Hyosung NH2700 Manual
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Chapter 1. Introduction
1. Introduction

1.1 About the NH 2100T

The NH 2100T (Through-The-Wall Type) is designed to meet the higher transaction volumes and the low maintenance components. Whether installed as a walk-up or drive-through, NH 2100T offers solid, weatherized construction while its compact architecture allows flexibility in mounting. The NH 2100T is easy to use, easy to service and is able to support customer's needs.

1.2 Features

H/W Features

- UL 291 Business Hours Vault
- Electronic combination lock
- 5.7" mono trans-reflective LCD (sun-viewable)
- 16-key alphanumeric keypad (Encrypting PIN Pad)
- 2,000 notes capacity Cash Dispenser(CDU)
- Dip type magnetic card reader
- Semi-automated receipt paper loading and cutting
- 56K modem for dial-up
- Voice guidance system
- Modular design for easy maintenance

Functional Features

- Electronic journal
- Quick setup feature
1.3 **What is in this manual**

This NH 2100T Manual contains all information needed for normal operational use.

This manual contains Unit Specifications, Opening & Closing Procedures, Operator Functions(Supervisor Screen), Error Recovery, etc.

Some of the information in this manual may be subsequently updated based on the customer’s needs or the improvement by Nautilus Hyosung.
1.4 Terminologies

- CE: Control Electronics
- Earphone Jack: Voice Converter for Visually Disabled Persons (ADA)
- CDU: Cash Dispensing Unit
- EPP: Encrypted PIN Pad
- ISO: International Standard Organization
- ISO 1: IATA (International Air Transaction Association)
- ISO 2: ABA (American Banks Association)
- ISO 3: MINTS (Mutual Institutions National Transfer Systems)
- MCU: Magnetic Card Unit
- OPL: Operator Panel (LCD Screen)
- P/S: Power Supply
- SPR: Slip Printer (Receipt Printer)
- T-SPL: Supervisor Panel (LCD Screen)
Chapter 2.  Safety Precautions
2. Safety Precautions

2.1 Overview

Common Safety Precaution

Safety Precautions outlined this manual provide information on safe and proper handling of the product. Non-compliance of the safety precautions may result in injury or damage to the product. This precaution symbol with sample term tells you safety warnings during equipment handlings.

Please read the following instructions before operating equipment.

- Operate equipment in the order outlined in this manual.
- Follow safety precautions indicated in this manual, as well as the equipment itself. Failure to properly address these precautions may lead to injury or damage to the product.
- Avoid operations not addressed in this manual.
- If you cannot remedy system problems using the methods outlined in this manual, please refer to contact information listed in the manual.
# 2.2 Description of Precaution Symbols

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
</table>
| ![Electrical Shock Warning](image) | **Electrical Shock Warning**  
- Do not remove cover. Only a maintenance engineer is allowed to open the cover.  
- Do not touch. You may receive electric shock.  
- Make sure to turn off the power when servicing the equipment. |
| ![High Temperature Warning](image) | **High Temperature Warning**  
- Do not touch the equipment when it is running.  
- The equipment can get extremely hot and may cause a burn.  
- Make sure to close the cover before running the equipment. |
| ![Use Precaution when Moving](image) | **Use Precaution when Moving**  
- The equipment is heavy. Make sure at least 2 people lift or move the equipment.  
- Do not attempt to move the equipment alone. You may be injured from dropping the heavy equipment. |
| ![Fire Hazard](image) | **Fire Hazard**  
- Place the equipment in an area away from any combustible materials.  
- The equipment may catch on fire from overheating or short circuit of the power supply unit. |
| ![Disassembly Warnings](image) | **Disassembly Warnings**  
- Do not disassemble or modify the equipment unless you are a certified engineer.  
- Contact the service center for maintenance, adjustments and repairs.  
- Improper disassembly may cause fire or electrical shock. |
| ![Collapse Precautions](image) | **Collapse Precautions**  
- Do not place the equipment where the floor cannot sustain the weight of the equipment, or on slanted or unstable surface.  
- Equipment may fall and cause injury or damage. |
### Safety Precautions

**Symbol**

**Description**

**Unplug the Equipment**

- Stop using the equipment immediately if it smokes, emits an unusual smell, makes abnormal sounds, or if liquids or other foreign materials enter the equipment.
- If the above-mentioned abnormalities occur, immediately turn off the power, unplug the equipment and contact the service center.
- If you ignore these symptoms, the equipment may catch on fire or cause electric shock.
Chapter 3. Hardware Specifications
3. Hardware Specifications

3.1 Dimensions

Fig. 3.1 Dimensions
3.2 Component Name and Locations

Component Location (Front)

1. Lighted Top Panel
2. LCD & Customer Keypad
3. Cash Tray
4. Slip Printer Slot
5. Flicker
6. Card Reader Slot
7. Earphone Jack
8. Encrypted PIN Pad
Component Location (Back)

Fig. 3.3 Component Location (Back)

1. Slip Printer (SPR)
2. Cash Dispenser Unit (CDU)
3. Vault Door
4. Supervisor Panel (T-SPL)
5. System Door
3.3 LCD & Customer Keypad

Screen Size: 5.7" Mono LCD
Resolution: 320 x 240
Display Characters: 40 x 15 (Standard Character)

Keypad
- 10 Alphanumeric, ↑, ↓, CANCEL, CLEAR, ENTER, BLANK Keypads
- 8 Function Keys

ADA Port
- Voice assisted operation available through the headphone jack on the front bezel
3.4 CDU (Cash Dispensing Unit)

Cash Dispenser Unit

- Friction feed cash dispensing unit
- Dispensing speed : 7 notes/second
- Capacity of 2,000 new notes
- Reject bin with capacity of 200 notes
- Cash tray sensors
- Slides out for easy service
- Double detection/Skewed note sensors
3.5 **SPR (Slip Printer/Receipt Printer)**

![Fig. 3.6 SPR](image)

**Receipt Printer**

- 3 1/8" thermal printer
- 100 mm/sec print speed
- Automatic paper loading and cutting
- Paper out sensor
- Accommodates a 7" roll & slides out for easy service
- See Appendix C: RECEIPT PAPER SPECIFICATIONS
3.6 MCU (Magnetic Card Unit)

- Dip type Card Reader (ISO Track 1 & 2)
- Card read timing: Ejection
- Readable ejection speed: 6 inches ~ 39.3 inches/second
- MTBF: 1 million passes
- See Appendix D: MAGNETIC CARD SPECIFICATIONS

MTBF: Mean Time Between Failures
3.7 Main Control Board

- Modem: 56kbps dial-up modem (standard)
- Electronic Journal: Max 2,000 transactions
- Battery back-up for set-up parameters
- Real Time Clock

Fig. 3.8 Main Control Board
3.8 Operating Environment

**Power Requirements**

115 Vac ±10%  3.0A   60Hz , 350 Watt  
230 Vac ±10%  1.5A   50Hz , 350 Watt

**Power Connections**

The NH 2100T ATM must be connected to a dedicated power circuit. This circuit must consist of LINE, NEUTRAL and GROUND leads connected directly to the power circuit breaker panel. This circuit cannot be shared with any other equipment.

**Phone Line Requirements**

The NH 2100T ATM must be connected to a dedicated phone line. This line must be a direct dial “tone” or “pulse” line that is equipped with a standard telephone wall jack (RJ-11). This line cannot be shared with any other equipment at the location.

**Temperature**

- In storage : 32°F - 123°F  (0°C ~ 49°C)  
- While operating : 40°F - 95°F  (5°C ~ 35°C)

**Humidity**

- In storage : 10% < RH < 90%, Non-Condensed  
- While operating : 25% < RH < 85%, Non-Condensed
4. Operating Instructions

4.1 Opening and Closing the Doors

Opening the Doors

1) Turn the key in 90 degrees clockwise and then open the door.

2) Enter the password.
   (Default : 123456)

3) Turn the handle clockwise and open the vault door.

Fig. 4.1.1 Opening the Doors
Closing the Doors

1) Close the Vault Door and turn the handle counterclockwise. The Vault Door will be locked in 5~6 seconds automatically.

2) Close the door and turn the key counterclockwise.

Fig.4.1.2 Closing the Security Door
4.2 Replenishing the Cash Cassette

1) With one hand holding the cassette handle and the other hand supporting the cash cassette from bottom, pull it up and out carefully.

2) Place the cash cassette on a flat level platform and turn the cassette key clockwise to unlock the cassette cover. Then lift the cassette cover.

3) After pulling the board back, place bills into the designated tray in a uniform manner. Push the board so that it gently sticks to bills.
NOTE:
1. Fan the notes so that the notes are not sticking together.
2. Remove all notes with holes or notes that are torn.
3. Unfold the folded notes.
4. Place the notes correctly.
4.3 Emptying the Reject Box

1) Insert the reject box key, turn it clockwise, and pull box lid.

2) Take bills in reject box

Fig. 4.3 Emptying the reject box
4.4 Removing Bills

1) Pull the Cash Dispenser Unit forward while pressing the highlighted green button on the bottom of the system.

2) Open the cover.

3) Check bills in the dispensing part of the system.
4) Take it out by using the side of the belt.

Fig. 4.4 Note jam removal
4.5 Loading the Receipt Paper

1) Pull the Slip Printer Unit forward while pressing the highlighted green button on the bottom of the system.

2) Put Receipt paper on the guide with the printed surface facing upward.

※ Note: Maintain the printed surface’s direction

3) When you push Receipt paper as shown in the figure, the supplementing feature will be automatically set.
When the printing is started, motor pulls receipt paper into the TPH.
The stress caused by torque is reduced by tension bar's moving.
4.6 Receipt(Slip) Paper Jam Removal

1) Take down the guide and lift the head open lever to the down direction.

2) Remove the receipt paper jammed inside and then set the receipt paper again.

3) Place the printer head lever to up position.
Chapter 5. Operator Functions
5. Operator Functions

5.1 Basic System Operation

Entering to Operator Function Menu

1) Change to supervisor mode by pressing highlighted switch.

2) Enter the Operator Password and press. If the wrong password is entered, the screen will be back to “ENTER PASSWORD” screen. The factory default Operator Password is “222222”.

3) If the correct password is entered, the OPERATOR FUNCTION menu will be displayed.
How to Use Keypad

This section will explain the basic operation of the Keypad.

![Keypad Diagram](image)

Fig. 5.2.1 Keypad

<table>
<thead>
<tr>
<th>Shift Status</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<td>Upper</td>
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<td>D</td>
<td>G</td>
<td>J</td>
<td>M</td>
<td>P</td>
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<tr>
<td>Don't care</td>
<td>The character on the current cursor position on the screen will be selected.</td>
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Fig. 5.2.2 Keypad Character Table
How to Enter the Character

a. The Keypad Character Table of Fig. 5.2.2 will appear on the bottom of the screen in all keypad input screens.
b. F5 key gives the option for Alpha or Numeric, Table mode. Default is Alpha.
c. F6 key gives the option for Upper or Lowercase characters. It is valid only in the Alpha mode. Default is Uppercase.
d. The input of characters is limited to the space provided.
e. Keys are in toggle fashion such as, when key “1” is pressed once it is “SPACE”, pressed twice it is “Q”, pressed third time it is “Z” when in the Alpha mode. When the desired character is selected, press ENTER.
f. ‹, › keys move the cursor position in the Alpha or Numeric mode. In the Table mode ‹, › keys are used to select the character.
g. F1 key is used to clear the whole screen and returns the cursor to its initial position.
h. F2 key is used to clear the current line.
i. F3 key is used to ignore the changes and to exit.
j. F7 key is used to save the current changes and to exit.
5.2 Settlement

The Settlement Function of the Operator Function includes the following:

DAY TOTAL / TRIAL DAY TOTAL
CASSETTE TOTAL / TRIAL CASSETTE TOTAL
ADD CASSETTE #1
5.2.1 Day Total / Trial Day Total

1) Press ‘SETTLEMENT’ button in the OPERATOR FUNCTION menu.

2) Press ‘DAY TOTAL’ / ‘TRIAL DAY TOTAL’ in the SETTLEMENT menu.

3) After the information is downloaded from the processor, the Day Total / Trial Day Total information will be printed on receipt paper.
Function Description

The DAY TOTAL includes all information of the ATM terminal totals and the host totals. If the host cannot be connected, an “ERROR” message will be displayed and only the ATM terminal totals will be printed without verification with the host. All information will be deleted after the use of this function.

The TRIAL DAY TOTAL function is used anytime to confirm the totals since the last DAY TOTAL. It does the same function as the DAY TOTAL, except the day total information is not cleared.
5.2.2 Cassette Total / Trial Cassette Total

1) Press ‘SETTLEMENT’ button in the OPERATOR FUNCTION menu.

2) Press ‘(TRIAL) CASSETTE TOTAL’ button in the SETTLEMENT menu.

3) The (Trial) Cassette Total information will be printed on receipt paper.

Fig. 5.5 CASSETTE TOTAL / TRIAL CASSETTE TOTAL
Function Description

The CASSETTE TOTAL includes the total loaded number of bills in the cassette, the normal dispensed amount, the number of rejected notes, the test dispensed amount and the number of remaining notes, etc. since the last CASSETTE TOTAL was operated. This will be printed from the Receipt Printer. All information will be deleted after the use of this function.

The TRIAL CASSETTE TOTAL function is used to check the amount dispensed from the cassette since the last CASSETTE TOTAL was operated. It does the same function as the CASSETTE TOTAL, except the cassette total information is not cleared.
5.2.3 Add Cassette #1

1) Press ‘ADD CASSETTE #1’ button in the SETTLEMENT menu.

2) Enter the number of bills loaded in the cassette. And the number of bills will be accumulated.
   \textbf{NOTE}: Enter the number of bills, NOT the amount of cash.

\textbf{Function Description}

The operator must set the additional number of bills being loaded into the cash cassette at all times. After the use of CASSETTE TOTAL, the current number of bills will be reset to “0”.
5.3 Journal

The Journal Function of the Operator Function includes the following:

PRINT JOURNAL
LAST X PRINT
VIEW JOURNAL
CLEAR JOURNAL
CLEAR TRANSACTION SEQUENCE NUMBER
5.3.1 Print Journal

1) Press ‘JOURNAL’ button in the OPERATOR FUNCTION menu.

2) Select ‘PRINT JOURNAL’ in the JOURNAL menu.

3) Wait while the Journal data is being printed. If the GOOD message appears, press “ENTER”.

Fig. 5.8 PRINT JOURNAL
Function Description

The PRINT JOURNAL function is used to automatically print out any journal entries collected since the last time this command was operated.
5.3.2 Last X Print

1) Press ‘JOURNAL’ button in the OPERATOR FUNCTION menu.

2) Press ‘LAST X PRINT’ button in the JOURNAL menu.

3) Press ‘PRINT’ / ‘CONDENSED JOURNAL’ button in the LAST X PRINT menu.

4) Enter the number of records to be printed. Wait while the Journal data is being printed.
5) If the GOOD message appears, press “ENTER”.

Fig. 5.10 LAST X PRINT(PRINT/CONDENSED PRINT)

**Function Description**

The LAST X PRINT(PRINT) function is used to reprint records for which the paper trail has been lost or destroyed. Reprint certain range of journal data specified by X record after they have been printed or cleared.

The LAST X PRINT(CONDENSED JOURNAL) function is used to reprint condensed records for which the paper trail has been lost or destroyed. Reprint as condensed certain range of journal data specified by X record after they have been printed or cleared.
5.3.3 View Journal

1) Press ‘JOURNAL’ button in the OPERATOR FUNCTION menu.

2) Press ‘VIEW JOURNAL’ button in the JOURNAL menu.

3) You may see the Journal Data which will be displayed on the screen.

Fig. 5.11 VIEW JOURNAL

Function Description

The VIEW JOURNAL function is used to display the journal data in the LCD screen.
5.3.4 Clear Journal

1) Press ‘CLEAR JOURNAL’ button in the JOURNAL menu. The pointer of Journal data to print will be reset.

Function Description

The CLEAR JOURNAL function is used to mark all records not printed in the journal. Journal records are not erased. They are marked as if they had been printed.
5.3.5 Clear TRAN. Sequence No.

1) Press ‘CLEAR TRAN. SEQUENCE NO.’ button in the JOURNAL menu. Transaction Sequence Number will be reset to ‘1’ if “YES” is pressed. It will not be reset if “NO” is pressed.

Fig. 5.13 CLEAR TRAN. SEQUENCE NO.

Function Description

The CLEAR TRAN. SEQUENCE NO. function is used to reset the transaction serial number as “1”.
5.4 Report

The Report function of the Operator Function includes the following:

- ERROR CODE
- MEMORY DUMP
- S/W VERSION
- PRINT ALL SETUP
- ERROR SUMMARY
- STATISTICS
- REJECT ANALYSIS
5.4.1 Error code

1) Press ‘REPORT’ button in the OPERATOR FUNCTION menu.

2) Press ‘ERROR CODE’ button in the REPORT menu.

3) The Error code, description and corrective action will be displayed.

**Function Description**

The ERROR CODE includes all error codes, descriptions and corrective actions. If an error occurs, the current error code will be displayed. To search the error code, use ◄, ► key.
5.4.2 S/W Version

1) Press 'S/W VERSION' button in the REPORT menu.

2) Software Version will be displayed. To print the Software Version information, press “ENTER”.

3) Software version will be printed from the receipt printer.

Fig. 5.16 S/W VERSION
Function Description

The S/W VERSION function is used to display each software version of system.
5.4.3 Print All Setup

1) Press ‘PRINT ALL SETUP’ button in the REPORT menu.

2) All setup parameters will be printed from the Receipt Printer. If the GOOD message appears, press “ENTER”.

**Function Description**

The PRINT ALL SETUP function is used to print all parameters of the system.
5.4.4 Error Sum

1) Press ‘ERROR SUM’ button in the REPORT menu.

2) The error summary data will be displayed. Press “PRINT” key to print the Error Sum Data.

**Function Description**

The ERROR SUM function is used to display the error code and number of times the error occurred since the last ERROR SUM CLEAR. Therefore an operator can know which error occurs frequently and with this function it is useful for preventive maintenance. To clear all data, press “CLEAR”.
5.4.5 Statistics


2) Statistics data will be displayed. Press “ENTER” key to print data.

Function Description

The STATISTICS displays all transaction statistics data. To clear the data, press “CLEAR”.
5.4.6 Reject Analysis

1) Press ‘REJECT ANALYSIS’ button in the REPORT menu.

2) Reject Analysis data will be displayed. Press “PRINT” key to print data.

**Fig. 5.21 REJECT ANALYSIS**

**Function Description**

The REJECT ANALYSIS function includes the analysis for the reason of the note reject and it is useful for the preventive maintenance.
5.5 Diagnostics

The Diagnostic function of Operator Function includes the following:

INITIALIZE
RECEIPT PRINTER
CASH DISPENSER
MODEM
CARD SCAN
KEY MATRIX
SENSOR
AGING
Changing the TEST COUNT

The TEST COUNT means the number of test.

1) If you want to change the test count, press “CLEAR” then input the test count and press “ENTER”.

2) If you input ‘0 (zero)’, the test count will be changed to unlimited.

Test Tip

If an error occurs while executing, the system will stop and display an error code. Confirm the detailed error description in ERROR CODE TABLE in “Chapter 6 Appendix”.

Fig. 5.22 CHANGING THE TEST COUNT
5.5.1 Initialize

1) Press ‘DIAGNOSTICS’ button in the OPERATOR FUNCTION.

2) Press ‘INITIALIZE’ button in the DIAGNOSTICS menu. All units will be initialized.

3) When the ATM is in the normal state, the GOOD message will be displayed. If not, error code will be displayed on LCD screen.

Fig. 5.23 INITIALIZE

Function Description

The INITIALIZE has the function of resetting each unit of the NH 2100T.
5.5.2 Receipt Printer

1) Press ‘RECEIPT PRINTER’ button in the DIAGNOSTICS menu. Test String will be printed from the receipt printer.

2) When the ATM is in the normal state, the GOOD message will be displayed. If not, error code will be displayed on LCD screen.
5. Operator Functions

Function Description

The RECEIPT PRINTER has the function of printing a sample receipt and cutting out one receipt.
5.5.3 Cash Dispenser

1) Press the ‘CASH DISPENSER’ button in the DIAGNOSTICS menu. The CASH DISPENSER test will be performed.

2) When the ATM is normal state, the GOOD message will be displayed.

Function Description

The CASH DISPENSER has the function of testing the dispense mechanisms. This function will dispense one note from the cassette and dump into the reject bin.
5.5.4 Modem

1) Press ‘MODEM’ button in the DIAGNOSTICS menu.

2) The MODEM TEST will be displayed.

Function Description

The MODEM has the function of testing the modem for any errors. When the phone number input is displayed after pressing the TEST DIAL key, input the desired phone number. The TEST DIAL function is used to check the function of the modem dial. The MODEM HANGUP function is used to hang-up the dialing after using TEST DIAL.
5.5.5 Card Scan

1) Press ‘CARD SCAN’ button in the DIAGNOSTICS menu. And if the display is ready, please insert and remove your card quickly.

2) The card data will be displayed.

**Function Description**

The CARD SCAN has the function of testing the magnetic stripe reader and the card itself.
5.5.6 Key Matrix

1) Press 'KEY MATRIX' button in the DIAGNOSTICS menu.

2) Select the desired key to be tested and the key being pressed will blink on the display.

Function Description

The KEY MATRIX has the function of testing the key pad.
5.5.7 Sensor

1) Press 'SENSOR' button in the DIAGNOSTICS menu.

2) Press a button you want to check in the SENSOR menu.

Fig. 5.30 SENSOR Main Screen
5. Operator Functions

**CDU SENSOR**

1) All sensor data of cash dispenser will be displayed. Each CDU sensor status will be changed by turning the sensors on and off.

![CDU SENSOR Screen](image)

**OTHER SENSOR**

1) All sensor data will be displayed. Each sensor status will be changed by turning the sensors on and off.

![OTHER SENSOR Screen](image)

**FLICKER**

1) ATM has 3 kinds of flicker (MCU, SPR and CDU). Each flicker will be blinking by pressing buttons.

![FLICKER Screen](image)

**Function Description**

The SENSOR has the function of testing if all the sensors are in proper working condition. The sensors are tested by turning the sensors on and off.
5.5.8 Aging

1) Select ‘AGING’ in the ‘DIAGNOSTICS’ menu.

2) All units will be tested upto count you set. When you press “CANCEL” key, the testing will be stopped immediately.

Function Description

The AGING function is only used at the factory.
5.6 CUSTOMER SETUP

The Customer Setup function of the OPERATOR MENU includes the following:

- CHANGE MESSAGE
- BIN LIST
- SURCHARGE MODE
- ADVERTISEMENT
- OPTIONAL FUNCTION
- OPTIONAL SETTING
5.6.1 Change message

**WELCOME MESSAGE**

1) Press ‘CUSTOMER SETUP’ button in the OPERATOR FUNCTION menu.

2) Select the 'CHANGE MESSAGE' in the CUSTOMER SETUP menu.

3) Select the 'WELCOME MESSAGE' in the CHANGE MESSAGE menu.
4) You can edit the welcome message. Please refer to “How to use keypad” (Chapter 5.1 Basic System Operation).

Fig. 5.35 WELCOME MESSAGE

Function Description

The WELCOME MESSAGE function is used to edit the welcome text in “INSERT AND REMOVE YOUR CARD QUICKLY” screen. The factory default message is “WELCOME!!!”.
RECEIPT HEADER

1) Select the 'CHANGE MESSAGE' in the CUSTOMER SETUP menu.

2) Select the 'RECEIPT HEADER' in the CHANGE MESSAGE menu.

3) You can edit the RECEIPT HEADER. Please refer to "How to use keypad" (Chapter 5.1 Basic System Operation).

Function Description

The RECEIPT HEADER function is used to edit the message at the header of receipt. The factory default message is none.
5.6.2 Bin List

1) Select the ‘BIN LIST’ in the CUSTOMER SETUP menu.

2) Select BIN LIST you want to register.

3) The BIN LIST menu will be displayed.

Function Description

The BIN LIST function is used to register bank lists and give bin codes not to surcharge the additional fee. But it is necessary to confirm the connected host because according to the host it can be used or not. After designating the INDEX, input a bin code with using “EDIT BIN LIST”.
5.6.3 Surcharge mode

1) Select the 'SURCHARGE MODE' button in the CUSTOMER SETUP menu.

2) The SURCHARGE MODE menu will be displayed.

3) If you press the ENABLE key, it will be enabled as displayed.

4) If you press the AMOUNT key, you can enter the desired surcharge amount.
5) If you press the SURCHARGE OWNER key, you can enter the owner’s name with keypad. Please refer to “How to use keypad” (Chapter 5.1 Basic System Operation).

**Function Description**

The SURCHARGE MODE includes the function to enable or disable the surcharge warning screen, setting the surcharge amount and surcharge owner. When the surcharge mode is disabled, the surcharge warning message will not be displayed and when the surcharge mode is enabled, the surcharge amount and owner name will be displayed in the surcharge warning screen. The factory default is disabled mode, surcharge amount is $0.00 and the surcharge owner is none.
5.6.4 Advertisement

1) Select the 'ADVERTISEMENT' button in the CUSTOMER SETUP menu.

2) The ADVERTISEMENT menu will be displayed.

3) If you press the PRIMARY SCREEN key, the PRIMARY SCREEN will be displayed. And select the 'SCREEN #1' in the PRIMARY SCREEN MENU.

4) If you press the ENABLE/DISABLE key, it will be changed to be enabled or disabled.
5. Operator Functions

5) Select the 'SCREEN TITLE key' in the PRIMARY SCREEN MENU.

6) If you press the SCREEN TITLE key, you can enter the desired advertisement message. Please refer to “How to use keypad” (Chapter 5.1 Basic System Operation).

7) If you press the TIMER key, you can input the desired refreshing timer of advertisement text.

Fig. 5.39 Advertisement

Function Description

The ADVERTISEMENT function is used to set the advertisement message displayed during idle time, such as “INSERT AND REMOVE YOUR CARD QUICKLY” and “PLEASE WAIT CONNECTING”. The factory default is disabled mode, 3 seconds and no message. But if there is no message, “HAVE A NICE DAY” will be displayed in the bottom of screen.
5.6.5 Optional Function

1) Select the ‘OPTIONAL FUNCTION’ button in the CUSTOMER SETUP menu.

PRE-DIALING

1) Select the ‘PRE DIALING’ in the OPTIONAL FUNCTION menu.

2) If you press the PRE DIALING key, you can change the desired pre-dialing mode.

SELECT RECEIPT

1) If you select the ‘SELECT RECEIPT’ in the OPTIONAL FUNCTION MENU, it will be changed to be enabled or disabled.

Function Description

The ‘OPTIONAL FUNCTION’ function is used to set PRE-DIALING and set RECEIPT.
5.6.6 Optional Setting

1) Select the ‘OPTIONAL SETTING’ button in the ‘CUSTOMER SETUP’ menu.

2) ATM will not go to out of service mode until the number of error is exceeded the C0047 RETRY COUNT number. Default number is 3.
5.7 System setup

The SYSTEM SETUP function of the OPERATOR FUNCTION includes the following:

- SET CLOCK
- ISO #1, #2, #3 EN/DISABLE
- LANGUAGE EN/DISABLE
- CHANGE PASSWORD
- MODEM SETUP
  - DIAL MODE
  - MODEM SPEED
  - SPEAKER OUT
  - INITIAL STRING
- MODEM TEST
  - RMS RING COUNT
  - SPEAKER VOLUME
  - DEVICE SETUP
5.7.1 Set clock

Accessing the SET CLOCK

1) Select the ‘SYSTEM SETUP’ in the OPERATOR FUNCTION menu.

2) Select the ‘SET CLOCK’ in the SYSTEM SETUP menu.

3) The SET CLOCK menu will be displayed.

Fig. 5.41 SET CLOCK

Function Description

The SET CLOCK function is used to set the date and clock. When the “SECOND” key is pressed, the second will be reset to “0”.
5.7.2 ISO #1, #2, #3 En/Disable

Accessing the ISO #1, #2, #3 EN/DISABLE

1) Select the ‘SYSTEM SETUP’ in the OPERATOR FUNCTION menu.

2) Select the ‘ISO #1, #2, #3 EN/DISABLE’ in the SYSTEM SETUP menu.

3) If you press the ISO #1, #2, #3 key, it will be changed to be enabled or disabled.

Function Description

The ISO #1, #2, #3 EN/DISABLE includes the function to enable or disable the ISO warning screen. Each key will be changed to be enabled or disabled.
5.7.3 Language en/disable

**Accessing the LANGUAGE EN/DISABLE**

1) Select the ‘SYSTEM SETUP’ in the OPERATOR FUNCTION menu.

2) Select the ‘LANGUAGE EN/DISABLE’ in the SYSTEM SETUP menu.

3) If you press the ENGLISH or SPANISH or KOREAN or JAPANESE key, it will be changed to be enabled or disabled.

**Function Description**

The LANGUAGE EN/DISABLE key includes the function to enable or disable the LANGUAGE warning screen. Each key will be changed to be enabled or disabled.
5.7.4 Change password

Accessing the CHANGE PASSWORD

1) Select ‘SYSTEM SETUP’ in OPERATOR FUNCTION menu.

2) Select ‘CHANGE PASSWORD’ in ‘SYSTEM SETUP’ menu.

3) Select ‘MASTER PASSWORD’, ‘OPERATOR PASSWORD’ or ‘SERVICE PASSWORD’ in CHANGE PASSWORD. And enter the current Operator Password.

Fig. 5.44 CHANGE PASSWORD
4) Enter the new password you want to change.

5) Enter the new password again.

6) The password will be changed.

Fig.5.44 CHANGE PASSWORD

Function Description

The CHANGE PASSWORD function is used to change the Operator Password. The factory default Operator Password is “222222”. The factory default Master Password is “555555”. The factory default Service Password is “111111”.
5.7.5 Modem

5.7.5.1 MODEM SETUP

A) DIAL MODE

Accessing the DIAL MODE

1) Select ‘SYSTEM SETUP’ in OPERATOR FUNCTION menu.

2) Select ‘MODEM’ in SYSTEM SETUP menu.

3) Select ‘MODEM SETUP’ in MODEM menu.
4) When DIAL MODE is pressed, it will be toggled to DTMF or PULSE.

**Function Description**

The DIAL MODE function is used to change the Dial Mode to touch-tone mode (DTMF) or rotary mode (PULSE). Consult with the local phone company to determine which option is supported. The factory default is DTMF.
B) Modem speed

**Accessing the MODEM SPEED**

1) Select 'SYSTEM SETUP' in OPERATOR FUNCTION menu.

2) Select 'MODEM' in SYSTEM SETUP menu.

3) Select 'MODEM SETUP' in MODEM menu.

4) Select 'MODEM SPEED' in MODEM SETUP menu.
5) The Modem Speed can be changed from 300bps up to 56,000bps.

**Function Description**

The MODEM SPEED function is used to set the modem connecting speed with the host. The factory default speed is 2400bps.
C) Speaker out

**Accessing the SPEAKER OUT**

1) Select ‘SYSTEM SETUP’ in OPERATOR FUNCTION menu.

2) Select ‘MODEM’ in SYSTEM SETUP menu.

3) Select ‘MODEM SETUP’ in MODEM menu.

4) Select ‘SPEAKER OUT’ in MODEM SETUP menu. When you press the Speaker Out key, you can change speaker out on or off.

---

Fig. 5.47 SPEAKER OUT
Function Description

The SPEAKER OUT function is used to change the speaker out on or off at the modem dial connection. Service Personnel can check the dialing if it is normal or abnormal with this function in the speaker out on state. The factory default is OFF.
D) Initial string

**Accessing the INITIAL STRING**

1) Select 'SYSTEM SETUP' in OPERATOR FUNCTION menu.

2) Select 'MODEM' in SYSTEM SETUP menu.

3) Select 'MODEM SETUP' in MODEM menu.

4) Select 'INITIAL STRING' in MODEM SETUP menu.
5) Enter the desired modem initial string. Please refer to 5.1 Basic Operation (How to use keypad).

Function Description

The INITIAL STRING function is used to edit the Modem Initial String when the special circumstances require a nonstandard Modem Initial String. The factory default is AT&F&Q6+MS=V22B. Before edit the Initial String, consult with Service Personnel.
5.7.5.2 Modem test

Accessing the MODEM TEST

1) Select ‘SYSTEM SETUP’ in OPERATOR FUNCTION menu

2) Select ‘MODEM’ in SYSTEM SETUP menu. The modem will be started to test.

3) Select ‘MODEM TEST’ in MODEM menu.

4) If the GOOD message appears, press “ENTER”.

Fig.5. 49 MODEM TEST
Function Description

The MODEM TEST function is used to perform the modem reset test. When the error is occurred, contact the Service Personnel.
5.7.6  RMS ring count

Accessing the RMS RING COUNT

1) Select ‘SYSTEM SETUP’ in OPERATOR FUNCTION menu.

2) Select ‘RMS RING COUNT’ in SYSTEM SETUP menu.

3) Enter RMS RING COUNT and press ‘ENTER’.

Fig.5. 50 RMS RING COUNT

Function Description

When RMS calls to ATM, ATM will answer to RMS after ringing as RMS RING COUNT.
5.7.7 Speaker volume

Accessing the SPEAKER VOLUME

1) Select ‘SYSTEM SETUP’ in OPERATOR FUNCTION menu.

2) Select ‘SPEAKER VOLUME’ in SYSTEM SETUP menu.

3) Set your speaker volume with using ◀, ▶ key.

Fig.5. 51 SPEAKER VOLUME

Function Description

The SPEAKER VOLUME function is used to set the speaker volume. With using ◀, ▶ key an operator can hear the beep sound.
5.7.8 Device Setup

5.7.8.1 CDU Setup

A) Accessing CDU Setup

1) Select ‘SYSTEM SETUP’ in OPERATOR FUNCTION menu.

2) Select ‘DEVICE SETUP’ in SYSTEM SETUP FUNCTION menu.

B) Changing Country Code in CDU

1) Press ‘COUNTRY’ button. The country code of bottom side will be changed (USA, CANADA, and etc)
C) Changing MB TYPE in CDU

1) Press ‘MB TYPE’ button. The type of CDU will be changed. MB Type is for the front/rear service, shutter Existing or not and so on.

![Fig. 5.54 MB Type Setup](image)

D) Changing CASSETTE VOLUME in CDU

1) Press ‘CASSETTE VOLUME’ button. The number of cassette in CDU will be changed.

![Fig.5. 55 Cassette Volume Setup](image)

E) Submit and apply the setup value

After setup country code, CDU type and number of cassette, press ‘EXECUTE’ button to apply.
5.8 Host setup

The HOST SETUP function of the OPERATOR FUNCTION includes the following:

KEY MANAGEMENT
  MASTER KEY INDEX
  CHECK MASTER KEY
  EDIT MASTER KEY
  SET MASTER KEY SERIAL NUMBER
TELEPHONE NUMBER
TERMINAL NUMBER
HEALTH CHECK MESSAGE
CONNECT TIMER 60 SECOND
REMOTE MONITOR
  RMS EN/DISABLE
  RMS STATUS SEND EN/DISABLE
PASSWORD
REMOTE PHONE
MODEM SPEED
ROUTING ID
TRIAL DAY TOTAL
5.8.1 Key management

5.8.1.1 Master key index

Accessing the MASTER KEY INDEX

1) Select ‘HOST SETUP’ in OPERATOR FUNCTION menu.

2) Select ‘KEY MANAGEMENT’ in HOST SETUP menu.

3) Select the ‘MASTER KEY INDEX’ in the KEY MANAGEMENT menu.
Enter the Master Key Index.

**Function Description**

The MASTER KEY INDEX function is used to set the Master Key Index. The range is 0 to 15.
5.8.1.2 Check master key

Accessing the CHECK MASTER KEY

1) Select ‘HOST SETUP’ in OPERATOR FUNCTION menu.

2) Select ‘KEY MANAGEMENT’ in HOST SETUP menu.

3) Select ‘CHECK MASTER KEY’ in KEY MANAGEMENT menu.

4) It will display the check sum of all injected master key.

Fig. 5.57 Check Master Key
Function Description

The CHECK MASTER KEY function is used to display the check sum of all injected Master Key. The master key which is displayed as “_______” means it is in empty state.
5.8.1.3  Edit master key

Accessing the EDIT MASTER KEY

1) Select ‘HOST SETUP’ in OPERATOR FUNCTION menu.

2) Select ‘KEY MANAGEMENT’ in HOST SETUP menu.

3) Select ‘EDIT MASTER KEY’ in KEY MANAGEMENT menu.

4) Select ‘MASTER KEY PART1’ or ‘MASTER KEY PART2’ in EDIT MASTER KEY menu.

Fig. 5.58 Edit Master Key
5) Enter the master key index.

6) Enter the Master Key PART 1.

7) Verify the Master Key PART 1.

8) Enter the Master Key PART 2

Fig.5. 58 Edit Master Key
9) Verify the Master Key PART 2.

10) After inputting the Master Key, the check sum will be displayed. Press “ENTER” after confirming the check sum.

Function Description

The EDIT MASTER KEY function is used to enter the Master Key.
5.8.1.4 Set master key serial number

Accessing the SET MASTER KEY SERIAL NUMBER

1) Select ‘HOST SETUP’ in OPERATOR FUNCTION menu.

2) Select ‘KEY MANAGEMENT’ in HOST SETUP menu.

3) Select ‘MASTER KEY SERIAL NUMBER’ in KEY MANAGEMENT menu. And insert serial number.

Function Description

The MASTER KEY SERIAL NUMBER function is used to insert the ATM machine number for RMS (Mono : 8890000001 ~ 8899999999).
5.8.2 Telephone number

Accessing the TELEPHONE NUMBER

1) Select ‘HOST SETUP’ in OPERATOR FUNCTION menu.

2) Select ‘TELEPHONE NUMBER’ in HOST SETUP menu.

3) Select ‘HOST PHONE #1’ in TELEPHONE NUMBER menu.

4) Enter Host Phone number 1.
   Please refer to 5.1 Basic Operation(How to use keypad).

Fig.5. 60 Telephone Number
5) Select ‘HOST PHONE #2’ in TELEPHONE NUMBER menu.

6) Enter Host Phone number 2.
Please refer to 5.1 Basic Operation(How to use keypad).

Function Description

The TELEPHONE NUMBER function is used to enter the Primary Telephone Number and the Back-up Telephone number of the host.
5.8.3 TERMINAL NUMBER

Accessing the TERMINAL NUMBER

1) Select 'HOST SETUP' in OPERATOR FUNCTION menu.

2) Select 'TERMINAL NUMBER' in HOST SETUP menu.

3) Enter the Terminal Number.
   Please refer to 5.1 Basic Operations.
   (How to use keypad)

Function Description

The TERMINAL NUMBER is included in transaction message to host.
5.8.4 Health Check Message

Accessing the HEALTH CHECK MESSAGE

1) Select ‘HOST SETUP’ in OPERATOR FUNCTION menu.

2) Select ‘HEALTH CHECK MESSAGE’ in HOST SETUP menu.

3) Select ‘HOST SEND’ and ‘MESSAGE SEND INTERVAL’ in HEALTH CHECK MESSAGE menu.

Fig.5. 62 HEALTH CHECK MESSAGE

Function Description

The HOST SEND function is used to set HOST SEND MESSAGE to be enabled or disabled. The MESSAGE SEND INTERVAL function is used to set INTERVAL TIME.
Connect timer 60 second

Accessing the CONNECT TIMER 60 SECOND

1) Select ‘HOST SETUP’ in OPERATOR FUNCTION menu.

2) Press ‘CONNECT TIMER 60 SECOND’ in HOST SETUP menu. After entering the timer parameter with PIN pad, press “ENTER”.

Function Description

The CONNECT TIMER 60 SECOND function is used to set the waiting timer during connecting to the host. After powering on the machine, the machine will try to connect to the host. However when the machine fails to connect to the host, it will wait for a while and will attempt to connect again. This function is used to set the waiting time. The factory default is 60 seconds.
5.8.6 Remote monitor

5.8.6.1 RMS EN/DISABLE

Accessing the RMS EN/DISABLE

1) Select ‘HOST SETUP’ in OPERATOR FUNCTION menu.

2) Select ‘REMOTE MONITOR’ in HOST SETUP menu.

3) Select ‘RMS EN/DISABLE’ in REMOTE MONITOR menu.

Fig. 5.64 RMS EN/DISABLE
4) When you press RMS EN/DISABLE key, it will be changed to be enabled or disabled.

Function Description

The RMS (Remote Monitoring System) EN/DISABLE function is used to connect with the RMS mode in enabled or in disabled. The factory default is disabled.
5.8.6.2  RMS status send en/disable

Accessing the RMS STATUS SEND EN/DISABLE

1) Select ‘HOST SETUP’ in OPERATOR FUNCTION menu.

2) Select ‘REMOTE MONITOR’ in HOST SETUP menu.

3) Select ‘RMS STATUS SEND EN/DISABLE’ in REMOTE MONITOR menu.

Fig. 5. 66 RMS STATUS SEND EN/DISABLE
4) When you press the RMS STATUS SEND EN/DISABLE key, it will be changed to be enabled or disabled.

Function Description

The RMS (Remote Monitoring System) STATUS SEND EN/DISABLE function is used to send NH 2100T status to the RMS when NH 2100T status is changed. The factory default is disabled.
5.8.6.3 Password

Accessing the PASSWORD

1) Select ‘HOST SETUP’ in OPERATOR FUNCTION menu.

2) Select ‘REMOTE MONITOR’ in HOST SETUP menu.

3) Select ‘PASSWORD’ in REMOTE MONITOR menu.

Fig. 5.68 PASSWORD
4) Enter MASTER Password.

5) Enter new RMS Password.

6) Enter new RMS Password again.

7) The password will be changed.

**Function Description**

The PASSWORD function is used to set the RMS password to connect to NH 2100T from RMS. The factory default RMS Password is “333333”.
5.8.6.4 Remote phone

Accessing the REMOTE PHONE

1) Select ‘HOST SETUP’ in OPERATOR FUNCTION menu.

2) Select ‘REMOTE MONITOR’ in HOST SETUP menu.

3) Select ‘REMOTE PHONE #1’ in REMOTE MONITOR menu.

Fig. 5.70 REMOTE PHONE
4) Enter the first Remote Phone number.  
Please refer to 5.1 Basic Operations.  
(How to use keypad)

5) Select ‘REMOTE PHONE #2’ in REMOTE MONITOR menu.

6) Enter the second Remote Phone number 2.  
Please refer to 5.1 Basic Operations.  
(How to use keypad)

**Function Description**

The REMOTE PHONE function is used to input the RMS Primary Telephone Number and the Back-up Telephone Number.
5.8.6.5 Modem speed

Accessing the MODEM SPEED

1) Select ‘HOST SETUP’ in OPERATOR FUNCTION menu.

2) Select ‘REMOTE MONITOR’ in HOST SETUP menu.

3) When you press MODEM SPEED key, the speed will be changed to 300bps up to 56,000bps.

Function Description

The MODEM SPEED function is used to set the Modem speed of RMS and NH 2100T.
5.8.7 Routing ID

Accessing the ROUTING ID

1) Select ‘HOST SETUP’ in OPERATOR FUNCTION menu.

2) Select ‘ROUTING ID’ in the HOST SETUP menu.

3) Enter the desired Routing ID number. Please refer to 5.1 Basic Operations. (How to use keypad)

Function Description

The ROUTING ID function is used to set the Routing ID Number of NH 2100T.
5.8.8 Trial Day Total

Accessing the TRIAL DAY TOTAL

1) Select ‘HOST SETUP’ in OPERATOR FUNCTION menu.

2) Select ‘TRIAL DAY TOTAL’ in HOST SETUP menu.

3) If you press ‘TRIAL DAY TOTAL’ button, it will be changed to be enabled or disabled.

4) If you press ‘SET LOGGING TIME’ button, it will be set to the automatic close time.

Function Description
The TRIAL DAY TOTAL function is used to run automatic action of DAY TOTAL.
5.9 Transaction Setup

The TRANSACTION SETUP function of the OPERATOR FUNCTION includes the following:

- DISPENSE LIMIT
- DENOMINATION
- FAST CASH
- CURRENCY LOW CHECK
5.9.1 Dispense limit

Accessing the DISPENSE LIMIT

1) Select 'TRANSACTION SETUP' in OPERATOR FUNCTION menu.

2) Enter the desired dispense limit after pressing DISPENSE LIMIT button.

Function Description

The DISPENSE LIMIT function is used to set the maximum amount of notes that can be dispensed per transaction. The maximum amount must be multiples of denomination. And the maximum number of notes must not be over totals of 40 notes. The factory default is $300.
5.9.2 Denomination

Accessing the DENOMINATION

1) Select ‘TRANSACTION SETUP’ in OPERATOR FUNCTION menu.

2) Select ‘DENOMINATION’ in TRANSATION SETUP.

3) Enter the desired denomination of bills after pressing DENOMINATION button.

Fig. 5.75 DENOMINATION

Function Description

The DENOMINATION function is used to set the denomination of notes to be set in the cassette. The valid denomination is $20, $40, $60, $80, $100 and $120. The factory default is $10 (and $20 : 2 cassettes).
5.9.3 Fast cash

Accessing the FAST CASH

1) Select ‘TRANSACTION SETUP’ in OPERATOR FUNCTION menu.

2) Select ‘FAST CASH’ in TRANSACTION SETUP menu.

3) You can change the fast cash amount LB0 to LB2 and RB0 to RB2 with press the button.

Function Description

The FAST CASH function is used to set the cash amount, which is to be displayed on the FAST CASH screen. The maximum amount must be less than the Dispensable Limit. The factory default is $20, $40, $60, $80, $100 and $120.
5.9.4 Currency low check

Accessing the CURRENCY LOW CHECK

1) Select ‘TRANSACTION SETUP’ in OPERATOR FUNCTION menu.

2) If you want to enable Low Currency Check function, press CURRENCY LOW CHECK button once.

Function Description

The CURRENCY LOW CHECK function is used to set the cassette low level detection. If this function is enabled, the machine will be changed to “OUT OF SERVICE” when notes are not enough in the cassette. The factory default is in disable.
6. Appendix
# 6. Appendix

## A. SUMMARY OF SPECIFICATION

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<th>Description</th>
<th>Specification</th>
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<td>ISO 1,2</td>
<td></td>
</tr>
<tr>
<td>Smart card reader</td>
<td>Optional</td>
<td></td>
</tr>
<tr>
<td><strong>Receipt Printer</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Printing method</td>
<td>Thermal</td>
<td></td>
</tr>
<tr>
<td>Width of receipt</td>
<td>3 1/8&quot;(80.00mm)</td>
<td></td>
</tr>
<tr>
<td>Printing Speed</td>
<td>3.9 &quot;/sec (100 mm/sec)</td>
<td></td>
</tr>
<tr>
<td>Capacity of receipt roll</td>
<td>2,000 Transactions</td>
<td></td>
</tr>
<tr>
<td>Setting method</td>
<td>Semi-auto setting</td>
<td></td>
</tr>
<tr>
<td><strong>Journal</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Electronic Journal</td>
<td></td>
</tr>
<tr>
<td><strong>Safety</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certification</td>
<td>UL291 Business Hour</td>
<td></td>
</tr>
<tr>
<td>Locks</td>
<td>Electronic lock</td>
<td></td>
</tr>
<tr>
<td><strong>Power Supply</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage</td>
<td>AC 110/220</td>
<td>Selectable</td>
</tr>
<tr>
<td><strong>Dimension</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width x Depth x Height</td>
<td>23.75×28.5×33.0 inches</td>
<td>(603×724×838 mm)</td>
</tr>
<tr>
<td>Weight</td>
<td>283 lbs. (129 Kg)</td>
<td>6 - 2</td>
</tr>
</tbody>
</table>

(sec : second)
B. BILL CONDITIONS

B-1 Acceptable condition

- Bill which is very clean and can readily be recognized as a true bill

- Bill has sufficient life or sizing to be handled easily

- Bill which can be manually held straightly when one end is held by a hand and the bill is slightly curved vertically
B-2 Unacceptable condition

- Bill having serious wrinkles, torn or broken section wherein paper fiber is broken and separation begins
  - Wrinkle
  - Torn
  - Broken section
- Bill having adequate life or sizing, but stained seriously

- Bill with holes (Perforated bill)

- Bill ragged and cannot be held straightly when one end is supported by a hand

When the bill is held by 20mm and the straightness of the bill is 35mm or less, it cannot be used.
• Bill with cellophane tape, scotch tape, etc

• Bill with folds

• Gradually curved bill (bills tied by hand seal, etc)
- Bill with folded lines
  - Case 1
  - Case 2
  - Case 3

Bill distortion should not exceed 10 mm
C. RECEIPT PAPER SPECIFICATIONS

- All measurements are in mm.
## D. MAGNETIC CARD SPECIFICATIONS

<table>
<thead>
<tr>
<th>Item</th>
<th>ISO Card (Unit : Inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Length</strong></td>
<td><img src="image1" alt="Diagram" /></td>
</tr>
<tr>
<td></td>
<td>R=0.13 ± 0.01</td>
</tr>
<tr>
<td></td>
<td>2.12~2.13</td>
</tr>
<tr>
<td></td>
<td>0.267~0.031</td>
</tr>
<tr>
<td><strong>Card Bending</strong></td>
<td>Below 0.079</td>
</tr>
<tr>
<td><strong>Magnetic Stripe</strong></td>
<td><img src="image2" alt="Diagram" /></td>
</tr>
<tr>
<td><strong>Position</strong></td>
<td>Over 3.25</td>
</tr>
<tr>
<td></td>
<td>Below 0.11</td>
</tr>
<tr>
<td></td>
<td>Card upper side</td>
</tr>
<tr>
<td></td>
<td>Below 0.22</td>
</tr>
<tr>
<td></td>
<td>Above 2.23</td>
</tr>
<tr>
<td></td>
<td>Uses third track</td>
</tr>
<tr>
<td>(Card rear side)</td>
<td></td>
</tr>
</tbody>
</table>
## E. ERROR CODE TABLE

<table>
<thead>
<tr>
<th>ERROR CODES</th>
<th>ERROR DESCRIPTION</th>
<th>CORRECTIVE ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>00000</td>
<td>Normal Status</td>
<td>Normal Status</td>
</tr>
<tr>
<td>20001</td>
<td>Cash cassette is not properly set.</td>
<td>Set the cash cassette properly.</td>
</tr>
<tr>
<td>20002</td>
<td>Cash cassette empty.</td>
<td>Load the cash into the cash cassette and set the number of bills.</td>
</tr>
<tr>
<td>20003</td>
<td>Reject Bin full.</td>
<td>Empty the Reject Bin.</td>
</tr>
<tr>
<td>20010</td>
<td>Receipt paper jam.</td>
<td>Clear the jammed paper.</td>
</tr>
<tr>
<td>20012</td>
<td>Receipt Printer feed lever open.</td>
<td>Close the feed lever.</td>
</tr>
<tr>
<td>20013</td>
<td>Receipt paper empty.</td>
<td>Load the receipt paper.</td>
</tr>
<tr>
<td>20014</td>
<td>Receipt Printer thermal head over heated.</td>
<td>Call your service personnel.</td>
</tr>
<tr>
<td>20015</td>
<td>Receipt Printer feed lever open.</td>
<td>Clear jammed notes or call your service personnel.</td>
</tr>
<tr>
<td>Axxx1</td>
<td>Receipt Printer thermal head over heated.</td>
<td>Close the feed lever.</td>
</tr>
<tr>
<td>Axxx2</td>
<td>Receipt paper jam.</td>
<td>Call your service personnel.</td>
</tr>
<tr>
<td>Axxx3</td>
<td>Receipt paper empty.</td>
<td>Close the jammed paper.</td>
</tr>
<tr>
<td>Axxx4</td>
<td>Receipt Printer DIP switch error.</td>
<td>Load the receipt paper.</td>
</tr>
<tr>
<td>Axxx5</td>
<td>Receipt Printer Lever Opened</td>
<td>Clear the paper and reload.</td>
</tr>
<tr>
<td>Axxx6</td>
<td>Receipt Printer cutter error.</td>
<td>Call your service personnel.</td>
</tr>
<tr>
<td>Axxx7</td>
<td>Receipt Printer connection failure.</td>
<td>Check sensor, cable connection and connector</td>
</tr>
<tr>
<td>ADNxx</td>
<td>CDU sensor blocked.</td>
<td>If error is not recovered, call your service personnel.</td>
</tr>
<tr>
<td>C0001 ~ C002F</td>
<td>CDU main motor failure.</td>
<td>Clear the note path or call your service personnel.</td>
</tr>
<tr>
<td>C0030</td>
<td>CDU outlet solenoid echo error.</td>
<td>Call your service personnel.</td>
</tr>
<tr>
<td>C0031</td>
<td>CDU encoder error.</td>
<td>Call your service personnel.</td>
</tr>
<tr>
<td>C0032</td>
<td>CDU double detect module failure 1</td>
<td>Call your service personnel.</td>
</tr>
<tr>
<td>C0033</td>
<td>CDU double detect module failure 2</td>
<td>Call your service personnel.</td>
</tr>
<tr>
<td>C0034</td>
<td>Note detected (outlet sensor)</td>
<td>Call your service personnel.</td>
</tr>
<tr>
<td>C0035</td>
<td>CDU double detect module failure 3</td>
<td>Call your service personnel.</td>
</tr>
<tr>
<td>C0036</td>
<td></td>
<td>Clear the note from the outlet sensor.</td>
</tr>
<tr>
<td>C0037</td>
<td></td>
<td>Call your service personnel.</td>
</tr>
<tr>
<td>ERROR CODES</td>
<td>ERROR DESCRIPTION</td>
<td>CORRECTIVE ACTION</td>
</tr>
<tr>
<td>------------</td>
<td>------------------------------------------</td>
<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>C0040</td>
<td>Cash cassette taken out during dispense</td>
<td>Set the cash cassette properly</td>
</tr>
<tr>
<td>C0041</td>
<td>Dispensing error</td>
<td>Call your service personnel</td>
</tr>
<tr>
<td>C0042</td>
<td>Note jam</td>
<td>Clear jammed notes or call your service personnel.</td>
</tr>
<tr>
<td>C0043</td>
<td>Over 10 notes has been rejected per 1 transaction.</td>
<td>Check notes or call your service personnel.</td>
</tr>
<tr>
<td>C0044</td>
<td>Over 5 notes has been rejected continuously.</td>
<td>Check notes or call your service personnel.</td>
</tr>
<tr>
<td>C0045</td>
<td>Too many notes dispensed continuously.</td>
<td>Check notes and note set status.</td>
</tr>
<tr>
<td>C0046</td>
<td>CDU hardware failure</td>
<td>Call your service personnel</td>
</tr>
<tr>
<td>C0047</td>
<td>1st Cassette Misfeed</td>
<td>Check notes and note set status.</td>
</tr>
<tr>
<td>C0048</td>
<td>Wrong count</td>
<td>Check notes and note set status or Call your service personnel.</td>
</tr>
<tr>
<td>C004A</td>
<td>Note jam</td>
<td>Call your service personnel</td>
</tr>
<tr>
<td>C004B</td>
<td>Many notes too close.</td>
<td>Call your service personnel</td>
</tr>
<tr>
<td>C004C</td>
<td>Wrong count</td>
<td>Check notes or note set status or call your service personnel.</td>
</tr>
<tr>
<td>C004D</td>
<td>Cash cassette is not properly set</td>
<td>Set the cash cassette properly</td>
</tr>
<tr>
<td>C004E</td>
<td>Wrong count</td>
<td>Call your service personnel</td>
</tr>
<tr>
<td>C004F</td>
<td>Wrong count(over dispensed)</td>
<td>Call your service personnel</td>
</tr>
<tr>
<td>C0050</td>
<td>Power failed during dispensing</td>
<td>Check journal for last transaction</td>
</tr>
<tr>
<td>C0051</td>
<td>Too many notes requested</td>
<td>Call your service personnel</td>
</tr>
<tr>
<td>C0052</td>
<td>Note detected(CS1A, CS1B)</td>
<td>Clear jammed notes or call your service personnel.</td>
</tr>
<tr>
<td>C0053</td>
<td>CDU double detect module failure 4</td>
<td>Call your service personnel</td>
</tr>
<tr>
<td>C0055</td>
<td>Long note detected(outlet sensor)</td>
<td>Call your service personnel</td>
</tr>
<tr>
<td>C005B</td>
<td>2nd Cassette Misfeed</td>
<td>Check notes and note set status.</td>
</tr>
<tr>
<td>C009F</td>
<td>3rd Cassette Misfeed</td>
<td>Check notes and note set status.</td>
</tr>
<tr>
<td>CDNxx</td>
<td>CDU connection failure</td>
<td>If error is not recovered, call your service personnel.</td>
</tr>
<tr>
<td>Dxx01</td>
<td>Modem reset failure</td>
<td>Call your service personnel</td>
</tr>
<tr>
<td>Dxx02</td>
<td>Reversal failure</td>
<td>Call your service personnel</td>
</tr>
<tr>
<td>D0011 ~ D0099</td>
<td>Transaction Error responded by Host</td>
<td>Check transaction history in Host and try again</td>
</tr>
<tr>
<td>D009A ~</td>
<td>Communication Error</td>
<td>Check phone line status</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check modem</td>
</tr>
<tr>
<td>ERROR CODES</td>
<td>ERROR DESCRIPTION</td>
<td>CORRECTIVE ACTION</td>
</tr>
<tr>
<td>------------</td>
<td>------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>E0001</td>
<td>RMS port failure</td>
<td>Call your service personnel.</td>
</tr>
<tr>
<td>E0002</td>
<td>RMS response timeout</td>
<td>Call your service personnel.</td>
</tr>
<tr>
<td>E0003</td>
<td>RMS modem failure</td>
<td>Call your service personnel.</td>
</tr>
<tr>
<td>E0004</td>
<td>RMS no dial tone</td>
<td>Call your service personnel.</td>
</tr>
<tr>
<td>E0005</td>
<td>RMS retry over</td>
<td>Call your service personnel.</td>
</tr>
<tr>
<td>F0001</td>
<td>Number of Bill is not inputted</td>
<td>Input number of Bill</td>
</tr>
<tr>
<td>F0002</td>
<td>Surcharge Owner is not inputted in Surcharge Enable</td>
<td>Input Surcharge Owner</td>
</tr>
<tr>
<td>F0003</td>
<td>Surcharge Amount is not inputted in Surcharge Enable</td>
<td>Input Surcharge Amount</td>
</tr>
<tr>
<td>F0004</td>
<td>Refresh timer is not inputted in Advertisement Enable</td>
<td>Input Refresh timer</td>
</tr>
<tr>
<td>F0005</td>
<td>Advertisement text is not inputted in Advertisement Enable</td>
<td>Input Advertisement text</td>
</tr>
<tr>
<td>F0006</td>
<td>Error in Dispense Limit setting</td>
<td>Check Dispense Limit and reset</td>
</tr>
<tr>
<td>F0007</td>
<td>Error in inputting Note Currency</td>
<td>Check Note Currency and reset</td>
</tr>
<tr>
<td>F0008</td>
<td>Error in Fast Cash setting</td>
<td>Check Fast Cash Value and reset</td>
</tr>
<tr>
<td>F0009</td>
<td>Master Key Index invalid</td>
<td>Check Master Key and reset</td>
</tr>
<tr>
<td>(0 &lt;= MKEY Index &lt;= 15)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F000A</td>
<td>Master Key Empty</td>
<td>Input Master Key</td>
</tr>
<tr>
<td>F000B</td>
<td>Host Phone Number is not inputted</td>
<td>Input Host Phone Number</td>
</tr>
<tr>
<td>F000C</td>
<td>Error Retry Timer is not inputted</td>
<td>Input Error Retry Timer</td>
</tr>
<tr>
<td>F000D</td>
<td>RMS Password is not inputted in RMS Enable</td>
<td>Input RMS Password</td>
</tr>
<tr>
<td>F000E</td>
<td>RMS Phone Number is not inputted in RMS Enable</td>
<td>Input RMS Phone Number</td>
</tr>
<tr>
<td>F000F</td>
<td>Terminal Number is not inputted</td>
<td>Input Terminal Number</td>
</tr>
<tr>
<td>F0010</td>
<td>Routing ID is not inputted</td>
<td>Input Routing ID</td>
</tr>
<tr>
<td>F0011</td>
<td>Master Key Serial Number is not inputted</td>
<td>Input Master Key Serial Number</td>
</tr>
<tr>
<td>F0012</td>
<td>Non-Cash Type text is not in/out (only MB-2100, 2200)</td>
<td>Input Non-Cash Type</td>
</tr>
<tr>
<td>F0013</td>
<td>Parameter is not properly set</td>
<td>Input Non-Cash Value</td>
</tr>
<tr>
<td>F0014</td>
<td>NVRAM Failure</td>
<td>Check Battery and Battery Plug</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Change Main Board</td>
</tr>
</tbody>
</table>