

SHARP®

MX-7090N

MX-8090N

Administrator Machine Adjustment Guide

Caution

Machine Adjustment access is provided assuming that an administrative user has sufficient knowledge of machine maintenance and management and is responsible for their uses and adjustment.

Changing adjustment values provided in Machine Adjustment without having sufficient knowledge may lead to unexpected incidents such as insufficient print quality or product performance, increase in toner consumption and influence on machine life.

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Purpose of Document

This document is for explaining the content, procedure and caution on each adjustment so that users in charge of machine maintenance understand and perform the machine adjustment properly.

To adjust the machine, tap the [Machine Adjustment] key in the Home Screen to open the Machine Adjustment screen.

■ Home Screen



※When the machine is in process, machine cannot enter [Machine Adjustment] screen. If the [Machine Adjustment] is tapped the following messages appears with beep: Machine Adjustment is not available due to the job currently reserved/executed.

Terminology

Process control

Density adjustment performed automatically either during job or between jobs.

Gray balance adjustment

Manual adjustment for gradation density
This adjustment is performed by setting specific adjustment values for density points of gradation density.

Calibration

Automatic adjustment for gradation density
This adjustment is performed by scanning printed test pattern with original glass.

Dither

This refers to screen precisely, which is the gradation (half tone) process, including error diffusion and dithering.

Main Charger

This charges the drum electrically.

Bypass

Multi bypass tray

LCC

Large Capacity Cassette
This refers to either MX-LCX3 N or MX-LC12.

LCT

Large Capacity Trays
This refers to MX-LC13 N.

Void Area

Unprinted area around the edges of sheet in printing

Image Loss

Unscanned area around the edges of original in scanning

Main Scan Direction

Direction of machine front and rear
Perpendicular to paper feed direction

Sub Scan Direction

Paper feed direction

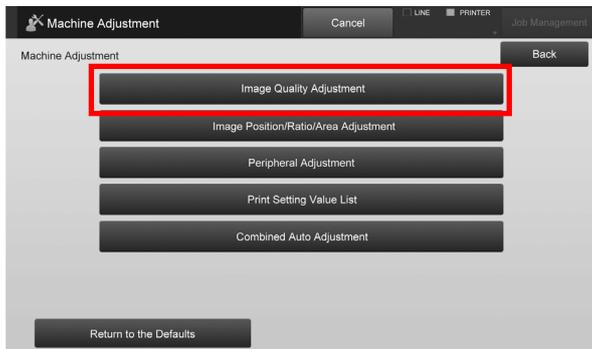
Jogger

This adjusts the alignment of sheets piled in the finisher in front and rear direction for staple.

Machine Adjustment

1 Image Quality Adjustment

Select [Image Quality Adjustment] in the Machine Adjustment screen.



Note:

To return your preferences to the factory defaults, tap the [Return to the Defaults] key. When a confirmation message appears, tap the [OK] key. The machine reboots to return to the factory defaults.

The following settings return to the factory default.

- **Image Quality Adjustment**
 - Density/Balance Adjustment
 - Color Balance Adjustment (for Copy)
 - Color Balance Adjustment (for Print)
 - Color Copy Black Component Amount Adjustment
 - Area Separation Level Adjustment
- **Image Position/Ratio/Area Adjustment**
 - Ratio Adjustment
 - Scan Ratio Adjustment
 - Edge Adjustment
 - Scan Original Edge Adjustment (Original Glass)
 - Scan Original Edge Adjustment (Duplex Single Pass Feeder)
 - Void Area Adjustment
 - Copy Image Loss Amount Settings(Original Glass)
 - Copy Image Loss Amount Settings(Duplex Single Pass Feeder)
 - Scanner Image Loss Amount Settings
 - Off-Center Adjustment
 - Print Off-Center Adjustment
 - Scan Original Off-Center Adjustment

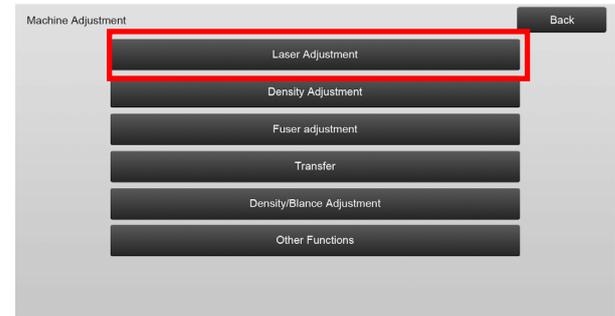
1.1 Laser Adjustment

Caution:

Check the followings before performing the adjustment.

- Image problems like unevenness caused by electronic charge problems
- Paper remaining amount in trays
- Do not perform the auto adjustment if you wish to keep manual adjustment values as those values will be cleared by performing the auto adjustment.

Select [Laser Adjustment] in the Image Quality Adjustment screen.



1.1.1 Density Smoothing Adjustment (Auto Adjustment)

Modes the adjustment is effective in:

Copy and printer modes

Overview:

This performs density smoothing adjustment for printing in front / rear (main scan) direction automatically.

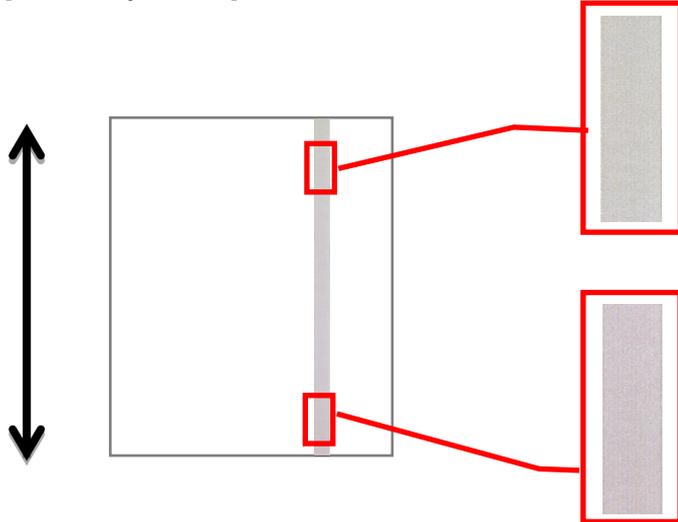
[Auto Adjustment] is recommended.

When adjustment need to be performed for each color, use [Densitometer Adjustment] or [Visual Adjustment].

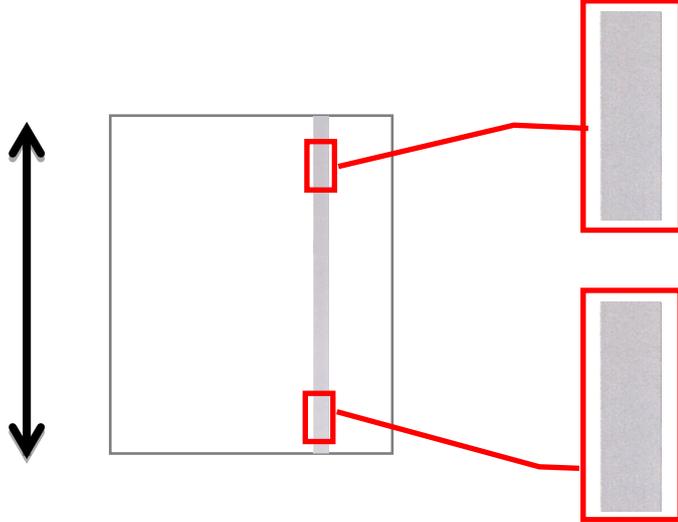
Symptoms that may be alleviated by the adjustment:

Density unevenness in front-rear direction

[Before Adjustment]



[After Adjustment]



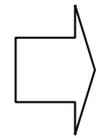
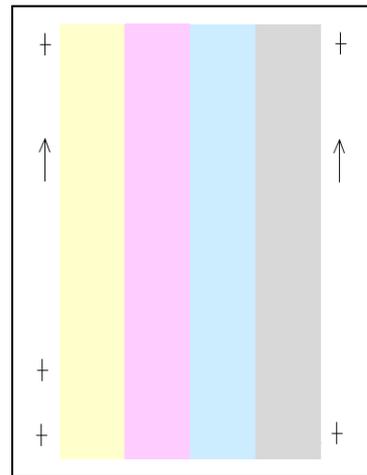
- 3) A message “Value set at Density Smoothing Adjustment (Densitometer/Visual) is cleared if executed. Execute?” comes up when you tap the [Execute] key. Tap the [Execute] key to continue if you do not see a problem. Tap the [Cancel] key if you do not want to clear the value.

Note:

To return your preferences to the factory defaults, tap the [Return to the Defaults (Density Smoothing Adjustment)] key. When a confirmation message appears, tap the [OK] key. The machine reboots to return to the factory defaults.



- 4) A test patch is printed.



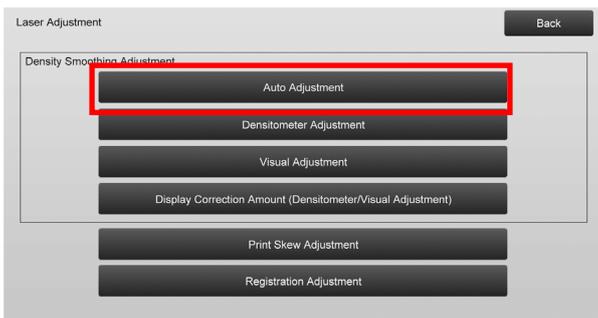
Paper feeding direction

Note:

When the printing of a test patch fails, the following message appears: Printing test patch has failed. Use 8 1/2" X 11" or A4 paper for this adjustment. Press [Execute] to print the test patch.

Adjustment Procedure:

- 1) Select [Auto Adjustment] in the Laser Adjustment screen.



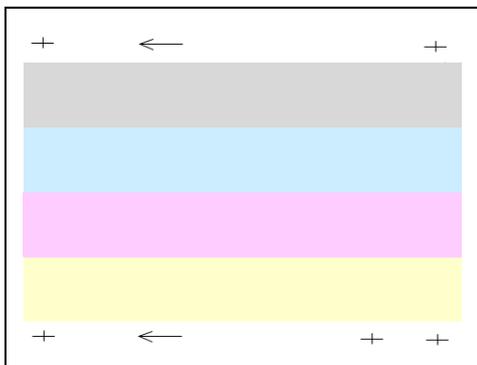
- 2) To print a test patch, tap the [Execute] key in the Density Smoothing Adjustment (Auto Adjustment) screen. If you need to change the density, select the desired density and then tap the [Execute] key.



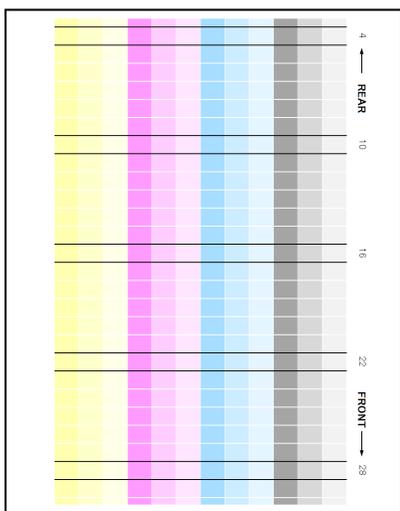
- 5) Place the test patch on the document glass and tap the [Execute] key to start the adjustment.

Note:

When the scanning of the test patch fails, the following message appears: Auto adjustment has failed. Please check if the test patch is properly set on the document glass. Press [Execute] to resume scanning.



- 6) When the adjustment is completed, a completion message appears and the adjustment result is printed.



Paper feeding direction

Note:

When the printing of the adjustment result fails, the following message appears: Printing adjustment result has failed. Use 8 1/2" X 11" or A4 paper. Press [Execute] to print the adjustment result.

- 7) Check the density in the adjustment result. (When density is achieved after this adjustment tap [Back] key and perform the next process 8.)

Note:

- If the density smoothing is still uneven, repeating the procedure may provide improvement.
- To repeat this adjustment, tap the [Back] key and start from the beginning again.
- To return the adjusted values to the default state, tap [Return to the Defaults (Density Smoothing Adjustment)] key.
- If tapped [Return to the Defaults (Density Smoothing Adjustment)] key, perform this adjustment of the density (medium density in the default mode) again. Because this adjustment is not performed in the factory default state.
- This adjustment is done by service personnel at installation.
- All colors can be adjusted simultaneously.

- 8) Make sure to perform [1.5.3 Standard Calibration] (or [Auto Color Calibration] under [Settings] if you wish not to erase the adjustment values set by [1.5.1 Color Balance Adjustment (for Copy)] and [1.5.2 Color Balance Adjustment (for Print)]) after this adjustment. Make sure to choose both the copy and printer calibrations in the calibration.

1.1.2 Density Smoothing Adjustment (Densitometer Adjustment)

Modes the adjustment is effective in:
Copy and printer modes

Overview:

This performs density smoothing adjustment for printing in front / rear (main scan) direction by measuring test patch with a densitometer.

Symptoms that may be alleviated by the adjustment:

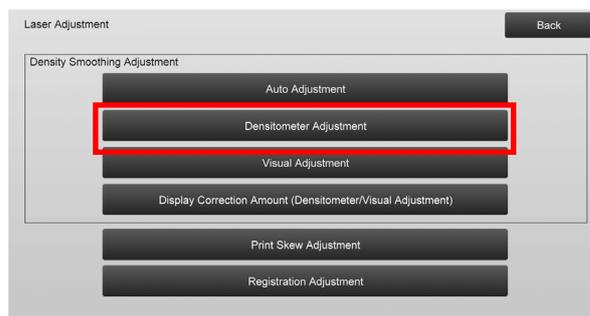
Density unevenness in front-rear direction (in cases that improvement by the auto adjustment is insufficient or that you want to perform further fine adjustment using densitometer)

Note:

The densitometer is to be prepared by users.

Adjustment Procedure:

- 1) Select [Densitometer Adjustment] in the Laser Adjustment screen.



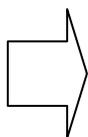
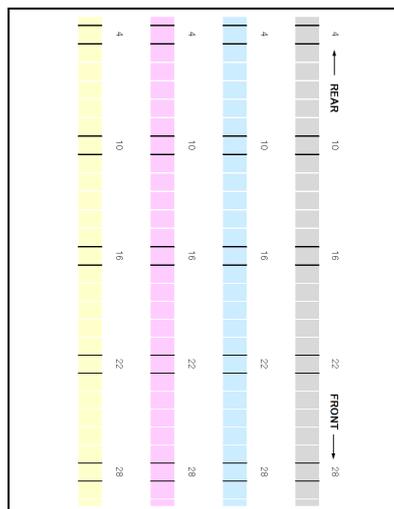
- 2) To print a test patch, tap the [Execute] key in the Density Smoothing Adjustment (Densitometer Adjustment) screen. If you need to change the density, select the desired density and then tap the [Execute] key.



Note:

To return your preferences to the factory defaults, tap the [Return to the Defaults (Density Smoothing Adjustment)] key. When a confirmation message appears, tap the [OK] key. The machine reboots to return to the factory defaults.

- 3) A test patch containing 4 columns of 28 patches (4-29) is printed.



Paper feeding direction

Note:

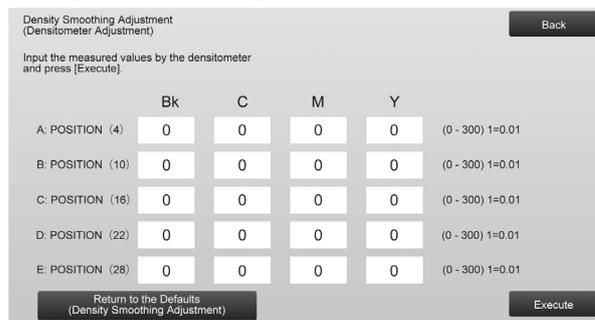
When the printing of a test patch fails, the following message appears: Printing test patch has failed. Use 8 1/2" X 11" or A4 paper for this adjustment. Press [Execute] to print the test patch.

- 4) Measure the values of the five specified positions on the test patch with the densitometer.

Note:

All five values must be entered. Adjustment is performed by reduction of all five points.

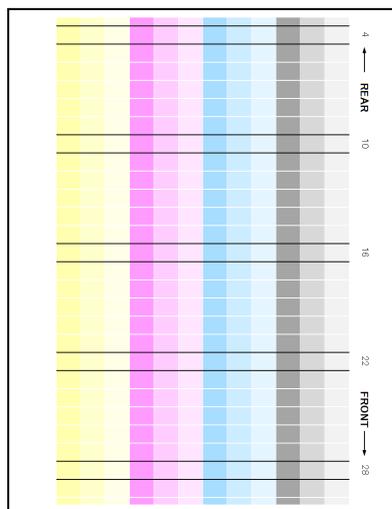
- 5) Enter the five measured values and tap the [Execute] key to start the adjustment.



Input range: [0] to [300] (1 = 0.01)

Default: [0] for each

- 6) When the adjustment is completed, a completion message appears and the adjustment result is printed.



Paper feeding direction

Note:

When the printing of the adjustment results fails, the following message appears: Printing adjustment result has failed. Use 8 1/2" X 11" or A4 paper. Press [Execute] to print the adjustment result.

- 7) Check the density in the adjustment result.

- When the desired density is not achieved, tap the [Readjust] key and repeat steps 4) to 7).
- When the desired density is achieved, tap the [Back] key to return to the Laser Adjustment screen.

Note:

All colors can be adjusted simultaneously. In the factory default state, this adjustment is not performed.

- 8) Make sure to perform [1.5.3 Standard Calibration] (or [Auto Color Calibration] under [Settings] if you wish not to erase the adjustment values set by [1.5.1 Color Balance Adjustment (for Copy)] and [1.5.2 Color Balance Adjustment (for Print)]) after this adjustment. Make sure to choose both the copy and printer calibrations in the calibration.

1.1.3 Density Smoothing Adjustment (Visual Adjustment)

Modes the adjustment is effective in:
Copy and printer modes

Overview:

This performs density smoothing adjustment for printing in front / rear (main scan) direction by measuring test patch visually.

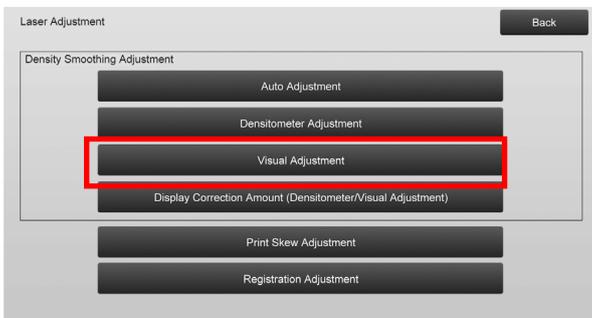
This is recommended to use when it is easy to judge colors visually.

Symptoms that may be alleviated by the adjustment:

Density unevenness in front-rear direction (in cases that improvement by the auto adjustment is insufficient or that you want to perform further fine adjustment by visual check)

Adjustment Procedure:

- 1) Select [Visual Adjustment] in the Laser Adjustment screen.



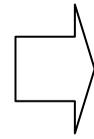
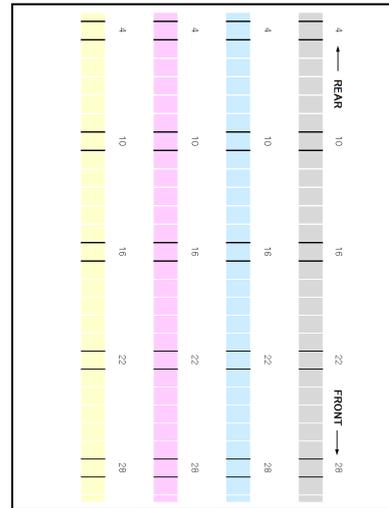
- 2) To print a test patch, tap the [Execute] key in the Density Smoothing Adjustment (Visual Adjustment) screen. If you need to change the density, select the desired density and then tap the [Execute] key.



Note:

To return your preferences to the factory defaults, tap the [Return to the Defaults (Density Smoothing Adjustment)] key. When a confirmation message appears, tap the [OK] key. The machine reboots to return to the factory defaults.

- 3) A test patch containing 4 columns of 28 patches (4-29) is printed.

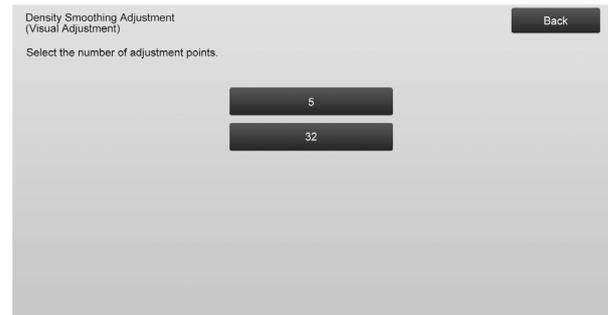


Paper feeding direction

Note:

When the printing of a test patch fails, the following message appears: Printing test patch has failed. Use 8 1/2" X 11" or A4 paper for this adjustment. Press [Execute] to print the test patch.

- 4) Select [5] or [32] for the number of adjustment points.



- 5) Enter the desired values and tap the [Execute] key to start the adjustment.

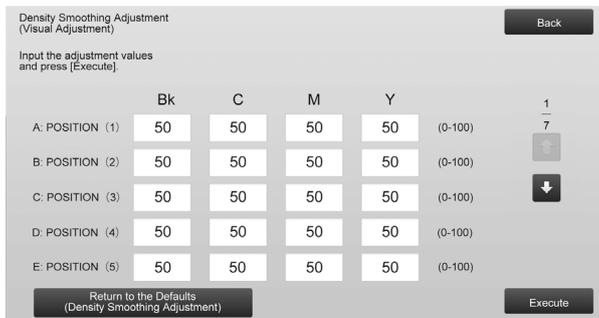
Example of the Density Smoothing Adjustment (Visual Adjustment) screen

◆When [5] is selected in step 4):



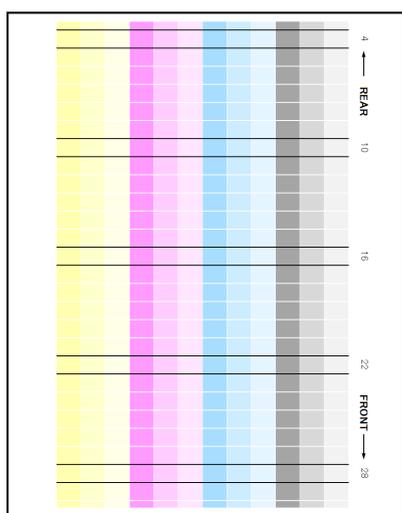
Input range: [0] to [100]
Default: 50

◆When [32] is selected in step 4):



Input range: [0] to [100]
Default: 50

6) When the adjustment is completed, a completion message appears and the adjustment result is printed.



Paper feeding direction

Note:

When the printing of the adjustment result fails, the following message appears: Printing adjustment result has failed. Use 8 1/2" X 11" or A4 paper. Press [Execute] to print the adjustment result.

7) Check the density in the adjustment result.

- When the desired density is not achieved, tap the [Readjust] key and repeat steps 4) to 7).

Note:

- In the factory default state, this adjustment is not performed.
- To return the adjusted values to the default state, tap [Return to the Default (Density Smoothing Adjustment)] key.
- If tapped [Return to the Default (Density Smoothing Adjustment)] key, [Value set at Density Smoothing Adjustment [Auto Adjustment]] is cleared simultaneously, so perform (Density Smoothing Adjustment [Auto Adjustment]) of the density (medium density in the default mode) again.
- [Auto Adjustment] is adjusted by service personnel at installation.
- When the desired density is achieved, tap the [Back] key to return to the Laser Adjustment screen.
- Each color can be adjusted individually.

- In 5-point adjustment, 5 points can be entered to extrapolate and adjust all of the remaining 32 points.
- In 32-point adjustment, each point can be adjusted.

*Partial adjustment is possible.

8) Make sure to perform [1.5.3 Standard Calibration] (or [Auto Color Calibration] under [Settings] if you wish not to erase the adjustment values set by [1.5.1 Color Balance Adjustment (for Copy)] and [1.5.2 Color Balance Adjustment (for Print)]) after this adjustment. Make sure to choose both the copy and printer calibrations in the calibration.

1.1.4 Display Correction Amount (Densitometer/Visual Adjustment)

Modes the adjustment is effective in:
Copy and printer modes

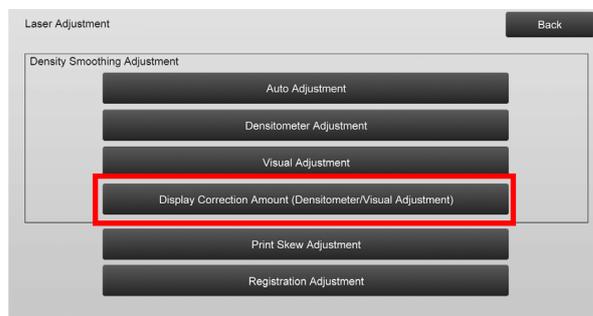
Overview:

This displays correction amount of density smoothing adjustment.

Symptoms that may be alleviated by the adjustment:
No adjustment (just confirmation of setting values)

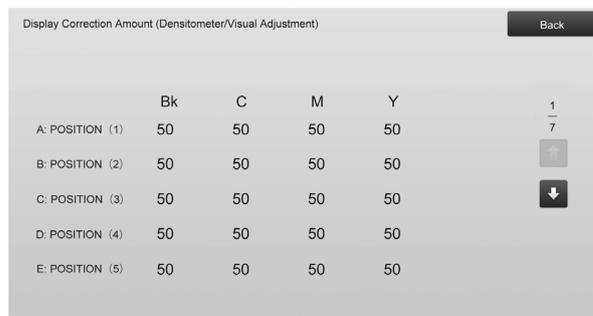
Confirmation Procedure:

- 1) Select [Display Correction Amount (Densitometer/Visual Adjustment)] in the Laser Adjustment screen.



- 2) Correction Amounts are displayed (display only).

Example of Correction Amount Display (Densitometer/Visual Adjustment) screen



Input range: [0] to [100]
Default: 50

- 3) Tap the [Back] key to return to Laser Adjustment screen.

1.1.5 Print Skew Adjustment

Modes the adjustment is effective in:
Copy and printer modes

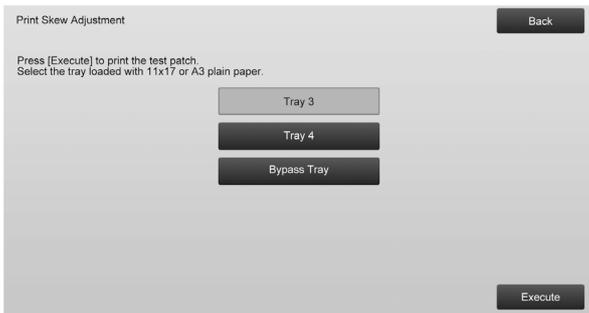
Overview:

This performs print skew adjustment manually.

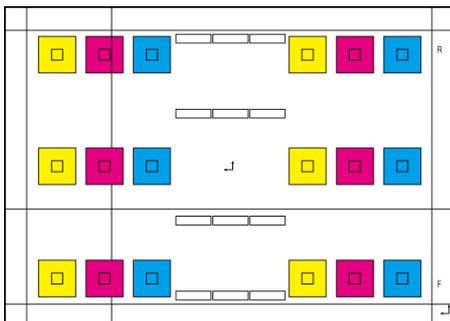
Symptoms that may be alleviated by the adjustment:
Skew of print position against paper

Adjustment Procedure:

- 1) Select [Print Skew Adjustment] in the Laser Adjustment screen.
- 2) Select the tray to set the adjustment pattern and tap [Execute] to print the adjustment pattern.



- 3) An adjustment pattern is printed.



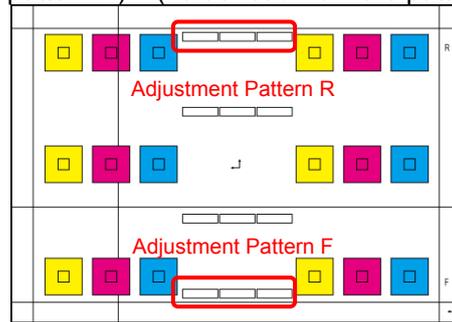
Note:

When the printing of an adjustment pattern fails, the following message appears: Printing test patch has failed. Use 11" X 17" or A3 paper for this adjustment. Press [Execute] to print the test patch.

- 4) Enter the desired value and tap the [Register] key to register the set value. If the [Print Adjustment Pattern After Registration.] checkbox is checked, adjustment result is printed.

[Adjustment for C/M/Y]

Read the scale value of the highest density in the adjustment pattern F/R (1 scale value / 2 adjustment values) and make adjustment by the difference. Adjustment value as a guide = (Value read from the pattern R) – (Value read from the pattern F)

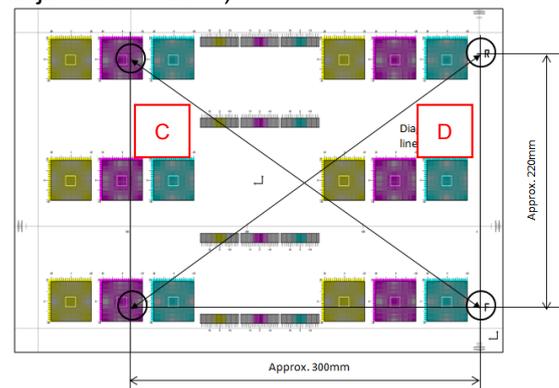


Skew Adjustment Pattern (magnified)



[Adjustment for K]

Measure the diagonal lengths of the rectangle print pattern. Assuming the measured diagonal lengths as C and D, calculate the difference. Adjustment value as a guide = C – D (0.1mm / 3 adjustment values)



Note:

When the printing of the adjustment result fails, the following message appears: Printing adjustment result has failed. Press [Register] to print the adjustment result. Use 11" X 17" or A3 paper.

1.1.6 Registration Adjustment

Modes the adjustment is effective in:

Copy and printer modes

Overview:

This performs registration adjustment.

Registration adjustment can be performed manually or automatically.

Symptoms that may be alleviated by the adjustment:

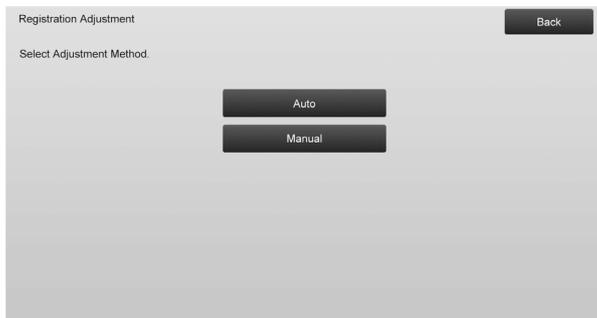
Color shift among Y, M, C and K

Adjustment Procedure:

- 1) Select [Registration Adjustment (Auto)] in the Laser Adjustment screen.

1.1.6.1 Registration Adjustment

- 1) Select [Auto] in the Registration Adjustment screen.



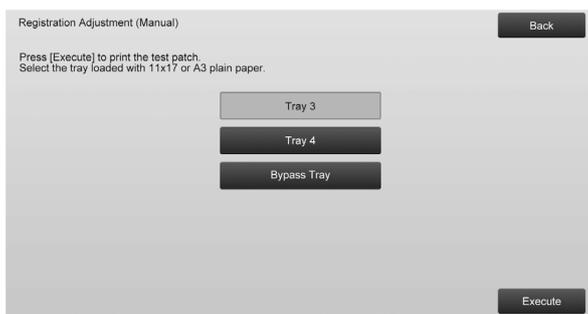
- 2) Tap the [Execute] key in Registration Adjustment (Auto) screen.
- 3) Tap the [Execute] key to confirm the message.
- 4) When the adjustment is completed, a completion message appears.

Note:

Registration Adjustment (Auto) also exists under the system settings.

1.1.6.2 Registration Adjustment (Manual)

- 1) Select [Manual] in the Registration Adjustment screen.
- 2) Select the tray to set the adjustment pattern and tap [Execute] to print the adjustment pattern.

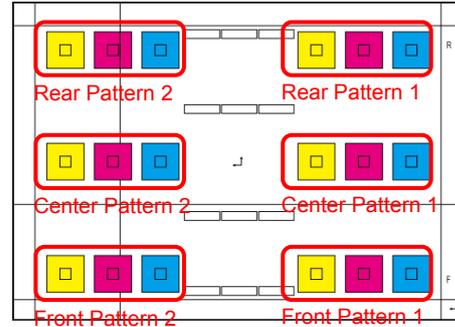


- 3) An adjustment pattern is printed.

Note:

When the printing of an adjustment pattern fails, the following message appears: Printing test patch has failed. Use 11" X 17" or A3 paper for this adjustment. Press [Execute] to print the test patch.

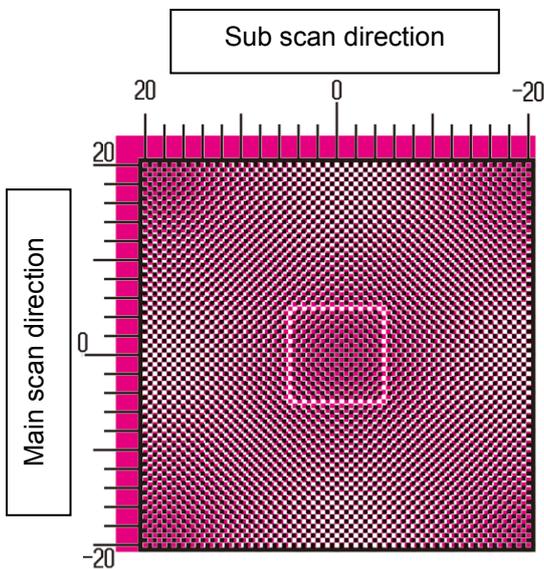
- 4) Enter the desired value and tap the [Register] key to register the set value. If the [Print Adjustment Pattern After Registration.] checkbox is checked, adjustment result is printed.



You can find the color image registration check patterns of two for front side, rear side and center each (total 6 places). Perform the adjustment by patterns visually. Horizontal direction is sub-scan direction (SUB) and vertical direction is main-scan direction in the above figure. Each adjustment value and its check pattern are as follows:

Adjustment Value	Check Patterns	Default	Range
Front Side Offset (C/M/Y)	Front Pattern 1 and Front Pattern 2	50	1-99
Rear Side Offset (C/M/Y)	Rear Pattern 1 and Rear Pattern 2	50	1-99
Sub Scan Direction Offset (C/M/Y)	All Patterns	50	1-99

Note: perform adjustment to make the deviation in center area the smallest than front and rear sides if you want to emphasize center area.



Perform adjustment so that the highest part in density around center of the check pattern fits within the adjustment standard frame for color registration at the center. Make sure to make the deviation at each pattern around the same level and minimize the entire deviation.

Example:

If pattern 2 shifts in opposite direction while adjusting pattern 1 to scale zero position, adjust the value so that the deviations at pattern 1 and pattern 2 are around the same level.

Adjustment value as a guide:

One scale value per two adjustment values

Example:

If center of the highest part in density is at the position of +10 (fifth step in scale), decrease the adjustment value by 10.

Example of Registration Adjustment screen



Input range: [1] to [99]

Default: [50] for each

Note:

When the printing of the adjustment result fails, the following message appears: Printing adjustment result has failed. Use 11" X 17" or A3 paper. Press [Execute] to print the adjustment result.

1.2 Density Adjustment

Select [Density Adjustment] in the Image Quality Adjustment screen.

1.2.1 Density Adjustment Automatic Execution Frequency

Modes the adjustment is effective in:

Copy and printer modes

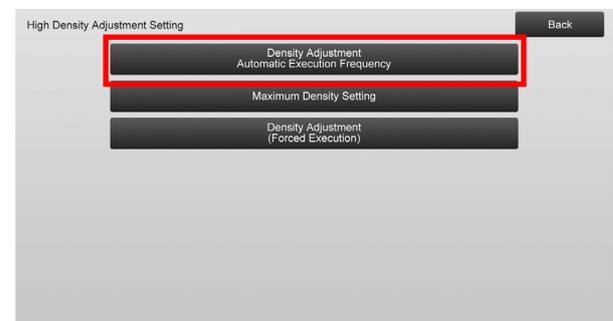
Overview:

This makes a setting of frequency (condition) to perform density adjustment (process control) automatically.

Symptoms that may be alleviated by the adjustment:

- Cases that color tone varies at power on or when the machine is left unused for a while
- Case that color tone varies from the first to the last pages in a job consisting of hundreds of sheets.

1) Select [Density Adjustment Automatic Execution Frequency] in the Density Adjustment screen.

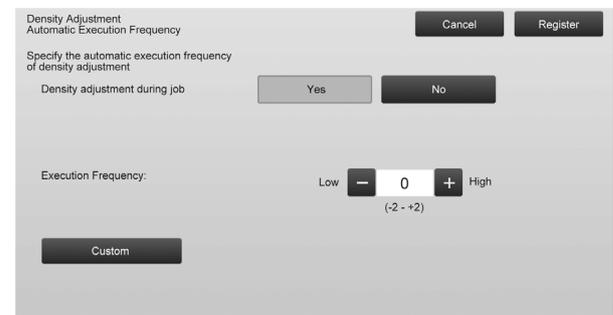


2) When job efficiency is prior, set Density adjustment during job to [No]. When image stability is prior, set Density adjustment to [Yes].

Note:

Even if the Density adjustment during job is set to [No], density adjustment may execute by machine state.

3) When the density adjustment during job is set to [Yes], tap the [+] and [-] keys or use the 10-key pad appears when each of the textboxes is tapped to change the execution frequency of the density adjustment.



Density adjustment during job:

[Yes]: The process control adjustment interrupts the job in progress.

[No]: The process control adjustment does not interrupt the job in progress.

Default: [No]

Execution Frequency:
Input range: [-2] to [2]
Default: [0]

If color tone varies at power on or when the machine is left unused for a while, the symptom may be alleviated by turning on the density adjustment during job and changing the execution frequency to +1, which have the machine perform the process control in high density area at power on (including wake-up from sleep mode)

If color tone varies from the first to the last pages in a job consisting of hundreds of sheets, the symptom may be alleviated by turning on the density adjustment during job and changing the execution frequency to +2, which have the machine perform the process control in high density area every 50 sheets (usually every 200 sheets) and perform RIP again when the process control in half tone area is performed (job performance may be decreased during that).

Note:

When the density adjustment while a job is in progress is set to [No], the execution frequency is grayed out with the default value displayed.

- 4) To reflect the settings, the machine needs to reboot. When the [Register] key is tapped, a message appears prompting you to reboot the machine.
- 5) Tap the [OK] key to reboot the machine.

1.2.2 Maximum Density Setting

Modes the adjustment is effective in:
Copy and printer modes

Overview:
This performs the adjustment of maximum density for each of Y/M/C/K.

Symptoms that may be alleviated by the adjustment:
Case that the maximum color density is low

- 1) Select [Maximum Density Setting] in the Density Adjustment screen.

- 2) To change the maximum density setting of density adjustment, tap [+] and [-] key or use the 10-key pad appears when each of the textboxes is tapped.



Input range: [-2] to [2]
Default: [0] for each

Note:

Toner consumption may increase by the settings. Setting too large value may cause tone gap or fusing problem around high density area.

- 3) Tap the [Register] key to register the setting.
- 4) To reflect the settings, the machine needs to perform Color Calibration (copy, printer) in system settings. When a message appears prompting you to perform calibration, press [OK].
- 5) When the [OK] is tapped, a message appears prompting you to reboot the machine. Tap [OK] when rebooting or tap [Cancel] to perform calibration before rebooting.
- 6) After the machine is rebooted, perform Color Calibration in the system settings instead.
- 7) The setting in step 3) is reflected.

Note:

When this adjustment is performed, Copy Color Balance Adjustment and Printer Color Adjustment need to be adjusted. When [Standard Calibration] is performed, values entered manually using Color Balance Adjustment (for Copy) and Color Balance Adjustment (for Print) are initialized. If you do not want to initialize these values, you must perform Color Calibration in the system settings instead. When this adjustment is performed, a message will appear in the touch panel prompting you to perform Color Calibration in the system settings.

1.2.3 Density Adjustment (Forced Execution)

Modes the adjustment is effective in:
Copy and printer modes

Overview:
This performs density adjustment (process control) forcefully.

Symptoms that may be alleviated by the adjustment:
Case that a user wants to perform image adjustment

- 1) Select [Density Adjustment (Forced Execution)] in the Density Adjustment screen.
- 2) Tap the [Execute] key in the Density Adjustment (Forced Execution) screen.
- 3) The following message appears: When image density adjustment mode is executed, more toner is consumed, it takes about 20 seconds and the machine needs to reboot. Execute it?
Tap the [Execute] key to confirm the message.
- 4) When the adjustment is completed, a completion message appears. After a certain period of time lapses, the machine starts rebooting.
(No requests are accepted by the machine in the period before the rebooting starts.)

1.3 Fuser Adjustment

Select [Fuser Adjustment] in the Image Quality Adjustment screen.

1.3.1 Fusing Temperature Setting

Modes the adjustment is effective in:
Copy and printer modes

Overview:

This performs setting of fusing temperature. Fusing performance largely depends on basis weight of paper. Select proper paper type for fusing temperature adjustment. When unrecommended paper is used, set paper property. See below for detail of adjustment.

Adjustment Detail

Symptoms to adjust the temperature high

- Poor fusing caused by low temperature (toner is not on the paper)
- Not enough gloss is applied.

Symptoms to adjust the temperature low

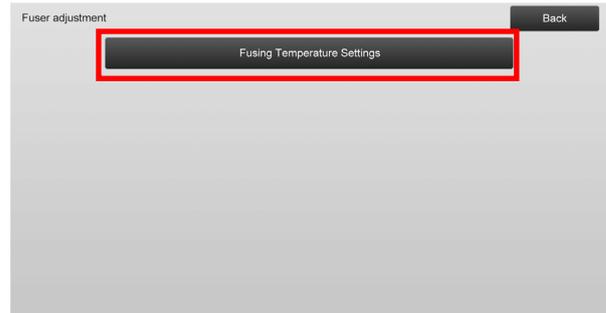
- Poor fusing caused by high temperature (surface of images are rough, Toner may come off)
- Too much gloss is applied.
- Paper is curled.
- Paper is creased.
- Paper jam occurs in fusing area.
- Toner blisters occurs.
- Paper blisters occurs.

Note:

- When plain paper or recycled paper is used, Set [Fusing Control Settings] of [Device Control] in [System Settings].
- When unrecommend glossy paper or embossed is used, set paper property to print with proper weight of paper setting.
- When an envelope is not set properly in the tray, poor fusing or crease may occur.
- When unrecommended envelope is used, poor fusing or crease may occur.

Adjustment Procedure:

- 1) Select [Fusing Temperature Settings] in the Fusing Adjustment screen.



- 2) To change the fusing temperature setting, tap the [+] and [-] key or use the 10-key pad appears when each of the textboxes is tapped.

Example of Fusing Temperature Setting screen



Input range: [-20] to [20]

Default: [0] for each

Note:

To reset all items to [0], tap the [Return Entered Values to Zero] key.

- 3) Tap the [Register] key to register the setting.

Note:

To reflect the settings, the machine needs to reboot. When the [Register] key is tapped, a message appears prompting you to reboot the machine.

- 4) Tap the [OK] key to reboot the machine.

1.4 Transfer

Select [Transfer] in the Image Quality Adjustment screen.

1.4.1 Primary Transfer Current Value Setting

Modes the adjustment is effective in:

Copy and printer modes

Overview:

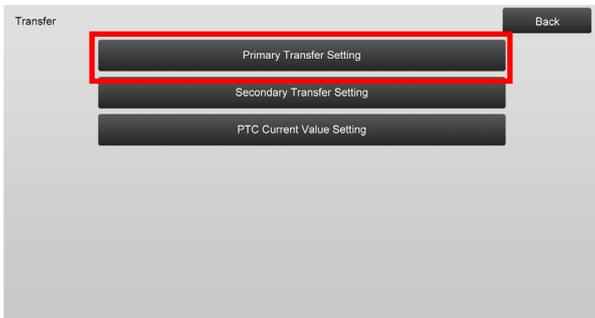
This performs toner transfer adjustment by fine tuning primary transfer current value.

Symptoms that may be alleviated by the adjustment:

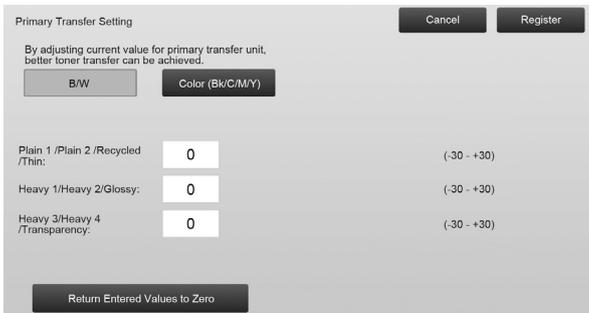
- Image defect (such as image shift and streak) caused by high-humidity environment or after unused for a long time
- Ghost image (print memory) caused by low-temperature and low-humidity environment.

Adjustment Procedure:

- 1) Select [Primary Transfer Current Value Setting] in the Transfer screen.



- 2) Select the color to adjust and enter the desired value.



Input range: [-30] to [30]

Default: [0] for each

Note:

If image problems such as misalignment, streaks and white dots occur due to usage in high humidity environment or after a long period of non-use, increasing the value may improve the image. If ghost images (print memory) or black dots appear due to usage in a low temperature, low humidity environment or after a long period of non-use, decreasing the value may improve the image.

Caution:

- If the value is set to too high, ghost image of single color may appear.
- If the value is set to too low, the density may become too low.

- 3) Tap [Register] key to register the setting.

Note:

To reset all items to [0], tap the [Return Entered Values to Zero] key.

1.4.2 Secondary Transfer Current Value Setting

Modes the adjustment is effective in:

Copy and printer modes

Overview:

This performs toner transfer adjustment by fine tuning secondary transfer current value.

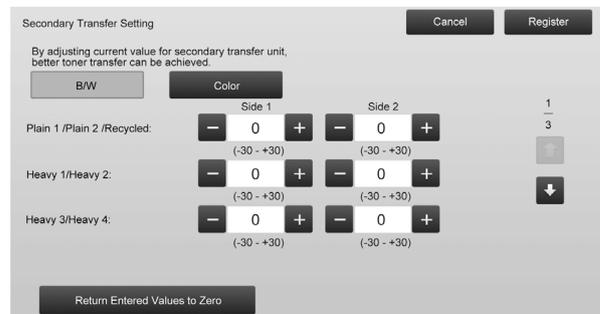
Symptoms that may be alleviated by the adjustment:

- Image shift and misalignment with specific paper
- Patchy image caused by high-humidity environment or patterned indented surface (such as embossed paper).

Adjustment Procedure:

- 1) Select [Secondary Transfer Current Value Setting] in the Transfer screen.
- 2) Select the color to adjust and enter the desired value.

Example of Secondary Transfer Current Value Setting screen



Input range: [-30] to [30]

Default: [0] for each

Note:

If misalignment or a disordered image occur due to the paper or a special type of media (highly resistive paper such as laminated and transparency), decreasing the value may improve the image. If patchiness occurs due to usage in a high humidity environment or due to paper with an uneven surface such as embossed paper, increasing the value may improve the image.

- 3) Tap the [Register] key to register the setting.

Note:

To reset all items to [0], tap the [Return Entered Values to Zero] key.

1.4.3 PTC Current Value Setting

Modes the adjustment is effective in:
Copy and printer modes

Overview:

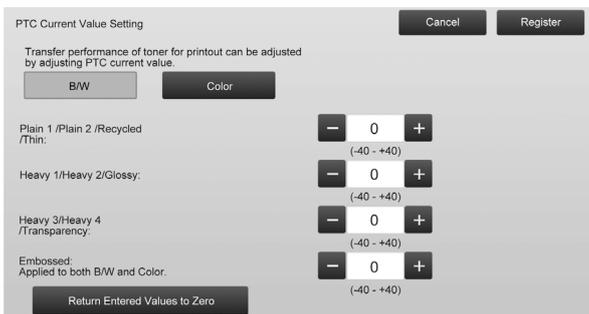
This performs toner transfer adjustment by fine tuning PTC current value.

Symptoms that may be alleviated by the adjustment:

When the image is distorted by the use of a large embossed paper (not by temperature or humidity), distortion may be improved by increasing the value.

Adjustment Procedure:

- 1) Select [PTC Current Value Setting] in the Transfer screen.
- 2) Select the color to adjust and enter the desired value.



Input range: [-40] to [40]
Default: [0] for each

- 3) Tap the [Register] key to register the setting.

Note:

To reset all items to [0], tap the [Return Entered Values to Zero] key.

1.5 Image Quality Adjustment

Select [Image Quality Adjustment] in the Image Quality Adjustment screen.

1.5.1 Color Balance Adjustment (for Copy)

Modes the adjustment is effective in:
Copy mode

Overview:

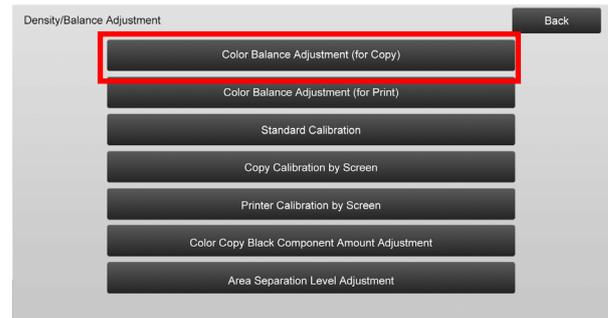
This enables adjustment of gradation density for printing in copy mode by measuring test patch visually.

Symptoms that may be alleviated by the adjustment:

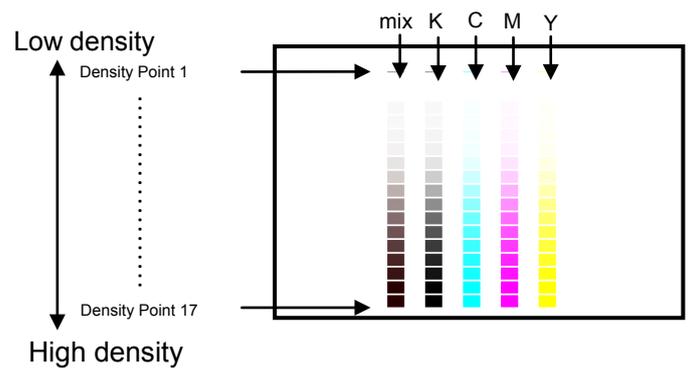
Adjustment is possible for each color and each density range, and thus in addition to settings such as “Lighter overall” or “Bluish overall”, fine adjustment such as “Darken only low-density magenta parts” is possible.

Adjustment Procedure:

- 1) Select [Color Balance Adjustment (for Copy)] in the Image Quality Adjustment screen.



- 2) To start the adjustment, tap the [Execute] key in the Color Balance Adjustment (for Copy) screen.
- 3) An adjustment pattern is printed. Density Point 1 indicates the patches of the lowest density for each color, Density Point 2 indicates the patches of the second lowest density, and Density Point 17 indicates the patches of the highest density. If you increase the density correction value, the density of the corresponding patch will be higher and density around the patch will also be higher in regular prints.

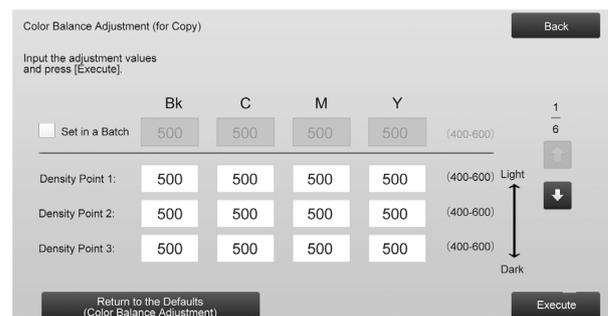


Note:

The patches for “mix” are adjusted by factory to be a little reddish so that color balance in regular copy and print will be in good color balance (not meaning regular gray print will be a little reddish)

- 4) Referring to the adjustment pattern, select the color and density point to adjust. Enter the desired value and then tap the [Execute] key.

Example of the Color Balance Adjustment (for Copy) screen



Note:

It is recommended to change adjustment value to 450 or 550 at first.

- To change the density points separately
The density points can be specified separately.
Input range: [400] to [600]
Default: [500] for each
- To change all density points at once
The density points can be also specified all at once by checking the [Set in a Batch] checkbox.
Input range: [400] to [600]

The [Set in a Batch] checkbox is not checked by default. When this checkbox is checked, the value [500] appears in the textbox.

Note:

When the [Set in a Batch] checkbox is checked, Density Points 1-17 are grayed out. When this checkbox is not checked, the textbox for [Set in a Batch] is not active. (A beep sounds when the textbox is tapped.)

- 5) After adjustment, tap the [Execute] button again, print a print pattern, and check the results of adjustment. You will return to the Image Quality Adjustment screen.

Note:

To return your preferences to the factory defaults, tap the [Return to the Defaults (Color Balance Adjustment)] key. When a confirmation message appears, tap the [OK] key. Your preferences are returned to the factory defaults and the screen returns to the Image Quality Adjustment screen.

Example:

If gray color is a little lean to cyan, changing each value of C from the default value toward up to 450 may improve the color.

1.5.2 Color Balance Adjustment (for Print)

Modes the adjustment is effective in:

Printer mode

Overview:

This enables adjustment of gradation density for printing in printer mode by measuring test patch visually.

Symptoms that may be alleviated by the adjustment:

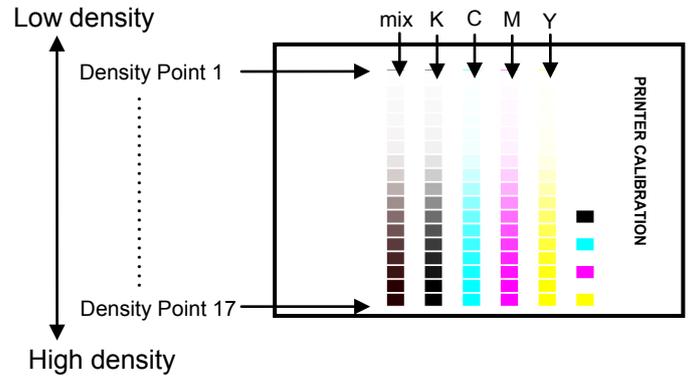
Adjustment is possible for each color and each density range, and thus in addition to settings such as “Lighter overall” or “Bluish overall”, fine adjustment such as “Darken only low-density magenta parts” is possible.

Adjustment Procedure:

- 1) Select [Color Balance Adjustment (for Print)] in the Image Quality Adjustment screen.

- 2) To start the adjustment, tap the [Execute] key in the Color Balance Adjustment (for Print) screen.

- 3) An adjustment pattern is printed. Density Point 1 indicates the patches of the lowest density for each color, Density Point 2 indicates the patches of the second lowest density, and Density Point 17 indicates the patches of the highest density. If you increase the density correction value, the density of the corresponding patch will be higher and density around the patch will also be higher in regular prints.

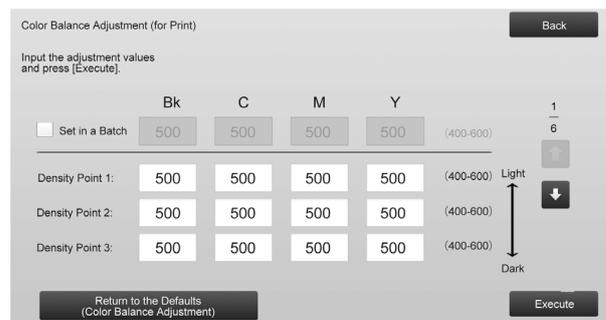


Note:

The patches for “mix” are adjusted by factory to be a little reddish so that color balance in regular copy and print will be in good color balance (not meaning regular gray print will be a little reddish)

- 4) Referring to the adjustment pattern, select the color and density point to adjust. Enter the desired value and then tap the [Execute] key.

Example of the Color Balance Adjustment (for Print) screen



Note:

It is recommended to change adjustment value to 450 to 550 at first.

- To change the density points separately
The density points can be specified separately.
Input range: [400] to [600]
Default: [500] for each
- To change all density points at once
The density points can be also specified all at once by checking the [Set in a Batch] checkbox.
Input range: [400] to [600]

The [Set in a Batch] checkbox is not checked by default. When this checkbox is checked, the value [500] appears in the textbox.

Note:

When the [Set in a Batch] checkbox is checked, Density Points 1-17 are grayed out. When this checkbox is not checked, the textbox for [Set in a Batch] is not active. (A beep sounds when the textbox is tapped.)

- 5) When adjustment is completed, you will return to the Image Quality Adjustment screen. After adjustment, tap the [Execute] button again, print a print pattern, and check the results of adjustment.

Note:

To return your preferences to the factory defaults, tap the [Return to the Defaults (Color Balance Adjustment)] key. When a confirmation message appears, tap the [OK] key. Your preferences are returned to the factory defaults and the screen returns to the Image Quality Adjustment screen.

1.5.3 Standard Calibration

Modes the adjustment is effective in:

Copy and printer modes

Overview:

This performs gradation density for printing in copy and printer modes automatically. It is possible to perform adjustment for copy and printer modes separately. This function uses the scanner to adjust color balance.

Symptoms that may be alleviated by the adjustment:

Case that you want to improve color tone in copy and printer modes

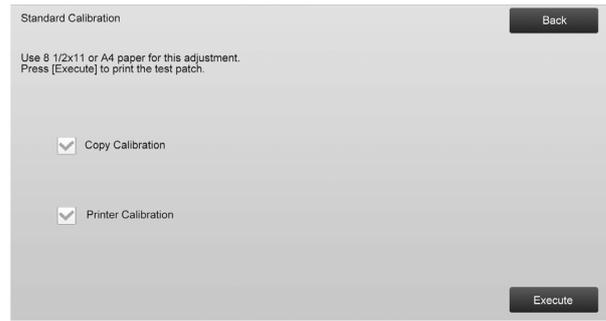
Note:

- When this adjustment is performed, the values set in Color Balance Adjustment (for Copy) (1.5.1) / Color Balance Adjustment (for Print) (1.5.2) will be cleared. To perform calibration without clearing those values, perform Color Calibration in System settings.
- When [1.5.4 Copy Calibration by Screen] and [1.5.5 Printer Calibration by Screen] is to be performed, this adjustment is not necessary.

Adjustment Procedure:

- 1) Select [Standard Calibration] in the Image Quality Adjustment screen.

- 2) To print a test patch, select the desired calibration and tap the [Execute] key in the Standard Calibration screen.



Copy calibration checkbox*:

When this checkbox is checked and the [Execute] key is tapped, copy calibration is executed.

Printer calibration checkbox*:

When this checkbox is checked and the [Execute] key is tapped, printer calibration is executed.

Note:

When both of [Copy Calibration] and [Printer Calibration] are checked, copy calibration is first executed and then printer calibration.

- 3) When the [Execute] key is tapped, the checked calibration starts.
- 4) A test patch is printed.

Note:

When the printing of a test patch fails, the following message appears: Printing test patch has failed. Use 8 1/2" X 11" or A4 paper for this adjustment. Press [Execute] to print the test patch.

- 5) Place the test patch printer in step 4) on the document glass(the thin line at the edge of the page is to the left). Lay copy paper (about five sheets) that is the same size as the test patch on top of the placed test patch, gently close the automatic document feeder, and tap the [Execute].

Note:

When the scanning of the test patch fails, the following message appears: Auto adjustment has failed. Please check if the test patch is properly set on the document glass. Press [Execute] to resume scanning.

- 6) When the calibration is completed, a completion message appears. The completion message varies depending on the calibration that has been executed.
 - To return to the Image Quality Adjustment screen, tap the [Back] key.
 - When both of [Copy Calibration] and [Printer Calibration] are executed, tap the [Execute] key to move on to the execution of Printer Calibration. Repeat the step 4) to 6) for Printer Calibration.

1.5.4 Copy Calibration by Screen

Modes the adjustment is effective in:

Copy mode

Overview:

This performs gradation density for printing in copy mode for each dither pattern.

The scanner can be used to perform fine adjustment of the copying color balance of each screen.

Symptoms that may be alleviated by the adjustment:

Case that you want to improve color tone for specific screen in copy mode

Adjustment Procedure:

- 1) Select [Copy Calibration by Screen] in the Image Quality Adjustment screen.
- 2) To start copy calibration by screen, tap the [Execute] key in the Copy Calibration by Screen screen.
- 3) A test patch is printed.

Note:

When the printing of a test patch fails, the following message appears: Printing test patch has failed. Use 8 1/2" X 11" or A4 paper for this adjustment. Press [Execute] to print the test patch.

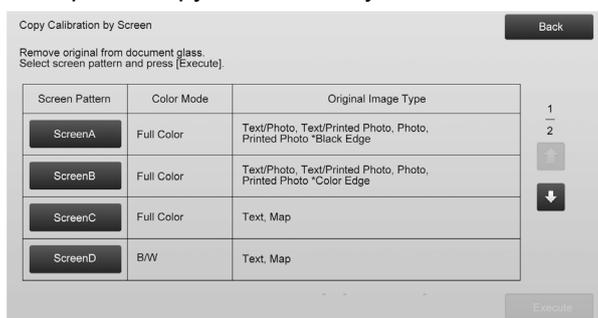
- 4) Place the printed test patch on the document glass and tap [Execute] to start the auto adjustment. Place the test patch in portrait orientation.

Note:

When the scanning of the test patch fails, the following message appears: Auto adjustment has failed. Please check if the test patch is properly set on the document glass. Press [Execute] to resume scanning.

- 5) When the adjustment is completed, the dither pattern selection screen appears.

Example of Copy Calibration by Screen screen.



- 6) Select the desired dither pattern and tap the [Execute] key to start calibration by screen.

- 7) A test patch is printed.

Note:

When the printing of a test patch fails, the following message appears: Printing test patch has failed. Use 8 1/2" X 11" or A4 paper for this adjustment. Press [Execute] to print the test patch.

- 8) Place the printed test patch on the document glass. Press [Execute] to start the auto adjustment. Place the test patch in portrait orientation.
- 9) When the copy calibration by screen is completed, a completion message appears.

Note:

When the scanning of the test patch fails, the following message appears: Auto adjustment has failed. Please check if the test patch is properly set on the document glass. Press [Execute] to resume scanning.

- To return to the dither pattern selection screen, tap the [Pattern Selection] key.
- To return to the Image Quality Adjustment screen, tap the [Back] key.

1.5.5 Printer Calibration by Screen

Modes the adjustment is effective in:

Printer mode

Overview:

This performs gradation density for printing in printer mode for each dither pattern.

The scanner can be used to perform fine adjustment of the printer color balance of each screen.

Symptoms that may be alleviated by the adjustment:

Case that you want to improve color tone for specific screen in printer mode

Adjustment Procedure:

- 1) Select [Printer Calibration by Screen] in the Image Quality Adjustment screen.
- 2) To start printer calibration by screen, tap the [Execute] key in the Printer Calibration by Screen screen.
- 3) A test patch is printed.

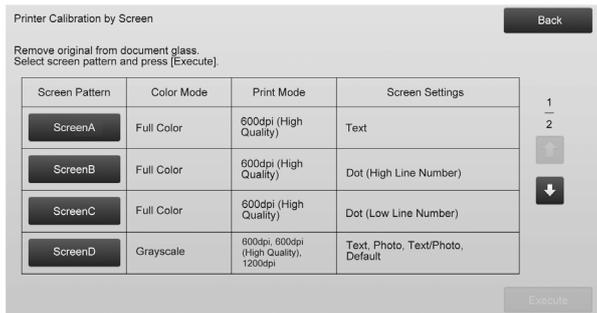
Note:

When the printing of a test patch fails, the following message appears: Printing test patch has failed. Use 8 1/2" X 11" or A4 paper for this adjustment. Press [Execute] to print the test patch.

- 4) Place the printed test patch on the document glass. Press [Execute] to start the auto adjustment. Place the test patch in portrait orientation.

- When the adjustment is completed, the dither pattern selection screen appears.

Example of Printer Calibration by Screen screen.



- Select the desired dither pattern and tap the [Execute] key to start calibration by screen.

- A test patch is printed.

Note:

When the printing of a test patch fails, the following message appears: Printing test patch has failed. Use 8 1/2" X 11" or A4 paper for this adjustment. Press [Execute] to print the test patch.

- Place the printed test patch on the document glass. Press [Execute] to start the auto adjustment. Place the test patch in portrait orientation.

- When the printer calibration by screen is completed, a completion message appears.

Note:

When the scanning of the test patch fails, the following message appears: Auto adjustment has failed. Please check if the test patch is properly set on the document glass. Press [Execute] to resume scanning.

- To return to the dither pattern selection screen, tap the [Pattern Selection] key.
- To return to the Image Quality Adjustment screen, tap the [Back] key.

1.5.6 Color Copy Black Component Amount Adjustment

Modes the adjustment is effective in:

Copy mode

Overview:

This performs adjustment of black component amount in color copy.

By decreasing the black component, gradations of dark parts are more easily expressed. By increasing the black component, expression of dark gradations becomes more difficult, however, unevenness of dark parts is suppressed and a darker effect is created.

Symptoms that may be alleviated by the adjustment:

- Case that density of dark area is low
- Case that you want to improve gradation of dark area

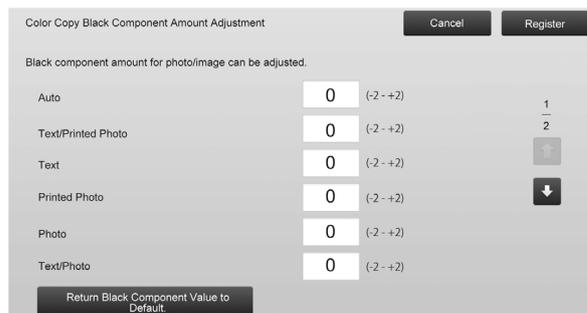
Adjustment Procedure:

- Select [Color Copy Black Component Amount Adjustment] in the Image Quality Adjustment screen.

- Select the mode to adjust with scroll key.

The 10-key pad appears when each of the textboxes is tapped. Enter the desired values

Example of Color Copy Black Component Amount Adjustment screen.



Input range: [-2] to [2]

Default: [0] for each

- Tap the [Register] key to register the setting.

To save your changes, tap the [Register] button. To cancel your changes, tap the [Cancel] button. In both cases, you will return to the Image Quality Adjustment screen after tapping the button.

Note:

To return your preferences to the factory defaults, tap the [Return Black Component Amount Adjustment Value to Default.] key. When confirmation message appears, tap [OK] key. Your preferences are returned to the factory defaults and the screen returns to the Image Quality Adjustment screen.

Example:

If density of dark area is low, increasing the adjustment value by 1 may improve it.

1.5.7 Area Separation Level Adjustment

Modes the adjustment is effective in:

Copy and scan modes

Overview:

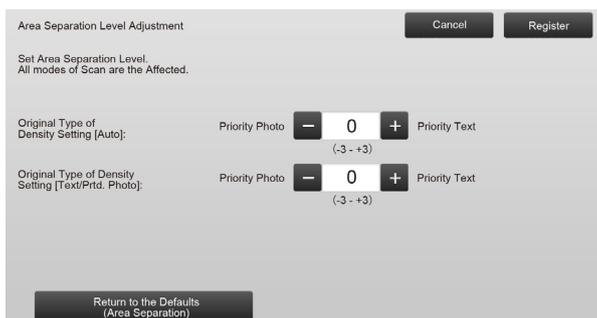
This performs area separation level adjustment. Reproducibility of photos and text when copying or scanning the originals contains both photos and text can be adjusted.

Symptoms that may be alleviated by the adjustment:

- Case that you want to eliminate gap in photo and halftone part, which are generated by copying copy and print originals, and make the image quality suitable for copy and print originals
- Case that you want to eliminate edges and improve photo image quality if you see edges like black dots in photo image.
- Case that you want to improve reproducibility of letters and lines by shifting to Priority Text if reproducibility of letters and lines are not good.

Adjustment Procedure:

- 1) To change the area separation level adjustment setting, tap the [+] and [-] key or use the 10-key pad appears when each of the textboxes is tapped.



Input range: [-3] to [3]

Default: [0] for each

Note:

Since default (0) is considered as the best balance, Reproducibility of photos or text may become poor by adjustment.

- 2) Tap the [Register] key to register the setting.

Note:

To return your preferences to the factory defaults, tap the [Return to the Defaults (Area Separation)] key. When confirmation message appears, tap [OK] key. Your preferences are returned to the factory defaults and the screen returns to the Image Quality Adjustment screen.

1.6 Other Functions

Select [Other Functions] in the Image Quality Adjustment screen.

1.6.1 Main Charger Cleaner Operation

Modes the adjustment is effective in:

Copy and printer modes

Overview:

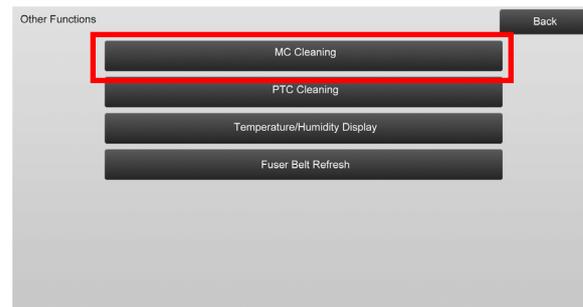
This performs main charger cleaning.

Symptoms that may be alleviated by the adjustment:

Streaks in front-rear direction in prints

Adjustment Procedure:

- 1) Select [MC Cleaning] in the Other Functions screen.



- 2) To start the main charger cleaner operation, tap the [Execute] key in the Cleaner Operation screen.

- 3) When the cleaner operation is completed, a completion message appears.

- 4) To return to the Other Functions screen, tap the [Back] key.

1.6.2 PTC Cleaning

Modes the adjustment is effective in:

Copy and printer modes

Overview:

This performs PTC cleaning.

Adjustment Procedure:

- 1) Select [PTC Cleaning] in the Other Functions screen.

- 2) To start the PTC cleaning operation, tap the [Execute] key in the PTC Cleaning screen.

- 3) When the cleaner operation is completed, a completion message appears.

- 4) To return to the Other Functions screen, tap the [Back] key.

1.6.3 Temperature/Humidity Display

Modes the adjustment is effective in:

Copy and printer modes

Overview:

This shows temperature and humidity in the machine.

Symptoms that may be alleviated by the adjustment:

No adjustment (just confirmation of setting values)

Confirmation Procedure:

- 1) Select [Temperature/Humidity Display] in the Other Functions screen.
- 2) Temperatures and humidity inside the machine are displayed (display only).

Example of Temperature/Humidity Display screen.



Caution:

Fuser temperature adjustment stops when you enter the machine adjustment mode. Therefore, the displayed temperature may not correspond with the fusing temperature for printing.

- 3) To return to the Other Functions screen, tap the [Back] key.

1.6.4 Fuser Belt Refresh

Modes the adjustment is effective in:

Copy and printer modes

Overview:

Burrs from the cut edge of paper may damage the surface of the fusing belt and cause lines to appear in the printed image.

To refresh (polish and remove the damage from) the fusing belt, you can remove the paper guide and attach the fuser belt refresh tool.

The procedure for refreshing the fusing belt is explained here.

Note:

This function can only be used when the Fuser Belt Refresh Tool included in the machine is attached.

Adjustment Procedure:

- 1) Select [Fuser Belt Refresh] in the Other Functions screen.
- 2) Tap the [Execute] key to start preparations for replacing the paper guide with the fuser belt refresh tool.

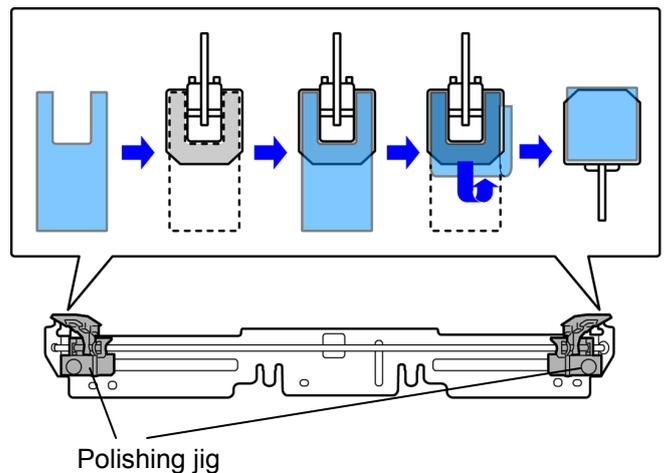
Preparing the fuser belt refresh tool

Note:

If a previously used polishing sheet is still attached, be sure to remove the old sheet and attach a new sheet.

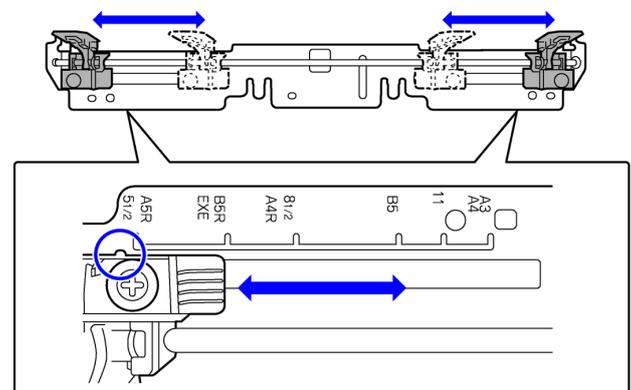
To polish the fusing belt, attach a polishing sheet to the polishing jigs on the fuser belt refresh tool.

1. Attach the polishing sheet to the fuser belt refresh tool polishing jigs on the left and right as shown in the upper diagram below.
2. Align the polishing sheet with the groove to attach.
3. Fold the excess part of the sheet back.

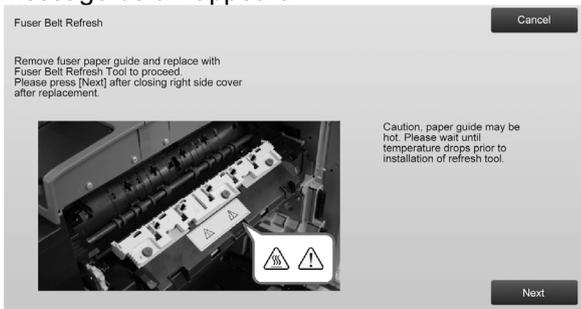


Adjust the positions of the fuser belt refresh tool polishing jigs to match the width of the paper where the lines appear.

1. Adjust the positions of the left and right fuser belt refresh tool polishing jigs.
2. Adjust the circled position at the bottom of the diagram below to the desired paper size position.



When machine preparations are completed, the message below appears.



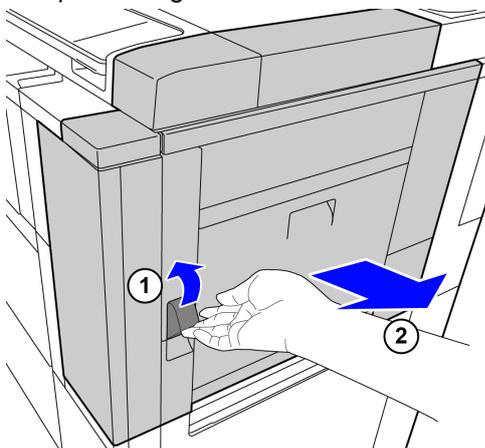
3) Replace the paper guide with the fuser belt refresh tool.

Caution:

The fusing unit may be hot. Wait until it has cooled sufficiently.

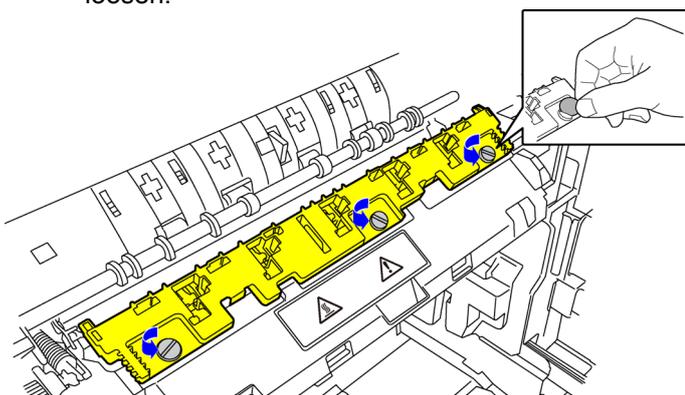
1. Open the right side cover.

- ① Pull the right side cover release lever to unlock the cover.
- ② Open the right side cover.



2. Remove the 3 screws.

If the screws are tight, use a coin or other tool to loosen.

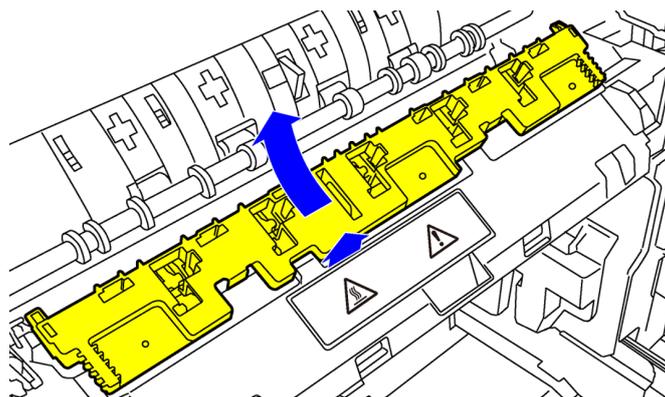


Note:

The screws will be used to attach the fuser belt refresh tool. Do not misplace the screws.

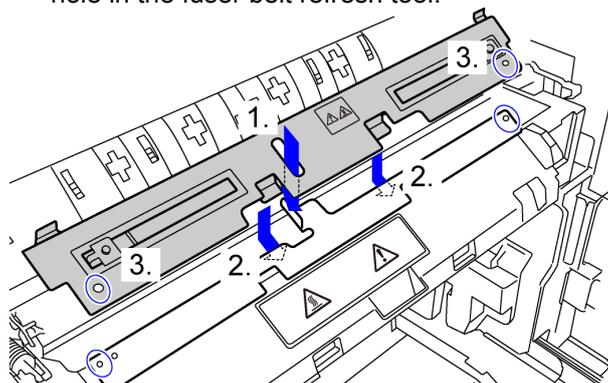
3. Remove the paper guide.

Lift the back slightly so that the paper guide clears the tab, and slide forward to remove.



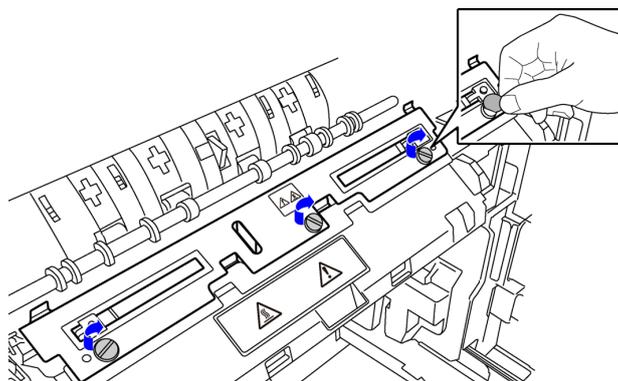
4) Attach the fuser belt refresh tool.

1. Insert the tab at the center of the machine into the hole in the center of the fuser belt refresh tool.
2. Insert the two tabs on the fuser belt refresh tool under the holder on the machine.
3. Insert the tab on the holder on the machine into the hole in the fuser belt refresh tool.

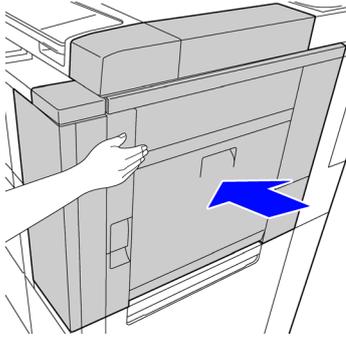


4. Fasten the fuser belt refresh tool to the machine with the screws that fastened the paper guide.

Use a coin or other tool to firmly tighten the screws.



5. Close the right side cover.



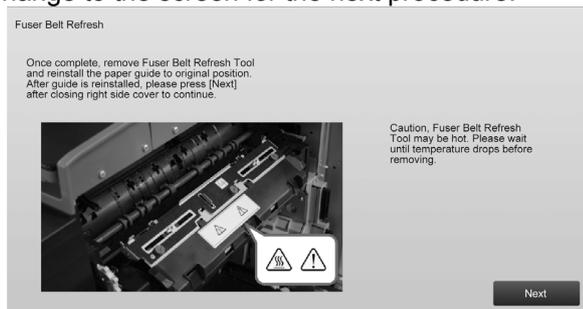
- 5) After replacing the paper guide with the fuser belt refresh tool, tap the [Next] key.

Note:

If for any reason the machine power turns off and then restarts after you tap the [Next] key, a message will appear after the machine starts.

In this case, repeat the procedure for replacing the paper guide with the fuser belt refresh tool from the beginning.

- 6) Tap the [Execute] key to execute fusing belt refreshing. When refreshing ends, the screen will automatically change to the screen for the next procedure.



- 7) Replace the fuser belt refresh tool with the paper guide.
 1. Open the right side cover.
 2. Remove the 3 fastening screws, and follow the attachment procedure in reverse to remove the fuser belt refresh tool.
 3. Follow the removal procedure in reverse to attach the paper guide, and fasten with the 3 screws. Use a coin or other tool to firmly tighten the screws.
 4. Close the right side cover.

Note:

After you have removed the fuser belt refresh tool, remove the polishing sheet.

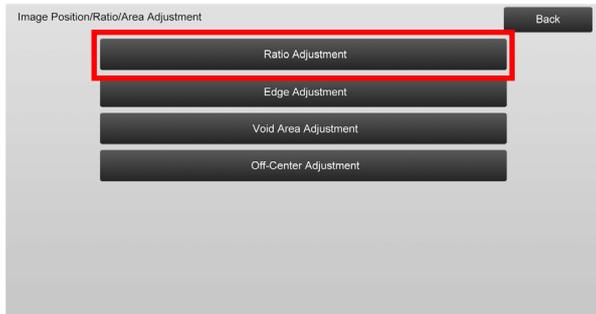
- 8) After replacing the fuser belt refresh tool with the paper guide, tap the [Next] key.
- 9) To return to the Other Functions screen, tap the [Back] key.

2 Image Position/Ratio/Area Adjustment

Select [Image Position/Ratio/Area Adjustment] in the Machine Adjustment screen.

2.1 Ratio Adjustment

Select [Ratio Adjustment] in the Image Position/Ratio/Area Adjustment screen.



2.1.1 Scan Ratio Adjustment

Modes the adjustment is effective in:
Copy and scanner modes

Overview:

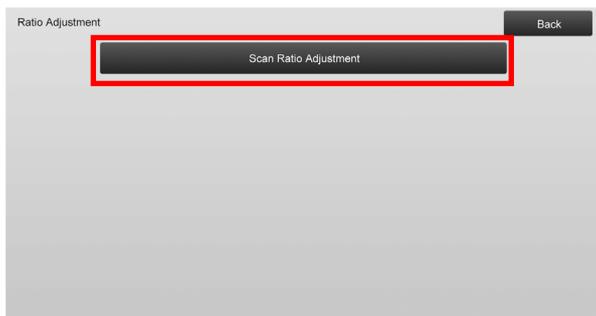
This performs magnification adjustment in sub scan direction for scanning original in copy and scan modes.

Symptoms that may be alleviated by the adjustment:

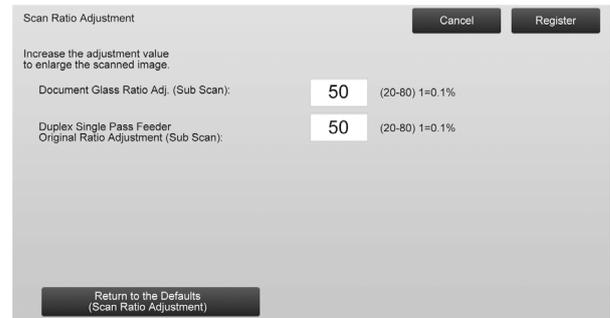
- Case that you want to fine-adjust magnification of copy or scan image

Adjustment Procedure:

- 1) Select [Scan Ratio Adjustment] in the Ratio Adjustment screen.
Specify the Print Position Adjustment first.



- 2) Enter the desired values and tap the [Register] key.



Input range: [20] to [80] (1 = 0.1 %)
Default: [50] for each

Note:

To return your preferences to the factory defaults, tap the [Return Scan Ratio Adjustment Value to the Default] key. When a confirmation message appears, tap the [OK] key. Your preferences are returned to the factory defaults and the screen returns to the Ratio Adjustment screen.

2.2 Edge Adjustment

Select [Edge Adjustment] in the Image Position/Ratio/Area Adjustment screen.

2.2.1 Scan Original Edge Adjustment

Modes the adjustment is effective in:
Copy and scanner modes

Overview:

This performs edge (scanning start) position adjustment for scanning original from original glass.

Symptoms that may be alleviated by the adjustment:

- Case that you want to fine-adjust reading start position of copy or scan image from original glass

Adjustment Procedure:

- 1) Select [Scan Original Edge Adjustment (Original Glass)] in the Edge Adjustment screen.
Specify the Print Position Adjustment first.



2) Enter the desired value and tap the [Register] key.



Input range: [20] to [80] (1 = 0.1 mm)
Default: [50]

Note:

To return your preferences to the factory defaults, tap the [Return Edge Adjustment Value (Original Glass) to Default] key. When a confirmation message appears, tap the [OK] key. The machine restarts, and the settings return to the factory default state.

2.2.2 Scan Original Edge Adjustment (Duplex Single Pass Feeder)

Modes the adjustment is effective in:
Copy and scanner modes

Overview:

This performs edge (scanning start) position adjustment for scanning original from document feeder.

Symptoms that may be alleviated by the adjustment:

- Case that you want to fine-adjust reading start position of copy or scan image from DSPF

Adjustment Procedure:

- 1) Select [Scan Original Edge Adjustment (Duplex Single Pass Feeder)] in the Edge Adjustment screen. Specify the Print Position Adjustment first.

2) Enter the desired values and tap the [Register] key.



Input range: [20] to [80] (1 = 0.1 mm)
Default: [50] for each

Note:

To return your preferences to the factory defaults, tap the [Return to the Defaults (Scan Original Edge Adjustment)] key. When a confirmation message appears, tap the [OK] key. Your preferences are returned to the factory defaults and the screen returns to the Edge Adjustment screen.

2.3 Void Area Adjustment

Select [Void Area Adjustment] in the Image Position/Ratio/Area Adjustment screen.

2.3.1 Copy Image Loss Amount Settings (Original Glass)

Modes the adjustment is effective in:

Copy mode

Overview:

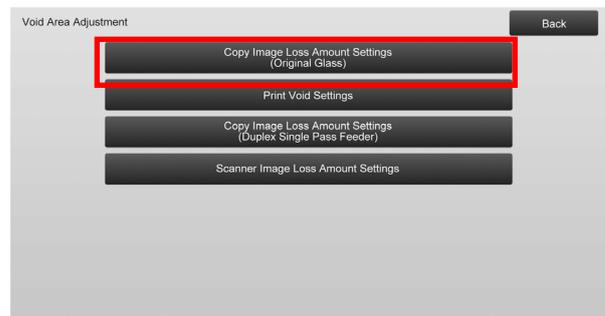
This performs adjustment of image loss amount for scanning original in copy mode.

Symptoms that may be alleviated by the adjustment:

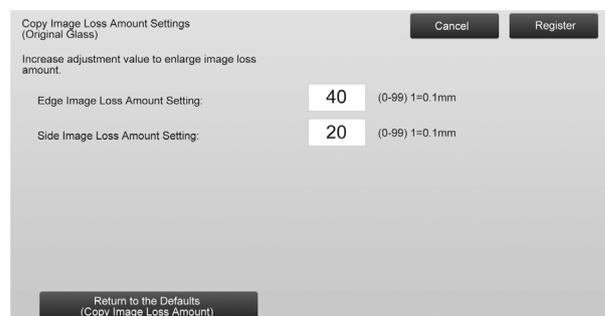
- Loss of copy image around edges read from original glass

Adjustment Procedure:

- 1) Select [Copy Image Loss Amount Settings (Original Glass)] in the Void Area Adjustment screen. Specify the Print Position Adjustment first.



2) Enter the desired values and tap the [Register] key.



Input range: [0] to [99] (1 = 0.1 mm)

Defaults:

- Edge image loss amount setting: [40]
- Side image loss amount setting: [20]

Note:

To return your preferences to the factory defaults, tap the [Return to the Defaults (Copy Image Loss Amount)] key. When a confirmation message appears, tap the [OK] key. The machine restarts, and the settings return to the factory default state.

Caution:

Image will be cut on prints by the print void amount even if you decrease the image loss amount by this adjustment.

2.3.2 Print Void Amount Settings

Modes the adjustment is effective in:
Copy and printer modes

Overview:

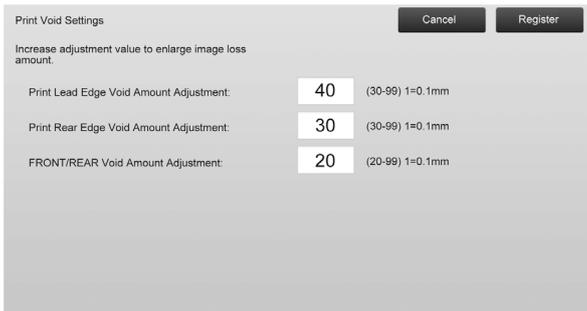
This performs adjustment of print void amount for printing.

Symptoms that may be alleviated by the adjustment:

- Case that you want to fine-adjust white border amount on print edges (void amount)

Adjustment Procedure:

- 1) Select [Print Void Amount Settings] in the Void Area Adjustment screen.
- 2) Enter the desired values and tap the [Register] key.



Input range: [0] to [99] (1 = 0.1 mm)

Defaults:

- Print Lead Edge Void Amount adjustment: [40] to [99]
- Print Rear Edge Void Amount adjustment: [30] to [99]
- Front/Rear Void Amount adjustment: [20] to [99]

Caution:

Front/Rear Void Amount adjustment is not applied for edge-to-edge print in front-rear direction.

2.3.3 Copy Image Loss Amount Settings (Duplex Single Pass Feeder)

Modes the adjustment is effective in:
Copy mode

Overview:

This performs adjustment of image loss amount for scanning original from document feeder in copy mode.

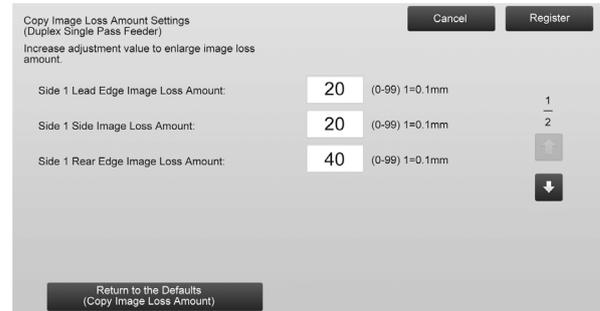
Symptoms that may be alleviated by the adjustment:

Loss of copy image around edges read from DSPF

Adjustment Procedure:

- 1) Select [Duplex Single Pass Feeder Image Loss Amount Settings] in the Void Area Adjustment screen. Specify the Print Position Adjustment / Scan Position Adjustment first.
- 2) Enter the desired values and tap the [Register] key.

Example of the Duplex Single Pass Feeder Image Loss Amount Settings screen



Input range: [0] to [99] (1 = 0.1 mm)

Defaults:

- Side 1 lead edge image loss amount: [20]
- Side 1 side image loss amount: [20]
- Side 1 rear edge image loss amount: [40]
- Side 2 lead edge image loss amount: [40]
- Side 2 side image loss amount: [20]
- Side 2 rear edge image loss amount: [20]

Note:

To return your preferences to the factory defaults, tap the [Return to the Defaults (Copy Image Loss Amount)] key. When a confirmation message appears, tap the [OK] key. The machine restarts, and the settings return to the factory default state.

2.3.4 Scanner Image Loss Amount Settings

Modes the adjustment is effective in:
Scanner mode

Overview:

This performs adjustment of image loss amount for scanning original in scanner mode.

Symptoms that may be alleviated by the adjustment:

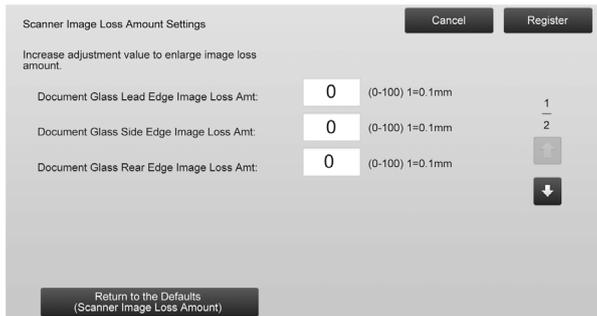
Loss of scan image around edges read from original glass or DSPF

Adjustment Procedure:

- 1) Select [Scanner Image Loss Amount Settings] in the Void Area Adjustment screen. Specify the Print Position Adjustment first.

2) Enter the desired values and tap the [Register] key.

Example of the Scanner Image Loss Amount Settings screen



Input range: [0] to [100] (1 = 0.1 mm)
Default: [0] for each

Note:

To return your preferences to the factory defaults, tap the [Return to the Defaults (Scanner Image Loss Amount)] key. When a confirmation message appears, tap the [OK] key. The machine restarts, and the settings return to the factory default state.

2.4 Off-Center Adjustment

Select [Off-Center Adjustment] in the Image Position/Ratio/Area Adjustment screen.

2.4.1 Print Off-Center Adjustment

Modes the adjustment is effective in:
Copy and printer modes

Overview:

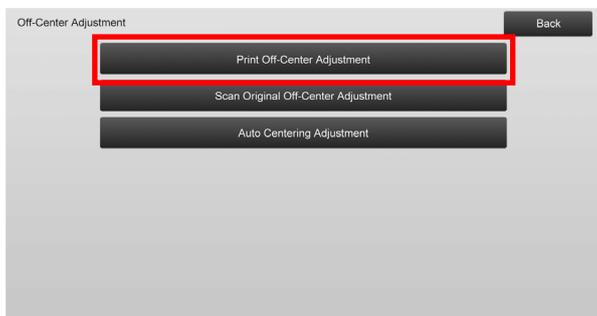
This performs center position adjustment for printing.

Symptoms that may be alleviated by the adjustment:

- Print position misalignment in front-rear direction
- White border in front-rear direction with edge-to-edge print

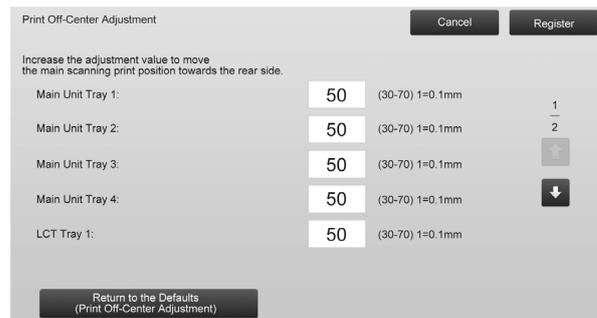
Adjustment Procedure:

1) Select [Print Off-Center Adjustment] in the Off-Center Adjustment screen.



2) Enter the desired values and tap the [Register] key.

Example of the Print Off-Center Adjustment screen



Input range: [30] to [70] (1 = 0.1 mm)
Default: [50] for each

Note:

- LCT Tray 1, LCT Tray 2, LCT Tray 3, LCT Tray 4, LCT Bypass Tray and LCC are displayed only when the options are installed.
- To return your preferences to the factory defaults, tap the [Return to the Defaults (Print Off-Center Adjustment)] key. When a confirmation message appears, tap the [OK] key. Your preferences are returned to the factory defaults and the screen returns to the Off-Center Adjustment screen.

2.4.2 Scan Original Off-Center Adjustment

Modes the adjustment is effective in:
Copy and scanner modes

Overview:

This performs center position adjustment for scanning original.

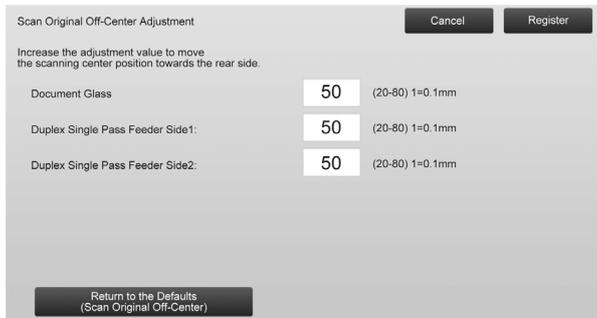
Symptoms that may be alleviated by the adjustment:

- Scanning position misalignment in front-rear direction

Adjustment Procedure:

1) Select [Scan Original Off-Center Adjustment] in the Off-Center Adjustment screen.
Specify the Print Position Adjustment first.

2) Enter the desired values and tap the [Register] key.



Input range: [20] to [80] (1 = 0.1 mm)
Default: [50] for each

Note:

To return your preferences to the factory defaults, tap the [Return to the Defaults (Scan Original Off-Center)] key. When a confirmation message appears, tap the [OK] key. Your preferences are returned to the factory defaults and the screen returns to the Off-Center Adjustment screen.

Caution:

Turning the Main Scan Direction Real Time Adjustment ON might affect the print speed and the drum life.

2.4.3 Auto Centering Adjustment

Modes the adjustment is effective in:

Copy and printer modes

Overview:

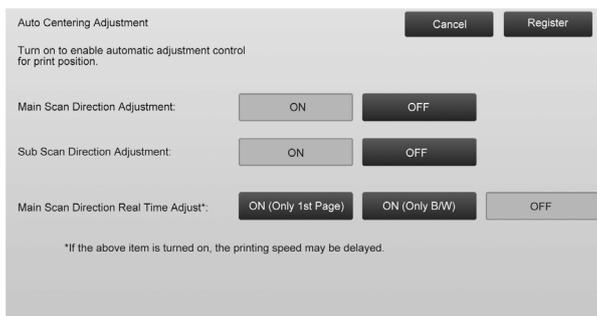
This makes settings of condition for automatic centering adjustment (function to detect paper position and perform centering adjustment automatically).

Symptoms that may be alleviated by the adjustment:

Variation of print position in front-rear direction

Adjustment Procedure:

- 1) Select [Auto Centering Adjustment] in the Off-Center Adjustment screen.
- 2) Select [ON] or [OFF] for each scan direction adjustment and tap the [Register] key.



Main Scan Direction Adjustment:

Select [ON] or [OFF]. Default: [ON]

Sub Scan Direction Adjustment:

Select [ON] or [OFF]. Default: [ON]

Main Scan Direction Real Time Adjust:

Select [ON] or [OFF]. Default: [OFF]

3 Peripheral Adjustment

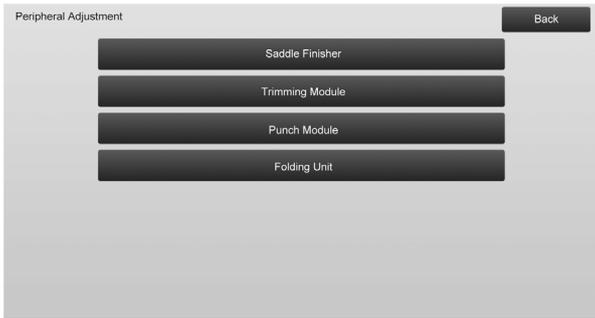
Select [Peripheral Adjustment] in the Machine Adjustment screen.

Adjustable options:

The saddle finisher, trimming module, finisher, punch module, and folding unit can be adjusted:

The installed options are displayed as follows:

- When the 100-sheet saddle finisher, trimming module, punch module, and folding unit are installed:



3.1 Saddle Finisher (When the 100-sheet saddle finisher is installed)

3.1.1 Staple Position Adjustment

Modes the adjustment is effective in:

Copy and printer modes

Overview:

This performs staple position adjustment in the direction of paper width.

Symptoms that may be alleviated by the adjustment:

- Staple position misalignment in front-rear direction

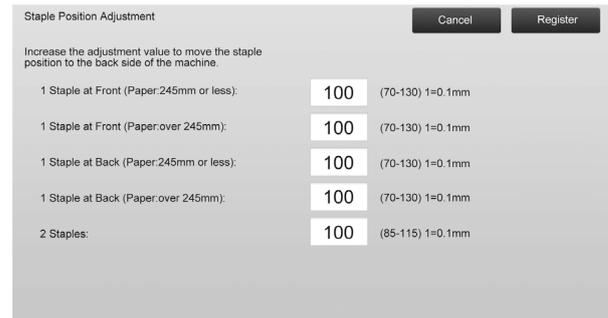
Adjustment Procedure:

- 1) Select [Staple Position Adjustment] in the Saddle Finisher screen.



- 2) Adjust the staple positions in the direction of paper width.

The 10-key pad appears when each of the textboxes is tapped. Enter the desired values.



Input range:

One staple: [70]-[130]

Two staples: [85]-[115] (1 = 0.1 mm)

Default: 100 for each

Note:

Staple position in paper feed direction cannot be adjusted.

Functional restriction

For 2 staples, the staple positions that can be adjusted vary depending on the paper size and the number of sheets included in a set to be stapled as the following table shows:

Paper size	Number of sheets included in a set	Staple position that can be adjusted
A4R/Letter R or smaller	20 sheets or less	Both staples at front and back
	More than 20 sheets	Both staples at front and back
Larger than A4R/Letter R	-	Both staples at front and back

3.1.2 Paper Alignment Width Adjustment for Staple Position

Modes the adjustment is effective in:

Copy and printer modes

Overview:

This performs jogger width adjustment for staple (paper width direction).

Set this adjustment when the stapled stuck of paper is not aligned.

Symptoms that may be alleviated by the adjustment:

Paper edge misalignment for staple

Adjustment Procedure:

- 1) Select [Paper Alignment Width Adjustment for Staple Position] in the Saddle Finisher screen.

- Adjust the distance between the alignment plates in the direction of paper width for stapling.

The 10-key pad appears when the textbox is tapped.

Enter the desired value.

Input range: [50] to [150] (1 = 0.1 mm)

Default: [100]

3.1.3 Fold Position Adjustment for Saddle Fold

Modes the adjustment is effective in:

Copy and printer modes

Overview:

This performs fold position adjustment for saddle fold (without staple).

Symptoms that may be alleviated by the adjustment:

Fold position misalignment for saddle fold

Adjustment Procedure:

- Select [Fold Position Adjustment for Saddle Fold] in the Saddle Finisher screen.
- Adjust the fold positions in the direction of paper transport for saddle folding.
The 10-key pad appears when each of the textboxes is tapped. Enter the desired values.

Input range: [42] to [58] (1 = 0.25 mm)

Default: [50] for each

3.1.4 Fold/Staple Position Adjustment for Saddle Stitch

Modes the adjustment is effective in:

Copy and printer modes

Overview:

This performs adjustment of fold and staple positions for saddle stitch (fold and staple) (both fold and staple positions are adjusted together).

Symptoms that may be alleviated by the adjustment:

Fold / staple position misalignment for saddle stitch

Adjustment Procedure:

- Select [Fold/Staple Position Adjustment for Saddle Stitch] in the Saddle Finisher screen.
- Adjust the fold/staple positions in the direction of paper transport for saddle stitching.
The 10-key pad appears when each of the textboxes is tapped. Enter the desired values.

Input range: [42] to [58] (1 = 0.25 mm)

Default: [50] for each

3.1.5 Staple Position Fine Adjustment for Saddle Stitch

Modes the adjustment is effective in:

Copy and printer modes

Overview:

This performs fine adjustment of staple position for saddle stitch (fold and staple) (used for fine adjusting staple position only).

Symptoms that may be alleviated by the adjustment:

Staple position misalignment against fold position for saddle stitch

Adjustment Procedure:

- Select [Staple Position Fine Adjustment for Saddle Stitch] in the Saddle Finisher screen.

- 2) Fine-tune the staple position in relation to the fold position for saddle folding.
The 10-key pad appears when the textbox is tapped.
Enter the desired value.



Input range: [20] to [80] (1 = 0.1 mm)
Default: [50]

3.1.6 Paper Alignment Width Adjustment for Saddle Stitch/Saddle Fold

Modes the adjustment is effective in:
Copy and printer modes

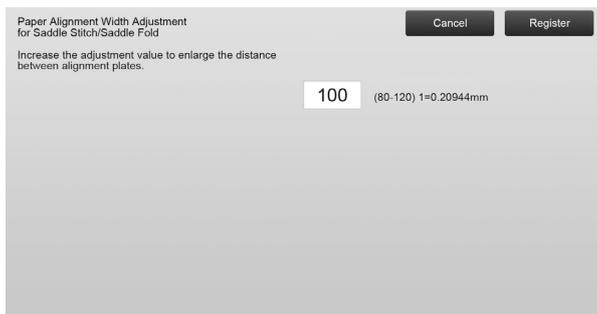
Overview:

This performs jogger width adjustment for saddle stitch and saddle fold.
Set this adjustment when the stapled stuck of paper is not aligned.

Symptoms that may be alleviated by the adjustment:
Paper edge misalignment for saddle stitch and fold

Adjustment Procedure:

- 1) Select [Paper Alignment Width Adjustment for Saddle Stitch/Saddle Fold] in the Saddle Finisher screen.
- 2) Adjust the distance between the alignment plates in the direction of paper width for saddle stitching/saddle folding.
The 10-key pad appears when the textbox is tapped.
Enter the desired value.



Input range: [80] to [120] (1 = 0.20944 mm)
Default: [100]

3.2 Trimming Module

Select [Trimming Module] in the Peripheral Adjustment screen.

3.2.1 Trimming Original Point Adjustment

Modes the adjustment is effective in:
Copy and printer modes

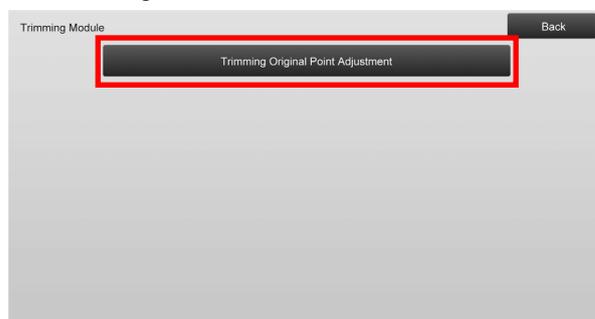
Overview:

This performs adjustment of trimming origin position for saddle stitch (fold and staple).
This corrects deviation of the actual cutting amount from the amount set with the trimming setting.

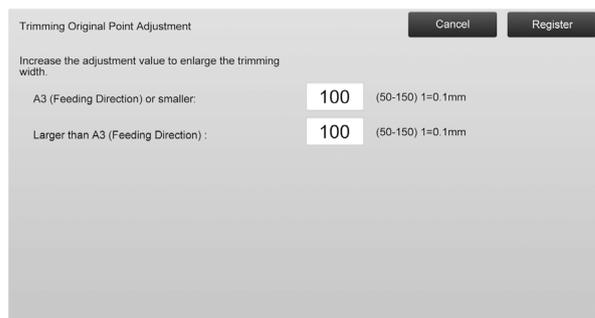
Symptoms that may be alleviated by the adjustment:
Gap of trimming amount between specified value and actual trimming amount

Adjustment Procedure:

- 1) Select [Trimming Original Point Adjustment] in the Trimming Module screen.



- 2) Adjust the trimming original point for saddle stitching.
The 10-key pad appears when each of the textboxes is tapped. Enter the desired values.



Input range: [50] to [150] (1 = 0.1 mm)
Default: [100] for each

3.3 Finisher (When the 100-sheet finisher is installed)

Select [Finisher] in the Peripheral Adjustment screen.

3.3.1 Staple Position Adjustment

Modes the adjustment is effective in:

Copy and printer modes

Overview:

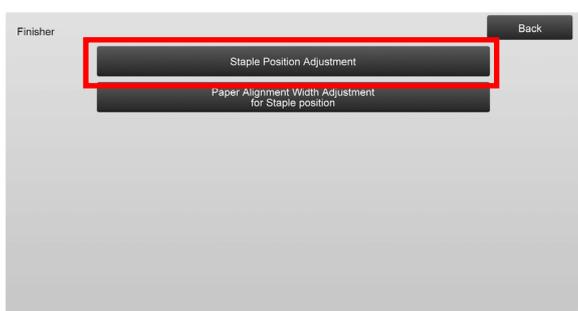
This performs staple position adjustment for staple in the direction of paper width.

Symptoms that may be alleviated by the adjustment:

Staple position misalignment in front-rear direction

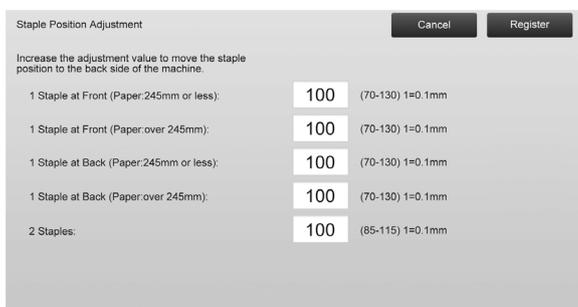
Adjustment Procedure:

- 1) Select [Staple Position Adjustment] in the Finisher screen.



- 2) Adjust the staple positions in the direction of paper width.

The 10-key pad appears when each of the textboxes is tapped. Enter the desired values.



Input range:

One staple: [70]-[130] (1 = 0.1 mm)

Two staples: [85]-[115] (1 = 0.1 mm)

Default: [100] for each

Note:

Staple position in paper feed direction cannot be adjusted.

Functional Restriction

For 2 staples, the staple positions that can be adjusted vary depending on the paper size and the number of sheets included in a set to be stapled as the following table shows:

Paper size	Number of sheets included in a set	Staple position that can be adjusted
A4R/Letter R or smaller	20 sheets or less	Both staples at front and back
	More than 20 sheets	Both staples at front and back
Larger than A4R/Letter R	-	Both staples at front and back

3.3.2 Paper Alignment Width Adjustment for Staple Position

Modes the adjustment is effective in:

Copy and printer modes

Overview:

This performs jogger width adjustment for staple (paper width direction).

Symptoms that may be alleviated by the adjustment:

Paper edge misalignment for staple

Adjustment Procedure:

- 1) Select [Paper Alignment Width Adjustment for Staple Position] in the Finisher screen.

- 2) Adjust the distance between the alignment plates in the direction of paper width for stapling.

The 10-key pad appears when the textbox is tapped. Enter the desired value.



Input range: [50] to [150] (1 = 0.1 mm)

Default: [100]

3.4 Punch Module (When the 100-sheet saddle finisher and the punch module for the finisher is installed)

Select [Punch Module] in the Peripheral Adjustment screen.

3.4.1 Punch Position Adjustment

Modes the adjustment is effective in:
Copy and printer modes

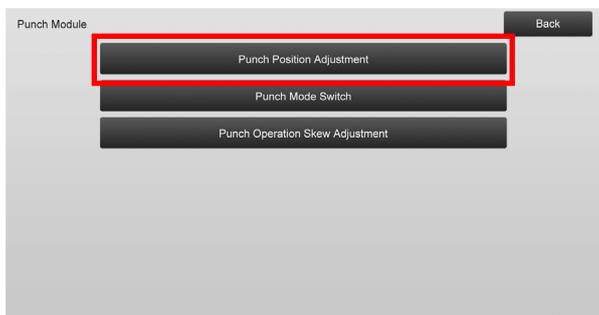
Overview:

This performs adjustment of punch position from paper edge or in the direction of paper width.

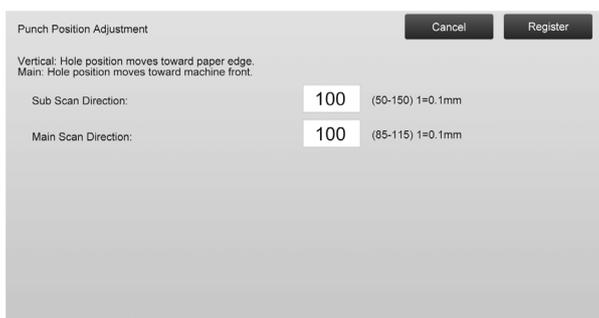
Symptoms that may be alleviated by the adjustment:
Punch position misalignment in front-rear direction

Adjustment Procedure:

- 1) Select [Punch Position Adjustment] in the Punch Module screen.



- 2) Adjust the hole positions in relation to the lead edge and in the direction of paper width. The 10-key pad appears when the textbox is tapped. Enter the desired value.



Sub Scan Direction:

Input range: [50] to [150] (1 = 0.1 mm)
Default: [100]

Main Scan Direction:

Input range: [85] to [115] (1 = 0.1 mm)
Default: [100]

3.4.2 Punch Mode Switch

Modes the adjustment is effective in:
Copy and printer modes

Overview:

This switches punch operation mode.

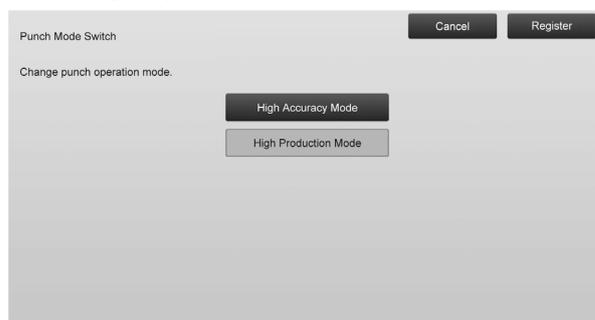
High Accuracy Mode: Prioritizes punch position accuracy when punching.

High Production Mode: Prioritizes speed when punching.

Symptoms that may be alleviated by the adjustment:
Variation of punch position against paper

Adjustment Procedure:

- 1) Select [Punch Mode Switch] in the Punch Module screen.
- 2) Select [High Accuracy Mode] or [High Production Mode] for punch mode.



Default: [High Production Mode]

Note:

Select [High Accuracy Mode] when punch hole is skewed against paper.

- 3) Tap the [Register] key to switch to the desired mode.

3.4.3 Punch Operation Skew Adjustment

Modes the adjustment is effective in:
Copy and printer modes

Overview:

This performs skew (paper tilt) adjustment for punch in High Accuracy Mode.

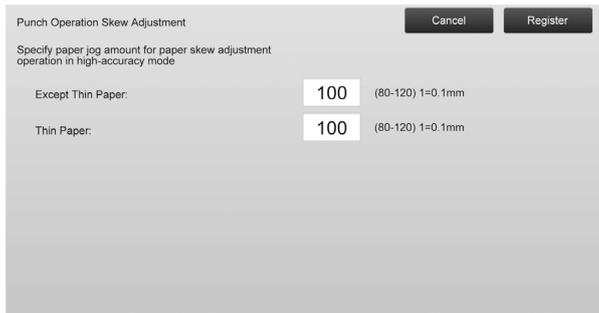
Perform this adjustment when the punch hole is skewed against paper in high accuracy mode.

Symptoms that may be alleviated by the adjustment:
Punch position skew against paper

Adjustment Procedure:

- 1) Select [Punch Operation Skew Adjustment] in the Punch Module screen.

- Adjust the paper jog amounts for the paper skew adjustment in high accuracy mode. The 10-key pad appears when each of the textboxes is tapped. Enter the desired values.



Input range: [80] to [120] (1 = 0.1 mm)
Default: [100] for each

3.5 Folding Unit

Select [Folding Unit] in the Peripheral Adjustment screen.

3.5.1 Half Fold Position Adjustment

Modes the adjustment is effective in:
Copy and printer modes

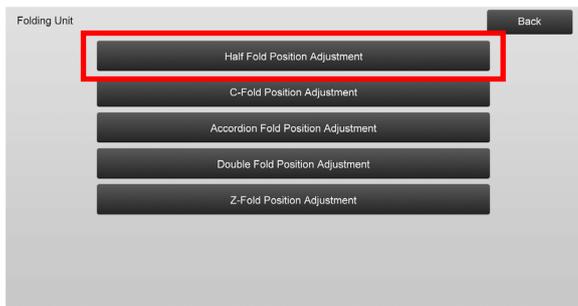
Overview:

This performs adjustment of fold position for saddle fold.

Symptoms that may be alleviated by the adjustment:
Fold position misalignment for saddle fold

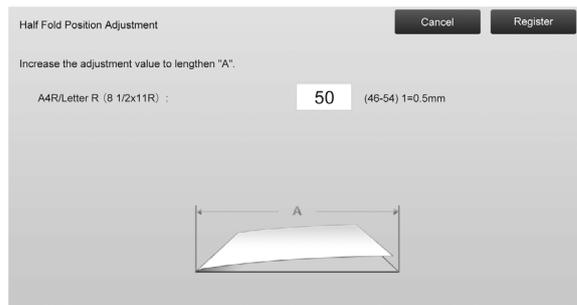
Adjustment Procedure:

- Select [Saddle Fold Position Adjustment] in the Folding Unit screen.



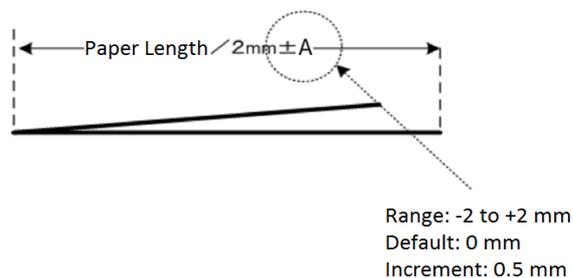
- Adjust the saddle fold position for when the folding unit is installed.

The 10-key pad appears when the textbox is tapped. Enter the desired value.



Input range: [46] to [54] (1 = 0.5 mm)
Default: [50]

Diagram showing the saddle fold position



3.5.2 C-Fold Position Adjustment

Modes the adjustment is effective in:
Copy and printer modes

Overview:

This performs adjustment of fold position for C-fold.

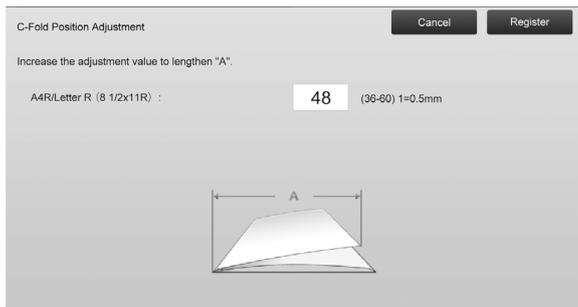
Symptoms that may be alleviated by the adjustment:
Fold position misalignment for C-fold

Adjustment Procedure:

- Select [C-Fold Position Adjustment] in the Folding Unit screen.

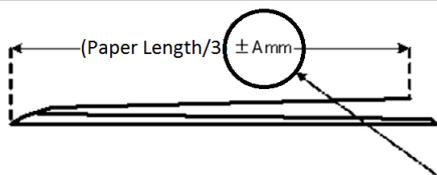
2) Adjust the C-fold position for when the folding unit is installed.

The 10-key pad appears when the textbox is tapped. Enter the desired value.



Input range: [36] to [60] (1 = 0.5 mm)
Default: [48]

Diagram showing the C-fold position



Range: -7 to +5 mm
Default: -1 mm
Increment: 0.5 mm

3.5.3 Accordion Fold Position Adjustment

Modes the adjustment is effective in:
Copy and printer modes

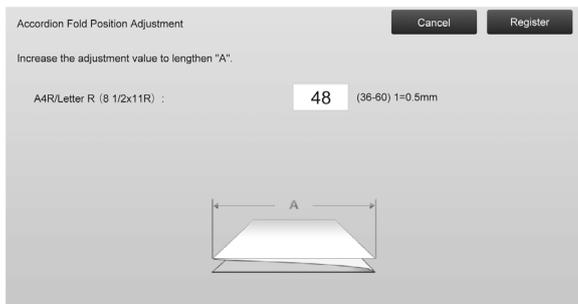
Overview:

This performs adjustment of fold position for accordion fold.

Symptoms that may be alleviated by the adjustment:
Fold position misalignment for accordion fold

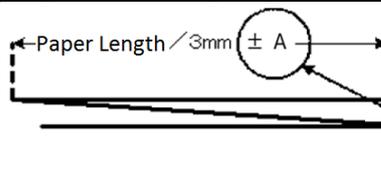
Adjustment Procedure:

- 1) Select [Accordion Fold Position Adjustment] in the Folding Unit screen.
- 2) Adjust the accordion fold position for when the folding unit is installed.
The 10-key pad appears when the textbox is tapped. Enter the desired value.



Input range: [36] to [60] (1 = 0.5 mm)
Default: [48]

Diagram showing the accordion fold position



Range: -7 to +5 mm
Default: -1 mm
Increment: 0.5 mm

3.5.4 Double Fold Position Adjustment

Modes the adjustment is effective in:
Copy and printer modes

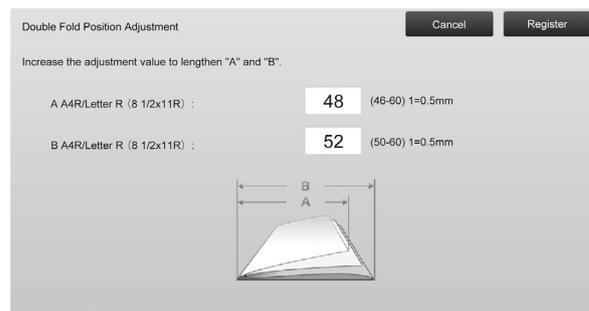
Overview:

This performs adjustment of fold position for double fold.

Symptoms that may be alleviated by the adjustment:
Fold position misalignment for double fold

Adjustment Procedure:

- 1) Select [Double Fold Position Adjustment] in the Folding Unit screen.
- 2) Adjust the double fold position for when the folding unit is installed.
The 10-key pad appears when each of the textboxes is tapped. Enter the desired values.

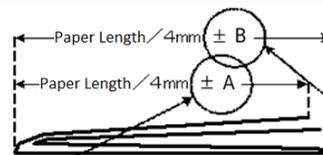


Input range:

A4R/Letter R (8 1/2 x 11R): [46] to [60] (1 = 0.5 mm)
Default: [48]

A4R/ Letter R (8 1/2 x 11R): [50] to [60] (1 = 0.5 mm)
Default: [52]

Diagram showing the double fold position



Range: -2 to +5 mm
Default: -1 mm
Increment: 0.5 mm

Range: 0 to +5 mm
Default: 1 mm
Increment: 0.5 mm

3.5.5 Z-Fold Position Adjustment

Modes the adjustment is effective in:

Copy and printer modes

Overview:

This performs adjustment of fold position for Z-fold.

Symptoms that may be alleviated by the adjustment:

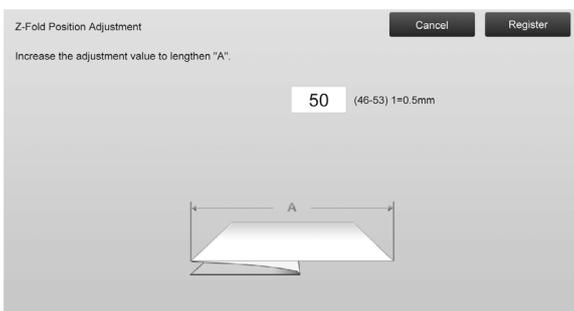
Fold position misalignment for Z-fold

Adjustment Procedure:

1) Select [Z-Fold Position Adjustment] in the Folding Unit screen.

2) Adjust the Z-fold position for when the folding unit is installed.

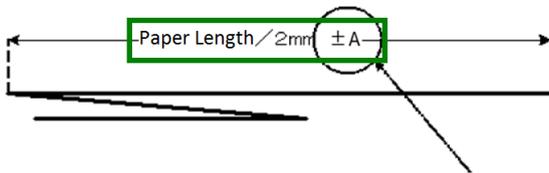
The 10-key pad appears when each of the textboxes is tapped. Enter the desired values.



Input range: [46]-[53]

The default is [50].

Diagram showing the Z-fold position



Range: -2 to +1.5 mm
Default: 0 mm
Increment: 0.5 mm

4 Print Setting Value List

The current setting values and the factory defaults for the items in the machine adjustment can be printed.

Select [Print Setting Value List] in the Machine Adjustment screen.

Note: Settings that have been changed from the factory defaults are marked with an asterisk.

1) Check the items to print.



Default: [Checked] for all

2) To print the selected items, tap the [Print] key.

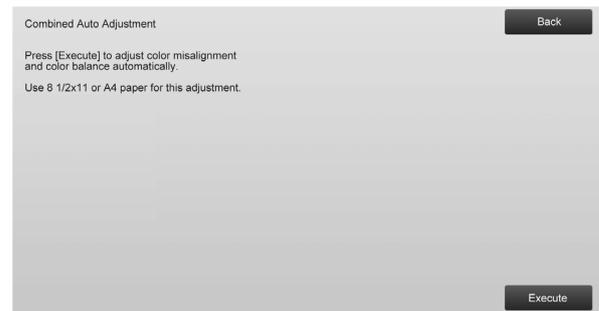
Note:

The [Print] key is grayed out when no item is checked.

5 Combined Auto Adjustment

Use this function when you want to perform easy calibration of the machine by successively executing Standard Calibration and Registration Adjustment.

1) Select [Combined Auto Adjustment] and then tap the [Execute] key to start Combined Auto Adjustment.



2) A confirmation message will appear and tap the [OK] key.

Combined Auto Adjustment starts.

- 3) When image adjustment ends, Registration Adjustment starts automatically.
When Registration Adjustment ends, Copy Calibration starts.
A test patch for Copy Calibration is printed.
Scan the test patch and perform Copy Calibration.

- 4) Next, start Printer Calibration.
A test patch for Printer Calibration is printed.
Scan the test patch and perform Printer Calibration.

Note:

When using Fiery, Printer Calibration is not performed.
Go to next step.

- 5) To return to the Other Functions screen, tap the [Back] key.

Note:

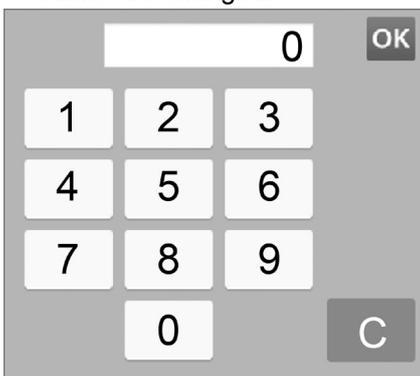
Copy calibration and printer calibration are performed in the same way as Standard Calibration. For details, refer to "[1.5.3 Standard Calibration](#)".

Registration Adjustment in Combined Auto Adjustment is performed in the same way as Registration Adjustment.

For detail, refer to "[1.1.6 Registration Adjustment](#)".

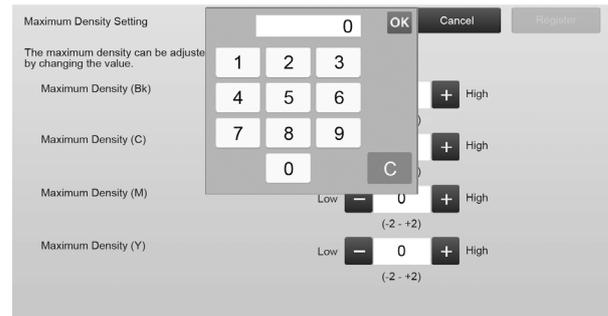
6 Layout of the 10-key Pad

- 1) The 10-key pad used for the machined adjustment consists of the numeric keys from 0 to 9, the [C] and [OK] keys and the numerical display.
- 2) The numeric keys on the 10-key pad are arranged in the ascending order starting from the top left. The order cannot be changed.



6.1 Location of the 10-key Pad in the Screen

The 10-key pad appears when each of the textboxes in the screen is tapped.



6.2 Behavior Specifications of the 10-key Pad

The behavior specifications of the 10-key pad are as follows:

- When the 10-key pad is opened, the numerical display shows by default the value currently shown in the textbox or the factory default value.
- A new entry made with the numeric keys of 0 to 9 overwrites a value currently shown in the numerical display.
- The 10-key pad is closed by tapping the [OK] key. When the 10-key pad is closed, the value in the numerical display is reflected in the textbox. Any value that is more than the range is not accepted; a beep sounds to alert accordingly when a numeric key that results in such value is tapped. When the value in the numerical display is less than the range, the [OK] key becomes inactive.
- The value in the numerical display is cleared by tapping the [C] key. When the [OK] key is tapped just after the numerical display is cleared, the entry is canceled and not reflected in the textbox; the original value or the factory default value remains effective.
- The [Cancel] and [Back] keys in each setting screen are active while the 10-key pad is being displayed. When the [Cancel] or [Back] key in the screen is tapped, the ongoing entry on the 10-key pad is canceled and the 10-key pad is closed and then the screen returns to the previous one. The [Register], [Execute] and [Return to the Defaults] keys in each setting screen, however, are not active while the 10-key pad is being displayed.

Appendix A: Symptoms to Adjust Transfer Value

Transfer Values	Tap Positive(+) when	Tap Negative(-) when
Primary transfer setting	Image problems such as misalignment or streaks, white dots occur due to usage in high humidity environment or long period of non-use in high humidity environment	Ghost images (print memory) or black dots occur due to usage in low humidity environment or long period of non-use in low humidity environment
Secondary transfer setting	Surface of images become rough due to using an uneven surface such as embossed paper in high humidity environment	Image problems (re-transfer) occurred on special paper (highly resistive paper such as laminated and transparency)
PTC Current value setting	Image problem occurred due to using an uneven surface such as embossed paper. (not by temperature or humidity)	-

SHARP