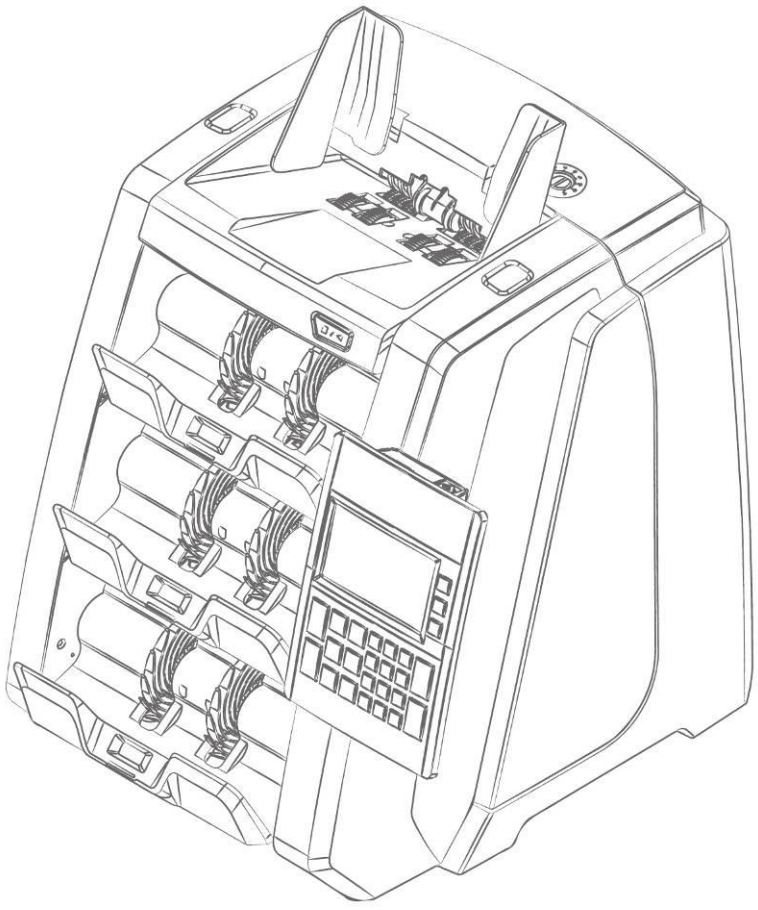
mechatronics automation
鴻發國際科技股份有限公司

NC-8500

Three-Pocket Fitness Sorter

2 Stackers with a Full Reject Pocket

Operation Manual V. 1.0



- Currency Discriminating
- Denomination Sorting
- Facing and Orientation
- Fitness (ATM / FED) Sorting
- Barcode Ticket Decoding
- Optional Serial No scanning

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Chapter 1. Introduction

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Changes or modifications of this product not expressly approved by manufacturer could void manufacturer's warranty and the user’s authority to operate the equipment.

Abbreviations and Acronyms Used

USB	Universal Serial Bus
IR	Infrared
MG	Magnetic
MB	Megabyte
PMI	Personal Machine Interface (Control Unit w/panel)
PC	Personal Computer
LCD	Liquid Crystal Display
SD	Secure Digital

Important Notes and Safety Instructions

Electrical Safety!

To avoid the risk of electrical shock, fire, or damage to NC-8500 Fitness Sorter:

① Do not remove the side covers, rear or bottom cover in any situation.
② Do not disassemble NC-8500 by yourself or by anyone unauthorized by" **Masterwork Automodules** ".
③ Do not use damaged or worn power cord or plugs. Always use the power cord supplied inside the original packaging carton and connect to a properly grounded power outlet or to a power strip with surge protector. The power source for NC-8500 is AC 90V~240V, 60 Hz.
④ Keep metal objects, such as paper clips, away from the hopper and stacker. If a foreign object does fall into the NC-8500 device, turn off the power and unplug NC-8500 device immediately. Contact your NC-8500 service provider for assistance.
⑤ Keep liquids away from NC-8500. Do not operate NC-8500 if it is wet. Also, do not touch the device if you are wet. If a spill occurs, turn off the power and unplug NC-8500 immediately. Contact one of our authorized service providers for help.

WARNING

Warning!

NC-8500 may start operating accidentally in certain circumstances as described below. Therefore, it is important to always follow the precautions listed below:

① Do not wear loose clothing or jewelry while operating NC-8500.
② Make sure that your hair does not touch or enter into the device while it is in operation.
③ Do not touch banknotes that have been delivered into the stacker while the motor is still running. Wait until the indicator on the stacker lights up before removing banknotes from a stacker.
④ Turn off the power before performing any maintenance or error corrections that require you to put your hands into the device.
⑤ Keep NC-8500 away from magnets, activated cellular phones, electrical appliances, or speakers within 13 cm / 5 inch.

This device complies with part 15 of the FCC rules. Operation is subject to the following conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Chapter 2. Overview of NC-8500

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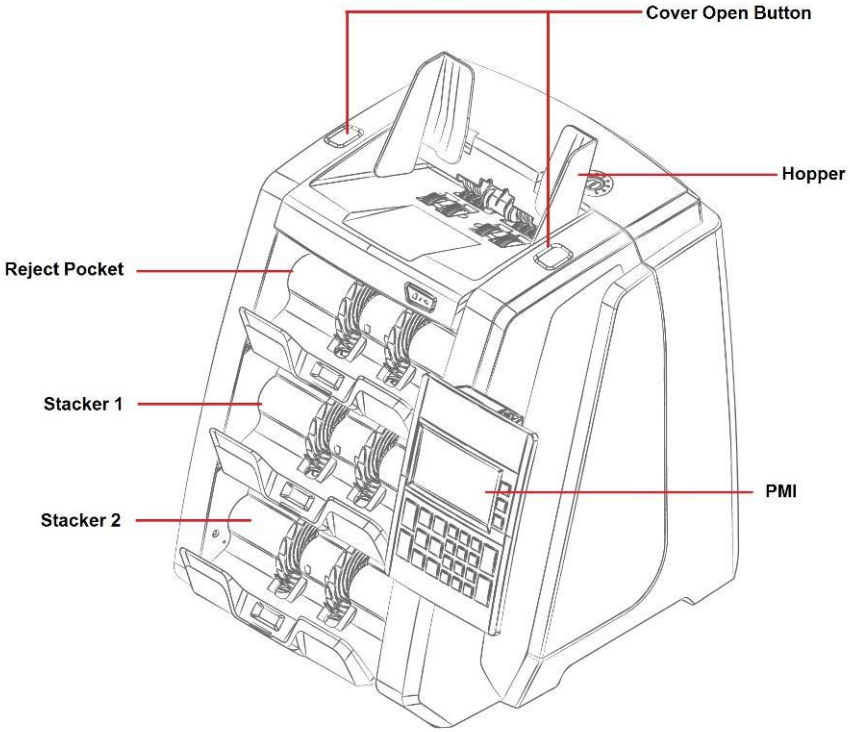
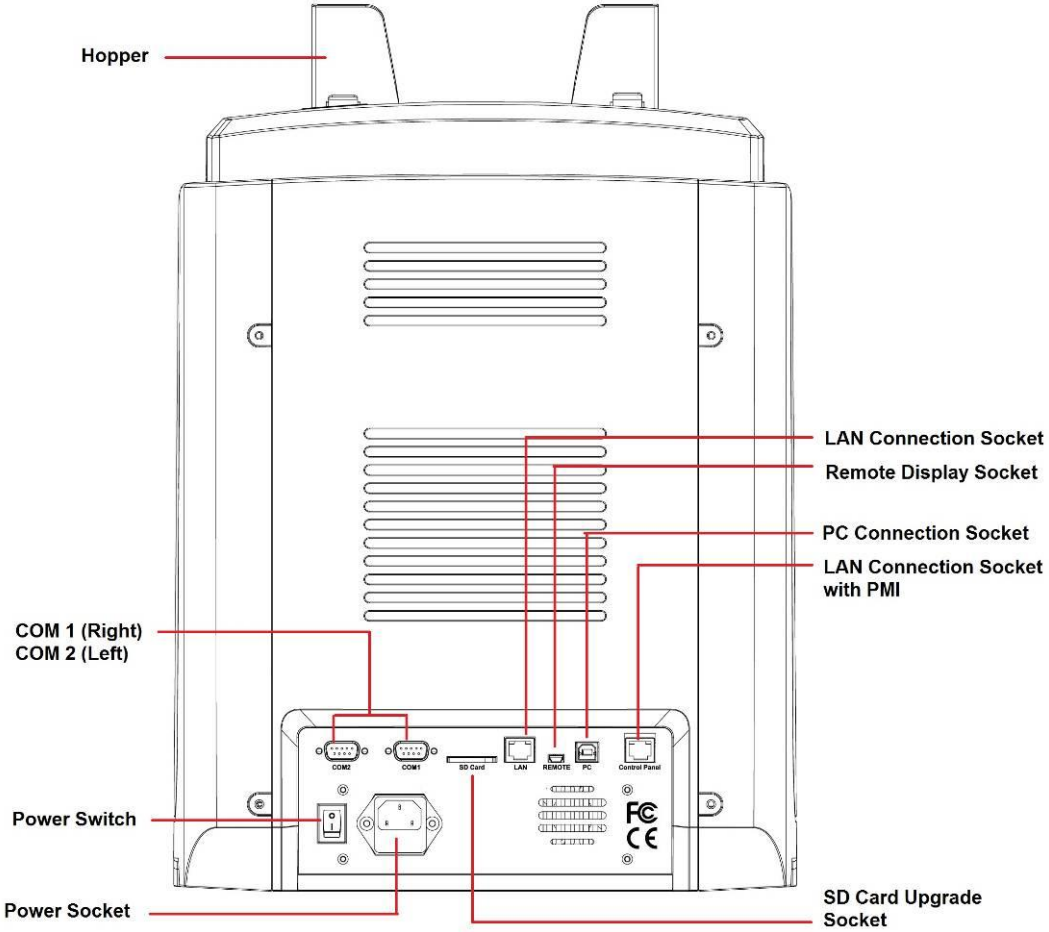
NC-8500 at a Glance

Front View:

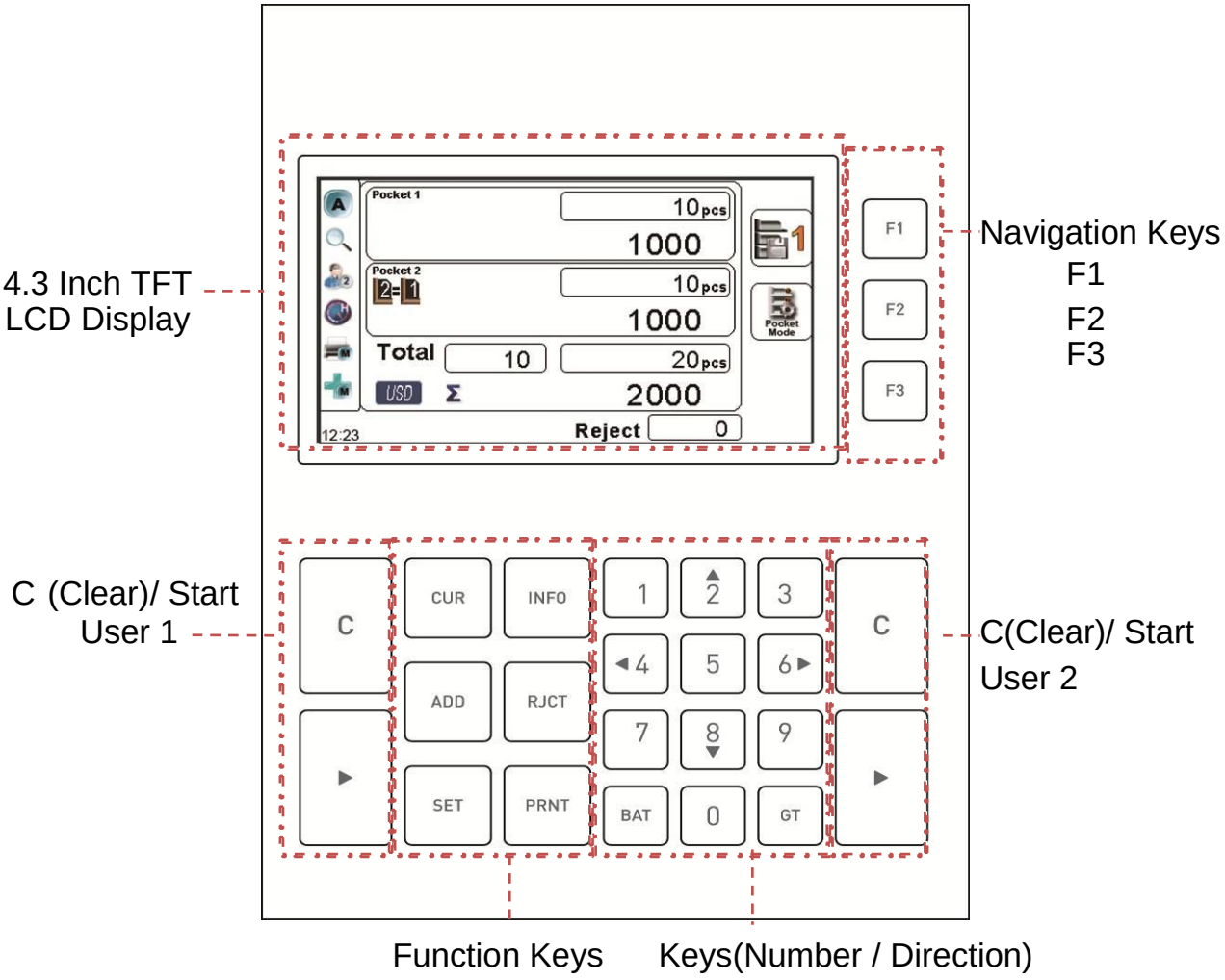


Rear View:

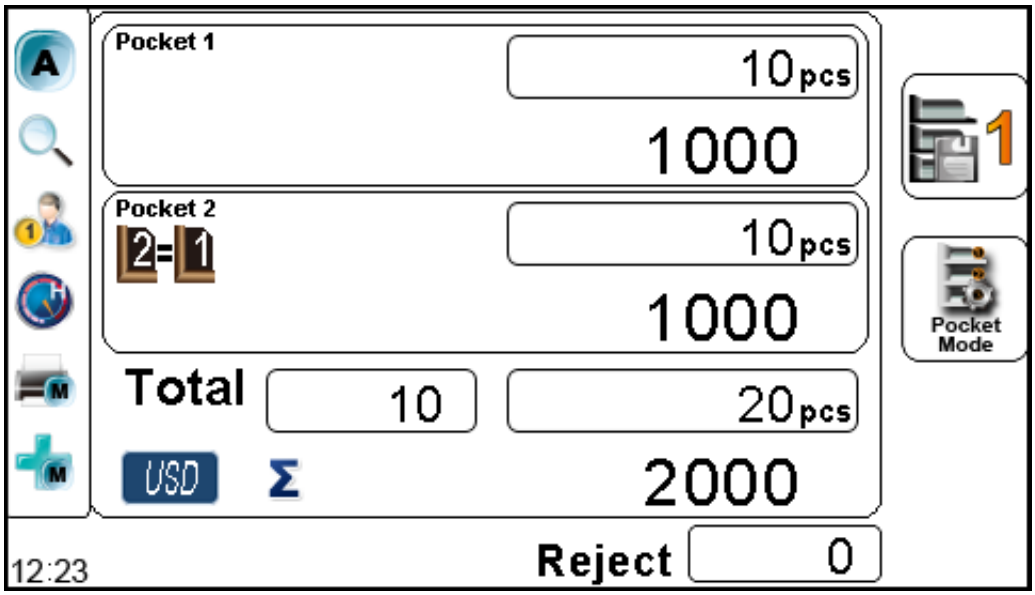


Overview of NC-8500

Overview of User's Control Panel (PMI)



Overview of LCD Display Screen



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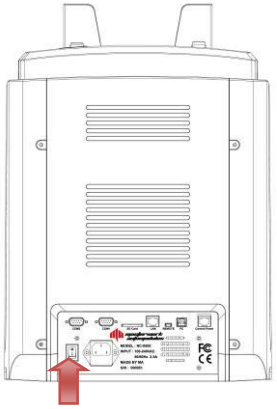
Power On / Off



How to Power on NC-8500:

❶ Plug one end of the power cord into the A/C Power socket of the rear side of the device and the other end into a standard AC power wall outlet (properly grounded) or to a power strip.

❷ Press the Power Switch button located at the rear-left side of the device.

❸ After initializing, NC-8500 will enter into main display.

How to Power off NC-8500:

❶ Confirm that all the counting results are saved prior to powering off the device

❷ Press the power switch button to turn it off.

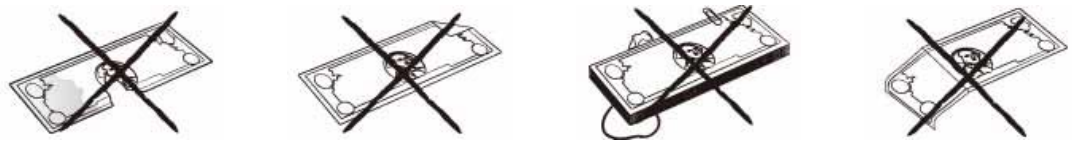
How to Handle and Place Banknotes in NC-8500

To count banknotes smoothly with jamming or errors, please follow the below guidelines:

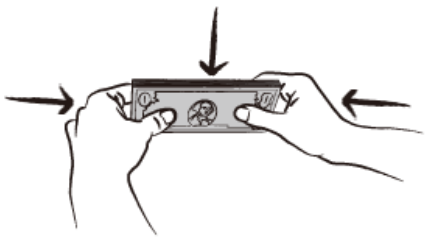
❶ Avoid counting wet, excessively dirty or spoiled banknotes.

❷ Check foreign matters mixed with the banknotes, i.e.: paper chips, rubber bands, clips, dust, etc. which will jam the bill path or even damage the sensors.

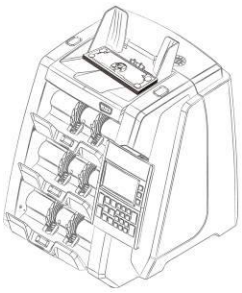
❸ Remove folds or curls from the banknotes before placing them in the hopper.

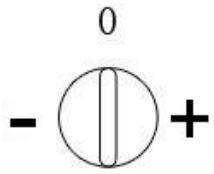


❹ Align all the corners and edges of the banknotes as unevenness could cause errors.



❺ Place the banknotes in the center of hopper and adjust the hopper guides if necessary. Thickness knob (Note Gate) adjusted to "0" position for circulated banknotes, however, adjust slightly towards (-) for brand new banknotes or adjust slightly towards (+) for worn out banknotes.



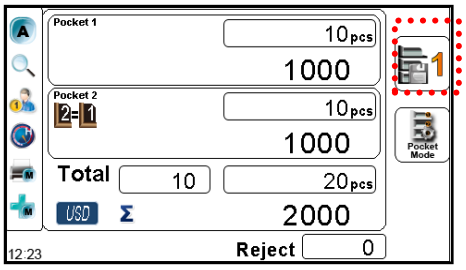


Thickness Knob

Various Counting Modes and settings

NC-8500 provides various counting and sorting functions, including counting mixture of denominations, denomination sorting, facing and orientation, Issue, Fitness Sorting, Casino Barcode Ticket reading (TITO; optional), and banknote Serial Number Scanning (optional).

❹ Definition of Various Counting Modes and factory Default



NC-8500 is equipped with various counting and sorting modes respective to each of the stacker pockets and reject pocket and set by factory (default), which can be changed by pressing ⇨ **[F1]** key icon on the control panel. Default counting modes in respect to each pocket settings are set according to the sequences illustrated below. These counting modes settings, further can be customized by our authorized service professionals or trained users according to each of their customers' preferences.

⇨ **MIX**, ⇨ **SORT,** ⇨ **FACE**, ⇨ **ORIENT**, ⇨**TITO**

⇨ **MIX**

Mixture Denomination

- Counting and denominating of mixture denomination of banknotes for individual and total valuation. If a banknote fails to denominate or determine to be a possible counterfeit / suspect (if CF mode is ON), the banknote then delivers to Reject pocket along with any damage or severely worn out bills. All counted bills will deliver to Stacker 1 and overflow to Second Stacker 2 when Stacker 1 is full of capacity (200).

⇨ **SORT**

Denomination Sort

- Process mixture of banknotes with the denomination of the first detected geniune banknote as the standard for Stacker 1 and delivers banknotes with second detected genuine banknote to Stacker 2 and delivers other denominations and suspicious banknotes to the Reject pocket. This mode can also be set by our service professional to separate a Single denomination of banknotes by it's Face-up and Face-down deliver into 2 Stackers from mixture of banknotes.

⇨ **FACE**

Face Sorting Mode (F)

- Face mode is used for Single denomination banknotes to be sorted by Face-up and Face-down and such, all banknotes with Face-up delivers to Stacker 1 and banknotes with Face-down delivers to Stacker 2. All other denomination of banknotes if mixtured within the Single Denomination, they will be deliver to Reject Pocket along with any suspect or damage banknotes.

Orientation Sorting Mode (O)

⇨**ORIENT**

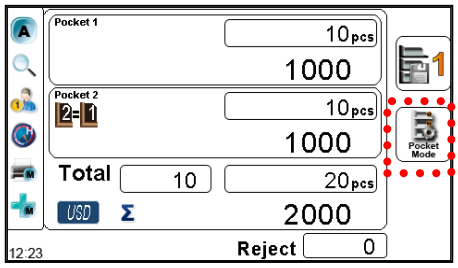
- Orientation mode is used for separating two direction of Single denomination banknotes that are already Faced-up into two separate Stacker Pocket. As such, one direction of Face-up banknotes will deliver to Stacker 1 and other direction of Face-up banknotes with deliver to Stacker 2. All other denomination of banknotes if mixtured within the Single Denomination, they will be deliver to Reject Pocket along with any suspect or unrecognized or damage banknotes.

Ticket Processing mode (TITO)

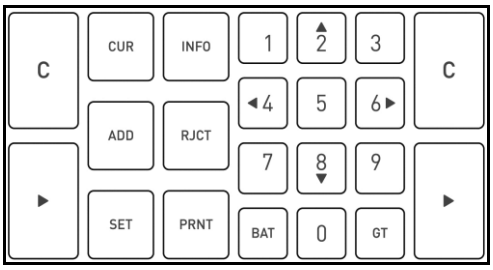
⇨**TITO**

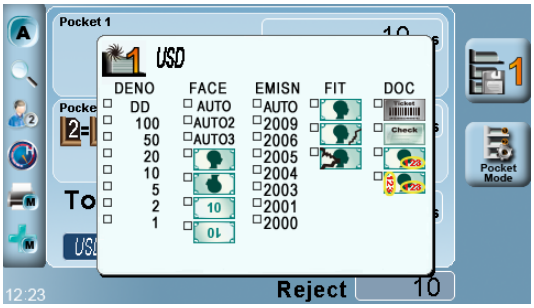
- Under Ticket Decoding mode (TITO), NC-8500 counts both banknotes and Casino Tickets with barcode feature and separates them into Stacker 1 and Stacker 2 pocket. NC-8500 reads bar code printed casino tickets, decodes them and sends decoding data to a printer (factory configured) or to certain PC application software if interfaced. PC software must be developed and interfaced with NC-8500 by customers or software integrators at their own risk and expenses. Masterwork Automodules bears no responsibilities for any aspect of third party software to this connectivity.

❹ User's Counting and Pocket Mode Settings:



Authorized service professional and trained users are able to change factory's default Counting Modes setting by entering into [Pocket Mode] **[Pocket mode]. Press [F2] key to enter into** [Pocket Mode] **[Pocket mode].** Once you are at [Pocket Mode] [Pocket Mode], follow the below keys on the control panel and steps to browse different menu settings, move from each column and rows to select your desire mode settings from Mode 1 to 5 by each Pocket Mode.





<u>Browsing, selection and Confirming of each selection</u>

Press Enter [►] or [5] to confirm selection or deselect

❶ **Selecting Stacker Pockets:**

Press [◄4] and [6►] to select Stacker 1 or 2 and [►]

❷ **Selecting Currency:**

Press [◄4] and [6►] to select Currency and [►]

❸ **Selecting Various Counting Modes:**

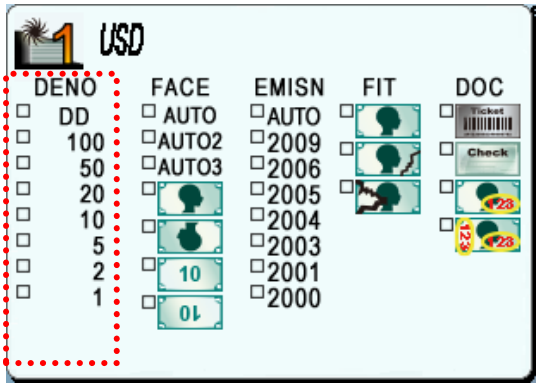
Press [◄4] and [6►] to select sorting modes and [►]

❹ **Selecting options under various Counting modes:**

[2▲] and [8▼] to select Options and [►] to confirm.

	➔ Once your selection is completed for Pocket 1, continue with setting up options for Pocket 2 if required. Once pocket selection are done, continue pressing "C" until you return to Main screen and all setting will be saved automatically.

❹ Explanation of Various options under each Pocket Modes:



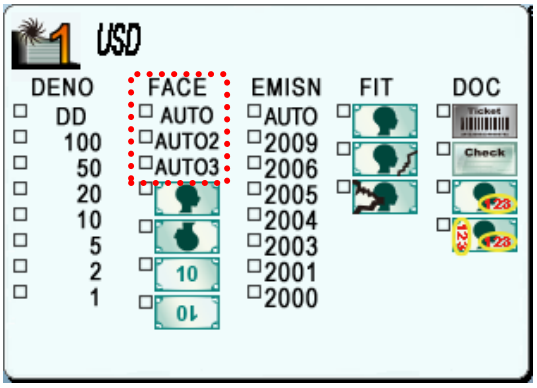
SORT Mode:

- **None checked: (Mixture banknotes)**
  If none of the denominations are checked under SORT mode (mixture of banknotes), NC-8500 will count all banknotes (Mixture) and deliver to Stacker 1 Pocket and overflow to Stacker 2 when Stacker 1 reaches its maximum capacity.

- **DD: Denomination Detection.**
  DD option can be checked for one of the Pocket (1 or 2) or both Pockets and NC-8500 will count banknotes with the first detected authentic banknote as standard and delivers to Stacker 1 and 2 if both Pockets are chosen.

- **100/50/20/…:** User can select denomination of banknotes to be counted for each Stacker and deliver to Stacker 1 and Stacker 2 pocket. Under this operating mode, only one denomination can be selected for each of the Stacker pockets.

NC-8500 delivers banknotes with all other denominations mixed in the stack along with unrecognized banknotes and suspicious banknotes to the Reject Pocket.

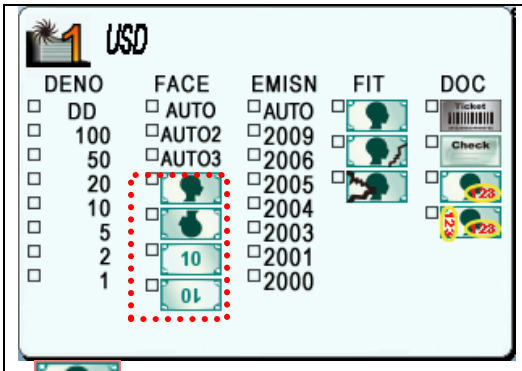


- **AUTO:** The first detected authentic banknote is taken as standard and delivered to Stacker 1, while other banknotes of different denomination, face and orientation are delivered to Stacker 2. The unknown or suspicious notes are delivered to Reject Pocket.

- **AUTO1:** The first detected authentic banknote is taken as standard and delivered to Stacker 1, while other banknotes of same denomination but with the opposite face are delivered to Stacker 2. The banknotes of different denomination and unknown or suspicious notes are delivered to Reject Pocket.

- **AUTO2:** The first detected authentic banknote is taken as standard and delivered to Stacker 1, while other banknotes of same denomination but with

	different orientation are delivered to Stacker 2. The banknotes of different denomination and unknown or suspicious notes are delivered to Reject Pocket.



: Front

: Front Reversed

: Obverse

: Obverse Reversed

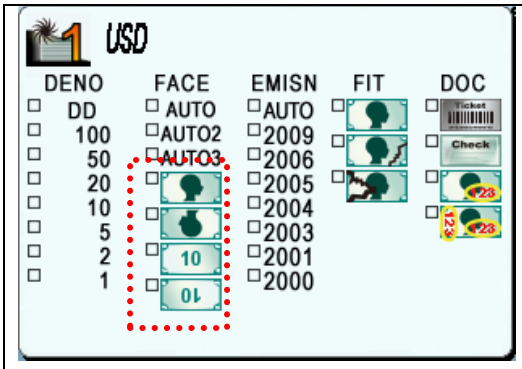
FACE: If both Front-faces are checked for Stacker 1 and both Observe-faces are checked for Stacker 2, then NC-8500 counts and delivers single denomination banknotes having Face-up to Stacker Pocket 1 and deliver banknotes having Observe-faces to Stacker 2.

Pocket 1

Stacker 1: Both direction of Front-face

Pocket 2

Stacker 2: Both direction of Observed-face



: Front

: Front Reversed

: Obverse

: Obverse Reversed

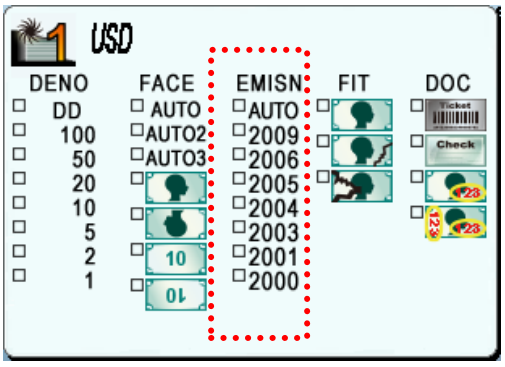
ORIENT: If single denomination banknotes are all faced-up, users can choose to Orient them (Face-up and in one direction) using this option. If the below options are selected, NC-8500 delivers banknotes with Front-face to Stacker 1 and Front - Reversed banknotes to Stacker 2 while unrecognized and suspicious notes delivers to the Reject Pocket.

Pocket 1

Stacker 1: Front face direction

Pocket 2

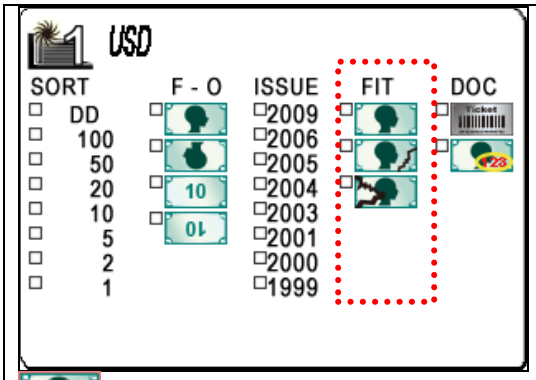
Stacker 2: Front-Reversed direction



EMISN

NC-8500 is able to separate different issuing year for a single denomination banknotes. If this mode option is selected, NC-8500 delivers banknotes with specified issue year of a single denomination banknote to Stacker 1 and all other issue year of that denomination or other denominations to Reject Pocket along with suspect or non-recognizable banknotes. Stacker 2 is only used as an over-flow pocket for that denomination and issue selected.

Only one issue of a single denomination banknote can be selected for Stacker 1 or select AUTO for automatically detecting the issue year for the first counted banknote.



: ATM banknotes are sorted to stacker.

: FIT banknotes are sorted to stacker.

: UNFIT banknotes are sorted to stacker.

FIT (Fitness Sorting)

In Fit Sorting mode, NC-8500 sorts banknotes according to different uses and fitness quality requirement by their conditions, such as dirty (soil), tape, holes, tears, missing or folded series etc.

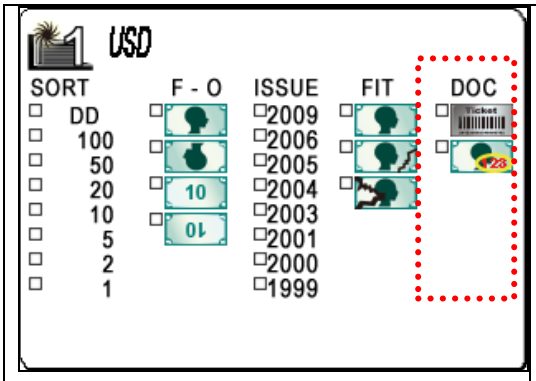
ATM: Under ATM sorting mode, device separates ATM quality banknotes from FIT or UNFIT banknotes as required by financial institutions for their daily ATM cash replenishment need.

FIT: Under FIT sorting mode, device separates banknotes according to fitness sorting guideline set by Federal Reserve bank (FRB) as part of their currency recirculation policy apply to dirty (soil), tape, holes, tears, missing or folded conditions of banknotes. See Federal Reserve Bank Fitness Sorting guideline posted on FRB website:

To Separate a single denomination banknotes into ATM or FIT banknotes, select as an example,

Pocket 1 = ATM

Pocket 2 = FIT



: TITO Mode

: Serial Number (Optional)

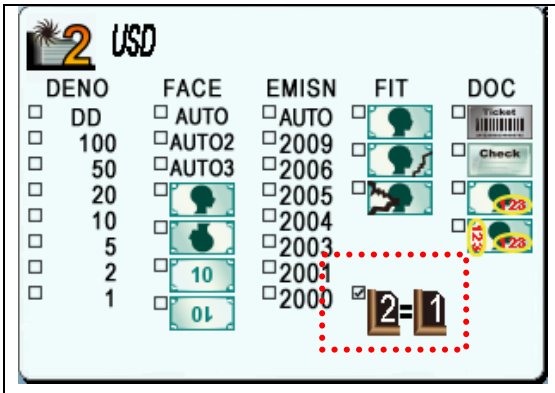
DOC (Document - Optional features)

NC-8500 is capable of counting and separating banknotes and casino barcode tickets into two Stackers. Once barcodes are decoded, NC-8500 sends decoding information to an attached External printer or to a PC software if a PC Software is developed and interfaced with NC-8500 device by respective software developer or by Masterwork Automodules

To Separate banknotes and Casino Barcode tickets, select:

Pocket 1 = leave all unchecked under SORT option

Pocket 2 = Check under DOC



2=1

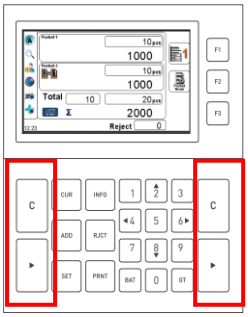
- Apply setting of Stacker 1 to Stacker 2 (overflow).
- For SORT mode, if both Stackers are set as DD, 2 different denominations will be separated to Stacker 1 and 2, and the rest denomination banknotes to Reject Pocket. But if Stacker 1 is set as DD while Stacker 2 is set as 2=1, only 1 denomination will be counted and when Stacker 1 reaches its maximum capacity, banknotes will overflow to Stacker 2.

NOTE: For each user, there are 5 options which user can set and save different sorting modes. Press F1 to switch to different options 1, 2, 3, 4 and 5.

For (User 1) and (User 2), all sets of sorting modes are kept separately. Two users can operate NC-8500 with their individual preferences. The counting results and settings of the counting modes do not interfere with each other while in operation.

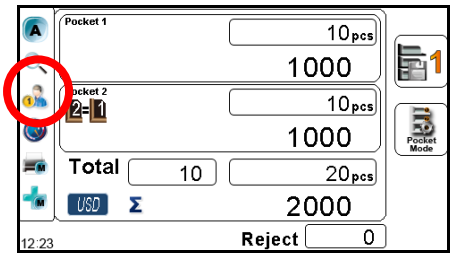
Dual Users Operation

NC-8500 supports two individual counting operations and the counting results of the two users, such as tellers or cashiers can be saved separately. NC-8500 can also print the counting results of the two users with one or two separate printers if connected. Dual Users features can also be used to just keep two separate settings in one machine for user's convenience.



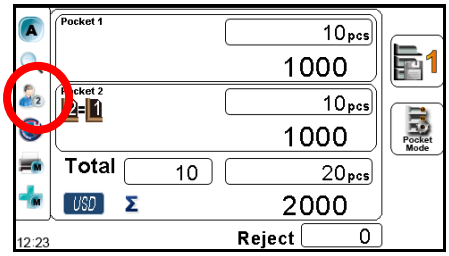
❶ Two sets of [C] and [▸] buttons provided each side of the control panel to be used for dual user operation or settings.

- The left side buttons reserved for User 1
- The right side buttons reserved for User 2



❷ (Left Side: User 1)

- Press [▸] on the left side of the panel to select User 1.
- To confirm and/or cancel all banknote processing functions, use [C] and [▸] located on the left side of the panel only. Caution! Do not use Right side buttons.



❸ (Right Side: User 2)

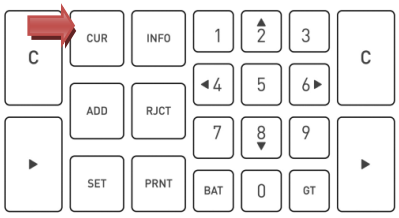
- Press [▸] on the right side of the panel to select User 2.
- To confirm and/or cancel all banknote processing functions, use [C] and [▸] on the right side of the panel ONLY. Caution! Do not use Left side buttons.

❹ How to clear the counting results?

Press [C] of the respective current user (/) to clear each of the counting results.

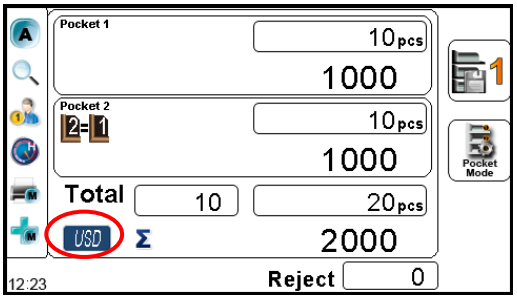
Selecting Currency, CNT Mode and Density

If multiple currencies software are loaded as optional feature to NC-8500, select one of the factory preset currencies by following the below steps:



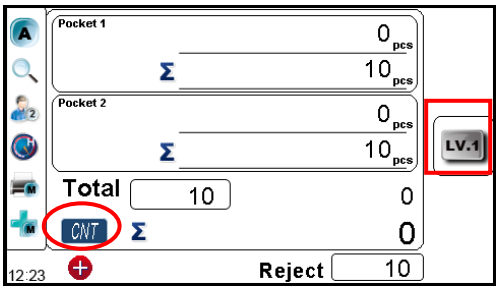
❶ CUR button to select a currency or select CNT

- All available currencies loaded and CNT (Count Mode) are cycled through on the bottom left of the LCD display.



❷ Press and Hold or Continue pressing CUR button.

- All available currencies loaded to the machine and CNT mode are cycled through and shown on screen one by one.
- Use direction keys 2/8 or the 4/6 to highlight your desire currency (if multi-currencies are loaded)
- Press ▸ to confirm the selection.
- Start counting banknotes.



❸ CNT - Count Mode (Piece counter)

- To count banknotes without detecting value and counterfeits.
- The current counted banknotes are shown on top row, and total quantity is summed up automatically on the below row (if ADD is on).

❹ DENSITY Selection: (CNT Mode only)

NC-8500 allows user to select different density level for double and size detection purposes based on the first banknote passed through the sensor. Press F2 / F2 to switch to different levels of detection sensitivity based on the conditions of banknotes to be counted.

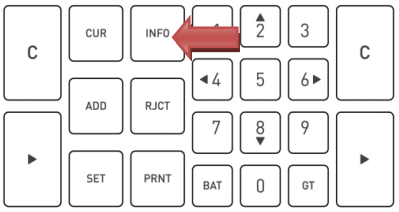
LV.1: Light [New condition banknotes]

LV.2: Normal (Default) [Circulated Banknotes]

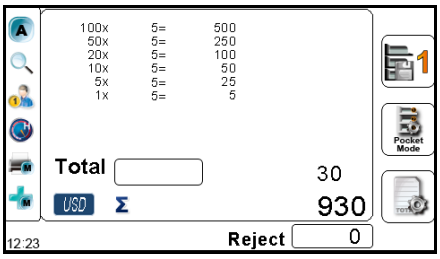
LV.3: Dark [Soiled banknotes]

LV.4: Very Dark [Very soiled and soft banknotes]

▪ Counting Information



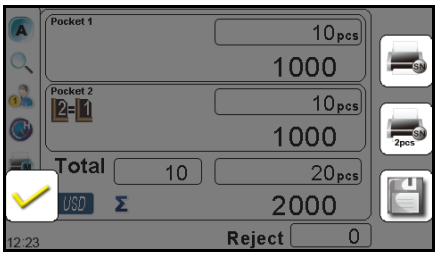
When counting is completed, press INFO to see the detailed information of current transaction.



❶ INFO Mode

- The detailed counting result is displayed including each denomination quantity and value, current and Total of accepted banknotes and Reject banknotes.

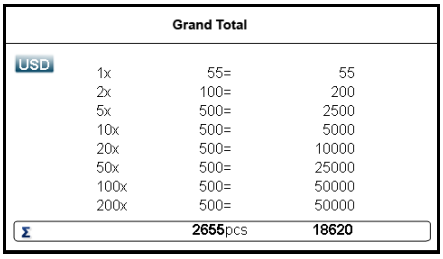
If the current page is not enough to display all the counted denominations, please use the direction keys 2 / 8 to change to next page.



❷ Press PRNT to enter into PRINT screen to print break-down results to an external connected printer or press to save counting results to Grand Total.

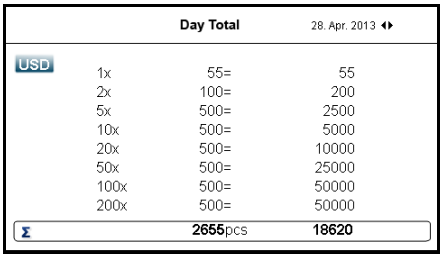
❸ Grand Total

- It is only available when ADD mode is activated.
- All confirmed transactions are accumulated into Grand Total list.
- Press GT to see Grand Total list of different counted currencies.

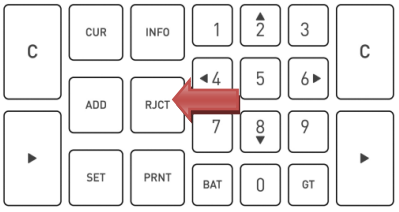


❹ Daily Results (Day Total)

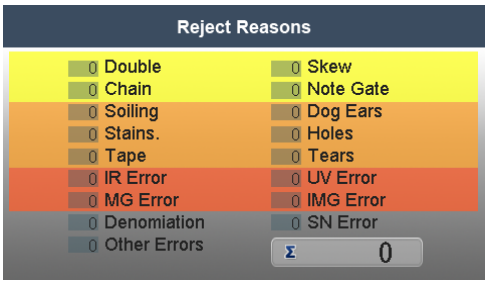
- It is only available when ADD mode is activated.
- All confirmed transactions for a single day are accumulated into Day Total list.
- Press GT twice to see Daily Results (Day Total) of all confirmed counts for that day.
- All the counted results within 30 days are also saved into machine's memory. Press direction keys 2 / 8 to change the Day Total counting information for different dates.



Reject Reasons



When a count is completed, press RJCT key to see the detailed information of the reject reasons of all rejected banknotes delivered to Reject Pocket.



❶ Reject Reasons # 1

- On this screen, user can view the number of rejected banknotes appear next to each category of Reject Reasons.
- Total of rejected banknotes is showed on the bottom left of the LCD display as Σ.

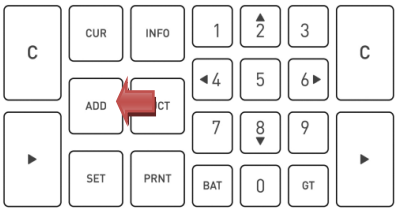
Definition of Reject Reasons:

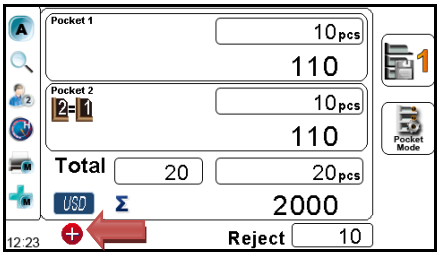
There are various reasons a banknote can be rejected and delivered to reject stacker during a counting operation. The below is a complete list of reasons for rejection:

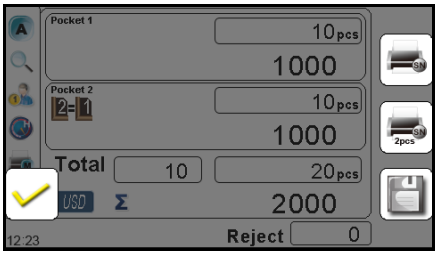
- **Double**: Double Banknotes detected or soiled banknotes unable to read by sensor.
- **Skew**: A banknote is skewed during transportation.
- **Chain**: Chain of banknotes in the bill path causing jam.
- **Note Gate**: The gap between two notes is too close causing jam error.
- **Soiling** Soiled banknote (Unfit) unable to read.
- **Dog Ears:** A banknote, having missing corner or folded too much unable to read by sensor.
- **Stains:** Stains on banknote (Unfit).
- **Holes:** Large hole on banknote (Unfit).
- **Tape:** Tape found on the banknote (Unfit).
- **Tears:** Torn banknote (Unfit).
- **IR Error**: Infrared Error (Suspect banknote).
- **UV Error**: Ultraviolet Error (Suspect banknote).
- **MG Error**: Magnetic error (Suspect banknote).
- **IMG Error:** Image error (Suspect banknote).
- **Denomination**: An unknown image (unrecognizable).
- **SN Error**: Banknote serial number recognition error.
- **Other Errors:** Other error (other types of bill recognition errors that are not defined above)

Add mode

The Add mode accumulates quantity and amount of each running total to Grand Total and Day Total (Daily results), thereby saves counting results into device memory.







❶ Press ADD to toggle between Add On / Off mode.

- When Add mode is turned on, an icon is shown on the bottom left of the LCD display.

❷ Current counting results display under each Pockets and accumulated quantity and total amount display under Total row.

❸ Press PRNT to enter into screen where counting results can be confirmed, print and save to Grand Total and Day Total. Without accessing this screen and selection, Total count from previous screen will not be added to Grand Total and Day-Total.

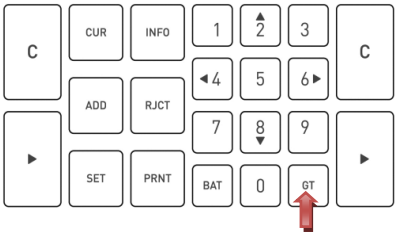
❹ Under Print screen, press / F1 or F2 key to confirm the transaction and print counting results (F1=Single or F2=Dual receipts) to an external printer.

❺ Press / F3 to save the counting results to Grand total and Day Total memory.

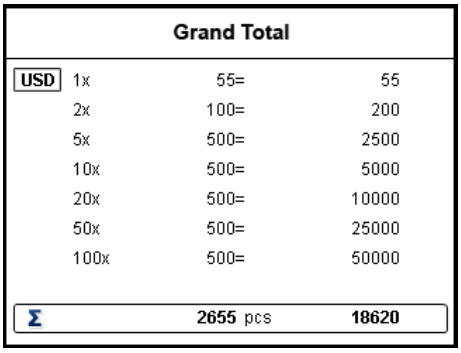
▪Grand Total

Grand Total (GT) feature is to save accumulated different counting results to the memory and display to users when GT is selected. To save a transaction to Grand Total, it can be achieved by two ways . For example,

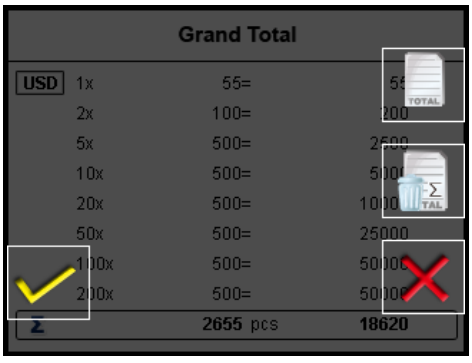
- (Auto Add Mode): NC-8500 device will add currency counting result to Grand Total automatically once counting is completed and banknotes are removed from the stacker.
- (Manual Add Mode): Under Manual Add Mode, Grand Total has to be added manually by users for each count.



❶ After counting and saved the counting to Grand Total as explained above, press GT to view Grand total saved in the memory.



❷ The current transaction is accumulated to Grand Total as illustrated on the diagram screen.



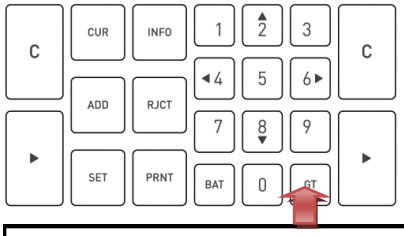
❸ Press PRNT again to enter into the print mode, and different options are provided for selection.

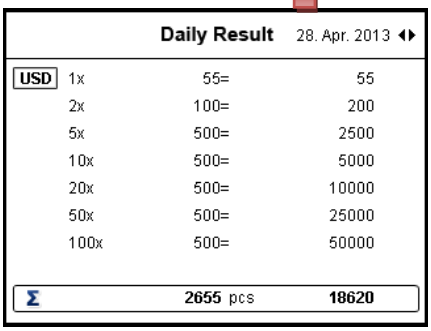
- F1: Print current transaction.
- F2: Delete the record.
- F3: Exit the print mode.
- ⇨ Make your proper selection and return to main screen.

Day Total

The Day Total feature is to view and print out all confirmed counting results for the current day or a particular day up to past 30 days. To sum up total count for a given day, please refer to the following description.

.

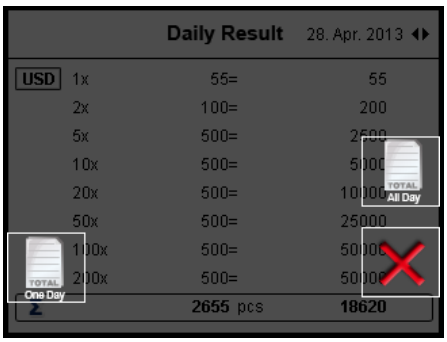




❶ At the end of the day, press GT twice to enter Day Total screen.

❷ All the confirmed transactions of a day are listed on the display.

- Use ◂4 / 6▸ to change to the Day Total counting information for different dates.

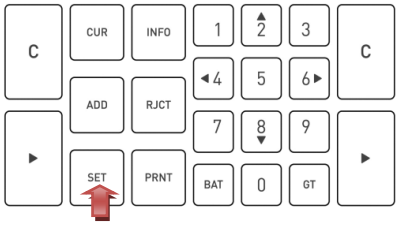


❸ Press PRNT to enter printing mode to print out day total receipt whether for all days or for a single day.

- F2: Print All Day.
- PRNT: Print One Day.
- F3: Exit

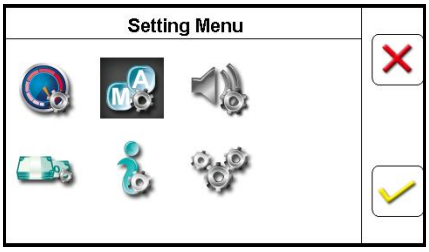
Auto / Manual Add, Auto Print and Start Mode

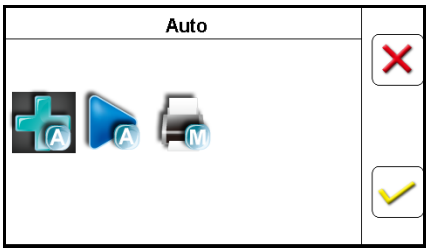
Through Setting Menu, operators can choose to operate NC-8500 automatically or manually for various features, such as starting of the machine operation, accumulation after counting is completed or printing counting results.

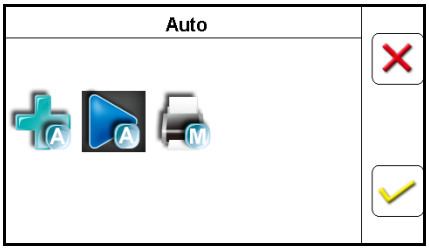


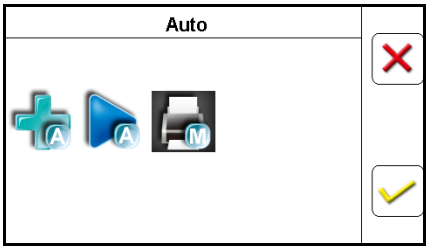
❶ Press SET to enter Setting Menu, use 4/6 and 2/8 to switch to different function.

❷ Select by using 4/6 or 2/8 to enter Auto/Manual setting mode as described below.







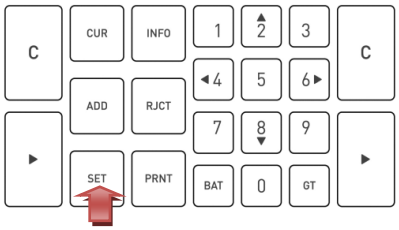


- (Auto Add Mode) : Machine adds the currency counting result to Grand Total automatically once a counting is completed and banknotes are removed from the stacker.
- (Manual Add Mode) : Grand total has to be added manually for each count.
- (Auto Start Mode): Machine automatically feeds banknotes in the hopper and starts counting.
- (Manual Start Mode): Machine only feeds banknotes in the hopper and starts counting after user's confirmation.
- (Auto Print Mode): device automatically prints current result to a printer (if connected) once counting is completed and banknotes are removed from the stacker
- (Manual Print Mode) : Operator needs to press PRNT button to enter the Print menu to print the results.

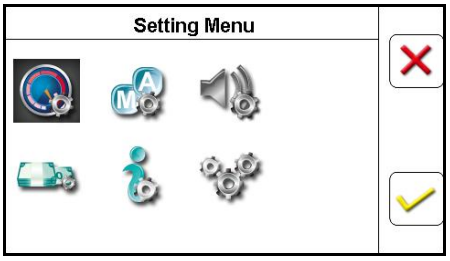
Press ✓ to choose Auto or Manual, and press ▸ or 5 to confirm the selection.

Counting Speed (CNT Mode only)

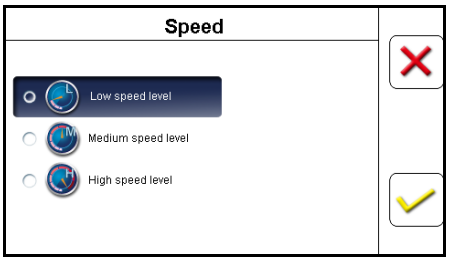
NC-8500 is configured to count circulated banknotes [CNT mode] quantity at high-speed from default factory setting. However, software allows users to adjust counting speed to count banknotes at lower speed if necessary.



❶ Press SET to enter Setting Menu.

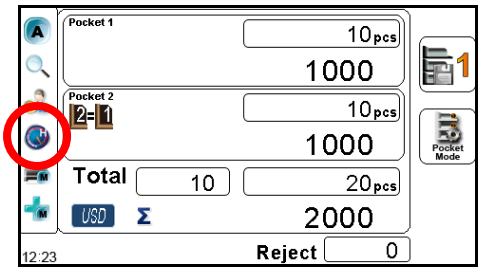


❷ Select Speed setting icon to enter Speed setting menu.



❸ Under Speed setting Menu, choose one of the three speed settings from Low, Medium or High speed level as below:

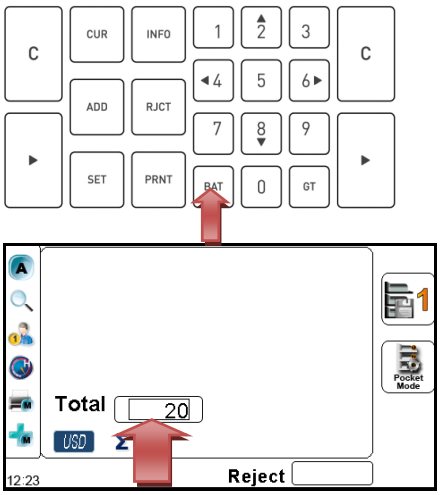
- Low speed level: 600 notes / minutes.
- Medium speed level: 900 notes / minutes.
- High speed level: 1000 notes / minutes. (1200-Pure Count Mode)
- Use 2/8 to scroll between three levels, and confirm selection by pressing F3 / ✓.



❹ The selected speed is shown on the left of the taskbar.

Batch Counting

NC-8500 allows users to set counting of banknotes by a preset batch number by quantity apply to all counting modes or fixed strap or by a specific amount applies to all discriminating counting modes.



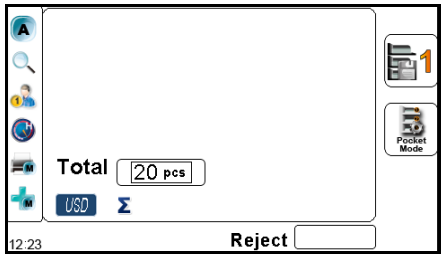
❶ Press BAT to activate batch function.

- A batched number by pieces (1-999) or preset (5, 10, 20, 25, 50 and 100) or amount can be set using this batch function as described below in details.

❷ Enter a desired quantity or amount by pressing the numeric keys. (0-9)

❸ Always press ▸ to confirm and save the setting, then return to the main screen.

❹ The preset batch quantity or amount is shown on the bottom-left of the display.



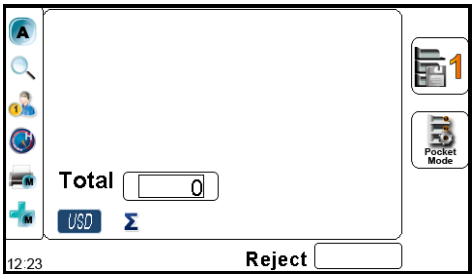
❺ Set a batch by quantity (Pieces)

- User can set batch quantity from 1-999 by pressing BAT key one time followed by numeric keys (0-9).
- Users can enter into factory preset batch quantity of 5, 10, 20, 25, 50 or 100 by continuing pressing BAT key until desired batch number is achieved.
- When a batch number is set, the device counts up to the preset number and stops once the preset batch quantity is reached. Remove all banknotes from stacker to continue the batch count or insert more banknotes if incomplete batch.

❻ Set a batch by Dollar Amount (Not available yet)

- User can set a batch by amount by Pressing BAT key several times after preset batch quantity is displayed in sequence, and $ sign appears. Enter amount by using numeric keys (0-9) and then confirm the selection by pressing ▸ key.
- The device will count banknotes up to the preset amount and stops when counted total reaches the preset batch amount. Batch by amount is only available in discriminating modes, such as MIX, SORT etc. Banknotes that are over the batch

amount will be delivered to Reject Pocket along with suspicious banknotes, if any is detected during counting.



Cancel the batch:

❶ Press BAT to enter batch setting mode.

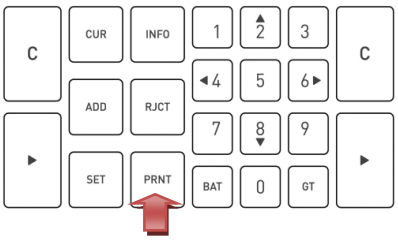
❷ Press BAT or C to clear the preset number or amount until it shows 0.

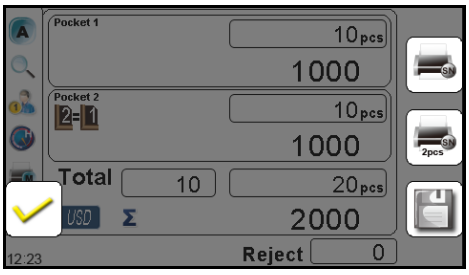
❸ Press ▸ to confirm the setting and return to main screen.

❹ The batch is now cancelled.

▪Printing Function

Users can print counting results by connecting to single or dual printers (Dot matrix or thermal printers) via serial ports located at the rear side of NC-8500. Contact us for a list of Printers that are approved by Masterwork Automodules for NC-8500 device.





❶ Connect printers with COM Ports at the rear side of NC-8500 with serial cable. If Dual Users feature is activated and device is used by two users, both users can also print their individual reports using one single printer.

- The right is for User 2. (COM2)
- The left is for User 1. (COM1)
- Both Users can also share 1 printer. (set in setting menu.)

❷ Press PRNT to print out counting result after a count is completed unless “Auto Print” function is activated in which printer automatically prints report as soon as banknotes are removed from Stacker Pocket where banknotes are delivered into.

❸ Follow the message on the display to proceed.

- : Print one receipt of a counting result.
- : Print two receipts of same result.
- / : Print one piece of breakdown list.
- Press C to cancel the operation.

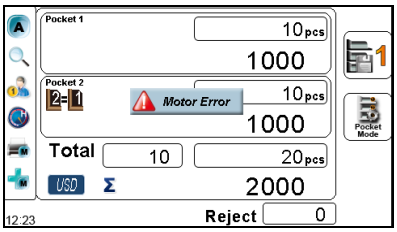
❹ Printing receipt.

- The print receipt lists the “Printer Title”, “Machine Serial number, “Currency Name”, “Quantity by Denominations”, “Subtotal” and “Total Quantity and Amount”.

(Format of Print receipt is subject to change without notice)

Error Messages

If the bill path is accessed and opened at any time, an error message will be shown on the display.



❶ Press C to clear "Motor Error" error message.

❷ The motor runs, and all the foreign matters in the bill path are delivered to reject pocket.

❸ Run the machine again to continue counting.

Error Messages

Check Bill Path
- Please open the bill path safely and check to make sure no foreign object inside.

Bottom Conveyor
- Bill path is opened. Please close it before operating the device.

Remove Hopper Banknotes
- Please remove the banknotes from hopper and place them again.

Reject Pocket Full
- The reject pocket is full. Please remove banknotes from reject pocket to resume.

Stacker 1 Full
- The stacker 1 is full. Please remove the banknotes from the stacker 1.

Stacker 2 Full
- The stacker 2 is full. Please remove the banknotes from the stacker 2.

Motor Error
- Please check if the motor error occurs when powered on.
- Please make sure the encoder is working correctly.
- If the error still occurs, please contact the service provider.

Serial Number Buffer Overflow
- The memory buffer for serial number recognition is 500 pieces.
- Please press C to clear the record of serial numbers.
- After removing notes from the stacker, the device resumes counting operation.

Paper Jam
- Please open the bill path safely and remove any jammed banknote from it.

Reject Billpath
- Please remove the banknotes from reject pocket. After removing them, the operation continues.

Stacker 1
- Please remove the banknotes from the stacker 1. After removing them, the operation continues.

Stacker 2
- Please remove the banknotes from the stacker 2. After removing them, the operation continues.

Batch Not Completed
- The counted quantity doesn't reach preset batch. Please check again.

Solenoid 1 Err
Solenoid 2 Err
- Please check if there is any note jammed in the bottom bill path.
- Please remove jammed note safely and test again.

Suspicious Note Err
- There are banknotes being rejected due to lack of security features.

Chapter 4. Settings of NC-8500

SET FUNCTIONS AND VARIOUS PARAMETER SETTINGS 29
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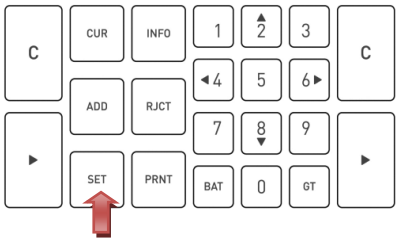
Set Functions and Various Parameter Settings

This chapter is reserved for trained operator or service personnel.

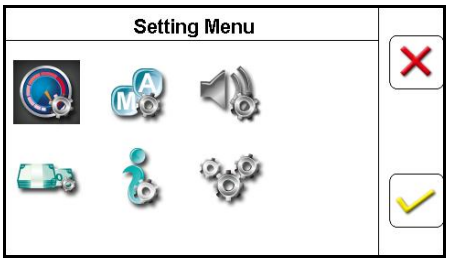


❶ Enter Setting Menu by pressing SET

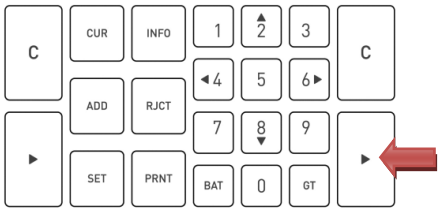
- Press ▸ to confirm any changes to functions and parameters that may be made by operator.

❷ Highlight icons with direction keys.

- Under the setting menu, the numeric number keys turn to direction keys as indicated on the panel:
  2: (Up)
  8: (Down)
  4: (Left)
  6: (Right).



- Use these 4 direction keys to select specific setting menu items.



❸ Confirm the selection.

- After highlighting a desired icon, press ▸ to confirm the selection.

❹ Return to main screen.

- Press C to return to previous or main screen.

Speed Options (p. 24)

Auto On/Off (p. 23)

Sound Setting

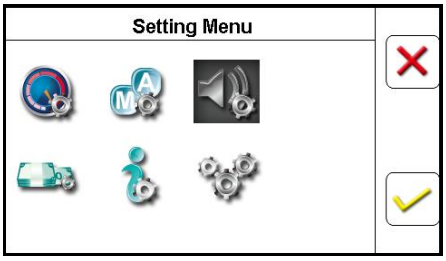
Sorting Mode Setting

Information

Setup Device Mode

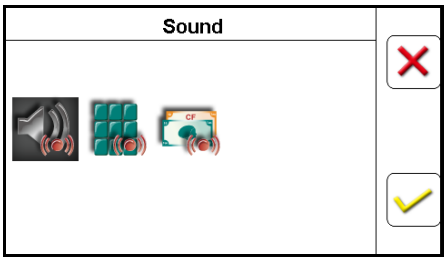
Sound Settings

NC-8500 is equipped with various sound settings including warning alarm, keys and suspect alarm sound. These sounds can be turned ON/OFF by browsing through this Sound Setting menu. (Default: OFF)



❶ Highlight the icon to enter Sound Setting menu.

❷ Confirm selection with [▸].



❶ Highlight the "Alarm On" icon and confirm selection with [▸].

❷ Press [F1]/[✕] to turn off the alarm sound feature.

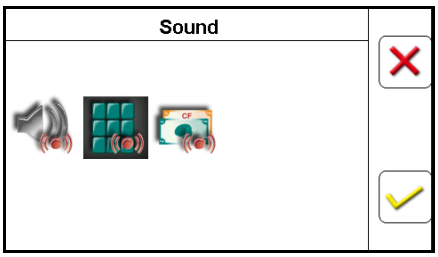
❸ Press [F3]/[✓] to turn on the alarm sound feature.

❹ Confirm setting.

- Press [▸] to confirm the setting and return to Sound Setting menu.

Key Tone Settings

To turn ON or OFF the key sound while pressing NC-8500 control panel buttons. (Default: ON)



❶ Highlight the "Key Tone On" icon and confirm the selection by pressing [▸] key.

❷ Press [✕] to turn off the key sound feature.

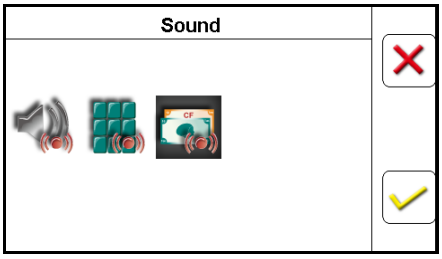
❸ Press [✓] to turn on the key sound feature.

❹ Confirm setting.

- Press [▸] to confirm setting and return to previous menu screen.

Suspect Sound Settings

To turn ON or OFF alarm sound when a banknote is detected as suspicious. (Default: ON)



❶ Highlight the “Suspicious Note Alarm” icon and confirm selection by pressing key.

❷ Press to turn off the suspect sound feature.

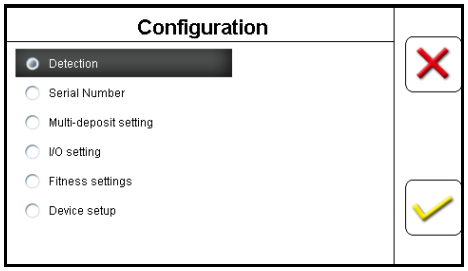
❸ Press to turn on the suspect sound feature.

❹ Confirm setting.

- Press to confirm setting and return to Sound Setting menu.

Detection On / Off

Counting banknotes with or without counterfeits detection ON, and apply it to all discriminating and Sorting modes. (Default: On)



❶ While in Configuration menu, highlight [Detection] sub-menu to enter into ON/OFF selection area.

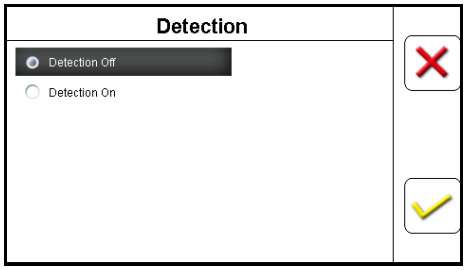
❷ Confirm selection with pressing any of these keys.

❸ Highlight and select Detection On or Off using direction keys.

- Use 2/8 or 4/6 to highlight a desired mode.

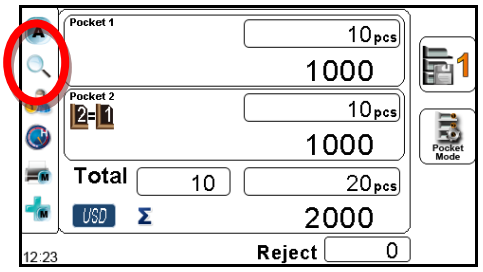
❹ ON: The device counts with counterfeit detection and delivers suspicious banknotes to the reject pocket during counting process.

❺ OFF: The device counts the number and value of banknotes without checking any suspect detection.



❻ Press / to confirm the setting.

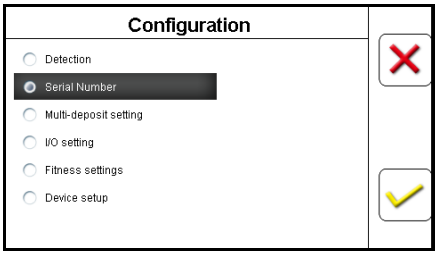
❼ The icon is shown on the main screen.

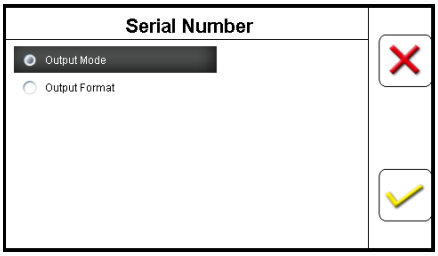


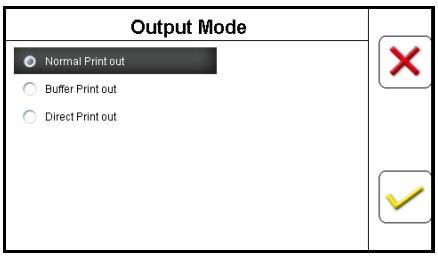
- : This Icon will display on main screen task bar if suspect detection is turned on. The device delivers suspicious banknotes to reject pocket during a counting process.
- : This Icon will display on main screen task bar if suspect detection is turned off. The device processes banknotes for its denomination and value without checking for any suspect detection

Serial Number- Output Mode

Under this menu, service personnel are able to choose a desired Output Mode for reading and printing out serial numbers of banknotes (Default: Normal Printout)







❶ While in Configuration, highlight [Serial Number] sub-menu and confirm selection with ▸/✓ to enter Output and Printing Mode selection area.

❷ Highlight using direction 2 / 8 and select an Output Mode for printing serial numbers

- Normal Printout: Print out serial numbers of counted banknotes and save the record in the buffer memory. The record can be printed out in 2 receipts. Limitation to 500 notes.
- Buffer Printout: Save the serial number of counted notes in the buffer memory and print out as receipt once users require. Limitation to 500 banknotes.
-
- Direct Printout: Real time printing out receipt of serial numbers. Without limitation to numbers of banknotes, but the machine doesn't save counting result in the buffer memory.

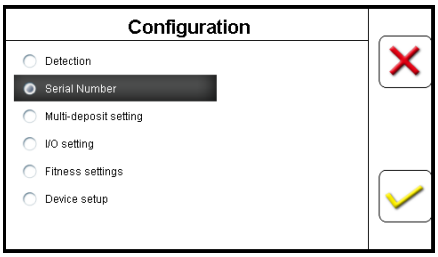
❹ Press F1/✗ to turn off.

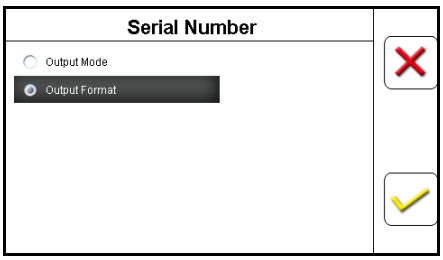
❺ Press F3/✓ to turn on.

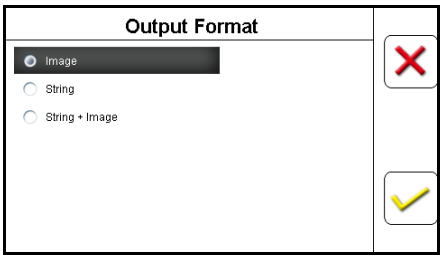
❻ Confirm setting.

- Press ▸/✓ to confirm setting and return to the serial number sub-menu.

Serial Number- Output Format







❶ While in Configuration, highlight [Serial Number] sub-menu and confirm selection to enter Output Format selection area.

❷ Highlight using direction 2/8 and select of below three Output Format for serial number data transferring to external PC application software(if developed by third party):

- Image: With image of serial number.
- String: With string of serial number.
- String + Image: With image and string of serial number.

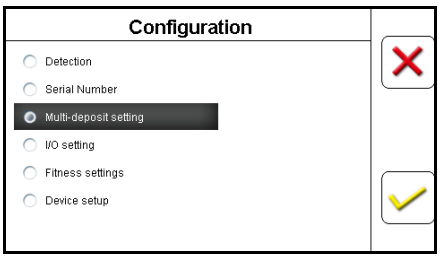
❹ Press F1/✗ to turn off.

❺ Press F3/✓ to turn on.

❻ Press ▸/✓ to confirm selection and return to the serial number sub-menu.

Multi-Deposit Settings

Under this menu, service personnel are able to select Multi-Deposit setting to choose various deposit requirements using external barcode reader or perform cash reconciliation if available.

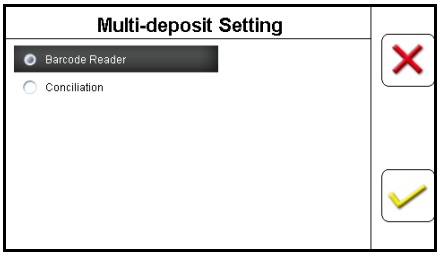


❶ While in Configuration, highlight [Multi-deposit setting] sub-menu and confirm selection with ▸/✓ .

Highlight using direction 2 / 8 and select a Multi-deposit setting menu item for various deposit requirement.

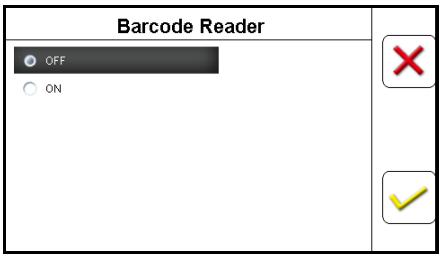
Barcode Reader

❷ Select [Barcode Reader] to activate reading of bar-coded documents, such as tickets, using external barcode scanner.



Confirm selection with pressing any of these keys. In Barcode Reader menu, service personnel have the options to turn ON or OFF Barcode Reader feature.

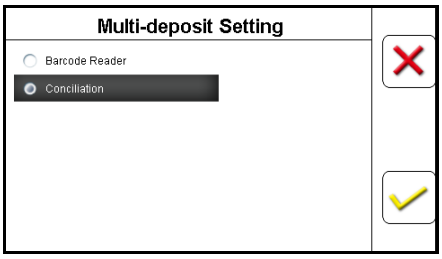
- Barcode Reader OFF.
- Barcode Reader ON.

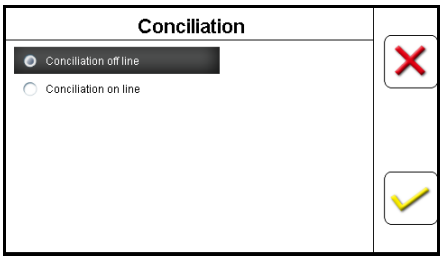


❹ Confirm setting.

- Confirm the setting by pressing keys and return to previous screen.

❺ Press F1 to disable function.





Deposit Conciliation:

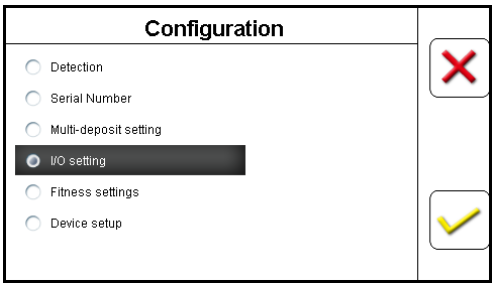
❶ Select [Conciliation] function if device is connected with a teller software application and properly interfaced by the teller software company.

❷ Activate the feature by pressing key and return to previous screen.

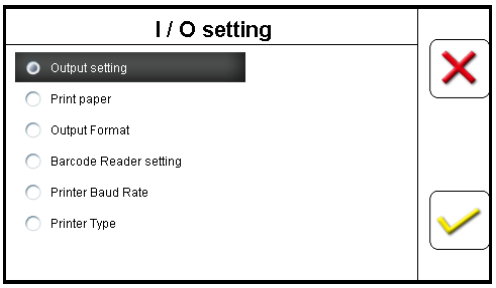
❸ Press F1 to disable the function.

I/O Settings

Under this menu, service personnel are able to select number of external printers to be connected, printer paper width, type of printings, barcode reader settings (if equipped), and printer baud rate…etc.

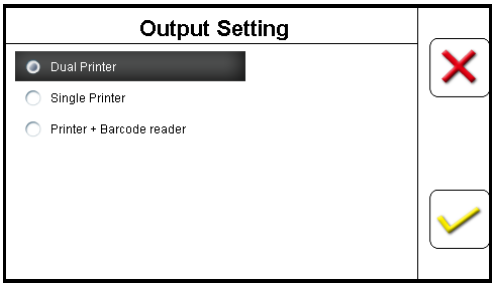


❶ While in Configuration, highlight I/O setting and confirm selection with ▸/✓.



❷ Select Output setting and enter Output setting menu.

- Dual Printer: Two printers can be connected for Dual users. Two printer ports are activated.
- Single Printer [COM1]: Dual users share one printer.
- Printer [COM1] + Barcode Reader [COM2]: Two users share one printer and one barcode reader / scanner.

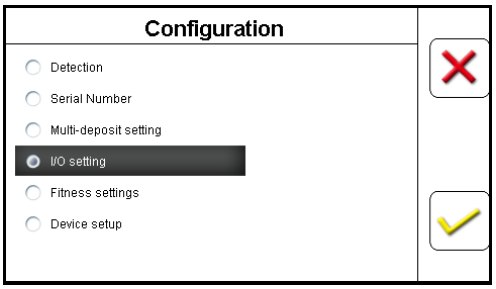


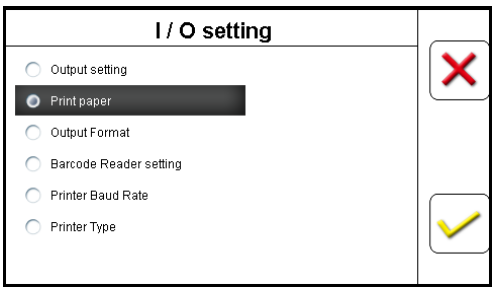
❸ Highlight printer output configuration by using direction ▲2/8▼, and followed by either ▸/✓/ F3 key to confirm selection.

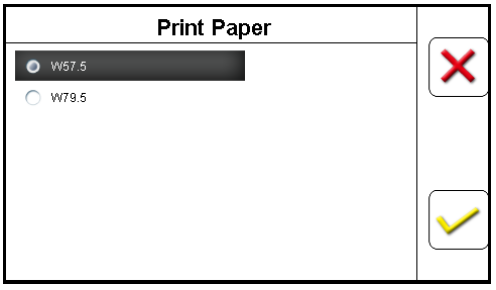
❹ Press C to return to the I/O setting sub-menu.

Printer Paper

Service personnel are able to set up paper size of the connected printer. (Default: W(79.5))







❷ While in Configuration, highlight I/O setting and confirm selection with ▸/✓.

❸ Select [Print paper] sub-menu item.

❹ Check the paper size of the connected thermal or Dot Matrix Receipt printer. Select correct width for your printer.

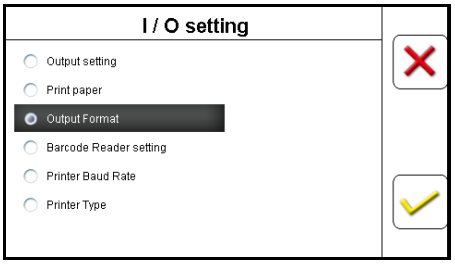
- W57.5: 2 inches paper.
- W79.5: 3 inches paper.

❺Confirm setting.

- Press ▸/✓/F3 to confirm setting and return to previous menu.

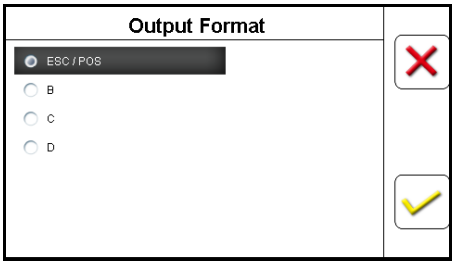
Output Format

Using this sub-menu item, service personnel are able to select output format of printer output.



❶ Highlight printer [Output Format] and confirm selection with ▸/✓.

❷ Select one of the printer output format:

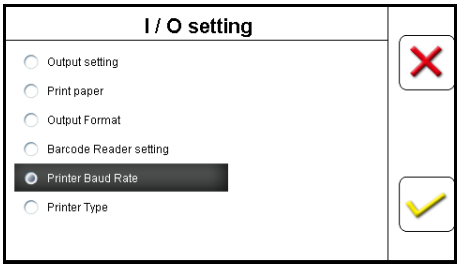


- ESC/POS: Apply to the ordinary printer.
- B: Default for casino.
- C: Default for casino.
- D: Default for casino.

❸ After selecting printer output format, press either ▸/✓. to confirm the selection and return to previous menu. Press C to exit to main screen.

Printer Baud Rate Setting

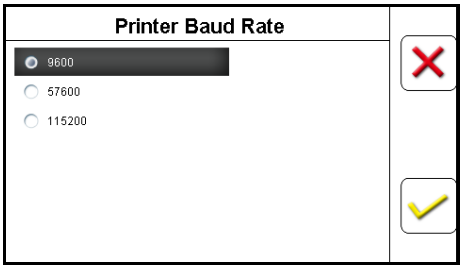
To setup baud rate for connected printer to print out receipt. (Default: 115200)



❶ Highlight the Printer Baud Rate and confirm selection with ▸/✓.

❷ Find appropriate baud rate for your printer.

- 9600 bps
- 38400 bps
- 115200 bps



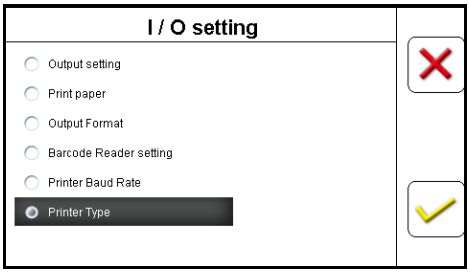
❸ Select the baud rate of the connected thermal printer. Use ▲2/▼8 or ◂4/6▸ to move up and down.

❹ Confirm setting.

Press ▸/✓ to confirm setting and return to the previous menu.

Printer Type

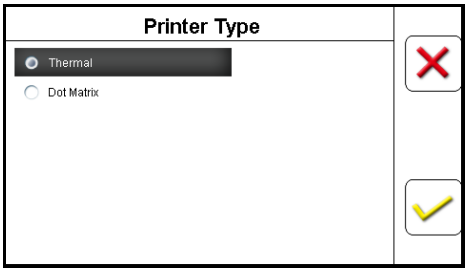
Using this sub-menu item, service professional is able to select appropriate printer type.



❶ Highlight the Printer Type sub-menu and confirm selection with ▸/✓.

❷Select appropriated Printer Type.

- Thermal
- Dot matrix

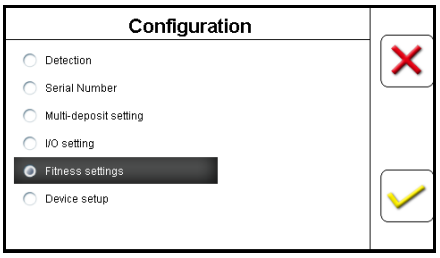


❹ Confirm setting.

Press either ▸/✓ to confirm setting and return to the previous screen.

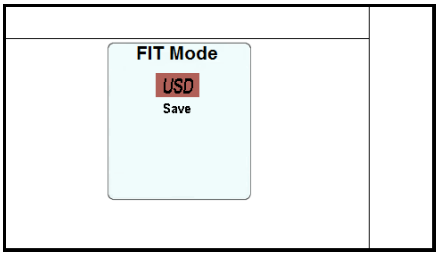
Fitness Settings

Under this setting menu, service personnel are able to adjust various fitness sorting levels from ATM-FIT-UNFIT fitness criteria.



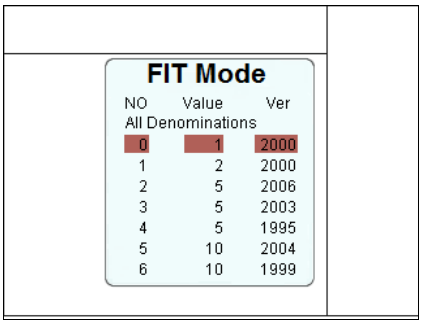
❶ Highlight and select [Fitness settings].

❷ Confirm selection with either ▸ / ✓ key.



❸ Under FIT Mode, highlight and select the currency that to be adjusted. For USA model, choose **USD** currency. If multiple currencies are equipped with, user has the option to choose other country's currencies for fitness level criteria.

Save the settings after all adjustment is made.



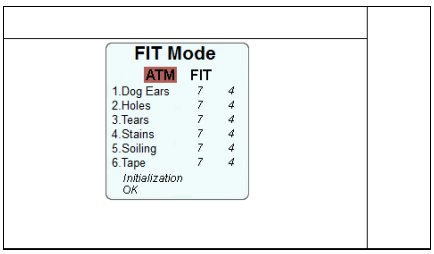
❹ Next, select All Denominations or a particular denomination of banknote and its version (issue) to be able to adjust various fitness criteria level. If "All Denominations" option is selected, it changes settings for all currency denominations. If particular denomination is selected, for example US$5, there are three separate issues released, so, select the issue year of $5 to adjust its fitness level criteria.

As appropriate denomination and issues are selected, enter FIT Mode as below:

❺ Under FIT Mode, service personnel are able to toggle between ATM and FIT fitness to adjust various fitness sorting criteria.

Select the Desired Level of Fitness.

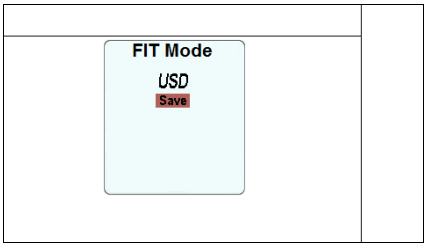
- Use 2 / 8 or ◂4 / 6▸ for highlighting.
- The higher the value is, the stricter the sorting result is.



❻ To confirm setting.

Press ▸ to confirm setting and return to the previous menu.

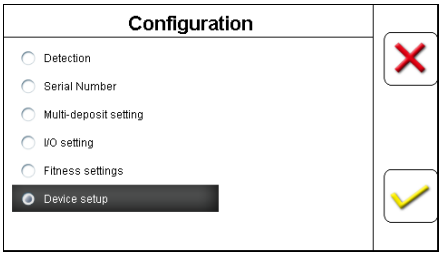
❼ If it is necessary to return to factory's default fitness level setting, then proceed with Initialization to restore factory's Default settings. Please make sure Initialization is "OK" to complete this process.



❽ To save the selected setting, highlight SAVE and press [▸].

Set up Date and Time

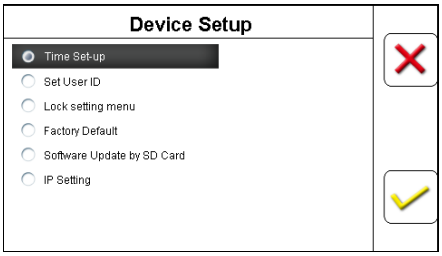
This feature is to set up appropriate date and time information of NC-8500. This date and time appears on the device system as well as on any print receipt.



❶ Highlight and select Device Setup. Confirm the selection with [▸]/[✓].

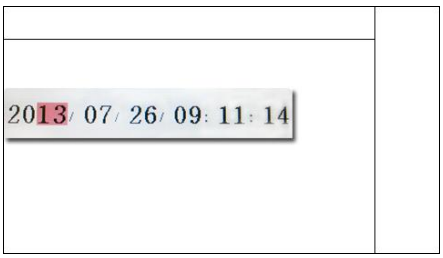
❷ Highlight and select [Time Set-up] with [▸]/[✓].

❸ Change date and time setting.



- Use direction keys [2▲]/[8▼] or [◂4]/[6▸] to highlight a desired zone to modify.

❹ Press [▸]/[✓] to select and confirm the desired zone.



- The color of the selected zone changes from pink to red.

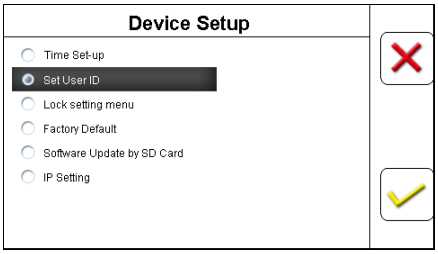
❺ Use numeric number keys on the control panel to change date and time settings.

❻ Press [C] to return to previous screen and exit.

Set Up User ID

Under this sub-menu, service personnel are able to select the user ID that requires various modifications (customization).

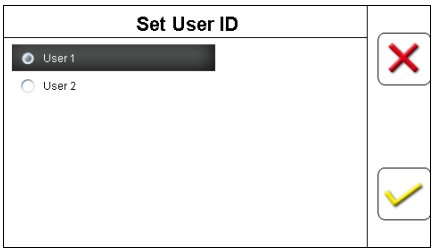
❶ Highlight and select [Set User ID]. Press ▸/✓ to confirm the selection.



❷ There are two User IDs to select from.

- User 1
- User 2

❸Select the user' parameter to modify... Press ✓ to edit, and press ▸ to confirm.

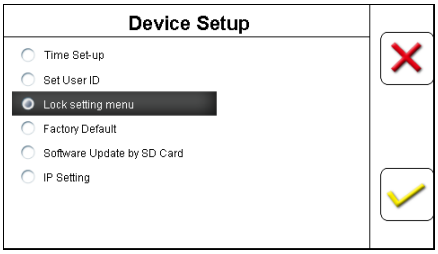


- Press C to return to previous menu and exit.

Lock Setting Menu

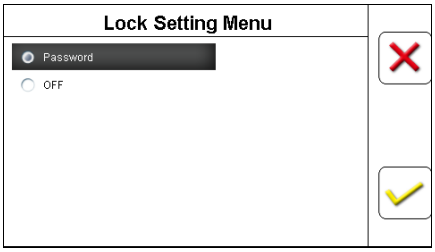
Under this sub-menu, service personnel are able to lock or unlock setting menu by setting password or no password.

❶ Highlight and select [Lock setting menu], and press ▸/✓ to confirm the selection.



❷ Set Password.

- Password : Enter Password.(Use Numeric 0-9)
- Off : No Password.

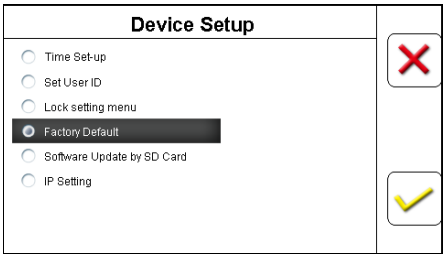


❸ Confirm setting.

Press ▸/✓ to confirm setting and Press C to return to previous screen and exit.

Factory Default

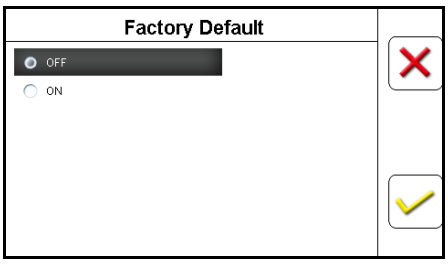
In Factory Default, service professional are able to return to the factory's default settings when power on machine every time. ***Caution!*** All users' settings will be erased if factory default setting is selected at any time during the device operation. Proceed with the below steps with extra caution.



❶ Highlight and select [Factory Default setting] using direction keys. Press either ▸/✓ key to confirm the selection.

❷ Factory Default setting ON or OFF.

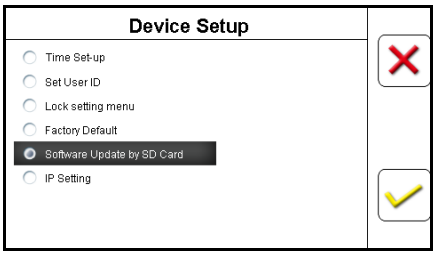
- **On**: The device always turns on with the factory default setting.
- **Off:** The device always turns on without the factory default setting and keeps all users' settings.



❸ Select (ON/OFF), press ✓ / ✗ to edit, and press ▸ key to confirm. Press C to return to previous screen and exit.

Software Upgrade by SD Card

Authorized software upgrade to the device can be performed by our authorized service personnel by connecting a HCDC type SD card to the SD card slot located at the rear side of the device. SD card must be preloaded with new update software provided by us.



◎ Suggested specification of SD Card:

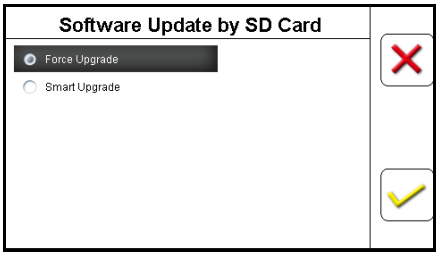
-- Hardware Format: SDHC, Class 4 or 10.

-- Software Format: FAT32, 4096(4K).

-- Capacity: 4-8 GB (recommended)

❶ Select [Software Update by SD Card], and press / to confirm the selection.

❷ Insert the SD card in the SD card upgrade socket.



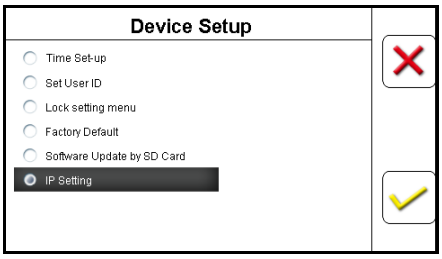
- **Force Upgrade**: Despite of software version installed in machine, force the machine to be upgraded to the version on the SD card.
- **Smart Upgrade**: Compares the version on the SD card and only upgrades the version which is outdated.

❸ Press to confirm and upgrade.

- If and when the upgrade process is successful: Please restart the machine.
- If the upgrade process failed for any reason, please press any key to restart the upgrade.
- Contact us for any trouble shooting or prior starting this process to your device (service provider only).

IP Setting

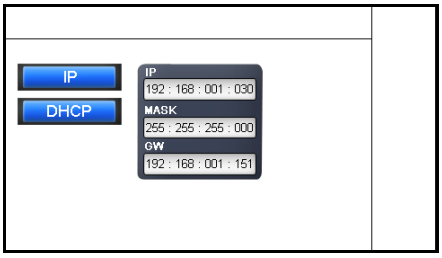
Under this IP Setting sub-menu, our authorized service personnel are able to set the IP settings of NC-8500 to connect the device from external means.



❶ Highlight and select IP Setting, and press ▸/✓ to confirm the selection.

❷ Highlight and select “IP” or “DHCP”, and press ▸.

- IP : Manually enter the IP, MASK, and GW.
- DHCP: Automatically obtain the IP.



❸ Select the number to be changed, and press ▸.

- The color goes from dark red to bright red.

❹ Use the numeric number keys of the control panel (0-9) to change the value, and press ▸ to store the value.

❺ Press C to return to previous screen/ exit.

Chapter 5. Maintaining NC-8500

MAINTENANCE 47
CLEANING NC-8500 47

Maintenance

◆ Opening Bill path

Cautions! Do not attempt to open the bill path while device is still in operation

◆Open the bill path only when banknotes are jammed in this area as prompted by the error message displayed on the LCD screen during a counting operation and only when device is halted.
◆Open the bill path during cleaning and maintaining of the NC-series device while power is off.

Make sure to close the Bill path securely after jammed banknotes are removed or after cleaning and maintenance task is completed.

Cleaning NC-8500

Turn Power OFF and unplug power cord from the NC-8500 machine before performing any cleaning to the machine.

◆ How to clean the exterior cover (surface) of NC-8500:

❶ Prepare Simple Green concentrate or a mixture of a gentle kitchen-use detergent (one that does not contain abrasive powder or strong chemicals such as acid or alkaline.) Mix 5 cups of water with 1 cup of detergent.
❷ Soak the sponge with the mixture of diluted detergent for couple of minutes.
❸ Squeeze excess liquid from the sponge.
❹ Wipe the cover with the sponge in a circular motion and make sure not to let any excess liquid drip into the interior of the device.
❺ Wipe the exterior surface of the device to remove the detergent.
❻ Rinse the sponge with clean running water.
❼ Wipe the cover with the clean sponge.
❽ Wipe the surface again with a dry, soft lint-free cloth.
❾ Wait for the surface to dry completely and remove any fibers.

◆ How to clean the Bill Path of NC-8500

❶ Open the bill path.
❷ Gently wipe or dust the Bill Path with a brush, compressed air can or a dry, soft lint-free cloth.
❸ If stain or debris remains, moisten a soft lint-free cloth with water or a 50-50 mixture of isopropyl alcohol and water that does not contain impurities.
❹ Squeeze out as much of the liquid as you can.
❺ Wipe the bill path and the sensor surface again; do not let any liquid drip into the device.
❻ Repeat 1-5 to clean the lower bill path.

*NOTE: Avoid spraying cleaner directly on NC-8500, and be sure to dry the bill path before closing it.

Appendix. Specifications (subject to change without further notice)

Feed System	Roller friction system	
Counting Modes	Count, Mix, Sort, Face, Orientation, Fitness (ATM, FIT, UNFIT), Issue, Serial Number (option), TITO (Option)	
Counterfeit Detection	CIS (Contact Image Sensor) (checking banknote image pattern) MR(Magneto Resistive) and 2* MG-Array (Magnetic ink or properties) UV (Ultra-violet) and Thickness Sensor (soil, tape)	
Counting Speed	Piece Count Denomination Count Serial number Count Fitness Count	1,000 notes/min. about 800 notes/min. about 800 notes/min. (Not available) about 800 notes/min.
Max. Currency Combo	Up to 10 Currencies (USD Currency Standard)	
Denomination Detection	Contact Image Sensor (CIS)	
Hopper Capacity	500 circulated banknotes	
Pocket Capacity	Reject Pocket Capacity Stacker1 Capacity Stacker2 Capacity	Max. 200 notes (circulated notes) Max. 200 notes (circulated notes) Max. 200 notes (circulated notes)
Countable Note Size	60 X 85 X 0.08mm ~ 100 X 190 X 0.12mm	
Display	4.3 Inch color TFT	
Power supply	100 ~ 240V AC, 50/60Hz	
Power consumption	Max. 100W	
Dimensions(Inch or mm)	13.7" (W) x 17.6" (D) x 17.3" (H) or 345(W) X 445 (D) X 437 (H)mm	
Weight (lbs / Kgs)	Approx 66lbs / 30 Kgs Net weight	
Interface	RS-232 * 2 PC Connection Interface (USB 2.0) SD Card Ethernet Remote Display	
Optional Accessory	Remote Display Unit Dot Matrix & Thermal Printer	

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