>		
510	<i>SPED - Invalid message ID</i>		
511	<i>SPED - Device data overflow</i>		
512	<i>SPED - Device idle</i>		
513	<i>SPED - Device offline</i>		
514	<i>SPED - Device bit stuck</i>		
515	<i>SPED - Device attention stuck</i>		
516	<i>SPED - Device no attention</i>		
517	<i>SPED - Device timeout</i>		
518	<i>SPED - Command sequence error</i>		

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
519	SPED - Invalid command data	1) Verify all SPED connections. 2) Restart the operating system. 3) Clear any errors conditions (reference errors 205 and 239). 4) Inspect the battery for a voltage reading greater than 2.8 VDC. Replace SPED battery if below 2.8 VDC. 5) Replace SPED module if error persists.	<i>General Access</i> <i>General Troubleshooting: Keypad Issues</i> <i>Major Components: Customer Keypad</i>
520	SPED - Device reset		
521	SPED - Clear Key		
535	Should not get this error. Card Reader - Data size error	1) Inspect card reader cabling. 2) Inspect card reader for foreign objects and remove if applicable. 3) Clean the card reader with an approved cleaning device. 4) Clear the terminal error code. 5) Reboot the ATM. 6) If the error persists, replace the card reader.	<i>General Access</i> <i>Major Components: Magnet Card Reader</i>
538	Unknown cause Card Reader - Reader type error	1) Inspect card reader cabling. 2) Inspect card reader for foreign objects and remove if applicable. 3) Clean the card reader with an approved cleaning device. 4) Clear the terminal error code. 5) Reboot the ATM. 6) If the error persists, replace the card reader.	
539	Track 2 data on the card is not formatted properly. Card Reader - Invalid track	1) Verify Track 2 data on the card is formatted properly. If Track 2 data is correct, continue by performing steps for error 538 above.	
543	Unknown cause Card Reader - Sequence error	1) Inspect card reader cabling. 2) Inspect card reader for foreign objects and remove if applicable. 3) Clean the card reader with an approved cleaning device. 4) Clear the terminal error code. 5) Reboot the ATM. 6) If the error persists, replace the card reader.	
544	Software error created by sending a command to the wrong reader type. Card Reader - Invalid request <i>NOTE: Report this error to Triton Tech Support.</i>		
546	No data read from any of the tracks on the card. Card Reader - No data		
547	Unknown cause Card Reader - Start sentinel not found		

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
548	Unknown cause Card Reader - End sentinel not found	1) Inspect card reader cabling. 2) Inspect card reader for foreign objects and remove if applicable. 3) Clean the card reader with an approved cleaning device. 4) Clear the terminal error code. 5) Reboot the ATM. 6) If the error persists, replace the card reader.	<i>General Access</i> <i>Major Components: Magnet Card Reader</i>
549	Parity of the data going to the card reader is incorrect. Card Reader - Parity error		
551	Unknown cause Card Reader - Card removed too slow		
552	Unknown cause Card Reader - Device received invalid request		
553	Software error Card Reader - Device offline <i>NOTE: Report this error to Triton Tech Support.</i>		
554	Card Reader - Device reset		
555	Unknown cause Card Reader - System timeout	1) Check operation and voltages of the power supply. 2) Restart the terminal. 3) If error persists, it may be necessary to reload the operating system software or replace the ATM mainboard assembly.	<i>General Access</i> <i>General Troubleshooting: Blank Screen (for voltages)</i> <i>Major Components: Power Supply Unit</i>
556	Terminal power supply surged or faulty. Software corrupted or mainboard fault. Triton ATM System Timeout		
557	Same as error 556 System Device Reset		
558	Same as error 556 System Sync Error		
559	Same as error 556 O/S - O/S Error		
560	Same as error 556 Unknown Device Error		
561	Terminal software error		
562	The SPED keypad cannot be found or is not online	1) Verify all SPED connections. 2) Restart the operating system. 3) Clear any errors conditions (reference errors 205 and 239). 4) Inspect the battery for a voltage reading greater than 2.8 VDC. Replace SPED battery if below 2.8 VDC. 5) Replace SPED module if error persists.	<i>General Access</i> <i>General Troubleshooting: Keypad Issues</i> <i>Major Components: Customer Keypad</i>

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
563	Too many or excessively large graphics stored in flash memory The hard disk space is low	1) Check available memory in Management Functions (Main Menu > 5-System Parameters > 8-Statistics). 2) Delete any unused graphic files from internal flash memory.	See XScale/X2 Configuration Manual
564	External memory device in "Write" protect mode, not compatible, or defective. Cannot access the external device.	3) If the external device works with other computers, the mainboard assembly may be defective.	
566	Vault Door is Open	1) Close the vault panel door. Reset error code. 2) Check the cable connectivity between the door switch and other end at mainboard. 3) Check that the switch plunger moves freely when pushed in. 4) If error persists, suspect bad switch cable or switch assembly.	General Access
567	Cable faulty or improperly connected. Mainboard faulty. This error indicates that the communications from the security module to the mainboard is not operational. Security Module not Found	1) Inspect cable from security module to the mainboard for damage. Make sure that the cable is connected at both ends. 2) Restart ATM. Clear the error. 3) If error persists, suspect the security module, cable from the security module to the mainboard and the mainboard.	
568	Cable faulty or improperly connected. Mainboard faulty. This error indicates that the communications from the security module to the mainboard is not operational. Security Module Com Failed		
569	This error indicates that the communications from the security module to the dispenser is not operational. Security Module Attached Dev Com Failed	1) Inspect cable from security module to the dispenser for damage. Make sure that the cable is connected at both ends. 2) Inspect the dispenser. (Follow steps for error 130.) 3) Restart ATM. Clear the error. 4) If error persists, suspect the security module, cable from the security module to the dispenser, the dispenser, or power to the dispenser.	
570	Cable faulty or improperly connected. Security Module Dev Port Setup	1) Inspect cable from mainboard assembly to the security module for damage. Make sure that the cable is connected at both ends. 2) Restart ATM. Clear the error. 3) If error persists, replace the security module.	
571	Invalid Default Transaction		

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
572	Faulty, damaged, or disconnected SPED cable(s). Mainboard or SPED faulty SPED Key from Pad Cmd Aborted by User	1) Inspect cable from mainboard assembly to the SPED module for damage. Make sure that the cable is connected at both ends. 2) Restart ATM. Clear the error.	<i>General Access</i> <i>General Troubleshooting: Keypad Issues</i> <i>Major Components: Customer Keypad</i>
573	Faulty, damaged, or disconnected SPED cable(s). Mainboard or SPED faulty SPED Key from Pad Cmd Verify Failed	3) If error persists, it may be necessary to replace the mainboard, the SPED module, or related cabling.	
575	Components between mainboard and dispenser faulty. Power. Timeout Waiting to Send Command to Dispenser	1) Inspect the serial communication cables from the mainboard assembly to the dispenser for damage. Make sure that each end of the cable is connected securely. Replace the cable if it appears damaged.	<i>See General Troubleshooting: Blank Screen for voltages.</i> <i>General Access</i> <i>General Troubleshooting: Cash Dispenser Errors</i> <i>Major Components: Cash Dispenser Unit</i>
576	Components between mainboard and dispenser faulty. Power. Timeout Waiting to Receive Response from Dispenser	2) Check the power supply and dispenser for the proper DC operating voltages. 3) If error persists, contact Tech Support for assistance in diagnosing the possible defective components including mainboard, the serial communications cables, the DC power cables, the power supply, and the dispenser mechanism.	
579	SPED cables loose or damaged. DC voltages incorrect SPED Enable Keypad CMD Failed	1) Inspect cable from mainboard to the SPED module for damage. Make sure that the cable is connected at both ends. 2) Verify that the DC operating voltages are correct.	<i>See General Troubleshooting: Blank Screen for voltages.</i> <i>General Access</i> <i>General Troubleshooting: Keypad Issues</i> <i>Major Components: Customer Keypad</i>
580	SPED cables loose or damaged. DC voltages incorrect SPED Disable Keypad CMD Failed	3) Restart ATM. Clear the error. 4) If error persists, replace the SPED module.	
581	SPED cables loose or damaged. DC voltages incorrect SPED Enable Key from Pad Mode Failed		
582	SPED cables loose or damaged. DC voltages incorrect SPED Disable Key from Pad Mode Failed		
583	SPED cables loose or damaged. DC voltages incorrect SPED Enable PIN Entry Mode Failed		

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
584	SPED cables loose or damaged. DC voltages incorrect SPED Disable PIN Entry Mode Failed	1) Inspect cable from mainboard to the SPED module for damage. Make sure that the cable is connected at both ends. 2) Verify that the DC operating voltages are correct. 3) Restart ATM. Clear the error. 4) If error persists, replace the SPED module.	<i>See General Troubleshooting: Blank Screen for voltages.</i> <i>General Access</i> <i>General Troubleshooting: Keypad Issues</i> <i>Major Components: Customer Keypad</i>
587	No cassette in top feed channel during power up. Cassette unlocked in top feed channel. NMD 50 required cassette in top hopper.	1) Install a cassette in the top feed channel and restart the ATM. It should lock the cassette, recognize a cassette in feed channel one, and the error should not appear after the reset. 2) If a cassette is in the top feed channel, power down and power up the terminal. Cassette(s) should lock during power up.	<i>General Access</i> <i>General Troubleshooting: Cash Dispenser Errors</i> <i>Major Components: Cash Dispenser Unit</i>
592	Wrong application code or SPED version SPED reported Command failed	1) Verify SPED application code and version are correct. 2) If error persists, replace the SPED module.	<i>General Access</i> <i>General Troubleshooting: Keypad Issues</i> <i>Major Components: Customer Keypad</i>
593	Wrong application code or SPED version SPED in use		
594	Wrong application code or SPED version SPED reported COMM error		
595	Wrong application code or SPED version SPED returned invalid amount of data		
596	Wrong application code or SPED version Invalid SPED type		
597	Wrong application code or SPED version Invalid SPED COMMS protocol		
598	Wrong application code or SPED version Invalid SPED class		
599	Wrong application code or SPED version SPED reported unrecognized command		

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
600	Wrong application code or SPED version SPED reported Block does not exist	1) Verify SPED application code and version are correct. 2) If error persists, replace the SPED module.	<i>General Access</i> <i>General Troubleshooting: Keypad Issues</i> <i>Major Components: Customer Keypad</i>
601	Wrong application code or SPED version SPED reported invalid encrypt		
602	Wrong application code or SPED version SPED reported unsupported clear option		
603	Wrong application code or SPED version SPED reported tamper present		
604	Wrong application code or SPED version SPED reported invalid key index		
605	Master Key note loaded. The user attempted to load a working key before loading the corresponding master key. SPED reported parent key not loaded	1) Load the master key. 2) Download working keys. 3) If the error condition persists, verify the application code and SPED versions, then replace the SPED.	<i>See XScale/X2 Configuration Manual Or Basic Setup of the Triton ATMs</i>
606	Wrong application code or SPED version SPED reported wrong data length	1) Verify SPED application code and version are correct. 2) If error persists, replace the SPED module.	<i>General Access</i> <i>General Troubleshooting: Keypad Issues</i> <i>Major Components: Customer Keypad</i>
607	Wrong application code or SPED version SPED reported PIN retry too soon		
608	The self-diagnostic on the SPED's cryptographic engine failed. This should never happen. SPED self test CRC failed	1) Reset the error and reload the keys. 2) If the error persists, the SPED is likely faulty and needs to be replaced.	<i>See XScale/X2 Configuration Manual</i>
609	The self-diagnostic on the SPED's cryptographic engine failed. This should never happen. SPED self test Cryptographic error		

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
610	Battery Low SPED self test Battery low status	1) If the unit has been unplugged for some time (> 3 months), it is possible the battery just needs to be recharged. If this is the case, the error won't be able to be cleared for several hours. 2) If charging doesn't work, replace the battery, if accessible.	<i>General Access</i> <i>General Troubleshooting: Keypad Issues</i> <i>Major Components: Customer Keypad</i>
611	Serial number microchip not responding. SPED self test serial number error	1) Replace SPED.	
612	SPED prolonged exposure to low temperature. The temperature sensor was triggered because the SPED was held at a temperature < 42 degrees Fahrenheit. SPED tampered. SPED tamper status cold	2) Verify the SPED has not been replaced and is intact. 3) Get the unit in a warmer location, wait several hours, and then reset the error.	
613	The front triggers have been disturbed. Most likely, someone has been tampering with the SPED. SPED tamper status front	1) Verify the SPED has not been replaced and is intact. 2) Reset the error. 3) Replace SPED if damaged.	<i>General Access</i> <i>General Troubleshooting: Keypad Issues</i> <i>Major Components: Customer Keypad: How to Remove the Customer Keypad</i>
614	The back triggers have been disturbed. Most likely, someone has been tampering with the SPED. SPED tamper status back		
615	Battery low SPED tamper status grid	1) If the unit has been unplugged for some time (> 3 months), it is possible the battery just needs to be recharged. If this is the case, the error won't be able to be cleared for several hours. 2) If charging doesn't work, replace the battery, if accessible.	<i>General Access</i> <i>General Troubleshooting: Keypad Issues</i> <i>Major Components: Customer Keypad: How to Replace the Battery...</i>
616	SPED DC operating voltages missing or incorrect. SPED tamper status voltage	1) Perform Clear Tamper in Management Functions (Main Menu > 2-Diagnostics > 8-Keypad > 4-Clear Serial Number or Tamper Error).	<i>General Access</i> <i>General Troubleshooting: Keypad Issues</i> <i>Major Components: Customer Keypad: - Steps for Tamper Error Codes or Tamper Related Errors</i> <i>- How to Remove the Customer Keypad</i>
617	The serial number stored in the software does not match the serial number of the EPP. The keypad has been changed or a full software load has occurred. SPED serial number changed	2) Inspect cable from mainboard to the SPED module for damage. Make sure that the cable is connected at both ends. 3) Verify that the DC operating voltages (from power supply) are correct. 4) Restart ATM. 5) If error persists, replace the SPED.	
618	SPED tamper status CRC	1) Reset the error and reload the keys. 2) If the error persists, the SPED is likely faulty and needs to be replaced.	

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
621	SPED unrecoverable device tamper		
900	A cassette is low in cash Dispenser – Cassette is low	1) Replenish cash in cassette.	<i>See User Manual</i>
901	All cassettes are low in cash Dispenser – All cassettes are low	1) Replenish cash in all cassettes.	
902	A cassette is empty, no cash Dispenser – Cassette is empty	1) Replenish cash in cassette.	
903	All cassettes are empty, no cash Dispenser – All cassettes are empty	2) Replenish cash in all cassettes.	
904	No cassette in dispenser or not fully inserted into position Dispenser – Cassette is missing	1) Insert cassette in dispenser. 2) Remove/replace cassette, ensuring it is seated properly.	
905	Reject bin is almost full. Dispenser – Reject bin is almost full.	1) Empty reject bin. 2) If reject bin is empty, perform a “Day Close” and then a “Cassette Close.”	<i>See User Manual and XScale/X2 Configuration Manual</i>
906	Reject bin is full. Dispenser – Reject bin is full.	3) If still unresolved, check dispenser firmware version.	
907	Reject bin is missing Dispenser – Reject bin is missing.	1) Check wiring to reject bin. 2) Ensure all connections are intact.	<i>General Access General Troubleshooting: Cash Dispenser Errors Major Components: Cash Dispenser Unit</i>
908	Cassette is jammed. Dispenser – Cassette is jammed.	1) Clear any jammed bills in dispenser delivery path. 2) Inspect/clean sensors. 3) Check/reset bills in cassette.	
910	No communication with dispenser Dispenser – Is not connected	1) Verify cables to dispenser from mainboard are connected at both ends. 2) Check cables for damages, continuity.	
912	Unknown dispense occurred Dispenser – Unknown dispense occurred.		
915	Note jammed in dispenser Dispenser – Jam is detected.	1) Clear any jammed bills in dispenser delivery path. 2) Inspect/clean sensors. 3) Check/reset bills in cassette.	

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
916	Sensor blocked, tripped Dispenser – Sensor remains covered.	1) Clear any jammed bills in the exit sensor. (Sometimes caused by customer putting fingers in exit while cash is dispensing.) 2) Clear/clean all sensors on dispenser. 3) Reset error condition. 4) Check dispenser cable connections. 5) Perform a test dispense. 6) Replace sensor and test again.	<i>General Access</i> <i>General Troubleshooting: Cash Dispenser Errors</i> <i>Major Components: Cash Dispenser Unit</i>
917	Dispenser – Hardware component failed.	1) Clear any jammed bills. 2) Check motor connections and time wheel sensor (encoder sensor). 3) Remove SCDU/HCDU main motor, leaving it connected. 4) Power back on to see if motor turns at initialization. 5) If failed, try again with a new motor. • If that one works, the original motor is defective. Replace. • If the new motor does not work, may need to replace the SCDU/HCDU circuit board.	
918	Dispenser – Encryption command failure	1) Verify firmware version of dispenser.	
919	Excessive rejects to reject bin Dispenser – There are too many rejects.	1) Check bills in the reject bin. 2) Check the status and quality of the bills in the cassette. 3) Inspect/clean sensors. 4) Verify the multiple amount (denomination value) in Cassette Parameters.	<i>General Access</i> <i>General Troubleshooting: Cash Dispenser Errors</i> <i>Major Components: Cash Dispenser Unit</i>
920	Invalid note size Dispenser – Invalid note size detected	1) Check bills in cassette. 2) Check double detect sensors. 3) Perform test dispense with bills known to be correct size. 4) Replace double detect sensors and/or double detect sensor circuit board. 5) If problem persists, replace SCDU/HCDU circuit board.	
921	Dispenser – Number of bills requested is not valid.		
922	The number of notes passed the exit is not equal to the requested number	1) A mechanical error has occurred. It may be necessary to send in for repair.	

COMMUNICATION ERROR CODES

Below are the Communication Error Codes. These are communication errors which may only be found in the journal and not on the terminal screen. These issues often are temporary, but when they become persistent, action steps are provided.

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
1	Request has been sent. Time-out waiting for response or carrier was dropped. No/minimal characters were received. Time-out is typically 60 seconds. Communications error - Time Out	1) Verify setup of host phone numbers or IP address & ports. 2) Verify/test phone line or Ethernet connections. 3) Verify quality of phone line (noise, etc.). 4) Check modem configuration.	<i>General Access Communication Issues: Basic Dialup Communication Checks</i>
3	May be a processor or telephone hardware problem. Communications error - BGD - No answer	5) Perform test on modem/Ethernet in Management Functions. 6) Contact & verify connection with host.	
4	Unexpected data received from processor in response to message. Communications error - Error in modem data	1) Test the modem via the Management Functions menu. 2) Contact the processor to verify conditions on that end.	
5	Telephone line is not dedicated (ATM is being used with another device connected to the line.) Telephone line is noisy and in general has poor quality characteristics. Baud rate set too high for telephone line conditions. Communications error - Connect 1200 Baud then lost carrier or connection. Host hung up.	1) Set up with a dedicated phone line. 2) Check baud rate setup of modem and change if needed.	
6	Used up all redial attempts and got no dial tone for each attempt. Telephone hardware problems. Communications error - BGD - No Dial Tone	1) Check local telephone line for proper operation.	
7	Terminal dialed out and reached a busy signal. Communications error - BGD - Busy	1) If problem persists, verify the phone number. 2) Try calling the number with a handset to verify, and/or work with the processor to rectify. 3) Verify phone number setup on Communications screen.	
10	Communications error - BGD - Log On		

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
11	Used up all redial attempts and got busy signal for each attempt or no dial tone for each attempt. Got connected and never received ENQ within time-out period (14 Seconds). Communications error - BGD - No Connect	1) Check local telephone line for proper operation. 2) If problem persists, verify the phone number. 3) Try calling the number with a handset to verify, and/or work with the processor to rectify. 4) Verify phone number setup on Communications screen.	<i>General Access Communication Issues: Basic Dialup Communication Checks</i>
13	Communication was normal, but response header does not match request. Communications error - BGD - Done Good	1) Contact processor to work to rectify. 2) If this persists, may need to replace mainboard.	<i>General Access Communication Issues: Basic Dialup Communication Checks How to Remove the Mainboard</i>
14	EOT was received as first character after the first request message was sent. If EOT is received on subsequent attempts, error code 1 is reported. Communications error - BGD - Done Bad		
15	EOT from processor was not received within time out period. Carrier was not lost, but no EOT was received before the time-out period expired. Communications error - Time out waiting for EOT	1) Verify/test phone line connections and cables. 2) Confirm correct modem setup in Management Functions. 3) Contact host to verify handshake protocol.	<i>General Access Communication Issues: Basic Dialup Communication Checks</i>
16	Triton Connect calls only - modem lost carrier signal. Communications error - Communications problem		
17	EOT from processor was not received within time out period. Carrier was lost before receiving EOT. Communications error - No EOT		
18	Received more characters than expected after request causing modem buffer overflow. Communications error - Overflow		

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
48	Modem response was good, but operation was not performed. This is normally an internal terminal problem. Communications error - No Answer	1) Verify/test phone line connections and cables. 2) Confirm correct modem setup in Management Functions. 3) Contact host to verify handshake protocol.	<i>General Access Communication Issues: Basic Dialup Communication Checks</i>
65	This is normally a terminal problem. The modem or the mainboard may cause the problem. Communications error - Processor not communicating with the modem correctl	1) Verify/test phone line connections and cables. 2) Confirm correct modem setup in Management Functions. 3) Contact host to verify handshake protocol. 4) If problem persists, may need to replace mainboard.	
100	Request sent. Time-out waiting for response or carrier was dropped. No characters were received. Time-out is typically 60 seconds. Communications error - Time-out: Request has been sent. Timed out waiting for response.	1) Verify/test phone line connection(s). 2) Verify quality of phone line (noise, etc.). 3) Contact host to verify connection and handshake protocol (transmission) received from modem. 4) Retest modem.	
101	Used up all redial attempts and got busy signal for each attempt or no dial tone for each attempt. Got connected and never received ENQ within time-out period (14 Seconds). Communications error - No Connect	1) Verify setup of host phone numbers. 2) Verify/test phone line connections. 3) Verify quality of phone line (noise, etc.). 4) Check modem configuration. 5) Perform test on modem in Management Functions. 6) Contact & verify connection with host.	
103	May be a processor or telephone hardware problem. Communications error - No answer		
105	EOT from processor was not received within time out period. Carrier was lost before receiving EOT. Communications error - No EOT	1) Verify/test phone line connections and cables. 2) Confirm correct modem setup in Management Functions. 3) Contact host to verify handshake protocol.	
107	The customer has terminated the transaction prior to the approval command being sent. Communications error - User cancelled transaction.	This is a notification, not an error.	

CODE	DESCRIPTION/CAUSE	ACTION	REFERENCE
108	Request was sent but no response received after the specified time (60 seconds). Communications error - No response	1) Verify setup of host phone numbers. 2) Verify/test phone line connections. 3) Verify quality of phone line (noise, etc.). 4) Check modem configuration. 5) Perform test on modem in Management Functions. 6) Contact & verify connection with host.	<i>General Access Communication Issues: Basic Dialup Communication Checks</i>
109	Negotiation with host was complete, but no ENQ was received (Dial-up protocol only). Communications error - No ENQ	1) Contact and verify connection with host.	
110	Request was sent but invalid data was received while waiting for the beginning of a response (STX). Communications error - Invalid response		
111	The LRC received in response was not valid. Possible cause is an error with the terminal ID or comm header. Communications error - Invalid LRC	1) Verify the Terminal ID and Comm Header with the processor. 2) In Management Functions, clear Terminal ID and Comm Header and re-enter.	
113	A response was received, the LRC was validated, but an error in the response format was found. Possible cause is the processor sent data not correct for the ATM's modem. Communications error - Response format error	1) Verify the terminal type and configuration with the processor.	

SECTION 3: COMPONENT SERVICE



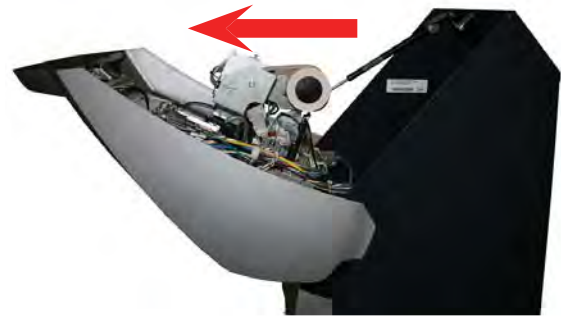
This section provides some instructions to assist in the service of various components of the ARGO ATM. The ARGO series of Triton's ATMs has a very robust mix of possible options. If the particular component/device you need to service is not listed here, contact Triton's Technical Support for assistance.

GENERAL ACCESS

The monitor, card reader, receipt printer, function keys, and customer keypad are all behind the control panel of the ATM. These are accessed for service via the following steps.

HOW TO ACCESS COMPONENTS BEHIND THE CONTROL PANEL

1. Unlock the panel with the key. The lock is located at the top of the cabinet behind the "ATM" sign.
2. Tilt the control panel forward. This should allow full access to all components in the upper cabinet.



HOW TO ACCESS THE BUSINESS HOUR CABINET / LEVEL ONE VAULT

(MECHANICAL LOCK)

1. Unlock the lower panel with the key and pull open the lower fascia.
2. Rotate the dial to the left (counterclockwise), making at least four complete revolutions, then stop on the first combination number. ("50" is the factory default.)



(ARGO 12 shown)



4 revolutions

NOTE: For this manual, the factory default settings of the combination are used – as if this is a new unit. Service technicians should otherwise ask the proprietor to open the cabinet / vault for service access.

3. Rotate the dial to the right (clockwise) until it cannot move. (around the 90 mark)



NOTE: The opening mark is used to open the cabinet / vault.

4. **For Business Hour Cabinet:** Lift up on the door handle and pull the door open while the latch is up.



- For Level One Vault:** Turn the handle either up or to the right (depending on the vault) and pull open the door.



Level 1 Vault



Level 1 Vault

HOW TO ACCESS THE BUSINESS HOUR CABINET / LEVEL ONE VAULT

(ELECTRONIC LOCK)

1. Unlock the lower panel with the key and pull open the lower fascia.



(ARGO 12 shown)

2. Enter the six digit combination. ("1, 2, 3, 4, 5, 6" is the factory default.) A double signal will announce a valid combination.



NOTE: If an invalid combination is entered, the lock will beep three (3) times.

3. **For Business Hour Cabinet:** Lift up on the door handle and pull the door open while the latch is up



- For Level One Vault:** Turn the handle either up or to the right (depending on the vault) and pull open the door.



***NOTE:** There is only about a four second window of time to lift the latch and open the door after the combination is entered.*

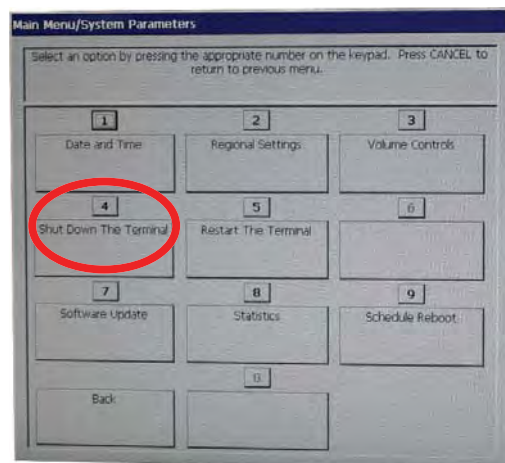
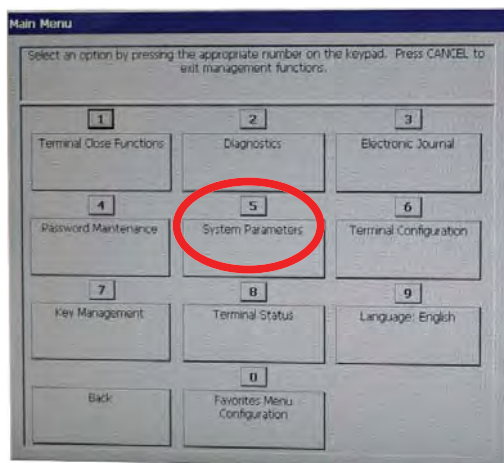
PROPER SHUTDOWN PROCEDURES

Many service calls to the ATM require shutting down the unit for both damage prevention and safety. Triton software detects abnormal shutdowns and reports these in the journal entries along with the number of normal shutdowns.

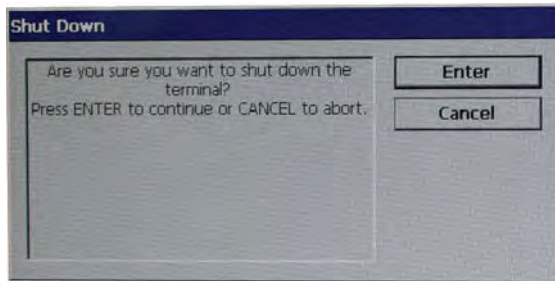
WARNING: Abnormal shutdowns could cause an internal file system corruption if the power switch is turned off while the system is performing a write operation.

Abnormal or improper shutdowns occur when the following steps are not followed.

1. Access the Triton **Management Functions Main Menu** via the login password.
2. Press 5 to select **System Parameters**.
3. Press 4 to select **Shut Down The Terminal**.



4. Press ENTER to confirm at the prompt.



5. When the following popup message appears, press the power switch inside the cabinet to the OFF position.



Press **O**
on the
switch to
turn Off.

The ATM runs on a computer with an embedded Windows CE 5.0 operating system. While it may be necessary at times to switch off the ATM without going through the proper procedures, it is always prudent to take the safest measures to protect the performance of the terminal by first allowing the system to close its processes before shutting off.

MAJOR COMPONENTS

The following instructions focus on service to the major components of the ATM. These include:

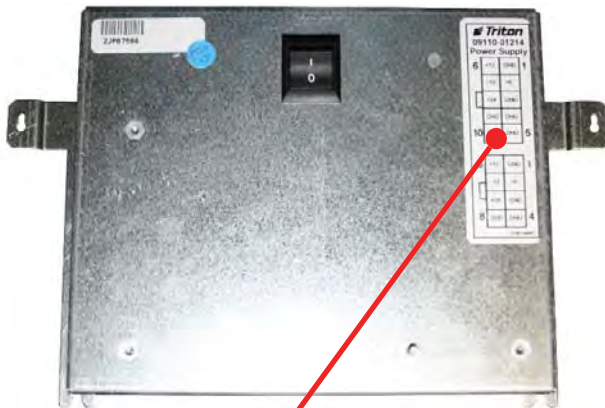
- ✧ Power Supply
- ✧ Mainboard
- ✧ Display (LCD)
- ✧ Printer
- ✧ Cash Dispenser
- ✧ Card Reader
- ✧ Function Keypad
- ✧ Customer Keypad
- ✧ Cabinet / Vault

POWER SUPPLY UNIT

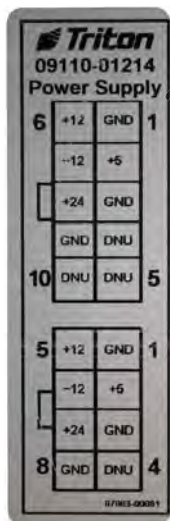
There are two types of power supplies for the ARGO, the smaller single power supply is found on those ATMs with the MiniMech or SCDU dispenser and the larger dual power supply is found on all other ARGO units.

SINGLE POWER SUPPLY UNIT

Front



Back



The label on the power supply indicates the voltage requirements for this component. The 8 pin diagram represents all 3 of the 8 pin connectors on the power supply. These may be verified by using a multimeter or voltmeter.



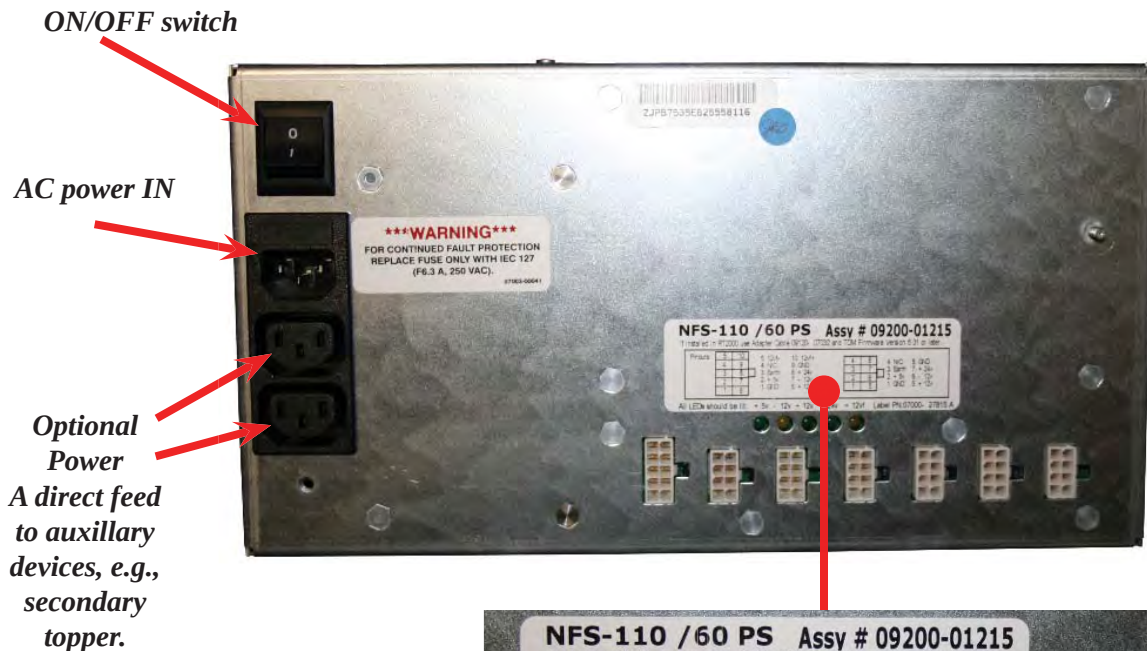
Side view showing connectors

The single power supply receives external power via an outlet on the left side of the unit and provides power to the ATM via the connectors on the right side. This power supply unit will service any ARGO with either a MiniMech or SCDU dispenser.

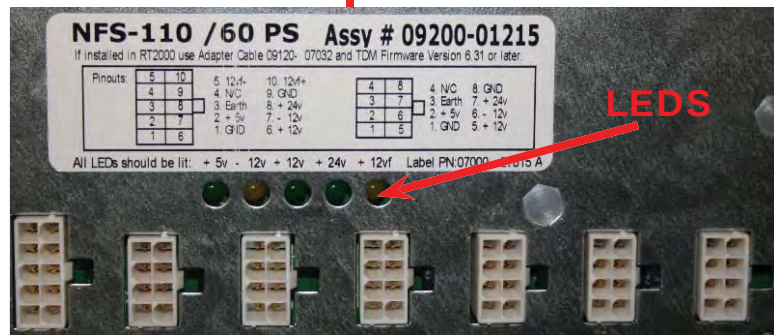
This unit may be easily removed by safely turning off power to the ATM, disconnecting the wires (including the ground wire), and loosening two nuts underneath the power supply. An 11/32 inch driver will do the trick. Once loose, just lift up the power supply and pull it away from the cabinet.

DUAL POWER SUPPLY UNIT

The dual power supply is found in ARGO ATMs with SDD, NMD50, or HCDU dispensers. All connections, both input and output, are on the front side of the power supply unit.



Like on the single PS, the label on the power supply indicates the voltage requirements. The 8 pin diagram represents all 6 of the 8 pin connectors on the power supply. These may be verified by using a multimeter or voltmeter. Notice on the dual power supply that there are LED lights between the connectors and the label. These are identified at the bottom of the label. When the power supply is providing respective voltages for each, the LEDs will be lit.



Back



The backside of the dual power supply reveals the locations of the posts for attaching it to the cabinet.

This unit may be easily removed by safely turning off power to the ATM, disconnecting the wires (including the ground wire), and loosening two nuts underneath the power supply. An 11/32 inch driver will do the trick. Once loose, just lift up the power supply and pull it away from the cabinet.

MAINBOARD

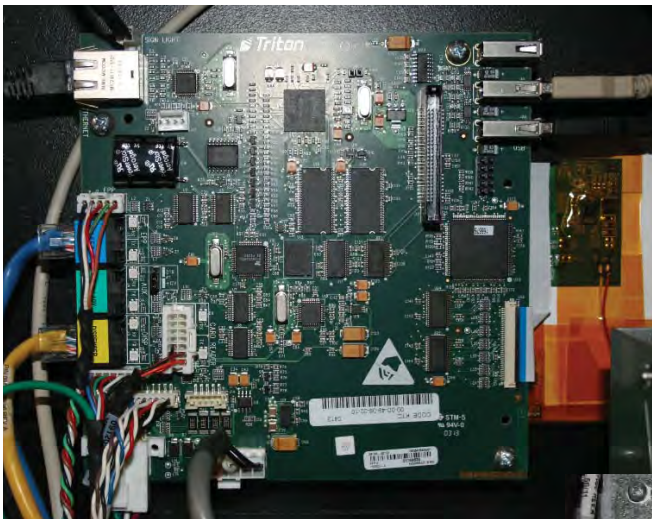
The mainboard includes the Central Processing Unit (CPU) and all its associated circuitry. It distributes logic voltage and contains the interface circuitry between the CPU and all of the other devices within the terminal. Since the mainboard communicates with all of the devices in the terminal, if the problem is not the device itself, the mainboard may be the cause of any generalized communication errors. It also stores and manages the application program and the configuration settings (including the advertisements).

Programming for the mainboard can be considered as two distinct entities:

- ▶ BIOS – Basic input/output system. This is the embedded software (firmware) in the ROM chips.
- ▶ Application – This is the software running on the mainboard that provides the ATM user the ability to perform the desired tasks for their banking needs.

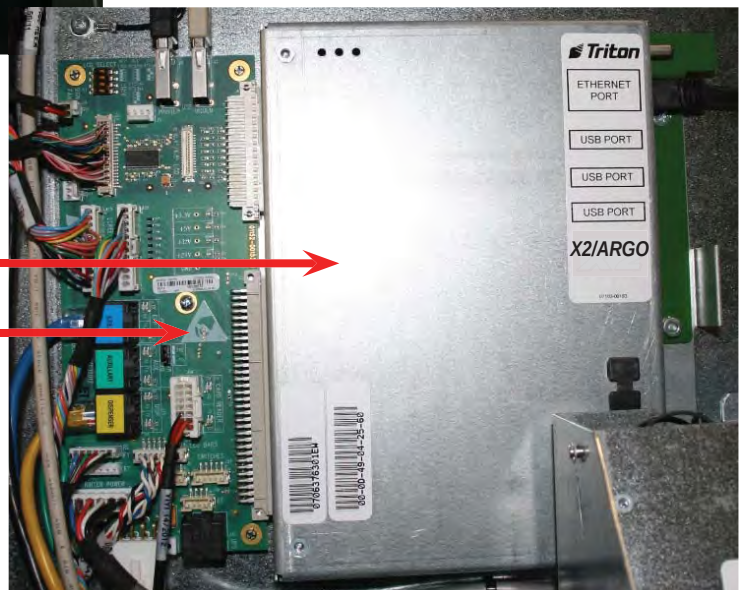
The ARGO 7 mainboard has all the necessary connections to service the devices on the ATM. The ARGO 12 has a docking board connected (docked) to the mainboard. Except for the Ethernet connection, this docking board has all the other connections for the supported devices.

The photos below show the mainboards as they appear when properly connected.



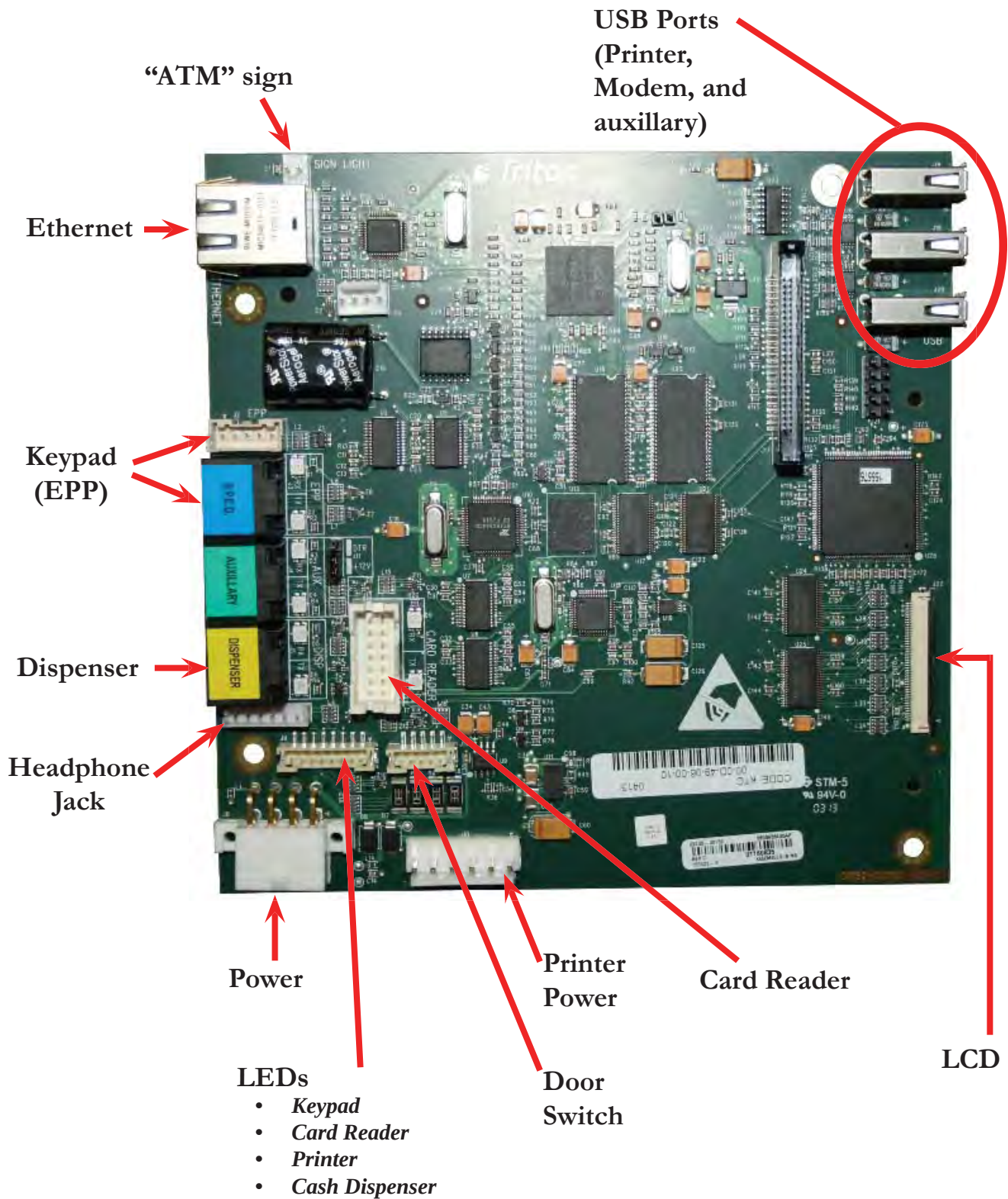
**ARGO 7
Mainboard**

**ARGO 12
Mainboard
and
Docking Board**

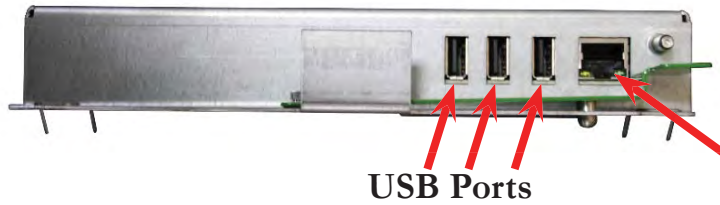


The mainboard for the ARGO 12 is completely encased in a metal cover. Do not attempt to remove it from this cover!

ARGO 7 MAINBOARD ASSEMBLY CONNECTIONS



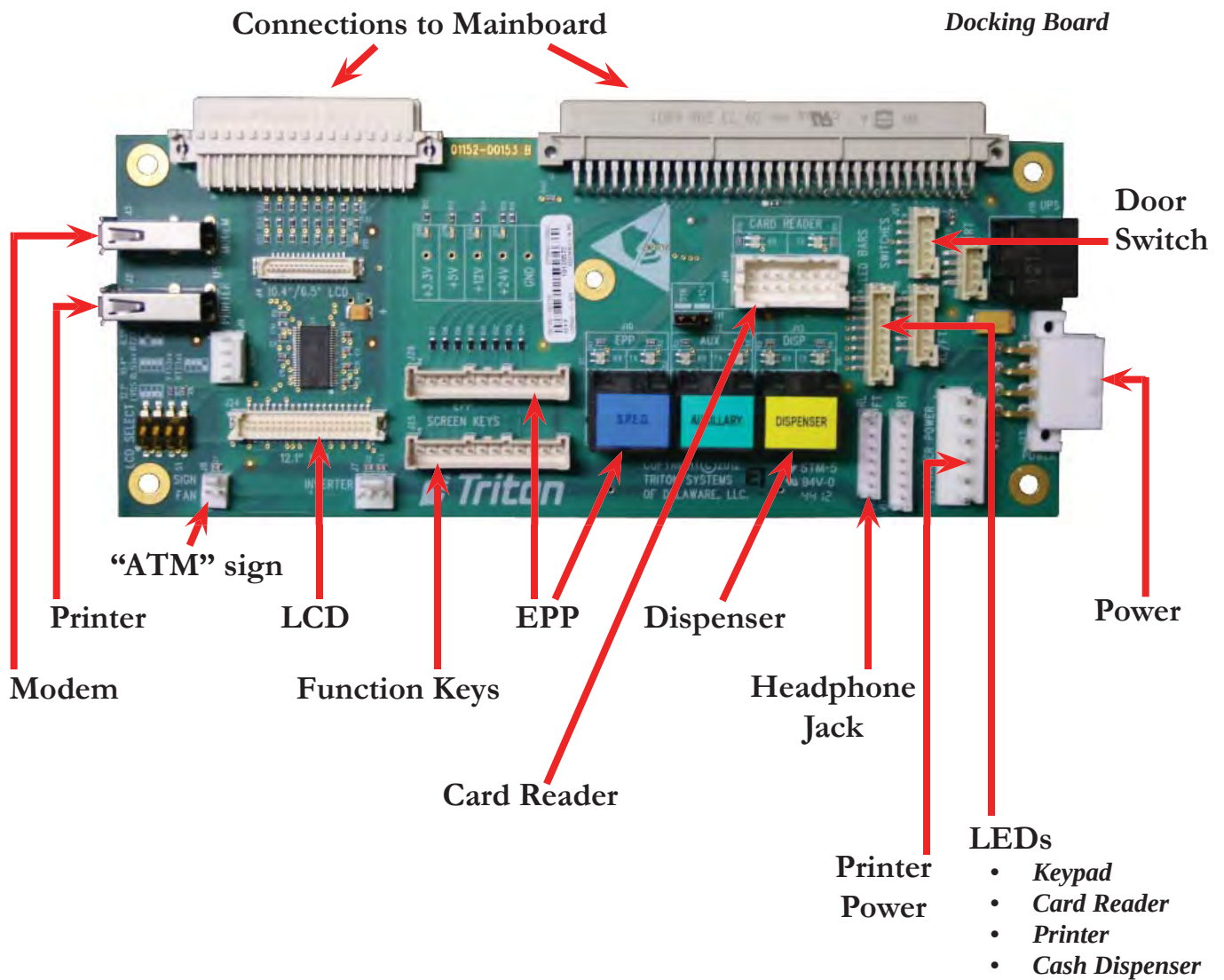
ARGO 12 MAINBOARD/DOCKING BOARD ASSEMBLY CONNECTIONS



Mainboard side views



Connections to Docking Board

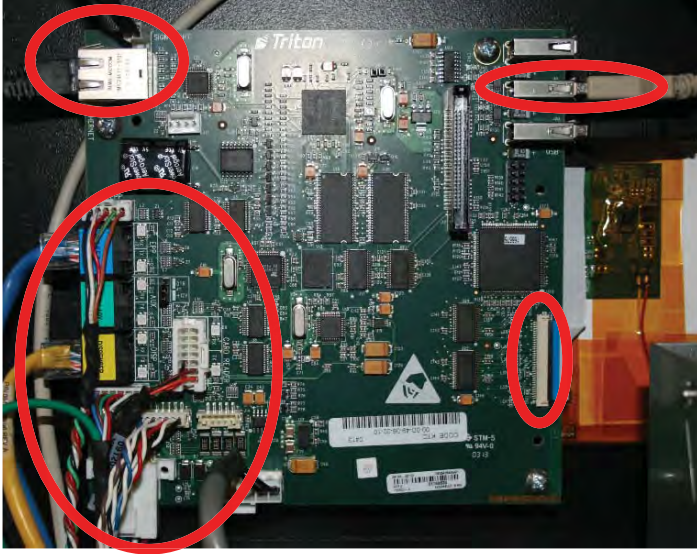


HOW TO REMOVE THE ARGO 7 MAINBOARD

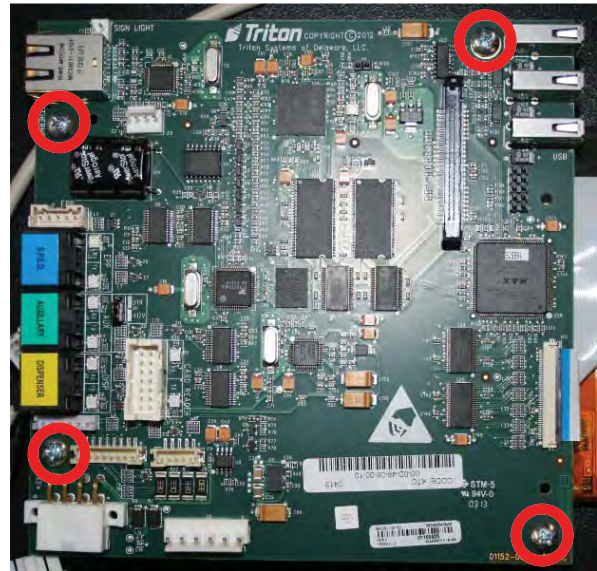
Tools:

1 - #2 Phillips screwdriver

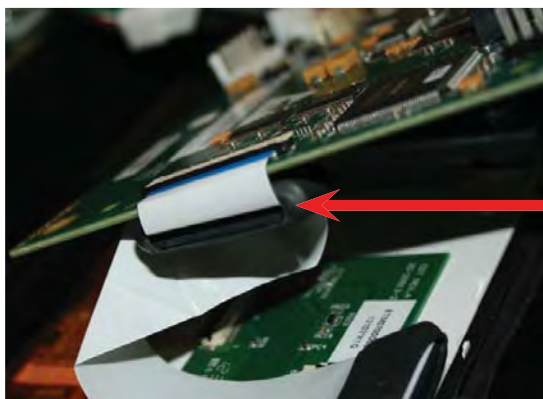
1. Perform steps in *Proper Shutdown Procedures* and *How to Access Components Behind the Fascia*.
2. Disconnect all cables and wiring from the mainboard.



3. Remove the four mounting screws near each corner of the mainboard. Then lift off the mainboard.



NOTE: To replace the mainboard, perform these steps in reverse order. When re-attaching the mainboard, ensure the blue strip on the ribbon cable is up and the ferrite on the ribbon cable of the LCD is tucked under the mainboard, as shown in the photo.



Ferrite tucked under the mainboard

HOW TO REMOVE THE ARGO 12 MAINBOARD

Tools:

- 1 - #2 Phillips screwdriver (long neck needed)

1. Perform steps in *Proper Shutdown Procedures* and *How to Access Components Behind the Fascia*.
2. Disconnect the Ethernet cable and any USB cables connected to the mainboard.

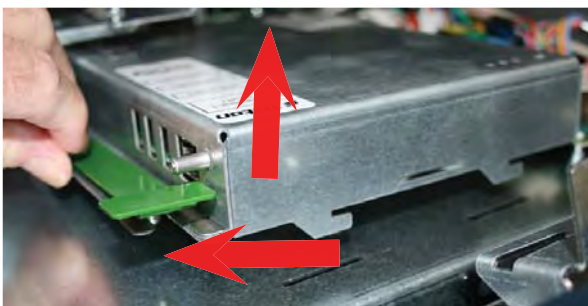


4. Reach through the printer bracket opening to remove the screw from the mainboard cover bracket.

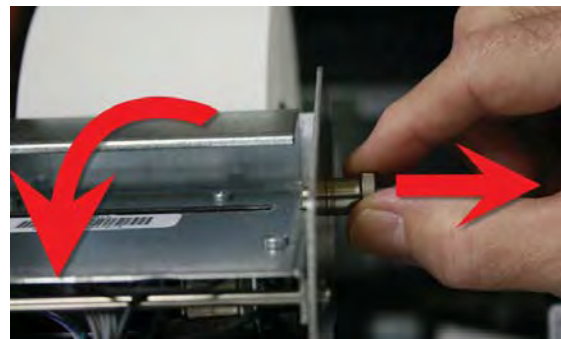


*Long
screwdriver
removing screw*

6. Pull out, then up to disconnect from the docking board and remove from the slots.



3. After cutting off the printer paper, pull out the release lock on the printer while tilting the printer head out. This will allow access to the screw securing the mainboard.



5. Lift the green latch to release the holding pin of the mainboard cover.



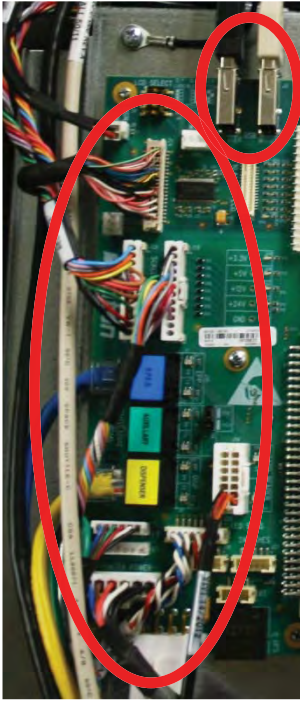
NOTE: To replace the mainboard, perform these steps in reverse order.

HOW TO REMOVE THE ARGO 12 DOCKING BOARD

Tools:

1 - #1 Phillips screwdriver

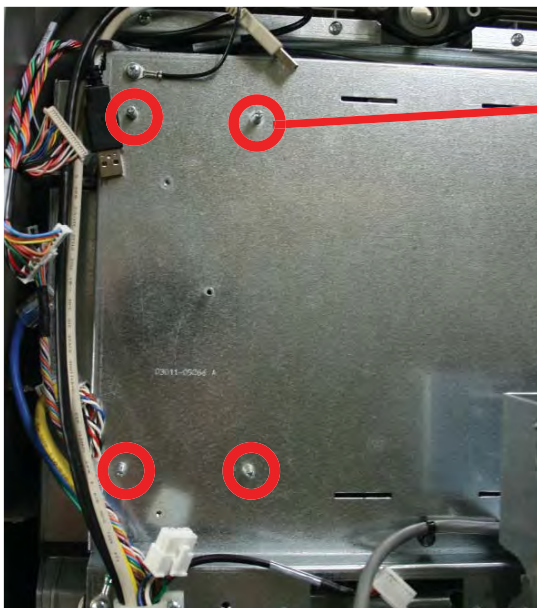
1. Perform steps in *Proper Shutdown Procedures* and *How to Access Components Behind the Fascia*.
2. After removing the mainboard, disconnect all cables/wires from the docking board.



3. Remove the screw near the center of the docking board.



4. Gently pull at each corner to release the docking board from the snap-top standoff posts. These posts use tension to hold the docking board stable. Press up from the bottom corner of the board to prevent damage to the board while releasing from each post.



Closeup of a snap-top standoff post

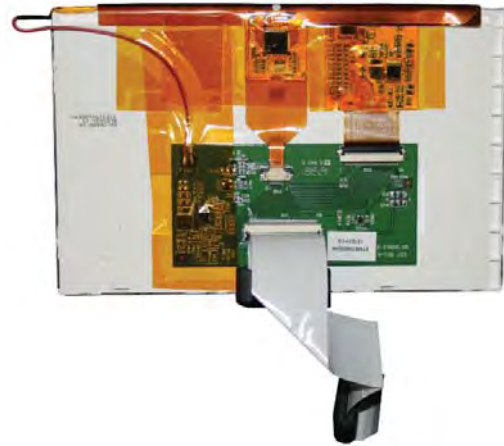
NOTE: To replace the docking board, perform these steps in reverse order.

DISPLAY (LCD)

The ARGO 7 is a 7" capacitive touch color LCD screen. Almost all functions can be performed by touching the screen like a portable tablet. (Password entry is always performed on the keypad.)



ARGO 7 Display front



ARGO 7 Display back

The ARGO 12 is a 12.1" color LCD screen. The 12.1" display is not a capacitive touch screen. Only the adjacent function keys have touch sensors. Except for the function keys, all other actions are executed via the customer keypad.



ARGO 12 Display front



ARGO 12 Display back

Possible issues:

- Lines across screen (horizontally or vertically)? The video controller (on the CE mainboard) is faulty.
- Indistinct shapes on screen? The LCD screen is probably cracked.
- Blank screen? See the *Introduction: Blank Screen* section.

HOW TO REMOVE THE ARGO 7 DISPLAY MONITOR

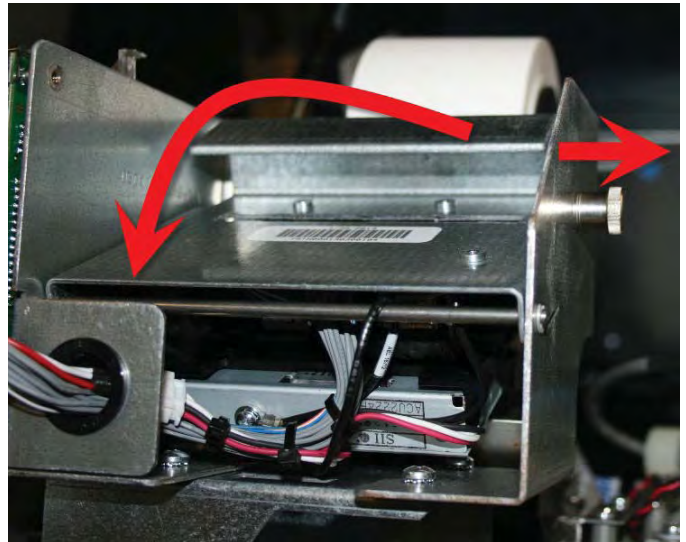
Tools:

1 - #2 Phillips screwdriver

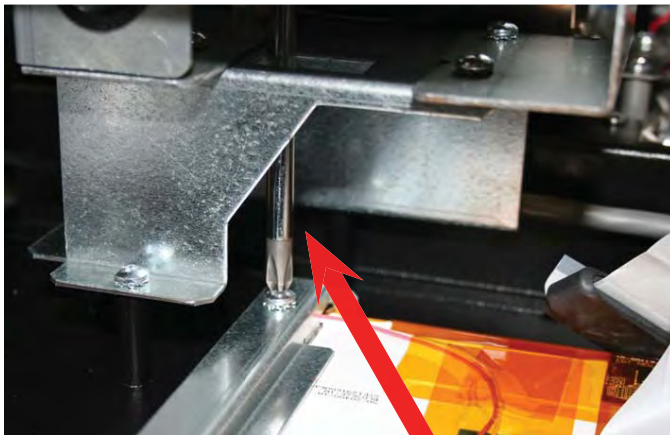
1. Perform steps in *Proper Shutdown Procedures* and *How to Access Components Behind the Fascia*. Perform steps in *How to Remove the ARGO 7 Mainboard*.
2. Remove the three easily accessible screws that hold the display brackets in place. Remove the hinge side bracket and set it aside for reinstallation. (The printer interferes with access to the fourth screw, but it can be accessed without removing the printer.)



3. After cutting off the printer paper, pull out the release lock on the printer while tilting the printer head out, as indicated below. This will allow access to the final screw securing the display bracket.

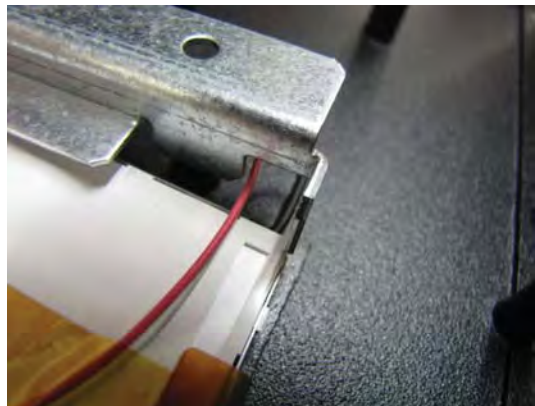


4. Using a long neck Phillips screwdriver, reach through the printer bracket opening to remove the screw from the display bracket.



*Long screwdriver
removing screw*

NOTE: To replace the display monitor, perform these steps in reverse order. Ensure to route the cable through the notch in the hinge side bracket to prevent damage.



HOW TO REMOVE THE ARGO 12 DISPLAY MONITOR

Tools:

1 - #2 Phillips screwdriver

1. Perform steps in *Proper Shutdown Procedures* and *How to Access Components Behind the Fascia*.
Perform steps in *How to Remove the ARGO 12 Mainboard*.
2. Perform steps in *How to Remove the ARGO 12 Docking Board*.
3. Perform steps in *How to Remove the Printer*.
4. Remove the 8 bracket screws and 3 screws that affix ground wires. (4 ground screws if EMV present)



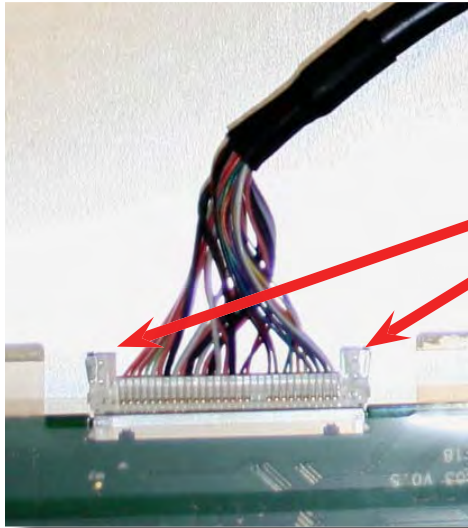
**Remove 8 bracket
screws
and
3 ground screws
(4 ground screws if
EMV present)**

Note: It may be necessary to remove a screw holding the cable wrap to access one of the other screws.

5. **WHILE HOLDING THE GLASS ASSEMBLY**, carefully lift the monitor bracket away from the fascia ensuring all wiring is cleared.
6. With the bracket now removed, turn it around to reveal the monitor. Remove the glass assembly and set it aside. Remove the 4 screws that secure the monitor to the bracket.



7. With the display monitor free from the bracket, turn the monitor over and disconnect the LCD cable. Squeeze each end of the connector to release and pull out the cable.



Squeeze each end of the connector simultaneously and pull out connector.

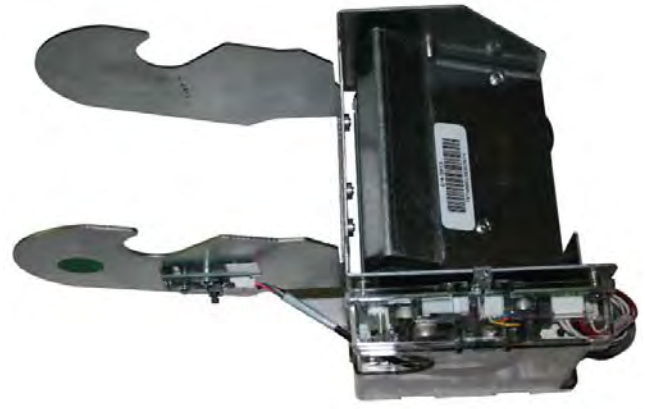
NOTE: To replace the display monitor, perform these steps in reverse order.

PRINTER

The ARGO series uses either a 60 mm thermal printer (Seiko LPT2242) or a 80 mm thermal printer (Seiko LPT 2342).



60 mm Printer

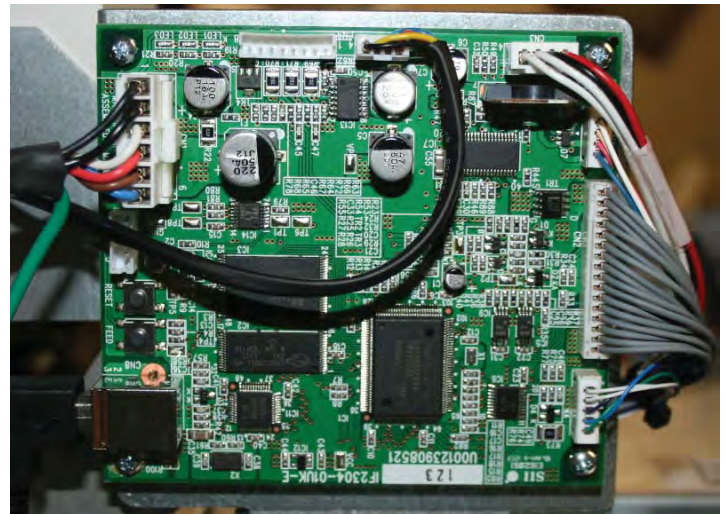


80 mm Printer

The same PCB is used for both of these printers. All connections are the same for both printers.



Printer PCB



Printer PCB connections

The printer assembly consists of four (4) primary components:

- Printer Mechanism
- Printer Controller PCB w/cover
- Receipt Paper Auto Cutter
- Low Paper Sensor/Paper Feed (Self Test) Switch PCB

The general specifications of the two printers are indicated in the table below.

FEATURE	60 MM (LPT2242)	80 MM (LPT2342)
Print Method	Thermal	Thermal
Printable Dots Per Line	432	576
Resolution	8 dots per mm	8 dots per mm
Print Speed	90 mm / sec	75 mm / sec
Print Width	54 mm	72 mm
Paper Width	60 mm	80 mm
Head Temperature Detection	Thermistor	Thermistor
Head Down Detection	Mechanical Switch	Mechanical Switch
Out of Paper Detection	Photo Interrupter	Photo Interrupter
Operating Voltage:		
Motor	24v	24v
Logic	5v	5v
Receipt Paper Auto Cutter:		
Cut Width	63 mm	85 mm
Blade Type	Slide	Slide
Blade Position (Home) Detector	5v	5v
Motor Voltage	24v	24v

The general status of the printer can be viewed in the printer Device Status option in Management Functions (0 - Main Menu > 2 - Diagnostics > 6 - Printer > 1- Device Status.)

General service activity is performed in the following manner:

- Verify all cable connections are securely seated at the printer controller PCB, the low paper sensor PCB on the paper roll bracket, and where the printer communication cable connects to the mainboard. Reseat all connections with the proper orientation as needed.
- Run the printer's Self Test. Press and release the manual feed/self test switch on the the low paper sensor PCB on the left side of the paper roll bracket. If the test fails, there may be a problem with power to the printer controller (the printer power cable or power supply), the printer controller, the printer mechanism, or the data cable between the two (2) components.
- If the printer passes the manual Self Test, log into Management Functions to perform the following steps:
 1. From the Main Menu, select **2 - Diagnostics**.
 2. Select **6 - Printer**.
 3. Select **1 - Device Status** and check for any error conditions. Correct any obvious errors, e.g., paper jam, out of paper, low paper, head up, etc.



IMPORTANT

The Device Status Report should be run BEFORE attempting the Reset/Test option. Failure to do so may reduce the amount of diagnostic detail listed in the report.

4. Select **2 - Reset/Test Printer** to print a test receipt.

If all external error conditions have been checked and corrected as applicable, and the printer passed the Self Test feature, there may be a problem with the mainboard, or the printer data communication cable from the mainboard to the printer controller. If the printer format is correct on the Self Test, but looks distorted when printing from the Management Functions Diagnostics test feature or Customer Transactions, there may be a problem with the software.

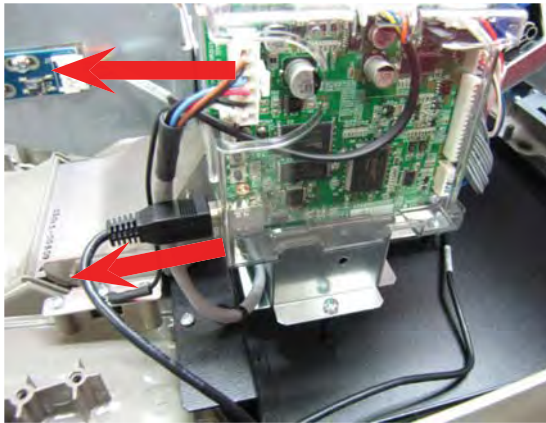
For information about the LEDs on the printer PCB, see *Introduction: Basic Troubleshooting: The Indicators*.

HOW TO REMOVE THE PRINTER ASSEMBLY

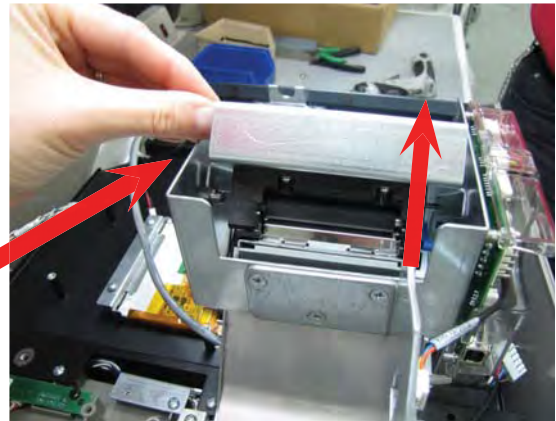
Tools:

- 1 - #2 Phillips screwdriver

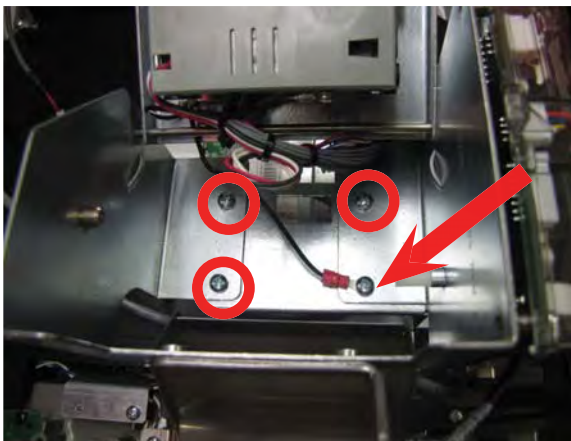
1. Perform steps in *Proper Shutdown Procedures* and *How to Access Components Behind the Fascia*.
2. Disconnect the Printer Power cable and the Printer USB cable from the printer.



3. Remove the receipt paper from the printer mechanism and then remove the paper roll from the retention bracket. Open the printer by pulling and holding the locking pin out and rotating the printer open. Release the locking pin.



4. Remove the four screws from the inside of the printer assembly.



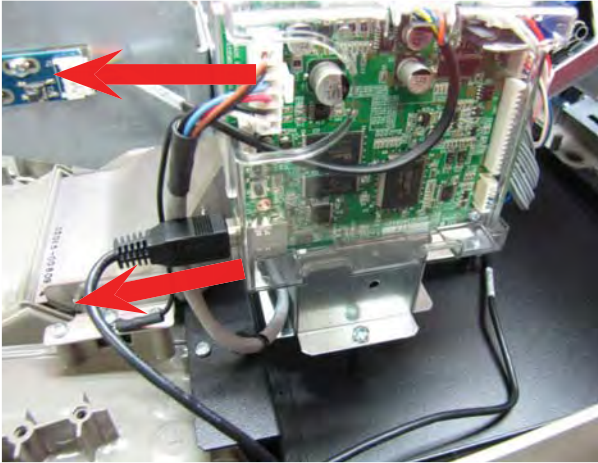
NOTE: To replace the printer, perform these steps in reverse order. Ensure to secure the ground cable with the screw indicated with the arrow in the picture to the left.

HOW TO REMOVE THE PRINTER CONTROLLER PCB

Tools:

1 - #2 Phillips screwdriver

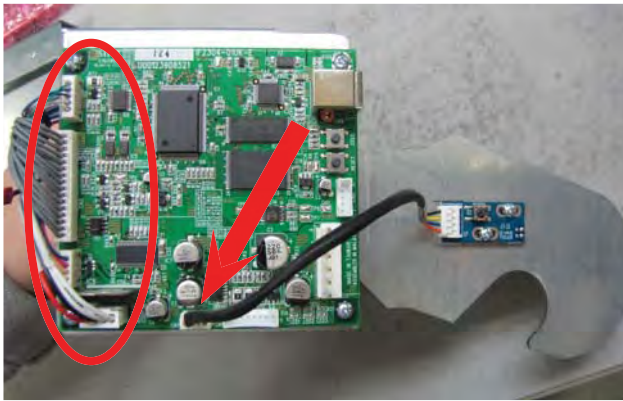
1. Perform steps in *Proper Shutdown Procedures* and *How to Access Components Behind the Fascia*.
2. Disconnect the Printer Power cable and the Printer USB cable from the printer.



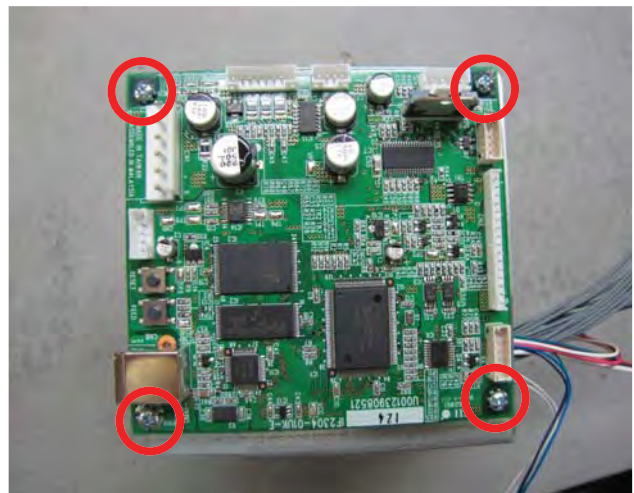
3. Remove the plastic cover from the board.



4. Unplug all the cables from the board.



5. Remove the four screws securing the board to the bracket.



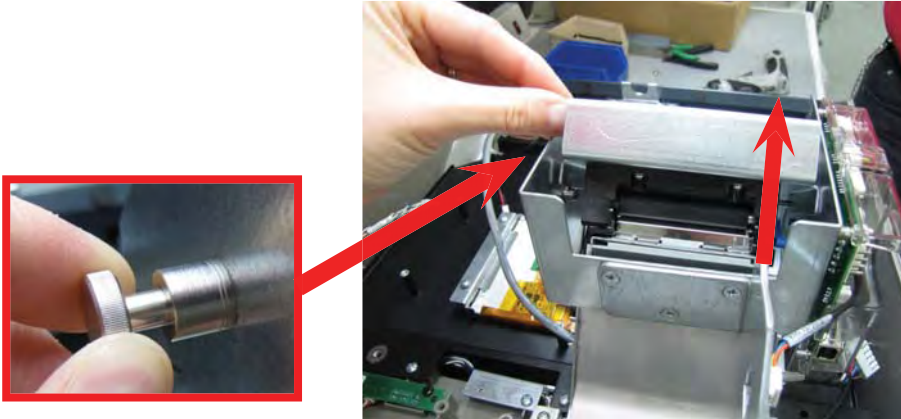
NOTE: To replace the printer controller PCB, perform these steps in reverse order.

HOW TO REMOVE THE RECEIPT PAPER AUTO CUTTER

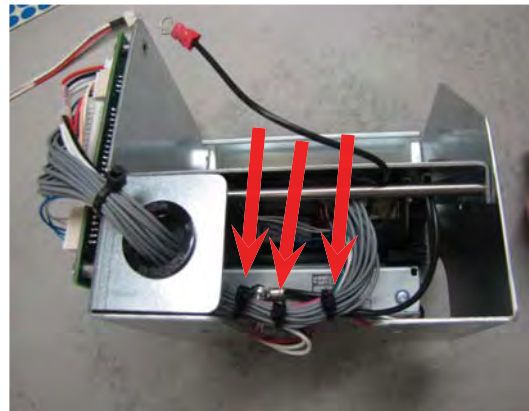
Tools:

- 1 - #2 Phillips screwdriver
- 1 - TY Wrap cutter

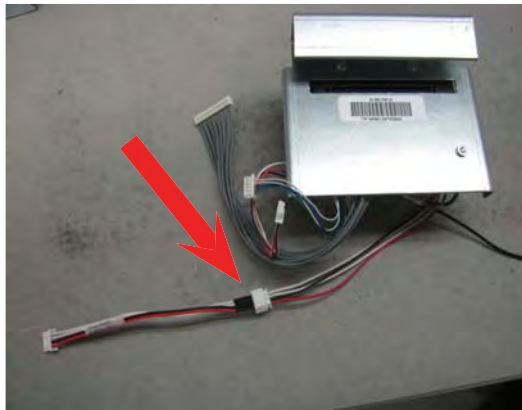
1. Perform steps in *Proper Shutdown Procedures* and *How to Access Components Behind the Fascia*.
2. Remove the receipt paper from the printer mechanism. Open the printer by pulling and holding the locking pin out and rotating the printer open. Release the locking pin.



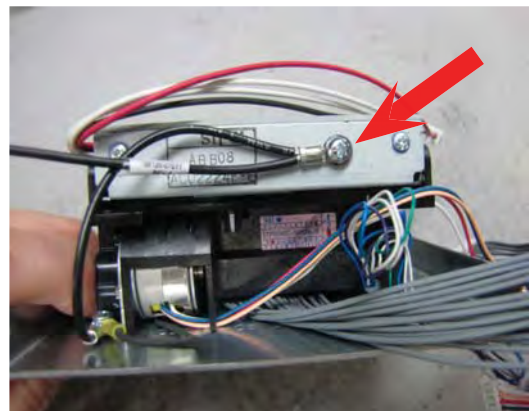
3. Cut the three TY Wraps that bundle the wires from the print mechanism and the cutter together. (printer/cutter removed from assembly for clarity)



4. Unplug the cutter from the printer extension cable. (printer/cutter removed from assembly for clarity)



5. Remove the screw securing the ground wire to the cutter. (printer/cutter removed from assembly for clarity)

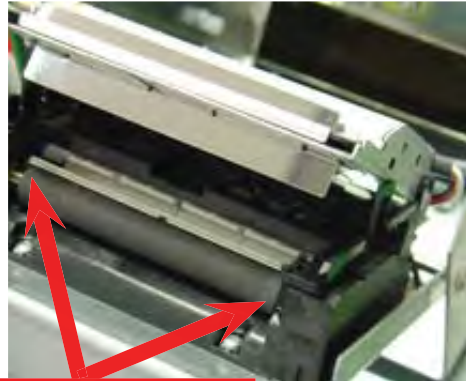


HOW TO REMOVE THE RECEIPT PAPER AUTO CUTTER CONT...

6. Gently pull back on the black plastic pressure clips at the front left and right corners of the cutter that help secure it to the mounting bracket. Lift the front end of the cutter from the mounting bracket and rotate it back on the plastic hinge ball snaps.



7. With the pressure clips released, gently pull back the black plastic hinge ball snaps at the back left and right corners of the receipt printer auto cutter and slip the cutter from the mounting tray.



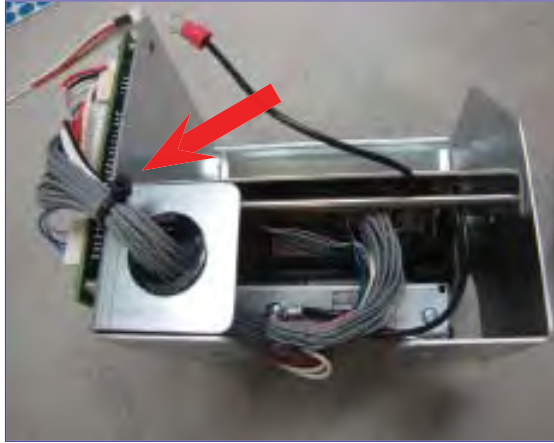
NOTE: To replace the receipt paper auto cutter, perform these steps in reverse order.

HOW TO REMOVE THE PRINTER MECHANISM

Tools:

- 1 - #2 Phillips screwdriver
- 1 - TY Wrap cutter

1. Follow the procedures for “How to Remove the Receipt Paper Auto Cutter”.
2. Cut the TY Wrap that bundle the wires from the print mechanism and the cutter together. (printer/cutter removed from assembly for clarity)



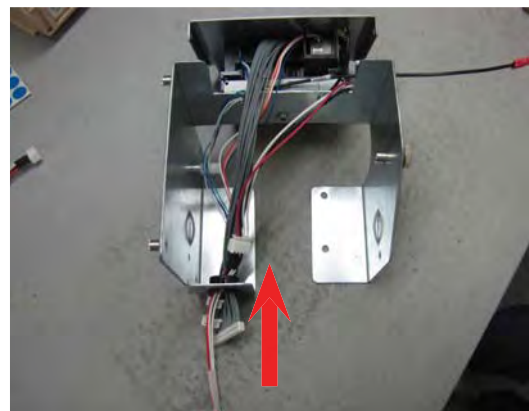
3. Remove the plastic cover from the PCB board.



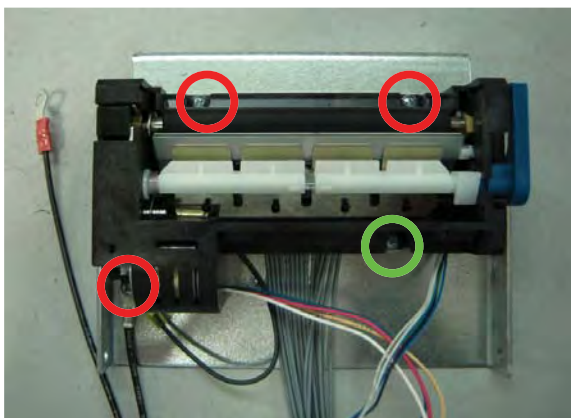
4. Unplug all the cables from the board.



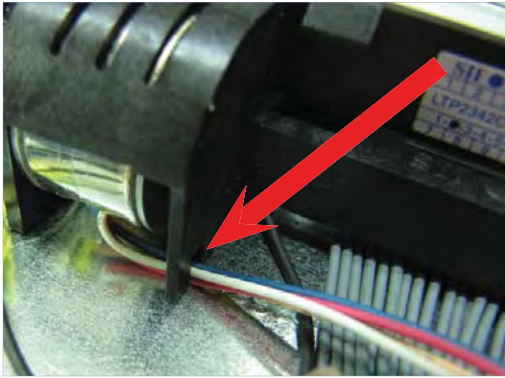
5. Carefully route the cables through the grommet. (printer removed from assembly for clarity)



6. Remove the three screws (60mm) or four screws (80mm) securing the printer to the bracket. (green circled screw only on 80mm printer)



- NOTE: Before securing both ground wires to the printer mechanism with one screw, ensure the cables are routed through the notch under the printer to avoid pinching them.



- ## EXAMPLES OF PRINTER SELF TEST RECEIPTS

[illegible]

- 60 mm Self Test receipt

80 mm Self Test receipt →

[illegible]

CASH DISPENSER

Dispensing Mechanisms

- MiniMech
 - Single cassette
 - 750 - 1000 note capacity
 - < 100 reject bin capacity
- NMD 50
 - Dual cassette
 - 1750 - 2000 note capacity
 - < 100 reject bin capacity
- SDD
 - Single cassette
 - 1700 - 1800 note capacity
 - < 100 reject bin capacity
- SCDU
 - Single cassette
 - 1000 note capacity
 - < 100 reject bin capacity
- HCDU
 - Dual cassette
 - 1700 note capacity each cassette
 - < 100 reject bin capacity

MiniMech

The MiniMech dispenser consists of an open cassette with an open integrated reject bin. The MiniMech is a non-serviceable unit. Due to the complexity of the timing mechanism; belts, gears and other parts that might be considered field replaceable unfortunately are not. Ensure the cable connections are firm at both the dispenser, security module and the main board. Also ensure proper voltage is present and all configurations are correct. A large number of dispenser problems are a result of bad notes so be sure to load only good quality notes.

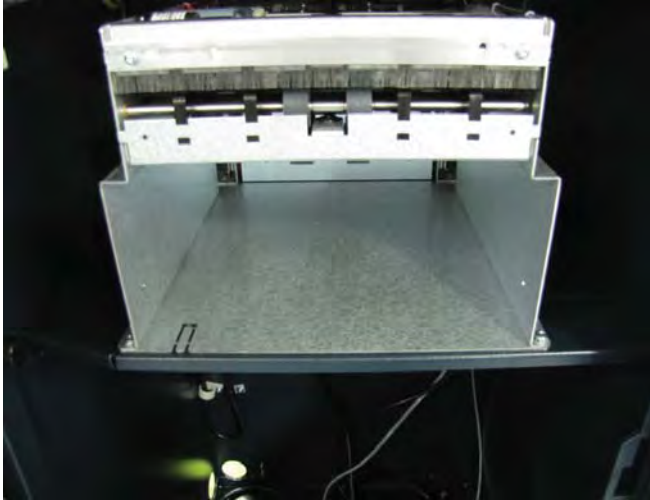
If an issue occurs that cannot be remedied, a replacement dispenser must be obtained.

Removing the MiniMech Dispensing Mechanism

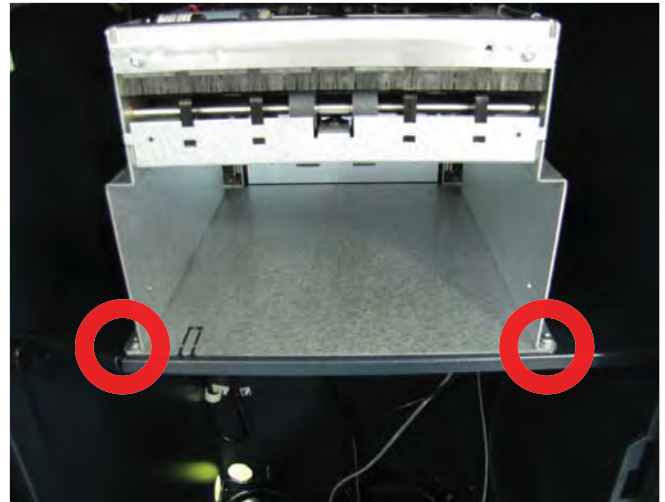
Tools:

- 1 - #2 Phillips screwdriver
- 1 - small slotted screwdriver

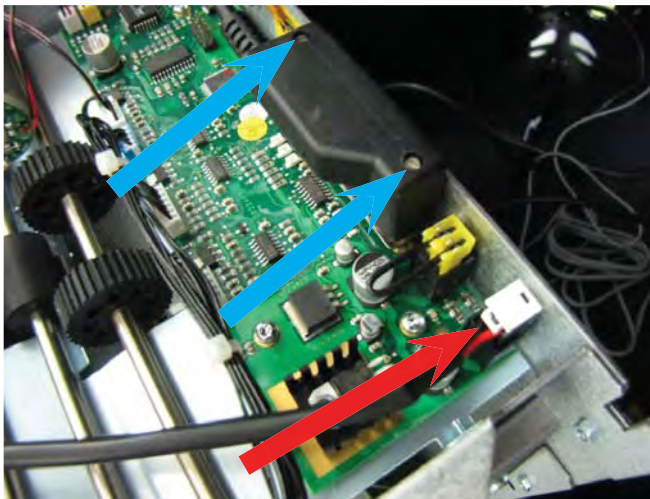
1. Follow *Proper Shutdown Procedures* and steps in *How to Access Components Behind the Fascia*.
2. Remove the cassette from the dispensing mechanism.



3. Remove the two screws in the front corners that secure the dispenser to the tray.



4. Slide the mechanism forward until the dispenser communication and DC power connectors are accessible. Disconnect the dispenser communication cable by loosening the two screws on the cable. Disconnect the DC power cable.



5. Remove the dispenser from the unit.

Installing the MiniMech Dispensing Mechanism

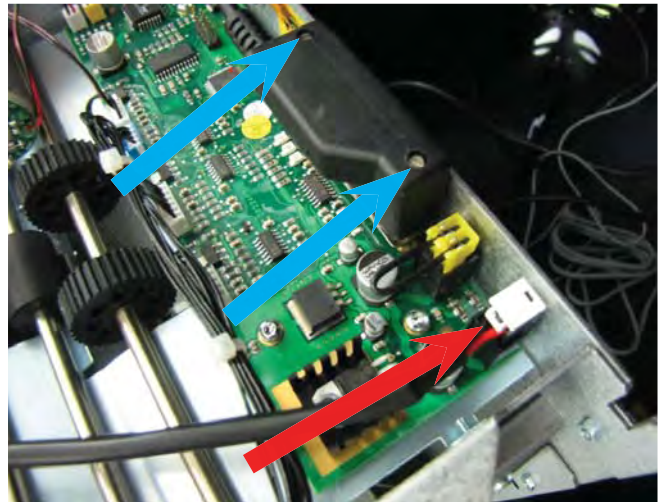
Tools:

- 1 - #2 Phillips screwdriver
- 1 - small slotted screwdriver

1. Follow *Proper Shutdown Procedures* and steps in *How to Access Components Behind the Fascia*.
2. Remove the cassette from the dispensing mechanism.



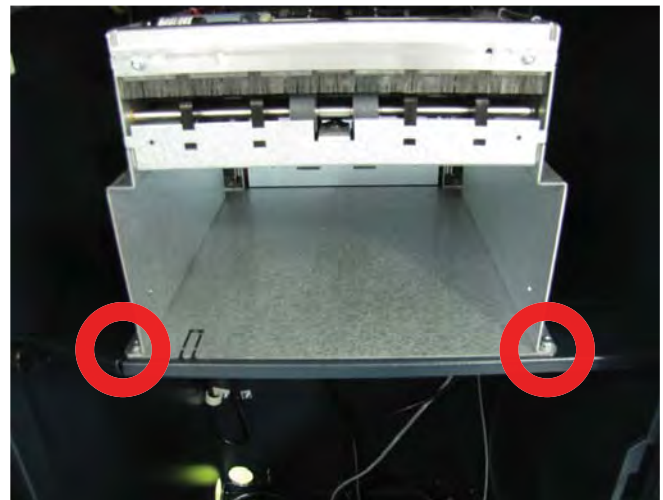
3. Connect the dispenser communication cable and secure by tightening the two screws on the cable. Connect the DC power cable.



4. Set the dispenser on the cabinet's tray and slide it back into place. Ensure the two posts on the tray sit in the notches in the dispenser bracket.



5. Install the two screws in the front corners that secure the dispenser to the tray. Reinstall the cassette into the dispenser. Verify dispenser operation by completing several test dispenses.



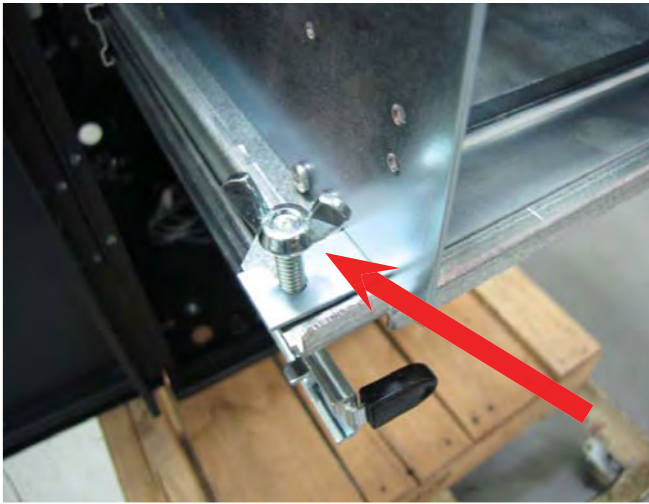
SDD

Removing the SDD Dispensing Mechanism

Tools:

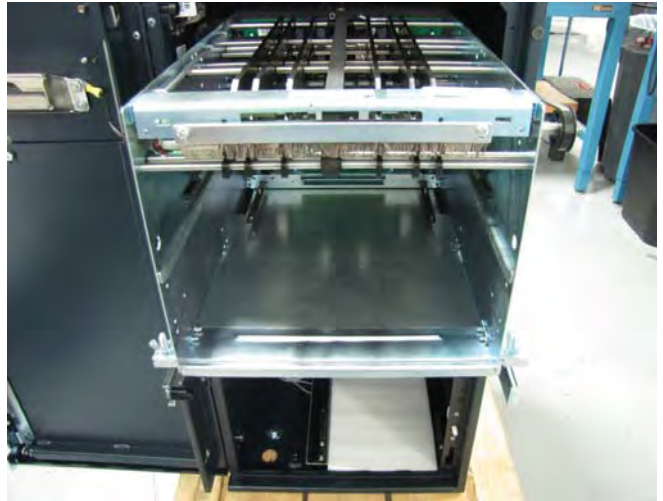
- 1 - Pliers (to use on wing nut if needed)

1. Follow *Proper Shutdown Procedures* and steps in *How to Access Components Behind the Fascia*.
2. Remove the cassette from the dispensing mechanism.
3. Remove the two wing nuts from the front corners that secure the dispenser to the tray.

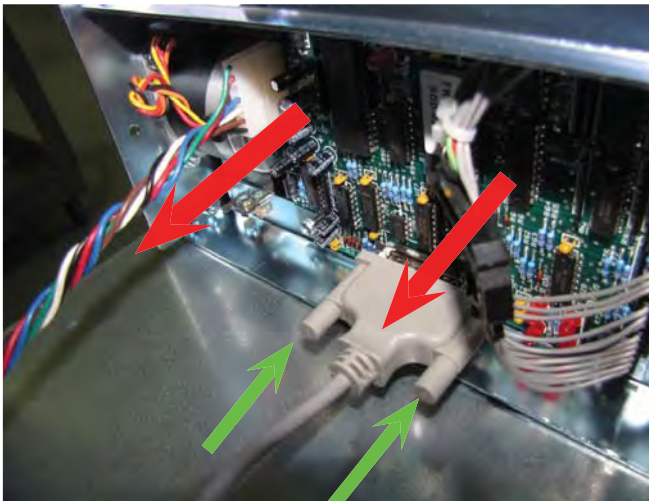


If the dispenser is on a stationary tray, skip to Step 5.

4. Extend the dispenser slides.



5. Slide the mechanism forward until the dispenser communication and DC power connectors are accessible. Disconnect the dispenser communication cable by loosening the two screws on the cable. Disconnect the DC power cable.



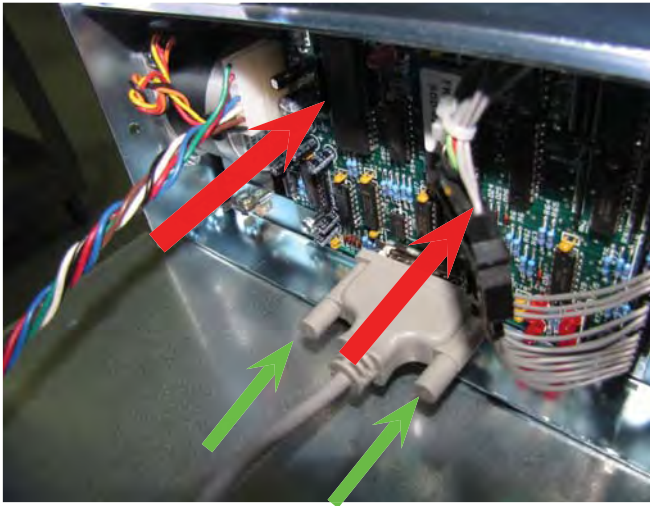
6. Remove the dispenser from the unit. Loosely reinstall the wing nuts onto the posts to prevent losing them.

Installing the SDD Dispensing Mechanism

Tools:

- 1 - Pliers (to use on wing nut if needed)

1. Follow *Proper Shutdown Procedures* and steps in *How to Access Components Behind the Fascia*.
2. If the wing nuts were previously installed onto the posts, remove them and set aside.
3. Remove the cassette from the dispensing mechanism.
4. Connect the dispenser communication cable and secure by tightening the two screws on the cable. Connect the DC power cable.



5. Set the dispenser on the cabinet's tray and slide it back into place.



6. Ensure the dispenser notches slide onto the tray posts. Install the two wing nuts onto the posts and tighten to secure the dispenser.



7. If the dispenser is on slides, push the dispenser and tray into the locked position.

Prime the cassette and ensure the cassette flag is green. Reinstall the cassette. Verify dispenser operation by completing several test dispenses.

NMD50

Only factory trained service technicians should attempt to make repairs to the NMD50 dispensing mechanisms. Unauthorized repairs to the NMD50 dispensing mechanism may void the factory warranty. Contact the Triton Systems Technical Support Department for additional information. Factory trained service technicians should refer to the NMD50 Dispenser Mechanism Service Manuals for further instructions.



**** WARNING ****

Due to the weight of the dispenser, the NMD50 should be lifted from the rails by TWO service personnel.



Removing the NMD50 Dispensing Mechanism

Tools:

None

1. “Unlock all Cassettes” in the Management Functions. Follow *Proper Shutdown Procedures* and steps in *How to Access Components Behind the Fascia*.
2. Remove the cassettes and reject cassette from the dispensing mechanism. Extend the dispenser slides.

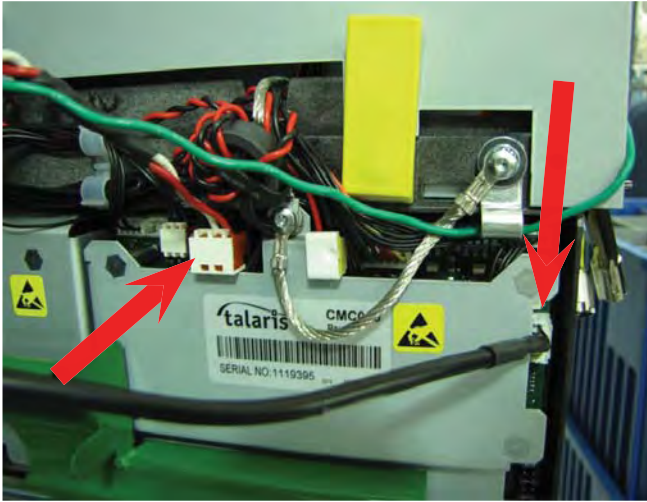


3. Unplug the quick connect ground wire from the front of the dispenser.



Removing the NMD50 Dispensing Mechanism cont...

4. Unplug the Dispenser Communication cable and the Dispenser Power Cable from the side of the dispenser.



5. Remove all the cables from the cable clips along the side and rear of the dispenser. Route the cables over the cabinet door to prevent damage.

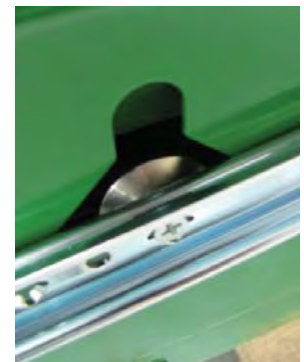


6. Route the cables over the cabinet door to prevent damage. (Dispenser removed for clarity)



7. **TWO Service Personnel:** Using the attached handles, carefully lift the dispenser off the rails and set aside.

NOTE: To replace the NMD50 dispenser, perform these steps in reverse order. Ensure the dispenser cables are routed over the cabinet door to prevent damage. When lowering the dispenser onto the rails, ensure the posts on the rails sit securely in the handle's notches.



SCDU

Removing the SCDU Dispensing Mechanism

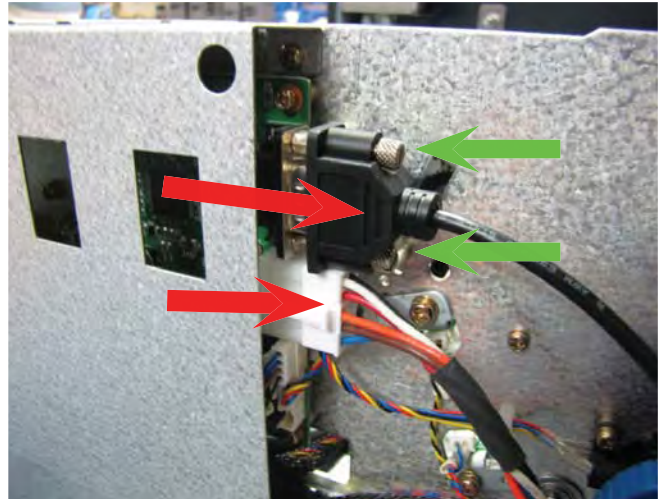
Tools:

1 - #2 Phillips screwdriver

1. Follow *Proper Shutdown Procedures* and steps in *How to Access Components Behind the Fascia*.
2. Remove the cassette from the dispensing mechanism. Extend the dispenser slides.



3. Disconnect the dispenser communication cable by loosening the two screws on the cable. Disconnect the DC power cable.



4. Remove the two screws, one on each side of the dispenser, and set them aside for reinstallation.



5. Slide the dispenser forward slightly before lifting it off the tray.

Installing the SCDU Dispensing Mechanism

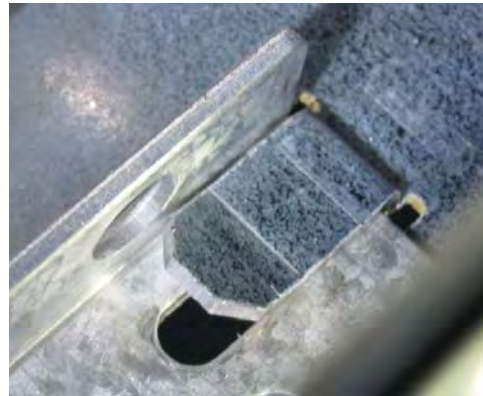
Tools:

1 - #2 Phillips screwdriver

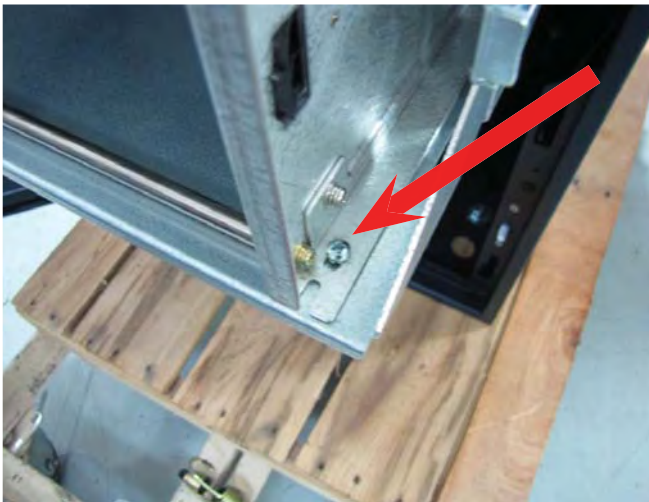
1. Follow *Proper Shutdown Procedures* and steps in *How to Access Components Behind the Fascia*.
2. Remove the cassette from the dispensing mechanism. Extend the dispenser slides.



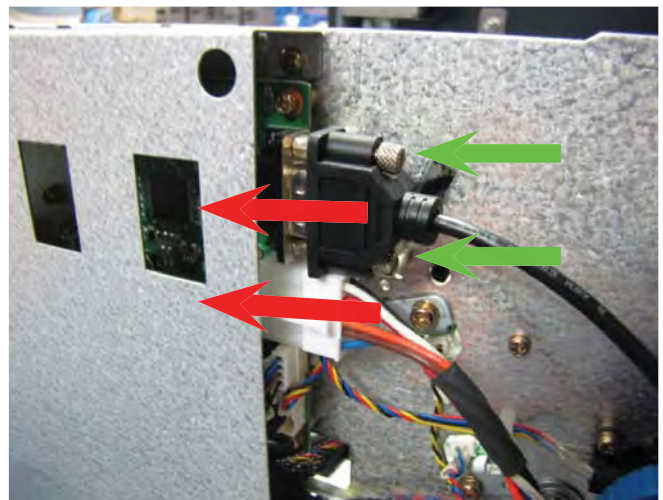
3. Slide the dispenser onto the tray ensuring the dispenser sits under the two tabs at the back of the tray.



4. Secure the dispenser by install the two screws, one on each side of the dispenser.



5. Connect the dispenser communication cable. Secure the cable by tightening the two screws on the cable. Connect the DC power cable.



6. Slide the dispenser tray into the cabinet. Reinstall the cassette into the dispenser.

HCDU

** WARNING **



Due to the weight of the dispenser, the HCDU should be lifted from the rails by TWO service personnel.

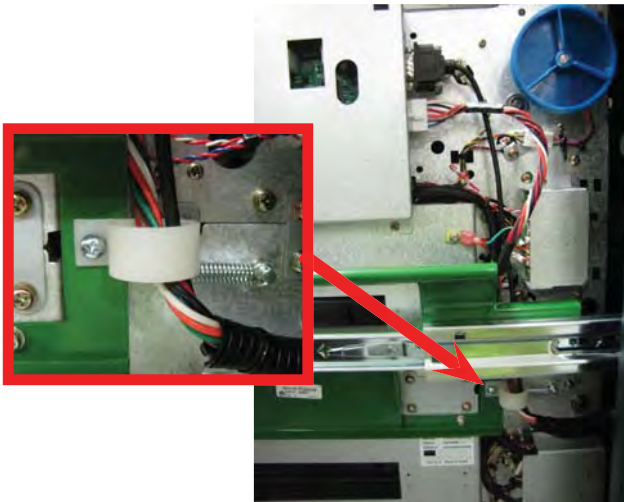


Removing the HCDU Dispensing Mechanism

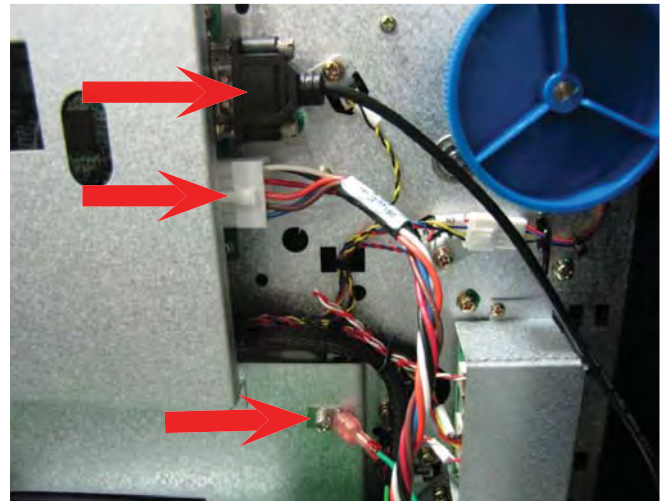
Tools:

None

1. Follow *Proper Shutdown Procedures* and steps in *How to Access Components Behind the Fascia*.
2. Remove the cassettes from the dispensing mechanism. Extend the dispenser slides.
3. Remove the cables from the cable clip on the side of the dispenser.



4. Disconnect the dispenser communication cable by loosening the two screws on the cable. Disconnect the dispenser power cable and the ground wire from the dispenser.



5. Route the cables over the cabinet door to prevent damage. (Dispenser removed for clarity)



6. **TWO Service Personnel:** Using the attached handles, carefully lift the dispenser off the rails and set aside.

Installing the HCDU Dispensing Mechanism

Tools:

None

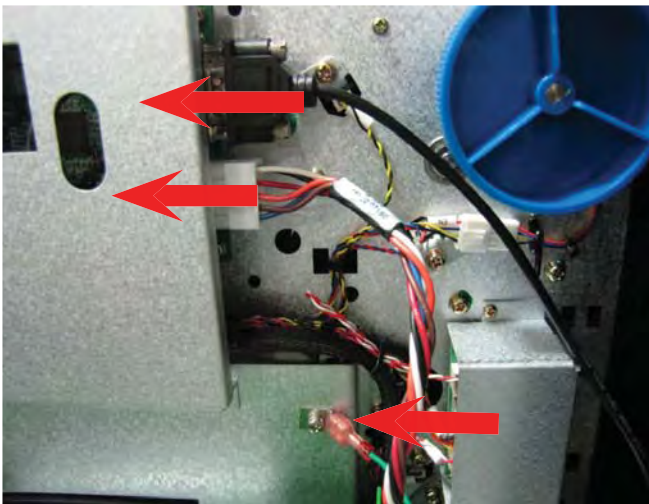
1. Follow *Proper Shutdown Procedures* and steps in *How to Access Components Behind the Fascia*.
2. Remove the cassettes from the dispensing mechanism. Extend the dispenser slides.
3. Route the cables over the cabinet door to prevent damage.



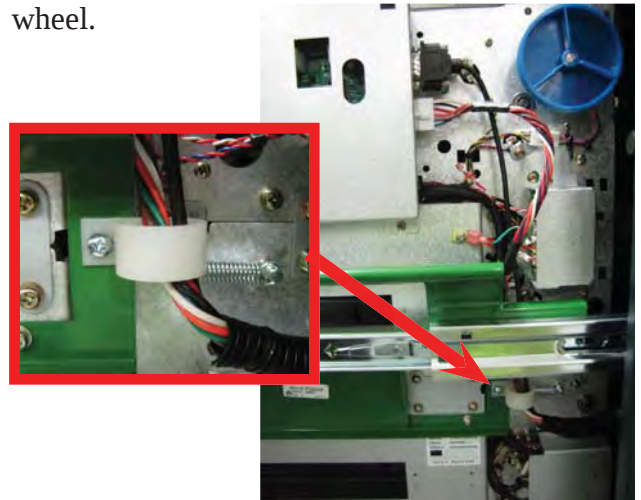
4. **TWO Service Personnel:** Using the attached handles, carefully lift the dispenser onto the rails ensuring the posts on the rails sit securely in the handle's notches.



5. Connect the dispenser communication cable and secure it by tightening the two screws on the cable. Connect the dispenser power cable and the ground wire to the dispenser.



6. Route the cables through the cable clip. Carefully pull the cables down through the clip to ensure there is no cable slack near the blue wheel.



7. Reinstall the cassettes. Unlock the slides and push the dispenser into the cabinet.

SCDU & HCDU

NOTE: The information here concerns the Hantle manufactured dispensers found in the ARGO. Since both the SCDU and HCDU are Hantle made, there is much similarity in their mechanisms. Most of the steps for resolving SCDU issues may be applied to the HCDU.

CLEAR and CLEAN!

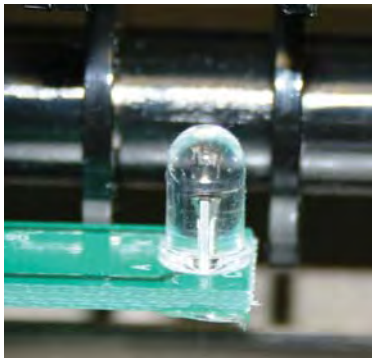
Clear and clean are the primary tasks associated with a dispenser. That is because the dispenser's main issues are jammed bills or blocked sensors. To perform these tasks:

Inspect the dispenser thoroughly, following the normal bill path, and remove any jammed bills.

Spray compressed air to remove dust, especially on the sensors.

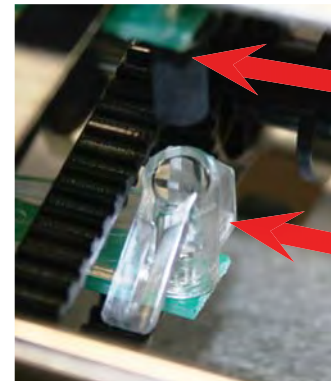
Use a cotton swab or lint-free cloth to clean the sensors when any residue is present. Refrain from using electrical contact cleaner or alcohol, as this may harm the sensors.

The best preventive maintenance on the dispenser is to perform these tasks on a regular basis anytime the ATM is serviced.



SCDU transmitter sensor

NOTE:
On the SCDU, there are 4 of these with matching receiver sensors.



SCDU exit sensor

See **How to Remove the Ultrasonic Double Detect Sensors** for photo of the double detect sensor.

Connection

If there is an issue with the main motor or an encoder error is received, the first place to check is the connection to the encoder sensor. This sensor is located on the circuit board side of the SCDU/HCDU. If the encoder sensor seems to be in good shape and well connected, the SCDU/HCDU's mainboard may have lost its programming.

See **How to Remove the Encoder Sensor**.

Mainboard

When an SCDU/HCDU has a hardware issue, it is usually the circuit board that has failed rather than one of the sensors. Sometimes a defective SCDU/HCDU mainboard will cause the terminal to freeze or create a blank screen during initialization. To test this:

Shut down the ATM using proper procedures.

Disconnect the data and power cables to the SCDU/HCDU.

Switch back on the ATM.

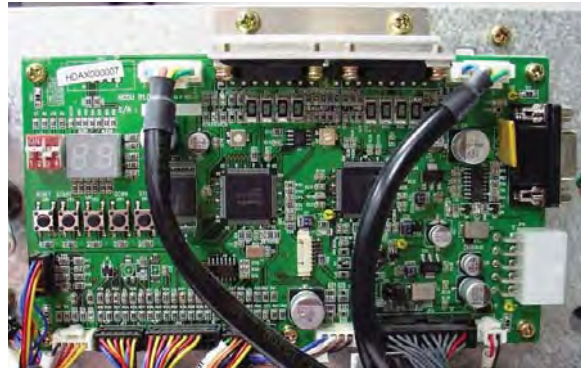
The initialization process will begin but suspend and warn of the defective dispenser.

Fortunately, most fatal dispenser errors can be remedied by replacing the circuit board rather than the entire dispenser. When doing so, ensure the correct circuit board is selected for replacement. The SCDU type has its own unique circuit board for its 1000 note cassette. The same is true for the HCDU circuit board for its 1700 note cassette.

The SCDU/HCDU also has ultrasonic double detect sensors with a separate circuit board for these double detect sensors.



SCDU Mainboard



HCDU Mainboard

Although similar in appearance, these boards are not the same.

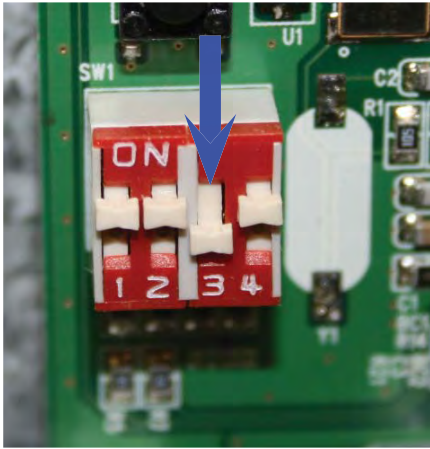


**SCDU Ultrasonic Double Detect
Sensor Board**



**HCDU Ultrasonic Double Detect
Sensor Board**

There are four DIP switches on the SCDU and HCDU mainboard and two DIP switches on the ultrasonic double detect sensor board. For normal operation, only the third [3] DIP switch on the SCDU/HCDU board should be in the “OFF” position. All others should be set to “ON”. Both of the DIP switches on the ultrasonic double detect sensor board should be in the “OFF” position.



Mainboard PIN Settings



**Ultrasonic Double Detect
Sensor Board PIN
Settings**

How to Remove the Mainboard

NOTE: The actions shown here for the SCDU are similar for the HCDU.

Tools:

1 - #1 Phillips screwdriver

1. Follow *Proper Shutdown Procedures* and steps in *How to Access Components Behind the Fascia*.
2. Pull the sliding tray out, until it's fully extended.

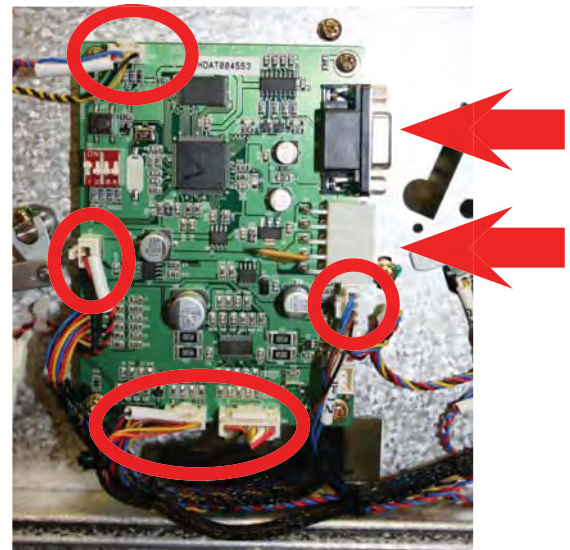


How to Remove the Mainboard cont...

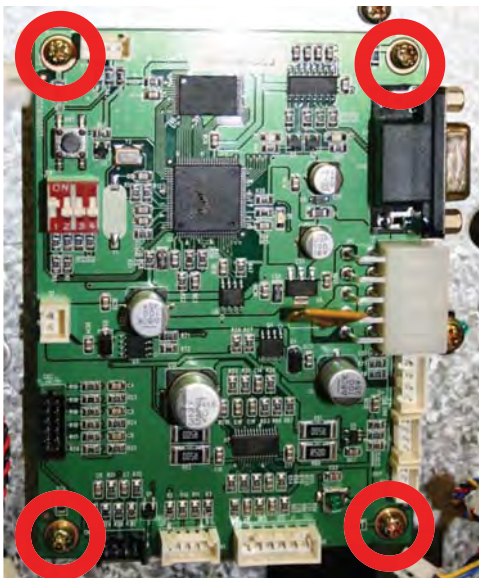
3. Loosen, do not remove, the four screws securing the mainboard cover. Lift the mainboard cover from the unit.



4. Disconnect all cables from the mainboard.



5. Remove the four screws that secure the mainboard.



NOTE: To replace the mainboard, perform these steps in reverse order.

How to Remove the Ultrasonic Double Detect Sensor Board

NOTE: The actions shown here for the SCDU are similar for the HCDU.

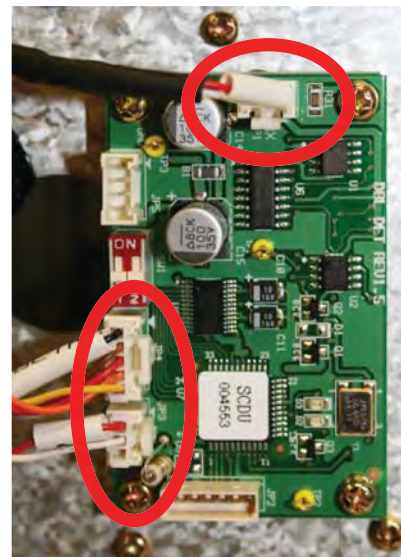
Tools:

1 - #1 Phillips screwdriver

1. Perform steps 1 - 6 in ***How to Remove the Mainboard***.
2. Loosen the two screws retaining the board cover. Remove the cover.



3. Disconnect the cables to the ultrasonic double detect sensor board.



4. Remove the four screws that secure the board.



NOTE: To replace the ultrasonic double detect board, perform these steps in reverse order.

How to Remove the Ultrasonic Double Detect Sensors

NOTE: The actions shown here for the SCDU are similar for the HCDU.

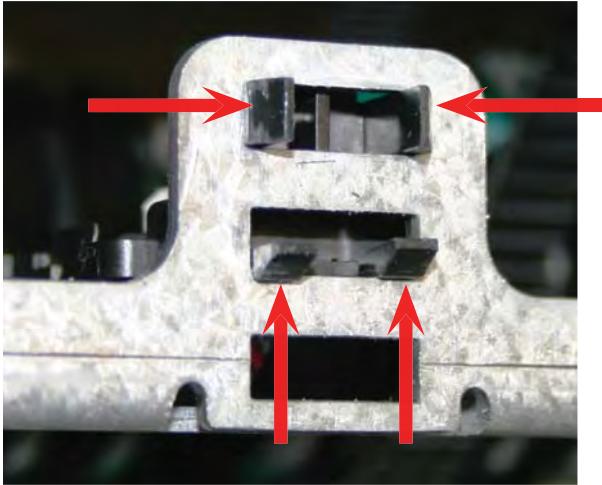
There are two ultrasonic double detect sensors on the SCDU/HCDU, each facing the other. They are found in the back of the SCDU/HCDU. The steps apply to both of these sensors.



Tools:

1 - #1 Phillips screwdriver

1. Perform steps 1 - 6 in ***How to Remove the Mainboard***.
2. Squeeze the four tabs on the back of the sensor to release it from the bracket.



3. Disconnect the cable from the sensor.



NOTE: To replace the ultrasonic double detect sensor, perform these steps in reverse order.

How to Remove the Encoder Sensors

NOTE: The actions shown here for the SCDU are similar for the HCDU.

The encoder sensor and the gate operation detection sensor are identical. If one is immediately unavailable in the field, the other can be substituted.

Tools:

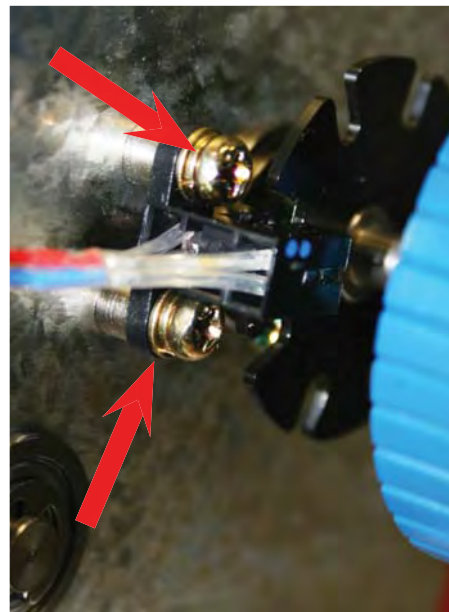
1 - #1 Phillips screwdriver

1. Perform steps 1 - 7 in ***How to Remove the Mainboard***.
2. Disconnect the encoder sensor cable from the SCDU mainboard.



3. Remove the two screws securing the encoder sensor.

NOTE: Depending upon the driver used, the blue knob may need to be removed first to access the screws.



NOTE: To replace the encoder sensor, perform these steps in reverse order, ensuring the sensor faces the center of the encoder shaft.

How to Remove the Gate Operation Detection Sensor

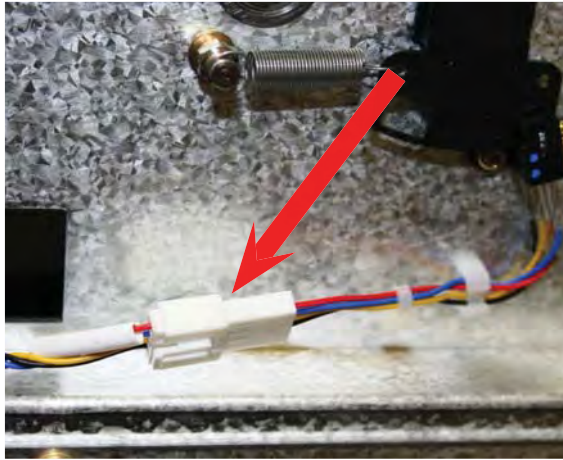
NOTE: The actions shown here for the SCDU are similar for the HCDU.

The gate operation detection sensor is the same sensor used for the encoder sensor. These parts can be interchanged in the field.

Tools:

1 - #1 Phillips screwdriver

1. Perform steps 1 - 6 in *How to Remove the Mainboard*.
2. Disconnect the gate sensor cable.



3. Remove the two screws securing the gate sensor.



NOTE: To replace the gate sensor, perform these steps in reverse order, ensuring the gate rocker arm swings freely between the sensor prongs.

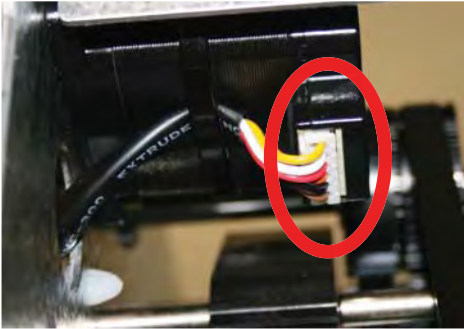
How to Remove the SCDU Main Motor

NOTE: The actions shown here for the SCDU are similar for the HCDU.

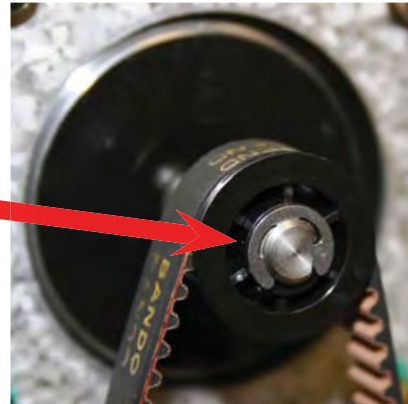
Tools:

1 - #1 Phillips screwdriver

1. Perform steps 1 - 6 in *How to Remove the Mainboard*.
2. Disconnect the motor's power cable. **NOTE:** If a plastic tie binds the cable to the motor, cut and remove the tie.



3. Remove the E-ring that retains the belt pulley; then remove the pulley and belt.



4. Remove the four screws of the main motor to detach the motor.



NOTE: To replace the main motor, perform these steps in reverse order.

How to Remove the Gate Solenoid Unit

NOTE: The actions shown here for the SCDU are similar for the HCDU.

Tools:

1 - #1 Phillips screwdriver

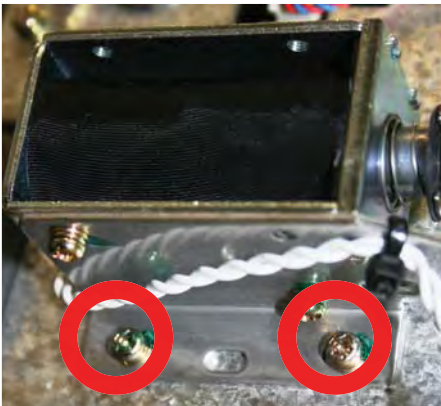
1. Perform steps 1 - 6 in *How to Remove the Mainboard*.
2. Disconnect the solenoid cable.



3. Remove the E-ring that secures the solenoid arm.



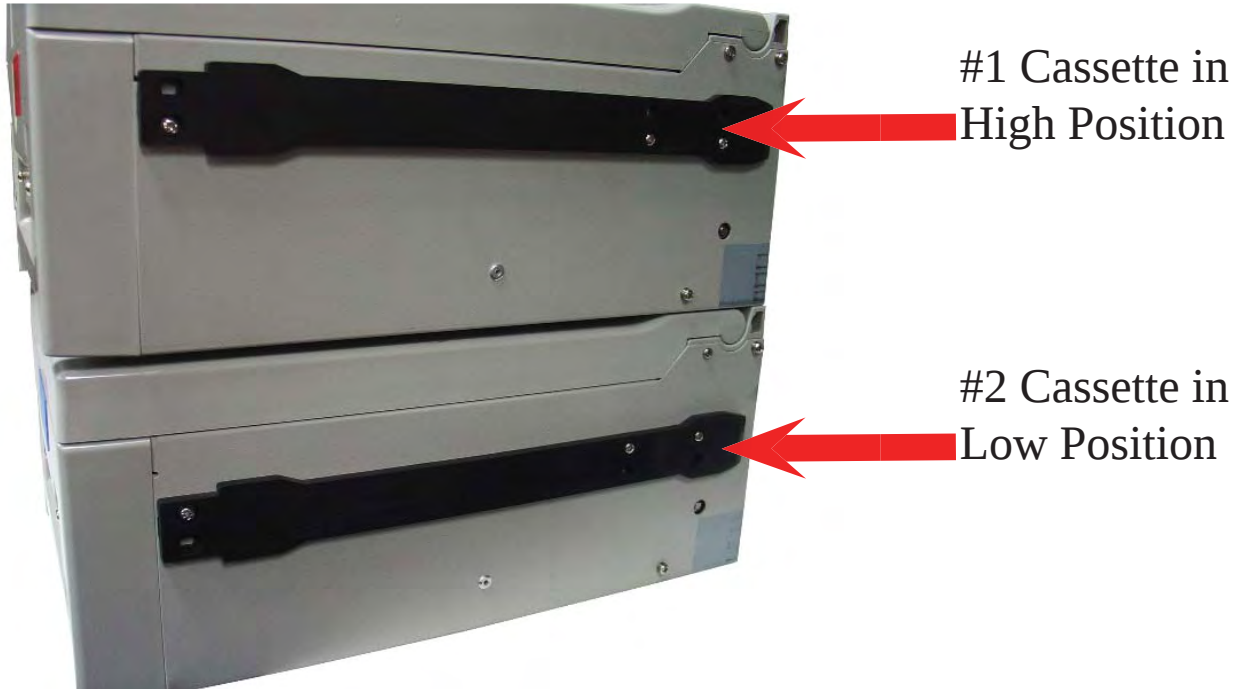
4. Remove the two screws that hold the solenoid bracket to the wall of the SCDU. The solenoid can then be removed from the bracket, if necessary.



NOTE: To replace the gate solenoid unit, perform these steps in reverse order.

How to Swap HCDU Cassettes

The HCDU cassettes are identical except for the rail position on the sides. On the two cassette HCDU, the rail of the upper cassette (#1) is in the high position and the rail of the lower cassette (#2) is in the lower position.



Tools:

1 - #2 Phillips screwdriver

1. Remove the three screws that attach the rail to the side of the cassette. Repeat on other side.



2. Reposition the rail so that the alternative screw hole on the rail mates with the screw hole on the cassette.
3. Reinstall screws.

NOTE: Cassette may come with a red label for #1 and a blue label for #2 on the front of the cassettes. If a cassette's rails are changed, ensure a label on the front properly identifies the cassette for ease of use.

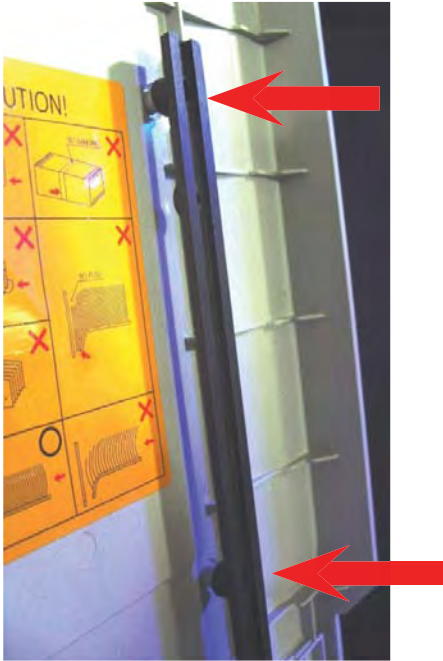
How to Make Height Adjustments on HCDU Cassettes for Canada

When necessary, an HCDU cassette configured for the U.S. may be converted for Canadian currency by simply adjusting the height rails of the cassette.

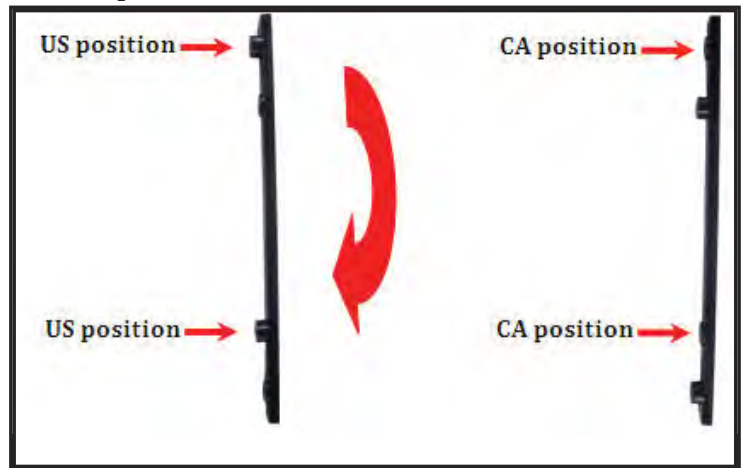
Tools:

1 - #2 Phillips screwdriver

1. With the cassette lid open, remove the two screws that affix each rail to the lid.



2. With the rail removed, simply turn the rail around so that the Canadian position is now on top. Reattach the screws through the Canadian positioned rail.

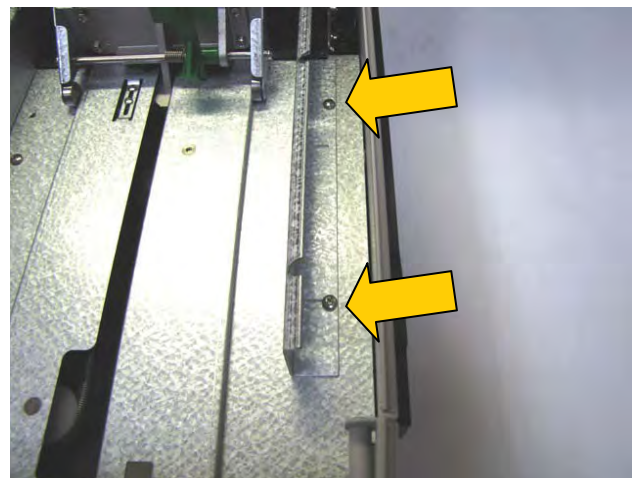


NOTE: Ensure these steps are performed for both height rails on the lid of the HCDU cassette.

3. Loosen the two screws holding the right rail.



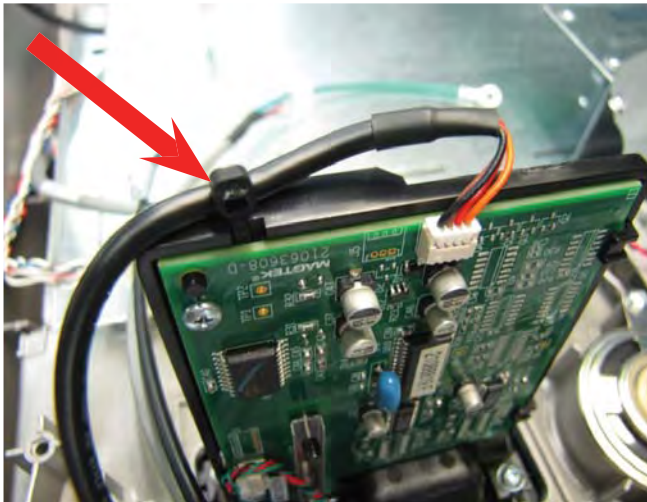
4. Slide the rail to the left as far as it will go and tighten the two screws.



CARD READER

HOW TO REMOVE THE TRACK 1-2 CARD READER

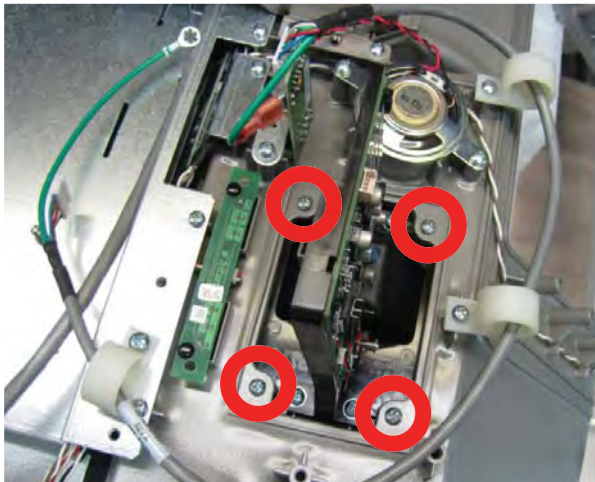
1. Follow *Proper Shutdown Procedures* and steps in *How to Access Components Behind the Fascia*.
2. Push the AC power ON/OFF switch on the power supply to the OFF position. Cut the TY Wrap holding the card reader cable to the assembly.



3. Unplug the card reader cable from the assembly.



4. While holding the card reader, remove the four screws that secure the card reader to the control panel.

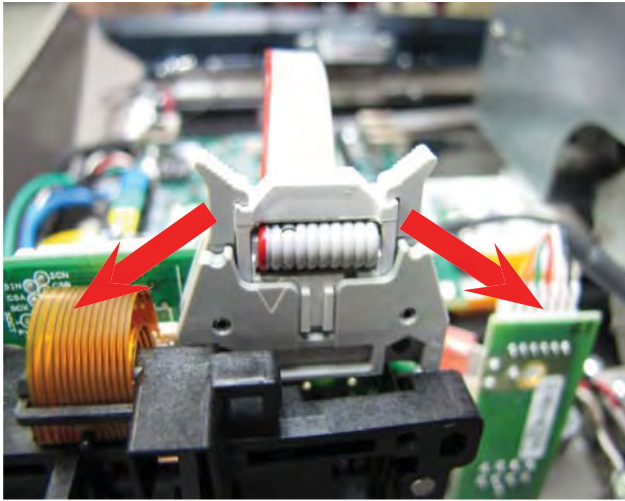


5. Remove the card reader from the control panel.

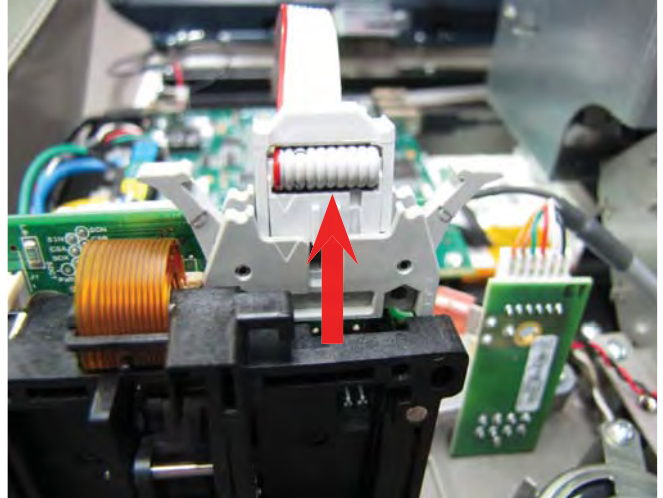


HOW TO REMOVE THE EMV CARD READER

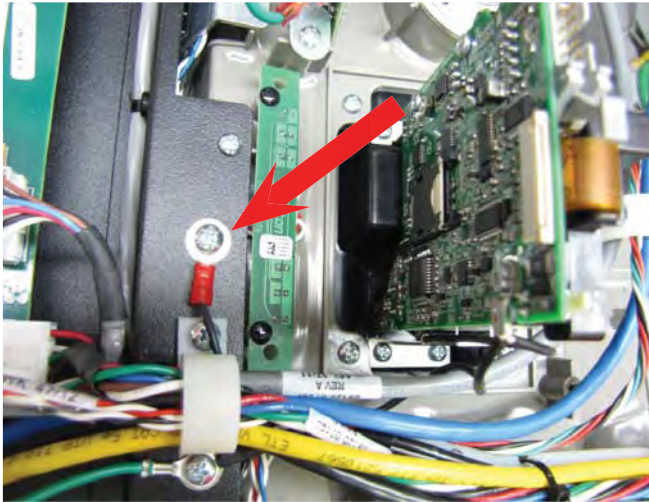
1. Follow *Proper Shutdown Procedures* and steps in *How to Access Components Behind the Fascia*.
2. Push the AC power ON/OFF switch on the power supply to the OFF position. Unclick the locking tabs from the card reader cable.



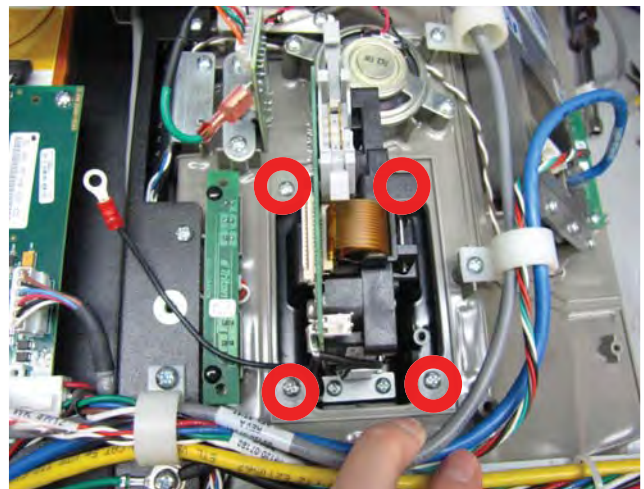
3. Once the locking tabs are in the open position, unplug the card reader cable from the assembly.



4. Remove the screw that secures the ground wire to the display bracket.



5. While holding the card reader, remove the four screws that secure the card reader to the control panel.



6. Remove the card reader from the control panel.



TRACK 1-2 CARD READER TROUBLESHOOTING

The magnetic card reader for the ARGO is a dip type reader. The standard card reader for the US is a Magtek Serial MCR (Track 1-2). There is also an optional Sankyo 330 EMV dip style card reader.

Generally if a problem occurs with the card reader, first check to ensure there is nothing in the reader that is blocking the card sensor. After that, the steps for resolution are as follows:

1. Run Diagnostics
 1. Access the Management Functions Main Menu.
 2. Press 2 (Diagnostics).
 3. Press 5 (Card Reader).
 4. Press 3 (Scan Card).
 5. Dip and remove a card into the card reader.
 6. Note what you see displayed or press 3 to print the report.
 7. Repeat the process several times to see if the same data is displayed.
 8. Press 2 (Card Reader Totals) to see a report of the activity on the card reader. This includes the totals since the last close, cumulative totals, number of errors, and the date/time of the last valid card read.
 9. Press 1 (Card Reader Status) to validate that the system is reading the correct card reader hardware.
2. Check connections to the main board (CE).
3. Clean reader.
 - Use an approved cleaning card to dip into the card reader several times.
NOTE: If a cleaning card is not available, wet some gauze with electronic parts cleaner or alcohol; wrap the gauze around a dummy credit card and insert into the reader.

FUNCTION KEYPAD

The Function Keypads are only found in the ARGO 12 unit. The ARGO 7 unit has a touchscreen keypad in the display and therefore has no use for the function keypads. The function keys CANNOT be purchased separately. They are only available as an assembly already affixed to the display glass.

HOW TO REMOVE THE ARGO 12 FUNCTION KEYPADS

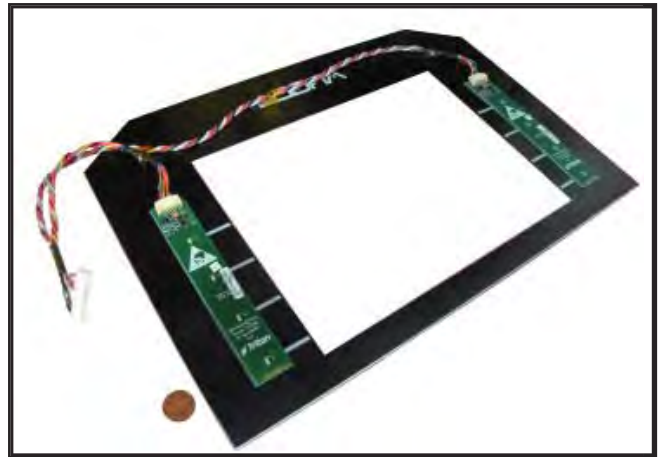
Tools:

- 1 - #2 Phillips screwdriver

1. Perform steps 1 - 5 in *How to Remove the ARGO 12 Display Monitor*.



2. Carefully lift the glass away from the display assembly leaving the two gaskets attached to the assembly.



NOTE: *If one function keypad goes out, the entire assembly needs to be replaced.*

HOW TO REPLACE THE ARGO 12 FUNCTION KEYPADS

Tools:

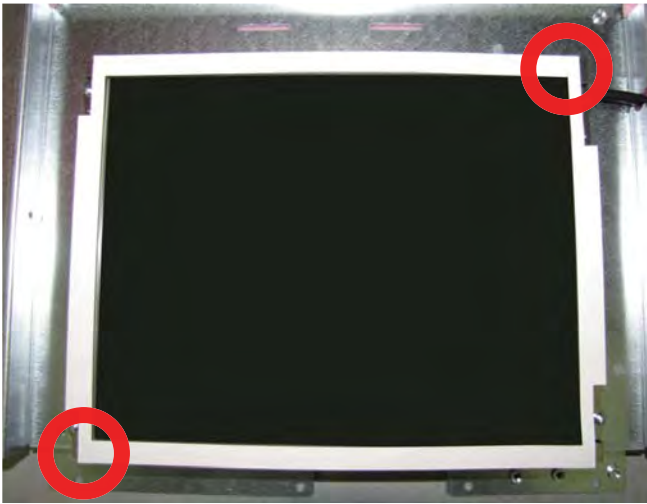
- 1 - #2 Phillips screwdriver

If the gaskets do not need replacing, skip to Step 3.

NOTE: The gaskets are specific to each side. Before removing the paper backing, determine the TOP from the BOTTOM by comparing the length of the sides.

1. Remove the paper backing from the TOP gasket and apply it to the display. Remove the paper backing from the BOTTOM gasket and apply it to the display. Ensure the silver border around the display screen is covered.

Be sure to line up the two gaskets at the corners to avoid leaving gaps which may cause leakage.

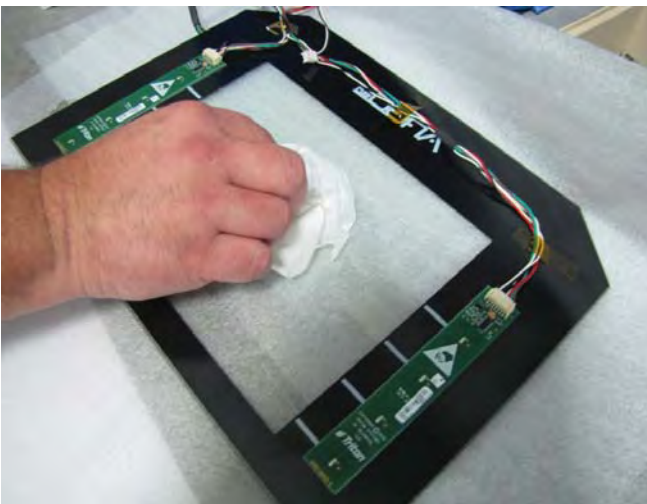


2. Remove the paper backing from the gaskets.



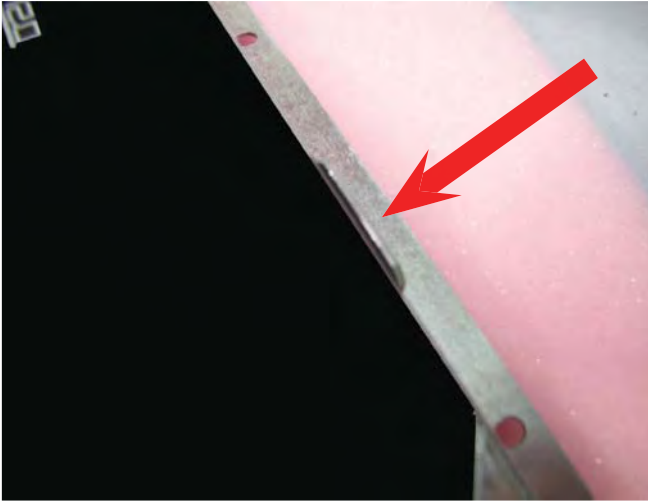
DO NOT spray cleaner directly onto the inside of the glass assembly as it could short out the function keys.

3. Clean the inside of the glass assembly with approved cleaner and short bursts of compressed air if necessary.



HOW TO REPLACE THE ARGO 12 FUNCTION KEYPADS CONT...

4. Install the glass assembly onto the display by lining up the glass with the tabs on the display bracket. Use short burst of compressed air if necessary to remove debris.



5. Route the function key cable through the gap in the bracket to avoid pinching the cable. When lined up correctly, apply slight pressure to the glass assembly to secure it to the gaskets.



6. Using approved cleaner, clean the glass assembly.



NOTE: To reinstall the display assembly into the unit, perform steps 1 - 5 in **How to Remove the ARGO 12 Display Monitor** in reverse order.

CUSTOMER KEYPAD (EPP)



**DO NOT OPEN the sealed customer keypad (EPP)
or attempt to remove its back!**
To do so may render the EPP useless.



The standard keypad for the ARGO is the T7 PCI compliant EPP, but the compliant keypad (with metal keys) is available as an option. Both meet Triple DES (Data Encryption Standard) requirements.

Except for running diagnostics, checking connections and removal of the customer keypad, **the EPP is NOT serviceable in the field.** The keypad is a tamper resistant, tamper evident crypto-processor security device for PIN (Personal Identification Number) entry and processing management. It stores the PIN Master Key and Working Key when appropriately setup. See the **XScale/X2 Configuration Manual** or the **Basic Setup of the Triton ATMs** for information about entering Master Keys and downloading Working Keys for the ATM.

T7 EPP Keypad



Front



Back

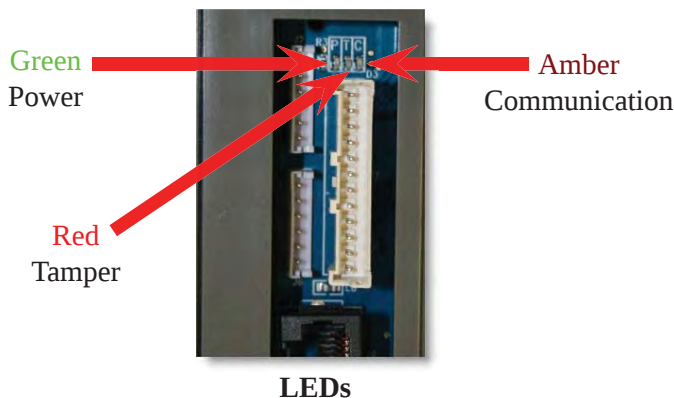
T5 EPP Keypad



Front

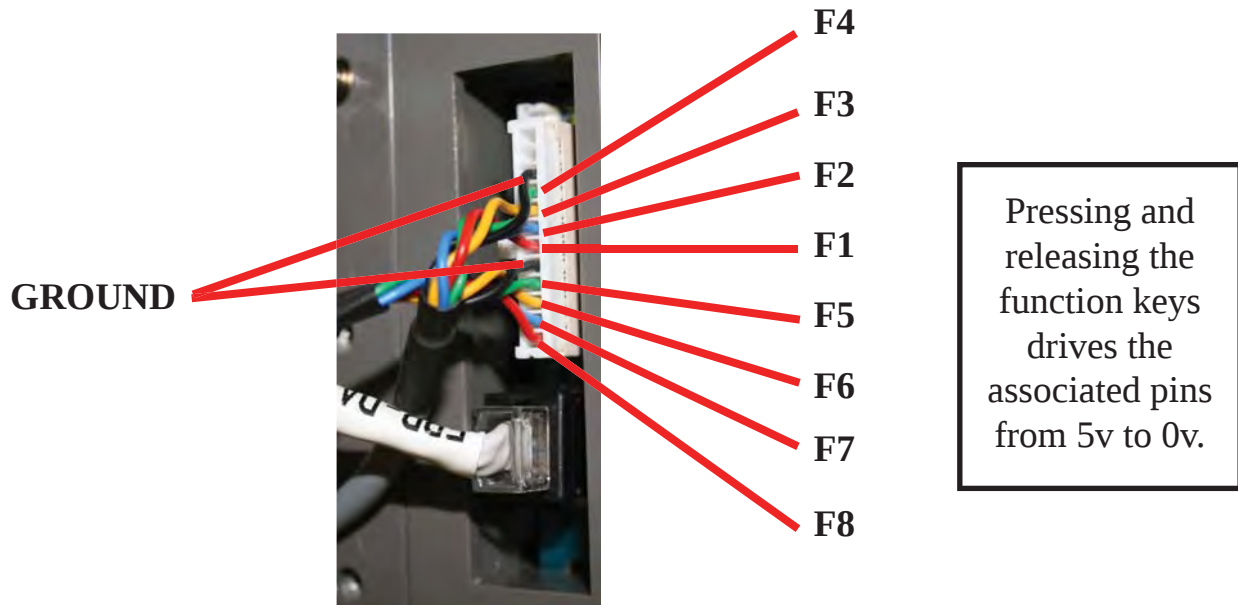


Back



Refer to “The Indicators” section earlier in this manual for an explanation of the LEDs for these devices.

The EPP communication data cable is also the power source for the EPP and should be securely connected to the mainboard and the RJ-45 connector on the EPP assembly. The left and right function keys unite into one common connector in the EPP. When diagnosing function keypad problems, use the following reference to help determine any wiring/voltage issues.



The **Management Functions** software can be useful in diagnosing keypad issues. It can be used to test the keystroke translation between the EPP and the mainboard. It can also provide information about the EPP; e.g. device status, firmware version, etc...

STEPS FOR NON-TAMPER ERROR CODES

Utilize these opportunities to analyze what is going on with the EPP. Although this is the recommended order, each step may not be dependent on the previous step.

1. Reset the terminal from the Management Functions Main Menu:

- Press 5 - System Parameters
- Press 5 - Restart Terminal
- Press ENTER

3. Verify that the EPP is detected and initialized during startup. The SPED version will display on the screen if the device is found.

2. Verify that the green LED lights:

- T7 - comes on and remains on
- T5 - blinks on but stops blinking

This indicates that the unit is receiving power.



If not found, check cabling. If cables are good and connections secure, the EPP may need to be replaced.

STEPS FOR NON-TAMPER ERROR CODES CONT...

4. Perform a keypad test from the Management Functions Main Menu:

- Press 2 - Diagnostics
- Press 8 - Keypad
- Press 2 - Test
- Press each customer keypad and function key to verify that the same key is correctly identified on the screen.

Pressing ENTER will cancel the test.

5. Check the device status from the Management Functions Main Menu:

- Press 2 - Diagnostics
- Press 8 - Keypad
- Press 1 - Device Status
- Verify the device is online, PIN Master Key and PIN Working Key are loaded and their associated Check Digits match the processor's expectations.

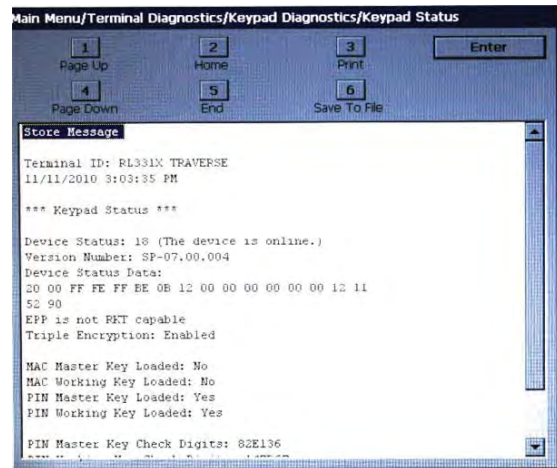
6. Perform a Check Digit test. When Check Digits continue not to match when the correct Master Keys are entered, use the following keys to test the EPP's ability to correctly translate the Check Digits:

Key Part Test:

- A) All 1's should return a check digit of **82E136**
- B) All A's should return a check digit of **C33F45**
- C) 1234567890ABCDEF1234567890ABCDEF should return a check digit of **A50201**
- D) FEDCBA0987654321FEDCBA0987654321 should return a check digit of **2B18EB**

Combined Key Part Test:

- If A and B above are parts 1 & 2, the combined check digit should be **39571E**
- If C and D above are parts 1 & 2, the combined check digit should be **A4E4F9**



If Check Digits do not match what the processor has provided, re-enter Master Keys and download Working Keys. If they still do not match, proceed to the next step. If they do not match, there may be a problem with the data provided by the processor.

STEPS FOR NON-TAMPER ERROR CODES CONT...

7. If at any time the error condition seems to be corrected, press F7 - Reset Terminal Error to attempt to clear the error status.

If any non-tamper errors continue to be detected when connections are secure, keys tested, check digits match and the processor confirms the validity of the master keys provided, the EPP may need to be replaced or sent in for repair.

STEPS FOR TAMPER ERROR CODES OR TAMPER RELATED ERRORS

Sometimes when other devices are serviced or replaced on the ATM, the software may generate **error code 616** (SPED Tamper Status - Voltage) even though the EPP has not been touched. When a new EPP is installed, **error code 617** (SPED Serial Number) occurs. In cases like these, there is no tampering but the steps to correct may be the same as if there had been a tamper.

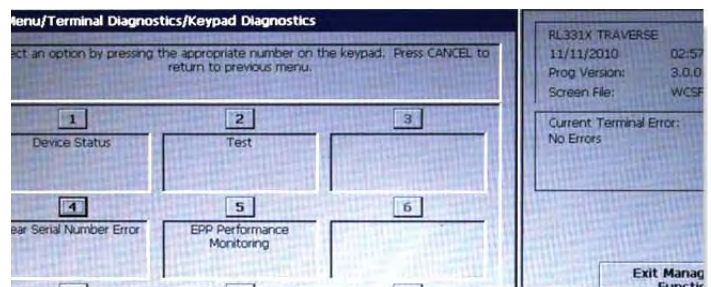
After ensuring the keypad is mounted securely (**DO NOT overtighten the screws!**), utilize these steps to correct a tamper or tamper related error.

1. On the Management Functions Main Menu:

- Press 2 - Diagnostics
- Press 8 - Keypad

2. If the terminal displayed error codes in the **592 - 618 range**, the Keypad Diagnostics screen may display option 4 - Clear Serial Number Error (or Clear Tamper). If so, **Press 4**.

NOTE: This is the only way to clear a software set tamper in the EPP.



3. If the red tamper LED on the back of the keypad is still on, there may be a hardware problem with the EPP. In this case, the EPP will need to be replaced or sent in for repair.

4. If the tamper condition clears and the red LED tamper light turns off, most likely the error will be replaced with error **190** (Master Key not Configured). At this point, re-enter the Master Key and download the Working Key.

See *XScale / X2 Configuration Manual* or the *Basic Setup of the Triton ATMs* for information about entering Master Keys and downloading Working Keys for the ATM.

HOW TO REPLACE THE BATTERY IN THE T7 PCI EPP KEYPAD



The battery in the EPP may be removed without risk of damage but there is ONLY a 2 - 5 minute window of time to replace it with a spare battery before losing stored data (passwords and keys).



Tools:

None

1. Follow **Proper Shutdown Procedures** and steps in **How to Access Components Behind the Fascia**.
2. Remove the battery cover from the EPP. Set the cover aside for reinstall.



3. Obtain a replacement battery. Put the replacement battery in an accessible place. Unplug and remove the battery from the EPP.



4. Quickly but carefully, install a new battery into the T7 keypad.

The Lithium Xeno 4800mAH spare battery can be ordered at www.atmgurus.com.

5. Replace the battery cover.

HOW TO REPLACE THE BATTERY IN THE T5 PCI EPP KEYPAD



DO NOT remove the battery from the T5 EPP without **FIRST** connecting a new battery!! This EPP will be permanently damaged if battery is removed and keypad unpowered before connecting a new battery.



Tools:

None

1. Follow **Proper Shutdown Procedures** and steps in **How to Access Components Behind the Fascia**.
2. Remove the battery cover from the EPP. Set the cover aside for reinstall.



3. **DO NOT UNPLUG CURRENT BATTERY!** Obtain a replacement battery. Plug the new battery into the spare battery connection.

The Lithium spare battery can be ordered at www.atmgurus.com.

4. Remove the old battery **AFTER** the new battery has been installed.

5. Replace the battery cover.

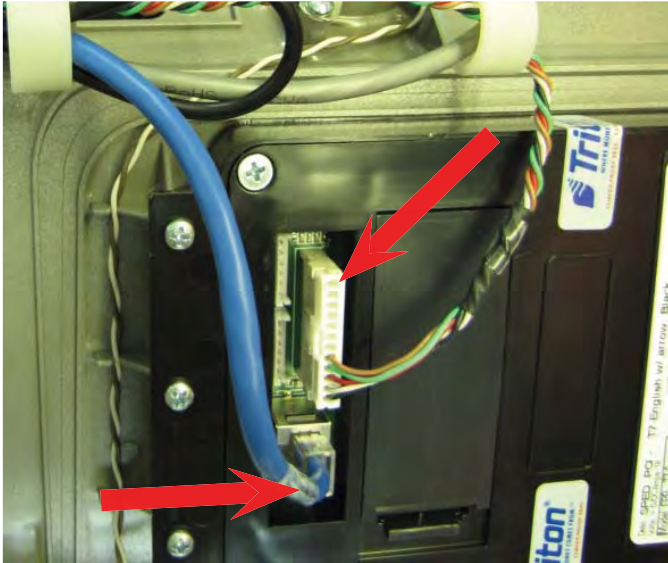


HOW TO REMOVE THE CUSTOMER KEYPAD

Tools:

- 1 - #2 Phillips screwdriver

1. Follow **Proper Shutdown Procedures** and steps in **How to Access Components Behind the Fascia**.
2. Disconnect the cables to the EPP.



3. Remove the six mounting screws, three on each side of the keypad. DO NOT remove the four screws holding the keypad back on.

NOTE: The back cover of the SPED may be either black or gray.

NOTE: To reinstall the keypad into the unit, perform these steps in reverse order.



CABINET / VAULT (LOWER CABINET)

See **How to Access the Cabinet / Vault** (mechanical and electronic) in the General Access section of this manual for instructions on opening the cabinet / vault.

HOW TO SET THE CABINET / VAULT COMBINATION (MECHANICAL)

Preferably, the serviceman would not be responsible for setting the combination to the cabinet / vault due to obvious liability issues. Whenever possible, refer the owner/proprietor to the **ARGO User Manual, Appendix C and D**. The steps below are provided for those occasions when the **ARGO User Manual** is unavailable. However USE DISCREETLY!!

Tools:

- 1 - Changing bar/key

1. Open the cabinet / vault door. (Follow the **How to Access the Cabinet / Vault** section of this manual.)
2. Once the cabinet / vault door is open, enter the current combination again, this time using the changing index mark.



The changing index is the left marker.

3. Insert the changing bar/key into the dial change hole (on the back of the lock) until it clicks. Turn it 90° clockwise to the right. Do not remove the bar/key until the combination has been set.



4. Rotate the dial to the left (counterclockwise), making at least four complete revolutions, then stop on the first **NEW** combination number at the changing index.



4 revolutions minimum

5. Rotate the dial to the right (clockwise) 3 times, stopping on the second **NEW** combination number at the changing index.



3 revolutions

NOTE: The left mark is used to change the combination. When choosing a new combination, numbers should NOT be close together, e.g. 20-22-18

HOW TO SET THE CABINET / VAULT COMBINATION (MECHANICAL) CONT...

6. Rotate the dial to the left (counterclockwise) 2 times, stopping on the third **NEW** combination number at the changing index.



2
revolutions

NOTE: DO NOT use numbers between 0 - 20 as the last password number.

7. When the new combination has been set, rotate the changing bar/key counterclockwise; then remove it from the dial change hole.



8. After completing the combination setup, **KEEP THE CABINET / VAULT DOOR OPEN** and enter the combination to verify that it works. Perform this task several more times to ensure it does not fail before closing the cabinet / vault door.

NOTE: The combination CANNOT be restored or reset once it is lost!



Keep the cabinet / vault door OPEN until the new combination has been thoroughly verified as successful at



HOW TO SET THE CABINET / VAULT COMBINATION (ELECTRONIC)

The electronic combination lock from the factory may be either a dead bolt type (high security vault units) or a swing bolt type (business hour units). The basic programming is the same for both of these types. For the dead bolt, once the successful combination is entered, the face of the lock is turned clockwise to release the lock before the door handle can be turned. For the swing bolt type, the door handle can be turned upon successful entry of the combination.

NOTE: ALWAYS perform this operation with the cabinet / vault door OPEN! If the unit is programmed for a dual combination, perform these steps for each combination code.

Tools:

None

1. Open the cabinet / vault door. (Follow the ***How to Access the Cabinet / Vault*** section of this manual.)
2. Enter 6 zeros [0 0 0 0 0 0].



Dead Bolt Type



Swing Bolt Type

2. Enter the current combination.
3. Enter the NEW combination twice.

NOTE: If you receive an invalid combination entry error, the lock signals three times and the old combination will still be valid.

4. After completing the combination setup, **KEEP THE DOOR OPEN** and enter the combination to verify that it works. Perform this task several more times to ensure it does not fail BEFORE closing the door.

NOTE: When a valid combination is entered, a double signal will announce success.



Keep the cabinet / vault door OPEN until the new combination has been thoroughly verified as successful at opening the door.



WHAT TO DO WHEN THE BATTERY IS LOW

Repeated beeping during an opening indicates that the battery is low and needs to be replaced. It is recommended that the battery is replaced at least twice annually.

Replacing the Battery on a Dead Bolt Electronic Lock

The battery box is located on the back of the cabinet / vault door.

1. Open the cabinet / vault door. (Follow the ***How to Access the Cabinet / Vault*** section of this manual.)
2. Remove the battery box cover by pulling the front portion away from the cabinet / vault door.
3. Unsnap the battery from the two (2) connectors at the top of the 9 volt battery to remove the old battery.
4. Connect the new battery to the connectors.
5. Ensuring all the battery leads are inside the battery compartment, reinstall the battery cover.
6. Test the unit several times BEFORE closing the cabinet / vault door.

Replacing the Battery on a Swing Bolt Electronic Lock

The battery is located inside the combination housing.

1. Grasp the dial firmly and push up about 1/4".
2. Pull away from the mounting surface and the standoff bolts.
3. Remove the old 9 Volt battery and replace with a new one.

***NOTE:** Hold the battery and housing carefully to avoid pulling wires out of the housing.*

4. Carefully position the housing over the standoff bolts.
5. Push in a downward direction to secure in place.

***NOTE:** To help prevent a short circuit, ensure no wires are caught between the housing and the door.*

6. Test the unit several times before closing the cabinet / vault door.

WHAT TO DO WHEN THE LOCK WILL NOT OPERATE

If the cabinet / vault door is closed and locked but the lock will not operate, the lock must be energized from the two external terminals on the combination keypad.

***NOTE:** For these steps to work, battery contact with the external terminal points must be maintained at all times.*

1. Press a good 9 Volt Alkaline battery against the external terminal points.



2. With the terminal ends maintaining contact with the external terminal points, enter a valid combination. (A beep should be heard each time a number is pressed.)
3. With the battery still making contact, turn the keypad dial clockwise to open the lock.

The electronic combination unit has many other features. This includes second user, dual combination, time delay, etc... For these features, see the **ARGO User Manual**, Appendix C.

Acronyms

Definitions provided are those applicable within the context of this document.

Acronym	Definition
ADA	Americans with Disabilities Act
BGD	Back Ground Dial
BIN	Bank Identification Number
BIOS	Basic Input / Output System
CDU	Cash Dispenser Unit
CE	Control Electronics
COP	Computer On and Present
CPU	Central Processing Unit
DES	Data Encryption Standard
DIP	Dual In-line Package (a type of switch)
DSS	Data Security Standard
EPP	Encrypting PIN Pad
FI	Financial Institution
IC	Integrated Circuit (also ICC= Integrated Circuit Card)
ISO	Integrated Sales Organization
ISO	International Organization for Standardization
LAN	Local Area Network
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LRC	Longitudinal Redundancy Check
MCR	Magnetic Card Reader (same as MCU)
MCU	Magnetic Card Reader (same as MCR)
PCB	Printed Control Board
PCI	Payment Card Industry
PIN	Personal Identification Number
RAM	Random Access Memory
RISC	Reduced Instruction Set Computer

Acronyms cont...

Definitions provided are those applicable within the context of this document.

Acronym	Definition
ROM	Read Only Memory
SD Card	Secure Digital Card
SDRAM	Synchronous Dynamic Random Access Memory
SHU	Slip Handling Unit (receipt printer)
SPED	Secured PIN Entry Device (EPP)
SRAM	Static Random Access Memory
TDES	Triple Data Encryption Standard
TDL	Triton Dynamic Language
TFT	Thin File Transistor

CASH DISPENSER

Dispensing Mechanisms

- MiniMech
 - Single cassette
 - 750 - 1000 note capacity
 - < 100 reject bin capacity
- NMD 50
 - Dual cassette
 - 1750 - 2000 note capacity
 - < 100 reject bin capacity
- SDD
 - Single cassette
 - 1700 - 1800 note capacity
 - < 100 reject bin capacity
- SCDU
 - Single cassette
 - 1000 note capacity
 - < 100 reject bin capacity
- HCDU
 - Dual cassette
 - 1700 note capacity each cassette
 - < 100 reject bin capacity

MiniMech

The MiniMech dispenser consists of an open cassette with an open integrated reject bin. The MiniMech is a non-serviceable unit. Due to the complexity of the timing mechanism; belts, gears and other parts that might be considered field replaceable unfortunately are not. Ensure the cable connections are firm at both the dispenser, security module and the main board. Also ensure proper voltage is present and all configurations are correct. A large number of dispenser problems are a result of bad notes so be sure to load only good quality notes.

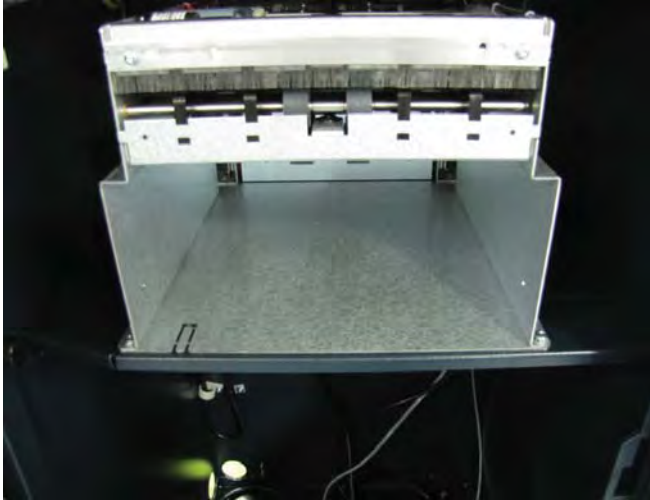
If an issue occurs that cannot be remedied, a replacement dispenser must be obtained.

Removing the MiniMech Dispensing Mechanism

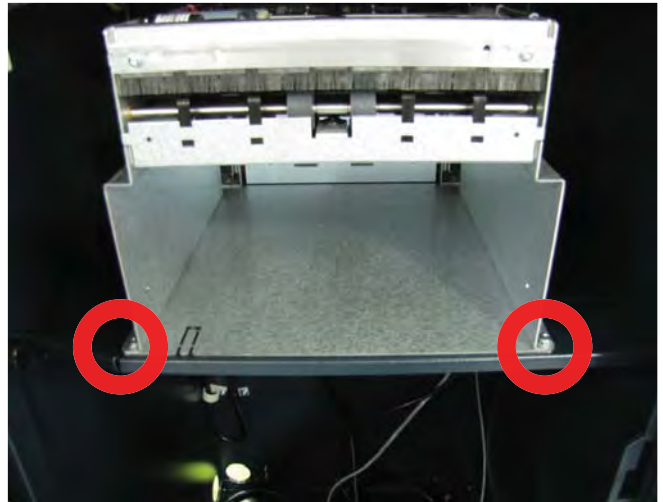
Tools:

- 1 - #2 Phillips screwdriver
- 1 - small slotted screwdriver

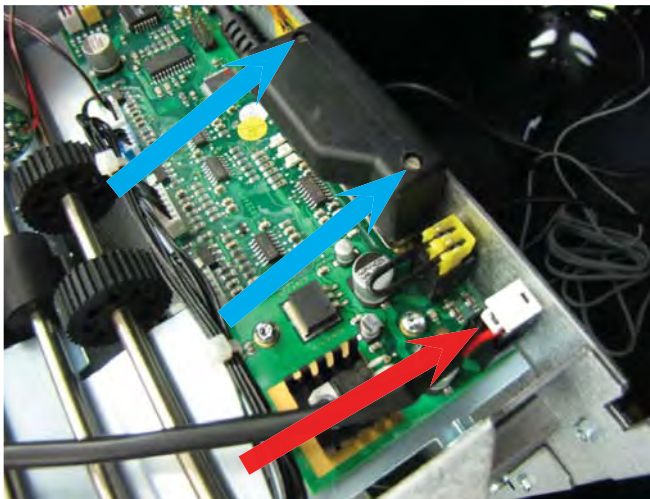
1. Follow *Proper Shutdown Procedures* and steps in *How to Access Components Behind the Fascia*.
2. Remove the cassette from the dispensing mechanism.



3. Remove the two screws in the front corners that secure the dispenser to the tray.



4. Slide the mechanism forward until the dispenser communication and DC power connectors are accessible. Disconnect the dispenser communication cable by loosening the two screws on the cable. Disconnect the DC power cable.



5. Remove the dispenser from the unit.

Installing the MiniMech Dispensing Mechanism

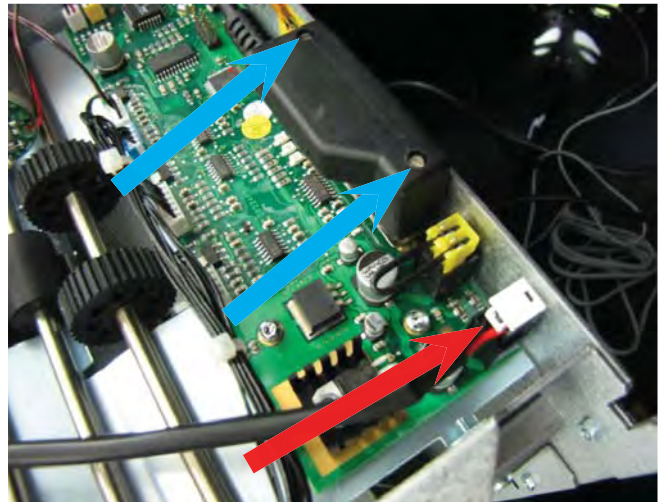
Tools:

- 1 - #2 Phillips screwdriver
- 1 - small slotted screwdriver

1. Follow *Proper Shutdown Procedures* and steps in *How to Access Components Behind the Fascia*.
2. Remove the cassette from the dispensing mechanism.



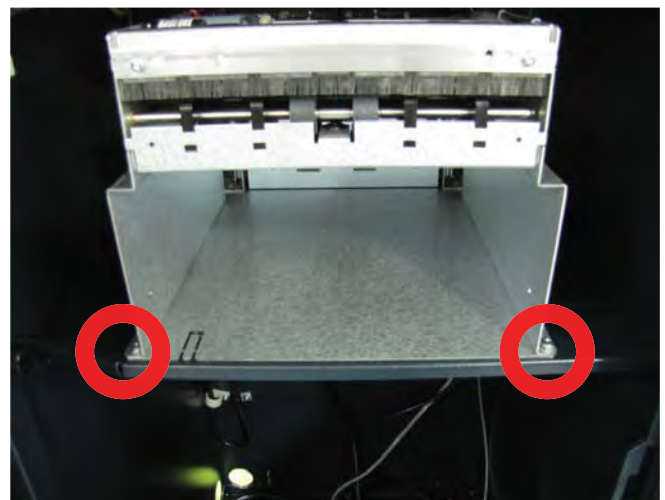
3. Connect the dispenser communication cable and secure by tightening the two screws on the cable. Connect the DC power cable.



4. Set the dispenser on the cabinet's tray and slide it back into place. Ensure the two posts on the tray sit in the notches in the dispenser bracket.



5. Install the two screws in the front corners that secure the dispenser to the tray. Reinstall the cassette into the dispenser. Verify dispenser operation by completing several test dispenses.



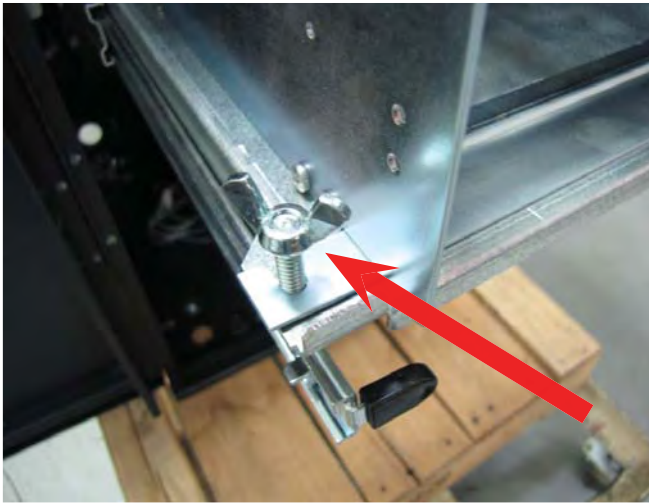
SDD

Removing the SDD Dispensing Mechanism

Tools:

- 1 - Pliers (to use on wing nut if needed)

1. Follow *Proper Shutdown Procedures* and steps in *How to Access Components Behind the Fascia*.
2. Remove the cassette from the dispensing mechanism.
3. Remove the two wing nuts from the front corners that secure the dispenser to the tray.

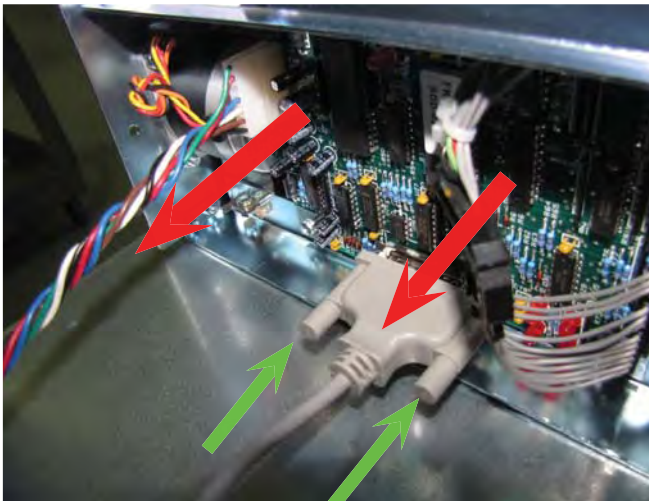


If the dispenser is on a stationary tray, skip to Step 5.

4. Extend the dispenser slides.



5. Slide the mechanism forward until the dispenser communication and DC power connectors are accessible. Disconnect the dispenser communication cable by loosening the two screws on the cable. Disconnect the DC power cable.



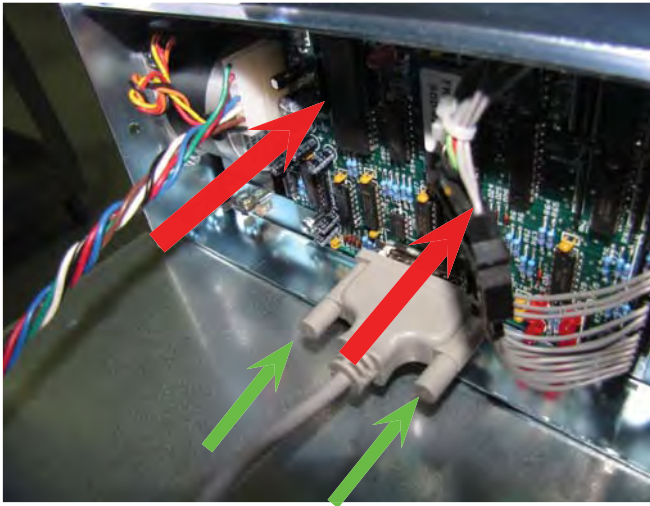
6. Remove the dispenser from the unit. Loosely reinstall the wing nuts onto the posts to prevent losing them.

Installing the SDD Dispensing Mechanism

Tools:

- 1 - Pliers (to use on wing nut if needed)

1. Follow *Proper Shutdown Procedures* and steps in *How to Access Components Behind the Fascia*.
2. If the wing nuts were previously installed onto the posts, remove them and set aside.
3. Remove the cassette from the dispensing mechanism.
4. Connect the dispenser communication cable and secure by tightening the two screws on the cable. Connect the DC power cable.



5. Set the dispenser on the cabinet's tray and slide it back into place.



6. Ensure the dispenser notches slide onto the tray posts. Install the two wing nuts onto the posts and tighten to secure the dispenser.



7. If the dispenser is on slides, push the dispenser and tray into the locked position.

Prime the cassette and ensure the cassette flag is green. Reinstall the cassette. Verify dispenser operation by completing several test dispenses.

NMD50

Only factory trained service technicians should attempt to make repairs to the NMD50 dispensing mechanisms. Unauthorized repairs to the NMD50 dispensing mechanism may void the factory warranty. Contact the Triton Systems Technical Support Department for additional information. Factory trained service technicians should refer to the NMD50 Dispenser Mechanism Service Manuals for further instructions.



**** WARNING ****

Due to the weight of the dispenser, the NMD50 should be lifted from the rails by TWO service personnel.



Removing the NMD50 Dispensing Mechanism

Tools:

None

1. “Unlock all Cassettes” in the Management Functions. Follow *Proper Shutdown Procedures* and steps in *How to Access Components Behind the Fascia*.
2. Remove the cassettes and reject cassette from the dispensing mechanism. Extend the dispenser slides.

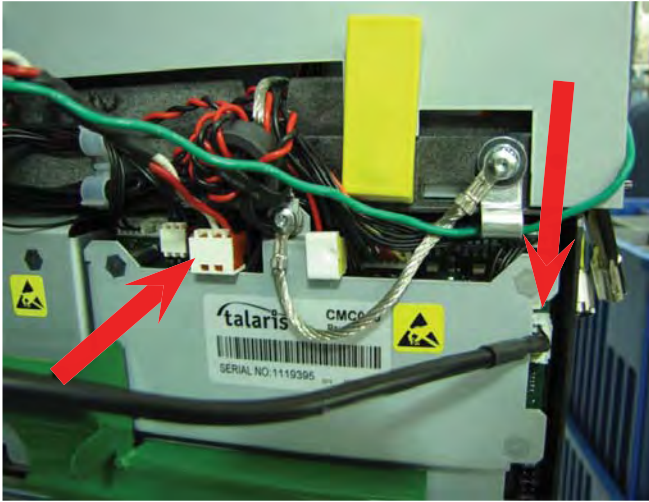


3. Unplug the quick connect ground wire from the front of the dispenser.



Removing the NMD50 Dispensing Mechanism cont...

4. Unplug the Dispenser Communication cable and the Dispenser Power Cable from the side of the dispenser.



5. Remove all the cables from the cable clips along the side and rear of the dispenser. Route the cables over the cabinet door to prevent damage.

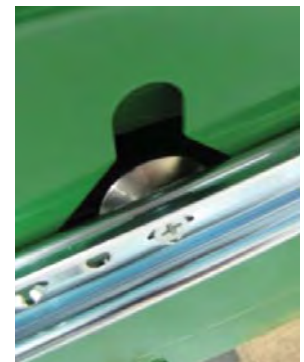


6. Route the cables over the cabinet door to prevent damage. (Dispenser removed for clarity)



7. **TWO Service Personnel:** Using the attached handles, carefully lift the dispenser off the rails and set aside.

NOTE: To replace the NMD50 dispenser, perform these steps in reverse order. Ensure the dispenser cables are routed over the cabinet door to prevent damage. When lowering the dispenser onto the rails, ensure the posts on the rails sit securely in the handle's notches.



SCDU

Removing the SCDU Dispensing Mechanism

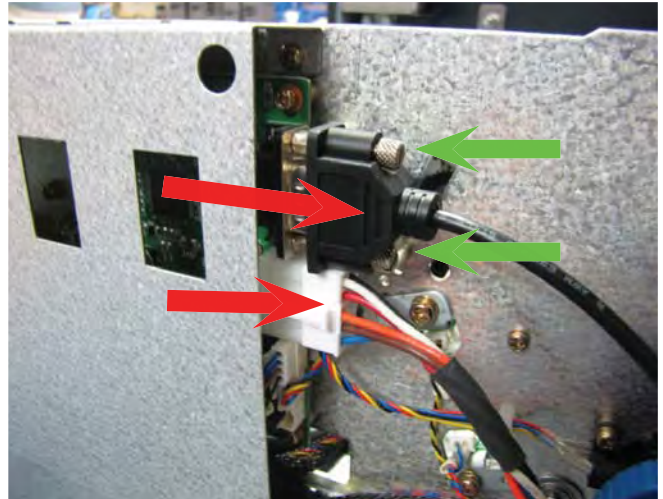
Tools:

1 - #2 Phillips screwdriver

1. Follow *Proper Shutdown Procedures* and steps in *How to Access Components Behind the Fascia*.
2. Remove the cassette from the dispensing mechanism. Extend the dispenser slides.



3. Disconnect the dispenser communication cable by loosening the two screws on the cable. Disconnect the DC power cable.



4. Remove the two screws, one on each side of the dispenser, and set them aside for reinstallation.



5. Slide the dispenser forward slightly before lifting it off the tray.

Installing the SCDU Dispensing Mechanism

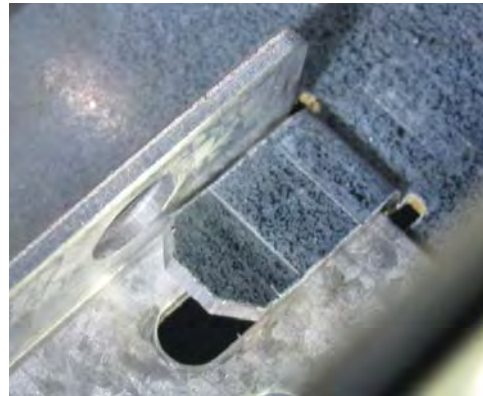
Tools:

1 - #2 Phillips screwdriver

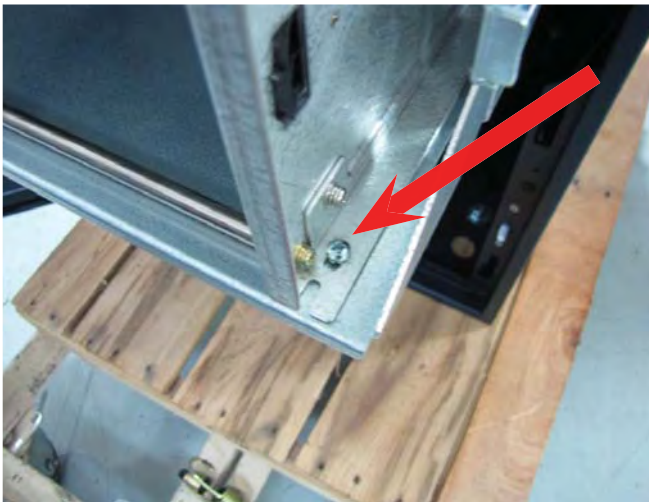
1. Follow *Proper Shutdown Procedures* and steps in *How to Access Components Behind the Fascia*.
2. Remove the cassette from the dispensing mechanism. Extend the dispenser slides.



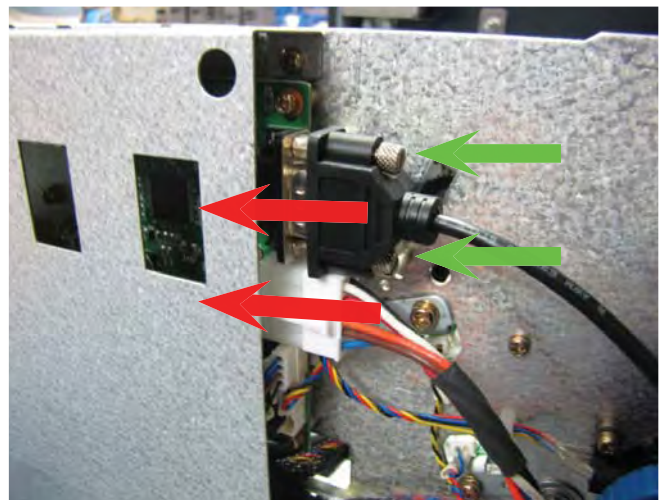
3. Slide the dispenser onto the tray ensuring the dispenser sits under the two tabs at the back of the tray.



4. Secure the dispenser by install the two screws, one on each side of the dispenser.



5. Connect the dispenser communication cable. Secure the cable by tightening the two screws on the cable. Connect the DC power cable.



6. Slide the dispenser tray into the cabinet. Reinstall the cassette into the dispenser.

HCDU

** WARNING **



Due to the weight of the dispenser, the HCDU should be lifted from the rails by TWO service personnel.

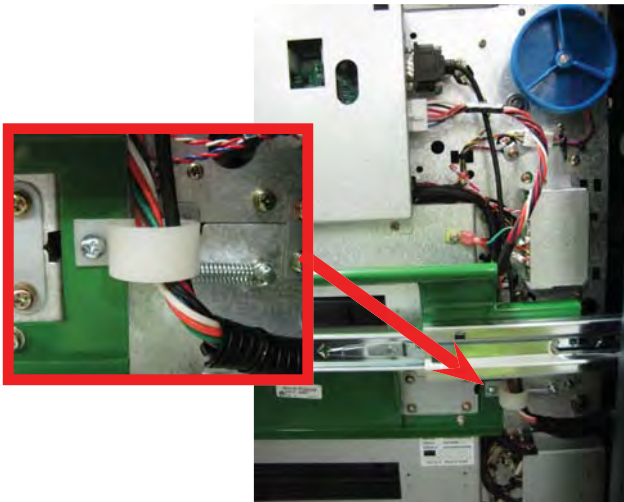


Removing the HCDU Dispensing Mechanism

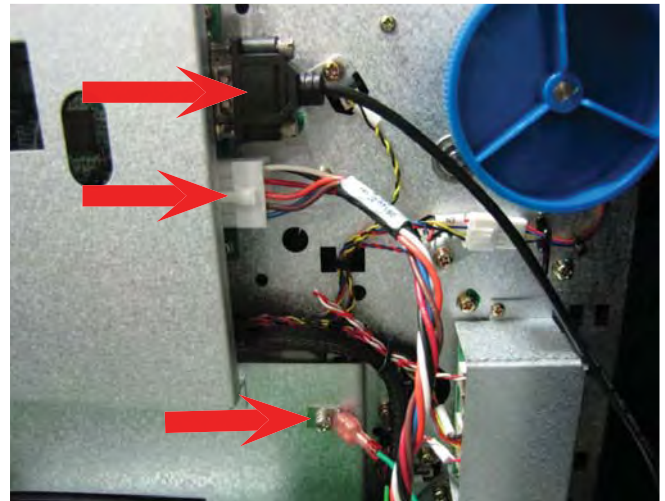
Tools:

None

1. Follow *Proper Shutdown Procedures* and steps in *How to Access Components Behind the Fascia*.
2. Remove the cassettes from the dispensing mechanism. Extend the dispenser slides.
3. Remove the cables from the cable clip on the side of the dispenser.



4. Disconnect the dispenser communication cable by loosening the two screws on the cable. Disconnect the dispenser power cable and the ground wire from the dispenser.



5. Route the cables over the cabinet door to prevent damage. (Dispenser removed for clarity)



6. **TWO Service Personnel:** Using the attached handles, carefully lift the dispenser off the rails and set aside.

Installing the HCDU Dispensing Mechanism

Tools:

None

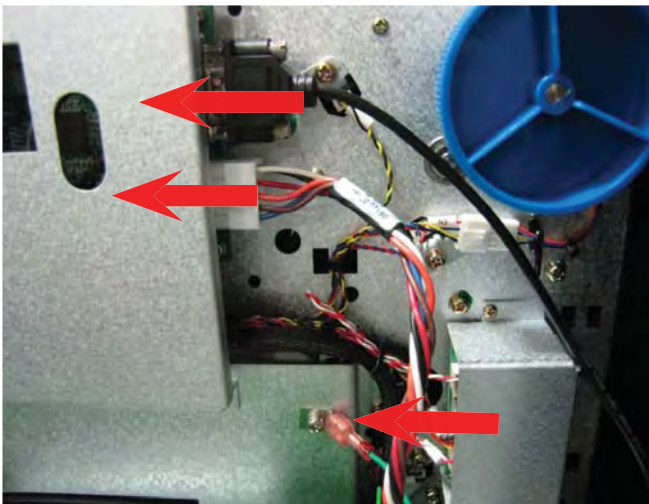
1. Follow *Proper Shutdown Procedures* and steps in *How to Access Components Behind the Fascia*.
2. Remove the cassettes from the dispensing mechanism. Extend the dispenser slides.
3. Route the cables over the cabinet door to prevent damage.



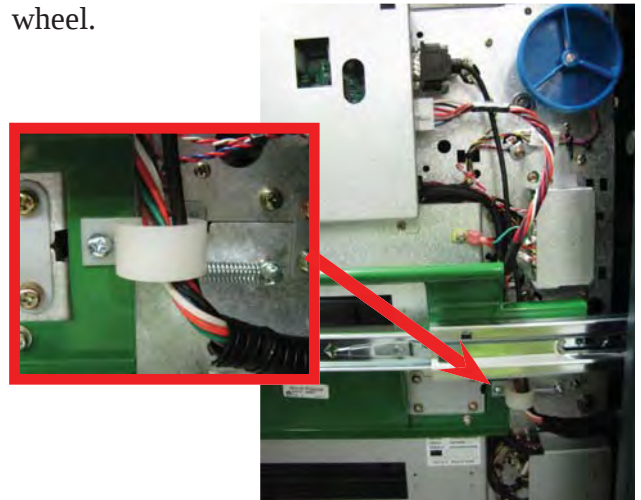
4. **TWO Service Personnel:** Using the attached handles, carefully lift the dispenser onto the rails ensuring the posts on the rails sit securely in the handle's notches.



5. Connect the dispenser communication cable and secure it by tightening the two screws on the cable. Connect the dispenser power cable and the ground wire to the dispenser.



6. Route the cables through the cable clip. Carefully pull the cables down through the clip to ensure there is no cable slack near the blue wheel.



7. Reinstall the cassettes. Unlock the slides and push the dispenser into the cabinet.

SCDU & HCDU

NOTE: The information here concerns the Hantle manufactured dispensers found in the ARGO. Since both the SCDU and HCDU are Hantle made, there is much similarity in their mechanisms. Most of the steps for resolving SCDU issues may be applied to the HCDU.

CLEAR and CLEAN!

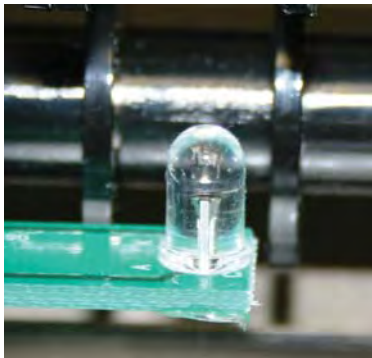
Clear and clean are the primary tasks associated with a dispenser. That is because the dispenser's main issues are jammed bills or blocked sensors. To perform these tasks:

Inspect the dispenser thoroughly, following the normal bill path, and remove any jammed bills.

Spray compressed air to remove dust, especially on the sensors.

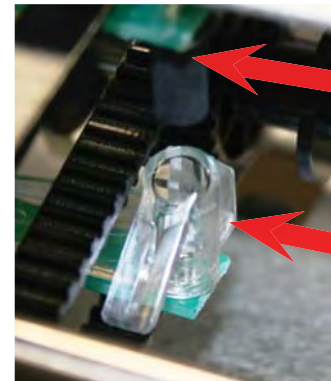
Use a cotton swab or lint-free cloth to clean the sensors when any residue is present. Refrain from using electrical contact cleaner or alcohol, as this may harm the sensors.

The best preventive maintenance on the dispenser is to perform these tasks on a regular basis anytime the ATM is serviced.



SCDU transmitter sensor

NOTE:
On the SCDU, there are 4 of these with matching receiver sensors.



SCDU exit sensor

See **How to Remove the Ultrasonic Double Detect Sensors** for photo of the double detect sensor.

Connection

If there is an issue with the main motor or an encoder error is received, the first place to check is the connection to the encoder sensor. This sensor is located on the circuit board side of the SCDU/HCDU. If the encoder sensor seems to be in good shape and well connected, the SCDU/HCDU's mainboard may have lost its programming.

See **How to Remove the Encoder Sensor**.

Mainboard

When an SCDU/HCDU has a hardware issue, it is usually the circuit board that has failed rather than one of the sensors. Sometimes a defective SCDU/HCDU mainboard will cause the terminal to freeze or create a blank screen during initialization. To test this:

Shut down the ATM using proper procedures.

Disconnect the data and power cables to the SCDU/HCDU.

Switch back on the ATM.

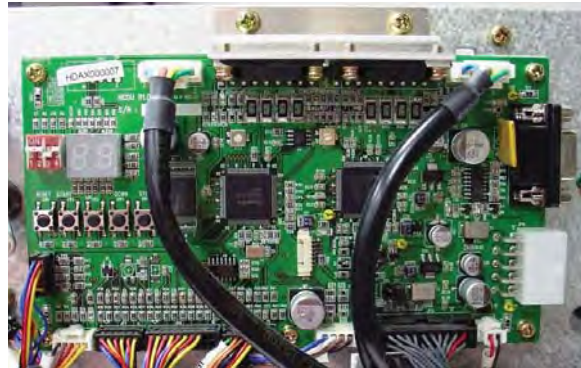
The initialization process will begin but suspend and warn of the defective dispenser.

Fortunately, most fatal dispenser errors can be remedied by replacing the circuit board rather than the entire dispenser. When doing so, ensure the correct circuit board is selected for replacement. The SCDU type has its own unique circuit board for its 1000 note cassette. The same is true for the HCDU circuit board for its 1700 note cassette.

The SCDU/HCDU also has ultrasonic double detect sensors with a separate circuit board for these double detect sensors.



SCDU Mainboard



HCDU Mainboard

Although similar in appearance, these boards are not the same.

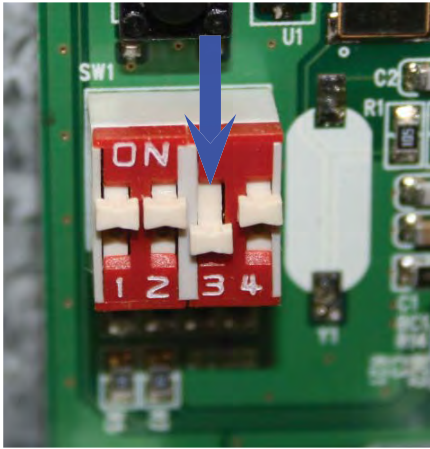


**SCDU Ultrasonic Double Detect
Sensor Board**



**HCDU Ultrasonic Double Detect
Sensor Board**

There are four DIP switches on the SCDU and HCDU mainboard and two DIP switches on the ultrasonic double detect sensor board. For normal operation, only the third [3] DIP switch on the SCDU/HCDU board should be in the “OFF” position. All others should be set to “ON”. Both of the DIP switches on the ultrasonic double detect sensor board should be in the “OFF” position.



Mainboard PIN Settings



**Ultrasonic Double Detect
Sensor Board PIN
Settings**

How to Remove the Mainboard

NOTE: The actions shown here for the SCDU are similar for the HCDU.

Tools:

1 - #1 Phillips screwdriver

1. Follow *Proper Shutdown Procedures* and steps in *How to Access Components Behind the Fascia*.
2. Pull the sliding tray out, until it's fully extended.

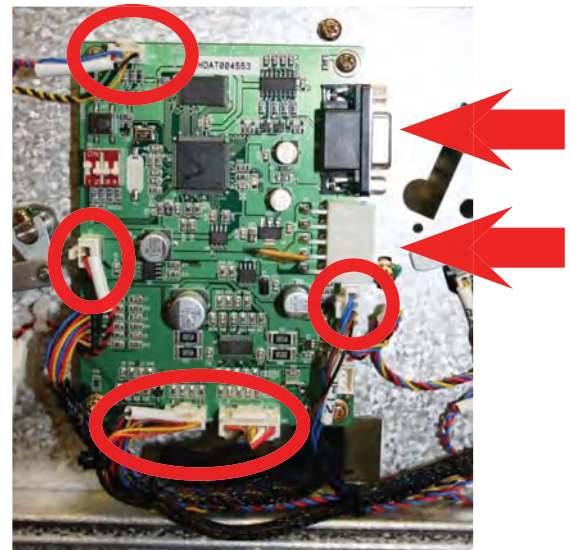


How to Remove the Mainboard cont...

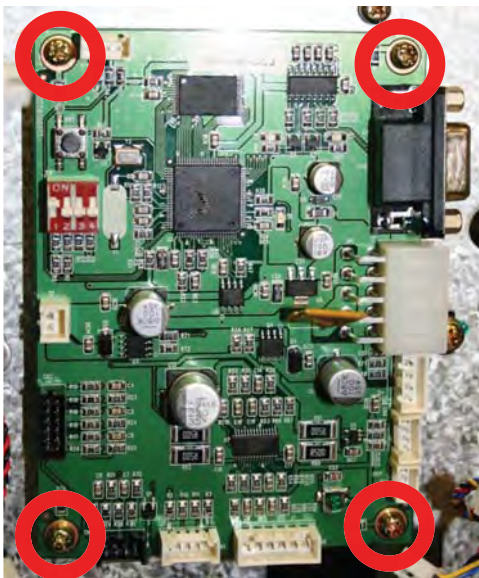
3. Loosen, do not remove, the four screws securing the mainboard cover. Lift the mainboard cover from the unit.



4. Disconnect all cables from the mainboard.



5. Remove the four screws that secure the mainboard.



NOTE: To replace the mainboard, perform these steps in reverse order.

How to Remove the Ultrasonic Double Detect Sensor Board

NOTE: The actions shown here for the SCDU are similar for the HCDU.

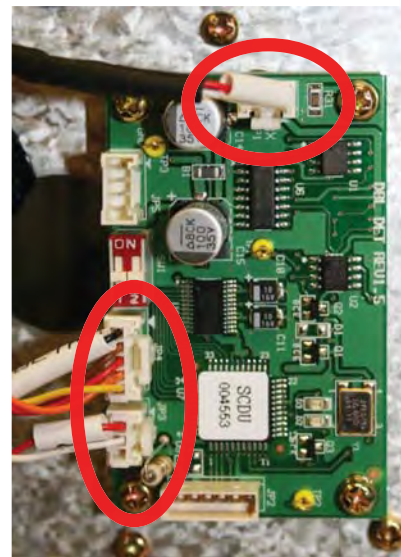
Tools:

1 - #1 Phillips screwdriver

1. Perform steps 1 - 6 in ***How to Remove the Mainboard***.
2. Loosen the two screws retaining the board cover. Remove the cover.



3. Disconnect the cables to the ultrasonic double detect sensor board.



4. Remove the four screws that secure the board.



NOTE: To replace the ultrasonic double detect board, perform these steps in reverse order.

How to Remove the Ultrasonic Double Detect Sensors

NOTE: The actions shown here for the SCDU are similar for the HCDU.

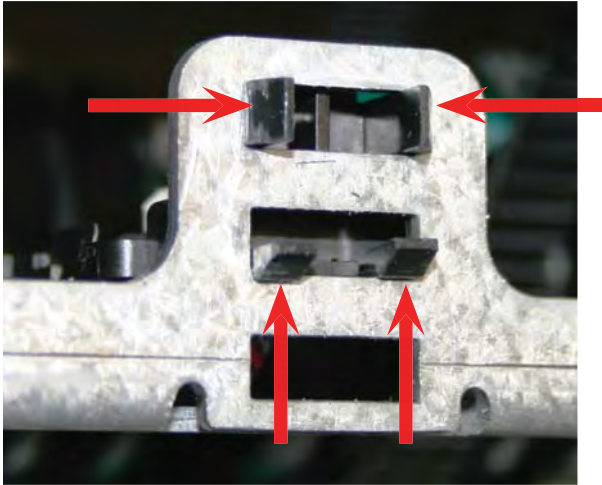
There are two ultrasonic double detect sensors on the SCDU/HCDU, each facing the other. They are found in the back of the SCDU/HCDU. The steps apply to both of these sensors.



Tools:

- 1 - #1 Phillips screwdriver

1. Perform steps 1 - 6 in ***How to Remove the Mainboard***.
2. Squeeze the four tabs on the back of the sensor to release it from the bracket.



3. Disconnect the cable from the sensor.



NOTE: To replace the ultrasonic double detect sensor, perform these steps in reverse order.

How to Remove the Encoder Sensors

NOTE: The actions shown here for the SCDU are similar for the HCDU.

The encoder sensor and the gate operation detection sensor are identical. If one is immediately unavailable in the field, the other can be substituted.

Tools:

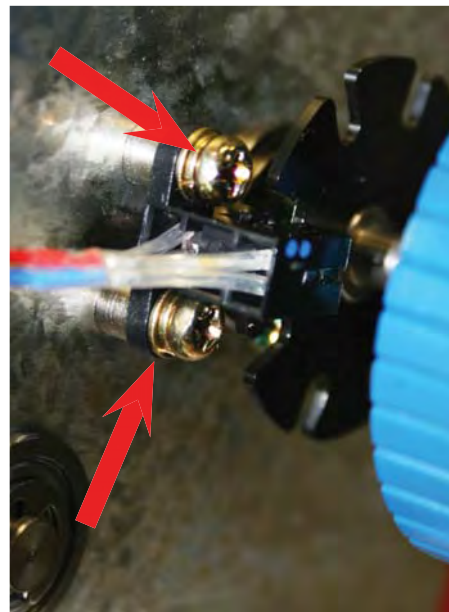
1 - #1 Phillips screwdriver

1. Perform steps 1 - 7 in ***How to Remove the Mainboard***.
2. Disconnect the encoder sensor cable from the SCDU mainboard.



3. Remove the two screws securing the encoder sensor.

NOTE: Depending upon the driver used, the blue knob may need to be removed first to access the screws.



NOTE: To replace the encoder sensor, perform these steps in reverse order, ensuring the sensor faces the center of the encoder shaft.

How to Remove the Gate Operation Detection Sensor

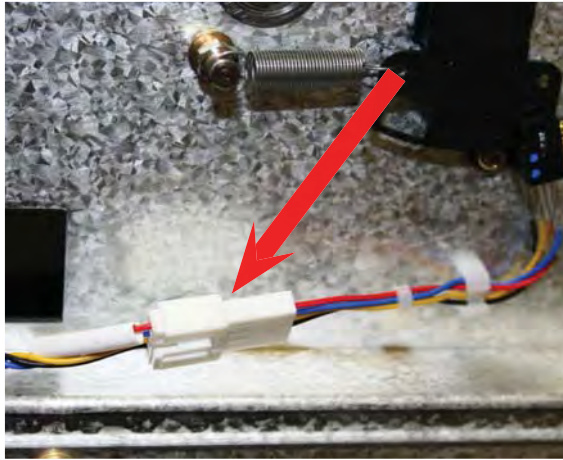
NOTE: The actions shown here for the SCDU are similar for the HCDU.

The gate operation detection sensor is the same sensor used for the encoder sensor. These parts can be interchanged in the field.

Tools:

1 - #1 Phillips screwdriver

1. Perform steps 1 - 6 in *How to Remove the Mainboard*.
2. Disconnect the gate sensor cable.



3. Remove the two screws securing the gate sensor.



NOTE: To replace the gate sensor, perform these steps in reverse order, ensuring the gate rocker arm swings freely between the sensor prongs.

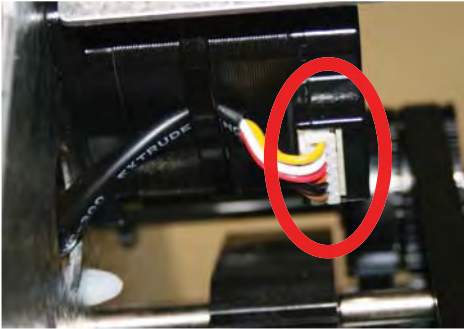
How to Remove the SCDU Main Motor

NOTE: The actions shown here for the SCDU are similar for the HCDU.

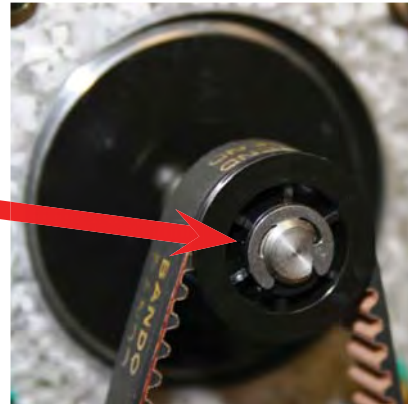
Tools:

1 - #1 Phillips screwdriver

1. Perform steps 1 - 6 in *How to Remove the Mainboard*.
2. Disconnect the motor's power cable. **NOTE:** If a plastic tie binds the cable to the motor, cut and remove the tie.



3. Remove the E-ring that retains the belt pulley; then remove the pulley and belt.



4. Remove the four screws of the main motor to detach the motor.



NOTE: To replace the main motor, perform these steps in reverse order.

How to Remove the Gate Solenoid Unit

NOTE: The actions shown here for the SCDU are similar for the HCDU.

Tools:

1 - #1 Phillips screwdriver

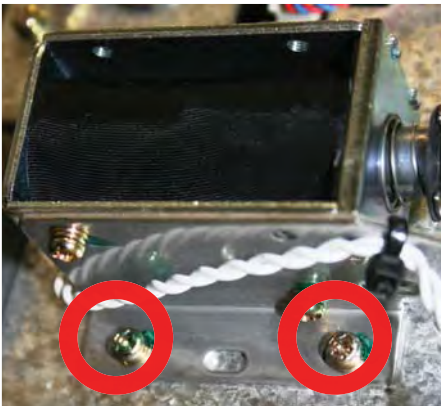
1. Perform steps 1 - 6 in *How to Remove the Mainboard*.
2. Disconnect the solenoid cable.



3. Remove the E-ring that secures the solenoid arm.



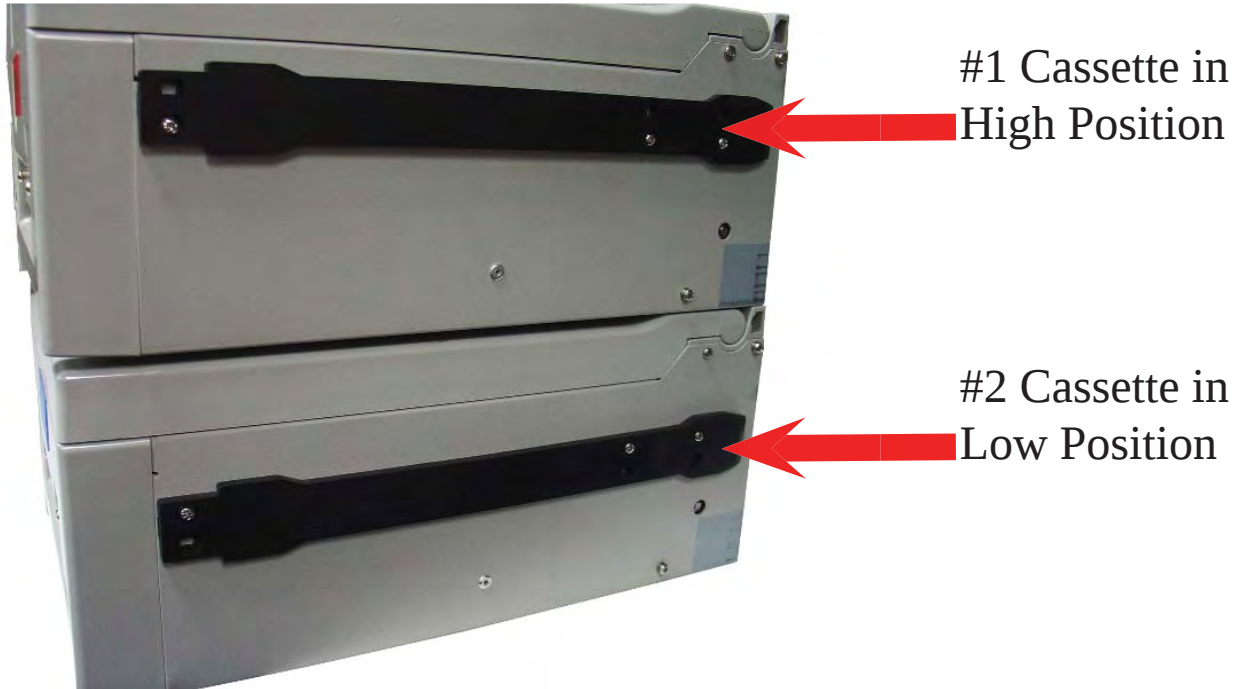
4. Remove the two screws that hold the solenoid bracket to the wall of the SCDU. The solenoid can then be removed from the bracket, if necessary.



NOTE: To replace the gate solenoid unit, perform these steps in reverse order.

How to Swap HCDU Cassettes

The HCDU cassettes are identical except for the rail position on the sides. On the two cassette HCDU, the rail of the upper cassette (#1) is in the high position and the rail of the lower cassette (#2) is in the lower position.



Tools:

1 - #2 Phillips screwdriver

1. Remove the three screws that attach the rail to the side of the cassette. Repeat on other side.



2. Reposition the rail so that the alternative screw hole on the rail mates with the screw hole on the cassette.
3. Reinstall screws.

NOTE: Cassette may come with a red label for #1 and a blue label for #2 on the front of the cassettes. If a cassette's rails are changed, ensure a label on the front properly identifies the cassette for ease of use.

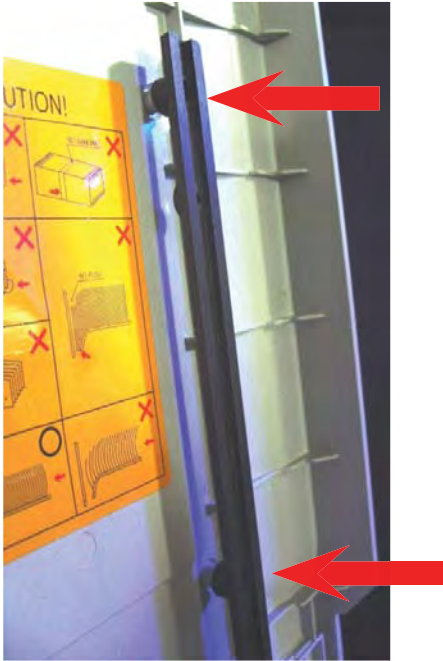
How to Make Height Adjustments on HCDU Cassettes for Canada

When necessary, an HCDU cassette configured for the U.S. may be converted for Canadian currency by simply adjusting the height rails of the cassette.

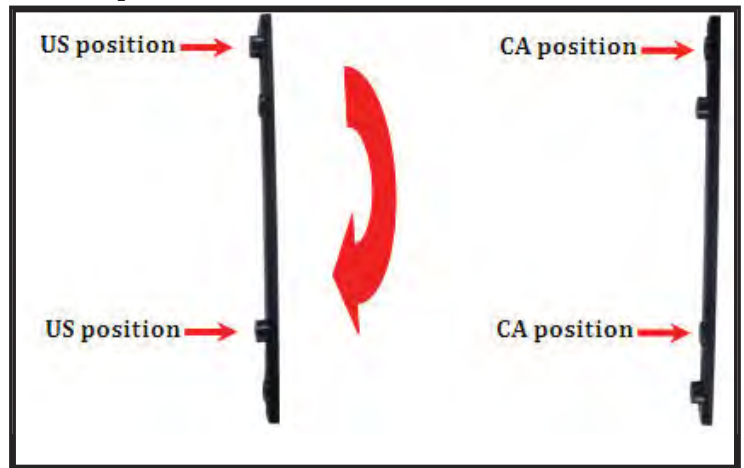
Tools:

1 - #2 Phillips screwdriver

1. With the cassette lid open, remove the two screws that affix each rail to the lid.



2. With the rail removed, simply turn the rail around so that the Canadian position is now on top. Reattach the screws through the Canadian positioned rail.

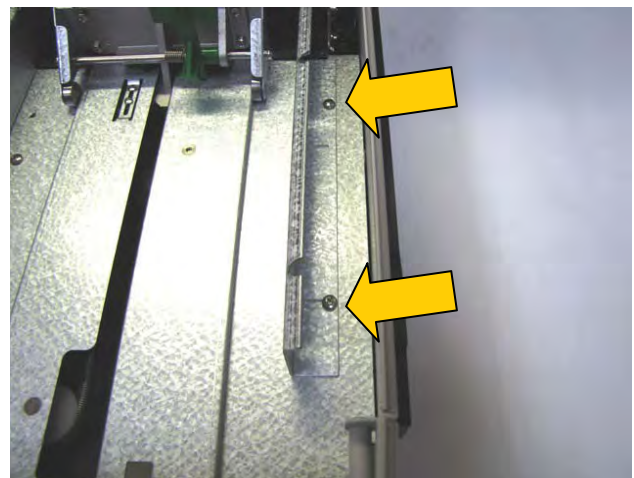


NOTE: Ensure these steps are performed for both height rails on the lid of the HCDU cassette.

3. Loosen the two screws holding the right rail.



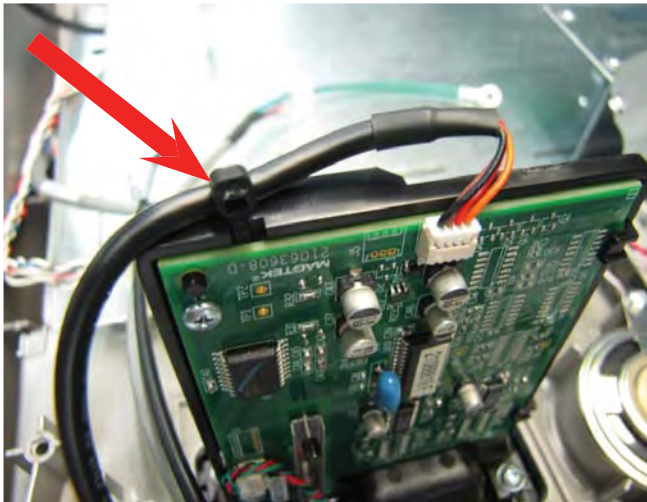
4. Slide the rail to the left as far as it will go and tighten the two screws.



CARD READER

HOW TO REMOVE THE TRACK 1-2 CARD READER

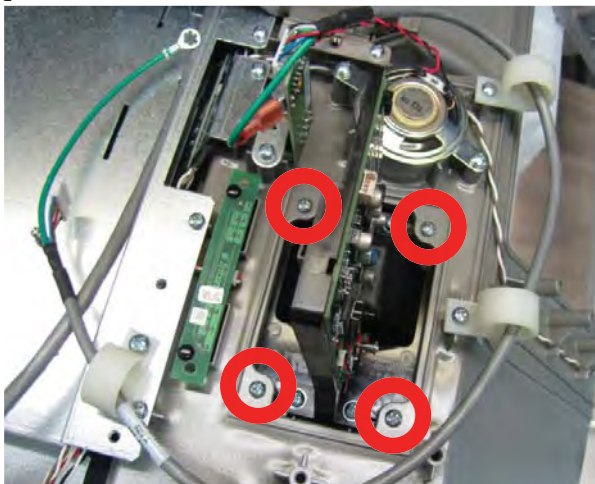
1. Follow *Proper Shutdown Procedures* and steps in *How to Access Components Behind the Fascia*.
2. Push the AC power ON/OFF switch on the power supply to the OFF position. Cut the TY Wrap holding the card reader cable to the assembly.



3. Unplug the card reader cable from the assembly.



4. While holding the card reader, remove the four screws that secure the card reader to the control panel.

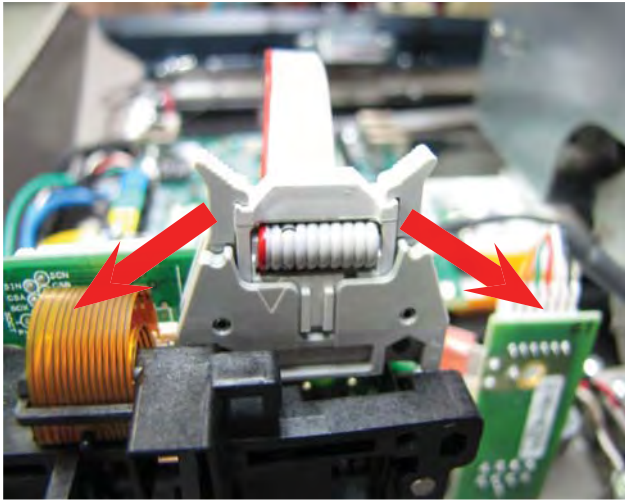


5. Remove the card reader from the control panel.

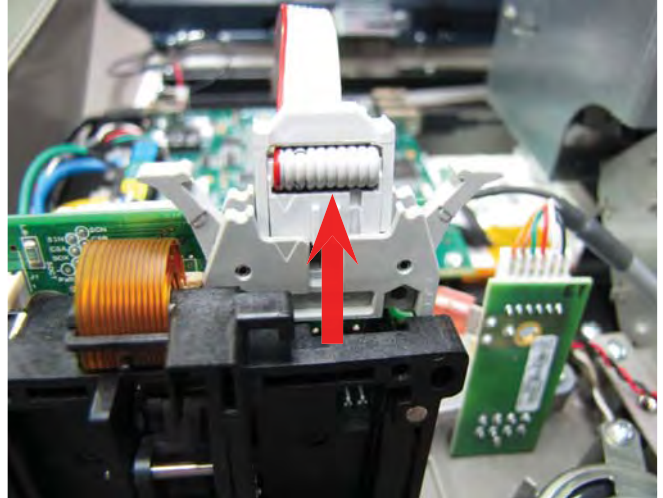


HOW TO REMOVE THE EMV CARD READER

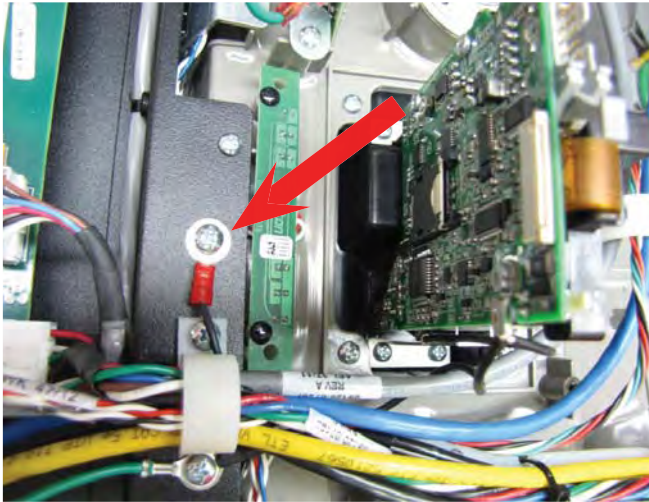
1. Follow *Proper Shutdown Procedures* and steps in *How to Access Components Behind the Fascia*.
2. Push the AC power ON/OFF switch on the power supply to the OFF position. Unclick the locking tabs from the card reader cable.



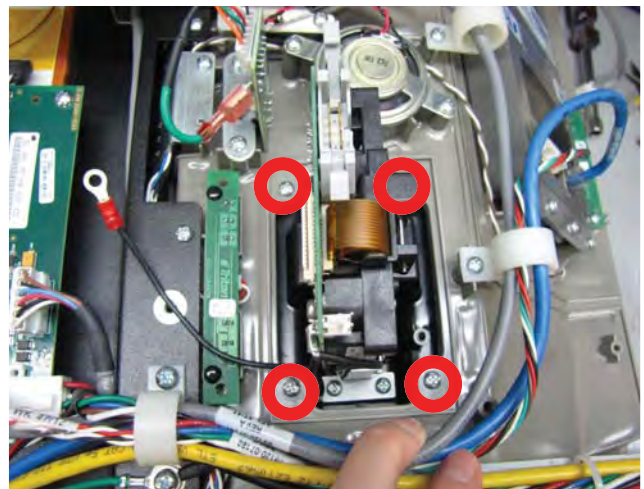
3. Once the locking tabs are in the open position, unplug the card reader cable from the assembly.



4. Remove the screw that secures the ground wire to the display bracket.



5. While holding the card reader, remove the four screws that secure the card reader to the control panel.



6. Remove the card reader from the control panel.



TRACK 1-2 CARD READER TROUBLESHOOTING

The magnetic card reader for the ARGO is a dip type reader. The standard card reader for the US is a Magtek Serial MCR (Track 1-2). There is also an optional Sankyo 330 EMV dip style card reader.

Generally if a problem occurs with the card reader, first check to ensure there is nothing in the reader that is blocking the card sensor. After that, the steps for resolution are as follows:

1. Run Diagnostics
 1. Access the Management Functions Main Menu.
 2. Press 2 (Diagnostics).
 3. Press 5 (Card Reader).
 4. Press 3 (Scan Card).
 5. Dip and remove a card into the card reader.
 6. Note what you see displayed or press 3 to print the report.
 7. Repeat the process several times to see if the same data is displayed.
 8. Press 2 (Card Reader Totals) to see a report of the activity on the card reader. This includes the totals since the last close, cumulative totals, number of errors, and the date/time of the last valid card read.
 9. Press 1 (Card Reader Status) to validate that the system is reading the correct card reader hardware.
2. Check connections to the main board (CE).
3. Clean reader.
 - Use an approved cleaning card to dip into the card reader several times.

NOTE: If a cleaning card is not available, wet some gauze with electronic parts cleaner or alcohol; wrap the gauze around a dummy credit card and insert into the reader.

FUNCTION KEYPAD

The Function Keypads are only found in the ARGO 12 unit. The ARGO 7 unit has a touchscreen keypad in the display and therefore has no use for the function keypads. The function keys CANNOT be purchased separately. They are only available as an assembly already affixed to the display glass.

HOW TO REMOVE THE ARGO 12 FUNCTION KEYPADS

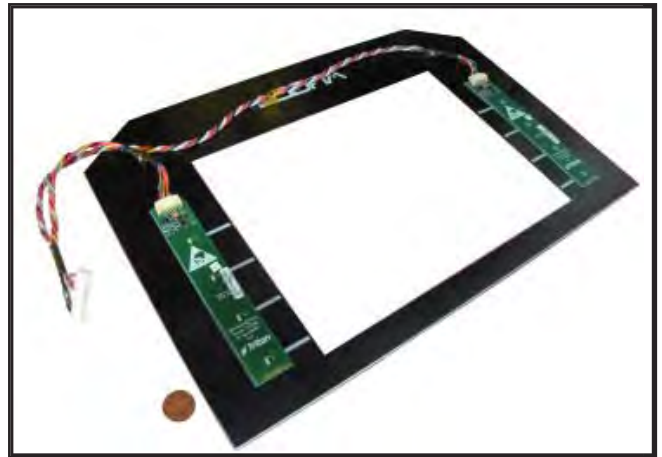
Tools:

- 1 - #2 Phillips screwdriver

1. Perform steps 1 - 5 in *How to Remove the ARGO 12 Display Monitor*.



2. Carefully lift the glass away from the display assembly leaving the two gaskets attached to the assembly.



NOTE: *If one function keypad goes out, the entire assembly needs to be replaced.*

HOW TO REPLACE THE ARGO 12 FUNCTION KEYPADS

Tools:

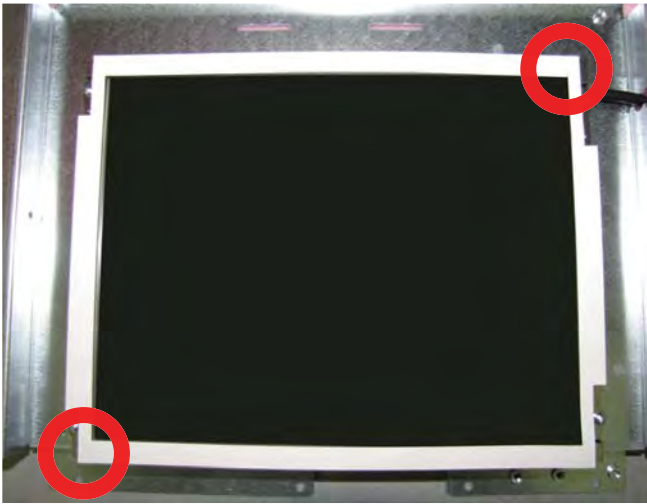
- 1 - #2 Phillips screwdriver

If the gaskets do not need replacing, skip to Step 3.

NOTE: The gaskets are specific to each side. Before removing the paper backing, determine the TOP from the BOTTOM by comparing the length of the sides.

1. Remove the paper backing from the TOP gasket and apply it to the display. Remove the paper backing from the BOTTOM gasket and apply it to the display. Ensure the silver border around the display screen is covered.

Be sure to line up the two gaskets at the corners to avoid leaving gaps which may cause leakage.

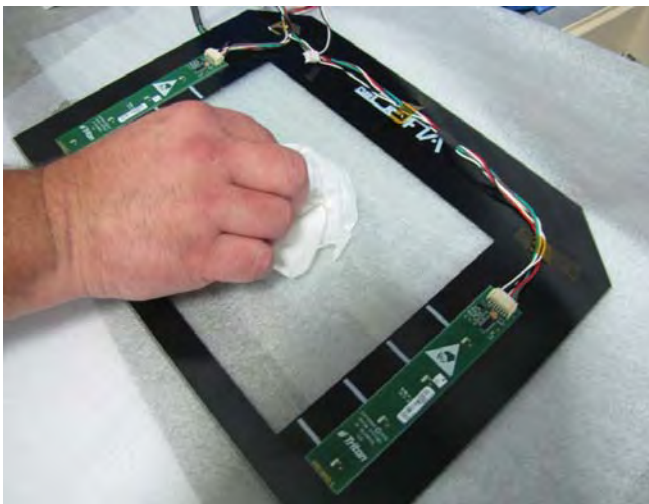


2. Remove the paper backing from the gaskets.



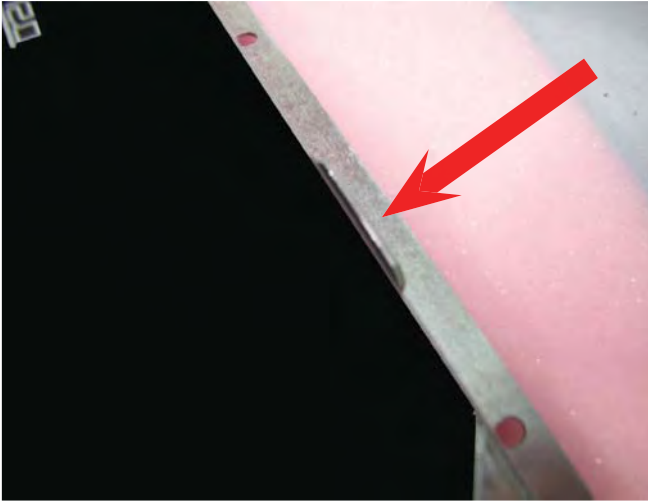
DO NOT spray cleaner directly onto the inside of the glass assembly as it could short out the function keys.

3. Clean the inside of the glass assembly with approved cleaner and short bursts of compressed air if necessary.



HOW TO REPLACE THE ARGO 12 FUNCTION KEYPADS CONT...

4. Install the glass assembly onto the display by lining up the glass with the tabs on the display bracket. Use short burst of compressed air if necessary to remove debris.



5. Route the function key cable through the gap in the bracket to avoid pinching the cable. When lined up correctly, apply slight pressure to the glass assembly to secure it to the gaskets.



6. Using approved cleaner, clean the glass assembly.



NOTE: To reinstall the display assembly into the unit, perform steps 1 - 5 in **How to Remove the ARGO 12 Display Monitor** in reverse order.

CUSTOMER KEYPAD (EPP)



DO NOT OPEN the sealed customer keypad (EPP)
or attempt to remove its back!
To do so may render the EPP useless.



The standard keypad for the ARGO is the T7 PCI compliant EPP, but the compliant keypad (with metal keys) is available as an option. Both meet Triple DES (Data Encryption Standard) requirements.

Except for running diagnostics, checking connections and removal of the customer keypad, **the EPP is NOT serviceable in the field.** The keypad is a tamper resistant, tamper evident crypto-processor security device for PIN (Personal Identification Number) entry and processing management. It stores the PIN Master Key and Working Key when appropriately setup. See the **XScale/X2 Configuration Manual** or the **Basic Setup of the Triton ATMs** for information about entering Master Keys and downloading Working Keys for the ATM.

T7 EPP Keypad



Front



Back

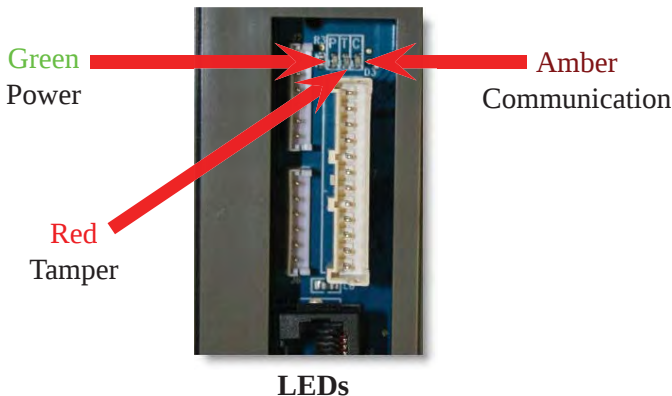
T5 EPP Keypad



Front

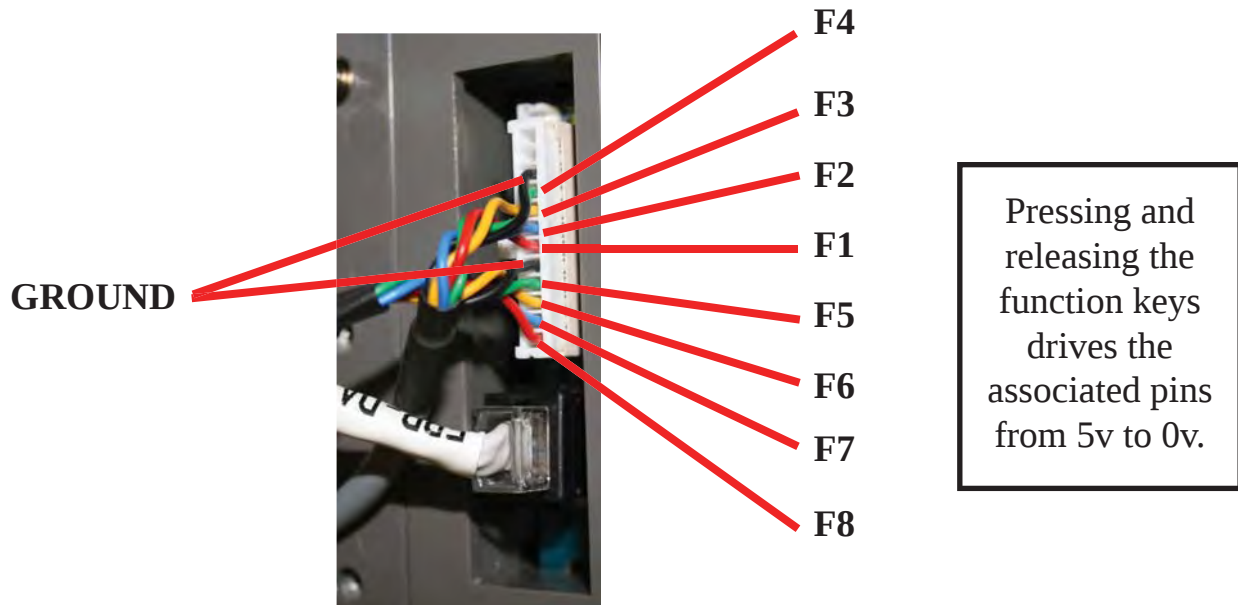


Back



Refer to “The Indicators” section earlier in this manual for an explanation of the LEDs for these devices.

The EPP communication data cable is also the power source for the EPP and should be securely connected to the mainboard and the RJ-45 connector on the EPP assembly. The left and right function keys unite into one common connector in the EPP. When diagnosing function keypad problems, use the following reference to help determine any wiring/voltage issues.



The **Management Functions** software can be useful in diagnosing keypad issues. It can be used to test the keystroke translation between the EPP and the mainboard. It can also provide information about the EPP; e.g. device status, firmware version, etc...

STEPS FOR NON-TAMPER ERROR CODES

Utilize these opportunities to analyze what is going on with the EPP. Although this is the recommended order, each step may not be dependent on the previous step.

1. Reset the terminal from the Management Functions Main Menu:
 - Press 5 - System Parameters
 - Press 5 - Restart Terminal
 - Press ENTER
2. Verify that the green LED lights:
 - T7 - comes on and remains on
 - T5 - blinks on but stops blinking

This indicates that the unit is receiving power.
3. Verify that the EPP is detected and initialized during startup. The SPED version will display on the screen if the device is found.



If not found, check cabling. If cables are good and connections secure, the EPP may need to be replaced.

STEPS FOR NON-TAMPER ERROR CODES CONT...

4. Perform a keypad test from the Management Functions Main Menu:

- Press 2 - Diagnostics
- Press 8 - Keypad
- Press 2 - Test
- Press each customer keypad and function key to verify that the same key is correctly identified on the screen.

Pressing ENTER will cancel the test.

5. Check the device status from the Management Functions Main Menu:

- Press 2 - Diagnostics
- Press 8 - Keypad
- Press 1 - Device Status
- Verify the device is online, PIN Master Key and PIN Working Key are loaded and their associated Check Digits match the processor's expectations.

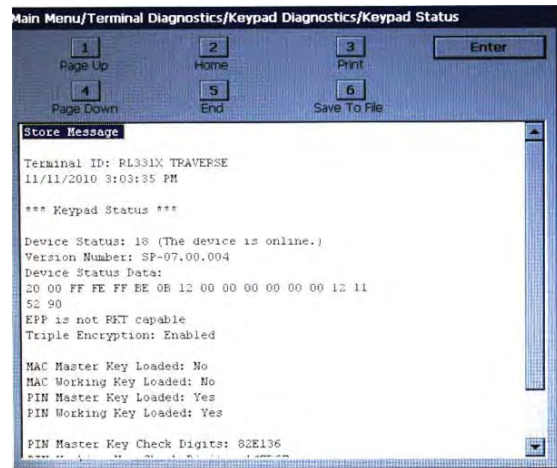
6. Perform a Check Digit test. When Check Digits continue not to match when the correct Master Keys are entered, use the following keys to test the EPP's ability to correctly translate the Check Digits:

Key Part Test:

- A) All 1's should return a check digit of **82E136**
- B) All A's should return a check digit of **C33F45**
- C) 1234567890ABCDEF1234567890ABCDEF should return a check digit of **A50201**
- D) FEDCBA0987654321FEDCBA0987654321 should return a check digit of **2B18EB**

Combined Key Part Test:

- If A and B above are parts 1 & 2, the combined check digit should be **39571E**
- If C and D above are parts 1 & 2, the combined check digit should be **A4E4F9**



If Check Digits do not match what the processor has provided, re-enter Master Keys and download Working Keys. If they still do not match, proceed to the next step. If they do not match, there may be a problem with the data provided by the processor.

STEPS FOR NON-TAMPER ERROR CODES CONT...

7. If at any time the error condition seems to be corrected, press F7 - Reset Terminal Error to attempt to clear the error status.

If any non-tamper errors continue to be detected when connections are secure, keys tested, check digits match and the processor confirms the validity of the master keys provided, the EPP may need to be replaced or sent in for repair.

STEPS FOR TAMPER ERROR CODES OR TAMPER RELATED ERRORS

Sometimes when other devices are serviced or replaced on the ATM, the software may generate **error code 616** (SPED Tamper Status - Voltage) even though the EPP has not been touched. When a new EPP is installed, **error code 617** (SPED Serial Number) occurs. In cases like these, there is no tampering but the steps to correct may be the same as if there had been a tamper.

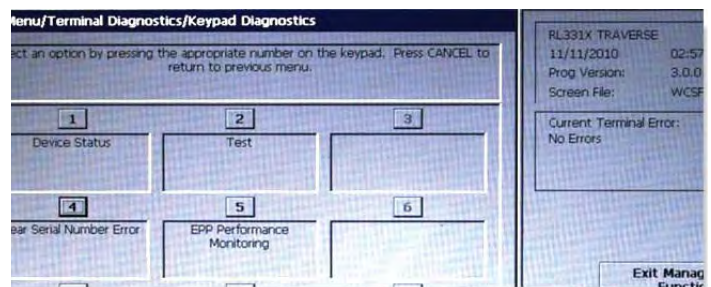
After ensuring the keypad is mounted securely (**DO NOT overtighten the screws!**), utilize these steps to correct a tamper or tamper related error.

1. On the Management Functions Main Menu:

- Press 2 - Diagnostics
- Press 8 - Keypad

2. If the terminal displayed error codes in the **592 - 618 range**, the Keypad Diagnostics screen may display option 4 - Clear Serial Number Error (or Clear Tamper). If so, **Press 4**.

NOTE: This is the only way to clear a software set tamper in the EPP.



3. If the red tamper LED on the back of the keypad is still on, there may be a hardware problem with the EPP. In this case, the EPP will need to be replaced or sent in for repair.

4. If the tamper condition clears and the red LED tamper light turns off, most likely the error will be replaced with error **190** (Master Key not Configured). At this point, re-enter the Master Key and download the Working Key.

See *XScale / X2 Configuration Manual* or the *Basic Setup of the Triton ATMs* for information about entering Master Keys and downloading Working Keys for the ATM.

HOW TO REPLACE THE BATTERY IN THE T7 PCI EPP KEYPAD



The battery in the EPP may be removed without risk of damage but there is ONLY a 2 - 5 minute window of time to replace it with a spare battery before losing stored data (passwords and keys).



Tools:

None

1. Follow **Proper Shutdown Procedures** and steps in **How to Access Components Behind the Fascia**.
2. Remove the battery cover from the EPP. Set the cover aside for reinstall.



3. Obtain a replacement battery. Put the replacement battery in an accessible place. Unplug and remove the battery from the EPP.



4. Quickly but carefully, install a new battery into the T7 keypad.

The Lithium Xeno 4800mAH spare battery can be ordered at www.atmgurus.com.

5. Replace the battery cover.

HOW TO REPLACE THE BATTERY IN THE T5 PCI EPP KEYPAD



DO NOT remove the battery from the T5 EPP without **FIRST** connecting a new battery!! This EPP will be permanently damaged if battery is removed and keypad unpowered before connecting a new battery.



Tools:

None

1. Follow **Proper Shutdown Procedures** and steps in **How to Access Components Behind the Fascia**.
2. Remove the battery cover from the EPP. Set the cover aside for reinstall.



3. **DO NOT UNPLUG CURRENT BATTERY!** Obtain a replacement battery. Plug the new battery into the spare battery connection.

The Lithium spare battery can be ordered at www.atmgurus.com.

4. Remove the old battery **AFTER** the new battery has been installed.

5. Replace the battery cover.

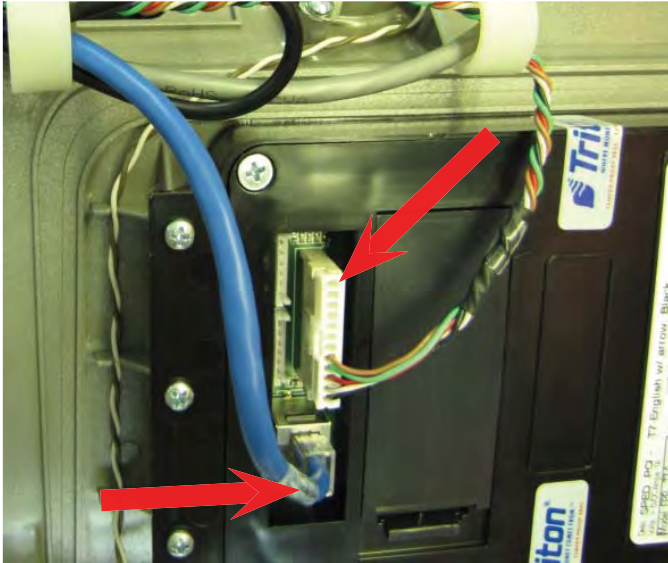


HOW TO REMOVE THE CUSTOMER KEYPAD

Tools:

- 1 - #2 Phillips screwdriver

1. Follow **Proper Shutdown Procedures** and steps in **How to Access Components Behind the Fascia**.
2. Disconnect the cables to the EPP.



3. Remove the six mounting screws, three on each side of the keypad. DO NOT remove the four screws holding the keypad back on.

NOTE: The back cover of the SPED may be either black or gray.

NOTE: To reinstall the keypad into the unit, perform these steps in reverse order.



CABINET / VAULT (LOWER CABINET)

See **How to Access the Cabinet / Vault** (mechanical and electronic) in the General Access section of this manual for instructions on opening the cabinet / vault.

HOW TO SET THE CABINET / VAULT COMBINATION (MECHANICAL)

Preferably, the serviceman would not be responsible for setting the combination to the cabinet / vault due to obvious liability issues. Whenever possible, refer the owner/proprietor to the **ARGO User Manual, Appendix C and D**. The steps below are provided for those occasions when the **ARGO User Manual** is unavailable. However USE DISCREETLY!!

Tools:

- 1 - Changing bar/key

1. Open the cabinet / vault door. (Follow the **How to Access the Cabinet / Vault** section of this manual.)
2. Once the cabinet / vault door is open, enter the current combination again, this time using the changing index mark.



The changing index is the left marker.

3. Insert the changing bar/key into the dial change hole (on the back of the lock) until it clicks. Turn it 90° clockwise to the right. Do not remove the bar/key until the combination has been set.



4. Rotate the dial to the left (counterclockwise), making at least four complete revolutions, then stop on the first **NEW** combination number at the changing index.



4 revolutions minimum

5. Rotate the dial to the right (clockwise) 3 times, stopping on the second **NEW** combination number at the changing index.



3 revolutions

NOTE: The left mark is used to change the combination. When choosing a new combination, numbers should NOT be close together, e.g. 20-22-18

HOW TO SET THE CABINET / VAULT COMBINATION (MECHANICAL) CONT...

6. Rotate the dial to the left (counterclockwise) 2 times, stopping on the third **NEW** combination number at the changing index.



2
revolutions

NOTE: DO NOT use numbers between 0 - 20 as the last password number.

7. When the new combination has been set, rotate the changing bar/key counterclockwise; then remove it from the dial change hole.



8. After completing the combination setup, **KEEP THE CABINET / VAULT DOOR OPEN** and enter the combination to verify that it works. Perform this task several more times to ensure it does not fail before closing the cabinet / vault door.

NOTE: The combination CANNOT be restored or reset once it is lost!



Keep the cabinet / vault door OPEN until the new combination has been thoroughly verified as successful at



HOW TO SET THE CABINET / VAULT COMBINATION (ELECTRONIC)

The electronic combination lock from the factory may be either a dead bolt type (high security vault units) or a swing bolt type (business hour units). The basic programming is the same for both of these types. For the dead bolt, once the successful combination is entered, the face of the lock is turned clockwise to release the lock before the door handle can be turned. For the swing bolt type, the door handle can be turned upon successful entry of the combination.

NOTE: ALWAYS perform this operation with the cabinet / vault door OPEN! If the unit is programmed for a dual combination, perform these steps for each combination code.

Tools:

None

1. Open the cabinet / vault door. (Follow the ***How to Access the Cabinet / Vault*** section of this manual.)
2. Enter 6 zeros [0 0 0 0 0 0].



Dead Bolt Type



Swing Bolt Type

2. Enter the current combination.
3. Enter the NEW combination twice.

NOTE: If you receive an invalid combination entry error, the lock signals three times and the old combination will still be valid.

4. After completing the combination setup, **KEEP THE DOOR OPEN** and enter the combination to verify that it works. Perform this task several more times to ensure it does not fail BEFORE closing the door.

NOTE: When a valid combination is entered, a double signal will announce success.



Keep the cabinet / vault door OPEN until the new combination has been thoroughly verified as successful at opening the door.



WHAT TO DO WHEN THE BATTERY IS LOW

Repeated beeping during an opening indicates that the battery is low and needs to be replaced. It is recommended that the battery is replaced at least twice annually.

Replacing the Battery on a Dead Bolt Electronic Lock

The battery box is located on the back of the cabinet / vault door.

1. Open the cabinet / vault door. (Follow the ***How to Access the Cabinet / Vault*** section of this manual.)
2. Remove the battery box cover by pulling the front portion away from the cabinet / vault door.
3. Unsnap the battery from the two (2) connectors at the top of the 9 volt battery to remove the old battery.
4. Connect the new battery to the connectors.
5. Ensuring all the battery leads are inside the battery compartment, reinstall the battery cover.
6. Test the unit several times BEFORE closing the cabinet / vault door.

Replacing the Battery on a Swing Bolt Electronic Lock

The battery is located inside the combination housing.

1. Grasp the dial firmly and push up about 1/4".
2. Pull away from the mounting surface and the standoff bolts.
3. Remove the old 9 Volt battery and replace with a new one.

***NOTE:** Hold the battery and housing carefully to avoid pulling wires out of the housing.*

4. Carefully position the housing over the standoff bolts.
5. Push in a downward direction to secure in place.

***NOTE:** To help prevent a short circuit, ensure no wires are caught between the housing and the door.*

6. Test the unit several times before closing the cabinet / vault door.

WHAT TO DO WHEN THE LOCK WILL NOT OPERATE

If the cabinet / vault door is closed and locked but the lock will not operate, the lock must be energized from the two external terminals on the combination keypad.

***NOTE:** For these steps to work, battery contact with the external terminal points must be maintained at all times.*

1. Press a good 9 Volt Alkaline battery against the external terminal points.



2. With the terminal ends maintaining contact with the external terminal points, enter a valid combination. (A beep should be heard each time a number is pressed.)
3. With the battery still making contact, turn the keypad dial clockwise to open the lock.

The electronic combination unit has many other features. This includes second user, dual combination, time delay, etc... For these features, see the **ARGO User Manual**, Appendix C.

Acronyms

Definitions provided are those applicable within the context of this document.

Acronym	Definition
ADA	Americans with Disabilities Act
BGD	Back Ground Dial
BIN	Bank Identification Number
BIOS	Basic Input / Output System
CDU	Cash Dispenser Unit
CE	Control Electronics
COP	Computer On and Present
CPU	Central Processing Unit
DES	Data Encryption Standard
DIP	Dual In-line Package (a type of switch)
DSS	Data Security Standard
EPP	Encrypting PIN Pad
FI	Financial Institution
IC	Integrated Circuit (also ICC= Integrated Circuit Card)
ISO	Integrated Sales Organization
ISO	International Organization for Standardization
LAN	Local Area Network
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LRC	Longitudinal Redundancy Check
MCR	Magnetic Card Reader (same as MCU)
MCU	Magnetic Card Reader (same as MCR)
PCB	Printed Control Board
PCI	Payment Card Industry
PIN	Personal Identification Number
RAM	Random Access Memory
RISC	Reduced Instruction Set Computer

Acronyms cont...

Definitions provided are those applicable within the context of this document.

Acronym	Definition
ROM	Read Only Memory
SD Card	Secure Digital Card
SDRAM	Synchronous Dynamic Random Access Memory
SHU	Slip Handling Unit (receipt printer)
SPED	Secured PIN Entry Device (EPP)
SRAM	Static Random Access Memory
TDES	Triple Data Encryption Standard
TDL	Triton Dynamic Language
TFT	Thin File Transistor