RISO

Printed in Japan

RISO

TIPS FOR BETTER DUAL COLOR PRINTING

RISO MZ Series NAVIGATION BOOK

047-36019

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Caution
Please be sure to read "Safety Guide" sections of the RISO Printer's User's Guide before operating the machine.

About the contents of this manual

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This document is described in American English and, therefore, some words and expressions are different from British English.
Ex.) colour: color cylinder: drum

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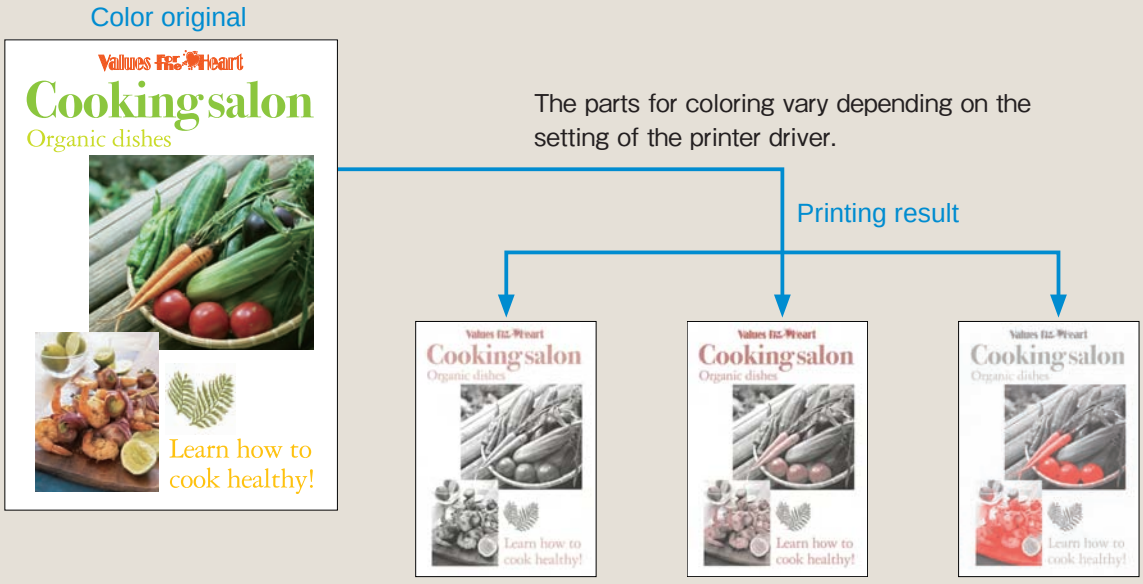
CHAPTER 1

Dual-Color Printing from Computer

This section describes "Coloring" from the printer driver.
By using a computer for Dual-Color printing, the expressive power of Dual-Color printing is further reinforced.
For explanation, it is assumed that black ink is set in Print Drum 1 and red ink is set in Print Drum 2 of this printer.

●What is "Dual-Color print" by the printer driver?

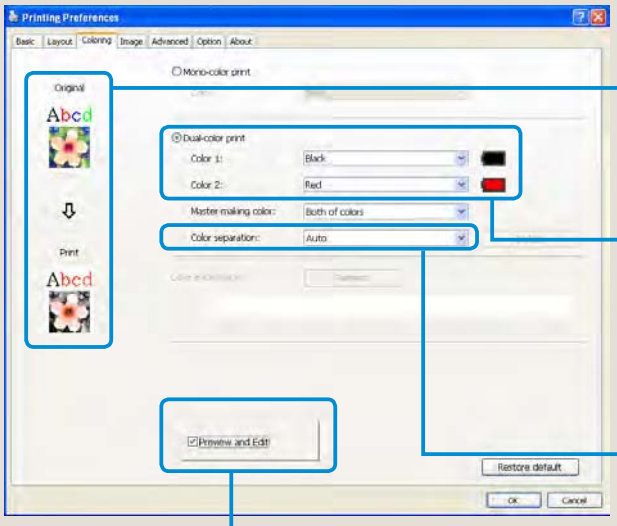
Color original data made by a computer is reproduced in two colors by the printer driver.
The result of reproducing in two colors depends on the settings of the printer driver.



It is recommended to prepare an original for Dual-Color printing using the same two colors as the ink to be used. If three or more colors are used or color images or photos are included, the printing result varies depending on the combination of Print Drum colors used and Color separation. The printer driver for this printer provides many color separation conditions as choices. In order to obtain the desired printing result, it is important to understand how each color separation condition leads to a [particular] printing result.

Printer driver setting

Use [Dual-Color print] in the [Coloring] tab for setting.



Coloring image

The [Print] image varies depending on the [Dual-Color print] setting conditions to allow the printed image to be checked.

Print Drum and ink colors

Colors of Print Drums 1 and 2 are displayed. Press the [Refresh] button to display the colors of currently set Print Drums.

Color separation

Set the method and the conditions for separating an original into two colors.

Preview and Edit

If a checkmark is entered, the "Preview and Edit" application will start after a printing instruction is issued from the printer driver (the OK button is clicked). The Dual-Color printing result can be checked and edited before printing.

Reference to P.9 "What is the Preview and Edit application ? (Preview and Edit)"

●Color separation

This section describes "Auto" and "Manual."

Auto : The printer driver sets the appropriate conditions automatically based on the combination of the colors of original data and the two Print Drum colors in this printer and performs printing. If color photos are included in the original, dual-tone color printing is performed.

Manual : The parts printed in black (Print Drum 1) and the parts printed in red (Print Drum 2) can be set separately for "Text/Line art" and "Photo." Use this function when the desired color separation cannot be obtained from "Auto." Dual-Color printing results vary depending on the setting in "Manual", even when printing from the same original.

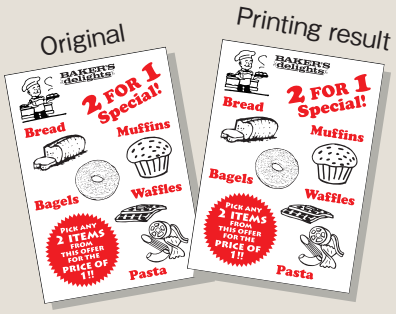
Reference to P.6 "Using "Manual" Effectively / Color Separation"

Important points for preparing originals (Dual-Color printing)

For proper Dual-Color printing, it is necessary to follow the four points described below when preparing originals.

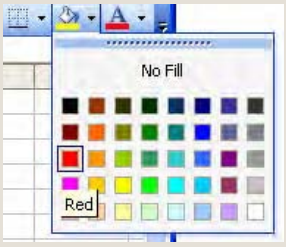
Point 1 Prepare originals using the two colors that will be actually used for printing.

"Auto" performs color separation automatically based on the colors of the currently set ink. By preparing originals with the same colors as those of the currently set ink, Dual-Color prints can be obtained as imaged.



Point 2 For red on originals, use "Pure red ■ " on the color palette

For example, if "Dark red ■ " is used on originals, the printer driver will mix "Black" to deepen the "Red ■ ." On the other hand, if "Pink ■ " is used on originals, to represent "Pink" by thinning "Red," the driver will print "Red" as halftone dots (▩). For printing solid red, be sure to use "Pure red ■ ."

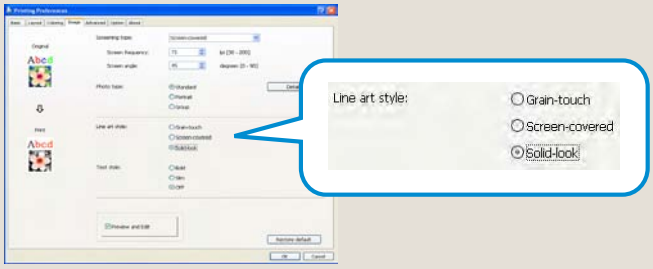


Color on original selected from palette	Dark red ■	Red ■	Pink (light red) ■
Printing result	Black halftone dots + Solid red 1 + 2 Making "Dark red" by overlapping black halftone dots on solid red	Solid red 2	Red halftone dots 2

Note [Solid-look] function

To print characters clearly regardless of the colors on originals, select [Solid-look] at [Line art style] in the [Image] tab.

Not applicable to photo images.



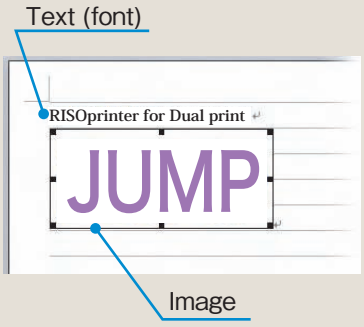
Point 3 "To print a photo in a single color," prepare it in a single color on originals.

When printing a photo in either color of two drums, convert the photo to the desired color on originals.

Note If "Manual" is used, even color photos can be printed in a single color with either Print Drum.

Point 4 Note that the conditions and the processing method for color separation differ between text and photo.

When performing color separation, this printer driver uses a different method of "Processing" for color separation depending on whether the data of the original is text (font) or image such as photo. Areas judged as "Image" are processed under the same conditions as for "Photo." "Text" is limited to originals containing text information.



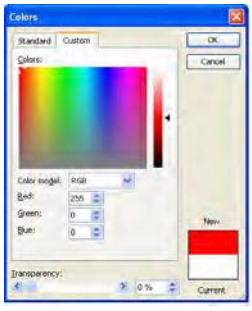
Note Conditions of "Text/Line art" and "Photo"

Text : Text information is included and the font type can be changed.
Line art : Vector diagram drawn by CAD or drawing software
Photo : Image data such as Jpeg/Tiff/Bmp/Png

"Text" and "Line art" are processed as vector data while "Photo" is processed as image data.
In "Manual" processing, color separation conditions can be set separately for "Text/Line art" and "Photo."

What is "Pure red"?

This indicates the color shown as "Red" on the color palette or the like.
In color setting, red (R) is [255] and other colors are [0] at [Color model: RGB].

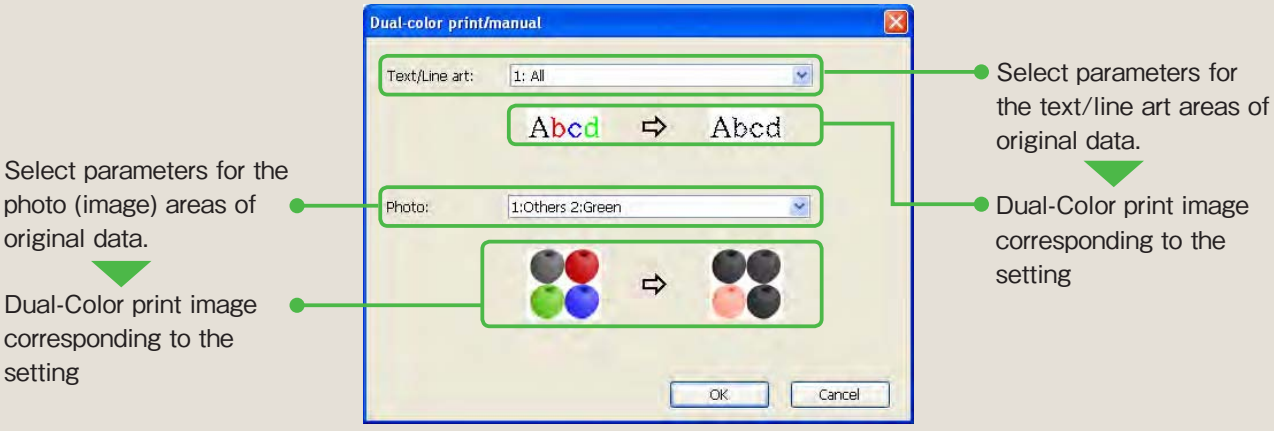


CHAPTER 2

Using "Manual" Effectively / Color Separation

Setting of color separation conditions

In "Manual" processing, different conditions for color separation can be set for the "Text/Line art" areas and the "Photo" areas separately.
In the [Coloring] tab, select "Manual" and click the [Details] button to set the conditions for color separation.
The conditions for color separation are provided on the [Text/Line art] list and the [Photo] list separately. Each of these conditions is called a parameter.
Below each list box, the image of the original and Dual-Color print is displayed. This image varies depending on the parameters selected.



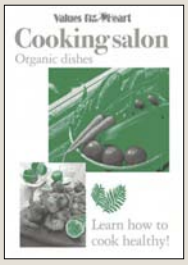
From the above example of the screen, the following printing result is obtained.

Text/Line art : 1: All — The text and the line art are printed with Print Drum 1 regardless of the colors on originals.

Photo : 1:Others 2:Green — Only the areas of green group colors in photos (image) are printed with Print Drum 2, and other areas are printed with Print Drum 1.

Original data

In the case of
Print Drum 1: Black
Print Drum 2: Green

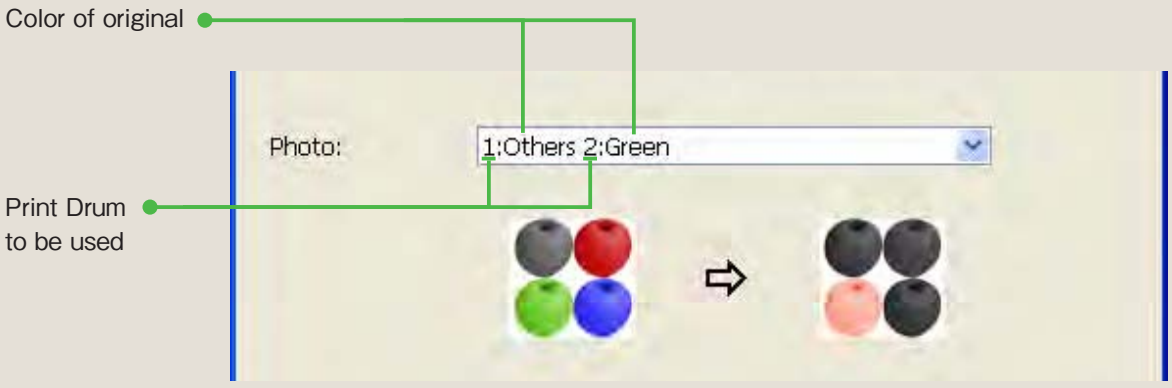


In the case of
Print Drum 1: Black
Print Drum 2: Red

The printing result varies depending on the colors of Print Drums installed in this printer.

In Dual-Color printing from color photos, the printing result varies depending on the combination of mainly used colors and materials in photos and parameters. To represent color originals in two colors, some experience and knowledge are required.
For proper use of "Manual," it is important to understand how each parameter functions depending on the tint of originals.
The relation among parameters, colors of originals, and Print Drums for master-making is shown in a list at the end of this book.
Reference to P.24 "Parameter List for "Manual"

Note **The parameter indicates the Print Drum number and the color of original to be printed by the Print Drum. [1:Others 2:Green] means green group colors of data are printed with Print Drum 2 and other colors are printed with Print Drum 1.**



What is Dual-tone color ?

This is a method of reproducing the color photo areas (image data such as Jpeg/Tiff/Bmp/Png) in two colors.
In "Auto" processing, adequate color separation is performed with the two colors of installed Print Drums. But some photos can be reproduced more clearly using "Manual" than "Auto."
For example, photo of fruits including large red area or photo of landscape including large green area.

Original image (full color)

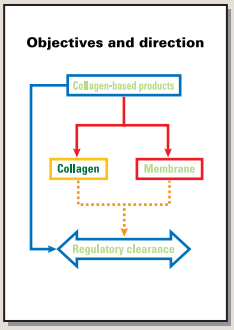
Dual-tone color with black and red

Important points for selecting parameters

For "Spot Color"

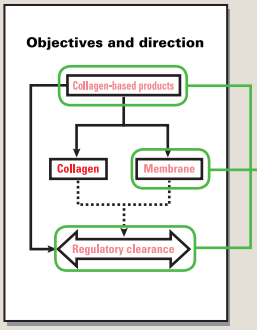
Printing only one specific color with the color of the Print Drum 2 from originals including multiple colors is called "Spot Color."
For "Spot Color", use a parameter with "Others" such as "1:Others 2:Green." By distributing the specific color to Print Drum 2 and all other colors to Print Drum 1 as "Others," Dual-Color printing with only the desired color printed in color can be performed.

Original data



Parameter setting
1:Others 2:Green

Printing result



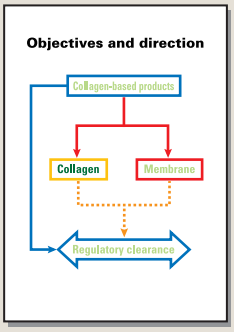
Since "Green" on the original is light, this area is represented lighter by using the red of Print Drum 2.

1 = Black, 2 = Red

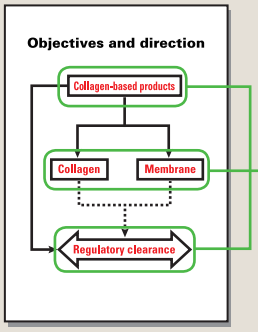
For solid color printing from light areas

Only for data that is treated as "Text/Line art," solid color printing can be performed by placing a checkmark at [Solid-look] of [Line art style] in the [Image] tab.

Original data



Printing result



All the green areas of the original are printed as solid red.

For Dual-tone color printing of photo (image) areas

Select a parameter that does not include "Others" from the parameter list for [Photo].

What is the Preview and Edit application? (Preview and Edit)

Before printing, you can preview the printing result obtained from the settings for color separation conditions. If the color in the preview is not displayed as imaged, you can change the parameter in the printer driver again.
Also specified colors can be changed on the preview screen.
Since the final data confirmed on the preview screen can be saved in the storage memory or the USB flash drive, the data can be retrieved for printing at any time. (Data in editing cannot be stored.)

Checking the preview

Printing result can be checked page by page.

To change colored area

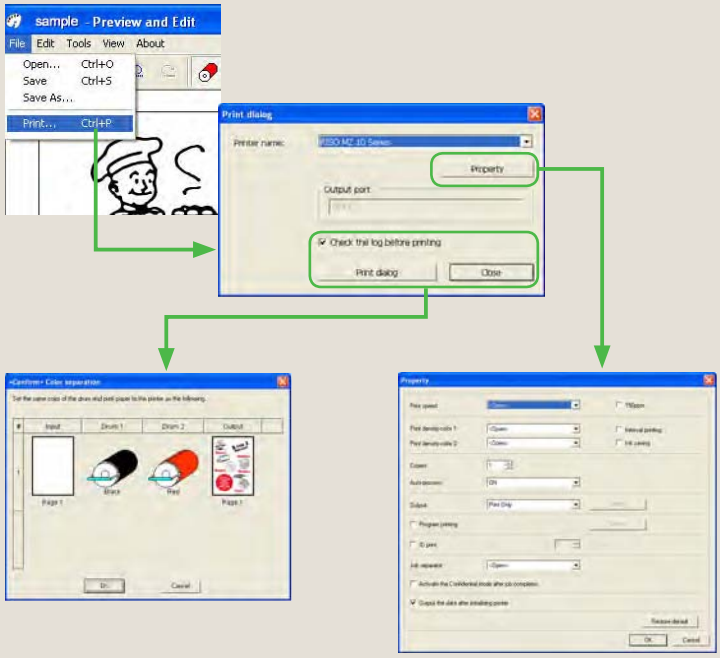
To change a colored area in data, select a Print color button , enclose the area with in which the color is changed, and click the area. The color of the selected area is changed to the selected color.
Since the area can be specified by enlarging, fine coloring can be performed.

To save edited data

Currently previewed data can be saved in the RISORINC format (extension rcs).
Saved files can be retrieved using the "Preview and Edit" application and can be edited and printed repeatedly.

To change the output setting

The driver setting for printing can be changed on the "Preview and Edit" application. If a checkmark is entered in “Check the log before printing,” the actual colors of the print drum can be checked.



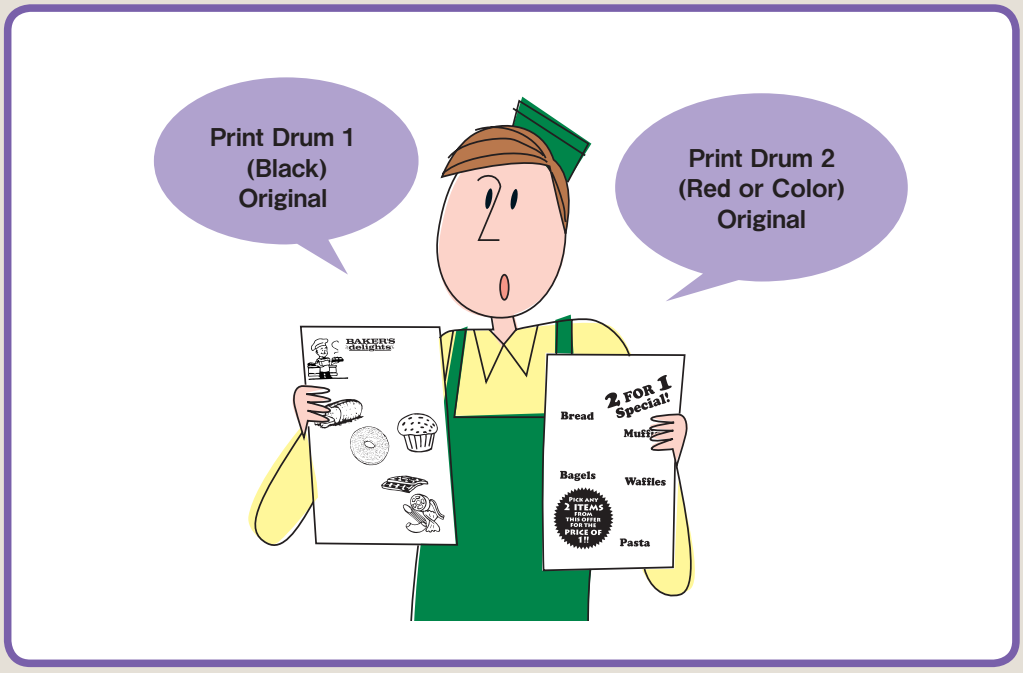
CHAPTER 3

Dual-Color printing from paper original

About Easy 2Color

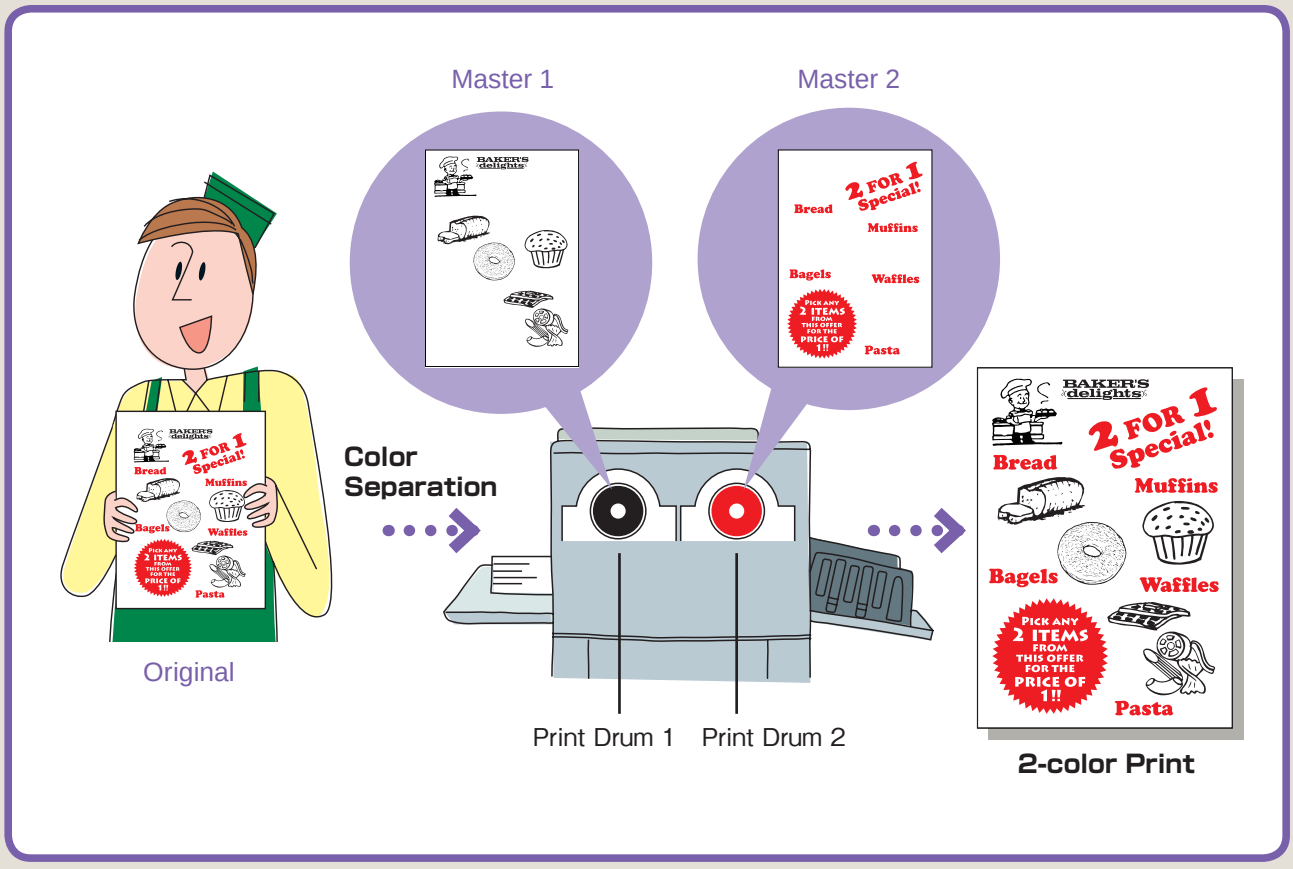
What is "Easy 2Color?"

Previously, Dual-Color printing with a RISO Printer required 2 separate originals for each color.



It is difficult to make an original separately from the beginning.
And it is troublesome to separate one sheet of original into two sheets. "Easy 2Color" solves this problem.

With "Easy 2color," one copy of the original is read by the scanner and separated into 2 data files for making masters. Print Drum 1 is used for black, and Print Drum 2, for red (or color).
The scanner reads the original and automatically separates the image to Print Drum 1 and Print Drum 2.
You can check the separation result on the LCD panel with the "Preview" function.



For "Easy 2color," several methods of specifying color separation can be used: for example, preparing originals in two colors or enclosing areas for a different color in a monochrome original.

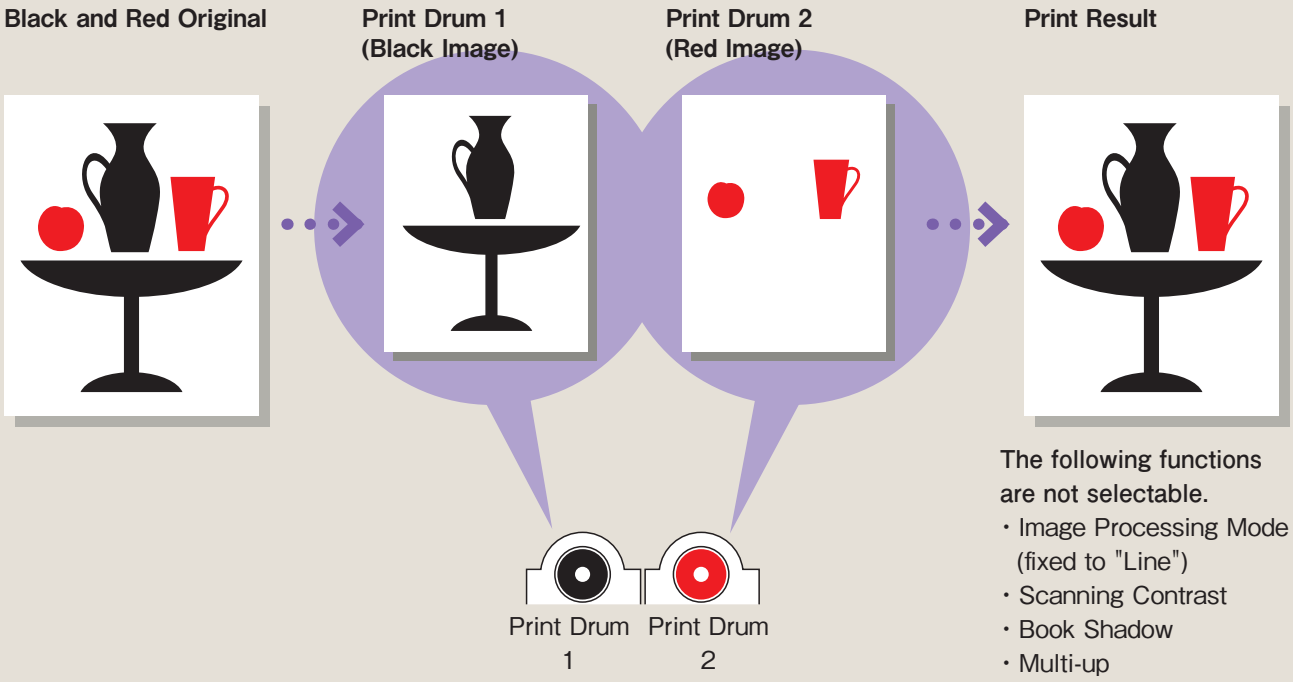
Six types of "Easy 2color" are provided for adapting to various types of originals. Originals prepared for each type of Easy 2color are described from the next page. Find an Easy 2color method appropriate for your originals.

CHAPTER 3

Easy 2color Types

Red color

An original already made in black and red can automatically be separated into its individual colors.



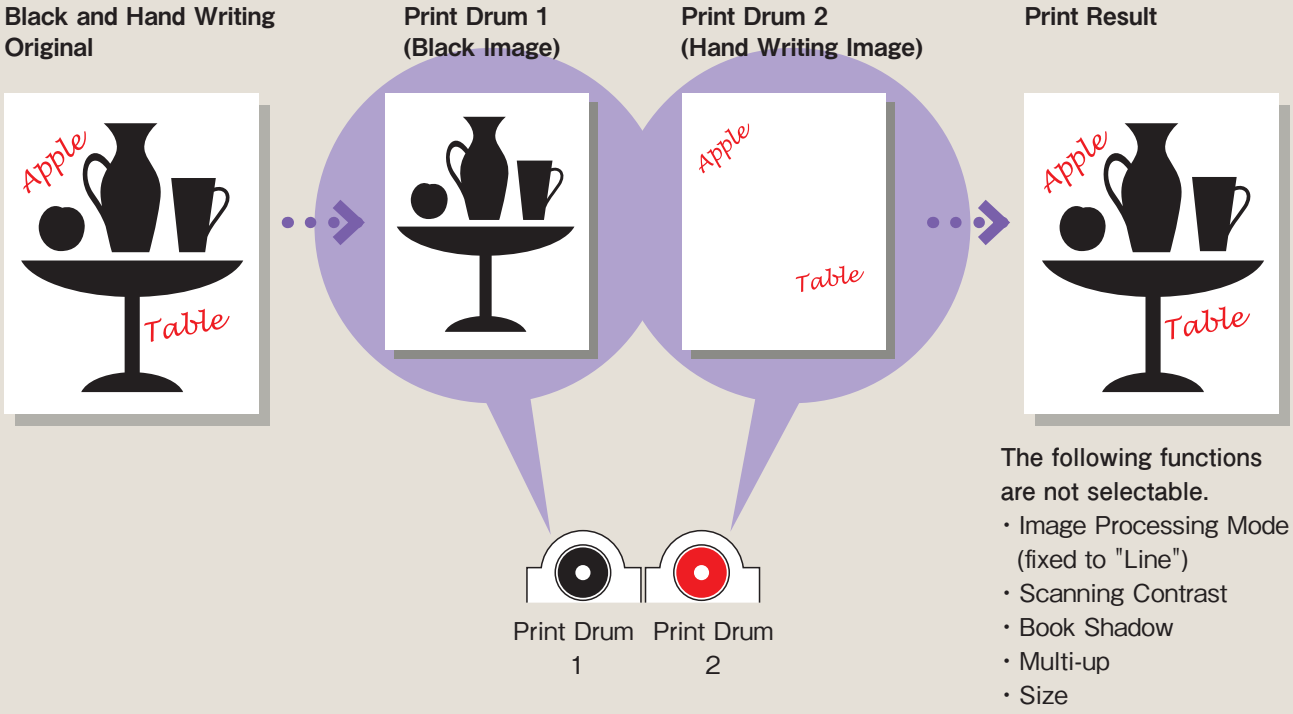
The following functions are not selectable.

- Image Processing Mode (fixed to "Line")
- Scanning Contrast
- Book Shadow
- Multi-up
- Size

Hand Writing1/Hand Writing2

A hand written data, added on to a black-colored original with a pencil or a recommended pen, can automatically be separated. The black base original is printed by Print Drum 1, and the hand written area is printed by Print Drum 2.
If the base document has been printed by copier, laser printer, or other toner-using equipment (black color is dense), use Hand Writing 1. If the base document has been printed from a Riso-brand printer (digital printing machine) or inkjet printer (black is slightly lighter), use Hand Writing 2.

Note
- When adding on, do not use a ball-point pen.
- If the base document has been printed by offset, use Hand Writing 1.



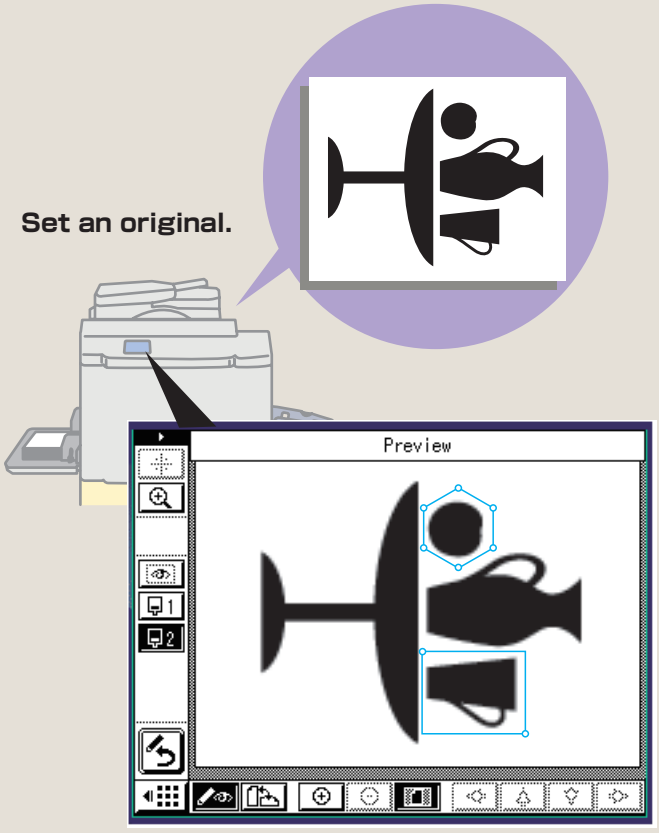
The following functions are not selectable.
- Image Processing Mode (fixed to "Line")
- Scanning Contrast
- Book Shadow
- Multi-up
- Size

A recommended pen is desirable for writing on originals.

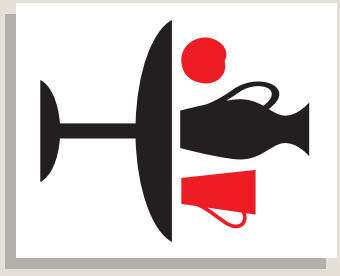
Separation with "Hand Writing" and "Red color" is performed according to the density of the original. It is not determined by color. Darker images are separated into Print Drum 1, and lighter images into Print Drum 2. There may be instances when certain colors in the border of density cannot be separated properly. To prevent such errors, please use a recommended pen when handwriting on an original. Ask your dealer for information about recommended pens.

Color editor

This function is used to execute Dual-Color print only by specifying the desired areas to be separated on the touch panel after scanning a paper original. Also this function can be used after retrieve a storage data.
"Color editor" instructs the printer to separate colors for the outside and the inside of the areas specified on the touch panel.



The inside of the areas specified with the point pen is printed with Print Drum 2.



Note
- To use "Storage Memory," a memory card DM-128CF is required.
- "Color editor" of "Easy 2color" does not allow editing.

Specified Area

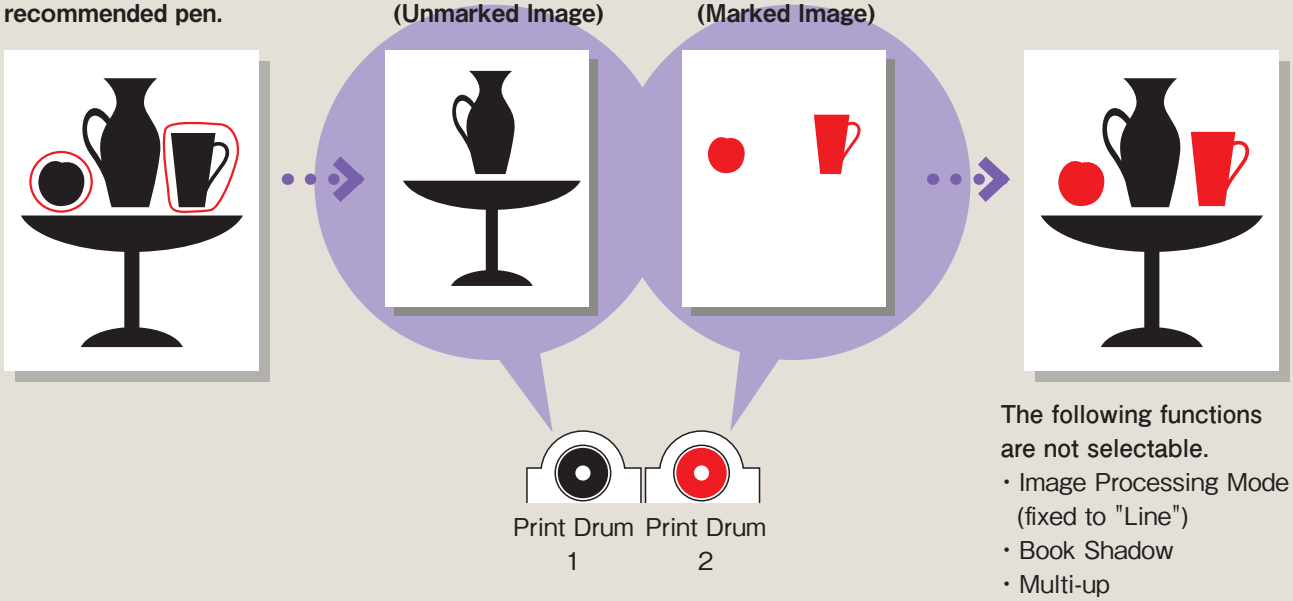
Images circled with a recommended pen and other areas are separated. Up to 20 areas can be specified for separation.

Mark original with a recommended pen.

Print Drum 1 (Unmarked Image)

Print Drum 2 (Marked Image)

Print Result



The following functions are not selectable.

- Image Processing Mode (fixed to "Line")
- Book Shadow
- Multi-up
- Size
- ADF Unit

Separation Sheet

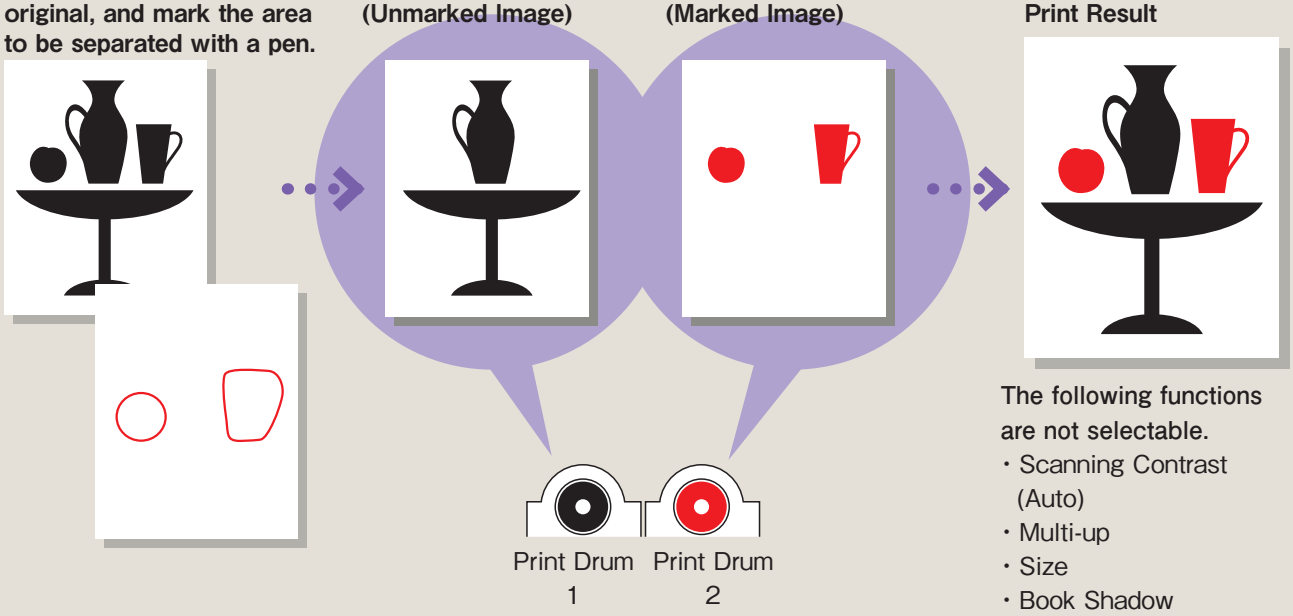
Used for separation of important originals that cannot be directly marked on, as well as originals containing photo images. The area to be separated is hand-drawn over with a recommended pen and on a separate sheet of white paper.

Place white paper over original, and mark the area to be separated with a pen.

Print Drum 1 (Unmarked Image)

Print Drum 2 (Marked Image)

Print Result



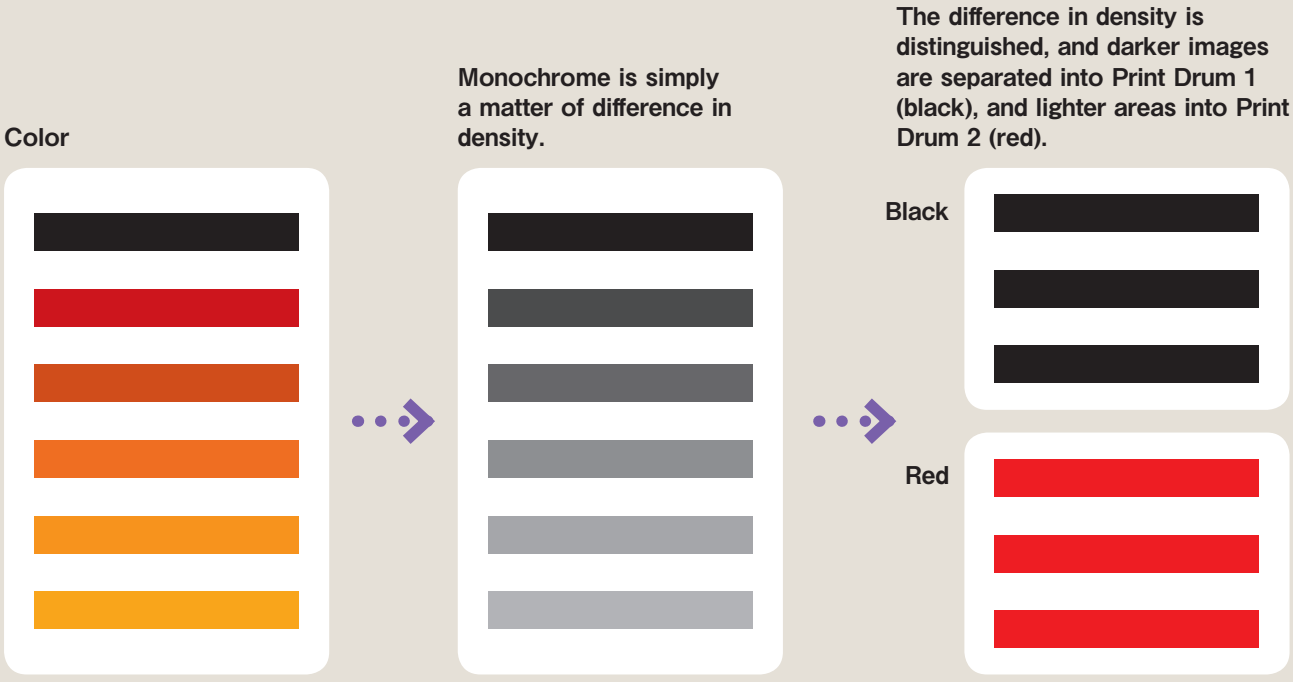
The following functions are not selectable.

- Scanning Contrast (Auto)
- Multi-up
- Size
- Book Shadow

CHAPTER 3

Tips for Making Originals

The MZ Series' scanner is a monochromatic scanner. As a result, data scanned by this scanner are controlled with density instead of color. With Easy 2Color, from scanned data of which all color areas are converted to black and white areas like a monochrome photo, masters are made by separating images above a certain density to Print Drum 1 and images below a certain density to Print Drum 2. Even if a red pencil is used, thick density is determined as black. Also in the instance of extremely light density, separation into either black or red is not possible.



For proper separation, use a recommended pen or a specified writing instrument.
Specified Writing Instruments: #2 pencil, red pencil (do not use dark red)

Be sure to use Separation Sheet for separation of originals containing photo images.

Since density levels of photo images are complex, proper separation through "Red Color ," "Hand Writing," and "Specified Area" is not possible. When a function other than "Separation Sheet" is used, high density areas of photo images are separated to Print Drum 1, low density areas are separated to Print Drum 2, and proper separation is not possible. Be sure to use "Separation Sheet" for separation of originals containing photo images.

Notice for using computer to make originals

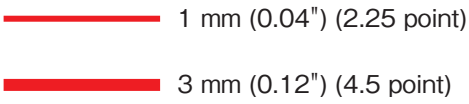
- For Sans Serif fonts, use point size of 8 or larger.
- For Serif fonts, use point size of 18 or larger (for Hand Writing 2, point size of 12 or larger).
- Fine or very small characters are determined as lighter colored even if they are black.
- When separating as red, use slightly light colors such as pink or orange.

Notice for specifying area

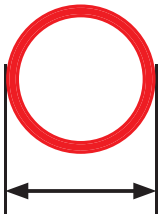
- Circle completely using a recommended pen.

Line thickness is 1(0.04")- 3(0.12") mm.

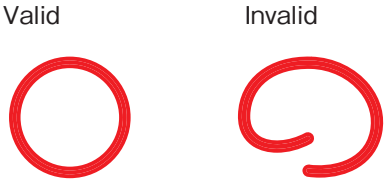
Frames cannot be determined if too thin or too thick.



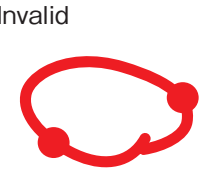
Make frame size at least 10 mm (0.39").



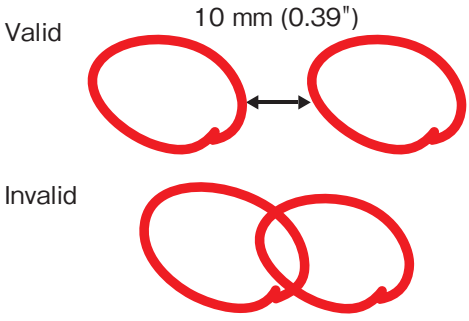
Connect edges



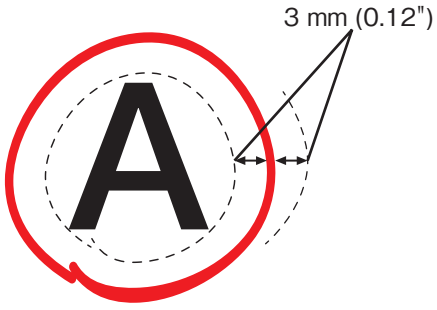
Do not make thick areas.



Leave at least 10 mm (0.39") of space between frames.



Release the frames at least 3 mm (0.12") from characters or images.



CHAPTER 4

Easy 2Color Operation Flow

This section describes the operation flow from preparation of an original to printing. For details, see the RISO MZ Series User's Guide.

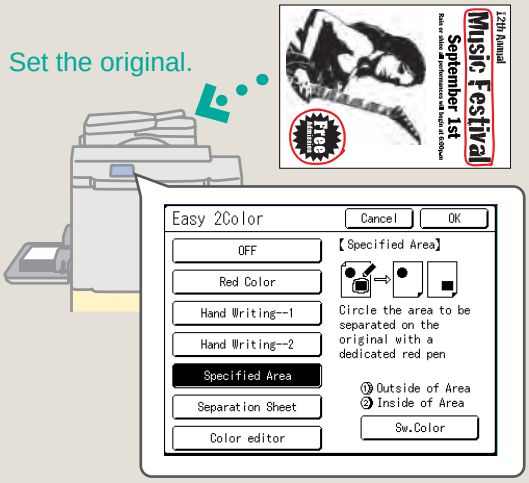
1 Prepare an original.

Prepare an original for Easy 2Color by making it in black and red or using a recommended pen to enclose the area to be separated or draw the area.

2 Set the original and set "Easy 2Color."

Select the desired type of "Easy 2Color" according to the original.

When using "Color editor", proceed to P.19.

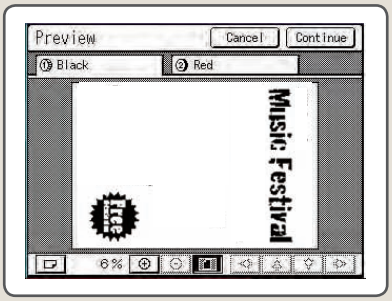


3 Use preview to check the image.

Select [Preview] from the function list and press the <START> key.

Scanning of the original starts and the preview screen appears on the operation panel.

Touch the upper tabs [1 Black] and [2 Red] to display the images to be printed with the respective Print Drums.



4 Execute printing.

Touch the <Continue> button on the screen to start master-making. When a proof copy is output, enter the number of copies and press the <START> key.

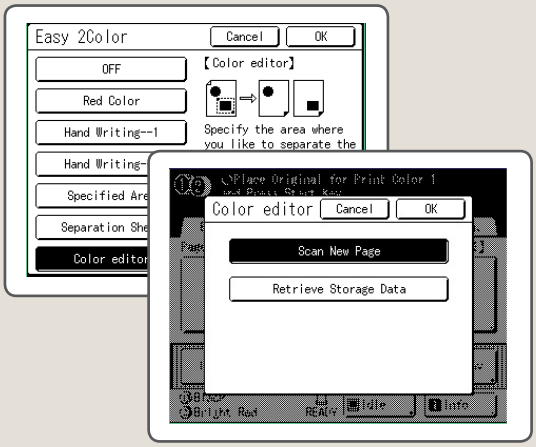
When using "Color editor"

1 Select [Color editor] from "Easy 2Color".

Touch the <Scan New Page> button*.

Press the <START> key to start scanning the original. The editing screen is displayed.

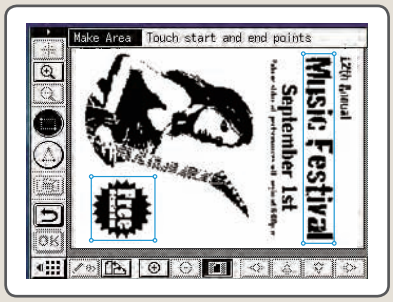
* When using storage data, touch the <Retrieve Storage Data> button.



2 Specify the areas for color separation.

Use the point pen to touch ▭ or △ and specify the desired areas for color separation.

The inside of each area will be printed with Print Drum 2.



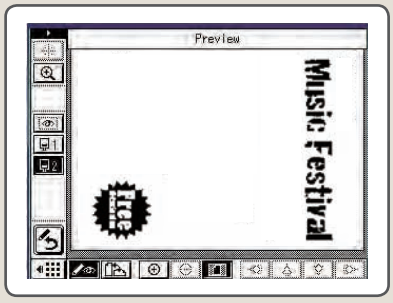
3 Use preview to check the image.

Touch [✎👁] to display the preview screen.

Use [1] and [2] in edit tools to check the images of the respective masters.

Touching either button switches the screen.

After checking, touch [✎👁] again to return to the editing screen.



4 Execute printing.

Touch [⎘] on the editing screen to display the Exit Editing screen.

Select the <Print> button and press the <START> key. Master-making starts.

When a proof copy is output, enter the number of copies and press the <START> key.

Printing result

Combine "Easy 2color" and "Combination"

● You can print sets of test papers followed by answer sheets in a single operation.

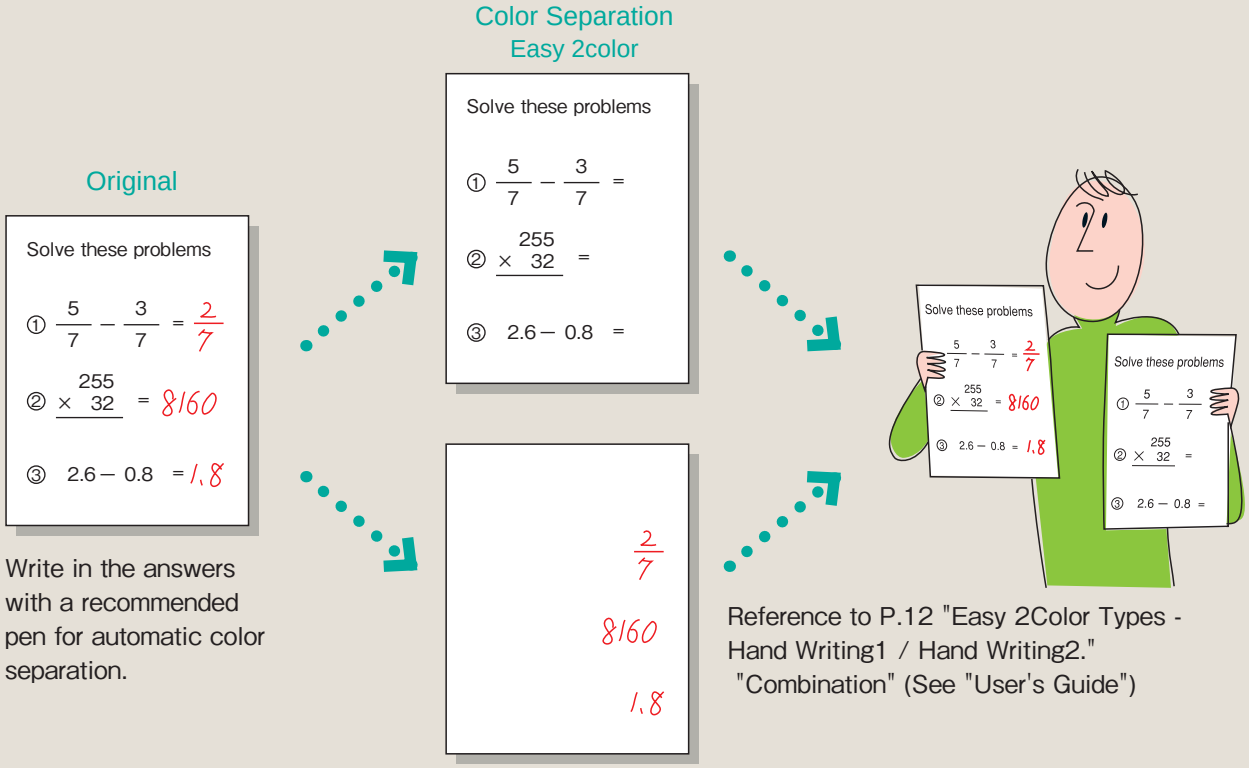
You can combine single-color printing and Dual-Color printing in a single operation. For example, you can print test papers in a single color, followed by answer sheets using two colors.

1 Write answers on the test paper using a recommended pen or the like.

2 Use "Easy 2Color" for master-making.

3 Use "Combination" for printing.

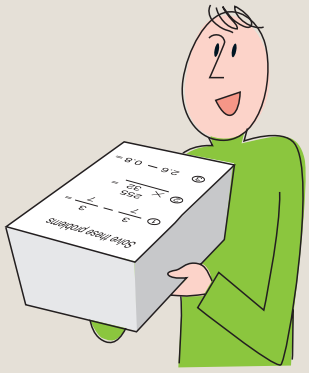
After completing printing of one set, print the test paper with answers for the teacher. Then, print the second set.



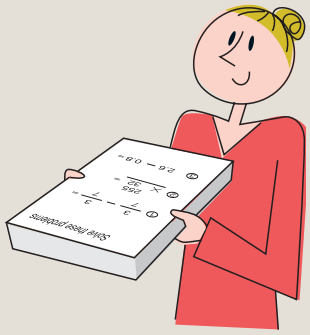
Write in the answers with a recommended pen for automatic color separation.

Reference to P.12 "Easy 2Color Types - Hand Writing1 / Hand Writing2."
"Combination" (See "User's Guide")

Single-Session Printing for Multiple Groups



Group A : 28 cps. + 1 cp.
(test) (answer)



Group B : 26 cps. + 1 cp.
(test) (answer)

Note "Combination" is one kind of Program Printing. If the number of students of each class and the required number of sheets of test problems with answers are registered, Combination Print can be executed simply by retrieving the registered program the next and subsequent times.

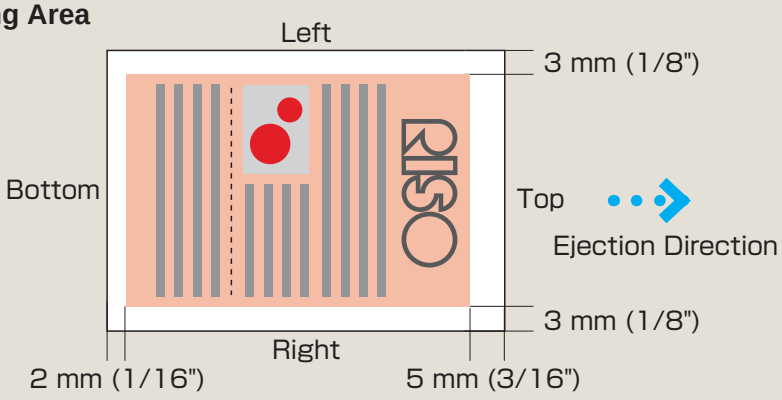
CHAPTER 5

General Information of MZ Series

Printing Area and Paper

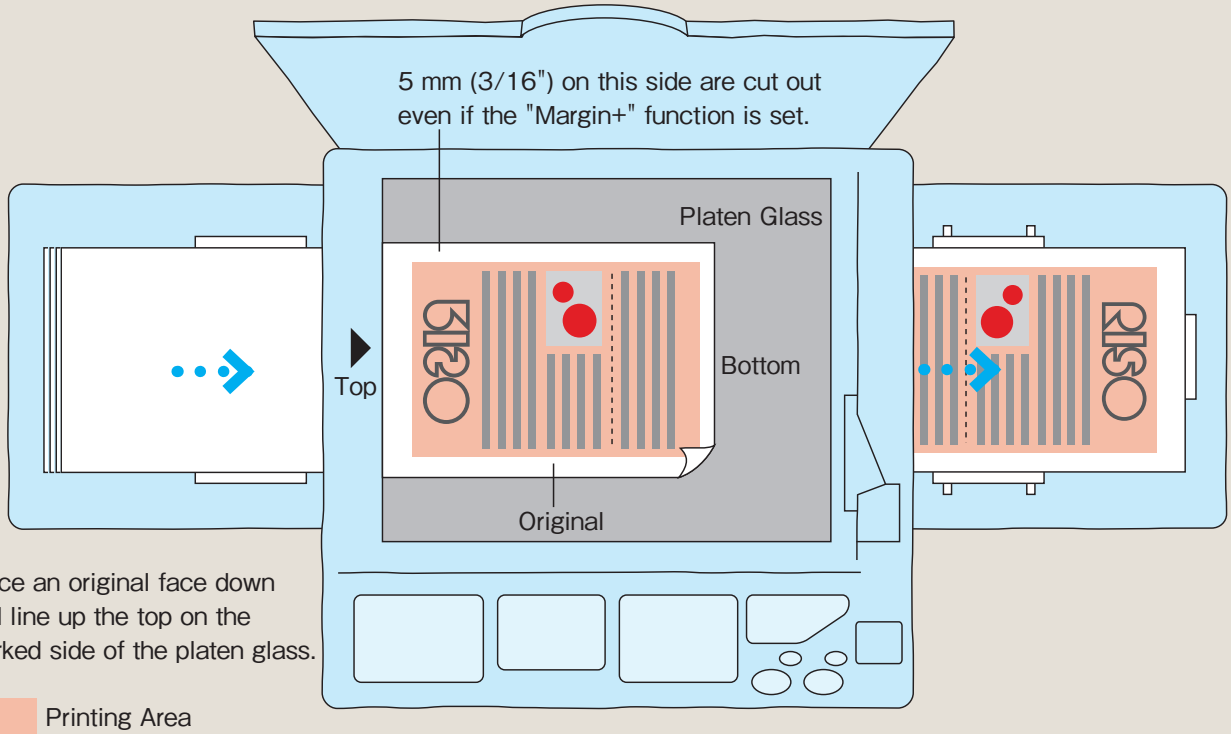
The printing area for Master Making is decided by the paper size set in the Standard Feed Tray. No matter which size of originals is printed, the margins indicated on the figure are required for the originals. Reduce the original if necessary to fit it inside of the margins. Place an original so that its end having a 5mm (3/16") margin at least comes to the left of the Platen Glass.
When the original is larger than the printing area, the protruding parts cannot be printed (they are cut).

●Printing Area



Margin Top: 5 mm (3/16")
Bottom: 2 mm (1/16")
Left/Right: 3 mm (1/8")

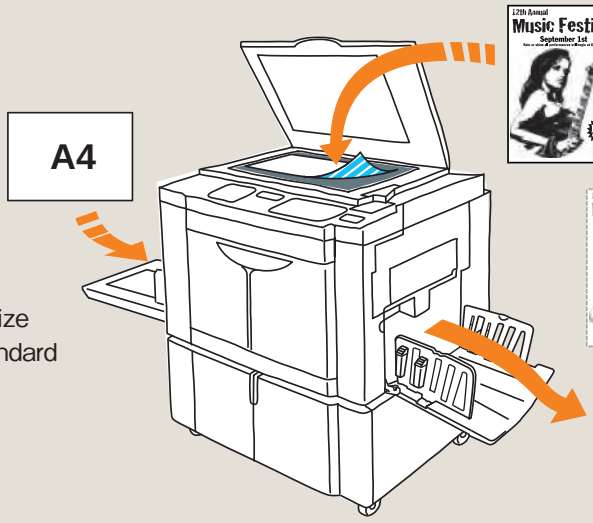
The printing area consists of the area of margin removed from the paper size.



Place an original face down and line up the top on the marked side of the platen glass.

Printing Area

Example



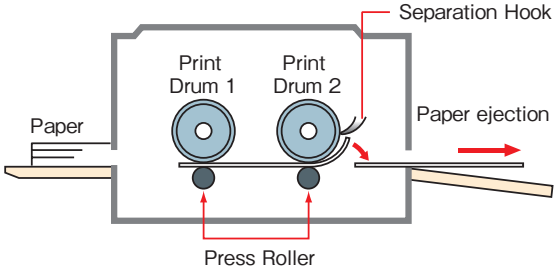
Load A4 (Letter) size paper into the Standard Feed Tray...

Make Master with A3 (Ledger) size original at 100% ...

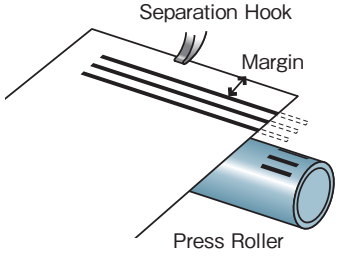
Within a A3 (Ledger) size original, the Master Making and Printing area is only the printing area for the A4 (Letter) size (A3 (Letter) size except the margins).

Why are margins important?

The MZ Series is a thermal screen duplicating system. Many miniscule holes are opened in the Master and ink is pressed into the holes for printing. The Master made by Master Making is round onto the Print Drum, printing paper passes under the Print Drum as it prints, and it is then ejected. The paper is pressed by the roller to the Print Drum, and it becomes affixed to the Print Drum. The separation hook then goes between the top of the paper (eject-side) and the Print Drum, removing the paper. Margins are necessary for the separation hook to remove the paper from the Print Drum.



If the Master-Make area (printing area) is larger than the paper size, the back of the next page is smudged because the protruding areas of the paper affix to the press roller. In order to prevent this problem, the printing area becomes always smaller than the printing paper itself.
The press roller will be smudged if the printing area exceeds the paper.

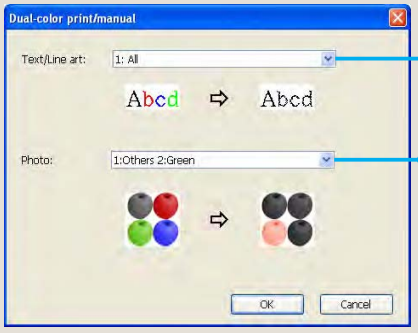


Note

- When using the "Max. Scan" function, the Master has always the maximum printing area regardless of the printing paper size.
  See the User's Guide for details.
- Ejection is adjusted not only by Separation Hook, but also by several methods, including Air-Blower and Separation Fan.

Parameter list for "Manual"

A list of parameters for using "Manual" is shown below. This list is intended to show how the result of master-making and printing varies depending on the combination of colors used on originals and each parameter. Use this list for reference when selecting parameters for "Manual."



Select the appropriate parameters for the text and line.

Select the appropriate parameters for the photo.

Parameters for text and line

S: Solid H: Halftone dots —: Master-making not performed

Color on original	Master-making and printing state		Parameter
	Drum 1	Drum 2	
Black	S	—	1:All
Red	H	—	
Blue	H	—	
Green	H	—	
Black	—	S	2:All
Red	—	H	
Blue	—	H	
Green	—	H	
Black	—	S	1:RGB 2:B&W
Red	S	—	
Blue	S	—	
Green	H	—	
Black	—	S	1:Red 2:Blue/Black
Red	S	—	
Blue	—	H	
Green	—	H	
Black	S	—	1:B&W 2:RGB
Red	—	S	
Blue	—	S	
Green	—	H	
Black	S	—	1:Blue/Black 2:Red
Red	—	S	
Blue	H	—	
Green	H	—	
Black	—	S	1:Red 2:Others
Red	S	—	
Blue	—	H	
Green	—	H	

Color on original	Master-making and printing state		Parameter
	Drum 1	Drum 2	
Black	—	S	1:Blue 2:Others
Red	—	H	
Blue	S	—	
Green	—	H	
Black	—	S	1:Green 2:Others
Red	—	H	
Blue	—	H	
Green	S	—	
Black	S	—	1:Black 2:Others
Red	—	H	
Blue	—	H	
Green	—	H	
Black	S	—	1:Others 2:Red
Red	—	S	
Blue	H	—	
Green	H	—	
Black	S	—	1:Others 2:Blue
Red	H	—	
Blue	—	S	
Green	H	—	
Black	S	—	1:Others 2:Green
Red	H	—	
Blue	H	—	
Green	—	S	
Black	—	S	1:Others 2:Black
Red	H	—	
Blue	H	—	
Green	H	—	

Parameters for photo

S: Solid H: Halftone dots —: Master-making not performed

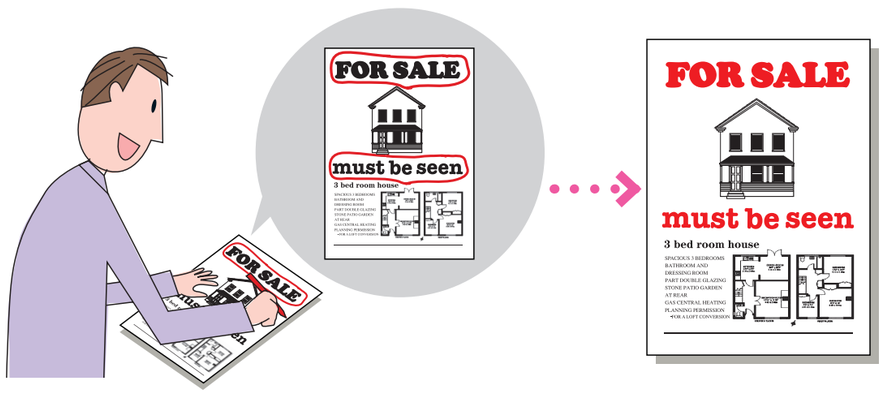
Color on original	Master-making and printing state		Parameter
	Drum 1	Drum 2	
Black	S	—	1:All
Red	H	—	
Blue	H	—	
Green	H	—	
Black	—	S	2:All
Red	—	H	
Blue	—	H	
Green	—	H	
Black	—	S	1:Red 2:Black
Red	S	—	
Blue	—	H	
Green	—	H	
Black	S	S	1:Red 2:Blue
Red	S	—	
Blue	—	S	
Green	H	H	
Black	H	S	1:Red 2:Green
Red	S	—	
Blue	H	H	
Green	—	S	
Black	S	—	1:Black 2:Red
Red	—	S	
Blue	H	—	
Green	H	—	
Black	S	S	1:Blue 2:Red
Red	—	S	
Blue	S	—	
Green	H	H	
Black	S	H	1:Green 2:Red
Red	—	S	
Blue	H	H	
Green	S	—	
Black	—	S	1:Red 2:Others
Red	S	—	
Blue	—	H	
Green	—	H	

Color on original	Master-making and printing state		Parameter
	Drum 1	Drum 2	
Black	—	S	1:Blue 2:Others
Red	—	H	
Blue	S	—	
Green	—	H	
Black	—	S	1:Green 2:Others
Red	—	H	
Blue	—	H	
Green	S	—	
Black	S	—	1:Black 2:Others
Red	—	H	
Blue	—	H	
Green	—	H	
Black	S	—	1:Gray 2:Others
Red	—	H	
Blue	—	H	
Green	—	H	
Black	S	—	1:Others 2:Red
Red	—	S	
Blue	H	—	
Green	H	—	
Black	S	—	1:Others 2:Blue
Red	H	—	
Blue	—	S	
Green	H	—	
Black	S	—	1:Others 2:Green
Red	H	—	
Blue	H	—	
Green	—	S	
Black	—	S	1:Others 2:Black
Red	H	—	
Blue	H	—	
Green	H	—	
Black	—	S	1:Others 2:Gray
Red	H	—	
Blue	H	—	
Green	H	—	

Black areas on originals are printed with Print Drum 2, and color areas such as red, blue, and green are printed with halftone dots of color of Print Drum 1.

Dual-Color printing from paper and data

A leaflet was always printed in a single black color.
For example, adding only one color to the usual black provides a more appealing leaflet that attracts people's attention.
The MZ series allows quick and easy Dual-Color printing from paper originals and color data in the computer.

Even from full color data, Dual-Color printing can be performed by printer driver setting.

Enclose a certain area in a monochrome original with a recommended pen.
This operation alone allows Dual-Color printing.