Motorized Card Reader (with chip, 123) Operating Guide

Document History

Document Number	Date	Remarks
TP-820815-001A	3/2003	Original Edition.
TP-820815-001B	6/2007	ASD (Advanced Skimming Detection) inclusion.
TP-820815-001C	10/2007	Review of Section 2.5, Step 3.

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Section 1
Introduction

The information in this manual describes the customer maintenance procedures for the motorized card reader.
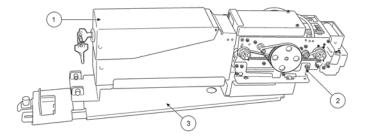
Refer to the appropriate terminal operating guide for information on the location of the card readers in the terminal.

1.1 General Description

This document covers the Motorized Card Reader (with chip, ASKM, 123). The following sections provide brief descriptions of the reader and its components.

1.1.1 Product structure

The Motorized Card Reader module is structured with the following sub-modules:

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1	Retained card bin
2	Motorized card reader
3	Terminal module tray

Figure 1-1   Module Composition
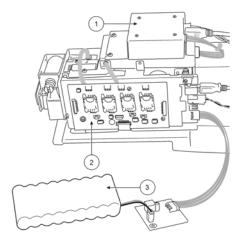
- **Base module**

  - Card transport

  - Throat

  - Devices for read/write the magnetic stripe, the chip and anti-skimming LTI sensor.

- **Retained cards BIN**

- **Options**

  - Backup power device (Return Card or Enhanced Return Card on Power Failure)

  - External Security Access Module CCA (4 SAMs)

  - Predisposition CIM86 (the predisposition is an adapter module only, the CIM86 is provided locally)

  - Stripe-up mounting

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1	CIM86 Adapter Device
2	External Security Access Module CCA (SAM)
3	Enhanced Return Card on Power Failure

Figure 1-2   Card Reader Options

1.1.2   Configurations

The configurations of Motorized Card Reader base module are:

Table 1-1   Configurations

Model Basic Functions	Anti-fishing	Chip sensor	Tamper PIN protection	Anti-Skimming Sensor
2R				X
123 Read/Write, Chip	X	X	X	X
123 Read/Write Hi-coercivity, Chip	X	X	X	X
123 Read/Write with Anti-fishing	X			X
123 Read/Write Hi-coercivity[1]				
123 Read/Write[1]				
2R, Chip[1]		X		
123 Read/Write, Watermark[1]	X			
2R , Chip with Anti-fishing[1]	X	X	X	
[1] Obsolete				

1.1.3   Basic Functions

The Motorized Card Reader module provides the following basic functions:

- Handling of ISO7810 cards short edge first
- Read/write the ISO7811 magnetic cards
- Read/write the ISO7816 chip cards and memory cards
- Support SAMs
- Predisposition for CIM86
- Can operate mounted horizontally and in the range ± 30° from horizontal
- Can operate stripe-up or stripe-down.

1.1.4   Retains Cards Bins

The motorized card reader is provided with an Open Retained Card Bin and a Locked Card Bin to store the captured cards.

The Bin capacity will be:

- Open Bin: capacity will be 50 non-embossed flat cards

- Locked Bin: capacity will be:

  - 100 non-embossed flat cards in case of stripe-down card readers.
  - 50 non-embossed flat cards in case of stripe-up card readers.

The retained card Bin holds all cards not returned to consumers. A card may be retained for the following reasons:

- The network commanded the terminal to retain the card.

- The costumer left the card in the card entry slot too long after the transaction session ended or after a Power Failure process ended (only when a Enhanced Return on Power Failure device is present).

The locked retained card bin offers added internal security by limiting access to retained cards. When it is mounted on the motorized card reader, retained cards enter the bin through the slot on the face plate. To access the retained cards inside the bin, you must use a service key.

1.2   Mode of Operation

The card inserted in the entry slot by the customer is conveyed automatically to the inside of the reader. The slot is provided with a protective shutter, and permits partial insertion of the card so that the reader can verify its legitimacy. If the verification is passed, the reader opens the shutter and brings the card inside.

After security checks the transaction is enabled. At the end of the transaction and of read/write operation, the card is returned automatically.

1.3   Safety Precautions

Strictly observe safety precautions when servicing the card reader. Observing safety precautions reduces the risk of equipment damage and personal injury.

Adhere to the following procedures to avoid risk of injury, including death, or equipment damage:

- *Remove loose clothing or jewelry that may become jammed in the equipment.*

- *Long hair may become entangled in the equipment. Keep long hair away from the equipment.*

- *Never jam screwdrivers, pens, or other instruments into the equipment; electrical shock that is strong enough to cause severe bodily injury, including death, or equipment damage, may result.*

- *Do not extend drawers out of the terminal simultaneously until after verifying that the unit is installed correctly. Otherwise, the unit could become unstable and cause severe bodily injury.*

Section 2
Card Reader Maintenance Procedures

This section describes how to clear jammed cards, remove retained cards, and clean the card reader heads.

2.1   Prerequisite Information

Before you perform the procedures in this section, you should know how to perform the following tasks:

- Open the terminal to access the card reader
- Place the terminal in the appropriate mode for maintenance
- Return the terminal to full operation

Refer to the appropriate terminal operating guide for information on how to access the card reader.

Refer to the appropriate system manual for information on how to place the terminal in the appropriate mode for maintenance and return the terminal to full operation.

2.2   Retrieving Jammed Cards

Occasionally, customer cards can jam (get stuck) in the motorized card reader's transport mechanism.

To remove jammed cards from the motorized card reader, refer to the following procedure.

⚠ **WARNING**

Adhere to the following procedures to avoid risk of injury, including death, or equipment damage:

- *Remove loose clothing or jewelry that may become jammed in the equipment.*

- *Long hair may become entangled in the equipment. Keep long hair away from the equipment.*

- *Never jam screwdrivers, pens, or other instruments into the equipment; electrical shock that is strong enough to cause severe bodily injury, including death, or equipment damage, may result.*

- *Do not extend drawers out of the terminal simultaneously until after verifying that the unit is installed correctly. Otherwise, the unit could become unstable and cause severe bodily injury.*

1. Place the terminal in the appropriate mode to service the card reader.

2. Access the card reader.

3. Pull out the jammed card if it protrudes from the card entry slot. If you cannot pull the jammed card from the card entry slot, continue with the following steps.

NOTE
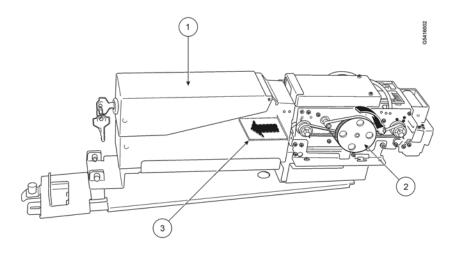
Be sure to follow your institution's procedures before turning off the terminal. Failure to exit properly can result in erratic status messages.

4. Press O on the I/O (on/off) switch to turn the terminal off.

⚠ **WARNING**

Make certain that the terminal is turned off. The electronics in the terminal contain enough voltage to cause serious injury, including death.

5. Looking from the top of the card reader, locate the jammed card. If you need better access to the card reader, remove the card reader from the terminal.

6. Without using excessive force, try to rotate the pulley (Figure 2-1, item 2) to free the jammed card . Rotate the pulley to move the card far enough to the rear of the card reader into the retained card bin.

2-2

1	Locked Retained card bin
2	Pulley
3	Jammed Card

Figure 2-1   Clearing the Motorized Card Reader (rear extraction)

7. If you cannot move the card out the rear, rotate the pulley (Figure 2-2, item 2) in the other direction to try and move the card out of the front. Open the card gate by pressing the spring-loaded arm (Figure 2-2, item 3) to allow the card to exit the card reader. Make sure that you do not force cards out the front of the terminal where an unauthorized person might retrieve them.

1	Jammed card
2	Pulley
3	Spring-loaded Arm
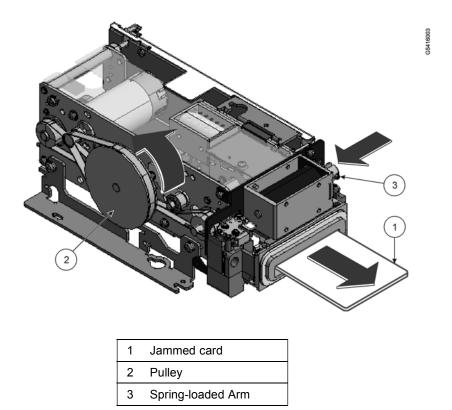
Figure 2-2   Clearing the Motorized Card Reader (front extraction)

8. If you cannot free the customer card, contact your customer service representative. If you removed the card successfully, go to the following Step.

9. If you removed the card reader (Step 7), install the card reader in the terminal.

10. Press I on the I /O (on/off) switch to turn the terminal on.

11. Perform any steps required to return the terminal to the normal mode of operation.

12. Secure the terminal after all servicing is complete.

13. If desired, test the card reader several times by inserting a card.
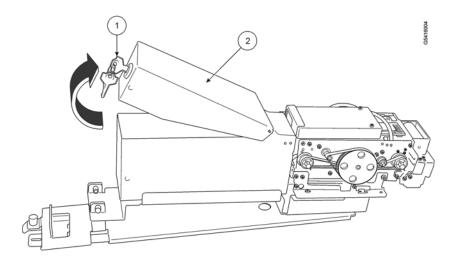
2.3   Retrieving Retained or Captured Cards

To retrieve retained cards from the retained card bin, refer to the following procedure.

Adhere to the following procedures to avoid risk of injury, including death, or equipment damage:

- *Remove loose clothing or jewelry that may become jammed in the equipment.*

- *Long hair may become entangled in the equipment. Keep long hair away from the equipment.*

- *Never jam screwdrivers, pens, or other instruments into the equipment; electrical shock that is strong enough to cause severe bodily injury, including death, or equipment damage, may result.*

- *Do not extend drawers out of the terminal simultaneously until after verifying that the unit is installed correctly. Otherwise, the unit could become unstable and cause severe bodily injury.*

1. Follow your institution's procedures to determine if there are any retained cards. If retained cards are present, remove it proceeding as described on the following pages.

2. The retained card bin is provided with a lid and it has to be opened with a special key.

3. Open the retained card bin by turning the key (Figure 2-3, item 1) and lift up the lid.

1	Key
2	Lid

Figure 2-3   Locked Retained Card Bin Opening

4. Remove the retained cards.

5. Lower the lid and turn the lid key.

6. Clear the retained card counter.

7. Perform any steps required to return the terminal to the normal mode of operation.

8. Secure the terminal after all servicing is complete.

2.4   Advanced Skimming Detection

Advanced Skimming Detection is an anti-skimming sensor installed on the card reader to identify card reader fraud devices.

To perform advanced skimming detection diagnosis it is recommended to use system-level diagnostics tool related to the motorized card reader and identify the problem. Refer to the appropriate diagnostic manual for system-level diagnostic information.

The diagnostic tool shall identify the status on Table 2-1 for the Advanced Skimming Detection.

Table 2-1   Advanced Skimming Detection Troubleshooting

Status/Problem	Probable Cause	Corrective Action	Refer to...
Avanced skimming detection is disabled	Not Configured	Enable anti-skimming option in FDD configuration screen.	ACU (Agilis Configuration Utility).
Failure	Anti-skimming sensor is damaged	Contact your Service Support to replace the card reader.	
Fraud	Skimmer device is installed	1. Remove the fraud. 2. Click the LatchReset button and check the Foreign Device Detection Status of the reader again.	Section 2.5
	Anti-skimming sensor is dirty	Perform the procedure to clean the card reader LTI cover	Section 3.2
	Anti-skimming sensor is damaged	Contact your Service Support to replace the card reader.	

2.5   Frauds verification and removal

1. **Fraud verification.** If there is NO fraud device on the reader it is possible to see the LTI (Lead Through Indicator). If you cannot see the LTI, probably there is a fraud device on the reader. Remove the fraud. Go back to Table 2-1 on **Corrective Actions** column for next steps.
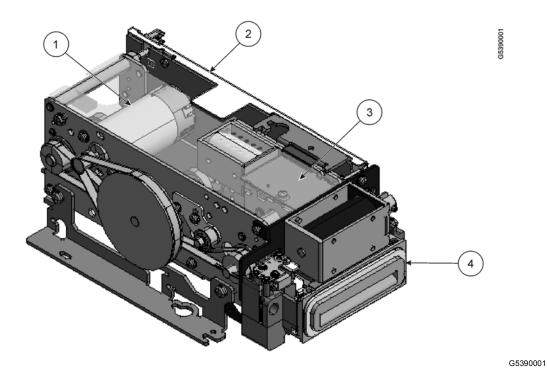

Figure 2-4   Components of the Motorized Card Reader

2. **FDD Latch Configuration.** To verifiy the Latch status (ON/OFF), go to FDD (Foreign Device Detection) device configuration screen on diagnostic tool. Refer to Opteva Service Diagnostics+ User's Guide for further guidance.

3. **FDD LatchReset button.**

    a. Go to the *FDD Status & Test* screen on the diagnostic tool.

    b. Click the *LatchReset* button to clear the *Foreign Device Detection Status* of the reader. Refer to *Opteva Service Diagnostics+ User's Guide* (TM-000192-001F) for further detail.

Section 3
Preventive Maintenance

3.1   Cleaning a Card Reader

Cleaning must be done with a cleaning card when the Read/Write error happens very often. Clean the card reader regularly, every 6 months, in normal condition. The motorized card reader uses a head cleaning card.

Refer to Appendix A to order the cleaning cards.

1. Place the terminal in the appropriate mode to service the Card Reader.

⚠ CAUTION

Do not use solvents or any other liquids to clean a card reader. Using anything other than the recommended cleaning cards (refer to Appendix A) can damage the card reader.

2. To clean the card reader insert the head cleaning card in the front of the card reader. The card reader, tries to read the card, move the cleaning card over the head performing the cleaning and finally eject the card. It may be necessary the repeating of the operation several times.

3. Perform any steps required to return the terminal to the normal mode of operation.

4. Secure the terminal after all servicing is complete.

3.2   Advanced Skimming Detection Cleaning

Supplies: alcohol liquid (ethanol, etc.) , cloth (Felt, Swab).

Cloth penetrated with some alcohol liquid is used for cleaning the LTI cover.

Cleaning should be done when the ASD sensor value with object is decreasing significantly.

Cleaning time: 1 minute

Cleaning frequency: about 6 months (normal condition: Indoor use)

Appendix A
Supplies

This appendix lists the supplies that you will need to service your card reader and their corresponding part numbers (contact Diebold Direct [1-330-899-2515 USA and Canada or 1-216-588-3915], Accessory Products Department, or local Customer Service Office).

Table A-1   Card Reader Supplies and Part Numbers

Supplies	Part Number
Head Cleaning Card, Motorized Card Reader	49-201487-000A