ID-003

Model-Specific Communication Specification

Bill Recycling Feature

ID03-002E (Revision 08)

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Table of Contents

REVISION HISTORY

Rev.No	Date	Reasons for Update	Approver	Issuer
Rev. 01	4/10/2010	Initial Version	M.Motohara	H.Yasutaka
Rev.02	9/27/2010	Added the following Statuses and Commands: **[STATUS REQUEST]** − RETURN to BOX − RETURN ERROR **[OPERATION COMMAND(Extension)]** − EMERGENCY STOP [F0h+4Dh] **[SETTING COMMAND(Extension)]** − RECYCLE KEY SETTING [F0h+D1h+DATA] **[SETTING STATUS REQUEST(Extension)]** − RECYCLE KEY SETTING REQUEST − TOTAL COUNT REQUEST − TOTAL COUNT	M.Motohara	H.Yasutaka
Rev03	3/23/2011	Added the following Statuses and Commands: **[STATUS REQUEST]** − STACKING − STACKED − COLLECTED − RETURN PAY OUT NOTE **[POWER UP STATUS]** − POWER UP WITH BILL IN STACKER **[OPERATION COMMAND(Extension)]** − STACK-3	M.Motohara	H.Yasutaka
Rev04	4/6/2011	Added notes regarding Empty and Full Status	M.Motohara	H.Yasutaka
Rev05	4/11/2011	Added note regarding the destination to stack bills after receiving STACK Command when a bill is inserted.	M.Motohara	H.Yasutaka
Rev06	9/22/2011	Added Refill Mode feature command	M.Motohara	H.Yasutaka
Rev07	4/20/2012	− Added description regarding a single denomination recycler unit. − Added [49H] FAILURE to 3.1.3 Error status list.	M.Motohara	H.Yasutaka
Rev08	12/09/2014	Corrected typo regarding Stack 3 Command	K.Kuroiwa	H.Yasutaka

1. General

This Specification describes the Bill Recycling Feature in compliance with the ID-003 interface.
Please refer to the ID-003 Communication Specification for the basic information on communications.

Some command messages differ in their format between the single-denomination Recycler Unit and multiple-denominations Recycler Unit.

Please check a type of your Recycler unit.

This specification may be updated or enhanced in the future without notice. Make sure to refer to the latest version of this specification.

2. COMMAND/RESPONSE LIST

CONTROLLER -> ACCEPTOR		*ACCEPTOR -> CONTROLLER*	
STATUS		STATUS	
STATUS REQUEST	11H	STACKING	14H+DATA
		STACKED	16H+DATA
		PAYING	20H
		COLLECTING	021H
		COLLECTED	22H+DATA
		PAY VALID	23H
		PAY STAY	24H
		RETURN to BOX	025H
		RETURN PAY OUT NOTE	26H+DATA
		RETURN ERROR	2FH
		POWER UP STATUS	
		POWER UP WITH BILL IN STACKER	42H+DATA
		ERROR STATUS	
		RECYCLER ERROR	4CH
STATUS (Extension)		STATUS (Extension)	
STATUS REQUEST	F0H+1AH	UNCONNECTED	00H
		NORMAL	10H+DATA
		EMPTY	11H
		FULL	12H
		BUSY	1FH
		ERROR STATUS (Extension)	
		RECYCLER JAM	40H
		DOOR OPEN	41H
		MOTOR ERROR	42H
		EEPROM ERROR	43H
		PAY OUT NOTE ERROR	44H
		RECYCLE BOX OPEN	45H
		HARDWARE ERROR	4AH
OPERATION COMMAND		RESPONSE TO OPERATION COMMAND	
STACK-3	49H	ACK	50H
		INVALID COMMAND	4BH
OPERATION COMMAND (Extension)		RESPONSE TO OPERATION COMMAND (Extension)	
PAY OUT	F0H+4AH+DATA	ACK	50H
COLLECT	F0H+4BH+DATA	INVALID COMMAND	4BH
CLEAR	F0H+4CH		
EMERGENCY STOP	F0H+4DH		

SETTING COMMAND (Extension)		RESPONSE TO SETTING COMMAND (Extension)	
RECYCLE CURRENCY SETTING	F0H+D0H+DATA	RECYCLE CURRENCY SETTING	F0H+D0H+DATA
RECYCLE KEY SETTING	F0H+D1H+DATA	RECYCLE KEY SETTING	F0H+D1H+DATA
RECYCLE COUNT SETTING	F0H+D2H+DATA	RECYCLE COUNT SETTING	F0H+D2H+DATA
RECYCLE REFILL MODE SETTING	F0H+D4H+DATA	RECYCLE REFILL MODE SETTING	F0H+D4H+DATA
CURRENT COUNT SETTING	F0H+E2H+DATA	CURRENT COUNT SETTING	F0H+E2H+DATA
SETTING STATUS REQUEST COMMAND		**SETTING STATUS**	
UNIT INFORMATION REQUEST	92H	UNIT INFORMATION REQUEST	92H+DATA
SETTING STATUS REQUEST COMMAND (Extension)		**SETTING STATUS (Extension)**	
RECYCLE CURRENCY REQUEST	F0H+90H	RECYCLE CURRENCY REQUEST	F0H+90H+DATA
RECYCLE KEY SETTING REQUEST	F0H+91H	RECYCLE KEY SETTING REQUEST	F0H+91H+DATA
RECYCLE COUNT REQUEST	F0H+92H	RECYCLE COUNT REQUEST	F0H+92H+DATA
RECYCLE SOFTWARE VERSION REQUEST	F0H+93H	RECYCLE SOFTWARE VERSION REQUEST	F0H+92H+DATA
RECYCLE REFILL MODE REQUEST	F0H+94H	RECYCLE REFILL MODE REQUEST	F0H+94H+DATA
TOTAL COUNT REQUEST	F0H+A0H	TOTAL COUNT REQUEST	F0H+A0H+DATA
TOTAL COUNT CLEAR	F0H+A1H	TOTAL COUNT CLEAR	F0H+A1H+DATA
CURRENT COUNT REQUEST	F0H+A2H	CURRENT COUNT REQUEST	F0H+A2H+DATA

3. Detailed COMMAND/RESPONSE LIST

3.1. STATUS REQUEST

Request the Acceptor status information from the Controller.
The Controller should monitor the Acceptor's operation status and if the Acceptor is recovered from errors or not via [STATUS REQUEST].

- Command (CONTROLLER -> ACCEPTOR)

SYNC	***LNG***	***CMD***	CRC*(L)*	CRC*(H)*

LNG : 05H
CMD : 11H STATUS REQUEST

- Response (ACCEPTOR -> CONTROLLER)

SYNC	***LNG***	***SST***	***DATA***	CRC*(L)*	CRC*(H)*

LNG : xxH
SST : xxH STATUS
DATA : xxH Add to Status (Some Statuses omit this).

3.1.1. Normal Status

1) 【14H】STACKING
Operational Command [STACK-1], [STACK-2] and [STACK-3] from the Controller.
A bill is either being stacked or transported to the Recycler Unit or Stacker via the command .

※ Multiple-Denomination Recycler Unit
Reply with information of a stack destination as DATA.
See below for detailed information:

DATA	xxH	Stacker or (Recycler's) Bin Space No. 0: Stacker 1 - : Bin Space No.	(1byte)

2) 【16H】STACKED
The Acceptor has stacked a bill and is ready to receive next bill (from VEND VALID to ENABLE <IDLING>).

※ Multiple-Denomination Recycler Unit
Reply with information of a stack destination as DATA.
See below for detailed information:

DATA	xxH	Stacker or (Recycler's) Bin Space No. 0: Stacker 1 - : Bin Space No.	(1byte)

3) 【20H】PAYING
The Acceptor is dispensing a bill from the Recycler Unit.

4)【21H】COLLECTING

The Acceptor is retrieving a bill from the Recycler Unit to the Stacker.

※ Multiple-Denomination Recycler Unit
Reply with information of Bin Space No. information as DATA.
See below for detailed information:

DATA	xxH	Bin Space No.	(1byte)

5)【22H】COLLECTED

The Acceptor has retrieved and stacked a bill from the Recycler Unit to Stacker and is getting ready to dispense or retrieve next bill.
The Acceptor sends this Status when:

- stacking a bill to the Stacker due to [COLLECT] Command or with the press of a restore pushbutton switch (per bill); or
- stacking a bill dispensed from the Recycler Unit to the Stacker via [PAY OUT] command is complete via [PAY OUT] command (i.e. in case of bill dispensing error).

※ Multiple-Denomination Recycler Unit
Reply with information of Bin Space No. information as DATA.
See below for detailed information:

DATA	xxH	Bin Space No.	(1byte)

※ Such restore pushbutton switch may not be available on some models.

6)【23H】PAY VALID

Waiting for a response to a bill dispensing operation from the Controller. This status is held until [ACK] is returned from the Controller, replying to [PAY VALID].

The Controller should credit down via [PAY VALID].

7)【24H】PAY STAY

A bill is detected in the Acceptor's insertion slot. The Acceptor hold its status until a bill is removed from a insertion slot.

8)【25H】RETURN to BOX

The bill dispensing operation has been canceled due to [EMERGENCY STOP] command and the Acceptor is retrieving such dispensed bill.

9) 【26H】RETURN PAY OUT NOTE

The abnormal condition has been detected when dispensing a bill and the Acceptor is retrieving such bill to the Stacker.

※ Multiple Denomination Recycler Unit

Reply with bill dispensing error information as DATA. See below for detailed information:

DATA	xxH	01H: Bill length error 02H: Bill thickness error 03H: Retrieving bill due to transportation error	(1byte)

10) 【2FH】RETURN ERROR

The bill dispensing operation has been canceled due to [EMERGENCY STOP] command and an error is developed when retrieving such dispensed bill.

3.1.2. Power Up Status

1) 【42H】POWER UP WITH BILL IN STACKER

The Acceptor is turned on with a bill in somewhere too far to be returned.
Once [RESET] command is received from the Controller, the Acceptor stacks such bill and starts the initializing operation.

※ Multiple-Denomination Recycler Unit

Reply with information of a bill stack destination as DATA.
See below for detailed information:

DATA	xxH	Stacker or Bin Space No. 0: Stacker 1 - : Bin Space No.	(1byte)

3.1.3. Error Status

1) 【49H】FAILURE

The Acceptor is unable to operate due to malfunctions, abnormal conditions or improper configuration.

Add 1byte FAILURE DATA.

DATA	xxH	【C6H】 RC ROM error 【C8H】 Communication error between the iPRO and Recycler Unit.	(1byte)

2) 【4CH】RECYCLER ERROR

The Acceptor is unable to operate due to malfunctions, abnormal conditions or improper configuration.

※ If the Controller receives [RECYCLER ERROR] Status, check a detailed status of the Recycler unit via an extended command, [STATUS REQUEST].

※ Refer to an extended command [STATUS REQUEST] for 3.2 STATUS REQUEST (Extension).

3.2. STATUS REQUEST (Extension)

Response to an extended command [Status Request] sent from the Controller.
For this status request, a detailed status of the Recycler unit is returned.

- Command (CONTROLLER -> ACCEPTOR)

SYNC	***LNG***	***EXT***	***UNIT***	***CMD***	CRC*(L)*	CRC*(H)*

LNG : 07H
EXT : F0H Extended command
UNIT : 20H Unit type【RECYCLER】
CMD : 1AH STATUS REQUEST

- Response (ACCEPTOR -> CONTROLLER)

SYNC	***LNG***	***EXT***	***UNIT***	***SST***	***DATA***	CRC*(L)*	CRC*(H)*

LNG : xxH
EXT : F0H Extended command
UNIT : 20H Unit type【RECYCLER】
SST : xxH RECYCLER STATUS
DATA : xxH Add to Recycler Status (Some of [RECYCLER STATUS] omit this).

※ Multiple Denomination Recycler Unit

See below for the SST and DATA format. SST and DATA are reported per Bin Space.

Some [RECYCLER STATUS] omit the DATA part.
n represents number of Bin Spaces, in ascending Bin Space No. order.

SST1	***DATA1***	・・・	***SSTn***	***DATAn***

3.2.1. RECYCLER STATUS

1) 【00H】UNCONNECTED
The Recycler unit is not connected.

2) 【10H】NORMAL
The Recycler Unit is in normal condition.

Reply with information of a denomination to be recycled as DATA.
DATA consists of " Recycled-Denomination DATA1 (1 byte)" and "Recycled-Denomination DATA2 (1 byte)"
See below for the DATA format:

DATA	xxH	Recycled- Denomination DATA1	(1byte)
	xxH	Recycled-Denomination DATA2	(1byte)

3) 【11H】EMPTY
No bills in the Recycler unit.

4) 【12H】FULL
The Recycler unit is full.

5) 【1FH】BUSY
The Recycler is in operation.

6) 【40H】RECYCLER JAM
A bill is jammed inside of the Recycler Unit.

7) 【41H】DOOR OPEN
The Recycler unit's door is opened.

8) 【42H】MOTOR ERROR
A motor of the Recycler Unit is in the abnormal condition.

9) 【43H】EEPROM ERROR
The Recycler Unit's EEPROM cannot read or write.

10) 【44H】PAY OUT NOTE ERROR
A dispensed bill is in abnormal condition, such as double-note.

11) 【45H】RECYCLE BOX OPEN
The Recycler Unit is not installed.

12) 【4AH】HARDWARE ERROR
All other abnormal errors besides above are developed in the Recycler unit.

3.3. OPERATION COMMAND

This is a operational demand command sent from the Controller to the Acceptor.

- Command (CONTROLLER -> ACCEPTOR)

SYNC	***LNG***	***CMD***	***DATA***	CRC*(L)*	CRC*(H)*

LNG : xxH
CMD : xxH Command
DATA : xxH Add to the command (some commands omit this)

- Response (ACCEPTOR -> CONTROLLER)

SYNC	***LNG***	***SST***	CRC*(L)*	CRC*(H)*

LNG : 05H
SST : xxH ACK【50H】or INVALID COMMAND【4BH】

3.3.1. 【41H】STACK-1

A bill in escrow is transported and stacked in either the Stacker or Recycler unit.
This command is only valid when the ACCEPTOR status is [ESCROW].

3.3.2. 【42H】STACK-2

A bill in escrow is transported and stacked in either the Stacker or Recycler unit.
This command is only valid when the ACCEPTOR status is [ESCROW].

3.3.3. 【49H】STACK-3

A bill in escrow is transported and stacked in the Stacker.
The Acceptor status changes to [VEND VALID] status at the same time as the [STACK-2] command.
This command is only valid when the ACCEPTOR status is [ESCROW].

3.4. OPERATION COMMAND (Extension)

This is an operation demand command requested from the Controller to the Acceptor.

- Command (CONTROLLER -> ACCEPTOR)

SYNC	***LNG***	***EXT***	***UNIT***	***CMD***	***DATA***	CRC*(L)*	CRC*(H)*

LNG : xxH
EXT : F0H Extended command
UNIT : 20H Unit type【RECYCLER】
CMD : xxH Command
DATA : xxH Add to the command (some commands omit this)

- Response (ACCEPTOR -> CONTROLLER)

SYNC	***LNG***	***SST***	CRC*(L)*	CRC*(H)*

LNG : 05H
SST : xxH ACK【50H】or INVALID COMMAND【4BH】

3.4.1. 【4AH】PAY OUT

The Acceptor starts dispensing bills via [PAY OUT] command.
This command is valid only when the Acceptor is [DISABLE (INHIBIT)].
(A mentioned applicable status may differ from model to model.)

If a number specified via one command exceeds the product ability, in that case, the [INVALID COMMAND] status is returned.

It is recommended to check a status of the Recycler via an extend command [Status Request] before sending this command.
If this command is sent when the Recycler status is [EMPTY], in that case, the Acceptor replies with [INVALID COMMAND] status.

See below for the DATA format to be added.

1) Single-Denomination Recycler Unit
The Acceptor dispenses specified number of bills.

DATA	xxH	# of bills to dispense	(1byte)

2) Multiple-Denomination Recycler Unit
The Acceptor dispenses number of bill specified from a unit specified.

DATA	xxH	# of bills to dispense	(1byte)
	xxH	Bin Space No. to dispense bill from	(1byte)

3.4.2. 【4BH】COLLECT

The Acceptor starts retrieving bills from the Recycler Unit to the Stacker via [COLLECT] command.
This command is valid only when the Acceptor is [DISABLE (INHIBIT)].
(A mentioned applicable status may differ from model to model.)

It is recommended to check a status of the Recycler via an extend command [Status Request] before sending this command.
If this command is sent when the Recycler status is [EMPTY], in that case, the Acceptor replies with [INVALID COMMAND] status.

※ If a unit malfunction is detected while retrieving bills, the Acceptor stops the retrieving operation. To resume the retrieving operation, fix a controversial error and resend [COLLECT] command.

See below for the DATA format to be added.

1) Single-Denomination Recycler Unit
The Acceptor starts retrieving bills from the Recycler unit to Stacker.

DATA	xxH	【00H】Collect all bills 【01H】Collect one bill	(1byte)

2) Multiple-Denomination Recycler Unit:
The Acceptor starts retrieving bills from the specified Bin Space to Stacker.

DATA1	xxH	【00H】Collect all bills 【01H】Collect one bill	(1byte)
DATA2	xxH	Bin Space No to retrieve bills from.	(1byte)

3.4.3. 【4CH】CLEAR

[CLEAR] command allows the Controller to fix an Recycler Unit's error.

3.4.4. 【4DH】EMERGENCY STOP

The Acceptor stops the dispensing operations and starts retrieving corresponding bills to the Stacker.
This command is only valid for bills dispensed from the Recycler Unit before [PAY VALID] status is sent.

3.5. SETTING COMMAND (Extension)

- Command (CONTROLLER -> ACCEPTOR)

SYNC	***LNG***	***EXT***	***UNIT***	***CMD***	***DATA***	CRC*(L)*	CRC*(H)*

LNG : xxH
EXT : F0H Extended command
UNIT : 20H Unit type【RECYCLER】
CMD : xxH Command
DATA : xxH Add to the command (some commands omit this)

- Response (ACCEPTOR -> CONTROLLER)

SYNC	***LNG***	***EXT***	***UNIT***	***CMD***	***DATA***	CRC*(L)*	CRC*(H)*

LNG : xxH
EXT : F0H Extended command
UNIT : 20H Unit type【RECYCLER】
CMD : xxH Command
DATA : xxH ECHO BACK

3.5.1. 【D0H】RECYCLE CURRENCY SETTING

[RECYCLE CURRENCY SETTING]] allows the Acceptor to set a denomination to be recycled. This command is valid only when the Acceptor is [INITIALIZE] or [DISABLE (INHIBIT)].
The Acceptor relies with [INVALID COMMAND] status if the command is received during other status besides ones mentioned above.
(A mentioned applicable status may differ from model to model.)

If multiple denominations are set to one Bin Space, the Acceptor also relies with [INVALID COMMAND] status.

In case of the Multiple-Denomination Recycler Unit, check how many Bin Spaces the Recycler unit have via [UNIT INFORMATION REQUEST] command when the Acceptor status is [POWER UP] and then set the denomination to be recycled.

See below for the DATA format to be added.

1) Single-Denomination Recycler Unit
DATA consists of "Recycled-Denomination DATA1 (1 byte)" and "Recycled-Denomination DATA2 (1 byte)"

DATA	xxH	Recycled-Denomination DATA1	(1byte)
	xxH	Recycled-Denomination DATA2	(1byte)

2) Multiple-Denominations Recycler Unit
DATA consists of "Recycled-Denomination DATA1 (1 byte)", "Recycled-Denomination DATA2 (1 byte)" and "Bin Space No. (1 byte)" per Recycler unit, in ascending Bin Space No. order.

n represents the number of a Bin Space.

DATAn	xxH	Recycled-Denomination DATA1	(1byte)
	xxH	Recycled-Denomination DATA2	(1byte)
	xxH	Bin Space No. n	(1byte)

i.e. If there are two (2) Bin Spaces and you wish to set Bin Space No.1 and Bin Space No.2 to 10 Euro and 50 Euro respectively, the following data is added to the command:
See below for DATA to be added.
(In this case, bit 2 and bit 4 are assigned to 10 Euro and 50 Euro respectively.)

04H + 00H + 01H + 10H + 00H + 02H

3.5.2. 【D1H】RECYCLE KEY SETTING

Recycler's key request accept/inhibit setting.

See below for detailed data to be added

DATA	Bit0	0 : KEY INHIBIT 1 : KEY NOT INHIBIT	(1byte)
	Bit1	0 : Not used	
	Bit2	0 : Not used	
	Bit3	0 : Not used	
	Bit4	0 : Not used	
	Bit5	0 : Not used	
	Bit6	0 : Not used	
	Bit7	0 : Not used	

3.5.3. 【D2H】RECYCLE COUNT SETTING

[RECYCLE COUNT SETTING] command allows the Acceptor to set the maximum number of bills to be recycled.

※ If the number set is not supported by the product, then the Acceptor replies with [INVALID COMMAND] status.

※ If "zero (0)" is set as the maximum number, then the Acceptor keeps stacking bills until it reaches the Recycler's capacity.

See below for the DATA format to be added.

1) Single-Denomination Recycler Unit

DATA to be added consists of "maximum # of recycled-bills DATA1 (1 byte)" and "maximum # of recycled-bills DATA2 (1 byte)".

DATAn	xxH	Maximum # of recycled-bills DATA1	(1byte)
	xxH	Maximum # of recycled-bills DATA2	(1byte)

2) Multiple Denomination Recycler Unit

[RECYCLE COUNT SETTING] allows the Acceptor to set the maximum number of bills to be recycled for a specified Bin Space.

DATA to be added consists of "maximum # of recycled-bills DATA1 (1 byte)", "maximum # of recycled-bills DATA2 (1 byte)" and "Bin Space No.".

DATA	xxH	Maximum # of recycled-bills DATA1	(1byte)
	xxH	Maximum # of recycled-bills DATA2	(1byte)
	xxH	Bin Space No.	(1byte)

i.e. If there are two (2) Bin Spaces and thirty (30) is set to Bin Space No.2 as the maximum number of recycled-bills, the following data is added to the command:

See below for DATA to be added.

1EH + 00H + 02H

3.5.4. 【D4H】RECYCLE REFILL MODE SETTING

[RECYCLE REFILL MODE SETTING] allows the Acceptor to enter the Refill mode.

This command is valid only when the Acceptor is [IDLING].

The Acceptor relies with [INVALID COMMAND] status when the command is received when the Acceptor is in other status besides mentioned ones above.

If the Acceptor status changes to [INHIBIT] or any error is developed during Refill mode, the Acceptor automatically exits the mode.

See below for the DATA format to be added.

DATA	xxH	【00H】 Bill Accept mode 【01H】 Refill mode	(1byte)

<< Refill mode>>

If the Acceptor is in the Refill mode due to this command, a following operation is performed according to a bill denomination:

1) If a bill denomination is acceptable (bills are in good condition):
In this case, the Acceptor stacks bills in the Recycler when [STACK] command is received from the Controller.

2) If a bill denomination is acceptable (bills are in unacceptable condition):
In this case, the Acceptor returns bills.

The bill's fitness requirement differs from country to country. "Unacceptable bills" means any bills causing the Recycler malfunction in this specification.

i.e. Having excessive folds or damaged bills.

3) If a bill denomination is NOT acceptable:
In this case, the Acceptor returns bills.

※ When the Acceptor is turned off while refilling bills in the Refill mode, bills which was being transported may be stacked in the Stacker due to the initializing operation upon power up.

3.5.5. 【E2H】CURRENT COUNT SETTING

[RECYCLE COUNT SETTING] allows the Acceptor to manually set number of bills currently stacked in the Recycler Unit or each Bin Space.
This command is valid only when the Acceptor is [DISABLE (INHIBIT)].
The Acceptor relies with [INVALID COMMAND] status if the command is received when the Acceptor is other status besides ones mentioned above.

※ If bills are refilled while some bills are already inside of the Recycler unit , in this case, make sure to set number considering those bills in the Recycler Unit.

See below for the DATA format to be added.

1) Single-Denomination Recycler Unit:
DATA to be added consists of "# of bills in Recycler Unit DATA1 (1 byte)" and "# of bills in Recycler Unit DATA2 (1 byte)".

DATA	xxH	# of bills in Recycler Unit DATA1	(1byte)
	xxH	# of bills in Recycler Unit DATA2	(1byte)

2) Multiple-Denominations Recycler Unit

[RECYCLE COUNT SETTING] allows the Acceptor to set the maximum number of bills to be recycled for a specified Bin Space.

DATA to be added consists of "# of bills in Bin Space DATA1 (1 byte)", "# of stacked bills in Bin Space DATA2 (1 byte)" and "Bin Space No.".

DATA	xxH	# of bills in Bin Space DATA1	(1byte)
	xxH	# of bills in Bin Space DATA2	(1byte)
	xxH	Bin Space No.	(1byte)

i.e. If there are two (2) Bin Spaces and number of bills stacked in Bin Space No.2 is set to thirty (30), the following data is added to the command:

See below for DATA to be added.

1EH + 00H + 02H

3.6. SETTING STATUS REQUEST COMMAND

Request the Acceptor's settings information with the command sent from the Controller.

- Command (CONTROLLER -> ACCEPTOR)

SYNC	***LNG***	***CMD***	CRC*(L)*	CRC*(H)*

LNG : xxH
CMD : xxH Command

- Response (ACCEPTOR -> CONTROLLER)

SYNC	***LNG***	***CMD***	***DATA***	CRC*(L)*	CRC*(H)*

LNG : xxH
CMD : xxH Command
DATA : xxH Add to the command (some commands omit this)

3.6.1. UNIT INFORMATION REQUEST

Request the Recycler unit information.

The controller should get the Recycler unit's information via this command when receiving [POWER UP] status.

See below for the DATA format to be added.

DATA1	xxH	【20H】RECYCLER	(1byte)
DATA2	xxH	Number of Bin Spaces	(1byte)

3.7. SETTING STATUS REQUEST (Extension)

- Command (CONTROLLER -> ACCEPTOR)

SYNC	***LNG***	***EXT***	***UNIT***	***CMD***	CRC*(L)*	CRC*(H)*

LNG : xxH
EXT : F0H Extended command
UNIT : 20H Unit type【RECYCLER】
CMD : xxH Command

- Response (ACCEPTOR -> CONTROLLER)

SYNC	***LNG***	***EXT***	***UNIT***	***CMD***	***DATA***	CRC*(L)*	CRC*(H)*

LNG : xxH
EXT : F0H Extended command
UNIT : 20H Unit type【RECYCLER】
CMD : xxH Command
DATA : xxH Add to the command (some commands omit this)

3.7.1. RECYCLE CURRENCY REQUEST

Request the Acceptor's current denomination setting information.
See below for the DATA format to be added.

1) Single Denomination Recycler Unit
DATA to be added consists of "Denomination DATA1 (1 byte)" and "Denomination DATA2 (1 byte)"

DATA	xxH	Denomination DATA1	(1byte)
	xxH	Denomination DATA2	(1byte)

2) Multiple Denomination Recycler Unit
DATA to be added consists of "Recycled-Denomination DATA1 (1 byte)" and "Recycled-Denomination DATA2 (1 byte)" in ascending Bin Space No. order.

DATAn	xxH	Recycled-Denomination DATA1	(1byte)
	xxH	Recycled-Denomination DATA2	(1byte)

i.e. If there are two (2) Bin Spaces and you wish to set Bin Space No.1 and Bin Space No.2 to 10 Euro and 50 Euro respectively via the [RECYCLE CURRENCY SETTING], the following data is added to the command:
(In this case, bit 2 and bit 4 are assigned to 10 Euro and 50 Euro respectively.)

04H + 00H + 10H + 00H

3.7.2. 【91H】RECYCLE KEY SETTING REQUEST

Request the Acceptor's current Recycler key request accept/inhibit setting information.

See below for the DATA format to be added.

DATA	Bit0	0 : KEY INHIBIT 1 : KEY NOT INHIBIT
	Bit1	0 : Not used
	Bit2	0 : Not used
	Bit3	0 : Not used
	Bit4	0 : Not used
	Bit5	0 : Not used
	Bit6	0 : Not used
	Bit7	0 : Not used

(Default: 0x00)

3.7.3. 【92H】RECYCLE COUNT REQUEST

Request the Acceptor's current setting information of number of bills to be recycled
See below for the DATA format to be added.

1) Single Denomination Recycler Unit
DATA to be added consists of "maximum # of recycled-bills DATA1 (1 byte)" and "maximum # of recycled-bills DATA2 (1 byte)".

DATA	xxH	Maximum # of recycled-bills DATA1 (1byte)
	xxH	Maximum # of recycled-bills DATA2 (1byte)

2) Multiple Denomination Recycler Unit
DATA to be added consists of "maximum # of recycled-bills DATA1 (1 byte)" and "maximum # of recycled-bills DATA2 (1 byte)" in ascending Bin Space No. order

DATAn	xxH	Maximum # of recycled-bills DATA1 (1byte)
	xxH	Maximum # of recycled-bills DATA2 (1byte)

i.e. If there are two (2) Bin Spaces and Bin Space No.1 and Bin Space No.2 are set to 30 and 50 respectively via [RECYCLE COUNT SETTING], the following data is added to the command:
(In this case, bit 2 and bit 4 are assigned to 10 Euro and 50 Euro respectively.)

1EH + 00H + 32H + 00H

3.7.4. 【93H】RECYCLER SOFTWARE VERSION REQUEST

Request the Recycler's software version.

See below for the DATA format to be added.

DATA	xxH	RECYCLER SOFTWARE VERSION (Data size is variable length)

3.7.5. 【94H】RECYCLE REFILL MODE REQUEST

Request the Acceptor's current mode information

See below for the DATA format to be added.

DATA	xxH	【00H】 Accept mode (Default) 【01H】 Refill mode

3.7.6. 【A0H】TOTAL COUNT REQUEST

Request each total number of accepted, dispensed and retrieved bills.

See below for the DATA format to be added.

DATA1	xxH	# of refilled bills in total	LSB
	xxH		
	xxH		MSB
DATA2	xxH	# of dispensed bills in total	LSB
	xxH		
	xxH		MSB
DATA3	xxH	# of retrieved bills in total	LSB
	xxH		
	xxH		MSB

3.7.7. 【A1H】TOTAL COUNT CLEAR

Request to reset total number of accepted, dispensed and retrieved bills.

See below for the DATA format to be added.

DATA	xxH	【00H】 Normal end 【01H】 Abnormal end

3.7.8. 【A2H】CURRENT COUNT REQUEST

Requests number of bills stacked in the Recycler unit or each Bin Space.

See below for the DATA format to be added.

1) Single-Denomination Recycler Unit:
DATA to be added consists of "# of bills in Recycler Unit DATA1 (1 byte)" and "# of bills in Recycler Unit DATA2 (1 byte)"

DATA	xxH	# of bills in Recycler Unit DATA1	(1byte)
	xxH	# of bills in Recycler Unit DATA2	(1byte)

2) Multiple-Denominations Recycler Unit:
DATA to be added consists of "# of bills in Bin Space DATA1 (1 byte)" and "# of bills in Bin Space DATA2 (1 byte)" in ascending Bin Space No. order.
n represents number of Bin Spaces, in ascending Bin Space No. order.

DATAn	xxH	# of bills in Bin Space DATA1	(1byte)
	xxH	# of bills in Bin Space DATA2	(1byte)

i.e. If there are two (2) Bin Spaces and Bin Space No.1 and Bin Space No.2 are set to 30 and 50 respectively via [RECYCLE COUNT SETTING], the following data is added to the command: (In this case, bit 2 and bit 4 are assigned to 10 Euro and 50 Euro respectively.)

1EH + 00H + 32H + 00H

3.8. COMMUNICATION MODE

3.8.1. INTERRUPT MODE-1

The Acceptor sends [ENQ] to the Controller every time its status changes.
Once the Controller receives [ENQ], it polls the Acceptor, [STATUS REQUEST] and [STATUS REQUEST (Extension)].
[SETTING STATUS REQUEST(Extension)]

3.8.2. INTERRUPT MODE-2

The Acceptor sends [ENQ] only when it needs to communicate with the Controller. Once the Controller receives [ENQ], it polls the Acceptor, [STATUS REQUEST] and [STATUS REQUEST (Extension)].

<<Sending Status>>
[ESCROW], *[VEND VALID]*, *[PAY VALID]*, *[INITIALIZE]*, *[POWER UP STATUS]*, and *[ERROR STATUS].*

4. Sequence Chart

4.1. (1) Power Up to Idle

CONTROLLER		ACCEPTOR	
(11) STATUS REQUEST	==>		
			Power Up
(11) STATUS REQUEST	==>		
	<==	POWER UP (40)	
(88) VERSION REQUEST	==>		
	<==	VERSION INFORMATION (88+ DATA)	
(F0+93+DATA) RECYCLER VERSION REQUEST	==>		
	<==	RECYCLER INFORMATION (F0+93+DATA)	**Get Recycler Information**
(40) RESET	==>		
	<==	**ACK (50)**	**Initializing**
(11) STATUS REQUEST	==>		
	<==	INITIALIZE (1B)	
(C2+DATA) COMMUNICATION MODE	==>		
	<==	COMMUNICATION MODE (C2+DATA)	
(C0+DATA) ENABLE / DISABLE	==>		
	<==	ENABLE / DISABLE (C0+DATA)	
(C1+DATA) SECURITY	==>		
	<==	SECURITY (C1+DATA)	
(C5+DATA) OPTIONAL FUNCTION	==>		
	<==	OPTIONAL FUNCTION (C5+DATA)	
(C3+DATA) INHIBIT	==>		
	<==	INHIBIT (C3+DATA)	
(F0+90+DATA) RECYCLE CURRENCY	==>		**Acceptable Denomination Settings**
	<==	RECYCLE CURRENCY (F0+90+DATA)	
(F0+92+DATA) RECYCLE COUNT	==>		**# of bills to be recycled.**
	<==	RECYCLE COUNT (F0+92+DATA)	
(11) STATUS REQUEST	==>		
	<==	INITIALIZE (1B)	
(11) STATUS REQUEST	==>		
	<==	ENABLE(IDLE) (11)	**Idling**

※ Each [SETTING COMMAND] should be set whenever the [POWER UP] Status is received from the ACCEPTOR unless the ACCEPTOR receives [RESET] from the CONTROLLER when the power is applied.

4.2. Accepting Bill

CONTROLLER		ACCEPTOR	State
(11) STATUS REQUEST	==>		
	<==	ENABLE(IDLE) (11)	**Waiting**
(11) STATUS REQUEST	==>		**Banknote Insertion**
	<==	ACCEPTING (12)	
(11) STATUS REQUEST	==>		
	<==	ACCEPTING (12)	**Validating**
			Escrow
			Bills are returned if the Acceptor does not receive [STATUS REQUEST] within 3 seconds after the ACCEPTOR goes into the ESCROW Status.
(11) STATUS REQUEST	==>		
	<==	**ESCROW (13+DATA)**	
(41, 42, 49) STACK-1,2,3	==>		
	<==	**ACK (50)**	Bills are returned if the Acceptor does not receive [OPERATION COMMAND] within 10 seconds after the ACCEPTOR goes into the ESCROW Status.
			Transporting bills into either the Recycler unit or Stacker.
			==>
(11) STATUS REQUEST	==>		
	<==	STACKING (14+DATA)	**A Bill is transported to the point where VEND VALID can be detected.**
(11) STATUS REQUEST	==>		
	<==	**VEND VALID (15)**	
(50) ACK	==>		The Controller credit up it receives [VEND VALID].
			Stacking Banknotes
(11) STATUS REQUEST	==>		
	<==	STACKED (16+DATA)	
(11) STATUS REQUEST	==>		**Idling**
	<==	ENABLE(IDLE) (11)	

※ In case of [STACK-1] command, Bills are always transported into the Stacker.
In case of [STACK-1] and [STACK-2] commands, bills are transported in to the stacker if a corresponding Recycler unit's status is [RECYCLE BOX FULL].

4.3. Dispensing sequence via *[PAY OUT]* command (normal).

CONTROLLER		*ACCEPTOR*	State
(11) STATUS REQUEST	==>		**Idling**
	<==	DISABLE(INHIBIT) (1A)	
(F0+1A) STATUS REQUEST(RC)	==>		
	<==	NORMAL (F0+10+DATA)	
(F0+4A) PAY OUT	==>		**Start dispensing bills**
	<==	**ACK (50)**	
(11) STATUS REQUEST	==>		
	<==	PAYING (20)	
(11) STATUS REQUEST	==>		
	<==	PAYING (20)	**Dispensing bills completed**
(11) STATUS REQUEST	==>		
	<==	PAY STAY (24)	**Waiting for a bill to be removed**
(11) STATUS REQUEST	==>		
	<==	PAY STAY (24)	
(11) STATUS REQUEST	==>		**Bill is removed**
	<==	**PAY VALID (23)**	The Controller should credit down via [PAY VALID].
(50) ACK	==>		The Acceptor holds its status until [ACK] is sent back to [PAY VALID] .
(11) STATUS REQUEST	==>		
	<==	DISABLE(INHIBIT) (1A)	**Idling**

4.4. Multiple-bills dispensing sequence via *[PAY OUT]* command.

CONTROLLER		ACCEPTOR	State
(11) STATUS REQUEST	==>		**Idling**
	<==	DISABLE(INHIBIT) (1A)	
(F0+1A) STATUS REQUEST(RC)	==>		
	<==	NORMAL (F0+10+DATA)	
(F0+4A) PAY OUT	==>		**Requested to dispense x number of bills**
	<==	**ACK (50)**	
(11) STATUS REQUEST	==>		**Started dispensing the first bill**
	<==	PAYING (20)	
(11) STATUS REQUEST	==>		
	<==	PAYING (20)	**Dispensing the first bill is completed**
(11) STATUS REQUEST	==>		
	<==	PAY STAY (24)	**Waiting for the first bill to be removed.**
(11) STATUS REQUEST	==>		
	<==	PAY STAY (24)	
(11) STATUS REQUEST	==>		**Bill is removed**
	<==	**PAY VALID (23)**	The Controller should credits down via [PAY VALID].
(50) ACK	==>		The Acceptor holds its status until [ACK] is sent back to [PAY VALID].
(11) STATUS REQUEST	==>		**Started dispensing the second bill**
	<==	PAYING (20)	
:			
(11) STATUS REQUEST	==>		**Waiting for (x) bill to be removed.**
	<==	PAY STAY (24)	
(11) STATUS REQUEST	==>		
	<==	PAY STAY (24)	
(11) STATUS REQUEST	==>		**Bill is removed**
	<==	**PAY VALID (23)**	The Controller should credit down via [PAY VALID].
(50) ACK	==>		The Acceptor holds its status until [ACK] is sent back to [PAY VALID].
(11) STATUS REQUEST	==>		
	<==	DISABLE(INHIBIT) (1A)	**Idling**

4.5. POWER INTERRUPT/ HARDWARE RESET during the stacking operation.

CONTROLLER		ACCEPTOR	State
			Validating
(11) STATUS REQUEST	==>		
	<==	ACCEPTING (12)	**Escrow**
(11) STATUS REQUEST	==>		
	<==	ESCROW (13+DATA)	
(41, 42, 49) STACK-1,2,3	==>		(OPERATION COMMAND)
	<==	**ACK (50)**	
(11) STATUS REQUEST	==>		**Transporting Bills**
	<==	STACKING (14)	
			(*1) POWER INTERRUPT occurs
(11) STATUS REQUEST	==>		where a bill can be dispensed.
(11) STATUS REQUEST	==>		
	<==	**POWER UP WITH BILL IN STACKER (42+DATA)**	(*2) Inform of the occurred POWER INTERRUPT via [POWER UP STATUS]
(92) RECYCLER INFORMATION REQUEST	==>		
	<==	RECYCLER INFORMATION (92+DATA)	**Get Recycler Information**
(40) RESET	==>		**Initializing**
	<==	**ACK (50)**	
(11) STATUS REQUEST	==>		
	<==	INITIALIZE (1B)	**Stacking a bill which was being transported.**
SETTING COMMAND	==>		
	<==	SETTING COMMAND	
(C3+DATA) INHIBIT	==>		
	<==	INHIBIT (C3+DATA)	
(11) STATUS REQUEST	==>		
	<==	INITIALIZE (1B)	
(11) STATUS REQUEST	==>		
	<==	**VEND VALID (15)** (OPTIONAL FUNCTION)	**POWER RECOVERY; Enabled** ***[VEND VALID]*** is sent here.
(50) ACK	==>		
(11) STATUS REQUEST	==>		
	<==	ENABLE(IDLE) (11)	Idling

※ 1 The exact point to determine whether or not a bill can be dispensed varies depending on the model.
※ 2 Where to stack bills is informed via POWER UP BILL IN WITH STACKER.

4.6. Dispensing sequence via *[PAY OUT]* command.
(POWER INTERRUPT/ HARDWARE RESET1 during the dispensing operation)

CONTROLLER		ACCEPTOR	State
(11) STATUS REQUEST	==>		**Idling**
	<==	DISABLE(INHIBIT) (1A)	
(F0+1A) STATUS REQUEST(RC)	==>		
	<==	NORMAL (F0+10+DATA)	
(F0+4A) PAY OUT	==>		**Start dispensing bills**
	<==	**ACK (50)**	
(11) STATUS REQUEST	==>		
	<==	PAYING (20)	**Transporting Bills**
(11) STATUS REQUEST	==>		
	<==	PAYING (20)	
(11) STATUS REQUEST	==>		POWER INTERRUPT occurred where a bill cannot be returned.
(11) STATUS REQUEST	==>		
	<==	**POWER UP WITH BILL IN STACKER (42+DATA)**	Report that the Acceptor is experiencing POWER INTERRUPT via [POWER UP STATUS].
(92) RECYCLER INFORMATION REQUEST	==>		
	<==	RECYCLER INFORMATION (92+DATA)	**Get Recycler Information**
(40) RESET	==>		**Initializing**
	<==	**ACK (50)**	
(11) STATUS REQUEST	==>		
	<==	INITIALIZE (1B)	**Stack a bill which was being transported to the Stacker**
SETTING COMMAND	==>		
	<==	SETTING COMMAND	
(C3+DATA) INHIBIT	==>		
	<==	INHIBIT (C3+DATA)	
(11) STATUS REQUEST	==>		
	<==	INITIALIZE (1B)	**Initializing**
(11) STATUS REQUEST	==>		
	<==	ENABLE(IDLE) (11)	Idling

※ The exact point to determine whether or not a bill can be dispensed varies depending on the model.

4.7. Dispensing sequence via *[PAY OUT]* command.
(POWER INTERRUPT/ HARDWARE RESET 2 during the dispensing operation)

CONTROLLER		ACCEPTOR	State
(11) STATUS REQUEST	==>		**Idling**
	<==	DISABLE(INHIBIT) (1A)	
(F0+1A) STATUS REQUEST(RC)	==>		
	<==	NORMAL (F0+10+DATA)	
(F0+4A) PAY OUT	==>		**Start dispensing bills**
	<==	**ACK (50)**	
(11) STATUS REQUEST	==>		
	<==	PAYING (20)	
(11) STATUS REQUEST	==>		
	<==	PAYING (20)	
(11) STATUS REQUEST	==>		
	<==	PAYING (20)	**Transporting Bills**
(11) STATUS REQUEST	==>		POWER INTERRUPT occurred where a bill can be returned.
(11) STATUS REQUEST	==>		
	<==	**POWER UP WITH BILL IN ACCEPTOR (41)**	Report that the Acceptor is experiencing POWER INTERRUPT via [POWER UP STATUS].
(92) RECYCLER INFORMATION REQUEST	==>		
	<==	RECYCLER INFORMATION (92+DATA)	**Get Recycler Information**
(40) RESET	==>		**Initializing**
	<==	**ACK (50)**	
(11) STATUS REQUEST	==>		
	<==	INITIALIZE (1B)	Dispense a bill which was being transported.
(11) STATUS REQUEST	==>		
	<==	INITIALIZE (1B)	Waiting for a bill to be removed.
(11) STATUS REQUEST	==>		
	<==	INITIALIZE (1B)	Bill is removed
(11) STATUS REQUEST	==>		
	<==	INITIALIZE (1B)	Initializing
(11) STATUS REQUEST	==>		
	<==	**PAY VALID (23)**	The Controller should credit down via [PAY VALID].
(50) ACK	==>		The Acceptor holds its status until [ACK] is sent back to [PAY VALID].
(11) STATUS REQUEST	==>		
	<==	ENABLE(IDLE) (11)	Idling

※ The exact point to determine a controversial bill can be returned or not varies depending on the model.

4.8. Dispensing sequence via *[PAY OUT]*; The Acceptor status is [RECYCLER BOX EMPTY].

CONTROLLER		*ACCEPTOR*	State
(11) STATUS REQUEST	==>		**Idling**
	<==	DISABLE(INHIBIT) (1A)	
(F0+1A) STATUS REQUEST(RC)	==>		
	<==	EMPTY (F0+11)	
(F0+4A) PAY OUT	==>		
	<==	**INVALID COMMAND (4B)**	
(11) STATUS REQUEST	==>		
	<==	DISABLE(INHIBIT) (1A)	**Idling**

4.9. Multiple bills dispensing via *[PAY OUT]*
(The Acceptor status changed to *[RECYCLE BOX EMPTY]* during the dispensing operation)

CONTROLLER		ACCEPTOR	State
(11) STATUS REQUEST	==>		**Idling**
	<==	DISABLE(INHIBIT) (1A)	
(F0+1A) STATUS REQUEST(RC)	==>		
	<==	NORMAL (F0+10+DATA)	
(F0+4A) PAY OUT	==>		**Requested to dispense x number of bills**
	<==	**ACK (50)**	
(11) STATUS REQUEST	==>		**Started dispensing the first bill**
	<==	PAYING (20)	
(11) STATUS REQUEST	==>		
	<==	PAYING (20)	**Dispensing the first bill is completed**
(11) STATUS REQUEST	==>		
	<==	PAY STAY (24)	**Waiting for the first bill to be removed.**
(11) STATUS REQUEST	==>		
	<==	PAY STAY (24)	
(11) STATUS REQUEST	==>		**Bill is removed**
	<==	**PAY VALID** (23)	The Controller should credit down via [PAY VALID].
(50) ACK	==>		The Acceptor holds its status until [ACK] is sent back to [PAY VALID].
(11) STATUS REQUEST	==>		**Started dispensing the second bill**
	<==	PAYING (20)	
(F0+1A) STATUS REQUEST(RC)	==>		
	<==	EMPTY (F0+11)	**Not enough bills**
(11) STATUS REQUEST	==>		
	<==	RECYCLER ERROR (4C)	**Error due to not enough bills to dispense**
(11) STATUS REQUEST	==>		
	<==	RECYCLER ERROR (4C)	
(11) STATUS REQUEST	==>		**Automatic error recovery is performed because the unit malfunction is not involved.**
	<==	INITIALIZE (1B)	
(11) STATUS REQUEST	==>		
	<==	DISABLE(INHIBIT) (1A)	**Idling**

4.10. Dispensing sequence via *[PAY OUT]*; A bill is rejected.

CONTROLLER		ACCEPTOR	State
(11) STATUS REQUEST	==>		**Idling**
	<==	DISABLE(INHIBIT) (1A)	
(F0+1A) STATUS REQUEST(RC)	==>		
	<==	NORMAL (F0+10+DATA)	
(F0+4A) PAY OUT	==>		**Start dispensing bills**
	<==	**ACK (50)**	
(11) STATUS REQUEST	==>		
	<==	PAYING (20)	
(11) STATUS REQUEST	==>		**A bill is rejected to dispense**
	<==	RETURN ERROR NOTE (26+DATA)	**Start transporting a bill to the Stacker**
(11) STATUS REQUEST	==>		
	<==	RETURN ERROR NOTE (26+DATA)	
(11) STATUS REQUEST	==>		
	<==	COLLECTED (22 +DATA)	**Stacking Completed**
(11) STATUS REQUEST	==>		**Start dispensing next bill**
	<==	COLLECTED (22 +DATA)	
(11) STATUS REQUEST	==>		
	<==	PAYING (20)	
(11) STATUS REQUEST	==>		
	<==	PAYING (20)	
(11) STATUS REQUEST	==>		
	<==	PAY STAY (24)	**Dispensing bills completed**
(11) STATUS REQUEST	==>		
	<==	PAY STAY (24)	**Waiting for a bill to be removed.**
(11) STATUS REQUEST	==>		
	<==	PAY STAY (24)	
(11) STATUS REQUEST	==>		**Bill is removed**
	<==	**PAY VALID** (23)	
(50) ACK	==>		
(11) STATUS REQUEST	==>		
	<==	DISABLE(INHIBIT) (1A)	**Idling**

4.11. Dispensing sequence via *[PAY OUT]* command.
(Bill jam or error occurred while the bill is placed where it can be removed.)

CONTROLLER		*ACCEPTOR*	State
(11) STATUS REQUEST	==>		**Idling**
	<==	DISABLE(INHIBIT) (1A)	
(F0+1A) STATUS REQUEST(RC)	==>		
	<==	NORMAL (F0+10+DATA)	
(F0+4A) PAY OUT	==>		**Start dispensing bills**
	<==	**ACK (50)**	
(11) STATUS REQUEST	==>		
	<==	PAYING (20)	
(11) STATUS REQUEST	==>		
	<==	PAYING (20)	
			(Bill jam or error occurred while the bill is placed where it can be removed.)
	<==	**PAY VALID** (23)	
(50) ACK	==>		
(11) STATUS REQUEST	==>		
	<==	Jam in Acceptor (45)	
(F0+1A) STATUS REQUEST(RC)	==>		
	<==	NORMAL (F0+10+DATA)	
(11) STATUS REQUEST	==>		**Jammed bill is removed.**
	<==	INITIALIZE (1B)	
(11) STATUS REQUEST	==>		
	<==	INITIALIZE (1B)	
(11) STATUS REQUEST	==>		
	<==	DISABLE(INHIBIT) (1A)	

※ The exact point to determine a controversial bill can be removed or not varies depending on the model.

4.12. Dispensing sequence with *[PAY OUT]* command.
(Bill jam or error occurred while the bill is placed where it cannot be removed.)

CONTROLLER		ACCEPTOR	State
(11) STATUS REQUEST	==>		**Idling**
	<==	DISABLE(INHIBIT) (1A)	
(F0+1A) STATUS REQUEST(RC)	==>		
	<==	NORMAL (F0+10+DATA)	
(F0+4A) PAY OUT	==>		**Start dispensing bills**
	<==	**ACK (50)**	
(11) STATUS REQUEST	==>		
	<==	PAYING (20)	
(11) STATUS REQUEST	==>		
	<==	PAYING (20)	
(11) STATUS REQUEST	==>		**Bill Jam occurs**
	<==	RECYCLER ERROR (4C) (Jam in Stacker)	**Bill Jam or error occurred while the bill is placed where it cannot be removed.)**
(F0+1A) STATUS REQUEST(RC)	==>		
	<==	JAM (F0+40) (NORMAL)	
(11) STATUS REQUEST	==>		**Jammed bill is removed.**
	<==	INITIALIZE (1B)	
(11) STATUS REQUEST	==>		
	<==	INITIALIZE(1B)	
(11) STATUS REQUEST	==>		
	<==	DISABLE(INHIBIT) (1A)	

※ The exact point to determine a controversial bill can be removed or not varies depending on the model.

4.13. Dispensing sequence via *[PAY OUT]* command; Resending [VEND VALID]

CONTROLLER		*ACCEPTOR*	State
(11) STATUS REQUEST	==>		**Idling**
	<==	DISABLE(INHIBIT) (1A)	
(F0+1A) STATUS REQUEST(RC)	==>		
	<==	NORMAL (F0+10+DATA)	
(F0+4A) PAY OUT	==>		**Start dispensing bills**
	<==	**ACK (50)**	
(11) STATUS REQUEST	==>		
	<==	PAYING (20)	
(11) STATUS REQUEST	==>		
	<==	PAYING (20)	
(11) STATUS REQUEST	==>		
	<==	PAY STAY (24)	**Dispensing bills completed**
(11) STATUS REQUEST	==>		
	<==	PAY STAY (24)	**Waiting for a bill to be removed.**
(11) STATUS REQUEST	==>		
	<==	PAY STAY (24)	
(11) STATUS REQUEST	==>		**Bill is removed**
	<==	**PAY VALID** (23)	
(50) ACK	==>	**Unacceptable**	**No Response**
(11) STATUS REQUEST	==>		
	<==	**PAY VALID** (23)	[PAY VALID] is resent.
(50) ACK	==>		The Acceptor holds its status until [ACK] is sent back to [PAY VALID].
(11) STATUS REQUEST	==>		
	<==	DISABLE(INHIBIT) (1A)	**Idling**

4.14. Retrieving sequence via *[COLLECT]*; Note-by-note

CONTROLLER		*ACCEPTOR*	State
(11) STATUS REQUEST	==>		**Idling**
	<==	DISABLE(INHIBIT) (1A)	
(F0+1A) STATUS REQUEST(RC)	==>		
	<==	NORMAL (F0+10+DATA)	
(F0+4B+DATA) COLLECT	==>		
	<==	**ACK (50)**	**Retrieving a bill starts**
(11) STATUS REQUEST	==>		
	<==	COLLECTING (21+DATA)	
(11) STATUS REQUEST	==>		
	<==	COLLECTING (21+DATA)	**The bill is transported from the Recycler unit to Stacker.**
(11) STATUS REQUEST	==>		
	<==	COLLECTED (22 + DATA)	**Transporting the bill is completed. Stacking operation is completed.**
(11) STATUS REQUEST	==>		
	<==	COLLECTED (22 + DATA)	
(11) STATUS REQUEST	==>		**Idling**
	<==	DISABLE(INHIBIT) (1A)	

4.15. Retrieving sequence via *[COLLECT]*; Multiple bills

CONTROLLER		ACCEPTOR	State
(11) STATUS REQUEST	==>		**Idling**
	<==	DISABLE (INHIBIT)	
(F0+1A) STATUS REQUEST(RC)	==>		
	<==	NORMAL (F0+10+DATA)	
(F0+4B+DATA) COLLECT	==>		
	<==	**ACK (50)**	**Retrieving a first bill starts.**
(11) STATUS REQUEST	==>		
	<==	COLLECTING (21+DATA)	
(11) STATUS REQUEST	==>		
	<==	COLLECTING (21+DATA)	
(11) STATUS REQUEST	==>		
	<==	COLLECTED (22 + DATA)	**Retrieving the first bill (stacking) is completed.**
(11) STATUS REQUEST	==>		
	<==	COLLECTED (22 + DATA)	
(11) STATUS REQUEST	==>		**Retrieving a second bill starts.**
	<==	COLLECTING (21+DATA)	
(11) STATUS REQUEST	==>		
	<==	COLLECTING (21+DATA)	
(11) STATUS REQUEST	==>		
	<==	COLLECTED (22 + DATA)	**Retrieving the second bill (stacking) is completed .**
(11) STATUS REQUEST	==>		
	<==	COLLECTED (22 + DATA)	
	:		
	:		
(11) STATUS REQUEST	==>		**Retrieving a specified bill (x) starts.**
	<==	COLLECTING (21+DATA)	
(11) STATUS REQUEST	==>		
	<==	COLLECTING (21+DATA)	
(11) STATUS REQUEST	==>		
	<==	COLLECTED (22 + DATA)	**Retrieving the x bill (stacking) is completed.**
(11) STATUS REQUEST	==>		
	<==	COLLECTED (22 + DATA)	
(11) STATUS REQUEST	==>		
	<==	DISABLE(INHIBIT) (1A)	
(F0+1A) STATUS REQUEST(RC)	==>		
	<==	EMPTY (F0+11)	**Retrieving is completed.**
(11) STATUS REQUEST	==>		**Idling**
	<==	DISABLE(INHIBIT) (1A)	

4.16. Retrieving sequence via *[COLLECT]*; Bill Jam occurs during the retrieving operation.

CONTROLLER		*ACCEPTOR*	State
(11) STATUS REQUEST	==>		**Idling**
	<==	DISABLE(INHIBIT) (1A)	
(F0+1A) STATUS REQUEST(RC)	==>		
	<==	NORMAL (F0+10+DATA)	
(F0+4B+DATA) COLLECT	==>		**Retrieving a bill starts**
	<==	**ACK (50)**	
(11) STATUS REQUEST	==>		
	<==	COLLECTING (21+DATA)	
(11) STATUS REQUEST	==>		
	<==	COLLECTING (21+DATA)	
(11) STATUS REQUEST	==>		**Bill Jam occurs**
	<==	RECYCLER ERROR (4C)	
(F0+1A) STATUS REQUEST(RC)	==>		
	<==	RECYCLER JAM (F0+40)	
(11) STATUS REQUEST	==>		
	<==	RECYCLER ERROR (4C)	
(11) STATUS REQUEST	==>		**Jammed bill is removed.**
	<==	INITIALIZE (1B)	
(11) STATUS REQUEST	==>		
	<==	INITIALIZE (1B)	
(11) STATUS REQUEST	==>		**Idling**
	<==	DISABLE(INHIBIT) (1A)	

4.17. Recycler error recovery sequence via *[CLEAR]*

CONTROLLER		*ACCEPTOR*	State
(11) STATUS REQUEST	==>		**Error occurs**
	<==	RECYCLER ERROR (4C)	
(F0+1A) STATUS REQUEST(RC)	==>		
	<==	RECYCLER MOTOR ERROR (F0+42)	
(F0+4C) CLEAR	==>		
	<==	**ACK (50)**	
(11) STATUS REQUEST	==>		
	<==	RECYCLER ERROR (4C)	
(F0+1A) STATUS REQUEST(RC)	==>		
	<==	RECYCLER MOTOR ERROR (F0+42)	
(11) STATUS REQUEST	==>		
	<==	RECYCLER ERROR (4C)	
			Error is resolved
(F0+4C) CLEAR	==>		
	<==	**ACK (50)**	
(11) STATUS REQUEST	==>		
	<==	RECYCLER ERROR (4C)	
(F0+1A) STATUS REQUEST(RC)	==>		
	<==	NORMAL (F0+10+DATA)	
(40) RESET	==>		**Initializing**
	<==	**ACK (50)**	
(11) STATUS REQUEST	==>		
	<==	INITIALIZE (1B)	

4.18. Stop dispensing and start retrieving sequence via *[EMERGENCY STOP]*

CONTROLLER		ACCEPTOR	State
(11) STATUS REQUEST	==>		**Idling**
	<==	DISABLE(INHIBIT) (1A)	
(F0+1A) STATUS REQUEST(RC)	==>		
	<==	NORMAL (F0+10+DATA)	
(F0+4A+DATA) PAY OUT	==>		**Dispensing a bill starts.**
	<==	**ACK (50)**	
(11) STATUS REQUEST	==>		
	<==	PAYING (20)	
(11) STATUS REQUEST	==>		
	<==	PAYING (20)	**Dispensing the bill is completed.**
(11) STATUS REQUEST	==>		
	<==	PAY STAY (24)	**Waiting for the bill to be removed.**
(11) STATUS REQUEST	==>		
	<==	PAY STAY (24)	
(F0+4D) EMERGENCY STOP	==>		**Stacking the bill starts.**
	<==	**ACK (50)**	
(11) STATUS REQUEST	==>		
	<==	RETURN to BOX (25)	
(11) STATUS REQUEST	==>		
	<==	RETURN to BOX (25)	**Retrieving**
(11) STATUS REQUEST	==>		Retrieving the bill (stacking) is completed .
	<==	COLLECTED (22 + DATA)	
(11) STATUS REQUEST	==>		
	<==	COLLECTED (22 + DATA)	
(11) STATUS REQUEST	==>		
	<==	DISABLE(INHIBIT) (1A)	

4.19. Stop dispensing and start retrieving sequence via *[EMERGENCY STOP]*; Abnormal condition is detected while retrieving dispensed bills

CONTROLLER		ACCEPTOR	State
(11) STATUS REQUEST	==>		**Idling**
	<==	DISABLE(INHIBIT) (1A)	
(F0+1A) STATUS REQUEST(RC)	==>		
	<==	NORMAL (F0+10+DATA)	
(F0+4A+DATA) PAY OUT	==>		**Dispensing a bill starts.**
	<==	**ACK (50)**	
(11) STATUS REQUEST	==>		
	<==	PAYING (20)	
(11) STATUS REQUEST	==>		
	<==	PAYING (20)	**Dispensing the bill is completed.**
(11) STATUS REQUEST	==>		
	<==	PAY STAY (24)	**Waiting for the bill to be removed.**
(11) STATUS REQUEST	==>		
	<==	PAY STAY (24)	
(F0+4D) EMERGENCY STOP	==>		**Stacking the bill starts.**
	<==	**ACK (50)**	
(11) STATUS REQUEST	==>		
	<==	RETURN to BOX (25)	**Retrieving**
(11) STATUS REQUEST	==>		
	<==	RETURN ERROR (25)	**Abnormal condition is detected.**
(11) STATUS REQUEST	==>		
	<==	RETURN ERROR (2F)	

4.20. Refill mode; An accepted bill is not to be recycled.

CONTROLLER		ACCEPTOR	State
(11) STATUS REQUEST	==>		
	<==	ENABLE(IDLE) (11)	**Idling**
(F0+D4+DATA) RECYCLE REFILL MODE SETTING	==>		**The Acceptor is set to the Refill mode**
	<==	RECYCLE REFILL MODE SETTING (F0+D4+DATA)	
(11) STATUS REQUEST	==>		**Bill insertion**
	<==	ACCEPTING (12)	
(11) STATUS REQUEST	==>		
	<==	ACCEPTING (12)	**Validating**
			Escrow
			A bill is returned if the Acceptor does not receive any [STATUS REQUEST] within 3 seconds after it goes into the ESCROW Status.
(11) STATUS REQUEST	==>		
	<==	**ESCROW (13+DATA)**	
(41, 42) STACK-1,2	==>		
	<==	**ACK (50)**	A bill is returned if the Acceptor does not receive any [OPERATION COMMAND] within 10 seconds to [ESCROW].
			Transporting the bill to the Recycler unit.
			(*)
(11) STATUS REQUEST	==>		
	<==	STACKING (14)	
			A bill is transported to the point where VEND VALID can be detected.
(11) STATUS REQUEST	==>		
	<==	**VEND VALID** (15)	
(50) ACK	==>		The Controller should credit up when it receives [VEND VALID].
			Stacking
(11) STATUS REQUEST	==>		
	<==	STACKED (16)	
(11) STATUS REQUEST	==>		**Idling**
	<==	ENABLE(IDLE) (11)	

4.21. Refill mode; An accepted bill is not to be recycled or bill condition is are acceptable.

CONTROLLER		ACCEPTOR	State
(11) STATUS REQUEST	==>		
	<==	ENABLE(IDLE) (11)	**Idling**
(F0+D4+DATA) RECYCLE REFILL MODE SETTING	==>		**The Acceptor is set to the Refill mode**
	<==	RECYCLE REFILL MODE SETTING (F0+D4+DATA)	
(11) STATUS REQUEST	==>		**Bill insertion**
	<==	ACCEPTING (12)	
(11) STATUS REQUEST	==>		
	<==	ACCEPTING (12)	**Validating** **Not validated**
(11) STATUS REQUEST	==>		**Returning a bill**
	<==	REJECTING (17+DATA)	
(11) STATUS REQUEST	==>		
	<==	REJECTING (17+DATA)	
			A returned bill is removed.
(11) STATUS REQUEST	==>		**Idling**
	<==	ENABLE(IDLE) (11)	