

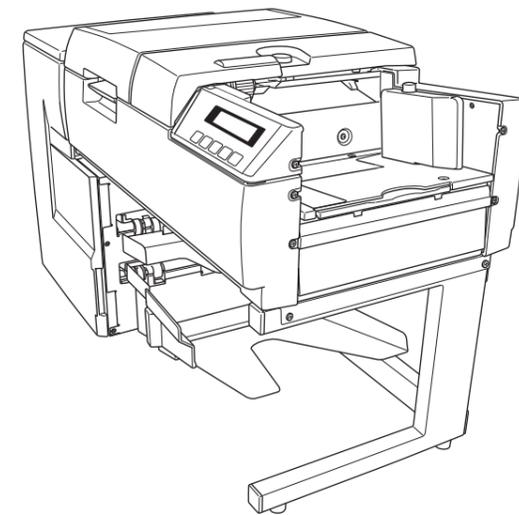
SEKONIC

SEKONIC

OPTICAL
MARK READER SR-6500
HYBRID

OPTICAL
MARK READER **SR-6500** HYBRID

Operating manual



Operating Manual

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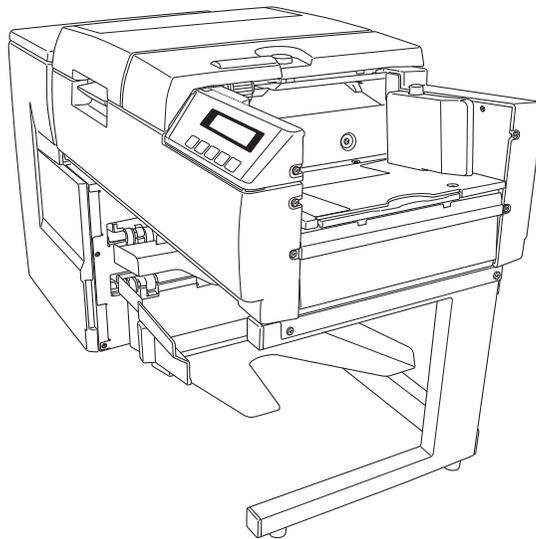


Introduction

Thank you very much for purchasing our product.

Please read the operating manual before using this product, and be sure to use it properly.

After reading this operating manual, be sure to keep it in a place that you can access at any time.



This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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Safety Precautions

These “Safety Precautions” pages list various symbols for ensuring safe operation of this product so as to prevent users or other people from being injured, or property from being damaged.

Read these precautions thoroughly and understand the meanings of the symbols before proceeding to the main text of this manual.

Warning

Improper operation by neglecting these instructions may result in death or serious injury.

Caution

Improper operation by neglecting these instructions may result in personal injury or property damage.

	Neglecting these instructions may generate smoke or fire.
	Neglecting these instructions may cause electric shock.
	Indicates a prohibited action.
	Indicates that disassembly or modification is prohibited.
	Indicates that the power plug must be removed from the outlet for safe operation.
	Instructs that do not spray the materials containing an inflammable gas or liquid to the device.

Warning

- Fire or electric shock may result if this product continues to be used when there is a strange smell or sound. In such a case, immediately turn the power switch off and then remove the power plug from the outlet. After making sure that it is no longer smoking, ask the sales shop for repair service. Never attempt to repair by yourself since that may be very dangerous.



- Do not modify or disassemble this device. That could cause fire or electric shock.
- Do not remove the cover from this device. That could cause electric shock. Ask the sales shop to conduct any internal checking, adjustment or repair. Pay thorough attention to the above instructions. Otherwise, fire or electric shock may occur.



- Power plug precautions
 - Do not pull on the cord when removing the power plug from the outlet.
 - Do not use any power plug other than the specified one. Make sure to use the adapter included in the package.
- Device precautions
 - Do not use it with a supply voltage other than the specified one.
 - Do not install it in a place that may be wet with water or oil, steam, moisture or dust.
 - Do not insert or drop any metal, foreign combustible matter, etc., into the port.
 - Do not place containers with chemicals or water, or small metal pieces near the device.



- Do not cover the vent hole. That could cause heat retention, resulting in fire.



- If the device is dropped or the cover is broken, immediately turn the power switch off and remove the power plug from the outlet. Then, contact the sales shop.



- If any foreign matter should enter inside, immediately turn the power switch off and remove the power plug from the outlet. Then, contact the sales shop or Sekonic. If the device continues to be used with foreign matter inside, fire or electric shock may occur. If water or other substances penetrate the unit, immediately turn the power switch off and remove the power plug from the outlet. Then, contact the sales shop or Sekonic. If the device continues to be used with water or other foreign matter inside, fire or electric shock may occur.



- Do not spray any materials containing an inflammable gas or liquid on the device and be sure to keep this kind of materials away from this device. Use a cleaning cloth with suitable amount of cleaning liquid to wipe off well, after removing the power plug from the outlet and the device becomes to cool off.





Caution

- Do not place the device in an unstable location. Otherwise, it may fall or collapse, resulting in injury.



- When opening or closing the upper part of the main body, do not place your hand on the paper-feeding surface. Otherwise, fingers may be caught, resulting in injury.
- If you must touch the paper-feeding surface of the main body, be careful not to allow your fingers to be caught or hit.



- When doing maintenance on the device, for your own safety, be sure to remove the power plug from the outlet.
- When the device is not in use for long periods, for safety, remove the power plug from the outlet.



- Before moving the device, be sure to remove the power plug from the outlet. If the cable is damaged, fire or electric shock may occur.



- Do not connect or disconnect the power plug if your hands are wet. Otherwise, an electric shock may occur.



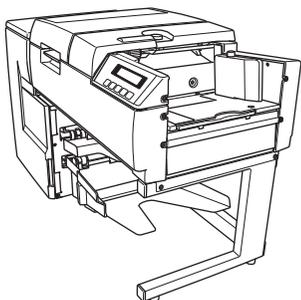
- Do not put heavy things on the device. Otherwise, it may fall or collapse, resulting in injury.



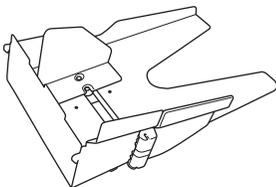
Before using

Before using the device, check if all of the following items are included in the package. If components are missing or damaged, contact the store where you purchased the device.

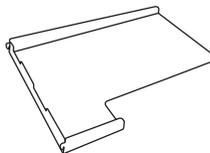
1. Main body unit



2. Main tray



3. Selection tray



4. Paper feeding bracket



5. Power cord
For U.S.A



For Europe

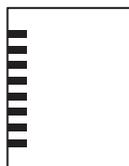


6. Operating manual
(this booklet)

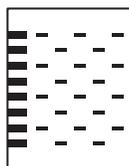


Note)
Refer to the power cord list
for Europe of next page.

7. A4 check sheets
A4 mark entry sheets

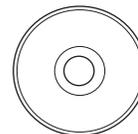


Mark entry sheet:
use it as an example when
designing entry sheets.



Check sheet:
use it for checking OMR operations.

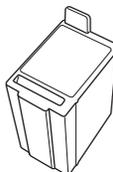
8. CD-ROM



9. USB cable



10. Ink cartridge



11. Strage bag
(Transparent plastic bag)

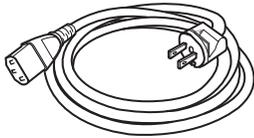


Note)
The package doesn't include a RS-232C(9 pins) interface
cable. You may need to get one depending on your computer
port or connection method.

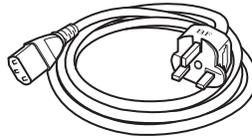
Power cord list for Europe

As stated on page 7 of this manual, the machine includes a representative variety of power adapters. If none of the included adapters match the power outlets in your location, please find and use an appropriate adapter.

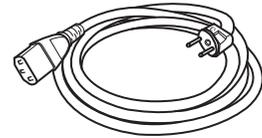
A type
(American Type)



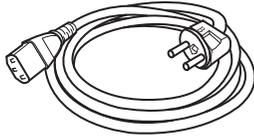
BF type
(British Type)



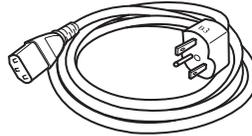
C type
(CEE Type)



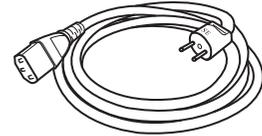
B type
(British Type)



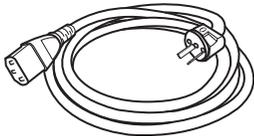
B3 type
(British Type)



SE type
(CEE Type)



O type
(Ocean Type)



Country	Plug type
U.K.	B, B3, BF, C
Italy	A, C, SE
Austria	B3, BF, C, O, SE
Netherlands	B, C, SE
Greece	B, B3, C, SE
Sweden	B, C, SE
Spain	A, C, SE
Denmark	C
Germany	A, C, SE
Finland	A, B, C, SE
France	A, C, O, SE
Belgium	A, B, C, SE
Portugal	B, B3, BF, C, SE
Luxemburg	A, C, SE
Ireland	A, B, B3, BF, C, SE

Warranty

The cost-free warranty period for this product extends for one year after delivery. The company will repair malfunctions arising during this period free of charge if they are determined to be the company's responsibility. In the event repairs are necessary, as a general rule the company will keep the product temporarily to carry out such repair work.

Malfunctions and other failures caused by customer misuse or by wastage of the parts due to mass processing will not be covered by the warranty.

This warranty covers only this product and its accessories, and the company will not assume any responsibility for monetary damage, lost earnings, or any third-party claims as a result of using this equipment.

Precautions For Use

Handle the device with the following points in mind to enable full use of its functions.

- **Precautions regarding installation**

Do not place the device in the following places. Otherwise, failures could result such as paper jams, reading errors, or the unit could become inoperative.

- (1) In direct sunlight or near a heating device.
- (2) Outdoors where the main body may not perform satisfactorily due to rain or strong wind.
- (3) A place where the main body may not perform satisfactorily such as it is subject to vibration while operating, or it is placed in an unstable location.
- (4) Places subject to sudden temperature changes, excessive moisture and dust.

Recommended temperature: 10-30°C

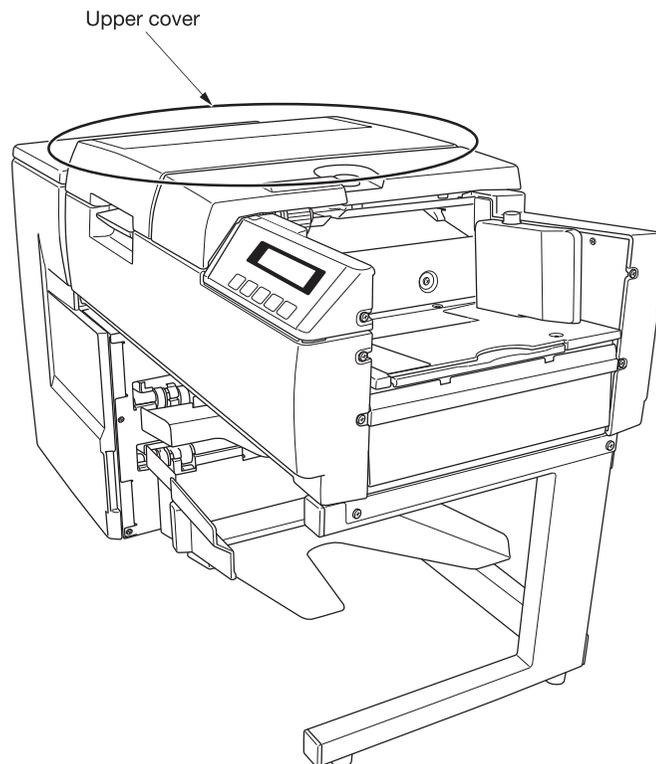
Guaranteed operating temperature range: 5-35°C

Humidity: 30-80% (no condensation)

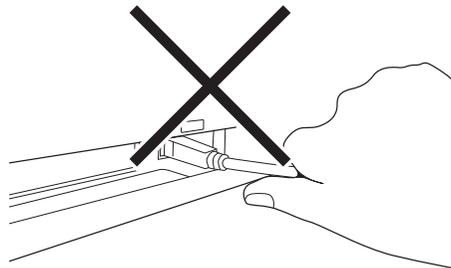
Avoid environments outside the above ranges as much as possible when placing the device.

- **Handling precautions**

- (1) Do not connect or disconnect the power cord or connector when the device is operating or the power switch is on.
- (2) Do not move the device while it is operating. Also, do not touch, pull, or push paper.
- (3) Please do not put any substances and one's hand on the upper cover. It will be occurred paper jamming or reading error



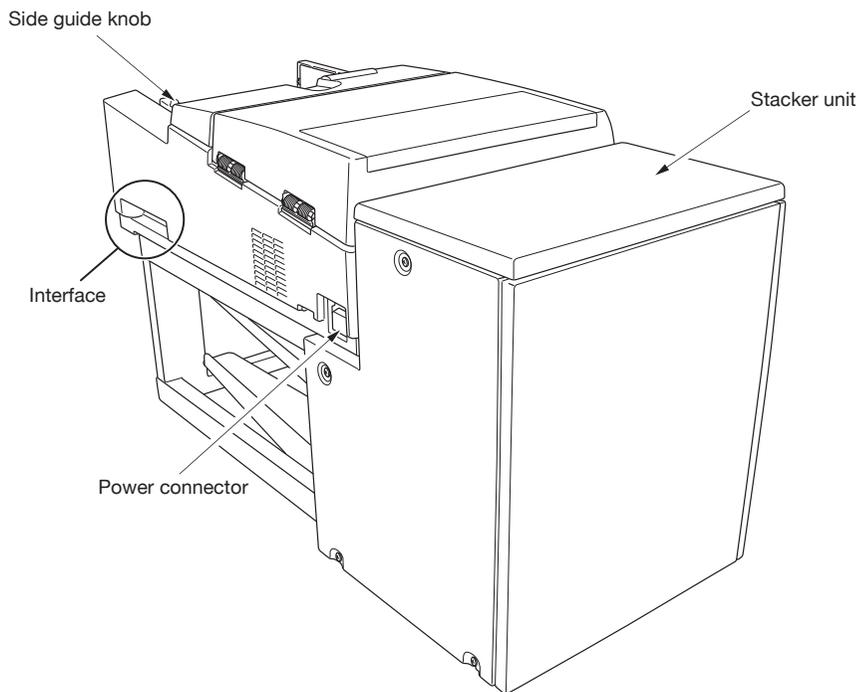
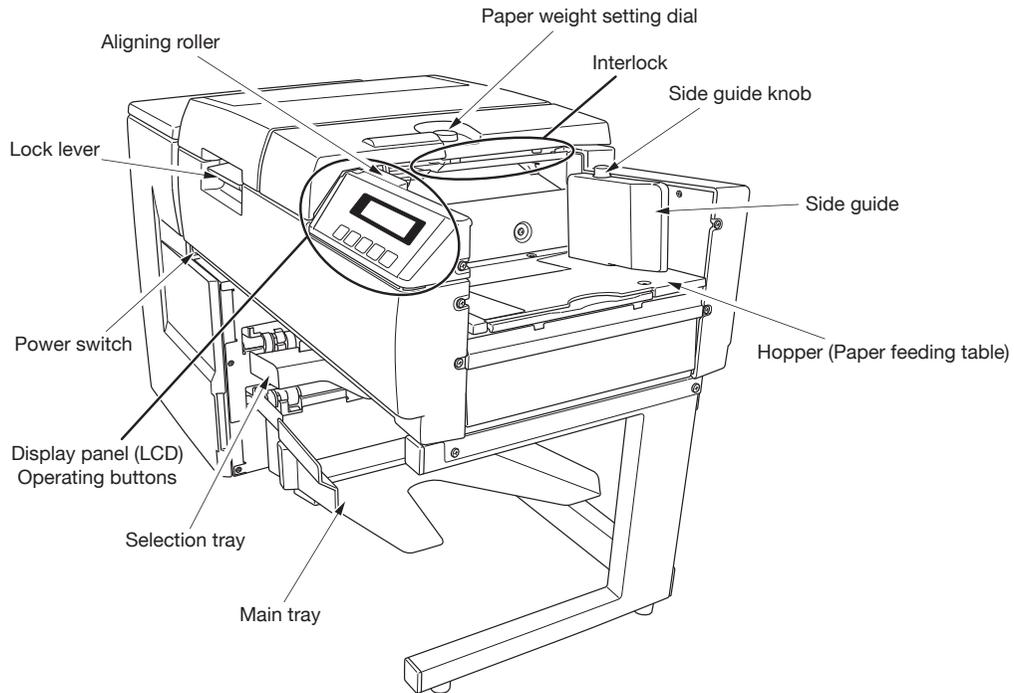
- (4) This device is designed to deferred type. Do not give it a strong vibration and shock etc.
- (5) Allow an interval of at least 5 seconds between turning the power switch on and off.
- (6) Do not insert objects other than paper sheets (such as paper clips, staples, etc.).
- (7) Do not apply force that deforms paper while it is being loaded.
- (8) Since the paper reading part is equipped with an optical lens, never insert a screwdriver or other such objects. (Otherwise, reading may be disabled.) If paper feeding is disabled due to dust or the like in the paper feeder, open the top cover to remove it. (**See** "Cleaning" P.80)
- (9) If the roller becomes soiled with powder from paper or pencil lead, the roller and the paper may slip. In order to prevent slippage, clean the roller at proper intervals. (**See** "Cleaning" P.80)
- (10) If the exterior of the device is soiled, lightly wipe with a soft cloth wetted with water or a neutral detergent. Note that wiping with a cloth wetted with volatile chemicals like benzene or paint thinner may cause deformation or discoloring.
- (11)  Do not apply strong loads to the tray, as it may bend or break.
- (12)  The Aligning roller has a magnet.
Do not place it to the following materials, otherwise the data stored may be damaged or may malfunction.
Cash card, floppy disc, other magnetic cards, TV Set, CRT display or LCD, Watch, and other apparatus sensitive to magnetic fields.
- (13)  Make sure to observe the following points when you handle the device and USB cables. Otherwise, mechanical failure or damage may be caused.
 - * Do not forcibly pull or bend the USB cable.
 - * Always hold the plug when you insert or pull out the USB cable. Never apply excessive force to the cable.
 - * When installing/moving the device or a PC, do not apply excessive power to the cord or plug of the USB cable.



■ Stacker unit precautions for use

- (1) Make sure to tightly close the jam release levers and the front door. Loose levers or a loose door may trigger paper jams.
- (2) Use ink cartridges before their expiry dates.

Names of parts



■ Operating panel functions and operating instructions

The operating panel has five kinds of switches.

The switches don't work while the machine is performing a function.



There are two modes: normal mode and menu mode.

In normal mode, the machine is connected to a computer and is controlled by commands from the host.

In menu mode, various settings are controlled by using panel switches.

1.  **switch**

- (1) Normal mode: Raises the hopper.
- (2) Menu mode: Use it to choose menu items and to select parameters. When you push for a long time, while having pushed, it keeps increasing menu items and parameters.

2.  **switch**

- (1) Normal mode: Drops the hopper.
- (2) Menu mode: Use it to choose menu items and to select parameters. When you push for a long time, while having pushed, it keeps increasing menu items and parameters.

3.  **switch**

- (1) Normal mode: Enters menu mode.
- (2) Menu mode: Returns to normal mode.
(If there is an error, it displays the error.)

4.  **switch**

- (1) Normal mode: If an error is displayed, you can clear the error. Clears the feed count.
- (2) Menu mode: If an error is displayed, you can clear the error. Moves one level higher in the hierarchy from the current level.

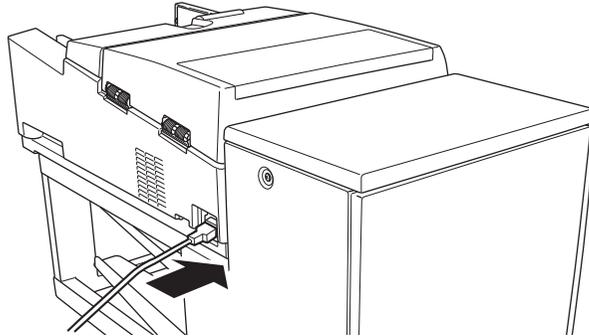
5.  **switch**

- (1) Normal mode: Feeds one sheet. If you keep the switch depressed, paper is fed as long as the switch is depressed.
- (2) Menu mode: Executes the selected menu item.

Operation

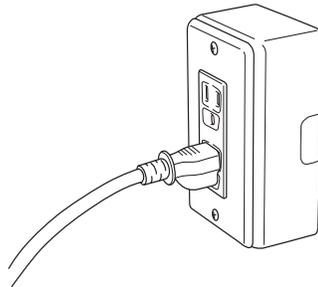
■ Preparation

- 1.** Connect the power cord to the main device.



- * When using the printer, operate P30 “Stacker unit (printer) preparation”

- 2.** Connect the power cord to the power outlet.



■ Turning power on

- 1.** Turn the power on. The following message appears on the display panel (LCD).

I n i t i a l i z i n g

- 2.** OMR is initialized.
- 3.** The motor and other components are activated to check startup conditions.
- 4.** Check if the following message appears on the display panel (LCD).

C o u n t : 0

- 5.** When error messages may appear between steps **2** and **3**, respond according to P.96(Error displays and countermeasures).

■ Connecting to a computer

This device is equipped with USB and RS-232C interfaces. When connecting the OMR, the connection with USB in order to show the performance of this device sufficiently is recommended. When using USB connection, use the USB driver inside CR-ROM that came with this device.

When replacing the OMR SR-9000 series with this device, you can use the RS-232C interface. ※ 1

When using the RS-232C interface, set the same communication setting on this device and the computer.

Set the computer communication setting by checking your computer or software manuals.

※ 1) There are times when it does not operate normally due to the specification of SR-9000.

See the following pages to set the communication setting for this device.

USB

Operating mode → select SR-6500 mode P.19

Interface setting (device ID setting) P.20

- See P.19 and later when using USB.

RS-232C

Operating mode → select SR-9000 mode P.21

Interface settings

Setting baud rate P.22

Setting character bit length P.22

Setting parity P.23

Setting stop bit P.24

Setting flow control P.24

Setting character code P.25

- See P.21 and later when using RS-232C.

Note)

- * Responding time of resetting command(CAN command) which is stated in the operating manual of SR-9000 series
Time after received resetting command(CAN command) ,it return ACK code is maximum approximately 5 to 6 seconds.
- * As for the details of commands of SR-9000 mode please see the operating manual of SR-9000

1. USB

1-1. Operating mode

Select the SR6500 mode as the operating mode.

- (1) Press the  switch to enter the menu mode.
- (2) Use the  and  switches to select the mode shown below.

O p e r a t i o n M o d e
 = S R - 9 0 0 0 M o d e

Press the  switch to start [Operation Mode] setting.

("*" mark flashes in the first column of the first line on the LCD.)

- (3) Use the  and  switches to select the SR-6500 mode.

* O p e r a t i o n M o d e
 = S R - 6 5 0 0 M o d e

Operation mode
 setting values

- SR-9000 mode
- SR-6500 mode

Press the  switch to save the selected mode into memory.

(The flashing "*" mark disappears from the LCD.)

- (4) Keep pressing the  switch until it returns to normal mode, or press the  switch to return to normal mode.

2. RS-232C

2-1. Operating mode

Select the SR-9000 mode as the operating mode.

- (1) Press the  switch to enter the menu mode.
- (2) Use the  and  switches to select the mode shown below.

O p e r a t i o n M o d e
 = S R - 6 5 0 0 M o d e

Press the  switch to start [Operation Mode] setting.

(“*” mark flashes in the first column of the first line on the LCD.)

- (3) Use the  and  switches to select the SR-9000 mode.

* O p e r a t i o n M o d e
 = S R - 9 0 0 0 M o d e

Operation mode
 setting values
 • SR-9000 mode
 • SR-6500 mode

Press the  switch to save the selected mode into memory.

(The flashing “*” mark disappears from the LCD.)

- (4) Keep pressing the  switch until it returns to normal mode, or press the  switch to return to normal mode.

2-2. Interface settings

2-2-1. Setting baud rate

- (1) Press the  switch to enter the menu mode.
- (2) Use the  and  switches to select the following parameters, and press the  switch.

```
S e t t i n g   o f
                I n t e r f a c e
```

- (3) Use the  and  switches to select [Baud Rate] setting, and press the  switch.
("*" mark flashes in the first column of the first line on the LCD.)
- (4) Use the  and  switches to set the value.

```
* B a u d   R a t e
                =           3 8 4 0 0
```

Baud rate
setting values

- 9600 • 19200
- 38400 • 57600
- 115200

- (5) Press the  switch to save the setting value into memory.
(The flashing "*" mark disappears from the LCD.)
- (6) Keep pressing the  switch until it returns to normal mode, or press the  switch to return to normal mode.

Note) To continue interface setting

Instead of returning to normal mode in step (6), you can continue setting various values by skipping steps (1) and (2).

2-2-2. Setting character bit length

- (1) Press the  switch to enter the menu mode.
- (2) Use the  and  switches to select the following parameters, and press the  switch.

```
S e t t i n g   o f
                I n t e r f a c e
```

- (3) Use the  and  switches to select [Character Bit Length] setting, and press the  switch.
 (“*” mark flashes in the first column of the first line on the LCD.)
- (4) Use the  and  switches to set the value.

* C h a r a c t e r B i t
 L e n g t h = 7

Character bit length
 value
 • 7 • 8

- (5) Press the  switch to save the setting value into memory.
 (The flashing “*” mark disappears from the LCD.)
- (6) Keep pressing the  switch until it returns to normal mode, or press the  switch to return to normal mode.

2-2-3. Setting parity

- (1) Press the  switch to enter the menu mode.
- (2) Use the  and  switches to select the following parameters, and press the  switch.

S e t t i n g o f
 I n t e r f a c e

- (3) Use the  and  switches to select [Parity] setting, and press the  switch.
 (“*” mark flashes in the first column of the first line on the LCD.)
- (4) Use the  and  switches to set the value.

* P a r i t y
 = N o n e

Parity setting values
 • None • Even
 • Odd

- (5) Press the  switch to save the setting value into memory.
 (The flashing “*” mark disappears from the LCD.)
- (6) Keep pressing the  switch until it returns to normal mode, or press the  switch to return to normal mode.

- (4) Use the  and  switches to set the value.

* F l o w C o n t r o l
 = R S / C S

Flow control
 setting values
 • RS/CS • Xon/Xoff
 • None

- (5) Press the  switch to save the setting value into memory.
 (The flashing “*” mark disappears from the LCD.)
 (6) Keep pressing the  switch until it returns to normal mode,
 or press the  switch to return to normal mode.

2-2-6. Setting character code

- (1) Press the  switch to enter the menu mode.
 (2) Use the  and  switches to select the following parameters,
 and press the  switch.

S e t t i n g o f
 I n t e r f a c e

- (3) Use the  and  switches to select [Character Code] setting,
 and press the  switch.
 (“*” mark flashes in the first column of the first line on the LCD.)
 (4) Use the  and  switches to set the value.

* C h a r a c t e r C o d e
 = A c c e p t A l l

Character code
 setting values
 • Accept All
 • Ignore 4 Codes
 If ignore some is
 selected, the following
 codes are ignored.
 • 20H • 0AH
 • 7FH • 1AH

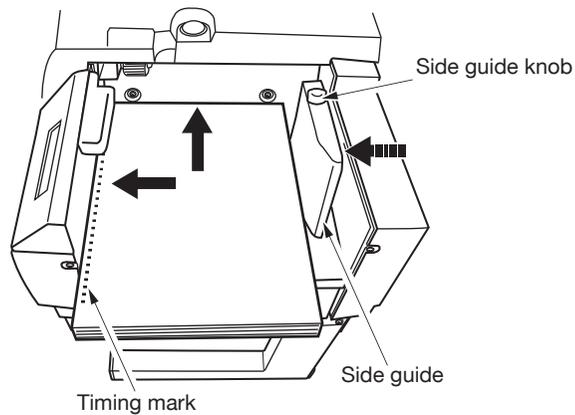
- (5) Press the  switch to save the setting value into memory.
 (The flashing “*” mark disappears from the LCD.)
 (6) Keep pressing the  switch until it returns to normal mode,
 or press the  switch to return to normal mode.

■ Loading paper

- 1.** Load paper with the timing marks on the left side of the hopper. The hopper is set to drop when the power is turned on, but if it's still raised, press the DOWN switch in normal mode to lower the hopper. At this time, align paper carefully. Pay particular attention to the leading edges of the paper because feeding errors may occur unless the paper is properly aligned.
- 2.** Adjust the side guide in order to close a gap between the paper and the side guide then fix it with the side guide knob. Note a large gap because mark reading becomes unstable. When moving the side guide loosen the side guide knob. Then adjust and tighten the side guide knob and fix.

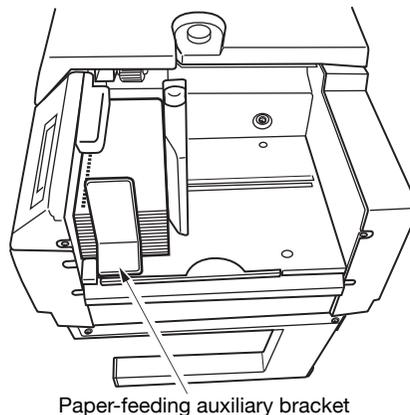
Note)

When the side guide is pushed to seat side too much, there are times when it becomes cause of no feed error.



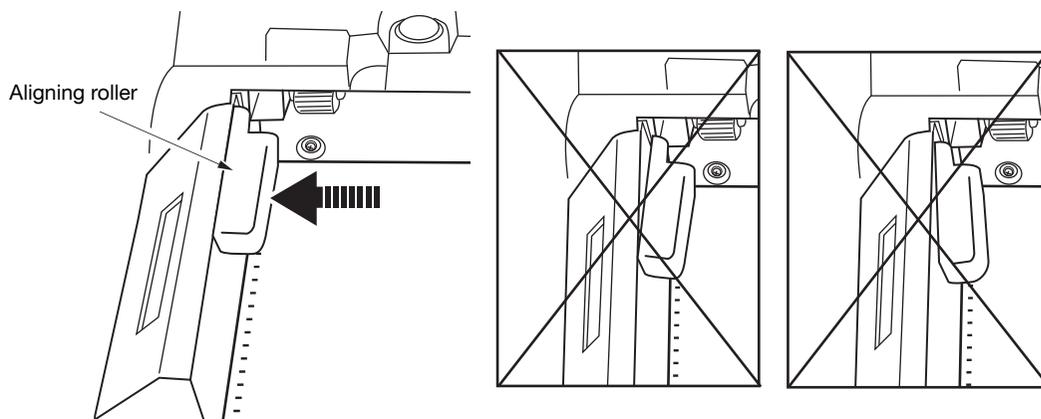
Note)

When using paper other than IBM card size, set the paper-feeding auxiliary bracket at the bottom end of the paper.

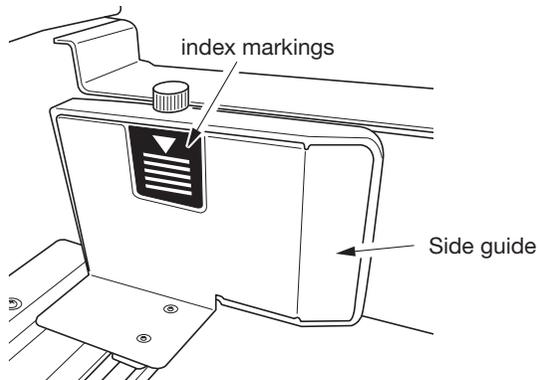


Note)

- 1) The aligning roller is fixed with the magnet. Check that there is not a gap and a floating on the adsorption aspect. In case of a certain pressing the panel side, make stick.
- 2) Because the aligning roller section has used the magnet, do not bring close a floppy disk and magnetic card etc...



- 3.** Use the index markings on the side guide to determine how many sheets maximum should be placed on the paper feed table. Errors may occur if too many sheets are placed on the table.

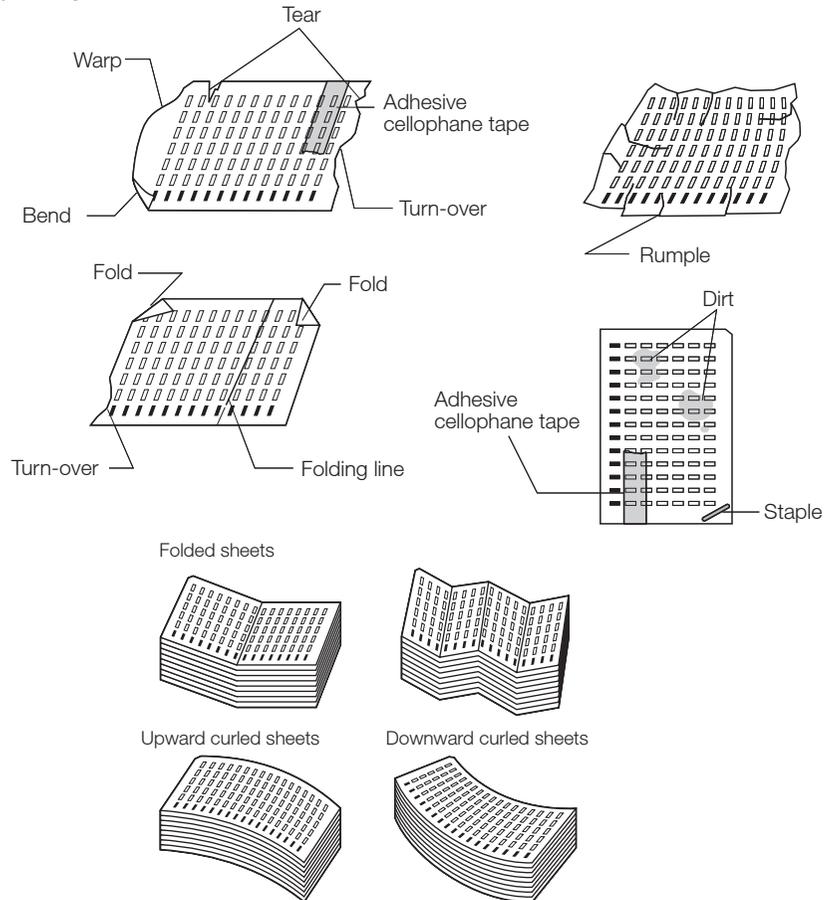


CAUTION)

1) Be extremely careful when handling sheets of paper so as not to bend or tear the paper.

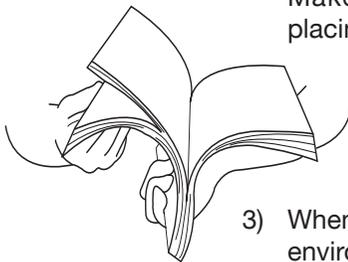
Errors may occur to use bend or tear OMR sheet.

Do not attempt to use sheets that are dirty or torn, sheets that have garbage or other contaminants attached to them, or multi-fold sheets (with two or four folds, etc.) that are perforated. If wanting to use paper that is curled, straighten the paper first so that it is flat before putting it in the unit.



2) To add sheets, lower the paper feed table, place extra sheets on it, and then reset it anew before proceeding.

Double-feeding problems may occur if sheets get stuck together. Make sure to separate sheets of paper as shown at left before placing them on the paper feed table.



3) When storing paper, avoid keeping it in a place subject to sudden environmental changes. Pay thorough attention to moisture and keep paper in a cabinet or other safe place. Do not leave paper in a dusty place such as near a window.

■ Setting paper weight

- 1.** The device is equipped with a function to detect double-feeding (DF) errors.
Conduct [Paper Weight]*1 according to the thickness of the paper to be used.

*1 Setting reading (initially set to a paper weight of 105g/m².)

 **“Data reading settings ■ setting paper weight”** in this manual. P.42

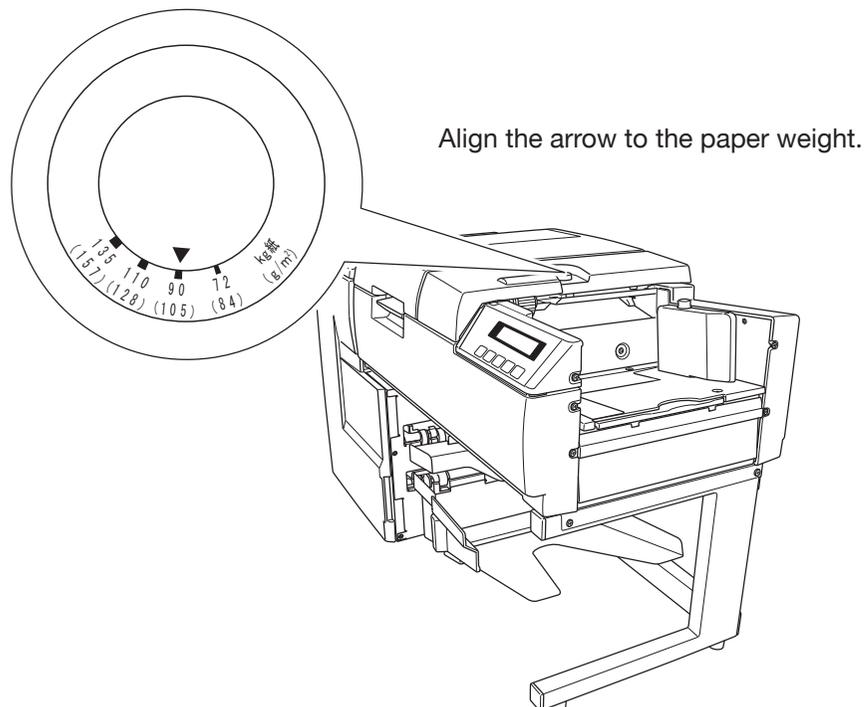
Set the paper weight dial to prevent double feeding.
Paper weight value is for reference only, so adjust it according to the condition of the paper to be used.

- 2.** There is a mechanism which adjusts paper interval with the paper weight dial to prevent double feeding. Adjusts the paper weight dial to the sheet which you use.

Note)

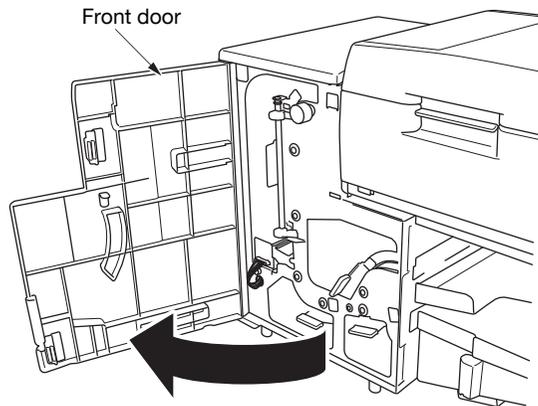
1. Because as for thickness of the sheet there is a variation depending upon papery quality, increase and decrease with conveying circumstance.
2. When this dial sets extremely small (narrow), there are case which it becomes cause of the paper clogging and the sheet skew.
3. If tears appear at the end of the paper on the back side, move the setting for the ream weight dial up to around the second mark. This should help resolve the tear problems.

*2 Setting paper weight dial (initially set to a paper weight of 105g/m².)

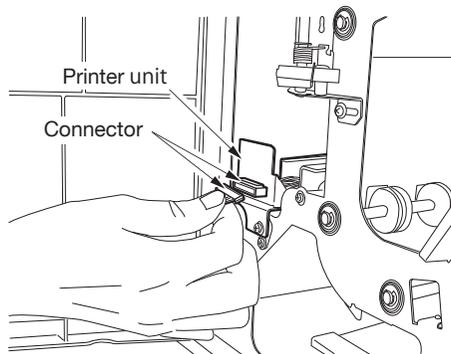


■ Stacker unit (printer) preparation

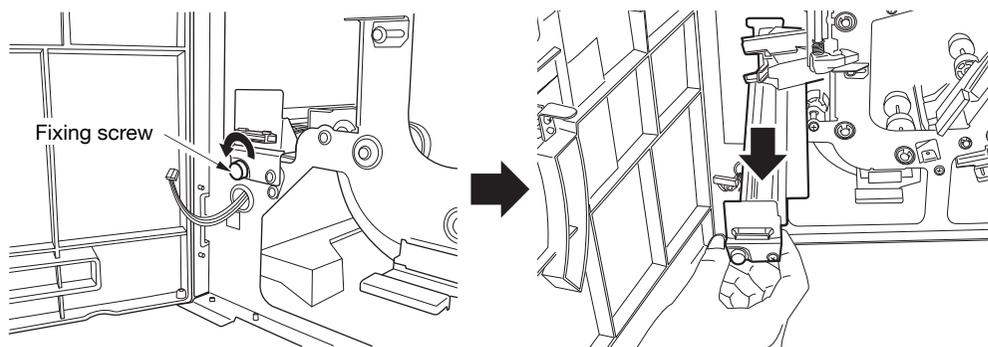
1. Turn the power off and remove the power cord from the outlet.
2. Open the front door of the stacker unit.



3. Disconnect the printer unit connector.



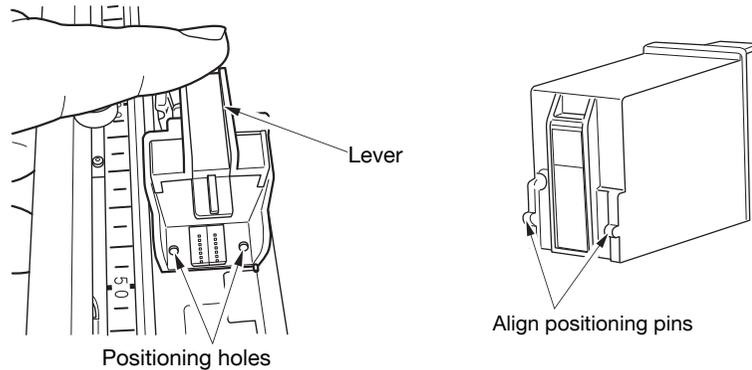
4. Remove the fixing screw to remove it.



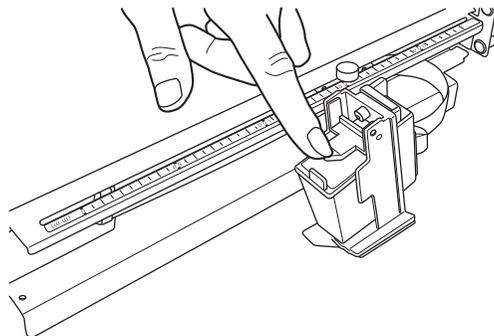
- 5.** Lift the cartridge case lever and insert an ink cartridge.

Note)

Align positioning pins (2 places) of the ink cartridge with the positioning holes (2 places) of the cartridge case.

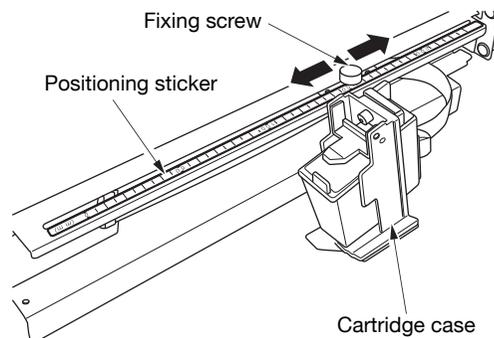


- 6.** Lower the cartridge case lever to lock the ink cartridge.

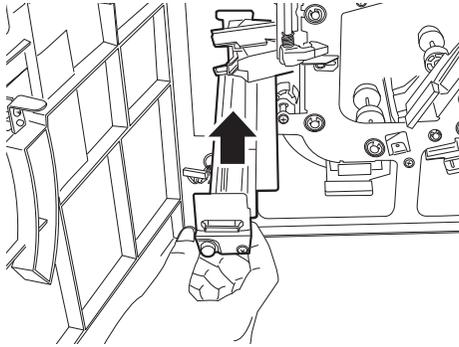


- 7.** Loosen the cartridge case fixing screw, move the cartridge case according to the desired printing position, and tighten the screw to secure it.

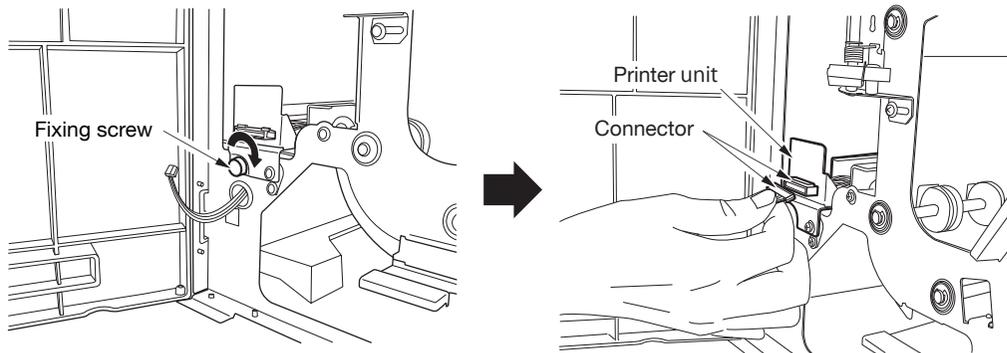
* The scale on the positioning sticker indicates the printing position from the edge of the paper. The printing position is determined by aligning the cartridge case fixing screw with the scale on the sticker.



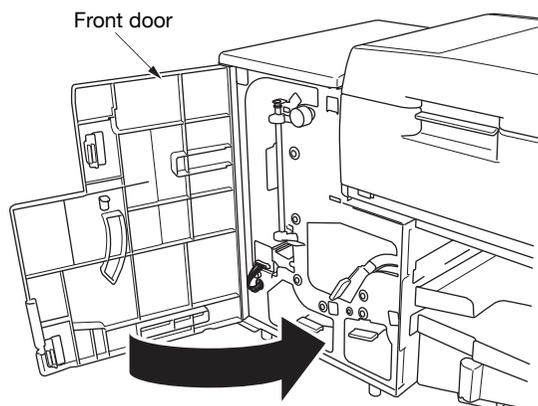
- 8.** If the printing position is properly aligned, install the printer unit in the stacker unit.



- 9.** Tighten the fixing screw and connect the printer unit connector.



- 10.** Close the front door of the stacker unit.

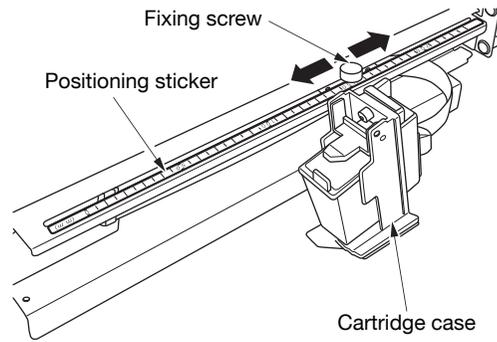


- 11.** Connect the power cord and turn the power on.

- 12.** Enable printer control. (**See** P.49 for details on printer control.)

13. Execute printer test (**See** P.68).

* If the printing position is misaligned, adjust it.



■ Printer unit precautions for use

- (1) Under the following conditions, remove the ink cartridge from the device, and store it at room temperature (10-35°C) in the ink cartridge storage bag included in the package.
 - If the main device is stored in an environment outside operating condition parameters.
 - If the printer will not be used for a long time (about 1 week or more).
- (2) Under the following conditions, defective printing (cannot print, streaked printing) may occur.
 - Ink cartridge is stored in environments outside of operating conditions.
 - The printer unit is left installed in the main device and is not used for a long time (about 1 week or more).

If you have printing problems, you can try to fix them by conducting a printer jet test.

If the problem doesn't improve, the ink head may be dirty.

Remove the ink cartridge and clean the ink head.

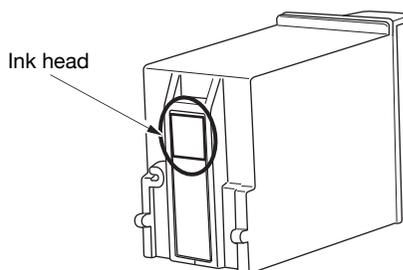
Cleaning method:

Wet a napless (low nap) cloth, tissue paper, or other similar item (tissue hereinafter) with water.

Apply the wet tissue to the ink head for several seconds.

Gently wipe the ink head.

If there is any ink left on the ink head, gently wipe it off with a dry tissue.



- (3) This device consumes the ink little by little even when it does not print. Because it conducts extra injection automatically to prevent clogging up of ink cartridge. If you do not use the printer function, set printer control the invalid and then remove the ink cartridge and keep. And cutting down on consuming the ink becomes possible.
- (4) When you do not use the printer, move the case of cartridge to almost central position of the width of the sheet you use. It may reduce jam.

Marking instructions

Marks readable by this device are as follows.

- 1) Mark size: 0.5 x 3mm or more (standard mark)
- 2) Readable writing instruments: pencils (black, HB or darker), ballpoint pens (black or blue)
- 3) Readable marks:

(Good mark example)



(Bad mark example)



- 4) Readable darkness: PCS 0.6 or darker
Readable mark darkness can be adjusted.
You can check mark darkness using a diagnostic utility included in the package, so check the darkness of the marks you want to read and adjust the reading setting.



**“Data reading settings ■ Setting min. density Level”
in this manual on P.39**

**“Data reading settings ■ Setting density balance”
in this manual on P.40**

Note)

When using a mechanical pencil, make sure to mark with adequate darkness.

Data reading settings

This section explains how to change various sheet-reading settings. All settings can also be made using computer commands.

■ Setting column

Set the column. The number of columns is different depending on the reading sensor.

Sensor pitch	Setting range	Default value
1/6 inch	1-48 columns	48 columns
0.2 inch	1-40 columns	40 columns
0.25 inch	1-33 columns	33 columns
0.3 inch	1-27 columns	27 columns

1. Press the  switch to enter the menu mode.
2. Use the  and  switches to select the following parameters, and press the  switch.

S e t t i n g o f R e a d i n g

3. Use the  and  switches to select [Setting of Column] setting, and press the  switch.
- ("*" mark flashes in the first column of the first line on the LCD.)

4. Use the  and  switches to set the value.

* S e t t i n g o f C o l u m n
= 4 8 C o l u m n s

Column setting values
1 - maximum columns

5. Press the  switch to save the setting value into memory.
(The flashing "*" mark disappears from the LCD.)
6. Keep pressing the  switch until it returns to normal mode, or press the  switch to return to normal mode.

Note)

It is necessary to set the number of columns with each operation mode.

■ Setting reading method

Setting mark-reading method.

There are six kinds of reading methods: “Top-end timing control type,” “Bottom-end timing control type,” “Direct under type,” “FACOM,” “Mark to mark type (without top-end margin reading),” and “Mark to mark type (with top-end margin reading).”

When setting to “top-end timing control type” or “bottom-end timing control type,” you need to set a control multiple number.

1. Press the  switch to enter the menu mode.
2. Use the  and  switches to select the following parameters, and press the  switch.

S e t t i n g o f R e a d i n g

3. Use the  and  switches to select [Reading Method] setting, and press the  switch.
(* mark flashes in the first column of the first line on the LCD.)
4. Use the  and  switches to set the value.

* R e a d i n g M e t h o d
= D i r e c t

- Reading method
setting values

 - Control Fore
 - Control Back
 - Direct
 - FACOM
 - Mark to Mark
 - Mark to Mark *

5. Press the  switch to save the setting value into memory.
(The flashing “*” mark disappears from the LCD.)
6. Keep pressing the  switch until it returns to normal mode, or press the  switch to return to normal mode.

Setting magnification when timing control types are selected

1. Press the  switch to enter the menu mode.
2. Use the  and  switches to select the following parameters, and press the  switch.

S e t t i n g o f R e a d i n g

3. Use the  and  switches to select [Magnification] setting, and press the  switch.

("*" mark flashes in the first column of the first line on the LCD.)

4. Use the  and  switches to set the value.

* M a g n i f i c a t i o n
= 3 T i m e s

Magnification setting values

- Top-end timing control type
1 - 9 (times)
- Bottom-end timing control type
2 - 9 (times)

5. Press the  switch to save the setting value into memory.
(The flashing "*" mark disappears from the LCD.)
6. Keep pressing the  switch until it returns to normal mode, or press the  switch to return to normal mode.

■ Setting min. density level

You can set the min. density level for this device when it is in SR-9000 operating mode. Sensitivity levels range from 1 to 16, with level 1 being the maximum sensitivity and level 16 the lowest sensitivity.

1. Press the  switch to enter the menu mode.
2. Use the  and  switches to select the following parameters, and press the  switch.

S e t t i n g o f R e a d i n g

3. Use the  and  switches to select [Min. Density Level] setting, and press the  switch.
(* mark flashes in the first column of the first line on the LCD.)
4. Use the  and  switches to set the value.

* M i n . D e n s i t y L e v e l = 4

Min. density level
setting values
1 - 16

5. Press the  switch to save the setting value into memory.
(The flashing "*" mark disappears from the LCD.)
6. Keep pressing the  switch until it returns to normal mode, or press the  switch to return to normal mode.

SR-6500 min. density level	SR-9000 mode min. density level	SR-6500 min. density level	SR-9000 mode min. density level	SR-6500 min. density level	SR-9000 mode min. density level
1	1	7	5~6	12	10~11
2	1~2	8	6~7	13	10~11
3	2~3	9	7~8	14	11~12
4	3~4	10	8~9	15	12~13
5	4~5	11	9~10	16	13~14
6	5~6				

- *1. The above sensitivity level is a standard table under a complete marked mark of grid width for 3mm in 105g/m2 paper thickness.
- *2. The sensitivity level varies depending on marks because reading method is different each other.
- *3. When you use this device in compatible mode, the verification by you is necessary.

■ Setting density balance

You can set the density balance level when using the SR-9000 operating mode. Density balance can be set so that when marks are read, marks lighter than the set density balance will be ignored, and marks darker than the set density balance will be detected. Density balance can be set from 1 to 15.

1. Press the  switch to enter the menu mode.
2. Use the  and  switches to select the following parameters, and press the  switch.

S e t t i n g o f R e a d i n g

3. Use the  and  switches to select [Density Balance] setting, and press the  switch.
(* mark flashes in the first column of the first line on the LCD.)
4. Use the  and  switches to set the value.

* D e n s i t y B a l a n c e
= 1

Density balance
setting values
1 - 15

5. Press the  switch to save the setting value into memory.
(The flashing "*" mark disappears from the LCD.)
6. Keep pressing the  switch until it returns to normal mode, or press the  switch to return to normal mode.

Note)

See the operating manual of each type in regard to density balance.

■ Setting reading side

You can set the reading side when the optional back-sided reading unit is installed. The reading side can be set to either “single side” or “double side.” When reading single-sided sheets, if you set the reading side to “single side,” the back side won’t be read.

1. Press the  switch to enter the menu mode.
2. Use the  and  switches to select the following parameters, and press the  switch.

Setting of Reading

3. Use the  and  switches to select [Reading Side] setting, and press the  switch.
 (“*” mark flashes in the first column of the first line on the LCD.)
4. Use the  and  switches to set the value.

* R e a d i n g S i d e
 = D o u b l e S i d e

Reading side setting values
 • Single Side
 • Double Side

5. Press the  switch to save the setting value into memory.
 (The flashing “*” mark disappears from the LCD.)
6. Keep pressing the  switch until it returns to normal mode, or press the  switch to return to normal mode.

■ Setting paper weight

Set detection sensitivity in the same paper weight as sheet of use to detect double-feeding errors.

Paper weight can be set according to the following five types: “Automatic,” “84g/m²,” “105g/m²,” “128g/m²,” and “157g/m².”

If it's set to “Automatic,” the device detects double-feeding errors based on the weight of first sheet read after the device is activated.

Also, in case it is set to “Automatic”, if the count is set to “0”, all the information of the paper weight is cleared, and the device detects the double-feeding error based on the paper weight after the device reads the first sheet.

1. Press the  switch to enter the menu mode.
2. Use the  and  switches to select the following parameters, and press the  switch.

Setting of Reading

3. Use the  and  switches to select [Paper Weight] setting, and press the  switch.
(“*” mark flashes in the first column of the first line on the LCD.)
4. Use the  and  switches to set the value.

* P a p e r W e i g h t
= 1 0 5 g / m 2

Paper weight setting values

- Automatic
- 84g/m²
- 105g/m²
- 128g/m²
- 157g/m²

5. Press the  switch to save the setting value into memory.
(The flashing “*” mark disappears from the LCD.)
6. Keep pressing the  switch until it returns to normal mode, or press the  switch to return to normal mode.

Note)

If it is set to “Automatic”, paper weight is detected based on the weight of the first reading sheet so that it is required to confirm if the double-feeding error, etc., does not occur.

■ Paper size setting

This device can be set “A4 size (11.7inch)” or “14inch size”
 “A4 size (11.7inch)” mode is use for A4 size (length: 297mm) or short length sheet.
 “14inch size” is use for over 298mm length sheet.

Note

*“A4 size (11.7inch)” mode is for reading of A4 (length :297mm) size or short length paper.
 (The line speed will be 1,240mm.)

*“14inch size” mode is for reading over 298mm (length) paper.

(If set “14inch size” to read of A4 (length :297mm) or short length paper, it line speed will be slow.)

*The printing position and Barcode reading position depends on Sheet size setting.

Refer to Page 89 of Printer unit specifications and Page 90 of Barcode unit specifications.

1. Press the  switch to enter the menu mode.
2. Use the  and  switches to select the following parameters, and press the  switch.

S e t t i n g o f R e a d i n g

3. Use the  and  switches to select [Paper size] setting, and press the  switch.

(“*” mark flashes in the first column of the first line on the LCD.)

4. Use the  and  switches to set the value.

* P a p e r s i z e
 = S t a n d a r d (1 4 i n c h)

Sheet size
 setting values
 • Standard(14inch) (Default)
 • A4size(11.7inch)

5. Press the  switch to save the setting value into memory.
 (The flashing “*” mark disappears from the LCD.)
6. Keep pressing the  switch until it returns to normal mode, or press the  switch to return to normal mode.

Error detection settings

Error detection settings for this device differ depending on the operating mode. See the following table for settings.

All settings can also be made using computer commands.

SR-6500 mode	Default value	SR-9000 mode	Default value
Automatic paper discharge "Use" or "Not Use"	Use		
Sheet empty detection "Use" or "Not Use"	Not Use		
Timing error detection "Use" or "Not Use"	Use		
Double-feeding detection "Use" or "Not Use"			Use
Left end skew detection "Use" or "Not Use"			Use

 "Error displays and countermeasures" in this manual on P.96 - P.102.

Error detection settings

1. Press the  switch to enter the menu mode.
2. Use the  and  switches to select the following parameters, and press the  switch.

Setting of Error
Detection

3. Use the  and  switches to select Setting of Error Detection, and press the  switch.

("*" mark flashes in the first column of the first line on the LCD.)

- 4.** Use the  and  switches to select individual error detection setting values.
(See the previous table for setting values.)
- 5.** Press the  switch to save individual setting values into memory.
(The flashing “*” mark disappears from the LCD.)
- 6.** Keep pressing the  switch until it returns to normal mode,
or press the  switch to return to normal mode.

Buzzer settings

You can set the device to either use the buzzer or not use it.
If you set it to use the buzzer, you can set the volume and tone.
If you set it not to use the buzzer, the buzzer will not sound.

■ Buzzer control

1. Press the  switch to enter the menu mode.
2. Use the  and  switches to select the following parameters, and press the  switch.

S e t t i n g o f B u z z e r

3. Use the  and  switches to select [Buzzer Control] setting, and press the  switch.
(* mark flashes in the first column of the first line on the LCD.)
4. Use the  and  switches to set the value.

* B u z z e r C o n t r o l
= V a l i d

Buzzer control
setting values

- Valid
- Invalid

5. Press the  switch to save the setting value into memory.
(The flashing "*" mark disappears from the LCD.)
6. Keep pressing the  switch until it returns to normal mode, or press the  switch to return to normal mode.

■ Buzzer sound volume adjustment

1. Press the  switch to enter the menu mode.
2. Use the  and  switches to select the following parameters, and press the  switch.

S e t t i n g o f B u z z e r

3. Use the  and  switches to select [Buzzer sound volume Adjustment] setting, and press the  switch.
 (“*” mark flashes in the first column of the first line on the LCD.)
4. Use the  and  switches to set the value.

* B u z z e r S o u n d V o l u m e
 A d j u s t m e n t = 3

Buzzer sound volume
 adjustment setting values
 1 - 5

5. Press the  switch to save the setting value into memory.
 (The flashing “*” mark disappears from the LCD.)
6. Keep pressing the  switch until it returns to normal mode, or press the  switch to return to normal mode.

Stacker settings

You can set the paper discharge direction in SR-9000 mode.

1. Press the  switch to enter the menu mode.
2. Use the  and  switches to select the following parameters, and press the  switch.

S e t t i n g o f S t a c k e r

3. Select [Go Out Direction] setting and press the  switch.
(“*” mark flashes in the first column of the first line on the LCD.)
4. Use the  and  switches to set the value.

* G o O u t D i r e c t i o n
= M a i n

Stacker go out direction
setting values
• Main • Select

5. Press the  switch to save the setting value into memory.
(The flashing “*” mark disappears from the LCD.)
6. Keep pressing the  switch until it returns to normal mode, or press the  switch to return to normal mode.

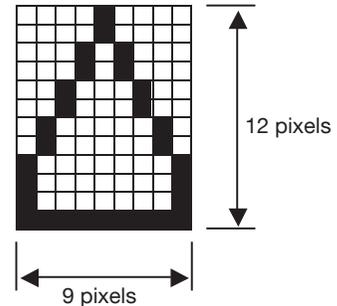
Printer settings

A character is 12 x 9 pixels.

Though character height is fixed (about 3mm), widths can vary.

However, the number of pixels (9 pixels) does not change, so if you enlarge a character, the space between pixels increases, making the character appear lighter.

Printer settings differ depending on the operating mode.



■ Printer control

You can set the device to either use the printer or not use it. If you do not use the printer function, set the invalid.

1. Press the  switch to enter the menu mode.
2. Use the  and  switches to select the following parameters, and press the  switch.

S e t t i n g o f P r i n t e r

3. Use the  and  switches to select [Printer Control] setting, and press the  switch.
 (“*” mark flashes in the first column of the first line on the LCD.)
4. Use the  and  switches to set the value.

* P r i n t e r C o n t r o l
 = V a l i d

Printer control
 setting values

- Valid
- Invalid

5. Press the  switch to save the setting value into memory.
 (The flashing “*” mark disappears from the LCD.)
6. Keep pressing the  switch until it returns to normal mode, or press the  switch to return to normal mode.

SR-6500 mode

- Character size setting P.50
- Character interval setting P.51
- See P.50 and subsequent pages for SR-6500 mode.

SR-9000 mode

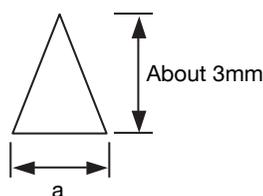
- Character size setting P.53
- Character magnification setting P.54
- Character interval setting P.55
- See P.53 and subsequent pages for SR-9000 mode.

■ SR-6500 mode

1. Character size setting

The width of a character can be increased in 0.8mm increments between 4.0mm and 6.4mm.

No.	Width (a)
1	4.0mm
2	4.8mm
3	5.6mm
4	6.4mm



- (1) Press the  switch to enter the menu mode.
- (2) Use the  and  switches to select the following parameters, and press the  switch.

S e t t i n g o f P r i n t e r

- (3) Use the  and  switches to select [Size] setting, and press the  switch.
 ("*" mark flashes in the first column of the first line on the LCD.)

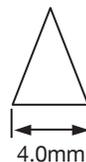
- (4) Use the  and  switches to set the value.

* S i z e = 4 . 0 m m

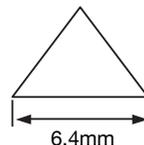
Character size(width)
 setting values
 4.0 - 6.4 (mm)
 0.8mm increments

- (5) Press the  switch to save the setting value into memory.
 (The flashing “*” mark disappears from the LCD.)
- (6) Keep pressing the  switch until it returns to normal mode,
 or press the  switch to return to normal mode.

[Setting example 1]
 When the size(width) is set at 4.0mm



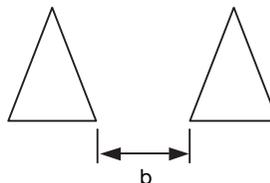
[Setting example 2]
 When the size(width) is set at 6.4mm



2. Character interval setting

The space between printed characters can be increased in 0.1mm increments between 0.8mm to 92mm.

No.	Interval (b)
1	0.8mm
2	0.9mm
3	1.0mm
:	:
911	91.8mm
912	91.9mm
913	92.0mm

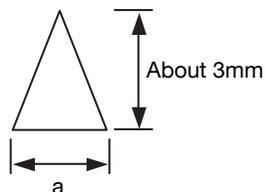


■ SR-9000 mode

1. Character size setting

The width of a character can be increased in 0.8mm increments between 4.0mm and 6.4mm.

No.	Width (a)
1	4.0mm
2	4.8mm
3	5.6mm
4	6.4mm



- (1) Press the  switch to enter the menu mode.
- (2) Use the  and  switches to select the following parameters, and press the  switch.

S e t t i n g o f P r i n t e r

- (3) Use the  and  switches to select [Size] setting, and press the  switch.
 (“*” mark flashes in the first column of the first line on the LCD.)
- (4) Use the  and  switches to set the value.

* S i z e = 4 . 0 m m

Character size(width) setting values
 4.0 - 6.4 (mm)
 0.8mm increments

- (5) Press the  switch to save the setting value into memory.
 (The flashing “*” mark disappears from the LCD.)
- (6) Keep pressing the  switch until it returns to normal mode, or press the  switch to return to normal mode.

2. Character magnification setting

Width can be magnified between 1 to 15 times.
 Character width = size x magnification

- (1) Press the  switch to enter the menu mode.
- (2) Use the  and  switches to select the following parameters, and press the  switch.

S e t t i n g o f P r i n t e r

- (3) Use the  and  switches to select [Magnification] setting, and press the  switch.
 (“*” mark flashes in the first column of the first line on the LCD.)
- (4) Use the  and  switches to set the value.

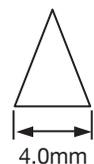
* M a g n i f i c a t i o n
 = 1 T i m e

Character magnification
 setting values
 1 - 15 (Times)

- (5) Press the  switch to save the setting value into memory.
 (The flashing “*” mark disappears from the LCD.)
- (6) Keep pressing the  switch until it returns to normal mode, or press the  switch to return to normal mode.

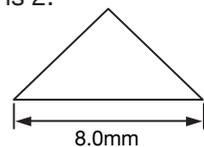
[Setting example 1]

When the size(width) is set at 4.0mm and magnification is 1.
 Character width = 4.0 x 1 = 4.0mm



[[Setting example 3]

When the size(width) is set at 4.0mm and magnification is 2.
 Character width = 4.0 x 2 = 8.0mm

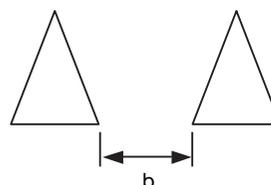


3. Character interval setting

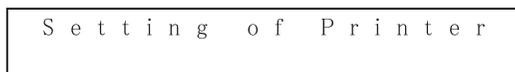
The space between printed characters can be increased between 0 to 99 pixels. The actual character interval (in mm units) is determined by the “size,” “magnification,” and “interval” settings.

Character interval (b) = character interval increment x (magnification + interval + 1)

No.	Width	character interval increment
1	4.0mm	0.5mm
2	4.8mm	0.6mm
3	5.6mm	0.7mm
4	6.4mm	0.8mm



- (1) Press the  switch to enter the menu mode.
- (2) Use the  and  switches to select the following parameters, and press the  switch.



- (3) Use the  and  switches to select [Character Pitch] setting, and press the  switch.

(* mark flashes in the first column of the first line on the LCD.)

- (4) Use the  and  switches to set the value.



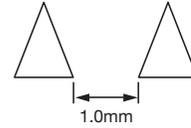
Character pitch
 setting values
 0 - 99 (Dots)

- (5) Press the  switch to save the setting value into memory.
 (The flashing “*” mark disappears from the LCD.)
- (6) Keep pressing the  switch until it returns to normal mode, or press the  switch to return to normal mode.

[Setting example 1]

When the size(width) is set at 4.0mm, the magnification is 1, and the interval is 0 pixel.

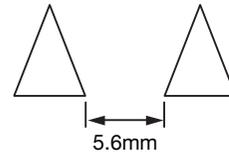
$$\text{Character interval} = 0.5 \times (1 + 0 + 1) = 1.0\text{mm}$$



[Setting example 2]

When the size(width) is set at 6.4mm, the magnification is 1, and the interval is 5 pixels.

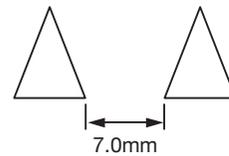
$$\text{Character interval} = 0.8 \times (1 + 5 + 1) = 5.6\text{mm}$$



[Setting example 3]

When the size(width) is set at 4.0mm, the magnification is 3, and the interval is 10 pixel.

$$\text{Character interval} = 0.5 \times (2 + 10 + 1) = 7.0\text{mm}$$



Barcode settings (when barcode unit is installed)

You can set the barcode control in SR-6500 mode.

■ Barcode control

1. Press the  switch to enter the menu mode.
2. Use the  and  switches to select the following parameters, and press the  switch.

S e t t i n g o f B a r c o d e

3. Select [Go Out Direction] setting and press the  switch.
(* mark flashes in the first column of the first line on the LCD.)
4. Use the  and  switches to set the value.

* B a r c o d e C o n t r o l
= V a l i d

Barcode control
setting values

- Valid(Default)
- Invalid

5. Press the  switch to save the setting value into memory.
(The flashing "*" mark disappears from the LCD.)
6. Keep pressing the  switch until it returns to normal mode, or press the  switch to return to normal mode.

Low power consumption settings

This device can be set to reduce power consumption in standby mode.

The low-power consumption settings make the device automatically reduce power consumption when it is not used for a certain period.

Sleep mode = low-power consumption condition that it automatically switches to when it is not used for a set time (sleep duration).

Standby mode = a second low-power consumption condition that it automatically and continuously switches to after shifting to the sleep mode when it is not used for a set time (standby duration).

(Power consumption is reduced further than sleep mode.)

■ Sleep duration

1. Press the  switch to enter the menu mode.
2. Use the  and  switches to select the following parameters, and press the  switch.

S e t t i n g o f
E l e c t r i c P o w e r

3. Use the  and  switches to select [Time for Power Save] setting, and press the  switch.
(* mark flashes in the first column of the first line on the LCD.)
4. Use the  and  switches to set the value.

* T i m e f o r P o w e r S a v e
= 5 M i n u t e s

Time for Power Save setting values

- None
- 1 - 60 (Minutes)

*Can be set in minute increments.

5. Press the  switch to save the setting value into memory.
(The flashing "*" mark disappears from the LCD.)
6. Keep pressing the  switch until it returns to normal mode, or press the  switch to return to normal mode.

■ Standby duration

1. Press the  switch to enter the menu mode.
2. Use the  and  switches to select the following parameters, and press the  switch.

S e t t i n g o f
E l e c t r i c P o w e r

3. Use the  and  switches to select [Time for Standby] setting, and press the  switch.
 (“*” mark flashes in the first column of the first line on the LCD.)
4. Use the  and  switches to set the value.

* T i m e f o r S t a n d b y
= 5 M i n u t e s

Time for Standby
setting values

- None
- 1 - 60 (Minutes)

*Can be set in minute increments.

5. Press the  switch to save the setting value into memory.
 (The flashing “*” mark disappears from the LCD.)
6. Keep pressing the  switch until it returns to normal mode, or press the  switch to return to normal mode.

Note)

- (1) Releasing Sleep/Standby mode
 Sleep/Standby mode will be cancelled in the following conditions.
 - When an operation is entered on the panel screen.
 - When a descending command is sent.
 - When an error occurs.
 - When loading paper on the hopper.
- (2) Conditions in which Sleep/Standby mode cannot be attained
 Sleep/Standby mode is not available in the following conditions.
 - When displaying a menu on the panel screen.
 - When an error occurs.
- (3) Stacker cover open error cannot be detected in Standby mode.

Displaying various information

This section explains how to display various setting information.

■ Displaying the version

This display checks the versions of the “main body unit,” “front side reading unit,” “back side reading unit,” “Image reading unit 1,” “Image reading unit 2,” “stacker unit,” “printer unit,” “barcode unit,” and other items. (“Back side reading unit,” and “barcode unit,” display only if they are installed.)

Versions are displayed in a two-digit format.

1. Press the  switch to enter the menu mode.
2. Use the  and  switches to select the following parameters,

D i s p l a y M o d e

and press the  switch.

3. Use the  and  switches to select [Version Info.], and press the  switch.

Note)

M a i n B o d y U n i t
V e r s i o n = 0 0

The present version is displayed. 
The name of each unit is displayed.

If “Version= @@” appears in the display, contact the store where you purchased.

4. Use the  and  switches to display individual versions.
5. Keep pressing the  switch until it returns to normal mode, or press the  switch to return to normal mode.

■ Displaying front side reading sensor settings

This displays the settings for “sensor pitch” and “sensor type” for the front side reading unit in this device.

1. Press the  switch to enter the menu mode.
2. Use the  and  switches to select the following parameters, and press the  switch.

D i s p l a y M o d e

3. Use the  and  switches to select [Type of Front Reading Sensor] display, and press the  switch.
4. Use the  and  switches to display the settings.

Sensor pitch

S e n s o r P i t c h
= 0 . 2 i n c h

Sensor pitch display
 • 0.2 inch • 0.25 inch
 • 0.3 inch • 1/6 inch

Sensor type

T y p e o f S e n s o r
= I n f r a R e d

Sensor type display
 • Infra Red
 • Visible Red

5. Keep pressing the  switch until it returns to normal mode, or press the  switch to return to normal mode.

■ Displaying back side reading sensor settings

These displays check the settings for “sensor pitch” and “sensor type” for the back side reading unit in this device. (This display is available only when the device has a back side reading unit attached.)

1. Press the  switch to enter the menu mode.
2. Use the  and  switches to select the following parameters, and press the  switch.

D i s p l a y M o d e

3. Use the  and  switches to select [Type of Back Reading Sensor] display, and press the  switch.
4. Use the  and  switches to display the settings.

Sensor pitch

S e n s o r P i t c h
= 0 . 2 i n c h

Sensor pitch display
• 0.2 inch • 0.25 inch
• 0.3 inch • 1/6 inch

Sensor type

T y p e o f S e n s o r
= I n f r a R e d

Sensor type display
• Infra Red
• Visible Red

5. Keep pressing the  switch until it returns to normal mode, or press the  switch to return to normal mode.

■ Displaying othre settings

These displays check the setting status for reading sensor(s),stacker,and barcode(option).

1. Press the  switch to enter the menu mode.
2. Use the  and  switches to select the following parameters, and press the  switch.

D i s p l a y M o d e

3. Use the  and  switches to select [Type of Option] display, and press the  switch.
4. Use the  and  switches to display the options.

Reading sensor unit

R e a d i n g S e n s o r U n i t
= S i n g l e S i d e

Reading sensor unit display settings

- Single Side
- Double Side

Stacker unit

S t a c k e r U n i t
= C a r t r i d g e

Stacker unit display settings

- Not Cartridge
- Cartridge

Barcode unit

(This display is available only when the device has a barcode unit attached.)

B a r c o d e U n i t
= V e r t i c a l

Barcode unit display

- Vertical
- Horizontal

5. Keep pressing the  switch until it returns to normal mode, or press the  switch to return to normal mode.

■ Displaying total count

This displays total count in this device.

1. Press the  switch to enter the menu mode.
2. Use the  and  switches to select the following parameters,

D i s p l a y M o d e

and press the  switch.

3. Use the  and  switches to select [Total count] display, and press the  switch.

T o t a l c o u n t
 = # # # # # # # #

Total count display
 00000000~99999999

4. Keep pressing the  switch until it returns to normal mode, or press the  switch to return to normal mode.

Note)

If when the sheet is left to the hopper the reading operation is discontinued, The actually count and error count is included in the total count because the count is not saved.

■ Displaying serial number

This displays serial number of this device.

1. Press the  switch to enter the menu mode.
2. Use the  and  switches to select the following parameters,

Display Mode

and press the  switch.

3. Use the  and  switches to select [Serial number] display, and press the  switch.

Serial number
= # # # # # # # # #

Serial number display settings
000000000~ZZZZZZZZZ

4. Keep pressing the  switch until it returns to normal mode, or press the  switch to return to normal mode.

Operating tests

This section explains operating test procedures.

■ Feed test 1

This test reads the check sheets included in the package to test if the device reads them properly.

If the device doesn't read the check sheets properly, the reading test will stop.

Once reading of the check sheets starts, the test will continue until an error occurs or the hopper is empty.

1. Press the  switch to enter the menu mode.
2. Use the  and  switches to select the following parameters, and press the  switch.

Test Mode

3. Use the  and  switches to select [Feed Test 1].

Feed Test 1
E : 0 , T : 0
Error Count Total Count

4. Press the  switch to confirm the selection and display [Feed Test 1].
(* mark flashes in the first column of the first line on the LCD.)
5. Use the  and  switches to select the setting value.

Feed Test 1 = Start

Feed test 1 setting values
• Stop • Start

6. Press the  switch to start/stop feed test 1.
(The flashing "*" mark disappears from the LCD, and the test will start/stop.)
7. Keep pressing the  switch until it returns to normal mode, or press the  switch to return to normal mode.

Note)

- You cannot return to normal mode while the test is running.
- If a reading error occurs on both sides of a sheet, the error count will be two.

■ Feed test 2

This test reads the check sheets included in the package to test if the device reads them properly.

Even if the device doesn't read something properly, the test will continue.

Once reading of the check sheets starts, the test will continue until an error other than a reading occurs or the hopper is empty.

1. Press the  switch to enter the menu mode.
2. Use the  and  switches to select the following parameters, and press the  switch.

T e s t M o d e

3. Use the  and  switches to select [Feed Test 2].

F e e d T e s t 2	
E : 0	T : 0
Error Count	Total Count

4. Press the  switch to confirm the selection and display [Feed Test 2].
 (“*” mark flashes in the first column of the first line on the LCD.)

5. Use the  and  switches to select the setting value.

F e e d T e s t 2 = S t a r t

Feed test 2 setting values
 • Stop • Start

6. Press the  switch to start/stop feed test 2.
 (The flashing “*” mark disappears from the LCD, and the test will start/stop.)

7. Keep pressing the  switch until it returns to normal mode, or press the  switch to return to normal mode.

Note)

- You cannot return to normal mode while the test is running.
- If a reading error occurs on both sides of a sheet, the error count will be two.

■ Printer test

The test characters is printed on the fed sheet and the sheet will be discharged. (This test will be conducted only when stacker unit and printer unit are installed.)

The number of characters printed varies depending on the printer settings, and character size and interval settings.

Once reading of the check sheets starts, the test will continue until an error occurs or the hopper is empty.

Test characters:

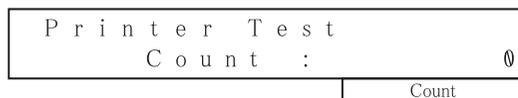
“ ■ !”#\$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMN O PQRSTU VWXYZ[¥]^_。[]、・ヲアイウエオヤユヨッーアイウエオカキクケコサシスセソタチツテトナニヌネノハヒフヘホマミムメモヤユヨラリルレロワン”

1. Press the  switch to enter the menu mode.
2. Use the  and  switches to select the following parameters,



and press the  switch.

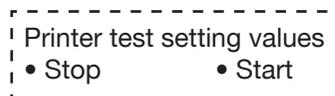
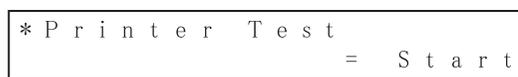
3. Use the  and  switches to select [Printer Test].



4. Press the  switch to confirm the selection and display [Printer Test].

(“*” mark flashes in the first column of the first line on the LCD.)

5. Use the  and  switches to select the setting value.



6. Press the  switch to start/stop Printer test.
 (The flashing “*” mark disappears from the LCD, and the test will start/stop.)

7. Keep pressing the  switch until it returns to normal mode,
 or press the  switch to return to normal mode.

Note)

You cannot return to normal mode while the test is running.

■ Printer inkjet test

This test is done when the printing of sheets is not possible, is not clear.

1. Press the  switch to enter the menu mode.
2. Use the  and  switches to select the following parameters,

T e s t M o d e

and press the  switch.

3. Use the  and  switches to select [Printer Jet Test].

P r i n t e r J e t T e s t

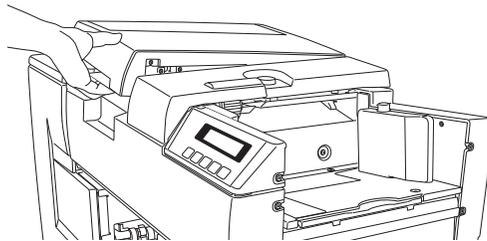
4. Press the  switch to confirm the display [Jet Test Start].
5. Press the  switch to confirm the display [Jet Test Start = Start].
(* mark flashes in the first column of the first line on the LCD.)
6. Press the  switch to do Printer jet test one time.(about 0.5 sec.)
(When Printer jet test ends , the flashing “*” mark disappears from the LCD.)
7. Keep pressing the  switch until it returns to normal mode,
or press the  switch to return to normal mode.

Note)

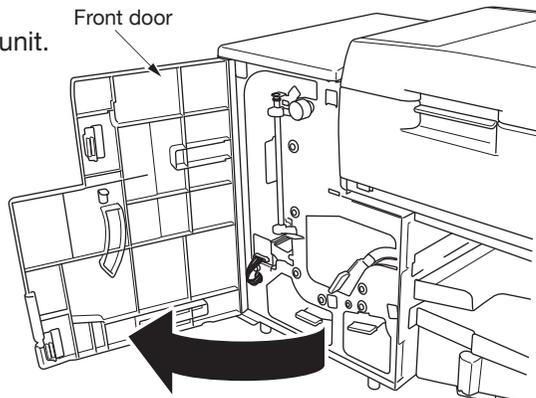
You cannot return to normal mode while the test is running.

Clearing paper jams

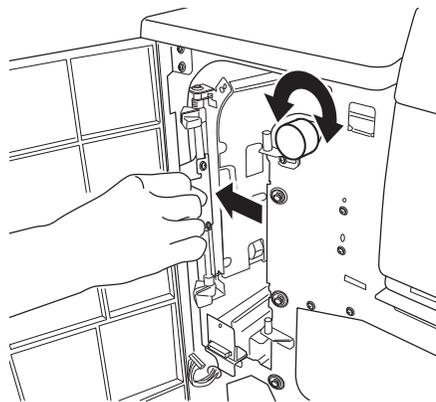
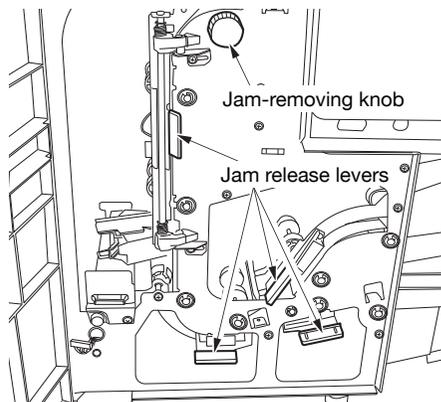
1. Release the grip lock on the lock lever, and slowly lift up the top cover. Once the top cover is up far enough, remove the paper from the device.



2. Open the front door of the stacker unit.

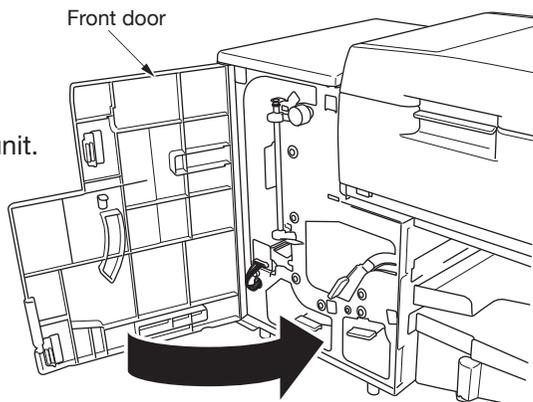


3. Open the jam release levers (4 levers) or turn the jam-removing knob to remove jammed paper.



4. After removing jammed paper, close the jam release levers.

5. Close the front door of the stacker unit.



Options

Back side reading unit

If you install a back side reading unit in the device, both sides of a sheet can be read.
When installing the back side reading unit, set the reading side settings at the same time.



“Data reading settings ■ Setting reading side” in this manual. P.41

Please see the following pages regarding confirmation of settings.



**“Displaying various information
■ Displaying the version” in this manual. P.60**

**“Displaying various information
■ Displaying back side reading sensor settings” in this manual. P.62**

**“Displaying various information
■ Displaying optional unit settings” in this manual. P.63**

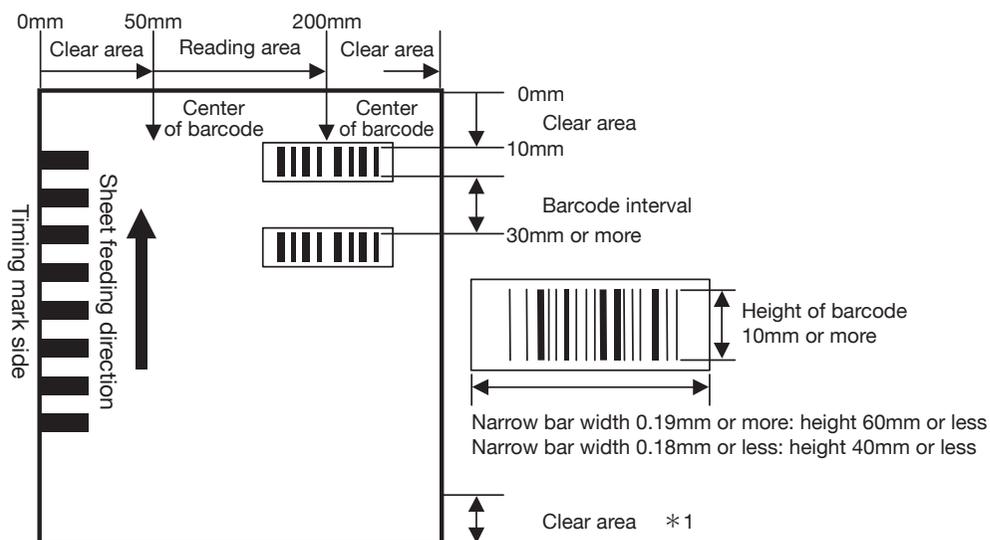
Barcode unit / V • Barcode unit / H

Attaching a barcode unit to this device will enable you to read barcodes on sheets.

■ Barcode readable area

The barcode readable area differs depending on the kind of barcode unit.

1. Barcode unit / V (vertical feeding)



* 1: Non readable area of bottom of the sheet changed by Sheet size setting as follow.

**"Standard(14 inch) mode"

Length of the sheet :279mm or less : 10mm

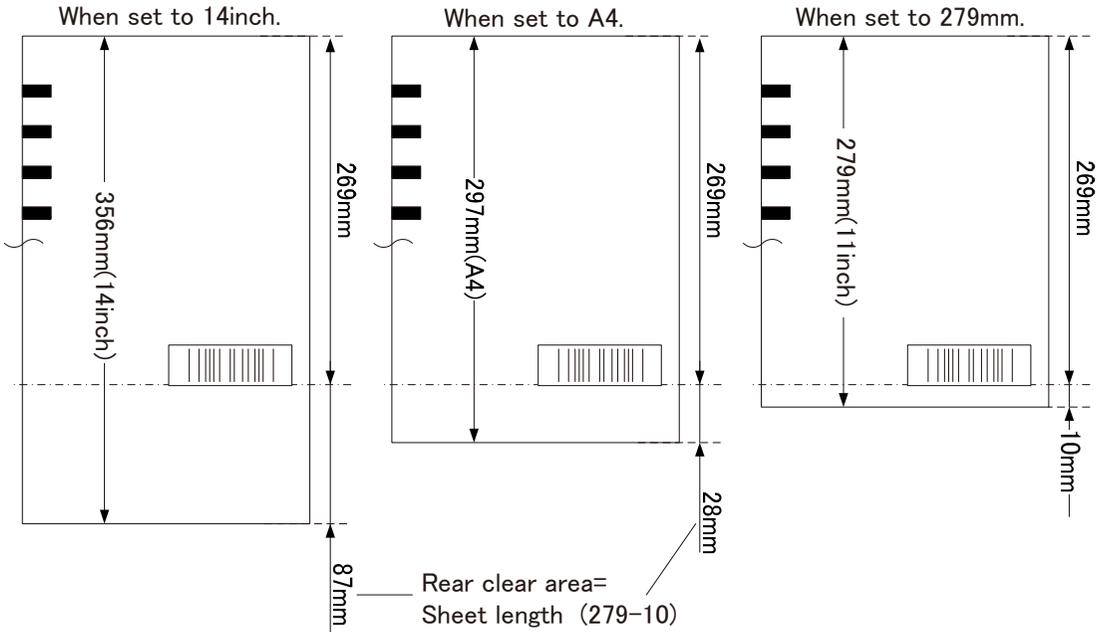
Length of the sheet :280mm or more : Sheet length- (279-10) mm

**"A4 (11.7inch) mode"

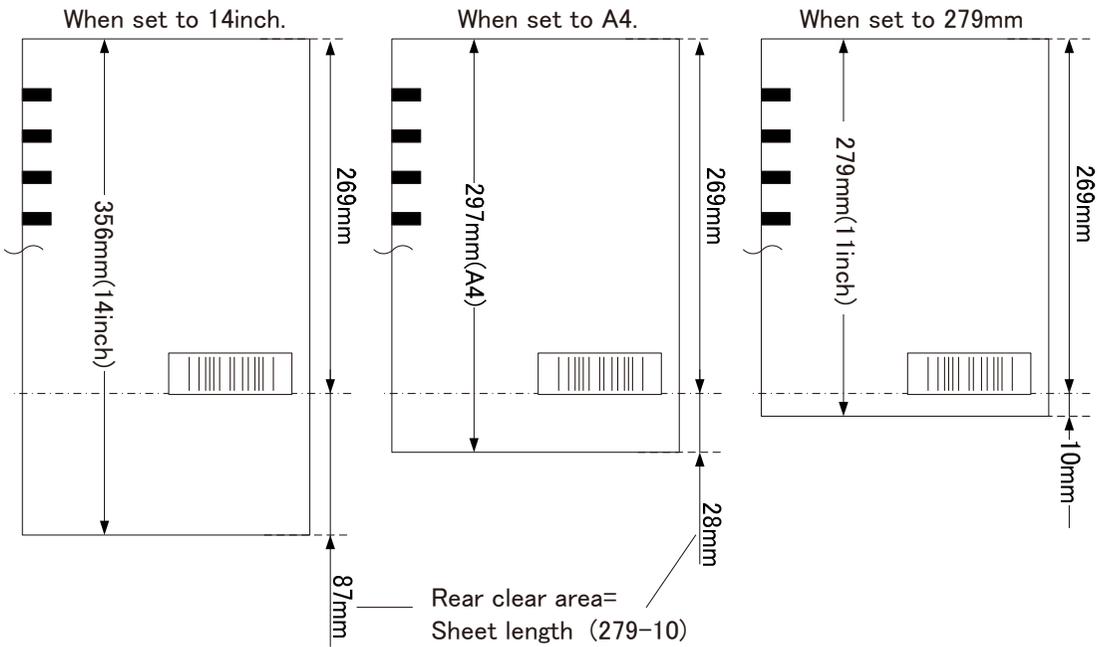
Length of the sheet :216mm or less : 10mm

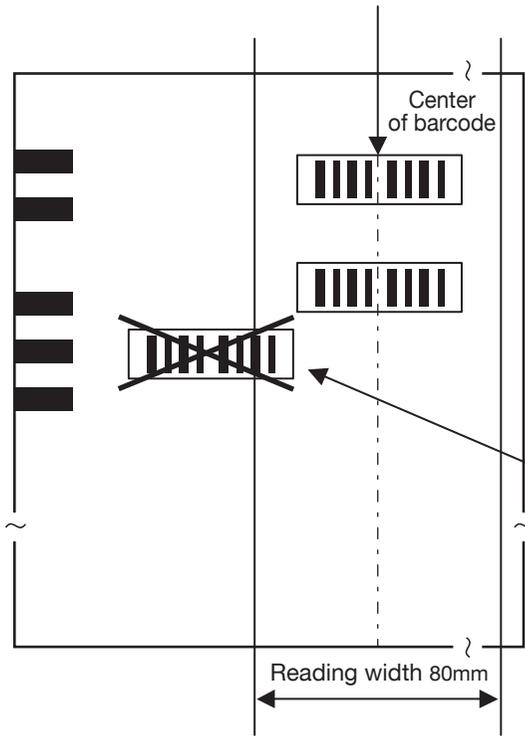
Length of the sheet :217mm or more : Sheet length-(216-10) mm

Example of rear clear area Sheet size setting: When set to standard (14").



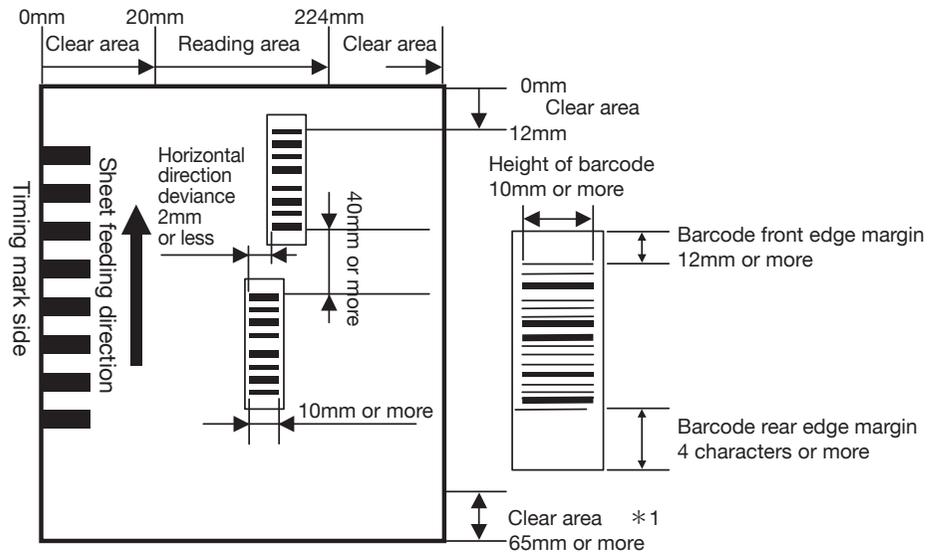
Rear clear area=Sheet length Sheet size setting: When set to A4 (14").





Note)
Adjust the barcode center when reading a number of sheets. In addition when it makes the barcode adjoin which is not read, do not make it go into reading area.

2. Barcode unit / H (horizontal feeding)



* 1: Non readable area of bottom of the sheet changed by Sheet size setting as follow.

**"Standard(14 inch) mode"

Length of the sheet :279mm or less : 10mm

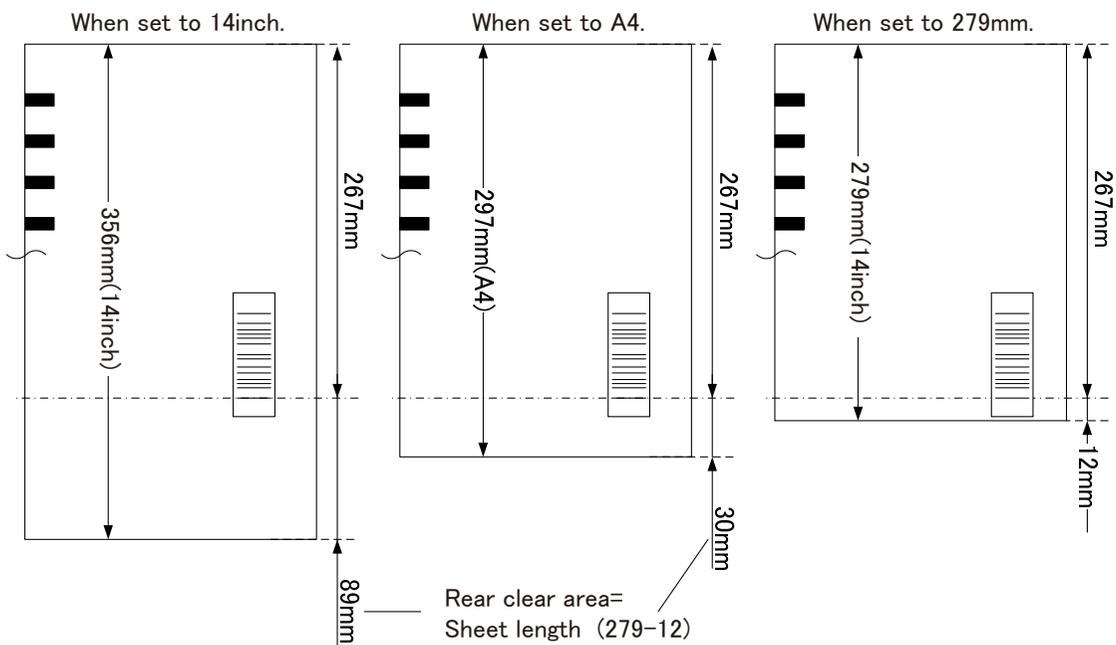
Length of the sheet :280mm or more : Sheet length-(279-12) mm

**"A 4 (11.7inch) mode"

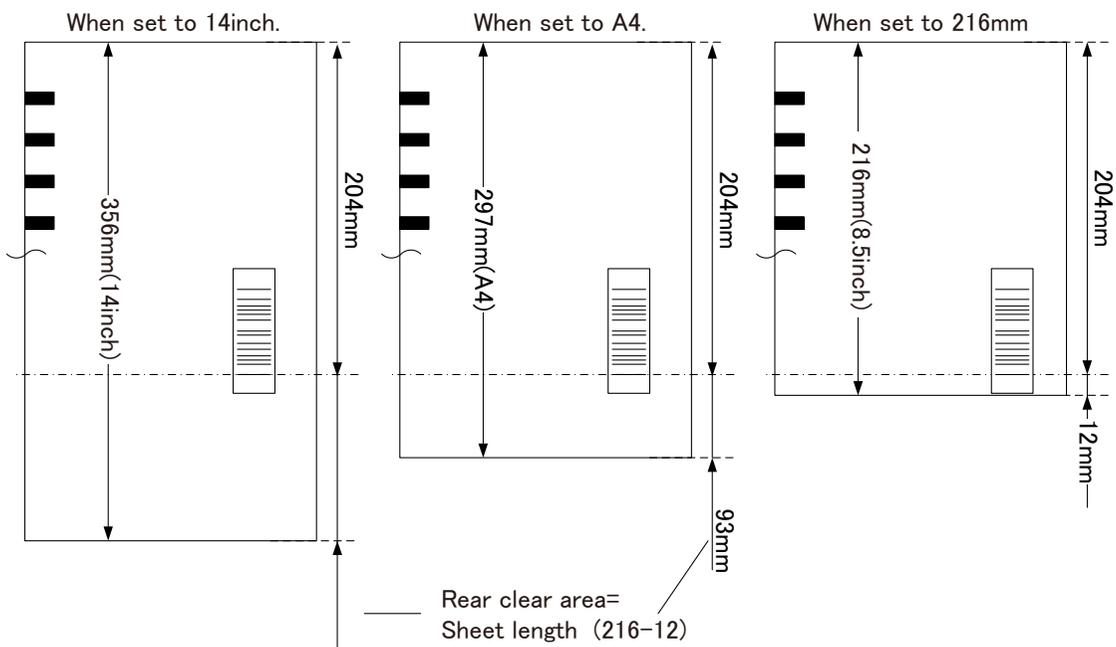
Length of the sheet :216mm or less : 12mm

Length of the sheet :217mm or more : Sheet length-(216-12) mm

Example of rear clear area Sheet size setting: When set to standard (14").

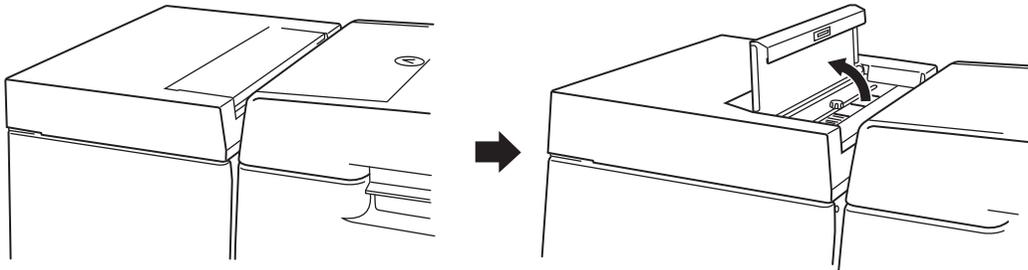


Rear clear area=Sheet length Sheet size setting: When set to A4 (11.7").

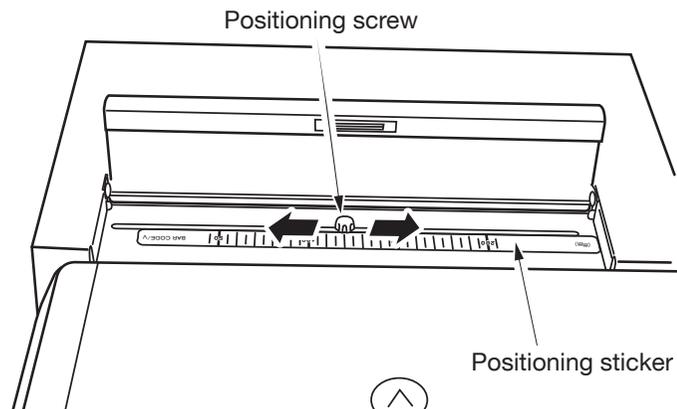


■ Barcode reading position adjustment

1. Turn the power off.
2. Open the cover on the top of stacker unit.

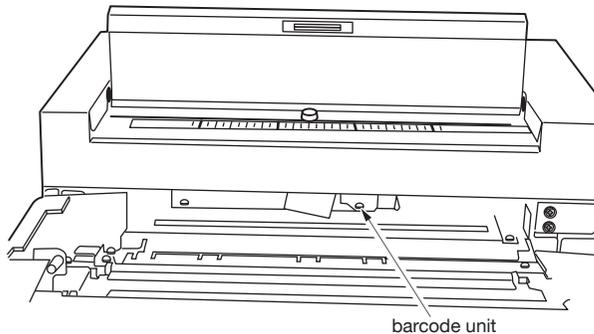
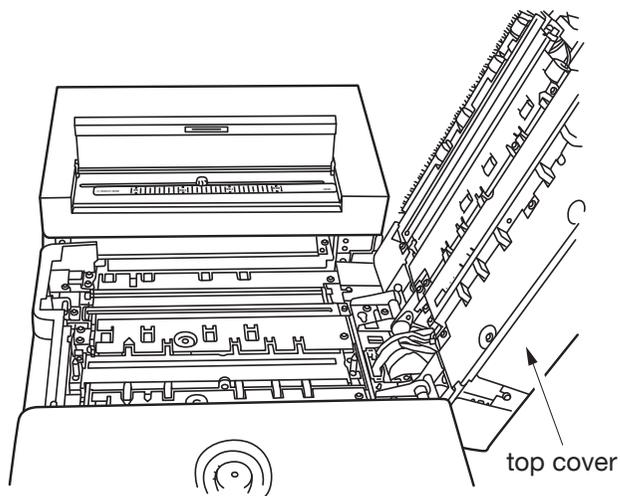


3. Loosen the barcode unit position fixing screw, move the barcode unit according to barcode position, and tighten the screw to secure it.
* The scale on the positioning sticker indicates center of the barcode position from the edge of the paper (Timing mark side). The barcode position is determined by aligning the barcode unit position fixing screw with the scale on the sticker.

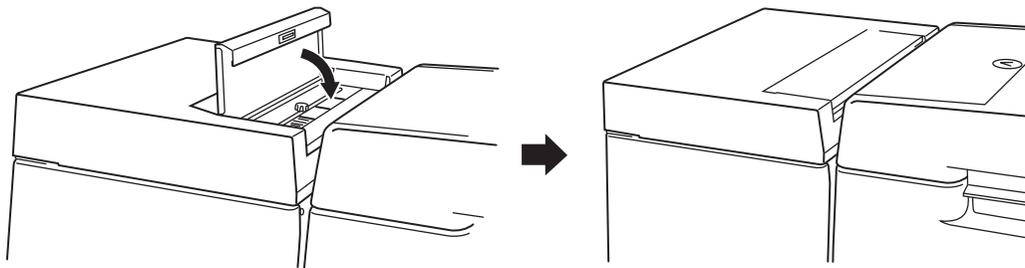


4. Turn the power on.

- 5.** Check reading using a diagnostic utility.
* If a reading error occurs, the barcode reading position may be misaligned, so make a readjustment.
* Open the top cover of the main body to visually check the barcode.



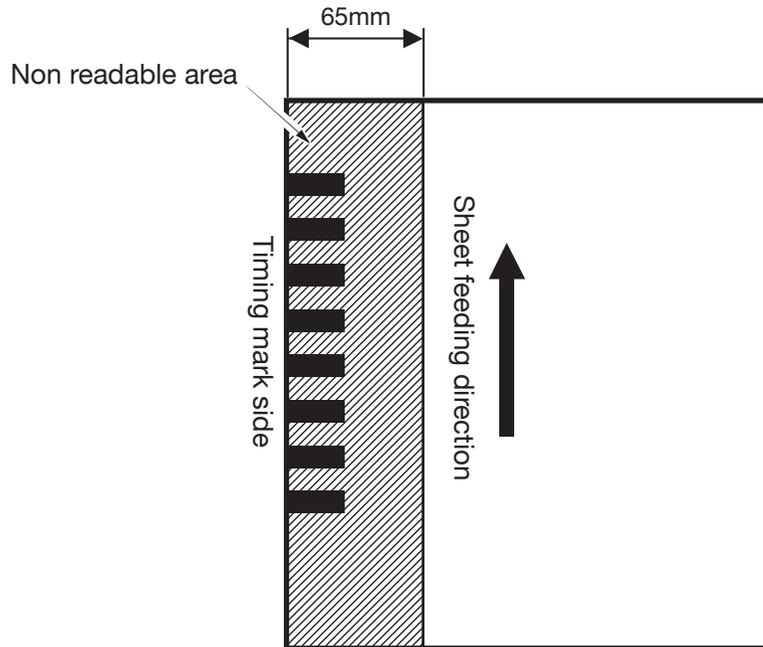
- 6.** If the barcode reading position is properly aligned, close the cover on the top of stacker unit.



Note)* If you have opened the top cover, remember to close the smaller cover as well.

■ Barcode unit precautions for use

- (1) When applying barcode stickers, etc. on a sheet, make sure that sheet thickness with stickers is 0.25mm or less.
- (2) When applying barcode stickers, etc. on a sheet, avoid the grayed area below.



- (3) Make barcodes according to the following specifications and guidelines.
 - AIM USS (Automatic Identification Manufacturers barcode symbol specifications)
 - JIS
 - JIS X 0501 Barcode symbols for common product codes
 - JIS X 0502 Barcode symbols for logistic product codes
 - JIS X 0503 Barcode symbol NW-7 and code 39 basic specifications
- (4) Faded, chipped, and bleeding barcodes cannot be read. Please note that barcodes printed with low-resolution printers such as dot-matrix printers and inkjet printers tend to have similar results.
- (5) If the sensor area becomes dirty with paper powder, use a soft cloth, a cotton swab, or similar materials soaked with plastic cleaner, or use a cloth for glasses to wipe it.

Cleaning

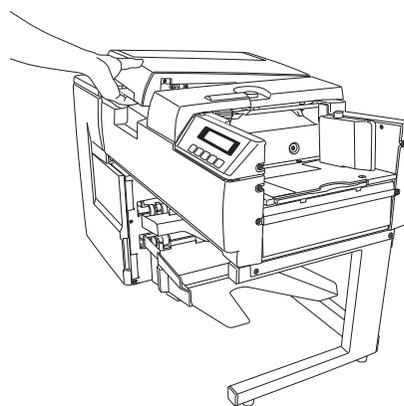
Dirty rollers, reading lenses, and sensors can cause various operational errors. Clean them regularly doing the following procedures. Cleaning intervals differ depending on usage conditions (usage frequency, quality of paper used, etc.) Cleaning periods are for your reference -- clean the device soon if you notice dirt or other irregularities.

 Warning	
<ul style="list-style-type: none">● WHEN CLEANING THE DEVICE , DO NOT SPRAY ANY MATERIALS CONTAINING AN INFLAMMABLE GAS OR LIQUID AND BE SURE TO KEEP THIS KIND OF MATERIALS AWAY FROM THIS DEVICE. <p>Use a cleaning cloth with suitable amount of cleaning liquid to wipe off well, after removing the power plug from the outlet and the device becomes to cool off.</p>	
<ul style="list-style-type: none">● WHEN CLEANING THE DEVICE , BE SURE TO REMOVE THE POWER PLUG FROM THE OUTLET. <p>There is a threat that a fire or an electric shock cause the unexpected accident.</p>	

■ Cleaning procedures

Main body unit

- 1.** Turn the power off and remove the power cord from the outlet.
- 2.** Grasp the lock lever to release the lock, and push the top cover up to open it.
- 3.** Clean necessary parts.
- 4.** Close the top cover.
Slowly close the top cover and press it until there is a click sound that indicates it is locked.



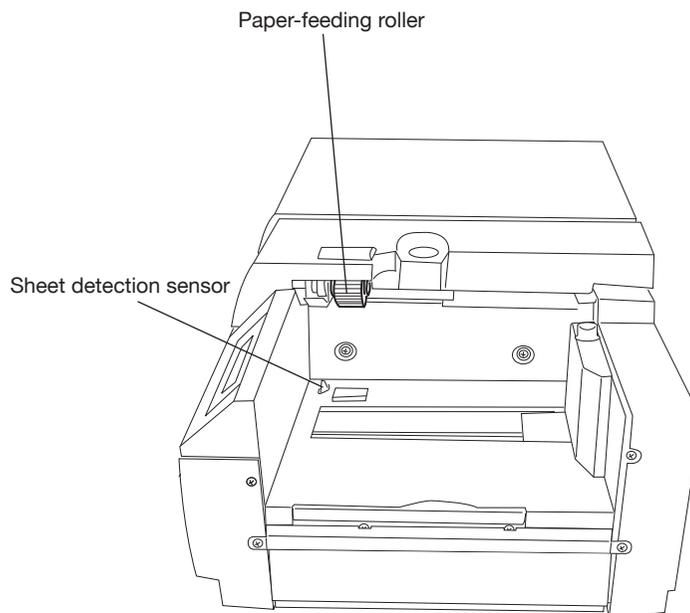
■ Cleaning point

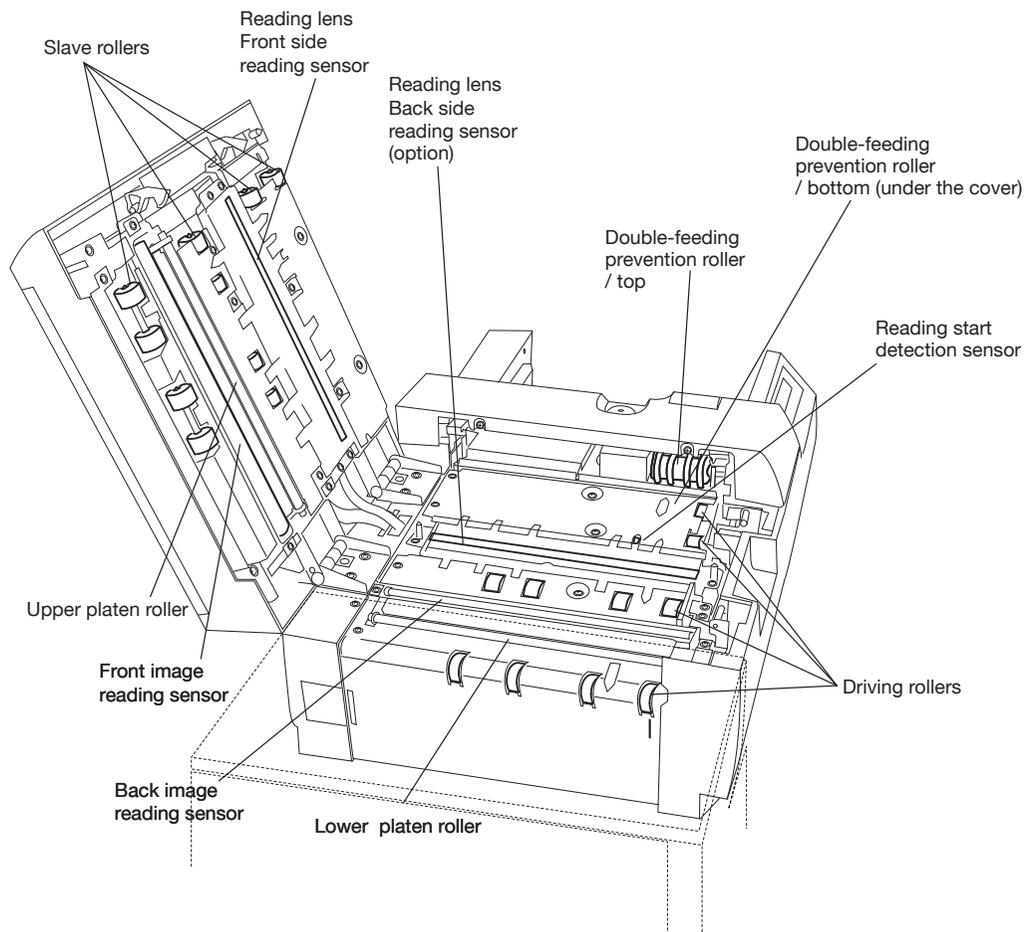
- (1) **Cleaning rollers**
After feeding 5,000 sheets, a large number of cards, or when using carbon paper, wipe the rollers softly with a clean cloth slightly wetted with disinfectant alcohol (ethanol).
* If the rollers are stained, the stains may rub off on cards or other various malfunctions may occur.
- (2) **Cleaning reading lens**
Clean the reading lens by softly wiping it with a clean cloth slightly wetted with disinfectant alcohol (ethanol) once a month or every 5,000 sheets.
* If the reading lens is stained, reading errors may occur.
- (3) **Cleaning various sensors**
Softly wipe the sensors with a clean cloth slightly wetted with disinfectant alcohol (ethanol) once a month or every 5,000 sheets.
Use air blow etc. when cleaning the left skew sensor section.
*If the sensors are stained (with paper powder, etc.) detection errors may occur.

Note)

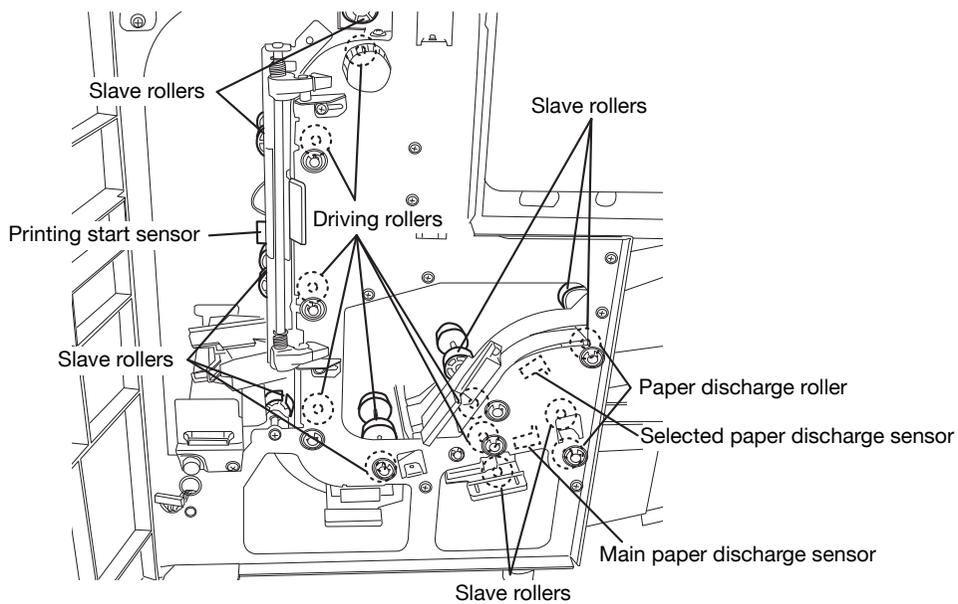
*Cleaning intervals may differ depending on usage conditions (usage frequency, quality of paper used, etc.)

*Use a solution of 1 part ethanol to 5 parts water as the diluted disinfectant alcohol.



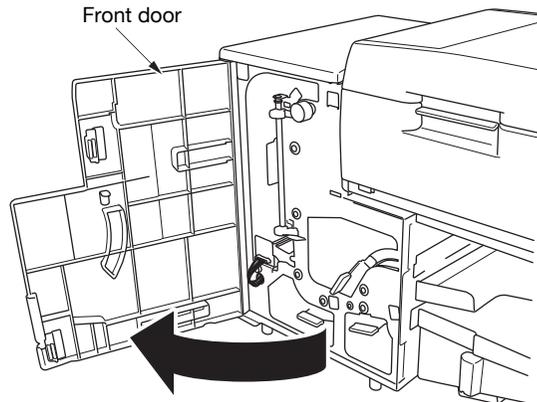


Stacker unit

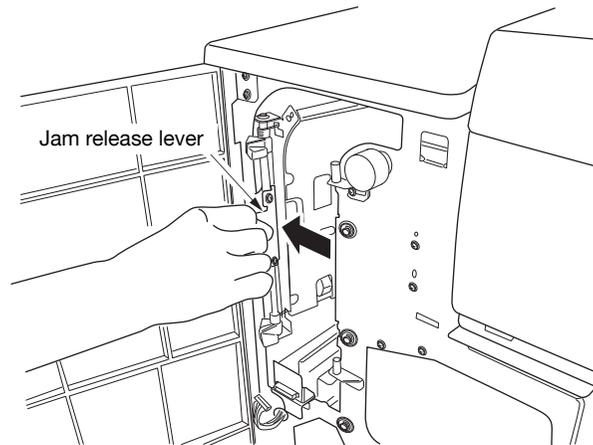


Stacker unit

- 1.** Turn the power off and remove the power cord from the outlet.
- 2.** Open the front door of the stacker unit.

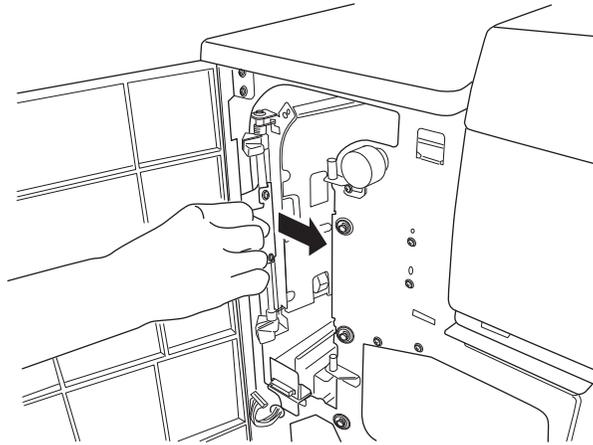


- 3.** Open the jam release lever.

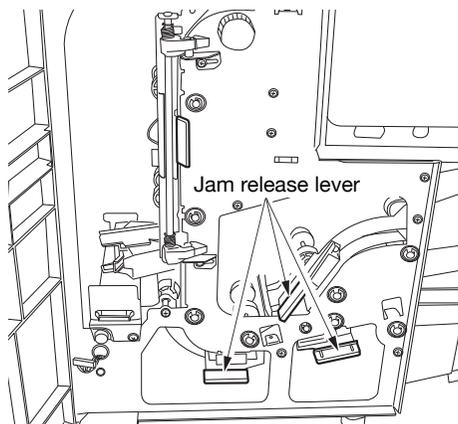


- 4.** Clean necessary parts.

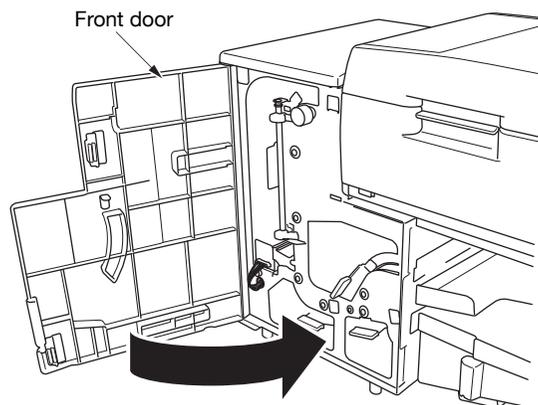
- 5.** Close the jam release lever.



- 6.** Clean the remaining three parts in the same manner as in steps 3 to 5.



- 7.** Close the front door of the stacker unit.



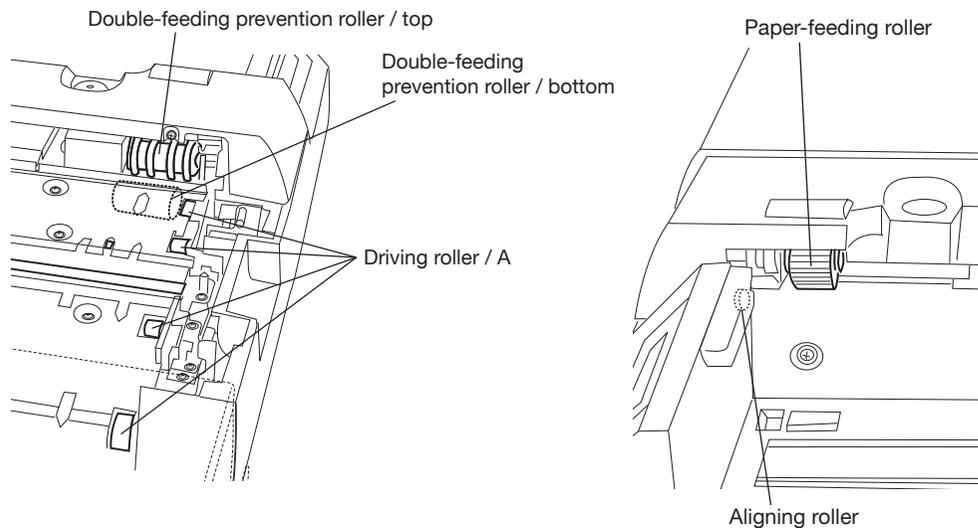
Service schedule

For stable operation of this device, regular replacement of components is required. See the following table, and contact us, or the store where you purchased the device, when requiring component replacement.

Main body unit

Component name	Number	Replacement reference (counter number)	Remarks
Paper-feeding roller	1	100,000 or 3 years	-
Double-feeding prevention roller / top	1	100,000 or 3 years	Replace at the same time as double-feeding prevention roller / bottom
Double-feeding prevention roller / bottom	1	100,000 or 3 years	Replace at the same time as double-feeding prevention roller / top
Aligning roller	1	100,000 or 3 years	-
Driving roller / A	4	500,000 or 3 years	-

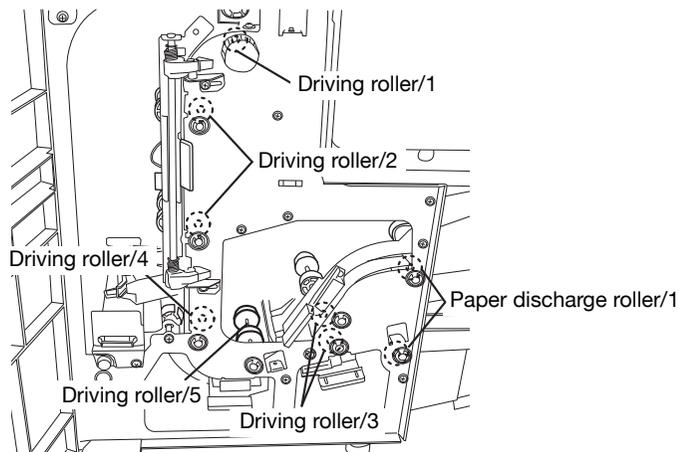
* Replacement periods may differ depending on usage conditions (usage frequency, quality of paper used, etc.)



Stacker unit

Component name	Number	Replacement reference (counter number)	Remarks
Driving roller / 1	1	500,000 or 3 years	-
Driving roller / 2	2	500,000 or 3 years	-
Driving roller / 3	2	500,000 or 3 years	-
Driving roller / 4	1	500,000 or 3 years	-
Driving roller / 5	1	500,000 or 3 years	-
Paper discharge roller/1	2	500,000 or 3 years	-

* Replacement periods may differ depending on usage conditions (usage frequency, quality of paper used, etc.)



Product specifications

Mark reading sensor	Reading	Single sided, [double-sided] (* You need an optional back side reading unit for double-sided reading.)
	Darkness levels	16 levels (internal 256 levels)
	Light source color	infra red light (940nm) [visible red light (660nm)]
	Pitch (inch)	1/6", 0.2", 0.25", 0.3"
	Marking	infra red light : pencil [visible red light : pencil, ballpoint pen (black or blue)]
Image reading sensor	Reading mark	size: 0.5×3mm or more darkness: PCS 0.6 or darker
	Number of timing marks	Four or more
	Reading method	CIS (Contact Image Sensor)
	Reading	Dual-sided
	Light source	LED (R: 620 nm, G: 530 nm, B: 467 nm)
	Reading width	228.6mm (main scanning direction)
	Reading mode	Grayscale (8 bit), Color (24 bit) Dropout (R: 620 nm, G: 530 nm, B: 467 nm)
	Resolution	100 dpi, 150 dpi, 200 dpi, and 300 dpi
	Image data	Original image, a part of image
	Error detection function	Sheet position detection, multiple sheet feeding detection, skew detection [Note 1]
PC interface	USB	USB 2.0 Hi-Speed (480 Mbps)
	RS-232C	9600 bps to 115,200 bps (for mark reading only)
	Display panel and operating switches	Display panel (LCD) 20 characters x 2 lines Operating switches 5
Hopper capacity	Sheet loading capacity	500 sheets (ream weight, 90 kg (105 g/m ²) for base) *With pictures attached, 20 sheets (90 kg (105 g/m ²) for base) [Note 2]
	Mixed sheets	Only sheets with the same characteristics (paper type, size, thickness) can be set
Paper used	Paper size	IBM card size, postcard size, A5, B5, A4 8.5 inch, 9 inch Height 110-355.6mm, width 63.5-228.6mm
	Paper weight	72-135k(84 - 157g/m ²)
	Paper quality	OCR paper, bond paper, recycled OCR paper (recycled OCR paper composition 50%) Copy paper (*Copy paper can only be used for image reading)
	Sheet feeding	Feeding speed 1240,1000,666,500, or 333mm/s Number of sheets read [Note 3] 5,000(A4) sheets / hour (Dual sides Mark + 200dpi Gray + Non barcode reading + USB connection)
Stacker capacity	Main tray	500 sheets (when weight 105g/m ² paper is used)
	Selection tray	150 sheets (when weight 105g/m ² paper is used) *With pictures attached, 20 sheets (90 kg (105 g/m ²) for base)
Power source	AC100-240V,50Hz/60Hz	
Environmental operating conditions	Temperature	5-35°C
	Humidity	30-80%
External measurements	800(w)×490(H)×365(D) mm	
	Weight	Approx. 37kg (excluding optional items)
	Noise	70db(A)(when operating) [] inside option

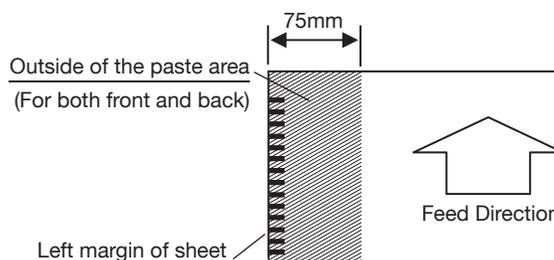
Note 1) Left margin skew detection is used to determine if the left margin is skewed by checking the edge of the left margin on the back of a sheet. If colors other than shades of white are printed on the back of the sheet, detection may not work properly. For such cases, set left margin skew detection to [Off]. Please be aware that sheet print colors that may cause detection to work incorrectly may differ depending on the reading mode.

Reading mode	Sheet print colors that are often detected incorrectly (back side)	
Grayscale	Colors other than shades of white	
Color	Colors other than shades of red	
Dropout color	Red	Colors other than shades of white
	Green	Colors other than shades of green
	Blue	Colors other than shades of blue

See “Error detection settings” in this manual on P.44 .

Note 2) When feeding sheets that have pictures attached, check and verify the items listed below and make sure to complete a test run before actually feeding in any sheets.

- (1) The maximum thickness for a picture that can be attached onto a sheet is approx. 0.3 mm (including the thickness of the sheet and the thickness of the picture).
- (2) Do not attach pictures into areas that are up to 75 mm from the left margin of the sheet (for both front and back).
- (3) Attach pictures that have not been folded and that have no fold lines. For pictures that have a curl in them, only attach pictures with a curl of 1 mm or less.
- (4) Make sure that attached pictures are not lifting away from or peeling off from the sheets.
- (5) The edges of sheets with a low stiffness of 72 kg (84 g/m²) or less may sag on the stacker and become uneven around where pictures are attached, which could cause the sheet to get caught and become jammed in the machine, which is why sheets should be fed in one sheet at a time in such cases.



Note 3) Guidelines for the number of sheets read when an image reading sensor is in use (while images are being acquired) are as given below.
(Reference values)

	Color	Grayscale
300dpi	1240 sheets/hour	4200 sheets/hour
200dpi	2380 sheets/hour	5100 sheets/hour
150dpi	3300 sheets/hour	5150 sheets/hour
100dpi	4500 sheets/hour	5150 sheets/hour

*Conditions for mark reading : 46 rows, 66 columns, 1/6” dual-sided reading

Sheet size : A4

Reading method : Marks + image (JPEG compression quality 90)

PC specifications : CPU Intel Core i5 2.6 GHz

Memory 4 GB

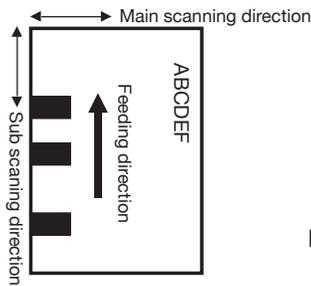
OS: Windows 7 Pro SP1 (32 bit)

Interface: USB 2.0 Hi-Speed

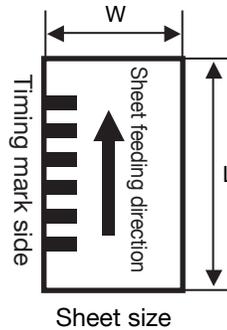
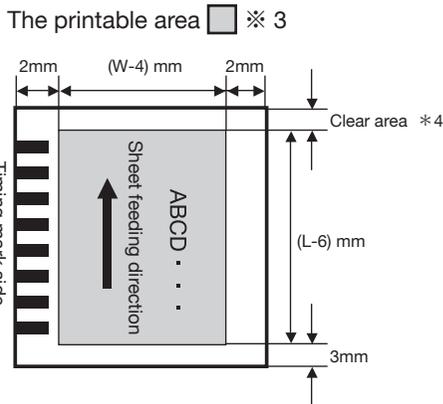
*The number of sheets read may differ depending on the configuration of the computer being used or effects of other software programs that are installed.

■ Printer unit specifications

Printing location	Prints on top surface of fed sheet
Printing method	Inkjet
Number of characters printed	Maximum 72 characters (for A4-size paper)
Kinds of characters printed	Alphabet (uppercase and lowercase letters) Numbers (0 - 9) 36 Symbols (!"#%&'()*+,-./:;<=>?@ [¥] ^ _ ■ {SP} ~○△□X) ※ 1 Japanese kana (including half and full accents, ◦ 「」, ・ -)
Character size	Height approximately 3mm x width approximately 4.0mm - 6.4mm
Character interval	Approximately 0.8mm - 92mm
Printing pixels	12 vertical x 9 horizontal pixels
Printing position	2mm or more from standard paper feeding edge to beginning of characters (not extended to timing mark) 2mm or more from right edge of maximum size sheet to beginning of characters
Printing position adjustment	Main scanning direction: Adjust head position manually. Sub scanning direction: Set print starting position command.



Ink cartridge Expires: 6 months after opening
Life: about 1 million characters ※ 2



- ※ 1: ■ in printing letter kind is printed becoming □
- ※ 2: The number of letters until it stops being printed depend on working condition.
- ※ 3: The size of printable area depends on the size of the sheet used.
- ※ 4: The printable area changed by Sheet size setting as follow.
 - *"Standard(14 inch)mode" : 60mm from top of paper edge
 - *"A4 (11.7inch) mode" : 3mm from top of paper edge

Note)

If a sheet is curled, it may cause a paper jam, so please do not use curly sheet.

■ Barcode unit specifications

Barcode unit / V (vertical feeding)

Reading direction	Vertical feeding (bars are parallel to sheet feeding direction)
Codes	JAN/EAN/UPC (module 0.33 mm, 0.8 times~ 2 times) NW-7 CODE-39 CODE-128 ITF (Interleaved Two of Five) Industrial 2 of 5 COOP 2 of 5 * The unit can be set to read up to four kinds of codes.
Reading area	Sheet feeding direction : It depends on sheet size setting. Refer to Barcode readable area in page 72. Paper width direction : ± 30 mm of 50~200 from sheet edge (timing mark side).
Number of digits to be read	Maximum 32 digits (total number of digits to be read is 150 or less) (For CODE-128, a maximum of 64 digits if the starting character is CODE-C)
Number of labels to be read	Maximum 10 (1 sheet)
Label interval	15mm or more
Barcode printing specifications	<ul style="list-style-type: none"> • Length 60mm or less X height 10mm or more (For narrow bars with widths of 0.19mm or less, use coated labels less than 40mm long ※ 1) * Barcode length requires a quiet zone (margin) more than 2.54mm on both sides or 10 times the width of the narrow bar, whichever is bigger. • PCS: 0.7 or more (light-source wavelength: 633nm) • Bar width (narrow bar) 0.125-1mm * Bar:space ratio = 1:0.85-1.15 * Recommended N:W ratio = 1:2.5 * There should not be any bleeding, chipping, blank areas, etc. • Skew: ± 5 degrees or less from the standard paper feeding edge. * If narrow bar width is 0.19mm or less, ± 2 degrees or less.
Reading side	Read the top surface of a sheet as it is fed
Directions to adjust reading positions	Paper width direction: manually adjust the head position Sheet feeding direction: “Specifying reading start position mode” Use command to specify reading starting position from the front edge of a sheet and reading width for number of barcodes. “Whole area reading mode” Entire area of a sheet can be read. (Barcodes in all areas of the sheet-feeding direction can be read.) ※ 1 entire thickness of label sticking section is 0.25mm or less Label must not be floated and come off.

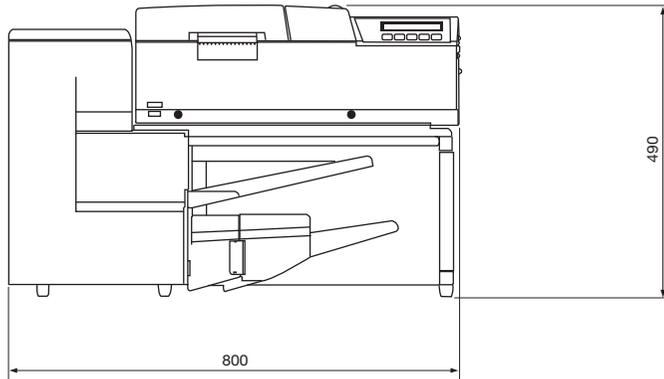
Barcode unit / H (horizontal feeding)

Reading direction	Horizontal feeding (bar direction is perpendicular to sheet feeding direction)
Codes	JAN/EAN/UPC (module 0.33 mm, 0.8 times~ 2 times) NW-7 ITF (Interleaved Two of Five) CODE-39 CODE-93 CODE-128 EAN-128
Reading area	Sheet feeding direction : It depends on sheet size setting. Refer to Barcode readable area in page 75. Paper width direction : 20~224mm from sheet edge(timing mark side).
Number of digits to be read	Maximum 48 digits
Number of labels to be read	Maximum 10 (total number of digits to be read is 200 or less)
Label interval	40mm or more
Barcode printing specifications	<ul style="list-style-type: none"> • Height 10mm or more <ul style="list-style-type: none"> * It requires a starting margin of 12mm or more, and an ending margin of 4 characters or more for a barcode. • PCS: 0.7 or more • Bar width (narrow bar) 0.2-2mm <ul style="list-style-type: none"> * Bar:space ratio = 1:0.85-1.15 * Recommended N:W ratio = 1:2.5 * There should not be any bleeding, chipping, blank areas, etc. • Skew: ± 3 degree or less from the standard paper feeding edge. • Sticking label: ※ 1
Reading side	Read the top surface of a sheet as it is fed
Directions to adjust reading positions	Paper width direction: manually adjust the head position Sheet feeding direction: <ul style="list-style-type: none"> “Specifying reading start position mode” Use command to specify reading starting position from the front edge of a sheet (measurement: mm) and reading area for a barcode. “Whole area reading mode” Entire area of a sheet can be read. (Barcodes in all areas of the sheet-feeding direction can be read.) “SR9000 compatible mode” Specify barcode reading starting position using timing mark ※1 entire thickness of label sticking section is 0.25mm or less Label must not be floated and come off.

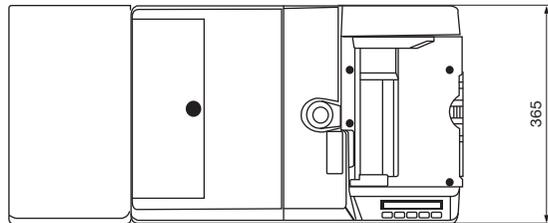
External diagram(Non barcode option)

(Unit : mm)

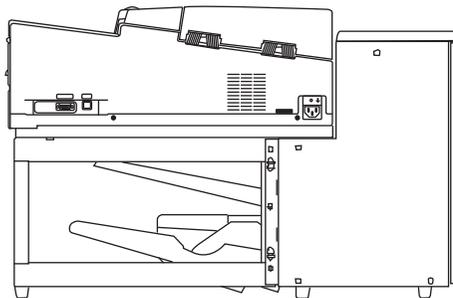
Front view



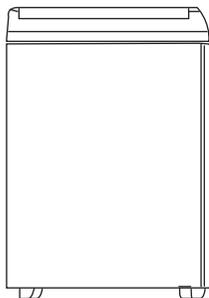
Top view



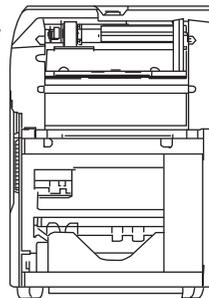
Rear view



Left view



Right view



List of menu modes

Setting menu	Setting item	Setting value		
Operation Mode		[SR-6500 mode] , SR-9000 mode	*1	*2
Setting of Interface	Device ID	[0] - 126	○	×
	Baud Rate	9600 , 19200 , [38400] , 57600 , 115200	×	○
	Character Bit Length	[7] , 8	×	○
	Parity	[None] , Odd , Even	×	○
	Stop Bit	1 , [2]	×	○
	Flow Control	[RS/CS] , Xon/Xoff , None	×	○
	Character Code	[Accept All] , Ignore 4 Codes	×	○
Setting of Reading	Setting of Column	1 - ([maximum]) Columns	*3	○
	Reading Method	Control fore , Control back , Direct , FACOM , Mark to mark	*5	○
	Magnification (display only when timing control types are selected)	1 - [3] - 9 times (for top-end timing control) 2 - [3] - 9 times (for bottom-end timing control)		○
	Min. Density Level	1 - [4] - 16	×	○
	Density Balance	[1] - 15	×	○
	Reading Side (only when back-sided reading unit is installed)	Single Side , [Double Side]		○
	Paper Weight	Automatic , 84g/m ² , [105g/m ²] , 128g/m ² , 157g/m ²		○
	Sheet size	[Standard(14inch)] , A4size (11.7 inch)		○
Setting of Error Detection	Automatic Discharge	[Use] , Not Use	○	×
	Sheet Empty	Use , [Not Use]	○	×
	Timing Mark Error	[Use] , Not Use	○	×
	Double-Feeding	[Use] , Not Use	○	○
	Skew (Left End Skew)	[Use] , Not Use	○	○
Setting of Buzzer	Buzzer Control	[Valid] , Invalid	○	○
	Buzzer Sound Volume Adjustment (displayed only when it's valid)	1 - [3] - 5	○	○
Setting of Stacker	Discharge Direction	[Main] , Select	×	○

Setting menu	Setting item	Setting value	*1	*2	
Setting of Printer	Printer Control	Valid , <u>Invalid</u>	○	○	
	Size	<u>4.0mm</u> - 96.0mm , 0.8Pitch	○	×	
		<u>4.0mm</u> , 4.8mm, 5.6mm, 6.4mm	×	○	
	Magnification	<u>1 Time</u> - 15 Time	×	○	
	Character Pitch	<u>0.8mm</u> - 92.0mm , 0.1Pitch	○	×	
<u>0 Dot</u> - 99 Dots		×	○		
Setting of Barcord (only when the barcord unit is installed)	Barcode Control	<u>Valid</u> , Invalid	○	×	
Setting of Electric Power	Time for Power Save	None , 1 Minute - <u>5 Minutes</u> - 60 Minutes	○	○	
	Time for Standby	None , 1 Minute - <u>5 Minutes</u> - 60 Minutes	○	○	
Display Mode	Display Info	Main Body Unit (01 - zz)	*4	○	○
		Front Reading Unit (01 - zz)	*4	○	○
		Back Reading Unit (only when backsided reading unit is installed) (01 - zz)	*4	○	○
		Stacker Unit (01 - zz)	*4	○	○
		Barcode Unit (only when the barcode unit is installed) (01 - zz)	*4	○	○
		Image reading unit 1 (01 - zz)	*4	○	×
		Image reading unit 2 (01 - zz)	*4	○	×
	Type of front Reading Sensor	Sensor Pitch (1/6 , 0.2 , 0.25 , 0.3 inch)	*4	○	○
		Sensor of Type (Infra Red , Visible Red)	*4	○	○
	Type of Back Reading Sensor (Displayd only for back-side unit)	Sensor Pitch (1/6 , 0.2 , 0.25 , 0.3 inch)	*4	○	○
		Sensor of Type (Infra Red , Visible Red)	*4	○	○
	Type of Option	Reading Sensor Unit (Single Side , Double Side)	*4	○	○
		Stacker Unit (Not Cartridge , Cartridge)	*4	○	○
		Barcode Unit (Not Unit , Vertical , Horizontal)	*4	○	○
	Total count		(00000000 - 99999999)	○	○
Serial number		(000000000 - zzzzzzzzz)	○	○	

Setting menu	Setting item	Setting value	*1	*2
Test Mode	Feed Test 1	Start , <input type="checkbox"/> Stop	0	0
	Feed Test 2	Start , <input type="checkbox"/> Stop	0	0
	Print Test	Start , <input type="checkbox"/> Stop	0	0
	Printer jet test	Start	0	0

*1 Items displayed when SR-6500 mode is selected as the operating mode.

*2 Items displayed when SR-9000 mode is selected as the operating mode.

*3 Maximum number of columns to read differs depending on device sensor pitch.

*4 Data in parenthesis will appear according to options installed in the device.

*5 Factory default values differs depending on device sensor pitch.

1/6 inch:Direct under type 0.2,0.25,0.3 inch:Top-end timing control type 0.3F inch:"FACOM" type

indicates factory default values.

Error displays and countermeasures

1. Errors

If an error occurs, complete the relevant procedures listed below to resolve and clear the cause of the error. If unable to clear the error using the procedures given, contact your dealer for assistance.

- (1) Hardware errors
[Main body unit]

Error	Explanation	Code	Procedures for Resolving and Clearing Errors
Memory error 1	Internal memory error 1	A1	Cannot be resolved*1
Memory error 2	Internal memory error 2	A2	
Hopper drive error	Hopper operating error	A3	
Download error	Error while downloading to the main body	A4	
Sensor type error	<ul style="list-style-type: none"> · Sensor specifications for front side/back side reading unit are wrong · Sensor specifications for front side/back side reading unit are wrong 	A5	
Optional error	Optional unit detection error	A6	
Power supply voltage error	A irregularity is detected in power supply supervisory voltage of control board	A8	

[Reading unit]

Error	Explanation	Code	Procedures for Resolving and Clearing Errors
Communication error	Line error occurred between the device and the front side reading unit.	B1	Cannot be resolved*1
	Line error occurred between the device and the back side reading unit.		
Internal com. error	Front side reading unit doesn't reply	B2	
	Back side reading unit doesn't reply		
Memory error	Front side reading unit memory error	B3	
	Back side reading unit memory error		
Adjusted value error	Offset value of front side reading sensor exceeds acceptable level.	B4	
	Offset value of back side reading sensor exceeds acceptable level.		
Download error	Front side reading unit download error	B5	
	Back side reading unit download error		

[Reading unit]

Error	Explanation	Code	Procedures for Resolving and Clearing Errors
Internal error	Front side reading unit internal error	B6	Cannot be resolved*1
	Back side reading unit internal error		
Version error	Version of front side reading unit doesn't correspond to the main body unit.	B7	
	Version of back side reading unit doesn't correspond to the main body unit.		
	Version of front and back side reading unit doesn't match.		

[Image reading unit]

Error	Explanation	Code	Solution
Download error	Line error occurred between the device and the front side reading unit.	J1	None
	Line error occurred between the device and the back side reading unit.		
Internal communications error 1	Image reading unit doesn't replay	J2	None
Internal communications error 2		J3	None
Memory error 1	Internal image reading unit memory error	J4	None
Memory error 2		J5	None
Memory error 3		J6	None
Memory error 4		J7	None
IC error	An abnormality was detected in the internal hardware of the image reading unit	J8	None
CIS error		J9	None
FPGA error		K1	None
Power supply voltage error	An abnormality was detected in the supply voltage of the image reading sensor	K2	None
Version error	Mismatched the firmware in the Image reading unit	K3	None

[Barcode unit]

Error	Explanation	Code	Procedures for Resolving and Clearing Errors
Communication error	Line error occurred between the device and the barcode unit.	C1	Cannot be resolved*1
Internal com. error	Barcode unit doesn't reply.	C2	
Memory error	Barcode unit memory error.	C3	
Sensor error	Error occurred with barcode sensor.	C4	
Download error	Barcode unit download error.	C5	
Internal error	Barcode unit internal error.	C6	
Version error	Version of barcode unit doesn't correspond to the main body unit.	C7	

[Stacker unit]

Error	Explanation	Code	Procedures for Resolving and Clearing Errors
Communication error	Line error occurred between the device and the stacker unit.	E1	Cannot be resolved*1
Internal com. error	Stacker unit doesn't reply.	E2	
Memory error	Stacker unit memory error.	E3	
Download error	Stacker unit download error.	E4	
Internal error	Stacker unit internal error.	E5	
Version error	Version of stacker unit doesn't correspond to the main body unit.	E6	
Driver error	A driver error occurred in the drive system of the stacker unit.	E7	

***1 Errors that cannot be resolved**

Turn the power off and turn it back on after a while. If the error cannot be resolved by turning the power off and on, contact the dealer where you purchased.

(2) Transmission errors

Error	Explanation	Code	Procedures for Resolving and Clearing Errors
Command error	A non-specified command code was received.	F5	<ul style="list-style-type: none"> • Press the (CLEAR) switch (or execute the clear error command). • Check to make sure that the USB cable is connected properly. • Check the details of the host application program. • Check the details of the controller for the relevant application.
Parameter error	A non-specified parameter was received.	F6	
Protocol error	While processing a command, another command was received.	F7	

(3) Cover open errors

Error	Explanation	Code	Procedures for Resolving and Clearing Errors
Cover open	The cover of the main body unit is open	G1	Make sure to firmly and securely close the top cover on the device.
Stacker unit cover open	Front door of the stacker unit is open.	G2	Make sure that the front door on the stacker unit is firmly and securely closed.

* When the cover is closed, errors and warnings other than hardware errors will be cancelled.

(4) Jam errors
[Main body unit]

Error	Explanation	Code	Procedures for Resolving and Clearing Errors
No feed	Paper is not feeding though paper-feeding operation has started.	H1	<ul style="list-style-type: none"> • Reset paper. • Press the (CLEAR) switch (or execute the clear error command). • Clean the rollers.
Jam at paper-feeding detection sensor	A paper jam occurred at the paper-feeding detection sensor.	H2	<ul style="list-style-type: none"> • Remove any sheets that have become jammed or sheets inside the device. • Press the (CLEAR) switch (or execute the clear error command). • Resolve) Clean the rollers. • Check to make sure there are no foreign objects within the machine and remove as necessary
Jam at reading start detection sensor	A paper jam occurred at the reading start detection sensor.	H3	
Jam at main body unit paper discharge detection sensor	A paper jam occurred at the main body unit paper discharge detection sensor.	H4	

[Stacker unit]

Error	Explanation	Code	Procedures for Resolving and Clearing Errors
Jam at printing start detection sensor	A paper jam occurred at the printing start detection sensor.	I1	<ul style="list-style-type: none"> Remove any sheets that have become jammed or sheets inside the device. Press the (CLEAR) switch (or execute the clear error command). Check to make sure there are no foreign objects within the machine and remove as necessary
Jam at main paper discharge sensor	A paper jam occurred at the main paper discharge sensor.	I2	
Jam at selected paper discharge sensor	A paper jam occurred at the selected paper discharge sensor.	I3	

2. Warnings

(1) Components

Error	Explanation	Code	Procedures for Resolving and Clearing Errors
Back side reading unit unconnected	Back side reading unit is not installed.	P1	<ul style="list-style-type: none"> Check if the back side reading unit is connected to the device. Press the (CLEAR) switch (or execute the clear error command).
Barcode unit unconnected	The barcode unit is not connected to the device.	P2	<ul style="list-style-type: none"> Check if the barcode unit is connected to the device. Press the (CLEAR) switch (or execute the clear error command).
Printer unit unconnected	<ul style="list-style-type: none"> Printer unit is not installed. Printer cartridge is not installed. 	P3	<ul style="list-style-type: none"> Press the (CLEAR) switch (or execute the clear error command). Set printer control invalid.
Stacker unit unconnected	Stacker unit is not connected.	P4	<ul style="list-style-type: none"> Check if the stacker unit is connected to the device. Press the (CLEAR) switch (or execute the clear error command).
Non connection of Image reading unit	Image reading unit unconnected	P5	<ul style="list-style-type: none"> Check if the Image reading unit is connected to the device. Press the (CLEAR) switch (or execute the clear error command).

(2) Paper feeding

Error	Explanation	Code	Procedures for Resolving and Clearing Errors
Sheet empty	There is no paper in the hopper or the internal units.	Q1	<ul style="list-style-type: none"> Press the (CLEAR) switch (or execute the clear error command). Place paper back on the hopper.
Double feed error	Two or more sheets were fed simultaneously.	Q2	<ul style="list-style-type: none"> Press the (CLEAR) switch (or execute the clear error command). Separate the sheets to loosen them before placing them on the hopper to prevent jams. Check the setting for the paper weight dial.
Left end skew error	Paper was fed crookedly.	Q3	<ul style="list-style-type: none"> Press the (CLEAR) switch (or execute the clear error command). Check the position of the paper guide and make sure that positioned so as to ensure that the sheets are being lined up properly.

(3) Operation errors

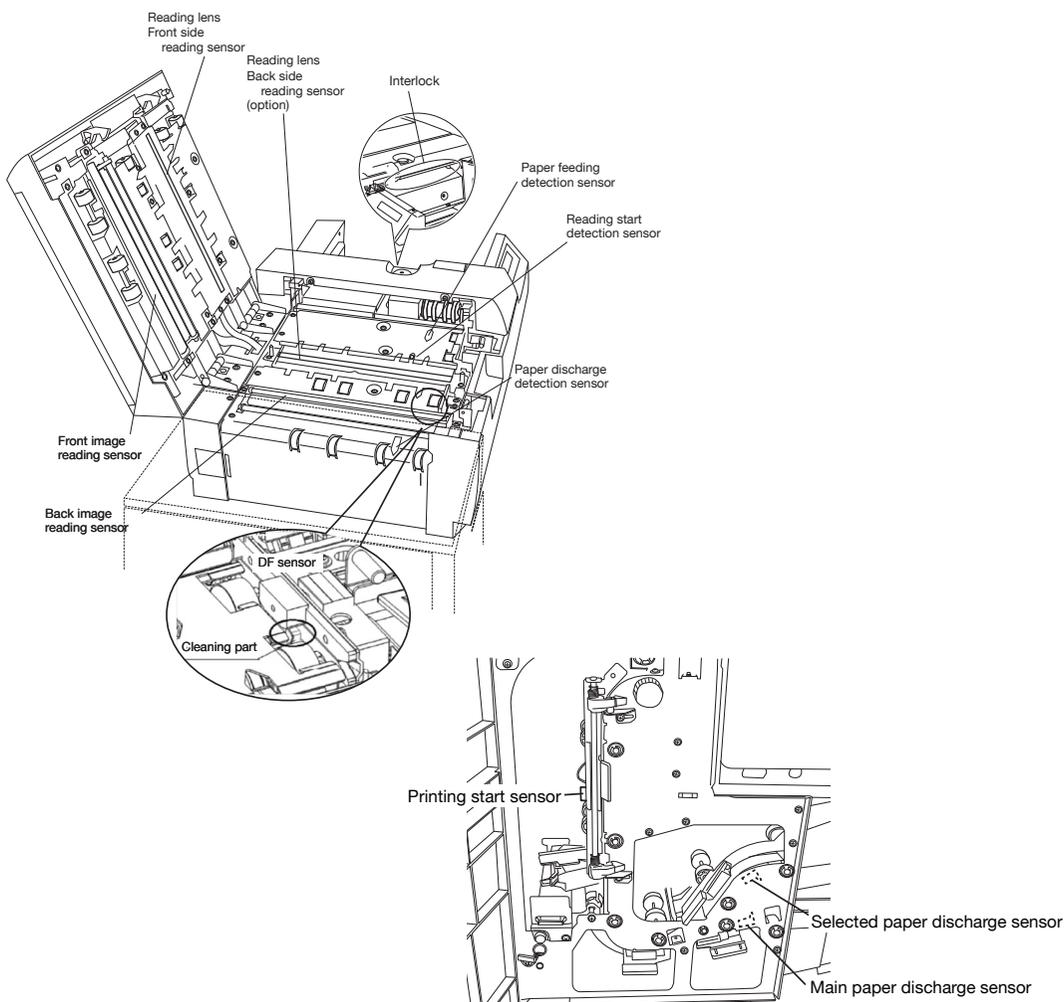
Error	Explanation	Code	Procedures for Resolving and Clearing Errors
Hopper stops	Interlock on the side of the paper-feeding roller operated.	R1	<ul style="list-style-type: none"> • Release the interlock switch. • Press the (CLEAR) switch (or execute the clear error command).
Drawing out error	Sheet was pulled out after it was fed.	R2	<ul style="list-style-type: none"> • Place sheets back on the hopper. • Press the (CLEAR) switch (or execute the clear error command).
Timing mark error	Only three or fewer timing marks were detected on the front side of the read sheet.	R4	<ul style="list-style-type: none"> • Check the orientation of the sheets. • Check the specifications of the sheets. • Press the (CLEAR) switch (or execute the clear error command).
	Only three or fewer timing marks were detected on the back side of the read sheet.		
Setting error	When reading front side marks using a timing control type, the next timing mark is detected within the area set by the control multiple number.	R5	<ul style="list-style-type: none"> • Set a reading type and a control multiple number according to specifications of the sheets. • Check the specifications of the sheets. • Press the (CLEAR) switch (or execute the clear error command).
	When reading back side marks using a timing control type, the next timing mark is detected within the area set by the control multiple number.		
Overflow of the Image memory	Out of specification(long length) sheet fed in the device.	R6	<ul style="list-style-type: none"> • Press (CLEAR) switch • Send error clear command
Black level error	There is light colored stain on the front side reading unit.	S2	<ul style="list-style-type: none"> • Check the reader unit for dirt and other contamination and clean as necessary. • Press the (CLEAR) switch (or execute the clear error command).
	There is light colored stain on the back side reading unit.		
Reading start detection sensor stain error	There is stain on reading start detection sensor.	S3	<ul style="list-style-type: none"> • After cleaning the sensor, turn the power back on.

[Main body unit]

Error	Explanation	Code	Procedures for Resolving and Clearing Errors
Form left in hopper	A sheet left in the paper feeding detection sensor.	T1	<ul style="list-style-type: none"> Remove leftover sheets of paper from the device. Press the CLEAR switch (or execute the clear error command).
Form left in reading sensor	A sheet left in the reading start detection sensor.	T2	
Form left in end of main body	A sheet left in paper discharge detection sensor of the main unit.	T3	

[Stacker unit]

Error	Explanation	Code	Procedures for Resolving and Clearing Errors
Form left in printing start sensor.	A sheet remained in the printing start sensor.	T4	<ul style="list-style-type: none"> Remove leftover sheets of paper from the device. Press the CLEAR switch (or execute the clear error command).
Form left in main paper discharge sensor	A sheet left in the main paper discharge sensor.	T5	
Form left in selected paper discharge sensor	A sheet left in the selected paper discharge sensor.	T6	



OMR glossary

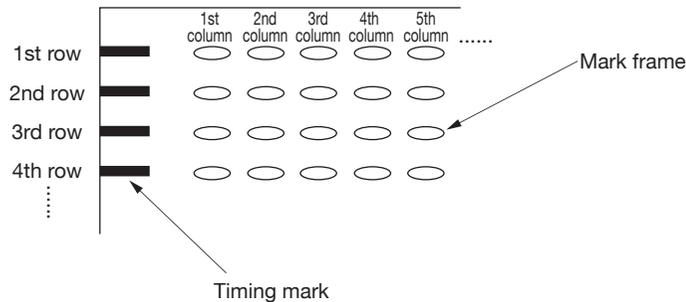
Optical Answer (OMR Sheets)

Sheet

- (1) OCR paper (optical character recognition paper)
Paper for data processing to optically read letters and symbols. It should not be dusty, and it should be smooth, stiff, abrasion resistant, and antistatic.
JIS X 9004 (printing specifications for optical character recognition)
- (2) Bond paper
Paper made from pure chemical pulp. Used for printing and writing.
JIS P 3101 (printing paper) JIS P 3201 (writing paper)
- (3) Paper weight
Paper is categorized by weight.

Column and Row

Marking frames are placed in rows, and timing marks in columns.



Dropout color

Refers to colors pre-printed or written on documents that people can see but it don't appear when read with an image scanner or other devices.

- (1) Dropout color print darkness is controlled by the PCS value. There are two ways to measure PCS, black backing and white backing, and you should pay attention because they differ depending on the model.
- (2) OCR sheets are generally used for printing character boxes using dropout color inks and printing letters in clear areas.
- (3) Dropout colors are chosen by spectral characteristics and PCS values that are determined by scanner sensor, light source, and filter.
- (4) Colors that can be used as dropout colors differ depending on the model, but with some models, even regular ballpoint pen ink drops out and cannot be used. In such cases, you need special OCR ballpoint pens that are rarely available today. See table below for relationships between wavelengths and colors.

Peak sensitivity wavelength	Color	Remarks
740(nm)	Sepia	Abundant dropout colors Some ballpoint pens cannot be used.
	Magenta	
	Purple	
	Brown	
660	Bluish tones	For red end colors only, rose aniline, purplish red, deep red Regular ballpoint pens can be used.
	Greenish tones	
	Rose	
	Pink	
570	Red	As in fax scanners, it's difficult to see with human eyes → should be avoided. Regular ballpoint pens can be used.
	Orange	
530	Yellow	Regular ballpoint pens can be used for blue(includes Green)-end colors only.
	Blue	
	Green	

- a) It is important to control the PCS value to print dropout colors. (You need to choose a printer equipped with devices that can measure PCS values.)

Dropout color for the reading sensor

The print colors that experience dropout at the peak sensitivity wavelengths for the image reading sensor are given in the table below.

If wishing to avoid dropout in printable areas such as text areas during image reading, select a peak sensitivity wavelength that differs from that for the print color.

Dropout wavelengths and print colors

Peak sensitivity wavelengths for the image reading sensor	Colors (print colors)	Typical print colors
630(nm)	Shades of red	Rose Pink Red Orange Yellow
520(nm)	Shades of green	Pale blue Yellow
470(nm)	Shades of blue	Cobalt Light cobalt Sky blue Light blue

PCS (printed contrast signal)

Refers to the reflectance ratio (contrast) of printed marks, symbols, and letters as opposed to reflectance of non-printing areas. The calculation formula is as follows.

$$PCS = \frac{\text{White reflectance} - \text{black reflectance}}{\text{White reflectance}}$$

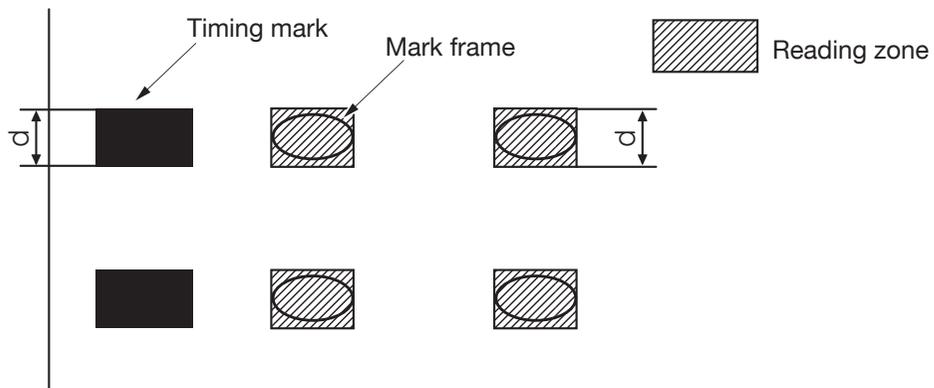
When reflectance of non-printing areas is 70%, and reflectance of printed marks, symbols, and letters is 10%, the PCS will be 0.857.

Direct under type

If paper has pre-printed timing marks, the scanning area (reading area) of targeted mark frames will be determined by such timing marks.

Direct under type is a method of reading a zone that is the same as the timing mark width.

Other methods include timing control type, mark to mark type, and FACOM type.



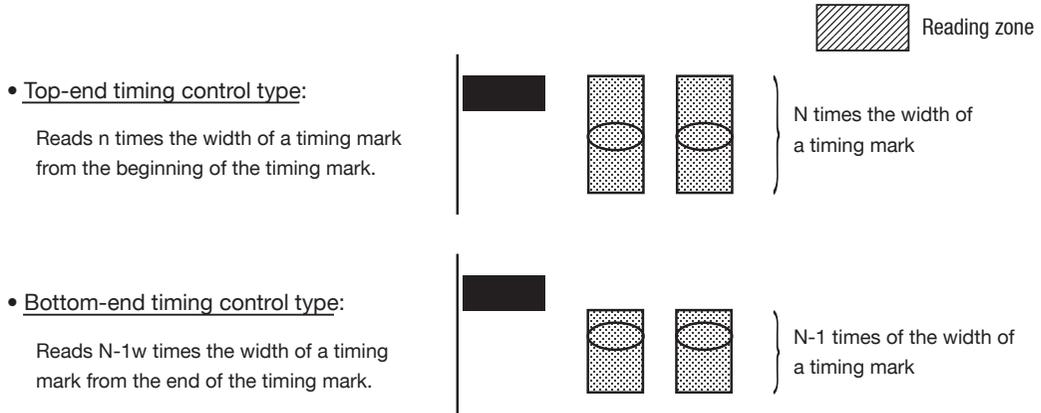
Timing control type

If paper has pre-printed timing marks, the scanning area (reading area) of targeted mark frames will be determined by such timing marks.

Timing control type is a method to determine the reading zone based on the timing mark width. Other methods include direct under type, mark to mark type, and FACOM type.

Example: Timing control type to scan N times the timing mark width.

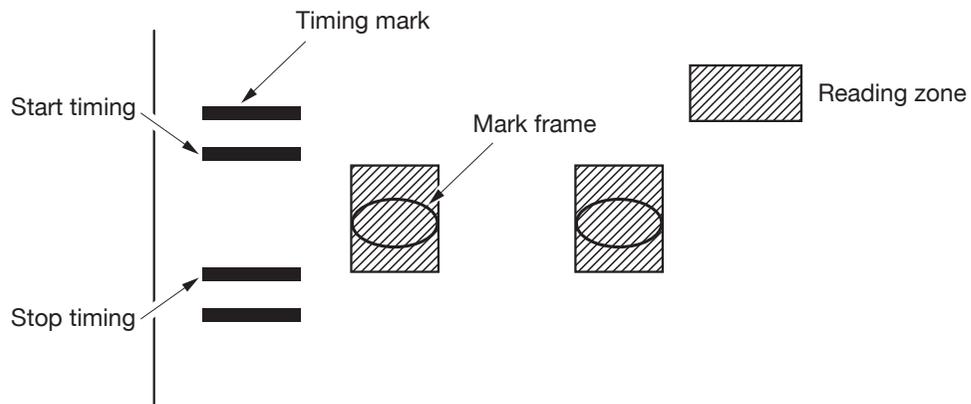
Set multiple numbers by using the software controlling OMR.



“FACOM” type

If paper has pre-printed timing marks, the scanning area (reading area) of targeted mark frames will be determined by such timing marks.

FACOM type is a method of determining the reading zone based on a pair of start timing and stop timing marks. Other methods include timing control type, direct under type, and mark to mark type.



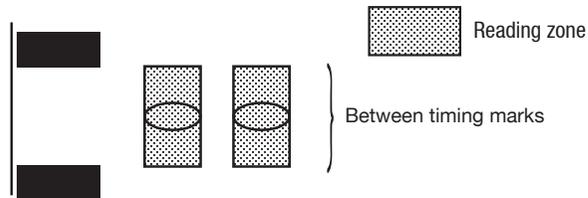
Mark to mark type

If paper has pre-printed timing marks, the scanning area (reading area) of targeted mark frames will be determined by such timing marks.

Mark to mark type is a method to read zones between two timing marks. Therefore, the number of timing marks in mark to mark type sheets is always an even number. Other methods include timing control type, direct under type, and FACOM type.

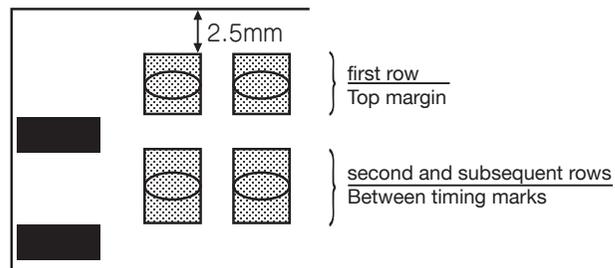
- Mark to mark type
(without top-end margin reading):

The reading zone is the area between timing marks.



- Mark to mark type
(with top-end margin reading):

The reading zones are the front margin of the sheet as the first row, and between timing marks as the second and subsequent rows.



Errors

Jam

A paper jam error caused by media when paper is being fed.

There are two kinds of jams: static jams detected when the device is at rest, and operational jams is detected while the device is running.

Operational jams include double-feeding jams and no-feeding jams.

Skew

Refers to paper that is slanted against the paper feeding standard.

This function detects whether or not paper is fed straight.

Perforated paper, paper unevenly cut, and curled or bent paper is likely cause skew errors.

No feed

Refers to paper doesn't get fed during paper feeding operations.

If such an error occurs, the device assesses it as a paper feeding error, and notifies user of the error.

Double-feeding

Refers to two or more sheets being fed at the same time during paper feeding operation. If such an error occurs, the device assesses it as a paper feeding error, and notifies users of the error.

Equipment

Reading sensor/position sensor

Sensors are photoelectrical elements that transform reflected light. Sometimes sensing refers to both light emission and light reception.

LED wavelength influences dropout color. We use mainly two wavelengths, and the relationships between wavelength, dropout colors, and readable colors are shown in the table below.

Wavelength	Color	Dropout color	Readable color
940nm	Infra red	Colors other than readable colors	Black and blue pigments
660nm	Visible light (red)	Red, orange, pink	Black, blue

Hopper

A place to put sheets to be processed for marking and compilation.

Stacker

A place that sheets that have been read are temporarily stacked. Stacker volume refers to the number of sheets that can be accommodated. Example: stacker volume 200 sheets.

Transmission interface

A hardware device that works as an interface connecting together a computer and an OMR.

This product uses an interface with USB 2.0.

Writing implements

Readable marks and unreadable marks depend on the writing instruments used. Those also differ according to the light source that the reading sensor uses.

Relationships between sensors used for OMR (light source) and writing implements are shown in the table below.

Readable mark colors and writing implement	Light source wavelength	Color tone
Color: black (pigment) Writing implement: pencil	940nm (standard)	Infra red
Color: black, brown, blue, green, purple Writing implement: pencil, fountain pen, water/oil base ballpoint pen, water/oil base marker	660nm (*Option)	Visible light (red)

Appendix

■ Sheet creation reference

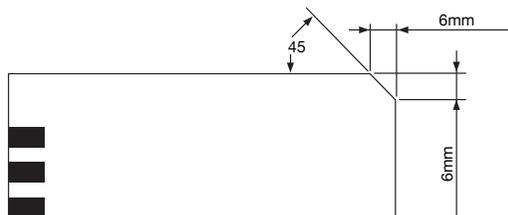
You can use paper that you make yourself with this device in addition to the optional paper that we offer. If you make your own paper, follow the specifications below.

- (1) Sheet size
 Height 148.0-355.6mm Width 82.55-228.6mm
 Do not cut or round the corners on the reference side (timing mark side).
 (See P. iv)

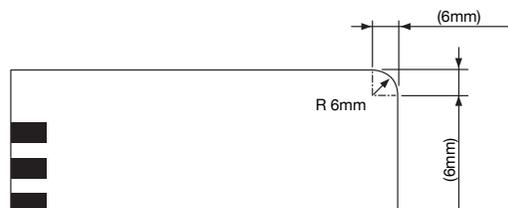
* Cut corners and round corners

They help you to easily check if paper is placed in the right direction, and help you to manage paper and keep it orderly.
 Cut paper corners straight or rounded according to the specifications shown below.

Straight cut corners: standard 6mm or less.
 Chamfer angle 45°



Round corners: R 6mm

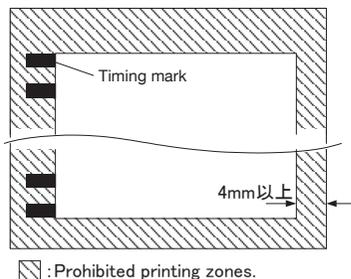


- (2) Weight and thickness

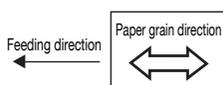
g/m2 (grams per sheet)	84 - 157
mm (thickness)	0.1 - 0.19

- (3) Paper quality
 OCR paper, bond paper, or recycled OCR paper.

- (4) Printing ink (printing surrounding mark fields)
- ① Near-infrared sensor (for pencil marks)
 - i. Printing of marking frames and dotted lines: Print using ink with a PCS value of 0.15 or lower.
 - ii. Printing of timing marks: Print using ink with a PCS value of 0.85 or higher.
 - *PCS values are measured at a spectral band of B900 with a read sensor with a wavelength of 940 nm.
 - ② Visible light sensor (for pencil or ball-point pen marks)
 - i. Printing of marking frames and dotted lines: Print using ink with a PCS value of 0.15 or lower.
 - ii. Printing of timing marks: Print using ink with a PCS value of 0.85 or higher.
 - *PCS values are measured at a spectral band of B900 with a read sensor with a wavelength of 660 nm.
- (5) Printing position accuracy
- Parallelism Adjust printing parallelism for timing marks and data marks 0.2mm or less based on the cutting edge of the timing mark side.
 - Perpendicularity Adjust printing perpendicularity for timing marks and data marks 0.2mm or less based on the cutting edge of the timing mark side.
 - Other Adjust to ± 0.2 mm or less of specified measurements unless otherwise specified.
- (6) Prohibited printing zones
- Do not print between timing marks, or between the top-end (bottom-end) timing mark and the top edge (bottom edge) of the mark sheet.
- Top-end margin*: 9mm or more from the top edge to the first timing mark.
 Bottom-end margin: 9mm or more from the last timing mark to the bottom edge.
- Side margin: 4mm or more on the opposite side of the sheet's standard edge.
- *For IBM card size, top end margin is 5mm or more, bottom- end margin is 6mm or more



- (7) Direction of paper grain
- Feed paper in the direction of its grain to eliminate curling.



(8) Clear zones

Do not print in colors other than dropout colors in 0.8mm around reading zones and 0.8mm from timing mark longitudinal ends.

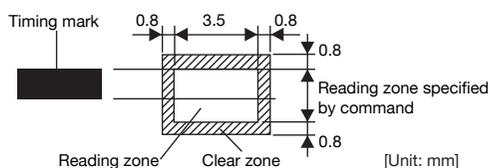
Reading zone:

The vertical direction of the data mark standard position is the height set by command, and the horizontal width refers to the area of the data mark frame width.

Dropout colors:

Dropout colors refers to colors that are already printed or written on a document that can be seen by human eyes but cannot be recognized by a reading sensor.

(9) Black ink printing



Descriptions, etc. can be printed in areas except print prohibition zones and clear zones. However, never print anything at PCS 0.15 or more other than timing marks in timing mark columns from the top edge of sheet to the bottom edge on either side of the paper.

(10) Printing on back surface

You can print on the back surface except in print prohibition zones. However, do not print at PCS exceeding 0.15 in clear zones on the front surface in case of bleeding through from the back.

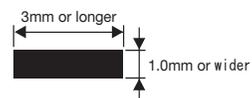
(11) ID mark

Set an ID mark for identification as necessary.

Size: 1.0mm or wider x 3mm or longer.

Reading darkness: PCS 0.8 or higher

Angle: ± 5 degree or less (against the line perpendicular to the standard side)



(12) Mark frame

Rectangles, ovals, and circle shapes have been conventionally used for mark frames.

Frame size should be smaller than the reading zone in various reading methods (direct under type, timing control type, mark to mark type, and FACOM type).

Recommended sizes are as follows.

Rectangles: Vertical 0.8-1.5mm Horizontal 3-3.5mm

Ovals: Vertical 1.5-2.5mm Horizontal 3-4.3mm

Circles: Diameter 3.0-3.5mm

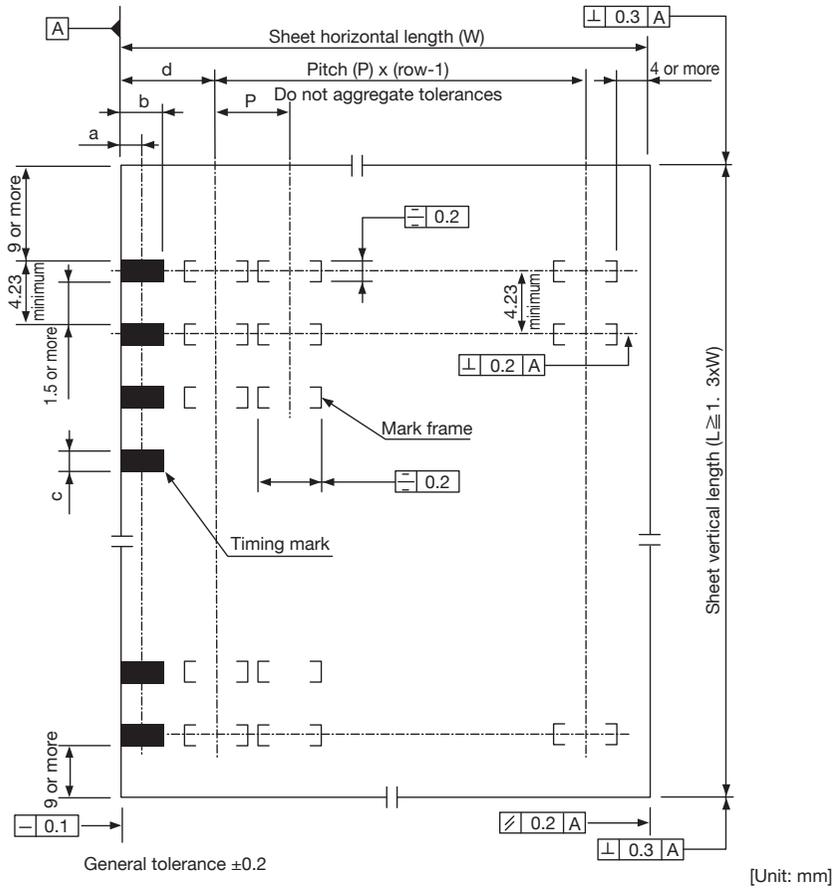
*Maximum horizontal length differs depending on sensor pitch.

Adjust horizontal length = (sensor pitch - 0.7mm) or less.

P(inch)	1/6"	0.2"	0.25"	0.3"
Sensor pitch(mm)	3.53	4.38	5.65	6.92

*Printing color: print at PCS 0.15 or less in dropout color.

- (13) Required number of timing marks
 An error will occur unless at least four timing marks are printed.
 (On both sides for double-sided printing.)
- (14) Paper dimensions
 [Direct under type sheet]



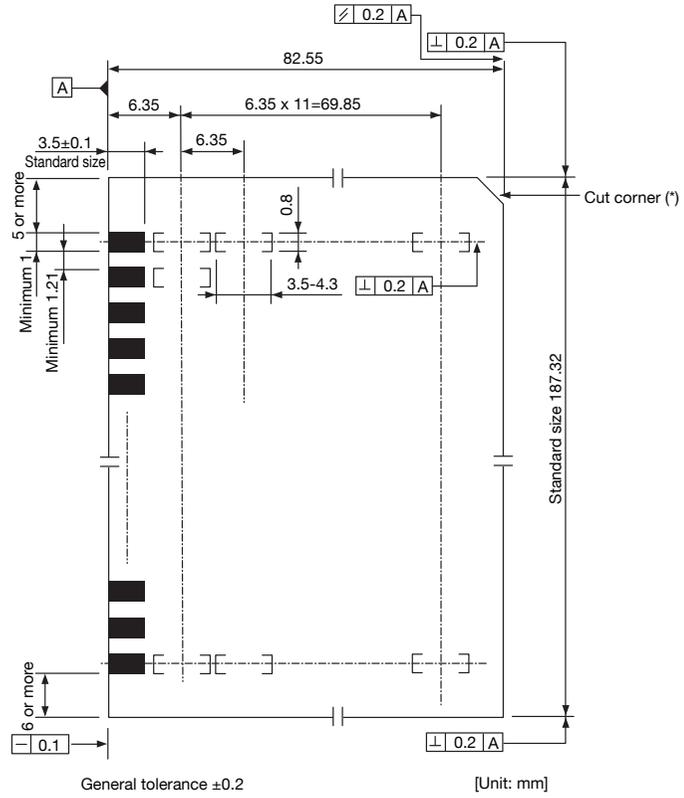
	1/6	0.2	0.25	0.3
P (in.)	1/6"	0.2"	0.25"	0.3"
(Converted to mm)	4.23	5.08	6.35	7.62
a	6.99	1.91	1.78	2.50
b	3.81	3.81	3.56	5.00
c	1.27	1.27	1.27	1.27
d	11.43	11.75	6.35	14.50

	0.2C
P (in.)	0.2"
(Converted to mm)	5.08
a	5.08
b	5.08
c	2.2
d	13.97

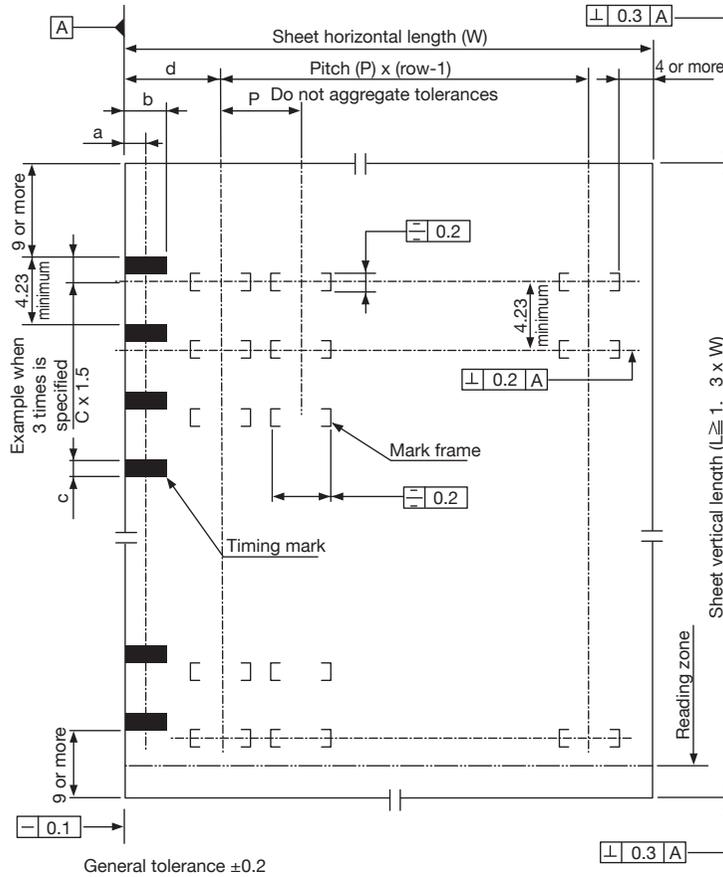
Size	W×L (mm)	Maximum number of columns				Maximum number of rows
		1/6	0.2	0.25	0.3	
IBM*	82.55×187.3	16	13	12	9	40
Postcard	100×148	20	17	14	11	31
A5	148×210	31	26	22	17	46
B5	182×257	39	33	27	22	57
A4	210×297	46	38	32	25	66
8.5"	216×279	47	40	33	26	62
9"	228.6×355.6	48	40	33	27	80

- Note 1) Maximum number of rows indicates the number of timing marks.
 Note 2) Printing specifications for IBM card size are described on the next page.

[Direct under type card (0.25" IBM card size)]



[Timing control type sheet]



[Unit: mm]

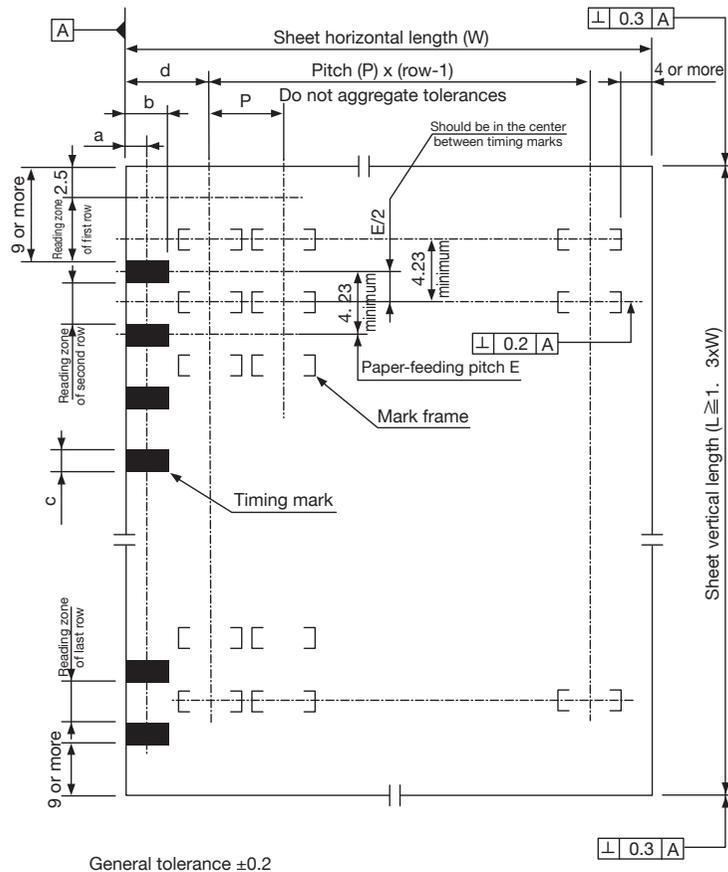
	1/6	0.2	0.25	0.3
P (in.)	1/6"	0.2"	0.25"	0.3"
(Converted to mm)	4.23	5.08	6.35	7.62
a	6.99	1.91	1.78	2.50
b	3.81	3.81	3.56	5.00
c	0.89	0.89	0.89	0.89
d	11.43	11.75	6.35	14.50

	0.2C
P (in.)	0.2"
(Converted to mm)	5.08
a	5.08
b	5.08
c	0.89
d	13.97

Size	W×L (mm)	Maximum number of columns				Maximum number of rows
		1/6	0.2	0.25	0.3	
IBM*	82.55×187.3	16	13	12	9	40
Postcard	100×148	20	17	14	11	31
A5	148×210	31	26	22	17	46
B5	182×257	39	33	27	22	57
A4	210×297	46	38	32	25	66
8.5"	216×279	47	40	33	26	62
9"	228.6×355.6	48	40	33	27	80

- Note 1) Maximum number of rows indicates the number of timing marks.
 Note 2) Set magnification values in order for the gap to be possible 1.4 mm or more from the top-end of next timing mark.

[Mark to mark type sheet]



General tolerance ±0.2

[Unit: mm]

	1/6	0.2	0.25	0.3
P (in.)	1/6"	0.2"	0.25"	0.3"
(Converted to mm)	4.23	5.08	6.35	7.62
a	6.99	1.91	1.78	2.50
b	3.81	3.81	3.56	5.00
c	1.50	1.50	1.50	1.50
d	11.43	11.75	6.35	14.50

	0.2C
P (in.)	0.2"
(Converted to mm)	5.08
a	5.08
b	5.08
c	1.50
d	13.97

Size	W×L (mm)	Maximum number of columns				Maximum number of rows
		1/6	0.2	0.25	0.3	
IBM*	82.55×187.3	16	13	12	9	40
Postcard	100×148	20	17	14	11	31
A5	148×210	31	26	22	17	46
B5	182×257	39	33	27	22	57
A4	210×297	46	38	32	25	66
8.5"	216×279	47	40	33	26	62
9"	228.6×355.6	48	40	33	27	80

- Note 1) Maximum number of rows indicates the number of timing marks.
 Note 2) Printing specifications for IBM card size are described on the next page.

[Mark to mark type card (0.25" IBM card size)]

