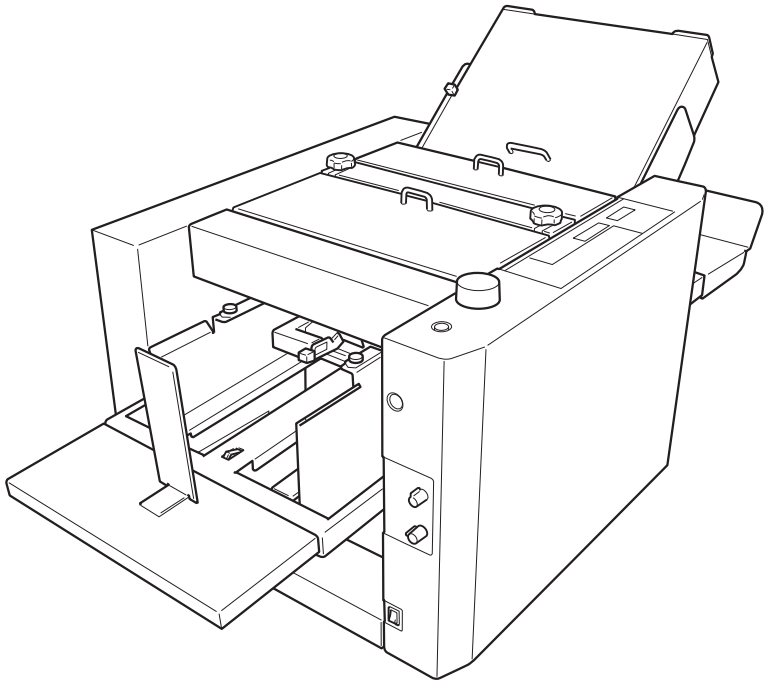
Duplo

AIR SUCTION PAPER FOLDER

DF-1000

[120 V]

INSTRUCTION MANUAL



Be sure to read this manual prior to use.
Please leave this manual at the site of use for easy reference.

Memo

INTRODUCTION

Thank you for purchasing a Duplo product.
Be sure to read this manual prior to using the product.
After reading, leave the manual at the site of use for easy reference whenever questions related to the product arise in the future.

Symbols

In this manual, several symbols are used to indicate important warnings. Please make sure to read instructions accompanied by these symbols. These symbols have the following meanings.

Describes instructions which must be followed in use.
Be sure to read the instructions to avoid problems due to incorrect operations.

Describes restrictions in operations.
Be sure to read to make full use of the functions of this product.

Describes names of related items and supplementary instructions.

SAFETY PRECAUTIONS

In this manual, operations and handling of the unit which are hazardous are described using the following marks to prevent personal injury or property damage to the user and others.

⚠ **WARNING**	**Ignoring this mark could result in the possibility of serious injury or even death.**
⚠ **CAUTION**	**Ignoring this mark could result in the possibility of injury or physical damage.**

△	**This mark indicates a "Warning" or "Caution".** A graphic may be shown inside the mark to describe the warning or caution more specifically.
⊘	**This mark indicates a forbidden action.** A graphic may be shown inside the mark to describe the forbidden action more specifically.
●	**This mark indicates actions that must be performed.** A graphic may be shown inside the mark to describe the action to be performed more specifically.

Power Supply

- This unit 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.

  Power supply : 100 to 240 V AC, 50/60 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 current (Rated power) : 2 to 1 A (140 W)

⚠ WARNING

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

Operating Environment

Operate this unit in the following environment.

- where the temperature range is between 41 and 95°F (14 to 122°F in storage)
- where the humidity range is between 20 and 80% RH (10 to 90% RH in storage, however no condensation)
- which is not subject to direct sunlight
- which is reasonably free from dust
- which is subject to little or no vibration
- which is free from air-borne salt
- where there are no harmful chemicals
- where the unit is not exposed to water

⚠ WARNING

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 a fire or an electrical shock.

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 a fire or an electrical shock.

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

⚠ CAUTION

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, a fire or an electrical shock.

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.

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

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 a fire due to leakage current if the insulation should deteriorate.

Maintenance, etc.

⚠ WARNING

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, a fire or an electrical shock.

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

Do not touch the power switch with wet hands.
Otherwise electric hazards may occur.

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

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 a fire or an electrical shock. Contact your dealer immediately.

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.

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

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

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

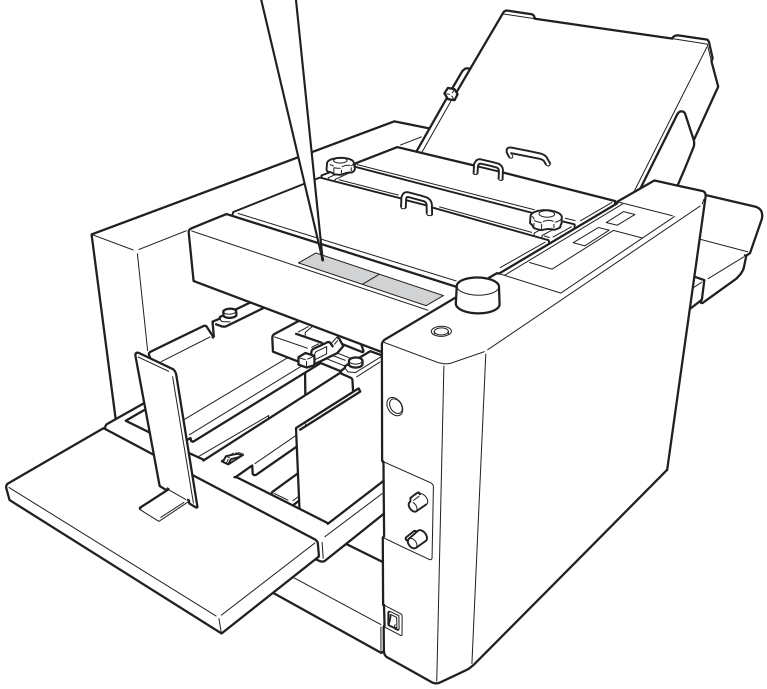
⚠ CAUTION

Keep away long hair, ties, jewelry and loose clothing.
This could result in injury.

Do not put fingers inside during operation.
This could result in injury.

Caution Label Location

⚠ CAUTION	⚠ 注　意
Do not put fingers inside during operation. Keep away long hair, ties, jewelry and loose clothing. It could cause injury.	運転中は機械内部に絶対手や指を入れないでください。 髪の毛、ネクタイ、装身具、長い袖等を 垂らさないでください。 巻き込まれてケガをする恐れがあります。



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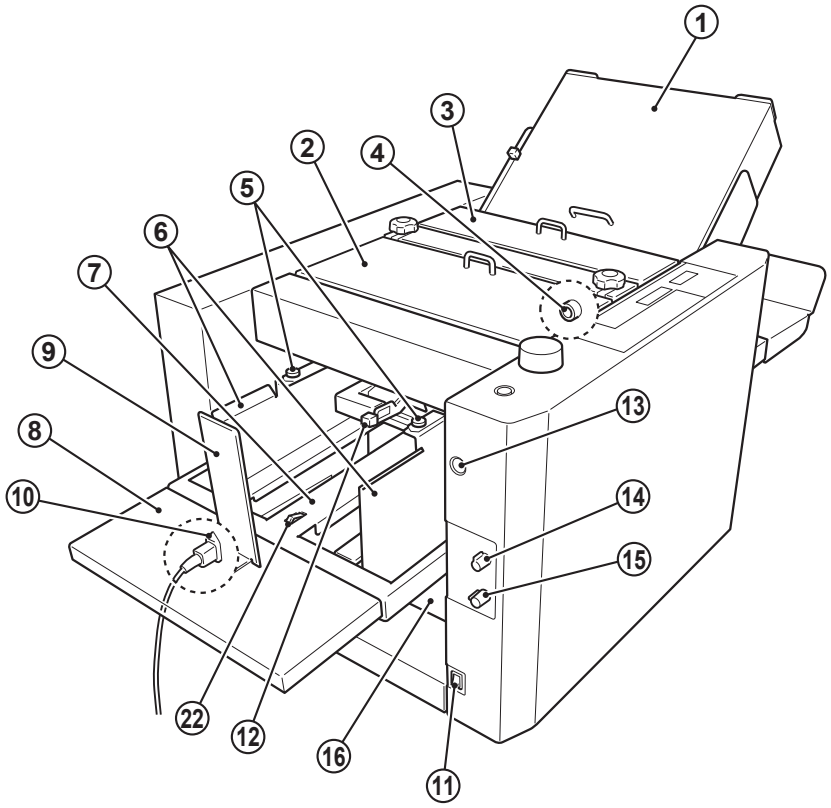
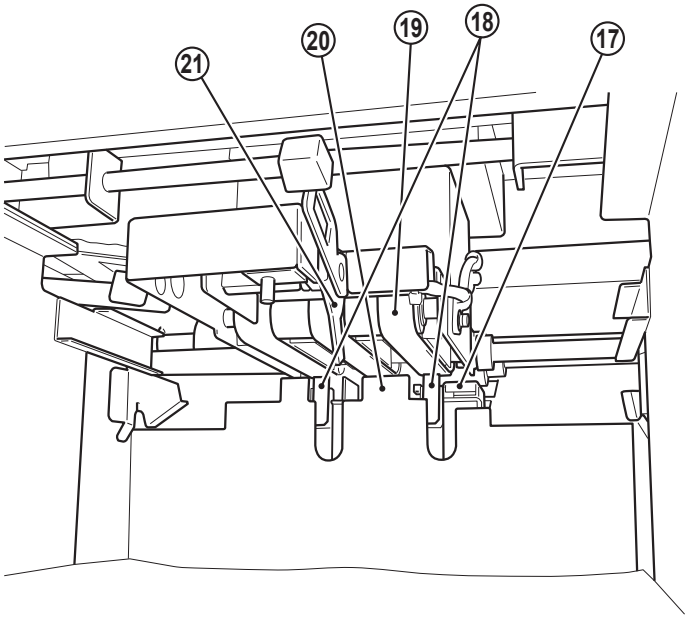
Chapter 1

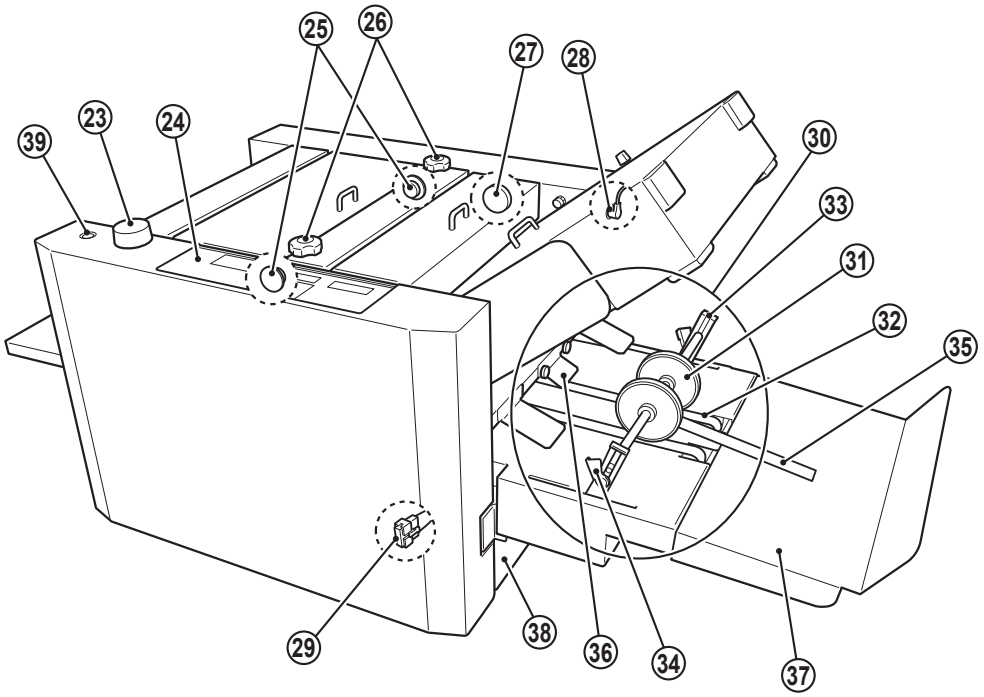
BEFORE OPERATION

1. NAMES AND OPERATION OF PARTS





No.	Name	Operation
①	Folding plate	Guide plate for deciding the paper folding position. Composed of folding plates 1 and 2.
②	Top cover L	When paper is jammed at the paper feed section, open this cover to remove the paper. Also open this cover to use the ④ **Skew correction knob** and ㉕ **Skew roller spring pressure adjusting knob**.
③	Top cover R	When paper is jammed at the folding roller section, open this cover to remove the paper.
④	Skew correction knob	For correcting skewed paper feed. Located inside the top cover L.
⑤	Side guide adjusting knob	For correcting the direction of the side guide (paper feed direction)
⑥	Side guide	Holds the left and right of the paper stacked on the paper feed tray.
⑦	Paper feed tray	For stacking paper
⑧	Auxiliary paper feed tray	Supports the rear of the paper.
⑨	Rear guide	Holds the trail edge of paper stacked on the paper feed tray.
⑩	Power cord inlet	For connecting the power cord
⑪	Power switch	For turning on/off the power
⑫	Level sensor adjusting lever	For adjusting the gap between the paper and suction belt
⑬	Tray down button	For lowering the paper feed tray
⑭	Separating air adjusting knob	For adjusting the amount of separating air
⑮	Separator adjusting knob	For adjusting the height of the separator
⑯	Safety lever	Prevents hand from getting caught when the paper feed tray is descending.
⑰	Separating-air duct	Blows out air for separating paper stacked on the paper feed tray. (3 locations)
⑱	Separator	Prevents double-feed.
⑲	Suction belt	Sucks and conveys paper.
⑳	Shutter	Adjusts the amount of separating air blown out. Linked to the separator adjusting knob.
㉑	Level sensor	Determines the height of the paper floated by separating air.
㉒	Paper switch	For detecting the presence of legal size paper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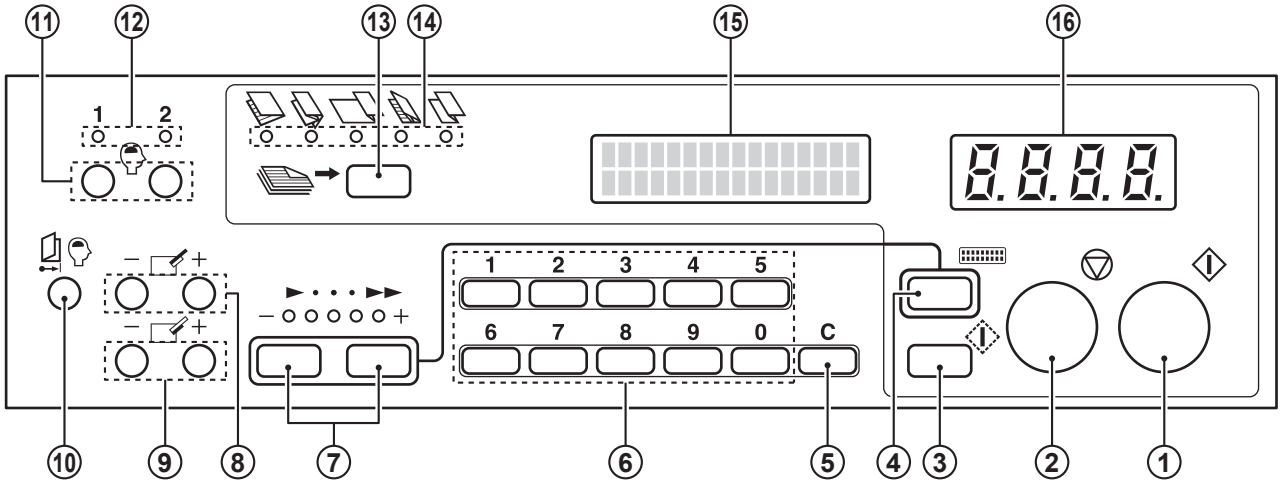
No.	Name	Operation
㉓	Side guide dial	Turn this dial to move the side guide.
㉔	Control panel	For operating the unit Ref. **"2. NAMES AND OPERATION OF CONTROL PANEL" (☞p.1-6)**
㉕	Skew roller spring pressure adjusting knob	For switching the roller spring pressure when folding misalignment occurs. Normally, use at the "bottom" position. Located inside the top cover L.
㉖	Skew roller fixing knob	Loosen this knob to use the skew correction knob. Be sure to tighten it after adjustments.
㉗	Jam correction knob	For rotating the folding rollers when paper has jammed inside the unit or when cleaning the unit
㉘	Folding plate connector	For connecting the folding plate and the main body
㉙	Stacker unit connector	For connecting the stacker unit and the main body
㉚	Stacker unit	Composed of the stacker roller, stacker belt, and stacker support for ejecting folded paper to the paper receiving tray.
㉛	Stacker roller	For receiving folded paper and aligning the paper
㉜	Stacker belt	For ejecting folded paper to the paper receiving tray
㉝	Stacker support	For supporting the stacker roller
㉞	Lever	For changing the height of the stacker roller
㉟	Auxiliary paper ejection guide	When alignment of the ejected paper is poor, hook to the shaft of the stacker roller.
㊱	Paper ejection guide	Helps guide folded paper onto the stacker unit. Remove if paper jams frequently at the stacker roller, or when it is difficult to remove jammed paper.
㊲	Paper receiving tray	For receiving folded paper from the stacker unit
㊳	Side cover	When paper jams during paper ejection, open this cover to remove the paper.
㊴	Thin paper feed button	Switch this button according to the paper thickness. Set to ON when using fine quality paper less than 22 lb. (Lamp lit: ON, lamp is off: OFF)

2. NAMES AND OPERATION OF CONTROL PANEL

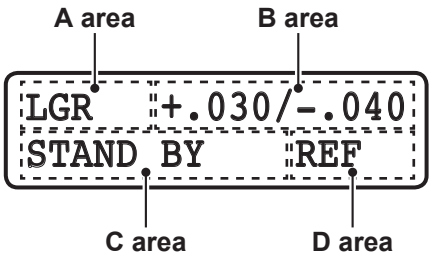


No.	Name	Operation
①	Start key	Press to start paper folding.
②	Stop key	Press to stop paper folding. Pressing this key at the function setting mode screen registers that setting.
③	Test key	Press to test fold two sheets of paper.
④	Mode key	Press to switch the function setting mode. Ref. **Chapter 3 APPLIED USE "4. FUNCTION SETTING MODE" (☞p.3-11)**
⑤	Clear key	Press to change or erase the number of sheets to be processed or paper length entered.
⑥	Numerical keys (0 to 9)	Press to enter the number of sheets to be processed or paper length.
⑦	Speed key	Press to select the processing speed from five levels (Speed 1 to 5). When the power is turned on, the speed used the last time is displayed.
⑧	Folding plate 1 folding stopper adjusting key	Press to adjust the position (folding position) of the folding stopper of folding plate 1.
⑨	Folding plate 2 folding stopper adjusting key	Press to adjust the position (folding position) of the folding stopper of folding plate 2.
⑩	Adjustment registration key	If the position of the folding stopper has been finely adjusted in standard folding operations, the adjustment value can be registered with this key.
⑪	Custom folding registration key	Press to register the position of the folding stopper and stacker roller which have been moved when using custom folding modes.
⑫	Custom folding registration lamp	When this lamp is lit, it means that the custom folding mode is registered.
⑬	Folding mode key	Press to select the folding mode from five standard folding modes. If the custom folding mode is registered, use this key to select it.
⑭	Standard folding lamp	Displays the folding mode selected from five standard folding modes. When a folding mode registered with the folding stopper position adjustment value is selected, the corresponding lamp blinks.
⑮	Liquid crystal display (LCD)	Displays the size of standard paper stacked on the paper feed tray (LGR to INV), paper length registered, and error messages.
⑯	Numerical display (Counter)	When using the add count mode, displays the number of sheets processed. When using the subtract count mode, displays the number of sheets left to be processed.

3. DESCRIPTION OF LCD

The LCD displays standard paper size, various registration data, operation modes, operation states, and error messages, etc.

The backlight of the LCD will go off automatically if the unit is not used for a certain period of time.



This LCD example shows the standard folding of standard paper when set to the last time fold mode.

(1) A area

Standard paper size : Five types: LGR, LGL, LTR, STMT, and INV

Registration data : When the length of non-standard paper is registered, the length will be displayed (7.2" to 17.0").

Operation mode : When set to the folding stopper fixed mode, “FIX” will be displayed.

Folding mode : When set to the custom folding mode, “CF-1” or “CF-2” will be displayed.

(2) B area

Registration data : The correction value of the folding stopper position of folding plates 1 and 2 will be displayed as “±.∗∗∗/±.∗∗∗” (unit: inch). As folding plate 2 is not used in single folding, “±.∗∗∗/ ...” (unit: inch) will be displayed.

In custom folding, the folding stopper position of folding plates 1 and 2 will be displayed as “∗.∗∗/∗.∗∗” (unit: inch).

When the operation mode is set to folding stopper fixed mode, the folding stopper position displayed will be the same as custom folding.

(3) C area

Operation status : “WAIT”, “STAND BY”, “PROCESSING”, “TEST RUN”

Error message : The place of paper jam or malfunction, and details of operation error, etc. will be displayed.

(4) D area

Operation mode : When set to the last time fold mode, “REF” will be displayed.
When set to the interval function, “I” will be displayed.
When the thick paper stopper correction setting is set to “CORRECTED”, “▮” will be displayed.

4. HANDLING OF PAPER

4-1. Paper Used

- If using folded or curled paper, flatten first prior to use.
- Make sure that the printing ink on the paper has dried completely prior to use.

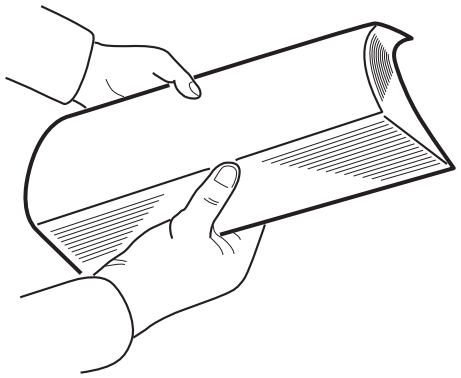
Note **If used without the ink completely dried, the folding roller or paper may become dirty.**

- Use paper that has been cut at right angles.

Important **If not cut at right angles, problems such as folding misalignment may occur.**

- Fan paper just copied or printed well prior to use.

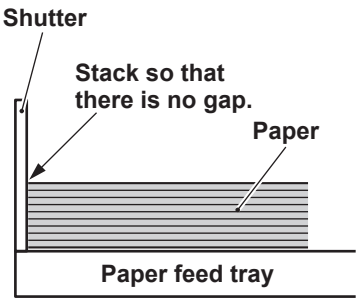
Important **Paper just copied or printed contains considerable static electricity, and if not fanned well, problems such as double-feed will result.**



4-2. Precautions on Stacking Paper

● Stack the paper so that the lead edge touches the shutter gently.

Note **If there is a gap between the lead edge and shutter, the paper detection sensor will not function properly.**

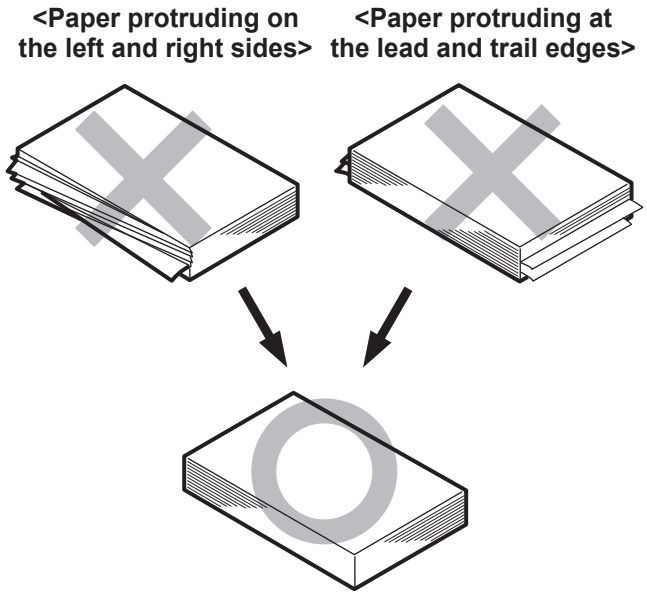


● Do not stack paper on the paper feed tray with the left and right sides of the paper unaligned or some sheets protruding out.

Note **If the paper is protruding on the left or right side, the paper size detection sensor will not function normally and detect the paper size accurately.**

● Do not stack paper on the paper feed tray with the lead and trail edges unaligned or some sheets protruding out.

Note **If the paper is protruding at the lead or trail edge, paper will not be fed stably, resulting in problems such as paper feed error and folding misalignment.**



Important **In some cases, paper may not be fed smoothly into the folding plate due to the environment (temperature, humidity), paper thickness, paper type, paper states, and processing speed, etc., and as a result, the paper may not be folded properly.**
In such cases, lower the processing speed, or improve the paper states before use.

Memo

Chapter 2

BASIC OPERATION

1. STANDARD FOLDING OF STANDARD PAPER

1-1. Standard Paper

There are five types of standard paper sizes; LGR, LGL, LTR, STMT, and INV. All these sizes are detected as standard paper only when stacked in the short edge feeding direction (direction shown in the figure).

Note **For LTR size, this can be used as non-standard paper even when stacked in the long edge feeding direction. (Refer to Chapter 3 APPLIED USE "1. STANDARD FOLDING OF NON-STANDARD PAPER" (☞p.3-2).)**

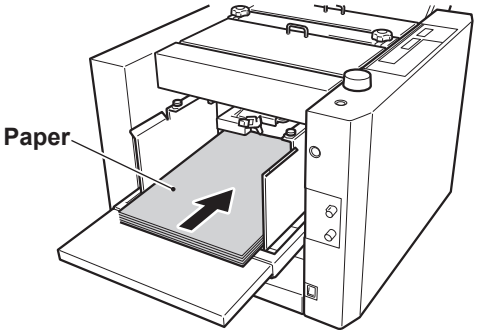
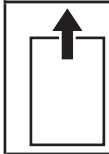
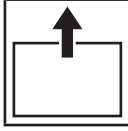


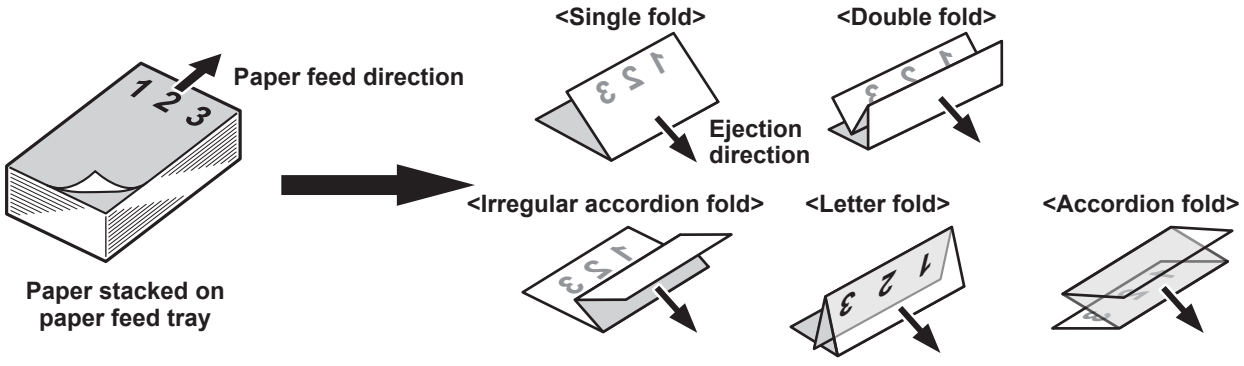
Table of paper stacking direction

Stacking direction	Paper size				
	Ledger (LGR)	Legal (LGL)	Letter (LTR)	Statement (STMT)	Invoice (INV)
	○	○	○	○	○
	×	×	△	×	×

○ : Can be used as standard paper
△ : Can be used as non-standard paper
× : Cannot be used

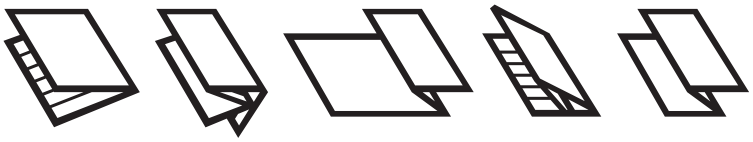
When stacking paper on the paper feed tray, take note of the front/back, top/end of the paper.
Because the relations between the folding misalignment state and the front/back, top/end of the paper must also be taken into consideration when checking the finish by test folding.

<Example> When paper (front is gray and back is white) is stacked on the paper feed tray as shown and finished in the following standard folding modes



1-2. Standard Folding Modes

There are five types of standard folding modes; single fold, double fold, irregular accordion fold, letter fold, and accordion fold.



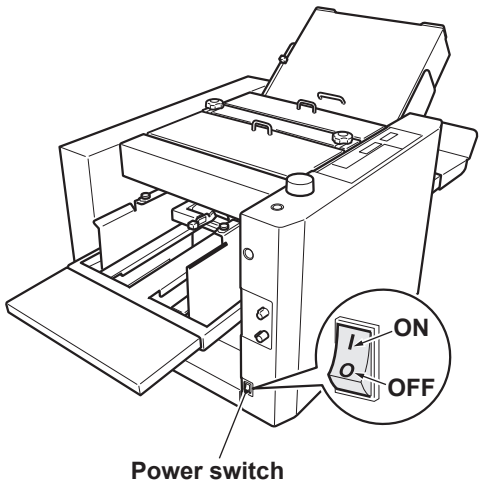
Single fold | Double fold | Irregular accordion fold | Letter fold | Accordion fold

1-3. Operation Procedure

1 Turn on the power switch.

⚠ WARNING

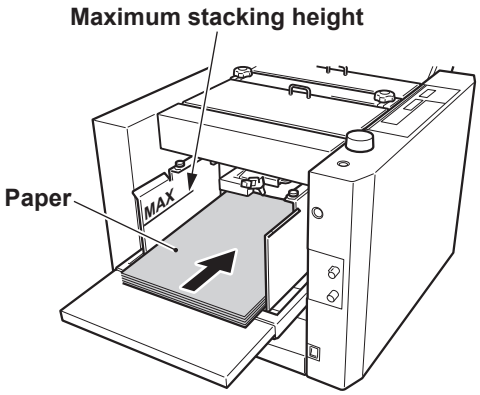
Do not touch the power switch with wet hands.
Otherwise electric hazards may occur.



2 Stack paper on the paper feed tray.

Push in the paper until the lead edge touches the shutter below the paper feed inlet slightly.

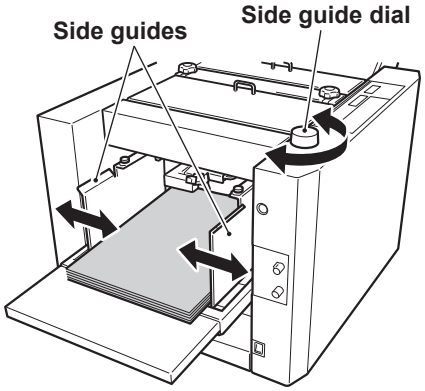
important **Do not overstack paper. Paper can be stacked up to the mark "MAX" on the side guide (about 3.9" high).**



3 Move the side guides according to the paper width.

Move the side guides to the left and right by rotating the side guide dial.

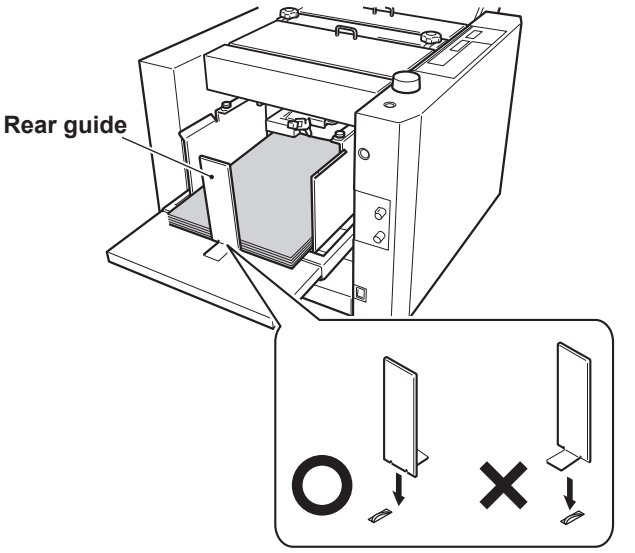
important **Be sure to adjust the side guides according to the paper width, otherwise the unit may not operate normally or problems such as folding misalignment may result.**



4 Set the rear guide at the trail edge of the paper.

Note

- **Be sure to set the rear guide. Starting the unit without setting it will cause the separating air to blow away the paper.**
- **When feeding letter size paper, be sure to put the rear guide in the direction as shown, and avoid touching the paper switch. Failure to do so causes all paper with letter size width to be erroneously detected as legal size.**



5 Check the paper size displayed at the top left of the LCD.

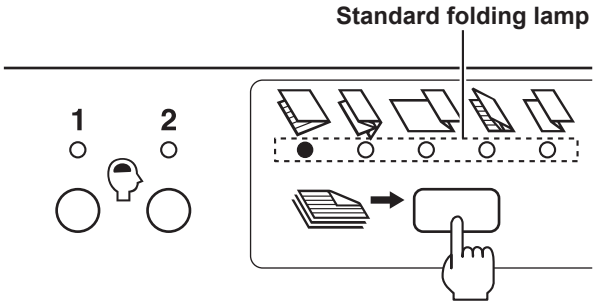
If the side guides are not set at the designated position, the paper size will not be displayed even when using standard size paper. Make sure the side guides are set to the correct position.

<LCD message in standard paper/standard folding>

```
LTR   .000/ .000
STAND BY
```

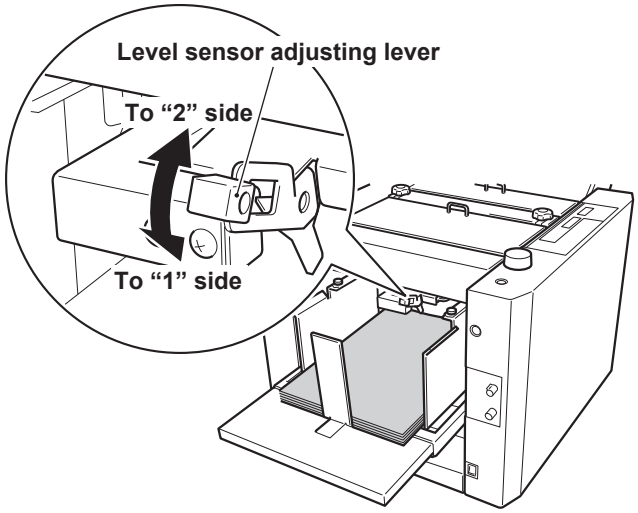
6 Press the folding mode key to select the desired fold.

Each time the folding mode key is pressed, the standard folding lamp will light up in order from left to right, starting from single fold.



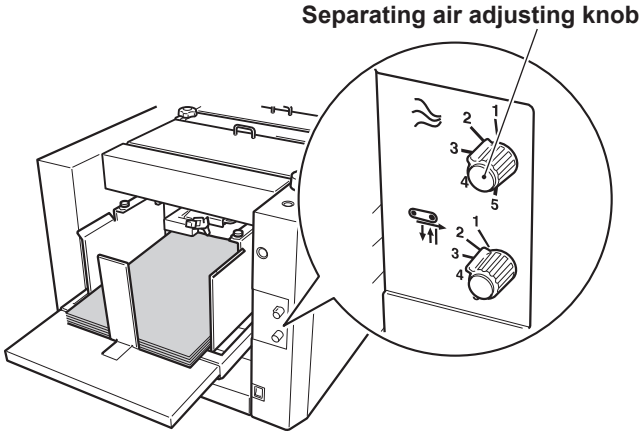
7 Adjust the level sensor height using the level sensor adjusting lever.

The standard height of the level sensor is between “1” and “2”.
Moving the adjusting lever to “1” raises the paper feed position and moving it to “2” lowers it.
If mis-feed occurs with thick paper, adjust to “1”.
If double-feed occurs with thin paper, adjust to “2”.



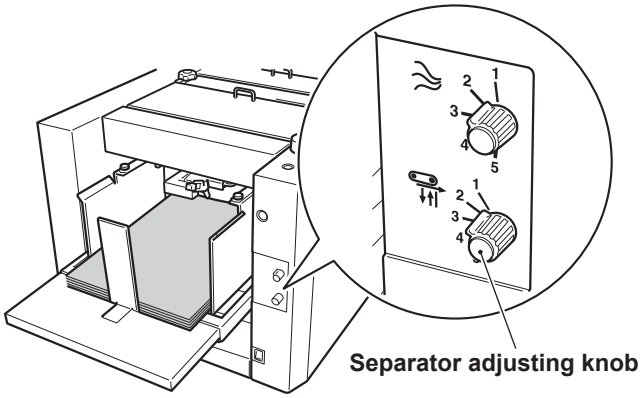
8 Adjust the separating air amount using the separating air adjusting knob.

The standard amount of the separating air is “2”. The larger the figure, the stronger the separating air blown will be. When using large art paper or coated paper, adjust the knob to a large value. Adjust to a small value for small and thin paper.



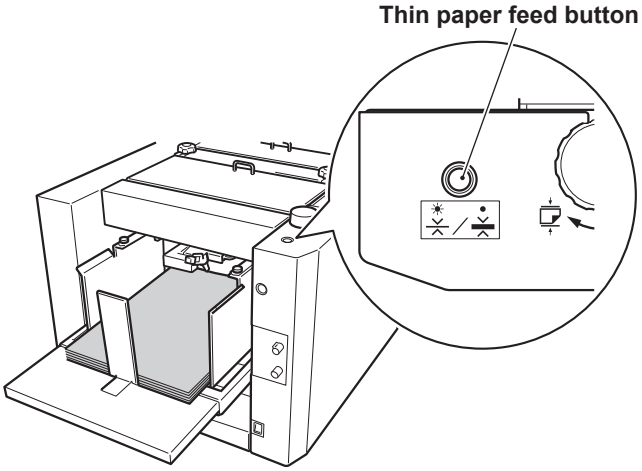
9 Adjust the separator height using the separator adjusting knob.

The standard height of the separator is one where the separator is touching the suction belt lightly. Normally, set the knob to “2”.
If mis-feed occurs, adjust the knob to a large value. If double-feed occurs, adjust to a small value.

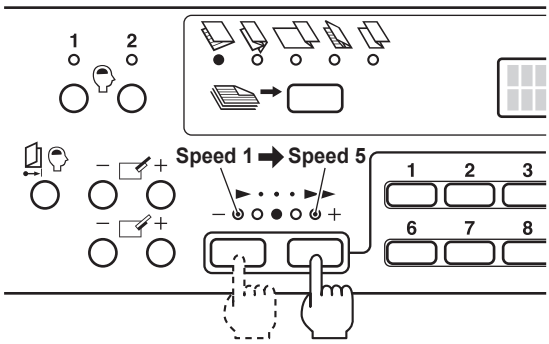


10 Set the thin paper feed button to ON or OFF according to the paper thickness.

Press the button to select ON or OFF. When the lamp is lit, the thin paper function is ON. When the lamp is off, the thin paper function is OFF. Set to ON if the paper thickness is less than 22 lb.



11 Press the speed key to set the processing speed.



Five speed can be selected (Speed 1 to 5).
Every time the "+" key is pressed, the speed lamp lights up towards the right and the speed increases. Every time the "–" key is pressed, the speed lamp lights up towards the left and the speed decreases.
When the power is turned on, the speed used the last time is displayed.

important

- **When using thin and flimsy paper, setting the speed to 5 may cause problems such as paper jam and deformed folding. Set to lower speeds.**

- **The speed can be set faster than 5 or slower than 1. (This setting becomes invalid when the power is turned OFF, and when the power is turned ON again, it will be set to speed 5 or 1.)**

<To set faster than speed 5>*1

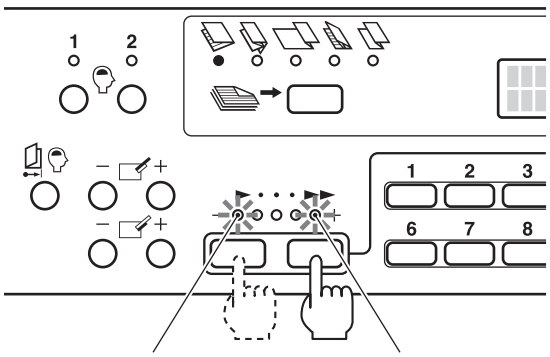
1) **Press the "+" key until the speed 5 lamp lights up.**
2) **Press and hold the "+" key for more than three seconds. The lamp will stop lighting and start blinking.**

To return to speed 5, press the "–" key once. The lamp will start lighting.

<To set slower than speed 1>*2

1) **Press the "–" key until the speed 1 lamp lights up.**
2) **Press and hold the "–" key for more than three seconds. The lamp will stop lighting and start blinking.**

To return to speed 1, press the "+" key once. The lamp will start lighting.



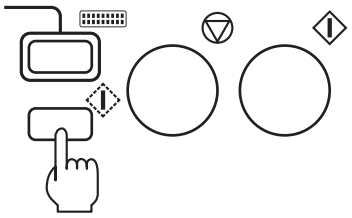
***1 : If paper jams frequently inside the unit in the use of thick paper, set the processing speed faster than speed 5.**

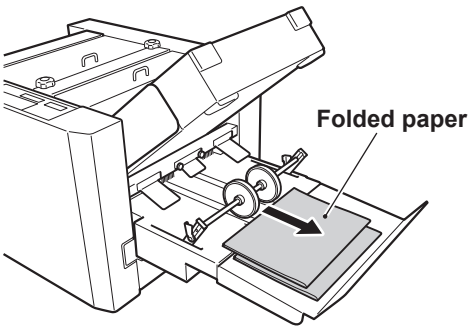
***2 : If paper feed error occurs frequently in the use of recycled paper, set the processing speed slower than speed 1. For details on the use of recycled paper, refer to Chapter 3 APPLIED USE "3-2. Recycled Paper" (☞ p.3-9).**

12 Press the test key to perform test folding.

Test folding feeds two sheets of paper and allows the finish to be checked.
When the test key is pressed, the LCD displays “WAIT” and the folding stopper starts moving to the set position. When it completes moving, the message changes to “TEST RUN” and test folding starts.

important Test folded paper are not counted in the number of sheets processed.

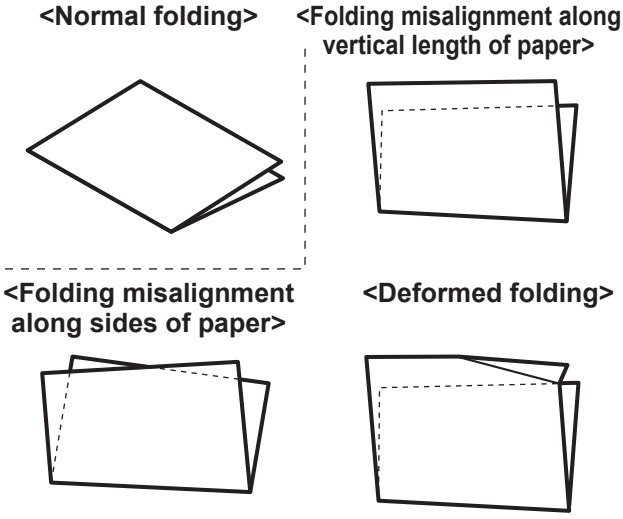




13 Check the finish of test folding.

Check for folding misalignment using the second test folded sample.

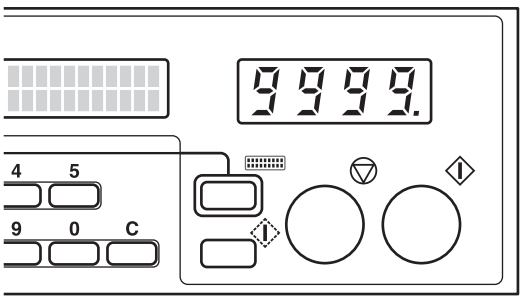
Ref. If folding misalignments occur, refer to Chapter 4 TROBLESHOOTING “1. CORRECTING FOLDING MISALIGNMENT” (☞p.4-2).



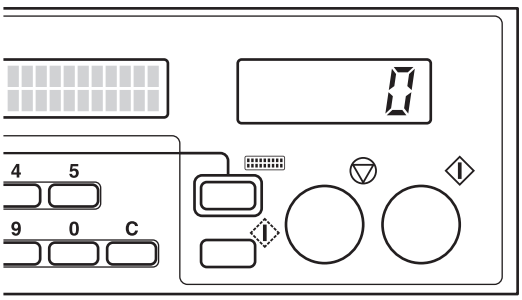
14 Select the method of using the counter.

The counter can be used in two ways: subtract count and add count.
Enter the number of sheets to be processed using the numerical keys first before beginning operations. In this case, the counter will be set to the subtract count method. (A period is displayed at the bottom right where the count is displayed.)
If the clear key is pressed to clear the counter to “0” before beginning operations, the counter will be set to the add count method.
Up to four digits (9999) can be displayed.

<Counter display for “Subtract count method”>



<Counter display for “Add count method”>

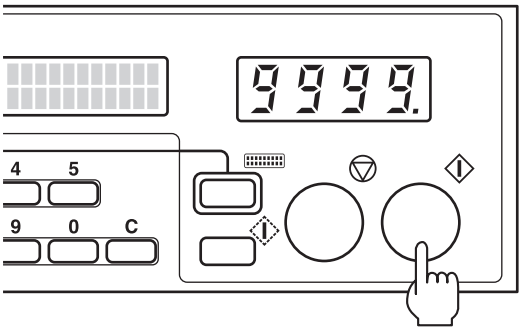


The following description is based on the subtract count method.

15 Press the numerical keys to enter the number of sheets to be processed.

16 Press the start key to start folding.

To cancel operations halfway through, press the stop key. Pressing the start key another time resumes operations.
When the number entered is reached in folding operations, the buzzer sounds “pi...pi...”, and paper feed will stop automatically.
If the paper feed tray runs out of paper, the buzzer sounds “pi.pi.pi”, and the unit will stop automatically.
After stopping, the paper feed tray moves down automatically.



If double-feed, continuous-feed, or mis-feed occurs during folding operations, refer to the following table and re-adjust the adjusting knobs and adjusting lever.

Adjusting knobs and lever used	Error state and adjustment method	
	Double-feed/Continuous-feed	Mis-feed
Separating air adjusting knob	**<When using thin paper>** Adjust the knob to a smaller value and weaken the separating air. **<When using thick paper>** Adjust the knob to a larger value and increase the separating air amount.	Adjust the knob to a larger value and increase the separating air amount.
Level sensor adjusting lever	Move the lever to “2” and lower the level sensor.	Move the lever to “1” and raise the level sensor.
Separator adjusting knob	Adjust the knob to a smaller value and raise the separator.	Adjust the knob to a larger value and lower the separator.

Chapter 3

APPLIED USE

1. STANDARD FOLDING OF NON-STANDARD PAPER

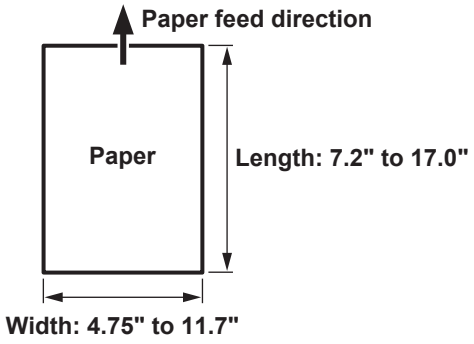
Paper that is not LGR, LGL, LTR, STMT, or INV are considered non-standard paper. Standard paper that is fed in the long edge feeding direction is also considered as non-standard paper. When using non-standard paper, the length must be entered and registered before beginning folding operation.

Note **Starting operations without registering the paper length will display the error message "INPUT LENGTH" on the LCD.**

1-1. Paper Size Restrictions

Paper sizes which can be used are the sizes within the range shown on the right.

Note **To insure the quality of the fold when paper width is 4.75", it is recommend not to exceed 9.5" in length.**



1-2. Operation Procedure

1 **Measure the length of the paper to be used.**

The length is the side parallel to the paper feed direction (see **top figure**).

2 **Turn on the power switch.**

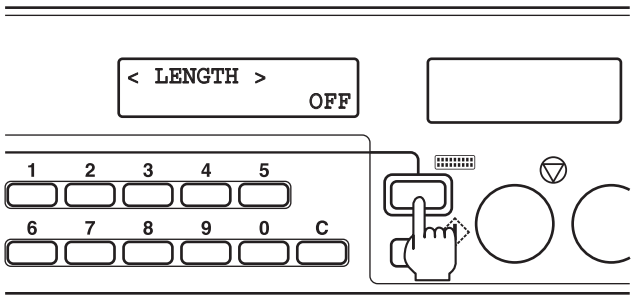
3 **Stack paper on the paper feed tray.**

4 **Move the side guides according to the paper width.**

5 **Set the rear guide at the trail edge of the paper.**

Ref. **For details of steps 2 to 5, refer to "1-3. Operation Procedure" in Chapter 2 BASIC OPERATION "1. STANDARD FOLDING OF STANDARD PAPER" (☞p.2-3).**

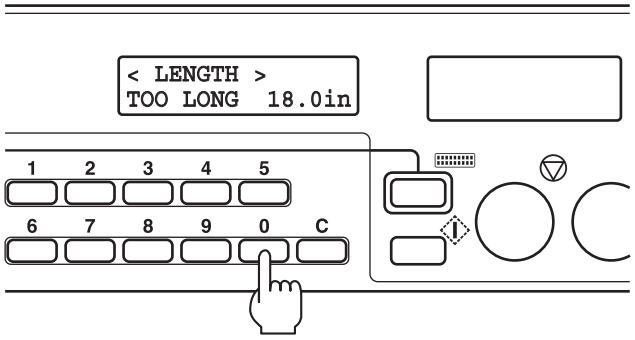
6 Press the mode key to display "LENGTH" on the LCD.



7 Using the numerical keys, enter the length of the paper.

The paper length which can be entered ranges from 7.2" to 17.0".
If the value entered exceeds the allowable range, the buzzer sounds and the LCD shows "TOO LONG" or "TOO SHORT".

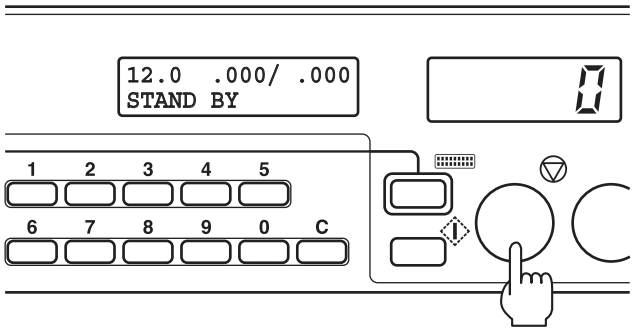
Note **If a paper length has already been registered, press the clear key to clear this value before entering the length with the numerical keys.**



8 Press the stop key.

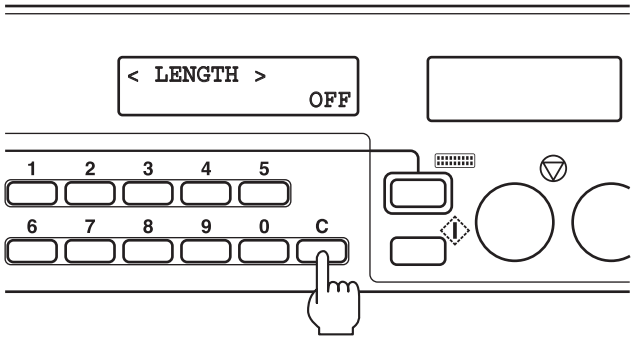
The entered paper length is registered, and the value is displayed at the top left of the LCD.

important **The paper length data registered is erased when the power is turned off. To save the registered data, set the last time fold mode at the function setting mode screen. (Refer to "4-2. Operation Mode Setting" (☞p.3-12).)**



<Canceling non-standard paper length setting>

1) Press the mode key to display "LENGTH" on the LCD.
2) Press the clear key to display "OFF".
3) Press the stop key.
   The unit returns to the automatic paper size detection mode.



9 Press the folding mode key to select the desired fold.

10 Adjust the level sensor height.

11 Adjust the separating air amount.

12 Adjust the separator height.

13 Set the thin paper feed button to ON or OFF according to the paper thickness.

14 Press the speed key to set the processing speed.

15 Press the test key to perform test folding.

16 Check the finish of test folding.

17 Press the numerical keys to enter the number of sheets to be processed.
(Skip this step if using the add-count counter.)

18 Press the start key to start folding.

Ref. For details of steps 9 to 18, refer to "1-3. Operation Procedure" in Chapter 2 BASIC OPERATION "1. STANDARD FOLDING OF STANDARD PAPER" (☞p.2-4).

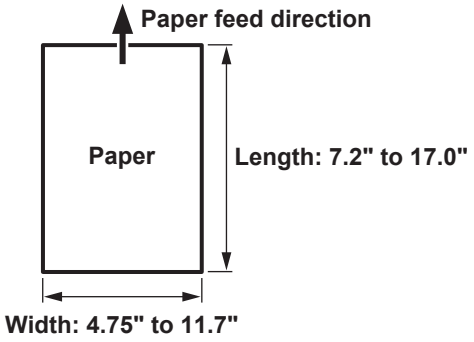
2. CUSTOM FOLDING

Custom folding is the method of folding paper by specifying and registering the positions (folding positions) of the folding stoppers of folding plates 1 and 2.

2-1. Paper Size Restrictions

Paper sizes which can be used are the sizes within the range shown on the right.

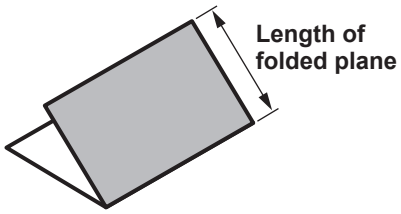
Note **To insure the quality of the fold when paper width is 4.75", it is recommend not to exceed 9.5" in length.**



However, the length of the folded plane (see **right figure**) which can be folded by folding plates 1 and 2 is restricted.
Do not set the folded paper length to above 9.84".

Folding plate 1: 1.65" to 12.79"
Folding plate 2: 0"*/1.85" to 8.54"

* As folding plate 2 is not used in single folding, it is 0".

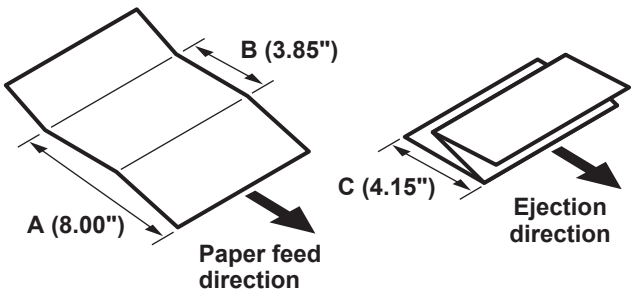


2-2. Operation Procedure

The following describes the custom folding procedure taking accordion fold as an example.

1 **Create the folding sample of accordion fold with the paper to be used.**

2 **Measure the size of each folded plane (A and B) of the sample, and the folded paper length C.**



3 **Turn on the power switch.**

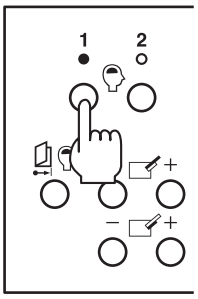
4 **Stack paper on the paper feed tray.**

5 **Move the side guides according to the paper width.**

6 Set the rear guide at the trail edge of the paper.

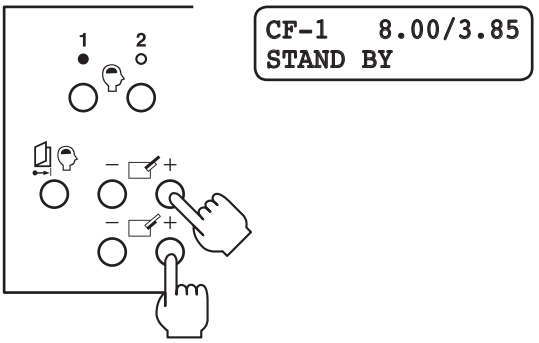
Ref. For details of steps 3 to 6, refer to "1-3. Operation Procedure" in Chapter 2 BASIC OPERATION "1. STANDARD FOLDING OF STANDARD PAPER" (☞p.2-3).

7 Press the custom folding registration key 1 or 2 until the buzzer sounds "pi.pi..." to switch to the custom folding mode.



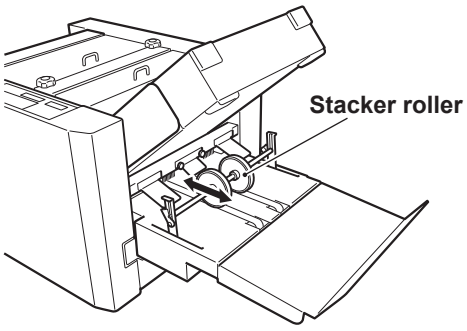
8 Set the folding stopper positions.

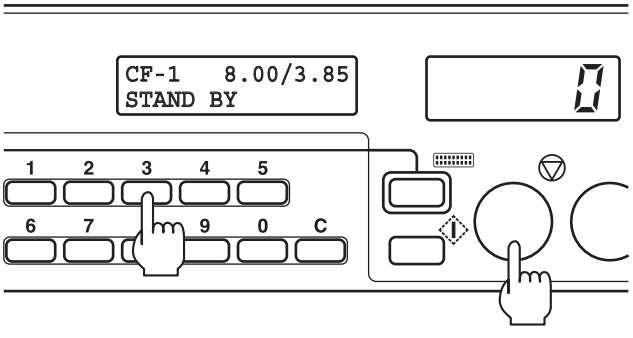
Press the "+" key of the folding plate 1 folding stopper adjusting key and move the folding stopper to the measured dimensions A (8.00") of the sample.
Press the "+" key of the folding plate 2 folding stopper adjusting key and move the folding stopper to the measured dimensions B (3.85") of the sample.
The position moved to by the folding stopper is displayed in inch on the LCD.



9 Set the position of the stacker roller.

The position of the stacker roller needs to be changed according to the folded paper length.
Selecting and pressing a numerical key (1 to 7) while pressing the stop key moves the stacker roller to the position set. Refer to the following table for approximate set positions.
In this example, the folded paper length C is 4.15". Therefore press the numerical key 3 while pressing the stop key.





Approximate stacker roller set position

Numerical key setting	Folded paper length
1	*
2	To 3.15"
3	3.16" to 4.33"
4	4.34" to 5.51"
5	5.52" to 6.69"
6	6.70" to 8.27"
7	8.28" to 9.84"

* Use numerical key "1" if paper jams at the "2" position.

10 **Adjust the level sensor height.**

11 **Adjust the separating air amount.**

12 **Adjust the separator height.**

13 **Set the thin paper feed button to ON or OFF according to the paper thickness.**

14 **Press the speed key to set the processing speed.**

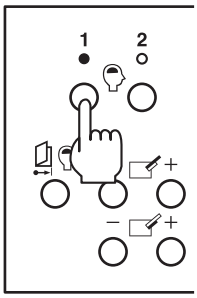
15 **Press the test key to perform test folding.**

16 **Check the finish of test folding.**

Ref. **For details of steps 10 to 16, refer to "1-3. Operation Procedure" in Chapter 2 BASIC OPERATION "1. STANDARD FOLDING OF STANDARD PAPER" (☞p.2-4).**

17 **After completing all settings, register the custom folding setting.**

Press the custom folding registration key 1 or 2 until the buzzer sounds "pi.pi...".



Important **The registered data is preserved even after the power is turned off.**

<Changing/erasing custom folding registration data>

1) Press the folding mode key so that the registration lamp (1 or 2) of the custom folding mode registering the data to be changed or erased lights up.

2) To change the registered data, perform steps **8** to **17** of the above registration procedure. The data will be rewritten.
To erase the data, proceed to step **3)**.

3) Press the custom folding registration key (1 or 2) registering the data to be erased until the buzzer sounds "pi.pi..." (press for about two seconds), and then continue pressing for another two seconds until the buzzer sounds "pi...". (Total four seconds)
When the registered data is erased, the single folding lamp will light up.

18 **Press the numerical keys to enter the number of sheets to be processed. (Skip this step if using the add-count counter.)**

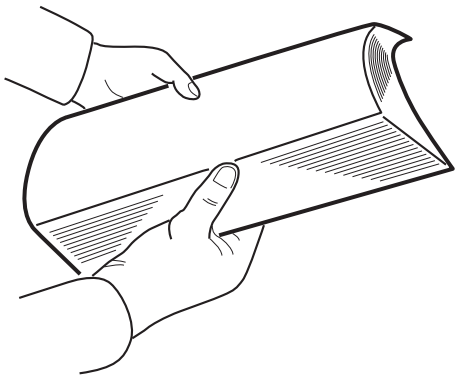
19 **Press the start key to start folding.**

Ref. **For details of steps 18 and 19, refer to "1-3. Operation Procedure" in Chapter 2 BASIC OPERATION "1. STANDARD FOLDING OF STANDARD PAPER" (☞p.2-8).**

3. USING SPECIAL PAPER

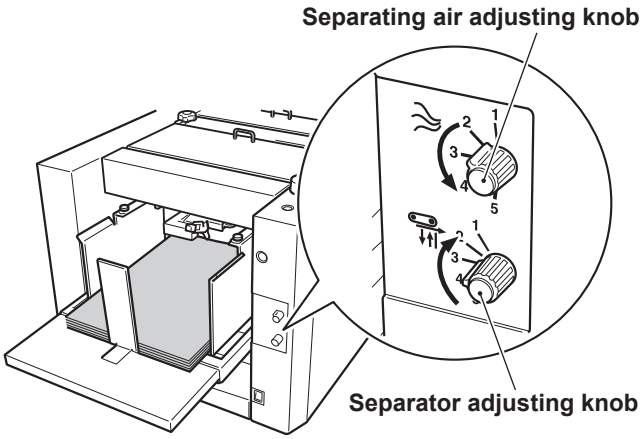
3-1. Art Paper, Coated Paper

● Fan the paper well before stacking.

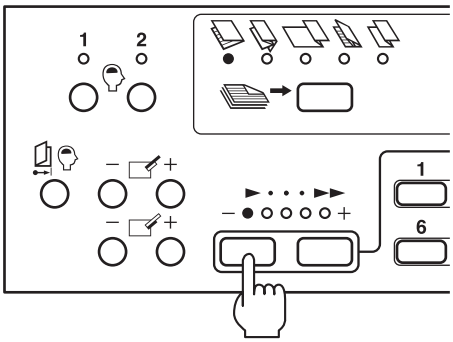


● Set the separating air adjusting knob to a larger value.

● Set the separator adjusting knob to a smaller value.



● If the paper is folded abnormally, lower the processing speed.
If paper feed error occurs and it cannot be correct by the above two adjusting knobs and level sensor adjusting lever, lower the processing speed.

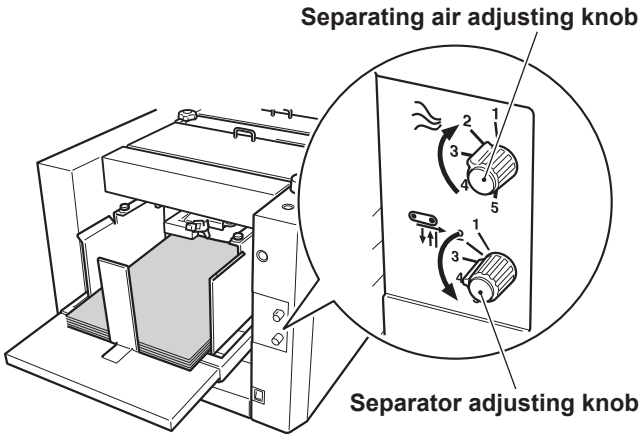


3-2. Recycled Paper

● Fan the paper well before stacking.

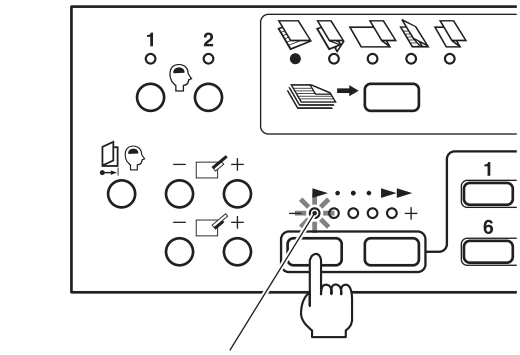
● Set the separating air adjusting knob to a smaller value.

● Set the separator adjusting knob to a larger value.



● Set the processing speed to a low speed.

Important **If paper feed error occurs frequently, set the processing speed slower than speed 1. Press and hold the "–" speed key for more than three seconds with the speed 1 lamp lit. This lamp will start blinking.**



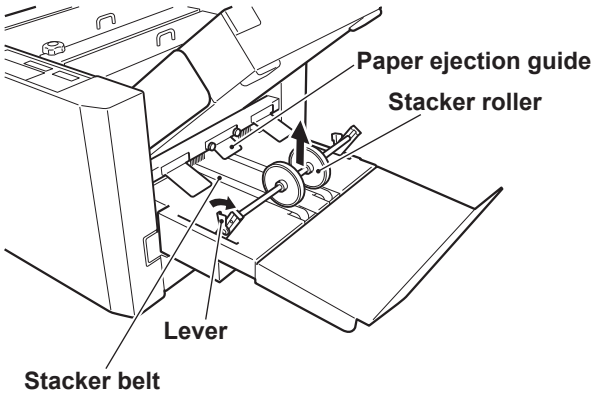
3-3. STMT Size Paper

Paper may jam more easily at the stacker roller according to the paper thickness, type, and folding mode. Perform the following procedure if paper jams frequently.

1 **Loosen the two knob screws and remove the paper ejection guide.**

2 **Change the stacker roller height.**

Ref. **Chapter 4 TROUBLESHOOTING "2-2. Changing the Stacker Roller Height" (☞p.4-14)**



3 **Set the operations of the stacker belt to "CONTINUOUS" at the function setting mode screen.**

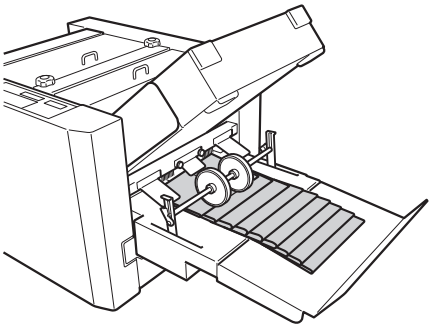
Ref. **"4-7. Stacker Belt Setting" (☞p.3-20)**

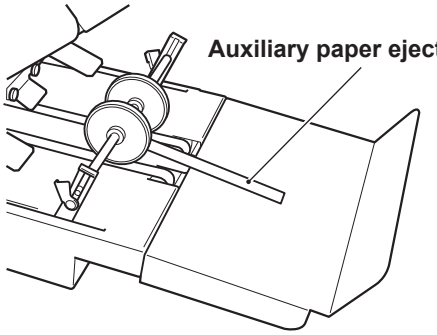
```
< STACKER BELT >
     CONTINUOUS
```

4 **After completing folding operations, be sure to return the places changed in steps 1 to 3 to their original state.**

Depending on the paper thickness, type, and folding mode, the ejected paper may not be aligned and stacked neatly on the paper receiving tray.
If paper alignment is poor, hook the auxiliary paper ejection guide to the stacker roller shaft.

<Example of paper stacked neatly>





Note **To remove the paper ejected with the auxiliary paper ejection guide mounted, lift the guide edge or remove the guide first.**

4. FUNCTION SETTING MODE

The function setting mode is a function for shortening the operation procedure or adjusting according to the paper used based on the purpose of the user.

The function setting mode consists of the following eight types.

No.	Mode	Purpose	Default setting
1	Non-standard paper length setting	Set and register the paper length when standard folding non-standard paper.	OFF
2	Operation mode setting	Setting for shortening the operation procedure. Select from three modes “NORMAL”, “LAST TIME FOLD”, and “STOPPER FIXED”.	NORMAL
3	Interval setting	Setting this setting to ON repeatedly pauses operations for every specified number of sheets and restarts operations after several seconds. The pause time can be selected from “3 SEC”, “5 SEC”, and “10 SEC”.	OFF
4	Separating air strength setting	The separating air volume can be selected from “NORMAL” and “LIGHT” according to the paper thickness.	NORMAL
5	Paper feed interval setting	The processing speed for single fold, double fold, and letter fold of standard paper can be selected from “FAST”, “NORMAL”, and “SLOW”.	NORMAL
6	Stacking amount setting	The volume of paper stacked on the paper feed tray can be selected from “HIGH”, “NORMAL”, “LOW”.	HIGH
7	Stacker belt setting	Select the operations of the stacker belt from two modes “NORMAL” and “CONTINUOUS”.	NORMAL
8	Thick paper stopper correction setting	The correction value of the folding stopper positions of the folding plates can be changed for thick paper. Select “NOT CORRECTED” or “CORRECTED”.	NOT CORRECTED

The No. 1 registered data of paper length will be preserved even after the power is turned off when the No. 2 operation mode setting is set to last time fold mode.
The No. 2, 4 to 8 settings will be preserved even after the power is turned off.
The No. 3 setting will be erased when the power is turned off.

4-1. Non-standard Paper Length Setting

Set and register paper length in this mode when using non-standard paper.

For details, refer to “1. STANDARD FOLDING OF NON-STANDARD PAPER” (☞p.3-2).

4-2. Operation Mode Setting

Setting to the last time fold mode or folding stopper fixed mode enables setting operations after power ON to be omitted, thus shortening the time to the start of work. At shipment, this is set to the normal mode.

(1) Last time fold mode

Function which starts the unit at the settings used the last time when the power is turned ON. When set to this mode, the following will be set automatically at power ON.

To correct the folding stopper position and save the data, be sure to register the corrected data. Otherwise, the corrected data will be erased when the power is turned OFF.

Setting	Last time fold mode	Normal mode
Paper size	● Standard paper is automatically detected. ● When non-standard paper length is registered, the registered data is set.	● Standard paper is automatically detected. ● When using non-standard paper, the paper length must be registered.
Folding mode	Set to the folding mode when the power was turned OFF.	Single folding
Stacker roller position	Set to the position when the power was turned OFF.	Default setting
Processing speed	Set to the speed when the power was turned OFF.	Set to the speed when the power was turned OFF.

(2) Folding stopper fixed mode

Mode for omitting settings of the control panel when folding paper under the same conditions at all times. When set to this mode, the folding stopper position, stacker roller position, and processing speed will be fixed. Therefore initial settings of the unit will be omitted when the power is turned ON, enabling folding to be started immediately.

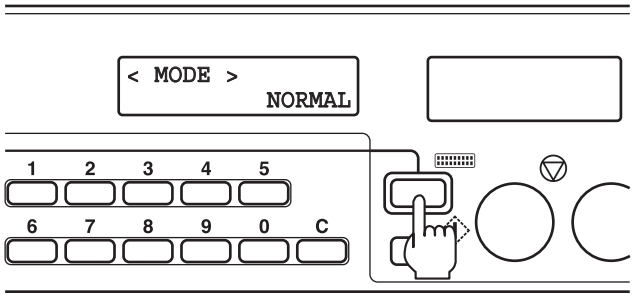
- **When set to this mode, the folding mode, processing speed, stacker roller position cannot be selected. Before setting this mode, perform test folding in the "normal mode" and fix the folding stopper position, processing speed, and stacker roller position.**
- **To correct the folding stopper position and save the data, be sure to register the corrected data. Otherwise, the corrected data will be erased when the power is turned OFF.**
- **When set to this mode, the standard folding lamp and custom folding registration lamp will not be lit.**

The following shows the recommended operation modes by purpose. Change the operation mode according to purpose.

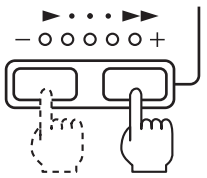
<Example of purpose>	<Recommended operation mode>
● When the paper size and folding mode differs each time ● When various people use the machine	**Normal mode (Default setting)**
When the paper size and folding mode are always more or less the same, but want to change it occasionally	**Last time fold mode**
When the paper size and folding mode are the same every time, and want to start operations immediately after power ON	**Folding stopper fixed mode**

The following shows how to set the last time fold mode and folding stopper fixed mode.

1 Press the mode key and select "MODE".



2 Press the speed key and select "LAST TIME FOLD" or "STOPPER FIXED".



<When last time fold mode>

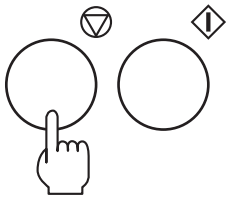
```
< MODE >
  LAST TIME FOLD
```

<When folding stopper fixed mode>

```
< MODE >
   STOPPER FIXED
```

3 Press the stop key and register the setting.

When set to the last time fold mode, "REF" appears at the bottom of the LCD.
When set to the folding stopper fixed mode, "FIX" appears at the top of the LCD.



<When last time fold mode>

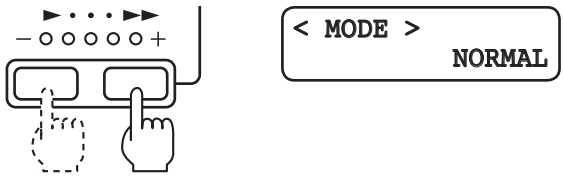
```
LTR   .000/ .000
STAND BY   REF
```

<When folding stopper fixed mode>

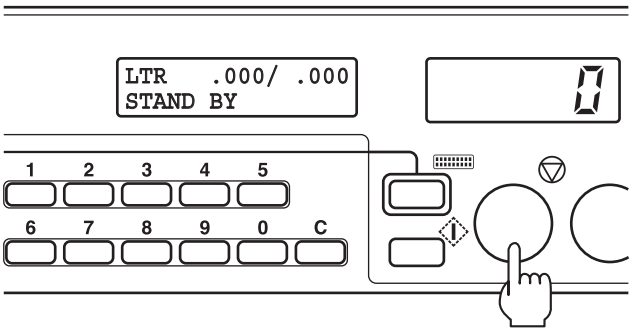
```
FIX    5.50/0.00
STAND BY
```

<Returning to the normal mode>

1) Press the mode key and select “MODE”, and then select “NORMAL” using the speed key.



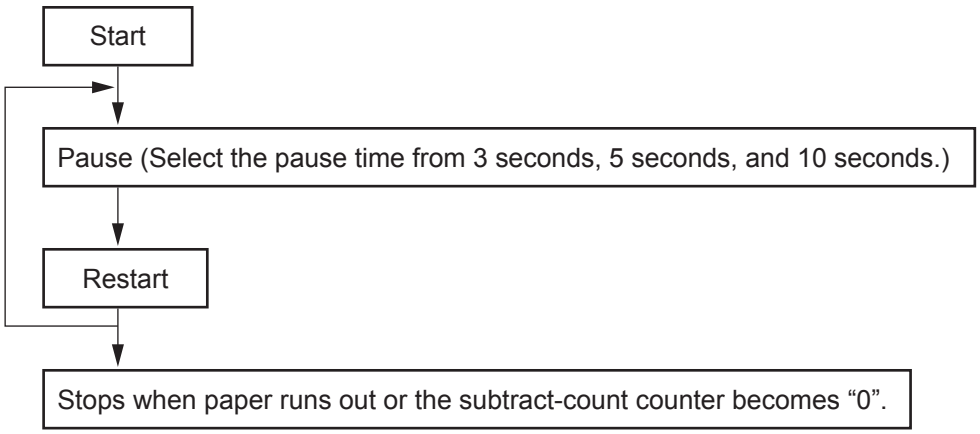
2) Pressing the stop key switches to the normal mode, and “REF” or “FIX” on the LCD disappears.



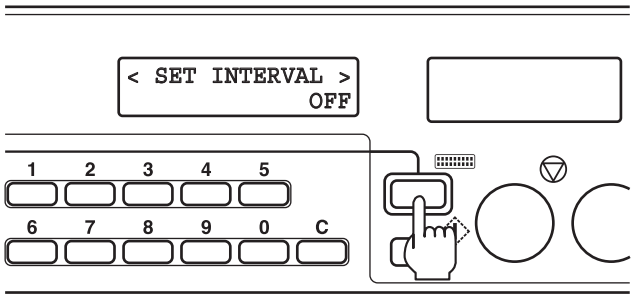
4-3. Interval Setting

When this setting is set to ON, the unit will automatically repeat pause and restart at the specified number of sheets as shown in the figure below. At shipment, this is set to “OFF”.

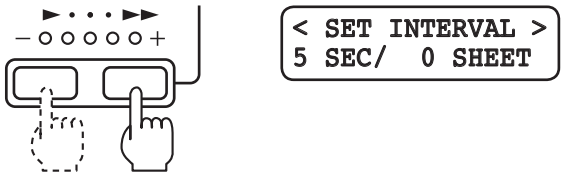
<Example> To remove ejected paper from the paper receiving tray or changing the direction of the paper placed during pause



1 **Press the mode key and select “SET INTERVAL”.**

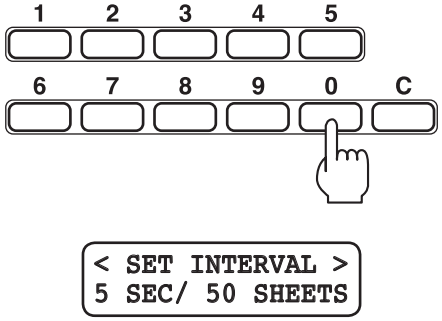


2 **Press the speed key and select the pause time from “3 SEC”, “5 SEC”, or “10 SEC”.**

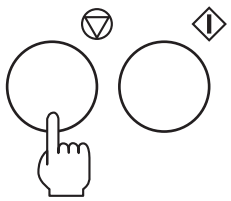


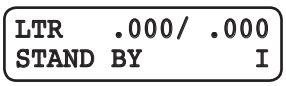
3 **Enter the number of sheets to be processed until the unit pauses using the numerical keys.**

The number of sheets is shown on the LCD.
The number of sheets which can be entered ranges from 1 to 999.



4 Press the stop key and register the setting.



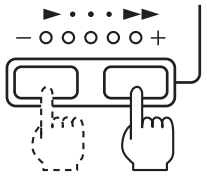


"I" is displayed at the bottom of the LCD.

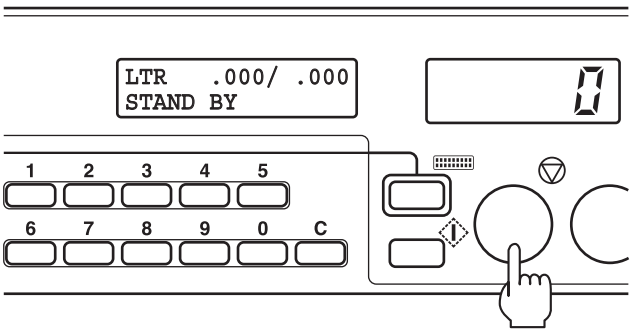
Note **The setting is erased when the power is turned OFF.**

<Returning setting to "OFF">

1) Press the mode key and select "SET INTERVAL", and then select "OFF" using the speed key.



2) Pressing the stop key clears the setting and "I" on the LCD disappears.

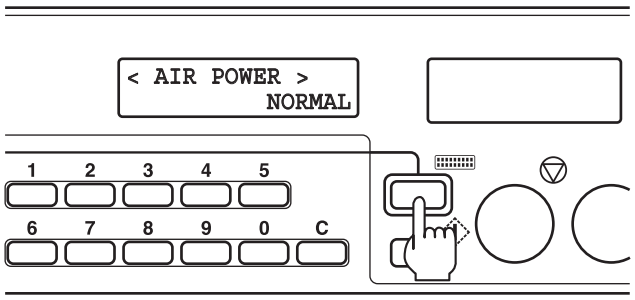


4-4. Separating Air Strength Setting

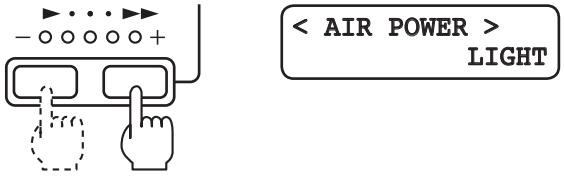
Function for adjusting the air amount for separating paper. At shipment, this is set to “NORMAL”.

<Example> To weaken the air as paper feed error occurs frequently when thin paper or small paper is used

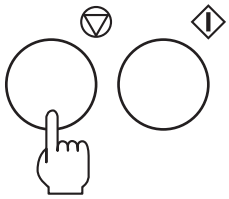
1 **Press the mode key and select “AIR POWER”.**



2 **Press the speed key and select “LIGHT”.**

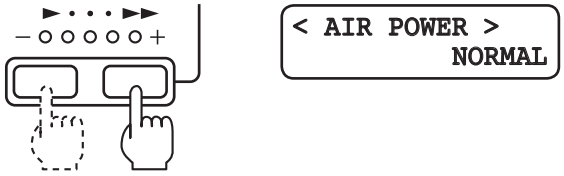


3 **Press the stop key and register the setting.**

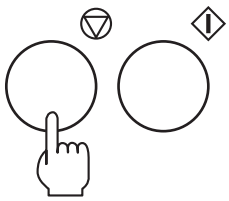


<Returning setting to “NORMAL”>

1) Press the mode key and select “AIR POWER”, and then select “NORMAL” using the speed key.



2) Press the stop key and switch the setting to “NORMAL”.

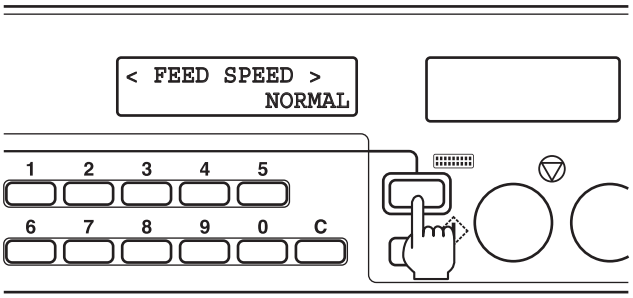


4-5. Paper Feed Interval Setting

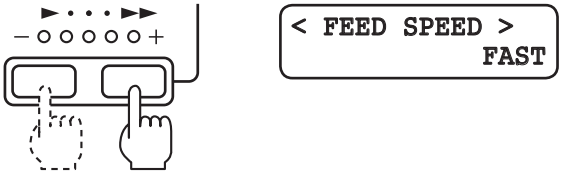
Function for changing the processing speed when single folding, double folding, or letter folding standard paper. At shipment, this is set to “NORMAL”.

<Example>
- To raise the processing speed when the paper used and folding mode are restricted to the above three types (This setting is valid only when the speed 5 lamp is blinking. Refer to **“1-3. Operation Procedure” in Chapter 2 BASIC OPERATION “1. STANDARD FOLDING OF STANDARD PAPER” (☞p.2-6)**.)
- To lower the processing speed to prevent paper jamming and paper feed errors

1 Press the mode key and select “FEED SPEED”.

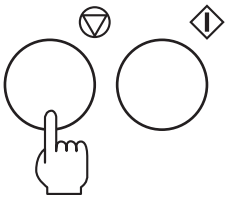


2 Press the speed key and select “FAST” or “SLOW”.



important The “FAST” setting is valid only when the speed 5 lamp is blinking. (Refer to “1-3. Operation Procedure” in Chapter 2 BASIC OPERATION “1. STANDARD FOLDING OF STANDARD PAPER” (☞p.2-6).)

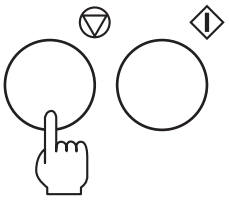
3 Press the stop key and register the setting.



<Returning setting to “NORMAL”>

1) Press the mode key and select “FEED SPEED”, and then select “NORMAL” using the speed key.

2) Press the stop key and switch the setting to “NORMAL”.



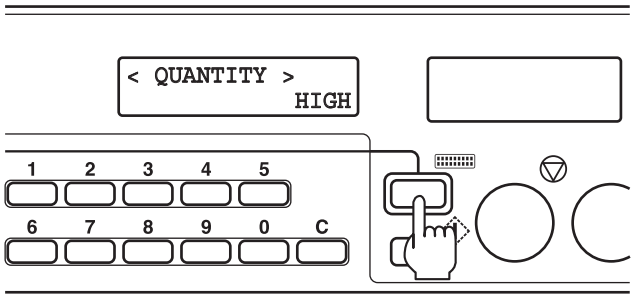
4-6. Stacking Amount Setting

Function which changes the amount of paper stacked on the paper feed tray in three levels. The distance descended by the paper feed tray when paper runs out changes according to the setting. At shipment, this is set to “HIGH”.
The number of sheets stacked for each setting is as follows for fine quality paper 22 lb or equivalent.

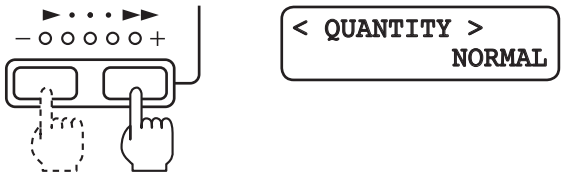
“HIGH” : 1000 sheets
“NORMAL” : 600 sheets
“LOW” : 300 sheets

<Example> To decrease the amount stacked when the number of sheets used for one folding operation is little and folding is to be carried out while changing the paper type

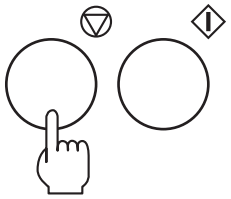
1 **Press the mode key and select “QUANTITY”.**



2 **Press the speed key and select “NORMAL” or “LOW”.**

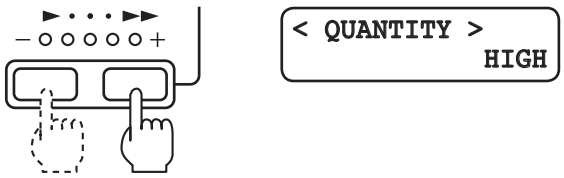


3 **Press the stop key and register the setting.**

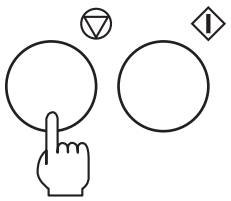


<Returning setting to “HIGH”>

1) Press the mode key and select “QUANTITY”, and then select “HIGH” using the speed key.



2) Press the stop key and switch the setting to “HIGH”.



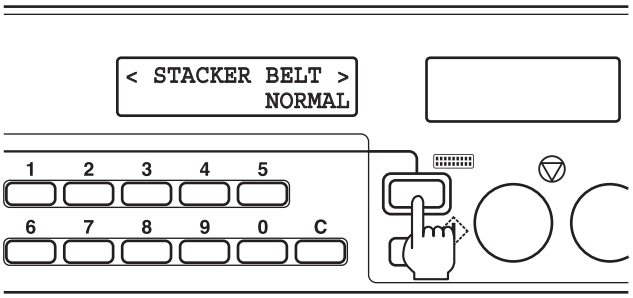
4-7. Stacker Belt Setting

Function for changing the operation mode of the stacker belt. At shipment, this is set to "NORMAL". At this time, the stacker belt operates according to the paper ejection timing.
The mode can be changed so the stacker belt operates continuously, according to the paper and folding mode.

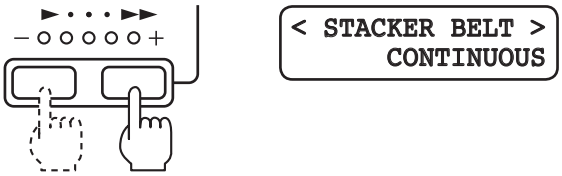
<Example> If paper is not ejected neatly or paper jams frequently at the stacker roller when double folding STMT size paper, etc., set so that the stacker belt operates continuously.

When switching to "CONTINUOUS", change the stacker roller height to the top and remove the paper ejection guide. If the setting has been returned to "NORMAL", return the stacker roller and paper ejection guide to their original positions. (Refer to "3-3. STMT Size Paper" (☞p.3-10).)

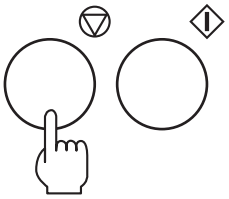
1 **Press the mode key and select "STACKER BELT".**



2 **Press the speed key and select "CONTINUOUS".**

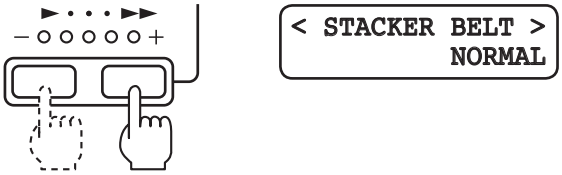


3 **Press the stop key and register the setting.**

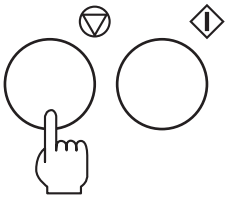


<Returning setting to "NORMAL">

1) Press the mode key and select "STACKER BELT", and then select "NORMAL" using the speed key.



2) Press the stop key and switch the setting to "NORMAL".



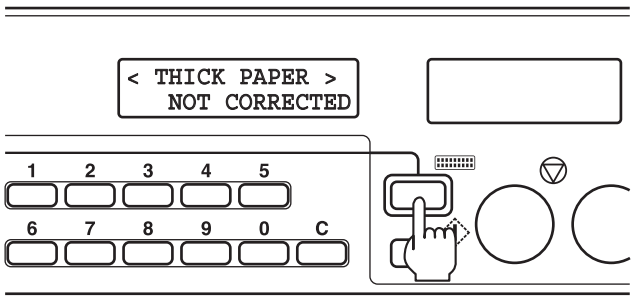
4-8. Thick Paper Stopper Correction Setting

Setting this setting to “CORRECTED” correct the folding stopper positions of both folding plates 1 and 2 by +0.02". At shipment, this is set to “NOT CORRECTED”.

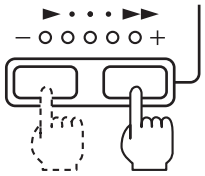
<Example> When using thick paper, it is often necessary to correct the folding stopper position to the + direction. In such cases, correction of +0.02" may be possible without using the folding stopper adjusting key.

Important **Even if set to “CORRECTED”, folding misalignment may occur due to such conditions as using environment (temperature, humidity), paper thickness, paper type, paper state, and processing speed. In this case, refer to Chapter 4 TROUBLESHOOTING “1-2. Correcting Folding Misalignment Along Vertical Length of Paper” (☞p.4-5).**

1 Press the mode key and select “THICK PAPER”.

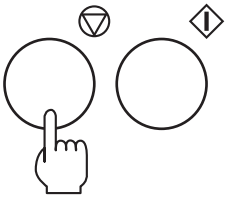


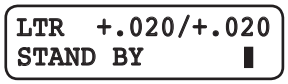
2 Press the speed key and select “CORRECTED”.



3 Press the stop key and register the setting.

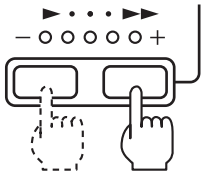
“▮” mark is displayed at the bottom of the LCD.



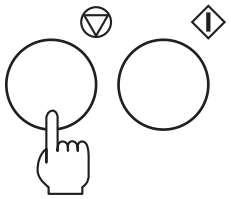


<Returning setting to “NOT CORRECTED”>

1) Press the mode key and select “THICK PAPER”, and then select “NOT CORRECTED” using the speed key.



2) Press the stop key and switch the setting to “NOT CORRECTED”.



Memo

Chapter 4

TROUBLESHOOTING

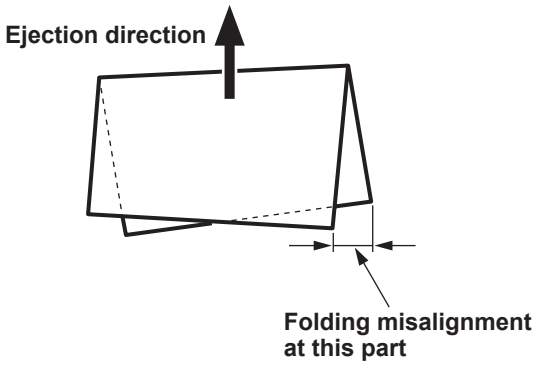
1. CORRECTING FOLDING MISALIGNMENT

Folding misalignment consists of “folding misalignment along the sides of the paper” and “folding misalignment along the vertical length of the paper”.
Other than this, “deformed folding” may also occur due to paper characteristics, etc.

1-1. Correcting Folding Misalignment Along Sides of Paper

Note **Before correcting, check that the skew roller spring pressure adjusting knobs are set at the same position for the left and right sides. If their positions differ, folding misalignment may occur. (Refer to (3) Using the skew roller spring pressure adjusting knob (☞p.4-4).)**

When the folded paper is misaligned along the sides as shown in the figure, correct the folding misalignment using the side guide adjusting knob and skew correction knob.



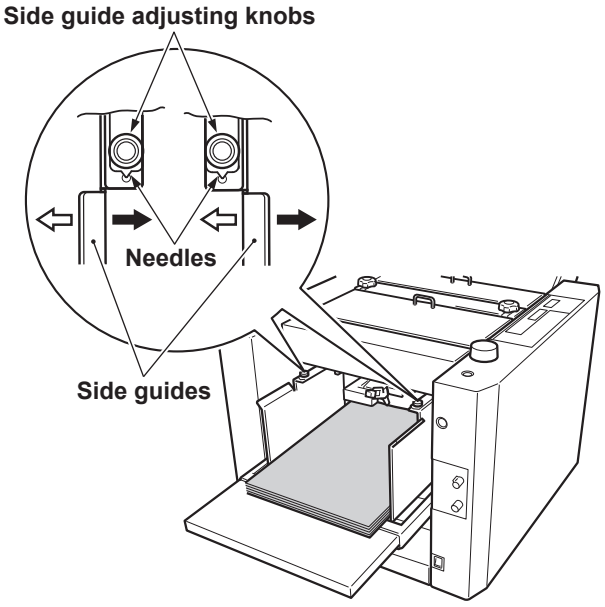
(1) Adjusting the side guide adjusting knob

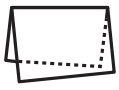
1 **Loosen the side guide adjusting knobs.**

2 **Move the side guides by hand according to the folding misalignment direction.**

Refer to the position of the adjusting knob needle for the adjusting amount.

Note **Always move the left and right side guides in the same direction.**



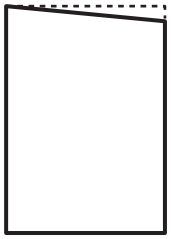
	Folding misalignment A	Folding misalignment B
		
Moving direction of side guide		
Example of adjusting knob needle position		

3 **Tighten the side guide adjusting knobs and secure the side guides.**

4 **Perform test folding and check that the folding misalignment has improved.**

If folding misalignment is not improved due to trimming misalignment, perform **(2) Adjusting the skew correction knob**.

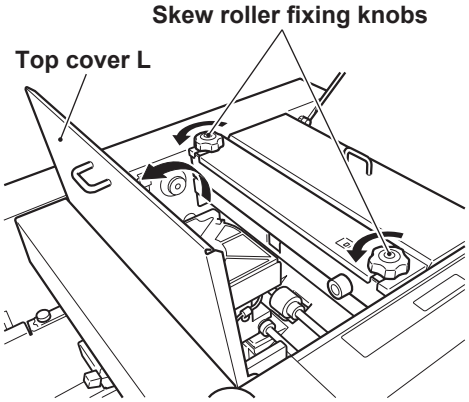
<Trimming misalignment of paper>



(2) Adjusting the skew correction knob

1 **Loosen the skew roller fixing knobs.**

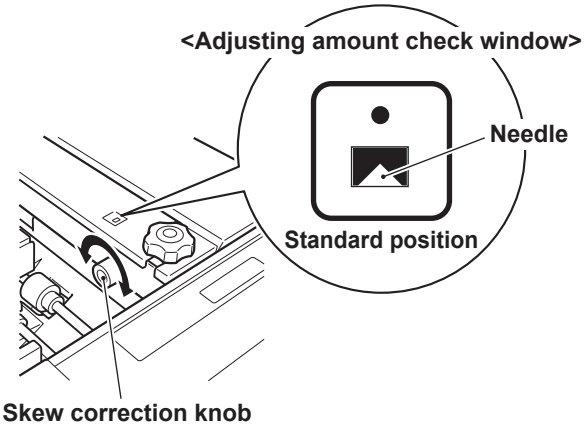
2 **Open the top cover L.**



3 **Rotate the skew correction knob according to the folding misalignment direction.**

Refer to the position of the check window needle shown in the figure for the adjusting amount.

	Folding misalignment C	Folding misalignment D
Rotating direction of knob		
Example of check window needle position		



4 **Close the top cover L.**

5 **Tighten the skew roller fixing knobs.**

6 **Perform test folding and check that the folding misalignment has improved.**

Note **After completing folding operations, be sure to return the needle back to the standard position.**

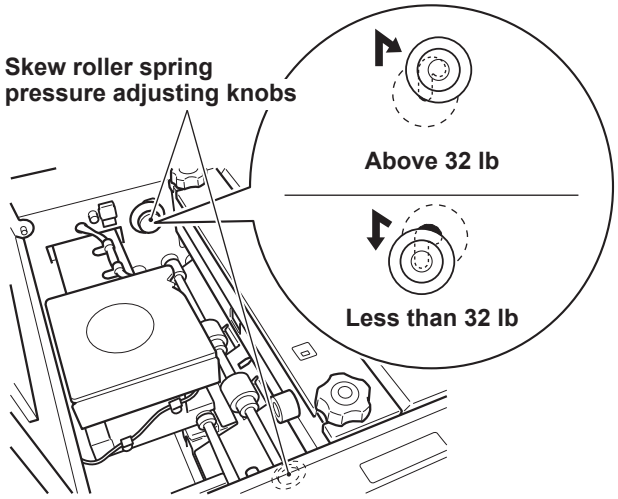
(3) Using the skew roller spring pressure adjusting knob

1 **Open the top cover L.**

2 **Switch the position of the adjusting knob according to the paper thickness.**

Set to the “top” position when using fine quality paper above 32 lb and to “bottom” position when using paper thinner than this. However switch while checking the folding misalignment.

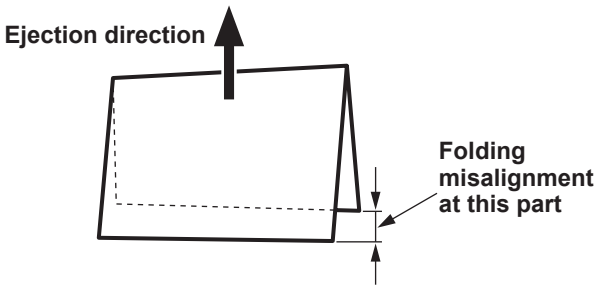
Note **Be sure to set the left and right knobs at the same position.**



3 **Close the top cover L.**

1-2. Correcting Folding Misalignment Along Vertical Length of Paper

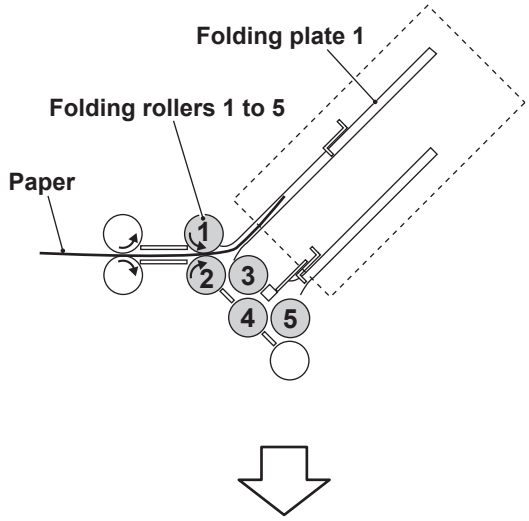
When the folded paper is misaligned along the vertical length as shown in the figure, adjust the positions of the folding stoppers of folding plates 1 and 2 to correct the misalignment.



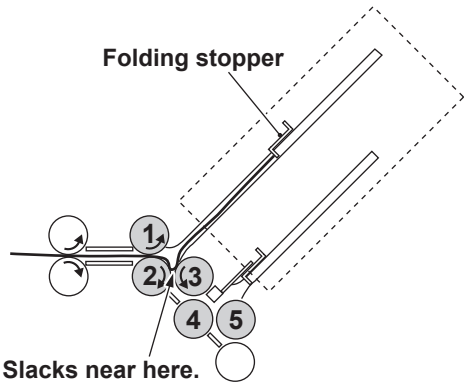
(1) Folding misalignment correction mechanism

This following describes single folding as an example.
The flow of paper and movements of the folding section when single folding is shown below. In single folding, folding plate 2 is not used.

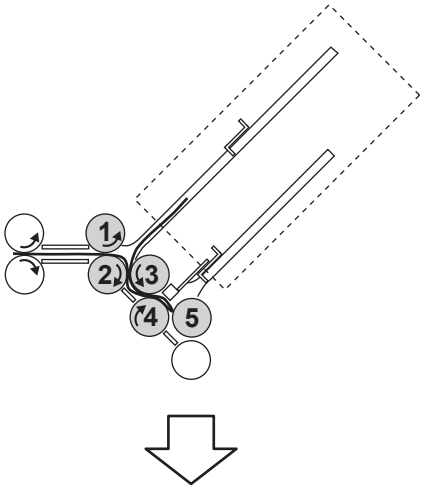
1) Paper enters folding plate 1.



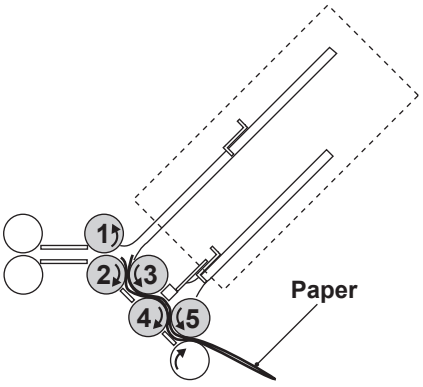
2) Paper contacts folding stopper and slacks near folding rollers 2 and 3.



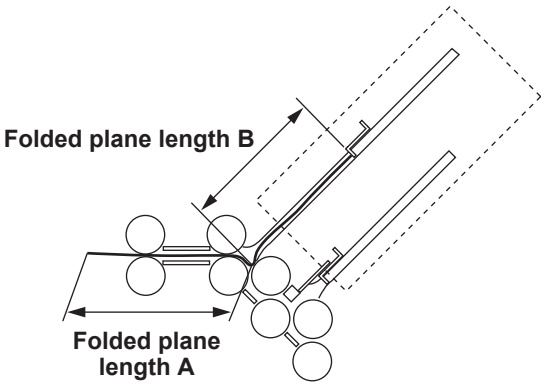
3) Folding rollers 2 and 3 sandwich slackened paper and send to folding rollers 4 and 5.

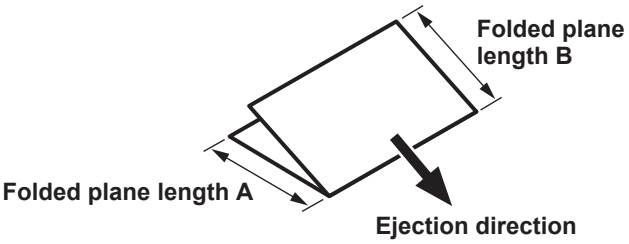


4) Single-folded paper is ejected out.



Length A of the folded plane is the length from the trail edge of the paper to the center of paper slack.
Length B of the folded plane is the length from the center of paper slack to the folding stopper.
Therefore by changing the position of the folding stopper, length B of the folded plane can be adjusted.



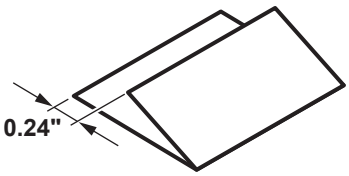


(2) Correcting single fold

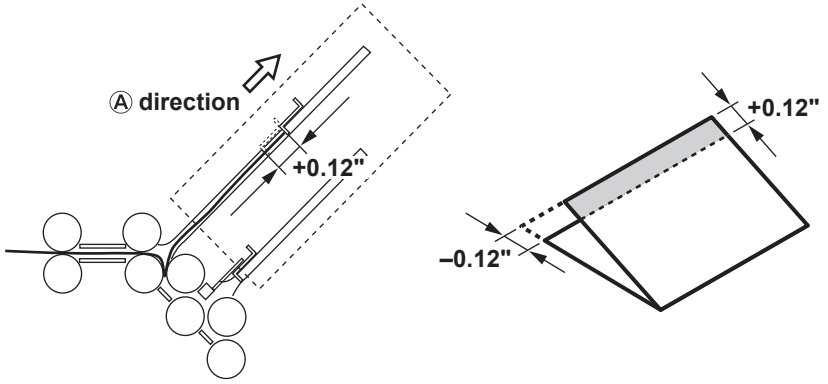
Adjust the length of single folded plane using the “+” or “–” key of the folding plate 1 folding stopper adjusting key.

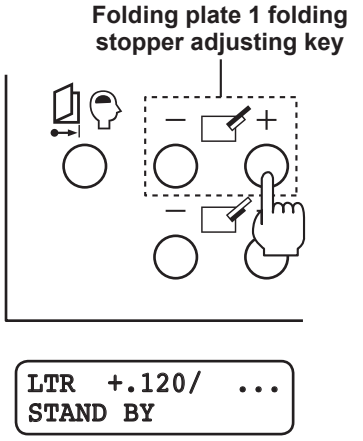
<Example 1>

When folded plane length B is 0.24" shorter than folded plane length A



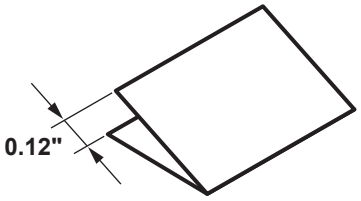
In this example, by increasing the folded plane length B by 0.12", A will become 0.12" shorter, and as a result, folding misalignment of 0.24" in total can be improved.
To increase B, press the “+” key and move the folding stopper in the Ⓐ direction **shown below**. To increase B by 0.12", press the “+” key until “+.120/ ...” appears on the LCD.



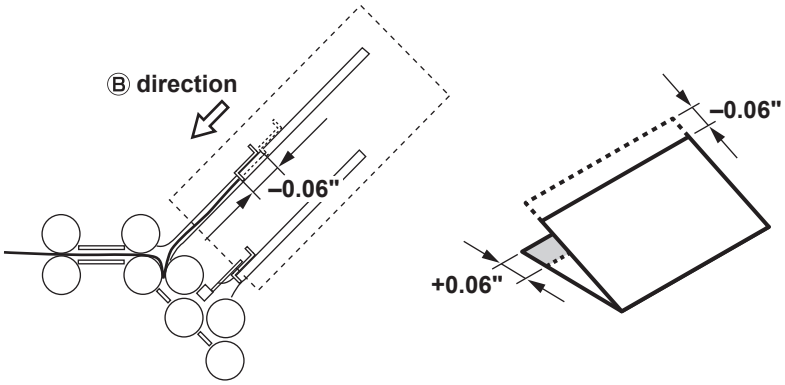


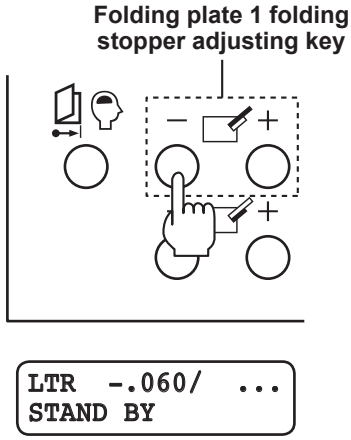
<Example 2>

When folded plane length B is 0.12" longer than folded plane length A



In this example, by shortening the folded plane length B by 0.06", A will become 0.06" longer, and as a result, folding misalignment of 0.12" in total can be improved.
To shorten B, press the "–" key and move the folding stopper in the Ⓑ direction **shown below**. To shorten B by 0.06", press the "–" key until "–.060/ …" appears on the LCD.



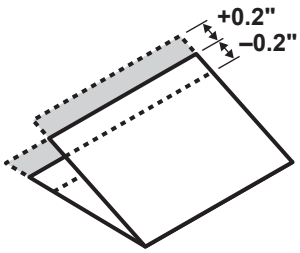


For details on the correction methods of other folding modes, refer to "(4) Correction method by folding mode" (☞p.4-9).

The corrected value can be registered for standard folding of standard paper. (Refer to "(5) Registering folding misalignment correction values" (☞p.4-10).)

(3) Correction range and restrictions

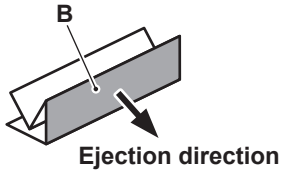
The correction range of standard folding is within ±0.2" (to folding misalignment of 0.4").



Important **For double fold and irregular accordion fold, the correction range may be restricted and cannot be corrected for some paper lengths. For details, refer to the following description.**

<Correction of folded plane B for double fold>

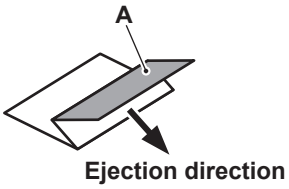
Paper length	Adjusting key restricted	Correction range
7.2" to 7.3"	"–" key of folding plate 2	Cannot correct
7.4" to 8.1"	"–" key of folding plate 2	*1
8.2" to 17.0"	No restriction	±0.2"



*1: The values which can be corrected vary in the –0.004" to –0.19" range according to the paper length.

<Correction of folded plane A for irregular accordion fold>

Paper length	Adjusting key restricted	Correction range
16.8" to 17.0"	"+" key of folding plate 1	*2
7.2" to 16.7"	No restriction	±0.2"



*2: The values which can be corrected vary in the +0.02" to +0.17" range according to the paper length.

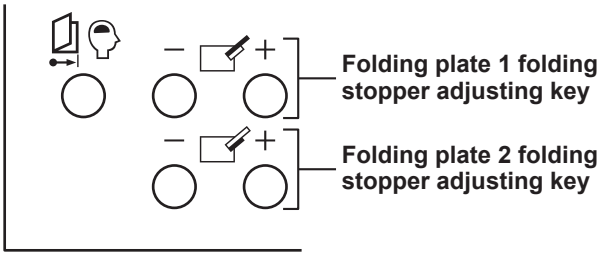
<Correction of folded plane B for irregular accordion fold>

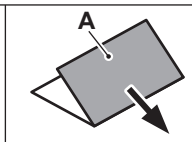
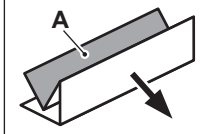
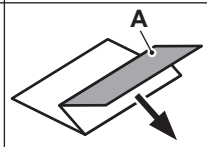
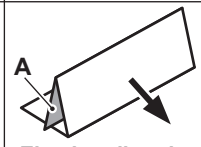
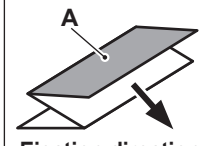
Paper length	Adjusting key restricted	Correction range
7.2" to 7.4"	"–" key of folding plate 2	Cannot correct
7.5" to 8.2"	"–" key of folding plate 2	*3
8.3" to 17.0"	No restriction	±0.2"

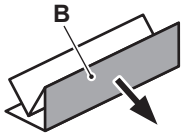
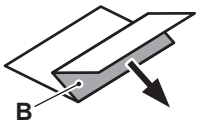
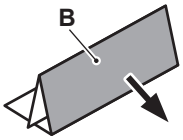
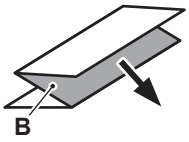
*3: The values which can be corrected vary in the –0.008" to –0.19" range according to the paper length.

(4) Correction method by folding mode

Correct folding misalignment using the folding stopper adjusting keys of folding plates 1 and 2 referring to the following table.



Adjusting key of folding plate 1			
Folding mode		State of folded plane A	Correction method
Single fold		A is long	Press the “–” key.
		A is short	Press the “+” key.
Double fold		A is long	Press the “–” key.
		A is short	Press the “+” key.
Irregular accordion fold		A is long	Press the “+” key.
		A is short	Press the “–” key.
Letter fold		A is long	Press the “–” key.
		A is short	Press the “+” key.
Accordion fold		A is long	Press the “+” key.
		A is short	Press the “–” key.

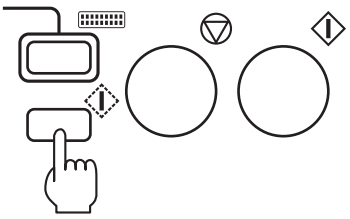
Adjusting key of folding plate 2			
Folding mode		State of folded plane B	Correction method
Single fold	∗ Folding plate 2 is not used in single folding.		
Double fold		B is long	Press the “–” key.
		B is short	Press the “+” key.
Irregular accordion fold		B is long	Press the “–” key.
		B is short	Press the “+” key.
Letter fold		B is long	Press the “–” key.
		B is short	Press the “+” key.
Accordion fold		B is long	Press the “–” key.
		B is short	Press the “+” key.

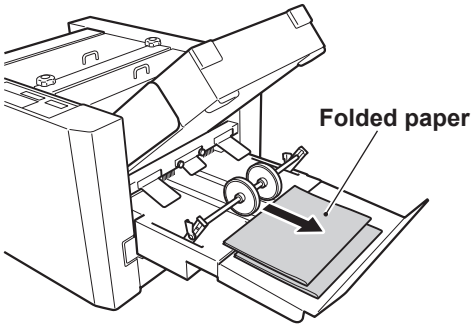
(5) Registering folding misalignment correction values

The adjustment value of folding misalignment along the vertical length of the paper can be registered using the adjustment registration key for each standard paper size and standard folding mode.
(5 standard paper sizes × 5 standard folding modes = 25 types of registrations are possible)

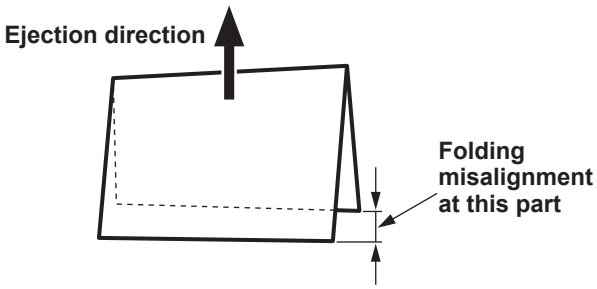
Note
- **The corrected value cannot be registered for standard folding of non-standard paper and custom folding.**
- **The registered correction data will be preserved even after the power is turned off.**

1 **Stack standard paper on the paper feed tray, select the standard folding mode, press the test key and start test folding.**

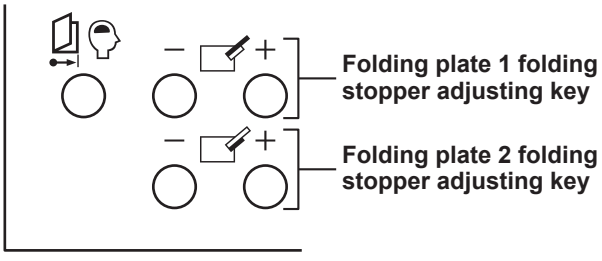




2 **Remove the second folded sample, and check for folding misalignment along the vertical length.**



3 **Using the folding stopper adjusting keys of folding plates 1 and 2, adjust the folded plane length.**

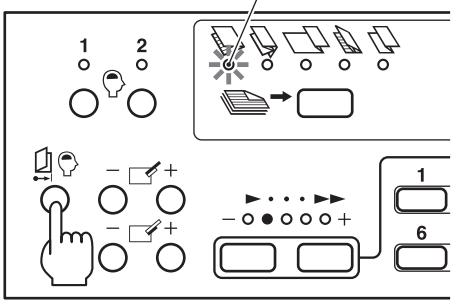


4 **Perform test folding again and check that folding misalignment has improved.**

5 **After adjusting folding misalignment, press the adjustment registration key until the buzzer sounds “pi.pi...”.**

When adjustment registration completes, the lamp of the folding mode selected stops lighting and starts to blink.

Blinking (End of adjustment registration)



<Changing/erasing adjustment registration data>

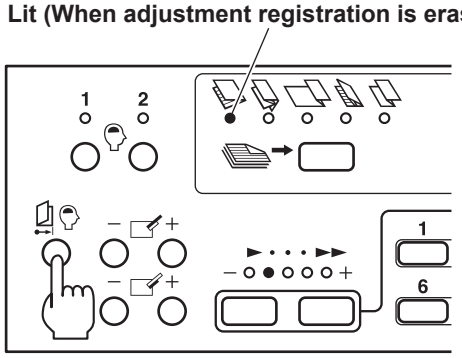
1) Set the paper size whose adjustment registration data is to be changed or erased.
   The paper need not be actually stacked on the paper feed tray, just move the side guides to this paper size using the side guide dial.

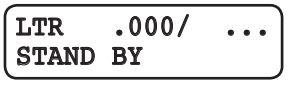
2) Use the folding mode key to select the folding mode whose adjustment registration data is to be changed or erased.

3) To change the registered data, perform steps **3** to **5** of the above registration procedure. The data will be rewritten.
   To erase the data, proceed to step **4)**.

4) Press the adjustment registration key until the buzzer sounds “pi.pi...” (press for about two seconds), and then continue pressing for another two seconds until the buzzer sounds “pi...”. (Total four seconds)
   When the registered data is erased, the selected folding mode lamp stops blinking and lights up, and the adjustment value displayed on the LCD changes to “.000/ .000”.

Lit (When adjustment registration is erased)

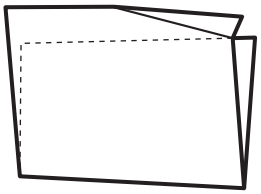




1-3. Correcting Deformed Folding

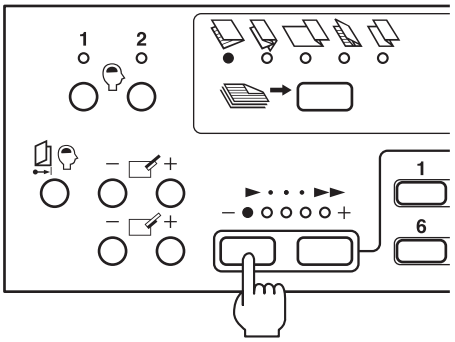
Check the following when deformed folding occurs.

<Example of deformed folding>

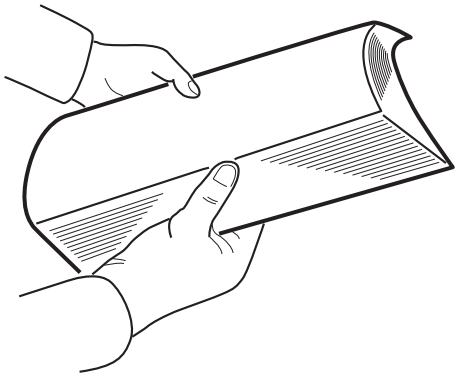


● Set the processing speed to a low speed.

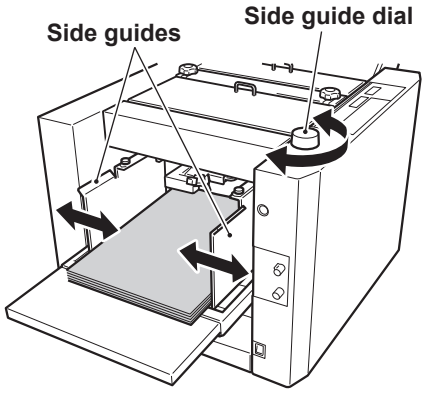
If paper feed error occurs frequently, set the processing speed slower than speed 1. Press and hold the "–" speed key for more than three seconds with the speed 1 lamp lit. This lamp will start blinking.



● Fan the paper well before stacking.



● Check that the side guides fit the paper width.



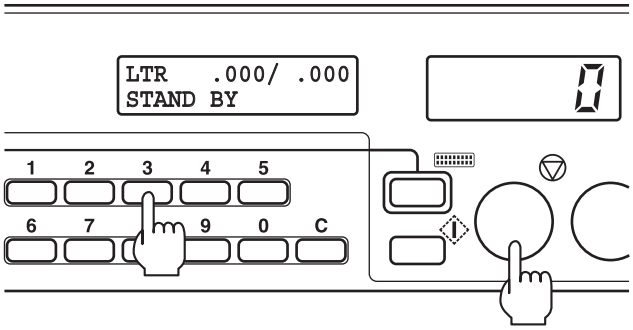
Do not use paper sizes other than those specified. This will cause not only deformed folding but the unit will also malfunction.

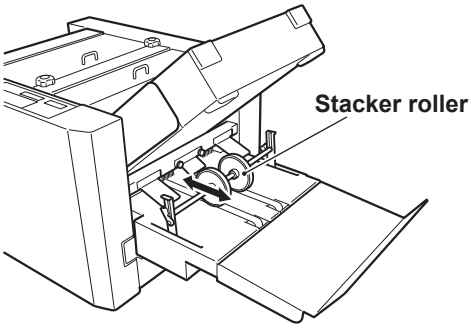
2. ADJUSTING THE STACKER ROLLER

2-1. Changing the Stacker Roller Position

The position of the stacker roller is automatically set in standard folding. However, if the alignment of paper ejected to the paper receiving tray is poor, change the position.

While pressing the stop key, press a numerical key between 1 and 7.





Refer to the following table for the position for setting the stacker roller according to the folded paper length.

Numerical key setting	Folded paper length	Applicable standard paper size and folding mode
1	*	LTR..... Accordion fold STMT..... Double fold
2	To 3.15"	LGR..... Double fold LGL..... Double fold LTR..... Double fold, letter fold STMT..... Irregular accordion fold, letter fold, accordion fold INV ..... Single fold, double fold, irregular accordion fold, letter fold, accordion fold
3	3.16" to 4.33"	STMT..... Single fold
4	4.34" to 5.51"	LGL..... Letter fold, accordion fold LTR..... Irregular accordion fold
5	5.52" to 6.69"	LGR..... Irregular accordion fold, letter fold, accordion fold LGL..... Irregular accordion fold LTR..... Single fold
6	6.70" to 8.27"	LGR..... Single fold LGL..... Single fold
7	8.28" to 9.84"	

* Use numerical key “1” if paper jams at the “2” position.

<Returning to position before change>

Press the numerical key 0 while pressing the stop key or change the folding mode.

Note **The above procedure returns to the default position only for the setting data. Pressing the test key or start key to start folding will move the stacker roller.**

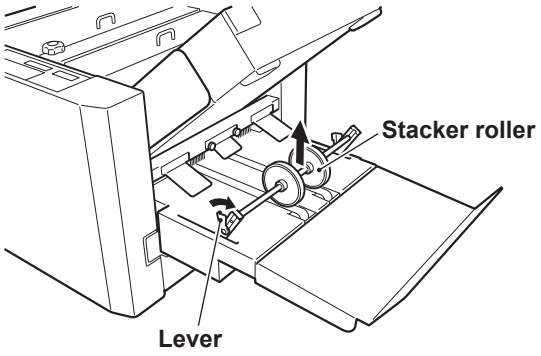
2-2. Changing the Stacker Roller Height

If paper jams frequently at the stacker roller in the use of thick paper, change the height of the stacker roller.

1 **Lift up the stacker roller.**

2 **Turn down the lever of the stacker support in the arrow direction.**

Note **After completing folding operations, be sure to return the stacker roller to the original position.**



3. WHEN PAPER JAMMING OCCURS

When paper jams and operations stop, the LCD will show the location of the jam.

"JAM FEED SECT" or **"FEED ERROR"** ➡ Near paper feed tray

Ref. **"3-1. When Paper Jams at Paper Feed Tray" (☞this page)**

"JAM INSIDE" ➡ Inside unit or near folding plate

Ref. **"3-2. When Paper Jams Inside Unit" (☞this page)**

"JAM EXIT" ➡ Near stacker unit

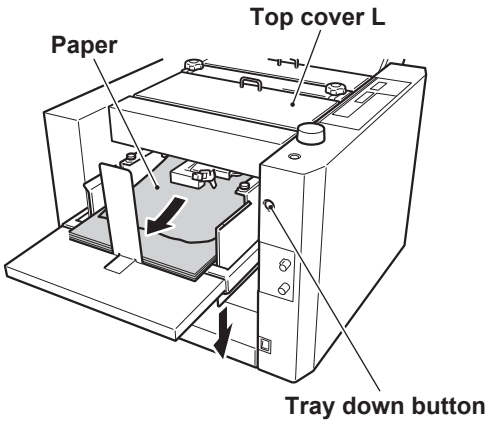
Ref. **"3-3. When Paper Jams at Stacker Unit" (☞p.4-18)**

3-1. When Paper Jams at Paper Feed Tray

1 **Press the tray down button to lower the paper feed tray.**

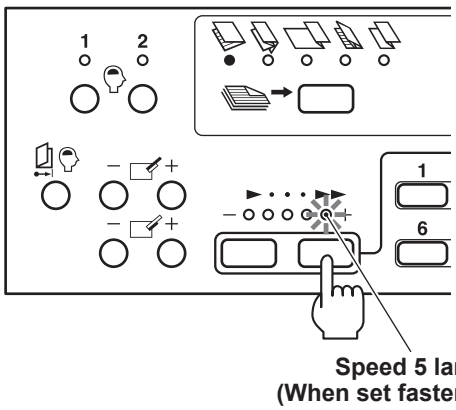
2 **Remove the jammed paper.**

If difficult to remove, open the top cover L and remove.

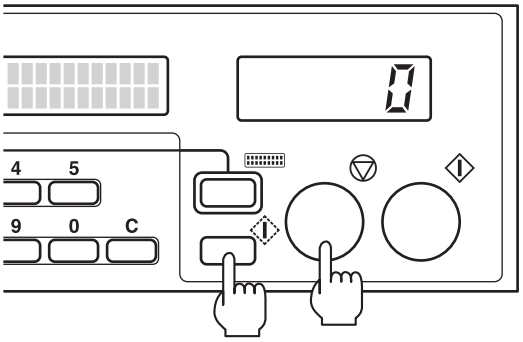


3-2. When Paper Jams Inside Unit

Important **If paper jams frequently inside the unit in the use of thick paper, after removing the paper, set the processing speed faster than speed 5. With the speed 5 lamp lit, press and hold the "+" speed key for more than three seconds, and the lamp will stop lighting and start blinking.**



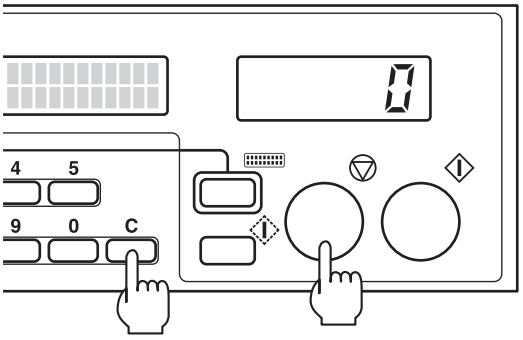
1 **Press the test key while pressing the stop key to forcibly eject the paper.**



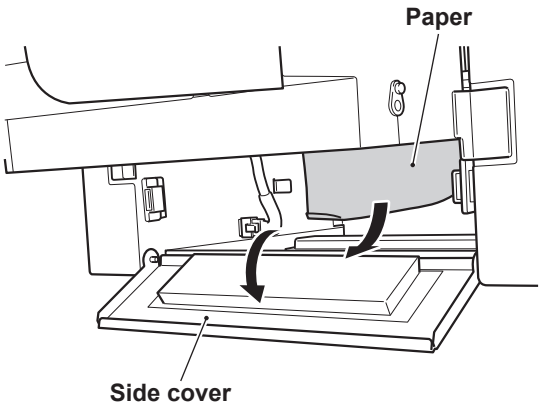
Note **If the error message "MOTOR ERROR 1" or "MOTOR 1 OVERLOAD" is displayed on the LCD without the unit moving, proceed to step 3, remove the folding plate and remove the paper.**

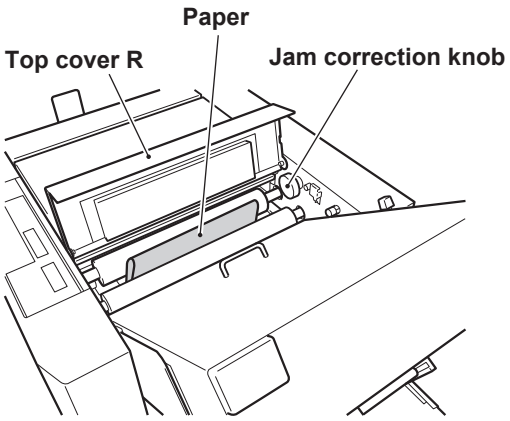
If no paper is ejected even by forced ejection, proceed to the following step.

2 **Press the clear key while pressing the stop key to forcibly eject the paper in the folding plate.**



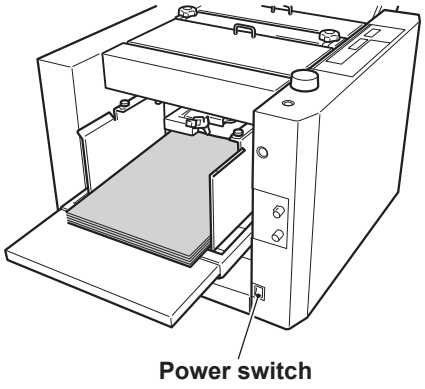
If no paper is ejected, open the side cover and top cover R, and remove any paper there.



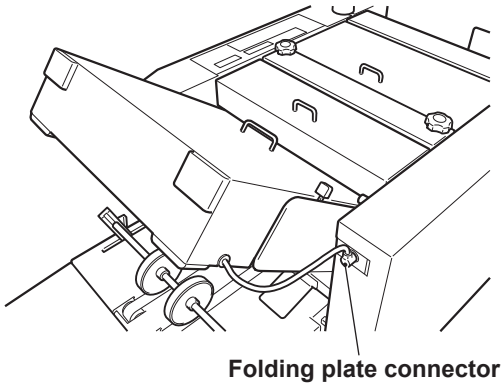


3 If paper near the folding rollers is difficult to remove, remove the folding plate according to the following procedure and remove the paper.

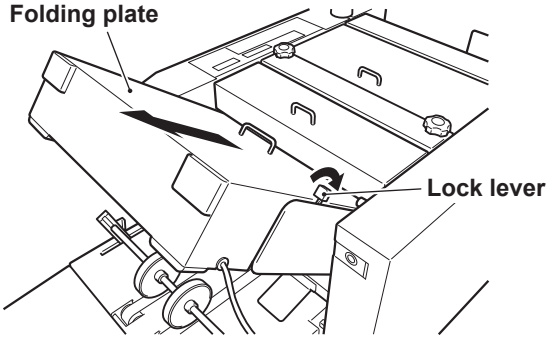
1) Turn OFF the power.



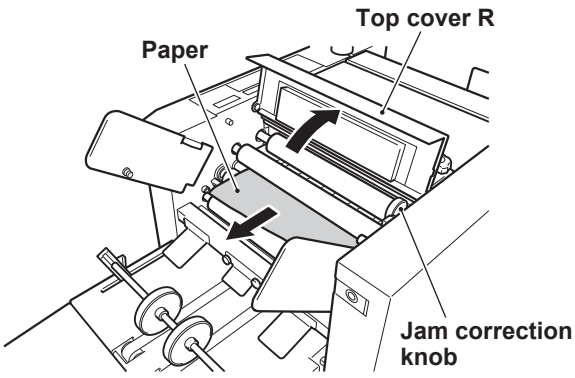
2) Disconnect the folding plate connector from the main body.



3) Turn the lock lever towards “UNLOCK” and remove the folding plate.



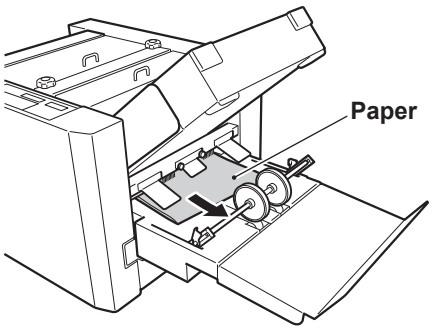
4) Open the top cover R, and while rotating the jam correction knob, remove the jammed paper.
Reinstall the folding plate by the reverse order of steps **2)** and **3)**.



Note **If the paper winds around the folding roller or the jam correction knob cannot be rotated easily, hold the edge of the paper and pull it out. Do not attempt to rotate the knob by force.**

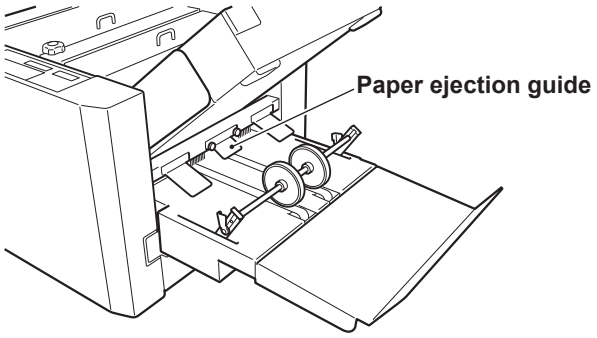
3-3. When Paper Jams at Stacker Unit

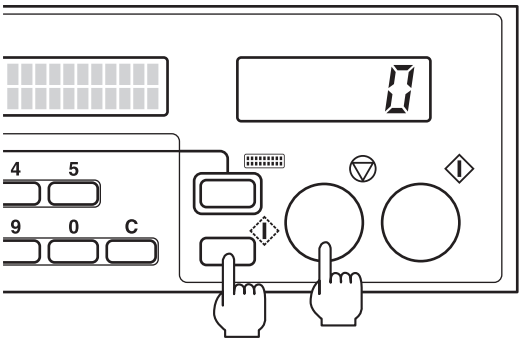
1 **Remove the paper jammed near the stacker roller.**



2 **If the paper is difficult to remove, perform the following procedure.**

1) Loosen the two knob screws and remove the paper ejection guide.
2) While pressing the stop key, press the test key and forcibly eject the paper.
3) Reinstall the paper ejection guide to its original position.





4. ERROR MESSAGES

When paper feed errors and malfunctions occur during operations, the jam location and other details are displayed on the LCD.
Likewise, details and instructions will be displayed when operation errors and key input errors occur.

4-1. Paper Jam Messages

The following error message will be displayed according to the jam location on the LCD.

“JAM FEED SECT”
“JAM INSIDE”
“JAM EXIT”

<Solution>
For details on removing jammed paper, refer to **“3. WHEN PAPER JAMMING OCCURS” (☞p.4-15)**.

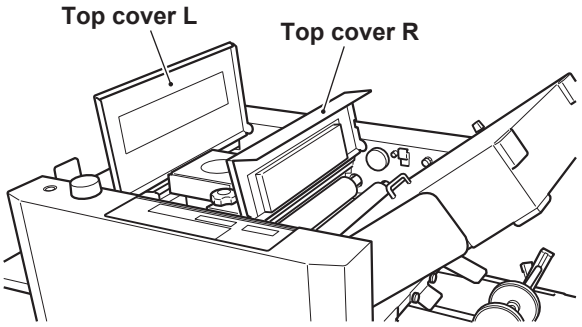
4-2. Operation Error Messages

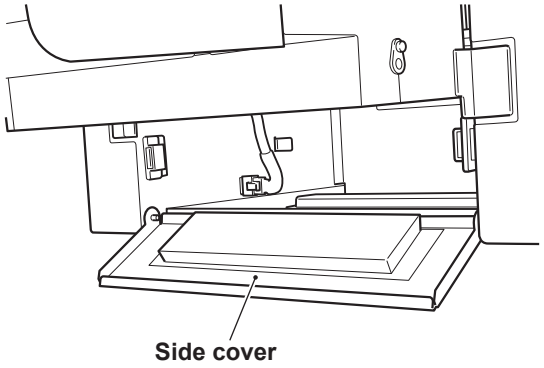
When covers are open or operations are not performed correctly, the following error messages will be displayed on the LCD.

(1) When covers are open

“TOP COVER-L OPEN”
“TOP COVER-R OPEN”
“SIDE COVER OPEN”

<Solution>
Close the cover.



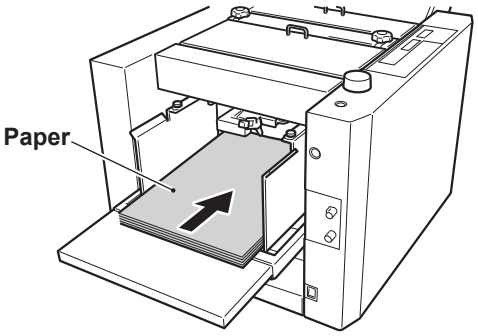


(2) When paper runs out on the paper feed tray

"NO PAPER"

<Solution>

Stack paper on the paper feed tray.



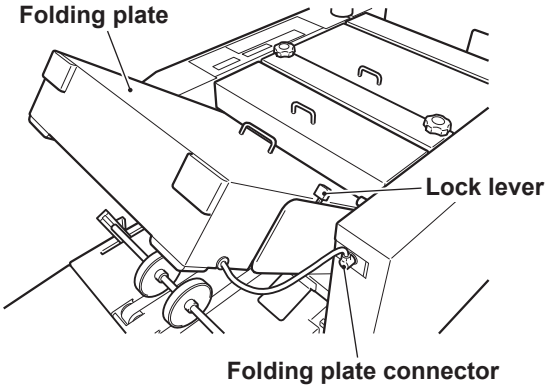
(3) When the folding plate is not set correctly

"F.PLATE SET ERR"

<Solution>

Set the folding plate again.

Ref. **"3-2. When Paper Jams Inside Unit" (☞p.4-15)**

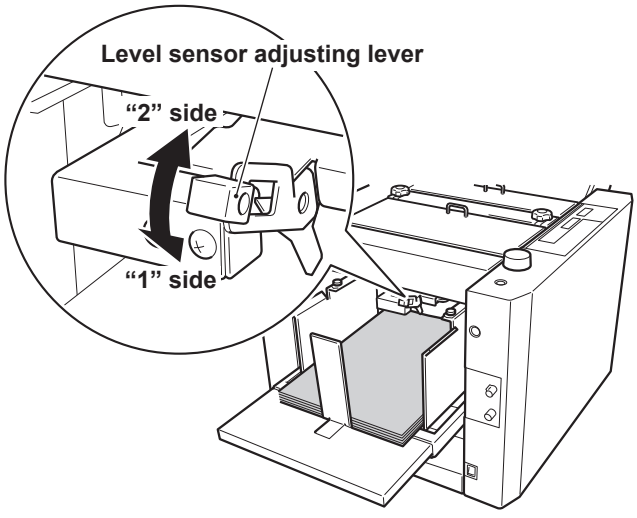


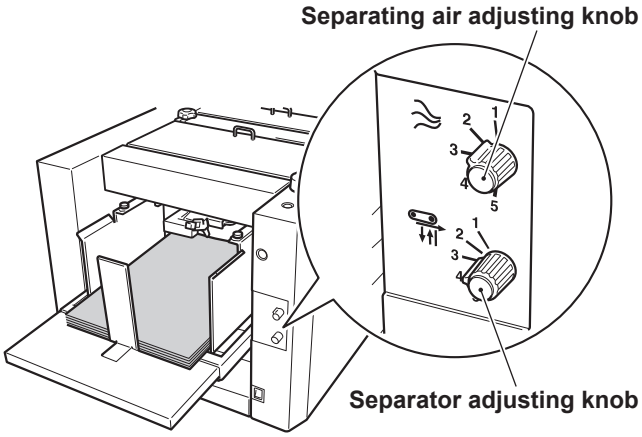
(4) When level sensor, separating air, and separator adjusting lever and adjusting knobs are not at their correct positions

"FEED ERROR"

<Solution>

Adjust the adjusting lever and the adjusting knobs according to the paper type.
Adjust the height of the separator while checking its distance from the suction belt.





4-3. Key Input Error Messages

When setting non-standard paper length, folding stopper position during custom folding, and folding misalignment adjustment values, entering a value exceeding the scope of specifications displays the following error messages on the LCD.

“TOO SHORT”
“TOO LONG”
“OUT OF CORRECT”

<Solution>

Enter a value within the scope of specifications.
For details, refer to **“1. STANDARD FOLDING OF NON-STANDARD PAPER” (☞p.3-2)**, **“2. CUSTOM FOLDING” (☞p.3-5) in Chapter 3 APPLIED USE**, and **“1-2. Correcting Folding Misalignment Along Vertical Length of Paper” (☞p.4-5) in this Chapter**.

4-4. Motor and Sensor Error Messages

When motors and sensors in the unit malfunction, the following error messages will be displayed on the LCD.

Note **If after turning OFF the power and implementing the following solution, and then turning ON the power again, the same message appears again, contact your nearest dealer. Wait for more than 30 seconds first before turning ON the power again.**

(1) Main motor malfunction

“MOTOR ERROR 1”
“MOTOR 1 OVERLOAD”

<Cause>

Troubles such as main motor’s locking have occurred due to paper jamming.

<Solution>

First, turn OFF the power.
For details on removing jammed paper, refer to **“3. WHEN PAPER JAMMING OCCURS” (☞p.4-15)**.

(2) Folding motor malfunction

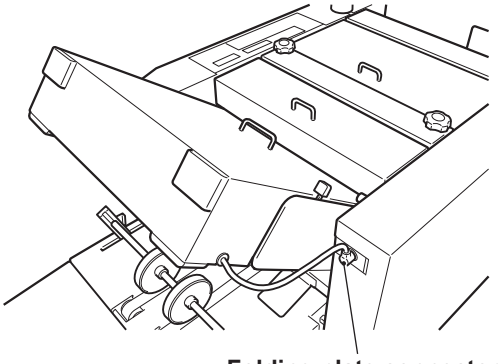
“MOTOR ERROR 4”
“MOTOR ERROR 5”

<Cause>

The folding plate connector is not connected properly.
The folding motor 1 or 2 is locked due to paper jamming.

<Solution>

First, turn OFF the power.
Check that the folding plate connector is connected to the main body properly.
For details on removing jammed paper, refer to **“3. WHEN PAPER JAMMING OCCURS” (☞p.4-15)**.



(3) Stacker motor malfunction

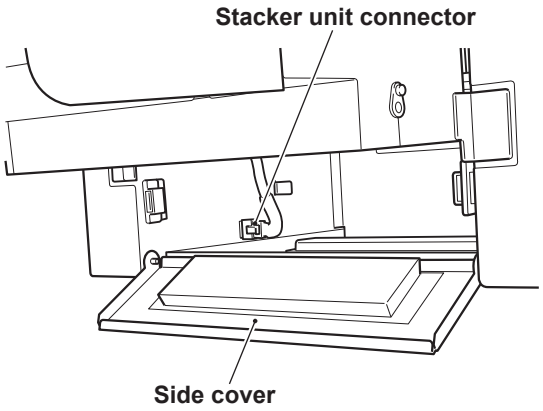
“MOTOR ERROR 3”

<Cause>

The stacker unit connector is not connected properly.
The stacker motor is locked due to paper jamming.

<Solution>

First, turn OFF the power.
Open the side cover, and check that the stacker unit connector is connected to the main body properly.
For details on removing jammed paper, refer to **“3. WHEN PAPER JAMMING OCCURS” (☞p.4-15)**.



(4) Paper feed tray malfunction (When rising)

“TRAY UP ERROR”

<Cause>

There are foreign objects between the paper feed tray and suction belt.
There is a clearance between the paper lead edge and shutter.

<Solution>

Check for foreign objects on the paper feed tray.
Stack the paper on the paper feed tray again so that the lead edge touches the shutter lightly.

(5) Paper feed tray malfunction (When descending)

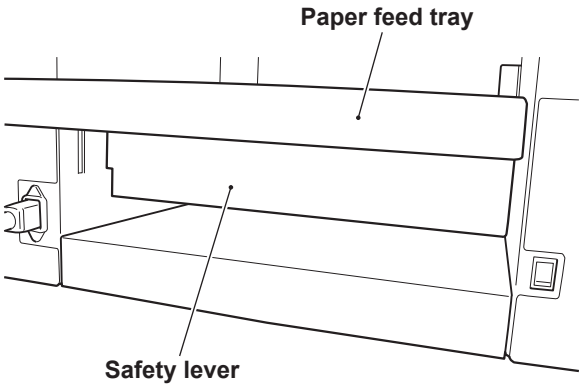
“TRAY DOWN ERROR”

<Cause>

There are foreign objects between the paper feed tray and safety lever.
The safety lever is still pressed.

<Solution>

Check for foreign objects below the paper feed tray.



5. TROUBLESHOOTING

Problem	Check	Correct
1) The unit does not start even when the start key is pressed.	● Is paper stacked properly on the paper feed tray?	● Stack paper properly.
	● Has paper jammed?	● Remove jammed paper.
	● Is a cover open?	● Close open covers.
	● Is folding plate set properly?	● Set the folding plate properly.
	● Is the folding plate connector disconnected?	● Turn OFF the power and connect the folding plate connector to the main body.
	● Is the paper size displayed on the LCD?	● Refer to section **2)**.
2) The LCD does not display the paper size.	● Is paper other than the standard size used?	● When using non-standard paper, follow the procedure for non-standard paper.
	● Is there clearance between the side guides and paper?	● Align paper neatly and stack, then push the side guides lightly against the paper.
3) Paper slips at the paper feed section (mis-feed).	● Has the paper been fanned well?	● Fan the paper well.
	● Is the paper curled?	● Correct the paper curl before use.
	● Is the suction belt dirty?	● Clean with a cloth moistened with alcohol.
	● Is the separator height too high?	● Adjust the separator adjusting knob to a larger value.
	● Is the separating air amount too weak?	● Adjust the separating air adjusting knob to a larger value.
	● Is the level sensor adjusting lever set too near “2”?	● Move the level sensor adjusting lever slowly to “1” and adjust to an appropriate value.
	● Are the side guides pressed against the paper too tightly?	● Set the side guides so that they push against the paper lightly.
	● Is the paper stacked exceeding the maximum volume (about 3.9")?	● Decrease the paper stacked to the scale mark on the side guide.
	● Is the thin paper feed button “ON”? (When not using thin paper less than 22 lb)	● Set the thin paper feed button to “OFF”.
	● Is paper outside the specifications used?	● Use paper within the specifications.

Problem	Check	Correct
4) Paper jam occurs.	● Has the paper been fanned well?	● Fan the paper well.
	● Is the paper curled?	● Correct the paper curl before use.
	● Is the inside of the unit jammed with paper chips, etc.?	● Inspect the inside of the unit, and remove paper chips.
	● Is the folding roller dirty?	● Clean with a cloth moistened with alcohol.
	● Has static electricity occurred in the paper?	● Decrease the processing speed.
	● Is the position of the stacker roller of the paper ejection section correct?	● Set the stacker roller at an appropriate position.
5) Paper is continuously fed or double fed.	● Has the paper been fanned well?	● Fan the paper well.
	● Is the paper curled?	● Correct the paper curl before use.
	● Is the separator height too low?	● Adjust the separator adjusting knob to a smaller value.
	● Is the separating air amount too strong?	● Adjust the separating air adjusting knob to a smaller value.
	● Is the level sensor adjusting lever set too near “1”?	● Move the level sensor adjusting lever slowly to “2” and adjust to an appropriate value.
	● Is the paper stacked exceeding the maximum volume (about 3.9")?	● Decrease the paper stacked to the scale mark on the side guide.
	● Is the thin paper feed button “OFF”? (When using thin paper less than 22 lb)	● Set the thin paper feed button to “ON”.
	● Is flimsy paper used?	● Decrease the processing speed.
	● Is paper outside the specifications used?	● Use paper within the specifications.
6) Folding misalignment along vertical length of paper occurs.	● Was the processing speed changed halfway through?	● Set back the previous speed.
		● If the speed has been changed, the folding stopper position must be corrected.
	● Was the paper type (paper quality, thickness) changed halfway through?	● Use the original paper before change.
		● If paper has been changed, the folding stopper position must be corrected.

Problem	Check	Correct
7) Folding misalignment along sides of paper occurs.	● Is there clearance between the side guides and paper?	● Align paper neatly and stack, then push the side guides lightly against the paper.
	● Is the side guide adjusting knob loose?	● Tighten the knob firmly.
	● Is the paper trimmed precisely?	● Correct the folding misalignment with the side guide adjusting knob and skew correction knob.
	● Are the left and right skew roller spring pressure adjusting knobs set at the same position?	● Set at the same position.
	● Is the folding roller dirty?	● Clean with a cloth moistened with alcohol.
8) Paper is not folded at the normal folding position.	● Is folding plate set properly?	● Set the folding plate properly.
	● Has static electricity occurred in the paper?	● Fan the paper well.
		● Decrease the processing speed.
	● Is non-standard paper with the same width but different length from standard paper used?	● When using non-standard paper, follow the procedure for non-standard paper.
	● Are the left and right skew roller spring pressure adjusting knobs set at the same position?	● Set at the same position.
	● When feeding letter size paper, is “LGL” displayed on the LCD?	● Is the rear guide placed as indicated?
		● Is the paper switch free from anything?

Chapter 5

MAINTENANCE

1. CLEANING THE UNIT

Dirty folding rollers and suction belts can cause problems such as folding misalignment, and paper feed errors. Adherence of paper dust near sensors will also cause misdetection. Therefore clean periodically.
Clean the paper feed inlet sensor and paper ejection outlet sensors with canned air recommended for computers, key boards, and similar products.

Note
- **Prior to cleaning, be sure to disconnect the power cord plug from the outlet.**
- **After cleaning, make sure that the areas that were cleaned are completely dry before resuming paper folding operations.**

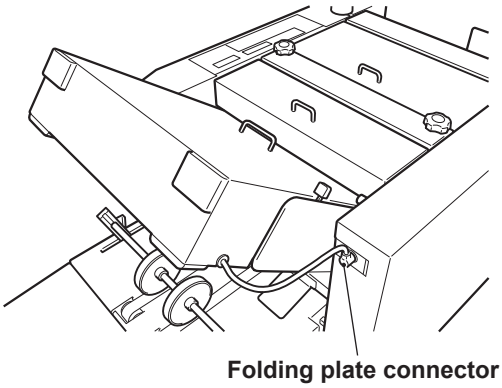
⚠ WARNING

Do not use flammable sprays or solvent inside or near the unit (e.g. when cleaning the unit).

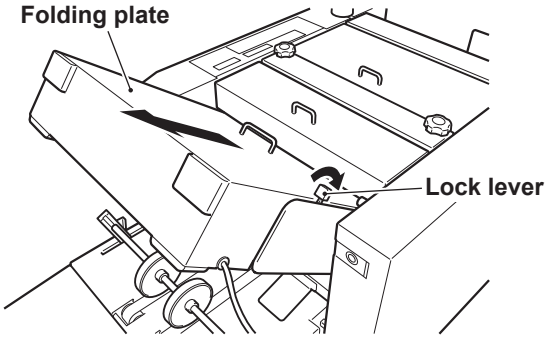
Such flammable gas may ignite and cause a fire or combustion.
Take precautions against fire and ensure ventilation when using alcohol, and store the alcohol in a safe place after use. Also note that use of other solvents can damage the rubber rollers and resin inside the unit, resulting in malfunctions.

1-1. Cleaning the Folding Rollers

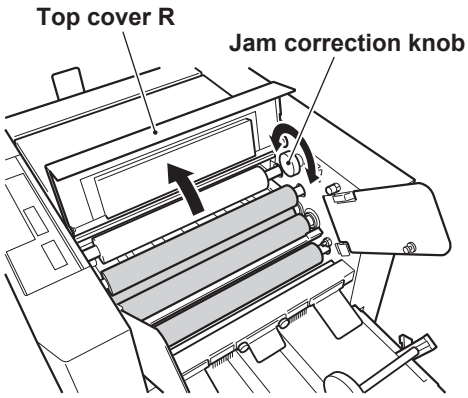
1 **Disconnect the folding plate connector from the main body.**



2 **Turn the lock lever towards "UNLOCK" and remove the folding plate.**



3 Open the top cover R.



4 While rotating the folding rollers with the jam correction knob, clean them with a cloth moistened with alcohol.

5 Return the folding plate to its original position.

6 Turn the lock lever towards “LOCK”, and connect the folding plate connector to the main body.

7 Check that the jam correction knob rotates smoothly.

Note If the folding plate is not secured at the correct position, the knob will not only feel heavy, but the folding rollers and folding plate may get damaged.

8 Close the top cover R.

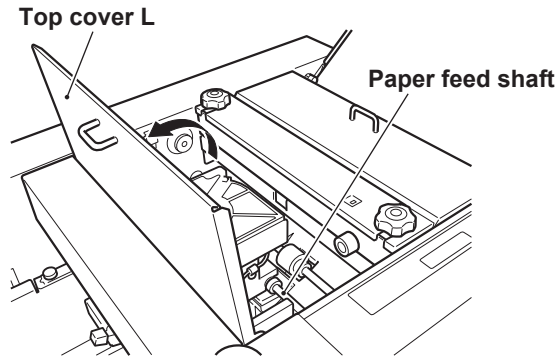
1-2. Cleaning the Suction Belts

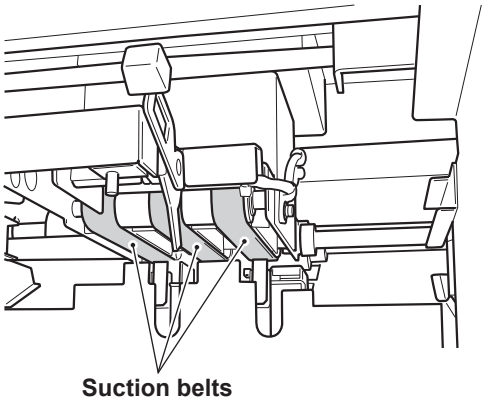
Prior to cleaning, move the side guides out to the sides and lower the paper feed tray.

1 **Open the top cover L.**

2 **Rotate the suction belts by rotating the paper feed shaft by hand. Clean them with a cloth moistened with alcohol.**

3 **Close the top cover L.**



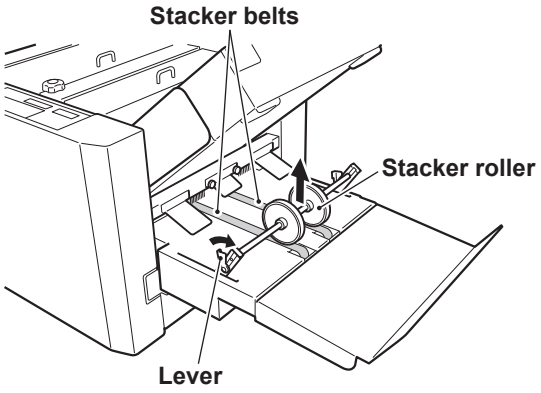


1-3. Cleaning the Stacker Belts

1 **Lift up the stacker roller, and turn down the lever of the stacker support in the arrow direction.**

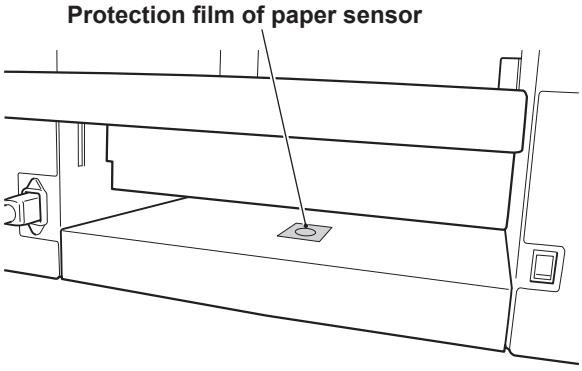
2 **While rotating the stacker belts by hand, clean them with a cloth moistened with alcohol.**

3 **Return the stacker roller to its original position.**



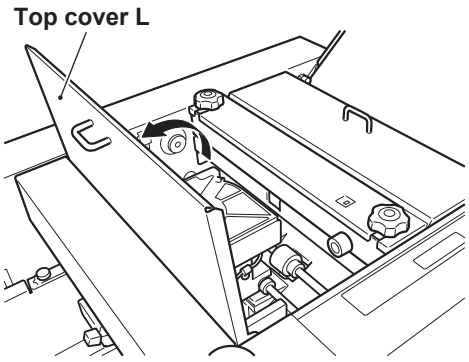
1-4. Cleaning the Paper Sensor

1 **Clean the protection film of the paper sensor under the paper feed tray with a dry and soft cloth.**

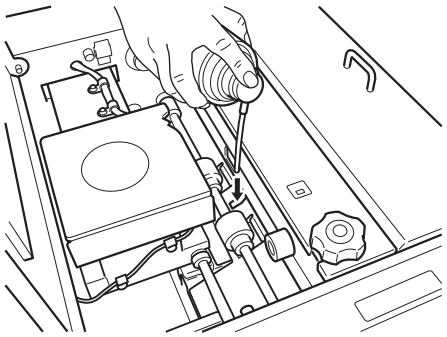


1-5. Cleaning the Paper Feed Inlet Sensor

1 **Open the top cover L.**



2 **Insert the nozzle of the dust removal spray (canned air) into the cut-away on the sensor cover vertically, and blow air.**

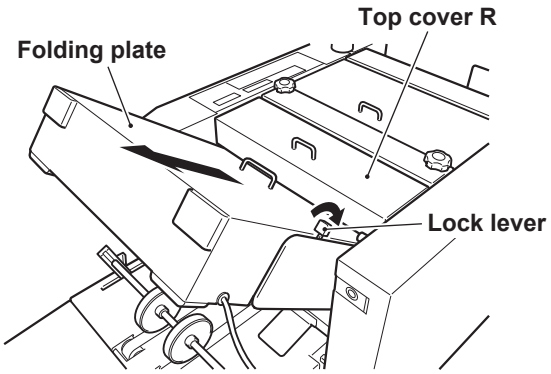


3 **Close the top cover L.**

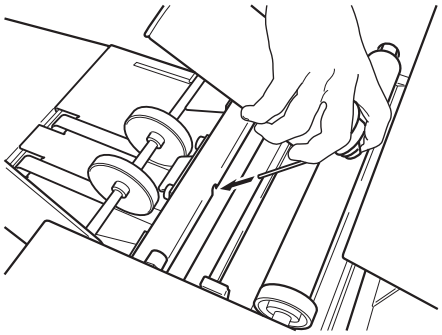
1-6. Cleaning the Paper Ejection Outlet Upper Sensor

1 **Remove the folding plate and open the top cover R.**

Ref. **For details on removing the folding plate, refer to "1-1. Cleaning the Folding Rollers" (☞p.5-2).**



2 **Insert the nozzle of the dust removal spray (canned air) into the cut-away on the sensor cover, and blow air.**

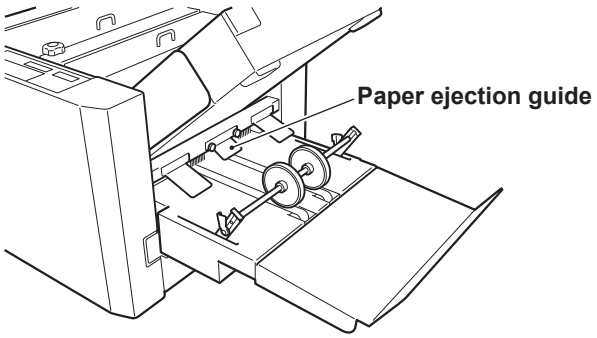


3 **Return the folding plate to its original position.**

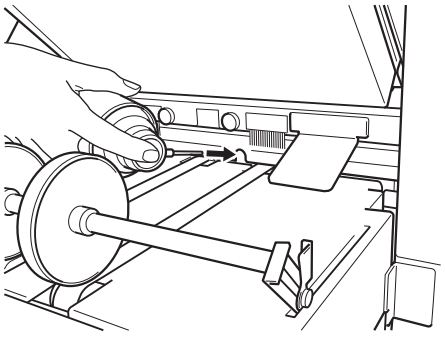
4 **Close the top cover R.**

1-7. Cleaning the Paper Ejection Outlet Lower Sensor

1 **Loosen the two knob screws and remove the paper ejection guide.**



2 **Insert the nozzle of the dust removal spray (canned air) into the cut-away on the sensor cover, and blow air.**



3 **Reinstall the paper ejection guide to its original position.**

Appendix

1. SPECIFICATIONS

Model		**DF-1000**
Type		For office use/desktop
Paper size	**Max.**	11.7" (W) × 17.0" (L) (Along paper feed direction)
	Min.	4.75" (W) × 7.2" (L) (Along paper feed direction)
Paper quality		Fine quality paper, recycled paper, art paper, coated paper
Folding mode		Single fold, double fold, irregular accordion fold, letter fold, accordion fold, other custom fold ∗ However, when double folding STMT size paper, use fine quality paper of 16 lb, set the processing speed above speed 4, and set the folded plane length of folding plate 2 to more than 1.85".
Paper weight		Fine quality paper, recycled paper : 14 to 40 lb Art paper, coated paper : 20 to 40 lb ∗ However, when single folding art paper or coated paper width less than 8.5", paper up to 54 lb can be used.
Paper feed tray capacity		1000 sheets (fine quality paper 22 lb)
Maximum processing speed		207 sheets/minute Condition: When 16 lb LTR size fine quality paper is single folded
Paper feed method		Air suction paper feed method
Paper feed tray control function		Paper presence detection, automatic rise/descent (manual raising/lowering also possible)
Paper size detection function		Automatic detection of following standard paper sizes: LGR, LGL, LTR, STMT, and INV (fed by short edge feeding)
Paper feed error detection function		Mis-feed, continuous-feed, paper jam
Counter		4-digit, selection of add or subtract count method
Other detection functions		Opening/closing of top cover L/R and side cover, with/without folding plate, paper feed tray UP/DOWN error Various operational guidance including error messages are displayed on the LCD
Additional functions		Folding stopper position adjustment registration (25 ways), custom folding registration (2 ways), non-standard paper length registration, interval, last time fold, folding stopper fixed, thick paper supported, forced paper ejection, forced paper ejection in folding plate, stacker belt continuous rotation
Energy saving functions		LCD backlight automatic OFF
Power supply		100 to 240 V AC 50/60 Hz
Current consumption		2 to 1 A (140 W)
Dimensions	**In use**	50.28" (W) × 21.02" (D) × 23.23" (H)
	In storage	35.91" (W) × 21.02" (D) × 23.23" (H)
Mass (Weight)		156.5 lb

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

Memo

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