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CASH SYSTEMS

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De La Rue Cash Systems
a trading name of Brandt, Inc.

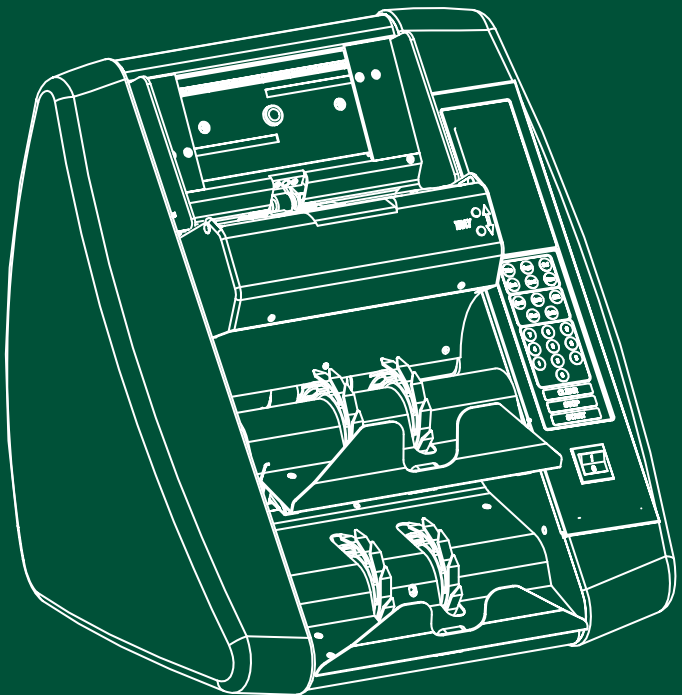
Reference: D103252, 9712 -1

DeLaRue

user guide

2800 Series

Value Balancing Currency Counters



DeLaRue

DE LA RUE
CASH SYSTEMS

De La Rue House
Jays Close
Viables
Basingstoke
Hamsphire RG22 4BS
England

Dear Customer,

Thank you for purchasing the new 2800VB Series Currency Counter from De La Rue. The 2800VB represents a new era for currency processing, offering processing techniques never before realized in a table top currency counter.

The unique two pocket frame combined with denomination recognition technology translate into improved productivity and operational control.

These benefits are achieved through -

- Non-stop value balancing of mixed denomination bundles
- Continuous error and/or suspect note off-sorting
- Selectable rogue note off-sorting
- Facing and Orientating notes
- Multiple time saving operating modes designed to increase user productivity

To ensure maximum life from your machine, we recommend that it is regularly serviced. To assist you, we provide world-wide service and support through our network of branch offices and authorised distributors. Please contact them for the location of your nearest service office.

We wish you many years of successful currency counting and thank you again for choosing De La Rue to help you cut the cost of handling cash.

Yours sincerely,

HAYDN ABBOTT
Managing Director,
De La Rue
Cash Systems

ISO 9001 SGS

De La Rue
Cash Systems
a division of
De La Rue International Ltd.
Registered Office
1750 Woodhaven Drive
Bensalem, PA 19020-7195
Registration No. US95/0322

disclaimer

FCC Interference Statement

Warning

This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual may cause interference to radio and television reception. It has been tested and found to comply with the limits for a Class A or Class B computing device pursuant to Subpart J of Part 15 of FCC Rules which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference with radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by taking one or more of the following measures:

- ✓ Reorient the receiving (radio/TV) antenna
- ✓ Move the counter to the right or left with respect to the receiver
- ✓ Move the counter away from the receiver
- ✓ Plug the counter into a different outlet so that the counter and receiver are on different branch circuits.

Warning: Only equipment certified to comply with the Class A or Class B limits may be attached to this currency counter. Operation with noncertified equipment is likely to cause radio and TV reception interference.

Peripherals should be interfaced using only shielded cables to maintain FCC Class A or Class B certification and to reduce the possibility of interference with radio and television reception.

Reference material

If this equipment does cause reception interference, the user should contact an authorized sales or service representative for suggestions. Two booklets, the CIB Interference Handbook and the CIB Telephone Interference Booklet are provided by the Compliance and Information Bureau of the Federal Communications Commission. To obtain copies, call the Bureau at (202) 418-1100 or on the Internet at http://www.fcc.gov/cib.

De La Rue International Limited is pleased to give detailed specifications of its products in this manual but expressly reserves the right to vary these at its discretion at any time without notice. As the Company's products and services are continuously being developed it is important for customers to check that the information contained herein includes the latest particulars. This manual is for general guidance only and may contain inappropriate information under particular conditions of use. All recommendations and suggestions issued by or on behalf of the Company in whatever form, are subject to the Company's terms and conditions of sale, of which a copy will be supplied on request. This document is not part of a contract or license, save insofar as may be expressly agreed.

contents

* CDA is a registered trademark of De La Rue Cash Systems.

declaration of conformity

Manufacturer and responsible person

DE LA RUE
CASH SYSTEMS

a trading name of Brandt, Inc.
1750 Woodhaven Drive
Bensalem, PA 19020-7195 U.S.A.
Telephone: (215) 638-3600
Fax: (215) 638-1188

Details of product

Currency and document counter

Model types

2800301 and 2800302
as indicated by CE mark

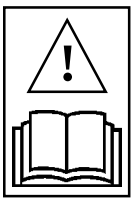
This product conforms to the following requirements of:

Electromagnetic compatibility	Directive 89/336/EEC
Low-voltage electrical equipment (safety)	Directive 73/23/EEC

and is supported by the following applicable standards:

EN 55022
EN 55082-1
EN 60950
IEC 801-2
IEC 801-3
IEC 801-4

Reference#: D103629, rev-1



Warning

This machine has been designed for optimum safety for its users. For your added protection please follow these guidelines.

Voltages above 42V are potentially dangerous.
Always handle AC supplied equipment with caution.
Always unplug the machine power cord before opening the unit.

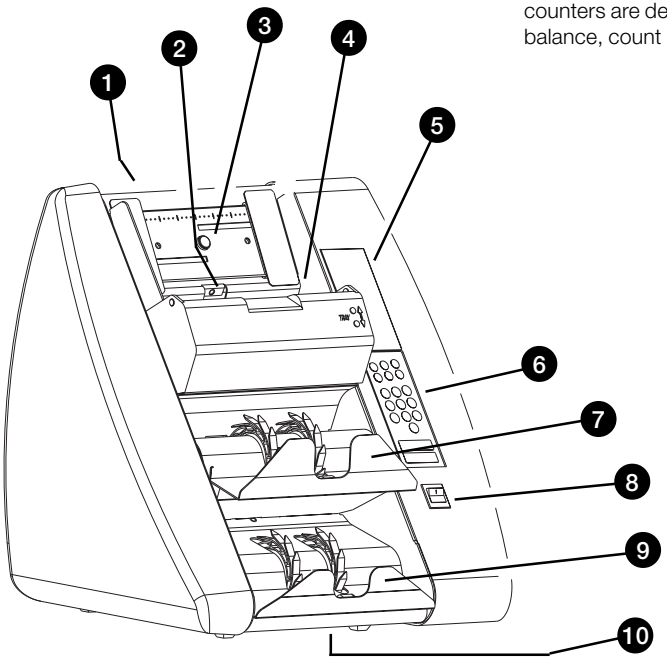
If the sensors are blocked, the feed rollers will operate.
Always keep loose clothing and hair out of the feed hopper area when operating the machine.

specifications

Acoustic noise level	<81dBA maximum at 1000 notes per minute
Batching	Variable batch ..... Numeric keypad array allows entries from 1 to 999 notes per batch
Capacity	Feed tray ..... 5.0" (125mm) ..... or...up to 600 U.S. teller-quality notes Output trays ..... 1.5" (38mm) ..... or...up to 200 U.S. teller- quality notes Feed width ..... 10.0" (254mm)
Counterfeit detection aid	Patented magnetic counterfeit detection, U.S. currency only
Counting speed	Three quick-set default speeds: **2800VB -** 300 notes per minute (npm) minimum, 600npm or up to 1000npm maximum, **2810VB -** 600 notes per minute (npm) minimum, 800npm or up to 1000npm maximum
Dimensions	Height ..... 18.50" (469mm) Width ..... 18.00" (457mm) Depth ..... 14.75" (375mm)
Displayed count levels	Count and value ..... 6-digit LCD Batch ..... 3-digit LCD Sub and grand totals ..... 8-Digit LCD
Document size range and thickness	Minimum ..... 2" x 4" ..... (50mm by 100mm) Maximum ..... 3.50" x 9.50" ..... (90mm by 241mm) Thickness ..... 0.003" to 0.007" ..... (0.08mm to 0.18mm)
Doubles detection	Detection is adaptive, on/off selectable and automatically controlled by the machine. The count is zeroed for an accurate pack recount.
Environmental conditions	Operating temperature ..... 65° to 85°F (18° to 29°C) Storage temperature ..... - 40° to 95°F (- 40° to 35°C) Humidity range ..... 35% to 85% relative humidity, non-condensing
Length (size)	Length (size) measurement is on/off selectable and detects notes that are under or oversized by the selected millimeter setting (from 3mm-8mm).
Location	Avoid areas of excessive vibrations, drafts, and direct exposure to bright sunlight and heat sources.
Messages/beeper	Displays messages or sounds the beeper for chain, doubles and half notes in either direction, length and CDA suspects, and other errors.
Operating modes	Touch button selectable for: standard count, value balance, cull, rogue note, facing (both portrait and head-or-feet) and old vs. new currency.
Power requirements	Standard ..... 115VAC (+15%/-10%), 50-60 HZ Optional ..... 100VAC (+15%/-10%), 50-60 HZ 230VAC (+15%/-10%), 50-60 HZ
(RS232 Communications)	RS232 communications Interfacing for transmitting data to a host computer system. Programmable per industry standards.
Weight	39 lbs. (17.72 kg.)

machine overview

The **2800VB** series value balancing currency counters are designed to automatically value balance, count and sort currency.



1 **Lifting point –** handle provided for lifting the machine.

2 **Auto-start sensor –** for detecting packs placed on the feed tray.

3 **Note guide pushbutton –** press this button to set guides for an off-center feed.

4 **Feed tray –** notes are placed here for counting.

5 **LCD display –** shows operating features and messages, see page 6.

6 **Control panel -** see page 5.

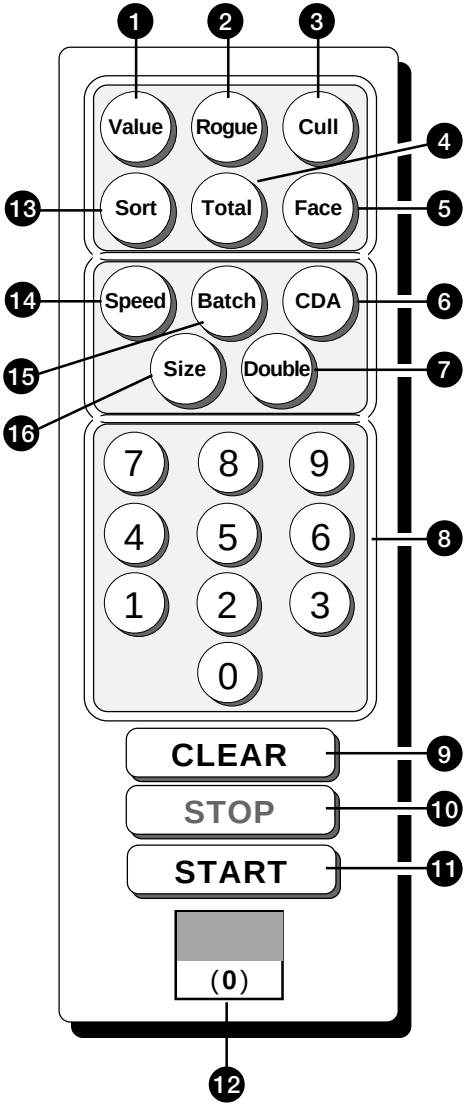
7 **Top tray –** off-sorted and error notes are collected here.

8 **AC power switch –** on/off switch.

9 **Bottom tray –** counted notes are collected here.

10 **Lifting point –** handle provided for supporting the machine when lifting.

control panel



1 **Value –** cycles through U.S. currency (example, $1, $5, $10, etc.) and piece count mode.

2 **Rogue –** enables rogue mode and switches between value and piece count modes.

3 **Cull –** enables/disables the cull mode and selects a specific denomination.

4 **Total –** press to view the grand total count.

5 **Face –** enables/disables face mode.

6 **CDA –** enables/disables detection of magnetic counterfeit notes.

7 **Double –** enables/disables detection and selects sensitivity setting.

8 **Numeric keypad –** enter batch settings from 1 to 999 and enables features in other modes.

9 **Clear –** clears count, sub and grand totals.

10 **Stop –** stops any count in process.

11 **Start –** continues the count after an error or jam stoppage, or after the **STOP** button has been pressed.

12 **AC power –** sets the machine AC power on (I) and off (O).

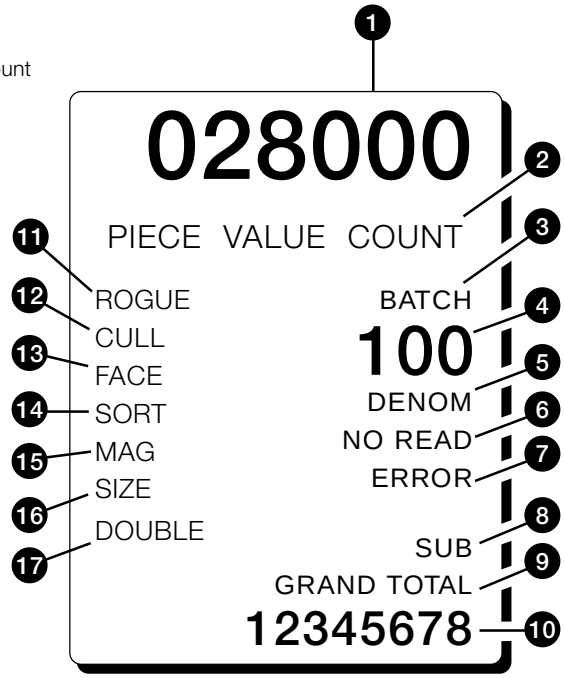
13 **Sort –** enables/disables the sort mode and selects a specific sort mode.

14 **Speed –** sets throughput speed.

15 **Batch –** enables/disables the batch count mode.

16 **Size –** enables/disables size detection and selects detection sensitivity settings.

lcd display



1 **Count total –** the piece or value count total is viewed here.

2 **Piece (or) value count –** indicates the counting mode selected.

3 **Batch –** flashes when the notes counted are equal to the batch setting.

4 **100 (batch setting) –** shows the batch setting, denomination for value, or the sort mode. Error codes are also shown here.

5 **Denom –** visible in the value mode to show the denomination is selected (example, 1 for $1, 10 for $10, 50 for $50, etc.).

6 **No read –** visible when the unit cannot determine the denomination or note characteristics.

7 **Error –** flashes when a feed error occurs.

8 **Sub (total) –** always visible to show a pack or job subtotal.

9 **Grand (total) –** visible when **TOTAL** is pressed to show a grand total.

10 **1234567890 –** the sub and grand totals are viewed here.

11 **Rogue –** visible when rogue mode is selected.

12 **Cull –** visible when cull mode is selected.

13 **Face –** visible when face mode is selected.

14 **Sort –** visible when sort mode is selected.

15 **Mag –** visible when magnetic counterfeit detection is selected or when in the face and sort modes.

16 **Size –** visible when size detection is selected and flashes when a suspect is identified.

17 **Double –** visible when doubles detection is selected and flashes when a double note is fed.

installing the counter

The **2800VB** series currency counters offer:

- mixed denomination value balancing
- rogue denomination off-sort based on the first note through
- operator selected denomination off-sorts using the cull mode
- non-stop sorting of old and new style currency
- non-stop facing - notes feeding portrait side down (face down or green side up) versus notes feeding portrait side up (face up)
- non-stop orientation of notes

2800VB series counters easily convert to a standard currency counter (single pocket mode, piece count) to count and batch paper currency, USDA food coupons, checks and other similar documents within machine specifications. In the single pocket mode, good notes are fed to the bottom tray; error* notes are fed to the top tray for examination by the machine operator.

* Error Note - is a note that is different from the rest of the pack, such as a counterfeit suspect, a half note, a size suspect, or a double note.

to begin

The temperature of the area where the machine is operated should range between 65° and 85° F (18° and 29°C), with a relative humidity range of 35% to 85%, non-condensing.

When choosing a location for the machine, avoid areas with drafts, excessive vibrations, and direct exposure to bright sunlight and heat sources.

If you see any sign of damage, immediately notify the shipping company and your authorized sales office.

Check that all accessories or options ordered were shipped with the machine. Replacements are available through your authorized sales or service office.

installing the counter

power cord

Make sure your AC voltage is within +15% or -10% of the voltage listed on the label next to the machine power socket.

To prevent a circuit overload when plugging several units to the same source, check to make sure the combined currents will not overload your electrical system.

Never overload your electrical system!

Note: A typical De La Rue Coin Sorter / Counter draws 2.0 to 3.0 amps. If a sorter is part of your system, check the coin sorter user's manual for the proper amperage draw.

Switch the 2800VB AC power switch to OFF (O).

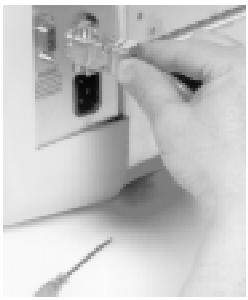
Plug the socket end of the power cord into the socket located at the back of the counter.

Plug the three-pronged plug into an appropriate AC wall outlet.

Warning

If your outlet is only two-pronged, you must use a 3-2 adapter. The ground wire (or tab) must be connected to the center screw (earth ground) of the outlet.

interface



RS232 interface connector

Plug the RS232 cable to the connector at the back of your machine.

Plug the other end into your host computer system. Refer to the installation instructions provided with your system for proper RS232 interfacing.

Tighten the locking screws. A loose connector will cause intermittent communication transmission problems.

placing notes

Aligning notes to be counted

Align the leading edges of the notes to form a wedge as shown.

When counting damaged or deformed notes, see heading “note consideration” on page 42 which lists the various notes/documents that may be counted.

Place the stack in the center of the feed tray. Do not throw notes onto the feed tray.

note guides

The note guides position notes in the center of the feed tray and must be used.

The following steps are only needed for the first pack of notes placed on the feed tray.

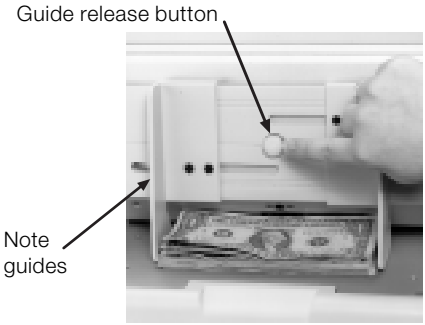
Press the **STOP** button.

Place the first pack of notes in the center of the tray.

Slide the guides loosely against the left and right edges of the pack as shown below. Allow adequate clearance for notes to feed freely.

Press **START** to begin a count.

off-center feed



Setting the note guides/Guide release button

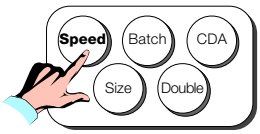
To set an off-center feed (favoring one side or the other), press and hold the guide release button.

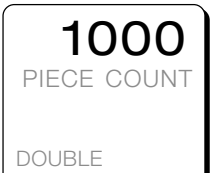
Each guide may be moved separately from side to side.

Release the button when the guides are set.

To center the guides, press and hold the release button while sliding both note guides to the full center position.

speed





2800VB series counters default to the last speed selected at power on. You may want to change this speed, for example, when counting very poor quality notes.

Select the throughput speed by pressing the **SPEED** button.

Press this button repeatedly to step through the following preset speeds:

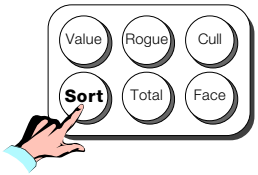
For model 2800VB
300, 600 or 1000 notes per minute

For model 2810VB
600, 800 or 1000 notes per minute

Actual throughput speed is determined by the quality and the size of the notes being counted.

Note: When facing notes or using the CDA detection feature, high speed (1000npm) is recommended for best results.

count mode



Note: Before selecting an operating mode, the count total on the display must be zero (0).

The **2800VB** series easily convert to a note counter by pressing the Sort and the Zero (0) buttons. Message piece count is shown.

The count total is the sum of notes in the bottom tray only. The top tray is used for off-sorting error notes. The machine continues the count without stopping.

When using more than one detection feature (for example, doubles and size), the error notes in the top tray could be caused by either or both features. Examine the errors and determine what action to take.

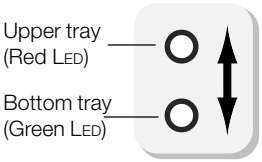
1

Switch the AC power switch to on (**I**).

A batch setting or detection feature may appear. Press the appropriate button(s) to clear the display.

For example, press **SIZE** and cycle to zero (**0**) to clear (turn off) size detection, press **DOUBLE** and cycle to zero (**0**) to clear doubles detection, and so on.

2



Red and green LED's light to show that the bottom tray is for good notes (green LED) and the top tray for off-sorted or error notes (red LED).

3

The following steps are only needed for the first pack placed on the feed tray.

- Press **STOP**.
- Place the notes on the feed tray.
- Adjust the note guides (see page 9).
- Press **START**.

For all other similar note packs, simply place notes on the feed tray to auto-start the count.

count mode

4

The feed tray holds up to 600 U.S. teller-quality notes. The top and bottom trays hold only up to 200 teller-quality U.S. notes each.

> **Note:** If Auto-stop at 150 (notes in top pocket) is on and you are in the single pocket mode, the counter automatically stops when the off-sort tray reaches 150 notes. Empty the tray and press **START** to continue the count.

Additional notes may be counted and added to the count as long as the bottom tray contains at least one note.

5

Press **STOP** to stop any count. To continue, press **START**.

6

When the pack is finished:

- Remove error notes in the top tray (red LED flashing), place them in the feed tray and press **START** to verify they are true errors.
- When this count is complete, remove errors in the top tray and set them aside to be checked later.
- Remove all counted notes from the bottom tray.

7

The count total shows the piece count of the pack processed (number of notes in the pack).

8

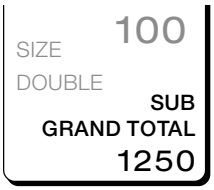
When the machine is not in use, set the AC power switch to off (**O**).

count total

To prevent a piece count or value count from being added to the sub total when recounting the pack, press **CLEAR** before removing notes from the bottom tray.

The count total flashes to ask if this is correct. Press **CLEAR** again to zero this count.

sub/grand totals



The sub and grand totals accept up to 8 digits maximum and are shown at the lower right-hand corner of the display.

The sub total is the total number of notes (or dollar value when in the value modes) processed for a job or batch.

The grand total is the total of notes (or dollar value) processed over a period of time. For example, an operator's shift or a full day.

1

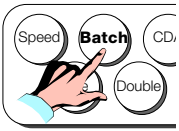
To clear a sub total, press **CLEAR** when the COUNT total is zero (**0**). The sub total flashes. Press **CLEAR** again to zero this total.

2

To clear a grand total, first press **TOTAL** to display the grand total, then press **CLEAR** while the total is shown. The grand total flashes. Press **CLEAR** again to zero this total.

batch mode

1



Notes: Batching is used in all modes except the Sort 1 mode.

When facing notes (see page 29), both LED's are green as you are using both trays for good notes.

Select the batch mode by pressing the **BATCH** button. The number 100 or a previous batch setting appears.

2

To select another setting from 1 to 999, use the number keys (1 through 0). If an error is made in selecting, press **CLEAR** and enter again.

Note: The batch setting remains in memory. When returning to the batch mode, this setting reappears. Repeat this step if another setting is needed.

If a zero (0) batch is needed, press **BATCH** to switch back to the count mode.

3

Begin the count as explained on page 11, step 3.

The machine stops when the count total equals the batch setting. BATCH also flashes on the display.

If the feed tray empties before the batch is complete, more notes may be added to continue the count.

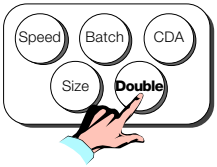
4

When a batch is finished:

- First remove any error notes in the top tray (red or yellow LED flashing), place them back in the feed tray to verify they are true errors.
- Remove batched notes from the bottom tray. The next batch count begins.

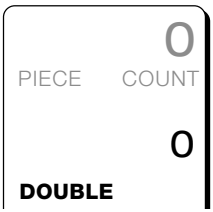
Notes: If you clear batched notes from the bottom tray with error notes in the top tray the beeper sounds. You must then press **START** to begin the next batch.

doubles detection



Repeatedly pressing **DOUBLE** cycles through the double sensitivity settings (0 through 9) and off. Setting 1 is the most sensitive, setting 9 is the least. Setting 4 is recommended for U.S. currency; 2 is used for USDA food coupons.

1



Press **DOUBLE**.

Double and the number 0 or a previous setting are shown on the display.

Select a sensitivity setting (1 through 9) for the type of notes being counted.

If doubles detection is not needed, cycle to setting **0**.

single pocket

Double error notes are fed to the top tray, and counting continues without stopping. The count total does not include error notes in the top tray.

1

To examine a double note:

When the count is complete, remove the double notes fed into the top tray and separate them.

Notes: If you remove notes from the bottom tray first, the top tray red LED and double flash. This is to remind you that these notes also belong to the pack and the pack must be recounted for accuracy.

It is possible for the first note in a pack to be a double note. In this case, because of machine speed, this double note feeds to the bottom tray and a few notes feed to the top tray. Counting stops, the bottom tray red LED and double flash. The count total is zeroed to allow a recount for accurate totals. Clear both trays before continuing.

doubles detection

single pocket...

2

Place the separated doubles back onto the feed tray and press **START** to verify that they are true errors.

Note: If the machine repeatedly detects doubles, review heading "note consideration" in the Information portion of this manual.

dual pocket

When a double note is detected:

- Counting immediately stops.
- The LED of the tray(s) with the double note flashes red.
- The beeper sounds.
- Double and error flash.

1

To examine the double note:

Remove the last two notes fed into the tray with the flashing red LED (error tray) and separate the double.

2

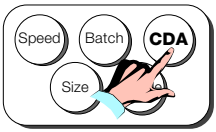
Place the separated doubles and all other notes from the error tray back onto the feed tray.

3

Press **START** to continue the count.

The number of notes from the error tray is subtracted from the count total and from the sub total.

counterfeit (cda®)



Counterfeit Detection Aid (CDA®) examines the magnetic properties of the ink used on each U.S. currency note as it feeds.

Notes: The CDA suspect may be a genuine note but damaged or otherwise unfit. For example, the note may be severely faded, torn, bleached, etc.

When operating with CDA, the machine defaults to high speed (1000npm). Do not reduce the speed. Also, be sure to use the note guides.

Press **CDA**. Mag is shown on the display.

single pocket

CDA suspect error notes are fed to the top tray and machine counting continues. The count total remains accurate. It is not cleared and does not include the error suspect.

1

To examine the CDA suspect, when the count is complete:

- Remove suspects from the top tray and examine them.

  Note: If you remove notes from the bottom tray first, the top tray red LED and mag flash on the display.
- Place them back in the feed tray to verify that they are true CDA errors.
- Press **START** to continue the count.

2

When this count is complete, all error notes in the top tray should be placed aside for further examination.

Remove counted notes from the bottom tray.

counterfeit (cda®)

dual pocket

When a CDA suspect is detected:

- Counting immediately stops.
- The LED of the tray containing the CDA suspect flashes yellow.
- The beeper sounds.
- CDA flashes on the display.

1

To examine the CDA suspect:

Remove the last two notes fed into the tray having the flashing yellow LED (error tray).

2

Examine the CDA suspect and:

If acceptable –
Return the two notes to the tray from which they were taken.

The count total remains accurate.

Press **START** to continue the count.

If not acceptable –
Place the CDA suspects aside for checking later, or place them back in the feed tray to verify they are true CDA errors.

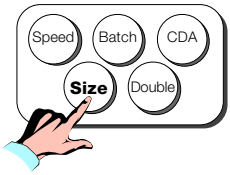
Empty the tray having the flashing yellow LED and place all notes into the feed tray.

Press **START** to recount the pack.

3

Remember, the count total is the sum of both the top and bottom trays. Therefore, when the error tray is emptied, the machine automatically subtracts the amount of notes in that tray from the count total when **START** is pressed to begin the recount.

size detection



Size detection (or length measurement) is used to count currencies of different overall sizes. Notes that are larger or smaller (in millimeters) than previously counted notes cause a size *suspect* error.

Other size suspects may also result from any of the following causes:

- a note of an incorrect denomination.
- a badly skewed note, fed on a severe slant.
- a note with a piece missing.
- a note with a badly damaged edge.

Press **SIZE**. Size and the number 0 or a previous setting are shown on the display.

Repeatedly press **SIZE** to select a millimeter setting for the type of notes being counted. Size settings range between 3mm and 8mm.

If size is not needed, cycle to setting **0**.

single pocket

Size suspect notes are fed to the top tray and machine counting continues without stopping. The count total is the sum of notes in the bottom tray only.

1

To examine the size suspect:

When the count is complete, remove the size suspects fed into the top tray and examine them.

Note: If you remove notes from the bottom tray first, the top tray red LED and size flash.

Unfold and place the size suspect back into the feed tray, or set the under or oversized note aside.

Press **START** to continue the count.

size detection

dual pocket

When a size suspect is detected:

- Counting immediately stops.
- The tray LED with the size suspect flashes yellow.
- The beeper sounds.
- Size flashes on the display.

1

To examine the size suspect:

Examine the last two notes fed into the tray having the flashing yellow LED and remove the suspect (the note that is either under or oversized).

2

Examine the size suspect and:

If acceptable –
Return the note to the tray from which it was taken (the one having the flashing yellow LED).

The count total remains accurate.

Press **START** to continue the count.

If not acceptable –
Place the suspect note aside.

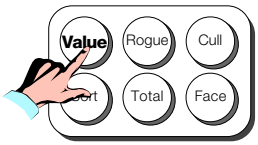
Empty the error tray having the flashing yellow LED and place all notes back into the feed tray.

Press **START** to recount the pack.

3

Remember, the count total is the sum of both the top and bottom trays. When the error tray is emptied, the machine subtracts the amount of notes in that tray from the count total when **START** is pressed to begin the recount.

value balancing



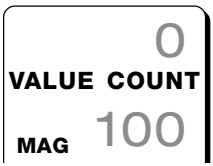
Note: Before selecting an operating mode, the count total on the display must be zero (**0**).

Value balancing is used when a dollar value is needed of a given pack of mixed currency.

All verified notes feed to the bottom tray and accumulate towards a value total ($000).

Error notes are fed to the top tray. These notes are not included in the total. The machine continues without stopping on an error.

1



Press the **VALUE** button.

Red and green LED's light to show that the bottom tray is for good notes (green) and the top tray for the off-sorted error notes (red).

Value and mag appear on the display.

> **Note:** Note guides must be used. See page 13.

2

Place notes on the feed tray.

Counting begins immediately with the verified denominations feeding to the bottom tray; no-reads* and error notes off-sorting to the top tray.

> *No-reads are notes that the counter cannot verify by denomination. No-reads are usually caused by excessive dirt, fading, washed-out or damaged notes, tears and folded corners.

The value total (large 6-digits) is a dollar ($000) amount of all notes in the bottom tray.

3

When the pack is finished, remove error notes from the top tray and examine them for doubles, CDA, size suspects, etc.

> **Note:** If you remove notes from the bottom tray first, the top tray yellow LED flashes and the beeper sounds. This is to remind you to remove and examine these notes. Also, the **START** button must be pressed to begin the next count.

value and rogue

value balancing...

Remove counted notes from the bottom tray.

4

The count total shows the dollar value ($000) of all notes in the bottom tray.

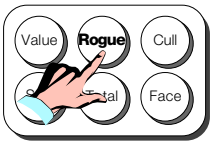
5

To see value totals by denomination:

Repeatedly press **VALUE** to cycle through each currency denomination. A value total for each denomination is shown. A piece count total appears after the last denomination is displayed.

A sub total is also shown and a grand total is available by pressing the **TOTAL** button.

rogue note



Rogue note is used when a dollar value is needed for a specific pack that is thought to contain only one currency denomination.

The first note through sets the denomination and those notes feed to the bottom tray. All other denominations are off-sorted to the top tray.

Other errors are also fed to the top tray and the count continues without stopping. Notes in the top tray are not included in the dollar value total.

1

Press **ROGUE**.

Yellow and green LED'S light to show that the top (yellow) and bottom (green) trays are used and ready to accept notes.

Rogue and mag are shown on the display.

Note: When in the rogue mode, the count, sub and grand totals are dollar ($000) values.

rogue note...

If batching is required, press **BATCH** and select a batch quantity. See steps 1 and 2 on page 18.

Note: Note guides must be used. See page 13.

2

Place notes on the feed tray.

Counting auto-starts with the first note through feeding to the bottom tray and setting the denomination to be processed. All other denominations and errors off-sort to the top tray.

3

When the pack is finished:

Remove notes from the top tray and examine them for improper denominations and errors, such as double, CDA or size suspects, etc.

Note: If you remove notes from the bottom tray first, the top tray yellow LED flashes and the beeper sounds. This is to remind you to remove and examine these notes. Also, the **START** button must then be pressed to begin the next count.

Place notes that may belong to the bottom tray back into the feed tray and run them again to verify true errors.

When this is complete, remove all notes from the top. Any remaining error notes must be placed aside to be checked.

4

Remove counted notes from the bottom tray.

The count total shows the value ($000) of all notes in the bottom tray.

cull

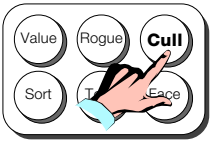
cull mode

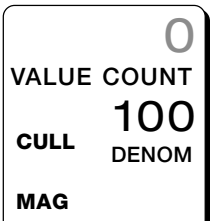
CULL is used when a dollar value is needed of a specific currency denomination that is part of a pack of mixed U.S. currency.

The selected denomination is fed to the bottom tray. All other denominations off-sort to the top tray.

Error notes, such as doubles, size or CDA suspects, are also fed to the top tray without stopping the count. Notes in the top tray are not included in the value total.

1





Press **CULL**.

Yellow (top tray) and green (bottom tray) LED's light.

Cull and 100 (for $100), or a previous setting, flash on the display. Value, mag and denom are also shown on the display.

2

Repeatedly press **CULL** and select the denomination to be culled from the pack. For example, select 100 for $100, 20 for $20, 1 for $1, etc.

The selected dollar value briefly flashes.

> **Note:** The count, sub and grand totals are dollar ($000) values, not piece counts, and are the sum of notes fed to the bottom tray only.

3

When batching, see steps 1 and 2 on page 18.

> **Note:** Note guides must be used. See page 13.

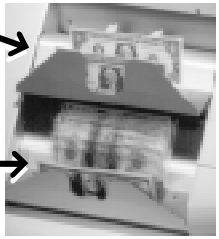
4

Place notes on the feed tray.

Counting begins with the selected denomination feeding to the bottom tray; all other denominations and errors off-sort to the top tray.

All other denominations (e.g., $1) and error notes off-sort to the top tray.

The selected denomination (e.g., $100) feeds to the bottom tray.



Cull mode stacker trays

cull mode...

5

When the pack is finished:

Remove notes from the top tray. Check them for improper denominations or other errors.

Place notes that may belong to the bottom tray back into the top tray and run them again to verify true errors.

Note: If you remove notes from the bottom tray first, the top tray yellow LED flashes and the beeper sounds. This is to remind you to remove and examine these notes. Also, the **START** button must then be pressed to begin the next count.

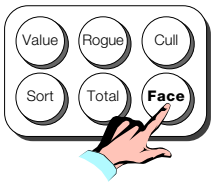
When this is complete, remove all notes from the top. Any remaining error notes must be placed aside to be checked.

6

Remove counted notes from the bottom tray.

The count total shows the value ($000) of all notes in the bottom tray.

facing notes



Note facing detects and separates U.S. currency that is not faced the same way.

The face up notes (portrait side up) are fed to the bottom tray, notes that are not portrait side up (green side up) off-sort to the top tray.

dual pocket

1

Dual pocket facing is operable in the value or piece count modes and is the default mode. The count total is the sum of notes in both the top and bottom trays.

face

facing notes...

dual pocket...

Select either value using the **VALUE** button or piece count using the **SORT 0** buttons.

Press **FACE**.

In piece count, face appears on the display; in value count, face and mag appear.

Two green LED's light to show that both trays are used for good notes.

> **Note:** The machine defaults to high speed (1000npm) and note guides must be used. See page 13.

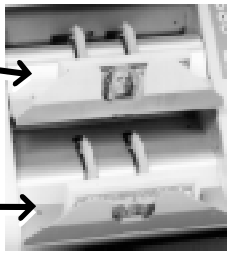
2

If you are in piece count and batching is needed, see steps 1 and 2 on page 18.

Batching is available in the piece count mode only and is the sum of both the top and bottom trays.

3

Portrait side down in this tray.



Portrait side up in this tray.

Note facing stacker trays

Place notes on the feed tray.

Counting begins with face up (portrait side up) notes feeding to the bottom tray, face down notes off-sorting to the top tray.

4

To recount or verify a pack, remove all notes from both trays and place them back into the feed tray, portrait side up.

5

When finished, remove counted notes from both trays and face them properly.

The count or value total is the sum of notes in both the top and bottom trays.

facing notes...

single pocket

Single pocket note facing is available in all modes except Sort 1, Sort 2 and Sort 7. Notes of the same denomination and facing position are fed to the bottom tray while all others are off-sorted.

The count total is the sum of notes in the bottom tray only.

1

Select an operating mode (example, cull, rogue, value, etc.), then press **FACE**.

Notes fed to the bottom tray or off-sorted to the top tray are chosen by the first note through (in the case of rogue) or by the selected denomination (in the case of cull).

2

Once the first note is identified its face position is recorded. All notes faced the same feed to the bottom. All others and, in the case of cull, those of a different denomination off-sort to the top tray.

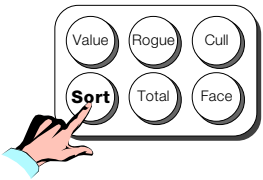
3

When the count stops, you must review notes in the top tray for those of the correct denomination but improperly faced. These must be placed back in the feed tray to be processed.

sort modes

The sort mode offers seven (7) features of operation.

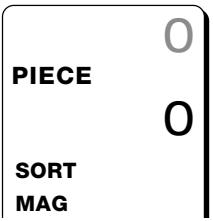
1



To enter a sort mode, press **SORT**. While sort flashes on the display, enter the number for your mode selection per the following list.

sort

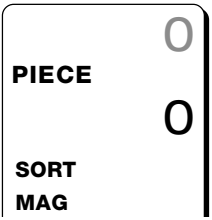
sort modes...



0 - Piece count mode
1 - New vs. old U.S. currency design, mixed denomination
2 - New vs. old U.S. currency design, by denomination
3 - Add note value (one note at a time)
5 - Subtract note value (one note at a time)
6 - Split bundle
7 - Sort head vs. feet, by denomination

Note: If sort stops flashing before you enter a number, you must press **SORT** again and enter the number before the flashing stops.

sort 0

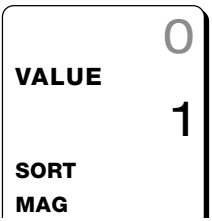


piece count

Sort 0 sets the counter in the piece count mode and piece is shown on the display.

See Basic operating functions, heading “count mode,” beginning on page 15.

sort 1



new vs. old

U.S. currency is sorted by design (new vs. old) and assumes the pack is mixed denominations.

The new design feeds to the top tray, the old design to the bottom tray.

1

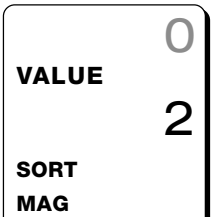
Press **SORT** and **1**. Sort and mag are shown on the display and two green LED's light to show that both trays are used and are ready to accept notes.

sort modes...

sort 1...

The value count is the sum ($000) of both trays.

sort 2



new vs. old

Sort 2 also sorts U.S. currency by design but assumes the pack contains only one U.S. denomination.

1

Press **SORT** and **2**. Sort, value and mag are shown on the display.

Red and green LED's light to show that the bottom tray is for the chosen denomination (green LED) and the top tray for the off-sorted notes (red LED).

2

The first note through sets the design and denomination that feeds to the bottom tray.

The top tray (red LED) accepts the other currency design, error notes and notes that are a different denomination.

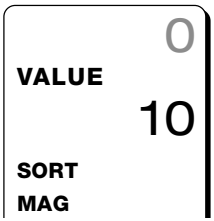
3

The value count is the sum of bottom tray only.

sort

sort modes...

sort 3



add a note

Sort 3 adds one note at a time to the existing value count of a specific denomination.

This mode is used with all other modes except piece count, where dollar values are not considered.

After pressing **SORT 3**, value and the number 10 (for $10 denomination) are shown on the display.

1

Press number **9** to cycle up from $10 and stop at the denomination to be added (20, 50 or 100)...

or

...press **3** to cycle down from $10 and stop at the denomination to be added (5, 2 or 1).

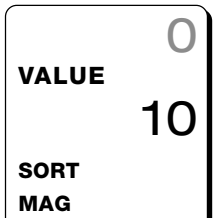
2

Press **STOP** to add one note of this denomination to the value count.

3

Repeat preceding steps 1 and 2 for each note that must be added. Two (2) beeps sound when the entry is accepted.

sort 5



subtract a note

Sort 5 subtracts one note at a time from the existing value count.

This mode is used with all other modes except piece count, where dollar values are not considered.

sort modes...

sort 5...

After pressing **SORT 5**, value and 10 (for $10 denomination) are shown on the display.

1

Press number **9** to cycle up from $10 and stop at the denomination to be subtracted (20, 50 or 100)...

or

...press **3** to cycle down from $10 and stop at the denomination to be subtracted (5, 2 or 1).

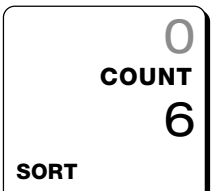
2

Press **STOP** to subtract one note of this denomination from the value count.

3

Repeat preceding steps 1 and 2 for each note that must be subtracted. Two (2) beeps sound when the entry is accepted.

sort 6



split bundle

Use split bundle when the bundle of notes being valued is mixed but presorted; that is, $1 first, followed by $5, $10, $20, and so on.

To use split bundle sort, you must be in the value mode.

1

Press **VALUE**, then press **SORT** and **6**. Count flashes on the display.

> **Note:** Batching and note facing are available in this mode by pressing the appropriate keys.

The bottom pocket accepts the selected notes; the top pocket is for off-sorts.

sort

sort modes...

sort 6...

2

Place the bundle on the input tray. The first note through sets the criteria for sorting/facing.

The counter stops on a change in denomination.

3

Remove the off-sorted notes from the top tray.

Examine them and remove notes of the same denomination, if facing is used. Place these notes back in the input tray to be processed and added to the count.

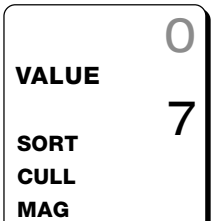
4

When this feed is complete, remove all notes from the bottom tray and place them in the teller bin.

5

Place the bundle back in the input tray to process the next denomination.

sort 7



head vs. feet

Sort 7 sorts U.S. currency according to the direction of the portrait (feet first or head first) and assumes the pack contains only one U.S. denomination.

1

Press **SORT** and **7**. Sort, cull and mag are shown on the display.

Two green LED's light to show that both trays are used and are ready to accept notes.

sort modes

sort 7...

2

The first note through sets the denomination for the pack.

Notes feeding feet first are directed to the bottom tray. The top tray accepts notes fed head first.

The value count is the sum of both trays.

3

Notes that are of a different denomination feed to a tray according to their head first-feet first direction.

The count immediately stops and the appropriate LED flashes red to indicate the error tray. The beeper sounds and denom is shown on the display.

4

Remove all notes from the error tray and examine the last two notes fed for improper denominations or errors. The value of these notes is subtracted from the sub total and not included in the value count shown.

rs232

RS232 communications interfacing automatically transmits count totals, and if desired, operational control of the counter to your host computer system. See “Programming” to verify system compatibility.

Also, refer to your host computer system documentation for further information on the capabilities of the host system.

cleaning

Warning

Before cleaning, set the counter AC power switch OFF (O) and disconnect the power cord from the machine. To prevent electric shock, do not remove the machine side covers as there are no user-serviceable parts underneath. Refer all servicing to an authorized service technician.

Replacements of Professional Cleaner and foam-tipped cleaning swabs may be purchased from your local sales or service office.

Also, read and adhere to the warning notices printed on the label of the professional cleaner.

Caution

Do not splash professional cleaner onto the rollers or bearings. Excess fluid dripping inside these components can be costly. It can dissolve grease in the bearings, causing premature wear.

how often

For optimum machine performance, cleaning must be performed once a week under normal usage, more frequently under heavy usage. Rotate each part by hand to clean the entire surface. Cleaning is best accomplished using:

- Dry foam-tipped cleaning swab - for sensor lenses and magnetic pickup heads.
- A lint-free, nonabrasive cloth moistened with the approved professional cleaner or dampened with water.
- Small, soft brush.
- Vacuum, similar to those used for cleaning PC computers, including a nozzle and crevice tool.

cleaning the outside

Sample: Cleaning the feed input tray sensor

Switch the counter AC power switch to OFF (O) and unplug power cord from the machine.

Brush and vacuum accumulated dust from the feed input and the upper and lower stacker output trays.

Use the dry, foam-tipped cleaning swab to clean each sensor lens at these locations.

Do not moisten this swab; best results are achieved when it is dry.

lcd display

Switch the counter AC power switch to OFF (O) and unplug power cord from the machine.

Caution

Never allow cleaning fluid or liquid to drip or run down the face of the display and find its way inside where it could short electronic circuitry. Never use an abrasive or chemical type cleaner which will scratch or chemically attack the plastic lens of the display or the machine side covers.

Use only a slightly water-dampened, lint-free, nonabrasive cloth to clean the display panel. Clean by applying only light pressure; never press hard.

cleaning the inside

1

Opening the back cover

Switch the counter AC power switch to OFF (O) and unplug power cord from the machine.

Open the back door by sliding the spring latch downward to release it. Open the door downwards as shown.

cleaning the inside...

2 back of machine

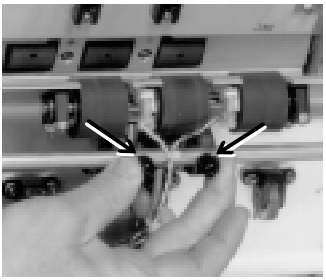
Warning

On CDA machines the back door includes electrical parts. Be extremely careful not to damage the interconnecting wire cables or short out the electronics.

The back door is hinged to the chassis. Do not apply excessive downward force as damage to the hinge may result.

Special machine options require electronics installed to the door and include wire cables between the cover and the chassis.

3



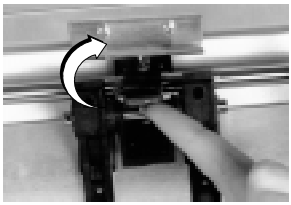
Releasing the movable drive plate

Release the movable drive plate by pressing both pin fasteners in towards each other as shown. The drive plate is free to rotate up and down.

Brush and vacuum accumulated dust from the exposed areas being careful not to damage electrical wiring.

See page 41 for specific cleaning.

4



Releasing the stripper assembly

Release and raise the red-tipped retaining spring clip as shown.

The stripper assembly is free to move up or down.

See page 41 and clean the stripper pads and feed wheels.

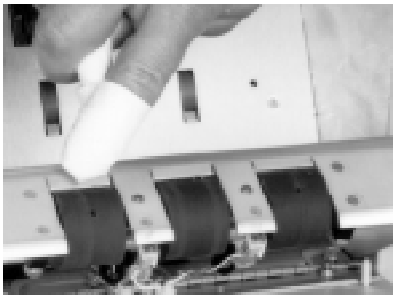
5

When finished, raise the stripper assembly and fasten the red-tipped retaining clip.

Close the movable drive plate making sure it is latched firmly in place. Both pins must snap into the side plate.

Text continued on page 42.

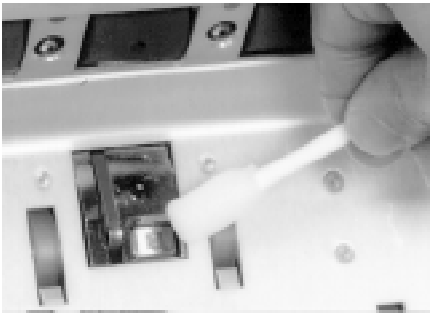
cleaning the inside...



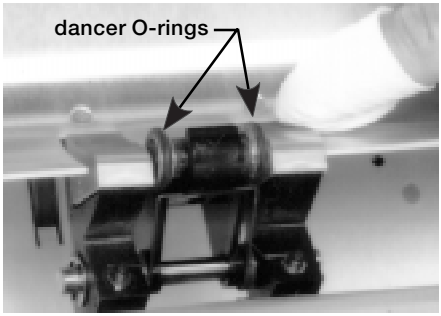
Acceleration rollers (quantity 6) - Wipe surface using a cloth moistened with the approved professional cleaner.

Pinch rollers (quantity 5) - Brush paper dust from areas around the rollers and wipe each using a cloth moistened with the approved professional cleaner.

Paper path tension springs (quantity 2) - Brush paper dust from areas around and under spring.



Magnetic pickup head (quantity 2) - Wipe surface using dry foam-tipped swab, also wipe tension spring. The second head is on the movable plate.



Stripper pads (quantity 2) - Wipe both pads using a cloth moistened with the approved professional cleaner. Also clean the dancer O-rings (2).

Feed wheels (quantity 2) - Brush each wheel using a side-to-side motion to remove paper dust from the grooves. Vacuum area when finished.

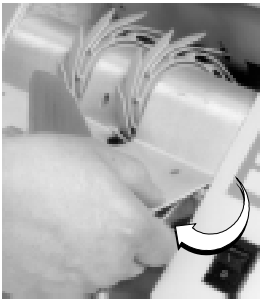
cleaning

cleaning the inside...

6

Close the door making sure that the cable wiring between back door electronics and the machine chassis is not pinched when the door is closed and locked.

1 front of machine



Releasing the top stacker tray cartridge

Release the upper stacker tray cartridge by pressing the release tabs upwards on both sides of the unit as shown.

The cartridge lowers slightly.

Slide the cartridge out as far as it will go to expose the internal feed path, rollers and belts.

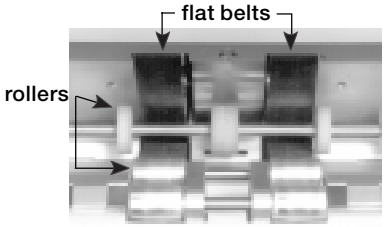
2

Auto start/stop sensor lenses (quantity 2) - Wipe surface using dry foam-tipped swab. The other lens is located on the plate directly above the lens shown when the cartridge is returned to its original position. Also see next page for additional cleaning.

Brush and vacuum paper dust from the auto start/stop sensors and stacker wheel fingers.

cleaning the inside...

3



Rollers and belts - Wipe both belts and each roller using a cloth moistened with the professional cleaner.

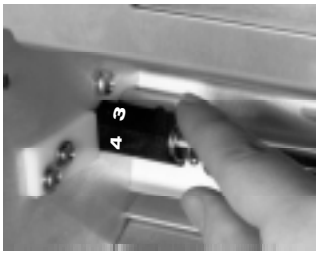
Clean paper dust from exposed rollers.

When finished, slide the cartridge back into place and lift the front upwards until the latches on both sides snap into place. Make sure the cartridge is firmly latched.

setting the strippers

The stripper pads may require adjustment if frequent errors develop (such as jams, doubles, chain notes, miscounting, etc.), or to accommodate the thickness of various type notes.

1



Stripper pad adjustment

Open the back cover and unclip and lower the stripper assembly.

Four (4) stripper positions are imprinted on the hex adjustment nut.

Slide the hex nut towards the center of the unit to release it from behind the stop block. Turn the hex rod until the preferred number setting (1, 2, 3 or 4) is face up.

Notes: Setting **3** is suggested for counting U.S. currency.

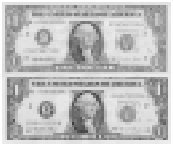
Frequent double stops or extra notes feeding through suggest a lower number setting to apply extra stripping force (example, setting **2**).

Slow feeding or frequent jams at the stripper pads suggests a higher number setting for less stripping force (example, setting **4**).

2

Release the hex nut allowing spring force to slide it behind the stop block. Raise and secure the stripper assembly and close the back cover.

chain and half note



Chain notes: - two or more notes fed close together or slightly overlapped

Half note – folded in the direction of feed or torn in half

Half note – folded left-to-right or torn in half

The chain note feature examines notes that are fed too close to each other or slightly overlapped.

The half note feature examines notes that are folded or torn the short way (left-to-right) or the long way (top-to-bottom in the direction of feed).

single pocket mode

Chain and half note errors are fed to the top tray. Machine counting continues without stopping.

The count total does not include the error notes in the top tray.

1

To remove the chain or half note:

When the count is complete, remove the top two error notes in the top tray.

2

Separate the chain notes, unfold the half notes and place them back into the feed tray. Torn notes are set aside.

3

Place all other errors in the feed tray and press **START** to continue the count.

Notes:
If you remove notes from the bottom tray first, the top tray red or yellow LED and message error flash. This is to remind you that those notes also belong to the pack and the pack must be recounted.

If size or doubles detection is used, size and double may also appear.

4

When the count is complete, remove all notes from the bottom tray.

chain and half note

dual pocket mode

When a chain or half note is detected:

- Machine counting immediately stops.
- The red or yellow LED of the tray with the error note flashes.
- The beeper sounds.
- Error flashes on the display.

To examine the chain or half note:

Remove the top two notes fed into the tray having the flashing red or yellow LED (error tray).

1

Separate the chain notes, unfold the half notes and place them back into the feed tray. Torn notes should be set aside.

2

Place all other errors in the feed tray and press **START** to continue the count.

The number of notes removed from the error tray is subtracted from the count total and from the sub total.

note consideration

Most notes normally in use can be accurately counted. But note quality has an important effect on correct operation. The following conditions can cause problems, such as reduced machine speed, jams, frequent no-reads, doubles, chain or skewed note errors.

- Very wrinkled notes

  Smooth out wrinkles and feed the curled edges last.
- Badly torn or ragged notes
  Feed these notes in small quantities.
- Notes containing paper clips or staples

  Do not feed notes containing paper clips or staples. These will damage the machine. Remove these objects before counting.
- Unbroken “brick” currency

  Bend or flex unbroken (brick) currency or perforated notes to allow air between each note. Form the stack so the bottom note is leading (meaning it is the closest note to the feed input slot).
- Notes of ink blotter texture

  Operation will be slow. In some cases, this kind of document may cause excessive wear on the rollers.
- Block-perforated notes

  These tend to lock together and cause undercounting. In most instances, flexing the pack breaks the perf-lock and allows acceptable operation.
- The 2800VB series currency counters are not intended to feed stapled notes; certain plastic or plastic-coated notes; notes outside the specified thickness or size range; oily, greasy or sticky notes and cellophane or highly transparent notes; etc.

clearing jams

Feed jams may be caused by:

- Extremely poor quality notes.
- Badly wrinkled, torn or folded leading edges.
- Throwing notes onto the feed input tray.

Before clearing any jam:

Switch the counter AC power switch to OFF (O) and unplug the power cord from the machine.

feed input area

Feed jams at the strippers in the feed input tray area are cleared by trying to pull the notes free.

You may also open the back cover door and lower the stripper support to gain access to any jammed notes.

1

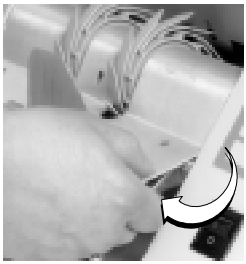
Raise and secure the stripper support, close the back cover door, connect AC power cord and set power switch to on (I).

2

Press **START** to clear any documents that may be hidden within the feed path.

top tray cartridge

1



Releasing the top tray cartridge

Suspected jams behind the top tray cartridge are cleared as follows:

Switch the counter AC power switch to OFF (O) and unplug the power cord from the machine.

Release the top tray cartridge by pressing the release tabs upwards on both sides of the unit as shown. The cartridge lowers slightly.

clearing jams

top tray cartridge...

2

Slide the cartridge out as far as it will go to expose the internal feed path, rollers and belts.

Reach in and remove the jammed notes.

Slide the cartridge back into place and lift the front upwards until the latch on each side snaps into place. Make sure the cartridge is firmly latched.

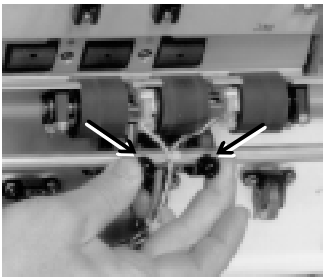
3

Connect the AC power cord and set the power switch to on (I).

Press **START** to clear any notes that may be hidden within the feed path.

behind the drive plate

1



Releasing the movable drive plate

Suspected jams behind the movable plate area are cleared as follows:

Switch the counter AC power switch to OFF (O) and unplug the power cord from the machine.

Open the back door, release the drive plate by pressing both pins towards each other, then rotate the plate downward.

Remove the jammed notes.

2

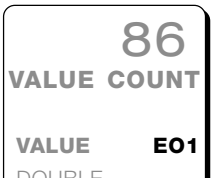
Close the drive plate making sure it is firmly latched in place, then close the back cover door.

3

Connect the AC power cord and set the power switch to on (I).

Press **START** to clear any notes that may be hidden within the feed path.

messages



Heading “display messages” (beginning on the next page) lists special operating messages, their causes and the corrective action.

In the dual pocket mode, it is possible to experience an error in both trays at the same time. In which case, both LED's light yellow and/or red.

beeper tone

The beeper sounds when:

- A double note is detected.
- Jammed notes occurred.
- A feed error such as a chain or half note is encountered (see page 44).
- A task has been completed.
- An incorrect button is pressed during an operating sequence. For example, pressing any button other than **START** after the **STOP** button is pressed.

display messages

message	cause	action
MAG	A counterfeit suspect has been identified. The suspect may be genuine but otherwise damaged – badly torn, bleached, etc.	Remove last two notes fed into the error tray and locate the CDA suspect. **Note:** The error tray flashes either red (for single pocket) or yellow (for dual pocket). See: "Basic operating functions, Counterfeit cda," on page 21, for the operating sequence.
DOUBLE	Two or more notes stick together and feed as one; a single note is folded almost in half.	Remove last two notes fed into the error tray to locate the double notes. **Note:** The error tray flashes a red LED. See: "Basic operating functions, Doubles detection," on page 20, for the operating sequence.
SIZE	An under or oversized note is fed. A skewed note or one with a piece missing can trigger a size error even though it is the correct size.	Remove last two notes fed into the error tray and locate the size suspect. **Note:** The error tray flashes either a red (single pocket) or yellow (dual pocket) LED. See: "Basic operating functions, Size detection," on page 23, for the operating sequence.
ERROR	Feeding error occurred (jam, extra notes in batch, chain note, half note, etc.). See page 44 for an illustration of chain notes, and both types of half notes.	**Feed Errors -** Remove last two notes fed into the error tray to locate the error note. **Note:** The error tray flashes a red LED. Press **START** to feed any notes remaining in the feed path. Combine all notes from the error tray with those in the feed tray. **Remember:** In the dual pocket mode, the count total is the sum of both trays. When the error tray is emptied, the machine automatically subtracts the amount of notes in this tray from the count total when **START** is pressed to begin the next count. Press **START** to recount the pack.

display messages

message	cause	action
ERROR - continued	Feeding error occurred (jam, extra notes in batch, chain note, half note, etc.).	**For Jams -** Empty both trays, press **START** a few times to loosen the jam, or press **STOP** and pull jammed notes from the feed tray. If necessary, open back cover, lower the strippers and remove jammed notes. See: "Clearing jams," on page 47. Repeat steps in preceding section: "Feed errors."
	Excess dirt buildup.	See: "Cleaning," beginning on page 38.
	Stripper not set for the type of notes being counted.	Adjust the stripper pads. See: "Setting strippers" on page 43.
	Stripper guide plate not secured.	Lock the stripper support.
E01	**Count sensor is blocked too long.** A note may be jammed in the feed path blocking a count sensor.	Press **STOP**. Remove notes from feed tray. Pull jammed notes from the feed rollers (usually caused by gulping). If necessary, open the back cover, lower the strippers and remove the notes. Close machine and remove all notes from both trays and combine them with those removed from the feed tray. Press **START** to feed any notes remaining in the feed path. Place all notes in the feed tray and press **START** to recount the pack.
E02	**Motor overload.** Counting notes for long periods of time that are outside the specified size range. Excessive stripper pressure or a mechanical failure may also cause this message.	When the beep sounds and E02 appears, allow the machine to remain idle for a few minutes. Check dimensions of the notes being counted to make sure they are within the specified range. Check stripper pad adjustment. Adjust the strippers as needed.

display messages

message	cause	action
E03	**Sensor blocked at start.** At auto-start or when **START** is pressed code E03 flashes to indicate a note is in the feed path (possibly jammed).	The unit attempts to clear the jammed note(s) by running at slow speed for a period of time. If the note clears, normal operation is returned. If it did not, the unit stops and E03 is shown again. **Clear the jam as follows:** Open the back door. Lower the drive plate and the stripper support and remove any jammed notes in the feed path. Repeat action of code E01 on the preceding page.
E04	**Sensor blocked at stop.** At the end of a count, code E04 alerts the operator that a note has remained in the feed path (possibly jammed).	Press **START**. The unit attempts to clear the jammed note(s) by running at slow speed for a period of time. If the note clears, normal operation is returned. If it did not, the unit stops and E04 is shown again. Repeat action of code E03 above.

The following E-codes, E05 through E15, indicate that a note is not at the right place at the right time.

E05	**Runout too long**	E05 and E06 indicates a possible hardware problem; such as, slippage, brake or motor problem, worn belt, etc. Contact your authorized service office. E07, E08 and E09 occur at the gate area. Jams are cleared by sliding the top tray cartridge out and/or opening the drive plate. See: "Clearing jams," beginning on page 47. E10, E11 and E12 occur in the bottom tray. Jams are cleared by reaching in and pulling notes from the tray sensor area. E13, E14 and E15 occur in the top tray. Jams are cleared by reaching in and pulling notes from the tray sensor area. For these codes, both trays must be emptied and **START** must be pressed to begin the count. The error code clears and the count starts if there are no notes jammed in the feed path.
E06	**Coast too long**	
E07	**Gate unexpected lead**	
E08	**Gate late lead**	
E09	**Gate late trail**	
E10	**Exit-1 Unexpected lead**	
E11	**Exit-1 Late lead**	
E12	**Exit-1 Late trail**	
E13	**Exit-2 Unexpected lead**	
E14	**Exit-2 Late lead**	
E15	**Exit-2 Late trail**	

display messages

message	cause	action
		However, if a note is in the path, the unit attempts to clear the note by running at “slow” speed for a period of time. If the note clears, normal operation is returned. If it did not, the unit stops and E03 is shown to indicate a jam. **To clear a unit:** Access the area where the jam is located as indicated by the initial E-code. Physically remove any jammed notes within the feed path. Close machine and remove all notes from both trays and combine them with those removed from the feed tray. Press **START** to feed any notes remaining in the feed path. Place all notes in the feed tray and press **START** to recount the pack.
No Reads	The unit cannot verify the characteristics of the note, usually caused by leading edge tears or large folds, missing corners, or severe fading.	Remove last two notes fed to the error tray and examine them. If the note seems correct, place them back in the feed tray to be processed again or place them aside for additional examination.

fuse

replacing the fuse

Warning

If the fuse burns out frequently, do not continue to use the counter. Contact your local authorized service office.

Switch the counter AC power switch to OFF (O) and unplug the power cord from the machine.

The fuse is located on the machine back plate, at the lower left-hand side as viewed from the back.

1

Replacing the fuse

Using a medium sized screwdriver, insert it into the slot in the fuse cap and turn counterclockwise about 1/4 turn.

Spring force pops the fuse cap free.

Remove the fuse cap from the holder to expose the fuse.

2

Replace the fuse with the exact size and amperage as the old fuse:

- 3.2A, 250V, slow-blow type for 100/115 VAC
- 1.6A, 250V, slow-blow type for 230 VAC

Never increase fuse amperage or size.

3

Place the new fuse in the cap. Insert the cap into the fuse holder.

Using the screwdriver, gently press inward and turn clockwise about 1/4 turn to lock the cap in place.

index

index