KONICA MINOLTA

Giving Shape to Ideas

bizhub PRO 1100

Daily Maintenance Guide

- For Operator -

Aim of this manual

This manual describes the daily care, both sides adjustment and image quality adjustment procedures. These daily adjustments are important for stable printings.
This manual will be useful to enable the full capabilities of this machine to realize stable printings.

Notations and symbols used in this manual

CAUTION
This symbol indicates that negligence of the instructions may lead to mishandling that may cause injury or property damage.

NOTICE
This symbol indicates a risk that may result in damage to this machine or originals.
Follow the instructions to avoid property damage.

Tips
This symbol indicates information that complements the topic or optional devices required to use a certain function.

Reference
This symbol indicates a function or functions that are related to the topic.

The meaning of other notations and symbols are as follows.

Notation/Symbol	Description
[ ]	These brackets indicate the name of a key on the **touch panel** or of a button on a computer screen.
Bold	Words in bold type indicate the name of a key on the **control panel**, of a part, of an option, or of User's Guide.

This guide describes product names and system configurations as follows.

Product name	Conventions used in this guide
bizhub PRO 1100	This machine: Indicates the entire system including options and functions. The main body: Indicates a main unit that covers printing functions. The machine: Indicates a mechanical part related to the structure or mechanism.
Microsoft Windows	Windows

Intended use of this machine

Intended use

This machine is designed to be used as a digital printing system for the following purposes:

- Print, copy and scan documents.
- Use available finishing functions such as duplexing, stapling, hole-punching, multi-folding and booklet creation if appropriate options are installed.
- Store documents to reprint on the HDD of this machine.

The intended use also requires that:

- The system is used within the limits of device specifications and specifications of optional components,
- All safety instructions in the related user's guides are observed,
- Legal restrictions on copying or printing (refer to instruction booklet "Safety Information") are observed,
- Inspection and maintenance instructions are adhered to,
- General, national and company safety provisions are observed.

Impermissible operating conditions

The system may not be operated if:

- Errors or damage have been discovered,
- Maintenance intervals have been exceeded,
- Mechanical or electrical functions do not work as they should.

Exclusion of liability

The manufacturer of the system assumes no liability for damages if the system was operated under impermissible conditions.

Target groups

The Daily Maintenance Guide are intended for the following users of this machine:

- Operator: Person who has been trained by Konica Minolta or authorized partner to operate the system for its intended use as well as manage consumables, and perform the maintenance and troubleshooting described in user's guides.

Everyone who uses this system must have read and understood the related user's guides.

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1 Daily Care

1.1 Daily cleaning

About daily cleaning

To reproduce stable output by this machine, be sure to clean the machine before output.

▶Cleaning timing

Check the cleaning section every day before you activate the power of the machine.

Clean the cleaning section when the cleaning section is dirty.

Cleaning section	Reference
Scan section	P.1-2
Fusing section	P.1-4
Paper feed section	P.1-7

▶Items necessary for cleaning

- Isopropyl alcohol
- Cleaning pad

Scan section

▶Cleaning section of the scan section

- Original glass
- Slit scan glass
- Slit scan glass for back side

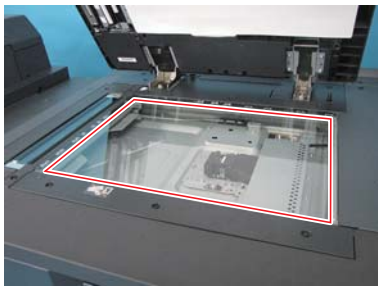
NOTICE

- Be careful not to damage the glass when you clean the machine.

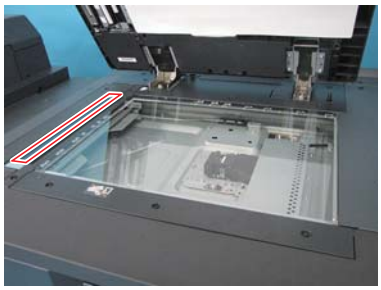
▶Cleaning procedure

1 Open the **ADF**.

2 Clean the dirt on the **original glass** with a cleaning pad.



3 Clean the dirt on the **slit scan glass** with a cleaning pad.



4 Open the lever [DF1], then open the conveyance guide.

5 Clean the dirt on the **slit scan glass for back side** with a cleaning pad.

6 Press the label section, and close the **conveyance guide**.

7 Close the **ADF**.

Fusing section

CAUTION

Be sure to check the cleaning section before you activate the power of the main body.

If you activate the power with the door of the main body closed, the inside of the fusing unit becomes hot. Therefore, you possibly get burned when you clean near the fusing unit.

▶Cleaning section of the fusing section

- Pre-fusing guide plate
- Fusing separating claw/Lw
- Fusing separating claw/Up

NOTICE

- Be careful not to drop any dirt on the paper path when you clean the machine.

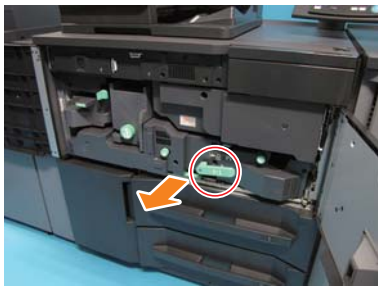
▶Cleaning procedure

1 Open the **right door** and **left door** of the main body.

2 Activate the **main power switch**, then activate the **sub power switch**.

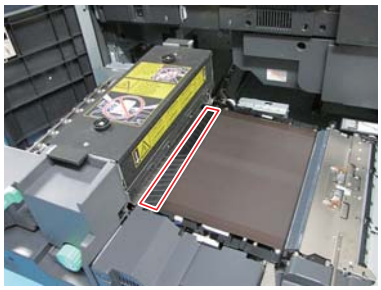
3 Tilt the lever [M4] clockwise.

4 Hold the lever [M4], and pull out the **duplex section**.

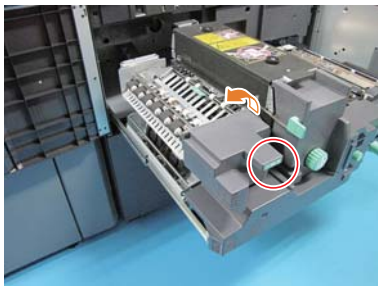


5 Deactivate the **sub power switch**, then deactivate the **main power switch**.

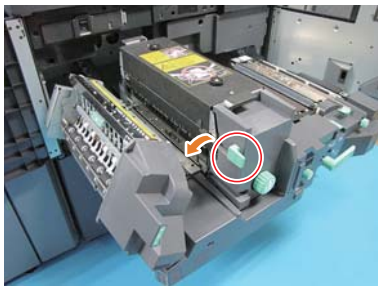
6 Clean the dirt on the pre-fusing guide plate with a cleaning pad.



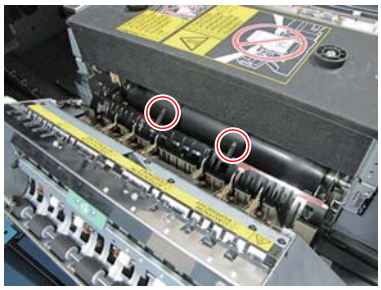
7 Hold the lever [M8], and open the **reverse exit section**.



8 Hold the lever [M9], and open the **fusing paper exit section**.



9 Moisten the cleaning pad with isopropyl alcohol, and clean the dirt on the **fusing separating claw/Lw**.



10 Moisten the cleaning pad with isopropyl alcohol, and clean the dirt on the **fusing separating claw/Up**.

11 Close the **fusing paper exit section**, and move the **reverse exit section** to the initial position.

12 Push the **duplex section** into the main body, and move the lever [M4] to the initial position.

Paper feed section

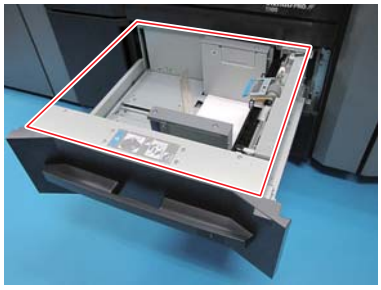
▶Cleaning section of the paper feed section

- Tray 1

▶Cleaning procedure

1. Activate the **main power switch**, then activate the **sub power switch**.
2. Pull out the **tray 1**.

3. Deactivate the **sub power switch**, then deactivate the **main power switch**.
4. Close the **left door** and **right door** of the main body.
5. Clean the dirt of the toner inside the **tray 1** with a cleaning pad.



6. Move the **tray 1** to the initial position.

1.2 Weekly cleaning

About weekly cleaning

To reproduce stable output by this machine, be sure to clean the machine once a week.

▶Cleaning timing

Check the cleaning section once a week before you activate the power of the machine.

Clean the cleaning section when the cleaning section is dirty.

Cleaning section	Reference
Scan section	P.1-9
Fusing section	P.1-11
Duplex section	P.1-14
Reverse exit section	P.1-19
Paper feed section	P.1-21

▶Items necessary for cleaning

- Isopropyl alcohol
- Cleaning pad

Scan section

▶Cleaning section of the scan section

- Original glass
- Slit scan glass
- Slit scan glass for back side

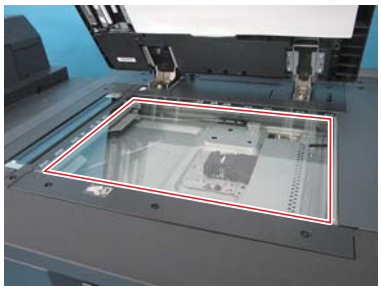
NOTICE

- Be careful not to damage the glass when you clean the machine.

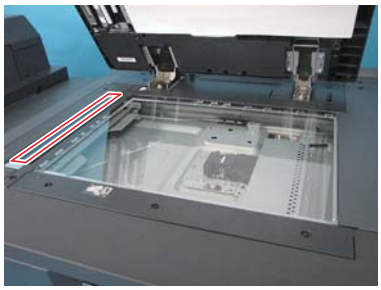
▶Cleaning procedure

1 Open the **ADF**.

2 Clean the dirt on the **original glass** with a cleaning pad.



3 Clean the dirt on the **slit scan glass** with a cleaning pad.



4 Open the lever [DF1], then open the conveyance guide.

5 Clean the dirt on the **slit scan glass for back side** with a cleaning pad.

6 Press the label section, and close the conveyance guide.

7 Close the **ADF**.

Fusing section

CAUTION

Be sure to check the cleaning section before you activate the power of the main body.

If you activate the power with the door of the main body closed, the inside of the fusing unit becomes hot. Therefore, you possibly get burned when you clean near the fusing unit.

▶Cleaning section of the fusing section

- Pre-fusing guide plate
- Fusing separating claw/Lw
- Fusing separating claw/Up

NOTICE

- Be careful not to drop any dirt on the paper path when you clean the machine.

▶Cleaning procedure

1 Open the **right door** and **left door** of the main body.

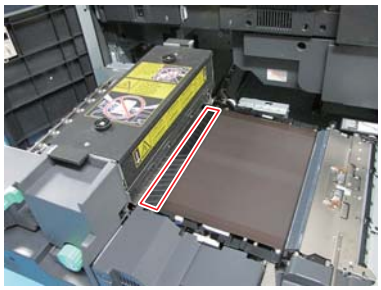
2 Activate the **main power switch**, then activate the **sub power switch**.

3 Tilt the lever [M4] clockwise.

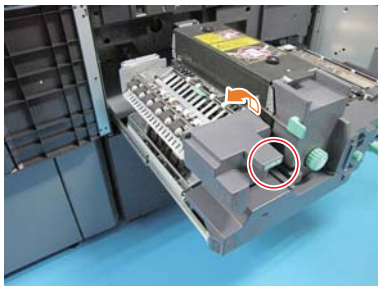
4 Hold the lever [M4], and pull out the **duplex section**.

5 Deactivate the **sub power switch**, then deactivate the **main power switch**.

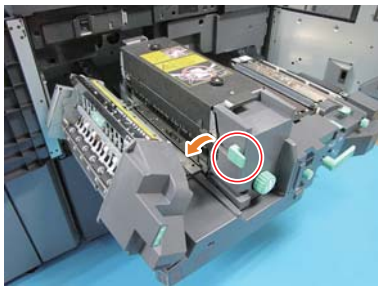
6 Clean the dirt on the pre-fusing guide plate with a cleaning pad.



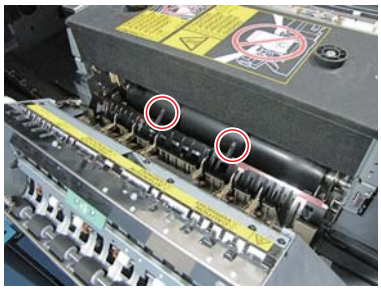
7 Hold the lever [M8], and open the **reverse exit section**.



8 Hold the lever [M9], and open the **fusing paper exit section**.



9 Moisten the cleaning pad with isopropyl alcohol, and clean the dirt on the **fusing separating claw/Lw**.



10 Moisten the cleaning pad with isopropyl alcohol, and clean the dirt on the **fusing separating claw/Up**.

11 Close the **fusing paper exit section**, and move the **reverse exit section** to the initial position.

Duplex section

▶Cleaning section of the duplex section

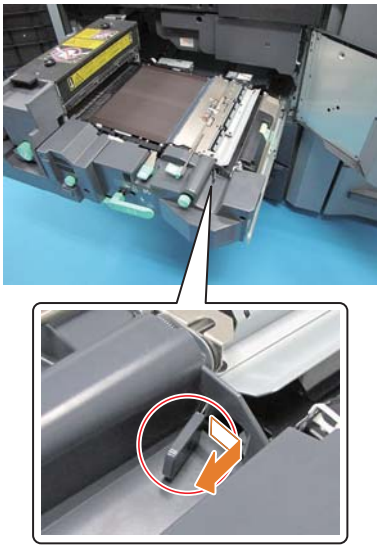
- Paper fur brush for the registration roller/Lw
- Paper fur brush for the registration roller/Up
- Entrance section of the duplex section
- Registration roller
- Inside of the registration unit

NOTICE

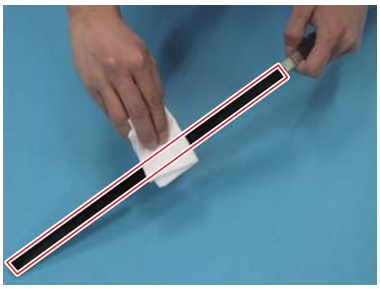
- Be careful not to drop any dirt on the paper path when you clean the machine.

▶Cleaning procedure

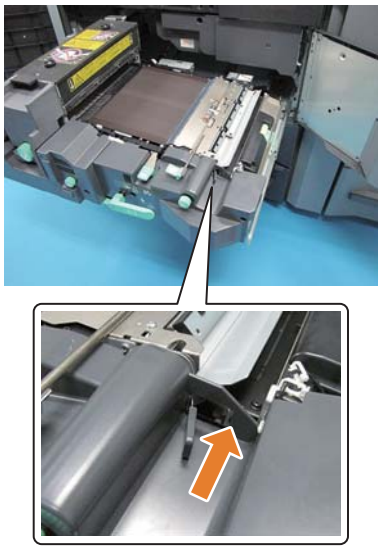
1 Pull the handle in the arrow-marked direction and remove the **paper fur brush for the registration roller/Lw**.



2 Remove the paper dust which adheres to the **paper fur brush for the registration roller/Lw** with a cleaning pad.



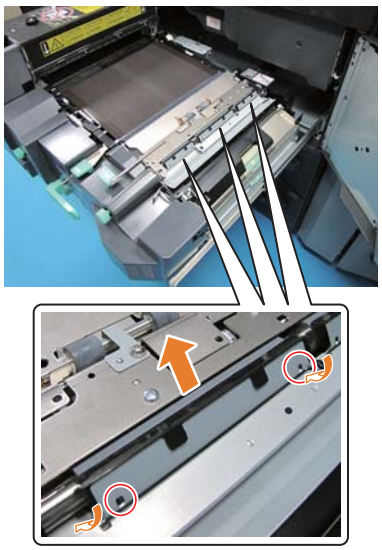
3 Move the **paper fur brush for the registration roller/Lw** to the initial position.



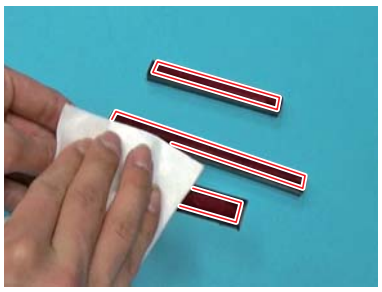
NOTICE

When you move the **paper fur brush for the registration roller/Lw** to the initial position, be sure to insert it fully until it hits against the back.

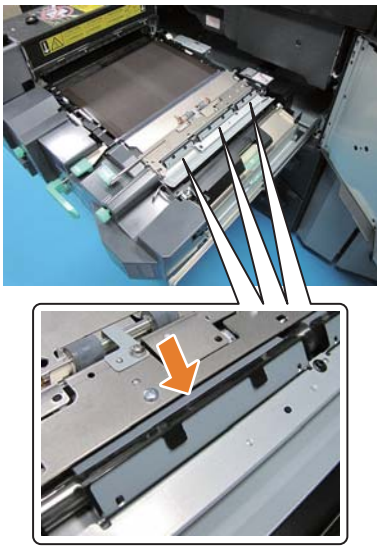
4 Remove 3 **paper fur brushes for the registration roller/Up** while you release 2 projections for each in the arrow-marked direction.



5 Remove the paper dust which adheres to the **paper fur brush for the registration roller/Up** with a cleaning pad.

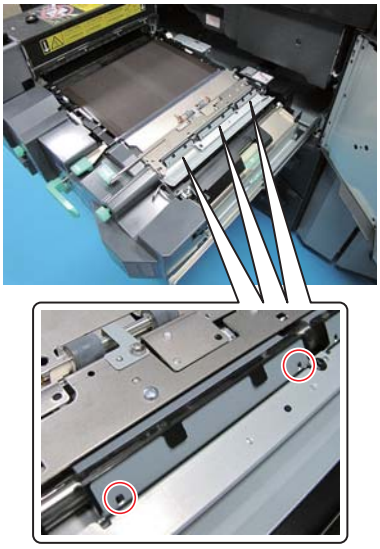


6 Move 3 **paper fur brushes for the registration roller/Up** to the initial position.

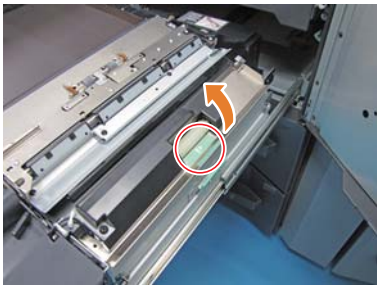


NOTICE

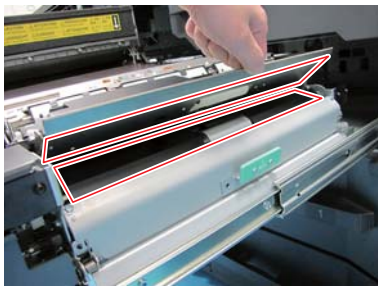
- When you move 3 **paper fur brushes for the registration roller/Up** to the initial position, confirm that 2 projections for each are fitted to the holes on the metal plate.



7 Open the lever [M1].



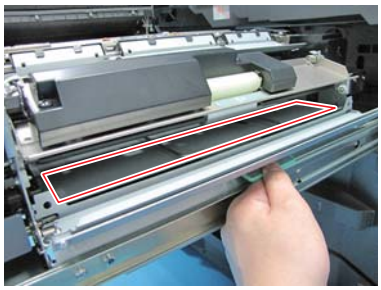
8 Moisten the cleaning pad with isopropyl alcohol, and clean the dirt on the entrance section of the **duplex section**.



9 Close the lever [M1].

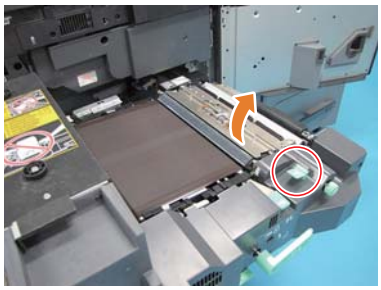
10 Open the lever [M12].

11 Moisten the cleaning pad with isopropyl alcohol, and remove the dirt, pieces of paper, and paper dust on the entrance section of the **duplex section**.

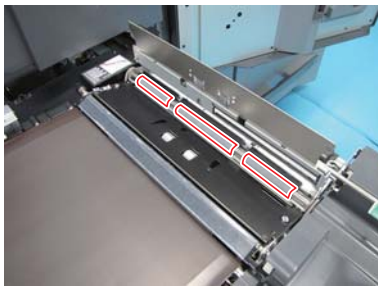


12 Close the lever [M12].

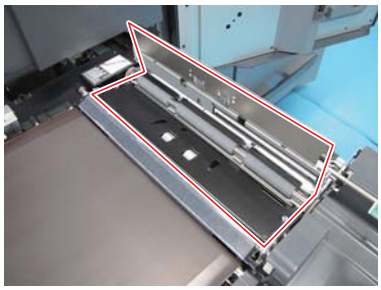
13 Open the lever [M3].



14 Moisten the cleaning pad with isopropyl alcohol, and clean the dirt on the **registration roller**.



15 Moisten the cleaning pad with isopropyl alcohol, and clean the dirt inside the **registration unit**.



16 Close the lever [M3].

Reverse exit section

CAUTION

Be sure to check the cleaning section before you activate the power of the main body.

If you activate the power with the door of the main body closed, the inside of the fusing unit becomes hot. Therefore, you possibly get burned when you clean near the fusing unit.

▶Cleaning section of the reverse exit section

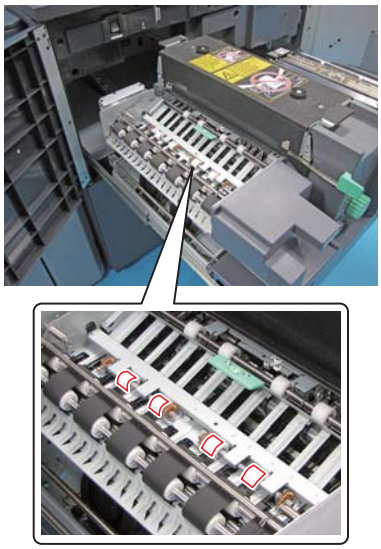
- De-curler entrance roller
- Conveyance roller
- Opposed roller of the fusing exit roller

NOTICE

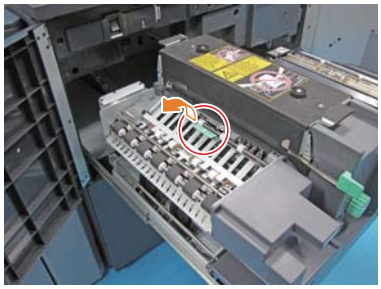
- Be careful not to drop any dirt on the paper path when you clean the machine.

▶Cleaning procedure

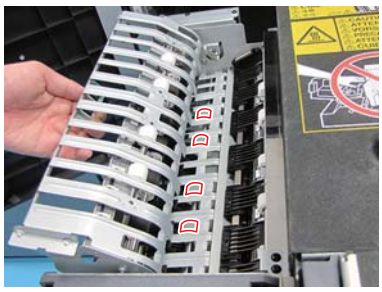
1 Moisten the cleaning pad with isopropyl alcohol, and clean the dirt on the **conveyance roller**.



2 Open the lever [M7].

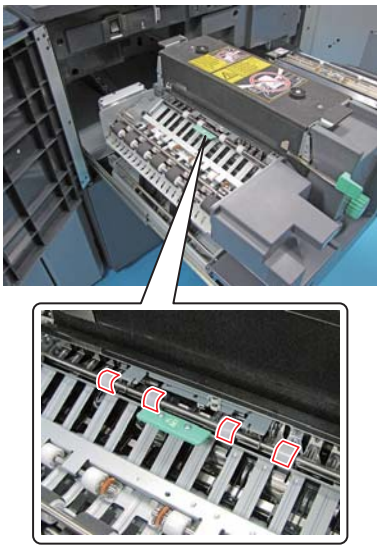


3 Moisten the cleaning pad with isopropyl alcohol, and clean the dirt on the **decurler entrance roller**.



4 Close the lever [M7].

5 Moisten the cleaning pad with isopropyl alcohol, and clean the dirt on the opposed roller of the **fusing exit roller**.



6 Push the **duplex section** into the main body, and move the lever [M4] to the initial position.

Paper feed section

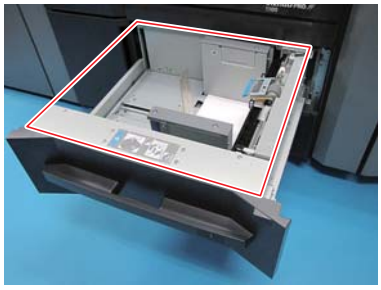
▶Cleaning section of the paper feed section

- Tray 1

▶Cleaning procedure

1. Activate the **main power switch**, then activate the **sub power switch**.
2. Pull out the **tray 1**.

3. Deactivate the **sub power switch**, then deactivate the **main power switch**.
4. Close the **left door** and **right door** of the main body.
5. Clean the dirt of the toner inside the **tray 1** with a cleaning pad.



6. Move the **tray 1** to the initial position.

2 BOTH SIDES ADJUSTMENT

Both Sides Adjustment

When performing the duplex printing, you can adjust a misalignment between the front and back sides to align the printing positions on the front and back sides. This task is referred to as Both Sides Adjustment.

A heat impact of the fixing unit may cause a slight enlargement or reduction of paper during printing. The impact level varies depending on the type or weight of paper, therefore, if you have changed paper to be loaded into a tray, be sure to carry out the Both Sides Adjustment.

Tips

Two methods are available to carry out the Both Sides Adjustment: entering from [Paper Setting] and from [Both Sides] on the [MACHINE] screen. This guide describes how to enter from [Paper Setting] for adjustment.

Reference

For information about how to enter from [Both Sides], refer to the **HTML User's Guide**.

Adjustment flow

Follow the procedure below to proceed the Both Sides Adjustment.

1 Checking the reference position of the print side

To judge whether a print position is misaligned, the required reference position adjustment must be completed on this machine.

Before starting the Both Sides Adjustment, check the adjustment value of the reference position. If necessary, adjust it.

There are the following adjustment items to be checked. To check them, on the [MACHINE] screen, select [Adjustment] - [Machine Adjustment] - [Printer Adjustment].

Order	Adjustment item	Reference
1	Placing paper (Main body)	P.2-3
	Placing paper (Paper Feed Unit PF-709)	P.2-5
2	FD-Mag. Adjustment (Side 1)	P.2-8
3	CD-Mag. Adjustment (Side 1)	P.2-10
4	Restart Timing Adjustment (Side 1)	P.2-12
5	FD-Mag. Adjustment (Side 2)	P.2-14
6	CD-Mag. Adjustment (Side 2)	P.2-16
7	Restart Timing Adjustment (Side 2)	P.2-18
8	Centering Adjustment	P.2-20

2 Making the Both Sides Adjustment for each tray

- Scan Measurement Adjustment: the method used for adjusting the zoom ratio and printing position of the back side based on those of the front side to match the appearance of the front and back sides. Both Sides Adjustment is automatically carried out using the scanner function of this machine (Page 2-22).
- Gap Adjustment: the method used for aligning both sides with correction of the back side magnification and print position based on the front side ones (Page 2-31).
- Chart Adjustment: the method used for aligning both sides with correction of the magnification and print position of both front and back side (Page 2-35).
- Zoom and Image Shift Adjustment: the method used for fine adjustment after Scan Measurement Adjustment, Gap Adjustment or Chart Adjustment, or the method used when the amount of misalignment between both sides is figured out (Page 2-41).

Reference

If skewing or wrinkling occur during printing, adjust the registration loop amount before making the scan measurement adjustment, the gap adjustment, the chart adjustment or the zoom and image shift adjustment. For details, refer to the **HTML User's Guide**.

When the reference position on the print side is adjusted or [Both Sides Adjust] is selected, mark ◆ is printed out on the front sides of charts to be printed, and you can identify from which paper tray the charts are printed out depending on the number of marks. For details, refer to the **HTML User's Guide**.

NOTICE

A high technical skill is required to adjust the reference position on the print side. Before carrying out this adjustment, contact your service representative.

You can change the default screen of the [Both Sides Adjust] screen. For more information, contact your service representative.

Checking the reference position of the print side

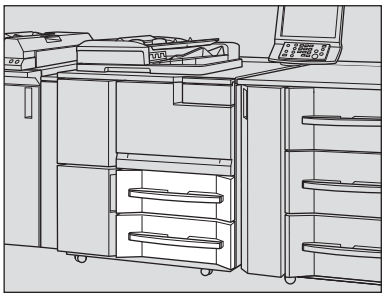
This section describes the contents of the following nine adjustment items.

- Placing paper (Main body) (Page 2-3)
- Placing paper (Paper Feed Unit PF-709) (Page 2-5)
- FD-Mag. Adjustment (Side 1) (Page 2-8)
- CD-Mag. Adjustment (Side 1) (Page 2-10)
- Restart Timing Adjustment (Side 1) (Page 2-12)
- FD-Mag. Adjustment (Side 2) (Page 2-14)
- CD-Mag. Adjustment (Side 2) (Page 2-16)
- Restart Timing Adjustment (Side 2) (Page 2-18)
- Centering Adjustment (Page 2-20)

▶Placing paper (Main body)

The same paper loading procedure is used for **Tray 1** and **Tray 2**. This section describes how to load paper into **Tray 1**.

1 Pull out the tray to load paper into.

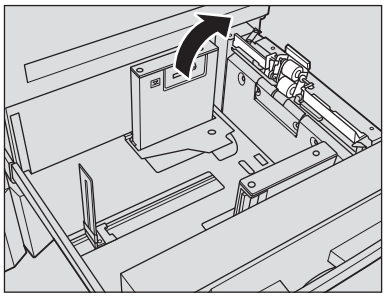


NOTICE

Trays cannot be withdrawn when the machine is powered off. Turn the **sub power switch** on.

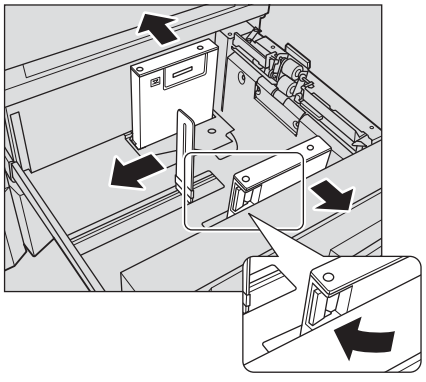
This machine has been designed so that only one tray can be withdrawn at a time in order to prevent the machine from tipping over.

2 Open the **feed roller**.



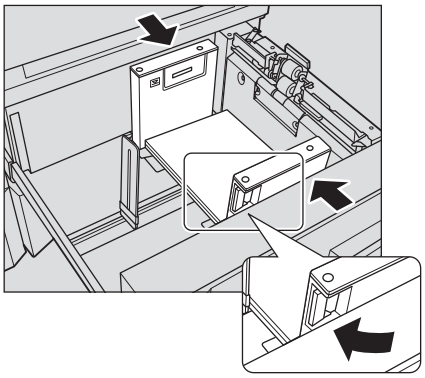
3 Fully open the **side guide plates** and **rear guide plate** apart.

- While pressing the **side guide lock release lever** of the side guide, fully open the plates apart.



4 Fix the position of the **side guide plates**.

Place about 100 sheets of paper with the print side down. While pressing the **side guide lock release lever**, align both **side guide plates** to the paper.



5 Load the remaining paper, then press the **rear guide plate** against the paper.

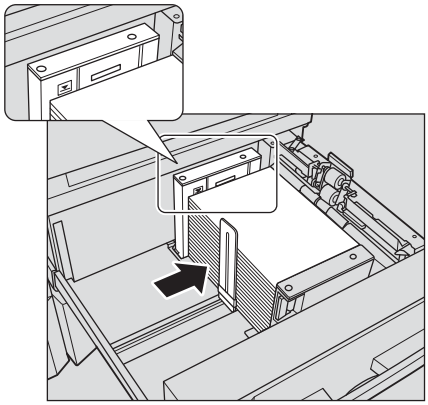
Align the stack of paper to the **feed roller** side of the tray.

Press the **rear guide plate** against the paper.

NOTICE

Do not load paper over the limit level indicated on the **side guide plate** of the tray.

Securely press the **side guide plates** and **rear guide plate** against the paper. Otherwise, the machine will not be able to detect the correct paper size, in which case, a failure in the paper feeder may occur.



6 Close the **feed roller**, then close the tray.

Push the tray in until it locks into place.

The amount indicator changes from **to** **in the tray information display area of the [MACHINE] or [COPY] screen.**

NOTICE

Carefully close the tray. Otherwise, the machine may be subjected to an unexpected impact due to the tray or paper weight, which may lead to a machine error.

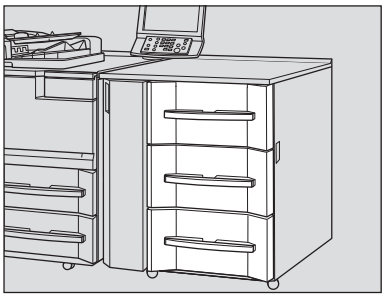
▶Placing paper (Paper Feed Unit PF-709)

The following describes how to load paper into an optional **Paper Feeder Unit PF-709**. The paper loading procedure is the same for **Tray 3** to **Tray 5**.

Reference

For information about how to load paper into other optional paper feeder unit, refer to the **HTML User's Guide**.

1 Pull out the tray to load paper into.

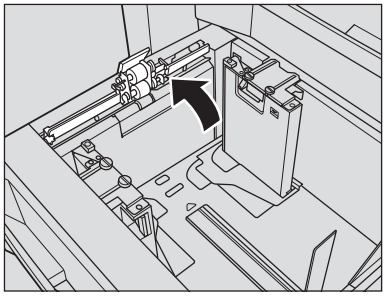


NOTICE

Trays cannot be withdrawn when the machine is powered off. Turn the **sub power switch** on.

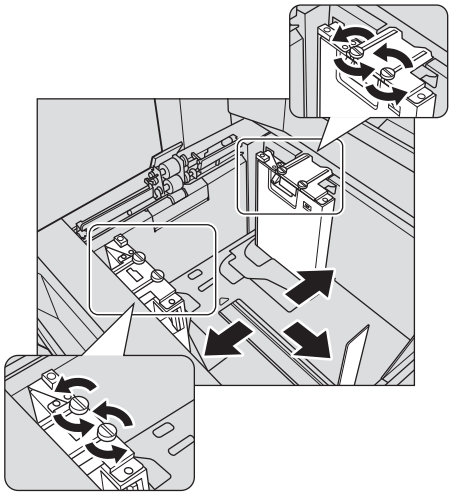
In order to prevent the machine from falling down, only one tray can be pulled out at a time.

2 Open the **feed roller**.



- To load a different size of paper, proceed to step 3.
- To load paper that is the same size as the paper already loaded, proceed to step 6.

3 Fully open the **side guide plates** and **rear guide plate** apart.



- Turn the **side guide lock knobs** (4 locations) of the **side guide plates** counterclockwise to loosen them.
- While pressing the **side guide lock release lever** of the side guide, fully open the plates apart.
- Also, fully open the **rear guide plate** apart.

NOTICE

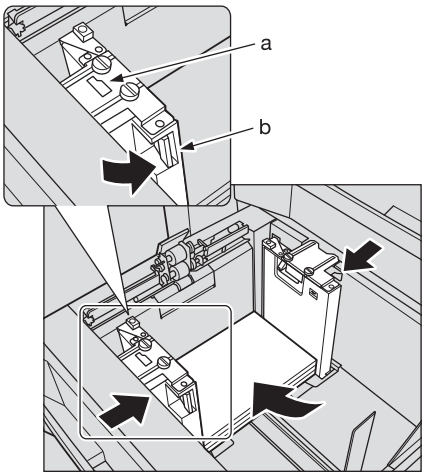
When moving the **side guide plates**, be sure to hold both the **side guide lock release lever** and the handle on the rear side. If you move only the **side guide plate** on the front side, it may cause a displacement of the **side guide plates**.

4 Fix the position of the **side guide plates**.

Place about 100 sheets of paper with the print side up. While pressing the **side guide lock release lever**, align both **side guide plates** to the paper, then fix their position to fit the **size indicator** on the top of the **side guide plates**.

a: **Paper size indicator**

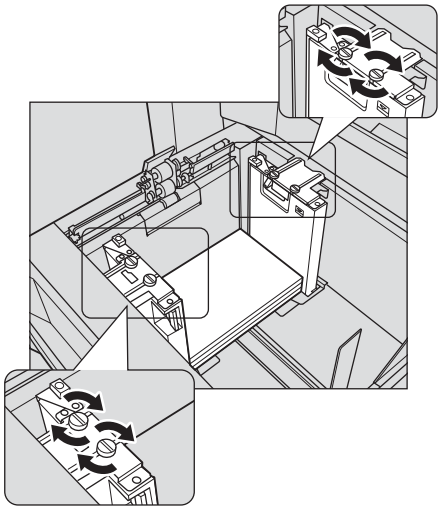
b: **Side guide lock release lever**



NOTICE

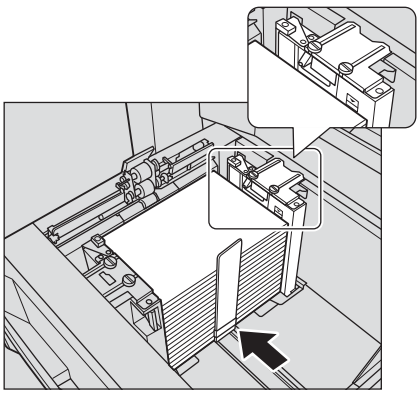
Load paper with the print side facing up.

5 Turn the **side guide lock knobs** (4 locations) of the **side guide plates** clockwise to fix them.



6 Load the remaining paper, then press the **rear guide plate** against the paper.

- Align the stack of paper to the **feed roller** side of the tray.
- Press the **rear guide plate** against the paper.



NOTICE

Ensure that the height of the stacked paper does not go beyond the limit mark ▼ indicated on the **side guide plates**. If it does, a paper jam may be caused. Carefully load paper to be set under the paper control lever located at the air nozzle.

To load paper with the paper width less than 182 mm / 7.165", use the **small size guides** built in the **side guide plates**. For information about how to use the **small size guides**, refer to the **HTML User's Guide**.

Be sure that the **rear guide plate** is securely pressed against the paper. If there is any gap between the **rear guide plate** and the paper, this machine will not be able to detect the correct paper size. It may cause a paper feeder machine trouble.

7 Close the **feed roller**, then close the tray.

Push the tray in until it locks into place.

The amount indicator changes from to in the tray information display area of the [MACHINE] or [COPY] screen.

NOTICE

Carefully close the tray. Otherwise, the machine may be subjected to an unexpected impact due to the tray or paper weight, which may lead to a machine error.

▶FD-Mag. Adjustment (Side 1)

Adjust the magnification in paper feed direction in the printer engine. This adjustment value will be the standard for Both Sides Adjust in Paper Setting.

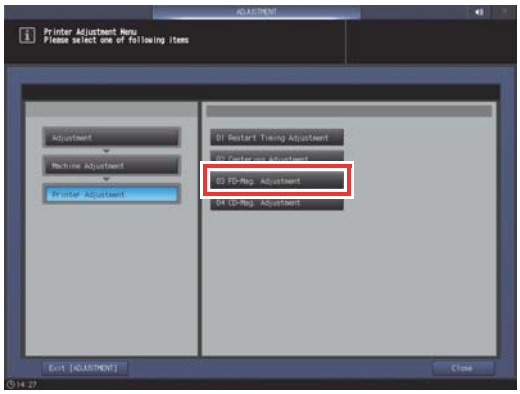
Objects of adjustment: Printer FD-Mag.

NOTICE

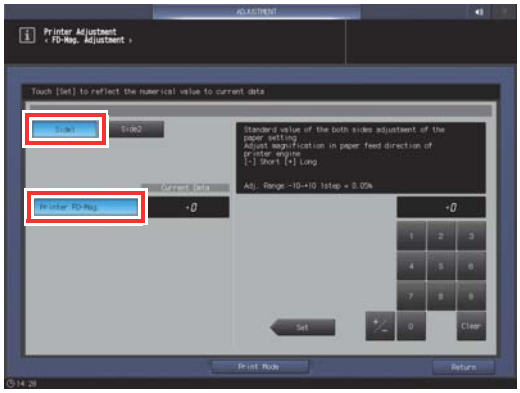
The adjustment of [Printer FD-Mag.] is applied to both the front and back sides.

1 Press [Adjustment] on the [MACHINE] screen to display the [Adjustment Menu] screen.

2 Press [Machine Adjustment], [Printer Adjustment], and [FD-Mag. Adjustment] in sequence.



3 Press [Side 1].



4 Press [Print Mode].

5 Load A3 ▭ paper or 11 × 17 ▭ paper into any tray, then select that tray.

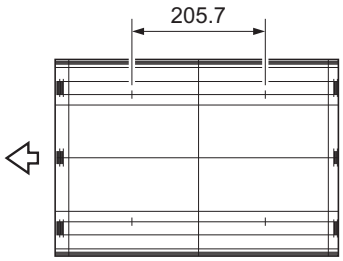
6 Press **Start** on the **control panel**.

A sample pattern will be output.

- On the front side of the chart, ⧫ mark will be printed so that you can tell which tray is used to print the chart.

7 Measure the resultant magnification in the paper feed direction.

Allowance: ± 0.5% or less (full size)
Within 205.7 mm ± 1 mm



8 If any adjustment is required, press [Exit PrintMode] to return to the [FD-Mag. Adjustment] screen.

9 Use the touch panel keypad or the **keypad** on the **control panel** to enter the setting data.

- Use [+/-] to specify the value to be positive or negative.
- Press [Set] to change the current value.
- Adjustment Range: [Printer FD Mag.]: ([Short]) -10 to +10 ([Long]) (1 step = 0.05%)

10 Repeat steps 4 to 9 until the desired result is obtained.

11 Press [Return].

The screen returns to the [Printer Adjustment Menu] screen.

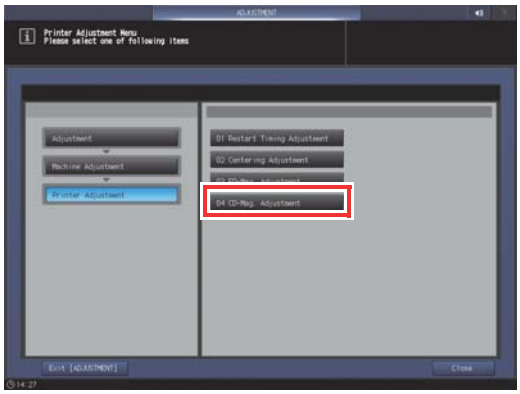
▶CD-Mag. Adjustment (Side 1)

Adjust the magnification in crosswise direction in the printer engine.

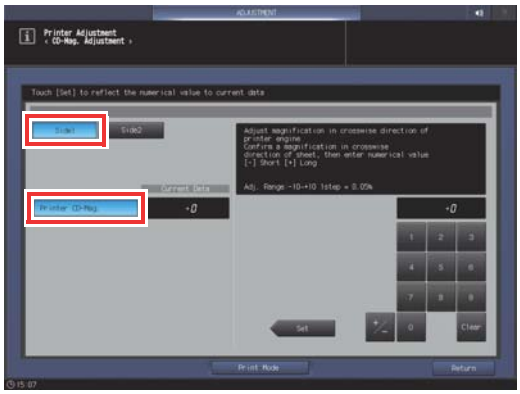
Objects of adjustment: Printer CD-Magnification Adjustment

1 Press [Adjustment] on the [MACHINE] screen to display the [Adjustment Menu] screen.

2 Press [Machine Adjustment], [Printer Adjustment], and [CD-Mag. Adjustment] in sequence.



3 Press [Side 1].



4 Press [Print Mode].

5 Load A3 ◪ paper or 11 × 17 ◪ paper into any tray, then select that tray.

6 Press **Start** on the **control panel**.

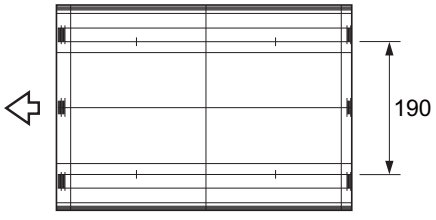
A sample pattern will be output.

- On the front side of the chart, ⧫ mark will be printed so that you can tell which tray is used to print the chart.

7 Measure the resultant magnification in the direction perpendicular to the paper feed direction.

Allowance: ± 0.5% or less

Within 190 mm ± 1 mm



8 If any adjustment is required, press [Exit PrintMode] to return to the [CD-Mag. Adjustment] screen.

9 Use the touch panel keypad or the **keypad** on the **control panel** to enter the setting data.

- Use [+/-] to specify the value to be positive or negative.
- Press [Set] to change the current value.
- Adjustment Range: [Printer CD-Mag.]: ([Low]) -10 to +10 ([High]) (1 step = 0.05 %)

10 Repeat steps 4 to 9 until the desired result is obtained.

11 Press [Return].

The screen returns to the [Printer Adjustment Menu] screen.

▶Restart Timing Adjustment (Side 1)

Adjust the image position of lead edge in paper feed direction in the printer engine.

Objects of adjustment: All Trays Offset, Restart Timing (Tray 1 to Tray 5), Restart Timing (Bypass)

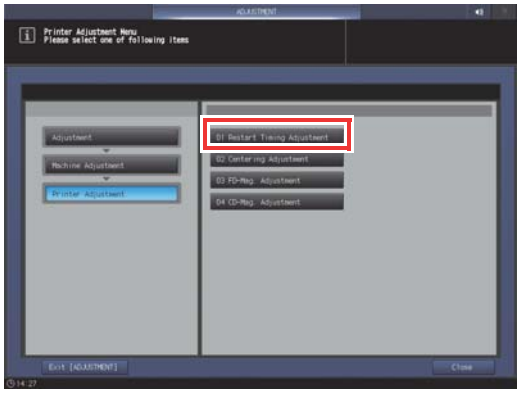
NOTICE

Make this adjustment after completing [FD-Mag. Adjustment].

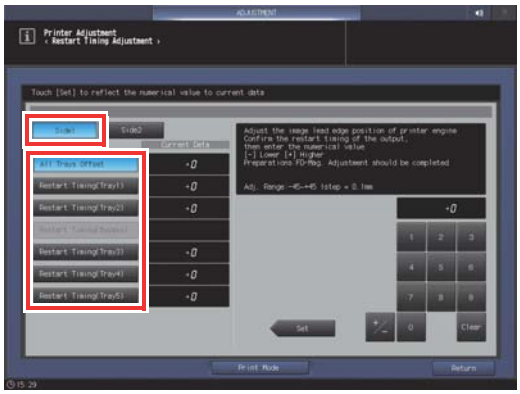
The adjustment of [All Trays Offset] is applied to both the front and back sides.

1 Press [Adjustment] on the [MACHINE] screen to display the [Adjustment Menu] screen.

2 Press [Machine Adjustment], [Printer Adjustment], and [Restart Timing Adjustment] in sequence.



3 Press [Side 1].



4 Press [Print Mode].

5 Load A3 ◪ paper or 11 × 17 ◪ paper into any tray, then select that tray.

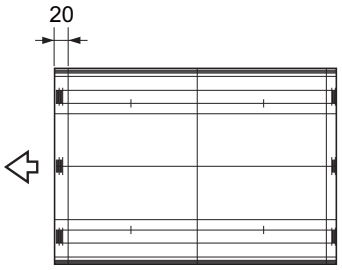
6 Press **Start** on the **control panel**.

A sample pattern will be output.

- On the front side of the chart, ⧫ mark will be printed so that you can tell which tray is used to print the chart.

7 Measure the resultant restart timing.

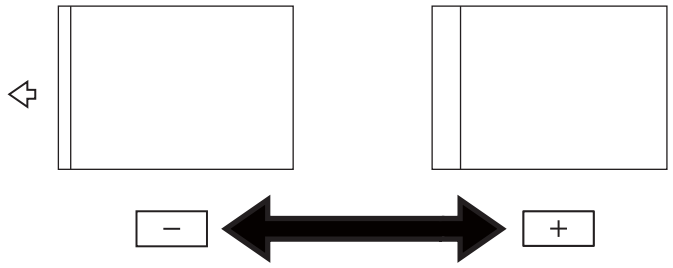
Allowance: 20 mm ± 0.5 mm / 0.79" ± 0.02"



8 If any adjustment is required, press [Exit PrintMode] to return to the [Restart Timing Adjustment] screen.

9 Use the touch panel keypad or the **keypad** on the **control panel** to enter the setting data.

- Use [+/-] to specify the value to be positive or negative.
- Press [Set] to change the Current Value.
- Adjustment Range: [All Trays Offset]: ([Lower]) -45 to +45 ([Higher]) (1 step = 0.1 mm)
- Adjustment Range: [Trays 1] to [Tray 5], [Bypass]: ([Lower]) -30 to +30 ([Higher]) (1 step = 0.1 mm)
- For each tray, you can adjust image edge position of the paper feed direction until the sum of [All Trays Offset] and the adjusted value of the individual tray reaches -60 to +60.



10 Repeat steps 4 to 9 until the desired result is obtained.

11 Press [Return].

The screen returns to the [Printer Adjustment Menu] screen.

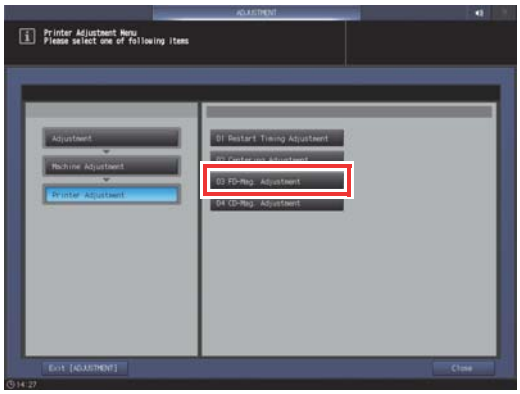
▶FD-Mag. Adjustment (Side 2)

Adjust the magnification in paper feed direction in the printer engine. This adjustment value will be the standard for Both Sides Adjust in Paper Setting.

Objects of adjustment: Tray 1 to Tray 5, Bypass Tray

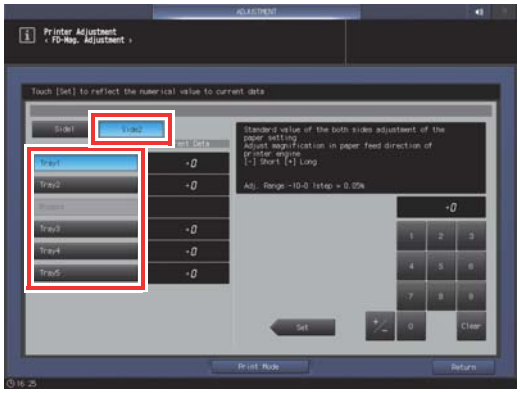
1 Press [Adjustment] on the [MACHINE] screen to display the [Adjustment Menu] screen.

2 Press [Machine Adjustment], [Printer Adjustment], and [FD-Mag. Adjustment] in sequence.



3 Press [Side 2].

Press the tray with the target paper loaded.



4 Press [Print Mode].

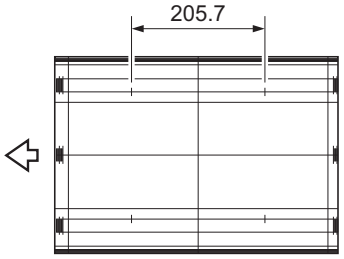
5 Load A3 ◪ paper or 11 × 17 ◪ paper into the tray to be adjusted, then select that tray.

6 Press **Start** on the **control panel**.

A sample pattern will be output.

7 Measure the resultant magnification in the paper feed direction.

Allowance: ± 0.5% or less (full size)
Within 205.7 mm ± 1 mm



8 If any adjustment is required, press [Exit PrintMode] to return to the [FD-Mag. Adjustment] screen.

9 Use the touch panel keypad or the **keypad** on the **control panel** to enter the setting data.

- Use [+/-] to specify the value to be positive or negative.
- Press [Set] to change the current value.
- Adjustment Range: [Tray 1] to [Tray 5], [Bypass]: ([Short]) -10 to 0 ([Long]) (1 step = 0.05%)

10 Repeat steps 4 to 9 until the desired result is obtained.

11 Press [Return].

The screen returns to the [Printer Adjustment Menu] screen.

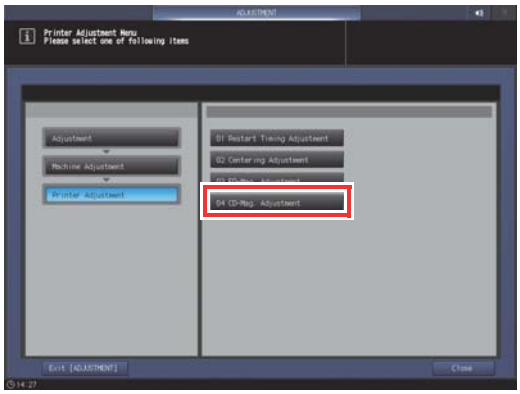
▶CD-Mag. Adjustment (Side 2)

Adjust the magnification in crosswise direction in the printer engine.

Objects of adjustment: Printer CD-Magnification Adjustment

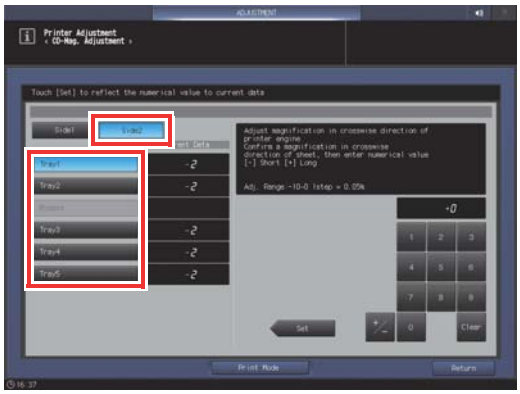
1 Press [Adjustment] on the [MACHINE] screen to display the [Adjustment Menu] screen.

2 Press [Machine Adjustment], [Printer Adjustment], and [CD-Mag. Adjustment] in sequence.



3 Press [Side 2].

Press the tray with the target paper loaded.



4 Press [Print Mode].

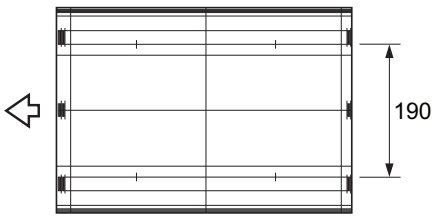
5 Load A3 ◪ paper or 11 × 17 ◪ paper into the tray to be adjusted, then select that tray.

6 Press **Start** on the **control panel**.

A sample pattern will be output.

7 Measure the resultant magnification in the direction perpendicular to the paper feed direction.

Allowance: ± 0.5% or less
Within 190 mm ± 1 mm



8 If any adjustment is required, press [Exit PrintMode] to return to the [CD-Mag. Adjustment] screen.

9 Use the touch panel keypad or the **keypad** on the **control panel** to enter the setting data.

- Use [+/-] to specify the value to be positive or negative.
- Press [Set] to change the current value.
- Adjustment Range: [Tray 1] to [Tray 5], [Bypass]: ([Low]) -10 to 0 ([High]) (1 step = 0.05%)

10 Repeat steps 4 to 9 until the desired result is obtained.

11 Press [Return].

The screen returns to the [Printer Adjustment Menu] screen.

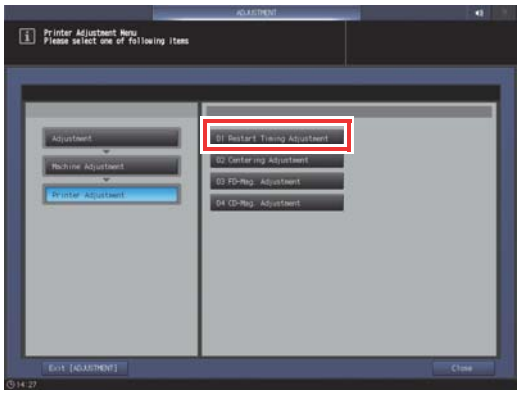
▶Restart Timing Adjustment (Side 2)

Adjust the image position of lead edge in paper feed direction in the printer engine.

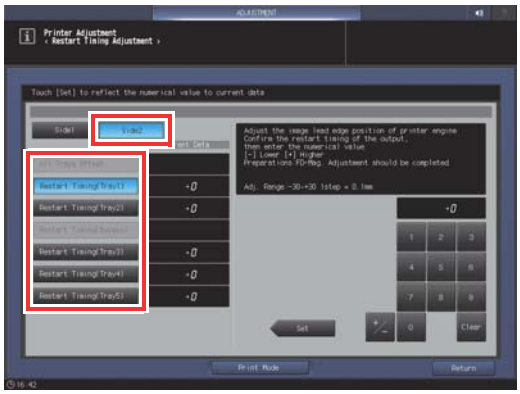
Objects of adjustment: Restart Timing (Tray 1 to Tray 5), Restart Timing (Bypass)

1 Press [Adjustment] on the [MACHINE] screen to display the [Adjustment Menu] screen.

2 Press [Machine Adjustment], [Printer Adjustment], and [Restart Timing Adjustment] in sequence.



3 Press [Side 2].



4 Press [Print Mode].

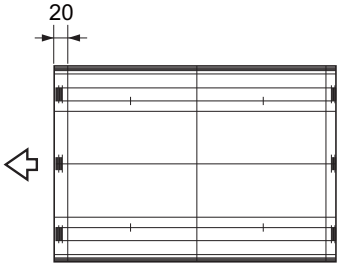
5 Load A3 ◪ paper or 11 × 17 ◪ paper into the tray to be adjusted, then select that tray.

6 Press **Start** on the **control panel**.

A sample pattern will be output.

7 Measure the resultant restart timing.

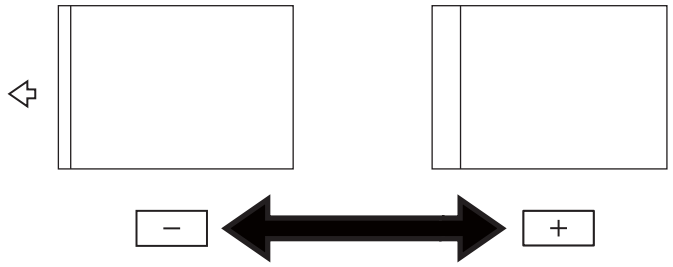
Allowance: 20 mm ± 0.5 mm / 0.79" ± 0.02"



8 If any adjustment is required, press [Exit PrintMode] to return to the [Restart Timing Adjustment] screen.

9 Use the touch panel keypad or the **keypad** on the **control panel** to enter the setting data.

- Use [+/-] to specify the value to be positive or negative.
- Press [Set] to change the Current Value.
- Adjustment Range: [Tray 1] to [Tray 5], [Bypass]: ([Lower]) -30 to +30 ([Higher]) (1 step = 0.1 mm)



10 Repeat steps 4 to 9 until the desired result is obtained.

11 Press [Return].

The screen returns to the [Printer Adjustment Menu] screen.

▶Centering Adjustment

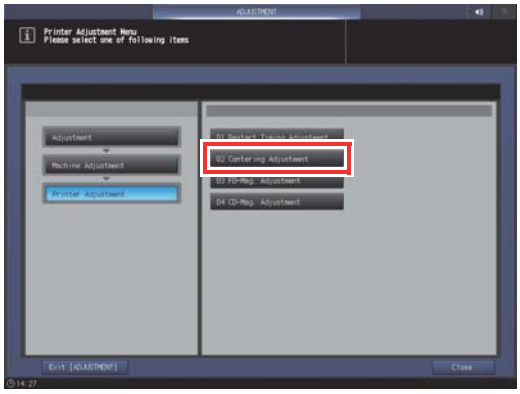
Adjust the image position in the crosswise direction of the printer engine.

NOTICE

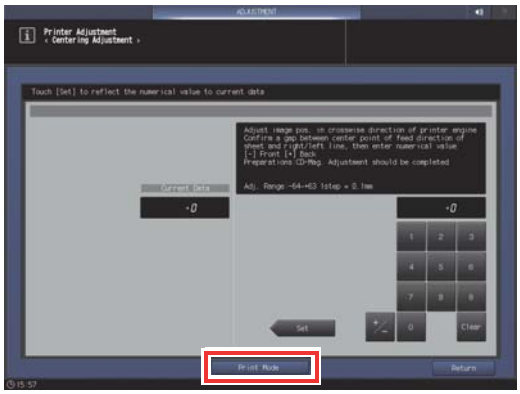
Make this adjustment after completing [CD-Mag. Adjustment].

1 Press [Adjustment] on the [MACHINE] screen to display the [Adjustment Menu] screen.

2 Press [Machine Adjustment], [Printer Adjustment], and [Centering Adjustment] in sequence.



3 Press [Print Mode].



4 Load A3 ▭ paper or 11 × 17 ▭ paper into any tray, then select that tray.

5 Press **Start** on the **control panel**.

A sample pattern will be output.

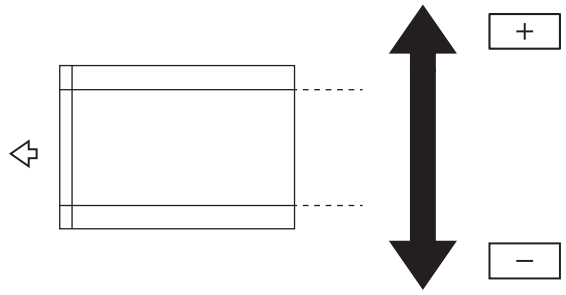
- On the front side of the chart, ◆ mark will be printed so that you can tell which tray is used to print the chart.

6 Fold the printed paper at the center in the crosswise direction, and check the misalignment of the center line of the print from the folded line.

Allowance: within 0 mm ± 1.5 mm

7 If any adjustment is required, press [Exit PrintMode] to return to the [Centering Adjustment] screen.

8 Use the touch panel keypad or the **keypad** on the **control panel** to enter the setting data.



- Use [+/-] to specify the value to be positive or negative.
- Press [Set] to change the current value.
- Adjustment Range: ([Front]) -64 to +63 ([Back]) (1 step = 0.1 mm)

9 Repeat steps 3 to 8 until the desired result is obtained.

10 Press [Return].

The screen returns to the [Printer Adjustment Menu] screen.

Making the Both Sides Adjustment for each tray

Adjust a misalignment between the front and back sides, which is caused during the duplex printing, for each tray.

The following methods are available to carry out the Both Sides Adjustment.

- Scan Measurement Adjustment (Page 2-22)
- Gap Adjustment (Page 2-31)
- Chart Adjustment (Page 2-35)
- Zoom and Image Shift Adjustment (Page 2-41)

It is convenient to adjust the zoom ratio and printing position of the back side using scan measurement adjustment or gap adjustment after the zoom ratio and printing position of the front side have been adjusted using the chart adjustment or the zoom and image shift adjustment.

You do not need to perform both scan measurement adjustment and gap adjustment.

▶Scan Measurement Adjustment

Adjust the magnification ratio and printing position of the back side with reference to the printing position of the front side. The magnification ratio and printing position of the back side are automatically adjusted by using the scanner function of this machine to measure the gap amount in printing position of the back side to the front side. You do not need to measure the gap amount with a scale. The adjustment is available for paper of all sizes which can be used with this machine.

Print out 1 to 20 sheets of the adjustment chart having both front and back sides printed, and scan them 4 times per sheet. The average value of gap amounts in printing position of the back side to the front side, which can be obtained by scanning up to 20 sheets of the adjustment chart, will be calculated in order to adjust the magnification ratio and printing position of the back side.

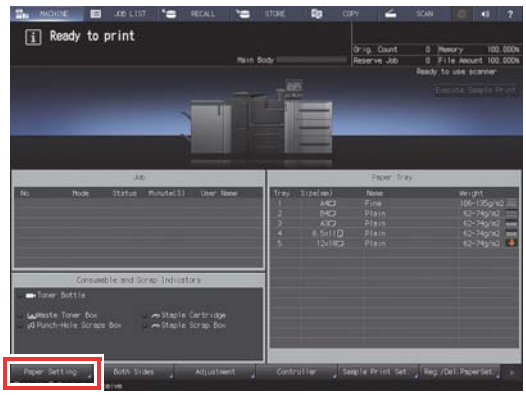
NOTICE

The [Scan Meas.] adjustment provides the coordination based on the average value of gap amounts, taking into account the gap in printing position between the first and last sheets which can be produced when multiple sheets are output.

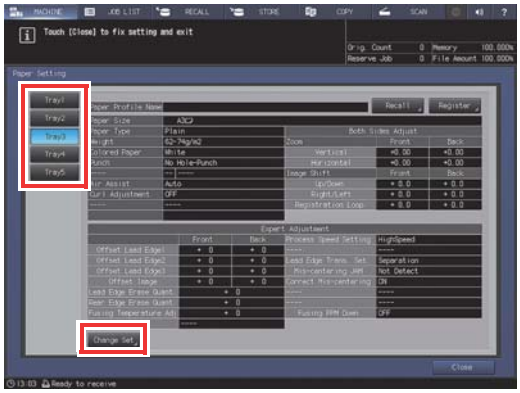
Performing the [Scan Meas.] adjustment may require readjustment of the "Zoom and Image Shift Adjustment" registered in a paper profile.

The [Scan Meas.] adjustment is a simple method to adjust only the magnification ratio and image position of the back side. To adjust both front and back sides, perform the "Chart Adjustment" (Page 2-35) or "Zoom and Image Shift Adjustment" (Page 2-41).

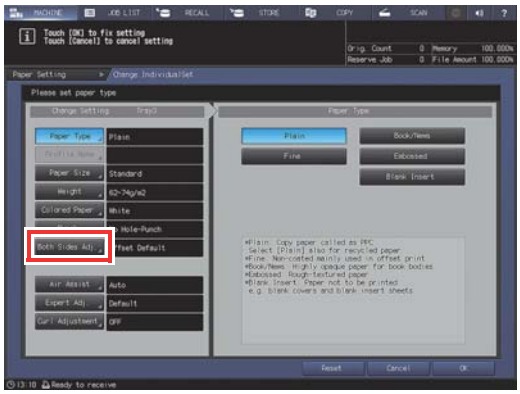
1 Press [Paper Setting] on the [MACHINE] screen.



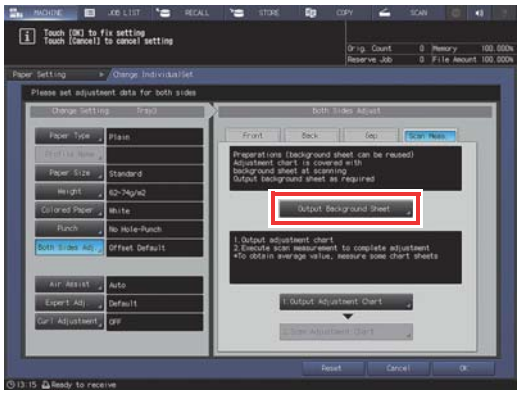
2 Select the tray with the target paper loaded, then press [Change Set].



3 Press [Both Sides Adj].

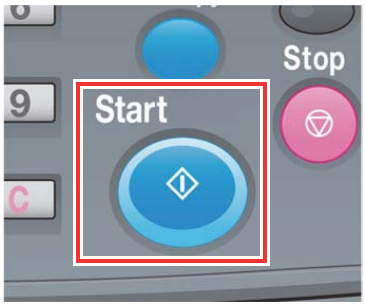


4 Check that [Scan Meas.] is displayed, then press [Output Background Sheet].



5 When the [PRINT MODE] screen is displayed, press **Start** on the **control panel**.

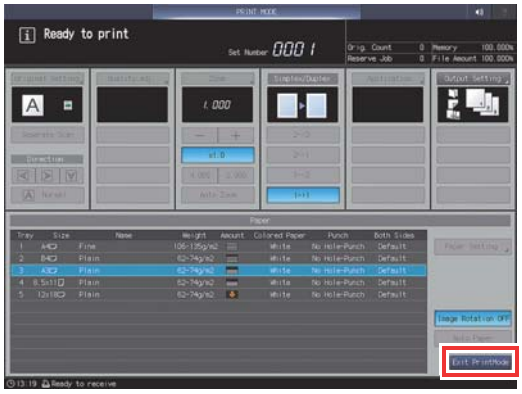
A background sheet is printed out. If you already have the background sheet available for measurement, you do not need to print out a background sheet. Proceed to Step 7.



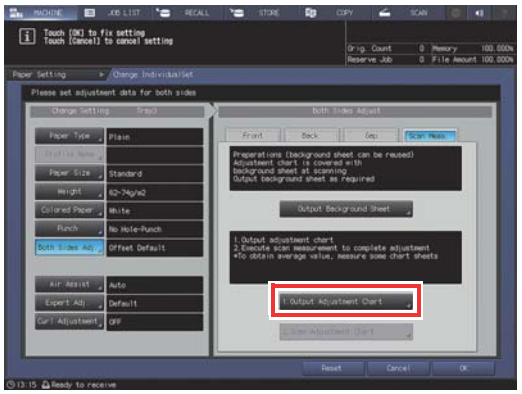
NOTICE

Use paper of A3 or larger, or 11 × 17 or larger to output the background sheet. When you press [Output Background Sheet] to display the PRINT MODE Screen for the background sheet, the tray selected in step 2 is automatically selected on the screen, but it can be changed as desired. Select a tray loaded with A3 or larger, or 11 × 17 or larger paper. You can also change the print count, but only one sheet is needed. If the background sheet size is smaller than A3 or 11 × 17, the scan measurement may not be performed.

6 Press [Exit Print Mode].

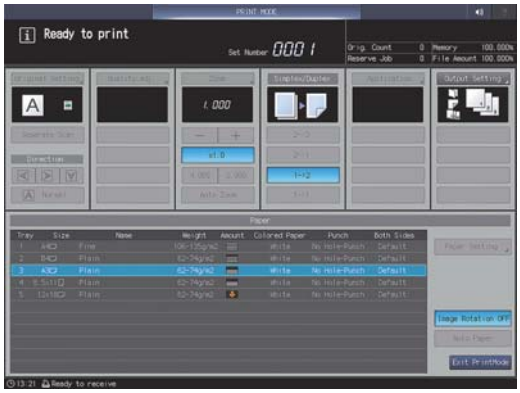


7 Press [1. Output Adjustment Chart].



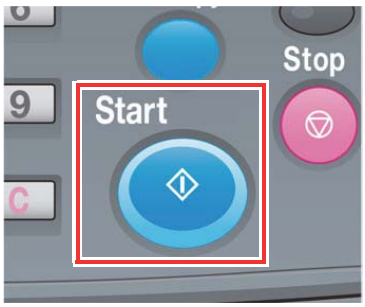
8 Enter the number of adjustment charts you want to print out.

however, only up to 20 adjustment charts can be scan-measured continuously.

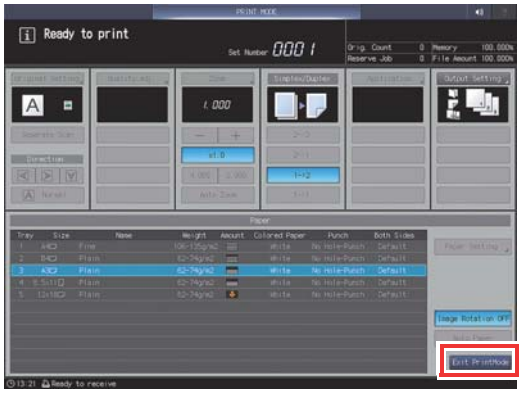


9 Press **Start** on the **control panel**.

Adjustment charts are printed on both sides of the paper in the tray you selected in Step 2.

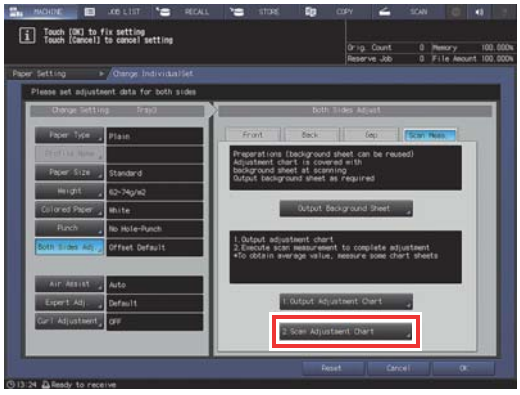


10 Press [Exit Print Mode].



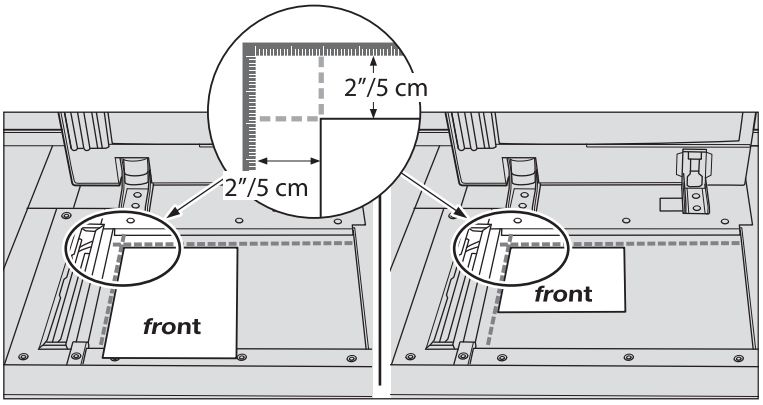
11 Press [2. Scan Adjustment Chart].

The [Scan Adjustment Chart] screen is displayed.



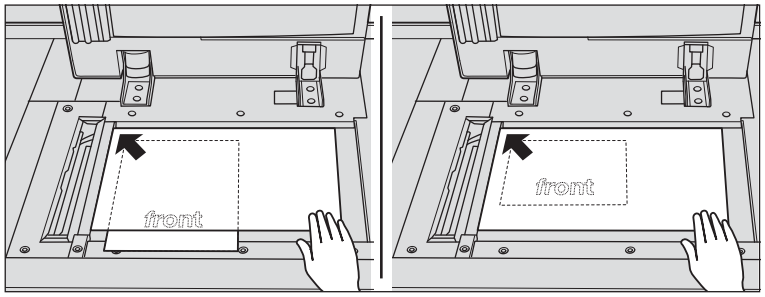
12 Place an adjustment chart on the **original glass**.

Open the **ADF**, then place an adjustment chart with the front side facing up (not facing the **original glass**), setting the top side flush with the far end of the glass. Place the upper-left corner of the adjustment chart approximately 2 inches (approximately 5 cm) away from the **vertical size guide** and **horizontal size guide** respectively on the **original glass** making sure that the left and top sides are parallel to the **vertical size guide** and **horizontal size guide** respectively.



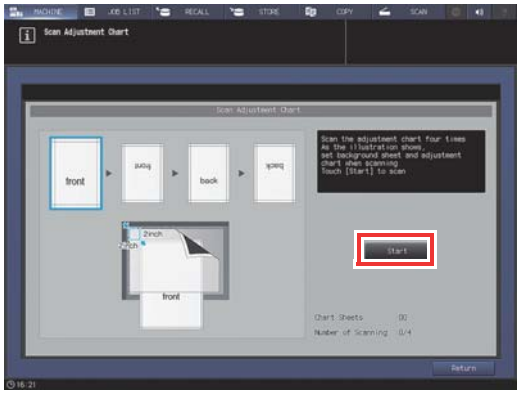
13 Place the background sheet on the **original glass**, then close the **ADF**.

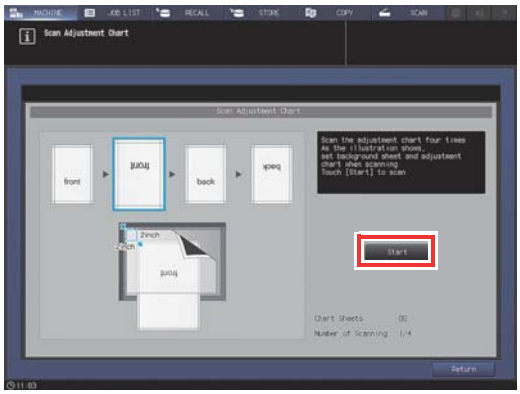
Place the black side of the background sheet facing down (facing the **original glass**), then set it flush with the **vertical size guide** and **horizontal size guide** as shown below. Exercise care to ensure the previously set adjustment chart is not misaligned.



14 Press [Start] on the [Scan Adjustment Chart] screen.

The adjustment chart is scanned.



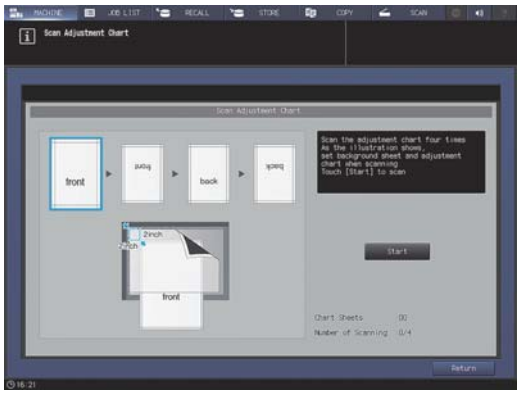


When scanning is properly completed, the counter of [Number of Scanning] on the Scan Adjustment Chart screen is added by one, and the blue frame displayed in the illustration on the screen shifts to the next one on the right side.

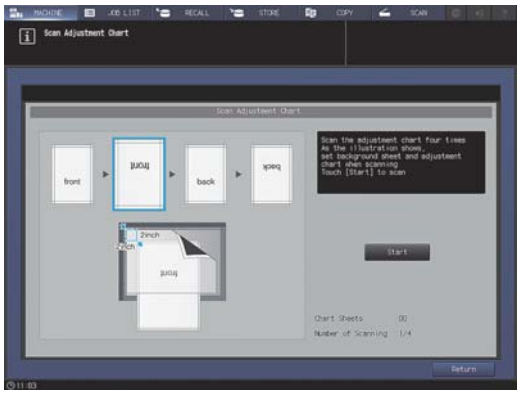
- If you move the adjustment chart before the blue frame shifts to the next, the measurement may not be performed properly.
- If the **ADF** is open, scanning fails, and a message is displayed. Close the **ADF**, then press [Close] in the message dialog box.
- If scanning fails, a message may be displayed. Follow the on-screen instructions to correctly place the adjustment chart and background sheet, then press [Close].
- If you press [Return] on the Scan Adjustment Chart screen during scan measurement, a message is displayed to confirm whether to interrupt the scan measurement. To discard the previous measurement result, press [Yes]. Retry the scanning process from the first scan measurement. When continuing scan measurement, press [No].

15 Repeat the scanning steps 12 to 14 four times for every adjustment chart.

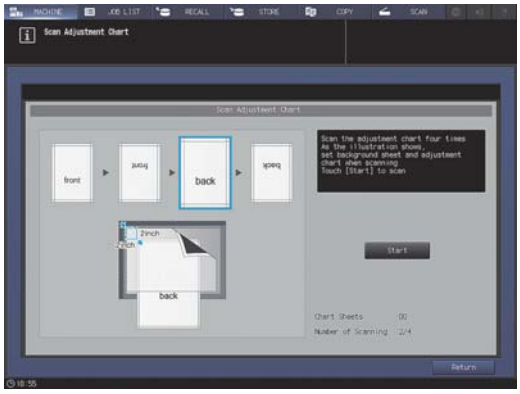
- First time: Set the front side of the adjustment chart face up (turned away from the **original glass**), with its top edge positioned to the back side.



- Second time: Set the front side of the adjustment chart face up (turned away from the **original glass**), with its bottom edge positioned to the back side.

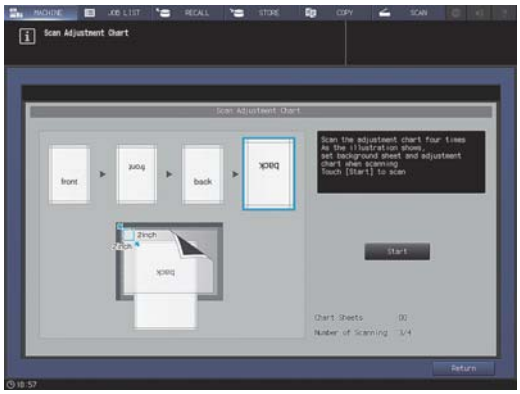


- Third time: Set the back side of the adjustment chart face up (turned away from the **original glass**), with its top edge positioned to the back side.

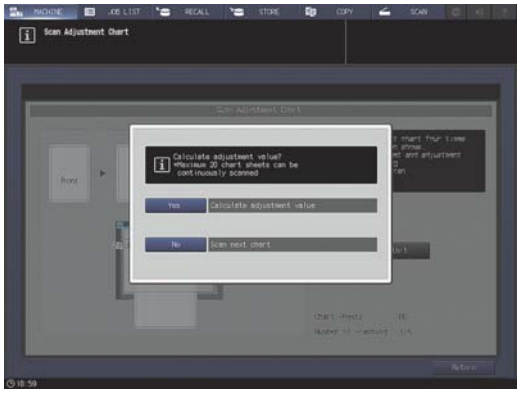


- Fourth time: Set the back side of the adjustment chart face up (turned away from the **original glass**), with its bottom edge positioned to the back side.

When four times of scanning are completed, a dialog is displayed to calculate the adjustment value.

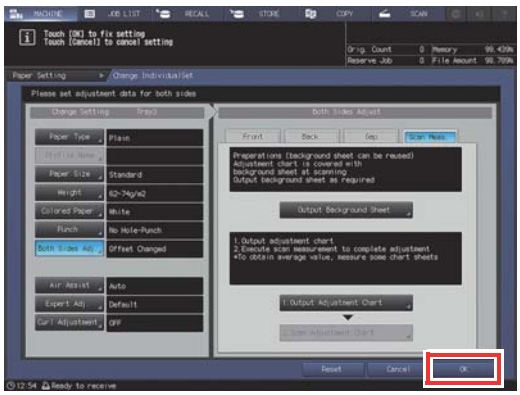


16 Select whether to continue the scan measurement or to finish the scan measurement and calculate the adjustment value.



- To continue the scan measurement, press [No]. To finish the scan measurement and calculate the adjustment value, press [Yes].
- Pressing [No] returns to the [Scan Adjustment Chart] screen on which the counter of [Chart Sheets] is added by one. Repeat steps 12 to 15 for the number of adjustment charts. The measurement results will be added up. This operation can be repeated up to 20 times. When the 20th scan measurement is completed, [No] can no longer be pressed.
- Pressing [Yes] automatically calculates the adjustment value from the added measurement results and reflects it on Zoom and Image Shift to be specified for [Back]. After pressing [Yes], output a sheet of the adjustment chart to confirm the result. If readjustment is needed, repeat steps 8 to 16.
- If the adjustment value obtained by pressing [Yes] exceeds the available adjustment range, a message is displayed indicating that the available adjustment range has been exceeded. Press [Close] to discard the adjustment value, then retry scan measurement from the beginning.
- Possible causes to exceed the adjustment range may include that the chart used in the scan measurement is incorrect (a different chart has been used), the printing position of the front side has been poorly adjusted, or the adjustments of the reference positions are not completed. Confirm these points before restarting the scan measurement.

17 After the adjustment is completed, press [OK].

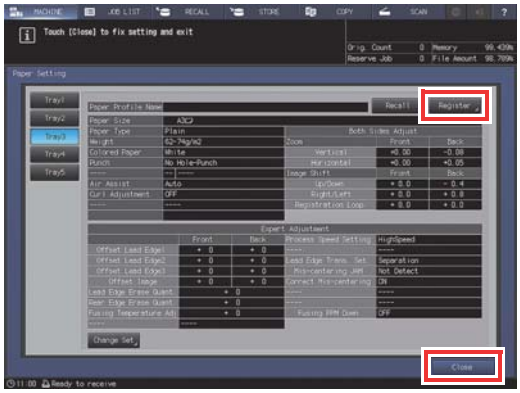


To finely adjust the adjustment value, continuously proceed to step 4 in "Zoom and Image Shift Adjustment" (Page 2-41).

18 Press [Close] to exit the adjustment.

Scan Measurement Adjustment is then completed.

- To register adjustment values in a paper profile, press [Register].
- For details about how to register a paper profile, refer to the **HTML User's Guide**.



▶Gap Adjustment

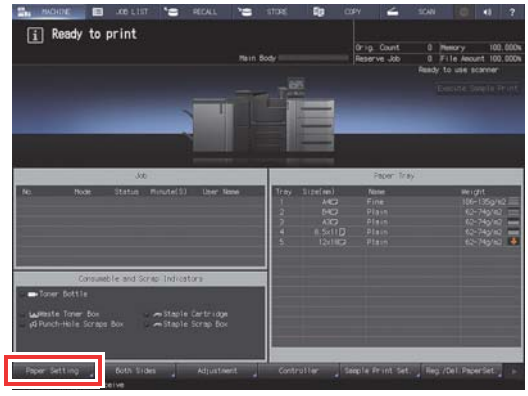
To adjust a gap, print out a chart, measure a gap between the front and back sides at the specified measurement point of the back side using a scale to determine the adjustment value, and enter it. (Adjust the zoom ratio and image position of the back side based on the image position of the front side.)

Using this function, you can only enter adjustment values to adjust a gap. This is convenient in order to adjust an unclear misalignment detected on the back side that occurs when performing duplex printing with a new type of paper or when paper in a tray has been changed.

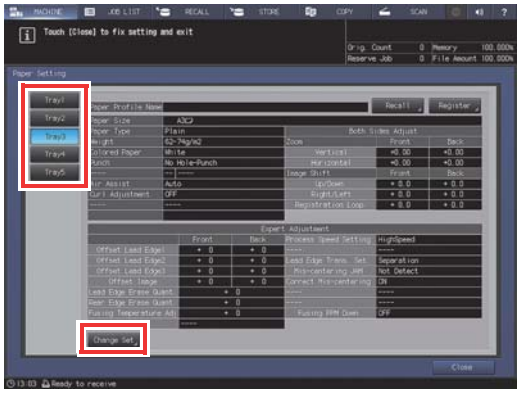
NOTICE

The Gap Adjustment is a simple method to adjust only the zoom ratio and image position of the back side. To also adjust it on the front side, carry out "Chart Adjustment" (Page 2-35) or "Zoom and Image Shift Adjustment" (Page 2-41).

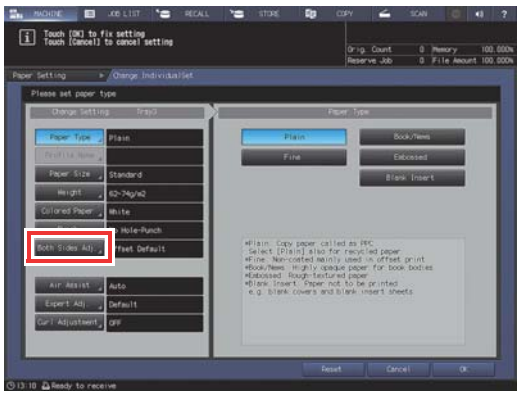
1 Press [Paper Setting] on the [MACHINE] screen.



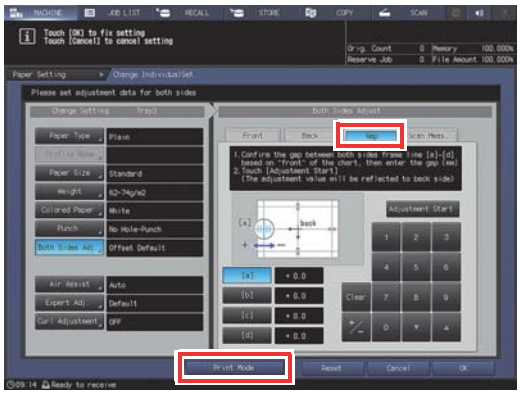
2 Select the tray with the target paper loaded, then press [Change Set].



3 Press [Both Sides Adj].

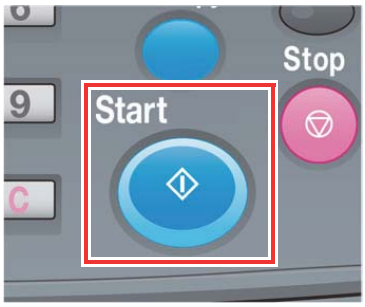


4 Select [Gap], then press [Print Mode].

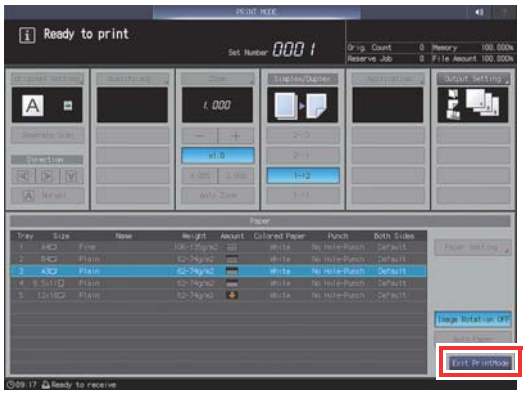


5 When the [PRINT MODE] screen is displayed, press **Start** on the **control panel**.

A test chart is printed out.

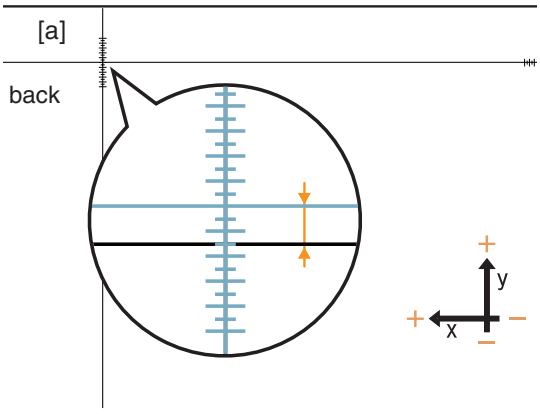


6 Press [Exit Print Mode].



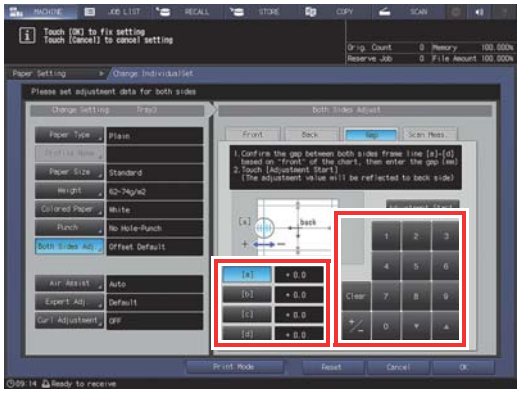
7 Measure the gap between the front and back sides at each point of [a] to [d] on the [back] side of the printed out chart.

- This figure shows an example to measure [a]. The scale resolution is 0.5 mm.
- In this figure, the black line indicates the front side, and the blue line indicates the back side.
- The measurement value can be entered in
- units of up to 0.1 mm.
- For example, as shown in the figure, if the scale of [a] is misaligned 1.5 mm in the plus side compared with the front side, press [1] - [5] - [+/-] to enter "-1.5" as the adjustment value. Then, the blue line on the back side will be moved 1.5 mm toward the minus side.
- Write down the measured values so that you do not forget them.

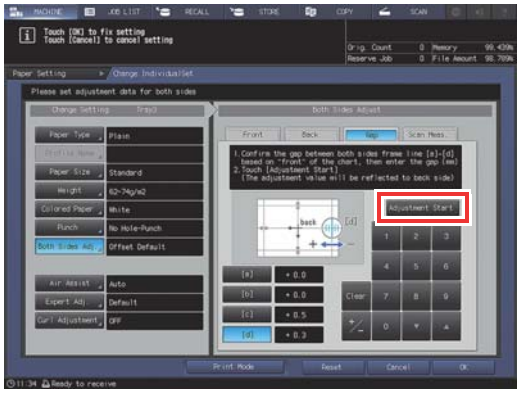


8 Press [a] to [d] of each point, and enter the adjustment value using the keypad, [▼], or [▲] on the screen.

- If the printing position is misaligned to the minus (-) side, enter a positive value (+). If the printing position is misaligned to the plus (+) side, enter a negative value (-).
- To reset a numeric value, press [Clear].
- To switch the positive sign (+) and negative sign (-), press [+/-].

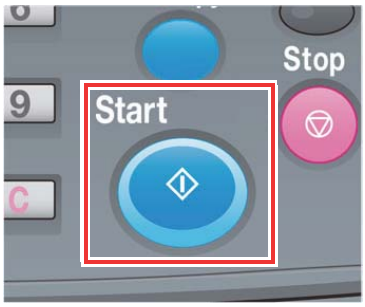


9 When entry processing is completed, press [Adjustment Start].



10 Press **Start** on the **control panel**.

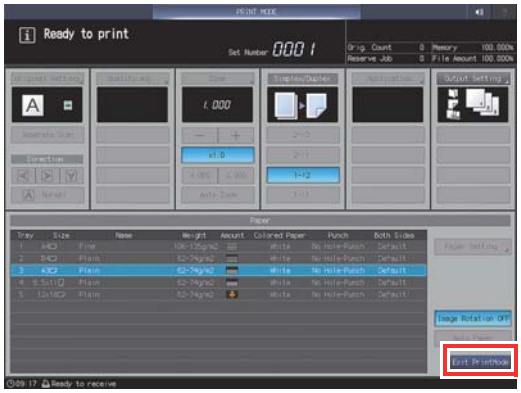
A test chart is printed out.



11 Check a gap of the printing position refering the printed out chart.

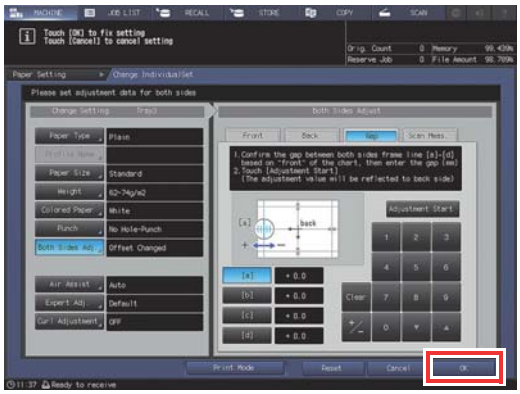
Repeat steps 7 to 10 until all gaps between the front and back sides are cleared.

12 Press [Exit Print Mode].



13 After the adjustment is completed, press [OK].

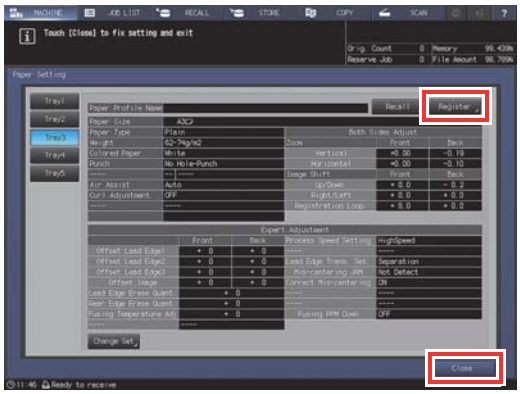
To finely adjust the adjustment value, continuously proceed to step 4 in "Zoom and Image Shift Adjustment" (Page 2-41).



14 Press [Close] to exit the adjustment.

Gap Adjustment is then completed.

- To register adjustment values in a paper profile, press [Register].
- For details about how to register a paper profile, refer to the **HTML User's Guide**.

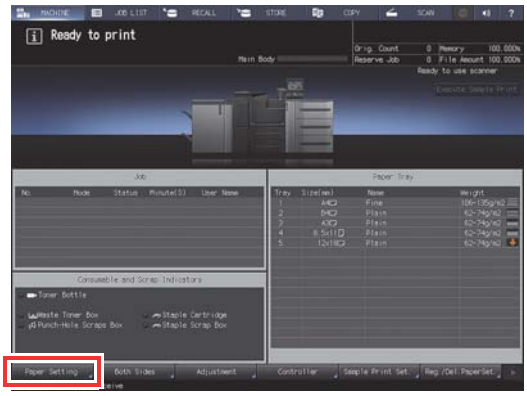


▶Chart Adjustment

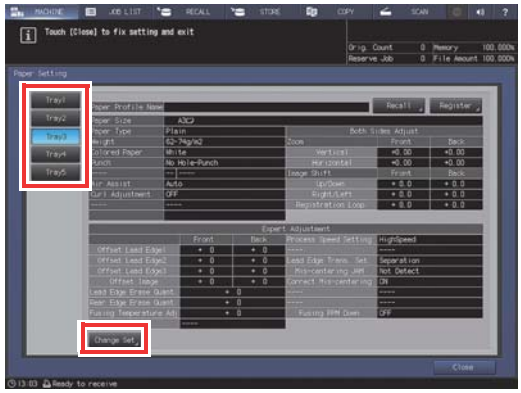
You can print out a Both Sides Adjustment chart, measure measurement points using a scale, and enter measurement values in order to carry out the adjustment.

Using this function, you can only enter measurement values to carry out the both-side adjustment. This is convenient when an unclear misalignment is detected between the front and back sides to perform the duplex printing with a new type of paper or to change paper in a tray.

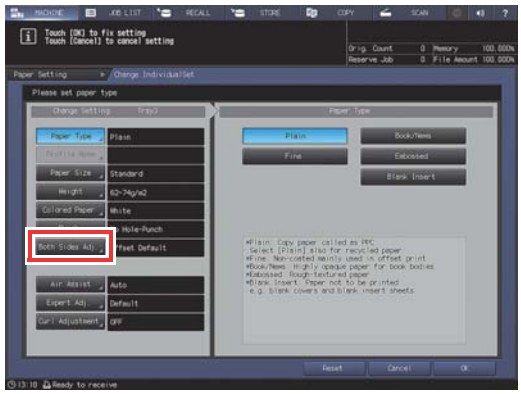
1 Press [Paper Setting] on the [MACHINE] screen.



2 Select the tray with the target paper loaded, then press [Change Set].

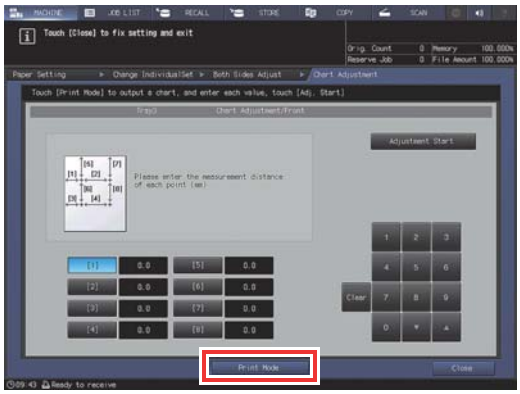


3 Press [Both Sides Adj.].



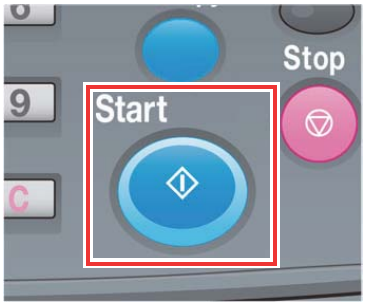
4 Select [Front], then press [Chart Adjustment].

5 Press [Print Mode].

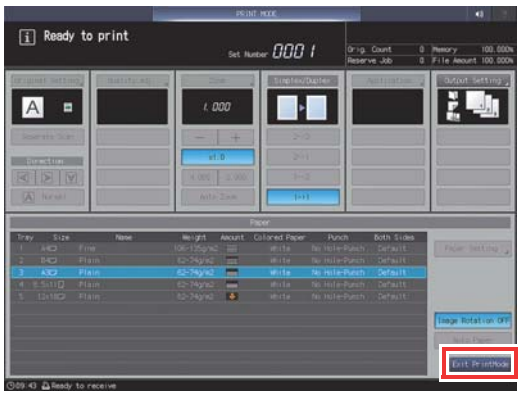


6 When the [PRINT MODE] screen is displayed, press **Start** on the **control panel**.

A test chart is printed out.

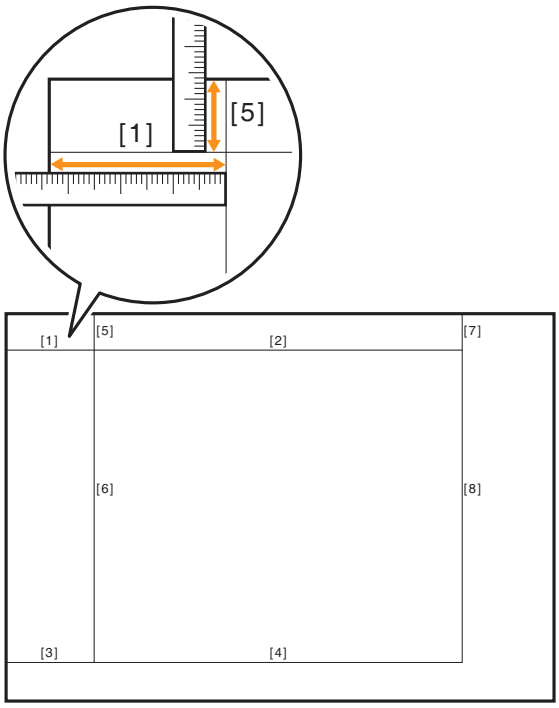


7 Press [Exit Print Mode].



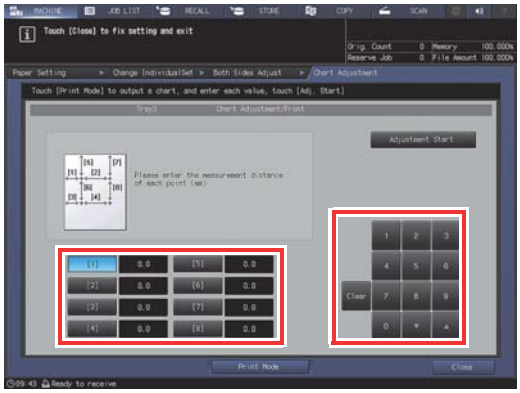
8 Measure the line length at each of points [1] to [8] on the printed-out chart using a scale.

- The figure on the right illustrates an example to measure points [1] and [5]. As illustrated in this example, measure the line length at each printed point.
- The measurement value can be entered in units of up to 0.1 mm.
- Write down the measured lengths so that you do not forget them.



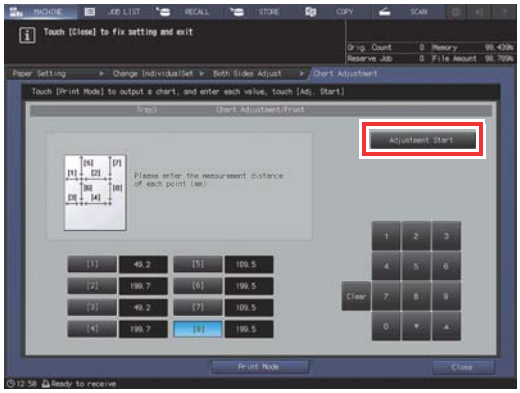
9 Press each point number, then enter the measured length using the keypad, [▼], or [▲] on the screen.

- To reset a value, press [Clear].



10 When entry processing is completed, press [Adjustment Start].

In the next step, adjust the back side.



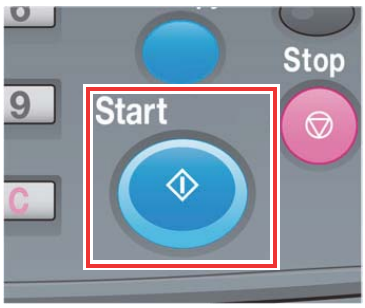
2

11 Select [Back], then press [Chart Adjustment].

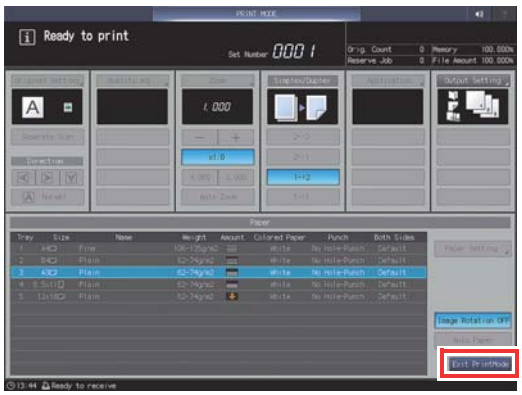
12 Press [Print Mode].

13 When the [PRINT MODE] screen is displayed, press **Start** on the **control panel**.

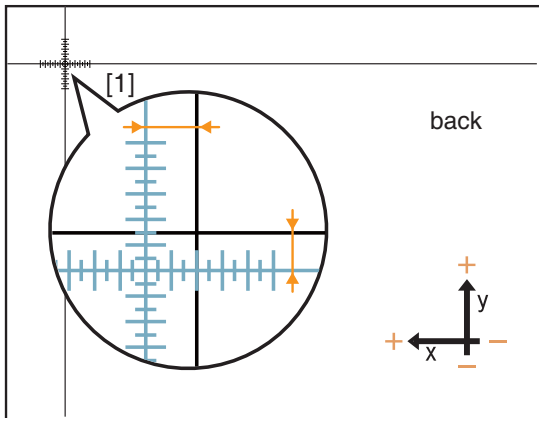
A test chart is printed out.



14 Press [Exit Print Mode].

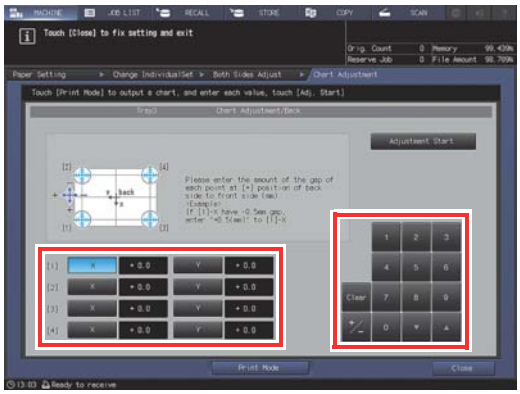


15 Measure a misalignment between the + marks of [1] to [4] printed on the [back] side of the output chart and the + marks on the [front] side.



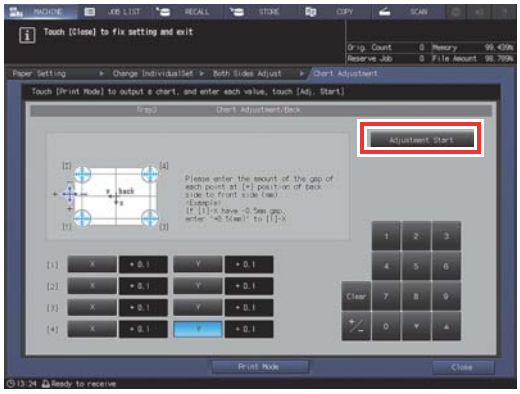
- The figure shows an example to measure [1]. The scale resolution is 0.5 mm.
- In this figure, the black mark + indicates the front side and the blue mark + indicates the back side.
- Measure a misalignment between printing positions in the horizontal direction (X axis) and vertical direction (Y axis).
- The measurement value can be entered in units of up to 0.1 mm.
- For example, as shown in the figure, if + at point [1] is misaligned 2.0 mm in the plus side of the X direction and 1.5 mm in the minus side of the Y direction compared with the front side, press [2] - [0] - [+/-] in the X direction to enter "-2.0" as the adjustment value, and press [1] - [5] in the Y direction to enter "+1.5" as the adjustment value. Then, at point [1], the blue line on the back side will be moved 2.0 mm toward the minus side of the X direction and 1.5 mm toward the plus side of the Y direction.
- Write down the measured values so that you do not forget them.

16 Press [X] or [Y] at each point, and enter the measured value using the keypad, [▼], or [▲] on the screen.



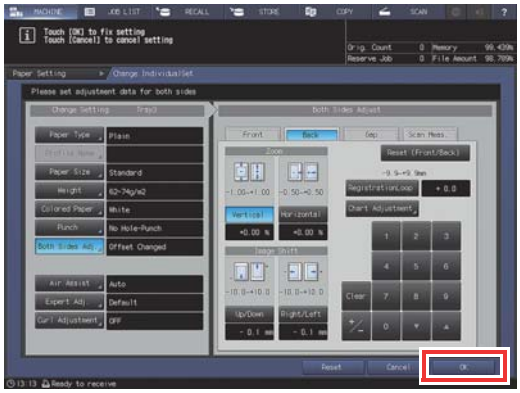
- If the printing position is misaligned to the minus (-) side, enter a positive value (+). If the printing position is misaligned to the plus (+) side, enter a negative value (-).
- To reset a value, press [Clear].
- To switch the positive sign (+) and negative sign (-), press [+/-].

17 When entry processing is completed, press [Adjustment Start].



18 After the adjustment is completed, press [OK].

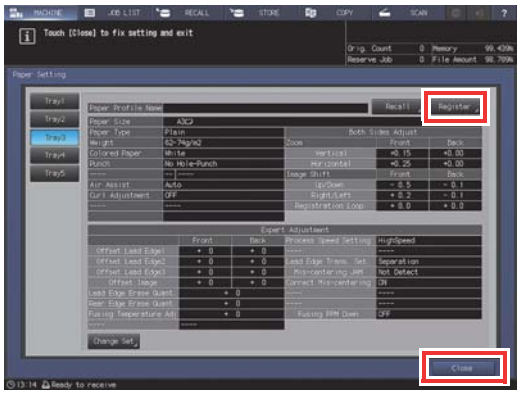
To finely adjust the adjustment value, continuously proceed to step 4 in "Zoom and Image Shift Adjustment" (Page 2-41).



19 Press [Close] to exit the adjustment.

Chart Adjustment is then completed.

- To register adjustment values in a paper profile, press [Register].
- For details about how to register a paper profile, refer to the **HTML User's Guide**.

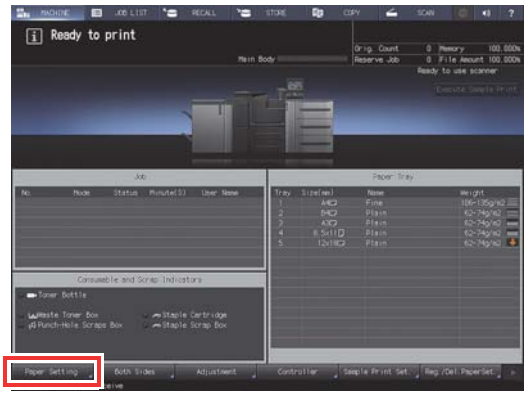


▶Zoom and Image Shift Adjustment

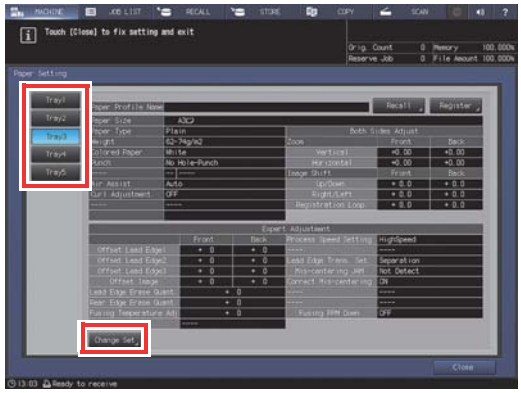
You can finely adjust the zoom ratio of the print side and the top, bottom, left, and right positions on the front and back sides.

Because the adjustment data can be entered directly as a percentage or numerical value indicating the shift amount, it is convenient for fine adjustment after Scan Meas. adjustment, Gap adjustment or Chart Adjustment, or when you have a result of the 2-sided printing at hand.

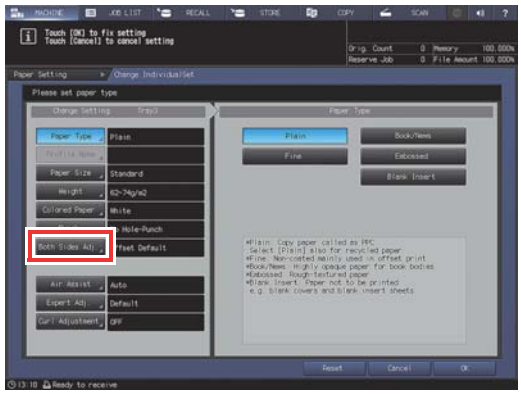
1 Press [Paper Setting] on the [MACHINE] screen.



2 Select the tray with the target paper loaded, then press [Change Set].

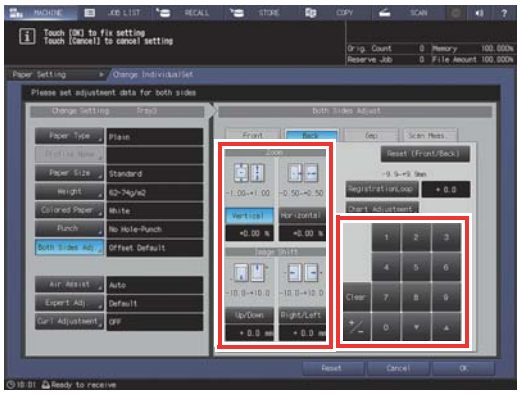


3 Press [Both Sides Adj].



4 Press [Front] or [Back] to select the print side to be adjusted.

5 Enter the zoom ratio or the image shift value using the keypad, [▼], or [▲] on the screen or the Keypad on the control panel.



- To specify the zoom ratio, press [Vertical] or [Horizontal], then enter a value.
  [Vertical] is used to adjust the zoom ratio in the crosswise direction.
  [Horizontal] is used to adjust the zoom ratio in the paper feed direction.
  To enlarge the print side, enter the value with a positive mark (+). To reduce it, enter the value with a negative mark (-).
  The adjustment value changes 0.01% on a 1-step basis.
  Adjustment Range: [Vertical] -1.00 to +1.00, [Horizontal] -0.50 to +0.50
- To move the print side upward, downward, leftward, or rightward (image shift), press [Up/Down] or [Right/Left], then enter the value.
  To move the print side upward or rightward, enter the value with a positive mark (+). To move the print side downward or leftward, enter the value with a negative mark (-).
  The adjustment value changes 0.1 mm on a 1-step basis.
  Adjustment range: [Up/Down] / [Right/Left] -10.0 to +10.0
- To switch the positive mark (+) and negative mark (-), press [+/-].
- To reset a value, press [Clear].
- To adjust the zoom ratio and image shift, check the status in the center of a page.

Zoom ratio adjustment example:

The image on the front side is 10 mm in a lengthwise direction while the image on the back side has been lengthened to 10.1 mm.

- Press [Vertical] of [Back], then press [1][0][0].
- Then, press [+/-] to change the mark to set the adjustment value to [-1.00].

The image on the back side is reduced by 1%.

In this figure, the black mark indicates the front side and the blue mark indicates the back side.

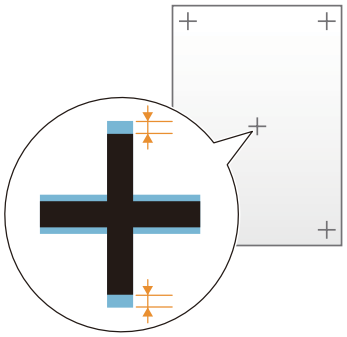
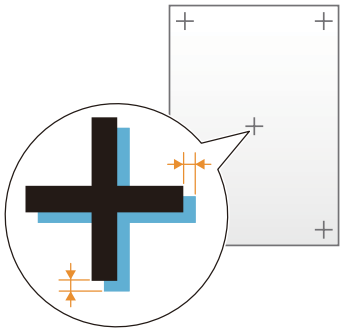


Image shift adjustment example:

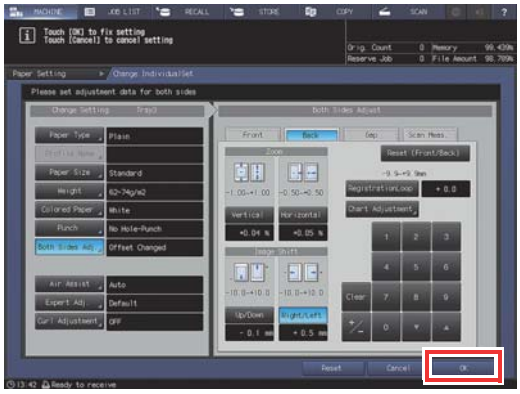
The image on the back side is misaligned 0.5 mm downward and 0.3 mm

- Press [Up/Down] of [Back], then press [5] to set the adjustment value to [+0.5 mm].
- Next, press [Right/Left], then press [3] and [+/-] in sequence to set the adjustment value to [-0.3 mm].

The image on the back side shifts 0.5 mm upward and 0.3 mm leftward.



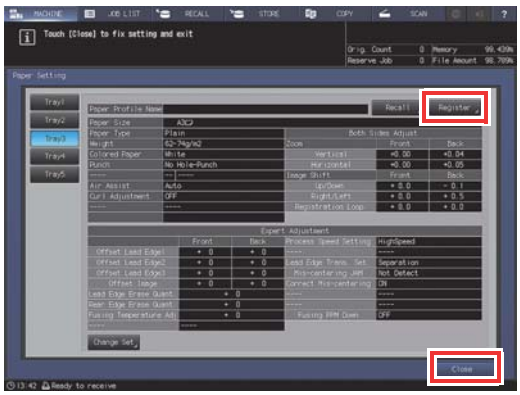
6 After the adjustment is completed, press [OK].



7 Press [Close] to exit the adjustment.

Zoom and Image Shift Adjustment is then completed.

- To register adjustment values in a paper profile, press [Register].
- For details about how to register a paper profile, refer to the **HTML User's Guide**.



Tips

If printing positions are misaligned between the front and back sides even after the Both Sides Adjustment has been carried out several times, readjust the reference position on the print side. For details about the adjustment procedure, refer to the **HTML User's Guide**.

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