

Advanced Function Dispenser Operating Guide

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Section 1

Introduction

The advanced function dispenser (AFD) delivers media (i.e., currency, stamps, tickets, etc.) to the consumer after the consumer's request is processed by the terminal software and the system network. The media is drawn from the dispense cassettes and transported to a slot in the fascia of the terminal, where the consumer can receive it. If the media is too mutilated or wrinkled, or if multiple notes are picked at the same time (i.e., a multiple pick), the notes go to the divert/retract cassette instead of being delivered to the consumer.

Cassettes are sealed by a flexible tambour door, which opens when the cassette is properly installed. The tambour door closes when the cassette is removed from the terminal. If the cassette is a tamper-indicating cassette, the tambour door locks when it closes.

The following types of cassettes are available:

- Tamper-indicating dispense cassette
- Convenience dispense cassette
- Tamper-indicating divert/retract cassette
- Convenience divert/retract cassette
- Bin, an open container replacement for the divert/retract cassette

NOTE

A "tamper-indicating cassette" is sometimes referred to as a "secure cassette."

Refer to Section 2.3 for more information about these cassettes.

1.1 Information in this Manual

This manual describes service and maintenance procedures for the dispenser and cassettes. For information about other ATM procedures, refer to the appropriate terminal operating guide.

1.2 Terminology

In this manual, the term *media* refers to any item that can be dispensed from the advanced function dispenser, such as currency, stamps, tickets, gift cards, etc.

1.3 Safety Precautions

Strictly observe the following safety precautions when you service the advanced function dispenser and cassettes. By observing these precautions, you can reduce the risk of personal injury and damage to the equipment.



In an ATM, there are devices that can be easily damaged and can cause injury to people. Observe the following precautions at all times, in addition to any other warnings and cautions throughout this manual. Failure to comply with this warning might result in permanent damage to the equipment and severe injury or death to individuals.

- *Do not wear loose clothing or jewelry that can become entangled in the equipment.*
- *Use caution to prevent long hair getting caught in the equipment.*
- *Do not insert screwdrivers, pens, or other instruments into the equipment.*

The dispenser might have any of the warning or caution labels shown below. Strictly observe the following safety concerns to reduce the risk of severe personal injury, or death.

Label	Definition	Safety Concern
	Electrical shock hazard	An electrical shock hazard exists in the area of the label. Do not remove covers. Remove power before servicing.
	Warning or danger	A personal injury can occur. Look for nearby warning label (electrical shock, pinch point, moving machinery, high temperature hazard) or refer to the module or ATM operating guide for the specific hazard.
	Pinch point	An area that can pinch (or cut) you exists in the area of this label. Keep your hands and fingers clear of pinch points.
	Moving machinery hazard	Moving parts that can snag or pull clothing, hair, skin, or jewelry into the mechanism are present in the area of this label. Keep clothing, hair, skin, and jewelry out of the mechanism.
	High temperature hazard	High temperatures that can cause pain or burns are present in the area of this label. Do not touch until cooled.

Section 2

Maintenance Procedures

This section contains maintenance procedures and related information about the dispenser, the dispense cassette, the divert/retract cassette, and the bin.

2.1 Accessing the Dispenser

Follow your institution's procedures to access the safe, such as during maintenance, when replenishing supplies, or when returning the terminal to full operation. You must be able to access the inside of the safe to service the dispenser.

2.2 Quality Standards

This section describes the quality standards for the bank notes that are dispensed by the cassettes.

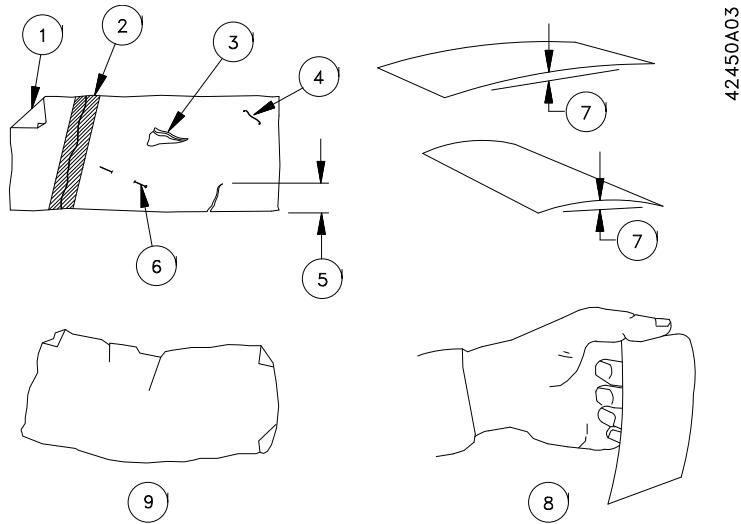
NOTE

Although the dispenser can handle a wide range of media, optimum performance is related to the quality of the media. Media that is not new but is acceptable for use in a dispense cassette is referred to as "fit" media. Fit media can be used, but folds, tears, holes, and tape must be avoided. To avoid problems when the ATM removes notes from the cassettes, do not fill the cassette with more than 2000 fit or 2900 new notes (these quantities are based on United States currency).

The following conditions are not acceptable:

- Media joined by any means
- Media with staples or pins
- Media with sticky or adhesive substances
- Media repaired with tape
- Media with tears exceeding 13 mm (0.5 inch)
- Media with holes or missing sections
- Media that is excessively crumpled or wrinkled
- Media with a folded corner exceeding 13 mm (0.5 inch)
- Media that is bowed more than 3 mm (0.12 inch) in any direction
- Media that is deformed by prolonged storage
- Media that is extremely limp.

Unacceptable media can jam the dispenser during operation.



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1 Folded corners	6 Pin
2 Tape repair	7 Bow, 3 mm (0.12 inch)
3 Hole	8 Limp note
4 Staple	9 Crumpled note
5 Tear, exceeding 13 mm (0.5 in.)	

Figure 2-1 Unacceptable Media

2.3 Divert/Retract Cassette and Bin

2.3.1 Description

The divert/retract cassette (Figure 2-2) has a plastic body and a plastic lid. An older version of the divert/retract cassette (Figure 2-3) has a metal body and a plastic lid. The cassette has two compartments:

- The *divert compartment* receives media that was picked, but not presented to the consumer (for example when multiple notes or mutilated notes are picked).
- The *retract compartment* receives media that was presented to the consumer, but was retracted for some reason (for example, the presenter timed out).

Customer contact points are blue. The divert/retract cassette is available in both tamper-indicating and convenience versions.

A version of the divert/retract cassette with only a single compartment (i.e., no partition) is used only in Express Delivery™ products.

Capacity

The divert/retract cassette can hold 300 notes in the divert compartment and 100 notes in the retract compartment.

Convenience Divert/Retract Cassette

The convenience cassette can be removed and inserted as many times as needed, it is not locked after being removed from the dispenser. The convenience cassette does not indicate tampering. To open the convenience cassette, rotate the lever on the rear of the cassette.

Tamper-indicating Divert/Retract Cassette

The tamper-indicating cassette is a single-insertion cassette with a red/green indicator. A single-insertion cassette has a mechanical lockout that prevents the cassette being reinserted until it is reset with a service key.

- When the indicator is green, the cassette is ready to be inserted into the dispenser.
- When the indicator is red, the cassette is locked and cannot be inserted into the dispenser.



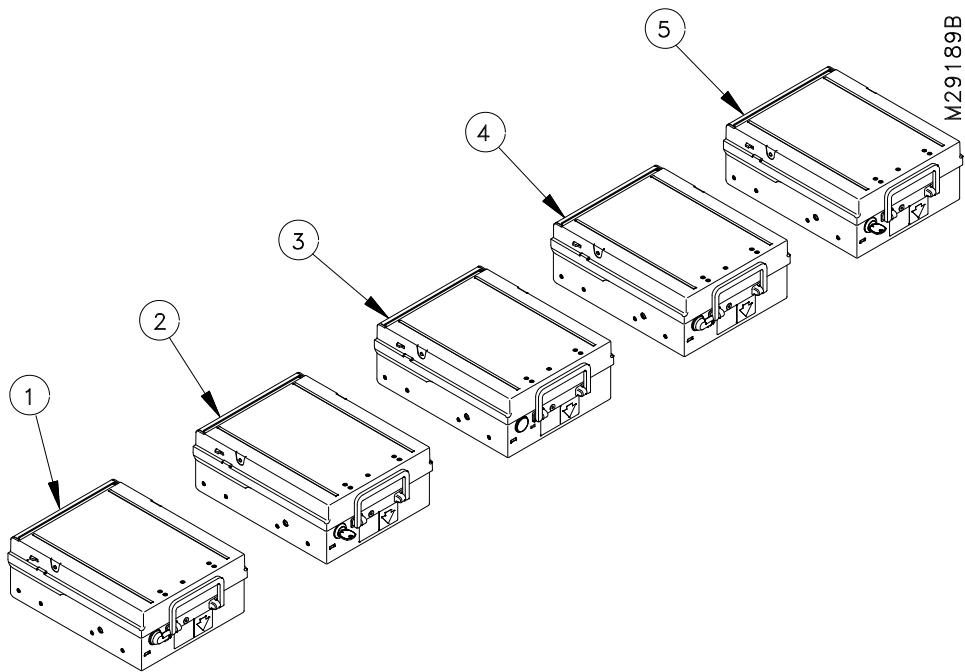
The red indicator means that the cassette cannot be inserted into a dispenser. Do not try to insert a tamper-indicating cassette when the red indicator is visible. Failure to comply with this caution might result in permanent physical damage to the cassette or to the dispenser.

Use a service key to open a tamper-indicating cassette and to reset the red/green indicator. Only authorized service personnel should have access to keys. Be sure you understand the required procedures and the purpose for those procedures before you handle the tamper-indicating cassettes.

Bin

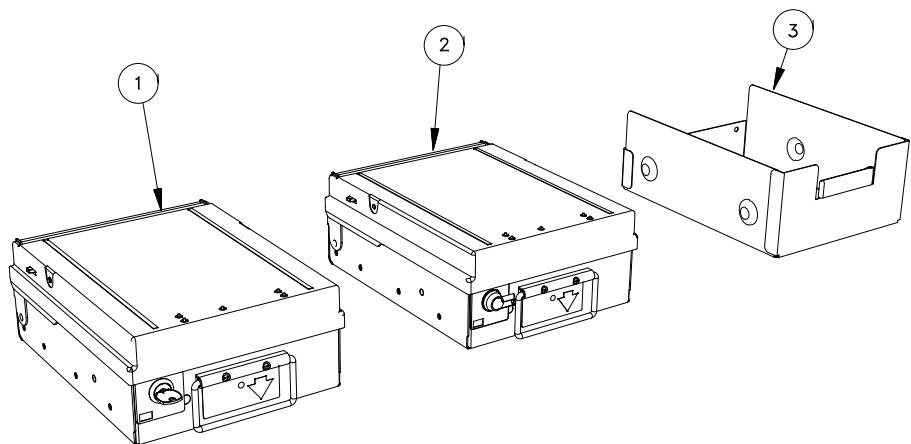
A bin can be used in the dispenser instead of the divert/retract cassette. The bin is an open sheet metal receptacle that can be inserted into the stacker channel in the advanced function dispenser. It does not have a lid, a tambour door, or security features. The bin actuates the cassette present switch when it is inserted into the dispenser. The snap latch receptacle holds the bin in place in the same manner as the divert/retract cassette. The bin can hold 300 notes and can accommodate any media dispensed by the dispense cassettes. Customer contact points are blue.

M29189B



1	Convenience divert/retract cassette
2	Tamper-indicating divert/retract cassette
3	Divert bin
4	Convenience divert/retract cassette (no partition)
5	Tamper-indicating divert/retract cassette (no partition)

Figure 2-2 Type of Plastic Divert/Retract Cassettes



1	Tamper-indicating cassette
2	Convenience cassette
3	Bin

Figure 2-3 Old Metal Divert/Retract Cassettes and Bin

2.3.2 Removing a Convenience Divert/Retract Cassette or a Bin

1. Pull the cassette out of the dispenser (Figure 2-6).
2. Move the cassette to a high-security location for servicing.

NOTE

If the divert/retract cassette cannot be easily removed, check the position of the cam. If the cam slot is in the 5 o'clock position and it has captured the partition follower (Figure 2-4), manually rotate the cam clockwise until the partition follower releases from the cam slot (Figure 2-5).

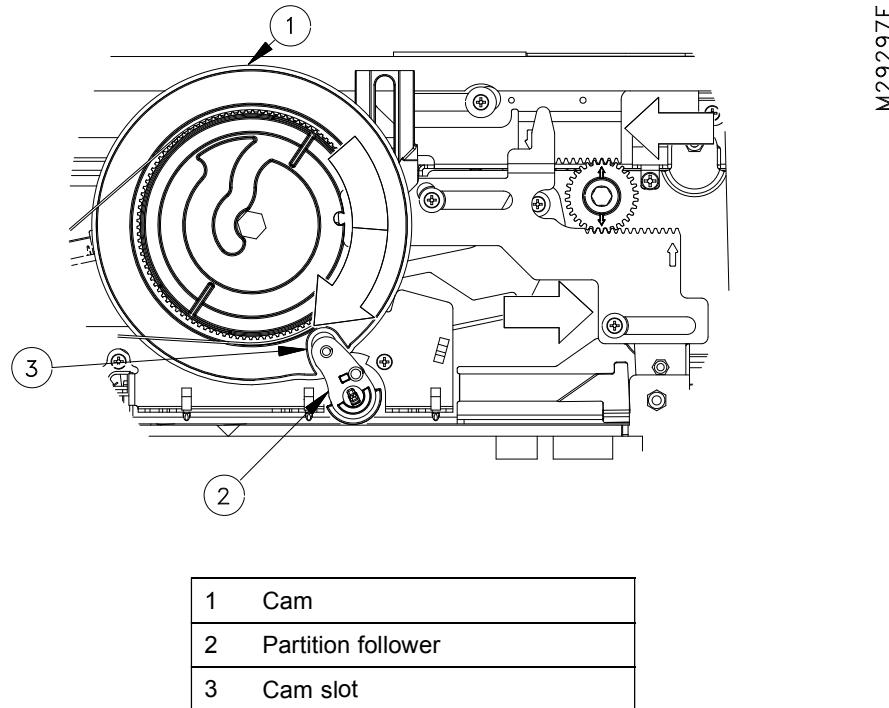
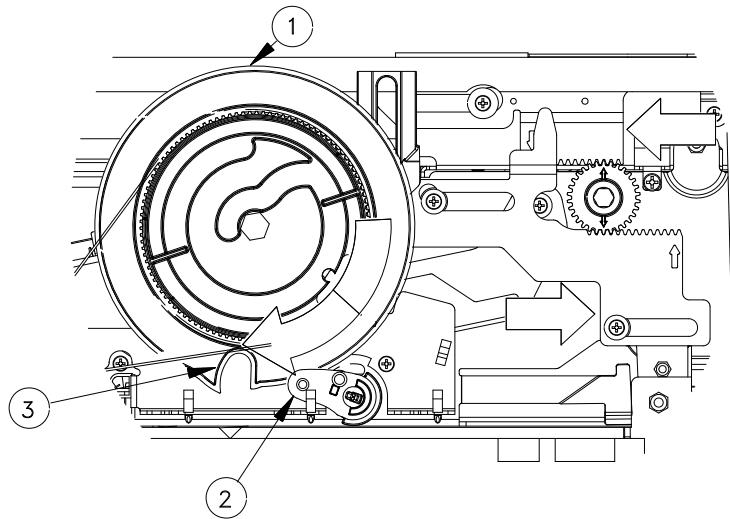


Figure 2-4 Partition Follower Captured in the Cam Slot

M29297EE



1	Cam
2	Partition follower
3	Slot

Figure 2-5 Partition Follower Released From Cam Slot

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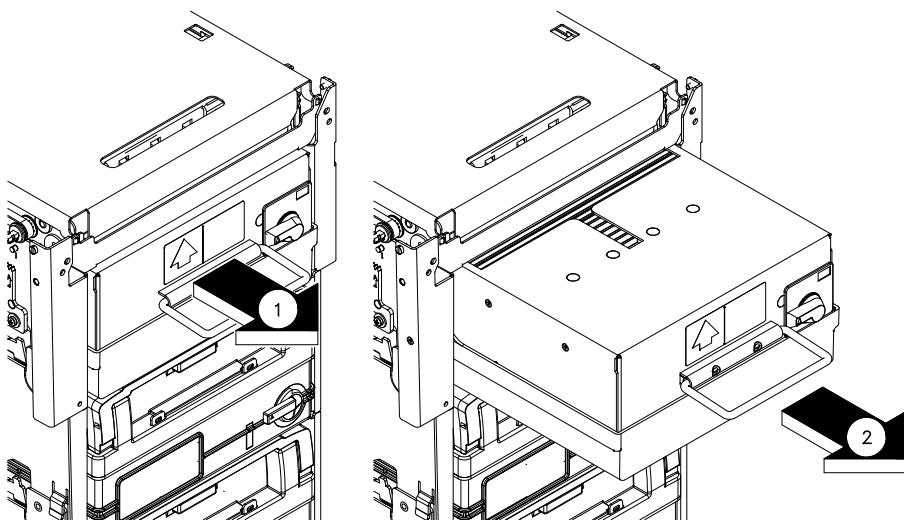


Figure 2-6 Removing a Convenience Divert/Retract Cassette or Bin

2.3.3 Replacing a Convenience Divert/Retract Cassette or a Bin

NOTE

Make sure the cam follower is in the position shown in Figure 2-4 before you insert the cassette.

1. Insert the cassette or bin into the stacker channel. Then, push the cassette or bin into the dispenser with both hands until it is firmly seated (Figure 2-7). The dispenser will beep to indicate that the cassette is correctly seated.

If you do not hear a beep, the cassette is not properly seated. Remove the cassette, then push it back into the dispenser until it is firmly seated. If the dispenser still does not beep, contact your customer representative.

2. Perform a dump test and a divert test to verify that the cassette is operating correctly.

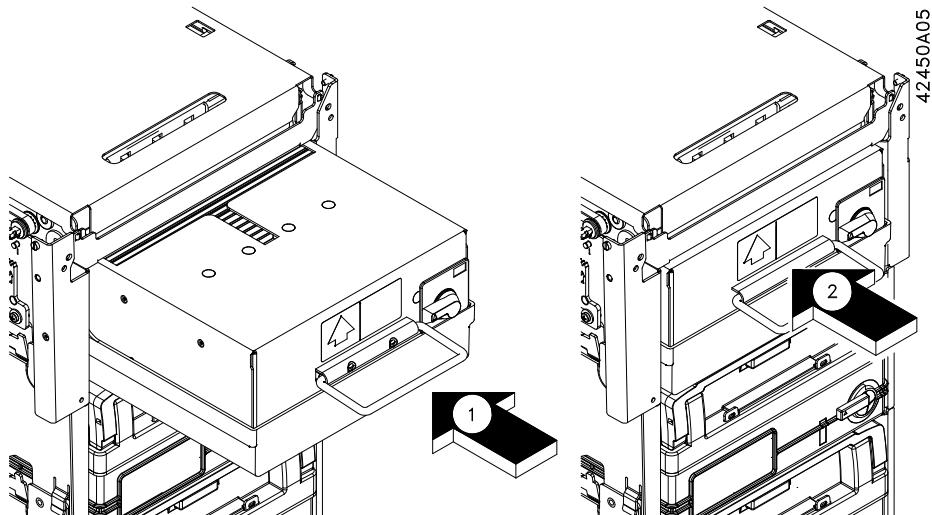


Figure 2-7 Replacing a Convenience Divert/Retract Cassette or a Bin

2.3.4 Removing a Tamper-indicating Divert/Retract Cassette

1. Pull the cassette out of the dispenser (Figure 2-8).
2. Move the cassette to a high-security location for servicing.



The red indicator means that the cassette cannot be inserted into a dispenser. Do not try to insert a tamper-indicating cassette when the red indicator is visible. Failure to comply with this caution might result in permanent physical damage to the cassette or to the dispenser.

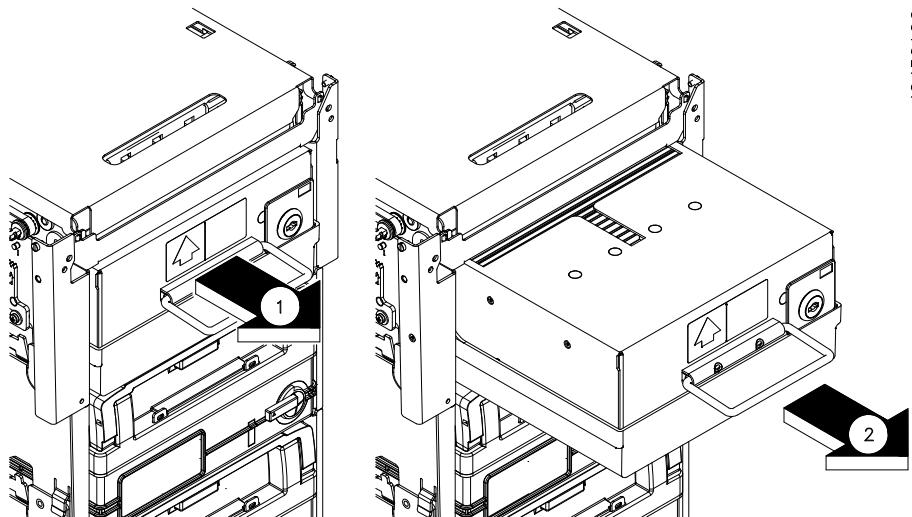


Figure 2-8 Removing a Tamper-indicating Divert/Retract Cassette

2.3.5 Replacing a Tamper-indicating Divert/Retract Cassette

NOTE

Make sure the cam follower is in the position shown in Figure 2-4 before you insert the cassette.



The red indicator means that the cassette cannot be inserted into a dispenser. Do not try to insert a tamper-indicating cassette when the red indicator is visible. Failure to comply with this caution might result in permanent physical damage to the cassette or to the dispenser.

1. Verify that the indicator is green. Reset the indicator with a service key if necessary.
2. Insert the cassette into the stacker channel. Then, push the cassette or bin into the dispenser with both hands until it is firmly seated and the dispenser beeps (Figure 2-9).

If the dispenser does not beep, the cassette is not properly seated. Remove the cassette, reset it, and push it back into the dispenser until it is firmly seated. If the dispenser still does not beep, contact your customer representative.

3. Perform a dump test and a divert test to verify that the cassette is operating correctly.

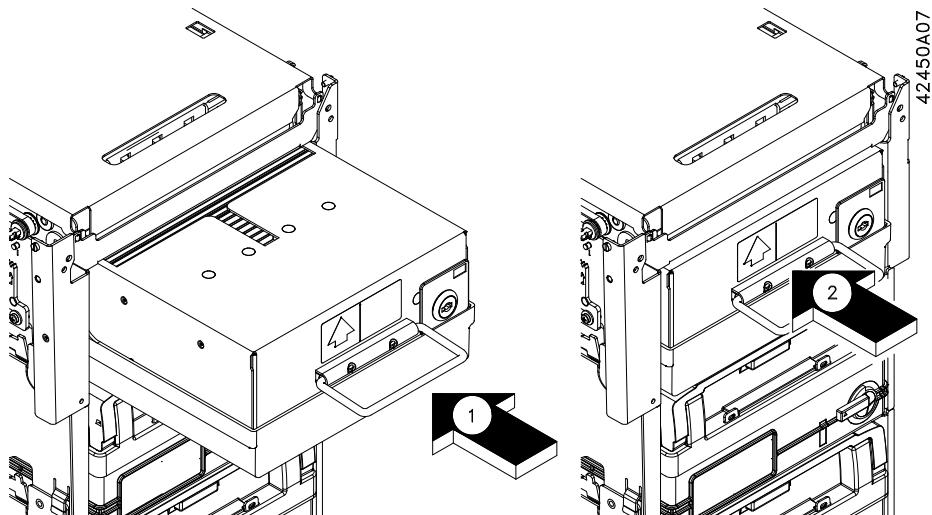


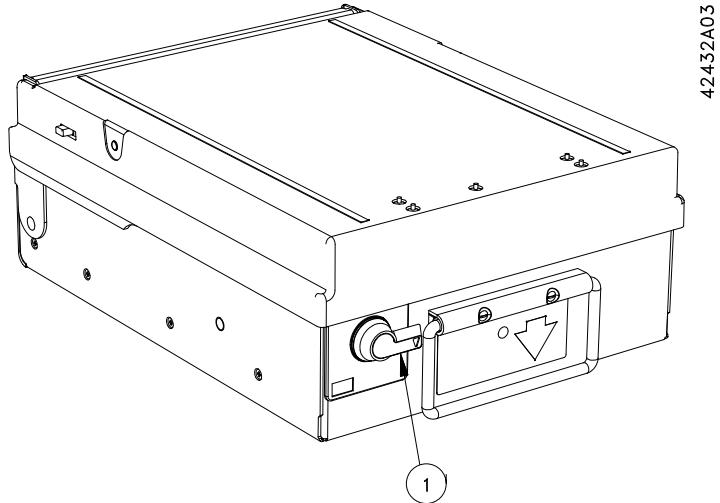
Figure 2-9 Replacing a Tamper-indicating Divert/Retract Cassette

2.3.6 Removing Media from a Divert/Retract Cassette

1. Remove the cassette from the dispenser.
 - For the convenience cassette, refer to Section 2.3.2
 - For the tamper-indicating cassette, refer to Section 2.3.4
2. Place the cassette on a work surface with the lid up.
3. Open the cassette.
 - For the convenience cassette, rotate the lid lock lever then lift the lid (Figure 2-10)
 - For the tamper-indicating cassette, insert the key and turn it clockwise, then lift the lid (Figure 2-11)
4. Remove the contents of the divert compartment.
5. Slide and hold the partition lock to release the partition (Figure 2-12). Rotate the partition up to remove the contents of the retract compartment.
6. Close the partition and make sure that it is closed with the latch.
7. Close the cassette lid.
 - For the convenience cassette, close the lid and verify that it is closed with the latch.
 - For the tamper-indicating cassette, insert the key, turn and hold it clockwise, then close the lid all the way. Turn the key clockwise to arm the cassette. Verify that the indicator is green (Figure 2-11).

2.3.7 Removing Media from a Bin

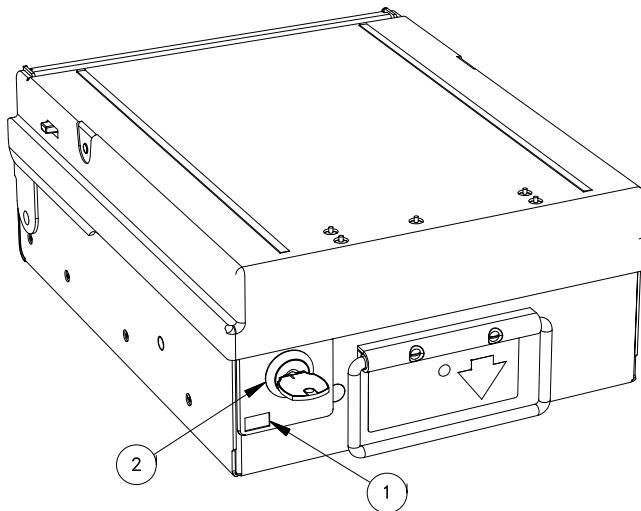
1. Remove the bin from the dispenser (Section 2.3.2).
2. Place the bin on a work surface and remove the contents.



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1 Convenience lock lever

Figure 2-10 Convenience Divert/Retract Cassette

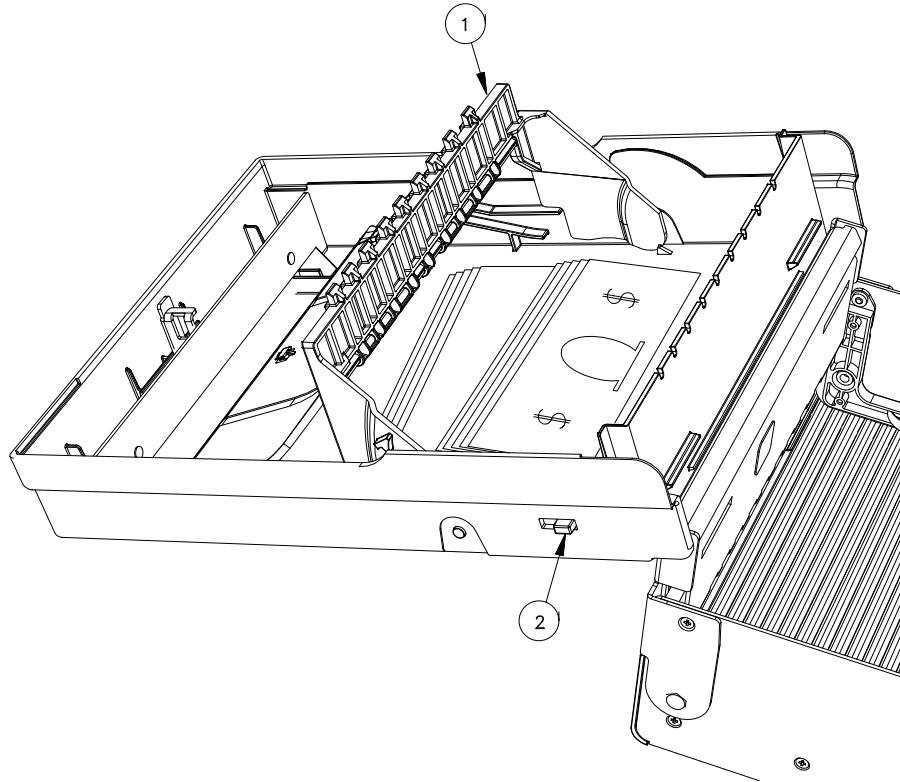


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1 Red/green indicator

2 Key lock and key

Figure 2-11 Tamper-indicating Divert/Retract Cassette



1	Partition
2	Partition lock release

Figure 2-12 Removing Notes from the Retract Compartment

2.4 Dispense Cassette

2.4.1 Description

Dispense cassettes consist of a lid, a body, and components to configure the cassette for specific media. The cassettes are configured in the factory, but can be reconfigured on-site.

Convenience Cassette

The convenience cassette can be removed and inserted as many times as needed, it is not locked after being removed from the dispenser. The convenience cassette does not indicate tampering. To open the convenience cassette, rotate the lever on the rear of the cassette. Refer to Figure 2-13.

Tamper-indicating Divert/Retract Cassette

The tamper-indicating cassette is a single-insertion cassette with a red/green indicator. A single-insertion cassette has a mechanical lockout that prevents the cassette being reinserted until it is reset with a service key.

- When the indicator is green, the cassette is ready to be inserted into the dispenser.
- When the indicator is red, the cassette is locked and cannot be inserted into the dispenser.



The red indicator means that the cassette cannot be inserted into a dispenser. Do not try to insert a tamper-indicating cassette when the red indicator is visible. Failure to comply with this caution might result in permanent physical damage to the cassette or to the dispenser.

Use a service key to open a tamper-indicating cassette and to reset the red/green indicator. Only authorized service personnel should have access to keys. Be sure you understand the required procedures and the purpose for those procedures before you handle the tamper-indicating cassettes.

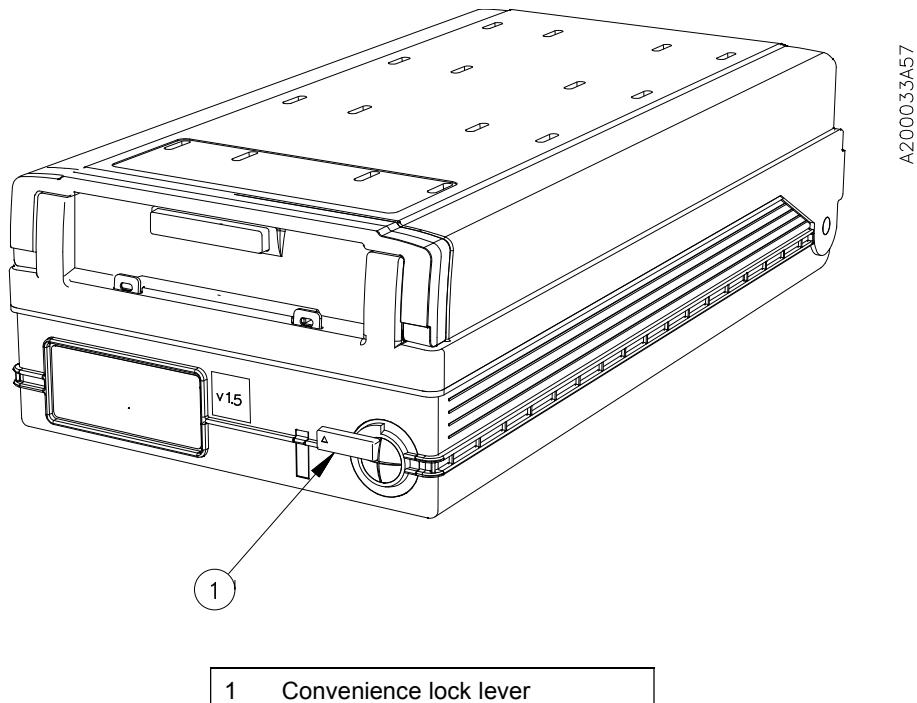
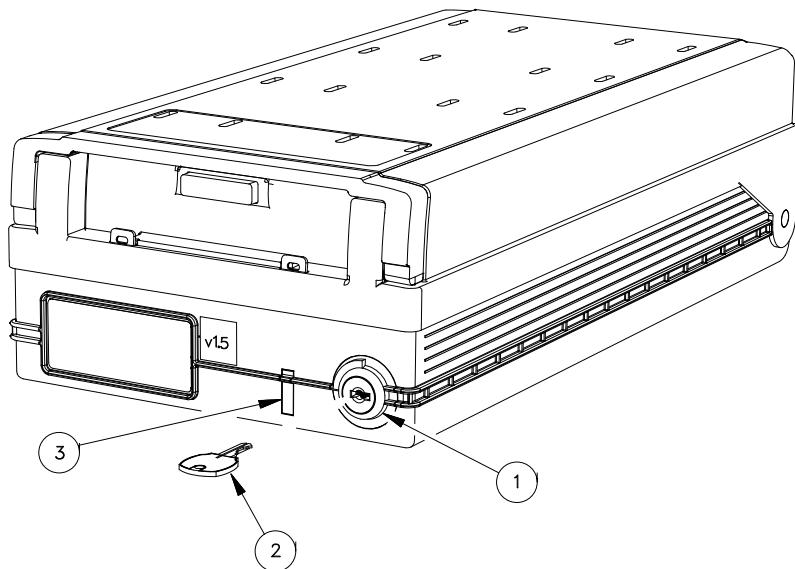


Figure 2-13 Convenience Dispense Cassette



1	Key lock
2	Key
3	Red/green indicator

Figure 2-14 Tamper-indicating Dispense Cassette

2.4.2 Handling Dispense Cassettes

When you replenish dispense cassettes, follow the institution's guidelines for handling media in addition to those outlined below.

NOTE

These precautions are not a substitute for the standard security procedures of your institution.

- Replenish the cassette in a high-security location, such as a vault.
- Store the cassette service keys in a high-security location, such as a vault.
- Transport tamper-indicating cassettes to the terminal with the red/green indicator showing *green*.
- Inspect the dispenser and cassette for signs of tampering after you remove a cassette.
- Perform an audit on tamper-indicating cassettes if they have not been installed but show a red indicator.
- Record any cassette information (for example, the media contained in the cassette) in the space provided below the cassette handle.

- Avoid mishandling the cassette (i.e., dropping it or banging it against objects, such as walls, tables, the ATM, etc.)
- Close the cassette gently. Do not slam it shut.

2.4.3 Checklist for the Dispense Cassette

Check all dispense cassettes for signs of tampering or damage. If you find a discrepancy, do not use the cassette. Only tamper-indicating cassettes have a red/green indicator.

NOTE

If the cassette contains media, perform the following steps in a high-security location and follow the standard security procedures of your institution.

1. Inspect the cassette for the following conditions after you remove the cassette from the dispenser:
 - Damage to the cassette and to the tambour door
 - The red/green indicator is red (only on the tamper-indicating cassette)
 - The cassette lid cannot be opened (only on the tamper-indicating cassette)
 - The tambour door cannot be opened (only on the tamper-indicating cassette)
2. After you open a tamper-indicating cassette, make sure the red/green indicator has been reset to green.
3. While the cassette lid is open, inspect the cassette for signs of internal damage.

2.4.4 Configuring the Cassette

There are actuators along the top-front of each dispense cassette (above the tambour door, Figure 2-15) where plastic buttons can be added or removed to configure the cassette for the media that will be dispensed.

NOTE

The type of media recorded on the label of the cassette must match the configuration buttons of the cassette.

If necessary, contact your Diebold customer representative to help configure the cassette.

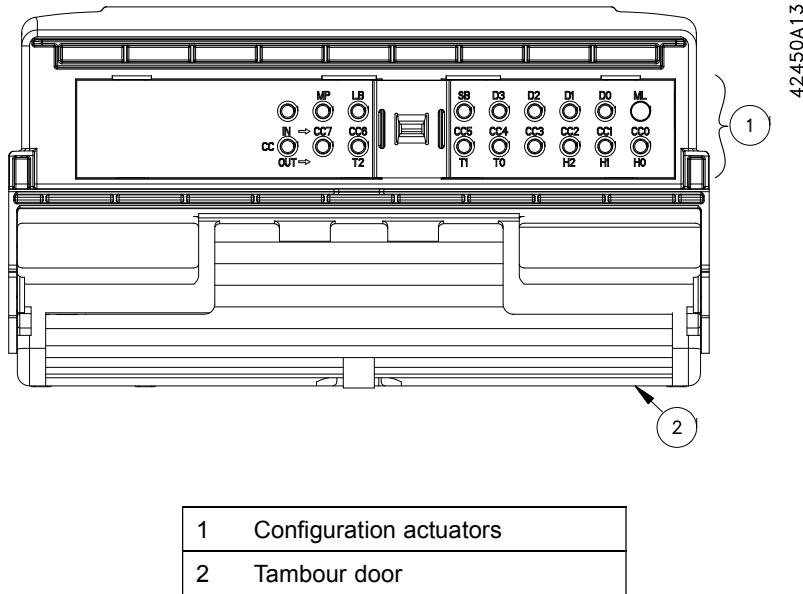


Figure 2-15 Dispense Cassette Actuators

2.4.5 Removing a Convenience Dispense Cassette

1. Rotate the cassette handle down, then press and hold the blue button as you pull the cassette out of the dispenser (Figure 2-16).
2. Move the cassette to a high-security location for servicing.

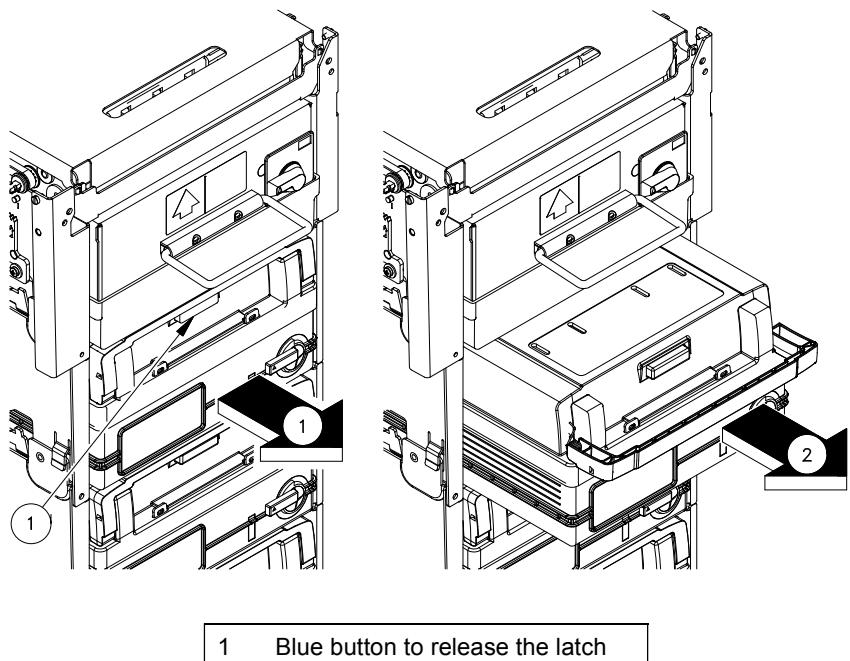


Figure 2-16 Removing a Convenience Dispense Cassette

2.4.6 Replacing a Convenience Dispense Cassette

1. Lift the cassette by the handle and slide it halfway into the dispenser (Figure 2-17).

NOTE

Each cassette is configured for a particular type of media. The dispenser will automatically sense the type of media that is configured; you can therefore insert a cassette into any dispenser channel.

2. Using both hands, push the cassette all the way into the dispenser channel until it is firmly seated and the dispenser beeps.

If the dispenser does not beep, the cassette is not properly seated. Remove the cassette, reset it, and push it back into the dispenser until it is firmly seated. If the dispenser still does not beep, contact your customer representative.

3. Perform a dispense test or a test transaction to verify that the cassette is operating correctly.

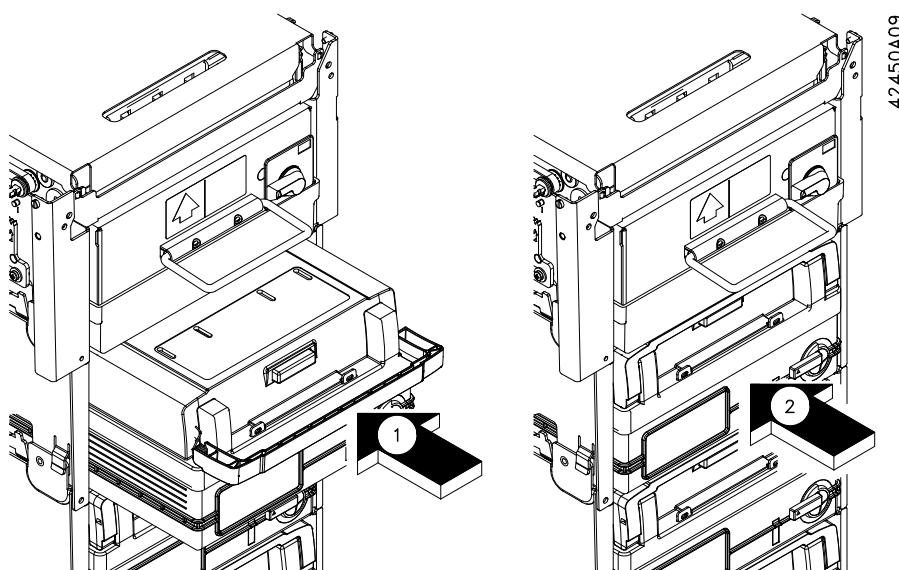


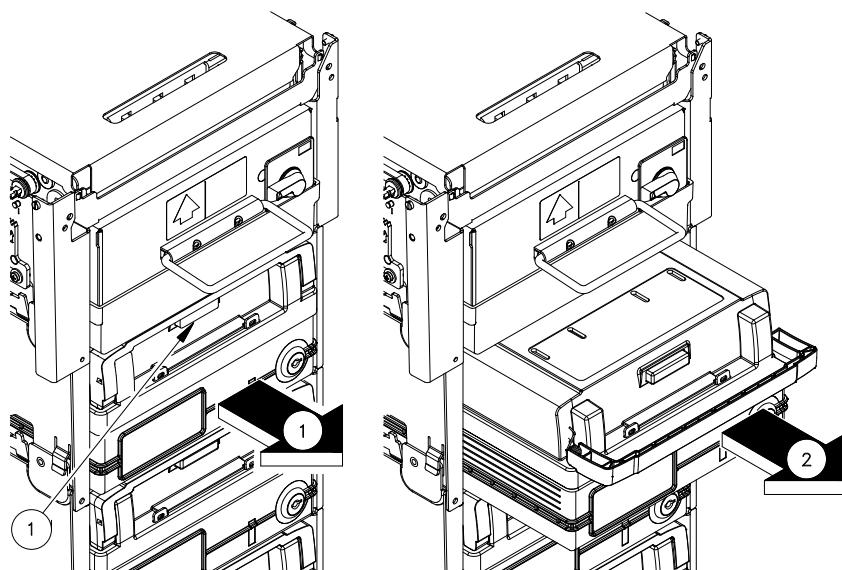
Figure 2-17 Replacing a Convenience Dispense Cassette

2.4.7 Removing a Tamper-indicating Dispense Cassette

1. Rotate the cassette handle down, then press and hold the blue button as you pull the cassette out of the dispenser (Figure 2-18).
2. Move the cassette to a high-security location for servicing.



The red indicator means that the cassette cannot be inserted into a dispenser. Do not try to insert a tamper-indicating cassette when the red indicator is visible. Failure to comply with this caution might result in permanent physical damage to the cassette or to the dispenser.



1 Blue button to release the latch

Figure 2-18 Removing a Tamper-indicating Dispense Cassette

2.4.8 Replacing a Tamper-indicating Dispense Cassette



- Ensure the green indicator is visible.
- Ensure the cassette is fully closed, if not, perform the following procedures to fully close the cassette.

- When the cassette tambour door is not closed properly surface A will be lower than surface B (Figure 2-19). To close the door, push the flexible tambour door in the direction of the arrow until surface A aligns with surface B (Figure 2-20). The gap between surface A and surface B should be no greater than 2 mm (0.08 inch).

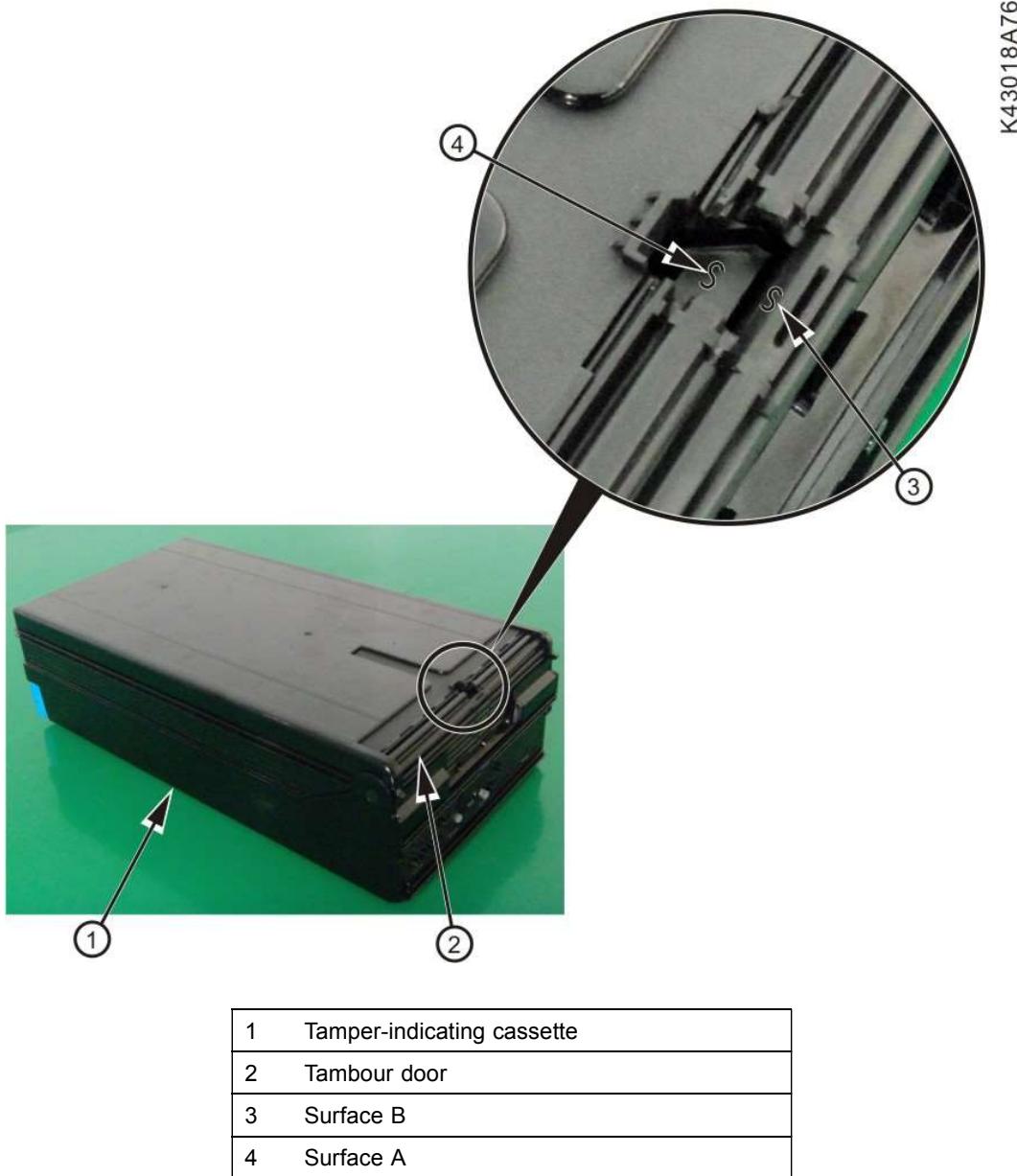
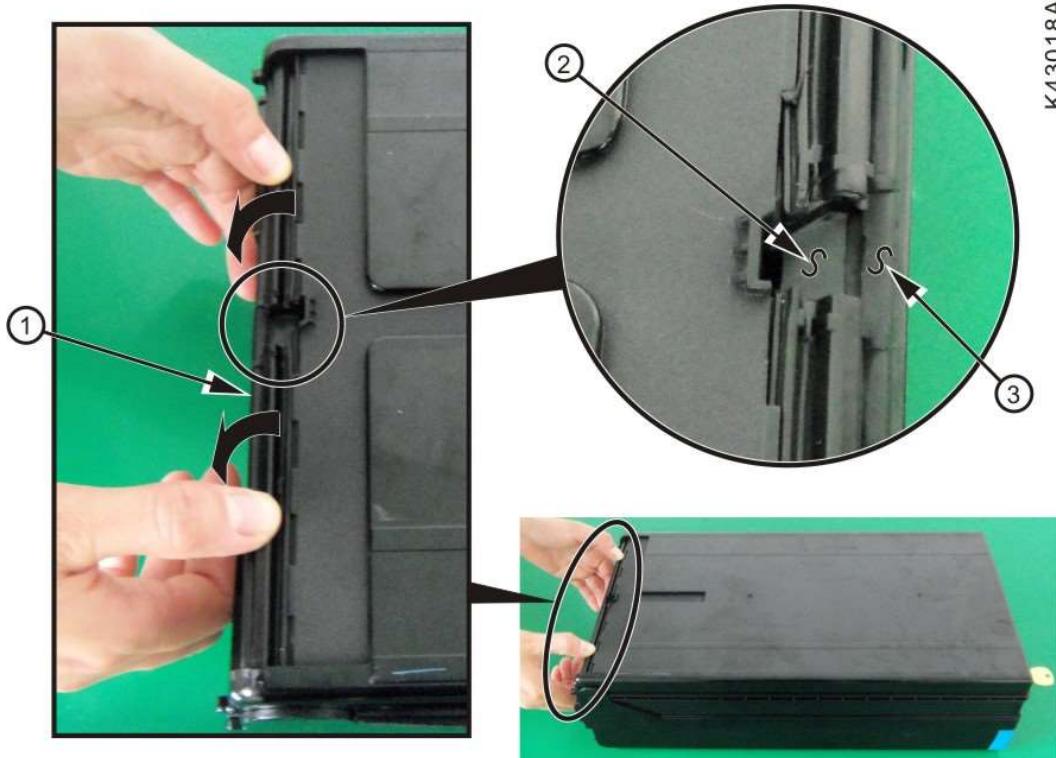


Figure 2-19 Tambour Door Not Closed Properly



1	Tambour door
2	Surface A
3	Surface B

Figure 2-20 Adjusting the Tambour Door

2. When surface A and surface B are nearly flat, turn the service key clockwise until the indicator is green.

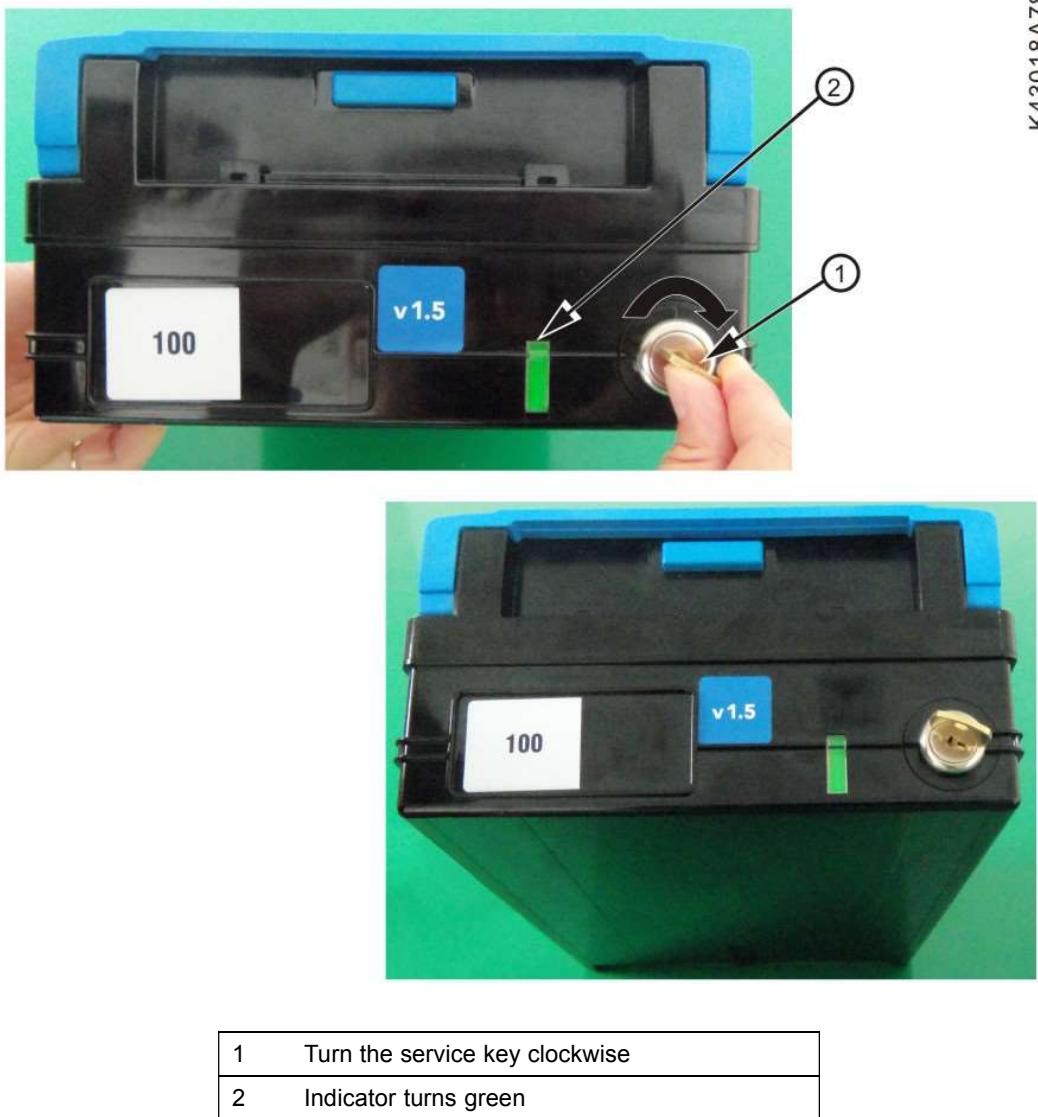


Figure 2-21 Adjusting the Indicator

3. If possible, open the cassette and check the media to make sure it is stacked neatly and not wrinkled.
4. Verify that the indicator is green. If necessary, reset the cassette by using the service key. Lift the cassette by the handle and slide it halfway into the dispenser (Figure 2-22).

NOTE

Each cassette is configured for a particular type of media. The dispenser will automatically sense the type of media that is configured. Therefore, you can insert a cassette into any dispenser channel.

5. Push the cassette all the way into the dispenser channel with both hands until it is firmly seated and the dispenser beeps.

If the dispenser does not beep, either the cassette is not properly seated or it is incorrectly configured. Remove the cassette, reset it, then push it back into the dispenser until it is firmly seated. If the dispenser still does not beep, have your customer representative check the cassette configuration.

6. Perform a dispense test or a test transaction to verify that the cassette is operating correctly.

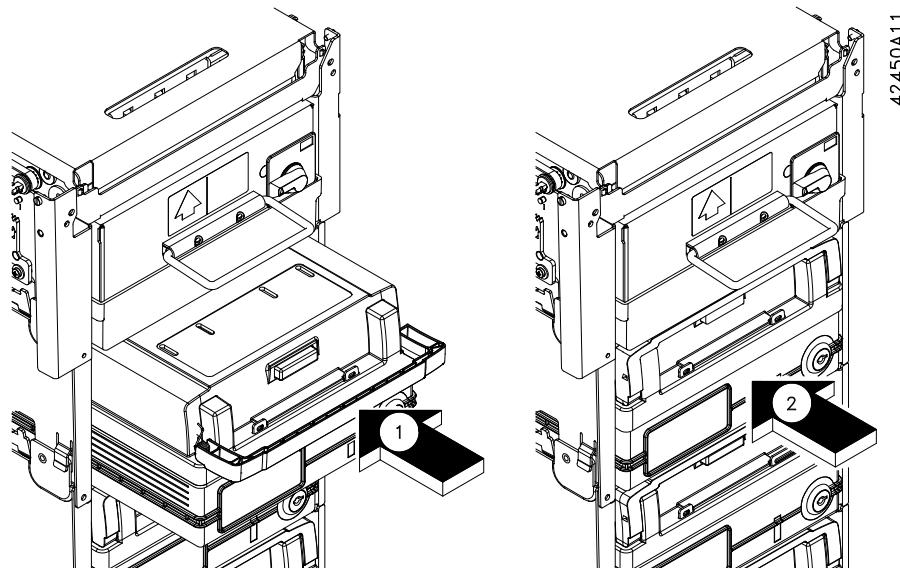
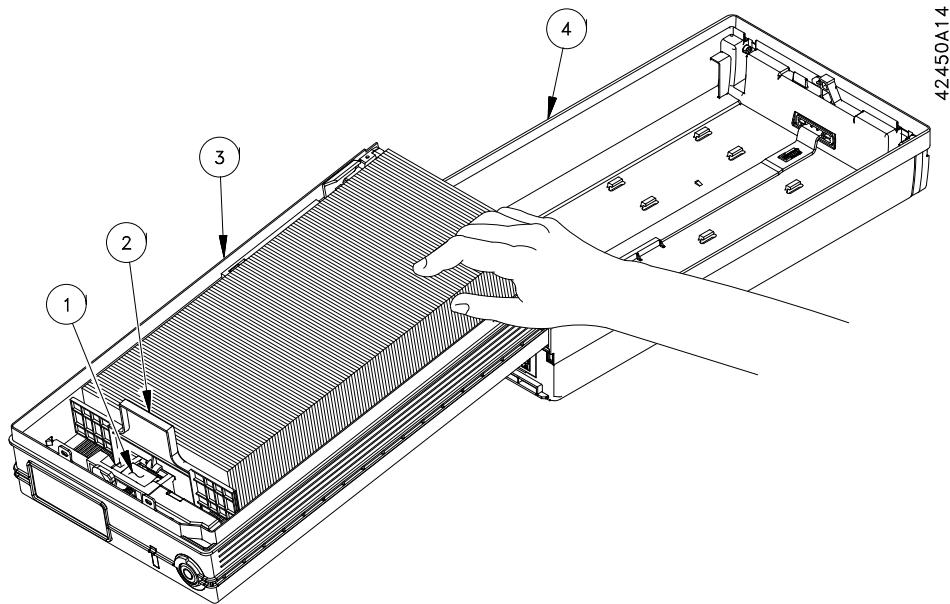


Figure 2-22 Replacing a Tamper-indicating Dispense Cassette

2.4.9 Replenishing a Dispense Cassette

This section describes how to load media into the dispense cassettes.

1. Unlock a tamper-indicating cassette or rotate the lock lever on a convenience cassette to release the lid.
2. Open the lid all the way so that it lies flat on the work surface and supports the body of the cassette (Figure 2-23).
3. Slide the push plate toward the cassette lock until it latches.



1	Release latch (blue) for the push plate
2	Push plate
3	Cassette body
4	Cassette lid

Figure 2-23 Cassette Components

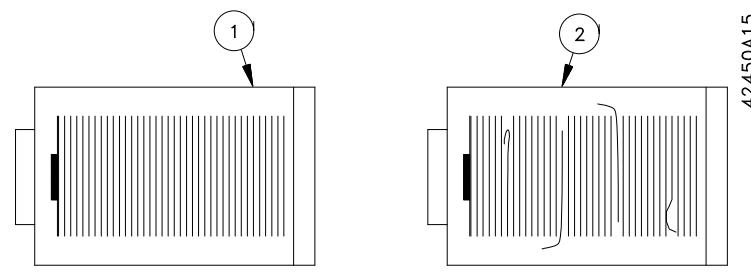


Use only fit media. Do not use media unless it meets the quality standards described in Section 2.2. Failure to comply with this caution might result in the terminal shutting down or damage to the cassette or dispenser.

4. Stack the media neatly and evenly against the push plate and verify that the media meets the following requirements (Figure 2-24 and Figure 2-25).

NOTE

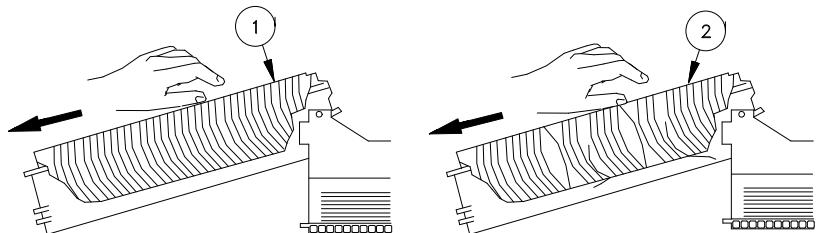
- Either concave side or mixed sides of notes should face front of cassette.
- Do not use media separators in the dispenser.
 - Notes are at the same angle as the push plate.
 - Notes rest firmly on the bottom of the cassette.
 - Notes do not curl under other notes.
 - Check the note stack for slight bowing.
 - Position all bowed notes so that the concave side is toward the tambour door opening.



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1	Correctly loaded media
2	Incorrectly loaded media

View A Top View

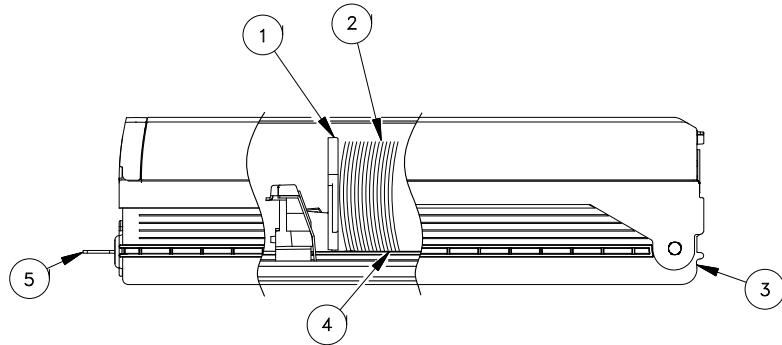


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1	Correctly loaded media
2	Incorrectly loaded media

View B Side View

Figure 2-24 Correctly and Incorrectly Loaded Dispense Cassettes



1	Push plate
2	Concave side or mixed sides of notes
3	Tambour door (not visible)
4	Direction of currency bow
5	Service key

Figure 2-25 Bowed Notes in Dispense Cassette

5. Press the blue latch. Make sure that the push plate moves toward the cover hinge, applying a gentle even pressure to the media.



The components are easily damaged. Do not force the push plate forward. Failure to comply with this caution might result in permanent damage to the cassette.

6. Gently brush your hands over the top of the media from front to back.
7. Gently close the cassette lid. Do not slam it shut.
8. Verify that the lid is closed all the way and latched. For tamper-indicating cassettes, turn the key counterclockwise to its original position, then remove the key and make sure that the indicator shows green.

2.5 Clearing Jams

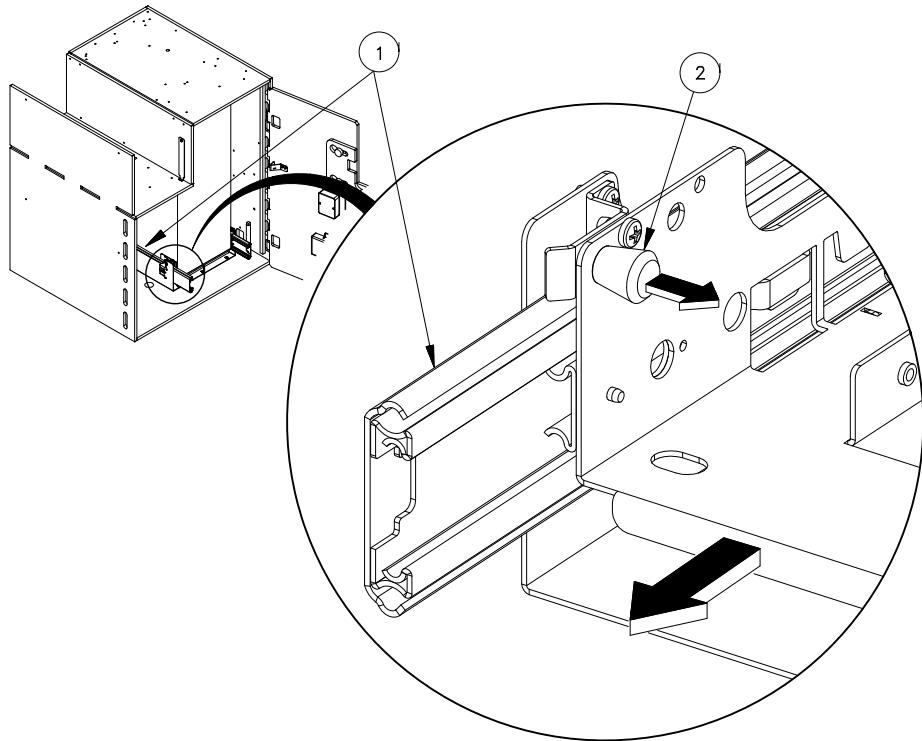
To deliver a bank note to the consumer, the dispenser first picks the note from the cassette and moves it through the picker module to the stacker module. From there the note goes through the transport module through an opening in the fascia and to the consumer. Perform the following steps if a note becomes jammed anywhere during this function.

1. Follow your institution's procedures to place the terminal in service mode and access the dispenser inside the safe.
2. Examine the vertical transport path shown in Figure 2-29 and clear any jammed media. Perform the following steps to access the vertical transport path:



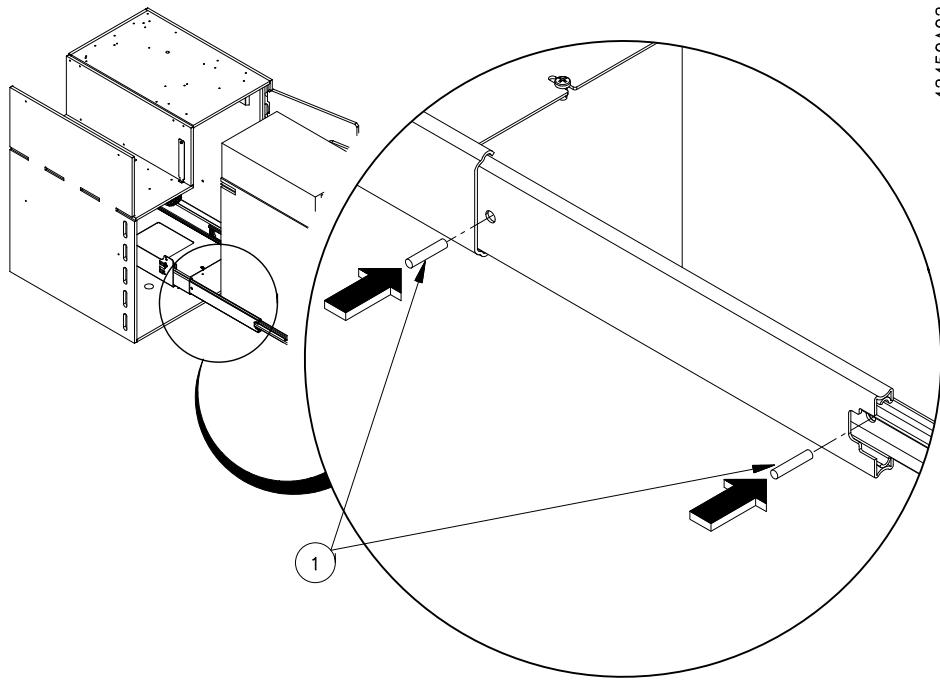
The dispenser slide rails do not lock in the extended position. Secure and block the dispenser when it is in the fully extended position (Figure 2-27). Failure to comply with this warning might result in damage to the equipment or serious injury to personnel.

- a. Release the latch on the slide rail (Figure 2-26), then grasp the dispenser assembly and pull it straight out until it is fully extended on the slide rails (Figure 2-27).
- b. Secure the dispenser by blocking it open or by inserting a metal pin or similar object through the holes in the slides on both sides of the dispenser (Figure 2-27).
3. If you have extended the dispenser service slides, remove the retaining pins or other blocking device and return the dispenser to its operational position. Make sure that the slide rail latch pin locks in place.
4. Examine the cassette and clear any jammed media in the tambour door area (Figure 2-15). If necessary, open the cassette and examine the inside for jammed media.
5. Remove the cassette and examine the feed area of the picker for jammed media (Figure 2-28).



1	Slide rails
2	Release knob for the slide rail latch pin

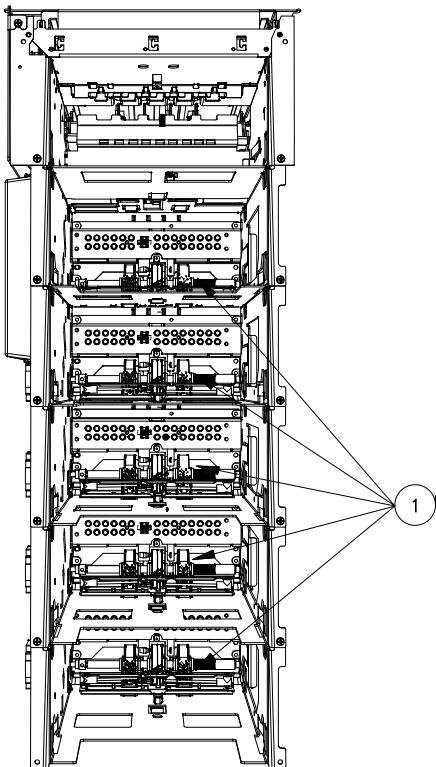
Figure 2-26 Extending the Dispenser out of the Safe



1 Metal retaining pin

Figure 2-27 Locking the Dispenser Extended Slides

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1 Picker feed area

Figure 2-28 Picker Feed Area

2.6 Removing Media from the Escrow Area

If media is not removed by the consumer, the dispenser retracts the media from the opening in the fascia. Depending on how the terminal software was configured, the dispenser placed the retracted media in the divert/retract cassette or held in the escrow area (Figure 2-29).

Examine the escrow area, remove any media found there and follow your institution's procedures about managing retained media.

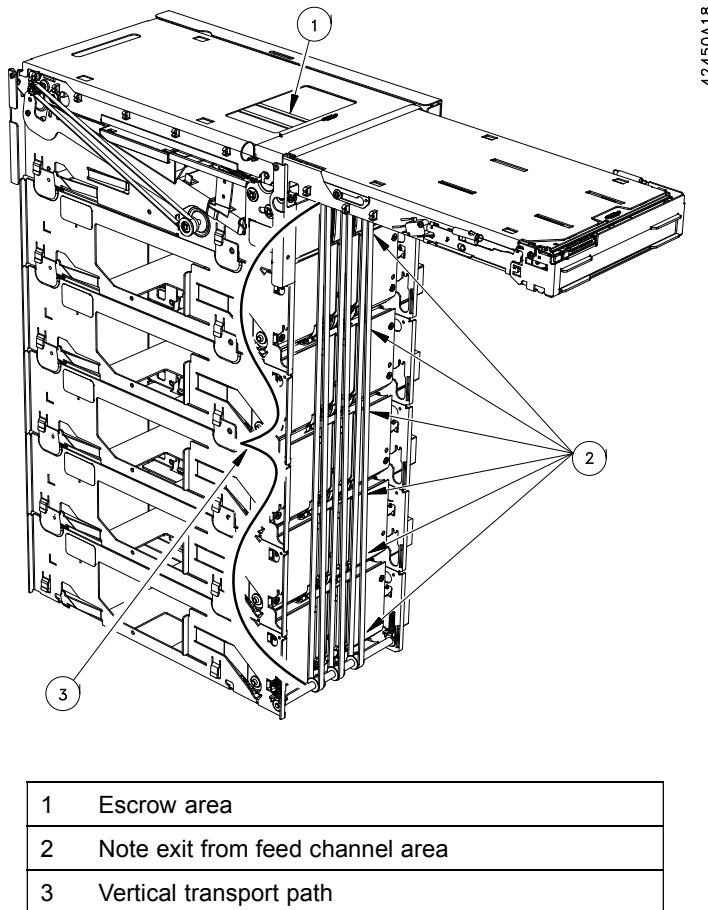
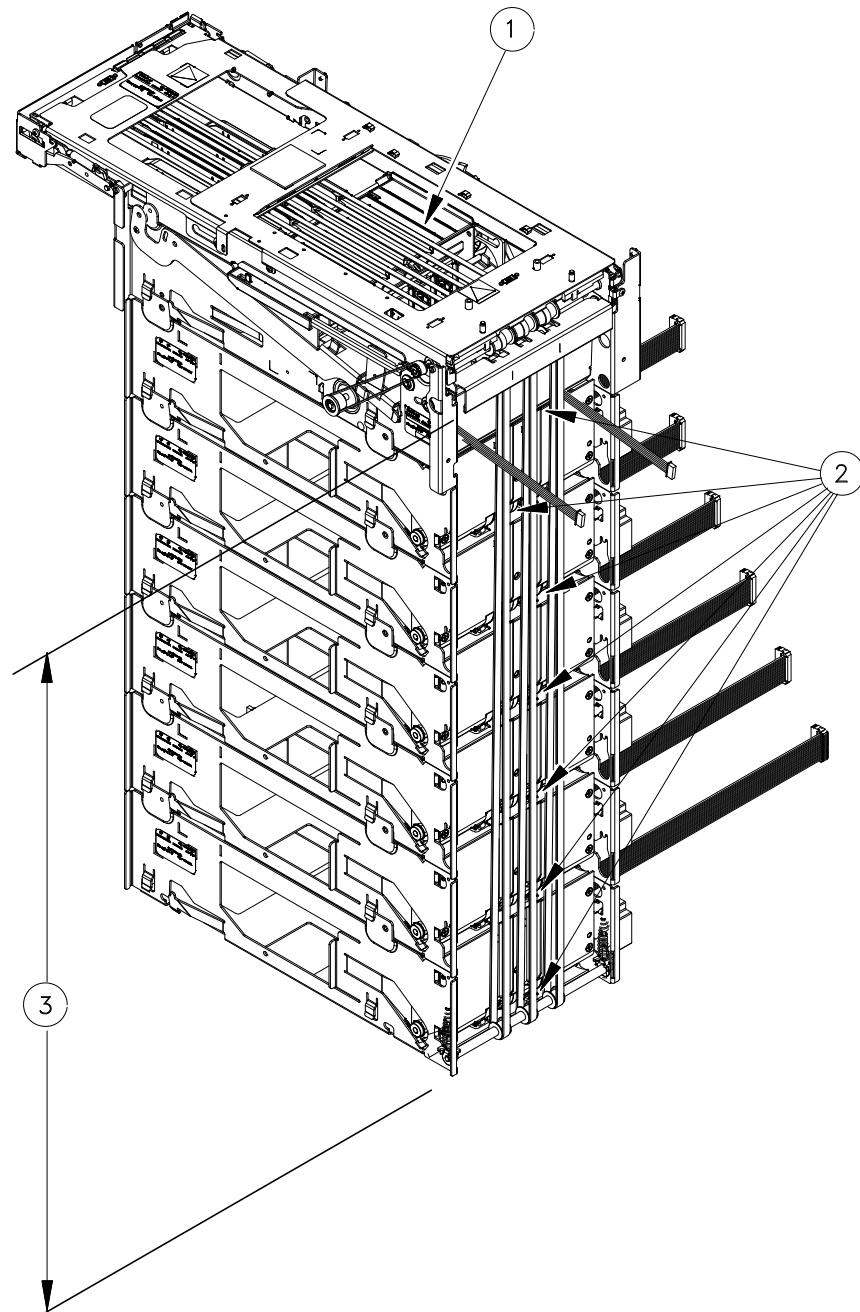


Figure 2-29 Vertical Transport and Escrow Area

Open Transports (old)

Access to the escrow area and other parts of the transport were redesigned in the open transport models, such as short front-load (Figure 2-30, View A) and short rear-load (Figure 2-30, View B). Access to the vertical transport remains unchanged.

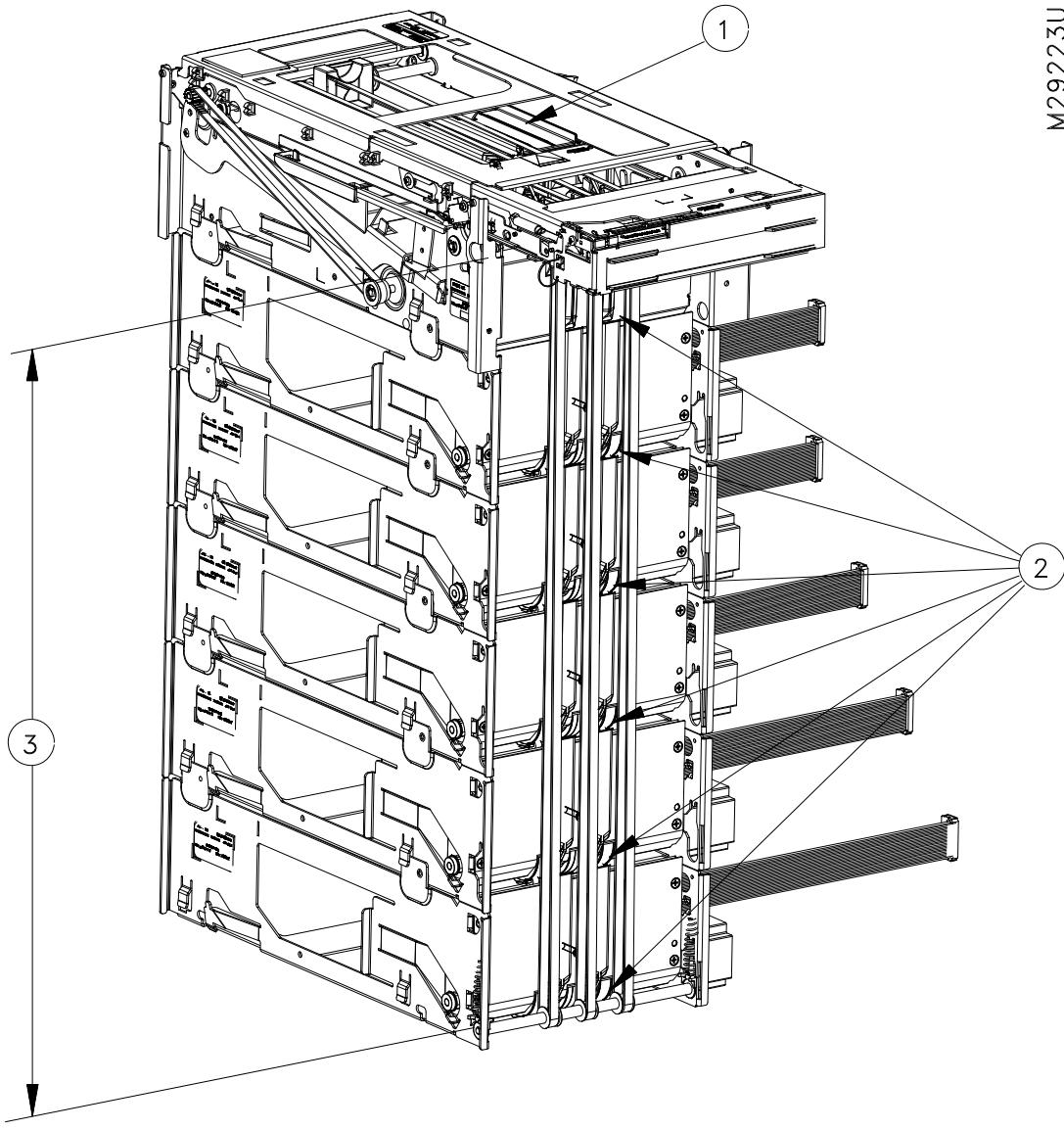
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1	Escrow area
2	Notes exit from feed channel area
3	Vertical transport path

View A 625 mm Short Front-load Open 6-High

Figure 2-30 Vertical Transport and Escrow Area – Open Transport Model (sheet 1 of 2)



View B 625 mm Short Rear-load Open 6-High

Figure 2-30 Vertical Transport and Escrow Area – Open Transport Model (sheet 2 of 2)

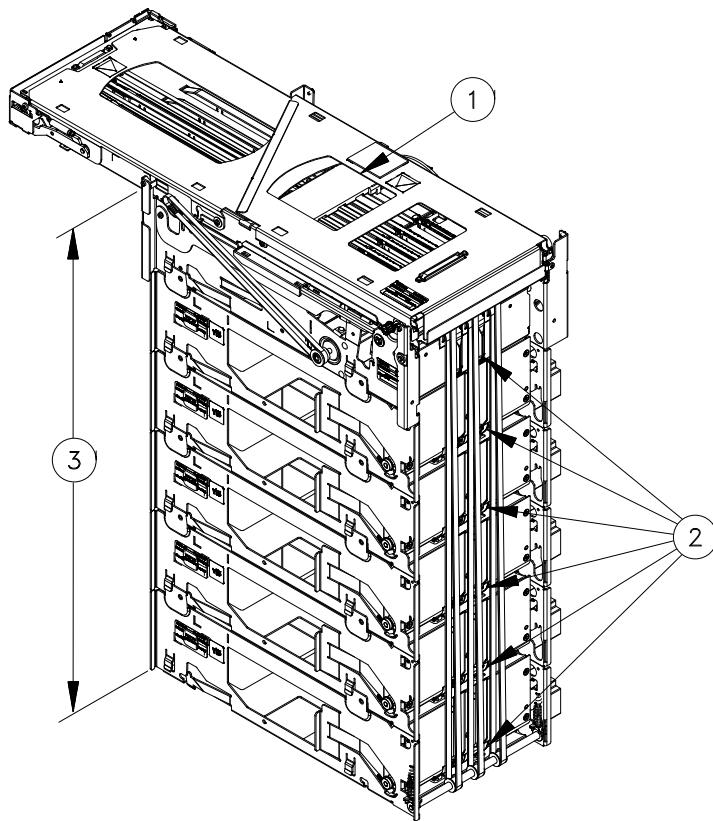
New Transports

Access to the escrow area and other parts of the transport were redesigned in the newly designed transport models, such as 720mm front-load (Figure 2-31, View A) and 860mm rear-load (Figure 2-31, View B). Access to the vertical transport remains unchanged.

NOTE

When sunlight directly shines on the exit sensor detectors and stacker sensor detectors, the OSD+ software will display that the sensors are blocked.

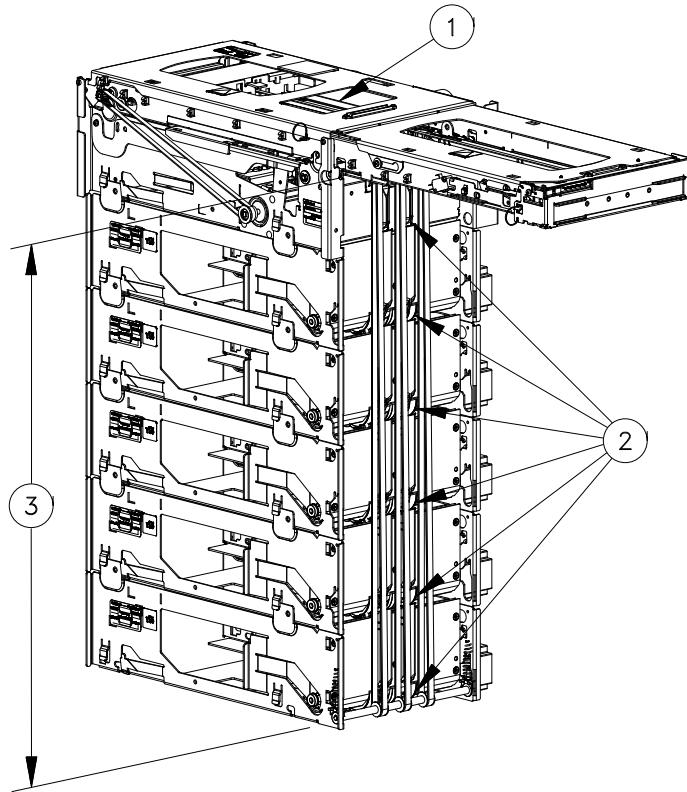
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1	Escrow area
2	Notes exit from feed channel area
3	Vertical transport path

View A 720 mm Front-load 5-High

Figure 2-31 Vertical Transport and Escrow Area – New Transports (sheet 1 of 2)



1	Escrow area
2	Notes exit from feed channel area
3	Vertical transport path

View B 860 mm Real-load 5-High

Figure 2-31 Vertical Transport and Escrow Area – New Transports (sheet 2 of 2)