
SYSTEM 4000

COLLATOR

DC-10/60

INSTRUCTION MANUAL

[120 V]



Duplo

INTRODUCTION

Thank you for purchasing this Duplo equipment. To ensure correct usage, please read this instruction manual thoroughly, especially the section Safety Precautions. After reading, please store this instruction manual in a safe place for future reference.



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1. SAFETY PRECAUTIONS

Always observe the cautions and warnings given below to prevent personal injury or property damage.

■ The degree of danger and damage that could occur is indicated on two levels by the following marks.

	WARNING : <i>Ignoring this mark could result in the possibility of serious injury or even death.</i>
	CAUTION : <i>Ignoring this mark could result in the possibility of injury or physical damage.</i>

■ The following graphic symbols indicate the various types of action to be performed or avoided.

	This graphic symbol indicates a forbidden action.
	means "Do not disassemble."
	means "Do not touch."
	This graphic symbol indicates actions that must be performed.
	means "Disconnect the power plug."
	This graphic symbol indicates a "Caution" that must be observed.
	means "Caution: high temperature."

WARNING:



Do not place metal objects or vessels containing liquids on top of the unit. The entry of any metal object or liquid could result in fire or electrical shock.



Do not insert any metal or easily-combustible object inside this unit. This could result in fire or electrical shock.



Do not touch or insert foreign objects into any rotating part during operation. This could result in injury.



Do not remove the cover or back panel. This unit contains high-voltage components that could cause electrical shock.



Do not disassemble, modify or repair this unit. There is a danger of fire, electrical shock or injury. Contact your dealer when repairs are necessary.



Use only the power supply voltage specified on the main nameplate. Using other voltages could result in fire or electrical shock.



Keep this unit and the power cord away from heaters and heater vents. Excessive heat could melt the cover or power cord covering, and result in fire or electrical shock.



Do not use flammable sprays inside or near the unit (e.g. when cleaning the unit). Such flammable gas may ignite and cause a fire or combustion.



Make sure that the combined power consumption of the appliances to be connected does not exceed the capacity rating of the power outlets or plug receptacles. Exceeding the capacity rating could cause the power outlets, plug receptacles, or power extension cords to overheat and catch fire.



Remove any dust that accumulates on the power plug prongs and the surface of the plug from which the prongs extend. Accumulated dust can result in fire.



If any foreign object such as metal or liquid should enter this unit, immediately turn the unit off at the power switch and disconnect the power plug from the power outlet. Failure to do so could result in fire or electrical shock. Contact your dealer immediately.



Do not damage the power cord or power plug. (Do not scratch, alter, bend, twist, pull or place heavy objects on the power cord or power plug.) This could result in damage, fire or electrical shock.



Always grip the plug when disconnecting the power plug from the power outlet. Pulling on the power cord could cause damage, resulting in fire or electrical shock.



Do not handle the power plug with wet hands. This could result in electrical shock.



Before cleaning this unit, turn the unit off at the power switch and disconnect the power plug from the power outlet. Accidental operation of the unit during cleaning could result in injury.

⚠ CAUTION:



Always disconnect the power plug from the power outlet when the unit is not to be used for an extended period. Failure to do so could result in fire due to leakage current if the insulation should deteriorate.



Install this unit on a level, stable stand or floor, with sufficient space around it. Failure to do so could result in the unit overturning and causing injury.



Do not install this unit in a location where there is excessive humidity or where contact with water is possible. Poor choice of location could result in deterioration of the insulation, fire or electrical shock.



Disconnect the power plug from the power outlet before attempting to move this unit. Failure to do so could result in power cord damage, fire or electrical shock.

(Continued on the next page)

2. USAGE PRECAUTIONS

2-1. Power Supply

- This equipment shall be installed near the socket-outlet where the plug on the power supply cord is easily accessible.
- Make sure the power supply used is always within the following range.
 - 120 V AC, 60 Hz
- When you power other appliances from the same AC outlet, make sure that the combined power consumption does not exceed the power supply capacity.
 - Rated power of this equipment: 9.5 A

2-2. Operating Environment

Operate this unit in the following environment:

- where the temperature range is between 5 and 35°C,
- where the humidity range is between 20 and 85% RH (no dew condensation),
- which is not subject to direct sunlight,
- which is subject to little or no vibration,
- where there are no harmful chemicals,
- which is reasonably free from dust,
- which is free from air-borne salt, and
- where the equipment will not be exposed to water.

2-3. Storage Conditions

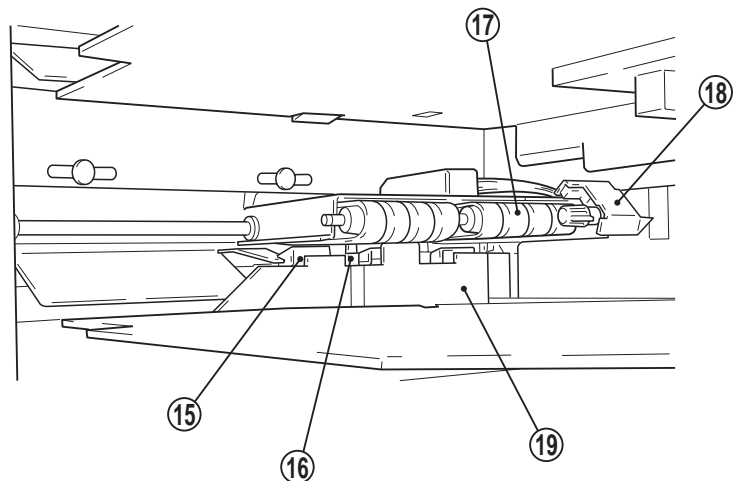
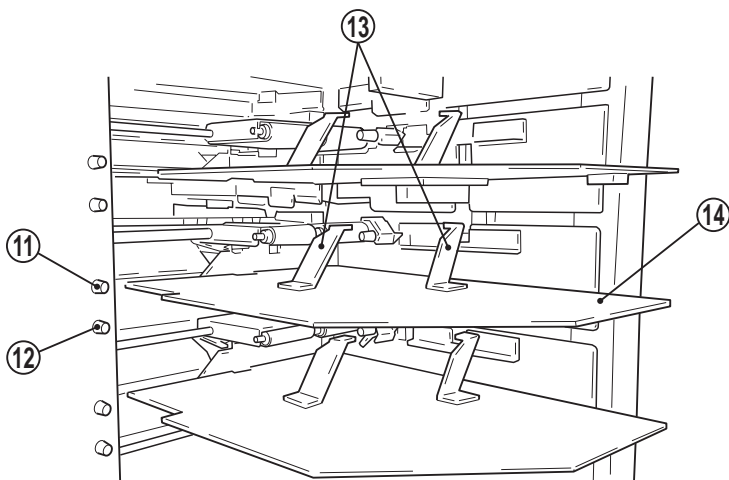
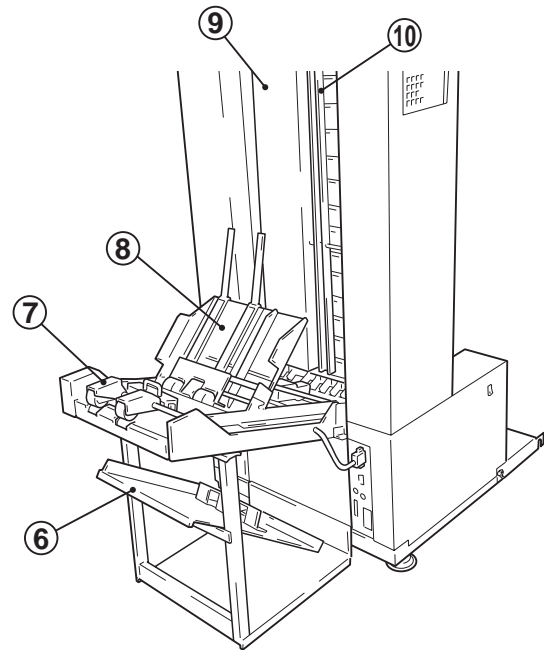
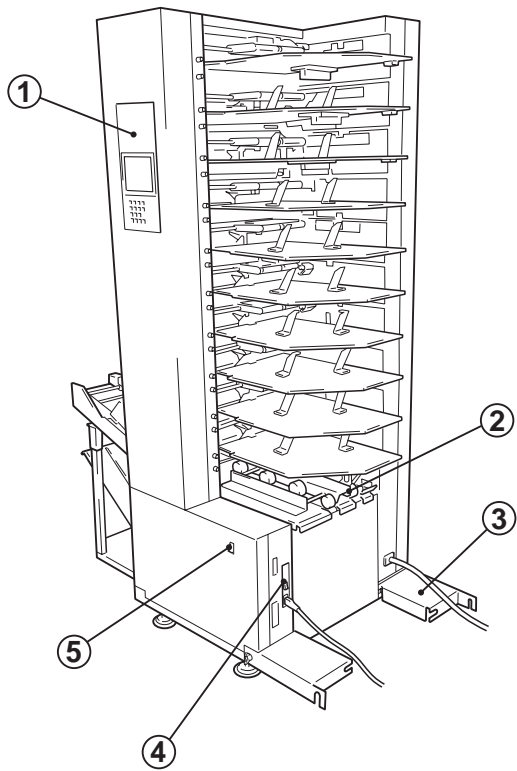
Store this unit in the following environment:

- where the temperature range is between –5 and +50°C,
- where the humidity range is between 10 and 90% RH (no dew condensation),
- which is not subject to direct sunlight,
- which is subject to little or no vibration,
- where there are no harmful chemicals,
- which is reasonably free from dust,
- which is free from air-borne salt, and
- where the equipment will not be exposed to water.

2-4. Maintenance

To protect the special features of this unit, the customer should never apply oil or grease to the parts (except when the customer is specifically requested to do so in this instruction manual). Please contact your dealer in case of any problem.

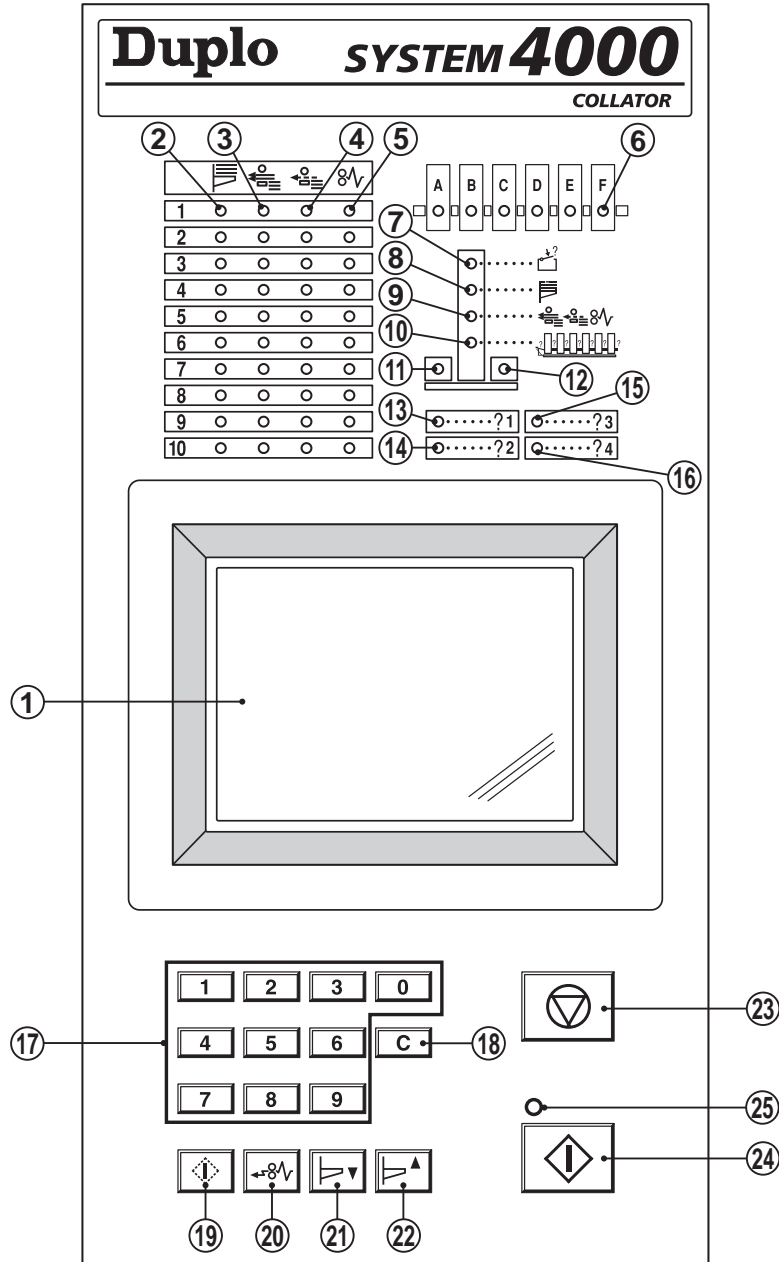
3. NAMES AND OPERATION OF PARTS



3. NAMES AND OPERATION OF PARTS

No.	Name	Operation
①	Control panel	For details, refer to “4. NAMES AND OPERATION OF CONTROL PANEL”.
②	Horizontal conveyance section	Conveys the collated paper.
③	Connecting plate	Used to connect and secure towers together.
④	Remote switch	When pressed, the power turns ON and the machine sets into the standby state.
⑤	Power switch	When connecting and using several towers together, the power of all the towers can be turned ON and OFF using just this switch.
⑥	Reject tray	When double-feed or mis-collation occurs, the mis-collated sets are ejected to this tray.
⑦	Lifting unit	Conveys the collated paper to the downstream processing machine.
⑧	Hand marry	Enables manual feed of set consisting of up to 10 sheets of paper.
⑨	Vertical conveyance board	Conveys the fed paper.
⑩	Sub-guide	Presses the edge of the paper being conveyed to prevent the paper from rising.
⑪	Separating-air adjusting knob	Used to adjust the position of the shutter to adjust the amount of separating air blown out.
⑫	Separator adjusting knob	Used to adjust the position of the separator.
⑬	Stack guide	Presses the edge of the paper to hold the paper in place.
⑭	Paper feed bin	Loads the paper to be collated.
⑮	Separating-air duct	Blows out the air for separating paper loaded to the paper feed bin.
⑯	Separator	Prevents double-feeding.
⑰	Suction belt	Sucks and conveys the paper.
⑱	Level sensor	Determines the position of the paper raised by the separating air. Adjustable using the knob.
⑲	Shutter	Adjusts the amount of separating air blown out.

4. NAMES AND OPERATION OF CONTROL PANEL



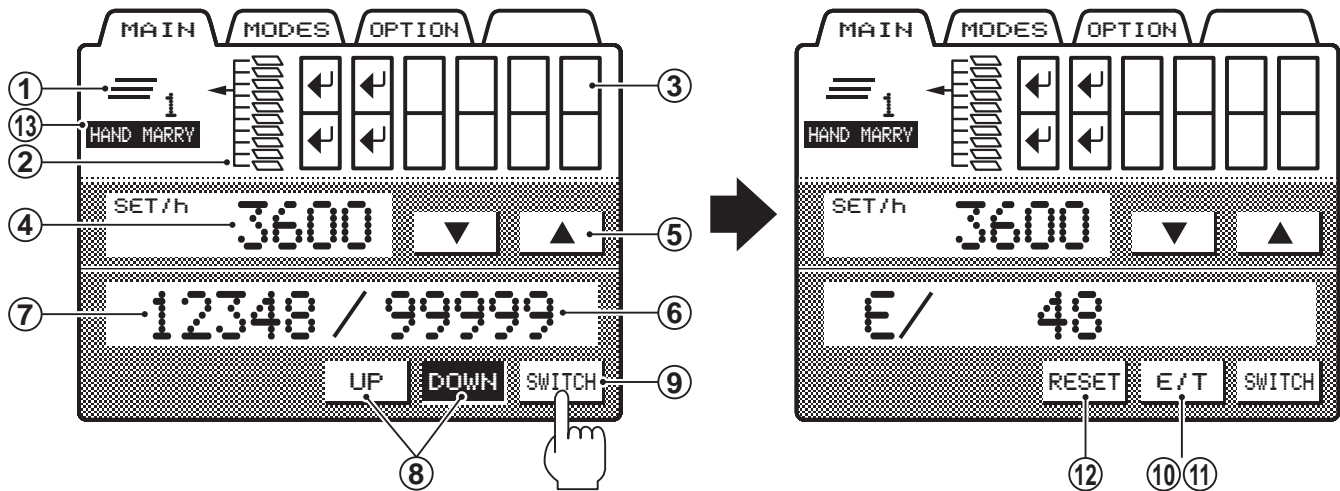
No.	Name	Operation
①	Touch panel	For details, refer to “5. NAMES AND OPERATION OF TOUCH PANEL”.
②	Paper lamp	The lamp of the paper feed bin feeding paper lights up. When a paper feed bin runs out of paper, the corresponding lamp blinks and the machine stops.
③	Double-feed lamp	When paper of a paper feed bin is double-fed, the corresponding lamp lights up.
④	Mis-feed lamp	When paper of a paper feed bin is mis-fed, the corresponding lamp lights up.
⑤	Jam lamp	When a paper feed bin jams, the corresponding lamp lights up. Even when the machine is in the standby state if paper jams at the sensor, the corresponding lamp lights up. When paper jams during paper feed, remove the paper after the machine has stopped. The lamp lit will start blinking.

4. NAMES AND OPERATION OF CONTROL PANEL

No.	Name	Operation
⑥	Tower lamp	The tower lamp lights up when a door is open, when there is no paper, when paper feed errors occur, or when paper jams in the paper conveyance path.
⑦	Door lamp	This lights up when the vertical conveyance board of a tower or LUL-HM conveyance board is open.
⑧	Empty lamp	This lights up when paper on the paper feed bin of a tower runs out.
⑨	Feed lamp	This lights up when double-feeding, mis-feeding, or paper jam occurs in a tower.
⑩	Delivery lamp	This lights up when paper jams in the conveyance path of a tower.
⑪	Left connected unit error lamp	This lights up when problems occur in the downstream processing machine connected to the left side of the collator.
⑫	Right connected unit error lamp	This lights up when problems occur in the downstream processing machine connected to the right side of the collator.
⑬	Error 1 lamp	This lights up when only the sets with the paper feed error are ejected to the reject tray.
⑭	Error 2 lamp	This lights up when one set with the paper feed error is sent to the downstream processing machine, and the following sets are ejected to the reject tray, and the collator stops.
⑮	Error 3 lamp	When ejecting paper to the right side if the LUR is not connected, this lamp will light up if the machine stops due to paper feed error, etc.
⑯	Error 4 lamp	Not used.
⑰	Keypad (0 to 9)	Set the No. of sets to be collated using this keypad. * When several towers are connected, only the keys of the first tower are effective.
⑱	C key	Press this key for about one second when erasing the value displayed. A buzzer sounds and the value at the "No. of sets" display of the touch panel becomes "0".
⑲	Preset key	Press this key whenever starting the collation process for the first time. Make sure that the "No. of sets" display of the touch panel is "0" before pressing this key. Only one set is collated, and the thickness of the paper on each paper feed bin is memorized. When changing the type of paper used and starting collation again, be sure to press this key.
⑳	Jog key	The paper conveyance motor drives only while this key is pressed. When paper has stopped in the middle of the conveyance path, press this key and remove the paper.
㉑	Bin down key	Press this key to lower all paper feed bins. Pressing this key while the paper feed bins are descending stops the paper feed bins.
㉒	Bin up key	Press this key to raise all paper feed bins. Pressing this key while the paper feed bins are rising stops the paper feed bins.
㉓	Stop key	Press this key to stop the machine.
㉔	Start key	Press this key to start operations.
㉕	Start lamp	This lights up when the machine starts operating.

5. NAMES AND OPERATION OF TOUCH PANEL

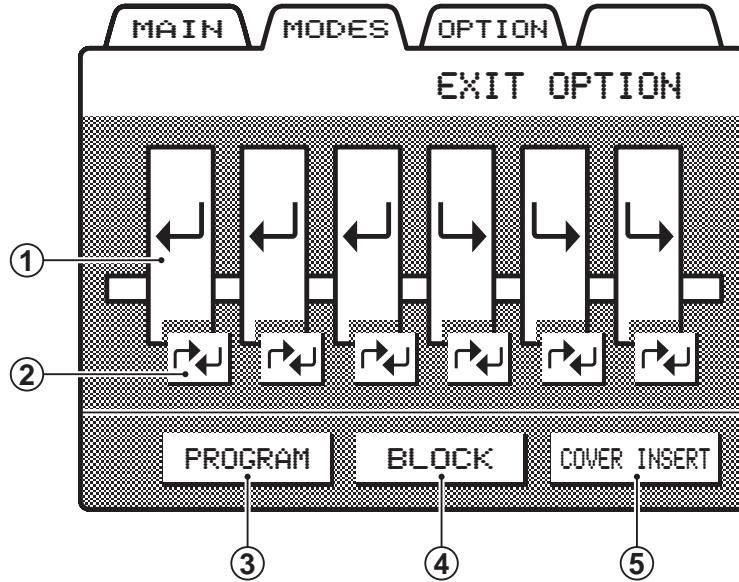
5-1. Main Menu



No.	Name	Operation
①	Overlap display	Displays the overlapping state of paper on each paper feed bin. Pressing the display shows the "Overlap amount setting" screen of the "Option menu".
②	Program mode display	Displays "All bins mode" or "Alternate mode".
③	Paper ejection direction and paper feed block display	Displays the paper ejection direction and block feeding paper. Each tower can be divided into less than 2 blocks. The block currently feeding paper displays an arrow indicating the paper ejection direction.
④	Speed display	Displays the collating speed. The range of speed which can be set differs according to the overlap amount, paper length, and downstream processing machine.
⑤	Set speed key	Used to set the collating speed.
⑥	No. of sets input display	Displays the No. of sets input using the keypad. Sets to "0" when the C key is pressed.
⑦	No. of sets processed display	When set to the subtract counter, collation starts from the value input, and the remaining No. of sets to be collated is displayed as collation proceeds. When set to the add counter, it shows "0" first and the No. of sets collated is displayed as collation proceeds.
⑧	Select add/subtract counter key	Pressing "UP" sets the add counter while pressing "DOWN" sets the subtract counter.
⑨	Switch No. of sets key	Switches between the No. of sets collated display and the No. of rejections/total sets display during collation.
⑩	No. of rejections display key	Displays the No. of rejections since power was turned on. (E/□□□□□)
⑪	Total sets display key	Displays the total sets collated since power was turned on. (T/□□□□□)
⑫	Reset key	Sets back the No. of rejections (E) and total No. of sets (T) to "0".
⑬	Manual feed mode/cover insert mode display	Displayed when the manual feed mode or cover insert mode is selected. Not displayed when neither is selected.

5-2. Mode Menu

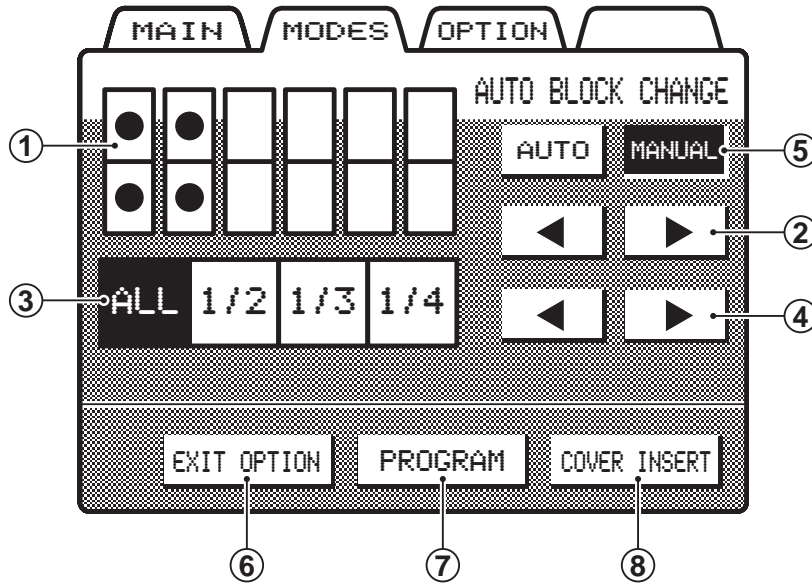
(1) Mode menu 1 [Select paper ejection direction menu]



No.	Name	Operation
①	Paper ejection direction display	Displays the paper ejection direction of each tower using the arrow.
②	Select paper ejection direction key	Press to switch the paper ejection direction of each tower.
③	Program mode menu key	Press to display the "Program mode menu".
④	Block mode menu key	Press to display the "Block mode menu".
⑤	Cover insert mode menu key	Press to display the "Cover insert mode menu".

5. NAMES AND OPERATION OF TOUCH PANEL

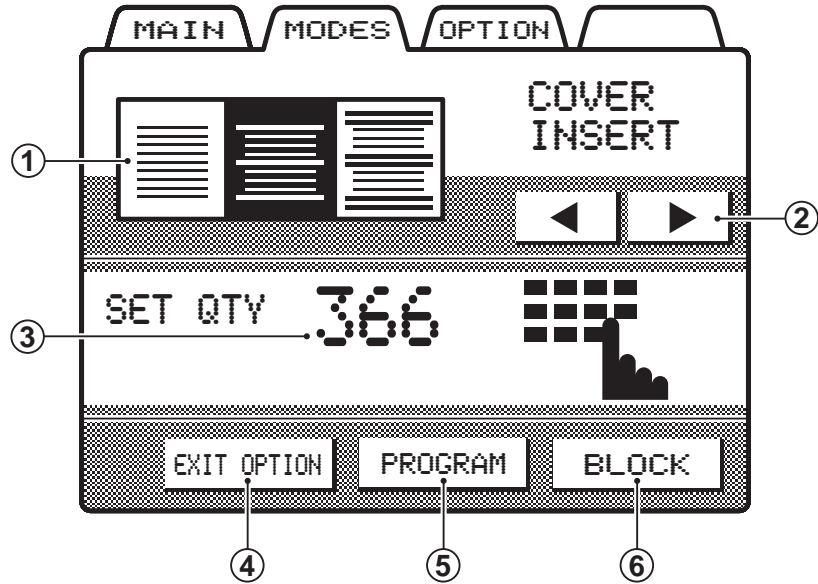
(2) Mode menu 2 [Block mode menu]



No.	Name	Operation
①	Block display	“●” is displayed at the block collating.
②	Select block key	Used to select the block collating.
③	Block mode display	Displays the No. of blocks of the towers.
④	Select block mode key	Used to select the No. of blocks the towers are to be divided into. The selectable mode depends on the No. of towers connected.
⑤	Switch start key when no paper	When the paper in a block runs out, select one of the following modes for starting the next block. AUTO : When paper in the specified block runs out, paper will automatically be fed from the next block. MANUAL : When paper in the specified block runs out, the display changes to the next block and the machine stops. To resume operations, press the start key again.
⑥	Select paper ejection direction menu key	Press to display the “Select paper ejection direction menu”.
⑦	Program mode menu key	Press to display the “Program mode menu”.
⑧	Cover insert mode menu key	Press to display the “Cover insert mode menu”.

NOTE : The mode selected will be displayed in white against a black background.

(3) Mode menu 3 [Cover insert mode menu]

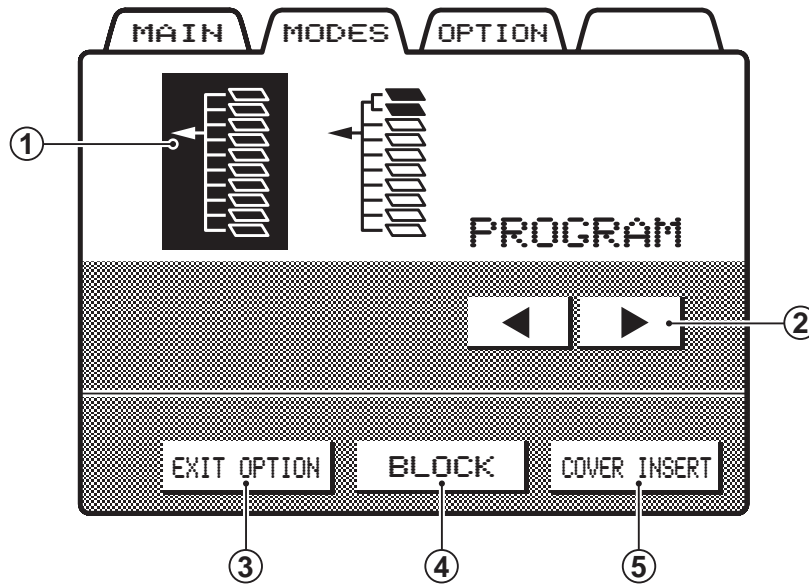


No.	Name	Operation
①	Cover insert mode display	Displays the selected cover insert mode.
②	Select cover insert mode key	Used to select the cover insert mode.
③	No. of sets display	Displays where to insert the cover (after how many sets). Input using the keypad. Pressing the C key returns the value to "0".
④	Select paper ejection direction menu key	Press to display the "Select paper ejection direction menu".
⑤	Program mode menu key	Press to display the "Program mode menu".
⑥	Block mode menu key	Press to display the "Block mode menu".

NOTE : The mode selected will be displayed in white against a black background.

5. NAMES AND OPERATION OF TOUCH PANEL

(4) Mode menu 4 [Program mode menu]

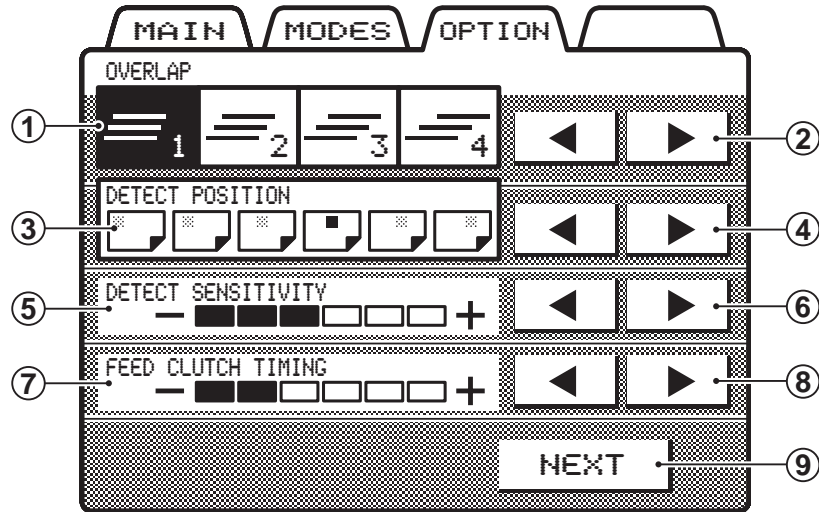


No.	Name	Operation
①	Program mode display	Displays the selected program mode.
②	Select program mode key	Used to select the program mode.
③	Select paper ejection direction menu key	Press to display the "Select paper ejection direction menu".
④	Block mode menu key	Press to display the "Block mode menu".
⑤	Cover insert mode menu key	Press to display the "Cover insert mode menu".

NOTE : The mode selected will be displayed in white against a black background.

5-3. Option Menu

(1) Option menu 1

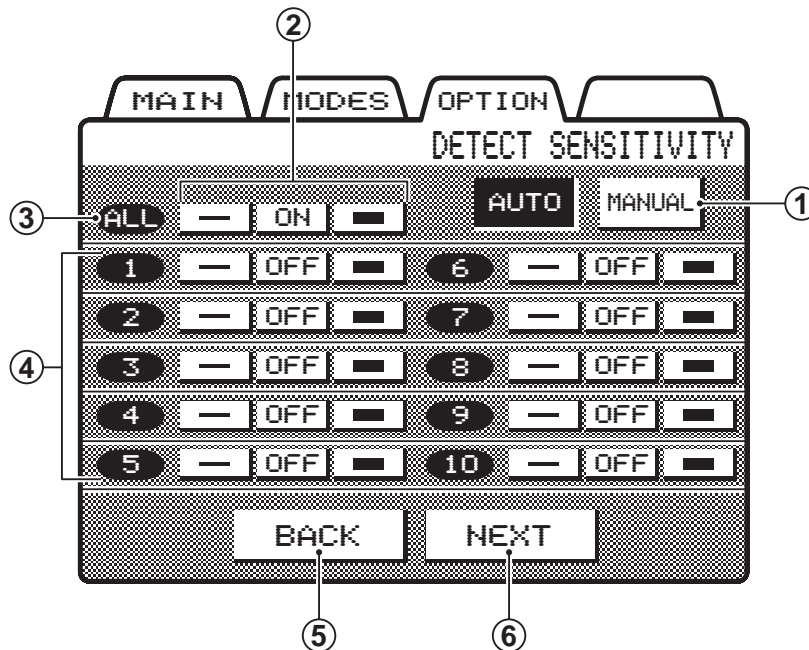




No.	Name	Operation
①	Overlap amount display	Displays the overlap amount of the paper to be collated. The overlap amount is the smallest when "1" and increases towards "4".
②	Select overlap amount key	Select the overlap amount from "1" to "4".
③	Double-feed detection position display	Displays the double-feed detection position selected using the select double-feed detection position key.
④	Select double-feed detection position key	The starting position to detect double-feed can be selected from 6 positions (0.39" apart) within the range of 3.15" to 5.12" from the leading edge of the paper. Setting the double-feed detection position to the printed area may result in mis-detection. Therefore select a position outside the printed area.
⑤	Double-feed detection level display	Displays the double-feed detection level selected using the select double-feed detection level key.
⑥	Select double-feed detection level key	Used to select the level between the preset paper data (thickness, etc.) and data on the paper being fed for determining double-feed. The more is the value towards the "-" side, the more will it be determined as double-feed even if the difference is small. The more is the value towards the "+" side, the more will it not be determined as double-feed if the difference is small.
⑦	Feed clutch timing display	Displays the paper feed clutch connection time selected using the select feed clutch timing key.
⑧	Select feed clutch timing key	Used to select the paper feed clutch connection time. To collate long paper such as A3 paper, increase the paper feed clutch connection time to the "+" side. To collate short paper such as A5 paper, set to the "-" side. The standard position is shown in the figure.
⑨	NEXT key	Press to display the next option menu.

NOTE : The key selected will be displayed in white against a black background.

5. NAMES AND OPERATION OF TOUCH PANEL

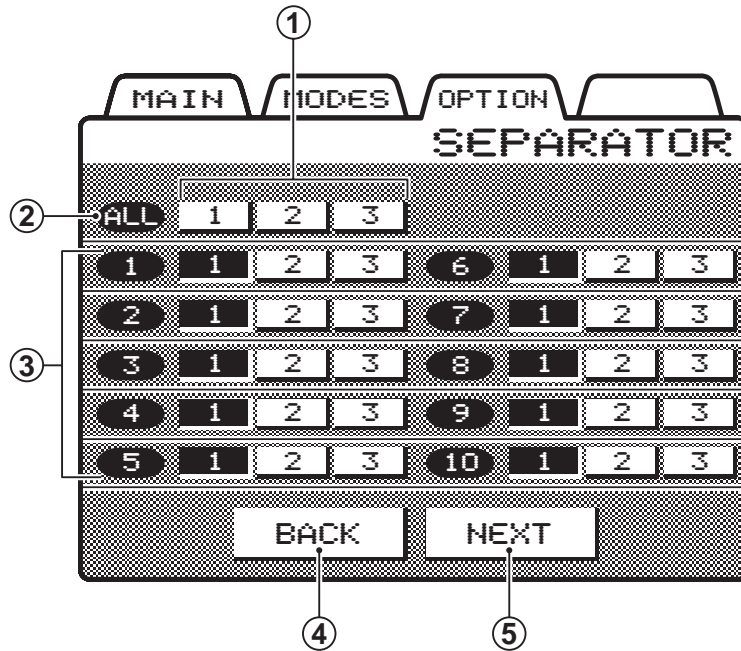
(2) Option menu 2 [Detection menu]



No.	Name	Operation
①	Double-feed detection key	AUTO : Switches the double-feed detection thickness (thick or thin paper) for all bins automatically. MANUAL : The double-feed detection thickness can be set for each bin. However, the double-feed detection function does not function for bins whose select double-feed detection thickness key is set to OFF.
②	Select double-feed detection thickness key	 : Detects thick paper.  : Detects thin paper. OFF : Sets the double-feed detection function to OFF.
③	Select all bins double-feed detection thickness section	All bins are switched to the setting of this key. ON : Sets the double-feed detection function to ON for all bins.
④	Select each bin double-feed detection thickness section	If "MANUAL" is selected at ①, the double-feed detection thickness can be switched for each bin.
⑤	BACK key	Press to display the previous option menu.
⑥	NEXT key	Press to display the next option menu.

NOTE : The key selected will be displayed in white against a black background.

(3) Option menu 3 [Separating-air strength]

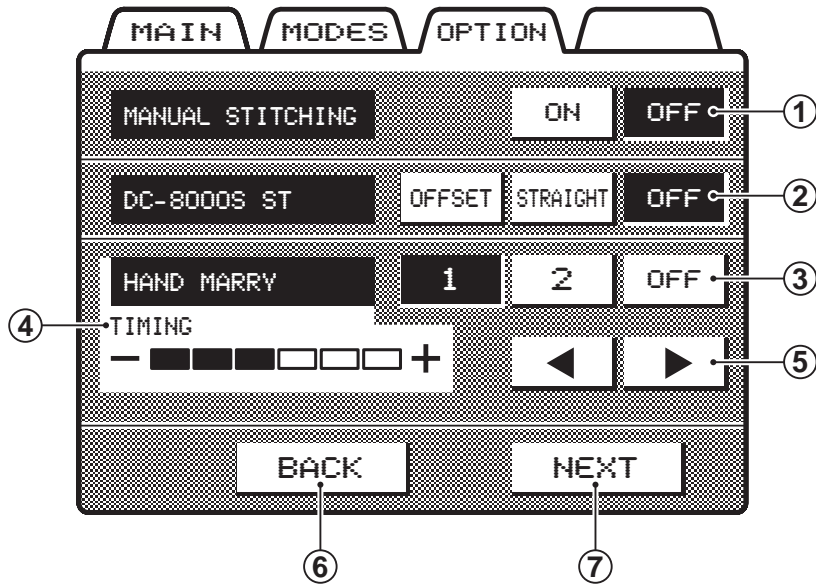


No.	Name	Operation
①	Select separating-air strength key	Used to adjust the separating-air strength in three steps. The air strength is strongest at "1" and weakest at "3". The standard position is "1".
②	Select all bins separating-air strength section	All bins are switched to the air strength selected using this key.
③	Select each bin separating-air strength section	The separating-air strength can be switched for each bin.
④	BACK key	Press to display the previous option menu.
⑤	NEXT key	Press to display the next option menu.

NOTE : The key selected will be displayed in white against a black background.

5. NAMES AND OPERATION OF TOUCH PANEL

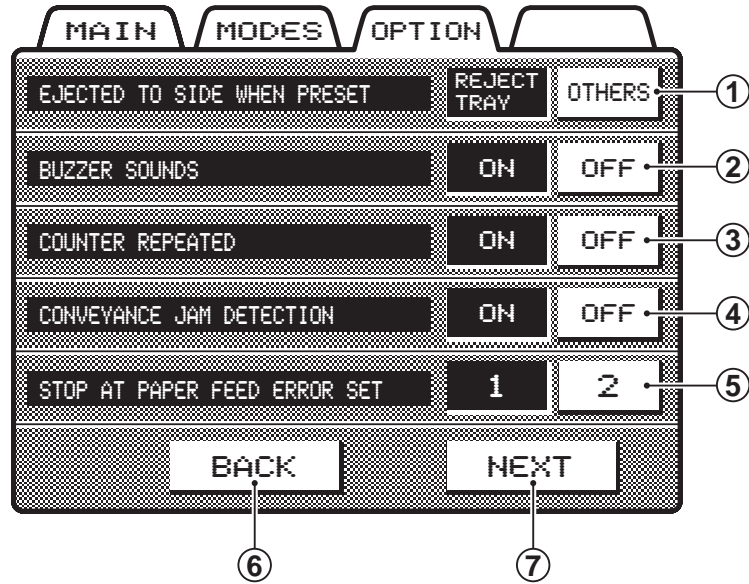
(4) Option menu 4



No.	Name	Operation
①	Manual stitch mode ON/OFF key	Used to switch the mode ON and OFF. This key can only be used when connecting and using the DBM-400. * The DBM-400 is an optional product.
②	DC-8000S ST mode key	Used to switch the DC-8000S ST processing mode. This key can only be used when connecting and using the DC-8000S ST. OFFSET : Press to sort the collated paper. STRAIGHT : Press to stack the collated paper straight up. OFF : Press when not using the DC-8000S ST. * The DC-8000S ST is an optional product.
③	Select manual feed mode key	Used to select the manual feed mode.
④	Mix timing display	Displays the timing at which the manual feed paper from the hand marry and collated paper meet.
⑤	Change mix timing key	Used to change the timing at which the manual feed paper from the hand marry and collated paper meet. The timing increases when set to the "+" side.
⑥	BACK key	Press to display the previous option menu.
⑦	NEXT key	Press to display the next option menu.

NOTE : The key selected will be displayed in white against a black background.

(5) Option menu 5

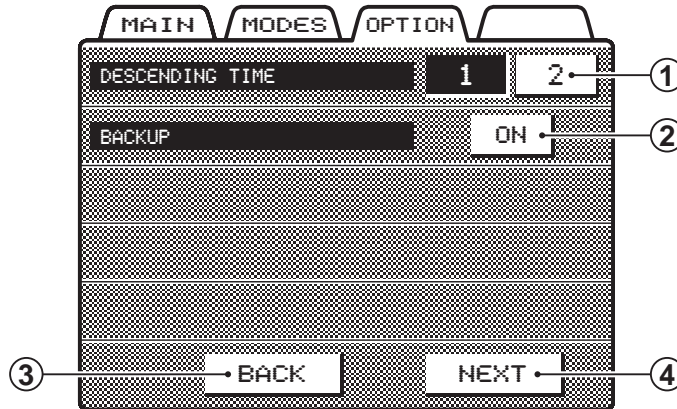


No.	Name	Operation
①	Select ejected place at preset key	Used to select between the “reject tray” or “downstream processing machine” as the place for ejecting the collated paper during preset. When set to left-ejection, only the settings of the left top tower will be effective. When set to right-ejection, only those of the right top tower will be effective.
②	Buzzer ON/OFF key when machine stops	Used to select whether to sound the buzzer when the machine stops.
③	Repeat No. of sets input ON/OFF key	Used to select whether to display the same No. of sets input previously after collating the No. of sets input using the keypad. When set to left-ejection, only the settings of the left top tower will be effective. When set to right-ejection, only those of the right top tower will be effective.
④	Conveyance jam detection ON/OFF key	Used to select whether to detect paper jamming in the conveyance path.
⑤	Select No. of sets to stop collation in paper feed error key	Used to select to stop the machine after one paper feed error or after two continuous paper feed errors. When set to left-ejection, only the settings of the left top tower will be effective. When set to right-ejection, only those of the right top tower will be effective.
⑥	BACK key	Press to display the previous option menu.
⑦	NEXT key	Press to display the next option menu.

NOTE : The key selected will be displayed in white against a black background.

5. NAMES AND OPERATION OF TOUCH PANEL

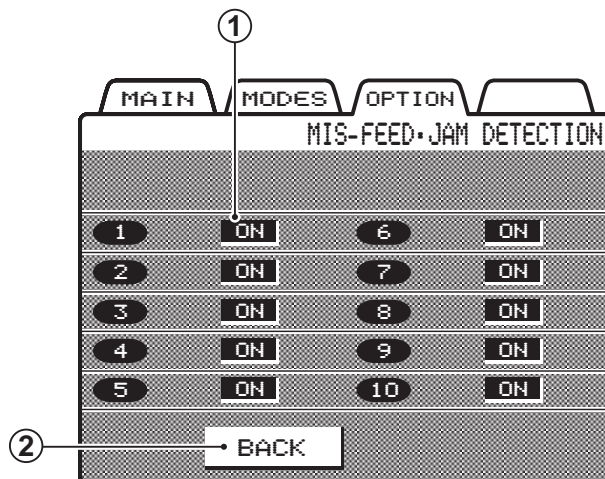
(6) Option menu 6



No.	Name	Operation
①	Select bin descending time when machine starts key	The standard position is "1". Select "2" when collating the folded paper.
②	Backup key	Pressing this key backs up the settings of the count and processing mode when the machine was stopped the last time. * However, the data of the paper thickness will not be backed up.
③	BACK key	Press to display the previous option menu.
④	NEXT key	Press to display the next option menu.

NOTE : The key selected will be displayed in white against a black background.

(7) Option menu 7



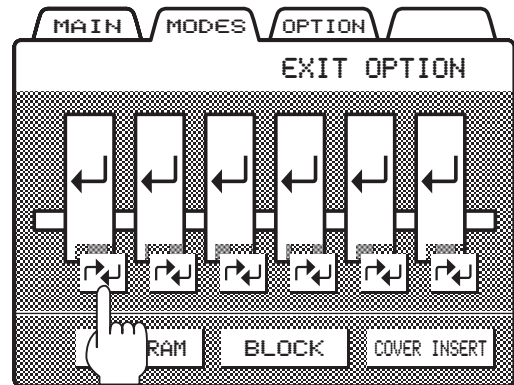
No.	Name	Operation
①	Feed error detection ON/OFF key	Used to select whether to activate the feed error detection function (double-feeding, mis-feeding, and paper jam detection). Pressing the key switches displays between "ON" and "OFF". This function can be set for every each bin and each tower. * All keys are set to "ON" at shipment.
②	BACK key	Press to display the previous option menu.

6. SELECTING THE PAPER EJECTION DIRECTION

Set the paper ejection direction to the right side or left side.

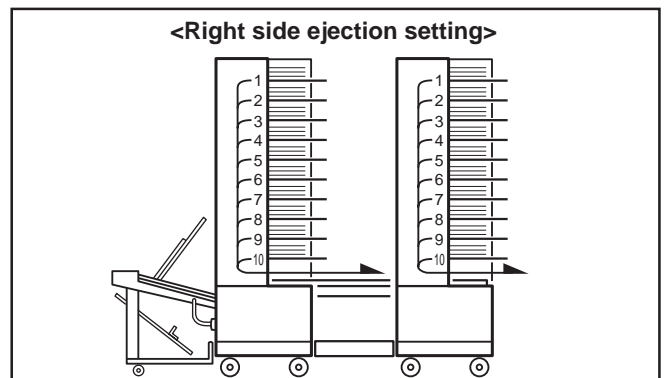
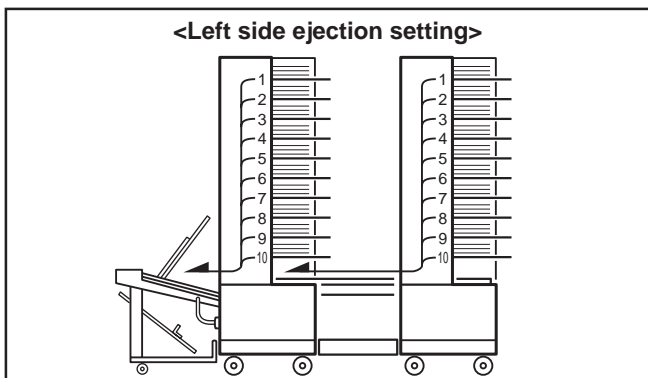
1 Display the “Select paper ejection direction menu” of the “Mode menu”.

2 Select the paper ejection direction using the select paper ejection direction key. The paper ejection direction changes each time the key of the desired tower is pressed.



3 When connecting and using several towers together, perform basic operations at the control panel of the left top tower if set to “left side ejection”. If set to “right side ejection”, perform basic operations at the control panel of the right top tower.

NOTE : Some settings are required for each tower.



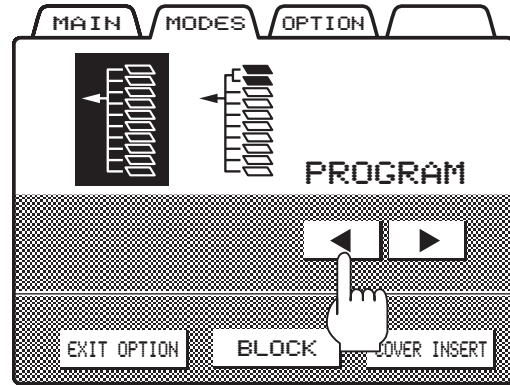
7. FUNCTIONS OF PROGRAM MODE AND THEIR USE

The following two paper collation methods are programmed.
Select the program mode accordingly.

- (1) All bins mode (Refer to “7-2. All Bins Mode”.)
- (2) Alternate mode (Refer to “7-3. Alternate Mode”.)

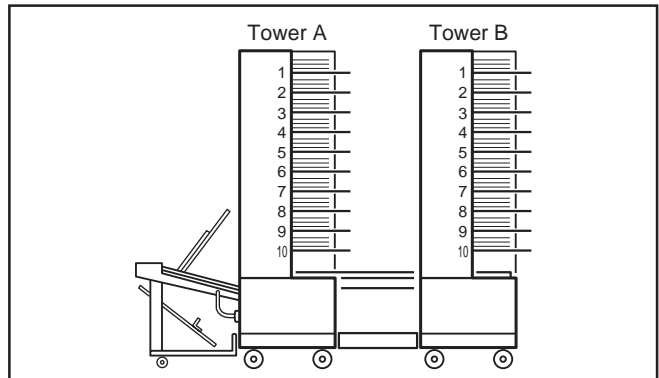
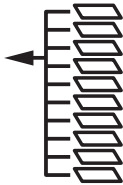
7-1. Setting the Program Mode

- 1 Display the “Program mode menu” of the “Mode menu”.
- 2 Select the “All bins mode” or “Alternate mode” using the select program mode key.



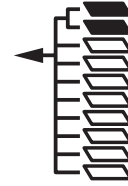
7-2. All Bins Mode

Paper is fed from all paper feed bins with loaded paper.



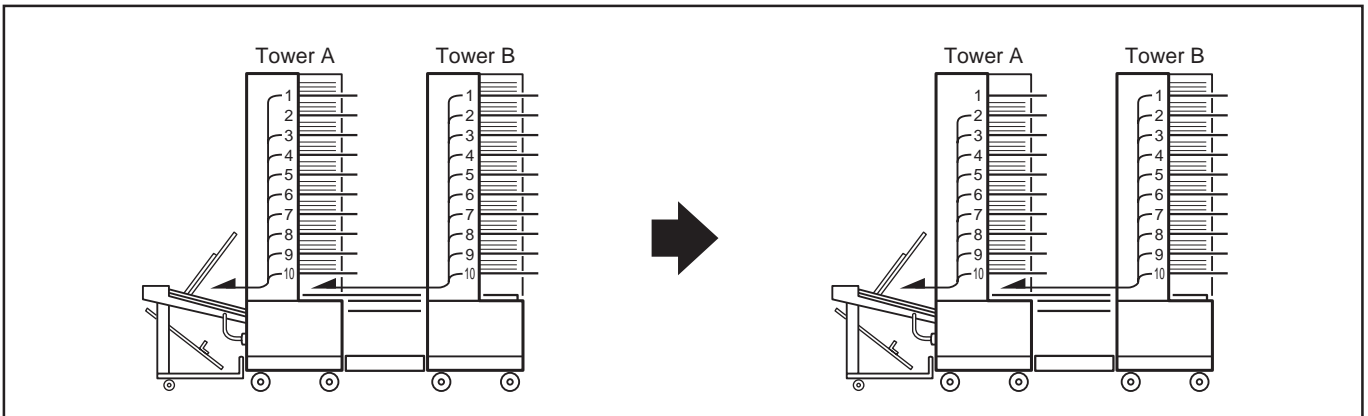
7-3. Alternate Mode

- Of the paper feed bins stacked with paper, paper is fed from the topmost bin or the bin below.



- Paper is fed mainly from the topmost paper feed bin, but when paper on this bin runs out, paper is fed from the bin below. Paper will then be fed from the third bin from the top onwards in order.

This mode is suitable when thick paper is used as the cover.



8. FUNCTIONS OF BLOCK MODE AND THEIR USE

The block mode consists of three modes- “1/2 block”, “1/3 block”, and “1/4 block”. This block mode shortens the collating time especially when loading only a small amount of paper for collation. (Paper can be loaded on blocks that have been suspended during operations.)

8-1. Structure of Block Mode

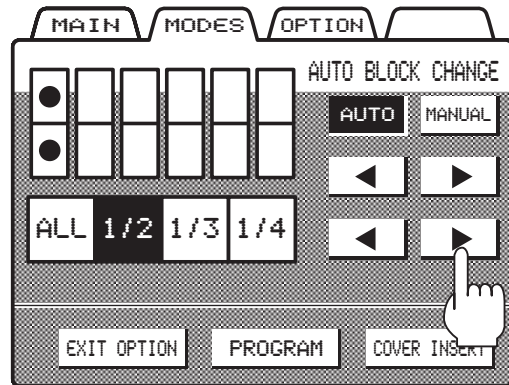
NOTE : There are some modes which cannot be selected according to the No. of towers connected.

		No. of towers connected					
		1	2	3	4	5	6
Block mode	ALL	○	○	○	○	○	○
	1/2	○	○	○	○	○	○
	1/3	×	×	○	×	×	○
	1/4	×	○	×	○	×	○

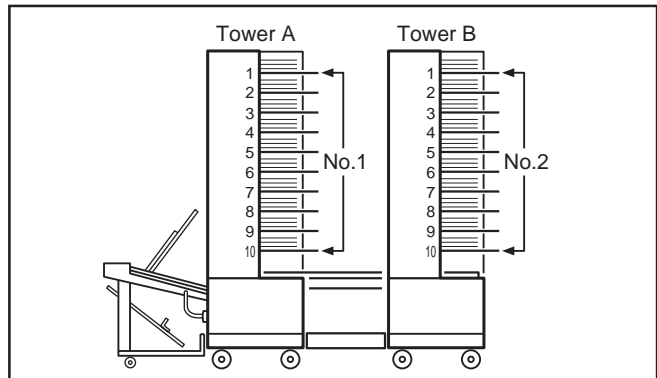
○ = can be set, × = cannot be set

8-2. Example of Using the 1/2 Mode

1 Display the “Block mode menu” of the “Mode menu” and set the No. of blocks “1/2” the towers are to be divided into using the select block mode key.

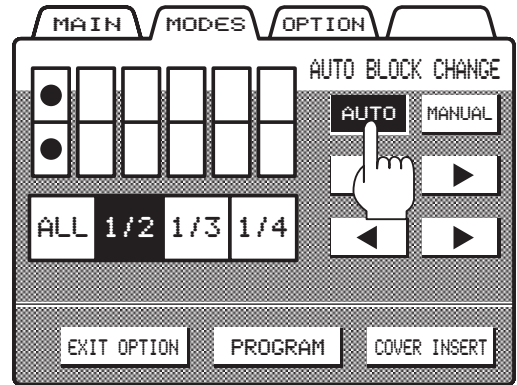


- The paper fed from the paper feed bin is divided into blocks No.1 and No.2 as shown in the figure.



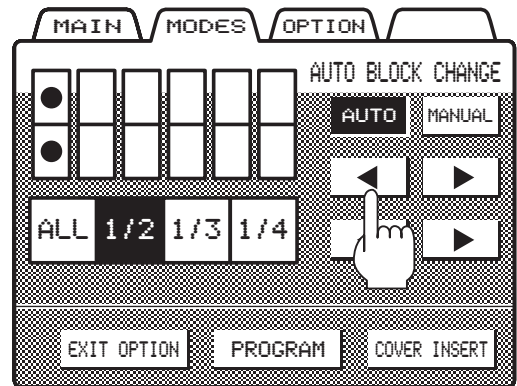
8. FUNCTIONS OF BLOCK MODE AND THEIR USE

- Select between “AUTO” and “MANUAL” using the switch start key when no paper.

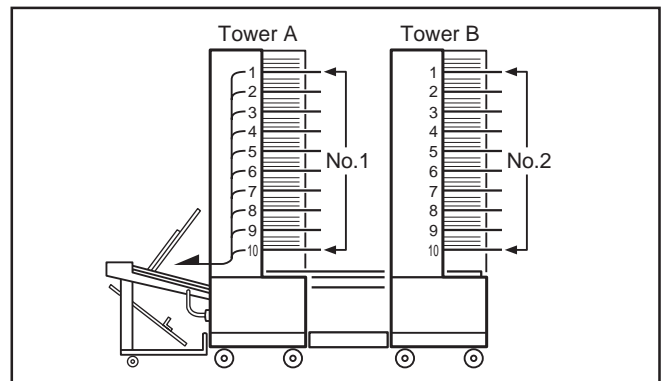


- 2 Select the block collating using the select block key.

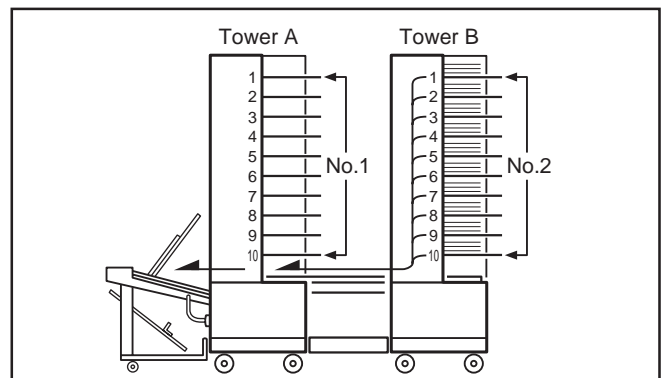
- When starting collation from Tower A, select Tower A.



- 3 Pressing the start key starts collation from the No.1 block of Tower A.

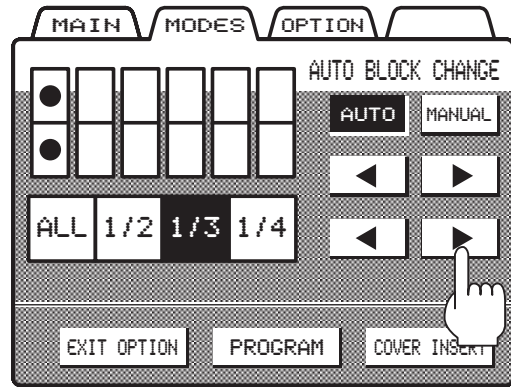


- When paper runs out in the No.1 block, the block is changed to No.2 block, and paper is fed according to the setting of “Switch start when no paper”.

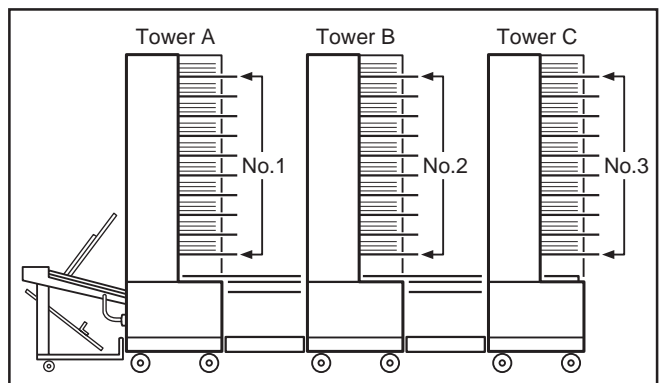


8-3. Example of Using the 1/3 Mode

1 Display the “Block mode menu” of the “Mode menu” and set the No. of blocks “1/3” the towers are to be divided into using the select block mode key.

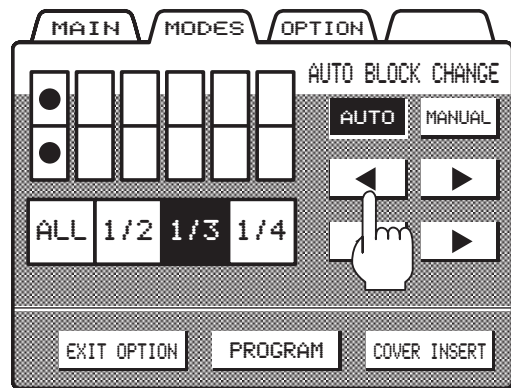


- The paper fed from the paper feed bin is divided into blocks No.1 to 3 as shown in the figure.
- Select between “AUTO” and “MANUAL” using the switch start key when no paper.

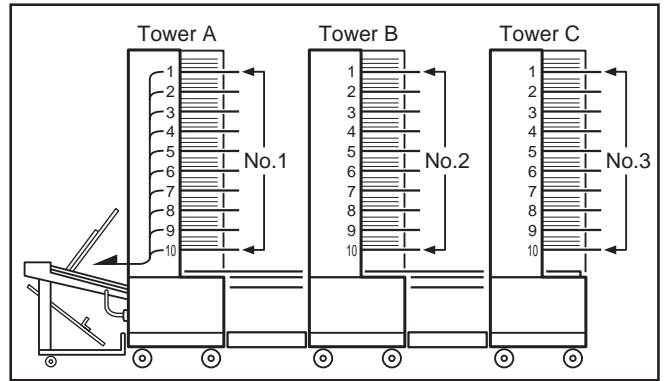


2 Select the block collating using the select block key.

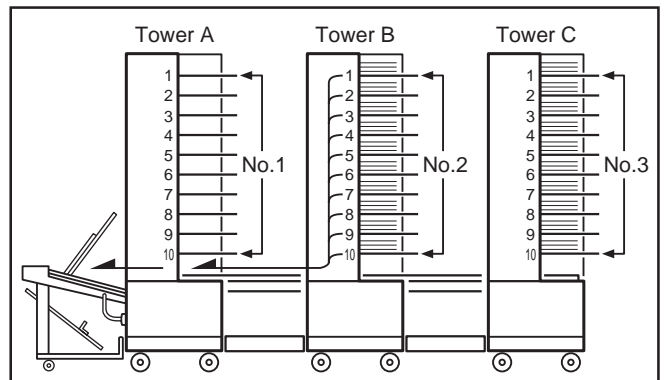
- When starting collation from Tower A, select Tower A.



3 Pressing the start key starts collation from the No.1 block of Tower A.

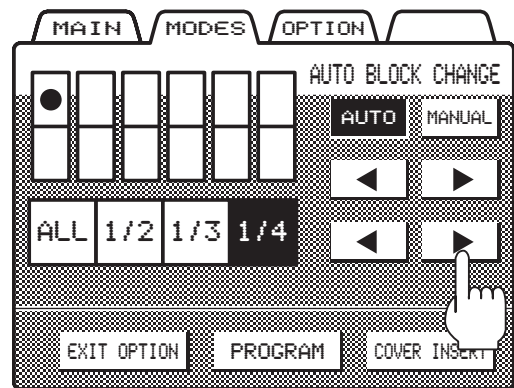


- When paper runs out in the No.1 block, the block is changed to No.2 block, and paper is fed according to the setting of “Switch start when no paper”.

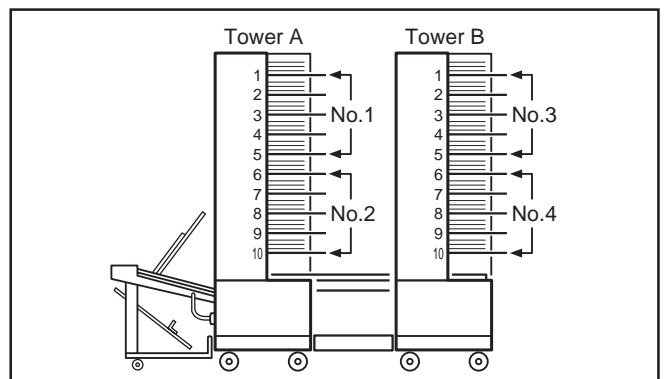


8-4. Example of Using the 1/4 Mode

1 Display the “Block mode menu” of the “Mode menu” and set the No. of blocks “1/4” the towers are to be divided into using the select block mode key.



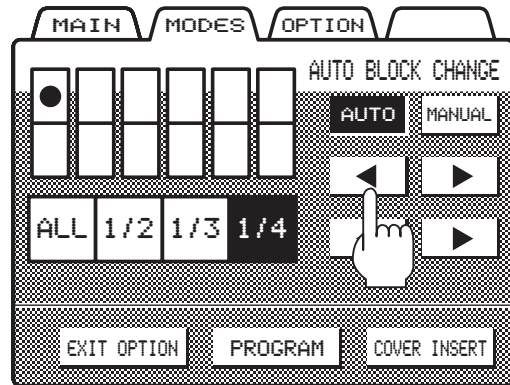
- The paper fed from the paper feed bin is divided into blocks No.1 to 4 as shown in the figure.
- Select between “AUTO” and “MANUAL” using the switch start key when no paper.



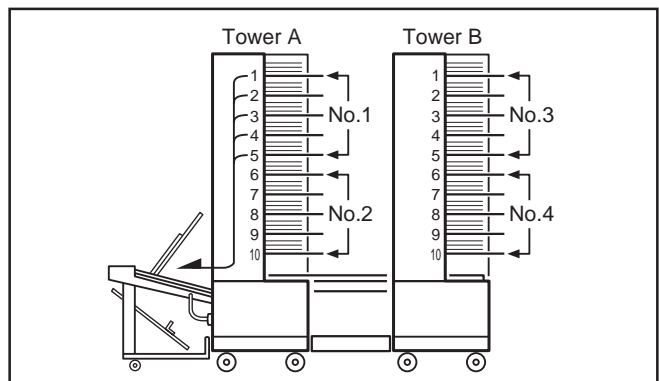
8. FUNCTIONS OF BLOCK MODE AND THEIR USE

2 Select the block collating using the select block key.

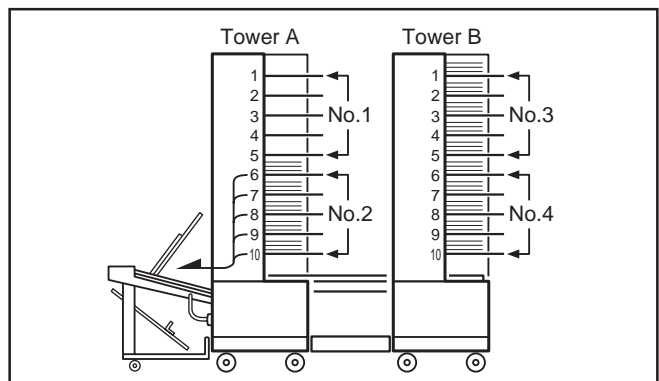
- When starting collation from No.1 block, select No.1 block.



3 Pressing the start key starts collation from the No.1 block.



- When paper runs out in the No.1 block, the block is changed to No.2 block, and paper is fed according to the setting of "Switch start when no paper".

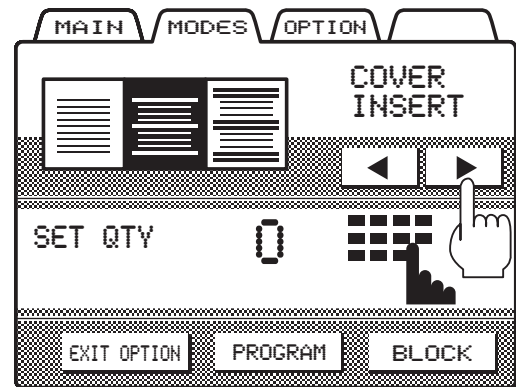


9. USING THE COVER INSERT MODE

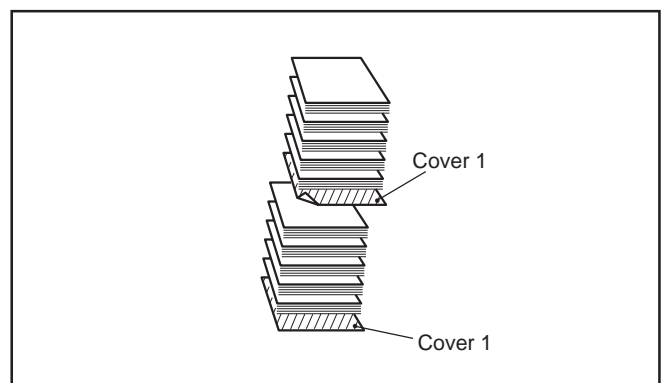
9-1. Setting the Cover Insert Mode

- Display the “Cover insert mode menu” of the “Mode menu”, and select whether to insert one cover or two using the select cover insert mode key.

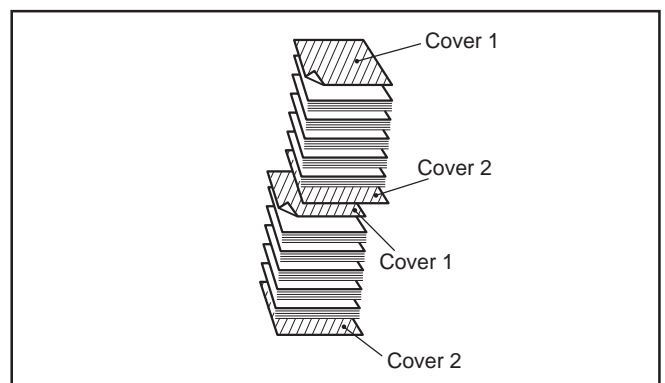
NOTE : Set the “Program mode” to “All bins mode”.
Selecting “Alternate mode” disables use of the cover insert mode.



- When set to one cover, one sheet of cover paper is inserted as shown in the figure.

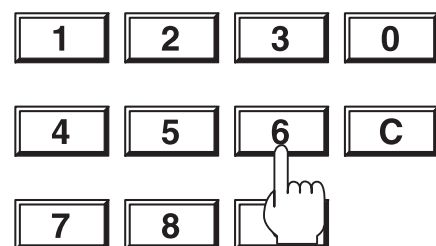


- When set to two covers, two sheets of cover paper are inserted as shown in the figure.



9-2. Setting the No. of Sets to Insert Cover

Set after how many sets to insert the cover.
Input the No. of sets using the keypad when the No. of sets display is “0”.
Pressing the C key returns the value to “0”.



10. LOADING THE PAPER

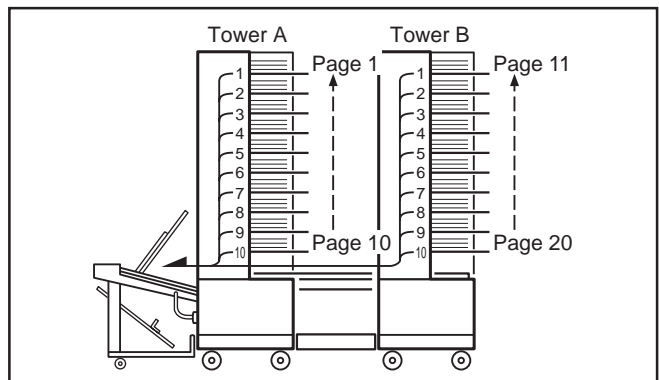
10-1. Precautions on Loading Paper

- Separate the paper well. Otherwise, problems such as double-feeding of the paper may occur.
- Make sure that the printing ink on the paper is completing dry before loading. Otherwise, problems such as the printed surface becoming dirty and double-feeding of the paper may occur.
- Flatten curled paper and bent paper before loading. Otherwise, problems such as paper jamming may occur.
- When collating single-folded paper or double-folded paper, press the folded portion to make sure that the paper is folded properly to prevent the paper from bloating.
- When loading paper on the paper feed bin, make sure that the paper does not get caught by the level sensor.

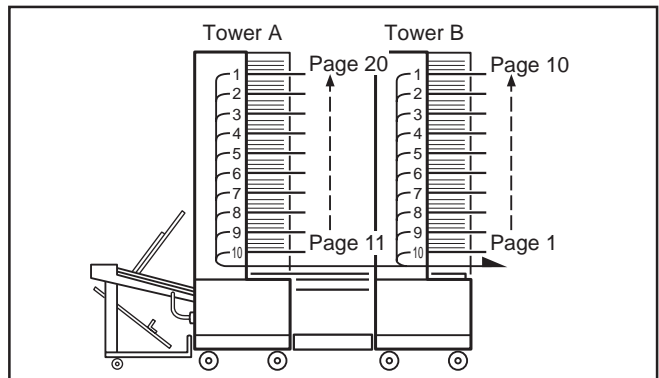
10-2. Loading Paper in Normal Collation Operations

◆ When connecting two towers

- For example when setting to eject paper to the left side in the collation of a 20-page book, load the last page in decremental order from the paper feed bin 10 of Tower B as shown in the figure.



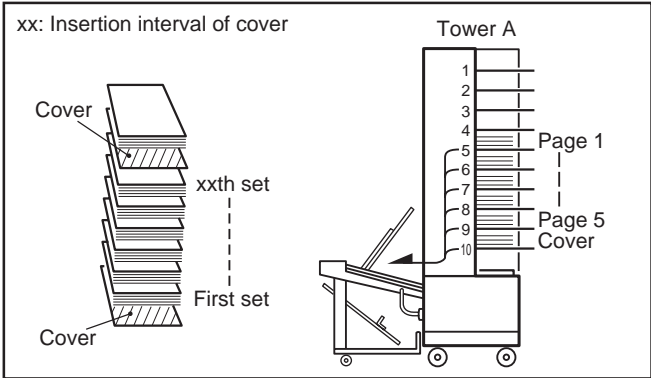
- When setting to eject paper to the right side, load the last page in decremental order from the paper feed bin 1 of Tower A as shown in the figure.



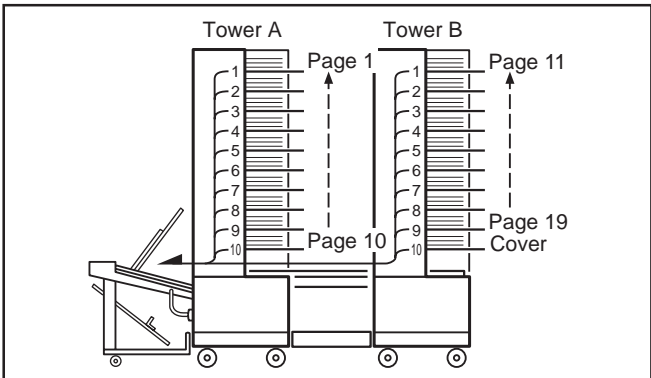
10-3. Loading Paper in Collation Operations with Cover Insertions

◆ Cover insert mode “1”

● When inserting a cover after every xx sets of 5-page set, load the covers on the bottom bin as shown in the figure.

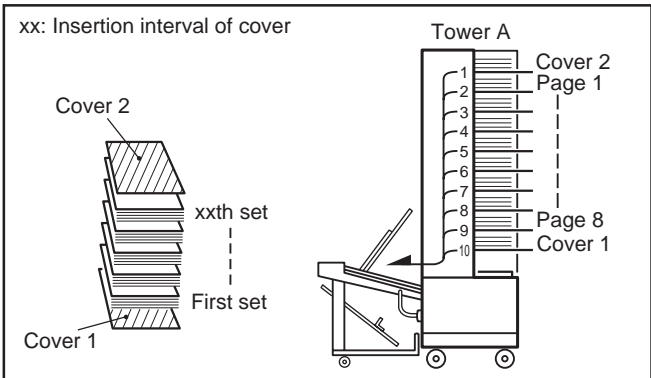


● When more than two towers are connected, load the covers on the bottom bin of the last connected tower.



◆ Cover insert mode “2”

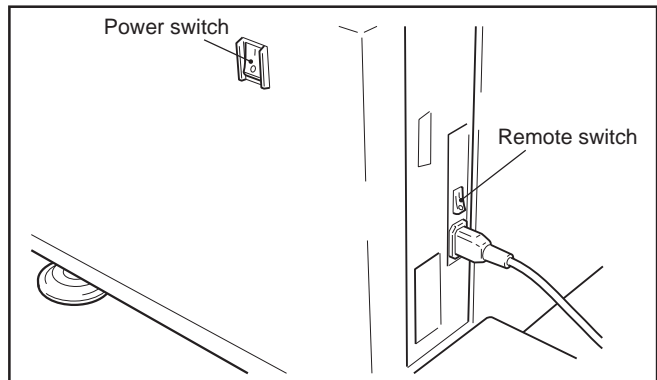
Load the covers on the paper feed bins above the top bin paper and below the bottom bin paper as shown in the figure.



11. OPERATION PROCEDURES

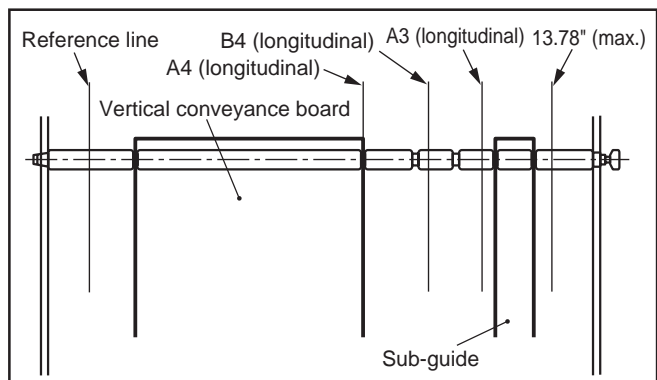
1 Turn on the remote switch of each tower and then turn on the power switch of the first tower.

When ejecting paper to the left side, the left tower is the first tower. When ejecting paper to the right side, the right tower is the first tower.

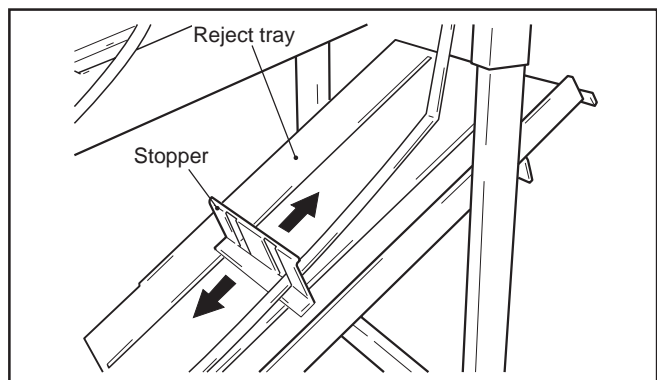


2 Adjust the position of the sub-guide of the vertical conveyance board according to the paper size.

NOTE : Insert the sub-guide in the same grooves on the upper and lower stays.

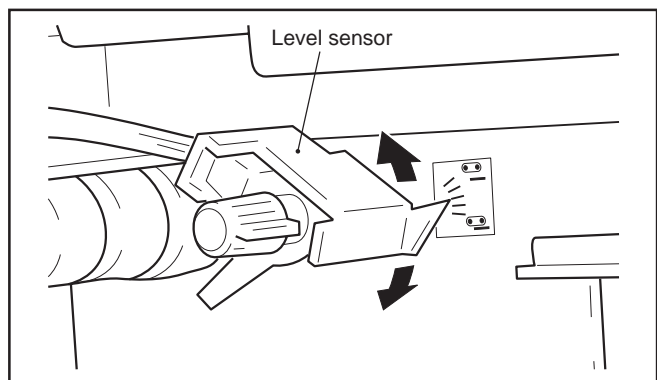


3 Move the position of the reject tray stopper according to the paper size.



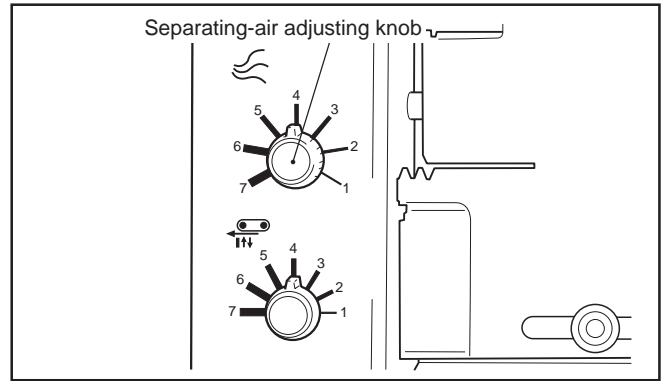
4 Adjust the height of the level sensor.

- The figure shows the standard position of the level sensor.
- When the knob of level sensor is set to the lower arrow side, the paper feeding position rises. When set to the upper arrow side, it lowers.
- When mis-feeding occurs frequently such as in the feeding of thick paper, adjust to the lower arrow side. If double-feeding occurs frequently such as in the feeding of thin paper, adjust to the upper arrow side.



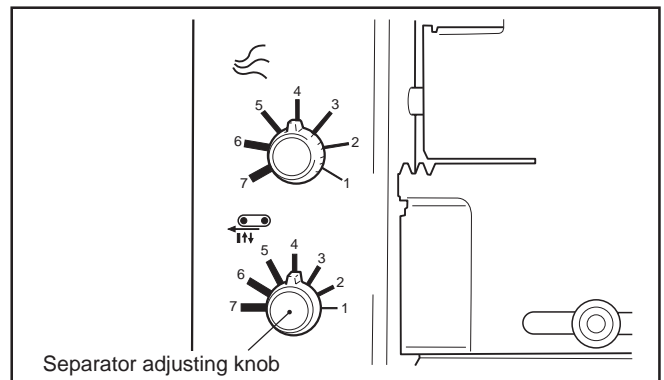
5 Adjust the paper separating-air amount using the separating-air adjusting knob.

- The larger the number, the stronger will the separating air blow out be.
- The standard position of the separating air is “4”.
- When using large art paper or coated paper, adjust the separating-air adjusting knob to a large value.
When using small thin paper, adjust to a small value.



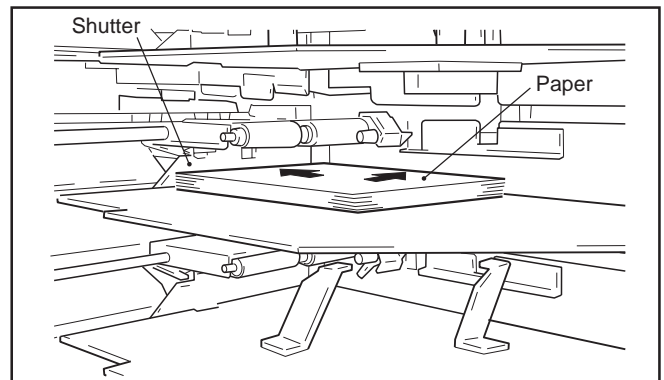
6 Adjust the height of the separator using the separator adjusting knob.

- The larger the number, the wider will the space between the separator and suction belt be. The smaller the number, the smaller will the space be.
- The standard position of the separator is “4”.
- If paper is mis-fed easily, adjust to a larger value.
If paper is double-fed easily, adjust to a smaller value.



7 Load paper on the paper feed bin.

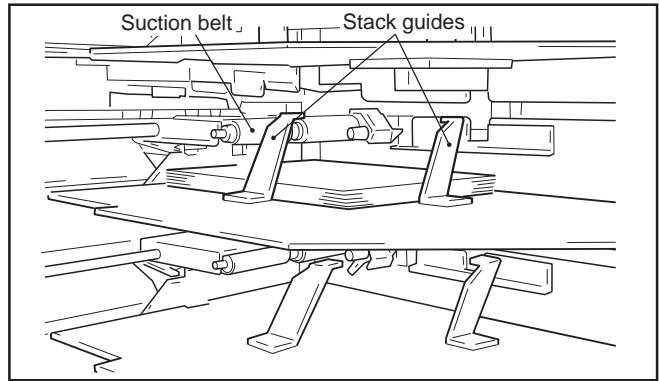
- Align the leading edge of the paper and load until it presses against the shutter lightly.



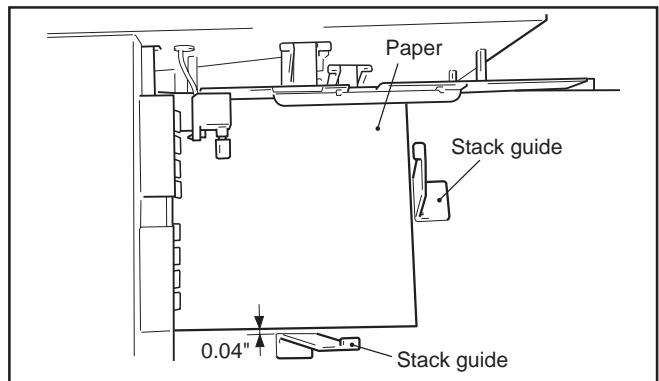
11. OPERATION PROCEDURES

8 Press the stack guides against the front and right side of the paper lightly.

NOTE : Do not set the stack guide below the suction belt. Otherwise the stack guide will lift up the suction belt and cause the machine to stop.

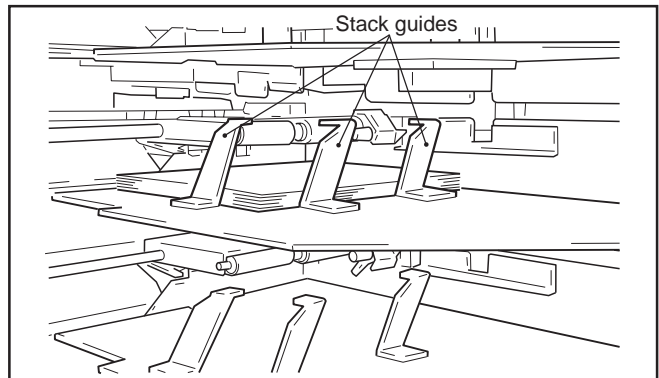


● When the paper is less than 7.09" wide and thick (more than 127 g/m²), leave a space of about 0.04" between the stack guide in front and the paper.



● If paper is fed crookedly for A4 horizontal paper, etc., set two stack guides at the right side of the paper.

NOTE : Mis-feeding may occur if the stack guides are pressed against the paper too strongly.

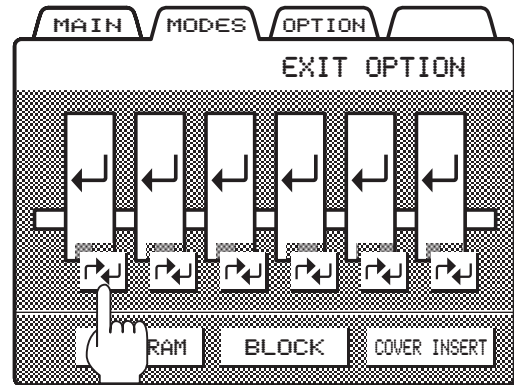


9 Set the control panel.

- Perform most control panel settings at the first tower (except for some).
When ejecting paper to the left side, the left tower is the first tower. When ejecting paper to the right side, the right tower is the first tower.
- When changing from ejecting to the left to ejecting to the right, the ejection direction must be selected at the first left tower for ejecting to the right.

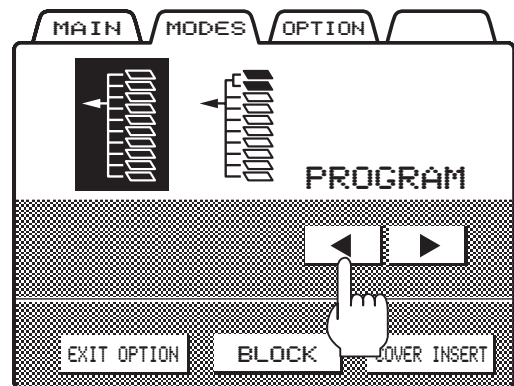
10 Select the direction for ejecting the paper.

- For details, refer to “6. SELECTING THE PAPER EJECTION DIRECTION”.



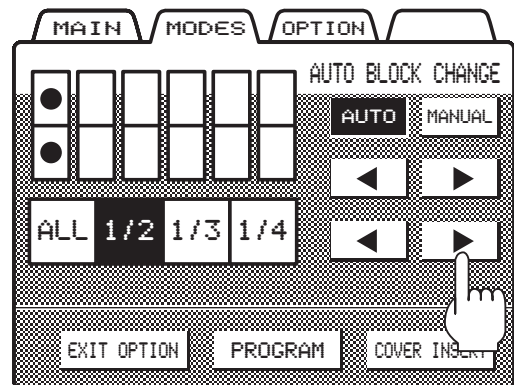
11 Set the program mode as necessary.

- For details, refer to “7. FUNCTIONS OF PROGRAM MODE AND THEIR USE”.



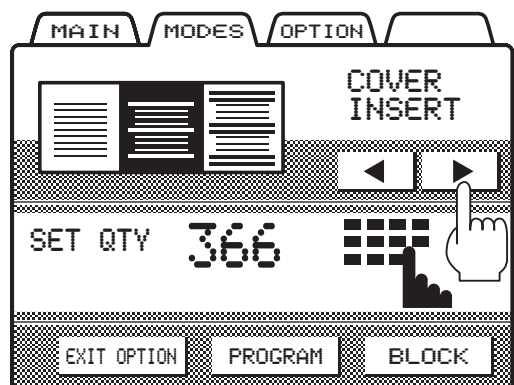
12 Set the block mode as necessary.

- For details, refer to “8. FUNCTIONS OF BLOCK MODE AND THEIR USE”.



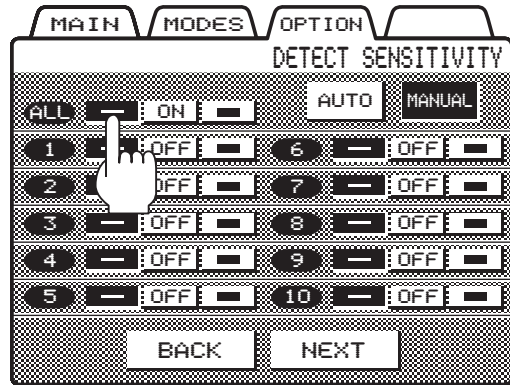
13 Set the cover insert mode as necessary.

- For details, refer to “9. USING THE COVER INSERT MODE”.



14 Set the double-feed detection function according to the thickness of the paper. Set at option menu 2 on the touch panel.

NOTE : Set the double-feed detection function for all towers other than the first tower.



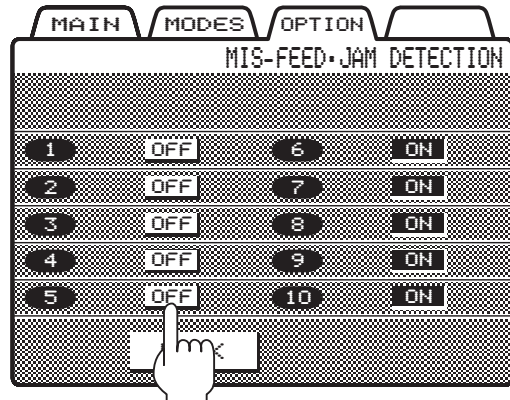
- For paper below 157 g/m² thick, set to “ (Thin) ”.
- For paper above 157 g/m² thick, set to “ (Thick) ”.

- If misdetection (when the machine misinterprets that paper has been double-fed and stops) occurs for the following paper, set the double-feed detection function to “OFF”.
 - ① Folded paper
 - ② Colored paper
 - ③ Paper with printing within 0.39" from the detected side

NOTE : When set to “OFF”, the machine will not stop even when paper is double-fed.

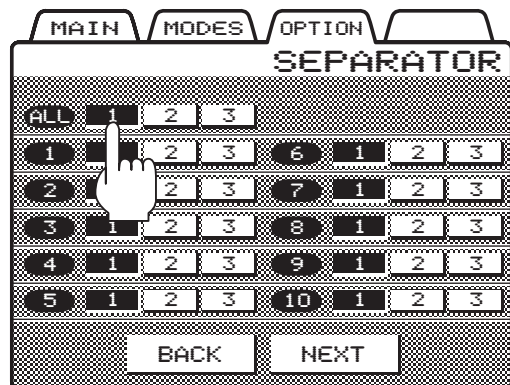
- To inactivate the feed error detection function (double-feeding, mis-feeding, and paper jam detection), set to “OFF” at option menu 7 on the touch panel.

NOTE : When set to “OFF”, the machine will not stop even when a feed error occurs.

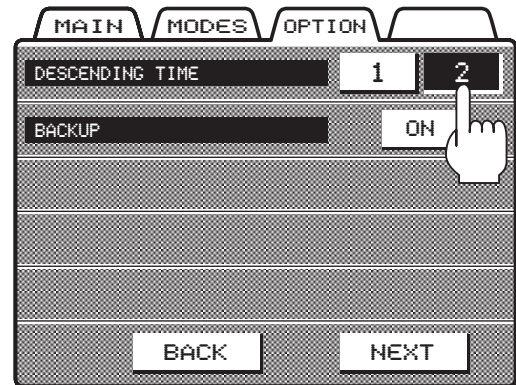


15 Set the separating-air strength. Set at option menu 3 on the touch panel.

- The standard separating-air strength is “1”.
- When collating large paper, set to “1”.
- When collating thick or coated paper, set to “1”.
- When collating thin small paper, set to “3”.

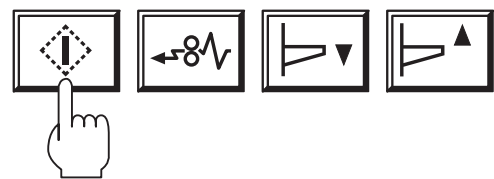


16 When collating the folded paper, set the “bin descending time when machine starts” to “2” at option menu 6 on the touch panel.



17 Press the preset key.

- Only one set of collated paper is ejected. Check that it is ejected properly.
The ejection direction can be selected from ejecting to the downstream processing machine or to the reject tray.
For details, refer to “5-3. (5) Option menu 5”.



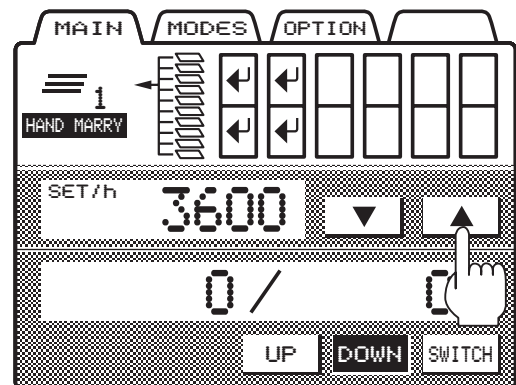
NOTE : The preset key can be used only when the No. of sets input display shows “0”.
Take note that it cannot be used for settings other than “0”.

- If paper is double-fed or mis-fed, check the following and adjust.
 - ① Check if too many paper is loaded.
 - ② Check and adjust the level sensor height. (Refer to step 4.)
 - ③ Check and adjust the separating air. (Refer to step 5.)
 - ④ Check and adjust the separator. (Refer to step 6.)
 - ⑤ Switch the double-feed detection sensitivity. (Refer to step 14.)

NOTE : The appropriate double-feed detection sensitivity setting indicated in step 14 may differ according to the paper quality and printing conditions. Set to the appropriate settings according to the paper used to prevent misdetection.

18 Set the collating speed.
Set at the main menu on the touch panel.

NOTE : The maximum collating speed which can be set differs according to the paper overlap amount, paper length, and downstream processing machine.



11. OPERATION PROCEDURES

19 Input the No. of sets to be processed using the keypad.

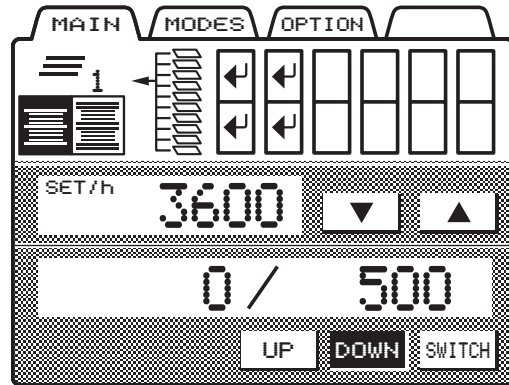
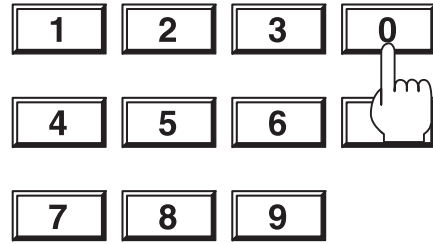
Example of setting No. of volumes in cover insert mode

Calculate the value to be input as follows.

$$\begin{aligned} \text{Number of sets} \times \text{Required volumes} &= \\ \text{Input value (Number of volumes processed)} \end{aligned}$$

For example, if 100 volumes of 5 sets (the cover is inserted after every 5 sets) are required, input 500 from the above equation.

* For the cover insert mode, the unit will stop if a paper feed error occurs in one set regardless of the setting of "Select No. of sets to stop collation in paper feed error key" of "Option menu 5".



20 Press the start key to start operations.



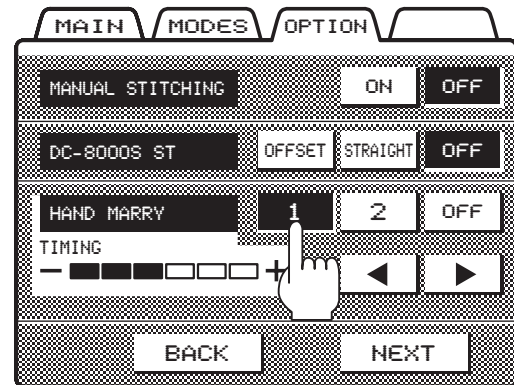
12. USING THE LUL-HM

The LUL-HM feeds the paper automatically when inserting several sheets (below 10) of paper manually.

Usable only in left-ejection.

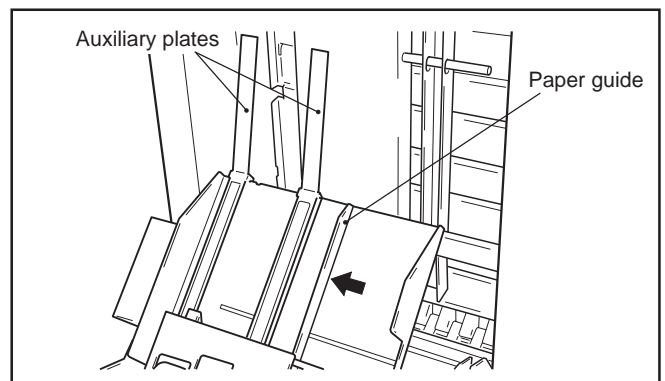
12-1. Manual Feed Mode 1

- 1 Display the “Manual feed mode” of “Option menu 4” and select “1”.

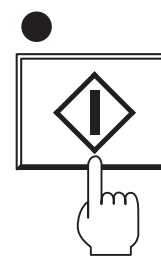


- 2 Adjust the paper guide of the hand marry to the paper size.

- 3 Set the auxiliary plates according to the paper size as shown in the figure.

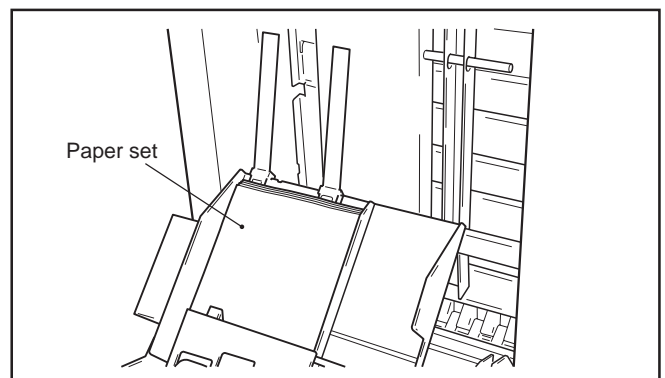


- 4 Press the start key of the tower to start the machine.



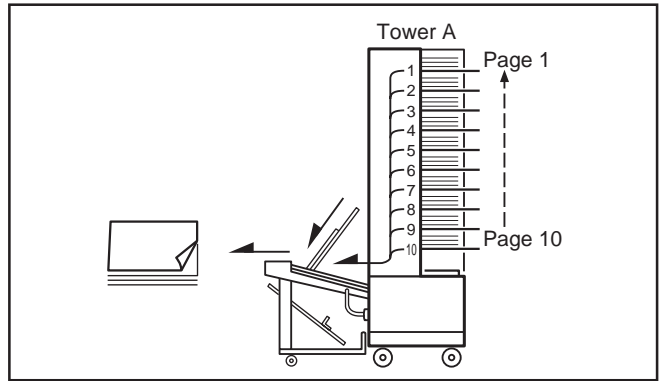
- 5 Set collated paper set (below 10 sheets) on the hand marry.

- The paper feed function of the tower will be in the standby state until paper set is set on the hand marry.



12. USING THE LUL-HM

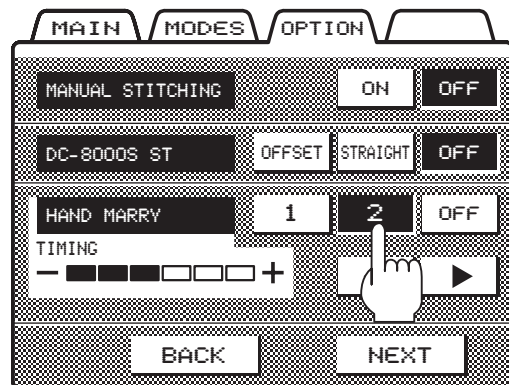
- 6** Paper is fed from the tower when the paper switch of the hand marry is pressed, and the paper set of the hand marry and collated paper from the tower meet in the conveyance path.



12-2. Manual Feed Mode 2

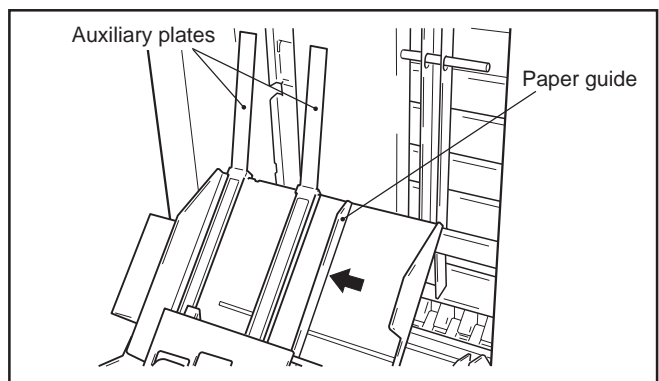
As the paper can be set on the hand marry according to the paper feed operations in this mode, more sets can be processed and the work efficiency is higher than mode 1.

- 1** Display the “Manual feed mode” of “Option menu 4” and select “2”.

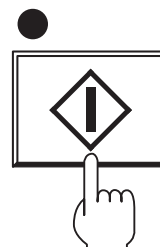


- 2** Adjust the paper guide of the hand marry to the paper size.

- 3** Set the auxiliary plates according to the paper size as shown in the figure.

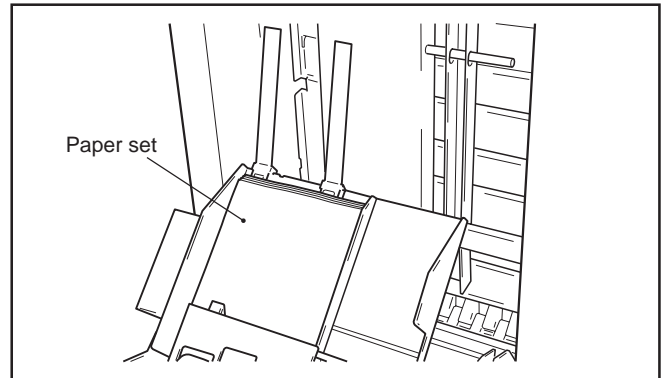


- 4** Press the start key of the tower to start the machine.



5 Set paper set on the hand marry according to the paper feed operations of the tower.

- The tower will continue feeding paper regardless of whether there is paper set on the hand marry.

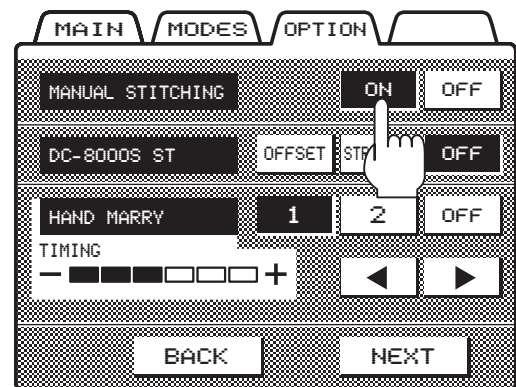


12-3. Using the Stitcher by Manual Feeding

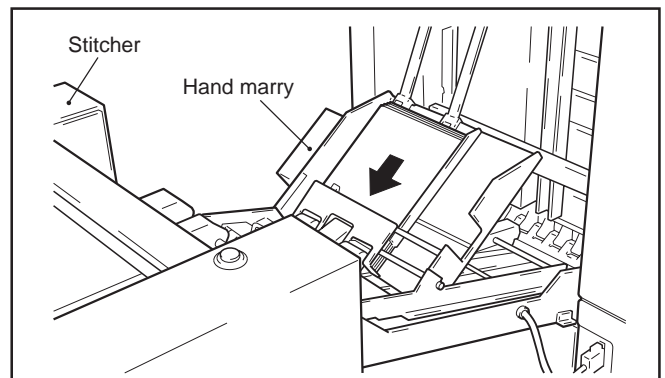
When the DBM-400 is connected and used, perform the following to perform stitching of manually fed paper.

1 Display “MANUAL STITCHING” of “Option menu 4”.

2 Press “ON” at “MANUAL STITCHING”. The stitcher starts and sets into the standby mode.



3 When paper set is set on the LUL-HM hand marry, the paper set is automatically fed and sent to the stitcher for stitching.

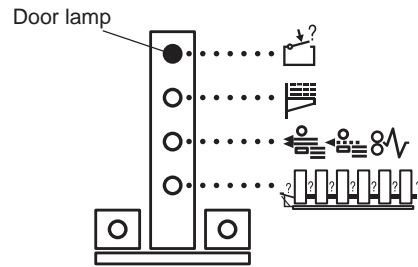


13. MONITOR LAMP DISPLAYS AND THEIR COUNTERMEASURES

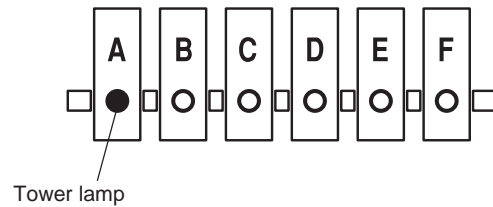
The control panel has monitor lamps indicating the location of problems which have occurred. When a monitor lamp lights up, perform the corresponding procedure below.

13-1. When the Door Lamp Lights Up

The door lamp lights up when the conveyance board of the vertical conveyance section or LUL-HM is not completely closed.

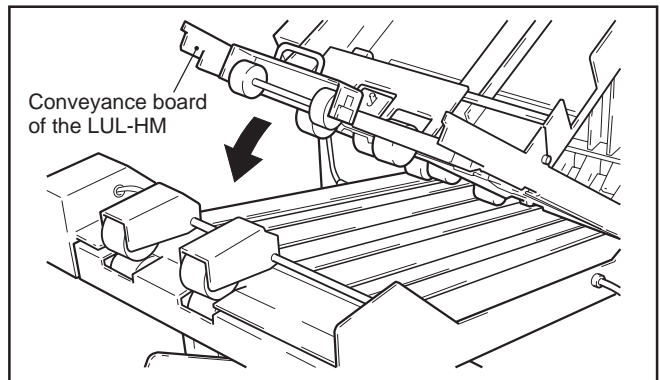
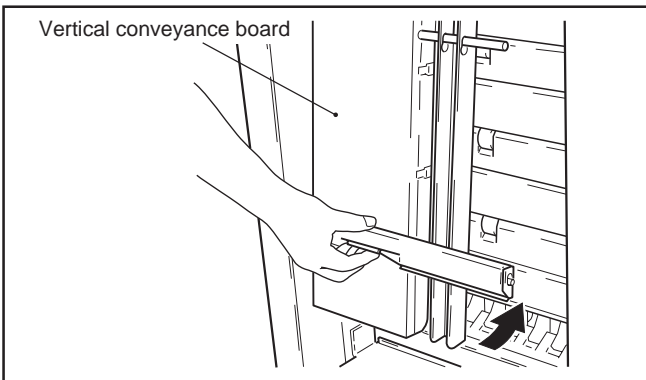


1 Check which tower's tower lamp is lit.



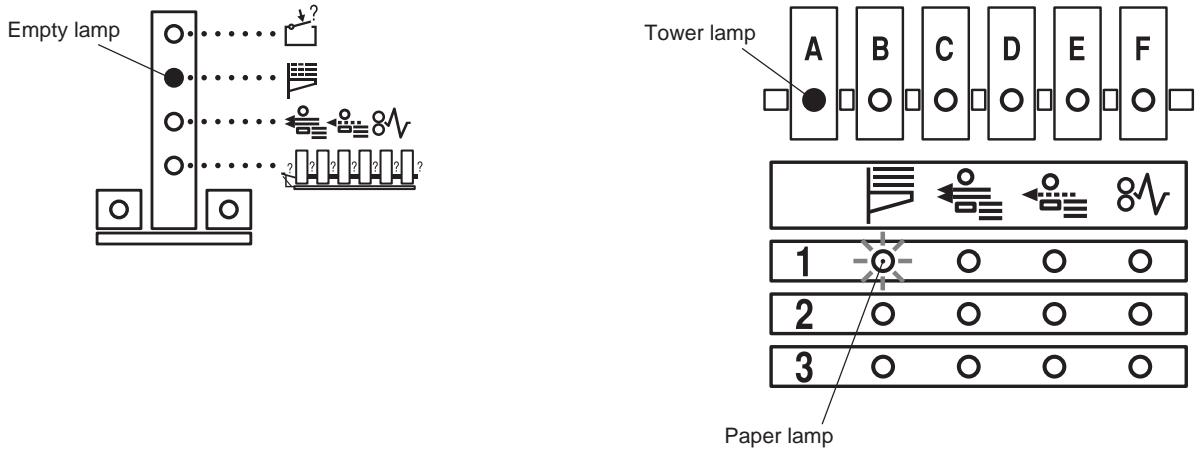
2 Check the closing states of the vertical conveyance board of the corresponding tower and conveyance board of the LUL-HM.

- If not closed properly, close completely.
- Operations can be resumed when the door lamp goes off.

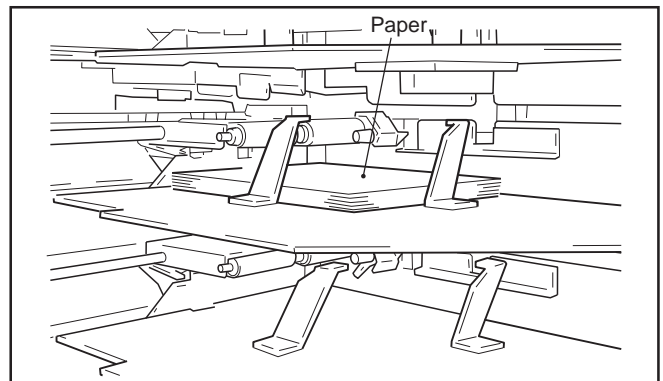


13-2. When the Empty Lamp Lights Up

When paper on the paper feed bin runs out, the empty lamp lights up. The paper lamp of the paper feed bin with no paper of the tower whose tower lamp has lit blinks simultaneously.

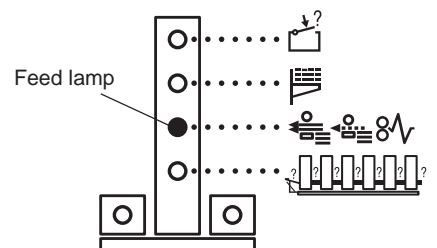


- 1** Check which tower's tower lamp is lit.
- 2** Check the paper feed bin number whose paper lamp is blinking in this tower, and replenish the paper.
 - If the start key is pressed without loading the paper, the buzzer sounds to indicate that paper has not been loaded.



13-3. When the Feed Lamp Lights Up

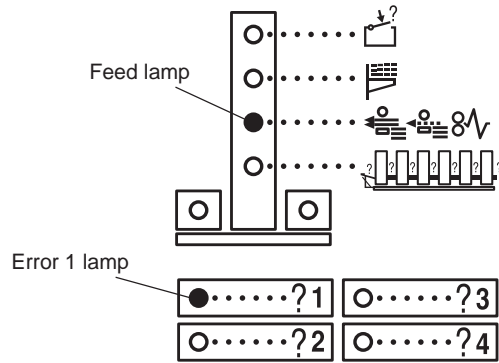
The feed lamp may light up when double-feed, mis-feed, or paper jam occurs. Depending on the contents of the error, the error 1, 2, or 3 lamp may also light up simultaneously.



13. MONITOR LAMP DISPLAYS AND THEIR COUNTERMEASURES

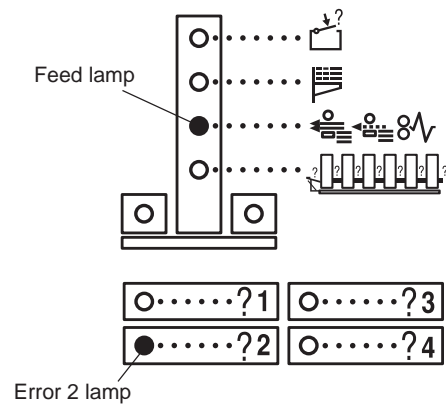
(1) When the error 1 lamp lights up

If the machine has stopped due to no paper or paper feed error and the error 1 lamp is lit, defective sets due to mis-collation will be ejected to the reject tray.



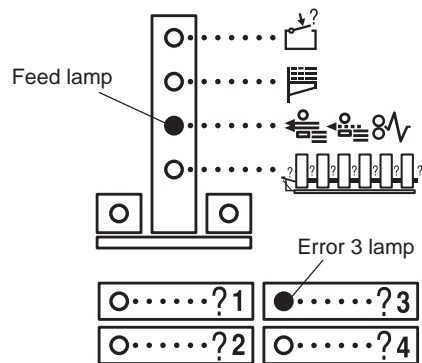
(2) When the error 2 lamp lights up

If the machine has stopped due to no paper or paper feed error and the error 2 lamp is lit, the set ejected to the downstream processing machine and all the sets ejected to the reject tray may be defective due to mis-collation.



(3) When the error 3 lamp lights up

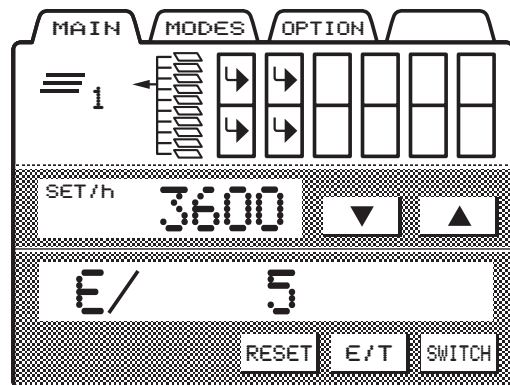
- When ejecting paper to the right side if the LUR is not connected, the error 3 lamp will light up if the machine stops due to paper feed error, etc.



- If the machine has stopped due to no paper or paper feed error and the error 3 lamp is lit, several sets including defective sets will be ejected to the downstream processing machine.

The main menu of the touch panel displays how many sets are ejected including the defective sets.

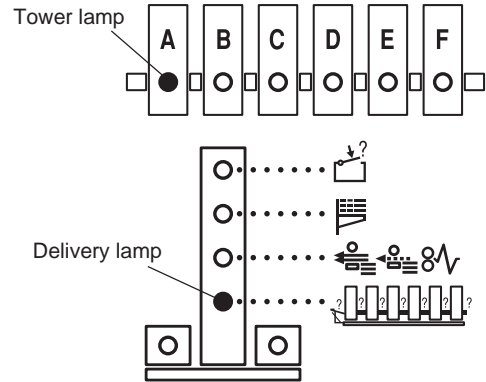
When displayed as shown in the right figure, check the collation state from 5 sets before.



13-4. When the Delivery Lamp Lights Up

1 Check which tower's tower lamp is lit.

- Paper has jammed in the vertical conveyance section or horizontal conveyance section of this tower, or the conveyance section of the LUL-HM if this tower is the first tower.

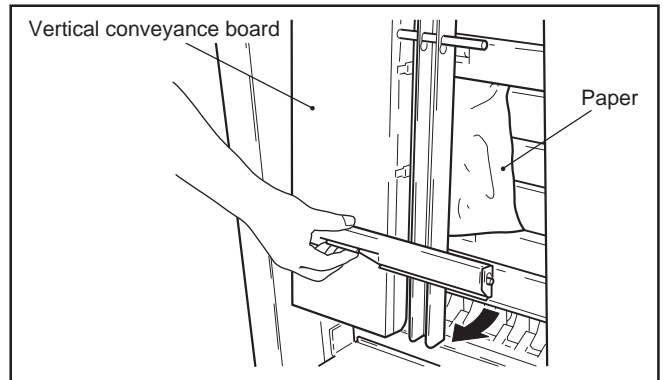


2 Check the jammed location and correct the jam as follows.

(1) When paper has jammed at the vertical conveyance section

Holding the handle of the vertical conveyance board, pull it towards you and remove the jammed paper.

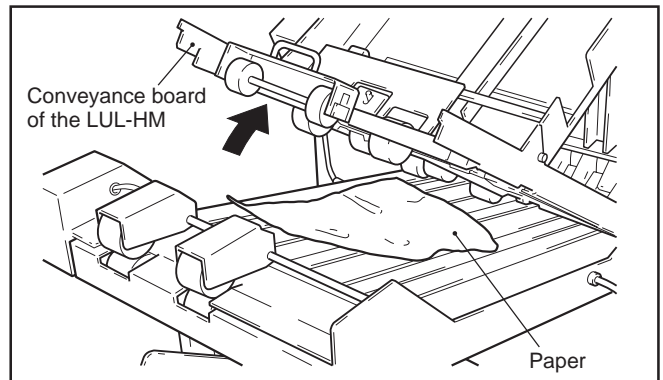
NOTE : The machine will not start if the vertical conveyance board is not closed completely.



(2) When paper has jammed at the LUL-HM

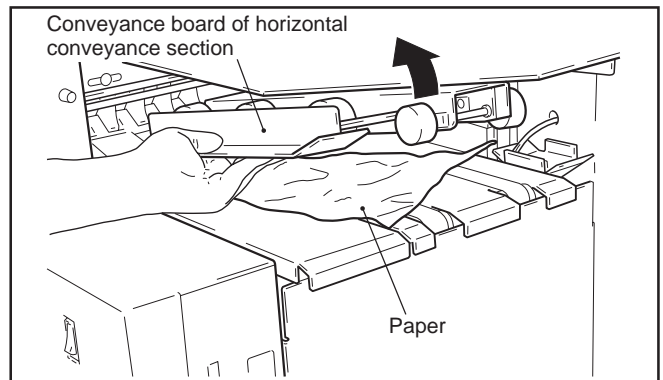
Lift the conveyance board and remove the jammed paper.

NOTE : The machine will not start if the conveyance board is not closed completely.



(3) When paper has jammed at the horizontal conveyance section

Lift the conveyance board and remove the jammed paper.



14. TROUBLESHOOTING GUIDE

14-1. When the Machine Does Not Start When the Start Key is Pressed

Is the No. of sets input display "0"?

Input the No. of sets to be processed.

Is the jam lamp lit?

Remove the paper jammed in the paper feed section.

Is the delivery lamp lit?

Remove the paper jammed in the conveyance path.

Is the left connected unit error lamp or right connected unit error lamp lit?

Check for problems in the downstream processing machine.

14-2. When Mis-feeding Occurs Frequently

Is the paper separated properly?

Separate well.

Is the printing ink on the paper dry?

Dry well.

Is the paper loaded neatly?

Load neatly.

Is the level sensor position too low?

Raise the level sensor position slightly.

Is the separating-air amount appropriate?

Adjust to the appropriate amount using the separating-air adjusting knob.

Is the separator position too high?

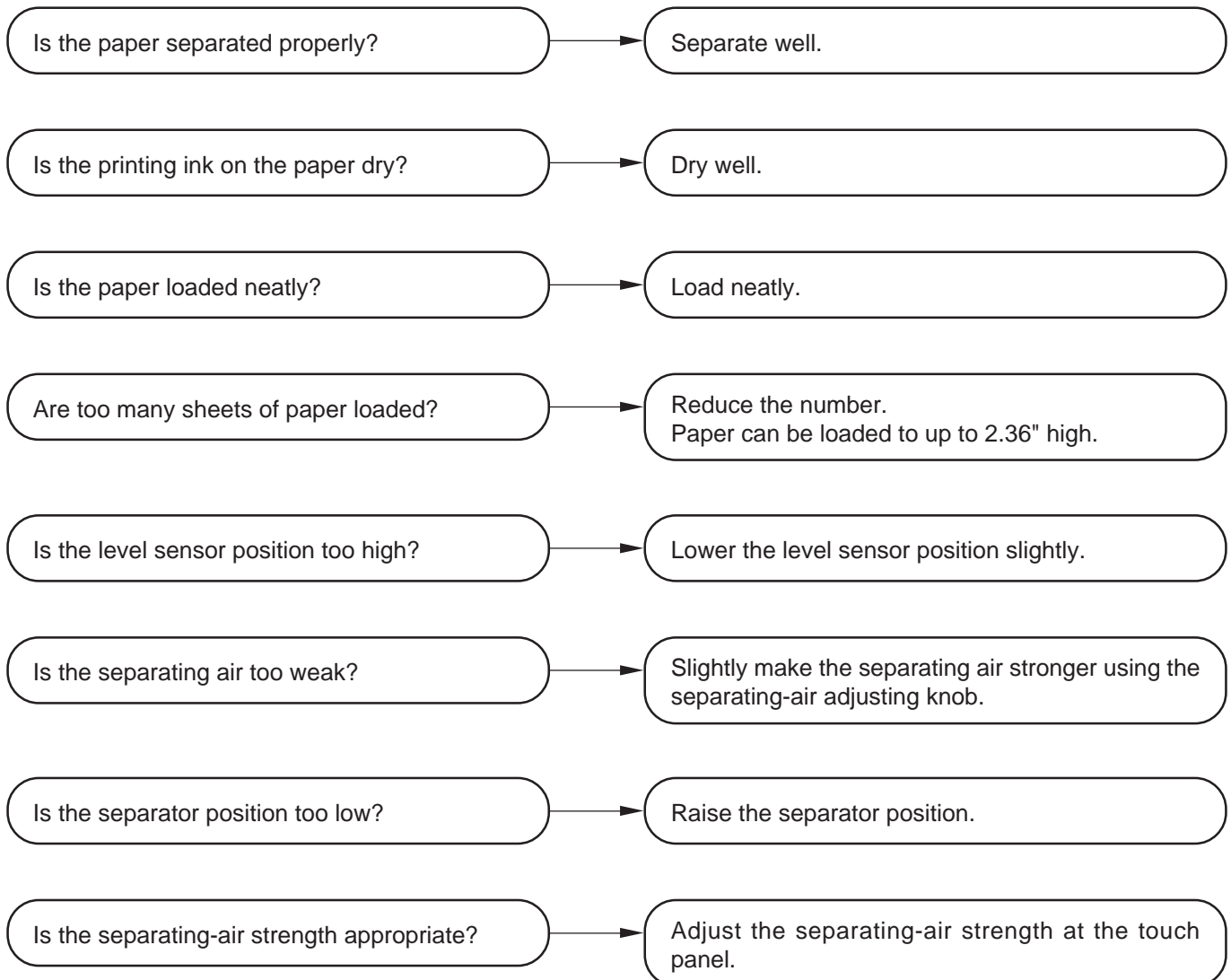
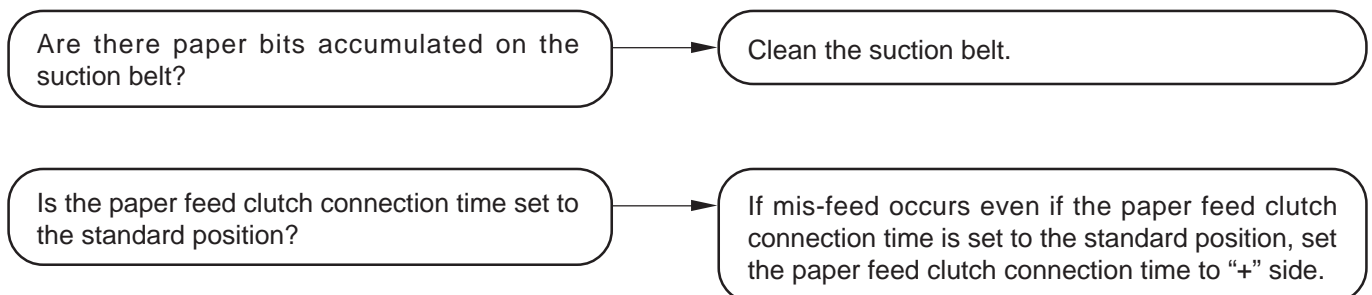
Lower the separator position.

Are the stack guides pressed against the paper too strongly?

Press lightly.

Is the separating-air strength appropriate?

Adjust the separating-air strength at the touch panel.

14-3. When Double-feeding Occurs Frequently**14-4. When Mis-feeding Occurs Due to Frequent Slipping at the Suction Belt**

14-5. When the Mis-feed/Double-feed Lamp Lights Up Even though Paper is Fed Normally

Is paper fed crookedly?

Load the paper neatly, press the stack guides lightly against the front of the paper and at the center of the right side.

Has presetting been completely beforehand?

Be sure to perform presetting when re-loading paper.

Is the double-feed detection sensitivity setting appropriate?

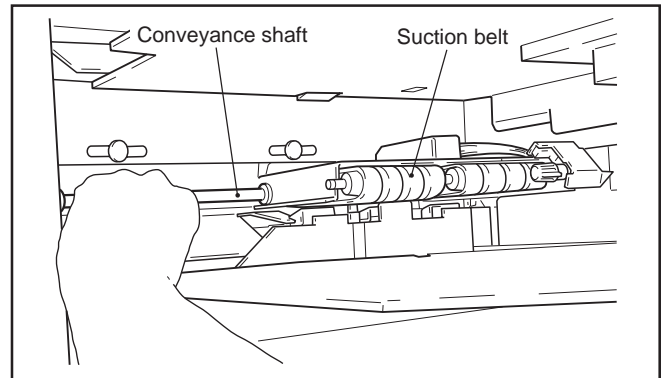
Set the double-feed detection sensitivity setting appropriately while referring to “**11. OPERATION PROCEDURES**”.

15. EVERYDAY CLEANING

Clean the conveyance belt and conveyance roller for conveying paper once a day. Problems may result if the conveyance belt and conveyance roller are dirty. To clean, moisten a cloth with water or alcohol, and wipe clean the dirty part. If using the machine after cleaning, wait for the parts cleaned to dry completely first.

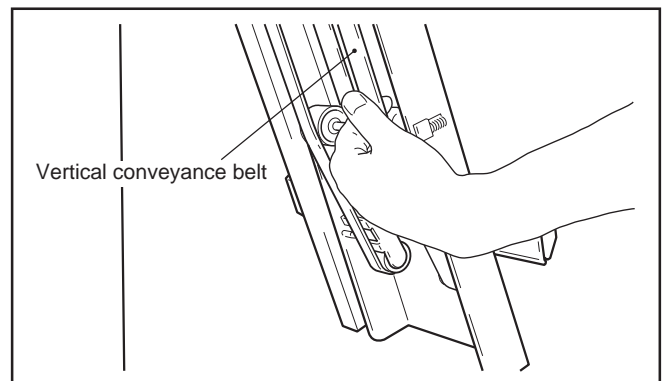
(1) Cleaning the suction belt

As the suction belt rotates when the conveyance shaft is rotated with the hand, clean the suction belt while rotating the conveyance shaft.



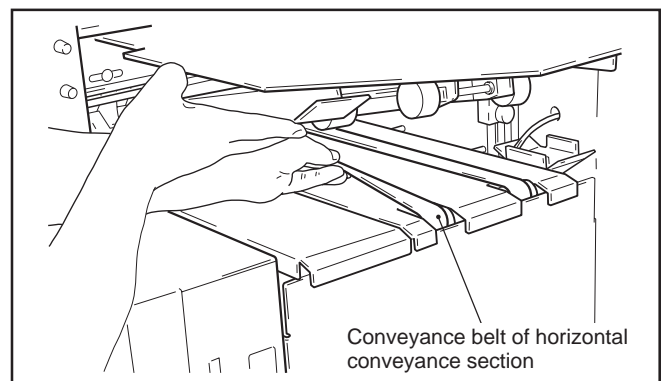
(2) Cleaning the vertical conveyance belt

Clean while rotating the vertical conveyance belt with the hand.



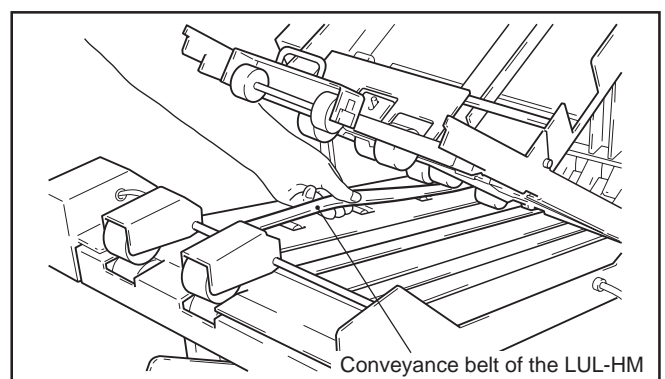
(3) Cleaning the conveyance belt of the horizontal conveyance section

Clean while rotating the conveyance belt with the hand.



(4) Cleaning the conveyance belt of the LUL-HM

Clean while rotating the conveyance belt with the hand.



16. SPECIFICATIONS

Model	DC-10/60															
Type	Tower floor type															
The number of sheets to be collated	10 sheets/tower															
Maximum number of units connectable	6															
Feeding system	Belt suction system															
Conveyance system	Twin roller belt system															
Maximum paper loading volume	2.36"															
Paper size	<ul style="list-style-type: none"> ● Minimum width : 4.72", Maximum width : 13.78" ● Minimum length: 5.83", Maximum length : 19.69" 															
Paper quality	<ul style="list-style-type: none"> ● Fine quality paper : 52 to 250 g/m² ● Art/coated paper : 79 to 157 g/m² 															
Paper type	<ul style="list-style-type: none"> ● Leaf ● Single-folded (Below 80 g/m²/within 10 bins, other bins cannot be used) ● Double-folded (Below 80 g/m²/within 5 bins, other bins cannot be used) 															
Processing speed	Maximum 5000 sets/hour (Maximum 9000 sets/hour in horizontal conveyance of A4 paper) * However, the speed differs according to the downstream processing machine.															
Mis-feed detection	Double-feed detection (Automatic paper thickness detecting, switching between thin and thick, OFF), mis-feed detection, paper jam detection															
Other detection functions	No paper detection, conveyance path paper jam detection, conveyance path door open/close detection															
Error display	Displayed on control panel Door open/close, no paper, paper feed error, and conveyance error of each tower, downstream processing machine error, no paper, double-feed, mis-feed, and paper jam of each bin															
Counter	Keypad input															
Additional functions	Cover insert function Alternate mode Block function (1/2 block mode, 1/3 block mode, 1/4 block mode) Processing speed Paper overlap amount Counter backup function Paper thickness memory function Left/right ejection direction selection function Manual feed function Reject function Operation type memory function Intelligent function (Optional)															
Dimensions	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Single tower</td> <td style="width: 50%;">24.80" (W) × 29.53" (D) × 77.64" (H)</td> </tr> <tr> <td>LUL-HM + 1 tower</td> <td>49.61" (W) × 29.53" (D) × 77.64" (H)</td> </tr> <tr> <td>LUL-HM + 2-connected towers</td> <td>83.07" (W) × 29.53" (D) × 77.64" (H)</td> </tr> <tr> <td>LUL-HM + 3-connected towers</td> <td>116.54" (W) × 29.53" (D) × 77.64" (H)</td> </tr> <tr> <td>LUL-HM + 4-connected towers</td> <td>150.00" (W) × 29.53" (D) × 77.64" (H)</td> </tr> <tr> <td>LUL-HM + 5-connected towers</td> <td>183.46" (W) × 29.53" (D) × 77.64" (H)</td> </tr> <tr> <td>LUL-HM + 6-connected towers</td> <td>216.93" (W) × 29.53" (D) × 77.64" (H)</td> </tr> </table>		Single tower	24.80" (W) × 29.53" (D) × 77.64" (H)	LUL-HM + 1 tower	49.61" (W) × 29.53" (D) × 77.64" (H)	LUL-HM + 2-connected towers	83.07" (W) × 29.53" (D) × 77.64" (H)	LUL-HM + 3-connected towers	116.54" (W) × 29.53" (D) × 77.64" (H)	LUL-HM + 4-connected towers	150.00" (W) × 29.53" (D) × 77.64" (H)	LUL-HM + 5-connected towers	183.46" (W) × 29.53" (D) × 77.64" (H)	LUL-HM + 6-connected towers	216.93" (W) × 29.53" (D) × 77.64" (H)
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LUL-HM + 6-connected towers	216.93" (W) × 29.53" (D) × 77.64" (H)															
Power supply	AC 120 V ± 10% 60 Hz															
Current consumption	9.5 A															
Mass (Weight)	638.77 lb															

Specifications and dimensions are subject to change without prior notice for improvements.

