

# Horizon AFC-566F

### **Important Information**

- This manual is designed to help you to install, operate and maintain the AFC-566F Cross Folder. Please read and understand this manual, and keep it in a safe and convenient place.
- Do not operate the AFC-566F until you read and understand the instructions in this manual.
- Horizon International Inc. shall not be liable for incidental consequential damages resulting from: improper or inadequate maintenance by the customer, unauthorized modification or misuse, or operation outside of the environmental specifications for the product.
- Horizon International Inc. pursues a policy of continuing improvement in design and performance of the product. Therefore, the product design and specifications are subject to change without prior notice and without our legal obligation.
- All rights are reserved. No part of this manual may be photocopied, reproduced or translated to another language without the prior written consent of Horizon International Inc.

## **Safety Precautions**

Safety precautions are indicated in this manual as follows:



The term WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

The term CAUTION indicates a potentially hazardous situation which, if not avoided, may result in serious injury, or damage to the machine.



This symbol indicates a note which includes important information. Follow the note to operate the machine safely.



This symbol indicates a prohibited action. Do not perform any prohibited action.



This symbol indicates an essential procedure. Follow the procedure to operate the machine safely.

Important Important	This lists the range of acceptable values and operating conditions.
Attention	This information will help you to avoid problems with the machine or help you learn how to operate the machine.
Note	Refer to this note when you operate the machine.
Additional Information	This explains a mechanism in the machine.

## Operating Safety Precautions

	WARNINGS for Operation
0	The machine must be operated by just one person at a time.
0	Keep your hands and fingers away from the rotor and any moving parts during operation. Otherwise moving parts can cause severe personal injury.
0	Rotating parts may catch your hair or clothing. Arrange your hair in a bun or wear suitable clothing. Otherwise rotating parts can cause severe personal injury.
$\bigcirc$	Do not remove or bypass any safety features. Moving parts can cause severe personal injury.
0	Press the Emergency Stop button before turning the handwheel. A sudden accidental start of the machine can cause severe personal injury.
0	Turn off the power switch before adjusting the machine unless instructed otherwise. If the Start button is pressed, the machine may move suddenly and cause severe personal injury.
0	Turn off the power switch before resetting the circuit breakers. Otherwise, the machine may start suddenly, causing severe personal injury.

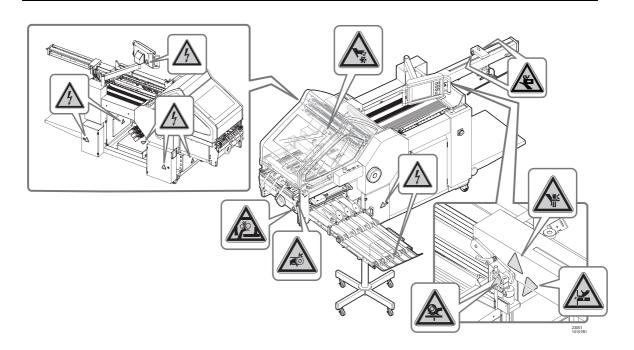
	<b>⚠ CAUTIONS for Operation</b>
0	Be sure to install the buckle chutes and conveyors correctly. Otherwise, the machine may be damaged.
0	If the power is turned off, wait at least ten seconds before turning the power on again.
0	When you are moving the perforation blades sideways, be sure to raise the upper perforation shaft before moving the blades. After moving the blades, return the upper perforation shaft to its original position. If you do not do this, the blades may be damaged.
$\bigcirc$	Do not place any objects under the feed table. Otherwise, the feed table may be damaged.

## **WARNINGS** for Installation



Be sure to attach the cables, hoses, tubes in the areas where a foot cannot be caught.

### **Warning Label Locations and Meanings**





There are electrical parts inside. Be careful when you open the cover. Otherwise, electrical shock may be caused.



Do not approach your hands and fingers while the belt is rotating. Otherwise your hands and fingers may be caught by the rotating belt.



Do not touch the perforation blade with bear hand. Make sure to wear cutting proof gloves when handling the perforation blade. Otherwise sharp blade can cause severe personal injury.



Do not approach your hands and fingers while the roller is rotating. Otherwise your hands and fingers may be caught by the rotating roller.



Do not insert your hands and fingers inside the cover. There are gears inside and your hands and fingers may be caught by the gears.



When you lower the suction head bar, be careful not to catch your finger.



Do not insert your fingers into the slit of the feed head while the feed table is moving. Otherwise, the moving table can cause severe personal injury.



Do not approach your hands and fingers to the suction head while the suction head is moving to the minimum or maximum position. Otherwise your hands and fingers may be caught by the suction head.

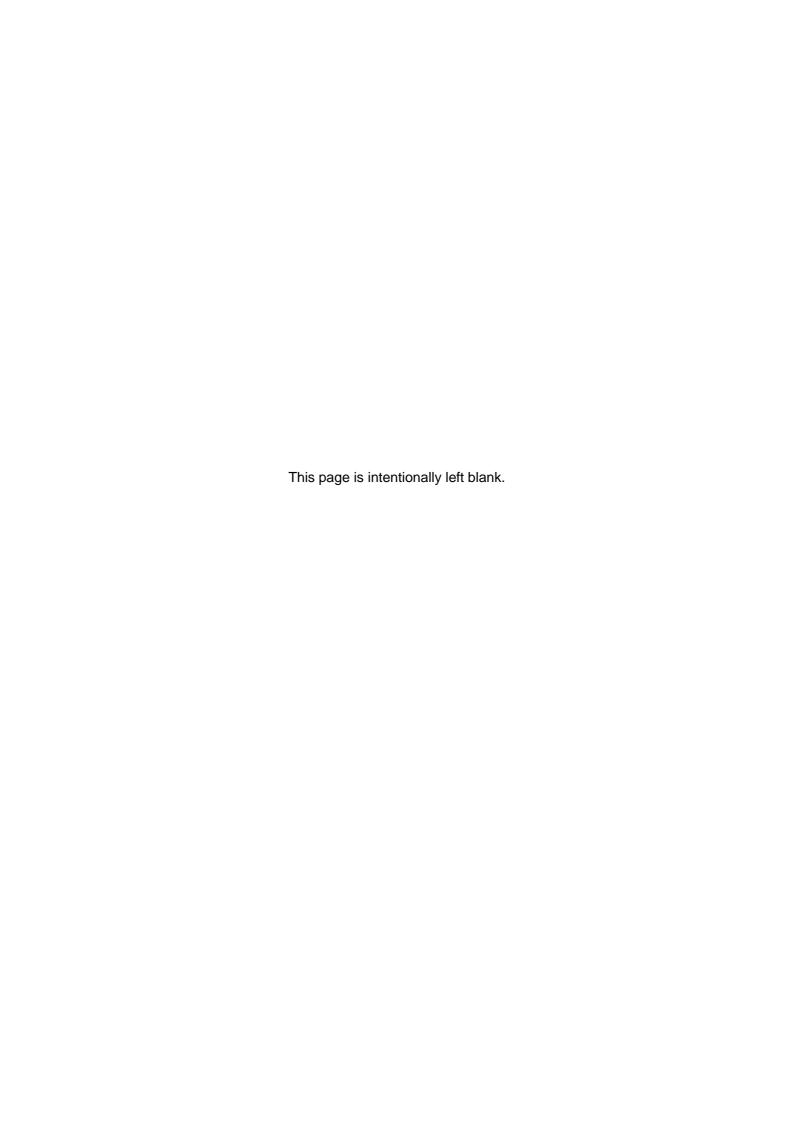
## **CONTENTS**

Safet Oper	rtant Informationty Precautions rating Safety Precautions	II .III
1. N	Machine Description	
	Machine Description	
1-1	I-2 Overall View 2	2
	I-3 Overall View 3I-4 Suction Head Section 1	
	I-5 Suction Head Section 2	
1-1	I-6 Feed Rotor Section	6
	I-7 Side Air and Feed Table	
	I-8 Register Guide Section	
	I-9 Buckle Chute SectionI-10 Perforation and Scoring Section	
	I-11 Knife Fold Section	
	I-12 Buckle Chute Below Knife	
	I-13 Conveyor Section	
	I-14 Power Box and Control Box	
	I-15 Pump SectionI-16 Control Panel	
	I-17 Sub Control Panel	
	I-18 Remote Controller	
1-2	Touch Panel Description	19
	2-1 Initial Screen	
	2-2 Main - Function Screen	
	2-3 Main - Condition Screen	
	2-4 Main - Options Screen2-5 Set Up - Fold Pattern Screen	
	2-6 Set Up - Guide-Buckle Screen	
	2-7 Set Up - Register Mark Position Entering Screen	
	2-8 Set Up - Roller Gap Screen	
	2-9 Set Up - Roller Gap Micro-Adjusting Screen	
	2-10 Set Up - Check/Instruction Screen	
	2-11 Set Up - Reset Screen2-12 Memory Screen	
	2-13 Properties Screen	
	2-14 Properties - Administrator Setting Screen	
2. C	Overview of Setup Procedure	
2-1 2-2	Overview of Basic Setup	
3. E	Basic Setup	
3-1	Turn On the Power Switch	37

3-3 S 3-4 L 3-5 S 3-6 S 3-7 S 3-8 S 3-9 S	Setting the Fold Pattern and Sheet Size
4. Fin	ne-Tuning Adjustments
4-2 F 4-3 C 4-4 A 4-5 A 4-5-1 4-5-2 4-6 N 4-7 S 4-8 S 4-9 A 4-10 A 4-11 C 4-12 C 4-12-4-12-4-12-4-12-4-12-4-12-4-12-4-12	Setting the Belt Speed
5. Sta	arting and Running the Job
5-1-1 5-1-2	Setup the Main Screen
6. Tro	oubleshooting
6-2 If 6-3 P 6-3-1 6-3-2 6-3-3 6-3-4 6-3-5	an Error Icon Appears on the Screen

6-5 Problems in the Buckle Chute Section	
0-3 Floblettis iti tile buckle Citate Section	107
6-5-1 The sheet does not enter the buckle chute	107
6-5-2 The folds are not square to the edges of the sheet	108
6-5-3 The sheets are wrinkled parallel to the fold line	109
6-5-4 The sheets are wrinkled across the fold line	109
6-5-5 One of the folding lines is unstable	
6-5-6 The sheet remains inside the buckle chute	110
6-6 Problems in the Scoring Section	
6-6-1 The scoring line does not run straight	
6-6-2 The perforation line does not run in the center	
6-7 Problems in the Knife Section	
6-7-1 The sheets are scratched or smeared	
6-7-2 The fold knife creases the sheets	
6-7-3 The sheets are not folded exactly on the perforation line	
6-7-4 The folded edge of the signature swells up	113
6-7-5 The knife does not work	
6-7-6 The roller below the knife does not rotate	
6-8 Other Problems	
6-8-1 The sheets are not arranged correctly on the delivery conveyor	114
6-8-2 The delivery conveyor does not run	
6-8-3 The pump pressure does not increase when you turn the regulator knob	
6-8-4 The pump does not run	
6-8-5 The motor does not run when the Start button is pressed	
6-8-6 The display does not appear when the main power is turned on	
6-8-7 The gate fold buckle chute does not operate	116
6-8-8 Sheets cannot be fed continuously	116
6-9 General Folding Problems and Remedies	117
6-10 If a Message Screen is Displayed	122
6-10 If a Message Screen is Displayed	122
	122
7. Maintenance	122
7. Maintenance	
7. Maintenance 7-1 Cleaning the Vacuum Piston	123
<ul><li>7. Maintenance</li><li>7-1 Cleaning the Vacuum Piston</li></ul>	123
7. Maintenance 7-1 Cleaning the Vacuum Piston	123 125 126
7. Maintenance 7-1 Cleaning the Vacuum Piston	123 125 126 127
7. Maintenance 7-1 Cleaning the Vacuum Piston	123 125 126 127
7. Maintenance 7-1 Cleaning the Vacuum Piston	123 125 126 127 127
7. Maintenance  7-1 Cleaning the Vacuum Piston	123 125 126 127 127 128
7-1 Cleaning the Vacuum Piston	123 125 126 127 127 128 129
7. Maintenance  7-1 Cleaning the Vacuum Piston	123 125 126 127 128 129 130
7-1 Cleaning the Vacuum Piston	123 125 126 127 128 129 130
7-1 Cleaning the Vacuum Piston	123 125 126 127 128 129 130 132
7-1 Cleaning the Vacuum Piston	123 125 126 127 128 129 130 135 135
7-1 Cleaning the Vacuum Piston	123 125 126 127 128 129 130 132 135 136
7-1 Cleaning the Vacuum Piston	123 125 126 127 128 129 130 132 135 136
7-1 Cleaning the Vacuum Piston	123 125 126 127 128 129 130 132 135 136
7-1 Cleaning the Vacuum Piston	123 125 126 127 128 130 132 135 136 137
7-1 Cleaning the Vacuum Piston	123 125 126 127 128 129 130 135 135 136 137
7-1 Cleaning the Vacuum Piston	123 125 126 127 128 129 130 135 135 136 137 138
7-1 Cleaning the Vacuum Piston	123 125 126 127 128 130 130 135 136 137 138

8-2	Pump Power Cable Connection	141
8-3	Pump Power Cable Connection	142
8-4	Installing the Conveyor and Accessories	143
8-5	Installing the Conveyor and Accessories	144
8-6	Connecting the Power Cables	145
	Pump Rotation Direction	
8-8	Date and Time Setup	146
	Checks After Installation	
9. <i>A</i>	Appendix	
	••	147
9-1	Specifications	147
9-1 9-2	••	148
9-1 9-2 9-3	Specifications	148 152
9-1 9-2 9-3 9-4	Specifications	148 152 153



## 1

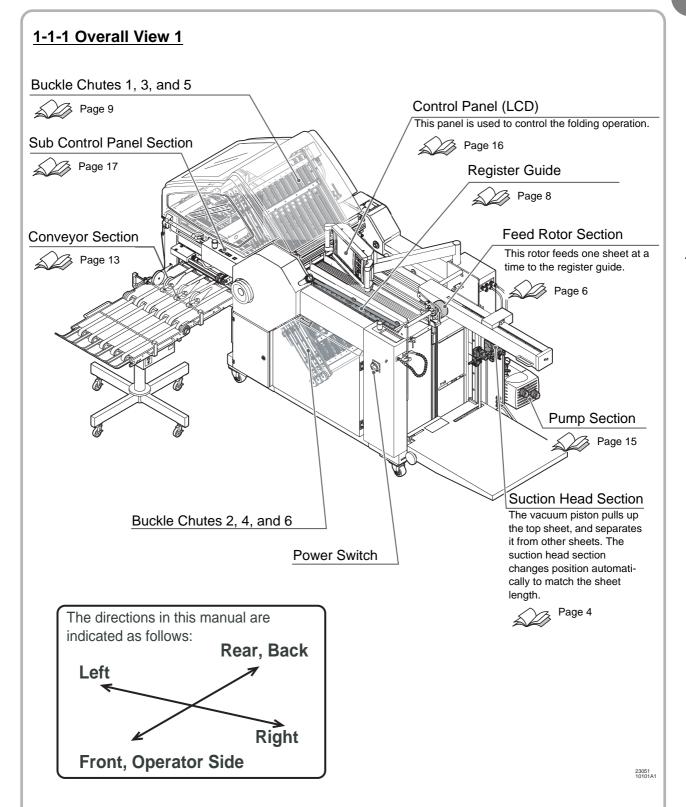
## 1. Machine Description

1-1

## **Machine Description**

1-1-1

Overall View 1



1-1-2

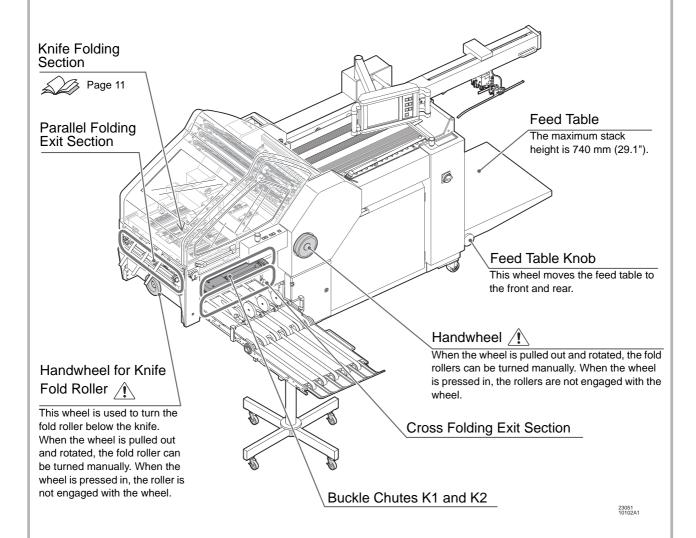
Overall View 2

#### 1-1-2 Overall View 2





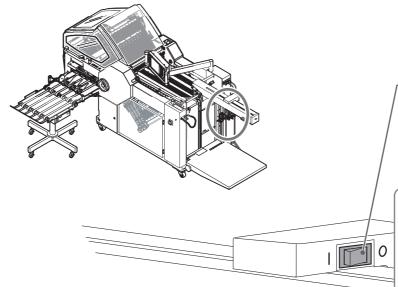
The handwheel may turn suddenly and cause injury. Press the Emergency Stop button before turning the handwheel.



## 1-1-3 Overall View 3 Power Connector to Round 0 Feeder (option) Top Cover If this cover is opened while operation, the machine stops. Door for Buckle Chute Below the Knife Open this door to remove buckle chute K2. If this cover is opened while operation, the machine stops. 0 **Power Box** This contains circuit breakers. Page 14 Control Box This contains the circuit breakers. Page 14 Control Box Fan - Air Filter This fan cools the control box. The air filter must be cleaned regularly. Power Connector to Gate Fold Buckle Chute (option) Conveyor Power Connector Communication Connector to Press Stacker (option)

#### 1-1-4 Suction Head Section 1

The suction head section adjusts position automatically during changeover to match the sheet length.



#### Suction Head Stop Switch

When the vacuum piston picks up the sheets which width is narrow, the suction head can rise a little, and the gap between the vacuum piston and sheets can widen. In this case, turn off this switch so as not to move the vacuum piston.

## Important -

When lowering the feed table, the suction head raises even if this switch is turned off. And when raising the feed table with this switch turned off, the suction head does not lower and cannot catch the sheet. Be sure to turn this switch on before raising the feed table.

#### Sheet Hold-down Weights

These weights help to control the sheet. Attach or remove weights to match the type of sheet.

#### Set Register Pin Locking Knob

## Suction Piston Height Adjusting Knob

This knob is used to adjust the space between the suction cup and the top of the stack. The standard space is about 1mm (0.04").

## Blower Air Position Adjusting Knob

This knob is used to adjust the height of the blower air nozzles.

# Blower Air Pressure Adjusting Knob MAX MAX

## Sheet Hold-down Pressure Adjusting Knob

This knob adjusts the pressure produced by the sheet hold-down bar against the sheet. The higher the setting on this knob, the greater the hold-down pressure.

#### Sheet Hold-down Bar

This holds down the rear edge of the stack.

#### Set Register Pin

Fit the pin against the back of the stack.

#### Blower Air Nozzle

The blower air exits.

#### Air Guide

This guide holds the sheet lightly and prevents the separation air from leaking out to the sides.

## MAX

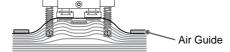
Separation Air Pressure

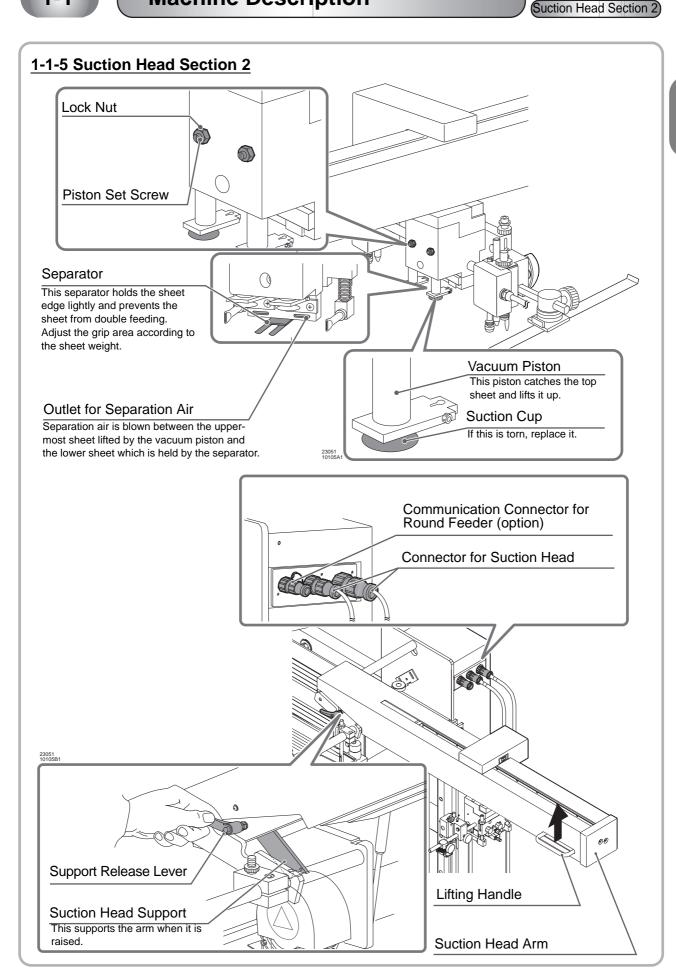
#### Grip Area Adjusting Knob

Turn the knob clockwise to move the grip area forward.

## Sheet Hold Angle Adjusting Knob

Turn the knob clockwise to increase the angle.





Feed Rotor Section



#### Feed Rotor

This pulls against the leading edge of the sheet. The vacuum operates through the oval-shaped holes on the outside of the rotor.

## Double Feed Detect Ultrasonic Sensor

This is the sensor for double (multiple) feed detection. If this sensor detects double feeding, the machine stops the folding operation.

#### Valve Housing

This housing pulls the air from the side of the feed rotor. Changing the position of this valve housing can change the grip position on the sheet.

#### Double Feed Detect Photoelectronic Sensor

This is the sensor for double (multiple) feed detection. If this sensor detects double feeding, the machine stops the folding operation.

#### Double Feed Stop Plate

Normally you should not have to change this setting. If double feeding occurs repeatedly, move this plate to the higher position.

Double Feed Stop Plate Adjusting Knob

#### Front Air Nozzle

When feeding heavy sheets, extra air can be supplied here to help the feed rotor.

#### Table Sensor

When the feed table Down button is pressed, the table lowers until it reaches this sensor.

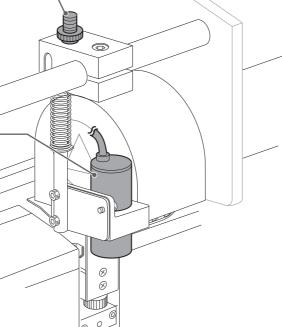
When there are sheets on the table and the Down button is pressed, the table stops with the top of the stack even with the sensor. Press Down again to lower the table all of the way.

#### Feed Table Sensor Adjusting Knob

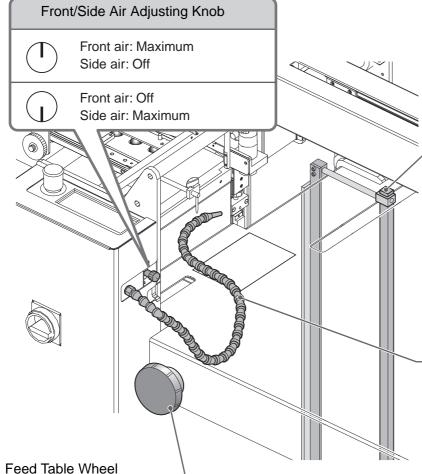
When this knob is turned clockwise, the table sensor is raised.

#### Feed Table Sensor

This sensor detects the top of the stack.
The standard distance between the feed rotor and the top sheet is about 9 to 11 mm



## 1-1-7 Side Air and Feed Table



#### Table Guide AUTO

The rear edge of the stack must be held by this guide. This guide adjusts position automatically to match the sheet width.

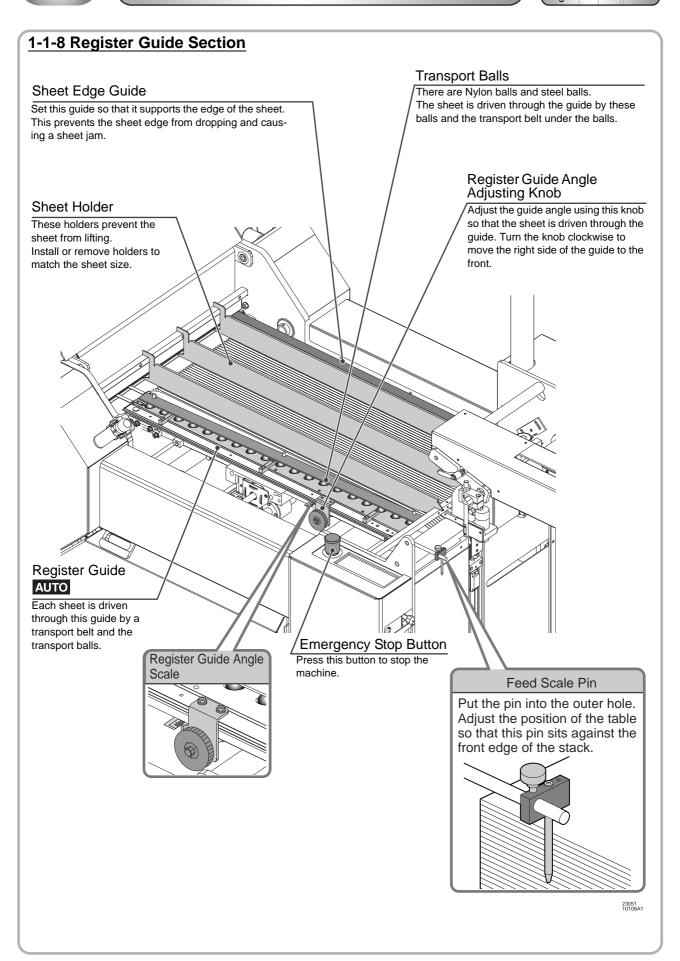
#### Side Air Hose

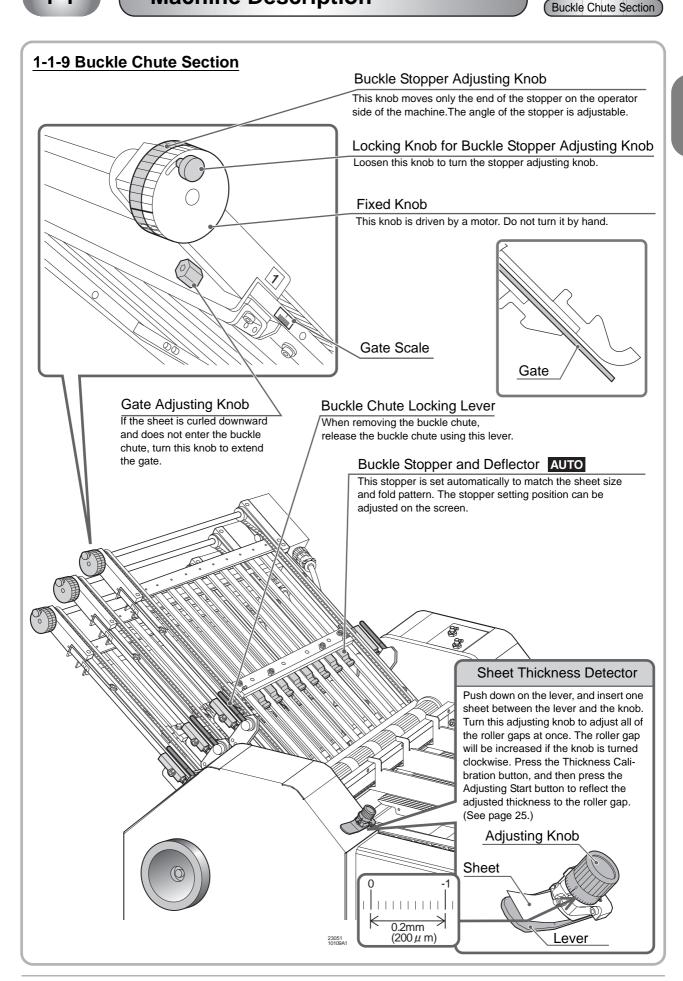
When large and heavy sheets are used, and sheets are not fanned using only the front air, set the side air hose to fan the sheet edge.

This wheel moves the feed table front or back. When this wheel is turned clockwise, the table moves to the rear.

1-1-8

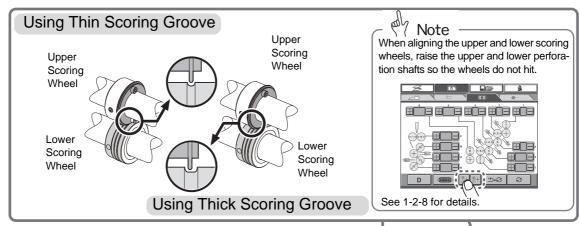
Register Guide Section





Perforation and Scoring
Section

#### 1-1-10 Perforation and Scoring Section



#### Drive Rollers (4pcs)

These rollers drive each sheet. If the sheets curl because of perforations, install upper and lower drive rollers to correct the curl.

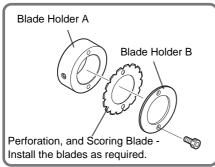
#### Perforation Shaft Lifting Lever

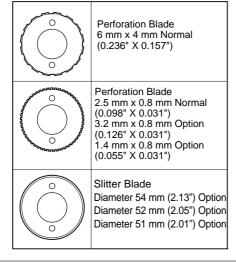
Turn this lever in the direction shown by the arrow to lift the upper perforation shaft.

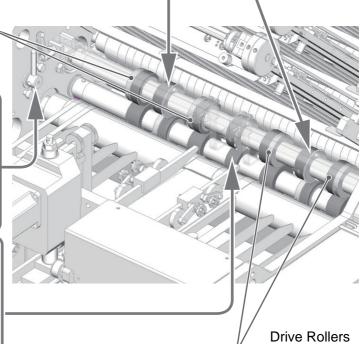
the scoring wheels.

shaft.

This lever is installed on both the front and the rear. Use the levers when you adjust the positions of the perforation blades and







#### ♠ WARNING

0

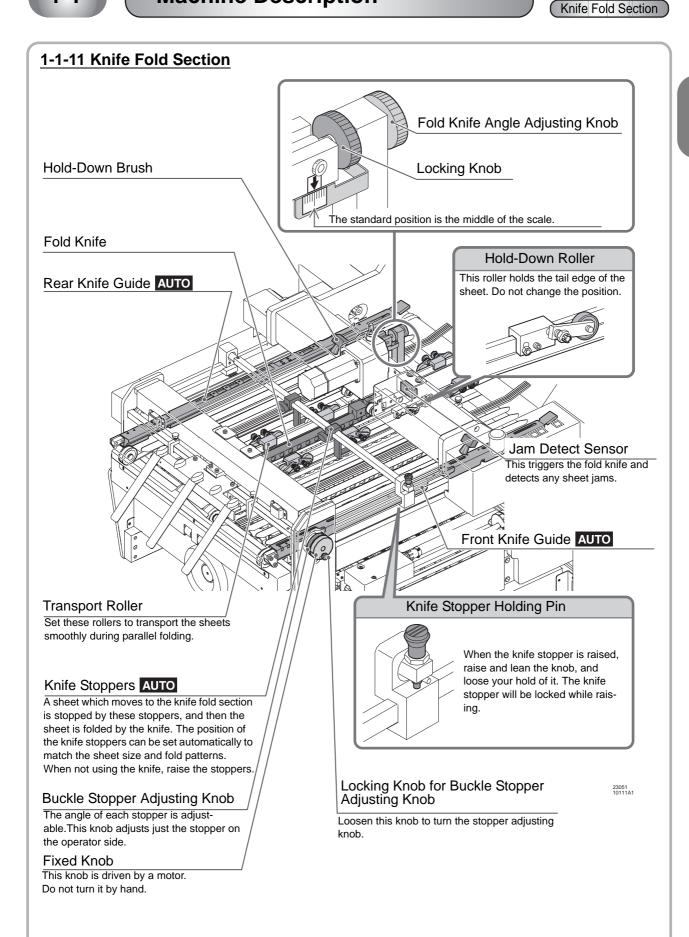
The sharp edges of the blades can cause severe personal injury. Wear cutting proof gloves or wrap the blade with cloth when handling.Also, install/remove the blades after pressing the Emergency Stop button.

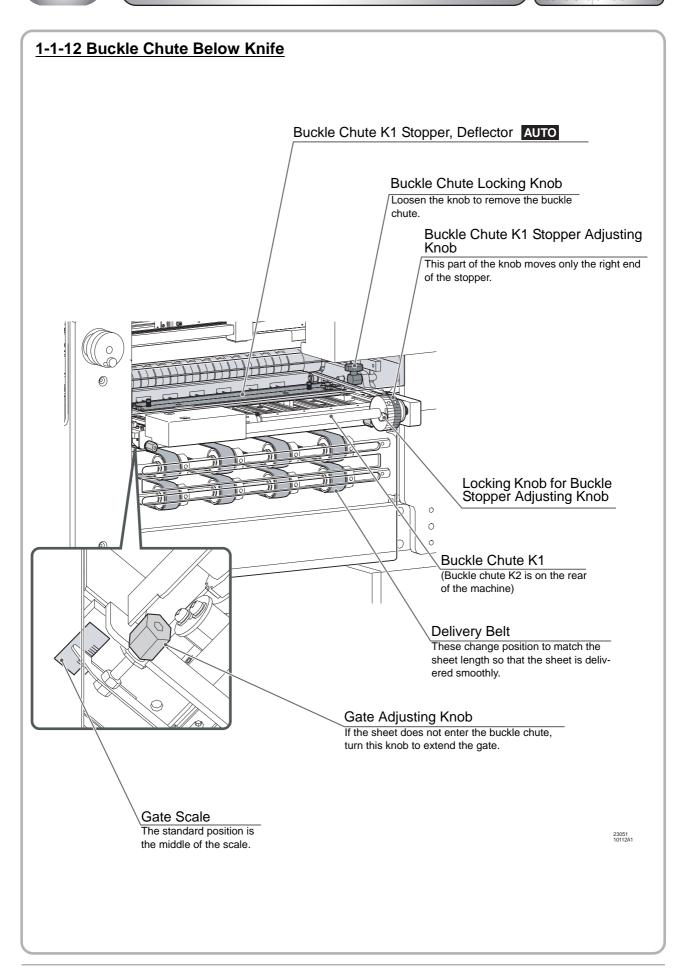
## Important

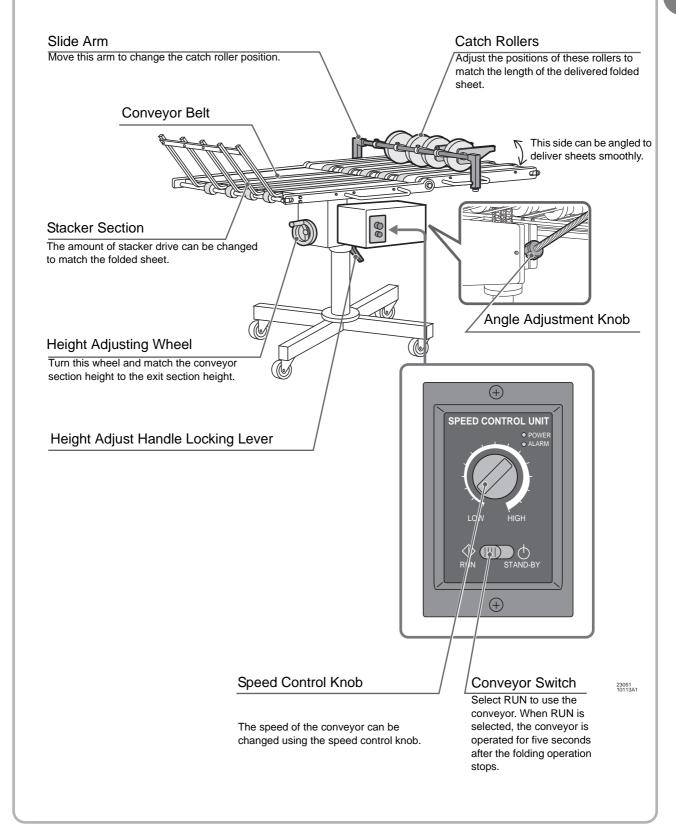
Install the blades with the correct orientation on the shaft (facing the right way).

## \_\_\_\_ Additional Information

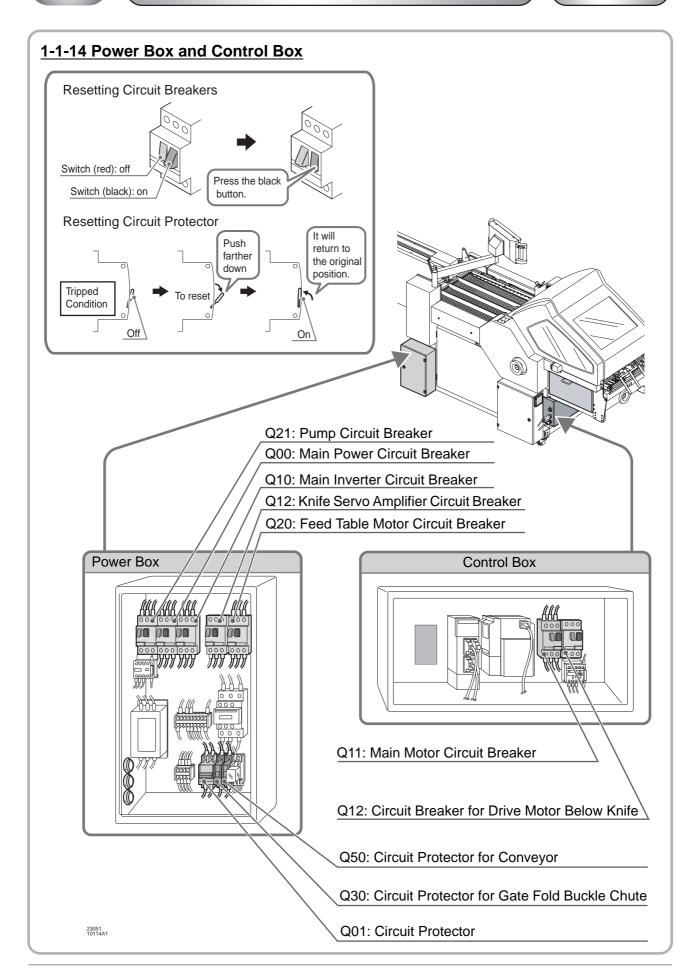
Each blade is split into two halves, and is supplied this way. Always use the two halves together.



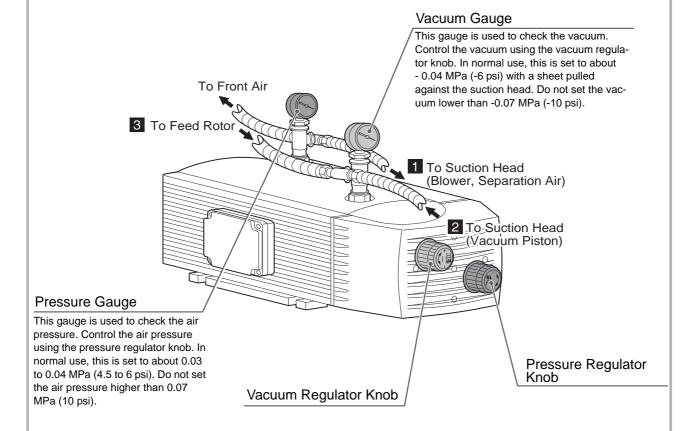




Power Box and Control Box



## 1-1-15 Pump Section



1-1-16

Control Panel

#### 1-1-16 Control Panel

#### Motor Stop/Feed Stop Button

If this button is pressed once while folding operation, the machine stops the feeding. If the button is pressed again, the motor stops.

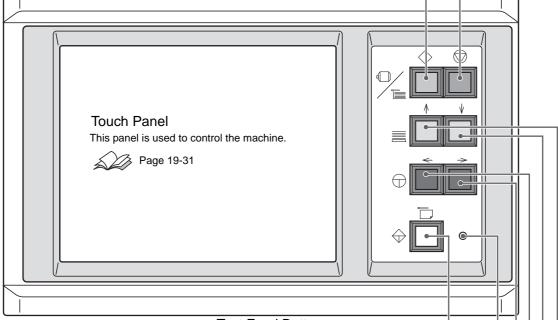
#### Motor Start/Feed Start Button

If the button is pressed once while the feed table Up button is lit, the motor runs. If it is pressed again, a sheet is moved into the fold section for the folding operation. This button lights while the sheets are feeding and blinks in the Setup mode.



Note

If the Motor Stop/Feed Stop button is pressed twice in short period, the machine stops while the sheets are left inside. Stop the motor after all sheets inside the machine are delivered.



#### Test Feed Button

While the transport motor is running, press this button to feed one sheet.

#### Remote Control Signal Receiver

#### Reverse Jog Button

When this button is pressed, the sheets move in the reverse direction.

#### Normal Jog Button

When this button is pressed, the sheets move in the normal direction.

#### Feed Table Down Button

When this button is pressed, the feed table starts to lower until it comes to the table sensor position.

Press the button again, and the table lowers to the lowest point. If the Down button is pressed while the table is rising, the table stops rising.

#### Feed Table Up Button

When this button is pressed, the feed table raises and stops at the upper limit and the vacuum pistons lower.

If the Up button is pressed while the table is lowering, the table stops lowering.

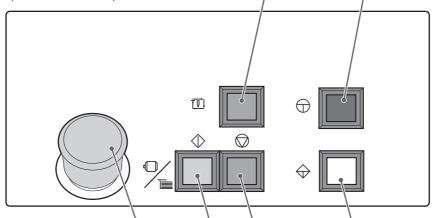
#### 1-1-17 Sub Control Panel

#### Normal Jog Button

When this button is pressed, the sheets move in the normal direction.

#### Knife One Cycle Button

When this button is pressed, the knife moves once. This button operates only when the knife is turned on (when this button is lit).



#### **Emergency Stop Button**

Press this button to stop all machine operation.

#### Motor Start / Feed Start Button

If the button is pressed once while the feed table Up button is lit, the motor runs. If the button is pressed again, a sheet is moved into the fold section for the folding operation. This button lights while the sheets are feeding and blinks in the Setup mode.

#### Motor Stop / Feed Stop Button

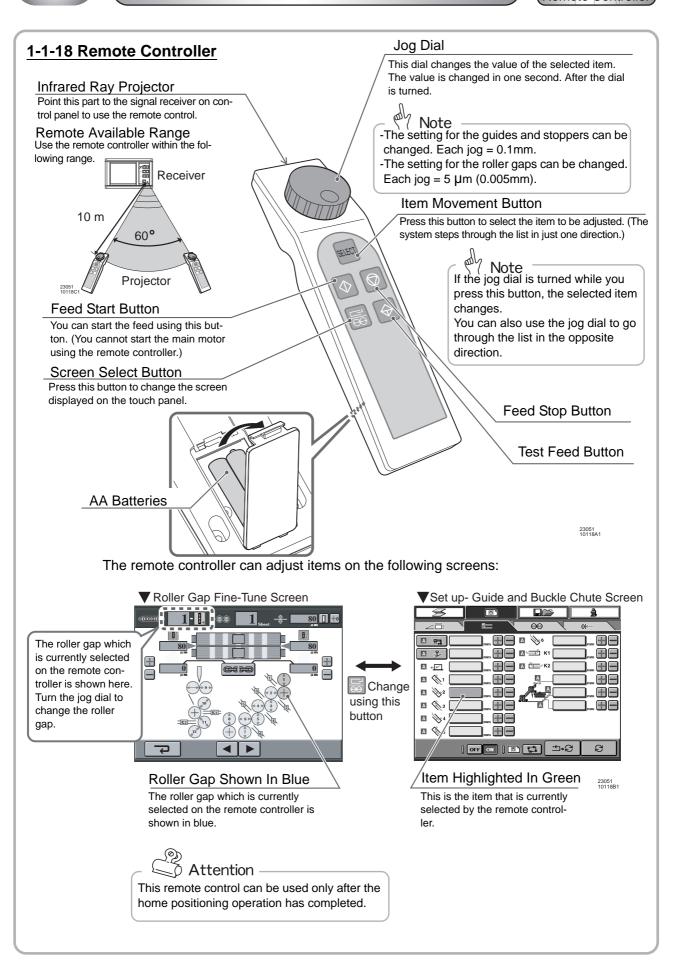
- If this button is pressed once while folding operation, the sheet stops moving into the fold section. If the the button is pressed again, motor stops.
- If the control panel displays an error screen, pressing this button

#### Test Feed Button

While the transport motor is running, press this button to feed one sheet and stop it at the knife fold section.

1-1-18

(Remote Controller)



## **Touch Panel Description**

#### 1-2-1 Initial Screen



When the power is turned on, this screen is displayed first. Next, the Fold Pattern screen appears.

#### 1-2-2 Main - Function Screen

#### Preset Counter

The machine can be set to pause or sound a buzzer after feeding a preset number of sets. Input the preset number on the left. The number on the right decreases by one each time a form is fed. When  $\boxed{\textbf{C}}$  (clear) is pressed, the number will be set back to

#### Feed Counter

This displays the total number of forms fed during the job. The number increases by one each time a form is fed even the power is turned off. When C (clear) is pressed, the number will be set back to 0

## Attention

Each sheet is counted as it passes through the feed rotor, even if the sheet is not delivered completely because of a jam.

123

 $\Theta$ 

#### Preset Mode Select Buttons

: The sheets are fed continuously without using the preset function.

When the number of fed sheets reaches the preset count number, the feeding action stops.

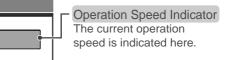
When the number of fed sheets reaches the preset count number. the feeding action pauses for a set time. This creates a gap between the sets on the delivery conveyor.

Attention

86

×

(the pause function) is not available if the optional TST-37 Press Stacker is connected.



#### End of Job Button

Press this button after job has been completed.

#### **Batch Counter**

Pause Time

Enter the number of sets in the batch here. The feed will stop when the machine has completed that number of sets.

Enter the pause time here.

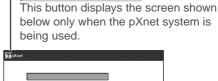
Job Indicator The current job appears

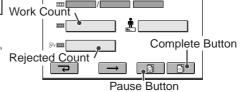
Remaining Time Indicator The remaining time is calculated, based on the operation speed and the number of sheets, and is displayed here.

#### Remaining Sheet Number Display

The number of sheets remaining is displayed here.

This is the rough indication to calculated the remaining run time, so even the number becomes 0, the machine does not stop.





pXnet Screen Button

#### 1-2-3 Main - Condition Screen

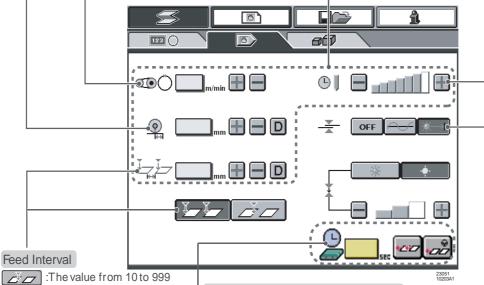
#### Feed Rotor Suction Length

When D (default) is pressed, the suction length is set to 3/10 of the sheet length.

#### Knife Delay Time

The feed interval is automatically made longer when the knife delay time is increased. The taller the level bars on the display, the longer the knife delay time. When the delay time is set to the minimum, the knife lowers at the moment when the sheet hits the knife stopper.

#### Belt Speed This sets the speed of the fold roller and transport belt. Max.240 meters per minute (The maximum speed depends on the fold pattern.) Min. 30 meters per minute **Important** Note If the belt speed is drastically changed, You can change these settings the folding quality may deteriorate. Do a while the machine is running. test feed to check the folding quality before running the machine.



Double (Multiple) Feed Detection

:The value from 10 to 999 (0.5" to 39.3") can be input.

:Thevalue from 10 to 2,300 (0.5"to 90.5") can be input.

The minumum value is shorter length by 50 mm (1.97") than the sheet length. When D (default) is pressed, the interval is set to matchthe delay time of the knife. Initially, select . If you want to shorten the feed interval a lot, select

However, this may result in uneven feeding if the sheets are slippery.

OFF / - / -

off :Not Used

Ultrasonic Detection : Double feeding is detected by the ultrasonis sensor. Two-part form cannot be detected correctly by this sensor. In that case, use the photoelectronic sensor.

Photoelectronic Detection: Double feeding is detected by the photoelectronic sensor. According to the printed condition (paint or color), this sensor may misdetect the double feeding. In that case, use the ultrasonic sensor.

Icons below are display only when photoelectronic detection is selected.

#### Conveyor Running Time

Continuous (Conveyor runs along with main motor): Set how long the delivery conveyor (LCV-54) is running after the main motor stops.



Intermittent (Conveyor runs along with sheet delivery): Set how long the delivery conveyor is running after the sheet is delivered. (When the motor starts moving, conveyor does not start moving at same timing.) :Set the brightness of the double feed detecting lamp. When detecting thick sheets (100 gsm or thicker) or sheets with lots of dark printing, use the brighter setting.

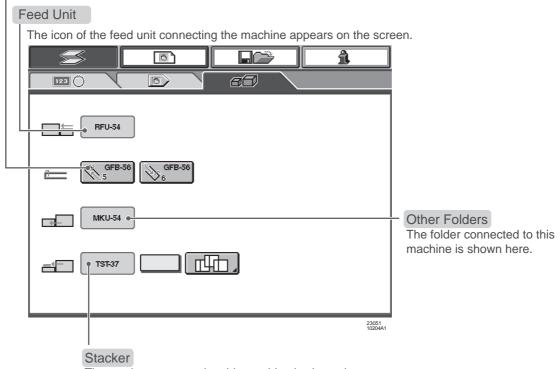
-: Set the sensitivity of the double feed detection. The bigger the level bar is, the higher the sensitivity.

- If the sensor misdetects the correct feeding as double, decrease the sensitivity.
- If double feeding is not detected and passes through, increase the sensitivity.

#### 1-2-4 Main - Options Screen

#### Gate Fold Buckle Chutes (GFB-56)

If you are using one of the GFB-56 buckle chutes, press the button so that it turns blue. If you are not using a GFB-56 unit, press the button again.



The stacker connected to this machine is shown here.

The setting listed below is available only when the optional PST-40 press stacker

This displays the number of sheets included in each set.

#### Offset Mode

Shift; The stacker offsets a batch of sheets when it reaches the preset set count number.

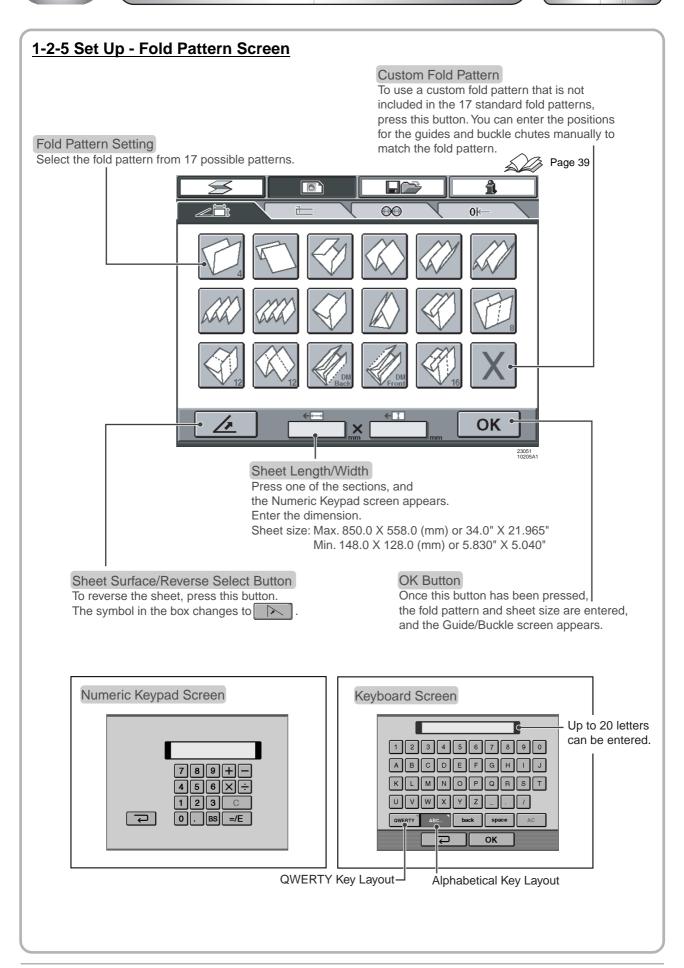
Kick; The stacker offsets one sheet when it reaches the preset set count number.

1-2

## **Touch Panel Description**

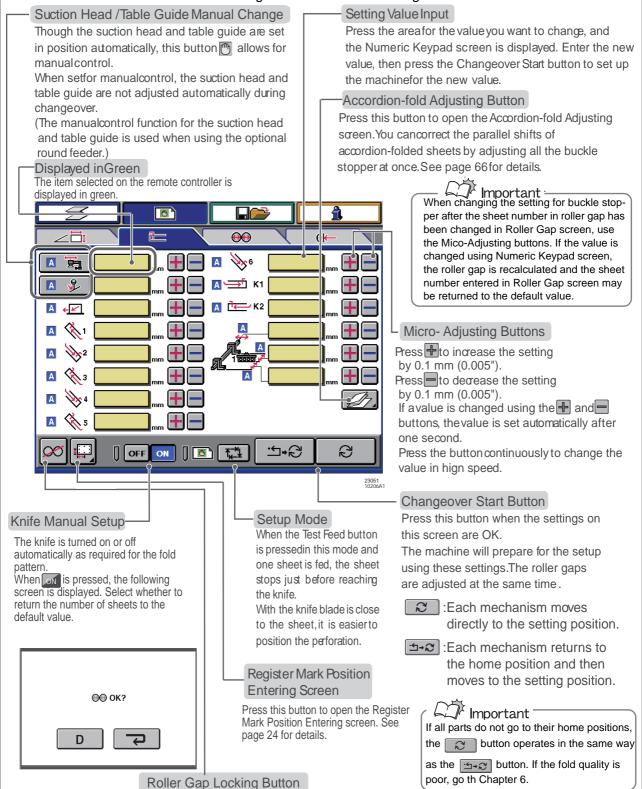
1-2-5

Fold Pattern Screen



#### 1-2-6 Set Up - Guide-Buckle Screen

This screen shows the calculated machine settings in a list, based on the settings on the Fold Pattern screen and on the sheet size. The settings can be fine-tuned using this screen.



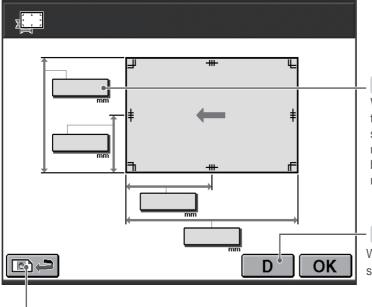
When you change the value for number of sheets on the Setup - Roller Gap screen, and then enter a value for the buckle stopper using the Numeric keypad screen, the roller gap is re-calculated and the value for the number of sheets returns to the default value. Press this button if you do not want to change the value for the number of sheets on the Setup - Roller Gap screen. Alternatively, you can also change only the value for the buckle stopper using the Fine Adjusting buttons.

## **Touch Panel Description**

Register Mark Position
EnteringScreen

#### 1-2-7 Set Up - Register Mark Position Entering Screen

You can enter the values for register mark position.



#### Entering a Value

When you want to change the value, press this area to open the Numeric Keypad screen. Enter a new value. After entering a new value, press OK to set the guides and buckle chutes automatically to match the new register mark position.

#### **Default Button**

When you press this button, the following screen is displayed.



When you press this button, the guides and buckle shutes do not move tot match the changed register mark position.



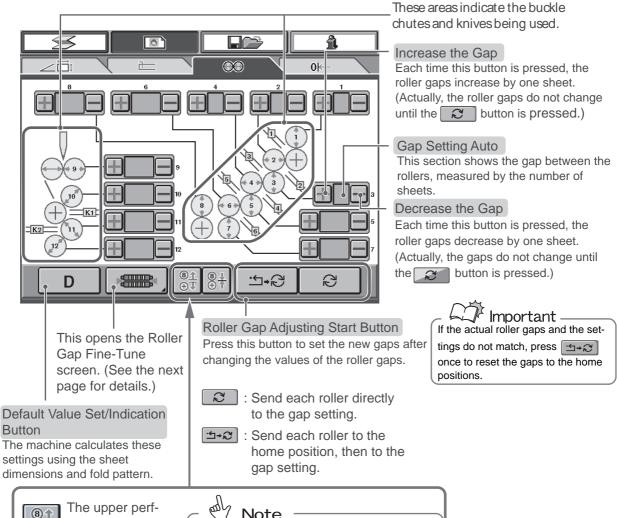
OK : Press this to return the values to the default.

Press this to carry over the values to indicated on the screen.

23051 10207D1

#### 1-2-8 Set Up - Roller Gap Screen

This screen shows the gap between each pair of rollers, measured by the number of sheets, according to the settings indicated on the Fold Pattern screen. The gap between each pair of rollers can be adjusted automatically to the desired number of sheets.

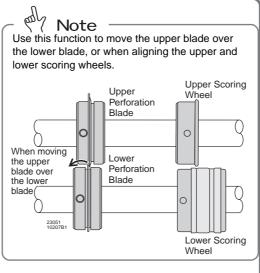




oration shaft is lifted, and the upper and lower perforation blades are separated. When upper perforation shaft is lifted, this button is indicated in orange color.



The upper perforation shaft returns to the original height.



23051 10207A1

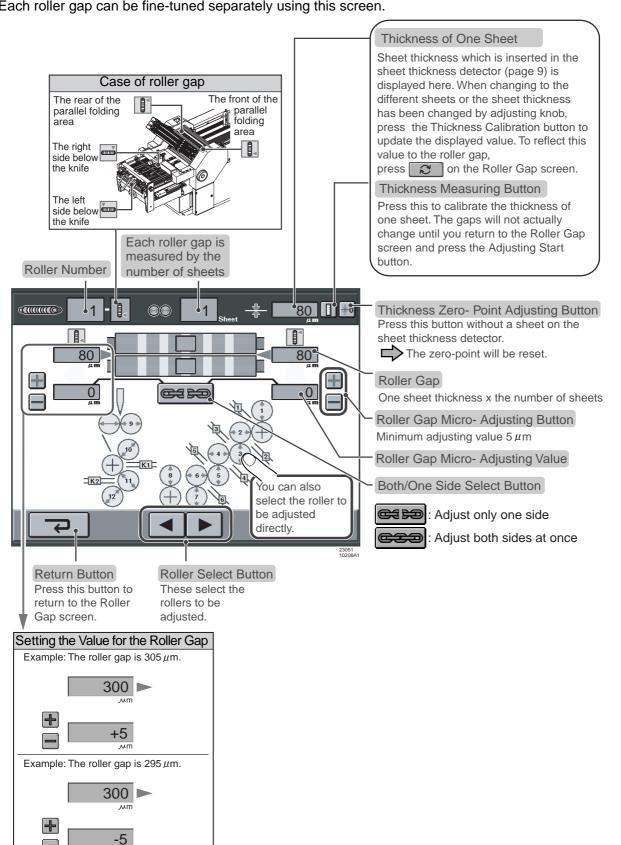
25

## **Touch Panel Description**

Roller Gap Micro -Adjusting Screen

#### 1-2-9 Set Up - Roller Gap Micro-Adjusting Screen

Each roller gap can be fine-tuned separately using this screen.

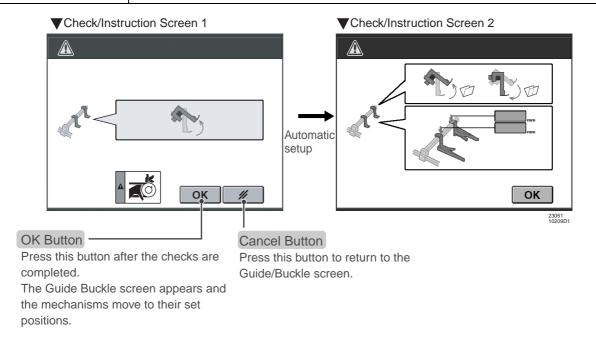


# **Touch Panel Description**

### 1-2-10 Set Up - Check/Instruction Screen

Before each mechanism is setup automatically to match the fold pattern and sheet size, the Check/Instruction screen appears. This lists the parts on the machine that must be checked before changeover.

Check Item	Operation
(1) Check that all the sheet guides are removed.	There are three types of sheet guides. Remove the sheet guides before doing the automatic setup. After doing the automatic setup, install the sheet guides to match the sheet size. When using small sheets, the sheet guides are not needed. For longer sheets, install or replace the guides.
(2) Lower the feed table.	This prevents the suction head from hitting the table when the table moves.
(3) Set the knife fold stopper and lower it. Remove or raise the knife fold stopper.	Remove the knife fold stopper before doing the automatic setup. If you will be doing knife folding, install the knife stopper after the automatic setup.
(4) If the distance from the knife to the side edge of the sheet is less than 95 mm (3.8"), install the front and rear side guides at the positions shown.	Remove the side guides before doing the automatic setup. If the distance from the knife to the side edge of the sheet is less than 95 mm (3.8") after the automatic setup is done, the knife side guides may not automatically move close enough to the sheets. In this case, install the side guides for small sheets. If the distance from the knife to the edge of the sheet is 95 mm (3.8") or more, the knife guides are set automatically.  Side Guides for Small  Sheets



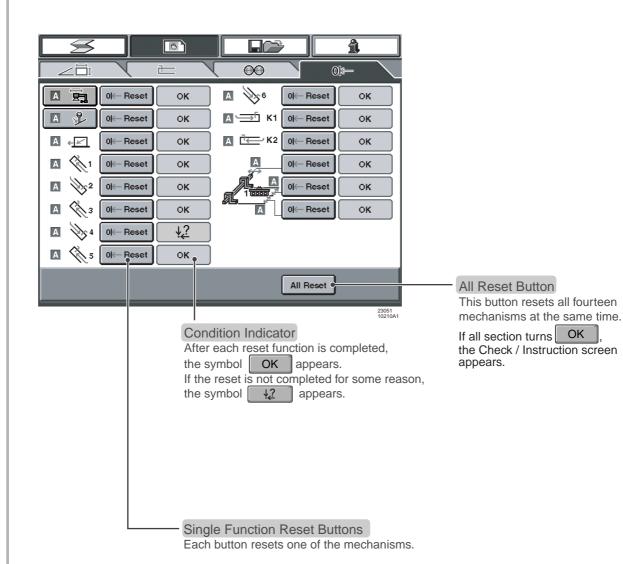
# **Touch Panel Description**

1-2-11

Reset

#### 1-2-11 Set Up - Reset Screen

The AFC-566F includes fourteen parts that can be reset automatically. This screen is used to check that these parts are reset correctly.



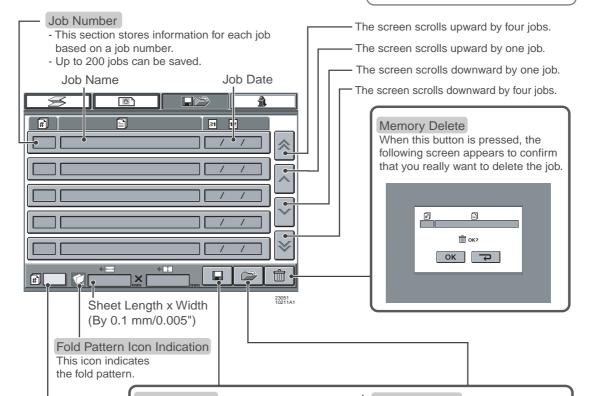
### 1-2-12 Memory Screen

This section stores, recalls and deletes the settings for memorized jobs. All the settings on the following screens can be saved as one job:

- Main Function screen
- Main Condition screen
- Set up Fold pattern screen
- Set up Roller Gap screen
- Set up Guide Buckle screen

\_\_\_\_\_\_ Additional Information

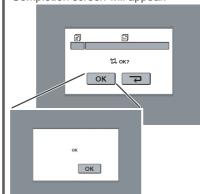
If the scroll button is kept pressing time, it scrolls the screen faster.



Job No. Input Button Numeric Key Screen appears. Input the required job number.

#### Memory Write

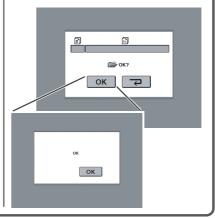
Press here to store or memorize the job using the job number listed to the left. If the same job number has been used before, the older job information will be overwritten. The job information will be stored and the Completion screen will appear.



#### Memory Recall

Press here to recall the job you selected in the list.

The machine parts will not move to their set positions yet.



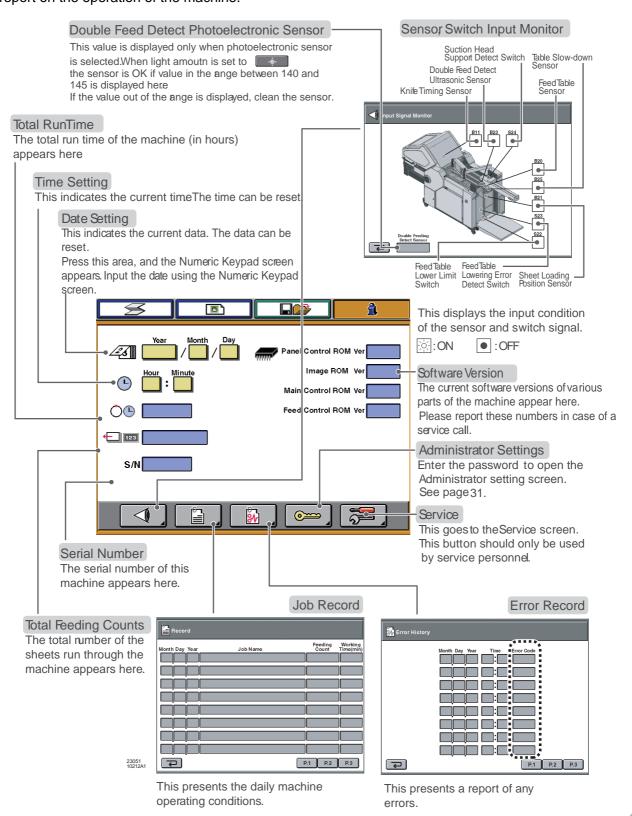
## **Touch Panel Description**

1-2-13

Properties Screen

#### 1-2-13 Properties Screen

This screen displays information about this machine: date setting, machine operating history, serial number, and software version. This screen also has buttons that go to other screens. The Monitor screen shows the input signals from the sensors. The Job Record screen and Error Record screen report on the operation of the machine.

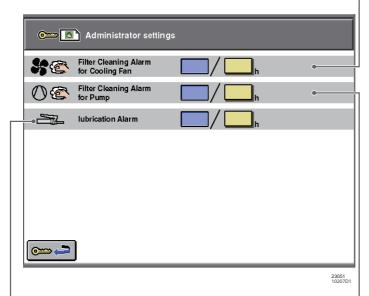


# **Touch Panel Description**

Administrator Setting
Screen

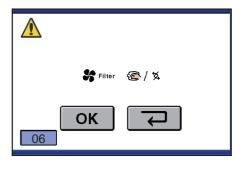
### 1-2-14 Properties - Administrator Setting Screen

This screen is used to set up the alarm function which tells the time for filter replacement and lubrication by message.



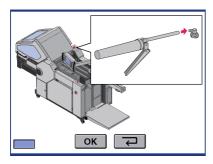
#### Filter Cleaning Alarm for Cooling Fan

This is used to set the time to display the alarm for cleaning the air filter of control box. When the power-on hours reach a set time, a message screen will be displayed on the next power-up. See page 121 for details. Use the screen as an indicator for frequency of a cleaning. When you press OK on the message screen, the count returns to zero.



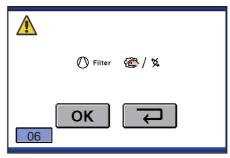
#### **Lubrication Alarm**

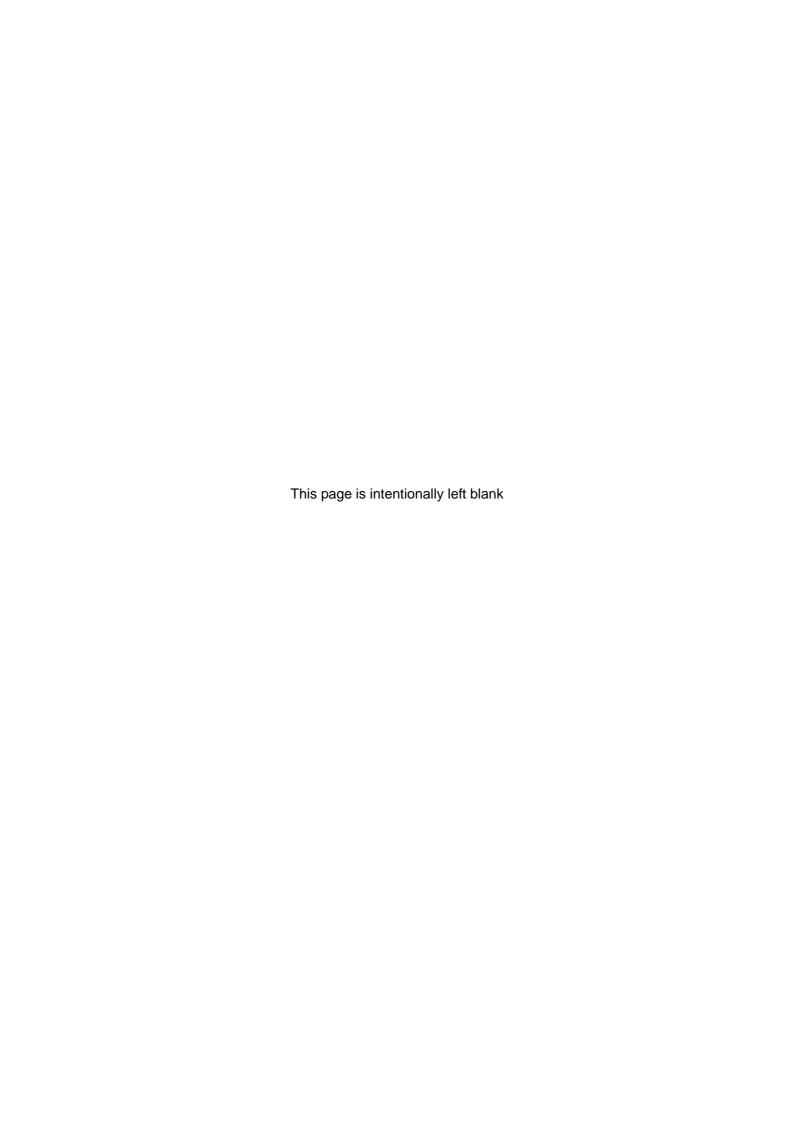
This is used to set the time to display the alarm for lubricating. When the machine operating time has come up to a set time, a message screen will be displayed on the next power-up. See page 121 for details. Use the screen as an indicator for frequency of lubricating. When you press OK on the message screen, the count returns to zero.



#### Filter Cleaning Alarm for Pump

This is used to set the time to display the alarm for cleaning the vacuum pump filter. When the machine operating time has come up to a set time, a message screen will be displayed on the next power-up. See page 121 for details. Use the screen as an indicator for frequency of cleaning. When you press OK on the message screen, the count returns to zero.





# 2. Overview of Setup Procedure

The complete setup consists of the basic setup (page 37) and the fine-tuning adjustments (page 57). Begin by doing the basic setup for the job, then fine-tune the sections of the machine while it is actually running sheets.

# **Overview of Basic Setup**

1. Turning on the Power Switch -



2. Insert one sheet into the sheet thickness detector.



Page 38

3. Setting the Fold Pattern, Sheet Size, and Job Name on the Touch Panel Screen -

(Or recalling a saved job on the touch panel screen.)



4. Setting the Positions of the Guides and Buckle Chutes -



5. Loading the Sheets on the Table -



6. Setting the Suction Head -



Page 46

7. Setting the Register Guide -



8. Setting the Perforation Blades -

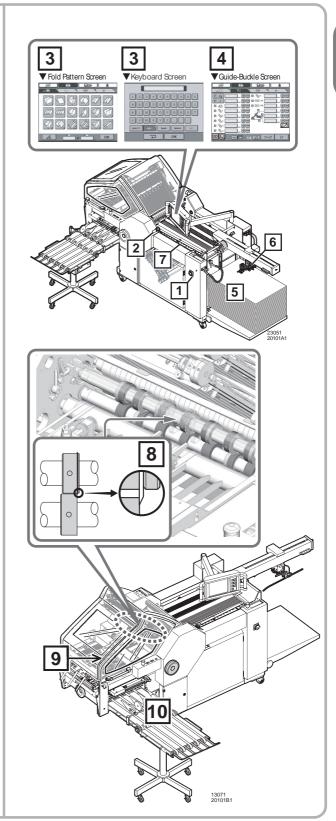


9. Setting the Knife Fold Section -

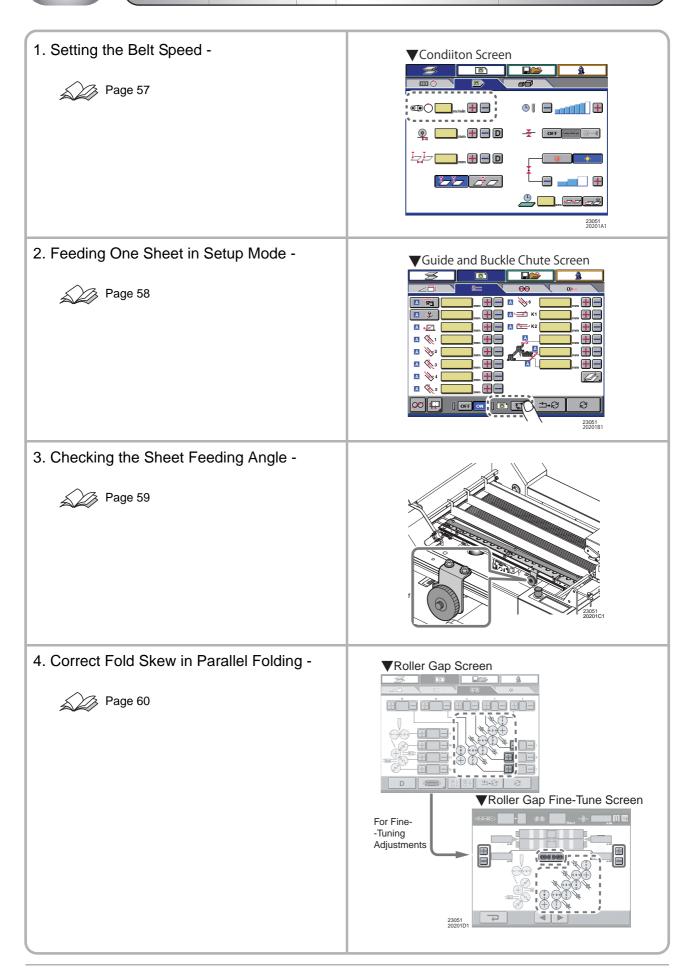


10. Setting the Conveyor Section -





# **Overview of Fine-Tuning**



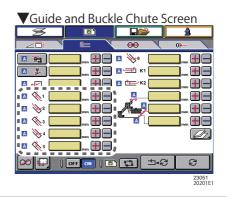
# Overview of Fine-Tuning

5. Correct Parallel Shifts in Parallel Folding -



2-2

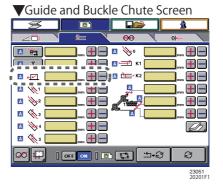
Page 65



6. Matching the Perforation Line to the Fold Knife -



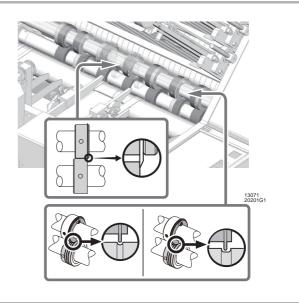
Page 67



7. Setting the Perforation Blades and Scoring Blades -



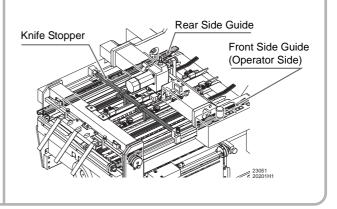
Page 71



8. Setting the Knife Fold Section -



Page 75

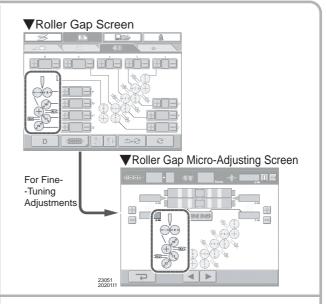


# **Overview of Fine-Tuning**

9. Correct Fold Skew on Buckle Chute Below Knife -



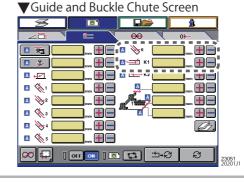
Page 77



 Correct Parallel Shifts on Buckle Chute Below Knife -



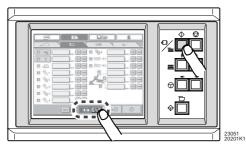
Page 81



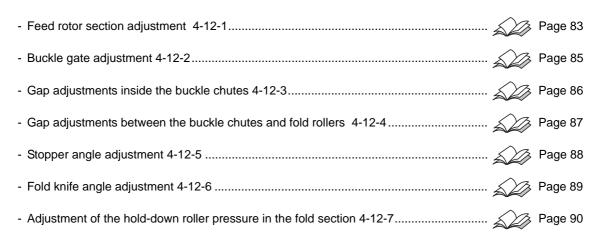
11. Checking the Fold Quality -



Page 82



12. Other Adjustments.

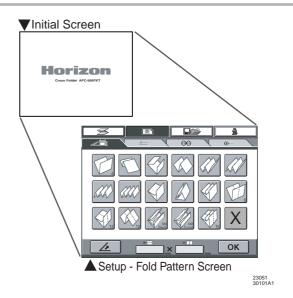


# 3. Basic Setup

3-1

# **Turn On the Power Switch**

- Turn on the power switch.
  - The LCD display presents the Initial screen. Next, the Fold Pattern screen is displayed.



# Setting the Fold Pattern and Sheet Size

#### There are two ways of doing this:

- A: Set the fold pattern and sheet size for a new job.
- B: Recall a saved job. (See page 40)

#### A: Set the fold pattern and sheet size for a new job.

Set the fold pattern and sheet size using the Fold Pattern screen.

1

#### Select the fold pattern.

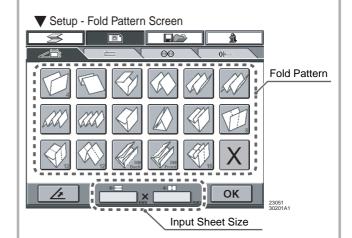
If the folding pattern you wish to start is not listed among the seventeen available patterns, press x on the screen.

f \_\_\_\_\_ is pressed, the sheet is reversed.

\_\_\_\_ Additional Information

If \_\_\_\_\_\_ is pressed, the deflector in buckle chute 1 is set to reverse the sheet.

When is pressed, the fold patterns, and cannot be selected.

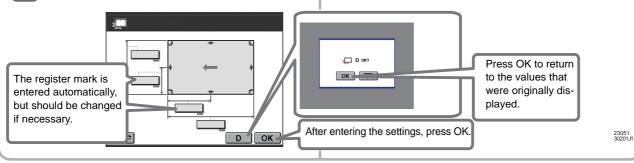


# 2 Input the sheet size.

- Press the value box, and the Numeric Keypad screen appears. Enter the sheet size.

Max.: 850.0 x 558.0 (mm) (34.0 " x 21.965 ") Min.: 148.0 x 128.0 (mm) (5.830 " x 5.040")

- Press OK on Set-up Fold Pattern screen.
  - The selected fold pattern and the input sheet size are entered.
  - If 8-page cross fold, 12-page cross fold or 16page cross fold is selected, the Register Mark Position Entering Screen is displayed. If another custom fold pattern has been selected, the Sheet Insertion Instruction screen appears on the display. Go to step 5 on the next page.
- 4 Enter the register mark position.



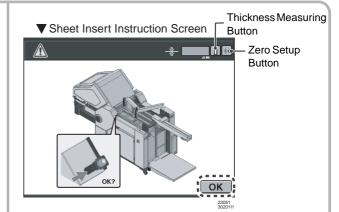
# Setting the Fold Pattern and Sheet Size

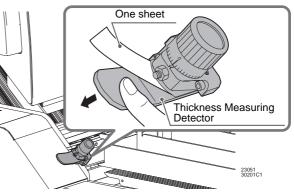
- Press the Zero Setup button with no sheets to set the value zero.
- Insert the sheet into the sheet thickness detector.
  - Prepare a strip of the sheet that you will fold.
  - Push down the lever and insert the strip of the sheet into the sheet thickness detector.
- Press the Thickness Measuring button.
  - The mesured value is displayed beside the button.
- Press OK on Sheet Insertion Instruction screen.
  - The keyboard screen appears on the display.

Attention

The keyboard screen does not appear in the following cases:

- If the Zero Setup button is pressed after a sheet is inserted
- If ok is pressed without pressing the Thickness Measuring button
- If the Thickness Measuring button is pressed without inserting a sheet





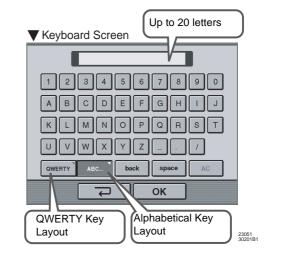
# Enter the job name.

- When you enter the job name, it will be displayed in job history. You do not have to enter the job name.
- If you do not enter the job name, the job is saved without a job name.
- Up to 20 letters can be entered.



The Guide-Buckle screen appears on the dis-

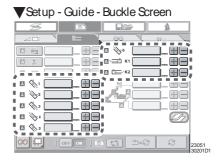
- If the custom fold pattern function X has been selected, see steps 11 to 13. If you are not using the custom fold pattern, go to page 41.



Do this only if you are using a custom fold pattern (X button): Enter the stopper positions for any buckle chutes which will be used.



Note If the stopper position for a buckle chute is set to 0, the deflector will be set and that chute will not be used.



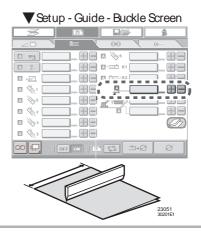
# **Setting the Fold Pattern and Sheet Size**

12 Enter the position for the knife stopper.

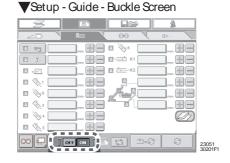
Mote

The knife stopper is automatically moved to the maximum setting for knife folding.

Additional Information
The knife guides are automatically set to match the sheet width.

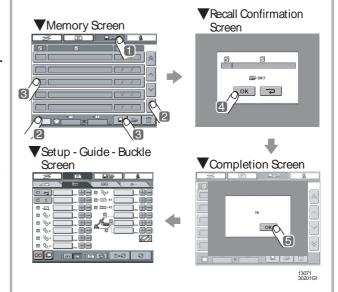


The knife is initially set to On. If you are not using knife folding, select Off in the knife manual setup area.

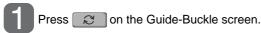


B: Recalling a saved job.

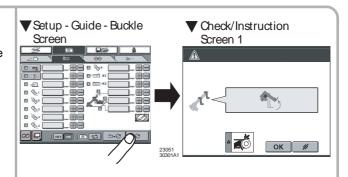
- Press the tab on the screen.
- Find the job you want by using the arrow buttons on the right side of the screen.
  - Or input the required job number using the Job No. Input button.
- Select the job number you want and press .
  - The Recall Confirmation Screen appears.
- 4 Press OK.
  - The job is recalled, and the Completion Screen appears.
- Press OK.
  - The Guide-Buckle screen appears.



# Setting the Positions of the Guides and Buckle Chutes



 Check/Instruction Screen 1 appears before the machine starts the setup of the guides and buckle chutes.



# Check the following before moving the guides and buckle chutes.

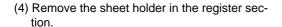
(1) Lower the feed table. Press the Feed Table Down button on the control panel. Lower the table until the space between the feed table and the suction head is about 50 mm (2"). Remove any sheets on the feed table. The table guide may hit the sheets during the automatic setup.

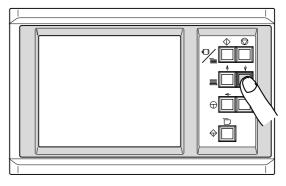
### **CAUTION**



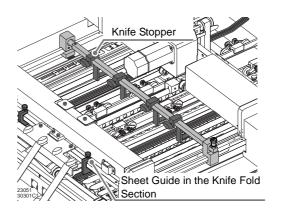
Do not place anything under the feed table. The table may hit the obstruction and damage the machine.

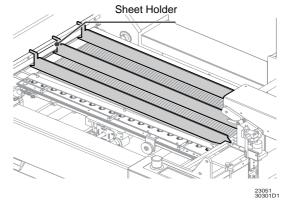
- (2) Remove the knife stopper.
- (3) Remove the sheet guide in the knife fold section





23051 30301B1

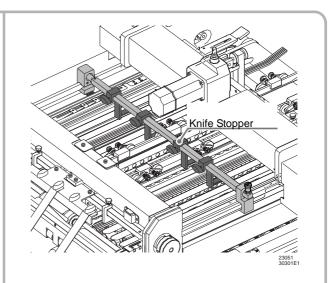




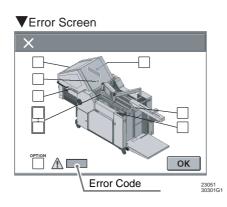
# Setting the Positions of the Guides and Buckle Chutes

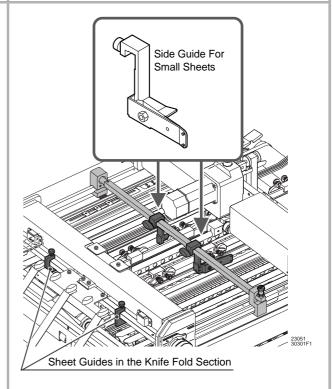
# Press OK on Check/Instruction Screen 1.

- All the roller gaps are set at once.
- All the guides and buckle chutes move. Check/ Instruction Screen 2 appears after the automatic setup is finished.
- If the cover is opened during changeover, the machine stops immediately. In that case, close the cover and press on the Guide-Buckle screen to perform the changeover again.
- (1)If you are not using knife folding, remove the knife stopper. If you are using knife folding, set the knife stopper.



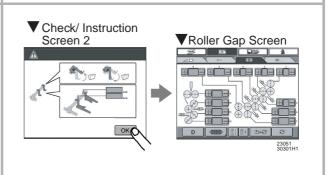
- (2)Install the side guides for small sheets if the sheet width is less than 95 mm (3.8"). Remove the side guides for small sheet if the sheet width is 95 mm (3.8") or more.
- (3) Install the sheet guides in the knife fold section.
- (4) If a mechanism fails to reach to the home position, the Error Screen appears. Use the error code to tell which mechanism did not reach the correct setting. Fins out why the part could not move to the correct position.





# Press OK on Check/Instruction Screen 2.

- The Roller Gap screen appears.



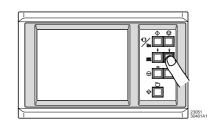
# Loading the Sheets on the Table

# Lower the feed table.

- Press the Feed Table Down button on the control panel. The table will lower.

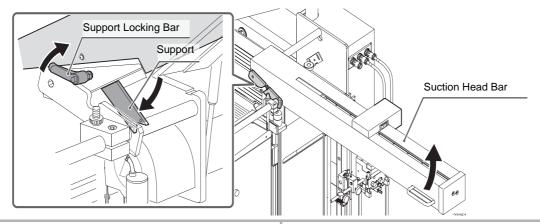


The table can be stopped from lowering by pressing the Feed Table Up button while the table is moving.



# Raise the suction head bar and support.

- Put the notch of the support over the rod.



# Coad the sheets on the table.

mportant Important

Fan the sheets correctly. Load the sheets so they are aligned with the table guide. Align the head edge of the stack with the feed head.

Additional Information

The maximum stack height is 740 mm (29.1"). The maximum stack weight is 250 kg / 551 lb.



Attention

When you load the coated papers of 545 x 788 mm / 21.5" x 31.0" at the maximum, the weight is about 330 kg / 726.9 lb. Be careful not to exceed the maximum load.

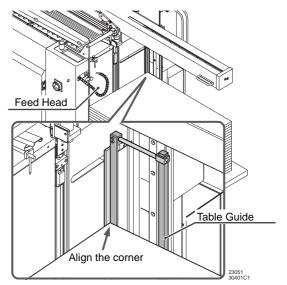
# Lower the suction head bar.

- Lift the suction head bar a little, turn the support locking bar, raise the stay and lower the suction head bar.

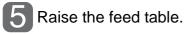
#### **WARNING**



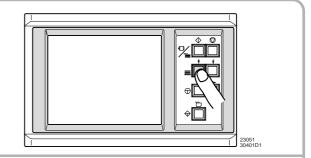
When lowering the suction head bar, be careful not to catch your finger.



# Loading the Sheets on the Table



- Press the Feed Table Up button on the control panel.



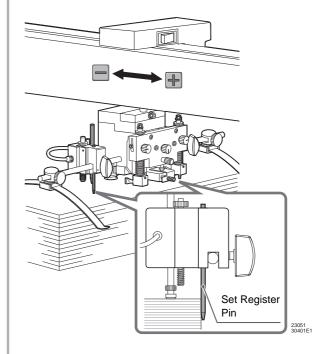
# 6 Check the position of the suction head while the table is rising.

- Position the suction head so that the set register pin just touches the tail edge of the stack.

Additional Information

If the stack is not arranged correctly, and the set register pin does not fit against the tail edge of the stack, straighten the stack. If the stack is not arranged correctly, the feeding action may become uneven.

- If you need to adjust the position of the suction head, adjust it by following the steps below.
- 1. Lower the feed table by 20 mm (0.79").



#### **↑** CAUTION



Do not adjust the suction head while the feed table is in stanby position. Otherwise, the suction head may hit the piled sheets.





- 2. Adjust the position using Guide-Buckle screen
- 3. Raise the feed table.

#### ▼ Guide-Buckle Screen



# Loading the Sheets on the Table



# Check the position of the feed scale pin in relation to the stack.

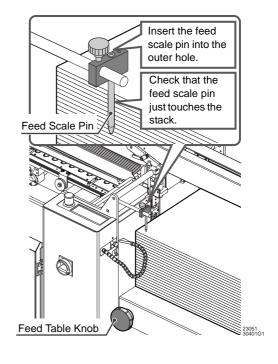
- Insert the feed scale pin into the outer hole.
- Check that the feed scale pin just touches the
- If necessary, adjust the position of the table by turning the feed table knob.

#### To move the sheets to the rear

- (1) Increase the value for the "table guide" by required amount using Guide-Buckle screen.
- The table guide moves to the rear.
- (2) Turn the feed table knob and move the sheet to the rear.

#### To move the sheets to the front

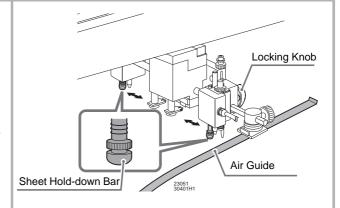
- (1) Turn the feed table knob and move the sheet to the front.
- (2) Decrease the value for the "table guide" by required amount using Guide-Buckle screen.
- The table guide moves to the front.





### Position the sheet hold-down bars.

- If the sheets are thin or narrow, move the bars inward.
- If the sheets are thick or wide, move the bars outward.
- If necessary, attach and adjust the air guides.
  - Set the guides to match the sheet size.
  - When small size sheets are used, remove the air guide.



# **Setting the Suction Head**

#### Set the separator.

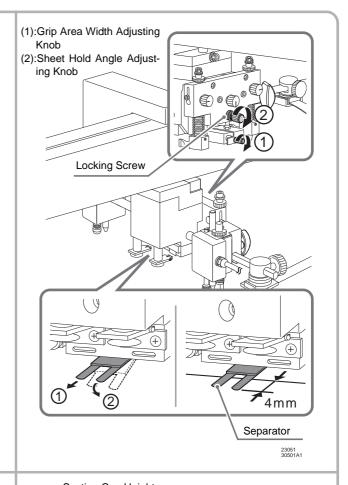
- Adjust the separator so that the grip area is about 4 mm (about 0.16").



Adjust the separator using the grip area width adjusting knob and the sheet hold angle adjusting knob.

Additional Information

If double feeding occurs frequently, increase the grip area (direction shown by arrow 1) or loosen the locking screw first, then increase the separator angle (direction shown by arrow 2). For thin sheets, reduce the sheet hold angle.



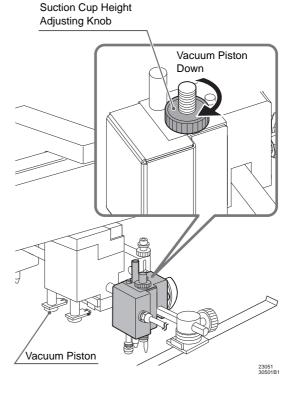


### Set the height of the vacuum piston.

- In normal use, adjust the vacuum piston using the suction cup height adjusting knob so that the gap between the sheets and the vacuum piston is about 1 mm (0.04").
- To reduce the gap, turn the knob clockwise.

Additional Information

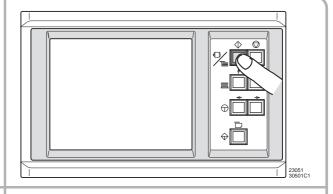
If the vacuum piston feeds two sheets
because the sheets are porous, raise the vacuum piston. If the vacuum piston fails to feed a sheet because the sheet is heavy, lower the vacuum piston.



# 3-5 Setting the Suction Head

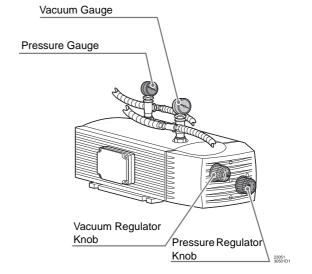
# 3 Start the pump.

- Press the Feed Start button on the control panel once.
- The air blowers will start, and the vacuum piston will grip the top sheet and lift it.



# 4 Adjust the pump pressure.

 Adjust the vacuum and the pressure regulator knobs so that the vacuum gauge is set to - 0.04 MPa (-5.8 psig) and the pressure gauge is set to 0.03 to 0.04 MPa (4.4 to 5.8 psig).



# Adjust the blower pressure.

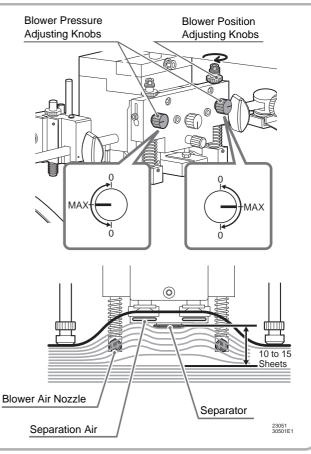
 Adjust the blower air using the blower position adjusting knobs and the blower pressure adjusting knobs. About 10 to 15 sheets at the top of the stack should be separated.

## Mote

In normal use, both of the blower pressure adjusting knobs are set evenly. If the sheets are distorted on both sides of the suction cup because the sheets are curved, adjust the gap using the blower pressure adjusting knobs.

Additional Information

If the blower pressure is too strong, this can cause double feeding.

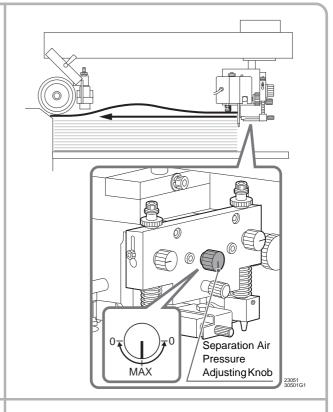


# **Setting the Suction Head**



## Adjust the separation air.

- Adjust the separation air so that the head of the top sheet is lifted by the air so that it touches the

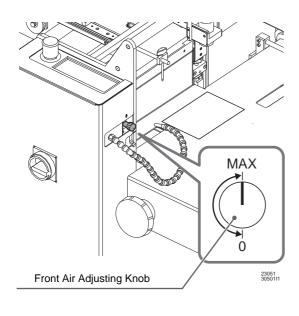


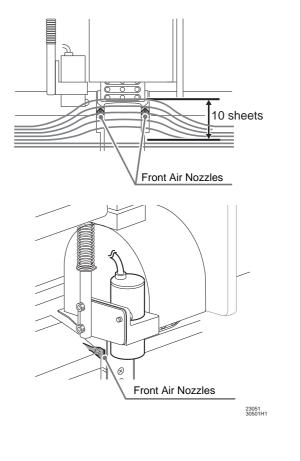


# Adjust the front air.



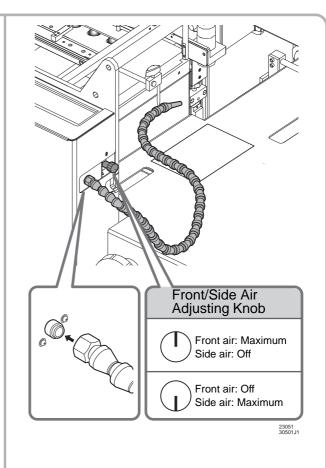
- -When the mark on the knob is moved upward as far as possible, the air blowers produce the maximum output.
- -About 10 sheets at the top of the stack should be separated.



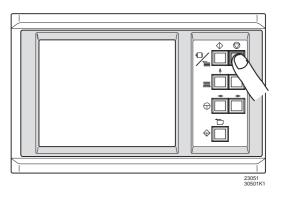


# Setting the Suction Head

- 8 Set the side air outlet if necessary.
  - The large and heavy sheets may not be separated because the air does not reach to the end of the sheet. Use the side air to separate the edges of the sheets.



After adjusting the air, press the Feed Stop button on the control panel.

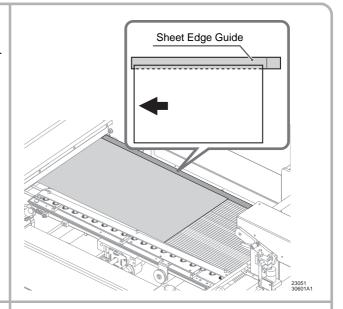


# **Setting the Register Guide**

# Set the sheet edge guide.

- Set the guide to match the far edge of the sheet.

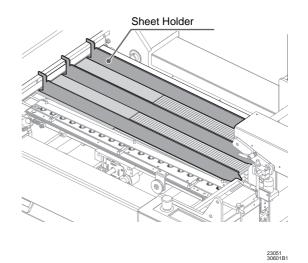
The sheet edge guide prevents the edge of a sheet from catching on the gap of the side lay table. The smaller the area where the sheet edge guide covers a sheet, the less interference there is with the sheet transfer.



# 2 Set the sheet holders.

- Set the sheet holders to match the sheet width.

Additional Information
These are especially important for light sheets.
Use of these holders depends on the stiffness of the sheet.



# 3 Set the transport balls.



#### 7 Note

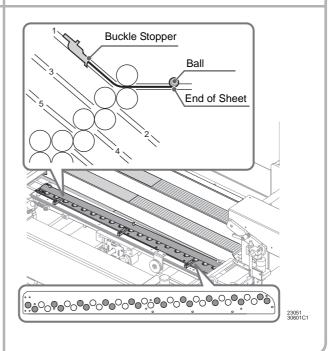
-Arrange the steel and plastic balls to control the sheet smoothly. See the drawing to the right. When the top of the sheet is touching the stopper in the first buckle chute, place plastic balls near the bottom of the sheet.

If the sheet is large or heavy, replace these with steel balls.

\_\_\_\_ Additional Information

-If the sheets rise too close to the register guides, reduce the number of steel balls or replace them with the plastic balls. If the sheets do not rise far enough, increase the number of transport balls.

If the sheets are caught in the ball holes, insert the plastic balls. See the following section, "Setting the Register Guide."



# **Setting the Perforation Blades**

- If the perforation blades are not installed, install them in the blade holder. See section 7-7.

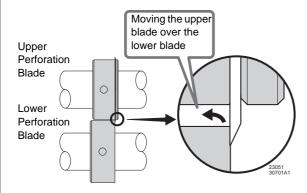
### 🗥 WARNING



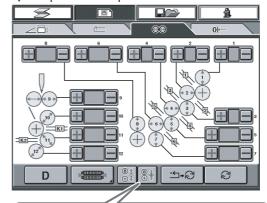
-Press the Emergency Stop button before starting this operation. Otherwise, the machine may start suddenly and cause severe personal injury. -Wear cutting proof gloves during this operation. Otherwise, a sharp blade can cause severe personal injury.

-Do not touch the blades.

Use the functions shown to the right to move the upper blade over the lower blade.



#### ▼Setup - Roller Gap Screen



<u>®</u>↑ ⊕₩

When you press this button, this button turns orange. The upper perforation shaft is lifted, and the upper blade is separated from the lower blade.

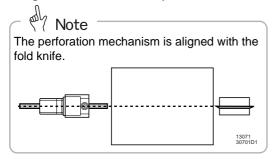
\*\*

The upper perforation shaft returns to the original height. Return the perforation shaft after moving the upper blade sideways and away from the lower blade. Otherwise, the blades can hit each other and be damaged.

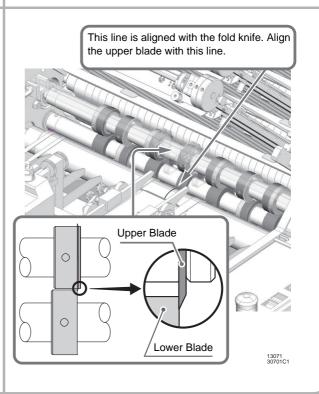
23051 30701B1

#### If you are doing perforating:

Fit the tip of the upper blade against the top of the lower blade, and then tighten the assembly.

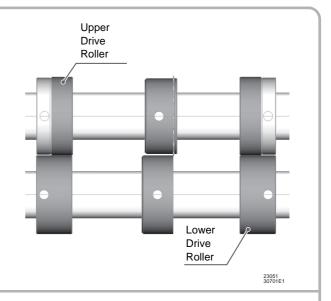


The position of the perforation line can be adjusted by changing the sheet position, as described in page 59.



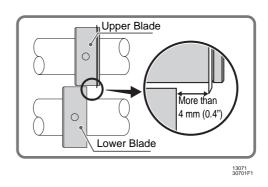
# **Setting the Perforation Blades**

2 Set the drive rollers evenly against the perforation blade.

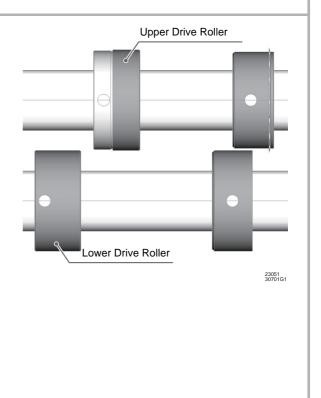


#### If you are not doing perforating:

Move the upper blade and lower blade apart by 10 mm (0.4").



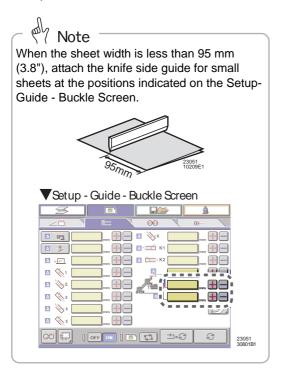
Move the upper drive rollers and lower drive rollers apart.

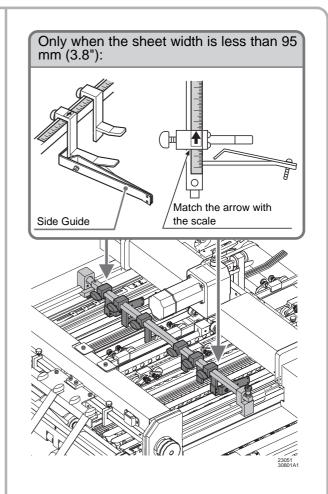


# Setting the Knife Fold Section

# Check the knife stoppers.

- When not doing knife folding, remove the knife stoppers.
- When doing knife folding, install the knife stoppers.



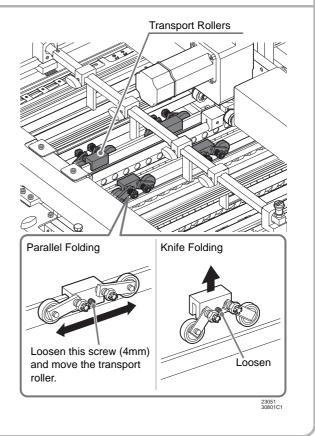


#### When performing parallel folding

- Set the transport rollers.
- Install these rollers in positions where they prevent the sheets from lifting, so the sheets move smoothly.

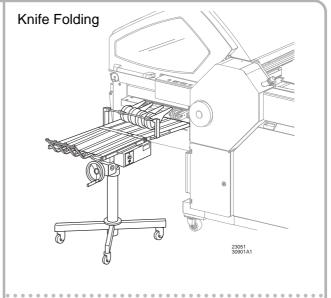
#### When performing knife folding

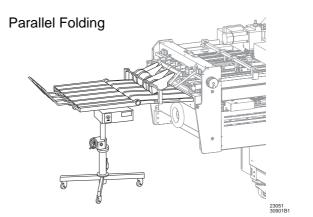
- Loosen the locking screw and remove the transport roller.



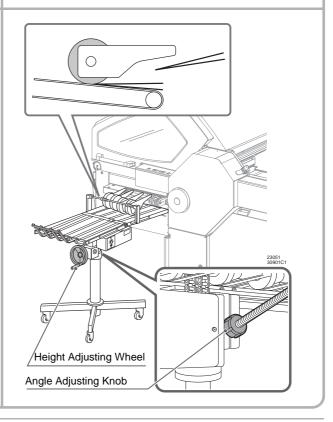
# **Setting the Conveyor Section**

- Install the conveyor in the correct position for the fold pattern.
  - Install the conveyor in position to receive the folded sheets.





- Adjust the height and the angle of the conveyor to match the delivery position of the folded sheets.
  - Angle a conveyor table a little, so that the tail end of the sheet falls and it is delivered smoothly without interrupted by the next sheet.
  - To adjust the angle of the conveyor table, turn the angle adjusting knob lifting the table a little.

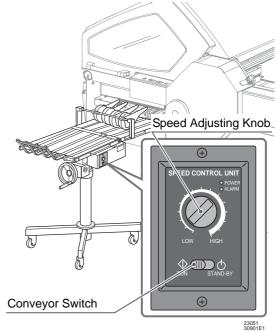


# 3-9 Setting the Conveyor Section

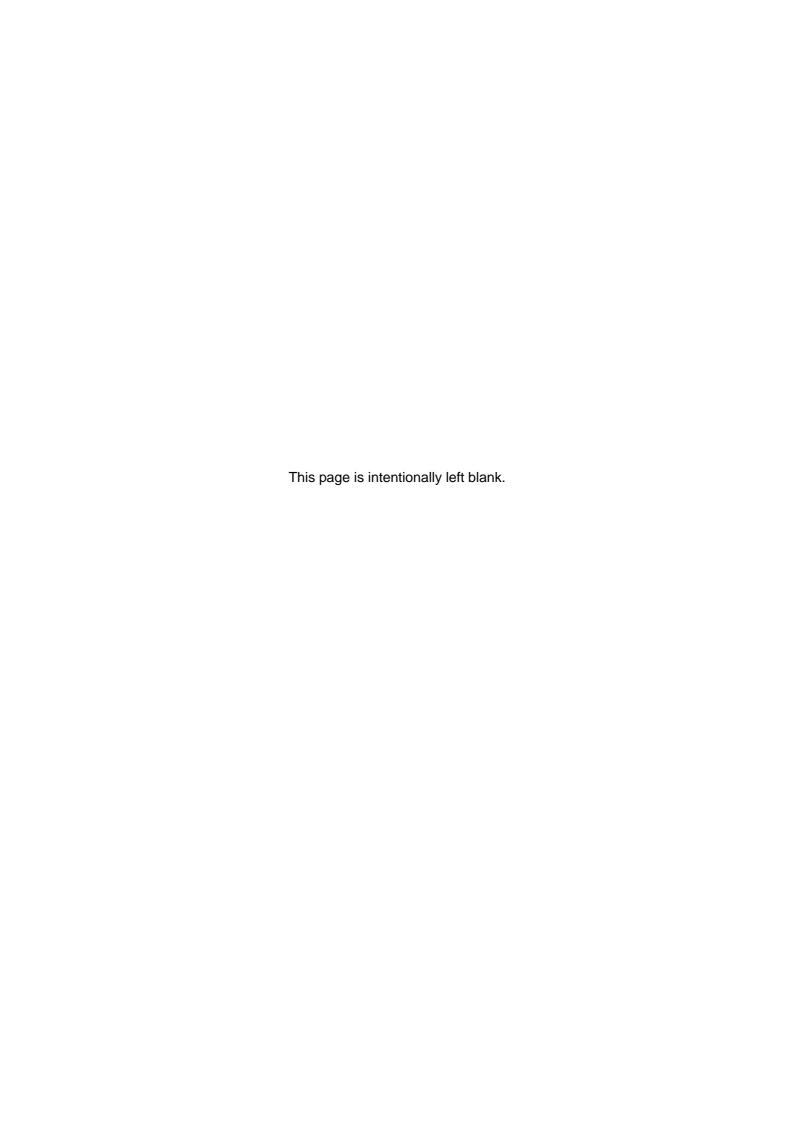
- Set the catch rollers to match the length of the delivered sheet.
  - Set the catch rollers so that each delivered sheet is immediately held between the catch roller and the transport belt.



- 4 Set the conveyor switch to Run.
  - If the speed adjusting knob is set to LOW (fully counterclockwise), the conveyor does not drive. Turn the knob to the middle position at least.



Now the basic setup is complete. See Chapter 4 for instructions on fine adjustments.



# 4. Fine-Tuning Adjustments

Feed some sheets, check the fold quality, and make fine adjustments if necessary.

4-1

# **Setting the Belt Speed**

Set the speed of the fold rollers and transport belts.

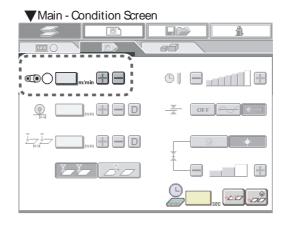


If the speed is set correctly, the perforation line will run straight. Also if the speed is slow, the delivered sheets will be arranged neatly.

# Important

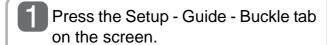
If the belt speed is changed after the other sections of the machine have been adjusted, the folding quality may deteriorate. Set the belt speed first. If you change the belt speed, be sure to check the folding quality.

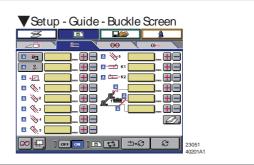
Additional Information
The belt speed may need to be changed depending on the paper quality, printing, and the folding pattern.



23051 40101A1

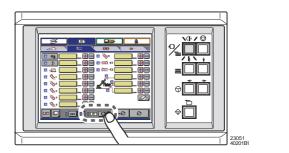
# **Feed One Sheet in Setup Mode**



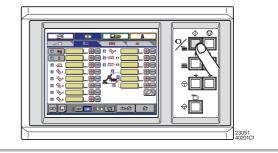




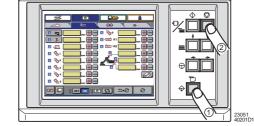
The Feed Start button blinks.



- Press the Feed Start button.
  - The feed rotor turns, and the fold rollers and transport belts start to move.

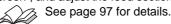


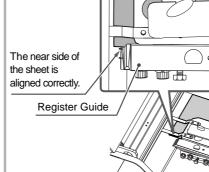
- Press the Test Feed button, then press the Feed Stop button immedi-
  - One sheet feeds and stops in the register guide section.





If double feeding or misfeeding occurs, refer to section 6-1, "If an Error Icon Appears on the Screen", and adjust the feed section again.







#### Note

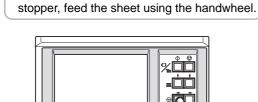
Feed a sheet by pressing the Normal Jog button and check that the sheet is aligned correctly with the register guide. If the sheet is not aligned with the register guide, replace the plastic balls with steel balls, or increase the number of balls. If the sheet hits the register guide too hard and is bent, decrease the number of balls, or replace the steel balls with plastic balls.

# **Checking the Sheet Feeding Angle**

Bring the sheet up to the stopper on the first buckle chute using the Normal Jog button on the control panel.



-If the reverse side of the sheet is fed, bring the sheet up to the second buckle stopper.-When the sheet is very close to the buckle

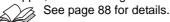


3051 0301A1

When the sheet touches the first buckle stopper, check that both corners of the sheet touch the buckle stopper at the same time.



If the sheet is not trimmed correctly (not square), adjust the angle of the buckle stopper. If the angle is not correct, the sheet does not hit at a right angle to the stopper, and the folding is skewed.



Move the sheet to the conveyor using the Normal Jog button.

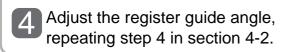
When doing knife folding, move the sheet to the fold knife using the Normal Jog button. Continue pressing the Normal Jog button and press the One Cycle button for the knife to deliver the sheet.

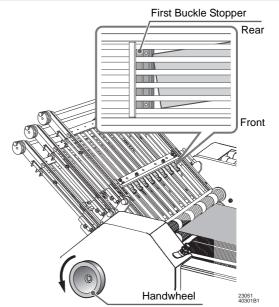
# If the sheet stops between the perforation / scoring section and the knife fold section

-See page 90, and increase the pressure of the hold-down roller shown in the illustration.

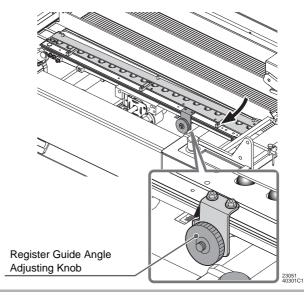
# If the sheet is scratched or smeared by the steel balls

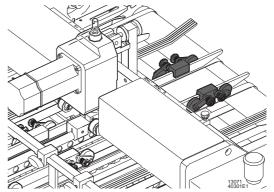
-See page 90, and decrease the pressure of the hold-down roller shown in the illustration.





If the rear edge of the sheet touches the stopper first, turn the register guide angle adjusting knob counterclockwise so that the angle changes in the direction shown by the arrow.





# **Adjusting Fold Skew in Parallel Folding**

Normally you can correct skewed folding by adjusting the angle of the register guide. If the skewed folding cannot be corrected by adjusting the angle, perform the following items.

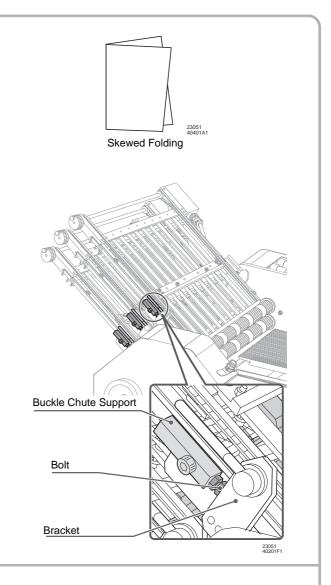
- 1. Check the buckle chute setting
- 2. Adjust the roller gap
- 3. Adjust the angle of the buckle stopper



- In normal operation, set the roller gaps on each side evenly. If the gaps are not even, this can cause the sheet to wrinkle, and the scoring or perforation line will not run straight.
- Only the first folding can be corrected by adjusting the register guide angle. To correct the second folding or others, adjust the roller gap and the buckle stopper angle.



Set the buckle so that the bolt on the buckle support hits the bracket without any gap.

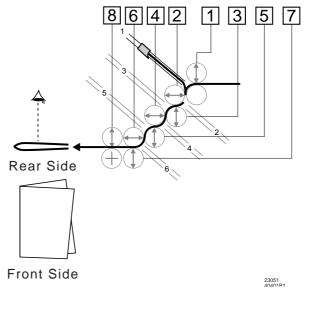


#### 2. Adjust the roller gap.

- Check which side of the sheet being parallel folded is skewed.
- If the folding is skewed as shown to the right, adjust the gaps this way:
  - (1) Make the first gap on the rear wider, or make the first gap on the front narrower.
  - (2) Make the second gap on the rear narrower, or make the second gap on the front wider.



The accuracy of the parallel folding may improve as the machine runs.



# **Adjusting Fold Skew in Parallel Folding**

#### Adjusting each roller gap

# To make a rough adjustment (adjusting the number of sheets.)

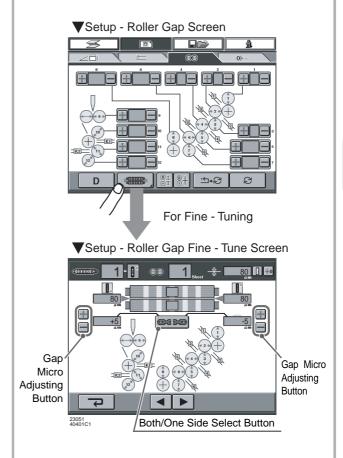
- In this procedure, roller gap on both sides are adjusted evenly. To adjust the roller gap on either side only, refer to "In case of the fine tune".
- (1) Change the number of sheets on the Setup-Roller Gap screen.
- (2) Press S
- Both ends of the roller are adjusted.

# In case of the fine - tune (adjusting by 5 µm at minimum.)

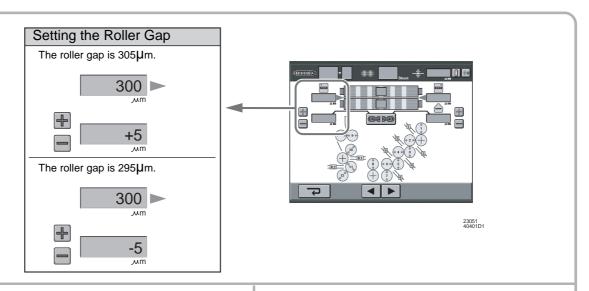
- (1) Press to display the Roller Gap Fine-Tune screen.
- (2) Select the roller gap to be adjusted.
- Touch the desired roller on the screen or press
   or buttons to select the roller gap.
- \_ \_
- The selected roller is displayed in blue.
- (3) Change the gaps.
- : Increase by 5 µm
- : Decrease by 5 µm
- After you press the or buttons, the gaps are actually adjusted a few seconds later.

: Adjusting one side only

: Adjusting both sides at once

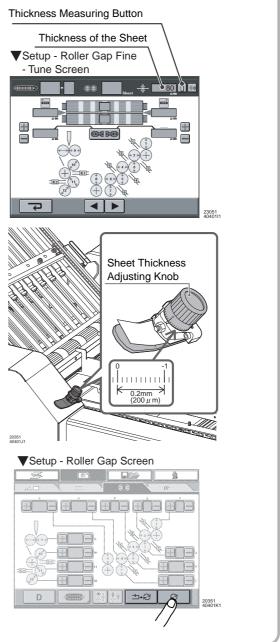


# **Adjusting Fold Skew in Parallel Folding**



#### Adjusting all roller gaps at the same time

- (1) Display the Roller Gap Fine-Tune screen.
- (2) Adjust the roller gap using the sheet thickness adjusting knob.
- Turn the knob to minus direction to widen the gap.
- The minimum scale is 20 µm.
- (3) Press the [ ] (Thickness Measuring button).
- The value of the thickness of one sheet will change.
- (4) Press on the Roller Gap screen.
- All roller gap will be actually changed.



### **Adjusting Fold Skew in Parallel Folding**

## Try the parallel folding again and check the folding accuracy.

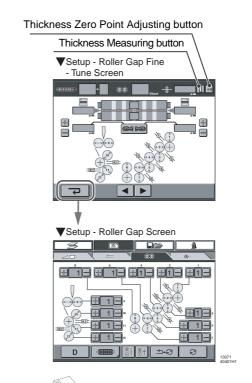
 If the skewed folding still occurs, check the roller pressure on the front and rear rollers in the following procedures.

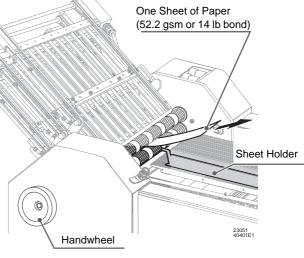
#### ♠ WARNING

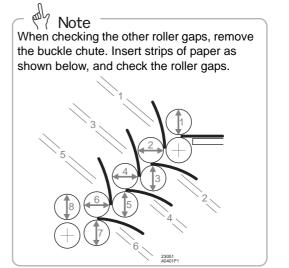


Before checking the roller gaps, stop the machine completely.

- (1) Reset the "Zero" point of the roller gap.
- Press the Thickness Zero Point Adjusting button on Roller Gap Fine-Tune screen without inserting a sheet into the gap adjusting lever.
   "Zero" point will be saved.
- (2) Insert one sheet of paper (52.2 gsm or 14 lb bond) into the gap adjusting lever.
- (3) Press the Thickness Measuring button on the Roller Gap Fine-Tune screen.
- (4) On the Roller Gap Fine-Tune screen, change the number of sheet to "1" on each roller.
- (5) Press
- All roller gap are set for one sheet.
- (6) Remove the sheet holders in the register guide section.
- (7) Take the same type of paper you will run, and tear it into strips. Insert one strip into the roller gap.
- (8) Adjust the roller gap on the screen so that the rollers turn slowly when you pull out the strip.
- (9) Adjust the roller gap on both sides by the same amount.







### **Adjusting Fold Skew in Parallel Folding**

### \_\_\_\_\_Additional Information

Here is the relationship between the sheet grain and the roller pressure:

## When the sheet is thin and the sheet grain is parallel to the fold line -

The sheet may not be folded correctly because the sheet is weak. Increase the roller gap.

## When the sheet is thick and the sheet grain is perpendicular $(90^{\circ})$ to the fold line -

The fold line may not be stable because the sheet is strong and is not folded tightly. Decrease the roller gap.

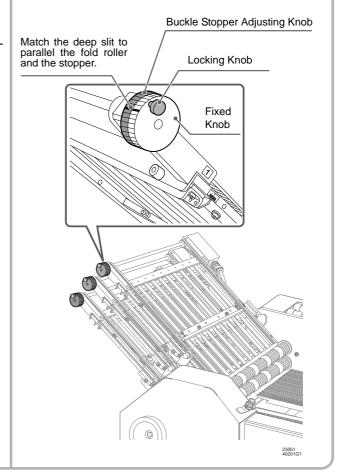
### \_\_\_\_\_ Additional Information

When the roller gap in the middle is wider than at the ends:

When gap in the middle is wider because the rollers are worn out, get the correct gap in the middle by tightening the gaps at the ends.

#### 3. Adjust the angle of the buckle stopper

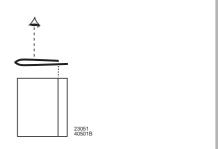
Adjust the buckle stopper angle referring to section 4-12-5



### **Adjusting Parallel Shifts in Parallel Folding**

#### 4-5-1 Adjusting the positions of the buckle stoppers separately

If the fold position shifts by the same amount on the front and rear, adjust the buckle stopper position.



Change the value for buckle 1 through buckle 6 on the Setup-Guide-Buckle screen.

### Note

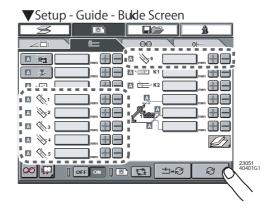
Each time you press the property or buttons, the stopper position changes. Once the value has been entered using the numeric keys, press to adjust all the stoppers at once.

### Mportant

When changing the setting for buckle stopper after the sheet number in roller gap has been changed in Roller Gap screen, use the Micro-Adjusting buttons. If the value is changed using Numeric Keypad screen, the roller gap is recalculated and the sheet number entered in Roller Gap screen may be returned to the default value.

If you will not be doing knife folding, all the adjustments are finished.

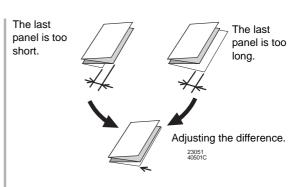
Check that the knife stopper rises, and go to Chapter 5. When you will be doing knife folding, go to section 4-1.



### **Adjusting Parallel Shifts in Parallel Folding**

#### 4-5-2 Adjusting the positions of the buckle stoppers at once

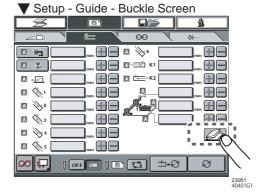
If the last panel of the accordion-folded sheet is longer or shorter than the setting, you can adjust the positions of the buckle stoppers at once using the accordion-fold adjusting function.



Press the Accordion-fold Adjusting button on the Setup- Guide-Buckle screen.



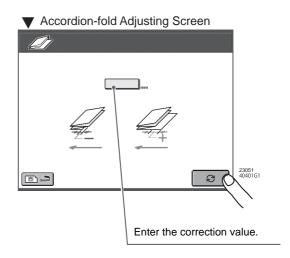
The Accordion-fold Adjusting screen is displayed.



- Enter the correction value. The correction value is the difference between the setting and the actual length of the last panel.
  - Enter the value using the Numeric Keypad screen.
  - When the last panel is shorter than the buckle, enter a negative value.
- Press .



The set values for the buckle 1 through 6 are automatically recalculate and the positions of the buckle stoppers are adjusted.



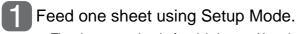
### Matching the Perforation Line to the Fold

There are two different procedures for matching the sheet position to the fold knife position:

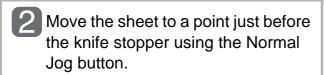
- A: If you are doing perforating
- B: If you are not using perforating

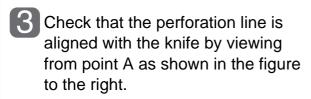
#### A: If you are doing perforating

Check that the perforation line matches the knife position.

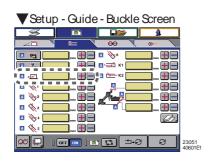


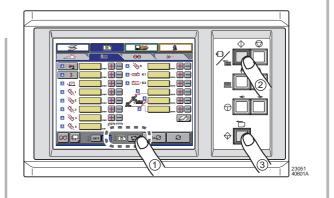
 The sheet stops just before it is inserted into the fold knife section.

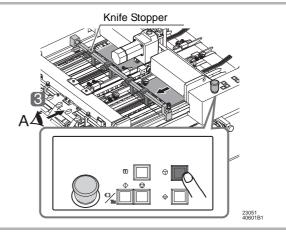


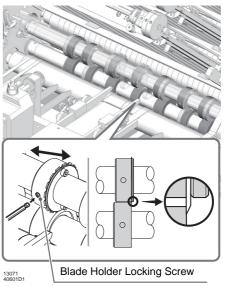


- Adjust the positions of the blades following the steps below, if necessary.
- (1) Adjust the position of the perforation blade.
- Loosen the locking screw of the blade holder and adjust the position of the blade right and left.
- (2) Adjust the position of the register guide so that the perforation line comes on the fold position.









### **Matching the Perforation Line to the Fold**

#### ♠ WARNING



- -Press the Emergency Stop button before making this adjustment. Otherwise, the machine may start suddenly and cause severe personal injury.
   -Do not touch the blades.
- -Wear cutting proof gloves while making this adjustment. Otherwise, a sharp blade can cause severe personal injury.

#### If the perforation line is skewed straightly

Check if the deflector is not attach diagonally. Also widen the 6th roller gap on the sheet proceeding side. If the perforation line is still skewed, adjust the buckle chute angle. Refer to section 4-12-4.

#### If the perforation line is skewed from the middle

Check if the drive roller is set evenly. Also check if the sheet hits the side guides.

	Perforation Line Skewed from the Middle

13071 40601C1

### Matching the Perforation Line to the Fold Knife

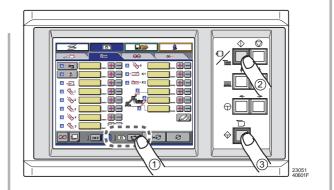
#### B: If not doing perforating

Check that the desired fold position (register mark) matches the fold knife.

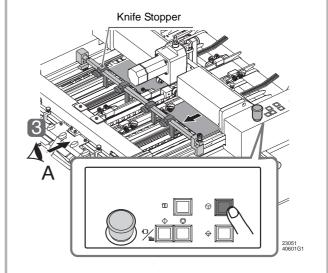


#### Feed one sheet using Setup Mode.

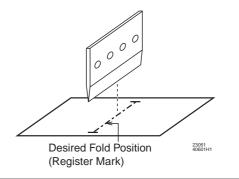
- The sheet stops just before it is inserted into the fold knife section.



Move the sheet to the knife stopper using the Normal Jog button.



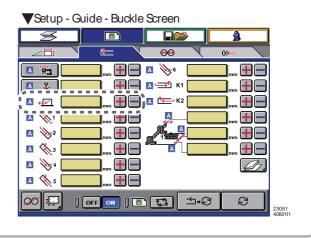
Check that the desired fold position is aligned with the knife by viewing from point A as shown in the drawing for step 2.



## If the fold line is shifted to parallel direction

-Adjust the feeding position of the sheet using the screen.

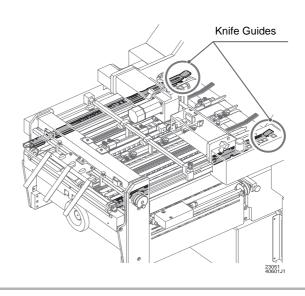
Additional Information
When the register guide position is adjusted, positions of the knife guide (front and rear) are also adjusted automatically.



### Matching the Perforation Line to the Fold Knife

#### When the desired fold line (register mark) is skewed in relation to the knife

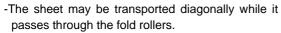
- The sheet may be catching on the entrance of one of the knife guides. If the sheet is catching, adjust the knife guide position using the screen.
- Check if the drive roller is set evenly.
- Widen the 6th roller gap on proceeding side.
- If the perforation line is still skewed, adjust the buckle chute angle. Refer to section 4-12-4.





#### lote

- Adjust the front knife guide first, and then adjust the rear knife guide to match the sheet size.
- If the or button for the front knife guide is pressed, the rear knife guide is adjusted in the same direction.
- If the or button for the rear knife guide is pressed, only the rear knife guide is adjusted.



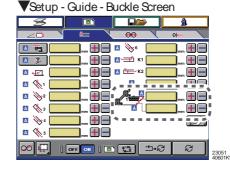
A roller gap where the sheet passes through after the deflector may not be set correctly.

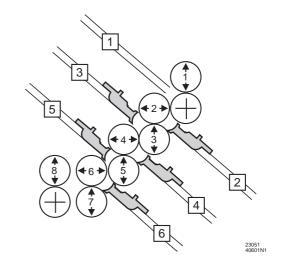
Example: If the deflectors for buckle chutes 2, 3, 4, 5 and 6 are set as shown in the drawing to the right, make fine adjustments to rollers 3, 4, 5, 6 and 7.

Additional Information

If the perforation line or register mark is skewed in relation to the knife, even though the perforating is not used and the adjustments for the roller gaps are correct, make a fine adjustment to the knife stopper angle.







### **Setting the Perforation Blades and Scoring Blades**

If you will be doing perforating and scoring, follow the steps listed below.

If you will not be doing perforating and scoring, go to page 74.



#### Attention

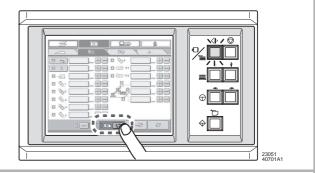
If you perform the perforation or scoring with the unfolded sheet, the perforation or scoring line may not run straight.



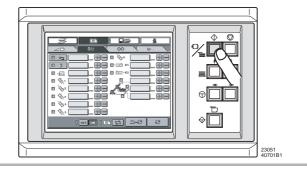
Press the Emergency Stop button before starting this operation. Otherwise, the machine may start suddenly causing severe personal injury.



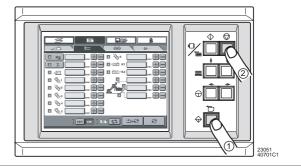
- Do not touch the blades.
  - Wear cutting proof gloves while doing this operation. Otherwise, a sharp blade can cause severe personal injury.
- Press Setup Mode on the Setup-Guide Buckle screen.
  - The Feed Start button blinks.



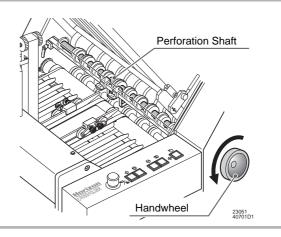
- Press the Feed Start button once.
  - The motor starts, and the feed rotor and fold rollers turn.



- Press the Test Feed button once, and press the Feed Stop button immediately.
  - One sheet feeds, and stops in the register guide section.



- 4 Press the Emergency Stop button.
- 5 Open the safety cover.
- Move the sheet to a point just before the perforation shaft using the hand-wheel.



### **Setting the Perforation Blades and Scoring Blades**



Set the perforation blades and scoring wheels in the operating positions.

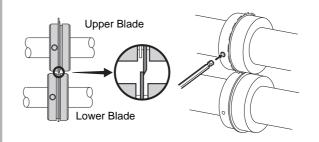
- If no perforation blades are installed, or if other perforation blades should be replaced, refer to section 7-7.
- To change the number of the perforation and scoring blade, remove the perforation shaft referring to section 7-5

#### Perforation blade setup:

- Turn the handwheel so that locking screw comes to the position to be loosened.
- Loosen the lower perforation holder, and adjust the top of the lower blade to the operating position, then tighten the holder using the set screw.
- Loosen the upper perforation holder, and move the blade on the upper holder against the lower blade, and then tighten the assembly.

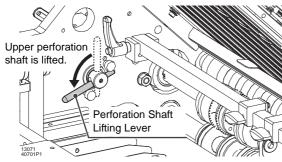


Set the upper and lower perforation blades so they just touch each other.



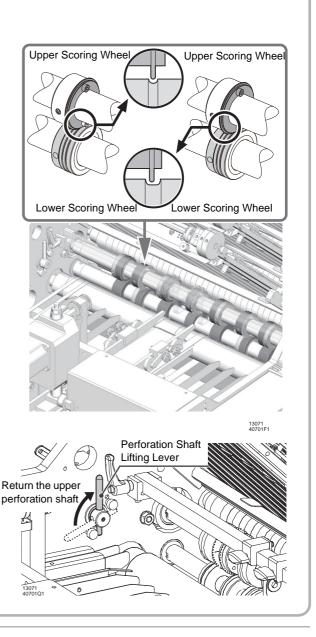
#### Scoring wheel setup:

- Change the groove on the lower scoring wheel depending on the sheet thickness. For thick sheet, use the thick groove.
- To give thick scoring line, use two upper scoring wheels.
- 1. Press the Emergency Stop button, and separate the upper and lower perforation shafts.
- Lift the upper perforation shaft by turning the perforation shafts lifting levers. The levers are installed on both the front and the rear.



- 2. Loosen the upper scoring wheel, and adjust the lower wheel holder to the operating position, then tighten the holder using the set screw.
- 3. Turn the handwheel so that locking screw comes to the position to be loosened.
- Loosen the lower scoring wheel, and align the groove of the lower scoring wheel with the position of the upper scoring wheel, then tighten the set screw.
- 5. Return the upper perforation shaft by turning the perforation shafts lifting levers.

Additional Information
The quality of the perforating may change depending on the sheet material and sheet thickness. Adjusting the eighth roller gap can change the quality of the perforating.



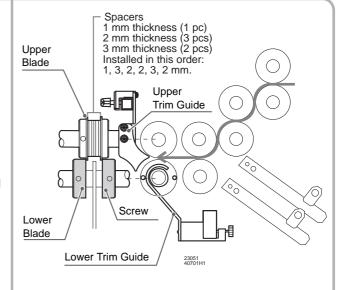
#### Setup for optional center cut blade

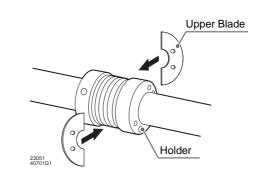
- (1) Remove the perforation shaft. Refer to section 7-5.
- (2) Attach the center cut blade to the perforation shaft, then install the perforation shaft to the machine
- (3) Adjust the slit width by changing the spacers between the blades.
- (4) Adjust the upper blade positions to create the correct slit.
- (5) Align the lower blades to the upper blades and lock them with the set screws.
- (6) Install the upper and lower trim guides on the support bar. (There are two types of trim guides: 2 mm thickness and 5 mm thickness)



#### Note

- Each upper blade is made in two halves.
   The position of the upper blade can be changed by loosening the holder and moving the spacers.
- Before installing a new set of upper blades, make sure the two halves fit together correctly.
- The slit width is the total of the thickness of the spacers plus 1.6 mm (0.063") for the two upper blades (0.8 mm or 0.031" each).

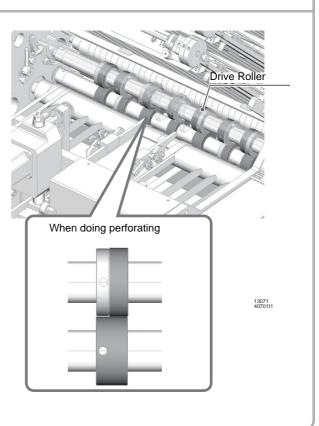




## 8 Set the drive rollers.

- If the perforation line is within 12 mm (0.47") of the sheet edge, stabilize the sheet by holding the sheet edge with a drive roller, so that the perforation line will run straight.
- Attach the driver rollers evenly from the perforation blade.

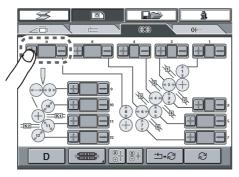
Additional Information
If doing perforating in the center of the sheet, set the drive rollers so that the sheets move smoothly.



### **Setting the Perforation Blades and Scoring Blades**

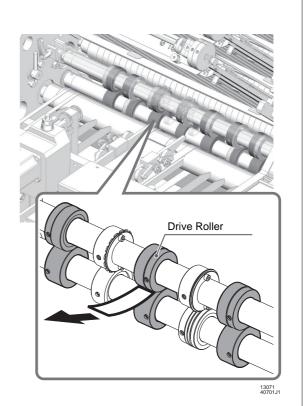
## Adjust the roller gap for the drive rollers.

 Count the number of sheets that will pass through the drive rollers. Insert this number of strips into the gap adjusting lever. Adjust the roller gap using the gap adjusting knob so that the rollers turn slowly when the strips are pulled out.



23051 40701K1

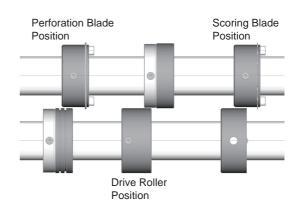
Check that the wheels do not interfere with each other.



#### If not doing perforation and scoring

-Separate the upper and lower blades or wheels.

Additional Information
When not doing perforating or scoring, the drive rollers are not used. Separate the upper and lower drive rollers.

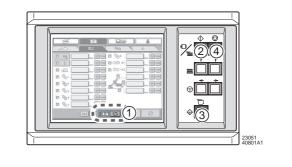


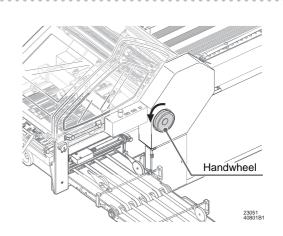
23051 40701N1

### **Setting the Knife Fold Section**

Check the position of the side guides and the knife stoppers in relation to the sheet.

- Feed one sheet in Setup Mode. (Press 1, 2 and 3 shown to the right.) Next, press the Feed Stop button (4).
  - The sheet stops in the register guide section.
- Press the Emergency Stop button.
- Move the sheet to a point just before the knife guide using the handwheel.



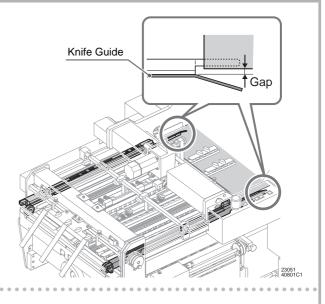


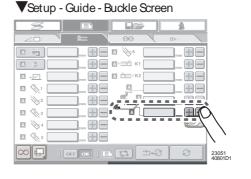
Check the gap between the sheet and the front knife guide.

Standard gap is 0.5 mm to 1.0 mm (0.02" to 0.04"). If the gap is not within this range, adjust the value for the front knife guide on the Setup-Guide-Buckle screen.

### Additional Information

- If the or button for the front knife guide is pressed, the rear knife guide is also adjusted in the same direction.
- If the or button for the rear knife guide is pressed, only the rear knife guide is adjusted.



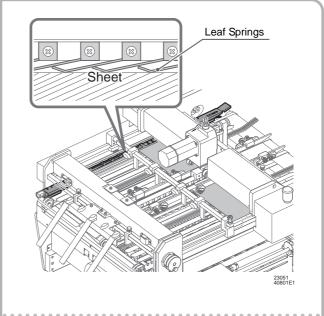


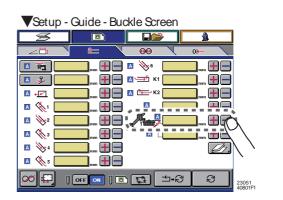
### **Setting the Knife Fold Section**

Check that the position of the rear knife guide is correct.



- -Set each knife guide so that the leaf springs on the knife guide push against the sheet a little. Change the value for the rear knife guide to adjust the knife guide position.
- -When the or button for the rear knife guide is pressed, only the rear knife guide is adjusted.

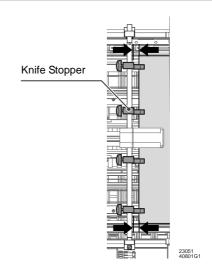




6 Check that both ends of the sheet hit the knife stopper at the same time.

If not, check the following:

- The sheet is hit the knife guides at the entrance of the knife folding section.



### Adjusting Fold Skew on Buckle Chute below Knife

If skewed folding occurs in the buckle chute below the knife, adjust the following items. If folding line is shifted parallel, refer to section 4-10.

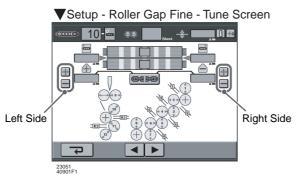
- 1. Check the roller gap below knife
- 2. Adjust the angle of the knife
- 3. Adjust the angle of the buckle stopper below knife

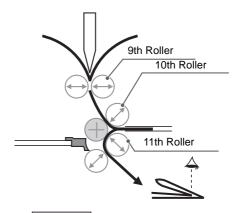
### Mportant

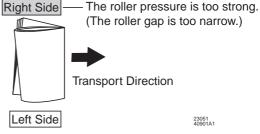
Normally, the roller gaps should be the same on each side. If the gaps are uneven, this can cause the sheet to wrinkle, and the fold line will not run straight. Even if the roller gaps are set the same on each side, the folded side of the sheet may be delayed. This depends on the sheet material, the sheet thickness, and the sheet grain. If this happens, reduce the roller gap on the folded side a little.

#### 1. Check the roller gap below knife

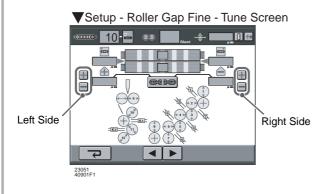
- Check which side of the sheet being folded is skewed.
- If the folding is skewed as shown in the drawing, increase the 9th, 10th roller gap on the right side, or make the gap smaller on the left side.

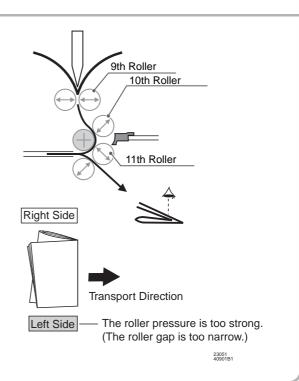






If the folding is skewed as shown in the drawing, increase the 9th, 10th and 11th roller gaps on the left side, or make the gaps smaller on the right side.





### Adjusting Fold Skew on Buckle Chute below Knife

#### Adjusting each roller gap

## To make a rough adjustment (adjusting the number of sheets.)

- In this procedure, roller gap on both sides are adjusted evenly. To adjust the roller gap on either side only, refer to "In case of the fine tune".
- Change the number of sheets on the Setup-Roller Gap screen.
- (2) Press Z.
- Both ends of the roller are adjusted.

## In case of the fine - tune (adjusting by 5 µm at minimum.)

- (1) Press to display the Roller Gap Fine-Tune screen.
- (2) Select the roller gap to be adjusted.
- Touch the desired roller on the screen or press
   or buttons to select the roller gap.
- The selected roller is displayed in blue.
- (3) Change the gaps.

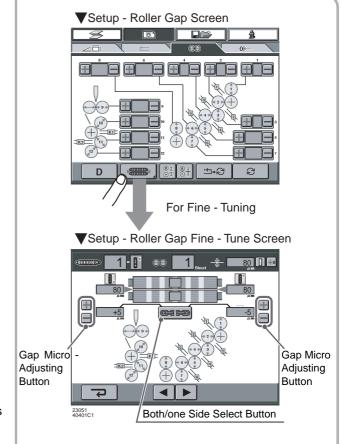
: Increase by 5 µm

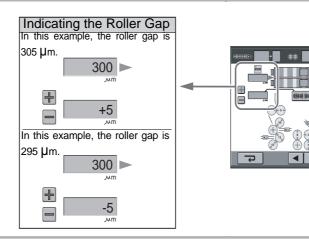
: Decrease by 5 µm

After you press the for buttons, the gaps are actually adjusted a few seconds later.

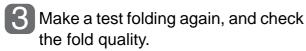
: Adjusting one side only

: Adjusting both sides at once





### Adjusting Fold Skew on Buckle Chute below Knife



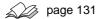
 If the sheet is still folded incorrectly, the buckle chute may not be installed correctly. If the buckle chute is installed correctly, check the gap on each end of the roller.

#### ♠ WARNING



Turn off the main power before checking the roller gap.

1. Remove buckle chutes K1 and K2.



- On the Roller Gap Fine-Tune screen, change the number of sheet to "1" on 9th through 12th roller.
- 3. Press . The roller gaps for the 9th through 12th rollers are set to one sheet.
- 4. Make a strip of the same paper, and insert it into the roller gap.
- 5. Adjust the roller gap on the screen so that the rollers move slowly when the strip is pulled out.
- 6. Increase the roller gap by the same amount on both sides.

### \_\_\_\_\_ Additional Information

The relationship between sheet grain and roller pressure:

## When the sheet is thin and the sheet grain is parallel to the fold line -

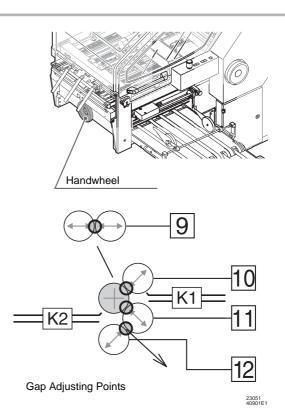
The sheet may not be folded correctly because the sheet is weak. Increase the roller gap.

## When the sheet is thick and the sheet grain is perpendicular (90°) to the fold line -

The fold line may not be stable because the sheet is strong and is not folded tightly.

If the gap in the middle of the rollers is wider than the ends:

If the gap in the middle of the rollers is wider because the rollers are worn out, get the correct gap in the middle by tightening the gap at each end.



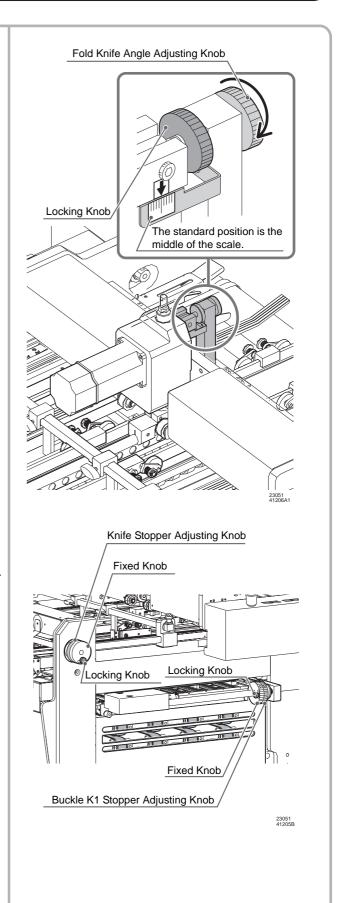
## Adjusting Fold Skew on Buckle Chute below Knife

#### 2. Adjust the angle of the knife.

Adjust the fold knife angle referring to section 4-12-6.

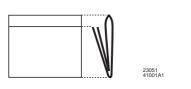
# Adjust the angle of the buckle stopper below knife.

Adjust the buckle stopper angle referring to section 4-12-5.

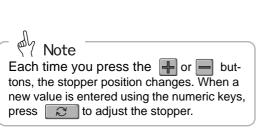


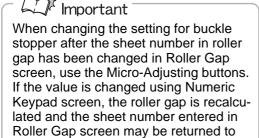
### Adjusting Fold Shifts on Buckle Chute below Knife

If a parallel shift occurs, adjust the stopper for that buckle chute.

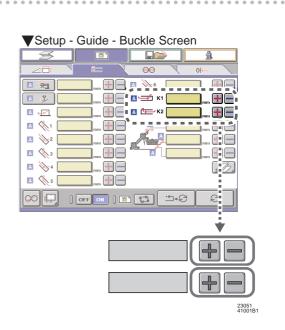


Change the values for buckle chutes K1 and K2 on the Setup-Guide-Buckle screen.





the default value.

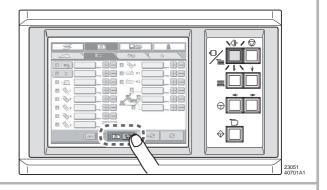


### **Checking the Fold Quality**

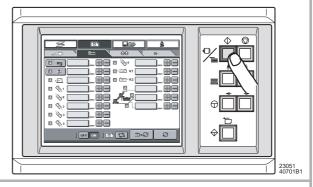
The fine adjustments were described in Section 4-10. After making the fine adjustments, fold some sheets, and check the fold quality.



Cancel the Setup mode.



- Press the Feed Start button once.
  - The motor starts running.
- Press the Feed Start button again.
  - The fold operation starts.

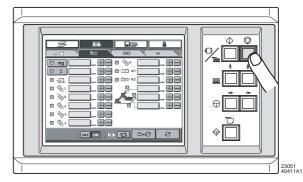


- Fold some sheets, and then press the Feed Stop button.
  - The machine stops feeding the sheet.
    - Press the Feed Stop button again to stop the transport motor.



#### Note

If you press the Feed Stop button twice in a short period of time, the machine stops while the sheets are remained inside. Stop the transport motor after all sheets inside the machine are delivered.



- Check the fold quality. If the fold quality is satisfactory, go to Chapter 5, "Starting and Running the Job."
  - If the fold quality is poor, go to Chapter 6, "Troubleshooting", and resolve the problem.

### **Other Adjustments**

#### 4-12-1 Feed rotor section adjustment

#### **MARNING**



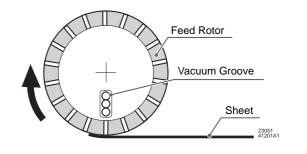
Turn off the main power before starting this operation. Otherwise, the rotating parts can cause severe personal injury.

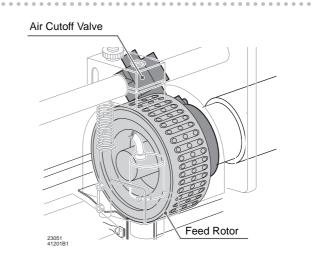
#### Feed rotor mechanism

- -Air is pulled through the holes on the outside of the feed rotor, and into the groove in the center of the cylinder.
- -The feed rotor turns while feeding each sheet. The groove remains in the same position, so the vacuum is produced at the bottom of the feed rotor.
- -After the sheet has moved a certain distance, the vacuum is stopped by the air cutoff valve and the sheet is released.
- -Set the ratio between the vacuum on time and vacuum off time using the feed rotor suction length setting on the Main-Condition screen.

#### **▼**Main Condition Screen

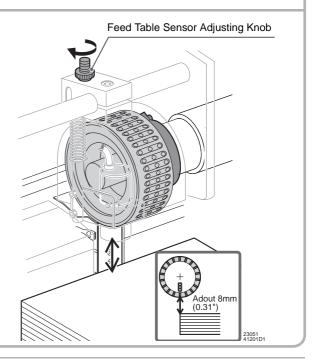






## Adjustment of space between feed rotor and sheet

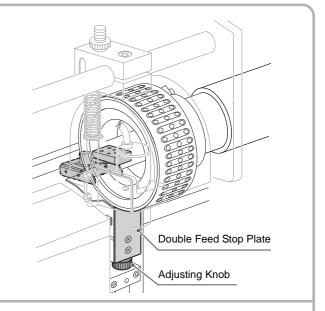
- -If large or thick sheets are loaded and the vacuum is not strong enough to separate the sheets, move the sheets closer to the feed rotor. If coarse or porous sheets are loaded, provide more space between the sheet and the feed rotor.
- -Adjust the space using the feed table sensor adjusting knob.
- -In normal operation, the space is 8 mm (0.31") when the feed table reaches the upper limit point.
- -When the table sensor is raised, the gap between the sheet and the feed rotor is reduced.



### **Other Adjustments**

#### Double feed stop plate adjustment

-If double feeding occurs often, raise the plate a bit.



### Suction point

- -The standard position of the valve housing is to set the vacuum groove in the center. If the following problems occur, adjust the valve housing position.
- -If using thin or curled down sheets: Move the suction point 2 to 3 mm (0.07" to 0.12") to the left. This will feed the front edge so that it prevents the sheet from hitting the entrance of the register guide.

#### Suction point adjustment

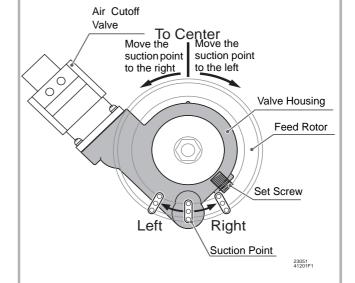
Loosen the set screw and turn the valve housing slightly to set the new position. Then hold the position using the set screw.

### Important

When setting the valve housing, check that the feed rotor can turn easily and that air does not leak from the joint between the housing and the rotor. Check this by turning the handwheel.

-If using thick or curled up sheets:

Move the suction point 2 to 3 mm (0.07" to 0.12") to the right, so that the sheet is not caught by the feed rotor or taken around the rotor. The sheet should be straightened so that it will feed reliably.



#### 4-12-2 Buckle gate adjustment

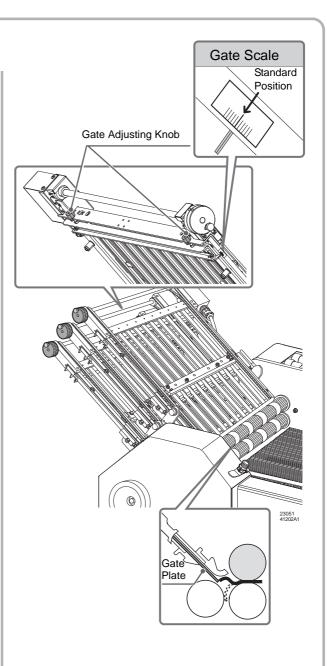
#### **!** CAUTION



Adjust the gate within the range of the gate scale. If the gate exceeds the gate scale, it may hit the fold roller.

If the sheet can not enter the buckle chute easily, adjust the buckle gate.

- -Usually it is not necessary to adjust the buckle gate. If the sheets are curled downward and do not enter the buckle section, extend the buckle gate using the gate adjusting knob.
- -There are gate adjusting knobs on front and rear. Adjust both knobs evenly.
- -The center of the gate scale marks the standard gate position.
- -Thick sheets will not be folded correctly if the gate is extended too far.



### **Other Adjustments**

#### 4-12-3 Gap adjustments inside the buckle chutes

Normally, it is not necessary to adjust the gaps. Sometimes the fold position for a buckle chute is not consistent. You may be able to correct this by reducing the gap inside the buckle chute. If sheet does not enter the buckle chute smoothly, widen the gap inside the buckle chute.

- 1. Remove the buckle chute.
- 2. Loosen the lock nut.
- Adjust the gap inside the buckle chute by turning the set screw. (There are four set screws for each buckle chute.) To make the gap wider, turn the screw clockwise.



#### Vote

Measure between the upper guide and the gate for the gap inside the buckle chute. The standard gap setting and the adjustable range are as follows:

- 1st buckle chute 0.5 mm (0.02") (Adjustable between 0.5 - 1.5 mm [0.02" - 0.06"])
- 2nd buckle chute 0.8 mm (0.031")

(Adjustable between 0.5 - 1.5 mm [0.02" - 0.06"])

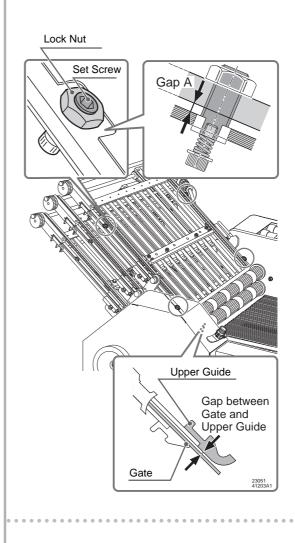
- 3rd and 4th buckle chutes 2.0 mm (0.079") (Adjustable between 1.5 - 2.5 mm [0.06" - 0.1"])
- 5th and 6th buckle chutes 2.3 mm (0.091")
- (Adjustable between 1.5 2.5 mm [0.06" 0.1"])
- K1 and K2 buckle chutes 2.0 mm (0.079") (Adjustable between 1.5 - 2.5 mm [0.06" - 0.1"])
- 4. After the adjustment is completed, fasten the lock nut.

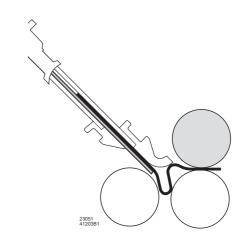
If the sheet is folded as shown in the drawing, the buckle gap may be set too narrow. Make the gap wider.



#### Note

As long as the sheet enters the buckle chute, the smaller the gap is set, the more accurately the folds will be made.





#### 4-12-4 Gap adjustments between the buckle chutes and fold rollers

- -Normally it is not necessary to adjust the gap between the buckle chute and the fold roller. If the fold does not appear at the correct point, identify the affected buckle chute and change the clearance.
- -Change the gap by adjusting the lengths of the bolts on the buckle chute supports.

#### **CAUTION**



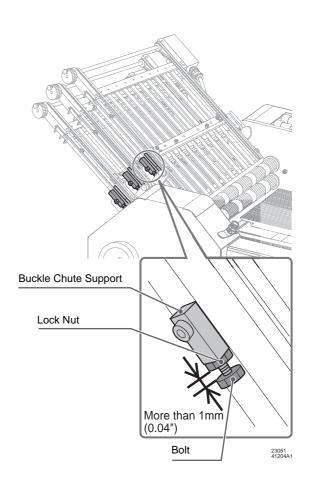
The gap can be reduced by turning the bolt in. Allow a minimum gap between the lock nut and bolt of 1 mm (0.04") to prevent the buckle chute and roller from hitting.

-When the adjustment is complete, tighten the lock nut.

#### **!** CAUTION



-Make the same adjustment on each side.
-If the gap between the buckle chute and fold roller is set too narrow, and the buckle chute is not set correctly, the end of the buckle chute may hit the roller, and this can damage the roller.



### **Other Adjustments**

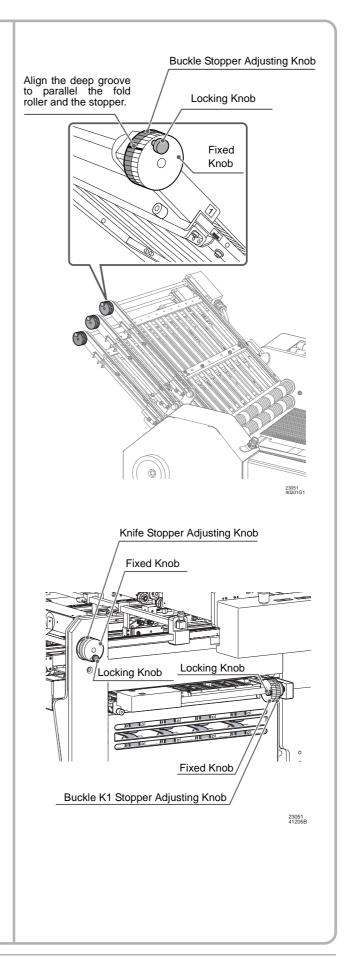
#### 4-12-5 Stopper angle adjustment

-Loosen the locking knob, then the stopper angle can be adjusted using the stopper adjusting knob. If just the buckle stopper adjusting knob is turned, only the front side of the stopper moves.



#### Attention

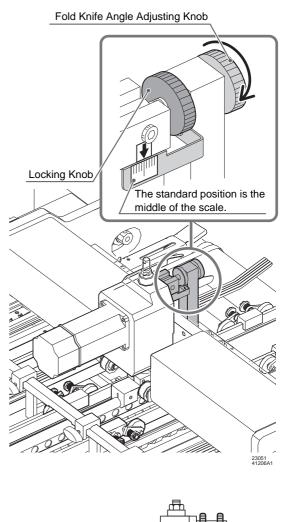
The fixed knob is rotated by a motor. Do not turn it by hand. This will change the home position for the motor.

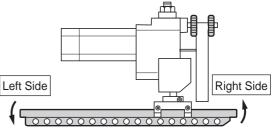


#### 4-12-6 Fold knife angle adjustment

The fold knife is parallel to the roller when the arrow is in the middle of the scale. Normally it is not necessary to adjust this setting. If the folded side of the sheet is delayed, adjust the fold knife angle by following the procedure listed below:

- (1)Loosen the locking knob.
- (2)Turn the knife angle adjusting knob to adjust the angle.
- When the knob is turned in the direction shown by the arrow in the figure, the left side of the fold knife moves down.
- (3) Tighten the locking knob.



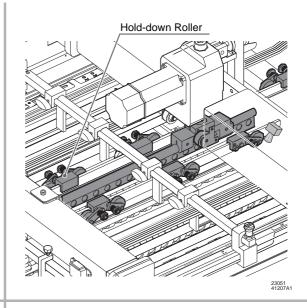


23051 41206B1

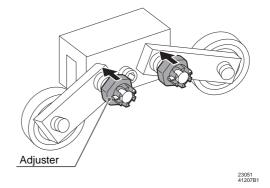
### **Other Adjustments**

### 4-12-7 Adjustment of the hold-down roller pressure in the fold section

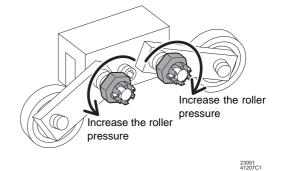
Depending on the sheet weight, the sheet may not reach the knife stopper in the fold section.



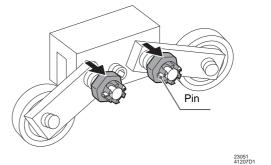
Push in the adjuster.



2 While pushing in, turn the adjuster.



Pull out the adjuster so that the pin holds it in place.



## 5. Starting and Running the Job

This section includes instructions for starting and running the job after completing section 3, "Basic Setup" and section 4, "Fine Tuning Adjustments."

5-1

### **Setup the Main Screen**

#### 5-1-1 Setup the Function Screen

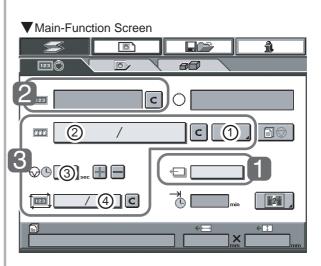
Set the number of remaining sheets only when you want to display the remaining time to run.



- The remaining time to run is automatically calculated depending on the production speed and the number of remaining sheets.
- Even the number becomes "0", the machine will not stop feeding.
- 2 If necessary, clear the total counter to "0."
  - Press C to clear the counter.
- 3 Set up the preset function.
  - :The machine continues running sheets until the Feed Stop button is pressed. (The preset function is not used.)
    - : The machine stops and sounds the buzzer after feeding the preset number of sheets. The machine remains stopped until the Feed Start button is pressed.
    - : The machine stops and sounds the buzzer after feeding the preset number of sheets. The machine resumes running the sheets after a short preset time delay.



- 2. If or is selected, set the preset number.
  - If is selected,
- 3. set the pause time. The pause time can be set up to 9.9 sec.
- 4. Set the batch counter. The machine stops after completing the preset number of batch sets. If you enter "0", the machine continues running the job including the pause time feature.



23051 50101A1

### Set up the Main Screen

#### 5-1-2 Set up the Condition Screen



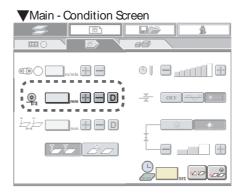
#### Set the feed rotor suction length.

- Set the length that the feed rotor vacuum grips the sheet according to the type of feeding being
- Make this longer when feeding a large or heavy sheet, or make it shorter when feeding a small or light sheet.
- When (Default) is pressed, the value is set to the default value.



#### **Important**

If you select a long length setting for a small sheet, the machine may feed the sheets continuously.



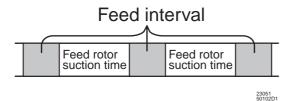
23051 50102B



#### Set the feed interval.

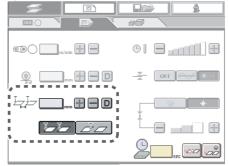
- Set the gap or distance between the sheets. Set the interval according to the sheet intersection inside the buckle, knife operation, and the way the sheets are output on the delivery conveyor.
- (Default) is pressed, the value is set - When to the default value.

The relation between the feed rotor suction time and the feed interval is illustrated in the figure below:



- Initially, select the function. If you want However, this may result in uneven feeding if the sheets are slippery. If knife folding is performed, consider the knife delay time also.

Main - Condition Screen



23051

:Head of the sheet is detected to determine the feed timing. Select this function to shorten the feed interval. Since the machine does not detect the complete sheet passage, feeding action may be unstable.



:After the sensor detects the tail of the fed sheet, the next sheet is fed. Feed action is stable but feed interval cannot be shortened above certain amount.

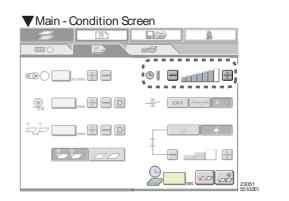
### Set up the Main Screen

### 3 Set the knife delay time.

- The longer the level bars in the display, the longer the knife time delay.

Additional Information

- The feed interval is automatically made longer when the knife delay time is set longer.
- When the knife delay time is set to the minimum, the knife operates at the moment when a sheet hits the knife stopper.





#### Set the double feed detection.

OFF

: Double feeding is not detected.



: Double feeding is detected by the ultrasonic sensor. Two-part form cannot be detected correctly by this sensor. In that case, use the photoelectronic sensor.



: Double feeding is detected by the photoelectronic sensor. According to the printed condition (paint or color), this sensor may misdetect the double feeding. In that case, use the ultrasonic sensor. (Select this when you are using the folded sheets.)

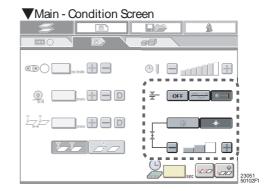
Icons below are display only when photoelectric detection is selected.

Set the brightness of the double feed detecting lamp. When detecting thick sheets (100 gsm or thicker) or sheets with lots of dark printing, use the brighter setting.

■ ■ Set the sensitivity of the double feed detection.

The bigger the level bar is, the higher the sensitivity.

- If the sensor misdetects the correct feeding as double, decrease the sensitivity.
- If double feeding is not detected and passes through, increase the sensitivity.



### Set up the Main Screen

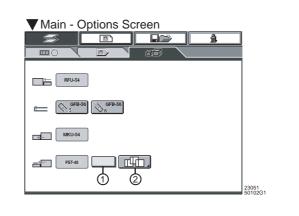
5 If the optional press stacker is used -

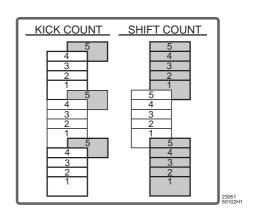
Set the number of sheets in each set.

Select the offset mode.

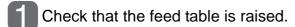
Shift : The stacker offsets a batch of sheets when it reaches the preset set count number.

Kick : The stacker offsets one sheet when it reaches the preset set count number.

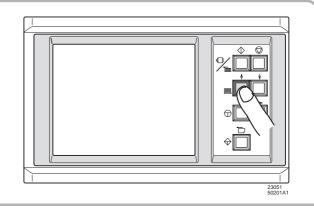




### **Starting Folding**

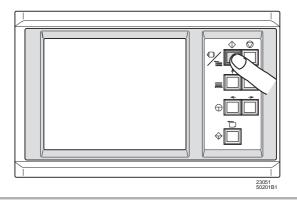


- If it is not raised, press the Feed Table Up button.



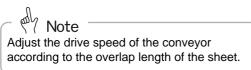


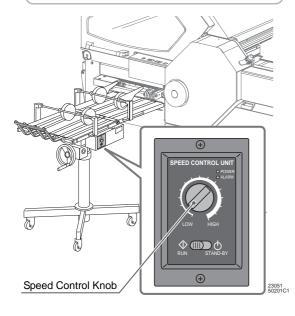
- The pump starts running, and the vacuum piston picks up a sheet.
- The fold rollers and feed rotor start to run.

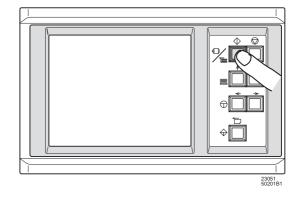


3 Press the Feed Start button again.

The sheet is fed into the register guide.





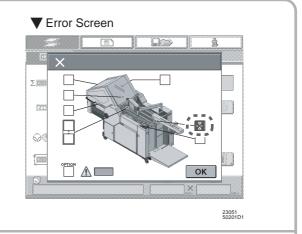


### **Starting Folding**

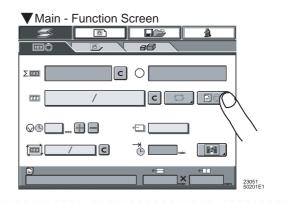
Press the Feed Stop button to stop the machine.



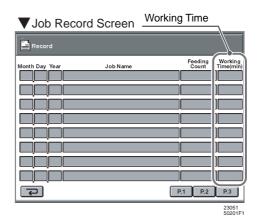
The "misfeeding" icon appears on the Error screen and the machine stops when the last sheet on the table is fed. Lower the table and reload the sheets on the table, and raise the table again. Press the OK button on the Error screen and repeat the process from step 2.



When a job has been completed, press [ to finish the operation.



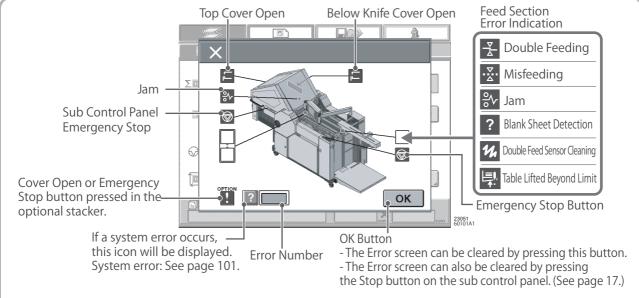
- The working time will be displayed on the Job Record screen.



## 6. Troubleshooting

6-1

### If an Error Icon Appears on the Screen



Error Icon	Recovery	Page
	1.Make the grip area of the separator longer.	46
Double	2.Set the separator at a sharper angle.	46
Feeding	3.Reduce the blower air.	47
	4.Adjust the feed table sensor so that the feed table is lower.	83
$\nabla$	5.Fan the sheets correctly, and stack them on the feed table.	-
	5. Fan the sheets correctly, and stack them on the feed table.  6. Set the blower air outlet in a higher position.  7. Increase the distance between the vacuum piston and the sheets.	47
Δ	7.Increase the distance between the vacuum piston and the sheets.	46
<u></u>	8.Reduce the pump vacuum using the vacuum regulator knob.	47
Error Code	9.Set the double feed stop plate in a higher position.	84
237	10.Reduce the feed rotor suction length.	83
233	11. When using thick sheets (100 gsm or thicker) or sheets with lots of dark printing, set the brightness of the double feed detect sensor to	93
	1.Reduce the grip area of the separator.	46
	2.Set the separator at a shallower angle.	46
	3.Adjust the feed table sensor so that the feed table is higher.	83
Misfeeding	4.Increase the separation air so that the sheet which is picked up by the vacuum piston touches the feed rotor.	48
	5.Set the double feed stop plate in a lower position.	84
	6.Reduce the distance between the sheet hold-down bars on the suction head.	45
<b>.</b> ☆.	7.Adjust the air guides so that they do not hold the sheets as strongly.	45
	8.Set the blower air outlet in a lower position.	47
	9.Increase the pump vacuum using the vacuum regulator knob.	47
Error Code 235  11. Raise the stack higher than the 12.If the suction cu	10. Adjust the suction point of the feed rotor.	84
	11. Raise the stacked sheets using a wedge so that the left end (near the feed rotor) is higher than the right end (near the suction head).	-
	12.If the suction cups on the vacuum piston are worn out, replace them with new ones.	-
	13.If the misfeeding is detected incorrectly, clean the double feed detect photoelectronic sensor.	135

## If an Error Icon Appears on the Screen



First, press the Emergency Stop button and remove all the jammed sheets.



Attention

If you leave any sheets in the machine, the machine may jam again, or the machine may

Then, perform the following procedure:

₹ Jam Error Screen	Recovery	Page
	1.Adjust the sheet edge guide at the sheet edge.	50
X X	2.Check that the position of the feed scale pin is correct.	45
Description  Jam Code 231: Sheet jam is detected by the sheet pass sensor. Or, double feed is detected by the double feed sensor while the motor is running.  When the machine is connected to RFU-54, sheet jam is detected by the rotor section sheet pass sensor or the gate section sheet pass sensor on RFU-54. Or, double feed is detected by the double feed sensor on RFU-54 while the motor is running.  Jam Code 234: Sheet jam is detected by the double feed sensor.  When the machine is connected to RFU-54, sheet jam is detected by the double feed sensor on RFU-54.	3.Check that the position of the register guide is correct.	69
	1.Reduce the feed rotor suction length.	83
Description Jam Code 232: The sheet pass sensor is blocked when it should not be.  When the machine is connected to RFU-54, the rotor section sheet pass sensor or the gate section sheet pass sensor on RFU-54 is blocked when it should not be.	2.Adjust the suction point of the feed rotor.	84
Description Jam Code 131:The knife timing sensor remains On more than the allowable time.	Set the transport rollers so that the sheet is transported smoothly.	53

# If an Error Icon Appears on the Screen

₹ Jam Error Screen	Recovery	Page
× ×	1.Check the knife guide. See whether the sheet hits the knife guide.	75
Σ	2.Check that the buckle chute is set correctly.	60
	3.Check that the roller gap is adjusted correctly.	61
Description Jam Code 132: After a sheet entered the register guide, the sheet did not reach the knife timing sensor within the allowable time.	4.If the sheet stops between the perforation/scoring section and the knife fold section, increase the pressure of the hold-down roller nearest to the perforation/scoring section.	87

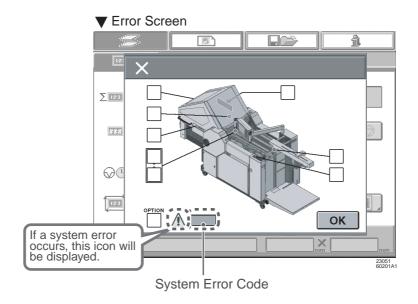
# If an Error Icon Appears on the Screen

Error Icon	Recovery	Page
Cover Open		_
	Close the safety covers:	
i—	-Top cover (buckle chute section)	-
	-Door for buckle chute below knife	
Error Code: 151, 152		
Emergency Stop		
	Release the Emergency Stop button.	-
Error Codes: 150, 250		
Option Error		
•	Check that the optional stacker is connected correctly.	3
Error code: 500		
Downstream Device Error	A downstream device has a problem. Clear the error on the	
	downstream device.	
	Check if the cable of the downstream device is connected cor-	-
Error code: 510	rectly.	
PSX-56 Error		
•	Clear the error on the PSX-56.	-
Error code: 560		
Double Feed Sensor Cleaning		
n.	Turn off the power switch and clean the double feed detect photoelectronic sensor.	135
Error code: 238		
Sheet Thickness Detection Error		
?	The sheet thickness has not been saved correctly. Do the test feeding again to save the correct sheet thickness.	58
Error code: 239		
Table Lifted Beyond Limit		
	Lower the height of the feed table height sensor.	83
Error code: 236		

# If a System Error Code Appears on the Screen

In case of a system error, check the indicated system error code and follow the recovery procedure listed bellow.

The Error screen will be cleared when the OK button is pressed.



System Error Code	Recovery
100	The circuit breaker for the main inverter (Q10) may be turned off. Turn it on.
101	If this system error occurs repeatedly, call your local dealer.
110	Increase the feed interval on the Main-Condition screen.
200	The circuit breaker for the feed table motor (Q20) may be turned off. Turn it on.
201	If this system error occurs repeatedly, call your local dealer.
202 to 207	This is an error of the RFU-54. Refer to the operation manual of the RFU-54.
220	Press the Feed Table Down button on the control panel and check that the feed table lowers normally.
500	Check that the cable for the optional press stacker is connected correctly. If the optional stacker is not used, install the short-circuit connector.
1000	Turn off the power switch for 30 seconds and then turn it on again. If this system error occurs repeatedly, call your local dealer.
1001 to 1031	If this system error occurs repeatedly, call your local dealer.
1040	Turn off the power switch for 30 seconds and then turn it on again. If this system error occurs repeatedly, call your local dealer.
1052, 1060	If this system error occurs repeatedly, call your local dealer.
1070	Turn off the power switch for 30 seconds and then turn it on again. If this system error occurs repeatedly, call your local dealer.
1080 to 1599	If this system error occurs repeatedly, call your local dealer.

# If a System Error Code Appears on the Screen

System Error Code	Recovery	
2010 to 2031	If this system error occurs repeatedly, call your local dealer.	
2040	Turn off the power switch for 30 seconds and then turn it on again. If this system error occurs repeatedly, call your local dealer.	
2052, 2060	If this system error occurs repeatedly, call your local dealer.	
2070	Turn off the power switch for 30 seconds and then turn it on again. If this system error occurs repeatedly, call your local dealer.	
2080 to 2150	If this system error occurs repeatedly, call your local dealer.	
3010 to 3150	This is an error of the RFU-54. Refer to the operation manual of the RFU-54.	
4000	Check that the cable for the optional press stacker is correctly connected. If the optional stacker is not used, install the short-circuit connector. If the cable is correctly connected, turn off the power switch for 5 seconds and then turn it on again.	
4100	Check if there are any objects preventing the suction head from moving to the home position.	

# If a System Error Code Appears on the Screen

System Error Code	Recovery
4101	Check if there are any objects preventing the table guide from moving to the home position.
4102	Check if there are any objects preventing the register guide from moving to the home position.
4103	Check if there are any objects preventing the 1st buckle chute stopper from moving to the home position.
4104	Check if there are any objects preventing the 2nd buckle chute stopper from moving to the home position.
4105	Check if there are any objects preventing the 3rd buckle chute stopper from moving to the home position.
4106	Check if there are any objects preventing the 4th buckle chute stopper from moving to the home position.
4107	Check if there are any objects preventing the 5th buckle chute stopper from moving to the home position.
4108	-Check if there are any objects preventing the 6th buckle chute stopper from moving to the home positionCheck if the optional gate fold buckle chute is installed instead of the 6th buckle chute.
4109	Check if there are any objects preventing the K1 buckle chute stopper from moving to the home position.
4110	Check if there are any objects preventing the K2 buckle chute stopper from moving to the home position.
4111	Check if there are any objects preventing the knife stopper from moving to the home position.
4112	Check if there are any objects preventing the knife side guide (front) from moving to the home position.
4113	Check if there are any objects preventing the knife side guide (rear) from moving to the home position.
5000	The clock is displaying the wrong time. (Press the OK button on the Error screen, and 2000/1/1 0:00 will be set.) Please call your local dealer to replace the battery.
5010 to 5150	This is an error of the RFU-54. Refer to the operation manual of the RFU-54.
7777 8888	If this system error occurs repeatedly, call your local dealer.
9999	

# **Problems in the Feed Section**

# 6-3-1 The suction piston does not pick up the sheet

Check		Cause and Recovery	Page
The blower air is too weak.	MAX 0 0 MAX 0 0 MAX 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	The sheets may not be fanned correctly. Increase the blower air using the pressure regulator knob.	page 47
The sheets stick to each other because of excess ink or incorrect trimming.	23051 60301B1	- Fan the sheets correctly and reload them on the feed table.	-
The distance between the suction piston and the sheets is too wide.	GAP	Reduce the distance using the suction cup height adjusting knob. (Standard setting: 1 mm or 0.04")	page 46
The vacuum is too weak.	23051 60301D1	Increase the vacuum using the vacuum regulator knob.	page 47
The cylinder of the suction head is clogged with sheet dust.	23051 60301E1	- Disassemble and clean the suction piston.	page 123
A suction cup is worn out.	23051 60301F1	- Replace it with a new suction cup.	-
Thick or small sheets are used, and the vacuum piston is raised too high.	23051 6030161	- Turn on the suction head stop switch.	page 4

#### 6-3-2 The feed rotor does not rotate

Check	Cause and Recovery	Page
The main motor circuit breaker (Q11) is switched off.	- Switch on the circuit breaker.	page 14

# 6-3-3 The vacuum piston moves slowly

Check		Cause and Recovery	Page
The vacuum piston does not move smoothly.	Piston Set Screw  23051 60303A1	- Disassemble and clean the suction piston. (Do not over-tighten the piston set screw.)	page 123

# 6-3-4 The feed table does not move up and down

Check	Cause and Recovery	Page
The feed table motor circuit breaker (Q20) is switched off.	- Switch on the circuit breaker.	page 14

# 6-3-5 The right end of the sheet moves

Check	Cause and Recovery	Page
The suction length is too short.	- Increase the suction length using the Main-Condition screen.	page 20

# **Problems in the Register Guide Section**

# 6-4-1 Sheet does not move up against the register guide, or hits the register guide too hard

Check	Cause and Recovery	Page
The transport balls are set incorrectly.	<ul> <li>If the sheet hits the register guide too hard reduce the number of steel balls or replace them with plastic ones.</li> <li>If the sheet does not move up against the register guide, increase the number of steel balls.</li> </ul>	page 50
The table position is set incorrectly.	- Check that the feed scale pin just touches the stack. If necessary, adjust the position the table by turning the feed table wheel.	page 45
The positions of the sheet hold-down bars and the air guide are set incorrectly.	<ul> <li>Adjust the positions of the sheet hold-down bars depending on the sheet type.</li> <li>Adjust the position of the air guide depending on the sheet width.</li> </ul>	
The sheets are sticky or the separation air pressure is too weak.	- Fan the sheets correctly and/or increase the separation air pressure.	page 48

# 6-4-2 Large size sheets are not fed straight

Check	Cause and Recovery	Page
The feed scale pin is pushing against the edge of the stack.	- Adjust the position of the table by turning the feed table wheel so that there is a space of 2 to 3 mm (0.08" to 0.12") between the feed scale pin and the stack.	page 45

# Troubleshooting

# 6-5-1 The sheet does not enter the buckle chute

Check	Cause and Recovery	Page
The sheet floats in the register guide section.	- Set the sheet holders so that they control the sheet.	page 50
The buckle chute gate is not extended enough.	- Extend the gate.	page 85
The gap of the buckle chute is too narrow.	- Widen the gap.	page 86
Sheet is curled.	- Flatten out the sheets.	-
When the first folding length is 30 mm to 50 mm / 1.18" to 1.97", the edge of the sheet may get into under the stopper.  Stopper  Sheet  Gate Plate	- Curl the sheets upward slightly.  About 15 to 20 mm / 0.59" to 0.79"	-

# **Problems in the Buckle Chute Section**

# 6-5-2 The folds are not square to the edges of the sheet

Check	Cause and Recovery		Cause and Recovery		eck Cause and Recovery	
The sheet does not reach the register guide, or the sheet hits the register guide too hard.	If the sheet does not reach the register guide, increase the number of steel base.      If the sheet hits the register guide too reduce the number of steel balls or register them with plastic ones.	alls. hard,				
The register guide angle is incorrect.	- Adjust the register guide angle.	page 59				
The gap between the fold rollers is uneven.	- Set the fold roller gap correctly so that even at both ends.	t it is page 61				
A buckle chute is installed incorrectly.	- Reinstall the buckle chute.	page 130				
The sheets are curled, or the grain direction is not parallel to the fold roller.	- Adjust the register guide angle If the sheet is still not folded correctly, the roller gap.	adjust page 59,61				
The sheets are not trimmed at right angles.	- Adjust the buckle chute stopper angle	page 88				
The fold rollers are dirty.	- Clean the fold rollers.	page 126				

#### 6-5-3 The sheets are wrinkled parallel to the fold line

Check	Cause and Recovery	Page
The roller pressure just before the buckle chute is too weak.	- Narrow the roller gap.	page 61

# 6-5-4 The sheets are wrinkled across the fold line

Check	Cause and Recovery	Page
The roller pressure just before the buckle chute is too strong.	- Widen the roller gap.	page 61
The sheet floats in the register guide section.	- Set the sheet holders so that they control the sheet.	page 50

# 6-5-5 One of the folding lines is unstable

Check	Cause and Recovery	Page
The gap on the buckle chute is too wide.	- Narrow the gap.	page 86
The roller pressure is too strong.	- Widen the roller gap.	page 61
The edge of the sheet hits the corner of the buckle chute stopper.	- Loosen the buckle chute locking lever and move the buckle chute to front or rear.	-

# **Problems in the Buckle Chute Section**

# 6-5-6 The sheet remains inside the buckle chute

Check	Cause and Recovery	Page
The buckle chute gate is extended too far.	- Pull back the gate.	page 85
The distance between the buckle chute and the fold roller is too wide.	- Install the buckle chute closer to the fold roller.	page 87

# Troubleshooting

# 6-6-1 The scoring line does not run straight

Check	Cause and Recovery	Page
The both perforation shaft lifting levers have not been returned completely.	- If the perforation shaft lifting levers have not been returned completely, the upper and lower perforation shafts are separated, and the scoring line is not correctly made.	page 10
The drive roller pressure is uneven.	- Adjust the drive roller gap (gap #8).	page 74

#### 6-6-2 The perforation line does not run in the center

Check	Cause and Recovery	Page
The register guide position is incorrect.	- Correct the register guide position.	page 67

# **Problems in the Knife Section**

#### 6-7-1 The sheets are scratched or smeared

Check	Cause and Recovery		Page
The hold-down roller pressure is too strong.	13071 60701A1	- Decrease the pressure of the hold-down roller nearest to the perforation/scoring section.	page 90

# 6-7-2 The fold knife creases the sheets

Check	Cause and Recovery	Page
The fold knife roller pressure is too strong.	- Widen the knife roller gap (gap #9).	page 77

# 6-7-3 The sheets are not folded exactly on the perforation line

Check	Cause and Recovery		
The perforation blade is not aligned with the knife.		oration blade with the knife. gister guide to align the sheet oration blade. page 67	
The knife guides are positioned incorrectly.	- Feed one shee the knife guide	et in Setup Mode and adjust positions.	ı
The transport rollers are removed.		is folded by the knife, the s resist. Remove the transport page 90	ı

# Troubleshooting

#### 6-7-4 The folded edge of the signature swells up

Check	Cause and Recovery	Page
The gap for the fold roller (on the side with the folds) is too wide.	- Reduce the gap on the side with the folds.	page 77

# 6-7-5 The knife does not work

Check	Cause and Recovery	Page
The knife func- tion is turned off.	- Turn on the knife function using the manual setup on the Setup - Guide - Buckle screen.	page 40
The knife servo amplifier circuit breaker (Q40) is switched off.	- Switch on the circuit breaker.	page 14

#### 6-7-6 The roller below the knife does not rotate

Check	Cause and Recovery	Page
The motor circuit breaker below the knife (Q12) is switched off.	- Switch on the circuit breaker.	page 14

# **Other Problems**

#### 6-8-1 The sheets are not arranged correctly on the delivery conveyor

Check	Cause and Recovery	Page
The sheets are not being delivered straight.	- Adjust the roller gap (gap #12).	page 77

#### 6-8-2 The delivery conveyor does not run

Check	Cause and Recovery	Page
The conveyor switch is set to Standby, or the speed control knob is set to Low.	- Turn the switch to Run Turn the knob to High.	page 55
The conveyor power cable is not connected.	- Connect the power cable.	page 3
The circuit protector for the conveyor (Q50) is switched off.	- Switch on the circuit protector.	page 14

# $\underline{\text{6-8-3 The pump pressure does not increase when you turn the regulator knob}}$

Check	Cause and Recovery	Page
The pump filter is clogged.	- Clean the filter.	page 125

# 6-8-4 The pump does not run

Check	Cause and Recovery	Page
The pump circuit breaker (Q21) is switched off.	- Switch on the circuit breaker.	page 14

# 6-8-5 The motor does not run when the Start button is pressed

Check	Cause and Recovery	Page
The feed table is not raised.	- Raise the feed table.	-

#### 6-8-6 The display does not appear when the main power is turned on

Check	Cause and Recovery	Page
The main power circuit breaker (Q00) or the circuit protector for 200V (Q01) is switched off.	- Switch on the circuit breaker o tector.	r circuit pro- page 14

# **Other Problems**

# 6-8-7 The gate fold buckle chute does not operate

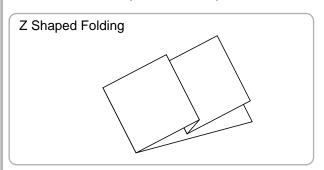
Check	Cause and Recovery	Page
The power cord for the gate fold buckle chute is not fully connected.	- Connect the power cord.	page 3
The connectors for the cables to the gate fold buckle chute power box are not fully connected.	- Connect the cords.	See the user's man- ual for GFB- 56.
The circuit protector for the gate fold buckle chute (Q30) is switched off.	- Switch on the circuit protector.	page 14

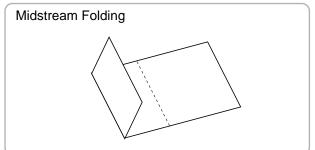
# 6-8-8 Sheets cannot be fed continuously

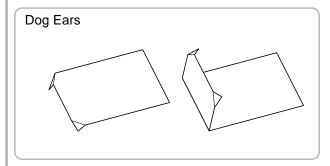
Check	Cause and Recovery	Page
Double feed detect photoelec- tronic sensor is dirty.	- Clean the double feed detect photoelectronic sensor.	page 135

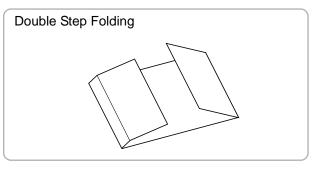
Here are some general types of folding problems.

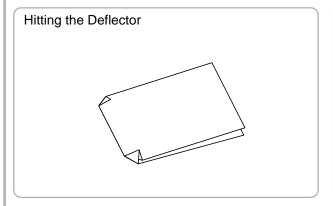
The solutions for these problems are explained on the following pages.

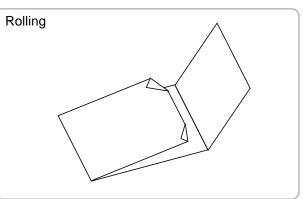


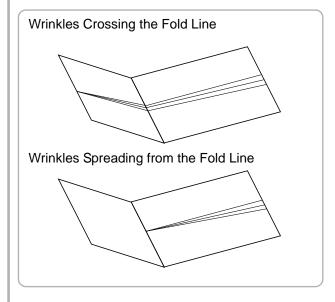








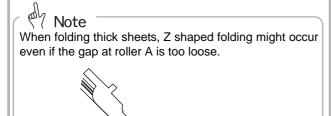


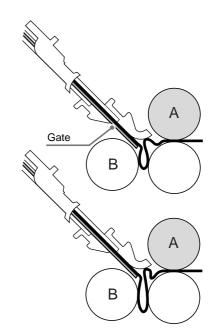


# **General Folding Problems and Remedies**

#### **Z Shaped Folding**

- Clean the fold rollers.
- Increase the gap at roller A, or reduce the gap at roller B.
- Move the buckle chute closer to the roller, by 2mm(0.08"), page 87 or pull back the gate by 3mm(0.12").





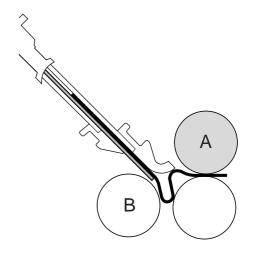
Problem:

#### **Midstream Folding**

В

- Check that the pressure produced by roller A is not too strong.
- Increase the gap inside the buckle chute. page 86
- Check to see whether there is paper dust in the buckle chute. This can prevent a sheet from entering.

Problem:



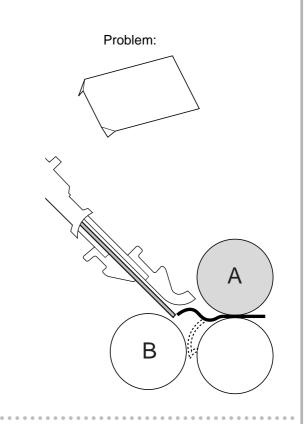
# **General Folding Problems and Remedies**

#### **Dog Ears**

If a folding problem occurs as shown in the figure to the right -

If the corners of the sheet are curled downwards or the gate is pulled back, the sheet cannot enter the clearance of the buckle chute.

- Flatten out the sheets.
- Extend the gate. page 85



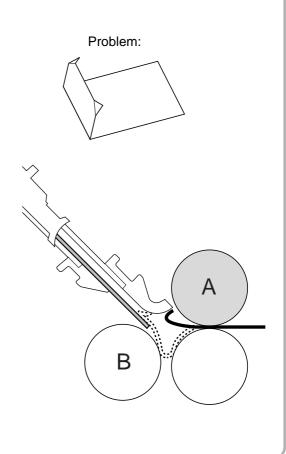
# If a folding problem occurs as shown in the figure to the right -

If the corners of the sheet are curled upwards or the distance between the buckle chute and the roller is too narrow, the sheet hits the buckle chute, is folded up, and cannot enter the clearance of the buckle chute.

- Flatten out the sheets.
- Increase the distance between the buckle chute and the roller.

page 87

Increase the gap at roller A.



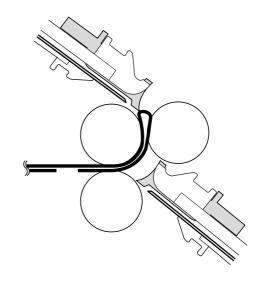
# **General Folding Problems and Remedies**

#### **Double Step Folding**

When the folded side of the sheet passes the rollers, the air in the folded area can not escape.

Increase the roller gap so that the air can escape easily.

Problem:

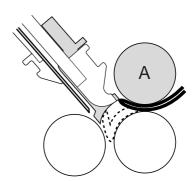


#### **Hitting the Deflector**

The sheet hits the edge of the deflector or the sheet is caught by a scratch on the deflector surface.

- Increase the gap at roller A.
- Increase the distance between the buckle chute and the roller page 87.
- Check that the deflector is not scratched.

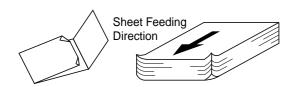
Problem:

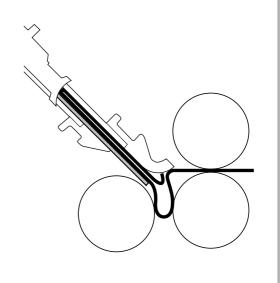


#### Rolling

The inner edge is bent, folded, and is pulled into the roll-

- Curl the front edge of the sheet on the feed table in the opposite direction so that the edge will not be pulled into the roller.
- Reduce the distance between the buckle chute and the roller, page 87 and pull back the gate a little. page 86

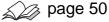


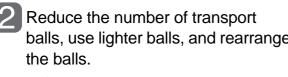


#### Wrinkles Crossing the Fold Line or Wrinkles Spreading from the Fold Line

If a wrinkle occurs near the front edge of the sheet, the sheet might be opening a bit as it moves through the register guide section.

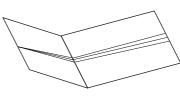
- Install the sheet holders.
- Reduce the number of transport balls, use lighter balls, and rearrange

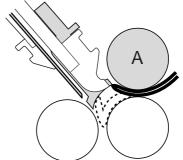


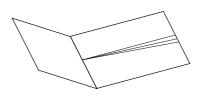


If the wrinkles spread from the fold line -

The gap pressure for the feeding roller is too strong. Increase the gap.

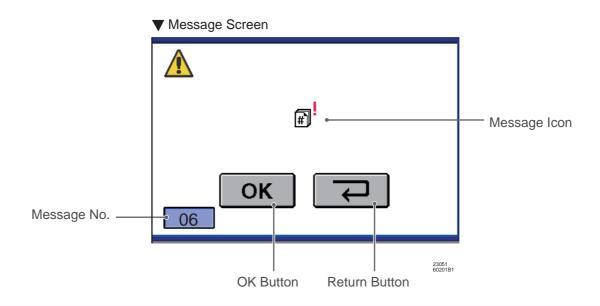






# If a Message Screen is Displayed

If a message screen is displayed, perform the appropriate response following the list below.



Message No.	Message Icon	Description / Solution
87	23051 60301H1	It is time for lubrication.  Press the OK button and lubricate the gear. (See page 127 for details.) If you press the Return button, this message icon is displayed again when the Power switch is turned on next time.
88	23051 6030111	The current job setting includes the values which are out of range. If you press the OK button, the values are automatically corrected to the values which are within the range.
89	Filter (2) / 🖔	It is time for cleaning the pump filter.  Press the OK button and clean or replace the pump filter (See page 125 for details). If you press the Return button, this message icon is displayed again when the Power switch is turned on next time.
90	Filter ( / ¼ / ¼ / ½ / ½ / ½ / ½ / ½ / ½ / ½ / ½	It is time for cleaning the air filter for the control box.  Press the OK button and clean or replace the air filter for the control box (See page 136 for details). If you press the Return button, this message icon is displayed again when the Power switch is turned on next time.

# 7. Maintenance

This section includes instructions for cleaning up the machine, replacing consumables, and lubrication.

#### **⚠** WARNING



- Press the Emergency Stop button before doing any maintenance operation. Otherwise, a sudden start of the machine can cause severe personal injury or machine trouble.

# 7-1

# **Cleaning the Vacuum Piston**

If paper dust sticks to the vacuum piston, the vacuum piston will not move smoothly. Disassemble and clean it.



#### Note

If the piston set screw breaks, replace it with the accessory piston set screw in the same way.



#### 

-Do not lubricate the piston. The lubricating oil will catch more paper dust.

- Do not hit or scratch the piston.



#### 

Keep the suction cups away from kerosene or oil to prevent them from deteriorating.

# Remove the vacuum piston.

- (1) Loosen the locking nuts.
- (2) Loosen the piston set screws.
- (3) Pull out the vacuum piston.
- Pull out both springs.

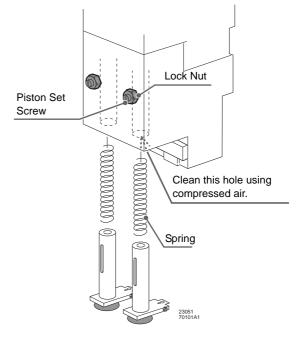
# 2 Clean the vacuum piston.

- Clean the inside of the piston and the holes in the suction head using compressed air.



#### Note

If it is difficult to remove the dirt on the vacuum piston, wipe with alcohol or kerosene.

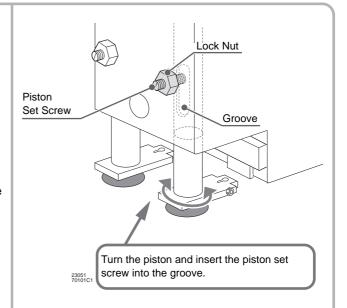




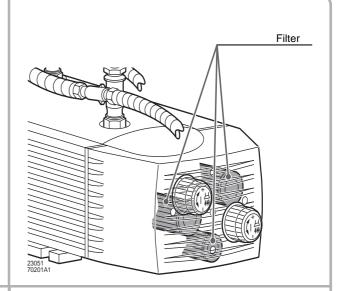
# **Cleaning the Vacuum Piston**

# 3 Assemble the vacuum piston.

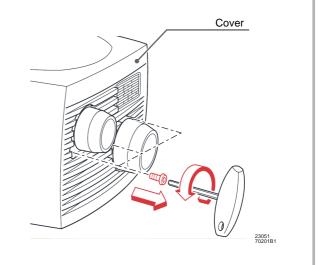
- (1) Insert the spring and vacuum piston into the hole.
- Turn the piston so that its groove will fit on the piston set screw and insert it.
- (2) As you turn the piston, tighten the piston set screw gradually and insert the screw into the groove on the piston. Tighten the piston set screw slowly until it stops.
- Do not tighten the set screw so much so that the piston is scratched.
- (3) Loosen the set screw until the piston drops by itself.
- (4) Fasten the lock nut.



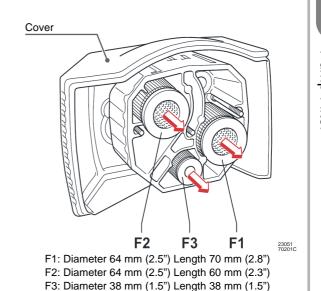
There are three filters installed as shown to the right.



- Turn off the power switch.
- Remove three screws and the cover shown in the drawing to the right.
- Remove the filters.



- A Remove any clogged dust in the filter using compressed air or a vacuum cleaner.
  - If the dust cannot be removed, replace the
  - Reinstall the filters in the original positions.
- Install the filters and parts in the reverse order of removal.



# **Cleaning the Fold Roller**

The fold rollers and drive rollers may be smeared by ink and this may cause unreliable folding. Clean the rollers.

#### **№ WARNING**



Turn off the power switch before cleaning the rollers. Otherwise, a sudden start of the machine can cause severe personal injury.

- Turn off the power switch.
- If necessary, remove the buckle chutes.



Wipe the rollers using a cloth soaked with the accessory cleaner or alcohol.

#### **A** CAUTION



 Do not apply cleaner or alcohol to the rollers directly. The rollers may not dry completely, and may contaminate the sheets.

 Do not use blanket cleaner or recovery agents for printers. They may cause damage or expansion of the rubber.

#### 7-4-1 Lubricating the Grease Nipple

When the message screen for lubrication (see page 122 for details) is displayed, lubricate the grease nipple.

Frequency of Lubrication = Once every 100 hours

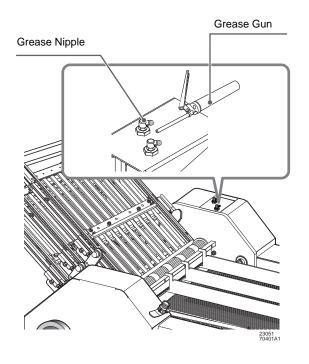
Specification of Grease

Type: Lithium complex soap grease

Viscosity: NL GI2

# Add more grease into the grease nipple.

- Use the accessory grease.
- Add grease using the accessory grease gun.



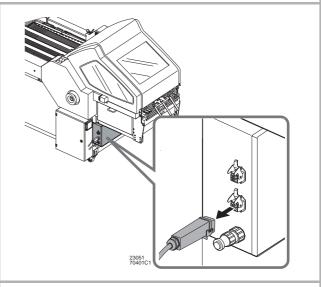
# Lubrication

Lubricating the Conveyor Drive Chain

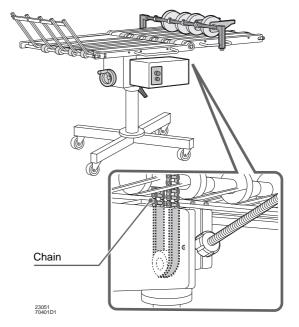
#### 7-4-2 Lubricating the Conveyor Drive Chain

Lubricate the conveyor drive chain regularly (approximately once a month).

Remove the power connector for the conveyor.



- 2 Lubricate the drive chain.
  - Apply the accessory grease using a brush.



- Turn off the power switch.
- If the perforation blades are installed, slide the upper blade holder to separate the upper blades from the lower blades.
  - This prevents the upper blades from hitting the lower blades and being damaged when the perforation shaft is removed.



132

- B Lower the perforation shaft lifting lever.
  - The upper perforation shaft rises. This will separate the upper scoring wheels from the lower blades.
- Loosen the set screw of the shaft holder on the operator side.
  - Use a 3 mm hex driver.
- Push in the shaft holder on the operator side.
- Remove the perforation shaft.
  - Pull the perforation shaft to the operator side to remove the pin from the groove, and lift the entire perforation shaft.
- Install the perforation shaft in the reverse order of removal.

#### ♠ WARNING



Do not touch the blades. Otherwise, a sharp blade can cause severe personal injury.

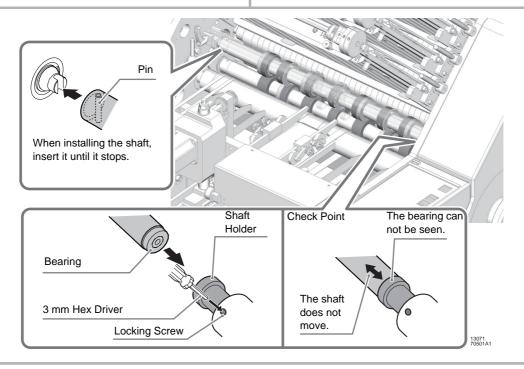
#### **!** CAUTION



Make sure to move any blades away from the lower blade. Otherwise, the blades may be damaged.

# Important

- When you install the perforation shaft, insert the rear end so that the cutout fits completely over the pin.
- After you install the shaft holder, make sure to check that the bearing on the front is completely inserted to the shaft holder and check that the perforation shaft does not move.



# Removing the Buckle Chute

Remove the buckle chute if a sheet jam occurs in the buckle chute, or if you want to replace it with the optional gate fold buckle chute.

#### **MARNING**



Turn off the power switch before removing the buckle chute. Otherwise, a sudden start can cause severe personal injury.

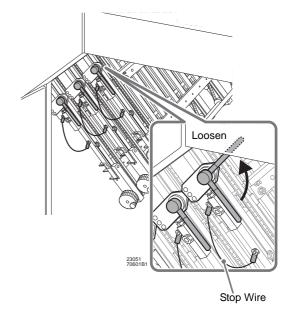
#### First, Third and Fifth Buckle Chutes

- Disconnect the buckle chute cable connector.
- 2 Loosen the locking levers.
  - There are locking levers on the operator side and the rear.
- Remove the buckle chute.
  - Pull out the buckle chute by lifting it up through the guides.

# Loosen Connector Locking Lever Connector Locking Lever

#### Second, Fourth and Sixth Buckle Chutes

- Disconnect the buckle chute cable connector.
- Check that the buckle chute stop wire is attached.
  - There are wires on the front and rear.
- 3 Loosen the locking lever.
  - The buckle chute will slide down and be stopped by the wire.
- 4 Remove the wire.
  - Lift the buckle chute a little and unhook the wire.
- Remove the buckle chute.



- Loosen the buckle chute locking knob.
  - There are two buckle chute locking knobs one on each side of the buckle chute.

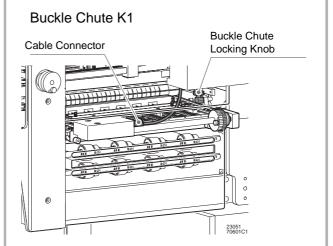
#### **Buckle Chute K1**

Put your hand from top of knife fold section and loosen the locking knob.

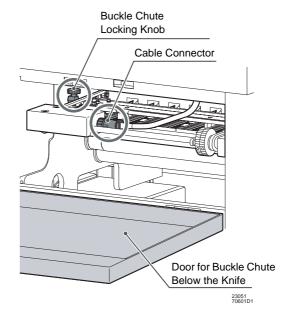
#### **Buckle Chute K2**

Open the door for the buckle chute below the knife and loosen the locking knob.

- 2 Disconnect the cable connector.
- Remove the buckle chute.



#### **Buckle Chute K2**



Maintenance

# **Installing the Perforation Blade**

This section includes instructions on how to install the perforation blade.

- Standard perforation blade:
  6 mm x 4 mm (0.236" x 0.157")
  2.5 mm x 0.8 mm (0.098" x 0.031")
- Other options for perforation blades:
   3.2 mm x 0.8 mm (0.126" X 0.031")
   1.4 mm x 0.8 mm (0.055" X 0.031")

# Turn off the Power switch.

# 2 Remove the perforation shaft.

- If the perforation blades are installed, slide the upper blade holder to separate the upper blades from the lower blades.
- This prevents the upper blades from hitting the lower blades and being damaged when the perforation shaft is removed.
- 2. Lower the perforation shaft lifting lever.
- The upper perforation shaft rises. This will separate the upper scoring wheels from the lower blades.
  - 3. Remove the perforation shaft.
  - Loosen the locking screw using a 3 mm hex driver, and move the shaft holder.

#### **№ WARNING**



- Turn off the power switch before replacing the blades. Otherwise, a sudden start of the machine can cause severe personal injury or machine trouble.
- Do not touch a blade. Otherwise, a sharp blade can cause severe personal injury.

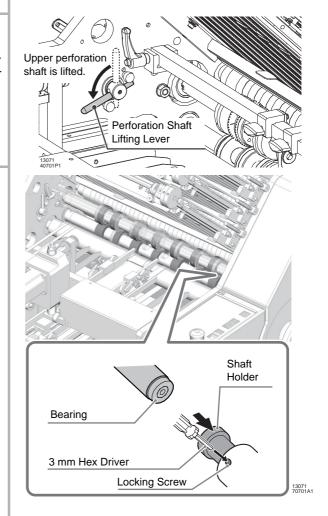
#### **CAUTION**



After you install the blades, do not separate them by increasing the gap between the perforation shafts. This will damage the blades.

# Attention

If you perform the perforation or scoring with the unfolded sheet, the perforation or scoring line may not run straight.



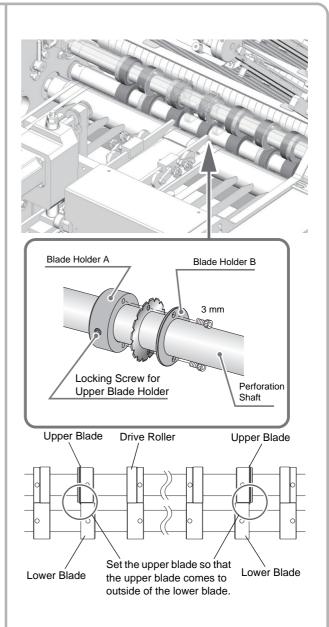
# Replace the blades.

- 1. Remove the upper blades and holders from the perforation shaft.
- 2. Install new blades and holders on the perforation shaft.
- Tighten the screws while holding the shaft so that it cannot turn.
- Do not tighten the locking screws on the holders yet.

# Important

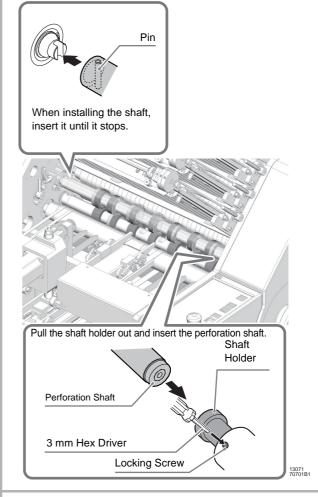
- Install each blade with the correct orientation.
- Install each holder in the position shown in the drawing to the right.

Additional Information
 Decide the perforation blade position by feeding sheets. See Chapter 4, "Fine-Tuning Adjustments."

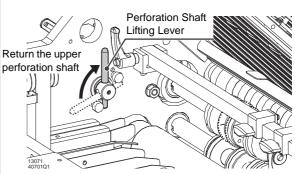


# **Installing the Perforation Blade**

- 3. Install the perforation shaft.
- Insert the perforation shaft into the shaft holder and tighten the locking screw.
- Be careful that the upper blades and lower blades do not hit each other and break.



Raise the perforation shaft lifting lever and align the scoring wheels.



Lock the roller to the perforation shaft.



If the sensor is still covered with the dust, wipe it off with a cloth soaked with neutral detergent.

#### 



Use neutral detergent to clean the sensor lens. Do not use blanket cleaner, recovery agents for printer or any other cleaners. They may melt the lens.

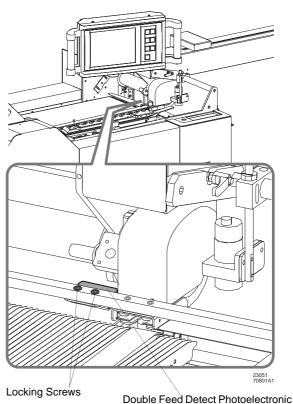
- Turn off the power switch.
- Remove the projector of the double feed detect photoelectronic sensor.

-Remove two locking screws (4mm).

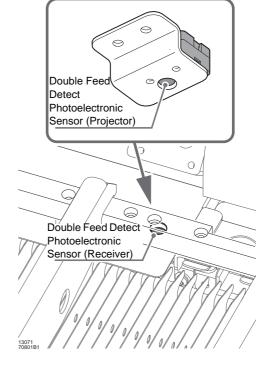
- Clean the projector and receiver of the double feed detect photoelectronic sensor using soft cloth or brush.
- Reinstall the projector of the double feed detect photoelectronic sensor.
- Turn on the main power.



- Turn off and on the main power, otherwise the machine will not operated.



Double Feed Detect Photoelectronic Sensor (Projector)



# Cleaning and Replacing the Air Filter in the Control Box

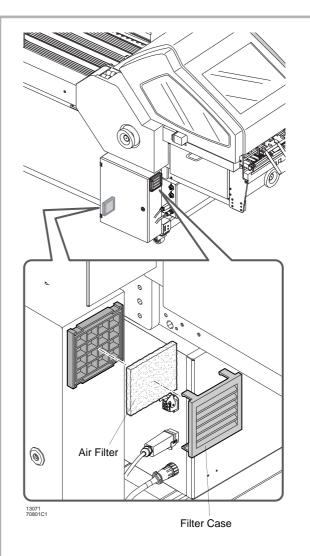
The control box has the fan to cool inside of the control box. If the air filter for the fan is clogged, the control box heats up and the electrical parts may be damaged. Clean the air filter once a month.

#### **MARNING**



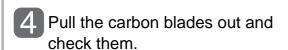
Turn off the power switch before cleaning the air filter.

- Turn off the power switch.
- Remove the filter case and the air filter.
- 3 Wash the filter with water.
  - If the filter is still contaminated, replace it with a new filter.
- Dry the filter completely, and attach it.



The pump does not work correctly if the carbon blade in the pump are worn out. After 3,000 hours of use, follow the procedure below and check if the blades are worn. If necessary, replace the blades.

- Turn off the main power.
- Remove three screws and the cover shown in the drawing to the right.
- Remove the rid.





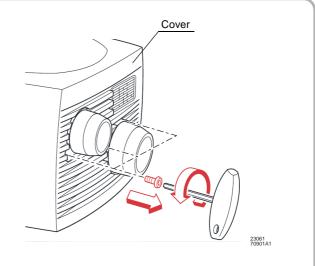
If the length of the carbon blade is 27.5 mm or less, replace the blades.

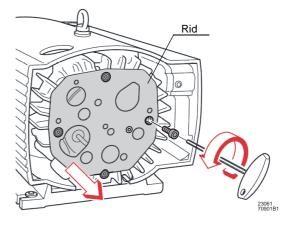
- Replace all seven blades together.

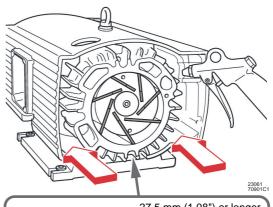


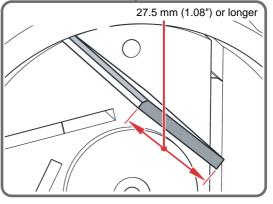
When inserting the new blade, insert it to the direction shown in the drawing to fit the end of the blade on the inner wall of the cylinder.

Attach the covers in the reverse order of removal.







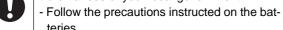


# Replacing the Battery for the Remote Controller

If the remote controller is not working, replace the battery.

# **^**CAUTION

- Install the battery in the correct direction.
- Do not throw away the used battery as household waste. Dispose of or recycle the battery according to the regulations and/or ordinances of your local government.

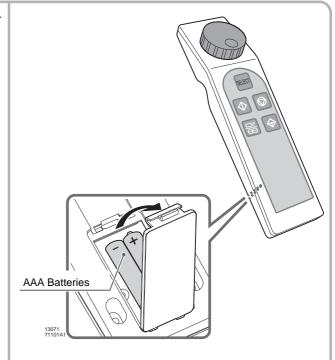


Otherwise, heat generation, explosion and leackage of batteries may cause severe personal injury, or damage or defile the surrounding parts.





Do not use rechargeable batteries. They may cause heat generation or defective of batteries



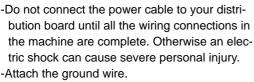
# 8. Installation

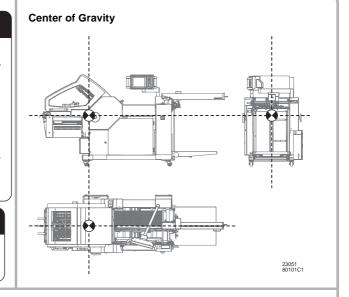
8-1

### **Machine Installation**

#### ♠ WARNING

- -This machine weighs 1,170 kg (2580 lb). Be very careful when moving this heavy machine.
- -Place the machine on a solid and flat floor. If the floor is not solid enough, place strong plywood on the floor for support.





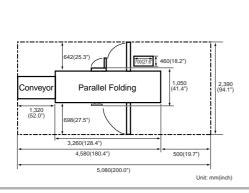
#### **♠** CAUTION

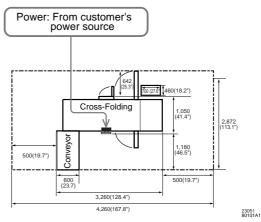


- Avoid direct sunlight.
- Avoid hot and humid locations.

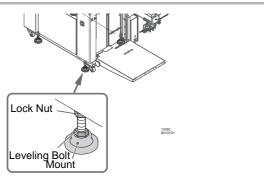
#### 8-1-1 Placing the Machine

- Prepare enough installation space for machine operation, daily checks, sheet replacement, and maintenance.
  - Allow about 500 mm (19.7") on all sides of the machine for maintenance.



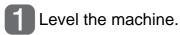


- 2 Insert the leveling bolts.
  - Insert four bolts into the slots on the bottom of the machine.
- Place the mounts under the leveling bolts.

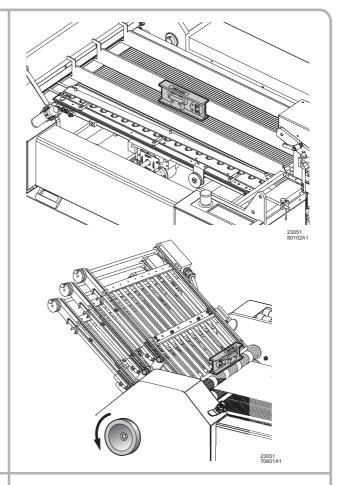


# **Machine Installation**

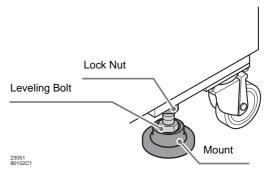
#### 8-1-2 Level Adjustment



- Level the machine in both directions (parallel to the buckle fold rollers and 90 degrees to the buckle fold rollers) using the four leveling bolts.
- To check for level in the direction parallel to the fold rollers, place a torpedo level on the rollers themselves.
- To check for level in the direction 90 degrees to the fold rollers, place a torpedo level on the side of the register guide section.

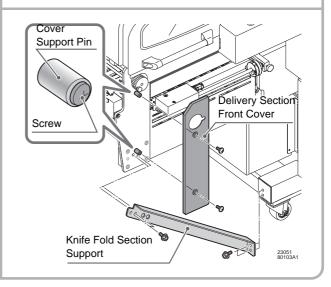


After making the leveling adjustments, tighten the lock nuts to lock the leveling bolts.



# 8-1-3 Installing the Delivery Section Front Cover

- Remove the knife fold section support on the operator side.
- Remove the screw inside the cover support pin.
- Install the delivery section front cover.



Connection

**-**...

This section tells you how to connect the power cable and hoses for the pump.



Place the pump behind the machine.

- 2
  - Connect the pump power cable of the pump.
  - For AC220V, connect the power cable of the pump from the electrical box to the terminal board on the pump.

Important

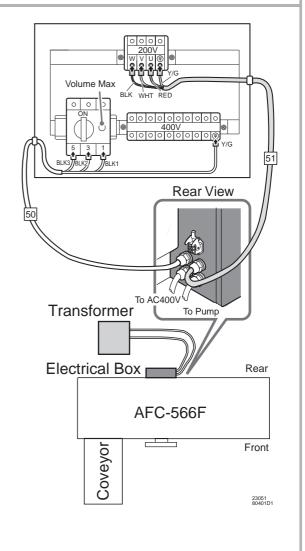
Be sure to connect the ground.

- Pump Power

  Ground

  WHT / RED / BLK

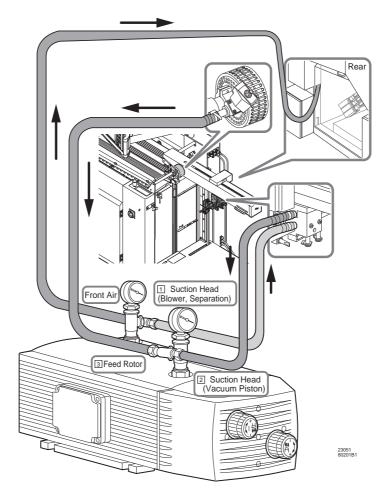
  23051
  8020141
- For AC400V, connect the power cable of the pump from the electrical box to the terminal board on the pump. (Refer to the illustration to the upper right.)
- Connect the cables 50 and 51 to the terminal board on the transformer as shown in the illustration to the right.
- Turn on the circuit breaker and set the volume to the maximum.



# **Pump Power Cable Connection**

# Connect the hoses to the pump.

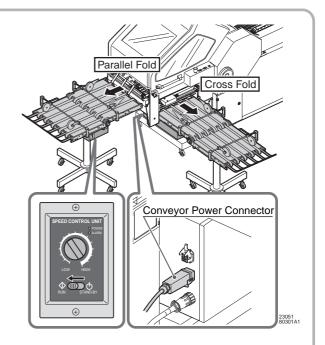
- There are four hoses which connect to the machine.
   Connect the hoses to the pump as shown in the illustration below.
- After connecting the hoses, fasten them using hose clamps.



- Put the pump below the knife folding section.
- Be sure to attach the cables and hoses in the areas where a foot cannot be caught as shown in the drawing below.



- Place the conveyor.
  - The exit direction of the sheets changes depending on the fold pattern.
- 2 Connect the conveyor power cable.
  - Turn the conveyor switch to Run.
  - Adjust the speed control knob to High.



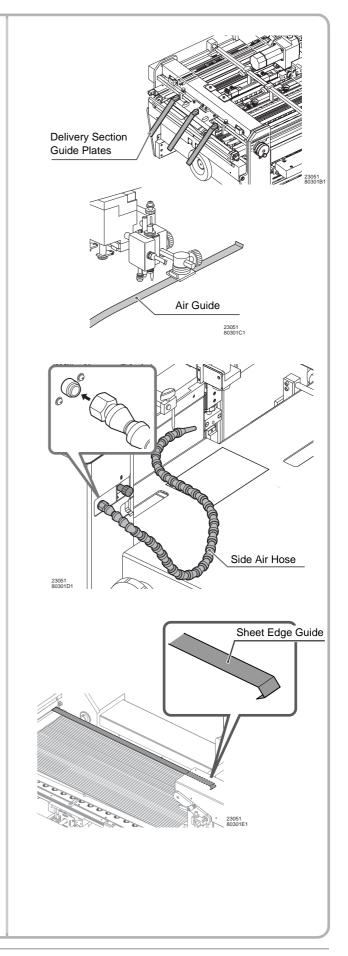
# **Installing the Conveyor and Accessories**

### Install the accessories.

- Install the guide plates on the delivery section support bar.
- Install the air guide.
- Install the side air hose.
- Install the sheet edge guide.

#### Wireless Remote Controller

When using more than one folder, each folder needs its own remote controller. Connect each remote controller to the corresponding folder to prevent interference. See Section 1-6-3 and 5-15-1 in the Service Manual for details.

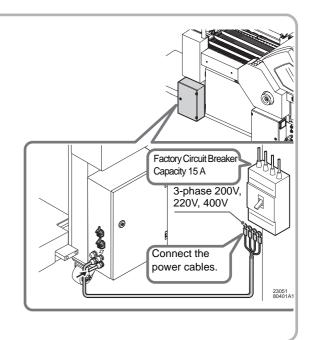


#### **№ WARNING**



If you will be connecting the main power cable directly to a circuit breaker in the factory's distribution board, have this done by a qualified electrician.

- Turn off the circuit breaker in the factory's distribution board.
- Connect the power cable from the machine to the distribution board.
  - Be sure to connect the ground.
- Turn on the circuit breaker on the distribution board.
- Turn on the power switch.

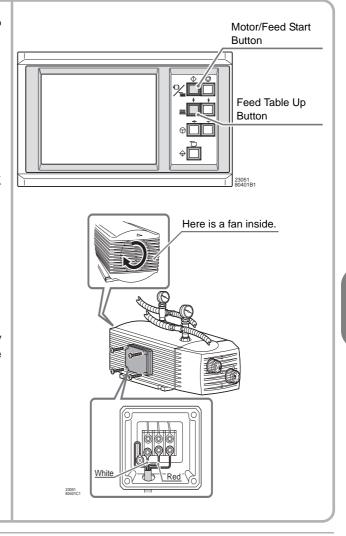


### 8-7

### **Pump Rotation Direction**

Check the direction of rotation of the fan on the pump to see whether the power cable is connected correctly.

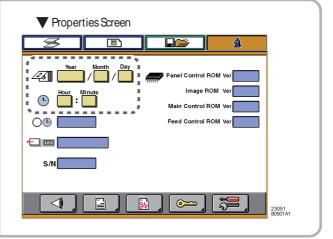
- Turn on the main power switch.
- Raise the feed table.
- Place the pump so that you can check the fan.
- Keep watching the fan as you start the pump.
  - Press the Motor/Feed Start button on the control panel to start the pump.
  - If the fan rotates clockwise, this is normal. If it rotates counterclockwise, press the Emergency Stop button immediately. If you let the fan rotate counterclockwise for a long time, the pump will be damaged.
- If the fan rotates counterclockwise, do the following:
  - (1) Turn off the power switch.
  - (2) Exchange the connections for the red and white wires connected to the terminal board.



### 8-8

# **Date and Time Setup**

Set up the current date and time using the Properties screen.



### 8-9

# **Checks After Installation**

- Check the following:
  - (1) All covers are installed and the cover gaps are small.
  - (2) The interlocks operate.
  - (3) There are no strange noises or bad smells while the machine is running.
  - (4) The machine runs down when the Emergency Stop button is pressed while the motor is running.

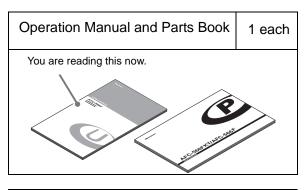
# 9. Appendix

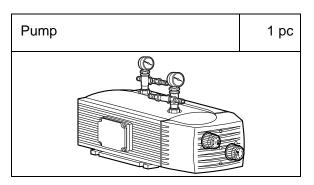
# 9-1

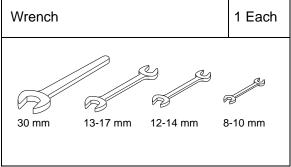
# **Specifications**

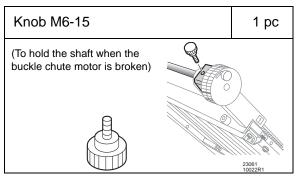
Machine Structure	6KTT(6 Buckles + Fold Knife + 2 Buckles Below Knife)
Max.Sheet Size	Max. 558(W) x 850(L) mm or 21.965" x 33.460" (Length 1,100 mm or 43.310" with optional extension table)
Min. Sheet Size	Min. 128(W) x 148(L) mm or 5.040" x 5.830"
01 111 11 1	(Register guide minimum set position: 74(W) mm or 3.0")
Sheet Weight Range	Normal Paper 35 to 244 gsm Art/Coated Paper 50 to 232 gsm
Buckle Fold Length	1st Buckle - 30 to 450 mm or 1.2" to 17.7" / 2nd Buckle - 30 to 450 mm or 1.2" to 17.7" 3rd Buckle - 30 to 450 mm or 1.2" to 17.7" / 4th Buckle - 30 to 360 mm or 1.2" to 14.1" 5th Buckle - 30 to 450 mm or 1.2" to 17.7" / 6th Buckle - 30 to 360 mm or 1.2" to 14.1"
	K1 Buckle 30 to 150 mm or 1.2" to 5.9"
	K2 Buckle 30 to 150 mm or 1.2" to 5.9"
Knife Fold Size	Max. 558(W) x 410(L) mm or 21.9" x 16.1" [Knife Length: 410mm or 16.1"] Min. 160(W) x 30(L) mm or 6.3" x 1.2" [190(W) mm or 7.5" with automatic set-up] On manual setup: 80 mm or longer of the dimension between sheet edge from Fold Knife is necessary. On automatic setup: 95 mm or longer of the dimension between sheet edge from Fold Knife is necessary.
Feeding Mechanism	Air Suction Rotor and 2 Cylinder Separator Head (Feed interval and suction time are adjustable.)
Feeder Stack Height	Max.740 mm or 29.1" [within 250kg or 551.3lb.]
Belt Speed	30 to 240 meters or 99 to 787 feet per minute, Knife Fold 200 meters or 656 feet per minute
Production Speed	Suction Head 42,000 cycles per hour, Knife 21,000 cycles per hour
Standard Fold Roller	Combination of soft polyurethane foam rubber and steel roller Optional side cut blades can be attached to the roller.
Perforation	Parallel Fold (Diameter 52 mm) Cut: 6 mm or 0.24" Blank: 4 mm or 0.16"
Perforation	Cut: 2.5 mm or 0.1" Blank: 0.8 mm or 0.03" [Option: Cut 3.2 mm or 0.13", Blank 0.8 mm or 0.03" / Cut 1.4 mm or 0.06", Blank 0.8 mm or 0.03"]
	Min. Perforation Distance: 40 mm or 1.58" in one operation
Scoring	Scoring Width: About 1mm or 0.04" (Depends on sheet type) Lower roller with soft polyurethane foam rubber
Cutters	Standard: 3 Perforation Blades / Max.12 blades can be attached.
Automatic Setup Accuracy	Setting Dimension:± 1mm Round Accuracy:± 0.1mm
Vacuum Pump	Flow 40m³ per hour (1400 ft³ per hour) Voltage / Frequency 3-Phase Delta Connection 230 / Y400V ± 10% 50 or 60Hz Power Consumption 1.8 / 2.2 kW (50 or 60Hz)
Voltage/Frequency	3-Phase 200 V, 50 or 60 Hz
	3-Phase 220 V, 60 Hz
	3-Phase 400 V, 50 Hz
Rated Current	3-phase 200 to 220 V, 50 or 60 Hz, 12.6 A
	3-phase 400 V. 50 Hz. 5.6 A
	3-phase 400 V, 60 Hz, 6.3 A
Heat Output	4.210 kJ or 1.010 kcal
Motors	0.75 kW x 1, 0.2 kW x 2, 25W x 1, 0.4kW x 1 (Servo), 2.2 kW x 1 (Pump)
Machine Dimensions	3,260(W) x1,050(D) x 1,580(H) mm or 128.4 " x 41.4" x 62.2 " Conveyor 1,320(W) x 600(D) x 1,130(H) mm or 52.0" x 23.7" x 44.5"
Noise Level	LAeq: 84 dB (EN13023)
Noise Level Machine Weight	

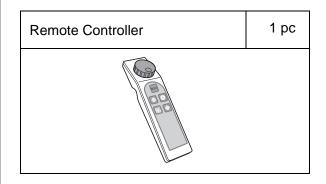
# **Accessories**

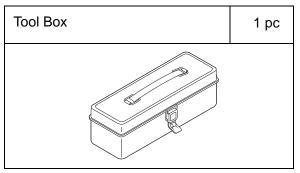


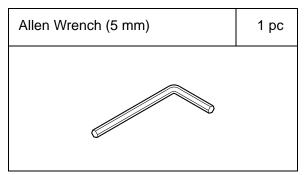


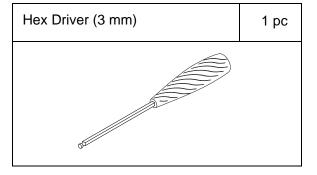


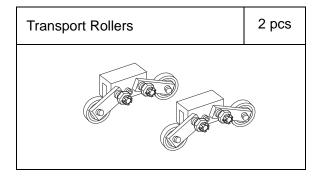




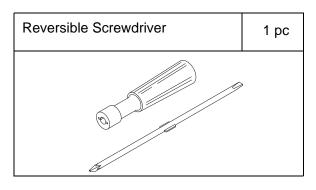


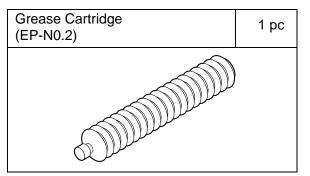


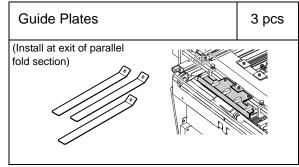


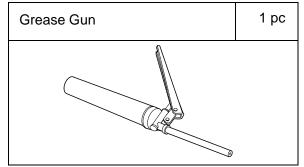


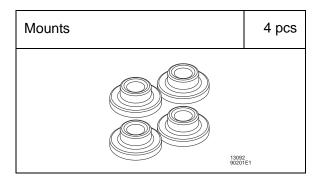
# **Accessories**

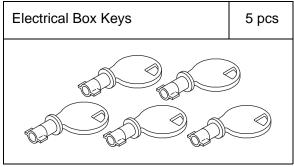


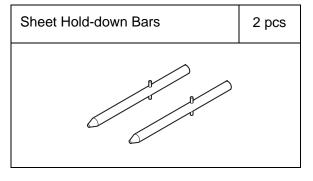


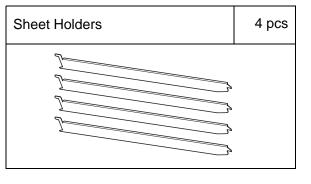


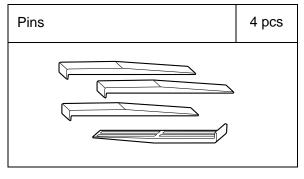


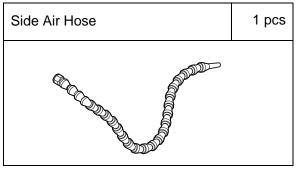






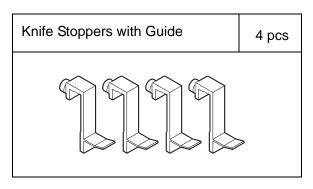


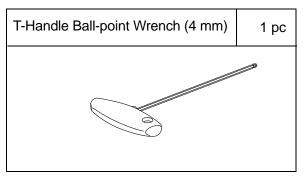


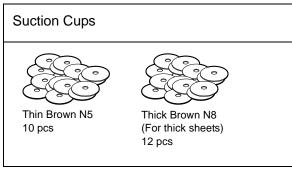


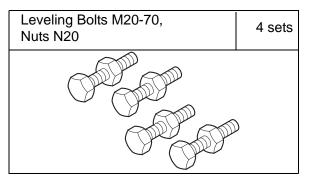
#### 9-2

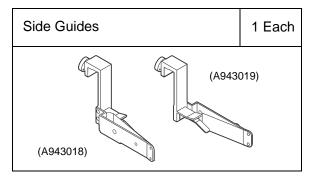
### **Accessories**

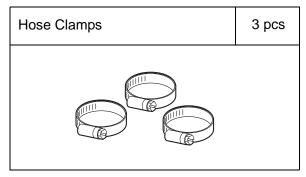


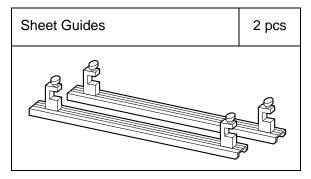


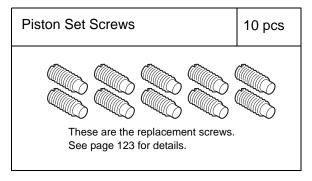


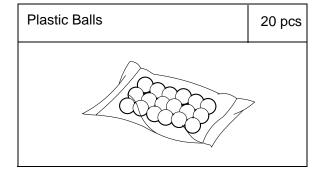


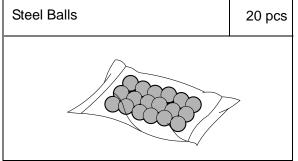


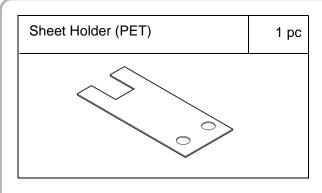


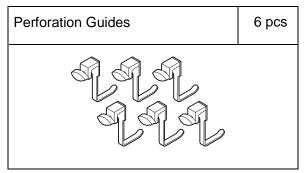


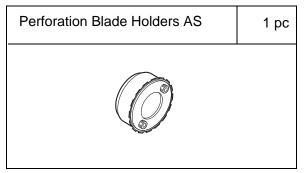


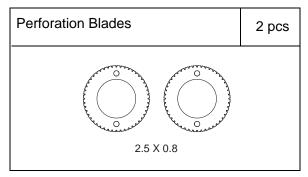


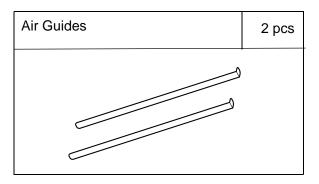


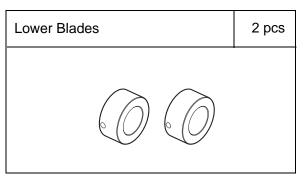


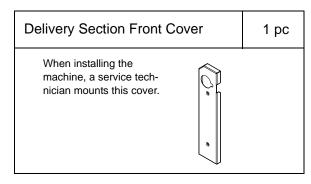


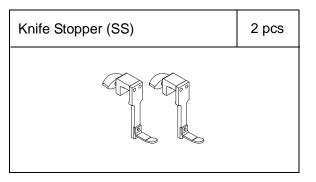


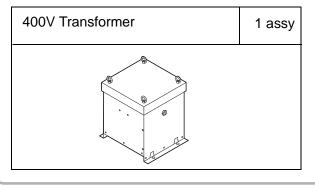


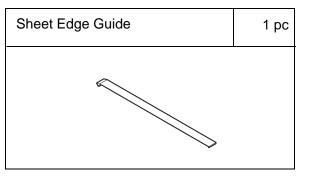












# Consumables

#### Thin Suction Cups



Parts Book: Fig. 81 - Index 8

13092 90201X1

#### Thick Suction Cups



Parts Book: Fig. 81 - Index 9

13092 90201X1

#### Carbon Blade for pump



23051 1003A1

Parts Book: Fig. 68 - Index 17

#### Filter Element for Vacuum Pump (F1)



23061 10041A1

Parts Book: Fig. 68 - Index 9

#### Filter Element for Vacuum Pump (F2)



F2

10041B

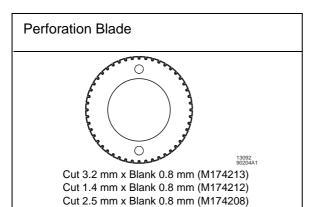
Parts Book: Fig. 68 - Index 11

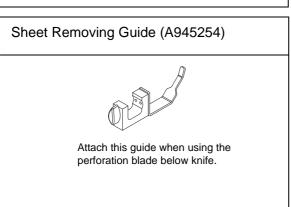
#### Filter Element for Vacuum Pump (F3)

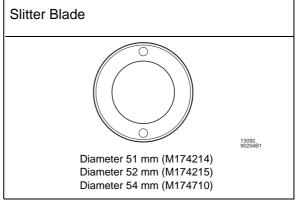


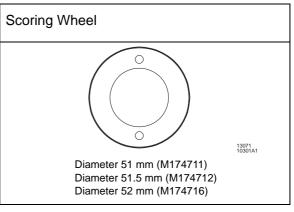
23061 10041C1

Parts Book: Fig. 68 - Index 10









# **De-commissioning and Dismantling**

There is no specific hazardous materials and components for de-commisioning and dismantling the machine.



www.horizon.co.jp/

510 Kuze Ooyabu-cho Minami-ku, Kyoto 601-8206, Japan Phone:+81-75-934-6700, Fax:+81-75-934-6708,